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SAR EVALUATION REPORT

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

Date of Testing:
04/14/19 - 05/15/19
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
1M1904080056-01-R1.ZNF

FCC ID: **ZNFL722DL**

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

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model: LG L722DL
Additional Model(s): LG-L722DL, LGL722DL, L722DL

Equipment Class	Band & Mode	Tx Frequency	SAR			
			1g Head (W/kg)	1g Body-Worn (W/kg)	1g Hotspot (W/kg)	10g Phablet (W/kg)
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.18	0.57	0.57	N/A
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	0.10	0.41	1.00	N/A
PCE	UMTS 850	826.40 - 846.60 MHz	0.25	0.75	0.75	N/A
PCE	UMTS 1750	1712.4 - 1752.6 MHz	0.15	0.56	0.98	N/A
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.14	0.61	1.14	N/A
PCE	Cell. CDMA/EVDO	824.70 - 848.31 MHz	0.22	0.62	0.67	N/A
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.20	0.53	1.27	3.15
PCE	LTE Band 71	665.5 - 695.5 MHz	0.21	0.41	0.41	N/A
PCE	LTE Band 12	699.7 - 715.3 MHz	0.20	0.39	0.39	N/A
PCE	LTE Band 13	779.5 - 784.5 MHz	0.23	0.53	0.53	N/A
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	0.23	0.70	0.70	N/A
PCE	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	0.15	0.54	1.09	N/A
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	0.14	0.72	1.16	N/A
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.83	0.52	0.47	N/A
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	0.76	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.66	0.67	N/A	1.79
NII	U-NII-2C	5520 - 5700 MHz	0.78	0.61	N/A	1.54
NII	U-NII-3	5745 - 5825 MHz	0.82	0.64	0.64	N/A
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.16	< 0.1	< 0.1	N/A
Simultaneous SAR per KDB 690783 D01v01r03:			1.23	1.48	1.56	3.15

Note: This revised Test Report (S/N: 1M1904080056-01-R1.ZNF) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.7 of this report; for North American frequency bands only.

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

Randy Ortanez
President

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

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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
Cell. CDMA/EVDO	Voice/Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
LTE Band 71	Voice/Data	665.5 - 695.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 66 (AWS)	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 2 (PCS)	Voice/Data	1850.7 - 1909.3 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	5520 - 5700 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz

1.2 Power Reduction for SAR

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 Output Power

Mode / Band		Voice (dBm)	Burst Average GMSK (dBm)				Burst Average 8-PSK (dBm)			
		1 TX Slot	*1 TX Slots*	*2 TX Slots*	*3 TX Slots*	*4 TX Slots*	*1 TX Slots*	*2 TX Slots*	*3 TX Slots*	*4 TX Slots*
GSM/GPRS/EDGE 850	Maximum	**33.2**	**33.2**	**32.2**	**30.7**	**29.2**	**27.7**	**27.7**	**27.2**	**27.2**
	Nominal	**32.7**	**32.7**	**31.7**	**30.2**	**28.7**	**27.2**	**27.2**	**26.7**	**26.7**
GSM/GPRS/EDGE 1900	Maximum	**30.7**	**30.7**	**29.2**	**27.2**	**25.7**	**26.2**	**26.2**	**25.7**	**25.7**
	Nominal	**30.2**	**30.2**	**28.7**	**26.7**	**25.2**	**25.7**	**25.7**	**25.2**	**25.2**

Mode / Band		Modulated Average (dBm)		
		3GPP WCDMA	*3GPP HSDPA*	*3GPP HSUPA*
UMTS Band 5 (850 MHz)	Maximum	**25.5**	**25.5**	**25.5**
	Nominal	**25.0**	**25.0**	**25.0**
UMTS Band 4 (1750 MHz)	Maximum	**24.0**	**24.0**	**24.0**
	Nominal	**23.5**	**23.5**	**23.5**
UMTS Band 2 (1900 MHz)	Maximum	**24.0**	**24.0**	**24.0**
	Nominal	**23.5**	**23.5**	**23.5**

Mode / Band		Modulated Average (dBm)
CDMA/EVDO	Maximum	**25.0**
	Nominal	**24.5**
PCS CDMA/EVDO	Maximum	**24.7**
	Nominal	**24.2**

Mode / Band		Modulated Average (dBm)
LTE Band 71	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 12	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 13	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 5 (Cell)	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 66 (AWS)	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 4 (AWS)	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 2 (PCS)	Maximum	**24.0**
	Nominal	**23.5**

Mode / Band		Modulated Average (dBm)				
		Ch. 1	Ch. 2	Ch. 3-9	Ch. 10	Ch. 11
IEEE 802.11b (2.4 GHz)	Maximum	23.0				
	Nominal	22.0				
IEEE 802.11g (2.4 GHz)	Maximum	19.0	20.0	22.0	20.0	18.5
	Nominal	18.0	19.0	21.0	19.0	17.5
IEEE 802.11n (2.4 GHz)	Maximum	18.0	19.0	21.0	19.0	17.5
	Nominal	17.0	18.0	20.0	18.0	16.5

Mode / Band		Modulated Average (dBm)
Bluetooth	Maximum	11.0
	Nominal	10.0
Bluetooth LE	Maximum	2.0
	Nominal	1.0

Mode / Band		Modulated Average (dBm)																		
		20 MHz Bandwidth							40 MHz Bandwidth							80 MHz Bandwidth				
		Ch. 36	Ch. 40-60	Ch. 64-100	Ch. 104-136	Ch. 140-149	Ch. 153-161	Ch. 165	Ch. 38	Ch. 46-54	Ch. 62-102	Ch. 110	Ch. 118-126	Ch. 134	Ch. 151-159	Ch. 42	Ch. 58	Ch. 106	Ch. 122-155
IEEE 802.11a (5 GHz)	Maximum	16.0	19.5	16.0	19.5	18.0	20.0	18.0											
	Nominal	15.0	18.5	15.0	18.5	17.0	19.0	17.0											
IEEE 802.11n (5 GHz)	Maximum	15.0	18.5	15.0	18.5	17.0	19.0	17.0	13.0	15.0	13.0	15.0	15.0	15.0	15.0				
	Nominal	14.0	17.5	14.0	17.5	16.0	18.0	16.0	12.0	14.0	12.0	14.0	14.0	14.0	14.0				
IEEE 802.11ac (5 GHz)	Maximum	12.0	15.5	12.0	15.5	14.0	16.0	14.0	12.0	13.0	12.0	13.0	13.0	13.0	13.0	11.0	12.0	11.0	13.0
	Nominal	11.0	14.5	11.0	14.5	13.0	15.0	13.0	11.0	12.0	11.0	12.0	12.0	12.0	12.0	10.0	11.0	10.0	12.0

1.3.2 Reduced Output Power

Mode / Band		Modulated Average (dBm)				
		Ch. 1	Ch. 2	Ch. 3-9	Ch. 10	Ch. 11
IEEE 802.11b (2.4 GHz)	Maximum	19.0				
	Nominal	18.0				
IEEE 802.11g (2.4 GHz)	Maximum	16.0	17.0	19.0	17.0	15.5
	Nominal	15.0	16.0	18.0	16.0	14.5
IEEE 802.11n (2.4 GHz)	Maximum	16.0	17.0	19.0	17.0	15.5
	Nominal	15.0	16.0	18.0	16.0	14.5

Mode / Band		Modulated Average (dBm)																		
		20 MHz Bandwidth							40 MHz Bandwidth							80 MHz Bandwidth				
		Ch. 36	Ch. 40-60	Ch. 64-100	Ch. 104-136	Ch. 140-149	Ch. 153-161	Ch. 165	Ch. 38	Ch. 46-54	Ch. 62-102	Ch. 110	Ch. 118-126	Ch. 134	Ch. 151-159	Ch. 42	Ch. 58	Ch. 106	Ch. 122-155
IEEE 802.11a (5 GHz)	Maximum	14.0	17.5	14.0	17.5	16.0	18.0	16.0											
	Nominal	13.0	16.5	13.0	16.5	15.0	17.0	15.0											
IEEE 802.11n (5 GHz)	Maximum	14.0	17.5	14.0	17.5	16.0	18.0	16.0	13.0	15.0	13.0	15.0	15.0	15.0	15.0				
	Nominal	13.0	16.5	13.0	16.5	15.0	17.0	15.0	12.0	14.0	12.0	14.0	14.0	14.0	14.0				
IEEE 802.11ac (5 GHz)	Maximum	12.0	15.5	12.0	15.5	14.0	16.0	14.0	12.0	13.0	12.0	13.0	13.0	13.0	13.0	11.0	12.0	11.0	13.0
	Nominal	11.0	14.5	11.0	14.5	13.0	15.0	13.0	11.0	12.0	11.0	12.0	12.0	12.0	12.0	10.0	11.0	10.0	12.0

1.4 DUT Antenna Locations

The overall dimensions of this device are > 9 x 5 cm. A diagram showing the location of the device antennas can be found in Appendix F. Since the diagonal dimension of this device is > 160 mm and <200 mm, it is considered a "phablet."

Table 1-1
Device Edges/Sides for SAR Testing

Mode	Back	Front	Top	Bottom	Right	Left
GPRS 850	Yes	Yes	No	Yes	No	Yes
GPRS 1900	Yes	Yes	No	Yes	Yes	No
UMTS 850	Yes	Yes	No	Yes	No	Yes
UMTS 1750	Yes	Yes	No	Yes	Yes	No
UMTS 1900	Yes	Yes	No	Yes	Yes	No
Cell. EVDO	Yes	Yes	No	Yes	No	Yes
PCS EVDO	Yes	Yes	No	Yes	Yes	No
LTE Band 71	Yes	Yes	No	Yes	No	Yes
LTE Band 12	Yes	Yes	No	Yes	No	Yes
LTE Band 13	Yes	Yes	No	Yes	No	Yes
LTE Band 5 (Cell)	Yes	Yes	No	Yes	No	Yes
LTE Band 66 (AWS)	Yes	Yes	No	Yes	Yes	No
LTE Band 2 (PCS)	Yes	Yes	No	Yes	Yes	No
2.4 GHz WLAN	Yes	Yes	Yes	No	No	Yes
Bluetooth	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN	Yes	Yes	Yes	No	No	Yes

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

1.5 Simultaneous Transmission Capabilities

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

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

Table 1-2
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Phablet	Notes
1	1x CDMA voice + 2.4 GHz WI-FI	Yes	Yes	N/A	Yes	
2	1x CDMA voice + 5 GHz WI-FI	Yes	Yes	N/A	Yes	
3	1x CDMA voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
4	1x CDMA voice + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
5	GSM voice + 2.4 GHz WI-FI	Yes	Yes	N/A	Yes	
6	GSM voice + 5 GHz WI-FI	Yes	Yes	N/A	Yes	
7	GSM voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
8	GSM voice + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
9	UMTS + 2.4 GHz WI-FI	Yes	Yes	Yes	Yes	
10	UMTS + 5 GHz WI-FI	Yes	Yes	Yes	Yes	
11	UMTS + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
12	UMTS + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
13	LTE + 2.4 GHz WI-FI	Yes	Yes	Yes	Yes	
14	LTE + 5 GHz WI-FI	Yes	Yes	Yes	Yes	
15	LTE + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
16	LTE + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
17	CDMA/EVDO data + 2.4 GHz WI-FI	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
18	CDMA/EVDO data + 5 GHz WI-FI	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
19	CDMA/EVDO data + 2.4 GHz Bluetooth	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^ Bluetooth Tethering is considered
20	CDMA/EVDO data + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^ Bluetooth Tethering is considered
21	GPRS/EDGE + 2.4 GHz WI-FI	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
22	GPRS/EDGE + 5 GHz WI-FI	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
23	GPRS/EDGE + 2.4 GHz Bluetooth	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^ Bluetooth Tethering is considered
24	GPRS/EDGE + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^ Bluetooth Tethering is considered

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

1.6 Miscellaneous SAR Test Considerations

(A) WIFI/BT

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

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

This device supports IEEE 802.11ac with the following features:
a) Up to 80 MHz Bandwidth only
b) No aggregate channel configurations
c) 1 Tx antenna output
d) 256 QAM is supported
e) TDWR channels are supported.

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

(B) Licensed Transmitter(s)

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

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

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

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

This device supports 64QAM on the uplink for LTE Operations. Conducted powers for 64QAM configurations were measured per Section 5.1 of FCC KDB Publication 941225 D05v02r05. SAR was not required for 64QAM since the highest maximum output power for 64 QAM is $\leq \frac{1}{2}$ 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.

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

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

1.7 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r04, D05Av01r02, D06v02r01 (2G/3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D04v01r03 (Phablet Procedures)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- April 2018 TCB Workshop Notes (LTE Carrier Aggregation)

1.8 Device Serial Numbers

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

2 LTE INFORMATION

LTE Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 71 (665.5 - 695.5 MHz)				
	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 13 (779.5 - 784.5 MHz)				
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)				
	LTE Band 66 (AWS) (1710.7 - 1779.3 MHz)				
	LTE Band 4 (AWS) (1710.7 - 1754.3 MHz)				
	LTE Band 2 (PCS) (1850.7 - 1909.3 MHz)				
Channel Bandwidths	LTE Band 71: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 12: 1.4 MHz, 3 MHz, 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 66 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 2 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 71: 5 MHz	665.5 (133147)		680.5 (133297)	695.5 (133447)	
LTE Band 71: 10 MHz	668 (133172)		680.5 (133297)	693 (133422)	
LTE Band 71: 15 MHz	670.5 (133197)		680.5 (133297)	690.5 (133397)	
LTE Band 71: 20 MHz	673 (133222)		680.5 (133297)	688 (133372)	
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)		707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)		707.5 (23095)	711 (23130)	
LTE Band 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 66 (AWS): 1.4 MHz	1710.7 (131979)		1745 (132322)	1779.3 (132665)	
LTE Band 66 (AWS): 3 MHz	1711.5 (131987)		1745 (132322)	1778.5 (132657)	
LTE Band 66 (AWS): 5 MHz	1712.5 (131997)		1745 (132322)	1777.5 (132647)	
LTE Band 66 (AWS): 10 MHz	1715 (132022)		1745 (132322)	1775 (132622)	
LTE Band 66 (AWS): 15 MHz	1717.5 (132047)		1745 (132322)	1772.5 (132597)	
LTE Band 66 (AWS): 20 MHz	1720 (132072)		1745 (132322)	1770 (132572)	
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)		1732.5 (20175)	1754.3 (20393)	
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)		1732.5 (20175)	1753.5 (20385)	
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)		1732.5 (20175)	1752.5 (20375)	
LTE Band 4 (AWS): 10 MHz	1715 (20000)		1732.5 (20175)	1750 (20350)	
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)		1732.5 (20175)	1747.5 (20325)	
LTE Band 4 (AWS): 20 MHz	1720 (20050)		1732.5 (20175)	1745 (20300)	
LTE Band 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)	
UE Category	DL UE Cat 6 (QPSK, 16QAM, 64QAM), UL UE Cat 5 (QPSK, 16QAM, 64QAM)				
Modulations Supported in UL	QPSK, 16QAM, 64QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5? (manufacturer attestation to be provided)	YES				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
LTE Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations				
LTE Additional Information	This device does not support full CA features on 3GPP Release 10. It supports carrier aggregation feature as shown in Appendix H. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release 10 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, WIFI Offloading, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

3 INTRODUCTION

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

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

3.1 SAR Definition

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

Equation 3-1
SAR Mathematical Equation

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

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

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

where:

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

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

4 DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

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

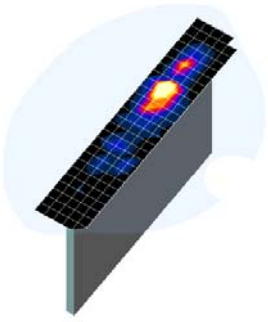

Figure 4-1
Sample SAR Area Scan

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

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

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

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

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

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

*Also compliant to IEEE 1528-2013 Table 6

5 DEFINITION OF REFERENCE POINTS

5.1 EAR REFERENCE POINT

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

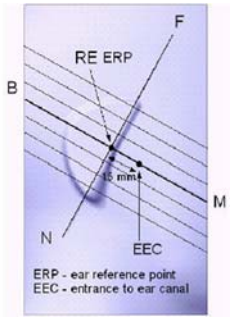

Figure 5-1
Close-Up Side view of ERP

5.2 HANDSET REFERENCE POINTS

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

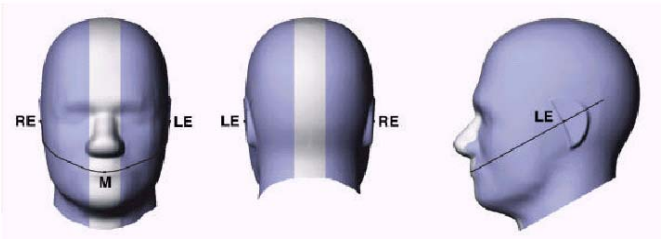

Figure 5-2
Front, back and side view of SAM Twin Phantom

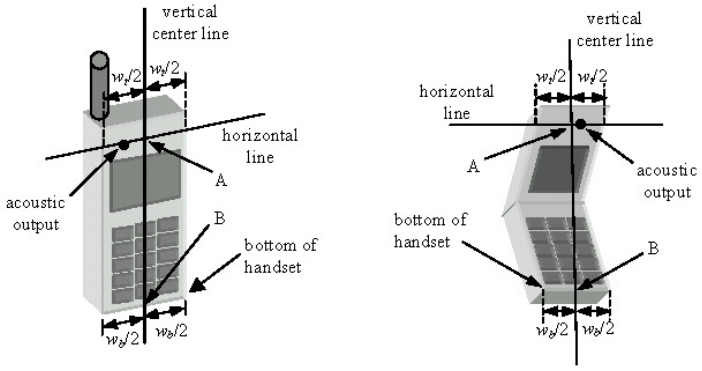

Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

6 TEST CONFIGURATION POSITIONS

6.1 Device Holder

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

6.2 Positioning for Cheek

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

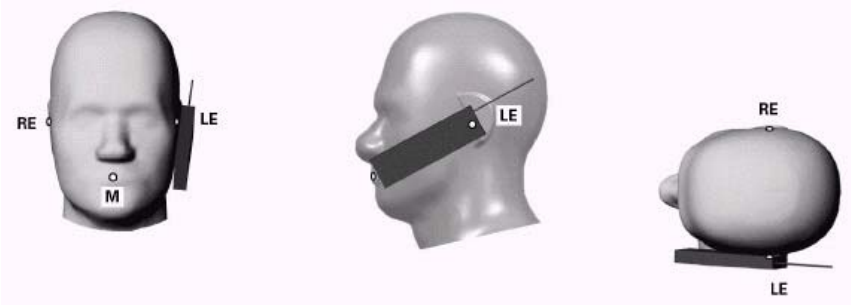

Figure 6-1 Front, Side and Top View of Cheek Position

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

6.3 Positioning for Ear / 15º Tilt

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

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

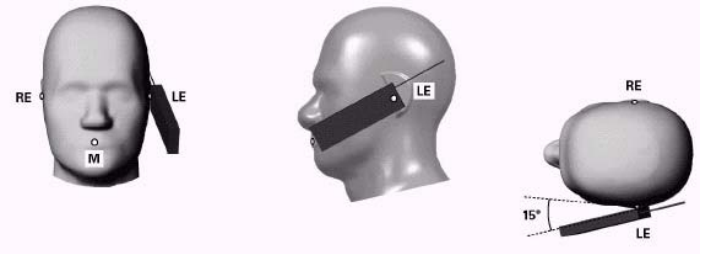

Figure 6-2 Front, Side and Top View of Ear/15º Tilt Position

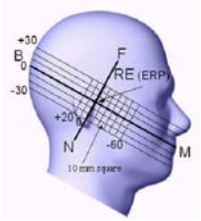

Figure 6-3
Side view w/ relevant markings

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

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

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

6.5 Body-Worn Accessory Configurations

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

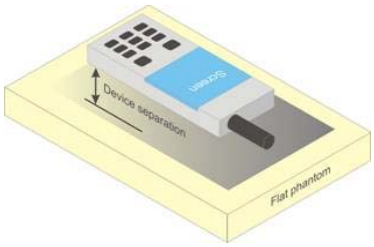

Figure 6-4
Sample Body-Worn Diagram

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

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

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

6.6 Extremity Exposure Configurations

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

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

6.7 Wireless Router Configurations

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

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

6.8 Phablet Configurations

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

7 RF EXPOSURE LIMITS

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

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

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

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

8 FCC MEASUREMENT PROCEDURES

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

8.1 Measured and Reported SAR

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

8.2 3G SAR Test Reduction Procedure

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

8.3 Procedures Used to Establish RF Signal for SAR

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

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

8.4 SAR Measurement Conditions for CDMA2000

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

8.4.1 Output Power Verification

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

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

Table 8-1
Parameters for Max. Power for RC1

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

Table 8-2
Parameters for Max. Power for RC3

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

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

8.4.2 Head SAR Measurements

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

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

8.4.3 Body-worn SAR Measurements

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

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

8.4.4 Body-worn SAR Measurements for EVDO Devices

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

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

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

8.4.5 Body SAR Measurements for EVDO Hotspot

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

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

8.5 SAR Measurement Conditions for UMTS

8.5.1 Output Power Verification

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

8.5.2 Head SAR Measurements

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

8.5.3 Body SAR Measurements

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

8.5.4 SAR Measurements with Rel 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, for the highest reported SAR configuration in

12.2 kbps RMC without HSDPA. Handsets with both HSDPA and HSUPA are tested according to Release 6 HSPA test procedures.

8.5.5 SAR Measurements with Rel 6 HSUPA

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

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

8.6 SAR Measurement Conditions for LTE

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

8.6.1 Spectrum Plots for RB Configurations

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

8.6.2 MPR

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

8.6.3 A-MPR

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

8.6.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
   i. The required channel and offset combination with the highest maximum output power is required for SAR.
   ii. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
   iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.

b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.
c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.
d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to ½ dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is <1.45 W/kg.

8.6.5 Downlink Only Carrier Aggregation

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

8.7 SAR Testing with 802.11 Transmitters

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

8.7.1 General Device Setup

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

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

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

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

specified for the bands, SAR measurement for the U-NII band with the lower maximum output power is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is > 1.2 W/kg. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

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

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

8.7.4 Initial Test Position Procedure

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

8.7.5 2.4 GHz SAR Test Requirements

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

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

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

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

8.7.6 OFDM Transmission Mode and SAR Test Channel Selection

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

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

8.7.7 Initial Test Configuration Procedure

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

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

8.7.8 Subsequent Test Configuration Procedures

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

9 RF CONDUCTED POWERS

9.1 CDMA Conducted Powers

Table 9-1
Maximum Conducted Power

Channel	Frequency	SO55 [dBm]	SO55 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
F-RC	MHz	RC1	RC3	FCH+SCH	FCH	(RTAP)	(RETAP)
1013	824.7	24.79	24.89	24.98	24.94	24.93	24.92
384	836.52	24.97	24.85	25.00	24.87	24.83	24.88
777	848.31	24.93	24.89	24.94	24.86	24.67	24.75
25	1851.25	24.65	24.63	24.65	24.58	24.69	24.57
600	1880	24.50	24.50	24.38	24.41	24.54	24.68
1175	1908.75	24.66	24.58	24.67	24.61	24.61	24.64

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

Figure 9-1
Power Measurement Setup

9.2 GSM Conducted Powers

Table 9-2
Maximum Conducted Power

Maximum Burst-Averaged Output Power										
		Voice	*GPRS/EDGE Data (GMSK)*				*EDGE Data (8-PSK)*			
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**GPRS [dBm] 3 Tx Slot**	**GPRS [dBm] 4 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**	**EDGE [dBm] 3 Tx Slot**	**EDGE [dBm] 4 Tx Slot**
GSM 850	128	32.98	32.99	32.02	**30.65**	28.94	27.64	27.47	26.90	26.87
	190	33.15	33.15	32.20	**30.48**	28.88	27.69	27.56	27.08	26.48
	251	32.95	32.97	31.83	**30.61**	28.53	27.56	27.45	26.88	26.25
GSM 1900	512	30.42	30.61	29.00	**27.01**	25.69	26.12	26.01	25.28	24.98
	661	30.37	30.58	28.95	**26.87**	25.59	26.01	25.93	25.13	25.02
	810	30.65	30.52	29.07	**26.91**	25.60	26.11	26.09	25.19	25.16
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	23.95	23.96	26.00	**26.39**	25.93	18.61	21.45	22.64	23.86
	190	24.12	24.12	26.18	**26.22**	25.87	18.66	21.54	22.82	23.47
	251	23.92	23.94	25.81	**26.35**	25.52	18.53	21.43	22.62	23.24
GSM 1900	512	21.39	21.58	22.98	**22.75**	22.68	17.09	19.99	21.02	21.97
	661	21.34	21.55	22.93	**22.61**	22.58	16.98	19.91	20.87	22.01
	810	21.62	21.49	23.05	**22.65**	22.59	17.08	20.07	20.93	22.15
GSM 850	**Frame Avg.Targets:**	23.67	23.67	25.68	**25.94**	25.69	18.17	21.18	22.44	23.69
GSM 1900		21.17	21.17	22.68	**22.44**	22.19	16.67	19.68	20.94	22.19

Note:

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

GSM Class: B
GPRS Multislot class: 12 (Max 4 Tx uplink slots)
EDGE Multislot class: 12 (Max 4 Tx uplink slots)
DTM Multislot Class: N/A

Figure 9-2
Power Measurement Setup

9.3 UMTS Conducted Powers

Table 9-3
Maximum Conducted Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	25.41	25.31	25.21	23.91	23.95	23.93	23.99	23.95	24.00	-
99		12.2 kbps AMR	25.36	25.27	25.19	23.86	23.92	23.96	24.00	23.86	23.91	-
6	HSDPA	Subtest 1	25.20	25.43	25.05	23.86	23.93	23.99	23.62	23.69	23.84	0
6		Subtest 2	25.19	25.01	24.95	23.74	24.00	23.69	23.84	23.78	23.85	0
6		Subtest 3	24.58	24.35	24.53	23.35	23.40	23.47	23.38	23.10	23.35	0.5
6		Subtest 4	24.71	24.41	24.42	23.35	23.26	23.53	23.39	23.27	23.40	0.5
6	HSUPA	Subtest 1	24.90	25.02	24.76	23.91	23.95	23.92	23.90	23.80	23.89	0
6		Subtest 2	23.40	23.24	23.22	21.90	22.00	21.99	21.84	21.70	21.89	2
6		Subtest 3	24.45	24.29	24.24	22.85	23.00	22.90	22.83	22.71	22.85	1
6		Subtest 4	23.42	23.25	23.20	21.88	21.99	22.00	21.90	21.72	21.83	2
6		Subtest 5	25.48	25.12	25.18	23.94	23.99	23.98	23.91	23.79	23.92	0

This device does not support DC-HSDPA.

Figure 9-3
Power Measurement Setup

9.4 LTE Conducted Powers

9.4.1 LTE Band 71

Table 9-4
LTE Band 71 Conducted Powers - 20 MHz Bandwidth

LTE Band 71 20 MHz Bandwidth					
Modulation	**RB Size**	**RB Offset**	**Mid Channel** **133297** **(680.5 MHz)** **Conducted Power [dBm]**	**MPR Allowed per 3GPP [dB]**	**MPR [dB]**
QPSK	1	0	**25.50**	0	0
	1	50	24.50		0
	1	99	25.49		0
	50	0	**24.50**	0-1	1
	50	25	24.23		1
	50	50	24.37		1
	100	0	24.44		1
16QAM	1	0	24.50	0-1	1
	1	50	24.20		1
	1	99	24.35		1
	50	0	23.50	0-2	2
	50	25	23.17		2
	50	50	23.49		2
	100	0	23.50		2
64QAM	1	0	23.50	0-2	2
	1	50	23.25		2
	1	99	23.50		2
	50	0	22.44	0-3	3
	50	25	22.49		3
	50	50	22.41		3
	100	0	22.46		3

Note: LTE Band 71 at 20 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 9-5
LTE Band 71 Conducted Powers - 15 MHz Bandwidth

LTE Band 71 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 133297 (680.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.85	0	0
	1	36	24.75		0
	1	74	24.98		0
	36	0	24.45	0-1	1
	36	18	24.45		1
	36	37	24.40		1
	75	0	24.22		1
16QAM	1	0	24.50	0-1	1
	1	36	24.50		1
	1	74	24.46		1
	36	0	23.42	0-2	2
	36	18	23.46		2
	36	37	23.42		2
	75	0	23.48		2
64QAM	1	0	23.45	0-2	2
	1	36	23.35		2
	1	74	23.36		2
	36	0	22.47	0-3	3
	36	18	22.50		3
	36	37	22.45		3
	75	0	22.46		3

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

Table 9-6
LTE Band 71 Conducted Powers - 10 MHz Bandwidth

LTE Band 71 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 133172 (668.0 MHz)	Mid Channel 133297 (680.5 MHz)	High Channel 133422 (693.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.86	24.97	24.77	0	0
	1	25	25.10	25.02	24.94		0
	1	49	24.84	24.61	24.78		0
	25	0	24.20	24.49	24.45	0-1	1
	25	12	24.18	24.50	24.25		1
	25	25	24.00	24.26	24.29		1
	50	0	24.28	24.30	24.29		1
16QAM	1	0	24.31	24.07	24.44	0-1	1
	1	25	24.35	24.50	24.39		1
	1	49	24.15	24.42	24.31		1
	25	0	23.30	23.32	23.50	0-2	2
	25	12	23.09	23.50	23.36		2
	25	25	23.17	23.40	23.26		2
	50	0	23.18	23.44	23.29		2
64QAM	1	0	23.43	23.43	23.39	0-2	2
	1	25	23.45	23.42	23.42		2
	1	49	23.38	23.50	23.29		2
	25	0	22.19	22.45	22.33	0-3	3
	25	12	22.07	22.39	22.50		3
	25	25	21.98	22.17	22.23		3
	50	0	22.08	22.26	22.19		3

Table 9-7
LTE Band 71 Conducted Powers - 5 MHz Bandwidth

LTE Band 71 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 133147 (665.5 MHz)	Mid Channel 133297 (680.5 MHz)	High Channel 133447 (695.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.69	24.50	24.76	0	0
	1	12	24.50	24.61	24.73		0
	1	24	24.30	24.55	24.68		0
	12	0	23.81	24.20	24.21	0-1	1
	12	6	24.06	24.11	24.26		1
	12	13	23.94	24.08	24.06		1
	25	0	23.94	24.02	24.30		1
16QAM	1	0	24.22	24.32	24.45	0-1	1
	1	12	24.22	24.50	24.50		1
	1	24	24.17	24.25	24.47		1
	12	0	23.04	23.29	23.50	0-2	2
	12	6	23.15	23.32	23.26		2
	12	13	22.94	23.17	23.24		2
	25	0	22.88	23.13	23.23		2
64QAM	1	0	23.17	23.00	23.17	0-2	2
	1	12	23.22	23.50	23.23		2
	1	24	23.26	23.32	23.24		2
	12	0	22.22	22.16	22.32	0-3	3
	12	6	22.19	22.12	22.41		3
	12	13	21.96	22.20	22.22		3
	25	0	21.99	22.07	22.29		3

9.4.2 LTE Band 12

Table 9-8
LTE Band 12 Conducted Powers - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	**RB Size**	**RB Offset**	**Mid Channel** **23095** **(707.5 MHz)** **Conducted Power [dBm]**	**MPR Allowed per 3GPP [dB]**	**MPR [dB]**
QPSK	1	0	**25.13**	0	0
	1	25	24.80		0
	1	49	25.02		0
	25	0	24.12	0-1	1
	25	12	24.08		1
	25	25	**24.23**		1
	50	0	24.17		1
16QAM	1	0	24.50	0-1	1
	1	25	24.46		1
	1	49	24.49		1
	25	0	23.15	0-2	2
	25	12	23.13		2
	25	25	23.25		2
	50	0	23.18		2
64QAM	1	0	23.50	0-2	2
	1	25	23.11		2
	1	49	22.98		2
	25	0	22.01	0-3	3
	25	12	22.15		3
	25	25	21.85		3
	50	0	22.00		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 9-9
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	24.83	24.83	24.84	0	0
	1	12	24.88	24.86	24.70		0
	1	24	24.85	24.86	24.85		0
	12	0	23.99	24.00	24.00	0-1	1
	12	6	23.94	24.01	24.01		1
	12	13	23.92	24.09	24.02		1
	25	0	24.01	24.06	24.00		1
16QAM	1	0	23.98	24.50	24.50	0-1	1
	1	12	23.88	24.47	23.50		1
	1	24	24.08	24.40	24.50		1
	12	0	22.98	22.98	23.14	0-2	2
	12	6	22.93	22.96	23.11		2
	12	13	22.87	23.00	23.12		2
	25	0	22.98	23.12	22.97		2
64QAM	1	0	23.09	23.10	23.06	0-2	2
	1	12	23.10	23.26	23.23		2
	1	24	22.91	23.07	23.05		2
	12	0	21.84	21.95	22.06	0-3	3
	12	6	21.95	22.07	21.94		3
	12	13	21.87	21.90	21.73		3
	25	0	22.01	21.95	21.79		3

Table 9-10
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	24.55	24.66	24.55	0	0
	1	7	24.48	24.47	24.65		0
	1	14	24.55	24.59	24.56		0
	8	0	23.84	23.99	23.92	0-1	1
	8	4	23.91	24.03	24.03		1
	8	7	23.80	23.96	23.95		1
	15	0	23.86	23.98	23.97		1
16QAM	1	0	24.18	24.45	24.20	0-1	1
	1	7	24.05	24.41	24.01		1
	1	14	24.10	24.45	24.22		1
	8	0	23.02	23.07	22.91	0-2	2
	8	4	23.15	23.19	22.98		2
	8	7	23.04	23.11	22.93		2
	15	0	22.99	23.11	22.94		2
64QAM	1	0	23.45	23.33	23.24	0-2	2
	1	7	23.41	23.36	23.42		2
	1	14	23.42	23.41	23.27		2
	8	0	21.66	21.99	22.12	0-3	3
	8	4	21.65	22.02	22.00		3
	8	7	21.67	21.94	21.42		3
	15	0	21.70	21.97	21.96		3

Table 9-11
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	24.65	24.72	24.66	0	0
	1	2	24.61	24.66	24.60		0
	1	5	24.52	24.73	24.68		0
	3	0	24.67	24.63	24.78		0
	3	2	24.78	24.76	25.01		0
	3	3	24.62	24.68	24.95		0
	6	0	23.90	23.93	24.09	0-1	1
16QAM	1	0	24.16	24.19	24.31	0-1	1
	1	2	24.17	24.25	24.26		1
	1	5	24.10	24.25	24.29		1
	3	0	23.91	24.09	24.14		1
	3	2	24.00	24.27	24.36		1
	3	3	23.84	24.16	24.24		1
	6	0	22.96	23.13	22.84	0-2	2
64QAM	1	0	23.15	23.02	23.24	0-2	2
	1	2	23.16	23.02	23.16		2
	1	5	23.03	22.99	22.66		2
	3	0	22.91	23.01	22.88		2
	3	2	22.93	23.05	23.00		2
	3	3	22.68	23.01	22.92		2
	6	0	21.77	21.80	21.72	0-3	3

9.4.3 LTE Band 13

Table 9-12
LTE Band 13 Conducted Powers - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.82	0	0
	1	25	24.62		0
	1	49	**24.95**		0
	25	0	24.25	0-1	1
	25	12	**24.35**		1
	25	25	24.29		1
	50	0	24.34		1
16QAM	1	0	24.48	0-1	1
	1	25	24.36		1
	1	49	24.50		1
	25	0	23.40	0-2	2
	25	12	23.35		2
	25	25	23.35		2
	50	0	23.32		2
64QAM	1	0	23.50	0-2	2
	1	25	23.39		2
	1	49	23.46		2
	25	0	22.22	0-3	3
	25	12	22.29		3
	25	25	22.29		3
	50	0	22.33		3

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

LTE Band 13 5 MHz Bandwidth					
Modulation	**RB Size**	**RB Offset**	**Mid Channel** **23230 (782.0 MHz)** **Conducted Power [dBm]**	**MPR Allowed per 3GPP [dB]**	**MPR [dB]**
QPSK	1	0	24.77	0	0
	1	12	24.83		0
	1	24	24.88		0
	12	0	24.19	0-1	1
	12	6	24.17		1
	12	13	24.21		1
	25	0	24.14		1
16QAM	1	0	24.32	0-1	1
	1	12	24.42		1
	1	24	24.36		1
	12	0	23.21	0-2	2
	12	6	23.14		2
	12	13	23.21		2
	25	0	23.14		2
64QAM	1	0	23.39	0-2	2
	1	12	23.11		2
	1	24	23.24		2
	12	0	22.15	0-3	3
	12	6	22.12		3
	12	13	22.20		3
	25	0	22.19		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.

9.4.4 LTE Band 5 (Cell)

Table 9-14
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	25.03	0	0
	1	25	24.66		0
	1	49	**25.07**		0
	25	0	24.13	0-1	1
	25	12	24.19		1
	25	25	**24.23**		1
	50	0	24.22		1
16QAM	1	0	24.43	0-1	1
	1	25	24.50		1
	1	49	24.36		1
	25	0	23.16	0-2	2
	25	12	23.18		2
	25	25	23.17		2
	50	0	23.25		2
64QAM	1	0	23.50	0-2	2
	1	25	23.50		2
	1	49	22.76		2
	25	0	22.12	0-3	3
	25	12	21.99		3
	25	25	21.91		3
	50	0	22.10		3

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

Table 9-15
LTE Band 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	24.61	24.60	24.48	0	0
	1	12	24.60	24.68	24.54		0
	1	24	24.56	24.45	24.41		0
	12	0	23.98	23.98	24.04	0-1	1
	12	6	23.89	23.99	24.04		1
	12	13	23.97	23.96	23.93		1
	25	0	23.91	23.90	23.88		1
16QAM	1	0	24.32	24.26	24.06	0-1	1
	1	12	24.29	24.31	24.20		1
	1	24	23.93	24.40	24.14		1
	12	0	23.28	23.20	23.12	0-2	2
	12	6	22.91	22.97	23.02		2
	12	13	23.02	23.08	23.08		2
	25	0	23.05	23.03	23.00		2
64QAM	1	0	23.11	22.99	23.12	0-2	2
	1	12	23.11	23.06	23.30		2
	1	24	22.95	23.02	23.36		2
	12	0	22.11	22.02	22.08	0-3	3
	12	6	21.94	22.20	21.97		3
	12	13	21.98	22.08	22.01		3
	25	0	21.95	21.99	22.01		3

Table 9-16
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	24.55	24.77	24.65	0	0
	1	7	24.61	24.63	24.59		0
	1	14	24.59	24.56	24.56		0
	8	0	24.09	24.12	24.50	0-1	1
	8	4	24.02	24.00	23.95		1
	8	7	24.04	24.04	23.99		1
	15	0	24.06	24.04	24.03		1
16QAM	1	0	24.41	24.16	23.97	0-1	1
	1	7	24.49	23.96	23.76		1
	1	14	24.50	24.04	24.42		1
	8	0	22.90	23.09	23.00	0-2	2
	8	4	22.98	23.00	22.94		2
	8	7	23.04	22.91	23.00		2
	15	0	22.95	23.04	23.12		2
64QAM	1	0	23.26	23.29	23.22	0-2	2
	1	7	22.86	23.26	23.23		2
	1	14	22.88	23.08	23.02		2
	8	0	22.04	22.08	22.05	0-3	3
	8	4	22.12	22.20	22.10		3
	8	7	22.13	22.02	22.03		3
	15	0	21.97	22.15	22.10		3

Table 9-17
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	24.53	24.45	24.46	0	0
	1	2	24.69	24.49	24.32		0
	1	5	24.54	24.43	24.57		0
	3	0	24.66	24.48	24.36		0
	3	2	24.73	24.37	24.51		0
	3	3	24.52	24.41	24.48		0
	6	0	23.99	23.83	23.73	0-1	1
16QAM	1	0	24.22	24.21	24.22	0-1	1
	1	2	24.50	24.12	23.89		1
	1	5	24.11	24.07	24.18		1
	3	0	24.33	23.93	23.85		1
	3	2	23.95	23.99	24.29		1
	3	3	23.99	23.68	23.82		1
	6	0	22.98	22.95	22.95	0-2	2
64QAM	1	0	23.35	22.92	23.05	0-2	2
	1	2	23.32	22.97	22.99		2
	1	5	23.33	22.88	22.71		2
	3	0	23.02	22.84	22.90		2
	3	2	23.13	22.86	22.80		2
	3	3	23.16	22.92	22.77		2
	6	0	22.09	21.86	21.75	0-5	3

9.4.5 LTE Band 66 (AWS)

Table 9-18
LTE Band 66 (AWS) Conducted Powers - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132072 (1720.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132572 (1770.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	**23.92**	23.79	23.70	0	0
	1	50	23.75	23.53	23.53		0
	1	99	23.36	23.10	23.04		0
	50	0	22.50	**22.71**	22.68	0-1	1
	50	25	22.64	22.57	22.67		1
	50	50	22.55	22.55	22.55		1
	100	0	22.69	22.59	22.63		1
16QAM	1	0	22.85	22.89	22.98	0-1	1
	1	50	22.76	22.72	22.81		1
	1	99	22.30	22.23	22.24		1
	50	0	21.55	21.59	21.57	0-2	2
	50	25	21.66	21.54	21.63		2
	50	50	21.45	21.48	21.59		2
	100	0	21.58	21.45	21.61		2
64QAM	1	0	21.88	21.88	21.98	0-2	2
	1	50	21.84	21.72	21.89		2
	1	99	21.70	21.50	21.64		2
	50	0	20.54	20.69	20.55	0-3	3
	50	25	20.60	20.56	20.82		3
	50	50	20.46	20.50	20.59		3
	100	0	20.63	20.53	20.63		3

Table 9-19
LTE Band 66 (AWS) Conducted Powers - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132047 (1717.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132597 (1772.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.28	23.42	23.44	0	0
	1	36	23.66	23.61	23.63		0
	1	74	23.31	23.21	23.34		0
	36	0	22.59	22.57	22.61	0-1	1
	36	18	22.61	22.65	22.71		1
	36	37	22.60	22.70	22.70		1
	75	0	22.58	22.53	22.64		1
16QAM	1	0	22.33	22.43	22.39	0-1	1
	1	36	22.66	22.70	22.54		1
	1	74	22.34	22.39	22.88		1
	36	0	21.55	21.56	21.64	0-2	2
	36	18	21.58	21.60	21.70		2
	36	37	21.56	21.73	21.70		2
	75	0	21.62	21.49	21.67		2
64QAM	1	0	21.27	21.46	21.35	0-2	2
	1	36	21.66	21.73	21.78		2
	1	74	21.40	21.19	21.24		2
	36	0	20.56	20.58	20.59	0-3	3
	36	18	20.66	20.62	20.68		3
	36	37	20.55	20.63	20.65		3
	75	0	20.61	20.52	20.60		3

Table 9-20
LTE Band 66 (AWS) Conducted Powers - 10 MHz Bandwidth

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132022 (1715.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132622 (1775.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.56	23.65	23.65	0	0
	1	25	23.65	23.80	23.59		0
	1	49	23.48	23.54	23.63		0
	25	0	22.58	22.55	22.63	0-1	1
	25	12	22.57	22.59	22.58		1
	25	25	22.45	22.45	22.52		1
	50	0	22.63	22.57	22.54		1
16QAM	1	0	22.74	22.92	22.75	0-1	1
	1	25	23.00	22.93	22.64		1
	1	49	22.80	22.96	22.66		1
	25	0	21.58	21.60	21.66	0-2	2
	25	12	21.66	21.62	21.57		2
	25	25	21.57	21.55	21.61		2
	50	0	21.60	21.48	21.50		2
64QAM	1	0	21.71	21.86	21.73	0-2	2
	1	25	21.57	21.70	21.59		2
	1	49	21.68	21.68	21.52		2
	25	0	20.60	20.56	20.61	0-3	3
	25	12	20.63	20.60	20.56		3
	25	25	20.51	20.45	20.47		3
	50	0	20.61	20.57	20.49		3

Table 9-21
LTE Band 66 (AWS) Conducted Powers - 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131997 (1712.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132647 (1777.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.67	23.74	23.70	0	0
	1	12	23.51	23.68	23.54		0
	1	24	23.66	23.48	23.61		0
	12	0	22.55	22.60	22.57	0-1	1
	12	6	22.56	22.55	22.56		1
	12	13	22.55	22.54	22.48		1
	25	0	22.54	22.52	22.57		1
16QAM	1	0	22.82	22.89	23.00	0-1	1
	1	12	23.00	22.93	22.86		1
	1	24	22.82	22.73	22.84		1
	12	0	21.62	21.62	21.55	0-2	2
	12	6	21.72	21.61	21.56		2
	12	13	21.71	21.62	21.56		2
	25	0	21.58	21.52	21.55		2
64QAM	1	0	21.82	21.80	21.85	0-2	2
	1	12	21.88	21.69	21.74		2
	1	24	21.74	21.59	21.79		2
	12	0	20.61	20.58	20.63	0-3	3
	12	6	20.71	20.58	20.64		3
	12	13	20.70	20.59	20.59		3
	25	0	20.62	20.55	20.50		3

Table 9-22
LTE Band 66 (AWS) Conducted Powers - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131987 (1711.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132657 (1778.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.57	23.56	23.55	0	0
	1	7	23.75	23.62	23.39		0
	1	14	23.55	23.51	23.47		0
	8	0	22.55	22.48	22.48	0-1	1
	8	4	22.51	22.54	22.48		1
	8	7	22.53	22.47	22.46		1
	15	0	22.50	22.47	22.46		1
16QAM	1	0	22.73	22.63	22.77	0-1	1
	1	7	22.72	22.78	22.83		1
	1	14	22.72	22.74	22.73		1
	8	0	21.57	21.49	21.67	0-2	2
	8	4	21.67	21.55	21.53		2
	8	7	21.65	21.51	21.57		2
	15	0	21.48	21.51	21.47		2
64QAM	1	0	21.75	21.76	21.86	0-2	2
	1	7	21.81	21.70	21.79		2
	1	14	21.79	21.72	21.74		2
	8	0	20.65	20.56	20.60	0-3	3
	8	4	20.77	20.54	20.56		3
	8	7	20.70	20.53	20.56		3
	15	0	20.53	20.51	20.45		3

Table 9-23
LTE Band 66 (AWS) Conducted Powers -1.4 MHz Bandwidth

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131979 (1710.7 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132665 (1779.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.59	23.49	23.53	0	0
	1	2	23.67	23.69	23.59		0
	1	5	23.82	23.50	23.67		0
	3	0	23.54	23.55	23.56		0
	3	2	23.71	23.67	23.62		0
	3	3	23.52	23.67	23.55		0
	6	0	22.54	22.53	22.43	0-1	1
16QAM	1	0	22.70	22.82	22.78	0-1	1
	1	2	22.73	22.74	22.79		1
	1	5	22.70	22.72	22.81		1
	3	0	22.59	22.67	22.64		1
	3	2	22.77	22.66	22.61		1
	3	3	22.68	22.59	22.54		1
	6	0	21.60	21.53	21.61	0-2	2
64QAM	1	0	21.68	21.81	21.69	0-2	2
	1	2	21.69	21.76	21.81		2
	1	5	21.64	21.60	21.69		2
	3	0	21.53	21.57	21.51		2
	3	2	21.69	21.50	21.50		2
	3	3	21.70	21.46	21.44		2
	6	0	20.46	20.44	20.34	0-3	3

9.4.6 LTE Band 2 (PCS)

Table 9-24
LTE Band 2 (PCS) Conducted Powers - 20 MHz Bandwidth

LTE Band 2 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18700 (1860.0 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19100 (1900.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	**23.60**	23.55	23.53	0	0
	1	50	23.11	23.38	23.23		0
	1	99	23.54	23.44	23.33		0
	50	0	22.31	22.32	**22.40**	0-1	1
	50	25	22.18	22.15	22.23		1
	50	50	22.38	22.22	22.31		1
	100	0	22.33	22.28	22.35		1
16QAM	1	0	22.79	22.78	22.91	0-1	1
	1	50	22.51	22.33	22.37		1
	1	99	22.85	22.63	22.67		1
	50	0	21.30	21.14	21.33	0-2	2
	50	25	21.27	21.13	21.32		2
	50	50	21.33	21.19	21.34		2
	100	0	21.37	21.35	21.30		2
64QAM	1	0	21.77	21.75	21.80	0-2	2
	1	50	21.43	21.55	21.48		2
	1	99	21.51	21.62	21.32		2
	50	0	20.45	20.32	20.23	0-3	3
	50	25	20.25	20.19	20.26		3
	50	50	20.26	20.14	20.28		3
	100	0	20.28	20.19	20.31		3

Table 9-25
LTE Band 2 (PCS) Conducted Powers - 15 MHz Bandwidth

LTE Band 2 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18675 (1857.5 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19125 (1902.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.60	23.73	23.65	0	0
	1	36	23.31	23.46	23.36		0
	1	74	23.69	23.88	24.00		0
	36	0	22.44	22.54	22.57	0-1	1
	36	18	22.38	22.40	22.45		1
	36	37	22.45	22.50	22.53		1
	75	0	22.39	22.57	22.65		1
16QAM	1	0	22.99	22.95	23.00	0-1	1
	1	36	22.64	22.65	22.96		1
	1	74	22.81	23.00	22.66		1
	36	0	21.41	21.58	21.57	0-2	2
	36	18	21.37	21.45	21.39		2
	36	37	21.40	21.53	21.52		2
	75	0	21.42	21.49	21.42		2
64QAM	1	0	21.60	21.87	21.90	0-2	2
	1	36	21.28	21.56	21.75		2
	1	74	21.43	22.00	22.00		2
	36	0	20.23	20.39	20.55	0-3	3
	36	18	20.28	20.31	20.50		3
	36	37	20.26	20.39	20.63		3
	75	0	20.26	20.37	20.65		3

Table 9-26
LTE Band 2 (PCS) Conducted Powers - 10 MHz Bandwidth

LTE Band 2 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18650 (1855.0 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19150 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.65	23.65	23.72	0	0
	1	25	23.32	23.63	23.47		0
	1	49	23.62	23.70	23.71		0
	25	0	22.47	22.43	22.42	0-1	1
	25	12	22.35	22.56	22.39		1
	25	25	22.37	22.51	22.42		1
	50	0	22.37	22.48	22.35		1
16QAM	1	0	22.68	22.86	22.78	0-1	1
	1	25	22.47	22.75	22.72		1
	1	49	22.64	23.00	22.64		1
	25	0	21.40	21.30	21.40	0-2	2
	25	12	21.38	21.47	21.31		2
	25	25	21.38	21.46	21.42		2
	50	0	21.30	21.45	21.35		2
64QAM	1	0	21.85	21.89	21.79	0-2	2
	1	25	21.52	21.79	21.47		2
	1	49	21.68	21.88	21.68		2
	25	0	20.39	20.29	20.41	0-3	3
	25	12	20.33	20.46	20.29		3
	25	25	20.43	20.56	20.32		3
	50	0	20.36	20.50	20.34		3

Table 9-27
LTE Band 2 (PCS) Conducted Powers - 5 MHz Bandwidth

LTE Band 2 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18625 (1852.5 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19175 (1907.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.45	23.50	23.55	0	0
	1	12	23.19	23.33	23.60		0
	1	24	23.31	23.44	23.61		0
	12	0	22.37	22.45	22.61	0-1	1
	12	6	22.37	22.46	22.59		1
	12	13	22.38	22.35	22.49		1
	25	0	22.38	22.46	22.53		1
16QAM	1	0	22.78	22.75	22.96	0-1	1
	1	12	22.70	22.78	22.80		1
	1	24	22.59	22.77	22.82		1
	12	0	21.40	21.40	21.65	0-2	2
	12	6	21.46	21.56	21.52		2
	12	13	21.49	21.35	21.53		2
	25	0	21.40	21.53	21.53		2
64QAM	1	0	21.73	21.70	22.00	0-2	2
	1	12	21.57	21.79	21.93		2
	1	24	21.58	21.50	21.76		2
	12	0	20.45	20.45	20.59	0-3	3
	12	6	20.55	20.44	20.66		3
	12	13	20.55	20.44	20.73		3
	25	0	20.39	20.44	20.49		3

Table 9-28
LTE Band 2 (PCS) Conducted Powers - 3 MHz Bandwidth

LTE Band 2 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18615 (1851.5 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19185 (1908.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.54	23.62	23.61	0	0
	1	7	23.55	23.67	23.73		0
	1	14	23.48	23.55	23.76		0
	8	0	22.54	22.73	22.61	0-1	1
	8	4	22.56	22.68	22.74		1
	8	7	22.49	22.59	22.62		1
	15	0	22.46	22.61	22.67		1
16QAM	1	0	22.81	22.77	23.00	0-1	1
	1	7	22.81	22.89	22.90		1
	1	14	22.80	22.86	22.97		1
	8	0	21.62	21.81	21.73	0-2	2
	8	4	21.72	21.70	21.76		2
	8	7	21.64	21.59	21.64		2
	15	0	21.55	21.64	21.61		2
64QAM	1	0	21.90	21.96	21.95	0-2	2
	1	7	21.88	21.82	22.00		2
	1	14	21.85	21.84	21.94		2
	8	0	20.57	20.76	20.84	0-3	3
	8	4	20.68	20.77	20.85		3
	8	7	20.69	20.61	20.83		3
	15	0	20.52	20.58	20.68		3

Table 9-29
LTE Band 2 (PCS) Conducted Powers -1.4 MHz Bandwidth

LTE Band 2 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18607 (1850.7 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19193 (1909.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.40	23.64	23.61	0	0
	1	2	23.46	23.60	23.67		0
	1	5	23.49	23.56	23.64		0
	3	0	23.48	23.63	23.73		0
	3	2	23.51	23.71	23.59		0
	3	3	23.43	23.59	23.67		0
	6	0	22.43	22.64	22.60	0-1	1
16QAM	1	0	22.82	22.90	22.93	0-1	1
	1	2	22.87	22.95	23.00		1
	1	5	22.77	22.85	22.86		1
	3	0	22.66	22.71	22.75		1
	3	2	22.63	22.70	22.68		1
	3	3	22.63	22.71	22.81		1
	6	0	21.53	21.66	21.74	0-2	2
64QAM	1	0	21.69	21.88	21.97	0-2	2
	1	2	21.74	21.86	21.96		2
	1	5	21.64	21.68	21.83		2
	3	0	21.68	21.65	21.64		2
	3	2	21.67	21.64	21.64		2
	3	3	21.66	21.63	21.61		2
	6	0	20.55	20.61	20.69	0-3	3

9.5 WLAN Conducted Powers

Table 9-30
2.4 GHz WLAN Maximum Average RF Power

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	22.65	18.38	17.76
2422	3	N/A	21.67	20.90
2437	6	22.44	21.70	20.91
2452	9	N/A	21.63	20.64
2462	11	22.45	18.02	17.06

Table 9-31
5 GHz WLAN Maximum Average RF Power

5GHz (20MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
		Average	Average	Average
5180	36	15.36	14.47	11.31
5200	40	18.63	17.82	14.83
5220	44	18.64	17.72	14.70
5240	48	18.71	17.63	14.64
5260	52	18.66	17.56	14.70
5280	56	18.68	17.69	14.77
5300	60	18.67	17.72	14.89
5320	64	15.42	14.50	11.30
5500	100	15.61	14.64	11.48
5520	104	19.01	18.06	15.18
5600	120	18.83	17.85	14.99
5680	136	18.78	17.97	15.00
5700	140	17.55	16.59	13.49
5745	149	17.64	16.63	13.48
5765	153	19.35	18.35	15.43
5785	157	19.29	18.41	15.48
5805	161	19.30	18.40	15.56
5825	165	17.42	16.52	13.30

Table 9-32
2.4 GHz WLAN Reduced Average RF Power

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	18.97	15.50	15.88
2422	3	N/A	18.67	18.67
2437	6	18.62	18.51	18.55
2452	9	N/A	18.66	18.63
2462	11	18.80	14.88	14.86

Table 9-33
5 GHz WLAN Reduced Average RF Power

5GHz (20MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11a	802.11n
		Average	Average
5180	36	13.60	13.76
5200	40	17.08	17.05
5220	44	16.94	16.98
5240	48	16.90	16.99
5260	52	16.79	16.79
5280	56	16.82	16.78
5300	60	16.81	16.85
5320	64	13.35	13.36
5500	100	13.37	13.40
5520	104	16.74	16.67
5600	120	16.71	16.62
5680	136	16.73	16.69
5700	140	15.33	15.34
5745	149	15.45	15.49
5765	153	17.43	17.51
5785	157	17.38	17.38
5805	161	17.39	17.35
5825	165	15.54	15.59

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

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

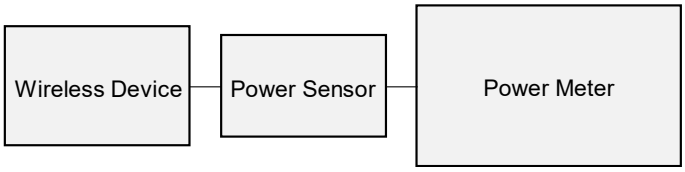

Figure 9-4
Power Measurement Setup

9.6 Bluetooth Conducted Powers

Table 9-34
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	9.32	8.546
2441	1.0	39	10.71	11.787
2480	1.0	78	9.15	8.217
2402	2.0	0	8.66	7.343
2441	2.0	39	10.08	10.177
2480	2.0	78	8.51	7.090
2402	3.0	0	8.72	7.445
2441	3.0	39	10.09	10.212
2480	3.0	78	8.56	7.172

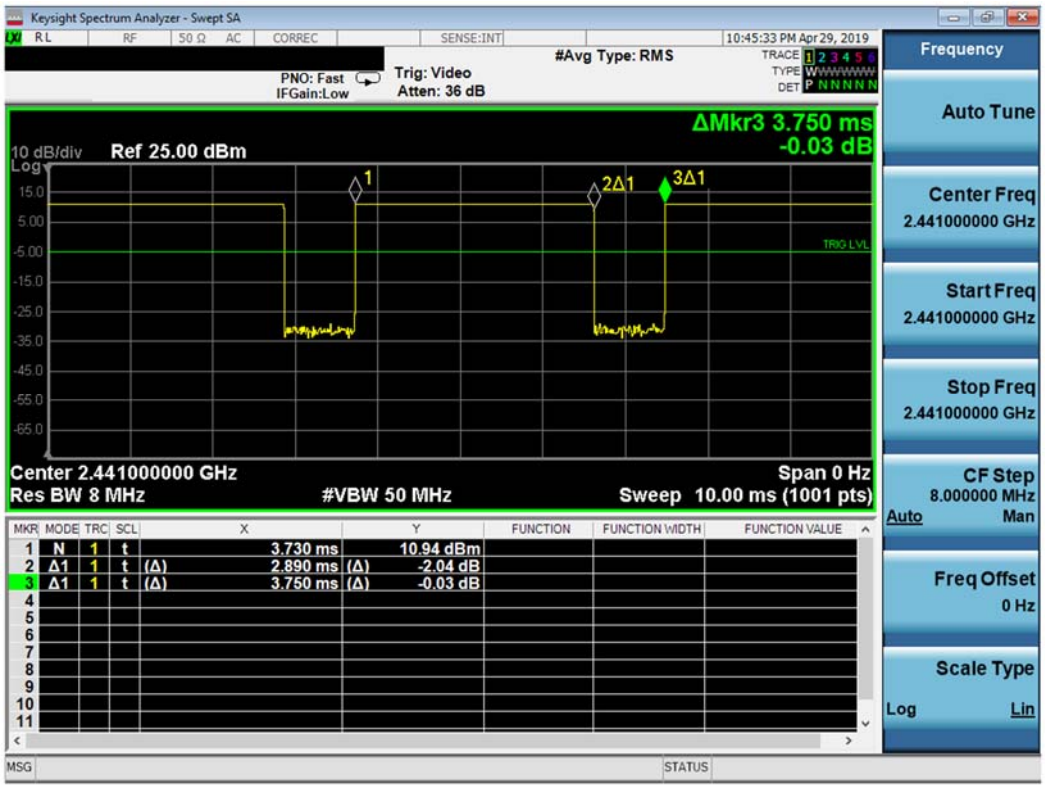

Figure 9-5
Bluetooth Transmission Plot

Equation 9-1
Bluetooth Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.89ms}{3.75ms} * 100\% = 77.1\%$$

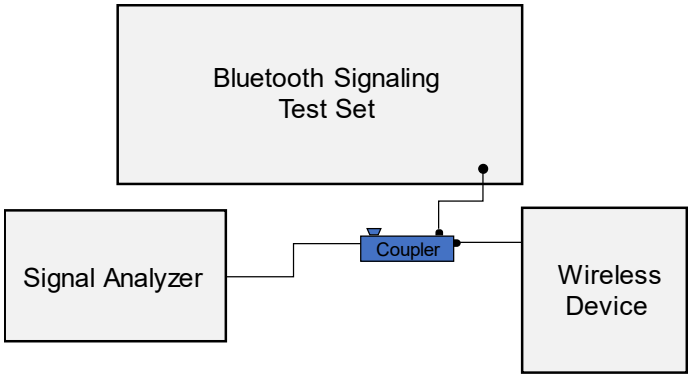

Figure 9-6
Power Measurement Setup

10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
4/22/2019	750H	21.5	680	0.881	40.775	0.888	42.305	-0.79%	-3.62%
			695	0.886	40.722	0.889	42.227	-0.34%	-3.56%
			700	0.888	40.708	0.889	42.201	-0.11%	-3.54%
			710	0.891	40.674	0.890	42.149	0.11%	-3.50%
			740	0.903	40.566	0.893	41.994	1.12%	-3.40%
			755	0.908	40.509	0.894	41.916	1.57%	-3.36%
			770	0.914	40.468	0.895	41.838	2.12%	-3.27%
			785	0.919	40.413	0.896	41.760	2.57%	-3.23%
4/21/2019	835H	23.5	820	0.938	42.822	0.899	41.578	4.34%	2.99%
			835	0.942	42.780	0.900	41.500	4.67%	3.08%
			850	0.945	42.738	0.916	41.500	3.17%	2.98%
4/15/2019	1750H	20.6	1710	1.328	39.562	1.348	40.142	-1.48%	-1.44%
			1750	1.353	39.507	1.371	40.079	-1.31%	-1.43%
			1790	1.378	39.433	1.394	40.016	-1.15%	-1.46%
4/19/2019	1900H	23.0	1850	1.429	39.158	1.400	40.000	2.07%	-2.11%
			1880	1.447	39.120	1.400	40.000	3.36%	-2.20%
			1910	1.465	39.080	1.400	40.000	4.64%	-2.30%
4/28/2019	1900H	21.5	1850	1.430	39.793	1.400	40.000	2.14%	-0.52%
			1880	1.450	39.748	1.400	40.000	3.57%	-0.63%
			1910	1.469	39.684	1.400	40.000	4.93%	-0.79%
5/14/2019	1900H	19.5	1850	1.422	39.948	1.400	40.000	1.57%	-0.13%
			1880	1.443	39.889	1.400	40.000	3.07%	-0.28%
			1910	1.463	39.835	1.400	40.000	4.50%	-0.41%
4/23/2019	2450H	22.5	2400	1.770	37.398	1.756	39.289	0.80%	-4.81%
			2450	1.805	37.334	1.800	39.200	0.28%	-4.76%
			2500	1.840	37.258	1.855	39.136	-0.81%	-4.80%
4/29/2019	2450H	19.9	2400	1.782	37.853	1.756	39.289	1.48%	-3.65%
			2450	1.820	37.749	1.800	39.200	1.11%	-3.70%
			2500	1.861	37.672	1.855	39.136	0.32%	-3.74%
04/15/2019	5250H-5750H	21.9	5180	4.552	35.859	4.635	36.009	-1.79%	-0.42%
			5200	4.576	35.833	4.655	35.986	-1.70%	-0.43%
			5220	4.595	35.800	4.676	35.963	-1.73%	-0.45%
			5240	4.612	35.754	4.696	35.940	-1.79%	-0.52%
			5260	4.634	35.706	4.717	35.917	-1.76%	-0.59%
			5280	4.659	35.671	4.737	35.894	-1.65%	-0.62%
			5300	4.682	35.646	4.758	35.871	-1.60%	-0.63%
			5320	4.705	35.613	4.778	35.849	-1.53%	-0.66%
			5500	4.903	35.280	4.963	35.643	-1.21%	-1.02%
			5520	4.931	35.249	4.983	35.620	-1.04%	-1.04%
			5540	4.955	35.214	5.004	35.597	-0.98%	-1.08%
			5560	4.977	35.173	5.024	35.574	-0.94%	-1.13%
			5580	4.999	35.141	5.045	35.551	-0.91%	-1.15%
			5600	5.019	35.104	5.065	35.529	-0.91%	-1.20%
			5620	5.049	35.058	5.086	35.506	-0.73%	-1.26%
			5640	5.073	35.026	5.106	35.483	-0.65%	-1.29%
			5660	5.093	34.989	5.127	35.460	-0.66%	-1.33%
			5680	5.116	34.968	5.147	35.437	-0.60%	-1.32%
			5700	5.139	34.931	5.168	35.414	-0.56%	-1.36%
			5745	5.195	34.832	5.214	35.363	-0.36%	-1.50%
			5765	5.216	34.817	5.234	35.340	-0.34%	-1.48%
			5785	5.238	34.785	5.255	35.317	-0.32%	-1.51%
			5800	5.253	34.751	5.270	35.300	-0.32%	-1.56%
			5805	5.258	34.740	5.275	35.294	-0.32%	-1.57%
			5825	5.283	34.694	5.296	35.271	-0.25%	-1.64%

Table 10-2
Measured Body Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
4/24/2019	750B	21.0	680	0.936	54.763	0.958	55.804	-2.30%	-1.87%
			695	0.941	54.730	0.959	55.745	-1.88%	-1.82%
			700	0.943	54.721	0.959	55.726	-1.67%	-1.80%
			710	0.947	54.697	0.960	55.687	-1.35%	-1.78%
			740	0.958	54.621	0.963	55.570	-0.52%	-1.71%
			755	0.964	54.585	0.964	55.512	0.00%	-1.67%
			770	0.969	54.555	0.965	55.453	0.41%	-1.62%
			785	0.975	54.522	0.966	55.395	0.93%	-1.58%
4/29/2019	835B	19.8	820	0.990	52.995	0.969	55.258	2.17%	-4.10%
			835	0.996	52.959	0.970	55.200	2.68%	-4.06%
			850	1.002	52.927	0.988	55.154	1.42%	-4.04%
5/1/2019	835B	22.4	820	0.995	52.856	0.969	55.258	2.68%	-4.35%
			835	1.001	52.822	0.970	55.200	3.20%	-4.31%
			850	1.006	52.791	0.988	55.154	1.82%	-4.28%
4/29/2019	1750B	19.9	1710	1.484	52.043	1.463	53.537	1.44%	-2.79%
			1750	1.529	51.886	1.488	53.432	2.76%	-2.89%
			1790	1.575	51.742	1.514	53.326	4.03%	-2.97%
5/1/2019	1750B	21.9	1710	1.453	52.642	1.463	53.537	-0.68%	-1.67%
			1750	1.497	52.486	1.488	53.432	0.60%	-1.77%
			1790	1.540	52.312	1.514	53.326	1.72%	-1.90%
4/23/2019	1900B	22.6	1850	1.504	52.383	1.520	53.300	-1.05%	-1.72%
			1880	1.538	52.295	1.520	53.300	1.18%	-1.89%
			1910	1.570	52.209	1.520	53.300	3.29%	-2.05%
4/29/2019	1900B	22.9	1850	1.526	53.221	1.520	53.300	0.39%	-0.15%
			1880	1.560	53.108	1.520	53.300	2.63%	-0.36%
			1910	1.593	53.005	1.520	53.300	4.80%	-0.55%
5/1/2019	1900B	22.5	1850	1.526	52.535	1.520	53.300	0.39%	-1.44%
			1880	1.557	52.423	1.520	53.300	2.43%	-1.65%
			1910	1.590	52.330	1.520	53.300	4.61%	-1.82%
5/15/2019	1900B	22.7	1850	1.521	52.154	1.520	53.300	0.07%	-2.15%
			1880	1.552	52.031	1.520	53.300	2.11%	-2.38%
			1910	1.586	51.946	1.520	53.300	4.34%	-2.54%
4/25/2019	2450B	22.5	2400	1.981	50.843	1.902	52.767	4.15%	-3.65%
			2450	2.039	50.698	1.950	52.700	4.56%	-3.80%
			2500	2.092	50.568	2.021	52.636	3.51%	-3.93%
04/14/2019	5250B-5750B	22.0	5180	5.277	47.494	5.276	49.041	0.02%	-3.15%
			5200	5.310	47.457	5.299	49.014	0.21%	-3.18%
			5220	5.337	47.394	5.323	48.987	0.26%	-3.25%
			5240	5.369	47.350	5.346	48.960	0.43%	-3.29%
			5260	5.390	47.306	5.369	48.933	0.39%	-3.32%
			5280	5.418	47.296	5.393	48.906	0.46%	-3.29%
			5300	5.448	47.266	5.416	48.879	0.59%	-3.30%
			5320	5.475	47.222	5.439	48.851	0.66%	-3.33%
			5500	5.720	46.889	5.650	48.607	1.24%	-3.53%
			5520	5.750	46.841	5.673	48.580	1.36%	-3.58%
			5540	5.793	46.783	5.696	48.553	1.70%	-3.65%
			5560	5.822	46.735	5.720	48.526	1.78%	-3.69%
			5580	5.852	46.731	5.743	48.499	1.90%	-3.65%
			5600	5.876	46.696	5.766	48.471	1.91%	-3.66%
			5620	5.897	46.645	5.790	48.444	1.85%	-3.71%
			5640	5.933	46.589	5.813	48.417	2.06%	-3.78%
			5660	5.974	46.538	5.837	48.390	2.35%	-3.83%
			5680	6.003	46.517	5.860	48.363	2.44%	-3.82%
			5700	6.029	46.514	5.883	48.336	2.48%	-3.77%
			5745	6.097	46.410	5.936	48.275	2.71%	-3.86%
			5765	6.123	46.351	5.959	48.248	2.75%	-3.93%
			5785	6.159	46.306	5.982	48.220	2.96%	-3.97%
			5800	6.181	46.301	6.000	48.200	3.02%	-3.94%
			5805	6.187	46.300	6.006	48.193	3.01%	-3.93%
			5825	6.211	46.284	6.029	48.166	3.02%	-3.91%

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 – 1g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	$Deviation_{1g}$ (%)
H	750	HEAD	04/22/2019	22.3	21.5	0.200	1003	7409	1.720	8.280	8.600	3.86%
D	835	HEAD	04/21/2019	22.3	22.1	0.200	4d132	3914	2.070	9.590	10.350	7.92%
E	1750	HEAD	04/15/2019	21.6	20.6	0.100	1008	3589	3.670	36.200	36.700	1.38%
H	1900	HEAD	04/19/2019	24.4	23.2	0.100	5d080	7409	4.180	39.800	41.800	5.03%
H	1900	HEAD	04/28/2019	23.5	21.5	0.100	5d080	7409	4.250	39.800	42.500	6.78%
E	1900	HEAD	05/14/2019	23.6	21.5	0.100	5d148	3589	3.970	39.100	39.700	1.53%
E	2450	HEAD	04/23/2019	24.6	22.5	0.100	981	3589	4.980	52.300	49.800	-4.78%
L	2450	HEAD	04/29/2019	20.1	19.9	0.100	719	7308	5.180	51.900	51.800	-0.19%
H	5250	HEAD	04/15/2019	23.0	21.9	0.050	1191	7409	4.110	78.900	82.200	4.18%
H	5600	HEAD	04/15/2019	23.0	21.9	0.050	1191	7409	4.230	83.600	84.600	1.20%
H	5750	HEAD	04/15/2019	23.0	21.9	0.050	1191	7409	4.070	79.100	81.400	2.91%
L	750	BODY	04/24/2019	21.7	20.5	0.200	1161	7308	1.730	8.430	8.650	2.61%
J	835	BODY	04/29/2019	18.8	19.8	0.200	4d132	7488	1.910	9.670	9.550	-1.24%
J	835	BODY	05/01/2019	23.3	22.4	0.200	4d132	7488	1.870	9.670	9.350	-3.31%
D	1750	BODY	04/29/2019	20.7	19.9	0.100	1148	3914	3.840	37.000	38.400	3.78%
D	1750	BODY	05/01/2019	22.3	21.9	0.100	1148	3914	3.820	37.000	38.200	3.24%
G	1900	BODY	04/23/2019	22.6	21.9	0.100	5d149	7410	4.010	39.400	40.100	1.78%
G	1900	BODY	04/29/2019	21.6	21.2	0.100	5d149	7410	4.300	39.400	43.000	9.14%
G	1900	BODY	05/01/2019	23.2	21.7	0.100	5d149	7410	4.210	39.400	42.100	6.85%
G	1900	BODY	05/15/2019	22.8	21.7	0.100	5d080	7410	4.180	39.200	41.800	6.63%
K	2450	BODY	04/25/2019	22.2	22.5	0.100	797	7417	5.100	51.100	51.000	-0.20%
L	5250	BODY	04/14/2019	22.0	21.5	0.050	1057	7308	3.560	75.900	71.200	-6.19%
L	5600	BODY	04/14/2019	22.0	21.5	0.050	1057	7308	4.020	79.900	80.400	0.63%
L	5750	BODY	04/14/2019	22.0	21.5	0.050	1057	7308	3.540	76.700	70.800	-7.69%

Table 10-4
System Verification Results – 10g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{10g} (W/kg)	1 W Target SAR_{10g} (W/kg)	1 W Normalized SAR_{10g} (W/kg)	$Deviation_{10g}$ (%)
G	1900	BODY	05/01/2019	23.2	21.7	0.100	5d149	7410	2.160	20.700	21.600	4.35%
L	5250	BODY	04/14/2019	22.0	21.5	0.050	1057	7308	0.985	21.100	19.700	-6.64%
L	5600	BODY	04/14/2019	22.0	21.5	0.050	1057	7308	1.090	22.300	21.800	-2.24%

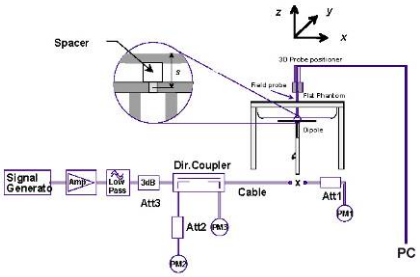

Figure 10-1
System Verification Setup Diagram

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	# of Time Slots	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.2	33.15	0.03	Right	Cheek	01283	1	1:8.3	0.113	1.012	0.114	
836.60	190	GSM 850	GSM	33.2	33.15	0.00	Right	Tilt	01283	1	1:8.3	0.057	1.012	0.058	
836.60	190	GSM 850	GSM	33.2	33.15	0.02	Left	Cheek	01283	1	1:8.3	0.105	1.012	0.106	
836.60	190	GSM 850	GSM	33.2	33.15	0.15	Left	Tilt	01283	1	1:8.3	0.059	1.012	0.060	
836.60	190	GSM 850	GPRS	30.7	30.48	-0.04	Right	Cheek	01283	3	1:2.76	0.167	1.052	0.176	A1
836.60	190	GSM 850	GPRS	30.7	30.48	-0.01	Right	Tilt	01283	3	1:2.76	0.086	1.052	0.090	
836.60	190	GSM 850	GPRS	30.7	30.48	0.08	Left	Cheek	01283	3	1:2.76	0.154	1.052	0.162	
836.60	190	GSM 850	GPRS	30.7	30.48	0.05	Left	Tilt	01283	3	1:2.76	0.096	1.052	0.101	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11-2
GSM 1900 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	# of Time Slots	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GSM	30.7	30.37	-0.02	Right	Cheek	01283	1	1:8.3	0.072	1.079	0.078	
1880.00	661	GSM 1900	GSM	30.7	30.37	-0.03	Right	Tilt	01283	1	1:8.3	0.057	1.079	0.062	
1880.00	661	GSM 1900	GSM	30.7	30.37	0.12	Left	Cheek	01283	1	1:8.3	0.056	1.079	0.060	
1880.00	661	GSM 1900	GSM	30.7	30.37	0.09	Left	Tilt	01283	1	1:8.3	0.038	1.079	0.041	
1880.00	661	GSM 1900	GPRS	27.2	26.87	-0.12	Right	Cheek	01283	3	1:2.76	0.093	1.079	0.100	A2
1880.00	661	GSM 1900	GPRS	27.2	26.87	-0.06	Right	Tilt	01283	3	1:2.76	0.065	1.079	0.070	
1880.00	661	GSM 1900	GPRS	27.2	26.87	0.14	Left	Cheek	01283	3	1:2.76	0.069	1.079	0.074	
1880.00	661	GSM 1900	GPRS	27.2	26.87	-0.07	Left	Tilt	01283	3	1:2.76	0.050	1.079	0.054	
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
UMTS 850 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.60	4183	UMTS 850	RMC	25.5	25.31	0.04	Right	Cheek	01283	1:1	0.239	1.045	**0.250**	A3
836.60	4183	UMTS 850	RMC	25.5	25.31	0.04	Right	Tilt	01283	1:1	0.120	1.045	0.125	
836.60	4183	UMTS 850	RMC	25.5	25.31	0.04	Left	Cheek	01283	1:1	0.213	1.045	0.223	
836.60	4183	UMTS 850	RMC	25.5	25.31	0.03	Left	Tilt	01283	1:1	0.133	1.045	0.139	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**							**Head** **1.6 W/kg (mW/g)** averaged over 1 gram							

Table 11-4
UMTS 1750 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1732.40	1412	UMTS 1750	RMC	24.0	23.95	0.02	Right	Cheek	01283	1:1	0.151	1.012	0.153	A4
1732.40	1412	UMTS 1750	RMC	24.0	23.95	0.10	Right	Tilt	01283	1:1	0.101	1.012	0.102	
1732.40	1412	UMTS 1750	RMC	24.0	23.95	0.06	Left	Cheek	01283	1:1	0.124	1.012	0.125	
1732.40	1412	UMTS 1750	RMC	24.0	23.95	0.09	Left	Tilt	01283	1:1	0.066	1.012	0.067	
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	24.0	23.95	-0.03	Right	Cheek	01283	1:1	0.134	1.012	0.136	A5
1880.00	9400	UMTS 1900	RMC	24.0	23.95	-0.02	Right	Tilt	01283	1:1	0.068	1.012	0.069	
1880.00	9400	UMTS 1900	RMC	24.0	23.95	-0.01	Left	Cheek	01283	1:1	0.113	1.012	0.114	
1880.00	9400	UMTS 1900	RMC	24.0	23.95	0.21	Left	Tilt	01283	1:1	0.058	1.012	0.059	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**							**Head** **1.6 W/kg (mW/g)** averaged over 1 gram							

Table 11-6
Cell. CDMA Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.52	384	Cell. CDMA	RC3 / SO55	25.0	24.85	0.03	Right	Cheek	01283	1:1	0.204	1.035	0.211	
836.52	384	Cell. CDMA	RC3 / SO55	25.0	24.85	0.03	Right	Tilt	01283	1:1	0.113	1.035	0.117	
836.52	384	Cell. CDMA	RC3 / SO55	25.0	24.85	0.06	Left	Cheek	01283	1:1	0.205	1.035	0.212	
836.52	384	Cell. CDMA	RC3 / SO55	25.0	24.85	0.10	Left	Tilt	01283	1:1	0.132	1.035	0.137	
836.52	384	Cell. CDMA	EVDO Rev. A	25.0	24.88	-0.01	Right	Cheek	01283	1:1	0.212	1.028	0.218	A6
836.52	384	Cell. CDMA	EVDO Rev. A	25.0	24.88	0.07	Right	Tilt	01283	1:1	0.143	1.028	0.147	
836.52	384	Cell. CDMA	EVDO Rev. A	25.0	24.88	0.06	Left	Cheek	01283	1:1	0.201	1.028	0.207	
836.52	384	Cell. CDMA	EVDO Rev. A	25.0	24.88	0.05	Left	Tilt	01283	1:1	0.174	1.028	0.179	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-7
PCS CDMA Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	600	PCS CDMA	RC3 / SO55	24.7	24.50	-0.10	Right	Cheek	01283	1:1	0.194	1.047	0.203	A7
1880.00	600	PCS CDMA	RC3 / SO55	24.7	24.50	0.01	Right	Tilt	01283	1:1	0.099	1.047	0.104	
1880.00	600	PCS CDMA	RC3 / SO55	24.7	24.50	-0.01	Left	Cheek	01283	1:1	0.146	1.047	0.153	
1880.00	600	PCS CDMA	RC3 / SO55	24.7	24.50	0.04	Left	Tilt	01283	1:1	0.069	1.047	0.072	
1880.00	600	PCS CDMA	EVDO Rev. A	24.7	24.68	-0.04	Right	Cheek	01283	1:1	0.188	1.005	0.189	
1880.00	600	PCS CDMA	EVDO Rev. A	24.7	24.68	-0.01	Right	Tilt	01283	1:1	0.085	1.005	0.085	
1880.00	600	PCS CDMA	EVDO Rev. A	24.7	24.68	0.05	Left	Cheek	01283	1:1	0.165	1.005	0.166	
1880.00	600	PCS CDMA	EVDO Rev. A	24.7	24.68	0.19	Left	Tilt	01283	1:1	0.087	1.005	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 11-8
LTE Band 71 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
680.50	133297	Mid	LTE Band 71	20	25.5	25.50	-0.13	0	Right	Cheek	QPSK	1	0	01291	1:1	0.164	1.000	0.164	
680.50	133297	Mid	LTE Band 71	20	24.5	24.50	-0.13	1	Right	Cheek	QPSK	50	0	01291	1:1	0.110	1.000	0.110	
680.50	133297	Mid	LTE Band 71	20	25.5	25.50	-0.08	0	Right	Tilt	QPSK	1	0	01291	1:1	0.065	1.000	0.065	
680.50	133297	Mid	LTE Band 71	20	24.5	24.50	-0.20	1	Right	Tilt	QPSK	50	0	01291	1:1	0.022	1.000	0.022	
680.50	133297	Mid	LTE Band 71	20	25.5	25.50	-0.18	0	Left	Cheek	QPSK	1	0	01291	1:1	0.207	1.000	0.207	A8
680.50	133297	Mid	LTE Band 71	20	24.5	24.50	0.10	1	Left	Cheek	QPSK	50	0	01291	1:1	0.122	1.000	0.122	
680.50	133297	Mid	LTE Band 71	20	25.5	25.50	-0.02	0	Left	Tilt	QPSK	1	0	01291	1:1	0.058	1.000	0.058	
680.50	133297	Mid	LTE Band 71	20	24.5	24.50	0.19	1	Left	Tilt	QPSK	50	0	01291	1:1	0.050	1.000	0.050	

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

Table 11-9
LTE Band 12 Head SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	25.5	25.13	0.02	0	Right	Cheek	QPSK	1	0	01291	1:1	0.183	1.089	0.199	
707.50	23095	Mid	LTE Band 12	10	24.5	24.23	0.06	1	Right	Cheek	QPSK	25	25	01291	1:1	0.132	1.064	0.140	
707.50	23095	Mid	LTE Band 12	10	25.5	25.13	0.03	0	Right	Tilt	QPSK	1	0	01291	1:1	0.091	1.089	0.099	
707.50	23095	Mid	LTE Band 12	10	24.5	24.23	-0.08	1	Right	Tilt	QPSK	25	25	01291	1:1	0.068	1.064	0.072	
707.50	23095	Mid	LTE Band 12	10	25.5	25.13	-0.01	0	Left	Cheek	QPSK	1	0	01291	1:1	0.183	1.089	0.199	A9
707.50	23095	Mid	LTE Band 12	10	24.5	24.23	0.00	1	Left	Cheek	QPSK	25	25	01291	1:1	0.131	1.064	0.139	
707.50	23095	Mid	LTE Band 12	10	25.5	25.13	-0.03	0	Left	Tilt	QPSK	1	0	01291	1:1	0.098	1.089	0.107	
707.50	23095	Mid	LTE Band 12	10	24.5	24.23	0.09	1	Left	Tilt	QPSK	25	25	01291	1:1	0.074	1.064	0.079	

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

Table 11-10
LTE Band 13 Head SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	25.5	24.95	-0.14	0	Right	Cheek	QPSK	1	49	01291	1:1	0.203	1.135	0.230	A10
782.00	23230	Mid	LTE Band 13	10	24.5	24.35	-0.03	1	Right	Cheek	QPSK	25	12	01291	1:1	0.144	1.035	0.149	
782.00	23230	Mid	LTE Band 13	10	25.5	24.95	-0.12	0	Right	Tilt	QPSK	1	49	01291	1:1	0.076	1.135	0.086	
782.00	23230	Mid	LTE Band 13	10	24.5	24.35	0.12	1	Right	Tilt	QPSK	25	12	01291	1:1	0.073	1.035	0.076	
782.00	23230	Mid	LTE Band 13	10	25.5	24.95	0.01	0	Left	Cheek	QPSK	1	49	01291	1:1	0.149	1.135	0.169	
782.00	23230	Mid	LTE Band 13	10	24.5	24.35	0.13	1	Left	Cheek	QPSK	25	12	01291	1:1	0.135	1.035	0.140	
782.00	23230	Mid	LTE Band 13	10	25.5	24.95	-0.09	0	Left	Tilt	QPSK	1	49	01291	1:1	0.098	1.135	0.111	
782.00	23230	Mid	LTE Band 13	10	24.5	24.35	0.05	1	Left	Tilt	QPSK	25	12	01291	1:1	0.086	1.035	0.089	

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 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	25.5	25.07	0.11	0	Right	Cheek	QPSK	1	49	01309	1:1	0.205	1.104	0.226	A11
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.23	-0.01	1	Right	Cheek	QPSK	25	25	01309	1:1	0.145	1.064	0.154	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.07	-0.03	0	Right	Tilt	QPSK	1	49	01309	1:1	0.141	1.104	0.156	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.23	0.02	1	Right	Tilt	QPSK	25	25	01309	1:1	0.099	1.064	0.105	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.07	0.03	0	Left	Cheek	QPSK	1	49	01309	1:1	0.192	1.104	0.212	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.23	0.05	1	Left	Cheek	QPSK	25	25	01309	1:1	0.138	1.064	0.147	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.07	0.03	0	Left	Tilt	QPSK	1	49	01309	1:1	0.168	1.104	0.185	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.23	0.08	1	Left	Tilt	QPSK	25	25	01309	1:1	0.123	1.064	0.131	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

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

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.92	0.14	0	Right	Cheek	QPSK	1	0	01291	1:1	0.151	1.019	0.154	A12
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.71	0.16	1	Right	Cheek	QPSK	50	0	01291	1:1	0.126	1.069	0.135	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.92	0.10	0	Right	Tilt	QPSK	1	0	01291	1:1	0.101	1.019	0.103	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.71	0.05	1	Right	Tilt	QPSK	50	0	01291	1:1	0.086	1.069	0.092	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.92	0.10	0	Left	Cheek	QPSK	1	0	01291	1:1	0.126	1.019	0.128	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.71	0.02	1	Left	Cheek	QPSK	50	0	01291	1:1	0.097	1.069	0.104	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.92	0.09	0	Left	Tilt	QPSK	1	0	01291	1:1	0.067	1.019	0.068	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.71	0.15	1	Left	Tilt	QPSK	50	0	01291	1:1	0.049	1.069	0.052	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-13
LTE Band 2 (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	18700	Low	LTE Band 2 (PCS)	20	24.0	23.60	0.10	0	Right	Cheek	QPSK	1	0	01291	1:1	0.130	1.096	0.142	A13
1900.00	19100	High	LTE Band 2 (PCS)	20	23.0	22.40	0.06	1	Right	Cheek	QPSK	50	0	01291	1:1	0.117	1.148	0.134	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	23.60	0.00	0	Right	Tilt	QPSK	1	0	01291	1:1	0.069	1.096	0.076	
1900.00	19100	High	LTE Band 2 (PCS)	20	23.0	22.40	0.09	1	Right	Tilt	QPSK	50	0	01291	1:1	0.049	1.148	0.056	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	23.60	-0.07	0	Left	Cheek	QPSK	1	0	01291	1:1	0.125	1.096	0.137	
1900.00	19100	High	LTE Band 2 (PCS)	20	23.0	22.40	-0.02	1	Left	Cheek	QPSK	50	0	01291	1:1	0.099	1.148	0.114	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	23.60	0.03	0	Left	Tilt	QPSK	1	0	01291	1:1	0.073	1.096	0.080	
1900.00	19100	High	LTE Band 2 (PCS)	20	23.0	22.40	0.13	1	Left	Tilt	QPSK	50	0	01291	1:1	0.061	1.148	0.070	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-14
DTS Head SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	19.0	18.97	-0.19	Right	Cheek	01374	1	99.9	1.006	0.634	1.007	1.001	0.639	
2437	6	802.11b	DSSS	22	19.0	18.62	0.07	Right	Cheek	01374	1	99.9	1.057	0.756	1.091	1.001	**0.826**	
2462	11	802.11b	DSSS	22	19.0	18.80	0.12	Right	Cheek	01374	1	99.9	1.084	0.765	1.047	1.001	0.802	A14
2412	1	802.11b	DSSS	22	19.0	18.97	0.02	Right	Tilt	01374	1	99.9	0.787	0.587	1.007	1.001	0.592	
2412	1	802.11b	DSSS	22	19.0	18.97	-0.11	Left	Cheek	01374	1	99.9	0.220	-	1.007	1.001	-	
2412	1	802.11b	DSSS	22	19.0	18.97	0.16	Left	Tilt	01374	1	99.9	0.289	-	1.007	1.001	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Head** **1.6 W/kg (mW/g)** averaged over 1 gram										

Table 11-15
NII Head SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
5280	56	802.11a	OFDM	20	17.5	16.82	-0.10	Right	Cheek	01374	6	99.8	0.992	0.566	1.169	1.002	0.663	
5280	56	802.11a	OFDM	20	17.5	16.82	0.13	Right	Tilt	01374	6	99.8	0.772	0.283	1.169	1.002	0.331	
5280	56	802.11a	OFDM	20	17.5	16.82	-0.03	Left	Cheek	01374	6	99.8	0.402	-	1.169	1.002	-	
5280	56	802.11a	OFDM	20	17.5	16.82	0.18	Left	Tilt	01374	6	99.8	0.336	-	1.169	1.002	-	
5520	104	802.11a	OFDM	20	17.5	16.74	-0.03	Right	Cheek	01374	6	99.8	1.290	0.651	1.191	1.002	0.777	
5600	120	802.11a	OFDM	20	17.5	16.71	0.19	Right	Cheek	01374	6	99.8	1.351	0.642	1.199	1.002	0.771	
5680	136	802.11a	OFDM	20	17.5	16.73	0.03	Right	Cheek	01374	6	99.8	1.343	0.618	1.194	1.002	0.739	
5520	104	802.11a	OFDM	20	17.5	16.74	0.17	Right	Tilt	01374	6	99.8	0.713	0.376	1.191	1.002	0.449	
5520	104	802.11a	OFDM	20	17.5	16.74	0.13	Left	Cheek	01374	6	99.8	0.331	-	1.191	1.002	-	
5520	104	802.11a	OFDM	20	17.5	16.74	0.11	Left	Tilt	01374	6	99.8	0.674	-	1.191	1.002	-	
5765	153	802.11a	OFDM	20	18.0	17.43	0.00	Right	Cheek	01374	6	99.8	1.429	0.714	1.140	1.002	0.816	A15
5805	161	802.11a	OFDM	20	18.0	17.39	0.01	Right	Cheek	01374	6	99.8	1.575	0.713	1.151	1.002	0.822	
5765	153	802.11a	OFDM	20	18.0	17.43	0.15	Right	Tilt	01374	6	99.8	1.121	0.357	1.140	1.002	0.408	
5765	153	802.11a	OFDM	20	18.0	17.43	-0.12	Left	Cheek	01374	6	99.8	0.450	-	1.140	1.002	-	
5765	153	802.11a	OFDM	20	18.0	17.43	-0.02	Left	Tilt	01374	6	99.8	0.392	-	1.140	1.002	-	
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
DSS Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441.00	39	Bluetooth	FHSS	11.0	10.71	0.06	Right	Cheek	01374	1	77.1	0.112	1.069	1.297	**0.155**	A16
2441.00	39	Bluetooth	FHSS	11.0	10.71	0.05	Right	Tilt	01374	1	77.1	0.110	1.069	1.297	0.153	
2441.00	39	Bluetooth	FHSS	11.0	10.71	0.11	Left	Cheek	01374	1	77.1	0.035	1.069	1.297	0.049	
2441.00	39	Bluetooth	FHSS	11.0	10.71	0.08	Left	Tilt	01374	1	77.1	0.041	1.069	1.297	0.057	
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 11-17
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	33.2	33.15	-0.02	10 mm	01283	1	1:8.3	back	0.377	1.012	0.382	
836.60	190	GSM 850	GPRS	30.7	30.48	0.02	10 mm	01283	3	1:2.76	back	0.538	1.052	0.566	A17
1880.00	661	GSM 1900	GSM	30.7	30.37	0.02	10 mm	01283	1	1:8.3	back	0.318	1.079	0.343	
1880.00	661	GSM 1900	GPRS	27.2	26.87	-0.12	10 mm	01283	3	1:2.76	back	0.375	1.079	0.405	A18
826.40	4132	UMTS 850	RMC	25.5	25.41	-0.20	10 mm	01283	N/A	1:1	back	0.668	1.021	0.682	
836.60	4183	UMTS 850	RMC	25.5	25.31	-0.04	10 mm	01283	N/A	1:1	back	0.721	1.045	**0.753**	A20
846.60	4233	UMTS 850	RMC	25.5	25.21	-0.20	10 mm	01283	N/A	1:1	back	0.666	1.069	0.712	
1732.40	1412	UMTS 1750	RMC	24.0	23.95	-0.01	10 mm	01283	N/A	1:1	back	0.557	1.012	0.564	A21
1852.40	9262	UMTS 1900	RMC	24.0	23.99	-0.05	10 mm	01283	N/A	1:1	back	0.610	1.002	0.611	A23
1880.00	9400	UMTS 1900	RMC	24.0	23.95	-0.01	10 mm	01283	N/A	1:1	back	0.602	1.012	0.609	
1907.60	9538	UMTS 1900	RMC	24.0	24.00	-0.07	10 mm	01283	N/A	1:1	back	0.582	1.000	0.582	
824.70	1013	Cell. CDMA	TDSO / SO32	25.0	24.94	-0.05	10 mm	01283	N/A	1:1	back	0.572	1.014	0.580	
836.52	384	Cell. CDMA	TDSO / SO32	25.0	24.87	0.01	10 mm	01283	N/A	1:1	back	0.604	1.030	0.622	A25
848.31	777	Cell. CDMA	TDSO / SO32	25.0	24.86	0.09	10 mm	01283	N/A	1:1	back	0.598	1.033	0.618	
1880.00	600	PCS CDMA	TDSO / SO32	24.7	24.41	-0.09	10 mm	01283	N/A	1:1	back	0.497	1.069	0.531	A27
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**							**Body** **1.6 W/kg (mW/g)** averaged over 1 gram								

Table 11-18
LTE Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
680.50	133297	Mid	LTE Band 71	20	25.5	25.50	0.00	0	01309	QPSK	1	0	10 mm	back	1:1	0.409	1.000	0.409	A29
680.50	133297	Mid	LTE Band 71	20	24.5	24.50	0.03	1	01309	QPSK	50	0	10 mm	back	1:1	0.349	1.000	0.349	
707.50	23095	Mid	LTE Band 12	10	25.5	25.13	-0.01	0	01309	QPSK	1	0	10 mm	back	1:1	0.357	1.089	0.389	A30
707.50	23095	Mid	LTE Band 12	10	24.5	24.23	0.00	1	01309	QPSK	25	25	10 mm	back	1:1	0.323	1.064	0.344	
782.00	23230	Mid	LTE Band 13	10	25.5	24.95	0.00	0	01309	QPSK	1	49	10 mm	back	1:1	0.466	1.135	0.529	A31
782.00	23230	Mid	LTE Band 13	10	24.5	24.35	0.02	1	01309	QPSK	25	12	10 mm	back	1:1	0.406	1.035	0.420	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.07	0.02	0	01317	QPSK	1	49	10 mm	back	1:1	0.630	1.104	0.696	A32
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.23	0.00	1	01317	QPSK	25	25	10 mm	back	1:1	0.455	1.064	0.484	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.92	-0.08	0	01291	QPSK	1	0	10 mm	back	1:1	0.532	1.019	0.542	A33
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.71	-0.03	1	01291	QPSK	50	0	10 mm	back	1:1	0.458	1.069	0.490	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	23.60	-0.06	0	01291	QPSK	1	0	10 mm	back	1:1	0.660	1.096	0.723	A35
1880.00	18900	Mid	LTE Band 2 (PCS)	20	24.0	23.55	-0.04	0	01291	QPSK	1	0	10 mm	back	1:1	0.604	1.109	0.670	
1900.00	19100	High	LTE Band 2 (PCS)	20	24.0	23.53	-0.03	0	01291	QPSK	1	0	10 mm	back	1:1	0.573	1.114	0.638	
1900.00	19100	High	LTE Band 2 (PCS)	20	23.0	22.40	-0.01	1	01291	QPSK	50	0	10 mm	back	1:1	0.526	1.148	0.604	
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
DTS Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	23.0	22.65	0.15	10 mm	01374	1	back	99.9	0.614	0.480	1.084	1.001	**0.521**	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										

Table 11-20
NII Body-Worn SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
5260	52	802.11a	OFDM	20	19.5	18.66	-0.03	10 mm	01374	6	back	99.8	1.044	0.547	1.213	1.002	**0.665**	
5280	56	802.11a	OFDM	20	19.5	18.68	0.11	10 mm	01374	6	back	99.8	1.016	0.556	1.208	1.002	**0.673**	A39
5300	60	802.11a	OFDM	20	19.5	18.67	-0.10	10 mm	01374	6	back	99.8	1.073	0.538	1.211	1.002	0.653	
5520	104	802.11a	OFDM	20	19.5	19.01	-0.10	10 mm	01374	6	back	99.8	0.679	0.542	1.119	1.002	0.608	
5765	153	802.11a	OFDM	20	20.0	19.35	-0.14	10 mm	01374	6	back	99.8	1.006	0.549	1.161	1.002	0.639	
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
DSS Body-Worn SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441	39	Bluetooth	FHSS	11.0	10.71	-0.07	10 mm	01374	1	back	77.1	0.035	1.069	1.297	**0.049**	A41
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram									

11.3 Standalone Hotspot SAR Data

Table 11-22
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	30.7	30.48	0.02	10 mm	01283	3	1:2.76	back	0.538	1.052	0.566	A17
836.60	190	GSM 850	GPRS	30.7	30.48	-0.05	10 mm	01283	3	1:2.76	front	0.405	1.052	0.426	
836.60	190	GSM 850	GPRS	30.7	30.48	0.04	10 mm	01283	3	1:2.76	bottom	0.203	1.052	0.214	
836.60	190	GSM 850	GPRS	30.7	30.48	-0.06	10 mm	01283	3	1:2.76	left	0.081	1.052	0.085	
1880.00	661	GSM 1900	GPRS	27.2	26.87	-0.12	10 mm	01283	3	1:2.76	back	0.375	1.079	0.405	
1880.00	661	GSM 1900	GPRS	27.2	26.87	0.01	10 mm	01283	3	1:2.76	front	0.395	1.079	0.426	
1850.20	512	GSM 1900	GPRS	27.2	27.01	-0.06	10 mm	01283	3	1:2.76	bottom	0.960	1.045	1.003	A19
1880.00	661	GSM 1900	GPRS	27.2	26.87	0.07	10 mm	01283	3	1:2.76	bottom	0.918	1.079	0.991	
1909.80	810	GSM 1900	GPRS	27.2	26.91	-0.05	10 mm	01283	3	1:2.76	bottom	0.910	1.069	0.973	
1880.00	661	GSM 1900	GPRS	27.2	26.87	-0.15	10 mm	01283	3	1:2.76	right	0.132	1.079	0.142	
826.40	4132	UMTS 850	RMC	25.5	25.41	-0.20	10 mm	01283	N/A	1:1	back	0.668	1.021	0.682	
836.60	4183	UMTS 850	RMC	25.5	25.31	-0.04	10 mm	01283	N/A	1:1	back	0.721	1.045	0.753	A20
846.60	4233	UMTS 850	RMC	25.5	25.21	-0.20	10 mm	01283	N/A	1:1	back	0.666	1.069	0.712	
836.60	4183	UMTS 850	RMC	25.5	25.31	-0.02	10 mm	01283	N/A	1:1	front	0.531	1.045	0.555	
836.60	4183	UMTS 850	RMC	25.5	25.31	-0.13	10 mm	01283	N/A	1:1	bottom	0.280	1.045	0.293	
836.60	4183	UMTS 850	RMC	25.5	25.31	-0.13	10 mm	01283	N/A	1:1	left	0.103	1.045	0.108	
1732.40	1412	UMTS 1750	RMC	24.0	23.95	-0.01	10 mm	01283	N/A	1:1	back	0.557	1.012	0.564	
1732.40	1412	UMTS 1750	RMC	24.0	23.95	-0.03	10 mm	01283	N/A	1:1	front	0.693	1.012	0.701	
1712.40	1312	UMTS 1750	RMC	24.0	23.91	-0.02	10 mm	01283	N/A	1:1	bottom	0.850	1.021	0.868	
1732.40	1412	UMTS 1750	RMC	24.0	23.95	-0.01	10 mm	01283	N/A	1:1	bottom	0.923	1.012	0.934	
1752.60	1513	UMTS 1750	RMC	24.0	23.93	-0.04	10 mm	01283	N/A	1:1	bottom	0.960	1.016	0.975	A22
1732.40	1412	UMTS 1750	RMC	24.0	23.95	0.03	10 mm	01283	N/A	1:1	right	0.282	1.012	0.285	
1852.40	9262	UMTS 1900	RMC	24.0	23.99	-0.05	10 mm	01283	N/A	1:1	back	0.610	1.002	0.611	
1880.00	9400	UMTS 1900	RMC	24.0	23.95	-0.01	10 mm	01283	N/A	1:1	back	0.602	1.012	0.609	
1907.60	9538	UMTS 1900	RMC	24.0	24.00	-0.07	10 mm	01283	N/A	1:1	back	0.582	1.000	0.582	
1880.00	9400	UMTS 1900	RMC	24.0	23.95	-0.03	10 mm	01283	N/A	1:1	front	0.554	1.012	0.561	
1852.40	9262	UMTS 1900	RMC	24.0	23.99	0.03	10 mm	01283	N/A	1:1	bottom	1.100	1.002	1.102	
1880.00	9400	UMTS 1900	RMC	24.0	23.95	-0.10	10 mm	01283	N/A	1:1	bottom	1.130	1.012	1.144	A24
1907.60	9538	UMTS 1900	RMC	24.0	24.00	-0.06	10 mm	01283	N/A	1:1	bottom	1.130	1.000	1.130	
1880.00	9400	UMTS 1900	RMC	24.0	23.95	0.00	10 mm	01283	N/A	1:1	right	0.198	1.012	0.200	
824.70	1013	Cell. CDMA	EVDO Rev. 0	25.0	24.93	-0.03	10 mm	01283	N/A	1:1	back	0.581	1.016	0.590	
836.52	384	Cell. CDMA	EVDO Rev. 0	25.0	24.83	0.02	10 mm	01283	N/A	1:1	back	0.624	1.040	0.649	A26
848.31	777	Cell. CDMA	EVDO Rev. 0	25.0	24.67	0.05	10 mm	01283	N/A	1:1	back	0.621	1.079	0.670	
836.52	384	Cell. CDMA	EVDO Rev. 0	25.0	24.83	0.02	10 mm	01283	N/A	1:1	front	0.436	1.040	0.453	
836.52	384	Cell. CDMA	EVDO Rev. 0	25.0	24.83	-0.03	10 mm	01283	N/A	1:1	bottom	0.264	1.040	0.275	
836.52	384	Cell. CDMA	EVDO Rev. 0	25.0	24.83	0.04	10 mm	01283	N/A	1:1	left	0.106	1.040	0.110	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.54	0.00	10 mm	01283	N/A	1:1	back	0.518	1.038	0.538	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.54	0.05	10 mm	01283	N/A	1:1	front	0.606	1.038	0.629	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.7	24.69	-0.10	10 mm	01283	N/A	1:1	bottom	1.250	1.002	1.253	A28
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.54	-0.02	10 mm	01283	N/A	1:1	bottom	1.220	1.038	**1.266**	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.7	24.61	-0.12	10 mm	01283	N/A	1:1	bottom	1.140	1.021	1.164	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.54	-0.18	10 mm	01283	N/A	1:1	right	0.151	1.038	0.157	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.7	24.69	-0.07	10 mm	01283	N/A	1:1	bottom	1.210	1.002	1.212	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram				

Note: Blue entry represents variability measurement.

Table 11-23
LTE Band 71 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
680.50	133297	Mid	LTE Band 71	20	25.5	25.50	0.00	0	01309	QPSK	1	0	10 mm	back	1:1	0.409	1.000	0.409	A29
680.50	133297	Mid	LTE Band 71	20	24.5	24.50	0.03	1	01309	QPSK	50	0	10 mm	back	1:1	0.349	1.000	0.349	
680.50	133297	Mid	LTE Band 71	20	25.5	25.50	0.12	0	01309	QPSK	1	0	10 mm	front	1:1	0.291	1.000	0.291	
680.50	133297	Mid	LTE Band 71	20	24.5	24.50	-0.06	1	01309	QPSK	50	0	10 mm	front	1:1	0.250	1.000	0.250	
680.50	133297	Mid	LTE Band 71	20	25.5	25.50	0.04	0	01309	QPSK	1	0	10 mm	bottom	1:1	0.092	1.000	0.092	
680.50	133297	Mid	LTE Band 71	20	24.5	24.50	-0.15	1	01309	QPSK	50	0	10 mm	bottom	1:1	0.073	1.000	0.073	
680.50	133297	Mid	LTE Band 71	20	25.5	25.50	-0.05	0	01309	QPSK	1	0	10 mm	left	1:1	0.348	1.000	0.348	
680.50	133297	Mid	LTE Band 71	20	24.5	24.50	0.04	1	01309	QPSK	50	0	10 mm	left	1:1	0.290	1.000	0.290	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram					

Table 11-24
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	25.5	25.13	-0.01	0	01309	QPSK	1	0	10 mm	back	1:1	0.357	1.089	0.389	A30
707.50	23095	Mid	LTE Band 12	10	24.5	24.23	0.00	1	01309	QPSK	25	25	10 mm	back	1:1	0.323	1.064	0.344	
707.50	23095	Mid	LTE Band 12	10	25.5	25.13	-0.17	0	01309	QPSK	1	0	10 mm	front	1:1	0.277	1.089	0.302	
707.50	23095	Mid	LTE Band 12	10	24.5	24.23	-0.01	1	01309	QPSK	25	25	10 mm	front	1:1	0.251	1.064	0.267	
707.50	23095	Mid	LTE Band 12	10	25.5	25.13	-0.13	0	01309	QPSK	1	0	10 mm	bottom	1:1	0.098	1.089	0.107	
707.50	23095	Mid	LTE Band 12	10	24.5	24.23	0.06	1	01309	QPSK	25	25	10 mm	bottom	1:1	0.090	1.064	0.096	
707.50	23095	Mid	LTE Band 12	10	25.5	25.13	0.00	0	01309	QPSK	1	0	10 mm	left	1:1	0.299	1.089	0.326	
707.50	23095	Mid	LTE Band 12	10	24.5	24.23	0.02	1	01309	QPSK	25	25	10 mm	left	1:1	0.248	1.064	0.264	
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 11-25
LTE Band 13 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	25.5	24.95	0.00	0	01309	QPSK	1	49	10 mm	back	1:1	0.466	1.135	0.529	A31
782.00	23230	Mid	LTE Band 13	10	24.5	24.35	0.02	1	01309	QPSK	25	12	10 mm	back	1:1	0.406	1.035	0.420	
782.00	23230	Mid	LTE Band 13	10	25.5	24.95	0.00	0	01309	QPSK	1	49	10 mm	front	1:1	0.360	1.135	0.409	
782.00	23230	Mid	LTE Band 13	10	24.5	24.35	-0.01	1	01309	QPSK	25	12	10 mm	front	1:1	0.326	1.035	0.337	
782.00	23230	Mid	LTE Band 13	10	25.5	24.95	-0.05	0	01309	QPSK	1	49	10 mm	bottom	1:1	0.151	1.135	0.171	
782.00	23230	Mid	LTE Band 13	10	24.5	24.35	-0.03	1	01309	QPSK	25	12	10 mm	bottom	1:1	0.140	1.035	0.145	
782.00	23230	Mid	LTE Band 13	10	25.5	24.95	0.18	0	01309	QPSK	1	49	10 mm	left	1:1	0.194	1.135	0.220	
782.00	23230	Mid	LTE Band 13	10	24.5	24.35	-0.03	1	01309	QPSK	25	12	10 mm	left	1:1	0.168	1.035	0.174	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram					

Table 11-26
LTE Band 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	25.5	25.07	0.02	0	01317	QPSK	1	49	10 mm	back	1:1	0.630	1.104	0.696	A32
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.23	0.00	1	01317	QPSK	25	25	10 mm	back	1:1	0.455	1.064	0.484	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.07	-0.02	0	01317	QPSK	1	49	10 mm	front	1:1	0.504	1.104	0.556	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.23	0.00	1	01317	QPSK	25	25	10 mm	front	1:1	0.361	1.064	0.384	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.07	0.09	0	01317	QPSK	1	49	10 mm	bottom	1:1	0.207	1.104	0.229	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.23	0.03	1	01317	QPSK	25	25	10 mm	bottom	1:1	0.149	1.064	0.159	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.07	0.06	0	01317	QPSK	1	49	10 mm	left	1:1	0.090	1.104	0.099	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.23	0.07	1	01317	QPSK	25	25	10 mm	left	1:1	0.069	1.064	0.073	
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 66 (AWS) Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.92	-0.08	0	01291	QPSK	1	0	10 mm	back	1:1	0.532	1.019	0.542	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.71	-0.03	1	01291	QPSK	50	0	10 mm	back	1:1	0.458	1.069	0.490	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.92	0.00	0	01291	QPSK	1	0	10 mm	front	1:1	0.597	1.019	0.608	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.71	0.00	1	01291	QPSK	50	0	10 mm	front	1:1	0.523	1.069	0.559	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.92	-0.01	0	01291	QPSK	1	0	10 mm	bottom	1:1	0.841	1.019	0.857	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.0	23.79	0.00	0	01291	QPSK	1	0	10 mm	bottom	1:1	0.934	1.050	0.981	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.0	23.70	0.03	0	01291	QPSK	1	0	10 mm	bottom	1:1	1.020	1.072	1.093	A34
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.64	0.00	1	01291	QPSK	50	25	10 mm	bottom	1:1	0.749	1.086	0.813	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.71	-0.02	1	01291	QPSK	50	0	10 mm	bottom	1:1	0.816	1.069	0.872	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.0	22.68	-0.03	1	01291	QPSK	50	0	10 mm	bottom	1:1	0.867	1.076	0.933	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.69	0.00	1	01291	QPSK	100	0	10 mm	bottom	1:1	0.782	1.074	0.840	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.92	-0.10	0	01291	QPSK	1	0	10 mm	right	1:1	0.231	1.019	0.235	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.71	-0.03	1	01291	QPSK	50	0	10 mm	right	1:1	0.207	1.069	0.221	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.0	23.70	-0.02	0	01291	QPSK	1	0	10 mm	bottom	1:1	1.020	1.072	1.093	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram						

Note: Blue entry represents variability measurement.

Table 11-28
LTE Band 2 (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	18700	Low	LTE Band 2 (PCS)	20	24.0	23.60	-0.06	0	01291	QPSK	1	0	10 mm	back	1:1	0.660	1.096	0.723	
1900.00	19100	High	LTE Band 2 (PCS)	20	23.0	22.40	-0.01	1	01291	QPSK	50	0	10 mm	back	1:1	0.526	1.148	0.604	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	23.60	0.01	0	01291	QPSK	1	0	10 mm	front	1:1	0.563	1.096	0.617	
1900.00	19100	High	LTE Band 2 (PCS)	20	23.0	22.40	-0.11	1	01291	QPSK	50	0	10 mm	front	1:1	0.460	1.148	0.528	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	23.60	0.04	0	01291	QPSK	1	0	10 mm	bottom	1:1	1.050	1.096	1.151	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	24.0	23.55	-0.01	0	01291	QPSK	1	0	10 mm	bottom	1:1	1.050	1.109	1.164	A36
1900.00	19100	High	LTE Band 2 (PCS)	20	24.0	23.53	-0.20	0	01291	QPSK	1	0	10 mm	bottom	1:1	1.020	1.114	1.136	
1860.00	18700	Low	LTE Band 2 (PCS)	20	23.0	22.38	0.15	1	01291	QPSK	50	50	10 mm	bottom	1:1	0.989	1.153	1.140	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	23.0	22.32	0.01	1	01291	QPSK	50	0	10 mm	bottom	1:1	0.961	1.169	1.123	
1900.00	19100	High	LTE Band 2 (PCS)	20	23.0	22.40	0.00	1	01291	QPSK	50	0	10 mm	bottom	1:1	0.907	1.148	1.041	
1900.00	19100	High	LTE Band 2 (PCS)	20	23.0	22.35	0.00	1	01291	QPSK	100	0	10 mm	bottom	1:1	0.918	1.161	1.066	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	23.60	0.03	0	01291	QPSK	1	0	10 mm	right	1:1	0.181	1.096	0.198	
1900.00	19100	High	LTE Band 2 (PCS)	20	23.0	22.40	0.00	1	01291	QPSK	50	0	10 mm	right	1:1	0.154	1.148	0.177	
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
WLAN Hotspot SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	23.0	22.65	0.15	10 mm	01374	1	back	99.9	0.614	-	1.084	1.001	-	
2412	1	802.11b	DSSS	22	23.0	22.65	0.12	10 mm	01374	1	front	99.9	0.449	-	1.084	1.001	-	
2412	1	802.11b	DSSS	22	23.0	22.65	-0.16	10 mm	01374	1	top	99.9	0.640	0.393	1.084	1.001	0.426	
2412	1	802.11b	DSSS	22	23.0	22.65	0.17	10 mm	01374	1	left	99.9	0.726	0.433	1.084	1.001	0.470	A38
5200	40	802.11a	OFDM	20	19.5	18.63	-0.15	10 mm	01374	6	back	99.8	0.790	0.620	1.222	1.002	**0.759**	A40
5220	44	802.11a	OFDM	20	19.5	18.64	-0.16	10 mm	01374	6	back	99.8	0.891	0.542	1.219	1.002	0.662	
5240	48	802.11a	OFDM	20	19.5	18.71	0.12	10 mm	01374	6	back	99.8	0.955	0.541	1.199	1.002	0.650	
5240	48	802.11a	OFDM	20	19.5	18.71	0.16	10 mm	01374	6	front	99.8	0.165	-	1.199	1.002	-	
5240	48	802.11a	OFDM	20	19.5	18.71	0.14	10 mm	01374	6	top	99.8	0.148	-	1.199	1.002	-	
5240	48	802.11a	OFDM	20	19.5	18.71	-0.13	10 mm	01374	6	left	99.8	0.767	0.329	1.199	1.002	0.395	
5765	153	802.11a	OFDM	20	20.0	19.35	-0.14	10 mm	01374	6	back	99.8	1.006	0.549	1.161	1.002	0.639	
5765	153	802.11a	OFDM	20	20.0	19.35	0.11	10 mm	01374	6	front	99.8	0.320	-	1.161	1.002	-	
5765	153	802.11a	OFDM	20	20.0	19.35	-0.13	10 mm	01374	6	top	99.8	0.115	-	1.161	1.002	-	
5765	153	802.11a	OFDM	20	20.0	19.35	-0.19	10 mm	01374	6	left	99.8	0.959	0.415	1.161	1.002	0.483	
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
DSS Hotspot SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441	39	Bluetooth	FHSS	11.0	10.71	-0.07	10 mm	01374	1	back	77.1	0.035	1.069	1.297	**0.049**	A41
2441	39	Bluetooth	FHSS	11.0	10.71	0.09	10 mm	01374	1	front	77.1	0.024	1.069	1.297	0.033	
2441	39	Bluetooth	FHSS	11.0	10.71	-0.12	10 mm	01374	1	top	77.1	0.029	1.069	1.297	0.040	
2441	39	Bluetooth	FHSS	11.0	10.71	0.12	10 mm	01374	1	left	77.1	0.033	1.069	1.297	**0.046**	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Body** **1.6 W/kg (mW/g)** averaged over 1 gram								

11.4 Standalone Phablet SAR Data

Table 11-31
CDMA Phablet SAR Data

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.7	24.69	-0.15	0 mm	01283	1:1	bottom	3.130	1.002	3.136	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.54	-0.20	0 mm	01283	1:1	bottom	2.920	1.038	3.031	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.7	24.61	-0.12	0 mm	01283	1:1	bottom	3.050	1.021	3.114	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.7	24.69	-0.09	0 mm	01283	1:1	bottom	3.140	1.002	**3.146**	A42
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Phablet** **4.0 W/kg (mW/g)** averaged over 10 grams						

Note: Blue entry represents variability measurement.

Table 11-32
WLAN Phablet SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
5260	52	802.11a	OFDM	20	19.5	18.66	-0.02	0 mm	01374	6	back	99.8	8.436	1.410	1.213	1.002	1.714	
5280	56	802.11a	OFDM	20	19.5	18.68	0.03	0 mm	01374	6	back	99.8	10.961	1.480	1.208	1.002	1.791	A43
5300	60	802.11a	OFDM	20	19.5	18.67	0.05	0 mm	01374	6	back	99.8	9.366	1.450	1.211	1.002	1.759	
5280	56	802.11a	OFDM	20	19.5	18.68	-0.06	0 mm	01374	6	front	99.8	4.329	-	1.208	1.002	-	
5280	56	802.11a	OFDM	20	19.5	18.68	-0.12	0 mm	01374	6	top	99.8	3.599	-	1.208	1.002	-	
5280	56	802.11a	OFDM	20	19.5	18.68	-0.08	0 mm	01374	6	left	99.8	10.595	1.020	1.208	1.002	1.235	
5520	104	802.11a	OFDM	20	19.5	19.01	0.16	0 mm	01374	6	back	99.8	8.879	1.370	1.119	1.002	1.536	
5520	104	802.11a	OFDM	20	19.5	19.01	-0.11	0 mm	01374	6	front	99.8	6.389	-	1.119	1.002	-	
5520	104	802.11a	OFDM	20	19.5	19.01	-0.16	0 mm	01374	6	top	99.8	4.938	-	1.119	1.002	-	
5520	104	802.11a	OFDM	20	19.5	19.01	-0.16	0 mm	01374	6	left	99.8	15.741	1.330	1.119	1.002	1.491	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Phablet** **4.0 W/kg (mW/g)** averaged over 10 grams										

11.5 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 10 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB Publication 648474 D04v01r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was ≤ 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were required.
8. Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 13 for variability analysis.
9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 6.7 for more details).
10. Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is > 160 mm and < 200 mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.
11. Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds below.
12. This device utilizes power reduction for some wireless modes and technologies, as outlined in Section 1.3. The maximum output power allowed for each transmitter and exposure condition was evaluated for SAR compliance based on expected use conditions and simultaneous transmission scenarios.

GSM Test Notes:

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

CDMA Notes:

1. Head SAR for CDMA2000 mode was tested under RC3/SO55 per FCC KDB Publication 941225 D01v03r01.
2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. EVDO Rev0 and RevA and TDSO / SO32 FCH+SCH SAR tests were not required per the 3G SAR Test Reduction Procedure in FCC KDB Publication 941225 D01v03r01.

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

UMTS Notes:

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

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r04. The general test procedures used for testing can be found in Section 8.6.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
4. Per KDB Publication 941225 D05Av01r02, SAR for downlink only LTE CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.

WLAN Notes:

1. For held-to-ear, hotspot, and phablet operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g evaluations, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI 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 operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 8.7.6 for more information.
4. When the maximum reported 1g averaged SAR is ≤0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.

5. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.
6. When 10-g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

Bluetooth Notes

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

12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

12.1 Introduction

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

12.2 Simultaneous Transmission Procedures

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

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

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

12.3 Head SAR Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	GSM/GPRS 850	0.176	0.826	1.002
	GSM/GPRS 1900	0.100	0.826	0.926
	UMTS 850	0.250	0.826	**1.076**
	UMTS 1750	0.153	0.826	0.979
	UMTS 1900	0.136	0.826	0.962
	Cell. CDMA/EVDO	0.218	0.826	1.044
	PCS CDMA/EVDO	0.203	0.826	1.029
	LTE Band 71	0.207	0.826	1.033
	LTE Band 12	0.199	0.826	1.025
	LTE Band 13	0.230	0.826	1.056
	LTE Band 5 (Cell)	0.226	0.826	1.052
	LTE Band 66 (AWS)	0.154	0.826	0.980
	LTE Band 2 (PCS)	0.142	0.826	0.968

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	GSM/GPRS 850	0.176	0.822	0.998
	GSM/GPRS 1900	0.100	0.822	0.922
	UMTS 850	0.250	0.822	**1.072**
	UMTS 1750	0.153	0.822	0.975
	UMTS 1900	0.136	0.822	0.958
	Cell. CDMA/EVDO	0.218	0.822	1.040
	PCS CDMA/EVDO	0.203	0.822	1.025
	LTE Band 71	0.207	0.822	1.029
	LTE Band 12	0.199	0.822	1.021
	LTE Band 13	0.230	0.822	1.052
	LTE Band 5 (Cell)	0.226	0.822	1.048
	LTE Band 66 (AWS)	0.154	0.822	0.976
	LTE Band 2 (PCS)	0.142	0.822	0.964

Table 12-3
Simultaneous Transmission Scenario with Bluetooth (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	GSM/GPRS 850	0.176	0.155	0.331
	GSM/GPRS 1900	0.100	0.155	0.255
	UMTS 850	0.250	0.155	**0.405**
	UMTS 1750	0.153	0.155	0.308
	UMTS 1900	0.136	0.155	0.291
	Cell. CDMA/EVDO	0.218	0.155	0.373
	PCS CDMA/EVDO	0.203	0.155	0.358
	LTE Band 71	0.207	0.155	0.362
	LTE Band 12	0.199	0.155	0.354
	LTE Band 13	0.230	0.155	0.385
	LTE Band 5 (Cell)	0.226	0.155	0.381
	LTE Band 66 (AWS)	0.154	0.155	0.309
	LTE Band 2 (PCS)	0.142	0.155	0.297

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	GSM/GPRS 850	0.176	0.822	0.155	1.153
	GSM/GPRS 1900	0.100	0.822	0.155	1.077
	UMTS 850	0.250	0.822	0.155	**1.227**
	UMTS 1750	0.153	0.822	0.155	1.130
	UMTS 1900	0.136	0.822	0.155	1.113
	Cell. CDMA/EVDO	0.218	0.822	0.155	1.195
	PCS CDMA/EVDO	0.203	0.822	0.155	1.180
	LTE Band 71	0.207	0.822	0.155	1.184
	LTE Band 12	0.199	0.822	0.155	1.176
	LTE Band 13	0.230	0.822	0.155	1.207
	LTE Band 5 (Cell)	0.226	0.822	0.155	1.203
	LTE Band 66 (AWS)	0.154	0.822	0.155	1.131
	LTE Band 2 (PCS)	0.142	0.822	0.155	1.119

12.4 Body-Worn Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	GSM/GPRS 850	0.566	0.521	1.087
	GSM/GPRS 1900	0.405	0.521	0.926
	UMTS 850	0.753	0.521	**1.274**
	UMTS 1750	0.564	0.521	1.085
	UMTS 1900	0.611	0.521	1.132
	Cell. CDMA	0.622	0.521	1.143
	PCS CDMA	0.531	0.521	1.052
	LTE Band 71	0.409	0.521	0.930
	LTE Band 12	0.389	0.521	0.910
	LTE Band 13	0.529	0.521	1.050
	LTE Band 5 (Cell)	0.696	0.521	1.217
	LTE Band 66 (AWS)	0.542	0.521	1.063
	LTE Band 2 (PCS)	0.723	0.521	1.244

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	GSM/GPRS 850	0.566	0.673	1.239
	GSM/GPRS 1900	0.405	0.673	1.078
	UMTS 850	0.753	0.673	**1.426**
	UMTS 1750	0.564	0.673	1.237
	UMTS 1900	0.611	0.673	1.284
	Cell. CDMA	0.622	0.673	1.295
	PCS CDMA	0.531	0.673	1.204
	LTE Band 71	0.409	0.673	1.082
	LTE Band 12	0.389	0.673	1.062
	LTE Band 13	0.529	0.673	1.202
	LTE Band 5 (Cell)	0.696	0.673	1.369
	LTE Band 66 (AWS)	0.542	0.673	1.215
	LTE Band 2 (PCS)	0.723	0.673	1.396

Table 12-7
Simultaneous Transmission Scenario with Bluetooth (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	GSM/GPRS 850	0.566	0.049	0.615
	GSM/GPRS 1900	0.405	0.049	0.454
	UMTS 850	0.753	0.049	**0.802**
	UMTS 1750	0.564	0.049	0.613
	UMTS 1900	0.611	0.049	0.660
	Cell. CDMA	0.622	0.049	0.671
	PCS CDMA	0.531	0.049	0.580
	LTE Band 71	0.409	0.049	0.458
	LTE Band 12	0.389	0.049	0.438
	LTE Band 13	0.529	0.049	0.578
	LTE Band 5 (Cell)	0.696	0.049	0.745
	LTE Band 66 (AWS)	0.542	0.049	0.591
	LTE Band 2 (PCS)	0.723	0.049	0.772

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	GSM/GPRS 850	0.566	0.673	0.049	1.288
	GSM/GPRS 1900	0.405	0.673	0.049	1.127
	UMTS 850	0.753	0.673	0.049	**1.475**
	UMTS 1750	0.564	0.673	0.049	1.286
	UMTS 1900	0.611	0.673	0.049	1.333
	Cell. CDMA	0.622	0.673	0.049	1.344
	PCS CDMA	0.531	0.673	0.049	1.253
	LTE Band 71	0.409	0.673	0.049	1.131
	LTE Band 12	0.389	0.673	0.049	1.111
	LTE Band 13	0.529	0.673	0.049	1.251
	LTE Band 5 (Cell)	0.696	0.673	0.049	1.418
	LTE Band 66 (AWS)	0.542	0.673	0.049	1.264
	LTE Band 2 (PCS)	0.723	0.673	0.049	1.445

12.5 Hotspot SAR Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2+3
Hotspot SAR	GPRS 850	0.566	0.470	1.036
	GPRS 1900	1.003	0.470	1.473
	UMTS 850	0.753	0.470	1.223
	UMTS 1750	0.975	0.470	1.445
	UMTS 1900	1.144	0.470	See Table Below
	Cell. EVDO	0.670	0.470	1.140
	PCS EVDO	1.266	0.470	See Table Below
	LTE Band 71	0.409	0.470	0.879
	LTE Band 12	0.389	0.470	0.859
	LTE Band 13	0.529	0.470	0.999
	LTE Band 5 (Cell)	0.696	0.470	1.166
	LTE Band 66 (AWS)	1.093	0.470	**1.563**
	LTE Band 2 (PCS)	1.164	0.470	See Table Below

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.611	0.470*	1.081
	Front	0.561	0.470*	1.031
	Top	-	0.426	0.426
	Bottom	1.144	-	**1.144**
	Right	0.200	-	0.200
	Left	-	0.470	0.470

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.538	0.470*	1.008
	Front	0.629	0.470*	1.099
	Top	-	0.426	0.426
	Bottom	1.266	-	**1.266**
	Right	0.157	-	0.157
	Left	-	0.470	0.470

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.723	0.470*	**1.193**
	Front	0.617	0.470*	1.087
	Top	-	0.426	0.426
	Bottom	1.164	-	1.164
	Right	0.198	-	0.198
	Left	-	0.470	0.470

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	GPRS 850	0.566	0.759	1.325
	GPRS 1900	1.003	0.759	See Table Below
	UMTS 850	0.753	0.759	**1.512**
	UMTS 1750	0.975	0.759	See Table Below
	UMTS 1900	1.144	0.759	See Table Below
	Cell. EVDO	0.670	0.759	1.429
	PCS EVDO	1.266	0.759	See Table Below
	LTE Band 71	0.409	0.759	1.168
	LTE Band 12	0.389	0.759	1.148
	LTE Band 13	0.529	0.759	1.288
	LTE Band 5 (Cell)	0.696	0.759	1.455
	LTE Band 66 (AWS)	1.093	0.759	See Table Below
	LTE Band 2 (PCS)	1.164	0.759	See Table Below

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.405	0.759	1.164
	Front	0.426	0.759*	1.185
	Top	-	0.759*	0.759
	Bottom	1.003	-	1.003
	Right	0.142	-	0.142
	Left	-	0.483	0.483

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.564	0.759	1.323
	Front	0.701	0.759*	1.460
	Top	-	0.759*	0.759
	Bottom	0.975	-	0.975
	Right	0.285	-	0.285
	Left	-	0.483	0.483

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.611	0.759	**1.370**
	Front	0.561	0.759*	1.320
	Top	-	0.759*	0.759
	Bottom	1.144	-	1.144
	Right	0.200	-	0.200
	Left	-	0.483	0.483

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.538	0.759	1.297
	Front	0.629	0.759*	1.388
	Top	-	0.759*	0.759
	Bottom	1.266	-	1.266
	Right	0.157	-	0.157
	Left	-	0.483	0.483

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.542	0.759	1.301
	Front	0.608	0.759*	**1.367**
	Top	-	0.759*	0.759
	Bottom	1.093	-	1.093
	Right	0.235	-	0.235
	Left	-	0.483	0.483

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.723	0.759	1.482
	Front	0.617	0.759*	1.376
	Top	-	0.759*	0.759
	Bottom	1.164	-	1.164
	Right	0.198	-	0.198
	Left	-	0.483	0.483

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	GPRS 850	0.566	0.049	0.615
	GPRS 1900	1.003	0.049	1.052
	UMTS 850	0.753	0.049	0.802
	UMTS 1750	0.975	0.049	1.024
	UMTS 1900	1.144	0.049	1.193
	Cell. EVDO	0.670	0.049	0.719
	PCS EVDO	1.266	0.049	**1.315**
	LTE Band 71	0.409	0.049	0.458
	LTE Band 12	0.389	0.049	0.438
	LTE Band 13	0.529	0.049	0.578
	LTE Band 5 (Cell)	0.696	0.049	0.745
	LTE Band 66 (AWS)	1.093	0.049	1.142
	LTE Band 2 (PCS)	1.164	0.049	1.213

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	GPRS 850	0.566	0.759	0.049	1.374
	GPRS 1900	1.003	0.759	0.049	See Table Below
	UMTS 850	0.753	0.759	0.049	**1.561**
	UMTS 1750	0.975	0.759	0.049	See Table Below
	UMTS 1900	1.144	0.759	0.049	See Table Below
	Cell. EVDO	0.670	0.759	0.049	1.478
	PCS EVDO	1.266	0.759	0.049	See Table Below
	LTE Band 71	0.409	0.759	0.049	1.217
	LTE Band 12	0.389	0.759	0.049	1.197
	LTE Band 13	0.529	0.759	0.049	1.337
	LTE Band 5 (Cell)	0.696	0.759	0.049	1.504
	LTE Band 66 (AWS)	1.093	0.759	0.049	See Table Below
	LTE Band 2 (PCS)	1.164	0.759	0.049	See Table Below

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.405	0.759	0.049	1.213
	Front	0.426	0.759*	0.033	**1.218**
	Top	-	0.759*	0.040	0.799
	Bottom	1.003	-	-	1.003
	Right	0.142	-	-	0.142
	Left	-	0.483	0.046	0.529

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.564	0.759	0.049	1.372
	Front	0.701	0.759*	0.033	**1.493**
	Top	-	0.759*	0.040	0.799
	Bottom	0.975	-	-	0.975
	Right	0.285	-	-	0.285
	Left	-	0.483	0.046	0.529

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.611	0.759	0.049	**1.419**
	Front	0.561	0.759*	0.033	1.353
	Top	-	0.759*	0.040	0.799
	Bottom	1.144	-	-	1.144
	Right	0.200	-	-	0.200
	Left	-	0.483	0.046	0.529

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.538	0.759	0.049	1.346
	Front	0.629	0.759*	0.033	**1.421**
	Top	-	0.759*	0.040	0.799
	Bottom	1.266	-	-	1.266
	Right	0.157	-	-	0.157
	Left	-	0.483	0.046	0.529

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.542	0.759	0.049	1.350
	Front	0.608	0.759*	0.033	**1.400**
	Top	-	0.759*	0.040	0.799
	Bottom	1.093	-	-	1.093
	Right	0.235	-	-	0.235
	Left	-	0.483	0.046	0.529

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.723	0.759	0.049	**1.531**
	Front	0.617	0.759*	0.033	1.409
	Top	-	0.759*	0.040	0.799
	Bottom	1.164	-	-	1.164
	Right	0.198	-	-	0.198
	Left	-	0.483	0.046	0.529

12.6 Phablet Simultaneous Transmission Analysis

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

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Back	-	1.791	1.791
	Front	-	1.791*	1.791
	Top	-	1.791*	1.791
	Bottom	3.146	-	**3.146**
	Right	-	-	-
	Left	-	1.491	1.491

12.7 Simultaneous Transmission Conclusion

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

13 SAR MEASUREMENT VARIABILITY

13.1 Measurement Variability

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

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

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

Table 13-1
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	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	1851.25	25	PCS CDMA	EVDO Rev. 0	10 mm	1.250	1.210	1.03	N/A	N/A	N/A	N/A
1750	1770.00	132572	LTE Band 66 (AWS), 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	10 mm	1.020	1.020	1.00	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					Body 1.6 W/kg (mW/g) averaged over 1 gram							

Table 13-2
Phablet SAR Measurement Variability Results

PHABLET VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Spacing	Measured SAR (10g)	1st Repeated SAR (10g)	Ratio	2nd Repeated SAR (10g)	Ratio	3rd Repeated SAR (10g)	Ratio
	MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1900	1851.25	25	PCS CDMA	EVDO Rev. 0	bottom	0 mm	3.130	3.140	1.00	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Phablet 4.0 W/kg (mW/g) averaged over 10 grams							

13.2 Measurement Uncertainty

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

14 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	85033E	3.5mm Standard Calibration Kit	8/13/2018	Annual	8/13/2019	MY53402352
Agilent	8753E	(30kHz-6GHz) Network Analyzer	9/28/2018	Annual	9/28/2019	JP38020182
Agilent	8753ES	S-Parameter Network Analyzer	7/30/2018	Annual	7/30/2019	MY40000670
Agilent	8753ES	S-Parameter Vector Network Analyzer	8/30/2018	Annual	8/30/2019	MY40003841
Agilent	E4438C	ESG Vector Signal Generator	6/22/2018	Annual	6/22/2019	MY53401181
Agilent	E4440A	PSA Series Spectrum Analyzer	11/14/2018	Annual	11/14/2019	MY46186272
Agilent	E5515C	8960 Series 10 Wireless Communications Test Set	12/18/2018	Annual	12/18/2019	GB42230325
Agilent	E5515C	Wireless Communications Test Set	2/28/2018	Biennial	2/28/2020	GB41450275
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46170464
Agilent	N5182A	MXG Vector Signal Generator	6/15/2018	Annual	6/15/2019	MY47420837
Agilent	N9030A	PXA Signal Analyzer (44GHz)	5/25/2018	Annual	5/25/2019	MY52350166
Amplifier Research	150A100C	Amplifier	CBT	N/A	CBT	350132
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Anritsu	MA24106A	USB Power Sensor	7/17/2018	Annual	7/17/2019	1827527
Anritsu	MA24106A	USB Power Sensor	6/5/2018	Annual	6/5/2019	1231538
Anritsu	MA24106A	USB Power Sensor	6/5/2018	Annual	6/5/2019	1231535
Anritsu	MA24106A	USB Power Sensor	6/5/2018	Annual	6/5/2019	1244515
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1126066
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1207470
Anritsu	ML2495A	Power Meter	10/21/2018	Annual	10/21/2019	941001
Anritsu	ML2495A	Power Meter	11/20/2018	Annual	11/20/2019	1039008
Anritsu	MT8820C	Radio Communication Analyzer	6/27/2018	Annual	6/27/2019	6201240328
Anritsu	MT8821C	Radio Communication Analyzer	7/24/2018	Annual	7/24/2019	6201664756
Anritsu	MT8821C	Radio Communication Analyzer	7/26/2018	Annual	7/26/2019	6201144418
Anritsu	MT8862A	Wireless Connectivity Test Set	7/3/2018	Annual	7/3/2019	6261782395
Control Company	4040	Therm./ Clock/ Humidity Monitor	1/8/2019	Annual	1/8/2020	160473909
Control Company	4040	Therm./ Clock/ Humidity Monitor	1/8/2019	Annual	1/8/2020	160574418
Control Company	4352	Ultra Long Stem Thermometer	6/7/2017	Biennial	6/7/2019	170424973
Control Company	4352	Ultra Long Stem Thermometer	6/7/2017	Biennial	6/7/2019	170424967
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/4/2018	Annual	6/4/2019	MY53401181
Keysight Technologies	AT/N6705B	DC Power Supply	CBT	N/A	CBT	MY53001315
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
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mitutoyo	CD-6"CSX	Digital Caliper	4/18/2018	Biennial	4/18/2020	13264165
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Pasternack	NC-100	Torque Wrench	11/1/2017	Biennial	11/1/2019	N/A
Pasternack	NC-100	Torque Wrench	11/7/2017	Biennial	11/7/2019	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	5/18/2018	Annual	5/18/2019	109892
Rohde & Schwarz	CMW500	Radio Communication Tester	6/8/2018	Annual	6/8/2019	112347
Rohde & Schwarz	CMW500	Radio Communication Tester	6/9/2018	Annual	6/9/2019	108843
SPEAG	DAK-3.5	Dielectric Assessment Kit	9/11/2018	Annual	9/11/2019	1091
SPEAG	D750V3	750 MHz SAR Dipole	1/15/2018	Biennial	1/15/2020	1003
SPEAG	D835V2	835 MHz SAR Dipole	1/22/2019	Annual	1/22/2020	4d132
SPEAG	D1765V2	1765 MHz SAR Dipole	5/23/2018	Annual	5/23/2019	1008
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Annual	10/23/2019	5d080
SPEAG	D1900V2	1900 MHz SAR Dipole	2/21/2019	Annual	2/21/2020	5d148
SPEAG	D2450V2	2450 MHz SAR Dipole	8/16/2018	Annual	8/16/2019	981
SPEAG	D5GHzV2	5 GHz SAR Dipole	9/21/2016	Triennial	9/21/2019	1191
SPEAG	D750V3	750 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	1161
SPEAG	D1750V2	1750 MHz SAR Dipole	5/9/2017	Biennial	5/9/2019	1148
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Annual	10/23/2019	5d149
SPEAG	D2450V2	2450 MHz SAR Dipole	9/11/2017	Biennial	9/11/2019	797
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/16/2018	Biennial	1/16/2020	1057
SPEAG	EX3DV4	SAR Probe	6/25/2018	Annual	6/25/2019	7409
SPEAG	EX3DV4	SAR Probe	2/19/2019	Annual	2/19/2020	3914
SPEAG	EX3DV4	SAR Probe	1/25/2019	Annual	1/25/2020	3589
SPEAG	EX3DV4	SAR Probe	8/23/2018	Annual	8/23/2019	7308
SPEAG	EX3DV4	SAR Probe	1/24/2019	Annual	1/24/2020	7488
SPEAG	EX3DV4	SAR Probe	7/20/2018	Annual	7/20/2019	7410
SPEAG	EX3DV4	SAR Probe	2/19/2019	Annual	2/19/2020	7417
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/18/2018	Annual	6/18/2019	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/14/2019	Annual	2/14/2020	1272
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/22/2018	Annual	8/22/2019	1450
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/3/2018	Annual	10/3/2019	1558
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/15/2019	Annual	1/15/2020	1530
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/11/2018	Annual	7/11/2019	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/13/2019	Annual	2/13/2020	665

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.
Each equipment was used solely within its calibration period.

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]

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APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

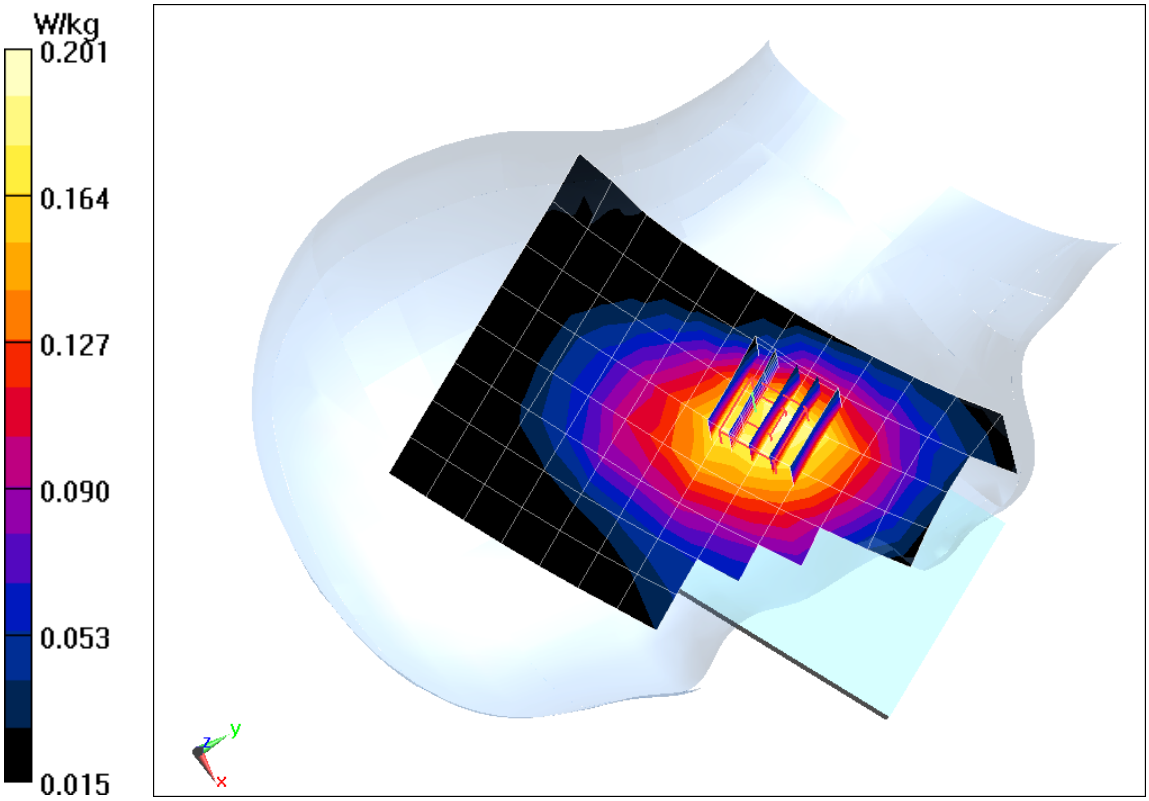
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:2.76
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.942 S/m; ε_r = 42.776; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 04-21-2019; Ambient Temp: 22.3°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3914; ConvF(9.5, 9.5, 9.5) @ 836.6 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/14/2019
Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.63 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.220 W/kg
SAR(1 g) = 0.167 W/kg



DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

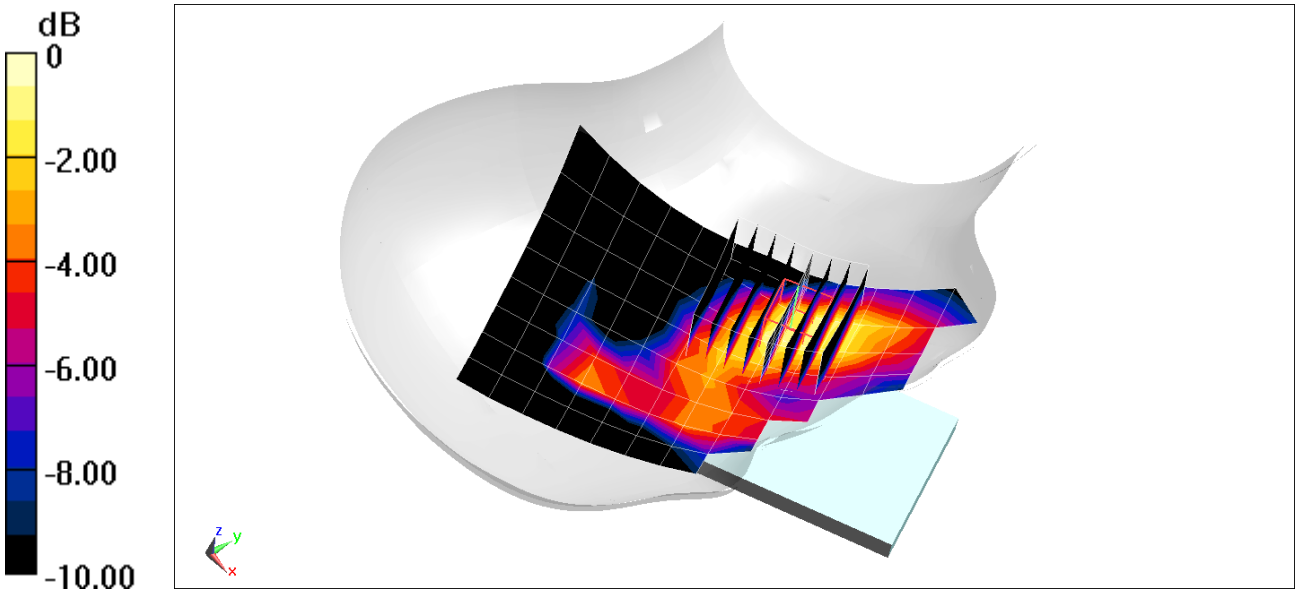
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.443 S/m; ε_r = 39.889; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 05-14-2019; Ambient Temp: 23.6°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN3589; ConvF(7.08, 7.08, 7.08) @ 1880 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.124 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.143 W/kg
SAR(1 g) = 0.093 W/kg



0 dB = 0.122 W/kg = -9.14 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

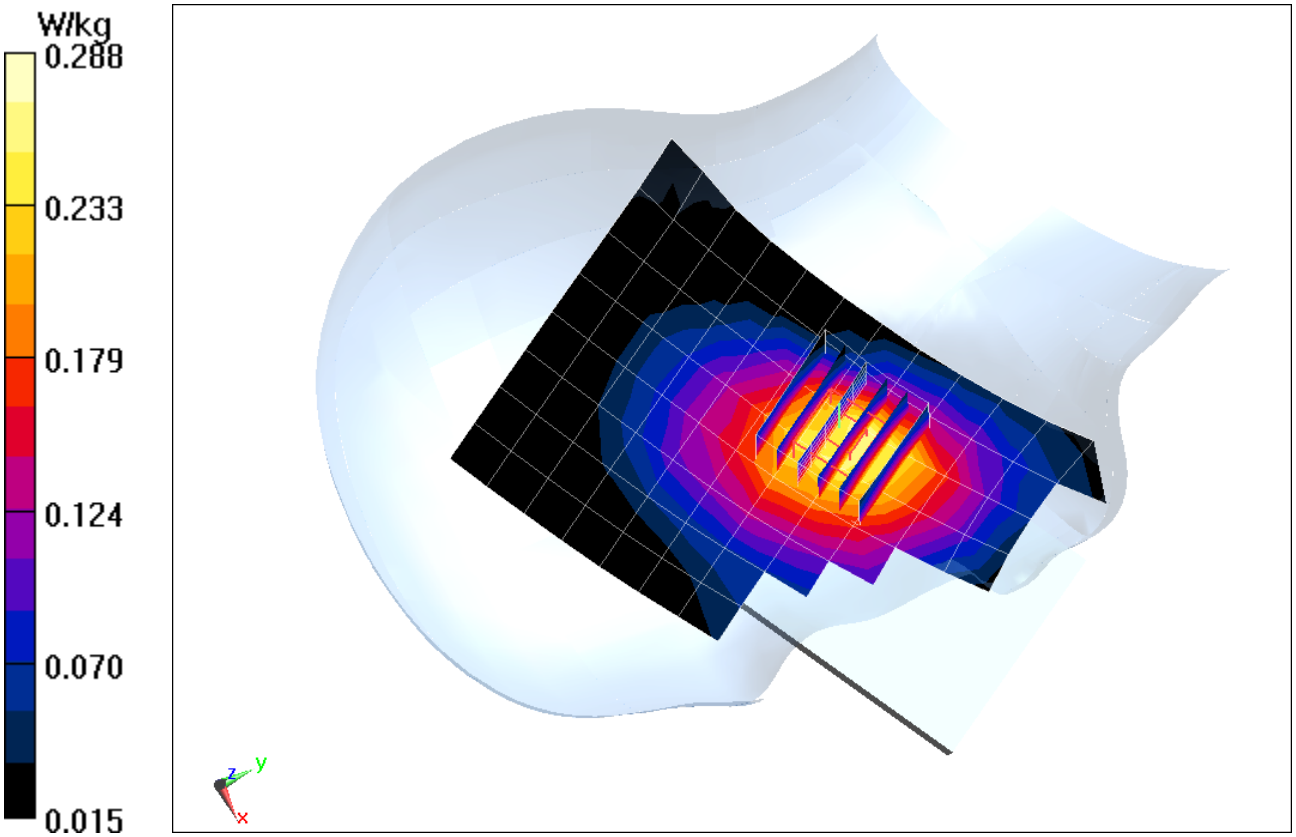
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.942 S/m; ε_r = 42.776; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 04-21-2019; Ambient Temp: 22.3°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3914; ConvF(9.5, 9.5, 9.5) @ 836.6 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/14/2019
Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.24 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.316 W/kg
SAR(1 g) = 0.239 W/kg



DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

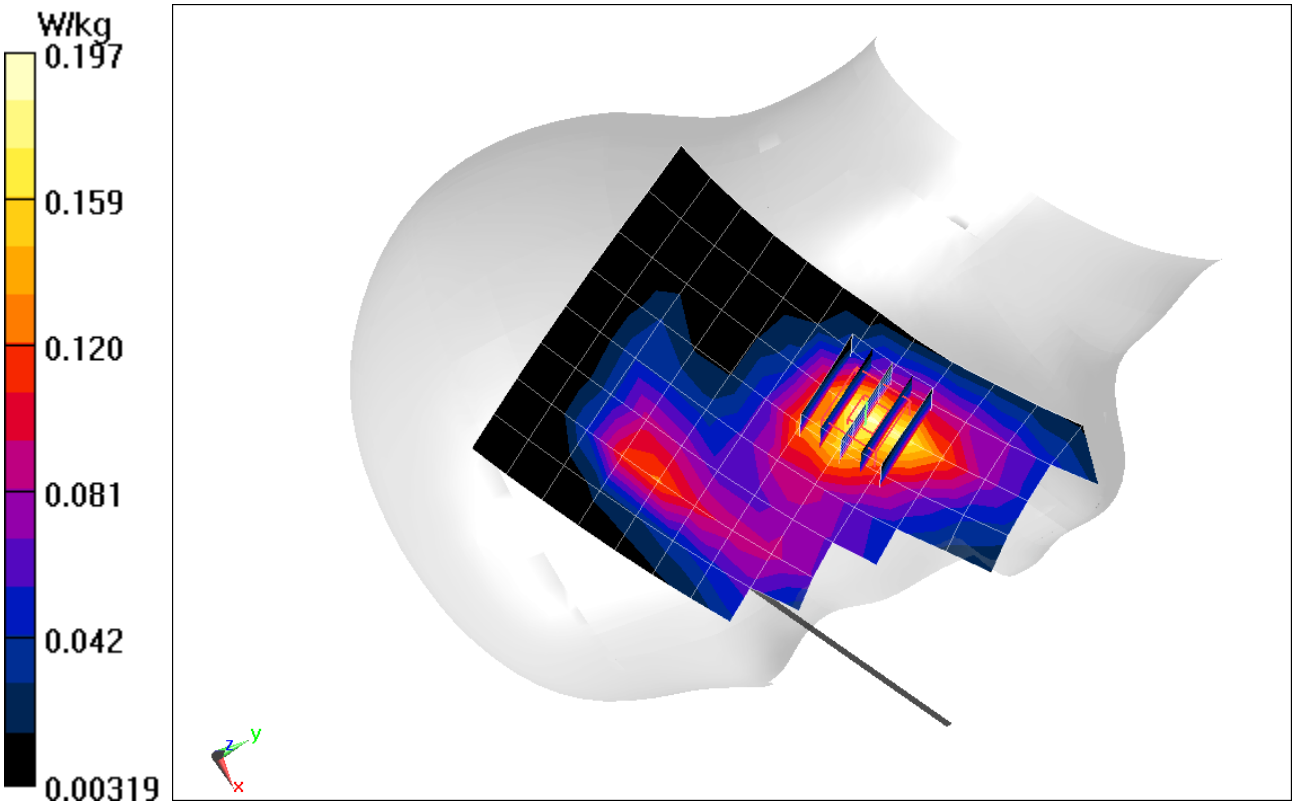
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1732.4 MHz; σ = 1.342 S/m; ε_r = 39.531; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 04-15-2019; Ambient Temp: 21.6°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3589; ConvF(7.31, 7.31, 7.31) @ 1732.4 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.93 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.235 W/kg
SAR(1 g) = 0.151 W/kg



DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

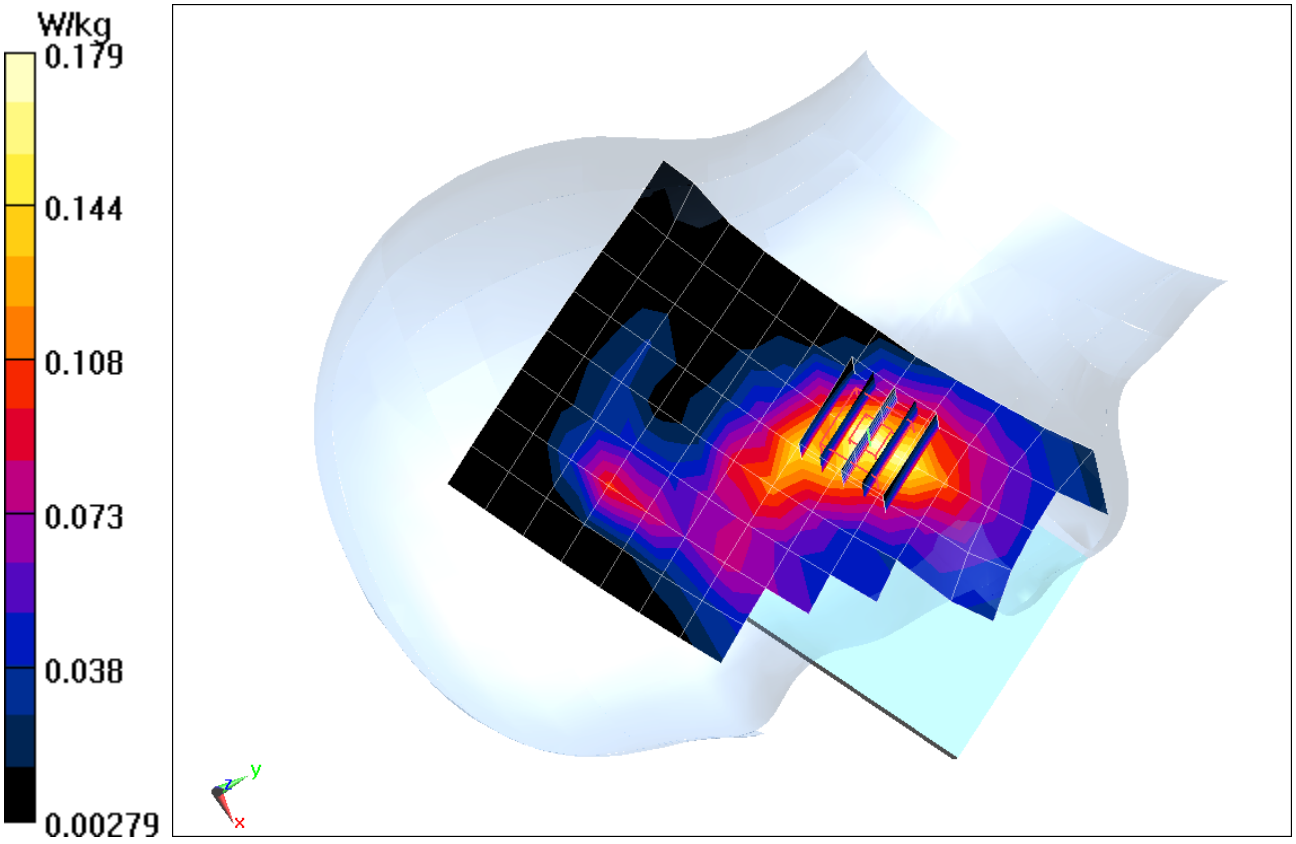
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.447 S/m; ε_r = 39.12; ρ = 1000 kg/m^3
Phantom section: Right Section

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

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1880 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.03 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.209 W/kg
SAR(1 g) = 0.134 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

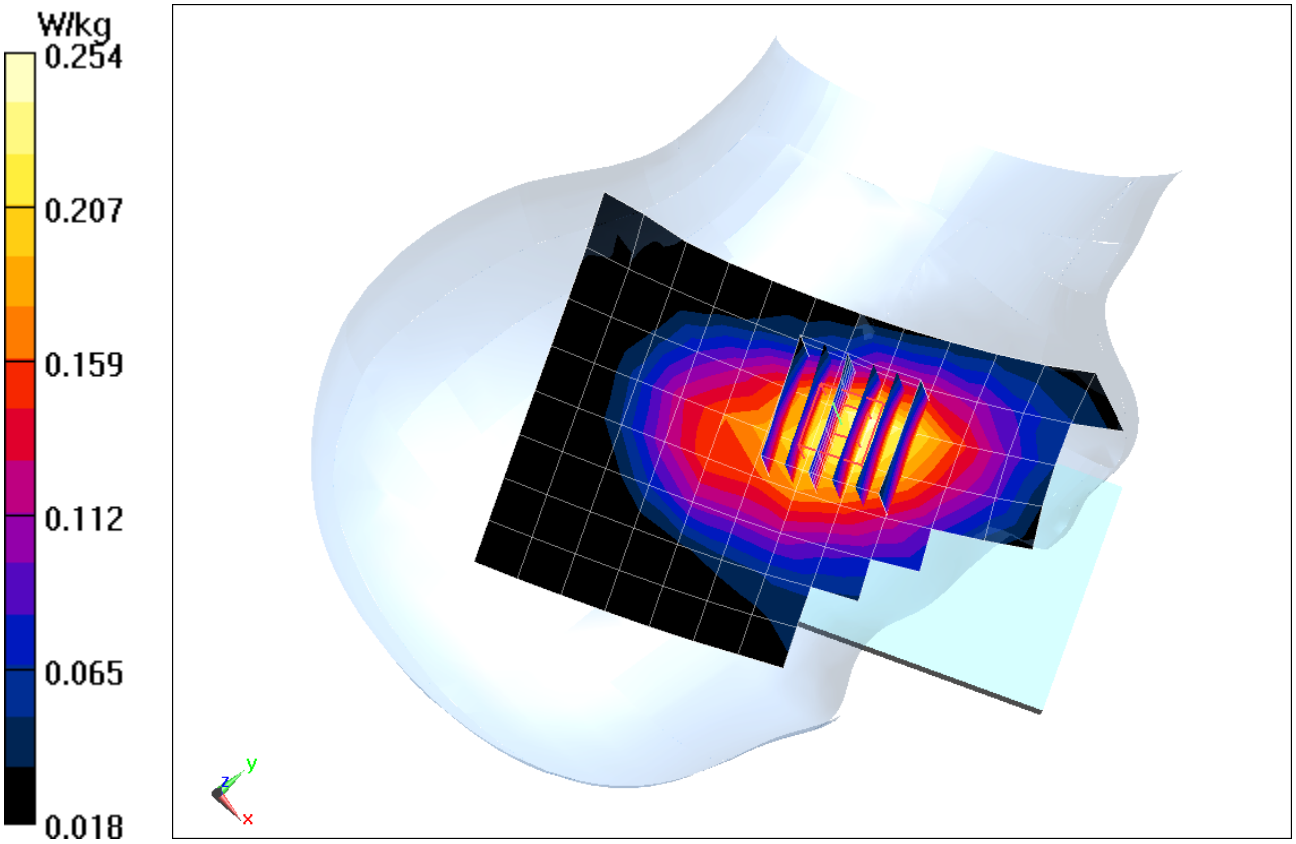
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.942 S/m; ε_r = 42.776; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 04-21-2019; Ambient Temp: 22.3°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3914; ConvF(9.5, 9.5, 9.5) @ 836.52 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/14/2019
Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Cell. EVDO Rev. A, 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 = 15.33 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.278 W/kg
SAR(1 g) = 0.212 W/kg



DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

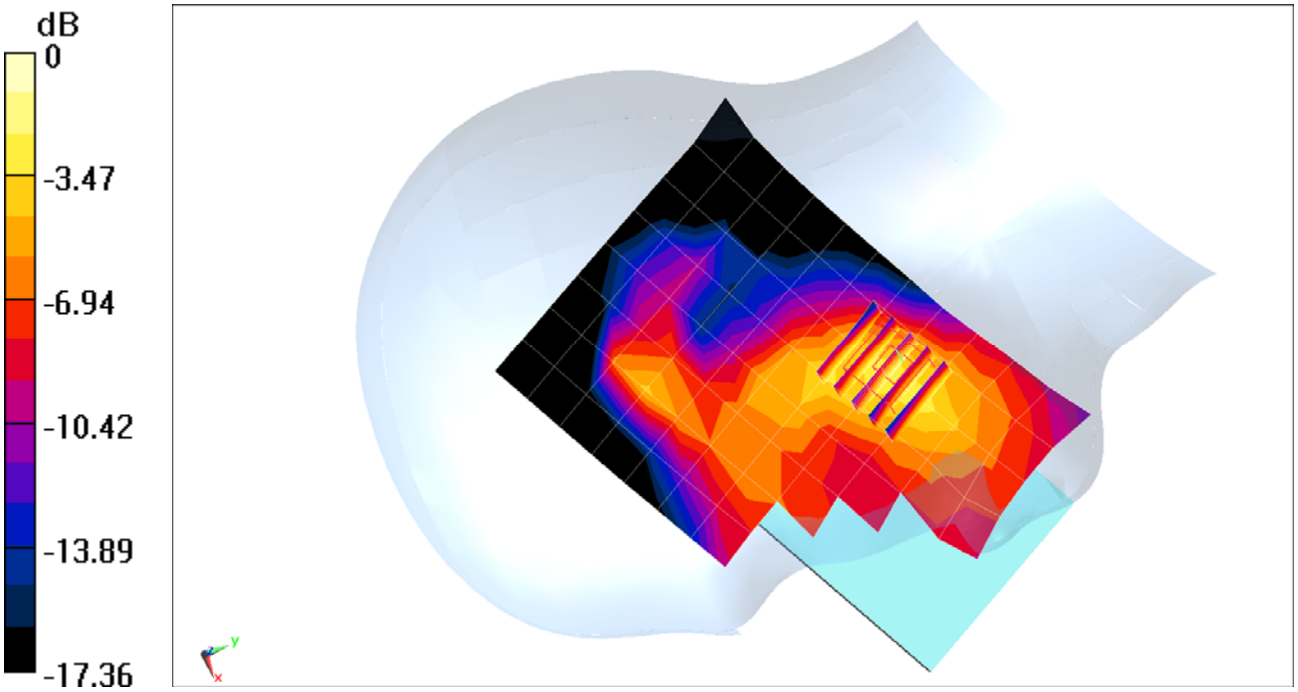
Communication System: UID 0, CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.45 S/m; ε_r = 39.748; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 04-28-2019; Ambient Temp: 23.5°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1880 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.366 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.306 W/kg
SAR(1 g) = 0.194 W/kg



0 dB = 0.262 W/kg = -5.82 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01291

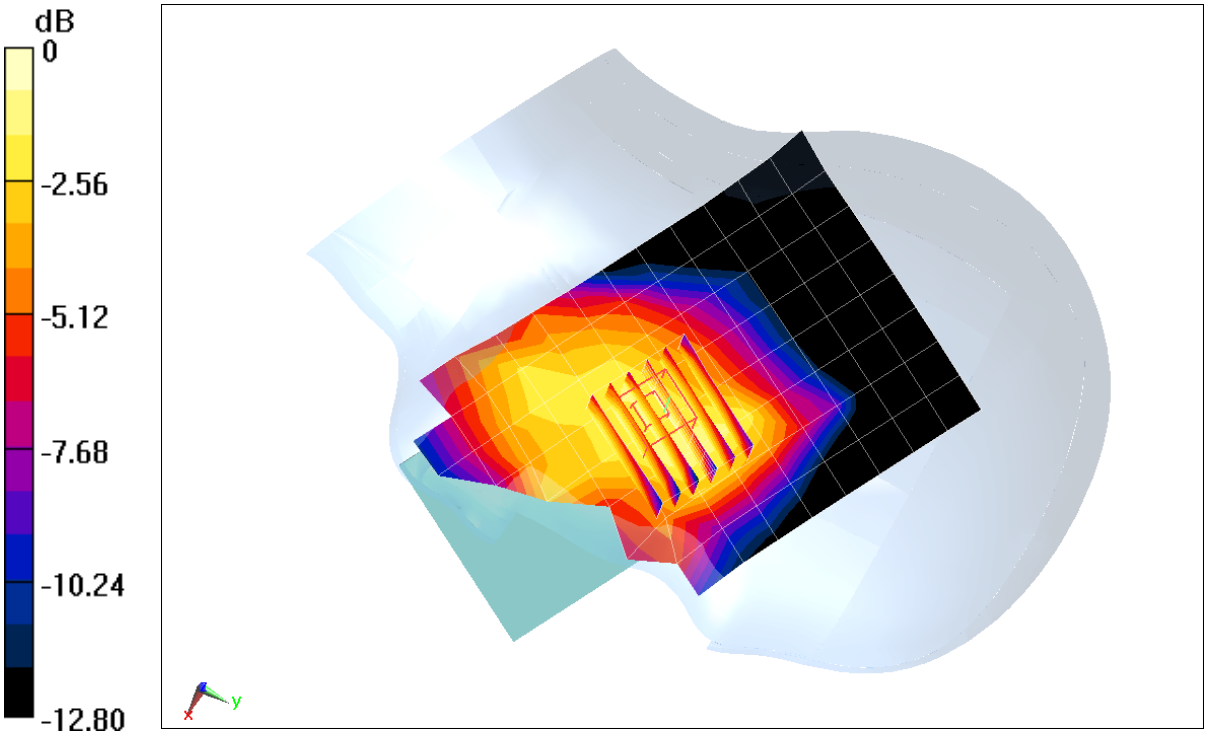
Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
$f = 680.5$ MHz; $\sigma = 0.881$ S/m; $\varepsilon_r = 40.773$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 04-22-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7409; ConvF(9.91, 9.91, 9.91) @ 680.5 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 71, 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 (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.25 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.255 W/kg
SAR(1 g) = 0.207 W/kg



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

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01291

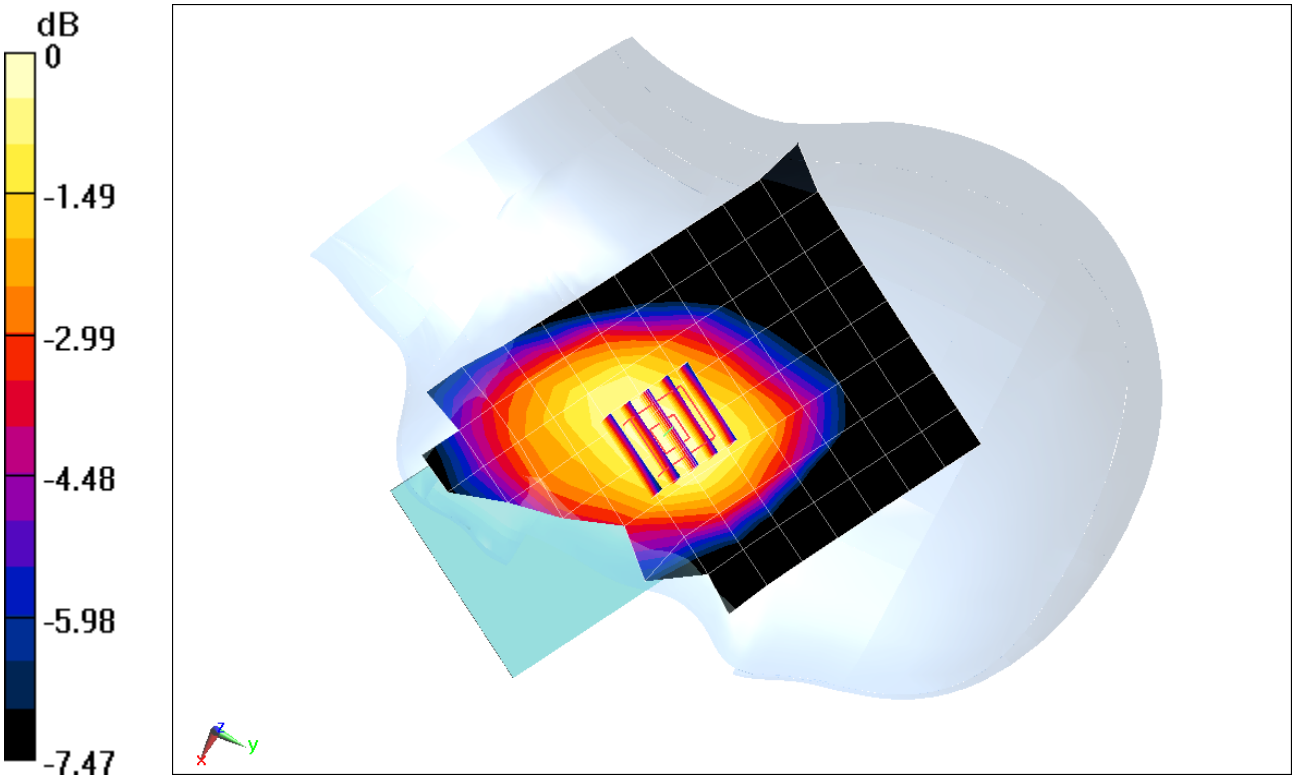
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.89 S/m; ε_r = 40.682; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 04-22-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7409; ConvF(9.91, 9.91, 9.91) @ 707.5 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 12, Left Head, Cheek, Mid.ch, QPSK,
10 MHz Bandwidth, 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 = 14.96 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.223 W/kg
SAR(1 g) = 0.183 W/kg



0 dB = 0.210 W/kg = -6.78 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01291

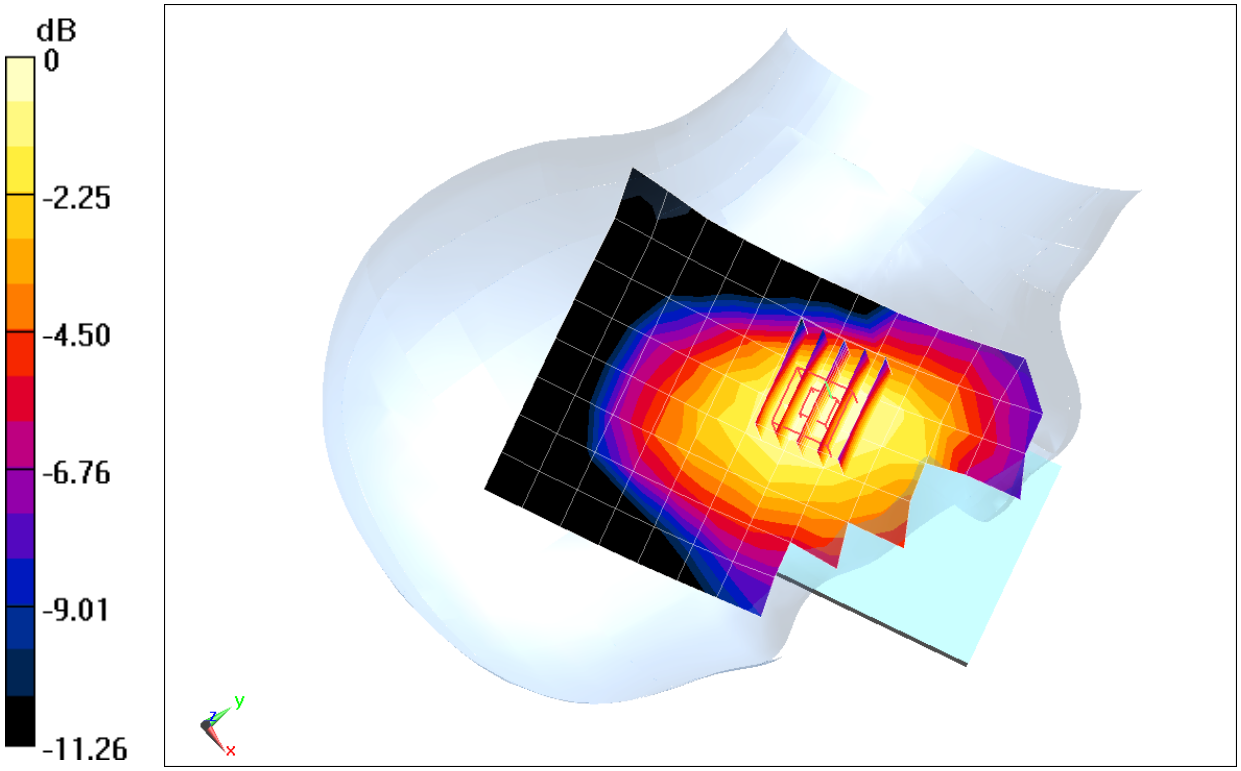
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 782 MHz; σ = 0.918 S/m; ε_r = 40.424; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 04-22-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7409; ConvF(9.91, 9.91, 9.91) @ 782 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.56 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.258 W/kg
SAR(1 g) = 0.203 W/kg



0 dB = 0.237 W/kg = -6.25 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01309

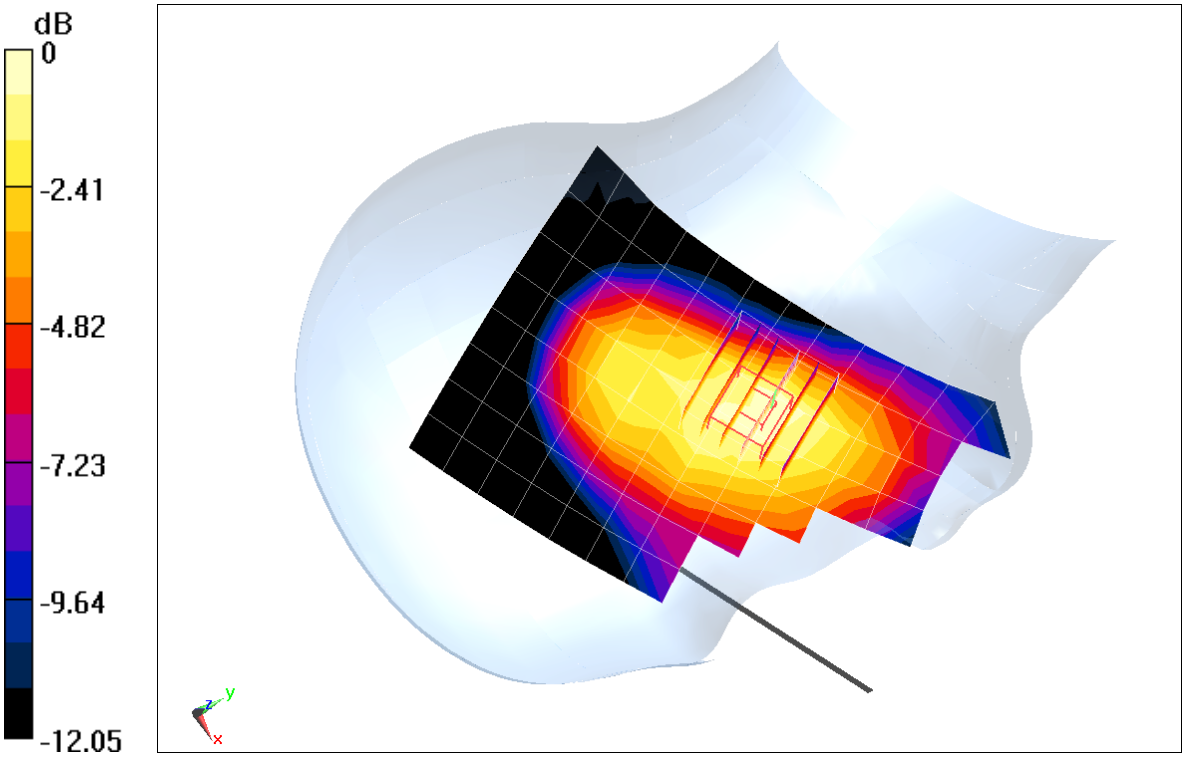
Communication System: UID 0, LTE Band 5 (Cell.); Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
$f = 836.5$ MHz; $\sigma = 0.942$ S/m; $\varepsilon_r = 42.776$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 04-21-2019; Ambient Temp: 22.3°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3914; ConvF(9.5, 9.5, 9.5) @ 836.5 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/14/2019
Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 5 (Cell.), Right Head, Cheek, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 49 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 = 15.56 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.270 W/kg
SAR(1 g) = 0.205 W/kg



0 dB = 0.244 W/kg = -6.13 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01291

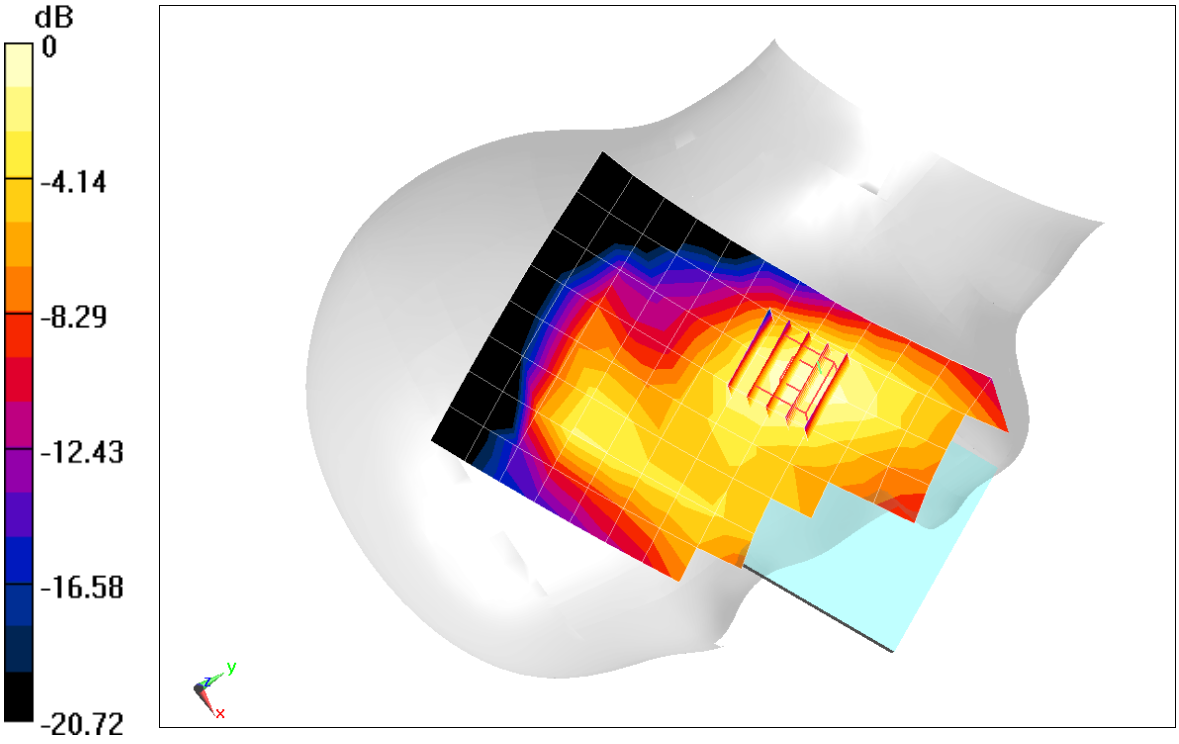
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1720 MHz; σ = 1.334 S/m; ε_r = 39.548; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 04-15-2019; Ambient Temp: 21.6°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3589; ConvF(7.31, 7.31, 7.31) @ 1720 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.25 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.232 W/kg
SAR(1 g) = 0.151 W/kg



0 dB = 0.196 W/kg = -7.08 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01291

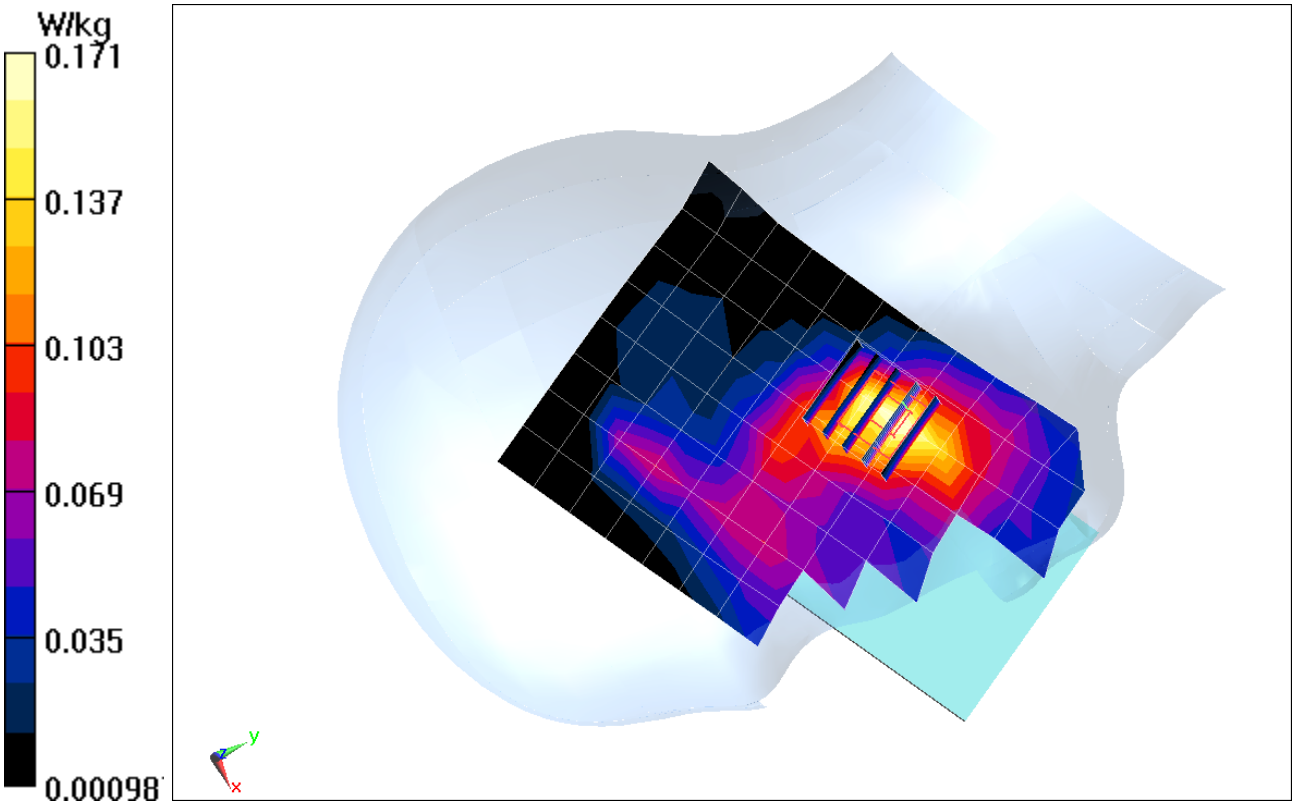
Communication System: UID 0, LTE Band 2 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1860 MHz; σ = 1.435 S/m; ε_r = 39.145; ρ = 1000 kg/m^3
Phantom section: Right Section

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

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1860 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 2 (PCS), Right 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 = 10.21 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.205 W/kg
SAR(1 g) = 0.130 W/kg



DUT: ZNFL722DL; Type: Portable Handset; Serial: 01374

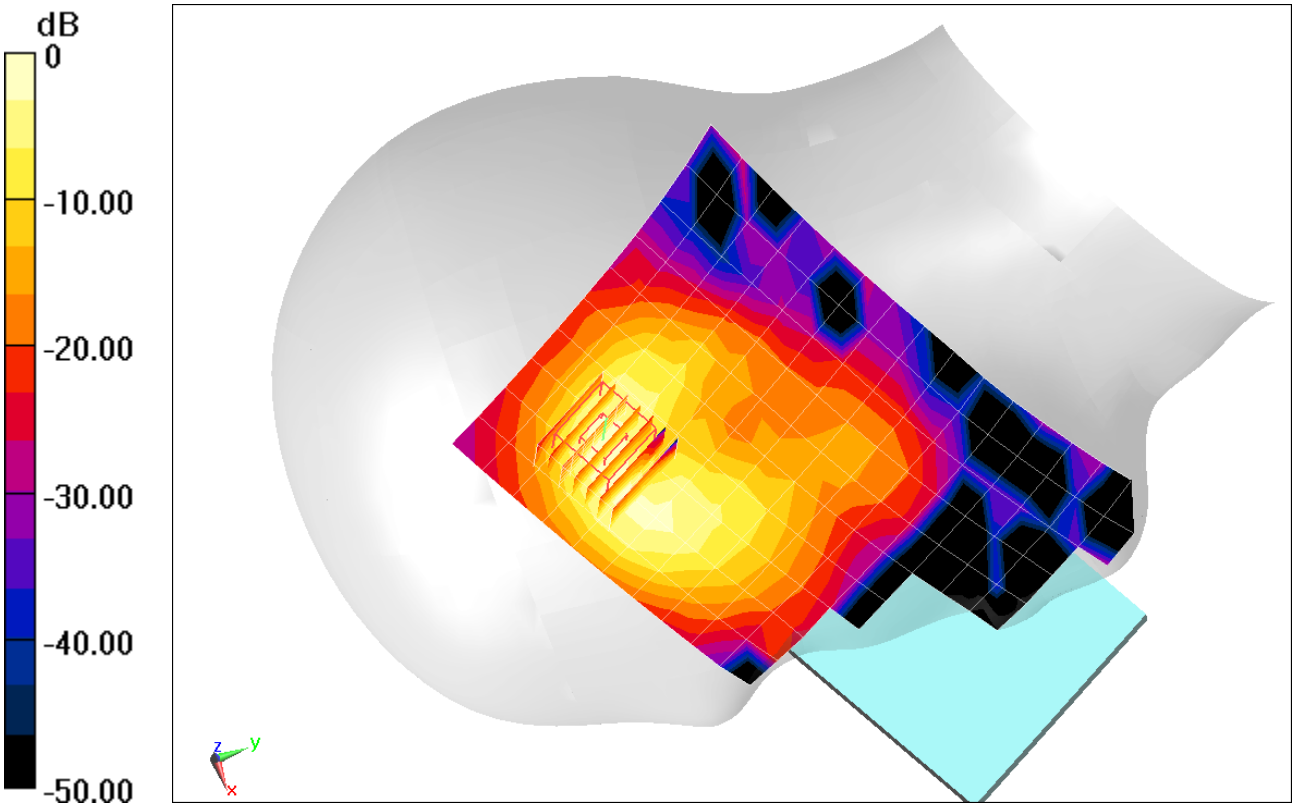
Communication System: UID 0, IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
$f = 2462$ MHz; $\sigma = 1.813$ S/m; $\varepsilon_r = 37.316$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

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

Probe: EX3DV4 - SN3589; ConvF(6.46, 6.46, 6.46) @ 2462 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11b, 22 MHz Bandwidth, Right Head, Cheek, Ch 11, 1 Mbps

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.320 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.80 W/kg
SAR(1 g) = 0.765 W/kg



0 dB = 1.41 W/kg = 1.49 dBW/kg

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DUT: ZNFL722DL; Type: Portable Handset; Serial: 01374

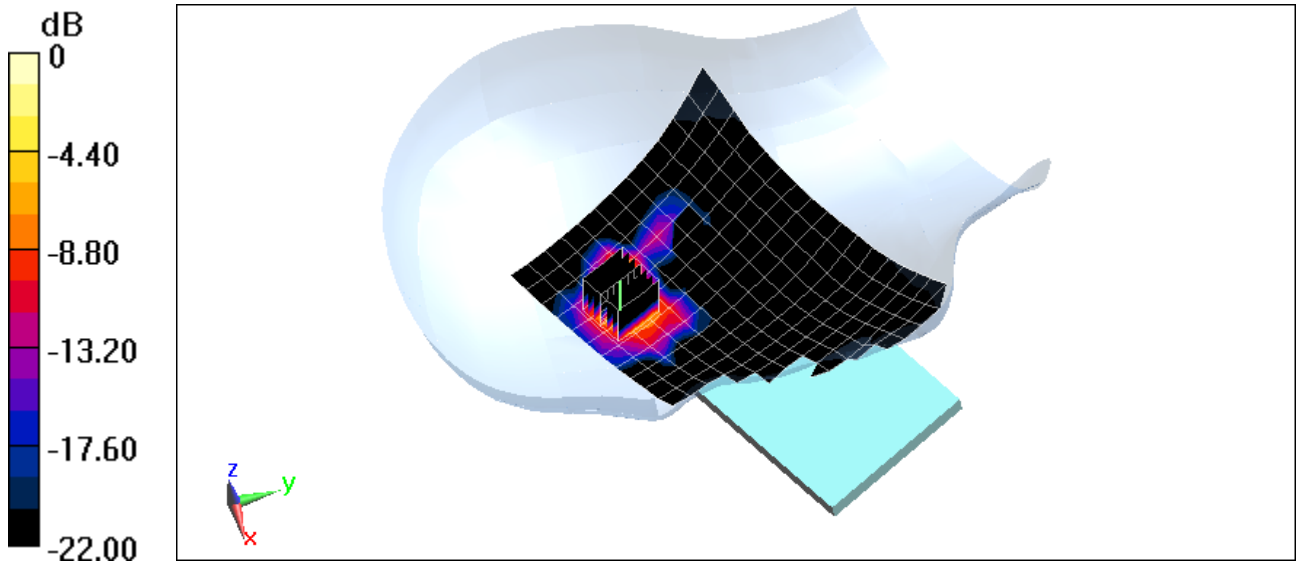
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5765 MHz; Duty Cycle: 1:1
Medium: 5GHz Head; Medium parameters used:
f = 5765 MHz; σ = 5.216 S/m; ε_r = 34.817; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 04-15-2019; Ambient Temp: 23.0°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7409; ConvF(4.82, 4.82, 4.82) @ 5765 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a, U-NII-3, 20 MHz Bandwidth, Right Head, Cheek, Ch 153, 6 Mbps

Area Scan (13x11x1): 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 = 2.270 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 3.67 W/kg
SAR(1 g) = 0.714 W/kg



0 dB = 2.07 W/kg = 3.16 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01374

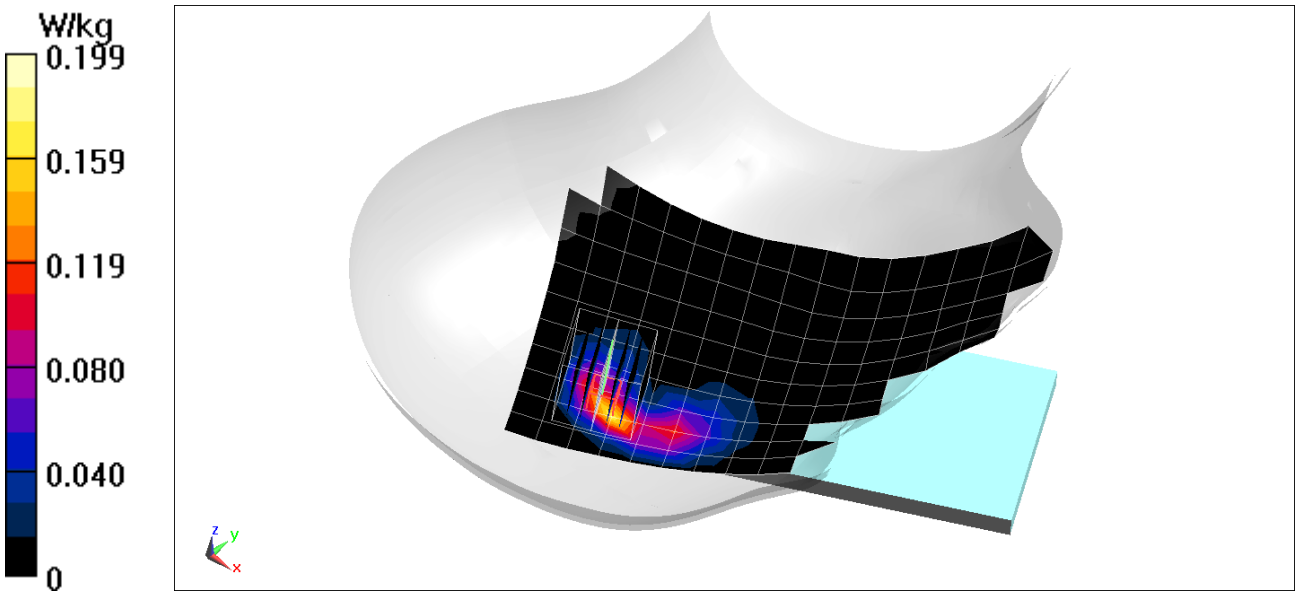
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.30197
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2441 MHz; σ = 1.813 S/m; ε_r = 37.768; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 04-29-2019; Ambient Temp: 20.1°C; Tissue Temp: 19.9°C

Probe: EX3DV4 - SN7308; ConvF(7.45, 7.45, 7.45) @ 2441 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1966
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (11x19x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.384 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.264 W/kg
SAR(1 g) = 0.112 W/kg



DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

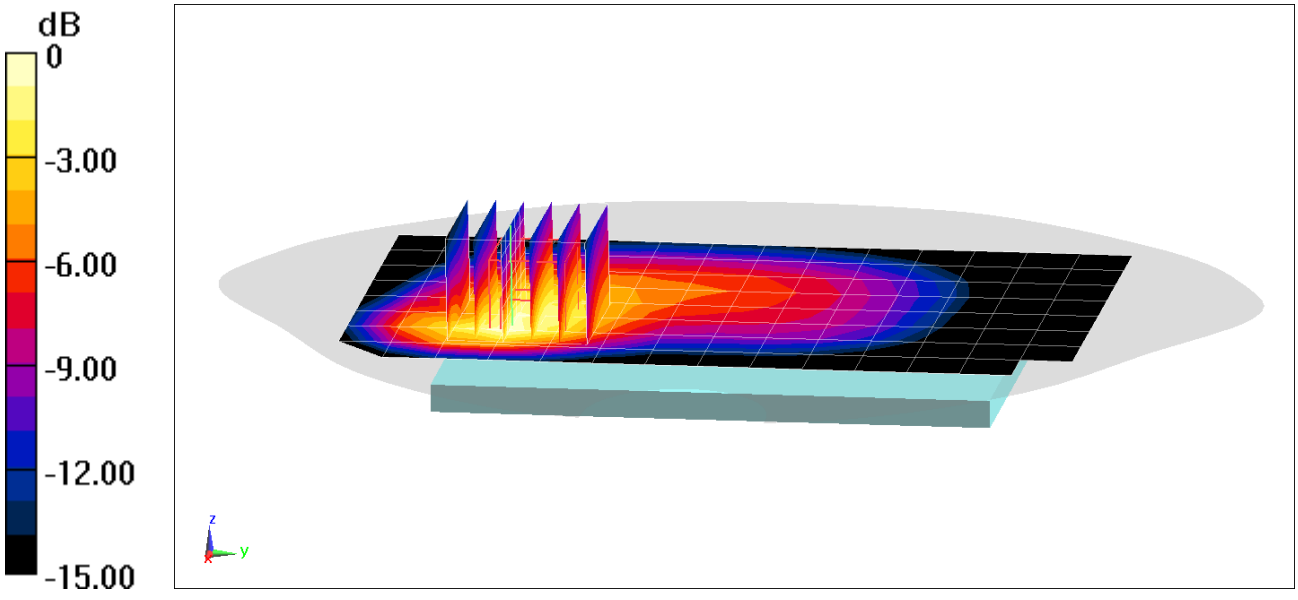
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:2.76
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1.002 S/m; ε_r = 52.819; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-01-2019; Ambient Temp: 23.3°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7488; ConvF(11.03, 11.03, 11.03) @ 836.6 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.92 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.954 W/kg
SAR(1 g) = 0.538 W/kg



0 dB = 0.795 W/kg = -1.00 dBW/kg

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DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

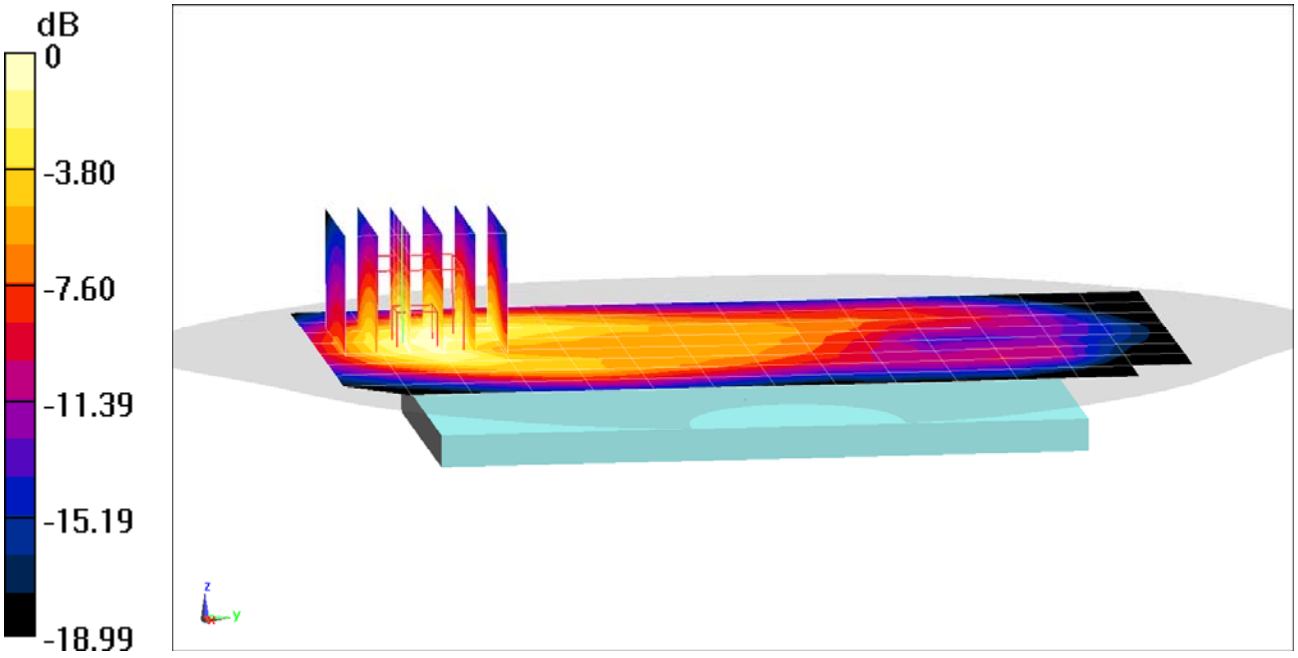
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.538 S/m; ε_r = 52.295; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-23-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.78 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.647 W/kg
SAR(1 g) = 0.375 W/kg



0 dB = 0.516 W/kg = -2.87 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

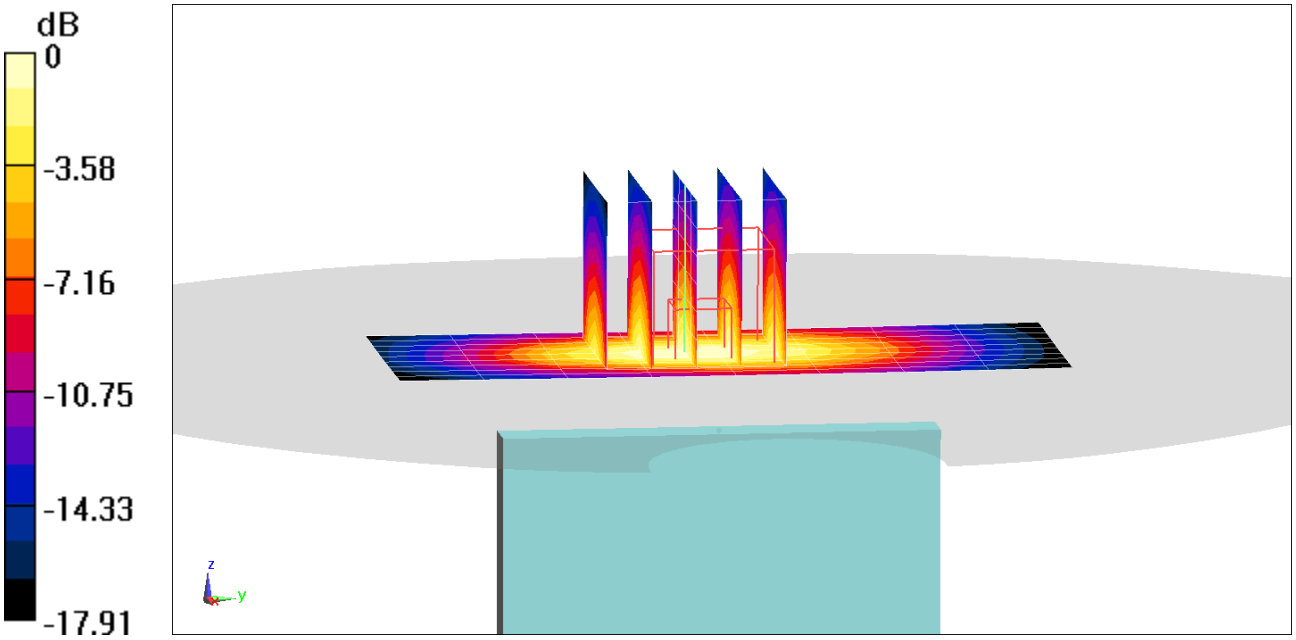
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 1850.2 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body Medium parameters used:
f = 1850.2 MHz; σ = 1.526 S/m; ε_r = 53.22; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp:21.6 °C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1850.2 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.64 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.66 W/kg
SAR(1 g) = 0.960 W/kg



0 dB = 1.31 W/kg = 1.17 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

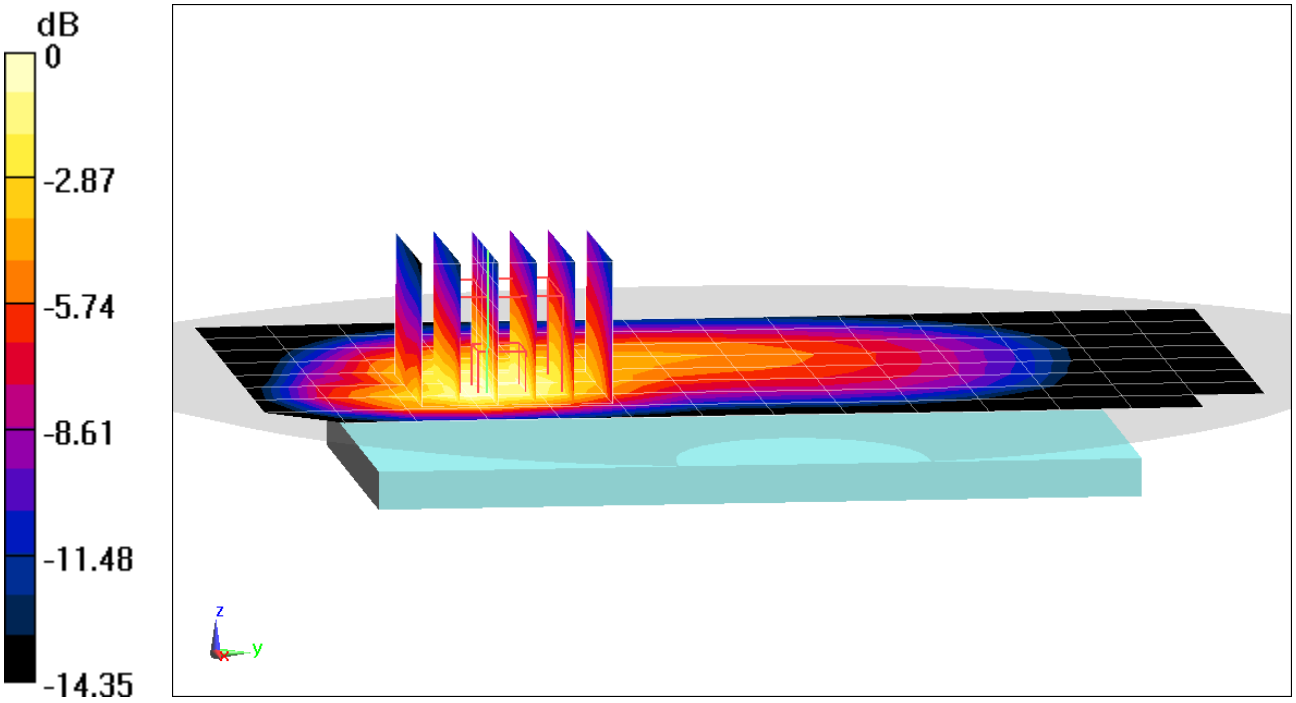
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1.002 S/m; ε_r = 52.819; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-01-2019; Ambient Temp: 23.3°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7488; ConvF(11.03, 11.03, 11.03) @ 836.6 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.49 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.721 W/kg



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

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

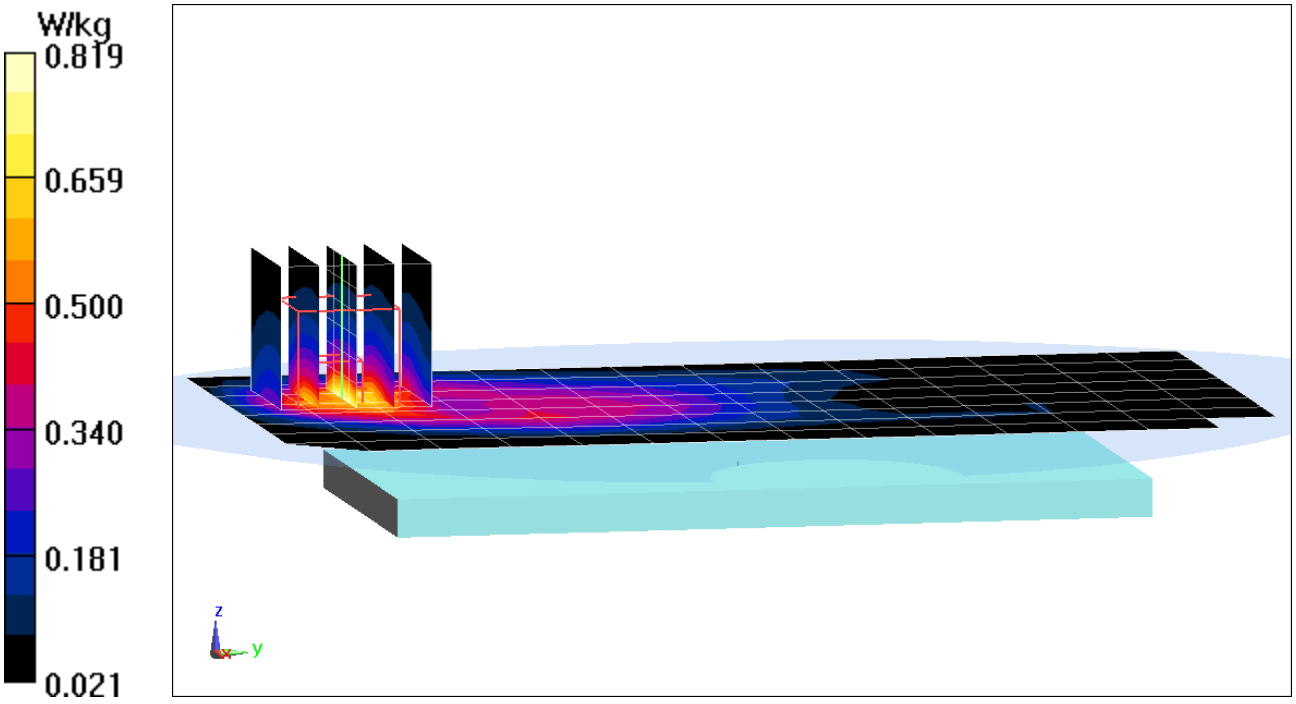
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.4 MHz; σ = 1.509 S/m; ε_r = 51.955; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp: 20.7°C; Tissue Temp: 19.9°C

Probe: EX3DV4 - SN3914; ConvF(7.89, 7.89, 7.89) @ 1732.4 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/14/2019
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1750, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.14 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.961 W/kg
SAR(1 g) = 0.557 W/kg



DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

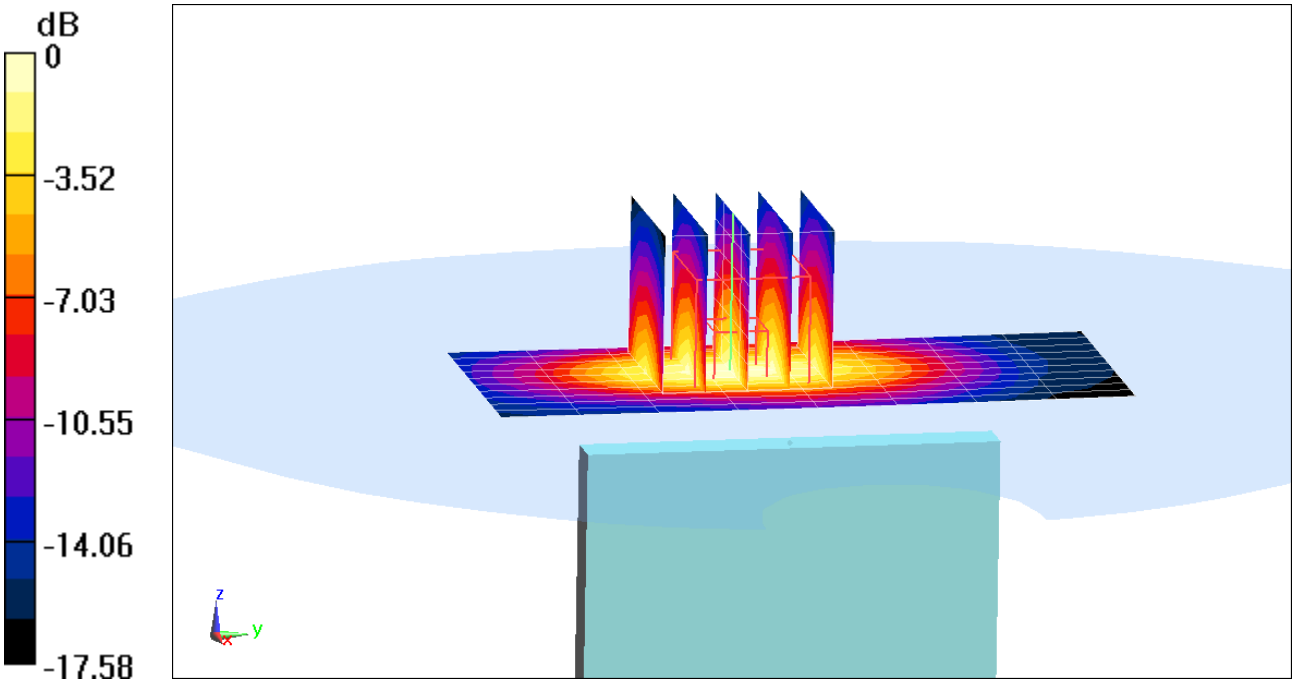
Communication System: UID 0, UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1752.6 MHz; σ = 1.532 S/m; ε_r = 51.877; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp: 20.7°C; Tissue Temp: 19.9°C

Probe: EX3DV4 - SN3914; ConvF(7.89, 7.89, 7.89) @ 1752.6 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/14/2019
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (11x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.34 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.73 W/kg
SAR(1 g) = 0.960 W/kg



0 dB = 1.45 W/kg = 1.61 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

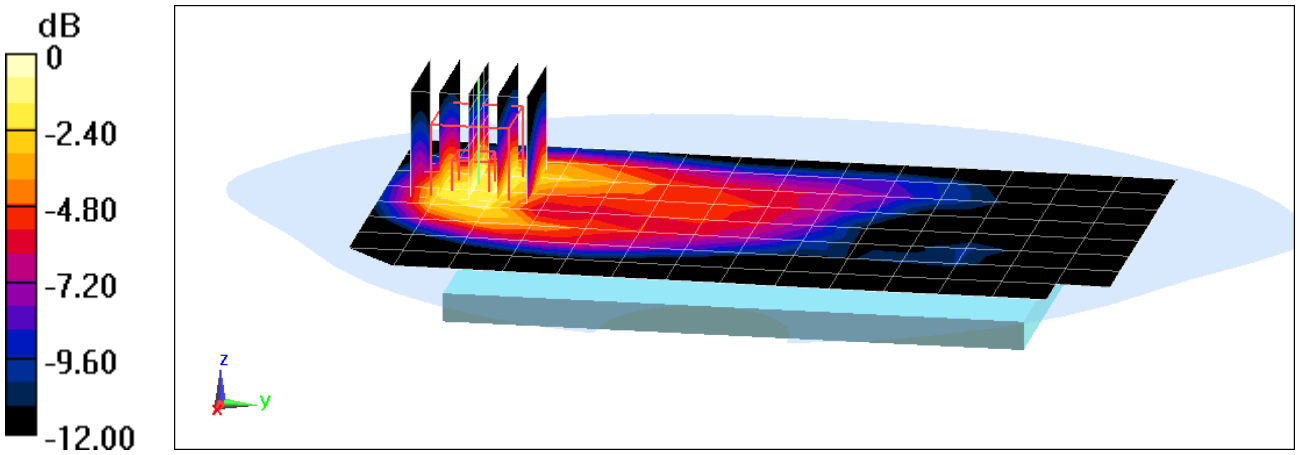
Communication System: UID 0, UMTS; Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1852.4 MHz; σ = 1.529 S/m; ε_r = 53.212; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp:21.6 °C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1852.4 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.18 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.610 W/kg



0 dB = 0.908 W/kg = -0.42 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

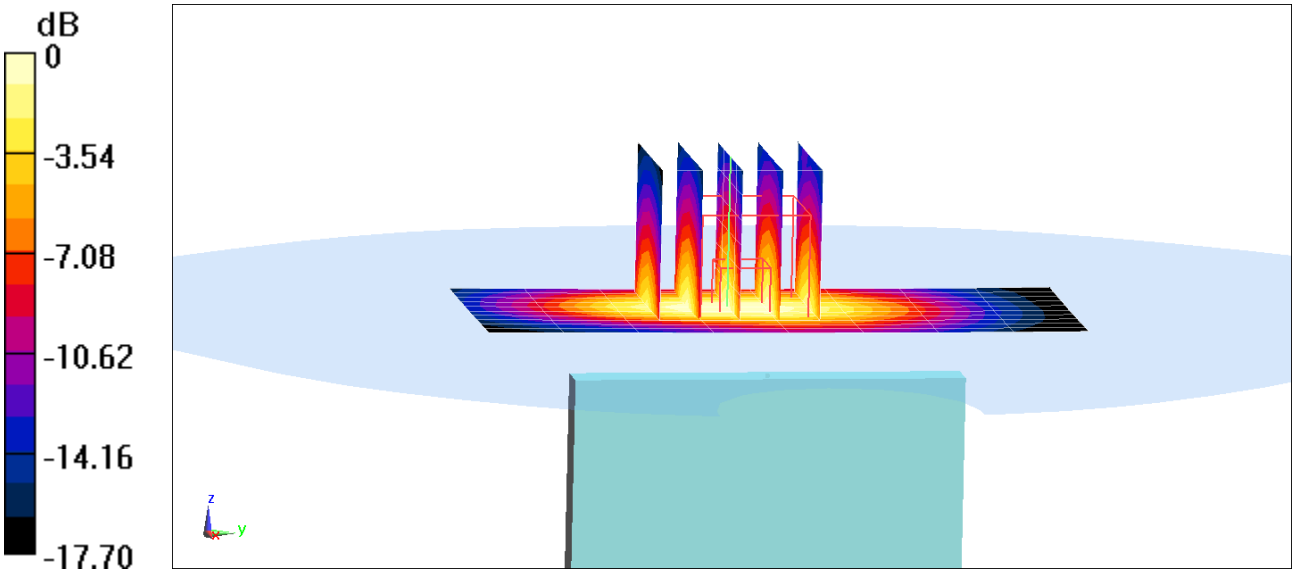
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.56 S/m; ε_r = 53.108; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp: 21.6 °C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (11x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.60 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.99 W/kg
SAR(1 g) = 1.13 W/kg



0 dB = 1.69 W/kg = 2.28 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

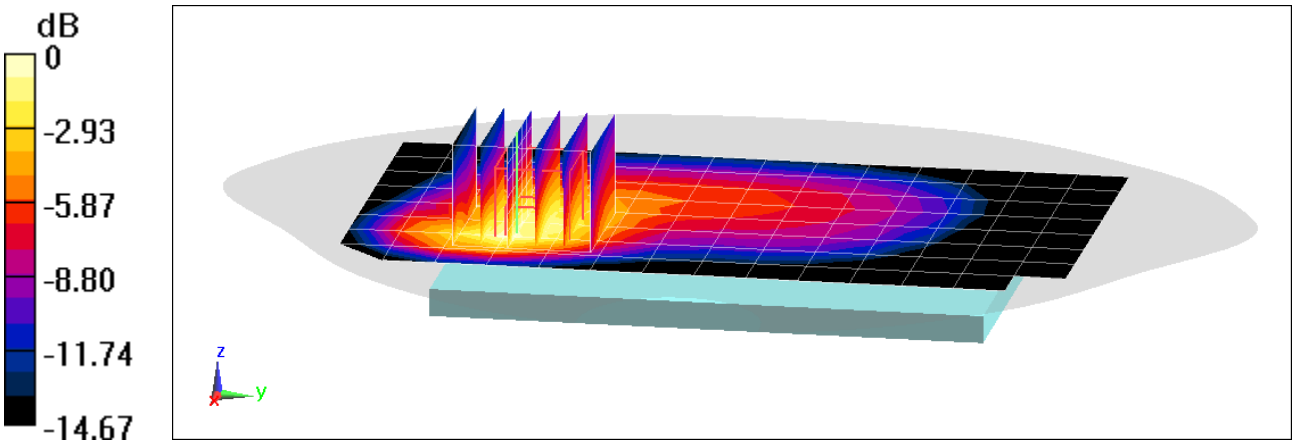
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 1.002 S/m; ε_r = 52.819; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-01-2019; Ambient Temp: 23.3°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7488; ConvF(11.03, 11.03, 11.03) @ 836.52 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Cell. CDMA, 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 = 25.43 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.604 W/kg



0 dB = 0.889 W/kg = -0.51 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

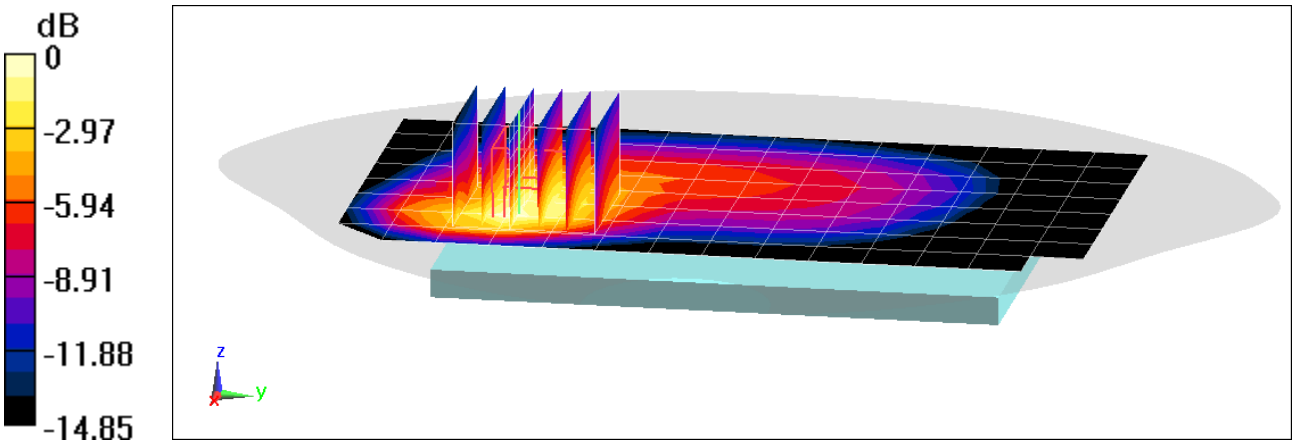
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 1.002 S/m; ε_r = 52.819; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-01-2019; Ambient Temp: 23.3°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7488; ConvF(11.03, 11.03, 11.03) @ 836.52 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Cell. EVDO Rev.0 , 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 = 25.82 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.624 W/kg



0 dB = 0.931 W/kg = -0.31 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

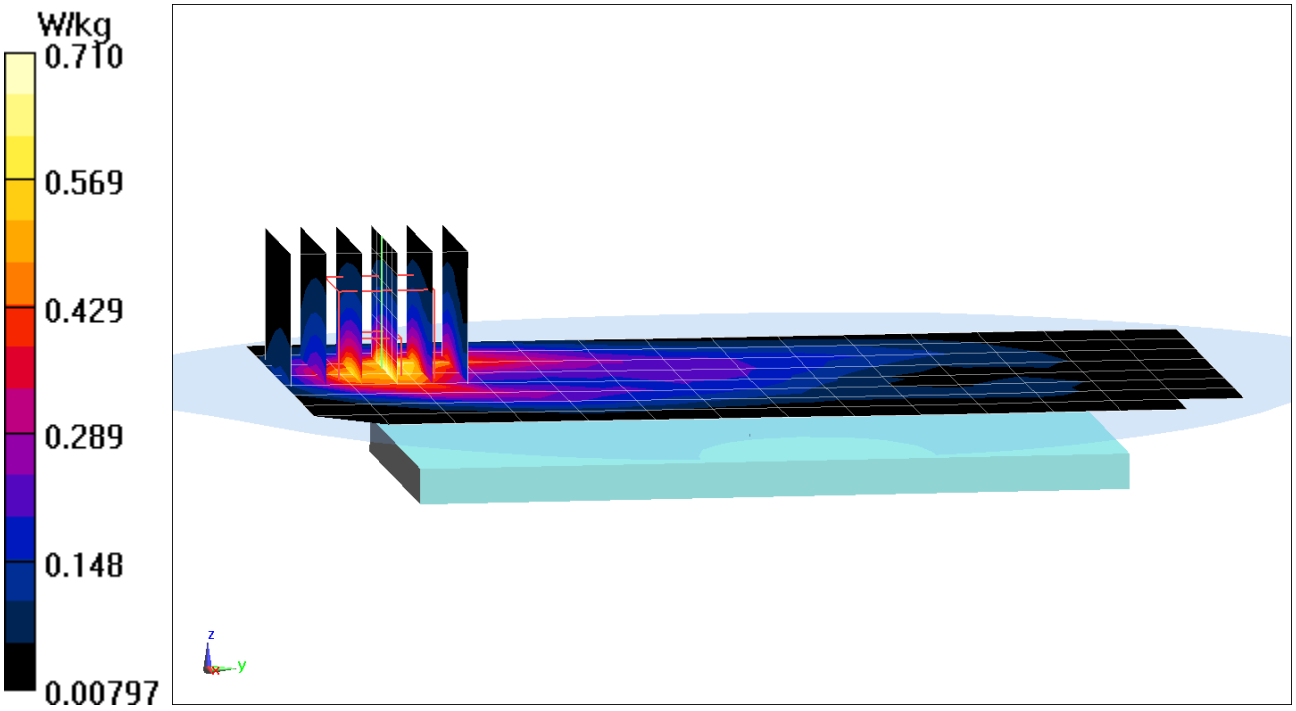
Communication System: UID 0, CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.56 S/m; ε_r = 53.108; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp: 21.6 °C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: PCS CDMA, 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 = 18.63 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.846 W/kg
SAR(1 g) = 0.497 W/kg



DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

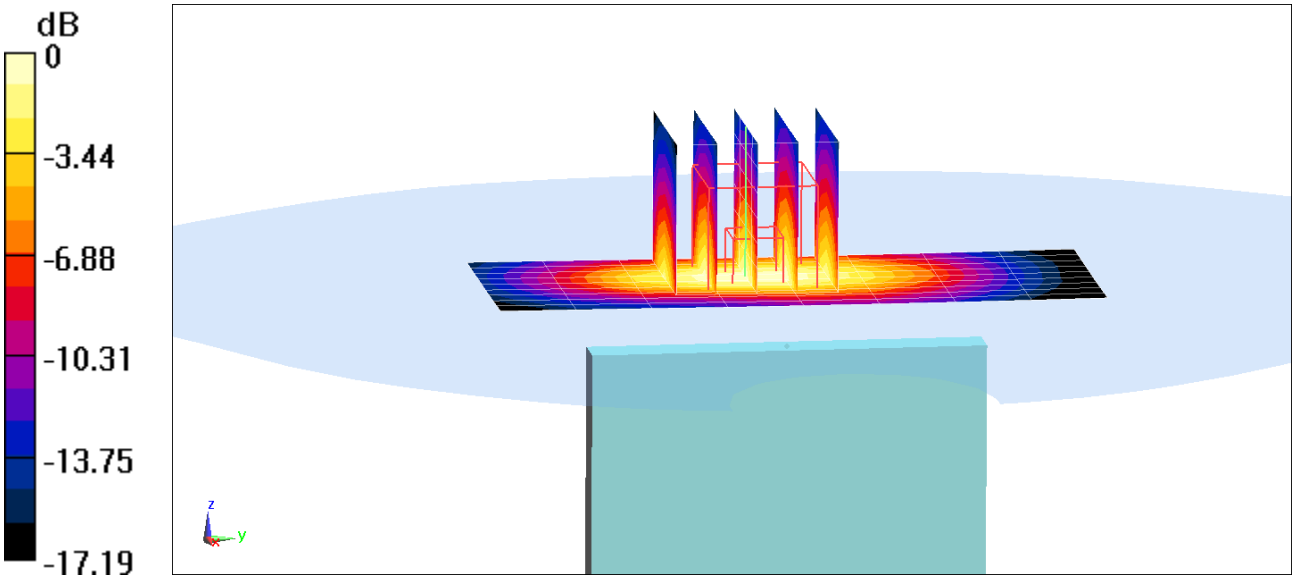
Communication System: UID 0, CDMA; Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1851.25 MHz; σ = 1.527 S/m; ε_r = 53.216; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp:21.6 °C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1851.25 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.45 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 2.15 W/kg
SAR(1 g) = 1.25 W/kg



0 dB = 1.84 W/kg = 2.65 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01309

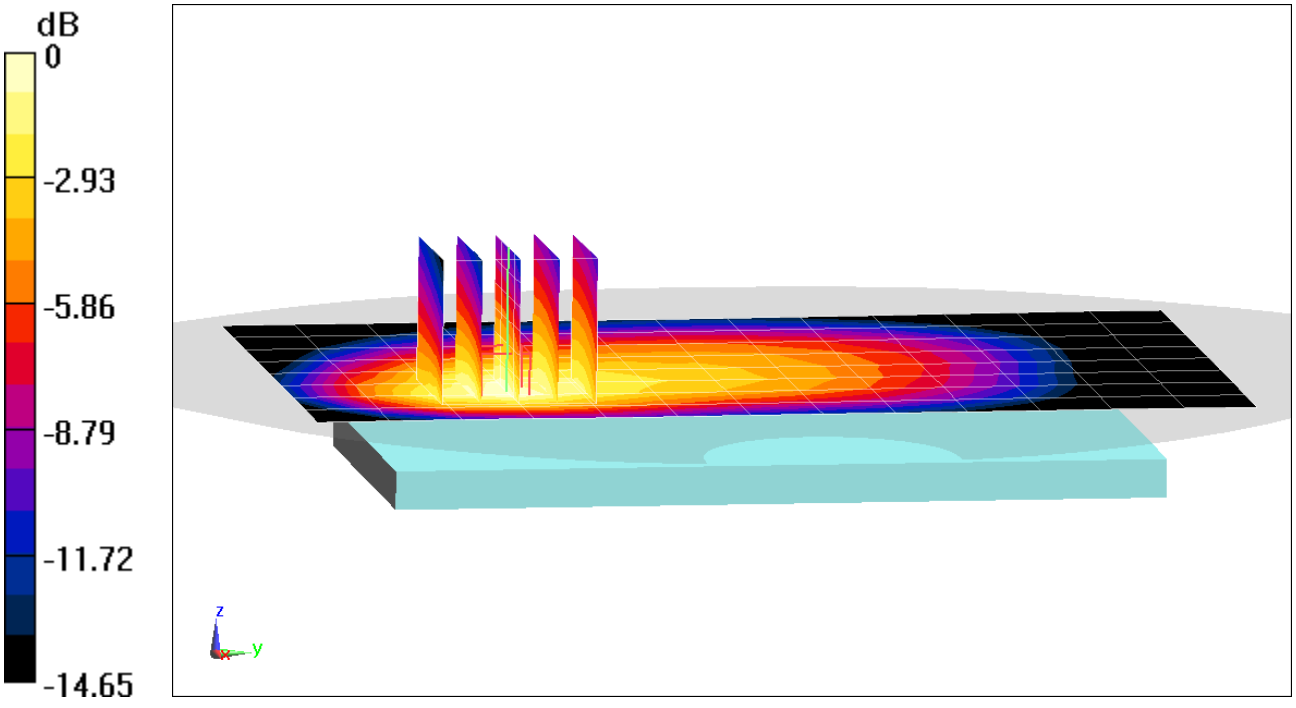
Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1
Medium: 750MHz Body Medium parameters used (interpolated):
$f = 680.5$ MHz; $\sigma = 0.936$ S/m; $\varepsilon_r = 54.762$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-24-2019; Ambient Temp: 21.7°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 680.5 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 71, Body SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 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 = 21.56 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.670 W/kg
SAR(1 g) = 0.409 W/kg



0 dB = 0.566 W/kg = -2.47 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01309

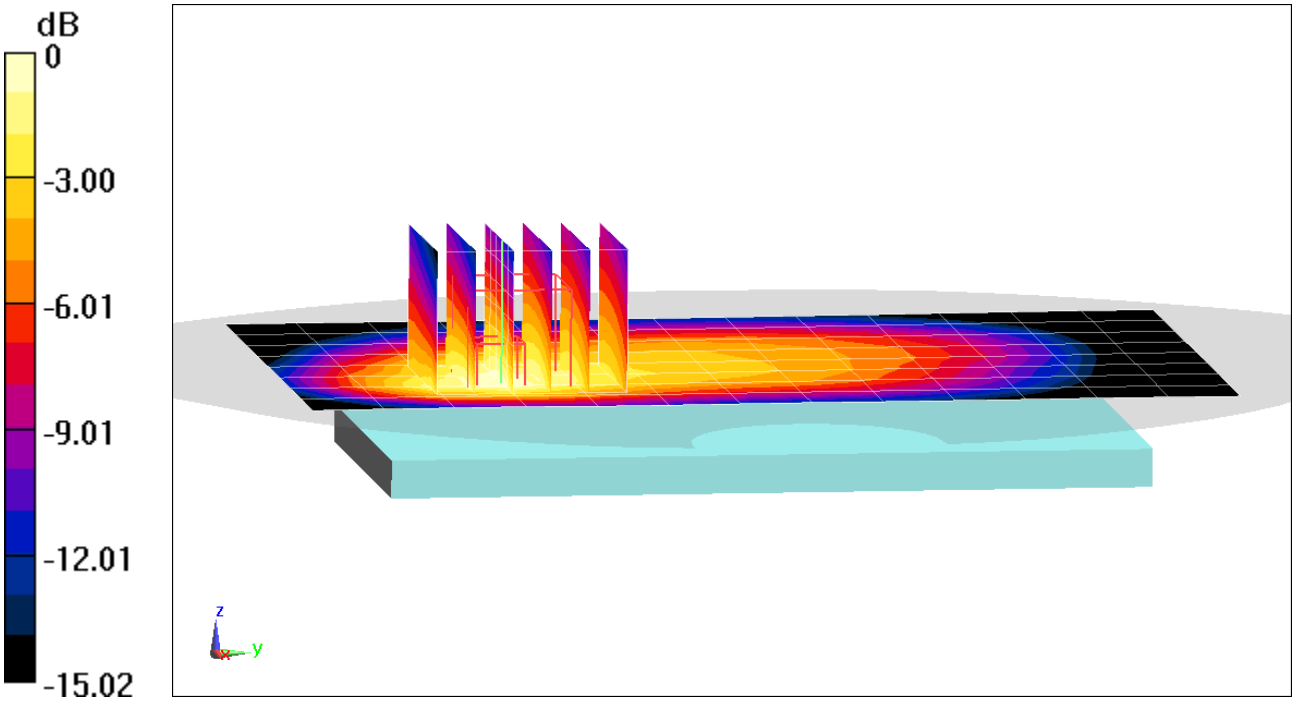
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750MHz Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.946 S/m; ε_r = 54.703; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-24-2019; Ambient Temp: 21.7°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 707.5 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 12, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 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 = 20.03 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.594 W/kg
SAR(1 g) = 0.357 W/kg



0 dB = 0.499 W/kg = -3.02 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01309

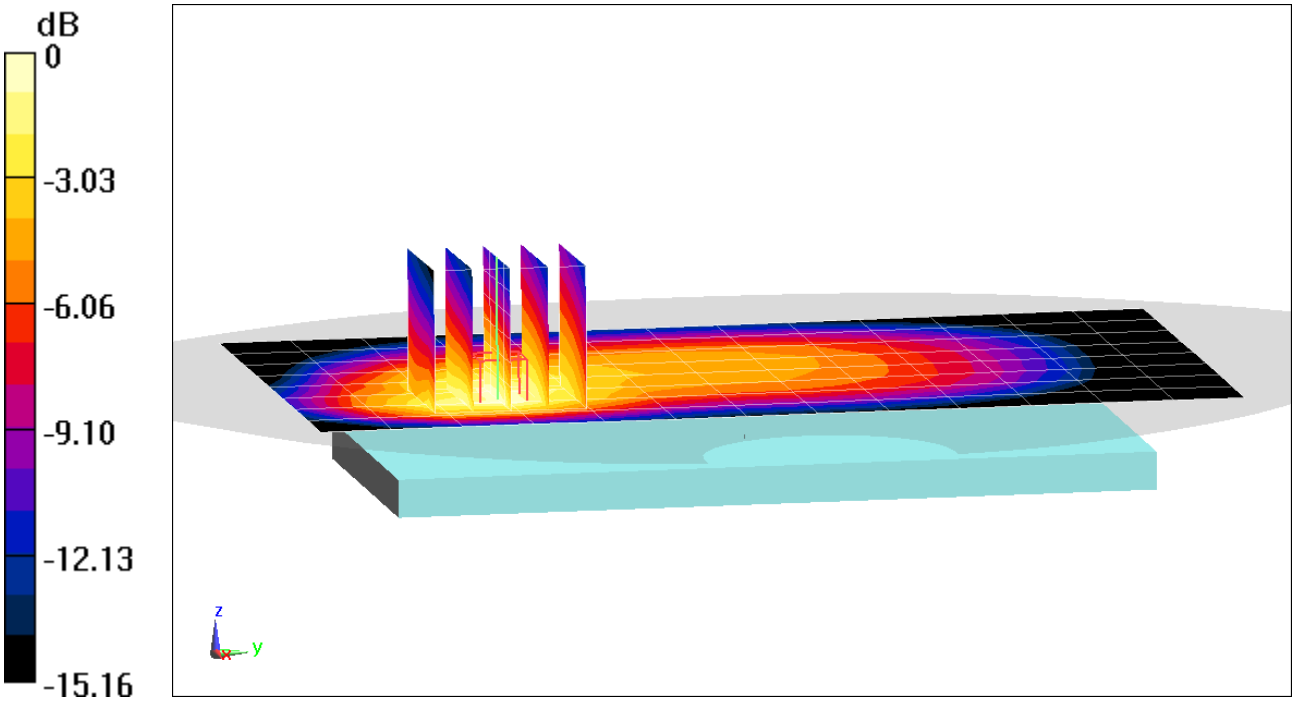
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750MHz Body Medium parameters used (interpolated):
f = 782 MHz; σ = 0.974 S/m; ε_r = 54.529; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-24-2019; Ambient Temp: 21.7°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 782 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 13, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 49 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 = 22.75 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.791 W/kg
SAR(1 g) = 0.466 W/kg



0 dB = 0.669 W/kg = -1.75 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01317

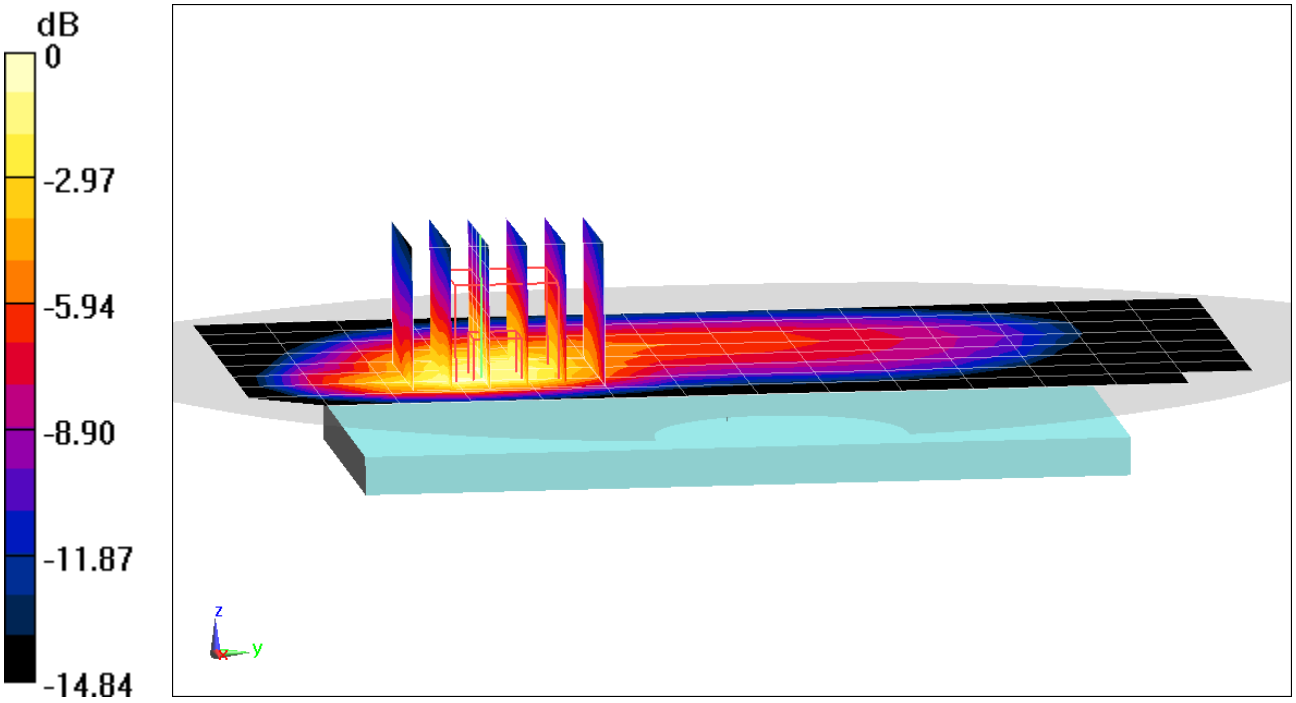
Communication System: UID 0, LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.997 S/m; ε_r = 52.956; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp: 18.8°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7488; ConvF(11.03, 11.03, 11.03) @ 836.5 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 5 (Cell.), Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 49 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 = 25.95 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.630 W/kg



0 dB = 0.934 W/kg = -0.30 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01291

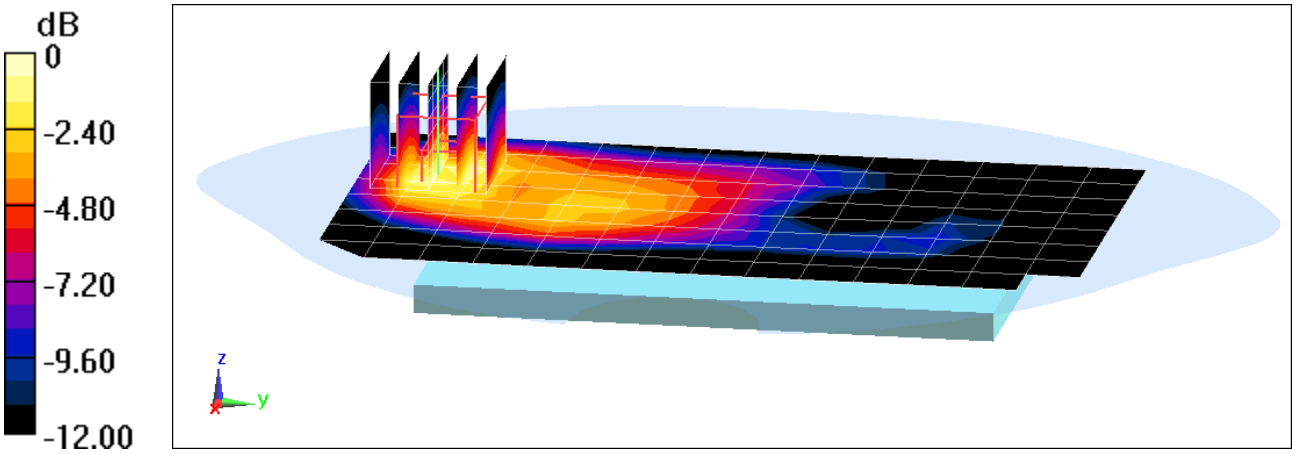
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1720 MHz; σ = 1.464 S/m; ε_r = 52.603; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-01-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN3914; ConvF(7.89, 7.89, 7.89) @ 1720 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/14/2019
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.95 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.911 W/kg
SAR(1 g) = 0.532 W/kg



0 dB = 0.764 W/kg = -1.17 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01291

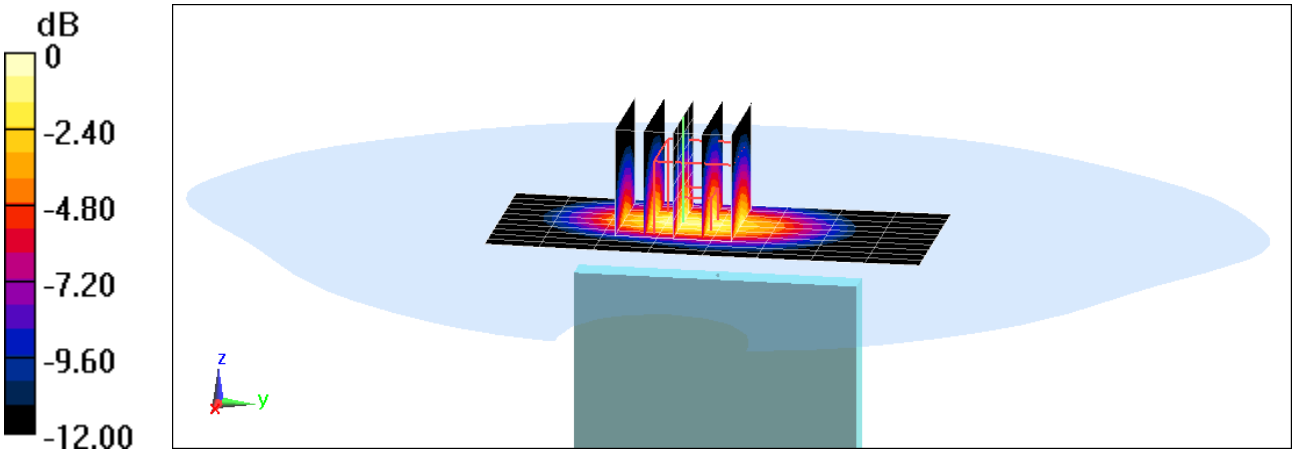
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1770 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
$f = 1770$ MHz; $\sigma = 1.519$ S/m; $\varepsilon_r = 52.399$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-01-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN3914; ConvF(7.89, 7.89, 7.89) @ 1770 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/14/2019
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), Body SAR, Bottom Edge, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (11x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.04 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.84 W/kg
SAR(1 g) = 1.02 W/kg



0 dB = 1.53 W/kg = 1.85 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01291

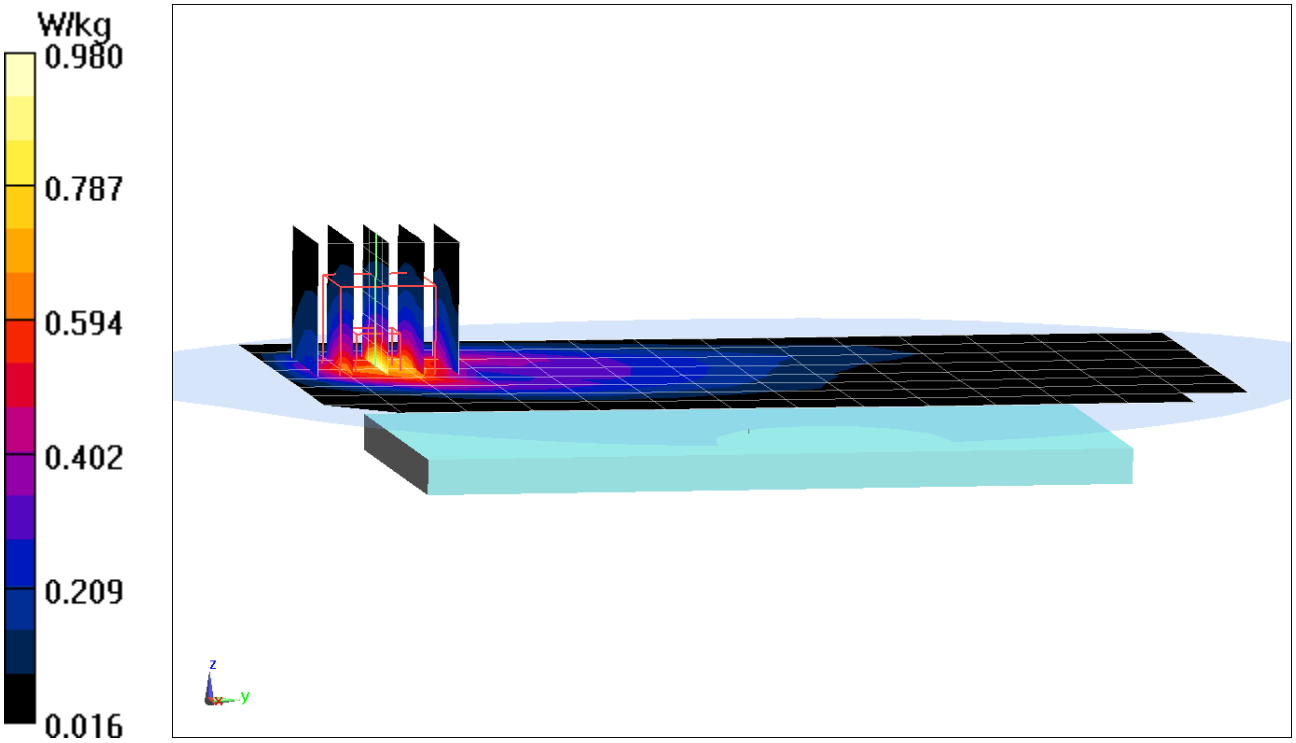
Communication System: UID 0, LTE Band 2 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1860 MHz; σ = 1.537 S/m; ε_r = 53.183; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp:21.6 °C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1860 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 2 (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 = 21.84 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.660 W/kg



DUT: ZNFL722DL; Type: Portable Handset; Serial: 01291

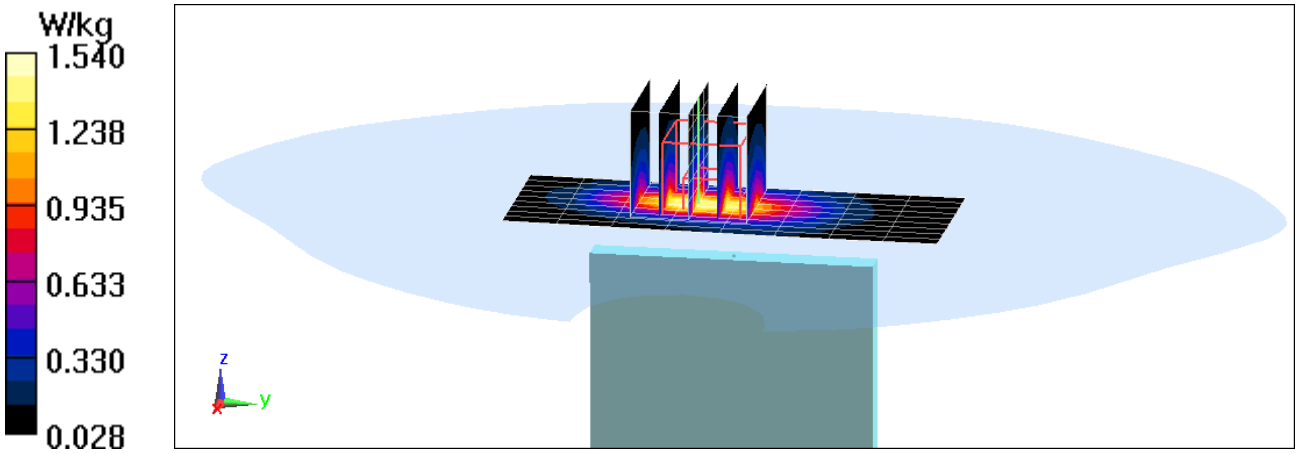
Communication System: UID 0, _LTE Band 2 (PCS); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.56 S/m; ε_r = 53.108; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp:21.6 °C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 2 (PCS), Body SAR, Bottom Edge, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.79 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.80 W/kg
SAR(1 g) = 1.05 W/kg



DUT: ZNFL722DL; Type: Portable Handset; Serial: 01374

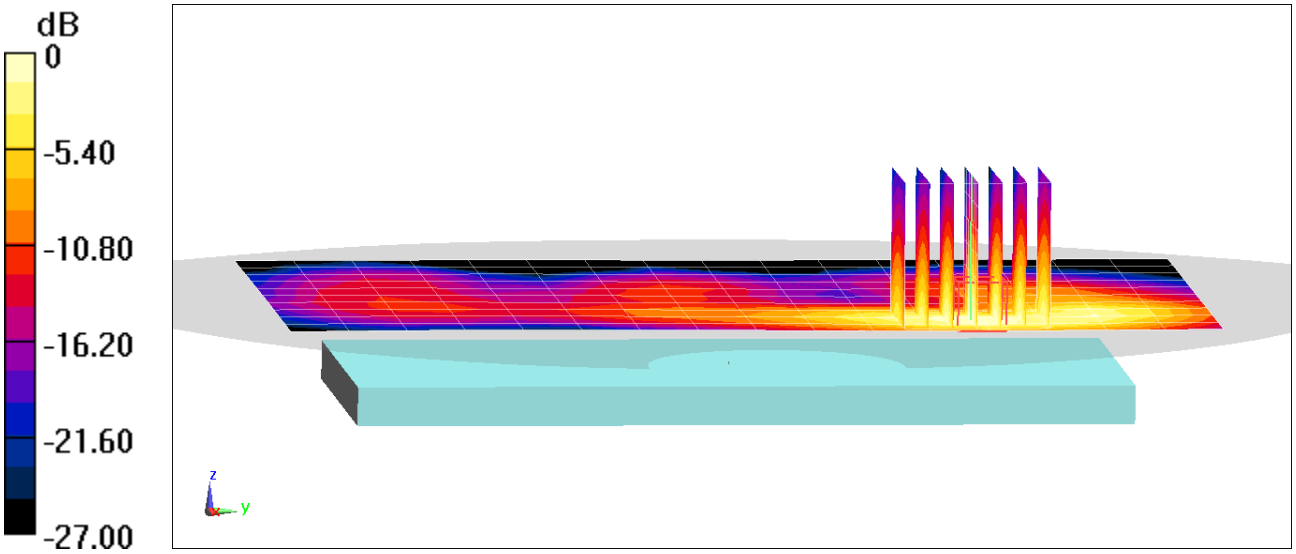
Communication System: UID 0, IEEE 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2412 MHz; σ = 1.995 S/m; ε_r = 50.808; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-25-2019; Ambient Temp: 22.2°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2412 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.20 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.480 W/kg



0 dB = 0.789 W/kg = -1.03 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01374

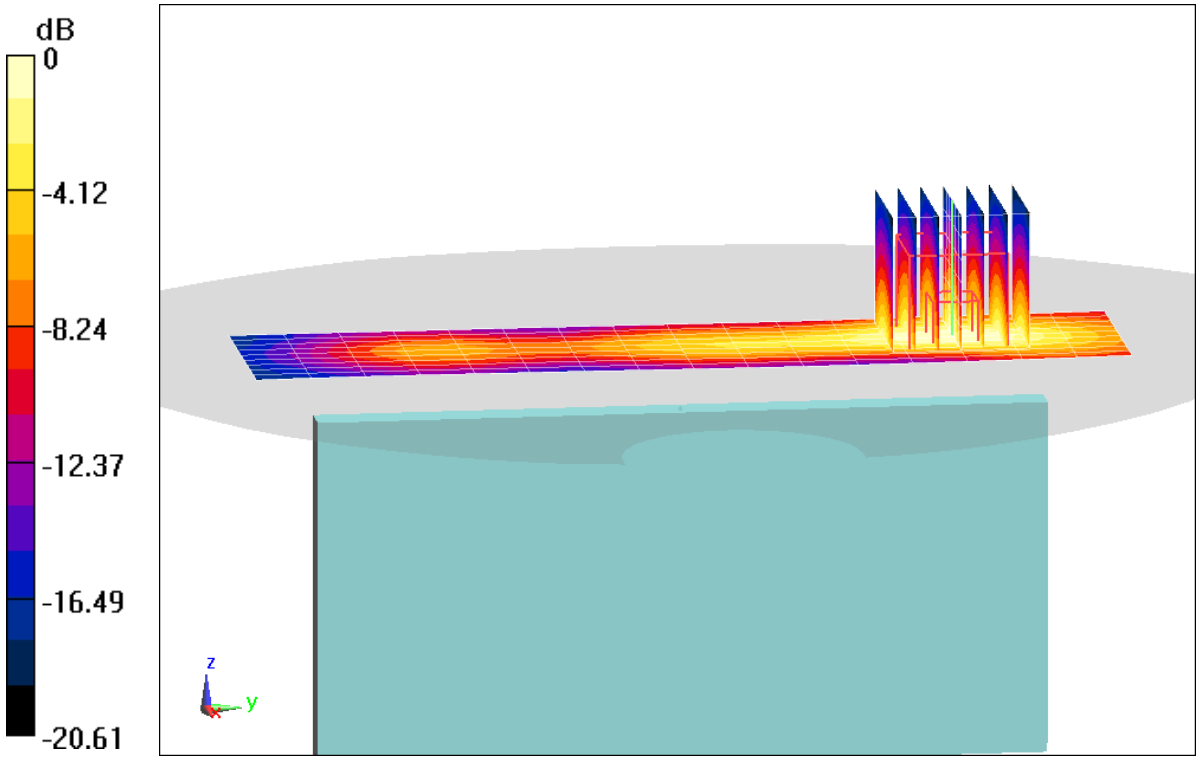
Communication System: UID 0, _IEEE 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2412 MHz; σ = 1.995 S/m; ε_r = 50.808; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-25-2019; Ambient Temp: 22.2°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2412 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11b, 22 MHz Bandwidth,
Body SAR, Ch 1, 1 Mbps, Left Edge

Area Scan (10x17x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.421 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.857 W/kg
SAR(1 g) = 0.433 W/kg



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

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01374

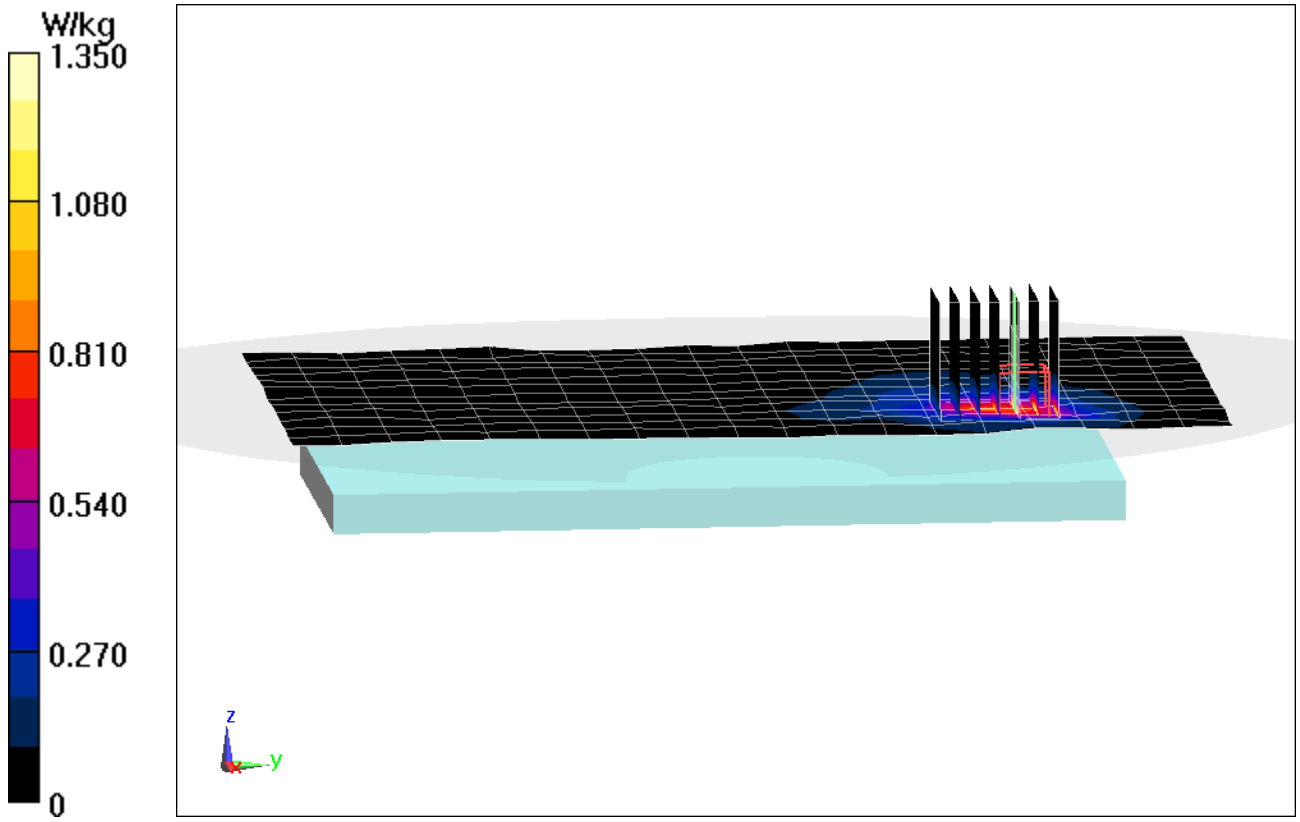
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5280 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5280 MHz; σ = 5.418 S/m; ε_r = 47.296; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-14-2019; Ambient Temp: 22.0°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7308; ConvF(4.48, 4.48, 4.48) @ 5280 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a, UNII-2A, 20 MHz Bandwidth,
Body SAR, Ch 56, 6 Mbps, Back Side

Area Scan (8x8x1): 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 = 10.76 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 2.03 W/kg
SAR(1 g) = 0.556 W/kg



DUT: ZNFL722DL; Type: Portable Handset; Serial: 01374

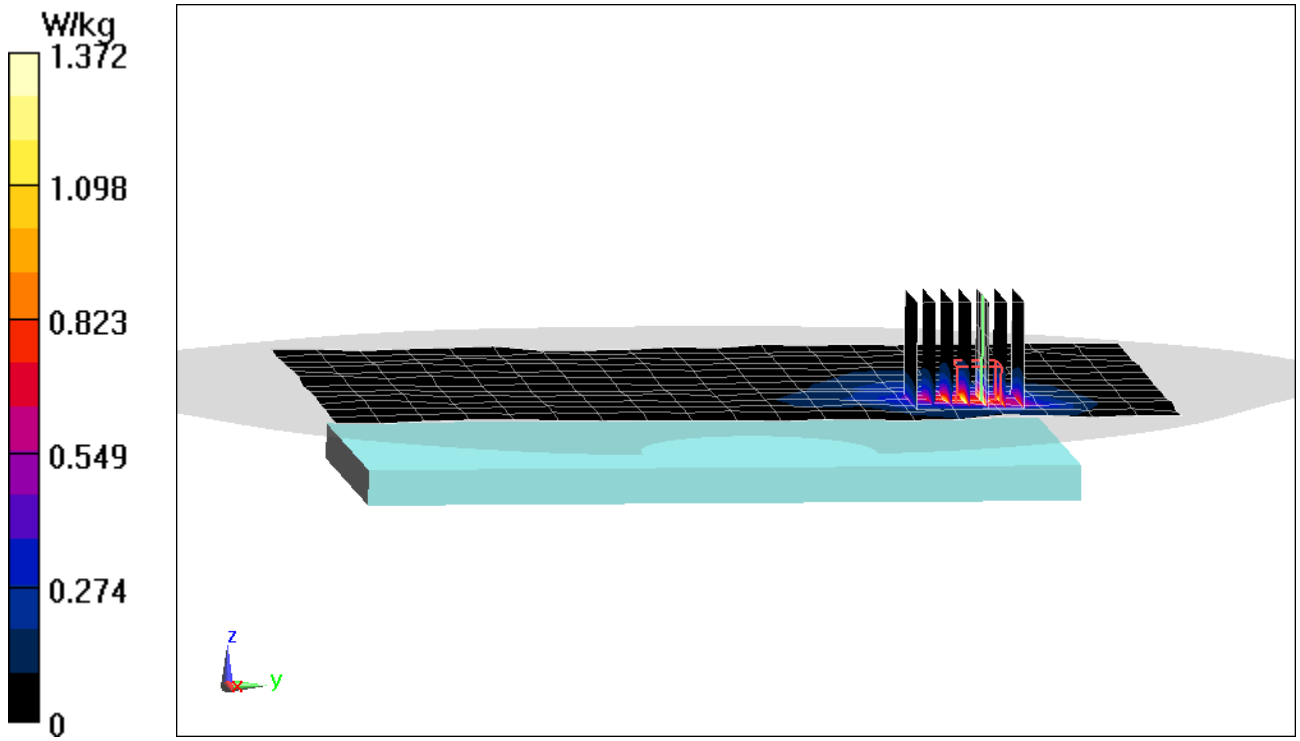
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5200 MHz; σ = 5.31 S/m; ε_r = 47.457; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-14-2019; Ambient Temp: 22.0°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7308; ConvF(4.48, 4.48, 4.48) @ 5200 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a, UNII-1, 20 MHz Bandwidth,
Body SAR, Ch 40, 6 Mbps, Back Side

Area Scan (13x20x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 11.37 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 2.19 W/kg
SAR(1 g) = 0.620 W/kg



DUT: ZNFL722DL; Type: Portable Handset; Serial: 01374

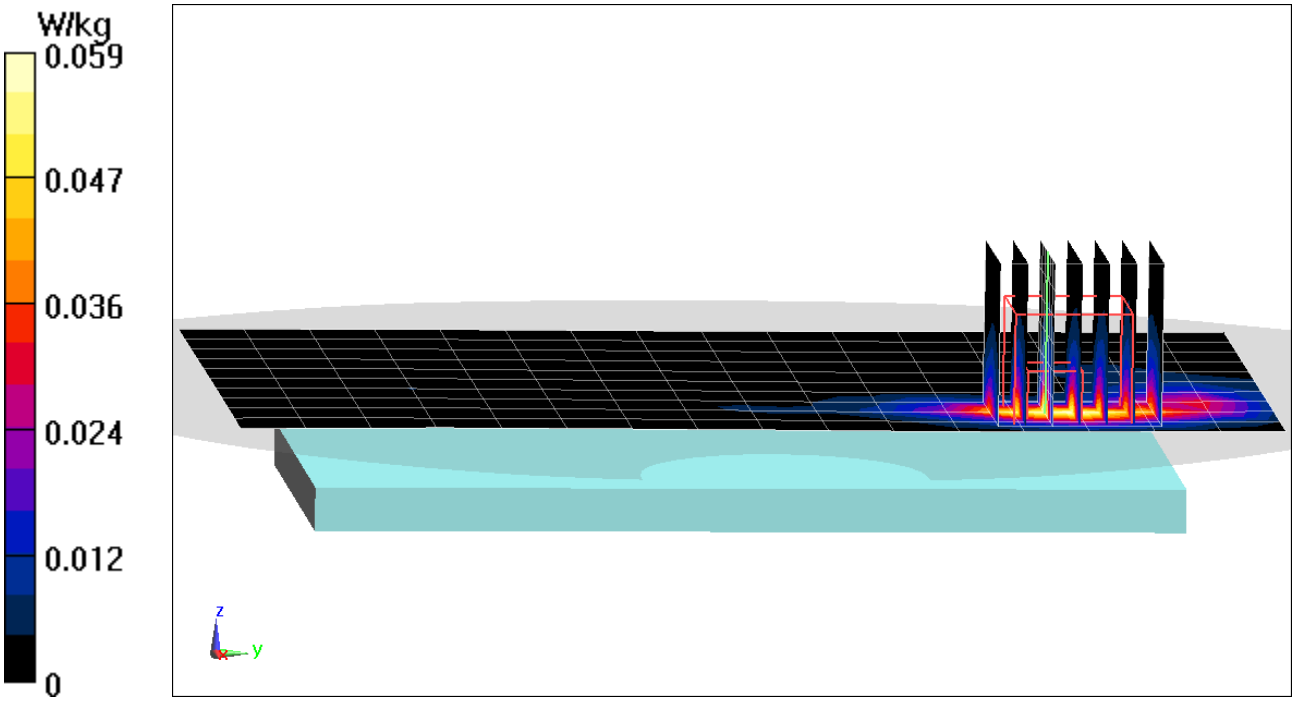
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.297
Medium: 2450 Body Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.029 S/m; ε_r = 50.724; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-25-2019; Ambient Temp: 22.2°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2441 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.536 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.0770 W/kg
SAR(1 g) = 0.035 W/kg



DUT: ZNFL722DL; Type: Portable Handset; Serial: 01283

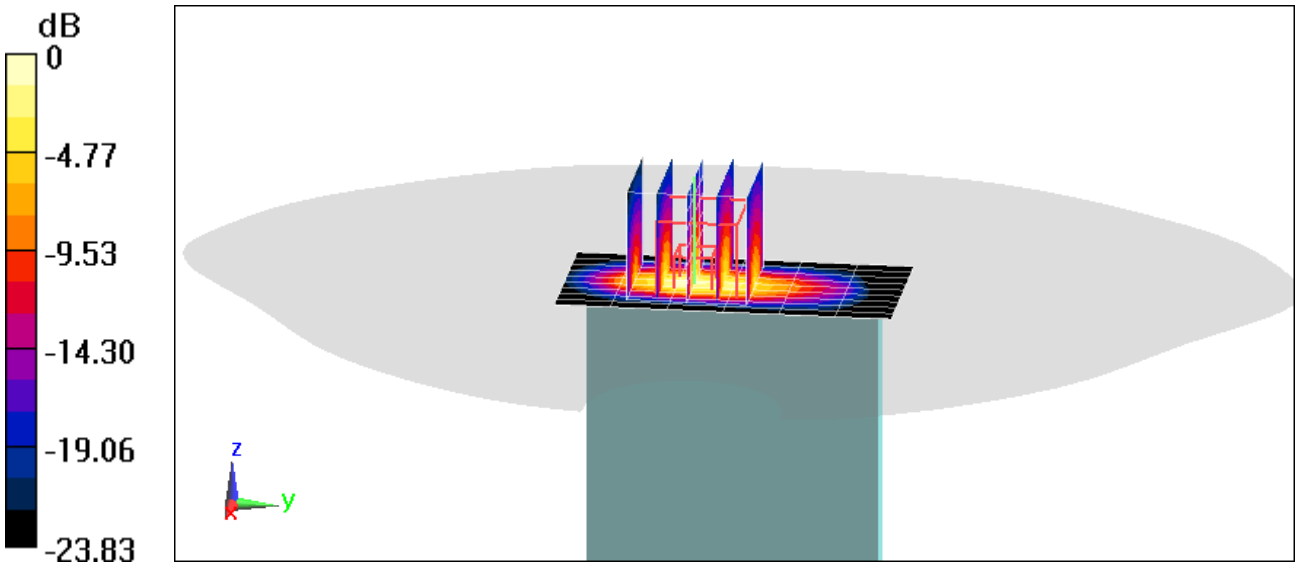
Communication System: UID 0, CDMA; Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used (interpolated):
f = 1851.25 MHz; σ = 1.527 S/m; ε_r = 52.53; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 05-01-2019; Ambient Temp: 23.2°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1851.25 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: PCS EVDO Rev. 0, Phablet SAR, Bottom Edge, Low.ch

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 80.18 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 21.2 W/kg
SAR(10 g) = 3.14 W/kg



0 dB = 17.3 W/kg = 12.38 dBW/kg

DUT: ZNFL722DL; Type: Portable Handset; Serial: 01374

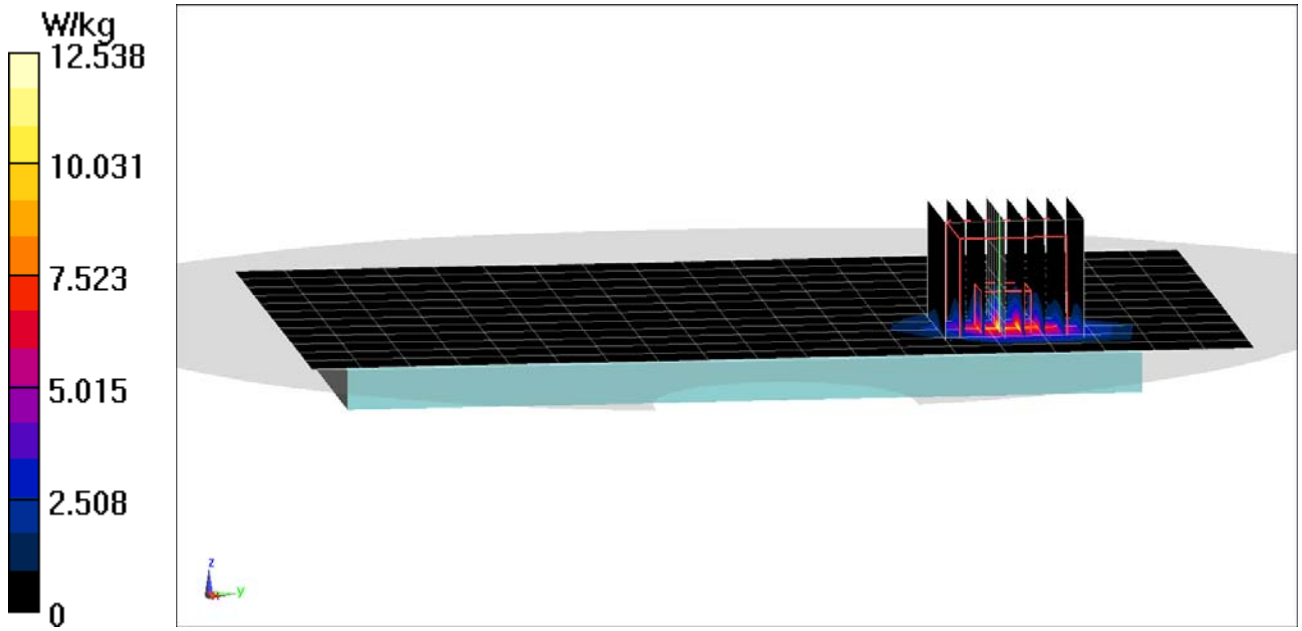
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5280 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5280 MHz; σ = 5.418 S/m; ε_r = 47.296; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-14-2019; Ambient Temp: 22.0°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7308; ConvF(4.48, 4.48, 4.48) @ 5280 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a, U-NII-2A, 20 MHz Bandwidth,
Phablet SAR, Ch 56, 6 Mbps, Back Side

Area Scan (13x20x1): 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 = 33.11 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 24.7 W/kg
SAR(10 g) = 1.48 W/kg



APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

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

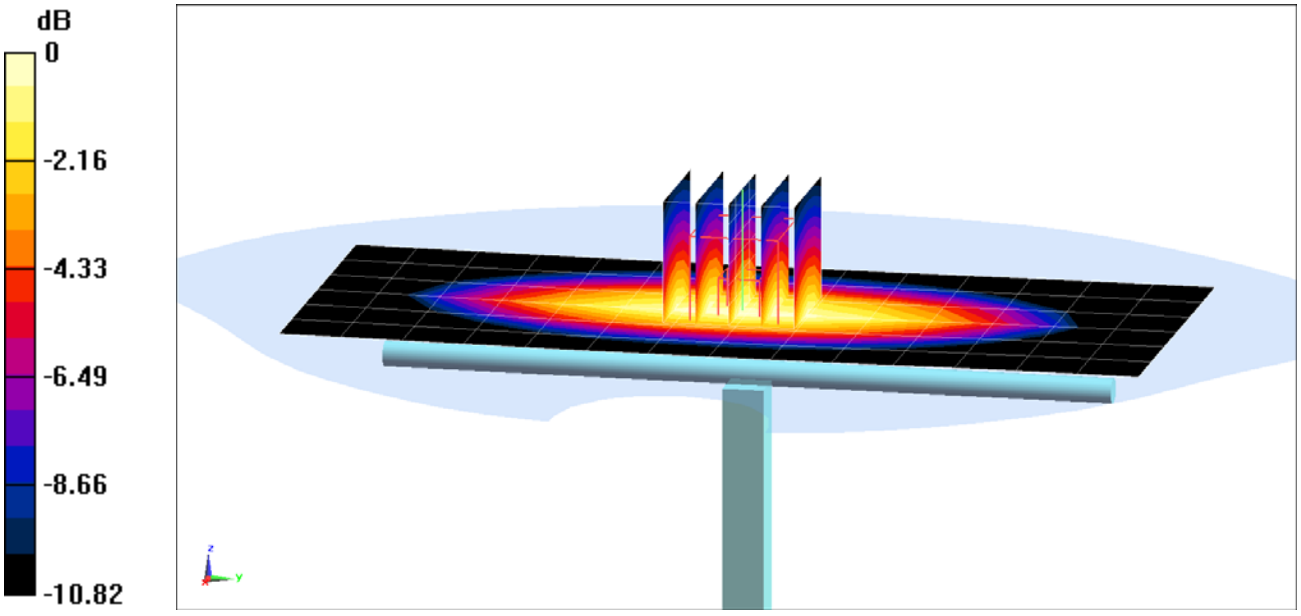
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Head; Medium parameters used (interpolated):
f = 750 MHz; σ = 0.906 S/m; ε_r = 40.528; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-22-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7409; ConvF(9.91, 9.91, 9.91) @ 750 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

750 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.70 W/kg
SAR(1 g) = 1.72 W/kg
Deviation(1 g) = 3.86%



0 dB = 2.35 W/kg = 3.71 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

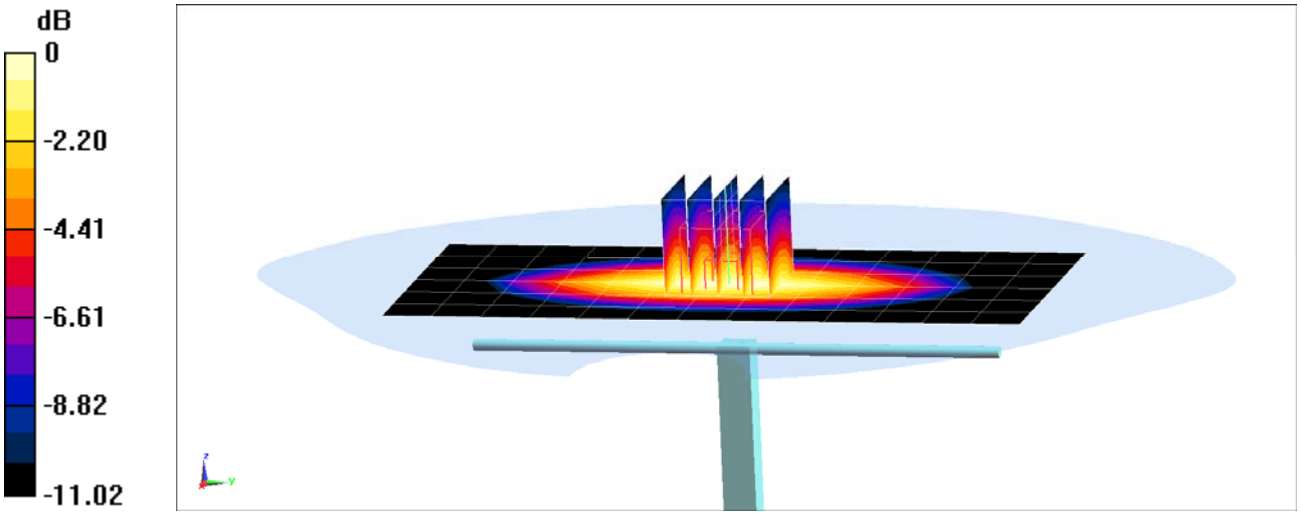
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.942 S/m; ε_r = 42.78; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-21-2019; Ambient Temp: 22.3°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3914; ConvF(9.5, 9.5, 9.5) @ 835 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/14/2019
Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 3.19 W/kg
SAR(1 g) = 2.07 W/kg
Deviation(1 g) = 7.92%



0 dB = 2.82 W/kg = 4.50 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1765V2; Serial: 1008

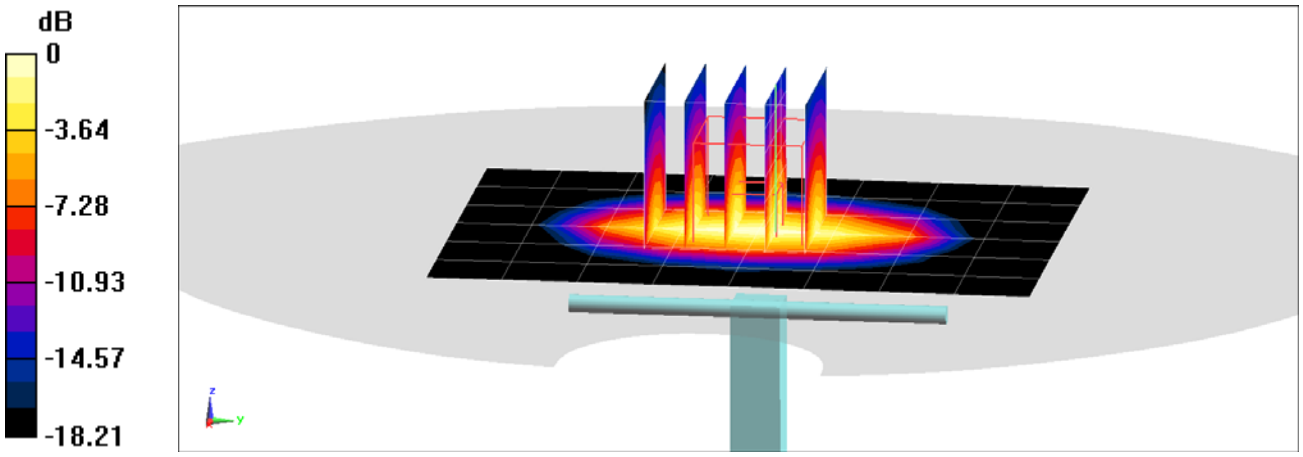
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used:
f = 1750 MHz; σ = 1.353 S/m; ε_r = 39.507; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-15-2019; Ambient Temp: 21.6°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3589; ConvF(7.31, 7.31, 7.31) @ 1750 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

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) = 6.86 W/kg
SAR(1 g) = 3.67 W/kg
Deviation(1 g) = 1.38%



0 dB = 5.61 W/kg = 7.49 dBW/kg

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

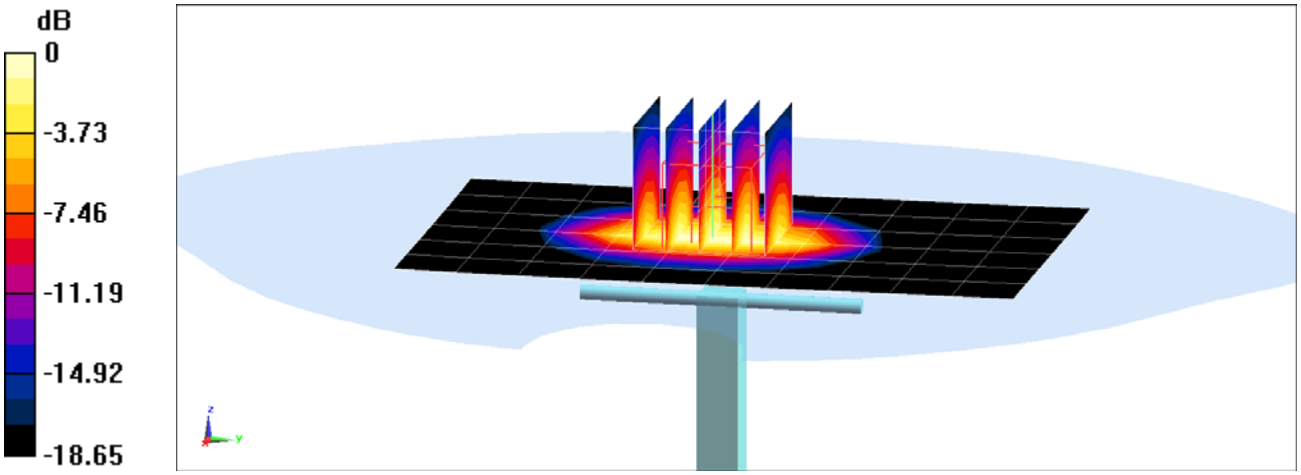
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.459 S/m; ε_r = 39.093; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

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

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1900 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 8.00 W/kg
SAR(1 g) = 4.18 W/kg
Deviation(1 g) = 5.03%



0 dB = 6.64 W/kg = 8.22 dBW/kg

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

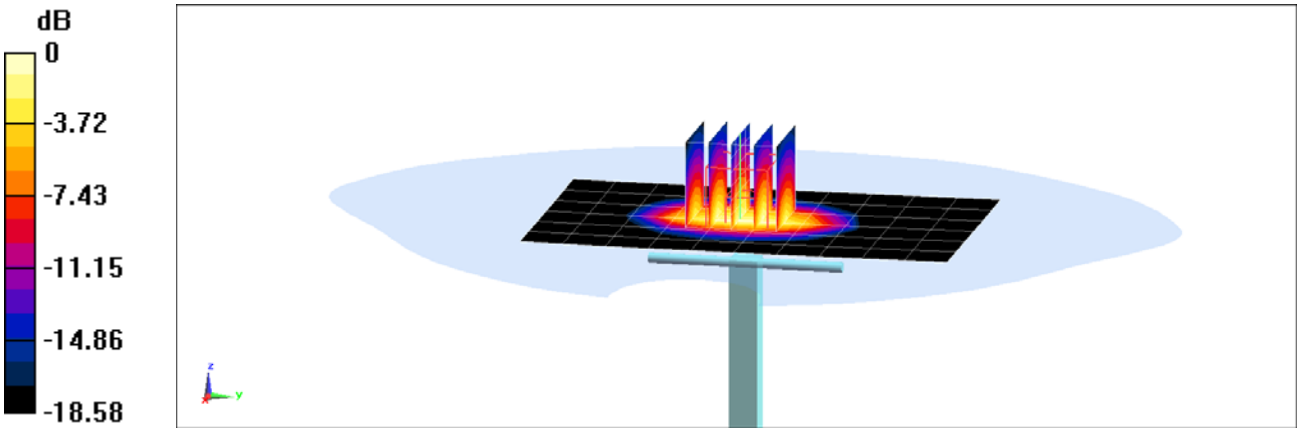
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.463 S/m; ε_r = 39.705; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-28-2019; Ambient Temp: 23.5°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1900 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 8.05 W/kg
SAR(1 g) = 4.25 W/kg
Deviation(1 g) = 6.78%



0 dB = 6.71 W/kg = 8.27 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

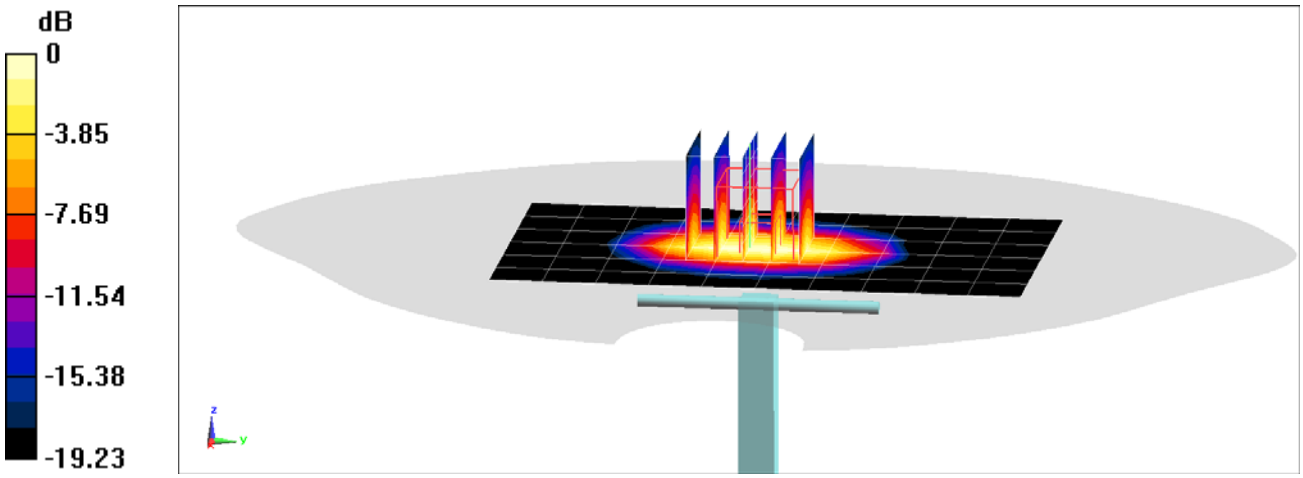
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.456 S/m; ε_r = 39.853; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-14-2019; Ambient Temp: 23.6°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN3589; ConvF(7.08, 7.08, 7.08) @ 1900 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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) = 7.80 W/kg
SAR(1 g) = 3.97 W/kg
Deviation(1 g) = 1.53%



0 dB = 6.41 W/kg = 8.07 dBW/kg

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

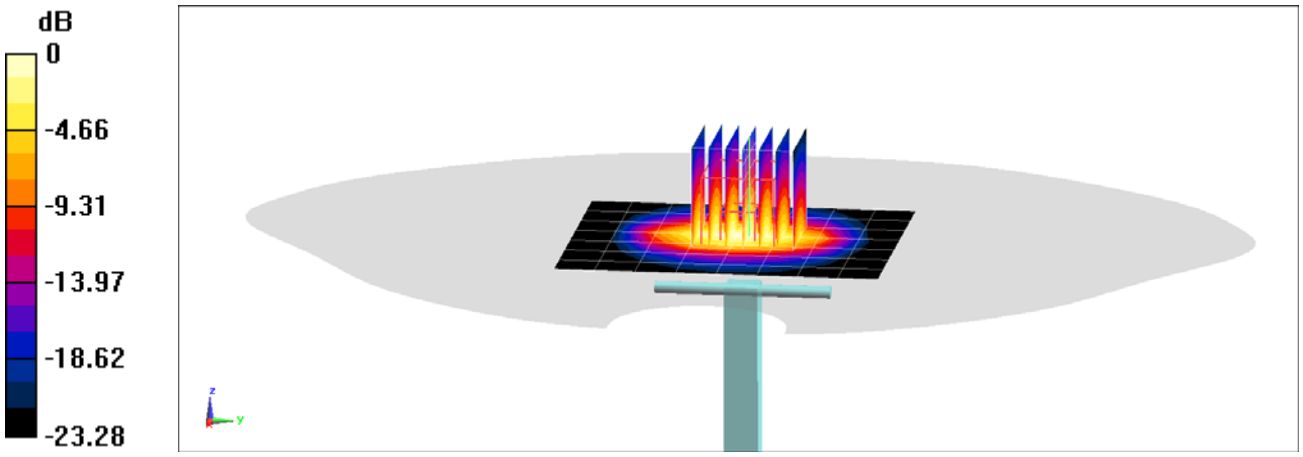
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.805 S/m; ε_r = 37.334; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

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

Probe: EX3DV4 - SN3589; ConvF(6.46, 6.46, 6.46) @ 2450 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.8 W/kg
SAR(1 g) = 4.98 W/kg
Deviation(1 g) = -4.78%



0 dB = 8.45 W/kg = 9.27 dBW/kg

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

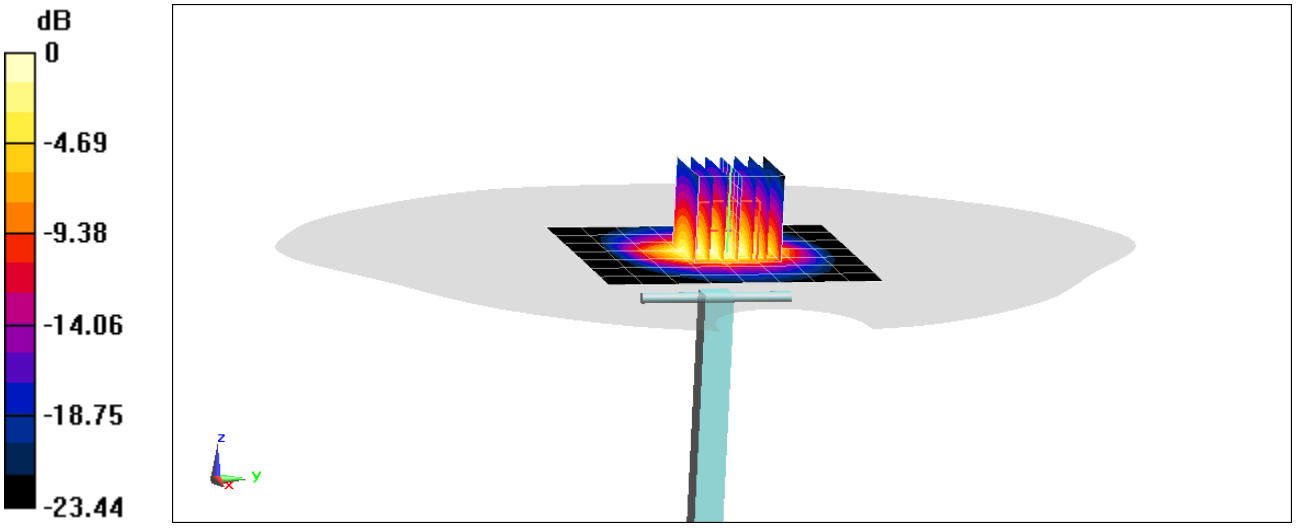
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.82 S/m; ε_r = 37.749; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp: 20.1°C; Tissue Temp: 19.9°C

Probe: EX3DV4 - SN7308; ConvF(7.45, 7.45, 7.45) @ 2450 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1966
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

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) = 11.1 W/kg
SAR(1 g) = 5.18 W/kg
Deviation(1 g) = -0.19%



0 dB = 8.73 W/kg = 9.41 dBW/kg

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

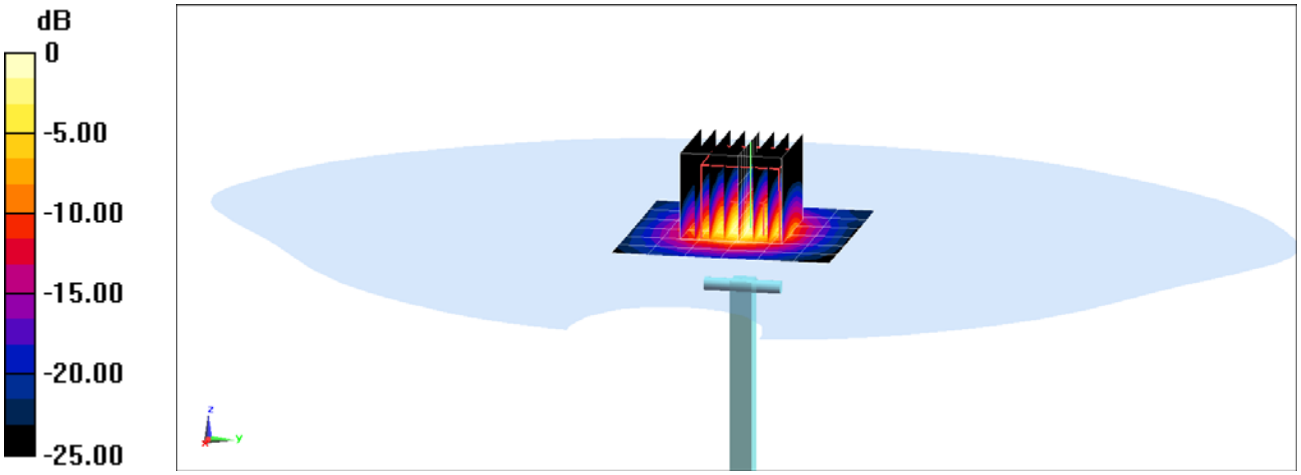
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used (interpolated):
$f = 5250$ MHz; $\sigma = 4.623$ S/m; $\varepsilon_r = 35.73$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-15-2019; Ambient Temp: 23.0°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7409; ConvF(5.2, 5.2, 5.2) @ 5250 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

5250 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 16.4 W/kg
SAR(1 g) = 4.11 W/kg
Deviation(1 g) = 4.18%



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

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

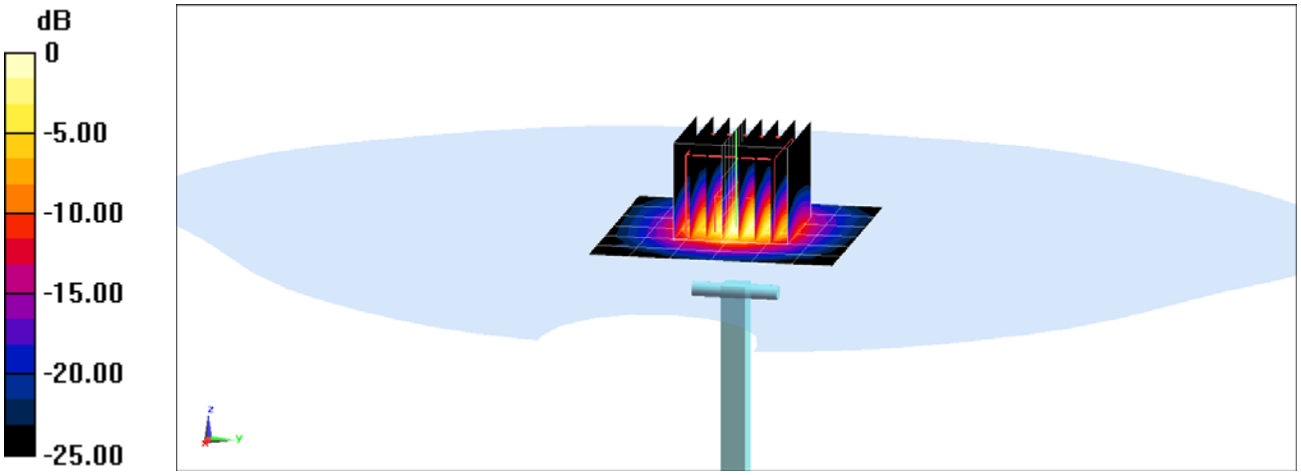
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used:
f = 5600 MHz; σ = 5.019 S/m; ε_r = 35.104; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-15-2019; Ambient Temp: 23.0°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7409; ConvF(4.77, 4.77, 4.77) @ 5600 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

5600 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 4.23 W/kg
Deviation(1 g) = 1.20%



0 dB = 10.4 W/kg = 10.17 dBW/kg

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

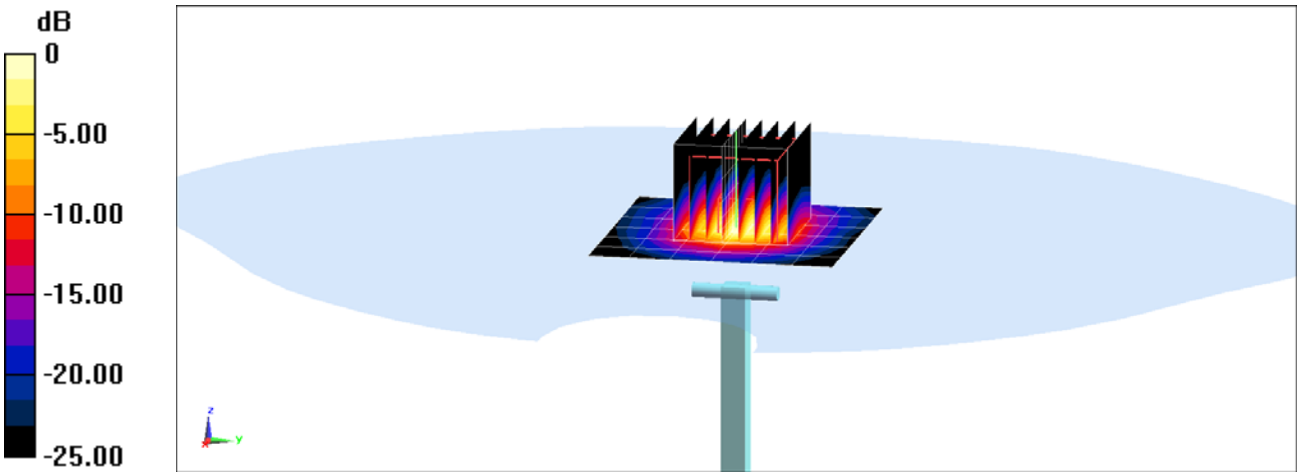
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used (interpolated):
f = 5750 MHz; σ = 5.2 S/m; ε_r = 34.828; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-15-2019; Ambient Temp: 23.0°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7409; ConvF(4.82, 4.82, 4.82) @ 5750 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

5750 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 18.3 W/kg
SAR(1 g) = 4.07 W/kg
Deviation(1 g) = 2.91%



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

PCTEST ENGINEERING LABORATORY, INC.

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

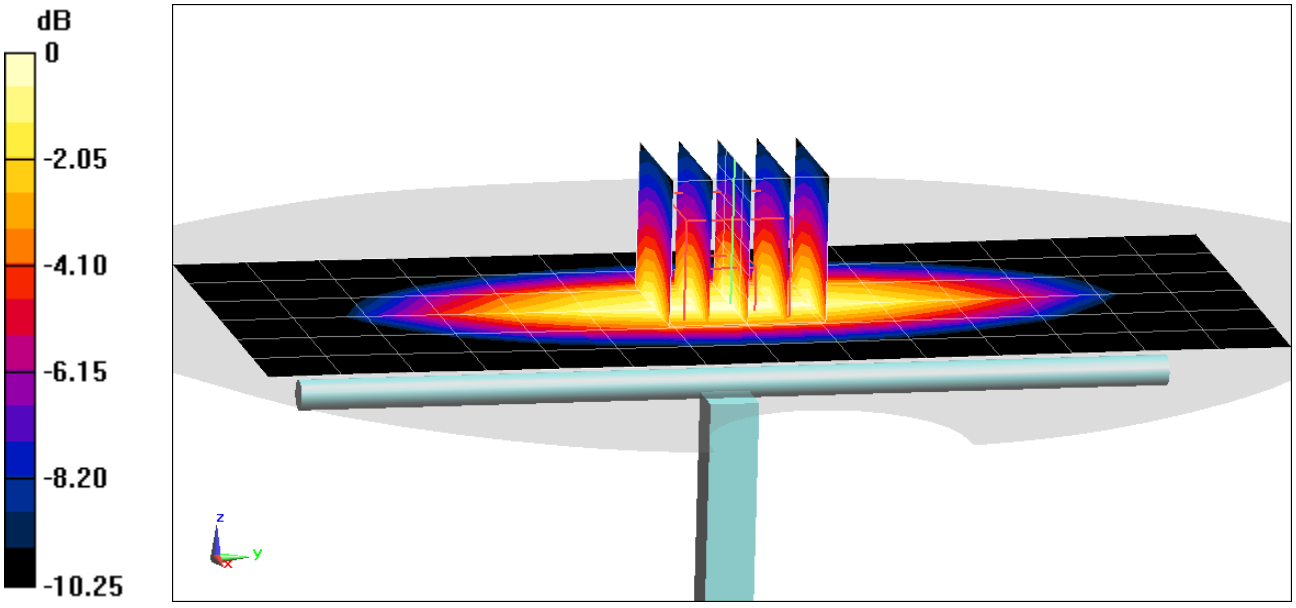
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750MHz Body Medium parameters used (interpolated):
f = 750 MHz; σ = 0.962 S/m; ε_r = 54.597; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-24-2019; Ambient Temp: 21.7°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 750 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

750 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.63 W/kg
SAR(1 g) = 1.73 W/kg
Deviation(1 g) = 2.61%



0 dB = 2.32 W/kg = 3.65 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

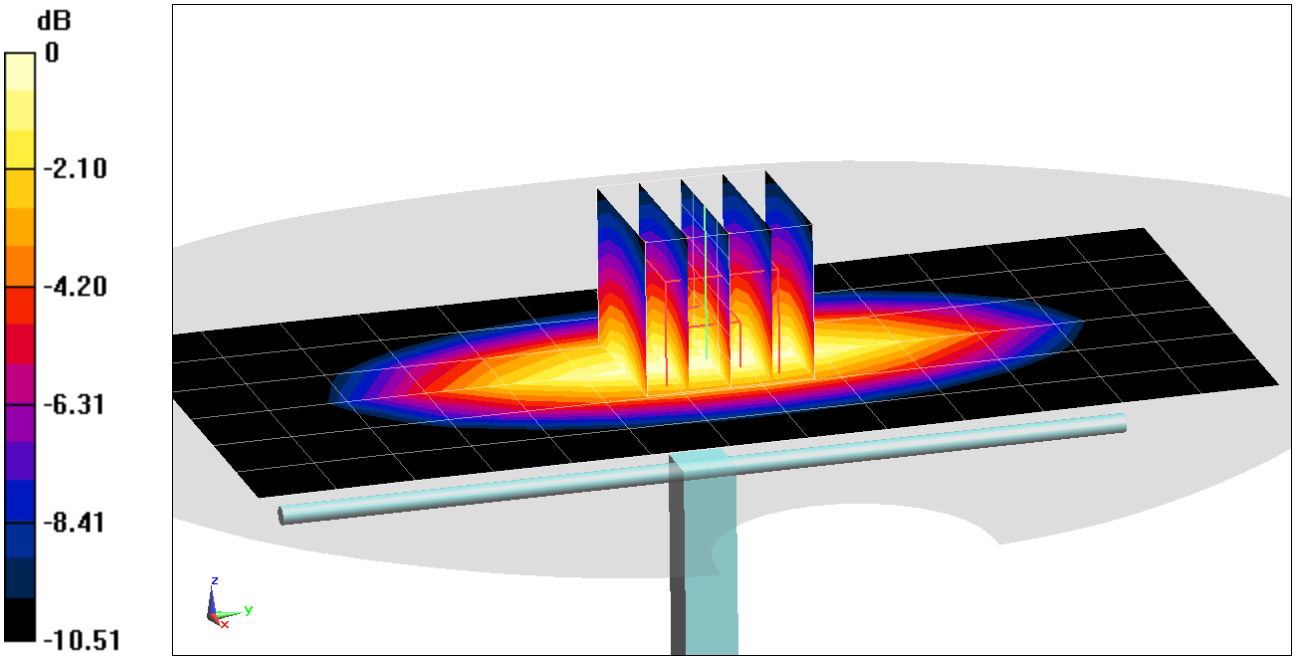
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.996 S/m; ε_r = 52.959; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 4-29-2019; Ambient Temp: 18.8°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7488; ConvF(11.03, 11.03, 11.03) @ 835 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.95 W/kg
SAR(1 g) = 1.91 W/kg
Deviation(1 g) = -1.24%



0 dB = 2.59 W/kg = 4.13 dBW/kg

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

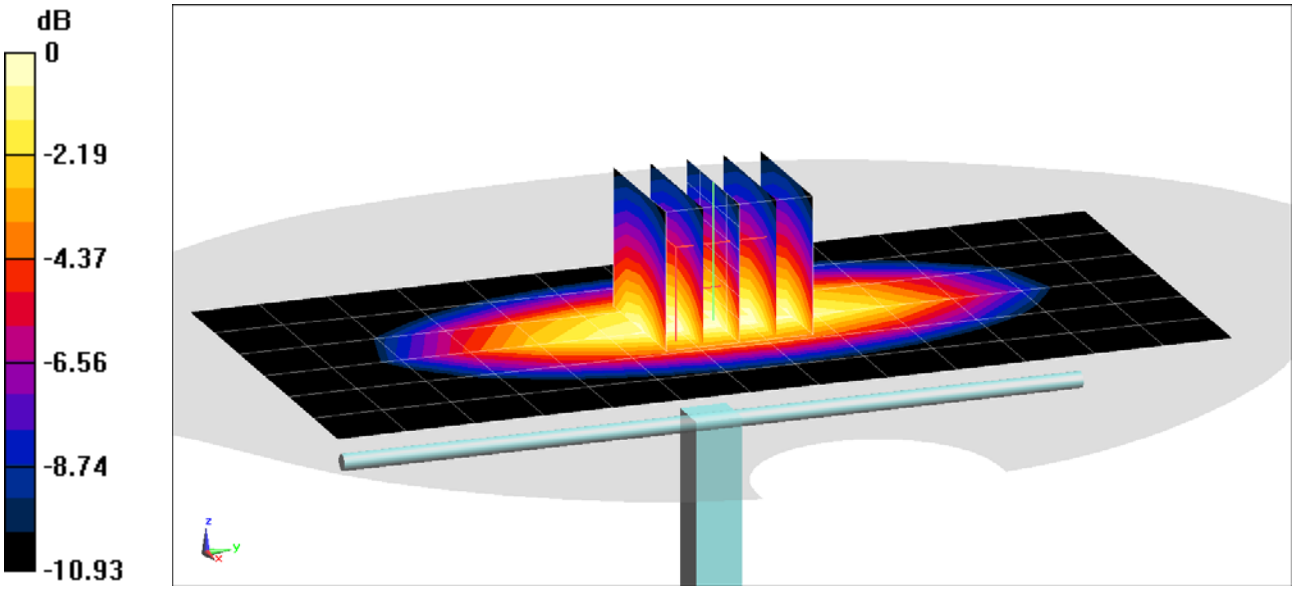
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 1.001 S/m; ε_r = 52.822; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 05-01-2019; Ambient Temp: 23.3°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7488; ConvF(11.03, 11.03, 11.03) @ 835 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=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) = 1.87 W/kg
Deviation(1 g) = -3.31%



0 dB = 2.53 W/kg = 4.03 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

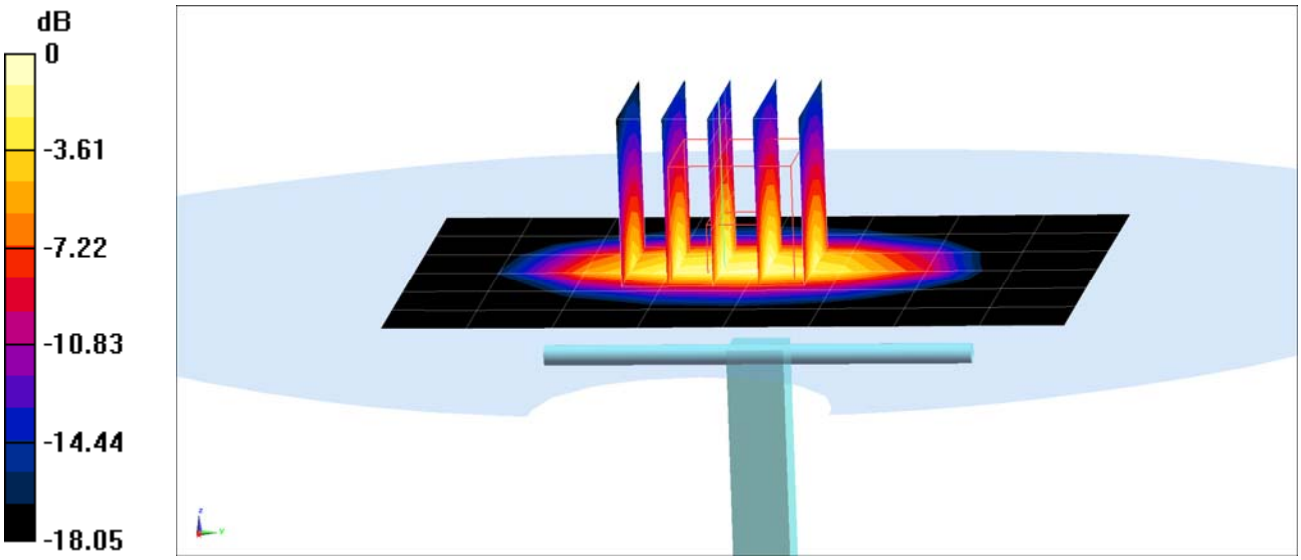
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.529 S/m; ε_r = 51.886; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp: 20.7°C; Tissue Temp: 19.9°C

Probe: EX3DV4 - SN3914; ConvF(7.89, 7.89, 7.89) @ 1750 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/14/2019
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.13 W/kg
SAR(1 g) = 3.84 W/kg
Deviation(1 g) = 3.78%



0 dB = 5.93 W/kg = 7.73 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

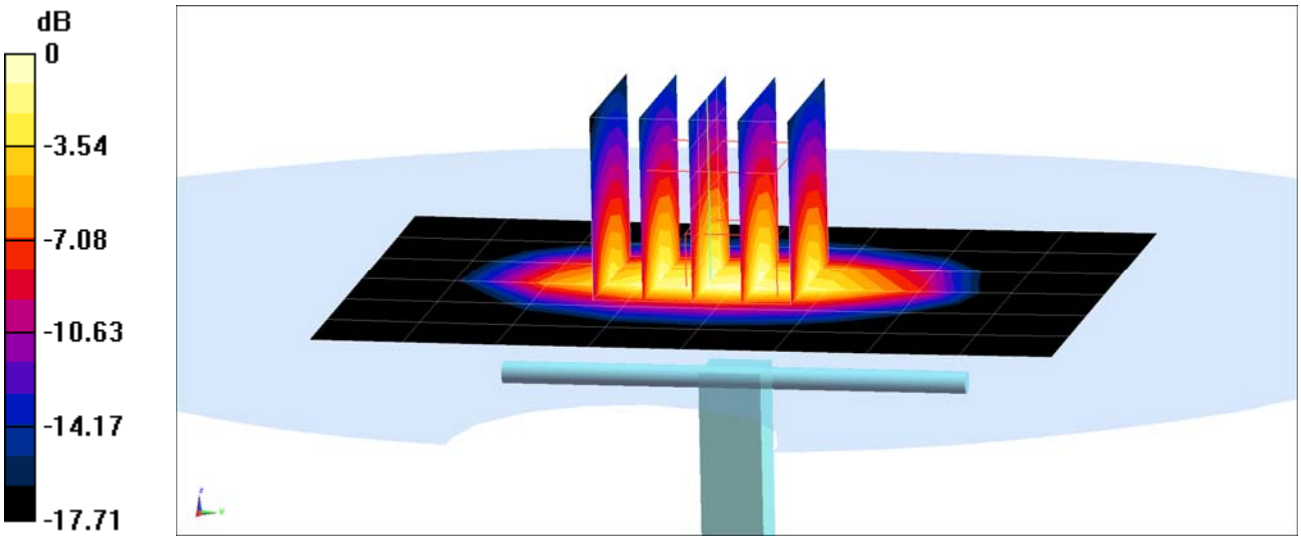
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.497 S/m; ε_r = 52.486; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-01-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN3914; ConvF(7.89, 7.89, 7.89) @ 1750 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/14/2019
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.07 W/kg
SAR(1 g) = 3.82 W/kg
Deviation(1 g) = 3.24%



0 dB = 5.85 W/kg = 7.67 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

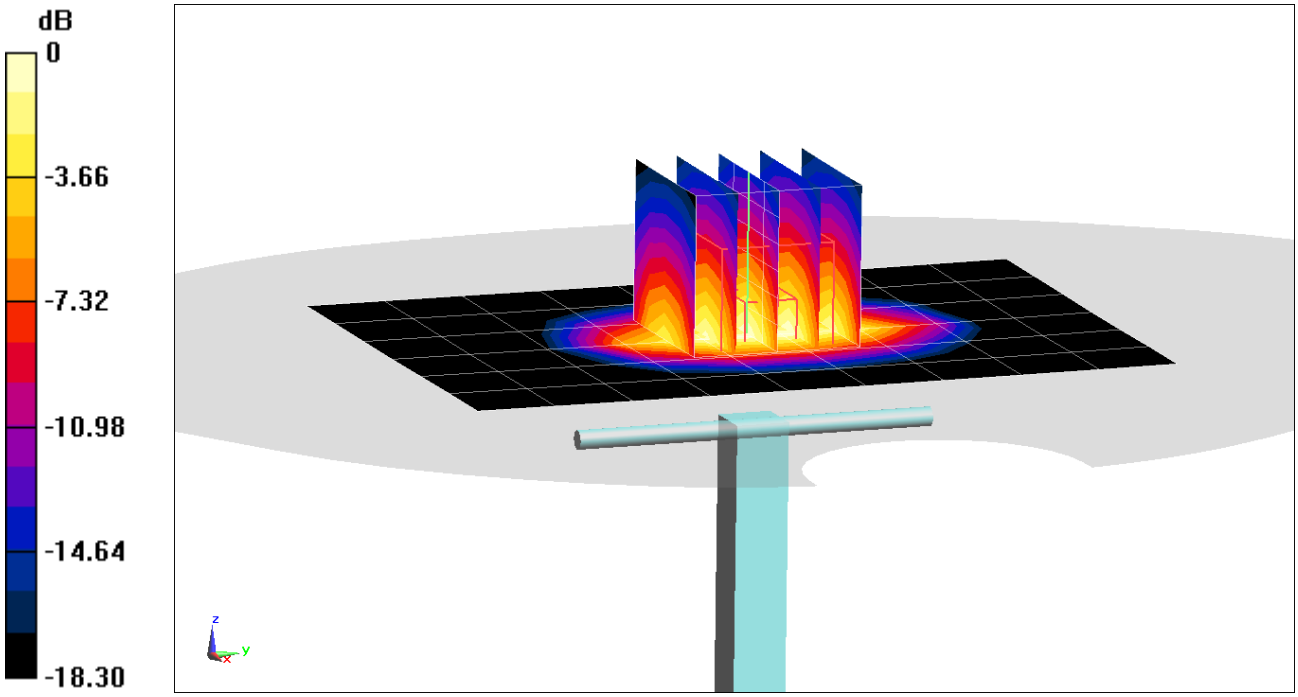
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.559 S/m; ε_r = 52.238; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-23-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1900 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.38 W/kg
SAR(1 g) = 4.01 W/kg
Deviation(1 g) = 1.78%



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

PCTEST ENGINEERING LABORATORY, INC.

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

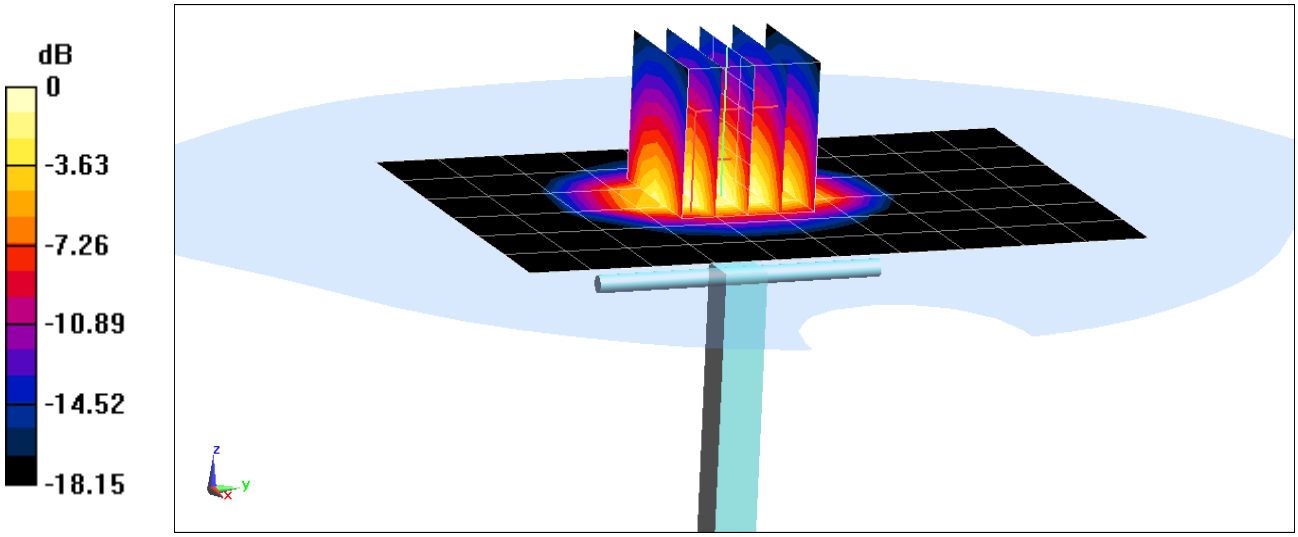
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.582 S/m; ε_r = 53.039; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp:21.6 °C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1900 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.90 W/kg
SAR(1 g) = 4.3 W/kg
Deviation(1 g) = 9.14%



0 dB = 6.70 W/kg = 8.26 dBW/kg

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

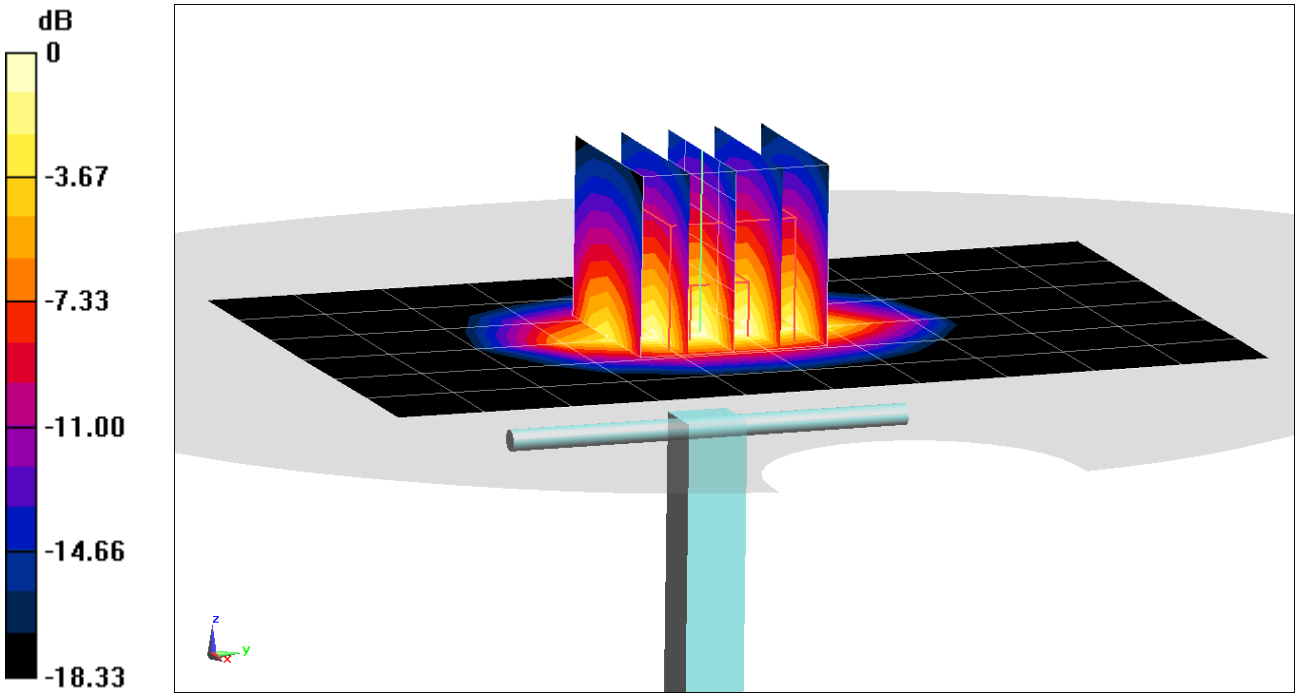
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.579 S/m; ε_r = 52.361; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-01-2019; Ambient Temp: 23.2°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1900 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.87 W/kg
SAR(1 g) = 4.21 W/kg; SAR(10 g) = 2.16
Deviation(1 g) = 6.85%; Deviation(10 g) = 4.35%



0 dB = 6.59 W/kg = 8.19 dBW/kg

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

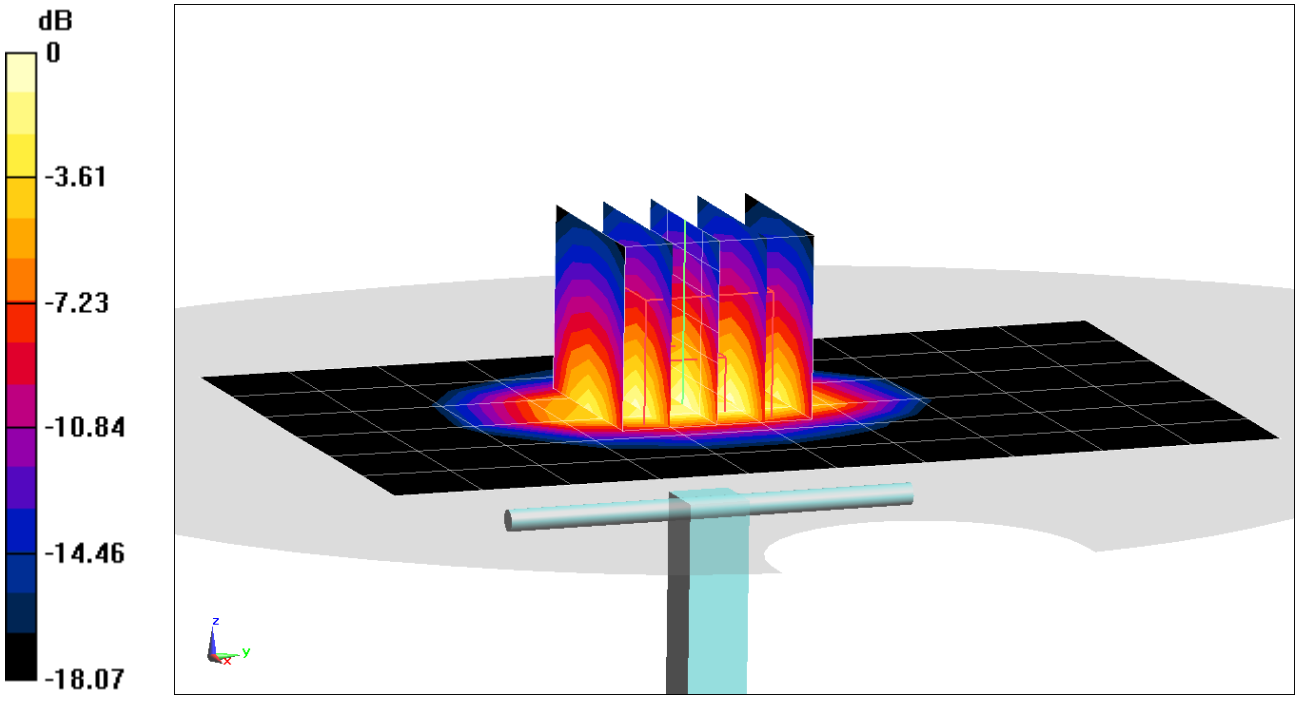
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.575 S/m; ε_r = 51.974; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-15-2019; Ambient Temp: 22.8°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1900 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.70 W/kg
SAR(1 g) = 4.18 W/kg
Deviation(1 g) = 6.63%



0 dB = 6.54 W/kg = 8.16 dBW/kg

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

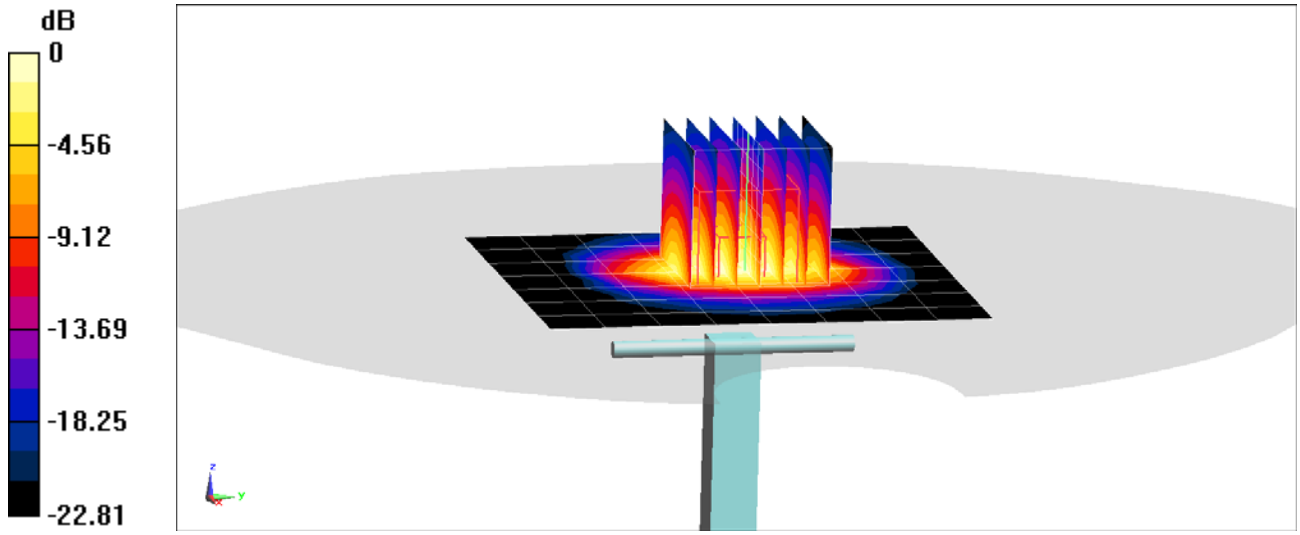
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2450 MHz; σ = 2.039 S/m; ε_r = 50.698; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-25-2019; Ambient Temp: 22.2°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2450 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.8 W/kg
SAR(1 g) = 5.1 W/kg
Deviation(1 g) = -0.20%



0 dB = 8.66 W/kg = 9.38 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057

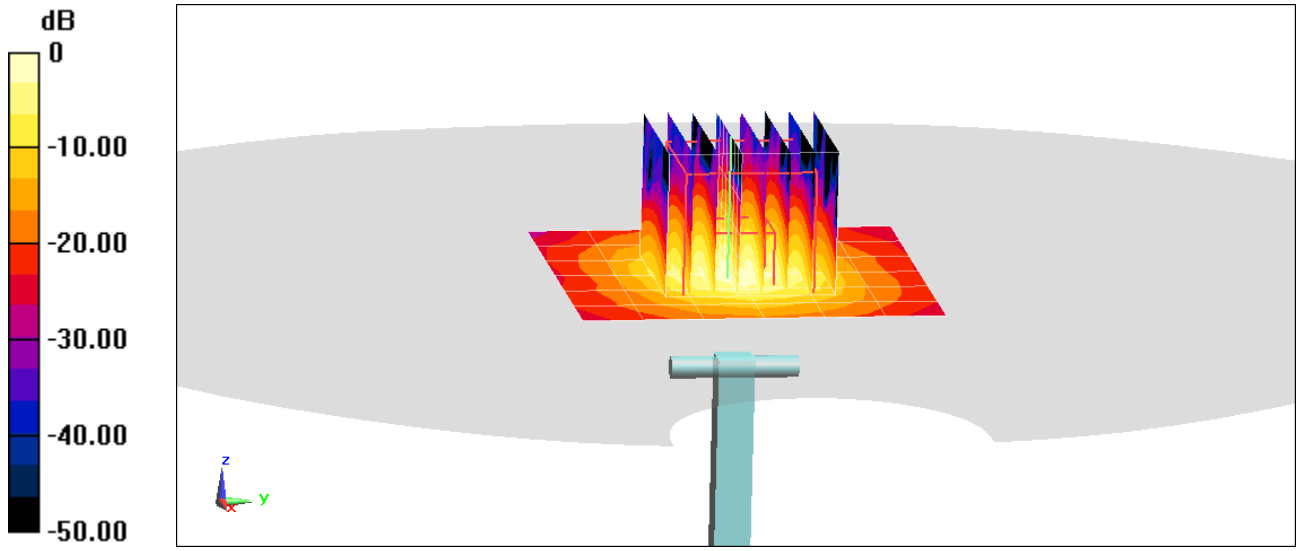
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used (interpolated):
f = 5250 MHz; σ = 5.38 S/m; ε_r = 47.328; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-14-2019; Ambient Temp: 22.0°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7308; ConvF(4.48, 4.48, 4.48) @ 5250 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

5250 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 14.5 W/kg
SAR(1 g) = 3.56 W/kg; SAR(10 g) = 0.985 W/kg
Deviation(1 g) = -6.19%; Deviation(10 g) = -6.64%



0 dB = 8.55 W/kg = 9.32 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057

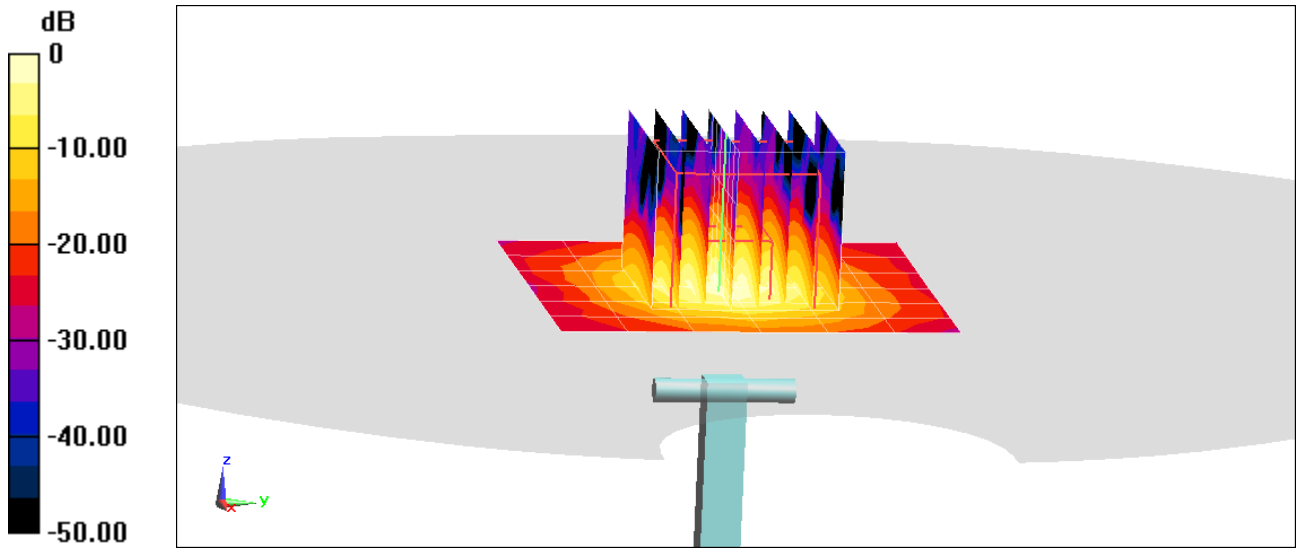
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5600 MHz; σ = 5.876 S/m; ε_r = 46.696; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-14-2019; Ambient Temp: 22.0°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7308; ConvF(4, 4, 4) @ 5600 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

5600 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 18.1 W/kg
SAR(1 g) = 4.02 W/kg; SAR(10 g) = 1.09 W/kg
Deviation(1 g) = 0.63%; Deviation(10 g) = -2.24%



0 dB = 10.2 W/kg = 10.09 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057

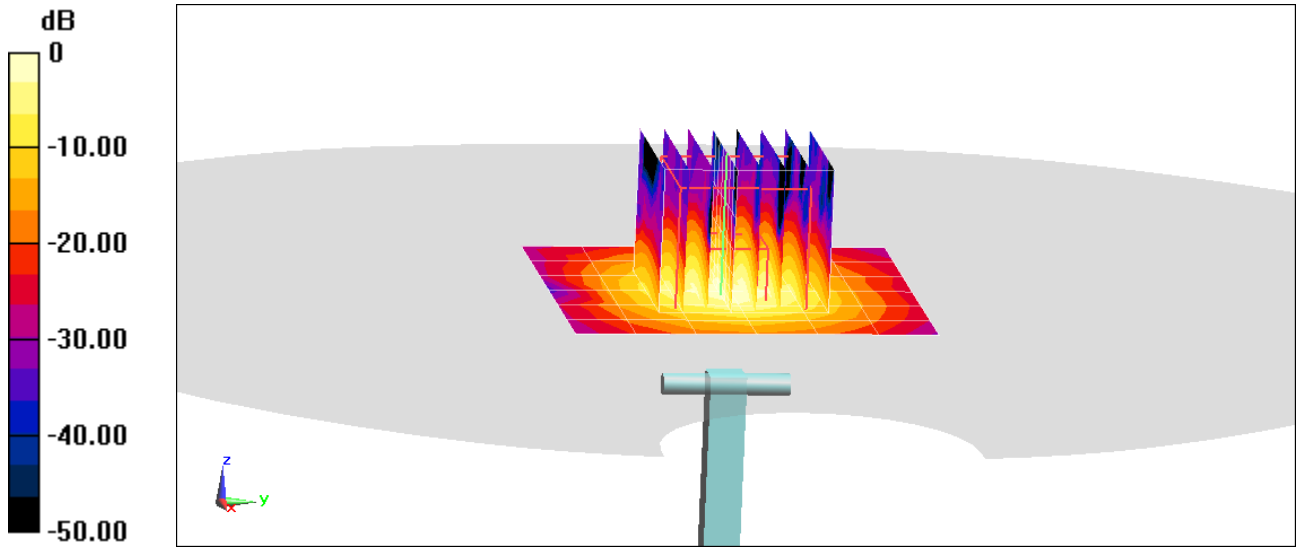
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used (interpolated):
f = 5750 MHz; σ = 6.103 S/m; ε_r = 46.395; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-14-2019; Ambient Temp: 22.0°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7308; ConvF(4.18, 4.18, 4.18) @ 5750 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

5750 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 16.6 W/kg
SAR(1 g) = 3.54 W/kg
Deviation(1 g) = -7.69%



0 dB = 8.88 W/kg = 9.48 dBW/kg

APPENDIX C: PROBE CALIBRATION

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
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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: EX3-7409_Jun18**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:7409
Calibration procedure(s)	QA CAL-01.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v6 Calibration procedure for dosimetric E-field probes
Calibration date:	June 25, 2018

BN ✓ 07/16/2018

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-18 (No. 217-02682)	Apr-19
Reference Probe ES3DV2	SN: 3013	30-Dec-17 (No. ES3-3013_Dec17)	Dec-18
DAE4	SN: 660	21-Dec-17 (No. DAE4-660_Dec17)	Dec-18
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: June 26, 2018

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

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Accreditation No.: SCS 0108

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, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
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 EX3DV4

SN:7409

Manufactured: November 24, 2015
Calibrated: June 25, 2018

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7409

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.38	0.33	0.38	± 10.1 %
DCP (mV)[B]	100.8	102.3	97.7	

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	157.1	±2.2 %
		Y	0.0	0.0	1.0		172.6	
		Z	0.0	0.0	1.0		175.7	

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	15.40	116.5	36.38	2.655	0.140	4.978	0.000	0.017	1.008
Y	27.94	206.6	35.20	4.338	0.095	4.989	1.642	0.000	1.004
Z	31.47	244.0	37.99	3.819	0.313	5.030	0.103	0.363	1.006

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: EX3DV4 - SN:7409

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	9.91	9.91	9.91	0.44	0.90	± 12.0 %
835	41.5	0.90	9.67	9.67	9.67	0.46	0.85	± 12.0 %
1750	40.1	1.37	8.43	8.43	8.43	0.38	0.80	± 12.0 %
1900	40.0	1.40	8.05	8.05	8.05	0.38	0.84	± 12.0 %
2300	39.5	1.67	7.57	7.57	7.57	0.32	0.80	± 12.0 %
2450	39.2	1.80	7.23	7.23	7.23	0.34	0.86	± 12.0 %
2600	39.0	1.96	6.98	6.98	6.98	0.39	0.86	± 12.0 %
5250	35.9	4.71	5.20	5.20	5.20	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.77	4.77	4.77	0.40	1.80	± 13.1 %
5750	35.4	5.22	4.82	4.82	4.82	0.40	1.80	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7409

Calibration Parameter Determined in Body Tissue Simulating Media

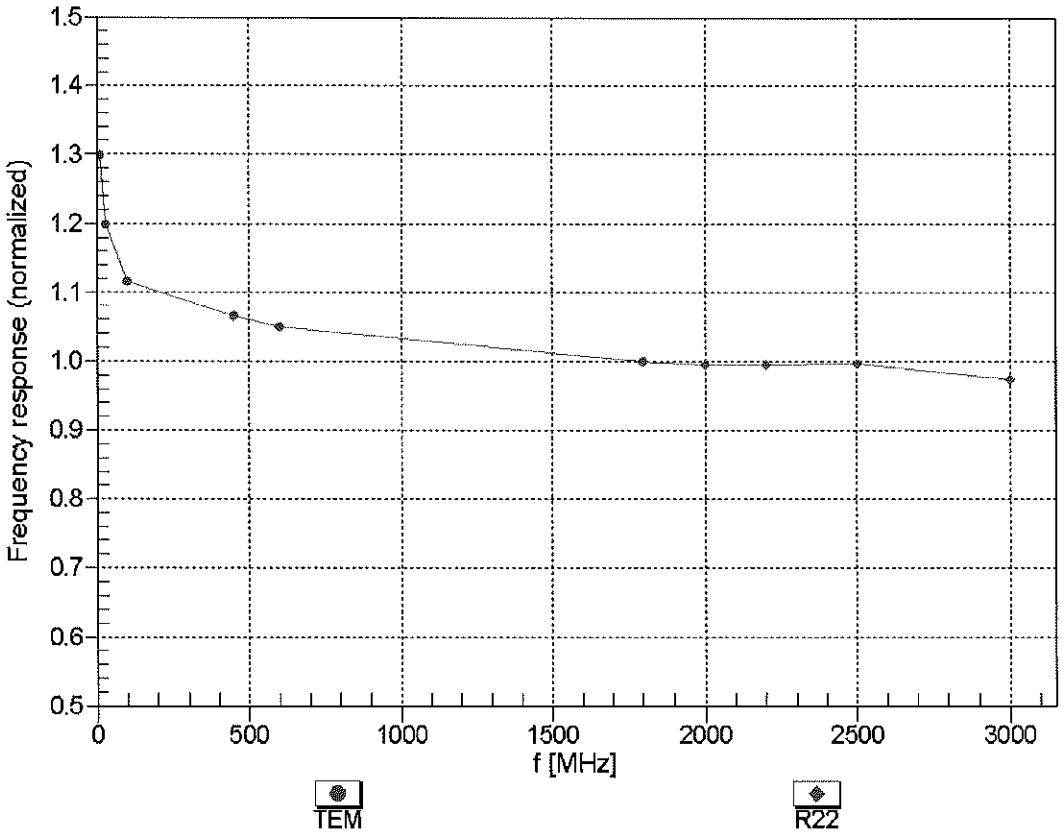
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	9.82	9.82	9.82	0.52	0.84	± 12.0 %
835	55.2	0.97	9.63	9.63	9.63	0.48	0.80	± 12.0 %
1750	53.4	1.49	7.91	7.91	7.91	0.36	0.93	± 12.0 %
1900	53.3	1.52	7.60	7.60	7.60	0.44	0.80	± 12.0 %
2300	52.9	1.81	7.36	7.36	7.36	0.38	0.88	± 12.0 %
2450	52.7	1.95	7.24	7.24	7.24	0.33	0.89	± 12.0 %
2600	52.5	2.16	7.07	7.07	7.07	0.32	0.96	± 12.0 %
5250	48.9	5.36	4.67	4.67	4.67	0.50	1.90	± 13.1 %
5600	48.5	5.77	4.25	4.25	4.25	0.50	1.90	± 13.1 %
5750	48.3	5.94	4.32	4.32	4.32	0.50	1.90	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. 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.

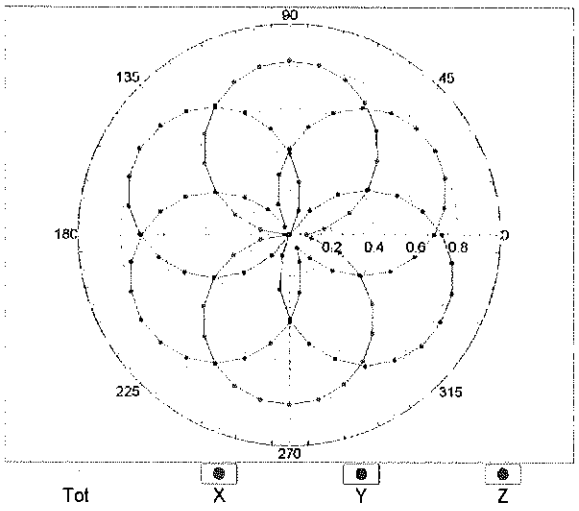
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



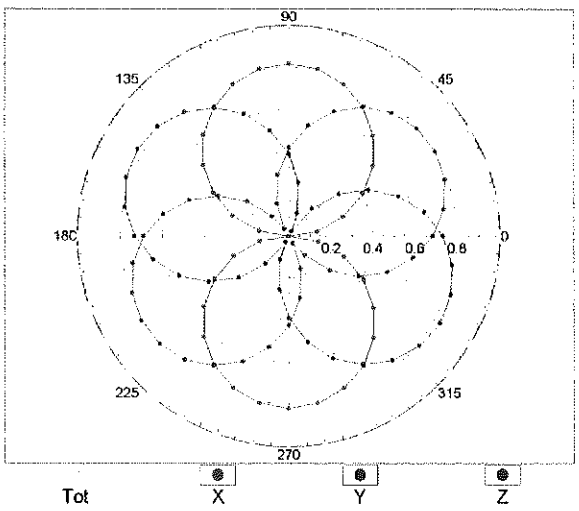
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

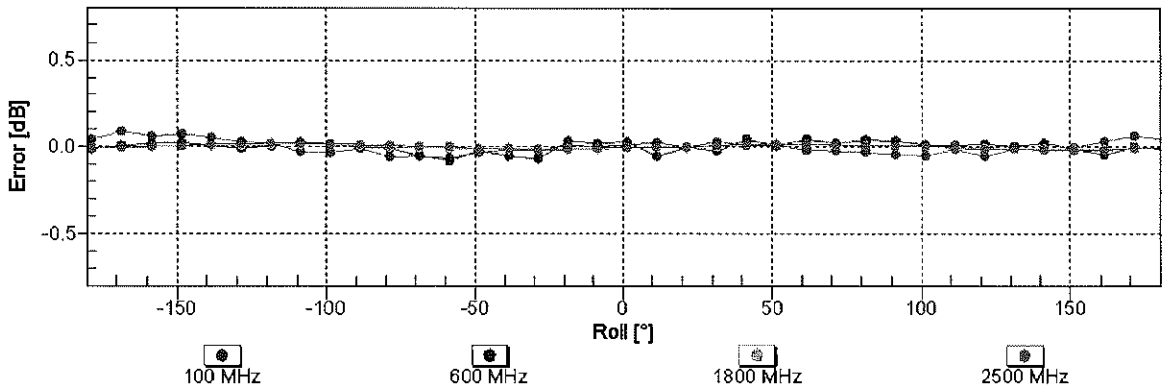
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

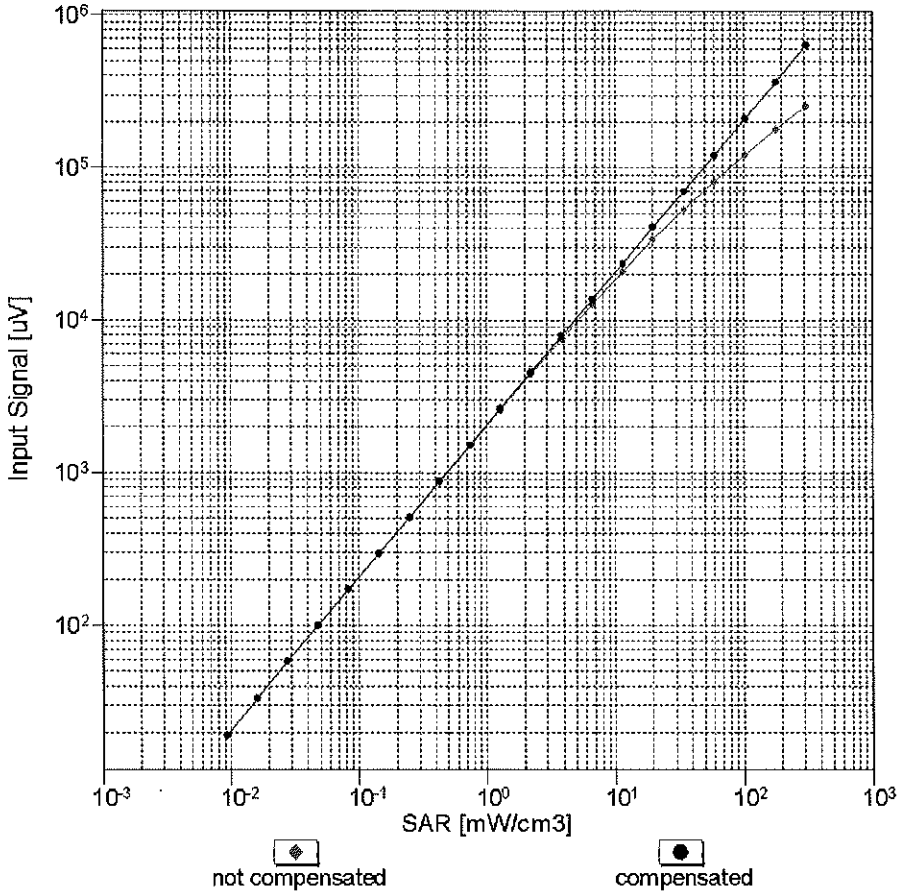


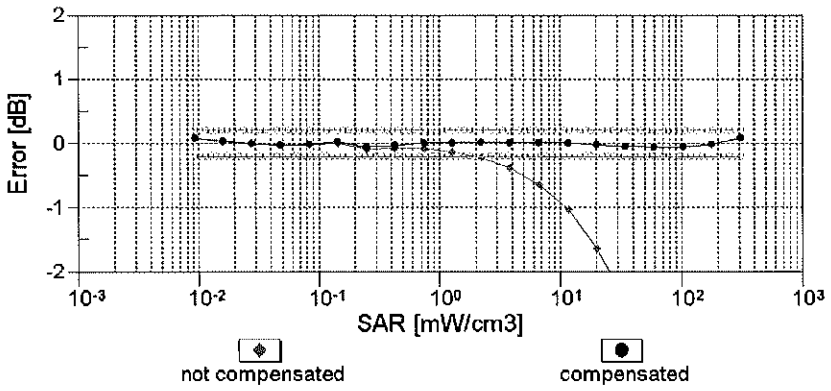


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

(TEM cell , f_{eval}= 1900 MHz)

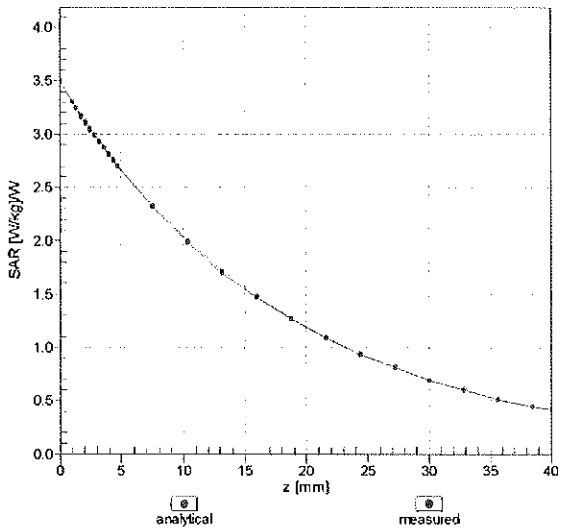




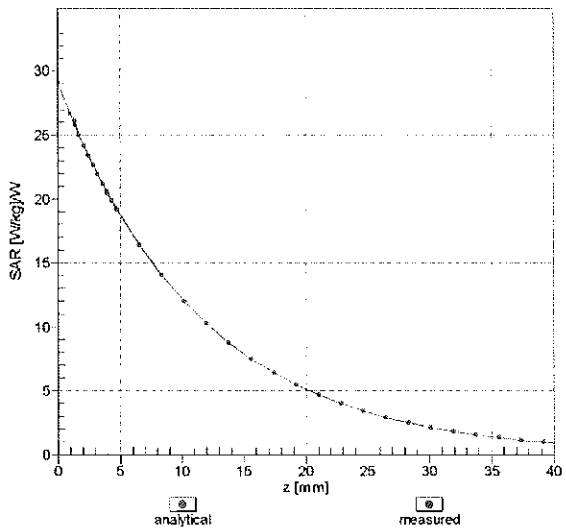
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

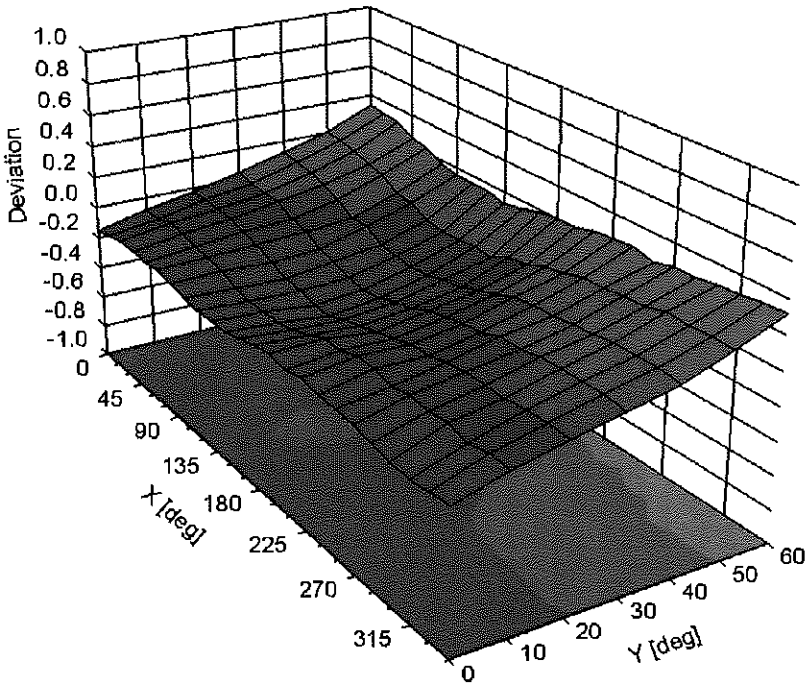


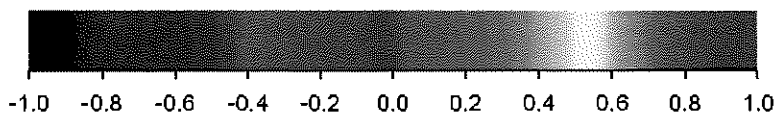
f = 1900 MHz,WGLS R22 (H_convF)



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: EX3DV4 - SN:7409

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	41.5
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

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	157.1	± 2.2 %
		Y	0.00	0.00	1.00		172.6	
		Z	0.00	0.00	1.00		175.7	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	1.25	60.42	5.97	10.00	20.0	± 9.6 %
		Y	1.37	61.35	6.72		20.0	
		Z	1.46	61.54	7.06		20.0	
10011-CAB	UMTS-FDD (WCDMA)	X	0.71	66.47	12.38	0.00	150.0	± 9.6 %
		Y	1.49	76.31	19.52		150.0	
		Z	0.80	65.38	13.27		150.0	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	0.97	63.61	14.22	0.41	150.0	± 9.6 %
		Y	1.14	65.32	16.39		150.0	
		Z	1.01	62.66	14.20		150.0	
10013-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	3.98	66.92	16.39	1.46	150.0	± 9.6 %
		Y	4.51	67.09	17.14		150.0	
		Z	4.51	66.48	16.81		150.0	
10021-DAC	GSM-FDD (TDMA, GMSK)	X	2.93	68.02	10.47	9.39	50.0	± 9.6 %
		Y	5.30	74.12	13.20		50.0	
		Z	8.30	79.26	15.55		50.0	
10023-DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	2.04	64.26	8.75	9.57	50.0	± 9.6 %
		Y	3.75	70.52	11.87		50.0	
		Z	5.18	74.16	13.81		50.0	
10024-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	0.77	60.84	5.97	6.56	60.0	± 9.6 %
		Y	100.00	98.81	18.33		60.0	
		Z	7.39	79.44	14.17		60.0	
10025-DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	2.92	62.32	21.25	12.57	50.0	± 9.6 %
		Y	3.79	70.21	26.28		50.0	
		Z	3.08	62.64	21.59		50.0	
10026-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	4.19	76.79	26.73	9.56	60.0	± 9.6 %
		Y	5.08	81.51	29.10		60.0	
		Z	4.89	79.35	27.91		60.0	
10027-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	0.43	60.00	4.84	4.80	80.0	± 9.6 %
		Y	100.00	98.82	17.61		80.0	
		Z	99.96	97.90	17.31		80.0	
10028-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	0.29	60.00	4.20	3.55	100.0	± 9.6 %
		Y	100.00	100.72	17.79		100.0	
		Z	0.57	63.31	6.83		100.0	
10029-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	3.08	70.55	22.84	7.80	80.0	± 9.6 %
		Y	3.50	73.17	24.28		80.0	
		Z	3.45	72.07	23.57		80.0	
10030-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	0.52	60.00	4.79	5.30	70.0	± 9.6 %
		Y	1.54	67.33	9.06		70.0	
		Z	1.17	65.26	8.49		70.0	
10031-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	0.04	196.26	30.81	1.88	100.0	± 9.6 %
		Y	0.17	60.00	4.10		100.0	
		Z	15.90	60.96	1.69		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	0.00	86.08	35.43	1.17	100.0	± 9.6 %
		Y	99.99	344.89	100.44		100.0	
		Z	1.14	132.41	13.71		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	0.95	60.75	6.54	5.30	70.0	± 9.6 %
		Y	4.98	80.79	18.23		70.0	
		Z	3.25	75.39	16.74		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	3.04	65.72	5.34	1.88	100.0	± 9.6 %
		Y	1.68	70.56	12.82		100.0	
		Z	0.99	64.34	10.07		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	24.75	218.80	26.78	1.17	100.0	± 9.6 %
		Y	1.37	69.43	12.15		100.0	
		Z	0.77	62.85	8.95		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	0.94	60.83	6.63	5.30	70.0	± 9.6 %
		Y	7.23	85.73	19.90		70.0	
		Z	3.94	78.17	17.83		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	1.41	63.61	4.82	1.88	100.0	± 9.6 %
		Y	1.40	68.85	12.14		100.0	
		Z	0.93	63.88	9.84		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	26.17	217.46	26.16	1.17	100.0	± 9.6 %
		Y	1.45	70.29	12.67		100.0	
		Z	0.78	63.02	9.17		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	21.96	306.20	30.49	0.00	150.0	± 9.6 %
		Y	1.63	72.13	12.95		150.0	
		Z	0.63	61.62	7.75		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	1.01	60.95	6.26	7.78	50.0	± 9.6 %
		Y	1.74	65.58	9.03		50.0	
		Z	1.77	65.58	9.34		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.10	124.30	3.45	0.00	150.0	± 9.6 %
		Y	0.01	119.74	2.99		150.0	
		Z	0.14	123.41	9.03		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	2.82	62.25	9.34	13.80	25.0	± 9.6 %
		Y	3.46	64.98	10.90		25.0	
		Z	4.35	67.54	12.61		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	2.47	64.28	8.96	10.79	40.0	± 9.6 %
		Y	3.27	67.55	10.82		40.0	
		Z	4.02	69.88	12.36		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	2.81	66.64	10.78	9.03	50.0	± 9.6 %
		Y	11.82	86.24	20.09		50.0	
		Z	9.59	84.12	20.02		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	2.65	68.11	20.96	6.55	100.0	± 9.6 %
		Y	2.94	70.05	22.07		100.0	
		Z	2.91	69.15	21.44		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	0.95	64.02	14.39	0.61	110.0	± 9.6 %
		Y	1.14	66.10	16.82		110.0	
		Z	1.00	63.23	14.55		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	1.76	81.26	19.48	1.30	110.0	± 9.6 %
		Y	100.00	150.16	40.00		110.0	
		Z	1.90	81.85	20.27		110.0	

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	1.18	69.71	16.58	2.04	110.0	± 9.6 %
		Y	1.94	78.32	21.99		110.0	
		Z	1.40	71.35	18.33		110.0	
10062-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	3.80	66.99	15.87	0.49	100.0	± 9.6 %
		Y	4.35	67.21	16.69		100.0	
		Z	4.31	66.43	16.23		100.0	
10063-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	3.81	67.06	15.96	0.72	100.0	± 9.6 %
		Y	4.36	67.29	16.77		100.0	
		Z	4.32	66.52	16.32		100.0	
10064-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	3.97	67.23	16.12	0.86	100.0	± 9.6 %
		Y	4.56	67.40	16.91		100.0	
		Z	4.55	66.72	16.52		100.0	
10065-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	3.85	66.82	16.06	1.21	100.0	± 9.6 %
		Y	4.42	67.15	16.92		100.0	
		Z	4.42	66.52	16.58		100.0	
10066-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	3.83	66.65	16.06	1.46	100.0	± 9.6 %
		Y	4.41	67.05	17.01		100.0	
		Z	4.42	66.49	16.71		100.0	
10067-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	4.01	66.66	16.35	2.04	100.0	± 9.6 %
		Y	4.65	67.23	17.40		100.0	
		Z	4.70	66.78	17.19		100.0	
10068-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	4.12	66.97	16.78	2.55	100.0	± 9.6 %
		Y	4.69	67.14	17.56		100.0	
		Z	4.73	66.69	17.36		100.0	
10069-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	4.11	66.73	16.77	2.67	100.0	± 9.6 %
		Y	4.72	67.08	17.69		100.0	
		Z	4.78	66.70	17.53		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	4.07	66.96	16.68	1.99	100.0	± 9.6 %
		Y	4.59	67.07	17.37		100.0	
		Z	4.60	66.53	17.10		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	3.98	66.89	16.71	2.30	100.0	± 9.6 %
		Y	4.51	67.19	17.50		100.0	
		Z	4.54	66.70	17.26		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	4.03	67.09	17.06	2.83	100.0	± 9.6 %
		Y	4.56	67.35	17.81		100.0	
		Z	4.59	66.87	17.58		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	4.11	67.36	17.40	3.30	100.0	± 9.6 %
		Y	4.57	67.31	17.95		100.0	
		Z	4.60	66.82	17.73		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	4.18	67.58	17.73	3.82	90.0	± 9.6 %
		Y	4.58	67.25	18.15		90.0	
		Z	4.61	66.79	17.96		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	4.24	67.48	17.91	4.15	90.0	± 9.6 %
		Y	4.61	67.08	18.28		90.0	
		Z	4.65	66.67	18.13		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	4.28	67.60	18.06	4.30	90.0	± 9.6 %
		Y	4.64	67.18	18.41		90.0	
		Z	4.68	66.76	18.25		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	7.85	258.95	40.09	0.00	150.0	± 9.6 %
		Y	0.57	64.50	9.19		150.0	
		Z	0.37	60.00	6.09		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	72.13	59.07	0.77	4.77	80.0	± 9.6 %
		Y	7.02	60.09	1.53		80.0	
		Z	7.63	60.12	1.53		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	0.78	60.88	6.00	6.56	60.0	± 9.6 %
		Y	100.00	98.83	18.35		60.0	
		Z	8.66	80.77	14.58		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	1.12	65.69	11.46	0.00	150.0	± 9.6 %
		Y	2.39	74.48	18.29		150.0	
		Z	1.58	66.95	14.31		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.11	65.81	11.55	0.00	150.0	± 9.6 %
		Y	2.34	74.47	18.31		150.0	
		Z	1.54	66.88	14.28		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	4.22	76.90	26.77	9.56	60.0	± 9.6 %
		Y	5.12	81.66	29.15		60.0	
		Z	4.92	79.46	27.95		60.0	
10100-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	2.39	69.31	16.37	0.00	150.0	± 9.6 %
		Y	3.20	72.58	18.18		150.0	
		Z	2.69	68.81	15.94		150.0	
10101-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	2.61	67.07	15.44	0.00	150.0	± 9.6 %
		Y	3.12	68.53	16.66		150.0	
		Z	2.91	66.65	15.40		150.0	
10102-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	2.71	67.23	15.58	0.00	150.0	± 9.6 %
		Y	3.22	68.53	16.74		150.0	
		Z	3.02	66.72	15.54		150.0	
10103-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	3.72	71.26	18.49	3.98	65.0	± 9.6 %
		Y	4.70	73.63	19.84		65.0	
		Z	4.41	71.81	18.98		65.0	
10104-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.95	69.27	17.90	3.98	65.0	± 9.6 %
		Y	4.71	71.04	19.29		65.0	
		Z	4.63	70.10	18.86		65.0	
10105-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.78	68.25	17.72	3.98	65.0	± 9.6 %
		Y	4.47	69.73	18.97		65.0	
		Z	4.37	68.68	18.48		65.0	
10108-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	1.98	69.15	15.95	0.00	150.0	± 9.6 %
		Y	2.77	72.39	18.20		150.0	
		Z	2.29	68.22	15.72		150.0	
10109-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	2.19	67.24	14.70	0.00	150.0	± 9.6 %
		Y	2.80	69.06	16.71		150.0	
		Z	2.54	66.58	15.14		150.0	
10110-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	1.35	66.94	13.41	0.00	150.0	± 9.6 %
		Y	2.32	72.63	18.00		150.0	
		Z	1.78	67.28	14.92		150.0	
10111-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	1.58	65.90	12.12	0.00	150.0	± 9.6 %
		Y	2.81	72.30	17.60		150.0	
		Z	2.22	67.49	14.99		150.0	

10112-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	2.30	67.45	14.81	0.00	150.0	± 9.6 %
		Y	2.93	69.12	16.76		150.0	
		Z	2.66	66.72	15.26		150.0	
10113-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	1.64	65.77	12.05	0.00	150.0	± 9.6 %
		Y	2.95	72.32	17.65		150.0	
		Z	2.37	67.73	15.17		150.0	
10114-CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	4.34	66.99	16.28	0.00	150.0	± 9.6 %
		Y	4.86	67.57	16.78		150.0	
		Z	4.82	66.90	16.32		150.0	
10115-CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	4.58	67.29	16.33	0.00	150.0	± 9.6 %
		Y	5.08	67.61	16.77		150.0	
		Z	5.06	66.98	16.35		150.0	
10116-CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	4.40	67.26	16.31	0.00	150.0	± 9.6 %
		Y	4.93	67.75	16.79		150.0	
		Z	4.89	67.04	16.31		150.0	
10117-CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	4.33	66.90	16.26	0.00	150.0	± 9.6 %
		Y	4.84	67.46	16.74		150.0	
		Z	4.79	66.75	16.26		150.0	
10118-CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	4.58	67.24	16.31	0.00	150.0	± 9.6 %
		Y	5.15	67.78	16.86		150.0	
		Z	5.14	67.21	16.48		150.0	
10119-CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	4.39	67.16	16.27	0.00	150.0	± 9.6 %
		Y	4.94	67.78	16.81		150.0	
		Z	4.90	67.08	16.34		150.0	
10140-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	2.65	67.18	15.35	0.00	150.0	± 9.6 %
		Y	3.23	68.57	16.65		150.0	
		Z	3.03	66.74	15.44		150.0	
10141-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	2.80	67.68	15.68	0.00	150.0	± 9.6 %
		Y	3.37	68.79	16.86		150.0	
		Z	3.16	66.97	15.67		150.0	
10142-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	0.71	61.44	8.06	0.00	150.0	± 9.6 %
		Y	2.27	74.06	17.56		150.0	
		Z	1.48	66.51	13.59		150.0	
10143-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	0.73	60.00	6.15	0.00	150.0	± 9.6 %
		Y	2.80	73.44	16.54		150.0	
		Z	1.85	66.55	13.15		150.0	
10144-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	0.73	60.00	5.65	0.00	150.0	± 9.6 %
		Y	1.85	66.75	12.85		150.0	
		Z	1.61	64.01	11.28		150.0	
10145-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	5.16	385.51	36.59	0.00	150.0	± 9.6 %
		Y	0.54	60.00	5.91		150.0	
		Z	0.58	60.00	5.88		150.0	
10146-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	0.00	60.00	0.00	0.00	150.0	± 9.6 %
		Y	0.74	60.00	4.95		150.0	
		Z	0.80	60.00	5.53		150.0	
10147-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	0.00	60.00	0.00	0.00	150.0	± 9.6 %
		Y	0.60	58.26	3.86		150.0	
		Z	0.82	60.00	5.58		150.0	

10149-CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	2.21	67.36	14.78	0.00	150.0	± 9.6 %
		Y	2.81	69.16	16.77		150.0	
		Z	2.55	66.65	15.19		150.0	
10150-CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	2.32	67.56	14.88	0.00	150.0	± 9.6 %
		Y	2.94	69.22	16.82		150.0	
		Z	2.67	66.78	15.30		150.0	
10151-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	3.66	73.29	18.78	3.98	65.0	± 9.6 %
		Y	4.98	76.80	21.12		65.0	
		Z	4.55	74.40	20.06		65.0	
10152-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	3.31	68.29	16.15	3.98	65.0	± 9.6 %
		Y	4.23	70.96	18.67		65.0	
		Z	4.14	69.89	18.22		65.0	
10153-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	3.64	69.78	17.29	3.98	65.0	± 9.6 %
		Y	4.61	72.30	19.68		65.0	
		Z	4.49	71.11	19.19		65.0	
10154-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	1.38	67.29	13.63	0.00	150.0	± 9.6 %
		Y	2.40	73.30	18.35		150.0	
		Z	1.82	67.63	15.14		150.0	
10155-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	1.60	66.02	12.20	0.00	150.0	± 9.6 %
		Y	2.83	72.40	17.66		150.0	
		Z	2.23	67.54	15.03		150.0	
10156-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	0.51	60.00	5.91	0.00	150.0	± 9.6 %
		Y	2.15	74.23	16.90		150.0	
		Z	1.25	65.50	12.43		150.0	
10157-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	0.57	60.00	4.69	0.00	150.0	± 9.6 %
		Y	1.61	66.51	12.13		150.0	
		Z	1.35	63.41	10.38		150.0	
10158-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	1.65	65.90	12.13	0.00	150.0	± 9.6 %
		Y	2.98	72.51	17.74		150.0	
		Z	2.38	67.83	15.24		150.0	
10159-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	0.59	60.00	4.69	0.00	150.0	± 9.6 %
		Y	1.68	66.77	12.27		150.0	
		Z	1.39	63.54	10.48		150.0	
10160-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	1.93	68.16	15.00	0.00	150.0	± 9.6 %
		Y	2.76	71.39	17.74		150.0	
		Z	2.38	67.93	15.64		150.0	
10161-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	2.12	67.05	14.02	0.00	150.0	± 9.6 %
		Y	2.84	69.35	16.71		150.0	
		Z	2.55	66.69	15.09		150.0	
10162-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	2.21	67.37	14.17	0.00	150.0	± 9.6 %
		Y	2.96	69.65	16.87		150.0	
		Z	2.66	66.96	15.26		150.0	
10166-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	2.13	65.17	17.70	3.01	150.0	± 9.6 %
		Y	3.00	69.75	19.60		150.0	
		Z	2.90	67.96	18.43		150.0	
10167-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	1.98	65.92	17.43	3.01	150.0	± 9.6 %
		Y	3.74	74.17	20.63		150.0	
		Z	3.28	70.17	18.57		150.0	

10168-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	2.18	68.43	19.32	3.01	150.0	± 9.6 %
		Y	4.55	78.58	22.96		150.0	
		Z	3.73	73.08	20.34		150.0	
10169-CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	1.87	64.00	17.04	3.01	150.0	± 9.6 %
		Y	2.53	68.75	19.16		150.0	
		Z	2.36	66.10	17.52		150.0	
10170-CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	1.85	66.74	18.73	3.01	150.0	± 9.6 %
		Y	3.84	78.32	23.19		150.0	
		Z	2.87	70.66	19.54		150.0	
10171-AAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	1.59	63.66	15.82	3.01	150.0	± 9.6 %
		Y	2.83	71.75	19.17		150.0	
		Z	2.39	66.90	16.66		150.0	
10172-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	1.63	66.94	19.47	6.02	65.0	± 9.6 %
		Y	2.64	75.18	23.09		65.0	
		Z	2.68	72.94	21.86		65.0	
10173-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	1.75	70.70	19.61	6.02	65.0	± 9.6 %
		Y	6.55	90.87	26.66		65.0	
		Z	4.15	79.90	22.82		65.0	
10174-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	1.33	66.12	16.85	6.02	65.0	± 9.6 %
		Y	3.87	81.08	22.62		65.0	
		Z	2.77	72.65	19.43		65.0	
10175-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	1.85	63.78	16.81	3.01	150.0	± 9.6 %
		Y	2.49	68.40	18.88		150.0	
		Z	2.33	65.83	17.28		150.0	
10176-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	1.86	66.75	18.74	3.01	150.0	± 9.6 %
		Y	3.85	78.36	23.20		150.0	
		Z	2.87	70.68	19.55		150.0	
10177-CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	1.86	63.82	16.84	3.01	150.0	± 9.6 %
		Y	2.51	68.53	18.95		150.0	
		Z	2.34	65.93	17.35		150.0	
10178-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	1.85	66.70	18.70	3.01	150.0	± 9.6 %
		Y	3.81	78.15	23.10		150.0	
		Z	2.85	70.55	19.47		150.0	
10179-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	1.70	65.12	17.16	3.01	150.0	± 9.6 %
		Y	3.27	74.82	21.01		150.0	
		Z	2.59	68.61	17.93		150.0	
10180-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	1.59	63.66	15.82	3.01	150.0	± 9.6 %
		Y	2.82	71.71	19.14		150.0	
		Z	2.39	66.88	16.63		150.0	
10181-CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	1.86	63.82	16.84	3.01	150.0	± 9.6 %
		Y	2.50	68.51	18.95		150.0	
		Z	2.34	65.92	17.34		150.0	
10182-CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	1.85	66.68	18.69	3.01	150.0	± 9.6 %
		Y	3.80	78.11	23.08		150.0	
		Z	2.85	70.52	19.45		150.0	
10183-AAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	1.59	63.65	15.80	3.01	150.0	± 9.6 %
		Y	2.82	71.68	19.12		150.0	
		Z	2.38	66.86	16.62		150.0	

10184-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	1.86	63.84	16.85	3.01	150.0	± 9.6 %
		Y	2.51	68.55	18.97		150.0	
		Z	2.35	65.96	17.36		150.0	
10185-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	1.86	66.74	18.73	3.01	150.0	± 9.6 %
		Y	3.83	78.22	23.13		150.0	
		Z	2.86	70.59	19.49		150.0	
10186-AAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	1.59	63.69	15.83	3.01	150.0	± 9.6 %
		Y	2.83	71.76	19.16		150.0	
		Z	2.39	66.91	16.65		150.0	
10187-CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	1.87	63.97	16.99	3.01	150.0	± 9.6 %
		Y	2.53	68.67	19.08		150.0	
		Z	2.36	66.04	17.45		150.0	
10188-CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	1.89	67.14	19.05	3.01	150.0	± 9.6 %
		Y	4.00	79.20	23.64		150.0	
		Z	2.94	71.15	19.86		150.0	
10189-AAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	1.61	63.93	16.07	3.01	150.0	± 9.6 %
		Y	2.91	72.32	19.52		150.0	
		Z	2.43	67.24	16.90		150.0	
10193-CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	3.74	67.40	15.79	0.00	150.0	± 9.6 %
		Y	4.29	67.57	16.55		150.0	
		Z	4.20	66.51	15.90		150.0	
10194-CAC	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	3.82	67.41	15.90	0.00	150.0	± 9.6 %
		Y	4.40	67.71	16.67		150.0	
		Z	4.32	66.72	16.05		150.0	
10195-CAC	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	3.83	67.37	15.89	0.00	150.0	± 9.6 %
		Y	4.42	67.68	16.66		150.0	
		Z	4.35	66.72	16.06		150.0	
10196-CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	3.72	67.37	15.75	0.00	150.0	± 9.6 %
		Y	4.26	67.52	16.51		150.0	
		Z	4.17	66.48	15.88		150.0	
10197-CAC	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	3.82	67.41	15.91	0.00	150.0	± 9.6 %
		Y	4.41	67.70	16.67		150.0	
		Z	4.33	66.72	16.05		150.0	
10198-CAC	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	3.82	67.36	15.88	0.00	150.0	± 9.6 %
		Y	4.41	67.66	16.65		150.0	
		Z	4.34	66.71	16.05		150.0	
10219-CAC	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	3.68	67.48	15.78	0.00	150.0	± 9.6 %
		Y	4.22	67.61	16.52		150.0	
		Z	4.13	66.53	15.85		150.0	
10220-CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	3.82	67.41	15.91	0.00	150.0	± 9.6 %
		Y	4.40	67.66	16.65		150.0	
		Z	4.32	66.68	16.04		150.0	
10221-CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	3.85	67.40	15.91	0.00	150.0	± 9.6 %
		Y	4.43	67.62	16.64		150.0	
		Z	4.36	66.67	16.05		150.0	
10222-CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	4.34	66.97	16.27	0.00	150.0	± 9.6 %
		Y	4.82	67.47	16.73		150.0	
		Z	4.77	66.77	16.26		150.0	

10223-CAC	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	4.49	67.10	16.25	0.00	150.0	± 9.6 %
		Y	5.02	67.50	16.74		150.0	
		Z	5.01	66.90	16.33		150.0	
10224-CAC	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	4.35	67.14	16.26	0.00	150.0	± 9.6 %
		Y	4.86	67.63	16.73		150.0	
		Z	4.81	66.90	16.25		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	1.60	62.87	10.00	0.00	150.0	± 9.6 %
		Y	2.64	67.73	15.37		150.0	
		Z	2.42	65.46	14.06		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	1.83	71.58	20.13	6.02	65.0	± 9.6 %
		Y	7.36	93.10	27.50		65.0	
		Z	4.39	80.98	23.33		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	1.73	70.59	18.93	6.02	65.0	± 9.6 %
		Y	7.00	90.72	25.86		65.0	
		Z	4.34	79.99	22.28		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	1.83	69.36	20.71	6.02	65.0	± 9.6 %
		Y	3.28	79.62	24.97		65.0	
		Z	3.15	76.53	23.48		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	1.76	70.79	19.64	6.02	65.0	± 9.6 %
		Y	6.63	91.03	26.72		65.0	
		Z	4.18	80.00	22.86		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	1.65	69.73	18.45	6.02	65.0	± 9.6 %
		Y	6.22	88.63	25.09		65.0	
		Z	4.10	78.96	21.82		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	1.79	68.81	20.33	6.02	65.0	± 9.6 %
		Y	3.15	78.74	24.52		65.0	
		Z	3.06	75.85	23.10		65.0	
10232-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	1.76	70.77	19.64	6.02	65.0	± 9.6 %
		Y	6.61	91.00	26.71		65.0	
		Z	4.18	79.98	22.86		65.0	
10233-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	1.65	69.70	18.44	6.02	65.0	± 9.6 %
		Y	6.19	88.57	25.08		65.0	
		Z	4.09	78.93	21.81		65.0	
10234-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	1.76	68.43	20.02	6.02	65.0	± 9.6 %
		Y	3.07	78.12	24.14		65.0	
		Z	2.98	75.33	22.76		65.0	
10235-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	1.76	70.76	19.64	6.02	65.0	± 9.6 %
		Y	6.61	91.04	26.73		65.0	
		Z	4.18	80.00	22.87		65.0	
10236-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	1.66	69.79	18.48	6.02	65.0	± 9.6 %
		Y	6.30	88.80	25.14		65.0	
		Z	4.13	79.05	21.85		65.0	
10237-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	1.78	68.76	20.32	6.02	65.0	± 9.6 %
		Y	3.15	78.74	24.53		65.0	
		Z	3.05	75.85	23.11		65.0	
10238-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	1.76	70.75	19.64	6.02	65.0	± 9.6 %
		Y	6.59	90.97	26.70		65.0	
		Z	4.17	79.95	22.85		65.0	

10239-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	1.65	69.67	18.43	6.02	65.0	± 9.6 %
		Y	6.16	88.50	25.06		65.0	
		Z	4.07	78.89	21.79		65.0	
10240-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	1.78	68.77	20.32	6.02	65.0	± 9.6 %
		Y	3.14	78.73	24.52		65.0	
		Z	3.05	75.83	23.10		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	3.09	71.04	21.81	6.98	65.0	± 9.6 %
		Y	5.84	80.29	25.20		65.0	
		Z	5.54	77.13	23.79		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	2.70	68.41	20.47	6.98	65.0	± 9.6 %
		Y	4.94	76.94	23.76		65.0	
		Z	4.89	74.64	22.64		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	2.78	67.24	20.54	6.98	65.0	± 9.6 %
		Y	4.14	72.94	22.88		65.0	
		Z	4.22	71.72	22.18		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	0.80	57.73	3.36	3.98	65.0	± 9.6 %
		Y	2.15	64.01	10.18		65.0	
		Z	2.44	64.99	11.42		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	0.82	57.61	3.20	3.98	65.0	± 9.6 %
		Y	2.13	63.69	9.96		65.0	
		Z	2.42	64.65	11.19		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	0.87	60.00	5.50	3.98	65.0	± 9.6 %
		Y	2.12	67.09	12.65		65.0	
		Z	2.17	66.84	12.89		65.0	
10247-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	1.26	60.00	6.38	3.98	65.0	± 9.6 %
		Y	2.78	67.32	13.60		65.0	
		Z	2.82	66.99	13.82		65.0	
10248-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	1.30	60.00	6.40	3.98	65.0	± 9.6 %
		Y	2.73	66.64	13.26		65.0	
		Z	2.81	66.52	13.58		65.0	
10249-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	1.24	61.72	8.36	3.98	65.0	± 9.6 %
		Y	3.85	75.74	18.20		65.0	
		Z	3.35	73.06	17.32		65.0	
10250-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.74	67.58	14.25	3.98	65.0	± 9.6 %
		Y	4.25	73.58	19.37		65.0	
		Z	4.02	71.93	18.78		65.0	
10251-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.46	65.14	12.48	3.98	65.0	± 9.6 %
		Y	3.86	70.68	17.56		65.0	
		Z	3.78	69.64	17.25		65.0	
10252-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.82	71.28	16.40	3.98	65.0	± 9.6 %
		Y	4.98	79.52	21.77		65.0	
		Z	4.29	76.11	20.42		65.0	
10253-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	3.12	67.32	15.07	3.98	65.0	± 9.6 %
		Y	4.18	70.66	18.33		65.0	
		Z	4.10	69.61	17.93		65.0	
10254-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	3.39	68.52	15.96	3.98	65.0	± 9.6 %
		Y	4.50	71.75	19.15		65.0	
		Z	4.39	70.63	18.74		65.0	

10255-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	3.40	72.07	17.90	3.98	65.0	± 9.6 %
		Y	4.72	76.03	20.86		65.0	
		Z	4.36	73.79	19.90		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	0.74	56.57	1.48	3.98	65.0	± 9.6 %
		Y	1.50	60.83	7.03		65.0	
		Z	1.77	61.73	8.31		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	0.63	56.72	1.58	3.98	65.0	± 9.6 %
		Y	1.50	60.62	6.80		65.0	
		Z	1.77	61.47	8.06		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	0.75	60.00	4.13	3.98	65.0	± 9.6 %
		Y	1.38	61.96	8.52		65.0	
		Z	1.52	62.42	9.24		65.0	
10259-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	1.62	61.68	8.48	3.98	65.0	± 9.6 %
		Y	3.35	69.89	15.82		65.0	
		Z	3.28	68.97	15.69		65.0	
10260-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	1.65	61.61	8.42	3.98	65.0	± 9.6 %
		Y	3.36	69.55	15.64		65.0	
		Z	3.31	68.75	15.57		65.0	
10261-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	1.63	64.06	10.69	3.98	65.0	± 9.6 %
		Y	4.19	76.83	19.42		65.0	
		Z	3.63	73.87	18.36		65.0	
10262-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.73	67.47	14.17	3.98	65.0	± 9.6 %
		Y	4.22	73.47	19.30		65.0	
		Z	4.00	71.83	18.72		65.0	
10263-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.46	65.13	12.47	3.98	65.0	± 9.6 %
		Y	3.85	70.66	17.56		65.0	
		Z	3.77	69.62	17.25		65.0	
10264-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.78	71.03	16.25	3.98	65.0	± 9.6 %
		Y	4.91	79.23	21.63		65.0	
		Z	4.25	75.88	20.29		65.0	
10265-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	3.31	68.31	16.16	3.98	65.0	± 9.6 %
		Y	4.23	70.96	18.67		65.0	
		Z	4.14	69.89	18.23		65.0	
10266-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	3.64	69.75	17.27	3.98	65.0	± 9.6 %
		Y	4.61	72.28	19.66		65.0	
		Z	4.48	71.09	19.18		65.0	
10267-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	3.65	73.23	18.74	3.98	65.0	± 9.6 %
		Y	4.96	76.74	21.09		65.0	
		Z	4.55	74.35	20.04		65.0	
10268-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	4.08	69.60	17.97	3.98	65.0	± 9.6 %
		Y	4.89	71.20	19.41		65.0	
		Z	4.81	70.25	18.99		65.0	
10269-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	4.15	69.51	17.90	3.98	65.0	± 9.6 %
		Y	4.93	70.92	19.29		65.0	
		Z	4.85	69.98	18.89		65.0	
10270-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	4.11	72.44	19.03	3.98	65.0	± 9.6 %
		Y	5.01	74.05	20.18		65.0	
		Z	4.76	72.38	19.41		65.0	

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	1.45	63.39	10.22	0.00	150.0	± 9.6 %
		Y	2.58	68.99	15.79		150.0	
		Z	2.26	65.99	14.08		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.00	66.09	12.05	0.00	150.0	± 9.6 %
		Y	1.98	74.04	18.23		150.0	
		Z	1.30	66.38	13.95		150.0	
10277-CAA	PHS (QPSK)	X	4.43	65.00	5.66	9.03	50.0	± 9.6 %
		Y	1.25	57.54	2.57		50.0	
		Z	1.34	58.35	3.69		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	1.39	58.79	4.19	9.03	50.0	± 9.6 %
		Y	2.00	62.01	7.70		50.0	
		Z	2.27	62.99	8.81		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	1.42	58.87	4.28	9.03	50.0	± 9.6 %
		Y	2.04	62.14	7.84		50.0	
		Z	2.32	63.16	8.96		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	24.89	264.54	21.43	0.00	150.0	± 9.6 %
		Y	0.75	64.32	9.28		150.0	
		Z	0.55	60.53	6.84		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	8.17	257.05	37.61	0.00	150.0	± 9.6 %
		Y	0.54	64.12	8.98		150.0	
		Z	0.37	60.00	6.07		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	2.31	326.58	8.83	0.00	150.0	± 9.6 %
		Y	100.00	114.29	23.68		150.0	
		Z	0.37	60.29	6.50		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	2.41	304.08	37.98	0.00	150.0	± 9.6 %
		Y	100.00	121.87	26.96		150.0	
		Z	0.47	62.33	8.10		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	11.16	76.14	13.68	9.03	50.0	± 9.6 %
		Y	24.30	94.04	23.00		50.0	
		Z	21.29	93.19	23.41		50.0	
10297-AAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	2.00	69.33	16.06	0.00	150.0	± 9.6 %
		Y	2.80	72.57	18.31		150.0	
		Z	2.31	68.33	15.80		150.0	
10298-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	8.49	243.95	30.00	0.00	150.0	± 9.6 %
		Y	0.98	64.80	10.42		150.0	
		Z	0.78	61.52	8.38		150.0	
10299-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	12.17	331.10	45.12	0.00	150.0	± 9.6 %
		Y	0.99	61.11	7.01		150.0	
		Z	1.06	61.03	7.46		150.0	
10300-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	10.15	348.38	28.30	0.00	150.0	± 9.6 %
		Y	0.82	59.43	5.36		150.0	
		Z	0.95	60.00	6.23		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	3.30	64.31	15.03	4.17	50.0	± 9.6 %
		Y	4.07	65.29	17.00		50.0	
		Z	4.16	64.88	16.72		50.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	3.81	65.12	15.99	4.96	50.0	± 9.6 %
		Y	4.52	65.76	17.66		50.0	
		Z	4.66	65.71	17.60		50.0	

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	3.64	65.07	15.71	4.96	50.0	± 9.6 %
		Y	4.29	65.44	17.44		50.0	
		Z	4.42	65.39	17.39		50.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	3.46	64.98	15.29	4.17	50.0	± 9.6 %
		Y	4.15	65.58	17.11		50.0	
		Z	4.21	64.95	16.68		50.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	2.52	62.00	12.12	6.02	35.0	± 9.6 %
		Y	3.52	65.78	17.45		35.0	
		Z	3.76	66.23	17.67		35.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	3.12	63.64	14.29	6.02	35.0	± 9.6 %
		Y	3.94	65.53	17.75		35.0	
		Z	4.14	65.73	17.85		35.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	3.01	63.42	14.02	6.02	35.0	± 9.6 %
		Y	3.81	65.44	17.59		35.0	
		Z	4.01	65.68	17.70		35.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	3.02	63.75	14.28	6.02	35.0	± 9.6 %
		Y	3.78	65.60	17.74		35.0	
		Z	3.98	65.86	17.83		35.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	3.17	63.94	14.58	6.02	35.0	± 9.6 %
		Y	3.94	65.55	17.83		35.0	
		Z	4.14	65.77	17.93		35.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	3.11	63.82	14.42	6.02	35.0	± 9.6 %
		Y	3.89	65.58	17.76		35.0	
		Z	4.09	65.78	17.84		35.0	
10311-AAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	2.31	68.15	15.92	0.00	150.0	± 9.6 %
		Y	3.15	71.23	17.71		150.0	
		Z	2.66	67.57	15.55		150.0	
10313-AAA	iDEN 1:3	X	1.67	67.67	13.40	6.99	70.0	± 9.6 %
		Y	2.25	71.10	15.22		70.0	
		Z	1.73	67.06	13.24		70.0	
10314-AAA	iDEN 1:6	X	6.12	86.17	23.14	10.00	30.0	± 9.6 %
		Y	7.14	89.19	24.60		30.0	
		Z	3.49	76.84	20.05		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	0.91	63.92	14.34	0.17	150.0	± 9.6 %
		Y	1.09	65.84	16.70		150.0	
		Z	0.93	62.70	14.16		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	3.71	66.95	15.64	0.17	150.0	± 9.6 %
		Y	4.26	67.26	16.51		150.0	
		Z	4.21	66.40	15.98		150.0	
10317-AAC	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	3.71	66.95	15.64	0.17	150.0	± 9.6 %
		Y	4.26	67.26	16.51		150.0	
		Z	4.21	66.40	15.98		150.0	
10400-AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	3.67	66.95	15.61	0.00	150.0	± 9.6 %
		Y	4.32	67.59	16.58		150.0	
		Z	4.27	66.67	15.99		150.0	
10401-AAD	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	4.49	66.84	16.09	0.00	150.0	± 9.6 %
		Y	5.01	67.23	16.55		150.0	
		Z	4.95	66.47	16.07		150.0	

10402-AAD	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	4.90	67.23	16.33	0.00	150.0	± 9.6 %
		Y	5.37	67.75	16.72		150.0	
		Z	5.33	67.10	16.30		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	24.89	264.54	21.43	0.00	115.0	± 9.6 %
		Y	0.75	64.32	9.28		115.0	
		Z	0.55	60.53	6.84		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	24.89	264.54	21.43	0.00	115.0	± 9.6 %
		Y	0.75	64.32	9.28		115.0	
		Z	0.55	60.53	6.84		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	0.25	60.00	3.04	0.00	100.0	± 9.6 %
		Y	100.00	107.14	22.27		100.0	
		Z	35.03	104.04	23.84		100.0	
10410-AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4)	X	1.11	74.02	16.29	3.23	80.0	± 9.6 %
		Y	100.00	123.32	29.06		80.0	
		Z	3.02	80.23	18.57		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	0.88	63.60	14.08	0.00	150.0	± 9.6 %
		Y	1.05	65.44	16.40		150.0	
		Z	0.90	62.27	13.77		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	3.72	67.22	15.78	0.00	150.0	± 9.6 %
		Y	4.26	67.46	16.59		150.0	
		Z	4.18	66.47	15.97		150.0	
10417-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	3.72	67.22	15.78	0.00	150.0	± 9.6 %
		Y	4.26	67.46	16.59		150.0	
		Z	4.18	66.47	15.97		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	3.67	67.37	15.86	0.00	150.0	± 9.6 %
		Y	4.26	67.73	16.69		150.0	
		Z	4.18	66.68	16.03		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	X	3.70	67.32	15.83	0.00	150.0	± 9.6 %
		Y	4.28	67.63	16.66		150.0	
		Z	4.19	66.61	16.02		150.0	
10422-AAB	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	3.79	67.23	15.85	0.00	150.0	± 9.6 %
		Y	4.37	67.55	16.64		150.0	
		Z	4.30	66.59	16.04		150.0	
10423-AAB	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	3.85	67.43	15.91	0.00	150.0	± 9.6 %
		Y	4.48	67.79	16.72		150.0	
		Z	4.41	66.83	16.12		150.0	
10424-AAB	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	3.80	67.32	15.87	0.00	150.0	± 9.6 %
		Y	4.41	67.73	16.70		150.0	
		Z	4.34	66.77	16.09		150.0	
10425-AAB	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	4.52	67.29	16.36	0.00	150.0	± 9.6 %
		Y	5.01	67.60	16.77		150.0	
		Z	5.00	66.98	16.36		150.0	
10426-AAB	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	4.54	67.39	16.40	0.00	150.0	± 9.6 %
		Y	5.06	67.79	16.86		150.0	
		Z	5.04	67.17	16.45		150.0	

10427-AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	4.54	67.34	16.38	0.00	150.0	± 9.6 %
		Y	5.02	67.56	16.74		150.0	
		Z	4.99	66.89	16.30		150.0	
10430-AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	2.54	67.86	12.99	0.00	150.0	± 9.6 %
		Y	5.20	77.46	20.26		150.0	
		Z	4.04	72.15	17.87		150.0	
10431-AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	3.04	66.93	14.37	0.00	150.0	± 9.6 %
		Y	3.88	68.36	16.49		150.0	
		Z	3.75	66.95	15.66		150.0	
10432-AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	3.52	67.40	15.50	0.00	150.0	± 9.6 %
		Y	4.19	67.98	16.66		150.0	
		Z	4.09	66.85	15.96		150.0	
10433-AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	3.82	67.39	15.92	0.00	150.0	± 9.6 %
		Y	4.43	67.78	16.72		150.0	
		Z	4.36	66.81	16.12		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	1.61	62.74	9.15	0.00	150.0	± 9.6 %
		Y	5.68	78.98	20.05		150.0	
		Z	3.98	72.24	17.17		150.0	
10435-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.04	73.03	15.81	3.23	80.0	± 9.6 %
		Y	100.00	122.83	28.83		80.0	
		Z	2.85	79.40	18.23		80.0	
10447-AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	1.63	62.08	8.98	0.00	150.0	± 9.6 %
		Y	3.10	68.15	14.99		150.0	
		Z	2.89	66.18	13.94		150.0	
10448-AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	X	2.97	66.84	14.33	0.00	150.0	± 9.6 %
		Y	3.76	68.19	16.40		150.0	
		Z	3.63	66.75	15.54		150.0	
10449-AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	X	3.43	67.31	15.47	0.00	150.0	± 9.6 %
		Y	4.05	67.84	16.58		150.0	
		Z	3.95	66.68	15.86		150.0	
10450-AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	3.70	67.17	15.79	0.00	150.0	± 9.6 %
		Y	4.26	67.58	16.60		150.0	
		Z	4.17	66.58	15.96		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	1.22	60.20	6.79	0.00	150.0	± 9.6 %
		Y	2.78	67.25	13.76		150.0	
		Z	2.61	65.48	12.83		150.0	
10456-AAB	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	5.60	67.64	16.61	0.00	150.0	± 9.6 %
		Y	6.26	68.94	17.34		150.0	
		Z	6.00	67.69	16.64		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.27	66.46	15.58	0.00	150.0	± 9.6 %
		Y	3.68	66.34	16.37		150.0	
		Z	3.59	65.30	15.71		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	1.12	60.00	5.83	0.00	150.0	± 9.6 %
		Y	3.56	71.73	16.05		150.0	
		Z	3.03	68.42	14.58		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	2.37	61.19	9.10	0.00	150.0	± 9.6 %
		Y	4.86	70.51	17.92		150.0	
		Z	4.63	68.94	17.35		150.0	

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	0.77	69.97	14.37	0.00	150.0	± 9.6 %
		Y	1.81	83.33	22.94		150.0	
		Z	0.70	66.15	13.99		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.10	74.88	17.91	3.29	80.0	± 9.6 %
		Y	100.00	130.63	32.41		80.0	
		Z	2.28	78.08	18.84		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.93	230.19	29.26	3.23	80.0	± 9.6 %
		Y	0.59	60.00	5.55		80.0	
		Z	0.64	60.00	7.06		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.96	233.23	22.29	3.23	80.0	± 9.6 %
		Y	23.26	230.85	21.52		80.0	
		Z	0.66	60.00	6.36		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	0.60	67.04	13.62	3.23	80.0	± 9.6 %
		Y	100.00	124.51	29.50		80.0	
		Z	1.46	72.00	15.83		80.0	
10465-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.88	228.32	21.10	3.23	80.0	± 9.6 %
		Y	0.24	55.14	2.95		80.0	
		Z	0.64	60.00	7.00		80.0	
10466-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.90	230.59	11.80	3.23	80.0	± 9.6 %
		Y	24.92	227.37	29.84		80.0	
		Z	0.66	60.00	6.32		80.0	
10467-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	0.65	68.17	14.23	3.23	80.0	± 9.6 %
		Y	100.00	125.25	29.82		80.0	
		Z	1.58	73.06	16.29		80.0	
10468-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.75	228.62	22.92	3.23	80.0	± 9.6 %
		Y	0.24	55.19	3.02		80.0	
		Z	0.64	60.00	7.02		80.0	
10469-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.89	230.67	12.36	3.23	80.0	± 9.6 %
		Y	24.62	227.52	30.16		80.0	
		Z	0.66	60.00	6.32		80.0	
10470-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	0.65	68.21	14.25	3.23	80.0	± 9.6 %
		Y	100.00	125.26	29.81		80.0	
		Z	1.58	73.08	16.29		80.0	
10471-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.71	228.68	22.79	3.23	80.0	± 9.6 %
		Y	0.24	55.16	2.98		80.0	
		Z	0.64	60.00	7.01		80.0	
10472-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.83	230.72	12.16	3.23	80.0	± 9.6 %
		Y	24.39	227.78	30.29		80.0	
		Z	0.66	60.00	6.30		80.0	
10473-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	0.65	68.12	14.21	3.23	80.0	± 9.6 %
		Y	100.00	125.20	29.78		80.0	
		Z	1.57	73.01	16.25		80.0	
10474-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.67	228.73	22.56	3.23	80.0	± 9.6 %
		Y	0.59	60.00	5.48		80.0	
		Z	0.64	60.00	7.01		80.0	
10475-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.82	230.67	11.80	3.23	80.0	± 9.6 %
		Y	24.34	227.67	30.21		80.0	
		Z	0.66	60.00	6.30		80.0	

10477-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.74	228.54	21.21	3.23	80.0	± 9.6 %
		Y	0.23	55.08	2.89		80.0	
		Z	0.64	60.00	6.98		80.0	
10478-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.84	230.57	11.22	3.23	80.0	± 9.6 %
		Y	24.37	227.68	30.04		80.0	
		Z	0.66	60.00	6.29		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.02	84.98	21.47	3.23	80.0	± 9.6 %
		Y	100.00	125.48	31.72		80.0	
		Z	5.02	83.00	20.76		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.47	60.00	6.63	3.23	80.0	± 9.6 %
		Y	1.92	67.54	11.86		80.0	
		Z	1.73	65.44	11.67		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.22	55.04	3.12	3.23	80.0	± 9.6 %
		Y	1.09	61.90	8.89		80.0	
		Z	1.31	62.31	9.77		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	53.67	208.87	10.65	2.23	80.0	± 9.6 %
		Y	1.05	62.14	9.95		80.0	
		Z	0.98	60.56	9.26		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	64.01	327.64	15.81	2.23	80.0	± 9.6 %
		Y	1.10	60.00	7.60		80.0	
		Z	1.21	60.00	8.23		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	72.15	316.72	7.23	2.23	80.0	± 9.6 %
		Y	1.13	60.00	7.59		80.0	
		Z	1.24	60.00	8.22		80.0	
10485-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	0.75	60.00	6.88	2.23	80.0	± 9.6 %
		Y	2.48	72.41	16.54		80.0	
		Z	1.64	65.93	13.71		80.0	
10486-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.01	60.00	5.53	2.23	80.0	± 9.6 %
		Y	1.68	63.79	11.57		80.0	
		Z	1.58	62.22	10.94		80.0	
10487-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.04	60.00	5.50	2.23	80.0	± 9.6 %
		Y	1.66	63.28	11.27		80.0	
		Z	1.59	61.98	10.79		80.0	
10488-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.44	64.72	13.06	2.23	80.0	± 9.6 %
		Y	2.82	72.60	18.56		80.0	
		Z	2.27	68.12	16.38		80.0	
10489-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.47	61.87	10.73	2.23	80.0	± 9.6 %
		Y	2.82	68.91	16.54		80.0	
		Z	2.48	66.05	15.16		80.0	
10490-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.47	61.55	10.50	2.23	80.0	± 9.6 %
		Y	2.86	68.61	16.37		80.0	
		Z	2.55	65.97	15.11		80.0	
10491-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.98	66.25	14.91	2.23	80.0	± 9.6 %
		Y	2.98	70.44	18.02		80.0	
		Z	2.64	67.54	16.51		80.0	
10492-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.19	64.63	13.64	2.23	80.0	± 9.6 %
		Y	3.11	67.88	16.76		80.0	
		Z	2.90	65.95	15.77		80.0	

10493-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.21	64.43	13.47	2.23	80.0	± 9.6 %
		Y	3.16	67.71	16.66		80.0	
		Z	2.96	65.87	15.72		80.0	
10494-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.11	67.23	15.74	2.23	80.0	± 9.6 %
		Y	3.21	71.79	18.57		80.0	
		Z	2.78	68.52	16.88		80.0	
10495-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.35	65.50	14.66	2.23	80.0	± 9.6 %
		Y	3.14	68.07	17.04		80.0	
		Z	2.93	66.16	16.02		80.0	
10496-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.42	65.39	14.61	2.23	80.0	± 9.6 %
		Y	3.21	67.85	16.95		80.0	
		Z	3.02	66.06	16.01		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.50	220.48	26.76	2.23	80.0	± 9.6 %
		Y	0.82	60.00	6.90		80.0	
		Z	0.88	60.00	7.23		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.00	60.00	0.00	2.23	80.0	± 9.6 %
		Y	1.06	60.00	5.49		80.0	
		Z	1.08	60.00	6.01		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.00	60.00	0.00	2.23	80.0	± 9.6 %
		Y	1.10	60.00	5.30		80.0	
		Z	1.11	60.00	5.84		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	0.83	60.00	8.23	2.23	80.0	± 9.6 %
		Y	2.68	72.91	17.52		80.0	
		Z	1.91	67.05	14.90		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.03	60.00	6.96	2.23	80.0	± 9.6 %
		Y	2.26	66.74	13.90		80.0	
		Z	1.97	64.14	12.76		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.05	60.00	6.86	2.23	80.0	± 9.6 %
		Y	2.24	66.31	13.60		80.0	
		Z	1.99	63.95	12.58		80.0	
10503-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.42	64.51	12.94	2.23	80.0	± 9.6 %
		Y	2.78	72.32	18.42		80.0	
		Z	2.24	67.93	16.27		80.0	
10504-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.45	61.75	10.65	2.23	80.0	± 9.6 %
		Y	2.79	68.76	16.45		80.0	
		Z	2.46	65.95	15.09		80.0	
10505-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.46	61.45	10.42	2.23	80.0	± 9.6 %
		Y	2.84	68.47	16.29		80.0	
		Z	2.53	65.87	15.05		80.0	
10506-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.09	67.08	15.65	2.23	80.0	± 9.6 %
		Y	3.18	71.61	18.48		80.0	
		Z	2.76	68.39	16.81		80.0	
10507-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.34	65.41	14.60	2.23	80.0	± 9.6 %
		Y	3.12	67.99	16.99		80.0	
		Z	2.92	66.10	15.98		80.0	

10508-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.40	65.29	14.54	2.23	80.0	± 9.6 %
		Y	3.20	67.76	16.90		80.0	
		Z	3.01	65.99	15.96		80.0	
10509-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.58	67.03	16.09	2.23	80.0	± 9.6 %
		Y	3.55	70.28	17.97		80.0	
		Z	3.24	67.94	16.71		80.0	
10510-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.84	65.59	15.48	2.23	80.0	± 9.6 %
		Y	3.55	67.42	17.00		80.0	
		Z	3.41	66.05	16.23		80.0	
10511-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.92	65.56	15.46	2.23	80.0	± 9.6 %
		Y	3.62	67.28	16.95		80.0	
		Z	3.49	65.96	16.22		80.0	
10512-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.57	67.43	16.22	2.23	80.0	± 9.6 %
		Y	3.65	71.51	18.37		80.0	
		Z	3.23	68.73	16.92		80.0	
10513-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.79	65.51	15.59	2.23	80.0	± 9.6 %
		Y	3.45	67.50	17.07		80.0	
		Z	3.30	66.08	16.26		80.0	
10514-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.87	65.41	15.56	2.23	80.0	± 9.6 %
		Y	3.50	67.18	16.96		80.0	
		Z	3.36	65.86	16.21		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	0.84	63.77	14.11	0.00	150.0	± 9.6 %
		Y	1.02	65.86	16.61		150.0	
		Z	0.85	62.40	13.77		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	0.62	73.89	17.55	0.00	150.0	± 9.6 %
		Y	4.44	111.45	33.24		150.0	
		Z	0.45	67.70	14.48		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.68	65.50	14.61	0.00	150.0	± 9.6 %
		Y	0.96	70.28	18.66		150.0	
		Z	0.68	63.72	13.93		150.0	
10518-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	3.70	67.39	15.82	0.00	150.0	± 9.6 %
		Y	4.26	67.62	16.61		150.0	
		Z	4.17	66.58	15.96		150.0	
10519-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	3.79	67.51	15.88	0.00	150.0	± 9.6 %
		Y	4.38	67.73	16.67		150.0	
		Z	4.31	66.74	16.05		150.0	
10520-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	3.65	67.31	15.75	0.00	150.0	± 9.6 %
		Y	4.25	67.68	16.61		150.0	
		Z	4.16	66.65	15.95		150.0	
10521-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	3.59	67.16	15.66	0.00	150.0	± 9.6 %
		Y	4.18	67.62	16.58		150.0	
		Z	4.10	66.58	15.92		150.0	
10522-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	3.61	67.21	15.68	0.00	150.0	± 9.6 %
		Y	4.20	67.65	16.61		150.0	
		Z	4.13	66.67	15.99		150.0	

10523-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	3.58	67.41	15.78	0.00	150.0	± 9.6 %
		Y	4.19	67.90	16.68		150.0	
		Z	4.09	66.77	15.97		150.0	
10524-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	3.55	67.17	15.73	0.00	150.0	± 9.6 %
		Y	4.18	67.74	16.69		150.0	
		Z	4.09	66.69	16.02		150.0	
10525-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	3.68	66.62	15.57	0.00	150.0	± 9.6 %
		Y	4.25	66.93	16.35		150.0	
		Z	4.15	65.82	15.66		150.0	
10526-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	3.72	66.70	15.62	0.00	150.0	± 9.6 %
		Y	4.34	67.14	16.44		150.0	
		Z	4.25	66.06	15.76		150.0	
10527-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	3.68	66.74	15.58	0.00	150.0	± 9.6 %
		Y	4.29	67.16	16.40		150.0	
		Z	4.18	66.03	15.70		150.0	
10528-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	3.67	66.65	15.55	0.00	150.0	± 9.6 %
		Y	4.30	67.15	16.42		150.0	
		Z	4.20	66.04	15.73		150.0	
10529-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	3.67	66.65	15.55	0.00	150.0	± 9.6 %
		Y	4.30	67.15	16.42		150.0	
		Z	4.20	66.04	15.73		150.0	
10531-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	3.64	66.66	15.53	0.00	150.0	± 9.6 %
		Y	4.25	67.14	16.38		150.0	
		Z	4.15	66.02	15.69		150.0	
10532-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	3.57	66.55	15.48	0.00	150.0	± 9.6 %
		Y	4.15	67.03	16.34		150.0	
		Z	4.04	65.89	15.62		150.0	
10533-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	3.68	66.88	15.62	0.00	150.0	± 9.6 %
		Y	4.30	67.28	16.44		150.0	
		Z	4.20	66.13	15.73		150.0	
10534-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	4.34	66.44	15.93	0.00	150.0	± 9.6 %
		Y	4.85	66.86	16.39		150.0	
		Z	4.79	66.06	15.87		150.0	
10535-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	4.34	66.46	15.95	0.00	150.0	± 9.6 %
		Y	4.87	66.95	16.44		150.0	
		Z	4.82	66.17	15.93		150.0	
10536-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	4.25	66.45	15.91	0.00	150.0	± 9.6 %
		Y	4.78	66.98	16.43		150.0	
		Z	4.71	66.14	15.89		150.0	
10537-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	4.35	66.61	16.01	0.00	150.0	± 9.6 %
		Y	4.86	67.05	16.47		150.0	
		Z	4.80	66.24	15.94		150.0	
10538-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	4.37	66.44	15.94	0.00	150.0	± 9.6 %
		Y	4.89	66.89	16.42		150.0	
		Z	4.84	66.13	15.93		150.0	
10540-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	4.31	66.35	15.93	0.00	150.0	± 9.6 %
		Y	4.83	66.86	16.43		150.0	
		Z	4.77	66.08	15.92		150.0	

10541-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	4.33	66.41	15.92	0.00	150.0	± 9.6 %
		Y	4.83	66.83	16.39		150.0	
		Z	4.77	66.02	15.87		150.0	
10542-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	4.45	66.54	16.01	0.00	150.0	± 9.6 %
		Y	4.97	66.88	16.43		150.0	
		Z	4.91	66.12	15.94		150.0	
10543-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	4.48	66.49	16.02	0.00	150.0	± 9.6 %
		Y	5.04	66.97	16.50		150.0	
		Z	5.01	66.28	16.06		150.0	
10544-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	4.77	66.20	15.88	0.00	150.0	± 9.6 %
		Y	5.21	66.81	16.32		150.0	
		Z	5.15	66.11	15.87		150.0	
10545-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	4.82	66.41	15.96	0.00	150.0	± 9.6 %
		Y	5.37	67.24	16.50		150.0	
		Z	5.34	66.63	16.10		150.0	
10546-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	4.77	66.27	15.89	0.00	150.0	± 9.6 %
		Y	5.24	66.91	16.35		150.0	
		Z	5.18	66.22	15.90		150.0	
10547-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	4.83	66.38	15.95	0.00	150.0	± 9.6 %
		Y	5.36	67.18	16.48		150.0	
		Z	5.31	66.51	16.04		150.0	
10548-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	4.82	66.54	16.01	0.00	150.0	± 9.6 %
		Y	5.39	67.48	16.61		150.0	
		Z	5.39	66.96	16.24		150.0	
10550-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	4.79	66.46	16.00	0.00	150.0	± 9.6 %
		Y	5.34	67.29	16.55		150.0	
		Z	5.30	66.62	16.12		150.0	
10551-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	4.75	66.25	15.87	0.00	150.0	± 9.6 %
		Y	5.21	66.84	16.29		150.0	
		Z	5.16	66.14	15.84		150.0	
10552-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	4.78	66.50	15.97	0.00	150.0	± 9.6 %
		Y	5.22	66.98	16.36		150.0	
		Z	5.16	66.23	15.88		150.0	
10553-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	4.79	66.33	15.90	0.00	150.0	± 9.6 %
		Y	5.26	66.86	16.32		150.0	
		Z	5.20	66.16	15.87		150.0	
10554-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.25	66.42	15.95	0.00	150.0	± 9.6 %
		Y	5.65	67.07	16.36		150.0	
		Z	5.60	66.46	15.97		150.0	
10555-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	5.31	66.63	16.05	0.00	150.0	± 9.6 %
		Y	5.71	67.24	16.43		150.0	
		Z	5.68	66.67	16.06		150.0	
10556-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	5.32	66.65	16.05	0.00	150.0	± 9.6 %
		Y	5.77	67.42	16.51		150.0	
		Z	5.74	66.86	16.15		150.0	
10557-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	5.28	66.55	16.01	0.00	150.0	± 9.6 %
		Y	5.72	67.25	16.45		150.0	
		Z	5.67	66.64	16.06		150.0	

10558-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	5.24	66.46	15.98	0.00	150.0	± 9.6 %
		Y	5.69	67.20	16.44		150.0	
		Z	5.65	66.61	16.06		150.0	
10560-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	5.28	66.44	16.00	0.00	150.0	± 9.6 %
		Y	5.72	67.18	16.47		150.0	
		Z	5.68	66.60	16.09		150.0	
10561-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	5.21	66.38	15.99	0.00	150.0	± 9.6 %
		Y	5.66	67.17	16.49		150.0	
		Z	5.63	66.59	16.12		150.0	
10562-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	5.30	66.67	16.13	0.00	150.0	± 9.6 %
		Y	5.70	67.29	16.55		150.0	
		Z	5.66	66.70	16.17		150.0	
10563-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	5.57	67.31	16.43	0.00	150.0	± 9.6 %
		Y	5.83	67.40	16.57		150.0	
		Z	5.78	66.77	16.18		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	3.98	67.19	15.91	0.46	150.0	± 9.6 %
		Y	4.54	67.45	16.63		150.0	
		Z	4.49	66.59	16.10		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	4.14	67.73	16.32	0.46	150.0	± 9.6 %
		Y	4.73	67.88	16.97		150.0	
		Z	4.67	67.02	16.44		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	3.97	67.32	16.02	0.46	150.0	± 9.6 %
		Y	4.56	67.66	16.76		150.0	
		Z	4.51	66.79	16.21		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	4.06	67.96	16.56	0.46	150.0	± 9.6 %
		Y	4.62	68.16	17.21		150.0	
		Z	4.55	67.23	16.63		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	3.80	66.64	15.45	0.46	150.0	± 9.6 %
		Y	4.41	67.18	16.36		150.0	
		Z	4.38	66.42	15.88		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	4.07	68.35	16.82	0.46	150.0	± 9.6 %
		Y	4.63	68.53	17.43		150.0	
		Z	4.55	67.52	16.81		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	3.99	67.81	16.52	0.46	150.0	± 9.6 %
		Y	4.60	68.17	17.24		150.0	
		Z	4.53	67.25	16.66		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	0.93	63.68	14.15	0.46	130.0	± 9.6 %
		Y	1.11	65.62	16.53		130.0	
		Z	0.97	62.81	14.25		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	0.94	64.27	14.56	0.46	130.0	± 9.6 %
		Y	1.13	66.40	17.03		130.0	
		Z	0.97	63.27	14.57		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	1.10	79.41	19.97	0.46	130.0	± 9.6 %
		Y	29.09	140.84	40.18		130.0	
		Z	0.81	73.52	17.65		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.00	70.10	17.80	0.46	130.0	± 9.6 %
		Y	1.40	75.63	21.83		130.0	
		Z	0.96	67.63	16.92		130.0	

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	3.74	66.83	15.70	0.46	130.0	± 9.6 %
		Y	4.30	67.12	16.57		130.0	
		Z	4.26	66.31	16.08		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	3.78	67.20	15.91	0.46	130.0	± 9.6 %
		Y	4.34	67.41	16.71		130.0	
		Z	4.29	66.55	16.18		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	3.89	67.42	16.06	0.46	130.0	± 9.6 %
		Y	4.48	67.61	16.83		130.0	
		Z	4.44	66.77	16.33		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	3.83	67.60	16.23	0.46	130.0	± 9.6 %
		Y	4.40	67.82	17.00		130.0	
		Z	4.35	66.92	16.45		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	3.51	66.09	15.01	0.46	130.0	± 9.6 %
		Y	4.12	66.74	16.08		130.0	
		Z	4.09	65.97	15.60		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	3.49	65.97	14.89	0.46	130.0	± 9.6 %
		Y	4.12	66.69	16.03		130.0	
		Z	4.11	65.99	15.59		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	3.74	67.63	16.20	0.46	130.0	± 9.6 %
		Y	4.33	67.99	17.02		130.0	
		Z	4.26	67.01	16.43		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	3.37	65.61	14.64	0.46	130.0	± 9.6 %
		Y	4.03	66.45	15.82		130.0	
		Z	4.01	65.72	15.36		130.0	
10583-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	3.74	66.83	15.70	0.46	130.0	± 9.6 %
		Y	4.30	67.12	16.57		130.0	
		Z	4.26	66.31	16.08		130.0	
10584-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	3.78	67.20	15.91	0.46	130.0	± 9.6 %
		Y	4.34	67.41	16.71		130.0	
		Z	4.29	66.55	16.18		130.0	
10585-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	3.89	67.42	16.06	0.46	130.0	± 9.6 %
		Y	4.48	67.61	16.83		130.0	
		Z	4.44	66.77	16.33		130.0	
10586-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	3.83	67.60	16.23	0.46	130.0	± 9.6 %
		Y	4.40	67.82	17.00		130.0	
		Z	4.35	66.92	16.45		130.0	
10587-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	3.51	66.09	15.01	0.46	130.0	± 9.6 %
		Y	4.12	66.74	16.08		130.0	
		Z	4.09	65.97	15.60		130.0	
10588-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	3.49	65.97	14.89	0.46	130.0	± 9.6 %
		Y	4.12	66.69	16.03		130.0	
		Z	4.11	65.99	15.59		130.0	
10589-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	3.74	67.63	16.20	0.46	130.0	± 9.6 %
		Y	4.33	67.99	17.02		130.0	
		Z	4.26	67.01	16.43		130.0	
10590-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	3.37	65.61	14.64	0.46	130.0	± 9.6 %
		Y	4.03	66.45	15.82		130.0	
		Z	4.01	65.72	15.36		130.0	

10591-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	3.91	67.05	15.98	0.46	130.0	± 9.6 %
		Y	4.46	67.24	16.72		130.0	
		Z	4.42	66.45	16.24		130.0	
10592-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	3.96	67.20	16.07	0.46	130.0	± 9.6 %
		Y	4.56	67.49	16.83		130.0	
		Z	4.52	66.71	16.36		130.0	
10593-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	3.89	67.09	15.91	0.46	130.0	± 9.6 %
		Y	4.48	67.36	16.68		130.0	
		Z	4.44	66.57	16.20		130.0	
10594-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	3.93	67.20	16.06	0.46	130.0	± 9.6 %
		Y	4.53	67.56	16.87		130.0	
		Z	4.50	66.76	16.38		130.0	
10595-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	3.88	67.15	15.95	0.46	130.0	± 9.6 %
		Y	4.50	67.54	16.78		130.0	
		Z	4.46	66.73	16.29		130.0	
10596-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	3.78	66.88	15.82	0.46	130.0	± 9.6 %
		Y	4.41	67.44	16.74		130.0	
		Z	4.38	66.66	16.26		130.0	
10597-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	3.79	66.92	15.72	0.46	130.0	± 9.6 %
		Y	4.37	67.31	16.57		130.0	
		Z	4.34	66.51	16.09		130.0	
10598-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	3.85	67.45	16.19	0.46	130.0	± 9.6 %
		Y	4.40	67.66	16.93		130.0	
		Z	4.34	66.79	16.40		130.0	
10599-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	4.79	67.73	16.77	0.46	130.0	± 9.6 %
		Y	5.21	67.73	17.04		130.0	
		Z	5.16	67.02	16.62		130.0	
10600-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	4.68	67.39	16.57	0.46	130.0	± 9.6 %
		Y	5.21	67.78	17.04		130.0	
		Z	5.26	67.42	16.79		130.0	
10601-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	4.64	67.32	16.56	0.46	130.0	± 9.6 %
		Y	5.18	67.81	17.08		130.0	
		Z	5.18	67.25	16.73		130.0	
10602-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	4.63	67.06	16.35	0.46	130.0	± 9.6 %
		Y	5.19	67.55	16.86		130.0	
		Z	5.23	67.15	16.59		130.0	
10603-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	4.68	67.32	16.65	0.46	130.0	± 9.6 %
		Y	5.23	67.74	17.10		130.0	
		Z	5.27	67.35	16.84		130.0	
10604-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	4.64	67.04	16.46	0.46	130.0	± 9.6 %
		Y	5.12	67.34	16.87		130.0	
		Z	5.13	66.84	16.55		130.0	
10605-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	4.61	67.01	16.45	0.46	130.0	± 9.6 %
		Y	5.17	67.54	16.97		130.0	
		Z	5.21	67.15	16.70		130.0	
10606-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	4.52	66.73	16.13	0.46	130.0	± 9.6 %
		Y	5.04	67.22	16.65		130.0	
		Z	5.04	66.71	16.33		130.0	

10607-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	3.77	66.40	15.66	0.46	130.0	± 9.6 %
		Y	4.33	66.69	16.43		130.0	
		Z	4.27	65.78	15.88		130.0	
10608-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	3.82	66.54	15.73	0.46	130.0	± 9.6 %
		Y	4.44	66.96	16.55		130.0	
		Z	4.38	66.06	16.01		130.0	
10609-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	3.73	66.35	15.52	0.46	130.0	± 9.6 %
		Y	4.34	66.78	16.36		130.0	
		Z	4.28	65.87	15.81		130.0	
10610-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	3.78	66.52	15.70	0.46	130.0	± 9.6 %
		Y	4.40	66.99	16.56		130.0	
		Z	4.34	66.07	16.00		130.0	
10611-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	3.70	66.30	15.52	0.46	130.0	± 9.6 %
		Y	4.30	66.73	16.37		130.0	
		Z	4.25	65.83	15.82		130.0	
10612-AAB	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	3.61	66.09	15.37	0.46	130.0	± 9.6 %
		Y	4.27	66.79	16.38		130.0	
		Z	4.22	65.92	15.84		130.0	
10613-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	3.64	66.03	15.27	0.46	130.0	± 9.6 %
		Y	4.27	66.59	16.20		130.0	
		Z	4.22	65.72	15.67		130.0	
10614-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	3.70	66.56	15.73	0.46	130.0	± 9.6 %
		Y	4.27	66.95	16.54		130.0	
		Z	4.20	66.00	15.96		130.0	
10615-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	3.64	65.99	15.16	0.46	130.0	± 9.6 %
		Y	4.28	66.52	16.09		130.0	
		Z	4.23	65.64	15.56		130.0	
10616-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	4.45	66.34	16.08	0.46	130.0	± 9.6 %
		Y	4.95	66.71	16.53		130.0	
		Z	4.93	66.07	16.13		130.0	
10617-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	4.43	66.27	16.03	0.46	130.0	± 9.6 %
		Y	4.97	66.78	16.54		130.0	
		Z	4.96	66.18	16.16		130.0	
10618-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	4.37	66.39	16.11	0.46	130.0	± 9.6 %
		Y	4.90	66.88	16.61		130.0	
		Z	4.86	66.19	16.18		130.0	
10619-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	4.42	66.32	16.00	0.46	130.0	± 9.6 %
		Y	4.94	66.79	16.49		130.0	
		Z	4.93	66.18	16.10		130.0	
10620-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	4.43	66.13	15.93	0.46	130.0	± 9.6 %
		Y	4.96	66.62	16.45		130.0	
		Z	4.96	66.05	16.09		130.0	
10621-AAB	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	4.50	66.48	16.27	0.46	130.0	± 9.6 %
		Y	5.00	66.84	16.69		130.0	
		Z	4.97	66.18	16.29		130.0	
10622-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	4.46	66.43	16.25	0.46	130.0	± 9.6 %
		Y	4.98	66.91	16.73		130.0	
		Z	4.96	66.27	16.33		130.0	

10623-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	4.39	66.10	15.89	0.46	130.0	± 9.6 %
		Y	4.89	66.49	16.36		130.0	
		Z	4.86	65.84	15.96		130.0	
10624-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	4.54	66.35	16.10	0.46	130.0	± 9.6 %
		Y	5.06	66.70	16.53		130.0	
		Z	5.05	66.11	16.17		130.0	
10625-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	4.65	66.63	16.32	0.46	130.0	± 9.6 %
		Y	5.15	66.88	16.69		130.0	
		Z	5.16	66.34	16.36		130.0	
10626-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	4.87	66.09	16.03	0.46	130.0	± 9.6 %
		Y	5.31	66.64	16.44		130.0	
		Z	5.28	66.07	16.09		130.0	
10627-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	4.96	66.39	16.17	0.46	130.0	± 9.6 %
		Y	5.52	67.25	16.73		130.0	
		Z	5.53	66.80	16.43		130.0	
10628-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	4.83	65.96	15.85	0.46	130.0	± 9.6 %
		Y	5.28	66.56	16.30		130.0	
		Z	5.27	66.03	15.96		130.0	
10629-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	4.89	66.11	15.93	0.46	130.0	± 9.6 %
		Y	5.45	66.99	16.52		130.0	
		Z	5.45	66.49	16.20		130.0	
10630-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	4.94	66.47	16.13	0.46	130.0	± 9.6 %
		Y	5.52	67.40	16.73		130.0	
		Z	5.58	67.09	16.50		130.0	
10631-AAB	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	5.04	67.01	16.63	0.46	130.0	± 9.6 %
		Y	5.56	67.66	17.07		130.0	
		Z	5.56	67.16	16.74		130.0	
10632-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.02	66.85	16.55	0.46	130.0	± 9.6 %
		Y	5.59	67.70	17.10		130.0	
		Z	5.59	67.18	16.77		130.0	
10633-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	4.86	66.17	16.01	0.46	130.0	± 9.6 %
		Y	5.30	66.64	16.39		130.0	
		Z	5.27	66.07	16.03		130.0	
10634-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	4.95	66.64	16.30	0.46	130.0	± 9.6 %
		Y	5.35	66.92	16.58		130.0	
		Z	5.32	66.32	16.21		130.0	
10635-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	4.70	65.44	15.34	0.46	130.0	± 9.6 %
		Y	5.17	66.01	15.82		130.0	
		Z	5.16	65.50	15.50		130.0	
10636-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	5.37	66.35	16.11	0.46	130.0	± 9.6 %
		Y	5.75	66.94	16.50		130.0	
		Z	5.74	66.45	16.20		130.0	
10637-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	5.47	66.68	16.28	0.46	130.0	± 9.6 %
		Y	5.84	67.17	16.61		130.0	
		Z	5.85	66.75	16.34		130.0	
10638-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	5.45	66.60	16.21	0.46	130.0	± 9.6 %
		Y	5.91	67.37	16.68		130.0	
		Z	5.90	66.89	16.39		130.0	

10639-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	5.40	66.48	16.20	0.46	130.0	± 9.6 %
		Y	5.83	67.15	16.61		130.0	
		Z	5.82	66.67	16.32		130.0	
10640-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	5.32	66.22	15.99	0.46	130.0	± 9.6 %
		Y	5.75	66.89	16.42		130.0	
		Z	5.75	66.45	16.15		130.0	
10641-AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	5.45	66.45	16.13	0.46	130.0	± 9.6 %
		Y	5.88	67.07	16.54		130.0	
		Z	5.90	66.70	16.30		130.0	
10642-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	5.46	66.60	16.39	0.46	130.0	± 9.6 %
		Y	5.90	67.28	16.81		130.0	
		Z	5.89	66.80	16.53		130.0	
10643-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	5.28	66.13	16.00	0.46	130.0	± 9.6 %
		Y	5.73	66.91	16.51		130.0	
		Z	5.74	66.48	16.24		130.0	
10644-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	5.42	66.58	16.26	0.46	130.0	± 9.6 %
		Y	5.78	67.08	16.62		130.0	
		Z	5.78	66.62	16.33		130.0	
10645-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	5.81	67.58	16.73	0.46	130.0	± 9.6 %
		Y	5.91	67.16	16.62		130.0	
		Z	5.93	66.77	16.38		130.0	
10646-AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	2.64	72.38	24.11	9.30	60.0	± 9.6 %
		Y	4.60	84.41	29.31		60.0	
		Z	4.84	83.41	28.63		60.0	
10647-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	2.46	71.01	23.55	9.30	60.0	± 9.6 %
		Y	4.04	81.81	28.38		60.0	
		Z	4.35	81.42	27.96		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	2.44	155.88	0.83	0.00	150.0	± 9.6 %
		Y	0.35	60.28	6.28		150.0	
		Z	0.35	60.00	5.54		150.0	
10652-AAB	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	2.08	63.49	12.30	2.23	80.0	± 9.6 %
		Y	3.15	67.39	16.19		80.0	
		Z	2.91	65.29	15.14		80.0	
10653-AAB	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	3.02	65.17	14.89	2.23	80.0	± 9.6 %
		Y	3.64	66.22	16.46		80.0	
		Z	3.52	64.96	15.78		80.0	
10654-AAB	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	3.20	64.95	15.39	2.23	80.0	± 9.6 %
		Y	3.67	65.70	16.49		80.0	
		Z	3.57	64.61	15.88		80.0	
10655-AAB	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	3.35	64.77	15.59	2.23	80.0	± 9.6 %
		Y	3.76	65.50	16.51		80.0	
		Z	3.66	64.52	15.94		80.0	
10658-AAA	Pulse Waveform (200Hz, 10%)	X	2.01	62.76	7.94	10.00	50.0	± 9.6 %
		Y	2.58	65.57	9.73		50.0	
		Z	3.05	67.26	11.01		50.0	
10659-AAA	Pulse Waveform (200Hz, 20%)	X	0.84	60.00	5.36	6.99	60.0	± 9.6 %
		Y	1.33	63.54	7.82		60.0	
		Z	1.53	64.53	8.66		60.0	

10660-AAA	Pulse Waveform (200Hz, 40%)	X	0.39	60.00	3.98	3.98	80.0	± 9.6 %
		Y	0.54	61.57	5.88		80.0	
		Z	0.45	60.00	5.04		80.0	
10661-AAA	Pulse Waveform (200Hz, 60%)	X	17.64	60.43	1.44	2.22	100.0	± 9.6 %
		Y	0.23	60.00	4.28		100.0	
		Z	0.25	60.00	3.48		100.0	
10662-AAA	Pulse Waveform (200Hz, 80%)	X	0.00	84.91	40.93	0.97	120.0	± 9.6 %
		Y	49.30	1078.61	357.44		120.0	
		Z	0.03	139.18	4.12		120.0	

[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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Accreditation No.: SCS 0108

Client PC Test

Certificate No: EX3-3914_Feb19

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3914

Calibration procedure(s): QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v5, QA CAL-23.v5, QA CAL-25.v7
Calibration procedure for dosimetric E-field probes

Calibration date: February 19, 2019 02-26-2019

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-18 (No. 217-02682)	Apr-19
DAE4	SN: 660	19-Dec-18 (No. DAE4-660_Dec18)	Dec-19
Reference Probe ES3DV2	SN: 3013	31-Dec-18 (No. ES3-3013_Dec18)	Dec-19
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 20, 2019

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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, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
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).

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3914

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.46	0.41	0.44	± 10.1 %
DCP (mV)[B]	98.0	104.4	100.8	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max dev.	Max Unc[E] (k=2)
0	CW	X	0.00	0.00	1.00	0.00	135.8	± 3.3 %	± 4.7 %
		Y	0.00	0.00	1.00		149.1		
		Z	0.00	0.00	1.00		130.4		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	11.50	82.25	17.46	10.00	60.0	± 2.9 %	± 9.6 %
		Y	13.06	84.85	18.88		60.0		
		Z	15.00	85.74	19.04		60.0		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	15.00	85.61	17.12	6.99	80.0	± 1.7 %	± 9.6 %
		Y	15.00	87.20	18.40		80.0		
		Z	15.00	86.88	18.11		80.0		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	15.00	85.07	15.18	3.98	95.0	± 1.1 %	± 9.6 %
		Y	15.00	89.57	18.09		95.0		
		Z	15.00	87.22	16.52		95.0		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	0.82	65.05	7.38	2.22	120.0	± 1.2 %	± 9.6 %
		Y	15.00	94.17	19.03		120.0		
		Z	15.00	84.14	13.59		120.0		
10387-AAA	QPSK Waveform, 1 MHz	X	0.56	60.35	7.26	0.00	150.0	± 2.8 %	± 9.6 %
		Y	0.80	64.04	10.54		150.0		
		Z	0.51	60.00	6.79		150.0		
10388-AAA	QPSK Waveform, 10 MHz	X	2.18	68.24	15.67	0.00	150.0	± 1.2 %	± 9.6 %
		Y	2.41	70.06	16.91		150.0		
		Z	2.04	67.38	15.28		150.0		
10396-AAA	64-QAM Waveform, 100 kHz	X	2.71	69.05	18.06	3.01	150.0	± 0.7 %	± 9.6 %
		Y	3.50	74.05	20.22		150.0		
		Z	2.76	69.32	18.16		150.0		
10399-AAA	64-QAM Waveform, 40 MHz	X	3.50	67.38	15.86	0.00	150.0	± 2.2 %	± 9.6 %
		Y	3.57	67.89	16.25		150.0		
		Z	3.38	66.82	15.58		150.0		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	4.87	65.94	15.72	0.00	150.0	± 4.2 %	± 9.6 %
		Y	4.84	65.99	15.74		150.0		
		Z	4.71	65.47	15.46		150.0		

Note: For details on UID parameters see Appendix

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

[A] The uncertainties of Norm X,Y,Z do not affect the 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: EX3DV4 - SN:3914

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	42.5	324.17	36.82	9.95	0.55	5.06	0.00	0.49	1.01
Y	42.9	310.45	33.81	12.34	0.63	5.02	2.00	0.15	1.01
Z	39.7	301.66	36.55	9.75	0.75	5.05	0.45	0.44	1.01

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	0.5
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3914

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)
6	55.5	0.75	21.24	21.24	21.24	0.00	1.00	± 13.3 %
13	55.5	0.75	18.06	18.06	18.06	0.00	1.00	± 13.3 %
750	41.9	0.89	10.00	10.00	10.00	0.54	0.82	± 12.0 %
835	41.5	0.90	9.50	9.50	9.50	0.50	0.86	± 12.0 %
1750	40.1	1.37	8.16	8.16	8.16	0.41	0.80	± 12.0 %
1900	40.0	1.40	7.80	7.80	7.80	0.40	0.84	± 12.0 %
2300	39.5	1.67	7.44	7.44	7.44	0.37	0.84	± 12.0 %
2450	39.2	1.80	7.13	7.13	7.13	0.39	0.86	± 12.0 %
2600	39.0	1.96	7.11	7.11	7.11	0.39	0.89	± 12.0 %
3500	37.9	2.91	6.99	6.99	6.99	0.25	1.20	± 13.1 %
3700	37.7	3.12	6.75	6.75	6.75	0.25	1.20	± 13.1 %
5250	35.9	4.71	5.19	5.19	5.19	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.73	4.73	4.73	0.40	1.80	± 13.1 %
5750	35.4	5.22	4.90	4.90	4.90	0.40	1.80	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3914

Calibration Parameter Determined in Body Tissue Simulating Media

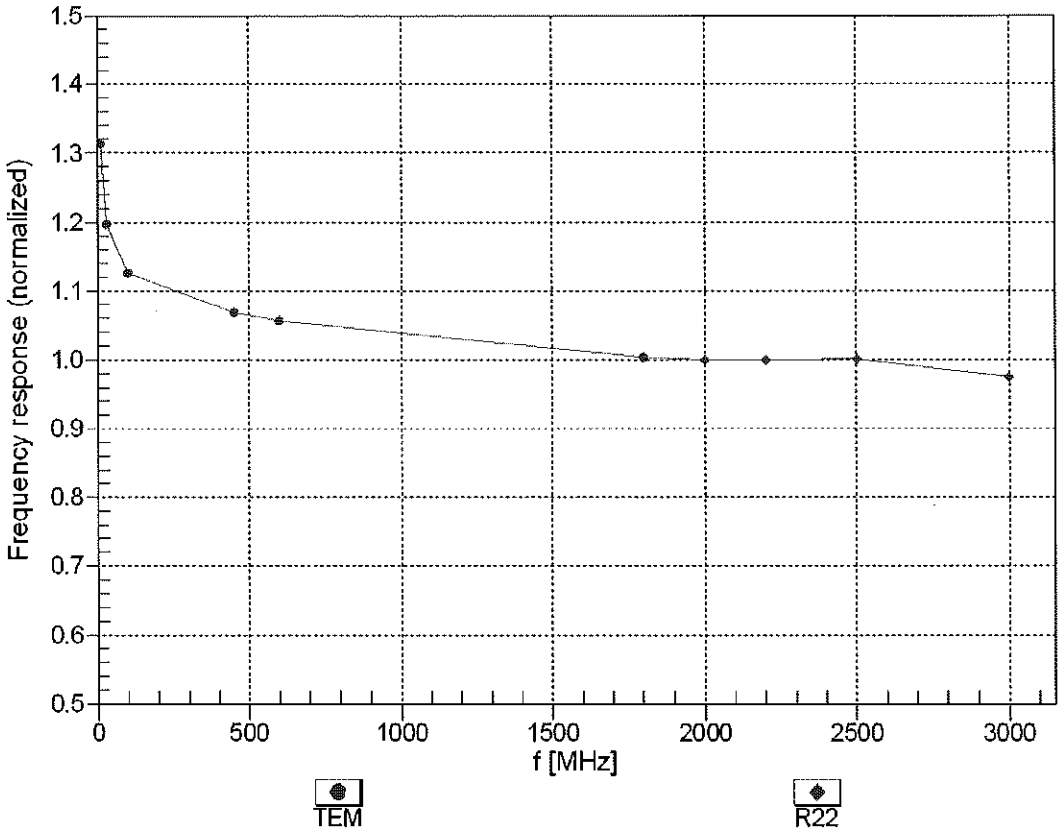
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	9.73	9.73	9.73	0.54	0.84	± 12.0 %
835	55.2	0.97	9.46	9.46	9.46	0.50	0.80	± 12.0 %
1750	53.4	1.49	7.89	7.89	7.89	0.38	0.84	± 12.0 %
1900	53.3	1.52	7.60	7.60	7.60	0.29	1.03	± 12.0 %
2300	52.9	1.81	7.43	7.43	7.43	0.38	0.84	± 12.0 %
2450	52.7	1.95	7.34	7.34	7.34	0.33	0.87	± 12.0 %
2600	52.5	2.16	7.15	7.15	7.15	0.26	0.97	± 12.0 %
3500	51.3	3.31	6.88	6.88	6.88	0.25	1.15	± 13.1 %
3700	51.0	3.55	6.58	6.58	6.58	0.30	1.15	± 13.1 %
5250	48.9	5.36	4.61	4.61	4.61	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.92	3.92	3.92	0.50	1.90	± 13.1 %
5750	48.3	5.94	4.05	4.05	4.05	0.50	1.90	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

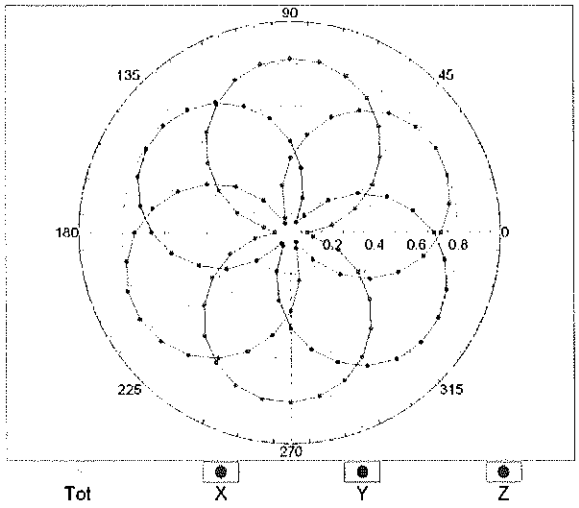
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



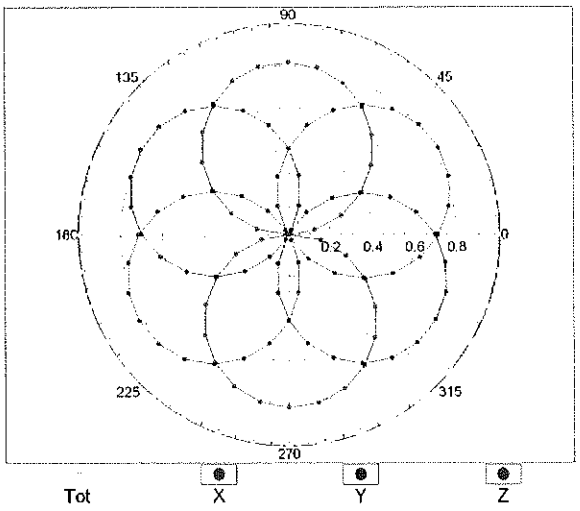
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

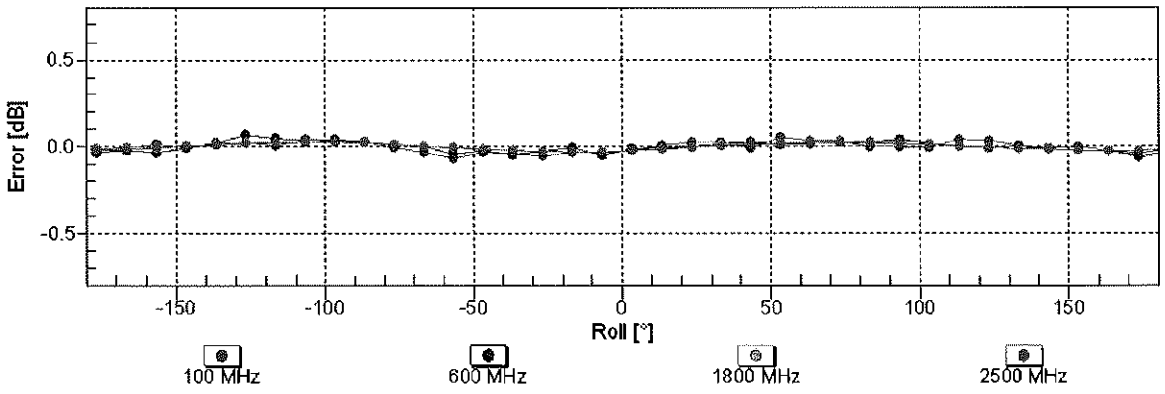
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



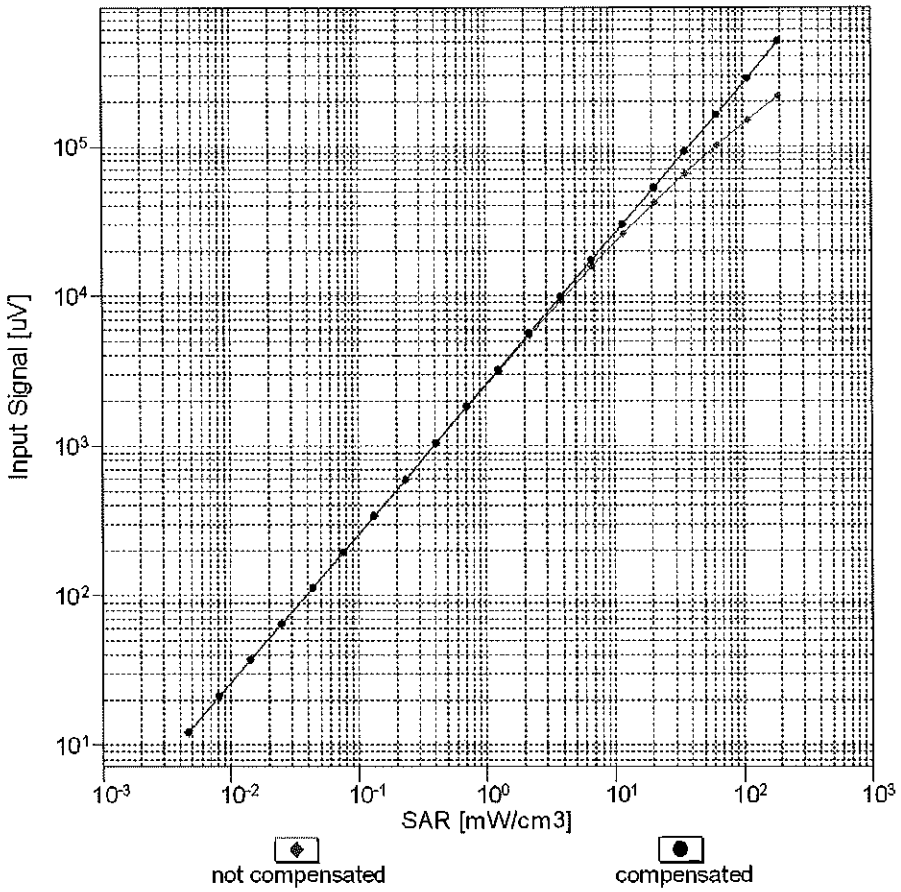
f=1800 MHz,R22

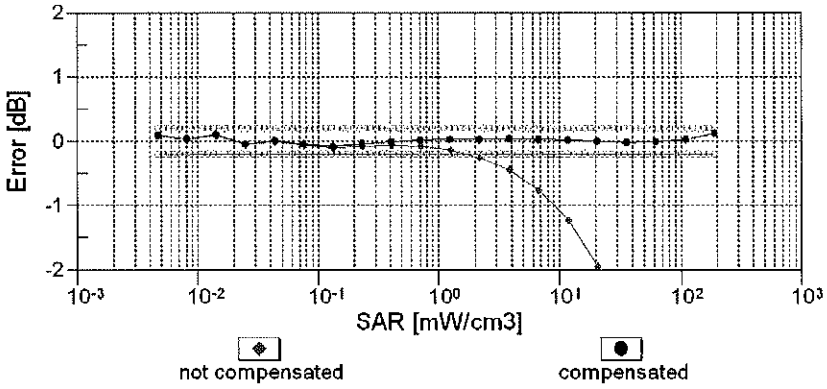




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})
(TEM cell , f_{eval}= 1900 MHz)

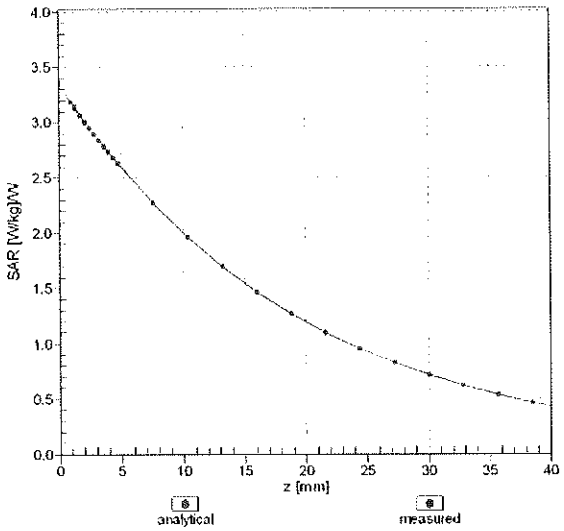




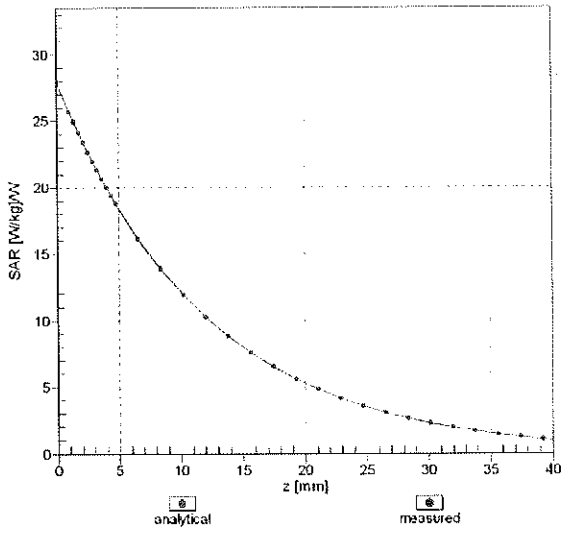
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

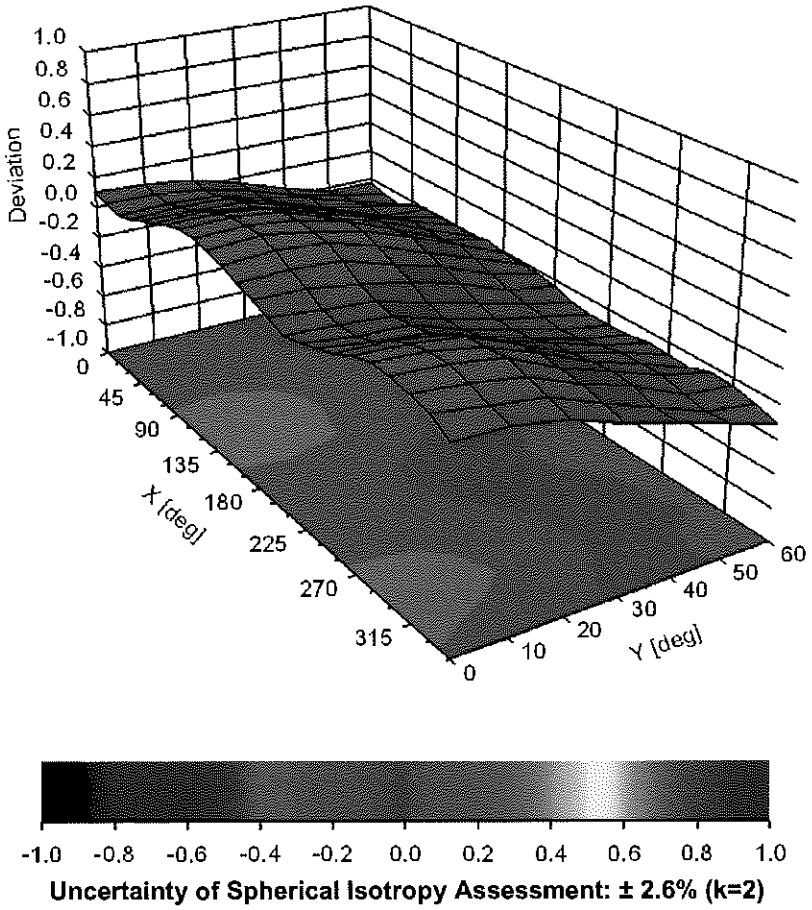


f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc[E] (k=2)
0		CW	CW	0.00	± 4.7 %
10010	CAA	SAR Validation (Square, 100ms, 10ms)	Test	10.00	± 9.6 %
10011	CAB	UMTS-FDD (WCDMA)	WCDMA	2.91	± 9.6 %
10012	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.87	± 9.6 %
10013	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9.46	± 9.6 %
10021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	± 9.6 %
10023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	9.57	± 9.6 %
10024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6.56	± 9.6 %
10025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	GSM	12.62	± 9.6 %
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	± 9.6 %
10027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	4.80	± 9.6 %
10028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	± 9.6 %
10029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7.78	± 9.6 %
10030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5.30	± 9.6 %
10031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Bluetooth	1.87	± 9.6 %
10032	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	± 9.6 %
10033	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	± 9.6 %
10034	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	Bluetooth	4.53	± 9.6 %
10035	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	Bluetooth	3.83	± 9.6 %
10036	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	Bluetooth	8.01	± 9.6 %
10037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	± 9.6 %
10038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4.10	± 9.6 %
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000	4.57	± 9.6 %
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	AMPS	7.78	± 9.6 %
10044	CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	AMPS	0.00	± 9.6 %
10048	CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	± 9.6 %
10049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	± 9.6 %
10056	CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	TD-SCDMA	11.01	± 9.6 %
10058	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	6.52	± 9.6 %
10059	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	WLAN	2.12	± 9.6 %
10060	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	± 9.6 %
10061	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	WLAN	3.60	± 9.6 %
10062	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	± 9.6 %
10063	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	± 9.6 %
10064	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	± 9.6 %
10065	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	± 9.6 %
10066	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	± 9.6 %
10067	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	WLAN	10.12	± 9.6 %
10068	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	± 9.6 %
10069	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	WLAN	10.56	± 9.6 %
10071	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	9.83	± 9.6 %
10072	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.62	± 9.6 %
10073	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	± 9.6 %
10074	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	± 9.6 %
10075	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	± 9.6 %
10076	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	± 9.6 %
10077	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	± 9.6 %
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	± 9.6 %
10082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	AMPS	4.77	± 9.6 %
10090	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	6.56	± 9.6 %
10097	CAB	UMTS-FDD (HSDPA)	WCDMA	3.98	± 9.6 %
10098	CAB	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	± 9.6 %
10099	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	± 9.6 %
10100	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	± 9.6 %
10101	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10102	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10103	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10104	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	± 9.6 %
10105	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	± 9.6 %
10108	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	± 9.6 %

10109	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10110	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10111	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD	6.44	± 9.6 %
10112	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.59	± 9.6 %
10113	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10114	CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10115	CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	± 9.6 %
10116	CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	± 9.6 %
10117	CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	± 9.6 %
10118	CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	± 9.6 %
10119	CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	8.13	± 9.6 %
10140	CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10141	CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	± 9.6 %
10142	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10143	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	± 9.6 %
10144	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	± 9.6 %
10145	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	± 9.6 %
10146	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	± 9.6 %
10147	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	± 9.6 %
10149	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10150	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10151	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	± 9.6 %
10152	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10153	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	± 9.6 %
10154	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10155	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10156	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	± 9.6 %
10157	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10158	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10159	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	± 9.6 %
10160	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	± 9.6 %
10161	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10162	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	± 9.6 %
10166	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	± 9.6 %
10167	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	± 9.6 %
10168	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	± 9.6 %
10169	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10170	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10171	AAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	± 9.6 %
10172	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10173	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10174	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10175	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10176	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10177	CAI	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10178	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10179	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10180	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10181	CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10182	CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10183	AAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10184	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10185	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	± 9.6 %
10186	AAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10187	CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10188	CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10189	AAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10193	CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	± 9.6 %
10194	CAC	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	± 9.6 %
10195	CAC	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	± 9.6 %
10196	CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10197	CAC	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10198	CAC	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10219	CAC	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	± 9.6 %

10220	CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10221	CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10222	CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	± 9.6 %
10223	CAC	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	± 9.6 %
10224	CAC	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	± 9.6 %
10225	CAB	UMTS-FDD (HSPA+)	WCDMA	5.97	± 9.6 %
10226	CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	± 9.6 %
10227	CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	± 9.6 %
10228	CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	± 9.6 %
10229	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10230	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10231	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	± 9.6 %
10232	CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10233	CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10234	CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10235	CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10236	CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10237	CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10238	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10239	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10240	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10241	CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	± 9.6 %
10242	CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	± 9.6 %
10243	CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	± 9.6 %
10244	CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10245	CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	± 9.6 %
10246	CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10247	CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	± 9.6 %
10248	CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	± 9.6 %
10249	CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10250	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	± 9.6 %
10251	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	± 9.6 %
10252	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10253	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	± 9.6 %
10254	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	± 9.6 %
10255	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	± 9.6 %
10256	CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	± 9.6 %
10257	CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	± 9.6 %
10258	CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	± 9.6 %
10259	CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	± 9.6 %
10260	CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	± 9.6 %
10261	CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10262	CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	± 9.6 %
10263	CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	± 9.6 %
10264	CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	± 9.6 %
10265	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10266	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	± 9.6 %
10267	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10268	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10269	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	± 9.6 %
10270	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	± 9.6 %
10274	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	± 9.6 %
10275	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	± 9.6 %
10277	CAA	PHS (QPSK)	PHS	11.81	± 9.6 %
10278	CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	PHS	11.81	± 9.6 %
10279	CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	PHS	12.18	± 9.6 %
10290	AAB	CDMA2000, RC1, SO55, Full Rate	CDMA2000	3.91	± 9.6 %
10291	AAB	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	± 9.6 %
10292	AAB	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	± 9.6 %
10293	AAB	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	± 9.6 %
10295	AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.49	± 9.6 %
10297	AAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	± 9.6 %
10298	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10299	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	± 9.6 %