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SAR EVALUATION REPORT

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

Date of Testing:
08/26/20 - 09/22/20
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
1M2008190137-01.A3L

FCC ID: **A3LSMF916JPN**

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

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model: SCG05

Equipment Class	Band & Mode	Tx Frequency	SAR					
			1g Head (W/kg)	1g Body-Worn (W/kg)	1g Hotspot (W/kg)	10g Phablet (W/kg)	1g UMPC Body (W/kg)	10g UMPC Extremity (W/kg)
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.15	0.29	0.74	N/A	1.02	1.94
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	< 0.1	0.27	0.99	2.14	0.99	2.86
PCE	UMTS 850	826.40 - 846.60 MHz	0.27	0.33	0.69	N/A	0.89	1.68
PCE	LTE Band 12	699.7 - 715.3 MHz	0.13	0.19	0.48	N/A	0.58	1.56
PCE	LTE Band 13	779.5 - 784.5 MHz	0.18	0.23	0.50	N/A	0.60	1.66
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	0.24	0.33	0.67	N/A	0.80	1.98
PCE	LTE Band 41	2498.5 - 2687.5 MHz	< 0.1	0.20	0.74	1.67	1.04	1.86
DTS	2.4 GHz WLAN	2412 - 2472 MHz	0.54	< 0.1	0.39	N/A	0.48	2.05
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	N/A	N/A	N/A	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.26	< 0.1	N/A	0.94	0.21	1.22
NII	U-NII-2C	5500 - 5720 MHz	0.35	< 0.1	N/A	1.17	0.20	1.13
NII	U-NII-3	5745 - 5825 MHz	0.35	< 0.1	0.21	N/A	0.20	1.05
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.56	< 0.1	0.40	N/A	0.54	1.42
Simultaneous SAR per KDB 690783 D01v01r03:			1.56	0.39	1.58	3.50	1.59	3.99

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

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

Randy Ortanez
President

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

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TABLE OF CONTENTS

1 DEVICE UNDER TEST 3

2 LTE INFORMATION 12

3 INTRODUCTION 13

4 DOSIMETRIC ASSESSMENT 14

5 DEFINITION OF REFERENCE POINTS 15

6 TEST CONFIGURATION POSITIONS 16

7 RF EXPOSURE LIMITS 20

8 FCC MEASUREMENT PROCEDURES 21

9 RF CONDUCTED POWERS 27

10 SYSTEM VERIFICATION 49

11 SAR DATA SUMMARY 54

12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS 80

13 SAR MEASUREMENT VARIABILITY 98

14 ADDITIONAL TESTING PER FCC GUIDANCE 99

15 EQUIPMENT LIST 101

16 MEASUREMENT UNCERTAINTIES 102

17 CONCLUSION 103

18 REFERENCES 104

APPENDIX A: SAR TEST PLOTS
APPENDIX B: SAR DIPOLE VERIFICATION PLOTS
APPENDIX C: SAR TISSUE SPECIFICATIONS
APPENDIX D: SAR SYSTEM VALIDATION
APPENDIX E: DUT ANTENNA DIAGRAM & SAR TEST SETUP PHOTOGRAPHS
APPENDIX F: DOWNLINK LTE CA RF CONDUCTED POWERS
APPENDIX G: POWER REDUCTION VERIFICATION
APPENDIX H: 802.11ax RU SAR EXCLUSION
APPENDIX I: PROBE AND DIPOLE CALIBRATION CERTIFICATES

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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
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 41	Voice/Data	2498.5 - 2687.5 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2472 MHz
U-NII-1	Voice/Data	5180 - 5240 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
MST	Data	555 Hz - 8.33 kHz

1.2 Power Reduction for SAR

This device utilizes a power reduction mechanism for some wireless modes and bands for SAR compliance under portable hotspot conditions and under some conditions when the device is being used in close proximity to the user's hand. All hotspot SAR evaluations for this device were performed at the maximum allowed output power when hotspot is enabled. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device when being used in phablet use conditions. Detailed descriptions of the power reduction mechanism are included in the operational description.

This device uses an independent fixed level power reduction mechanism for WLAN/BT 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. This device also uses a power reduction mechanism for 5GHz WLAN operations when Bluetooth is active. Detailed descriptions of the power reduction mechanism are included in the operational description.

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1.3 Nominal and Maximum Output Power Specifications

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

1.3.1 2G/3G/4G Output Power

GSM/GPRS/EDGE 850 Antenna A										
Power Level		Voice (in dBm)	Data - Burst Average GMSK (in dBm)				Data - Burst Average 8-PSK (in 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
Max	Max allowed power	33.5	33.5	32.5	30.5	28.5	28.0	26.0	24.0	23.0
	Nominal	32.5	32.5	31.5	29.5	27.5	27.0	25.0	23.0	22.0
GSM/GPRS/EDGE 850 Antenna B										
Power Level		Voice (in dBm)	Data - Burst Average GMSK (in dBm)				Data - Burst Average 8-PSK (in 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
Max	Max allowed power	32.0	32.0	31.0	29.0	27.0	26.5	24.5	22.5	21.5
	Nominal	31.0	31.0	30.0	28.0	26.0	25.5	23.5	21.5	20.5
GSM/GPRS/EDGE 1900										
Power Level		Voice (in dBm)	Data - Burst Average GMSK (in dBm)				Data - Burst Average 8-PSK (in 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
Max	Max allowed power	30.5	30.5	29.0	27.5	25.5	27.0	25.0	23.0	22.0
	Nominal	29.5	29.5	28.0	26.5	24.5	26.0	24.0	22.0	21.0
Hotspot Mode Active	Max allowed power	N/A	27.0	26.0	24.5	22.5	24.0	22.0	20.0	19.0
	Nominal	N/A	26.0	25.0	23.5	21.5	23.0	21.0	19.0	18.0
Proximity Sensor Active	Max allowed power	27.0	27.0	26.0	24.5	22.5	24.0	22.0	20.0	19.0
	Nominal	26.0	26.0	25.0	23.5	21.5	23.0	21.0	19.0	18.0

For GSM, the above powers listed are GSM burst average values.

UMTS Band 5 Antenna A (850 MHz)					
Power Level		Modulated Average Output Power (in dBm)			
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6	3GPP DC-HSDPA Rel 8
Max	Max allowed power	25.8	24.8	24.8	24.8
	Nominal	24.8	23.8	23.8	23.8
UMTS Band 5 Antenna B (850 MHz)					
Power Level		Modulated Average Output Power (in dBm)			
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6	3GPP DC-HSDPA Rel 8
Max	Max allowed power	24.3	23.3	23.3	23.3
	Nominal	23.3	22.3	22.3	22.3

Mode / Band		Modulated Average Output Power (in dBm)		
		Max	Hotspot Mode Active	Proximity Sensor Active
LTE FDD Band 12	Max allowed power	25.8	25.8	25.8
	Nominal	24.8	24.8	24.8
LTE FDD Band 13	Max allowed power	25.8	25.8	25.8
	Nominal	24.8	24.8	24.8
LTE FDD Band 5 Antenna A	Max allowed power	25.8	25.8	25.8
	Nominal	24.8	24.8	24.8
LTE FDD Band 5 Antenna B	Max allowed power	24.3	24.3	24.3
	Nominal	23.3	23.3	23.3
LTE TDD Band 41	Max allowed power	23.5	19.5	19.5
	Nominal	22.5	18.5	18.5

For LTE TDD and NR TDD, the above powers listed are TDD burst average values.

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1.3.2 2.4 GHz Maximum Bluetooth and SISO/MIMO WLAN Output Power

Note: Targets for 802.11ax RU operations can be found in Appendix H

Mode	Band	IEEE 802.11 (in dBm)															
		SISO Antenna 1 & Antenna 2								MIMO							
		b		g		n		ax (SU)		b (CDD + STBC)		g (CDD + STBC)		n (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)	
		Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum
2.4 GHz WIFI	2.45 GHz	18.0 ch. 12: 8.0 ch. 13: 2.0	19.0 ch. 12: 9.0 ch. 13: 3.0	17.0 ch. 12: 8.0 ch. 13: 2.0	18.0 ch. 12: 9.0 ch. 13: 3.0	17.0 ch. 1: 15.5 ch. 11: 15.0 ch. 12: 8.0 ch. 13: 2.0	18.0 ch. 1: 16.5 ch. 11: 16.0 ch. 12: 9.0 ch. 13: 3.0	17.0 ch. 1: 16.0 ch. 11: 15.0 ch. 12: 8.0 ch. 13: 2.0	18.0 ch. 1: 17.0 ch. 11: 16.0 ch. 12: 9.0 ch. 13: 3.0	21.0 ch. 12: 8.0 ch. 13: 2.0	22.0 ch. 12: 9.0 ch. 13: 3.0	20.0 ch. 12: 8.0 ch. 13: 2.0	21.0 ch. 12: 9.0 ch. 13: 3.0	20.0 ch. 1: 18.5 ch. 11: 18.0 ch. 12: 8.0 ch. 13: 2.0	21.0 ch. 1: 19.5 ch. 11: 19.0 ch. 12: 9.0 ch. 13: 3.0	20.0 ch. 1: 19.0 ch. 11: 18.0 ch. 12: 8.0 ch. 13: 2.0	21.0 ch. 1: 20.0 ch. 11: 19.0 ch. 12: 9.0 ch. 13: 3.0

Mode		Modulated Average - Antenna 1 & Antenna 2 (dBm)
Bluetooth	Maximum	**20.0**
	Nominal	**19.0**
Bluetooth EDR	Maximum	**16.5**
	Nominal	**15.5**
Bluetooth LE 2Mbps	Maximum	**9.0**
	Nominal	**8.0**
Bluetooth LE 1Mbps, 125/500kbps	Maximum	**9.0**
	Nominal	**8.0**

1.3.3 2.4 GHz Reduced Bluetooth and SISO/MIMO WLAN Output Power

Note: Targets for 802.11ax RU operations can be found in Appendix H

The below table is applicable in the following conditions:

- Simultaneous conditions with 5 GHz WLAN

Mode	Band	IEEE 802.11 (in dBm)															
		SISO Antenna 1 & Antenna 2								MIMO							
		b		g		n		ax (SU)		b (CDD + STBC)		g (CDD + STBC)		n (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)	
		Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum
2.4 GHz WIFI	2.45 GHz	16.0 ch. 12: 8.0 ch. 13: 2.0	17.0 ch. 12: 9.0 ch. 13: 3.0	16.0 ch. 12: 8.0 ch. 13: 2.0	17.0 ch. 12: 9.0 ch. 13: 3.0	16.0 ch. 1: 15.5 ch. 11: 15.0 ch. 12: 8.0 ch. 13: 2.0	17.0 ch. 1: 16.5 ch. 11: 16.0 ch. 12: 9.0 ch. 13: 3.0	16.0 ch. 11: 15.0 ch. 12: 8.0 ch. 13: 2.0	17.0 ch. 11: 16.0 ch. 12: 9.0 ch. 13: 3.0	19.0 ch. 12: 8.0 ch. 13: 2.0	20.0 ch. 12: 9.0 ch. 13: 3.0	19.0 ch. 12: 8.0 ch. 13: 2.0	20.0 ch. 12: 9.0 ch. 13: 3.0	19.0 ch. 1: 18.5 ch. 11: 18.0 ch. 12: 8.0 ch. 13: 2.0	20.0 ch. 1: 19.5 ch. 11: 19.0 ch. 12: 9.0 ch. 13: 3.0	19.0 ch. 11: 18.0 ch. 12: 8.0 ch. 13: 2.0	20.0 ch. 11: 19.0 ch. 12: 9.0 ch. 13: 3.0

The below table is applicable in the following conditions:

- Head Conditions
- Head Conditions during simultaneous conditions with 5 GHz WLAN

Mode	Band	IEEE 802.11 (in dBm)															
		SISO Antenna 1 & Antenna 2								MIMO							
		b		g		n		ax (SU)		b (CDD + STBC)		g (CDD + STBC)		n (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)	
		Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum
2.4 GHz WIFI	2.45 GHz	12.0 ch. 12: 8.0 ch. 13: 2.0	13.0 ch. 12: 9.0 ch. 13: 3.0	12.0 ch. 12: 8.0 ch. 13: 2.0	13.0 ch. 12: 9.0 ch. 13: 3.0	12.0 ch. 12: 8.0 ch. 13: 2.0	13.0 ch. 12: 9.0 ch. 13: 3.0	12.0 ch. 12: 8.0 ch. 13: 2.0	13.0 ch. 12: 9.0 ch. 13: 3.0	15.0 ch. 12: 8.0 ch. 13: 2.0	16.0 ch. 12: 9.0 ch. 13: 3.0	15.0 ch. 12: 8.0 ch. 13: 2.0	16.0 ch. 12: 9.0 ch. 13: 3.0	15.0 ch. 12: 8.0 ch. 13: 2.0	16.0 ch. 12: 9.0 ch. 13: 3.0	15.0 ch. 12: 8.0 ch. 13: 2.0	16.0 ch. 12: 9.0 ch. 13: 3.0

The below table is applicable in the following conditions:

- Head Conditions

Mode		Modulated Average - Antenna 1 & Antenna 2 (dBm)
Bluetooth	Maximum	**14.0**
	Nominal	**13.0**
Bluetooth EDR	Maximum	**10.0**
	Nominal	**9.0**
Bluetooth LE 2Mbps	Maximum	**9.0**
	Nominal	**8.0**
Bluetooth LE 1Mbps, 125/500kbps	Maximum	**9.0**
	Nominal	**8.0**

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1.3.4 5 GHz Maximum SISO/MIMO WLAN Output Power

Note: Targets for 802.11ax RU operations can be found in Appendix H

Mode	Band	IEEE 802.11 (in dBm)															
		SISO Antenna 1 & Antenna 2								MIMO							
		a		n		ac		ax (SU)		a (CDD + STBC)		n (CDD + STBC, SDM)		ac (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)	
		Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum
5 GHz WIFI (20MHz BW)	5200 MHz	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	20.0	21.0	20.0	21.0	20.0	21.0	20.0	21.0
	5300 MHz	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	20.0	21.0	20.0	21.0	20.0	21.0	20.0	21.0
	5500 MHz	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	20.0	21.0	20.0	21.0	20.0	21.0	20.0	21.0
	5800 MHz	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	20.0	21.0	20.0	21.0	20.0	21.0	20.0	21.0
5 GHz WIFI (40MHz BW)	5200 MHz			16.0	17.0	16.0	17.0	16.0	17.0			19.0	20.0	19.0	20.0	19.0	20.0
	5300 MHz			16.0	17.0	16.0	17.0	16.0	17.0			19.0	20.0	19.0	20.0	19.0	20.0
	5500 MHz			16.0	17.0	16.0	17.0	16.0	17.0			19.0	20.0	19.0	20.0	19.0	20.0
	5800 MHz			16.0	17.0	16.0	17.0	16.0	17.0			19.0	20.0	19.0	20.0	19.0	20.0
5 GHz WIFI (80MHz BW)	5200 MHz					15.0	16.0	15.0	16.0					18.0	19.0	18.0	19.0
	5300 MHz					15.0	16.0	15.0	16.0					18.0	19.0	18.0	19.0
	5500 MHz					15.0	16.0	15.0	16.0					18.0	19.0	18.0	19.0
	5800 MHz					15.0	16.0	15.0	16.0					18.0	19.0	18.0	19.0

1.3.5 5 GHz Reduced WLAN Output Power

Note: Targets for 802.11ax RU operations can be found in Appendix H

The below table is applicable in the following conditions:

- Simultaneous conditions with 2.4 GHz WLAN and/or 2.4 GHz Bluetooth

Mode	Band	IEEE 802.11 (in dBm)															
		SISO Antenna 1 & Antenna 2								MIMO							
		a		n		ac		ax (SU)		a (CDD + STBC)		n (CDD + STBC, SDM)		ac (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)	
		Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum
5 GHz WIFI (20MHz BW)	5200 MHz	13.0	14.0	13.0	14.0	13.0	14.0	13.0	14.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0
	5300 MHz	13.0	14.0	13.0	14.0	13.0	14.0	13.0	14.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0
	5500 MHz	13.0	14.0	13.0	14.0	13.0	14.0	13.0	14.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0
	5800 MHz	13.0	14.0	13.0	14.0	13.0	14.0	13.0	14.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0
5 GHz WIFI (40MHz BW)	5200 MHz			13.0	14.0	13.0	14.0	13.0	14.0			16.0	17.0	16.0	17.0	16.0	17.0
	5300 MHz			13.0	14.0	13.0	14.0	13.0	14.0			16.0	17.0	16.0	17.0	16.0	17.0
	5500 MHz			13.0	14.0	13.0	14.0	13.0	14.0			16.0	17.0	16.0	17.0	16.0	17.0
	5800 MHz			13.0	14.0	13.0	14.0	13.0	14.0			16.0	17.0	16.0	17.0	16.0	17.0
5 GHz WIFI (80MHz BW)	5200 MHz					13.0	14.0	13.0	14.0					16.0	17.0	16.0	17.0
	5300 MHz					13.0	14.0	13.0	14.0					16.0	17.0	16.0	17.0
	5500 MHz					13.0	14.0	13.0	14.0					16.0	17.0	16.0	17.0
	5800 MHz					13.0	14.0	13.0	14.0					16.0	17.0	16.0	17.0

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The below table is applicable in the following conditions:

- Head Conditions
- Head Conditions during simultaneous conditions with 2.4 GHz WLAN

Mode	Band	IEEE 802.11 (in dBm)															
		SISO Antenna 1 & Antenna 2								MIMO							
		a		n		ac		ax (SU)		a (CDD + STBC)		n (CDD + STBC, SDM)		ac (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)	
		Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum
5 GHz WIFI (20MHz BW)	5200 MHz	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	13.0	14.0	13.0	14.0	13.0	14.0	13.0	14.0
	5300 MHz	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	13.0	14.0	13.0	14.0	13.0	14.0	13.0	14.0
	5500 MHz	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	13.0	14.0	13.0	14.0	13.0	14.0	13.0	14.0
	5800 MHz	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	13.0	14.0	13.0	14.0	13.0	14.0	13.0	14.0
5 GHz WIFI (40MHz BW)	5200 MHz			10.0	11.0	10.0	11.0	10.0	11.0			13.0	14.0	13.0	14.0	13.0	14.0
	5300 MHz			10.0	11.0	10.0	11.0	10.0	11.0			13.0	14.0	13.0	14.0	13.0	14.0
	5500 MHz			10.0	11.0	10.0	11.0	10.0	11.0			13.0	14.0	13.0	14.0	13.0	14.0
	5800 MHz			10.0	11.0	10.0	11.0	10.0	11.0			13.0	14.0	13.0	14.0	13.0	14.0
5 GHz WIFI (80MHz BW)	5200 MHz					10.0	11.0	10.0	11.0					13.0	14.0	13.0	14.0
	5300 MHz					10.0	11.0	10.0	11.0					13.0	14.0	13.0	14.0
	5500 MHz					10.0	11.0	10.0	11.0					13.0	14.0	13.0	14.0
	5800 MHz					10.0	11.0	10.0	11.0					13.0	14.0	13.0	14.0

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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 E. This device is considered a "phablet" when it is in closed configuration and a "UMPC mini-tablet" when it is in open configuration. Exact antenna dimensions and separation distances are shown in the Technical Descriptions in the FCC filing

Table 1-1
Device Edges/Sides for Closed Configuration SAR Testing

Mode	Back	Front	Top	Bottom	Right	Left
GPRS 850 Ant A	Yes	Yes	No	Yes	Yes	No
GPRS 850 Ant B	Yes	Yes	No	Yes	Yes	Yes
GPRS 1900	Yes	Yes	No	Yes	Yes	Yes
UMTS 850 Ant A	Yes	Yes	No	Yes	Yes	No
UMTS 850 Ant B	Yes	Yes	No	Yes	Yes	Yes
LTE Band 12	Yes	Yes	No	Yes	Yes	No
LTE Band 13	Yes	Yes	No	Yes	Yes	No
LTE Band 5 (Cell) Ant A	Yes	Yes	No	Yes	Yes	No
LTE Band 5 (Cell) Ant B	Yes	Yes	No	Yes	Yes	Yes
LTE Band 41	Yes	Yes	No	Yes	Yes	Yes
2.4 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
2.4 GHz WLAN Ant 2	Yes	Yes	Yes	No	Yes	Yes
5 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 2	Yes	Yes	Yes	No	Yes	Yes
Bluetooth Ant 1	Yes	Yes	Yes	No	No	Yes
Bluetooth Ant 2	Yes	Yes	Yes	No	Yes	Yes

Table 1-2
Device Edges/Sides for Open Configuration SAR Testing

Mode	Back	Front	Top	Bottom	Right	Left
GPRS 850	Yes	Yes	No	Yes	Yes	No
GPRS 1900	Yes	Yes	No	Yes	Yes	No
UMTS 850 Ant A	Yes	Yes	No	Yes	Yes	No
UMTS 850 Ant B	Yes	Yes	No	Yes	Yes	No
LTE Band 12	Yes	Yes	No	Yes	Yes	No
LTE Band 13	Yes	Yes	No	Yes	Yes	No
LTE Band 5 (Cell) Ant A	Yes	Yes	No	Yes	Yes	No
LTE Band 5 (Cell) Ant B	Yes	Yes	No	Yes	Yes	No
LTE Band 41	Yes	Yes	No	Yes	Yes	No
2.4 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	No
2.4 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	No
5 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN MIMO	Yes	Yes	Yes	No	No	Yes
Bluetooth Ant 1	Yes	Yes	Yes	No	No	No
Bluetooth Ant 2	Yes	Yes	Yes	No	No	Yes

Note: Particular DUT edges were not required to be evaluated for wireless router SAR, phablet SAR or UMPC mini-tablet SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v02r01 Section III, FCC KDB Publication 941225 D07v01r02 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-1, U-NII-2A, U-NII-2C operations are disabled.

1.5 Near Field Communications (NFC) Antenna

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

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1.6 Simultaneous Transmission Capabilities

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

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

Table 1-3
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Phablet	UMPC Body	UMPC Extremity	Notes
1	GSM voice + 2.4 GHz Bluetooth Ant 1	Yes^	Yes	N/A	Yes	Yes	Yes	^ Bluetooth Tethering is considered
2	GSM voice + 2.4 GHz Bluetooth Ant 2	Yes^	Yes	N/A	Yes	Yes	Yes	^ Bluetooth Tethering is considered
3	GSM voice + 2.4 GHz WLAN MIMO	Yes	Yes	N/A	Yes	Yes	Yes	
4	GSM voice + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	Yes	Yes	
5	GSM voice + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	Yes	Yes	
6	GSM voice + 2.4 GHz Bluetooth Ant 1 + 5 GHz WLAN MIMO	Yes^	Yes	N/A	Yes	Yes	Yes	^ Bluetooth Tethering is considered
7	GSM voice + 2.4 GHz Bluetooth Ant 2 + 5 GHz WLAN MIMO	Yes^	Yes	N/A	Yes	Yes	Yes	^ Bluetooth Tethering is considered
8	GSM voice + 2.4 GHz Bluetooth Ant 1 + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO	Yes^	Yes	N/A	Yes	Yes	Yes	^ Bluetooth Tethering is considered
9	UMTS + 2.4 GHz Bluetooth Ant 1	Yes^	Yes	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered
10	UMTS + 2.4 GHz Bluetooth Ant 2	Yes^	Yes	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered
11	UMTS + 2.4 GHz WLAN MIMO	Yes	Yes	Yes	Yes	Yes	Yes	
12	UMTS + 5 GHz WLAN MIMO	Yes	Yes	Yes	Yes	Yes	Yes	
13	UMTS + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	Yes	Yes	Yes	Yes	Yes	
14	UMTS + 2.4 GHz Bluetooth Ant 1 + 5 GHz WLAN MIMO	Yes^	Yes	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered
15	UMTS + 2.4 GHz Bluetooth Ant 2 + 5 GHz WLAN MIMO	Yes^	Yes	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered
16	UMTS + 2.4 GHz Bluetooth Ant 1 + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO	Yes^	Yes	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered
17	LTE + 2.4 GHz Bluetooth Ant 1	Yes^	Yes	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered
18	LTE + 2.4 GHz Bluetooth Ant 2	Yes^	Yes	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered
19	LTE + 2.4 GHz WLAN MIMO	Yes	Yes	Yes	Yes	Yes	Yes	
20	LTE + 5 GHz WLAN MIMO	Yes	Yes	Yes	Yes	Yes	Yes	
21	LTE + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	Yes	Yes	Yes	Yes	Yes	
22	LTE + 2.4 GHz Bluetooth Ant 1 + 5 GHz WLAN MIMO	Yes^	Yes	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered
23	LTE + 2.4 GHz Bluetooth Ant 2 + 5 GHz WLAN MIMO	Yes^	Yes	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered
24	LTE + 2.4 GHz Bluetooth Ant 1 + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO	Yes^	Yes	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered
25	GPRS/EDGE + 2.4 GHz Bluetooth Ant 1	N/A	N/A	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered
26	GPRS/EDGE + 2.4 GHz Bluetooth Ant 2	N/A	N/A	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered
27	GPRS/EDGE + 2.4 GHz WLAN MIMO	N/A	N/A	Yes	Yes	Yes	Yes	
28	GPRS/EDGE + 5 GHz WLAN MIMO	N/A	N/A	Yes	Yes	Yes	Yes	
29	GPRS/EDGE + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	N/A	N/A	Yes	Yes	Yes	Yes	
30	GPRS/EDGE + 2.4 GHz Bluetooth Ant 1 + 5 GHz WLAN MIMO	N/A	N/A	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered
31	GPRS/EDGE + 2.4 GHz Bluetooth Ant 2 + 5 GHz WLAN MIMO	N/A	N/A	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered
32	GPRS/EDGE + 2.4 GHz Bluetooth Ant 1 + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO	N/A	N/A	Yes^	Yes	Yes	Yes	^ Bluetooth Tethering is considered

1. 2.4 GHz WLAN Ant 1, and 2.4 GHz Bluetooth Ant 1/2 share the same antenna path and cannot transmit simultaneously. 2.4 GHz WLAN Ant 2 and 2.4 GHz Bluetooth Ant 2 share the same antenna path and cannot transmit simultaneously.
2. 2.4 GHz Bluetooth can simultaneously transmit with 5 GHz WLAN MIMO, not 5 GHz WLAN SISO.
3. All licensed modes cannot transmit simultaneously with 2.4/5 GHz WLAN SISO
4. All licensed modes share the same antenna path and cannot transmit simultaneously.
5. 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.
6. Per the manufacturer, WIFI Direct is not expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Therefore, there are no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table.
7. 5 GHz Wireless Router is only supported for the U-NII-3 by S/W, therefore U-NII-1, U-NII-2A, and U-NII-2C were not evaluated for wireless router conditions.
8. This device supports 2x2 MIMO Tx for WLAN 802.11a/g/n/ac/ax. 802.11a/g/n/ac/ax supports CDD and STBC and 802.11n/ac/ax additionally supports SDM. Each WLAN antenna can transmit independently or together when operating with MIMO.
9. This device supports VOLTE.
10. This device supports VOWIFI.
11. This device supports Bluetooth Tethering.

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1.7 Miscellaneous SAR Test Considerations

(A) WIFI/BT

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

Since Wireless Router operations are not allowed by the chipset firmware using U-NII-1, U-NII-2A & U-NII-2C WIFI, only 2.4 GHz WLAN, 2.4 GHz Bluetooth, 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 802.11ax with the following features:

a) Up to 80 MHz Bandwidth only for 5 GHz
b) Up to 20 MHz Bandwidth only for 2.4 GHz
c) No aggregate channel configurations
d) 2 Tx antenna output
e) Up to 1024 QAM is supported
f) TDWR and Band gap channels are supported for 5 GHz
g) MU-MIMO UL Operations are not supported

Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" when it is in a closed configuration 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-1, U-NII-2A & U-NII-2C WLAN, phablet SAR tests were performed. Phablet SAR was not evaluated for 2.4 GHz WLAN, 2.4 GHz Bluetooth, and U-NII-3 WLAN operations since wireless router 1g SAR was < 1.2 W/kg.

Per April 2019 TCB Workshop Notes, SAR testing was not required for 802.11ax when applying the initial test configuration procedures of KDB 248227, with 802.11ax considered a higher order 802.11 mode.

(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. 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 F.

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Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" when it is closed configuration 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. Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6 (See Section 6.9 for more information)

This device supports downlink 4x4 MIMO operations for some LTE Bands. Per May 2017 TCB Workshop Notes, SAR for 4x4 DL MIMO was not needed since the maximum average output power in 4x4 DL MIMO mode was not more than 0.25 dB higher than the maximum output power with 4x4 DL MIMO inactive. Additionally, SAR for 4x4 MIMO Downlink Carrier Aggregation was not needed since the maximum average output power in 4x4 MIMO Downlink Carrier Aggregation mode was not more than 0.25 dB higher than the maximum output power with 4x4 MIMO Downlink and downlink carrier aggregation inactive.

This device supports LTE Carrier Aggregation (CA) for LTE Band 41 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per 2017 Fall TCB Workshop Notes.

This device supports 64QAM and 256QAM on the uplink and 256QAM on the downlink for LTE Operations. Conducted powers for 64QAM and 256QAM uplink configurations were measured per Section 5.1 of FCC KDB Publication 941225D05v02r05. SAR was not required for 64QAM or 256QAM since the highest maximum output power for 64QAM and 256QAM is ≤ ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45W/kg, per Section 5.2.4 of FCC KDB Publication 941225 D05v02r05.

For UMPC conditions, GSM/GPRS/EDGE 850 Antenna B operations have been disabled.

1.8 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r04, D05Av01r02, D06v02r01 (2G/3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D04v01r03 (Phablet Procedures)
- FCC KDB Publication 616217 D04v01r02 (Tablet, Proximity Sensor)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- May 2017 TCB Workshop Notes (LTE 4x4 Downlink MIMO)
- April 2018 TCB Workshop Notes (LTE Carrier Aggregation)
- April 2019 TCB Workshop Notes (IEEE 802.11ax, Dynamic Antenna Tuning)
- FCC KDB Publication 941225 D07v01r02 (UMPC Mini-Tablet Devices)

1.9 Device Serial Numbers

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

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2 LTE INFORMATION

LTE Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 13 (779.5 - 784.5 MHz)				
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
Channel Bandwidths	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 13: 5 MHz, 10 MHz				
	LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)		707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)		707.5 (23095)	711 (23130)	
LTE Band 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 41: 5 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
UE Category	DL UE Cat 20, UL UE Cat 18				
Modulations Supported in UL	QPSK, 16QAM, 64QAM, 256QAM				
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 16. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release 16 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, WIFI Offloading, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

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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]

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4 DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

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

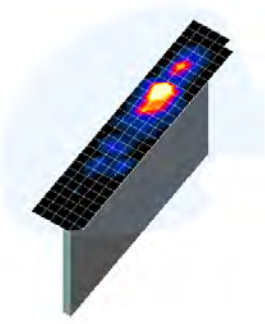

Figure 4-1
Sample SAR Area Scan

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

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5 DEFINITION OF REFERENCE POINTS

5.1 EAR REFERENCE POINT

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

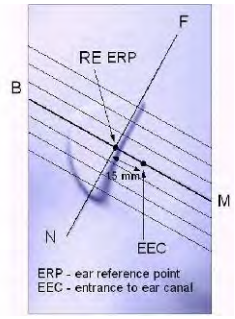

Figure 5-1
Close-Up Side view of ERP

5.2 HANDSET REFERENCE POINTS

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The test device was placed in a normal operating position with the acoustic output located along the "vertical centerline" on the front of the device aligned to the "ear reference point" (See Figure 5-3). The acoustic output was 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

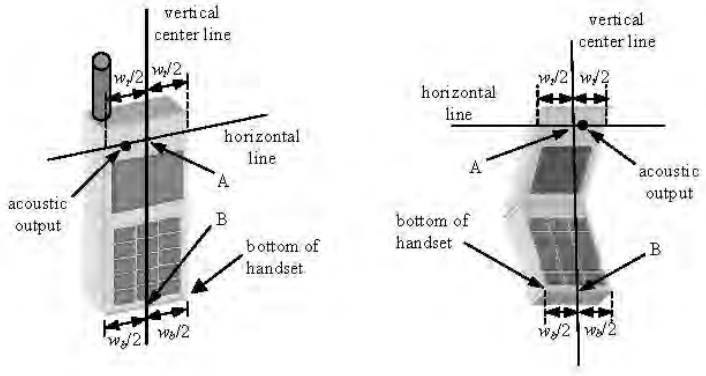

Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

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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).

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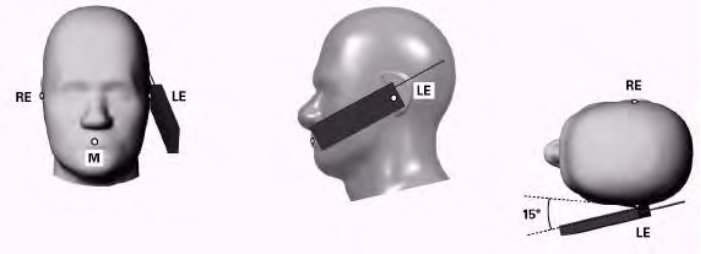

Figure 6-2 Front, Side and Top View of Ear/15º Tilt Position

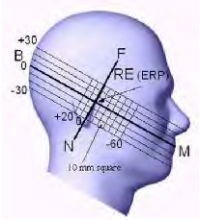

Figure 6-3
Side view w/ relevant markings

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.

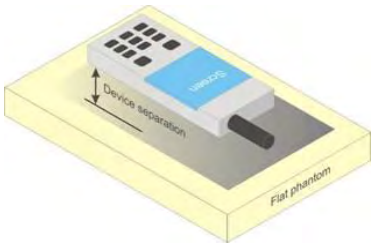

Figure 6-4
Sample Body-Worn Diagram

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

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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

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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.

6.9 Proximity Sensor Considerations

This device uses a power reduction mechanism to reduce output powers in certain use conditions when the device is used close the user's body.

When the device's antenna is within a certain distance of the user, the sensor activates and reduces the maximum allowed output power. However, the sensor is not active when the device is moved beyond the sensor triggering distance and the maximum output power is no longer limited. Therefore, additional evaluation is needed in the vicinity of the triggering distance to ensure SAR is compliant when the device is allowed to operate at a non-reduced output power level. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional test positions. Sensor triggering distance summary data is included in Appendix G.

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

6.10 UMPC Mini-Tablet Configurations

Small hand-held tablets (and devices of similar form factors that are designed primarily for interactive hand-held use next to or near the body of users) require body SAR and extremity SAR evaluation. These types of mini-tablets are normally optimized for mobile web access and multimedia use. UMPC test procedures are applicable for devices with displays and overall diagonal dimension ≤ 20 cm. Devices are to be set up according to KDB publication 941225 D07v01r02 requirements and are configured with maximum output power during SAR assessment for a worst case SAR evaluation.

Per KDB Publication 941225 D07v01r02, UMPC mini-tablet devices must be tested for all surfaces and edges ≤ 25 mm from a transmitting antenna. A test separation distance of 10 mm may be considered for 1g SAR, with the addition of 10g SAR measurement at 0 mm test separation distance for all measured 1g SAR (at 10 mm) configurations to address hand exposure.

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7 RF EXPOSURE LIMITS

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

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

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

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

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8 FCC MEASUREMENT PROCEDURES

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

8.1 Measured and Reported SAR

Per FCC KDB Publication 447498 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 UMTS

8.4.1 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.

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8.4.2 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.

8.4.3 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.

8.4.4 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.

8.4.5 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.

8.4.6 SAR Measurement Conditions for DC-HSDPA

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

8.5 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).

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8.5.1 Spectrum Plots for RB Configurations

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

8.5.2 MPR

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

8.5.3 A-MPR

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

8.5.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 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.

8.5.5 TDD

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

8.5.6 Downlink Only Carrier Aggregation

Conducted power measurements with LTE Carrier Aggregation (CA) (downlink only) active are made in accordance to KDB Publication 941225 D05Av01r02. The RRC connection is only handled by one cell, the primary component carrier (PCC) for downlink and uplink communications. After making a data connection to the PCC, the UE device adds secondary component carrier(s) (SCC) on the downlink only. All uplink communications and acknowledgements remain identical to specifications when downlink

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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.

8.6 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.

8.6.1 General Device Setup

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

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.

8.6.2 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.

8.6.3 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.

8.6.4 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

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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.

8.6.5 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/ax 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.

8.6.6 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. Per April 2019 TCB Workshop guidance, 802.11ax was considered the highest order 802.11 mode. 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.

8.6.7 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 8.6.6). When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

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8.6.8 Subsequent Test Configuration Procedures

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

8.6.9 MIMO SAR considerations

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

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9 RF CONDUCTED POWERS

9.1 GSM Conducted Powers

Table 9-1
Maximum Conducted Power for GSM 850 Antenna A and GSM 1900 Antenna B

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	32.78	32.67	31.59	**29.38**	27.11	27.01	24.90	22.95	21.89
	190	32.66	32.69	31.75	**29.32**	27.12	27.08	25.12	23.08	21.95
	251	32.42	32.39	31.71	**29.44**	27.08	26.81	24.89	22.91	21.77
GSM 1900	512	29.10	28.89	27.41	**25.85**	23.93	24.95	23.40	21.41	20.22
	661	28.80	28.89	27.50	**25.93**	23.85	25.02	23.39	21.42	20.29
	810	28.97	28.91	27.39	**25.77**	23.74	24.92	23.40	21.38	20.12

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	23.58	23.47	25.40	**24.95**	23.93	17.81	18.71	18.52	18.71
	190	23.46	23.49	25.56	**24.89**	23.94	17.88	18.93	18.65	18.77
	251	23.22	23.19	25.52	**25.01**	23.90	17.61	18.70	18.48	18.59
GSM 1900	512	19.90	19.69	21.22	**21.42**	20.75	15.75	17.21	16.98	17.04
	661	19.60	19.69	21.31	**21.50**	20.67	15.82	17.20	16.99	17.11
	810	19.77	19.71	21.20	**21.34**	20.56	15.72	17.21	16.95	16.94

GSM 850	**Frame Avg.Targets:**	23.30	23.30	25.31	**25.07**	24.32	17.80	18.81	18.57	18.82
GSM 1900		20.30	20.30	21.81	**22.07**	21.32	16.80	17.81	17.57	17.82

Table 9-2
Maximum Conducted Power for GSM 850 Antenna B

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	31.25	31.23	30.21	**28.18**	26.20	25.38	23.47	21.77	20.52
	190	31.38	31.38	30.40	**28.35**	26.40	25.51	23.61	21.88	20.61
	251	31.02	31.01	30.00	**27.97**	26.07	25.22	23.31	21.44	20.50

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	22.05	22.03	24.02	**23.75**	23.02	16.18	17.28	17.34	17.34
	190	22.18	22.18	24.21	**23.92**	23.22	16.31	17.42	17.45	17.43
	251	21.82	21.81	23.81	**23.54**	22.89	16.02	17.12	17.01	17.32

GSM 850	**Frame Avg.Targets:**	21.80	21.80	23.81	**23.57**	22.82	16.30	17.31	17.07	17.32

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Table 9-3
Reduced Conducted Power – Hotspot Mode Active, Grip Sensor and/or Earjack Mode Active

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 1900	512	25.39	25.30	24.32	**22.61**	20.57	22.19	20.25	18.44	17.10
	661	25.63	25.78	24.26	**22.53**	20.76	22.58	20.31	18.34	17.22
	810	25.33	25.25	24.20	**22.50**	20.79	22.45	20.29	18.32	17.09

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 1900	512	16.19	16.10	18.13	**18.18**	17.39	12.99	14.06	14.01	13.92
	661	16.43	16.58	18.07	**18.10**	17.58	13.38	14.12	13.91	14.04
	810	16.13	16.05	18.01	**18.07**	17.61	13.25	14.10	13.89	13.91
GSM 1900	**Frame Avg.Targets:**	16.80	16.80	18.81	**19.07**	18.32	13.80	14.81	14.57	14.82

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 8-PSK modulation do not have an impact on output power.

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

Figure 9-1
Power Measurement Setup

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9.2 UMTS Conducted Powers

Table 9-4
Maximum Conducted Power for Antenna A

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	24.38	24.41	24.33	-
99		12.2 kbps AMR	24.39	24.44	24.31	-
6	HSDPA	Subtest 1	23.31	23.31	23.18	0
6		Subtest 2	23.31	23.33	23.23	0
6		Subtest 3	22.81	22.82	22.71	0.5
6		Subtest 4	22.82	22.83	22.70	0.5
6	HSUPA	Subtest 1	23.31	23.33	23.22	0
6		Subtest 2	21.32	21.32	21.21	2
6		Subtest 3	22.30	22.33	22.20	1
6		Subtest 4	21.31	21.30	21.20	2
6		Subtest 5	23.30	23.33	23.19	0
8	DC-HSDPA	Subtest 1	23.29	23.30	23.23	0
8		Subtest 2	23.30	23.32	23.21	0
8		Subtest 3	22.79	22.81	22.70	0.5
8		Subtest 4	22.80	22.81	22.70	0.5

Table 9-5
Maximum Conducted Power for Antenna B

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	23.26	23.28	23.24	-
99		12.2 kbps AMR	23.25	23.26	23.24	-
6	HSDPA	Subtest 1	22.24	22.18	22.00	0
6		Subtest 2	22.23	22.22	22.03	0
6		Subtest 3	21.67	21.70	21.53	0.5
6		Subtest 4	21.77	21.71	21.40	0.5
6	HSUPA	Subtest 1	22.25	22.21	22.06	0
6		Subtest 2	20.27	20.21	20.03	2
6		Subtest 3	21.26	21.21	21.05	1
6		Subtest 4	20.27	20.20	20.01	2
6		Subtest 5	22.26	22.20	22.02	0
8	DC-HSDPA	Subtest 1	22.26	22.21	22.07	0
8		Subtest 2	22.24	22.21	22.02	0
8		Subtest 3	21.75	21.69	21.51	0.5
8		Subtest 4	21.75	21.68	21.53	0.5

0

DC-HSDPA considerations

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

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

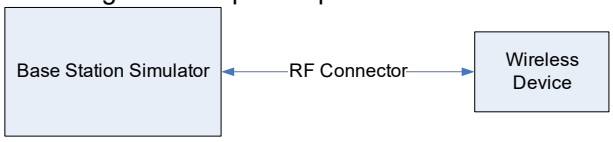

Figure 9-2
Power Measurement Setup

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9.3 LTE Conducted Powers

9.3.1 LTE Band 12

Table 9-6
LTE Band 12 Maximum Conducted Power - 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	**25.09**	0	0
	1	25	24.72		0
	1	49	24.64		0
	25	0	23.89	0-1	1
	25	12	**23.93**		1
	25	25	23.74		1
	50	0	23.81		1
16QAM	1	0	24.51	0-1	1
	1	25	24.26		1
	1	49	24.11		1
	25	0	22.95	0-2	2
	25	12	23.01		2
	25	25	22.70		2
	50	0	22.93		2
64QAM	1	0	23.30	0-2	2
	1	25	22.88		2
	1	49	22.84		2
	25	0	22.02	0-3	3
	25	12	21.80		3
	25	25	21.84		3
	50	0	21.91		3
256QAM	1	0	19.81	0-5	5
	1	25	20.01		5
	1	49	19.69		5
	25	0	19.90		5
	25	12	20.00		5
	25	25	19.80		5
	50	0	20.02		5

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

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

LTE Band 12 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23035 (701.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23155 (713.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.10	24.84	24.64	0	0
	1	12	24.97	24.70	24.51		0
	1	24	24.85	24.57	24.41		0
	12	0	24.14	23.90	23.67	0-1	1
	12	6	24.06	23.87	23.66		1
	12	13	23.97	23.73	23.50		1
	25	0	24.06	23.81	23.54		1
16QAM	1	0	24.45	24.19	23.99	0-1	1
	1	12	24.53	24.06	24.07		1
	1	24	24.31	23.86	23.76		1
	12	0	23.20	22.93	22.74	0-2	2
	12	6	23.22	22.95	22.79		2
	12	13	23.00	22.75	22.56		2
	25	0	23.11	22.90	22.63		2
64QAM	1	0	23.38	23.08	22.97	0-2	2
	1	12	23.21	22.98	22.70		2
	1	24	23.06	22.88	22.68		2
	12	0	22.18	21.92	21.70	0-3	3
	12	6	22.16	21.95	21.69		3
	12	13	22.03	21.76	21.56		3
	25	0	22.09	21.87	21.66		3
256QAM	1	0	20.37	20.04	19.87	0-5	5
	1	12	20.23	20.01	19.80		5
	1	24	20.15	19.79	19.60		5
	12	0	20.19	19.93	19.72		5
	12	6	20.13	19.96	19.71		5
	12	13	19.98	19.81	19.52		5
	25	0	20.11	19.85	19.64		5

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

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23025 (700.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23165 (714.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.09	24.87	24.53	0	0
	1	7	25.03	24.84	24.40		0
	1	14	24.86	24.61	24.31		0
	8	0	24.06	23.88	23.55	0-1	1
	8	4	24.05	23.83	23.53		1
	8	7	23.98	23.74	23.46		1
	15	0	24.01	23.81	23.52		1
16QAM	1	0	24.40	24.19	23.88	0-1	1
	1	7	24.30	24.11	23.76		1
	1	14	24.22	23.97	23.70		1
	8	0	23.19	23.07	22.70	0-2	2
	8	4	23.11	22.95	22.65		2
	8	7	23.08	22.83	22.53		2
	15	0	23.04	22.88	22.59		2
64QAM	1	0	23.32	23.14	22.77	0-2	2
	1	7	23.22	22.99	22.65		2
	1	14	23.10	23.00	22.63		2
	8	0	22.14	21.93	21.60	0-3	3
	8	4	22.05	21.94	21.61		3
	8	7	22.01	21.79	21.50		3
	15	0	22.07	21.94	21.63		3
256QAM	1	0	20.28	20.00	19.75	0-5	5
	1	7	20.17	19.93	19.63		5
	1	14	20.11	19.85	19.51		5
	8	0	20.14	19.93	19.61		5
	8	4	20.07	19.95	19.61		5
	8	7	20.03	19.88	19.54		5
	15	0	20.04	19.94	19.61		5

Table 9-9
LTE Band 12 Maximum Conducted Power - 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	24.98	24.63	24.36	0	0
	1	2	25.02	24.65	24.38		0
	1	5	24.87	24.52	24.26		0
	3	0	24.96	24.63	24.35		0
	3	2	24.98	24.61	24.35		0
	3	3	24.87	24.55	24.36		0
	6	0	24.02	23.69	23.44	0-1	1
16QAM	1	0	24.31	23.98	23.69	0-1	1
	1	2	24.36	23.99	23.74		1
	1	5	24.18	23.82	23.60		1
	3	0	24.11	23.85	23.57		1
	3	2	24.16	23.84	23.56		1
	3	3	24.08	23.77	23.51		1
	6	0	23.10	22.76	22.51	0-2	2
64QAM	1	0	23.19	22.88	22.63	0-2	2
	1	2	23.28	22.96	22.68		2
	1	5	23.15	22.85	22.60		2
	3	0	23.14	22.81	22.53		2
	3	2	23.21	22.86	22.61		2
	3	3	23.07	22.71	22.55		2
	6	0	22.09	21.77	21.48	0-3	3
256QAM	1	0	20.18	19.82	19.61	0-5	5
	1	2	20.16	19.86	19.58		5
	1	5	20.08	19.73	19.47		5
	3	0	20.18	19.86	19.58		5
	3	2	20.25	19.87	19.62		5
	3	3	20.09	19.77	19.55		5
	6	0	20.06	19.72	19.45		5

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9.3.2 LTE Band 13

Table 9-10
LTE Band 13 Maximum Conducted Power - 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	24.95	0	0
	1	25	24.93		0
	1	49	**25.18**		0
	25	0	24.15	0-1	1
	25	12	24.16		1
	25	25	**24.19**		1
	50	0	24.16		1
16QAM	1	0	24.25	0-1	1
	1	25	24.35		1
	1	49	24.59		1
	25	0	23.17	0-2	2
	25	12	23.13		2
	25	25	23.22		2
	50	0	23.10		2
64QAM	1	0	23.21	0-2	2
	1	25	23.21		2
	1	49	23.42		2
	25	0	22.15	0-3	3
	25	12	22.17		3
	25	25	22.26		3
	50	0	22.14		3
256QAM	1	0	20.01	0-5	5
	1	25	20.03		5
	1	49	20.01		5
	25	0	20.03		5
	25	12	20.05		5
	25	25	20.15		5
	50	0	20.17		5

Table 9-11
LTE Band 13 Maximum Conducted Power - 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	24.92	0	0
	1	12	25.04		0
	1	24	25.03		0
	12	0	24.11	0-1	1
	12	6	24.13		1
	12	13	24.18		1
	25	0	24.13		1
16QAM	1	0	24.32	0-1	1
	1	12	24.33		1
	1	24	24.45		1
	12	0	23.18	0-2	2
	12	6	23.19		2
	12	13	23.28		2
	25	0	23.15		2
64QAM	1	0	23.23	0-2	2
	1	12	23.32		2
	1	24	23.41		2
	12	0	22.13	0-3	3
	12	6	22.19		3
	12	13	22.28		3
	25	0	22.18		3
256QAM	1	0	20.04	0-5	5
	1	12	20.03		5
	1	24	20.08		5
	12	0	20.05		5
	12	6	20.13		5
	12	13	20.15		5
	25	0	20.11		5

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.

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9.3.3 LTE Band 5

Table 9-12
LTE Band 5 (Cell) Maximum Conducted Power for Antenna A - 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20525 (836.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**24.74**	0	0
	1	25	24.72		0
	1	49	24.54		0
	25	0	23.68	0-1	1
	25	12	**23.79**		1
	25	25	23.67		1
	50	0	23.69		1
16QAM	1	0	24.21	0-1	1
	1	25	24.16		1
	1	49	23.57		1
	25	0	22.86	0-2	2
	25	12	22.85		2
	25	25	22.63		2
	50	0	22.72		2
64QAM	1	0	23.05	0-2	2
	1	25	22.90		2
	1	49	22.81		2
	25	0	21.82	0-3	3
	25	12	21.91		3
	25	25	21.76		3
	50	0	21.61		3
256QAM	1	0	19.60	0-5	5
	1	25	19.88		5
	1	49	19.52		5
	25	0	19.77		5
	25	12	19.83		5
	25	25	19.61		5
	50	0	19.67		5

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

Table 9-13
LTE Band 5 (Cell) Maximum Conducted Power for Antenna A - 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	24.55	24.49	24.24	0	0
	1	12	24.61	24.59	24.31		0
	1	24	24.54	24.36	24.12		0
	12	0	23.65	23.66	23.44	0-1	1
	12	6	23.76	23.66	23.43		1
	12	13	23.66	23.52	23.35		1
	25	0	23.71	23.63	23.36		1
16QAM	1	0	23.86	23.84	23.65	0-1	1
	1	12	23.91	23.94	23.64		1
	1	24	23.94	23.77	23.52		1
	12	0	22.73	22.67	22.44	0-2	2
	12	6	22.83	22.72	22.43		2
	12	13	22.71	22.61	22.37		2
	25	0	22.73	22.69	22.37		2
64QAM	1	0	22.77	22.82	22.59	0-2	2
	1	12	22.82	22.79	22.54		2
	1	24	22.73	22.61	22.33		2
	12	0	21.67	21.68	21.44	0-3	3
	12	6	21.78	21.72	21.43		3
	12	13	21.76	21.60	21.33		3
	25	0	21.74	21.63	21.34		3
256QAM	1	0	19.74	19.67	19.41	0-5	5
	1	12	19.84	19.70	19.47		5
	1	24	19.72	19.59	19.32		5
	12	0	19.66	19.66	19.39		5
	12	6	19.73	19.64	19.35		5
	12	13	19.68	19.54	19.30		5
	25	0	19.71	19.58	19.35		5

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Table 9-14
LTE Band 5 (Cell) Maximum Conducted Power for Antenna A - 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	24.49	24.50	24.20	0	0
	1	7	24.54	24.53	24.16		0
	1	14	24.51	24.36	24.24		0
	8	0	23.62	23.56	23.30	0-1	1
	8	4	23.69	23.62	23.33		1
	8	7	23.63	23.57	23.29		1
	15	0	23.65	23.58	23.33		1
16QAM	1	0	23.84	23.85	23.55	0-1	1
	1	7	24.02	23.91	23.65		1
	1	14	23.94	23.78	23.55		1
	8	0	22.73	22.73	22.42	0-2	2
	8	4	22.81	22.70	22.46		2
	8	7	22.79	22.69	22.38		2
	15	0	22.68	22.61	22.35		2
64QAM	1	0	22.77	22.74	22.52	0-2	2
	1	7	22.79	22.73	22.43		2
	1	14	22.78	22.66	22.42		2
	8	0	21.69	21.70	21.31	0-3	3
	8	4	21.75	21.67	21.42		3
	8	7	21.72	21.64	21.31		3
	15	0	21.74	21.63	21.39		3
256QAM	1	0	19.67	19.73	19.43	0-5	5
	1	7	19.71	19.72	19.35		5
	1	14	19.81	19.63	19.40		5
	8	0	19.62	19.65	19.33		5
	8	4	19.73	19.63	19.43		5
	8	7	19.65	19.59	19.33		5
	15	0	19.67	19.60	19.37		5

Table 9-15
LTE Band 5 (Cell) Maximum Conducted Power for Antenna A - 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	24.60	24.71	24.69	0	0
	1	2	24.66	24.78	24.74		0
	1	5	24.55	24.67	24.73		0
	3	0	24.65	24.70	24.64		0
	3	2	24.73	24.79	24.66		0
	3	3	24.69	24.75	24.61		0
	6	0	23.80	23.81	23.69	0-1	1
16QAM	1	0	23.99	23.91	23.85	0-1	1
	1	2	24.09	23.94	23.96		1
	1	5	24.02	23.91	23.89		1
	3	0	23.75	23.93	23.86		1
	3	2	23.78	24.02	23.93		1
	3	3	23.74	23.94	23.90		1
	6	0	22.74	22.79	22.78	0-2	2
64QAM	1	0	22.99	22.76	23.02	0-2	2
	1	2	23.05	22.81	23.10		2
	1	5	23.03	22.75	23.02		2
	3	0	22.94	22.98	22.95		2
	3	2	22.98	23.00	23.03		2
	3	3	22.93	22.94	22.96		2
	6	0	21.85	21.89	21.64	0-3	3
256QAM	1	0	19.82	19.56	19.74	0-5	5
	1	2	19.87	19.61	19.80		5
	1	5	19.84	19.53	19.72		5
	3	0	19.82	19.84	19.77		5
	3	2	19.92	19.87	19.79		5
	3	3	19.84	19.82	19.74		5
	6	0	19.74	19.88	19.78		5

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Table 9-16
LTE Band 5 (Cell) Maximum Conducted Power for Antenna B - 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	**23.31**	0	0
	1	25	23.15		0
	1	49	23.01		0
	25	0	**22.19**	0-1	1
	25	12	22.18		1
	25	25	22.11		1
	50	0	22.12		1
16QAM	1	0	22.70	0-1	1
	1	25	22.51		1
	1	49	22.48		1
	25	0	21.18	0-2	2
	25	12	21.31		2
	25	25	21.12		2
	50	0	21.12		2
64QAM	1	0	21.50	0-2	2
	1	25	21.35		2
	1	49	21.19		2
	25	0	20.32	0-3	3
	25	12	20.34		3
	25	25	20.24		3
	50	0	20.22		3
256QAM	1	0	18.32	0-5	5
	1	25	18.08		5
	1	49	17.95		5
	25	0	18.21		5
	25	12	18.28		5
	25	25	18.12		5
	50	0	18.18		5

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

Table 9-17
LTE Band 5 (Cell) Maximum Conducted Power for Antenna B - 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	23.18	23.00	22.68	0	0
	1	12	23.17	23.11	22.80		0
	1	24	23.10	23.03	22.73		0
	12	0	22.31	22.07	21.93	0-1	1
	12	6	22.33	22.10	21.99		1
	12	13	22.28	22.10	21.99		1
	25	0	22.22	22.04	21.95		1
16QAM	1	0	22.30	22.44	22.07	0-1	1
	1	12	22.33	22.51	22.15		1
	1	24	22.23	22.40	22.19		1
	12	0	21.32	21.23	20.92	0-2	2
	12	6	21.33	21.30	21.01		2
	12	13	21.29	21.27	20.99		2
	25	0	21.27	21.05	20.99		2
64QAM	1	0	21.59	21.63	21.02	0-2	2
	1	12	21.61	21.70	21.14		2
	1	24	21.57	21.61	21.06		2
	12	0	20.34	20.09	19.84	0-3	3
	12	6	20.40	20.13	19.90		3
	12	13	20.31	20.14	19.88		3
	25	0	20.30	20.17	19.96		3
256QAM	1	0	18.36	18.18	17.95	0-5	5
	1	12	18.34	18.29	18.07		5
	1	24	18.36	18.15	17.90		5
	12	0	18.41	18.12	17.97		5
	12	6	18.42	18.17	18.01		5
	12	13	18.35	18.12	17.99		5
	25	0	18.29	18.06	17.98		5

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Table 9-18
LTE Band 5 (Cell) Maximum Conducted Power for Antenna B - 3 MHz Bandwidth

LTE Band 5 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20415 (825.5 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20635 (847.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.17	22.97	22.78	0	0
	1	7	23.16	23.00	22.86		0
	1	14	23.15	23.03	22.84		0
	8	0	22.32	22.09	21.99	0-1	1
	8	4	22.38	22.19	21.99		1
	8	7	22.30	22.09	22.05		1
	15	0	22.38	22.10	21.99		1
16QAM	1	0	22.57	22.16	22.47	0-1	1
	1	7	22.55	22.21	22.54		1
	1	14	22.52	22.18	22.50		1
	8	0	21.41	21.11	21.06	0-2	2
	8	4	21.46	21.23	21.13		2
	8	7	21.38	21.16	21.13		2
	15	0	21.43	21.04	21.07		2
64QAM	1	0	21.64	20.97	21.07	0-2	2
	1	7	21.59	21.07	21.11		2
	1	14	21.51	21.05	21.03		2
	8	0	20.42	20.11	20.09	0-3	3
	8	4	20.42	20.20	20.13		3
	8	7	20.39	20.17	20.13		3
	15	0	20.35	20.18	20.00		3
256QAM	1	0	18.07	18.21	18.48	0-5	5
	1	7	18.16	18.26	18.58		5
	1	14	18.11	18.21	18.49		5
	8	0	18.43	18.02	18.09		5
	8	4	18.48	18.12	18.12		5
	8	7	18.43	18.07	18.08		5
	15	0	18.43	18.19	17.99		5

Table 9-19
LTE Band 5 (Cell) Maximum Conducted Power for Antenna B - 1.4 MHz Bandwidth

LTE Band 5 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20407 (824.7 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20643 (848.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.12	23.13	22.81	0	0
	1	2	23.15	23.19	22.92		0
	1	5	23.07	23.09	22.83		0
	3	0	23.17	23.04	22.86		0
	3	2	23.23	23.05	22.94		0
	3	3	23.20	22.98	22.88		0
	6	0	22.25	22.06	21.97	0-1	1
16QAM	1	0	22.47	22.24	21.99	0-1	1
	1	2	22.61	22.33	22.12		1
	1	5	22.52	22.27	22.06		1
	3	0	22.23	22.29	22.07		1
	3	2	22.32	22.34	22.15		1
	3	3	22.25	22.27	22.10		1
	6	0	21.28	21.18	20.94	0-2	2
64QAM	1	0	21.50	21.42	20.91	0-2	2
	1	2	21.54	21.51	20.99		2
	1	5	21.53	21.37	20.86		2
	3	0	21.43	21.36	21.12		2
	3	2	21.48	21.40	21.19		2
	3	3	21.46	21.34	21.13		2
	6	0	20.32	20.05	19.99	0-3	3
256QAM	1	0	18.06	18.12	17.98	0-5	5
	1	2	18.12	18.19	18.01		5
	1	5	18.06	18.11	17.97		5
	3	0	18.29	18.17	18.01		5
	3	2	18.36	18.20	18.07		5
	3	3	18.30	18.11	18.00		5
	6	0	18.39	18.16	17.90		5

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9.3.4 LTE Band 41

Table 9-20
LTE Band 41 Maximum Conducted Power - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	22.37	22.37	22.03	22.21	22.16	0	0
	1	50	22.26	22.32	22.24	22.40	**22.77**		0
	1	99	22.26	22.22	22.02	22.11	22.59		0
	50	0	21.35	21.28	21.22	21.54	21.68	0-1	1
	50	25	21.38	21.35	21.35	21.56	**21.93**		1
	50	50	21.35	21.28	21.25	21.47	21.89		1
	100	0	21.31	21.19	21.26	21.45	21.78		1
16QAM	1	0	21.37	21.39	20.96	21.22	21.40	0-1	1
	1	50	21.27	21.25	21.25	21.53	21.78		1
	1	99	21.31	21.22	21.02	21.15	21.62		1
	50	0	20.41	20.26	20.22	20.45	20.77	0-2	2
	50	25	20.32	20.29	20.38	20.57	20.95		2
	50	50	20.40	20.34	20.33	20.53	20.92		2
	100	0	20.32	20.29	20.32	20.51	20.79		2
64QAM	1	0	20.18	20.24	19.70	20.00	20.15	0-2	2
	1	50	20.13	20.07	20.07	20.33	20.59		2
	1	99	20.15	20.01	19.85	19.95	20.45		2
	50	0	19.47	19.42	19.33	19.60	19.76	0-3	3
	50	25	19.47	19.46	19.43	19.60	19.99		3
	50	50	19.42	19.41	19.35	19.55	19.94		3
	100	0	19.36	19.28	19.32	19.49	19.81		3
256QAM	1	0	16.91	16.81	16.82	17.11	17.25	0-5	5
	1	50	17.21	17.21	17.16	17.46	17.76		5
	1	99	16.97	16.75	16.96	17.09	17.59		5
	50	0	17.36	17.32	17.27	17.61	17.86		5
	50	25	17.48	17.46	17.45	17.67	18.02		5
	50	50	17.44	17.30	17.38	17.59	17.98		5
	100	0	17.54	17.29	17.30	17.50	17.82		5

Table 9-21
LTE Band 41 Maximum Conducted Power - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	22.41	22.20	22.15	22.07	22.16	0	0
	1	36	22.31	22.32	22.39	22.31	22.60		0
	1	74	22.28	22.08	22.18	22.02	22.44		0
	36	0	21.52	21.25	21.18	21.38	21.54	0-1	1
	36	18	21.56	21.42	21.38	21.45	21.82		1
	36	37	21.54	21.31	21.33	21.35	21.77		1
	75	0	21.49	21.26	21.26	21.35	21.72		1
16QAM	1	0	21.41	21.50	21.14	21.36	21.48	0-1	1
	1	36	21.39	21.39	21.30	21.60	21.83		1
	1	74	21.45	21.18	21.14	21.14	21.71		1
	36	0	20.49	20.28	20.22	20.36	20.64	0-2	2
	36	18	20.48	20.43	20.40	20.42	20.86		2
	36	37	20.58	20.33	20.35	20.38	20.81		2
	75	0	20.48	20.27	20.28	20.39	20.63		2
64QAM	1	0	20.15	20.17	19.77	20.07	20.17	0-2	2
	1	36	20.16	20.06	20.11	20.24	20.48		2
	1	74	20.08	20.02	20.02	20.04	20.44		2
	36	0	19.54	19.27	19.27	19.54	19.64	0-3	3
	36	18	19.65	19.42	19.41	19.59	19.86		3
	36	37	19.59	19.33	19.37	19.57	19.83		3
	75	0	19.47	19.32	19.32	19.33	19.75		3
256QAM	1	0	17.04	16.92	16.82	17.29	17.40	0-5	5
	1	36	17.32	17.22	17.13	17.49	17.87		5
	1	74	17.15	16.85	17.02	17.21	17.77		5
	36	0	17.46	17.33	17.25	17.55	17.83		5
	36	18	17.66	17.46	17.42	17.64	17.95		5
	36	37	17.60	17.34	17.40	17.65	17.99		5
	75	0	17.56	17.38	17.36	17.55	17.70		5

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Table 9-22
LTE Band 41 Maximum Conducted Power - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	22.47	22.37	22.10	22.36	22.25	0	0
	1	25	22.44	22.39	22.30	22.58	22.89		0
	1	49	22.39	22.17	22.08	22.20	22.66		0
	25	0	21.45	21.37	21.25	21.54	21.83	0-1	1
	25	12	21.55	21.46	21.38	21.65	21.96		1
	25	25	21.52	21.36	21.29	21.61	21.89		1
	50	0	21.40	21.19	21.33	21.58	21.87		1
16QAM	1	0	21.40	21.54	21.11	21.36	21.41	0-1	1
	1	25	21.35	21.25	21.33	21.62	21.62		1
	1	49	21.38	21.32	21.15	21.17	21.66		1
	25	0	20.22	20.26	20.11	20.32	20.86	0-2	2
	25	12	20.35	20.45	20.47	20.70	21.06		2
	25	25	20.42	20.43	20.38	20.67	20.99		2
	50	0	20.34	20.43	20.39	20.58	20.97		2
64QAM	1	0	20.18	20.20	19.66	19.91	20.28	0-2	2
	1	25	20.19	20.15	20.03	20.22	20.66		2
	1	49	20.15	20.08	19.73	19.97	20.32		2
	25	0	19.59	19.47	19.31	19.57	19.89	0-3	3
	25	12	19.56	19.51	19.49	19.62	20.04		3
	25	25	19.59	19.39	19.34	19.59	19.94		3
	50	0	19.53	19.45	19.32	19.59	19.94		3
256QAM	1	0	16.88	16.82	16.84	17.11	17.40	0-5	5
	1	25	17.16	17.11	17.12	17.46	17.75		5
	1	49	16.85	16.80	16.91	17.07	17.52		5
	25	0	17.49	17.40	17.25	17.52	17.85		5
	25	12	17.61	17.54	17.40	17.64	18.01		5
	25	25	17.48	17.42	17.34	17.56	17.94		5
	50	0	17.54	17.47	17.35	17.56	17.95		5

Table 9-23
LTE Band 41 Maximum Conducted Power - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	22.54	22.21	22.17	22.21	22.18	0	0
	1	12	22.45	22.24	22.24	22.44	22.86		0
	1	24	22.45	22.25	22.19	22.17	22.74		0
	12	0	21.54	21.41	21.37	21.64	21.80	0-1	1
	12	6	21.39	21.42	21.38	21.68	22.00		1
	12	13	21.37	21.44	21.33	21.57	21.92		1
	25	0	21.31	21.31	21.40	21.62	21.97		1
16QAM	1	0	21.26	21.22	20.96	21.11	21.56	0-1	1
	1	12	21.30	21.18	21.23	21.39	21.68		1
	1	24	21.24	21.16	21.01	21.18	21.65		1
	12	0	20.42	20.27	20.17	20.44	20.71	0-2	2
	12	6	20.47	20.36	20.45	20.69	21.03		2
	12	13	20.51	20.44	20.47	20.53	20.99		2
	25	0	20.43	20.39	20.36	20.65	20.94		2
64QAM	1	0	20.17	20.06	19.67	20.08	20.15	0-2	2
	1	12	20.13	20.13	19.93	20.33	20.59		2
	1	24	20.13	20.10	19.70	20.12	20.47		2
	12	0	19.51	19.52	19.50	19.68	19.89	0-3	3
	12	6	19.55	19.50	19.57	19.73	20.12		3
	12	13	19.47	19.45	19.53	19.74	20.11		3
	25	0	19.42	19.42	19.48	19.65	19.92		3
256QAM	1	0	17.07	16.94	16.86	17.07	17.43	0-5	5
	1	12	17.05	17.02	16.99	17.55	17.80		5
	1	24	16.99	16.79	16.88	16.97	17.45		5
	12	0	17.49	17.39	17.32	17.68	17.86		5
	12	6	17.52	17.36	17.36	17.71	17.89		5
	12	13	17.47	17.36	17.35	17.72	17.84		5
	25	0	17.55	17.44	17.41	17.63	17.94		5

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Table 9-24
LTE Band 41 Reduced Conducted Power – Hotspot Mode Active, Grip Sensor and/or Earjack Mode Active - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	18.21	18.19	17.63	17.95	18.34	0	0
	1	50	18.21	18.18	17.95	17.91	**18.77**		0
	1	99	18.22	18.09	17.62	18.34	18.75		0
	50	0	18.28	18.24	17.90	18.43	18.70	0-1	0
	50	25	18.40	18.32	18.17	18.28	**18.88**		0
	50	50	18.29	18.27	17.95	18.26	18.86		0
	100	0	18.27	18.25	18.05	18.36	18.76		0
16QAM	1	0	18.62	18.60	18.02	18.46	18.66	0-1	0
	1	50	18.52	18.50	18.34	18.33	18.89		0
	1	99	18.70	18.65	18.08	18.45	18.86		0
	50	0	18.28	18.29	18.00	18.29	18.73	0-2	0
	50	25	18.37	18.37	18.06	18.30	18.87		0
	50	50	18.33	18.30	17.99	18.42	18.89		0
	100	0	18.36	18.30	18.01	18.37	18.84		0
64QAM	1	0	18.41	18.32	17.70	18.05	18.47	0-2	0
	1	50	18.26	18.20	17.99	18.36	18.83		0
	1	99	18.45	18.30	17.80	18.00	18.85		0
	50	0	18.33	18.28	17.73	18.34	18.80	0-3	0
	50	25	18.44	18.44	17.96	18.57	18.90		0
	50	50	18.40	17.75	18.04	18.48	18.89		0
	100	0	18.36	18.32	18.01	18.29	18.81		0
256QAM	1	0	17.09	17.08	16.83	17.16	17.41	0-5	1
	1	50	17.36	17.25	17.10	17.46	17.88		1
	1	99	17.20	17.17	16.76	17.17	17.83		1
	50	0	17.37	17.33	16.98	17.44	17.74		1
	50	25	17.45	17.43	17.20	17.55	17.82		1
	50	50	17.31	17.43	17.03	17.37	17.86		1
	100	0	17.39	17.31	17.01	17.34	17.81		1

Table 9-25
LTE Band 41 Reduced Conducted Power – Hotspot Mode Active, Grip Sensor and/or Earjack Mode Active - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	18.30	18.03	17.76	18.04	18.51	0	0
	1	36	18.31	18.25	18.02	18.03	18.87		0
	1	74	18.22	18.00	17.78	18.29	18.77		0
	36	0	18.32	18.29	17.93	18.42	18.66	0-1	0
	36	18	18.38	18.44	18.12	18.18	18.87		0
	36	37	18.37	18.32	18.08	18.15	18.94		0
	75	0	18.31	18.31	18.01	18.35	18.87		0
16QAM	1	0	18.56	18.55	17.89	18.46	18.82	0-1	0
	1	36	18.61	18.48	18.17	18.50	18.90		0
	1	74	18.79	18.65	17.98	18.39	18.80		0
	36	0	18.34	18.30	17.97	18.13	18.80	0-2	0
	36	18	18.41	18.47	18.14	18.21	18.91		0
	36	37	18.36	18.33	18.10	18.51	18.96		0
	75	0	18.26	18.29	18.00	18.42	18.85		0
64QAM	1	0	18.37	18.16	17.51	18.06	18.38	0-2	0
	1	36	18.10	18.37	17.82	18.20	18.69		0
	1	74	18.36	18.12	17.72	18.02	18.82		0
	36	0	18.29	18.25	17.85	18.19	18.78	0-3	0
	36	18	18.36	18.37	18.11	18.62	18.91		0
	36	37	18.32	17.89	18.06	18.41	18.95		0
	75	0	18.31	18.33	18.03	18.14	18.92		0
256QAM	1	0	17.12	17.26	16.96	17.29	17.32	0-5	1
	1	36	17.17	17.36	17.10	17.57	17.71		1
	1	74	17.12	17.27	16.77	17.27	17.64		1
	36	0	17.36	17.33	17.02	17.52	17.84		1
	36	18	17.48	17.45	17.16	17.49	17.97		1
	36	37	17.41	17.38	17.15	17.18	17.98		1
	75	0	17.37	17.40	17.09	17.41	17.93		1

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Table 9-26
LTE Band 41 Reduced Conducted Power – Hotspot Mode Active, Grip Sensor and/or Earjack Mode Active - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	18.38	18.10	17.55	18.12	18.40	0	0
	1	25	18.23	18.16	17.78	17.94	18.86		0
	1	49	18.32	17.91	17.60	18.25	18.61		0
	25	0	18.34	18.19	17.74	18.33	18.79	0-1	0
	25	12	18.36	18.26	18.01	18.43	18.91		0
	25	25	18.32	18.13	17.85	18.36	18.85		0
	50	0	18.28	18.18	17.90	18.36	18.81		0
16QAM	1	0	18.45	18.50	18.13	18.30	18.78	0-1	0
	1	25	18.49	18.64	18.49	18.43	18.72		0
	1	49	18.62	18.48	18.24	18.47	18.83		0
	25	0	18.43	18.26	17.91	18.41	18.85	0-2	0
	25	12	18.45	18.30	17.91	18.11	19.00		0
	25	25	18.42	18.19	17.89	18.48	18.91		0
	50	0	18.29	18.20	17.82	18.35	18.91		0
64QAM	1	0	18.39	18.20	17.77	18.22	18.62	0-2	0
	1	25	18.28	18.35	18.11	18.51	19.00		0
	1	49	18.34	18.23	17.84	18.18	18.82		0
	25	0	18.37	18.23	17.81	18.32	18.85	0-3	0
	25	12	18.43	18.35	17.96	18.43	19.01		0
	25	25	18.39	17.91	17.93	18.38	18.89		0
	50	0	18.29	18.24	17.83	18.39	18.89		0
256QAM	1	0	17.05	17.14	16.93	17.12	17.60	0-5	1
	1	25	17.34	17.41	17.16	17.46	17.78		1
	1	49	17.09	17.19	16.87	17.19	17.74		1
	25	0	17.34	17.24	16.79	17.29	17.85		1
	25	12	17.40	17.35	17.02	17.43	17.95		1
	25	25	17.29	17.24	16.85	17.37	17.85		1
	50	0	17.37	17.26	16.85	17.36	17.88		1

Table 9-27
LTE Band 41 Reduced Conducted Power – Hotspot Mode Active, Grip Sensor and/or Earjack Mode Active - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	18.27	18.09	17.66	18.05	18.52	0	0
	1	12	18.19	18.07	17.79	18.01	18.61		0
	1	24	18.23	18.08	17.72	18.23	18.62		0
	12	0	18.35	18.23	17.81	18.25	18.68	0-1	0
	12	6	18.31	18.22	17.99	18.28	18.74		0
	12	13	18.34	18.18	17.84	18.34	18.74		0
	25	0	18.34	18.21	17.88	18.27	18.78		0
16QAM	1	0	18.71	18.43	18.01	18.37	18.76	0-1	0
	1	12	18.45	18.34	18.19	18.46	18.86		0
	1	24	18.59	18.47	17.97	18.41	18.84		0
	12	0	18.38	18.25	17.89	18.34	18.76	0-2	0
	12	6	18.38	18.30	18.01	18.38	18.85		0
	12	13	18.36	18.26	17.97	18.41	18.84		0
	25	0	18.31	18.17	17.91	18.24	18.73		0
64QAM	1	0	18.48	18.23	17.88	18.21	18.64	0-2	0
	1	12	18.42	18.32	18.02	18.45	18.87		0
	1	24	18.45	18.25	17.82	18.12	18.81		0
	12	0	18.50	18.38	17.88	18.37	18.81	0-3	0
	12	6	18.48	18.37	17.93	18.45	18.97		0
	12	13	18.47	17.89	17.89	18.43	18.87		0
	25	0	18.36	18.25	17.85	18.34	18.80		0
256QAM	1	0	17.27	17.23	16.89	17.33	17.52	0-5	1
	1	12	17.28	17.27	17.10	17.62	17.95		1
	1	24	17.29	17.22	16.83	17.31	17.92		1
	12	0	17.28	17.27	16.88	17.46	17.62		1
	12	6	17.35	17.29	17.03	17.42	17.75		1
	12	13	17.30	17.34	16.90	17.28	17.69		1
	25	0	17.36	17.28	16.91	17.32	17.72		1

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9.3.5 LTE Uplink Carrier Aggregation Conducted Powers

Table 9-28
LTE Uplink Carrier Aggregation Maximum Conducted Power

	PCC							SCC							Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41	20	41490	2680.0	QPSK	1	0	LTE B41	20	41292	2660.2	QPSK	1	99	22.89	22.16

Table 9-29
LTE Uplink Carrier Aggregation Reduced Conducted Power – Hotspot Mode Active, Grip Sensor and/or Earjack Mode Active

	PCC							SCC							Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41	20	40620	2593.0	QPSK	1	0	LTE B41	20	40422	2573.2	QPSK	1	99	18.30	17.63
CA_41C	LTE B41	20	40620	2593.0	QPSK	50	50	LTE B41	20	40818	2612.8	QPSK	50	0	18.58	17.95
CA_41C	LTE B41	20	41055	2636.5	QPSK	50	0	LTE B41	20	40857	2616.7	QPSK	50	50	18.75	18.43
CA_41C	LTE B41	20	41490	2680.0	QPSK	50	0	LTE B41	20	41292	2660.2	QPSK	50	50	19.10	18.70

Notes:

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

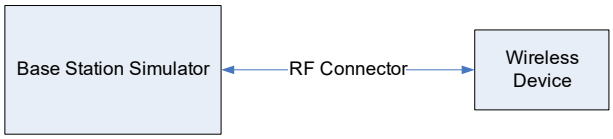

Figure 9-3
Power Measurement Setup

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9.4 WLAN Conducted Powers

Table 9-30
2.4 GHz WLAN Maximum Average RF Power – Ant 1

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax
		Average	Average	Average	Average
2412	1	18.80	17.99	16.05	16.6
2417	2	N/A	N/A	17.74	17.94
2437	6	18.99	17.61	17.99	17.99
2457	10	N/A	N/A	17.77	17.80
2462	11	18.81	17.86	15.61	15.64

Table 9-31
2.4 GHz WLAN Maximum Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax
		Average	Average	Average	Average
2412	1	18.86	17.72	16.16	16.69
2417	2	N/A	N/A	17.83	17.87
2437	6	18.94	17.85	17.68	17.78
2457	10	N/A	N/A	17.74	17.99
2462	11	18.99	17.74	15.72	15.78

Table 9-32
5 GHz WLAN Maximum Average RF Power – Ant 1

5GHz (20MHz) Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11a	802.11n	802.11ac	802.11ax
		Average	Average	Average	Average
5180	36	17.86	17.67	17.51	17.54
5200	40	17.79	17.60	17.99	17.45
5220	44	17.90	17.69	17.84	17.99
5240	48	17.80	17.77	17.76	17.77
5260	52	17.67	17.99	17.90	17.39
5280	56	17.61	17.95	17.89	17.96
5300	60	17.72	17.93	17.81	17.82
5320	64	17.70	17.95	17.94	17.66
5500	100	17.89	17.88	17.86	17.92
5600	120	17.74	17.92	17.93	17.99
5620	124	17.53	17.95	17.91	17.99
5720	144	17.41	17.93	17.84	17.99
5745	149	17.74	17.88	17.90	17.51
5785	157	17.92	17.89	17.72	17.82
5825	165	17.68	17.92	17.85	17.53

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Table 9-33
5 GHz WLAN Maximum Average RF Power – Ant 2

5GHz (20MHz) Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11a	802.11n	802.11ac	802.11ax
		Average	Average	Average	Average
5180	36	17.95	17.83	17.93	17.91
5200	40	17.99	17.85	17.70	17.84
5220	44	17.72	17.84	17.57	17.75
5240	48	17.63	17.66	17.55	17.71
5260	52	17.75	17.88	17.96	17.99
5280	56	17.97	17.82	17.86	17.83
5300	60	17.99	17.96	17.87	17.84
5320	64	17.76	17.95	17.72	17.62
5500	100	17.72	17.77	17.52	17.58
5600	120	17.82	17.66	17.51	17.60
5620	124	17.77	17.89	17.91	17.47
5720	144	17.58	17.92	17.68	17.71
5745	149	17.83	17.55	17.95	17.45
5785	157	17.92	17.88	17.91	17.92
5825	165	17.87	17.68	17.63	17.56

Table 9-34
2.4 GHz WLAN Reduced Average RF Power for conditions with RCV active– Ant 1

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax
		Average	Average	Average	Average
2412	1	12.78	12.61	12.81	12.96
2437	6	12.89	12.44	12.86	12.92
2462	11	12.67	12.71	12.57	12.59

Table 9-35
2.4 GHz WLAN Reduced Average RF Power for conditions with RCV active– Ant 2

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax
		Average	Average	Average	Average
2412	1	12.92	12.93	12.94	12.73
2437	6	12.99	12.71	12.99	12.86
2462	11	12.96	12.67	12.92	12.47

Table 9-36
5 GHz WLAN Reduced Average RF Power for conditions with RCV active– Ant 1

5GHz (80MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11ac	802.11ax
		Average	Average
5210	42	10.59	10.56
5290	58	10.39	10.58
5530	106	10.57	10.80
5610	122	10.31	10.60
5690	138	10.72	10.62
5775	155	10.49	10.92

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Table 9-37
5 GHz WLAN Reduced Average RF Power for conditions with RCV active– Ant 2

5GHz (80MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11ac	802.11ax
		Average	Average
5210	42	10.62	10.57
5290	58	10.64	10.89
5530	106	10.88	10.92
5610	122	10.87	10.91
5690	138	10.80	10.90
5775	155	10.72	10.86

Table 9-38
Reduced Output Powers During Conditions with 2.4 GHz and 5 GHz WLAN

5GHz (80MHz) 802.11ac Conducted Power [dBm]			
Freq [MHz]	Channel	ANT1	ANT2
5210	42	13.74	13.71
5290	58	13.66	13.69
5530	106	13.79	13.84
5610	122	13.68	13.80
5690	138	13.99	13.65
5775	155	13.64	13.79

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.

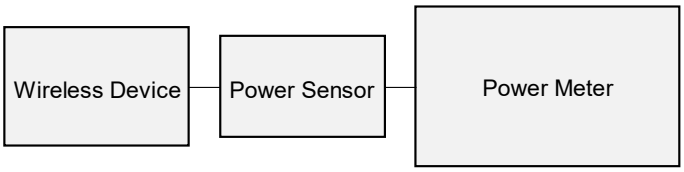

Figure 9-4
Power Measurement Setup

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9.5 Bluetooth Conducted Powers

Table 9-39
Bluetooth Maximum Average RF Power Ant 1

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	19.23	83.657
2441	1.0	GFSK	ePA	39	19.53	89.660
2480	1.0	GFSK	ePA	78	18.28	67.220
2402	2.0	π/4-DQPSK	ePA	0	15.60	36.266
2441	2.0	π/4-DQPSK	ePA	39	16.06	40.365
2480	2.0	π/4-DQPSK	ePA	78	14.73	29.724
2402	3.0	8DPSK	ePA	0	15.65	36.737
2441	3.0	8DPSK	ePA	39	16.06	40.355
2480	3.0	8DPSK	ePA	78	14.77	30.019

Table 9-40
Bluetooth Maximum Average RF Power Ant 2

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	19.01	79.524
2441	1.0	GFSK	ePA	39	19.23	83.811
2480	1.0	GFSK	ePA	78	18.11	64.655
2402	2.0	π/4-DQPSK	ePA	0	15.41	34.754
2441	2.0	π/4-DQPSK	ePA	39	15.70	37.154
2480	2.0	π/4-DQPSK	ePA	78	14.44	27.765
2402	3.0	8DPSK	ePA	0	15.49	35.367
2441	3.0	8DPSK	ePA	39	15.74	37.497
2480	3.0	8DPSK	ePA	78	14.46	27.893

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Table 9-41
Bluetooth Reduced Average RF Power Ant 1

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	13.18	20.816
2441	1.0	GFSK	ePA	39	13.47	22.238
2480	1.0	GFSK	ePA	78	12.38	17.310
2402	2.0	π/4-DQPSK	ePA	0	9.30	8.502
2441	2.0	π/4-DQPSK	ePA	39	9.64	9.215
2480	2.0	π/4-DQPSK	ePA	78	8.56	7.181
2402	3.0	8DPSK	ePA	0	9.36	8.638
2441	3.0	8DPSK	ePA	39	9.72	9.375
2480	3.0	8DPSK	ePA	78	8.62	7.281

Table 9-42
Bluetooth Reduced Average RF Power Ant 2

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	13.24	21.062
2441	1.0	GFSK	ePA	39	13.62	23.009
2480	1.0	GFSK	ePA	78	12.31	17.006
2402	2.0	π/4-DQPSK	ePA	0	9.33	8.571
2441	2.0	π/4-DQPSK	ePA	39	9.76	9.472
2480	2.0	π/4-DQPSK	ePA	78	8.47	7.028
2402	3.0	8DPSK	ePA	0	9.42	8.750
2441	3.0	8DPSK	ePA	39	9.84	9.630
2480	3.0	8DPSK	ePA	78	8.55	7.161

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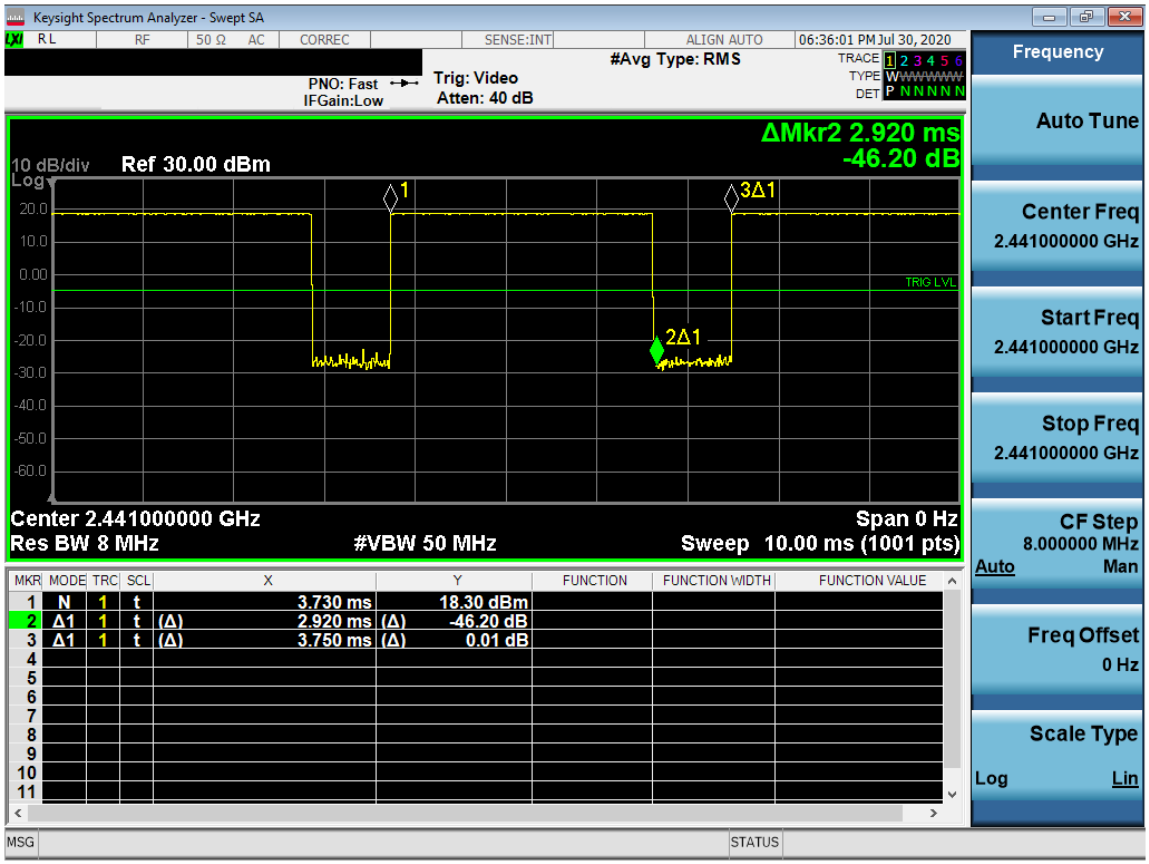
Figure 9-5
Bluetooth Transmission Plot Ant 1



Equation 9-1
Bluetooth Duty Cycle Calculation Ant 1

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.92ms}{3.75ms} * 100\% = 77.9\%$$

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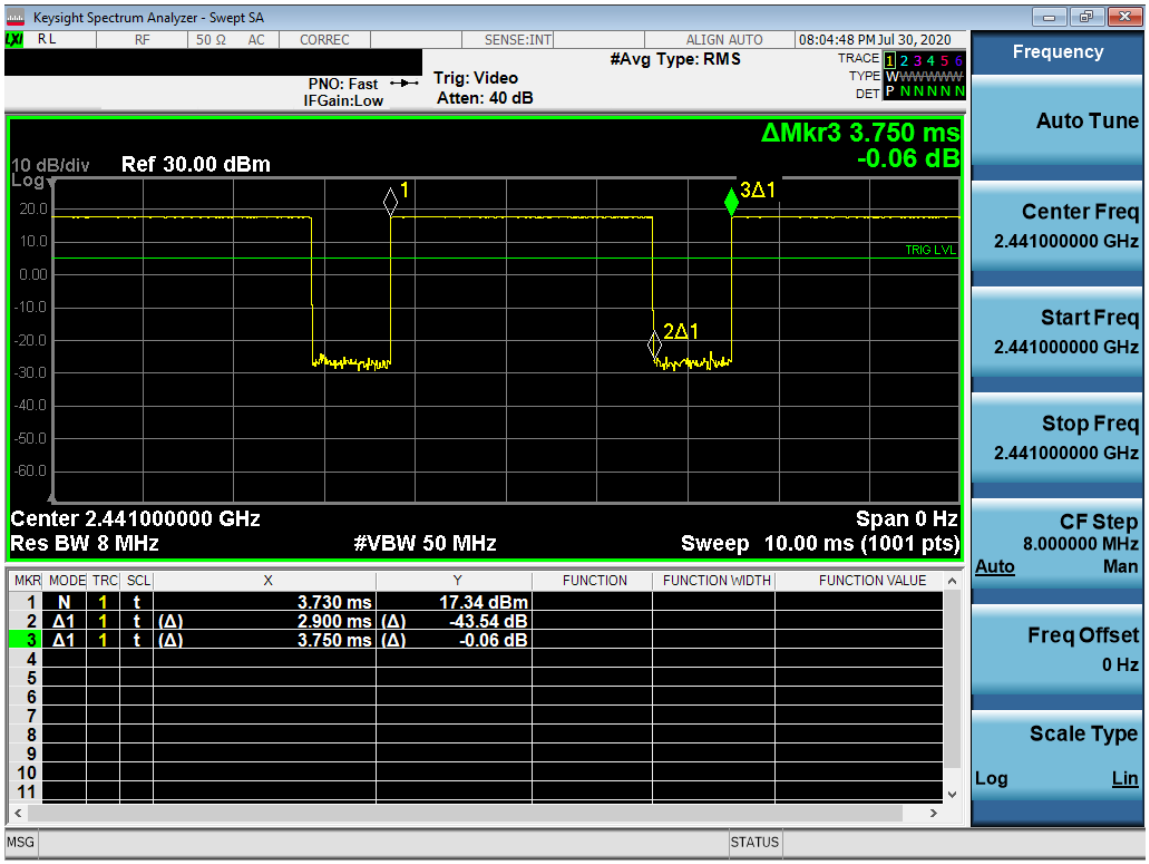
Figure 9-6
Bluetooth Transmission Plot Ant 2



Equation 9-2
Bluetooth Duty Cycle Calculation Ant 2

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.90ms}{3.75ms} * 100\% = 77.3\%$$

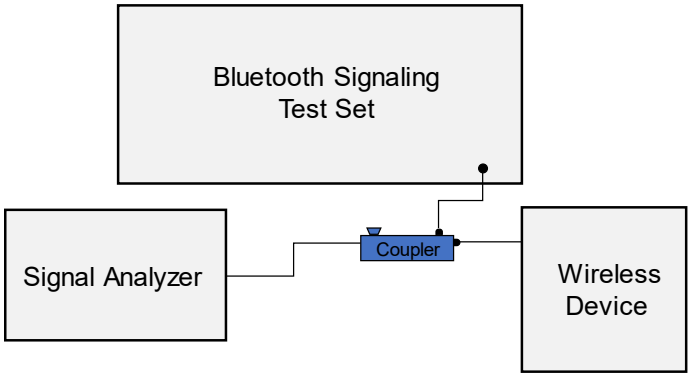


Figure 9-7
Power Measurement Setup

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10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
Measured 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
09/08/2020	750H	22.0	700	0.886	43.961	0.889	42.201	-0.34%	4.17%
			710	0.890	43.927	0.890	42.149	0.00%	4.22%
			750	0.904	43.819	0.894	41.942	1.12%	4.48%
			770	0.911	43.759	0.895	41.838	1.79%	4.59%
			785	0.916	43.706	0.896	41.760	2.23%	4.66%
09/14/2020	835H	21.0	820	0.913	43.139	0.899	41.578	1.56%	3.75%
			835	0.919	43.105	0.900	41.500	2.11%	3.87%
			850	0.925	43.070	0.916	41.500	0.98%	3.78%
09/04/2020	1900H	24.0	1860	1.374	39.009	1.400	40.000	-1.86%	-2.48%
			1880	1.394	38.929	1.400	40.000	-0.43%	-2.68%
			1900	1.415	38.849	1.400	40.000	1.07%	-2.88%
09/10/2020	2450H	23.0	2400	1.821	40.531	1.756	39.289	3.70%	3.16%
			2450	1.860	40.460	1.800	39.200	3.33%	3.21%
			2480	1.881	40.421	1.833	39.162	2.62%	3.21%
09/03/2020	2600H	24.0	2600	2.053	37.950	1.964	39.009	4.53%	-2.71%
			2650	2.113	37.717	2.018	38.945	4.71%	-3.15%
			2680	2.152	37.600	2.051	38.907	4.92%	-3.36%
09/17/2020	5200-5800H	22.0	5250	4.567	35.873	4.706	35.929	-2.95%	-0.16%
			5290	4.611	35.777	4.748	35.883	-2.89%	-0.30%
			5530	4.875	35.411	4.994	35.609	-2.38%	-0.56%
			5600	4.968	35.274	5.065	35.529	-1.92%	-0.72%
			5690	5.067	35.108	5.158	35.426	-1.76%	-0.90%
			5750	5.136	35.044	5.219	35.357	-1.59%	-0.89%
			5775	5.153	35.001	5.245	35.329	-1.75%	-0.93%
09/08/2020	750B	22.5	700	0.922	55.247	0.959	55.726	-3.86%	-0.86%
			710	0.925	55.221	0.960	55.687	-3.65%	-0.84%
			750	0.941	55.155	0.964	55.531	-2.39%	-0.68%
			770	0.948	55.104	0.965	55.453	-1.76%	-0.63%
			785	0.953	55.057	0.966	55.395	-1.35%	-0.61%
09/10/2020	750B	22.6	750	0.958	55.404	0.964	55.531	-0.62%	-0.23%
			770	0.965	55.361	0.965	55.453	0.00%	-0.17%
			785	0.971	55.318	0.966	55.395	0.52%	-0.14%
09/14/2020	750B	21.4	700	0.920	56.366	0.959	55.726	-4.07%	1.15%
			710	0.923	56.351	0.960	55.687	-3.85%	1.19%
			750	0.939	56.278	0.964	55.531	-2.59%	1.35%
			770	0.947	56.235	0.965	55.453	-1.87%	1.41%
			785	0.953	56.203	0.966	55.395	-1.35%	1.46%
09/17/2020	750B	23.0	700	0.956	54.823	0.959	55.726	-0.31%	-1.62%
			710	0.960	54.819	0.960	55.687	0.00%	-1.56%
			750	0.975	54.761	0.964	55.531	1.14%	-1.39%
09/08/2020	835B	21.4	820	0.971	54.577	0.969	55.258	0.21%	-1.23%
			835	0.977	54.534	0.970	55.200	0.72%	-1.21%
			850	0.983	54.486	0.988	55.154	-0.51%	-1.21%
09/15/2020	835B	22.5	820	0.934	53.429	0.969	55.258	-3.61%	-3.31%
			835	0.949	53.311	0.970	55.200	-2.16%	-3.42%
			850	0.964	53.141	0.988	55.154	-2.43%	-3.65%
09/20/2020	835B	21.3	820	0.953	53.320	0.969	55.258	-1.65%	-3.51%
			835	0.969	53.152	0.970	55.200	-0.10%	-3.71%
			850	0.986	52.982	0.988	55.154	-0.20%	-3.94%
09/22/2020	835B	22.9	820	0.926	53.883	0.969	55.258	-4.44%	-2.49%
			835	0.941	53.737	0.970	55.200	-2.99%	-2.65%
			850	0.956	53.598	0.988	55.154	-3.24%	-2.82%

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Table 10-2
Measured Tissue Properties Continued

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
08/26/2020	1900B	24.6	1850	1.502	53.844	1.520	53.300	-1.18%	1.02%
			1860	1.513	53.812	1.520	53.300	-0.46%	0.96%
			1880	1.534	53.749	1.520	53.300	0.92%	0.84%
			1900	1.556	53.679	1.520	53.300	2.37%	0.71%
			1905	1.562	53.661	1.520	53.300	2.76%	0.68%
			1910	1.567	53.644	1.520	53.300	3.09%	0.65%
09/20/2020	1900B	24.3	1850	1.517	52.702	1.520	53.300	-0.20%	-1.12%
			1860	1.528	52.663	1.520	53.300	0.53%	-1.20%
			1880	1.550	52.583	1.520	53.300	1.97%	-1.35%
			1900	1.572	52.503	1.520	53.300	3.42%	-1.50%
			1905	1.578	52.484	1.520	53.300	3.82%	-1.53%
			1910	1.583	52.466	1.520	53.300	4.14%	-1.56%
08/27/2020	2450-2600B	22.5	2450	2.046	51.786	1.950	52.700	4.92%	-1.73%
			2500	2.104	51.628	2.021	52.636	4.11%	-1.92%
			2510	2.116	51.595	2.035	52.623	3.98%	-1.95%
			2535	2.146	51.513	2.071	52.592	3.62%	-2.05%
			2550	2.165	51.467	2.092	52.573	3.49%	-2.10%
			2560	2.177	51.443	2.106	52.560	3.37%	-2.13%
			2600	2.224	51.326	2.163	52.509	2.82%	-2.25%
			2650	2.285	51.161	2.234	52.445	2.28%	-2.45%
			2680	2.321	51.074	2.277	52.407	1.93%	-2.54%
08/31/2020	2450-2600B	23.0	2450	2.045	52.602	1.950	52.700	4.87%	-0.19%
			2500	2.102	52.448	2.021	52.636	4.01%	-0.36%
			2510	2.115	52.416	2.035	52.623	3.93%	-0.39%
			2535	2.149	52.353	2.071	52.592	3.77%	-0.45%
			2550	2.169	52.318	2.092	52.573	3.68%	-0.49%
			2560	2.181	52.298	2.106	52.560	3.56%	-0.50%
			2600	2.225	52.177	2.163	52.509	2.87%	-0.63%
			2650	2.288	52.014	2.234	52.445	2.42%	-0.82%
			2680	2.327	51.942	2.277	52.407	2.20%	-0.89%
09/03/2020	2450B	23.0	2400	1.982	52.342	1.902	52.767	4.21%	-0.81%
			2450	2.046	52.213	1.950	52.700	4.92%	-0.92%
			2480	2.079	52.124	1.993	52.662	4.32%	-1.02%
09/08/2020	2450B	22.9	2400	1.981	52.848	1.902	52.767	4.15%	0.15%
			2450	2.040	52.722	1.950	52.700	4.62%	0.04%
			2480	2.076	52.638	1.993	52.662	4.16%	-0.05%
09/10/2020	2450B	21.8	2400	1.977	52.294	1.902	52.767	3.94%	-0.90%
			2450	2.039	52.151	1.950	52.700	4.56%	-1.04%
			2480	2.072	52.058	1.993	52.662	3.96%	-1.15%
09/13/2020	2450B	23.0	2400	1.979	51.569	1.902	52.767	4.05%	-2.27%
			2450	2.042	51.435	1.950	52.700	4.72%	-2.40%
			2480	2.075	51.361	1.993	52.662	4.11%	-2.47%
09/16/2020	2450B	21.3	2400	1.984	51.061	1.902	52.767	4.31%	-3.23%
			2450	2.043	50.932	1.950	52.700	4.77%	-3.35%
			2480	2.075	50.856	1.993	52.662	4.11%	-3.43%
09/21/2020	2450-2600B	24.0	2400	1.956	51.995	1.902	52.767	2.84%	-1.46%
			2450	2.014	51.864	1.950	52.700	3.28%	-1.59%
			2480	2.046	51.778	1.993	52.662	2.66%	-1.68%
			2500	2.070	51.723	2.021	52.636	2.42%	-1.73%
			2510	2.083	51.696	2.035	52.623	2.36%	-1.76%
			2535	2.114	51.623	2.071	52.592	2.08%	-1.84%
			2550	2.132	51.590	2.092	52.573	1.91%	-1.87%
			2560	2.144	51.567	2.106	52.560	1.80%	-1.89%
			2600	2.190	51.455	2.163	52.509	1.25%	-2.01%
			2650	2.252	51.281	2.234	52.445	0.81%	-2.22%
			2680	2.290	51.208	2.277	52.407	0.57%	-2.29%

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Table 10-3
Measured Tissue Properties Continued

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
08/31/2020	5200-5800B	21.0	5250	5.450	47.801	5.358	48.947	*1.72%*	*-2.34%*
			5300	5.514	47.732	5.416	48.879	*1.81%*	*-2.35%*
			5500	5.786	47.406	5.650	48.607	*2.41%*	*-2.47%*
			5600	5.905	47.207	5.766	48.471	*2.41%*	*-2.61%*
			5750	6.135	46.990	5.942	48.268	*3.25%*	*-2.65%*
			5785	6.184	46.921	5.982	48.220	*3.38%*	*-2.69%*
09/07/2020	5200-5800B	22.4	5250	5.468	47.660	5.358	48.947	*2.05%*	*-2.63%*
			5290	5.517	47.581	5.404	48.892	*2.09%*	*-2.68%*
			5300	5.532	47.561	5.416	48.879	*2.14%*	*-2.70%*
			5500	5.798	47.228	5.650	48.607	*2.62%*	*-2.84%*
			5530	5.837	47.206	5.685	48.566	*2.67%*	*-2.80%*
			5600	5.940	47.068	5.766	48.471	*3.02%*	*-2.89%*
			5750	6.146	46.843	5.942	48.268	*3.43%*	*-2.95%*
			5775	6.169	46.796	5.971	48.234	*3.32%*	*-2.98%*
			5785	6.183	46.770	5.982	48.220	*3.36%*	*-3.01%*

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.

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10.2 Test System Verification

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

Table 10-4
System Verification Results – 1g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	$Deviation_{1g}$ (%)
E	750	HEAD	09/08/2020	22.3	22.0	0.200	1054	3589	1.680	8.630	8.400	-2.67%
E	835	HEAD	09/14/2020	21.9	21.0	0.200	4d133	3589	2.020	9.430	10.100	7.10%
L	1900	HEAD	09/04/2020	24.0	22.2	0.100	5d148	7406	4.200	39.100	42.000	7.42%
E	2450	HEAD	09/10/2020	24.1	23.0	0.100	981	3589	5.170	52.300	51.700	-1.15%
E	2600	HEAD	09/03/2020	22.9	22.7	0.100	1004	3589	5.660	55.900	56.600	1.25%
H	5250	HEAD	09/17/2020	23.3	22.0	0.050	1057	7357	3.770	79.200	75.400	-4.80%
H	5600	HEAD	09/17/2020	23.3	22.0	0.050	1057	7357	4.010	84.100	80.200	-4.64%
H	5750	HEAD	09/17/2020	23.3	22.0	0.050	1057	7357	3.870	80.500	77.400	-3.85%
D	750	BODY	09/08/2020	22.8	22.5	0.200	1161	7488	1.620	8.430	8.100	-3.91%
O	750	BODY	09/14/2020	24.7	21.9	0.200	1054	7547	1.810	8.530	9.050	6.10%
P	835	BODY	09/08/2020	23.1	21.4	0.200	4d132	7308	1.940	9.960	9.700	-2.61%
D	835	BODY	09/15/2020	23.1	22.5	0.200	4d133	7488	1.910	9.750	9.550	-2.05%
P	835	BODY	09/20/2020	21.0	21.3	0.200	4d132	7308	2.020	9.960	10.100	1.41%
D	835	BODY	09/22/2020	23.1	22.9	0.200	4d133	7488	1.800	9.750	9.000	-7.69%
J	1900	BODY	08/26/2020	21.7	22.6	0.100	5d080	7571	4.160	39.200	41.600	6.12%
K	2450	BODY	08/27/2020	21.6	21.9	0.100	981	7409	5.290	50.900	52.900	3.93%
K	2450	BODY	08/31/2020	22.6	21.4	0.100	981	7409	5.190	50.900	51.900	1.96%
K	2450	BODY	09/03/2020	22.0	21.7	0.100	981	7409	5.210	50.900	52.100	2.36%
K	2450	BODY	09/13/2020	23.0	22.7	0.100	981	7409	5.210	50.900	52.100	2.36%
K	2450	BODY	09/16/2020	22.9	21.3	0.100	981	7409	5.130	50.900	51.300	0.79%
K	2450	BODY	09/21/2020	23.2	23.1	0.100	981	7409	5.240	50.900	52.400	2.95%
K	2600	BODY	08/27/2020	21.6	21.9	0.100	1064	7409	5.750	55.600	57.500	3.42%
K	2600	BODY	08/31/2020	22.6	21.4	0.100	1064	7409	5.730	55.600	57.300	3.06%
K	2600	BODY	09/21/2020	23.2	23.1	0.100	1064	7409	5.470	55.600	54.700	-1.62%
G	5250	BODY	08/31/2020	21.1	21.0	0.050	1237	7538	3.540	75.600	70.800	-6.35%
G	5250	BODY	09/07/2020	22.1	22.4	0.050	1237	7538	3.510	75.600	70.200	-7.14%
G	5600	BODY	08/31/2020	21.1	21.0	0.050	1237	7538	3.760	78.500	75.200	-4.20%
G	5600	BODY	09/07/2020	22.1	22.4	0.050	1237	7538	3.650	78.500	73.000	-7.01%
G	5750	BODY	08/31/2020	21.1	21.0	0.050	1237	7538	3.600	75.900	72.000	-5.14%
G	5750	BODY	09/07/2020	22.1	22.4	0.050	1237	7538	3.520	75.900	70.400	-7.25%

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Table 10-5
System Verification Results – 10g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{10g} (W/kg)	1 W Target SAR_{10g} (W/kg)	1 W Normalized SAR_{10g} (W/kg)	$Deviation_{10g}$ (%)
D	750	BODY	09/10/2020	23.1	22.6	0.200	1161	7488	1.090	5.550	5.450	-1.80%
O	750	BODY	09/17/2020	23.1	23.0	0.200	1054	7547	1.160	5.630	5.800	3.02%
D	835	BODY	09/15/2020	23.1	22.5	0.200	4d133	7488	1.260	6.400	6.300	-1.56%
D	835	BODY	09/22/2020	23.1	22.9	0.200	4d133	7488	1.180	6.400	5.900	-7.81%
J	1900	BODY	08/26/2020	21.7	22.6	0.100	5d080	7571	2.130	20.600	21.300	3.40%
J	1900	BODY	09/20/2020	21.3	22.3	0.100	5d080	7571	2.130	20.600	21.300	3.40%
K	2450	BODY	08/31/2020	22.6	21.4	0.100	981	7409	2.380	24.200	23.800	-1.65%
K	2450	BODY	09/08/2020	22.2	22.5	0.100	981	7409	2.370	24.200	23.700	-2.07%
K	2450	BODY	09/10/2020	23.1	21.8	0.100	981	7409	2.410	24.200	24.100	-0.41%
K	2450	BODY	09/21/2020	23.2	23.1	0.100	981	7409	2.380	24.200	23.800	-1.65%
K	2600	BODY	08/31/2020	22.6	21.4	0.100	1064	7409	2.520	25.000	25.200	0.80%
K	2600	BODY	09/21/2020	23.2	23.1	0.100	1064	7409	2.400	25.000	24.000	-4.00%
G	5250	BODY	08/31/2020	21.1	21.0	0.050	1237	7538	0.987	21.200	19.740	-6.89%
G	5250	BODY	09/07/2020	22.1	22.4	0.050	1237	7538	0.983	21.200	19.660	-7.26%
G	5600	BODY	08/31/2020	21.1	21.0	0.050	1237	7538	1.050	22.000	21.000	-4.55%
G	5600	BODY	09/07/2020	22.1	22.4	0.050	1237	7538	1.020	22.000	20.400	-7.27%
G	5750	BODY	09/07/2020	22.1	22.4	0.050	1237	7538	0.976	21.200	19.520	-7.92%

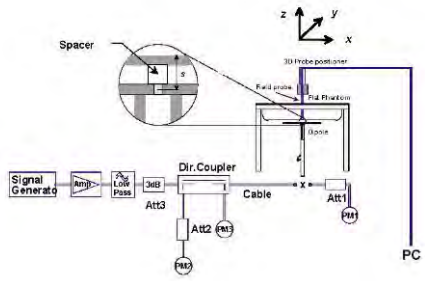

Figure 10-1
System Verification Setup Diagram

Figure 10-2
System Verification Setup Photo

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11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
GSM 850 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.5	32.66	0.14	Right	Cheek	Ant A	0629M	1:8.3	0.121	1.213	0.147	A1
836.60	190	GSM 850	GSM	33.5	32.66	-0.05	Right	Tilt	Ant A	0629M	1:8.3	0.056	1.213	0.068	
836.60	190	GSM 850	GSM	33.5	32.66	0.08	Left	Cheek	Ant A	0629M	1:8.3	0.091	1.213	0.110	
836.60	190	GSM 850	GSM	33.5	32.66	-0.06	Left	Tilt	Ant A	0629M	1:8.3	0.044	1.213	0.053	
836.60	190	GSM 850	GSM	32.0	31.38	0.18	Right	Cheek	Ant B	0629M	1:8.3	0.036	1.153	0.042	
836.60	190	GSM 850	GSM	32.0	31.38	0.03	Right	Tilt	Ant B	0629M	1:8.3	0.014	1.153	0.016	
836.60	190	GSM 850	GSM	32.0	31.38	0.08	Left	Cheek	Ant B	0629M	1:8.3	0.032	1.153	0.037	
836.60	190	GSM 850	GSM	32.0	31.38	0.01	Left	Tilt	Ant B	0629M	1:8.3	0.013	1.153	0.015	
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	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GSM	30.5	28.80	0.02	Right	Cheek	Ant B	0679M	1:8.3	0.015	1.479	0.022	
1880.00	661	GSM 1900	GSM	30.5	28.80	0.14	Right	Tilt	Ant B	0679M	1:8.3	0.025	1.479	0.037	A2
1880.00	661	GSM 1900	GSM	30.5	28.80	0.04	Left	Cheek	Ant B	0679M	1:8.3	0.023	1.479	0.034	
1880.00	661	GSM 1900	GSM	30.5	28.80	0.03	Left	Tilt	Ant B	0679M	1:8.3	0.021	1.479	0.031	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

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Table 11-3
UMTS 850 Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Tune State	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	25.8	24.41	0.05	Right	Cheek	Ant A	0	0629M	1:1	0.193	1.377	**0.266**	A3
836.60	4183	UMTS 850	RMC	25.8	24.41	-0.18	Right	Tilt	Ant A	0	0629M	1:1	0.084	1.377	0.116	
836.60	4183	UMTS 850	RMC	25.8	24.41	0.06	Left	Cheek	Ant A	0	0629M	1:1	0.148	1.377	0.204	
836.60	4183	UMTS 850	RMC	25.8	24.41	-0.11	Left	Tilt	Ant A	0	0629M	1:1	0.069	1.377	0.095	
836.60	4183	UMTS 850	RMC	24.3	23.28	0.04	Right	Cheek	Ant B	N/A	0629M	1:1	0.051	1.265	0.065	
836.60	4183	UMTS 850	RMC	24.3	23.28	0.10	Right	Tilt	Ant B	N/A	0629M	1:1	0.021	1.265	0.027	
836.60	4183	UMTS 850	RMC	24.3	23.28	0.06	Left	Cheek	Ant B	N/A	0629M	1:1	0.047	1.265	0.059	
836.60	4183	UMTS 850	RMC	24.3	23.28	0.18	Left	Tilt	Ant B	N/A	0629M	1:1	0.019	1.265	0.024	
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
LTE Band 12 Head SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Tune State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Antenna Config.	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	27	25.8	25.09	0.06	0	Right	Cheek	Ant A	QPSK	1	0	0624M	1:1	0.107	1.178	0.126	A4
707.50	23095	Mid	LTE Band 12	10	27	24.8	23.93	0.14	1	Right	Cheek	Ant A	QPSK	25	12	0624M	1:1	0.087	1.222	0.106	
707.50	23095	Mid	LTE Band 12	10	27	25.8	25.09	0.15	0	Right	Tilt	Ant A	QPSK	1	0	0624M	1:1	0.048	1.178	0.057	
707.50	23095	Mid	LTE Band 12	10	27	24.8	23.93	0.06	1	Right	Tilt	Ant A	QPSK	25	12	0624M	1:1	0.038	1.222	0.046	
707.50	23095	Mid	LTE Band 12	10	27	25.8	25.09	0.04	0	Left	Cheek	Ant A	QPSK	1	0	0624M	1:1	0.081	1.178	0.095	
707.50	23095	Mid	LTE Band 12	10	27	24.8	23.93	0.04	1	Left	Cheek	Ant A	QPSK	25	12	0624M	1:1	0.070	1.222	0.086	
707.50	23095	Mid	LTE Band 12	10	27	25.8	25.09	-0.09	0	Left	Tilt	Ant A	QPSK	1	0	0624M	1:1	0.037	1.178	0.044	
707.50	23095	Mid	LTE Band 12	10	27	24.8	23.93	0.17	1	Left	Tilt	Ant A	QPSK	25	12	0624M	1:1	0.036	1.222	0.044	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**										**Head** **1.6 W/kg (mW/g)** averaged over 1 gram											

Table 11-5
LTE Band 13 Head SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Tune State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Antenna Config.	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	10	25.8	25.18	0.03	0	Right	Cheek	Ant A	QPSK	1	49	0624M	1:1	0.158	1.153	0.182	A5
782.00	23230	Mid	LTE Band 13	10	10	24.8	24.19	0.11	1	Right	Cheek	Ant A	QPSK	25	25	0624M	1:1	0.133	1.151	0.153	
782.00	23230	Mid	LTE Band 13	10	10	25.8	25.18	0.14	0	Right	Tilt	Ant A	QPSK	1	49	0624M	1:1	0.076	1.153	0.088	
782.00	23230	Mid	LTE Band 13	10	10	24.8	24.19	0.05	1	Right	Tilt	Ant A	QPSK	25	25	0624M	1:1	0.064	1.151	0.074	
782.00	23230	Mid	LTE Band 13	10	10	25.8	25.18	-0.02	0	Left	Cheek	Ant A	QPSK	1	49	0624M	1:1	0.136	1.153	0.157	
782.00	23230	Mid	LTE Band 13	10	10	24.8	24.19	0.06	1	Left	Cheek	Ant A	QPSK	25	25	0624M	1:1	0.101	1.151	0.116	
782.00	23230	Mid	LTE Band 13	10	10	25.8	25.18	0.04	0	Left	Tilt	Ant A	QPSK	1	49	0624M	1:1	0.066	1.153	0.076	
782.00	23230	Mid	LTE Band 13	10	10	24.8	24.19	0.08	1	Left	Tilt	Ant A	QPSK	25	25	0624M	1:1	0.052	1.151	0.060	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**										**Head** **1.6 W/kg (mW/g)** averaged over 1 gram											

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Table 11-6
LTE Band 5 (Cell) Head SAR

MEASUREMENT RESULTS																						
FREQUENCY			Mode	Bandwidth [MHz]	Tune State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Antenna Config.	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	0	25.8	24.74	0.02	0	Right	Cheek	Ant A	QPSK	1	0	0624M	1:1	0.186	1.276	0.237	A6
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	0.02	1	Right	Cheek	Ant A	QPSK	25	12	0624M	1:1	0.152	1.262	0.192	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	25.8	24.74	0.02	0	Right	Tilt	Ant A	QPSK	1	0	0624M	1:1	0.077	1.276	0.098	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	-0.14	1	Right	Tilt	Ant A	QPSK	25	12	0624M	1:1	0.065	1.262	0.082	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	25.8	24.74	0.01	0	Left	Cheek	Ant A	QPSK	1	0	0624M	1:1	0.160	1.276	0.204	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	0.06	1	Left	Cheek	Ant A	QPSK	25	12	0624M	1:1	0.112	1.262	0.141	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	25.8	24.74	-0.09	0	Left	Tilt	Ant A	QPSK	1	0	0624M	1:1	0.076	1.276	0.097	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	0.00	1	Left	Tilt	Ant A	QPSK	25	12	0624M	1:1	0.051	1.262	0.064	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	0.16	0	Right	Cheek	Ant B	QPSK	1	0	0624M	1:1	0.064	1.256	0.080	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	0.09	1	Right	Cheek	Ant B	QPSK	25	0	0624M	1:1	0.051	1.291	0.066	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	0.03	0	Right	Tilt	Ant B	QPSK	1	0	0624M	1:1	0.034	1.256	0.043	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	-0.01	1	Right	Tilt	Ant B	QPSK	25	0	0624M	1:1	0.027	1.291	0.035	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	-0.03	0	Left	Cheek	Ant B	QPSK	1	0	0624M	1:1	0.072	1.256	0.090	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	0.05	1	Left	Cheek	Ant B	QPSK	25	0	0624M	1:1	0.053	1.291	0.068	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	0.03	0	Left	Tilt	Ant B	QPSK	1	0	0624M	1:1	0.030	1.256	0.038	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	0.04	1	Left	Tilt	Ant B	QPSK	25	0	0624M	1:1	0.022	1.291	0.028	

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

Table 11-7
LTE Band 41 Head SAR

MEASUREMENT RESULTS																							
1 CC Uplink | 2 CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Antenna Config.	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.																(W/kg)		(W/kg)	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	0.12	0	Right	Cheek	Ant B	QPSK	1	50	0674M	1:1.58	0.020	1.183	0.024	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	-0.12	1	Right	Cheek	Ant B	QPSK	50	25	0674M	1:1.58	0.013	1.140	0.015	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	0.04	0	Right	Tilt	Ant B	QPSK	1	50	0674M	1:1.58	0.020	1.183	0.024	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	0.02	1	Right	Tilt	Ant B	QPSK	50	25	0674M	1:1.58	0.016	1.140	0.018	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.16	0.09	0	Left	Cheek	Ant B	QPSK	1	0	0674M	1:1.58	0.029	1.361	0.039	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	0.04	0	Left	Cheek	Ant B	QPSK	1	50	0674M	1:1.58	0.031	1.183	0.037	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	0.00	1	Left	Cheek	Ant B	QPSK	50	25	0674M	1:1.58	0.026	1.140	0.030	
2 CC Uplink	PCC	2680.00	41490	High	LTE Band 41	20	23.5	22.89	-0.01	0	Left	Cheek	Ant B	QPSK	1	0	0674M	1:1.58	0.036	1.151	0.041	A7
	SCC	2660.20	41292													99						
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	0.10	0	Left	Tilt	Ant B	QPSK	1	50	0674M	1:1.58	0.005	1.183	0.006	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	0.02	1	Left	Tilt	Ant B	QPSK	50	25	0674M	1:1.58	0.003	1.140	0.003	

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

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Table 11-8
DTS Head SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2437	6	802.11b	DSSS	22	13.0	12.89	0.16	Right	Cheek	1	1026M	1	99.8	0.699	-	1.026	1.002	-	
2437	6	802.11b	DSSS	22	13.0	12.89	0.07	Right	Tilt	1	1026M	1	99.8	0.821	0.425	1.026	1.002	0.437	
2437	6	802.11b	DSSS	22	13.0	12.89	-0.07	Left	Cheek	1	1026M	1	99.8	0.696	-	1.026	1.002	-	
2437	6	802.11b	DSSS	22	13.0	12.89	0.16	Left	Tilt	1	1026M	1	99.8	0.974	0.520	1.026	1.002	**0.535**	A8
2437	6	802.11b	DSSS	22	13.0	12.99	-0.11	Right	Cheek	2	1026M	1	99.9	0.220	-	1.002	1.001	-	
2437	6	802.11b	DSSS	22	13.0	12.99	0.18	Right	Tilt	2	1026M	1	99.9	0.225	-	1.002	1.001	-	
2437	6	802.11b	DSSS	22	13.0	12.99	0.06	Left	Cheek	2	1026M	1	99.9	0.449	-	1.002	1.001	-	
2437	6	802.11b	DSSS	22	13.0	12.99	0.02	Left	Tilt	2	1026M	1	99.9	0.539	0.245	1.002	1.001	0.246	
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
NII Head SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5290	58	802.11ac	OFDM	80	11.0	10.39	0.18	Right	Cheek	1	1154M	29.3	99.8	0.529	0.225	1.151	1.002	0.259	
5290	58	802.11ac	OFDM	80	11.0	10.39	0.05	Right	Tilt	1	1154M	29.3	99.8	0.378	-	1.151	1.002	-	
5290	58	802.11ac	OFDM	80	11.0	10.39	0.19	Left	Cheek	1	1154M	29.3	99.8	0.191	-	1.151	1.002	-	
5290	58	802.11ac	OFDM	80	11.0	10.39	0.16	Left	Tilt	1	1154M	29.3	99.8	0.215	-	1.151	1.002	-	
5290	58	802.11ac	OFDM	80	11.0	10.64	0.06	Right	Cheek	2	1154M	29.3	99.8	0.313	0.123	1.086	1.002	0.134	
5290	58	802.11ac	OFDM	80	11.0	10.64	0.04	Right	Tilt	2	1154M	29.3	99.8	0.284	-	1.086	1.002	-	
5290	58	802.11ac	OFDM	80	11.0	10.64	0.05	Left	Cheek	2	1154M	29.3	99.8	0.293	-	1.086	1.002	-	
5290	58	802.11ac	OFDM	80	11.0	10.64	0.09	Left	Tilt	2	1154M	29.3	99.8	0.223	-	1.086	1.002	-	
5690	138	802.11ac	OFDM	80	11.0	10.72	0.12	Right	Cheek	1	1154M	29.3	99.8	0.780	0.325	1.067	1.002	**0.347**	A9
5690	138	802.11ac	OFDM	80	11.0	10.72	0.04	Right	Tilt	1	1154M	29.3	99.8	0.659	-	1.067	1.002	-	
5690	138	802.11ac	OFDM	80	11.0	10.72	0.04	Left	Cheek	1	1154M	29.3	99.8	0.285	-	1.067	1.002	-	
5690	138	802.11ac	OFDM	80	11.0	10.72	0.12	Left	Tilt	1	1154M	29.3	99.8	0.288	-	1.067	1.002	-	
5530	106	802.11ac	OFDM	80	11.0	10.88	-0.02	Right	Cheek	2	1154M	29.3	99.8	0.206	0.070	1.028	1.002	0.072	
5530	106	802.11ac	OFDM	80	11.0	10.88	0.16	Right	Tilt	2	1154M	29.3	99.8	0.203	-	1.028	1.002	-	
5530	106	802.11ac	OFDM	80	11.0	10.88	0.02	Left	Cheek	2	1154M	29.3	99.8	0.173	-	1.028	1.002	-	
5530	106	802.11ac	OFDM	80	11.0	10.88	0.11	Left	Tilt	2	1154M	29.3	99.8	0.155	-	1.028	1.002	-	
5775	155	802.11ac	OFDM	80	11.0	10.49	0.02	Right	Cheek	1	1154M	29.3	99.8	0.727	0.313	1.125	1.002	**0.353**	
5775	155	802.11ac	OFDM	80	11.0	10.49	0.17	Right	Tilt	1	1154M	29.3	99.8	0.606	-	1.125	1.002	-	
5775	155	802.11ac	OFDM	80	11.0	10.49	0.06	Left	Cheek	1	1154M	29.3	99.8	0.192	-	1.125	1.002	-	
5775	155	802.11ac	OFDM	80	11.0	10.49	0.17	Left	Tilt	1	1154M	29.3	99.8	0.193	-	1.125	1.002	-	
5775	155	802.11ac	OFDM	80	11.0	10.72	0.09	Right	Cheek	2	1154M	29.3	99.8	0.178	-	1.067	1.002	-	
5775	155	802.11ac	OFDM	80	11.0	10.72	0.18	Right	Tilt	2	1154M	29.3	99.8	0.194	0.059	1.067	1.002	0.063	
5775	155	802.11ac	OFDM	80	11.0	10.72	0.17	Left	Cheek	2	1154M	29.3	99.8	0.150	-	1.067	1.002	-	
5775	155	802.11ac	OFDM	80	11.0	10.72	0.16	Left	Tilt	2	1154M	29.3	99.8	0.177	-	1.067	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											

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Table 11-10
DSS Head SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	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	14.0	13.47	-0.03	Right	Cheek	1	1026M	1	77.9	0.277	1.130	1.284	0.402	
2441.00	39	Bluetooth	FHSS	14.0	13.47	0.19	Right	Tilt	1	1026M	1	77.9	0.330	1.130	1.284	0.479	
2441.00	39	Bluetooth	FHSS	14.0	13.47	0.15	Left	Cheek	1	1026M	1	77.9	0.265	1.130	1.284	0.384	
2441.00	39	Bluetooth	FHSS	14.0	13.47	0.14	Left	Tilt	1	1026M	1	77.9	0.385	1.130	1.284	**0.559**	A10
2441.00	39	Bluetooth	FHSS	14.0	13.62	0.02	Right	Cheek	2	1026M	1	77.3	0.107	1.091	1.294	0.151	
2441.00	39	Bluetooth	FHSS	14.0	13.62	-0.05	Right	Tilt	2	1026M	1	77.3	0.083	1.091	1.294	0.117	
2441.00	39	Bluetooth	FHSS	14.0	13.62	0.00	Left	Cheek	2	1026M	1	77.3	0.177	1.091	1.294	0.250	
2441.00	39	Bluetooth	FHSS	14.0	13.62	0.04	Left	Tilt	2	1026M	1	77.3	0.164	1.091	1.294	0.232	
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 11-11
GSM/UMTS Body-Worn SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Tune State	Device Serial Number	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.5	32.66	-0.02	15 mm	Ant A	N/A	0629M	1:8.3	back	0.238	1.213	0.289	A11
836.60	190	GSM 850	GSM	32.0	31.38	0.07	15 mm	Ant B	N/A	0629M	1:8.3	back	0.063	1.153	0.073	
1880.00	661	GSM 1900	GSM	30.5	28.80	0.03	15 mm	Ant B	N/A	0679M	1:8.3	back	0.184	1.479	0.272	A13
836.60	4183	UMTS 850	RMC	25.8	24.41	0.00	15 mm	Ant A	0	0629M	1:1	back	0.240	1.377	**0.330**	A15
836.60	4183	UMTS 850	RMC	24.3	23.28	0.07	15 mm	Ant B	N/A	0629M	1:1	back	0.096	1.265	0.121	
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 11-12
LTE Body-Worn SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Tune State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	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	9	25.8	25.09	-0.01	0	Ant A	0655M	QPSK	1	0	15 mm	back	1:1	0.164	1.178	0.193	A17
707.50	23095	Mid	LTE Band 12	10	9	24.8	23.93	0.02	1	Ant A	0655M	QPSK	25	12	15 mm	back	1:1	0.123	1.222	0.150	
782.00	23230	Mid	LTE Band 13	10	0	25.8	25.18	-0.06	0	Ant A	0655M	QPSK	1	49	15 mm	back	1:1	0.201	1.153	0.232	A19
782.00	23230	Mid	LTE Band 13	10	0	24.8	24.19	-0.04	1	Ant A	0655M	QPSK	25	25	15 mm	back	1:1	0.155	1.151	0.178	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	25.8	24.74	-0.02	0	Ant A	0655M	QPSK	1	0	15 mm	back	1:1	0.261	1.276	**0.333**	A21
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	0.01	1	Ant A	0655M	QPSK	25	12	15 mm	back	1:1	0.210	1.262	0.265	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	0.02	0	Ant B	0624M	QPSK	1	0	15 mm	back	1:1	0.072	1.256	0.090	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	0.05	1	Ant B	0624M	QPSK	25	0	15 mm	back	1:1	0.058	1.291	0.075	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Body** **1.6 W/kg (mW/g)** averaged over 1 gram													

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Table 11-13
LTE Band 41 Body-Worn SAR

MEASUREMENT RESULTS																							
1 CC Uplink | 2 CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
		MHz	Ch.																			
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.16	0.07	0	Ant B	0674M	QPSK	1	0	15 mm	back	1:1.58	0.139	1.361	0.189	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	0.08	0	Ant B	0674M	QPSK	1	50	15 mm	back	1:1.58	0.143	1.183	0.169	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	0.13	1	Ant B	0674M	QPSK	50	25	15 mm	back	1:1.58	0.113	1.140	0.129	
2 CC Uplink	PCC	2680.00	41490	High	LTE Band 41	20	23.5	22.89	-0.07	0	Ant B	0674M	QPSK	1	0	15 mm	back	1:1.58	0.170	1.151	0.196	A23
	SCC	2660.20	41292												99							

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

Table 11-14
DTS Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan W/kg	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
2437	6	802.11b	DSSS	22	19.0	18.99	0.09	15 mm	1	1154M	1	back	99.8	0.023	0.015	1.002	1.002	0.015	
2462	11	802.11b	DSSS	22	19.0	18.99	0.07	15 mm	2	1154M	1	back	99.9	0.041	0.025	1.002	1.001	**0.025**	A25

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 11-15
NII Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan W/kg	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
5300	60	802.11a	OFDM	20	18.0	17.72	0.06	15 mm	1	1026M	6	back	99.2	0.016	0.005	1.067	1.008	**0.005**	
5300	60	802.11a	OFDM	20	18.0	17.99	0.04	15 mm	2	1026M	6	back	99.4	0.006	0.002	1.002	1.006	0.002	
5500	100	802.11a	OFDM	20	18.0	17.89	0.05	15 mm	1	1026M	6	back	99.2	0.014	0.003	1.026	1.008	0.003	
5600	120	802.11a	OFDM	20	18.0	17.82	-0.10	15 mm	2	1026M	6	back	99.4	0.018	0.000	1.042	1.006	0.000	
5785	157	802.11a	OFDM	20	18.0	17.92	0.07	15 mm	1	1026M	6	back	99.2	0.022	0.010	1.019	1.008	**0.010**	A27
5785	157	802.11a	OFDM	20	18.0	17.92	-0.08	15 mm	2	1026M	6	back	99.4	0.022	0.009	1.019	1.006	**0.009**	

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

Table 11-16
DSS Body-Worn SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g) (W/kg)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																
2441	39	Bluetooth	FHSS	20.0	19.53	0.02	15 mm	1	1154M	1	back	77.9	0.009	1.115	1.284	**0.013**	
2441	39	Bluetooth	FHSS	20.0	19.23	0.09	15 mm	2	1154M	1	back	77.3	0.010	1.193	1.294	**0.015**	A29

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

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11.3 Standalone Hotspot SAR Data

Table 11-17
GPRS 850 Hotspot SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
824.20	128	GSM 850	GPRS	30.5	29.38	-0.19	10 mm	Ant A	0629M	3	1:2.76	back	0.465	1.294	0.602	
836.60	190	GSM 850	GPRS	30.5	29.32	-0.13	10 mm	Ant A	0629M	3	1:2.76	back	0.564	1.312	0.740	A12
848.80	251	GSM 850	GPRS	30.5	29.44	-0.07	10 mm	Ant A	0629M	3	1:2.76	back	0.536	1.276	0.684	
836.60	190	GSM 850	GPRS	30.5	29.32	-0.11	10 mm	Ant A	0629M	3	1:2.76	front	0.135	1.312	0.177	
836.60	190	GSM 850	GPRS	30.5	29.32	-0.01	10 mm	Ant A	0629M	3	1:2.76	bottom	0.252	1.312	0.331	
836.60	190	GSM 850	GPRS	30.5	29.32	-0.07	10 mm	Ant A	0629M	3	1:2.76	right	0.368	1.312	0.483	
836.60	190	GSM 850	GPRS	29.0	28.35	-0.02	10 mm	Ant B	0629M	3	1:2.76	back	0.229	1.161	0.266	
836.60	190	GSM 850	GPRS	29.0	28.35	-0.13	10 mm	Ant B	0629M	3	1:2.76	front	0.047	1.161	0.055	
836.60	190	GSM 850	GPRS	29.0	28.35	-0.02	10 mm	Ant B	0629M	3	1:2.76	bottom	0.069	1.161	0.080	
836.60	190	GSM 850	GPRS	29.0	28.35	0.11	10 mm	Ant B	0629M	3	1:2.76	right	0.052	1.161	0.060	
836.60	190	GSM 850	GPRS	29.0	28.35	-0.12	10 mm	Ant B	0629M	3	1:2.76	left	0.074	1.161	0.086	
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
GPRS 1900 Hotspot SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GPRS	24.5	22.53	0.03	10 mm	Ant B	0679M	3	1:2.76	back	0.271	1.574	0.427	
1880.00	661	GSM 1900	GPRS	24.5	22.53	0.07	10 mm	Ant B	0679M	3	1:2.76	front	0.056	1.574	0.088	
1850.20	512	GSM 1900	GPRS	24.5	22.61	0.06	10 mm	Ant B	0679M	3	1:2.76	bottom	0.508	1.545	0.785	
1880.00	661	GSM 1900	GPRS	24.5	22.53	0.09	10 mm	Ant B	0679M	3	1:2.76	bottom	0.630	1.574	**0.992**	A14
1909.80	810	GSM 1900	GPRS	24.5	22.50	0.18	10 mm	Ant B	0679M	3	1:2.76	bottom	0.624	1.585	**0.989**	
1880.00	661	GSM 1900	GPRS	24.5	22.53	0.03	10 mm	Ant B	0679M	3	1:2.76	right	0.191	1.574	0.301	
1880.00	661	GSM 1900	GPRS	24.5	22.53	-0.02	10 mm	Ant B	0679M	3	1:2.76	left	0.039	1.574	0.061	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram			

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Table 11-19
UMTS 850 Hotspot SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Tune State	Device Serial Number	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
826.40	4132	UMTS 850	RMC	25.8	24.38	0.02	10 mm	Ant A	0	0629M	1:1	back	0.405	1.387	0.562	
836.60	4183	UMTS 850	RMC	25.8	24.41	0.00	10 mm	Ant A	0	0629M	1:1	back	0.492	1.377	0.677	
846.60	4233	UMTS 850	RMC	25.8	24.33	-0.02	10 mm	Ant A	0	0629M	1:1	back	0.493	1.403	0.692	A16
836.60	4183	UMTS 850	RMC	25.8	24.41	-0.01	10 mm	Ant A	0	0629M	1:1	front	0.111	1.377	0.153	
836.60	4183	UMTS 850	RMC	25.8	24.41	-0.01	10 mm	Ant A	0	0629M	1:1	bottom	0.250	1.377	0.344	
836.60	4183	UMTS 850	RMC	25.8	24.41	-0.04	10 mm	Ant A	0	0629M	1:1	right	0.322	1.377	0.443	
836.60	4183	UMTS 850	RMC	24.3	23.28	0.02	10 mm	Ant B	N/A	0629M	1:1	back	0.242	1.265	0.306	
836.60	4183	UMTS 850	RMC	24.3	23.28	-0.02	10 mm	Ant B	N/A	0629M	1:1	front	0.046	1.265	0.058	
836.60	4183	UMTS 850	RMC	24.3	23.28	-0.07	10 mm	Ant B	N/A	0629M	1:1	bottom	0.087	1.265	0.110	
836.60	4183	UMTS 850	RMC	24.3	23.28	-0.01	10 mm	Ant B	N/A	0629M	1:1	right	0.050	1.265	0.063	
836.60	4183	UMTS 850	RMC	24.3	23.28	0.02	10 mm	Ant B	N/A	0629M	1:1	left	0.073	1.265	0.092	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram			

Table 11-20
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Tune State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	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	9	25.8	25.09	0.03	0	Ant A	0655M	QPSK	1	0	10 mm	back	1:1	0.354	1.178	0.417	
707.50	23095	Mid	LTE Band 12	10	9	24.8	23.93	0.08	1	Ant A	0655M	QPSK	25	12	10 mm	back	1:1	0.264	1.222	0.323	
707.50	23095	Mid	LTE Band 12	10	9	25.8	25.09	0.02	0	Ant A	0655M	QPSK	1	0	10 mm	front	1:1	0.116	1.178	0.137	
707.50	23095	Mid	LTE Band 12	10	9	24.8	23.93	0.00	1	Ant A	0655M	QPSK	25	12	10 mm	front	1:1	0.089	1.222	0.109	
707.50	23095	Mid	LTE Band 12	10	9	25.8	25.09	-0.02	0	Ant A	0655M	QPSK	1	0	10 mm	bottom	1:1	0.204	1.178	0.240	
707.50	23095	Mid	LTE Band 12	10	9	24.8	23.93	0.03	1	Ant A	0655M	QPSK	25	12	10 mm	bottom	1:1	0.155	1.222	0.189	
707.50	23095	Mid	LTE Band 12	10	9	25.8	25.09	0.00	0	Ant A	0655M	QPSK	1	0	10 mm	right	1:1	0.411	1.178	0.484	A18
707.50	23095	Mid	LTE Band 12	10	9	24.8	23.93	0.00	1	Ant A	0655M	QPSK	25	12	10 mm	right	1:1	0.321	1.222	0.392	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Body 1.6 W/kg (mW/g) averaged over 1 gram					

Table 11-21
LTE Band 13 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Tune State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	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	0	25.8	25.18	0.09	0	Ant A	0655M	QPSK	1	49	10 mm	back	1:1	0.431	1.153	0.497	A20
782.00	23230	Mid	LTE Band 13	10	0	24.8	24.19	0.09	1	Ant A	0655M	QPSK	25	25	10 mm	back	1:1	0.331	1.151	0.381	
782.00	23230	Mid	LTE Band 13	10	0	25.8	25.18	0.06	0	Ant A	0655M	QPSK	1	49	10 mm	front	1:1	0.136	1.153	0.157	
782.00	23230	Mid	LTE Band 13	10	0	24.8	24.19	0.04	1	Ant A	0655M	QPSK	25	25	10 mm	front	1:1	0.109	1.151	0.125	
782.00	23230	Mid	LTE Band 13	10	0	25.8	25.18	-0.01	0	Ant A	0655M	QPSK	1	49	10 mm	bottom	1:1	0.191	1.153	0.220	
782.00	23230	Mid	LTE Band 13	10	0	24.8	24.19	0.03	1	Ant A	0655M	QPSK	25	25	10 mm	bottom	1:1	0.156	1.151	0.180	
782.00	23230	Mid	LTE Band 13	10	0	25.8	25.18	0.01	0	Ant A	0655M	QPSK	1	49	10 mm	right	1:1	0.337	1.153	0.389	
782.00	23230	Mid	LTE Band 13	10	0	24.8	24.19	0.00	1	Ant A	0655M	QPSK	25	25	10 mm	right	1:1	0.283	1.151	0.326	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Body 1.6 W/kg (mW/g) averaged over 1 gram					

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Table 11-22
LTE Band 5 (Cell) Hotspot SAR

MEASUREMENT RESULTS																						
FREQUENCY			Mode	Bandwidth [MHz]	Tune State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	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	0	25.8	24.74	0.03	0	Ant A	0655M	QPSK	1	0	10 mm	back	1:1	0.527	1.276	0.672	A22
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	0.02	1	Ant A	0655M	QPSK	25	12	10 mm	back	1:1	0.429	1.262	0.541	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	25.8	24.74	0.10	0	Ant A	0655M	QPSK	1	0	10 mm	front	1:1	0.138	1.276	0.176	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	0.00	1	Ant A	0655M	QPSK	25	12	10 mm	front	1:1	0.105	1.262	0.133	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	25.8	24.74	-0.07	0	Ant A	0655M	QPSK	1	0	10 mm	bottom	1:1	0.251	1.276	0.320	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	0.01	1	Ant A	0655M	QPSK	25	12	10 mm	bottom	1:1	0.202	1.262	0.255	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	25.8	24.74	0.01	0	Ant A	0655M	QPSK	1	0	10 mm	right	1:1	0.335	1.276	0.427	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	0.00	1	Ant A	0655M	QPSK	25	12	10 mm	right	1:1	0.263	1.262	0.332	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	0.05	0	Ant B	0624M	QPSK	1	0	10 mm	back	1:1	0.198	1.256	0.249	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	0.08	1	Ant B	0624M	QPSK	25	0	10 mm	back	1:1	0.160	1.291	0.207	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	0.03	0	Ant B	0624M	QPSK	1	0	10 mm	front	1:1	0.031	1.256	0.039	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	0.03	1	Ant B	0624M	QPSK	25	0	10 mm	front	1:1	0.025	1.291	0.032	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	-0.04	0	Ant B	0624M	QPSK	1	0	10 mm	bottom	1:1	0.082	1.256	0.103	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	-0.08	1	Ant B	0624M	QPSK	25	0	10 mm	bottom	1:1	0.068	1.291	0.088	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	0.02	0	Ant B	0624M	QPSK	1	0	10 mm	right	1:1	0.036	1.256	0.045	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	0.03	1	Ant B	0624M	QPSK	25	0	10 mm	right	1:1	0.032	1.291	0.041	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	-0.05	0	Ant B	0624M	QPSK	1	0	10 mm	left	1:1	0.052	1.256	0.065	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	0.05	1	Ant B	0624M	QPSK	25	0	10 mm	left	1:1	0.042	1.291	0.054	
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 11-23
LTE Band 41 Hotspot SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.																(W/kg)		(W/kg)	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.77	0.09	0	Ant B	0674M	QPSK	1	50	10 mm	back	1:1.58	0.158	1.183	0.187	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.88	0.06	0	Ant B	0674M	QPSK	50	25	10 mm	back	1:1.58	0.162	1.153	0.187	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.77	0.06	0	Ant B	0674M	QPSK	1	50	10 mm	front	1:1.58	0.107	1.183	0.127	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.88	0.06	0	Ant B	0674M	QPSK	50	25	10 mm	front	1:1.58	0.110	1.153	0.127	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	19.5	18.22	-0.11	0	Ant B	0674M	QPSK	1	99	10 mm	bottom	1:1.58	0.462	1.343	0.620	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	19.5	18.19	0.05	0	Ant B	0674M	QPSK	1	0	10 mm	bottom	1:1.58	0.476	1.352	0.644	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	19.5	17.95	-0.08	0	Ant B	0674M	QPSK	1	50	10 mm	bottom	1:1.58	0.503	1.429	0.719	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	19.5	18.34	-0.04	0	Ant B	0674M	QPSK	1	99	10 mm	bottom	1:1.58	0.483	1.306	0.631	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.77	0.03	0	Ant B	0674M	QPSK	1	50	10 mm	bottom	1:1.58	0.575	1.183	0.680	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	19.5	18.40	0.08	0	Ant B	0674M	QPSK	50	25	10 mm	bottom	1:1.58	0.475	1.288	0.612	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	19.5	18.32	-0.12	0	Ant B	0674M	QPSK	50	25	10 mm	bottom	1:1.58	0.512	1.312	0.672	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	19.5	18.17	0.07	0	Ant B	0674M	QPSK	50	25	10 mm	bottom	1:1.58	0.529	1.358	0.718	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	19.5	18.43	-0.10	0	Ant B	0674M	QPSK	50	0	10 mm	bottom	1:1.58	0.563	1.279	0.720	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.88	-0.07	0	Ant B	0674M	QPSK	50	25	10 mm	bottom	1:1.58	0.587	1.153	0.677	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.76	0.07	0	Ant B	0674M	QPSK	100	0	10 mm	bottom	1:1.58	0.565	1.186	0.670	
2 CC Uplink	PCC	2636.50	41055	Mid-High	LTE Band 41	20	19.5	18.75	-0.05	0	Ant B	0674M	QPSK	50	0	10 mm	bottom	1:1.58	0.618	1.189	0.735	A24
	SCC	2616.70	40857												50							
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.77	0.06	0	Ant B	0674M	QPSK	1	50	10 mm	right	1:1.58	0.053	1.183	0.063	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.88	0.09	0	Ant B	0674M	QPSK	50	25	10 mm	right	1:1.58	0.042	1.153	0.048	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.77	0.11	0	Ant B	0674M	QPSK	1	50	10 mm	left	1:1.58	0.015	1.183	0.018	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.88	0.11	0	Ant B	0674M	QPSK	50	25	10 mm	left	1:1.58	0.016	1.153	0.018	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram						

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Table 11-24
WLAN Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2437	6	802.11b	DSSS	22	19.0	18.99	0.03	10 mm	1	1154M	1	back	99.8	0.034	-	1.002	1.002	-	
2437	6	802.11b	DSSS	22	19.0	18.99	0.03	10 mm	1	1154M	1	front	99.8	0.339	-	1.002	1.002	-	
2437	6	802.11b	DSSS	22	19.0	18.99	0.02	10 mm	1	1154M	1	top	99.8	0.591	0.386	1.002	1.002	**0.388**	A26
2437	6	802.11b	DSSS	22	19.0	18.99	0.01	10 mm	1	1154M	1	left	99.8	0.076	-	1.002	1.002	-	
2462	11	802.11b	DSSS	22	19.0	18.99	0.05	10 mm	2	1154M	1	back	99.9	0.048	-	1.002	1.001	-	
2462	11	802.11b	DSSS	22	19.0	18.99	0.07	10 mm	2	1154M	1	front	99.9	0.287	0.184	1.002	1.001	0.185	
2462	11	802.11b	DSSS	22	19.0	18.99	0.02	10 mm	2	1154M	1	top	99.9	0.233	-	1.002	1.001	-	
2462	11	802.11b	DSSS	22	19.0	18.99	0.04	10 mm	2	1154M	1	right	99.9	0.013	-	1.002	1.001	-	
2462	11	802.11b	DSSS	22	19.0	18.99	0.15	10 mm	2	1154M	1	left	99.9	0.251	-	1.002	1.001	-	
5785	157	802.11a	OFDM	20	18.0	17.92	0.10	10 mm	1	1026M	6	back	99.2	0.035	-	1.019	1.008	-	
5785	157	802.11a	OFDM	20	18.0	17.92	-0.10	10 mm	1	1026M	6	front	99.2	0.474	0.205	1.019	1.008	**0.211**	A28
5785	157	802.11a	OFDM	20	18.0	17.92	0.04	10 mm	1	1026M	6	top	99.2	0.386	-	1.019	1.008	-	
5785	157	802.11a	OFDM	20	18.0	17.92	0.09	10 mm	1	1026M	6	left	99.2	0.123	-	1.019	1.008	-	
5785	157	802.11a	OFDM	20	18.0	17.92	-0.07	10 mm	2	1026M	6	back	99.4	0.023	-	1.019	1.006	-	
5785	157	802.11a	OFDM	20	18.0	17.92	-0.10	10 mm	2	1026M	6	front	99.4	0.408	0.166	1.019	1.006	0.170	
5785	157	802.11a	OFDM	20	18.0	17.92	-0.03	10 mm	2	1026M	6	top	99.4	0.188	-	1.019	1.006	-	
5785	157	802.11a	OFDM	20	18.0	17.92	-0.04	10 mm	2	1026M	6	right	99.4	0.175	-	1.019	1.006	-	
5785	157	802.11a	OFDM	20	18.0	17.92	0.10	10 mm	2	1026M	6	left	99.4	0.028	-	1.019	1.006	-	

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

Table 11-25
DSS Hotspot SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	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	20.0	19.53	0.04	10 mm	1	1154M	1	back	77.9	0.013	1.115	1.284	0.019	
2441	39	Bluetooth	FHSS	20.0	19.53	0.09	10 mm	1	1154M	1	front	77.9	0.143	1.115	1.284	0.205	
2441	39	Bluetooth	FHSS	20.0	19.53	0.02	10 mm	1	1154M	1	top	77.9	0.281	1.115	1.284	**0.402**	A30
2441	39	Bluetooth	FHSS	20.0	19.53	0.05	10 mm	1	1154M	1	left	77.9	0.024	1.115	1.284	0.034	
2441	39	Bluetooth	FHSS	20.0	19.23	0.06	10 mm	2	1154M	1	back	77.3	0.023	1.193	1.294	0.036	
2441	39	Bluetooth	FHSS	20.0	19.23	0.13	10 mm	2	1154M	1	front	77.3	0.106	1.193	1.294	0.164	
2441	39	Bluetooth	FHSS	20.0	19.23	-0.02	10 mm	2	1154M	1	top	77.3	0.066	1.193	1.294	0.102	
2441	39	Bluetooth	FHSS	20.0	19.23	-0.03	10 mm	2	1154M	1	right	77.3	0.137	1.193	1.294	0.211	
2441	39	Bluetooth	FHSS	20.0	19.23	0.05	10 mm	2	1154M	1	left	77.3	0.008	1.193	1.294	0.012	

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

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11.4 Standalone Phablet SAR Data

Table 11-26
GPRS 1900 Phablet SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GPRS	27.5	25.93	-0.04	10 mm	Ant B	0679M	3	1:2.76	back	0.238	1.435	0.342	
1880.00	661	GSM 1900	GPRS	27.5	25.93	0.04	0 mm	Ant B	0679M	3	1:2.76	front	0.224	1.435	0.321	
1880.00	661	GSM 1900	GPRS	27.5	25.93	0.00	12 mm	Ant B	0679M	3	1:2.76	bottom	0.456	1.435	0.654	
1880.00	661	GSM 1900	GPRS	27.5	25.93	-0.10	0 mm	Ant B	0679M	3	1:2.76	right	0.849	1.435	1.218	
1880.00	661	GSM 1900	GPRS	27.5	25.93	0.03	0 mm	Ant B	0679M	3	1:2.76	left	0.122	1.435	0.175	
1880.00	661	GSM 1900	GPRS	24.5	22.53	0.06	0 mm	Ant B	0679M	3	1:2.76	back	0.991	1.574	1.560	
1850.20	512	GSM 1900	GPRS	24.5	22.61	-0.13	0 mm	Ant B	0679M	3	1:2.76	bottom	1.320	1.545	2.039	
1880.00	661	GSM 1900	GPRS	24.5	22.53	-0.07	0 mm	Ant B	0679M	3	1:2.76	bottom	1.270	1.574	1.999	
1909.80	810	GSM 1900	GPRS	24.5	22.50	0.09	0 mm	Ant B	0679M	3	1:2.76	bottom	1.350	1.585	**2.140**	A31
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**													**Phablet** **4.0 W/kg (mW/g)** averaged over 10 grams			

Table 11-27
LTE Band 41 Phablet SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	0.02	0	0674M	QPSK	1	50	10 mm	back	1:1.58	0.219	1.183	0.259	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	0.02	1	0674M	QPSK	50	25	10 mm	back	1:1.58	0.181	1.140	0.206	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	-0.02	0	0674M	QPSK	1	50	0 mm	front	1:1.58	0.668	1.183	0.790	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	-0.02	1	0674M	QPSK	50	25	0 mm	front	1:1.58	0.558	1.140	0.636	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	-0.02	0	0674M	QPSK	1	50	12 mm	bottom	1:1.58	0.420	1.183	0.497	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	0.01	1	0674M	QPSK	50	25	12 mm	bottom	1:1.58	0.345	1.140	0.393	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	-0.03	0	0674M	QPSK	1	50	0 mm	right	1:1.58	0.224	1.183	0.265	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	-0.01	1	0674M	QPSK	50	25	0 mm	right	1:1.58	0.185	1.140	0.211	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	0.17	0	0674M	QPSK	1	50	0 mm	left	1:1.58	0.113	1.183	0.134	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	0.14	1	0674M	QPSK	50	25	0 mm	left	1:1.58	0.094	1.140	0.107	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.77	-0.13	0	0674M	QPSK	1	50	0 mm	back	1:1.58	0.604	1.183	0.715	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.88	-0.15	0	0674M	QPSK	50	25	0 mm	back	1:1.58	0.660	1.153	0.761	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	19.5	18.22	-0.02	0	0674M	QPSK	1	99	0 mm	bottom	1:1.58	1.070	1.343	1.437	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	19.5	18.19	-0.09	0	0674M	QPSK	1	0	0 mm	bottom	1:1.58	1.160	1.352	1.568	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	19.5	17.63	-0.16	0	0674M	QPSK	1	0	0 mm	bottom	1:1.58	1.030	1.538	1.584	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	19.5	17.95	-0.13	0	0674M	QPSK	1	50	0 mm	bottom	1:1.58	1.170	1.429	1.672	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	19.5	18.34	0.09	0	0674M	QPSK	1	99	0 mm	bottom	1:1.58	1.150	1.306	1.502	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.77	-0.02	0	0674M	QPSK	1	50	0 mm	bottom	1:1.58	1.300	1.183	1.538	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	19.5	18.40	-0.02	0	0674M	QPSK	50	25	0 mm	bottom	1:1.58	1.160	1.288	1.494	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	19.5	18.32	-0.14	0	0674M	QPSK	50	25	0 mm	bottom	1:1.58	1.200	1.312	1.574	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	19.5	18.17	-0.13	0	0674M	QPSK	50	25	0 mm	bottom	1:1.58	1.210	1.358	1.643	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	19.5	18.43	0.13	0	0674M	QPSK	50	0	0 mm	bottom	1:1.58	1.270	1.279	1.624	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.88	-0.16	0	0674M	QPSK	50	25	0 mm	bottom	1:1.58	1.230	1.153	1.418	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.76	-0.09	0	0674M	QPSK	100	0	0 mm	bottom	1:1.58	1.400	1.186	1.660	A32
2 CC Uplink	PCC	2593.00	40620	Mid	LTE Band 41	20	19.5	18.30	-0.05	0	0674M	QPSK	1	0	0 mm	bottom	1:1.58	1.230	1.318	1.621	
	SCC	2573.20	40422											99							
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**													**Phablet** **4.0 W/kg (mW/g)** averaged over 10 grams								

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Table 11-28
WLAN Phablet SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5300	60	802.11a	OFDM	20	18.0	17.72	0.03	0 mm	1	1026M	6	back	99.2	0.067	-	1.067	1.008	-	
5300	60	802.11a	OFDM	20	18.0	17.72	0.04	0 mm	1	1026M	6	front	99.2	7.694	0.873	1.067	1.008	0.939	
5300	60	802.11a	OFDM	20	18.0	17.72	-0.18	0 mm	1	1026M	6	top	99.2	9.907	0.867	1.067	1.008	0.932	
5300	60	802.11a	OFDM	20	18.0	17.72	0.03	0 mm	1	1026M	6	left	99.2	0.319	-	1.067	1.008	-	
5300	60	802.11a	OFDM	20	18.0	17.99	0.04	0 mm	2	1026M	6	back	99.4	0.044	-	1.002	1.006	-	
5300	60	802.11a	OFDM	20	18.0	17.99	0.19	0 mm	2	1026M	6	front	99.4	7.866	0.679	1.002	1.006	0.684	
5300	60	802.11a	OFDM	20	18.0	17.99	-0.14	0 mm	2	1026M	6	top	99.4	3.155	-	1.002	1.006	-	
5300	60	802.11a	OFDM	20	18.0	17.99	-0.19	0 mm	2	1026M	6	right	99.4	2.143	-	1.002	1.006	-	
5300	60	802.11a	OFDM	20	18.0	17.99	0.10	0 mm	2	1026M	6	left	99.4	0.078	-	1.002	1.006	-	
5500	100	802.11a	OFDM	20	18.0	17.89	0.03	0 mm	1	1026M	6	back	99.2	0.067	-	1.026	1.008	-	
5500	100	802.11a	OFDM	20	18.0	17.89	0.02	0 mm	1	1026M	6	front	99.2	8.615	1.130	1.026	1.008	**1.169**	A33
5500	100	802.11a	OFDM	20	18.0	17.89	-0.02	0 mm	1	1026M	6	top	99.2	10.483	0.882	1.026	1.008	0.912	
5500	100	802.11a	OFDM	20	18.0	17.89	0.07	0 mm	1	1026M	6	left	99.2	0.453	-	1.026	1.008	-	
5600	120	802.11a	OFDM	20	18.0	17.82	0.10	0 mm	2	1026M	6	back	99.4	0.078	-	1.042	1.006	-	
5600	120	802.11a	OFDM	20	18.0	17.82	-0.07	0 mm	2	1026M	6	front	99.4	8.692	0.736	1.042	1.006	0.772	
5600	120	802.11a	OFDM	20	18.0	17.82	-0.13	0 mm	2	1026M	6	top	99.4	3.633	-	1.042	1.006	-	
5600	120	802.11a	OFDM	20	18.0	17.82	-0.14	0 mm	2	1026M	6	right	99.4	1.479	-	1.042	1.006	-	
5600	120	802.11a	OFDM	20	18.0	17.82	0.00	0 mm	2	1026M	6	left	99.4	0.019	-	1.042	1.006	-	
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 Standalone UMPC Body SAR

Table 11-29
GSM 850 UMPC Body SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
824.20	128	GSM 850	GPRS	30.5	29.38	-0.19	10 mm	Ant A	0629M	3	1:2.76	back	0.539	1.294	0.697	
836.60	190	GSM 850	GPRS	30.5	29.32	-0.09	10 mm	Ant A	0629M	3	1:2.76	back	0.652	1.312	0.855	
848.80	251	GSM 850	GPRS	30.5	29.44	-0.03	10 mm	Ant A	0629M	3	1:2.76	back	0.797	1.276	1.017	A34
836.60	190	GSM 850	GPRS	30.5	29.32	-0.01	10 mm	Ant A	0629M	3	1:2.76	front	0.386	1.312	0.506	
836.60	190	GSM 850	GPRS	30.5	29.32	-0.01	10 mm	Ant A	0629M	3	1:2.76	bottom	0.354	1.312	0.464	
836.60	190	GSM 850	GPRS	30.5	29.32	-0.07	10 mm	Ant A	0629M	3	1:2.76	right	0.342	1.312	0.449	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**													**Body** **1.6 W/kg (mW/g)** averaged over 1 gram			

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Table 11-30
GSM 1900 UMPC Body SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GPRS	27.5	25.93	0.00	12 mm	Ant B	0679M	3	1:2.76	back	0.429	1.435	0.616	
1880.00	661	GSM 1900	GPRS	27.5	25.93	-0.03	10 mm	Ant B	0679M	3	1:2.76	front	0.301	1.435	0.432	
1880.00	661	GSM 1900	GPRS	27.5	25.93	-0.12	16 mm	Ant B	0679M	3	1:2.76	bottom	0.448	1.435	0.643	
1880.00	661	GSM 1900	GPRS	27.5	25.93	-0.07	10 mm	Ant B	0679M	3	1:2.76	right	0.380	1.435	0.545	
1880.00	661	GSM 1900	GPRS	24.5	22.53	0.00	10 mm	Ant B	0679M	3	1:2.76	back	0.362	1.574	0.570	
1850.20	512	GSM 1900	GPRS	24.5	22.61	0.10	10 mm	Ant B	0679M	3	1:2.76	bottom	0.484	1.545	0.748	
1880.00	661	GSM 1900	GPRS	24.5	22.53	0.03	10 mm	Ant B	0679M	3	1:2.76	bottom	0.630	1.574	0.992	A35
1909.80	810	GSM 1900	GPRS	24.5	22.50	0.11	10 mm	Ant B	0679M	3	1:2.76	bottom	0.517	1.585	0.819	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram			

Table 11-31
UMTS 850 UMPC Body SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Tune State	Device Serial Number	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
826.40	4132	UMTS 850	RMC	25.8	24.38	-0.11	10 mm	Ant A	0	0629M	1:1	back	0.581	1.387	0.806	
836.60	4183	UMTS 850	RMC	25.8	24.41	-0.10	10 mm	Ant A	0	0629M	1:1	back	0.602	1.377	0.829	
846.60	4233	UMTS 850	RMC	25.8	24.33	-0.12	10 mm	Ant A	0	0629M	1:1	back	0.634	1.403	0.890	A36
836.60	4183	UMTS 850	RMC	25.8	24.41	0.01	10 mm	Ant A	0	0629M	1:1	front	0.425	1.377	0.585	
836.60	4183	UMTS 850	RMC	25.8	24.41	-0.03	10 mm	Ant A	0	0629M	1:1	bottom	0.315	1.377	0.434	
836.60	4183	UMTS 850	RMC	25.8	24.41	-0.04	10 mm	Ant A	0	0629M	1:1	right	0.294	1.377	0.405	
836.60	4183	UMTS 850	RMC	24.3	23.28	-0.05	10 mm	Ant B	N/A	0629M	1:1	back	0.273	1.265	0.345	
836.60	4183	UMTS 850	RMC	24.3	23.28	-0.03	10 mm	Ant B	N/A	0629M	1:1	front	0.144	1.265	0.182	
836.60	4183	UMTS 850	RMC	24.3	23.28	-0.05	10 mm	Ant B	N/A	0629M	1:1	bottom	0.272	1.265	0.344	
836.60	4183	UMTS 850	RMC	24.3	23.28	0.05	10 mm	Ant B	N/A	0629M	1:1	right	0.053	1.265	0.067	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram			

Table 11-32
LTE Band 12 UMPC Body SAR

MEASUREMENT RESULTS																						
FREQUENCY			Mode	Bandwidth [MHz]	Tune State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	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	9	25.8	25.09	-0.01	0	Ant A	0655M	QPSK	1	0	10 mm	back	1:1	0.492	1.178	0.580	A37
707.50	23095	Mid	LTE Band 12	10	9	24.8	23.93	-0.01	1	Ant A	0655M	QPSK	25	12	10 mm	back	1:1	0.381	1.222	0.466	
707.50	23095	Mid	LTE Band 12	10	9	25.8	25.09	-0.03	0	Ant A	0655M	QPSK	1	0	10 mm	front	1:1	0.337	1.178	0.397	
707.50	23095	Mid	LTE Band 12	10	9	24.8	23.93	-0.01	1	Ant A	0655M	QPSK	25	12	10 mm	front	1:1	0.257	1.222	0.314	
707.50	23095	Mid	LTE Band 12	10	9	25.8	25.09	0.01	0	Ant A	0655M	QPSK	1	0	10 mm	bottom	1:1	0.276	1.178	0.325	
707.50	23095	Mid	LTE Band 12	10	9	24.8	23.93	-0.05	1	Ant A	0655M	QPSK	25	12	10 mm	bottom	1:1	0.224	1.222	0.274	
707.50	23095	Mid	LTE Band 12	10	9	25.8	25.09	-0.03	0	Ant A	0655M	QPSK	1	0	10 mm	right	1:1	0.338	1.178	0.398	
707.50	23095	Mid	LTE Band 12	10	9	24.8	23.93	-0.05	1	Ant A	0655M	QPSK	25	12	10 mm	right	1:1	0.245	1.222	0.299	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Body 1.6 W/kg (mW/g) averaged over 1 gram					

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Table 11-33
LTE Band 13 UMPC Body SAR

MEASUREMENT RESULTS																						
FREQUENCY			Mode	Bandwidth [MHz]	Tune State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	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	0	25.8	25.18	0.02	0	Ant A	0655M	QPSK	1	49	10 mm	back	1:1	0.524	1.153	0.604	A38
782.00	23230	Mid	LTE Band 13	10	0	24.8	24.19	0.03	1	Ant A	0655M	QPSK	25	25	10 mm	back	1:1	0.414	1.151	0.477	
782.00	23230	Mid	LTE Band 13	10	0	25.8	25.18	-0.01	0	Ant A	0655M	QPSK	1	49	10 mm	front	1:1	0.369	1.153	0.425	
782.00	23230	Mid	LTE Band 13	10	0	24.8	24.19	0.01	1	Ant A	0655M	QPSK	25	25	10 mm	front	1:1	0.298	1.151	0.343	
782.00	23230	Mid	LTE Band 13	10	0	25.8	25.18	-0.01	0	Ant A	0655M	QPSK	1	49	10 mm	bottom	1:1	0.295	1.153	0.340	
782.00	23230	Mid	LTE Band 13	10	0	24.8	24.19	-0.03	1	Ant A	0655M	QPSK	25	25	10 mm	bottom	1:1	0.234	1.151	0.269	
782.00	23230	Mid	LTE Band 13	10	0	25.8	25.18	0.03	0	Ant A	0655M	QPSK	1	49	10 mm	right	1:1	0.281	1.153	0.324	
782.00	23230	Mid	LTE Band 13	10	0	24.8	24.19	0.08	1	Ant A	0655M	QPSK	25	25	10 mm	right	1:1	0.217	1.151	0.250	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram						

Table 11-34
LTE Band 5 (Cell) UMPC Body SAR

MEASUREMENT RESULTS																						
FREQUENCY			Mode	Bandwidth [MHz]	Tune State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	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	0	25.8	24.74	-0.08	0	Ant A	0624M	QPSK	1	0	10 mm	back	1:1	0.629	1.276	0.803	A39
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	-0.13	1	Ant A	0624M	QPSK	25	12	10 mm	back	1:1	0.511	1.262	0.645	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.69	-0.08	1	Ant A	0624M	QPSK	50	0	10 mm	back	1:1	0.500	1.291	0.646	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	25.8	24.74	0.02	0	Ant A	0624M	QPSK	1	0	10 mm	front	1:1	0.435	1.276	0.555	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	0.02	1	Ant A	0624M	QPSK	25	12	10 mm	front	1:1	0.360	1.262	0.454	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	25.8	24.74	0.03	0	Ant A	0624M	QPSK	1	0	10 mm	bottom	1:1	0.271	1.276	0.346	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	0.05	1	Ant A	0624M	QPSK	25	12	10 mm	bottom	1:1	0.216	1.262	0.273	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	25.8	24.74	0.06	0	Ant A	0624M	QPSK	1	0	10 mm	right	1:1	0.276	1.276	0.352	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	0.03	1	Ant A	0624M	QPSK	25	12	10 mm	right	1:1	0.218	1.262	0.275	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	-0.01	0	Ant B	0624M	QPSK	1	0	10 mm	back	1:1	0.242	1.256	0.304	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	0.03	1	Ant B	0624M	QPSK	25	0	10 mm	back	1:1	0.199	1.291	0.257	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	0.01	0	Ant B	0624M	QPSK	1	0	10 mm	front	1:1	0.200	1.256	0.251	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	0.02	1	Ant B	0624M	QPSK	25	0	10 mm	front	1:1	0.165	1.291	0.213	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	-0.04	0	Ant B	0624M	QPSK	1	0	10 mm	bottom	1:1	0.233	1.256	0.293	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	-0.06	1	Ant B	0624M	QPSK	25	0	10 mm	bottom	1:1	0.199	1.291	0.257	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	0.04	0	Ant B	0624M	QPSK	1	0	10 mm	right	1:1	0.041	1.256	0.051	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	0.06	1	Ant B	0624M	QPSK	25	0	10 mm	right	1:1	0.037	1.291	0.048	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram						

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Table 11-35
LTE Band 41 UMPC Body SAR

MEASUREMENT RESULTS																							
1 CC Uplink | 2 CC Uplink	Component Carrier	FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	23.5	22.37	-0.02	0	Ant B	0674M	QPSK	1	0	12 mm	back	1:1.58	0.527	1.297	0.684	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	23.5	22.37	-0.05	0	Ant B	0674M	QPSK	1	0	12 mm	back	1:1.58	0.586	1.297	0.760	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	23.5	22.24	-0.16	0	Ant B	0674M	QPSK	1	50	12 mm	back	1:1.58	0.644	1.337	0.861	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	23.5	22.40	-0.09	0	Ant B	0674M	QPSK	1	50	12 mm	back	1:1.58	0.724	1.288	0.933	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	0.00	0	Ant B	0674M	QPSK	1	50	12 mm	back	1:1.58	0.738	1.183	0.873	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	22.5	21.38	-0.05	1	Ant B	0674M	QPSK	50	25	12 mm	back	1:1.58	0.448	1.294	0.580	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	22.5	21.35	-0.04	1	Ant B	0674M	QPSK	50	25	12 mm	back	1:1.58	0.493	1.303	0.642	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	22.5	21.35	-0.01	1	Ant B	0674M	QPSK	50	25	12 mm	back	1:1.58	0.534	1.303	0.696	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	22.5	21.56	-0.03	1	Ant B	0674M	QPSK	50	25	12 mm	back	1:1.58	0.585	1.242	0.727	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	0.00	1	Ant B	0674M	QPSK	50	25	12 mm	back	1:1.58	0.597	1.140	0.681	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.78	-0.03	1	Ant B	0674M	QPSK	100	0	12 mm	back	1:1.58	0.619	1.180	0.730	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	23.5	22.37	-0.09	0	Ant B	0674M	QPSK	1	0	10 mm	front	1:1.58	0.499	1.297	0.647	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	23.5	22.37	-0.09	0	Ant B	0674M	QPSK	1	0	10 mm	front	1:1.58	0.526	1.297	0.682	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	23.5	22.24	-0.06	0	Ant B	0674M	QPSK	1	50	10 mm	front	1:1.58	0.597	1.337	0.798	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	23.5	22.40	-0.05	0	Ant B	0674M	QPSK	1	50	10 mm	front	1:1.58	0.666	1.288	0.858	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	-0.07	0	Ant B	0674M	QPSK	1	50	10 mm	front	1:1.58	0.660	1.183	0.781	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	22.5	21.38	-0.06	1	Ant B	0674M	QPSK	50	25	10 mm	front	1:1.58	0.421	1.294	0.545	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	22.5	21.35	-0.09	1	Ant B	0674M	QPSK	50	25	10 mm	front	1:1.58	0.451	1.303	0.588	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	22.5	21.35	-0.01	1	Ant B	0674M	QPSK	50	25	10 mm	front	1:1.58	0.493	1.303	0.642	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	22.5	21.56	-0.07	1	Ant B	0674M	QPSK	50	25	10 mm	front	1:1.58	0.529	1.242	0.657	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	0.00	1	Ant B	0674M	QPSK	50	25	10 mm	front	1:1.58	0.539	1.140	0.614	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.78	-0.03	1	Ant B	0674M	QPSK	100	0	10 mm	front	1:1.58	0.519	1.180	0.612	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	23.5	22.37	0.01	0	Ant B	0674M	QPSK	1	0	16 mm	bottom	1:1.58	0.496	1.297	0.643	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	23.5	22.37	0.07	0	Ant B	0674M	QPSK	1	0	16 mm	bottom	1:1.58	0.559	1.297	0.725	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	23.5	22.24	0.02	0	Ant B	0674M	QPSK	1	50	16 mm	bottom	1:1.58	0.625	1.337	0.836	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	23.5	22.40	0.03	0	Ant B	0674M	QPSK	1	50	16 mm	bottom	1:1.58	0.722	1.288	0.930	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	-0.01	0	Ant B	0674M	QPSK	1	50	16 mm	bottom	1:1.58	0.794	1.183	0.939	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	22.5	21.38	-0.12	1	Ant B	0674M	QPSK	50	25	16 mm	bottom	1:1.58	0.447	1.294	0.578	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	22.5	21.35	0.00	1	Ant B	0674M	QPSK	50	25	16 mm	bottom	1:1.58	0.480	1.303	0.625	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	22.5	21.35	0.00	1	Ant B	0674M	QPSK	50	25	16 mm	bottom	1:1.58	0.519	1.303	0.676	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	22.5	21.56	0.04	1	Ant B	0674M	QPSK	50	25	16 mm	bottom	1:1.58	0.591	1.242	0.734	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	0.02	1	Ant B	0674M	QPSK	50	25	16 mm	bottom	1:1.58	0.646	1.140	0.736	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.78	0.01	1	Ant B	0674M	QPSK	100	0	16 mm	bottom	1:1.58	0.621	1.180	0.733	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	0.04	0	Ant B	0674M	QPSK	1	50	10 mm	right	1:1.58	0.115	1.183	0.136	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	0.17	1	Ant B	0674M	QPSK	50	25	10 mm	right	1:1.58	0.090	1.140	0.103	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.77	-0.04	0	Ant B	0674M	QPSK	1	50	10 mm	back	1:1.58	0.498	1.183	0.589	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.88	0.10	0	Ant B	0674M	QPSK	50	25	10 mm	back	1:1.58	0.513	1.153	0.591	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	19.5	18.22	0.03	0	Ant B	0674M	QPSK	1	99	10 mm	bottom	1:1.58	0.525	1.343	0.705	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	19.5	18.19	0.02	0	Ant B	0674M	QPSK	1	0	10 mm	bottom	1:1.58	0.549	1.352	0.742	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	19.5	17.95	0.17	0	Ant B	0674M	QPSK	1	50	10 mm	bottom	1:1.58	0.626	1.429	0.895	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	19.5	18.34	0.01	0	Ant B	0674M	QPSK	1	99	10 mm	bottom	1:1.58	0.722	1.306	0.943	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.77	-0.01	0	Ant B	0674M	QPSK	1	50	10 mm	bottom	1:1.58	0.871	1.183	1.030	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	19.5	18.40	0.03	0	Ant B	0674M	QPSK	50	25	10 mm	bottom	1:1.58	0.524	1.288	0.675	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	19.5	18.32	0.02	0	Ant B	0674M	QPSK	50	25	10 mm	bottom	1:1.58	0.590	1.312	0.774	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	19.5	18.17	0.02	0	Ant B	0674M	QPSK	50	25	10 mm	bottom	1:1.58	0.656	1.358	0.891	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	19.5	18.43	-0.02	0	Ant B	0674M	QPSK	50	0	10 mm	bottom	1:1.58	0.788	1.279	1.008	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.70	0.02	0	Ant B	0674M	QPSK	50	0	10 mm	bottom	1:1.58	0.822	1.202	0.988	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.88	-0.02	0	Ant B	0674M	QPSK	50	25	10 mm	bottom	1:1.58	0.900	1.153	**1.038**	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.76	-0.02	0	Ant B	0674M	QPSK	100	0	10 mm	bottom	1:1.58	0.865	1.186	1.026	
2 CC Uplink	PCC	2680.00	41490	High	LTE Band 41	20	19.5	19.10	-0.01	0	Ant B	0674M	QPSK	50	0	10 mm	bottom	1:1.58	0.942	1.096	1.032	A40
	SCC	2660.20	41292												50							
2 CC Uplink	PCC	2680.00	41490	High	LTE Band 41	20	19.5	19.10	0.03	0	Ant B	0674M	QPSK	50	0	10 mm	bottom	1:1.58	0.938	1.096	1.028	
	SCC	2660.20	41292												50							

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

Note: Blue entry represents variability measurements

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Table 11-36
WLAN UMPC Body SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													(W/kg)			(W/kg)	
2437	6	802.11b	DSSS	22	19.0	18.99	-0.04	10 mm	1	1154M	1	back	99.8	0.241	1.002	1.002	0.242	
2437	6	802.11b	DSSS	22	19.0	18.99	0.16	10 mm	1	1154M	1	front	99.8	0.147	1.002	1.002	0.148	
2437	6	802.11b	DSSS	22	19.0	18.99	0.05	10 mm	1	1154M	1	top	99.8	0.478	1.002	1.002	**0.480**	A41
2462	11	802.11b	DSSS	22	19.0	18.99	0.02	10 mm	2	1154M	1	back	99.9	0.277	1.002	1.001	0.278	
2462	11	802.11b	DSSS	22	19.0	18.99	0.03	10 mm	2	1154M	1	front	99.9	0.143	1.002	1.001	0.143	
2462	11	802.11b	DSSS	22	19.0	18.99	-0.16	10 mm	2	1154M	1	top	99.9	0.194	1.002	1.001	0.195	
2462	11	802.11b	DSSS	22	19.0	18.99	0.02	10 mm	2	1154M	1	left	99.9	0.326	1.002	1.001	0.327	
5300	60	802.11a	OFDM	20	18.0	17.72	0.01	10 mm	1	1026M	6	back	99.2	0.113	1.067	1.008	0.122	
5300	60	802.11a	OFDM	20	18.0	17.72	0.08	10 mm	1	1026M	6	front	99.2	0.035	1.067	1.008	0.038	
5300	60	802.11a	OFDM	20	18.0	17.72	-0.15	10 mm	1	1026M	6	top	99.2	0.156	1.067	1.008	0.168	
5300	60	802.11a	OFDM	20	18.0	17.99	0.15	10 mm	2	1026M	6	back	99.4	0.204	1.002	1.006	**0.206**	A42
5300	60	802.11a	OFDM	20	18.0	17.99	0.05	10 mm	2	1026M	6	front	99.4	0.078	1.002	1.006	0.079	
5300	60	802.11a	OFDM	20	18.0	17.99	0.10	10 mm	2	1026M	6	top	99.4	0.107	1.002	1.006	0.108	
5300	60	802.11a	OFDM	20	18.0	17.99	-0.05	10 mm	2	1026M	6	left	99.4	0.145	1.002	1.006	0.146	
5500	100	802.11a	OFDM	20	18.0	17.89	-0.05	10 mm	1	1026M	6	back	99.2	0.197	1.026	1.008	0.204	
5500	100	802.11a	OFDM	20	18.0	17.89	0.04	10 mm	1	1026M	6	front	99.2	0.075	1.026	1.008	0.078	
5500	100	802.11a	OFDM	20	18.0	17.89	0.02	10 mm	1	1026M	6	top	99.2	0.129	1.026	1.008	0.133	
5600	120	802.11a	OFDM	20	18.0	17.82	0.02	10 mm	2	1026M	6	back	99.4	0.159	1.042	1.006	0.167	
5600	120	802.11a	OFDM	20	18.0	17.82	0.03	10 mm	2	1026M	6	front	99.4	0.128	1.042	1.006	0.134	
5600	120	802.11a	OFDM	20	18.0	17.82	0.01	10 mm	2	1026M	6	top	99.4	0.162	1.042	1.006	0.170	
5600	120	802.11a	OFDM	20	18.0	17.82	0.09	10 mm	2	1026M	6	left	99.4	0.083	1.042	1.006	0.087	
5785	157	802.11a	OFDM	20	18.0	17.92	0.19	10 mm	1	1026M	6	back	99.2	0.193	1.019	1.008	0.198	
5785	157	802.11a	OFDM	20	18.0	17.92	0.09	10 mm	1	1026M	6	front	99.2	0.079	1.019	1.008	0.081	
5785	157	802.11a	OFDM	20	18.0	17.92	-0.03	10 mm	1	1026M	6	top	99.2	0.132	1.019	1.008	0.136	
5785	157	802.11a	OFDM	20	18.0	17.92	0.07	10 mm	2	1026M	6	back	99.4	0.169	1.019	1.006	0.173	
5785	157	802.11a	OFDM	20	18.0	17.92	0.12	10 mm	2	1026M	6	front	99.4	0.136	1.019	1.006	0.139	
5785	157	802.11a	OFDM	20	18.0	17.92	-0.07	10 mm	2	1026M	6	top	99.4	0.138	1.019	1.006	0.141	
5785	157	802.11a	OFDM	20	18.0	17.92	0.05	10 mm	2	1026M	6	left	99.4	0.055	1.019	1.006	0.056	

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

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Table 11-37
5GHz WLAN MIMO UMPC Body SAR with 2.4 GHz WLAN and/or 2.4 GHz Bluetooth

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)			(W/kg)	
5290	58	802.11ac	OFDM	80	14.0	13.66	14.0	13.69	0.05	10 mm	MIMO	1026M	58.5	back	90.9	0.039	1.081	1.101	0.046	
5290	58	802.11ac	OFDM	80	14.0	13.66	14.0	13.69	0.15	10 mm	MIMO	1026M	58.5	front	90.9	0.014	1.081	1.101	0.017	
5290	58	802.11ac	OFDM	80	14.0	13.66	14.0	13.69	0.04	10 mm	MIMO	1026M	58.5	top	90.9	0.032	1.081	1.101	0.038	
5290	58	802.11ac	OFDM	80	14.0	13.66	14.0	13.69	0.05	10 mm	MIMO	1026M	58.5	left	90.9	0.026	1.081	1.101	0.031	
5530	106	802.11ac	OFDM	80	14.0	13.79	14.0	13.84	0.03	10 mm	MIMO	1026M	58.5	back	90.9	0.043	1.050	1.101	0.050	
5530	106	802.11ac	OFDM	80	14.0	13.79	14.0	13.84	0.02	10 mm	MIMO	1026M	58.5	front	90.9	0.014	1.050	1.101	0.016	
5530	106	802.11ac	OFDM	80	14.0	13.79	14.0	13.84	0.17	10 mm	MIMO	1026M	58.5	top	90.9	0.040	1.050	1.101	0.046	
5530	106	802.11ac	OFDM	80	14.0	13.79	14.0	13.84	-0.02	10 mm	MIMO	1026M	58.5	left	90.9	0.024	1.050	1.101	0.028	
5775	155	802.11ac	OFDM	80	14.0	13.64	14.0	13.79	0.04	10 mm	MIMO	1026M	58.5	back	90.9	0.047	1.086	1.101	0.056	
5775	155	802.11ac	OFDM	80	14.0	13.64	14.0	13.79	0.11	10 mm	MIMO	1026M	58.5	front	90.9	0.015	1.086	1.101	0.018	
5775	155	802.11ac	OFDM	80	14.0	13.64	14.0	13.79	0.04	10 mm	MIMO	1026M	58.5	top	90.9	0.036	1.086	1.101	0.043	
5775	155	802.11ac	OFDM	80	14.0	13.64	14.0	13.79	-0.09	10 mm	MIMO	1026M	58.5	left	90.9	0.052	1.086	1.101	0.062	
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: 5GHZ WLAN MIMO was additionally evaluated at the maximum allowed output power during operations with Simultaneous 2.4 GHz WLAN and 5 GHz WLAN or 2.4 GHz Bluetooth and 5 GHz WLAN. 2.4 GHz WIFI/2.4 GHz Bluetooth were not transmitting during the above evaluations.

Table 11-38
DSS UMPC Body SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	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	20.0	19.53	0.18	10 mm	1	1154M	1	back	77.9	0.158	1.115	1.284	0.226	
2441	39	Bluetooth	FHSS	20.0	19.53	0.07	10 mm	1	1154M	1	front	77.9	0.119	1.115	1.284	0.170	
2441	39	Bluetooth	FHSS	20.0	19.53	-0.03	10 mm	1	1154M	1	top	77.9	0.376	1.115	1.284	**0.538**	A43
2441	39	Bluetooth	FHSS	20.0	19.23	0.19	10 mm	2	1154M	1	back	77.3	0.187	1.193	1.294	0.289	
2441	39	Bluetooth	FHSS	20.0	19.23	0.02	10 mm	2	1154M	1	front	77.3	0.097	1.193	1.294	0.150	
2441	39	Bluetooth	FHSS	20.0	19.23	0.10	10 mm	2	1154M	1	top	77.3	0.137	1.193	1.294	0.211	
2441	39	Bluetooth	FHSS	20.0	19.23	0.07	10 mm	2	1154M	1	left	77.3	0.242	1.193	1.294	0.374	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Body 1.6 W/kg (mW/g) averaged over 1 gram	

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11.6 Standalone UMPC Extremity SAR

Table 11-39
GSM 850 UMPC Extremity SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
824.20	128	GSM 850	GPRS	30.5	29.38	-0.17	0 mm	Ant A	0629M	3	1:2.76	back	1.410	1.294	1.825	
836.60	190	GSM 850	GPRS	30.5	29.32	-0.15	0 mm	Ant A	0629M	3	1:2.76	back	1.450	1.312	1.902	
848.80	251	GSM 850	GPRS	30.5	29.44	-0.15	0 mm	Ant A	0629M	3	1:2.76	back	1.520	1.276	1.940	A44
836.60	190	GSM 850	GPRS	30.5	29.32	-0.01	0 mm	Ant A	0629M	3	1:2.76	front	0.895	1.312	1.174	
836.60	190	GSM 850	GPRS	30.5	29.32	-0.02	0 mm	Ant A	0629M	3	1:2.76	bottom	0.772	1.312	1.013	
836.60	190	GSM 850	GPRS	30.5	29.32	-0.16	0 mm	Ant A	0629M	3	1:2.76	right	0.729	1.312	0.956	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Extremity 4.0 W/kg (mW/g) averaged over 10 grams							

Table 11-40
GSM 1900 UMPC Extremity SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GPRS	27.5	25.93	0.00	12 mm	Ant B	0679M	3	1:2.76	back	0.234	1.435	0.336	
1880.00	661	GSM 1900	GPRS	27.5	25.93	0.07	9 mm	Ant B	0679M	3	1:2.76	front	0.186	1.435	0.267	
1880.00	661	GSM 1900	GPRS	27.5	25.93	-0.12	16 mm	Ant B	0679M	3	1:2.76	bottom	0.246	1.435	0.353	
1880.00	661	GSM 1900	GPRS	27.5	25.93	-0.05	0 mm	Ant B	0679M	3	1:2.76	right	1.260	1.435	1.808	
1880.00	661	GSM 1900	GPRS	24.5	22.53	0.00	0 mm	Ant B	0679M	3	1:2.76	back	0.988	1.574	1.555	
1880.00	661	GSM 1900	GPRS	24.5	22.53	0.02	0 mm	Ant B	0679M	3	1:2.76	front	0.603	1.574	0.949	
1850.20	512	GSM 1900	GPRS	24.5	22.61	0.04	0 mm	Ant B	0679M	3	1:2.76	bottom	1.850	1.545	2.858	A45
1880.00	661	GSM 1900	GPRS	24.5	22.53	-0.16	0 mm	Ant B	0679M	3	1:2.76	bottom	1.480	1.574	2.330	
1909.80	810	GSM 1900	GPRS	24.5	22.50	0.02	0 mm	Ant B	0679M	3	1:2.76	bottom	1.430	1.585	2.267	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Extremity 4.0 W/kg (mW/g) averaged over 10 grams							

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Table 11-41
UMTS 850 UMPC Extremity SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Tune State	Device Serial Number	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
826.40	4132	UMTS 850	RMC	25.8	24.38	-0.19	0 mm	Ant A	0	0629M	1:1	back	1.080	1.387	1.498	
836.60	4183	UMTS 850	RMC	25.8	24.41	-0.02	0 mm	Ant A	0	0629M	1:1	back	1.190	1.377	1.639	
846.60	4233	UMTS 850	RMC	25.8	24.33	-0.02	0 mm	Ant A	0	0629M	1:1	back	1.200	1.403	1.684	A46
836.60	4183	UMTS 850	RMC	25.8	24.41	-0.08	0 mm	Ant A	0	0629M	1:1	front	1.120	1.377	1.542	
836.60	4183	UMTS 850	RMC	25.8	24.41	-0.08	0 mm	Ant A	0	0629M	1:1	bottom	0.719	1.377	0.990	
836.60	4183	UMTS 850	RMC	25.8	24.41	0.00	0 mm	Ant A	0	0629M	1:1	right	1.080	1.377	1.487	
836.60	4183	UMTS 850	RMC	24.3	23.28	-0.06	0 mm	Ant B	N/A	0629M	1:1	back	0.866	1.265	1.095	
836.60	4183	UMTS 850	RMC	24.3	23.28	0.01	0 mm	Ant B	N/A	0629M	1:1	front	0.515	1.265	0.651	
836.60	4183	UMTS 850	RMC	24.3	23.28	-0.06	0 mm	Ant B	N/A	0629M	1:1	bottom	0.639	1.265	0.808	
836.60	4183	UMTS 850	RMC	24.3	23.28	0.04	0 mm	Ant B	N/A	0629M	1:1	right	0.164	1.265	0.207	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Extremity 4.0 W/kg (mW/g) averaged over 10 grams			

Table 11-42
LTE Band 12 UMPC Extremity SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Tune State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	9	25.8	25.09	0.02	0	Ant A	0655M	QPSK	1	0	0 mm	back	1:1	1.250	1.178	1.473	
707.50	23095	Mid	LTE Band 12	10	9	24.8	23.93	-0.02	1	Ant A	0655M	QPSK	25	12	0 mm	back	1:1	0.930	1.222	1.136	
707.50	23095	Mid	LTE Band 12	10	9	25.8	25.09	-0.01	0	Ant A	0655M	QPSK	1	0	0 mm	front	1:1	0.775	1.178	0.913	
707.50	23095	Mid	LTE Band 12	10	9	24.8	23.93	-0.04	1	Ant A	0655M	QPSK	25	12	0 mm	front	1:1	0.589	1.222	0.720	
707.50	23095	Mid	LTE Band 12	10	9	25.8	25.09	-0.05	0	Ant A	0655M	QPSK	1	0	0 mm	bottom	1:1	0.609	1.178	0.717	
707.50	23095	Mid	LTE Band 12	10	9	24.8	23.93	-0.08	1	Ant A	0655M	QPSK	25	12	0 mm	bottom	1:1	0.480	1.222	0.587	
707.50	23095	Mid	LTE Band 12	10	9	25.8	25.09	-0.08	0	Ant A	0655M	QPSK	1	0	0 mm	right	1:1	1.320	1.178	1.555	A47
707.50	23095	Mid	LTE Band 12	10	9	24.8	23.93	-0.07	1	Ant A	0655M	QPSK	25	12	0 mm	right	1:1	1.010	1.222	1.234	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Extremity 4.0 W/kg (mW/g) averaged over 10 grams				

Table 11-43
LTE Band 13 UMPC Extremity SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Tune State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	0	25.8	25.18	0.02	0	Ant A	0655M	QPSK	1	49	0 mm	back	1:1	1.440	1.153	1.660	A48
782.00	23230	Mid	LTE Band 13	10	0	24.8	24.19	-0.04	1	Ant A	0655M	QPSK	25	25	0 mm	back	1:1	1.190	1.151	1.370	
782.00	23230	Mid	LTE Band 13	10	0	25.8	25.18	-0.05	0	Ant A	0655M	QPSK	1	49	0 mm	front	1:1	0.794	1.153	0.915	
782.00	23230	Mid	LTE Band 13	10	0	24.8	24.19	-0.05	1	Ant A	0655M	QPSK	25	25	0 mm	front	1:1	0.651	1.151	0.749	
782.00	23230	Mid	LTE Band 13	10	0	25.8	25.18	-0.01	0	Ant A	0655M	QPSK	1	49	0 mm	bottom	1:1	0.663	1.153	0.764	
782.00	23230	Mid	LTE Band 13	10	0	24.8	24.19	-0.02	1	Ant A	0655M	QPSK	25	25	0 mm	bottom	1:1	0.553	1.151	0.637	
782.00	23230	Mid	LTE Band 13	10	0	25.8	25.18	-0.09	0	Ant A	0655M	QPSK	1	49	0 mm	right	1:1	1.270	1.153	1.464	
782.00	23230	Mid	LTE Band 13	10	0	24.8	24.19	-0.13	1	Ant A	0655M	QPSK	25	25	0 mm	right	1:1	1.030	1.151	1.186	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Extremity 4.0 W/kg (mW/g) averaged over 10 grams				

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Table 11-44
LTE Band 5 (Cell) UMPC Extremity SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Tune State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	25.8	24.74	0.15	0	Ant A	0624M	QPSK	1	0	0 mm	back	1:1	1.550	1.276	1.978	A49
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	0.16	1	Ant A	0624M	QPSK	25	12	0 mm	back	1:1	1.260	1.262	1.590	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	25.8	24.74	-0.02	0	Ant A	0624M	QPSK	1	0	0 mm	front	1:1	0.967	1.276	1.234	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	-0.01	1	Ant A	0624M	QPSK	25	12	0 mm	front	1:1	0.774	1.262	0.977	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	25.8	24.74	0.04	0	Ant A	0624M	QPSK	1	0	0 mm	bottom	1:1	0.725	1.276	0.925	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	0.07	1	Ant A	0624M	QPSK	25	12	0 mm	bottom	1:1	0.584	1.262	0.737	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	25.8	24.74	-0.13	0	Ant A	0624M	QPSK	1	0	0 mm	right	1:1	1.370	1.276	1.748	
836.50	20525	Mid	LTE Band 5 (Cell)	10	0	24.8	23.79	-0.09	1	Ant A	0624M	QPSK	25	12	0 mm	right	1:1	1.140	1.262	1.439	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	0.05	0	Ant B	0624M	QPSK	1	0	0 mm	back	1:1	0.660	1.256	0.829	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	-0.02	1	Ant B	0624M	QPSK	25	0	0 mm	back	1:1	0.538	1.291	0.695	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	0.02	0	Ant B	0624M	QPSK	1	0	0 mm	front	1:1	0.591	1.256	0.742	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	-0.04	1	Ant B	0624M	QPSK	25	0	0 mm	front	1:1	0.477	1.291	0.616	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	0.06	0	Ant B	0624M	QPSK	1	0	0 mm	bottom	1:1	0.688	1.256	0.864	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	0.05	1	Ant B	0624M	QPSK	25	0	0 mm	bottom	1:1	0.543	1.291	0.701	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	24.3	23.31	-0.04	0	Ant B	0624M	QPSK	1	0	0 mm	right	1:1	0.143	1.256	0.180	
836.50	20525	Mid	LTE Band 5 (Cell)	10	N/A	23.3	22.19	0.01	1	Ant B	0624M	QPSK	25	0	0 mm	right	1:1	0.120	1.291	0.155	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																		Extremity 4.0 W/kg (mW/g) averaged over 10 grams			

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Table 11-45
LTE Band 41 UMPC Extremity SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	0.00	0	0674M	QPSK	1	50	12 mm	back	1:1.58	0.350	1.183	0.414	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	0.00	1	0674M	QPSK	50	25	12 mm	back	1:1.58	0.282	1.140	0.321	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	0.03	0	0674M	QPSK	1	50	9 mm	front	1:1.58	0.488	1.183	0.577	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	0.06	1	0674M	QPSK	50	25	9 mm	front	1:1.58	0.397	1.140	0.453	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	-0.01	0	0674M	QPSK	1	50	16 mm	bottom	1:1.58	0.387	1.183	0.458	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	0.02	1	0674M	QPSK	50	25	16 mm	bottom	1:1.58	0.314	1.140	0.358	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	23.5	22.77	-0.03	0	0674M	QPSK	1	50	0 mm	right	1:1.58	0.421	1.183	0.498	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.93	-0.11	1	0674M	QPSK	50	25	0 mm	right	1:1.58	0.350	1.140	0.399	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	19.5	18.22	-0.02	0	0674M	QPSK	1	99	0 mm	back	1:1.58	1.000	1.343	1.343	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	19.5	18.19	-0.01	0	0674M	QPSK	1	0	0 mm	back	1:1.58	1.070	1.352	1.447	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	19.5	17.95	0.01	0	0674M	QPSK	1	50	0 mm	back	1:1.58	1.140	1.429	1.629	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	19.5	18.34	-0.12	0	0674M	QPSK	1	99	0 mm	back	1:1.58	1.210	1.306	1.580	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.77	-0.06	0	0674M	QPSK	1	50	0 mm	back	1:1.58	1.420	1.183	1.680	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	19.5	18.40	-0.01	0	0674M	QPSK	50	25	0 mm	back	1:1.58	1.030	1.288	1.327	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	19.5	18.32	-0.03	0	0674M	QPSK	50	25	0 mm	back	1:1.58	1.130	1.312	1.483	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	19.5	18.17	-0.05	0	0674M	QPSK	50	25	0 mm	back	1:1.58	1.200	1.358	1.630	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	19.5	18.43	-0.03	0	0674M	QPSK	50	0	0 mm	back	1:1.58	1.330	1.279	1.701	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.88	-0.10	0	0674M	QPSK	50	25	0 mm	back	1:1.58	1.480	1.153	1.706	A50
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.76	-0.07	0	0674M	QPSK	100	0	0 mm	back	1:1.58	1.420	1.186	1.684	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.77	-0.06	0	0674M	QPSK	1	50	0 mm	front	1:1.58	0.933	1.183	1.104	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.88	0.03	0	0674M	QPSK	50	25	0 mm	front	1:1.58	0.963	1.153	1.110	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	19.5	18.22	-0.12	0	0674M	QPSK	1	99	0 mm	bottom	1:1.58	1.260	1.343	1.692	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	19.5	18.19	-0.11	0	0674M	QPSK	1	0	0 mm	bottom	1:1.58	1.260	1.352	1.704	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	19.5	17.95	-0.12	0	0674M	QPSK	1	50	0 mm	bottom	1:1.58	1.240	1.429	1.772	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	19.5	18.34	-0.10	0	0674M	QPSK	1	99	0 mm	bottom	1:1.58	1.240	1.306	1.619	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.77	-0.11	0	0674M	QPSK	1	50	0 mm	bottom	1:1.58	1.320	1.183	1.562	
1 CC Uplink	N/A	2506.00	39750	Low	LTE Band 41	20	19.5	18.40	-0.14	0	0674M	QPSK	50	25	0 mm	bottom	1:1.58	1.320	1.288	1.700	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	19.5	18.32	-0.12	0	0674M	QPSK	50	25	0 mm	bottom	1:1.58	1.330	1.312	1.745	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	19.5	18.17	-0.14	0	0674M	QPSK	50	25	0 mm	bottom	1:1.58	1.320	1.358	1.793	
1 CC Uplink	N/A	2593.00	40620	Mid	LTE Band 41	20	19.5	17.95	-0.16	0	0674M	QPSK	50	50	0 mm	bottom	1:1.58	1.300	1.429	1.858	
1 CC Uplink	N/A	2636.50	41055	Mid-High	LTE Band 41	20	19.5	18.43	-0.13	0	0674M	QPSK	50	0	0 mm	bottom	1:1.58	1.400	1.279	1.791	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.88	-0.11	0	0674M	QPSK	50	25	0 mm	bottom	1:1.58	1.360	1.153	1.568	
1 CC Uplink	N/A	2680.00	41490	High	LTE Band 41	20	19.5	18.76	-0.09	0	0674M	QPSK	100	0	0 mm	bottom	1:1.58	1.320	1.186	1.566	
2 CC Uplink	PCC	2593.00	40620	Mid	LTE Band 41	20	19.5	18.58	-0.16	0	0674M	QPSK	50	50	0 mm	bottom	1:1.58	1.470	1.236	1.817	
	SCC	2612.80	40818											0							
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Extremity 4.0 W/kg (mW/g) averaged over 10 grams											

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Table 11-46
WLAN UMPC Extremity SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.													(W/kg)			(W/kg)	
2437	6	802.11b	DSSS	22	19.0	18.99	-0.07	0 mm	1	1154M	1	back	99.8	0.791	1.002	1.002	0.794	
2437	6	802.11b	DSSS	22	19.0	18.99	-0.04	0 mm	1	1154M	1	front	99.8	0.781	1.002	1.002	0.784	
2437	6	802.11b	DSSS	22	19.0	18.99	-0.05	0 mm	1	1154M	1	top	99.8	1.020	1.002	1.002	1.024	
2462	11	802.11b	DSSS	22	19.0	18.99	0.19	0 mm	2	1154M	1	back	99.9	0.894	1.002	1.001	0.897	
2462	11	802.11b	DSSS	22	19.0	18.99	0.06	0 mm	2	1154M	1	front	99.9	0.521	1.002	1.001	0.523	
2462	11	802.11b	DSSS	22	19.0	18.99	0.10	0 mm	2	1154M	1	top	99.9	0.815	1.002	1.001	0.817	
2412	1	802.11b	DSSS	22	19.0	18.86	-0.13	0 mm	2	1154M	1	left	99.9	1.610	1.033	1.001	1.665	
2437	6	802.11b	DSSS	22	19.0	18.94	0.05	0 mm	2	1154M	1	left	99.9	1.480	1.014	1.001	1.502	
2462	11	802.11b	DSSS	22	19.0	18.99	0.02	0 mm	2	1154M	1	left	99.9	2.040	1.002	1.001	**2.046**	A51
2462	11	802.11b	DSSS	22	19.0	18.99	0.04	0 mm	2	1154M	1	left	99.9	2.030	1.002	1.001	2.036	
5300	60	802.11a	OFDM	20	18.0	17.72	0.02	0 mm	1	1026M	6	back	99.2	0.562	1.067	1.008	0.604	
5300	60	802.11a	OFDM	20	18.0	17.72	0.04	0 mm	1	1026M	6	front	99.2	0.173	1.067	1.008	0.186	
5300	60	802.11a	OFDM	20	18.0	17.72	-0.04	0 mm	1	1026M	6	top	99.2	1.130	1.067	1.008	**1.215**	A52
5300	60	802.11a	OFDM	20	18.0	17.99	-0.01	0 mm	2	1026M	6	back	99.4	0.750	1.002	1.006	0.756	
5300	60	802.11a	OFDM	20	18.0	17.99	0.14	0 mm	2	1026M	6	front	99.4	0.347	1.002	1.006	0.350	
5300	60	802.11a	OFDM	20	18.0	17.99	-0.07	0 mm	2	1026M	6	top	99.4	0.328	1.002	1.006	0.331	
5300	60	802.11a	OFDM	20	18.0	17.99	0.13	0 mm	2	1026M	6	left	99.4	0.522	1.002	1.006	0.526	
5500	100	802.11a	OFDM	20	18.0	17.89	0.03	0 mm	1	1026M	6	back	99.2	0.777	1.026	1.008	0.804	
5500	100	802.11a	OFDM	20	18.0	17.89	-0.06	0 mm	1	1026M	6	front	99.2	0.301	1.026	1.008	0.311	
5500	100	802.11a	OFDM	20	18.0	17.89	-0.04	0 mm	1	1026M	6	top	99.2	1.090	1.026	1.008	1.127	
5600	120	802.11a	OFDM	20	18.0	17.82	0.01	0 mm	2	1026M	6	back	99.4	0.763	1.042	1.006	0.800	
5600	120	802.11a	OFDM	20	18.0	17.82	0.09	0 mm	2	1026M	6	front	99.4	0.418	1.042	1.006	0.438	
5600	120	802.11a	OFDM	20	18.0	17.82	-0.05	0 mm	2	1026M	6	top	99.4	0.325	1.042	1.006	0.341	
5600	120	802.11a	OFDM	20	18.0	17.82	-0.03	0 mm	2	1026M	6	left	99.4	0.370	1.042	1.006	0.388	
5785	157	802.11a	OFDM	20	18.0	17.92	0.05	0 mm	1	1026M	6	back	99.2	0.983	1.019	1.008	1.010	
5785	157	802.11a	OFDM	20	18.0	17.92	-0.08	0 mm	1	1026M	6	front	99.2	0.424	1.019	1.008	0.436	
5785	157	802.11a	OFDM	20	18.0	17.92	-0.06	0 mm	1	1026M	6	top	99.2	1.020	1.019	1.008	1.048	
5785	157	802.11a	OFDM	20	18.0	17.92	0.01	0 mm	2	1026M	6	back	99.4	0.615	1.019	1.006	0.630	
5785	157	802.11a	OFDM	20	18.0	17.92	0.16	0 mm	2	1026M	6	front	99.4	0.450	1.019	1.006	0.461	
5785	157	802.11a	OFDM	20	18.0	17.92	0.05	0 mm	2	1026M	6	top	99.4	0.288	1.019	1.006	0.295	
5785	157	802.11a	OFDM	20	18.0	17.92	-0.10	0 mm	2	1026M	6	left	99.4	0.262	1.019	1.006	0.269	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT	Extremity
Spatial Peak	4.0 W/kg (mW/g)
Uncontrolled Exposure/General Population	averaged over 10 grams

Note: Blue entry represents variability measurement

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Table 11-47
5 GHz WLAN MIMO UMPC Extremity SAR with 2.4 GHz WLAN and/or 2.4 GHz Bluetooth

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.															(W/kg)			(W/kg)	
5290	58	802.11ac	OFDM	80	14.0	13.66	14.0	13.69	-0.03	0 mm	MIMO	1026M	58.5	back	90.9	0.042	1.081	1.101	0.050	
5290	58	802.11ac	OFDM	80	14.0	13.66	14.0	13.69	0.07	0 mm	MIMO	1026M	58.5	front	90.9	0.014	1.081	1.101	0.017	
5290	58	802.11ac	OFDM	80	14.0	13.66	14.0	13.69	-0.03	0 mm	MIMO	1026M	58.5	top	90.9	0.093	1.081	1.101	0.111	
5290	58	802.11ac	OFDM	80	14.0	13.66	14.0	13.69	0.06	0 mm	MIMO	1026M	58.5	left	90.9	0.122	1.081	1.101	0.145	
5530	106	802.11ac	OFDM	80	14.0	13.79	14.0	13.84	0.14	0 mm	MIMO	1026M	58.5	back	90.9	0.037	1.050	1.101	0.043	
5530	106	802.11ac	OFDM	80	14.0	13.79	14.0	13.84	0.02	0 mm	MIMO	1026M	58.5	front	90.9	0.015	1.050	1.101	0.017	
5530	106	802.11ac	OFDM	80	14.0	13.79	14.0	13.84	-0.02	0 mm	MIMO	1026M	58.5	top	90.9	0.242	1.050	1.101	0.280	
5530	106	802.11ac	OFDM	80	14.0	13.79	14.0	13.84	0.05	0 mm	MIMO	1026M	58.5	left	90.9	0.092	1.050	1.101	0.106	
5775	155	802.11ac	OFDM	80	14.0	13.64	14.0	13.79	0.03	0 mm	MIMO	1026M	58.5	back	90.9	0.043	1.086	1.101	0.051	
5775	155	802.11ac	OFDM	80	14.0	13.64	14.0	13.79	0.03	0 mm	MIMO	1026M	58.5	front	90.9	0.027	1.086	1.101	0.032	
5775	155	802.11ac	OFDM	80	14.0	13.64	14.0	13.79	-0.03	0 mm	MIMO	1026M	58.5	top	90.9	0.230	1.086	1.101	0.275	
5775	155	802.11ac	OFDM	80	14.0	13.64	14.0	13.79	0.04	0 mm	MIMO	1026M	58.5	left	90.9	0.071	1.086	1.101	0.085	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Extremity 4.0 W/kg (mW/g) averaged over 10 grams				

Note: 5 GHz WLAN MIMO was additionally evaluated at the maximum allowed output power during operations with Simultaneous 2.4 GHz WLAN and 5 GHz WLAN or 2.4 GHz Bluetooth and 5 GHz WLAN. 2.4 GHz WIFI/2.4 GHz Bluetooth were not transmitting during the above evaluations.

Table 11-48
DSS UMPC Extremity SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (10g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.												(W/kg)			(W/kg)	
2441	39	Bluetooth	FHSS	20.0	19.53	-0.03	0 mm	1	1154M	1	back	77.9	0.558	1.115	1.284	0.799	
2441	39	Bluetooth	FHSS	20.0	19.53	-0.04	0 mm	1	1154M	1	front	77.9	0.576	1.115	1.284	0.825	
2441	39	Bluetooth	FHSS	20.0	19.53	-0.15	0 mm	1	1154M	1	top	77.9	0.885	1.115	1.284	1.267	
2441	39	Bluetooth	FHSS	20.0	19.23	0.04	0 mm	2	1154M	1	back	77.3	0.597	1.193	1.294	0.914	
2441	39	Bluetooth	FHSS	20.0	19.23	0.03	0 mm	2	1154M	1	front	77.3	0.324	1.193	1.294	0.496	
2441	39	Bluetooth	FHSS	20.0	19.23	-0.02	0 mm	2	1154M	1	top	77.3	0.466	1.193	1.294	0.714	
2441	39	Bluetooth	FHSS	20.0	19.23	-0.15	0 mm	2	1154M	1	left	77.3	0.924	1.193	1.294	**1.415**	A53
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Extremity 4.0 W/kg (mW/g) averaged over 10 grams			

11.7 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.

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6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB Publication 648474 D04v01r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was ≤ 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were required.
8. Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 13 for variability analysis.
9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 6.7 for more details).
10. Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" when it is in closed configuration 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. Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6 (See Section 6.9 for more information)
11. This device supports dynamic antenna tuning for some bands. Per FCC Guidance, SAR was measured according to the normally required SAR measurement configurations with tuner active. The auto-tune state determined by the device was verified before and after each SAR measurement and is listed in tables above. Please see Section 14 for supplemental data.
12. Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds below.
13. Per FCC KDB Publication 941225 D07v01r02, this device is considered a "UMPC mini-tablet" when it is in open configuration. UMPC body 1g SAR tests are required on all surfaces and edges ≤ 25 mm from a transmitting antenna. Therefore, to address hand exposure, UMPC extremity 10g SAR tests are required at a test separation distance of 0 mm for all measured 1g SAR (at 10 mm) configurations.

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.

UMTS Notes:

1. UMTS mode 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.

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LTE Notes:

1. 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 8.5.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 and MCC=001 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
4. Per FCC KDB Publication 447498 D01v06, when the reported LTE Band 41 measured at the highest output power channel in a given a test configuration was > 0.6 W/kg for 1g evaluations, testing at the other channels was required for such test configurations.
5. TDD LTE was tested per the guidance provided in FCC KDB Publication 941225 D05v02r04. Testing was performed using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.
6. Per KDB Publication 941225 D05Av01r02, SAR for downlink only LTE CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.
7. For LTE Band 41, per FCC guidance, SAR was first measured with only a single carrier active in the uplink (carrier aggregation not active). For each exposure condition, the uplink CA scenario with two component carriers was additionally tested for the configuration with the highest SAR when carrier aggregation was not active. The SCC was configured with the closest available contiguous channel. The two component carriers were configured so the resource blocks are physically allocated side by side to achieve the maximum output power.

WLAN Notes:

1. For held-to-ear, hotspot, phablet, and UMPC mini-tablet operations, the initial test position procedures were applied. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g evaluations, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n/ax) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 8.6.5 for more information.
3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 8.6.6 for more information.
4. Per KDB Publication 248227 D01v02r02, SAR for MIMO was evaluated by following the simultaneous SAR provisions from KDB Publication 447498 D01v06 by either evaluating the sum of the 1g SAR values of each antenna transmitting independently or making a SAR measurement with both antennas transmitting simultaneously. Please see Section 12 for complete analysis.
5. When the maximum reported 1g averaged SAR is ≤0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.

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6. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.
7. When 10g 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 9.7 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.

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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.

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

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

For SAR summation, the highest reported SAR across all test distances was used as the most conservative evaluation for simultaneous transmission analysis for each device edge

12.3 Head SAR Simultaneous Transmission Analysis

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

Configuration	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	GSM 850	0.147	0.535	0.246	0.928
	GSM 1900	0.037	0.535	0.246	0.818
	UMTS 850	0.266	0.535	0.246	**1.047**
	LTE Band 12	0.126	0.535	0.246	0.907
	LTE Band 13	0.182	0.535	0.246	0.963
	LTE Band 5 (Cell)	0.237	0.535	0.246	1.018
	LTE Band 41	0.041	0.535	0.246	0.822

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

Configuration	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	GSM 850	0.147	0.353	0.134	0.634
	GSM 1900	0.037	0.353	0.134	0.524
	UMTS 850	0.266	0.353	0.134	**0.753**
	LTE Band 12	0.126	0.353	0.134	0.613
	LTE Band 13	0.182	0.353	0.134	0.669
	LTE Band 5 (Cell)	0.237	0.353	0.134	0.724
	LTE Band 41	0.041	0.353	0.134	0.528

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

Configuration	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Head SAR	GSM 850	0.147	0.535	0.246	0.353	0.134	1.415
	GSM 1900	0.037	0.535	0.246	0.353	0.134	1.305
	UMTS 850	0.266	0.535	0.246	0.353	0.134	**1.534**
	LTE Band 12	0.126	0.535	0.246	0.353	0.134	1.394
	LTE Band 13	0.182	0.535	0.246	0.353	0.134	1.450
	LTE Band 5 (Cell)	0.237	0.535	0.246	0.353	0.134	1.505
	LTE Band 41	0.041	0.535	0.246	0.353	0.134	1.309

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

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	Bluetooth Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Head SAR	GSM 850	0.147	0.559	0.250	0.706	0.397
	GSM 1900	0.037	0.559	0.250	0.596	0.287
	UMTS 850	0.266	0.559	0.250	**0.825**	0.516
	LTE Band 12	0.126	0.559	0.250	0.685	0.376
	LTE Band 13	0.182	0.559	0.250	0.741	0.432
	LTE Band 5 (Cell)	0.237	0.559	0.250	0.796	0.487
	LTE Band 41	0.041	0.559	0.250	0.600	0.291

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Table 12-5
Simultaneous Transmission Scenario with Bluetooth Antenna 1 and 5 GHz WLAN MIMO (Held to Ear)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Head SAR	GSM 850	0.147	0.559	0.353	0.134	1.193
	GSM 1900	0.037	0.559	0.353	0.134	1.083
	UMTS 850	0.266	0.559	0.353	0.134	**1.312**
	LTE Band 12	0.126	0.559	0.353	0.134	1.172
	LTE Band 13	0.182	0.559	0.353	0.134	1.228
	LTE Band 5 (Cell)	0.237	0.559	0.353	0.134	1.283
	LTE Band 41	0.041	0.559	0.353	0.134	1.087

Table 12-6
Simultaneous Transmission Scenario with Bluetooth Antenna 2 and 5 GHz WLAN MIMO (Held to Ear)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Head SAR	GSM 850	0.147	0.250	0.353	0.134	0.884
	GSM 1900	0.037	0.250	0.353	0.134	0.774
	UMTS 850	0.266	0.250	0.353	0.134	**1.003**
	LTE Band 12	0.126	0.250	0.353	0.134	0.863
	LTE Band 13	0.182	0.250	0.353	0.134	0.919
	LTE Band 5 (Cell)	0.237	0.250	0.353	0.134	0.974
	LTE Band 41	0.041	0.250	0.353	0.134	0.778

Table 12-7
Simultaneous Transmission Scenario with Bluetooth Antenna 1, 2.4 GHz WLAN Antenna 2, and 5 GHz WLAN MIMO (Held to Ear)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Head SAR	GSM 850	0.147	0.559	0.246	0.353	0.134	1.439
	GSM 1900	0.037	0.559	0.246	0.353	0.134	1.329
	UMTS 850	0.266	0.559	0.246	0.353	0.134	**1.558**
	LTE Band 12	0.126	0.559	0.246	0.353	0.134	1.418
	LTE Band 13	0.182	0.559	0.246	0.353	0.134	1.474
	LTE Band 5 (Cell)	0.237	0.559	0.246	0.353	0.134	1.529
	LTE Band 41	0.041	0.559	0.246	0.353	0.134	1.333

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12.4 Body-Worn Simultaneous Transmission Analysis

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

Configuration	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body - Worn SAR	GSM 850	0.289	0.015	0.025	0.329
	GSM 1900	0.272	0.015	0.025	0.312
	UMTS 850	0.330	0.015	0.025	0.370
	LTE Band 12	0.193	0.015	0.025	0.233
	LTE Band 13	0.232	0.015	0.025	0.272
	LTE Band 5 (Cell)	0.333	0.015	0.025	**0.373**
	LTE Band 41	0.196	0.015	0.025	0.236

Table 12-9
Simultaneous Transmission Scenario with 5 GHz WLAN (Body-Worn at 1.5 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body - Worn SAR	GSM 850	0.289	0.010	0.009	0.308
	GSM 1900	0.272	0.010	0.009	0.291
	UMTS 850	0.330	0.010	0.009	0.349
	LTE Band 12	0.193	0.010	0.009	0.212
	LTE Band 13	0.232	0.010	0.009	0.251
	LTE Band 5 (Cell)	0.333	0.010	0.009	**0.352**
	LTE Band 41	0.196	0.010	0.009	0.215

Table 12-10
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO and 5 GHz WLAN MIMO (Body-Worn at 1.5 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Body - Worn SAR	GSM 850	0.289	0.015	0.025	0.010	0.009	0.348
	GSM 1900	0.272	0.015	0.025	0.010	0.009	0.331
	UMTS 850	0.330	0.015	0.025	0.010	0.009	0.389
	LTE Band 12	0.193	0.015	0.025	0.010	0.009	0.252
	LTE Band 13	0.232	0.015	0.025	0.010	0.009	0.291
	LTE Band 5 (Cell)	0.333	0.015	0.025	0.010	0.009	**0.392**
	LTE Band 41	0.196	0.015	0.025	0.010	0.009	0.255

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Table 12-11
Simultaneous Transmission Scenario with Bluetooth (Body-Worn at 1.5 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	Bluetooth Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Body - Worn SAR	GSM 850	0.289	0.013	0.015	0.302	0.304
	GSM 1900	0.272	0.013	0.015	0.285	0.287
	UMTS 850	0.330	0.013	0.015	0.343	0.345
	LTE Band 12	0.193	0.013	0.015	0.206	0.208
	LTE Band 13	0.232	0.013	0.015	0.245	0.247
	LTE Band 5 (Cell)	0.333	0.013	0.015	0.346	**0.348**
	LTE Band 41	0.196	0.013	0.015	0.209	0.211

Table 12-12
Simultaneous Transmission Scenario with Bluetooth Antenna 1 and 5 GHz WLAN MIMO (Body-Worn at 1.5 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Body - Worn SAR	GSM 850	0.289	0.013	0.010	0.009	0.321
	GSM 1900	0.272	0.013	0.010	0.009	0.304
	UMTS 850	0.330	0.013	0.010	0.009	0.362
	LTE Band 12	0.193	0.013	0.010	0.009	0.225
	LTE Band 13	0.232	0.013	0.010	0.009	0.264
	LTE Band 5 (Cell)	0.333	0.013	0.010	0.009	**0.365**
	LTE Band 41	0.196	0.013	0.010	0.009	0.228

Table 12-13
Simultaneous Transmission Scenario with Bluetooth Antenna 2 and 5 GHz WLAN MIMO (Body-Worn at 1.5 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Body - Worn SAR	GSM 850	0.289	0.015	0.010	0.009	0.323
	GSM 1900	0.272	0.015	0.010	0.009	0.306
	UMTS 850	0.330	0.015	0.010	0.009	0.364
	LTE Band 12	0.193	0.015	0.010	0.009	0.227
	LTE Band 13	0.232	0.015	0.010	0.009	0.266
	LTE Band 5 (Cell)	0.333	0.015	0.010	0.009	**0.367**
	LTE Band 41	0.196	0.015	0.010	0.009	0.230

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Table 12-14
Simultaneous Transmission Scenario with Bluetooth Antenna 1, 2.4 GHz WLAN Antenna 2, and 5 GHz WLAN MIMO (Body-Worn at 1.5 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Body - Worn SAR	GSM 850	0.289	0.013	0.025	0.010	0.009	0.346
	GSM 1900	0.272	0.013	0.025	0.010	0.009	0.329
	UMTS 850	0.330	0.013	0.025	0.010	0.009	0.387
	LTE Band 12	0.193	0.013	0.025	0.010	0.009	0.250
	LTE Band 13	0.232	0.013	0.025	0.010	0.009	0.289
	LTE Band 5 (Cell)	0.333	0.013	0.025	0.010	0.009	**0.390**
	LTE Band 41	0.196	0.013	0.025	0.010	0.009	0.253

12.5 Hotspot SAR Simultaneous Transmission Analysis

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

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

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

Configuration	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	2	1+2+3
Hotspot SAR	GPRS 850	0.740	0.388	0.185	1.313
	GPRS 1900	0.992	0.388	0.185	**1.565**
	UMTS 850	0.692	0.388	0.185	1.265
	LTE Band 12	0.484	0.388	0.185	1.057
	LTE Band 13	0.497	0.388	0.185	1.070
	LTE Band 5 (Cell)	0.672	0.388	0.185	1.245
	LTE Band 41	0.735	0.388	0.185	1.308

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

Configuration	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	2	1+2+3
Hotspot SAR	GPRS 850	0.740	0.211	0.170	1.121
	GPRS 1900	0.992	0.211	0.170	**1.373**
	UMTS 850	0.692	0.211	0.170	1.073
	LTE Band 12	0.484	0.211	0.170	0.865
	LTE Band 13	0.497	0.211	0.170	0.878
	LTE Band 5 (Cell)	0.672	0.211	0.170	1.053
	LTE Band 41	0.735	0.211	0.170	1.116

Table 12-17
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO and 5 GHz WLAN MIMO (Hotspot at 1.0 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Hotspot SAR	GPRS 850	0.740	0.388	0.185	0.211	0.170	See Table Below
	GPRS 1900	0.992	0.388	0.185	0.211	0.170	See Table Below
	UMTS 850	0.692	0.388	0.185	0.211	0.170	See Table Below
	LTE Band 12	0.484	0.388	0.185	0.211	0.170	1.438
	LTE Band 13	0.497	0.388	0.185	0.211	0.170	**1.451**
	LTE Band 5 (Cell)	0.672	0.388	0.185	0.211	0.170	See Table Below
	LTE Band 41	0.735	0.388	0.185	0.211	0.170	See Table Below

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Hotspot SAR	Back	0.740	0.388*	0.185*	0.211*	0.170*	**1.306**
	Front	0.177	0.388*	0.185	0.211	0.170	0.743
	Top	-	0.388	0.185*	0.211*	0.170*	0.954
	Bottom	0.331	-	-	-	-	0.331
	Right	0.483	-	0.185*	-	0.170*	0.838
	Left	0.086	0.388*	0.185*	0.211*	0.170*	0.652

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Hotspot SAR	Back	0.427	0.388*	0.185*	0.211*	0.170*	**0.993**
	Front	0.088	0.388*	0.185	0.211	0.170	0.654
	Top	-	0.388	0.185*	0.211*	0.170*	0.954
	Bottom	0.992	-	-	-	-	0.992
	Right	0.301	-	0.185*	-	0.170*	0.656
	Left	0.061	0.388*	0.185*	0.211*	0.170*	0.627

Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Hotspot SAR	Back	0.692	0.388*	0.185*	0.211*	0.170*	**1.258**
	Front	0.153	0.388*	0.185	0.211	0.170	0.719
	Top	-	0.388	0.185*	0.211*	0.170*	0.954
	Bottom	0.344	-	-	-	-	0.344
	Right	0.443	-	0.185*	-	0.170*	0.798
	Left	0.092	0.388*	0.185*	0.211*	0.170*	0.658

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Hotspot SAR	Back	0.672	0.388*	0.185*	0.211*	0.170*	**1.238**
	Front	0.176	0.388*	0.185	0.211	0.170	0.742
	Top	-	0.388	0.185*	0.211*	0.170*	0.954
	Bottom	0.320	-	-	-	-	0.320
	Right	0.427	-	0.185*	-	0.170*	0.782
	Left	0.065	0.388*	0.185*	0.211*	0.170*	0.631

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Hotspot SAR	Back	0.187	0.388*	0.185*	0.211*	0.170*	0.753
	Front	0.127	0.388*	0.185	0.211	0.170	0.693
	Top	-	0.388	0.185*	0.211*	0.170*	**0.954**
	Bottom	0.735	-	-	-	-	0.735
	Right	0.063	-	0.185*	-	0.170*	0.418
	Left	0.018	0.388*	0.185*	0.211*	0.170*	0.584

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Table 12-18
Simultaneous Transmission Scenario with Bluetooth (Hotspot at 1.0 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	Bluetooth Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	2	1+2	1+3
Hotspot SAR	GPRS 850	0.740	0.402	0.211	1.142	0.951
	GPRS 1900	0.992	0.402	0.211	**1.394**	1.203
	UMTS 850	0.692	0.402	0.211	1.094	0.903
	LTE Band 12	0.484	0.402	0.211	0.886	0.695
	LTE Band 13	0.497	0.402	0.211	0.899	0.708
	LTE Band 5 (Cell)	0.672	0.402	0.211	1.074	0.883
	LTE Band 41	0.735	0.402	0.211	1.137	0.946

Table 12-19
Simultaneous Transmission Scenario with Bluetooth Antenna 1 and 5 GHz WLAN MIMO (Hotspot at 1.0 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	GPRS 850	0.740	0.402	0.211	0.170	**1.523**
	GPRS 1900	0.992	0.402	0.211	0.170	See Table Below
	UMTS 850	0.692	0.402	0.211	0.170	1.475
	LTE Band 12	0.484	0.402	0.211	0.170	1.267
	LTE Band 13	0.497	0.402	0.211	0.170	1.280
	LTE Band 5 (Cell)	0.672	0.402	0.211	0.170	1.455
	LTE Band 41	0.735	0.402	0.211	0.170	1.518

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.427	0.019	0.211*	0.170*	0.827
	Front	0.088	0.205	0.211	0.170	0.674
	Top	-	0.402	0.211*	0.170*	0.783
	Bottom	0.992	-	-	-	**0.992**
	Right	0.301	-	-	0.170*	0.471
	Left	0.061	0.034	0.211*	0.170*	0.476

Table 12-20
Simultaneous Transmission Scenario with Bluetooth Antenna 2 and 5 GHz WLAN MIMO (Hotspot at 1.0 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	GPRS 850	0.740	0.211	0.211	0.170	1.332
	GPRS 1900	0.992	0.211	0.211	0.170	**1.584**
	UMTS 850	0.692	0.211	0.211	0.170	1.284
	LTE Band 12	0.484	0.211	0.211	0.170	1.076
	LTE Band 13	0.497	0.211	0.211	0.170	1.089
	LTE Band 5 (Cell)	0.672	0.211	0.211	0.170	1.264
	LTE Band 41	0.735	0.211	0.211	0.170	1.327

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Table 12-21
Simultaneous Transmission Scenario with Bluetooth Antenna 1, 2.4 GHz WLAN Antenna 2, and 5 GHz WLAN MIMO (Hotspot at 1.0 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Hotspot SAR	GPRS 850	0.740	0.402	0.185	0.211	0.170	See Table Below
	GPRS 1900	0.992	0.402	0.185	0.211	0.170	See Table Below
	UMTS 850	0.692	0.402	0.185	0.211	0.170	See Table Below
	LTE Band 12	0.484	0.402	0.185	0.211	0.170	1.452
	LTE Band 13	0.497	0.402	0.185	0.211	0.170	**1.465**
	LTE Band 5 (Cell)	0.672	0.402	0.185	0.211	0.170	See Table Below
	LTE Band 41	0.735	0.402	0.185	0.211	0.170	See Table Below

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Hotspot SAR	Back	0.740	0.019	0.185*	0.211*	0.170*	**1.325**
	Front	0.177	0.205	0.185	0.211	0.170	0.948
	Top	-	0.402	0.185*	0.211*	0.170*	0.968
	Bottom	0.331	-	-	-	-	0.331
	Right	0.483	-	0.185*	-	0.170*	0.838
	Left	0.086	0.034	0.185*	0.211*	0.170*	0.686

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Hotspot SAR	Back	0.427	0.019	0.185*	0.211*	0.170*	**1.012**
	Front	0.088	0.205	0.185	0.211	0.170	0.859
	Top	-	0.402	0.185*	0.211*	0.170*	0.968
	Bottom	0.992	-	-	-	-	0.992
	Right	0.301	-	0.185*	-	0.170*	0.656
	Left	0.061	0.034	0.185*	0.211*	0.170*	0.661

Simult Tx	Configuration	UMTS 850 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Hotspot SAR	Back	0.692	0.019	0.185*	0.211*	0.170*	**1.277**
	Front	0.153	0.205	0.185	0.211	0.170	0.924
	Top	-	0.402	0.185*	0.211*	0.170*	0.968
	Bottom	0.344	-	-	-	-	0.344
	Right	0.443	-	0.185*	-	0.170*	0.798
	Left	0.092	0.034	0.185*	0.211*	0.170*	0.692

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Hotspot SAR	Back	0.672	0.019	0.185*	0.211*	0.170*	**1.257**
	Front	0.176	0.205	0.185	0.211	0.170	0.947
	Top	-	0.402	0.185*	0.211*	0.170*	0.968
	Bottom	0.320	-	-	-	-	0.320
	Right	0.427	-	0.185*	-	0.170*	0.782
	Left	0.065	0.034	0.185*	0.211*	0.170*	0.665

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Hotspot SAR	Back	0.187	0.019	0.185*	0.211*	0.170*	0.772
	Front	0.127	0.205	0.185	0.211	0.170	0.898
	Top	-	0.402	0.185*	0.211*	0.170*	**0.968**
	Bottom	0.735	-	-	-	-	0.735
	Right	0.063	-	0.185*	-	0.170*	0.418
	Left	0.018	0.034	0.185*	0.211*	0.170*	0.618

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12.6 Phablet Simultaneous Transmission Analysis

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

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

For SAR summation, the highest reported SAR across all test distances was used as the most conservative evaluation for simultaneous transmission analysis for each device edge.

Per FCC KDB Publication 648474 D04 Handset SAR, Phablet SAR tests were not required if wireless router 1g SAR (scaled to the maximum output power, including tolerance) < 1.2 W/kg. Therefore no further analysis beyond the tables included in this section was required to determine that possible simultaneous transmission scenarios would not exceed the SAR limit.

Table 12-22
Simultaneous Transmission Scenario with 5 GHz WLAN (Phablet)

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Phablet SAR	Back	1.560	1.169*	0.772*	**3.501**	Phablet SAR	Back	0.761	1.169*	0.772*	2.702
	Front	0.321	1.169	0.772	2.262		Front	0.790	1.169	0.772	**2.731**
	Top	-	0.932	0.772*	1.704		Top	-	0.932	0.772*	1.704
	Bottom	2.140	-	-	2.140		Bottom	1.672	-	-	1.672
	Right	1.218	-	0.772*	1.990		Right	0.265	-	0.772*	1.037
	Left	0.175	1.169*	0.772*	2.116		Left	0.134	1.169*	0.772*	2.075

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12.7 UMPC Body Simultaneous Transmission Analysis

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

For SAR summation, the highest reported SAR across all test distances was used as the most conservative evaluation for simultaneous transmission analysis for each device edge.

Table 12-23
Simultaneous Transmission Scenario with 2.4 GHz WLAN (UMPC Body)

Configuration	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	GPRS 850	1.017	0.480	0.327	See Table Below
	GPRS 1900	0.992	0.480	0.327	See Table Below
	UMTS 850	0.890	0.480	0.327	See Table Below
	LTE Band 12	0.580	0.480	0.327	1.387
	LTE Band 13	0.604	0.480	0.327	**1.411**
	LTE Band 5 (Cell)	0.803	0.480	0.327	See Table Below
	LTE Band 41	1.038	0.480	0.327	See Table Below

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	1.017	0.242	0.278	**1.537**
	Front	0.506	0.148	0.143	0.797
	Top	-	0.480	0.195	0.675
	Bottom	0.464	-	-	0.464
	Right	0.449	-	-	0.449
	Left	-	-	0.327	0.327

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	0.616	0.242	0.278	**1.136**
	Front	0.432	0.148	0.143	0.723
	Top	-	0.480	0.195	0.675
	Bottom	0.992	-	-	0.992
	Right	0.545	-	-	0.545
	Left	-	-	0.327	0.327

Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	0.890	0.242	0.278	**1.410**
	Front	0.585	0.148	0.143	0.876
	Top	-	0.480	0.195	0.675
	Bottom	0.434	-	-	0.434
	Right	0.405	-	-	0.405
	Left	-	-	0.327	0.327

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	0.803	0.242	0.278	**1.323**
	Front	0.555	0.148	0.143	0.846
	Top	-	0.480	0.195	0.675
	Bottom	0.346	-	-	0.346
	Right	0.352	-	-	0.352
	Left	-	-	0.327	0.327

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	0.933	0.242	0.278	**1.453**
	Front	0.858	0.148	0.143	1.149
	Top	-	0.480	0.195	0.675
	Bottom	1.038	-	-	1.038
	Right	0.136	-	-	0.136
	Left	-	-	0.327	0.327

Table 12-24
Simultaneous Transmission Scenario with 5GHz WLAN (UMPC Body)

Configuration	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	GPRS 850	1.017	0.204	0.206	1.427
	GPRS 1900	0.992	0.204	0.206	1.402
	UMTS 850	0.890	0.204	0.206	1.300
	LTE Band 12	0.580	0.204	0.206	0.990
	LTE Band 13	0.604	0.204	0.206	1.014
	LTE Band 5 (Cell)	0.803	0.204	0.206	1.213
	LTE Band 41	1.038	0.204	0.206	**1.448**

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Table 12-25
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO and 5 GHz WLAN MIMO (UMPC Body)

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4			1	2	3	4	1+2+3+4
UMPC Body SAR	Back	1.017	0.242	0.278	0.056	**1.593**	UMPC Body SAR	Back	0.616	0.242	0.278	0.056	**1.192**
	Front	0.506	0.148	0.143	0.018	0.815		Front	0.432	0.148	0.143	0.018	0.741
	Top	-	0.480	0.195	0.046	0.721		Top	-	0.480	0.195	0.046	0.721
	Bottom	0.464	-	-	-	0.464		Bottom	0.992	-	-	-	0.992
	Right	0.449	-	-	-	0.449		Right	0.545	-	-	-	0.545
	Left	-	-	0.327	0.062	0.389		Left	-	-	0.327	0.062	0.389

Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4			1	2	3	4	1+2+3+4
UMPC Body SAR	Back	0.890	0.242	0.278	0.056	**1.466**	UMPC Body SAR	Back	0.580	0.242	0.278	0.056	**1.156**
	Front	0.585	0.148	0.143	0.018	0.894		Front	0.397	0.148	0.143	0.018	0.706
	Top	-	0.480	0.195	0.046	0.721		Top	-	0.480	0.195	0.046	0.721
	Bottom	0.434	-	-	-	0.434		Bottom	0.325	-	-	-	0.325
	Right	0.405	-	-	-	0.405		Right	0.398	-	-	-	0.398
	Left	-	-	0.327	0.062	0.389		Left	-	-	0.327	0.062	0.389

Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4			1	2	3	4	1+2+3+4
UMPC Body SAR	Back	0.604	0.242	0.278	0.056	**1.180**	UMPC Body SAR	Back	0.803	0.242	0.278	0.056	**1.379**
	Front	0.425	0.148	0.143	0.018	0.734		Front	0.555	0.148	0.143	0.018	0.864
	Top	-	0.480	0.195	0.046	0.721		Top	-	0.480	0.195	0.046	0.721
	Bottom	0.340	-	-	-	0.340		Bottom	0.346	-	-	-	0.346
	Right	0.324	-	-	-	0.324		Right	0.352	-	-	-	0.352
	Left	-	-	0.327	0.062	0.389		Left	-	-	0.327	0.062	0.389

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
UMPC Body SAR	Back	0.933	0.242	0.278	0.056	**1.509**
	Front	0.858	0.148	0.143	0.018	1.167
	Top	-	0.480	0.195	0.046	0.721
	Bottom	1.038	-	-	-	1.038
	Right	0.136	-	-	-	0.136
	Left	-	-	0.327	0.062	0.389

Table 12-26
Simultaneous Transmission Scenario with Bluetooth (UMPC Body)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	Bluetooth Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
UMPC Body SAR	GPRS 850	1.017	0.538	0.374	1.555	1.391
	GPRS 1900	0.992	0.538	0.374	1.530	1.366
	UMTS 850	0.890	0.538	0.374	1.428	1.264
	LTE Band 12	0.580	0.538	0.374	1.118	0.954
	LTE Band 13	0.604	0.538	0.374	1.142	0.978
	LTE Band 5 (Cell)	0.803	0.538	0.374	1.341	1.177
	LTE Band 41	1.038	0.538	0.374	**1.576**	1.412

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Table 12-27
Simultaneous Transmission Scenario with Bluetooth Antenna 1 and 5 GHz WLAN MIMO (UMPC Body)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	GPRS 850	1.017	0.538	0.062	See Table Below
	GPRS 1900	0.992	0.538	0.062	**1.592**
	UMTS 850	0.890	0.538	0.062	1.490
	LTE Band 12	0.580	0.538	0.062	1.180
	LTE Band 13	0.604	0.538	0.062	1.204
	LTE Band 5 (Cell)	0.803	0.538	0.062	1.403
	LTE Band 41	1.038	0.538	0.062	See Table Below

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
UMPC Body SAR	Back	1.017	0.226	0.056	**1.299**	UMPC Body SAR	Back	0.933	0.226	0.056	**1.215**
	Front	0.506	0.170	0.018	0.694		Front	0.858	0.170	0.018	1.046
	Top	-	0.538	0.046	0.584		Top	-	0.538	0.046	0.584
	Bottom	0.464	-	-	0.464		Bottom	1.038	-	-	1.038
	Right	0.449	-	-	0.449		Right	0.136	-	-	0.136
	Left	-	-	0.062	0.062		Left	-	-	0.062	0.062

Table 12-28
Simultaneous Transmission Scenario with Bluetooth Antenna 2 and 5 GHz WLAN MIMO (UMPC Body)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	GPRS 850	1.017	0.374	0.062	1.453
	GPRS 1900	0.992	0.374	0.062	1.428
	UMTS 850	0.890	0.374	0.062	1.326
	LTE Band 12	0.580	0.374	0.062	1.016
	LTE Band 13	0.604	0.374	0.062	1.040
	LTE Band 5 (Cell)	0.803	0.374	0.062	1.239
	LTE Band 41	1.038	0.374	0.062	**1.474**

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Table 12-29
Simultaneous Transmission Scenario with Bluetooth Antenna 1, 2.4 GHz WLAN Antenna 2, and 5 GHz WLAN MIMO (UMPC Body)

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4			1	2	3	4	1+2+3+4
UMPC Body SAR	Back	1.017	0.226	0.278	0.056	**1.577**	UMPC Body SAR	Back	0.616	0.226	0.278	0.056	**1.176**
	Front	0.506	0.170	0.143	0.018	0.837		Front	0.432	0.170	0.143	0.018	0.763
	Top	-	0.538	0.195	0.046	0.779		Top	-	0.538	0.195	0.046	0.779
	Bottom	0.464	-	-	-	0.464		Bottom	0.992	-	-	-	0.992
	Right	0.449	-	-	-	0.449		Right	0.545	-	-	-	0.545
	Left	-	-	0.327	0.062	0.389		Left	-	-	0.327	0.062	0.389

Simult Tx	Configuration	UMTS 850 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4			1	2	3	4	1+2+3+4
UMPC Body SAR	Back	0.890	0.226	0.278	0.056	**1.450**	UMPC Body SAR	Back	0.580	0.226	0.278	0.056	**1.140**
	Front	0.585	0.170	0.143	0.018	0.916		Front	0.397	0.170	0.143	0.018	0.728
	Top	-	0.538	0.195	0.046	0.779		Top	-	0.538	0.195	0.046	0.779
	Bottom	0.434	-	-	-	0.434		Bottom	0.325	-	-	-	0.325
	Right	0.405	-	-	-	0.405		Right	0.398	-	-	-	0.398
	Left	-	-	0.327	0.062	0.389		Left	-	-	0.327	0.062	0.389

Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4			1	2	3	4	1+2+3+4
UMPC Body SAR	Back	0.604	0.226	0.278	0.056	**1.164**	UMPC Body SAR	Back	0.803	0.226	0.278	0.056	**1.363**
	Front	0.425	0.170	0.143	0.018	0.756		Front	0.555	0.170	0.143	0.018	0.886
	Top	-	0.538	0.195	0.046	0.779		Top	-	0.538	0.195	0.046	0.779
	Bottom	0.340	-	-	-	0.340		Bottom	0.346	-	-	-	0.346
	Right	0.324	-	-	-	0.324		Right	0.352	-	-	-	0.352
	Left	-	-	0.327	0.062	0.389		Left	-	-	0.327	0.062	0.389

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
UMPC Body SAR	Back	0.933	0.226	0.278	0.056	**1.493**
	Front	0.858	0.170	0.143	0.018	1.189
	Top	-	0.538	0.195	0.046	0.779
	Bottom	1.038	-	-	-	1.038
	Right	0.136	-	-	-	0.136
	Left	-	-	0.327	0.062	0.389

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12.8 UMPC Extremity Simultaneous Transmission Analysis

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

For SAR summation, the highest reported SAR across all test distances was used as the most conservative evaluation for simultaneous transmission analysis for each device edge.

Table 12-30
Simultaneous Transmission Scenario with 2.4 GHz WLAN (UMPC Extremity)

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.940	0.794	0.897	**3.631**
	Front	1.174	0.784	0.523	2.481
	Top	-	1.024	0.817	1.841
	Bottom	1.013	-	-	1.013
	Right	0.956	-	-	0.956
	Left	-	-	2.046	2.046

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.555	0.794	0.897	**3.246**
	Front	0.949	0.784	0.523	2.256
	Top	-	1.024	0.817	1.841
	Bottom	2.858	-	-	2.858
	Right	1.808	-	-	1.808
	Left	-	-	2.046	2.046

Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.684	0.794	0.897	**3.375**
	Front	1.542	0.784	0.523	2.849
	Top	-	1.024	0.817	1.841
	Bottom	0.990	-	-	0.990
	Right	1.487	-	-	1.487
	Left	-	-	2.046	2.046

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.473	0.794	0.897	**3.164**
	Front	0.913	0.784	0.523	2.220
	Top	-	1.024	0.817	1.841
	Bottom	0.717	-	-	0.717
	Right	1.555	-	-	1.555
	Left	-	-	2.046	2.046

Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.660	0.794	0.897	**3.351**
	Front	0.915	0.784	0.523	2.222
	Top	-	1.024	0.817	1.841
	Bottom	0.764	-	-	0.764
	Right	1.464	-	-	1.464
	Left	-	-	2.046	2.046

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.978	0.794	0.897	**3.669**
	Front	1.234	0.784	0.523	2.541
	Top	-	1.024	0.817	1.841
	Bottom	0.925	-	-	0.925
	Right	1.748	-	-	1.748
	Left	-	-	2.046	2.046

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.706	0.794	0.897	**3.397**
	Front	1.110	0.784	0.523	2.417
	Top	-	1.024	0.817	1.841
	Bottom	1.858	-	-	1.858
	Right	0.498	-	-	0.498
	Left	-	-	2.046	2.046

Table 12-31
Simultaneous Transmission Scenario with 5 GHz WLAN (UMPC Extremity)

Configuration	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	GPRS 850	1.940	1.215	0.800	3.955
	GPRS 1900	2.858	1.215	0.800	See Table Below
	UMTS 850	1.684	1.215	0.800	3.699
	LTE Band 12	1.555	1.215	0.800	3.570
	LTE Band 13	1.660	1.215	0.800	3.675
	LTE Band 5 (Cell)	1.978	1.215	0.800	**3.993**
	LTE Band 41	1.858	1.215	0.800	3.873

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.555	1.010	0.800	**3.365**
	Front	0.949	0.436	0.461	1.846
	Top	-	1.215	0.341	1.556
	Bottom	2.858	-	-	2.858
	Right	1.808	-	-	1.808
	Left	-	-	0.526	0.526

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Table 12-32
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO and 5 GHz WLAN MIMO (UMPC Extremity)

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4			1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.940	0.794	0.897	0.051	**3.682**	UMPC Extremity SAR	Back	1.555	0.794	0.897	0.051	**3.297**
	Front	1.174	0.784	0.523	0.032	2.513		Front	0.949	0.784	0.523	0.032	2.288
	Top	-	1.024	0.817	0.280	2.121		Top	-	1.024	0.817	0.280	2.121
	Bottom	1.013	-	-	-	1.013		Bottom	2.858	-	-	-	2.858
	Right	0.956	-	-	-	0.956		Right	1.808	-	-	-	1.808
	Left	-	-	2.046	0.145	2.191		Left	-	-	2.046	0.145	2.191

Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4			1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.684	0.794	0.897	0.051	**3.426**	UMPC Extremity SAR	Back	1.473	0.794	0.897	0.051	**3.215**
	Front	1.542	0.784	0.523	0.032	2.881		Front	0.913	0.784	0.523	0.032	2.252
	Top	-	1.024	0.817	0.280	2.121		Top	-	1.024	0.817	0.280	2.121
	Bottom	0.990	-	-	-	0.990		Bottom	0.717	-	-	-	0.717
	Right	1.487	-	-	-	1.487		Right	1.555	-	-	-	1.555
	Left	-	-	2.046	0.145	2.191		Left	-	-	2.046	0.145	2.191

Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4			1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.660	0.794	0.897	0.051	**3.402**	UMPC Extremity SAR	Back	1.978	0.794	0.897	0.051	**3.720**
	Front	0.915	0.784	0.523	0.032	2.254		Front	1.234	0.784	0.523	0.032	2.573
	Top	-	1.024	0.817	0.280	2.121		Top	-	1.024	0.817	0.280	2.121
	Bottom	0.764	-	-	-	0.764		Bottom	0.925	-	-	-	0.925
	Right	1.464	-	-	-	1.464		Right	1.748	-	-	-	1.748
	Left	-	-	2.046	0.145	2.191		Left	-	-	2.046	0.145	2.191

UMPC Extremity SAR	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.706	0.794	0.897	0.051	**3.448**
	Front	1.110	0.784	0.523	0.032	2.449
	Top	-	1.024	0.817	0.280	2.121
	Bottom	1.858	-	-	-	1.858
	Right	0.498	-	-	-	0.498
	Left	-	-	2.046	0.145	2.191

Table 12-33
Simultaneous Transmission Scenario with Bluetooth (UMPC Extremity)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	Bluetooth Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
UMPC Extremity SAR	GPRS 850	1.940	1.267	1.415	3.207	3.355
	GPRS 1900	2.858	1.267	1.415	See Table Below	See Table Below
	UMTS 850	1.684	1.267	1.415	2.951	3.099
	LTE Band 12	1.555	1.267	1.415	2.822	2.970
	LTE Band 13	1.660	1.267	1.415	2.927	3.075
	LTE Band 5 (Cell)	1.978	1.267	1.415	3.245	**3.393**
	LTE Band 41	1.858	1.267	1.415	3.125	3.273

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	Bluetooth Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
UMPC Extremity SAR	Back	1.555	0.799	0.914	2.354	2.469
	Front	0.949	0.825	0.496	1.774	1.445
	Top	-	1.267	0.714	1.267	0.714
	Bottom	2.858	-	-	**2.858**	**2.858**
	Right	1.808	-	-	1.808	1.808
	Left	-	-	1.415	-	1.415

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Table 12-34
Simultaneous Transmission Scenario with Bluetooth Antenna 1 and 5 GHz WLAN MIMO (UMPC Extremity)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	GPRS 850	1.940	1.267	0.280	3.487
	GPRS 1900	2.858	1.267	0.280	See Table Below
	UMTS 850	1.684	1.267	0.280	3.231
	LTE Band 12	1.555	1.267	0.280	3.102
	LTE Band 13	1.660	1.267	0.280	3.207
	LTE Band 5 (Cell)	1.978	1.267	0.280	**3.525**
	LTE Band 41	1.858	1.267	0.280	3.405

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.555	0.799	0.051	2.405
	Front	0.949	0.825	0.032	1.806
	Top	-	1.267	0.280	1.547
	Bottom	2.858	-	-	**2.858**
	Right	1.808	-	-	1.808
	Left	-	-	0.145	0.145

Table 12-35
Simultaneous Transmission Scenario with Bluetooth Antenna 2 and 5 GHz WLAN MIMO (UMPC Extremity)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	GPRS 850	1.940	1.415	0.280	3.635
	GPRS 1900	2.858	1.415	0.280	See Table Below
	UMTS 850	1.684	1.415	0.280	3.379
	LTE Band 12	1.555	1.415	0.280	3.250
	LTE Band 13	1.660	1.415	0.280	3.355
	LTE Band 5 (Cell)	1.978	1.415	0.280	**3.673**
	LTE Band 41	1.858	1.415	0.280	3.553

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.555	0.914	0.051	2.520
	Front	0.949	0.496	0.032	1.477
	Top	-	0.714	0.280	0.994
	Bottom	2.858	-	-	**2.858**
	Right	1.808	-	-	1.808
	Left	-	1.415	0.145	1.560

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Table 12-36
Simultaneous Transmission Scenario with Bluetooth Antenna 1, 2.4 GHz WLAN Antenna 2, and 5 GHz WLAN MIMO (UMPC Extremity)

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4			1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.940	0.799	0.897	0.051	**3.687**	UMPC Extremity SAR	Back	1.555	0.799	0.897	0.051	**3.302**
	Front	1.174	0.825	0.523	0.032	2.554		Front	0.949	0.825	0.523	0.032	2.329
	Top	-	1.267	0.817	0.280	2.364		Top	-	1.267	0.817	0.280	2.364
	Bottom	1.013	-	-	-	1.013		Bottom	2.858	-	-	-	2.858
	Right	0.956	-	-	-	0.956		Right	1.808	-	-	-	1.808
	Left	-	-	2.046	0.145	2.191		Left	-	-	2.046	0.145	2.191

Simult Tx	Configuration	UMTS 850 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4			1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.684	0.799	0.897	0.051	**3.431**	UMPC Extremity SAR	Back	1.473	0.799	0.897	0.051	**3.220**
	Front	1.542	0.825	0.523	0.032	2.922		Front	0.913	0.825	0.523	0.032	2.293
	Top	-	1.267	0.817	0.280	2.364		Top	-	1.267	0.817	0.280	2.364
	Bottom	0.990	-	-	-	0.990		Bottom	0.717	-	-	-	0.717
	Right	1.487	-	-	-	1.487		Right	1.555	-	-	-	1.555
	Left	-	-	2.046	0.145	2.191		Left	-	-	2.046	0.145	2.191

Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4			1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.660	0.799	0.897	0.051	**3.407**	UMPC Extremity SAR	Back	1.978	0.799	0.897	0.051	**3.725**
	Front	0.915	0.825	0.523	0.032	2.295		Front	1.234	0.825	0.523	0.032	2.614
	Top	-	1.267	0.817	0.280	2.364		Top	-	1.267	0.817	0.280	2.364
	Bottom	0.764	-	-	-	0.764		Bottom	0.925	-	-	-	0.925
	Right	1.464	-	-	-	1.464		Right	1.748	-	-	-	1.748
	Left	-	-	2.046	0.145	2.191		Left	-	-	2.046	0.145	2.191

UMPC Extremity SAR	Configuration	LTE Band 41 SAR (W/kg)	Bluetooth Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.706	0.799	0.897	0.051	**3.453**
	Front	1.110	0.825	0.523	0.032	2.490
	Top	-	1.267	0.817	0.280	2.364
	Bottom	1.858	-	-	-	1.858
	Right	0.498	-	-	-	0.498
	Left	-	-	2.046	0.145	2.191

12.9 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.

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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
1g UMPC Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Side	Spacing	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
2600	PCC: 2680.00 SCC: 2660.20	PCC: 41490 SCC: 41292	LTE Band 41 ULCA, 20 MHz Bandwidth	PCC: QPSK, 50 RB, 0 RB Offset SCC: QPSK, 50 RB, 50 RB Offset	bottom	10 mm	0.942	0.938	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
10g UMPC Extremity SAR Measurement Variability Results

Extremity VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Data Rate (Mbps)	Side	Spacing	Measured SAR (10g)	1st Repeated SAR (10g)	Ratio	2nd Repeated SAR (10g)	Ratio	3rd Repeated SAR (10g)	Ratio
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
2450	2462.00	11	802.11b, 22 MHz Bandwidth	DSSS , ANT 2	1	left	0 mm	2.040	2.030	1.00	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Extremity 4.0 W/kg (mW/g) averaged over 10 grams						

13.2 Measurement Uncertainty

The measured 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.

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14 ADDITIONAL TESTING PER FCC GUIDANCE

14.1 Tuner Testing

Per April 2019 TCB Workshop Notes, the following test procedures were followed to demonstrate that the SAR results in Section 11 represented the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR was measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. Additional single point SAR time-sweep measurements were evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence on the antenna characteristics, other than impedance matching.

To evaluate all the tuner states, the 152 tuner states were divided among the aggregate band, mode and exposure combinations. Single point time-sweep measurements were performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state was able to be established remotely so that the device was not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe remained stationary at the same position throughout the entire series of single point measurements for each combination. When the single point SAR or 1g SAR was > 1.2 W/kg for a particular band/mode/exposure condition, point SAR measurements were made for all 152 states.

The operational description contains more information about the design and implementation of the dynamic antenna tuning.

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Table 14-1
Supplemental Head SAR Data

Supplemental Head SAR Data							
UMTS B5		LTE B12		LTE B13		LTE B5	
RMC		QPSK, 10 MHz Bandwidth, 1 RB, 0 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 49 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 0 RB Offset	
Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Right Cheek
Frequency (MHz)	836.6	Frequency (MHz)	707.5	Frequency (MHz)	782.0	Frequency (MHz)	836.5
Channel	4183	Channel	23095	Channel	23230	Channel	20525
Measured 1g SAR (W/kg)	0.193	Measured 1g SAR (W/kg)	0.107	Measured 1g SAR (W/kg)	0.158	Measured 1g SAR (W/kg)	0.186
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 0)	0.252	Auto-tune (State 27)	0.127	Auto-tune (State 10)	0.215	Auto-tune (State 0)	0.214
Default (State 144)	0.266	Default (State 145)	0.115	Default (State 144)	0.199	Default (State 144)	0.263
State 0	0.266	State 4	0.054	State 2	0.157	State 0	0.264
State 1	0.251	State 15	0.021	State 7	0.023	State 5	0.172
State 9	0.238	State 27	0.131	State 10	0.211	State 33	0.074
State 25	0.049	State 29	0.124	State 13	0.182	State 37	0.235
State 40	0.172	State 35	0.006	State 19	0.200	State 42	0.089
State 54	0.241	State 45	0.119	State 27	0.175	State 51	0.099
State 63	0.191	State 56	0.093	State 38	0.147	State 55	0.239
State 68	0.135	State 65	0.117	State 47	0.196	State 60	0.097
State 71	0.017	State 66	0.102	State 57	0.175	State 67	0.176
State 80	0.012	State 73	0.046	State 62	0.022	State 78	0.045
State 83	0.208	State 82	0.072	State 69	0.068	State 86	0.119
State 92	0.199	State 88	0.004	State 74	0.092	State 90	0.232
State 98	0.017	State 93	0.048	State 84	0.136	State 96	0.057
State 103	0.131	State 99	0.124	State 94	0.113	State 101	0.178
State 114	0.038	State 108	0.072	State 100	0.172	State 110	0.144
State 126	0.232	State 118	0.067	State 109	0.093	State 116	0.011
State 129	0.162	State 123	0.009	State 119	0.145	State 121	0.151
State 134	0.015	State 128	0.057	State 127	0.143	State 125	0.016
State 137	0.174	State 135	0.122	State 132	0.038	State 131	0.107
State 142	0.020	State 140	0.036	State 143	0.013	State 138	0.141
State 144	0.266	State 145	0.115	State 144	0.199	State 144	0.263
State 149	0.237	State 150	0.073	State 148	0.139	State 146	0.248

Table 14-2
Supplemental Body SAR Data

Supplemental Body SAR Data							
UMTS B5		LTE B12		LTE B13		LTE B5	
RMC		QPSK, 10 MHz Bandwidth, 1 RB, 0 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 49 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 0 RB Offset	
Test Position	Back (UMPC)	Test Position	Back (UMPC)	Test Position	Back (UMPC)	Test Position	Back (UMPC)
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	846.6	Frequency (MHz)	707.5	Frequency (MHz)	782.0	Frequency (MHz)	836.5
Channel	4233	Channel	23095	Channel	23230	Channel	20525
Measured 1g SAR (W/kg)	0.634	Measured 1g SAR (W/kg)	0.492	Measured 1g SAR (W/kg)	0.547	Measured 1g SAR (W/kg)	0.629
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 0)	1.029	Auto-tune (State 9)	0.809	Auto-tune (State 0)	0.864	Auto-tune (State 0)	1.010
Default (State 144)	0.939	Default (State 145)	0.800	Default (State 144)	0.862	Default (State 144)	0.840
State 0	1.027	State 8	0.027	State 0	0.858	State 0	0.983
State 3	0.815	State 9	0.831	State 6	0.331	State 11	0.941
State 10	1.002	State 14	0.436	State 12	0.848	State 16	0.311
State 17	0.163	State 20	0.691	State 20	0.825	State 18	0.846
State 21	0.951	State 22	0.540	State 24	0.505	State 23	0.848
State 30	0.817	State 28	0.799	State 34	0.106	State 26	0.192
State 36	0.999	State 31	0.694	State 41	0.509	State 32	0.620
State 41	0.577	State 39	0.370	State 44	0.129	State 43	0.245
State 48	0.957	State 46	0.734	State 52	0.249	State 50	0.838
State 53	0.156	State 49	0.558	State 56	0.836	State 71	0.092
State 58	0.889	State 59	0.373	State 61	0.264	State 79	0.131
State 70	0.164	State 64	0.783	State 72	0.607	State 90	0.838
State 76	0.446	State 75	0.221	State 77	0.321	State 101	0.729
State 85	0.710	State 81	0.708	State 87	0.323	State 104	0.410
State 91	0.844	State 95	0.241	State 89	0.108	State 106	0.112
State 97	0.166	State 102	0.555	State 93	0.752	State 113	0.325
State 112	0.411	State 107	0.061	State 105	0.146	State 117	0.837
State 124	0.158	State 115	0.025	State 111	0.395	State 125	0.113
State 133	0.151	State 120	0.390	State 122	0.587	State 133	0.174
State 141	0.200	State 130	0.305	State 136	0.667	State 139	0.548
State 144	0.939	State 144	0.606	State 143	0.045	State 144	0.840
State 147	0.971	State 145	0.800	State 144	0.862	State 151	0.805

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15 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	CBT	N/A	CBT	3051A00187
Agilent	85033E	3.5mm Standard Calibration Kit	6/6/2020	Annual	6/6/2021	MY53402352
Agilent	E5515C	8960 Series 10 Wireless Communications Test Set	2/10/2020	Annual	2/10/2021	GB42230325
Agilent	E4438C	ESG Vector Signal Generator	8/10/2020	Annual	8/10/2021	MY47270002
Agilent	N5182A	MXG Vector Signal Generator	5/13/2020	Annual	5/13/2021	MY47420603
Agilent	N5182A	MXG Vector Signal Generator	2/19/2020	Annual	2/19/2021	MY47420651
Agilent	8753ES	S-Parameter Network Analyzer	12/31/2019	Annual	12/31/2020	US39170122
Agilent	E5515C	Wireless Communications Test Set	1/14/2020	Triennial	1/14/2023	GB43304447
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB44450273
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46170464
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433974
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433976
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433978
Anritsu	ML2495A	Power Meter	12/17/2019	Annual	12/17/2020	941001
Anritsu	ML2496A	Power Meter	2/13/2020	Annual	2/13/2021	1306009
Anritsu	MA2411B	Pulse Power Sensor	12/4/2019	Annual	12/4/2020	1126066
Anritsu	MA2411B	Pulse Power Sensor	8/12/2020	Annual	8/12/2021	1207364
Anritsu	MA2411B	Pulse Power Sensor	1/21/2020	Annual	1/21/2021	1207470
Anritsu	MT8821C	Radio Communication Analyzer	3/10/2020	Annual	3/10/2021	6200901190
Anritsu	MT8821C	Radio Communication Analyzer	6/15/2020	Annual	6/15/2021	6201381794
Anritsu	MT8821C	Radio Communication Analyzer	2/22/2020	Annual	2/22/2021	6261895213
Anritsu	MA24106A	USB Power Sensor	10/10/2019	Annual	10/10/2020	1344559
Anritsu	MA24106A	USB Power Sensor	6/8/2020	Annual	6/8/2021	1349501
Anritsu	MA24106A	USB Power Sensor	12/9/2019	Annual	12/9/2020	1349503
COMTech	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M1S5A00-009
COMTECH	AR85729-5/5759B	Solid State Amplifier	CBT	N/A	CBT	M3W1A00-1002
Control Company	4352	Long Stem Thermometer	6/26/2019	Biennial	6/26/2021	192282753
Control Company	4352	Long Stem Thermometer	1/24/2020	Biennial	1/24/2022	200043655
Control Company	4352	Long Stem Thermometer	5/16/2020	Biennial	5/16/2022	200294409
Control Company	4040	Therm./ Clock/ Humidity Monitor	10/9/2018	Biennial	10/9/2020	181647812
Control Company	4040	Therm./ Clock/ Humidity Monitor	2/17/2020	Biennial	2/17/2022	200113274
Control Company	4040	Therm./ Clock/ Humidity Monitor	3/6/2020	Biennial	3/6/2022	200170313
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	N6705B	DC Power Analyzer	4/27/2019	Biennial	4/27/2021	MY53004059
Keysight Technologies	N9020A	MXA Signal Analyzer	8/14/2020	Annual	8/14/2021	US46470561
Keysight Technologies	85033E	ndard Mechanical Calibration Kit (DC to 9GHz, 3.5m	9/1/2020	Annual	9/1/2021	MY53401181
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
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	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	NC-100	Torque Wrench	8/4/2020	Biennial	8/4/2022	N/A
Pasternack	NC-100	Torque Wrench	8/4/2020	Biennial	8/4/2022	N/A
Rohde & Schwarz	ZNLE6	Vector Network Analyzer	10/11/2019	Annual	10/11/2020	101307
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	6/23/2020	Annual	6/23/2021	161662
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	2/4/2020	Annual	2/4/2021	162125
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	11/14/2019	Annual	11/14/2020	164948
SPEAG	D750V3	750 MHz SAR Dipole	3/11/2020	Annual	3/11/2021	1054
SPEAG	D750V3	750 MHz SAR Dipole	10/19/2018	Biennial	10/19/2020	1161
SPEAG	D835V2	835 MHz SAR Dipole	1/13/2020	Annual	1/13/2021	4d132
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2018	Biennial	10/19/2020	4d133
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Biennial	10/23/2020	5d080
SPEAG	D1900V2	1900 MHz SAR Dipole	2/21/2019	Biennial	2/21/2021	5d148
SPEAG	D2450V2	2450 MHz SAR Dipole	8/16/2018	Triennial	8/16/2021	981
SPEAG	D2600V2	2600 MHz SAR Dipole	4/11/2018	Triennial	4/11/2021	1004
SPEAG	D2600V2	2600 MHz SAR Dipole	6/14/2019	Biennial	6/14/2021	1064
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/16/2018	Triennial	1/16/2021	1057
SPEAG	D5GHzV2	5 GHz SAR Dipole	8/10/2018	Triennial	8/10/2021	1237
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/15/2020	Annual	7/15/2021	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/12/2020	Annual	8/12/2021	1323
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/18/2020	Annual	6/18/2021	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/15/2020	Annual	4/15/2021	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/11/2020	Annual	8/11/2021	1450
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/13/2020	Annual	1/13/2021	1530
SPEAG	DAE4	Dasy Data Acquisition Electronics	12/5/2019	Annual	12/5/2020	1533
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/13/2020	Annual	1/13/2021	1558
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/14/2020	Annual	5/14/2021	1583
SPEAG	EX3DV4	SAR Probe	1/21/2020	Annual	1/21/2021	3589
SPEAG	EX3DV4	SAR Probe	7/31/2020	Annual	7/31/2021	7308
SPEAG	EX3DV4	SAR Probe	4/21/2020	Annual	4/21/2021	7357
SPEAG	EX3DV4	SAR Probe	6/23/2020	Annual	6/23/2021	7406
SPEAG	EX3DV4	SAR Probe	6/23/2020	Annual	6/23/2021	7409
SPEAG	EX3DV4	SAR Probe	1/21/2020	Annual	1/21/2021	7488
SPEAG	EX3DV4	SAR Probe	5/18/2020	Annual	5/18/2021	7538
SPEAG	EX3DV4	SAR Probe	8/19/2020	Annual	8/19/2021	7547
SPEAG	EX3DV4	SAR Probe	12/11/2019	Annual	12/11/2020	7571
SPEAG	DAK-3.5	Dielectric Assessment Kit	10/22/2019	Annual	10/22/2020	1091

Note: 1. Each equipment item was used solely within its respective calibration period.
2. CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

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16 MEASUREMENT UNCERTAINTIES

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

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17 CONCLUSION

17.1 Measurement Conclusion

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

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

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APPENDIX A: SAR TEST DATA

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DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0629M

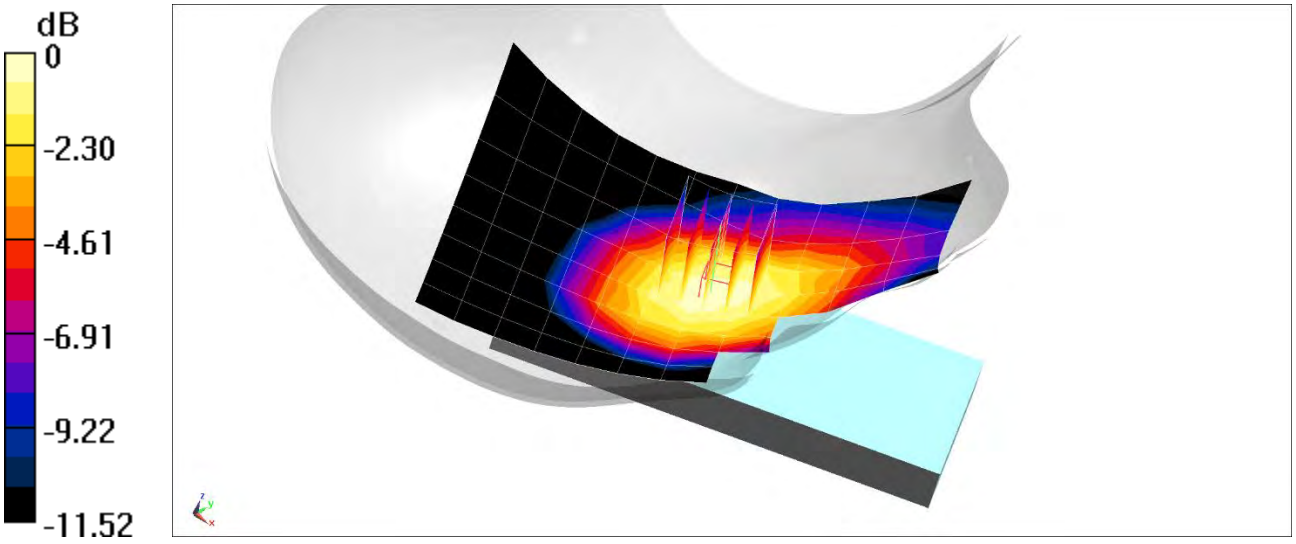
Communication System: UID 0, GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Head; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.92 S/m; ε_r = 43.101; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09/14/2020; Ambient Temp: 21.9°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN3589; ConvF(8.58, 8.58, 8.58) @ 836.6 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.60 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.165 W/kg
SAR(1 g) = 0.121 W/kg



0 dB = 0.148 W/kg = -8.30 dBW/kg

PCTEST

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0679M

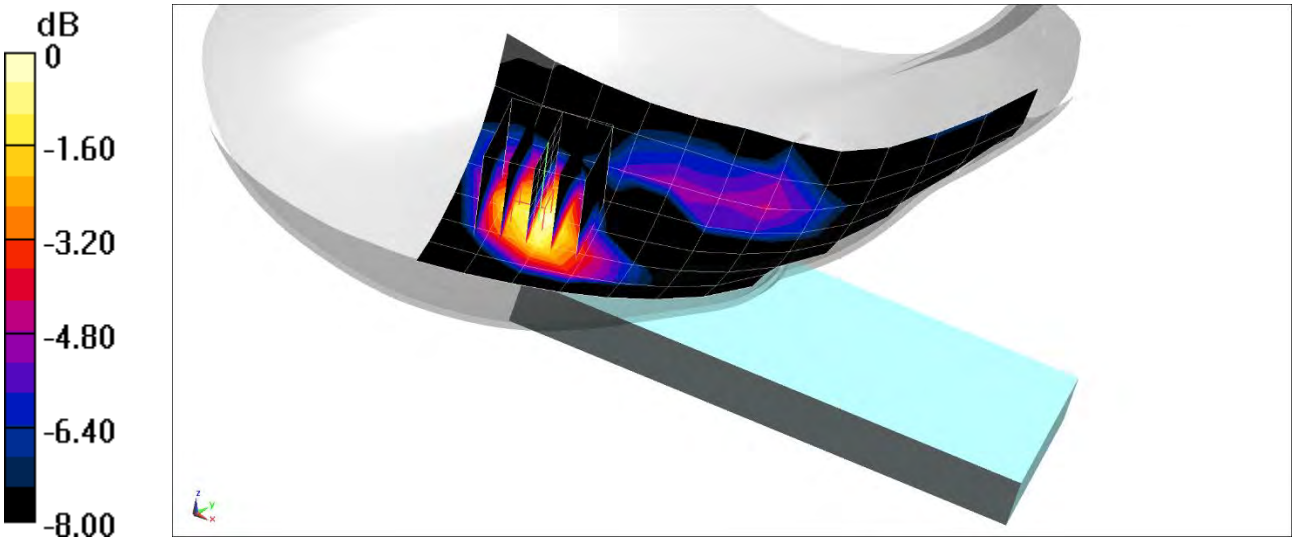
Communication System: UID 0, GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.394 S/m; ε_r = 38.929; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09/04/2020; Ambient Temp: 24.0°C; Tissue Temp: 22.2°C

Probe: EX3DV4 - SN7406; ConvF(7.96, 7.96, 7.96) @ 1880 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1583; Calibrated: 5/14/2020
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1966
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: GSM 1900, Right Head, Tilt, Mid.ch

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.432 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.0440 W/kg
SAR(1 g) = 0.025 W/kg



0 dB = 0.0364 W/kg = -14.39 dBW/kg

PCTEST

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0629M

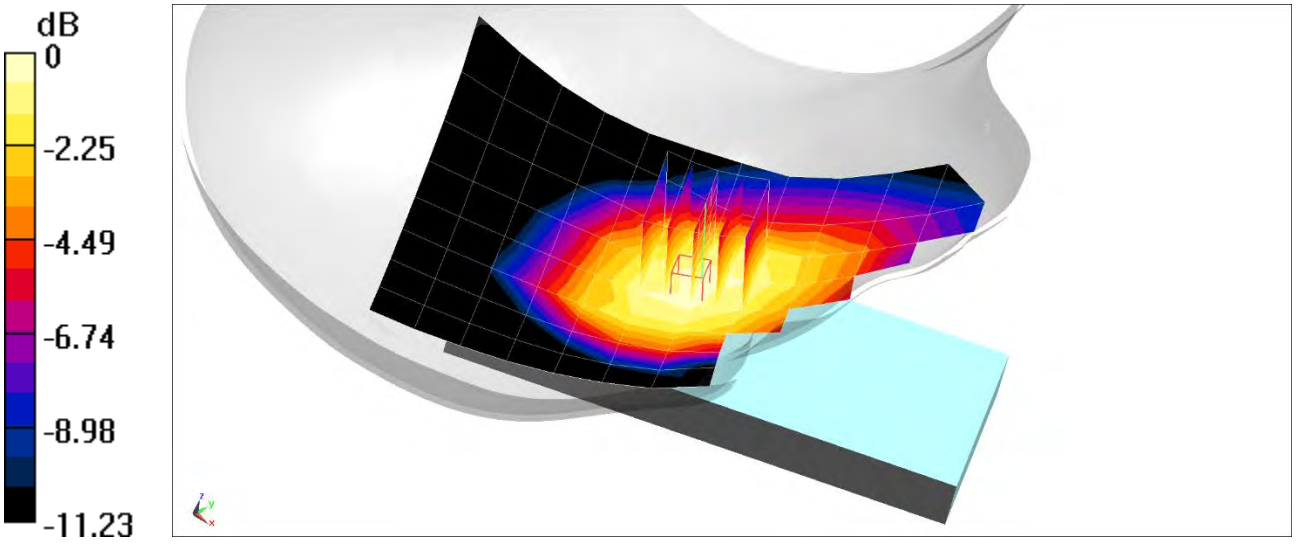
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Head; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.92 S/m; ε_r = 43.101; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09/14/2020; Ambient Temp: 21.9°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN3589; ConvF(8.58, 8.58, 8.58) @ 836.6 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: UMTS 850, Antenna A, 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 = 14.40 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.253 W/kg
SAR(1 g) = 0.193 W/kg



0 dB = 0.230 W/kg = -6.38 dBW/kg

PCTEST

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0624M

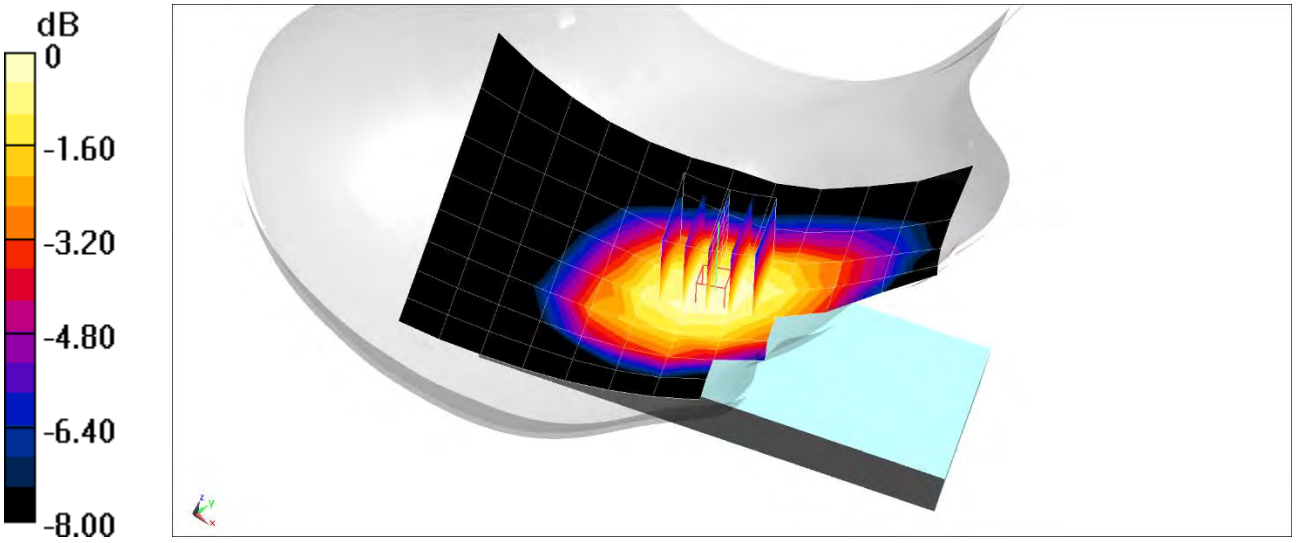
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Head; Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.889 S/m; ε_r = 43.936; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09/08/2020; Ambient Temp: 22.3°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN3589; ConvF(8.7, 8.7, 8.7) @ 707.5 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.54 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.137 W/kg
SAR(1 g) = 0.107 W/kg



0 dB = 0.125 W/kg = -9.03 dBW/kg

PCTEST

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0624M

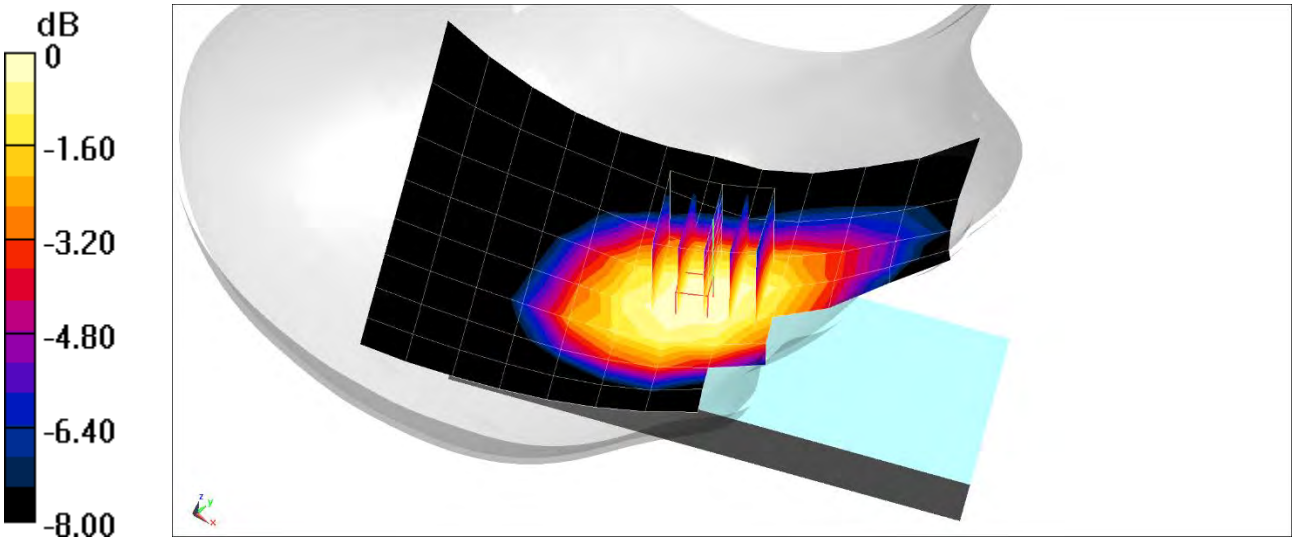
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Head; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.915 S/m; ε_r = 43.717; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09/08/2020; Ambient Temp: 22.3°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN3589; ConvF(8.7, 8.7, 8.7) @ 782 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.71 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.198 W/kg
SAR(1 g) = 0.158 W/kg



0 dB = 0.182 W/kg = -7.40 dBW/kg

PCTEST

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0624M

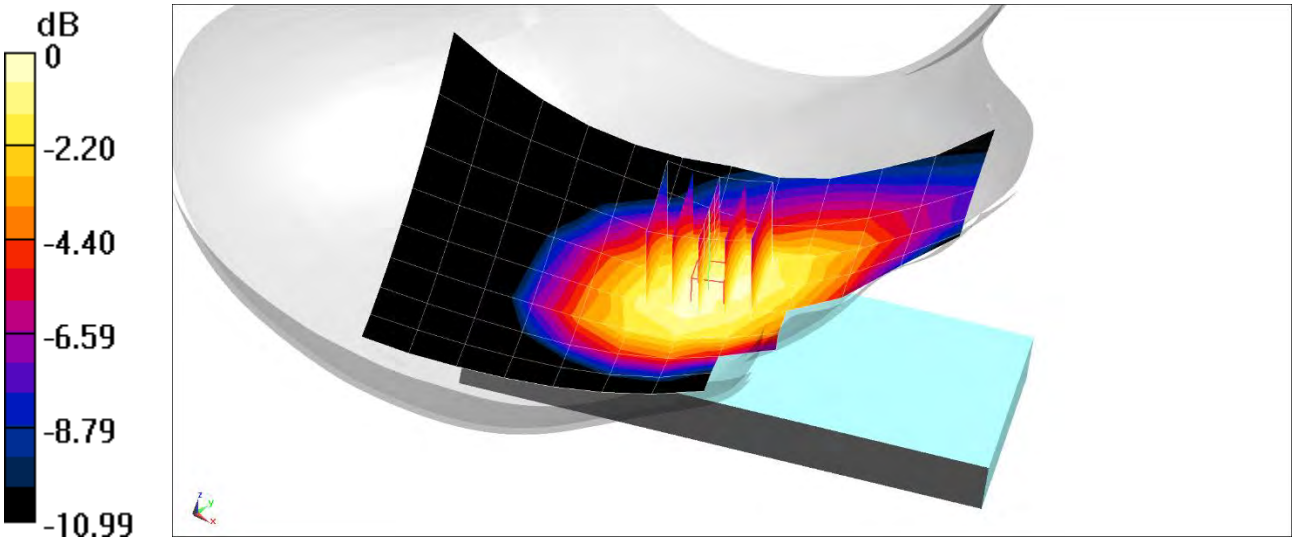
Communication System: UID 0, LTE Band 5 (Cell.); Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Head; Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.92 S/m; ε_r = 43.101; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09/14/2020; Ambient Temp: 21.9°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN3589; ConvF(8.58, 8.58, 8.58) @ 836.5 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.62 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.248 W/kg
SAR(1 g) = 0.186 W/kg



0 dB = 0.226 W/kg = -6.46 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0674M

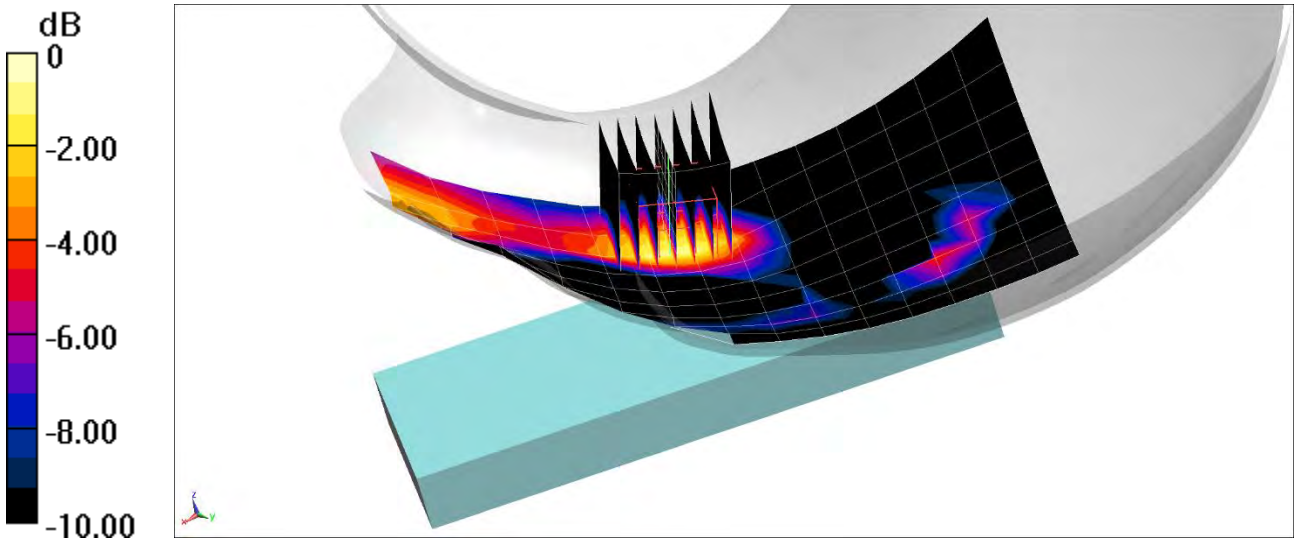
Communication System: UID 0, LTE Band 41; Frequency: 2680 MHz; Duty Cycle: 1:1.58
Medium: 2600 Head; Medium parameters used:
f = 2680 MHz; σ = 2.152 S/m; ε_r = 37.6; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09/03/2020; Ambient Temp: 22.9°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3589; ConvF(6.6, 6.6, 6.6) @ 2680 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: LTE Band 41 ULCA, Left Head, Cheek,
PCC: Ch. 41490, QPSK, 20 MHz Bandwidth, 1 RB, 0 RB Offset
SCC: Ch. 41292, QPSK, 20 MHz Bandwidth, 1 RB, 99 RB Offset

Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.816 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.0840 W/kg
SAR(1 g) = 0.036 W/kg



0 dB = 0.0615 W/kg = -12.11 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1026M

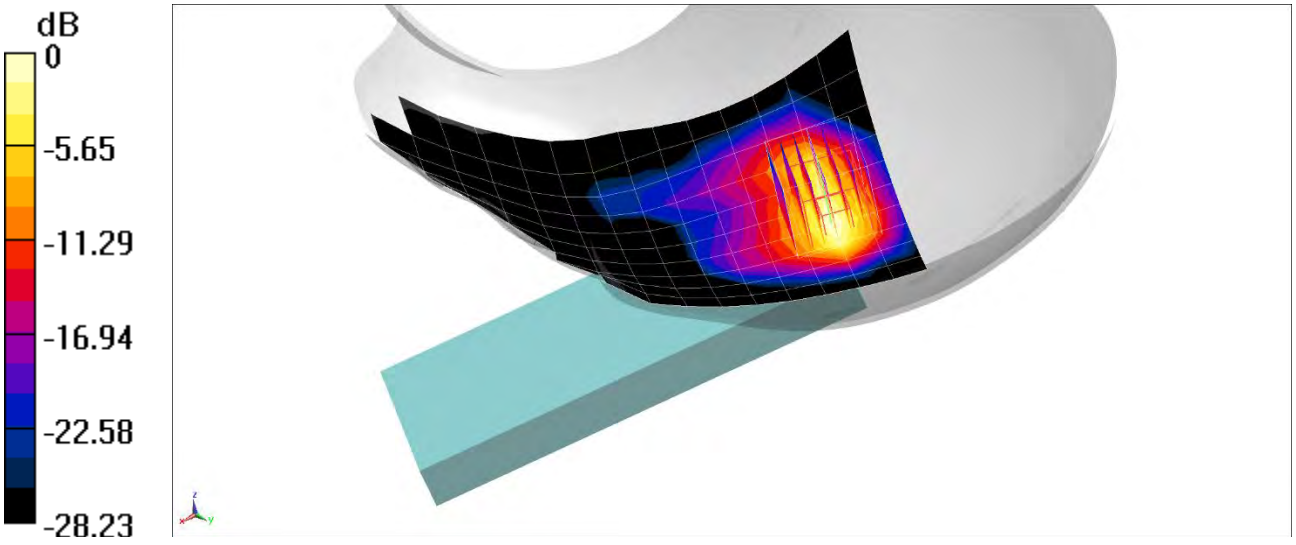
Communication System: UID 0, IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.85 S/m; ε_r = 40.478; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09/10/2020; Ambient Temp: 24.1°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN3589; ConvF(6.85, 6.85, 6.85) @ 2437 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: IEEE 802.11b, Antenna 1, 22 MHz Bandwidth, Left Head, Tilt, Ch 6, 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 = 14.91 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.520 W/kg



0 dB = 0.895 W/kg = -0.48 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1154M

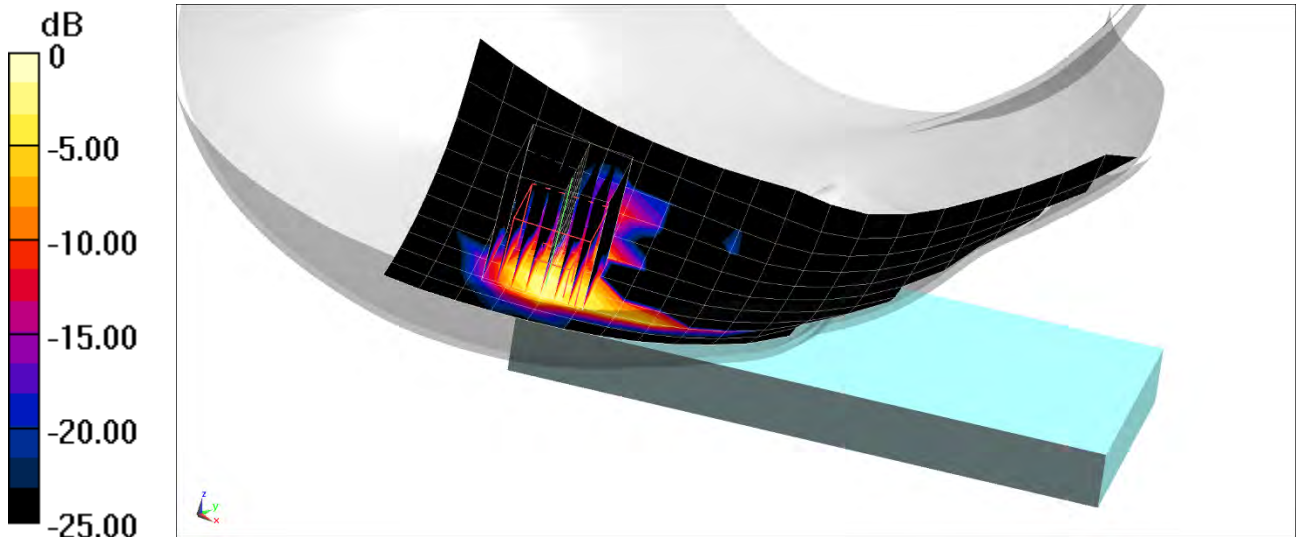
Communication System: UID 0, IEEE 802.11ac; Frequency: 5690 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Head; Medium parameters used:
f = 5690 MHz; σ = 5.067 S/m; ε_r = 35.108; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09/17/2020; Ambient Temp: 23.3°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7357; ConvF(5.05, 5.05, 5.05) @ 5690 MHz; Calibrated: 4/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/15/2020
Phantom: Twin-SAM V5.0 Left 20; Type: QD 000 P40 CD; Serial: 1715
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: IEEE 802.11ac, Antenna 1, U-NII-2C, 80 MHz Bandwidth, Right Head, Cheek, Ch 138 , 29.3 Mbps

Area Scan (11x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 2.627 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.325 W/kg



0 dB = 0.888 W/kg = -0.52 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1026M

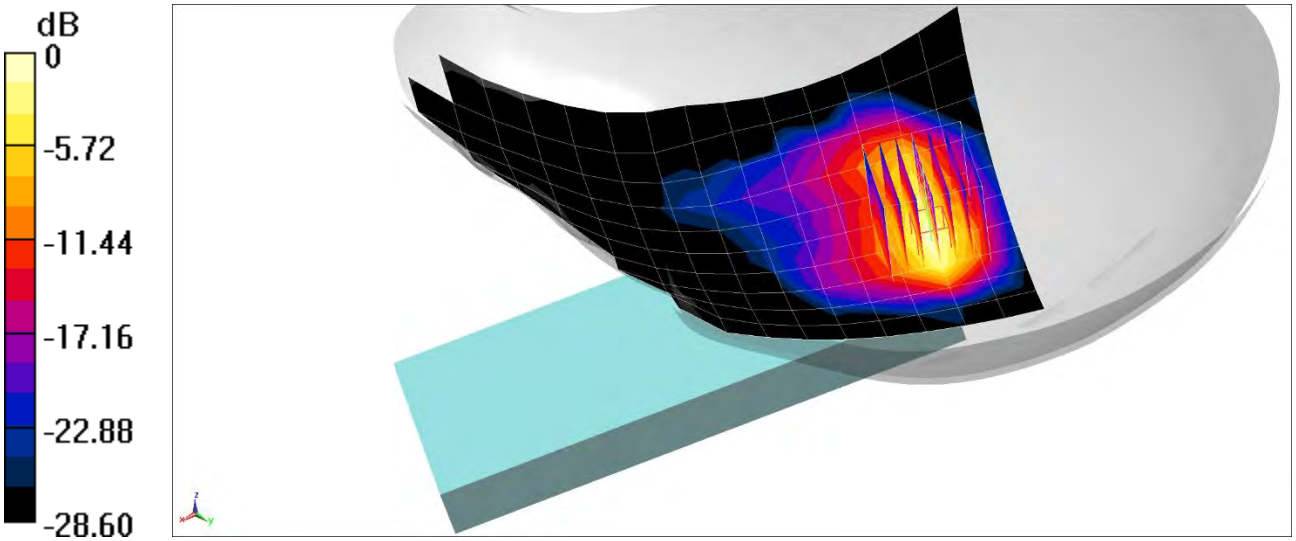
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.284
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2441 MHz; σ = 1.853 S/m; ε_r = 40.473; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09/10/2020; Ambient Temp: 24.1°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN3589; ConvF(6.85, 6.85, 6.85) @ 2441 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: Bluetooth, Antenna 1, Left Head, Tilt, Ch 39, 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 = 15.59 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.899 W/kg
SAR(1 g) = 0.385 W/kg



0 dB = 0.716 W/kg = -1.45 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0629M

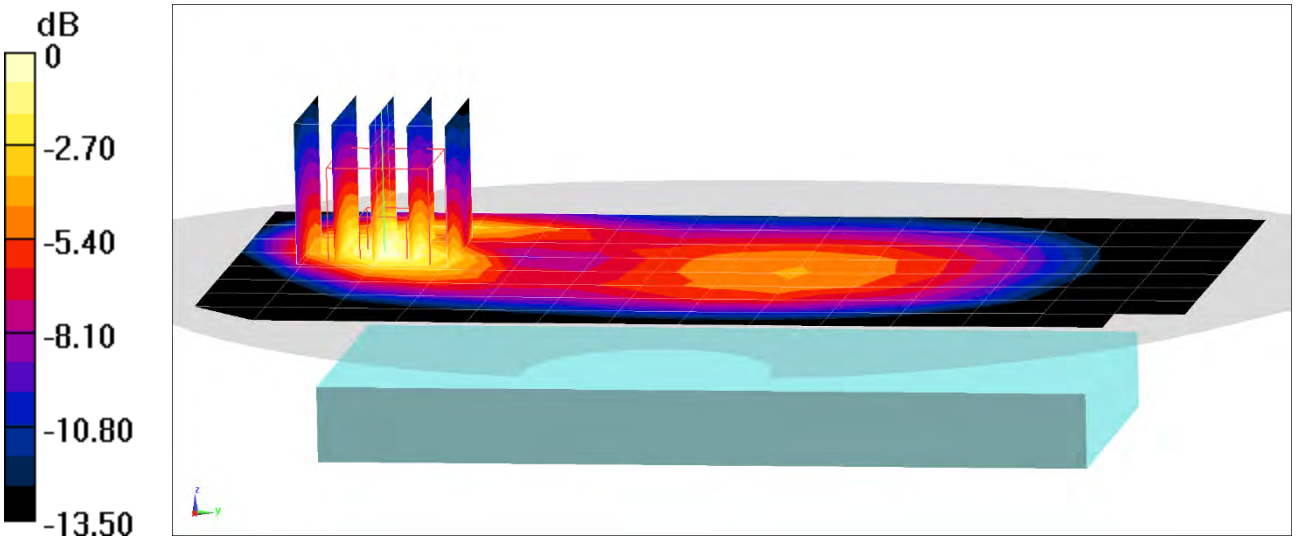
Communication System: UID 0, GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.943 S/m; ε_r = 53.722; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/22/2020; Ambient Temp: 23.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN7488; ConvF(11.04, 11.04, 11.04) @ 836.6 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V4.0 Left 30; Type: QD 000 P40 CC; Serial: 1687
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: GSM 850, Antenna A, 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 = 16.57 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.407 W/kg
SAR(1 g) = 0.238 W/kg



0 dB = 0.344 W/kg = -4.63 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0629M

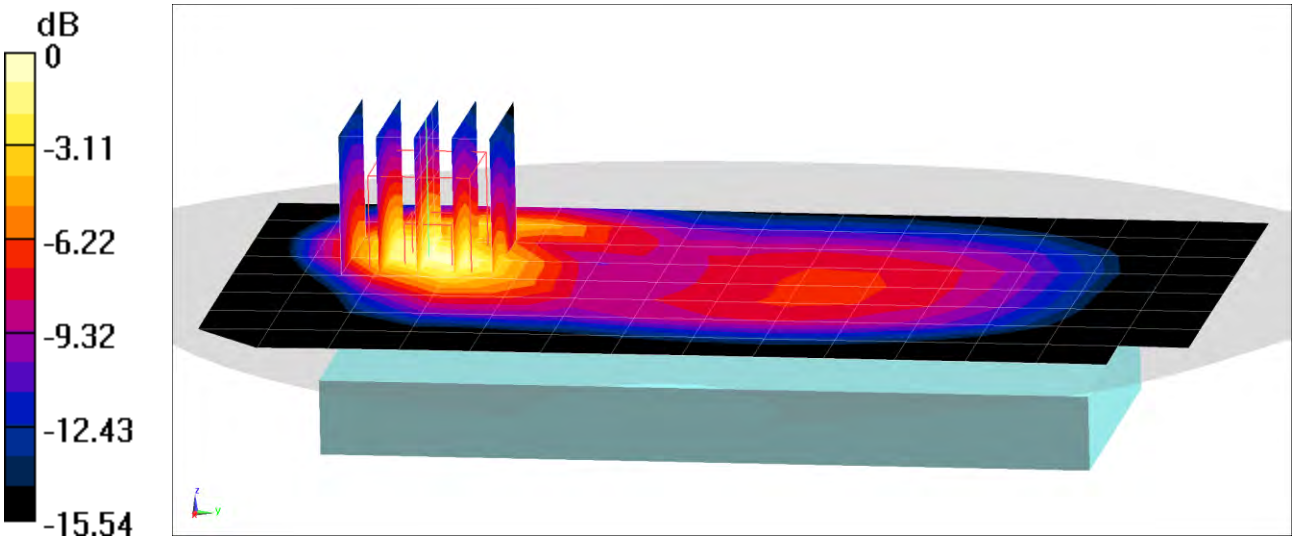
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:2.76
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.971 S/m; ε_r = 53.134; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/20/2020; Ambient Temp: 21.0°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN7308; ConvF(9.92, 9.92, 9.92) @ 836.6 MHz; Calibrated: 7/31/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/11/2020
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.57 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.564 W/kg



0 dB = 0.865 W/kg = -0.63 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0679M

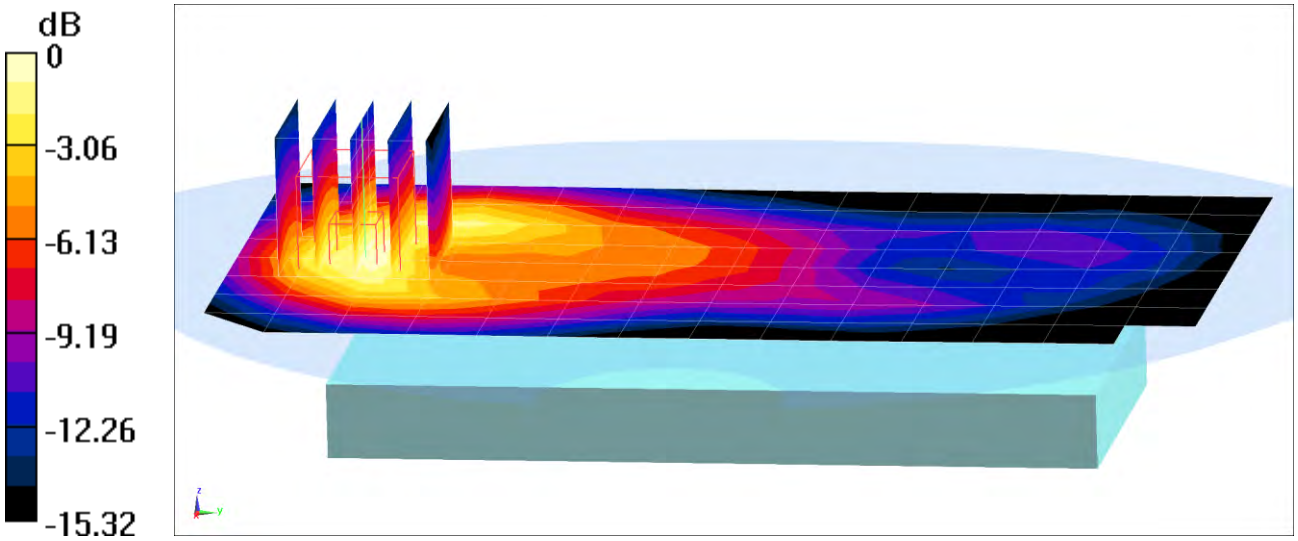
Communication System: UID 0, GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.534 S/m; ε_r = 53.749; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08/26/2020; Ambient Temp: 21.7°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1880 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.53 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.303 W/kg
SAR(1 g) = 0.184 W/kg



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

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0679M

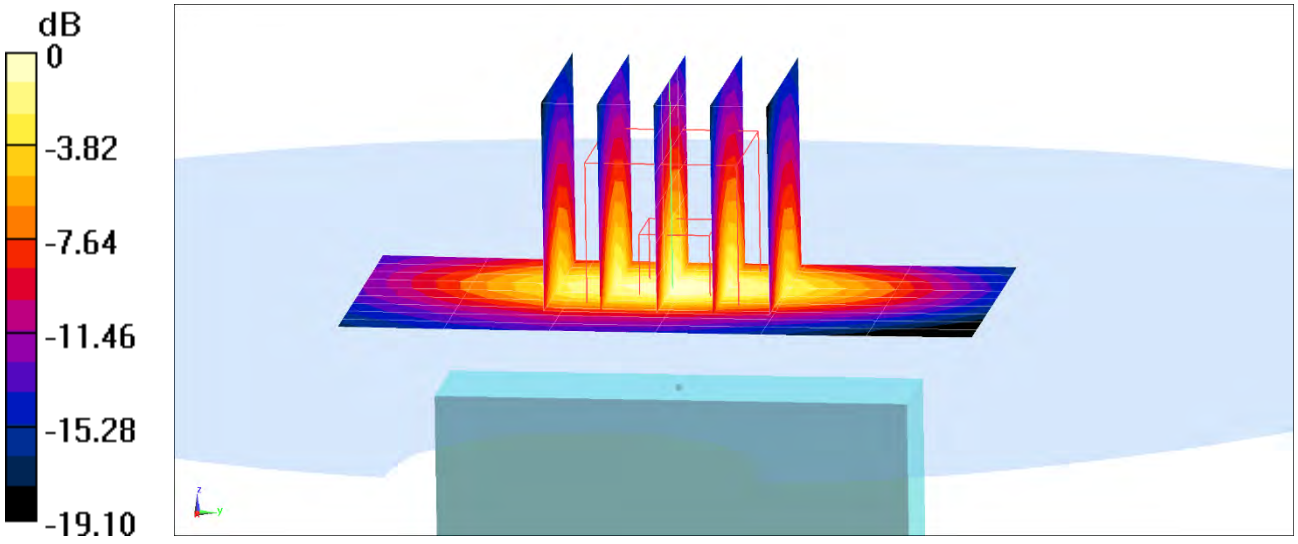
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.534 S/m; ε_r = 53.749; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08/26/2020; Ambient Temp: 21.7°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1880 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.22 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.630 W/kg



0 dB = 0.976 W/kg = -0.11 dBW/kg

PCTEST

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0629M

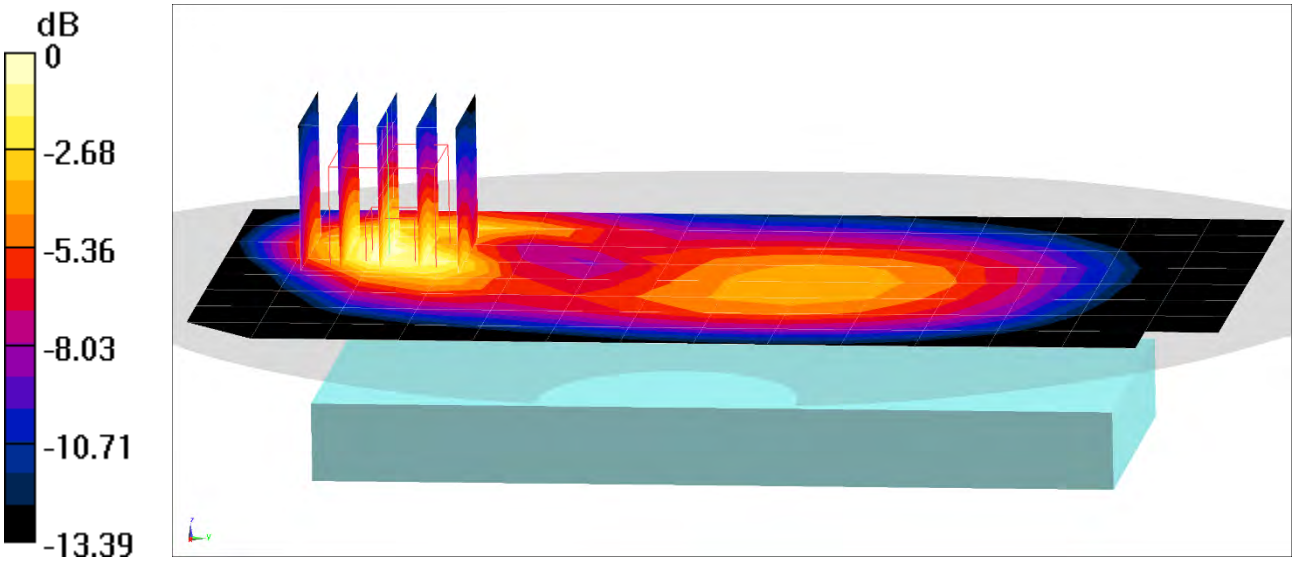
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.951 S/m; ε_r = 53.293; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/15/2020; Ambient Temp: 23.1°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7488; ConvF(11.04, 11.04, 11.04) @ 836.6 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V4.0 Left 30; Type: QD 000 P40 CC; Serial: 1687
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: UMTS 850, Antenna A, 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 = 16.59 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.407 W/kg
SAR(1 g) = 0.240 W/kg



0 dB = 0.343 W/kg = -4.65 dBW/kg

PCTEST

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0629M

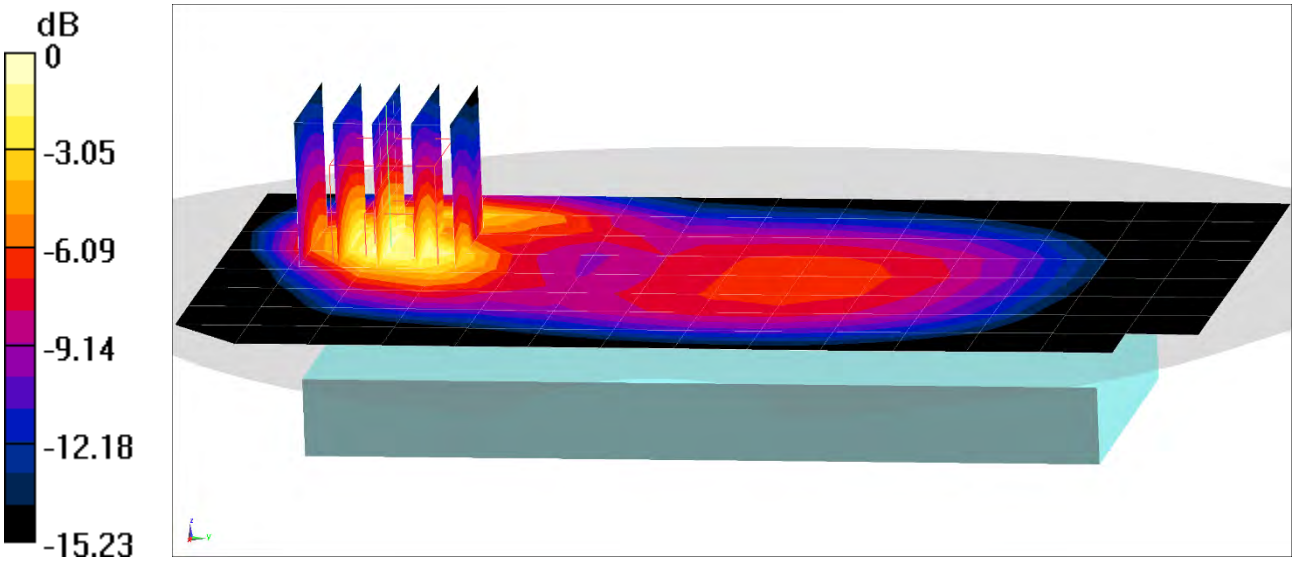
Communication System: UID 0, UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 846.6 MHz; σ = 0.961 S/m; ε_r = 53.18; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/15/2020; Ambient Temp: 23.1°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7488; ConvF(11.04, 11.04, 11.04) @ 846.6 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V4.0 Left 30; Type: QD 000 P40 CC; Serial: 1687
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: UMTS 850, Antenna A, Body SAR, Back side, High.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 = 23.83 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.910 W/kg
SAR(1 g) = 0.493 W/kg



0 dB = 0.751 W/kg = -1.24 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0655M

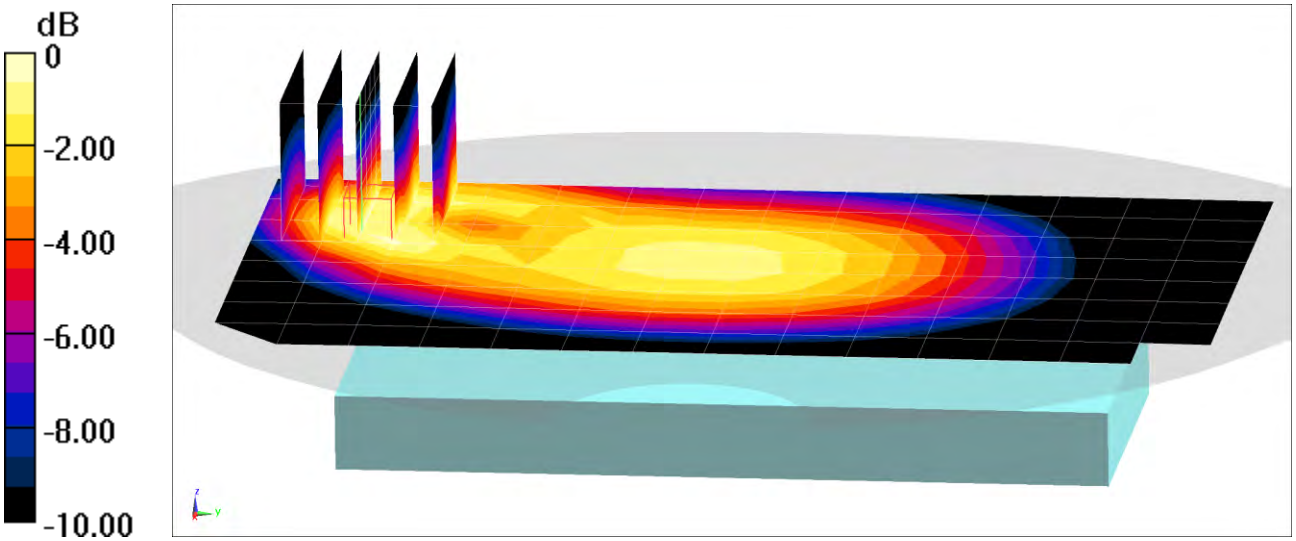
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.924 S/m; ε_r = 55.227; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/08/2020; Ambient Temp: 22.8°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7488; ConvF(11.35, 11.35, 11.35) @ 707.5 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.26 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.298 W/kg
SAR(1 g) = 0.164 W/kg



0 dB = 0.241 W/kg = -6.18 dBW/kg

PCTEST

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0655M

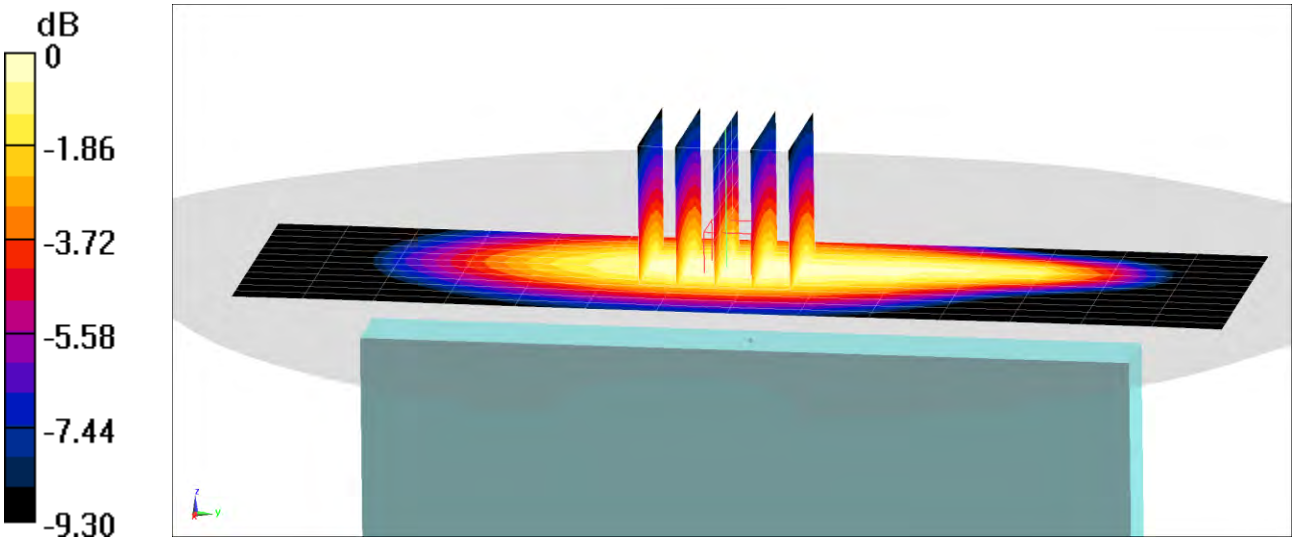
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.924 S/m; ε_r = 55.227; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/08/2020; Ambient Temp: 22.8°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7488; ConvF(11.35, 11.35, 11.35) @ 707.5 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (13x15x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.47 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.615 W/kg
SAR(1 g) = 0.411 W/kg



0 dB = 0.541 W/kg = -2.67 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0655M

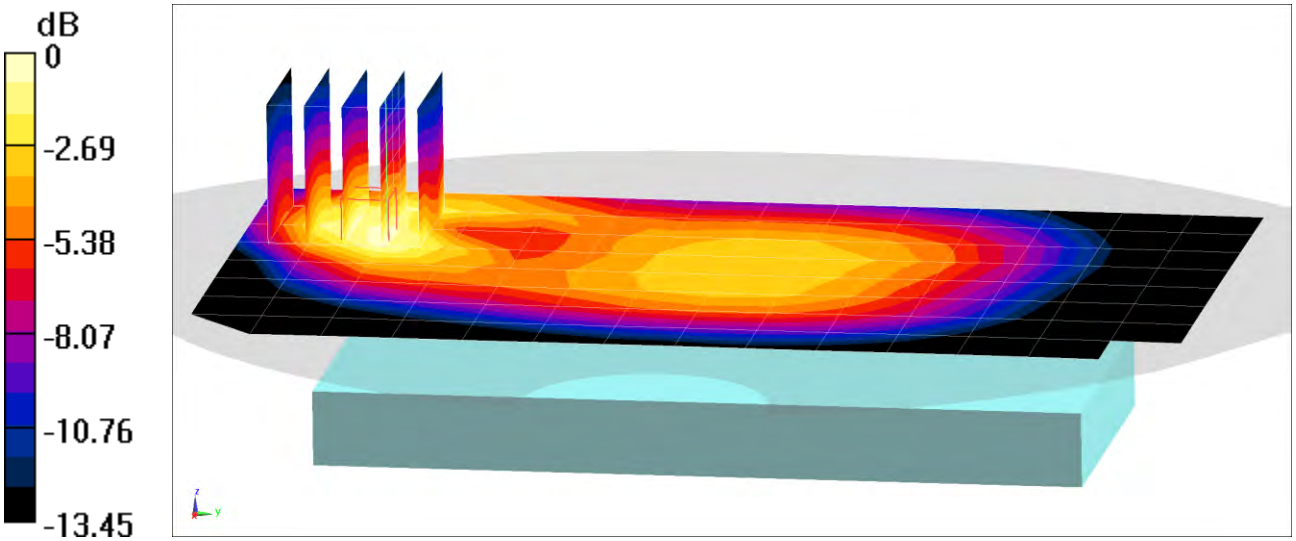
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.952 S/m; ε_r = 55.066; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/08/2020; Ambient Temp: 22.8°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7488; ConvF(11.35, 11.35, 11.35) @ 782 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: LTE Band 13, 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 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.72 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.343 W/kg
SAR(1 g) = 0.201 W/kg



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

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0655M

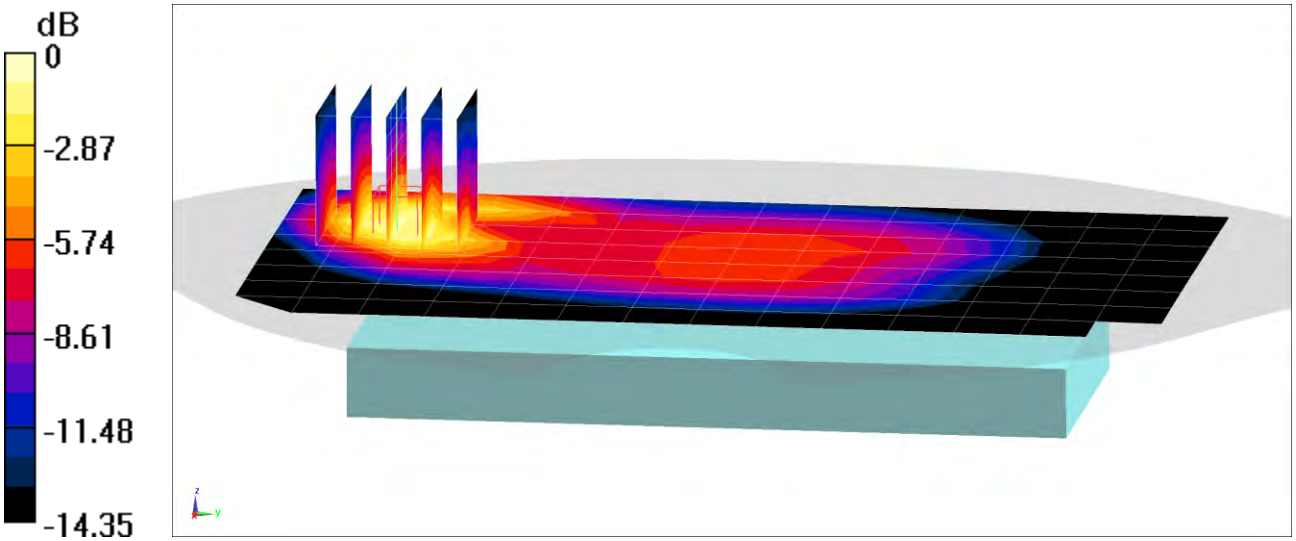
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.952 S/m; ε_r = 55.066; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/08/2020; Ambient Temp: 22.8°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7488; ConvF(11.35, 11.35, 11.35) @ 782 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: LTE Band 13, 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 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.96 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.799 W/kg
SAR(1 g) = 0.431 W/kg



0 dB = 0.641 W/kg = -1.93 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0655M

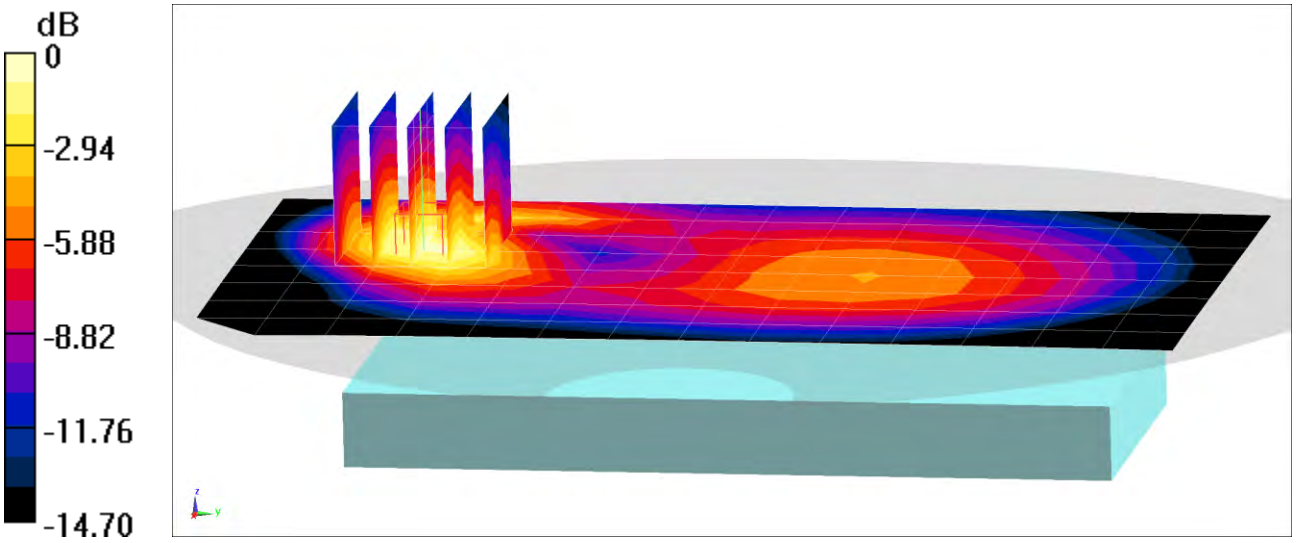
Communication System: UID 0, LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.978 S/m; ε_r = 54.529; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/08/2020; Ambient Temp: 23.1°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7308; ConvF(9.92, 9.92, 9.92) @ 836.5 MHz; Calibrated: 7/31/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/11/2020
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.09 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.441 W/kg
SAR(1 g) = 0.261 W/kg



0 dB = 0.375 W/kg = -4.26 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0655M

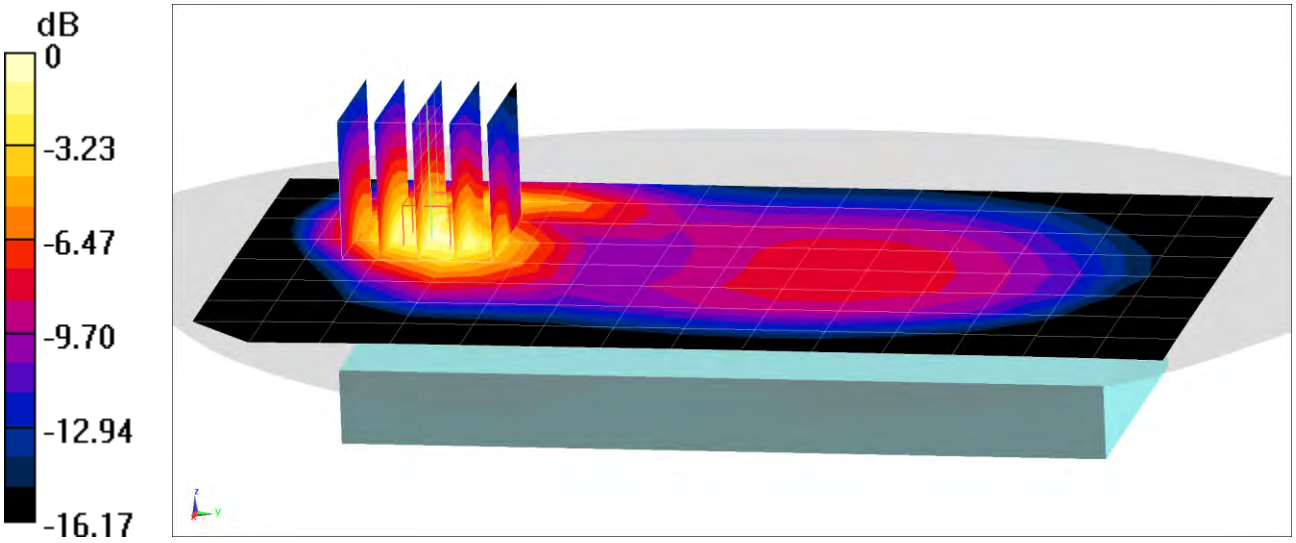
Communication System: UID 0, LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.978 S/m; ε_r = 54.529; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/08/2020; Ambient Temp: 23.1°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7308; ConvF(9.92, 9.92, 9.92) @ 836.5 MHz; Calibrated: 7/31/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/11/2020
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.48 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.978 W/kg
SAR(1 g) = 0.527 W/kg



0 dB = 0.810 W/kg = -0.92 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0674M

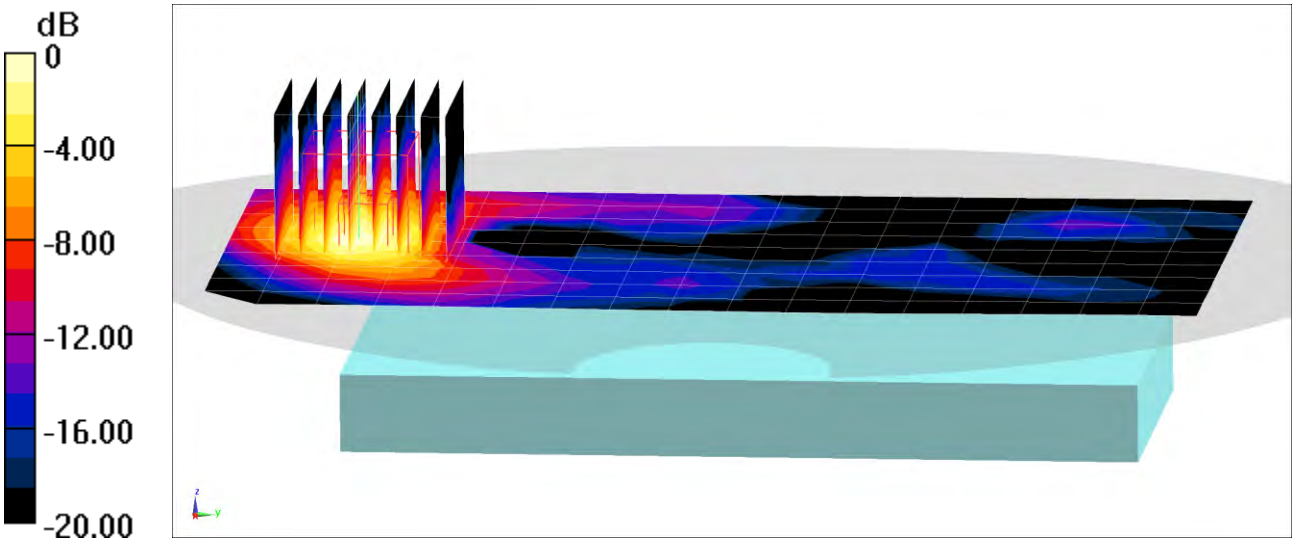
Communication System: UID 0, LTE Band 41; Frequency: 2680 MHz; Duty Cycle: 1:1.58
Medium: 2600 Body; Medium parameters used:
f = 2680 MHz; σ = 2.321 S/m; ε_r = 51.074; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08/27/2020; Ambient Temp: 21.6°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7409; ConvF(7.12, 7.12, 7.12) @ 2680 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: LTE Band 41 ULCA, Body SAR, Back side,
PCC: Ch. 41490, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset
SCC: Ch. 41292, 20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset

Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.561 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.362 W/kg
SAR(1 g) = 0.170 W/kg



0 dB = 0.278 W/kg = -5.56 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0674M

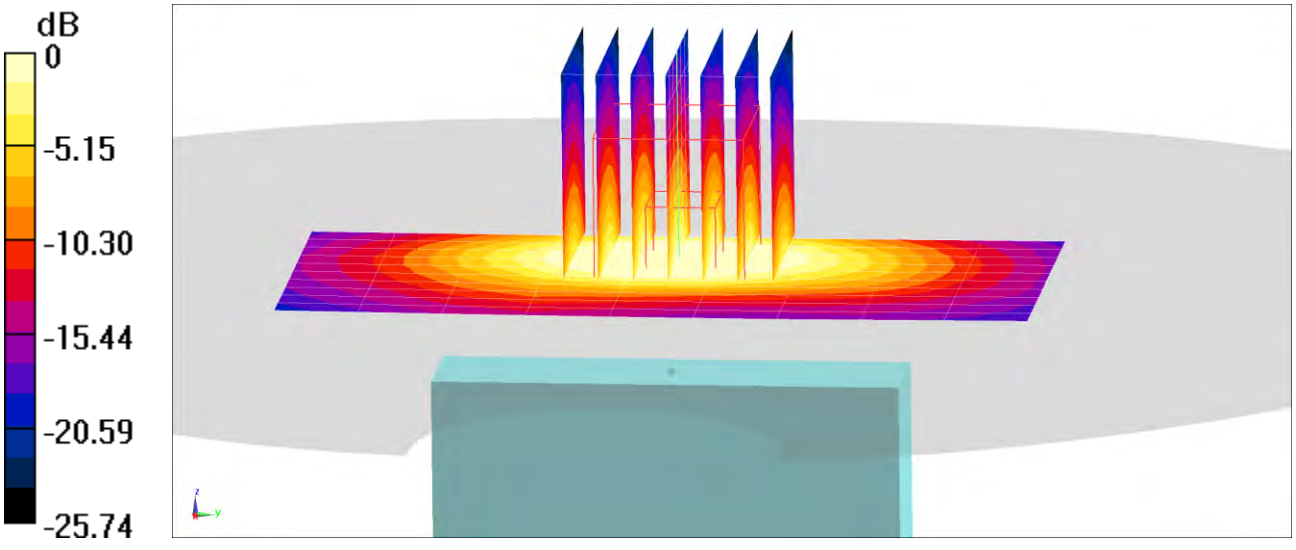
Communication System: UID 0, LTE Band 41; Frequency: 2636.5 MHz; Duty Cycle: 1:1.58
Medium: 2600 Body; Medium parameters used (interpolated):
f = 2636.5 MHz; σ = 2.269 S/m; ε_r = 51.206; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08/27/2020; Ambient Temp: 21.6°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7409; ConvF(7.12, 7.12, 7.12) @ 2636.5 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: LTE Band 41 ULCA, Body SAR, Bottom Edge,
PCC: Ch. 41055, 20 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset
SCC: Ch. 40857, 20 MHz Bandwidth, QPSK, 50 RB, 50 RB Offset

Area Scan (11x10x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.45 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.41 W/kg
SAR(1 g) = 0.618 W/kg



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

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1154M

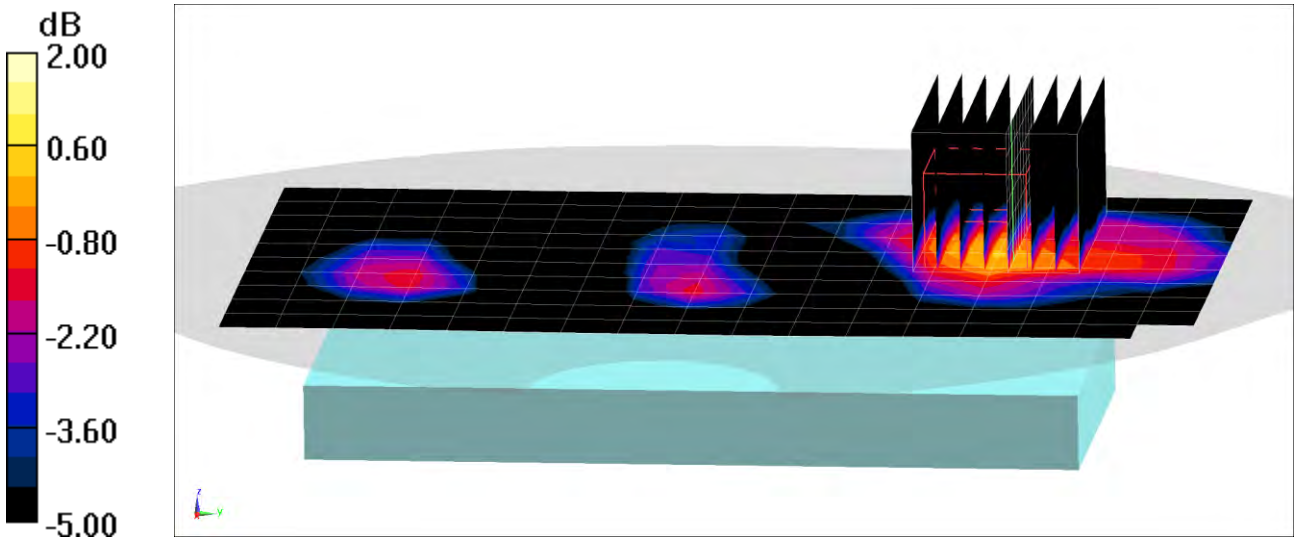
Communication System: UID 0, IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 2.055 S/m; ε_r = 51.405; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/13/2020; Ambient Temp: 23.0°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2462 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: IEEE 802.11b, Antenna 2, 22 MHz Bandwidth, Body SAR, Ch 11, 1 Mbps, Back Side

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (11x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.589 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.0500 W/kg
SAR(1 g) = 0.025 W/kg



0 dB = 0.0386 W/kg = -14.13 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1154M

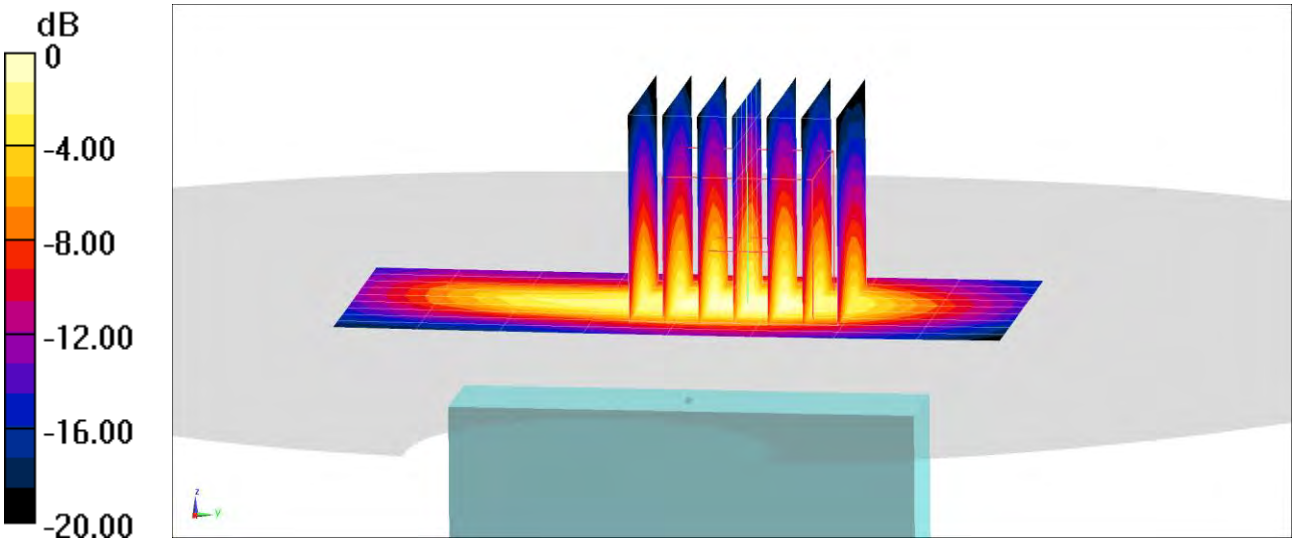
Communication System: UID 0, IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2437 MHz; σ = 2.029 S/m; ε_r = 52.247; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/03/2020; Ambient Temp: 22.0°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2437 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: IEEE 802.11b, Antenna 1, 22 MHz Bandwidth, Body SAR, Ch 6, 1 Mbps, Top Edge

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.53 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.818 W/kg
SAR(1 g) = 0.386 W/kg



0 dB = 0.646 W/kg = -1.90 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1026M

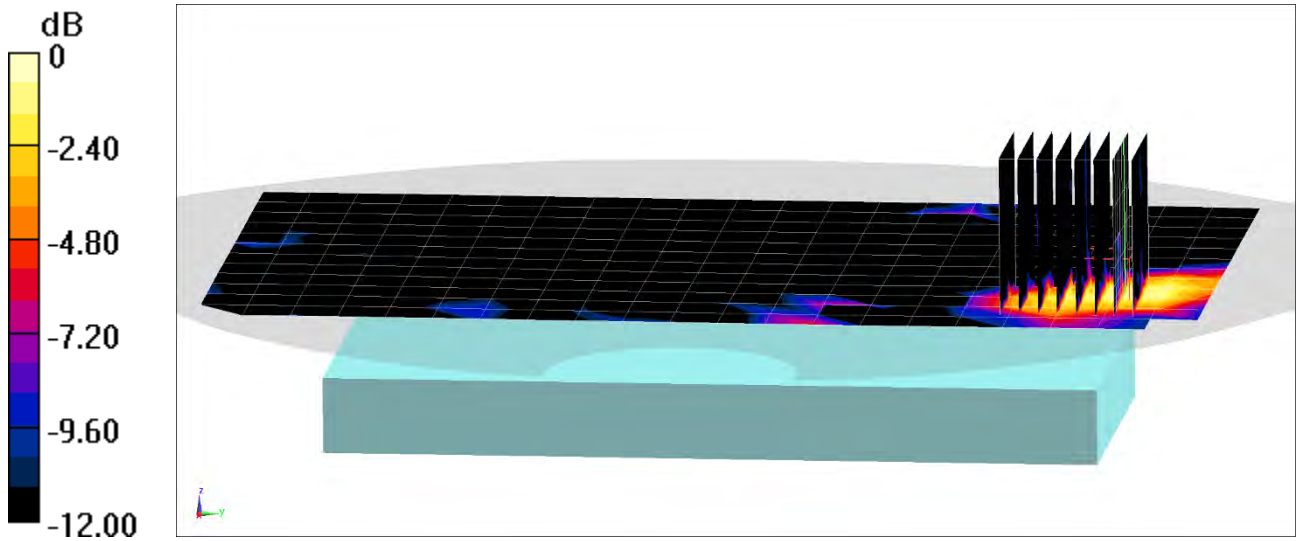
Communication System: UID 0, IEEE 802.11a; Frequency: 5785 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body; Medium parameters used:
f = 5785 MHz; σ = 6.184 S/m; ε_r = 46.921; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08/31/2020; Ambient Temp: 21.1°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7538; ConvF(4.17, 4.17, 4.17) @ 5785 MHz; Calibrated: 5/18/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/15/2020
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: IEEE 802.11a, Antenna 1, UNII-3, 20 MHz Bandwidth, Body SAR, Ch 157, 6 Mbps, Back Side

Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 0.5630 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.113 W/kg
SAR(1 g) = 0.010 W/kg



0 dB = 0.0314 W/kg = -15.03 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1026M

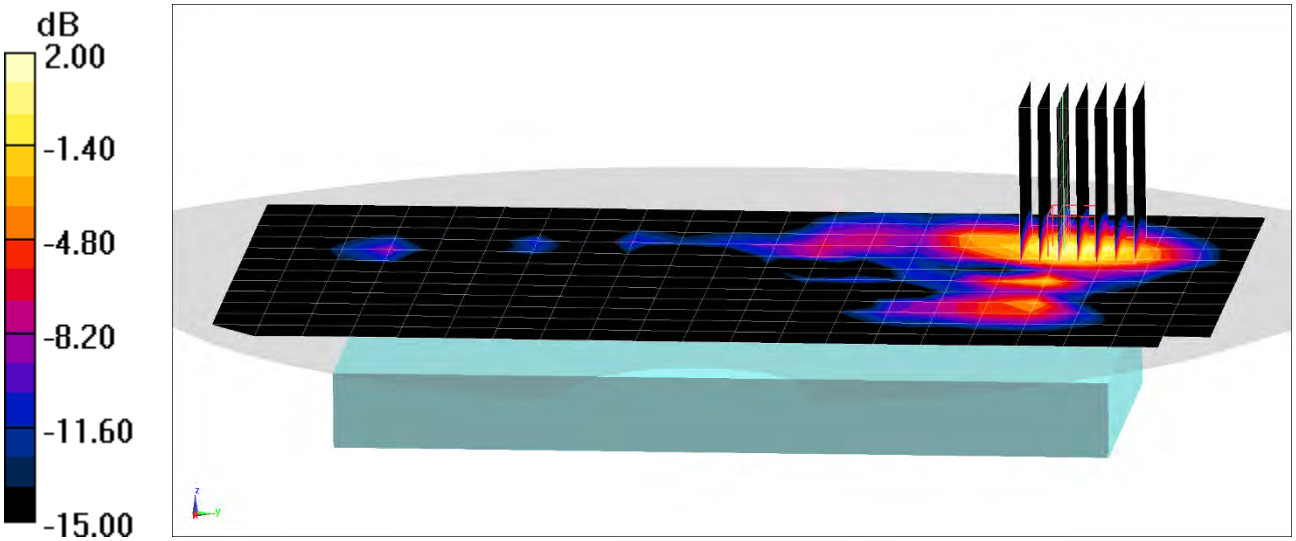
Communication System: UID 0, IEEE 802.11a; Frequency: 5785 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body; Medium parameters used:
f = 5785 MHz; σ = 6.184 S/m; ε_r = 46.921; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08/31/2020; Ambient Temp: 21.1°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7538; ConvF(4.17, 4.17, 4.17) @ 5785 MHz; Calibrated: 5/18/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/15/2020
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: IEEE 802.11a, Antenna 1, UNII-3, 20 MHz Bandwidth, Body SAR, Ch 157, 6 Mbps, Front Side

Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 0.9090 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.846 W/kg
SAR(1 g) = 0.205 W/kg



0 dB = 0.503 W/kg = -2.98 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1154M

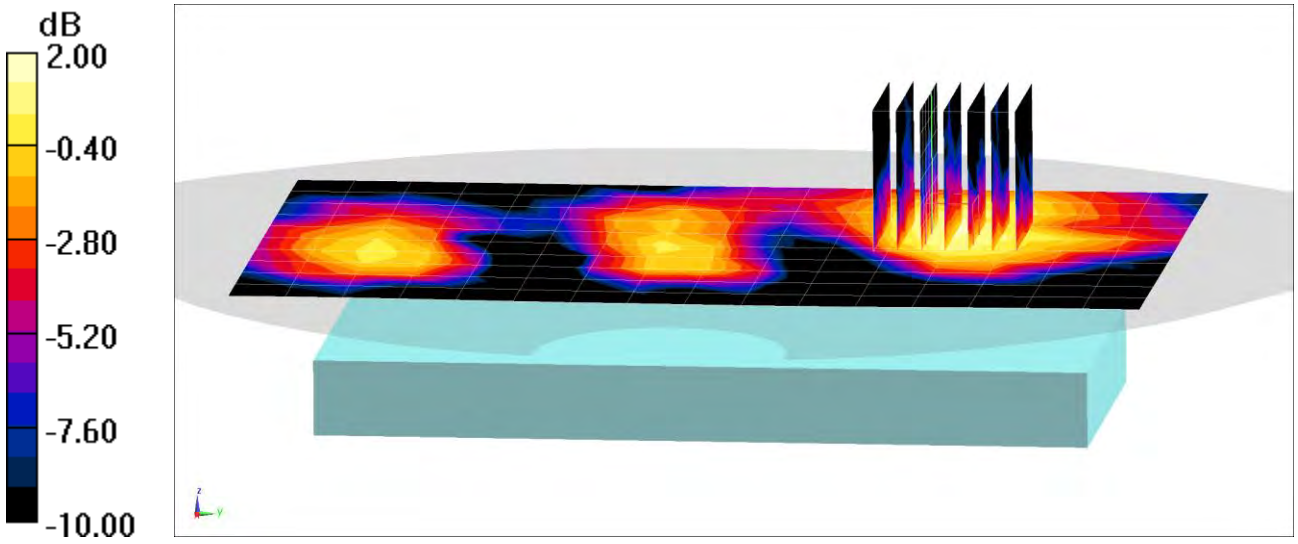
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.294
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.004 S/m; ε_r = 51.888; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/21/2020; Ambient Temp: 23.2°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2441 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: Bluetooth, Antenna 2, 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 = 2.264 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.0400 W/kg
SAR(1 g) = 0.010 W/kg



0 dB = 0.0159 W/kg = -17.99 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1154M

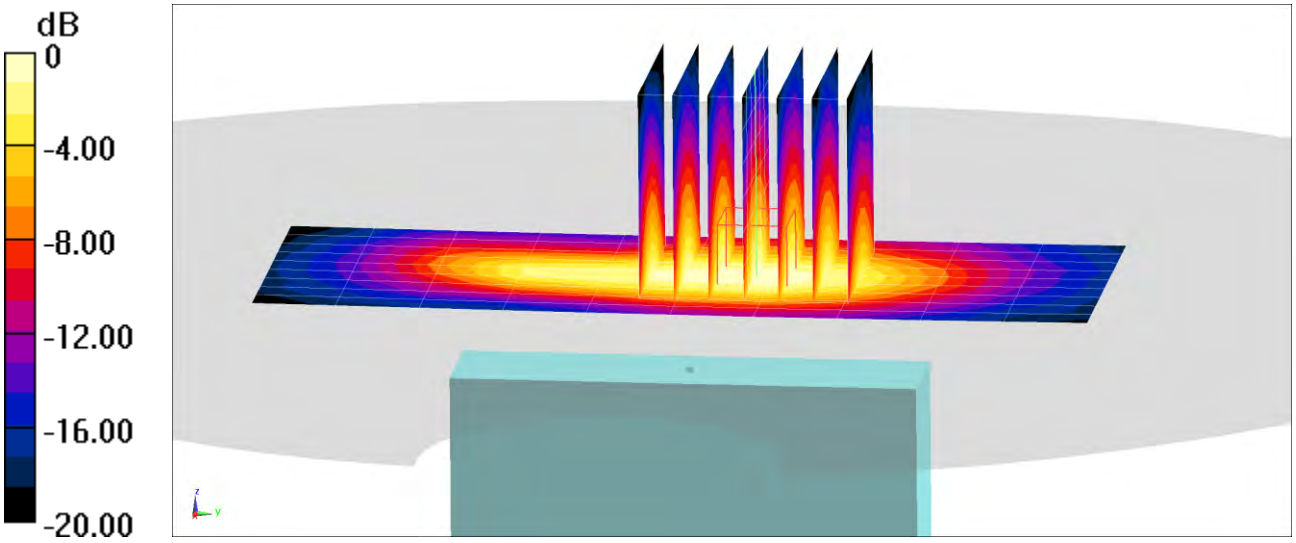
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.284
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.031 S/m; ε_r = 51.459; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/13/2020; Ambient Temp: 23.0°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2441 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (10x11x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.47 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.568 W/kg
SAR(1 g) = 0.281 W/kg



0 dB = 0.457 W/kg = -3.40 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0679M

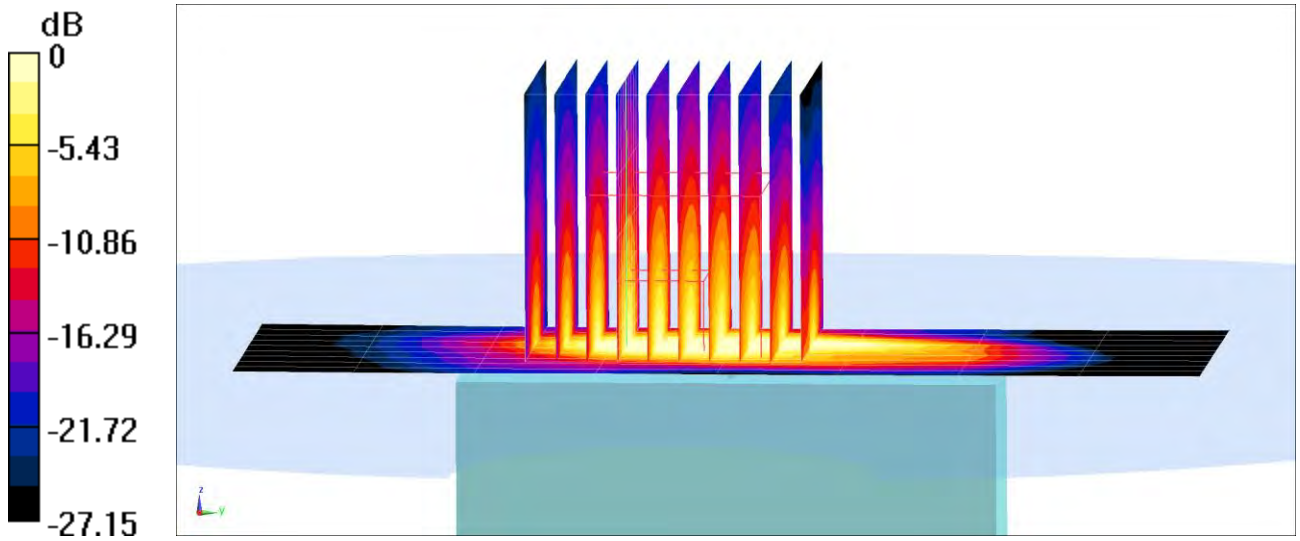
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 1909.8 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body; Medium parameters used:
f = 1910 MHz; σ = 1.583 S/m; ε_r = 52.466; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09/20/2020; Ambient Temp: 21.3°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1909.8 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: GPRS 1900, Phablet SAR, Bottom Edge, High.ch, 3 Tx Slots

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (10x10x8)/Cube 0: Measurement grid: dx=3.8mm, dy=3.8mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 62.24 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 9.75 W/kg
SAR(10 g) = 1.35 W/kg



0 dB = 6.05 W/kg = 7.82 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0674M

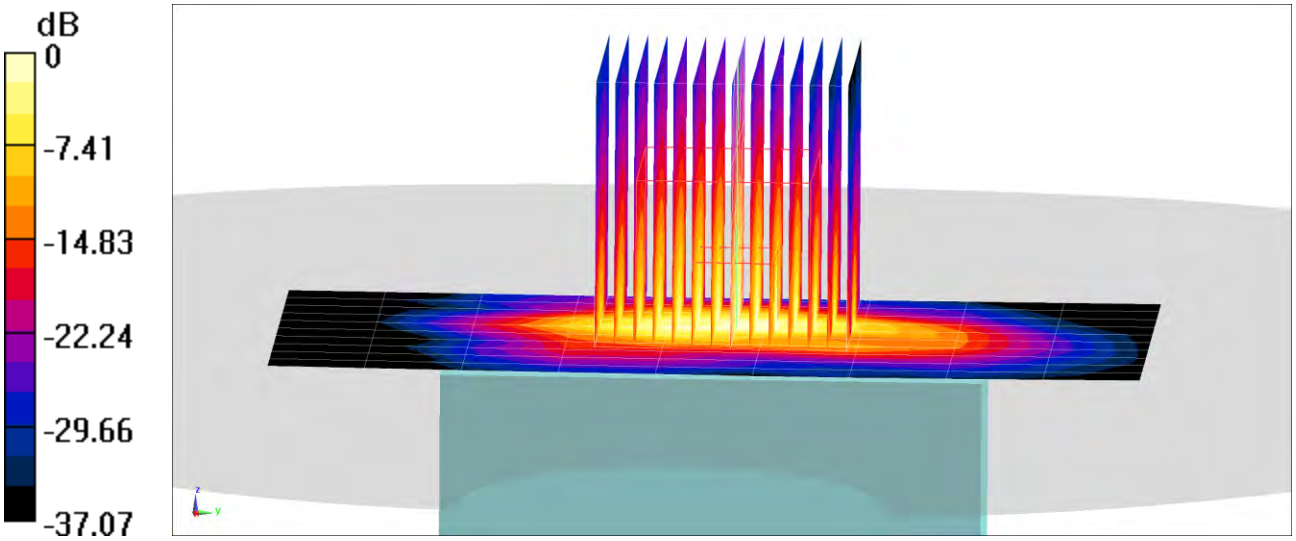
Communication System: UID 0, LTE Band 41; Frequency: 2680 MHz; Duty Cycle: 1:1.58
Medium: 2600 Body; Medium parameters used:
f = 2680 MHz; σ = 2.29 S/m; ε_r = 51.208; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09/21/2020; Ambient Temp: 23.2°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7409; ConvF(7.12, 7.12, 7.12) @ 2680 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: LTE Band 41, Phablet SAR, Bottom Edge, High.ch, 20 MHz Bandwidth, QPSK, 100 RB, 0 RB Offset

Area Scan (11x10x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (14x14x8)/Cube 0: Measurement grid: dx=2.4mm, dy=2.4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 48.38 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 18.3 W/kg
SAR(10 g) = 1.4 W/kg



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

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1026M

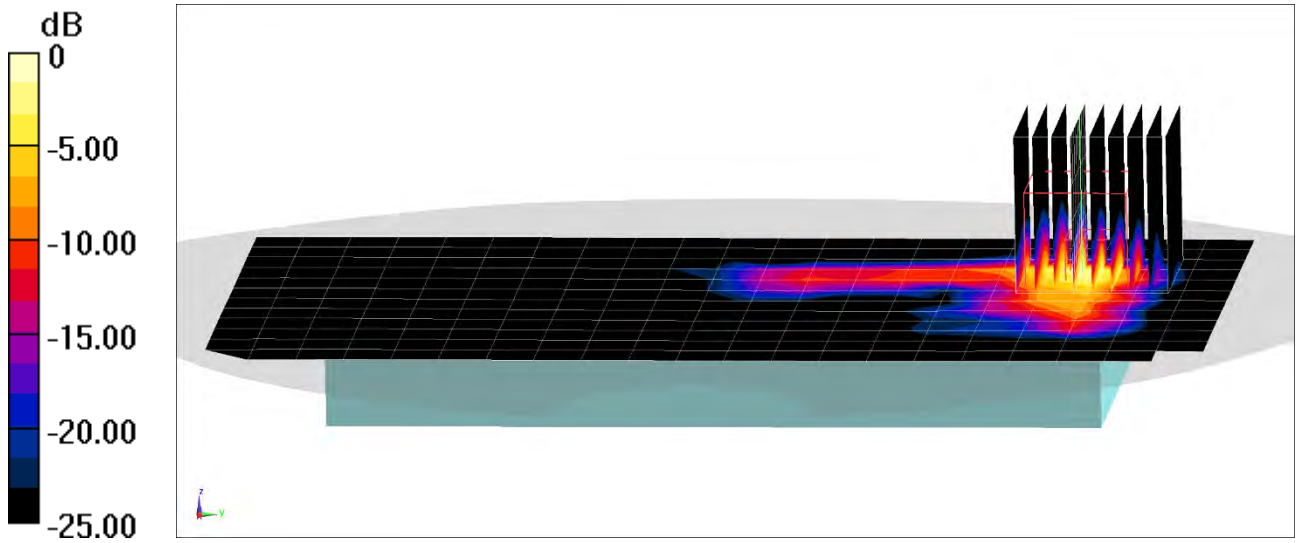
Communication System: UID 0, IEEE 802.11a; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body; Medium parameters used:
f = 5500 MHz; σ = 5.786 S/m; ε_r = 47.406; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08/31/2020; Ambient Temp: 21.1°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7538; ConvF(4.09, 4.09, 4.09) @ 5500 MHz; Calibrated: 5/18/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/15/2020
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: IEEE 802.11a, Antenna 1, U-NII-2C, 20 MHz Bandwidth, Phablet SAR, Ch 100, 6 Mbps, Front Side

Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (9x9x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 2.063 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 17.1 W/kg
SAR(10 g) = 1.13 W/kg



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

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0629M

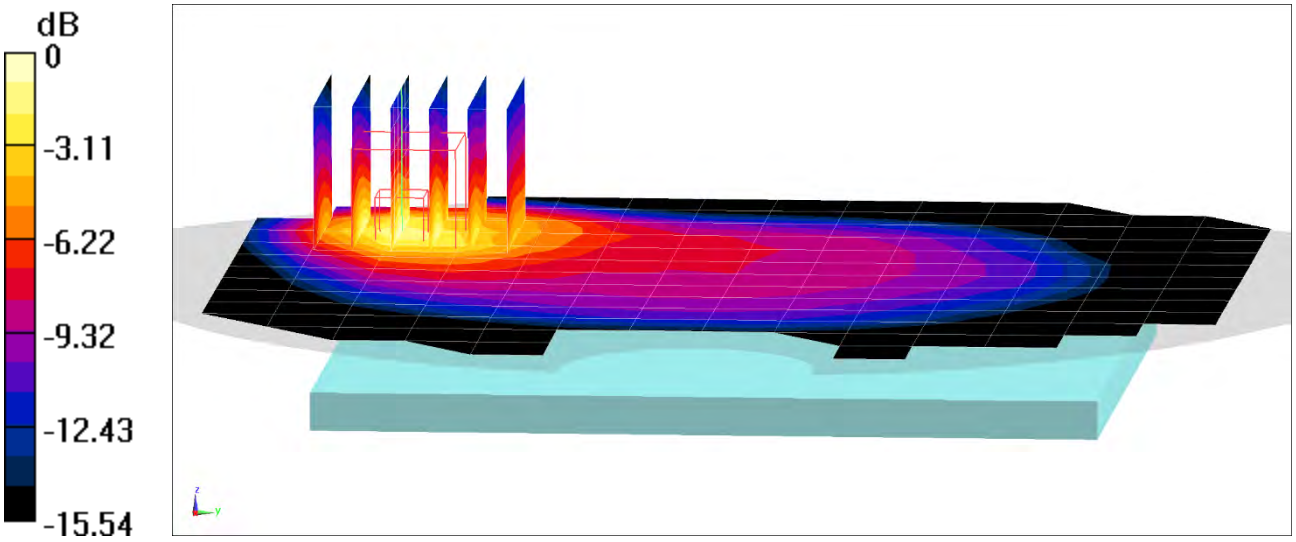
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 848.8 MHz; Duty Cycle: 1:2.76
Medium: 835 Body; Medium parameters used (interpolated):
f = 848.8 MHz; σ = 0.955 S/m; ε_r = 53.609; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/22/2020; Ambient Temp: 23.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN7488; ConvF(11.04, 11.04, 11.04) @ 848.8 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V4.0 Left 30; Type: QD 000 P40 CC; Serial: 1687
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (14x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.25 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.49 W/kg
SAR(1 g) = 0.797 W/kg



0 dB = 1.19 W/kg = 0.76 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0679M

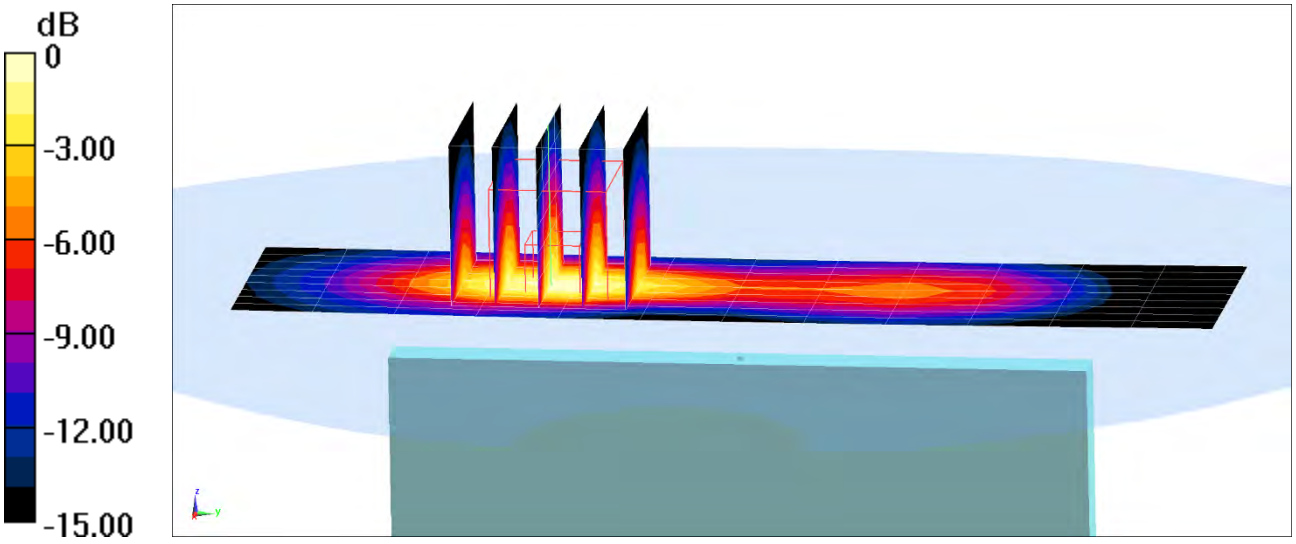
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.534 S/m; ε_r = 53.749; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08/26/2020; Ambient Temp: 21.7°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1880 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (10x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.49 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.630 W/kg



0 dB = 0.976 W/kg = -0.11 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0629M

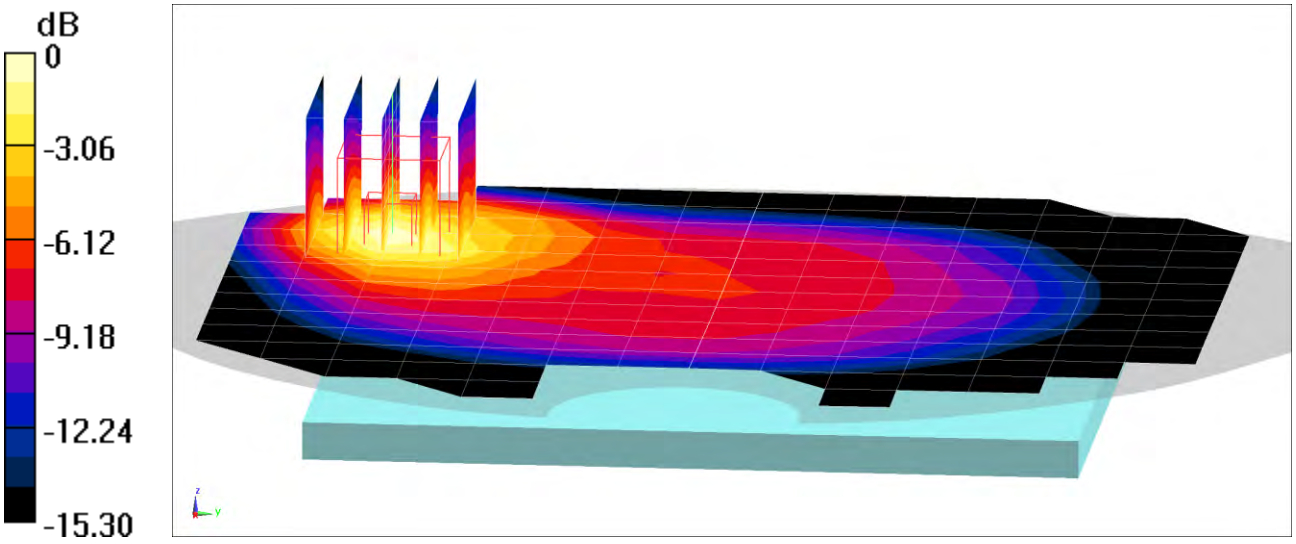
Communication System: UID 0, UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 846.6 MHz; σ = 0.953 S/m; ε_r = 53.63; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/22/2020; Ambient Temp: 23.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN7488; ConvF(11.04, 11.04, 11.04) @ 846.6 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V4.0 Left 30; Type: QD 000 P40 CC; Serial: 1687
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: UMTS 850, Antenna A, UMPC Body SAR, Back side, High.ch

Area Scan (14x16x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.14 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.634 W/kg



0 dB = 0.925 W/kg = -0.34 dBW/kg

PCTEST

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0655M

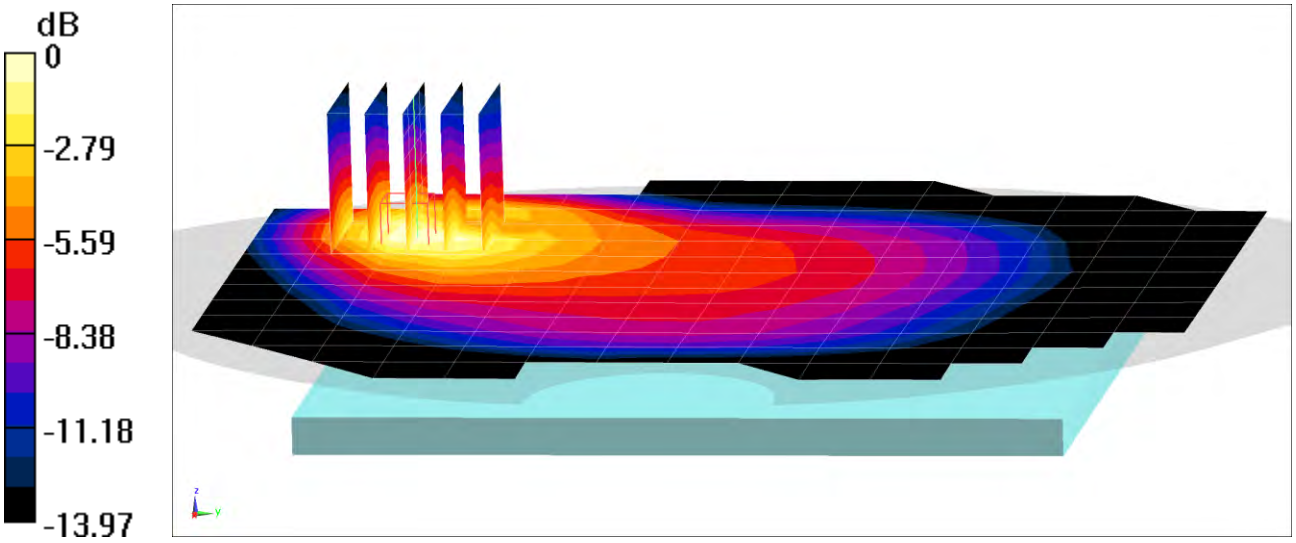
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.922 S/m; ε_r = 56.355; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/14/2020; Ambient Temp: 24.7°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7547; ConvF(9.98, 9.98, 9.98) @ 707.5 MHz; Calibrated: 8/19/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 8/12/2020
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (15x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.29 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.879 W/kg
SAR(1 g) = 0.492 W/kg



0 dB = 0.734 W/kg = -1.34 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0655M

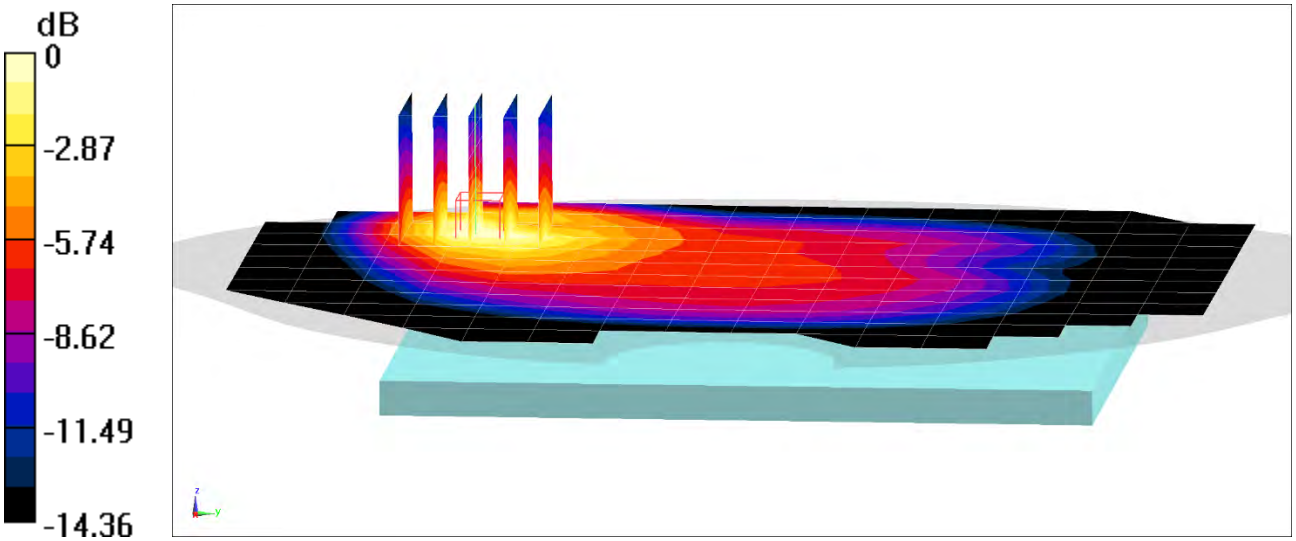
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.952 S/m; ε_r = 56.209; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/14/2020; Ambient Temp: 24.7°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7547; ConvF(9.98, 9.98, 9.98) @ 782 MHz; Calibrated: 8/19/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 8/12/2020
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (13x16x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.52 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.915 W/kg
SAR(1 g) = 0.524 W/kg



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

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0624M

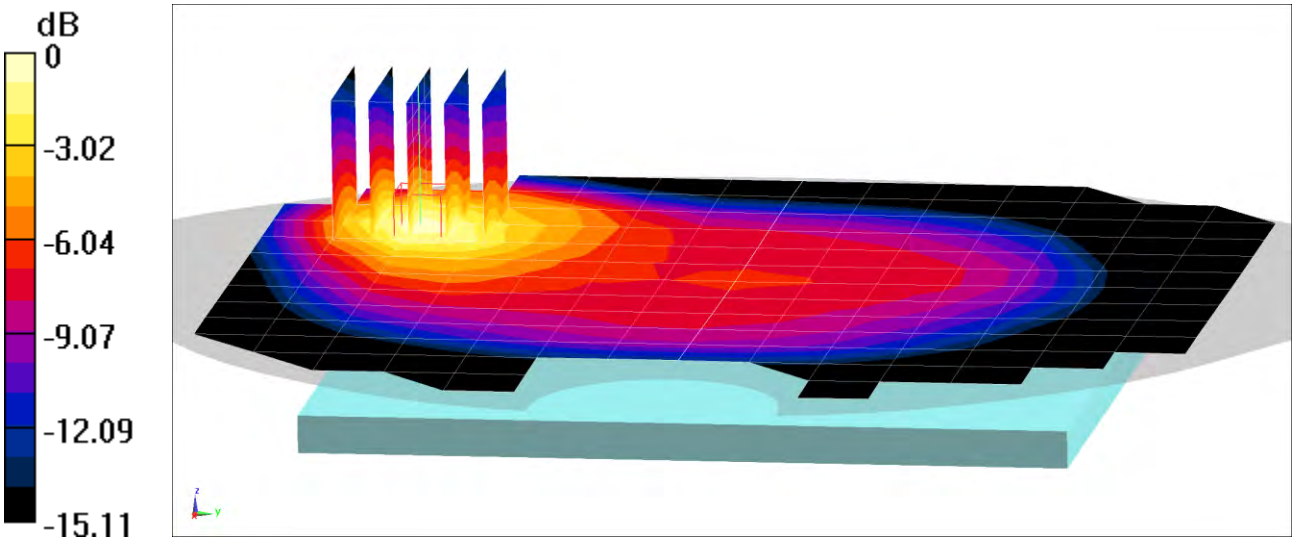
Communication System: UID 0, LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.943 S/m; ε_r = 53.723; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/22/2020; Ambient Temp: 23.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN7488; ConvF(11.04, 11.04, 11.04) @ 836.5 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V4.0 Left 30; Type: QD 000 P40 CC; Serial: 1687
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (14x16x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.53 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.629 W/kg



0 dB = 0.929 W/kg = -0.32 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0674M

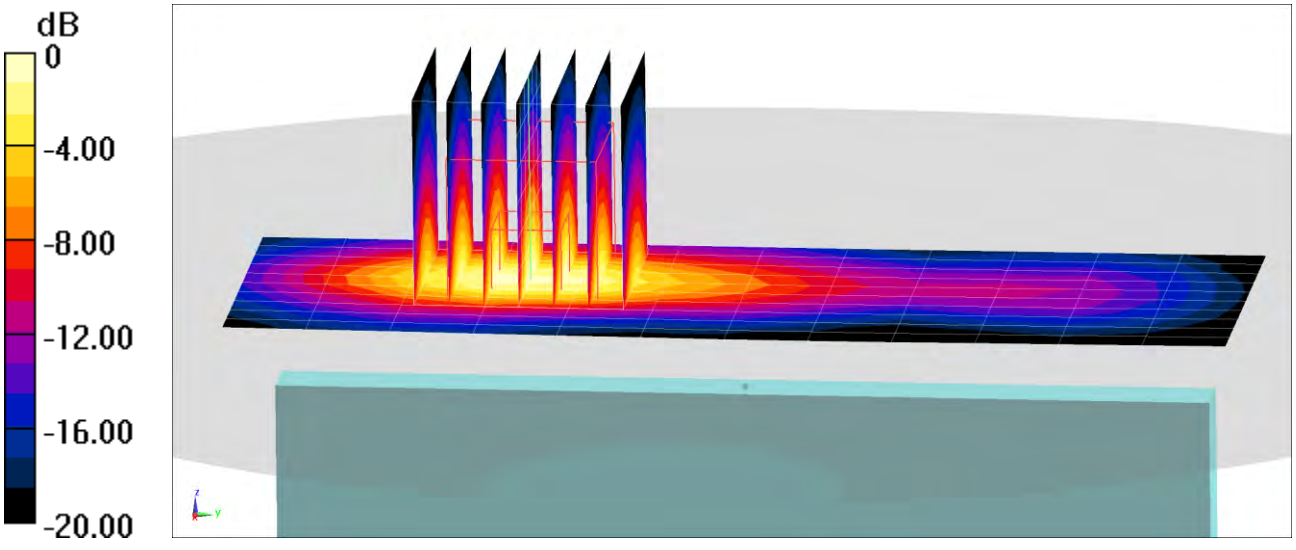
Communication System: UID 0, LTE Band 41; Frequency: 2680 MHz; Duty Cycle: 1:1.58
Medium: 2600 Body; Medium parameters used:
f = 2680 MHz; σ = 2.327 S/m; ε_r = 51.942; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08/31/2020; Ambient Temp: 22.6°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7409; ConvF(7.12, 7.12, 7.12) @ 2680 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: LTE Band 41 ULCA, UMPC Body SAR, Bottom Edge,
PCC: Ch. 41490, 20 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset
SCC: Ch. 41292, 20 MHz Bandwidth, QPSK, 50 RB, 50 RB Offset

Area Scan (11x13x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.56 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 2.17 W/kg
SAR(1 g) = 0.942 W/kg



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

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1154M

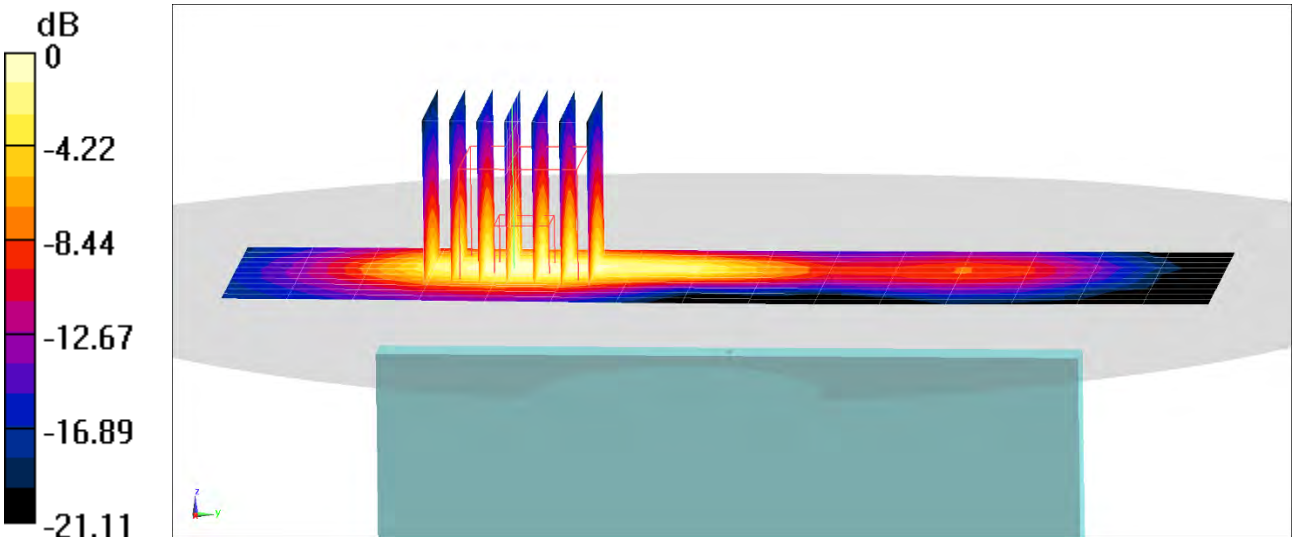
Communication System: UID 0, IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2437 MHz; σ = 2.028 S/m; ε_r = 50.966; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/16/2020; Ambient Temp: 22.9°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2437 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: IEEE 802.11b, Antenna 1, 22 MHz Bandwidth,
UMPC Body SAR, Ch 6, 1 Mbps, Top Edge

Area Scan (11x16x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.39 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.970 W/kg
SAR(1 g) = 0.478 W/kg



0 dB = 0.787 W/kg = -1.04 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1026M

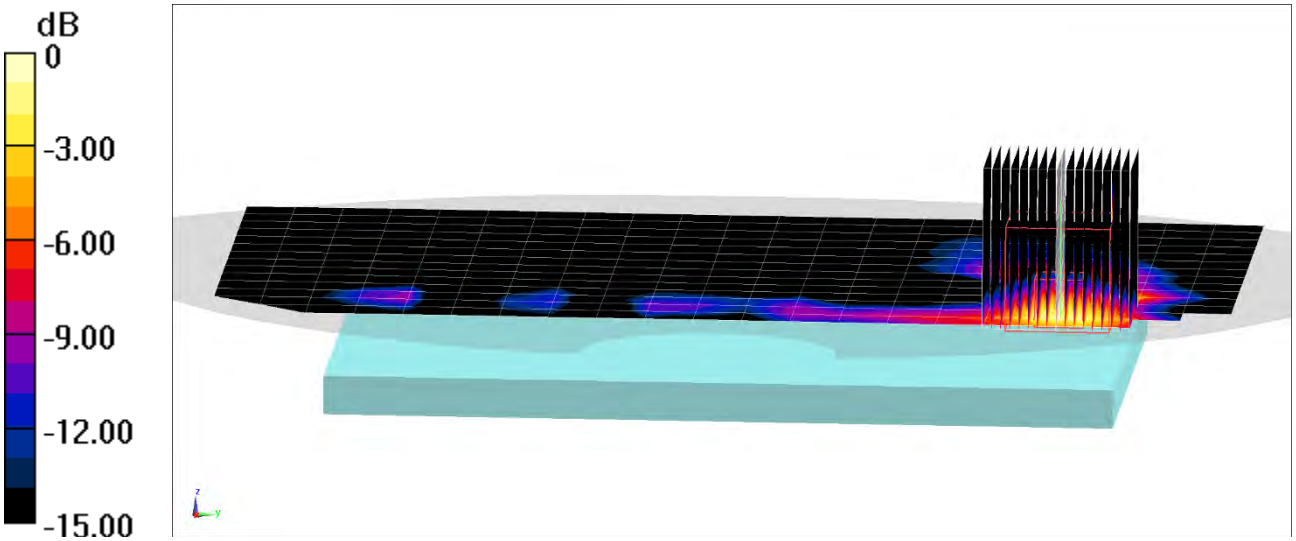
Communication System: UID 0, IEEE 802.11a; Frequency: 5300 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body; Medium parameters used:
f = 5300 MHz; σ = 5.532 S/m; ε_r = 47.561; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/07/2020; Ambient Temp: 22.1°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7538; ConvF(4.6, 4.6, 4.6) @ 5300 MHz; Calibrated: 5/18/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/15/2020
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: IEEE 802.11a, Antenna 2, U-NII-2A, 20 MHz Bandwidth, UMPC Body SAR, Ch 60, 6 Mbps, Back Side

Area Scan (15x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (17x17x8)/Cube 0: Measurement grid: dx=1.9mm, dy=1.9mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 6.639 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.827 W/kg
SAR(1 g) = 0.204 W/kg



0 dB = 0.565 W/kg = -2.48 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1154M

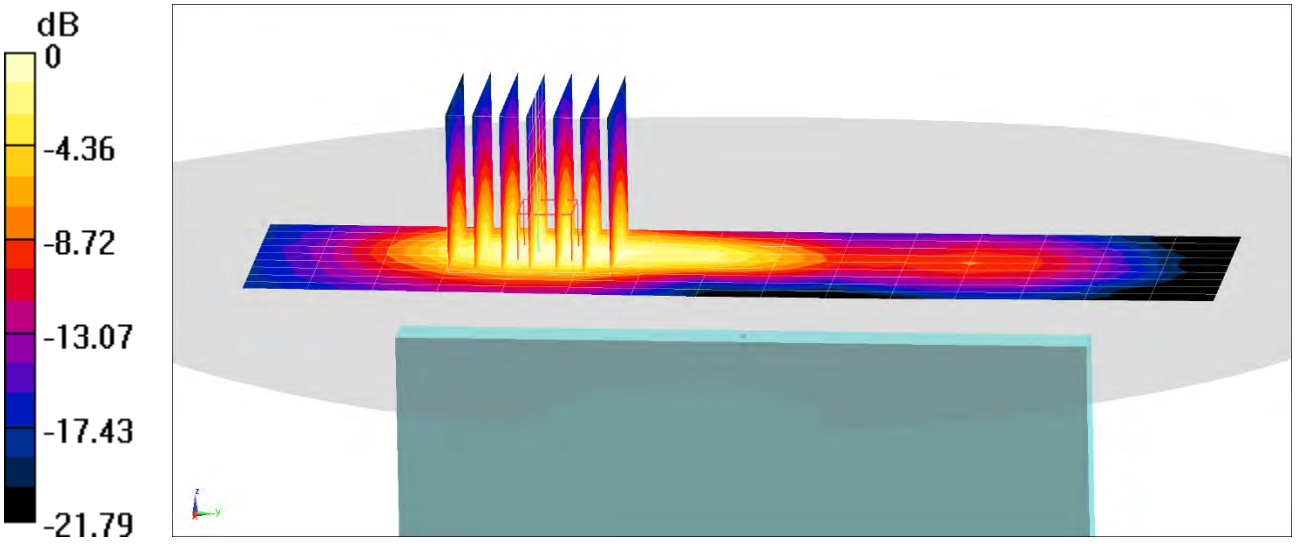
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.284
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.032 S/m; ε_r = 50.955; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/16/2020; Ambient Temp: 22.9°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2441 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (10x16x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.41 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.758 W/kg
SAR(1 g) = 0.376 W/kg



0 dB = 0.611 W/kg = -2.14 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0629M

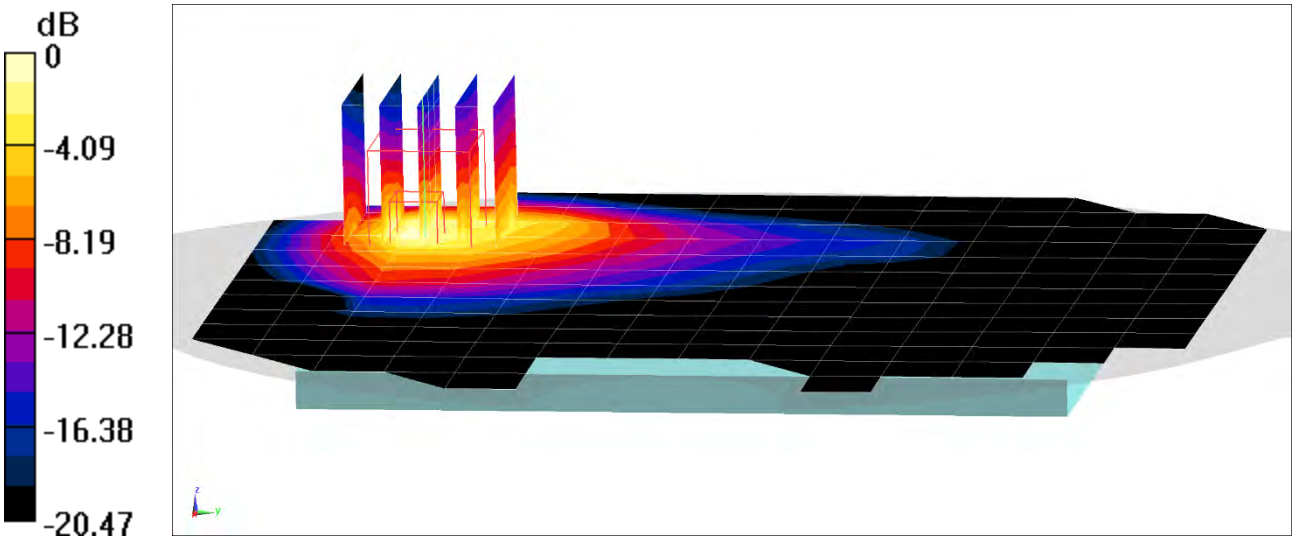
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 848.8 MHz; Duty Cycle: 1:2.76
Medium: 835 Body; Medium parameters used (interpolated):
f = 848.8 MHz; σ = 0.955 S/m; ε_r = 53.609; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09/22/2020; Ambient Temp: 23.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN7488; ConvF(11.04, 11.04, 11.04) @ 848.8 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V4.0 Left 30; Type: QD 000 P40 CC; Serial: 1687
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: GPRS 850, UMPC Extremity SAR, Back side, High.ch, 3 Tx Slots

Area Scan (14x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 50.07 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 7.55 W/kg
SAR(10 g) = 1.52 W/kg



0 dB = 5.71 W/kg = 7.57 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0679M

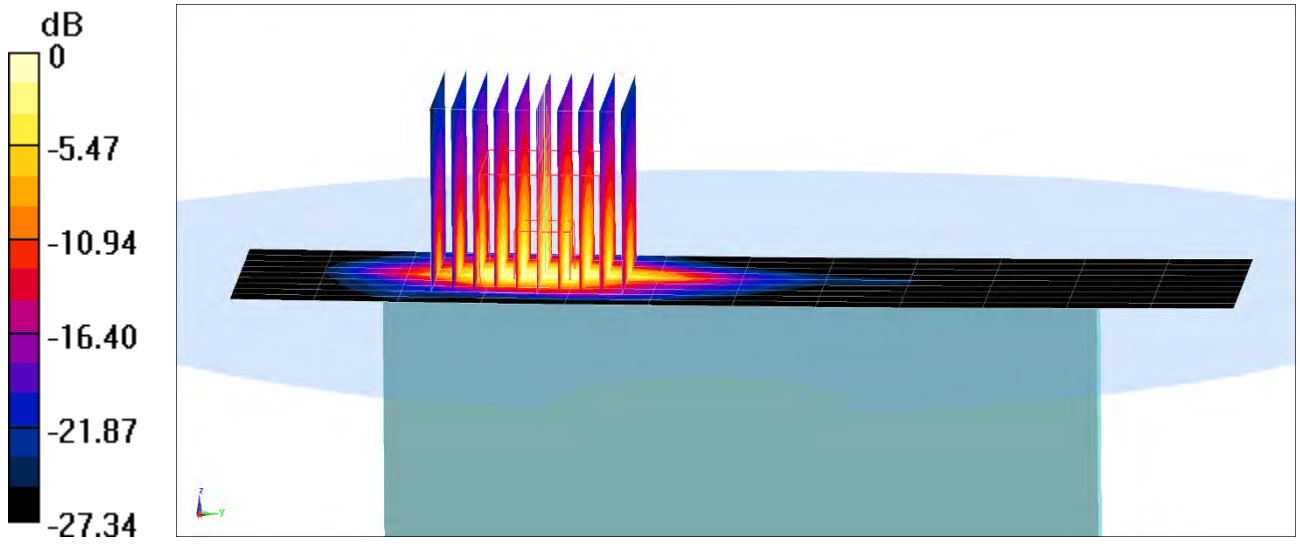
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 1850.2 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body; Medium parameters used (interpolated):
f = 1850.2 MHz; σ = 1.502 S/m; ε_r = 53.843; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08/26/2020; Ambient Temp: 21.7°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1850.2 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (10x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (10x10x8)/Cube 0: Measurement grid: dx=3.8mm, dy=3.8mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 58.03 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 14.1 W/kg
SAR(10 g) = 1.85 W/kg



0 dB = 8.36 W/kg = 9.22 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0629M

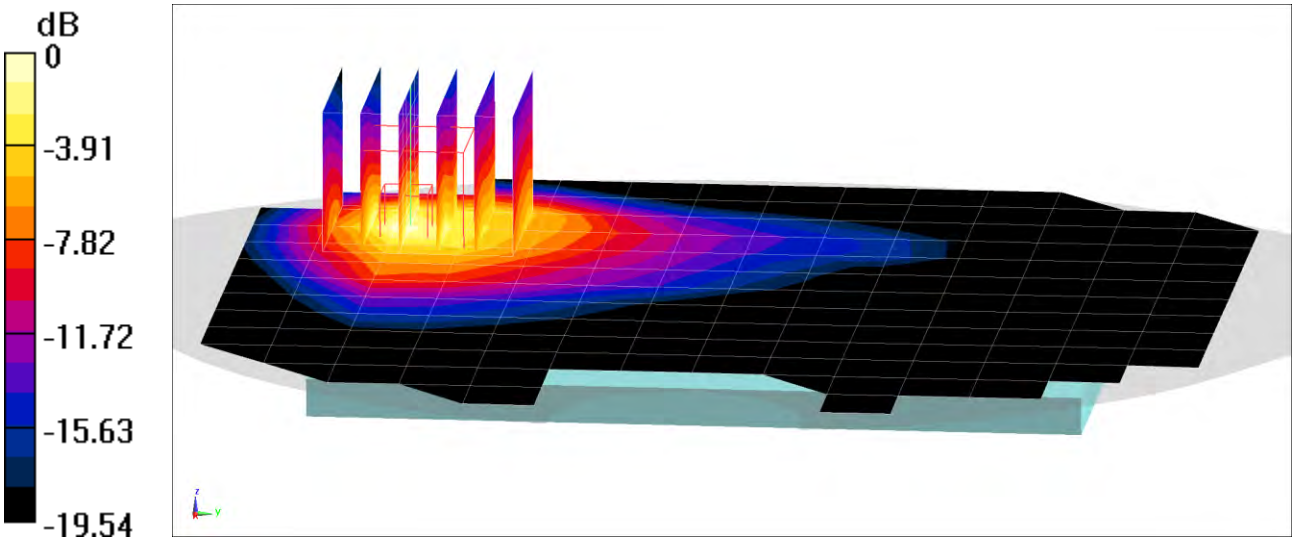
Communication System: UID 0, UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 846.6 MHz; σ = 0.961 S/m; ε_r = 53.18; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09/15/2020; Ambient Temp: 23.1°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7488; ConvF(11.04, 11.04, 11.04) @ 846.6 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V4.0 Left 30; Type: QD 000 P40 CC; Serial: 1687
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: UMTS 850, Antenna A, UMPC Extremity SAR, Back side, High.ch

Area Scan (14x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 50.55 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 5.46 W/kg
SAR(10 g) = 1.2 W/kg



0 dB = 4.00 W/kg = 6.02 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0655M

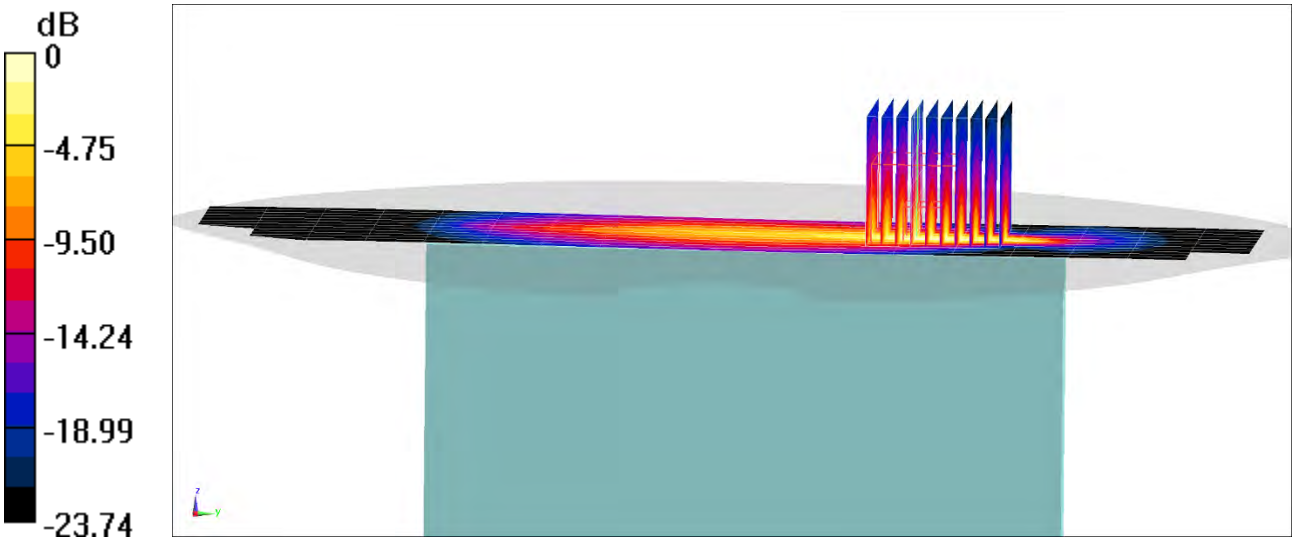
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.959 S/m; ε_r = 54.82; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09/17/2020; Ambient Temp: 23.1°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7547; ConvF(9.98, 9.98, 9.98) @ 707.5 MHz; Calibrated: 8/19/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 8/12/2020
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: LTE Band 12, UMPC Extremity SAR, Right Edge, Mid.ch, 10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (13x19x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (10x10x8)/Cube 0: Measurement grid: dx=3.8mm, dy=3.8mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 59.22 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 24.3 W/kg
SAR(10 g) = 1.32 W/kg



0 dB = 8.90 W/kg = 9.49 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0655M

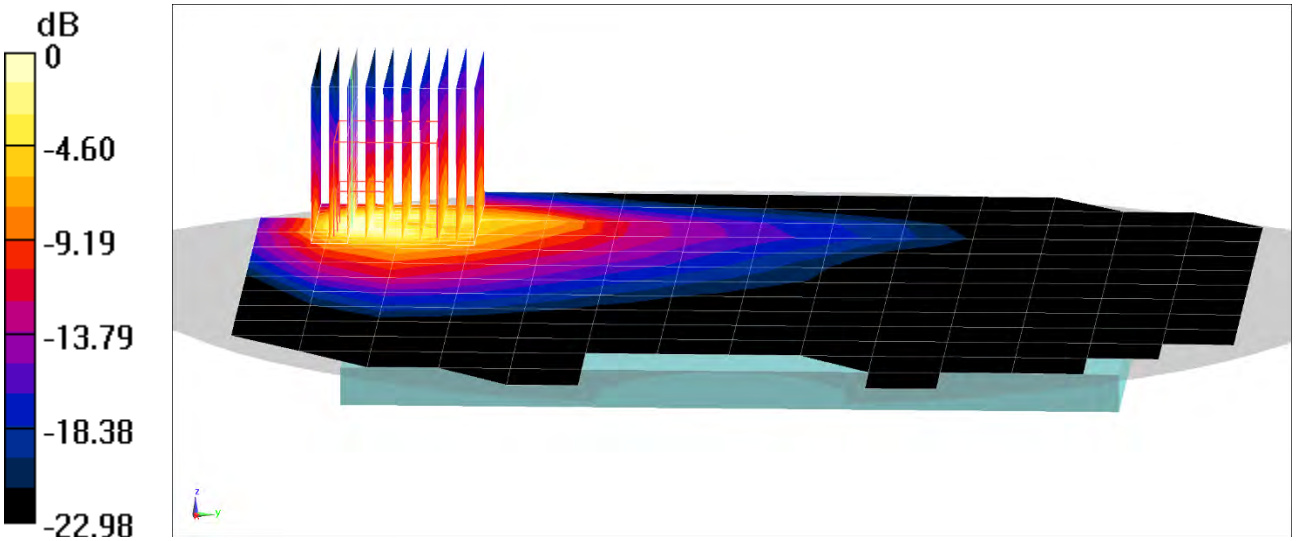
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.97 S/m; ε_r = 55.327; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09/10/2020; Ambient Temp: 23.1°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN7488; ConvF(11.35, 11.35, 11.35) @ 782 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (14x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (12x10x8)/Cube 0: Measurement grid: dx=3.8mm, dy=3.8mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 50.11 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 13.5 W/kg
SAR(10 g) = 1.44 W/kg



0 dB = 7.04 W/kg = 8.48 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0624M

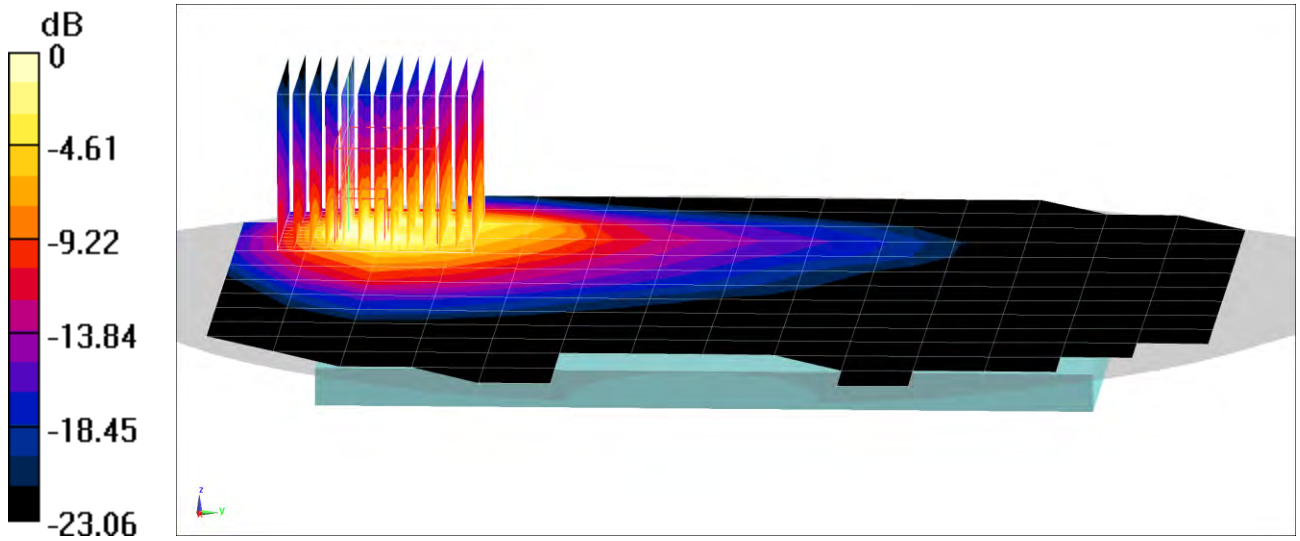
Communication System: UID 0, LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.943 S/m; ε_r = 53.723; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09/22/2020; Ambient Temp: 23.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN7488; ConvF(11.04, 11.04, 11.04) @ 836.5 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V4.0 Left 30; Type: QD 000 P40 CC; Serial: 1687
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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

Area Scan (14x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (13x13x8)/Cube 0: Measurement grid: dx=3.4mm, dy=3.4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 46.63 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 12.3 W/kg
SAR(10 g) = 1.55 W/kg



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

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 0674M

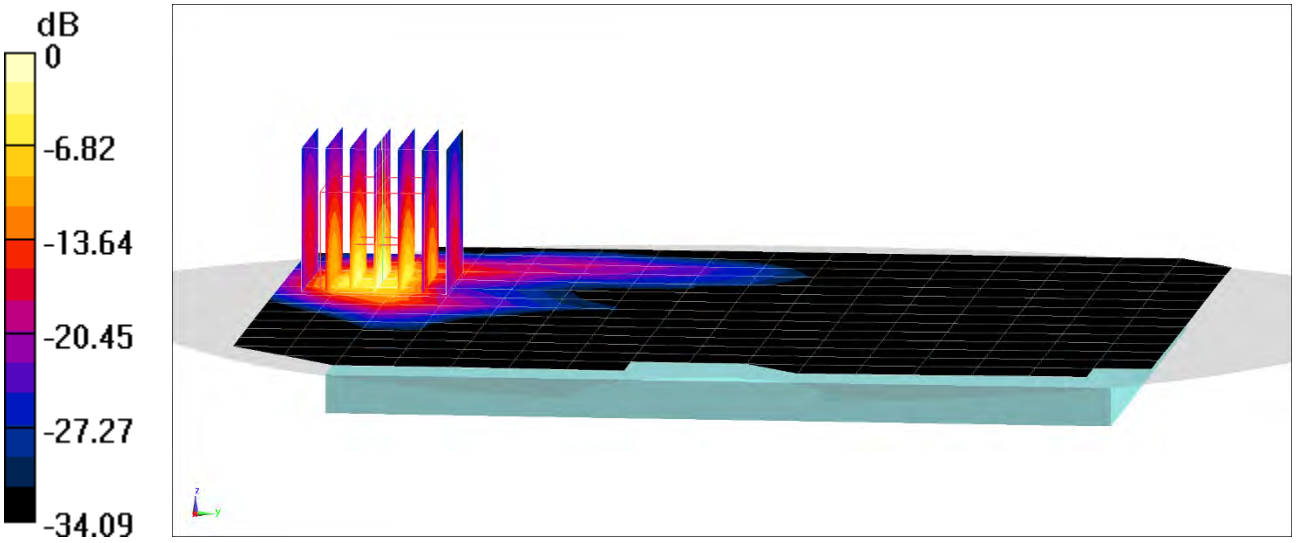
Communication System: UID 0, LTE Band 41; Frequency: 2680 MHz; Duty Cycle: 1:1.58
Medium: 2600 Body; Medium parameters used:
f = 2680 MHz; σ = 2.327 S/m; ε_r = 51.942; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08/31/2020; Ambient Temp: 22.6°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7409; ConvF(7.12, 7.12, 7.12) @ 2680 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: LTE Band 41, UMPC Extremity SAR, Back side, High.ch, 20 MHz Bandwidth, QPSK, 50 RB, 25 RB Offset

Area Scan (15x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.08 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 14.8 W/kg
SAR(10 g) = 1.48 W/kg



0 dB = 10.8 W/kg = 10.33 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1154M

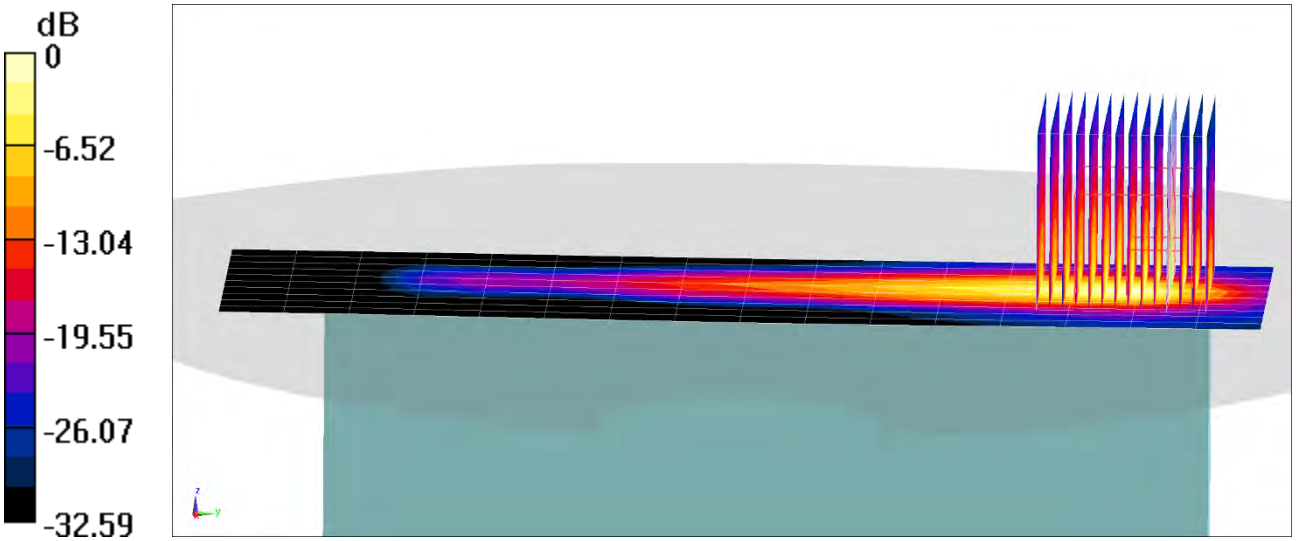
Communication System: UID 0, IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 2.054 S/m; ε_r = 52.688; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09/08/2020; Ambient Temp: 22.2°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2462 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: IEEE 802.11b, Antenna 2, 22 MHz Bandwidth, UMPC Extremity SAR, Ch 11, 1 Mbps, Left Edge

Area Scan (11x17x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (15x14x8)/Cube 0: Measurement grid: dx=2.4mm, dy=2.4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 44.46 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 33.2 W/kg
SAR(10 g) = 2.04 W/kg



0 dB = 16.3 W/kg = 12.12 dBW/kg

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1026M

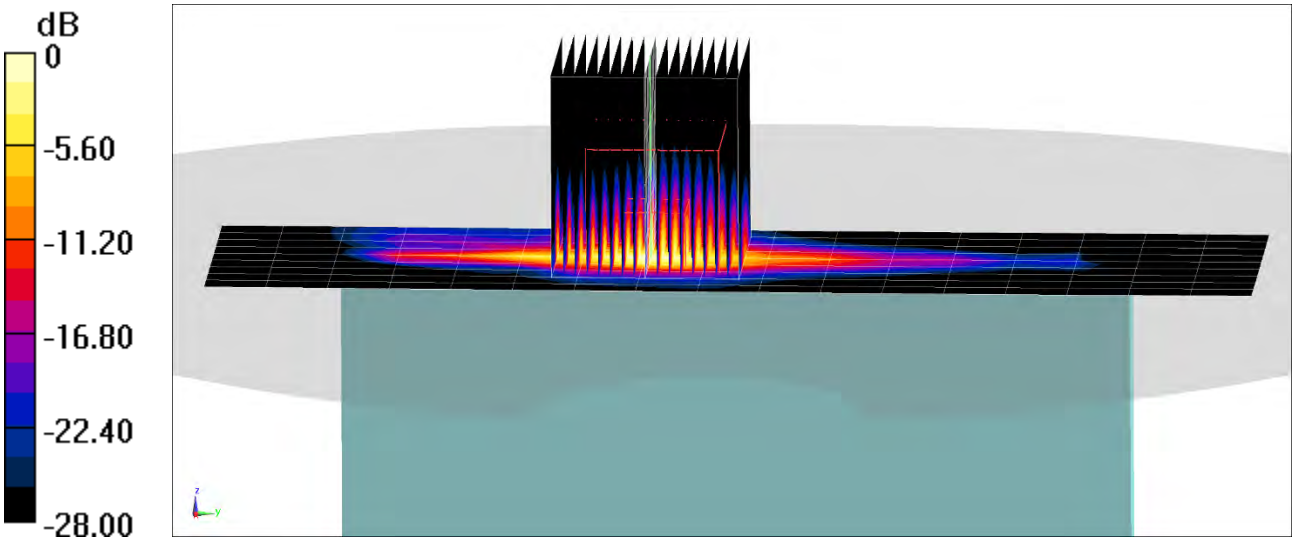
Communication System: UID 0, IEEE 802.11a; Frequency: 5300 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body; Medium parameters used:
f = 5300 MHz; σ = 5.532 S/m; ε_r = 47.561; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09/07/2020; Ambient Temp: 22.1°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7538; ConvF(4.6, 4.6, 4.6) @ 5300 MHz; Calibrated: 5/18/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/15/2020
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: IEEE 802.11a, Antenna 1, U-NII-2A, 20 MHz Bandwidth, UMPC Extremity SAR, Ch 60, 6 Mbps, Top Edge

Area Scan (10x18x1): Measurement grid: dx=5mm, dy=10mm
Zoom Scan (17x17x8)/Cube 0: Measurement grid: dx=1.9mm, dy=1.9mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 34.68 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 32.5 W/kg
SAR(10 g) = 1.13 W/kg



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

DUT: A3LSMF916JPN; Type: Portable Handset; Serial: 1154M

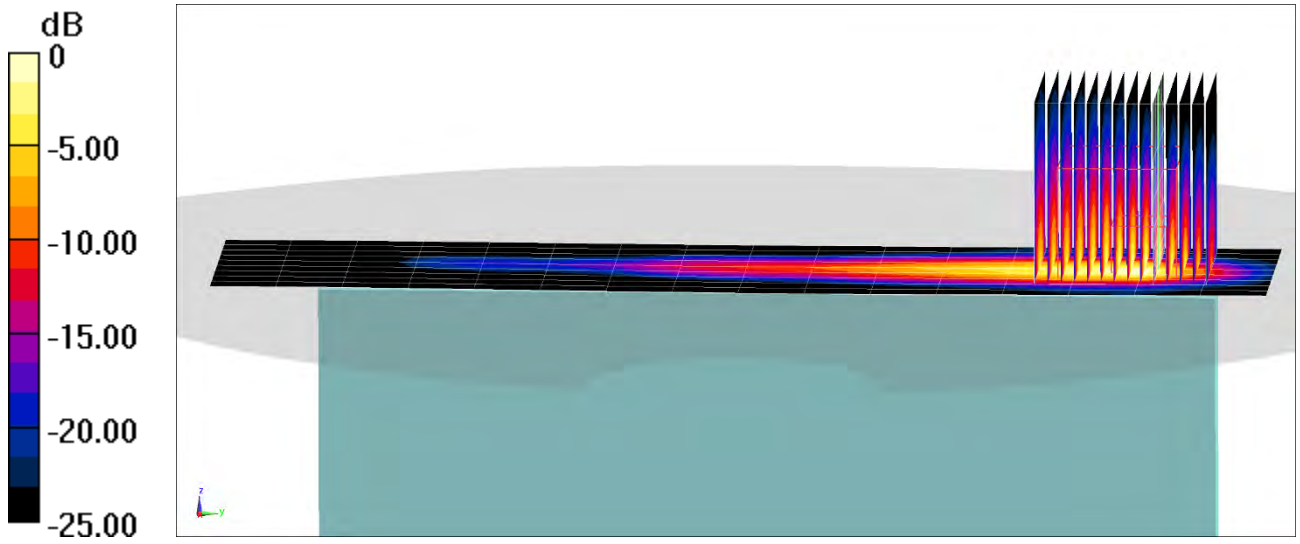
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.294
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.028 S/m; ε_r = 52.177; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09/10/2020; Ambient Temp: 23.1°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2441 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Mode: Bluetooth, Antenna 2, UMPC Extremity SAR, Ch 39, 1 Mbps, Left Edge

Area Scan (10x17x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (14x14x8)/Cube 0: Measurement grid: dx=2.4mm, dy=2.4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 40.97 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 15.0 W/kg
SAR(10 g) = 0.924 W/kg



0 dB = 6.84 W/kg = 8.35 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

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

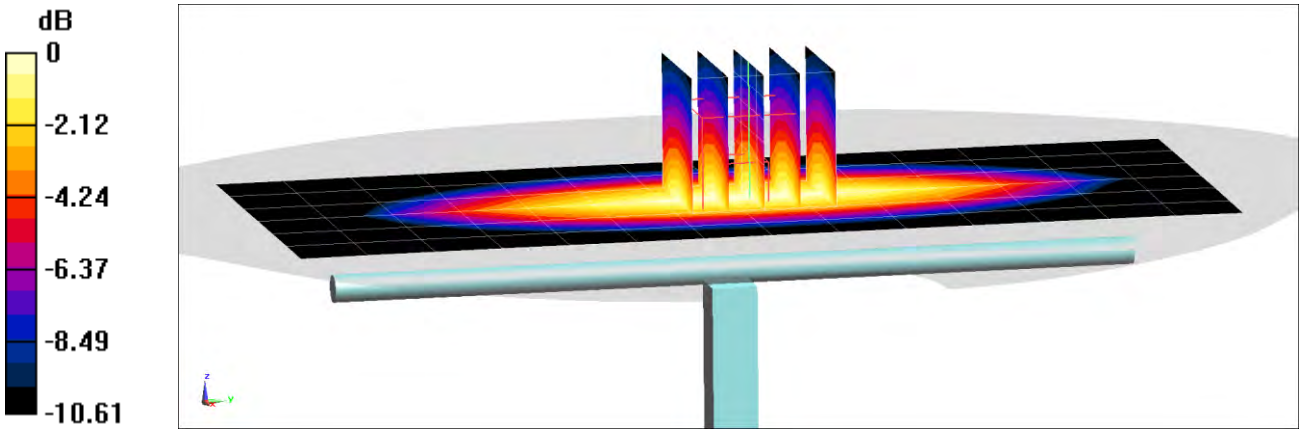
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used:
f = 750 MHz; σ = 0.904 S/m; ε_r = 43.819; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/08/2020; Ambient Temp: 22.3°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN3589; ConvF(8.7, 8.7, 8.7) @ 750 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

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) = 2.58 W/kg
SAR(1 g) = 1.68 W/kg
Deviation(1 g) = -2.67%



0 dB = 2.26 W/kg = 3.54 dBW/kg

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

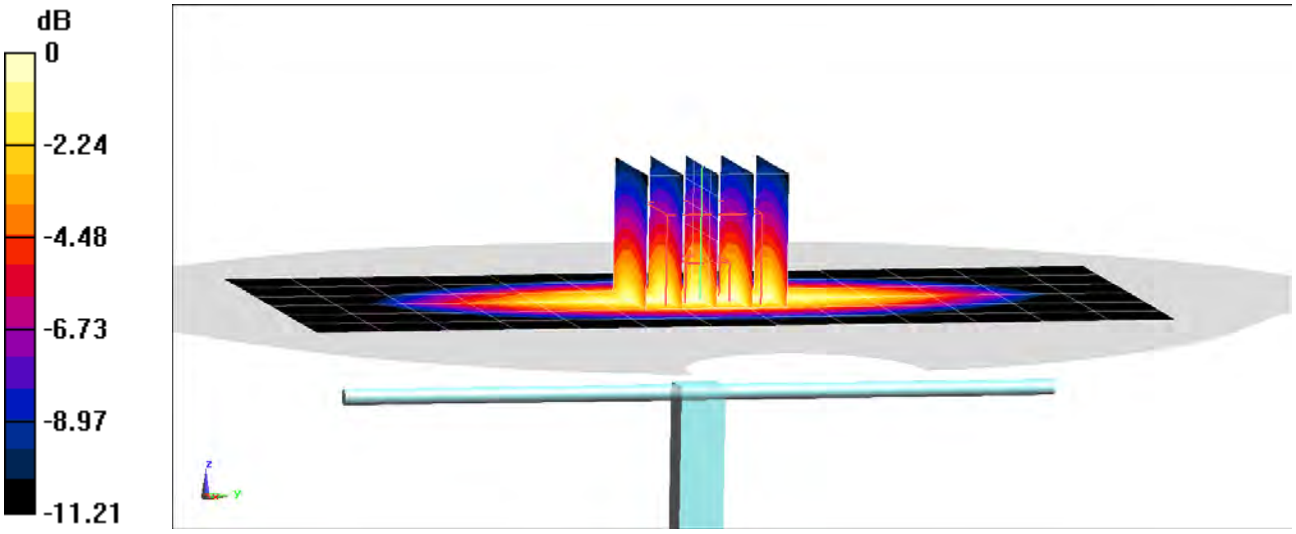
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.919 S/m; ε_r = 43.105; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/14/2020; Ambient Temp: 21.9°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN3589; ConvF(8.58, 8.58, 8.58) @ 835 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 3.24 W/kg
SAR(1 g) = 2.02 W/kg
Deviation(1 g) = 7.10%



0 dB = 2.78 W/kg = 4.44 dBW/kg

PCTEST

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

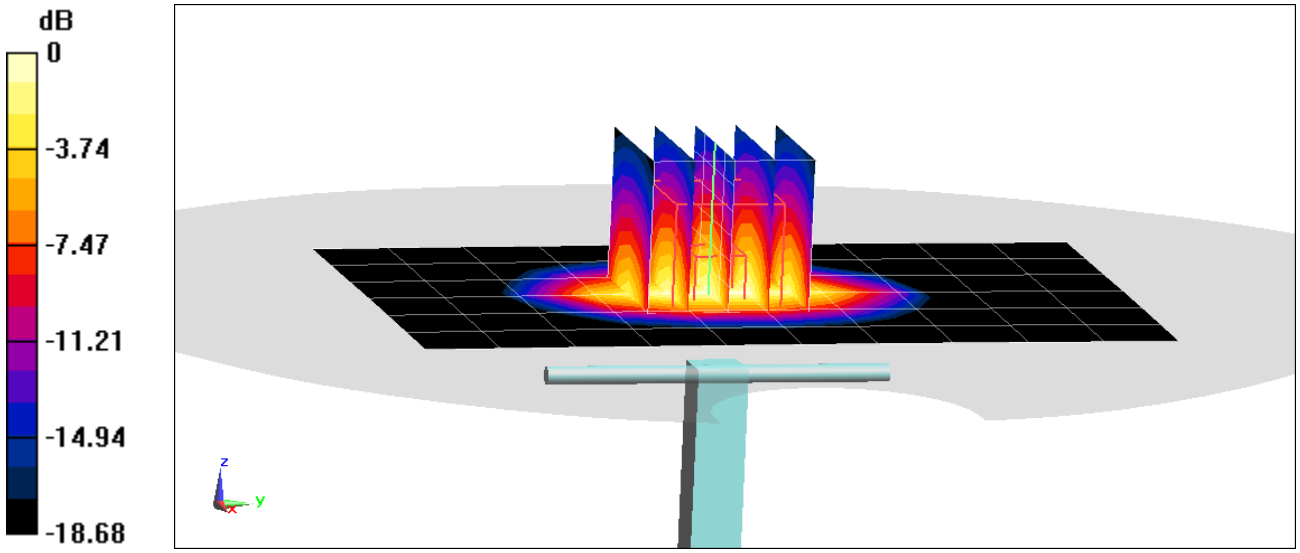
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1900 MHz; σ = 1.415 S/m; ε_r = 38.849; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/04/2020; Ambient Temp: 24.0°C; Tissue Temp: 22.2°C

Probe: EX3DV4 - SN7406; ConvF(7.96, 7.96, 7.96) @ 1900 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1583; Calibrated: 5/14/2020
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1966
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 7.92 W/kg
SAR(1 g) = 4.2 W/kg
Deviation(1 g) = 7.42%



0 dB = 6.62 W/kg = 8.21 dBW/kg

PCTEST

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

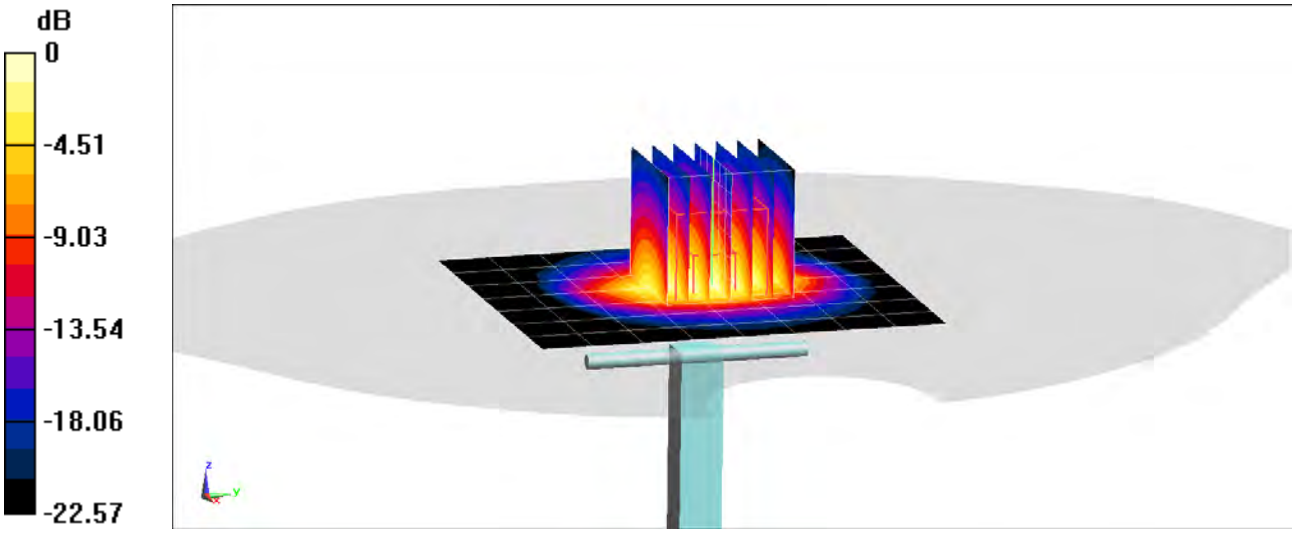
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.86 S/m; ε_r = 40.46; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0cm

Test Date: 09/10/2020; Ambient Temp: 24.1°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN3589; ConvF(6.85, 6.85, 6.85) @ 2450 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.9 W/kg
SAR(1 g) = 5.17 W/kg
Deviation(1 g) = -1.15%



0 dB = 8.75 W/kg = 9.42 dBW/kg

PCTEST

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1004

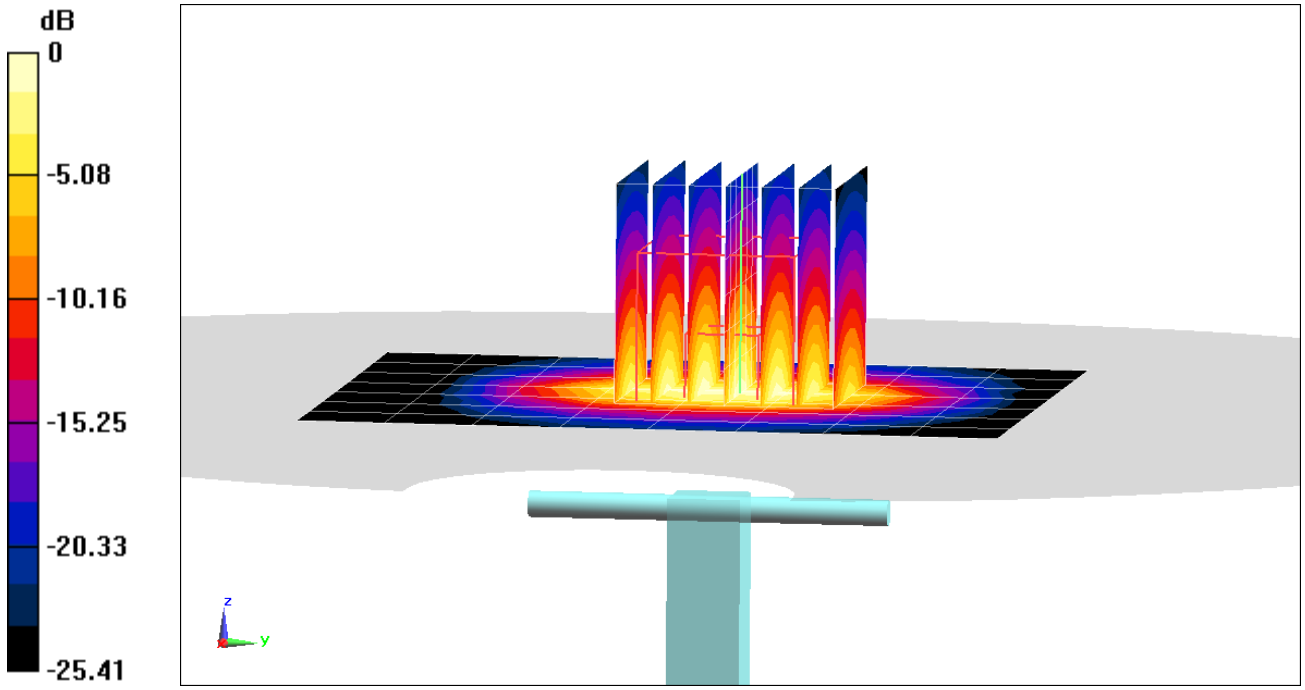
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 26000 Head Medium parameters used:
f = 2600 MHz; σ = 2.053 S/m; ε_r = 37.95; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/03/2020; Ambient Temp: 22.9°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3589; ConvF(6.6, 6.6, 6.6) @ 2600 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

2600 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 13.0 W/kg
SAR(1 g) = 5.66 W/kg
Deviation(1 g) = 1.25%



0 dB = 9.99 W/kg = 10.00 dBW/kg

PCTEST

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

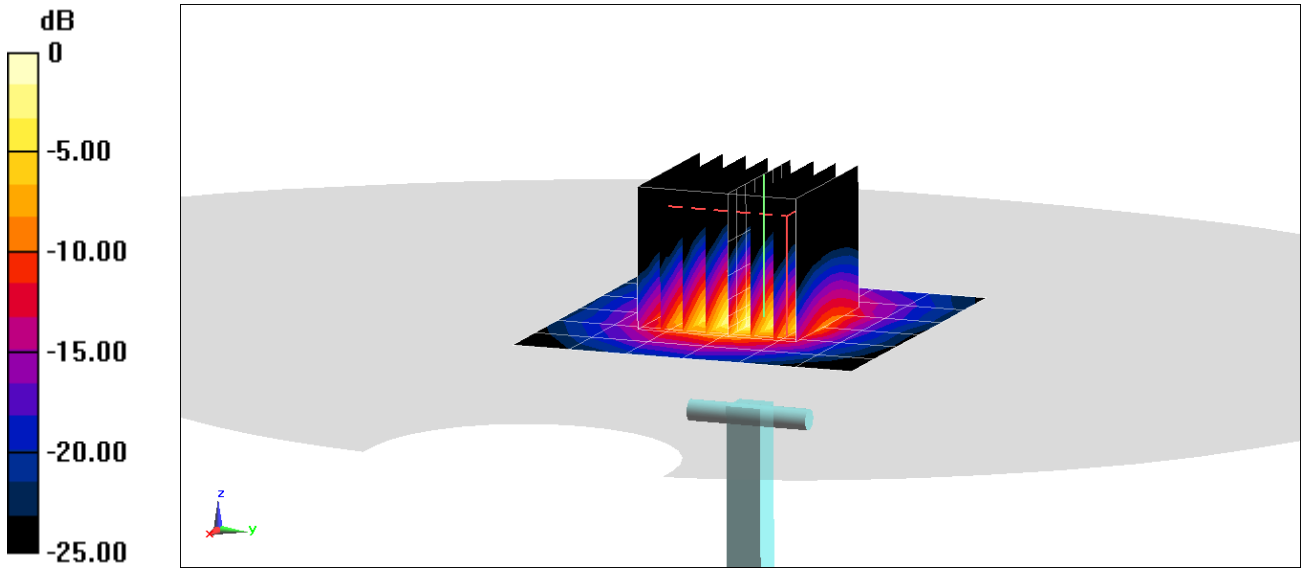
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Head Medium parameters used:
f = 5250 MHz; σ = 4.567 S/m; ε_r = 35.873; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/17/2020; Ambient Temp: 23.3°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7357; ConvF(5.5, 5.5, 5.5) @ 5250 MHz; Calibrated: 4/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/15/2020
Phantom: Twin-SAM V5.0 Left 20; Type: QD 000 P40 CD; Serial: 1715
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 15.4 W/kg
SAR(1 g) = 3.77 W/kg
Deviation(1 g) = -4.80%



0 dB = 8.97 W/kg = 9.53 dBW/kg

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

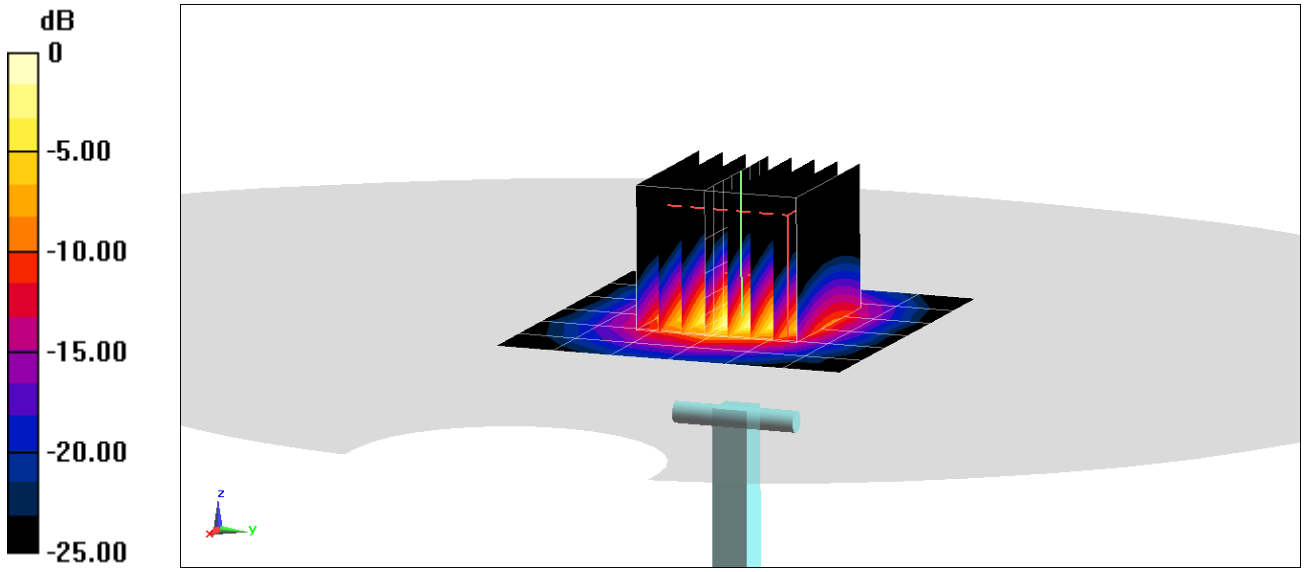
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Head Medium parameters used:
f = 5600 MHz; σ = 4.968 S/m; ε_r = 35.274; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/17/2020; Ambient Temp: 23.3°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7357; ConvF(4.93, 4.93, 4.93) @ 5600 MHz; Calibrated: 4/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/15/2020
Phantom: Twin-SAM V5.0 Left 20; Type: QD 000 P40 CD; Serial: 1715
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 4.01 W/kg
Deviation(1 g) = -4.64%



0 dB = 9.85 W/kg = 9.93 dBW/kg

PCTEST

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

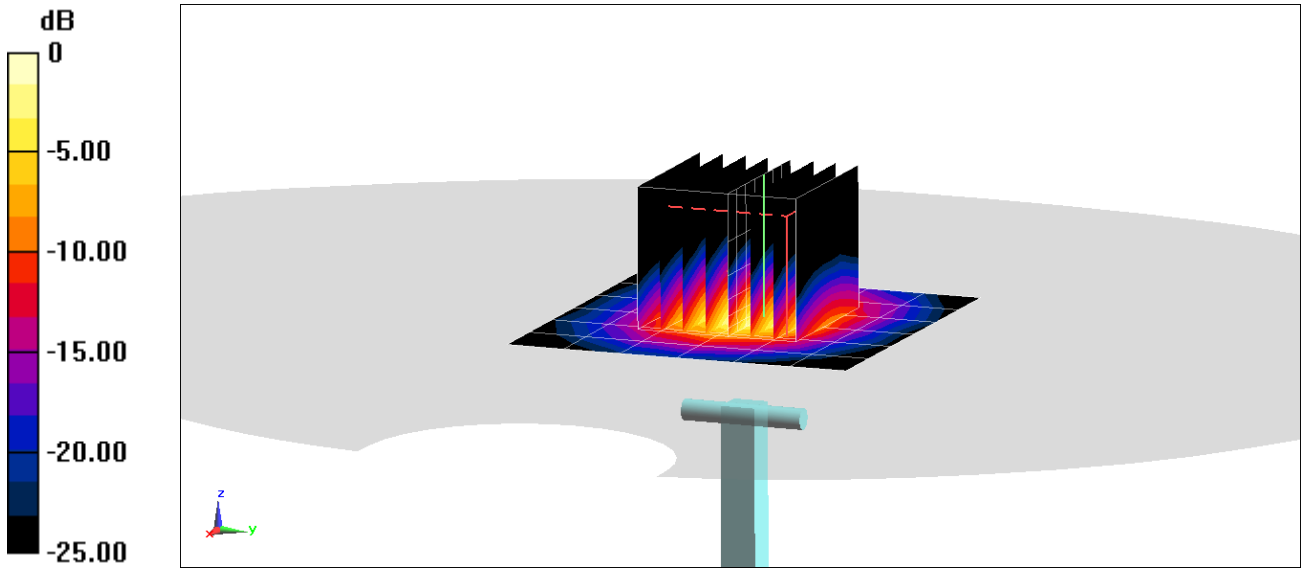
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Head Medium parameters used:
f = 5750 MHz; σ = 5.136 S/m; ε_r = 35.044; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/17/2020; Ambient Temp: 23.3°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7357; ConvF(5.05, 5.05, 5.05) @ 5750 MHz; Calibrated: 4/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/15/2020
Phantom: Twin-SAM V5.0 Left 20; Type: QD 000 P40 CD; Serial: 1715
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 18.0 W/kg
SAR(1 g) = 3.87 W/kg
Deviation(1 g) = -3.85%



0 dB = 9.72 W/kg = 9.88 dBW/kg

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

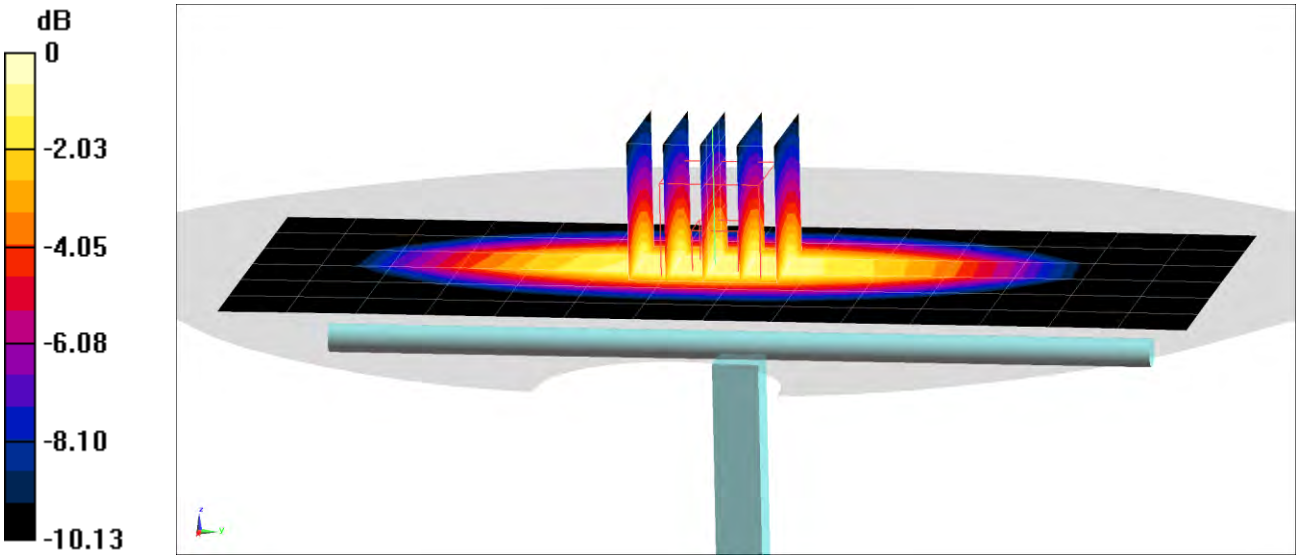
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used:
f = 750 MHz; σ = 0.941 S/m; ε_r = 55.155; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/08/2020; Ambient Temp: 22.8°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7488; ConvF(11.35, 11.35, 11.35) @ 750 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

750 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.45 W/kg
SAR(1 g) = 1.62 W/kg
Deviation(1 g) = -3.91%



0 dB = 2.16 W/kg = 3.34 dBW/kg

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

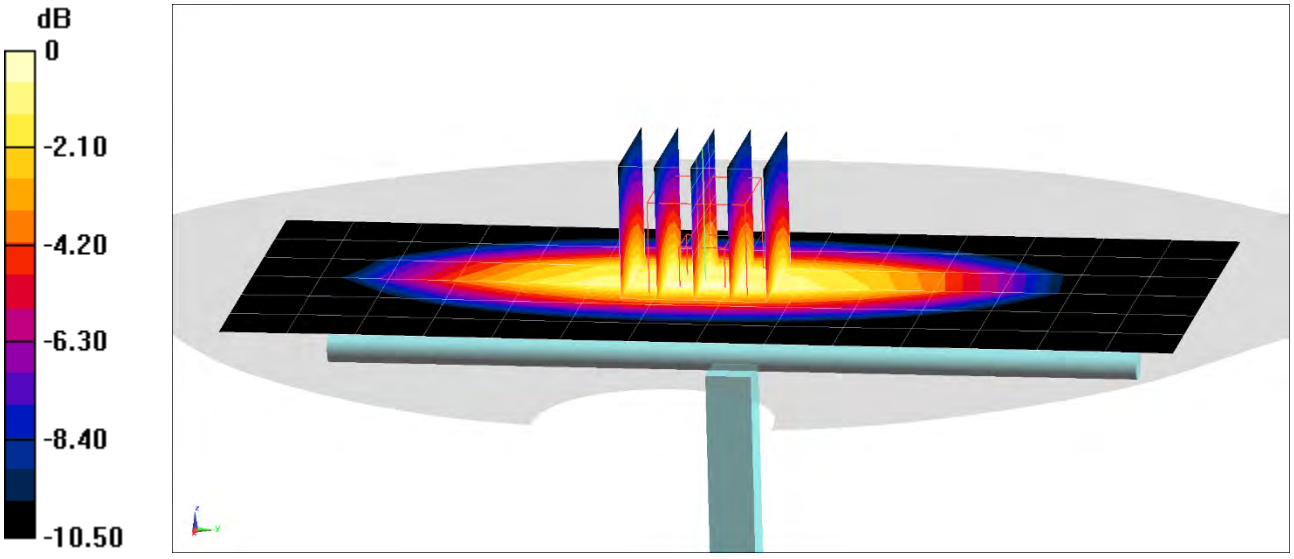
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used:
f = 750 MHz; σ = 0.958 S/m; ε_r = 55.404; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/10/2020; Ambient Temp: 23.1°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN7488; ConvF(11.35, 11.35, 11.35) @ 750 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

750 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.59 W/kg
SAR(10 g) = 1.09 W/kg
Deviation(10 g) = -1.80%



0 dB = 2.25 W/kg = 3.52 dBW/kg

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

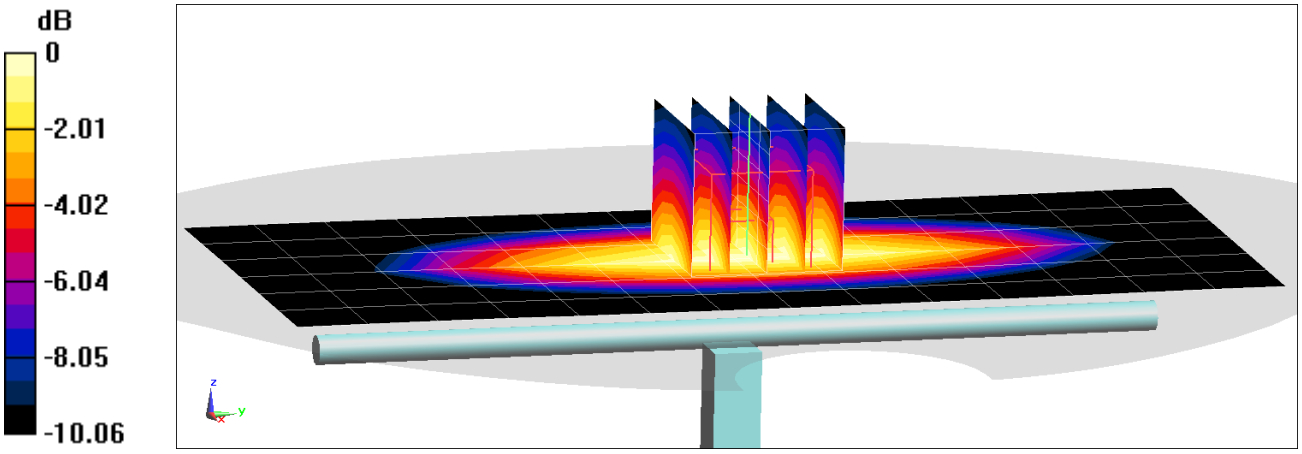
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used:
f = 750 MHz; σ = 0.939 S/m; ε_r = 56.278; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/14/2020; Ambient Temp: 24.7°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7547; ConvF(9.98, 9.98, 9.98) @ 750 MHz; Calibrated: 8/19/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 8/12/2020
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 2.69 W/kg
SAR(1 g) = 1.81 W/kg
Deviation(1 g) = 6.10%



0 dB = 2.40 W/kg = 3.80 dBW/kg

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

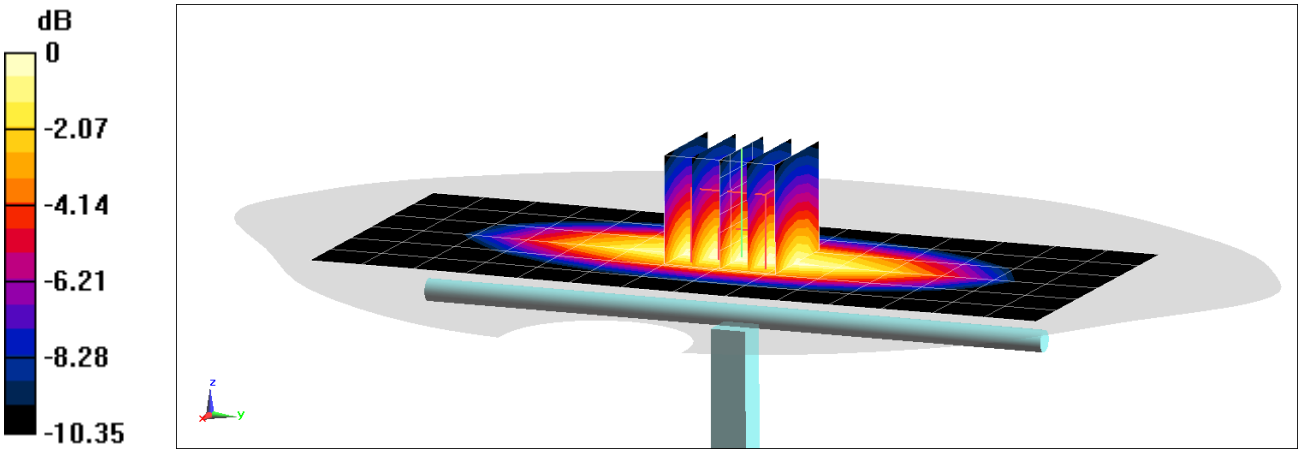
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used:
f = 750 MHz; σ = 0.975 S/m; ε_r = 54.761; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/17/2020; Ambient Temp: 23.1°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7547; ConvF(9.98, 9.98, 9.98) @ 750 MHz; Calibrated: 8/19/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 8/12/2020
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 2.60 W/kg
SAR(10 g) = 1.16 W/kg
Deviation(10 g) = 3.02%



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

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

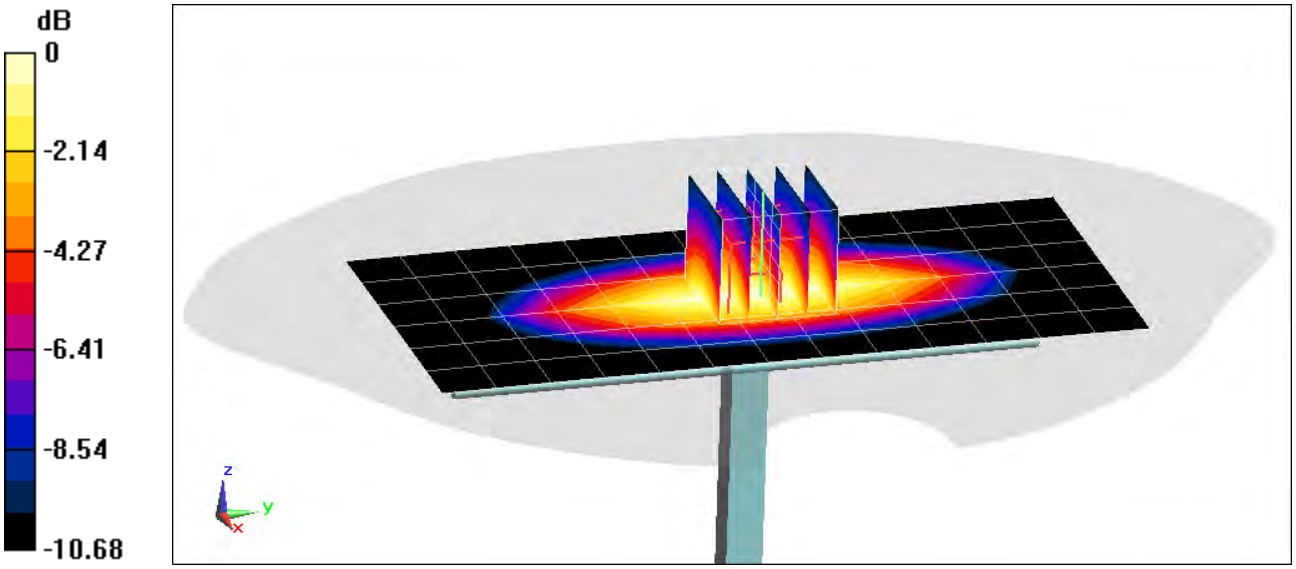
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used:
f = 835 MHz; σ = 0.977 S/m; ε_r = 54.534; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/08/2020; Ambient Temp: 23.1°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7308; ConvF(9.92, 9.92, 9.92) @ 835 MHz; Calibrated: 7/31/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/11/2020
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 3.03 W/kg
SAR(1 g) = 1.94 W/kg
Deviation(1 g) = -2.61%



0 dB = 2.64 W/kg = 4.22 dBW/kg

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

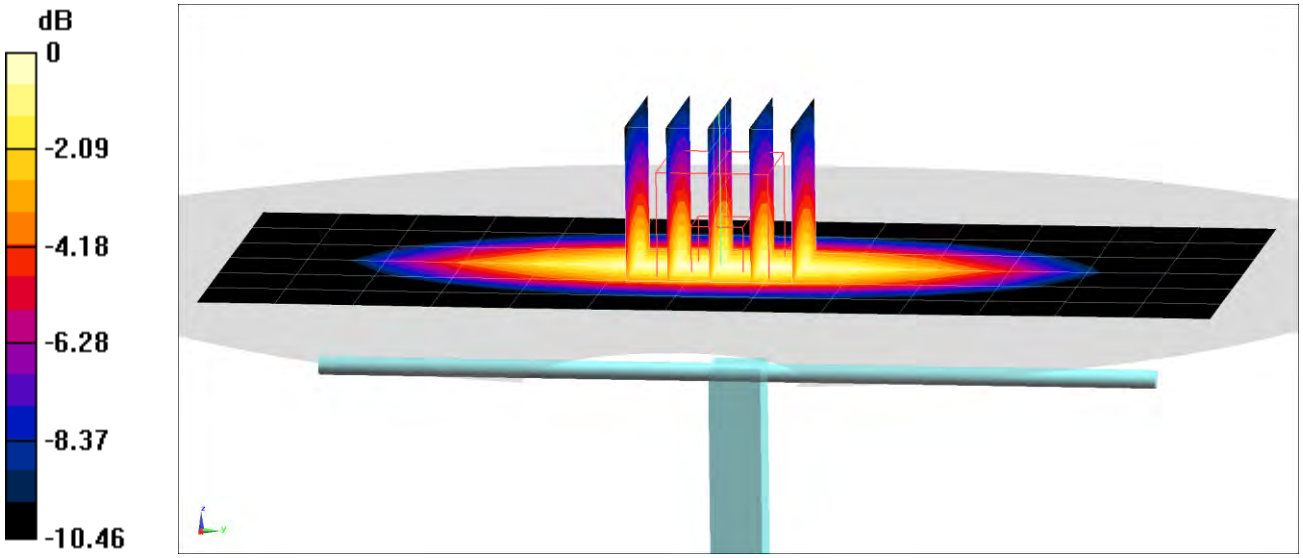
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.949 S/m; ε_r = 53.311; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/15/2020; Ambient Temp: 23.1°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7488; ConvF(11.04, 11.04, 11.04) @ 835 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V4.0 Left 30; Type: QD 000 P40 CC; Serial: 1687
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 2.89 W/kg
SAR(1 g) = 1.91 W/kg; SAR(10 g) = 1.26 W/kg
Deviation(1 g) = -2.05%; Deviation(10 g) = -1.56%



0 dB = 2.54 W/kg = 4.05 dBW/kg

PCTEST

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

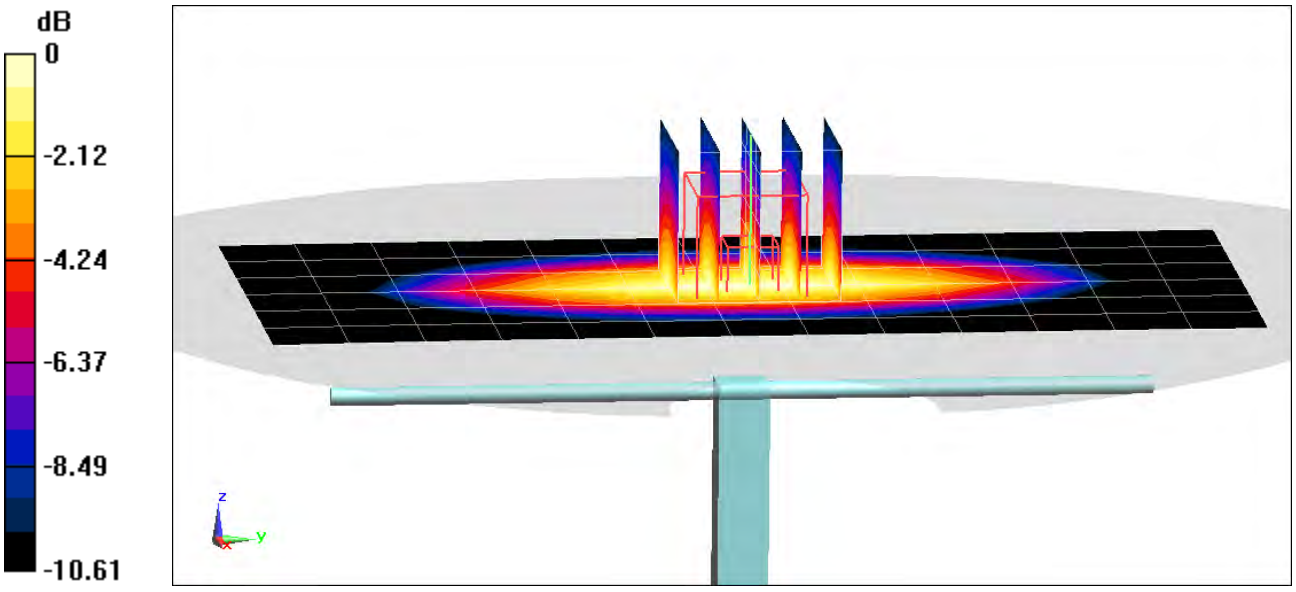
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used:
f = 835 MHz; σ = 0.969 S/m; ε_r = 53.152; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/20/2020; Ambient Temp: 21.0°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN7308; ConvF(9.92, 9.92, 9.92) @ 835 MHz; Calibrated: 7/31/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/11/2020
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 3.18 W/kg
SAR(1 g) = 2.02 W/kg
Deviation(1 g) = 1.41%



0 dB = 2.75 W/kg = 4.39 dBW/kg

PCTEST

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

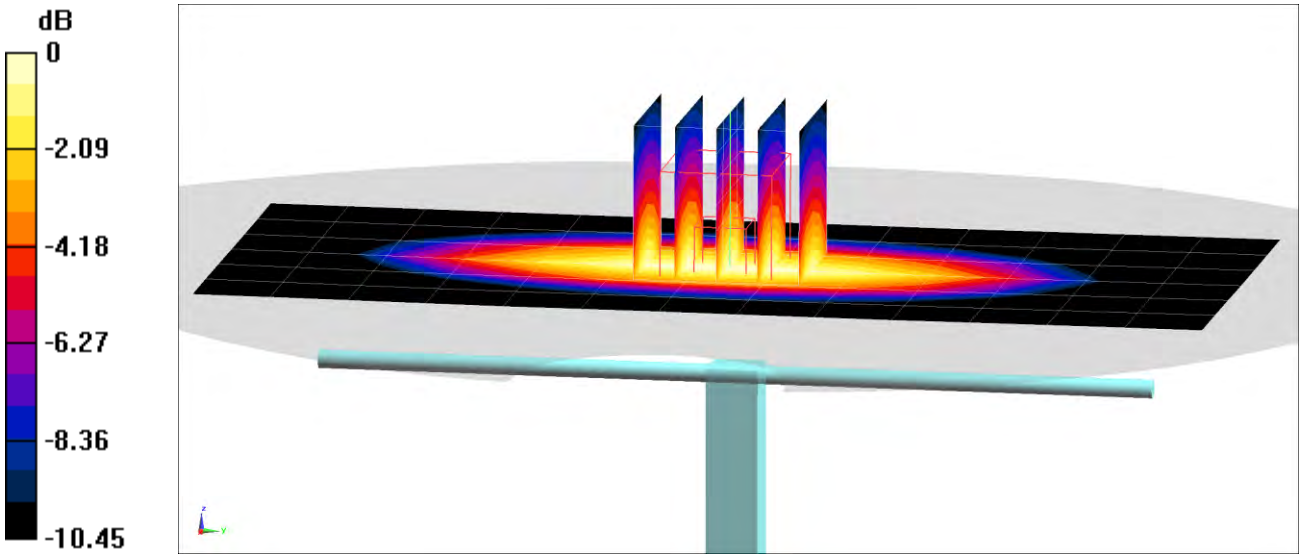
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.941 S/m; ε_r = 53.737; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09/22/2020; Ambient Temp: 23.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN7488; ConvF(11.04, 11.04, 11.04) @ 835 MHz; Calibrated: 1/21/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/13/2020
Phantom: Twin-SAM V4.0 Left 30; Type: QD 000 P40 CC; Serial: 1687
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 2.72 W/kg
SAR(1 g) = 1.8 W/kg; SAR(10 g) = 1.18 W/kg
Deviation(1 g) = -7.69%; Deviation(10 g) = -7.81%



0 dB = 2.41 W/kg = 3.82 dBW/kg

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

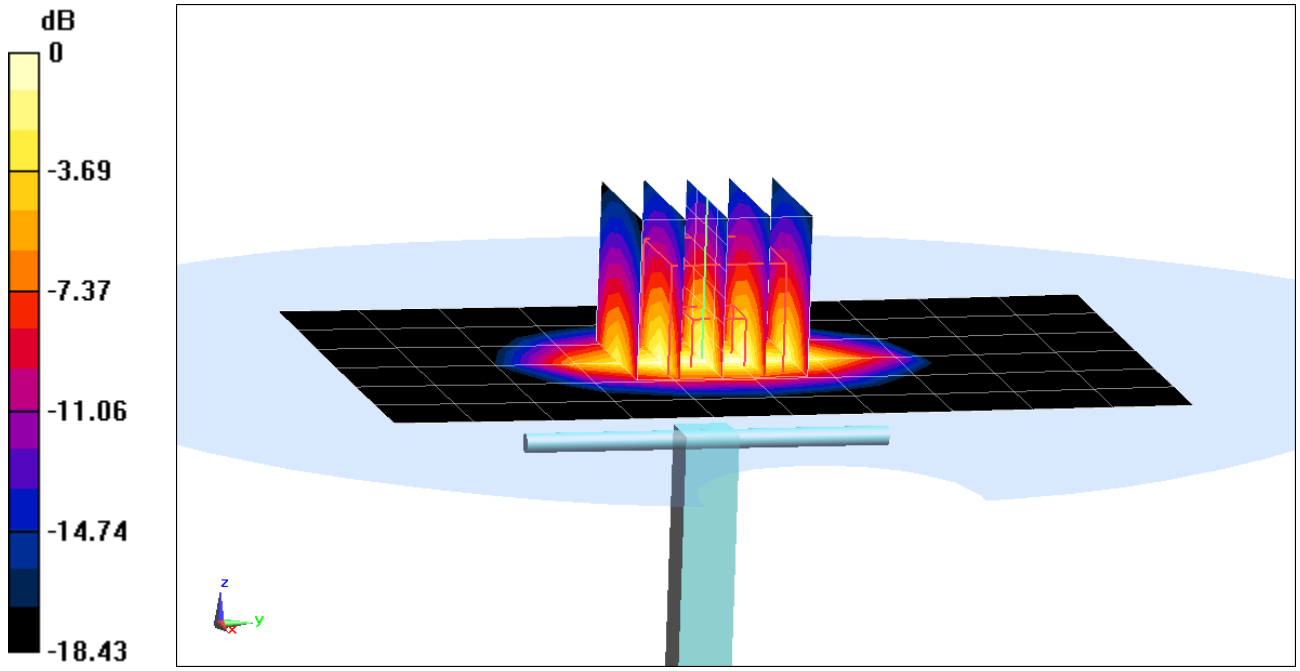
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1900 MHz; σ = 1.556 S/m; ε_r = 53.679; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08/26/2020; Ambient Temp: 21.7°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1900 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 4.16 W/kg; SAR(10 g) = 2.13 W/kg
Deviation(1 g) = 6.12%; Deviation(10 g) = 3.40%



0 dB = 6.44 W/kg = 8.09 dBW/kg

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

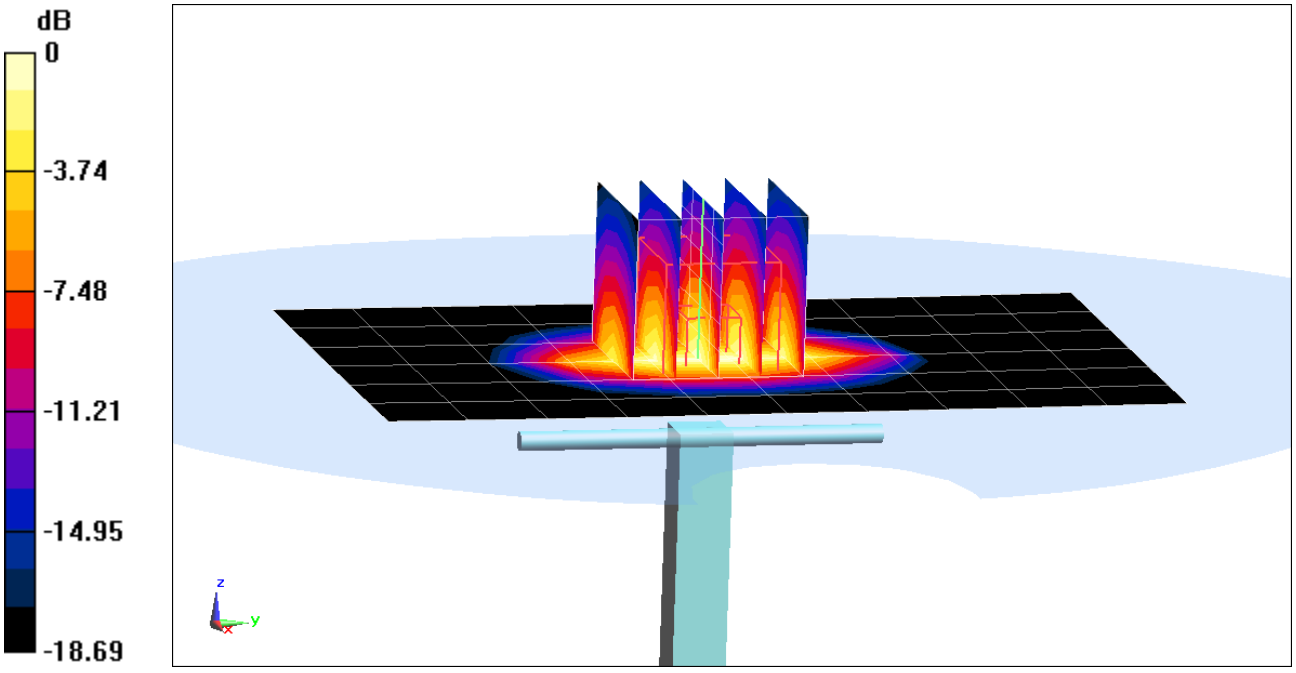
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1900 MHz; σ = 1.572 S/m; ε_r = 52.503; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/20/2020; Ambient Temp: 21.3°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1900 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 7.75 W/kg
SAR(10 g) = 2.13 W/kg
Deviation(10 g) = 3.40%



0 dB = 6.48 W/kg = 8.12 dBW/kg

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

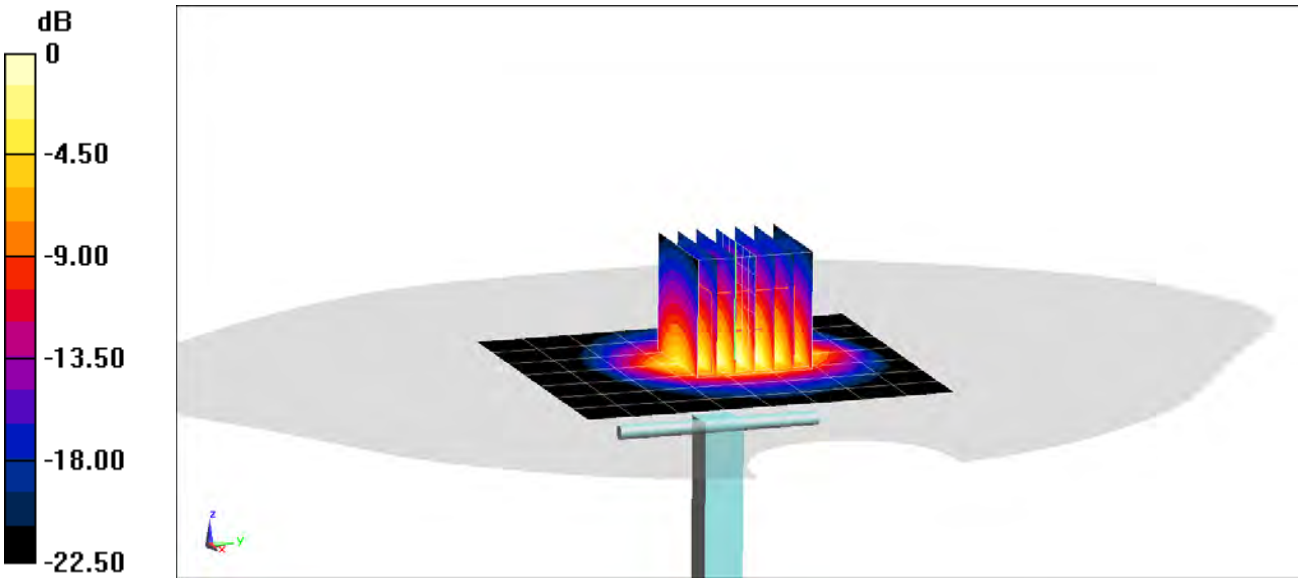
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.046 S/m; ε_r = 51.786; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08/27/2020; Ambient Temp: 21.6°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2450 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 11.4 W/kg
SAR(1 g) = 5.29 W/kg
Deviation(1 g) = 3.93%



0 dB = 9.06 W/kg = 9.57 dBW/kg

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

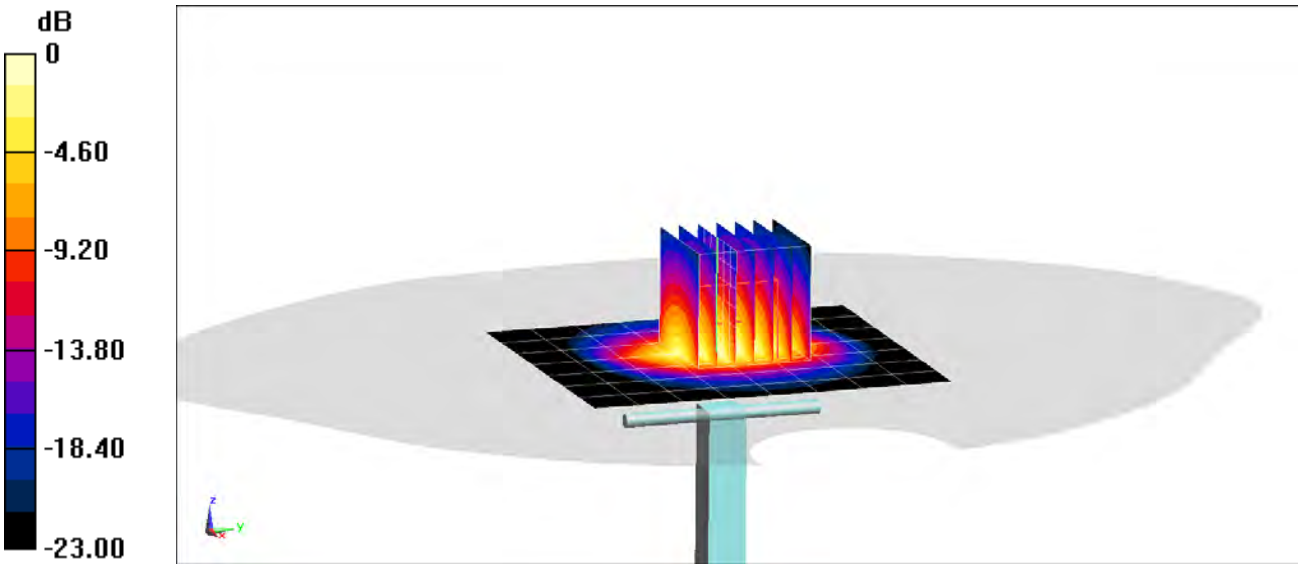
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.045 S/m; ε_r = 52.602; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08/31/2020; Ambient Temp: 22.6°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2450 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.0 W/kg
SAR(1 g) = 5.19 W/kg; SAR(10 g) = 2.38 W/kg
Deviation(1 g) = 1.96%; Deviation(10 g) = -1.65%



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

PCTEST

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

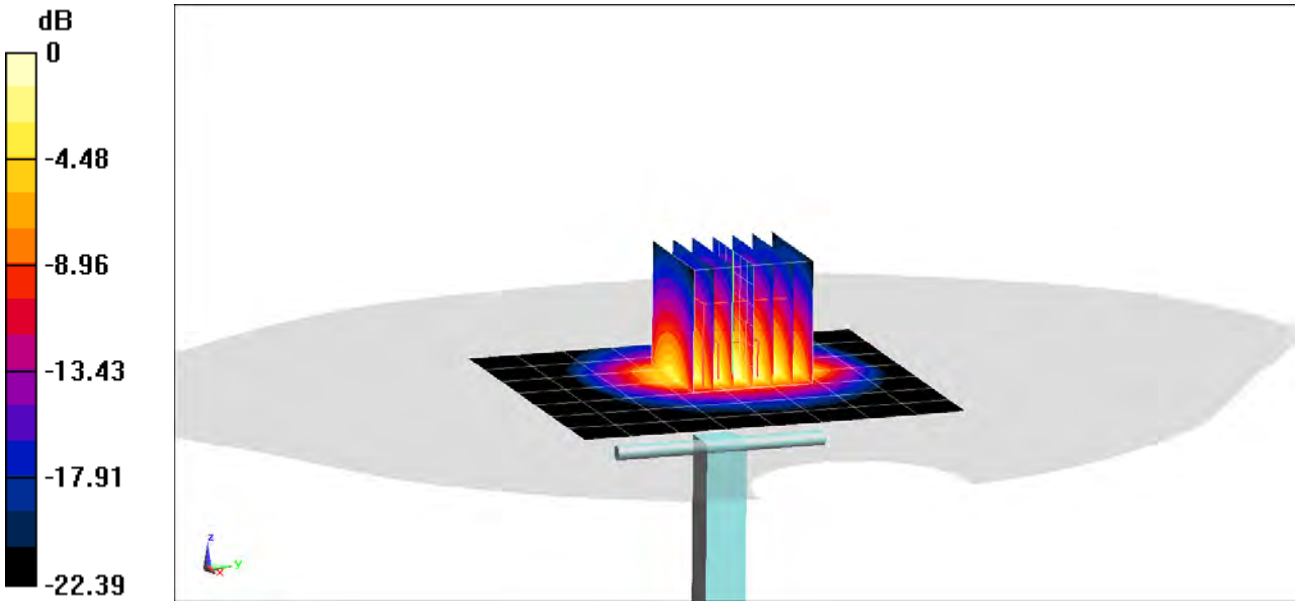
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.046 S/m; ε_r = 52.213; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/03/2020; Ambient Temp: 22.0°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2450 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 5.21 W/kg
Deviation(1 g) = 2.36%



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

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

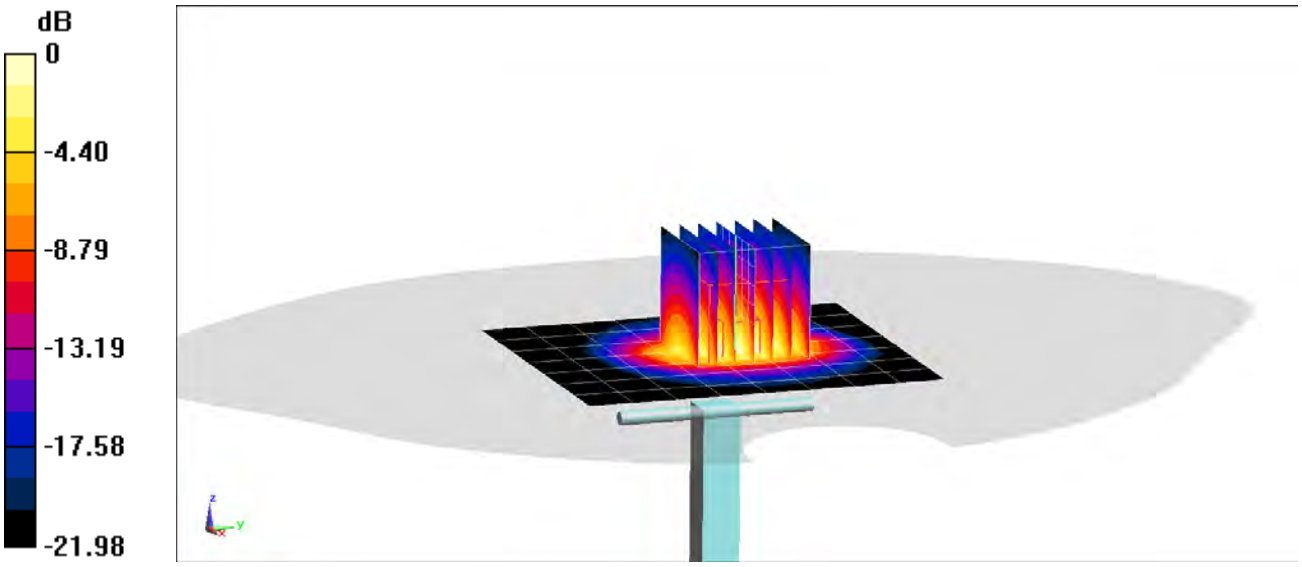
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.04 S/m; ε_r = 52.722; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/08/2020; Ambient Temp: 22.2°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2450 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.0 W/kg
SAR(10 g) = 2.37 W/kg
Deviation(10 g) = -2.07%



0 dB = 8.82 W/kg = 9.45 dBW/kg

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

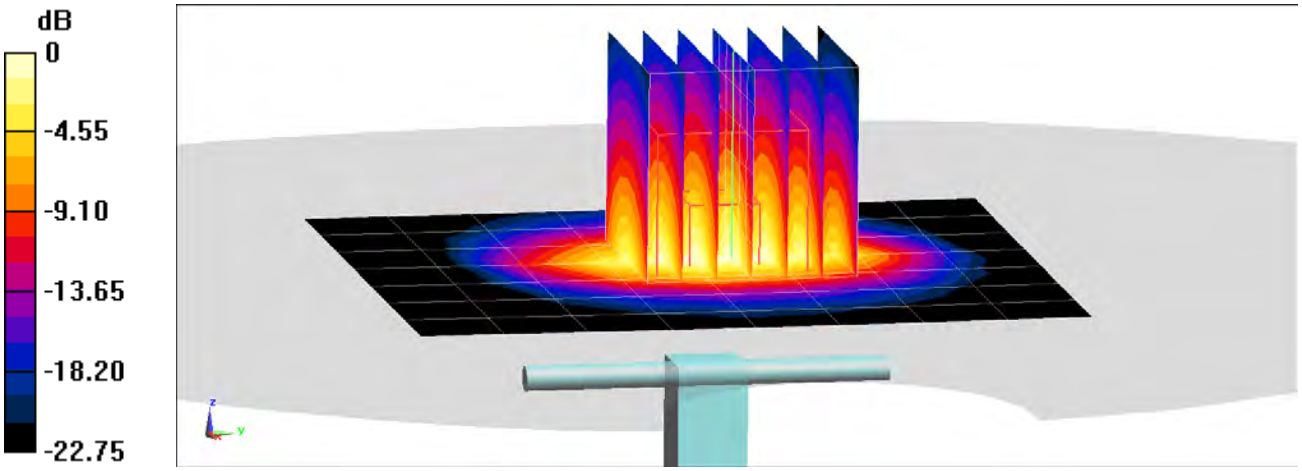
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.039 S/m; ε_r = 52.151; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/10/2020; Ambient Temp: 23.1°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2450 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.2 W/kg
SAR(10 g) = 2.41 W/kg
Deviation(10 g) = -0.41%



0 dB = 8.91 W/kg = 9.50 dBW/kg

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

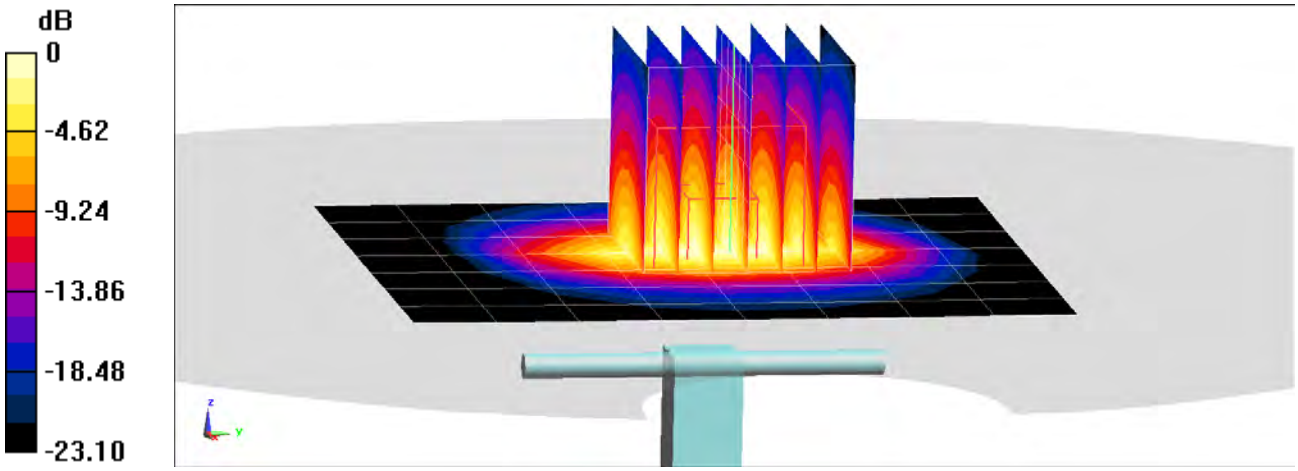
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.042 S/m; ε_r = 51.435; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/13/2020; Ambient Temp: 23.0°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2450 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 5.21 W/kg
Deviation(1 g) = 2.36%



0 dB = 8.85 W/kg = 9.47 dBW/kg

PCTEST

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

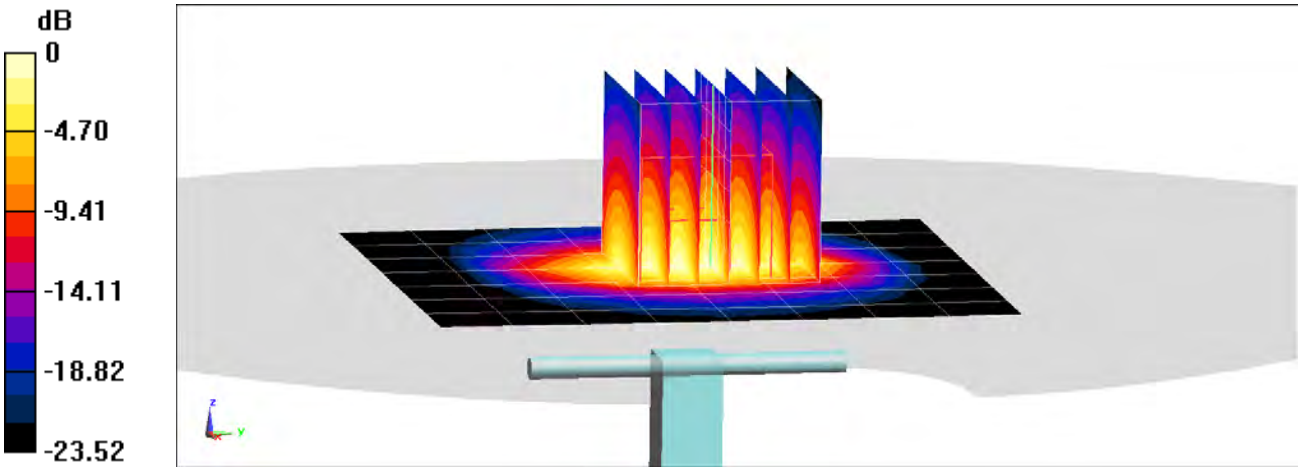
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.043 S/m; ε_r = 50.932; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/16/2020; Ambient Temp: 22.9°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2450 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.0 W/kg
SAR(1 g) = 5.13 W/kg
Deviation(1 g) = 0.79%



0 dB = 8.63 W/kg = 9.36 dBW/kg

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

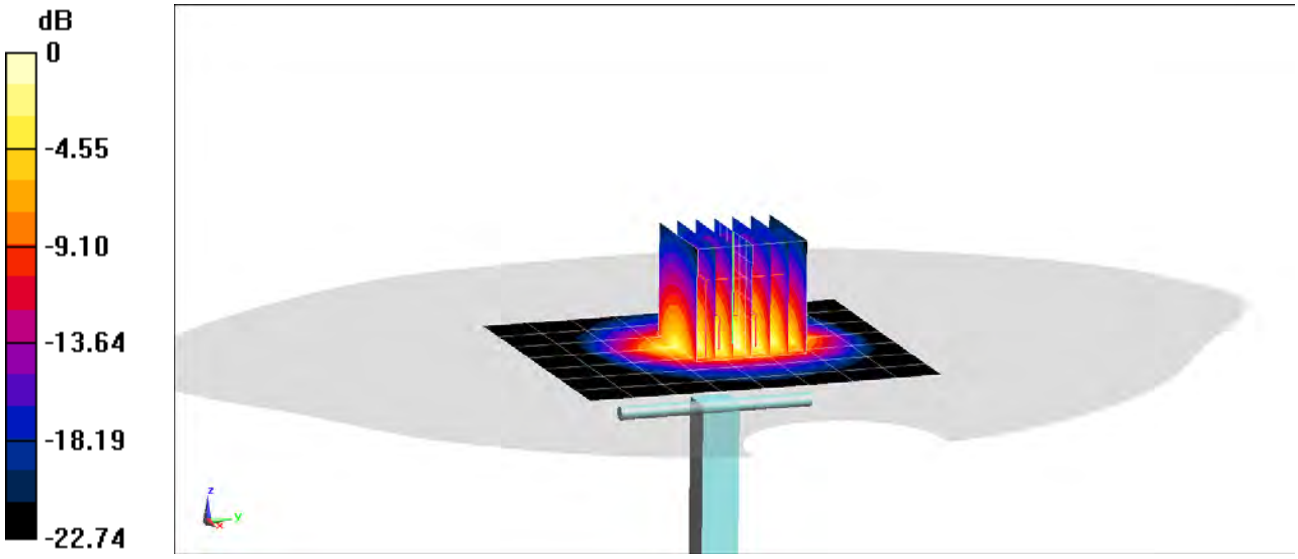
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.014 S/m; ε_r = 51.864; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/21/2020; Ambient Temp: 23.2°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2450 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

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) = 5.24 W/kg; SAR(10 g) = 2.38 W/kg
Deviation(1 g) = 2.95%; Deviation(10 g) = -1.65%



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

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1064

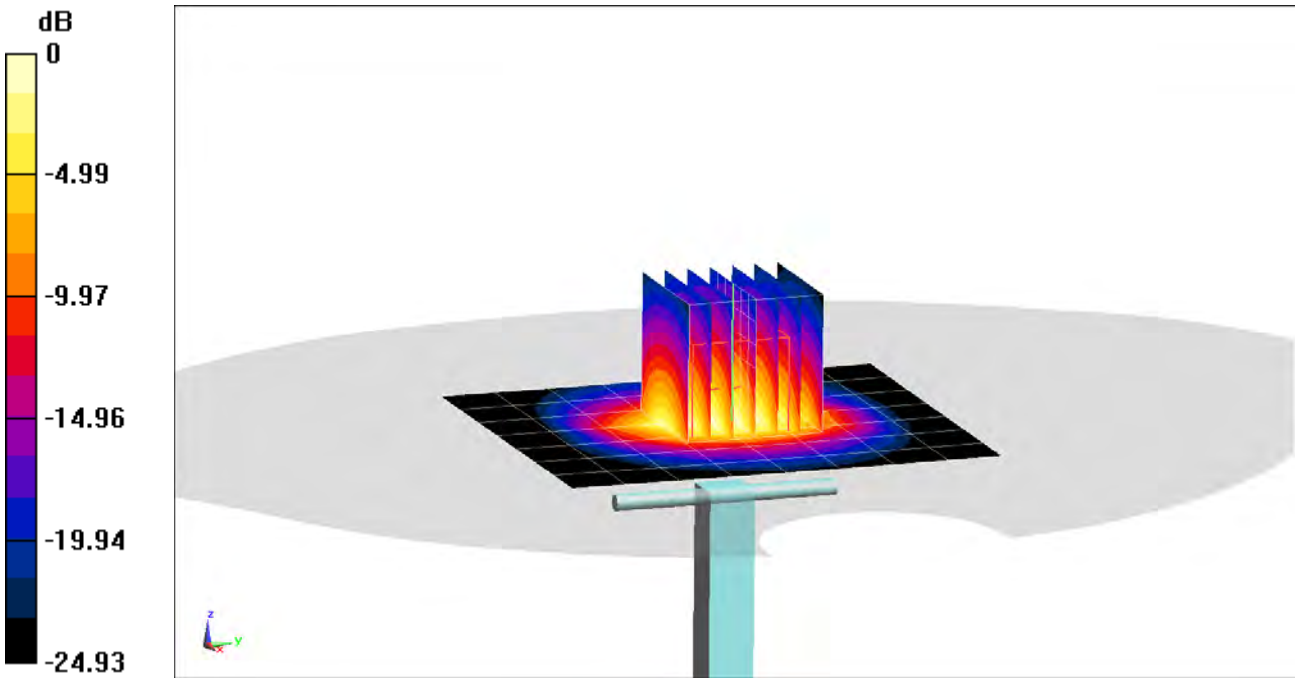
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2600 MHz; σ = 2.224 S/m; ε_r = 51.326; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08/27/2020; Ambient Temp: 21.6°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7409; ConvF(7.12, 7.12, 7.12) @ 2600 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

2600 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 12.9 W/kg
SAR(1 g) = 5.75 W/kg
Deviation(1 g) = 3.42%



0 dB = 9.96 W/kg = 9.98 dBW/kg

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1064

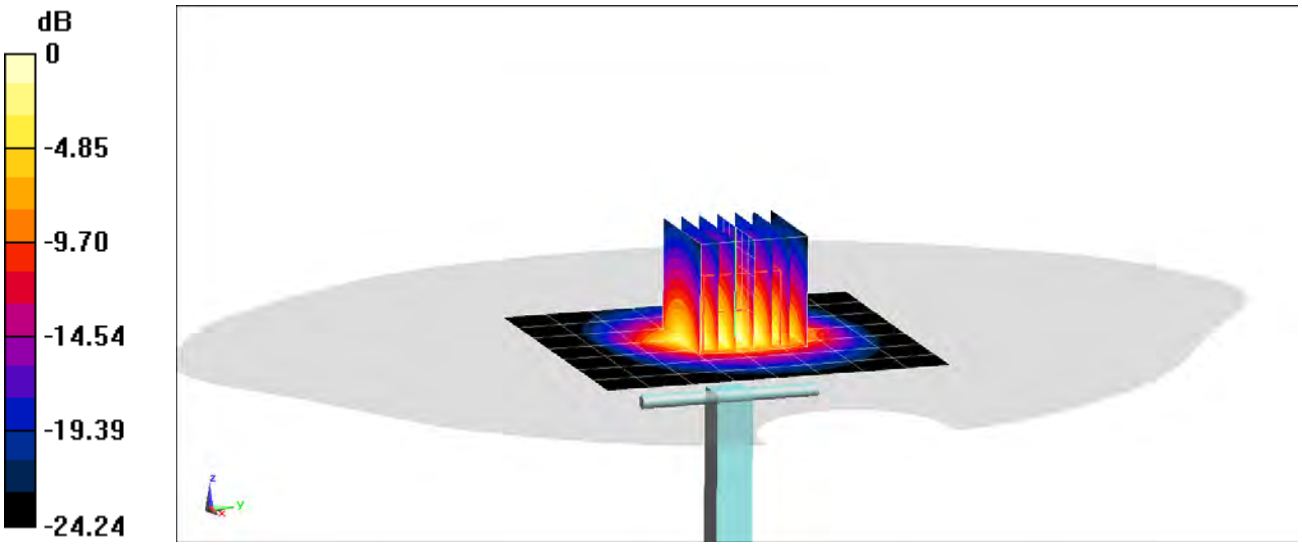
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2600 MHz; σ = 2.225 S/m; ε_r = 52.177; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08/31/2020; Ambient Temp: 22.6°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7409; ConvF(7.12, 7.12, 7.12) @ 2600 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

2600 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 12.9 W/kg
SAR(1 g) = 5.73 W/kg; SAR(10 g) = 2.52 W/kg
Deviation(1 g) = 3.06%; Deviation(10 g) = 0.80%



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

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1064

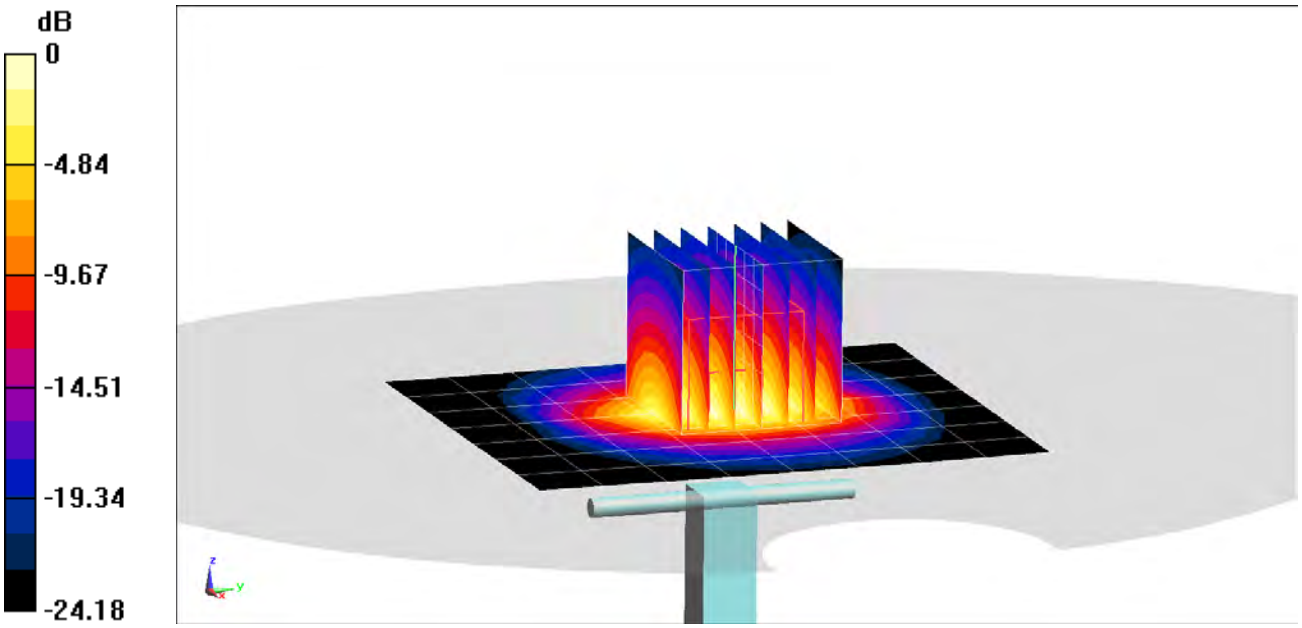
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2600 MHz; σ = 2.19 S/m; ε_r = 51.455; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/21/2020; Ambient Temp: 23.2°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7409; ConvF(7.12, 7.12, 7.12) @ 2600 MHz; Calibrated: 6/23/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2020
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

2600 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 12.5 W/kg
SAR(1 g) = 5.47 W/kg; SAR(10 g) = 2.4 W/kg
Deviation(1 g) = -1.62%; Deviation(10 g) = -4.00%



0 dB = 9.53 W/kg = 9.79 dBW/kg

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

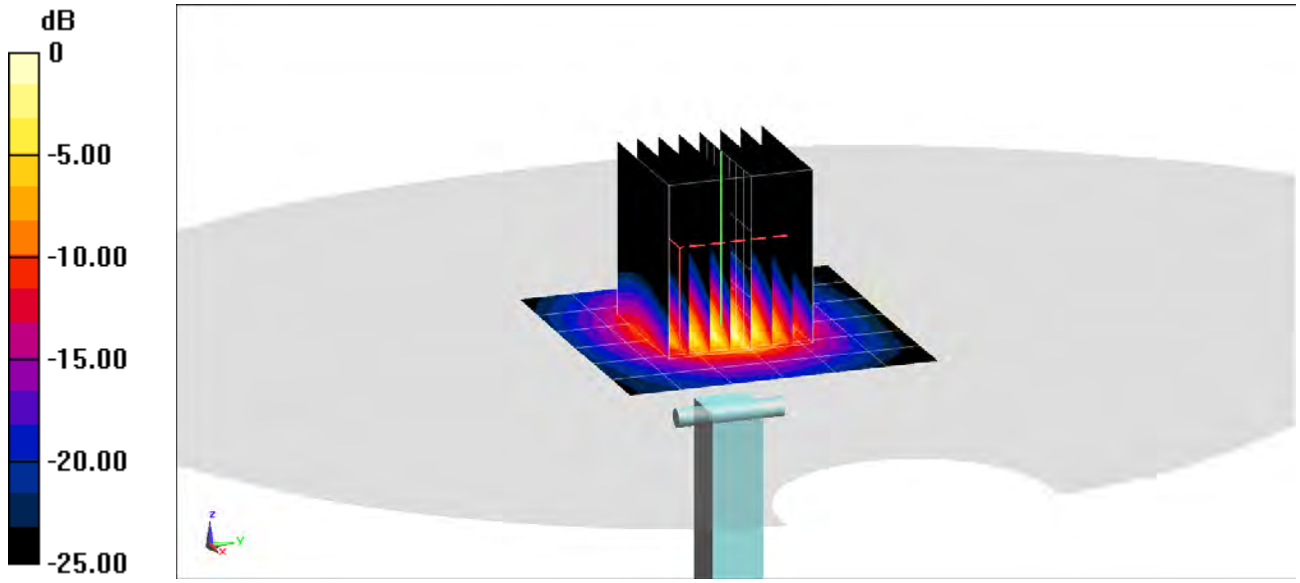
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body Medium parameters used:
f = 5250 MHz; σ = 5.45 S/m; ε_r = 47.801; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08/31/2020; Ambient Temp: 21.1°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7538; ConvF(4.6, 4.6, 4.6) @ 5250 MHz; Calibrated: 5/18/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/15/2020
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

5250 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 14.1 W/kg
SAR(1 g) = 3.54 W/kg; SAR(10 g) = 0.987 W/kg
Deviation(1 g) = -6.35%; Deviation(10 g) = -6.89%



0 dB = 7.81 W/kg = 8.93 dBW/kg

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

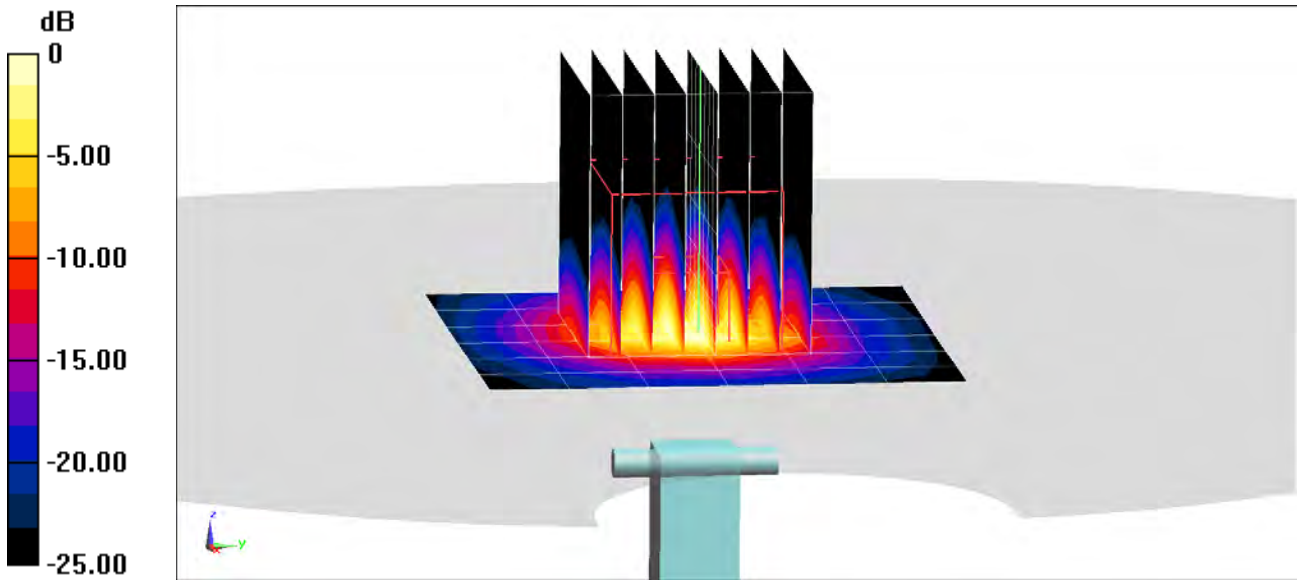
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body Medium parameters used:
f = 5250 MHz; σ = 5.468 S/m; ε_r = 47.66; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/07/2020; Ambient Temp: 22.1°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7538; ConvF(4.6, 4.6, 4.6) @ 5250 MHz; Calibrated: 5/18/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/15/2020
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

5250 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 13.8 W/kg
SAR(1 g) = 3.51 W/kg; SAR(10 g) = 0.983 W/kg
Deviation(1 g) = -7.14%; Deviation(10 g) = -7.26%



0 dB = 8.25 W/kg = 9.16 dBW/kg

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

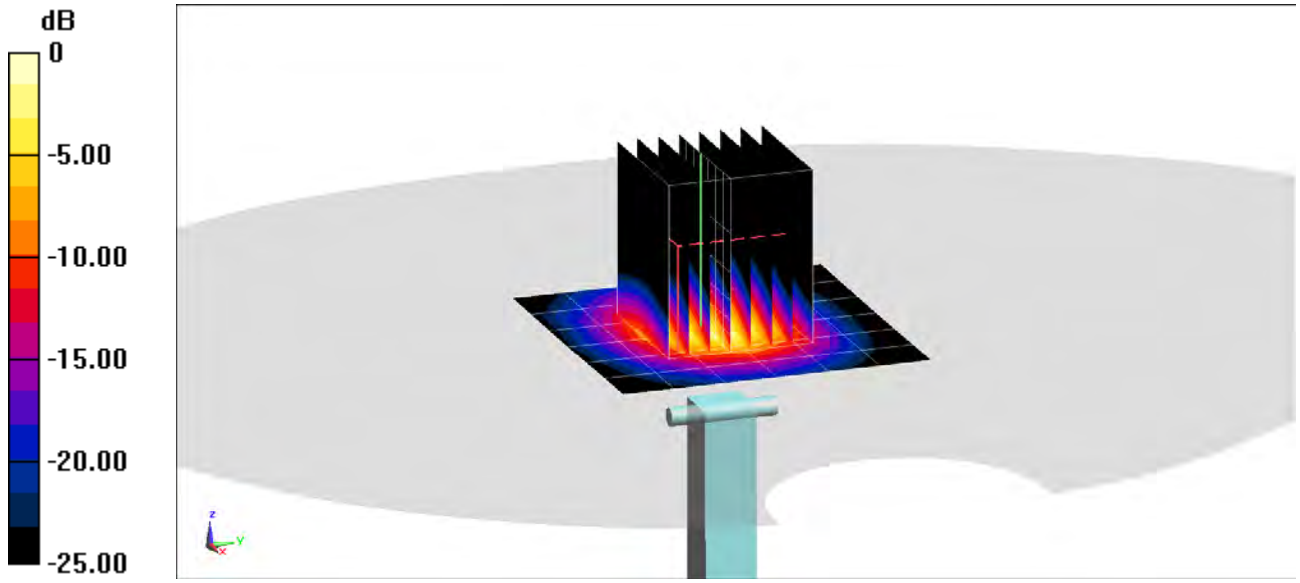
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body Medium parameters used:
f = 5600 MHz; σ = 5.905 S/m; ε_r = 47.207; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08/31/2020; Ambient Temp: 21.1°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7538; ConvF(4.09, 4.09, 4.09) @ 5600 MHz; Calibrated: 5/18/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/15/2020
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

5600 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/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) = 3.76 W/kg; SAR(10 g) = 1.05 W/kg
Deviation(1 g) = -4.20%; Deviation(10 g) = -4.55%



0 dB = 9.44 W/kg = 9.75 dBW/kg

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

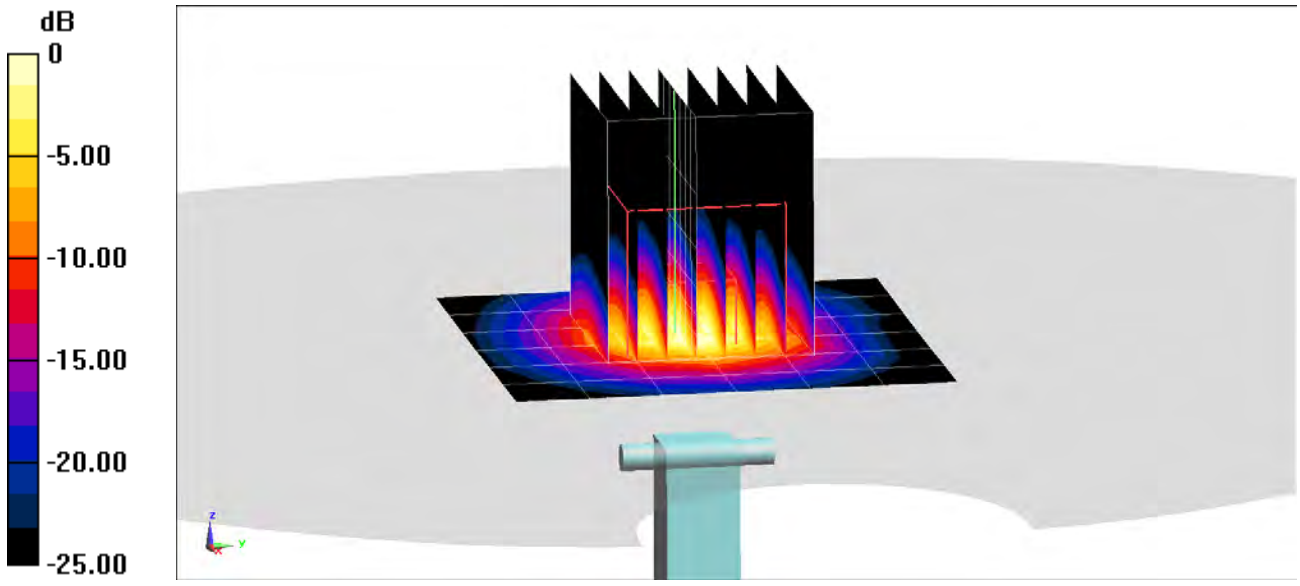
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body Medium parameters used:
f = 5600 MHz; σ = 5.94 S/m; ε_r = 47.068; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/07/2020; Ambient Temp: 22.1°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7538; ConvF(4.09, 4.09, 4.09) @ 5600 MHz; Calibrated: 5/18/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/15/2020
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

5600 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 15.6 W/kg
SAR(1 g) = 3.65 W/kg; SAR(10 g) = 1.02 W/kg
Deviation(1 g) = -7.01%; Deviation(10 g) = -7.27%



0 dB = 8.75 W/kg = 9.42 dBW/kg

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

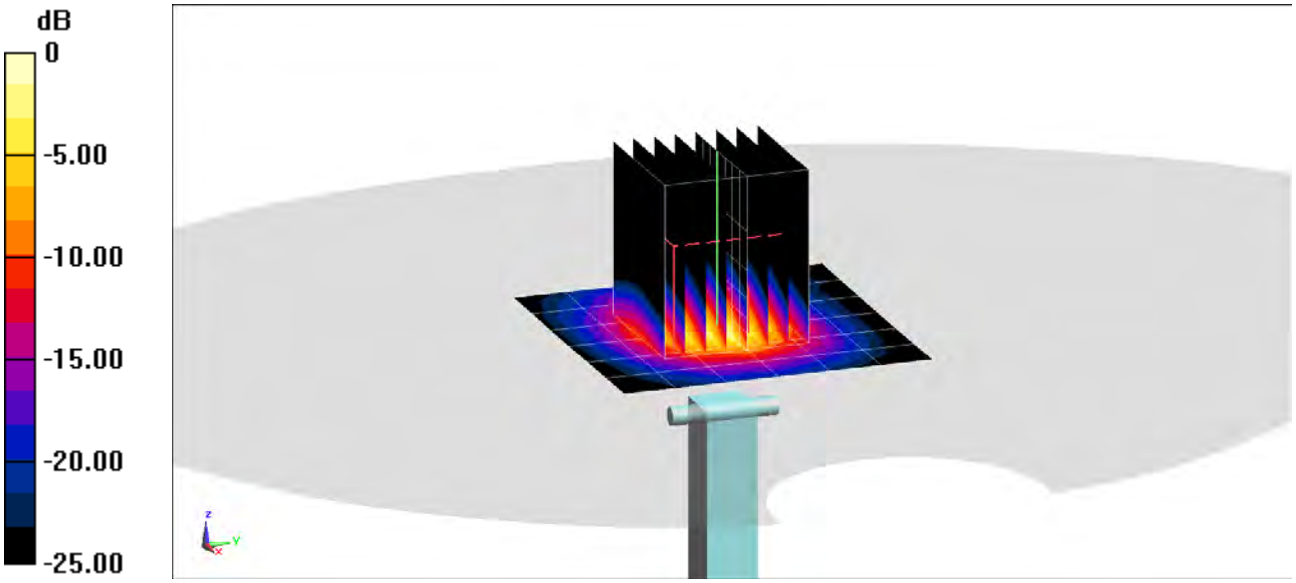
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body Medium parameters used:
f = 5750 MHz; σ = 6.135 S/m; ε_r = 46.99; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08/31/2020; Ambient Temp: 21.1°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7538; ConvF(4.17, 4.17, 4.17) @ 5750 MHz; Calibrated: 5/18/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/15/2020
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

5750 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 16.7 W/kg
SAR(1 g) = 3.6 W/kg
Deviation(1 g) = -5.14%



0 dB = 9.31 W/kg = 9.69 dBW/kg

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

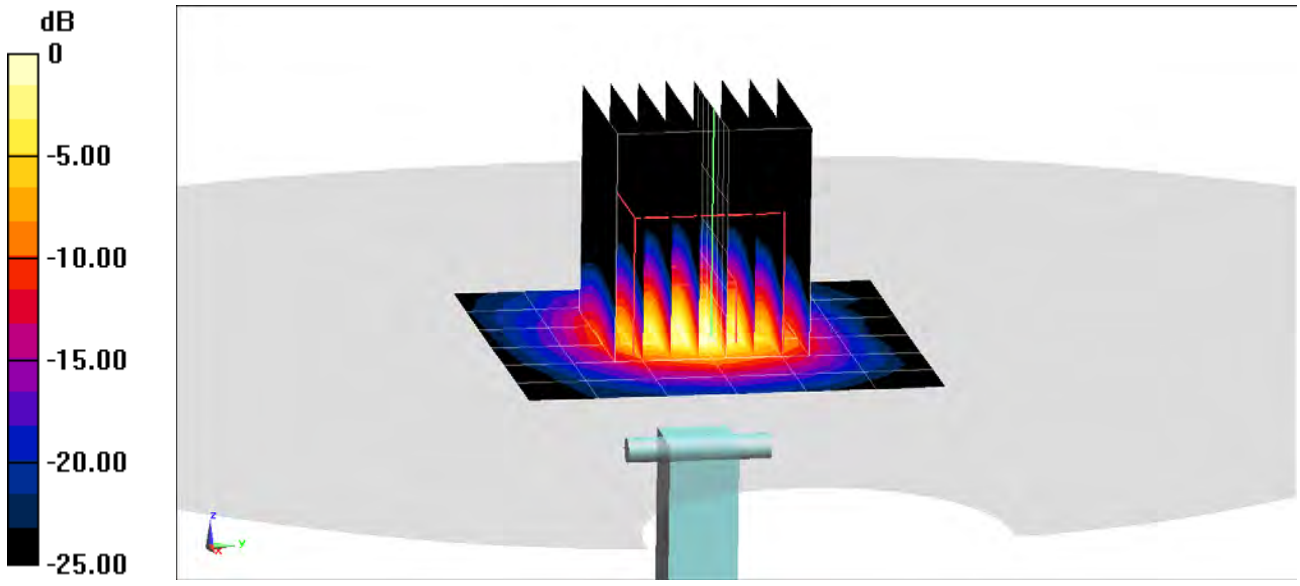
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body Medium parameters used:
f = 5750 MHz; σ = 6.146 S/m; ε_r = 46.843; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09/07/2020; Ambient Temp: 22.1°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7538; ConvF(4.17, 4.17, 4.17) @ 5750 MHz; Calibrated: 5/18/2020
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/15/2020
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

5750 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 15.5 W/kg
SAR(1 g) = 3.52 W/kg; SAR(10 g) = 0.976 W/kg
Deviation(1 g) = -7.25%; Deviation(10 g) = -7.92%



0 dB = 8.49 W/kg = 9.29 dBW/kg

APPENDIX C: SAR TISSUE SPECIFICATIONS

Measurement Procedure for Tissue verification:

1) The network analyzer and probe system was configured and calibrated.
2) The probe was immersed in the tissue. The tissue was placed in a nonmetallic container. Trapped air bubbles beneath the flange were minimized by placing the probe at a slight angle.
3) The complex admittance with respect to the probe aperture was measured
4) The complex relative permittivity ε_r' can be calculated from the below equation (Pournaropoulos and Misra):

$$Y = \frac{j2\omega\varepsilon_r\varepsilon_0}{\left[\ln(b/a)\right]^2}\int_a^b\int_a^b\int_0^\pi \cos\phi' \frac{\exp\left[-j\omega r(\mu_0\varepsilon_r'\varepsilon_0)^{1/2}\right]}{r} d\phi' d\rho' d\rho$$

where *Y* is the admittance of the probe in contact with the sample, the primed and unprimed coordinates refer to source and observation points, respectively, $r^2 = \rho^2 + \rho'^2 - 2\rho\rho'\cos\phi'$, ω is the angular frequency, and $j = \sqrt{-1}$.

3 Composition / Information on ingredients

3.2 Mixtures
Description: Aqueous solution with surfactants and inhibitors
Declarable, or hazardous components:

CAS: 107-21-1 EINECS: 203-473-3 Reg.nr.: 01-2119456816-28-0000	**Ethanediol** STOT RE 2, H373; Acute Tox. 4, H302	>1.0-4.9%
CAS: 68608-26-4 EINECS: 271-781-5 Reg.nr.: 01-2119527859-22-0000	**Sodium petroleum sulfonate** Eye Irrit. 2, H319	< 2.9%
CAS: 107-41-5 EINECS: 203-489-0 Reg.nr.: 01-2119539582-35-0000	**Hexylene Glycol / 2-Methyl-pentane-2,4-diol** Skin Irrit. 2, H315; Eye Irrit. 2, H319	< 2.9%
CAS: 68920-66-1 NLP: 500-236-9 Reg.nr.: 01-2119489407-26-0000	**Alkoxylated alcohol, > C_{16}** Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Eye Irrit. 2, H319	< 2.0%

Additional information:
For the wording of the listed risk phrases refer to section 16.
Not mentioned CAS-, EINECS- or registration numbers are to be regarded as Proprietary/Confidential.
The specific chemical identity and/or exact percentage concentration of proprietary components is withheld as a trade secret.

Figure C-1

Note: Liquid recipes are proprietary SPEAG. Since the composition is approximate to the actual liquids utilized, the manufacturer tissue-equivalent liquid data sheets are provided below.

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Measurement Certificate / Material Test

Item Name	**Body Tissue Simulating Liquid (MBBL600-6000V6)**
Product No.	SL AAM U16 BC (Batch: 181029-1)
Manufacturer	SPEAG

Measurement Method

TSL dielectric parameters measured using calibrated DAK probe.

Target Parameters

Target parameters as defined in the KDB 865664 compliance standard.

Test Condition

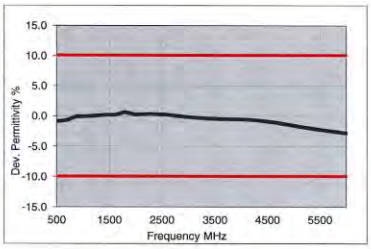
Ambient Condition	22°C ; 30% humidity
TSL Temperature	22°C
Test Date	30-Oct-18
Operator	CL

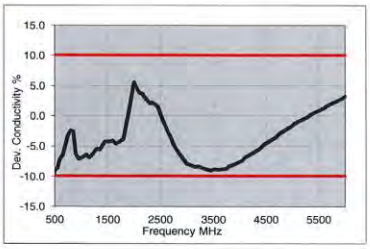
Additional Information

TSL Density
TSL Heat-capacity

Results

	Measured			Target		Diff.to Target [%]	
f [MHz]	ε'	ε''	sigma	eps	sigma	Δ-eps	Δ-sigma
800	55.1	21.3	0.95	55.3	0.97	-0.4	-2.1
825	55.1	20.8	0.96	55.2	0.98	-0.3	-2.0
835	55.1	20.6	0.96	55.1	0.99	0.0	-2.5
850	55.1	20.4	0.96	55.2	0.99	-0.1	-3.0
900	55.0	19.7	0.98	55.0	1.05	0.0	-6.7
1400	54.2	15.6	1.22	54.1	1.28	0.2	-4.7
1450	54.1	15.4	1.24	54.0	1.30	0.2	-4.6
1500	54.1	15.3	1.27	53.9	1.33	0.3	-4.5
1550	54.0	15.1	1.30	53.9	1.36	0.2	-4.4
1600	53.9	15.0	1.33	53.8	1.39	0.2	-4.3
1625	53.9	14.9	1.35	53.8	1.41	0.3	-4.3
1640	53.9	14.9	1.36	53.7	1.42	0.3	-4.2
1650	53.8	14.9	1.36	53.7	1.43	0.2	-4.9
1700	53.8	14.8	1.40	53.6	1.46	0.4	-4.1
1750	53.7	14.7	1.43	53.4	1.49	0.5	-4.0
1800	53.7	14.6	1.46	53.3	1.52	0.8	-3.9
1810	53.7	14.6	1.47	53.3	1.52	0.8	-3.3
1825	53.7	14.6	1.48	53.3	1.52	0.8	-2.6
1850	53.6	14.5	1.50	53.3	1.52	0.6	-1.3
1900	53.5	14.5	1.53	53.3	1.52	0.4	0.7
1950	53.5	14.5	1.57	53.3	1.52	0.4	3.3
2000	53.4	14.4	1.60	53.3	1.52	0.2	5.3
2050	53.4	14.4	1.64	53.2	1.57	0.3	4.5
2100	53.3	14.4	1.68	53.2	1.62	0.2	3.7
2150	53.3	14.4	1.72	53.1	1.66	0.4	3.6
2200	53.2	14.4	1.76	53.0	1.71	0.3	2.9
2250	53.1	14.4	1.81	53.0	1.76	0.2	2.8
2300	53.1	14.4	1.85	52.9	1.81	0.4	2.2
2350	53.0	14.5	1.89	52.8	1.85	0.3	2.2
2400	52.9	14.5	1.94	52.8	1.90	0.2	2.1
2450	52.9	14.5	1.98	52.7	1.95	0.4	1.5
2500	52.8	14.6	2.03	52.6	2.02	0.3	0.5
2550	52.7	14.6	2.07	52.6	2.09	0.2	-1.0
2600	52.6	14.7	2.12	52.5	2.16	0.2	-1.9





3500	51.1	15.5	3.02	51.3	3.31	-0.4	-8.8
3700	50.8	15.7	3.24	51.1	3.55	-0.5	-8.8
5200	48.1	18.2	5.27	49.0	5.30	-1.8	-0.6
5250	48.0	18.3	5.34	49.0	5.36	-1.9	-0.4
5300	47.9	18.4	5.41	48.9	5.42	-2.0	-0.2
5500	47.5	18.6	5.70	48.6	5.65	-2.2	0.8
5600	47.3	18.8	5.84	48.5	5.77	-2.3	1.3
5700	47.1	18.9	5.99	48.3	5.88	-2.5	1.8
5800	47.0	19.0	6.14	48.2	6.00	-2.6	2.3

TSL Dielectric Parameters

1

Figure C-2
600 – 5800 MHz Body Tissue Equivalent Matter

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Measurement Certificate / Material Test

Item Name	**Head Tissue Simulating Liquid (HBBL600-10000V6)**
Product No.	SL AAH U16 BC (Batch: 181031-2)
Manufacturer	SPEAG

Measurement Method

TSL dielectric parameters measured using calibrated DAK probe.

Target Parameters

Target parameters as defined in the IEEE 1528 and IEC 62209 compliance standards.

Test Condition

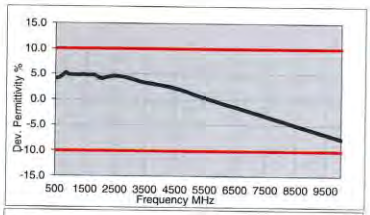
Ambient Condition	22°C ; 30% humidity
TSL Temperature	22°C
Test Date	31-Oct-18
Operator	CL

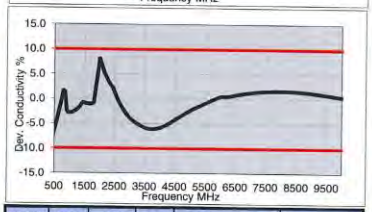
Additional Information

TSL Density
TSL Heat-capacity

Results

	Measured			Target		Diff.to Target [%]	
f [MHz]	e'	e''	sigma	eps	sigma	Δ-eps	Δ-sigma
800	43.8	20.5	0.91	41.7	0.90	5.1	1.4
825	43.8	20.1	0.92	41.6	0.91	5.3	1.5
835	43.8	19.9	0.93	41.5	0.91	5.4	2.0
850	43.7	19.7	0.93	41.5	0.92	5.3	1.5
900	43.5	18.9	0.95	41.5	0.97	4.8	-2.1
1400	42.5	15.0	1.17	40.6	1.18	4.7	-0.8
1450	42.5	14.8	1.19	40.5	1.20	4.9	-0.8
1600	42.2	14.3	1.27	40.3	1.28	4.7	-1.1
1625	42.2	14.2	1.29	40.3	1.30	4.8	-0.7
1640	42.2	14.2	1.30	40.3	1.31	4.8	-0.5
1650	42.1	14.2	1.30	40.2	1.31	4.6	-1.0
1700	42.1	14.0	1.33	40.2	1.34	4.8	-0.9
1750	42.0	13.9	1.36	40.1	1.37	4.8	-0.8
1800	41.9	13.9	1.39	40.0	1.40	4.7	-0.7
1810	41.9	13.8	1.40	40.0	1.40	4.7	0.0
1825	41.9	13.8	1.41	40.0	1.40	4.7	0.7
1850	41.8	13.8	1.42	40.0	1.40	4.5	1.4
1900	41.8	13.7	1.45	40.0	1.40	4.5	3.6
1950	41.7	13.7	1.48	40.0	1.40	4.3	5.7
2000	41.6	13.6	1.51	40.0	1.40	4.0	7.9
2050	41.6	13.6	1.55	39.9	1.44	4.2	7.3
2100	41.5	13.5	1.58	39.8	1.49	4.2	6.1
2150	41.4	13.5	1.62	39.7	1.53	4.2	5.7
2200	41.4	13.5	1.65	39.6	1.58	4.4	4.6
2250	41.3	13.5	1.69	39.6	1.62	4.4	4.2
2300	41.2	13.5	1.72	39.5	1.67	4.4	3.2
2350	41.1	13.5	1.76	39.4	1.71	4.4	2.9
2400	41.1	13.5	1.80	39.3	1.76	4.6	2.5
2450	41.0	13.5	1.84	39.2	1.80	4.6	2.2
2500	40.9	13.5	1.88	39.1	1.85	4.5	1.4
2550	40.8	13.5	1.92	39.1	1.91	4.4	0.6
2600	40.8	13.6	1.96	39.0	1.96	4.6	-0.2
3500	39.2	14.1	2.74	37.9	2.91	3.3	-5.8
3700	38.9	14.2	2.93	37.7	3.12	3.1	-6.1





5200	36.3	15.8	4.57	36.0	4.66	0.9	-1.7
5250	36.2	15.9	4.63	35.9	4.71	0.8	-1.6
5300	36.1	15.9	4.69	35.9	4.76	0.7	-1.4
5500	35.8	16.1	4.92	35.6	4.96	0.3	-0.9
5600	35.6	16.2	5.04	35.5	5.07	0.1	-0.6
5700	35.4	16.2	5.15	35.4	5.17	0.0	-0.3
5800	35.2	16.3	5.27	35.3	5.27	-0.2	0.0
6000	34.9	16.5	5.50	35.1	5.48	-0.6	0.5
6500	34.0	16.9	6.12	34.5	6.07	-1.4	0.9
7000	33.1	17.3	6.74	33.9	6.65	-2.3	1.3
7500	32.2	17.6	7.36	33.3	7.24	-3.2	1.6
8000	31.4	17.9	7.97	32.7	7.84	-4.1	1.7
8500	30.5	18.2	8.59	32.1	8.45	-5.0	1.6
9000	29.7	18.4	9.20	31.5	9.08	-5.9	1.3
9500	28.9	18.5	9.80	31.0	9.71	-6.8	0.9
10000	28.1	18.7	10.40	30.4	10.36	-7.6	0.4

TSL Dielectric Parameters

1

Figure C-3
600 – 5800 MHz Head Tissue Equivalent Matter

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APPENDIX D: SAR SYSTEM VALIDATION

Per FCC KDB Publication 865664 D02v01r02, SAR system validation status should be documented to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles were used with the required tissue- equivalent media for system validation, according to the procedures outlined in FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013. Since SAR probe calibrations are frequency dependent, each probe calibration point was validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.

A tabulated summary of the system validation status including the validation date(s), measurement frequencies, SAR probes and tissue dielectric parameters has been included.

Table D-1
SAR System Validation Summary – 1g

SAR SYSTEM #	FREQ. [MHz]	DATE	PROBE SN	PROBE CAL. POINT		COND.	PERM.	CW VALIDATION			MOD. VALIDATION		
						(σ)	(εr)	SENSITIVITY	PROBE LINEARITY	PROBE ISOTROPY	MOD. TYPE	DUTY FACTOR	PAR
E	750	2/20/2020	3589	750	Head	0.889	43.647	PASS	PASS	PASS	N/A	N/A	N/A
E	835	2/20/2020	3589	835	Head	0.922	43.402	PASS	PASS	PASS	GMSK	PASS	N/A
L	1900	7/7/2020	7406	1900	Head	1.403	40.885	PASS	PASS	PASS	GMSK	PASS	N/A
E	2450	2/5/2020	3589	2450	Head	1.823	38.835	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
E	2600	2/5/2020	3589	2600	Head	1.933	38.635	PASS	PASS	PASS	TDD	PASS	N/A
H	5250	5/7/2020	7357	5250	Head	4.644	35.12	PASS	PASS	PASS	OFDM	N/A	PASS
H	5600	5/7/2020	7357	5600	Head	5.03	34.51	PASS	PASS	PASS	OFDM	N/A	PASS
H	5750	5/7/2020	7357	5750	Head	5.207	34.26	PASS	PASS	PASS	OFDM	N/A	PASS
D	750	2/20/2020	7488	750	Body	0.965	53.65	PASS	PASS	PASS	N/A	N/A	N/A
O	750	9/9/2020	7547	750	Body	0.948	54.67	PASS	PASS	PASS	N/A	N/A	N/A
D	835	2/20/2020	7488	835	Body	1.001	53.45	PASS	PASS	PASS	GMSK	PASS	N/A
P	835	9/8/2020	7308	835	Body	0.977	54.53	PASS	PASS	PASS	GMSK	PASS	N/A
J	1900	1/1/2020	7571	1900	Body	1.579	51.919	PASS	PASS	PASS	GMSK	PASS	N/A
K	2450	7/7/2020	7409	2450	Body	2.018	51.18	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
K	2600	7/8/2020	7409	2600	Body	2.194	50.73	PASS	PASS	PASS	TDD	PASS	N/A
G	5250	8/16/2020	7538	5250	Body	5.476	47.185	PASS	PASS	PASS	OFDM	N/A	PASS
G	5600	8/16/2020	7538	5600	Body	5.937	46.607	PASS	PASS	PASS	OFDM	N/A	PASS
G	5750	8/16/2020	7538	5750	Body	6.14	46.354	PASS	PASS	PASS	OFDM	N/A	PASS

Table D-2
SAR System Validation Summary – 10g

SAR SYSTEM #	FREQ. [MHz]	DATE	PROBE SN	PROBE CAL. POINT		COND.	PERM.	CW VALIDATION			MOD. VALIDATION		
						(σ)	(εr)	SENSITIVITY	PROBE LINEARITY	PROBE ISOTROPY	MOD. TYPE	DUTY FACTOR	PAR
D	750	2/20/2020	7488	750	Body	0.965	53.65	PASS	PASS	PASS	N/A	N/A	N/A
O	750	9/9/2020	7547	750	Body	0.948	54.67	PASS	PASS	PASS	N/A	N/A	N/A
D	835	2/20/2020	7488	835	Body	1.001	53.45	PASS	PASS	PASS	GMSK	PASS	N/A
J	1900	1/1/2020	7571	1900	Body	1.579	51.919	PASS	PASS	PASS	GMSK	PASS	N/A
K	2450	7/7/2020	7409	2450	Body	2.018	51.18	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
K	2600	7/8/2020	7409	2600	Body	2.194	50.73	PASS	PASS	PASS	TDD	PASS	N/A
G	5250	8/16/2020	7538	5250	Body	5.476	47.185	PASS	PASS	PASS	OFDM	N/A	PASS
G	5600	8/16/2020	7538	5600	Body	5.937	46.607	PASS	PASS	PASS	OFDM	N/A	PASS
G	5750	8/16/2020	7538	5750	Body	6.14	46.354	PASS	PASS	PASS	OFDM	N/A	PASS

NOTE: While the probes have been calibrated for both CW and modulated signals, all measurements were performed using communication systems calibrated for CW signals only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664 D01v01r04 for scenarios when CW probe calibrations are used with other signal types. SAR systems were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5 dB), such as OFDM according to FCC KDB Publication 865664 D01v01r04.

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