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SAR EVALUATION REPORT

Applicant Name:
Samsung Electronics Co., Ltd.
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Gyeonggi-do, 16677, Korea

Date of Testing:
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Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
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FCC ID: **A3LSMG9500**

APPLICANT: **SAMSUNG ELECTRONICS CO., LTD.**

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model: SM-G9500

Equipment Class	Band & Mode	Tx Frequency	SAR		
			1 gm Head (W/kg)	1 gm Body-Worn (W/kg)	1 gm Hotspot (W/kg)
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.20	0.25	0.43
PCE	UMTS 850	826.40 - 846.60 MHz	0.20	0.27	0.38
PCE	Cell. CDMA/EVDO	824.70 - 848.31 MHz	0.34	0.49	0.64
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	0.13	0.34	0.98
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.28	0.70	1.02
PCE	LTE Band 12	699.7 - 715.3 MHz	< 0.1	0.12	0.17
PCE	LTE Band 17	706.5 - 713.5 MHz	N/A	N/A	N/A
PCE	LTE Band 13	779.5 - 784.5 MHz	0.18	0.27	0.35
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	0.28	0.34	0.48
PCE	LTE Band 26 (Cell)	814.7 - 848.3 MHz	0.24	0.25	0.36
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	0.24	0.78	0.73
PCE	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	0.30	0.72	1.06
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	N/A	N/A	N/A
PCE	LTE Band 41	2498.5 - 2687.5 MHz	0.11	0.21	0.32
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.75	0.12	0.31
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.10	0.12	N/A
NII	U-NII-2C	5500 - 5720 MHz	0.40	0.23	N/A
NII	U-NII-3	5745 - 5825 MHz	0.36	0.24	0.46
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.10	< 0.1	< 0.1
Simultaneous SAR per KDB 690783 D01v01r03:			1.57	1.24	1.56

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

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

Randy Ortanez
President

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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
Cell. CDMA/EVDO	Voice/Data	824.70 - 848.31 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 17	Voice/Data	706.5 - 713.5 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 26 (Cell)	Voice/Data	814.7 - 848.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2462 MHz
U-NII-1	Voice/Data	5180 - 5240 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
ANT+	Data	2402 - 2480 MHz
MST	Data	555 Hz - 8.33 kHz

1.2 Power Reduction for SAR

This device utilizes a single step power reduction mechanism for SAR compliance under portable hotspot conditions for some wireless modes and bands. All hotspot SAR evaluations for this device were performed at the maximum allowed output power when hotspot is enabled. Detailed descriptions of the power reduction mechanism are included in the operational description.

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

1.3 Nominal and Maximum Output Power Specifications

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

1.3.1 Maximum PCE 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	**33.0**	**33.0**	**31.5**	**29.8**	**27.8**	**27.0**	**25.5**	**23.5**	**22.0**
	Nominal	**32.5**	**32.5**	**31.0**	**29.3**	**27.3**	**26.5**	**25.0**	**23.0**	**21.5**
GSM/GPRS/EDGE 1900	Maximum	**30.0**	**30.0**	**29.0**	**27.0**	**25.0**	**25.7**	**24.7**	**22.7**	**21.3**
	Nominal	**29.5**	**29.5**	**28.5**	**26.5**	**24.5**	**25.2**	**24.2**	**22.2**	**20.8**

Mode / Band		Modulated Average (dBm)			
		3GPP WCDMA	*3GPP HSDPA*	*3GPP HSUPA*	*3GPP DC-HSDPA*
UMTS Band 5 (850 MHz)	Maximum	**23.5**	**23.5**	**23.5**	**23.5**
	Nominal	**23.0**	**23.0**	**23.0**	**23.0**
UMTS Band 2 (1900 MHz)	Maximum	**23.5**	**23.5**	**23.5**	**23.5**
	Nominal	**23.0**	**23.0**	**23.0**	**23.0**

Mode / Band		Modulated Average (dBm)
Cell. CDMA/EVDO	Maximum	**26.0**
	Nominal	**25.5**

Mode / Band		Modulated Average (dBm)
LTE Band 12	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 17	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 13	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 5 (Cell)	Maximum	**24.5**
	Nominal	**24.0**
LTE Band 26 (Cell)	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 4 (AWS)	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 25 (PCS)	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 2 (PCS)	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 41	Maximum	**25.0**
	Nominal	**24.5**

1.3.2 Reduced PCE Power – Hotspot Mode Activated

Mode / Band		Burst Average GMSK (dBm)				Burst Average 8-PSK (dBm)			
		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 1900	Maximum	**28.0**	**27.0**	**25.0**	**23.0**	**25.7**	**24.7**	**22.7**	**21.3**
	Nominal	**27.5**	**26.5**	**24.5**	**22.5**	**25.2**	**24.2**	**22.2**	**20.8**

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

Mode / Band		Modulated Average (dBm)
LTE Band 4 (AWS)	Maximum	**20.5**
	Nominal	**20.0**
LTE Band 25 (PCS)	Maximum	**20.5**
	Nominal	**20.0**
LTE Band 2 (PCS)	Maximum	**20.5**
	Nominal	**20.0**
LTE Band 41	Maximum	**21.0**
	Nominal	**20.5**

1.3.3 Maximum WLAN/BT Power

Mode / Band		Modulated Average Single Tx Chain (Ant 1/Ant 2) (dBm)
IEEE 802.11b (2.4 GHz)	Maximum	**20.5**
	Nominal	**20.0**
IEEE 802.11g (2.4 GHz)	Maximum	**17.5**
	Nominal	**17.0**
IEEE 802.11n (2.4 GHz)	Maximum	**17.5**
	Nominal	**17.0**
Bluetooth (1 Mbps)	Maximum	**16.0**
	Nominal	**15.5**
Bluetooth EDR	Maximum	**10.5**
	Nominal	**10.0**
Bluetooth LE	Maximum	**9.5**
	Nominal	**9.0**

Mode / Band		Modulated Average - Single Tx Chain (Ant 1/Ant2) (dBm)				
		20 MHz Bandwidth	40 MHz Bandwidth		80 MHz Bandwidth	
IEEE 802.11a (5 GHz)	Maximum	**17.5**				
	Nominal	**17.0**				
IEEE 802.11n (5 GHz)	Maximum	**17.5**	**16.5**	**Ch 38: 14.5**		
	Nominal	**17.0**	**16.0**	**Ch 38: 14.0**		
IEEE 802.11ac (5 GHz)	Maximum	**17.5**	**16.5**	**Ch 38: 14.5**	**5.2-5.3 GHz: 14.5**	**5.5-5.8 GHz 15.5**
	Nominal	**17.0**	**16.0**	**Ch 38: 14.0**	**5.2-5.3 GHz: 14.0**	**5.5-5.8 GHz 15.0**

Mode / Band		Modulated Average - MIMO (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
IEEE 802.11g/n (2.4 GHz)	Maximum	**18.5**		
	Nominal	**18.0**		
IEEE 802.11a (5 GHz)	Maximum	**18.5**		
	Nominal	**18.0**		
IEEE 802.11n (5 GHz)	Maximum	**18.5**	**17.5**	
	Nominal	**18.0**	**17.0**	
IEEE 802.11ac (5 GHz)	Maximum	**18.5**	**17.5**	**16.5**
	Nominal	**18.0**	**17.0**	**16.0**

1.3.4 Maximum Output Powers During Operations with Simultaneous 2.4 GHz WLAN and 5 GHz WLAN

	# Tx	5 GHz WIFI [dBm]		2.4 GHz WIFI [dBm]		802.11 Modes
		Ant1	Ant2	Ant1	Ant2	
2.4 GHz + 5 GHz	2	A	-	-	B	2.4 GHz: b,g,n 5 GHz: a,n,ac
	2	-	A	B	-	
	2	A	-	B	-	
	2	-	A	-	B	
2.4 GHz + 5 GHz	3	A	A	B	-	2.4 GHz: b, g, n 5 GHz: n, ac, a (CDD +STBC only)
	3	A	A	-	B	
	3	A	-	B	B	2.4 GHz: n, g (CDD +STBC only) 5 GHz: a, n, ac
	3	-	A	B	B	
2.4 GHz + 5 GHz	4	A	A	B	B	2.4 GHz: n, g (CDD +STBC only) 5 GHz: n, ac, a (CDD +STBC only)

A = 13.0 dBm, B=13.0 dBm
(Upper Tolerance: target+0.5 dB)

1.3.5 Reduced WLAN Power

Mode / Band		Modulated Average Single Tx Chain (Ant 1/Ant2) (dBm)
IEEE 802.11b (2.4 GHz)	Maximum	**17.5**
	Nominal	**17.0**
IEEE 802.11g (2.4 GHz)	Maximum	**15.5**
	Nominal	**15.0**
IEEE 802.11n (2.4 GHz)	Maximum	**15.5**
	Nominal	**15.0**

Mode / Band		Modulated Average - Single Tx Chain (Ant 1/Ant2) (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
IEEE 802.11a (5 GHz)	Maximum	**15.5**		
	Nominal	**15.0**		
IEEE 802.11n (5 GHz)	Maximum	**15.5**	**14.5**	
	Nominal	**15.0**	**14.0**	
IEEE 802.11ac (5 GHz)	Maximum	**15.5**	**14.5**	**14.5**
	Nominal	**15.0**	**14.0**	**14.0**

Mode / Band		Modulated Average - MIMO (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
IEEE 802.11g/n (2.4 GHz)	Maximum	**18.5**		
	Nominal	**18.0**		
IEEE 802.11a (5 GHz)	Maximum	**18.5**		
	Nominal	**18.0**		
IEEE 802.11n (5 GHz)	Maximum	**18.5**	**17.5**	
	Nominal	**18.0**	**17.0**	
IEEE 802.11ac (5 GHz)	Maximum	**18.5**	**17.5**	**16.5**
	Nominal	**18.0**	**17.0**	**16.0**

1.4 DUT Antenna Locations

The overall dimensions of this device are > 9 x 5 cm. The overall diagonal dimension of the device is ≤160 mm and the diagonal display is ≤150 mm. A diagram showing the location of the device antennas can be found in Appendix F.

Table 1-1
Device Edges/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
Cell. EVDO	Yes	Yes	No	Yes	Yes	Yes
GPRS 1900	Yes	Yes	No	Yes	Yes	Yes
UMTS 1900	Yes	Yes	No	Yes	Yes	Yes
LTE Band 12	Yes	Yes	No	Yes	Yes	Yes
LTE Band 13	Yes	Yes	No	Yes	Yes	Yes
LTE Band 5 (Cell)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 26 (Cell)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 4 (AWS)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 25 (PCS)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 41	Yes	Yes	No	Yes	No	Yes
2.4 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
2.4 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
Bluetooth	Yes	Yes	Yes	No	No	Yes

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

1.5 Near Field Communications (NFC) Antenna

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

1.6 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D01v06, transmitters are considered to be 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-A 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.

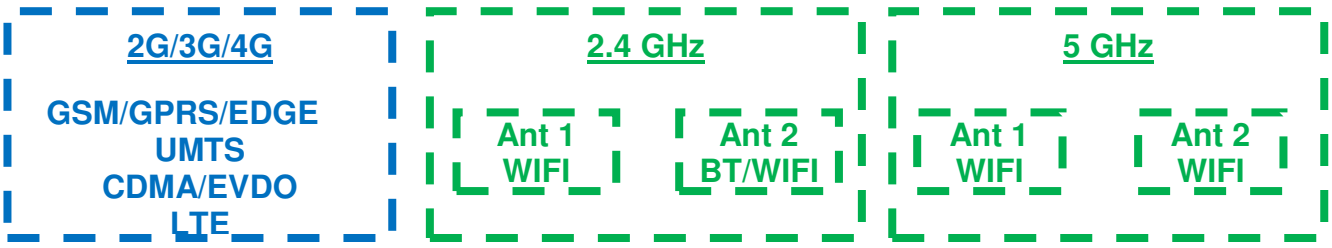


Figure 1-A
Simultaneous Transmission Paths

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

Table 1-2
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Notes
1	1x CDMA voice + 2.4 GHz WI-FI	Yes	Yes	N/A	
2	1x CDMA voice + 5 GHz WI-FI	Yes	Yes	N/A	
3	1x CDMA voice + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes	Yes	N/A	
4	1x CDMA voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	^ BT Tethering applications are considered.
5	1x CDMA voice + 2.4 GHz WI-FI MIMO	Yes	Yes	N/A	
6	1x CDMA voice + 5 GHz WI-FI MIMO	Yes	Yes	N/A	
7	1x CDMA voice + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	N/A	
8	GSM voice + 2.4 GHz WI-FI	Yes	Yes	N/A	
9	GSM voice + 5 GHz WI-FI	Yes	Yes	N/A	
10	GSM voice + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes	Yes	N/A	
11	GSM voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	^ BT Tethering applications are considered.
12	GSM voice + 2.4 GHz WI-FI MIMO	Yes	Yes	N/A	
13	GSM voice + 5 GHz WI-FI MIMO	Yes	Yes	N/A	
14	GSM voice + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	N/A	
15	UMTS + 2.4 GHz WI-FI	Yes	Yes	Yes	
16	UMTS + 5 GHz WI-FI	Yes	Yes	Yes	
17	UMTS + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes	Yes	Yes	
18	UMTS + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	^ BT Tethering applications are considered.
19	UMTS + 2.4 GHz WI-FI MIMO	Yes	Yes	Yes	
20	UMTS + 5 GHz WI-FI MIMO	Yes	Yes	Yes	
21	UMTS + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	Yes	
22	LTE + 2.4 GHz WI-FI	Yes	Yes	Yes	
23	LTE + 5 GHz WI-FI	Yes	Yes	Yes	
24	LTE + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes	Yes	Yes	
25	LTE + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	^ BT Tethering applications are considered.
26	LTE + 2.4 GHz WI-FI MIMO	Yes	Yes	Yes	
27	LTE + 5 GHz WI-FI MIMO	Yes	Yes	Yes	
28	LTE + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	Yes	
29	CDMA/EVDO data + 2.4 GHz WI-FI	Yes*	Yes*	Yes	*-Pre-installed VOIP applications are considered.
30	CDMA/EVDO data + 5 GHz WI-FI	Yes*	Yes*	Yes	*-Pre-installed VOIP applications are considered.
31	CDMA/EVDO data + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes*	Yes*	Yes	*-Pre-installed VOIP applications are considered.
32	CDMA/EVDO data + 2.4 GHz Bluetooth	Yes*^	Yes*	Yes^	*-Pre-installed VOIP applications are considered. ^ BT Tethering applications are considered.
33	CDMA/EVDO data + 2.4 GHz WI-FI MIMO	Yes*	Yes*	Yes	*-Pre-installed VOIP applications are considered.
34	CDMA/EVDO data + 5 GHz WI-FI MIMO	Yes*	Yes*	Yes	*-Pre-installed VOIP applications are considered.
35	CDMA/EVDO data + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes*	Yes*	Yes	*-Pre-installed VOIP applications are considered.
36	GPRS/EDGE + 2.4 GHz WI-FI	N/A	N/A	Yes	
37	GPRS/EDGE + 5 GHz WI-FI	N/A	N/A	Yes	
38	GPRS/EDGE + 2.4 GHz WI-FI + 5 GHz WI-FI	N/A	N/A	Yes	
39	GPRS/EDGE + 2.4 GHz Bluetooth	N/A	N/A	Yes^	^ BT Tethering applications are considered.
40	GPRS/EDGE + 2.4 GHz WI-FI MIMO	N/A	N/A	Yes	
41	GPRS/EDGE + 5 GHz WI-FI MIMO	N/A	N/A	Yes	
42	GPRS/EDGE + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	N/A	N/A	Yes	

1. All licensed modes share the same antenna path and cannot transmit simultaneously.
2. 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.
3. 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.
4. 5 GHz Wireless Router is only supported for the U-NII-3 by S/W, therefore U-NII-1, U-NII2A, and U-NII2C were not evaluated for wireless router conditions.
5. This device supports 2x2 MIMO Tx for WLAN. 802.11a/g/n/ac supports CDD and STBC and 802.11n/ac additionally supports SDM.
6. This device supports Bluetooth tethering for EDR packet only.
7. This device supports VOLTE.
8. This device supports VoWIFI.

1.7 Miscellaneous SAR Test Considerations

(A) WIFI/BT

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

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

This device supports IEEE 802.11ac with the following features:

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

(B) Licensed Transmitter(s)

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

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

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

This device supports both LTE Band 12 and LTE Band 17. Since the supported frequency span for LTE Band 17 falls completely within the supported frequency span for LTE Band 12, both LTE bands have the same target power, and both LTE bands share the same transmission path, SAR was only assessed for LTE Band 12.

This device supports both LTE Band 2 and LTE Band 25. Since the supported frequency span for LTE Band 2 falls completely within the supported frequency span for LTE Band 25, both LTE bands have the same target power, and both LTE bands share the same transmission path, SAR was only assessed for LTE Band 25.

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

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

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

This device supports LTE Carrier Aggregation (CA) in the uplink for LTE Band 41 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance

1.8 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r04, D05Av01r02, D06v02r01 (2G/3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- October 2016 TCB Workshop (Bluetooth Testing Considerations)

1.9 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.

	Head Serial Number	Body-Worn Serial Number	Hotspot Serial Number
GSM/GPRS/EDGE 850	088CC	08881	08881
UMTS 850	088CC	08881	08881
Cell. CDMA/EVDO	0885E	088CC	088CC
GSM/GPRS/EDGE 1900	08859	08861	08861
UMTS 1900	08859	088AC	088AC
LTE Band 12	088CE	088CE	088CE
LTE Band 13	088CE	08859	08859
LTE Band 5 (Cell)	088CC	088CC	088CC
LTE Band 26 (Cell)	088CC	088CC	088CC
LTE Band 4 (AWS)	08861	088AC	088AC
LTE Band 25 (PCS)	08859	088AC	088AC
LTE Band 41	08859	0885E	0885E
2.4 GHz WLAN	27217	27217	27217
5 GHz WLAN	96203	27217	27217
Bluetooth	F7863	21217	F7863

2 LTE INFORMATION

LTE Information					
FCC ID	**A3LSMG9500**				
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 17 (706.5 - 713.5 MHz)				
	LTE Band 13 (779.5 - 784.5 MHz)				
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)				
	LTE Band 26 (Cell) (814.7 - 848.3 MHz)				
	LTE Band 4 (AWS) (1710.7 - 1754.3 MHz)				
	LTE Band 25 (PCS) (1850.7 - 1914.3 MHz)				
	LTE Band 2 (PCS) (1850.7 - 1909.3 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
Channel Bandwidths	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 17: 5 MHz, 10 MHz				
	LTE Band 13: 5 MHz, 10 MHz				
	LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 26 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz				
	LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 25 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 2 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)		707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)		707.5 (23095)	711 (23130)	
LTE Band 17: 5 MHz	706.5 (23755)		710 (23790)	713.5 (23825)	
LTE Band 17: 10 MHz	709 (23780)		710 (23790)	711 (23800)	
LTE Band 13: 5 MHz	779.5 (23205)		782 (23230)	784.5 (23255)	
LTE Band 13: 10 MHz	N/A		782 (23230)	N/A	
LTE Band 5 (Cell): 1.4 MHz	824.7 (20407)		836.5 (20525)	848.3 (20643)	
LTE Band 5 (Cell): 3 MHz	825.5 (20415)		836.5 (20525)	847.5 (20635)	
LTE Band 5 (Cell): 5 MHz	826.5 (20425)		836.5 (20525)	846.5 (20625)	
LTE Band 5 (Cell): 10 MHz	829 (20450)		836.5 (20525)	844 (20600)	
LTE Band 26 (Cell): 1.4 MHz	814.7 (26697)		831.5 (26865)	848.3 (27033)	
LTE Band 26 (Cell): 3 MHz	815.5 (26705)		831.5 (26865)	847.5 (27025)	
LTE Band 26 (Cell): 5 MHz	816.5 (26715)		831.5 (26865)	846.5 (27015)	
LTE Band 26 (Cell): 10 MHz	819 (26740)		831.5 (26865)	844 (26990)	
LTE Band 26 (Cell): 15 MHz	821.5 (26765)		831.5 (26865)	841.5 (26965)	
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)		1732.5 (20175)	1754.3 (20393)	
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)		1732.5 (20175)	1753.5 (20385)	
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)		1732.5 (20175)	1752.5 (20375)	
LTE Band 4 (AWS): 10 MHz	1715 (20000)		1732.5 (20175)	1750 (20350)	
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)		1732.5 (20175)	1747.5 (20325)	
LTE Band 4 (AWS): 20 MHz	1720 (20050)		1732.5 (20175)	1745 (20300)	
LTE Band 25 (PCS): 1.4 MHz	1850.7 (26047)		1882.5 (26365)	1914.3 (26683)	
LTE Band 25 (PCS): 3 MHz	1851.5 (26055)		1882.5 (26365)	1913.5 (26675)	
LTE Band 25 (PCS): 5 MHz	1852.5 (26065)		1882.5 (26365)	1912.5 (26665)	
LTE Band 25 (PCS): 10 MHz	1855 (26090)		1882.5 (26365)	1910 (26640)	
LTE Band 25 (PCS): 15 MHz	1857.5 (26115)		1882.5 (26365)	1907.5 (26615)	
LTE Band 25 (PCS): 20 MHz	1860 (26140)		1882.5 (26365)	1905 (26590)	
LTE Band 2 (PCS): 1.4 MHz	1850.7 (18607)		1880 (18900)	1909.3 (19193)	
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)		1880 (18900)	1908.5 (19185)	
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)		1880 (18900)	1907.5 (19175)	
LTE Band 2 (PCS): 10 MHz	1855 (18650)		1880 (18900)	1905 (19150)	
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)		1880 (18900)	1902.5 (19125)	
LTE Band 2 (PCS): 20 MHz	1860 (18700)		1880 (18900)	1900 (19100)	
LTE Band 41: 5 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
UE Category	6				
DL UE Category	16				
UL UE Category	5				
Modulations Supported in UL	QPSK, 16QAM, 64QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5? (manufacturer attestation to be provided)	YES				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
LTE Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations				
LTE Release 12 Additional Information	This device does not support full CA features on 3GPP Release 12. It supports uplink carrier aggregation for LTE CA_41C with a maximum of two 20 MHz component carriers. For intraband contiguous carrier aggregation scenarios, it supports a maximum of 3 carriers in the downlink. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release 12 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, WIFI Offloading, MDH, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

3 INTRODUCTION

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

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

3.1 SAR Definition

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

Equation 3-1
SAR Mathematical Equation

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

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

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

where:

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

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

4 DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

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

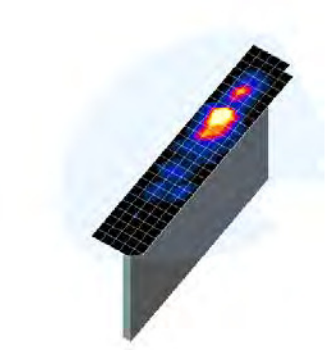


Figure 4-A
Sample SAR Area Scan

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

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

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

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

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

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

*Also compliant to IEEE 1528-2013 Table 6

5 DEFINITION OF REFERENCE POINTS

5.1 EAR REFERENCE POINT

Figure 5-B 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-A. 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-A). 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].

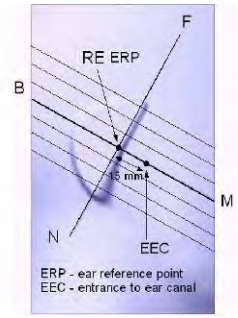


Figure 5-A
Close-Up Side view of ERP

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-C). The acoustic output was than located at the same level as the center of the ear reference point. The test device was positioned so that the "vertical centerline" was bisecting the front surface of the handset at its top and bottom edges, positioning the "ear reference point" on the outer surface of the both the left and right head phantoms on the ear reference point.

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

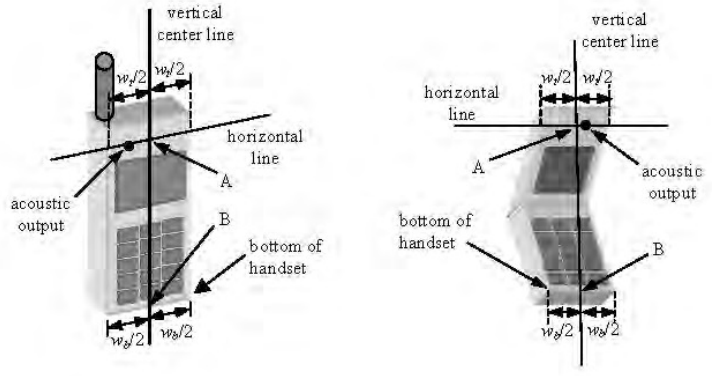


Figure 5-C
Handset Vertical Center & Horizontal Line Reference Points

6 TEST CONFIGURATION POSITIONS

6.1 Device Holder

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

6.2 Positioning for Cheek

1. The test device was positioned with the device close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 6-A), 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-A Front, Side and Top View of Cheek Position

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

6.3 Positioning for Ear / 15º Tilt

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

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

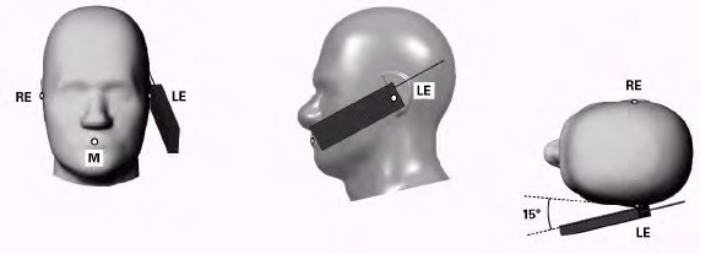


Figure 6-B Front, Side and Top View of Ear/15º Tilt Position

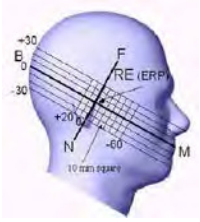


Figure 6-C
Side view w/ relevant markings

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

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

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

6.5 Body-Worn Accessory Configurations

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

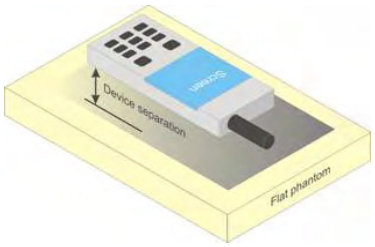


Figure 6-D
Sample Body-Worn Diagram

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

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

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

6.6 Extremity Exposure Configurations

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

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

6.7 Wireless Router Configurations

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

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

7 RF EXPOSURE LIMITS

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

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

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

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

8 FCC MEASUREMENT PROCEDURES

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

8.1 Measured and Reported SAR

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

8.2 3G SAR Test Reduction Procedure

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

8.3 Procedures Used to Establish RF Signal for SAR

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

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

8.4 SAR Measurement Conditions for CDMA2000

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

8.4.1 Output Power Verification

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

1. If the mobile station (MS) supports Reverse TCH RC 1 and Forward TCH RC 1, set up a call using Fundamental Channel Test Mode 1 (RC=1/1) with 9600 bps data rate only.

2. Under RC1, C.S0011 Table 4.4.5.2-1, Table 8-1 parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH_0 and demodulation of RC 3,4, or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9600 bps Fundamental Channel and 9600 bps SCH0 data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2, Table 8-2 was applied.

Table 8-1
Parameters for Max. Power for RC1

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

Table 8-2
Parameters for Max. Power for RC3

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

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

8.4.2 Head SAR Measurements

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

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

8.4.3 Body-worn SAR Measurements

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

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

8.4.4 Body-worn SAR Measurements for EVDO Devices

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

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

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

8.4.5 Body SAR Measurements for EVDO Hotspot

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

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

8.4.6 CDMA2000 1x Advanced

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

The 3G SAR test reduction procedure is applied to the 1x-Advanced transmission mode with 1x RTT RC3 as the primary mode. When SAR measurement is required, the 1x-Advanced power measurement configurations are used. The1x Advanced SAR procedures are applied separately to head, body-worn accessory and other exposure conditions.

8.5 SAR Measurement Conditions for UMTS

8.5.1 Output Power Verification

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

8.5.2 Head SAR Measurements

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

8.5.3 Body SAR Measurements

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

8.5.4 SAR Measurements with Rel 5 HSDPA

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

8.5.5 SAR Measurements with Rel 6 HSUPA

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

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

8.5.6 SAR Measurement Conditions for DC-HSDPA

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

8.6 SAR Measurement Conditions for LTE

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

8.6.1 Spectrum Plots for RB Configurations

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

8.6.2 MPR

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

8.6.3 A-MPR

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

8.6.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth

i. The required channel and offset combination with the highest maximum output power is required for SAR.
ii. When the reported SAR is ≤ 0.8 W/kg for FDD and ≤ 0.6 W/kg for TDD, 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 for FDD and < 0.6 W/kg for TDD.
d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to ½ dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is <1.45 W/kg.

8.6.5 TDD

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

8.6.6 Downlink Only Carrier Aggregation

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

8.7 SAR Testing with 802.11 Transmitters

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

8.7.1 General Device Setup

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

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

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

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

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

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

8.7.4 Initial Test Position Procedure

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

8.7.5 2.4 GHz SAR Test Requirements

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

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

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

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

8.7.6 OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel

bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. When the maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

8.7.7 Initial Test Configuration Procedure

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

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

8.7.8 Subsequent Test Configuration Procedures

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

8.7.9 MIMO SAR considerations

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

9 RF CONDUCTED POWERS

9.1 CDMA Conducted Powers

Table 9-1
Maximum Conducted Powers

Band	Channel	Rule Part	Frequency	SO55 [dBm]	SO55 [dBm]	SO75 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	RC11	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	1013	22H	824.7	25.04	24.97	24.98	24.96	24.96	24.97	24.79
	384	22H	836.52	25.09	25.00	25.04	25.01	25.00	25.01	24.82
	777	22H	848.31	24.97	24.81	24.86	24.81	24.81	24.81	24.63

Note:

RC1 is only applicable for IS-95 compatibility.

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

Figure 9-A
Power Measurement Setup

9.2 GSM Conducted Powers

Table 9-2
Maximum Conducted Powers

Maximum Burst-Averaged Output Power										
		Voice	*GPRS/EDGE Data (GMSK)*				*EDGE Data (8-PSK)*			
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**GPRS [dBm] 3 Tx Slot**	**GPRS [dBm] 4 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**	**EDGE [dBm] 3 Tx Slot**	**EDGE [dBm] 4 Tx Slot**
GSM 850	128	32.35	32.33	30.56	**28.54**	26.38	26.33	24.53	22.37	20.61
	190	32.72	32.44	30.96	**28.64**	26.69	26.37	24.60	22.39	20.66
	251	32.62	32.62	30.80	**28.60**	26.56	26.28	24.36	22.18	20.56
GSM 1900	512	29.69	29.79	28.31	**25.98**	23.87	25.00	23.82	21.67	20.13
	661	29.20	29.29	27.96	**25.57**	23.41	24.64	23.37	21.23	19.76
	810	29.31	29.36	27.98	**25.71**	23.59	24.96	23.61	21.42	19.93
Calculated Maximum Frame-Averaged Output Power										
		Voice	*GPRS/EDGE Data (GMSK)*				*EDGE Data (8-PSK)*			
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**GPRS [dBm] 3 Tx Slot**	**GPRS [dBm] 4 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**	**EDGE [dBm] 3 Tx Slot**	**EDGE [dBm] 4 Tx Slot**
GSM 850	128	23.32	23.30	24.54	**24.28**	23.37	17.30	18.51	18.11	17.60
	190	23.69	23.41	24.94	**24.38**	23.68	17.34	18.58	18.13	17.65
	251	23.59	23.59	24.78	**24.34**	23.55	17.25	18.34	17.92	17.55
GSM 1900	512	20.66	20.76	22.29	**21.72**	20.86	15.97	17.80	17.41	17.12
	661	20.17	20.26	21.94	**21.31**	20.40	15.61	17.35	16.97	16.75
	810	20.28	20.33	21.96	**21.45**	20.58	15.93	17.59	17.16	16.92
GSM 850	**Frame Avg.Targets:**	23.47	23.47	24.98	**25.04**	24.29	17.47	18.98	18.74	18.49
GSM 1900		20.47	20.47	22.48	**22.24**	21.49	16.17	18.18	17.94	17.79

Table 9-3
Reduced Conducted Powers – Hotspot Mode Active

Maximum Burst-Averaged Output Power									
		GPRS/EDGE Data (GMSK)				*EDGE Data (8-PSK)*			
Band	**Channel**	**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 1900	512	27.41	26.11	**23.90**	21.74	25.00	23.82	21.67	20.13
	661	26.89	25.64	**23.70**	21.44	24.64	23.37	21.23	19.76
	810	27.26	26.05	**23.86**	21.67	24.96	23.61	21.42	19.93
Calculated Maximum Frame-Averaged Output Power									
		GPRS/EDGE Data (GMSK)				*EDGE Data (8-PSK)*			
Band	**Channel**	**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 1900	512	18.38	20.09	**19.64**	18.73	15.97	17.80	17.41	17.12
	661	17.86	19.62	**19.44**	18.43	15.61	17.35	16.97	16.75
	810	18.23	20.03	**19.60**	18.66	15.93	17.59	17.16	16.92
GSM 1900	**Frame Avg.Targets:**	18.47	20.48	**20.24**	19.49	16.17	18.18	17.94	17.79

Note:

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

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

Figure 9-B
Power Measurement Setup

9.3 UMTS Conducted Powers

Table 9-4
Maximum Conducted Powers

Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
		4132	4183	4233	9262	9400	9538	
WCDMA	12.2 kbps RMC	22.94	22.98	22.92	22.78	22.34	22.66	-
	12.2 kbps AMR	23.04	23.11	22.94	22.88	22.40	22.67	-
HSDPA	Subtest 1	22.15	22.21	22.16	22.15	21.67	21.95	0
	Subtest 2	22.14	22.20	22.16	22.16	21.65	21.96	0
	Subtest 3	21.64	21.74	21.69	21.65	21.15	21.48	0.5
	Subtest 4	21.63	21.73	21.65	21.65	21.15	21.45	0.5
HSUPA	Subtest 1	21.17	22.16	22.09	22.15	21.61	21.91	0
	Subtest 2	20.16	20.19	20.10	20.11	19.68	19.94	2
	Subtest 3	21.10	21.21	21.09	21.14	20.70	20.94	1
	Subtest 4	20.21	20.24	20.12	20.16	19.63	19.94	2
	Subtest 5	22.17	22.26	22.18	22.18	21.68	21.97	0
DC-HSDPA	Subtest 1	22.42	22.47	22.44	22.40	21.87	22.15	0
	Subtest 2	22.36	22.46	22.40	22.39	21.87	22.17	0
	Subtest 3	21.84	21.97	21.89	21.95	21.37	21.71	0.5
	Subtest 4	21.85	21.94	21.90	21.90	21.37	21.68	0.5

Table 9-5
Reduced Conducted Powers –Hotspot Mode Active

3GPP Release Version	Mode	3GPP 34.121 Subtest	PCS Band [dBm]			3GPP MPR [dB]
			9262	9400	9538	
99	WCDMA	12.2 kbps RMC	19.74	19.29	19.62	-
99		12.2 kbps AMR	19.63	19.21	19.56	-
6	HSDPA	Subtest 1	19.20	18.73	19.01	0
6		Subtest 2	19.19	18.68	18.97	0
6		Subtest 3	18.67	18.13	18.50	0.5
6		Subtest 4	18.65	18.14	18.53	0.5
6	HSUPA	Subtest 1	19.12	18.60	18.97	0
6		Subtest 2	17.18	16.60	16.93	2
6		Subtest 3	18.10	17.59	17.93	1
6		Subtest 4	17.12	16.59	16.74	2
6		Subtest 5	19.11	18.60	18.91	0
8	DC-HSDPA	Subtest 1	19.18	18.65	18.97	0
8		Subtest 2	19.16	18.59	18.93	0
8		Subtest 3	18.67	18.07	18.44	0.5
8		Subtest 4	18.62	18.13	18.47	0.5

DC-HSDPA considerations

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

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

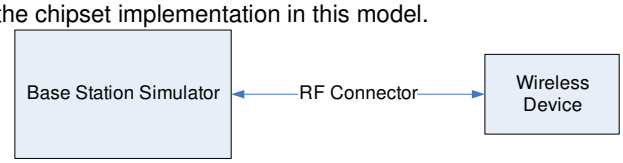


Figure 9-C
Power Measurement Setup

9.4 LTE Conducted Powers

9.4.1 LTE Band 12

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

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23095 (707.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**23.98**	0	0
	1	25	23.89		0
	1	49	23.86		0
	25	0	**22.99**	0-1	1
	25	12	22.97		1
	25	25	22.87		1
	50	0	22.94		1
16QAM	1	0	22.97	0-1	1
	1	25	22.99		1
	1	49	22.92		1
	25	0	21.99	0-2	2
	25	12	21.96		2
	25	25	21.94		2
	50	0	22.00		2
64QAM	1	0	21.97	0-2	2
	1	25	21.95		2
	1	49	21.90		2
	25	0	20.83	0-3	3
	25	12	20.83		3
	25	25	20.77		3
	50	0	20.80		3

Note: LTE Band 12 at 10 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

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

LTE Band 12 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23035 (701.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23155 (713.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.87	23.84	23.78	0	0
	1	12	23.74	23.77	23.81		0
	1	24	23.83	23.90	23.85		0
	12	0	22.83	22.86	22.92	0-1	1
	12	6	22.84	22.84	22.76		1
	12	13	22.67	22.63	22.61		1
	25	0	22.91	22.88	22.86		1
16QAM	1	0	22.77	22.85	22.76	0-1	1
	1	12	22.85	22.89	22.91		1
	1	24	22.88	22.85	22.76		1
	12	0	21.82	21.80	21.79	0-2	2
	12	6	21.93	21.94	21.91		2
	12	13	21.75	21.82	21.84		2
	25	0	21.90	21.88	21.98		2
64QAM	1	0	21.86	21.79	21.80	0-2	2
	1	12	21.92	21.96	22.00		2
	1	24	21.72	21.76	21.71		2
	12	0	20.77	20.85	20.83	0-3	3
	12	6	20.82	20.92	20.88		3
	12	13	20.59	20.65	20.69		3
	25	0	20.70	20.72	20.69		3

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

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23025 (700.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23165 (714.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.71	23.79	23.70	0	0
	1	7	23.88	23.80	23.79		0
	1	14	23.94	23.72	23.98		0
	8	0	22.86	22.99	22.86	0-1	1
	8	4	22.76	22.67	22.95		1
	8	7	22.78	22.45	22.77		1
	15	0	22.73	22.78	22.83		1
16QAM	1	0	22.63	22.93	22.77	0-1	1
	1	7	22.89	22.93	22.94		1
	1	14	22.97	22.85	22.66		1
	8	0	21.99	21.69	21.60	0-2	2
	8	4	21.77	21.97	21.74		2
	8	7	21.89	21.74	21.68		2
	15	0	21.86	21.87	21.96		2
64QAM	1	0	21.85	21.83	21.76	0-2	2
	1	7	21.82	21.89	21.88		2
	1	14	21.68	21.59	21.90		2
	8	0	20.90	20.86	20.76	0-3	3
	8	4	20.93	20.91	20.74		3
	8	7	20.63	20.56	20.64		3
	15	0	20.87	20.64	20.76		3

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

LTE Band 12 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23017 (699.7 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23173 (715.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.71	23.95	23.61	0	0
	1	2	23.79	23.94	23.76		0
	1	5	23.75	23.83	23.82		0
	3	0	23.66	23.98	23.71		0
	3	2	23.74	23.78	23.88		0
	3	3	23.64	23.61	23.71		0
	6	0	22.80	22.78	22.92	0-1	1
16QAM	1	0	22.64	22.76	22.91	0-1	1
	1	2	22.71	22.83	22.86		1
	1	5	22.95	22.89	22.64		1
	3	0	22.99	22.77	22.80		1
	3	2	22.87	22.92	22.85		1
	3	3	22.70	22.72	22.63		1
	6	0	21.96	21.70	21.76	0-2	2
64QAM	1	0	21.95	21.68	21.73	0-2	2
	1	2	21.93	21.87	21.85		2
	1	5	21.67	21.68	21.86		2
	3	0	21.81	21.68	21.67		2
	3	2	21.94	21.98	21.76		2
	3	3	21.45	21.60	21.59		2
	6	0	20.87	20.56	20.59	0-3	3

9.4.2 LTE Band 13

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

LTE Band 13 10 MHzBandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	23.29	0	0
	1	25	23.26		0
	1	49	**23.39**		0
	25	0	**22.28**	0-1	1
	25	12	22.26		1
	25	25	22.21		1
	50	0	22.12		1
16QAM	1	0	22.22	0-1	1
	1	25	22.25		1
	1	49	22.30		1
	25	0	21.23	0-2	2
	25	12	21.31		2
	25	25	21.27		2
	50	0	21.29		2
64QAM	1	0	21.47	0-2	2
	1	25	20.99		2
	1	49	21.08		2
	25	0	20.32	0-3	3
	25	12	20.30		3
	25	25	20.17		3
	50	0	20.48		3

Table 9-11
LTE Band 13 Conducted Powers - 5 MHz Bandwidth

LTE Band 13 5 MHzBandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	23.16	0	0
	1	12	23.07		0
	1	24	23.10		0
	12	0	22.17	0-1	1
	12	6	22.20		1
	12	13	22.17		1
	25	0	22.13		1
16QAM	1	0	21.98	0-1	1
	1	12	22.34		1
	1	24	22.32		1
	12	0	21.02	0-2	2
	12	6	21.13		2
	12	13	21.12		2
	25	0	21.16		2
64QAM	1	0	21.33	0-2	2
	1	12	20.98		2
	1	24	21.02		2
	12	0	20.37	0-3	3
	12	6	20.36		3
	12	13	20.11		3
	25	0	20.28		3

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

9.4.3 LTE Band 5 (Cell)

Table 9-12
LTE Band 5 (Cell) Conducted Powers - 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20525 (836.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**24.18**	0	0
	1	25	24.14		0
	1	49	23.90		0
	25	0	**23.19**	0-1	1
	25	12	23.12		1
	25	25	23.06		1
	50	0	23.07		1
16QAM	1	0	23.19	0-1	1
	1	25	22.86		1
	1	49	22.99		1
	25	0	22.22	0-2	2
	25	12	22.10		2
	25	25	22.12		2
	50	0	22.05		2
64QAM	1	0	22.26	0-2	2
	1	25	21.89		2
	1	49	22.28		2
	25	0	21.18	0-3	3
	25	12	21.03		3
	25	25	21.07		3
	50	0	21.06		3

Note: LTE Band 5 at 10 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

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

LTE Band 5 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20425 (826.5 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20625 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.17	23.83	23.87	0	0
	1	12	24.12	23.81	23.84		0
	1	24	24.07	23.79	23.33		0
	12	0	23.13	22.82	22.82	0-1	1
	12	6	23.14	22.82	22.85		1
	12	13	23.07	22.80	22.77		1
	25	0	23.11	22.83	22.79		1
16QAM	1	0	23.49	22.82	22.81	0-1	1
	1	12	23.44	22.76	22.77		1
	1	24	23.40	22.72	23.08		1
	12	0	22.11	21.90	21.91	0-2	2
	12	6	22.12	21.87	21.86		2
	12	13	22.09	21.83	21.80		2
	25	0	22.13	21.75	21.76		2
64QAM	1	0	22.14	22.04	22.06	0-2	2
	1	12	22.11	21.93	22.00		2
	1	24	21.96	21.87	21.72		2
	12	0	20.91	20.77	20.83	0-3	3
	12	6	20.92	20.78	20.72		3
	12	13	20.85	20.71	20.69		3
	25	0	20.82	20.82	20.83		3

Table 9-14
LTE Band 5 (Cell) Conducted Powers - 3 MHz Bandwidth

LTE Band 5 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20415 (825.5 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20635 (847.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.77	23.69	23.71	0	0
	1	7	23.84	23.88	23.78		0
	1	14	23.70	23.81	23.30		0
	8	0	22.75	22.81	22.72	0-1	1
	8	4	22.78	22.82	22.74		1
	8	7	22.71	22.79	22.75		1
	15	0	22.77	22.80	22.68		1
16QAM	1	0	23.39	22.95	23.01	0-1	1
	1	7	22.49	22.84	23.05		1
	1	14	23.43	22.67	22.50		1
	8	0	21.78	21.81	21.66	0-2	2
	8	4	21.79	21.79	21.67		2
	8	7	21.77	21.78	21.65		2
	15	0	21.78	21.69	21.75		2
64QAM	1	0	21.88	21.95	22.02	0-2	2
	1	7	22.07	22.06	22.08		2
	1	14	21.92	21.93	21.51		2
	8	0	20.76	20.79	20.83	0-3	3
	8	4	20.77	20.78	20.83		3
	8	7	20.75	20.75	20.78		3
	15	0	20.77	20.86	20.69		3

Table 9-15
LTE Band 5 (Cell) Conducted Powers - 1.4 MHz Bandwidth

LTE Band 5 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20407 (824.7 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20643 (848.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.70	23.73	23.59	0	0
	1	2	23.76	23.77	23.63		0
	1	5	23.69	23.72	23.22		0
	3	0	23.72	23.77	23.63		0
	3	2	23.73	23.82	23.50		0
	3	3	23.68	23.74	23.29		0
	6	0	22.69	22.73	22.60	0-1	1
16QAM	1	0	23.07	22.69	22.83	0-1	1
	1	2	22.64	22.74	23.10		1
	1	5	22.54	22.68	22.88		1
	3	0	22.55	22.95	22.71		1
	3	2	22.60	22.99	22.88		1
	3	3	22.72	22.95	22.60		1
	6	0	21.62	21.66	21.78	0-2	2
64QAM	1	0	21.94	21.90	21.88	0-2	2
	1	2	21.96	21.91	22.05		2
	1	5	21.87	21.86	21.73		2
	3	0	21.71	21.83	21.86		2
	3	2	21.77	21.86	21.92		2
	3	3	21.75	21.79	21.75		2
	6	0	20.74	20.71	20.64	0-3	3

9.4.4 LTE Band 26 (Cell)

Table 9-16
LTE Band 26 (Cell) Conducted Powers - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 26865 (831.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**23.00**	0	0
	1	36	22.85		0
	1	74	22.69		0
	36	0	**22.46**	0-1	1
	36	18	22.43		1
	36	37	22.38		1
	75	0	22.39		1
16QAM	1	0	21.70	0-1	1
	1	36	22.64		1
	1	74	22.33		1
	36	0	21.44	0-2	2
	36	18	21.36		2
	36	37	21.33		2
	75	0	21.36		2
64QAM	1	0	21.57	0-2	2
	1	36	21.55		2
	1	74	21.53		2
	36	0	20.44	0-3	3
	36	18	20.41		3
	36	37	20.33		3
	75	0	20.41		3

Note: LTE Band 26 at 15 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 9-17
LTE Band 26 (Cell) Conducted Powers - 10 MHz Bandwidth

LTE Band 26 (Cell) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26740 (819.0 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 26990 (844.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	22.97	23.04	23.09	0	0
	1	25	22.91	22.98	22.99		0
	1	49	22.81	22.87	22.89		0
	25	0	21.96	22.05	22.08	0-1	1
	25	12	21.96	22.03	22.09		1
	25	25	21.87	21.96	21.98		1
	50	0	21.89	22.02	22.00		1
16QAM	1	0	22.34	22.69	22.74	0-1	1
	1	25	22.27	22.46	22.69		1
	1	49	22.21	22.28	22.52		1
	25	0	20.99	21.11	21.06	0-2	2
	25	12	21.00	21.14	21.02		2
	25	25	20.90	21.00	20.92		2
	50	0	20.92	21.02	21.07		2
64QAM	1	0	20.78	21.42	21.24	0-2	2
	1	25	20.72	21.38	21.25		2
	1	49	20.63	21.29	21.07		2
	25	0	19.91	20.08	20.08	0-3	3
	25	12	19.90	20.01	20.09		3
	25	25	19.84	19.94	19.97		3
	50	0	19.90	20.03	20.01		3

Table 9-18
LTE Band 26 (Cell) Conducted Powers - 5 MHz Bandwidth

LTE Band 26 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26715 (816.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27015 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.96	22.96	23.02	0	0
	1	12	22.94	22.99	22.92		0
	1	24	22.95	22.98	22.93		0
	12	0	21.97	22.03	22.01	0-1	1
	12	6	21.99	22.07	21.98		1
	12	13	21.91	21.97	21.94		1
	25	0	21.93	22.01	21.94		1
16QAM	1	0	21.80	22.14	22.09	0-1	1
	1	12	21.77	22.15	21.96		1
	1	24	21.97	21.93	21.87		1
	12	0	20.99	21.08	21.05	0-2	2
	12	6	21.01	21.06	21.06		2
	12	13	20.92	21.05	20.97		2
	25	0	20.87	21.08	20.95		2
64QAM	1	0	21.21	21.24	21.27	0-2	2
	1	12	21.12	21.11	21.20		2
	1	24	21.08	21.10	21.16		2
	12	0	19.94	20.00	20.07	0-3	3
	12	6	19.97	19.99	20.07		3
	12	13	19.91	19.94	20.02		3
	25	0	19.94	20.02	20.02		3

Table 9-19
LTE Band 26 (Cell) Conducted Powers - 3 MHz Bandwidth

LTE Band 26 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26705 (815.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27025 (847.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.86	22.97	22.93	0	0
	1	7	22.90	23.05	23.03		0
	1	14	22.78	22.98	22.90		0
	8	0	21.86	22.02	21.94	0-1	1
	8	4	21.88	22.01	21.99		1
	8	7	21.80	21.98	21.96		1
	15	0	21.86	22.01	21.92		1
16QAM	1	0	22.18	22.00	22.28	0-1	1
	1	7	21.91	22.08	22.37		1
	1	14	21.98	21.98	22.19		1
	8	0	20.88	20.97	21.08	0-2	2
	8	4	20.89	20.97	21.08		2
	8	7	20.86	20.92	21.04		2
	15	0	20.85	21.05	20.87		2
64QAM	1	0	21.16	21.18	20.75	0-2	2
	1	7	21.22	21.29	20.83		2
	1	14	21.10	21.16	20.69		2
	8	0	19.91	19.93	20.07	0-3	3
	8	4	19.89	20.00	20.05		3
	8	7	19.92	20.07	20.03		3
	15	0	19.89	20.01	19.88		3

Table 9-20
LTE Band 26 (Cell) Conducted Powers - 1.4 MHz Bandwidth

LTE Band 26 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26697 (814.7 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27033 (848.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.77	22.91	22.80	0	0
	1	2	22.86	22.97	22.91		0
	1	5	22.79	22.89	22.88		0
	3	0	22.78	22.92	22.85		0
	3	2	22.81	22.96	22.89		0
	3	3	22.78	22.92	22.87		0
	6	0	21.79	21.89	21.82	0-1	1
16QAM	1	0	21.75	21.97	22.11	0-1	1
	1	2	21.87	22.05	22.60		1
	1	5	21.86	21.94	22.47		1
	3	0	22.02	22.03	22.09		1
	3	2	22.04	22.10	22.11		1
	3	3	22.01	22.28	22.03		1
	6	0	20.73	21.04	20.79	0-2	2
64QAM	1	0	20.98	21.19	20.64	0-2	2
	1	2	21.02	21.25	20.70		2
	1	5	20.91	21.15	20.63		2
	3	0	21.02	21.15	20.83		2
	3	2	21.09	21.14	20.92		2
	3	3	21.03	21.11	20.86		2
	6	0	19.71	19.93	19.81	0-3	3

9.4.5 LTE Band 4 (AWS)

Table 9-21
LTE Band 4 (AWS) Conducted Powers - 20 MHz Bandwidth

LTE Band 4 (AWS) 20 MHzBandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20175 (1732.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]		
QPSK	1	0	**23.09**	0	0
	1	50	22.96		0
	1	99	22.88		0
	50	0	**22.09**	0-1	1
	50	25	22.07		1
	50	50	21.90		1
	100	0	21.95		1
16QAM	1	0	22.48	0-1	1
	1	50	22.06		1
	1	99	22.16		1
	50	0	21.04	0-2	2
	50	25	21.01		2
	50	50	20.89		2
	100	0	20.99		2
64QAM	1	0	21.27	0-2	2
	1	50	21.29		2
	1	99	21.14		2
	50	0	20.17	0-3	3
	50	25	19.96		3
	50	50	19.86		3
	100	0	20.06		3

Table 9-22
LTE Band 4 (AWS) Conducted Powers - 15 MHz Bandwidth

LTE Band 4 (AWS) 15 MHzBandwidth							
Modulation	RB Size	RB Offset	Low Channel 20025 (1717.5 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20325 (1747.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.10	23.03	23.31	0	0
	1	36	22.92	22.81	23.04		0
	1	74	22.92	22.76	22.98		0
	36	0	22.04	21.94	22.16	0-1	1
	36	18	22.02	21.88	22.09		1
	36	37	21.94	21.82	21.99		1
	75	0	22.00	21.87	22.08		1
16QAM	1	0	22.74	22.68	22.59	0-1	1
	1	36	22.18	22.47	22.35		1
	1	74	22.17	22.41	22.30		1
	36	0	21.09	21.01	21.17	0-2	2
	36	18	21.03	20.95	21.07		2
	36	37	20.99	20.84	21.01		2
	75	0	21.03	20.88	21.09		2
64QAM	1	0	21.38	21.16	21.58	0-2	2
	1	36	21.20	20.96	21.29		2
	1	74	21.21	20.93	20.98		2
	36	0	20.07	19.91	20.19	0-3	3
	36	18	20.01	19.87	20.11		3
	36	37	19.97	19.80	20.04		3
	75	0	20.01	19.85	20.11		3

Table 9-23
LTE Band 4 (AWS) Conducted Powers - 10 MHz Bandwidth

LTE Band 4 (AWS) 10 MHzBandwidth							
Modulation	RB Size	RB Offset	Low Channel 20000 (1715.0 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20350 (1750.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.14	22.92	23.12	0	0
	1	25	23.03	22.85	23.00		0
	1	49	23.02	22.78	22.94		0
	25	0	22.09	21.83	22.19	0-1	1
	25	12	22.10	21.82	22.14		1
	25	25	22.05	21.79	22.10		1
	50	0	22.06	21.82	22.15		1
16QAM	1	0	22.12	22.24	22.06	0-1	1
	1	25	22.04	21.68	21.95		1
	1	49	22.02	21.61	22.12		1
	25	0	21.10	20.88	21.13	0-2	2
	25	12	21.09	20.86	21.11		2
	25	25	21.04	20.79	21.04		2
	50	0	21.09	20.86	21.14		2
64QAM	1	0	21.41	21.24	21.23	0-2	2
	1	25	21.34	21.13	21.12		2
	1	49	21.31	21.07	21.26		2
	25	0	20.14	19.87	20.22	0-3	3
	25	12	20.13	19.85	20.20		3
	25	25	20.08	19.81	20.13		3
	50	0	20.12	19.86	20.18		3

Table 9-24
LTE Band 4 (AWS) Conducted Powers - 5 MHz Bandwidth

LTE Band 4 (AWS) 5 MHzBandwidth							
Modulation	RB Size	RB Offset	Low Channel 19975 (1712.5 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20375 (1752.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.02	22.88	23.13	0	0
	1	12	22.98	22.85	23.09		0
	1	24	22.98	22.79	23.05		0
	12	0	22.04	21.82	22.11	0-1	1
	12	6	22.08	21.81	22.13		1
	12	13	22.05	21.81	22.05		1
	25	0	22.06	21.79	22.10		1
16QAM	1	0	22.26	22.21	22.13	0-1	1
	1	12	21.92	22.17	22.06		1
	1	24	21.87	22.12	22.04		1
	12	0	21.07	20.88	21.16	0-2	2
	12	6	21.05	20.90	21.17		2
	12	13	21.03	20.83	21.14		2
	25	0	21.04	20.84	21.08		2
64QAM	1	0	21.39	21.16	21.32	0-2	2
	1	12	21.38	21.03	21.29		2
	1	24	21.36	20.96	21.21		2
	12	0	20.07	19.86	20.18	0-3	3
	12	6	20.09	19.87	20.18		3
	12	13	20.05	19.82	20.13		3
	25	0	20.08	19.85	20.16		3

Table 9-25
LTE Band 4 (AWS) Conducted Powers - 3 MHz Bandwidth

LTE Band 4 (AWS) 3 MHzBandwidth							
Modulation	RB Size	RB Offset	Low Channel 19965 (1711.5 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20385 (1753.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.02	22.80	23.19	0	0
	1	7	23.10	22.89	23.24		0
	1	14	22.94	22.79	23.09		0
	8	0	22.04	21.82	22.17	0-1	1
	8	4	22.05	21.84	22.18		1
	8	7	22.01	21.80	22.12		1
	15	0	22.03	21.81	22.15		1
16QAM	1	0	22.61	21.76	22.50	0-1	1
	1	7	22.53	21.83	22.62		1
	1	14	22.35	21.69	22.46		1
	8	0	21.24	20.81	21.32	0-2	2
	8	4	21.25	20.83	21.32		2
	8	7	21.23	20.77	21.28		2
	15	0	21.01	20.83	21.09		2
64QAM	1	0	21.38	20.98	21.00	0-2	2
	1	7	21.53	21.11	21.11		2
	1	14	21.35	20.96	21.12		2
	8	0	20.09	19.90	20.13	0-3	3
	8	4	20.10	19.91	20.15		3
	8	7	20.08	19.88	20.11		3
	15	0	20.07	19.83	20.08		3

Table 9-26
LTE Band 4 (AWS) Conducted Powers - 1.4 MHz Bandwidth

LTE Band 4 (AWS) 1.4 MHzBandwidth							
Modulation	RB Size	RB Offset	Low Channel 19957 (1710.7 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20393 (1754.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.92	22.69	23.03	0	0
	1	2	23.00	22.78	23.04		0
	1	5	22.93	22.68	22.94		0
	3	0	22.96	22.76	22.98		0
	3	2	22.98	22.80	23.02		0
	3	3	22.93	22.72	22.99		0
	6	0	21.92	21.70	22.01	0-1	1
16QAM	1	0	22.25	21.69	22.75	0-1	1
	1	2	21.85	21.74	22.77		1
	1	5	21.79	21.69	22.47		1
	3	0	21.87	21.85	22.27		1
	3	2	22.07	21.92	22.30		1
	3	3	22.03	21.88	22.26		1
	6	0	20.84	20.66	21.23	0-2	2
64QAM	1	0	21.23	20.91	21.29	0-2	2
	1	2	21.32	20.98	21.35		2
	1	5	21.19	20.90	21.22		2
	3	0	20.95	20.68	21.20		2
	3	2	21.02	20.74	21.23		2
	3	3	20.89	20.77	21.18		2
	6	0	19.91	19.91	20.05	0-3	3

Table 9-27
Reduced LTE Band 4 (AWS) Conducted Powers - 20 MHz Bandwidth – Hotspot Mode Active

LTE Band 4 (AWS) 20 MHzBandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20175 (1732.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]		
QPSK	1	0	**20.18**	0	0
	1	50	19.92		0
	1	99	19.86		0
	50	0	**20.07**	0-1	0
	50	25	19.96		0
	50	50	19.91		0
	100	0	19.98		0
16QAM	1	0	20.49	0-1	0
	1	50	20.23		0
	1	99	20.20		0
	50	0	20.13	0-2	0
	50	25	20.04		0
	50	50	19.95		0
	100	0	20.03		0
64QAM	1	0	20.37	0-2	0
	1	50	20.09		0
	1	99	19.97		0
	50	0	20.14	0-3	0
	50	25	20.04		0
	50	50	19.93		0
	100	0	20.03		0

Table 9-28
Reduced LTE Band 4 (AWS) Conducted Powers - 15 MHz Bandwidth – Hotspot Mode Active

LTE Band 4 (AWS) 15 MHzBandwidth							
Modulation	RB Size	RB Offset	Low Channel 20025 (1717.5 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20325 (1747.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	20.37	20.35	20.41	0	0
	1	36	20.35	20.11	20.24		0
	1	74	20.12	20.04	20.16		0
	36	0	20.38	20.28	20.43	0-1	0
	36	18	20.35	20.20	20.36		0
	36	37	20.29	20.16	20.26		0
	75	0	20.33	20.21	20.35		0
16QAM	1	0	20.43	20.46	20.45	0-1	0
	1	36	20.48	20.36	20.49		0
	1	74	20.31	20.37	20.32		0
	36	0	20.41	20.33	20.48	0-2	0
	36	18	20.36	20.26	20.39		0
	36	37	20.29	20.21	20.31		0
	75	0	20.34	20.26	20.44		0
64QAM	1	0	20.47	20.41	20.49	0-2	0
	1	36	20.38	20.22	20.48		0
	1	74	20.23	20.15	20.25		0
	36	0	20.42	20.24	20.50	0-3	0
	36	18	20.34	20.19	20.44		0
	36	37	20.28	20.08	20.36		0
	75	0	20.35	20.14	20.41		0

Table 9-29
Reduced LTE Band 4 (AWS) Conducted Powers - 10 MHz Bandwidth – Hotspot Mode Active

LTE Band 4 (AWS) 10 MHzBandwidth							
Modulation	RB Size	RB Offset	Low Channel 20000 (1715.0 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20350 (1750.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	20.34	20.12	20.43	0	0
	1	25	20.32	20.07	20.35		0
	1	49	20.16	19.89	20.17		0
	25	0	20.40	20.21	20.49	0-1	0
	25	12	20.40	20.17	20.46		0
	25	25	20.32	20.12	20.35		0
	50	0	20.37	20.17	20.43		0
16QAM	1	0	20.46	20.36	20.43	0-1	0
	1	25	20.48	20.36	20.42		0
	1	49	20.47	20.22	20.46		0
	25	0	20.45	20.23	20.46	0-2	0
	25	12	20.44	20.22	20.46		0
	25	25	20.37	20.12	20.34		0
	50	0	20.41	20.20	20.46		0
64QAM	1	0	20.45	20.25	20.39	0-2	0
	1	25	20.44	20.20	20.37		0
	1	49	20.30	20.07	20.17		0
	25	0	20.44	20.22	20.50	0-3	0
	25	12	20.42	20.20	20.46		0
	25	25	20.37	20.15	20.38		0
	50	0	20.42	20.19	20.47		0

Table 9-30
Reduced LTE Band 4 (AWS) Conducted Powers - 5 MHz Bandwidth – Hotspot Mode Active

LTE Band 4 (AWS) 5 MHzBandwidth							
Modulation	RB Size	RB Offset	Low Channel 19975 (1712.5 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20375 (1752.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	20.24	20.01	20.41	0	0
	1	12	20.27	20.04	20.37		0
	1	24	20.14	19.91	20.22		0
	12	0	20.35	20.12	20.41	0-1	0
	12	6	20.39	20.10	20.42		0
	12	13	20.33	20.08	20.33		0
	25	0	20.33	20.12	20.36		0
16QAM	1	0	20.08	20.50	20.43	0-1	0
	1	12	20.12	20.48	20.50		0
	1	24	20.06	20.49	20.45		0
	12	0	20.34	20.19	20.49	0-2	0
	12	6	20.22	20.18	20.45		0
	12	13	20.36	20.15	20.41		0
	25	0	20.35	20.17	20.46		0
64QAM	1	0	20.34	20.23	20.40	0-2	0
	1	12	20.36	20.27	20.43		0
	1	24	20.28	20.07	20.40		0
	12	0	20.35	20.22	20.42	0-3	0
	12	6	20.43	20.22	20.44		0
	12	13	20.31	20.14	20.38		0
	25	0	20.38	20.17	20.46		0

Table 9-31
Reduced LTE Band 4 (AWS) Conducted Powers - 3 MHz Bandwidth – Hotspot Mode Active

LTE Band 4 (AWS) 3 MHzBandwidth							
Modulation	RB Size	RB Offset	Low Channel 19965 (1711.5 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20385 (1753.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	20.19	19.91	20.31	0	0
	1	7	20.35	20.06	20.49		0
	1	14	20.13	19.83	20.42		0
	8	0	20.29	20.10	20.44	0-1	0
	8	4	20.30	20.08	20.47		0
	8	7	20.27	20.06	20.39		0
	15	0	20.27	20.06	20.42		0
16QAM	1	0	20.11	20.20	20.28	0-1	0
	1	7	20.31	20.36	20.41		0
	1	14	20.11	20.03	20.45		0
	8	0	20.32	20.21	20.47	0-2	0
	8	4	20.24	20.14	20.48		0
	8	7	20.17	20.09	20.43		0
	15	0	20.21	20.02	20.33		0
64QAM	1	0	20.24	20.09	20.48	0-2	0
	1	7	20.41	20.23	20.40		0
	1	14	20.17	20.07	20.44		0
	8	0	20.32	20.22	20.40	0-3	0
	8	4	20.34	20.23	20.39		0
	8	7	20.29	20.16	20.33		0
	15	0	20.23	20.14	20.44		0

Table 9-32
Reduced LTE Band 4 (AWS) Conducted Powers - 1.4 MHz Bandwidth – Hotspot Mode Active

LTE Band 4 (AWS) 1.4 MHzBandwidth							
Modulation	RB Size	RB Offset	Low Channel 19957 (1710.7 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20393 (1754.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	20.01	19.94	20.31	0	0
	1	2	20.22	20.03	20.43		0
	1	5	20.05	19.88	20.28		0
	3	0	20.21	19.94	20.38		0
	3	2	20.26	20.05	20.44		0
	3	3	20.16	19.95	20.35		0
	6	0	20.18	20.00	20.39	0-1	0
16QAM	1	0	20.43	19.78	20.35	0-1	0
	1	2	20.37	19.93	20.50		0
	1	5	20.47	19.83	20.23		0
	3	0	20.37	19.92	20.48		0
	3	2	20.44	20.05	20.29		0
	3	3	20.35	20.04	20.42		0
	6	0	20.34	19.93	20.36	0-2	0
64QAM	1	0	20.29	20.07	20.33	0-2	0
	1	2	20.43	20.25	20.40		0
	1	5	20.26	20.05	20.28		0
	3	0	20.42	20.04	20.33		0
	3	2	20.48	20.10	20.44		0
	3	3	20.43	20.04	20.32		0
	6	0	20.25	20.03	20.37	0-3	0

9.4.6 LTE Band 25 (PCS)

Table 9-33
LTE Band 25 (PCS) Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	**23.47**	23.44	23.32	0	0
	1	50	23.38	23.13	23.08		0
	1	99	23.03	23.06	23.07		0
	50	0	**22.35**	22.33	22.11	0-1	1
	50	25	22.28	22.26	22.13		1
	50	50	22.13	22.12	22.05		1
	100	0	22.22	22.19	22.11		1
16QAM	1	0	22.20	22.45	22.35	0-1	1
	1	50	21.97	22.21	22.06		1
	1	99	22.38	22.38	22.30		1
	50	0	21.29	21.35	21.17	0-2	2
	50	25	21.24	21.18	21.08		2
	50	50	21.21	21.17	21.01		2
	100	0	21.20	21.27	21.18		2
64QAM	1	0	21.54	21.66	21.65	0-2	2
	1	50	21.27	21.51	21.37		2
	1	99	21.34	21.33	21.49		2
	50	0	20.37	20.37	20.22	0-3	3
	50	25	20.22	20.17	20.12		3
	50	50	20.15	20.15	20.09		3
	100	0	20.30	20.23	20.12		3

Table 9-34
LTE Band 25 (PCS) Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26115 (1857.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26615 (1907.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.27	23.32	23.30	0	0
	1	36	23.27	22.95	23.03		0
	1	74	23.01	23.01	22.94		0
	36	0	22.32	22.13	21.93	0-1	1
	36	18	22.18	22.19	22.13		1
	36	37	22.03	21.95	22.03		1
	75	0	22.12	22.14	21.97		1
16QAM	1	0	22.05	22.45	22.34	0-1	1
	1	36	21.96	22.08	21.91		1
	1	74	22.25	22.27	22.13		1
	36	0	21.16	21.23	21.04	0-2	2
	36	18	21.21	21.03	20.92		2
	36	37	21.17	21.02	21.00		2
	75	0	21.14	21.18	21.17		2
64QAM	1	0	21.47	21.61	21.51	0-2	2
	1	36	21.13	21.48	21.31		2
	1	74	21.23	21.25	21.37		2
	36	0	20.18	20.22	20.05	0-3	3
	36	18	20.20	20.05	19.97		3
	36	37	19.98	20.10	19.99		3
	75	0	20.27	20.15	20.06		3

Table 9-35
LTE Band 25 (PCS) Conducted Powers - 10 MHz Bandwidth

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26090 (1855.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26640 (1910.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.33	23.29	23.40	0	0
	1	25	23.32	22.97	23.07		0
	1	49	22.93	23.10	23.00		0
	25	0	22.28	22.09	21.96	0-1	1
	25	12	22.23	22.22	22.23		1
	25	25	22.00	22.02	22.09		1
	50	0	22.07	22.24	22.02		1
16QAM	1	0	22.04	22.52	22.39	0-1	1
	1	25	21.93	22.11	21.98		1
	1	49	22.19	22.23	22.17		1
	25	0	21.24	21.17	20.94	0-2	2
	25	12	21.18	20.98	20.82		2
	25	25	21.20	21.09	21.10		2
	50	0	21.07	21.09	21.10		2
64QAM	1	0	21.43	21.58	21.47	0-2	2
	1	25	21.07	21.39	21.23		2
	1	49	21.17	21.18	21.32		2
	25	0	20.19	20.20	20.15	0-3	3
	25	12	20.20	20.03	20.05		3
	25	25	19.97	20.16	19.94		3
	50	0	20.28	20.19	19.98		3

Table 9-36
LTE Band 25 (PCS) Conducted Powers - 5 MHz Bandwidth

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26065 (1852.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26665 (1912.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.35	23.27	23.34	0	0
	1	12	23.26	22.93	23.10		0
	1	24	23.03	23.03	22.98		0
	12	0	22.23	21.99	22.03	0-1	1
	12	6	22.17	22.21	22.32		1
	12	13	22.09	21.97	22.03		1
	25	0	22.01	22.19	22.10		1
16QAM	1	0	22.01	22.50	22.42	0-1	1
	1	12	21.90	22.16	21.93		1
	1	24	22.24	22.25	22.16		1
	12	0	21.22	21.21	20.87	0-2	2
	12	6	21.18	21.06	20.91		2
	12	13	21.20	21.02	21.07		2
	25	0	21.11	21.00	21.10		2
64QAM	1	0	21.49	21.53	21.42	0-2	2
	1	12	21.15	21.44	21.24		2
	1	24	21.11	21.19	21.34		2
	12	0	20.24	20.18	20.06	0-3	3
	12	6	20.24	20.11	19.99		3
	12	13	20.03	20.12	19.88		3
	25	0	20.20	20.24	19.97		3

Table 9-37
LTE Band 25 (PCS) Conducted Powers - 3 MHz Bandwidth

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26055 (1851.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26675 (1913.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.29	23.24	23.35	0	0
	1	7	23.29	23.01	23.09		0
	1	14	22.99	23.02	22.97		0
	8	0	22.14	22.03	21.94	0-1	1
	8	4	22.22	22.17	22.34		1
	8	7	22.09	22.00	22.12		1
	15	0	21.96	22.14	22.01		1
16QAM	1	0	21.93	22.55	22.33	0-1	1
	1	7	21.89	22.17	21.92		1
	1	14	22.26	22.19	22.08		1
	8	0	21.20	21.18	20.87	0-2	2
	8	4	21.16	21.10	20.84		2
	8	7	21.23	21.08	21.07		2
	15	0	21.14	20.93	21.16		2
64QAM	1	0	21.41	21.53	21.45	0-2	2
	1	7	21.06	21.51	21.17		2
	1	14	21.16	21.27	21.33		2
	8	0	20.30	20.12	20.00	0-3	3
	8	4	20.32	20.15	19.90		3
	8	7	19.98	20.07	19.90		3
	15	0	20.19	20.26	19.95		3

Table 9-38
LTE Band 25 (PCS) Conducted Powers - 1.4 MHz Bandwidth

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26047 (1850.7 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26683 (1914.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.34	23.22	23.42	0	0
	1	2	23.34	23.09	23.03		0
	1	5	22.96	22.99	22.97		0
	3	0	23.07	23.05	23.01		0
	3	2	23.26	23.22	23.32		0
	3	3	23.15	22.98	23.15		0
	6	0	22.02	22.04	21.98	0-1	1
16QAM	1	0	21.98	22.46	22.37	0-1	1
	1	2	21.81	22.20	21.85		1
	1	5	22.24	22.28	22.00		1
	3	0	22.22	22.11	21.77		1
	3	2	22.08	22.06	21.91		1
	3	3	22.27	22.01	22.12		1
	6	0	21.23	20.89	21.22	0-2	2
64QAM	1	0	21.46	21.46	21.41	0-2	2
	1	2	21.12	21.53	21.27		2
	1	5	21.13	21.27	21.38		2
	3	0	21.40	21.13	21.01		2
	3	2	21.35	21.19	20.97		2
	3	3	20.89	21.00	20.88		2
	6	0	20.18	20.34	19.89	0-3	3

Table 9-39
Reduced LTE Band 25 (PCS) Conducted Powers - 20 MHz Bandwidth – Hotspot Mode Active

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	**20.46**	20.25	20.20	0	0
	1	50	20.21	20.04	19.96		0
	1	99	20.23	20.05	20.00		0
	50	0	**20.37**	20.23	20.26	0-1	0
	50	25	20.25	20.14	20.17		0
	50	50	20.21	20.08	20.16		0
	100	0	20.28	20.18	20.21		0
16QAM	1	0	20.50	20.47	20.49	0-1	0
	1	50	20.43	20.33	20.42		0
	1	99	20.42	20.27	20.42		0
	50	0	20.38	20.24	20.28	0-2	0
	50	25	20.35	20.17	20.21		0
	50	50	20.29	20.13	20.17		0
	100	0	20.32	20.18	20.21		0
64QAM	1	0	20.50	20.41	20.50	0-2	0
	1	50	20.46	20.27	20.37		0
	1	99	20.41	20.21	20.33		0
	50	0	20.28	20.29	20.16	0-3	0
	50	25	20.16	20.19	20.11		0
	50	50	20.13	20.14	20.07		0
	100	0	20.16	20.18	20.12		0

Table 9-40
Reduced LTE Band 25 (PCS) Conducted Powers - 15 MHz Bandwidth – Hotspot Mode Active

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26115 (1857.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26615 (1907.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	20.50	20.49	20.50	0	0
	1	36	20.46	20.32	20.47		0
	1	74	20.44	20.28	20.45		0
	36	0	20.50	20.50	20.48	0-1	0
	36	18	20.47	20.49	20.45		0
	36	37	20.48	20.44	20.44		0
	75	0	20.49	20.42	20.49		0
16QAM	1	0	20.47	20.50	20.50	0-1	0
	1	36	20.46	20.49	20.49		0
	1	74	20.50	20.47	20.47		0
	36	0	20.47	20.48	20.46	0-2	0
	36	18	20.49	20.50	20.45		0
	36	37	20.48	20.49	20.49		0
	75	0	20.50	20.50	20.46		0
64QAM	1	0	20.44	20.44	20.45	0-2	0
	1	36	20.46	20.36	20.40		0
	1	74	20.40	20.26	20.42		0
	36	0	20.36	20.34	20.28	0-3	0
	36	18	20.37	20.36	20.20		0
	36	37	20.27	20.29	20.19		0
	75	0	20.27	20.33	20.26		0

Table 9-41
Reduced LTE Band 25 (PCS) Conducted Powers - 10 MHz Bandwidth – Hotspot Mode Active

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26090 (1855.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26640 (1910.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	20.48	20.50	20.48	0	0
	1	25	20.40	20.41	20.36		0
	1	49	20.45	20.37	20.31		0
	25	0	20.50	20.48	20.47	0-1	0
	25	12	20.47	20.48	20.48		0
	25	25	20.47	20.43	20.46		0
	50	0	20.50	20.47	20.46		0
16QAM	1	0	20.50	20.50	20.50	0-1	0
	1	25	20.46	20.49	20.41		0
	1	49	20.46	20.44	20.45		0
	25	0	20.45	20.50	20.50	0-2	0
	25	12	20.50	20.48	20.45		0
	25	25	20.48	20.46	20.40		0
	50	0	20.50	20.50	20.49		0
64QAM	1	0	20.33	20.43	20.48	0-2	0
	1	25	20.47	20.47	20.47		0
	1	49	20.44	20.49	20.37		0
	25	0	20.33	20.44	20.22	0-3	0
	25	12	20.27	20.41	20.19		0
	25	25	20.22	20.35	20.11		0
	50	0	20.29	20.34	20.12		0

Table 9-42
Reduced LTE Band 25 (PCS) Conducted Powers - 5 MHz Bandwidth – Hotspot Mode Active

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26065 (1852.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26665 (1912.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	20.48	20.27	20.48	0	0
	1	12	20.47	20.27	20.48		0
	1	24	20.46	20.23	20.45		0
	12	0	20.50	20.45	20.46	0-1	0
	12	6	20.50	20.45	20.47		0
	12	13	20.48	20.38	20.45		0
	25	0	20.50	20.44	20.47		0
16QAM	1	0	20.50	20.47	20.44	0-1	0
	1	12	20.49	20.50	20.48		0
	1	24	20.50	20.50	20.47		0
	12	0	20.50	20.48	20.44	0-2	0
	12	6	20.49	20.40	20.44		0
	12	13	20.48	20.44	20.40		0
	25	0	20.50	20.34	20.49		0
64QAM	1	0	20.50	20.37	20.48	0-2	0
	1	12	20.48	20.29	20.47		0
	1	24	20.49	20.28	20.46		0
	12	0	20.38	20.29	20.31	0-3	0
	12	6	20.42	20.24	20.33		0
	12	13	20.39	20.20	20.30		0
	25	0	20.40	20.25	20.31		0

Table 9-43
Reduced LTE Band 25 (PCS) Conducted Powers - 3 MHz Bandwidth – Hotspot Mode Active

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26055 (1851.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26675 (1913.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	20.47	20.30	20.46	0	0
	1	7	20.46	20.39	20.38		0
	1	14	20.47	20.23	20.34		0
	8	0	20.44	20.41	20.50	0-1	0
	8	4	20.46	20.44	20.42		0
	8	7	20.47	20.39	20.37		0
	15	0	20.50	20.41	20.45		0
16QAM	1	0	20.45	20.45	20.48	0-1	0
	1	7	20.48	20.48	20.47		0
	1	14	20.37	20.50	20.45		0
	8	0	20.45	20.35	20.42	0-2	0
	8	4	20.48	20.34	20.45		0
	8	7	20.42	20.34	20.42		0
	15	0	20.50	20.41	20.49		0
64QAM	1	0	20.49	20.29	20.47	0-2	0
	1	7	20.50	20.37	20.46		0
	1	14	20.37	20.23	20.49		0
	8	0	20.44	20.28	20.29	0-3	0
	8	4	20.46	20.30	20.15		0
	8	7	20.42	20.25	20.09		0
	15	0	20.40	20.24	20.19		0

Table 9-44
Reduced LTE Band 25 (PCS) Conducted Powers -1.4 MHz Bandwidth – Hotspot Mode Active

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26047 (1850.7 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26683 (1914.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	20.48	20.39	20.34	0	0
	1	2	20.50	20.45	20.41		0
	1	5	20.48	20.40	20.34		0
	3	0	20.50	20.34	20.41		0
	3	2	20.50	20.35	20.48		0
	3	3	20.47	20.31	20.45		0
	6	0	20.45	20.29	20.44	0-1	0
16QAM	1	0	20.43	20.24	20.47	0-1	0
	1	2	20.50	20.29	20.50		0
	1	5	20.47	20.22	20.38		0
	3	0	20.50	20.32	20.37		0
	3	2	20.49	20.39	20.46		0
	3	3	20.50	20.36	20.40		0
	6	0	20.46	20.40	20.42	0-2	0
64QAM	1	0	20.44	20.38	20.37	0-2	0
	1	2	20.50	20.42	20.41		0
	1	5	20.47	20.24	20.42		0
	3	0	20.50	20.25	20.49		0
	3	2	20.49	20.32	20.49		0
	3	3	20.27	20.21	20.18		0
	6	0	20.22	20.12	20.10	0-3	0

9.4.7 LTE Band 41

Table 9-45
LTE Band 41 Power Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHzBandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	24.67	24.73	**24.97**	24.48	24.56	0	0
	1	50	24.59	24.57	24.88	24.34	24.44		0
	1	99	24.45	24.54	24.65	24.16	24.32		0
	50	0	23.77	23.64	**23.88**	23.40	23.35	0-1	1
	50	25	23.75	23.61	23.81	23.23	23.33		1
	50	50	23.62	23.47	23.69	23.13	23.27		1
	100	0	23.49	23.57	23.73	23.26	23.40		1
16QAM	1	0	23.56	23.61	23.81	23.29	23.24	0-1	1
	1	50	23.27	23.37	23.41	22.98	23.10		1
	1	99	23.27	23.27	23.13	22.67	22.71		1
	50	0	22.54	22.59	22.84	22.28	22.42	0-2	2
	50	25	22.61	22.56	22.72	22.15	22.11		2
	50	50	22.41	22.51	22.78	22.28	22.27		2
	100	0	22.61	22.58	22.69	22.24	22.35		2
64QAM	1	0	22.13	22.26	22.24	22.00	22.03	0-2	2
	1	50	21.87	21.95	21.98	21.67	21.70		2
	1	99	21.84	21.91	22.00	21.65	21.67		2
	50	0	21.37	21.36	21.40	21.16	21.27	0-3	3
	50	25	21.21	21.35	21.35	21.11	21.17		3
	50	50	21.11	21.26	21.29	21.03	21.07		3
	100	0	21.18	21.38	21.35	21.17	21.15		3

Table 9-46
LTE Band 41 Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHzBandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	24.45	24.63	24.67	24.25	24.27	0	0
	1	36	24.36	24.52	24.77	24.23	24.25		0
	1	74	24.27	24.24	24.44	24.15	24.24		0
	36	0	23.57	23.39	23.73	23.37	23.05	0-1	1
	36	18	23.55	23.32	23.66	23.00	23.08		1
	36	37	23.59	23.41	23.66	22.88	23.04		1
	75	0	23.44	23.29	23.50	22.99	23.30		1
16QAM	1	0	23.50	23.38	23.54	23.20	23.06	0-1	1
	1	36	23.11	23.24	23.32	22.81	22.80		1
	1	74	23.03	23.13	23.13	22.58	22.54		1
	36	0	22.25	22.46	22.65	22.18	22.27	0-2	2
	36	18	22.57	22.26	22.58	22.08	21.84		2
	36	37	22.17	22.23	22.51	22.19	22.01		2
	75	0	22.39	22.35	22.41	22.07	22.06		2
64QAM	1	0	22.00	22.05	22.10	21.91	21.95	0-2	2
	1	36	21.88	22.04	22.01	21.69	21.81		2
	1	74	21.85	21.94	21.92	21.55	21.63		2
	36	0	21.29	21.30	21.33	21.13	21.15	0-3	3
	36	18	21.22	21.27	21.34	21.08	21.07		3
	36	37	21.14	21.23	21.26	21.04	21.00		3
	75	0	21.15	21.30	21.30	21.11	21.16		3

Table 9-47
LTE Band 41 Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHzBandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	24.58	24.80	24.73	24.32	24.20	0	0
	1	25	24.35	24.63	24.80	24.16	24.24		0
	1	49	24.36	24.13	24.45	24.11	24.06		0
	25	0	23.63	23.47	23.57	23.57	23.12	0-1	1
	25	12	23.36	23.24	23.46	23.06	22.98		1
	25	25	23.48	23.21	23.64	22.79	23.01		1
	50	0	23.39	23.44	23.58	23.08	23.36		1
16QAM	1	0	23.58	23.54	23.35	23.38	23.12	0-1	1
	1	25	23.12	23.33	23.13	22.84	22.70		1
	1	49	23.04	23.02	22.94	22.67	22.69		1
	25	0	22.14	22.63	22.78	21.99	22.40	0-2	2
	25	12	22.43	22.31	22.73	22.03	21.85		2
	25	25	22.33	22.19	22.42	22.28	21.86		2
	50	0	22.37	22.27	22.37	22.09	21.91		2
64QAM	1	0	22.01	22.05	22.12	21.82	21.93	0-2	2
	1	25	21.83	21.94	21.98	21.63	21.82		2
	1	49	21.80	21.92	21.94	21.66	21.71		2
	25	0	21.21	21.33	21.31	21.10	21.14	0-3	3
	25	12	21.24	21.39	21.34	21.15	21.17		3
	25	25	21.20	21.40	21.30	21.11	21.13		3
	50	0	21.18	21.38	21.27	21.07	21.11		3

Table 9-48
LTE Band 41 Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHzBandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	24.43	24.90	24.90	24.46	24.08	0	0
	1	12	24.49	24.57	24.81	23.96	24.28		0
	1	24	24.26	24.15	24.27	24.09	24.11		0
	12	0	23.57	23.63	23.54	23.48	23.30	0-1	1
	12	6	23.56	23.44	23.52	22.99	23.03		1
	12	13	23.38	23.01	23.73	22.70	22.97		1
	25	0	23.28	23.30	23.56	22.99	23.33		1
16QAM	1	0	23.38	23.65	23.16	23.38	23.20	0-1	1
	1	12	22.95	23.24	23.14	22.67	22.80		1
	1	24	22.89	23.00	23.06	22.73	22.82		1
	12	0	22.08	22.82	22.79	22.03	22.43	0-2	2
	12	6	22.48	22.33	22.53	21.94	21.82		2
	12	13	22.42	22.34	22.43	22.28	21.81		2
	25	0	22.34	22.23	22.48	21.92	21.72		2
64QAM	1	0	21.93	21.99	22.01	21.90	21.81	0-2	2
	1	12	21.82	21.90	21.99	21.69	21.76		2
	1	24	22.00	21.97	21.95	21.63	21.75		2
	12	0	21.20	21.36	21.33	21.63	21.20	0-3	3
	12	6	21.28	21.33	21.38	21.09	21.15		3
	12	13	21.17	21.30	21.25	21.05	21.14		3
	25	0	21.25	21.40	21.36	21.06	21.16		3

Table 9-49
Reduced LTE Band 41 Conducted Powers - 20 MHz Bandwidth– Hotspot Mode Active

LTE Band 41 20 MHzBandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	**20.75**	20.61	20.70	20.30	20.13	0	0
	1	50	20.57	20.48	20.54	20.16	19.95		0
	1	99	20.66	20.62	20.52	19.99	19.96		0
	50	0	**20.69**	20.47	20.57	20.26	20.16	0-1	0
	50	25	20.62	20.55	20.60	20.17	20.18		0
	50	50	20.54	20.49	20.53	20.09	20.12		0
	100	0	20.44	20.36	20.45	20.12	20.11		0
16QAM	1	0	20.52	20.51	20.47	20.24	19.91	0-1	0
	1	50	20.30	20.28	20.28	20.03	19.52		0
	1	99	20.31	20.22	20.24	19.98	19.53		0
	50	0	20.37	20.43	20.45	20.09	20.07	0-2	0
	50	25	20.56	20.61	20.53	20.11	20.11		0
	50	50	20.55	20.49	20.45	20.02	20.09		0
	100	0	20.36	20.43	20.46	20.17	20.14		0
64QAM	1	0	20.15	20.16	20.15	19.85	20.05	0-2	0
	1	50	19.95	19.91	19.91	19.68	19.73		0
	1	99	19.84	19.93	19.85	19.58	19.55		0
	50	0	20.44	20.39	20.38	20.15	20.10	0-3	0
	50	25	20.39	20.38	20.32	20.03	20.12		0
	50	50	20.24	20.21	20.23	19.91	20.00		0
	100	0	20.36	20.31	20.36	20.04	20.04		0

Table 9-50
Reduced LTE Band 41 Conducted Powers - 15 MHz Bandwidth– Hotspot Mode Active

LTE Band 41 15 MHzBandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	20.57	20.48	20.52	20.34	20.35	0	0
	1	36	20.46	20.25	20.37	20.13	20.24		0
	1	74	20.33	20.12	20.23	20.04	20.04		0
	36	0	20.49	20.51	20.47	20.25	20.33	0-1	0
	36	18	20.57	20.45	20.56	20.25	20.25		0
	36	37	20.44	20.37	20.47	20.21	20.20		0
	75	0	20.51	20.37	20.51	20.19	20.20		0
16QAM	1	0	20.57	20.36	20.64	20.15	20.56	0-1	0
	1	36	20.35	20.24	20.47	20.05	20.34		0
	1	74	20.35	20.20	20.32	19.96	20.20		0
	36	0	20.71	20.42	20.72	20.27	20.24	0-2	0
	36	18	20.66	20.49	20.57	20.36	20.29		0
	36	37	20.55	20.44	20.54	20.24	20.17		0
	75	0	20.48	20.41	20.50	20.23	20.18		0
64QAM	1	0	20.12	20.05	20.11	19.81	19.95	0-2	0
	1	36	20.00	19.94	19.89	19.66	19.81		0
	1	74	19.89	19.93	19.92	19.64	19.63		0
	36	0	20.28	20.26	20.34	20.06	20.05	0-3	0
	36	18	20.37	20.26	20.26	19.94	20.02		0
	36	37	20.24	20.24	20.27	19.93	20.00		0
	75	0	20.33	20.37	20.33	19.98	20.14		0

Table 9-51
Reduced LTE Band 41 Conducted Powers - 10 MHz Bandwidth– Hotspot Mode Active

LTE Band 41 10 MHzBandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	20.43	20.45	20.47	20.27	20.22	0	0
	1	25	20.35	20.38	20.37	20.20	20.15		0
	1	49	20.22	20.32	20.33	20.10	20.08		0
	25	0	20.45	20.48	20.52	20.23	20.20	0-1	0
	25	12	20.43	20.44	20.48	20.22	20.20		0
	25	25	20.35	20.38	20.41	20.15	20.10		0
	50	0	20.39	20.43	20.51	20.18	20.22		0
16QAM	1	0	20.71	20.80	20.61	20.30	20.52	0-1	0
	1	25	20.60	20.73	20.47	20.17	20.42		0
	1	49	20.60	20.66	20.43	20.16	20.33		0
	25	0	20.38	20.38	20.50	20.23	20.20	0-2	0
	25	12	20.39	20.41	20.51	20.19	20.20		0
	25	25	20.36	20.35	20.43	20.12	20.11		0
	50	0	20.43	20.35	20.53	20.22	20.12		0
64QAM	1	0	20.11	19.93	20.09	20.14	19.87	0-2	0
	1	25	19.96	19.93	19.98	19.97	19.69		0
	1	49	19.92	19.94	19.93	19.94	19.66		0
	25	0	20.45	20.38	20.34	20.30	20.08	0-3	0
	25	12	20.38	20.30	20.30	20.40	20.05		0
	25	25	20.43	20.32	20.27	20.26	19.97		0
	50	0	20.23	20.26	20.32	20.37	20.10		0

Table 9-52
Reduced LTE Band 41 Conducted Powers - 5 MHz Bandwidth– Hotspot Mode Active

LTE Band 41 5 MHzBandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	20.54	20.49	20.55	20.22	20.32	0	0
	1	12	20.50	20.41	20.45	20.15	20.23		0
	1	24	20.50	20.42	20.43	20.18	20.23		0
	12	0	20.45	20.46	20.54	20.18	20.22	0-1	0
	12	6	20.48	20.43	20.54	20.18	20.23		0
	12	13	20.45	20.37	20.43	20.15	20.17		0
	25	0	20.43	20.41	20.47	20.15	20.19		0
16QAM	1	0	20.45	19.95	20.04	20.14	20.34	0-1	0
	1	12	20.38	19.94	19.99	20.06	20.20		0
	1	24	20.34	19.90	19.98	20.06	20.22		0
	12	0	20.63	20.35	20.41	20.30	20.17	0-2	0
	12	6	20.59	20.35	20.42	20.29	20.25		0
	12	13	20.55	20.35	20.41	20.25	20.11		0
	25	0	20.49	20.45	20.54	20.21	20.14		0
64QAM	1	0	19.95	19.99	20.07	19.63	19.69	0-2	0
	1	12	19.99	19.89	19.96	19.63	19.72		0
	1	24	19.88	19.90	19.87	19.70	19.70		0
	12	0	20.31	20.33	20.38	20.08	20.14	0-3	0
	12	6	20.28	20.31	20.40	19.98	20.10		0
	12	13	20.28	20.24	20.24	19.99	20.09		0
	25	0	20.35	20.26	20.23	20.08	20.01		0

9.4.8 LTE Carrier Aggregation Conducted Powers

Table 9-53
Two Component Carrier Maximum Conducted Powers

PCC									SCC				Power	
PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx power with DL CA enabled (dBm)	LTE Single Carrier Tx power (dBm)
LTE B41	20	40620	2593	QPSK	1	0	40620	2593	LTE B41	20	40422	2573.2	24.67	24.97
LTE B41	20	40620	2593	QPSK	1	0	40620	2593	LTE B41	5	39675	2498.5	24.64	24.97

Table 9-54
Three Component Carrier Maximum Conducted Powers

PCC									SCC 1				SCC 2				Power	
PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx power with DL CA enabled (dBm)	LTE Single Carrier Tx power (dBm)
LTE B41	20	40620	2593	QPSK	1	0	40620	2593	LTE B41	20	40422	2573.2	LTE B41	20	40224	2553.4	24.70	24.97

Table 9-55
Two Component Carrier Reduced Conducted Powers – Hotspot Mode Active

PCC									SCC				Power	
PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx power with DL CA enabled (dBm)	LTE Single Carrier Tx power (dBm)
LTE B41	10	40185	2549.5	16QAM	1	0	40185	2549.5	LTE B41	20	40035	2534.5	20.73	20.80
LTE B41	10	40185	2549.5	16QAM	1	0	40185	2549.5	LTE B41	5	41565	2687.5	20.65	20.80

Table 9-56
Three Component Carrier Reduced Conducted Powers – Hotspot Mode Active

PCC									SCC 1				SCC 2				Power	
PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx power with DL CA enabled (dBm)	LTE Single Carrier Tx power (dBm)
LTE B41	10	40185	2549.5	16QAM	1	0	40185	2549.5	LTE B41	20	40335	2564.5	LTE B41	20	40533	2584.3	20.69	20.80

Notes:

1. The device supports downlink Carrier Aggregation for every supported combination of downlink carrier aggregation, power measurements were performed with the downlink carrier aggregation active for the configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.
2. All control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.
3. For 3CC downlink carrier aggregation combinations, PCC uplink channel was selected based on section C)3)b)ii) of KBD 941225 D05 V01r02. The downlink PCC channel was paired with the selected PCC uplink channel according to normal configurations without carrier aggregation. For contiguous intra-band CA, the downlink channel spacing between the component carriers was set to multiple of 300 kHz less than the nominal channel spacing defined in section 5.4.1A of 3GPP TS 36.521. For non-contiguous intra-band CA, the downlink channel spacing between the component carriers was set to be larger than the nominal channel spacing and provided maximum separation between the component carriers. All selected downlink channels remained fully within the downlink transmission band of the respective component carrier.

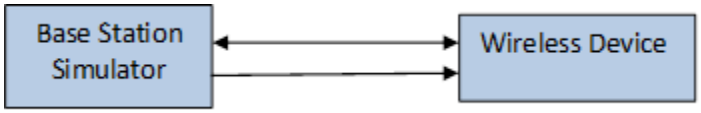


Figure 9-D
Power Measurement Setup

9.4.9 LTE Uplink Carrier Aggregation Conducted Powers

Table 9-57
Maximum LTE Uplink Carrier Aggregation Conducted Powers

Power State	PCC							SCC							Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	ULCA Tx.Power (dBm)	LTE Rel. 8 PCC Tx.Power (dBm)
Max	LTE B41	20	40620	2593	QPSK	1	0	LTE B41	20	40422	2573.2	QPSK	1	99	25.00	24.97

Table 9-58
Reduced LTE Uplink Carrier Aggregation Conducted Powers

Power State	PCC							SCC							Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	ULCA Tx.Power (dBm)	LTE Rel. 8 PCC Tx.Power (dBm)
Reduced	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	99	20.85	20.66

Notes:

1. This device supports uplink carrier aggregation for LTE CA_41C with a maximum of two 20 MHz component carriers. For intraband contiguous carrier aggregation scenarios, 3GPP 36.101 Table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when non-contiguous RB allocation is implemented. The conducted powers and MPR settings in this device are permanently implemented per the above 3GPP requirements.
2. Per FCC Guidance, the output power with uplink CA active was measured for the configuration with the highest reported SAR for each exposure condition. The power was measured with wideband signal integration over both component carriers (40 MHz Bandwidth).
3. Uplink carrier aggregation is only possible when the device is operating for LTE Band 41.

Figure 9-E
Power Measurement Setup

9.5 WLAN Conducted Powers

Table 9-59
2.4 GHz WLAN Maximum Average RF Power – Antenna 1

Freq [MHz]	Channel	2.4GHz Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11b	802.11g	802.11n
2412	1	19.93	17.35	17.39
2437	6	19.71	17.36	17.23
2462	11	20.00	17.38	17.26

Table 9-60
2.4 GHz WLAN Maximum Average RF Power – Antenna 2

Freq [MHz]	Channel	2.4GHz Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11b	802.11g	802.11n
2412	1	19.30	16.72	16.53
2437	6	19.90	17.04	17.10
2462	11	19.43	16.77	16.45

Table 9-61
5 GHz WLAN Maximum Average RF Power – Antenna 1

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
5180	36	17.11	17.20	17.23
5200	40	17.22	17.22	17.22
5220	44	17.17	17.26	17.28
5240	48	17.35	17.22	17.32
5260	52	16.92	16.94	17.02
5280	56	17.01	16.94	17.02
5300	60	16.93	17.03	17.10
5320	64	17.02	17.08	17.01
5500	100	16.36	16.50	16.40
5600	120	16.26	16.17	16.20
5620	124	16.33	16.19	16.12
5720	144	16.16	16.19	17.24
5745	149	16.71	16.62	16.55
5785	157	16.69	16.74	16.57
5825	165	16.50	16.50	16.36

Table 9-62
5 GHz WLAN Maximum Average RF Power – Antenna 2

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
5180	36	17.20	17.38	16.87
5200	40	16.89	16.88	16.46
5220	44	16.63	16.56	16.08
5240	48	16.23	16.10	17.40
5260	52	16.32	16.11	17.38
5280	56	17.45	17.41	17.20
5300	60	17.29	17.07	17.06
5320	64	17.35	16.99	16.88
5500	100	16.44	16.42	16.73
5600	120	16.36	16.71	16.77
5620	124	16.84	16.95	17.05
5720	144	17.09	17.44	16.80
5745	149	17.16	16.87	16.96
5785	157	17.27	16.78	16.75
5825	165	16.58	17.00	16.96

Table 9-63
Maximum Output Powers During Operations with Simultaneous MIMO 2.4 GHz and 5 GHz WLAN

Freq [MHz]	Channel	2.4GHz Conducted Power [dBm]	
		ANT1	ANT2
2412	1	13.33	13.00
2437	6	12.88	13.00
2462	11	12.84	12.93
Freq [MHz]	**Channel**	**5GHz (80MHz) Conducted Power [dBm]**	
		ANT1	**ANT2**
5210	42	13.32	13.38
5290	58	12.88	13.48
5530	106	13.30	12.56
5610	122	13.21	13.47
5690	138	13.15	12.43
5775	155	13.14	13.15

Table 9-64
2.4 GHz WLAN Reduced Average RF Power – Antenna 1

Freq [MHz]	Channel	2.4GHz Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11b	802.11g	802.11n
2412	1	16.79	15.00	15.24
2437	6	16.80	14.82	15.33
2462	11	16.75	14.85	15.36

Table 9-65
2.4 GHz WLAN Reduced Average RF Power – Antenna 2

Freq [MHz]	Channel	2.4GHz Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11b	802.11g	802.11n
2412	1	16.79	14.84	14.77
2437	6	17.25	14.90	14.89
2462	11	16.64	14.60	15.34

Table 9-66
5 GHz WLAN Reduced Average RF Power – Antenna 1

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
5180	36	15.35	14.45	14.61
5200	40	15.24	14.58	14.63
5220	44	15.32	14.52	14.41
5240	48	15.26	14.41	14.56
5260	52	14.63	14.75	14.71
5280	56	14.62	14.79	14.68
5300	60	14.66	14.73	14.63
5320	64	14.78	14.76	14.76
5500	100	15.31	14.90	14.86
5600	120	15.19	14.77	14.66
5620	124	15.21	14.77	14.77
5720	144	15.10	14.70	14.73
5745	149	15.47	14.52	14.51
5785	157	15.49	14.49	14.57
5825	165	15.45	14.61	14.41

Table 9-67
5 GHz WLAN Reduced Average RF Power – Antenna 2

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
5180	36	15.03	14.50	14.64
5200	40	14.92	14.87	14.79
5220	44	14.87	14.91	14.75
5240	48	14.95	14.76	14.83
5260	52	15.25	14.77	14.78
5280	56	15.32	14.73	14.82
5300	60	15.20	14.87	14.81
5320	64	15.26	14.91	14.82
5500	100	14.84	14.77	14.75
5600	120	14.67	14.67	14.70
5620	124	14.71	14.81	14.64
5720	144	15.44	14.44	14.35
5745	149	14.83	14.02	13.98
5785	157	14.70	13.95	13.65
5825	165	14.85	13.94	14.57

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

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

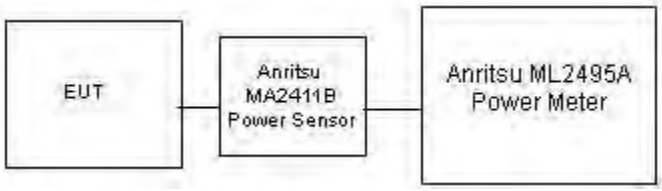


Figure 9-D
Power Measurement Setup

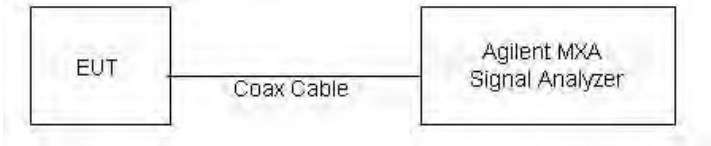


Figure 9-E
Power Measurement Setup for Bandwidths > 50 MHz

9.6 Bluetooth Conducted Powers

Table 9-68
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	13.97	24.968
2441	1.0	39	14.58	28.687
2480	1.0	78	**15.50**	35.500
2402	2.0	0	7.89	6.151
2441	2.0	39	8.57	7.194
2480	2.0	78	9.87	9.702
2402	3.0	0	8.05	6.386
2441	3.0	39	8.71	7.432
2480	3.0	78	9.93	9.838

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

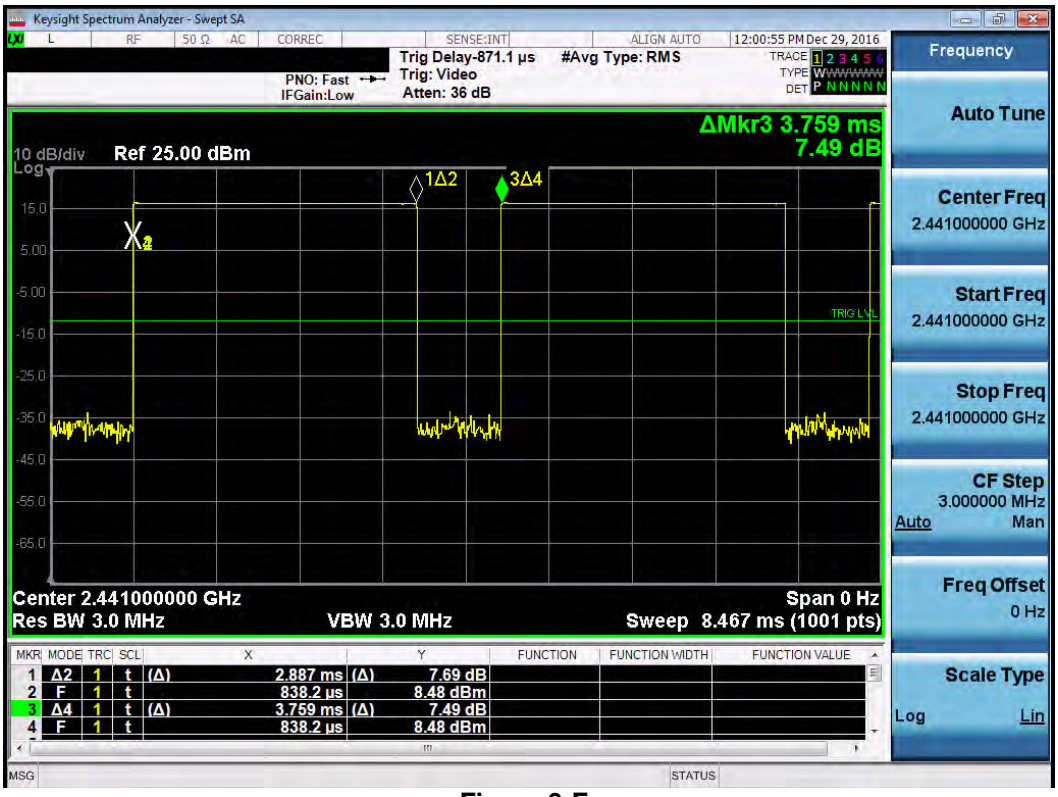


Figure 9-F
Bluetooth Transmission Plot

Equation 2
Bluetooth Duty Cycle Calculation

$$Duty\ Cycle = Pulse\frac{Width}{Period} * 100\% = \frac{2.887ms}{3.759ms} * 100\% = 76.8\%$$

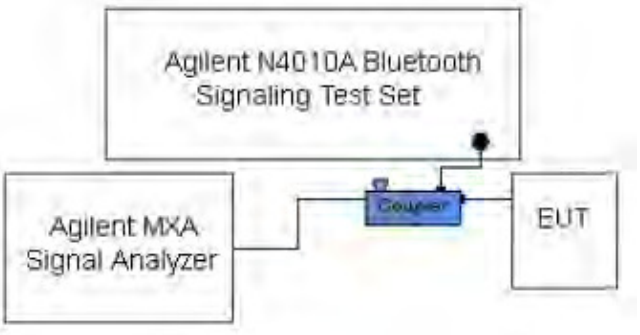


Figure 9-G
Power Measurement Setup

10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (˚C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	%dev σ	%dev ε
1/18/2017	750H	23.0	700	0.852	42.268	0.889	42.201	-4.16%	0.16%
			710	0.860	42.127	0.890	42.149	-3.37%	-0.05%
			740	0.888	41.693	0.893	41.994	-0.56%	-0.72%
			755	0.902	41.482	0.894	41.916	0.89%	-1.04%
			770	0.916	41.271	0.895	41.838	2.35%	-1.36%
			785	0.929	41.052	0.896	41.760	3.68%	-1.70%
1/19/2017	835H	22.0	820	0.902	40.970	0.899	41.578	0.33%	-1.46%
			835	0.918	40.832	0.900	41.500	2.00%	-1.61%
			850	0.934	40.676	0.916	41.500	1.97%	-1.99%
2/10/2017	835H	20.0	820	0.890	40.983	0.899	41.578	-1.00%	-1.43%
			835	0.904	40.792	0.900	41.500	0.44%	-1.71%
			850	0.919	40.602	0.916	41.500	0.33%	-2.16%
1/12/2017	1750H	23.6	1710	1.306	39.371	1.348	40.142	-3.12%	-1.92%
			1750	1.342	39.159	1.371	40.079	-2.12%	-2.30%
			1790	1.387	39.017	1.394	40.016	-0.50%	-2.50%
1/16/2017	1900H	22.0	1850	1.393	39.545	1.400	40.000	-0.50%	-1.14%
			1880	1.424	39.483	1.400	40.000	1.71%	-1.29%
			1910	1.461	39.309	1.400	40.000	4.36%	-1.73%
1/10/2017	2450H	23.5	2400	1.812	39.376	1.756	39.289	3.19%	0.22%
			2450	1.867	39.124	1.800	39.200	3.72%	-0.19%
			2500	1.933	38.944	1.855	39.136	4.20%	-0.49%
1/22/2017	2450H	24.0	2400	1.814	38.386	1.756	39.289	3.30%	-2.30%
			2450	1.869	38.155	1.800	39.200	3.83%	-2.67%
			2500	1.931	37.926	1.855	39.136	4.10%	-3.09%
1/13/2017	2600H	23.9	2500	1.914	38.964	1.855	39.136	3.18%	-0.44%
			2550	1.980	38.780	1.909	39.073	3.72%	-0.75%
			2600	2.033	38.497	1.964	39.009	3.51%	-1.31%
12/28/2016	5200H-5800H	19.7	5240	4.673	34.672	4.696	35.940	-0.49%	-3.53%
			5260	4.694	34.657	4.717	35.917	-0.49%	-3.51%
			5280	4.714	34.614	4.737	35.894	-0.49%	-3.57%
			5320	4.746	34.590	4.778	35.849	-0.67%	-3.51%
			5500	4.921	34.346	4.963	35.643	-0.85%	-3.64%
			5600	5.031	34.091	5.065	35.529	-0.67%	-4.05%
			5700	5.125	33.991	5.168	35.414	-0.83%	-4.02%
			5745	5.199	33.942	5.214	35.363	-0.29%	-4.02%
			5765	5.202	33.899	5.234	35.340	-0.61%	-4.08%
			5785	5.219	33.897	5.255	35.317	-0.69%	-4.02%
			5825	5.290	33.811	5.296	35.271	-0.11%	-4.14%

Table 10-2
Measured Body Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	%dev σ	%dev ε
1/14/2017	750B	22.0	740	0.940	54.920	0.963	55.570	-2.39%	-1.17%
			755	0.957	54.812	0.964	55.512	-0.73%	-1.26%
			770	0.966	54.706	0.965	55.453	0.10%	-1.35%
			785	0.987	54.478	0.966	55.395	2.17%	-1.66%
1/17/2017	750B	23.2	700	0.915	55.332	0.959	55.726	-4.59%	-0.71%
			710	0.925	55.241	0.960	55.687	-3.65%	-0.80%
			740	0.953	54.935	0.963	55.570	-1.04%	-1.14%
			755	0.967	54.773	0.964	55.512	0.31%	-1.33%
1/14/2017	835B	20.7	820	0.988	54.753	0.969	55.258	1.96%	-0.91%
			835	1.000	54.577	0.970	55.200	3.09%	-1.13%
			850	1.014	54.472	0.988	55.154	2.63%	-1.24%
1/17/2017	835B	20.9	820	0.979	54.076	0.969	55.258	1.03%	-2.14%
			835	0.993	53.907	0.970	55.200	2.37%	-2.34%
			850	1.008	53.748	0.988	55.154	2.02%	-2.55%
2/9/2017	835B	21.3	820	0.977	52.840	0.969	55.258	0.83%	-4.38%
			835	0.991	52.690	0.970	55.200	2.16%	-4.55%
			850	1.006	52.532	0.988	55.154	1.82%	-4.75%
1/16/2017	1750B	21.5	1710	1.452	51.987	1.463	53.537	-0.75%	-2.90%
			1750	1.492	51.877	1.488	53.432	0.27%	-2.91%
			1790	1.543	51.722	1.514	53.326	1.92%	-3.01%
1/16/2017	1900B	22.7	1850	1.514	51.467	1.520	53.300	-0.39%	-3.44%
			1880	1.550	51.400	1.520	53.300	1.97%	-3.56%
			1910	1.582	51.286	1.520	53.300	4.08%	-3.78%
1/9/2017	2450B	22.6	2400	1.967	51.168	1.902	52.767	3.42%	-3.03%
			2450	2.031	50.992	1.950	52.700	4.15%	-3.24%
			2500	2.107	50.834	2.021	52.636	4.26%	-3.42%
1/14/2017	2450B-2600B	23.0	2500	2.029	50.973	2.021	52.636	0.40%	-3.16%
			2550	2.091	50.813	2.092	52.573	-0.05%	-3.35%
			2600	2.159	50.581	2.163	52.509	-0.18%	-3.67%
			2650	2.228	50.469	2.234	52.445	-0.27%	-3.77%
1/24/2017	2450B	23.7	2400	1.951	52.052	1.902	52.767	2.58%	-1.36%
			2450	2.014	51.856	1.950	52.700	3.28%	-1.60%
			2500	2.086	51.676	2.021	52.636	3.22%	-1.82%
2/22/2017	2450B	23.0	2450	2.016	51.286	1.950	52.700	3.38%	-2.68%
			2500	2.089	51.074	2.021	52.636	3.36%	-2.97%
			2550	2.159	50.892	2.092	52.573	3.20%	-3.20%
			2600	2.226	50.665	2.163	52.509	2.91%	-3.51%
01/02/2017	5200B-5800B	22.0	5240	5.465	48.704	5.346	48.960	2.23%	-0.52%
			5260	5.482	48.680	5.369	48.933	2.10%	-0.52%
			5280	5.502	48.624	5.393	48.906	2.02%	-0.58%
			5320	5.549	48.547	5.439	48.851	2.02%	-0.62%
			5500	5.791	48.278	5.650	48.607	2.50%	-0.68%
			5600	5.917	48.062	5.766	48.471	2.62%	-0.84%
			5700	6.035	47.934	5.883	48.336	2.58%	-0.83%
			5745	6.127	47.855	5.936	48.275	3.22%	-0.87%
			5765	6.159	47.823	5.959	48.248	3.36%	-0.88%
			5785	6.163	47.808	5.982	48.220	3.03%	-0.85%

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

10.2 Test System Verification

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

Table 10-3
System Verification Results

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)	$Deviation_{1g}$ (%)
I	750	HEAD	01/18/2017	24.3	23.0	0.200	1161	3209	1.570	8.170	7.850	-3.92%
G	835	HEAD	01/19/2017	23.9	22.0	0.200	4d047	3287	1.940	9.130	9.700	6.24%
J	835	HEAD	02/10/2017	20.9	20.0	0.200	4d133	3334	1.970	9.320	9.850	5.69%
I	1750	HEAD	01/12/2017	23.6	23.0	0.100	1148	3209	3.700	36.200	37.000	2.21%
G	1900	HEAD	01/16/2017	23.5	22.0	0.100	5d149	3287	4.090	40.100	40.900	2.00%
G	2450	HEAD	01/10/2017	23.6	23.0	0.100	797	3287	5.450	52.100	54.500	4.61%
G	2450	HEAD	01/22/2017	23.2	22.5	0.100	981	3287	5.640	52.800	56.400	6.82%
G	2600	HEAD	01/13/2017	21.9	22.5	0.100	1126	3287	6.060	56.300	60.600	7.64%
J	5250	HEAD	12/28/2016	21.5	19.7	0.050	1237	7357	3.840	79.200	76.800	-3.03%
J	5600	HEAD	12/28/2016	21.5	19.7	0.050	1237	7357	4.000	83.300	80.000	-3.96%
J	5750	HEAD	12/28/2016	21.5	19.7	0.050	1237	7357	3.710	81.500	74.200	-8.96%
F	750	BODY	01/14/2017	22.7	22.0	0.200	1054	3332	1.670	8.560	8.350	-2.45%
F	750	BODY	01/17/2017	22.5	23.2	0.200	1054	3332	1.680	8.560	8.400	-1.87%
H	835	BODY	01/14/2017	22.6	21.5	0.200	4d133	3319	2.010	9.500	10.050	5.79%
H	835	BODY	01/17/2017	22.8	21.1	0.200	4d047	3319	2.040	9.570	10.200	6.58%
H	835	BODY	02/09/2017	22.2	21.3	0.200	4d047	3319	2.030	9.570	10.150	6.06%
I	1750	BODY	01/16/2017	22.5	21.5	0.100	1148	3209	3.750	37.100	37.500	1.08%
K	1900	BODY	01/16/2017	22.3	22.7	0.100	5d149	7409	4.150	39.900	41.500	4.01%
E	2450	BODY	01/09/2017	22.5	21.6	0.100	981	7406	4.810	50.800	48.100	-5.31%
E	2450	BODY	01/14/2017	22.7	22.5	0.100	981	7406	5.110	50.800	51.100	0.59%
H	2450	BODY	01/24/2017	22.4	22.7	0.100	797	3319	5.210	50.700	52.100	2.76%
E	2450	BODY	02/22/2017	23.5	23.0	0.100	981	7406	5.330	50.800	53.300	4.92%
E	2600	BODY	01/14/2017	22.7	22.5	0.100	1071	7406	5.630	54.200	56.300	3.87%
D	5250	BODY	01/02/2017	21.6	21.1	0.050	1237	3914	3.430	74.800	68.600	-8.29%
D	5600	BODY	01/02/2017	21.6	21.1	0.050	1237	3914	3.760	77.000	75.200	-2.34%
D	5750	BODY	01/02/2017	21.6	21.1	0.050	1237	3914	3.450	75.400	69.000	-8.49%

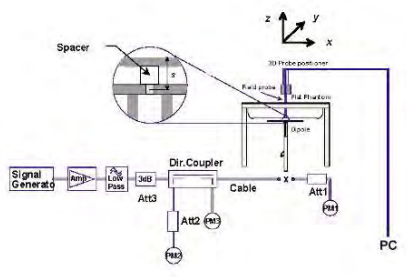


Figure 10-1
System Verification Setup Diagram

Figure 10-2
System Verification Setup Photo

11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
GSM 850 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.0	32.72	-0.03	Right	Cheek	088CC	1:8.3	0.183	1.067	0.195	A1
836.60	190	GSM 850	GSM	33.0	32.72	-0.02	Right	Tilt	088CC	1:8.3	0.078	1.067	0.083	
836.60	190	GSM 850	GSM	33.0	32.72	-0.05	Left	Cheek	088CC	1:8.3	0.132	1.067	0.141	
836.60	190	GSM 850	GSM	33.0	32.72	-0.07	Left	Tilt	088CC	1:8.3	0.068	1.067	0.073	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-2
UMTS 850 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.60	4183	UMTS 850	RMC	23.5	22.98	0.12	Right	Cheek	088CC	1:1	0.173	1.127	0.195	A2
836.60	4183	UMTS 850	RMC	23.5	22.98	-0.01	Right	Tilt	088CC	1:1	0.078	1.127	0.088	
836.60	4183	UMTS 850	RMC	23.5	22.98	-0.04	Left	Cheek	088CC	1:1	0.140	1.127	0.158	
836.60	4183	UMTS 850	RMC	23.5	22.98	0.11	Left	Tilt	088CC	1:1	0.080	1.127	0.090	
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
CDMA BC0 (§22H) Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.52	384	Cell. CDMA	RC3 / SO55	26.0	25.00	0.02	Right	Cheek	0885E	1:1	0.266	1.259	0.335	A3
836.52	384	Cell. CDMA	RC3 / SO55	26.0	25.00	0.14	Right	Tilt	0885E	1:1	0.123	1.259	0.155	
836.52	384	Cell. CDMA	RC3 / SO55	26.0	25.00	-0.06	Left	Cheek	0885E	1:1	0.218	1.259	0.274	
836.52	384	Cell. CDMA	RC3 / SO55	26.0	25.00	0.10	Left	Tilt	0885E	1:1	0.122	1.259	0.154	
836.52	384	Cell. CDMA	EVDO Rev. A	26.0	24.82	0.02	Right	Cheek	0885E	1:1	0.262	1.312	**0.344**	
836.52	384	Cell. CDMA	EVDO Rev. A	26.0	24.82	0.16	Right	Tilt	0885E	1:1	0.111	1.312	0.146	
836.52	384	Cell. CDMA	EVDO Rev. A	26.0	24.82	0.13	Left	Cheek	0885E	1:1	0.199	1.312	0.261	
836.52	384	Cell. CDMA	EVDO Rev. A	26.0	24.82	0.13	Left	Tilt	0885E	1:1	0.111	1.312	0.146	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-4
GSM 1900 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GSM	30.0	29.20	-0.07	Right	Cheek	08859	1:8.3	0.087	1.202	0.105	
1880.00	661	GSM 1900	GSM	30.0	29.20	0.19	Right	Tilt	08859	1:8.3	0.039	1.202	0.047	
1880.00	661	GSM 1900	GSM	30.0	29.20	0.19	Left	Cheek	08859	1:8.3	0.104	1.202	0.125	A4
1880.00	661	GSM 1900	GSM	30.0	29.20	-0.19	Left	Tilt	08859	1:8.3	0.031	1.202	0.037	
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
UMTS 1900 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	9400	UMTS 1900	RMC	23.5	22.34	0.02	Right	Cheek	08859	1:1	0.149	1.306	0.195	
1880.00	9400	UMTS 1900	RMC	23.5	22.34	0.14	Right	Tilt	08859	1:1	0.081	1.306	0.106	
1880.00	9400	UMTS 1900	RMC	23.5	22.34	0.02	Left	Cheek	08859	1:1	0.213	1.306	0.278	A5
1880.00	9400	UMTS 1900	RMC	23.5	22.34	-0.13	Left	Tilt	08559	1:1	0.063	1.306	0.082	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-6
LTE Band 12 Head SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	24.0	23.98	0.02	0	Right	Cheek	QPSK	1	0	088CE	1:1	0.084	1.005	0.084	A6
707.50	23095	Mid	LTE Band 12	10	23.0	22.99	0.03	1	Right	Cheek	QPSK	25	0	088CE	1:1	0.068	1.002	0.068	
707.50	23095	Mid	LTE Band 12	10	24.0	23.98	0.08	0	Right	Tilt	QPSK	1	0	088CE	1:1	0.048	1.005	0.048	
707.50	23095	Mid	LTE Band 12	10	23.0	22.99	0.09	1	Right	Tilt	QPSK	25	0	088CE	1:1	0.037	1.002	0.037	
707.50	23095	Mid	LTE Band 12	10	24.0	23.98	0.01	0	Left	Cheek	QPSK	1	0	088CE	1:1	0.071	1.005	0.071	
707.50	23095	Mid	LTE Band 12	10	23.0	22.99	0.04	1	Left	Cheek	QPSK	25	0	088CE	1:1	0.055	1.002	0.055	
707.50	23095	Mid	LTE Band 12	10	24.0	23.98	0.11	0	Left	Tilt	QPSK	1	0	088CE	1:1	0.060	1.005	0.060	
707.50	23095	Mid	LTE Band 12	10	23.0	22.99	0.06	1	Left	Tilt	QPSK	25	0	088CE	1:1	0.048	1.002	0.048	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-7
LTE Band 13 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	24.0	23.39	-0.02	0	Right	Cheek	QPSK	1	49	088CE	1:1	0.157	1.151	0.181	A7
782.00	23230	Mid	LTE Band 13	10	23.0	22.28	0.04	1	Right	Cheek	QPSK	25	0	088CE	1:1	0.121	1.180	0.143	
782.00	23230	Mid	LTE Band 13	10	24.0	23.39	-0.02	0	Right	Tilt	QPSK	1	49	088CE	1:1	0.080	1.151	0.092	
782.00	23230	Mid	LTE Band 13	10	23.0	22.28	0.06	1	Right	Tilt	QPSK	25	0	088CE	1:1	0.054	1.180	0.064	
782.00	23230	Mid	LTE Band 13	10	24.0	23.39	-0.01	0	Left	Cheek	QPSK	1	49	088CE	1:1	0.114	1.151	0.131	
782.00	23230	Mid	LTE Band 13	10	23.0	22.28	0.01	1	Left	Cheek	QPSK	25	0	088CE	1:1	0.099	1.180	0.117	
782.00	23230	Mid	LTE Band 13	10	24.0	23.39	-0.09	0	Left	Tilt	QPSK	1	49	088CE	1:1	0.071	1.151	0.082	
782.00	23230	Mid	LTE Band 13	10	23.0	22.28	0.08	1	Left	Tilt	QPSK	25	0	088CE	1:1	0.054	1.180	0.064	
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 5 (Cell) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.18	0.07	0	Right	Cheek	QPSK	1	0	088CC	1:1	0.263	1.076	0.283	A8
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.5	23.19	0.07	1	Right	Cheek	QPSK	25	0	088CC	1:1	0.193	1.074	0.207	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.18	-0.09	0	Right	Tilt	QPSK	1	0	088CC	1:1	0.128	1.076	0.138	
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.5	23.19	0.06	1	Right	Tilt	QPSK	25	0	088CC	1:1	0.094	1.074	0.101	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.18	0.09	0	Left	Cheek	QPSK	1	0	088CC	1:1	0.195	1.076	0.210	
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.5	23.19	-0.06	1	Left	Cheek	QPSK	25	0	088CC	1:1	0.151	1.074	0.162	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.18	-0.05	0	Left	Tilt	QPSK	1	0	088CC	1:1	0.106	1.076	0.114	
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.5	23.19	0.01	1	Left	Tilt	QPSK	25	0	088CC	1:1	0.081	1.074	0.087	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Head 1.6 W/kg (mW/g) averaged over 1 gram			

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

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.00	0.16	0	Right	Cheek	QPSK	1	0	088CC	1:1	0.193	1.259	0.243	A9
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.0	22.46	0.03	1	Right	Cheek	QPSK	36	0	088CC	1:1	0.155	1.132	0.175	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.00	-0.09	0	Right	Tilt	QPSK	1	0	088CC	1:1	0.094	1.259	0.118	
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.0	22.46	0.07	1	Right	Tilt	QPSK	36	0	088CC	1:1	0.073	1.132	0.083	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.00	0.00	0	Left	Cheek	QPSK	1	0	088CC	1:1	0.158	1.259	0.199	
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.0	22.46	-0.06	1	Left	Cheek	QPSK	36	0	088CC	1:1	0.121	1.132	0.137	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.00	0.04	0	Left	Tilt	QPSK	1	0	088CC	1:1	0.083	1.259	0.104	
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.0	22.46	0.03	1	Left	Tilt	QPSK	36	0	088CC	1:1	0.066	1.132	0.075	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Head 1.6 W/kg (mW/g) averaged over 1 gram			

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

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.09	0.11	0	Right	Cheek	QPSK	1	0	08861	1:1	0.120	1.233	0.148	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.09	0.01	1	Right	Cheek	QPSK	50	0	08861	1:1	0.094	1.233	0.116	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.09	0.10	0	Right	Tilt	QPSK	1	0	08861	1:1	0.095	1.233	0.117	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.09	0.03	1	Right	Tilt	QPSK	50	0	08861	1:1	0.074	1.233	0.091	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.09	0.10	0	Left	Cheek	QPSK	1	0	08861	1:1	0.197	1.233	0.243	A10
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.09	0.03	1	Left	Cheek	QPSK	50	0	08861	1:1	0.161	1.233	0.199	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.09	0.06	0	Left	Tilt	QPSK	1	0	08861	1:1	0.100	1.233	0.123	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.09	0.03	1	Left	Tilt	QPSK	50	0	08861	1:1	0.077	1.233	0.095	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram											

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

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.47	-0.16	0	Right	Cheek	QPSK	1	0	08859	1:1	0.168	1.130	0.190	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.35	-0.03	1	Right	Cheek	QPSK	50	0	08859	1:1	0.136	1.161	0.158	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.47	-0.19	0	Right	Tilt	QPSK	1	0	08859	1:1	0.097	1.130	0.110	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.35	0.12	1	Right	Tilt	QPSK	50	0	08859	1:1	0.071	1.161	0.082	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.47	0.18	0	Left	Cheek	QPSK	1	0	08859	1:1	0.268	1.130	0.303	A11
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.35	-0.05	1	Left	Cheek	QPSK	50	0	08859	1:1	0.199	1.161	0.231	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.47	0.08	0	Left	Tilt	QPSK	1	0	08859	1:1	0.088	1.130	0.099	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.35	-0.04	1	Left	Tilt	QPSK	50	0	08859	1:1	0.059	1.161	0.068	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-12
LTE Band 41 Head SAR

MEASUREMENT RESULTS																						
1 CC Uplink & 2CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	24.97	-0.10	0	Right	Cheek	QPSK	1	0	08859	1:1.58	0.059	1.007	0.059	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	24.0	23.88	0.09	1	Right	Cheek	QPSK	50	0	08859	1:1.58	0.048	1.028	0.049	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	24.97	0.11	0	Right	Tilt	QPSK	1	0	08859	1:1.58	0.040	1.007	0.040	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	24.0	23.88	-0.13	1	Right	Tilt	QPSK	50	0	08859	1:1.58	0.037	1.028	0.038	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	24.97	0.08	0	Left	Cheek	QPSK	1	0	08859	1:1.58	0.106	1.007	0.107	A12
2 CC Uplink	PCC	2593.00	40620	Mid	LTE Band 41	20	25.0	25.00	-0.20	0	Left	Cheek	QPSK	1	0	08859	1:1.58	0.105	1.000	0.105	
	SCC	2573.20	40422	Mid		20							QPSK	1	99		1:1.58				
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	24.0	23.88	0.08	1	Left	Cheek	QPSK	50	0	08859	1:1.58	0.077	1.028	0.079	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	24.97	0.13	0	Left	Tilt	QPSK	1	0	08859	1:1.58	0.024	1.007	0.024	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	24.0	23.88	0.06	1	Left	Tilt	QPSK	50	0	08859	1:1.58	0.019	1.028	0.020	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-13
2.4 GHz WLAN Head SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2437	6	802.11b	DSSS	22	17.5	16.80	0.01	Right	Cheek	1	27217	1	99.1	0.453	0.407	1.175	1.009	0.483	
2437	6	802.11b	DSSS	22	17.5	16.80	0.03	Right	Tilt	1	27217	1	99.1	0.419	0.317	1.175	1.009	0.376	
2437	6	802.11b	DSSS	22	17.5	16.80	-0.20	Left	Cheek	1	27217	1	99.1	0.185	-	1.175	1.009	-	
2437	6	802.11b	DSSS	22	17.5	16.80	0.01	Left	Tilt	1	27217	1	99.1	0.228	-	1.175	1.009	-	
2437	6	802.11b	DSSS	22	17.5	17.25	0.01	Right	Cheek	2	27217	1	98.9	0.769	0.697	1.059	1.011	**0.746**	A13
2437	6	802.11b	DSSS	22	17.5	17.25	-0.12	Right	Tilt	2	27217	1	98.9	0.572	0.452	1.059	1.011	0.484	
2437	6	802.11b	DSSS	22	17.5	17.25	0.01	Left	Cheek	2	27217	1	98.9	0.342	-	1.059	1.011	-	
2437	6	802.11b	DSSS	22	17.5	17.25	-0.12	Left	Tilt	2	27217	1	98.9	0.264	-	1.059	1.011	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-14
DTS MIMO Operations with Simultaneous 2.4 GHz and 5 GHz WLAN Head SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power Per Antenna [dBm]	Ant 1 Conducted Power [dBm]	Ant 2 Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
2412	1	802.11n	OFDM	20	13.5	13.33	13.00	-0.02	Right	Cheek	MIMO	27217	13	97.3	0.696	0.498	1.122	1.028	0.574	
2412	1	802.11n	OFDM	20	13.5	13.33	13.00	0.03	Right	Tilt	MIMO	27217	13	97.3	0.509	0.367	1.122	1.028	0.463	
2412	1	802.11n	OFDM	20	13.5	13.33	13.00	0.03	Left	Cheek	MIMO	27217	13	97.3	0.339	-	1.122	1.028	-	
2412	1	802.11n	OFDM	20	13.5	13.33	13.00	0.20	Left	Tilt	MIMO	27217	13	97.3	0.275	-	1.122	1.028	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram											

DTS MIMO was additionally evaluated at the maximum allowed output power for operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 5 GHz WIFI was not transmitting during the above evaluations.

Table 11-15
5 GHz WLAN Head SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5320	64	802.11a	OFDM	20	15.5	14.78	0.13	Right	Cheek	1	27217	6	98.8	0.164	-	1.180	1.012	-	
5320	64	802.11a	OFDM	20	15.5	14.78	0.10	Right	Tilt	1	27217	6	98.8	0.195	0.083	1.180	1.012	0.099	
5320	64	802.11a	OFDM	20	15.5	14.78	0.11	Left	Cheek	1	27217	6	98.8	0.140	-	1.180	1.012	-	
5320	64	802.11a	OFDM	20	15.5	14.78	0.15	Left	Tilt	1	27217	6	98.8	0.099	-	1.180	1.012	-	
5280	56	802.11a	OFDM	20	15.5	15.32	0.10	Right	Cheek	2	27217	6	93.5	0.290	0.088	1.042	1.070	0.098	
5280	56	802.11a	OFDM	20	15.5	15.32	0.16	Right	Tilt	2	27217	6	93.5	0.243	-	1.042	1.070	-	
5280	56	802.11a	OFDM	20	15.5	15.32	0.18	Left	Cheek	2	27217	6	93.5	0.179	-	1.042	1.070	-	
5280	56	802.11a	OFDM	20	15.5	15.32	0.19	Left	Tilt	2	27217	6	93.5	0.182	-	1.042	1.070	-	
5500	100	802.11a	OFDM	20	15.5	15.31	0.15	Right	Cheek	1	27217	6	98.8	0.163	-	1.045	1.012	-	
5500	100	802.11a	OFDM	20	15.5	15.31	0.16	Right	Tilt	1	27217	6	98.8	0.167	0.078	1.045	1.012	0.082	
5500	100	802.11a	OFDM	20	15.5	15.31	0.14	Left	Cheek	1	27217	6	98.8	0.118	-	1.045	1.012	-	
5500	100	802.11a	OFDM	20	15.5	15.31	0.10	Left	Tilt	1	27217	6	98.8	0.096	-	1.045	1.012	-	
5720	144	802.11a	OFDM	20	15.5	15.44	0.10	Right	Cheek	2	27217	6	93.5	0.824	0.367	1.014	1.070	**0.398**	A14
5720	144	802.11a	OFDM	20	15.5	15.44	0.15	Right	Tilt	2	27217	6	93.5	0.706	-	1.014	1.070	-	
5720	144	802.11a	OFDM	20	15.5	15.44	0.13	Left	Cheek	2	27217	6	93.5	0.654	-	1.014	1.070	-	
5720	144	802.11a	OFDM	20	15.5	15.44	0.12	Left	Tilt	2	27217	6	93.5	0.690	-	1.014	1.070	-	
5785	157	802.11a	OFDM	20	15.5	15.49	0.13	Right	Cheek	1	27217	6	98.8	0.179	-	1.002	1.012	-	
5785	157	802.11a	OFDM	20	15.5	15.49	0.19	Right	Tilt	1	27217	6	98.8	0.133	-	1.002	1.012	-	
5785	157	802.11a	OFDM	20	15.5	15.49	0.15	Left	Cheek	1	27217	6	98.8	0.181	0.057	1.002	1.012	0.058	
5785	157	802.11a	OFDM	20	15.5	15.49	0.18	Left	Tilt	1	27217	6	98.8	0.163	-	1.002	1.012	-	
5825	165	802.11a	OFDM	20	15.5	14.85	0.16	Right	Cheek	2	27217	6	93.5	0.731	0.293	1.161	1.070	0.364	
5825	165	802.11a	OFDM	20	15.5	14.85	0.10	Right	Tilt	2	27217	6	93.5	0.571	-	1.161	1.070	-	
5825	165	802.11a	OFDM	20	15.5	14.85	0.14	Left	Cheek	2	27217	6	93.5	0.337	-	1.161	1.070	-	
5825	165	802.11a	OFDM	20	15.5	14.85	0.14	Left	Tilt	2	27217	6	93.5	0.313	-	1.161	1.070	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-16
NII MIMO Operations with Simultaneous 2.4 GHz and 5 GHz WLAN Head SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power Per Antenna [dBm]	Ant 1 Conducted Power [dBm]	Ant 2 Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
5290	58	802.11ac	OFDM	80	13.5	12.88	13.48	0.17	Right	Cheek	MIMO	27217	58.5	90.8	0.365	0.214	1.153	1.101	0.272	
5290	58	802.11ac	OFDM	80	13.5	12.88	13.48	0.20	Right	Tilt	MIMO	27217	58.5	90.8	0.318	-	1.153	1.101	-	
5290	58	802.11ac	OFDM	80	13.5	12.88	13.48	-0.14	Left	Cheek	MIMO	27217	58.5	90.8	0.181	-	1.153	1.101	-	
5290	58	802.11ac	OFDM	80	13.5	12.88	13.48	0.16	Left	Tilt	MIMO	27217	58.5	90.8	0.177	-	1.153	1.101	-	
5610	122	802.11ac	OFDM	80	13.5	13.21	13.47	0.20	Right	Cheek	MIMO	27217	58.5	90.8	0.605	0.219	1.069	1.101	0.258	
5610	122	802.11ac	OFDM	80	13.5	13.21	13.47	-0.15	Right	Tilt	MIMO	27217	58.5	90.8	0.386	-	1.069	1.101	-	
5610	122	802.11ac	OFDM	80	13.5	13.21	13.47	-0.14	Left	Cheek	MIMO	27217	58.5	90.8	0.406	-	1.069	1.101	-	
5610	122	802.11ac	OFDM	80	13.5	13.21	13.47	-0.15	Left	Tilt	MIMO	27217	58.5	90.8	0.417	-	1.069	1.101	-	
5775	155	802.11ac	OFDM	80	13.5	13.14	13.15	0.20	Right	Cheek	MIMO	27217	58.5	90.8	0.601	0.279	1.086	1.101	0.334	
5775	155	802.11ac	OFDM	80	13.5	13.14	13.15	0.15	Right	Tilt	MIMO	27217	58.5	90.8	0.485	-	1.086	1.101	-	
5775	155	802.11ac	OFDM	80	13.5	13.14	13.15	-0.19	Left	Cheek	MIMO	27217	58.5	90.8	0.287	-	1.086	1.101	-	
5775	155	802.11ac	OFDM	80	13.5	13.14	13.15	-0.19	Left	Tilt	MIMO	27217	58.5	90.8	0.331	-	1.086	1.101	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram												

NII MIMO was additionally evaluated at the maximum allowed output power for operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 2.4 GHz WIFI was not transmitting during the above evaluations.

Table 11-17
Bluetooth Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle (%)	Data Rate (Mbps)	SAR (1g)	Scaling Factor (Cond. Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2480	78	Bluetooth	FHSS	10.5	9.87	0.11	Right	Cheek	F7863	76.8	2	0.064	1.156	1.302	0.096	A15
2480	78	Bluetooth	FHSS	10.5	9.87	0.17	Right	Tilt	F7863	76.8	2	0.039	1.156	1.302	0.059	
2480	78	Bluetooth	FHSS	10.5	9.87	0.13	Left	Cheek	F7863	76.8	2	0.017	1.156	1.302	0.026	
2480	78	Bluetooth	FHSS	10.5	9.87	0.17	Left	Tilt	F7863	76.8	2	0.009	1.156	1.302	0.014	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram							

11.2 Standalone Body-Worn SAR Data

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

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.0	32.72	0.04	15 mm	08881	1	1:8.3	back	0.234	1.067	0.250	A16
836.60	4183	UMTS 850	RMC	23.5	22.98	0.00	15 mm	08881	N/A	1:1	back	0.242	1.127	0.273	A18
836.52	384	Cell. CDMA	TDSO / SO32	26.0	25.00	-0.02	15 mm	088CC	N/A	1:1	back	0.386	1.259	0.486	A20
1880.00	661	GSM 1900	GSM	30.0	29.20	-0.01	15 mm	08861	1	1:8.3	back	0.281	1.202	0.338	A22
1880.00	9400	UMTS 1900	RMC	23.5	22.34	0.01	15 mm	088AC	N/A	1:1	back	0.535	1.306	0.699	A24
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11-19
LTE FDD Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	24.0	23.98	0.04	0	088CE	QPSK	1	0	15 mm	back	1:1	0.118	1.005	0.119	A26
707.50	23095	Mid	LTE Band 12	10	23.0	22.99	-0.02	1	088CE	QPSK	25	0	15 mm	back	1:1	0.099	1.002	0.099	
782.00	23230	Mid	LTE Band 13	10	24.0	23.39	0.04	0	08859	QPSK	1	49	15 mm	back	1:1	0.238	1.151	0.274	A28
782.00	23230	Mid	LTE Band 13	10	23.0	22.28	0.05	1	08859	QPSK	25	0	15 mm	back	1:1	0.185	1.180	0.218	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.18	0.00	0	088CC	QPSK	1	0	15 mm	back	1:1	0.316	1.076	0.340	A30
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.5	23.19	0.00	1	088CC	QPSK	25	0	15 mm	back	1:1	0.251	1.074	0.270	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.00	-0.03	0	088CC	QPSK	1	0	15 mm	back	1:1	0.201	1.259	0.253	A32
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.0	22.46	0.01	1	088CC	QPSK	36	0	15 mm	back	1:1	0.169	1.132	0.191	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.09	-0.03	0	088AC	QPSK	1	0	15 mm	back	1:1	0.635	1.233	**0.783**	A34
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.09	-0.01	1	088AC	QPSK	50	0	15 mm	back	1:1	0.539	1.233	0.665	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.47	-0.04	0	088AC	QPSK	1	0	15 mm	back	1:1	0.640	1.130	0.723	A36
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.35	0.00	1	088AC	QPSK	50	0	15 mm	back	1:1	0.504	1.161	0.585	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**									**Body** **1.6 W/kg (mW/g)** averaged over 1 gram											

Table 11-20
LTE TDD Body-Worn SAR

MEASUREMENT RESULTS																					
1 CC Uplink & 2CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	24.97	-0.01	0	0885E	QPSK	1	0	15 mm	back	1:1.58	0.212	1.007	0.213	A38
2 CC Uplink	PCC	2593.00	40620	Mid	LTE Band 41	20	25.0	25.00	-0.01	0	0885E	QPSK	1	0	15 mm	back	1:1.58	0.203	1.000	0.203	
	SCC	2573.20	40422	Mid		20						QPSK	1	99			1:1.58				
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	24.0	23.88	0.02	1	0885E	QPSK	50	0	15 mm	back	1:1.58	0.164	1.028	0.169	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**											**Body** **1.6 W/kg (mW/g)** averaged over 1 gram										

Table 11-21
2.4 GHz WLAN Body-Worn SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												(%)	W/kg	(W/kg)			(W/kg)	
2462	11	802.11b	DSSS	22	20.5	20.00	-0.10	15 mm	1	27217	1	back	99.1	0.158	0.107	1.122	1.009	**0.121**	A40
2437	6	802.11b	DSSS	22	20.5	19.90	0.09	15 mm	2	27217	1	back	98.9	0.117	0.088	1.148	1.011	0.102	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**											**Body** **1.6 W/kg (mW/g)** averaged over 1 gram								

Table 11-22
DTS MIMO Operations with Simultaneous 2.4 GHz and 5 GHz WLAN Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power Per Antenna [dBm]	Ant 1 Conducted Power [dBm]	Ant 2 Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													(%)	W/kg	(W/kg)			(W/kg)	
2412	1	802.11n	OFDM	20	13.5	13.33	13.00	0.16	15 mm	MIMO	27217	13	back	97.3	0.046	0.032	1.122	1.028	0.037	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**											**Body** **1.6 W/kg (mW/g)** averaged over 1 gram									

DTS MIMO was additionally evaluated at the maximum allowed output power for operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 5 GHz WIFI was not transmitting during the above evaluations.

Table 11-23
5 GHz WLAN Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5320	64	802.11a	OFDM	20	17.5	17.02	-0.20	15 mm	1	27217	6	back	98.8	0.133	0.057	1.117	1.012	0.064	
5280	56	802.11a	OFDM	20	17.5	17.45	0.13	15 mm	2	27217	6	back	93.5	0.225	0.113	1.012	1.070	0.122	
5500	100	802.11a	OFDM	20	17.5	16.36	0.15	15 mm	1	27217	6	back	98.8	0.190	0.089	1.300	1.012	0.117	
5720	144	802.11a	OFDM	20	17.5	17.09	-0.16	15 mm	2	27217	6	back	93.5	0.417	0.199	1.099	1.070	0.234	
5745	149	802.11a	OFDM	20	17.5	16.71	0.10	15 mm	1	27217	6	back	98.8	0.387	0.179	1.199	1.012	0.217	
5785	157	802.11a	OFDM	20	17.5	17.27	-0.03	15 mm	2	27217	6	back	93.5	0.525	0.211	1.054	1.070	**0.238**	A42
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-24
NII MIMO Operations with Simultaneous 2.4 GHz and 5 GHz WLAN Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power Per Antenna [dBm]	Ant 1 Conducted Power [dBm]	Ant 2 Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
5290	58	802.11ac	OFDM	80	13.5	12.88	13.48	-0.12	15 mm	MIMO	27217	58.5	back	90.8	0.063	0.022	1.005	1.101	0.028	
5610	122	802.11ac	OFDM	80	13.5	13.21	13.47	0.20	15 mm	MIMO	27217	58.5	back	90.8	0.189	0.080	1.007	1.101	0.091	
5775	155	802.11ac	OFDM	80	13.5	13.14	13.15	-0.15	15 mm	MIMO	27217	58.5	back	90.8	0.199	0.086	1.084	1.101	0.109	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram										

NII MIMO was additionally evaluated at the maximum allowed output power for operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 2.4 GHz WIFI was not transmitting during the above evaluations.

Table 11-25
Bluetooth Body-Worn SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle %	SAR (1g)	Scaling Factor (Cond. Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2480	78	Bluetooth	FHSS	16.0	15.50	0.03	15 mm	27217	1	back	76.8%	0.034	1.122	1.302	**0.050**	A44
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram									

11.3 Standalone Hotspot SAR Data

Table 11-26
GPRS/UMTS/CDMA Hotspot SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	# of GPRS Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	190	GSM 850	GPRS	29.8	28.64	0.08	10 mm	08881	3	1:2.76	back	0.327	1.306	0.427	A17
836.60	190	GSM 850	GPRS	29.8	28.64	0.07	10 mm	08881	3	1:2.76	front	0.285	1.306	0.372	
836.60	190	GSM 850	GPRS	29.8	28.64	0.02	10 mm	08881	3	1:2.76	bottom	0.174	1.306	0.227	
836.60	190	GSM 850	GPRS	29.8	28.64	-0.02	10 mm	08881	3	1:2.76	right	0.310	1.306	0.405	
836.60	190	GSM 850	GPRS	29.8	28.64	0.02	10 mm	08881	3	1:2.76	left	0.169	1.306	0.221	
836.60	4183	UMTS 850	RMC	23.5	22.98	-0.03	10 mm	08881	N/A	1:1	back	0.336	1.127	0.379	A19
836.60	4183	UMTS 850	RMC	23.5	22.98	-0.04	10 mm	08881	N/A	1:1	front	0.285	1.127	0.321	
836.60	4183	UMTS 850	RMC	23.5	22.98	0.01	10 mm	08881	N/A	1:1	bottom	0.177	1.127	0.199	
836.60	4183	UMTS 850	RMC	23.5	22.98	-0.02	10 mm	08881	N/A	1:1	right	0.293	1.127	0.330	
836.60	4183	UMTS 850	RMC	23.5	22.98	-0.02	10 mm	08881	N/A	1:1	left	0.162	1.127	0.183	
836.52	384	Cell. CDMA	EVDO Rev. 0	26.0	25.01	-0.04	10 mm	088CC	N/A	1:1	back	0.512	1.256	0.643	A21
836.52	384	Cell. CDMA	EVDO Rev. 0	26.0	25.01	0.01	10 mm	088CC	N/A	1:1	front	0.446	1.256	0.560	
836.52	384	Cell. CDMA	EVDO Rev. 0	26.0	25.01	0.01	10 mm	088CC	N/A	1:1	bottom	0.284	1.256	0.357	
836.52	384	Cell. CDMA	EVDO Rev. 0	26.0	25.01	-0.02	10 mm	088CC	N/A	1:1	right	0.454	1.256	0.570	
836.52	384	Cell. CDMA	EVDO Rev. 0	26.0	25.01	0.03	10 mm	088CC	N/A	1:1	left	0.274	1.256	0.344	
1880.00	661	GSM 1900	GPRS	25.0	23.70	-0.04	10 mm	08861	3	1:2.76	back	0.452	1.349	0.610	
1880.00	661	GSM 1900	GPRS	25.0	23.70	-0.18	10 mm	08861	3	1:2.76	front	0.380	1.349	0.513	
1850.20	512	GSM 1900	GPRS	25.0	23.90	0.03	10 mm	08861	3	1:2.76	bottom	0.760	1.288	0.979	A23
1880.00	661	GSM 1900	GPRS	25.0	23.70	-0.17	10 mm	08861	3	1:2.76	bottom	0.686	1.349	0.925	
1909.80	810	GSM 1900	GPRS	25.0	23.86	-0.17	10 mm	08861	3	1:2.76	bottom	0.674	1.300	0.876	
1880.00	661	GSM 1900	GPRS	25.0	23.70	-0.10	10 mm	08861	3	1:2.76	right	0.109	1.349	0.147	
1880.00	661	GSM 1900	GPRS	25.0	23.70	-0.04	10 mm	08861	3	1:2.76	left	0.065	1.349	0.088	
1880.00	9400	UMTS 1900	RMC	20.5	19.29	0.20	10 mm	088AC	N/A	1:1	back	0.495	1.321	0.654	
1880.00	9400	UMTS 1900	RMC	20.5	19.29	-0.05	10 mm	088AC	N/A	1:1	front	0.447	1.321	0.590	
1852.40	9262	UMTS 1900	RMC	20.5	19.74	-0.15	10 mm	088AC	N/A	1:1	bottom	0.766	1.191	0.912	
1880.00	9400	UMTS 1900	RMC	20.5	19.29	-0.03	10 mm	088AC	N/A	1:1	bottom	0.773	1.321	1.021	
1907.60	9538	UMTS 1900	RMC	20.5	19.62	-0.13	10 mm	088AC	N/A	1:1	bottom	0.836	1.225	1.024	A25
1880.00	9400	UMTS 1900	RMC	20.5	19.29	0.01	10 mm	088AC	N/A	1:1	right	0.227	1.321	0.300	
1880.00	9400	UMTS 1900	RMC	20.5	19.29	0.01	10 mm	088AC	N/A	1:1	left	0.133	1.321	0.176	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram				

Table 11-27
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	24.0	23.98	-0.03	0	088CE	QPSK	1	0	10 mm	back	1:1	0.168	1.005	0.169	A27
707.50	23095	Mid	LTE Band 12	10	23.0	22.99	-0.03	1	088CE	QPSK	25	0	10 mm	back	1:1	0.139	1.002	0.139	
707.50	23095	Mid	LTE Band 12	10	24.0	23.98	0.00	0	088CE	QPSK	1	0	10 mm	front	1:1	0.138	1.005	0.139	
707.50	23095	Mid	LTE Band 12	10	23.0	22.99	0.00	1	088CE	QPSK	25	0	10 mm	front	1:1	0.115	1.002	0.115	
707.50	23095	Mid	LTE Band 12	10	24.0	23.98	-0.10	0	088CE	QPSK	1	0	10 mm	bottom	1:1	0.058	1.005	0.058	
707.50	23095	Mid	LTE Band 12	10	23.0	22.99	-0.04	1	088CE	QPSK	25	0	10 mm	bottom	1:1	0.050	1.002	0.050	
707.50	23095	Mid	LTE Band 12	10	24.0	23.98	0.01	0	088CE	QPSK	1	0	10 mm	right	1:1	0.145	1.005	0.146	
707.50	23095	Mid	LTE Band 12	10	23.0	22.99	0.03	1	088CE	QPSK	25	0	10 mm	right	1:1	0.119	1.002	0.119	
707.50	23095	Mid	LTE Band 12	10	24.0	23.98	-0.04	1	088CE	QPSK	1	0	10 mm	left	1:1	0.084	1.005	0.084	
707.50	23095	Mid	LTE Band 12	10	23.0	22.99	0.06	1	088CE	QPSK	25	0	10 mm	left	1:1	0.065	1.002	0.065	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-28
LTE Band 13 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	24.0	23.39	0.20	0	08859	QPSK	1	49	10 mm	back	1:1	0.301	1.151	0.346	A29
782.00	23230	Mid	LTE Band 13	10	23.0	22.28	0.02	1	08859	QPSK	25	0	10 mm	back	1:1	0.268	1.180	0.316	
782.00	23230	Mid	LTE Band 13	10	24.0	23.39	0.01	0	08859	QPSK	1	49	10 mm	front	1:1	0.265	1.151	0.305	
782.00	23230	Mid	LTE Band 13	10	23.0	22.28	0.01	1	08859	QPSK	25	0	10 mm	front	1:1	0.215	1.180	0.254	
782.00	23230	Mid	LTE Band 13	10	24.0	23.39	0.01	0	08859	QPSK	1	49	10 mm	bottom	1:1	0.148	1.151	0.170	
782.00	23230	Mid	LTE Band 13	10	23.0	22.28	-0.01	1	08859	QPSK	25	0	10 mm	bottom	1:1	0.143	1.180	0.169	
782.00	23230	Mid	LTE Band 13	10	24.0	23.39	0.02	0	08859	QPSK	1	49	10 mm	right	1:1	0.210	1.151	0.242	
782.00	23230	Mid	LTE Band 13	10	23.0	22.28	0.02	1	08859	QPSK	25	0	10 mm	right	1:1	0.168	1.180	0.198	
782.00	23230	Mid	LTE Band 13	10	24.0	23.39	-0.01	0	08859	QPSK	1	49	10 mm	left	1:1	0.137	1.151	0.158	
782.00	23230	Mid	LTE Band 13	10	23.0	22.28	0.02	1	08859	QPSK	25	0	10 mm	left	1:1	0.106	1.180	0.125	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-29
LTE Band 5 (Cell) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.18	0.04	0	088CC	QPSK	1	0	10 mm	back	1:1	0.449	1.076	0.483	A31
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.5	23.19	-0.02	1	088CC	QPSK	25	0	10 mm	back	1:1	0.356	1.074	0.382	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.18	0.00	0	088CC	QPSK	1	0	10 mm	front	1:1	0.381	1.076	0.410	
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.5	23.19	-0.06	1	088CC	QPSK	25	0	10 mm	front	1:1	0.297	1.074	0.319	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.18	-0.03	0	088CC	QPSK	1	0	10 mm	bottom	1:1	0.245	1.076	0.264	
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.5	23.19	-0.07	1	088CC	QPSK	25	0	10 mm	bottom	1:1	0.192	1.074	0.206	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.18	-0.02	0	088CC	QPSK	1	0	10 mm	right	1:1	0.363	1.076	0.391	
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.5	23.19	-0.01	1	088CC	QPSK	25	0	10 mm	right	1:1	0.291	1.074	0.313	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.18	-0.05	0	088CC	QPSK	1	0	10 mm	left	1:1	0.212	1.076	0.228	
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.5	23.19	-0.02	1	088CC	QPSK	25	0	10 mm	left	1:1	0.180	1.074	0.193	
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 11-30
LTE Band 26 (Cell) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.00	-0.05	0	088CC	QPSK	1	0	10 mm	back	1:1	0.288	1.259	0.363	A33
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.0	22.46	-0.06	1	088CC	QPSK	36	0	10 mm	back	1:1	0.237	1.132	0.268	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.00	-0.02	0	088CC	QPSK	1	0	10 mm	front	1:1	0.238	1.259	0.300	
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.0	22.46	0.02	1	088CC	QPSK	36	0	10 mm	front	1:1	0.196	1.132	0.222	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.00	-0.05	0	088CC	QPSK	1	0	10 mm	bottom	1:1	0.144	1.259	0.181	
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.0	22.46	-0.07	1	088CC	QPSK	36	0	10 mm	bottom	1:1	0.125	1.132	0.142	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.00	-0.01	0	088CC	QPSK	1	0	10 mm	right	1:1	0.254	1.259	0.320	
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.0	22.46	0.01	1	088CC	QPSK	36	0	10 mm	right	1:1	0.208	1.132	0.235	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.00	-0.03	0	088CC	QPSK	1	0	10 mm	left	1:1	0.184	1.259	0.232	
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.0	22.46	-0.02	1	088CC	QPSK	36	0	10 mm	left	1:1	0.150	1.132	0.170	
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 11-31
LTE Band 4 (AWS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.18	-0.02	0	088AC	QPSK	1	0	10 mm	back	1:1	0.555	1.076	0.597	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.07	0.00	0	088AC	QPSK	50	0	10 mm	back	1:1	0.562	1.104	0.620	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.18	-0.01	0	088AC	QPSK	1	0	10 mm	front	1:1	0.430	1.076	0.463	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.07	0.00	0	088AC	QPSK	50	0	10 mm	front	1:1	0.435	1.104	0.480	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.18	-0.02	0	088AC	QPSK	1	0	10 mm	bottom	1:1	0.661	1.076	0.711	A35
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.07	-0.01	0	088AC	QPSK	50	0	10 mm	bottom	1:1	0.657	1.104	0.725	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.18	-0.01	0	088AC	QPSK	1	0	10 mm	right	1:1	0.085	1.076	0.091	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.07	-0.02	0	088AC	QPSK	50	0	10 mm	right	1:1	0.093	1.104	0.103	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.18	0.02	0	088AC	QPSK	1	0	10 mm	left	1:1	0.115	1.076	0.124	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.07	0.00	0	088AC	QPSK	50	0	10 mm	left	1:1	0.119	1.104	0.131	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-32
LTE Band 25 (PCS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.5	20.46	0.01	0	088AC	QPSK	1	0	10 mm	back	1:1	0.671	1.009	0.677	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.5	20.37	0.01	0	088AC	QPSK	50	0	10 mm	back	1:1	0.671	1.030	0.691	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.5	20.46	-0.02	0	088AC	QPSK	1	0	10 mm	front	1:1	0.532	1.009	0.537	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.5	20.37	0.01	0	088AC	QPSK	50	0	10 mm	front	1:1	0.533	1.030	0.549	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.5	20.46	-0.06	0	088AC	QPSK	1	0	10 mm	bottom	1:1	0.945	1.009	0.954	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.5	20.25	-0.07	0	088AC	QPSK	1	0	10 mm	bottom	1:1	0.952	1.059	1.008	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.5	20.20	-0.09	0	088AC	QPSK	1	0	10 mm	bottom	1:1	0.992	1.072	1.063	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.5	20.37	-0.04	0	088AC	QPSK	50	0	10 mm	bottom	1:1	0.949	1.030	0.977	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.5	20.23	-0.07	0	088AC	QPSK	50	0	10 mm	bottom	1:1	0.969	1.064	1.031	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.5	20.26	-0.05	0	088AC	QPSK	50	0	10 mm	bottom	1:1	0.959	1.057	1.014	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.5	20.28	-0.04	0	088AC	QPSK	100	0	10 mm	bottom	1:1	0.955	1.052	1.005	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.5	20.46	-0.11	0	088AC	QPSK	1	0	10 mm	right	1:1	0.123	1.009	0.124	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.5	20.37	0.04	0	088AC	QPSK	50	0	10 mm	right	1:1	0.124	1.030	0.128	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.5	20.46	-0.07	0	088AC	QPSK	1	0	10 mm	left	1:1	0.102	1.009	0.103	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.5	20.37	-0.13	0	088AC	QPSK	50	0	10 mm	left	1:1	0.099	1.030	0.102	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.5	20.20	-0.19	0	088AC	QPSK	1	0	10 mm	bottom	1:1	0.993	1.072	**1.064**	A37
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Body 1.6 W/kg (mW/g) averaged over 1 gram			

Note: Blue Entry represents variability data.

Table 11-33
LTE Band 41 Hotspot SAR

MEASUREMENT RESULTS																					
1 CC Uplink & 2CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	21.0	20.75	0.01	0	0885E	QPSK	1	0	10 mm	back	1:1.58	0.201	1.059	0.213	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	21.0	20.69	0.05	0	0885E	QPSK	50	0	10 mm	back	1:1.58	0.192	1.074	0.206	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	21.0	20.75	0.01	0	0885E	QPSK	1	0	10 mm	front	1:1.58	0.204	1.059	0.216	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	21.0	20.69	0.03	0	0885E	QPSK	50	0	10 mm	front	1:1.58	0.191	1.074	0.205	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	21.0	20.75	-0.03	0	0885E	QPSK	1	0	10 mm	bottom	1:1.58	0.295	1.059	0.312	
2 CC Uplink	PCC	2506.00	39750	Low	LTE Band 41	20	21.0	20.85	-0.07	0	0885E	QPSK	1	99	10 mm	bottom	1:1.58	0.306	1.035	0.317	A39
	SCC	2525.80	39948	Low		20						QPSK	1	0			1:1.58				
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	21.0	20.69	-0.06	0	0885E	QPSK	50	0	10 mm	bottom	1:1.58	0.280	1.074	0.301	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	21.0	20.75	0.02	0	0885E	QPSK	1	0	10 mm	left	1:1.58	0.166	1.059	0.176	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	21.0	20.69	0.05	0	0885E	QPSK	50	0	10 mm	left	1:1.58	0.169	1.074	0.182	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Body 1.6 W/kg (mW/g) averaged over 1 gram				

Table 11-34
WLAN Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2462	11	802.11b	DSSS	22	20.5	20.00	0.06	10 mm	1	27217	1	back	99.1	0.318	-	1.122	1.009	-	
2462	11	802.11b	DSSS	22	20.5	20.00	0.12	10 mm	1	27217	1	front	99.1	0.196	-	1.122	1.009	-	
2462	11	802.11b	DSSS	22	20.5	20.00	0.04	10 mm	1	27217	1	top	99.1	0.417	0.272	1.122	1.009	0.308	A41
2462	11	802.11b	DSSS	22	20.5	20.00	0.16	10 mm	1	27217	1	left	99.1	0.093	-	1.122	1.009	-	
2437	6	802.11b	DSSS	22	20.5	19.90	0.00	10 mm	2	27217	1	back	98.9	0.290	0.231	1.148	1.011	0.268	
2437	6	802.11b	DSSS	22	20.5	19.90	0.18	10 mm	2	27217	1	front	98.9	0.185	-	1.148	1.011	-	
2437	6	802.11b	DSSS	22	20.5	19.90	0.03	10 mm	2	27217	1	top	98.9	0.220	-	1.148	1.011	-	
2437	6	802.11b	DSSS	22	20.5	19.90	0.09	10 mm	2	27217	1	left	98.9	0.092	-	1.148	1.011	-	
5745	149	802.11a	OFDM	20	17.5	16.71	0.03	10 mm	1	27217	6	back	98.8	1.045	0.376	1.199	1.012	0.456	A43
5745	149	802.11a	OFDM	20	17.5	16.71	0.11	10 mm	1	27217	6	front	98.8	0.034	-	1.199	1.012	-	
5745	149	802.11a	OFDM	20	17.5	16.71	0.18	10 mm	1	27217	6	top	98.8	0.144	0.068	1.199	1.012	0.083	
5745	149	802.11a	OFDM	20	17.5	16.71	0.14	10 mm	1	27217	6	left	98.8	0.063	-	1.199	1.012	-	
5785	157	802.11a	OFDM	20	17.5	17.27	0.18	10 mm	2	27217	6	back	93.5	0.422	0.250	1.054	1.070	0.282	
5785	157	802.11a	OFDM	20	17.5	17.27	0.15	10 mm	2	27217	6	front	93.5	0.183	-	1.054	1.070	-	
5785	157	802.11a	OFDM	20	17.5	17.27	0.13	10 mm	2	27217	6	top	93.5	0.212	-	1.054	1.070	-	
5785	157	802.11a	OFDM	20	17.5	17.27	-0.02	10 mm	2	27217	6	left	93.5	0.103	-	1.054	1.070	-	

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 11-35
WLAN MIMO Operations with Simultaneous 2.4 GHz and 5 GHz WLAN Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power Per Antenna [dBm]	Ant 1 Conducted Power [dBm]	Ant 2 Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
2412	1	802.11n	OFDM	20	13.5	13.33	13.00	0.16	10 mm	MIMO	27217	13	back	97.3	0.115	-	1.122	1.028	-	
2412	1	802.11n	OFDM	20	13.5	13.33	13.00	0.17	10 mm	MIMO	27217	13	front	97.3	0.063	-	1.122	1.028	-	
2412	1	802.11n	OFDM	20	13.5	13.33	13.00	0.11	10 mm	MIMO	27217	13	top	97.3	0.132	0.083	1.122	1.028	0.096	
2412	1	802.11n	OFDM	20	13.5	13.33	13.00	0.19	10 mm	MIMO	27217	13	left	97.3	0.043	-	1.122	1.028	-	
5775	155	802.11ac	OFDM	80	13.5	13.14	13.15	-0.15	10 mm	MIMO	27217	58.5	back	90.8	0.297	0.135	1.086	1.101	0.171	
5775	155	802.11ac	OFDM	80	13.5	13.14	13.15	0.11	10 mm	MIMO	27217	58.5	front	90.8	0.052	-	1.086	1.101	-	
5775	155	802.11ac	OFDM	80	13.5	13.14	13.15	-0.20	10 mm	MIMO	27217	58.5	top	90.8	0.077	-	1.086	1.101	-	
5775	155	802.11ac	OFDM	80	13.5	13.14	13.15	0.12	10 mm	MIMO	27217	58.5	left	90.8	0.046	-	1.086	1.101	-	

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

DTS and NII MIMO were additionally evaluated at the maximum allowed output power during operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 5 GHz WIFI was not transmitting during the DTS evaluations and 2.4 GHz WIFI was not transmitting during the NII evaluations.

Table 11-36
Bluetooth Hotspot SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate	Side	Duty Cycle %	SAR (1g)	Scaling Factor (Cond. Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2480	78	Bluetooth	FHSS	10.5	9.87	0.11	10 mm	F7863	2	back	76.8	0.009	1.156	1.302	0.014	A45
2480	78	Bluetooth	FHSS	10.5	9.87	-0.13	10 mm	F7863	2	front	76.8	0.009	1.156	1.302	0.014	
2480	78	Bluetooth	FHSS	10.5	9.87	-0.19	10 mm	F7863	2	top	76.8	0.003	1.156	1.302	0.005	
2480	78	Bluetooth	FHSS	10.5	9.87	-0.10	10 mm	F7863	2	left	76.8	0.001	1.156	1.302	0.002	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram						

11.4 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB Publication 648474 D04v01r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was ≤ 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were required.
8. Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 13 for variability analysis.
9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 6.7 for more details).

GSM Test Notes:

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

CDMA Notes:

1. Head SAR for CDMA2000 mode was tested under RC3/SO55 per FCC KDB Publication 941225 D01v03r01.

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

UMTS Notes:

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

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r04. The general test procedures used for testing can be found in Section 8.6.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
4. Per FCC KDB Publication 447498 D01v06, when the reported (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.
5. TDD LTE was tested per the guidance provided in FCC KDB Publication 941225 D05v02r04. Testing was performed using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.
6. Per KDB Publication 941225 D05Av01r02, SAR for LTE CA downlink operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.
7. For LTE Band 41, per FCC guidance, SAR was first measured with only a single carrier active in the uplink (carrier aggregation not active). For each exposure condition, the uplink CA scenario with two component carriers was additionally tested for the configuration with the highest SAR when carrier aggregation was not active. The SCC was configured with the closest available contiguous channel. The two component carriers were configured so the resource blocks are physically allocated side by side to achieve the maximum output power.

WLAN Notes:

1. For held-to-ear and hotspot operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for

the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.

2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 8.7.5 for more information.
3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg. See Section 8.7.6 for more information.

4. When the maximum reported 1g averaged SAR is ≤0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg or all test channels were measured.
5. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.
6. DTS and NII MIMO were additionally evaluated at the maximum allowed output power during operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 5 GHz WIFI was not transmitting during the DTS evaluations and 2.4 GHz WIFI was not transmitting during the NII evaluations.

Bluetooth Notes:

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

12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

12.1 Introduction

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

12.2 Simultaneous Transmission Procedures

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

12.3 Head SAR Simultaneous Transmission Analysis

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

Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
	1	2	3	1+2	1+3	1+2+3
GSM 850	0.195	0.483	0.746	0.678	0.941	1.424
UMTS 850	0.195	0.483	0.746	0.678	0.941	1.424
Cell. CDMA/EVDO	0.344	0.483	0.746	0.827	1.090	**1.573**
GSM 1900	0.125	0.483	0.746	0.608	0.871	1.354
UMTS 1900	0.278	0.483	0.746	0.761	1.024	1.507
LTE Band 12	0.084	0.483	0.746	0.567	0.830	1.313
LTE Band 13	0.181	0.483	0.746	0.664	0.927	1.410
LTE Band 5 (Cell)	0.283	0.483	0.746	0.766	1.029	1.512
LTE Band 26 (Cell)	0.243	0.483	0.746	0.726	0.989	1.472
LTE Band 4 (AWS)	0.243	0.483	0.746	0.726	0.989	1.472
LTE Band 25 (PCS)	0.303	0.483	0.746	0.786	1.049	1.532
LTE Band 41	0.107	0.483	0.746	0.590	0.853	1.336

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	0.195	0.099	0.398	0.294	0.593	0.692
	UMTS 850	0.195	0.099	0.398	0.294	0.593	0.692
	Cell. CDMA/EVDO	0.344	0.099	0.398	0.443	0.742	**0.841**
	GSM 1900	0.125	0.099	0.398	0.224	0.523	0.622
	UMTS 1900	0.278	0.099	0.398	0.377	0.676	0.775
	LTE Band 12	0.084	0.099	0.398	0.183	0.482	0.581
	LTE Band 13	0.181	0.099	0.398	0.280	0.579	0.678
	LTE Band 5 (Cell)	0.283	0.099	0.398	0.382	0.681	0.780
	LTE Band 26 (Cell)	0.243	0.099	0.398	0.342	0.641	0.740
	LTE Band 4 (AWS)	0.243	0.099	0.398	0.342	0.641	0.740
	LTE Band 25 (PCS)	0.303	0.099	0.398	0.402	0.701	0.800
	LTE Band 41	0.107	0.099	0.398	0.206	0.505	0.604

Table 12-3
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO and 5 GHz WLAN MIMO 4 Tx (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN MIMO at 13 dBm SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	GSM 850	0.195	0.574	0.334	1.103
	UMTS 850	0.195	0.574	0.334	1.103
	Cell. CDMA/EVDO	0.344	0.574	0.334	**1.252**
	GSM 1900	0.125	0.574	0.334	1.033
	UMTS 1900	0.278	0.574	0.334	1.186
	LTE Band 12	0.084	0.574	0.334	0.992
	LTE Band 13	0.181	0.574	0.334	1.089
	LTE Band 5 (Cell)	0.283	0.574	0.334	1.191
	LTE Band 26 (Cell)	0.243	0.574	0.334	1.151
	LTE Band 4 (AWS)	0.243	0.574	0.334	1.151
	LTE Band 25 (PCS)	0.303	0.574	0.334	1.211
	LTE Band 41	0.107	0.574	0.334	1.015

Table 12-4
Simultaneous Transmission Scenario with Bluetooth (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	GSM 850	0.195	0.096	0.291
	UMTS 850	0.195	0.096	0.291
	Cell. CDMA/EVDO	0.344	0.096	**0.440**
	GSM 1900	0.125	0.096	0.221
	UMTS 1900	0.278	0.096	0.374
	LTE Band 12	0.084	0.096	0.180
	LTE Band 13	0.181	0.096	0.277
	LTE Band 5 (Cell)	0.283	0.096	0.379
	LTE Band 26 (Cell)	0.243	0.096	0.339
	LTE Band 4 (AWS)	0.243	0.096	0.339
	LTE Band 25 (PCS)	0.303	0.096	0.399
	LTE Band 41	0.107	0.096	0.203

12.4 Body-Worn Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Body-Worn	GSM 850	0.250	0.121	0.102	0.371	0.352	0.473
	UMTS 850	0.273	0.121	0.102	0.394	0.375	0.496
	Cell. CDMA	0.486	0.121	0.102	0.607	0.588	0.709
	GSM 1900	0.338	0.121	0.102	0.459	0.440	0.561
	UMTS 1900	0.699	0.121	0.102	0.820	0.801	0.922
	LTE Band 12	0.119	0.121	0.102	0.240	0.221	0.342
	LTE Band 13	0.274	0.121	0.102	0.395	0.376	0.497
	LTE Band 5 (Cell)	0.340	0.121	0.102	0.461	0.442	0.563
	LTE Band 26 (Cell)	0.253	0.121	0.102	0.374	0.355	0.476
	LTE Band 4 (AWS)	0.783	0.121	0.102	0.904	0.885	**1.006**
	LTE Band 25 (PCS)	0.723	0.121	0.102	0.844	0.825	0.946
	LTE Band 41	0.213	0.121	0.102	0.334	0.315	0.436

Table 12-6
Simultaneous Transmission Scenario with 5 GHz WLAN Ant 1 and 5 GHz WLAN Ant 2 (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Body-Worn	GSM 850	0.250	0.217	0.238	0.467	0.488	0.705
	UMTS 850	0.273	0.217	0.238	0.490	0.511	0.728
	Cell. CDMA	0.486	0.217	0.238	0.703	0.724	0.941
	GSM 1900	0.338	0.217	0.238	0.555	0.576	0.793
	UMTS 1900	0.699	0.217	0.238	0.916	0.937	1.154
	LTE Band 12	0.119	0.217	0.238	0.336	0.357	0.574
	LTE Band 13	0.274	0.217	0.238	0.491	0.512	0.729
	LTE Band 5 (Cell)	0.340	0.217	0.238	0.557	0.578	0.795
	LTE Band 26 (Cell)	0.253	0.217	0.238	0.470	0.491	0.708
	LTE Band 4 (AWS)	0.783	0.217	0.238	1.000	1.021	**1.238**
	LTE Band 25 (PCS)	0.723	0.217	0.238	0.940	0.961	1.178
	LTE Band 41	0.213	0.217	0.238	0.430	0.451	0.668

Table 12-7
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO and 5 GHz WLAN MIMO 4 Tx (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN MIMO at 13 dBm SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	GSM 850	0.250	0.037	0.109	0.396
	UMTS 850	0.273	0.037	0.109	0.419
	Cell. CDMA	0.486	0.037	0.109	0.632
	GSM 1900	0.338	0.037	0.109	0.484
	UMTS 1900	0.699	0.037	0.109	0.845
	LTE Band 12	0.119	0.037	0.109	0.265
	LTE Band 13	0.274	0.037	0.109	0.420
	LTE Band 5 (Cell)	0.340	0.037	0.109	0.486
	LTE Band 26 (Cell)	0.253	0.037	0.109	0.399
	LTE Band 4 (AWS)	0.783	0.037	0.109	**0.929**
	LTE Band 25 (PCS)	0.723	0.037	0.109	0.869
	LTE Band 41	0.213	0.037	0.109	0.359

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	GSM 850	0.250	0.050	0.300
	UMTS 850	0.273	0.050	0.323
	Cell. CDMA	0.486	0.050	0.536
	GSM 1900	0.338	0.050	0.388
	UMTS 1900	0.699	0.050	0.749
	LTE Band 12	0.119	0.050	0.169
	LTE Band 13	0.274	0.050	0.324
	LTE Band 5 (Cell)	0.340	0.050	0.390
	LTE Band 26 (Cell)	0.253	0.050	0.303
	LTE Band 4 (AWS)	0.783	0.050	0.833
	LTE Band 25 (PCS)	0.723	0.050	0.773
	LTE Band 41	0.213	0.050	0.263

12.5 Hotspot SAR Simultaneous Transmission Analysis

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

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

Table 12-9
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 and 2.4 GHz WLAN Ant 2 (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	0.427	0.308	0.268	0.735	0.695	1.003
	UMTS 850	0.379	0.308	0.268	0.687	0.647	0.955
	Cell. EVDO	0.643	0.308	0.268	0.951	0.911	1.219
	GPRS 1900	0.979	0.308	0.268	1.287	1.247	See Table Below
	UMTS 1900	1.024	0.308	0.268	1.332	1.292	See Table Below
	LTE Band 12	0.169	0.308	0.268	0.477	0.437	0.745
	LTE Band 13	0.346	0.308	0.268	0.654	0.614	0.922
	LTE Band 5 (Cell)	0.483	0.308	0.268	0.791	0.751	1.059
	LTE Band 26 (Cell)	0.363	0.308	0.268	0.671	0.631	0.939
	LTE Band 4 (AWS)	0.725	0.308	0.268	1.033	0.993	1.301
	LTE Band 25 (PCS)	1.064	0.308	0.268	**1.372**	1.332	See Table Below
	LTE Band 41	0.317	0.308	0.268	0.625	0.585	0.893

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.654	0.308*	0.268	0.962	0.922	**1.230**
	Front	0.590	0.308*	0.268*	0.898	0.858	1.166
	Top	-	0.308	0.268*	0.308	0.268	0.576
	Bottom	1.024	-	-	1.024	1.024	1.024
	Right	0.300	-	-	0.300	0.300	0.300
	Left	0.176	0.308*	0.268*	0.484	0.444	0.752

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.691	0.308*	0.268	0.999	0.959	**1.267**
	Front	0.549	0.308*	0.268*	0.857	0.817	1.125
	Top	-	0.308	0.268*	0.308	0.268	0.576
	Bottom	1.064	-	-	1.064	1.064	1.064
	Right	0.128	-	-	0.128	0.128	0.128
	Left	0.103	0.308*	0.268*	0.411	0.371	0.679

Table 12-10
Simultaneous Transmission Scenario with 5 GHz WLAN Ant 1 and 5 GHz WLAN Ant 2 (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	0.427	0.456	0.282	0.883	0.709	1.165
	UMTS 850	0.379	0.456	0.282	0.835	0.661	1.117
	Cell. EVDO	0.643	0.456	0.282	1.099	0.925	1.381
	GPRS 1900	0.979	0.456	0.282	1.435	1.261	See Table Below
	UMTS 1900	1.024	0.456	0.282	1.480	1.306	See Table Below
	LTE Band 12	0.169	0.456	0.282	0.625	0.451	0.907
	LTE Band 13	0.346	0.456	0.282	0.802	0.628	1.084
	LTE Band 5 (Cell)	0.483	0.456	0.282	0.939	0.765	1.221
	LTE Band 26 (Cell)	0.363	0.456	0.282	0.819	0.645	1.101
	LTE Band 4 (AWS)	0.725	0.456	0.282	1.181	1.007	1.463
	LTE Band 25 (PCS)	1.064	0.456	0.282	**1.520**	1.346	See Table Below
	LTE Band 41	0.317	0.456	0.282	0.773	0.599	1.055

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.610	0.456	0.282	1.066	0.892	**1.348**
	Front	0.513	0.456*	0.282*	0.969	0.795	1.251
	Top	-	0.083	0.282*	0.083	0.282	0.365
	Bottom	0.979	-	-	0.979	0.979	0.979
	Right	0.147	-	-	0.147	0.147	0.147
	Left	0.088	0.456*	0.282*	0.544	0.370	0.826

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.654	0.456	0.282	1.110	0.936	**1.392**
	Front	0.590	0.456*	0.282*	1.046	0.872	1.328
	Top	-	0.083	0.282*	0.083	0.282	0.365
	Bottom	1.024	-	-	1.024	1.024	1.024
	Right	0.300	-	-	0.300	0.300	0.300
	Left	0.176	0.456*	0.282*	0.632	0.458	0.914

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.691	0.456	0.282	1.147	0.973	**1.429**
	Front	0.549	0.456*	0.282*	1.005	0.831	1.287
	Top	-	0.083	0.282*	0.083	0.282	0.365
	Bottom	1.064	-	-	1.064	1.064	1.064
	Right	0.128	-	-	0.128	0.128	0.128
	Left	0.103	0.456*	0.282*	0.559	0.385	0.841

Table 12-11
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO and 5 GHz WLAN MIMO 4 Tx (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	GPRS 850	0.427	0.096	0.171	0.694
	UMTS 850	0.379	0.096	0.171	0.646
	Cell. EVDO	0.643	0.096	0.171	0.910
	GPRS 1900	0.979	0.096	0.171	1.246
	UMTS 1900	1.024	0.096	0.171	1.291
	LTE Band 12	0.169	0.096	0.171	0.436
	LTE Band 13	0.346	0.096	0.171	0.613
	LTE Band 5 (Cell)	0.483	0.096	0.171	0.750
	LTE Band 26 (Cell)	0.363	0.096	0.171	0.630
	LTE Band 4 (AWS)	0.725	0.096	0.171	0.992
	LTE Band 25 (PCS)	1.064	0.096	0.171	**1.331**
	LTE Band 41	0.317	0.096	0.171	0.584

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	GPRS 850	0.427	0.014	0.441
	UMTS 850	0.379	0.014	0.393
	Cell. EVDO	0.643	0.014	0.657
	GPRS 1900	0.979	0.014	0.993
	UMTS 1900	1.024	0.014	1.038
	LTE Band 12	0.169	0.014	0.183
	LTE Band 13	0.346	0.014	0.360
	LTE Band 5 (Cell)	0.483	0.014	0.497
	LTE Band 26 (Cell)	0.363	0.014	0.377
	LTE Band 4 (AWS)	0.725	0.014	0.739
	LTE Band 25 (PCS)	1.064	0.014	**1.078**
	LTE Band 41	0.317	0.014	0.331

12.6 Simultaneous Transmission Conclusion

The above numerical summed SAR results for all the worst-case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and IEEE 1528-2013 Section 6.3.4.1.2.

13 SAR MEASUREMENT VARIABILITY

13.1 Measurement Variability

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

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

1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 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	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	1905.00	26590	LTE Band 25 (PCS), 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	bottom	10 mm	0.992	0.993	1.00	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Body 1.6 W/kg (mW/g) averaged over 1 gram							

13.2 Measurement Uncertainty

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

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	8753E	(30kHz-6GHz) Network Analyzer	3/2/2016	Annual	3/2/2017	JP38020182
Agilent	E4438C	ESG Vector Signal Generator	3/2/2016	Annual	3/2/2017	MY47270002
Agilent	E5515C	Wireless Communications Test Set	12/12/2016	Annual	12/12/2017	GB44400860
Agilent	E8257D	(250kHz-20GHz) Signal Generator	3/2/2016	Annual	3/2/2017	MY45470194
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB44450273
Agilent	N5182A	MXG Vector Signal Generator	10/27/2016	Annual	10/27/2017	MY47420603
Agilent	N9020A	MXA Signal Analyzer	10/28/2016	Annual	10/28/2017	US46470561
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Anritsu	MA24106A	USB Power Sensor	6/2/2016	Annual	6/2/2017	1231535
Anritsu	MA24106A	USB Power Sensor	6/2/2016	Annual	6/2/2017	1231538
Anritsu	MA2411B	Pulse Power Sensor	8/18/2016	Annual	8/18/2017	1126066
Anritsu	MA2411B	Pulse Power Sensor	8/18/2016	Annual	8/18/2017	1207470
Anritsu	ML2495A	Power Meter	10/16/2015	Biennial	10/16/2017	941001
Anritsu	ML2496A	Power Meter	3/5/2016	Annual	3/5/2017	1351001
Anritsu	MT8820C	Radio Communication Analyzer	9/15/2016	Annual	9/15/2017	6200901190
COMTech	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M1S5A00-009
Control Company	4040	Digital Thermometer	3/18/2015	Biennial	3/18/2017	150194895
Control Company	4352	Ultra Long Stem Thermometer	3/8/2016	Biennial	3/8/2018	160261694
Control Company	4353	Long Stem Thermometer	3/5/2015	Biennial	3/5/2017	150149565
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	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	3/2/2016	Biennial	3/2/2018	13264162
Mitutoyo	CD-6"CSX	Digital Caliper	3/2/2016	Biennial	3/2/2018	13264165
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Pasternack	NC-100	Torque Wrench	11/6/2015	Biennial	11/6/2017	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	10/20/2016	Annual	10/20/2017	100976
Rohde & Schwarz	CMW500	Radio Communication Tester	4/27/2016	Annual	4/27/2017	101699
Rohde & Schwarz	CMW500	Radio Communication Tester	10/13/2016	Annual	10/13/2017	102060
Seekonk	NC-100	Torque Wrench (8" lb)	9/1/2016	Biennial	9/1/2018	21053
Seekonk	NC-100	Torque Wrench	11/6/2015	Biennial	11/6/2017	22313
SPEAG	DAK-3.5	Dielectric Assessment Kit	9/13/2016	Annual	9/13/2017	1091
SPEAG	DAKS-3.5	Portable Dielectric Assessment Kit	8/25/2016	Annual	8/25/2017	1041
SPEAG	ES3DV3	SAR Probe	3/18/2016	Annual	3/18/2017	3209
SPEAG	ES3DV3	SAR Probe	9/19/2016	Annual	9/19/2017	3287
SPEAG	ES3DV3	SAR Probe	11/15/2016	Annual	11/15/2017	3334
SPEAG	EX3DV4	SAR Probe	4/19/2016	Annual	4/19/2017	7357
SPEAG	ES3DV3	SAR Probe	8/25/2016	Annual	8/25/2017	3332
SPEAG	ES3DV3	SAR Probe	3/18/2016	Annual	3/18/2017	3319
SPEAG	EX3DV4	SAR Probe	5/17/2016	Annual	5/17/2017	7409
SPEAG	EX3DV4	SAR Probe	4/19/2016	Annual	4/19/2017	7406
SPEAG	EX3DV4	SAR Probe	2/22/2016	Annual	2/22/2017	3914
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/22/2016	Annual	8/22/2017	1364
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/14/2016	Annual	9/14/2017	1408
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/11/2016	Annual	11/11/2017	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/19/2016	Annual	2/19/2017	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/15/2016	Annual	9/15/2017	1333
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/14/2016	Annual	3/14/2017	1368
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/11/2016	Annual	5/11/2017	859
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/14/2016	Annual	4/14/2017	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/18/2016	Annual	2/18/2017	1272
SPEAG	D750V3	750 MHz SAR Dipole	7/13/2016	Annual	7/13/2017	1161
SPEAG	D835V2	835 MHz SAR Dipole	7/13/2016	Annual	7/13/2017	4d047
SPEAG	D835V2	835 MHz SAR Dipole	7/14/2016	Annual	7/14/2017	4d133
SPEAG	D1750V2	SAR Dipole	5/9/2016	Annual	5/9/2017	1148
SPEAG	D1900V2	1900 MHz SAR Dipole	7/15/2016	Annual	7/15/2017	5d149
SPEAG	D2450V2	2450 MHz SAR Dipole	9/13/2016	Annual	9/13/2017	797
SPEAG	D2450V2	2450 MHz SAR Dipole	7/25/2016	Annual	7/25/2017	981
SPEAG	D2600V2	2600 MHz SAR Dipole	7/25/2016	Annual	7/25/2017	1126
SPEAG	D5GHzV2	5 GHz SAR Dipole	8/2/2016	Annual	8/2/2017	1237
SPEAG	D750V3	750 MHz Dipole	3/16/2016	Annual	3/16/2017	1054
SPEAG	D2600V2	2600 MHz SAR Dipole	9/13/2016	Annual	9/13/2017	1071

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.

15 MEASUREMENT UNCERTAINTIES

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

16 CONCLUSION

16.1 Measurement Conclusion

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

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

17 REFERENCES

[1] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, Aug. 1996.

[2] ANSI/IEEE C95.1-2005, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, 2006.

[3] ANSI/IEEE C95.1-1992, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, Sept. 1992.

[4] ANSI/IEEE C95.3-2002, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave, New York: IEEE, December 2002.

[5] IEEE Standards Coordinating Committee 39 –Standards Coordinating Committee 34 – IEEE Std. 1528-2013, IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.

[6] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for RadioFrequency Electromagnetic Fields, NCRP Report No. 86, 1986. Reprinted Feb. 1995.

[7] T. Schmid, O. Egger, N. Kuster, Automated E-field scanning system for dosimetric assessments, IEEE Transaction on Microwave Theory and Techniques, vol. 44, Jan. 1996, pp. 105-113.

[8] K. Pokovic, T. Schmid, N. Kuster, Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies, ICECOM97, Oct. 1997, pp. 1 -124.

[9] K. Pokovic, T. Schmid, and N. Kuster, E-field Probe with improved isotropy in brain simulating liquids, Proceedings of the ELMAR, Zadar, Croatia, June 23-25, 1996, pp. 172-175.

[10] Schmid & Partner Engineering AG, Application Note: Data Storage and Evaluation, June 1998, p2.

[11] V. Hombach, K. Meier, M. Burkhardt, E. Kuhn, N. Kuster, The Dependence of EM Energy Absorption upon Human Modeling at 900 MHz, IEEE Transaction on Microwave Theory and Techniques, vol. 44 no. 10, Oct. 1996, pp. 1865-1873.

[12] N. Kuster and Q. Balzano, Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300MHz, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.

[13] G. Hartsgrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bioelectromagnetics, Canada: 1987, pp. 29-36.

[14] Q. Balzano, O. Garay, T. Manning Jr., Electromagnetic Energy Exposure of Simulated Users of Portable Cellular Telephones, IEEE Transactions on Vehicular Technology, vol. 44, no.3, Aug. 1995.

[15] W. Gander, Computermathematick, Birkhaeuser, Basel, 1992.

[16] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second edition, Cambridge University Press, 1992.

[17] N. Kuster, R. Kastle, T. Schmid, Dosimetric evaluation of mobile communications equipment with known precision, IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.

[18] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10kHz-300GHz, Jan. 1995.

[19] Prof. Dr. Niels Kuster, ETH, Eidgenössische Technische Hoschschule Zürich, Dosimetric Evaluation of the Cellular Phone.

[20] IEC 62209-1, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz), Feb. 2005.

[21] Innovation, Science, Economic Development Canada RSS-102 Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) Issue 5, March 2015.

[22] Health Canada Safety Code 6 Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Range from 3 kHz – 300 GHz, 2015

[23] FCC SAR Test Procedures for 2G-3G Devices, Mobile Hotspot and UMPC Devices KDB Publications 941225, D01-D07

[24] SAR Measurement Guidance for IEEE 802.11 Transmitters, KDB Publication 248227 D01

[25] FCC SAR Considerations for Handsets with Multiple Transmitters and Antennas, KDB Publications 648474 D03-D04

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

[27] FCC SAR Measurement and Reporting Requirements for 100MHz – 6 GHz, KDB Publications 865664 D01-D02

[28] FCC General RF Exposure Guidance and SAR Procedures for Dongles, KDB Publication 447498, D01-D02

[29] Anexo à Resolução No. 533, de 10 de Septembro de 2009.

[30] IEC 62209-2, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz), Mar. 2010.

APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG9500; Type: Portable Handset; Serial: 088CC

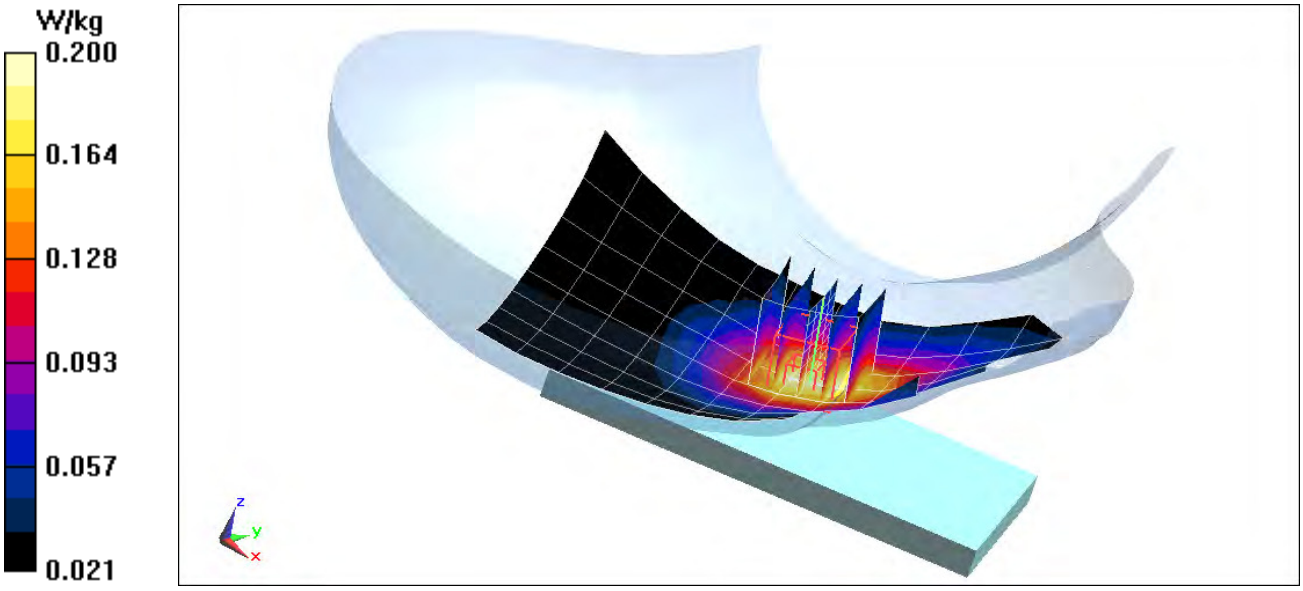
Communication System: UID 0, GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.92 S/m; ε_r = 40.815; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-19-2017; Ambient Temp: 23.9°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3287; ConvF(6.67, 6.67, 6.67); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Left; Type: QD000P40CA; Serial: TP:82355
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.41 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.228 W/kg
SAR(1 g) = 0.183 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG9500; Type: Portable Handset; Serial: 088CC

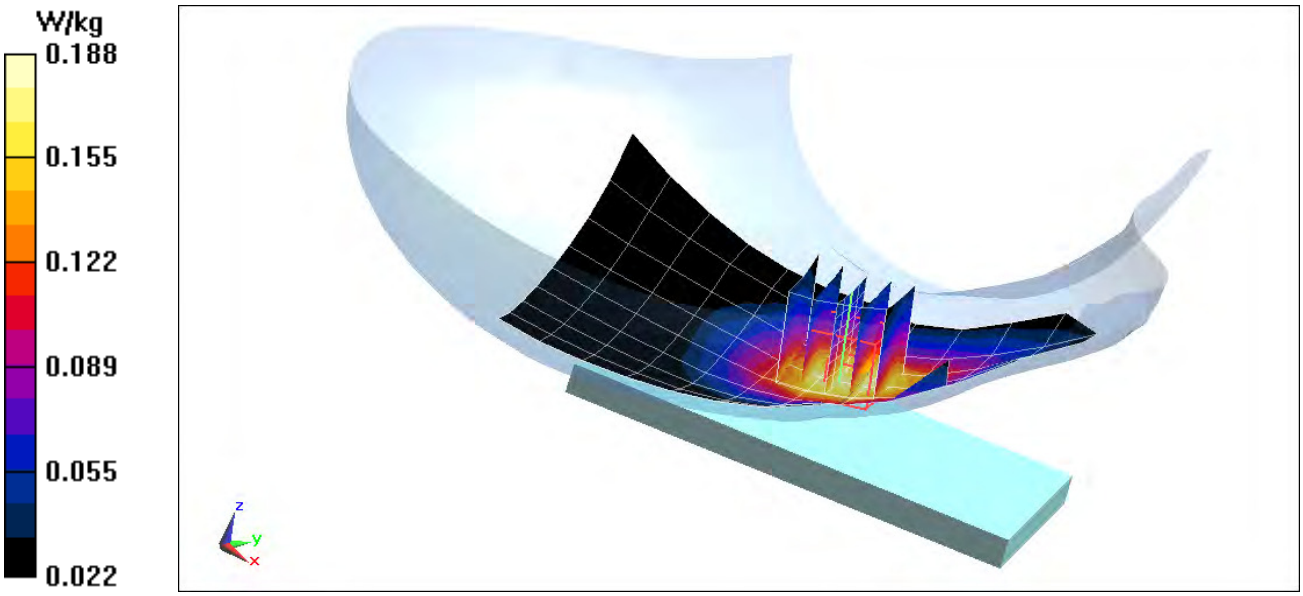
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
$f = 836.6$ MHz; $\sigma = 0.92$ S/m; $\varepsilon_r = 40.815$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 01-19-2017; Ambient Temp: 23.9°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3287; ConvF(6.67, 6.67, 6.67); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Left; Type: QD000P40CA; Serial: TP:82355
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.12 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.220 W/kg
SAR(1 g) = 0.173 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG9500; Type: Portable Handset; Serial: 0885E

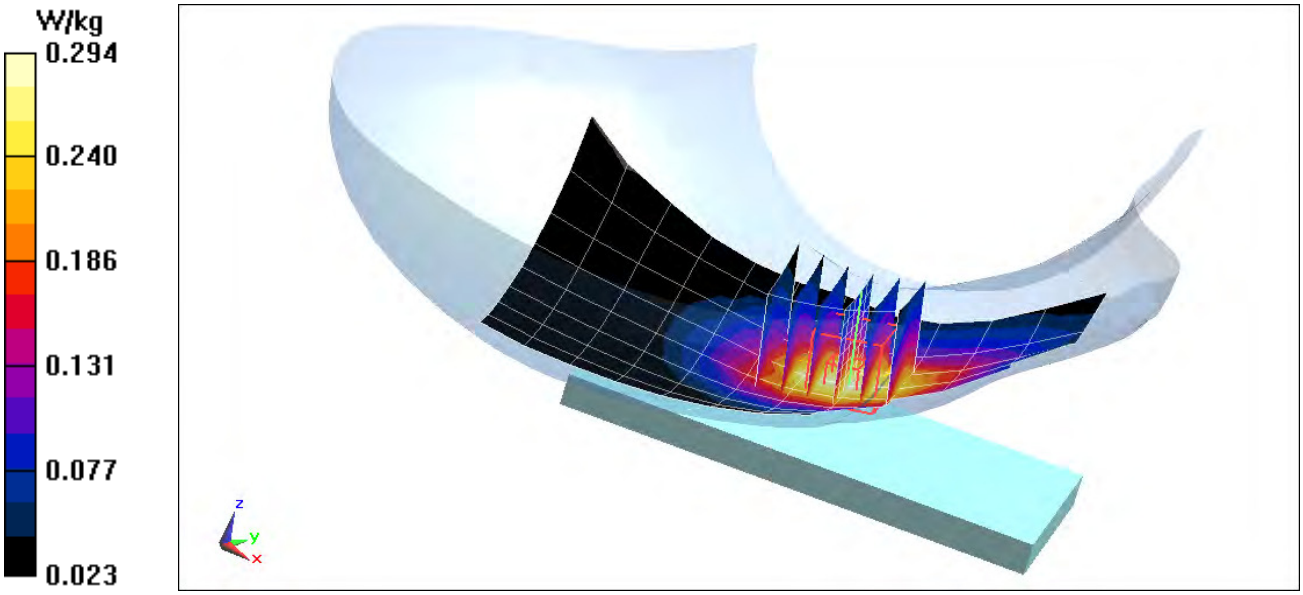
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.906 S/m; ε_r = 40.773; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 02-10-2017; Ambient Temp: 20.9°C; Tissue Temp: 20.0°C

Probe: ES3DV3 - SN3334; ConvF(6.49, 6.49, 6.49); Calibrated: 11/15/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 11/11/2016
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.58 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.353 W/kg
SAR(1 g) = 0.266 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 08859

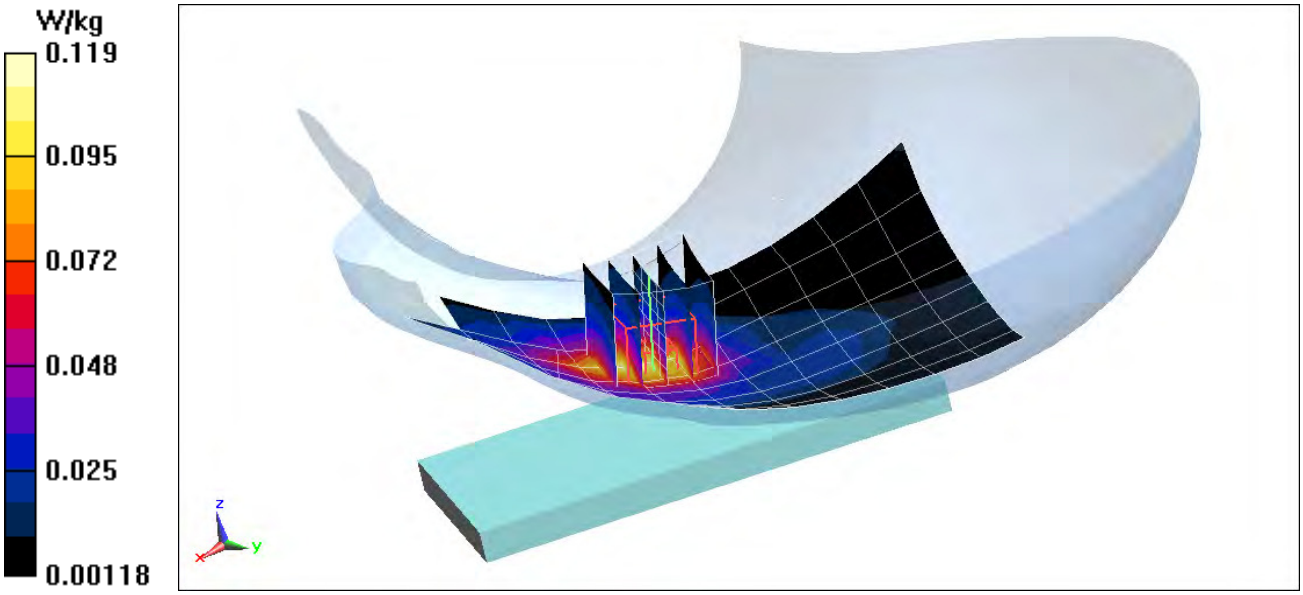
Communication System: UID 0, GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.424 S/m; ε_r = 39.483; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-16-2017; Ambient Temp: 23.5°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3287; ConvF(5.27, 5.27, 5.27); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.806 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.162 W/kg
SAR(1 g) = 0.104 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 08859

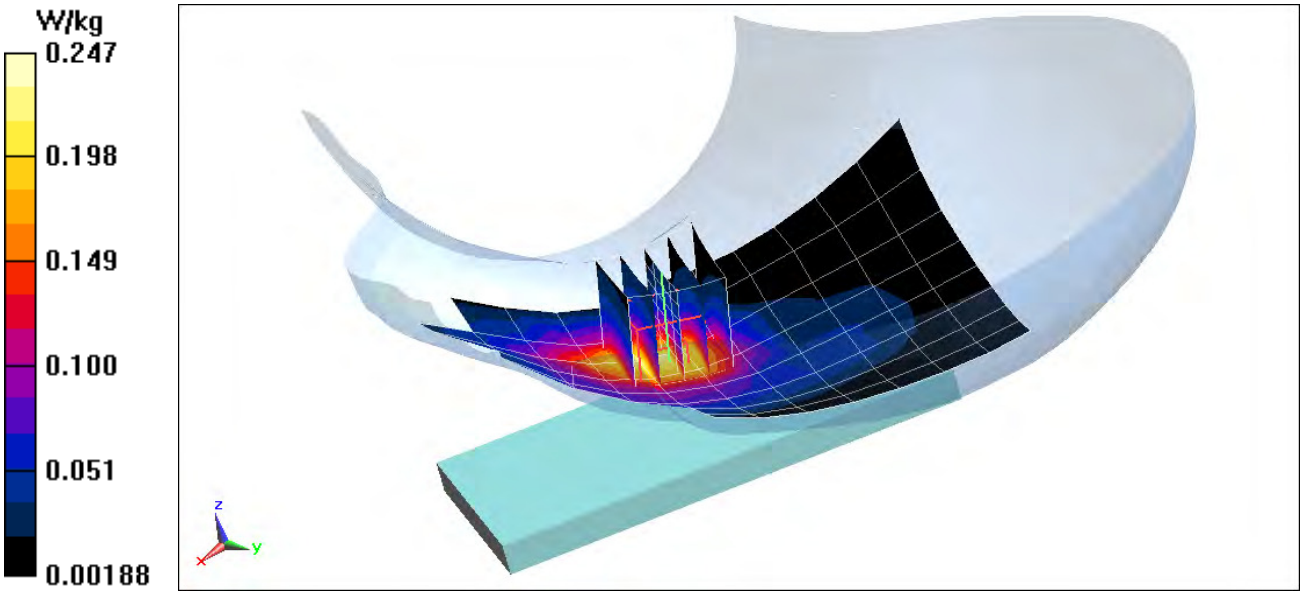
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.424 S/m; ε_r = 39.483; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-16-2017; Ambient Temp: 23.5°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3287; ConvF(5.27, 5.27, 5.27); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.86 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.323 W/kg
SAR(1 g) = 0.213 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088CE

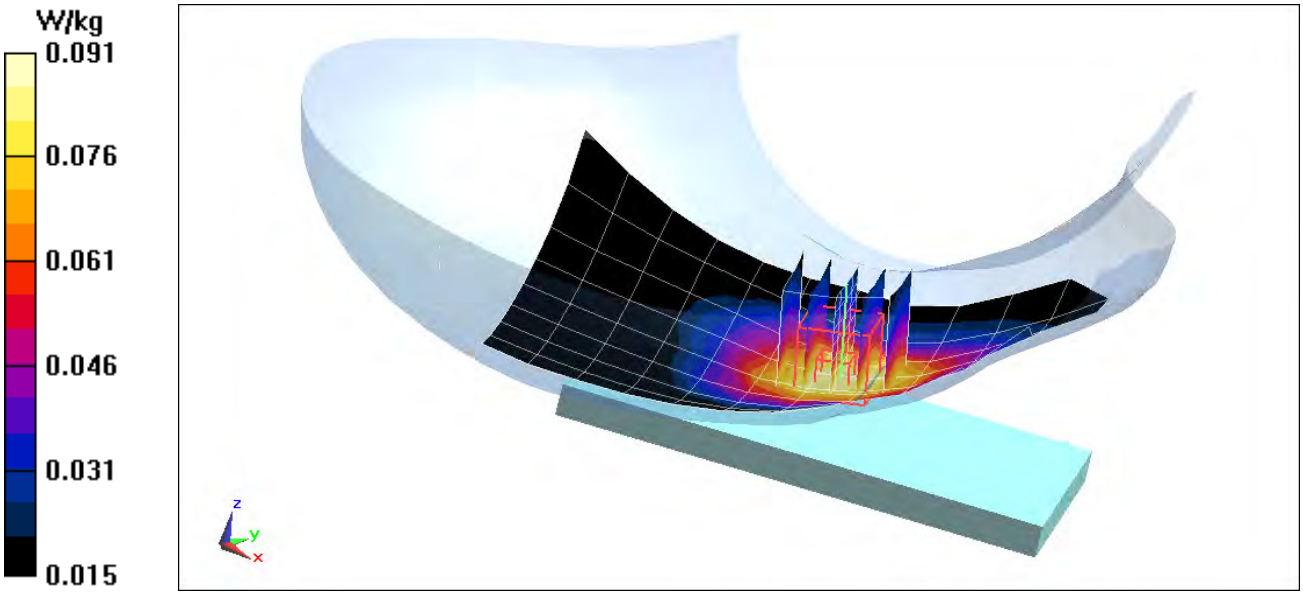
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.858 S/m; ε_r = 42.162; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-18-2017; Ambient Temp: 24.3°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3209; ConvF(6.6, 6.6, 6.6); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 8/22/2016
Phantom: SAM Right; Type: SAM; Serial: 1757
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.64 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.102 W/kg
SAR(1 g) = 0.084 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088CE

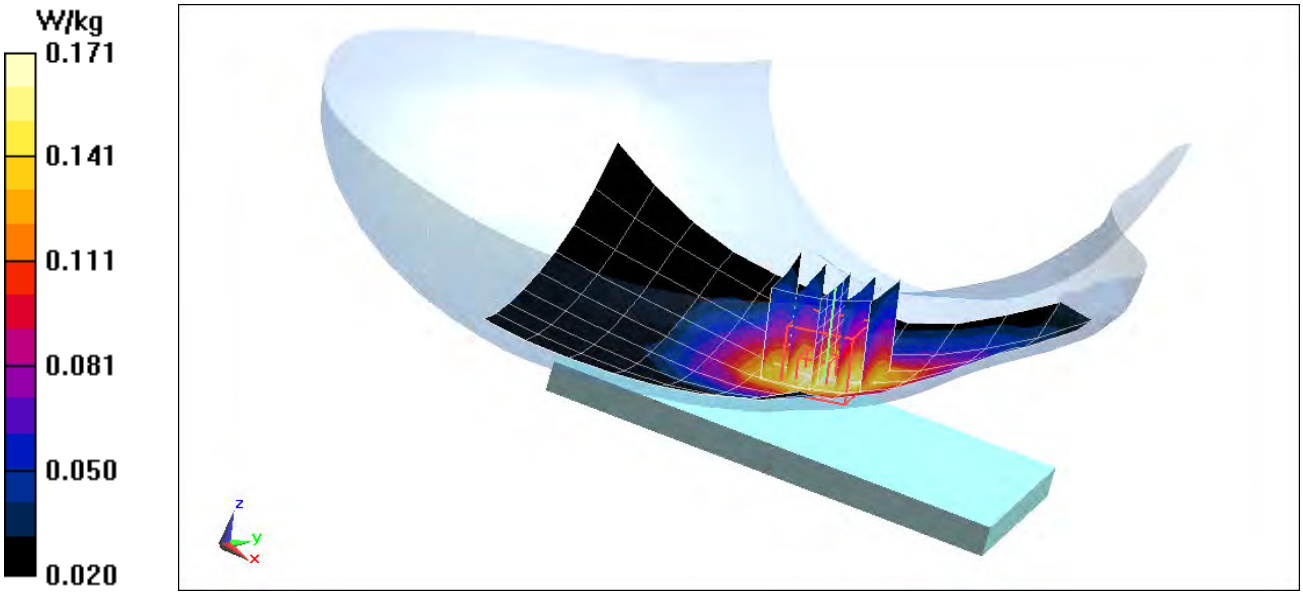
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 782 MHz; σ = 0.926 S/m; ε_r = 41.096; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-18-2017; Ambient Temp: 24.3°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3209; ConvF(6.6, 6.6, 6.6); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 8/22/2016
Phantom: SAM Right; Type: SAM; Serial: 1757
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 13, Right Head, Cheek, Mid.ch
10 MHz Bandwidth, QPSK, 1 RB, 49 RB Offset

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.10 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.197 W/kg
SAR(1 g) = 0.157 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088CC

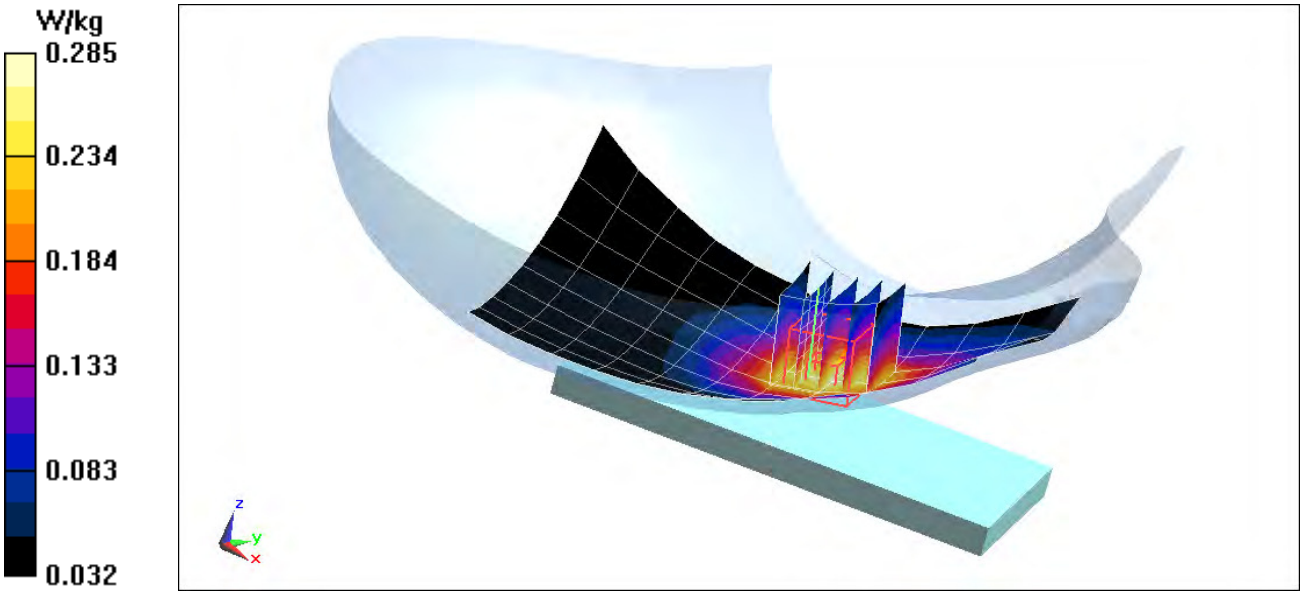
Communication System: UID 0, LTE Band 5 (Cell.); Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
$f = 836.5$ MHz; $\sigma = 0.92$ S/m; $\varepsilon_r = 40.816$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 01-19-2017; Ambient Temp: 23.9°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3287; ConvF(6.67, 6.67, 6.67); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Left; Type: QD000P40CA; Serial: TP:82355
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 5 (Cell.), Right Head, Cheek, Mid.ch
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.80 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.328 W/kg
SAR(1 g) = 0.263 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088CC

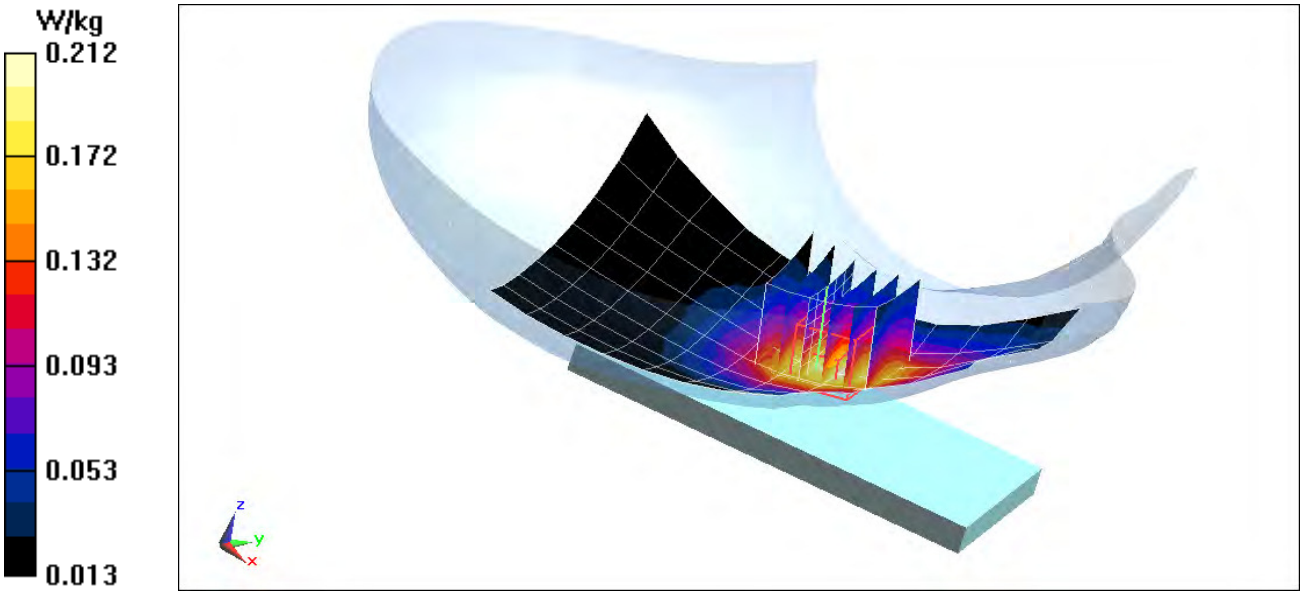
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.914 S/m; ε_r = 40.864; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-19-2017; Ambient Temp: 23.9°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3287; ConvF(6.67, 6.67, 6.67); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Left; Type: QD000P40CA; Serial: TP:82355
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.22 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.245 W/kg
SAR(1 g) = 0.193 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 08861

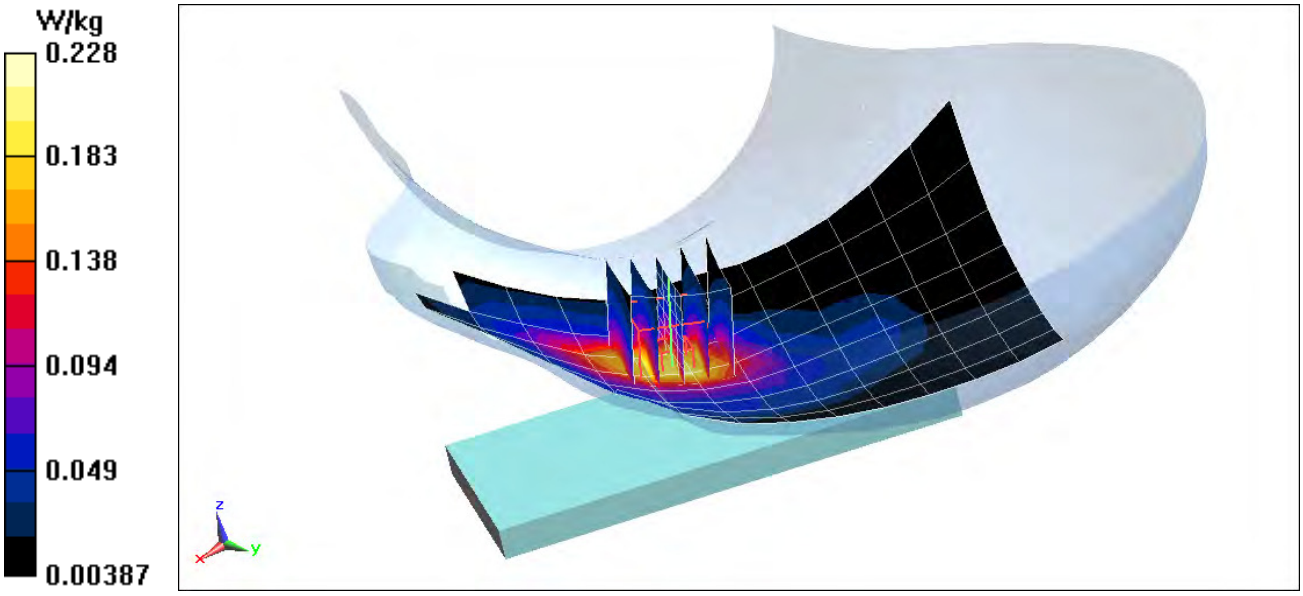
Communication System: UID 0, LTE Band 4 (AWS); Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.326 S/m; ε_r = 39.252; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-12-2017; Ambient Temp: 23.6°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3209; ConvF(5.28, 5.28, 5.28); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 8/22/2016
Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.54 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.293 W/kg
SAR(1 g) = 0.197 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 08859

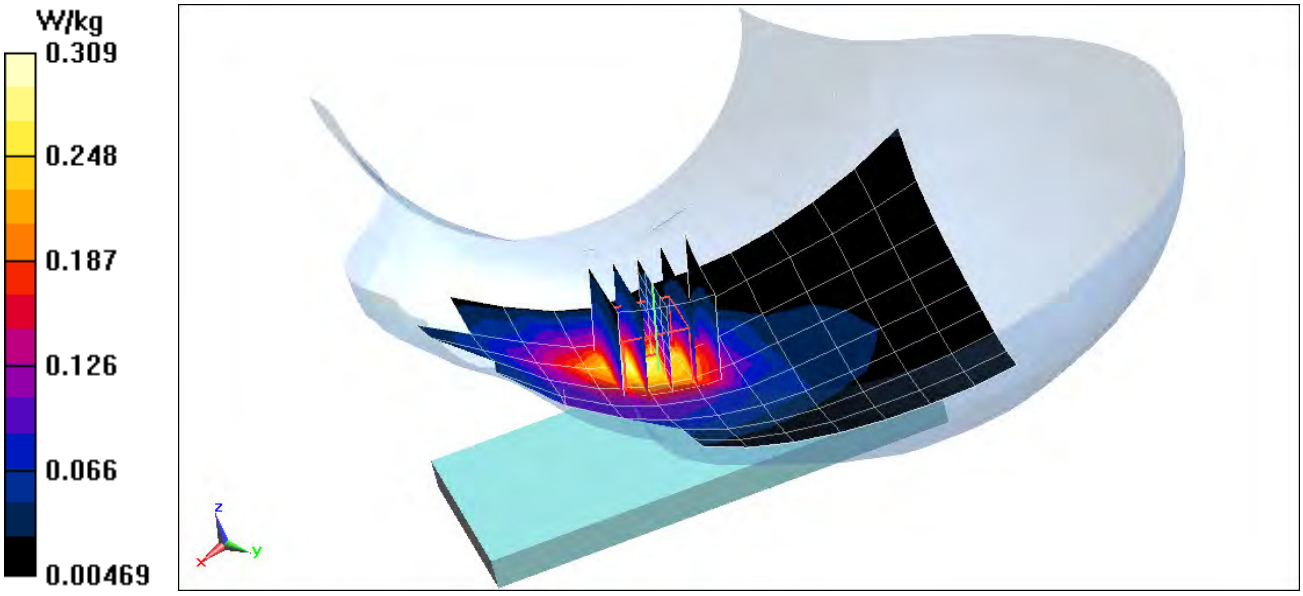
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1860 MHz; σ = 1.403 S/m; ε_r = 39.524; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-16-2017; Ambient Temp: 23.5°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3287; ConvF(5.27, 5.27, 5.27); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
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), Left Head, Cheek, Low.ch
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.12 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.415 W/kg
SAR(1 g) = 0.268 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 08859

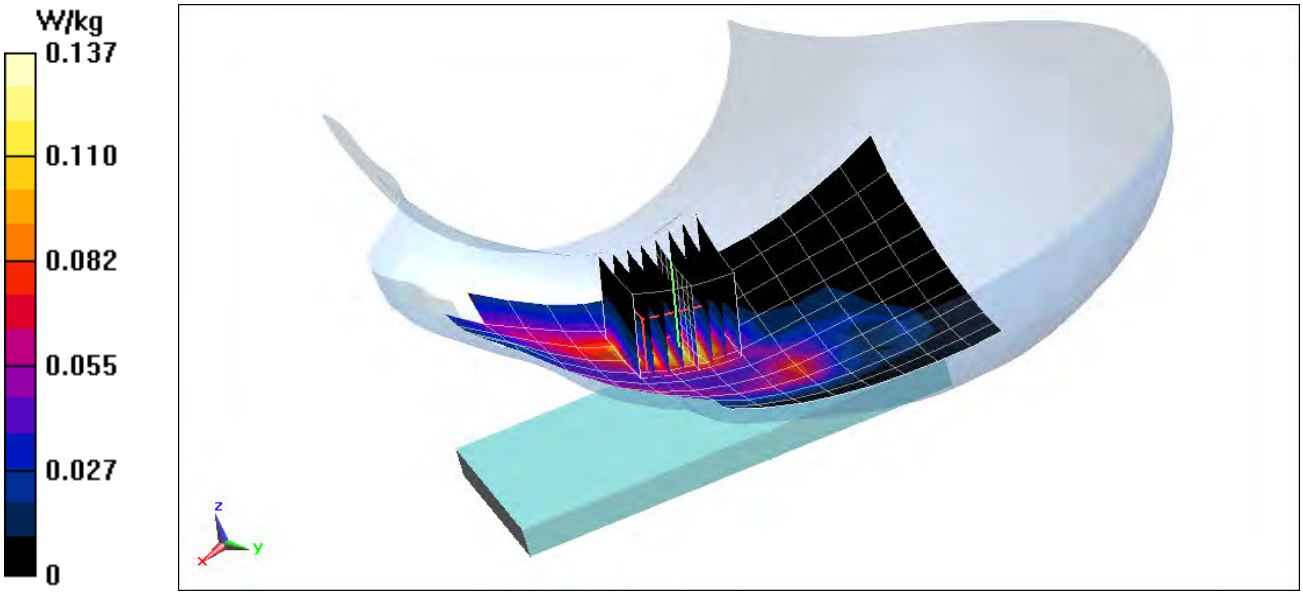
Communication System: UID 0, LTE Band 41; Frequency: 2593 MHz; Duty Cycle: 1:1.58
Medium: 2600 Head Medium parameters used (interpolated):
$f = 2593$ MHz; $\sigma = 2.026$ S/m; $\varepsilon_r = 38.537$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 01-13-2017; Ambient Temp: 21.9°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3287; ConvF(4.41, 4.41, 4.41); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.036 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.209 W/kg
SAR(1 g) = 0.106 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 27217

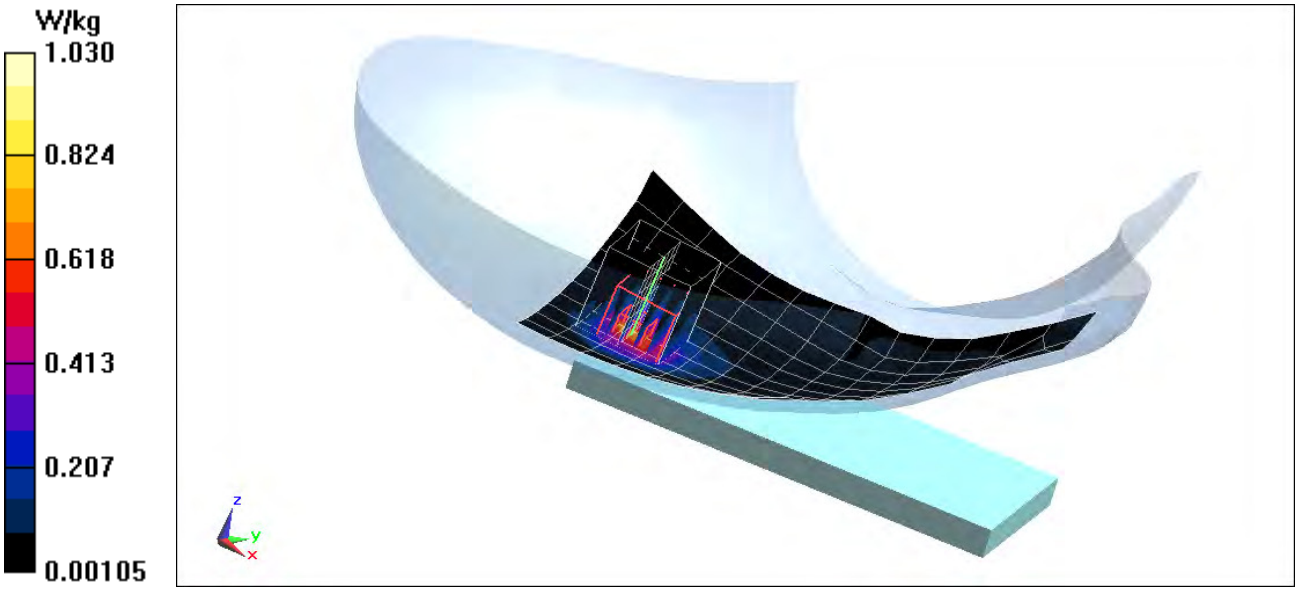
Communication System: UID 0, IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.853 S/m; ε_r = 39.19; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-10-2017; Ambient Temp: 23.6°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3287; ConvF(4.54, 4.54, 4.54); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.41 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.69 W/kg
SAR(1 g) = 0.697 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 27217

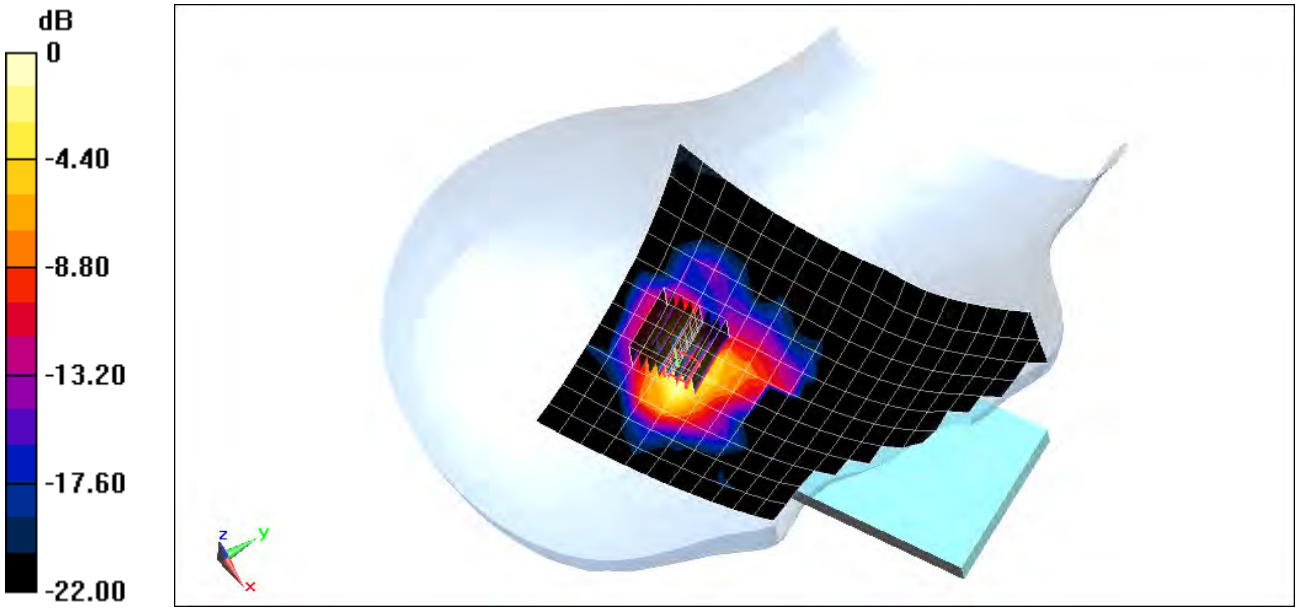
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5720 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used (interpolated):
f = 5720 MHz; σ = 5.158 S/m; ε_r = 33.969; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-28-2016; Ambient Temp: 21.5°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7357; ConvF(4.65, 4.65, 4.65); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/19/2016
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11a, U-NII-2C, 20 MHz Bandwidth, Ant 2
Right Head, Cheek, Ch 144, 6 Mbps

Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 6.684 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 2.69 W/kg
SAR(1 g) = 0.367 W/kg



0 dB = 0.982 W/kg = -0.08 dBW/kg

DUT: A3LSMG9500; Type: Portable Handset; Serial: F7863

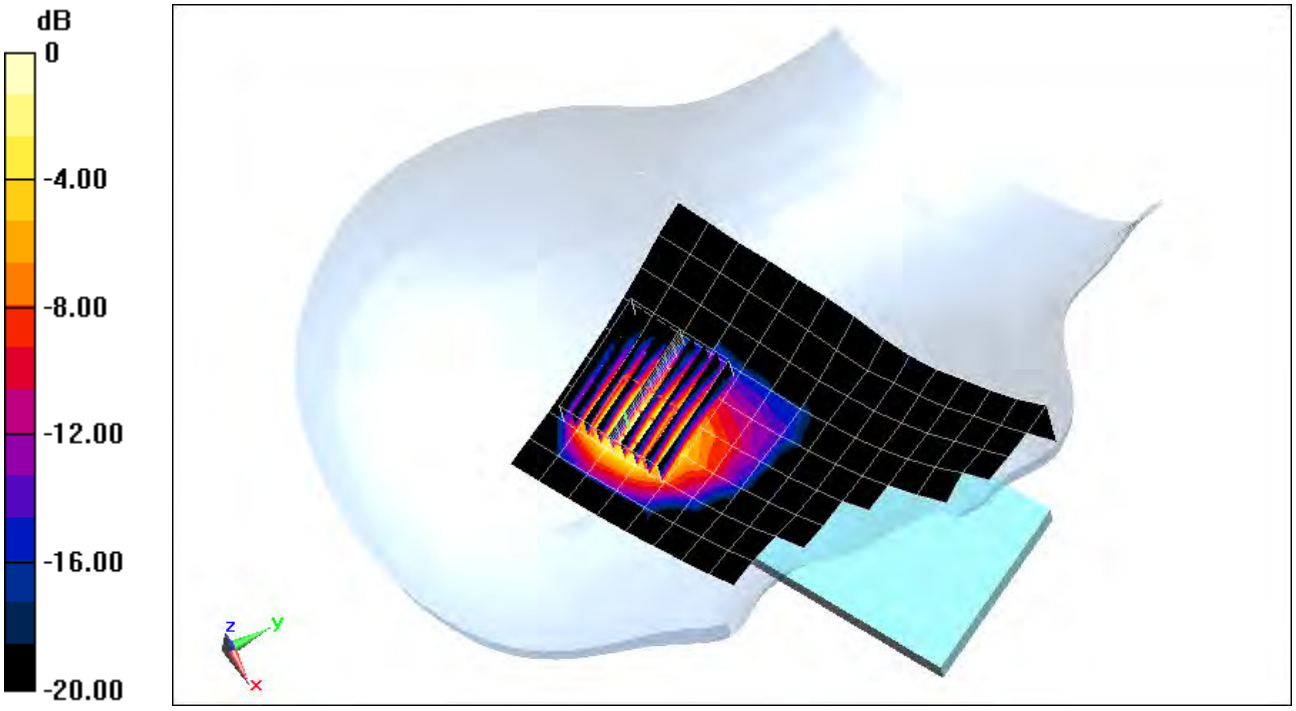
Communication System: UID 0, Bluetooth; Frequency: 2480 MHz; Duty Cycle: 1:1.302
Medium: 2450 Head Medium parameters used (interpolated):
f = 2480 MHz; σ = 1.906 S/m; ε_r = 38.018; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-22-2017; Ambient Temp: 23.2°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3287; ConvF(4.54, 4.54, 4.54); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: Bluetooth, Ch 78, 2Mbps, Right Cheek

Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (10x9x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.715 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.156 W/kg
SAR(1 g) = 0.064 W/kg



0 dB = 0.0844 W/kg = -10.74 dBW/kg

DUT: A3LSMG9500; Type: Portable Handset; Serial: 08881

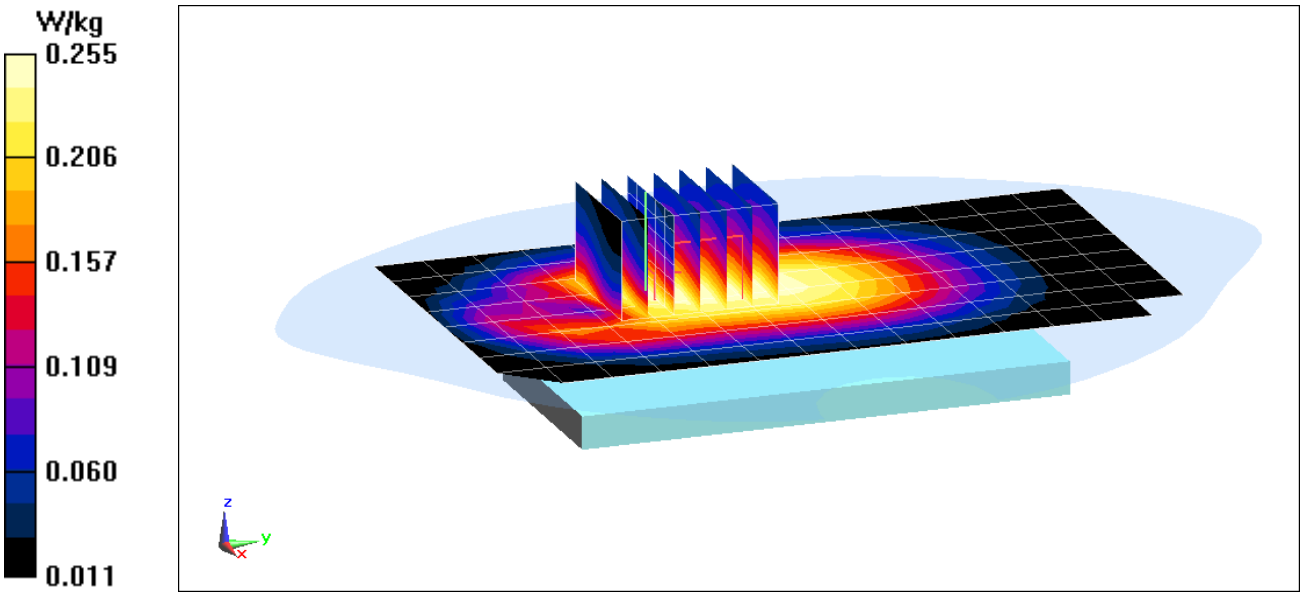
Communication System: UID 0, GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.995 S/m; ε_r = 53.89; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-17-2017; Ambient Temp: 22.8°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3319; ConvF(6.04, 6.04, 6.04); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/14/2016
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.79 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.300 W/kg
SAR(1 g) = 0.234 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 08881

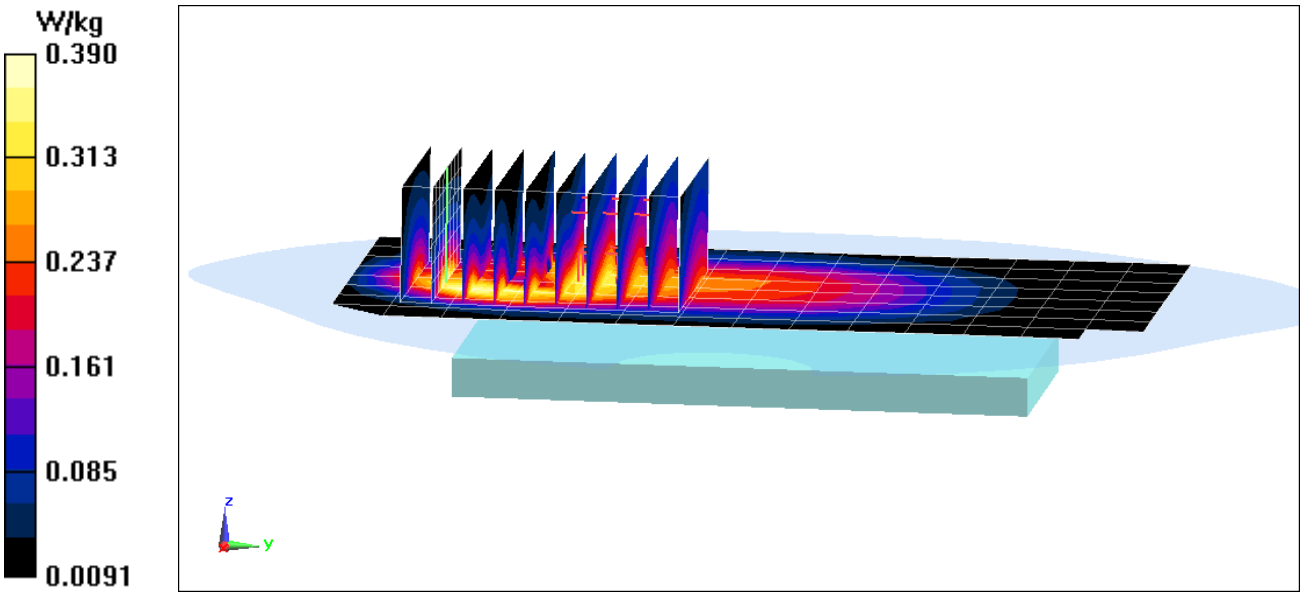
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:2.76
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.995 S/m; ε_r = 53.89; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-17-2017; Ambient Temp: 22.8°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3319; ConvF(6.04, 6.04, 6.04); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/14/2016
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (9x10x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.47 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.536 W/kg
SAR(1 g) = 0.327 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 08881

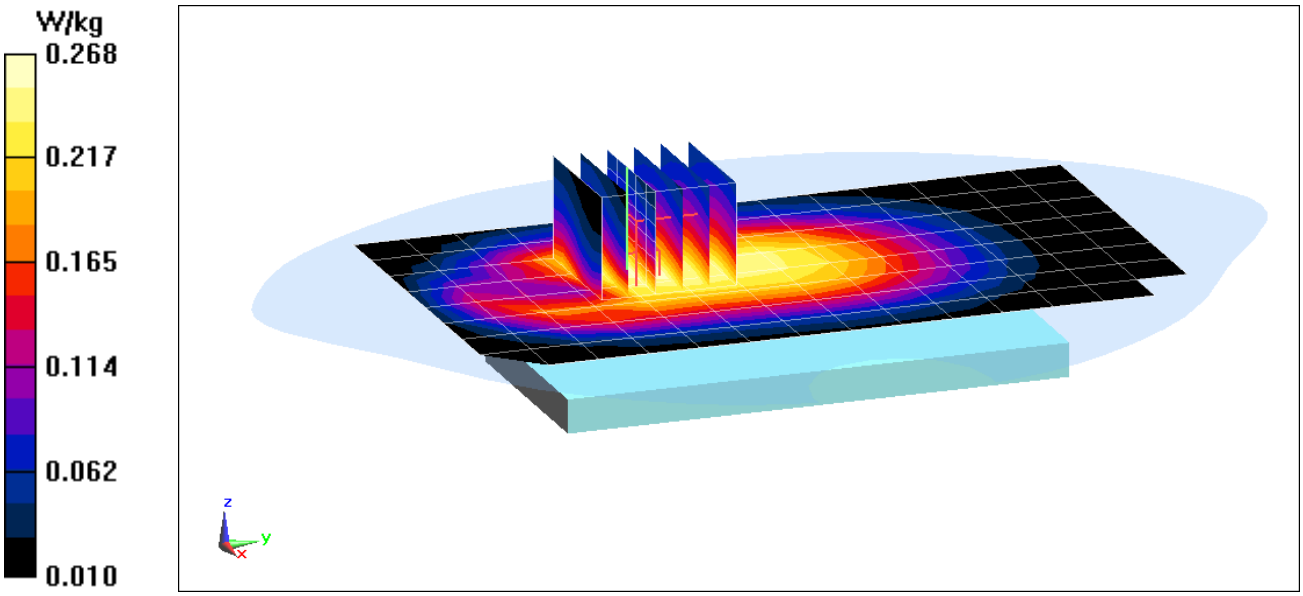
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.995 S/m; ε_r = 53.89; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-17-2017; Ambient Temp: 22.8°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3319; ConvF(6.04, 6.04, 6.04); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/14/2016
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.16 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.316 W/kg
SAR(1 g) = 0.242 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 08881

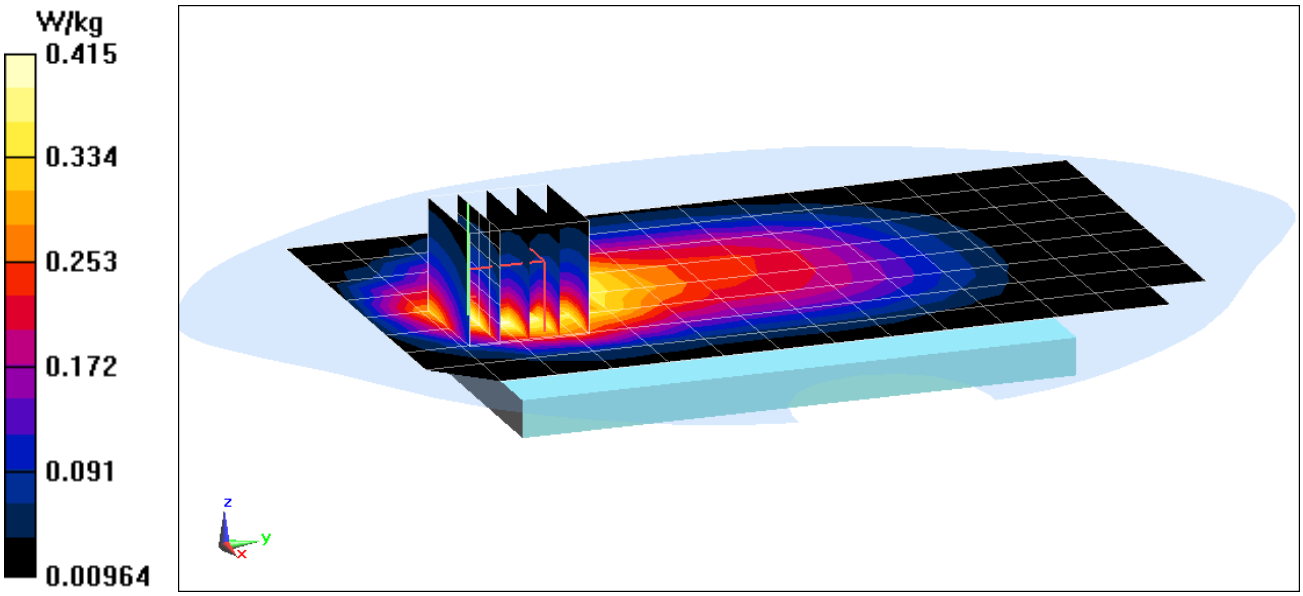
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.995 S/m; ε_r = 53.89; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-17-2017; Ambient Temp: 22.8°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3319; ConvF(6.04, 6.04, 6.04); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/14/2016
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.92 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.584 W/kg
SAR(1 g) = 0.336 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088CC

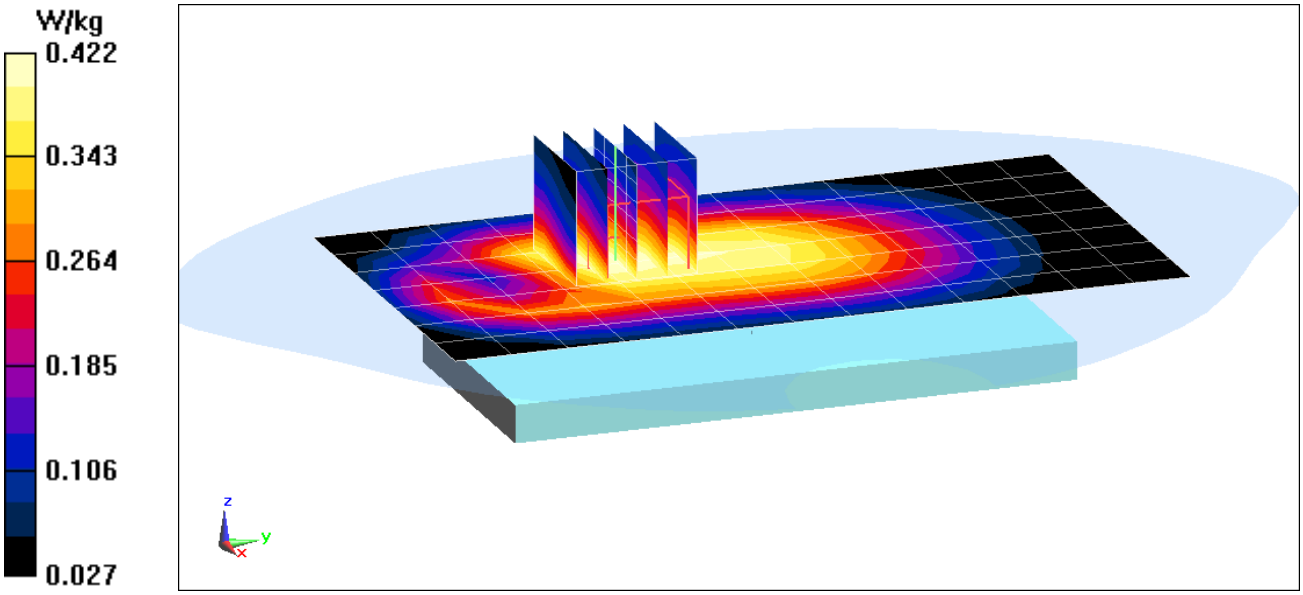
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.993 S/m; ε_r = 52.674; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-09-2017; Ambient Temp: 22.2°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3319; ConvF(6.04, 6.04, 6.04); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/14/2016
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.36 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.497 W/kg
SAR(1 g) = 0.386 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088CC

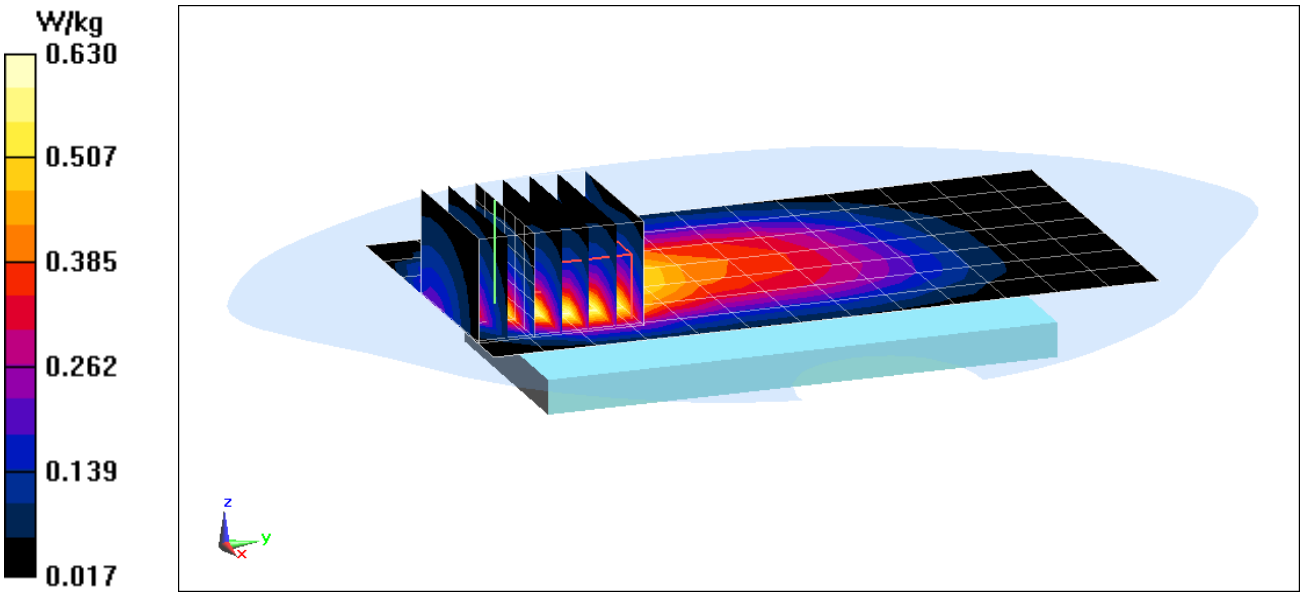
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.993 S/m; ε_r = 52.674; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-09-2017; Ambient Temp: 22.2°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3319; ConvF(6.04, 6.04, 6.04); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/14/2016
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.15 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.879 W/kg
SAR(1 g) = 0.512 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 08861

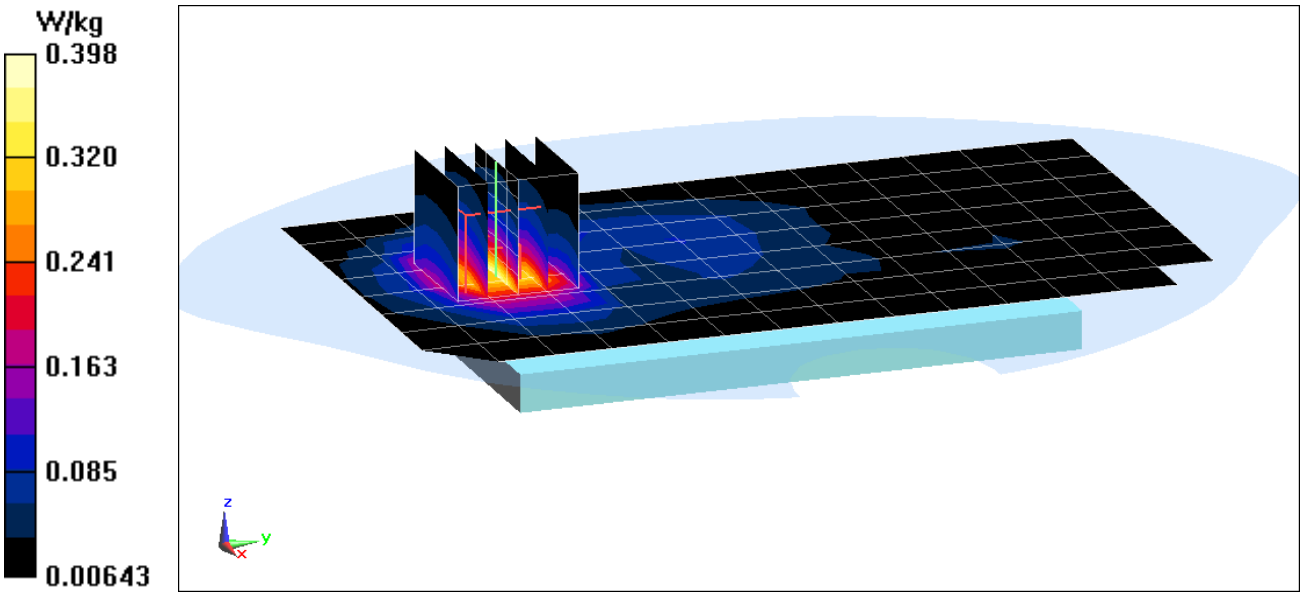
Communication System: UID 0, GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.55 S/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-16-2017; Ambient Temp: 22.3°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7409; ConvF(7.47, 7.47, 7.47); Calibrated: 5/17/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/11/2016
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.17 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.459 W/kg
SAR(1 g) = 0.281 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 08861

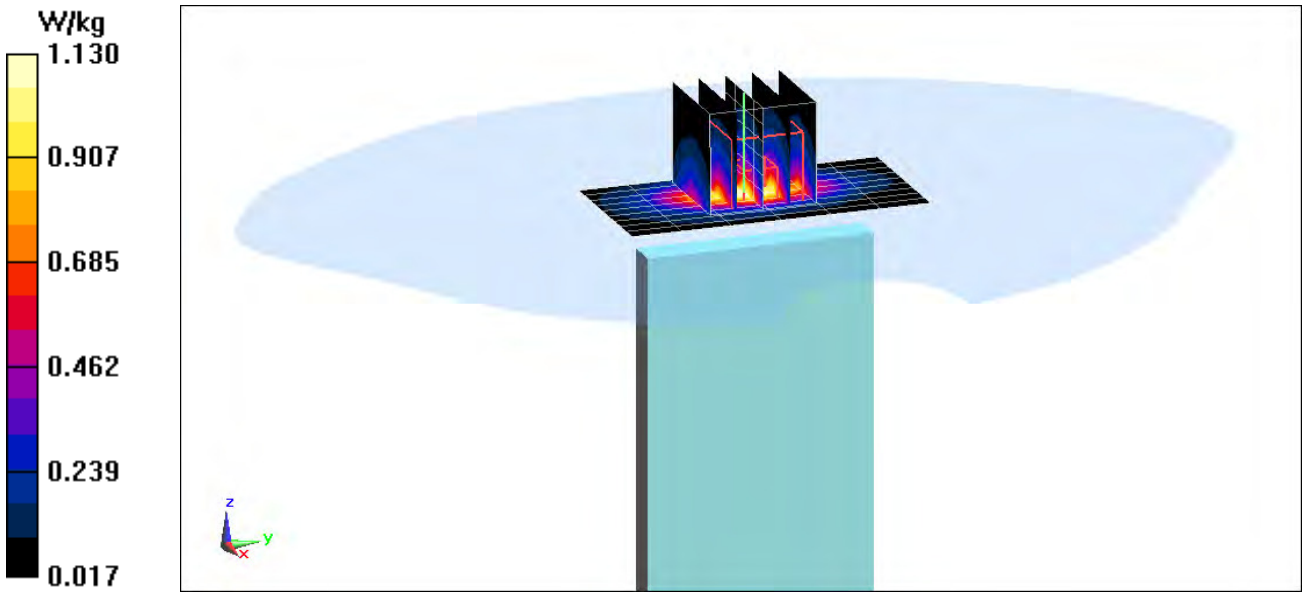
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 1850.2 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body Medium parameters used (interpolated):
f = 1850.2 MHz; σ = 1.514 S/m; ε_r = 51.467; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-16-2017; Ambient Temp: 22.3°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7409; ConvF(7.47, 7.47, 7.47); Calibrated: 5/17/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/11/2016
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.14 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.760 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088AC

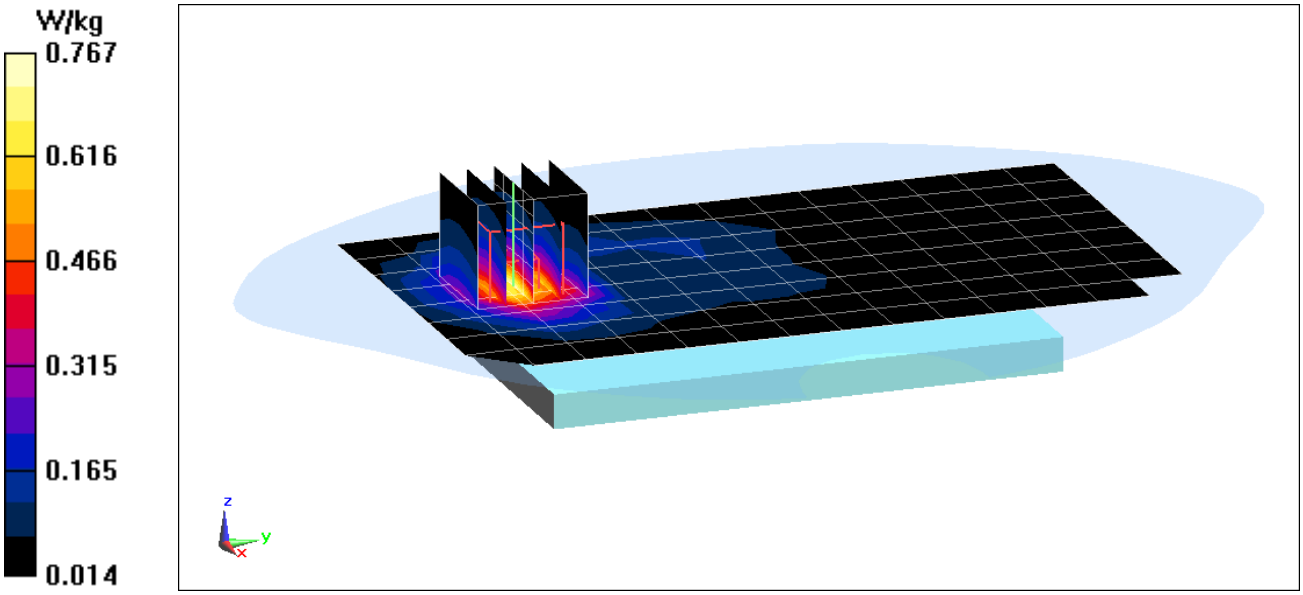
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.55 S/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-16-2017; Ambient Temp: 22.3°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7409; ConvF(7.47, 7.47, 7.47); Calibrated: 5/17/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/11/2016
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.47 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.894 W/kg
SAR(1 g) = 0.535 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088AC

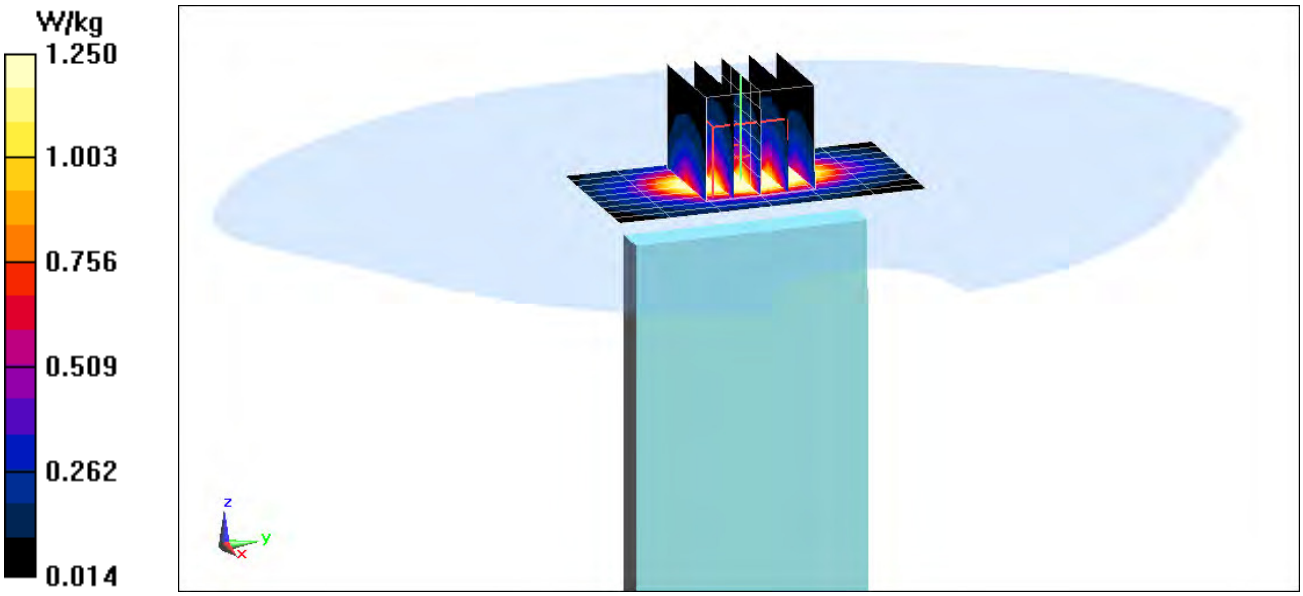
Communication System: UID 0, UMTS; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1907.6 MHz; σ = 1.579 S/m; ε_r = 51.295; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-16-2017; Ambient Temp: 22.3°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7409; ConvF(7.47, 7.47, 7.47); Calibrated: 5/17/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/11/2016
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.12 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 1.53 W/kg
SAR(1 g) = 0.836 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088CE

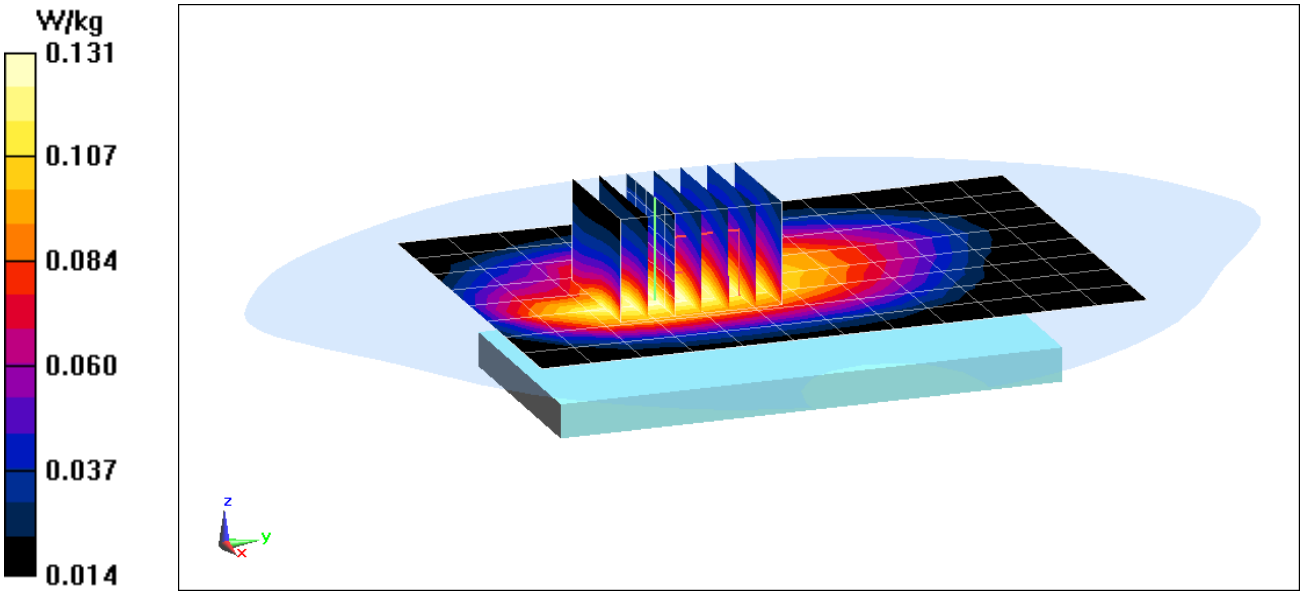
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.922 S/m; ε_r = 55.264; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-17-2017; Ambient Temp: 22.5°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3332; ConvF(6.7, 6.7, 6.7); Calibrated: 8/25/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 9/15/2016
Phantom: SAM Left; Type: SAM; Serial: 1688
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.68 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.160 W/kg
SAR(1 g) = 0.118 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088CE

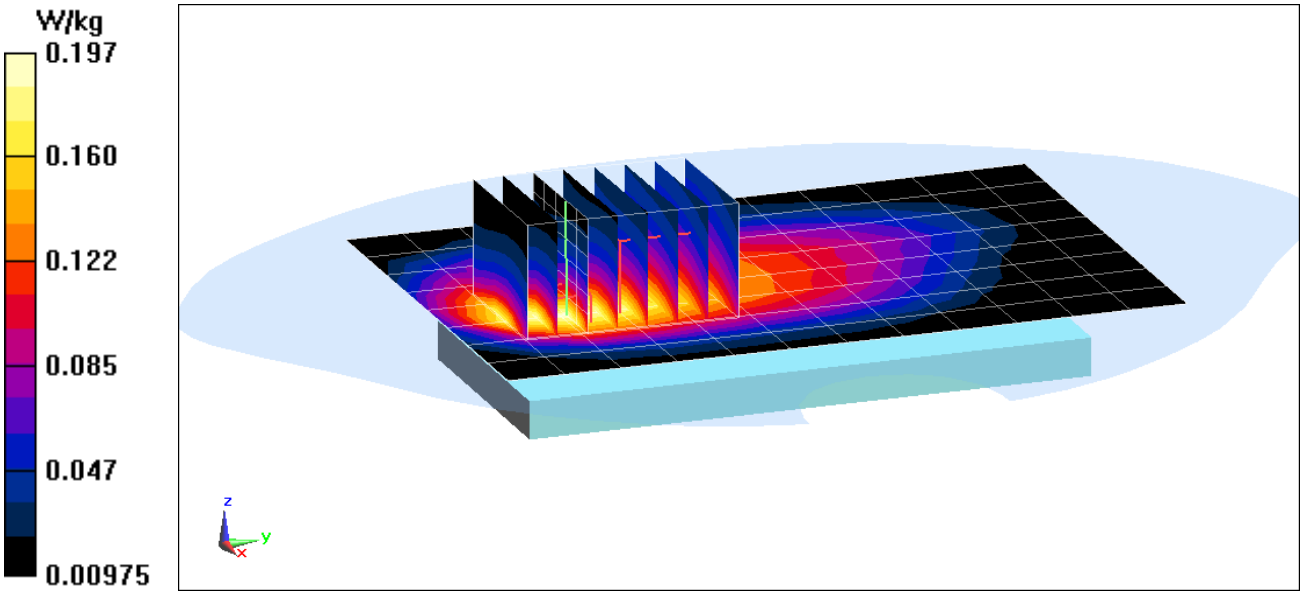
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.922 S/m; ε_r = 55.264; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-17-2017; Ambient Temp: 22.5°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3332; ConvF(6.7, 6.7, 6.7); Calibrated: 8/25/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 9/15/2016
Phantom: SAM Left; Type: SAM; Serial: 1688
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x8x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.10 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.271 W/kg
SAR(1 g) = 0.168 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 08859

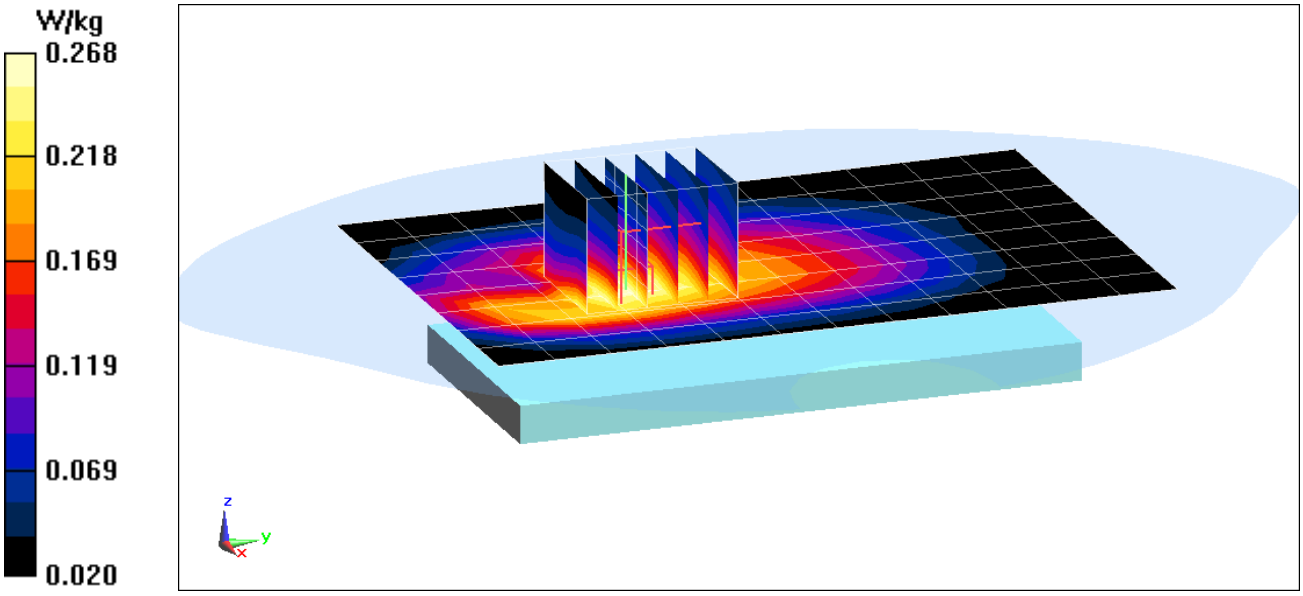
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 782 MHz; σ = 0.983 S/m; ε_r = 54.524; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-14-2017; Ambient Temp: 22.7°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3332; ConvF(6.7, 6.7, 6.7); Calibrated: 8/25/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 9/15/2016
Phantom: SAM Left; Type: SAM; Serial: 1688
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 13, Body SAR, Back side, Mid.ch
10 MHz Bandwidth, QPSK, 1 RB, 49 RB Offset

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.15 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.326 W/kg
SAR(1 g) = 0.238 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 08859

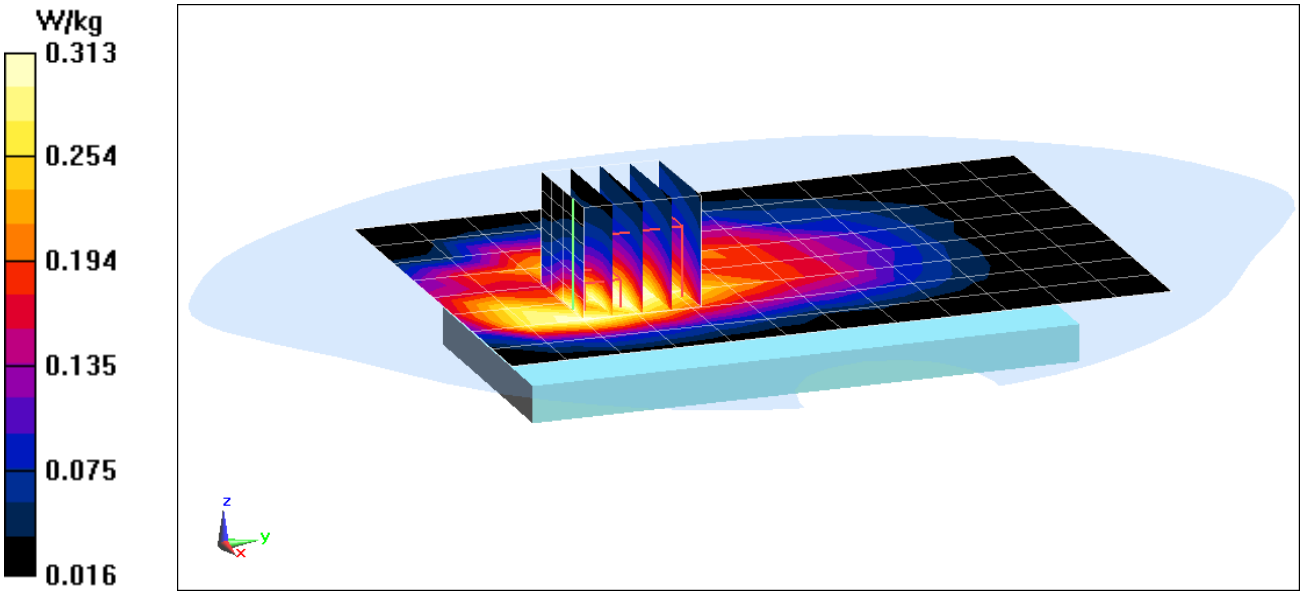
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 782 MHz; σ = 0.983 S/m; ε_r = 54.524; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-14-2017; Ambient Temp: 22.7°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3332; ConvF(6.7, 6.7, 6.7); Calibrated: 8/25/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 9/15/2016
Phantom: SAM Left; Type: SAM; Serial: 1688
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 13, Body SAR, Back side, Mid.ch
10 MHz Bandwidth, QPSK, 1 RB, 49 RB Offset

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.97 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 0.444 W/kg
SAR(1 g) = 0.301 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088CC

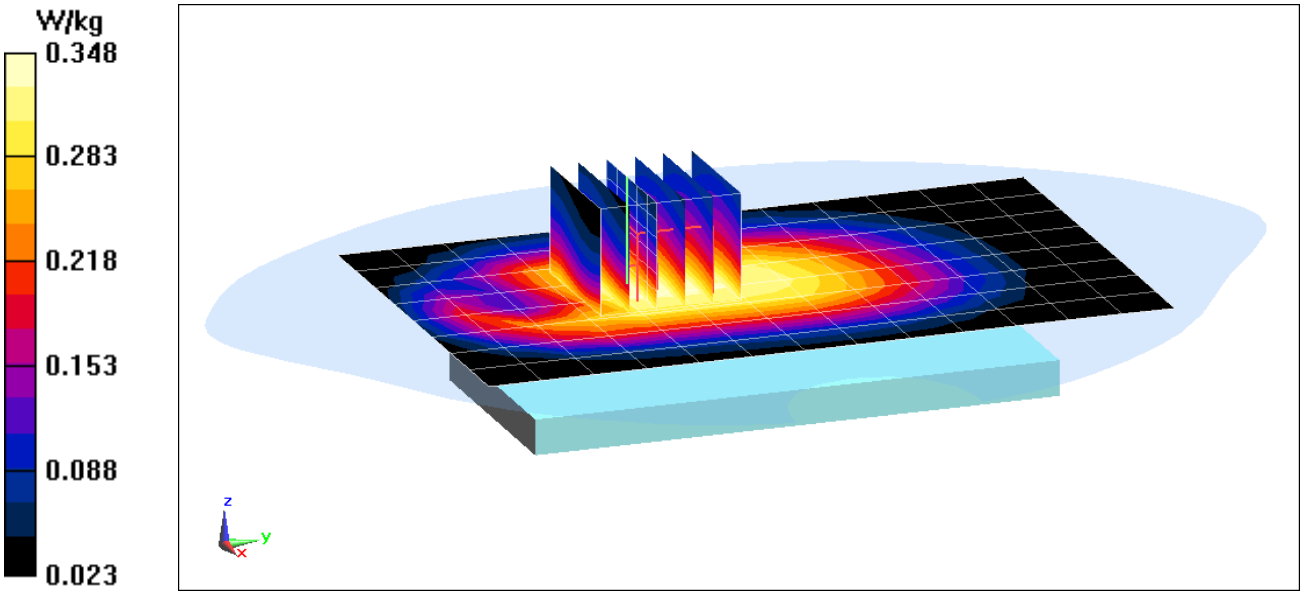
Communication System: UID 0, LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.5 MHz; σ = 1.001 S/m; ε_r = 54.566; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-14-2017; Ambient Temp: 22.6°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3319; ConvF(6.04, 6.04, 6.04); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/14/2016
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 5 (Cell.), Body SAR, Back side, Mid.ch
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.35 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.407 W/kg
SAR(1 g) = 0.316 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088CC

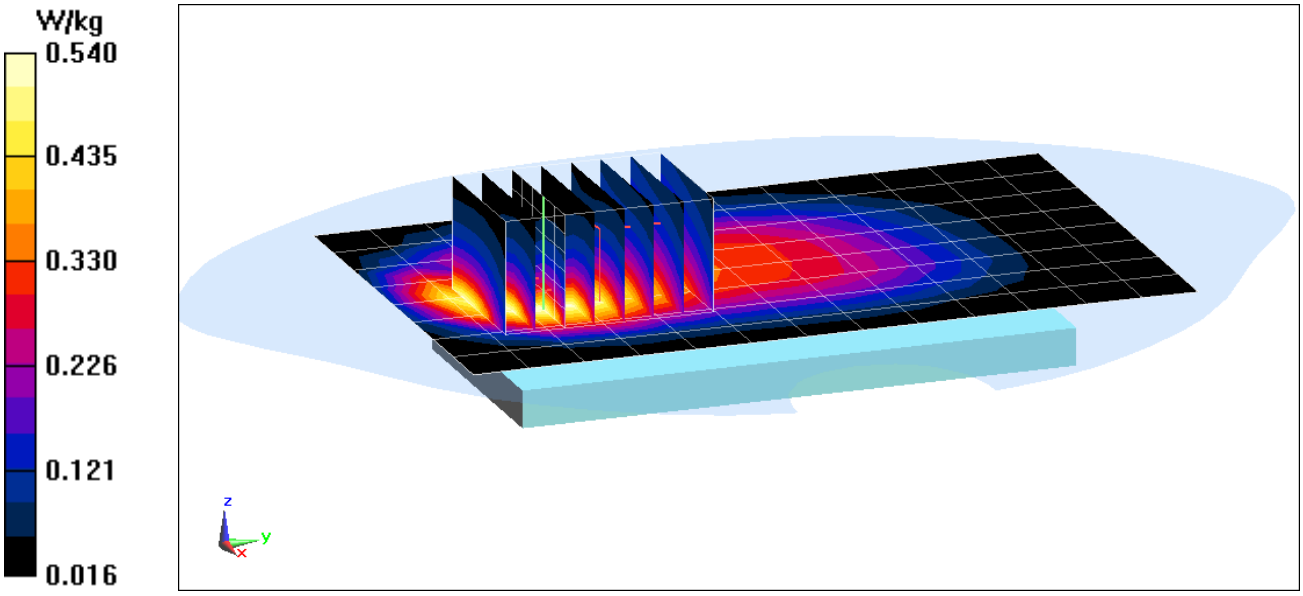
Communication System: UID 0, LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.5 MHz; σ = 1.001 S/m; ε_r = 54.566; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-14-2017; Ambient Temp: 22.6°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3319; ConvF(6.04, 6.04, 6.04); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/14/2016
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 5 (Cell.), Body SAR, Back side, Mid.ch
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x8x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.27 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.764 W/kg
SAR(1 g) = 0.449 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088CC

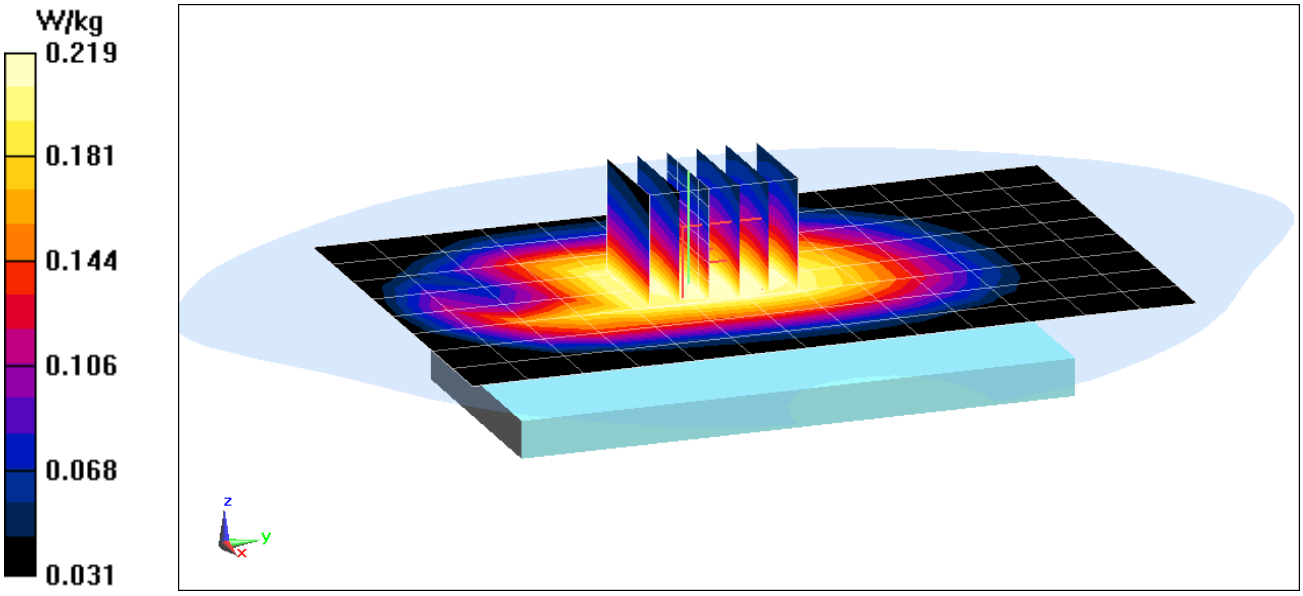
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.997 S/m; ε_r = 54.618; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-14-2017; Ambient Temp: 22.6°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3319; ConvF(6.04, 6.04, 6.04); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/14/2016
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.69 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.253 W/kg
SAR(1 g) = 0.201 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088CC

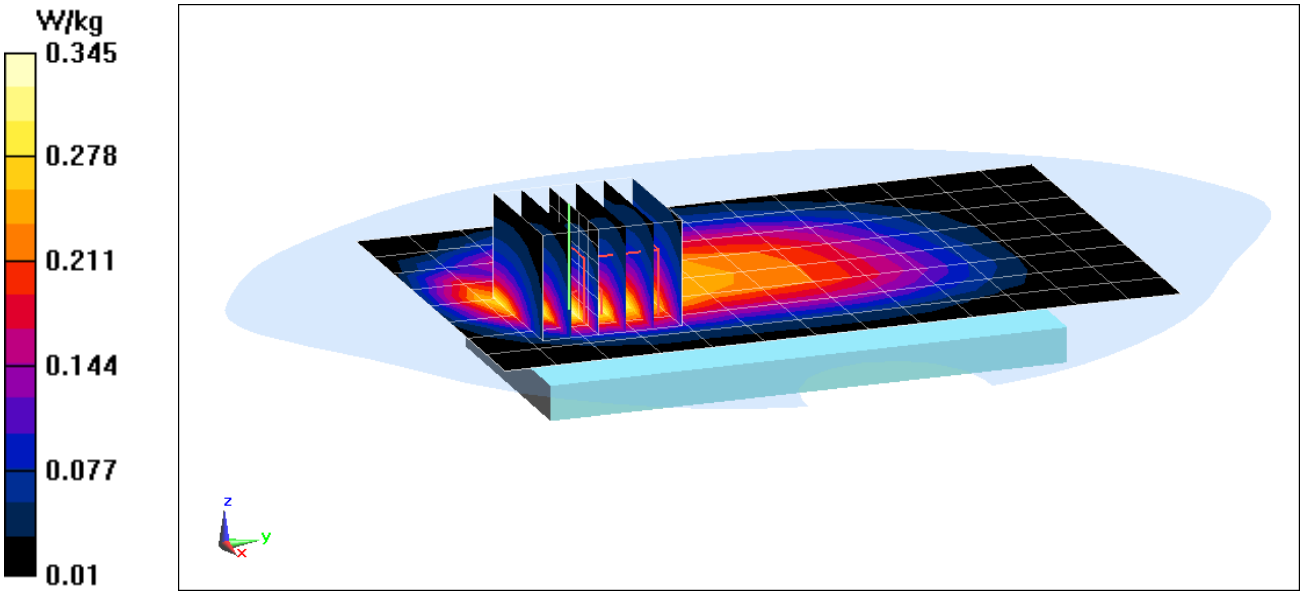
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.997 S/m; ε_r = 54.618; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-14-2017; Ambient Temp: 22.6°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3319; ConvF(6.04, 6.04, 6.04); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/14/2016
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.90 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.485 W/kg
SAR(1 g) = 0.288 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088AC

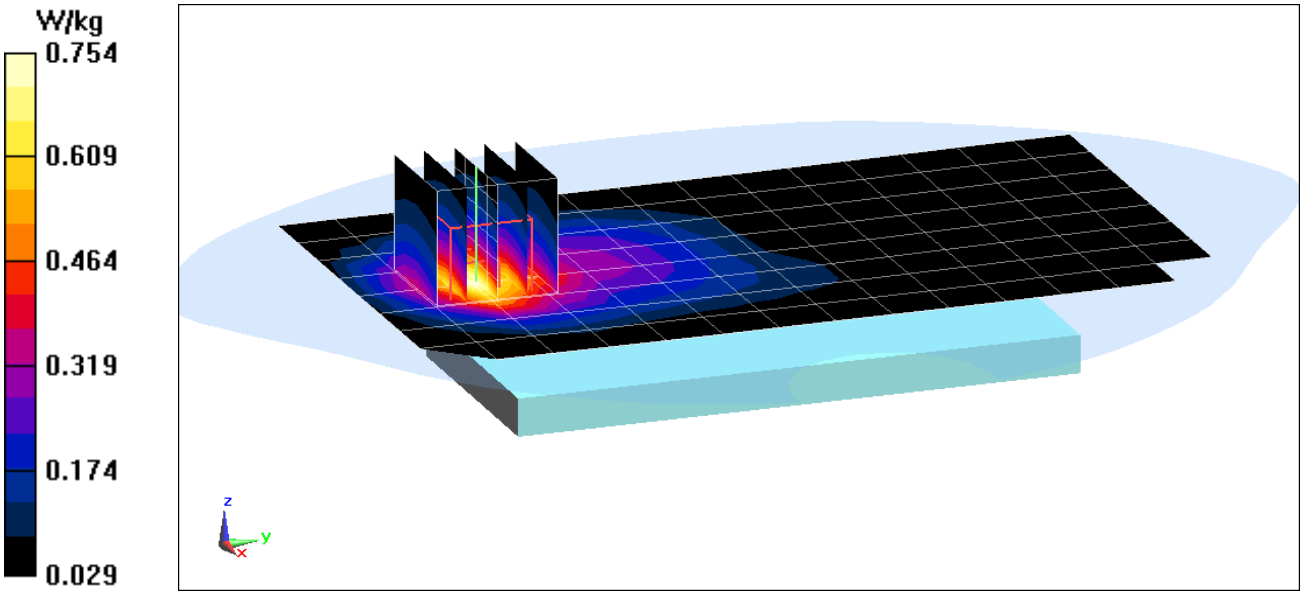
Communication System: UID 0, LTE Band 4 (AWS); Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.475 S/m; ε_r = 51.925; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-16-2017; Ambient Temp: 22.5°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3209; ConvF(4.99, 4.99, 4.99); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 8/22/2016
Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 4 (AWS), Body SAR, Back side, Mid.ch
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.18 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.962 W/kg
SAR(1 g) = 0.635 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088AC

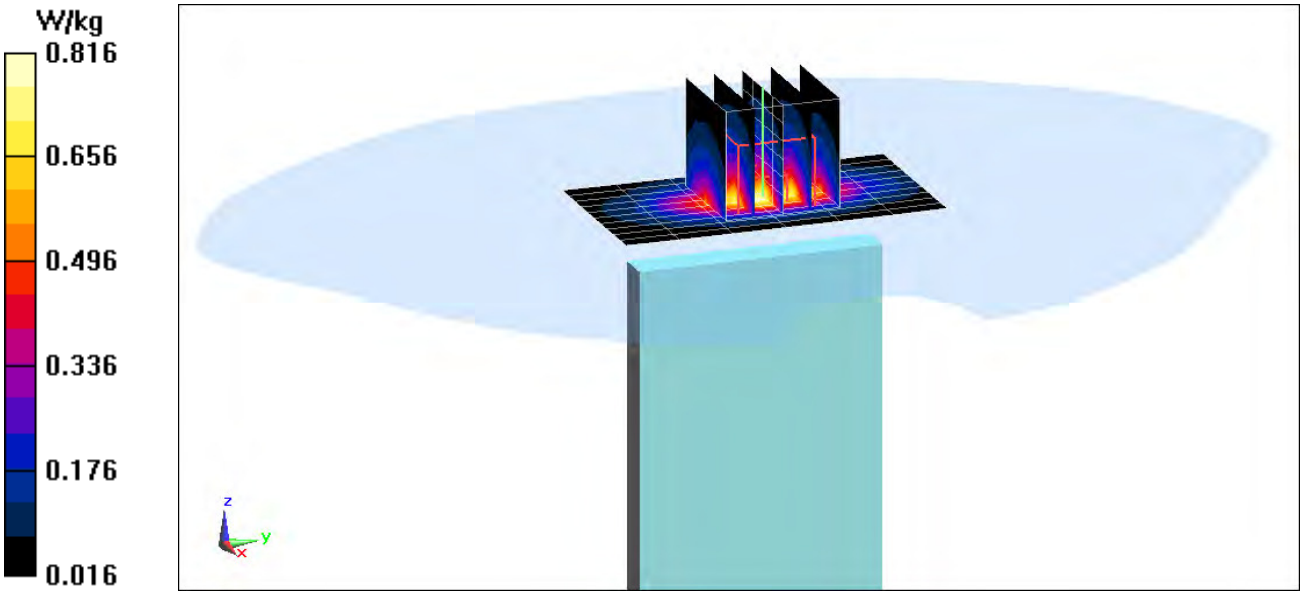
Communication System: UID 0, LTE Band 4 (AWS); Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
$f = 1732.5$ MHz; $\sigma = 1.475$ S/m; $\varepsilon_r = 51.925$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-16-2017; Ambient Temp: 22.5°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3209; ConvF(4.99, 4.99, 4.99); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 8/22/2016
Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 4 (AWS), Body SAR, Bottom Edge, Mid.ch
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (11x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.95 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.661 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088AC

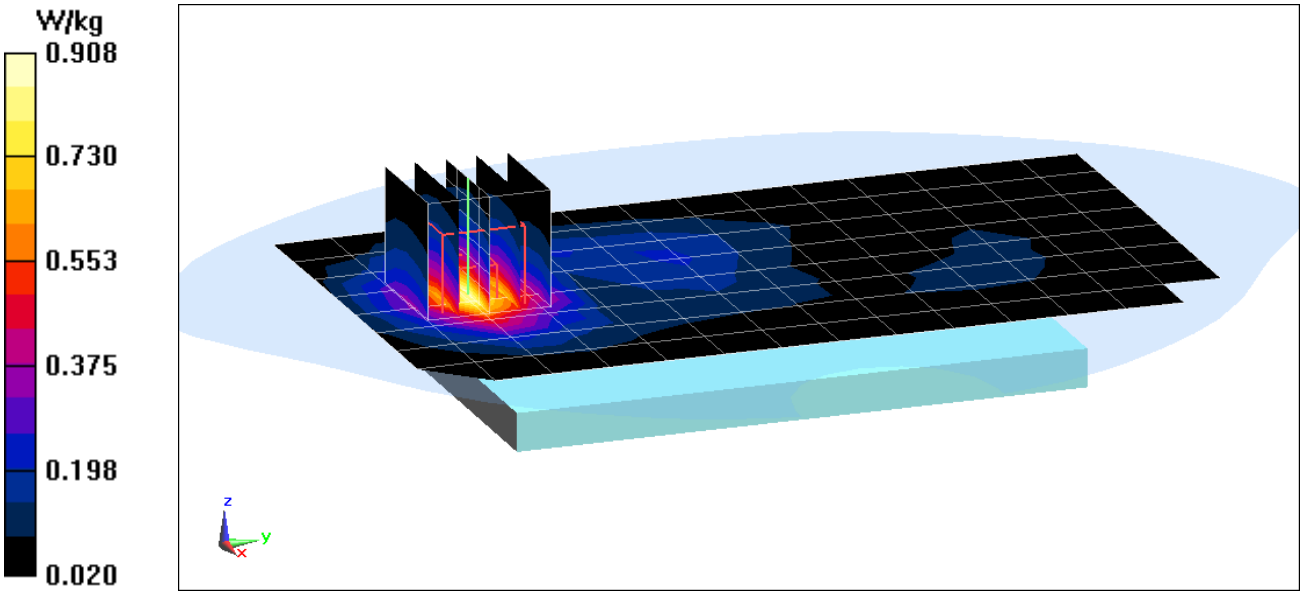
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1860 MHz; σ = 1.526 S/m; ε_r = 51.445; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-16-2017; Ambient Temp: 22.3°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7409; ConvF(7.47, 7.47, 7.47); Calibrated: 5/17/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/11/2016
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.51 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.640 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 088AC

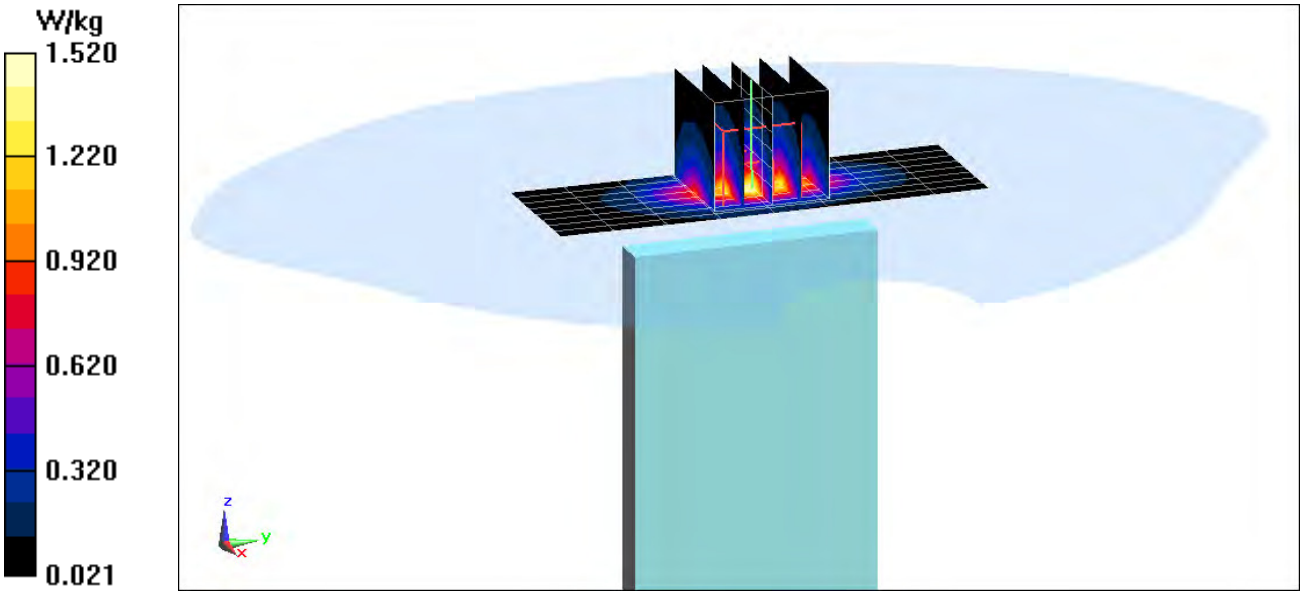
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1905 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1905 MHz; σ = 1.577 S/m; ε_r = 51.305; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-16-2017; Ambient Temp: 22.3°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7409; ConvF(7.47, 7.47, 7.47); Calibrated: 5/17/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/11/2016
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.60 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 1.85 W/kg
SAR(1 g) = 0.993 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 0885E

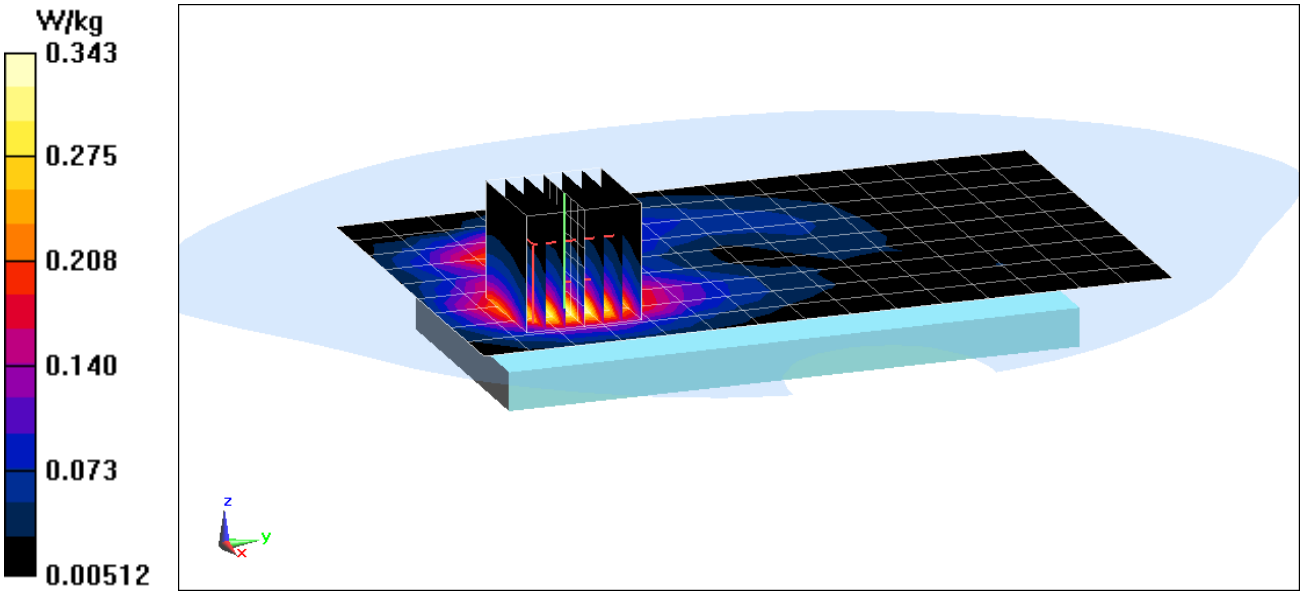
Communication System: UID 0, LTE Band 41; Frequency: 2593 MHz; Duty Cycle: 1:1.58
Medium: 2600 Body Medium parameters used (interpolated):
f = 2593 MHz; σ = 2.149 S/m; ε_r = 50.613; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-14-2017; Ambient Temp: 22.7°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7406; ConvF(6.94, 6.94, 6.94); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/14/2016
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.33 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.432 W/kg
SAR(1 g) = 0.212 W/kg



DUT: A3LSMG4800; Type: Portable Handset; Serial: 0885E

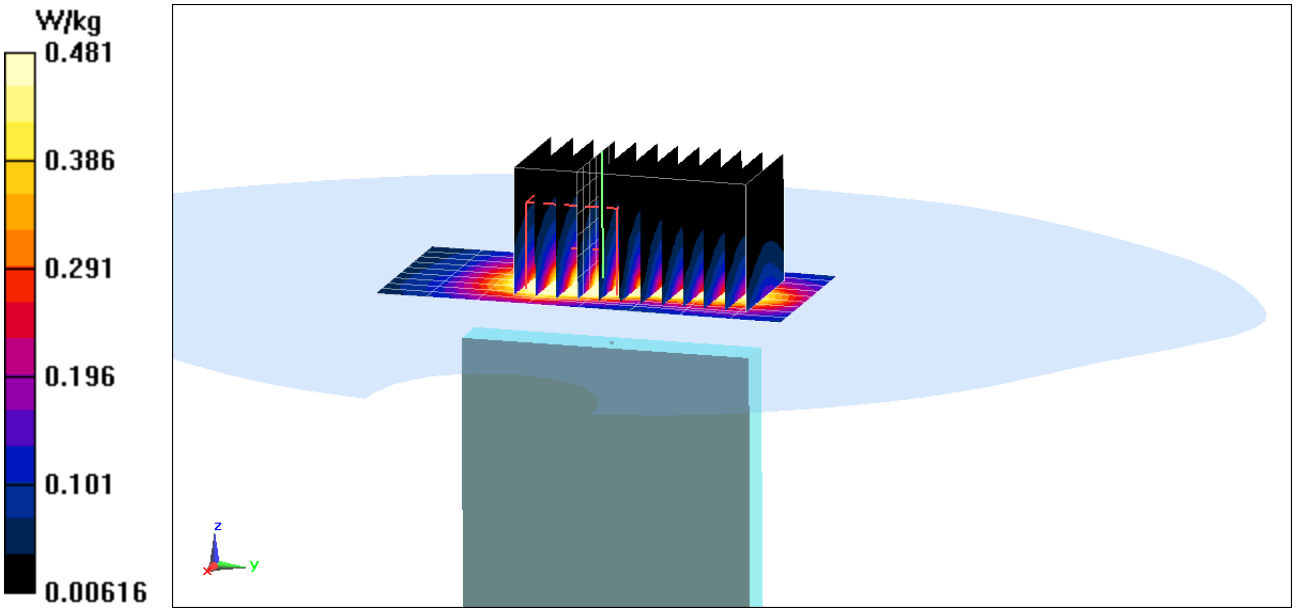
Communication System: UID 0, LTE Band 41 (0); Frequency: 2506 MHz; Duty Cycle: 1:1.58
Medium: 2450 Body Medium parameters used (interpolated):
f = 2506 MHz; σ = 2.097 S/m; ε_r = 51.052; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space:1.0 cm

Test Date: 02-22-2017; Ambient Temp: 23.5°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7406; ConvF(7.24, 7.24, 7.24); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/14/2016
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 41, Body SAR, Bottom Edge, Low.ch,
PCC: 20 MHz Bandwidth, Ch 39750, QPSK, 1 RB, 99 RB Offset
SCC: 20 MHz Bandwidth, Ch 39948, QPSK, 1 RB, 0 RB Offset

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x12x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.482 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.630 W/kg
SAR(1 g) = 0.306 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: 27217

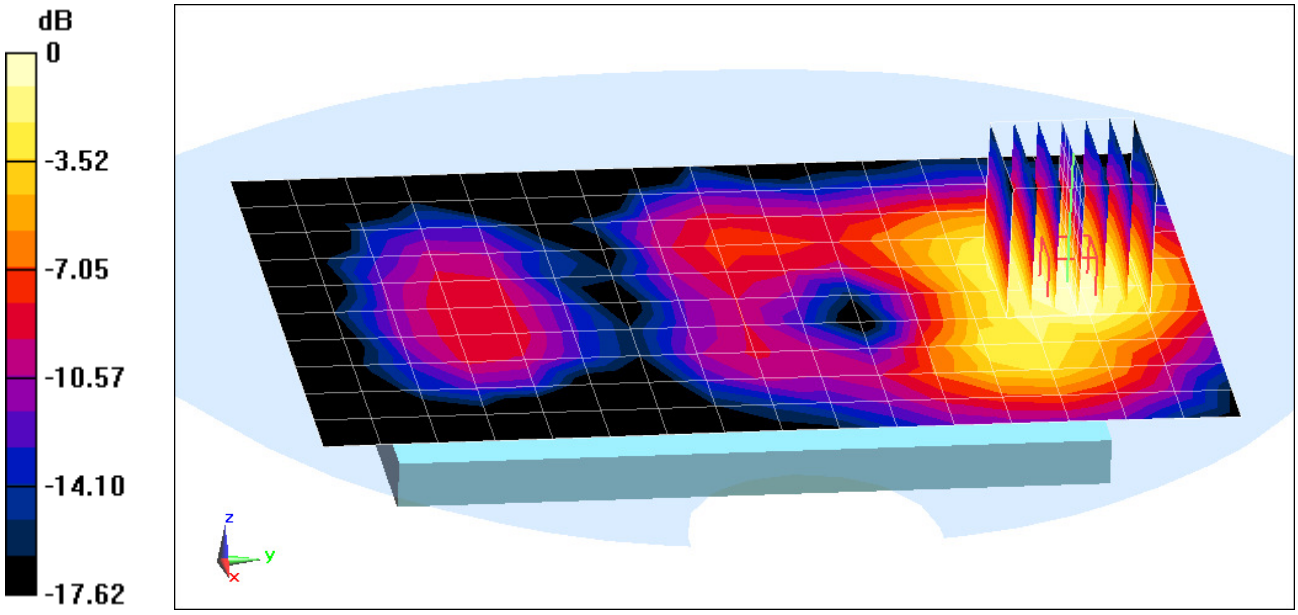
Communication System: UID 0, IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 2.049 S/m; ε_r = 50.954; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-09-2017; Ambient Temp: 22.5°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7406; ConvF(7.24, 7.24, 7.24); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/14/2016
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11b, 22 MHz Bandwidth, Body SAR,
Antenna 1, Ch 11, 1 Mbps, Back Side

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.927 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.193 W/kg
SAR(1 g) = 0.107 W/kg



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

DUT: A3LSMG9500; Type: Portable Handset; Serial: 27217

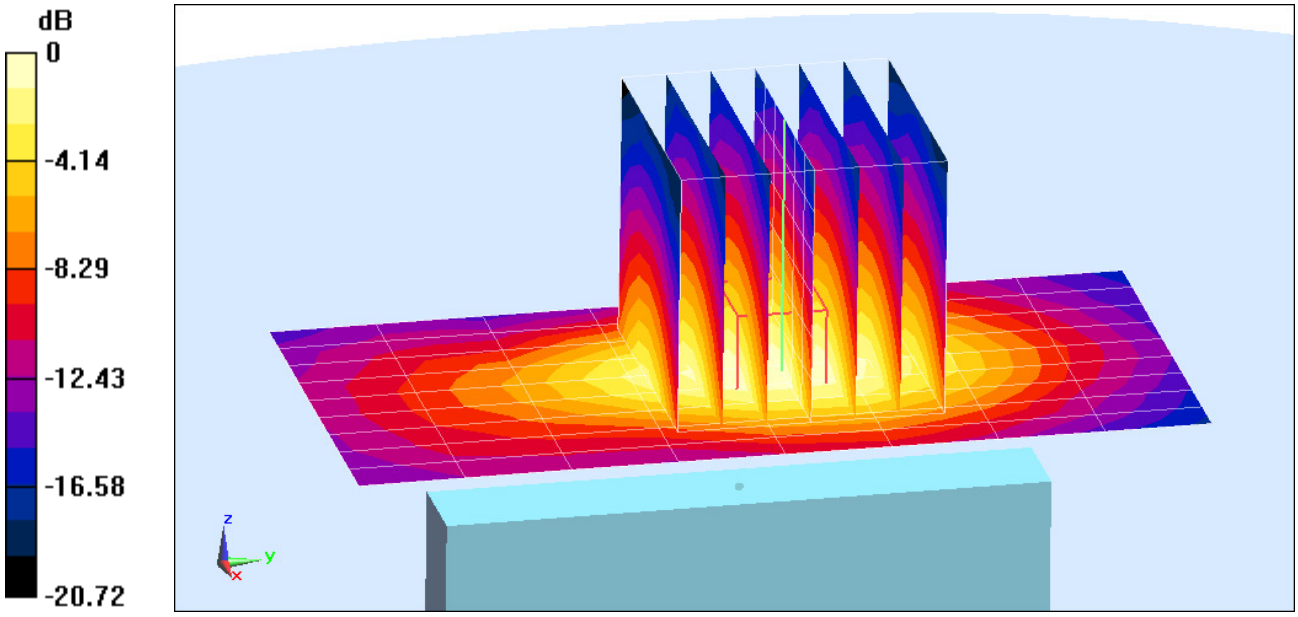
Communication System: UID 0, IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 2.049 S/m; ε_r = 50.954; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-09-2017; Ambient Temp: 22.5°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7406; ConvF(7.24, 7.24, 7.24); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/14/2016
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11b, 22 MHz Bandwidth, Body SAR,
Antenna 1, Ch 11, 1 Mbps, Top Edge

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.96 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.534 W/kg
SAR(1 g) = 0.272 W/kg



0 dB = 0.436 W/kg = -3.61 dBW/kg

DUT: A3LSMG9500; Type: Portable Handset; Serial: 27217

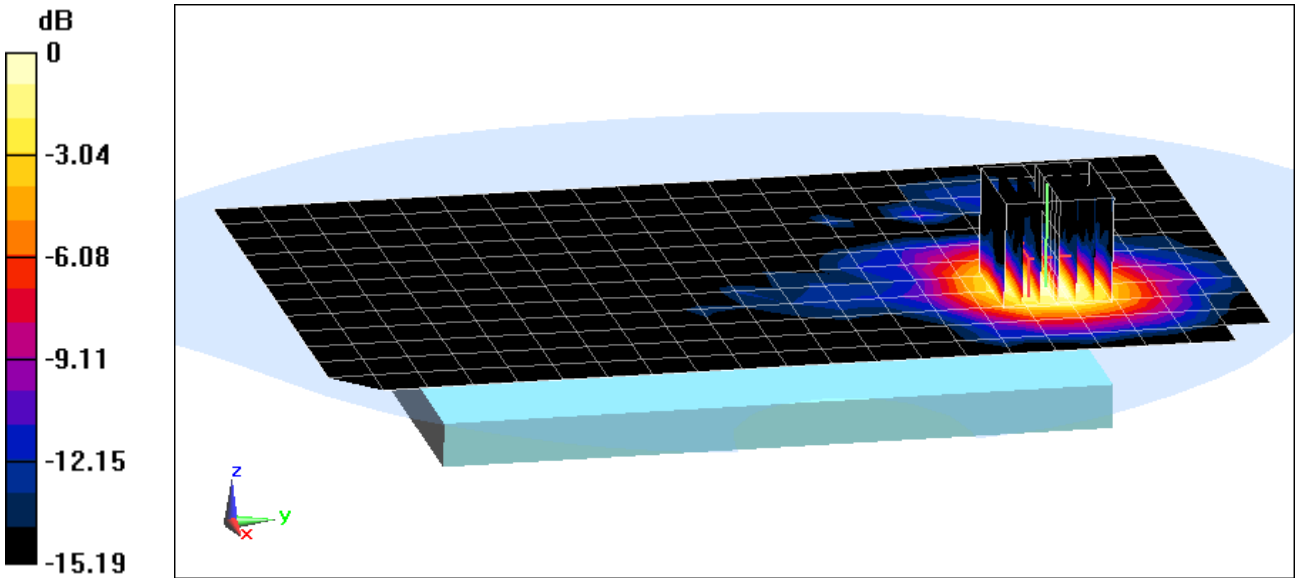
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5785 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5785 MHz; σ = 6.163 S/m; ε_r = 47.808; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-02-2017; Ambient Temp: 21.6°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN3914; ConvF(3.86, 3.86, 3.86); Calibrated: 2/22/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/18/2016
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11a, UNII-3, 20 MHz Bandwidth, Antenna 2,
Body SAR, Ch 157, 6 Mbps, Back Side

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 = 6.342 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.697 W/kg
SAR(1 g) = 0.211 W/kg



0 dB = 0.467 W/kg = -3.31 dBW/kg

DUT: A3LSMG9500; Type: Portable Handset; Serial: 27217

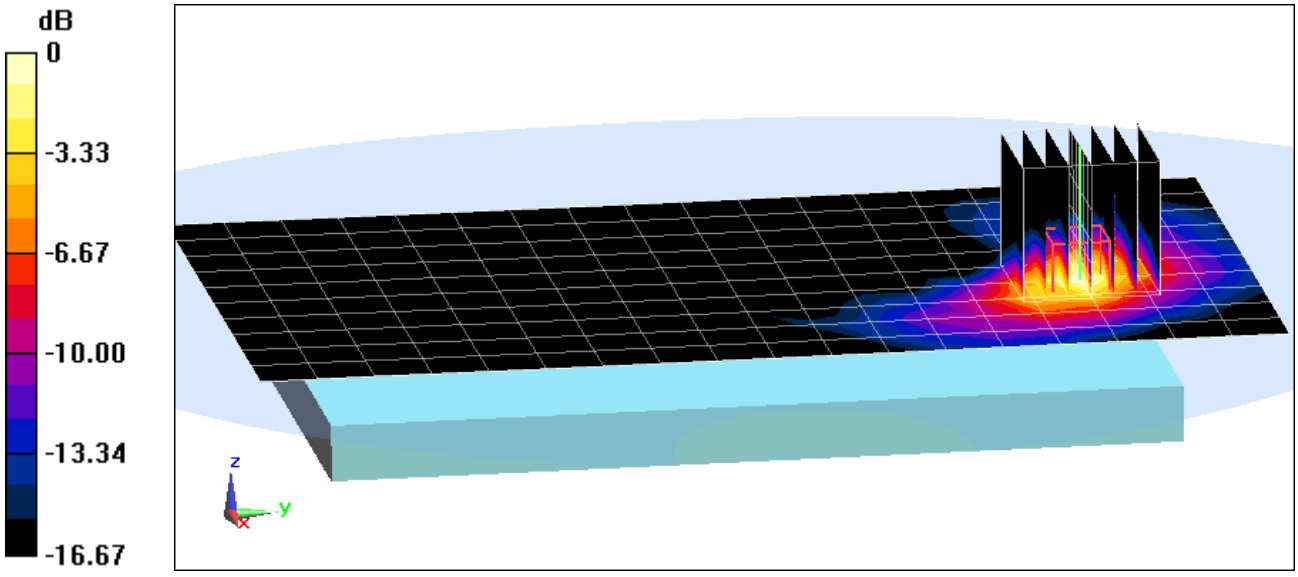
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5745 MHz; σ = 6.127 S/m; ε_r = 47.855; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2017; Ambient Temp: 21.6°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN3914; ConvF(3.86, 3.86, 3.86); Calibrated: 2/22/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/18/2016
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (11x19x1): 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 = 9.196 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 0.376 W/kg



0 dB = 0.933 W/kg = -0.30 dBW/kg

DUT: A3LSMG9500; Type: Portable Handset; Serial: 27217

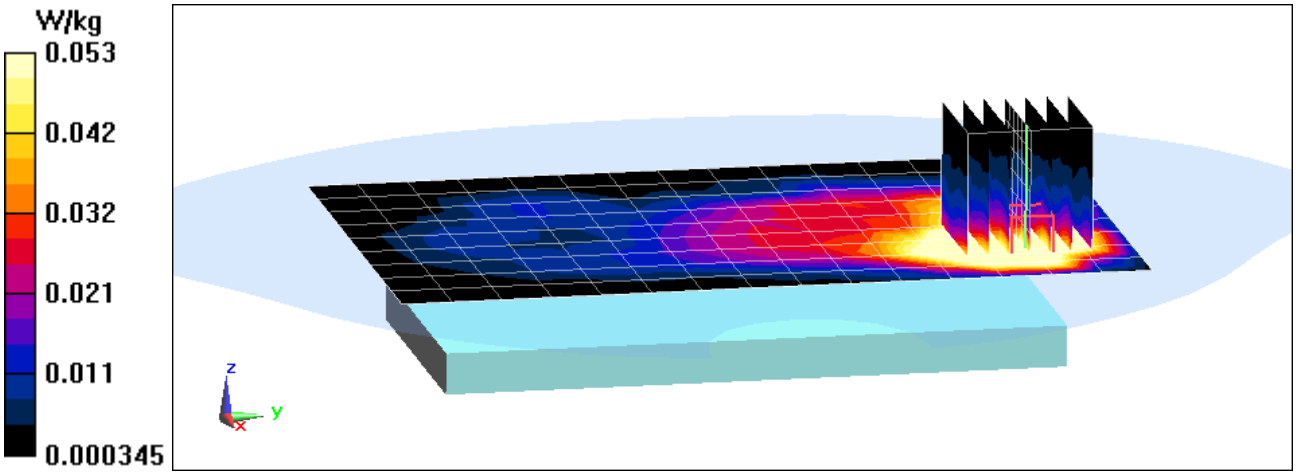
Communication System: UID 0, Bluetooth; Frequency: 2480 MHz; Duty Cycle: 1:1.302
Medium: 2450 Body Medium parameters used (interpolated):
f = 2480 MHz; σ = 2.077 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-09-2017; Ambient Temp: 22.5°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7406; ConvF(7.24, 7.24, 7.24); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/14/2016
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: Bluetooth, Body SAR, Ch 78, 1 Mbps, Back Side

Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.541 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.0670 W/kg
SAR(1 g) = 0.034 W/kg



DUT: A3LSMG9500; Type: Portable Handset; Serial: F7863

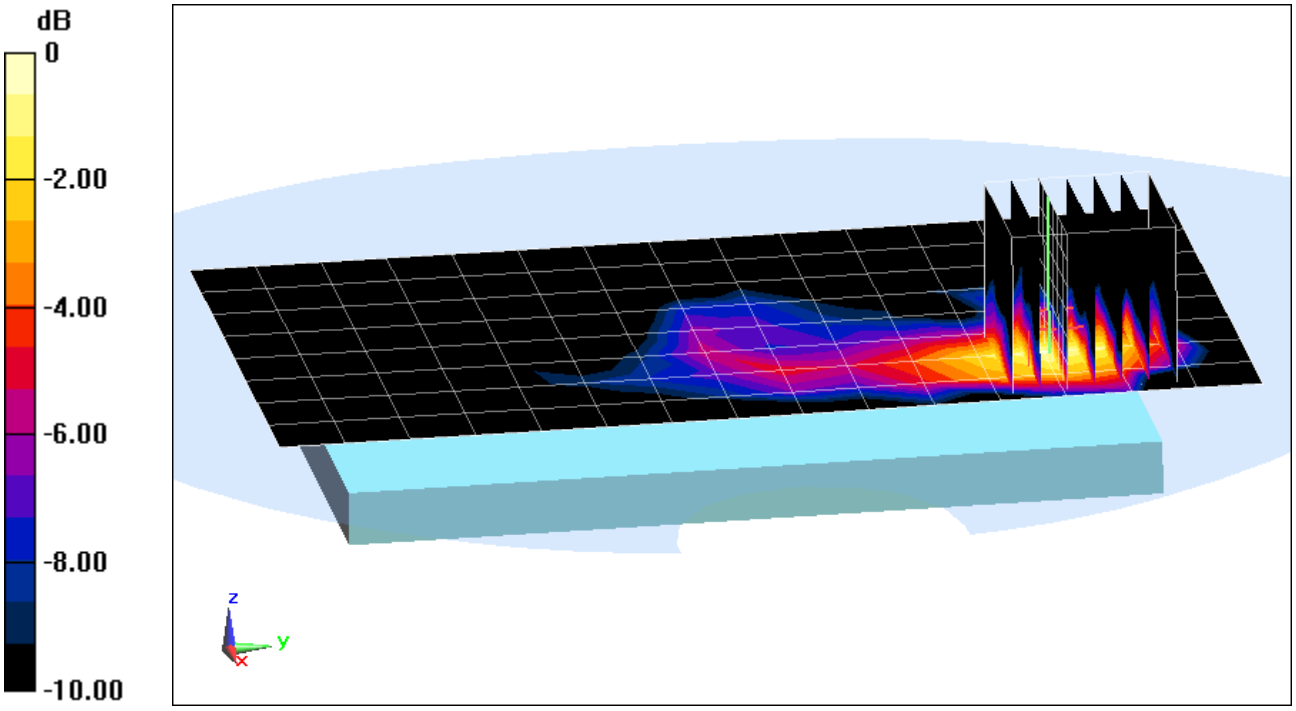
Communication System: UID 0, Bluetooth; Frequency: 2480 MHz; Duty Cycle: 1:1.302
Medium: 2450 Body Medium parameters used (interpolated):
f = 2480 MHz; σ = 2.057 S/m; ε_r = 51.748; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-24-2017; Ambient Temp: 22.4°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3319; ConvF(4.2, 4.2, 4.2); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/14/2016
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: Bluetooth, Body SAR, Ch 78, 2 Mbps, Back Side

Area Scan (9x16x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.163 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.0210 W/kg
SAR(1 g) = 0.00886 W/kg



0 dB = 0.0129 W/kg = -18.89 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1161

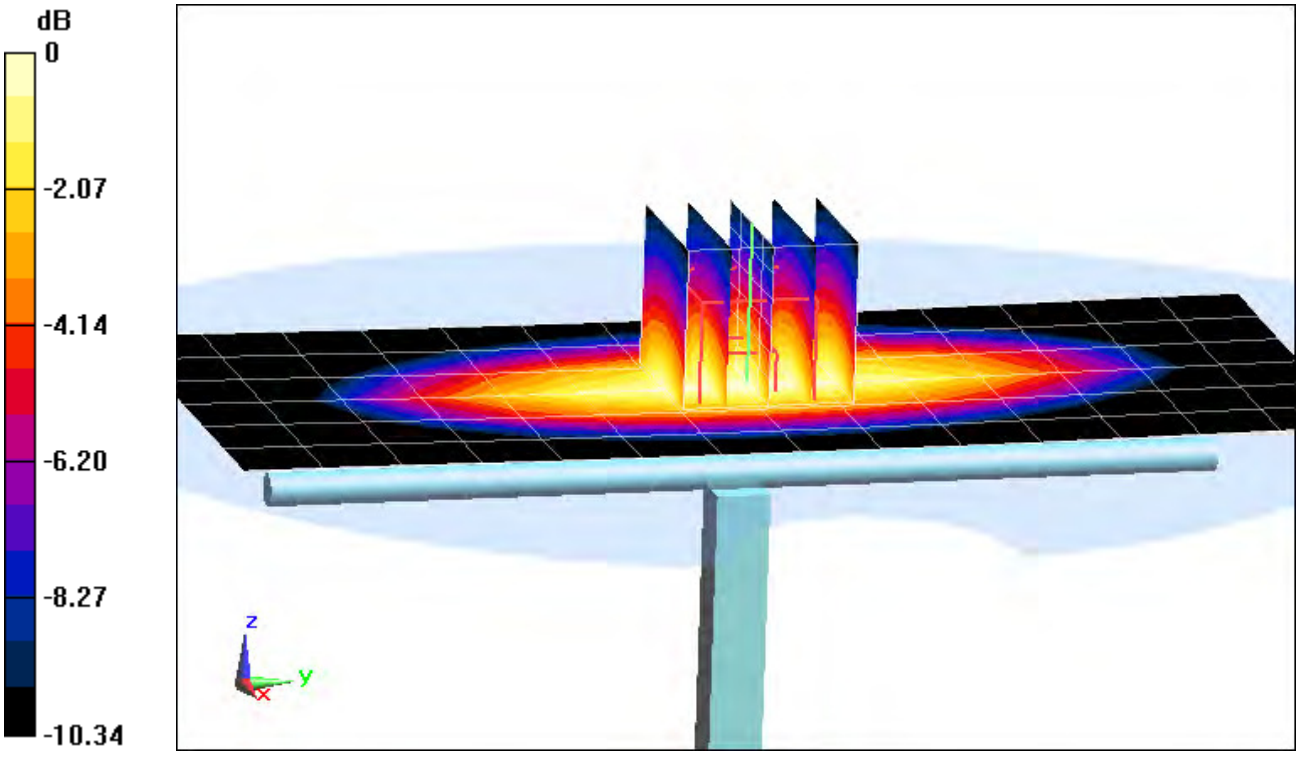
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 750 MHz; σ = 0.897 S/m; ε_r = 41.552; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-18-2017; Ambient Temp: 24.3°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3209; ConvF(6.6, 6.6, 6.6); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 8/22/2016
Phantom: SAM Right; Type: SAM; Serial: 1757
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

750 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.27 W/kg
SAR(1 g) = 1.57 W/kg
Deviation(1 g) = -3.92%



0 dB = 1.83 W/kg = 2.62 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

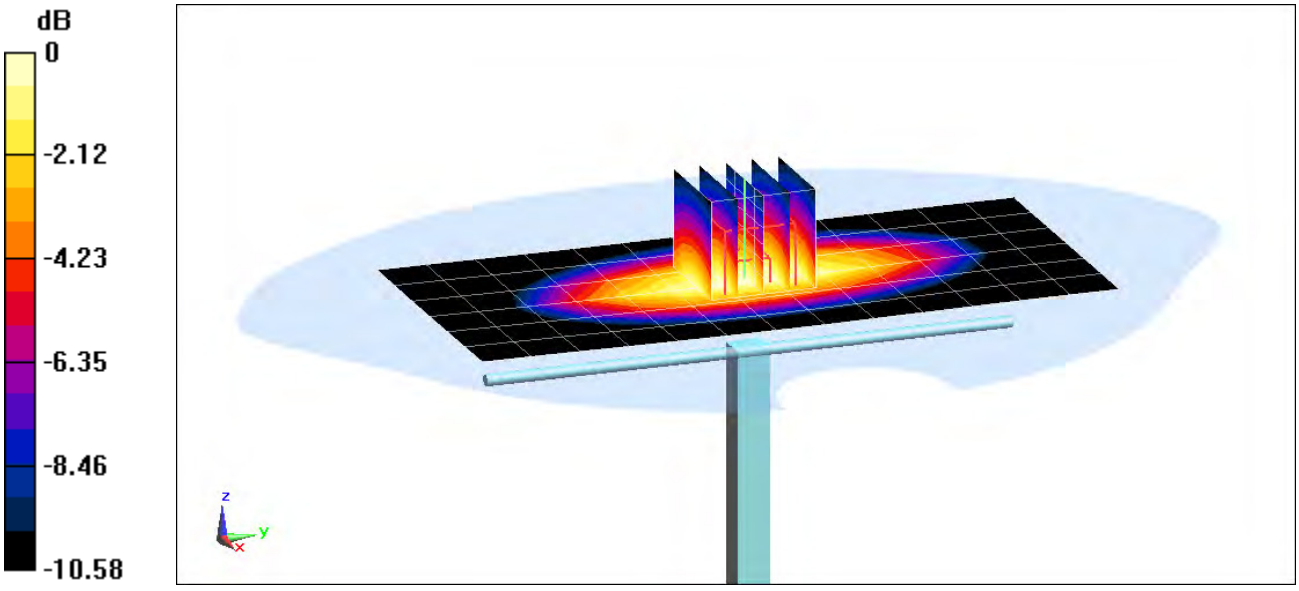
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.918 S/m; ε_r = 40.832; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-19-2017; Ambient Temp: 23.9°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3287; ConvF(6.67, 6.67, 6.67); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Left; Type: QD000P40CA; Serial: TP:82355
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.87 W/kg
SAR(1 g) = 1.94 W/kg;
Deviation(1 g) = 6.24%



0 dB = 2.27 W/kg = 3.56 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

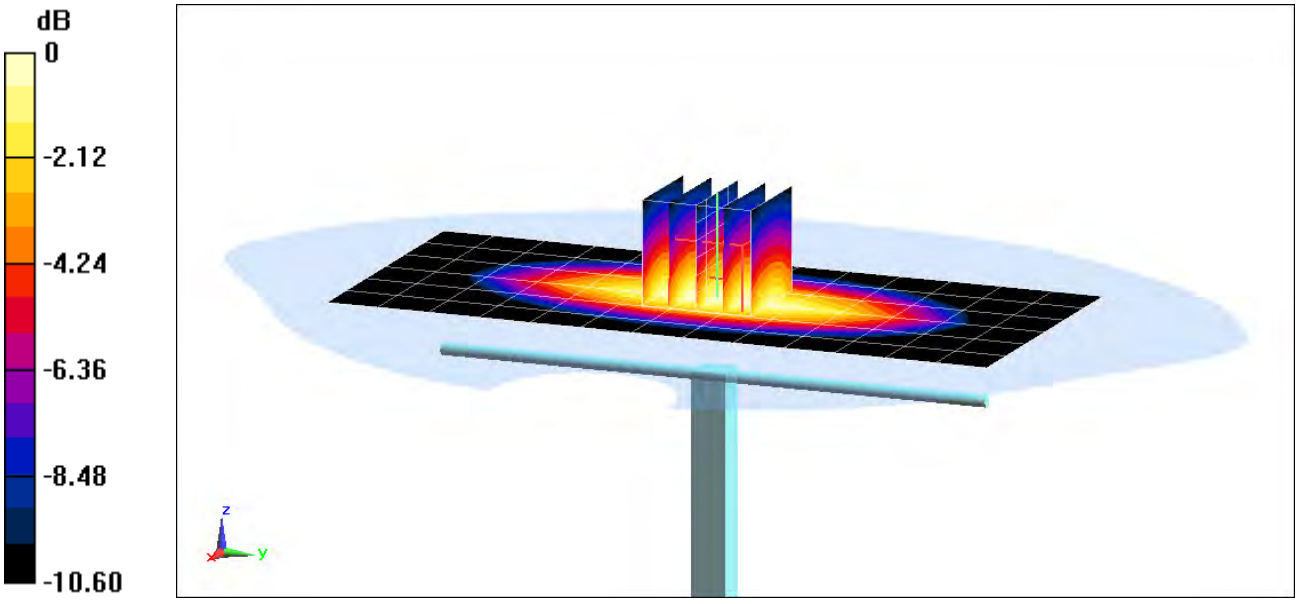
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.904 S/m; ε_r = 40.792; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-10-2017; Ambient Temp: 20.9°C; Tissue Temp: 20.0°C

Probe: ES3DV3 - SN3334; ConvF(6.49, 6.49, 6.49); Calibrated: 11/15/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 11/11/2016
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.88 W/kg
SAR(1 g) = 1.97 W/kg
Deviation(1 g) = 5.69%



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

PCTEST ENGINEERING LABORATORY, INC.

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

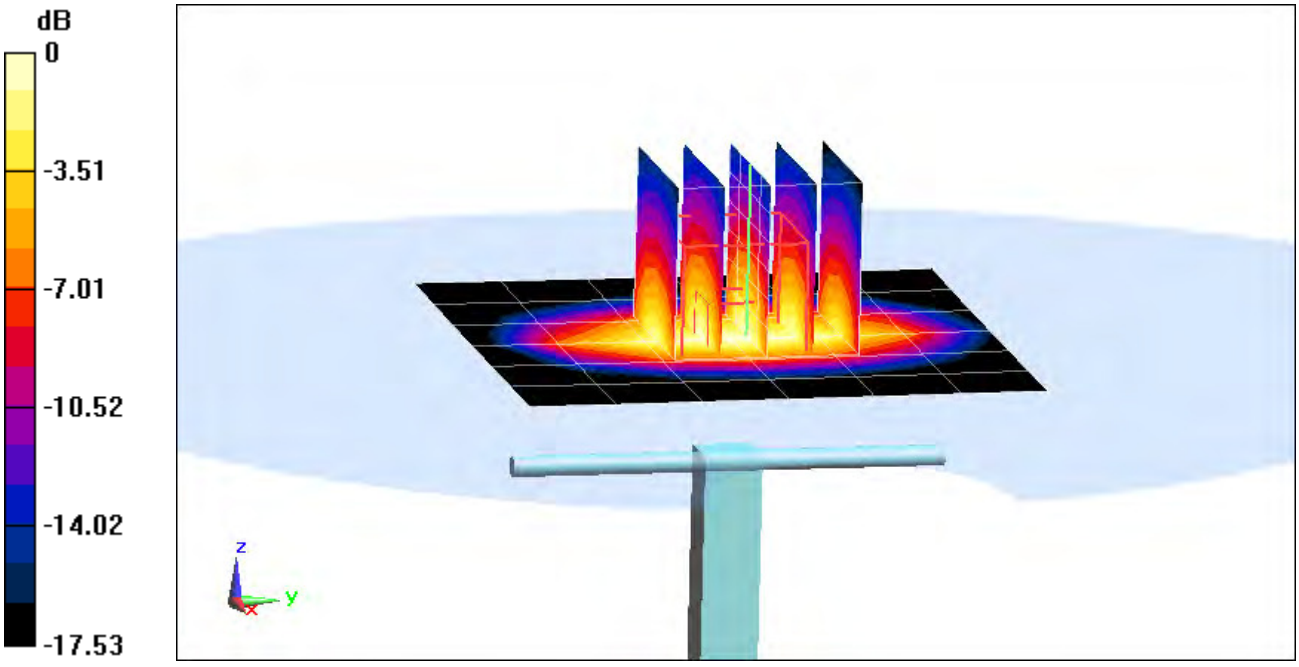
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used:
f = 1750 MHz; σ = 1.342 S/m; ε_r = 39.159; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-12-2017; Ambient Temp: 23.6°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3209; ConvF(5.28, 5.28, 5.28); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 8/22/2016
Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 6.69 W/kg
SAR(1 g) = 3.70 W/kg
Deviation(1 g) = 2.21%



0 dB = 4.65 W/kg = 6.67 dBW/kg

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

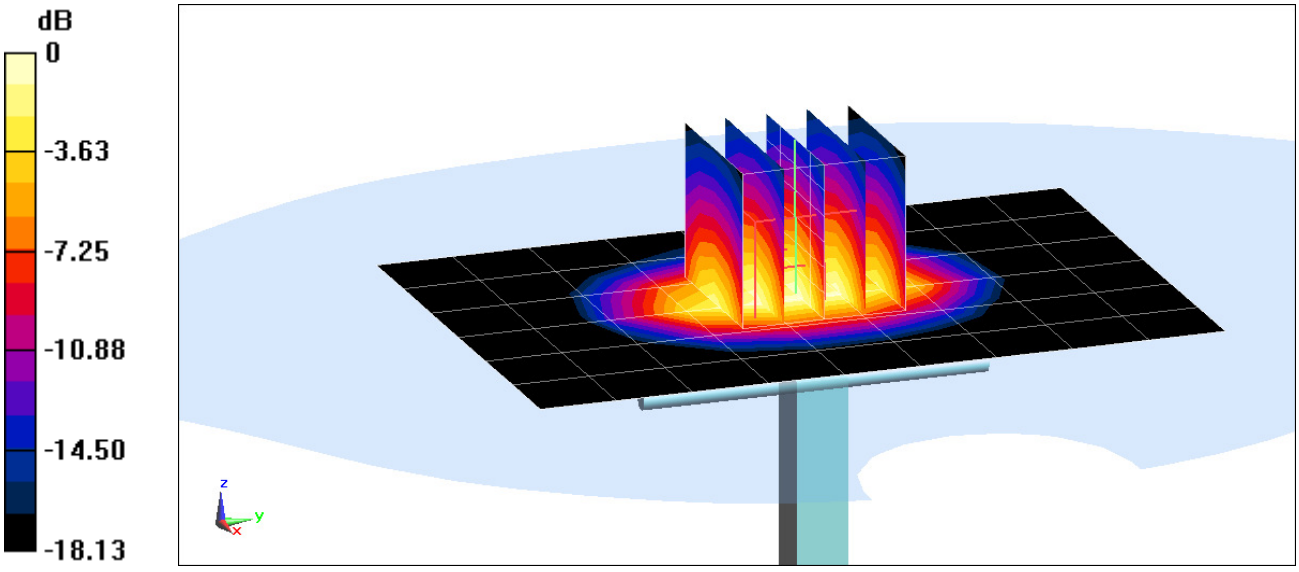
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.449 S/m; ε_r = 39.367; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-16-2017; Ambient Temp: 23.5°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3287; ConvF(5.27, 5.27, 5.27); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.51 W/kg
SAR(1 g) = 4.09 W/kg
Deviation(1 g) = 2.00%



0 dB = 5.21 W/kg = 7.17 dBW/kg

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

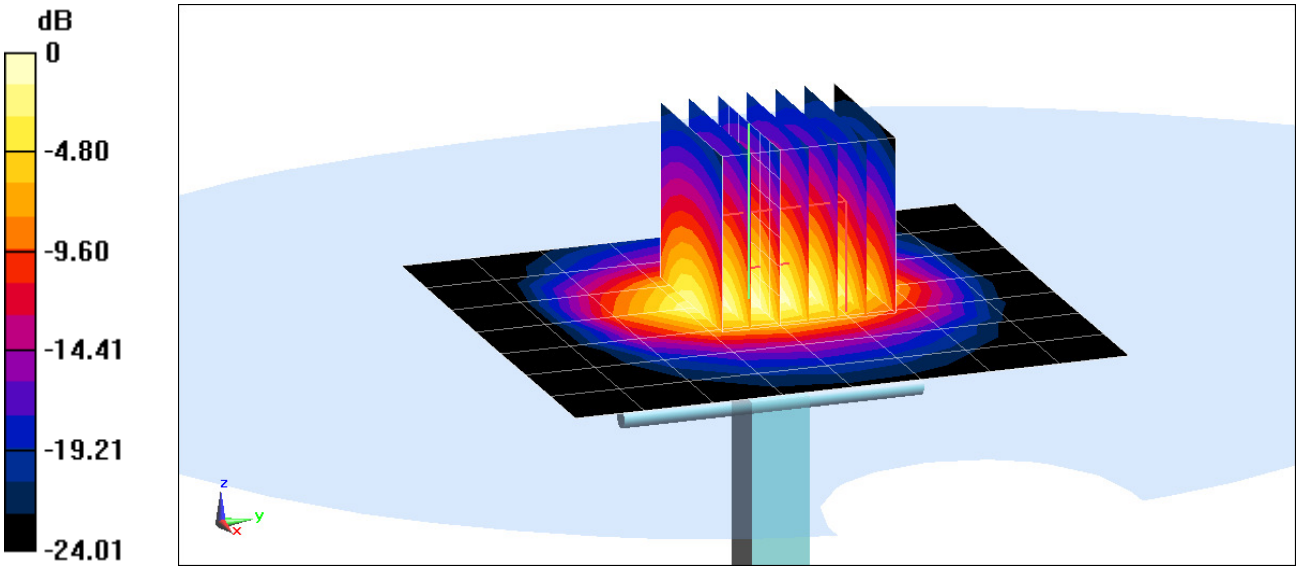
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.867 S/m; ε_r = 39.124; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-10-2017; Ambient Temp: 23.6°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3287; ConvF(4.54, 4.54, 4.54); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
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 at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.6 W/kg
SAR(1 g) = 5.45 W/kg
Deviation(1 g) = 4.61%



0 dB = 7.27 W/kg = 8.62 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

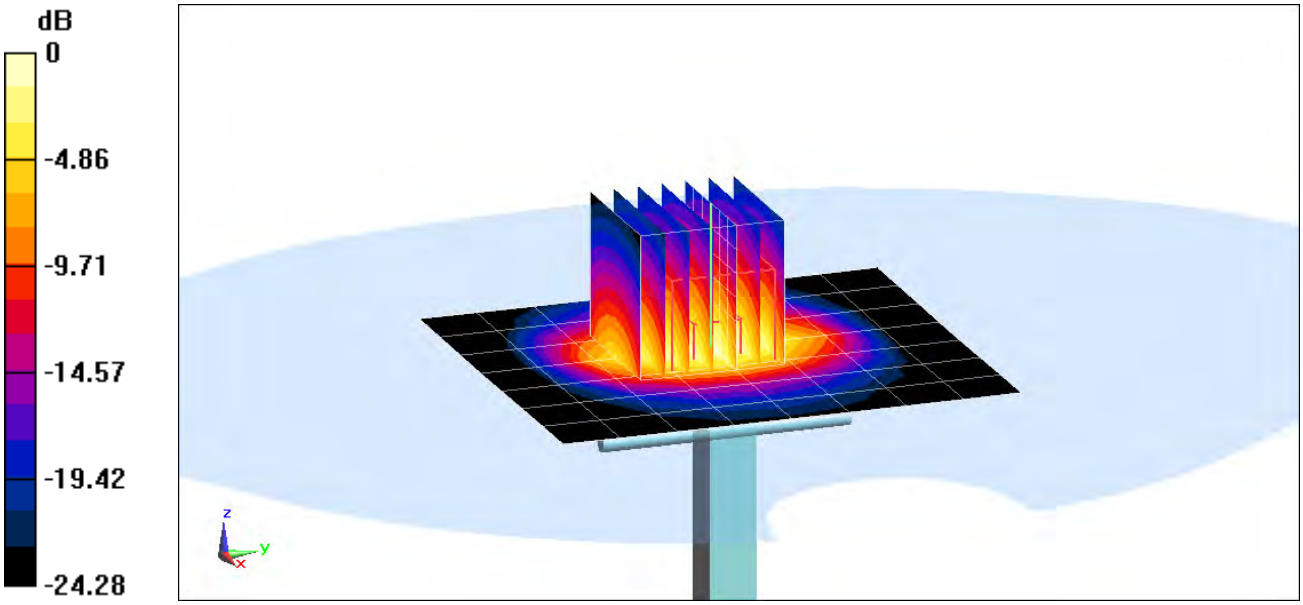
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.869 S/m; ε_r = 38.155; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-22-2017; Ambient Temp: 23.2°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3287; ConvF(4.54, 4.54, 4.54); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
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 at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.9 W/kg
SAR(1 g) = 5.64 W/kg
Deviation(1 g) = 6.82%



0 dB = 7.52 W/kg = 8.76 dBW/kg

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1126

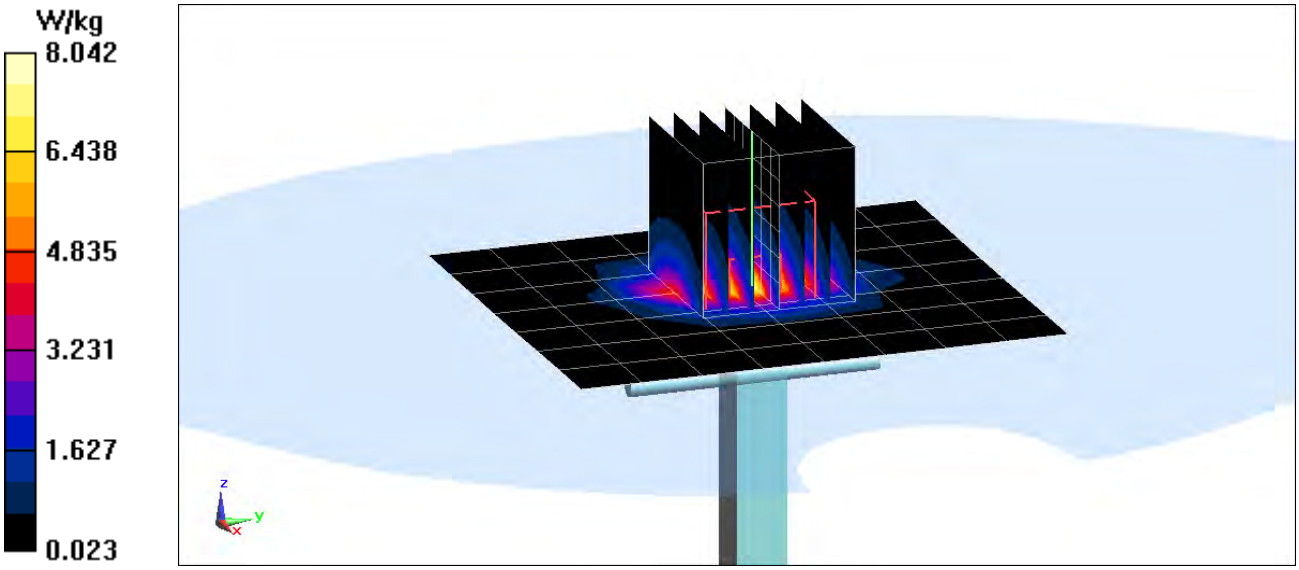
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2600 Head Medium parameters used:
f = 2600 MHz; σ = 2.033 S/m; ε_r = 38.497; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-13-2017; Ambient Temp: 21.9°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3287; ConvF(4.41, 4.41, 4.41); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

2600 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 13.7 W/kg
SAR(1 g) = 6.06 W/kg
Deviation(1 g) = 7.64%



DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

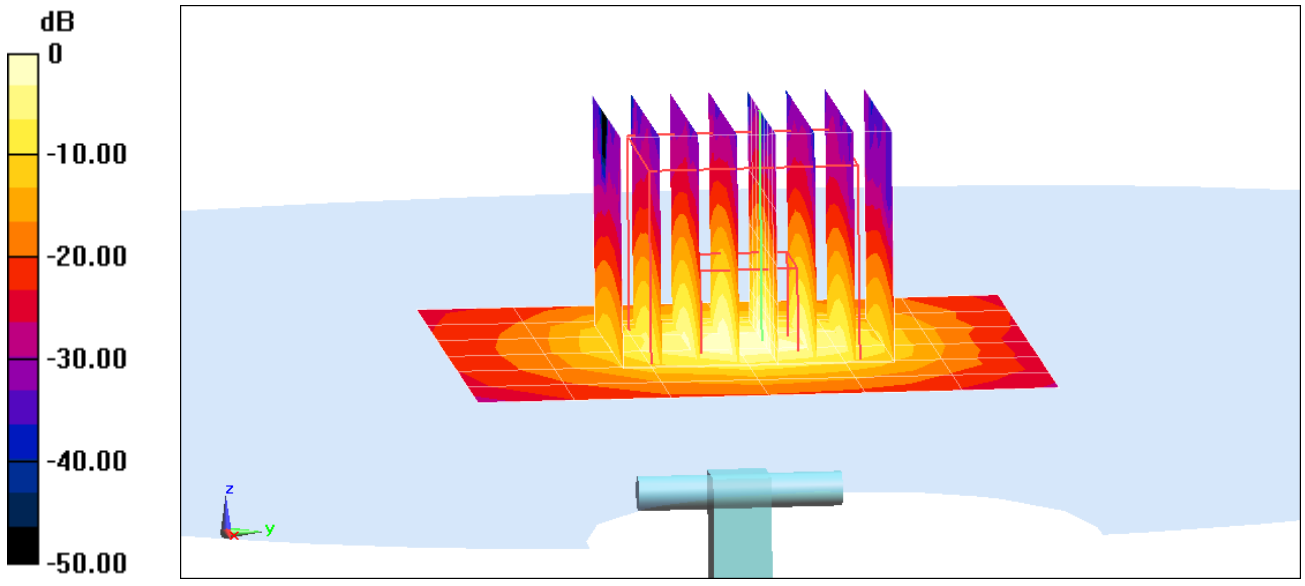
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used (interpolated):
f = 5250 MHz; σ = 4.684 S/m; ε_r = 34.664; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-28-2016; Ambient Temp: 21.5°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7357; ConvF(5.1, 5.1, 5.1); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/19/2016
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5250 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 16.1 W/kg
SAR(1 g) = 3.84 W/kg
Deviation(1 g) = -3.03%



0 dB = 9.07 W/kg = 9.58 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

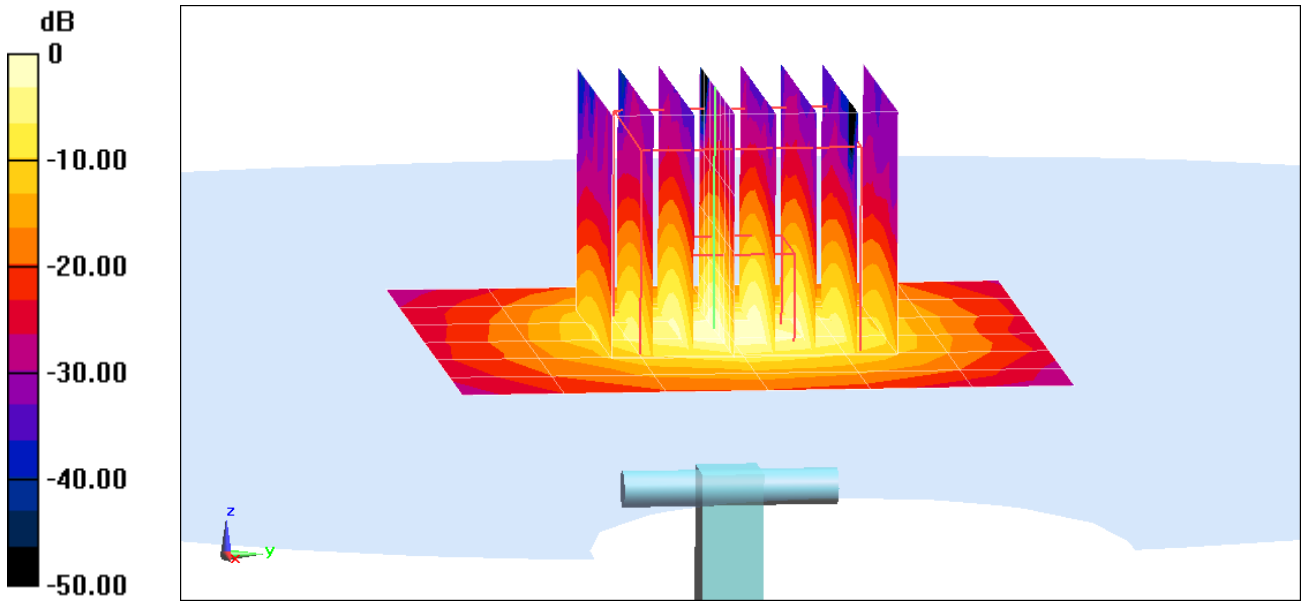
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used:
f = 5600 MHz; σ = 5.031 S/m; ε_r = 34.091; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-28-2016; Ambient Temp: 21.5°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7357; ConvF(4.41, 4.41, 4.41); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/19/2016
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5600 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 16.8 W/kg
SAR(1 g) = 4.00 W/kg
Deviation(1 g) = -3.96%



0 dB = 9.58 W/kg = 9.81 dBW/kg

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

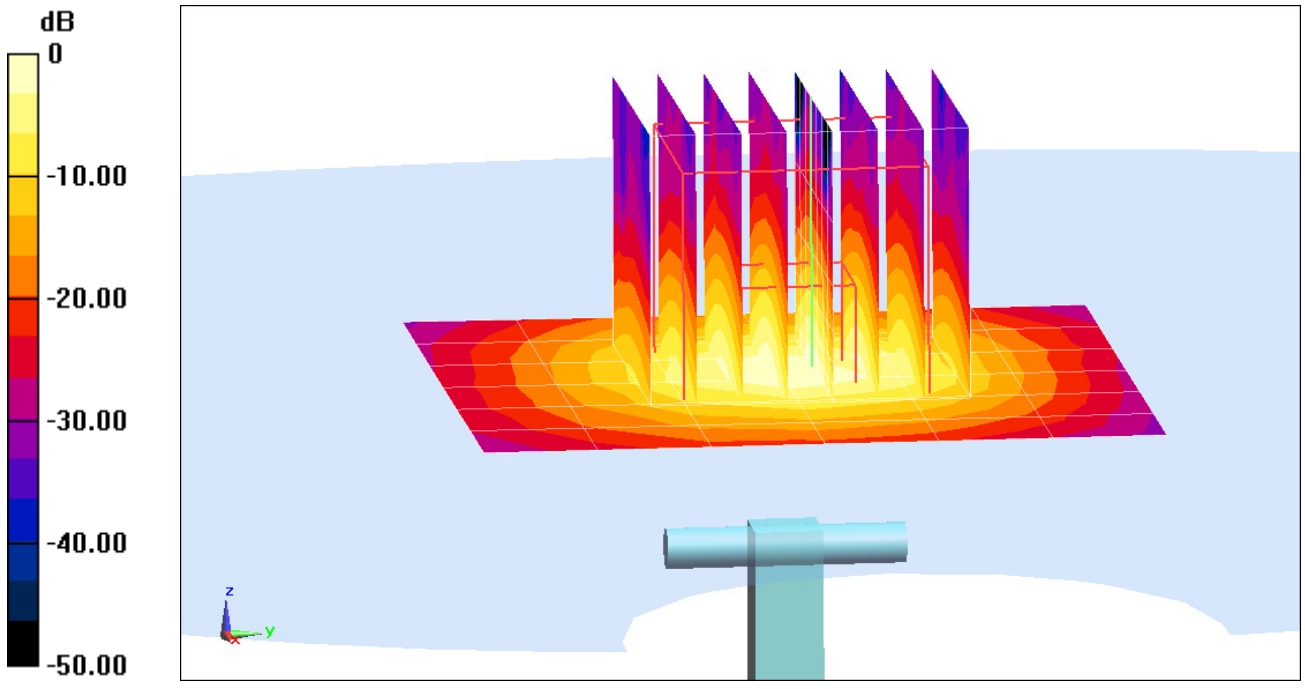
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used (interpolated):
f = 5750 MHz; σ = 5.2 S/m; ε_r = 33.931; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-28-2016; Ambient Temp: 21.5°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7357; ConvF(4.65, 4.65, 4.65); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/19/2016
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5750 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 16.0 W/kg
SAR(1 g) = 3.71 W/kg
Deviation(1 g) = -8.96%



0 dB = 8.93 W/kg = 9.51 dBW/kg

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

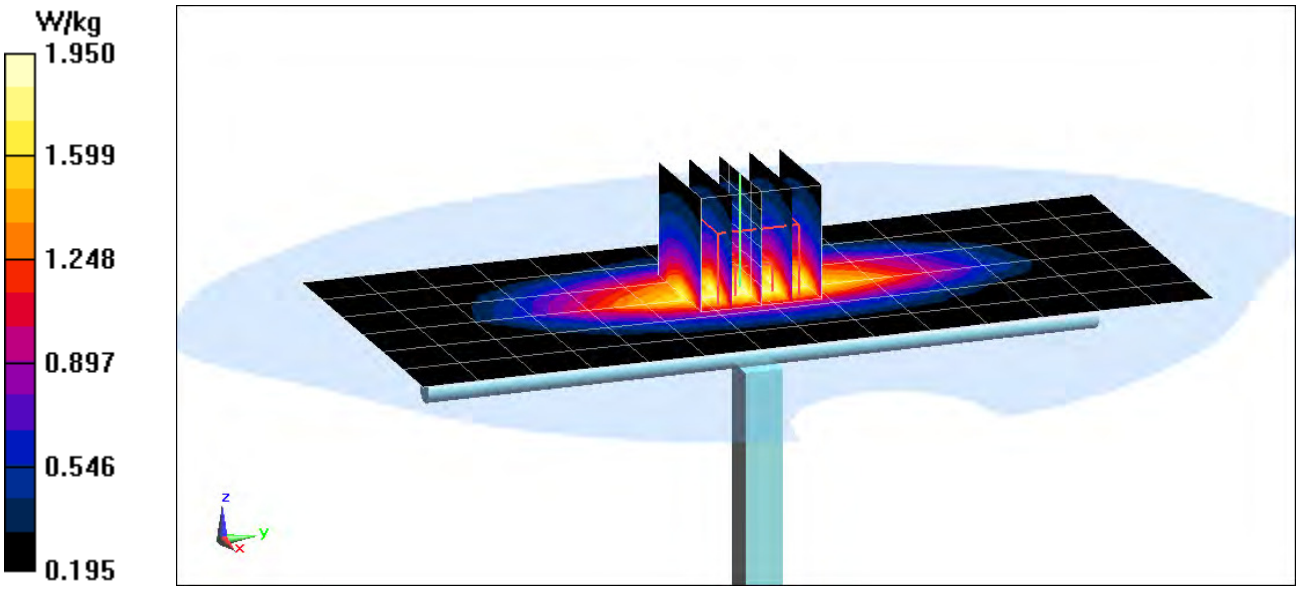
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 750 MHz; σ = 0.951 S/m; ε_r = 54.848; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-14-2017; Ambient Temp: 22.7°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3332; ConvF(6.7, 6.7, 6.7); Calibrated: 8/25/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 9/15/2016
Phantom: SAM Left; Type: SAM; Serial: 1688
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

750 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.45 W/kg
SAR(1 g) = 1.67 W/kg
Deviation(1 g) = -2.45%



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

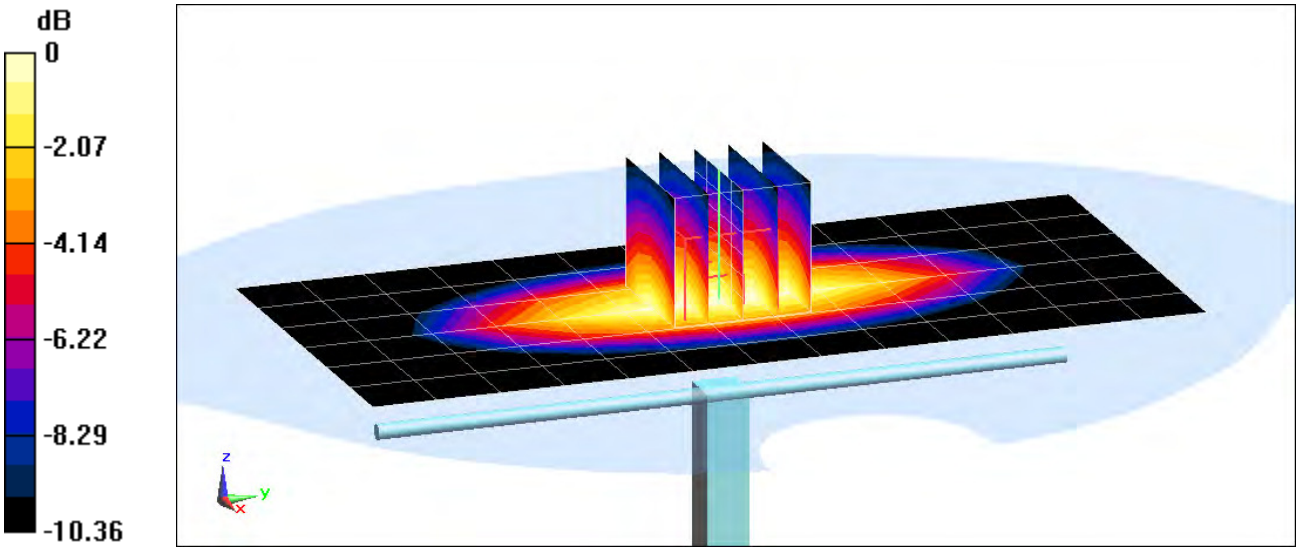
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 1 S/m; ε_r = 54.577; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-14-2017; Ambient Temp: 22.6°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3319; ConvF(6.04, 6.04, 6.04); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/14/2016
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.97 W/kg
SAR(1 g) = 2.01 W/kg
Deviation(1 g) = 5.79%



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

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

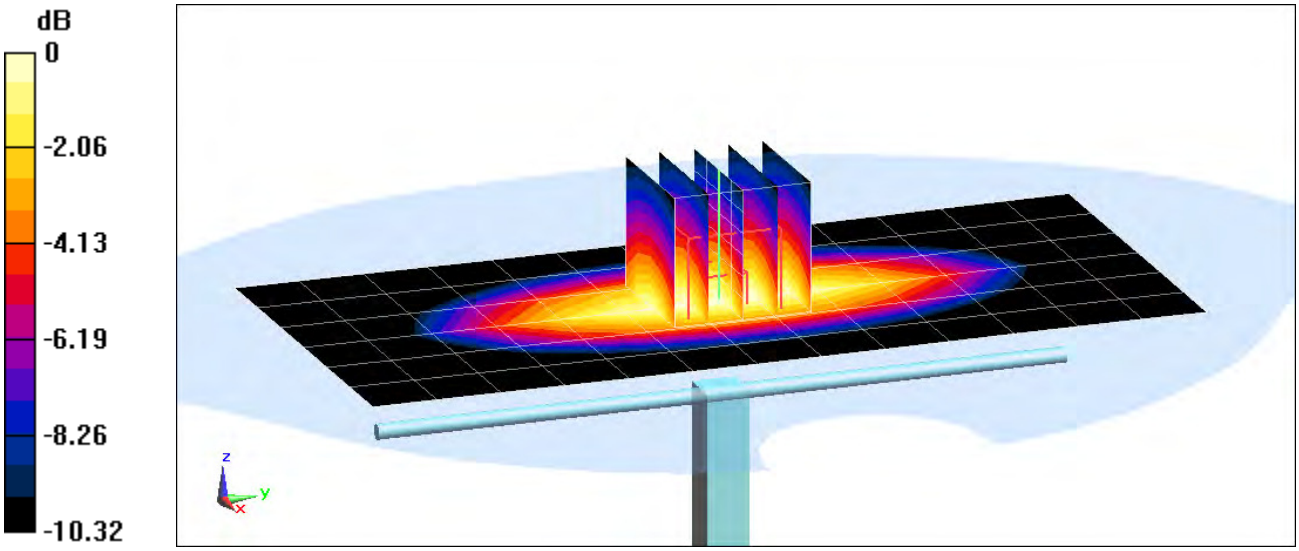
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.993 S/m; ε_r = 53.907; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-17-2017; Ambient Temp: 22.8°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3319; ConvF(6.04, 6.04, 6.04); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/14/2016
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 3.00 W/kg
SAR(1 g) = 2.04 W/kg
Deviation(1 g) = 6.58%



0 dB = 2.38 W/kg = 3.77 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

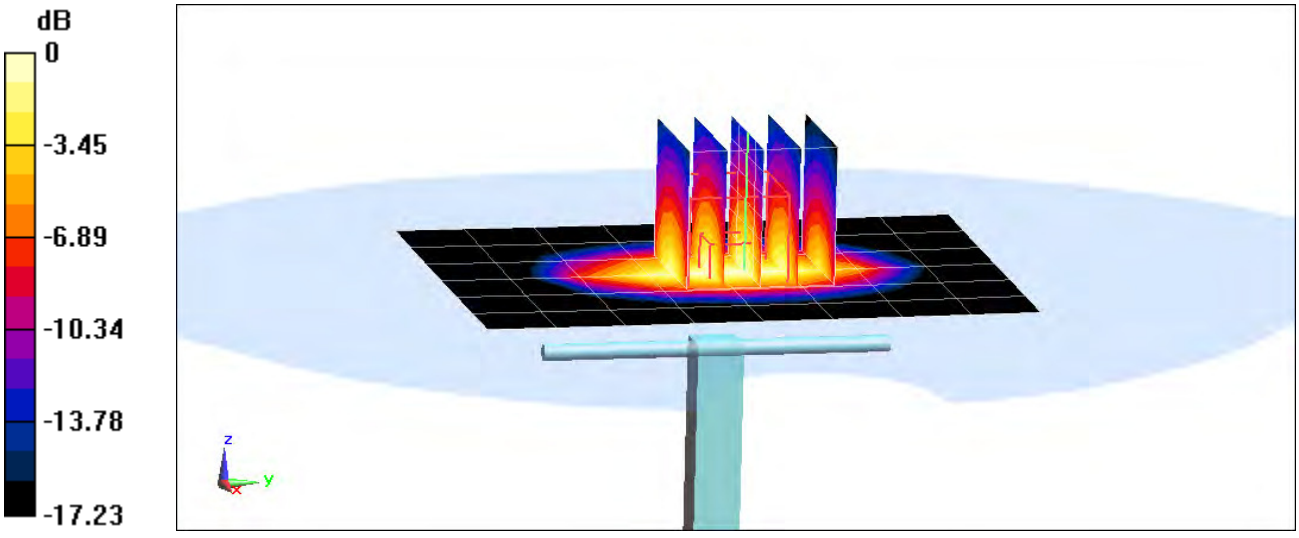
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.492 S/m; ε_r = 51.877; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-16-2017; Ambient Temp: 22.5°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3209; ConvF(4.99, 4.99, 4.99); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 8/22/2016
Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 6.55 W/kg
SAR(1 g) = 3.75 W/kg
Deviation(1 g) = 1.08%



0 dB = 4.62 W/kg = 6.65 dBW/kg

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

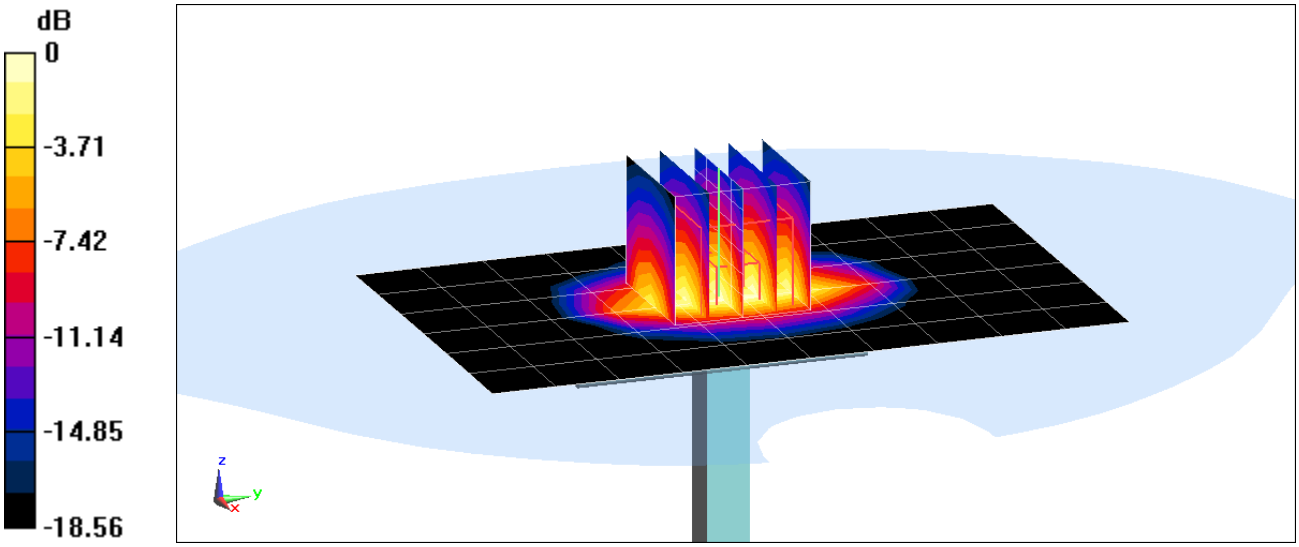
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.571 S/m; ε_r = 51.324; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-16-2017; Ambient Temp: 22.3°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7409; ConvF(7.47, 7.47, 7.47); Calibrated: 5/17/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/11/2016
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.73 W/kg
SAR(1 g) = 4.15 W/kg
Deviation(1 g) = 4.01%



0 dB = 6.48 W/kg = 8.12 dBW/kg

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

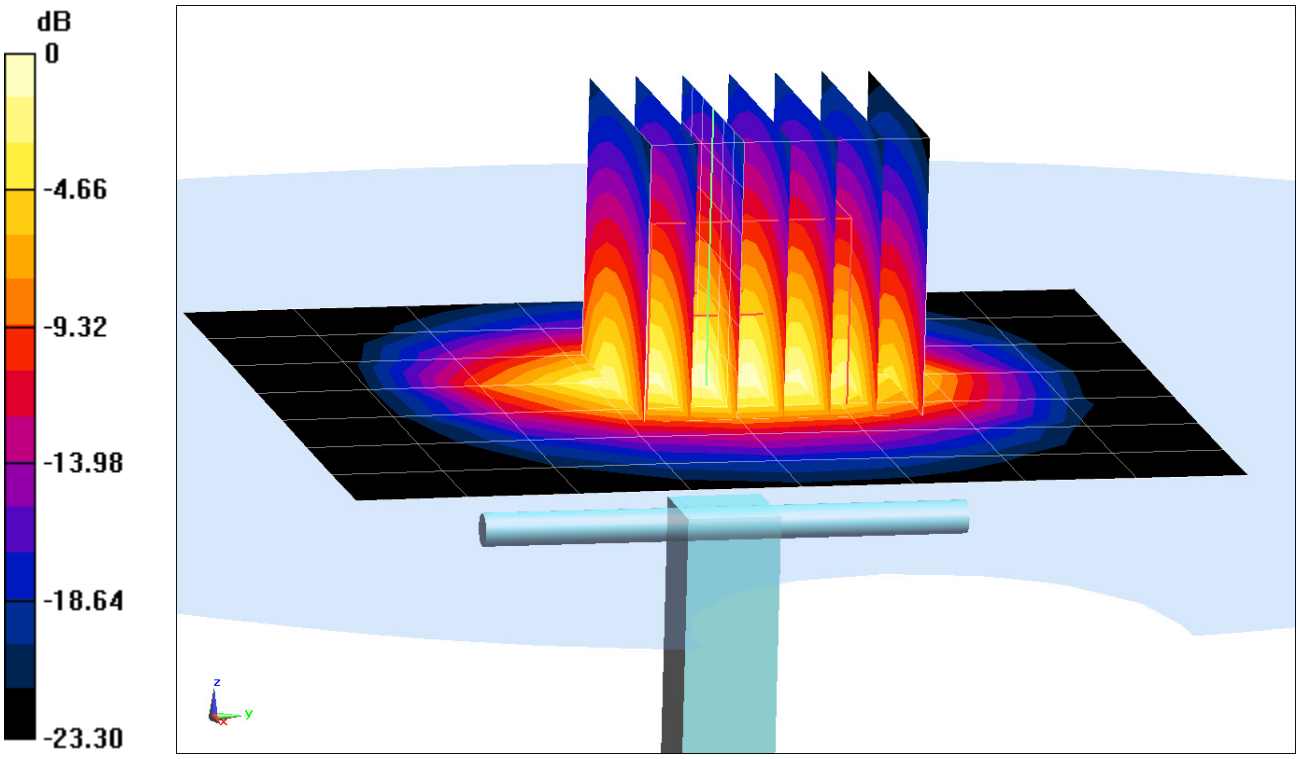
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.031 S/m; ε_r = 50.992; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-09-2017; Ambient Temp: 22.5°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7406; ConvF(7.24, 7.24, 7.24); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/14/2016
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.2 W/kg
SAR(1 g) = 4.81 W/kg
Deviation(1 g) = -5.31%



0 dB = 8.07 W/kg = 9.07 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

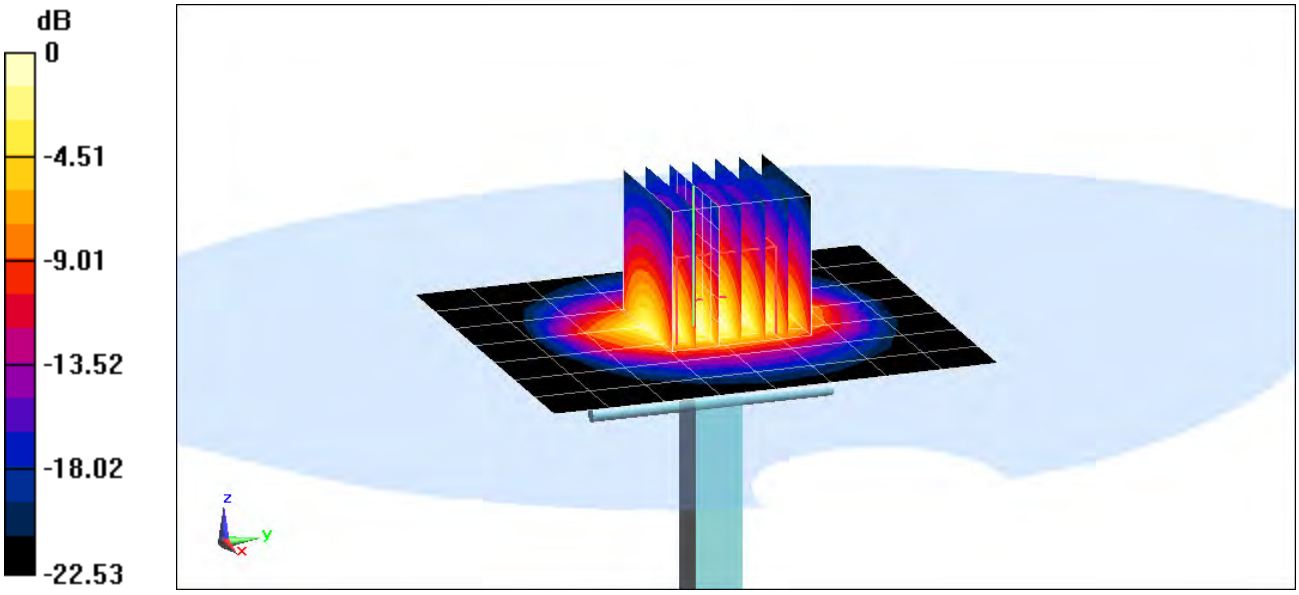
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.014 S/m; ε_r = 51.856; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-24-2017; Ambient Temp: 22.4°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3319; ConvF(4.2, 4.2, 4.2); Calibrated: 3/18/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/14/2016
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.9 W/kg
SAR(1 g) = 5.21 W/kg
Deviation(1 g) = 2.76%



0 dB = 6.85 W/kg = 8.36 dBW/kg

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

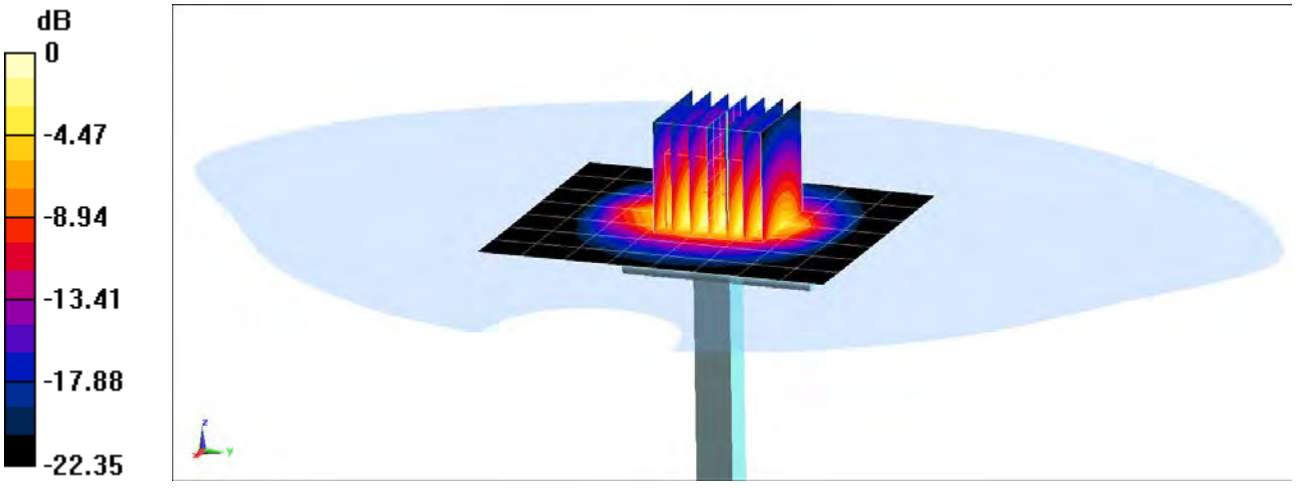
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.016 S/m; ε_r = 51.286; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-22-2017; Ambient Temp: 23.5°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7406; ConvF(7.24, 7.24, 7.24); Calibrated: 19.04.2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 14.04.2016
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.0 W/kg
SAR(1 g) = 5.33 W/kg
Deviation(1 g) = 4.92%



0 dB = 8.79 W/kg = 9.44 dBW/kg

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

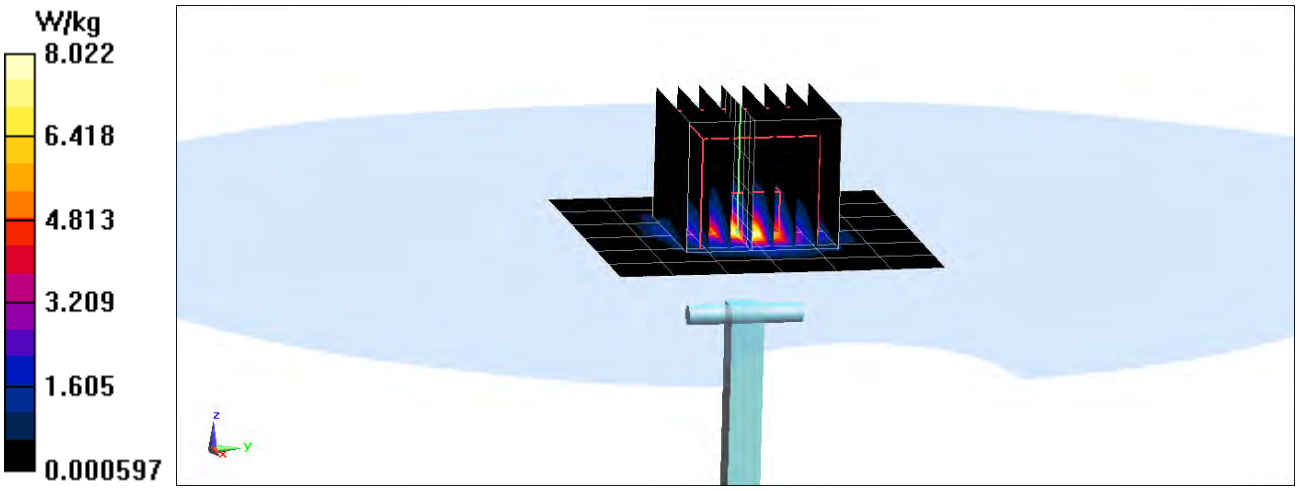
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used (interpolated):
f = 5250 MHz; σ = 5.473 S/m; ε_r = 48.692; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2017; Ambient Temp: 21.6°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN3914; ConvF(4.32, 4.32, 4.32); Calibrated: 2/22/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/18/2016
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5250 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 14.1 W/kg
SAR(1 g) = 3.43 W/kg
Deviation(1 g) = -8.29%



DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

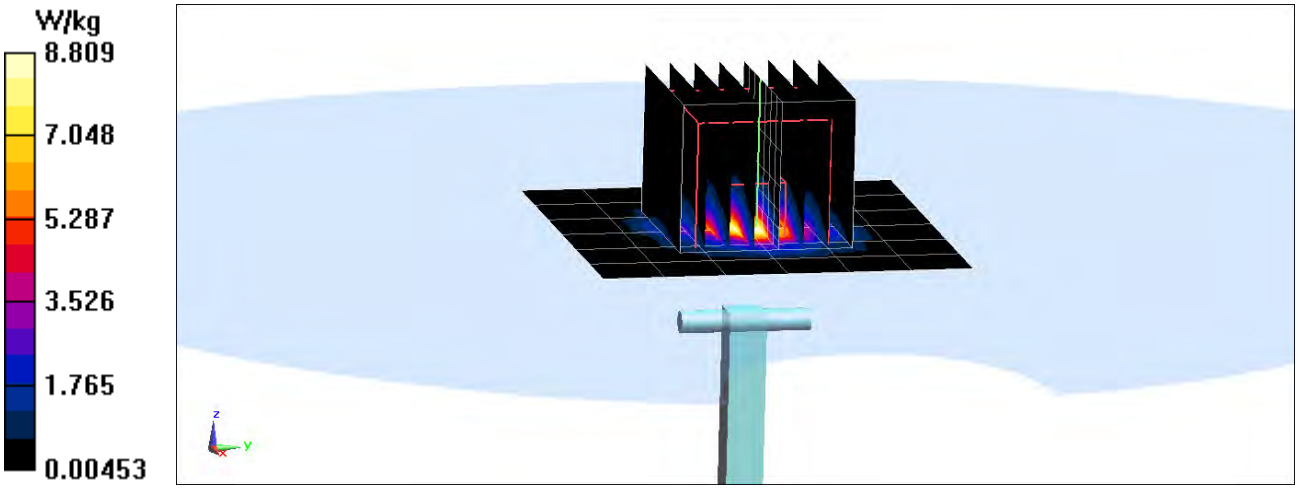
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5600 MHz; σ = 5.917 S/m; ε_r = 48.062; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2017; Ambient Temp: 21.6°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN3914; ConvF(3.63, 3.63, 3.63); Calibrated: 2/22/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/18/2016
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5600 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 15.6 W/kg
SAR(1 g) = 3.76 W/kg
Deviation(1 g) = -2.34%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

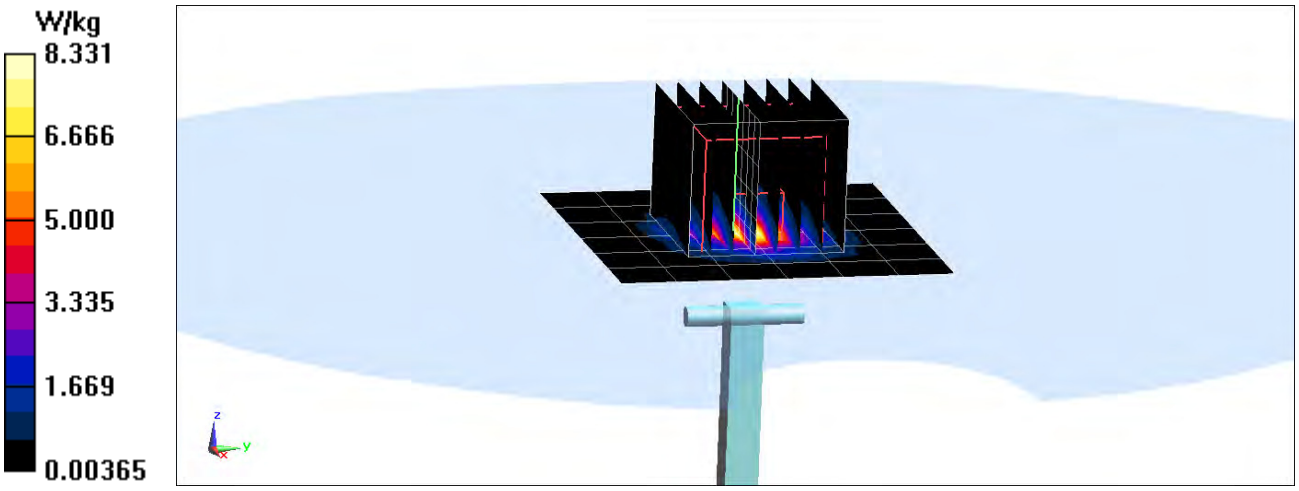
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used (interpolated):
f = 5750 MHz; σ = 6.135 S/m; ε_r = 47.847; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2017; Ambient Temp: 21.6°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN3914; ConvF(3.86, 3.86, 3.86); Calibrated: 2/22/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/18/2016
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5750 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 15.0 W/kg
SAR(1 g) = 3.45 W/kg
Deviation(1 g) = -8.49%



APPENDIX C: PROBE CALIBRATION

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

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

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

Accreditation No.: SCS 0108

Client PC Test

Certificate No: ES3-3209_Mar16

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3209

Calibration procedure(s) QA CAL-01.v9, QA CAL-23.v5, QA CAL-25.v6
Calibration procedure for dosimetric E-field probes

Calibration date: March 18, 2016

BN 3/30/2016

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	01-Apr-15 (No. 217-02128)	Mar-16
Power sensor E4412A	MY41498087	01-Apr-15 (No. 217-02128)	Mar-16
Reference 3 dB Attenuator	SN: S5054 (3c)	01-Apr-15 (No. 217-02129)	Mar-16
Reference 20 dB Attenuator	SN: S5277 (20x)	01-Apr-15 (No. 217-02132)	Mar-16
Reference 30 dB Attenuator	SN: S5129 (30b)	01-Apr-15 (No. 217-02133)	Mar-16
Reference Probe ES3DV2	SN: 3013	31-Dec-15 (No. ES3-3013_Dec15)	Dec-16
DAE4	SN: 660	23-Dec-15 (No. DAE4-660_Dec15)	Dec-16
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-13)	In house check: Apr-16
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 22, 2016

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Probe ES3DV3

SN:3209

Manufactured: October 14, 2008
Calibrated: March 18, 2016

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3209

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.33	1.31	1.12	± 10.1 %
DCP (mV)[B]	101.7	103.5	101.2	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	220.0	±3.8 %
		Y	0.0	0.0	1.0		213.1	
		Z	0.0	0.0	1.0		195.4	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	2.09	61.8	11.1	10.00	43.7	±0.9 %
		Y	2.54	63.7	12.3		42.4	
		Z	9.74	76.2	16.0		38.8	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	2.73	68.3	18.8	1.87	133.3	±0.7 %
		Y	3.26	72.2	21.0		127.7	
		Z	2.80	68.4	18.6		116.7	
10100-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	6.61	68.5	20.5	5.67	147.6	±1.4 %
		Y	6.48	68.0	20.1		139.5	
		Z	6.30	67.2	19.6		127.7	
10103-CAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	9.09	74.0	25.9	9.29	124.5	±2.2 %
		Y	9.05	73.2	25.1		120.6	
		Z	8.51	71.7	24.5		107.7	
10108-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	6.45	68.0	20.4	5.80	144.1	±1.4 %
		Y	6.35	67.6	20.0		137.6	
		Z	6.17	66.8	19.5		124.8	
10151-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	8.52	73.1	25.6	9.28	119.2	±2.5 %
		Y	8.47	72.2	24.7		116.3	
		Z	9.20	75.3	26.7		148.4	
10154-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	6.14	67.6	20.2	5.75	140.1	±1.4 %
		Y	6.03	67.1	19.8		134.4	
		Z	5.89	66.4	19.4		121.9	
10160-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	6.57	68.0	20.3	5.82	145.9	±1.4 %
		Y	6.48	67.6	20.0		139.5	
		Z	6.32	67.0	19.6		126.7	
10169-CAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	4.84	66.7	19.9	5.73	121.1	±1.2 %
		Y	4.86	66.6	19.8		117.0	
		Z	5.16	67.8	20.4		148.7	
10172-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	7.43	77.3	28.3	9.21	131.4	±1.9 %
		Y	7.40	75.8	27.0		129.7	
		Z	6.83	73.7	26.0		116.1	
10175-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	4.75	66.3	19.7	5.72	114.6	±0.9 %
		Y	4.82	66.4	19.7		110.3	
		Z	5.16	67.8	20.4		147.4	

10181-CAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	4.82	66.6	19.9	5.72	119.3	±0.9 %
		Y	4.79	66.2	19.6		110.0	
		Z	5.15	67.8	20.3		147.0	
10237-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	7.37	76.9	28.1	9.21	130.4	±1.9 %
		Y	7.02	74.1	26.0		122.0	
		Z	6.83	73.6	25.9		115.6	
10252-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	7.85	72.0	25.2	9.24	112.3	±2.5 %
		Y	7.74	70.8	24.1		104.5	
		Z	8.42	73.9	26.1		138.6	
10267-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	8.43	72.7	25.4	9.30	116.9	±2.5 %
		Y	8.28	71.5	24.3		109.4	
		Z	9.17	75.2	26.7		147.6	
10297-AAA	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	6.48	68.1	20.5	5.81	141.5	±1.4 %
		Y	6.32	67.4	20.0		136.8	
		Z	6.17	66.8	19.6		123.8	
10311-AAA	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	7.07	68.8	20.8	6.06	146.9	±1.7 %
		Y	6.98	68.3	20.5		142.2	
		Z	6.77	67.5	20.0		128.8	

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

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 6 and 7).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3209

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	41.9	0.89	6.60	6.60	6.60	0.47	1.59	± 12.0 %
835	41.5	0.90	6.20	6.20	6.20	0.80	1.19	± 12.0 %
1750	40.1	1.37	5.28	5.28	5.28	0.54	1.35	± 12.0 %
1900	40.0	1.40	5.14	5.14	5.14	0.71	1.21	± 12.0 %
2300	39.5	1.67	4.82	4.82	4.82	0.74	1.26	± 12.0 %
2450	39.2	1.80	4.63	4.63	4.63	0.55	1.50	± 12.0 %
2600	39.0	1.96	4.48	4.48	4.48	0.78	1.25	± 12.0 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3209

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	6.19	6.19	6.19	0.53	1.42	± 12.0 %
835	55.2	0.97	6.19	6.19	6.19	0.62	1.30	± 12.0 %
1750	53.4	1.49	4.99	4.99	4.99	0.51	1.54	± 12.0 %
1900	53.3	1.52	4.77	4.77	4.77	0.56	1.52	± 12.0 %
2300	52.9	1.81	4.44	4.44	4.44	0.75	1.26	± 12.0 %
2450	52.7	1.95	4.31	4.31	4.31	0.74	1.26	± 12.0 %
2600	52.5	2.16	4.11	4.11	4.11	0.80	1.20	± 12.0 %

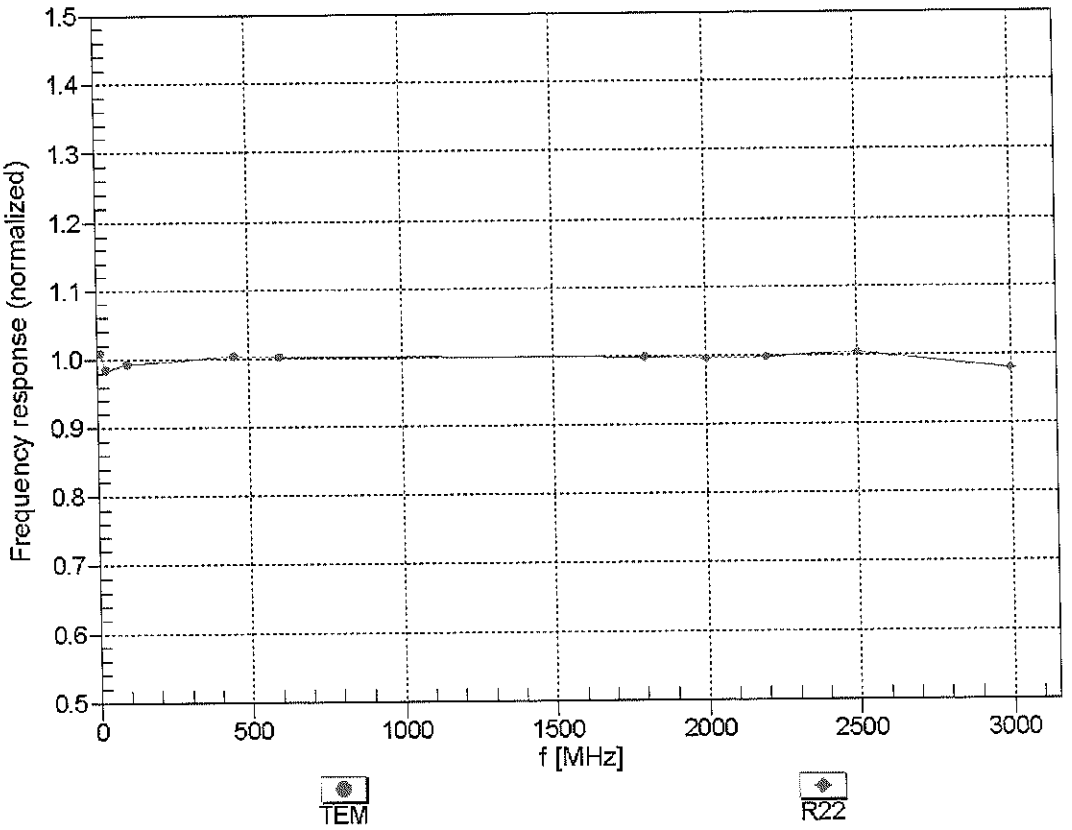
[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

Frequency Response of E-Field

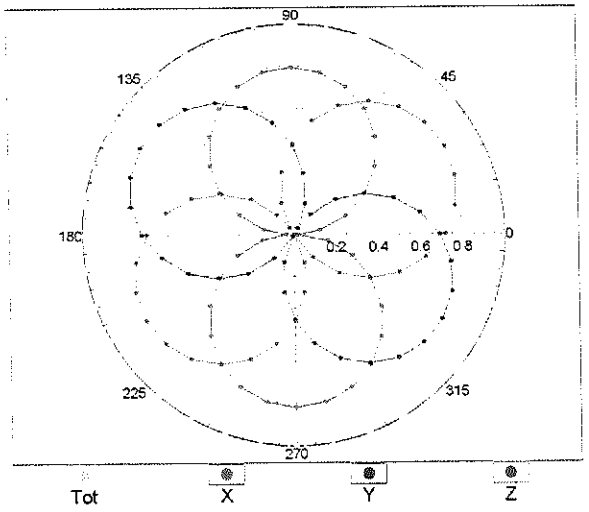
(TEM-Cell:ifi110 EXX, Waveguide: R22)



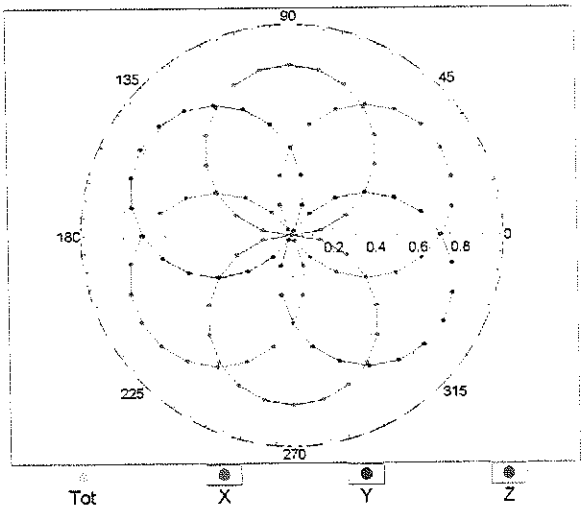
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

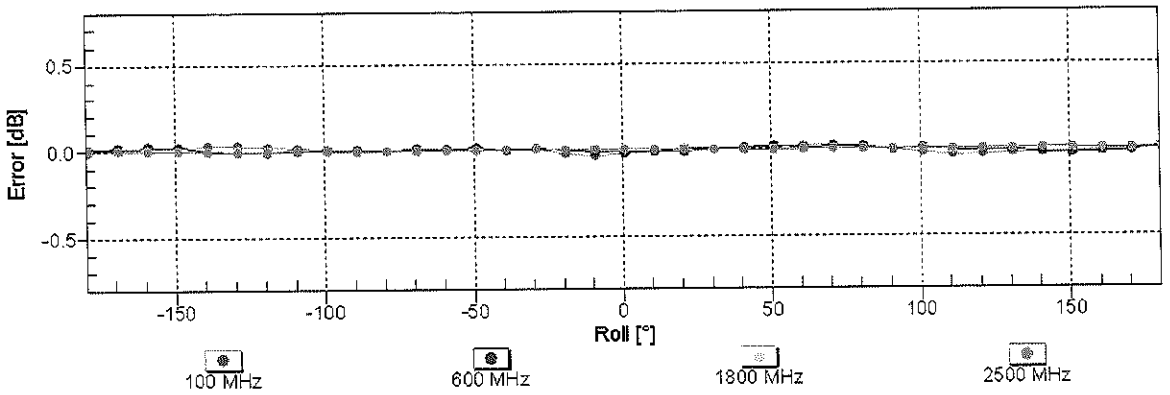
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

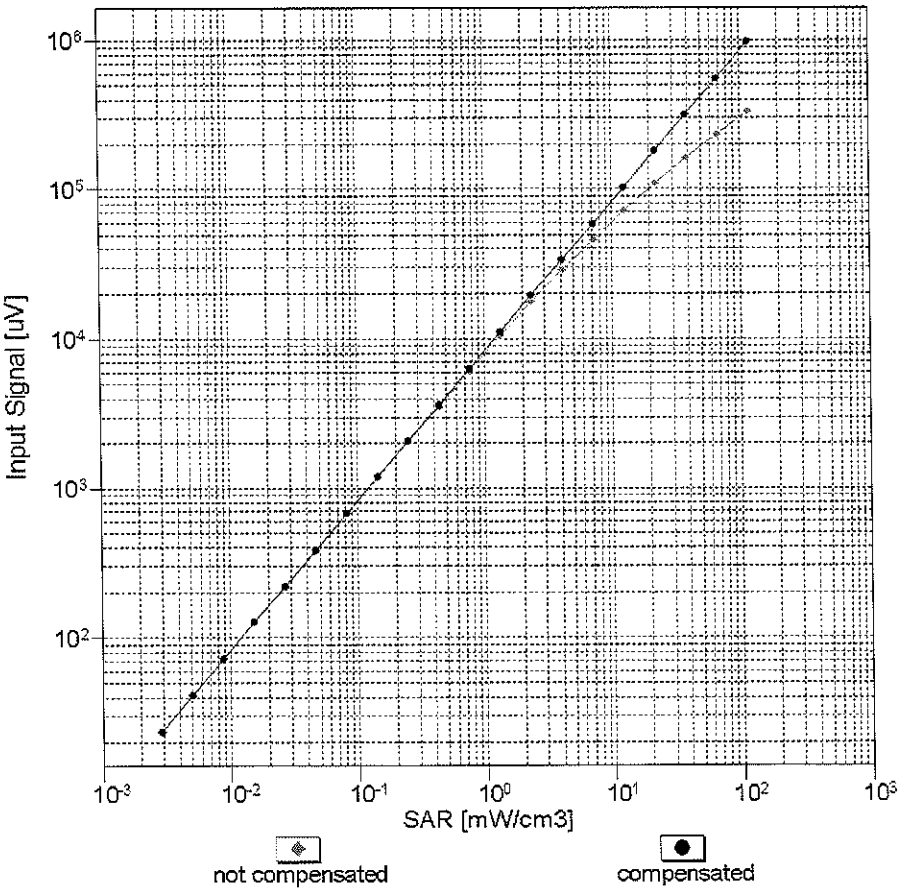


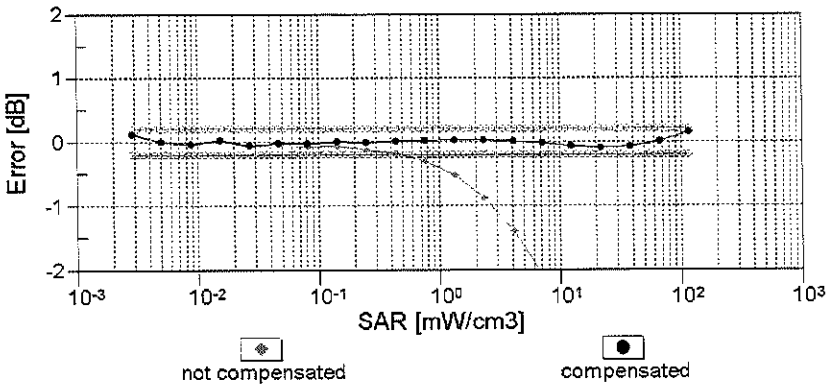


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

(TEM cell , f_{eval}= 1900 MHz)

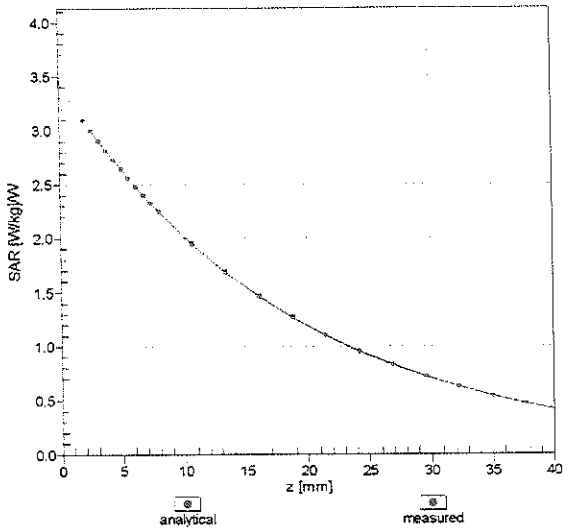




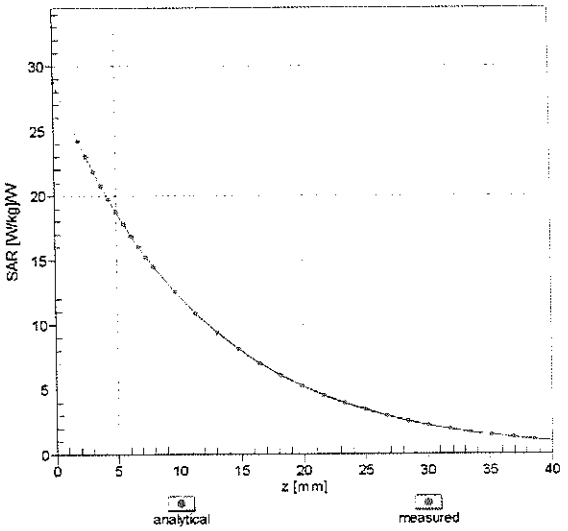
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

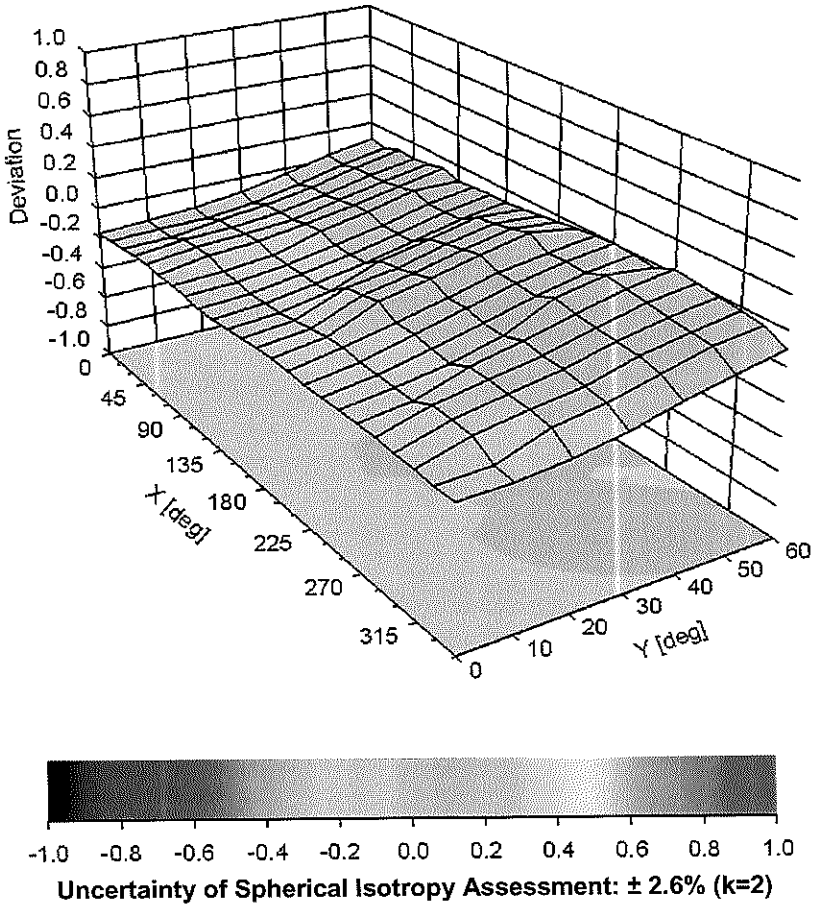


f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3209

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	141
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

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Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: ES3-3287_Sep16

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3287

Calibration procedure(s) QA CAL-01.v9, QA CAL-23.v5, QA CAL-25.v6
Calibration procedure for dosimetric E-field probes

BN ✓
09-28-2016

Calibration date: September 19, 2016

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: S5277 (20x)	05-Apr-16 (No. 217-02293)	Apr-17
Reference Probe ES3DV2	SN: 3013	31-Dec-15 (No. ES3-3013_Dec15)	Dec-16
DAE4	SN: 660	23-Dec-15 (No. DAE4-660_Dec15)	Dec-16
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 20, 2016

Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland

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Swiss Calibration Service

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Probe ES3DV3

SN:3287

Manufactured: June 7, 2010
Calibrated: September 19, 2016

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3287

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.87	0.98	1.00	± 10.1 %
DCP (mV)[B]	101.9	101.4	106.1	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	198.4	±3.5 %
		Y	0.0	0.0	1.0		189.6	
		Z	0.0	0.0	1.0		184.8	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $ms.V^{-2}$	T2 $ms.V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	65.67	459.4	34.07	29.08	2.68	5.077	2	0.308	1.009
Y	71.46	511.8	35.31	29.86	3.707	5.1	0.748	0.607	1.009
Z	50.48	357.3	34.55	27.84	2.262	5.1	1.583	0.279	1.01

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

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3287

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	41.9	0.89	6.96	6.96	6.96	0.44	1.36	± 12.0 %
835	41.5	0.90	6.67	6.67	6.67	0.29	1.69	± 12.0 %
1750	40.1	1.37	5.49	5.49	5.49	0.43	1.42	± 12.0 %
1900	40.0	1.40	5.27	5.27	5.27	0.41	1.45	± 12.0 %
2300	39.5	1.67	4.86	4.86	4.86	0.61	1.28	± 12.0 %
2450	39.2	1.80	4.54	4.54	4.54	0.47	1.51	± 12.0 %
2600	39.0	1.96	4.41	4.41	4.41	0.77	1.18	± 12.0 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3287

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	6.64	6.64	6.64	0.27	1.86	± 12.0 %
835	55.2	0.97	6.55	6.55	6.55	0.50	1.37	± 12.0 %
1750	53.4	1.49	5.11	5.11	5.11	0.33	1.85	± 12.0 %
1900	53.3	1.52	4.94	4.94	4.94	0.42	1.59	± 12.0 %
2300	52.9	1.81	4.55	4.55	4.55	0.55	1.42	± 12.0 %
2450	52.7	1.95	4.35	4.35	4.35	0.80	1.09	± 12.0 %
2600	52.5	2.16	4.12	4.12	4.12	0.80	1.10	± 12.0 %

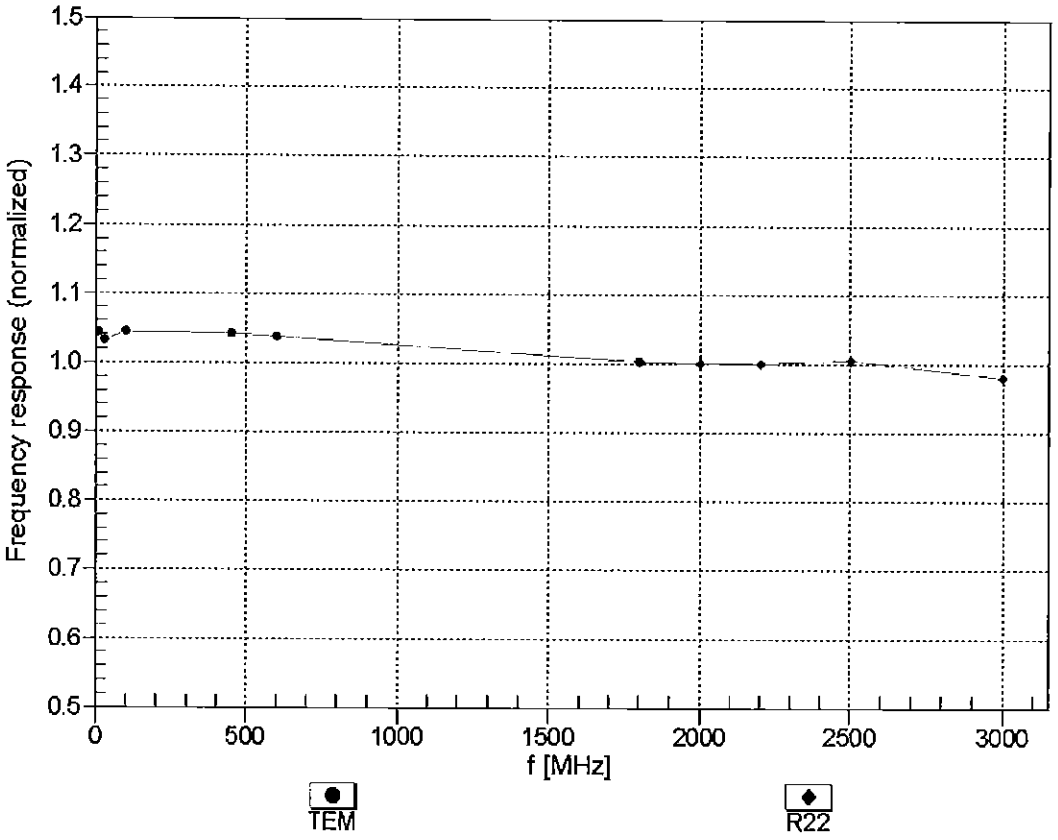
[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

Frequency Response of E-Field

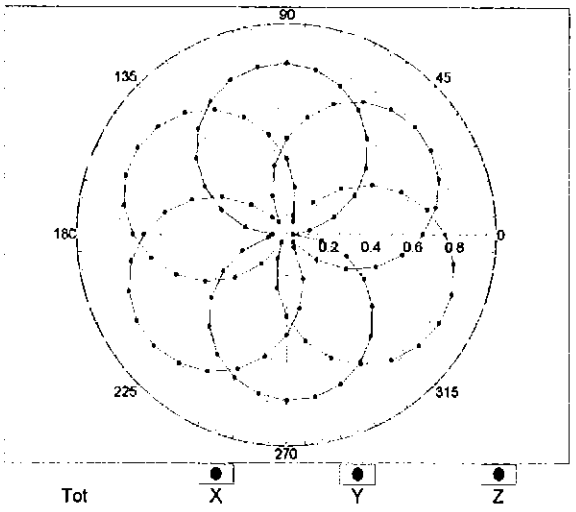
(TEM-Cell:ifi110 EXX, Waveguide: R22)



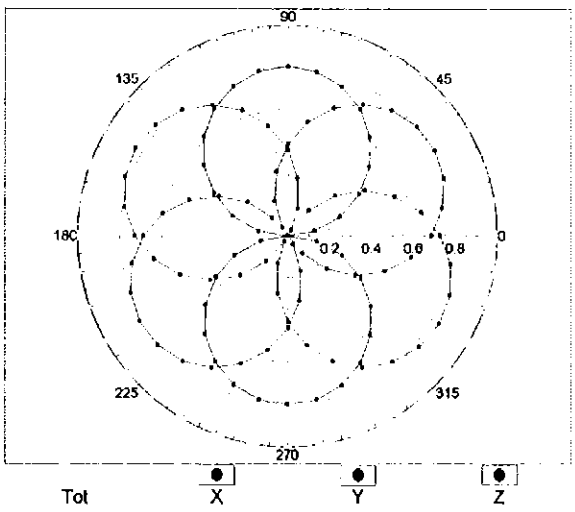
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

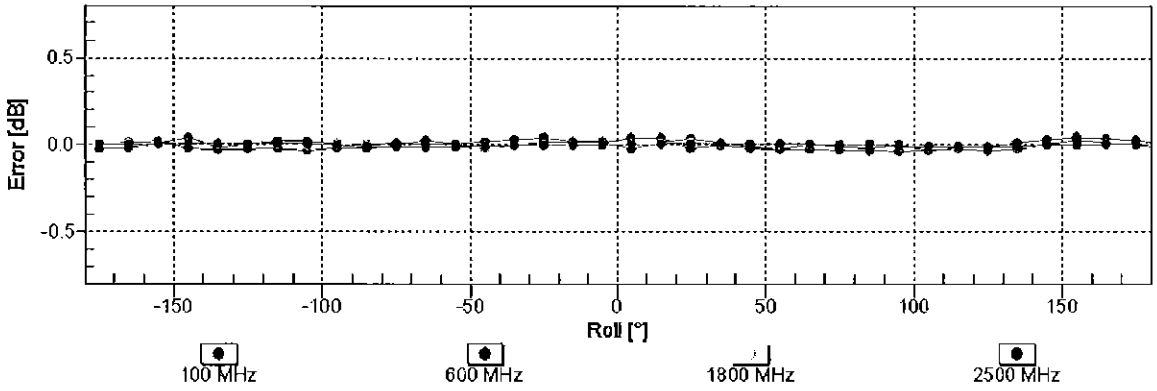
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



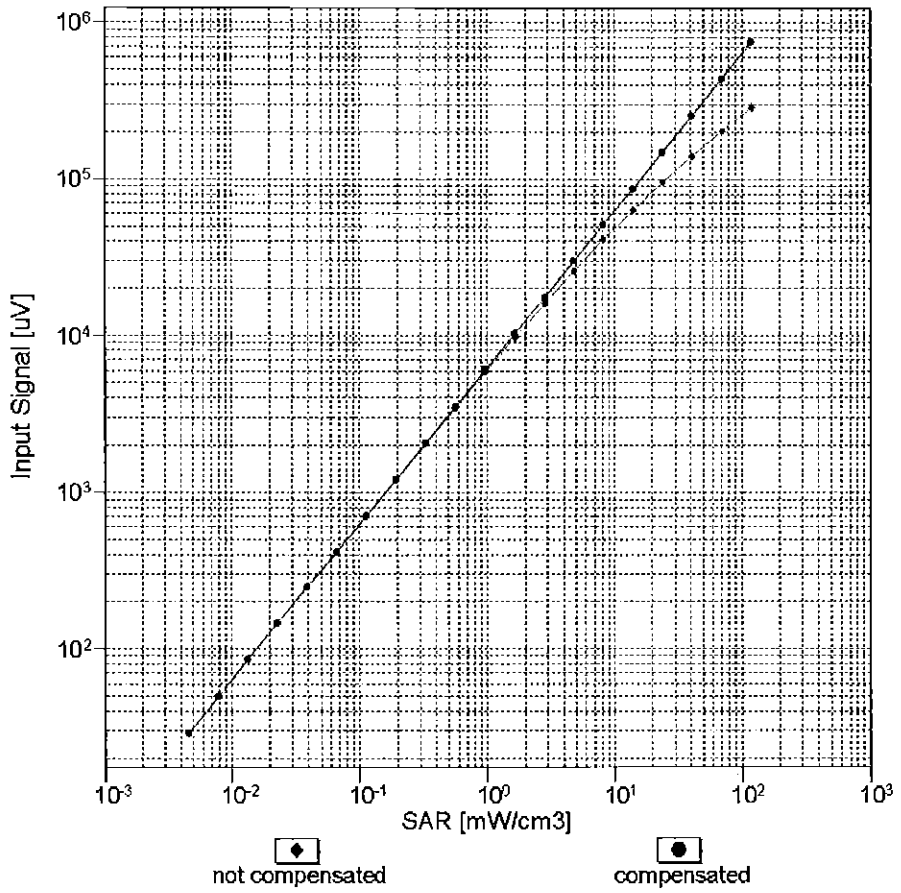
f=1800 MHz,R22

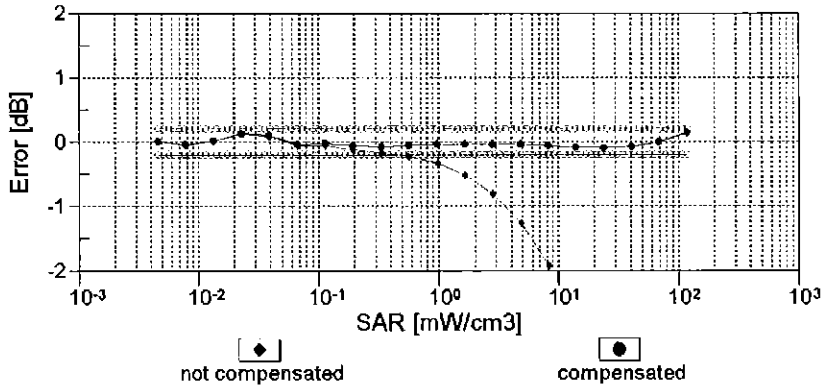




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR$_{head}$)
(TEM cell , f_{eval}= 1900 MHz)

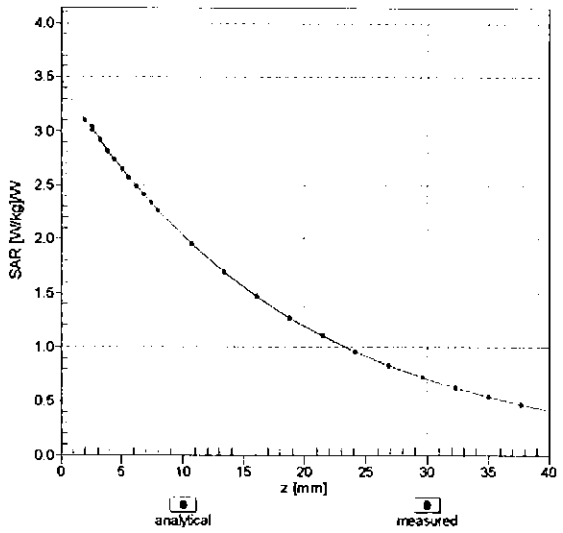




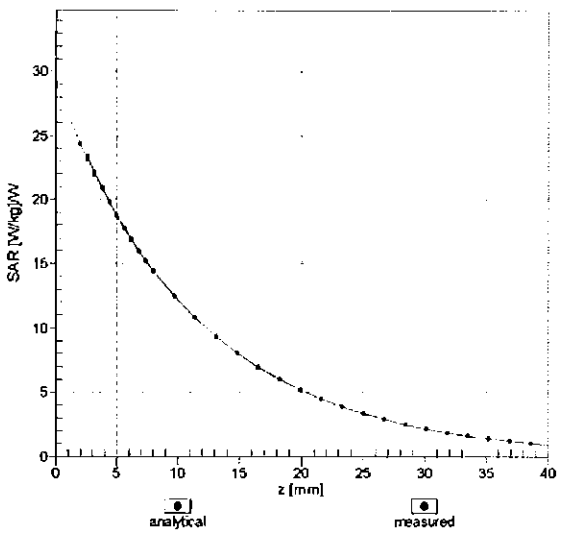
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

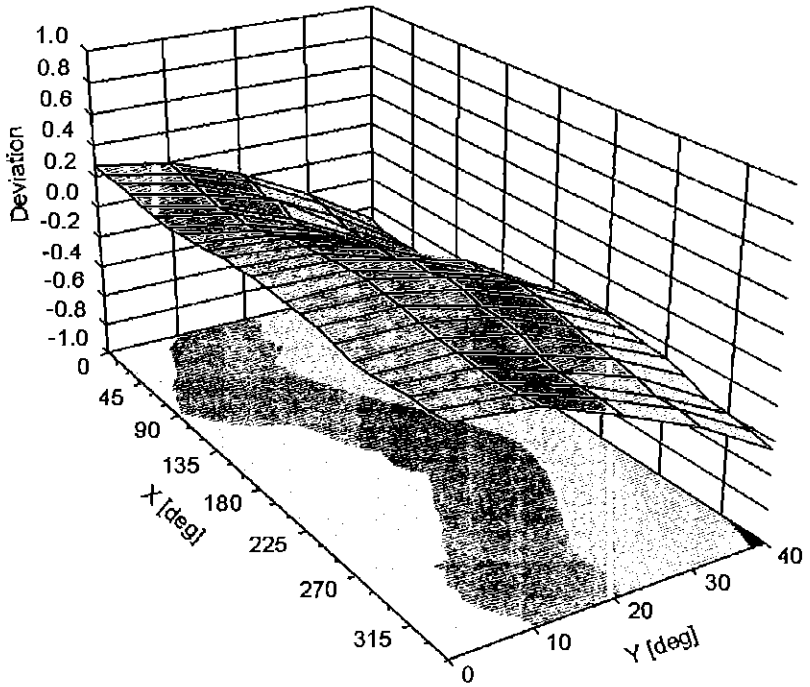


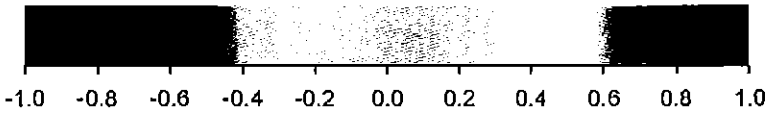
f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3287

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	84.9
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max Unc[E] (k=2)
0	CW	X	0.00	0.00	1.00	0.00	198.4	± 3.5 %
		Y	0.00	0.00	1.00		189.6	
		Z	0.00	0.00	1.00		184.8	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	9.57	81.27	19.66	10.00	25.0	± 9.6 %
		Y	9.48	81.17	20.59		25.0	
		Z	11.44	84.72	20.81		25.0	
10011-CAB	UMTS-FDD (WCDMA)	X	1.41	73.12	18.60	0.00	150.0	± 9.6 %
		Y	1.09	67.36	15.29		150.0	
		Z	1.04	67.24	15.12		150.0	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.39	66.79	17.15	0.41	150.0	± 9.6 %
		Y	1.33	64.98	15.75		150.0	
		Z	1.31	64.97	15.66		150.0	
10013-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	5.20	67.40	17.54	1.46	150.0	± 9.6 %
		Y	5.27	67.18	17.41		150.0	
		Z	5.09	67.33	17.40		150.0	
10021-DAB	GSM-FDD (TDMA, GMSK)	X	25.12	98.64	27.15	9.39	50.0	± 9.6 %
		Y	16.05	91.61	25.96		50.0	
		Z	54.58	112.47	31.02		50.0	
10023-DAB	GPRS-FDD (TDMA, GMSK, TN 0)	X	21.90	96.28	26.48	9.57	50.0	± 9.6 %
		Y	15.04	90.31	25.57		50.0	
		Z	40.95	107.64	29.77		50.0	
10024-DAB	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	118.44	30.60	6.56	60.0	± 9.6 %
		Y	56.85	112.42	30.28		60.0	
		Z	100.00	119.26	30.80		60.0	
10025-DAB	EDGE-FDD (TDMA, 8PSK, TN 0)	X	15.98	100.03	37.68	12.57	50.0	± 9.6 %
		Y	12.36	89.89	33.32		50.0	
		Z	14.92	100.13	38.33		50.0	
10026-DAB	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	19.89	102.72	35.15	9.56	60.0	± 9.6 %
		Y	15.11	94.49	32.22		60.0	
		Z	21.16	106.39	36.94		60.0	
10027-DAB	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	117.46	29.21	4.80	80.0	± 9.6 %
		Y	100.00	119.97	30.83		80.0	
		Z	100.00	118.35	29.47		80.0	
10028-DAB	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	117.97	28.63	3.55	100.0	± 9.6 %
		Y	100.00	119.91	29.91		100.0	
		Z	100.00	118.74	28.84		100.0	
10029-DAB	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	14.03	95.19	31.54	7.80	80.0	± 9.6 %
		Y	11.54	89.32	29.33		80.0	
		Z	13.09	95.17	31.96		80.0	
10030-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	117.04	29.36	5.30	70.0	± 9.6 %
		Y	100.00	119.78	31.12		70.0	
		Z	100.00	117.69	29.49		70.0	
10031-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	120.90	28.34	1.88	100.0	± 9.6 %
		Y	100.00	121.14	28.78		100.0	
		Z	100.00	119.84	27.78		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	128.75	30.50	1.17	100.0	± 9.6 %
		Y	100.00	125.19	29.33		100.0	
		Z	100.00	124.54	28.68		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	24.47	102.44	28.62	5.30	70.0	± 9.6 %
		Y	12.93	91.34	25.64		70.0	
		Z	20.22	99.06	27.27		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	15.75	99.73	26.60	1.88	100.0	± 9.6 %
		Y	6.06	84.29	21.90		100.0	
		Z	7.41	86.87	21.79		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	8.06	91.60	24.06	1.17	100.0	± 9.6 %
		Y	3.71	78.74	19.66		100.0	
		Z	4.06	80.00	19.16		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	31.59	106.91	29.95	5.30	70.0	± 9.6 %
		Y	14.71	93.73	26.48		70.0	
		Z	25.49	103.04	28.49		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	15.02	99.00	26.34	1.88	100.0	± 9.6 %
		Y	5.91	83.93	21.74		100.0	
		Z	6.95	86.01	21.48		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	8.64	92.97	24.58	1.17	100.0	± 9.6 %
		Y	3.82	79.37	19.97		100.0	
		Z	4.16	80.58	19.47		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	3.32	80.83	20.52	0.00	150.0	± 9.6 %
		Y	1.99	71.59	16.56		150.0	
		Z	1.78	71.38	15.53		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	93.96	116.51	30.17	7.78	50.0	± 9.6 %
		Y	28.36	100.31	27.04		50.0	
		Z	100.00	118.01	30.46		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.00	110.81	0.68	0.00	150.0	± 9.6 %
		Y	0.00	94.68	0.92		150.0	
		Z	0.01	95.27	0.89		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	12.13	84.40	24.33	13.80	25.0	± 9.6 %
		Y	11.03	81.88	24.36		25.0	
		Z	15.47	90.17	26.32		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	14.56	88.92	24.53	10.79	40.0	± 9.6 %
		Y	12.34	85.94	24.48		40.0	
		Z	20.46	95.78	26.73		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	13.90	88.80	25.15	9.03	50.0	± 9.6 %
		Y	11.60	84.93	24.34		50.0	
		Z	15.96	92.01	26.12		50.0	
10058-DAB	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	10.54	89.79	28.95	6.55	100.0	± 9.6 %
		Y	9.17	85.43	27.21		100.0	
		Z	9.28	88.15	28.66		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.62	69.54	18.42	0.61	110.0	± 9.6 %
		Y	1.52	67.09	16.78		110.0	
		Z	1.47	67.00	16.67		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	100.00	133.57	34.76	1.30	110.0	± 9.6 %
		Y	47.37	119.92	31.34		110.0	
		Z	100.00	131.70	33.88		110.0	

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	24.29	111.37	31.49	2.04	110.0	± 9.6 %
		Y	7.57	90.21	25.12		110.0	
		Z	8.96	94.42	26.47		110.0	
10062-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.94	67.26	16.92	0.49	100.0	± 9.6 %
		Y	4.99	66.94	16.70		100.0	
		Z	4.80	67.06	16.67		100.0	
10063-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.98	67.42	17.05	0.72	100.0	± 9.6 %
		Y	5.03	67.12	16.85		100.0	
		Z	4.84	67.22	16.80		100.0	
10064-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	5.33	67.75	17.30	0.86	100.0	± 9.6 %
		Y	5.40	67.50	17.13		100.0	
		Z	5.14	67.52	17.06		100.0	
10065-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	5.22	67.77	17.45	1.21	100.0	± 9.6 %
		Y	5.30	67.55	17.30		100.0	
		Z	5.05	67.55	17.23		100.0	
10066-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	5.28	67.89	17.67	1.46	100.0	± 9.6 %
		Y	5.37	67.69	17.54		100.0	
		Z	5.11	67.69	17.47		100.0	
10067-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.58	67.96	18.07	2.04	100.0	± 9.6 %
		Y	5.70	67.83	17.99		100.0	
		Z	5.44	67.94	17.97		100.0	
10068-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.73	68.36	18.44	2.55	100.0	± 9.6 %
		Y	5.86	68.26	18.38		100.0	
		Z	5.56	68.20	18.31		100.0	
10069-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.80	68.22	18.58	2.67	100.0	± 9.6 %
		Y	5.93	68.12	18.53		100.0	
		Z	5.64	68.21	18.51		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	5.34	67.61	17.91	1.99	100.0	± 9.6 %
		Y	5.43	67.44	17.80		100.0	
		Z	5.23	67.57	17.79		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	5.41	68.20	18.23	2.30	100.0	± 9.6 %
		Y	5.52	68.04	18.13		100.0	
		Z	5.28	68.10	18.11		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	5.54	68.52	18.63	2.83	100.0	± 9.6 %
		Y	5.67	68.41	18.56		100.0	
		Z	5.42	68.46	18.55		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	5.57	68.60	18.89	3.30	100.0	± 9.6 %
		Y	5.71	68.53	18.84		100.0	
		Z	5.46	68.55	18.80		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	5.74	69.13	19.40	3.82	90.0	± 9.6 %
		Y	5.91	69.12	19.39		90.0	
		Z	5.60	68.97	19.28		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	5.73	68.87	19.48	4.15	90.0	± 9.6 %
		Y	5.91	68.89	19.48		90.0	
		Z	5.64	68.84	19.44		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	5.76	68.96	19.58	4.30	90.0	± 9.6 %
		Y	5.95	68.98	19.59		90.0	
		Z	5.68	68.95	19.55		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	1.45	73.74	17.54	0.00	150.0	± 9.6 %
		Y	1.01	66.70	13.93		150.0	
		Z	0.86	65.95	12.65		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	2.22	64.23	9.03	4.77	80.0	± 9.6 %
		Y	2.60	65.39	10.25		80.0	
		Z	2.07	64.06	8.86		80.0	
10090-DAB	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	118.52	30.65	6.56	60.0	± 9.6 %
		Y	54.54	111.83	30.17		60.0	
		Z	100.00	119.33	30.85		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	2.07	69.87	17.29	0.00	150.0	± 9.6 %
		Y	1.87	67.25	15.70		150.0	
		Z	1.83	67.53	15.55		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	2.03	69.88	17.28	0.00	150.0	± 9.6 %
		Y	1.83	67.20	15.65		150.0	
		Z	1.80	67.49	15.52		150.0	
10099-DAB	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	19.79	102.55	35.10	9.56	60.0	± 9.6 %
		Y	15.06	94.38	32.19		60.0	
		Z	21.07	106.24	36.89		60.0	
10100-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	3.71	73.15	18.05	0.00	150.0	± 9.6 %
		Y	3.34	70.68	16.71		150.0	
		Z	3.15	70.31	16.60		150.0	
10101-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.53	68.94	16.73	0.00	150.0	± 9.6 %
		Y	3.44	67.88	16.03		150.0	
		Z	3.28	67.66	15.91		150.0	
10102-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.62	68.78	16.77	0.00	150.0	± 9.6 %
		Y	3.55	67.81	16.12		150.0	
		Z	3.38	67.61	16.00		150.0	
10103-CAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	9.03	78.84	21.45	3.98	65.0	± 9.6 %
		Y	8.52	77.08	20.81		65.0	
		Z	8.79	79.04	21.64		65.0	
10104-CAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	8.83	77.31	21.70	3.98	65.0	± 9.6 %
		Y	8.68	76.21	21.28		65.0	
		Z	8.45	77.10	21.68		65.0	
10105-CAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	8.12	75.63	21.27	3.98	65.0	± 9.6 %
		Y	7.58	73.53	20.37		65.0	
		Z	7.68	75.16	21.11		65.0	
10108-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	3.26	72.24	17.88	0.00	150.0	± 9.6 %
		Y	2.97	69.86	16.52		150.0	
		Z	2.76	69.54	16.43		150.0	
10109-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	3.21	68.83	16.74	0.00	150.0	± 9.6 %
		Y	3.12	67.65	15.97		150.0	
		Z	2.93	67.47	15.80		150.0	
10110-CAC	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.68	71.31	17.65	0.00	150.0	± 9.6 %
		Y	2.45	68.82	16.19		150.0	
		Z	2.25	68.65	16.05		150.0	
10111-CAC	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.94	69.70	17.25	0.00	150.0	± 9.6 %
		Y	2.81	68.04	16.25		150.0	
		Z	2.63	68.09	16.01		150.0	

10112-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	3.32	68.66	16.72	0.00	150.0	± 9.6 %
		Y	3.24	67.56	16.01		150.0	
		Z	3.06	67.45	15.85		150.0	
10113-CAC	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	3.09	69.65	17.28	0.00	150.0	± 9.6 %
		Y	2.97	68.11	16.35		150.0	
		Z	2.78	68.22	16.13		150.0	
10114-CAB	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.30	67.67	16.69	0.00	150.0	± 9.6 %
		Y	5.32	67.34	16.45		150.0	
		Z	5.18	67.41	16.46		150.0	
10115-CAB	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.68	67.95	16.83	0.00	150.0	± 9.6 %
		Y	5.74	67.75	16.66		150.0	
		Z	5.49	67.60	16.57		150.0	
10116-CAB	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.43	67.93	16.74	0.00	150.0	± 9.6 %
		Y	5.45	67.58	16.50		150.0	
		Z	5.29	67.63	16.50		150.0	
10117-CAB	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.31	67.69	16.73	0.00	150.0	± 9.6 %
		Y	5.33	67.35	16.48		150.0	
		Z	5.15	67.28	16.42		150.0	
10118-CAB	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.73	68.05	16.89	0.00	150.0	± 9.6 %
		Y	5.76	67.71	16.65		150.0	
		Z	5.58	67.82	16.69		150.0	
10119-CAB	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.40	67.88	16.73	0.00	150.0	± 9.6 %
		Y	5.42	67.54	16.49		150.0	
		Z	5.26	67.56	16.48		150.0	
10140-CAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.67	68.77	16.68	0.00	150.0	± 9.6 %
		Y	3.60	67.81	16.05		150.0	
		Z	3.42	67.62	15.92		150.0	
10141-CAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.79	68.75	16.79	0.00	150.0	± 9.6 %
		Y	3.72	67.84	16.19		150.0	
		Z	3.54	67.70	16.08		150.0	
10142-CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	2.48	71.58	17.67	0.00	150.0	± 9.6 %
		Y	2.22	68.66	16.03		150.0	
		Z	2.02	68.57	15.71		150.0	
10143-CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.90	70.86	17.43	0.00	150.0	± 9.6 %
		Y	2.68	68.61	16.20		150.0	
		Z	2.48	68.71	15.71		150.0	
10144-CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.65	68.53	15.87	0.00	150.0	± 9.6 %
		Y	2.53	66.90	14.94		150.0	
		Z	2.29	66.75	14.27		150.0	
10145-CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	2.00	71.65	16.48	0.00	150.0	± 9.6 %
		Y	1.64	67.49	14.42		150.0	
		Z	1.28	65.53	12.17		150.0	
10146-CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	6.65	82.42	19.81	0.00	150.0	± 9.6 %
		Y	3.51	73.00	16.51		150.0	
		Z	2.73	70.16	13.72		150.0	
10147-CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	11.62	90.60	22.70	0.00	150.0	± 9.6 %
		Y	4.34	76.22	18.03		150.0	
		Z	3.53	73.44	15.25		150.0	

10149-CAB	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	3.22	68.90	16.79	0.00	150.0	± 9.6 %
		Y	3.13	67.70	16.01		150.0	
		Z	2.94	67.52	15.84		150.0	
10150-CAB	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	3.33	68.71	16.76	0.00	150.0	± 9.6 %
		Y	3.25	67.61	16.05		150.0	
		Z	3.06	67.50	15.89		150.0	
10151-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	9.59	81.08	22.43	3.98	65.0	± 9.6 %
		Y	8.87	78.87	21.64		65.0	
		Z	9.33	81.38	22.62		65.0	
10152-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	8.50	77.58	21.63	3.98	65.0	± 9.6 %
		Y	8.30	76.31	21.16		65.0	
		Z	8.08	77.33	21.50		65.0	
10153-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	8.85	78.28	22.25	3.98	65.0	± 9.6 %
		Y	8.62	76.95	21.75		65.0	
		Z	8.48	78.15	22.17		65.0	
10154-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.77	71.95	18.01	0.00	150.0	± 9.6 %
		Y	2.51	69.32	16.50		150.0	
		Z	2.29	69.01	16.28		150.0	
10155-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.94	69.69	17.25	0.00	150.0	± 9.6 %
		Y	2.80	68.03	16.25		150.0	
		Z	2.63	68.10	16.02		150.0	
10156-CAC	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	2.40	72.31	17.91	0.00	150.0	± 9.6 %
		Y	2.09	68.89	16.05		150.0	
		Z	1.86	68.62	15.51		150.0	
10157-CAC	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	2.55	69.65	16.30	0.00	150.0	± 9.6 %
		Y	2.36	67.46	15.11		150.0	
		Z	2.12	67.25	14.30		150.0	
10158-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	3.10	69.70	17.32	0.00	150.0	± 9.6 %
		Y	2.97	68.15	16.39		150.0	
		Z	2.78	68.27	16.17		150.0	
10159-CAC	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	2.69	70.18	16.62	0.00	150.0	± 9.6 %
		Y	2.48	67.89	15.40		150.0	
		Z	2.22	67.66	14.56		150.0	
10160-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	3.10	70.43	17.35	0.00	150.0	± 9.6 %
		Y	2.94	68.69	16.29		150.0	
		Z	2.78	68.69	16.25		150.0	
10161-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	3.22	68.62	16.74	0.00	150.0	± 9.6 %
		Y	3.14	67.48	16.00		150.0	
		Z	2.96	67.42	15.82		150.0	
10162-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	3.32	68.61	16.76	0.00	150.0	± 9.6 %
		Y	3.24	67.49	16.04		150.0	
		Z	3.07	67.56	15.92		150.0	
10166-CAC	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	4.32	72.20	20.50	3.01	150.0	± 9.6 %
		Y	4.09	70.13	19.37		150.0	
		Z	3.89	71.03	19.86		150.0	
10167-CAC	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	6.13	77.20	21.71	3.01	150.0	± 9.6 %
		Y	5.31	73.40	20.02		150.0	
		Z	5.17	75.28	20.82		150.0	

10168-CAC	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	6.94	79.87	23.11	3.01	150.0	± 9.6 %
		Y	5.79	75.28	21.14		150.0	
		Z	5.82	77.80	22.20		150.0	
10169-CAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	4.47	76.31	22.20	3.01	150.0	± 9.6 %
		Y	3.93	72.42	20.26		150.0	
		Z	3.45	71.87	20.27		150.0	
10170-CAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	9.97	90.37	26.89	3.01	150.0	± 9.6 %
		Y	6.08	79.64	22.84		150.0	
		Z	5.69	81.07	23.66		150.0	
10171-AAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	6.58	81.51	22.72	3.01	150.0	± 9.6 %
		Y	4.82	74.69	19.94		150.0	
		Z	4.39	75.54	20.48		150.0	
10172-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	73.64	126.23	37.77	6.02	65.0	± 9.6 %
		Y	18.65	98.22	29.94		65.0	
		Z	50.70	122.38	37.42		65.0	
10173-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	94.74	123.96	35.21	6.02	65.0	± 9.6 %
		Y	22.61	98.04	28.47		65.0	
		Z	96.90	127.66	36.64		65.0	
10174-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	56.11	113.11	31.91	6.02	65.0	± 9.6 %
		Y	18.59	93.53	26.66		65.0	
		Z	65.46	118.77	33.84		65.0	
10175-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	4.37	75.74	21.85	3.01	150.0	± 9.6 %
		Y	3.86	71.99	19.97		150.0	
		Z	3.41	71.52	20.02		150.0	
10176-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	9.99	90.41	26.90	3.01	150.0	± 9.6 %
		Y	6.09	79.66	22.85		150.0	
		Z	5.70	81.10	23.67		150.0	
10177-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	4.43	76.02	22.00	3.01	150.0	± 9.6 %
		Y	3.90	72.21	20.10		150.0	
		Z	3.44	71.69	20.11		150.0	
10178-CAC	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	9.65	89.71	26.63	3.01	150.0	± 9.6 %
		Y	5.97	79.26	22.66		150.0	
		Z	5.62	80.80	23.53		150.0	
10179-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	7.97	85.43	24.54	3.01	150.0	± 9.6 %
		Y	5.36	76.88	21.19		150.0	
		Z	4.98	78.13	21.92		150.0	
10180-CAC	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	6.51	81.29	22.61	3.01	150.0	± 9.6 %
		Y	4.79	74.55	19.86		150.0	
		Z	4.38	75.44	20.42		150.0	
10181-CAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	4.42	75.99	21.99	3.01	150.0	± 9.6 %
		Y	3.90	72.19	20.09		150.0	
		Z	3.43	71.67	20.11		150.0	
10182-CAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	9.63	89.67	26.62	3.01	150.0	± 9.6 %
		Y	5.96	79.23	22.65		150.0	
		Z	5.61	80.77	23.51		150.0	
10183-AAA	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	6.50	81.25	22.60	3.01	150.0	± 9.6 %
		Y	4.78	74.53	19.85		150.0	
		Z	4.37	75.41	20.41		150.0	

10184-CAC	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	4.44	76.05	22.02	3.01	150.0	± 9.6 %
		Y	3.91	72.24	20.12		150.0	
		Z	3.45	71.72	20.13		150.0	
10185-CAC	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	9.70	89.80	26.67	3.01	150.0	± 9.6 %
		Y	5.99	79.32	22.68		150.0	
		Z	5.64	80.86	23.56		150.0	
10186-AAC	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	6.54	81.37	22.64	3.01	150.0	± 9.6 %
		Y	4.81	74.60	19.88		150.0	
		Z	4.39	75.50	20.45		150.0	
10187-CAC	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	4.45	76.10	22.07	3.01	150.0	± 9.6 %
		Y	3.92	72.26	20.15		150.0	
		Z	3.46	71.78	20.19		150.0	
10188-CAC	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	10.51	91.45	27.34	3.01	150.0	± 9.6 %
		Y	6.26	80.23	23.14		150.0	
		Z	5.89	81.76	24.00		150.0	
10189-AAC	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	6.85	82.27	23.07	3.01	150.0	± 9.6 %
		Y	4.94	75.14	20.19		150.0	
		Z	4.52	76.06	20.77		150.0	
10193-CAB	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.73	67.10	16.51	0.00	150.0	± 9.6 %
		Y	4.75	66.68	16.23		150.0	
		Z	4.57	66.79	16.16		150.0	
10194-CAB	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.94	67.48	16.62	0.00	150.0	± 9.6 %
		Y	4.96	67.08	16.34		150.0	
		Z	4.75	67.11	16.28		150.0	
10195-CAB	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.98	67.48	16.62	0.00	150.0	± 9.6 %
		Y	5.00	67.07	16.34		150.0	
		Z	4.79	67.14	16.30		150.0	
10196-CAB	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.76	67.21	16.55	0.00	150.0	± 9.6 %
		Y	4.78	66.80	16.27		150.0	
		Z	4.58	66.86	16.18		150.0	
10197-CAB	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.96	67.50	16.63	0.00	150.0	± 9.6 %
		Y	4.98	67.09	16.35		150.0	
		Z	4.76	67.14	16.30		150.0	
10198-CAB	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.99	67.50	16.63	0.00	150.0	± 9.6 %
		Y	5.01	67.09	16.35		150.0	
		Z	4.79	67.16	16.31		150.0	
10219-CAB	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.71	67.23	16.53	0.00	150.0	± 9.6 %
		Y	4.73	66.82	16.24		150.0	
		Z	4.53	66.87	16.14		150.0	
10220-CAB	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.96	67.50	16.63	0.00	150.0	± 9.6 %
		Y	4.98	67.10	16.35		150.0	
		Z	4.76	67.11	16.29		150.0	
10221-CAB	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.99	67.43	16.62	0.00	150.0	± 9.6 %
		Y	5.01	67.03	16.34		150.0	
		Z	4.80	67.09	16.30		150.0	
10222-CAB	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	5.29	67.72	16.73	0.00	150.0	± 9.6 %
		Y	5.31	67.38	16.49		150.0	
		Z	5.12	67.29	16.41		150.0	

10223-CAB	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.67	68.03	16.90	0.00	150.0	± 9.6 %
		Y	5.70	67.71	16.67		150.0	
		Z	5.43	67.50	16.54		150.0	
10224-CAB	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.35	67.84	16.72	0.00	150.0	± 9.6 %
		Y	5.37	67.51	16.48		150.0	
		Z	5.17	67.40	16.39		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	3.03	67.01	16.18	0.00	150.0	± 9.6 %
		Y	3.00	66.12	15.59		150.0	
		Z	2.84	66.23	15.31		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	100.00	125.13	35.58	6.02	65.0	± 9.6 %
		Y	23.60	98.91	28.82		65.0	
		Z	100.00	128.43	36.91		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	61.16	114.83	32.47	6.02	65.0	± 9.6 %
		Y	19.96	94.87	27.16		65.0	
		Z	73.77	120.96	34.46		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	72.18	126.53	38.01	6.02	65.0	± 9.6 %
		Y	21.44	101.40	31.05		65.0	
		Z	53.16	123.89	37.96		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	94.57	123.93	35.21	6.02	65.0	± 9.6 %
		Y	22.66	98.06	28.49		65.0	
		Z	96.87	127.65	36.65		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	56.39	113.28	31.99	6.02	65.0	± 9.6 %
		Y	19.26	94.16	26.88		65.0	
		Z	66.99	119.13	33.93		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	66.18	124.67	37.45	6.02	65.0	± 9.6 %
		Y	20.62	100.55	30.72		65.0	
		Z	48.89	122.07	37.41		65.0	
10232-CAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	94.69	123.96	35.21	6.02	65.0	± 9.6 %
		Y	22.64	98.05	28.48		65.0	
		Z	97.00	127.68	36.66		65.0	
10233-CAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	56.52	113.33	32.00	6.02	65.0	± 9.6 %
		Y	19.26	94.17	26.88		65.0	
		Z	67.07	119.16	33.94		65.0	
10234-CAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	60.26	122.59	36.81	6.02	65.0	± 9.6 %
		Y	19.81	99.63	30.34		65.0	
		Z	45.11	120.21	36.81		65.0	
10235-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	95.38	124.09	35.25	6.02	65.0	± 9.6 %
		Y	22.67	98.09	28.50		65.0	
		Z	97.77	127.84	36.70		65.0	
10236-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	57.18	113.50	32.04	6.02	65.0	± 9.6 %
		Y	19.38	94.26	26.90		65.0	
		Z	68.10	119.39	33.99		65.0	
10237-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	67.28	125.01	37.54	6.02	65.0	± 9.6 %
		Y	20.74	100.68	30.76		65.0	
		Z	49.59	122.38	37.49		65.0	
10238-CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	95.00	124.02	35.23	6.02	65.0	± 9.6 %
		Y	22.64	98.06	28.49		65.0	
		Z	97.19	127.73	36.66		65.0	

10239-CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	56.67	113.39	32.01	6.02	65.0	± 9.6 %
		Y	19.26	94.19	26.88		65.0	
		Z	67.13	119.19	33.94		65.0	
10240-CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	67.00	124.93	37.52	6.02	65.0	± 9.6 %
		Y	20.68	100.63	30.74		65.0	
		Z	49.37	122.30	37.47		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	14.43	89.77	28.56	6.98	65.0	± 9.6 %
		Y	12.31	85.00	26.80		65.0	
		Z	13.89	90.56	28.94		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	13.70	88.57	28.03	6.98	65.0	± 9.6 %
		Y	10.82	82.08	25.53		65.0	
		Z	13.16	89.30	28.37		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	10.55	84.90	27.56	6.98	65.0	± 9.6 %
		Y	8.88	79.49	25.25		65.0	
		Z	9.99	85.03	27.70		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	11.43	83.67	22.47	3.98	65.0	± 9.6 %
		Y	9.78	80.48	21.64		65.0	
		Z	9.76	81.22	20.90		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	11.21	83.09	22.22	3.98	65.0	± 9.6 %
		Y	9.71	80.13	21.47		65.0	
		Z	9.48	80.50	20.58		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	10.58	85.22	23.00	3.98	65.0	± 9.6 %
		Y	8.86	81.57	21.94		65.0	
		Z	9.16	83.05	21.67		65.0	
10247-CAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	8.25	78.94	21.22	3.98	65.0	± 9.6 %
		Y	7.85	77.32	20.79		65.0	
		Z	7.47	77.61	20.18		65.0	
10248-CAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	8.20	78.37	20.99	3.98	65.0	± 9.6 %
		Y	7.89	76.93	20.61		65.0	
		Z	7.41	77.03	19.93		65.0	
10249-CAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	11.20	86.28	23.89	3.98	65.0	± 9.6 %
		Y	9.29	82.26	22.62		65.0	
		Z	10.48	85.66	23.36		65.0	
10250-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	8.93	80.25	22.81	3.98	65.0	± 9.6 %
		Y	8.46	78.37	22.14		65.0	
		Z	8.46	79.88	22.48		65.0	
10251-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	8.39	77.98	21.64	3.98	65.0	± 9.6 %
		Y	8.12	76.54	21.14		65.0	
		Z	7.98	77.74	21.34		65.0	
10252-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	10.53	84.51	23.78	3.98	65.0	± 9.6 %
		Y	9.19	81.18	22.63		65.0	
		Z	10.24	84.82	23.86		65.0	
10253-CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	8.25	76.95	21.44	3.98	65.0	± 9.6 %
		Y	8.10	75.77	21.00		65.0	
		Z	7.89	76.78	21.28		65.0	
10254-CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	8.62	77.66	22.02	3.98	65.0	± 9.6 %
		Y	8.44	76.43	21.56		65.0	
		Z	8.28	77.57	21.89		65.0	

10255-CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	9.25	80.67	22.52	3.98	65.0	± 9.6 %
		Y	8.61	78.53	21.74		65.0	
		Z	9.00	80.97	22.67		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	10.45	81.80	21.06	3.98	65.0	± 9.6 %
		Y	9.25	79.43	20.63		65.0	
		Z	8.10	77.76	18.69		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	10.14	80.97	20.68	3.98	65.0	± 9.6 %
		Y	9.17	78.95	20.38		65.0	
		Z	7.78	76.81	18.23		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	9.51	83.16	21.76	3.98	65.0	± 9.6 %
		Y	8.34	80.46	21.12		65.0	
		Z	7.35	79.00	19.46		65.0	
10259-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	8.50	79.32	21.74	3.98	65.0	± 9.6 %
		Y	8.08	77.61	21.22		65.0	
		Z	7.86	78.44	21.00		65.0	
10260-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	8.50	79.04	21.65	3.98	65.0	± 9.6 %
		Y	8.14	77.44	21.18		65.0	
		Z	7.85	78.11	20.87		65.0	
10261-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	10.46	84.88	23.66	3.98	65.0	± 9.6 %
		Y	8.99	81.35	22.49		65.0	
		Z	9.90	84.54	23.31		65.0	
10262-CAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	8.92	80.22	22.77	3.98	65.0	± 9.6 %
		Y	8.45	78.35	22.11		65.0	
		Z	8.45	79.83	22.45		65.0	
10263-CAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	8.39	77.98	21.64	3.98	65.0	± 9.6 %
		Y	8.12	76.54	21.14		65.0	
		Z	7.97	77.72	21.33		65.0	
10264-CAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	10.46	84.37	23.71	3.98	65.0	± 9.6 %
		Y	9.15	81.08	22.57		65.0	
		Z	10.16	84.65	23.78		65.0	
10265-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	8.50	77.59	21.64	3.98	65.0	± 9.6 %
		Y	8.29	76.32	21.16		65.0	
		Z	8.08	77.33	21.51		65.0	
10266-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	8.85	78.27	22.25	3.98	65.0	± 9.6 %
		Y	8.62	76.95	21.75		65.0	
		Z	8.48	78.14	22.17		65.0	
10267-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	9.58	81.04	22.42	3.98	65.0	± 9.6 %
		Y	8.86	78.85	21.63		65.0	
		Z	9.31	81.34	22.60		65.0	
10268-CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	8.89	76.95	21.70	3.98	65.0	± 9.6 %
		Y	8.78	75.95	21.31		65.0	
		Z	8.54	76.83	21.69		65.0	
10269-CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	8.79	76.51	21.59	3.98	65.0	± 9.6 %
		Y	8.71	75.58	21.23		65.0	
		Z	8.47	76.42	21.58		65.0	
10270-CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	8.98	78.26	21.47	3.98	65.0	± 9.6 %
		Y	8.66	76.86	20.96		65.0	
		Z	8.70	78.39	21.61		65.0	

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.76	67.40	16.12	0.00	150.0	± 9.6 %
		Y	2.68	66.20	15.35		150.0	
		Z	2.61	66.55	15.21		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.97	71.33	17.64	0.00	150.0	± 9.6 %
		Y	1.71	67.84	15.61		150.0	
		Z	1.63	67.82	15.44		150.0	
10277-CAA	PHS (QPSK)	X	5.79	70.12	14.44	9.03	50.0	± 9.6 %
		Y	6.71	72.04	16.24		50.0	
		Z	5.20	69.01	13.39		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	10.14	81.72	21.64	9.03	50.0	± 9.6 %
		Y	10.00	81.13	22.16		50.0	
		Z	8.80	79.36	20.19		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	10.33	81.92	21.72	9.03	50.0	± 9.6 %
		Y	10.19	81.33	22.24		50.0	
		Z	8.92	79.53	20.27		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	2.41	75.76	18.30	0.00	150.0	± 9.6 %
		Y	1.70	69.18	15.23		150.0	
		Z	1.46	68.58	14.00		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	1.39	73.22	17.31	0.00	150.0	± 9.6 %
		Y	0.98	66.45	13.79		150.0	
		Z	0.85	65.74	12.53		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	2.43	83.14	21.70	0.00	150.0	± 9.6 %
		Y	1.15	69.63	15.75		150.0	
		Z	1.04	69.40	14.71		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	5.22	96.14	26.57	0.00	150.0	± 9.6 %
		Y	1.48	73.58	17.97		150.0	
		Z	1.47	74.43	17.37		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	10.48	83.75	24.32	9.03	50.0	± 9.6 %
		Y	9.84	81.54	23.85		50.0	
		Z	11.88	86.37	24.91		50.0	
10297-AAA	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	3.28	72.37	17.95	0.00	150.0	± 9.6 %
		Y	2.98	69.95	16.59		150.0	
		Z	2.77	69.63	16.49		150.0	
10298-AAB	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	2.26	72.62	17.48	0.00	150.0	± 9.6 %
		Y	1.88	68.51	15.39		150.0	
		Z	1.59	67.65	14.14		150.0	
10299-AAB	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	6.40	81.89	20.37	0.00	150.0	± 9.6 %
		Y	3.78	73.44	17.26		150.0	
		Z	3.62	73.66	16.18		150.0	
10300-AAB	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	3.72	72.73	16.07	0.00	150.0	± 9.6 %
		Y	2.96	68.88	14.55		150.0	
		Z	2.44	67.52	12.75		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	5.70	68.03	18.84	4.17	80.0	± 9.6 %
		Y	5.77	67.36	18.35		80.0	
		Z	5.64	68.37	18.74		80.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	6.21	68.72	19.60	4.96	80.0	± 9.6 %
		Y	6.41	68.65	19.47		80.0	
		Z	6.13	69.05	19.54		80.0	

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	6.07	68.83	19.70	4.96	80.0	± 9.6 %
		Y	6.30	68.82	19.58		80.0	
		Z	5.97	69.08	19.56		80.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	5.71	68.13	18.89	4.17	80.0	± 9.6 %
		Y	5.89	68.01	18.73		80.0	
		Z	5.61	68.35	18.73		80.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	6.90	74.81	23.11	6.02	50.0	± 9.6 %
		Y	9.48	82.28	26.60		50.0	
		Z	9.03	82.45	26.20		50.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	6.40	71.34	21.64	6.02	50.0	± 9.6 %
		Y	6.75	71.50	21.57		50.0	
		Z	6.43	72.04	21.56		50.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	6.49	72.10	21.82	6.02	50.0	± 9.6 %
		Y	6.85	72.21	21.70		50.0	
		Z	6.50	72.67	21.67		50.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	6.53	72.49	22.02	6.02	50.0	± 9.6 %
		Y	6.89	72.58	21.88		50.0	
		Z	6.59	73.18	21.92		50.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	6.52	71.66	21.81	6.02	50.0	± 9.6 %
		Y	6.86	71.77	21.70		50.0	
		Z	6.53	72.35	21.74		50.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	6.41	71.57	21.66	6.02	50.0	± 9.6 %
		Y	6.75	71.71	21.56		50.0	
		Z	6.45	72.29	21.59		50.0	
10311-AAA	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	3.66	71.55	17.51	0.00	150.0	± 9.6 %
		Y	3.33	69.32	16.27		150.0	
		Z	3.12	68.94	16.14		150.0	
10313-AAA	iDEN 1:3	X	8.19	79.62	19.16	6.99	70.0	± 9.6 %
		Y	7.35	77.72	18.90		70.0	
		Z	8.21	80.46	19.57		70.0	
10314-AAA	iDEN 1:6	X	11.35	86.83	24.06	10.00	30.0	± 9.6 %
		Y	8.72	81.68	22.69		30.0	
		Z	10.81	87.34	24.49		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.24	66.34	16.99	0.17	150.0	± 9.6 %
		Y	1.18	64.44	15.46		150.0	
		Z	1.17	64.45	15.36		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.83	67.25	16.68	0.17	150.0	± 9.6 %
		Y	4.86	66.88	16.43		150.0	
		Z	4.68	66.99	16.39		150.0	
10317-AAB	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.83	67.25	16.68	0.17	150.0	± 9.6 %
		Y	4.86	66.88	16.43		150.0	
		Z	4.68	66.99	16.39		150.0	
10400-AAC	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.96	67.54	16.61	0.00	150.0	± 9.6 %
		Y	4.98	67.13	16.32		150.0	
		Z	4.75	67.19	16.29		150.0	
10401-AAC	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.54	67.49	16.61	0.00	150.0	± 9.6 %
		Y	5.56	67.14	16.37		150.0	
		Z	5.45	67.43	16.49		150.0	

10402-AAC	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.87	68.11	16.75	0.00	150.0	± 9.6 %
		Y	5.89	67.80	16.54		150.0	
		Z	5.70	67.70	16.47		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	2.41	75.76	18.30	0.00	115.0	± 9.6 %
		Y	1.70	69.18	15.23		115.0	
		Z	1.46	68.58	14.00		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	2.41	75.76	18.30	0.00	115.0	± 9.6 %
		Y	1.70	69.18	15.23		115.0	
		Z	1.46	68.58	14.00		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	100.00	120.32	30.30	0.00	100.0	± 9.6 %
		Y	37.67	108.93	28.46		100.0	
		Z	100.00	119.28	29.39		100.0	
10410-AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	118.51	29.90	3.23	80.0	± 9.6 %
		Y	100.00	119.74	30.88		80.0	
		Z	100.00	120.99	30.71		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	1.06	64.54	16.02	0.00	150.0	± 9.6 %
		Y	1.03	62.90	14.57		150.0	
		Z	1.03	63.04	14.51		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.73	67.12	16.55	0.00	150.0	± 9.6 %
		Y	4.75	66.70	16.25		150.0	
		Z	4.58	66.83	16.23		150.0	
10417-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.73	67.12	16.55	0.00	150.0	± 9.6 %
		Y	4.75	66.70	16.25		150.0	
		Z	4.58	66.83	16.23		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	4.72	67.27	16.56	0.00	150.0	± 9.6 %
		Y	4.73	66.83	16.25		150.0	
		Z	4.56	66.98	16.24		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	X	4.75	67.23	16.56	0.00	150.0	± 9.6 %
		Y	4.76	66.80	16.26		150.0	
		Z	4.59	66.94	16.24		150.0	
10422-AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.87	67.22	16.56	0.00	150.0	± 9.6 %
		Y	4.89	66.82	16.28		150.0	
		Z	4.71	66.94	16.26		150.0	
10423-AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	5.09	67.62	16.71	0.00	150.0	± 9.6 %
		Y	5.12	67.23	16.44		150.0	
		Z	4.88	67.27	16.38		150.0	
10424-AAA	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	5.00	67.56	16.68	0.00	150.0	± 9.6 %
		Y	5.02	67.15	16.39		150.0	
		Z	4.80	67.22	16.35		150.0	
10425-AAA	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.55	67.83	16.78	0.00	150.0	± 9.6 %
		Y	5.59	67.55	16.57		150.0	
		Z	5.40	67.57	16.55		150.0	
10426-AAA	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.56	67.88	16.79	0.00	150.0	± 9.6 %
		Y	5.60	67.58	16.58		150.0	
		Z	5.41	67.59	16.56		150.0	

10427-AAA	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.59	67.91	16.80	0.00	150.0	± 9.6 %
		Y	5.63	67.61	16.59		150.0	
		Z	5.42	67.56	16.54		150.0	
10430-AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.54	71.07	18.70	0.00	150.0	± 9.6 %
		Y	4.46	69.99	18.11		150.0	
		Z	4.20	70.41	17.89		150.0	
10431-AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.50	67.77	16.69	0.00	150.0	± 9.6 %
		Y	4.51	67.23	16.34		150.0	
		Z	4.26	67.36	16.21		150.0	
10432-AAA	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.78	67.63	16.67	0.00	150.0	± 9.6 %
		Y	4.80	67.18	16.37		150.0	
		Z	4.56	67.25	16.29		150.0	
10433-AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	5.01	67.62	16.71	0.00	150.0	± 9.6 %
		Y	5.04	67.21	16.43		150.0	
		Z	4.81	67.25	16.37		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.66	71.93	18.79	0.00	150.0	± 9.6 %
		Y	4.53	70.61	18.11		150.0	
		Z	4.27	71.15	17.82		150.0	
10435-AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	118.35	29.82	3.23	80.0	± 9.6 %
		Y	100.00	119.61	30.82		80.0	
		Z	100.00	120.81	30.62		80.0	
10447-AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.85	68.02	16.38	0.00	150.0	± 9.6 %
		Y	3.83	67.22	15.92		150.0	
		Z	3.54	67.32	15.53		150.0	
10448-AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	X	4.31	67.56	16.56	0.00	150.0	± 9.6 %
		Y	4.32	66.99	16.19		150.0	
		Z	4.10	67.13	16.07		150.0	
10449-AAA	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	X	4.56	67.47	16.59	0.00	150.0	± 9.6 %
		Y	4.57	66.98	16.26		150.0	
		Z	4.37	67.07	16.19		150.0	
10450-AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.73	67.38	16.58	0.00	150.0	± 9.6 %
		Y	4.74	66.94	16.27		150.0	
		Z	4.56	67.01	16.22		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.81	68.42	16.23	0.00	150.0	± 9.6 %
		Y	3.77	67.50	15.73		150.0	
		Z	3.44	67.49	15.16		150.0	
10456-AAA	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.40	68.45	16.93	0.00	150.0	± 9.6 %
		Y	6.44	68.23	16.77		150.0	
		Z	6.27	68.12	16.71		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.89	65.77	16.30	0.00	150.0	± 9.6 %
		Y	3.90	65.36	15.99		150.0	
		Z	3.82	65.47	15.93		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.60	67.53	15.71	0.00	150.0	± 9.6 %
		Y	3.56	66.59	15.22		150.0	
		Z	3.27	66.88	14.62		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	4.70	65.53	16.21	0.00	150.0	± 9.6 %
		Y	4.63	64.60	15.71		150.0	
		Z	4.27	64.85	15.38		150.0	

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	1.28	75.29	20.20	0.00	150.0	± 9.6 %
		Y	0.92	67.71	15.91		150.0	
		Z	0.90	67.71	15.78		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	122.97	32.01	3.29	80.0	± 9.6 %
		Y	100.00	121.34	31.70		80.0	
		Z	100.00	125.58	32.88		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	108.03	24.84	3.23	80.0	± 9.6 %
		Y	100.00	109.86	26.18		80.0	
		Z	100.00	108.99	24.93		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	105.21	23.49	3.23	80.0	± 9.6 %
		Y	47.92	99.26	23.13		80.0	
		Z	100.00	105.71	23.36		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	121.12	31.00	3.23	80.0	± 9.6 %
		Y	100.00	119.76	30.82		80.0	
		Z	100.00	123.61	31.80		80.0	
10465-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	107.54	24.59	3.23	80.0	± 9.6 %
		Y	92.10	108.50	25.75		80.0	
		Z	100.00	108.47	24.68		80.0	
10466-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	104.76	23.28	3.23	80.0	± 9.6 %
		Y	27.79	92.79	21.40		80.0	
		Z	53.71	98.96	21.73		80.0	
10467-AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	121.32	31.10	3.23	80.0	± 9.6 %
		Y	100.00	119.93	30.90		80.0	
		Z	100.00	123.83	31.91		80.0	
10468-AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	107.68	24.66	3.23	80.0	± 9.6 %
		Y	100.00	109.58	26.02		80.0	
		Z	100.00	108.64	24.75		80.0	
10469-AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	104.76	23.27	3.23	80.0	± 9.6 %
		Y	28.45	93.06	21.47		80.0	
		Z	57.15	99.60	21.88		80.0	
10470-AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	121.35	31.10	3.23	80.0	± 9.6 %
		Y	100.00	119.95	30.90		80.0	
		Z	100.00	123.86	31.91		80.0	
10471-AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	107.63	24.63	3.23	80.0	± 9.6 %
		Y	100.00	109.54	26.00		80.0	
		Z	100.00	108.59	24.73		80.0	
10472-AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	104.72	23.24	3.23	80.0	± 9.6 %
		Y	28.52	93.08	21.46		80.0	
		Z	57.07	99.54	21.85		80.0	
10473-AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	121.32	31.09	3.23	80.0	± 9.6 %
		Y	100.00	119.92	30.89		80.0	
		Z	100.00	123.84	31.90		80.0	
10474-AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	107.64	24.63	3.23	80.0	± 9.6 %
		Y	100.00	109.55	26.00		80.0	
		Z	100.00	108.60	24.73		80.0	
10475-AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	104.73	23.25	3.23	80.0	± 9.6 %
		Y	28.13	92.93	21.42		80.0	
		Z	55.36	99.25	21.78		80.0	

10477-AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	107.49	24.56	3.23	80.0	± 9.6 %
		Y	96.57	109.01	25.85		80.0	
		Z	100.00	108.42	24.64		80.0	
10478-AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	104.68	23.23	3.23	80.0	± 9.6 %
		Y	27.68	92.72	21.36		80.0	
		Z	53.23	98.81	21.67		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	26.63	104.01	29.13	3.23	80.0	± 9.6 %
		Y	9.63	86.48	23.96		80.0	
		Z	24.30	102.59	28.22		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	38.31	102.90	27.02	3.23	80.0	± 9.6 %
		Y	11.50	85.06	22.20		80.0	
		Z	29.11	98.49	25.10		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	30.40	98.59	25.52	3.23	80.0	± 9.6 %
		Y	10.74	83.47	21.41		80.0	
		Z	20.94	92.98	23.18		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	8.51	84.82	22.25	2.23	80.0	± 9.6 %
		Y	5.60	77.58	19.80		80.0	
		Z	5.41	78.09	19.19		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	14.01	88.92	23.41	2.23	80.0	± 9.6 %
		Y	8.14	80.18	20.73		80.0	
		Z	9.32	82.50	20.44		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	12.47	87.00	22.82	2.23	80.0	± 9.6 %
		Y	7.81	79.33	20.43		80.0	
		Z	8.26	80.64	19.81		80.0	
10485-AAA	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	8.06	84.25	22.66	2.23	80.0	± 9.6 %
		Y	5.75	77.87	20.37		80.0	
		Z	5.68	79.10	20.42		80.0	
10486-AAA	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.66	75.87	19.43	2.23	80.0	± 9.6 %
		Y	4.94	72.86	18.29		80.0	
		Z	4.62	73.05	17.69		80.0	
10487-AAA	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.56	75.25	19.19	2.23	80.0	± 9.6 %
		Y	4.94	72.51	18.16		80.0	
		Z	4.56	72.51	17.46		80.0	
10488-AAA	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.10	80.82	21.84	2.23	80.0	± 9.6 %
		Y	5.79	76.47	20.13		80.0	
		Z	5.49	77.19	20.36		80.0	
10489-AAA	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.34	73.87	19.44	2.23	80.0	± 9.6 %
		Y	5.00	71.87	18.57		80.0	
		Z	4.68	72.17	18.47		80.0	
10490-AAA	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.35	73.36	19.26	2.23	80.0	± 9.6 %
		Y	5.06	71.53	18.46		80.0	
		Z	4.74	71.87	18.36		80.0	
10491-AAA	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.36	77.12	20.56	2.23	80.0	± 9.6 %
		Y	5.66	74.28	19.36		80.0	
		Z	5.31	74.67	19.54		80.0	
10492-AAA	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.41	72.24	18.98	2.23	80.0	± 9.6 %
		Y	5.23	70.84	18.33		80.0	
		Z	4.89	71.01	18.29		80.0	

10493-AAA	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.44	71.94	18.88	2.23	80.0	± 9.6 %
		Y	5.28	70.63	18.27		80.0	
		Z	4.94	70.81	18.22		80.0	
10494-AAA	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.43	79.70	21.31	2.23	80.0	± 9.6 %
		Y	6.30	76.13	19.88		80.0	
		Z	5.88	76.40	20.05		80.0	
10495-AAA	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.56	72.97	19.25	2.23	80.0	± 9.6 %
		Y	5.33	71.45	18.55		80.0	
		Z	4.97	71.48	18.50		80.0	
10496-AAA	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.54	72.39	19.06	2.23	80.0	± 9.6 %
		Y	5.37	71.03	18.42		80.0	
		Z	5.01	71.08	18.38		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.31	82.38	20.82	2.23	80.0	± 9.6 %
		Y	4.87	75.75	18.64		80.0	
		Z	4.03	73.68	16.68		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.73	73.29	16.69	2.23	80.0	± 9.6 %
		Y	4.12	70.77	15.97		80.0	
		Z	2.73	66.24	12.60		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.59	72.54	16.27	2.23	80.0	± 9.6 %
		Y	4.10	70.38	15.70		80.0	
		Z	2.62	65.47	12.11		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.19	81.83	22.01	2.23	80.0	± 9.6 %
		Y	5.57	76.69	20.07		80.0	
		Z	5.44	77.85	20.24		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.46	74.81	19.33	2.23	80.0	± 9.6 %
		Y	4.94	72.30	18.33		80.0	
		Z	4.65	72.67	17.97		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.46	74.43	19.15	2.23	80.0	± 9.6 %
		Y	4.98	72.05	18.20		80.0	
		Z	4.68	72.41	17.81		80.0	
10503-AAA	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.99	80.56	21.73	2.23	80.0	± 9.6 %
		Y	5.72	76.28	20.04		80.0	
		Z	5.42	76.98	20.27		80.0	
10504-AAA	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.31	73.78	19.39	2.23	80.0	± 9.6 %
		Y	4.98	71.79	18.52		80.0	
		Z	4.66	72.08	18.42		80.0	
10505-AAA	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.32	73.26	19.21	2.23	80.0	± 9.6 %
		Y	5.03	71.44	18.41		80.0	
		Z	4.72	71.78	18.31		80.0	
10506-AAA	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.35	79.52	21.23	2.23	80.0	± 9.6 %
		Y	6.24	75.99	19.82		80.0	
		Z	5.83	76.25	19.98		80.0	
10507-AAA	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.53	72.90	19.22	2.23	80.0	± 9.6 %
		Y	5.31	71.39	18.51		80.0	
		Z	4.95	71.42	18.47		80.0	

10508-AAA	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.52	72.31	19.02	2.23	80.0	± 9.6 %
		Y	5.35	70.96	18.38		80.0	
		Z	4.99	71.02	18.34		80.0	
10509-AAA	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.86	76.40	20.08	2.23	80.0	± 9.6 %
		Y	6.23	74.05	19.09		80.0	
		Z	5.83	74.13	19.18		80.0	
10510-AAA	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.89	72.04	18.91	2.23	80.0	± 9.6 %
		Y	5.75	70.91	18.36		80.0	
		Z	5.36	70.80	18.32		80.0	
10511-AAA	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.86	71.58	18.77	2.23	80.0	± 9.6 %
		Y	5.75	70.55	18.27		80.0	
		Z	5.39	70.48	18.23		80.0	
10512-AAA	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.85	79.24	20.97	2.23	80.0	± 9.6 %
		Y	6.75	76.04	19.69		80.0	
		Z	6.30	76.05	19.77		80.0	
10513-AAA	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.88	72.72	19.16	2.23	80.0	± 9.6 %
		Y	5.70	71.43	18.55		80.0	
		Z	5.29	71.21	18.47		80.0	
10514-AAA	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.77	72.00	18.94	2.23	80.0	± 9.6 %
		Y	5.64	70.86	18.38		80.0	
		Z	5.26	70.69	18.32		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	1.03	64.88	16.19	0.00	150.0	± 9.6 %
		Y	0.99	63.07	14.62		150.0	
		Z	0.99	63.20	14.56		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	1.64	91.04	26.85	0.00	150.0	± 9.6 %
		Y	0.59	69.22	16.60		150.0	
		Z	0.59	69.23	16.57		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.96	68.68	17.89	0.00	150.0	± 9.6 %
		Y	0.84	64.94	15.18		150.0	
		Z	0.84	64.94	15.09		150.0	
10518-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.73	67.22	16.54	0.00	150.0	± 9.6 %
		Y	4.75	66.79	16.24		150.0	
		Z	4.57	66.91	16.20		150.0	
10519-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.96	67.51	16.67	0.00	150.0	± 9.6 %
		Y	4.99	67.12	16.39		150.0	
		Z	4.76	67.15	16.33		150.0	
10520-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.82	67.52	16.62	0.00	150.0	± 9.6 %
		Y	4.84	67.09	16.32		150.0	
		Z	4.61	67.11	16.25		150.0	
10521-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.75	67.54	16.61	0.00	150.0	± 9.6 %
		Y	4.77	67.10	16.31		150.0	
		Z	4.54	67.10	16.23		150.0	
10522-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.79	67.47	16.62	0.00	150.0	± 9.6 %
		Y	4.80	67.00	16.30		150.0	
		Z	4.60	67.19	16.31		150.0	

10523-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.66	67.41	16.50	0.00	150.0	± 9.6 %
		Y	4.67	66.95	16.18		150.0	
		Z	4.48	67.04	16.16		150.0	
10524-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.74	67.44	16.62	0.00	150.0	± 9.6 %
		Y	4.76	66.99	16.31		150.0	
		Z	4.54	67.10	16.28		150.0	
10525-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.69	66.48	16.21	0.00	150.0	± 9.6 %
		Y	4.70	66.02	15.89		150.0	
		Z	4.53	66.15	15.87		150.0	
10526-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.91	66.90	16.35	0.00	150.0	± 9.6 %
		Y	4.91	66.43	16.04		150.0	
		Z	4.70	66.52	16.01		150.0	
10527-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.82	66.89	16.32	0.00	150.0	± 9.6 %
		Y	4.83	66.42	16.00		150.0	
		Z	4.62	66.47	15.95		150.0	
10528-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.84	66.91	16.35	0.00	150.0	± 9.6 %
		Y	4.85	66.44	16.03		150.0	
		Z	4.63	66.49	15.99		150.0	
10529-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.84	66.91	16.35	0.00	150.0	± 9.6 %
		Y	4.85	66.44	16.03		150.0	
		Z	4.63	66.49	15.99		150.0	
10531-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.86	67.08	16.39	0.00	150.0	± 9.6 %
		Y	4.87	66.60	16.06		150.0	
		Z	4.63	66.60	16.00		150.0	
10532-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.71	66.97	16.35	0.00	150.0	± 9.6 %
		Y	4.72	66.49	16.02		150.0	
		Z	4.49	66.45	15.93		150.0	
10533-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.86	66.93	16.33	0.00	150.0	± 9.6 %
		Y	4.87	66.45	16.01		150.0	
		Z	4.64	66.54	15.97		150.0	
10534-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.34	67.03	16.36	0.00	150.0	± 9.6 %
		Y	5.36	66.66	16.11		150.0	
		Z	5.17	66.62	16.06		150.0	
10535-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.42	67.17	16.42	0.00	150.0	± 9.6 %
		Y	5.43	66.80	16.16		150.0	
		Z	5.24	66.80	16.14		150.0	
10536-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	5.29	67.18	16.41	0.00	150.0	± 9.6 %
		Y	5.30	66.78	16.13		150.0	
		Z	5.11	66.74	16.09		150.0	
10537-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	5.35	67.14	16.39	0.00	150.0	± 9.6 %
		Y	5.36	66.75	16.12		150.0	
		Z	5.16	66.71	16.08		150.0	
10538-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.47	67.20	16.46	0.00	150.0	± 9.6 %
		Y	5.49	66.85	16.21		150.0	
		Z	5.26	66.74	16.13		150.0	
10540-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.36	67.15	16.45	0.00	150.0	± 9.6 %
		Y	5.38	66.77	16.18		150.0	
		Z	5.19	66.76	16.16		150.0	

10541-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	5.35	67.08	16.42	0.00	150.0	± 9.6 %
		Y	5.38	66.75	16.17		150.0	
		Z	5.16	66.62	16.08		150.0	
10542-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.49	67.08	16.42	0.00	150.0	± 9.6 %
		Y	5.51	66.73	16.18		150.0	
		Z	5.31	66.69	16.13		150.0	
10543-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.58	67.09	16.44	0.00	150.0	± 9.6 %
		Y	5.61	66.77	16.21		150.0	
		Z	5.39	66.74	16.17		150.0	
10544-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.61	67.12	16.33	0.00	150.0	± 9.6 %
		Y	5.62	66.77	16.09		150.0	
		Z	5.48	66.74	16.05		150.0	
10545-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.83	67.51	16.46	0.00	150.0	± 9.6 %
		Y	5.84	67.15	16.22		150.0	
		Z	5.68	67.16	16.22		150.0	
10546-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.72	67.42	16.44	0.00	150.0	± 9.6 %
		Y	5.73	67.08	16.20		150.0	
		Z	5.55	66.95	16.13		150.0	
10547-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.81	67.48	16.46	0.00	150.0	± 9.6 %
		Y	5.83	67.17	16.24		150.0	
		Z	5.62	66.99	16.14		150.0	
10548-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	6.10	68.50	16.94	0.00	150.0	± 9.6 %
		Y	6.15	68.24	16.74		150.0	
		Z	5.89	67.98	16.61		150.0	
10550-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.74	67.36	16.42	0.00	150.0	± 9.6 %
		Y	5.75	67.01	16.18		150.0	
		Z	5.57	66.96	16.14		150.0	
10551-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.76	67.47	16.43	0.00	150.0	± 9.6 %
		Y	5.78	67.14	16.20		150.0	
		Z	5.58	67.00	16.12		150.0	
10552-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.66	67.23	16.33	0.00	150.0	± 9.6 %
		Y	5.67	66.89	16.10		150.0	
		Z	5.49	66.80	16.03		150.0	
10553-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.75	67.26	16.37	0.00	150.0	± 9.6 %
		Y	5.76	66.93	16.14		150.0	
		Z	5.58	66.84	16.08		150.0	
10554-AAA	IEEE 1602.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	6.01	67.49	16.42	0.00	150.0	± 9.6 %
		Y	6.02	67.17	16.20		150.0	
		Z	5.89	67.10	16.15		150.0	
10555-AAA	IEEE 1602.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	6.17	67.85	16.56	0.00	150.0	± 9.6 %
		Y	6.20	67.56	16.36		150.0	
		Z	6.02	67.41	16.28		150.0	
10556-AAA	IEEE 1602.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	6.18	67.83	16.55	0.00	150.0	± 9.6 %
		Y	6.19	67.51	16.33		150.0	
		Z	6.04	67.46	16.30		150.0	
10557-AAA	IEEE 1602.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	6.17	67.82	16.57	0.00	150.0	± 9.6 %
		Y	6.19	67.52	16.36		150.0	
		Z	6.00	67.36	16.27		150.0	

10558-AAA	IEEE 1602.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	6.23	68.01	16.68	0.00	150.0	± 9.6 %
		Y	6.25	67.72	16.47		150.0	
		Z	6.05	67.53	16.37		150.0	
10560-AAA	IEEE 1602.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	6.22	67.85	16.63	0.00	150.0	± 9.6 %
		Y	6.25	67.56	16.43		150.0	
		Z	6.05	67.37	16.33		150.0	
10561-AAA	IEEE 1602.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	6.13	67.79	16.64	0.00	150.0	± 9.6 %
		Y	6.15	67.49	16.43		150.0	
		Z	5.97	67.35	16.35		150.0	
10562-AAA	IEEE 1602.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	6.29	68.28	16.89	0.00	150.0	± 9.6 %
		Y	6.33	68.01	16.70		150.0	
		Z	6.10	67.74	16.55		150.0	
10563-AAA	IEEE 1602.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.57	68.63	17.00	0.00	150.0	± 9.6 %
		Y	6.57	68.27	16.77		150.0	
		Z	6.35	68.10	16.68		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	5.07	67.31	16.69	0.46	150.0	± 9.6 %
		Y	5.10	66.95	16.44		150.0	
		Z	4.91	67.04	16.40		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	5.34	67.80	17.01	0.46	150.0	± 9.6 %
		Y	5.38	67.46	16.78		150.0	
		Z	5.14	67.47	16.71		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	5.17	67.69	16.85	0.46	150.0	± 9.6 %
		Y	5.21	67.33	16.61		150.0	
		Z	4.97	67.33	16.54		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	5.20	68.09	17.20	0.46	150.0	± 9.6 %
		Y	5.23	67.71	16.94		150.0	
		Z	5.00	67.68	16.86		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	5.08	67.38	16.59	0.46	150.0	± 9.6 %
		Y	5.11	67.01	16.33		150.0	
		Z	4.90	67.16	16.34		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	5.14	68.11	17.22	0.46	150.0	± 9.6 %
		Y	5.16	67.71	16.95		150.0	
		Z	4.96	67.77	16.91		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	5.18	67.92	17.15	0.46	150.0	± 9.6 %
		Y	5.21	67.52	16.88		150.0	
		Z	4.99	67.63	16.86		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.45	67.97	17.69	0.46	130.0	± 9.6 %
		Y	1.38	65.84	16.15		130.0	
		Z	1.34	65.80	16.05		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.49	68.86	18.18	0.46	130.0	± 9.6 %
		Y	1.40	66.47	16.51		130.0	
		Z	1.36	66.39	16.40		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	100.00	149.30	40.22	0.46	130.0	± 9.6 %
		Y	3.11	88.03	23.54		130.0	
		Z	3.23	89.37	24.00		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	2.21	80.01	23.13	0.46	130.0	± 9.6 %
		Y	1.65	72.75	19.44		130.0	
		Z	1.56	72.33	19.21		130.0	

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.88	67.15	16.77	0.46	130.0	± 9.6 %
		Y	4.92	66.81	16.54		130.0	
		Z	4.73	66.93	16.51		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.91	67.32	16.84	0.46	130.0	± 9.6 %
		Y	4.94	66.97	16.61		130.0	
		Z	4.75	67.08	16.56		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	5.15	67.65	17.01	0.46	130.0	± 9.6 %
		Y	5.20	67.33	16.79		130.0	
		Z	4.96	67.36	16.73		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	5.05	67.86	17.13	0.46	130.0	± 9.6 %
		Y	5.09	67.50	16.89		130.0	
		Z	4.85	67.51	16.82		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.82	67.24	16.51	0.46	130.0	± 9.6 %
		Y	4.87	66.90	16.27		130.0	
		Z	4.63	66.89	16.19		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.86	67.17	16.48	0.46	130.0	± 9.6 %
		Y	4.91	66.83	16.25		130.0	
		Z	4.68	66.92	16.22		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.96	67.97	17.11	0.46	130.0	± 9.6 %
		Y	5.00	67.61	16.86		130.0	
		Z	4.76	67.57	16.77		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.78	66.97	16.29	0.46	130.0	± 9.6 %
		Y	4.83	66.64	16.06		130.0	
		Z	4.58	66.67	16.00		130.0	
10583-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.88	67.15	16.77	0.46	130.0	± 9.6 %
		Y	4.92	66.81	16.54		130.0	
		Z	4.73	66.93	16.51		130.0	
10584-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.91	67.32	16.84	0.46	130.0	± 9.6 %
		Y	4.94	66.97	16.61		130.0	
		Z	4.75	67.08	16.56		130.0	
10585-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	5.15	67.65	17.01	0.46	130.0	± 9.6 %
		Y	5.20	67.33	16.79		130.0	
		Z	4.96	67.36	16.73		130.0	
10586-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	5.05	67.86	17.13	0.46	130.0	± 9.6 %
		Y	5.09	67.50	16.89		130.0	
		Z	4.85	67.51	16.82		130.0	
10587-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.82	67.24	16.51	0.46	130.0	± 9.6 %
		Y	4.87	66.90	16.27		130.0	
		Z	4.63	66.89	16.19		130.0	
10588-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.86	67.17	16.48	0.46	130.0	± 9.6 %
		Y	4.91	66.83	16.25		130.0	
		Z	4.68	66.92	16.22		130.0	
10589-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.96	67.97	17.11	0.46	130.0	± 9.6 %
		Y	5.00	67.61	16.86		130.0	
		Z	4.76	67.57	16.77		130.0	
10590-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.78	66.97	16.29	0.46	130.0	± 9.6 %
		Y	4.83	66.64	16.06		130.0	
		Z	4.58	66.67	16.00		130.0	

10591-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	5.03	67.20	16.86	0.46	130.0	± 9.6 %
		Y	5.07	66.88	16.64		130.0	
		Z	4.88	66.97	16.60		130.0	
10592-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	5.21	67.55	16.98	0.46	130.0	± 9.6 %
		Y	5.26	67.23	16.76		130.0	
		Z	5.03	67.30	16.73		130.0	
10593-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	5.14	67.52	16.89	0.46	130.0	± 9.6 %
		Y	5.19	67.20	16.68		130.0	
		Z	4.96	67.23	16.62		130.0	
10594-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	5.19	67.66	17.03	0.46	130.0	± 9.6 %
		Y	5.24	67.33	16.81		130.0	
		Z	5.01	67.38	16.76		130.0	
10595-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	5.17	67.65	16.95	0.46	130.0	± 9.6 %
		Y	5.23	67.33	16.73		130.0	
		Z	4.98	67.35	16.67		130.0	
10596-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	5.11	67.64	16.94	0.46	130.0	± 9.6 %
		Y	5.16	67.30	16.71		130.0	
		Z	4.92	67.35	16.67		130.0	
10597-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	5.06	67.59	16.86	0.46	130.0	± 9.6 %
		Y	5.11	67.26	16.64		130.0	
		Z	4.87	67.26	16.56		130.0	
10598-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	5.05	67.87	17.14	0.46	130.0	± 9.6 %
		Y	5.09	67.53	16.91		130.0	
		Z	4.85	67.47	16.80		130.0	
10599-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.68	67.76	17.01	0.46	130.0	± 9.6 %
		Y	5.74	67.54	16.84		130.0	
		Z	5.54	67.51	16.80		130.0	
10600-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.91	68.42	17.31	0.46	130.0	± 9.6 %
		Y	6.00	68.29	17.19		130.0	
		Z	5.69	67.96	17.01		130.0	
10601-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.75	68.03	17.13	0.46	130.0	± 9.6 %
		Y	5.81	67.81	16.96		130.0	
		Z	5.57	67.70	16.89		130.0	
10602-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.85	68.05	17.05	0.46	130.0	± 9.6 %
		Y	5.93	67.91	16.93		130.0	
		Z	5.67	67.73	16.83		130.0	
10603-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.97	68.46	17.38	0.46	130.0	± 9.6 %
		Y	6.05	68.29	17.25		130.0	
		Z	5.74	68.01	17.09		130.0	
10604-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.70	67.75	17.03	0.46	130.0	± 9.6 %
		Y	5.76	67.53	16.86		130.0	
		Z	5.55	67.48	16.81		130.0	
10605-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.80	68.03	17.16	0.46	130.0	± 9.6 %
		Y	5.86	67.81	17.00		130.0	
		Z	5.67	67.84	17.00		130.0	
10606-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.58	67.53	16.79	0.46	130.0	± 9.6 %
		Y	5.62	67.26	16.60		130.0	
		Z	5.41	67.19	16.54		130.0	

10607-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.86	66.52	16.48	0.46	130.0	± 9.6 %
		Y	4.89	66.14	16.23		130.0	
		Z	4.71	66.27	16.21		130.0	
10608-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	5.09	66.96	16.64	0.46	130.0	± 9.6 %
		Y	5.12	66.58	16.39		130.0	
		Z	4.90	66.67	16.37		130.0	
10609-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.98	66.85	16.52	0.46	130.0	± 9.6 %
		Y	5.01	66.47	16.26		130.0	
		Z	4.79	66.53	16.22		130.0	
10610-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	5.03	67.01	16.67	0.46	130.0	± 9.6 %
		Y	5.06	66.63	16.42		130.0	
		Z	4.84	66.68	16.37		130.0	
10611-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.96	66.86	16.54	0.46	130.0	± 9.6 %
		Y	4.99	66.50	16.29		130.0	
		Z	4.76	66.50	16.23		130.0	
10612-AAA	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.97	67.00	16.58	0.46	130.0	± 9.6 %
		Y	5.01	66.61	16.31		130.0	
		Z	4.77	66.66	16.28		130.0	
10613-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.99	66.94	16.49	0.46	130.0	± 9.6 %
		Y	5.03	66.55	16.23		130.0	
		Z	4.77	66.56	16.17		130.0	
10614-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.92	67.15	16.73	0.46	130.0	± 9.6 %
		Y	4.95	66.76	16.47		130.0	
		Z	4.71	66.71	16.38		130.0	
10615-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.95	66.65	16.31	0.46	130.0	± 9.6 %
		Y	4.99	66.28	16.06		130.0	
		Z	4.76	66.36	16.03		130.0	
10616-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.51	67.07	16.65	0.46	130.0	± 9.6 %
		Y	5.55	66.78	16.45		130.0	
		Z	5.35	66.74	16.40		130.0	
10617-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.58	67.18	16.67	0.46	130.0	± 9.6 %
		Y	5.62	66.89	16.46		130.0	
		Z	5.43	66.92	16.46		130.0	
10618-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.47	67.27	16.74	0.46	130.0	± 9.6 %
		Y	5.50	66.95	16.52		130.0	
		Z	5.31	66.92	16.47		130.0	
10619-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.49	67.07	16.57	0.46	130.0	± 9.6 %
		Y	5.52	66.76	16.36		130.0	
		Z	5.33	66.76	16.33		130.0	
10620-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.62	67.19	16.68	0.46	130.0	± 9.6 %
		Y	5.67	66.93	16.49		130.0	
		Z	5.42	66.79	16.40		130.0	
10621-AAA	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.59	67.25	16.82	0.46	130.0	± 9.6 %
		Y	5.63	66.98	16.62		130.0	
		Z	5.41	66.88	16.56		130.0	
10622-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.58	67.35	16.86	0.46	130.0	± 9.6 %
		Y	5.62	67.06	16.66		130.0	
		Z	5.43	67.06	16.64		130.0	

10623-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.48	66.99	16.57	0.46	130.0	± 9.6 %
		Y	5.54	66.75	16.40		130.0	
		Z	5.31	66.61	16.29		130.0	
10624-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.65	67.09	16.68	0.46	130.0	± 9.6 %
		Y	5.69	66.81	16.49		130.0	
		Z	5.50	66.79	16.45		130.0	
10625-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	6.03	68.01	17.18	0.46	130.0	± 9.6 %
		Y	6.05	67.65	16.95		130.0	
		Z	5.88	67.81	17.01		130.0	
10626-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.76	67.09	16.57	0.46	130.0	± 9.6 %
		Y	5.79	66.81	16.38		130.0	
		Z	5.64	66.79	16.35		130.0	
10627-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	6.01	67.60	16.77	0.46	130.0	± 9.6 %
		Y	6.04	67.32	16.58		130.0	
		Z	5.89	67.37	16.60		130.0	
10628-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.83	67.28	16.56	0.46	130.0	± 9.6 %
		Y	5.87	67.01	16.37		130.0	
		Z	5.69	66.92	16.32		130.0	
10629-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.93	67.36	16.58	0.46	130.0	± 9.6 %
		Y	5.99	67.16	16.43		130.0	
		Z	5.77	67.00	16.35		130.0	
10630-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	6.47	69.11	17.45	0.46	130.0	± 9.6 %
		Y	6.56	68.99	17.34		130.0	
		Z	6.24	68.58	17.14		130.0	
10631-AAA	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	6.36	68.89	17.53	0.46	130.0	± 9.6 %
		Y	6.44	68.71	17.39		130.0	
		Z	6.09	68.24	17.15		130.0	
10632-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	6.00	67.73	16.97	0.46	130.0	± 9.6 %
		Y	6.05	67.48	16.79		130.0	
		Z	5.85	67.39	16.74		130.0	
10633-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.95	67.59	16.73	0.46	130.0	± 9.6 %
		Y	6.01	67.38	16.58		130.0	
		Z	5.74	67.05	16.41		130.0	
10634-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.92	67.56	16.78	0.46	130.0	± 9.6 %
		Y	5.98	67.34	16.62		130.0	
		Z	5.72	67.07	16.47		130.0	
10635-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.80	66.87	16.18	0.46	130.0	± 9.6 %
		Y	5.85	66.64	16.01		130.0	
		Z	5.62	66.48	15.93		130.0	
10636-AAA	IEEE 1602.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	6.16	67.47	16.65	0.46	130.0	± 9.6 %
		Y	6.19	67.22	16.49		130.0	
		Z	6.06	67.16	16.44		130.0	
10637-AAA	IEEE 1602.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.34	67.89	16.84	0.46	130.0	± 9.6 %
		Y	6.39	67.69	16.69		130.0	
		Z	6.22	67.55	16.62		130.0	
10638-AAA	IEEE 1602.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.33	67.82	16.78	0.46	130.0	± 9.6 %
		Y	6.36	67.57	16.61		130.0	
		Z	6.21	67.52	16.58		130.0	

10639-AAA	IEEE 1602.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.34	67.88	16.86	0.46	130.0	± 9.6 %
		Y	6.38	67.64	16.70		130.0	
		Z	6.19	67.47	16.60		130.0	
10640-AAA	IEEE 1602.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.37	67.96	16.84	0.46	130.0	± 9.6 %
		Y	6.42	67.75	16.69		130.0	
		Z	6.20	67.51	16.57		130.0	
10641-AAA	IEEE 1602.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.36	67.66	16.71	0.46	130.0	± 9.6 %
		Y	6.40	67.44	16.56		130.0	
		Z	6.24	67.40	16.53		130.0	
10642-AAA	IEEE 1602.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.44	68.03	17.05	0.46	130.0	± 9.6 %
		Y	6.49	67.81	16.91		130.0	
		Z	6.28	67.62	16.80		130.0	
10643-AAA	IEEE 1602.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.26	67.70	16.80	0.46	130.0	± 9.6 %
		Y	6.31	67.48	16.64		130.0	
		Z	6.12	67.34	16.57		130.0	
10644-AAA	IEEE 1602.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.50	68.41	17.18	0.46	130.0	± 9.6 %
		Y	6.57	68.25	17.05		130.0	
		Z	6.29	67.86	16.85		130.0	
10645-AAA	IEEE 1602.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.78	68.77	17.29	0.46	130.0	± 9.6 %
		Y	6.81	68.48	17.11		130.0	
		Z	6.68	68.60	17.18		130.0	
10646-AAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	37.14	116.21	38.03	9.30	60.0	± 9.6 %
		Y	19.95	100.33	33.06		60.0	
		Z	62.05	131.91	43.22		60.0	
10647-AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	38.52	117.84	38.64	9.30	60.0	± 9.6 %
		Y	20.25	101.35	33.50		60.0	
		Z	63.43	133.45	43.81		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	1.03	68.68	14.68	0.00	150.0	± 9.6 %
		Y	0.85	64.54	12.30		150.0	
		Z	0.71	63.65	10.90		150.0	

[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.