PCTEST ENGINEERING LABORATORY, INC.
7185 Oakland Mills Road, Columbia, MD 21046 USA
Tel. +1.410.290.6652 / Fax +1.410.290.6654
http://www.pctest.com

SAR EVALUATION REPORT

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

Date of Testing:
08/21/19 – 09/12/19
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
1M1908190143-01-R1.ZNF

FCC ID: **ZNFG850UM**

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

DUT Type: Portable Handset
Application Type: Class II Permissive Change
FCC Rule Part(s): CFR §2.1093
Model: LM-G850UM
Additional Model(s): LM-G850V, LM-G850QM, LM-G850QM6, LMG850UM, LMG850V, LMG850QM, LMG850QM6, G850UM, G850V, G850QM, G850QM6, LM-850UM2, LM-G850UM2X, LMG850UM2, LMG850UM2X, G850UM2, G850UM2X
Permissive Change(s): See FCC Change Document
Date of Original Certification: 09/18/2019

Equipment Class	Band & Mode	Tx Frequency	SAR			
			1g Head (W/kg)	1g Body-Worn (W/kg)	1g Hotspot (W/kg)	10g Phablet (W/kg)
PCE	CDMA/EVDO BC10 (S905)	817.90 - 823.10 MHz	0.15	0.79	0.77	N/A
PCE	CDMA/EVDO BC0 (S22H)	824.70 - 848.31 MHz	0.14	0.89	0.82	N/A
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.19	0.69	1.20	3.00
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.13	0.98	0.98	N/A
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	0.12	0.49	1.15	N/A
PCE	UMTS 850	826.40 - 846.60 MHz	0.16	0.93	0.93	N/A
PCE	UMTS 1750	1712.4 - 1752.6 MHz	0.14	0.79	1.27	2.99
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.16	0.66	1.17	3.17
PCE	LTE Band 71	665.5 - 695.5 MHz	0.17	0.61	0.61	N/A
PCE	LTE Band 12	699.7 - 715.3 MHz	0.15	0.64	0.64	N/A
PCE	LTE Band 17	706.5 - 713.5 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 13	779.5 - 784.5 MHz	0.21	0.85	0.85	N/A
PCE	LTE Band 14	790.5 - 795.5 MHz	0.19	0.89	0.89	N/A
PCE	LTE Band 26 (Cell)	814.7 - 848.3 MHz	0.13	0.93	0.93	N/A
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	0.15	0.91	0.91	N/A
PCE	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	0.23	0.87	1.28	3.08
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	0.19	0.67	1.20	3.12
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 30	2307.5 - 2312.5 MHz	0.35	0.63	0.75	N/A
PCE	LTE Band 7	2502.5 - 2567.5 MHz	0.31	0.46	0.70	N/A
CBE	LTE Band 48	3552.5 - 3697.5 MHz	< 0.1	0.20	0.20	N/A
PCE	LTE Band 41	2498.5 - 2687.5 MHz	0.36	0.41	0.48	N/A
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.73	0.27	0.57	N/A
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	0.36	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.12	0.42	N/A	1.79
NII	U-NII-2C	5500 - 5720 MHz	0.34	0.29	N/A	1.15
NII	U-NII-3	5745 - 5825 MHz	0.19	0.44	0.44	N/A
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.15	< 0.1	< 0.1	N/A
Simultaneous SAR per KDB 690783 D01v01r03:			1.59	1.54	1.59	3.97

Note: This revised Test Report (S/N: 1M1908190143-01-R1.ZNF) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.9 of this report; for North American frequency bands only.

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

Randy Ortanez
President

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.

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

TABLE OF CONTENTS

1 DEVICE UNDER TEST 3

2 LTE INFORMATION 14

3 INTRODUCTION 15

4 DOSIMETRIC ASSESSMENT 16

5 DEFINITION OF REFERENCE POINTS 17

6 TEST CONFIGURATION POSITIONS 18

7 RF EXPOSURE LIMITS 22

8 FCC MEASUREMENT PROCEDURES 23

9 RF CONDUCTED POWERS 31

10 SYSTEM VERIFICATION 77

11 SAR DATA SUMMARY 81

12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS 116

13 SAR MEASUREMENT VARIABILITY 150

14 ADDITIONAL TESTING PER FCC GUIDANCE 152

15 EQUIPMENT LIST 158

16 MEASUREMENT UNCERTAINTIES 159

17 CONCLUSION 160

18 REFERENCES 161

APPENDIX A: SAR TEST PLOTS

APPENDIX B: SAR DIPOLE VERIFICATION PLOTS

APPENDIX C: PROBE AND DIPOLE CALIBRATION CERTIFICATES

APPENDIX D: SAR TISSUE SPECIFICATIONS

APPENDIX E: SAR SYSTEM VALIDATION

APPENDIX F: DUT ANTENNA DIAGRAM & SAR TEST SETUP PHOTOGRAPHS

APPENDIX G: POWER REDUCTION VERIFICATION

APPENDIX H: DOWNLINK LTE CA RF CONDUCTED POWERS

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
CDMA/EVDO BC10 (§90S)	Voice/Data	817.90 - 823.10 MHz
CDMA/EVDO BC0 (§22H)	Voice/Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 71	Voice/Data	665.5 - 695.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 17	Voice/Data	706.5 - 713.5 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 14	Voice/Data	790.5 - 795.5 MHz
LTE Band 26 (Cell)	Voice/Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 66 (AWS)	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 30	Voice/Data	2307.5 - 2312.5 MHz
LTE Band 7	Voice/Data	2502.5 - 2567.5 MHz
LTE Band 48	Voice/Data	3552.5 - 3697.5 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2462 MHz
U-NII-1	Voice/Data	5180 - 5240 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
WMC	Data	500 Hz - 4 kHz

1.2 Power Reduction for SAR

This device uses a power reduction mechanism for SAR compliance. The power reduction mechanism is activated when the device is used in close proximity to the user's body. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device. Detailed descriptions of the power reduction mechanism are included in the operational description.

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

1.3 Dual Display Cover

This device supports Dual Display (DD) Cover, which attaches to the device to provide a secondary display on the inside of the cover. The Dual Display Cover is free rotating from 0 to 360 degrees. Per FCC guidance, the use conditions of 0, 180 and 360 degrees were considered for SAR testing. SAR with the Dual Display Cover was measured for the overall worst case per each exposure condition (head, body-worn accessory, hotspot mode, etc.). To ensure compliance, SAR tests were additionally performed for the configurations with the highest SAR reported for each wireless technology, frequency band, and operating mode (different modes/configurations within each wireless technology). Head SAR tests were performed with the accessory cover folded to 0 and 360 degrees to represent typical use conditions. Body-worn, Hotspot, and Phablet SAR tests were performed with accessory cover folded to 0, 180 and 360 degrees.

1.4 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.

1.4.1 Maximum Output Power

Mode / Band		Voice (dBm)	Burst Average GMSK (dBm)				Burst Average 8-PSK (dBm)			
		1 TX Slot	*1 TX Slots*	*2 TX Slots*	*3 TX Slots*	*4 TX Slots*	*1 TX Slots*	*2 TX Slots*	*3 TX Slots*	*4 TX Slots*
GSM/GPRS/EDGE 850	Maximum	**33.7**	**33.7**	**32.7**	**30.7**	**28.7**	**26.7**	**26.7**	**25.2**	**25.2**
	Nominal	**33.2**	**33.2**	**32.2**	**30.2**	**28.2**	**26.2**	**26.2**	**24.7**	**24.7**
GSM/GPRS/EDGE 1900	Maximum	**30.7**	**30.7**	**29.7**	**27.7**	**25.7**	**26.2**	**26.2**	**24.7**	**24.7**
	Nominal	**30.2**	**30.2**	**29.2**	**27.2**	**25.2**	**25.7**	**25.7**	**24.2**	**24.2**

Mode / Band		Modulated Average (dBm)			
		3GPP WCDMA	*3GPP HSDPA*	*3GPP HSUPA*	*3GPP DC-HSDPA*
UMTS Band 5 (850 MHz)	Maximum	**25.5**	**24.5**	**24.5**	**24.5**
	Nominal	**25.0**	**24.0**	**24.0**	**24.0**
UMTS Band 4 (1750 MHz)	Maximum	**25.0**	**24.0**	**24.0**	**24.0**
	Nominal	**24.5**	**23.5**	**23.5**	**23.5**
UMTS Band 2 (1900 MHz)	Maximum	**24.2**	**23.2**	**23.2**	**23.2**
	Nominal	**23.7**	**22.7**	**22.7**	**22.7**

Mode / Band		Modulated Average (dBm)
CDMA/EVDO BC10 (§90S)	Maximum	**25.5**
	Nominal	**25.0**
CDMA/EVDO BC0 (§22H)	Maximum	**25.5**
	Nominal	**25.0**
PCS CDMA/EVDO	Maximum	**24.2**
	Nominal	**23.7**

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Mode / Band		Modulated Average (dBm)
LTE Band 71	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 12	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 17	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 13	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 14	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 26 (Cell)	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 5 (Cell)	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 66 (AWS)	Maximum	**25.0**
	Nominal	**24.5**
LTE Band 4 (AWS)	Maximum	**25.0**
	Nominal	**24.5**
LTE Band 25 (PCS)	Maximum	**24.2**
	Nominal	**23.7**
LTE Band 2 (PCS)	Maximum	**24.2**
	Nominal	**23.7**
LTE Band 30	Maximum	**23.7**
	Nominal	**23.2**
LTE Band 7	Maximum	**23.7**
	Nominal	**23.2**
LTE Band 48	Maximum	**24.2**
	Nominal	**23.7**
LTE Band 41 (PC3)	Maximum	**25.2**
	Nominal	**24.7**
LTE Band 41 (PC2)	Maximum	**27.7**
	Nominal	**27.2**

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Mode / Band		Modulated Average - Single Tx Chain Antenna 1 (dBm)			Mode / Band		Modulated Average - Single Tx Chain Antenna 2 (dBm)		
	Channel	1 - 2	3 - 9	10 - 11		Channel	1 - 2	3 - 9	10 - 11
IEEE 802.11b (2.4 GHz)	Maximum	20.5			IEEE 802.11b (2.4 GHz)	Maximum	20.5		
	Nominal	19.5				Nominal	19.5		
IEEE 802.11g (2.4 GHz)	Maximum	16.0	18.5	16.0	IEEE 802.11g (2.4 GHz)	Maximum	17.0	19.5	17.0
	Nominal	15.0	17.5	15.0		Nominal	16.0	18.5	16.0
IEEE 802.11n (2.4 GHz)	Maximum	15.0	17.5	15.0	IEEE 802.11n (2.4 GHz)	Maximum	16.0	18.5	16.0
	Nominal	14.0	16.5	14.0		Nominal	15.0	17.5	15.0
IEEE 802.11ac (2.4 GHz)	Maximum	15.0	17.5	15.0	IEEE 802.11ac (2.4 GHz)	Maximum	16.0	18.5	16.0
	Nominal	14.0	16.5	14.0		Nominal	15.0	17.5	15.0

Mode / Band		Modulated Average - MIMO (dBm)		
	Channel	1 - 2	3 - 9	10 - 11
IEEE 802.11b (2.4 GHz)	Maximum	23.5		
	Nominal	22.5		
IEEE 802.11g (2.4 GHz)	Maximum	19.5	22.0	19.5
	Nominal	18.5	21.0	18.5
IEEE 802.11n (2.4 GHz)	Maximum	18.5	21.0	18.5
	Nominal	17.5	20.0	17.5
IEEE 802.11ac (2.4 GHz)	Maximum	18.5	21.0	18.5
	Nominal	17.5	20.0	17.5

Mode/Band		Modulated Average (dBm)
Bluetooth	Maximum	10.5
	Nominal	9.5
Bluetooth EDR	Maximum	10.5
	Nominal	9.5
Bluetooth LE	Maximum	5.0
	Nominal	4.0

Mode / Band		Modulated Average - Single Tx Chain (dBm)																					
		20 MHz Bandwidth								40 MHz Bandwidth								80 MHz Bandwidth					
	Channel	36	40	44 - 52	56	60 - 153	157	161	165	38	46-54	62	102	110-134	142	151	159	42	58	106	122	138	155
IEEE 802.11a (5 GHz)	Maximum	17.0	20.0	17.0	20.0	17.0	20.0	19.0	19.0														
	Nominal	16.0	19.0	16.0	19.0	16.0	19.0	18.0	18.0														
IEEE 802.11n (5 GHz)	Maximum	17.0	20.0	17.0	20.0	17.0	20.0	19.0	19.0	16.0													
	Nominal	16.0	19.0	16.0	19.0	16.0	19.0	18.0	18.0	15.0													
IEEE 802.11ac (5 GHz)	Maximum	17.0	20.0	17.0	20.0	17.0	20.0	19.0	19.0	16.0								14.0					
	Nominal	16.0	19.0	16.0	19.0	16.0	19.0	18.0	18.0	15.0								13.0					

Mode / Band		Modulated Average - MIMO (dBm)																					
		20 MHz Bandwidth								40 MHz Bandwidth								80 MHz Bandwidth					
	Channel	36	40	44 - 52	56	60 - 153	157	161	165	38	46-54	62	102	110-134	142	151	159	42	58	106	122	138	155
IEEE 802.11a (5 GHz)	Maximum	20.0	23.0	20.0	23.0	20.0	23.0	22.0	22.0														
	Nominal	19.0	22.0	19.0	22.0	19.0	22.0	21.0	21.0														
IEEE 802.11n (5 GHz)	Maximum	20.0	23.0	20.0	23.0	20.0	23.0	22.0	22.0	19.0													
	Nominal	19.0	22.0	19.0	22.0	19.0	22.0	21.0	21.0	18.0													
IEEE 802.11ac (5 GHz)	Maximum	20.0	23.0	20.0	23.0	20.0	23.0	22.0	22.0	19.0								17.0					
	Nominal	19.0	22.0	19.0	22.0	19.0	22.0	21.0	21.0	18.0								16.0					

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

1.4.2 Reduced Output Power

Mode / Band		Modulated Average (dBm)			
		3GPP WCDMA	*3GPP HSDPA*	*3GPP HSUPA*	*3GPP DC-HSDPA*
UMTS Band 4 (1750 MHz)	Maximum	**22.5**	**21.5**	**21.5**	**21.5**
	Nominal	**22.0**	**21.0**	**21.0**	**21.0**
UMTS Band 2 (1900 MHz)	Maximum	**22.5**	**21.5**	**21.5**	**21.5**
	Nominal	**22.0**	**21.0**	**21.0**	**21.0**

Mode / Band		Modulated Average (dBm)
PCS CDMA/EVDO	Maximum	**22.5**
	Nominal	**22.0**
Mode / Band		**Modulated Average (dBm)**
LTE Band 66 (AWS)	Maximum	**22.5**
	Nominal	**22.0**
LTE Band 4 (AWS)	Maximum	**22.5**
	Nominal	**22.0**
LTE Band 25 (PCS)	Maximum	**22.5**
	Nominal	**22.0**
LTE Band 2 (PCS)	Maximum	**22.5**
	Nominal	**22.0**

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Mode / Band		Modulated Average - Single Tx Chain Antenna 1 (dBm)			Mode / Band		Modulated Average - Single Tx Chain Antenna 2 (dBm)		
	Channel	1 - 2	3 - 9	10 - 11		Channel	1 - 2	3 - 9	10 - 11
IEEE 802.11b (2.4 GHz)	Maximum	17.5			IEEE 802.11b (2.4 GHz)	Maximum	17.5		
	Nominal	16.5				Nominal	16.5		
IEEE 802.11g (2.4 GHz)	Maximum	16.0	16.5	16.0	IEEE 802.11g (2.4 GHz)	Maximum	17.0	17.5	17.0
	Nominal	15.0	15.5	15.0		Nominal	16.0	16.5	16.0
IEEE 802.11n (2.4 GHz)	Maximum	15.0	16.5	15.0	IEEE 802.11n (2.4 GHz)	Maximum	16.0	17.5	16.0
	Nominal	14.0	15.5	14.0		Nominal	15.0	16.5	15.0
IEEE 802.11ac (2.4 GHz)	Maximum	15.0	16.5	15.0	IEEE 802.11ac (2.4 GHz)	Maximum	16.0	17.5	16.0
	Nominal	14.0	15.5	14.0		Nominal	15.0	16.5	15.0

Mode / Band		Modulated Average - MIMO (dBm)		
	Channel	1 - 2	3 - 9	10 - 11
IEEE 802.11b (2.4 GHz)	Maximum	20.5		
	Nominal	19.5		
IEEE 802.11g (2.4 GHz)	Maximum	19.5	20.0	19.5
	Nominal	18.5	19.0	18.5
IEEE 802.11n (2.4 GHz)	Maximum	18.5	20.0	18.5
	Nominal	17.5	19.0	17.5
IEEE 802.11ac (2.4 GHz)	Maximum	18.5	20.0	18.5
	Nominal	17.5	19.0	17.5

Mode / Band		Modulated Average - Single Tx Chain (dBm)																					
		20 MHz Bandwidth								40 MHz Bandwidth								80 MHz Bandwidth					
	Channel	36	40	44 - 52	56	60 - 153	157	161	165	38	46-54	62	102	110-134	142	151	159	42	58	106	122	138	155
IEEE 802.11a (5 GHz)	Maximum	16.0																					
	Nominal	15.0																					
IEEE 802.11n (5 GHz)	Maximum	16.0								16.0													
	Nominal	15.0								15.0													
IEEE 802.11ac (5 GHz)	Maximum	16.0								16.0								14.0					
	Nominal	15.0								15.0								13.0					

Mode / Band		Modulated Average - MIMO (dBm)																					
		20 MHz Bandwidth								40 MHz Bandwidth								80 MHz Bandwidth					
	Channel	36	40	44 - 52	56	60 - 153	157	161	165	38	46-54	62	102	110-134	142	151	159	42	58	106	122	138	155
IEEE 802.11a (5 GHz)	Maximum	19.0																					
	Nominal	18.0																					
IEEE 802.11n (5 GHz)	Maximum	19.0								19.0													
	Nominal	18.0								18.0													
IEEE 802.11ac (5 GHz)	Maximum	19.0								19.0								17.0					
	Nominal	18.0								18.0								16.0					

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

1.5 DUT Antenna Locations

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

Table 1-1
Device Edges/Sides for SAR Testing

Mode	Back	Front	Top	Bottom	Right	Left
EVDO BC10 (§90S)	Yes	Yes	No	Yes	Yes	No
EVDO BC0 (§22H)	Yes	Yes	No	Yes	Yes	No
PCS EVDO	Yes	Yes	No	Yes	No	Yes
GPRS 850	Yes	Yes	No	Yes	Yes	No
GPRS 1900	Yes	Yes	No	Yes	No	Yes
UMTS 850	Yes	Yes	No	Yes	Yes	No
UMTS 1750	Yes	Yes	No	Yes	No	Yes
UMTS 1900	Yes	Yes	No	Yes	No	Yes
LTE Band 71	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 14	Yes	Yes	No	Yes	Yes	No
LTE Band 26 (Cell)	Yes	Yes	No	Yes	Yes	No
LTE Band 5 (Cell)	Yes	Yes	No	Yes	Yes	No
LTE Band 66 (AWS)	Yes	Yes	No	Yes	No	Yes
LTE Band 25 (PCS)	Yes	Yes	No	Yes	No	Yes
LTE Band 30	Yes	Yes	No	No	Yes	No
LTE Band 7	Yes	Yes	No	No	Yes	No
LTE Band 48	Yes	Yes	No	No	Yes	No
LTE Band 41	Yes	Yes	No	No	Yes	No
2.4 GHz WLAN Ant 1	Yes	Yes	Yes	No	Yes	No
2.4 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN MIMO	Yes	Yes	Yes	No	No	Yes
Bluetooth	Yes	Yes	Yes	No	Yes	No

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

1.6 Near Field Communications (NFC) Antenna

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

1.7 Simultaneous Transmission Capabilities

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

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

Table 1-2
Simultaneous Transmission Scenarios

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

1. 2.4 GHz WLAN Antenna 1 and 2.4 GHz Bluetooth share the same antenna path and cannot transmit simultaneously.
2. All licensed modes share the same antenna path and cannot transmit simultaneously.
3. When the user utilizes multiple services in UMTS 3G mode it uses multi-Radio Access Bearer or multi-RAB. The power control is based on a physical control channel (Dedicated Physical Control Channel [DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the UMTS+WLAN scenario also represents the UMTS Voice/DATA + WLAN Hotspot scenario.

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

4. Per the manufacturer, WIFI Direct is expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Therefore, there are no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table.
5. 5 GHz Wireless Router is only supported for U-NII 1 and U-NII-3 by S/W, therefore U-NII2A, and U-NII2C were not evaluated for wireless router conditions.
6. This device supports 2x2 MIMO Tx for WLAN 802.11a/g/n/ac. 802.11a/g/n/ac supports CDD and STBC and 802.11n/ac additionally supports SDM. Each WLAN antenna can transmit independently or together when operating with MIMO.
7. This device supports VOLTE.
8. This device supports Bluetooth Tethering.
9. This devices supports VoWIFI.

1.8 Miscellaneous SAR Test Considerations

(A) WIFI/BT

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

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

This device supports IEEE 802.11ac with the following features:
a) Up to 80 MHz Bandwidth only
b) No aggregate channel configurations
c) 2 Tx antenna output
d) 256 QAM is supported
e) TDWR and Band gap channels are supported

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

(B) Licensed Transmitter(s)

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

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

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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

Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is greater than 160mm and less than 200mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. 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 capabilities with overlapping transmission frequency ranges. When the supported frequency range of an LTE Band falls completely within an LTE band with a larger transmission frequency range, both LTE bands have the same target power (or the band with the larger transmission frequency range has a higher target power), and both LTE bands share the same transmission path and signal characteristics, SAR was only assessed for the band with the larger transmission frequency range.

This device supports both Power Class 2 (PC2) and Power Class 3 (PC3) for LTE Band 41. Per May 2017 TCB Workshop Notes, SAR tests were performed with Power Class 3 (given the specific UL/DL limitations for Power Class 2). Additionally, SAR testing for the Power Class 2 condition was evaluated for the highest configuration in Power Class 3 for each test configuration to confirm the results were scalable linearly (See Section 14.1).

This device supports LTE Carrier Aggregation (CA) for LTE Band 5 and LTE Band 41 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per 2017 Fall TCB Workshop Notes.

1.9 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 (Proximity Sensor)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- May 2017 TCB Workshop Notes (LTE 4x4 Downlink MIMO, LTE Band 41 Power Class 2/3)
- April 2018 TCB Workshop Notes (LTE Carrier Aggregation)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

1.10 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.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

2 LTE INFORMATION

LTE Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 71 (665.5 - 695.5 MHz)				
	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 17 (706.5 - 713.5 MHz)				
	LTE Band 13 (779.5 - 784.5 MHz)				
	LTE Band 14 (790.5 - 795.5 MHz)				
	LTE Band 26 (Cell) (814.7 - 848.3 MHz)				
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)				
	LTE Band 66 (AWS) (1710.7 - 1779.3 MHz)				
	LTE Band 4 (AWS) (1710.7 - 1754.3 MHz)				
	LTE Band 25 (PCS) (1850.7 - 1914.3 MHz)				
	LTE Band 2 (PCS) (1850.7 - 1909.3 MHz)				
	LTE Band 30 (2307.5 - 2312.5 MHz)				
	LTE Band 7 (2502.5 - 2567.5 MHz)				
	LTE Band 48 (3552.5 - 3697.5 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
Channel Bandwidths	LTE Band 71: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 17: 5 MHz, 10 MHz				
	LTE Band 13: 5 MHz, 10 MHz				
	LTE Band 14: 5 MHz, 10 MHz				
	LTE Band 26 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz				
	LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 66 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 25 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 2 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 30: 5 MHz, 10 MHz				
	LTE Band 7: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 48: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 71: 5 MHz	665.5 (133147)		680.5 (133297)	695.5 (133447)	
LTE Band 71: 10 MHz	668 (133172)		680.5 (133297)	693 (133422)	
LTE Band 71: 15 MHz	670.5 (133197)		680.5 (133297)	690.5 (133397)	
LTE Band 71: 20 MHz	673 (133222)		680.5 (133297)	688 (133372)	
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)		707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)		707.5 (23095)	711 (23130)	
LTE Band 17: 5 MHz	706.5 (23755)		710 (23790)	713.5 (23825)	
LTE Band 17: 10 MHz	709 (23780)		710 (23790)	711 (23800)	
LTE Band 13: 5 MHz	779.5 (23205)		782 (23230)	784.5 (23255)	
LTE Band 13: 10 MHz	N/A		782 (23230)	N/A	
LTE Band 14: 5 MHz	790.5 (23305)		793 (23330)	795.5 (23355)	
LTE Band 14: 10 MHz	N/A		793 (23330)	N/A	
LTE Band 26 (Cell): 1.4 MHz	814.7 (26697)		831.5 (26865)	848.3 (27033)	
LTE Band 26 (Cell): 3 MHz	815.5 (26705)		831.5 (26865)	847.5 (27025)	
LTE Band 26 (Cell): 5 MHz	816.5 (26715)		831.5 (26865)	846.5 (27015)	
LTE Band 26 (Cell): 10 MHz	819 (26740)		831.5 (26865)	844 (26990)	
LTE Band 26 (Cell): 15 MHz	821.5 (26765)		831.5 (26865)	841.5 (26965)	
LTE Band 5 (Cell): 1.4 MHz	824.7 (20407)		836.5 (20525)	848.3 (20643)	
LTE Band 5 (Cell): 3 MHz	825.5 (20415)		836.5 (20525)	847.5 (20635)	
LTE Band 5 (Cell): 5 MHz	826.5 (20425)		836.5 (20525)	846.5 (20625)	
LTE Band 5 (Cell): 10 MHz	829 (20450)		836.5 (20525)	844 (20600)	
LTE Band 66 (AWS): 1.4 MHz	1710.7 (131979)		1745 (132322)	1779.3 (132665)	
LTE Band 66 (AWS): 3 MHz	1711.5 (131987)		1745 (132322)	1778.5 (132657)	
LTE Band 66 (AWS): 5 MHz	1712.5 (131997)		1745 (132322)	1777.5 (132647)	
LTE Band 66 (AWS): 10 MHz	1715 (132022)		1745 (132322)	1775 (132622)	
LTE Band 66 (AWS): 15 MHz	1717.5 (132047)		1745 (132322)	1772.5 (132597)	
LTE Band 66 (AWS): 20 MHz	1720 (132072)		1745 (132322)	1770 (132572)	
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)		1732.5 (20175)	1754.3 (20393)	
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)		1732.5 (20175)	1753.5 (20385)	
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)		1732.5 (20175)	1752.5 (20375)	
LTE Band 4 (AWS): 10 MHz	1715 (20000)		1732.5 (20175)	1750 (20350)	
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)		1732.5 (20175)	1747.5 (20325)	
LTE Band 4 (AWS): 20 MHz	1720 (20050)		1732.5 (20175)	1745 (20300)	
LTE Band 25 (PCS): 1.4 MHz	1850.7 (26047)		1882.5 (26365)	1914.3 (26683)	
LTE Band 25 (PCS): 3 MHz	1851.5 (26055)		1882.5 (26365)	1913.5 (26675)	
LTE Band 25 (PCS): 5 MHz	1852.5 (26065)		1882.5 (26365)	1912.5 (26665)	
LTE Band 25 (PCS): 10 MHz	1855 (26090)		1882.5 (26365)	1910 (26640)	
LTE Band 25 (PCS): 15 MHz	1857.5 (26115)		1882.5 (26365)	1907.5 (26615)	
LTE Band 25 (PCS): 20 MHz	1860 (26140)		1882.5 (26365)	1905 (26590)	
LTE Band 2 (PCS): 1.4 MHz	1850.7 (18607)		1880 (18900)	1909.3 (19193)	
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)		1880 (18900)	1908.5 (19185)	
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)		1880 (18900)	1907.5 (19175)	
LTE Band 2 (PCS): 10 MHz	1855 (18650)		1880 (18900)	1905 (19150)	
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)		1880 (18900)	1902.5 (19125)	
LTE Band 2 (PCS): 20 MHz	1860 (18700)		1880 (18900)	1900 (19100)	
LTE Band 30: 5 MHz	2307.5 (27685)		2310 (27710)	2312.5 (27735)	
LTE Band 30: 10 MHz	N/A		2310 (27710)	N/A	
LTE Band 7: 5 MHz	2502.5 (20775)		2535 (21100)	2567.5 (21425)	
LTE Band 7: 10 MHz	2505 (20800)		2535 (21100)	2565 (21400)	
LTE Band 7: 15 MHz	2507.5 (20825)		2535 (21100)	2562.5 (21375)	
LTE Band 7: 20 MHz	2510 (20850)		2535 (21100)	2560 (21350)	
LTE Band 48: 5 MHz	3552.5 (55265)	3600.8 (55748)	N/A	3649.2 (56232)	3697.5 (56715)
LTE Band 48: 10 MHz	3555 (55290)	3601.7 (55757)	N/A	3648.3 (56223)	3695 (56690)
LTE Band 48: 15 MHz	3557.5 (55315)	3602.5 (55765)	N/A	3647.5 (56215)	3692.5 (56665)
LTE Band 48: 20 MHz	3560 (55340)	3603.3 (55773)	N/A	3646.7 (56207)	3690 (56640)
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 13				
Modulations Supported in UL	QPSK, 16QAM, 64QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5? (manufacturer attestation to be provided)	YES				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
LTE Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations				
LTE Additional Information	This device does not support full CA features on 3GPP Release 14. It supports carrier aggregation, downlink MIMO, LAA features as shown in Section 9 and Appendix H. All other uplink communications are identical to the Release 8 specifications. Uplink communications are done on the PCC unless otherwise specified. The following LTE Release 14 Features are not supported: Relay, HetNet, Enhanced eICIC, MDH, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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]

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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:

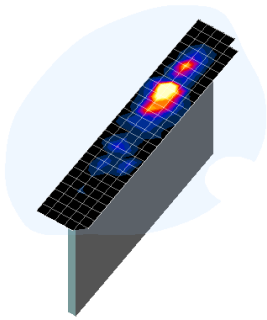


Figure 4-1
Sample SAR Area Scan

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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].

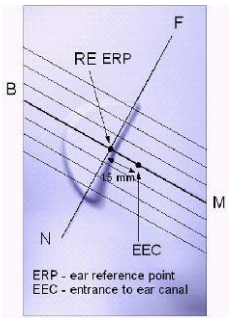


Figure 5-1
Close-Up Side view of ERP

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.

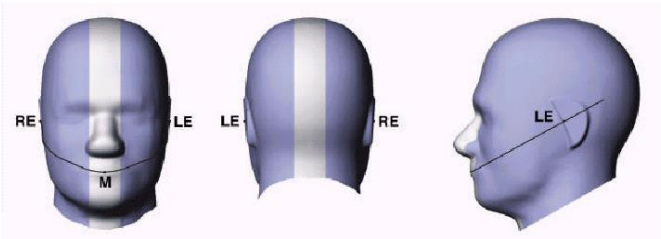


Figure 5-2
Front, back and side view of SAM Twin Phantom

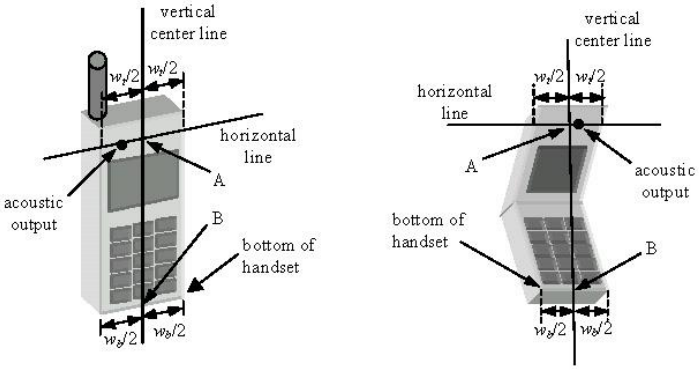


Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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).

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

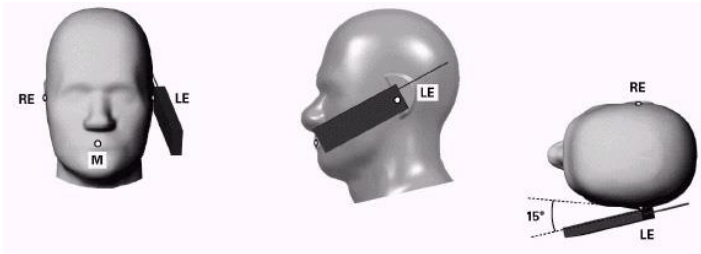


Figure 6-2 Front, Side and Top View of Ear/15º Tilt Position

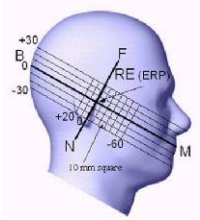


Figure 6-3
Side view w/ relevant markings

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.

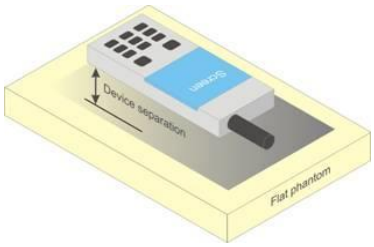


Figure 6-4
Sample Body-Worn Diagram

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

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

8 FCC MEASUREMENT PROCEDURES

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

8.1 Measured and Reported SAR

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

8.2 3G SAR Test Reduction Procedure

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

8.3 Procedures Used to Establish RF Signal for SAR

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

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

8.4 SAR Measurement Conditions for CDMA2000

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

8.4.1 Output Power Verification

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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

Table 8-1
Parameters for Max. Power for RC1

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

Table 8-2
Parameters for Max. Power for RC3

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

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

8.4.2 Head SAR Measurements

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

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

8.4.3 Body-worn SAR Measurements

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

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

8.4.4 Body-worn SAR Measurements for EVDO Devices

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

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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

8.4.5 Body SAR Measurements for EVDO Hotspot

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

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

8.4.6 CDMA2000 1x Advanced

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

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

8.5 SAR Measurement Conditions for UMTS

8.5.1 Output Power Verification

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

8.5.2 Head SAR Measurements

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

8.5.3 Body SAR Measurements

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

8.5.4 SAR Measurements with Rel 5 HSDPA

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

8.5.5 SAR Measurements with Rel 6 HSUPA

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

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

8.5.6 SAR Measurement Conditions for DC-HSDPA

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

8.6 SAR Measurement Conditions for LTE

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

8.6.1 Spectrum Plots for RB Configurations

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

8.6.2 MPR

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

8.6.3 A-MPR

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

8.6.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
   i. The required channel and offset combination with the highest maximum output power is required for SAR.
   ii. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
   iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.
b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.
c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.
d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to ½ dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is <1.45 W/kg.

8.6.5 TDD

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

8.6.6 Downlink Only Carrier Aggregation

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

power with downlink only carrier aggregation active is not more than 0.25 dB higher than the average output power with downlink only carrier aggregation inactive.

8.7 SAR Testing with 802.11 Transmitters

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

8.7.1 General Device Setup

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

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

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

For devices that operate in both U-NII-1 and U-NII-2A bands, when the same maximum output power is specified for both bands, SAR measurement using OFDM SAR test procedures is not required for U-NII-1 unless the highest reported SAR for U-NII-2A is > 1.2 W/kg. When different maximum output powers are specified for the bands, SAR measurement for the U-NII band with the lower maximum output power is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is > 1.2 W/kg. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

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

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

8.7.4 Initial Test Position Procedure

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

8.7.5 2.4 GHz SAR Test Requirements

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

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

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

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

8.7.6 OFDM Transmission Mode and SAR Test Channel Selection

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

8.7.7 Initial Test Configuration Procedure

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

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

8.7.8 Subsequent Test Configuration Procedures

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

subsequent test configurations are required. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.7.9 MIMO SAR considerations

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9 RF CONDUCTED POWERS

9.1 CDMA Conducted Powers

Table 9-1
Maximum Conducted Power

Band	Channel	Rule Part	Frequency	SO55 [dBm]	SO55 [dBm]	SO75 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	RC11	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	564	90S	820.1	25.25	25.25	25.33	25.23	25.25	25.29	25.28
Cellular	1013	22H	824.7	25.19	25.15	25.20	25.17	25.12	25.24	25.25
	384	22H	836.52	25.18	25.19	25.22	25.20	25.18	25.26	25.28
	777	22H	848.31	25.20	25.23	25.25	25.25	25.25	25.25	25.26
PCS	25	24E	1851.25	24.14	24.15	24.19	24.10	24.13	24.19	24.17
	600	24E	1880	24.10	24.06	24.09	24.09	24.08	24.18	24.20
	1175	24E	1908.75	24.02	24.01	24.07	23.99	23.98	24.09	24.08

Table 9-2
Reduced Conducted Power

Band	Channel	Rule Part	Frequency	SO55 [dBm]	SO55 [dBm]	SO75 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	RC11	FCH+SCH	FCH	(RTAP)	(RETAP)
PCS	25	24E	1851.25	22.34	22.30	22.37	22.32	22.35	22.44	22.47
	600	24E	1880	22.29	22.29	22.36	22.30	22.29	22.48	22.47
	1175	24E	1908.75	22.34	22.32	22.41	22.37	22.34	22.50	22.50

Note: RC1 is only applicable for IS-95 compatibility. For FCC Rule Part 90S, Per FCC KDB Publication 447498 D01v06 4.1.g), only one channel is required since the device operates within the transmission range of 817.90 – 823.10 MHz.

Figure 9-1
Power Measurement Setup

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.2 GSM Conducted Powers

Table 9-3
Maximum Conducted Power

Maximum Burst-Averaged Output Power										
		Voice	*GPRS/EDGE Data (GMSK)*				*EDGE Data (8-PSK)*			
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**GPRS [dBm] 3 Tx Slot**	**GPRS [dBm] 4 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**	**EDGE [dBm] 3 Tx Slot**	**EDGE [dBm] 4 Tx Slot**
GSM 850	128	33.24	33.07	32.17	**30.68**	28.60	26.70	26.40	25.14	24.70
	190	33.23	33.01	32.04	**30.70**	28.60	26.66	26.19	24.93	24.56
	251	33.17	32.97	32.05	**30.58**	28.49	26.52	26.09	24.75	24.46
GSM 1900	512	29.99	29.98	29.33	**27.55**	25.67	25.82	25.64	24.70	24.54
	661	30.03	30.00	29.38	**27.65**	25.65	25.81	25.61	24.65	24.49
	810	30.15	30.15	29.49	**27.70**	25.70	25.75	25.52	24.66	24.41

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	24.21	24.04	26.15	**26.42**	25.59	17.67	20.38	20.88	21.69
	190	24.20	23.98	26.02	**26.44**	25.59	17.63	20.17	20.67	21.55
	251	24.14	23.94	26.03	**26.32**	25.48	17.49	20.07	20.49	21.45
GSM 1900	512	20.96	20.95	23.31	**23.29**	22.66	16.79	19.62	20.44	21.53
	661	21.00	20.97	23.36	**23.39**	22.64	16.78	19.59	20.39	21.48
	810	21.12	21.12	23.47	**23.44**	22.69	16.72	19.50	20.40	21.40

GSM 850	**Frame Avg.Targets:**	24.17	24.17	26.18	**25.94**	25.19	17.17	20.18	20.44	21.69
GSM 1900		21.17	21.17	23.18	**22.94**	22.19	16.67	19.68	19.94	21.19

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Note:

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

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

Figure 9-2
Power Measurement Setup

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.3 UMTS Conducted Powers

Table 9-4
Maximum Conducted Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	25.26	25.25	25.25	24.96	24.96	24.92	24.16	24.20	24.18	-
99		12.2 kbps AMR	25.26	25.26	25.27	24.98	24.95	24.92	24.17	24.17	24.13	-
6	HSDPA	Subtest 1	24.21	24.24	24.19	23.69	23.74	23.65	23.14	23.15	23.19	0
6		Subtest 2	24.26	24.19	24.21	23.61	23.63	23.52	23.12	23.08	23.05	0
6		Subtest 3	23.76	23.66	23.71	23.18	23.20	23.25	22.70	22.67	22.68	0.5
6		Subtest 4	23.69	23.70	23.73	23.17	23.16	23.19	22.69	22.68	22.68	0.5
6	HSUPA	Subtest 1	24.26	24.25	24.20	23.64	23.67	23.50	23.11	23.13	23.12	0
6		Subtest 2	22.20	22.23	22.19	21.80	21.71	21.72	21.20	21.17	21.14	2
6		Subtest 3	23.28	23.25	23.21	22.81	22.83	22.74	22.16	22.20	22.13	1
6		Subtest 4	22.27	22.21	22.20	21.82	21.79	21.76	21.20	21.13	21.08	2
6		Subtest 5	24.23	24.21	24.22	23.70	23.69	23.55	23.16	23.16	23.10	0
8	DC-HSDPA	Subtest 1	24.33	24.36	24.38	23.86	23.88	23.79	23.14	23.19	23.16	0
8		Subtest 2	24.33	24.26	24.42	23.82	23.82	23.82	23.11	23.08	23.19	0
8		Subtest 3	23.76	23.88	23.81	23.48	23.50	23.50	22.65	22.70	22.69	0.5
8		Subtest 4	23.77	23.76	23.86	23.49	23.47	23.47	22.68	22.70	22.68	0.5

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-5
Reduced Conducted Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	22.28	22.34	22.38	22.47	22.50	22.48	-
99		12.2 kbps AMR	22.42	22.44	22.50	22.45	22.50	22.44	-
6	HSDPA	Subtest 1	21.10	21.17	21.08	21.35	21.33	21.32	0
6		Subtest 2	21.09	21.18	21.07	21.32	21.29	21.31	0
6		Subtest 3	20.79	20.79	20.81	21.00	20.97	20.95	0.5
6		Subtest 4	20.83	20.79	20.81	21.00	20.96	20.86	0.5
6	HSUPA	Subtest 1	21.14	21.20	21.14	21.37	21.32	21.33	0
6		Subtest 2	19.39	19.41	19.40	19.50	19.45	19.41	2
6		Subtest 3	20.34	20.32	20.39	20.47	20.40	20.50	1
6		Subtest 4	19.33	19.39	19.38	19.47	19.49	19.50	2
6		Subtest 5	21.17	21.23	21.18	21.38	21.38	21.33	0
8	DC-HSDPA	Subtest 1	21.14	21.13	21.07	21.40	21.32	21.20	0
8		Subtest 2	21.15	21.14	21.09	21.35	21.31	21.18	0
8		Subtest 3	20.81	20.84	20.79	20.98	20.96	20.88	0.5
8		Subtest 4	20.82	20.85	20.88	21.00	20.98	20.89	0.5

DC-HSDPA considerations

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

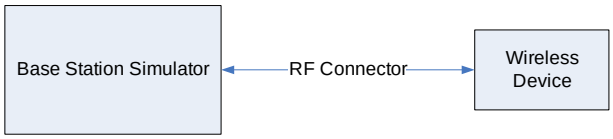


Figure 9-3
Power Measurement Setup

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.4 LTE Conducted Powers

9.4.1 LTE Band 71

Table 9-6
LTE Band 71 Conducted Powers - 20 MHz Bandwidth

LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 133297 (680.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	25.20	0	0
	1	50	25.11		0
	1	99	**25.30**		0
	50	0	24.26	0-1	1
	50	25	**24.37**		1
	50	50	24.31		1
	100	0	24.34		1
16QAM	1	0	24.00	0-1	1
	1	50	24.08		1
	1	99	24.12		1
	50	0	23.12	0-2	2
	50	25	23.17		2
	50	50	23.24		2
	100	0	23.16		2
64QAM	1	0	23.16	0-2	2
	1	50	23.13		2
	1	99	23.14		2
	50	0	22.36	0-3	3
	50	25	22.29		3
	50	50	22.14		3
	100	0	22.22		3

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

Table 9-7
LTE Band 71 Conducted Powers - 15 MHz Bandwidth

LTE Band 71 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 133297 (680.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	25.37	0	0
	1	36	25.43		0
	1	74	25.29		0
	36	0	24.43	0-1	1
	36	18	24.50		1
	36	37	24.44		1
	75	0	24.47		1
16QAM	1	0	24.38	0-1	1
	1	36	24.46		1
	1	74	24.32		1
	36	0	23.33	0-2	2
	36	18	23.41		2
	36	37	23.33		2
	75	0	23.35		2
64QAM	1	0	23.44	0-2	2
	1	36	23.50		2
	1	74	23.30		2
	36	0	22.48	0-3	3
	36	18	22.49		3
	36	37	22.49		3
	75	0	22.45		3

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-8
LTE Band 71 Conducted Powers - 10 MHz Bandwidth

LTE Band 71 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 133172 (668.0 MHz)	Mid Channel 133297 (680.5 MHz)	High Channel 133422 (693.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.08	25.25	25.23	0	0
	1	25	25.01	25.12	25.12		0
	1	49	25.05	25.22	25.13		0
	25	0	24.24	24.29	24.27	0-1	1
	25	12	24.23	24.27	24.27		1
	25	25	24.22	24.22	24.23		1
	50	0	24.18	24.26	24.24		1
16QAM	1	0	24.14	24.28	24.31	0-1	1
	1	25	24.01	24.26	24.22		1
	1	49	24.09	24.07	24.10		1
	25	0	23.12	23.20	23.20	0-2	2
	25	12	23.10	23.20	23.18		2
	25	25	23.09	23.15	23.15		2
	50	0	23.09	23.14	23.19		2
64QAM	1	0	23.01	23.20	23.48	0-2	2
	1	25	23.04	23.04	23.47		2
	1	49	23.11	23.13	23.45		2
	25	0	22.34	22.37	22.31	0-3	3
	25	12	22.34	22.37	22.29		3
	25	25	22.29	22.33	22.21		3
	50	0	22.20	22.31	22.27		3

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

LTE Band 71 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 133147 (665.5 MHz)	Mid Channel 133297 (680.5 MHz)	High Channel 133447 (695.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.13	25.27	25.07	0	0
	1	12	25.21	25.36	25.15		0
	1	24	25.32	25.39	25.19		0
	12	0	24.15	24.25	24.16	0-1	1
	12	6	24.30	24.28	24.27		1
	12	13	24.27	24.34	24.26		1
	25	0	24.21	24.28	24.24		1
16QAM	1	0	23.99	24.25	24.06	0-1	1
	1	12	24.00	24.37	24.15		1
	1	24	24.01	24.35	24.13		1
	12	0	23.20	23.22	23.18	0-2	2
	12	6	23.32	23.28	23.27		2
	12	13	23.26	23.34	23.26		2
	25	0	23.28	23.26	23.22		2
64QAM	1	0	23.01	23.04	23.09	0-2	2
	1	12	23.18	23.11	23.05		2
	1	24	23.19	23.12	23.05		2
	12	0	22.16	22.23	22.12	0-3	3
	12	6	22.14	22.26	22.22		3
	12	13	22.30	22.33	22.19		3
	25	0	22.15	22.31	22.23		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.4.2 LTE Band 12

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

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23095 (707.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**25.14**	0	0
	1	25	25.01		0
	1	49	25.11		0
	25	0	**24.19**	0-1	1
	25	12	24.18		1
	25	25	24.11		1
	50	0	24.16		1
16QAM	1	0	24.18	0-1	1
	1	25	24.03		1
	1	49	24.10		1
	25	0	23.09	0-2	2
	25	12	23.41		2
	25	25	23.29		2
	50	0	23.30		2
64QAM	1	0	23.24	0-2	2
	1	25	23.07		2
	1	49	23.23		2
	25	0	22.22	0-3	3
	25	12	22.21		3
	25	25	22.16		3
	50	0	22.24		3

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

Table 9-11
LTE Band 12 Conducted Powers - 5 MHz Bandwidth

LTE Band 12 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23035 (701.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23155 (713.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.22	25.10	25.38	0	0
	1	12	25.31	25.25	25.33		0
	1	24	25.33	25.20	25.36		0
	12	0	24.15	24.16	24.20	0-1	1
	12	6	24.25	24.28	24.25		1
	12	13	24.23	24.19	24.26		1
	25	0	24.21	24.22	24.19		1
16QAM	1	0	24.22	23.83	23.76	0-1	1
	1	12	24.30	24.04	23.80		1
	1	24	24.32	23.89	23.79		1
	12	0	22.98	23.11	23.03	0-2	2
	12	6	23.37	23.21	23.11		2
	12	13	23.09	23.12	23.11		2
	25	0	23.14	23.08	23.02		2
64QAM	1	0	22.67	22.48	22.61	0-2	2
	1	12	22.58	22.61	22.68		2
	1	24	22.57	22.57	22.62		2
	12	0	22.28	22.26	22.31	0-3	3
	12	6	22.25	22.41	22.37		3
	12	13	22.19	22.28	22.30		3
	25	0	22.22	22.34	22.26		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23025 (700.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23165 (714.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.09	25.22	25.22	0	0
	1	7	25.14	25.30	25.32		0
	1	14	25.18	25.29	25.22		0
	8	0	24.13	24.17	24.15	0-1	1
	8	4	24.22	24.29	24.29		1
	8	7	24.18	24.22	24.23		1
	15	0	24.22	24.22	24.18		1
16QAM	1	0	23.98	24.01	23.98	0-1	1
	1	7	24.01	24.07	23.99		1
	1	14	23.95	24.09	23.88		1
	8	0	23.35	23.42	23.27	0-2	2
	8	4	23.42	23.47	23.35		2
	8	7	23.38	23.45	23.27		2
	15	0	23.32	23.35	23.28		2
64QAM	1	0	23.06	22.97	23.45	0-2	2
	1	7	23.09	23.07	23.46		2
	1	14	23.07	23.02	23.47		2
	8	0	22.18	22.29	22.29	0-3	3
	8	4	22.29	22.40	22.39		3
	8	7	22.22	22.37	22.25		3
	15	0	22.26	22.35	22.27		3

Table 9-13
LTE Band 12 Conducted Powers -1.4 MHz Bandwidth

LTE Band 12 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23017 (699.7 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23173 (715.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.08	25.22	25.34	0	0
	1	2	25.23	25.31	25.42		0
	1	5	25.09	25.26	25.38		0
	3	0	25.22	25.26	25.23		0
	3	2	25.30	25.33	25.34		0
	3	3	25.21	25.30	25.27		0
	6	0	24.22	24.24	24.21	0-1	1
16QAM	1	0	23.87	24.08	23.93	0-1	1
	1	2	24.01	23.99	24.03		1
	1	5	23.93	23.96	24.02		1
	3	0	23.87	23.98	23.83		1
	3	2	23.93	24.08	24.02		1
	3	3	23.89	23.97	23.94		1
	6	0	23.14	23.12	23.06	0-2	2
64QAM	1	0	23.04	23.01	23.47	0-2	2
	1	2	23.23	23.23	23.50		2
	1	5	23.12	23.04	23.31		2
	3	0	23.15	23.33	23.09		2
	3	2	23.21	23.36	23.14		2
	3	3	23.15	23.34	23.10		2
	6	0	22.25	22.32	22.07	0-3	3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.4.3 LTE Band 13

Table 9-14
LTE Band 13 Conducted Powers - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.93	0	0
	1	25	**25.08**		0
	1	49	24.79		0
	25	0	**24.09**	0-1	1
	25	12	24.06		1
	25	25	24.03		1
	50	0	24.03		1
16QAM	1	0	23.99	0-1	1
	1	25	24.02		1
	1	49	23.84		1
	25	0	22.94	0-2	2
	25	12	22.88		2
	25	25	22.84		2
	50	0	22.90		2
64QAM	1	0	22.76	0-2	2
	1	25	23.06		2
	1	49	22.92		2
	25	0	22.07	0-3	3
	25	12	22.03		3
	25	25	21.98		3
	50	0	22.06		3

Table 9-15
LTE Band 13 Conducted Powers - 5 MHz Bandwidth

LTE Band 13 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.90	0	0
	1	12	24.96		0
	1	24	24.96		0
	12	0	24.09	0-1	1
	12	6	24.05		1
	12	13	24.07		1
	25	0	24.06		1
16QAM	1	0	23.93	0-1	1
	1	12	23.96		1
	1	24	23.91		1
	12	0	22.94	0-2	2
	12	6	22.96		2
	12	13	22.97		2
	25	0	22.93		2
64QAM	1	0	22.89	0-2	2
	1	12	22.82		2
	1	24	22.83		2
	12	0	22.01	0-3	3
	12	6	22.01		3
	12	13	22.01		3
	25	0	22.04		3

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.4.4 LTE Band 14

Table 9-16
LTE Band 14 Conducted Powers - 10 MHz Bandwidth

LTE Band 14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23330 (793.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**24.44**	0	0
	1	25	24.40		0
	1	49	24.40		0
	25	0	**24.09**	0-1	1
	25	12	23.99		1
	25	25	23.85		1
	50	0	24.03		1
16QAM	1	0	23.89	0-1	1
	1	25	23.72		1
	1	49	23.88		1
	25	0	22.89	0-2	2
	25	12	22.85		2
	25	25	22.77		2
	50	0	22.82		2
64QAM	1	0	22.61	0-2	2
	1	25	22.60		2
	1	49	22.68		2
	25	0	21.48	0-3	3
	25	12	21.41		3
	25	25	21.40		3
	50	0	21.42		3

Table 9-17
LTE Band 14 Conducted Powers - 5 MHz Bandwidth

LTE Band 14 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23330 (793.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.40	0	0
	1	12	24.53		0
	1	24	24.53		0
	12	0	23.91	0-1	1
	12	6	23.99		1
	12	13	23.97		1
	25	0	23.91		1
16QAM	1	0	23.90	0-1	1
	1	12	23.99		1
	1	24	24.01		1
	12	0	22.79	0-2	2
	12	6	22.77		2
	12	13	22.76		2
	25	0	22.73		2
64QAM	1	0	22.24	0-2	2
	1	12	22.33		2
	1	24	22.21		2
	12	0	21.33	0-3	3
	12	6	21.32		3
	12	13	21.29		3
	25	0	21.28		3

Note: LTE Band 14 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.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.4.5 LTE Band 26 (Cell)

Table 9-18
LTE Band 26 (Cell) Conducted Powers - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 26865 (831.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	25.08	0	0
	1	36	25.06		0
	1	74	**25.09**		0
	36	0	**24.17**	0-1	1
	36	18	24.07		1
	36	37	23.99		1
	75	0	24.06		1
16QAM	1	0	24.03	0-1	1
	1	36	24.06		1
	1	74	24.17		1
	36	0	23.21	0-2	2
	36	18	23.19		2
	36	37	23.20		2
	75	0	23.12		2
64QAM	1	0	23.05	0-2	2
	1	36	22.88		2
	1	74	23.13		2
	36	0	21.81	0-3	3
	36	18	21.93		3
	36	37	21.81		3
	75	0	21.85		3

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

Table 9-19
LTE Band 26 (Cell) Conducted Powers - 10 MHz Bandwidth

LTE Band 26 (Cell) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26740 (819.0 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 26990 (844.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.95	25.08	25.18	0	0
	1	25	25.01	25.14	25.09		0
	1	49	24.99	25.02	25.00		0
	25	0	24.11	24.16	24.18	0-1	1
	25	12	24.15	24.25	24.22		1
	25	25	24.09	24.20	24.20		1
	50	0	24.12	24.17	24.21		1
16QAM	1	0	24.34	24.21	24.39	0-1	1
	1	25	24.31	24.16	24.33		1
	1	49	24.37	24.15	24.50		1
	25	0	23.24	23.32	23.29	0-2	2
	25	12	23.25	23.37	23.34		2
	25	25	23.23	23.30	23.25		2
	50	0	23.30	23.35	23.29		2
64QAM	1	0	22.63	23.43	23.50	0-2	2
	1	25	22.86	23.19	23.04		2
	1	49	23.06	23.38	22.92		2
	25	0	21.50	22.07	21.92	0-3	3
	25	12	21.68	22.01	21.65		3
	25	25	21.88	22.05	21.54		3
	50	0	21.62	21.98	21.73		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-20
LTE Band 26 (Cell) Conducted Powers - 5 MHz Bandwidth

LTE Band 26 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26715 (816.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27015 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.97	25.05	25.06	0	0
	1	12	25.04	25.13	25.05		0
	1	24	25.07	25.07	25.00		0
	12	0	24.10	24.14	24.12	0-1	1
	12	6	24.18	24.18	24.16		1
	12	13	24.14	24.22	24.14		1
	25	0	24.09	24.10	24.11		1
16QAM	1	0	23.98	24.28	24.07	0-1	1
	1	12	24.06	24.32	24.10		1
	1	24	24.13	24.29	24.00		1
	12	0	22.76	22.88	22.87	0-2	2
	12	6	22.85	22.95	22.97		2
	12	13	22.80	22.94	22.88		2
	25	0	23.31	23.24	23.24		2
64QAM	1	0	22.60	22.73	22.61	0-2	2
	1	12	22.67	22.74	22.63		2
	1	24	22.72	22.76	22.55		2
	12	0	21.41	21.96	21.51	0-3	3
	12	6	21.49	21.98	21.56		3
	12	13	21.56	21.94	21.55		3
	25	0	21.42	21.80	21.43		3

Table 9-21
LTE Band 26 (Cell) Conducted Powers - 3 MHz Bandwidth

LTE Band 26 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26705 (815.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27025 (847.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.99	25.13	25.14	0	0
	1	7	25.00	25.16	25.06		0
	1	14	25.00	25.17	25.09		0
	8	0	24.08	24.13	24.14	0-1	1
	8	4	24.13	24.22	24.15		1
	8	7	24.12	24.15	24.11		1
	15	0	24.13	24.13	24.13		1
16QAM	1	0	24.13	24.12	24.46	0-1	1
	1	7	24.18	24.12	24.43		1
	1	14	24.17	24.17	24.38		1
	8	0	23.09	22.93	22.98	0-2	2
	8	4	23.22	23.05	23.02		2
	8	7	23.12	23.01	22.98		2
	15	0	23.10	23.11	23.16		2
64QAM	1	0	22.41	23.24	23.03	0-2	2
	1	7	22.47	23.15	23.03		2
	1	14	22.54	23.18	23.00		2
	8	0	21.42	21.96	21.72	0-3	3
	8	4	21.51	22.00	21.76		3
	8	7	21.49	21.97	21.74		3
	15	0	21.36	21.95	21.55		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-22
LTE Band 26 (Cell) Conducted Powers -1.4 MHz Bandwidth

LTE Band 26 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26697 (814.7 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27033 (848.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.99	25.14	25.00	0	0
	1	2	25.06	25.18	25.13		0
	1	5	25.03	25.17	24.98		0
	3	0	24.98	25.07	25.03		0
	3	2	25.06	25.18	25.11		0
	3	3	25.00	25.13	25.06		0
	6	0	24.03	24.09	24.03	0-1	1
16QAM	1	0	24.28	24.44	24.29	0-1	1
	1	2	24.33	24.48	24.39		1
	1	5	24.32	24.41	24.26		1
	3	0	23.94	24.39	24.35		1
	3	2	24.00	24.43	24.38		1
	3	3	23.98	24.39	24.33		1
	6	0	23.06	23.50	23.50	0-2	2
64QAM	1	0	22.63	23.45	22.64	0-2	2
	1	2	22.69	23.47	22.67		2
	1	5	22.68	23.42	22.68		2
	3	0	22.64	22.82	22.75		2
	3	2	22.57	22.85	22.59		2
	3	3	22.56	22.82	22.59		2
	6	0	21.47	22.03	21.68	0-3	3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.4.6 LTE Band 5 (Cell)

Table 9-23
LTE Band 5 (Cell) Conducted Powers - 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20525 (836.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.96	0	0
	1	25	**25.04**		0
	1	49	24.92		0
	25	0	23.98	0-1	1
	25	12	**24.03**		1
	25	25	23.97		1
	50	0	23.99		1
16QAM	1	0	23.93	0-1	1
	1	25	23.96		1
	1	49	23.87		1
	25	0	22.93	0-2	2
	25	12	22.91		2
	25	25	22.82		2
	50	0	22.90		2
64QAM	1	0	22.97	0-2	2
	1	25	23.28		2
	1	49	22.73		2
	25	0	21.85	0-3	3
	25	12	22.13		3
	25	25	21.94		3
	50	0	21.80		3

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

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

LTE Band 5 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20425 (826.5 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20625 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.98	25.08	25.20	0	0
	1	12	25.07	25.17	25.14		0
	1	24	25.06	25.15	25.08		0
	12	0	24.09	24.18	24.16	0-1	1
	12	6	24.21	24.22	24.24		1
	12	13	24.21	24.31	24.29		1
	25	0	24.18	24.19	24.20		1
16QAM	1	0	23.92	24.24	24.01	0-1	1
	1	12	23.99	24.33	24.09		1
	1	24	24.01	24.32	24.03		1
	12	0	22.94	23.14	23.12	0-2	2
	12	6	23.11	23.18	23.16		2
	12	13	23.12	23.21	23.24		2
	25	0	23.17	23.11	23.15		2
64QAM	1	0	22.68	22.76	22.65	0-2	2
	1	12	22.75	22.83	22.68		2
	1	24	22.77	22.86	22.63		2
	12	0	22.06	22.16	21.60	0-3	3
	12	6	22.14	22.28	21.65		3
	12	13	22.15	22.31	21.66		3
	25	0	22.08	22.09	21.49		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-25
LTE Band 5 (Cell) Conducted Powers - 3 MHz Bandwidth

LTE Band 5 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20415 (825.5 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20635 (847.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.97	25.14	25.10	0	0
	1	7	25.06	25.20	25.18		0
	1	14	25.11	25.28	25.23		0
	8	0	24.07	24.19	24.20	0-1	1
	8	4	24.17	24.27	24.29		1
	8	7	24.20	24.29	24.28		1
	15	0	24.18	24.24	24.19		1
16QAM	1	0	23.97	23.91	24.23	0-1	1
	1	7	24.04	23.96	24.31		1
	1	14	24.13	24.08	24.40		1
	8	0	23.11	23.02	23.05	0-2	2
	8	4	23.21	23.09	23.19		2
	8	7	23.21	23.11	23.14		2
	15	0	23.14	23.18	23.23		2
64QAM	1	0	22.91	23.16	23.12	0-2	2
	1	7	22.81	23.17	23.12		2
	1	14	23.10	23.18	23.09		2
	8	0	22.09	22.21	21.81	0-3	3
	8	4	22.11	22.30	21.81		3
	8	7	22.09	22.34	21.79		3
	15	0	22.05	22.24	21.62		3

Table 9-26
LTE Band 5 (Cell) Conducted Powers -1.4 MHz Bandwidth

LTE Band 5 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20407 (824.7 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20643 (848.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.97	25.11	25.11	0	0
	1	2	25.08	25.22	25.20		0
	1	5	25.02	25.20	25.16		0
	3	0	25.07	25.18	25.14		0
	3	2	25.12	25.31	25.24		0
	3	3	25.10	25.28	25.20		0
	6	0	24.09	24.11	24.19	0-1	1
16QAM	1	0	24.25	24.18	24.37	0-1	1
	1	2	24.37	24.31	24.44		1
	1	5	24.33	24.33	24.42		1
	3	0	24.08	23.90	24.19		1
	3	2	24.10	23.99	24.24		1
	3	3	24.12	23.97	24.19		1
	6	0	23.19	22.94	23.31	0-2	2
64QAM	1	0	22.98	23.11	22.49	0-2	2
	1	2	23.12	23.15	22.52		2
	1	5	22.88	23.14	22.52		2
	3	0	23.20	23.16	22.59		2
	3	2	23.13	23.21	22.63		2
	3	3	23.08	23.21	22.64		2
	6	0	22.25	22.14	21.74	0-3	3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.4.7 LTE Band 66 (AWS)

Table 9-27
LTE Band 66 (AWS) Conducted Powers - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132072 (1720.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132572 (1770.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.85	**24.90**	24.83	0	0
	1	50	24.73	24.77	24.75		0
	1	99	24.67	24.52	24.48		0
	50	0	**23.82**	23.78	23.74	0-1	1
	50	25	23.77	23.75	23.66		1
	50	50	23.67	23.70	23.64		1
	100	0	23.74	23.70	23.71		1
16QAM	1	0	23.89	23.84	23.87	0-1	1
	1	50	23.90	23.73	23.71		1
	1	99	23.92	23.70	23.63		1
	50	0	23.00	22.76	22.95	0-2	2
	50	25	22.84	22.71	22.96		2
	50	50	22.87	22.60	22.94		2
	100	0	22.89	22.69	22.99		2
64QAM	1	0	22.64	22.73	22.84	0-2	2
	1	50	22.72	22.88	22.72		2
	1	99	22.75	22.59	22.55		2
	50	0	21.72	21.81	21.98	0-3	3
	50	25	21.67	21.75	21.81		3
	50	50	21.58	21.73	21.22		3
	100	0	21.67	21.73	21.70		3

Table 9-28
LTE Band 66 (AWS) Conducted Powers - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132047 (1717.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132597 (1772.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.00	24.93	24.98	0	0
	1	36	24.97	24.91	24.90		0
	1	74	24.86	24.95	24.72		0
	36	0	23.93	23.98	23.57	0-1	1
	36	18	23.92	23.98	23.53		1
	36	37	23.93	23.95	23.43		1
	75	0	23.97	23.92	23.51		1
16QAM	1	0	23.89	23.59	23.93	0-1	1
	1	36	23.87	23.50	23.89		1
	1	74	23.67	23.46	23.80		1
	36	0	22.97	22.92	22.91	0-2	2
	36	18	22.95	22.98	22.87		2
	36	37	22.97	22.90	22.96		2
	75	0	22.97	22.96	22.86		2
64QAM	1	0	22.77	22.98	22.95	0-2	2
	1	36	22.73	22.99	22.88		2
	1	74	22.58	22.99	22.84		2
	36	0	22.00	22.00	21.95	0-3	3
	36	18	21.96	21.98	21.86		3
	36	37	21.93	21.89	21.58		3
	75	0	21.83	21.50	21.90		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-29
LTE Band 66 (AWS) Conducted Powers - 10 MHz Bandwidth

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132022 (1715.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132622 (1775.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.84	24.99	24.94	0	0
	1	25	24.82	24.92	24.96		0
	1	49	24.99	24.99	24.78		0
	25	0	23.93	23.99	23.99	0-1	1
	25	12	23.90	23.95	23.93		1
	25	25	23.97	23.92	23.78		1
	50	0	23.90	23.95	23.95		1
16QAM	1	0	23.93	23.54	23.78	0-1	1
	1	25	23.92	23.56	23.78		1
	1	49	23.93	23.59	23.88		1
	25	0	22.94	23.00	22.85	0-2	2
	25	12	22.92	22.96	22.82		2
	25	25	22.88	22.87	22.80		2
	50	0	22.89	22.87	22.89		2
64QAM	1	0	22.97	22.83	22.80	0-2	2
	1	25	22.91	22.77	22.90		2
	1	49	22.91	22.85	22.62		2
	25	0	22.00	21.99	21.94	0-3	3
	25	12	21.93	21.99	21.63		3
	25	25	21.98	21.90	21.27		3
	50	0	21.93	21.94	21.55		3

Table 9-30
LTE Band 66 (AWS) Conducted Powers - 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131997 (1712.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132647 (1777.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.93	24.84	24.98	0	0
	1	12	24.88	24.97	24.75		0
	1	24	24.88	25.00	24.62		0
	12	0	23.81	23.88	23.95	0-1	1
	12	6	23.87	23.88	23.85		1
	12	13	23.83	23.89	23.92		1
	25	0	23.81	23.84	23.91		1
16QAM	1	0	23.69	23.81	24.00	0-1	1
	1	12	23.82	23.94	23.90		1
	1	24	23.85	23.90	23.74		1
	12	0	22.93	22.83	22.94	0-2	2
	12	6	22.97	22.93	22.98		2
	12	13	22.98	22.95	23.00		2
	25	0	22.91	22.75	23.00		2
64QAM	1	0	22.70	22.80	22.85	0-2	2
	1	12	22.80	22.70	22.79		2
	1	24	22.86	22.74	22.63		2
	12	0	21.89	21.89	21.85	0-3	3
	12	6	21.94	21.80	21.73		3
	12	13	21.88	21.88	21.54		3
	25	0	21.85	21.71	21.68		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-31
LTE Band 66 (AWS) Conducted Powers - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131987 (1711.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132657 (1778.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.84	24.83	24.90	0	0
	1	7	24.90	24.91	24.76		0
	1	14	24.96	24.87	24.72		0
	8	0	23.92	23.77	23.73	0-1	1
	8	4	23.91	23.83	23.71		1
	8	7	23.99	23.87	23.67		1
	15	0	23.83	24.00	23.98		1
16QAM	1	0	23.94	23.61	23.99	0-1	1
	1	7	23.81	23.67	24.00		1
	1	14	23.83	23.63	23.92		1
	8	0	22.84	22.78	22.93	0-2	2
	8	4	22.81	22.92	22.91		2
	8	7	22.81	22.82	22.87		2
	15	0	22.98	22.93	22.93		2
64QAM	1	0	22.83	22.75	23.00	0-2	2
	1	7	22.85	22.82	22.96		2
	1	14	22.86	22.81	22.91		2
	8	0	21.90	21.76	21.68	0-3	3
	8	4	21.98	21.84	21.65		3
	8	7	21.94	21.80	21.59		3
	15	0	21.98	21.75	21.56		3

Table 9-32
LTE Band 66 (AWS) Conducted Powers -1.4 MHz Bandwidth

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131979 (1710.7 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132665 (1779.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.88	24.87	24.68	0	0
	1	2	25.00	24.92	24.72		0
	1	5	24.91	24.86	24.64		0
	3	0	24.92	24.79	24.79		0
	3	2	25.00	24.82	24.86		0
	3	3	24.97	24.77	24.83		0
	6	0	24.00	23.81	23.93	0-1	1
16QAM	1	0	23.69	23.83	23.99	0-1	1
	1	2	23.72	23.93	24.00		1
	1	5	23.70	23.91	23.99		1
	3	0	23.85	23.91	23.89		1
	3	2	23.93	23.86	23.90		1
	3	3	23.96	23.83	23.86		1
	6	0	22.97	23.00	22.93	0-2	2
64QAM	1	0	22.71	23.00	22.80	0-2	2
	1	2	22.93	22.98	22.85		2
	1	5	22.73	22.92	22.71		2
	3	0	22.98	22.86	22.71		2
	3	2	22.95	22.77	22.86		2
	3	3	22.92	22.81	22.77		2
	6	0	21.95	22.00	21.87	0-3	3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-33
LTE Band 66 (AWS) Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132072 (1720.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132572 (1770.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.31	22.31	**22.50**	0	0
	1	50	22.18	22.21	22.29		0
	1	99	22.17	22.19	22.13		0
	50	0	22.41	22.47	**22.49**	0-1	0
	50	25	22.38	22.45	22.43		0
	50	50	22.29	22.39	22.37		0
	100	0	22.33	22.30	22.47		0
16QAM	1	0	22.48	22.48	22.50	0-1	0
	1	50	22.46	22.49	22.49		0
	1	99	22.46	22.47	22.43		0
	50	0	22.41	22.44	22.50	0-2	0
	50	25	22.38	22.39	22.46		0
	50	50	22.28	22.34	22.38		0
	100	0	22.38	22.40	22.49		0
64QAM	1	0	22.48	22.49	22.50	0-2	0
	1	50	22.46	22.50	22.48		0
	1	99	22.48	22.48	21.99		0
	50	0	21.79	21.85	21.82	0-3	0.5
	50	25	21.76	21.84	21.76		0.5
	50	50	21.62	21.75	21.62		0.5
	100	0	21.69	21.81	21.71		0.5

Table 9-34
LTE Band 66 (AWS) Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132047 (1717.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132597 (1772.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.28	22.16	22.11	0	0
	1	36	22.21	22.12	22.05		0
	1	74	22.05	21.98	21.82		0
	36	0	22.17	22.19	22.25	0-1	0
	36	18	22.14	22.16	22.25		0
	36	37	22.01	22.07	22.15		0
	75	0	22.10	22.12	22.19		0
16QAM	1	0	22.27	21.82	22.44	0-1	0
	1	36	22.20	21.90	22.48		0
	1	74	22.03	21.81	22.20		0
	36	0	22.22	22.22	22.31	0-2	0
	36	18	22.20	22.19	22.28		0
	36	37	22.11	22.11	22.21		0
	75	0	22.10	22.21	22.27		0
64QAM	1	0	22.19	22.02	22.38	0-2	0
	1	36	22.16	21.94	22.48		0
	1	74	22.01	21.94	22.34		0
	36	0	21.88	21.95	21.98	0-3	0.5
	36	18	21.86	22.00	21.95		0.5
	36	37	21.79	21.88	21.87		0.5
	75	0	21.86	21.90	21.78		0.5

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-35
LTE Band 66 (AWS) Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132022 (1715.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132622 (1775.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.07	22.20	22.39	0	0
	1	25	22.07	22.14	22.23		0
	1	49	22.10	22.15	22.34		0
	25	0	22.41	22.43	22.35	0-1	0
	25	12	22.41	22.42	22.48		0
	25	25	22.36	22.38	22.43		0
	50	0	22.36	22.38	22.47		0
16QAM	1	0	22.48	22.09	22.46	0-1	0
	1	25	22.36	22.26	22.43		0
	1	49	22.45	22.35	22.41		0
	25	0	22.44	22.44	22.48	0-2	0
	25	12	22.40	22.34	22.46		0
	25	25	22.36	22.46	22.35		0
	50	0	22.39	22.43	22.25		0
64QAM	1	0	22.27	22.18	22.36	0-2	0
	1	25	22.25	22.11	22.26		0
	1	49	22.25	22.19	22.39		0
	25	0	21.86	21.84	21.73	0-3	0.5
	25	12	21.82	21.84	21.82		0.5
	25	25	21.78	21.80	21.81		0.5
	50	0	21.73	21.79	21.65		0.5

Table 9-36
LTE Band 66 (AWS) Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131997 (1712.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132647 (1777.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.20	22.29	22.24	0	0
	1	12	22.29	22.37	22.30		0
	1	24	22.31	22.41	22.36		0
	12	0	22.38	22.40	22.42	0-1	0
	12	6	22.41	22.38	22.45		0
	12	13	22.39	22.45	22.48		0
	25	0	22.39	22.36	22.43		0
16QAM	1	0	22.18	22.35	22.36	0-1	0
	1	12	22.22	22.36	22.45		0
	1	24	22.33	22.46	22.49		0
	12	0	22.39	22.44	22.38	0-2	0
	12	6	22.44	22.36	22.44		0
	12	13	22.41	22.33	22.25		0
	25	0	22.24	22.38	22.36		0
64QAM	1	0	22.22	22.17	22.19	0-2	0
	1	12	22.33	22.31	22.30		0
	1	24	22.38	22.22	22.29		0
	12	0	21.72	21.81	21.71	0-3	0.5
	12	6	21.76	21.83	21.61		0.5
	12	13	21.73	21.87	21.70		0.5
	25	0	21.69	21.78	21.69		0.5

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-37
LTE Band 66 (AWS) Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131987 (1711.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132657 (1778.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.23	22.32	22.26	0	0
	1	7	22.14	22.28	22.28		0
	1	14	22.19	22.25	22.27		0
	8	0	22.34	22.28	22.39	0-1	0
	8	4	22.37	22.38	22.41		0
	8	7	22.31	22.38	22.45		0
	15	0	22.33	22.38	22.42		0
16QAM	1	0	22.34	22.46	22.44	0-1	0
	1	7	22.40	22.08	22.27		0
	1	14	22.40	22.01	22.40		0
	8	0	22.23	22.25	22.45	0-2	0
	8	4	22.27	22.33	22.27		0
	8	7	22.21	22.25	22.20		0
	15	0	22.45	22.40	22.35		0
64QAM	1	0	22.24	22.15	22.39	0-2	0
	1	7	22.27	22.27	22.25		0
	1	14	22.28	22.21	22.36		0
	8	0	21.54	21.68	21.72	0-3	0.5
	8	4	21.60	21.77	21.92		0.5
	8	7	21.55	21.67	21.88		0.5
	15	0	21.65	21.70	21.83		0.5

Table 9-38
LTE Band 66 (AWS) Reduced Conducted Powers -1.4 MHz Bandwidth

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131979 (1710.7 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132665 (1779.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.28	22.31	22.37	0	0
	1	2	22.18	22.40	22.23		0
	1	5	22.14	22.35	22.21		0
	3	0	22.24	22.30	22.33		0
	3	2	22.29	22.34	22.37		0
	3	3	22.25	22.30	22.35		0
	6	0	22.25	22.26	22.37	0-1	0
16QAM	1	0	22.45	22.40	22.44	0-1	0
	1	2	22.39	22.47	22.49		0
	1	5	22.33	22.41	22.47		0
	3	0	22.30	22.38	22.37		0
	3	2	22.38	22.44	22.43		0
	3	3	22.30	22.42	22.39		0
	6	0	22.25	22.29	22.11	0-2	0
64QAM	1	0	22.02	22.30	22.18	0-2	0
	1	2	22.01	22.43	22.26		0
	1	5	22.04	22.08	22.22		0
	3	0	21.95	21.97	21.94		0.5
	3	2	22.00	22.00	21.91		0.5
	3	3	21.98	21.95	21.88		0.5
	6	0	21.75	21.62	21.31	0-3	0.5

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.4.8 LTE Band 25 (PCS)

Table 9-39
LTE Band 25 (PCS) Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.19	**24.20**	24.19	0	0
	1	50	24.09	24.18	24.04		0
	1	99	24.05	24.09	24.08		0
	50	0	23.06	23.10	23.08	0-1	1
	50	25	23.06	**23.11**	23.08		1
	50	50	23.07	23.10	23.10		1
	100	0	23.05	23.09	23.07		1
16QAM	1	0	23.03	23.15	23.17	0-1	1
	1	50	23.17	23.00	23.16		1
	1	99	23.14	22.89	23.14		1
	50	0	21.93	22.03	21.95	0-2	2
	50	25	21.96	22.04	21.98		2
	50	50	21.94	22.01	21.96		2
	100	0	21.98	22.03	21.97		2
64QAM	1	0	22.17	22.20	21.98	0-2	2
	1	50	22.07	22.15	21.94		2
	1	99	22.12	22.19	21.95		2
	50	0	21.13	21.18	21.14	0-3	3
	50	25	21.20	21.20	21.19		3
	50	50	21.19	21.18	21.20		3
	100	0	21.15	21.18	21.20		3

Table 9-40
LTE Band 25 (PCS) Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26115 (1857.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26615 (1907.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.01	24.12	24.11	0	0
	1	36	24.19	24.11	24.12		0
	1	74	24.09	24.20	24.15		0
	36	0	23.16	23.11	23.16	0-1	1
	36	18	23.00	23.12	23.20		1
	36	37	23.14	23.11	23.18		1
	75	0	23.17	23.15	23.17		1
16QAM	1	0	22.81	22.85	22.96	0-1	1
	1	36	22.96	22.88	23.04		1
	1	74	22.90	22.83	22.95		1
	36	0	22.09	22.04	22.09	0-2	2
	36	18	22.14	22.10	22.17		2
	36	37	22.12	22.09	22.16		2
	75	0	22.03	22.14	22.11		2
64QAM	1	0	22.02	22.14	22.10	0-2	2
	1	36	21.96	22.17	22.18		2
	1	74	21.83	22.18	22.08		2
	36	0	21.12	21.06	21.07	0-3	3
	36	18	21.13	21.09	21.17		3
	36	37	21.11	21.08	21.15		3
	75	0	21.04	21.14	21.12		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-41
LTE Band 25 (PCS) Conducted Powers - 10 MHz Bandwidth

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26090 (1855.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26640 (1910.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.99	24.03	23.89	0	0
	1	25	23.90	23.90	23.82		0
	1	49	23.85	23.99	23.99		0
	25	0	23.02	22.96	22.94	0-1	1
	25	12	23.03	22.99	22.95		1
	25	25	23.03	22.98	23.01		1
	50	0	23.00	22.96	22.95		1
16QAM	1	0	22.84	22.88	22.91	0-1	1
	1	25	22.77	22.78	22.84		1
	1	49	22.77	22.82	22.83		1
	25	0	21.92	21.95	21.93	0-2	2
	25	12	21.93	21.93	21.91		2
	25	25	21.94	21.96	21.94		2
	50	0	21.87	21.91	21.91		2
64QAM	1	0	22.07	22.04	22.00	0-2	2
	1	25	22.01	22.12	22.08		2
	1	49	21.88	22.08	21.98		2
	25	0	21.07	21.01	20.87	0-3	3
	25	12	21.08	21.04	20.89		3
	25	25	21.10	21.03	20.96		3
	50	0	21.00	21.04	21.00		3

Table 9-42
LTE Band 25 (PCS) Conducted Powers - 5 MHz Bandwidth

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26065 (1852.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26665 (1912.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.05	23.76	23.90	0	0
	1	12	24.15	23.88	24.04		0
	1	24	24.20	23.94	24.04		0
	12	0	23.00	22.93	22.94	0-1	1
	12	6	23.07	22.95	22.99		1
	12	13	23.07	23.01	23.08		1
	25	0	23.09	22.98	23.01		1
16QAM	1	0	22.82	22.80	23.03	0-1	1
	1	12	22.93	22.96	22.99		1
	1	24	22.91	22.87	22.98		1
	12	0	21.76	21.61	21.69	0-2	2
	12	6	21.84	21.70	21.73		2
	12	13	21.84	21.78	21.76		2
	25	0	22.16	22.14	22.14		2
64QAM	1	0	21.52	21.85	21.92	0-2	2
	1	12	21.46	21.91	21.90		2
	1	24	21.51	21.98	21.80		2
	12	0	21.10	20.86	21.05	0-3	3
	12	6	21.06	20.84	21.13		3
	12	13	20.97	20.92	21.14		3
	25	0	20.74	20.85	21.10		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-43
LTE Band 25 (PCS) Conducted Powers - 3 MHz Bandwidth

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26055 (1851.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26675 (1913.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.92	23.86	23.81	0	0
	1	7	23.97	23.97	23.93		0
	1	14	24.02	23.98	23.96		0
	8	0	23.05	22.86	22.87	0-1	1
	8	4	23.09	23.05	22.97		1
	8	7	23.09	22.95	23.04		1
	15	0	23.08	22.97	22.94		1
16QAM	1	0	22.86	22.85	22.70	0-1	1
	1	7	22.94	22.98	22.87		1
	1	14	22.97	22.92	22.84		1
	8	0	21.87	21.69	21.90	0-2	2
	8	4	21.91	21.80	21.94		2
	8	7	21.86	21.75	21.99		2
	15	0	21.97	21.91	21.93		2
64QAM	1	0	22.00	22.07	22.00	0-2	2
	1	7	21.98	22.02	22.04		2
	1	14	21.90	22.13	22.11		2
	8	0	21.20	21.16	21.15	0-3	3
	8	4	21.15	21.19	21.04		3
	8	7	21.05	21.18	21.00		3
	15	0	21.00	21.10	20.85		3

Table 9-44
LTE Band 25 (PCS) Conducted Powers -1.4 MHz Bandwidth

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26047 (1850.7 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26683 (1914.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.95	24.06	23.75	0	0
	1	2	24.06	24.13	23.87		0
	1	5	23.98	24.04	23.85		0
	3	0	24.04	23.94	23.85		0
	3	2	24.05	24.03	23.97		0
	3	3	24.07	23.94	23.97		0
	6	0	22.97	22.93	22.89	0-1	1
16QAM	1	0	22.94	22.77	22.73	0-1	1
	1	2	23.05	22.84	22.81		1
	1	5	22.98	22.79	22.84		1
	3	0	22.82	22.71	22.62		1
	3	2	22.88	22.80	22.68		1
	3	3	22.84	22.75	22.68		1
	6	0	21.83	21.75	21.76	0-2	2
64QAM	1	0	21.82	22.14	22.10	0-2	2
	1	2	21.87	22.17	22.18		2
	1	5	21.89	22.18	22.08		2
	3	0	21.52	21.57	21.60		2
	3	2	21.53	21.60	21.67		2
	3	3	21.52	21.59	21.67		2
	6	0	20.54	21.14	21.12	0-3	3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-45
LTE Band 25 (PCS) Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.21	22.49	**22.50**	0	0
	1	50	22.22	22.31	22.36		0
	1	99	22.08	22.36	22.46		0
	50	0	22.41	22.44	22.47	0-1	0
	50	25	22.44	22.47	22.48		0
	50	50	22.43	22.46	**22.49**		0
	100	0	22.19	22.43	22.46		0
16QAM	1	0	22.06	22.17	22.16	0-1	0
	1	50	22.07	22.10	22.21		0
	1	99	22.07	22.18	22.21		0
	50	0	22.17	22.16	22.19	0-2	0.3
	50	25	22.14	22.18	22.20		0.3
	50	50	22.15	22.20	22.20		0.3
	100	0	22.12	22.15	22.18		0.3
64QAM	1	0	21.88	21.72	21.66	0-2	0.3
	1	50	21.57	21.67	21.70		0.3
	1	99	21.45	21.65	21.75		0.3
	50	0	21.02	21.06	21.04	0-3	1.3
	50	25	21.06	21.08	21.08		1.3
	50	50	21.07	21.06	21.15		1.3
	100	0	21.05	21.04	21.07		1.3

Table 9-46
LTE Band 25 (PCS) Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26115 (1857.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26615 (1907.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.26	22.39	22.23	0	0
	1	36	22.30	22.44	22.27		0
	1	74	22.29	22.31	22.25		0
	36	0	22.34	22.37	22.31	0-1	0
	36	18	22.40	22.42	22.41		0
	36	37	22.36	22.39	22.37		0
	75	0	22.34	22.33	22.35		0
16QAM	1	0	22.37	22.48	22.07	0-1	0
	1	36	22.43	22.42	22.07		0
	1	74	22.35	22.34	21.99		0
	36	0	22.18	22.20	22.13	0-2	0.3
	36	18	22.12	22.10	22.15		0.3
	36	37	22.13	22.16	22.18		0.3
	75	0	22.10	22.20	22.14		0.3
64QAM	1	0	21.77	21.88	22.15	0-2	0.3
	1	36	21.92	21.83	22.08		0.3
	1	74	21.87	21.66	22.01		0.3
	36	0	21.13	21.08	21.17	0-3	1.3
	36	18	21.12	20.98	21.19		1.3
	36	37	21.09	21.07	21.14		1.3
	75	0	21.11	21.12	21.20		1.3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-47
LTE Band 25 (PCS) Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26090 (1855.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26640 (1910.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.33	22.35	22.31	0	0
	1	25	22.30	22.24	22.25		0
	1	49	22.32	22.37	22.31		0
	25	0	22.24	22.23	22.27	0-1	0
	25	12	22.27	22.23	22.35		0
	25	25	22.26	22.24	22.19		0
	50	0	22.23	22.22	22.16		0
16QAM	1	0	22.31	22.31	22.25	0-1	0
	1	25	22.32	22.34	22.24		0
	1	49	22.24	22.18	22.20		0
	25	0	22.08	22.11	22.05	0-2	0.3
	25	12	22.06	22.12	22.08		0.3
	25	25	22.04	22.05	22.08		0.3
	50	0	22.02	22.02	22.05		0.3
64QAM	1	0	22.05	22.00	22.15	0-2	0.3
	1	25	22.02	21.85	22.18		0.3
	1	49	21.93	21.94	22.14		0.3
	25	0	21.18	21.19	21.18	0-3	1.3
	25	12	21.12	21.15	21.12		1.3
	25	25	21.16	21.12	21.19		1.3
	50	0	21.19	21.20	21.17		1.3

Table 9-48
LTE Band 25 (PCS) Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26065 (1852.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26665 (1912.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.30	22.24	22.18	0	0
	1	12	22.41	22.41	22.25		0
	1	24	22.40	22.42	22.27		0
	12	0	22.46	22.36	22.30	0-1	0
	12	6	22.48	22.50	22.39		0
	12	13	22.34	22.50	22.37		0
	25	0	22.40	22.41	22.33		0
16QAM	1	0	22.14	22.35	22.10	0-1	0
	1	12	22.14	22.50	22.26		0
	1	24	22.18	22.46	22.18		0
	12	0	21.92	21.84	21.71	0-2	0.3
	12	6	21.95	21.95	21.85		0.3
	12	13	21.97	21.97	21.83		0.3
	25	0	22.03	21.98	22.14		0.3
64QAM	1	0	21.93	22.06	22.05	0-2	0.3
	1	12	22.05	21.92	21.90		0.3
	1	24	21.78	22.01	21.81		0.3
	12	0	21.14	21.15	21.06	0-3	1.3
	12	6	21.17	21.18	21.12		1.3
	12	13	21.13	21.08	21.16		1.3
	25	0	21.09	21.07	21.11		1.3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-49
LTE Band 25 (PCS) Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26055 (1851.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26675 (1913.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.26	22.25	22.30	0	0
	1	7	22.32	22.31	22.23		0
	1	14	22.29	22.28	22.18		0
	8	0	22.45	22.32	22.29	0-1	0
	8	4	22.48	22.47	22.36		0
	8	7	22.42	22.41	22.38		0
	15	0	22.47	22.42	22.33		0
16QAM	1	0	22.25	22.34	22.15	0-1	0
	1	7	22.35	22.38	22.28		0
	1	14	22.32	22.31	22.25		0
	8	0	21.99	21.76	22.03	0-2	0.3
	8	4	22.02	21.91	22.09		0.3
	8	7	21.97	21.93	22.10		0.3
	15	0	22.12	22.06	22.06		0.3
64QAM	1	0	21.97	21.88	22.04	0-2	0.3
	1	7	22.03	21.84	22.05		0.3
	1	14	22.02	21.85	21.98		0.3
	8	0	21.11	21.07	21.10	0-3	1.3
	8	4	21.15	21.11	21.10		1.3
	8	7	21.10	21.17	21.18		1.3
	15	0	21.16	21.18	21.02		1.3

Table 9-50
LTE Band 25 (PCS) Reduced Conducted Powers -1.4 MHz Bandwidth

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26047 (1850.7 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26683 (1914.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.25	22.18	22.18	0	0
	1	2	22.34	22.24	22.23		0
	1	5	22.32	22.17	22.27		0
	3	0	22.23	22.32	22.25		0
	3	2	22.32	22.29	22.18		0
	3	3	22.27	22.36	22.17		0
	6	0	22.22	22.30	22.24	0-1	0
16QAM	1	0	22.06	22.09	22.09	0-1	0
	1	2	22.16	22.18	22.12		0
	1	5	22.23	22.12	21.99		0
	3	0	22.25	22.23	22.21		0
	3	2	22.29	22.31	22.18		0
	3	3	22.30	22.32	22.22		0
	6	0	22.05	22.13	22.01	0-2	0.3
64QAM	1	0	22.18	22.16	22.15	0-2	0.3
	1	2	22.20	22.20	22.14		0.3
	1	5	22.15	22.19	22.19		0.3
	3	0	22.12	22.04	22.03		0.3
	3	2	22.17	22.11	22.05		0.3
	3	3	22.13	22.08	22.14		0.3
	6	0	21.16	21.07	21.10	0-3	1.3

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.4.9 LTE Band 30

Table 9-51
LTE Band 30 Conducted Powers - 10 MHz Bandwidth

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 27710 (2310.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	23.20	0	0
	1	25	**23.37**		0
	1	49	23.27		0
	25	0	22.33	0-1	1
	25	12	**22.35**		1
	25	25	22.24		1
	50	0	22.34		1
16QAM	1	0	22.36	0-1	1
	1	25	22.37		1
	1	49	22.43		1
	25	0	21.27	0-2	2
	25	12	21.24		2
	25	25	21.20		2
	50	0	21.22		2
64QAM	1	0	21.44	0-2	2
	1	25	21.65		2
	1	49	21.42		2
	25	0	20.47	0-3	3
	25	12	20.37		3
	25	25	20.36		3
	50	0	20.36		3

Table 9-52
LTE Band 30 Conducted Powers - 5 MHz Bandwidth

LTE Band 30 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 27710 (2310.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	23.25	0	0
	1	12	23.38		0
	1	24	23.28		0
	12	0	22.31	0-1	1
	12	6	22.34		1
	12	13	22.33		1
	25	0	22.33		1
16QAM	1	0	22.10	0-1	1
	1	12	22.23		1
	1	24	22.13		1
	12	0	21.11	0-2	2
	12	6	21.12		2
	12	13	21.10		2
	25	0	21.04		2
64QAM	1	0	20.98	0-2	2
	1	12	21.14		2
	1	24	21.03		2
	12	0	20.40	0-3	3
	12	6	20.42		3
	12	13	20.42		3
	25	0	20.31		3

Note: LTE Band 30 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.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.4.10 LTE Band 7

Table 9-53
LTE Band 7 Conducted Powers - 20 MHz Bandwidth

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20850 (2510.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21350 (2560.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.50	23.40	23.42	0	0
	1	50	**23.51**	23.21	23.15		0
	1	99	23.44	23.24	23.18		0
	50	0	22.48	22.37	22.29	0-1	1
	50	25	**22.52**	22.27	22.32		1
	50	50	22.51	22.27	22.19		1
	100	0	22.46	22.34	22.27		1
16QAM	1	0	22.40	22.28	22.15	0-1	1
	1	50	22.36	22.37	22.25		1
	1	99	22.14	22.04	22.20		1
	50	0	21.40	21.30	21.28	0-2	2
	50	25	21.41	21.25	21.17		2
	50	50	21.41	21.25	21.10		2
	100	0	21.40	21.27	21.15		2
64QAM	1	0	21.43	21.53	21.60	0-2	2
	1	50	21.45	21.26	21.32		2
	1	99	21.39	21.20	21.24		2
	50	0	20.51	20.46	20.39	0-3	3
	50	25	20.51	20.40	20.31		3
	50	50	20.51	20.27	20.22		3
	100	0	20.54	20.38	20.38		3

Table 9-54
LTE Band 7 Conducted Powers - 15 MHz Bandwidth

LTE Band 7 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20825 (2507.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21375 (2562.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.61	23.47	23.50	0	0
	1	36	23.66	23.54	23.46		0
	1	74	23.70	23.47	23.37		0
	36	0	22.59	22.63	22.59	0-1	1
	36	18	22.67	22.64	22.62		1
	36	37	22.68	22.59	22.55		1
	75	0	22.64	22.63	22.56		1
16QAM	1	0	22.29	22.28	22.13	0-1	1
	1	36	22.35	22.38	22.20		1
	1	74	22.33	22.35	22.15		1
	36	0	21.53	21.51	21.53	0-2	2
	36	18	21.62	21.54	21.58		2
	36	37	21.62	21.48	21.48		2
	75	0	21.56	21.50	21.47		2
64QAM	1	0	21.47	21.54	21.45	0-2	2
	1	36	21.38	21.40	21.44		2
	1	74	21.42	21.52	21.34		2
	36	0	20.66	20.66	20.46	0-3	3
	36	18	20.59	20.68	20.43		3
	36	37	20.55	20.62	20.65		3
	75	0	20.69	20.64	20.62		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-55
LTE Band 7 Conducted Powers - 10 MHz Bandwidth

LTE Band 7 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20800 (2505.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21400 (2565.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.40	23.40	23.27	0	0
	1	25	23.39	23.25	23.17		0
	1	49	23.50	23.33	23.22		0
	25	0	22.50	22.48	22.45	0-1	1
	25	12	22.48	22.50	22.43		1
	25	25	22.47	22.47	22.44		1
	50	0	22.42	22.48	22.39		1
16QAM	1	0	22.26	22.51	22.28	0-1	1
	1	25	22.26	22.35	22.13		1
	1	49	22.41	22.55	22.17		1
	25	0	21.61	21.66	21.53	0-2	2
	25	12	21.63	21.67	21.55		2
	25	25	21.62	21.62	21.49		2
	50	0	21.61	21.61	21.49		2
64QAM	1	0	21.46	21.46	21.17	0-2	2
	1	25	21.42	21.49	21.10		2
	1	49	21.61	21.52	21.20		2
	25	0	20.46	20.45	20.46	0-3	3
	25	12	20.46	20.48	20.49		3
	25	25	20.44	20.46	20.46		3
	50	0	20.46	20.49	20.43		3

Table 9-56
LTE Band 7 Conducted Powers - 5 MHz Bandwidth

LTE Band 7 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20775 (2502.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21425 (2567.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.32	23.36	23.48	0	0
	1	12	23.47	23.49	23.54		0
	1	24	23.46	23.52	23.56		0
	12	0	22.48	22.45	22.46	0-1	1
	12	6	22.58	22.56	22.55		1
	12	13	22.55	22.58	22.52		1
	25	0	22.49	22.48	22.46		1
16QAM	1	0	22.24	22.23	22.39	0-1	1
	1	12	22.40	22.35	22.56		1
	1	24	22.40	22.22	22.51		1
	12	0	21.51	21.49	21.48	0-2	2
	12	6	21.60	21.61	21.54		2
	12	13	21.64	21.56	21.53		2
	25	0	21.51	21.59	21.50		2
64QAM	1	0	21.22	21.29	21.32	0-2	2
	1	12	21.34	21.44	21.54		2
	1	24	21.39	21.45	21.52		2
	12	0	20.59	20.48	20.55	0-3	3
	12	6	20.68	20.61	20.61		3
	12	13	20.69	20.59	20.56		3
	25	0	20.48	20.45	20.60		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.4.11 LTE Band 48

Table 9-57
LTE Band 48 Conducted Powers - 20 MHz Bandwidth

LTE Band 48 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 55340 (3560.0 MHz)	Low-Mid Channel 55773 (3603.3 MHz)	Mid-High Channel 56207 (3646.7 MHz)	High Channel 56640 (3690.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]					
QPSK	1	0	24.19	24.05	24.17	24.18	0	0
	1	50	24.15	24.08	24.18	24.14		0
	1	99	24.18	24.18	**24.20**	24.10		0
	50	0	22.68	22.77	23.08	22.69	0-1	1
	50	25	22.71	22.78	**23.15**	22.71		1
	50	50	22.68	22.74	23.00	22.63		1
	100	0	22.72	22.74	22.80	22.66		1
16QAM	1	0	23.17	23.16	23.20	22.96	0-1	1
	1	50	23.12	23.15	23.19	22.94		1
	1	99	23.11	23.20	23.15	22.90		1
	50	0	21.86	21.98	21.96	22.03	0-2	2
	50	25	21.88	21.98	22.01	21.99		2
	50	50	21.87	21.94	21.98	21.94		2
	100	0	21.89	21.93	21.98	22.02		2
64QAM	1	0	22.18	22.19	22.08	22.19	0-2	2
	1	50	22.18	22.18	22.11	22.18		2
	1	99	22.17	22.20	22.10	22.19		2
	50	0	20.70	20.76	20.89	20.70	0-3	3
	50	25	20.74	20.78	20.88	20.89		3
	50	50	20.73	20.77	20.92	20.81		3
	100	0	20.73	20.76	20.86	20.71		3

Table 9-58
LTE Band 48 Conducted Powers - 15 MHz Bandwidth

LTE Band 48 15 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 55315 (3557.5 MHz)	Low-Mid Channel 55765 (3602.5 MHz)	Mid-High Channel 56215 (3647.5 MHz)	High Channel 56665 (3692.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]					
QPSK	1	0	24.12	24.00	24.09	24.08	0	0
	1	36	24.16	24.01	24.13	24.08		0
	1	74	24.05	24.08	24.10	24.02		0
	36	0	23.05	23.08	23.09	23.04	0-1	1
	36	18	22.81	22.81	22.86	22.78		1
	36	37	22.77	22.77	22.83	22.72		1
	75	0	22.73	22.73	22.79	22.73		1
16QAM	1	0	22.85	22.72	22.54	22.85	0-1	1
	1	36	22.89	22.78	22.60	22.87		1
	1	74	22.83	22.81	22.58	22.82		1
	36	0	21.67	21.66	21.76	21.70	0-2	2
	36	18	21.76	21.70	21.86	21.72		2
	36	37	21.69	21.65	21.81	21.66		2
	75	0	21.67	21.69	21.74	21.65		2
64QAM	1	0	21.90	21.80	21.75	21.79	0-2	2
	1	36	21.88	21.87	21.74	21.87		2
	1	74	21.82	21.88	21.74	21.75		2
	36	0	20.82	20.75	20.65	20.83	0-3	3
	36	18	20.89	20.75	20.71	20.84		3
	36	37	20.69	20.68	20.67	20.76		3
	75	0	20.70	20.59	20.75	20.77		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-59
LTE Band 48 Conducted Powers - 10 MHz Bandwidth

LTE Band 48 10 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 55290 (3555.0 MHz)	Low-Mid Channel 55757 (3601.7 MHz)	Mid-High Channel 56223 (3648.3 MHz)	High Channel 56690 (3695.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]					
QPSK	1	0	24.03	24.07	24.00	24.14	0	0
	1	25	24.05	24.08	23.93	24.17		0
	1	49	24.09	24.16	24.06	24.15		0
	25	0	22.70	22.68	22.65	22.67	0-1	1
	25	12	22.79	22.76	22.72	22.74		1
	25	25	22.79	22.76	22.75	22.74		1
	50	0	22.76	22.74	22.75	22.73		1
16QAM	1	0	22.80	22.88	22.69	22.59	0-1	1
	1	25	22.81	22.83	22.62	22.54		1
	1	49	22.63	22.84	22.76	22.54		1
	25	0	21.63	21.64	21.55	21.56	0-2	2
	25	12	21.76	21.79	21.59	21.66		2
	25	25	21.73	21.69	21.58	21.67		2
	50	0	21.72	21.66	21.59	21.69		2
64QAM	1	0	21.89	21.81	21.77	21.83	0-2	2
	1	25	21.88	21.77	21.67	21.82		2
	1	49	21.75	21.84	21.79	21.86		2
	25	0	20.77	20.77	20.74	20.69	0-3	3
	25	12	20.84	20.86	20.76	20.81		3
	25	25	20.75	20.83	20.69	20.68		3
	50	0	20.78	20.87	20.80	20.67		3

Table 9-60
LTE Band 48 Conducted Powers - 5 MHz Bandwidth

LTE Band 48 5 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 55265 (3552.5 MHz)	Low-Mid Channel 55748 (3600.8 MHz)	Mid-High Channel 56232 (3649.2 MHz)	High Channel 56715 (3697.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]					
QPSK	1	0	24.09	24.06	24.04	24.09	0	0
	1	12	24.18	24.10	24.10	24.09		0
	1	24	24.07	24.02	24.06	24.10		0
	12	0	23.04	22.98	23.04	23.00	0-1	1
	12	6	23.08	23.05	23.10	23.06		1
	12	13	23.07	23.05	23.09	23.05		1
	25	0	23.04	23.03	23.08	23.01		1
16QAM	1	0	22.63	22.50	22.50	22.65	0-1	1
	1	12	22.65	22.63	22.39	22.72		1
	1	24	22.72	22.43	22.53	22.67		1
	12	0	21.77	21.74	21.83	21.66	0-2	2
	12	6	21.85	21.82	21.89	21.87		2
	12	13	21.83	21.81	21.89	21.81		2
	25	0	21.74	21.71	21.83	21.73		2
64QAM	1	0	21.60	21.57	21.59	21.49	0-2	2
	1	12	21.64	21.55	21.41	21.44		2
	1	24	21.54	21.55	21.46	21.38		2
	12	0	21.05	21.08	21.07	21.04	0-3	3
	12	6	21.12	21.16	21.13	21.08		3
	12	13	21.08	21.08	21.12	21.06		3
	25	0	21.02	21.02	21.06	20.90		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.4.12 LTE Band 41

Table 9-61
LTE Band 41 PC3 Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	24.96	24.96	**25.08**	24.87	24.67	0	0
	1	50	24.94	24.94	24.92	24.85	24.73		0
	1	99	24.97	24.91	24.88	24.61	24.93		0
	50	0	23.84	23.93	**23.99**	23.79	23.74	0-1	1
	50	25	23.91	23.95	23.98	23.77	23.79		1
	50	50	23.92	23.89	23.92	23.68	23.87		1
	100	0	23.88	23.91	23.94	23.73	23.79		1
16QAM	1	0	23.71	23.75	23.75	23.64	23.49	0-1	1
	1	50	23.69	23.72	23.74	23.50	23.58		1
	1	99	23.70	23.70	23.69	23.40	23.71		1
	50	0	22.82	22.89	22.90	22.80	22.71	0-2	2
	50	25	22.84	22.92	22.93	22.75	22.77		2
	50	50	22.87	22.85	22.89	22.66	22.85		2
	100	0	22.93	22.93	22.94	22.75	22.80		2
64QAM	1	0	22.69	22.75	22.71	22.63	22.59	0-2	2
	1	50	22.64	22.69	22.73	22.51	22.61		2
	1	99	22.66	22.68	22.62	22.41	22.75		2
	50	0	21.88	21.88	21.82	21.75	21.79	0-3	3
	50	25	21.89	21.86	21.85	21.74	21.87		3
	50	50	21.87	21.77	21.77	21.63	21.92		3
	100	0	21.85	21.80	21.74	21.51	21.79		3

Table 9-62
LTE Band 41 PC3 Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	24.96	25.04	24.99	25.05	25.16	25.05	0
	1	36	25.00	25.11	25.07	25.01	25.05		0
	1	74	25.02	24.96	25.00	24.88	25.01		0
	36	0	23.90	23.91	23.92	23.94	24.01	0-1	1
	36	18	23.93	23.96	23.97	23.94	24.09		1
	36	37	23.93	23.86	23.96	23.86	24.08		1
	75	0	23.88	23.86	23.88	23.87	23.99		1
16QAM	1	0	23.51	23.75	23.53	23.77	23.55	0-1	1
	1	36	23.54	23.87	23.61	23.74	23.70		1
	1	74	23.52	23.73	23.56	23.62	23.76		1
	36	0	22.85	22.80	22.88	22.81	22.96	0-2	2
	36	18	22.90	22.83	22.94	22.80	23.04		2
	36	37	22.89	22.81	22.96	22.73	23.08		2
	75	0	22.81	22.79	22.87	22.81	22.97		2
64QAM	1	0	22.59	22.73	22.64	23.02	22.66	0-2	2
	1	36	22.62	22.66	22.75	23.01	22.79		2
	1	74	22.60	22.50	22.75	22.85	22.86		2
	36	0	21.95	21.86	22.00	21.89	22.03	0-3	3
	36	18	21.99	21.96	22.03	21.87	22.13		3
	36	37	21.98	21.89	22.01	21.80	22.16		3
	75	0	21.93	21.89	21.96	21.93	22.07		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-63
LTE Band 41 PC3 Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	24.70	24.63	24.81	24.68	24.85	0	0
	1	25	24.73	24.70	24.78	24.59	24.94		0
	1	49	24.77	24.65	24.76	24.58	24.90		0
	25	0	23.69	23.72	23.79	23.66	23.79	0-1	1
	25	12	23.71	23.75	23.82	23.61	23.84		1
	25	25	23.66	23.67	23.73	23.57	23.83		1
	50	0	23.74	23.72	23.82	23.58	23.86		1
16QAM	1	0	23.52	23.59	23.68	23.41	23.63	0-1	1
	1	25	23.57	23.52	23.62	23.33	23.71		1
	1	49	23.49	23.50	23.51	23.29	23.59		1
	25	0	22.63	22.60	22.74	22.37	22.78	0-2	2
	25	12	22.58	22.61	22.73	22.36	22.76		2
	25	25	22.62	22.52	22.71	22.31	22.74		2
	50	0	22.65	22.62	22.70	22.42	22.78		2
64QAM	1	0	22.21	22.35	22.30	22.22	22.31	0-2	2
	1	25	22.20	22.26	22.10	22.16	22.38		2
	1	49	22.19	22.27	22.27	22.06	22.32		2
	25	0	21.75	21.79	21.69	21.61	21.87	0-3	3
	25	12	21.76	21.79	21.69	21.59	21.85		3
	25	25	21.70	21.73	21.61	21.55	21.85		3
	50	0	21.47	21.78	21.73	21.54	21.86		3

Table 9-64
LTE Band 41 PC3 Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	24.82	24.79	24.85	24.67	24.83	0	0
	1	12	24.86	24.83	24.89	24.70	24.92		0
	1	24	24.87	24.79	24.88	24.67	24.95		0
	12	0	23.68	23.81	23.78	23.58	23.79	0-1	1
	12	6	23.76	23.75	23.82	23.59	23.81		1
	12	13	23.76	23.78	23.84	23.62	23.86		1
	25	0	23.74	23.79	23.86	23.71	23.88		1
16QAM	1	0	23.50	23.33	23.34	23.05	23.80	0-1	1
	1	12	23.54	23.34	23.36	23.04	23.39		1
	1	24	23.56	23.35	23.38	23.08	23.43		1
	12	0	22.42	22.42	22.41	22.17	22.48	0-2	2
	12	6	22.44	22.36	22.46	22.20	22.50		2
	12	13	22.44	22.38	22.47	22.23	22.51		2
	25	0	22.50	22.44	22.52	22.33	22.55		2
64QAM	1	0	21.95	21.85	21.92	22.17	22.57	0-2	2
	1	12	21.95	21.91	21.94	22.17	22.43		2
	1	24	22.01	21.93	22.02	22.23	22.52		2
	12	0	21.65	21.82	21.75	21.51	21.57	0-3	3
	12	6	21.71	21.84	21.79	21.53	21.80		3
	12	13	21.68	21.80	21.69	21.56	21.85		3
	25	0	21.79	21.82	21.85	21.65	21.85		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-65
LTE Band 41 PC2 Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	27.54	27.66	27.40	27.62	27.67	0	0
	1	50	27.57	27.51	27.51	27.55	27.69		0
	1	99	27.62	27.43	27.54	27.44	27.70		0
	50	0	26.42	26.42	26.51	26.64	26.57	0-1	1
	50	25	26.45	26.47	26.49	26.58	26.61		1
	50	50	26.47	26.49	26.41	26.43	26.67		1
	100	0	26.41	26.40	26.35	26.51	26.60		1
16QAM	1	0	26.25	26.38	26.33	26.63	26.31	0-1	1
	1	50	26.31	26.13	26.34	26.48	26.46		1
	1	99	26.39	26.11	26.36	26.29	26.53		1
	50	0	25.38	25.47	25.42	25.53	25.48	0-2	2
	50	25	25.42	25.40	25.44	25.56	25.61		2
	50	50	25.53	25.34	25.36	25.41	25.67		2
	100	0	25.38	25.39	25.37	25.50	25.59		2
64QAM	1	0	25.04	25.09	25.02	25.21	25.02	0-2	2
	1	50	25.00	24.93	25.04	25.12	25.11		2
	1	99	25.15	24.91	24.97	25.05	25.39		2
	50	0	24.40	24.46	24.38	24.53	24.42	0-3	3
	50	25	24.47	24.45	24.40	24.47	24.56		3
	50	50	24.50	24.31	24.39	24.41	24.63		3
	100	0	24.32	24.36	24.32	24.47	24.46		3

Table 9-66
LTE Band 41 PC2 Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	27.51	27.43	27.59	27.12	27.55	0	0
	1	36	27.52	27.46	27.64	27.05	27.65		0
	1	74	27.42	27.33	27.44	26.95	27.60		0
	36	0	26.43	26.39	26.44	26.28	26.37	0-1	1
	36	18	26.48	26.40	26.54	26.29	26.41		1
	36	37	26.47	26.27	26.48	26.30	26.39		1
	75	0	26.40	26.26	26.42	26.36	26.34		1
16QAM	1	0	26.42	26.48	26.69	26.31	26.31	0-1	1
	1	36	26.42	26.48	26.54	26.25	26.38		1
	1	74	26.37	26.37	26.47	26.34	26.38		1
	36	0	25.42	25.22	25.38	25.26	25.35	0-2	2
	36	18	25.45	25.23	25.44	25.27	25.41		2
	36	37	25.43	25.13	25.42	25.30	25.37		2
	75	0	25.36	25.20	25.34	25.14	25.27		2
64QAM	1	0	25.49	25.32	25.21	25.19	25.05	0-2	2
	1	36	25.35	24.78	25.27	25.09	25.21		2
	1	74	25.17	25.16	25.20	25.01	25.36		2
	36	0	24.28	24.29	24.68	24.12	24.63	0-3	3
	36	18	24.35	24.28	24.62	24.29	24.70		3
	36	37	24.26	24.22	24.43	24.33	24.57		3
	75	0	24.23	24.36	24.51	24.37	24.54		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-67
LTE Band 41 PC2 Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	27.56	27.39	27.61	27.07	27.38	0	0
	1	25	27.40	27.31	27.56	26.97	27.31		0
	1	49	27.44	27.32	27.59	27.10	27.32		0
	25	0	26.36	26.32	26.46	26.12	26.29	0-1	1
	25	12	26.37	26.31	26.49	26.12	26.29		1
	25	25	26.31	26.24	26.42	26.07	26.23		1
	50	0	26.33	26.26	26.45	26.07	26.25		1
16QAM	1	0	26.51	26.67	26.64	26.35	26.70	0-1	1
	1	25	26.42	26.59	26.61	26.27	26.53		1
	1	49	26.44	26.62	26.58	26.26	26.57		1
	25	0	25.30	25.19	25.35	25.24	25.17	0-2	2
	25	12	25.32	25.22	25.36	25.25	25.18		2
	25	25	25.26	25.16	25.28	25.20	25.12		2
	50	0	25.28	25.18	25.33	25.19	25.16		2
64QAM	1	0	25.69	25.24	25.68	25.14	25.07	0-2	2
	1	25	25.59	25.18	25.52	25.07	25.09		2
	1	49	25.55	25.14	25.33	25.05	24.96		2
	25	0	24.33	24.35	24.23	24.46	24.40	0-3	3
	25	12	24.41	24.38	24.20	24.45	24.23		3
	25	25	24.36	24.28	24.17	24.43	24.44		3
	50	0	24.30	24.31	24.19	24.40	24.33		3

Table 9-68
LTE Band 41 PC2 Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	27.12	27.25	27.17	27.29	27.09	0	0
	1	12	27.27	27.29	27.19	27.20	27.20		0
	1	24	27.18	27.26	27.16	27.31	27.12		0
	12	0	26.22	26.36	26.31	26.39	26.24	0-1	1
	12	6	26.25	26.37	26.35	26.44	26.32		1
	12	13	26.27	26.34	26.32	26.42	26.25		1
	25	0	26.21	26.32	26.27	26.39	26.22		1
16QAM	1	0	26.25	26.25	26.42	26.42	26.31	0-1	1
	1	12	26.21	26.36	26.43	26.42	26.33		1
	1	24	26.19	26.45	26.44	26.42	26.48		1
	12	0	25.18	25.40	25.32	25.46	25.39	0-2	2
	12	6	25.22	25.37	25.36	25.51	25.40		2
	12	13	25.33	25.36	25.33	25.49	25.36		2
	25	0	25.18	25.28	25.37	25.41	25.35		2
64QAM	1	0	24.84	25.34	25.31	25.22	25.33	0-2	2
	1	12	24.80	25.22	25.38	25.03	25.37		2
	1	24	24.95	25.33	25.40	25.06	24.81		2
	12	0	24.20	24.19	24.32	24.31	24.42	0-3	3
	12	6	24.27	24.26	24.31	24.36	24.44		3
	12	13	24.30	24.20	24.39	24.34	24.39		3
	25	0	24.12	24.24	24.23	24.25	24.35		3

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.4.13 LTE Uplink Carrier Aggregation Conducted Powers

Table 9-69
LTE Band 5 Uplink Carrier Aggregation Conducted Powers

	PCC									SCC									Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC UL Channel	PCC UL Frequency [MHz]	PCC DL Channel	PCC DL Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC UL Channel	SCC UL Frequency [MHz]	SCC DL Channel	SCC 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_5B	LTE B5	10	20525	836.5	2525	881.5	QPSK	1	0	LTE B5	5	20453	829.3	2453	874.3	QPSK	1	24	25.29	24.96

Table 9-70
LTE Band 41 PC3 Uplink Carrier Aggregation Conducted Powers

	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	25.20	25.08

Table 9-71
LTE Band 41 PC2 Uplink Carrier Aggregation Conducted Powers

	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 PC2	20	40620	2593.0	QPSK	1	0	LTE B41 PC2	20	40422	2573.2	QPSK	1	99	27.52	27.40

Notes:

1. This device supports uplink carrier aggregation for LTE CA_5B and 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 9-4
Power Measurement Setup

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.5 WLAN Conducted Powers

Table 9-72
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	802.11ac
		Average	Average	Average	Average
2412	1	19.74	15.73	14.47	14.47
2422	3	N/A	17.96	16.80	16.77
2437	6	19.86	18.08	17.05	17.02
2452	9	N/A	18.13	16.95	16.97
2462	11	19.87	15.74	14.64	14.67

Table 9-73
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	802.11ac
		Average	Average	Average	Average
2412	1	19.88	16.78	15.47	15.47
2422	3	N/A	19.33	18.21	18.22
2437	6	19.98	19.18	18.12	18.10
2452	9	N/A	19.38	18.21	18.20
2462	11	19.89	16.62	15.43	15.45

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-74
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
		Average	Average	Average
5180	36	16.40	16.35	16.29
5200	40	19.54	19.40	19.39
5220	44	16.37	16.15	16.16
5240	48	16.42	16.26	16.27
5260	52	16.59	16.37	16.35
5280	56	19.63	19.50	19.51
5300	60	16.59	16.62	16.51
5320	64	16.58	16.45	16.41
5500	100	16.57	16.39	16.37
5600	120	16.44	16.26	16.30
5620	124	16.53	16.35	16.41
5720	144	16.41	16.20	16.25
5745	149	16.56	16.35	16.37
5785	157	19.48	19.35	19.33
5825	165	18.44	18.36	18.28

Table 9-75
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
		Average	Average	Average
5180	36	16.41	16.23	16.25
5200	40	19.22	19.16	19.13
5220	44	16.33	16.19	16.26
5240	48	16.54	16.27	16.27
5260	52	16.69	16.36	16.33
5280	56	19.53	19.45	19.44
5300	60	16.46	16.13	16.72
5320	64	16.36	16.29	16.18
5500	100	16.59	16.40	16.43
5600	120	16.55	16.39	16.35
5620	124	16.65	16.50	16.46
5720	144	16.76	16.56	16.60
5745	149	16.55	16.55	16.49
5785	157	19.79	19.65	19.73
5825	165	18.62	18.50	18.48

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-76
5 GHz WLAN Maximum Average RF Power – MIMO

5GHz (20MHz) 802.11n Conducted Power [dBm]				
Freq [MHz]	**Channel**	**ANT1**	**ANT2**	**MIMO**
5180	36	16.35	16.23	19.30
5200	40	19.40	19.16	22.29
5220	44	16.15	16.19	19.18
5240	48	16.26	16.27	19.28
5260	52	16.37	16.36	19.38
5280	56	19.50	19.45	22.49
5300	60	16.62	16.13	19.39
5320	64	16.45	16.29	19.38
5500	100	16.39	16.40	19.41
5600	120	16.26	16.39	19.34
5620	124	16.35	16.50	19.44
5720	144	16.20	16.56	19.39
5745	149	16.35	16.55	19.46
5785	157	19.35	19.65	22.51
5825	165	18.36	18.50	21.44

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-77
2.4 GHz WLAN Reduced Average RF Power – Ant 1

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ac
		Average	Average	Average	Average
2412	1	16.97	15.64	14.46	14.45
2422	3	N/A	16.11	15.82	15.92
2437	6	17.20	16.29	16.07	16.12
2452	9	N/A	16.11	15.68	15.91
2462	11	17.04	15.61	14.33	14.40

Table 9-78
2.4 GHz WLAN Reduced Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ac
		Average	Average	Average	Average
2412	1	17.05	16.80	15.58	15.54
2422	3	N/A	17.41	17.26	17.22
2437	6	17.02	17.30	17.11	17.14
2452	9	N/A	17.35	17.17	17.26
2462	11	16.75	16.48	15.32	15.30

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 9-79
5 GHz WLAN Reduced Average RF Power – Ant 1

5GHz (40MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11n	802.11ac
		Average	Average
5190	38	15.27	15.37
5230	46	15.21	15.27
5270	54	15.45	15.45
5310	62	15.36	15.35
5510	102	15.45	15.41
5590	118	15.35	15.28
5630	126	15.32	15.24
5710	142	15.43	15.37
5755	151	15.43	15.43
5795	159	15.45	15.97

Table 9-80
5 GHz WLAN Reduced Average RF Power – Ant 2

5GHz (40MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11n	802.11ac
		Average	Average
5190	38	15.41	15.38
5230	46	15.25	15.15
5270	54	15.15	15.09
5310	62	15.37	15.40
5510	102	15.23	15.24
5590	118	15.45	15.43
5630	126	15.27	15.29
5710	142	15.36	15.39
5755	151	15.38	15.43
5795	159	15.67	15.57

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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.

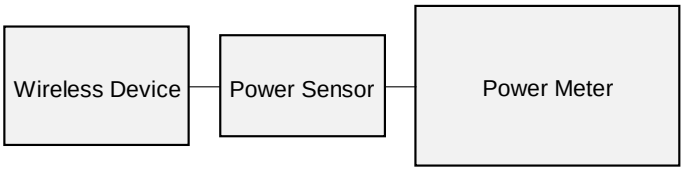


Figure 9-5
Power Measurement Setup

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

9.6 Bluetooth Conducted Powers

Table 9-81
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	9.24	8.398
2441	1.0	39	9.96	9.910
2480	1.0	78	9.91	9.793
2402	2.0	0	8.64	7.303
2441	2.0	39	9.32	8.554
2480	2.0	78	9.26	8.436
2402	3.0	0	8.72	7.447
2441	3.0	39	9.39	8.695
2480	3.0	78	9.31	8.526

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

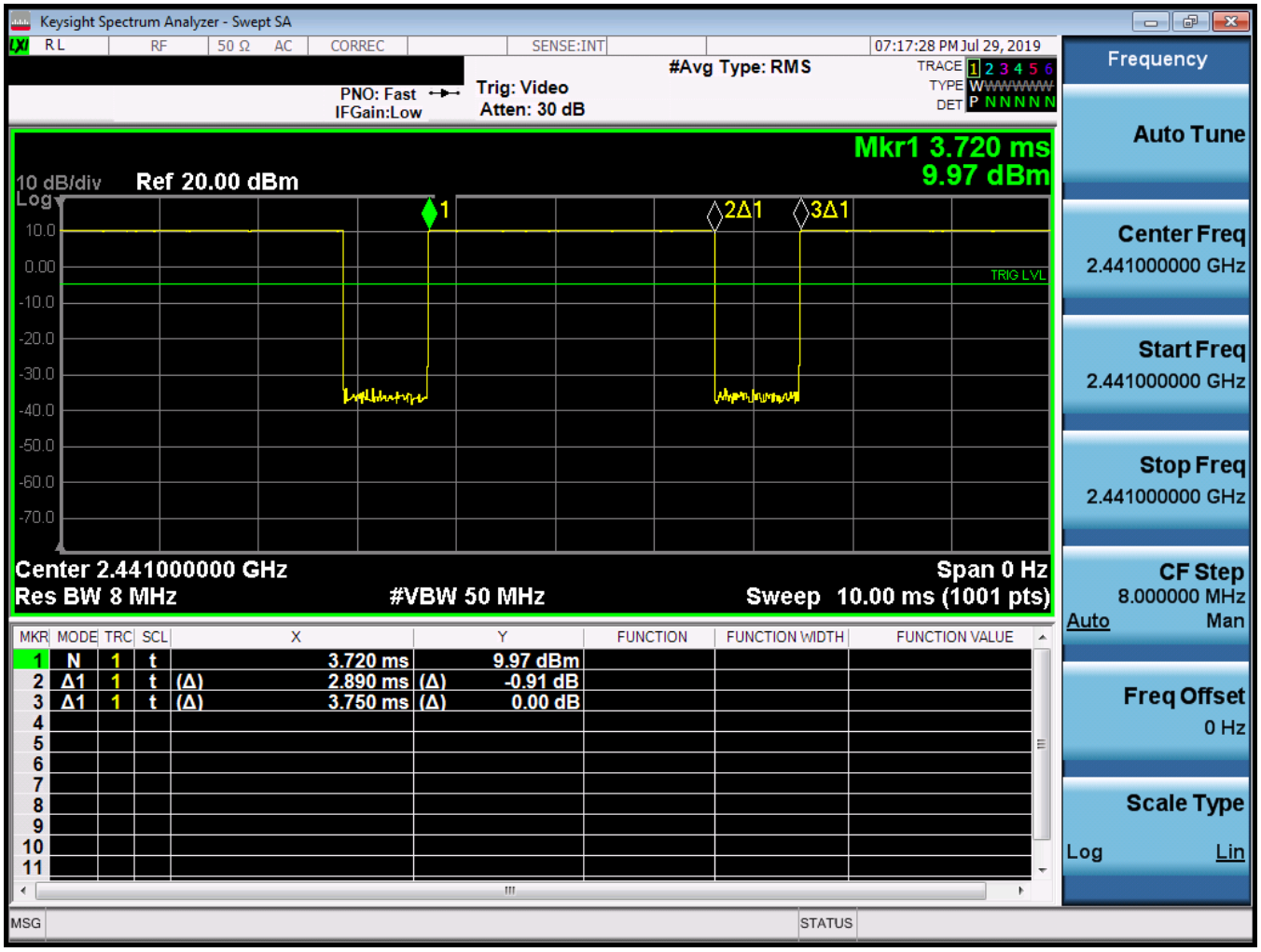


Figure 9-6
Bluetooth Transmission Plot

Equation 9-1
Bluetooth Duty Cycle Calculation

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

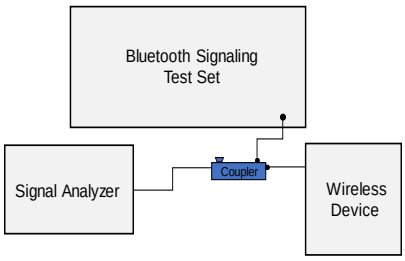


Figure 9-7
Power Measurement Setup

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (˚C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
8/27/2019	750H	21.1	680	0.861	42.014	0.888	42.305	-3.04%	-0.69%
			695	0.866	41.972	0.889	42.227	-2.59%	-0.60%
			700	0.868	41.956	0.889	42.201	-2.36%	-0.58%
			710	0.872	41.928	0.890	42.149	-2.02%	-0.52%
			740	0.882	41.850	0.893	41.994	-1.23%	-0.34%
			755	0.887	41.805	0.894	41.916	-0.78%	-0.26%
			770	0.893	41.756	0.895	41.838	-0.22%	-0.20%
			785	0.898	41.708	0.896	41.760	0.22%	-0.12%
			800	0.904	41.663	0.897	41.682	0.78%	-0.05%
9/3/2019	835H	19.7	820	0.885	40.576	0.899	41.578	-1.56%	-2.41%
			835	0.891	40.533	0.900	41.500	-1.00%	-2.33%
			850	0.896	40.486	0.916	41.500	-2.18%	-2.44%
9/5/2019	835H	21.0	820	0.926	43.134	0.899	41.578	3.00%	3.74%
			835	0.932	43.112	0.900	41.500	3.56%	3.88%
			850	0.938	43.081	0.916	41.500	2.40%	3.81%
9/7/2019	1750H	20.4	1710	1.332	40.367	1.348	40.142	-1.19%	0.56%
			1750	1.358	40.294	1.371	40.079	-0.95%	0.54%
			1790	1.381	40.214	1.394	40.016	-0.93%	0.49%
9/1/2019	1900H	19.7	1850	1.407	39.011	1.400	40.000	0.50%	-2.47%
			1880	1.427	38.969	1.400	40.000	1.93%	-2.58%
			1910	1.446	38.922	1.400	40.000	3.29%	-2.70%
9/5/2019	1900H	22.7	1850	1.397	39.149	1.400	40.000	-0.21%	-2.13%
			1880	1.427	39.010	1.400	40.000	1.93%	-2.48%
			1910	1.458	38.854	1.400	40.000	4.14%	-2.87%
9/9/2019	1900H	20.2	1850	1.423	41.105	1.400	40.000	1.64%	2.76%
			1880	1.442	41.068	1.400	40.000	3.00%	2.67%
			1910	1.461	41.017	1.400	40.000	4.36%	2.54%
8/27/2019	2450H	21.1	2300	1.718	39.026	1.670	39.500	2.87%	-1.20%
			2310	1.725	39.005	1.679	39.480	2.74%	-1.20%
			2320	1.733	38.985	1.687	39.460	2.73%	-1.20%
8/26/2019	2450H	21.5	2400	1.829	39.635	1.756	39.289	4.16%	0.88%
			2450	1.866	39.589	1.800	39.200	3.67%	0.99%
			2500	1.913	39.517	1.855	39.136	3.13%	0.97%
			2550	1.959	39.407	1.909	39.073	2.62%	0.85%
			2600	1.997	39.326	1.964	39.009	1.68%	0.81%
			2650	2.041	39.195	2.018	38.945	1.14%	0.64%
			2700	2.082	39.133	2.073	38.882	0.43%	0.65%
9/4/2019	2450H	22.5	2400	1.824	39.686	1.756	39.289	3.87%	1.01%
			2450	1.865	39.604	1.800	39.200	3.61%	1.03%
			2500	1.904	39.523	1.855	39.136	2.64%	0.99%
			2550	1.945	39.439	1.909	39.073	1.89%	0.94%
			2600	1.985	39.364	1.964	39.009	1.07%	0.91%
			2650	2.026	39.261	2.018	38.945	0.40%	0.81%
			2700	2.066	39.179	2.073	38.882	-0.34%	0.76%
9/5/2019	2450H	20.3	2400	1.817	39.413	1.756	39.289	3.47%	0.32%
			2450	1.855	39.320	1.800	39.200	3.06%	0.31%
			2500	1.895	39.268	1.855	39.136	2.16%	0.34%
			2550	1.935	39.174	1.909	39.073	1.36%	0.26%
			2600	1.980	39.106	1.964	39.009	0.81%	0.25%
			2650	2.019	39.025	2.018	38.945	0.05%	0.21%
			2700	2.065	38.914	2.073	38.882	-0.39%	0.08%
9/3/2019	3500H - 3700 H	20.1	3500	2.817	39.568	2.913	37.929	-3.30%	4.32%
			3550	2.863	39.493	2.964	37.871	-3.41%	4.28%
			3600	2.914	39.406	3.015	37.814	-3.35%	4.21%
			3645	2.956	39.336	3.061	37.763	-3.43%	4.17%
			3685	2.998	39.252	3.102	37.717	-3.35%	4.07%
			3725	3.035	39.208	3.143	37.671	-3.44%	4.08%
09/10/2019	5200H-5800H	22.0	5180	4.542	35.110	4.635	36.009	-2.01%	-2.50%
			5200	4.558	35.073	4.655	35.986	-2.08%	-2.54%
			5220	4.581	35.023	4.676	35.963	-2.03%	-2.61%
			5240	4.606	34.978	4.696	35.940	-1.92%	-2.68%
			5260	4.633	34.937	4.717	35.917	-1.78%	-2.73%
			5280	4.655	34.909	4.737	35.894	-1.73%	-2.74%
			5300	4.678	34.879	4.758	35.871	-1.68%	-2.77%
			5320	4.691	34.846	4.778	35.849	-1.82%	-2.80%
			5500	4.897	34.522	4.963	35.643	-1.33%	-3.15%
			5520	4.923	34.504	4.983	35.620	-1.20%	-3.13%
			5540	4.945	34.467	5.004	35.597	-1.18%	-3.17%
			5560	4.956	34.434	5.024	35.574	-1.35%	-3.20%
			5580	4.986	34.402	5.045	35.551	-1.17%	-3.23%
			5600	5.014	34.343	5.065	35.529	-1.01%	-3.34%
			5620	5.043	34.317	5.086	35.506	-0.85%	-3.35%
			5640	5.062	34.299	5.106	35.483	-0.86%	-3.34%
			5660	5.080	34.261	5.127	35.460	-0.92%	-3.38%
			5680	5.102	34.230	5.147	35.437	-0.87%	-3.41%
			5700	5.124	34.177	5.168	35.414	-0.85%	-3.49%
			5745	5.183	34.099	5.214	35.363	-0.59%	-3.57%
			5765	5.201	34.085	5.234	35.340	-0.63%	-3.55%
			5785	5.226	34.048	5.255	35.317	-0.55%	-3.59%
			5800	5.241	34.016	5.270	35.300	-0.55%	-3.64%
			5805	5.246	34.008	5.275	35.294	-0.55%	-3.64%
			5825	5.273	33.963	5.296	35.271	-0.43%	-3.71%

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 10-2
Measured Body Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (˚C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
8/26/2019	750B	20.2	680	0.935	54.354	0.958	55.804	-2.40%	-2.60%
			695	0.940	54.298	0.959	55.745	-1.98%	-2.60%
			700	0.942	54.286	0.959	55.726	-1.77%	-2.58%
			710	0.945	54.264	0.960	55.687	-1.56%	-2.56%
			740	0.958	54.195	0.963	55.570	-0.52%	-2.47%
			755	0.964	54.157	0.964	55.512	0.00%	-2.44%
			770	0.970	54.122	0.965	55.453	0.52%	-2.40%
			785	0.976	54.090	0.966	55.395	1.04%	-2.36%
			800	0.983	54.042	0.967	55.336	1.65%	-2.34%
8/26/2019	835B	21.6	820	0.948	56.891	0.969	55.258	-2.17%	2.96%
			835	0.954	56.871	0.970	55.200	-1.65%	3.03%
			850	0.962	56.853	0.988	55.154	-2.63%	3.08%
9/5/2019	835B	20.2	820	0.974	54.255	0.969	55.258	0.52%	-1.82%
			835	0.989	54.118	0.970	55.200	1.96%	-1.96%
			850	1.005	53.968	0.988	55.154	1.72%	-2.15%
8/22/2019	1750B	21.0	1710	1.450	52.288	1.463	53.537	-0.89%	-2.33%
			1750	1.479	52.228	1.488	53.432	-0.60%	-2.25%
			1790	1.506	52.158	1.514	53.326	-0.53%	-2.19%
9/9/2019	1750B	19.3	1710	1.430	51.876	1.463	53.537	-2.26%	-3.10%
			1750	1.459	51.801	1.488	53.432	-1.95%	-3.05%
			1790	1.485	51.734	1.514	53.326	-1.92%	-2.99%
9/12/2019	1750B	19.9	1710	1.410	53.944	1.463	53.537	-3.62%	0.76%
			1750	1.436	53.884	1.488	53.432	-3.49%	0.85%
			1790	1.465	53.841	1.514	53.326	-3.24%	0.97%
8/25/2019	1900B	21.6	1850	1.523	54.770	1.520	53.300	0.20%	2.76%
			1880	1.558	54.661	1.520	53.300	2.50%	2.55%
			1910	1.592	54.547	1.520	53.300	4.74%	2.34%
8/28/2019	1900B	23.3	1850	1.507	53.584	1.520	53.300	-0.86%	0.53%
			1880	1.541	53.500	1.520	53.300	1.38%	0.38%
			1910	1.576	53.420	1.520	53.300	3.68%	0.23%
9/5/2019	1900B	20.7	1850	1.532	51.558	1.520	53.300	0.79%	-3.27%
			1880	1.553	51.529	1.520	53.300	2.17%	-3.32%
			1910	1.574	51.494	1.520	53.300	3.55%	-3.39%
9/9/2019	1900B	20.3	1850	1.539	52.247	1.520	53.300	1.25%	-1.98%
			1880	1.559	52.181	1.520	53.300	2.57%	-2.10%
			1910	1.578	52.163	1.520	53.300	3.82%	-2.13%
9/11/2019	1900B	21.9	1850	1.527	51.216	1.520	53.300	0.46%	-3.91%
			1880	1.548	51.185	1.520	53.300	1.84%	-3.97%
			1910	1.570	51.143	1.520	53.300	3.29%	-4.05%
8/21/2019	2450B	23.0	2400	1.976	52.608	1.902	52.767	3.89%	-0.30%
			2450	2.045	52.414	1.950	52.700	4.87%	-0.54%
			2500	2.115	52.242	2.021	52.636	4.65%	-0.75%
			2550	2.184	52.027	2.092	52.573	4.40%	-1.04%
			2600	2.258	51.852	2.163	52.509	4.39%	-1.25%
			2650	2.325	51.649	2.234	52.445	4.07%	-1.52%
			2700	2.401	51.452	2.305	52.382	4.16%	-1.78%
8/26/2019	2450B	22.6	2300	1.876	52.006	1.809	52.900	3.70%	-1.69%
			2310	1.884	51.911	1.816	52.887	3.74%	-1.85%
			2320	1.891	51.865	1.826	52.873	3.56%	-1.91%
			2400	1.992	51.681	1.902	52.767	4.73%	-2.06%
			2450	2.045	51.542	1.950	52.700	4.87%	-2.20%
			2500	2.107	51.397	2.021	52.636	4.26%	-2.35%
9/3/2019	2450B	21.2	2400	1.975	52.487	1.902	52.767	3.84%	-0.53%
			2450	2.020	52.393	1.950	52.700	3.59%	-0.58%
			2500	2.065	52.330	2.021	52.636	2.18%	-0.58%
			2550	2.108	52.230	2.092	52.573	0.76%	-0.65%
			2600	2.159	52.164	2.163	52.509	-0.18%	-0.66%
			2650	2.201	52.093	2.234	52.445	-1.48%	-0.67%
			2700	2.253	51.994	2.305	52.382	-2.26%	-0.74%
9/11/2019	2450B	22.9	2400	1.952	52.369	1.902	52.767	2.63%	-0.75%
			2450	2.022	52.199	1.950	52.700	3.69%	-0.95%
			2500	2.089	52.004	2.021	52.636	3.36%	-1.20%
9/10/2019	3500B - 3700B	19.0	3500	3.179	51.426	3.314	51.321	-4.07%	0.20%
			3550	3.252	51.317	3.372	51.254	-3.56%	0.12%
			3600	3.305	51.264	3.431	51.186	-3.67%	0.15%
			3645	3.362	51.119	3.483	51.125	-3.47%	-0.01%
			3685	3.412	51.063	3.530	51.070	-3.34%	-0.01%
			3725	3.464	51.029	3.577	51.016	-3.16%	0.03%
08/26/2019	5200B-5800B	22.0	5180	5.317	48.038	5.276	49.041	0.78%	-2.05%
			5200	5.344	48.015	5.299	49.014	0.85%	-2.04%
			5220	5.358	47.984	5.323	48.987	0.66%	-2.05%
			5240	5.382	47.905	5.346	48.960	0.67%	-2.15%
			5260	5.421	47.884	5.369	48.933	0.97%	-2.14%
			5280	5.457	47.826	5.393	48.906	1.19%	-2.21%
			5300	5.485	47.792	5.416	48.879	1.27%	-2.22%
			5320	5.507	47.785	5.439	48.851	1.25%	-2.18%
			5500	5.756	47.439	5.650	48.607	1.88%	-2.40%
			5520	5.789	47.393	5.673	48.580	2.04%	-2.44%
			5540	5.834	47.369	5.696	48.553	2.42%	-2.44%
			5560	5.868	47.339	5.720	48.526	2.59%	-2.45%
			5580	5.889	47.322	5.743	48.499	2.54%	-2.43%
			5600	5.909	47.279	5.766	48.471	2.48%	-2.46%
			5620	5.941	47.212	5.790	48.444	2.61%	-2.54%
			5640	5.978	47.177	5.813	48.417	2.84%	-2.56%
			5660	6.014	47.137	5.837	48.390	3.03%	-2.59%
			5680	6.061	47.213	5.860	48.363	3.43%	-2.38%
			5700	6.066	47.096	5.883	48.336	3.11%	-2.57%
			5745	6.130	46.980	5.936	48.275	3.27%	-2.68%
			5765	6.167	46.950	5.959	48.248	3.49%	-2.69%
			5785	6.201	46.917	5.982	48.220	3.66%	-2.70%
			5800	6.223	46.910	6.000	48.200	3.72%	-2.68%
			5805	6.231	46.910	6.006	48.193	3.75%	-2.66%
			5825	6.259	46.883	6.029	48.166	3.81%	-2.66%

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.

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

10.2 Test System Verification

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

Table 10-3
System Verification Results – 1g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	$Deviation_{1g}$ (%)
O	750	HEAD	08/27/2019	22.3	21.1	0.200	1054	7538	1.750	8.290	8.750	5.55%
O	835	HEAD	09/03/2019	21.2	20.0	0.200	4d047	7538	1.990	9.420	9.950	5.63%
H	835	HEAD	09/05/2019	22.5	21.1	0.200	4d133	7406	2.010	9.430	10.050	6.57%
H	1750	HEAD	09/07/2019	21.6	20.2	0.100	1008	7406	3.850	36.200	38.500	6.35%
O	1900	HEAD	09/01/2019	19.9	19.7	0.100	5d148	7538	4.210	39.100	42.100	7.67%
G	1900	HEAD	09/05/2019	24.0	22.0	0.100	5d080	7409	3.890	39.800	38.900	-2.26%
H	1900	HEAD	09/09/2019	21.6	20.2	0.100	5d080	7406	4.290	39.800	42.900	7.79%
O	2300	HEAD	08/27/2019	22.3	21.1	0.100	1073	7538	5.030	49.200	50.300	2.24%
E	2450	HEAD	08/26/2019	22.8	21.3	0.100	797	7547	5.620	52.700	56.200	6.64%
E	2450	HEAD	09/04/2019	23.0	20.6	0.100	797	7547	5.550	52.700	55.500	5.31%
L	2450	HEAD	09/05/2019	22.2	20.3	0.100	719	7410	5.470	53.100	54.700	3.01%
E	2600	HEAD	09/04/2019	23.0	20.6	0.100	1004	7547	5.990	55.900	59.900	7.16%
L	2600	HEAD	09/05/2019	22.2	20.3	0.100	1071	7410	5.780	56.300	57.800	2.66%
E	3500	HEAD	09/03/2019	21.2	20.1	0.100	1059	3589	6.390	64.600	63.900	-1.08%
E	3700	HEAD	09/03/2019	21.2	20.1	0.100	1018	3589	6.280	65.800	62.800	-4.56%
H	5250	HEAD	09/10/2019	23.9	22.0	0.050	1237	7406	3.830	81.300	76.600	-5.78%
H	5600	HEAD	09/10/2019	23.9	22.0	0.050	1237	7406	4.080	85.700	81.600	-4.78%
H	5750	HEAD	09/10/2019	23.9	22.0	0.050	1237	7406	3.820	80.600	76.400	-5.21%
I	750	BODY	08/26/2019	22.3	20.2	0.200	1003	7357	1.650	8.580	8.250	-3.85%
H	835	BODY	08/26/2019	21.0	20.6	0.200	4d132	7406	2.000	9.670	10.000	3.41%
J	835	BODY	09/05/2019	20.3	20.2	0.200	4d132	7488	1.980	9.670	9.900	2.38%
G	1750	BODY	08/22/2019	22.4	21.0	0.100	1148	7409	3.800	37.700	38.000	0.80%
I	1750	BODY	09/09/2019	19.6	19.3	0.100	1150	7357	3.930	36.600	39.300	7.38%
J	1900	BODY	08/25/2019	20.0	20.1	0.100	5d148	7488	4.160	39.100	41.600	6.39%
J	1900	BODY	08/28/2019	20.3	21.5	0.100	5d148	7488	4.090	39.100	40.900	4.60%
I	1900	BODY	09/05/2019	22.5	20.7	0.100	5d080	7357	4.070	39.200	40.700	3.83%
J	1900	BODY	09/11/2019	20.9	20.9	0.100	5d080	7488	4.180	39.200	41.800	6.63%
K	2300	BODY	08/26/2019	22.3	21.7	0.100	1064	7417	4.910	46.500	49.100	5.59%
I	2450	BODY	08/21/2019	21.9	21.8	0.100	797	7357	5.190	51.100	51.900	1.57%
K	2450	BODY	08/26/2019	22.3	21.7	0.100	797	7417	5.050	51.100	50.500	-1.17%
L	2450	BODY	09/03/2019	21.6	20.0	0.100	719	7410	5.440	50.800	54.400	7.09%
I	2450	BODY	09/11/2019	20.5	21.4	0.100	719	7357	4.900	50.800	49.000	-3.54%
I	2600	BODY	08/21/2019	21.9	21.8	0.100	1004	7357	5.910	54.800	59.100	7.85%
L	2600	BODY	09/03/2019	21.6	20.0	0.100	1071	7410	5.680	54.200	56.800	4.80%
P	3500	BODY	09/10/2019	21.4	20.3	0.100	1059	3589	6.270	65.100	62.700	-3.69%
P	3700	BODY	09/10/2019	21.4	20.3	0.100	1018	3589	6.710	64.300	67.100	4.35%
L	5250	BODY	08/26/2019	22.2	20.5	0.050	1057	7410	3.650	75.900	73.000	-3.82%
L	5600	BODY	08/26/2019	22.2	20.5	0.050	1057	7410	3.810	79.900	76.200	-4.63%
L	5750	BODY	08/26/2019	22.2	20.5	0.050	1057	7410	3.550	76.700	71.000	-7.43%

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 10-4
System Verification Results – 10g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{10g} (W/kg)	1 W Target SAR_{10g} (W/kg)	1 W Normalized SAR_{10g} (W/kg)	$Deviation_{10g}$ (%)
I	1750	BODY	09/09/2019	19.6	19.3	0.100	1150	7357	2.070	19.400	20.700	6.70%
P	1750	BODY	09/12/2019	21.2	19.9	0.100	1150	3288	1.950	19.400	19.500	0.52%
I	1900	BODY	09/05/2019	22.5	20.7	0.100	5d080	7357	2.090	20.600	20.900	1.46%
G	1900	BODY	09/09/2019	22.6	21.0	0.100	5d149	7409	2.150	20.700	21.500	3.86%
L	5250	BODY	08/26/2019	22.2	20.5	0.050	1057	7410	1.010	21.100	20.200	-4.27%
L	5600	BODY	08/26/2019	22.2	20.5	0.050	1057	7410	1.050	22.300	21.000	-5.83%
L	5750	BODY	08/26/2019	22.2	20.5	0.050	1057	7410	0.983	21.200	19.660	-7.26%

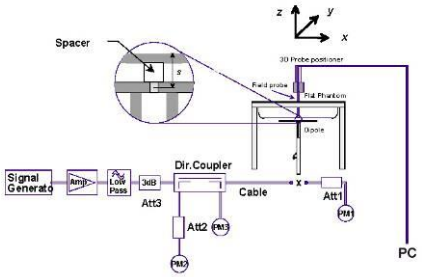


Figure 10-1
System Verification Setup Diagram

Figure 10-2
System Verification Setup Photo

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
CDMA BC10 (§90S) Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Dual Display Accessory Configuration	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.25	0.11	Right	Cheek	-	03356	1:1	0.105	1.059	0.111	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.25	-0.05	Right	Tilt	-	03356	1:1	0.077	1.059	0.082	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.25	0.17	Left	Cheek	-	03356	1:1	0.127	1.059	0.134	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.25	0.18	Left	Cheek	#3	03356	1:1	0.045	1.059	0.048	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.25	0.13	Left	Tilt	-	03356	1:1	0.061	1.059	0.065	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.28	0.02	Right	Cheek	-	03331	1:1	0.098	1.052	0.103	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.28	0.00	Right	Tilt	-	03331	1:1	0.066	1.052	0.069	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.28	0.00	Left	Cheek	-	03331	1:1	0.144	1.052	0.151	A1
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.28	0.06	Left	Cheek	#3	03331	1:1	0.053	1.052	0.056	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.28	0.10	Left	Tilt	-	03331	1:1	0.067	1.052	0.070	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

Table 11-2
CDMA BC0 (§22H) Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Dual Display Accessory Configuration	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.19	0.07	Right	Cheek	-	03356	1:1	0.085	1.074	0.091	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.19	0.12	Right	Tilt	-	03356	1:1	0.062	1.074	0.067	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.19	0.12	Left	Cheek	-	03356	1:1	0.122	1.074	0.131	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.19	0.16	Left	Cheek	#3	03356	1:1	0.050	1.074	0.054	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.19	-0.09	Left	Tilt	-	03356	1:1	0.054	1.074	0.058	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.28	0.09	Right	Cheek	-	03331	1:1	0.094	1.052	0.099	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.28	-0.09	Right	Tilt	-	03331	1:1	0.059	1.052	0.062	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.28	0.05	Left	Cheek	-	03331	1:1	0.130	1.052	0.137	A2
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.28	0.00	Left	Cheek	#3	03331	1:1	0.054	1.052	0.057	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.28	0.18	Left	Tilt	-	03331	1:1	0.058	1.052	0.061	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-3
PCS CDMA Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Dual Display Accessory Configuration	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	600	PCS CDMA	RC3 / SO55	24.2	24.06	-0.18	Right	Cheek	-	03356	1:1	0.148	1.033	0.153	
1880.00	600	PCS CDMA	RC3 / SO55	24.2	24.06	0.21	Right	Tilt	-	03356	1:1	0.132	1.033	0.136	
1880.00	600	PCS CDMA	RC3 / SO55	24.2	24.06	-0.01	Left	Cheek	-	03356	1:1	0.130	1.033	0.134	
1880.00	600	PCS CDMA	RC3 / SO55	24.2	24.06	0.18	Left	Tilt	-	03356	1:1	0.186	1.033	0.192	A3
1880.00	600	PCS CDMA	RC3 / SO55	24.2	24.06	0.08	Left	Tilt	#3	03356	1:1	0.150	1.033	0.155	
1880.00	600	PCS CDMA	EVDO Rev. A	24.2	24.20	0.15	Right	Cheek	-	03356	1:1	0.153	1.000	0.153	
1880.00	600	PCS CDMA	EVDO Rev. A	24.2	24.20	0.16	Right	Tilt	-	03356	1:1	0.168	1.000	0.168	
1880.00	600	PCS CDMA	EVDO Rev. A	24.2	24.20	0.06	Left	Cheek	-	03356	1:1	0.122	1.000	0.122	
1880.00	600	PCS CDMA	EVDO Rev. A	24.2	24.20	0.00	Left	Tilt	-	03356	1:1	0.184	1.000	0.184	
1880.00	600	PCS CDMA	EVDO Rev. A	24.2	24.20	-0.06	Left	Tilt	#3	03356	1:1	0.141	1.000	0.141	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

Table 11-4
GSM 850 Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Dual Display Accessory Configuration	Device Serial Number	# of Time Slots	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.7	33.23	-0.16	Right	Cheek	-	03356	1	1:8.3	0.075	1.114	0.084	
836.60	190	GSM 850	GSM	33.7	33.23	0.15	Right	Tilt	-	03356	1	1:8.3	0.051	1.114	0.057	
836.60	190	GSM 850	GSM	33.7	33.23	-0.04	Left	Cheek	-	03356	1	1:8.3	0.115	1.114	0.128	
836.60	190	GSM 850	GSM	33.7	33.23	0.07	Left	Cheek	#3	03356	1	1:8.3	0.037	1.114	0.041	
836.60	190	GSM 850	GSM	33.7	33.23	-0.09	Left	Tilt	-	03356	1	1:8.3	0.050	1.114	0.056	
836.60	190	GSM 850	GPRS	30.7	30.70	-0.14	Right	Cheek	-	03356	3	1:2.76	0.097	1.000	0.097	
836.60	190	GSM 850	GPRS	30.7	30.70	-0.12	Right	Tilt	-	03356	3	1:2.76	0.067	1.000	0.067	
836.60	190	GSM 850	GPRS	30.7	30.70	0.02	Left	Cheek	-	03356	3	1:2.76	0.130	1.000	0.130	A4
836.60	190	GSM 850	GPRS	30.7	30.70	-0.14	Left	Cheek	#3	03356	3	1:2.76	0.049	1.000	0.049	
836.60	190	GSM 850	GPRS	30.7	30.70	-0.14	Left	Tilt	-	03356	3	1:2.76	0.061	1.000	0.061	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram									

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-5
GSM 1900 Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Dual Display Accessory Configuration	Device Serial Number	# of Time Slots	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GSM	30.7	30.03	0.04	Right	Cheek	-	03356	1	1:8.3	0.079	1.167	0.092	
1880.00	661	GSM 1900	GSM	30.7	30.03	-0.04	Right	Cheek	#3	03356	1	1:8.3	0.070	1.167	0.082	
1880.00	661	GSM 1900	GSM	30.7	30.03	0.12	Right	Tilt	-	03356	1	1:8.3	0.069	1.167	0.081	
1880.00	661	GSM 1900	GSM	30.7	30.03	-0.13	Left	Cheek	-	03356	1	1:8.3	0.057	1.167	0.067	
1880.00	661	GSM 1900	GSM	30.7	30.03	-0.21	Left	Tilt	-	03356	1	1:8.3	0.055	1.167	0.064	
1880.00	661	GSM 1900	GPRS	27.7	27.65	0.01	Right	Cheek	-	03356	3	1:2.76	0.118	1.012	0.119	A5
1880.00	661	GSM 1900	GPRS	27.7	27.65	0.01	Right	Cheek	#3	03356	3	1:2.76	0.108	1.012	0.109	
1880.00	661	GSM 1900	GPRS	27.7	27.65	0.05	Right	Tilt	-	03356	3	1:2.76	0.097	1.012	0.098	
1880.00	661	GSM 1900	GPRS	27.7	27.65	-0.16	Left	Cheek	-	03356	3	1:2.76	0.082	1.012	0.083	
1880.00	661	GSM 1900	GPRS	27.7	27.65	0.01	Left	Tilt	-	03356	3	1:2.76	0.091	1.012	0.092	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram									

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

Table 11-6
UMTS 850 Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Dual Display Accessory Configuration	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	4183	UMTS 850	RMC	25.5	25.25	0.01	Right	Cheek	-	03356	1:1	0.101	1.059	0.107	
836.60	4183	UMTS 850	RMC	25.5	25.25	0.13	Right	Tilt	-	03356	1:1	0.058	1.059	0.061	
836.60	4183	UMTS 850	RMC	25.5	25.25	0.01	Left	Cheek	-	03356	1:1	0.148	1.059	0.157	A6
836.60	4183	UMTS 850	RMC	25.5	25.25	-0.07	Left	Cheek	#3	03356	1:1	0.050	1.059	0.053	
836.60	4183	UMTS 850	RMC	25.5	25.25	0.08	Left	Tilt	-	03356	1:1	0.062	1.059	0.066	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-7
UMTS 1750 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Dual Display Accessory Configuration	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	0.03	Right	Cheek	-	03356	1:1	0.129	1.009	0.130	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	-0.08	Right	Tilt	-	03356	1:1	0.137	1.009	0.138	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	-0.13	Right	Tilt	#3	03356	1:1	0.140	1.009	0.141	A7
1732.40	1412	UMTS 1750	RMC	25.0	24.96	0.12	Left	Cheek	-	03356	1:1	0.116	1.009	0.117	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	0.16	Left	Tilt	-	03356	1:1	0.108	1.009	0.109	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

Table 11-8
UMTS 1900 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Dual Display Accessory Configuration	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	0.01	Right	Cheek	-	03356	1:1	0.163	1.000	0.163	A8
1880.00	9400	UMTS 1900	RMC	24.2	24.20	-0.03	Right	Cheek	#3	03356	1:1	0.131	1.000	0.131	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	-0.17	Right	Tilt	-	03356	1:1	0.132	1.000	0.132	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	-0.01	Left	Cheek	-	03356	1:1	0.116	1.000	0.116	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	0.00	Left	Tilt	-	03356	1:1	0.155	1.000	0.155	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

Table 11-9
LTE Band 71 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
680.50	133297	Mid	LTE Band 71	20	-	25.5	25.30	0.02	0	Right	Cheek	QPSK	1	99	03356	1:1	0.159	1.047	0.166	A9
680.50	133297	Mid	LTE Band 71	20	#3	25.5	25.30	-0.03	0	Right	Cheek	QPSK	1	99	03356	1:1	0.052	1.047	0.054	
680.50	133297	Mid	LTE Band 71	20	-	24.5	24.37	0.04	1	Right	Cheek	QPSK	50	25	03356	1:1	0.092	1.030	0.095	
680.50	133297	Mid	LTE Band 71	20	-	25.5	25.30	0.12	0	Right	Tilt	QPSK	1	99	03356	1:1	0.090	1.047	0.094	
680.50	133297	Mid	LTE Band 71	20	-	24.5	24.37	-0.05	1	Right	Tilt	QPSK	50	25	03356	1:1	0.045	1.030	0.046	
680.50	133297	Mid	LTE Band 71	20	-	25.5	25.30	-0.02	0	Left	Cheek	QPSK	1	99	03356	1:1	0.144	1.047	0.151	
680.50	133297	Mid	LTE Band 71	20	-	24.5	24.37	0.16	1	Left	Cheek	QPSK	50	25	03356	1:1	0.097	1.030	0.100	
680.50	133297	Mid	LTE Band 71	20	-	25.5	25.30	0.00	0	Left	Tilt	QPSK	1	99	03356	1:1	0.052	1.047	0.054	
680.50	133297	Mid	LTE Band 71	20	-	24.5	24.37	0.02	1	Left	Tilt	QPSK	50	25	03356	1:1	0.040	1.030	0.041	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram													

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-10
LTE Band 12 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	-	25.5	25.14	-0.13	0	Right	Cheek	QPSK	1	0	03356	1:1	0.139	1.086	0.151	A10
707.50	23095	Mid	LTE Band 12	10	#3	25.5	25.14	0.07	0	Right	Cheek	QPSK	1	0	03356	1:1	0.054	1.086	0.059	
707.50	23095	Mid	LTE Band 12	10	-	24.5	24.19	0.12	1	Right	Cheek	QPSK	25	0	03356	1:1	0.110	1.074	0.118	
707.50	23095	Mid	LTE Band 12	10	-	25.5	25.14	0.03	0	Right	Tilt	QPSK	1	0	03356	1:1	0.074	1.086	0.080	
707.50	23095	Mid	LTE Band 12	10	-	24.5	24.19	-0.05	1	Right	Tilt	QPSK	25	0	03356	1:1	0.061	1.074	0.066	
707.50	23095	Mid	LTE Band 12	10	-	25.5	25.14	-0.01	0	Left	Cheek	QPSK	1	0	03356	1:1	0.139	1.086	0.151	
707.50	23095	Mid	LTE Band 12	10	-	24.5	24.19	0.02	1	Left	Cheek	QPSK	25	0	03356	1:1	0.115	1.074	0.124	
707.50	23095	Mid	LTE Band 12	10	-	25.5	25.14	-0.12	0	Left	Tilt	QPSK	1	0	03356	1:1	0.057	1.086	0.062	
707.50	23095	Mid	LTE Band 12	10	-	24.5	24.19	0.11	1	Left	Tilt	QPSK	25	0	03356	1:1	0.044	1.074	0.047	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

Table 11-11
LTE Band 13 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	-	25.5	25.08	-0.01	0	Right	Cheek	QPSK	1	25	03356	1:1	0.151	1.102	0.166	
782.00	23230	Mid	LTE Band 13	10	-	24.5	24.09	-0.17	1	Right	Cheek	QPSK	25	0	03356	1:1	0.126	1.099	0.138	
782.00	23230	Mid	LTE Band 13	10	-	25.5	25.08	-0.06	0	Right	Tilt	QPSK	1	25	03356	1:1	0.102	1.102	0.112	
782.00	23230	Mid	LTE Band 13	10	-	24.5	24.09	0.14	1	Right	Tilt	QPSK	25	0	03356	1:1	0.087	1.099	0.096	
782.00	23230	Mid	LTE Band 13	10	-	25.5	25.08	0.13	0	Left	Cheek	QPSK	1	25	03356	1:1	0.188	1.102	0.207	A11
782.00	23230	Mid	LTE Band 13	10	#3	25.5	25.08	0.05	0	Left	Cheek	QPSK	1	25	03356	1:1	0.051	1.102	0.056	
782.00	23230	Mid	LTE Band 13	10	-	24.5	24.09	0.09	1	Left	Cheek	QPSK	25	0	03356	1:1	0.141	1.099	0.155	
782.00	23230	Mid	LTE Band 13	10	-	25.5	25.08	-0.01	0	Left	Tilt	QPSK	1	25	03356	1:1	0.094	1.102	0.104	
782.00	23230	Mid	LTE Band 13	10	-	24.5	24.09	0.13	1	Left	Tilt	QPSK	25	0	03356	1:1	0.072	1.099	0.079	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-12
LTE Band 14 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
793.00	23330	Mid	LTE Band 14	10	-	25.5	24.44	0.13	0	Right	Cheek	QPSK	1	0	03356	1:1	0.133	1.276	0.170	
793.00	23330	Mid	LTE Band 14	10	-	24.5	24.09	0.05	1	Right	Cheek	QPSK	25	0	03356	1:1	0.110	1.099	0.121	
793.00	23330	Mid	LTE Band 14	10	-	25.5	24.44	0.05	0	Right	Tilt	QPSK	1	0	03356	1:1	0.091	1.276	0.116	
793.00	23330	Mid	LTE Band 14	10	-	24.5	24.09	0.06	1	Right	Tilt	QPSK	25	0	03356	1:1	0.073	1.099	0.080	
793.00	23330	Mid	LTE Band 14	10	-	25.5	24.44	0.09	0	Left	Cheek	QPSK	1	0	03356	1:1	0.149	1.276	0.190	A12
793.00	23330	Mid	LTE Band 14	10	#3	25.5	24.44	0.16	0	Left	Cheek	QPSK	1	0	03356	1:1	0.046	1.276	0.059	
793.00	23330	Mid	LTE Band 14	10	-	24.5	24.09	0.07	1	Left	Cheek	QPSK	25	0	03356	1:1	0.137	1.099	0.151	
793.00	23330	Mid	LTE Band 14	10	-	25.5	24.44	0.06	0	Left	Tilt	QPSK	1	0	03356	1:1	0.075	1.276	0.096	
793.00	23330	Mid	LTE Band 14	10	-	24.5	24.09	0.04	1	Left	Tilt	QPSK	25	0	03356	1:1	0.069	1.099	0.076	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

Table 11-13
LTE Band 26 (Cell) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	25.5	25.09	0.11	0	Right	Cheek	QPSK	1	74	03356	1:1	0.086	1.099	0.095	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	24.5	24.17	0.05	1	Right	Cheek	QPSK	36	0	03356	1:1	0.067	1.079	0.072	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	25.5	25.09	-0.12	0	Right	Tilt	QPSK	1	74	03356	1:1	0.055	1.099	0.060	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	24.5	24.17	0.08	1	Right	Tilt	QPSK	36	0	03356	1:1	0.049	1.079	0.053	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	25.5	25.09	0.09	0	Left	Cheek	QPSK	1	74	03356	1:1	0.119	1.099	0.131	A13
831.50	26865	Mid	LTE Band 26 (Cell)	15	#3	25.5	25.09	0.16	0	Left	Cheek	QPSK	1	74	03356	1:1	0.046	1.099	0.051	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	24.5	24.17	-0.06	1	Left	Cheek	QPSK	36	0	03356	1:1	0.096	1.079	0.104	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	25.5	25.09	0.05	0	Left	Tilt	QPSK	1	74	03356	1:1	0.054	1.099	0.059	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	24.5	24.17	-0.03	1	Left	Tilt	QPSK	36	0	03356	1:1	0.045	1.079	0.049	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-14
LTE Band 5 (Cell) Head SAR

MEASUREMENT RESULTS																							
1 CC Uplink | 2 CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.																(W/kg)		(W/kg)	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	25.04	0.19	0	Right	Cheek	QPSK	1	25	03356	1:1	0.086	1.112	0.096	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	24.5	24.03	0.03	1	Right	Cheek	QPSK	25	12	03356	1:1	0.069	1.114	0.077	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	25.04	0.10	0	Right	Tilt	QPSK	1	25	03356	1:1	0.063	1.112	0.070	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	24.5	24.03	0.03	1	Right	Tilt	QPSK	25	12	03356	1:1	0.050	1.114	0.056	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	24.96	-0.20	0	Left	Cheek	QPSK	1	0	03356	1:1	0.132	1.132	0.149	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	25.04	0.09	0	Left	Cheek	QPSK	1	25	03356	1:1	0.121	1.112	0.135	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	#3	25.5	25.04	0.08	0	Left	Cheek	QPSK	1	25	03356	1:1	0.045	1.112	0.050	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	24.5	24.03	-0.06	1	Left	Cheek	QPSK	25	12	03356	1:1	0.103	1.114	0.115	
2 CC Uplink	PCC	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	25.29	0.04	0	Left	Cheek	QPSK	1	0	03356	1:1	0.140	1.050	0.147	A14
	SCC	829.30	20453			5									1	24						
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	25.04	-0.11	0	Left	Tilt	QPSK	1	25	03356	1:1	0.056	1.112	0.062	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	24.5	24.03	0.03	1	Left	Tilt	QPSK	25	12	03356	1:1	0.047	1.114	0.052	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Head 1.6 W/kg (mW/g) averaged over 1 gram							

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

Table 11-15
LTE Band 66 (AWS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	25.0	24.90	0.00	0	Right	Cheek	QPSK	1	0	03356	1:1	0.144	1.023	0.147	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	#3	25.0	24.90	0.10	0	Right	Cheek	QPSK	1	0	03356	1:1	0.222	1.023	0.227	A15
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.82	0.13	1	Right	Cheek	QPSK	50	0	03356	1:1	0.116	1.042	0.121	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	25.0	24.90	0.12	0	Right	Tilt	QPSK	1	0	03356	1:1	0.104	1.023	0.106	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.82	0.05	1	Right	Tilt	QPSK	50	0	03356	1:1	0.087	1.042	0.091	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	25.0	24.90	0.12	0	Left	Cheek	QPSK	1	0	03356	1:1	0.099	1.023	0.101	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.82	0.14	1	Left	Cheek	QPSK	50	0	03356	1:1	0.079	1.042	0.082	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	25.0	24.90	0.12	0	Left	Tilt	QPSK	1	0	03356	1:1	0.081	1.023	0.083	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.82	0.07	1	Left	Tilt	QPSK	50	0	03356	1:1	0.064	1.042	0.067	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Head 1.6 W/kg (mW/g) averaged over 1 gram							

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-16
LTE Band 25 (PCS) Head SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	24.2	24.20	-0.01	0	Right	Cheek	QPSK	1	0	03356	1:1	0.151	1.000	0.151	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	23.2	23.11	-0.02	1	Right	Cheek	QPSK	50	25	03356	1:1	0.118	1.021	0.120	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	24.2	24.20	0.10	0	Right	Tilt	QPSK	1	0	03356	1:1	0.117	1.000	0.117	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	23.2	23.11	-0.09	1	Right	Tilt	QPSK	50	25	03356	1:1	0.094	1.021	0.096	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	24.2	24.20	0.11	0	Left	Cheek	QPSK	1	0	03356	1:1	0.124	1.000	0.124	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	23.2	23.11	0.03	1	Left	Cheek	QPSK	50	25	03356	1:1	0.095	1.021	0.097	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	24.2	24.20	-0.14	0	Left	Tilt	QPSK	1	0	03356	1:1	0.164	1.000	0.164	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#3	24.2	24.20	-0.06	0	Left	Tilt	QPSK	1	0	03356	1:1	0.189	1.000	0.189	A16
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	23.2	23.11	-0.01	1	Left	Tilt	QPSK	50	25	03356	1:1	0.110	1.021	0.112	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

Table 11-17
LTE Band 30 Head SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
2310.00	27710	Mid	LTE Band 30	10	-	23.7	23.37	0.04	0	Right	Cheek	QPSK	1	25	03356	1:1	0.321	1.079	0.346	A17
2310.00	27710	Mid	LTE Band 30	10	#3	23.7	23.37	0.03	0	Right	Cheek	QPSK	1	25	03356	1:1	0.158	1.079	0.170	
2310.00	27710	Mid	LTE Band 30	10	-	22.7	22.35	0.05	1	Right	Cheek	QPSK	25	12	03356	1:1	0.268	1.084	0.291	
2310.00	27710	Mid	LTE Band 30	10	-	23.7	23.37	-0.02	0	Right	Tilt	QPSK	1	25	03356	1:1	0.086	1.079	0.093	
2310.00	27710	Mid	LTE Band 30	10	-	22.7	22.35	0.06	1	Right	Tilt	QPSK	25	12	03356	1:1	0.072	1.084	0.078	
2310.00	27710	Mid	LTE Band 30	10	-	23.7	23.37	0.04	0	Left	Cheek	QPSK	1	25	03356	1:1	0.178	1.079	0.192	
2310.00	27710	Mid	LTE Band 30	10	-	22.7	22.35	0.02	1	Left	Cheek	QPSK	25	12	03356	1:1	0.151	1.084	0.164	
2310.00	27710	Mid	LTE Band 30	10	-	23.7	23.37	0.17	0	Left	Tilt	QPSK	1	25	03356	1:1	0.124	1.079	0.134	
2310.00	27710	Mid	LTE Band 30	10	-	22.7	22.35	0.12	1	Left	Tilt	QPSK	25	12	03356	1:1	0.103	1.084	0.112	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-18
LTE Band 7 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
2510.00	20850	Low	LTE Band 7	20	-	23.7	23.51	-0.15	0	Right	Cheek	QPSK	1	50	03356	1:1	0.233	1.045	0.243	
2510.00	20850	Low	LTE Band 7	20	#3	23.7	23.51	0.00	0	Right	Cheek	QPSK	1	50	03356	1:1	0.292	1.045	0.305	A18
2510.00	20850	Low	LTE Band 7	20	-	22.7	22.52	0.05	1	Right	Cheek	QPSK	50	25	03356	1:1	0.197	1.042	0.205	
2510.00	20850	Low	LTE Band 7	20	-	23.7	23.51	0.10	0	Right	Tilt	QPSK	1	50	03356	1:1	0.069	1.045	0.072	
2510.00	20850	Low	LTE Band 7	20	-	22.7	22.52	-0.13	1	Right	Tilt	QPSK	50	25	03356	1:1	0.054	1.042	0.056	
2510.00	20850	Low	LTE Band 7	20	-	23.7	23.51	-0.03	0	Left	Cheek	QPSK	1	50	03356	1:1	0.154	1.045	0.161	
2510.00	20850	Low	LTE Band 7	20	-	22.7	22.52	0.07	1	Left	Cheek	QPSK	50	25	03356	1:1	0.126	1.042	0.131	
2510.00	20850	Low	LTE Band 7	20	-	23.7	23.51	0.10	0	Left	Tilt	QPSK	1	50	03356	1:1	0.076	1.045	0.079	
2510.00	20850	Low	LTE Band 7	20	-	22.7	22.52	0.15	1	Left	Tilt	QPSK	50	25	03356	1:1	0.061	1.042	0.064	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram									

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

Table 11-19
LTE Band 48 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
3646.70	56207	Mid-High	LTE Band 48	20	-	24.2	24.20	0.16	0	Right	Cheek	QPSK	1	99	03349	1:1.58	0.045	1.000	0.045	
3646.70	56207	Mid-High	LTE Band 48	20	#3	24.2	24.20	0.15	0	Right	Cheek	QPSK	1	99	03349	1:1.58	0.046	1.000	**0.046**	A19
3646.70	56207	Mid-High	LTE Band 48	20	-	23.2	23.15	0.15	1	Right	Cheek	QPSK	50	25	03349	1:1.58	0.033	1.012	0.033	
3646.70	56207	Mid-High	LTE Band 48	20	-	24.2	24.20	0.08	0	Right	Tilt	QPSK	1	99	03349	1:1.58	0.011	1.000	0.011	
3646.70	56207	Mid-High	LTE Band 48	20	-	23.2	23.15	0.19	1	Right	Tilt	QPSK	50	25	03349	1:1.58	0.009	1.012	0.009	
3646.70	56207	Mid-High	LTE Band 48	20	-	24.2	24.20	0.18	0	Left	Cheek	QPSK	1	99	03349	1:1.58	0.013	1.000	0.013	
3646.70	56207	Mid-High	LTE Band 48	20	-	23.2	23.15	0.13	1	Left	Cheek	QPSK	50	25	03349	1:1.58	0.008	1.012	0.008	
3646.70	56207	Mid-High	LTE Band 48	20	-	24.2	24.20	0.03	0	Left	Tilt	QPSK	1	99	03349	1:1.58	0.016	1.000	0.016	
3646.70	56207	Mid-High	LTE Band 48	20	-	23.2	23.15	0.17	1	Left	Tilt	QPSK	50	25	03349	1:1.58	0.010	1.012	0.010	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram									

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-20
LTE Band 41 Head SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY MHz	FREQUENCY Ch.		Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	25.2	25.08	0.04	0	Right	Cheek	QPSK	1	0	03331	1:1.58	0.281	1.028	0.289	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	#3	25.2	25.08	0.01	0	Right	Cheek	QPSK	1	0	03331	1:1.58	0.257	1.028	0.264	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	24.2	23.99	0.04	1	Right	Cheek	QPSK	50	0	03331	1:1.58	0.189	1.050	0.198	
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	-	27.7	27.40	0.07	0	Right	Cheek	QPSK	1	0	03331	1:2.31	0.326	1.072	0.349	
2 CC Uplink - Power Class 3	PCC	2593.00	40620	Mid	LTE Band 41	20	-	25.2	25.20	-0.18	0	Right	Cheek	QPSK	1	0	03331	1:1.58	0.290	1.000	0.290	
	SCC	2573.20	40422			20									1	99						
2 CC Uplink - Power Class 2	PCC	2593.00	40620	Mid	LTE Band 41	20	-	27.7	27.52	0.05	0	Right	Cheek	QPSK	1	0	03331	1:2.31	0.341	1.042	**0.355**	A20
	SCC	2573.20	40422			20									1	99						
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	25.2	25.08	0.13	0	Right	Tilt	QPSK	1	0	03331	1:1.58	0.048	1.028	0.049	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	24.2	23.99	0.20	1	Right	Tilt	QPSK	50	0	03331	1:1.58	0.041	1.050	0.043	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	25.2	25.08	0.06	0	Left	Cheek	QPSK	1	0	03331	1:1.58	0.147	1.028	0.151	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	24.2	23.99	0.05	1	Left	Cheek	QPSK	50	0	03331	1:1.58	0.108	1.050	0.113	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	25.2	25.08	0.08	0	Left	Tilt	QPSK	1	0	03331	1:1.58	0.091	1.028	0.094	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	24.2	23.99	0.07	1	Left	Tilt	QPSK	50	0	03331	1:1.58	0.075	1.050	0.079	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Head 1.6 W/kg (mW/g) averaged over 1 gram										

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

Table 11-21
DTS Head SAR

MEASUREMENT RESULTS																					
FREQUENCY MHz	FREQUENCY Ch.	Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Dual Display Accessory Configuration	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan W/kg	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
2437	6	802.11b	DSSS	22	17.5	17.20	-0.16	Right	Cheek	1	-	03240	1	99.3	0.245	-	1.072	1.007	-	
2437	6	802.11b	DSSS	22	17.5	17.20	0.15	Right	Tilt	1	-	03240	1	99.3	0.200	-	1.072	1.007	-	
2437	6	802.11b	DSSS	22	17.5	17.20	0.13	Left	Cheek	1	-	03240	1	99.3	0.589	0.470	1.072	1.007	0.507	
2437	6	802.11b	DSSS	22	17.5	17.20	0.15	Left	Cheek	1	#3	03240	1	99.3	0.666	0.384	1.072	1.007	0.415	
2437	6	802.11b	DSSS	22	17.5	17.20	0.12	Left	Tilt	1	-	03240	1	99.3	0.380	0.239	1.072	1.007	0.258	
2412	1	802.11b	DSSS	22	17.5	17.05	0.20	Right	Cheek	2	-	03240	1	99.3	0.943	0.603	1.109	1.007	0.673	
2437	6	802.11b	DSSS	22	17.5	17.02	0.15	Right	Cheek	2	-	03240	1	99.3	0.998	0.628	1.117	1.007	0.706	A21
2462	11	802.11b	DSSS	22	17.5	16.75	0.19	Right	Cheek	2	-	03240	1	99.3	1.005	0.611	1.189	1.007	**0.732**	
2462	11	802.11b	DSSS	22	17.5	16.75	-0.20	Right	Cheek	2	#1	03240	1	99.3	0.228	0.176	1.189	1.007	0.211	
2462	11	802.11b	DSSS	22	17.5	16.75	0.06	Right	Cheek	2	#3	03240	1	99.3	0.389	0.159	1.189	1.007	0.190	
2412	1	802.11b	DSSS	22	17.5	17.05	0.07	Right	Tilt	2	-	03240	1	99.3	0.317	0.217	1.109	1.007	0.242	
2412	1	802.11b	DSSS	22	17.5	17.05	0.06	Left	Cheek	2	-	03240	1	99.3	0.214	-	1.109	1.007	-	
2412	1	802.11b	DSSS	22	17.5	17.05	0.21	Left	Tilt	2	-	03240	1	99.3	0.122	-	1.109	1.007	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram												

Note: 1) Green entries represent additional Head SAR Position (DD #1: 0 degrees) 2) Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-22
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.	Dual Display Accessory Configuration	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)	
5270	54	802.11n	OFDM	40	16.0	15.45	0.19	Right	Cheek	1	-	03257	13.5	97.3	0.206	0.078	1.135	1.028	0.091	
5270	54	802.11n	OFDM	40	16.0	15.45	0.13	Right	Tilt	1	-	03257	13.5	97.3	0.054	-	1.135	1.028	-	
5270	54	802.11n	OFDM	40	16.0	15.45	0.19	Left	Cheek	1	-	03257	13.5	97.3	0.027	-	1.135	1.028	-	
5270	54	802.11n	OFDM	40	16.0	15.45	0.14	Left	Tilt	1	-	03257	13.5	97.3	0.015	-	1.135	1.028	-	
5310	62	802.11n	OFDM	40	16.0	15.37	0.14	Right	Cheek	2	-	03257	13.5	97.3	0.212	0.101	1.156	1.028	0.120	
5310	62	802.11n	OFDM	40	16.0	15.37	0.17	Right	Tilt	2	-	03257	13.5	97.3	0.149	-	1.156	1.028	-	
5310	62	802.11n	OFDM	40	16.0	15.37	0.16	Left	Cheek	2	-	03257	13.5	97.3	0.075	-	1.156	1.028	-	
5310	62	802.11n	OFDM	40	16.0	15.37	0.18	Left	Tilt	2	-	03257	13.5	97.3	0.069	-	1.156	1.028	-	
5510	102	802.11n	OFDM	40	16.0	15.45	0.17	Right	Cheek	1	-	03257	13.5	97.3	0.312	0.158	1.135	1.028	0.184	
5510	102	802.11n	OFDM	40	16.0	15.45	0.19	Right	Cheek	1	#3	03257	13.5	97.3	0.663	0.292	1.135	1.028	**0.341**	A22
5510	102	802.11n	OFDM	40	16.0	15.45	0.16	Right	Tilt	1	-	03257	13.5	97.3	0.109	-	1.135	1.028	-	
5510	102	802.11n	OFDM	40	16.0	15.45	0.15	Left	Cheek	1	-	03257	13.5	97.3	0.060	-	1.135	1.028	-	
5510	102	802.11n	OFDM	40	16.0	15.45	0.16	Left	Tilt	1	-	03257	13.5	97.3	0.040	-	1.135	1.028	-	
5590	118	802.11n	OFDM	40	16.0	15.45	0.15	Right	Cheek	2	-	03257	13.5	97.3	0.443	0.210	1.135	1.028	0.245	
5590	118	802.11n	OFDM	40	16.0	15.45	-0.18	Right	Cheek	2	#3	03257	13.5	97.3	0.648	0.234	1.135	1.028	0.273	
5590	118	802.11n	OFDM	40	16.0	15.45	0.17	Right	Tilt	2	-	03257	13.5	97.3	0.312	-	1.135	1.028	-	
5590	118	802.11n	OFDM	40	16.0	15.45	0.02	Left	Cheek	2	-	03257	13.5	97.3	0.189	-	1.135	1.028	-	
5590	118	802.11n	OFDM	40	16.0	15.45	0.12	Left	Tilt	2	-	03257	13.5	97.3	0.171	-	1.135	1.028	-	
5795	159	802.11n	OFDM	40	16.0	15.45	0.17	Right	Cheek	1	-	03257	13.5	97.3	0.272	0.115	1.135	1.028	0.134	
5795	159	802.11n	OFDM	40	16.0	15.45	0.16	Right	Tilt	1	-	03257	13.5	97.3	0.212	-	1.135	1.028	-	
5795	159	802.11n	OFDM	40	16.0	15.45	0.19	Left	Cheek	1	-	03257	13.5	97.3	0.069	-	1.135	1.028	-	
5795	159	802.11n	OFDM	40	16.0	15.45	-0.15	Left	Tilt	1	-	03257	13.5	97.3	0.042	-	1.135	1.028	-	
5795	159	802.11n	OFDM	40	16.0	15.67	-0.06	Right	Cheek	2	-	03257	13.5	97.3	0.340	0.171	1.079	1.028	0.190	
5795	159	802.11n	OFDM	40	16.0	15.67	0.19	Right	Tilt	2	-	03257	13.5	97.3	0.329	-	1.079	1.028	-	
5795	159	802.11n	OFDM	40	16.0	15.67	0.18	Left	Cheek	2	-	03257	13.5	97.3	0.131	-	1.079	1.028	-	
5795	159	802.11n	OFDM	40	16.0	15.67	0.10	Left	Tilt	2	-	03257	13.5	97.3	0.153	-	1.079	1.028	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								**Head 1.6 W/kg (mW/g) averaged over 1 gram**												

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

Table 11-23
DSS Head SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Dual Display Accessory Configuration	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	10.5	9.96	0.13	Right	Cheek	-	03240	1	77.1	0.035	1.132	1.297	0.051	
2441.00	39	Bluetooth	FHSS	10.5	9.96	0.10	Right	Tilt	-	03240	1	77.1	0.027	1.132	1.297	0.040	
2441.00	39	Bluetooth	FHSS	10.5	9.96	0.00	Left	Cheek	-	03240	1	77.1	0.105	1.132	1.297	**0.154**	A23
2441.00	39	Bluetooth	FHSS	10.5	9.96	0.02	Left	Cheek	#3	03240	1	77.1	0.071	1.132	1.297	0.104	
2441.00	39	Bluetooth	FHSS	10.5	9.96	0.06	Left	Tilt	-	03240	1	77.1	0.047	1.132	1.297	0.069	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								**Head 1.6 W/kg (mW/g) averaged over 1 gram**									

Note: Light orange entries represent additional Head SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

11.2 Standalone Body-Worn SAR Data

Table 11-24
GSM/UMTS/CDMA Body-Worn SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Dual Display Accessory Configuration	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	TDSO / SO32	25.5	25.25	0.00	10 mm	-	03349	N/A	1:1	back	0.746	1.059	0.790	A24
820.10	564	CDMA BC10 (§90S)	TDSO / SO32	25.5	25.25	0.05	10 mm	#1	03349	N/A	1:1	back	0.554	1.059	0.587	
824.70	1013	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.12	-0.07	10 mm	-	03349	N/A	1:1	back	0.811	1.091	0.885	A26
836.52	384	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.18	-0.07	10 mm	-	03349	N/A	1:1	back	0.774	1.076	0.833	
848.31	777	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.25	-0.12	10 mm	-	03349	N/A	1:1	back	0.794	1.059	0.841	
824.70	1013	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.12	0.04	10 mm	#1	03349	N/A	1:1	back	0.532	1.091	0.580	
824.70	1013	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.12	0.01	10 mm	#2	03349	N/A	1:1	back	0.585	1.091	0.638	
824.70	1013	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.12	0.08	10 mm	#3	03349	N/A	1:1	back	0.095	1.091	0.104	
1851.25	25	PCS CDMA	TDSO / SO32	24.2	24.13	0.01	10 mm	-	03331	N/A	1:1	back	0.675	1.016	0.686	A28
1880.00	600	PCS CDMA	TDSO / SO32	24.2	24.08	0.01	10 mm	-	03331	N/A	1:1	back	0.640	1.028	0.658	
1908.75	1175	PCS CDMA	TDSO / SO32	24.2	23.98	0.15	10 mm	-	03331	N/A	1:1	back	0.636	1.052	0.669	
1851.25	25	PCS CDMA	TDSO / SO32	24.2	24.13	0.01	10 mm	#1	03331	N/A	1:1	back	0.467	1.016	0.474	
836.60	190	GSM 850	GSM	33.7	33.23	-0.07	10 mm	-	03349	1	1:8.3	back	0.677	1.114	0.754	
836.60	190	GSM 850	GSM	33.7	33.23	0.01	10 mm	#1	03349	1	1:8.3	back	0.444	1.114	0.495	
824.20	128	GSM 850	GPRS	30.7	30.68	-0.08	10 mm	-	03349	3	1:2.76	back	0.749	1.005	0.753	
836.60	190	GSM 850	GPRS	30.7	30.70	-0.14	10 mm	-	03349	3	1:2.76	back	0.859	1.000	0.859	
848.80	251	GSM 850	GPRS	30.7	30.58	-0.03	10 mm	-	03349	3	1:2.76	back	0.953	1.028	**0.980**	A30
848.80	251	GSM 850	GPRS	30.7	30.58	-0.05	10 mm	#1	03349	3	1:2.76	back	0.559	1.028	0.575	
848.80	251	GSM 850	GPRS	30.7	30.58	-0.11	10 mm	#2	03349	3	1:2.76	back	0.655	1.028	0.673	
848.80	251	GSM 850	GPRS	30.7	30.58	0.00	10 mm	#3	03349	3	1:2.76	back	0.116	1.028	0.119	
848.80	251	GSM 850	GPRS	30.7	30.58	-0.01	10 mm	-	03349	3	1:2.76	back	0.925	1.028	0.951	
1880.00	661	GSM 1900	GSM	30.7	30.03	0.00	10 mm	-	03356	1	1:8.3	back	0.315	1.167	0.368	
1880.00	661	GSM 1900	GSM	30.7	30.03	0.00	10 mm	#1	03356	1	1:8.3	back	0.295	1.167	0.344	
1880.00	661	GSM 1900	GPRS	27.7	27.65	-0.02	10 mm	-	03356	3	1:2.76	back	0.486	1.012	0.492	A31
1880.00	661	GSM 1900	GPRS	27.7	27.65	-0.12	10 mm	#1	03356	3	1:2.76	back	0.469	1.012	0.475	
826.40	4132	UMTS 850	RMC	25.5	25.26	-0.12	10 mm	-	03349	N/A	1:1	back	0.858	1.057	0.907	
836.60	4183	UMTS 850	RMC	25.5	25.25	-0.14	10 mm	-	03349	N/A	1:1	back	0.877	1.059	0.929	A33
846.60	4233	UMTS 850	RMC	25.5	25.25	-0.14	10 mm	-	03349	N/A	1:1	back	0.872	1.059	0.923	
836.60	4183	UMTS 850	RMC	25.5	25.25	0.08	10 mm	#1	03349	N/A	1:1	back	0.581	1.059	0.615	
836.60	4183	UMTS 850	RMC	25.5	25.25	0.01	10 mm	#2	03349	N/A	1:1	back	0.673	1.059	0.713	
836.60	4183	UMTS 850	RMC	25.5	25.25	0.04	10 mm	#3	03349	N/A	1:1	back	0.100	1.059	0.106	
1712.40	1312	UMTS 1750	RMC	25.0	24.96	-0.01	10 mm	-	03331	N/A	1:1	back	0.676	1.009	0.682	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	0.00	10 mm	-	03331	N/A	1:1	back	0.732	1.009	0.739	
1752.60	1513	UMTS 1750	RMC	25.0	24.92	0.01	10 mm	-	03331	N/A	1:1	back	0.778	1.019	0.793	A34
1752.60	1513	UMTS 1750	RMC	25.0	24.92	0.02	10 mm	#1	03331	N/A	1:1	back	0.605	1.019	0.616	
1852.40	9262	UMTS 1900	RMC	24.2	24.16	0.00	10 mm	-	12654	N/A	1:1	back	0.646	1.009	0.652	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	0.02	10 mm	-	12654	N/A	1:1	back	0.648	1.000	0.648	
1907.60	9538	UMTS 1900	RMC	24.2	24.18	0.02	10 mm	-	12654	N/A	1:1	back	0.654	1.005	0.657	A36
1907.60	9538	UMTS 1900	RMC	24.2	24.18	0.00	10 mm	#1	12654	N/A	1:1	back	0.460	1.005	0.462	
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: 1) Blue entry represents variability measurement. 2) Green entries represent additional Body Worn SAR Position (DD #1: 0 degrees) 3) Purple entries represent additional Body Worn SAR Position (DD #2: 180 degrees) 4) Light orange entries represent additional Body Worn SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-25
LTE Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
680.50	133297	Mid	LTE Band 71	20	-	25.5	25.30	-0.01	0	03331	QPSK	1	99	10 mm	back	1:1	0.578	1.047	0.605	A38
680.50	133297	Mid	LTE Band 71	20	#1	25.5	25.30	-0.01	0	03331	QPSK	1	99	10 mm	back	1:1	0.496	1.047	0.519	
680.50	133297	Mid	LTE Band 71	20	-	24.5	24.37	-0.01	1	03331	QPSK	50	25	10 mm	back	1:1	0.457	1.030	0.471	
707.50	23095	Mid	LTE Band 12	10	-	25.5	25.14	0.01	0	03331	QPSK	1	0	10 mm	back	1:1	0.588	1.086	0.639	A39
707.50	23095	Mid	LTE Band 12	10	#1	25.5	25.14	0.05	0	03331	QPSK	1	0	10 mm	back	1:1	0.496	1.086	0.539	
707.50	23095	Mid	LTE Band 12	10	-	24.5	24.19	-0.05	1	03331	QPSK	25	0	10 mm	back	1:1	0.454	1.074	0.488	
782.00	23230	Mid	LTE Band 13	10	-	25.5	25.08	0.01	0	03331	QPSK	1	25	10 mm	back	1:1	0.770	1.102	0.849	A40
782.00	23230	Mid	LTE Band 13	10	#1	25.5	25.08	0.08	0	03331	QPSK	1	25	10 mm	back	1:1	0.529	1.102	0.583	
782.00	23230	Mid	LTE Band 13	10	#2	25.5	25.08	-0.02	0	03331	QPSK	1	25	10 mm	back	1:1	0.582	1.102	0.641	
782.00	23230	Mid	LTE Band 13	10	#3	25.5	25.08	-0.01	0	03331	QPSK	1	25	10 mm	back	1:1	0.091	1.102	0.100	
782.00	23230	Mid	LTE Band 13	10	-	24.5	24.09	0.03	1	03331	QPSK	25	0	10 mm	back	1:1	0.637	1.099	0.700	
782.00	23230	Mid	LTE Band 13	10	-	24.5	24.03	0.02	1	03331	QPSK	50	0	10 mm	back	1:1	0.649	1.114	0.723	
793.00	23330	Mid	LTE Band 14	10	-	25.5	24.44	-0.03	0	03331	QPSK	1	0	10 mm	back	1:1	0.696	1.276	0.888	A41
793.00	23330	Mid	LTE Band 14	10	#1	25.5	24.44	0.05	0	03331	QPSK	1	0	10 mm	back	1:1	0.523	1.276	0.667	
793.00	23330	Mid	LTE Band 14	10	#2	25.5	24.44	0.06	0	03331	QPSK	1	0	10 mm	back	1:1	0.561	1.276	0.716	
793.00	23330	Mid	LTE Band 14	10	#3	25.5	24.44	-0.01	0	03331	QPSK	1	0	10 mm	back	1:1	0.087	1.276	0.111	
793.00	23330	Mid	LTE Band 14	10	-	24.5	24.09	0.04	1	03331	QPSK	25	0	10 mm	back	1:1	0.634	1.099	0.697	
793.00	23330	Mid	LTE Band 14	10	-	24.5	24.03	0.07	1	03331	QPSK	50	0	10 mm	back	1:1	0.645	1.114	0.719	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	25.5	25.09	0.04	0	03349	QPSK	1	74	10 mm	back	1:1	0.848	1.099	0.932	A42
831.50	26865	Mid	LTE Band 26 (Cell)	15	#1	25.5	25.09	0.06	0	03349	QPSK	1	74	10 mm	back	1:1	0.532	1.099	0.585	
831.50	26865	Mid	LTE Band 26 (Cell)	15	#2	25.5	25.09	-0.03	0	03349	QPSK	1	74	10 mm	back	1:1	0.592	1.099	0.651	
831.50	26865	Mid	LTE Band 26 (Cell)	15	#3	25.5	25.09	-0.03	0	03349	QPSK	1	74	10 mm	back	1:1	0.093	1.099	0.102	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	24.5	24.17	0.05	1	03349	QPSK	36	0	10 mm	back	1:1	0.650	1.079	0.701	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	24.5	24.06	0.06	1	03349	QPSK	75	0	10 mm	back	1:1	0.678	1.107	0.751	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	25.0	24.85	0.05	0	03331	QPSK	1	0	10 mm	back	1:1	0.661	1.035	0.684	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	25.0	24.90	0.05	0	03331	QPSK	1	0	10 mm	back	1:1	0.760	1.023	0.777	
1770.00	132572	High	LTE Band 66 (AWS)	20	-	25.0	24.83	0.03	0	03331	QPSK	1	0	10 mm	back	1:1	0.837	1.040	0.870	A44
1770.00	132572	High	LTE Band 66 (AWS)	20	#1	25.0	24.83	0.03	0	03331	QPSK	1	0	10 mm	back	1:1	0.649	1.040	0.675	
1770.00	132572	High	LTE Band 66 (AWS)	20	#2	25.0	24.83	-0.05	0	03331	QPSK	1	0	10 mm	back	1:1	0.759	1.040	0.789	
1770.00	132572	High	LTE Band 66 (AWS)	20	#3	25.0	24.83	0.07	0	03331	QPSK	1	0	10 mm	back	1:1	0.248	1.040	0.258	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.82	-0.02	1	03331	QPSK	50	0	10 mm	back	1:1	0.553	1.042	0.576	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.74	-0.03	1	03331	QPSK	100	0	10 mm	back	1:1	0.456	1.062	0.484	
1860.00	26140	Low	LTE Band 25 (PCS)	20	-	24.2	24.19	-0.01	0	03349	QPSK	1	0	10 mm	back	1:1	0.623	1.002	0.624	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	24.2	24.20	-0.04	0	03349	QPSK	1	0	10 mm	back	1:1	0.625	1.000	0.625	
1905.00	26590	High	LTE Band 25 (PCS)	20	-	24.2	24.19	0.02	0	03349	QPSK	1	0	10 mm	back	1:1	0.670	1.002	0.671	A46
1905.00	26590	High	LTE Band 25 (PCS)	20	#1	24.2	24.19	-0.11	0	03349	QPSK	1	0	10 mm	back	1:1	0.476	1.002	0.477	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	23.2	23.11	0.00	1	03349	QPSK	50	25	10 mm	back	1:1	0.504	1.021	0.515	
2310.00	27710	Mid	LTE Band 30	10	-	23.7	23.37	0.05	0	03356	QPSK	1	25	10 mm	back	1:1	0.583	1.079	0.629	A48
2310.00	27710	Mid	LTE Band 30	10	#1	23.7	23.37	0.01	0	03356	QPSK	1	25	10 mm	back	1:1	0.327	1.079	0.353	
2310.00	27710	Mid	LTE Band 30	10	-	22.7	22.35	0.06	1	03356	QPSK	25	12	10 mm	back	1:1	0.486	1.084	0.527	
2510.00	20850	Low	LTE Band 7	20	-	23.7	23.51	0.03	0	03356	QPSK	1	50	10 mm	back	1:1	0.444	1.045	0.464	A50
2510.00	20850	Low	LTE Band 7	20	#1	23.7	23.51	-0.03	0	03356	QPSK	1	50	10 mm	back	1:1	0.397	1.045	0.415	
2510.00	20850	Low	LTE Band 7	20	-	22.7	22.52	0.02	1	03356	QPSK	50	25	10 mm	back	1:1	0.365	1.042	0.380	
3646.70	56207	Mid-High	LTE Band 48	20	-	24.2	24.20	-0.06	0	03356	QPSK	1	99	10 mm	back	1:1.58	0.199	1.000	**0.199**	A52
3646.70	56207	Mid-High	LTE Band 48	20	#1	24.2	24.20	0.10	0	03356	QPSK	1	99	10 mm	back	1:1.58	0.182	1.000	0.182	
3646.70	56207	Mid-High	LTE Band 48	20	-	23.2	23.15	0.11	1	03356	QPSK	50	25	10 mm	back	1:1.58	0.170	1.012	0.172	
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: 1) Green entries represent additional Body Worn SAR Position (DD #1: 0 degrees) 2) Purple entries represent additional Body Worn SAR Position (DD #2: 180 degrees) 3) Light orange entries represent additional Body Worn SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-26
LTE Band 5 Body-Worn SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink	Component Carrier	FREQUENCY MHz	FREQUENCY Ch.		Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	24.96	-0.06	0	03349	QPSK	1	0	10 mm	back	1:1	0.780	1.132	0.883	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	25.04	-0.06	0	03349	QPSK	1	25	10 mm	back	1:1	0.822	1.112	0.914	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	#1	25.5	25.04	-0.08	0	03349	QPSK	1	25	10 mm	back	1:1	0.476	1.112	0.529	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	#2	25.5	25.04	0.02	0	03349	QPSK	1	25	10 mm	back	1:1	0.648	1.112	0.721	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	#3	25.5	25.04	0.01	0	03349	QPSK	1	25	10 mm	back	1:1	0.092	1.112	0.102	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	24.5	24.03	-0.05	1	03349	QPSK	25	12	10 mm	back	1:1	0.690	1.114	0.769	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	24.5	23.99	-0.07	1	03349	QPSK	50	0	10 mm	back	1:1	0.671	1.125	0.755	
2 CC Uplink	PCC	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	25.29	-0.08	0	03349	QPSK	1	0	10 mm	back	1:1	0.825	1.050	0.866	A43
	SCC	829.30	20453	Mid	LTE Band 5 (Cell)	5								1	24							
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: 1) Green entries represent additional Body Worn SAR Position (DD #1: 0 degrees) 2) Purple entries represent additional Body Worn SAR Position (DD #2: 180 degrees) 3) Light orange entries represent additional Body Worn SAR Position (DD #3: 360 degrees)

Table 11-27
LTE Band 41 Body-Worn SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY MHz	FREQUENCY Ch.		Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	25.2	25.08	0.15	0	12654	QPSK	1	0	10 mm	back	1:1.58	0.345	1.028	0.355	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	#1	25.2	25.08	0.06	0	12654	QPSK	1	0	10 mm	back	1:1.58	0.315	1.028	0.324	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	24.2	23.99	0.07	1	12654	QPSK	50	0	10 mm	back	1:1.58	0.231	1.050	0.243	
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	-	27.7	27.40	-0.03	0	12654	QPSK	1	0	10 mm	back	1:2.31	0.368	1.072	0.394	
2 CC Uplink - Power Class 3	PCC	2593.00	40620	Mid	LTE Band 41	20	-	25.2	25.20	0.02	0	12654	QPSK	1	0	10 mm	back	1:1.58	0.369	1.000	0.369	
	SCC	2573.20	40422											1	99							
2 CC Uplink - Power Class 2	PCC	2593.00	40620	Mid	LTE Band 41	20	-	27.7	27.52	-0.14	0	12654	QPSK	1	0	10 mm	back	1:2.31	0.392	1.042	0.408	A53
	SCC	2573.20	40422											1	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								

Note: 1) Green entries represent additional Body Worn SAR Position (DD #1: 0 degrees)

Table 11-28
DTS Body-Worn SAR

MEASUREMENT RESULTS																					
FREQUENCY MHz	FREQUENCY Ch.	Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Dual Display Accessory Configuration	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 #
2462	11	802.11b	DSSS	22	20.5	19.87	-0.14	10 mm	1	-	03240	1	back	99.3	0.326	0.209	1.156	1.007	0.243	
2462	11	802.11b	DSSS	22	20.5	19.87	0.16	10 mm	1	#1	03240	1	back	99.3	0.241	0.159	1.156	1.007	0.185	
2437	6	802.11b	DSSS	22	20.5	19.98	-0.02	10 mm	2	-	03240	1	back	99.3	0.351	0.241	1.127	1.007	**0.274**	A55
2437	6	802.11b	DSSS	22	20.5	19.98	0.11	10 mm	2	#1	03240	1	back	99.3	0.258	0.179	1.127	1.007	0.203	
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: 1) Green entries represent additional Body Worn SAR Position (DD #1: 0 degrees)

© 2019 PCTEST Engineering Laboratory, Inc.

REV 21.3 M
02/15/2019

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-29
NII Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Dual Display Accessory Configuration	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)	
5280	56	802.11a	OFDM	20	20.0	19.63	0.04	10 mm	1	-	03257	6	back	98.3	0.722	0.375	1.089	1.017	0.415	
5280	56	802.11a	OFDM	20	20.0	19.53	0.13	10 mm	2	-	03257	6	back	98.3	0.254	0.113	1.114	1.017	0.128	
5500	100	802.11a	OFDM	20	17.0	16.57	-0.03	10 mm	1	-	03257	6	back	98.3	0.499	0.262	1.104	1.017	0.294	
5720	144	802.11a	OFDM	20	17.0	16.76	0.21	10 mm	2	-	03257	6	back	98.3	0.258	0.103	1.057	1.017	0.111	
5785	157	802.11a	OFDM	20	20.0	19.48	-0.05	10 mm	1	-	03257	6	back	98.3	0.761	0.382	1.127	1.017	**0.438**	
5785	157	802.11a	OFDM	20	20.0	19.48	0.14	10 mm	1	#1	03257	6	back	98.3	0.599	0.244	1.127	1.017	0.280	
5785	157	802.11a	OFDM	20	20.0	19.79	0.16	10 mm	2	-	03257	6	back	98.3	0.484	0.199	1.050	1.017	0.213	
5785	157	802.11a	OFDM	20	20.0	19.79	-0.02	10 mm	2	#1	03257	6	back	98.3	0.247	0.099	1.050	1.017	0.106	
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: 1) Green entries represent additional Body Worn SAR Position (DD #1: 0 degrees)

Table 11-30
NII MIMO Body-Worn SAR

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.	Dual Display Accessory Configuration	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)	
5280	56	802.11n	OFDM	20	20.0	19.50	20.0	19.45	0.07	10 mm	MIMO	-	03257	13	back	98.1	0.928	0.418	1.135	1.019	0.483	
5620	124	802.11n	OFDM	20	17.0	16.35	17.0	16.50	0.12	10 mm	MIMO	-	03257	13	back	98.1	0.682	0.299	1.161	1.019	0.354	
5785	157	802.11n	OFDM	20	20.0	19.35	20.0	19.65	0.09	10 mm	MIMO	-	03257	13	back	98.1	0.839	0.431	1.161	1.019	0.510	A57
5785	157	802.11n	OFDM	20	20.0	19.35	20.0	19.65	0.08	10 mm	MIMO	#1	03257	13	back	98.1	0.613	0.269	1.161	1.019	0.318	
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: 1) For channels 56, 124 and 157, to achieve the 23.0 dBm (20.0 dBm for channel 124) maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 20.0 dBm (17.0 dBm for channel 124). 2) Green entries represent additional Body Worn SAR Position (DD #1: 0 degrees)

Table 11-31
DSS Body-Worn SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Dual Display Accessory Configuration	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	10.5	9.96	0.13	10 mm	-	03240	1	back	77.1	0.033	1.132	1.297	**0.048**	A58
2441	39	Bluetooth	FHSS	10.5	9.96	-0.15	10 mm	#1	03240	1	back	77.1	0.027	1.132	1.297	0.040	
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: 1) Green entries represent additional Body Worn SAR Position (DD #1: 0 degrees)

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

11.3 Standalone Hotspot SAR Data

Table 11-32
GPRS/UMTS/CDMA Hotspot SAR Data

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Dual Display Accessory Configuration	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.29	-0.01	10 mm	-	03349	N/A	1:1	back	0.733	1.050	0.770	A25
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.29	0.06	10 mm	#1	03349	N/A	1:1	back	0.543	1.050	0.570	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.29	-0.02	10 mm	-	03349	N/A	1:1	front	0.566	1.050	0.594	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.29	-0.04	10 mm	-	03349	N/A	1:1	bottom	0.217	1.050	0.228	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.29	-0.09	10 mm	-	03349	N/A	1:1	right	0.334	1.050	0.351	
824.70	1013	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.24	-0.02	10 mm	-	03349	N/A	1:1	back	0.743	1.062	0.789	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.26	-0.04	10 mm	-	03349	N/A	1:1	back	0.773	1.057	0.817	A27
848.31	777	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.25	-0.04	10 mm	-	03349	N/A	1:1	back	0.765	1.059	0.810	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.26	0.06	10 mm	#1	03349	N/A	1:1	back	0.530	1.057	0.560	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.26	0.06	10 mm	#2	03349	N/A	1:1	back	0.606	1.057	0.641	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.26	-0.01	10 mm	#3	03349	N/A	1:1	back	0.101	1.057	0.107	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.26	-0.02	10 mm	-	03349	N/A	1:1	front	0.579	1.057	0.612	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.26	-0.04	10 mm	-	03349	N/A	1:1	bottom	0.223	1.057	0.236	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.26	0.03	10 mm	-	03349	N/A	1:1	right	0.337	1.057	0.356	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	0.02	10 mm	-	12654	N/A	1:1	back	0.617	1.005	0.620	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	0.02	10 mm	-	12654	N/A	1:1	front	0.394	1.005	0.396	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.2	24.19	-0.06	10 mm	-	12654	N/A	1:1	bottom	1.070	1.002	1.072	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	-0.04	10 mm	-	12654	N/A	1:1	bottom	1.170	1.005	1.176	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.2	24.09	-0.07	10 mm	-	12654	N/A	1:1	bottom	1.170	1.026	1.200	A29
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.2	24.09	-0.01	10 mm	#1	12654	N/A	1:1	bottom	0.624	1.026	0.640	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.2	24.09	0.02	10 mm	#2	12654	N/A	1:1	bottom	0.567	1.026	0.582	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.2	24.09	0.04	10 mm	#3	12654	N/A	1:1	bottom	0.439	1.026	0.450	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	0.04	10 mm	-	12654	N/A	1:1	left	0.141	1.005	0.142	
824.20	128	GSM 850	GPRS	30.7	30.68	-0.08	10 mm	-	03349	3	1:2.76	back	0.749	1.005	0.753	
836.60	190	GSM 850	GPRS	30.7	30.70	-0.14	10 mm	-	03349	3	1:2.76	back	0.859	1.000	0.859	
848.80	251	GSM 850	GPRS	30.7	30.58	-0.03	10 mm	-	03349	3	1:2.76	back	0.953	1.028	0.980	A30
848.80	251	GSM 850	GPRS	30.7	30.58	-0.05	10 mm	#1	03349	3	1:2.76	back	0.559	1.028	0.575	
848.80	251	GSM 850	GPRS	30.7	30.58	-0.11	10 mm	#2	03349	3	1:2.76	back	0.655	1.028	0.673	
848.80	251	GSM 850	GPRS	30.7	30.58	0.00	10 mm	#3	03349	3	1:2.76	back	0.116	1.028	0.119	
836.60	190	GSM 850	GPRS	30.7	30.70	-0.20	10 mm	-	03349	3	1:2.76	front	0.561	1.000	0.561	
836.60	190	GSM 850	GPRS	30.7	30.70	0.00	10 mm	-	03349	3	1:2.76	bottom	0.293	1.000	0.293	
836.60	190	GSM 850	GPRS	30.7	30.70	-0.03	10 mm	-	03349	3	1:2.76	right	0.358	1.000	0.358	
848.80	251	GSM 850	GPRS	30.7	30.58	-0.01	10 mm	-	03349	3	1:2.76	back	0.925	1.028	0.951	
1880.00	661	GSM 1900	GPRS	27.7	27.65	-0.02	10 mm	-	03356	3	1:2.76	back	0.486	1.012	0.492	
1880.00	661	GSM 1900	GPRS	27.7	27.65	0.02	10 mm	-	03356	3	1:2.76	front	0.399	1.012	0.404	
1850.20	512	GSM 1900	GPRS	27.7	27.55	-0.03	10 mm	-	03356	3	1:2.76	bottom	1.030	1.035	1.066	
1880.00	661	GSM 1900	GPRS	27.7	27.65	-0.03	10 mm	-	03356	3	1:2.76	bottom	1.140	1.012	1.154	A32
1909.80	810	GSM 1900	GPRS	27.7	27.70	-0.02	10 mm	-	03356	3	1:2.76	bottom	1.050	1.000	1.050	
1880.00	661	GSM 1900	GPRS	27.7	27.65	0.03	10 mm	#1	03356	3	1:2.76	bottom	0.575	1.012	0.582	
1880.00	661	GSM 1900	GPRS	27.7	27.65	-0.07	10 mm	#2	03356	3	1:2.76	bottom	0.543	1.012	0.550	
1880.00	661	GSM 1900	GPRS	27.7	27.65	-0.08	10 mm	#3	03356	3	1:2.76	bottom	0.520	1.012	0.526	
1880.00	661	GSM 1900	GPRS	27.7	27.65	-0.15	10 mm	-	03356	3	1:2.76	left	0.153	1.012	0.155	
826.40	4132	UMTS 850	RMC	25.5	25.26	-0.12	10 mm	-	03349	N/A	1:1	back	0.858	1.057	0.907	
836.60	4183	UMTS 850	RMC	25.5	25.25	-0.14	10 mm	-	03349	N/A	1:1	back	0.877	1.059	0.929	A33
846.60	4233	UMTS 850	RMC	25.5	25.25	-0.14	10 mm	-	03349	N/A	1:1	back	0.872	1.059	0.923	
836.60	4183	UMTS 850	RMC	25.5	25.25	0.08	10 mm	#1	03349	N/A	1:1	back	0.581	1.059	0.615	
836.60	4183	UMTS 850	RMC	25.5	25.25	0.01	10 mm	#2	03349	N/A	1:1	back	0.673	1.059	0.713	
836.60	4183	UMTS 850	RMC	25.5	25.25	0.04	10 mm	#3	03349	N/A	1:1	back	0.100	1.059	0.106	
836.60	4183	UMTS 850	RMC	25.5	25.25	-0.02	10 mm	-	03349	N/A	1:1	front	0.551	1.059	0.584	
836.60	4183	UMTS 850	RMC	25.5	25.25	-0.20	10 mm	-	03349	N/A	1:1	bottom	0.250	1.059	0.265	
836.60	4183	UMTS 850	RMC	25.5	25.25	0.00	10 mm	-	03349	N/A	1:1	right	0.333	1.059	0.353	
1712.40	1312	UMTS 1750	RMC	25.0	24.96	-0.01	10 mm	-	03331	N/A	1:1	back	0.676	1.009	0.682	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	0.00	10 mm	-	03331	N/A	1:1	back	0.732	1.009	0.739	
1752.60	1513	UMTS 1750	RMC	25.0	24.92	0.01	10 mm	-	03331	N/A	1:1	back	0.778	1.019	0.793	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	-0.01	10 mm	-	03331	N/A	1:1	front	0.560	1.009	0.565	
1712.40	1312	UMTS 1750	RMC	25.0	24.96	-0.02	10 mm	-	03331	N/A	1:1	bottom	0.890	1.009	0.898	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	-0.08	10 mm	-	03331	N/A	1:1	bottom	1.130	1.009	1.140	
1752.60	1513	UMTS 1750	RMC	25.0	24.92	0.01	10 mm	-	03331	N/A	1:1	bottom	1.250	1.019	1.274	A35
1752.60	1513	UMTS 1750	RMC	25.0	24.92	-0.02	10 mm	#1	03331	N/A	1:1	bottom	0.679	1.019	0.692	
1752.60	1513	UMTS 1750	RMC	25.0	24.92	-0.04	10 mm	#2	03331	N/A	1:1	bottom	0.836	1.019	0.852	
1752.60	1513	UMTS 1750	RMC	25.0	24.92	0.01	10 mm	#3	03331	N/A	1:1	bottom	0.682	1.019	0.695	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	-0.07	10 mm	-	03331	N/A	1:1	left	0.238	1.009	0.240	
1752.60	1513	UMTS 1750	RMC	25.0	24.92	-0.03	10 mm	-	03331	N/A	1:1	bottom	1.250	1.019	1.274	
1852.40	9262	UMTS 1900	RMC	24.2	24.16	0.00	10 mm	-	12654	N/A	1:1	back	0.646	1.009	0.652	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	0.02	10 mm	-	12654	N/A	1:1	back	0.648	1.000	0.648	
1907.60	9538	UMTS 1900	RMC	24.2	24.18	0.02	10 mm	-	12654	N/A	1:1	back	0.654	1.005	0.657	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	0.03	10 mm	-	12654	N/A	1:1	front	0.434	1.000	0.434	
1852.40	9262	UMTS 1900	RMC	24.2	24.16	-0.05	10 mm	-	12654	N/A	1:1	bottom	1.030	1.009	1.039	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	-0.14	10 mm	-	12654	N/A	1:1	bottom	1.140	1.000	1.140	
1907.60	9538	UMTS 1900	RMC	24.2	24.18	-0.11	10 mm	-	12654	N/A	1:1	bottom	1.160	1.005	1.166	A37
1907.60	9538	UMTS 1900	RMC	24.2	24.18	-0.09	10 mm	#1	12564	N/A	1:1	bottom	0.711	1.005	0.715	
1907.60	9538	UMTS 1900	RMC	24.2	24.18	-0.02	10 mm	#2	12654	N/A	1:1	bottom	0.638	1.005	0.641	
1907.60	9538	UMTS 1900	RMC	24.2	24.18	-0.03	10 mm	#3	12654	N/A	1:1	bottom	0.597	1.005	0.600	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	0.06	10 mm	-	12654	N/A	1:1	left	0.135	1.000	0.135	
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: 1) Blue entry represents variability measurement. 2) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees) 3) Purple entries represent additional Hotspot SAR Position (DD #2: 180 degrees) 4) Light orange entries represent additional Hotspot SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-33
LTE Band 71 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
680.50	133297	Mid	LTE Band 71	20	-	25.5	25.30	-0.01	0	03331	QPSK	1	99	10 mm	back	1:1	0.578	1.047	0.605	A38
680.50	133297	Mid	LTE Band 71	20	#1	25.5	25.30	-0.01	0	03331	QPSK	1	99	10 mm	back	1:1	0.496	1.047	0.519	
680.50	133297	Mid	LTE Band 71	20	-	24.5	24.37	-0.01	1	03331	QPSK	50	25	10 mm	back	1:1	0.457	1.030	0.471	
680.50	133297	Mid	LTE Band 71	20	-	25.5	25.30	0.02	0	03331	QPSK	1	99	10 mm	front	1:1	0.392	1.047	0.410	
680.50	133297	Mid	LTE Band 71	20	-	24.5	24.37	0.02	1	03331	QPSK	50	25	10 mm	front	1:1	0.302	1.030	0.311	
680.50	133297	Mid	LTE Band 71	20	-	25.5	25.30	0.06	0	03331	QPSK	1	99	10 mm	bottom	1:1	0.121	1.047	0.127	
680.50	133297	Mid	LTE Band 71	20	-	24.5	24.37	0.11	1	03331	QPSK	50	25	10 mm	bottom	1:1	0.093	1.030	0.096	
680.50	133297	Mid	LTE Band 71	20	-	25.5	25.30	-0.04	0	03331	QPSK	1	99	10 mm	right	1:1	0.337	1.047	0.353	
680.50	133297	Mid	LTE Band 71	20	-	24.5	24.37	0.02	1	03331	QPSK	50	25	10 mm	right	1:1	0.249	1.030	0.256	
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: 1) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees)

Table 11-34
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	-	25.5	25.14	0.01	0	03331	QPSK	1	0	10 mm	back	1:1	0.588	1.086	0.639	A39
707.50	23095	Mid	LTE Band 12	10	#1	25.5	25.14	0.05	0	03331	QPSK	1	0	10 mm	back	1:1	0.496	1.086	0.539	
707.50	23095	Mid	LTE Band 12	10	-	24.5	24.19	-0.05	1	03331	QPSK	25	0	10 mm	back	1:1	0.454	1.074	0.488	
707.50	23095	Mid	LTE Band 12	10	-	25.5	25.14	0.19	0	03331	QPSK	1	0	10 mm	front	1:1	0.387	1.086	0.420	
707.50	23095	Mid	LTE Band 12	10	-	24.5	24.19	-0.03	1	03331	QPSK	25	0	10 mm	front	1:1	0.308	1.074	0.331	
707.50	23095	Mid	LTE Band 12	10	-	25.5	25.14	0.10	0	03331	QPSK	1	0	10 mm	bottom	1:1	0.138	1.086	0.150	
707.50	23095	Mid	LTE Band 12	10	-	24.5	24.19	0.11	1	03331	QPSK	25	0	10 mm	bottom	1:1	0.112	1.074	0.120	
707.50	23095	Mid	LTE Band 12	10	-	25.5	25.14	0.01	0	03331	QPSK	1	0	10 mm	right	1:1	0.241	1.086	0.262	
707.50	23095	Mid	LTE Band 12	10	-	24.5	24.19	0.01	1	03331	QPSK	25	0	10 mm	right	1:1	0.187	1.074	0.201	
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: 1) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-35
LTE Band 13 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	-	25.5	25.08	0.01	0	03331	QPSK	1	25	10 mm	back	1:1	0.770	1.102	0.849	A40
782.00	23230	Mid	LTE Band 13	10	#1	25.5	25.08	0.08	0	03331	QPSK	1	25	10 mm	back	1:1	0.529	1.102	0.583	
782.00	23230	Mid	LTE Band 13	10	#2	25.5	25.08	-0.02	0	03331	QPSK	1	25	10 mm	back	1:1	0.582	1.102	0.641	
782.00	23230	Mid	LTE Band 13	10	#3	25.5	25.08	-0.01	0	03331	QPSK	1	25	10 mm	back	1:1	0.091	1.102	0.100	
782.00	23230	Mid	LTE Band 13	10	-	24.5	24.09	0.03	1	03331	QPSK	25	0	10 mm	back	1:1	0.637	1.099	0.700	
782.00	23230	Mid	LTE Band 13	10	-	24.5	24.03	0.02	1	03331	QPSK	50	0	10 mm	back	1:1	0.649	1.114	0.723	
782.00	23230	Mid	LTE Band 13	10	-	25.5	25.08	0.00	0	03331	QPSK	1	25	10 mm	front	1:1	0.530	1.102	0.584	
782.00	23230	Mid	LTE Band 13	10	-	24.5	24.09	0.00	1	03331	QPSK	25	0	10 mm	front	1:1	0.454	1.099	0.499	
782.00	23230	Mid	LTE Band 13	10	-	25.5	25.08	0.10	0	03331	QPSK	1	25	10 mm	bottom	1:1	0.229	1.102	0.252	
782.00	23230	Mid	LTE Band 13	10	-	24.5	24.09	0.11	1	03331	QPSK	25	0	10 mm	bottom	1:1	0.191	1.099	0.210	
782.00	23230	Mid	LTE Band 13	10	-	25.5	25.08	0.03	0	03331	QPSK	1	25	10 mm	right	1:1	0.265	1.102	0.292	
782.00	23230	Mid	LTE Band 13	10	-	24.5	24.09	0.06	1	03331	QPSK	25	0	10 mm	right	1:1	0.212	1.099	0.233	
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: 1) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees) 2) Purple entries represent additional Hotspot SAR Position (DD #2: 180 degrees) 3) Light orange entries represent additional Hotspot SAR Position (DD #3: 360 degrees)

Table 11-36
LTE Band 14 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
793.00	23330	Mid	LTE Band 14	10	-	25.5	24.44	-0.03	0	03331	QPSK	1	0	10 mm	back	1:1	0.696	1.276	0.888	A41
793.00	23330	Mid	LTE Band 14	10	#1	25.5	24.44	0.05	0	03331	QPSK	1	0	10 mm	back	1:1	0.523	1.276	0.667	
793.00	23330	Mid	LTE Band 14	10	#2	25.5	24.44	0.06	0	03331	QPSK	1	0	10 mm	back	1:1	0.561	1.276	0.716	
793.00	23330	Mid	LTE Band 14	10	#3	25.5	24.44	-0.01	0	03331	QPSK	1	0	10 mm	back	1:1	0.087	1.276	0.111	
793.00	23330	Mid	LTE Band 14	10	-	24.5	24.09	0.04	1	03331	QPSK	25	0	10 mm	back	1:1	0.634	1.099	0.697	
793.00	23330	Mid	LTE Band 14	10	-	24.5	24.03	0.07	1	03331	QPSK	50	0	10 mm	back	1:1	0.645	1.114	0.719	
793.00	23330	Mid	LTE Band 14	10	-	25.5	24.44	-0.01	0	03331	QPSK	1	0	10 mm	front	1:1	0.539	1.276	0.688	
793.00	23330	Mid	LTE Band 14	10	-	24.5	24.09	0.02	1	03331	QPSK	25	0	10 mm	front	1:1	0.450	1.099	0.495	
793.00	23330	Mid	LTE Band 14	10	-	25.5	24.44	0.05	0	03331	QPSK	1	0	10 mm	bottom	1:1	0.233	1.276	0.297	
793.00	23330	Mid	LTE Band 14	10	-	24.5	24.09	0.11	1	03331	QPSK	25	0	10 mm	bottom	1:1	0.192	1.099	0.211	
793.00	23330	Mid	LTE Band 14	10	-	25.5	24.44	0.00	0	03331	QPSK	1	0	10 mm	right	1:1	0.270	1.276	0.345	
793.00	23330	Mid	LTE Band 14	10	-	24.5	24.09	0.12	1	03331	QPSK	25	0	10 mm	right	1:1	0.234	1.099	0.257	
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: 1) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees) 2) Purple entries represent additional Hotspot SAR Position (DD #2: 180 degrees) 3) Light orange entries represent additional Hotspot SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-37
LTE Band 26 (Cell) Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	25.5	25.09	0.04	0	03349	QPSK	1	74	10 mm	back	1:1	0.848	1.099	0.932	A42
831.50	26865	Mid	LTE Band 26 (Cell)	15	#1	25.5	25.09	0.06	0	03349	QPSK	1	74	10 mm	back	1:1	0.532	1.099	0.585	
831.50	26865	Mid	LTE Band 26 (Cell)	15	#2	25.5	25.09	-0.03	0	03349	QPSK	1	74	10 mm	back	1:1	0.592	1.099	0.651	
831.50	26865	Mid	LTE Band 26 (Cell)	15	#3	25.5	25.09	-0.03	0	03349	QPSK	1	74	10 mm	back	1:1	0.093	1.099	0.102	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	24.5	24.17	0.05	1	03349	QPSK	36	0	10 mm	back	1:1	0.650	1.079	0.701	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	24.5	24.06	0.06	1	03349	QPSK	75	0	10 mm	back	1:1	0.678	1.107	0.751	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	25.5	25.09	-0.03	0	03349	QPSK	1	74	10 mm	front	1:1	0.473	1.099	0.520	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	24.5	24.17	0.00	1	03349	QPSK	36	0	10 mm	front	1:1	0.405	1.079	0.437	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	25.5	25.09	-0.03	0	03349	QPSK	1	74	10 mm	bottom	1:1	0.252	1.099	0.277	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	24.5	24.17	0.01	1	03349	QPSK	36	0	10 mm	bottom	1:1	0.183	1.079	0.197	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	25.5	25.09	-0.08	0	03349	QPSK	1	74	10 mm	right	1:1	0.361	1.099	0.397	
831.50	26865	Mid	LTE Band 26 (Cell)	15	-	24.5	24.17	-0.02	1	03349	QPSK	36	0	10 mm	right	1:1	0.261	1.079	0.282	
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: 1) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees) 2) Purple entries represent additional Hotspot SAR Position (DD #2: 180 degrees) 3) Light orange entries represent additional Hotspot SAR Position (DD #3: 360 degrees)

Table 11-38
LTE Band 5 (Cell) Hotspot SAR

MEASUREMENT RESULTS																							
1 CC Uplink | 2 CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.																(W/kg)		(W/kg)	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	24.96	-0.06	0	03349	QPSK	1	0	10 mm	back	1:1	0.780	1.132	0.883	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	25.04	-0.06	0	03349	QPSK	1	25	10 mm	back	1:1	0.822	1.112	0.914	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	#1	25.5	25.04	-0.08	0	03349	QPSK	1	25	10 mm	back	1:1	0.476	1.112	0.529	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	#2	25.5	25.04	0.02	0	03349	QPSK	1	25	10 mm	back	1:1	0.648	1.112	0.721	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	#3	25.5	25.04	0.01	0	03349	QPSK	1	25	10 mm	back	1:1	0.092	1.112	0.102	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	24.5	24.03	-0.05	1	03349	QPSK	25	12	10 mm	back	1:1	0.690	1.114	0.769	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	24.5	23.99	-0.07	1	03349	QPSK	50	0	10 mm	back	1:1	0.671	1.125	0.755	
2 CC Uplink	PCC	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	25.29	-0.08	0	03349	QPSK	1	0	10 mm	back	1:1	0.825	1.050	0.866	A43
	SCC	829.30	20453			5								1	24							
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	25.04	-0.01	0	03349	QPSK	1	25	10 mm	front	1:1	0.522	1.112	0.580	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	24.5	24.03	0.01	1	03349	QPSK	25	12	10 mm	front	1:1	0.438	1.114	0.488	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	25.04	-0.06	0	03349	QPSK	1	25	10 mm	bottom	1:1	0.233	1.112	0.259	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	24.5	24.03	-0.02	1	03349	QPSK	25	12	10 mm	bottom	1:1	0.194	1.114	0.216	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	25.5	25.04	0.00	0	03349	QPSK	1	25	10 mm	right	1:1	0.340	1.112	0.378	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	-	24.5	24.03	0.00	1	03349	QPSK	25	12	10 mm	right	1:1	0.281	1.114	0.313	
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: 1) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees) 2) Purple entries represent additional Hotspot SAR Position (DD #2: 180 degrees) 3) Light orange entries represent additional Hotspot SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc.

REV 21.3 M
02/15/2019

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-39
LTE Band 66 (AWS) Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	25.0	24.85	0.05	0	03331	QPSK	1	0	10 mm	back	1:1	0.661	1.035	0.684	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	25.0	24.90	0.05	0	03331	QPSK	1	0	10 mm	back	1:1	0.760	1.023	0.777	
1770.00	132572	High	LTE Band 66 (AWS)	20	-	25.0	24.83	0.03	0	03331	QPSK	1	0	10 mm	back	1:1	0.837	1.040	0.870	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.82	-0.02	1	03331	QPSK	50	0	10 mm	back	1:1	0.553	1.042	0.576	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.74	-0.03	1	03331	QPSK	100	0	10 mm	back	1:1	0.456	1.062	0.484	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	25.0	24.90	-0.03	0	03331	QPSK	1	0	10 mm	front	1:1	0.585	1.023	0.598	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.82	0.03	1	03331	QPSK	50	0	10 mm	front	1:1	0.399	1.042	0.416	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	25.0	24.85	-0.08	0	03331	QPSK	1	0	10 mm	bottom	1:1	0.907	1.035	0.939	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	25.0	24.90	-0.06	0	03331	QPSK	1	0	10 mm	bottom	1:1	1.090	1.023	1.115	
1770.00	132572	High	LTE Band 66 (AWS)	20	-	25.0	24.83	0.01	0	03331	QPSK	1	0	10 mm	bottom	1:1	1.230	1.040	**1.279**	A45
1770.00	132572	High	LTE Band 66 (AWS)	20	#1	25.0	24.83	-0.01	0	03331	QPSK	1	0	10 mm	bottom	1:1	0.702	1.040	0.730	
1770.00	132572	High	LTE Band 66 (AWS)	20	#2	25.0	24.83	-0.05	0	03331	QPSK	1	0	10 mm	bottom	1:1	0.849	1.040	0.883	
1770.00	132572	High	LTE Band 66 (AWS)	20	#3	25.0	24.83	0.03	0	03331	QPSK	1	0	10 mm	bottom	1:1	0.719	1.040	0.748	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.82	-0.04	1	03331	QPSK	50	0	10 mm	bottom	1:1	0.732	1.042	0.763	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.74	-0.08	1	03331	QPSK	100	0	10 mm	bottom	1:1	0.776	1.062	0.824	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	25.0	24.90	0.13	0	03331	QPSK	1	0	10 mm	left	1:1	0.230	1.023	0.235	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.82	0.02	1	03331	QPSK	50	0	10 mm	left	1:1	0.150	1.042	0.156	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram					

Note: 1) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees) 2) Purple entries represent additional Hotspot SAR Position (DD #2: 180 degrees) 3) Light orange entries represent additional Hotspot SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-40
LTE Band 25 (PCS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
1860.00	26140	Low	LTE Band 25 (PCS)	20	-	24.2	24.19	-0.01	0	03349	QPSK	1	0	10 mm	back	1:1	0.623	1.002	0.624	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	24.2	24.20	-0.04	0	03349	QPSK	1	0	10 mm	back	1:1	0.625	1.000	0.625	
1905.00	26590	High	LTE Band 25 (PCS)	20	-	24.2	24.19	0.02	0	03349	QPSK	1	0	10 mm	back	1:1	0.670	1.002	0.671	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	23.2	23.11	0.00	1	03349	QPSK	50	25	10 mm	back	1:1	0.504	1.021	0.515	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	24.2	24.20	-0.02	0	03349	QPSK	1	0	10 mm	front	1:1	0.441	1.000	0.441	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	23.2	23.11	0.03	1	03349	QPSK	50	25	10 mm	front	1:1	0.370	1.021	0.378	
1860.00	26140	Low	LTE Band 25 (PCS)	20	-	24.2	24.19	-0.16	0	03349	QPSK	1	0	10 mm	bottom	1:1	1.120	1.002	1.122	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	24.2	24.20	-0.10	0	03349	QPSK	1	0	10 mm	bottom	1:1	1.200	1.000	1.200	A47
1905.00	26590	High	LTE Band 25 (PCS)	20	-	24.2	24.19	-0.13	0	03349	QPSK	1	0	10 mm	bottom	1:1	1.190	1.002	1.192	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#1	24.2	24.20	0.01	0	03349	QPSK	1	0	10 mm	bottom	1:1	0.650	1.000	0.650	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#2	24.2	24.20	-0.04	0	03349	QPSK	1	0	10 mm	bottom	1:1	0.640	1.000	0.640	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#3	24.2	24.20	-0.10	0	03349	QPSK	1	0	10 mm	bottom	1:1	0.553	1.000	0.553	
1860.00	26140	Low	LTE Band 25 (PCS)	20	-	23.2	23.07	-0.08	1	03349	QPSK	50	50	10 mm	bottom	1:1	0.946	1.030	0.974	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	23.2	23.11	-0.08	1	03349	QPSK	50	25	10 mm	bottom	1:1	0.984	1.021	1.005	
1905.00	26590	High	LTE Band 25 (PCS)	20	-	23.2	23.10	-0.10	1	03349	QPSK	50	50	10 mm	bottom	1:1	0.942	1.023	0.964	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	23.2	23.09	-0.08	1	03349	QPSK	100	0	10 mm	bottom	1:1	0.949	1.026	0.974	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	24.2	24.20	0.03	0	03349	QPSK	1	0	10 mm	left	1:1	0.141	1.000	0.141	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	23.2	23.11	-0.05	1	03349	QPSK	50	25	10 mm	left	1:1	0.119	1.021	0.121	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	24.2	24.20	-0.03	0	03349	QPSK	1	0	10 mm	bottom	1:1	1.160	1.000	1.160	
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: 1) Blue entry represents variability measurement 2) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees) 3) Purple entries represent additional Hotspot SAR Position (DD #2: 180 degrees) 4) Light orange entries represent additional Hotspot SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-41
LTE Band 30 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
2310.00	27710	Mid	LTE Band 30	10	-	23.7	23.37	0.05	0	03356	QPSK	1	25	10 mm	back	1:1	0.583	1.079	0.629	
2310.00	27710	Mid	LTE Band 30	10	-	22.7	22.35	0.06	1	03356	QPSK	25	12	10 mm	back	1:1	0.486	1.084	0.527	
2310.00	27710	Mid	LTE Band 30	10	-	23.7	23.37	-0.09	0	03356	QPSK	1	25	10 mm	front	1:1	0.404	1.079	0.436	
2310.00	27710	Mid	LTE Band 30	10	-	22.7	22.35	-0.06	1	03356	QPSK	25	12	10 mm	front	1:1	0.334	1.084	0.362	
2310.00	27710	Mid	LTE Band 30	10	-	23.7	23.37	0.16	0	03356	QPSK	1	25	10 mm	bottom	1:1	0.196	1.079	0.211	
2310.00	27710	Mid	LTE Band 30	10	-	22.7	22.35	0.03	1	03356	QPSK	25	12	10 mm	bottom	1:1	0.159	1.084	0.172	
2310.00	27710	Mid	LTE Band 30	10	-	23.7	23.37	-0.14	0	03356	QPSK	1	25	10 mm	right	1:1	0.699	1.079	0.754	A49
2310.00	27710	Mid	LTE Band 30	10	#1	23.7	23.37	0.02	0	03356	QPSK	1	25	10 mm	right	1:1	0.455	1.079	0.491	
2310.00	27710	Mid	LTE Band 30	10	#3	23.7	23.37	-0.01	0	03356	QPSK	1	25	10 mm	right	1:1	0.353	1.079	0.381	
2310.00	27710	Mid	LTE Band 30	10	-	22.7	22.35	-0.10	1	03356	QPSK	25	12	10 mm	right	1:1	0.579	1.084	0.628	
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: 1) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees) 2) Light orange entries represent additional Hotspot SAR Position (DD #3: 360 degrees)

Table 11-42
LTE Band 7 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
2510.00	20850	Low	LTE Band 7	20	-	23.7	23.51	0.03	0	03356	QPSK	1	50	10 mm	back	1:1	0.444	1.045	0.464	
2510.00	20850	Low	LTE Band 7	20	-	22.7	22.52	0.02	1	03356	QPSK	50	25	10 mm	back	1:1	0.365	1.042	0.380	
2510.00	20850	Low	LTE Band 7	20	-	23.7	23.51	0.10	0	03356	QPSK	1	50	10 mm	front	1:1	0.345	1.045	0.361	
2510.00	20850	Low	LTE Band 7	20	-	22.7	22.52	0.08	1	03356	QPSK	50	25	10 mm	front	1:1	0.281	1.042	0.293	
2510.00	20850	Low	LTE Band 7	20	-	23.7	23.51	0.20	0	03356	QPSK	1	50	10 mm	bottom	1:1	0.089	1.045	0.093	
2510.00	20850	Low	LTE Band 7	20	-	22.7	22.52	0.16	1	03356	QPSK	50	25	10 mm	bottom	1:1	0.074	1.042	0.077	
2510.00	20850	Low	LTE Band 7	20	-	23.7	23.51	0.09	0	03356	QPSK	1	50	10 mm	right	1:1	0.601	1.045	0.628	
2535.00	21100	Mid	LTE Band 7	20	-	23.7	23.40	-0.02	0	03356	QPSK	1	0	10 mm	right	1:1	0.633	1.072	0.679	
2560.00	21350	High	LTE Band 7	20	-	23.7	23.42	0.11	0	03356	QPSK	1	0	10 mm	right	1:1	0.654	1.067	0.698	A51
2560.00	21350	High	LTE Band 7	20	#1	23.7	23.42	0.02	0	03356	QPSK	1	0	10 mm	right	1:1	0.458	1.067	0.489	
2560.00	21350	High	LTE Band 7	20	#3	23.7	23.42	0.04	0	03356	QPSK	1	0	10 mm	right	1:1	0.318	1.067	0.339	
2510.00	20850	Low	LTE Band 7	20	-	22.7	22.52	-0.01	1	03356	QPSK	50	25	10 mm	right	1:1	0.490	1.042	0.511	
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: 1) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees) 2) Light orange entries represent additional Hotspot SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-43
LTE Band 48 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
3646.70	56207	Mid-High	LTE Band 48	20	-	24.2	24.20	-0.06	0	03356	QPSK	1	99	10 mm	back	1:1.58	0.199	1.000	**0.199**	A52
3646.70	56207	Mid-High	LTE Band 48	20	#1	24.2	24.20	0.10	0	03356	QPSK	1	99	10 mm	back	1:1.58	0.182	1.000	0.182	
3646.70	56207	Mid-High	LTE Band 48	20	-	23.2	23.15	0.11	1	03356	QPSK	50	25	10 mm	back	1:1.58	0.170	1.012	0.172	
3646.70	56207	Mid-High	LTE Band 48	20	-	24.2	24.20	0.09	0	03356	QPSK	1	99	10 mm	front	1:1.58	0.092	1.000	0.092	
3646.70	56207	Mid-High	LTE Band 48	20	-	23.2	23.15	-0.03	1	03356	QPSK	50	25	10 mm	front	1:1.58	0.083	1.012	0.084	
3646.70	56207	Mid-High	LTE Band 48	20	-	24.2	24.20	0.00	0	03356	QPSK	1	99	10 mm	bottom	1:1.58	0.026	1.000	0.026	
3646.70	56207	Mid-High	LTE Band 48	20	-	23.2	23.15	0.15	1	03356	QPSK	50	25	10 mm	bottom	1:1.58	0.025	1.012	0.025	
3646.70	56207	Mid-High	LTE Band 48	20	-	24.2	24.20	0.01	0	03356	QPSK	1	99	10 mm	right	1:1.58	0.169	1.000	0.169	
3646.70	56207	Mid-High	LTE Band 48	20	-	23.2	23.15	-0.01	1	03356	QPSK	50	25	10 mm	right	1:1.58	0.141	1.012	0.143	
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: 1) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees)

Table 11-44
LTE Band 41 Hotspot SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.																(W/kg)		(W/kg)	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	25.2	25.08	0.15	0	12654	QPSK	1	0	10 mm	back	1:1.58	0.345	1.028	0.355	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	24.2	23.99	0.07	1	12654	QPSK	50	0	10 mm	back	1:1.58	0.231	1.050	0.243	
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	-	27.7	27.40	-0.03	0	12654	QPSK	1	0	10 mm	back	1:2.31	0.368	1.072	0.394	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	25.2	25.08	0.07	0	12654	QPSK	1	0	10 mm	front	1:1.58	0.194	1.028	0.199	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	24.2	23.99	0.11	1	12654	QPSK	50	0	10 mm	front	1:1.58	0.161	1.050	0.169	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	25.2	25.08	-0.19	0	12654	QPSK	1	0	10 mm	bottom	1:1.58	0.045	1.028	0.046	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	24.2	23.99	0.16	1	12654	QPSK	50	0	10 mm	bottom	1:1.58	0.042	1.050	0.044	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	25.2	25.08	-0.09	0	12654	QPSK	1	0	10 mm	right	1:1.58	0.413	1.028	0.425	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	#1	25.2	25.08	0.18	0	12654	QPSK	1	0	10 mm	right	1:1.58	0.331	1.028	0.340	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	#3	25.2	25.08	0.10	0	12654	QPSK	1	0	10 mm	right	1:1.58	0.242	1.028	0.249	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	-	24.2	23.99	-0.11	1	12654	QPSK	50	0	10 mm	right	1:1.58	0.293	1.050	0.308	
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	-	27.7	27.40	-0.03	0	12654	QPSK	1	0	10 mm	right	1:2.31	0.444	1.072	0.476	
2 CC Uplink - Power Class 3	PCC	2593.00	40620	Mid	LTE Band 41	20	-	25.2	25.20	-0.05	0	12654	QPSK	1	0	10 mm	right	1:1.58	0.433	1.000	0.433	
	SCC	2573.20	40422			20								1	99							
2 CC Uplink - Power Class 2	PCC	2593.00	40620	Mid	LTE Band 41	20	-	27.7	27.52	-0.08	0	12654	QPSK	1	0	10 mm	right	1:2.31	0.455	1.042	0.474	A54
	SCC	2573.20	40422			20								1	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													

Note: 1) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees) 2) Light orange entries represent additional Hotspot SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-45
WLAN Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Dual Display Accessory Configuration	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
2462	11	802.11b	DSSS	22	20.5	19.87	-0.14	10 mm	1	-	03240	1	back	99.3	0.326	0.209	1.156	1.007	0.243	
2462	11	802.11b	DSSS	22	20.5	19.87	0.01	10 mm	1	-	03240	1	front	99.3	0.171	0.119	1.156	1.007	0.139	
2462	11	802.11b	DSSS	22	20.5	19.87	0.17	10 mm	1	-	03240	1	top	99.3	0.275	-	1.156	1.007	-	
2462	11	802.11b	DSSS	22	20.5	19.87	0.12	10 mm	1	-	03240	1	right	99.3	0.518	0.319	1.156	1.007	0.371	
2462	11	802.11b	DSSS	22	20.5	19.87	0.08	10 mm	1	#1	03240	1	right	99.3	0.409	0.259	1.156	1.007	0.301	
2462	11	802.11b	DSSS	22	20.5	19.87	0.04	10 mm	1	#3	03240	1	right	99.3	0.382	0.241	1.156	1.007	0.281	
2437	6	802.11b	DSSS	22	20.5	19.98	-0.02	10 mm	2	-	03240	1	back	99.3	0.351	0.241	1.127	1.007	0.274	
2437	6	802.11b	DSSS	22	20.5	19.98	0.14	10 mm	2	-	03240	1	front	99.3	0.339	0.215	1.127	1.007	0.244	
2437	6	802.11b	DSSS	22	20.5	19.98	0.12	10 mm	2	-	03240	1	top	99.3	0.161	-	1.127	1.007	-	
2437	6	802.11b	DSSS	22	20.5	19.98	0.14	10 mm	2	-	03240	1	left	99.3	0.809	0.499	1.127	1.007	**0.566**	A56
2437	6	802.11b	DSSS	22	20.5	19.98	0.04	10 mm	2	#1	03240	1	left	99.3	0.403	0.266	1.127	1.007	0.302	
2437	6	802.11b	DSSS	22	20.5	19.98	0.13	10 mm	2	#3	03240	1	left	99.3	0.310	0.201	1.127	1.007	0.228	
5200	40	802.11a	OFDM	20	20.0	19.54	0.00	10 mm	1	-	03257	6	back	98.3	0.539	0.315	1.112	1.017	0.356	
5200	40	802.11a	OFDM	20	20.0	19.54	-0.19	10 mm	1	-	03257	6	front	98.3	0.021	-	1.112	1.017	-	
5200	40	802.11a	OFDM	20	20.0	19.54	-0.19	10 mm	1	-	03257	6	top	98.3	0.037	-	1.112	1.017	-	
5200	40	802.11a	OFDM	20	20.0	19.54	-0.17	10 mm	1	-	03257	6	left	98.3	0.192	-	1.112	1.017	-	
5200	40	802.11a	OFDM	20	20.0	19.22	0.20	10 mm	2	-	03257	6	back	98.3	0.301	0.138	1.197	1.017	0.168	
5200	40	802.11a	OFDM	20	20.0	19.22	0.19	10 mm	2	-	03257	6	front	98.3	0.072	-	1.197	1.017	-	
5200	40	802.11a	OFDM	20	20.0	19.22	0.16	10 mm	2	-	03257	6	top	98.3	0.090	-	1.197	1.017	-	
5200	40	802.11a	OFDM	20	20.0	19.22	-0.17	10 mm	2	-	03257	6	left	98.3	0.164	-	1.197	1.017	-	
5785	157	802.11a	OFDM	20	20.0	19.48	-0.05	10 mm	1	-	03257	6	back	98.3	0.761	0.382	1.127	1.017	**0.438**	
5785	157	802.11a	OFDM	20	20.0	19.48	0.14	10 mm	1	#1	03257	6	back	98.3	0.599	0.244	1.127	1.017	0.280	
5785	157	802.11a	OFDM	20	20.0	19.48	0.13	10 mm	1	-	03257	6	front	98.3	0.073	-	1.127	1.017	-	
5785	157	802.11a	OFDM	20	20.0	19.48	-0.11	10 mm	1	-	03257	6	top	98.3	0.080	-	1.127	1.017	-	
5785	157	802.11a	OFDM	20	20.0	19.48	-0.13	10 mm	1	-	03257	6	left	98.3	0.358	0.154	1.127	1.017	0.177	
5785	157	802.11a	OFDM	20	20.0	19.79	0.16	10 mm	2	-	03257	6	back	98.3	0.484	0.199	1.050	1.017	0.213	
5785	157	802.11a	OFDM	20	20.0	19.79	-0.13	10 mm	2	-	03257	6	front	98.3	0.148	-	1.050	1.017	-	
5785	157	802.11a	OFDM	20	20.0	19.79	0.19	10 mm	2	-	03257	6	top	98.3	0.249	-	1.050	1.017	-	
5785	157	802.11a	OFDM	20	20.0	19.79	-0.13	10 mm	2	-	03257	6	left	98.3	0.558	0.240	1.050	1.017	0.256	
5785	157	802.11a	OFDM	20	20.0	19.79	0.02	10 mm	2	#1	03257	6	left	98.3	0.426	0.181	1.050	1.017	0.193	
5785	157	802.11a	OFDM	20	20.0	19.79	0.00	10 mm	2	#3	03257	6	left	98.3	0.285	0.120	1.050	1.017	0.128	
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: 1) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees) 2) Light orange entries represent additional Hotspot SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-46
WLAN MIMO Hotspot SAR

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.	Dual Display Accessory Configuration	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)	
5200	40	802.11n	OFDM	20	20.0	19.40	20.0	19.16	0.11	10 mm	MIMO	-	03257	13	back	98.1	0.793	0.372	1.213	1.019	0.460	
5200	40	802.11n	OFDM	20	20.0	19.40	20.0	19.16	0.18	10 mm	MIMO	-	03257	13	front	98.1	0.064	-	1.213	1.019	-	
5200	40	802.11n	OFDM	20	20.0	19.40	20.0	19.16	-0.14	10 mm	MIMO	-	03257	13	top	98.1	0.096	-	1.213	1.019	-	
5200	40	802.11n	OFDM	20	20.0	19.40	20.0	19.16	0.07	10 mm	MIMO	-	03257	13	left	98.1	0.234	0.105	1.213	1.019	0.130	
5785	157	802.11n	OFDM	20	20.0	19.35	20.0	19.65	0.09	10 mm	MIMO	-	03257	13	back	98.1	0.839	0.431	1.161	1.019	0.510	A57
5785	157	802.11n	OFDM	20	20.0	19.35	20.0	19.65	0.08	10 mm	MIMO	#1	03257	13	back	98.1	0.613	0.269	1.161	1.019	0.318	
5785	157	802.11n	OFDM	20	20.0	19.35	20.0	19.65	0.14	10 mm	MIMO	-	03257	13	front	98.1	0.174	-	1.161	1.019	-	
5785	157	802.11n	OFDM	20	20.0	19.35	20.0	19.65	0.19	10 mm	MIMO	-	03257	13	top	98.1	0.253	-	1.161	1.019	-	
5785	157	802.11n	OFDM	20	20.0	19.35	20.0	19.65	0.15	10 mm	MIMO	-	03257	13	left	98.1	0.533	0.225	1.161	1.019	0.266	
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: 1) For channels 40 and 157, to achieve the 23.0 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 20.0 dBm. 2) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees)

Table 11-47
DSS Hotspot SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Dual Display Accessory Configuration	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	10.5	9.96	0.13	10 mm	-	03240	1	back	77.1	0.033	1.132	1.297	0.048	
2441	39	Bluetooth	FHSS	10.5	9.96	0.16	10 mm	-	03240	1	front	77.1	0.015	1.132	1.297	0.022	
2441	39	Bluetooth	FHSS	10.5	9.96	0.14	10 mm	-	03240	1	top	77.1	0.016	1.132	1.297	0.023	
2441	39	Bluetooth	FHSS	10.5	9.96	0.12	10 mm	-	03240	1	right	77.1	0.039	1.132	1.297	**0.057**	A59
2441	39	Bluetooth	FHSS	10.5	9.96	0.12	10 mm	#1	03240	1	right	77.1	0.035	1.132	1.297	0.051	
2441	39	Bluetooth	FHSS	10.5	9.96	0.17	10 mm	#3	03240	1	right	77.1	0.035	1.132	1.297	0.051	
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: 1) Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees) 2) Light orange entries represent additional Hotspot SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

11.4 Standalone Phablet SAR Data

Table 11-48
PCS CDMA Phablet SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Dual Display Accessory Configuration	Device Serial Number	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.2	24.19	0.01	1 mm	-	12654	1:1	back	2.370	1.002	2.375	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	0.02	1 mm	-	12654	1:1	back	2.320	1.005	2.332	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.2	24.09	0.02	1 mm	-	12654	1:1	back	2.220	1.026	2.278	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.2	24.19	0.05	0 mm	#1	12654	1:1	back	2.330	1.002	2.335	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	0.03	0 mm	#1	12654	1:1	back	2.350	1.005	2.362	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.2	24.09	0.10	0 mm	#1	12654	1:1	back	2.290	1.026	2.350	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.2	24.19	0.09	0 mm	#2	12654	1:1	back	2.100	1.002	2.104	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	0.06	0 mm	#2	12654	1:1	back	2.080	1.005	2.090	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.2	24.09	0.10	0 mm	#2	12654	1:1	back	1.980	1.026	2.031	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	0.00	0 mm	#3	12654	1:1	back	0.395	1.005	0.397	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	-0.01	1 mm	-	12654	1:1	front	1.300	1.005	1.307	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	-0.13	0 mm	#1	12654	1:1	front	0.480	1.005	0.482	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	-0.06	0 mm	#2	12654	1:1	front	0.683	1.005	0.686	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	-0.06	0 mm	#3	12654	1:1	front	1.430	1.005	1.437	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.2	24.19	0.02	3 mm	-	12654	1:1	bottom	2.410	1.002	2.415	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	0.03	3 mm	-	12654	1:1	bottom	2.520	1.005	2.533	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.2	24.09	0.01	3 mm	-	12654	1:1	bottom	2.530	1.026	2.596	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.2	24.19	-0.20	0 mm	#1	12654	1:1	bottom	1.970	1.002	1.974	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	-0.12	0 mm	#1	12654	1:1	bottom	2.130	1.005	2.141	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.2	24.09	-0.15	0 mm	#1	12654	1:1	bottom	2.030	1.026	2.083	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.2	24.19	0.12	0 mm	#2	12654	1:1	bottom	2.000	1.002	2.004	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	-0.09	0 mm	#2	12654	1:1	bottom	2.030	1.005	2.040	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.2	24.09	0.08	0 mm	#2	12654	1:1	bottom	2.030	1.026	2.083	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	0.01	0 mm	#3	12654	1:1	bottom	1.600	1.005	1.608	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	24.18	-0.02	0 mm	-	12654	1:1	left	0.785	1.005	0.789	
1851.25	25	PCS CDMA	EVDO Rev. 0	22.5	22.44	-0.02	0 mm	-	03331	1:1	back	2.130	1.014	2.160	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.48	-0.03	0 mm	-	03331	1:1	back	2.130	1.005	2.141	
1908.75	1175	PCS CDMA	EVDO Rev. 0	22.5	22.50	-0.02	0 mm	-	03331	1:1	back	2.130	1.000	2.130	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.48	-0.02	0 mm	-	03331	1:1	front	1.590	1.005	1.598	
1851.25	25	PCS CDMA	EVDO Rev. 0	22.5	22.44	0.02	0 mm	-	03331	1:1	bottom	2.960	1.014	3.001	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.48	0.10	0 mm	-	03331	1:1	bottom	2.980	1.005	2.995	A60
1908.75	1175	PCS CDMA	EVDO Rev. 0	22.5	22.50	0.02	0 mm	-	03331	1:1	bottom	2.780	1.000	2.780	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								**Phablet 4.0 W/kg (mW/g)** averaged over 10 grams							

Note: 1) Green entries represent additional Phablet SAR Position (DD #1: 0 degrees) 2) Purple entries represent additional Phablet SAR Position (DD #2: 180 degrees) 3) Light orange entries represent additional Phablet SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-49
UMTS 1750 Phablet SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Dual Display Accessory Configuration	Device Serial Number	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1712.40	1312	UMTS 1750	RMC	25.0	24.96	-0.06	1 mm	-	03331	1:1	back	2.080	1.009	2.099	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	0.05	1 mm	-	03331	1:1	back	2.270	1.009	2.290	
1752.60	1513	UMTS 1750	RMC	25.0	24.92	0.01	1 mm	-	03331	1:1	back	2.400	1.019	2.446	
1712.40	1312	UMTS 1750	RMC	25.0	24.96	-0.02	0 mm	#1	03331	1:1	back	2.240	1.009	2.260	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	-0.02	0 mm	#1	03331	1:1	back	2.380	1.009	2.401	
1752.60	1513	UMTS 1750	RMC	25.0	24.92	-0.01	0 mm	#1	03331	1:1	back	2.470	1.019	2.517	
1712.40	1312	UMTS 1750	RMC	25.0	24.96	-0.01	0 mm	#2	03331	1:1	back	2.660	1.009	2.684	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	0.00	0 mm	#2	03331	1:1	back	2.810	1.009	2.835	
1752.60	1513	UMTS 1750	RMC	25.0	24.92	-0.01	0 mm	#2	03331	1:1	back	2.930	1.019	2.986	A61
1732.40	1412	UMTS 1750	RMC	25.0	24.96	-0.08	0 mm	#3	03331	1:1	back	0.671	1.009	0.677	
1712.40	1312	UMTS 1750	RMC	25.0	24.96	0.04	1 mm	-	03331	1:1	front	1.930	1.009	1.947	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	0.01	1 mm	-	03331	1:1	front	2.170	1.009	2.190	
1752.60	1513	UMTS 1750	RMC	25.0	24.92	0.03	1 mm	-	03331	1:1	front	2.350	1.019	2.395	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	-0.08	0 mm	#1	03331	1:1	front	0.741	1.009	0.748	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	0.01	0 mm	#2	03331	1:1	front	1.000	1.009	1.009	
1712.40	1312	UMTS 1750	RMC	25.0	24.96	-0.02	0 mm	#3	03331	1:1	front	2.520	1.009	2.543	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	0.00	0 mm	#3	03331	1:1	front	2.560	1.009	2.583	
1752.60	1513	UMTS 1750	RMC	25.0	24.92	-0.03	0 mm	#3	03331	1:1	front	2.540	1.019	2.588	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	-0.03	3 mm	-	03331	1:1	bottom	1.950	1.009	1.968	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	0.00	0 mm	#1	03331	1:1	bottom	1.880	1.009	1.897	
1712.40	1312	UMTS 1750	RMC	25.0	24.96	0.02	0 mm	#2	03331	1:1	bottom	1.990	1.009	2.008	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	0.01	0 mm	#2	03331	1:1	bottom	2.130	1.009	2.149	
1752.60	1513	UMTS 1750	RMC	25.0	24.92	0.03	0 mm	#2	03331	1:1	bottom	2.230	1.019	2.272	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	-0.01	0 mm	#3	03331	1:1	bottom	1.790	1.009	1.806	
1732.40	1412	UMTS 1750	RMC	25.0	24.96	-0.09	0 mm	-	03331	1:1	left	0.588	1.009	0.593	
1732.40	1412	UMTS 1750	RMC	22.5	22.34	-0.13	0 mm	-	03331	1:1	back	1.510	1.038	1.567	
1732.40	1412	UMTS 1750	RMC	22.5	22.34	-0.11	0 mm	-	03331	1:1	front	1.320	1.038	1.370	
1712.40	1312	UMTS 1750	RMC	22.5	22.28	0.01	0 mm	-	03331	1:1	bottom	2.420	1.052	2.546	
1732.40	1412	UMTS 1750	RMC	22.5	22.34	0.03	0 mm	-	03331	1:1	bottom	2.560	1.038	2.657	
1752.60	1513	UMTS 1750	RMC	22.5	22.38	0.01	0 mm	-	03331	1:1	bottom	2.730	1.028	2.806	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams							

Note: 1) Green entries represent additional Phablet SAR Position (DD #1: 0 degrees) 2) Purple entries represent additional Phablet SAR Position (DD #2: 180 degrees) 3) Light orange entries represent additional Phablet SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-50
UMTS 1900 Phablet SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Dual Display Accessory Configuration	Device Serial Number	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	-0.17	1 mm	-	12564	1:1	back	1.760	1.000	1.760	
1852.40	9262	UMTS 1900	RMC	24.2	24.16	0.01	0 mm	#1	12654	1:1	back	2.630	1.009	2.654	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	0.01	0 mm	#1	12654	1:1	back	2.670	1.000	2.670	
1907.60	9538	UMTS 1900	RMC	24.2	24.18	-0.01	0 mm	#1	12654	1:1	back	2.640	1.005	2.653	
1852.40	9262	UMTS 1900	RMC	24.2	24.16	-0.05	0 mm	#2	12654	1:1	back	2.260	1.009	2.280	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	-0.04	0 mm	#2	12654	1:1	back	2.240	1.000	2.240	
1907.60	9538	UMTS 1900	RMC	24.2	24.18	-0.05	0 mm	#2	12654	1:1	back	2.230	1.005	2.241	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	-0.04	0 mm	#3	12654	1:1	back	0.421	1.000	0.421	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	-0.11	1 mm	-	12654	1:1	front	1.560	1.000	1.560	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	0.00	0 mm	#1	12654	1:1	front	0.479	1.000	0.479	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	0.05	0 mm	#2	12654	1:1	front	0.678	1.000	0.678	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	-0.04	0 mm	#3	12654	1:1	front	1.780	1.000	1.780	
1852.40	9262	UMTS 1900	RMC	24.2	24.16	-0.11	3 mm	-	12654	1:1	bottom	2.170	1.009	2.190	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	-0.12	3 mm	-	12654	1:1	bottom	2.160	1.000	2.160	
1907.60	9538	UMTS 1900	RMC	24.2	24.18	-0.14	3 mm	-	12654	1:1	bottom	2.050	1.005	2.060	
1852.40	9262	UMTS 1900	RMC	24.2	24.16	-0.16	0 mm	#1	12654	1:1	bottom	1.960	1.009	1.978	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	-0.16	0 mm	#1	12654	1:1	bottom	2.090	1.000	2.090	
1907.60	9538	UMTS 1900	RMC	24.2	24.18	-0.15	0 mm	#1	12654	1:1	bottom	1.950	1.005	1.960	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	-0.06	0 mm	#2	12654	1:1	bottom	1.860	1.000	1.860	
1852.40	9262	UMTS 1900	RMC	24.2	24.16	-0.13	0 mm	#3	12654	1:1	bottom	2.020	1.009	2.038	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	-0.16	0 mm	#3	12654	1:1	bottom	2.180	1.000	2.180	
1907.60	9538	UMTS 1900	RMC	24.2	24.18	-0.15	0 mm	#3	12654	1:1	bottom	2.080	1.005	2.090	
1880.00	9400	UMTS 1900	RMC	24.2	24.20	-0.08	0 mm	-	12654	1:1	left	0.626	1.000	0.626	
1852.40	9262	UMTS 1900	RMC	22.5	22.47	-0.12	0 mm	-	03331	1:1	back	2.010	1.007	2.024	
1880.00	9400	UMTS 1900	RMC	22.5	22.50	-0.10	0 mm	-	03331	1:1	back	2.010	1.000	2.010	
1907.60	9538	UMTS 1900	RMC	22.5	22.48	-0.10	0 mm	-	03331	1:1	back	1.990	1.005	2.000	
1880.00	9400	UMTS 1900	RMC	22.5	22.50	-0.20	0 mm	-	03331	1:1	front	1.680	1.000	1.680	
1852.40	9262	UMTS 1900	RMC	22.5	22.47	-0.03	0 mm	-	03331	1:1	bottom	3.150	1.007	**3.172**	A62
1880.00	9400	UMTS 1900	RMC	22.5	22.50	0.05	0 mm	-	03331	1:1	bottom	3.030	1.000	3.030	
1907.60	9538	UMTS 1900	RMC	22.5	22.48	-0.02	0 mm	-	03331	1:1	bottom	2.890	1.005	2.904	
1852.40	9262	UMTS 1900	RMC	22.5	22.47	0.00	0 mm	-	03331	1:1	bottom	3.110	1.007	3.132	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							**Phablet 4.0 W/kg (mW/g)** averaged over 10 grams								

Note: 1) Blue entry represents variability measurement 2) Green entries represent additional Phablet SAR Position (DD #1: 0 degrees) 3) Purple entries represent additional Phablet SAR Position (DD #2: 180 degrees) 4) Light orange entries represent additional Phablet SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-51
LTE Band 66 Phablet SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	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)	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	25.0	24.90	-0.18	0	03331	QPSK	1	0	1 mm	back	1:1	1.920	1.023	1.964	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.82	-0.09	1	03331	QPSK	50	0	1 mm	back	1:1	1.580	1.042	1.646	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#1	25.0	24.85	-0.04	0	03349	QPSK	1	0	0 mm	back	1:1	1.970	1.035	2.039	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	#1	25.0	24.90	0.01	0	03349	QPSK	1	0	0 mm	back	1:1	2.100	1.023	2.148	
1770.00	132572	High	LTE Band 66 (AWS)	20	#1	25.0	24.83	-0.05	0	03349	QPSK	1	0	0 mm	back	1:1	2.220	1.040	2.309	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#1	24.0	23.82	-0.03	1	03349	QPSK	50	0	0 mm	back	1:1	1.680	1.042	1.751	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#1	24.0	23.74	-0.03	1	03349	QPSK	100	0	0 mm	back	1:1	1.670	1.062	1.774	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#2	25.0	24.85	-0.02	0	03349	QPSK	1	0	0 mm	back	1:1	2.510	1.035	2.598	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	#2	25.0	24.90	0.02	0	03349	QPSK	1	0	0 mm	back	1:1	2.700	1.023	2.762	
1770.00	132572	High	LTE Band 66 (AWS)	20	#2	25.0	24.83	-0.04	0	03349	QPSK	1	0	0 mm	back	1:1	2.850	1.040	2.964	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#2	24.0	23.82	-0.05	1	03349	QPSK	50	0	0 mm	back	1:1	2.140	1.042	2.230	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	#2	24.0	23.78	-0.04	1	03349	QPSK	50	0	0 mm	back	1:1	2.270	1.052	2.388	
1770.00	132572	High	LTE Band 66 (AWS)	20	#2	24.0	23.74	-0.05	1	03349	QPSK	50	0	0 mm	back	1:1	2.370	1.062	2.517	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#2	24.0	23.74	-0.04	1	03349	QPSK	100	0	0 mm	back	1:1	2.130	1.062	2.262	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	#3	25.0	24.90	-0.03	0	03349	QPSK	1	0	0 mm	back	1:1	0.641	1.023	0.656	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#3	24.0	23.82	-0.01	1	03349	QPSK	50	0	0 mm	back	1:1	0.505	1.042	0.526	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	25.0	24.90	-0.09	0	03331	QPSK	1	0	1 mm	front	1:1	1.540	1.023	1.575	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.82	-0.11	1	03331	QPSK	50	0	1 mm	front	1:1	1.280	1.042	1.334	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	#1	25.0	24.90	-0.03	0	03349	QPSK	1	0	0 mm	front	1:1	0.720	1.023	0.737	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#1	24.0	23.82	-0.02	1	03349	QPSK	50	0	0 mm	front	1:1	0.538	1.042	0.561	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	#2	25.0	24.90	0.00	0	03349	QPSK	1	0	0 mm	front	1:1	0.945	1.023	0.967	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#2	24.0	23.82	0.01	1	03349	QPSK	50	0	0 mm	front	1:1	0.756	1.042	0.788	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#3	25.0	24.85	-0.09	0	03349	QPSK	1	0	0 mm	front	1:1	2.140	1.035	2.215	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	#3	25.0	24.90	0.05	0	03349	QPSK	1	0	0 mm	front	1:1	2.340	1.023	2.394	
1770.00	132572	High	LTE Band 66 (AWS)	20	#3	25.0	24.83	0.10	0	03349	QPSK	1	0	0 mm	front	1:1	2.300	1.040	2.392	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#3	24.0	23.82	-0.02	1	03349	QPSK	50	0	0 mm	front	1:1	1.930	1.042	2.011	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	#3	24.0	23.78	-0.04	1	03349	QPSK	50	0	0 mm	front	1:1	1.850	1.052	1.946	
1770.00	132572	High	LTE Band 66 (AWS)	20	#3	24.0	23.74	-0.04	1	03349	QPSK	50	0	0 mm	front	1:1	1.910	1.062	2.028	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#3	24.0	23.74	-0.03	1	03349	QPSK	100	0	0 mm	front	1:1	1.790	1.062	1.901	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	25.0	24.90	0.03	0	03331	QPSK	1	0	3 mm	bottom	1:1	1.760	1.023	1.800	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.82	-0.05	1	03331	QPSK	50	0	3 mm	bottom	1:1	1.450	1.042	1.511	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	#1	25.0	24.90	0.03	0	03349	QPSK	1	0	0 mm	bottom	1:1	1.890	1.023	1.933	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#1	24.0	23.82	0.03	1	03349	QPSK	50	0	0 mm	bottom	1:1	1.430	1.042	1.490	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#2	25.0	24.85	-0.01	0	03349	QPSK	1	0	0 mm	bottom	1:1	1.950	1.035	2.018	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	#2	25.0	24.90	-0.06	0	03349	QPSK	1	0	0 mm	bottom	1:1	2.100	1.023	2.148	
1770.00	132572	High	LTE Band 66 (AWS)	20	#2	25.0	24.83	-0.08	0	03349	QPSK	1	0	0 mm	bottom	1:1	2.300	1.040	2.392	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#2	24.0	23.82	-0.04	1	03349	QPSK	50	0	0 mm	bottom	1:1	1.650	1.042	1.719	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#2	24.0	23.74	0.10	1	03349	QPSK	100	0	0 mm	bottom	1:1	1.660	1.062	1.763	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	#3	25.0	24.90	-0.02	0	03349	QPSK	1	0	0 mm	bottom	1:1	1.740	1.023	1.780	
1720.00	132072	Low	LTE Band 66 (AWS)	20	#3	24.0	23.82	0.00	1	03349	QPSK	50	0	0 mm	bottom	1:1	1.390	1.042	1.448	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	25.0	24.90	-0.05	0	03331	QPSK	1	0	0 mm	left	1:1	0.532	1.023	0.544	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	24.0	23.82	-0.05	1	03331	QPSK	50	0	0 mm	left	1:1	0.441	1.042	0.460	
1770.00	132572	High	LTE Band 66 (AWS)	20	-	22.5	22.50	-0.01	0	03331	QPSK	1	0	0 mm	back	1:1	1.700	1.000	1.700	
1770.00	132572	High	LTE Band 66 (AWS)	20	-	22.5	22.49	-0.03	0	03331	QPSK	50	0	0 mm	back	1:1	1.780	1.002	1.784	
1770.00	132572	High	LTE Band 66 (AWS)	20	-	22.5	22.50	-0.01	0	03331	QPSK	1	0	0 mm	front	1:1	1.430	1.000	1.430	
1770.00	132572	High	LTE Band 66 (AWS)	20	-	22.5	22.49	-0.04	0	03331	QPSK	50	0	0 mm	front	1:1	1.500	1.002	1.503	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	22.5	22.31	-0.07	0	03331	QPSK	1	0	0 mm	bottom	1:1	2.260	1.045	2.362	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	22.5	22.31	-0.02	0	03331	QPSK	1	0	0 mm	bottom	1:1	2.400	1.045	2.508	
1770.00	132572	High	LTE Band 66 (AWS)	20	-	22.5	22.50	-0.03	0	03331	QPSK	1	0	0 mm	bottom	1:1	2.630	1.000	2.630	
1720.00	132072	Low	LTE Band 66 (AWS)	20	-	22.5	22.41	-0.06	0	03331	QPSK	50	0	0 mm	bottom	1:1	2.410	1.021	2.461	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	-	22.5	22.47	-0.07	0	03331	QPSK	50	0	0 mm	bottom	1:1	2.560	1.007	2.578	
1770.00	132572	High	LTE Band 66 (AWS)	20	-	22.5	22.49	0.06	0	03331	QPSK	50	0	0 mm	bottom	1:1	2.810	1.002	2.816	
1770.00	132572	High	LTE Band 66 (AWS)	20	-	22.5	22.47	0.05	0	03331	QPSK	100	0	0 mm	bottom	1:1	3.060	1.007	3.081	A63
1770.00	132572	High	LTE Band 66 (AWS)	20	-	22.5	22.47	-0.04	0	03331	QPSK	100	0	0 mm	bottom	1:1	2.840	1.007	2.860	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Phablet 4.0 W/kg (mW/g) averaged over 10 grams											

Note: 1) Blue entry represents variability measurement 2) Green entries represent additional Phablet SAR Position (DD #1: 0 degrees) 3) Purple entries represent additional Phablet SAR Position (DD #2: 180 degrees) 4) Light orange entries represent additional Phablet SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-52
LTE Band 25 Phablet SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	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)	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	24.2	24.20	0.03	0	03349	QPSK	1	0	1 mm	back	1:1	1.700	1.000	1.700	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	23.2	23.11	0.00	1	03349	QPSK	50	25	1 mm	back	1:1	1.380	1.021	1.409	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#1	24.2	24.20	-0.13	0	03349	QPSK	1	0	0 mm	back	1:1	1.890	1.000	1.890	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#1	23.2	23.11	-0.15	1	03349	QPSK	50	25	0 mm	back	1:1	1.550	1.021	1.583	
1860.00	26140	Low	LTE Band 25 (PCS)	20	#2	24.2	24.19	0.15	0	03349	QPSK	1	0	0 mm	back	1:1	2.020	1.002	2.024	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#2	24.2	24.20	0.16	0	03349	QPSK	1	0	0 mm	back	1:1	2.040	1.000	2.040	
1905.00	26590	High	LTE Band 25 (PCS)	20	#2	24.2	24.19	0.08	0	03349	QPSK	1	0	0 mm	back	1:1	2.060	1.002	2.064	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#2	23.2	23.11	0.09	1	03349	QPSK	50	25	0 mm	back	1:1	1.620	1.021	1.654	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#2	23.2	23.09	0.06	1	03349	QPSK	100	0	0 mm	back	1:1	1.630	1.026	1.672	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#3	24.2	24.20	-0.06	0	03349	QPSK	1	0	0 mm	back	1:1	0.435	1.000	0.435	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#3	23.2	23.11	-0.01	1	03349	QPSK	50	25	0 mm	back	1:1	0.349	1.021	0.356	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	24.2	24.20	-0.14	0	03349	QPSK	1	0	1 mm	front	1:1	1.290	1.000	1.290	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	23.2	23.11	-0.16	1	03349	QPSK	50	25	1 mm	front	1:1	1.010	1.021	1.031	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#1	24.2	24.20	-0.05	0	03349	QPSK	1	0	0 mm	front	1:1	0.524	1.000	0.524	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#1	23.2	23.11	0.00	1	03349	QPSK	50	25	0 mm	front	1:1	0.414	1.021	0.423	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#2	24.2	24.20	-0.05	0	03349	QPSK	1	0	0 mm	front	1:1	0.751	1.000	0.751	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#2	23.2	23.11	-0.06	1	03349	QPSK	50	25	0 mm	front	1:1	0.617	1.021	0.630	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#3	24.2	24.20	0.04	0	03349	QPSK	1	0	0 mm	front	1:1	1.660	1.000	1.660	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#3	23.2	23.11	0.08	1	03349	QPSK	50	25	0 mm	front	1:1	1.330	1.021	1.358	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	24.2	24.20	-0.08	0	03349	QPSK	1	0	3 mm	bottom	1:1	1.910	1.000	1.910	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	23.2	23.11	0.09	1	03349	QPSK	50	25	3 mm	bottom	1:1	1.540	1.021	1.572	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#1	24.2	24.20	-0.13	0	03349	QPSK	1	0	0 mm	bottom	1:1	1.650	1.000	1.650	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#1	23.2	23.11	-0.14	1	03349	QPSK	50	25	0 mm	bottom	1:1	1.360	1.021	1.389	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#2	24.2	24.20	-0.12	0	03349	QPSK	1	0	0 mm	bottom	1:1	1.730	1.000	1.730	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#2	23.2	23.11	-0.15	1	03349	QPSK	50	25	0 mm	bottom	1:1	1.390	1.021	1.419	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#3	24.2	24.20	-0.01	0	03349	QPSK	1	0	0 mm	bottom	1:1	1.390	1.000	1.390	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	#3	23.2	23.11	-0.03	1	03349	QPSK	50	25	0 mm	bottom	1:1	1.120	1.021	1.144	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	24.2	24.20	-0.12	0	03349	QPSK	1	0	0 mm	left	1:1	0.690	1.000	0.690	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	23.2	23.11	-0.07	1	03349	QPSK	50	25	0 mm	left	1:1	0.569	1.021	0.581	
1860.00	26140	Low	LTE Band 25 (PCS)	20	-	22.5	22.22	-0.05	0	03349	QPSK	1	50	0 mm	back	1:1	2.040	1.067	2.177	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	22.5	22.49	-0.02	0	03349	QPSK	1	0	0 mm	back	1:1	2.100	1.002	2.104	
1905.00	26590	High	LTE Band 25 (PCS)	20	-	22.5	22.50	0.00	0	03349	QPSK	1	0	0 mm	back	1:1	2.080	1.000	2.080	
1905.00	26590	High	LTE Band 25 (PCS)	20	-	22.5	22.49	-0.01	0	03349	QPSK	50	50	0 mm	back	1:1	1.950	1.002	1.954	
1905.00	26590	High	LTE Band 25 (PCS)	20	-	22.5	22.46	0.03	0	03349	QPSK	100	0	0 mm	back	1:1	1.960	1.009	1.978	
1905.00	26590	High	LTE Band 25 (PCS)	20	-	22.5	22.50	-0.21	0	03349	QPSK	1	0	0 mm	front	1:1	1.530	1.000	1.530	
1905.00	26590	High	LTE Band 25 (PCS)	20	-	22.5	22.49	-0.03	0	03349	QPSK	50	50	0 mm	front	1:1	1.450	1.002	1.453	
1860.00	26140	Low	LTE Band 25 (PCS)	20	-	22.5	22.22	-0.15	0	03349	QPSK	1	50	0 mm	bottom	1:1	2.920	1.067	3.116	A64
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	22.5	22.49	-0.15	0	03349	QPSK	1	0	0 mm	bottom	1:1	2.900	1.002	2.906	
1905.00	26590	High	LTE Band 25 (PCS)	20	-	22.5	22.50	-0.16	0	03349	QPSK	1	0	0 mm	bottom	1:1	2.800	1.000	2.800	
1860.00	26140	Low	LTE Band 25 (PCS)	20	-	22.5	22.44	-0.16	0	03349	QPSK	50	25	0 mm	bottom	1:1	2.820	1.014	2.859	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	-	22.5	22.47	-0.16	0	03349	QPSK	50	25	0 mm	bottom	1:1	2.760	1.007	2.779	
1905.00	26590	High	LTE Band 25 (PCS)	20	-	22.5	22.49	-0.16	0	03349	QPSK	50	50	0 mm	bottom	1:1	2.550	1.002	2.555	
1905.00	26590	High	LTE Band 25 (PCS)	20	-	22.5	22.46	-0.16	0	03349	QPSK	100	0	0 mm	bottom	1:1	2.570	1.009	2.593	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Phablet 4.0 W/kg (mW/g) averaged over 10 grams											

Note: 1) Green entries represent additional Phablet SAR Position (DD #1: 0 degrees) 2) Purple entries represent additional Phablet SAR Position (DD #2: 180 degrees) 3) Light orange entries represent additional Phablet SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-53
WLAN Phablet SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Dual Display Accessory Configuration	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
5260	52	802.11a	OFDM	20	17.0	16.59	-0.11	0 mm	1	-	03257	6	back	98.3	11.868	1.010	1.099	1.017	1.129	
5280	56	802.11a	OFDM	20	20.0	19.63	-0.08	0 mm	1	-	03257	6	back	98.3	37.197	1.620	1.089	1.017	**1.794**	
5320	64	802.11a	OFDM	20	17.0	16.58	0.03	0 mm	1	-	03257	6	back	98.3	25.513	1.060	1.102	1.017	1.188	
5280	56	802.11a	OFDM	20	20.0	19.63	-0.16	0 mm	1	#1	03257	6	back	98.3	6.073	0.929	1.089	1.017	1.029	
5280	56	802.11a	OFDM	20	20.0	19.63	-0.18	0 mm	1	#2	03257	6	back	98.3	3.781	0.828	1.089	1.017	0.917	
5280	56	802.11a	OFDM	20	20.0	19.63	-0.14	0 mm	1	#3	03257	6	back	98.3	0.431	0.061	1.089	1.017	0.068	
5280	56	802.11a	OFDM	20	20.0	19.63	0.00	0 mm	1	-	03257	6	front	98.3	0.621	0.088	1.089	1.017	0.097	
5280	56	802.11a	OFDM	20	20.0	19.63	0.19	0 mm	1	-	03257	6	top	98.3	0.253	-	1.089	1.017	-	
5280	56	802.11a	OFDM	20	20.0	19.63	0.18	0 mm	1	-	03257	6	left	98.3	2.850	0.296	1.089	1.017	0.328	
5280	56	802.11a	OFDM	20	20.0	19.53	0.14	0 mm	2	-	03257	6	back	98.3	6.712	0.977	1.114	1.017	1.107	
5280	56	802.11a	OFDM	20	20.0	19.53	0.13	0 mm	2	#1	03257	6	back	98.3	2.629	0.540	1.114	1.017	0.612	
5280	56	802.11a	OFDM	20	20.0	19.53	0.12	0 mm	2	#2	03257	6	back	98.3	2.811	0.434	1.114	1.017	0.492	
5280	56	802.11a	OFDM	20	20.0	19.53	0.13	0 mm	2	#3	03257	6	back	98.3	0.443	0.061	1.114	1.017	0.069	
5280	56	802.11a	OFDM	20	20.0	19.53	0.19	0 mm	2	-	03257	6	front	98.3	1.054	0.197	1.114	1.017	0.223	
5280	56	802.11a	OFDM	20	20.0	19.53	0.14	0 mm	2	-	03257	6	top	98.3	0.893	-	1.114	1.017	-	
5280	56	802.11a	OFDM	20	20.0	19.53	-0.08	0 mm	2	-	03257	6	left	98.3	2.902	0.299	1.114	1.017	0.339	
5500	100	802.11a	OFDM	20	17.0	16.57	-0.13	0 mm	1	-	03257	6	back	98.3	22.338	1.020	1.104	1.017	1.145	
5500	100	802.11a	OFDM	20	17.0	16.57	0.15	0 mm	1	-	03257	6	front	98.3	0.726	0.087	1.104	1.017	0.098	
5500	100	802.11a	OFDM	20	17.0	16.57	-0.19	0 mm	1	-	03257	6	top	98.3	0.107	-	1.104	1.017	-	
5500	100	802.11a	OFDM	20	17.0	16.57	-0.17	0 mm	1	-	03257	6	left	98.3	2.129	0.208	1.104	1.017	0.234	
5720	144	802.11a	OFDM	20	17.0	16.76	0.01	0 mm	2	-	03257	6	back	98.3	4.590	-	1.057	1.017	-	
5720	144	802.11a	OFDM	20	17.0	16.76	0.19	0 mm	2	-	03257	6	front	98.3	0.906	0.157	1.057	1.017	0.169	
5720	144	802.11a	OFDM	20	17.0	16.76	0.15	0 mm	2	-	03257	6	top	98.3	1.456	-	1.057	1.017	-	
5720	144	802.11a	OFDM	20	17.0	16.76	0.13	0 mm	2	-	03257	6	left	98.3	4.755	0.378	1.057	1.017	0.406	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams												

Note: 1) Green entries represent additional Phablet SAR Position (DD #1: 0 degrees) 2) Purple entries represent additional Phablet SAR Position (DD #2: 180 degrees) 3) Light orange entries represent additional Phablet SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 11-54
WLAN MIMO Phablet SAR

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.	Dual Display Accessory Configuration	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.																W/kg	(W/kg)			(W/kg)	
5260	52	802.11n	OFDM	20	17.0	16.37	17.0	16.36	0.12	0 mm	MIMO	-	03257	13	back	98.1	16.148	1.590	1.159	1.019	1.878	
5280	56	802.11n	OFDM	20	20.0	19.50	20.0	19.45	0.19	0 mm	MIMO	-	03257	13	back	98.1	32.180	2.470	1.135	1.019	2.857	A65
5300	60	802.11n	OFDM	20	17.0	16.62	17.0	16.13	-0.03	0 mm	MIMO	-	03257	13	back	98.1	11.930	1.340	1.222	1.019	1.669	
5320	64	802.11n	OFDM	20	17.0	16.45	17.0	16.29	0.04	0 mm	MIMO	-	03257	13	back	98.1	9.191	1.750	1.178	1.019	2.101	
5280	56	802.11n	OFDM	20	20.0	19.50	20.0	19.45	0.07	0 mm	MIMO	#1	03257	13	back	98.1	16.187	1.060	1.135	1.019	1.226	
5280	56	802.11n	OFDM	20	20.0	19.50	20.0	19.45	0.12	0 mm	MIMO	#2	03257	13	back	98.1	9.450	0.918	1.135	1.019	1.062	
5280	56	802.11n	OFDM	20	20.0	19.50	20.0	19.45	0.12	0 mm	MIMO	#3	03257	13	back	98.1	0.807	0.098	1.135	1.019	0.113	
5280	56	802.11n	OFDM	20	20.0	19.50	20.0	19.45	0.19	0 mm	MIMO	-	03257	13	front	98.1	2.288	0.309	1.135	1.019	0.357	
5280	56	802.11n	OFDM	20	20.0	19.50	20.0	19.45	0.11	0 mm	MIMO	-	03257	13	top	98.1	0.876	-	1.135	1.019	-	
5280	56	802.11n	OFDM	20	20.0	19.50	20.0	19.45	0.13	0 mm	MIMO	-	03257	13	left	98.1	3.700	0.472	1.135	1.019	0.546	
5620	124	802.11n	OFDM	20	17.0	16.35	17.0	16.50	0.01	0 mm	MIMO	-	03257	13	back	98.1	9.205	1.520	1.161	1.019	1.798	
5620	124	802.11n	OFDM	20	17.0	16.35	17.0	16.50	0.00	0 mm	MIMO	-	03257	13	front	98.1	1.552	0.255	1.161	1.019	0.302	
5620	124	802.11n	OFDM	20	17.0	16.35	17.0	16.50	0.19	0 mm	MIMO	-	03257	13	top	98.1	1.231	-	1.161	1.019	-	
5620	124	802.11n	OFDM	20	17.0	16.35	17.0	16.50	-0.13	0 mm	MIMO	-	03257	13	left	98.1	4.096	0.473	1.161	1.019	0.560	
5280	56	802.11n	OFDM	20	20.0	19.50	20.0	19.45	0.19	0 mm	MIMO	-	03257	13	back	98.1	42.860	2.280	1.135	1.019	2.637	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Phablet 4.0 W/kg (mW/g) averaged over 10 grams										

Note: 1) For channels 52, 56, 60, 64 and 124, to achieve the 23.0 dBm (20.0 dBm for ch 52, 60, 64, and 124) maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 20.0 dBm (17.0 dBm for ch 52, 60, 64, 124). 2) Blue entry represents variability measurement. 3) Green entries represent additional Phablet SAR Position (DD #1: 0 degrees) 4) Purple entries represent additional Phablet SAR Position (DD #2: 180 degrees) 5) Light orange entries represent additional Phablet SAR Position (DD #3: 360 degrees)

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

11.5 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 10 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB Publication 648474 D04v01r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was ≤ 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were required.
8. Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg for 1g SAR and 2.0 W/kg for 10g SAR. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 13 for variability analysis.
9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 6.7 for more details).
10. Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is > 160 mm and < 200 mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.
11. This device utilizes power reduction for some wireless modes and technologies, as outlined in Section 1.3. The maximum output power allowed for each transmitter and exposure condition was evaluated for SAR compliance based on expected use conditions and simultaneous transmission scenarios.
12. Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6 (See Section 6.9 for more information).
13. Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds below.
14. SAR with the Dual Display Cover was measured for the configurations with the highest SAR reported for each wireless technology, frequency band, operating mode, and exposure condition. Head SAR tests were performed with the accessory cover folded to 0 and 360 degrees to represent typical use conditions. Body-worn, Hotspot, and Phablet SAR tests were performed with accessory cover folded to 0, 180 and 360 degrees.

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.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

4. GPRS was additionally evaluated for head and body-worn exposure conditions to address possible VoIP scenarios.

CDMA Notes:

1. Head SAR for CDMA2000 mode was tested under RC3/SO55 per FCC KDB Publication 941225 D01v03r01.
2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. EVDO Rev0 and RevA and TDSO / SO32 FCH+SCH SAR tests were not required per the 3G SAR Test Reduction Procedure in FCC KDB Publication 941225 D01v03r01.
3. CDMA Wireless Router SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 according to KDB 941225 D01v03r01 procedures for data devices. Wireless Router SAR tests for Subtype 2 of Rev.A and 1x RTT configurations were not required per the 3G SAR Test Reduction Policy in KDB Publication 941225 D01v03r01.
4. Head SAR was additionally evaluated using EVDO Rev. A to determine compliance for VoIP operations.
5. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel was used.
6. CDMA 1X Advanced technology was not required for SAR since the maximum allowed output powers for 1X Advanced was not more than 0.25 dB higher than the maximum powers for 1X.

UMTS Notes:

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

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r04. The general test procedures used for testing can be found in Section 8.6.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 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 and LTE Band 48 SAR 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.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

7. This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per FCC Guidance, all SAR tests were performed using Power Class 3. SAR with power class 2 at the available duty factor was additionally performed for the power class 3 configuration with the highest SAR configuration for each exposure conditions. Please see Section 14 for linearity results.
8. This device supports ULCA active with Power Class 2. Highest SAR test configuration for each exposure condition in Power Class 3 with ULCA active was repeated with Power Class 2 with ULCA active.
9. For LTE Band 5 and 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, and phablet operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g evaluations, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 8.7.5 for more information.
3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 8.7.6 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.
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.

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 0 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.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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.

12.3 Head SAR Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	CDMA/EVDO BC10 (§90S)	0.151	0.507	0.732	0.658	0.883	1.390
	CDMA/EVDO BC0 (§22H)	0.137	0.507	0.732	0.644	0.869	1.376
	PCS CDMA/EVDO	0.192	0.507	0.732	0.699	0.924	1.431
	GSM/GPRS 850	0.130	0.507	0.732	0.637	0.862	1.369
	GSM/GPRS 1900	0.119	0.507	0.732	0.626	0.851	1.358
	UMTS 850	0.157	0.507	0.732	0.664	0.889	1.396
	UMTS 1750	0.141	0.507	0.732	0.648	0.873	1.380
	UMTS 1900	0.163	0.507	0.732	0.670	0.895	1.402
	LTE Band 71	0.166	0.507	0.732	0.673	0.898	1.405
	LTE Band 12	0.151	0.507	0.732	0.658	0.883	1.390
	LTE Band 13	0.207	0.507	0.732	0.714	0.939	1.446
	LTE Band 14	0.190	0.507	0.732	0.697	0.922	1.429
	LTE Band 26 (Cell)	0.131	0.507	0.732	0.638	0.863	1.370
	LTE Band 5 (Cell)	0.149	0.507	0.732	0.656	0.881	1.388
	LTE Band 66 (AWS)	0.227	0.507	0.732	0.734	0.959	1.466
	LTE Band 25 (PCS)	0.189	0.507	0.732	0.696	0.921	1.428
	LTE Band 30	0.346	0.507	0.732	0.853	1.078	1.585
	LTE Band 7	0.305	0.507	0.732	0.812	1.037	1.544
	LTE Band 48	0.046	0.507	0.732	0.553	0.778	1.285
	LTE Band 41	0.355	0.507	0.732	0.862	1.087	**1.594**

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	CDMA/EVDO BC10 (§90S)	0.151	0.341	0.273	0.492	0.424	0.765
	CDMA/EVDO BC0 (§22H)	0.137	0.341	0.273	0.478	0.410	0.751
	PCS CDMA/EVDO	0.192	0.341	0.273	0.533	0.465	0.806
	GSM/GPRS 850	0.130	0.341	0.273	0.471	0.403	0.744
	GSM/GPRS 1900	0.119	0.341	0.273	0.460	0.392	0.733
	UMTS 850	0.157	0.341	0.273	0.498	0.430	0.771
	UMTS 1750	0.141	0.341	0.273	0.482	0.414	0.755
	UMTS 1900	0.163	0.341	0.273	0.504	0.436	0.777
	LTE Band 71	0.166	0.341	0.273	0.507	0.439	0.780
	LTE Band 12	0.151	0.341	0.273	0.492	0.424	0.765
	LTE Band 13	0.207	0.341	0.273	0.548	0.480	0.821
	LTE Band 14	0.190	0.341	0.273	0.531	0.463	0.804
	LTE Band 26 (Cell)	0.131	0.341	0.273	0.472	0.404	0.745
	LTE Band 5 (Cell)	0.149	0.341	0.273	0.490	0.422	0.763
	LTE Band 66 (AWS)	0.227	0.341	0.273	0.568	0.500	0.841
	LTE Band 25 (PCS)	0.189	0.341	0.273	0.530	0.462	0.803
	LTE Band 30	0.346	0.341	0.273	0.687	0.619	0.960
	LTE Band 7	0.305	0.341	0.273	0.646	0.578	0.919
	LTE Band 48	0.046	0.341	0.273	0.387	0.319	0.660
	LTE Band 41	0.355	0.341	0.273	0.696	0.628	**0.969**

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 12-3
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 and 5 GHz WLAN Ant 2 (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	CDMA/EVDO BC10 (§90S)	0.151	0.507	0.273	0.931
	CDMA/EVDO BC0 (§22H)	0.137	0.507	0.273	0.917
	PCS CDMA/EVDO	0.192	0.507	0.273	0.972
	GSM/GPRS 850	0.130	0.507	0.273	0.910
	GSM/GPRS 1900	0.119	0.507	0.273	0.899
	UMTS 850	0.157	0.507	0.273	0.937
	UMTS 1750	0.141	0.507	0.273	0.921
	UMTS 1900	0.163	0.507	0.273	0.943
	LTE Band 71	0.166	0.507	0.273	0.946
	LTE Band 12	0.151	0.507	0.273	0.931
	LTE Band 13	0.207	0.507	0.273	0.987
	LTE Band 14	0.190	0.507	0.273	0.970
	LTE Band 26 (Cell)	0.131	0.507	0.273	0.911
	LTE Band 5 (Cell)	0.149	0.507	0.273	0.929
	LTE Band 66 (AWS)	0.227	0.507	0.273	1.007
	LTE Band 25 (PCS)	0.189	0.507	0.273	0.969
	LTE Band 30	0.346	0.507	0.273	1.126
	LTE Band 7	0.305	0.507	0.273	1.085
	LTE Band 48	0.046	0.507	0.273	0.826
	LTE Band 41	0.355	0.507	0.273	**1.135**

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	CDMA/EVDO BC10 (§90S)	0.151	0.154	0.305
	CDMA/EVDO BC0 (§22H)	0.137	0.154	0.291
	PCS CDMA/EVDO	0.192	0.154	0.346
	GSM/GPRS 850	0.130	0.154	0.284
	GSM/GPRS 1900	0.119	0.154	0.273
	UMTS 850	0.157	0.154	0.311
	UMTS 1750	0.141	0.154	0.295
	UMTS 1900	0.163	0.154	0.317
	LTE Band 71	0.166	0.154	0.320
	LTE Band 12	0.151	0.154	0.305
	LTE Band 13	0.207	0.154	0.361
	LTE Band 14	0.190	0.154	0.344
	LTE Band 26 (Cell)	0.131	0.154	0.285
	LTE Band 5 (Cell)	0.149	0.154	0.303
	LTE Band 66 (AWS)	0.227	0.154	0.381
	LTE Band 25 (PCS)	0.189	0.154	0.343
	LTE Band 30	0.346	0.154	0.500
	LTE Band 7	0.305	0.154	0.459
	LTE Band 48	0.046	0.154	0.200
	LTE Band 41	0.355	0.154	**0.509**

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	CDMA/EVDO BC10 (§90S)	0.151	0.154	0.732	1.037
	CDMA/EVDO BC0 (§22H)	0.137	0.154	0.732	1.023
	PCS CDMA/EVDO	0.192	0.154	0.732	1.078
	GSM/GPRS 850	0.130	0.154	0.732	1.016
	GSM/GPRS 1900	0.119	0.154	0.732	1.005
	UMTS 850	0.157	0.154	0.732	1.043
	UMTS 1750	0.141	0.154	0.732	1.027
	UMTS 1900	0.163	0.154	0.732	1.049
	LTE Band 71	0.166	0.154	0.732	1.052
	LTE Band 12	0.151	0.154	0.732	1.037
	LTE Band 13	0.207	0.154	0.732	1.093
	LTE Band 14	0.190	0.154	0.732	1.076
	LTE Band 26 (Cell)	0.131	0.154	0.732	1.017
	LTE Band 5 (Cell)	0.149	0.154	0.732	1.035
	LTE Band 66 (AWS)	0.227	0.154	0.732	1.113
	LTE Band 25 (PCS)	0.189	0.154	0.732	1.075
	LTE Band 30	0.346	0.154	0.732	1.232
	LTE Band 7	0.305	0.154	0.732	1.191
	LTE Band 48	0.046	0.154	0.732	0.932
	LTE Band 41	0.355	0.154	0.732	**1.241**

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 12-6
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Ant 1 (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	CDMA/EVDO BC10 (§90S)	0.151	0.154	0.341	0.646
	CDMA/EVDO BC0 (§22H)	0.137	0.154	0.341	0.632
	PCS CDMA/EVDO	0.192	0.154	0.341	0.687
	GSM/GPRS 850	0.130	0.154	0.341	0.625
	GSM/GPRS 1900	0.119	0.154	0.341	0.614
	UMTS 850	0.157	0.154	0.341	0.652
	UMTS 1750	0.141	0.154	0.341	0.636
	UMTS 1900	0.163	0.154	0.341	0.658
	LTE Band 71	0.166	0.154	0.341	0.661
	LTE Band 12	0.151	0.154	0.341	0.646
	LTE Band 13	0.207	0.154	0.341	0.702
	LTE Band 14	0.190	0.154	0.341	0.685
	LTE Band 26 (Cell)	0.131	0.154	0.341	0.626
	LTE Band 5 (Cell)	0.149	0.154	0.341	0.644
	LTE Band 66 (AWS)	0.227	0.154	0.341	0.722
	LTE Band 25 (PCS)	0.189	0.154	0.341	0.684
	LTE Band 30	0.346	0.154	0.341	0.841
	LTE Band 7	0.305	0.154	0.341	0.800
	LTE Band 48	0.046	0.154	0.341	0.541
	LTE Band 41	0.355	0.154	0.341	**0.850**

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 12-7
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Ant 2 (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	CDMA/EVDO BC10 (§90S)	0.151	0.154	0.273	0.578
	CDMA/EVDO BC0 (§22H)	0.137	0.154	0.273	0.564
	PCS CDMA/EVDO	0.192	0.154	0.273	0.619
	GSM/GPRS 850	0.130	0.154	0.273	0.557
	GSM/GPRS 1900	0.119	0.154	0.273	0.546
	UMTS 850	0.157	0.154	0.273	0.584
	UMTS 1750	0.141	0.154	0.273	0.568
	UMTS 1900	0.163	0.154	0.273	0.590
	LTE Band 71	0.166	0.154	0.273	0.593
	LTE Band 12	0.151	0.154	0.273	0.578
	LTE Band 13	0.207	0.154	0.273	0.634
	LTE Band 14	0.190	0.154	0.273	0.617
	LTE Band 26 (Cell)	0.131	0.154	0.273	0.558
	LTE Band 5 (Cell)	0.149	0.154	0.273	0.576
	LTE Band 66 (AWS)	0.227	0.154	0.273	0.654
	LTE Band 25 (PCS)	0.189	0.154	0.273	0.616
	LTE Band 30	0.346	0.154	0.273	0.773
	LTE Band 7	0.305	0.154	0.273	0.732
	LTE Band 48	0.046	0.154	0.273	0.473
	LTE Band 41	0.355	0.154	0.273	**0.782**

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 12-8
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN MIMO (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth 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	CDMA/EVDO BC10 (§90S)	0.151	0.154	0.341	0.273	0.919
	CDMA/EVDO BC0 (§22H)	0.137	0.154	0.341	0.273	0.905
	PCS CDMA/EVDO	0.192	0.154	0.341	0.273	0.960
	GSM/GPRS 850	0.130	0.154	0.341	0.273	0.898
	GSM/GPRS 1900	0.119	0.154	0.341	0.273	0.887
	UMTS 850	0.157	0.154	0.341	0.273	0.925
	UMTS 1750	0.141	0.154	0.341	0.273	0.909
	UMTS 1900	0.163	0.154	0.341	0.273	0.931
	LTE Band 71	0.166	0.154	0.341	0.273	0.934
	LTE Band 12	0.151	0.154	0.341	0.273	0.919
	LTE Band 13	0.207	0.154	0.341	0.273	0.975
	LTE Band 14	0.190	0.154	0.341	0.273	0.958
	LTE Band 26 (Cell)	0.131	0.154	0.341	0.273	0.899
	LTE Band 5 (Cell)	0.149	0.154	0.341	0.273	0.917
	LTE Band 66 (AWS)	0.227	0.154	0.341	0.273	0.995
	LTE Band 25 (PCS)	0.189	0.154	0.341	0.273	0.957
	LTE Band 30	0.346	0.154	0.341	0.273	1.114
	LTE Band 7	0.305	0.154	0.341	0.273	1.073
	LTE Band 48	0.046	0.154	0.341	0.273	0.814
	LTE Band 41	0.355	0.154	0.341	0.273	**1.123**

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

12.4 Body-Worn Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Body-Worn	CDMA BC10 (§90S)	0.790	0.243	0.274	1.033	1.064	1.307
	CDMA BC0 (§22H)	0.885	0.243	0.274	1.128	1.159	1.402
	PCS CDMA	0.686	0.243	0.274	0.929	0.960	1.203
	GSM/GPRS 850	0.980	0.243	0.274	1.223	1.254	**1.497**
	GSM/GPRS 1900	0.492	0.243	0.274	0.735	0.766	1.009
	UMTS 850	0.929	0.243	0.274	1.172	1.203	1.446
	UMTS 1750	0.793	0.243	0.274	1.036	1.067	1.310
	UMTS 1900	0.657	0.243	0.274	0.900	0.931	1.174
	LTE Band 71	0.605	0.243	0.274	0.848	0.879	1.122
	LTE Band 12	0.639	0.243	0.274	0.882	0.913	1.156
	LTE Band 13	0.849	0.243	0.274	1.092	1.123	1.366
	LTE Band 14	0.888	0.243	0.274	1.131	1.162	1.405
	LTE Band 26 (Cell)	0.932	0.243	0.274	1.175	1.206	1.449
	LTE Band 5 (Cell)	0.914	0.243	0.274	1.157	1.188	1.431
	LTE Band 66 (AWS)	0.870	0.243	0.274	1.113	1.144	1.387
	LTE Band 25 (PCS)	0.671	0.243	0.274	0.914	0.945	1.188
	LTE Band 30	0.629	0.243	0.274	0.872	0.903	1.146
	LTE Band 7	0.464	0.243	0.274	0.707	0.738	0.981
	LTE Band 48	0.199	0.243	0.274	0.442	0.473	0.716
	LTE Band 41	0.408	0.243	0.274	0.651	0.682	0.925

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Body-Worn	CDMA BC10 (§90S)	0.790	0.438	0.213	1.228	1.003
	CDMA BC0 (§22H)	0.885	0.438	0.213	1.323	1.098
	PCS CDMA	0.686	0.438	0.213	1.124	0.899
	GSM/GPRS 850	0.980	0.438	0.213	**1.418**	1.193
	GSM/GPRS 1900	0.492	0.438	0.213	0.930	0.705
	UMTS 850	0.929	0.438	0.213	1.367	1.142
	UMTS 1750	0.793	0.438	0.213	1.231	1.006
	UMTS 1900	0.657	0.438	0.213	1.095	0.870
	LTE Band 71	0.605	0.438	0.213	1.043	0.818
	LTE Band 12	0.639	0.438	0.213	1.077	0.852
	LTE Band 13	0.849	0.438	0.213	1.287	1.062
	LTE Band 14	0.888	0.438	0.213	1.326	1.101
	LTE Band 26 (Cell)	0.932	0.438	0.213	1.370	1.145
	LTE Band 5 (Cell)	0.914	0.438	0.213	1.352	1.127
	LTE Band 66 (AWS)	0.870	0.438	0.213	1.308	1.083
	LTE Band 25 (PCS)	0.671	0.438	0.213	1.109	0.884
	LTE Band 30	0.629	0.438	0.213	1.067	0.842
	LTE Band 7	0.464	0.438	0.213	0.902	0.677
	LTE Band 48	0.199	0.438	0.213	0.637	0.412
	LTE Band 41	0.408	0.438	0.213	0.846	0.621

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 12-11
Simultaneous Transmission Scenario with 5 GHz WLAN MIMO (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	CDMA BC10 (§90S)	0.790	0.510	1.300
	CDMA BC0 (§22H)	0.885	0.510	1.395
	PCS CDMA	0.686	0.510	1.196
	GSM/GPRS 850	0.980	0.510	**1.490**
	GSM/GPRS 1900	0.492	0.510	1.002
	UMTS 850	0.929	0.510	1.439
	UMTS 1750	0.793	0.510	1.303
	UMTS 1900	0.657	0.510	1.167
	LTE Band 71	0.605	0.510	1.115
	LTE Band 12	0.639	0.510	1.149
	LTE Band 13	0.849	0.510	1.359
	LTE Band 14	0.888	0.510	1.398
	LTE Band 26 (Cell)	0.932	0.510	1.442
	LTE Band 5 (Cell)	0.914	0.510	1.424
	LTE Band 66 (AWS)	0.870	0.510	1.380
	LTE Band 25 (PCS)	0.671	0.510	1.181
	LTE Band 30	0.629	0.510	1.139
	LTE Band 7	0.464	0.510	0.974
	LTE Band 48	0.199	0.510	0.709
	LTE Band 41	0.408	0.510	0.918

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	CDMA BC10 (§90S)	0.790	0.243	0.213	1.246
	CDMA BC0 (§22H)	0.885	0.243	0.213	1.341
	PCS CDMA	0.686	0.243	0.213	1.142
	GSM/GPRS 850	0.980	0.243	0.213	**1.436**
	GSM/GPRS 1900	0.492	0.243	0.213	0.948
	UMTS 850	0.929	0.243	0.213	1.385
	UMTS 1750	0.793	0.243	0.213	1.249
	UMTS 1900	0.657	0.243	0.213	1.113
	LTE Band 71	0.605	0.243	0.213	1.061
	LTE Band 12	0.639	0.243	0.213	1.095
	LTE Band 13	0.849	0.243	0.213	1.305
	LTE Band 14	0.888	0.243	0.213	1.344
	LTE Band 26 (Cell)	0.932	0.243	0.213	1.388
	LTE Band 5 (Cell)	0.914	0.243	0.213	1.370
	LTE Band 66 (AWS)	0.870	0.243	0.213	1.326
	LTE Band 25 (PCS)	0.671	0.243	0.213	1.127
	LTE Band 30	0.629	0.243	0.213	1.085
	LTE Band 7	0.464	0.243	0.213	0.920
	LTE Band 48	0.199	0.243	0.213	0.655
	LTE Band 41	0.408	0.243	0.213	0.864

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 12-13
Simultaneous Transmission Scenario with Bluetooth (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	CDMA BC10 (§90S)	0.790	0.048	0.838
	CDMA BC0 (§22H)	0.885	0.048	0.933
	PCS CDMA	0.686	0.048	0.734
	GSM/GPRS 850	0.980	0.048	**1.028**
	GSM/GPRS 1900	0.492	0.048	0.540
	UMTS 850	0.929	0.048	0.977
	UMTS 1750	0.793	0.048	0.841
	UMTS 1900	0.657	0.048	0.705
	LTE Band 71	0.605	0.048	0.653
	LTE Band 12	0.639	0.048	0.687
	LTE Band 13	0.849	0.048	0.897
	LTE Band 14	0.888	0.048	0.936
	LTE Band 26 (Cell)	0.932	0.048	0.980
	LTE Band 5 (Cell)	0.914	0.048	0.962
	LTE Band 66 (AWS)	0.870	0.048	0.918
	LTE Band 25 (PCS)	0.671	0.048	0.719
	LTE Band 30	0.629	0.048	0.677
	LTE Band 7	0.464	0.048	0.512
	LTE Band 48	0.199	0.048	0.247
	LTE Band 41	0.408	0.048	0.456

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 12-14
Simultaneous Transmission Scenario with Bluetooth and 2.4 GHz WLAN Ant 2 (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	CDMA BC10 (§90S)	0.790	0.048	0.274	1.112
	CDMA BC0 (§22H)	0.885	0.048	0.274	1.207
	PCS CDMA	0.686	0.048	0.274	1.008
	GSM/GPRS 850	0.980	0.048	0.274	**1.302**
	GSM/GPRS 1900	0.492	0.048	0.274	0.814
	UMTS 850	0.929	0.048	0.274	1.251
	UMTS 1750	0.793	0.048	0.274	1.115
	UMTS 1900	0.657	0.048	0.274	0.979
	LTE Band 71	0.605	0.048	0.274	0.927
	LTE Band 12	0.639	0.048	0.274	0.961
	LTE Band 13	0.849	0.048	0.274	1.171
	LTE Band 14	0.888	0.048	0.274	1.210
	LTE Band 26 (Cell)	0.932	0.048	0.274	1.254
	LTE Band 5 (Cell)	0.914	0.048	0.274	1.236
	LTE Band 66 (AWS)	0.870	0.048	0.274	1.192
	LTE Band 25 (PCS)	0.671	0.048	0.274	0.993
	LTE Band 30	0.629	0.048	0.274	0.951
	LTE Band 7	0.464	0.048	0.274	0.786
	LTE Band 48	0.199	0.048	0.274	0.521
	LTE Band 41	0.408	0.048	0.274	0.730

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 12-15
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Ant 1 (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	CDMA BC10 (§90S)	0.790	0.048	0.438	1.276
	CDMA BC0 (§22H)	0.885	0.048	0.438	1.371
	PCS CDMA	0.686	0.048	0.438	1.172
	GSM/GPRS 850	0.980	0.048	0.438	**1.466**
	GSM/GPRS 1900	0.492	0.048	0.438	0.978
	UMTS 850	0.929	0.048	0.438	1.415
	UMTS 1750	0.793	0.048	0.438	1.279
	UMTS 1900	0.657	0.048	0.438	1.143
	LTE Band 71	0.605	0.048	0.438	1.091
	LTE Band 12	0.639	0.048	0.438	1.125
	LTE Band 13	0.849	0.048	0.438	1.335
	LTE Band 14	0.888	0.048	0.438	1.374
	LTE Band 26 (Cell)	0.932	0.048	0.438	1.418
	LTE Band 5 (Cell)	0.914	0.048	0.438	1.400
	LTE Band 66 (AWS)	0.870	0.048	0.438	1.356
	LTE Band 25 (PCS)	0.671	0.048	0.438	1.157
	LTE Band 30	0.629	0.048	0.438	1.115
	LTE Band 7	0.464	0.048	0.438	0.950
	LTE Band 48	0.199	0.048	0.438	0.685
	LTE Band 41	0.408	0.048	0.438	0.894

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 12-16
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Ant 2 (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	CDMA BC10 (§90S)	0.790	0.048	0.213	1.051
	CDMA BC0 (§22H)	0.885	0.048	0.213	1.146
	PCS CDMA	0.686	0.048	0.213	0.947
	GSM/GPRS 850	0.980	0.048	0.213	**1.241**
	GSM/GPRS 1900	0.492	0.048	0.213	0.753
	UMTS 850	0.929	0.048	0.213	1.190
	UMTS 1750	0.793	0.048	0.213	1.054
	UMTS 1900	0.657	0.048	0.213	0.918
	LTE Band 71	0.605	0.048	0.213	0.866
	LTE Band 12	0.639	0.048	0.213	0.900
	LTE Band 13	0.849	0.048	0.213	1.110
	LTE Band 14	0.888	0.048	0.213	1.149
	LTE Band 26 (Cell)	0.932	0.048	0.213	1.193
	LTE Band 5 (Cell)	0.914	0.048	0.213	1.175
	LTE Band 66 (AWS)	0.870	0.048	0.213	1.131
	LTE Band 25 (PCS)	0.671	0.048	0.213	0.932
	LTE Band 30	0.629	0.048	0.213	0.890
	LTE Band 7	0.464	0.048	0.213	0.725
	LTE Band 48	0.199	0.048	0.213	0.460
	LTE Band 41	0.408	0.048	0.213	0.669

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 12-17
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN MIMO (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	CDMA BC10 (§90S)	0.790	0.048	0.510	1.348
	CDMA BC0 (§22H)	0.885	0.048	0.510	1.443
	PCS CDMA	0.686	0.048	0.510	1.244
	GSM/GPRS 850	0.980	0.048	0.510	**1.538**
	GSM/GPRS 1900	0.492	0.048	0.510	1.050
	UMTS 850	0.929	0.048	0.510	1.487
	UMTS 1750	0.793	0.048	0.510	1.351
	UMTS 1900	0.657	0.048	0.510	1.215
	LTE Band 71	0.605	0.048	0.510	1.163
	LTE Band 12	0.639	0.048	0.510	1.197
	LTE Band 13	0.849	0.048	0.510	1.407
	LTE Band 14	0.888	0.048	0.510	1.446
	LTE Band 26 (Cell)	0.932	0.048	0.510	1.490
	LTE Band 5 (Cell)	0.914	0.048	0.510	1.472
	LTE Band 66 (AWS)	0.870	0.048	0.510	1.428
	LTE Band 25 (PCS)	0.671	0.048	0.510	1.229
	LTE Band 30	0.629	0.048	0.510	1.187
	LTE Band 7	0.464	0.048	0.510	1.022
	LTE Band 48	0.199	0.048	0.510	0.757
	LTE Band 41	0.408	0.048	0.510	0.966

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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 12-18
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.770	0.371	0.566	1.141	1.336	See Table Below
	EVDO BC0 (§22H)	0.817	0.371	0.566	1.188	1.383	See Table Below
	PCS EVDO	1.200	0.371	0.566	1.571	See Table Below	See Table Below
	GPRS 850	0.980	0.371	0.566	1.351	1.546	See Table Below
	GPRS 1900	1.154	0.371	0.566	1.525	See Table Below	See Table Below
	UMTS 850	0.929	0.371	0.566	1.300	1.495	See Table Below
	UMTS 1750	1.274	0.371	0.566	See Table Below	See Table Below	See Table Below
	UMTS 1900	1.166	0.371	0.566	1.537	See Table Below	See Table Below
	LTE Band 71	0.605	0.371	0.566	0.976	1.171	1.542
	LTE Band 12	0.639	0.371	0.566	1.010	1.205	**1.576**
	LTE Band 13	0.849	0.371	0.566	1.220	1.415	See Table Below
	LTE Band 14	0.888	0.371	0.566	1.259	1.454	See Table Below
	LTE Band 26 (Cell)	0.932	0.371	0.566	1.303	1.498	See Table Below
	LTE Band 5 (Cell)	0.914	0.371	0.566	1.285	1.480	See Table Below
	LTE Band 66 (AWS)	1.279	0.371	0.566	See Table Below	See Table Below	See Table Below
	LTE Band 25 (PCS)	1.200	0.371	0.566	1.571	See Table Below	See Table Below
	LTE Band 30	0.754	0.371	0.566	1.125	1.320	See Table Below
	LTE Band 7	0.698	0.371	0.566	1.069	1.264	See Table Below
	LTE Band 48	0.199	0.371	0.566	0.570	0.765	1.136
	LTE Band 41	0.476	0.371	0.566	0.847	1.042	1.413

Simult Tx	Configuration	EVDO BC10 (§90S) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.770	0.243	0.274	1.013	1.044	**1.287**
	Front	0.594	0.139	0.244	0.733	0.838	0.977
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	0.228	-	-	0.228	0.228	0.228
	Right	0.351	0.371	-	0.722	0.351	0.722
	Left	-	-	0.566	0.000	0.566	0.566

Simult Tx	Configuration	EVDO BC0 (§22H) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.817	0.243	0.274	1.060	1.091	**1.334**
	Front	0.612	0.139	0.244	0.751	0.856	0.995
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	0.236	-	-	0.236	0.236	0.236
	Right	0.356	0.371	-	0.727	0.356	0.727
	Left	-	-	0.566	0.000	0.566	0.566

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.620	0.243	0.274	0.863	0.894	1.137
	Front	0.396	0.139	0.244	0.535	0.640	0.779
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	1.200	-	-	**1.200**	**1.200**	**1.200**
	Right	-	0.371	-	0.371	0.000	0.371
	Left	0.142	-	0.566	0.142	0.708	0.708

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	1+3	1+2+3
Hotspot SAR	Back	0.980	0.243	0.274	1.223	1.254	**1.497**
	Front	0.561	0.139	0.244	0.700	0.805	0.944
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	0.293	-	-	0.293	0.293	0.293
	Right	0.358	0.371	-	0.729	0.358	0.729
	Left	-	-	0.566	0.000	0.566	0.566

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	1+3	1+2+3
Hotspot SAR	Back	0.492	0.243	0.274	0.735	0.766	1.009
	Front	0.404	0.139	0.244	0.543	0.648	0.787
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	1.154	-	-	**1.154**	**1.154**	**1.154**
	Right	-	0.371	-	0.371	0.000	0.371
	Left	0.155	-	0.566	0.155	0.721	0.721

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	1+3	1+2+3
Hotspot SAR	Back	0.929	0.243	0.274	1.172	1.203	**1.446**
	Front	0.584	0.139	0.244	0.723	0.828	0.967
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	0.265	-	-	0.265	0.265	0.265
	Right	0.353	0.371	-	0.724	0.353	0.724
	Left	-	-	0.566	0.000	0.566	0.566

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.793	0.243	0.274	1.036	1.067	**1.310**
	Front	0.565	0.139	0.244	0.704	0.809	0.948
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	1.274	-	-	1.274	1.274	1.274
	Right	-	0.371	-	0.371	0.000	0.371
	Left	0.240	-	0.566	0.240	0.806	0.806

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.657	0.243	0.274	0.900	0.931	**1.174**
	Front	0.434	0.139	0.244	0.573	0.678	0.817
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	1.166	-	-	1.166	1.166	1.166
	Right	-	0.371	-	0.371	0.000	0.371
	Left	0.135	-	0.566	0.135	0.701	0.701

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	1+3	1+2+3
Hotspot SAR	Back	0.849	0.243	0.274	1.092	1.123	**1.366**
	Front	0.584	0.139	0.244	0.723	0.828	0.967
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	0.252	-	-	0.252	0.252	0.252
	Right	0.292	0.371	-	0.663	0.292	0.663
	Left	-	-	0.566	0.000	0.566	0.566

Simult Tx	Configuration	LTE Band 14 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.888	0.243	0.274	1.131	1.162	**1.405**
	Front	0.688	0.139	0.244	0.827	0.932	1.071
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	0.297	-	-	0.297	0.297	0.297
	Right	0.345	0.371	-	0.716	0.345	0.716
	Left	-	-	0.566	0.000	0.566	0.566

Simult Tx	Configuration	LTE Band 26 (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	1+3	1+2+3
Hotspot SAR	Back	0.932	0.243	0.274	1.175	1.206	**1.449**
	Front	0.520	0.139	0.244	0.659	0.764	0.903
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	0.277	-	-	0.277	0.277	0.277
	Right	0.397	0.371	-	0.768	0.397	0.768
	Left	-	-	0.566	0.000	0.566	0.566

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	1+3	1+2+3
Hotspot SAR	Back	0.914	0.243	0.274	1.157	1.188	**1.431**
	Front	0.580	0.139	0.244	0.719	0.824	0.963
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	0.259	-	-	0.259	0.259	0.259
	Right	0.378	0.371	-	0.749	0.378	0.749
	Left	-	-	0.566	0.000	0.566	0.566

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.870	0.243	0.274	1.113	1.144	**1.387**
	Front	0.598	0.139	0.244	0.737	0.842	0.981
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	1.279	-	-	1.279	1.279	1.279
	Right	-	0.371	-	0.371	0.000	0.371
	Left	0.235	-	0.566	0.235	0.801	0.801

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.671	0.243	0.274	0.914	0.945	1.188
	Front	0.441	0.139	0.244	0.580	0.685	0.824
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	1.200	-	-	**1.200**	**1.200**	**1.200**
	Right	-	0.371	-	0.371	0.000	0.371
	Left	0.141	-	0.566	0.141	0.707	0.707

Simult Tx	Configuration	LTE Band 30 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.629	0.243	0.274	0.872	0.903	**1.146**
	Front	0.436	0.139	0.244	0.575	0.680	0.819
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	0.211	-	-	0.211	0.211	0.211
	Right	0.754	0.371	-	1.125	0.754	1.125
	Left	-	-	0.566	0.000	0.566	0.566

Simult Tx	Configuration	LTE Band 7 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.464	0.243	0.274	0.707	0.738	0.981
	Front	0.361	0.139	0.244	0.500	0.605	0.744
	Top	-	0.371*	0.566*	0.371	0.566	0.937
	Bottom	0.093	-	-	0.093	0.093	0.093
	Right	0.698	0.371	-	**1.069**	0.698	**1.069**
	Left	-	-	0.566	0.000	0.566	0.566

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Hotspot SAR	EVDO BC10 (§90S)	0.770	0.438	0.256	1.208	1.026
	EVDO BC0 (§22H)	0.817	0.438	0.256	1.255	1.073
	PCS EVDO	1.200	0.438	0.256	See Table Below	1.456
	GPRS 850	0.980	0.438	0.256	1.418	1.236
	GPRS 1900	1.154	0.438	0.256	**1.592**	1.410
	UMTS 850	0.929	0.438	0.256	1.367	1.185
	UMTS 1750	1.274	0.438	0.256	See Table Below	1.530
	UMTS 1900	1.166	0.438	0.256	See Table Below	1.422
	LTE Band 71	0.605	0.438	0.256	1.043	0.861
	LTE Band 12	0.639	0.438	0.256	1.077	0.895
	LTE Band 13	0.849	0.438	0.256	1.287	1.105
	LTE Band 14	0.888	0.438	0.256	1.326	1.144
	LTE Band 26 (Cell)	0.932	0.438	0.256	1.370	1.188
	LTE Band 5 (Cell)	0.914	0.438	0.256	1.352	1.170
	LTE Band 66 (AWS)	1.279	0.438	0.256	See Table Below	1.535
	LTE Band 25 (PCS)	1.200	0.438	0.256	See Table Below	1.456
	LTE Band 30	0.754	0.438	0.256	1.192	1.010
	LTE Band 7	0.698	0.438	0.256	1.136	0.954
	LTE Band 48	0.199	0.438	0.256	0.637	0.455
	LTE Band 41	0.476	0.438	0.256	0.914	0.732

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.620	0.438	1.058
	Front	0.396	0.438*	0.834
	Top	-	0.438*	0.438
	Bottom	1.200	-	**1.200**
	Right	-	-	0.000
	Left	0.142	0.177	0.319

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.793	0.438	1.231
	Front	0.565	0.438*	1.003
	Top	-	0.438*	0.438
	Bottom	1.274	-	**1.274**
	Right	-	-	0.000
	Left	0.240	0.177	0.417

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.657	0.438	1.095
	Front	0.434	0.438*	0.872
	Top	-	0.438*	0.438
	Bottom	1.166	-	**1.166**
	Right	-	-	0.000
	Left	0.135	0.177	0.312

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.870	0.438	**1.308**
	Front	0.598	0.438*	1.036
	Top	-	0.438*	0.438
	Bottom	1.279	-	1.279
	Right	-	-	0.000
	Left	0.235	0.177	0.412

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.671	0.438	1.109
	Front	0.441	0.438*	0.879
	Top	-	0.438*	0.438
	Bottom	1.200	-	**1.200**
	Right	-	-	0.000
	Left	0.141	0.177	0.318

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.770	0.510	1.280
	EVDO BC0 (§22H)	0.817	0.510	1.327
	PCS EVDO	1.200	0.510	See Table Below
	GPRS 850	0.980	0.510	**1.490**
	GPRS 1900	1.154	0.510	See Table Below
	UMTS 850	0.929	0.510	1.439
	UMTS 1750	1.274	0.510	See Table Below
	UMTS 1900	1.166	0.510	See Table Below
	LTE Band 71	0.605	0.510	1.115
	LTE Band 12	0.639	0.510	1.149
	LTE Band 13	0.849	0.510	1.359
	LTE Band 14	0.888	0.510	1.398
	LTE Band 26 (Cell)	0.932	0.510	1.442
	LTE Band 5 (Cell)	0.914	0.510	1.424
	LTE Band 66 (AWS)	1.279	0.510	See Table Below
	LTE Band 25 (PCS)	1.200	0.510	See Table Below
	LTE Band 30	0.754	0.510	1.264
	LTE Band 7	0.698	0.510	1.208
	LTE Band 48	0.199	0.510	0.709
	LTE Band 41	0.476	0.510	0.986

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.620	0.510	1.130
	Front	0.396	0.510*	0.906
	Top	-	0.510*	0.510
	Bottom	1.200	-	**1.200**
	Right	-	-	0.000
	Left	0.142	0.266	0.408

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.492	0.510	1.002
	Front	0.404	0.510*	0.914
	Top	-	0.510*	0.510
	Bottom	1.154	-	**1.154**
	Right	-	-	0.000
	Left	0.155	0.266	0.421

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.793	0.510	**1.303**
	Front	0.565	0.510*	1.075
	Top	-	0.510*	0.510
	Bottom	1.274	-	1.274
	Right	-	-	0.000
	Left	0.240	0.266	0.506

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.657	0.510	**1.167**
	Front	0.434	0.510*	0.944
	Top	-	0.510*	0.510
	Bottom	1.166	-	1.166
	Right	-	-	0.000
	Left	0.135	0.266	0.401

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.870	0.510	**1.380**
	Front	0.598	0.510*	1.108
	Top	-	0.510*	0.510
	Bottom	1.279	-	1.279
	Right	-	-	0.000
	Left	0.235	0.266	0.501

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.671	0.510	1.181
	Front	0.441	0.510*	0.951
	Top	-	0.510*	0.510
	Bottom	1.200	-	**1.200**
	Right	-	-	0.000
	Left	0.141	0.266	0.407

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.770	0.371	0.256	1.397
	EVDO BC0 (§22H)	0.817	0.371	0.256	1.444
	PCS EVDO	1.200	0.371	0.256	See Table Below
	GPRS 850	0.980	0.371	0.256	See Table Below
	GPRS 1900	1.154	0.371	0.256	See Table Below
	UMTS 850	0.929	0.371	0.256	1.556
	UMTS 1750	1.274	0.371	0.256	See Table Below
	UMTS 1900	1.166	0.371	0.256	See Table Below
	LTE Band 71	0.605	0.371	0.256	1.232
	LTE Band 12	0.639	0.371	0.256	1.266
	LTE Band 13	0.849	0.371	0.256	1.476
	LTE Band 14	0.888	0.371	0.256	1.515
	LTE Band 26 (Cell)	0.932	0.371	0.256	**1.559**
	LTE Band 5 (Cell)	0.914	0.371	0.256	1.541
	LTE Band 66 (AWS)	1.279	0.371	0.256	See Table Below
	LTE Band 25 (PCS)	1.200	0.371	0.256	See Table Below
	LTE Band 30	0.754	0.371	0.256	1.381
	LTE Band 7	0.698	0.371	0.256	1.325
	LTE Band 48	0.199	0.371	0.256	0.826
	LTE Band 41	0.476	0.371	0.256	1.103

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.620	0.243	0.213	1.076
	Front	0.396	0.139	0.256*	0.791
	Top	-	0.371*	0.256*	0.627
	Bottom	1.200	-	-	**1.200**
	Right	-	0.371	-	0.371
	Left	0.142	-	0.256	0.398

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.980	0.243	0.213	**1.436**
	Front	0.561	0.139	0.256*	0.956
	Top	-	0.371*	0.256*	0.627
	Bottom	0.293	-	-	0.293
	Right	0.358	0.371	-	0.729
	Left	-	-	0.256	0.256

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.492	0.243	0.213	0.948
	Front	0.404	0.139	0.256*	0.799
	Top	-	0.371*	0.256*	0.627
	Bottom	1.154	-	-	**1.154**
	Right	-	0.371	-	0.371
	Left	0.155	-	0.256	0.411

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.793	0.243	0.213	1.249
	Front	0.565	0.139	0.256*	0.960
	Top	-	0.371*	0.256*	0.627
	Bottom	1.274	-	-	**1.274**
	Right	-	0.371	-	0.371
	Left	0.240	-	0.256	0.496

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.657	0.243	0.213	1.113
	Front	0.434	0.139	0.256*	0.829
	Top	-	0.371*	0.256*	0.627
	Bottom	1.166	-	-	**1.166**
	Right	-	0.371	-	0.371
	Left	0.135	-	0.256	0.391

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.870	0.243	0.213	**1.326**
	Front	0.598	0.139	0.256*	0.993
	Top	-	0.371*	0.256*	0.627
	Bottom	1.279	-	-	1.279
	Right	-	0.371	-	0.371
	Left	0.235	-	0.256	0.491

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.671	0.243	0.213	1.127
	Front	0.441	0.139	0.256*	0.836
	Top	-	0.371*	0.256*	0.627
	Bottom	1.200	-	-	**1.200**
	Right	-	0.371	-	0.371
	Left	0.141	-	0.256	0.397

Table 12-22
Simultaneous Transmission Scenario with Bluetooth (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.770	0.057	0.827
	EVDO BC0 (§22H)	0.817	0.057	0.874
	PCS EVDO	1.200	0.057	1.257
	GPRS 850	0.980	0.057	1.037
	GPRS 1900	1.154	0.057	1.211
	UMTS 850	0.929	0.057	0.986
	UMTS 1750	1.274	0.057	1.331
	UMTS 1900	1.166	0.057	1.223
	LTE Band 71	0.605	0.057	0.662
	LTE Band 12	0.639	0.057	0.696
	LTE Band 13	0.849	0.057	0.906
	LTE Band 14	0.888	0.057	0.945
	LTE Band 26 (Cell)	0.932	0.057	0.989
	LTE Band 5 (Cell)	0.914	0.057	0.971
	LTE Band 66 (AWS)	1.279	0.057	**1.336**
	LTE Band 25 (PCS)	1.200	0.057	1.257
	LTE Band 30	0.754	0.057	0.811
	LTE Band 7	0.698	0.057	0.755
	LTE Band 48	0.199	0.057	0.256
	LTE Band 41	0.476	0.057	0.533

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 12-23
Simultaneous Transmission Scenario with Bluetooth and 2.4 GHz WLAN Ant 2 (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.770	0.057	0.566	1.393
	EVDO BC0 (§22H)	0.817	0.057	0.566	1.440
	PCS EVDO	1.200	0.057	0.566	See Table Below
	GPRS 850	0.980	0.057	0.566	See Table Below
	GPRS 1900	1.154	0.057	0.566	See Table Below
	UMTS 850	0.929	0.057	0.566	1.552
	UMTS 1750	1.274	0.057	0.566	See Table Below
	UMTS 1900	1.166	0.057	0.566	See Table Below
	LTE Band 71	0.605	0.057	0.566	1.228
	LTE Band 12	0.639	0.057	0.566	1.262
	LTE Band 13	0.849	0.057	0.566	1.472
	LTE Band 14	0.888	0.057	0.566	1.511
	LTE Band 26 (Cell)	0.932	0.057	0.566	**1.555**
	LTE Band 5 (Cell)	0.914	0.057	0.566	1.537
	LTE Band 66 (AWS)	1.279	0.057	0.566	See Table Below
	LTE Band 25 (PCS)	1.200	0.057	0.566	See Table Below
	LTE Band 30	0.754	0.057	0.566	1.377
	LTE Band 7	0.698	0.057	0.566	1.321
	LTE Band 48	0.199	0.057	0.566	0.822
	LTE Band 41	0.476	0.057	0.566	1.099

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.620	0.048	0.274	0.942
	Front	0.396	0.022	0.244	0.662
	Top	-	0.023	0.566*	0.589
	Bottom	1.200	-	-	**1.200**
	Right	-	0.057	-	0.057
	Left	0.142	-	0.566	0.708

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.980	0.048	0.274	**1.302**
	Front	0.561	0.022	0.244	0.827
	Top	-	0.023	0.566*	0.589
	Bottom	0.293	-	-	0.293
	Right	0.358	0.057	-	0.415
	Left	-	-	0.566	0.566

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.492	0.048	0.274	0.814
	Front	0.404	0.022	0.244	0.670
	Top	-	0.023	0.566*	0.589
	Bottom	1.154	-	-	**1.154**
	Right	-	0.057	-	0.057
	Left	0.155	-	0.566	0.721

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.793	0.048	0.274	1.115
	Front	0.565	0.022	0.244	0.831
	Top	-	0.023	0.566*	0.589
	Bottom	1.274	-	-	**1.274**
	Right	-	0.057	-	0.057
	Left	0.240	-	0.566	0.806

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.657	0.048	0.274	0.979
	Front	0.434	0.022	0.244	0.700
	Top	-	0.023	0.566*	0.589
	Bottom	1.166	-	-	**1.166**
	Right	-	0.057	-	0.057
	Left	0.135	-	0.566	0.701

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.870	0.048	0.274	1.192
	Front	0.598	0.022	0.244	0.864
	Top	-	0.023	0.566*	0.589
	Bottom	1.279	-	-	**1.279**
	Right	-	0.057	-	0.057
	Left	0.235	-	0.566	0.801

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.671	0.048	0.274	0.993
	Front	0.441	0.022	0.244	0.707
	Top	-	0.023	0.566*	0.589
	Bottom	1.200	-	-	**1.200**
	Right	-	0.057	-	0.057
	Left	0.141	-	0.566	0.707

Table 12-24
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Ant 1 (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.770	0.057	0.438	1.265
	EVDO BC0 (§22H)	0.817	0.057	0.438	1.312
	PCS EVDO	1.200	0.057	0.438	See Table Below
	GPRS 850	0.980	0.057	0.438	1.475
	GPRS 1900	1.154	0.057	0.438	See Table Below
	UMTS 850	0.929	0.057	0.438	1.424
	UMTS 1750	1.274	0.057	0.438	See Table Below
	UMTS 1900	1.166	0.057	0.438	See Table Below
	LTE Band 71	0.605	0.057	0.438	1.100
	LTE Band 12	0.639	0.057	0.438	1.134
	LTE Band 13	0.849	0.057	0.438	1.344
	LTE Band 14	0.888	0.057	0.438	1.383
	LTE Band 26 (Cell)	0.932	0.057	0.438	**1.427**
	LTE Band 5 (Cell)	0.914	0.057	0.438	1.409
	LTE Band 66 (AWS)	1.279	0.057	0.438	See Table Below
	LTE Band 25 (PCS)	1.200	0.057	0.438	See Table Below
	LTE Band 30	0.754	0.057	0.438	1.249
	LTE Band 7	0.698	0.057	0.438	1.193
	LTE Band 48	0.199	0.057	0.438	0.694
	LTE Band 41	0.476	0.057	0.438	0.971

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Hotspot SAR	Back	0.620	0.048	0.438	1.106	Hotspot SAR	Back	0.492	0.048	0.438	0.978
	Front	0.396	0.022	0.438*	0.856		Front	0.404	0.022	0.438*	0.864
	Top	-	0.023	0.438*	0.461		Top	-	0.023	0.438*	0.461
	Bottom	1.200	-	-	**1.200**		Bottom	1.154	-	-	**1.154**
	Right	-	0.057	-	0.057		Right	-	0.057	-	0.057
	Left	0.142	-	0.177	0.319		Left	0.155	-	0.177	0.332

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Hotspot SAR	Back	0.793	0.048	0.438	**1.279**	Hotspot SAR	Back	0.657	0.048	0.438	1.143
	Front	0.565	0.022	0.438*	1.025		Front	0.434	0.022	0.438*	0.894
	Top	-	0.023	0.438*	0.461		Top	-	0.023	0.438*	0.461
	Bottom	1.274	-	-	1.274		Bottom	1.166	-	-	**1.166**
	Right	-	0.057	-	0.057		Right	-	0.057	-	0.057
	Left	0.240	-	0.177	0.417		Left	0.135	-	0.177	0.312

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Hotspot SAR	Back	0.870	0.048	0.438	**1.356**	Hotspot SAR	Back	0.671	0.048	0.438	1.157
	Front	0.598	0.022	0.438*	1.058		Front	0.441	0.022	0.438*	0.901
	Top	-	0.023	0.438*	0.461		Top	-	0.023	0.438*	0.461
	Bottom	1.279	-	-	1.279		Bottom	1.200	-	-	**1.200**
	Right	-	0.057	-	0.057		Right	-	0.057	-	0.057
	Left	0.235	-	0.177	0.412		Left	0.141	-	0.177	0.318

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 12-25
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Ant 2 (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.770	0.057	0.256	1.083
	EVDO BC0 (§22H)	0.817	0.057	0.256	1.130
	PCS EVDO	1.200	0.057	0.256	1.513
	GPRS 850	0.980	0.057	0.256	1.293
	GPRS 1900	1.154	0.057	0.256	1.467
	UMTS 850	0.929	0.057	0.256	1.242
	UMTS 1750	1.274	0.057	0.256	1.587
	UMTS 1900	1.166	0.057	0.256	1.479
	LTE Band 71	0.605	0.057	0.256	0.918
	LTE Band 12	0.639	0.057	0.256	0.952
	LTE Band 13	0.849	0.057	0.256	1.162
	LTE Band 14	0.888	0.057	0.256	1.201
	LTE Band 26 (Cell)	0.932	0.057	0.256	1.245
	LTE Band 5 (Cell)	0.914	0.057	0.256	1.227
	LTE Band 66 (AWS)	1.279	0.057	0.256	**1.592**
	LTE Band 25 (PCS)	1.200	0.057	0.256	1.513
	LTE Band 30	0.754	0.057	0.256	1.067
	LTE Band 7	0.698	0.057	0.256	1.011
	LTE Band 48	0.199	0.057	0.256	0.512
	LTE Band 41	0.476	0.057	0.256	0.789

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 12-26
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN MIMO (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.770	0.057	0.510	1.337
	EVDO BC0 (§22H)	0.817	0.057	0.510	1.384
	PCS EVDO	1.200	0.057	0.510	See Table Below
	GPRS 850	0.980	0.057	0.510	**1.547**
	GPRS 1900	1.154	0.057	0.510	See Table Below
	UMTS 850	0.929	0.057	0.510	1.496
	UMTS 1750	1.274	0.057	0.510	See Table Below
	UMTS 1900	1.166	0.057	0.510	See Table Below
	LTE Band 71	0.605	0.057	0.510	1.172
	LTE Band 12	0.639	0.057	0.510	1.206
	LTE Band 13	0.849	0.057	0.510	1.416
	LTE Band 14	0.888	0.057	0.510	1.455
	LTE Band 26 (Cell)	0.932	0.057	0.510	1.499
	LTE Band 5 (Cell)	0.914	0.057	0.510	1.481
	LTE Band 66 (AWS)	1.279	0.057	0.510	See Table Below
	LTE Band 25 (PCS)	1.200	0.057	0.510	See Table Below
	LTE Band 30	0.754	0.057	0.510	1.321
	LTE Band 7	0.698	0.057	0.510	1.265
	LTE Band 48	0.199	0.057	0.510	0.766
	LTE Band 41	0.476	0.057	0.510	1.043

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.620	0.048	0.510	1.178
	Front	0.396	0.022	0.510*	0.928
	Top	-	0.023	0.510*	0.533
	Bottom	1.200	-	-	**1.200**
	Right	-	0.057	-	0.057
	Left	0.142	-	0.266	0.408

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.492	0.048	0.510	1.050
	Front	0.404	0.022	0.510*	0.936
	Top	-	0.023	0.510*	0.533
	Bottom	1.154	-	-	**1.154**
	Right	-	0.057	-	0.057
	Left	0.155	-	0.266	0.421

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Hotspot SAR	Back	0.793	0.048	0.510	**1.351**	Hotspot SAR	Back	0.657	0.048	0.510	**1.215**
	Front	0.565	0.022	0.510*	1.097		Front	0.434	0.022	0.510*	0.966
	Top	-	0.023	0.510*	0.533		Top	-	0.023	0.510*	0.533
	Bottom	1.274	-	-	1.274		Bottom	1.166	-	-	1.166
	Right	-	0.057	-	0.057		Right	-	0.057	-	0.057
	Left	0.240	-	0.266	0.506		Left	0.135	-	0.266	0.401

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Hotspot SAR	Back	0.870	0.048	0.510	**1.428**	Hotspot SAR	Back	0.671	0.048	0.510	**1.229**
	Front	0.598	0.022	0.510*	1.130		Front	0.441	0.022	0.510*	0.973
	Top	-	0.023	0.510*	0.533		Top	-	0.023	0.510*	0.533
	Bottom	1.279	-	-	1.279		Bottom	1.200	-	-	1.200
	Right	-	0.057	-	0.057		Right	-	0.057	-	0.057
	Left	0.235	-	0.266	0.501		Left	0.141	-	0.266	0.407

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.

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.

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 12-27
Simultaneous Transmission Scenario with 5 GHz WLAN (Phablet)

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		SPLSR
		1	2	3	1+2	1+3	1+2
Phablet SAR	Back (without Accessory)	2.375	1.794	1.107	See Note 1	**3.482**	0.07
	Back (Position #1)	2.362	1.029	0.612	3.391	2.974	N/A
	Back (Position #2)	2.104	0.917	0.492	3.021	2.596	N/A
	Back (Position #3)	0.397	0.068	0.069	0.465	0.466	N/A

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Phablet SAR	Front	1.598	0.098	0.223	1.696	1.821
	Top	-	1.794*	1.107*	1.794	1.107
	Bottom	3.001	-	-	**3.001**	**3.001**
	Right	-	-	-	0.000	0.000
	Left	0.789	0.328	0.406	1.117	1.195

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		SPLSR
		1	2	3	1+2	1+3	1+2
Phablet SAR	Back (without Accessory)	2.446	1.794	1.107	See Note 1	3.553	0.06
	Back (Position #1)	2.517	1.029	0.612	3.546	3.129	N/A
	Back (Position #2)	2.986	0.917	0.492	**3.903**	3.478	N/A
	Back (Position #3)	0.677	0.068	0.069	0.745	0.746	N/A

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Phablet SAR	Front	2.588	0.098	0.223	2.686	**2.811**
	Top	-	1.794*	1.107*	1.794	1.107
	Bottom	2.806	-	-	2.806	2.806
	Right	-	-	-	0.000	0.000
	Left	0.593	0.328	0.406	0.921	0.999

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Phablet SAR	Back (without Accessory)	2.024	1.794	1.107	**3.818**	3.131
	Back (Position #1)	2.670	1.029	0.612	3.699	3.282
	Back (Position #2)	2.280	0.917	0.492	3.197	2.772
	Back (Position #3)	0.421	0.068	0.069	0.489	0.490

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Phablet SAR	Front	1.780	0.098	0.223	1.878	2.003
	Top	-	1.794*	1.107*	1.794	1.107
	Bottom	3.172	-	-	**3.172**	**3.172**
	Right	-	-	-	0.000	0.000
	Left	0.626	0.328	0.406	0.954	1.032

Simult Tx	Configuration	LTE Band 66 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Phablet SAR	Back (without Accessory)	1.964	1.794	1.107	3.758	3.071
	Back (Position #1)	2.309	1.029	0.612	3.338	2.921
	Back (Position #2)	2.964	0.917	0.492	**3.881**	3.456
	Back (Position #3)	0.656	0.068	0.069	0.724	0.725

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Phablet SAR	Front	2.394	0.098	0.223	2.492	2.617
	Top	-	1.794*	1.107*	1.794	1.107
	Bottom	3.081	-	-	3.081	**3.081**
	Right	-	-	-	0.000	0.000
	Left	0.544	0.328	0.406	0.872	0.950

Simult Tx	Configuration	LTE Band 25 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Phablet SAR	Back (without Accessory)	2.177	1.794	1.107	**3.971**	3.284
	Back (Position #1)	1.890	1.029	0.612	2.919	2.502
	Back (Position #2)	2.064	0.917	0.492	2.981	2.556
	Back (Position #3)	0.435	0.068	0.069	0.503	0.504

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Phablet SAR	Front	1.660	0.098	0.223	1.758	1.883
	Top	-	1.794*	1.107*	1.794	1.107
	Bottom	3.116	-	-	**3.116**	**3.116**
	Right	-	-	-	0.000	0.000
	Left	0.690	0.328	0.406	1.018	1.096

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 12-28
Simultaneous Transmission Scenario with 5 GHz WLAN MIMO (Phablet)

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Phablet SAR	Back (without Accessory)	2.375	2.857	See Note 1	0.09
	Back (Position #1)	2.362	1.226	**3.588**	N/A
	Back (Position #2)	2.104	1.062	3.166	N/A
	Back (Position #3)	0.397	0.113	0.510	N/A

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Front	1.598	0.357	1.955
	Top	-	2.857*	2.857
	Bottom	3.001	-	**3.001**
	Right	-	-	0.000
	Left	0.789	0.560	1.349

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Phablet SAR	Back (without Accessory)	2.446	2.857	See Note 1	0.09
	Back (Position #1)	2.517	1.266	**3.783**	N/A
	Back (Position #2)	2.986	1.062	See Note 1	0.06
	Back (Position #3)	0.677	0.113	0.790	N/A

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Front	2.588	0.357	**2.945**
	Top	-	2.857*	2.857
	Bottom	2.806	-	2.806
	Right	-	-	0.000
	Left	0.593	0.560	1.153

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Phablet SAR	Back (without Accessory)	2.024	2.857	See Note 1	0.08
	Back (Position #1)	2.670	1.266	**3.936**	N/A
	Back (Position #2)	2.280	1.062	3.342	N/A
	Back (Position #3)	0.421	0.113	0.534	N/A

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Front	1.780	0.357	2.137
	Top	-	2.857*	2.857
	Bottom	3.172	-	**3.172**
	Right	-	-	0.000
	Left	0.626	0.560	1.186

Simult Tx	Configuration	LTE Band 66 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Phablet SAR	Back (without Accessory)	1.964	2.857	See Note 1	0.08
	Back (Position #1)	2.309	1.266	**3.575**	N/A
	Back (Position #2)	2.964	1.062	See Note 1	0.06
	Back (Position #3)	0.656	0.113	0.769	N/A

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Front	2.394	0.357	2.751
	Top	-	2.857*	2.857
	Bottom	3.081	-	**3.081**
	Right	-	-	0.000
	Left	0.544	0.560	1.104

Simult Tx	Configuration	LTE Band 25 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Phablet SAR	Back (without Accessory)	2.177	2.857	See Note 1	0.08
	Back (Position #1)	1.890	1.266	**3.156**	N/A
	Back (Position #2)	2.064	1.062	3.126	N/A
	Back (Position #3)	0.435	0.113	0.548	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Front	1.660	0.357	2.017
	Top	-	2.857*	2.857
	Bottom	3.116	-	**3.116**
	Right	-	-	0.000
	Left	0.690	0.560	1.250

Note:

1. No evaluation was performed to determine the aggregate 10g SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.10 per FCC KDB 447498 D01v06. See Section 12.7 for detailed SPLS ratio analysis.

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

12.7 SPLSR Evaluation and Analysis

Per FCC KDB Publication 447498 D01v06, when the sum of the standalone transmitters is more than 1.6 W/kg for 1g and 4 W/kg for 10g, the SAR sum to peak locations can be analyzed to determine SAR distribution overlaps. When the SAR peak to location ratio (shown below) for each pair of antennas is ≤ 0.04 for 1g and ≤ 0.10 for 10g, simultaneous SAR evaluation is not required. The distance between the transmitters was calculated using the following formula.

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

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

12.7.1 Back Side Phablet SPLSR Evaluation and Analysis

Table 12-29
Peak SAR Locations for Back Side Phablet

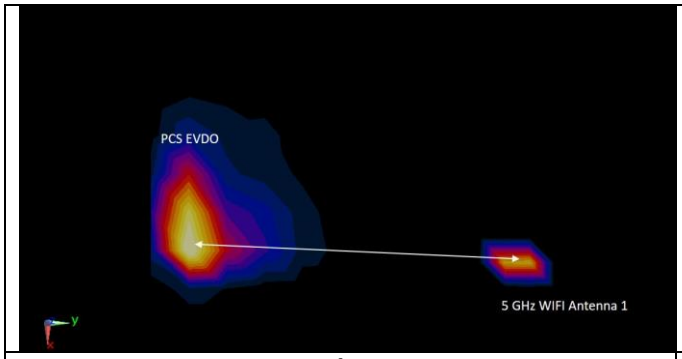
Mode/Band	x (mm)	y (mm)
5 GHz WLAN Ant 1	10.00	54.00
5 GHz WLAN MIMO	9.00	55.00
PCS EVDO	-9.00	-73.50
UMTS 1750	-7.50	-83.00
UMTS 1900	-9.00	-81.50
LTE Band 66 (AWS)	-9.00	-81.50
LTE Band 25 (PCS)	-9.00	-81.50

Table 12-30
Back Side Phablet SAR to Peak Location Separation Ratio Calculations

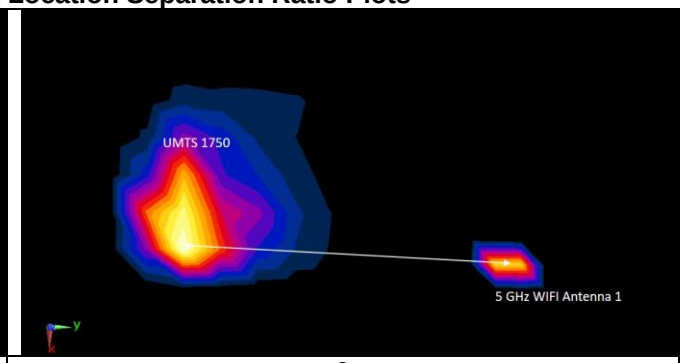
Antenna Pair		Standalone SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$
5 GHz WLAN Ant 1	PCS EVDO	1.794	2.375	4.169	128.91	0.07
5 GHz WLAN Ant 1	UMTS 1750	1.794	2.446	4.24	138.11	0.06
5 GHz WLAN MIMO	PCS EVDO	2.857	2.375	5.232	129.75	0.09
5 GHz WLAN MIMO	UMTS 1750	2.857	2.446	5.303	138.98	0.09
5 GHz WLAN MIMO	UMTS 1900	2.857	2.024	4.881	137.68	0.08
5 GHz WLAN MIMO	LTE Band 66 (AWS)	2.857	1.964	4.821	137.68	0.08
5 GHz WLAN MIMO	LTE Band 25 (PCS)	2.857	2.177	5.034	137.68	0.08

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

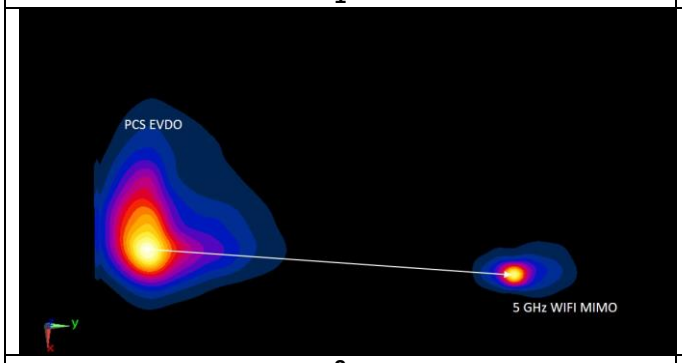
Table 12-31
Back Side Phablet SAR to Peak Location Separation Ratio Plots



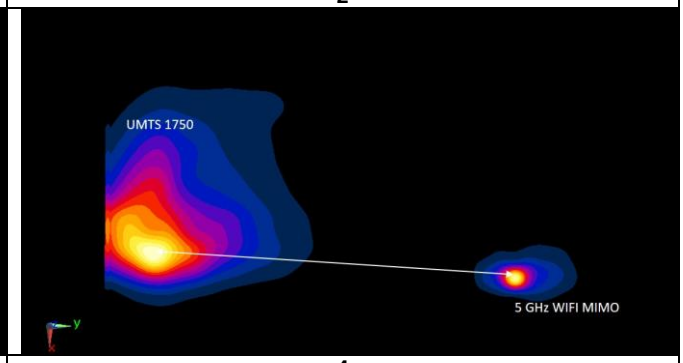
1



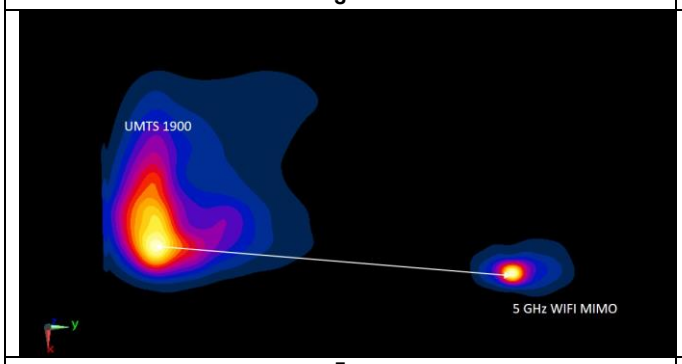
2



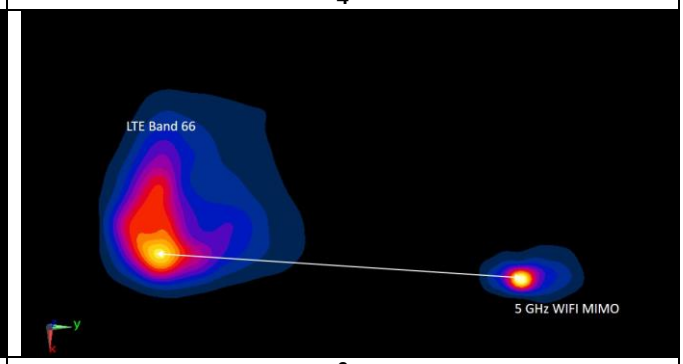
3



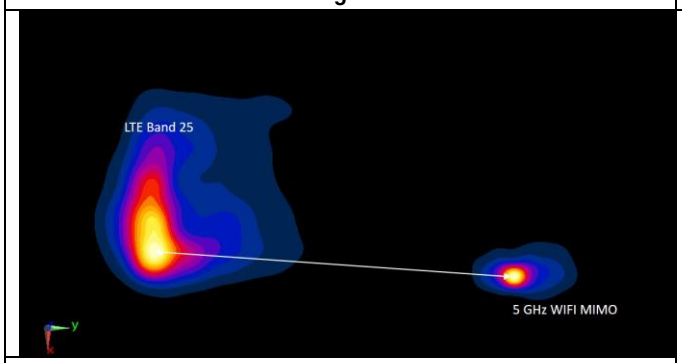
4



5



6



7

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

12.7.2 Back Side Position 2 SPLSR Evaluation and Analysis

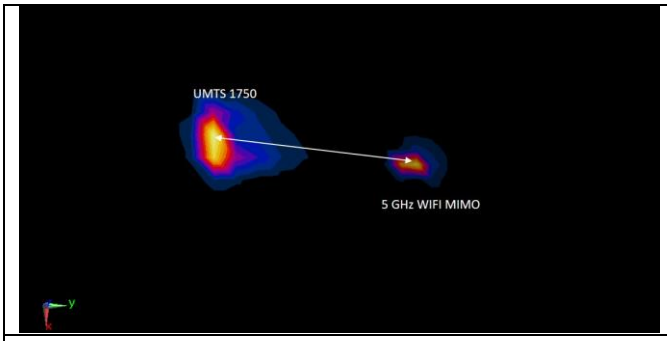
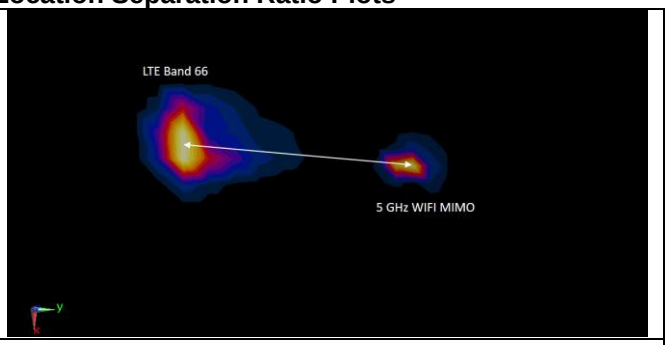
Table 12-32
Peak SAR Locations for Back Side Phablet

Mode/Band	x (mm)	y (mm)
5 GHz WLAN MIMO	-38.00	57.00
UMTS 1750	-46.00	-73.50
LTE Band 66 (AWS)	-46.00	-83.00

Table 12-33
Back Side Phablet SAR to Peak Location Separation Ratio Calculations

Antenna Pair		Standalone SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$	
UMTS 1750	5 GHz WLAN MIMO	2.986	1.062	4.048	130.74	0.06	1
LTE Band 66 (AWS)	5 GHz WLAN MIMO	2.964	1.062	4.026	140.23	0.06	2

Table 12-34
Back Side Phablet SAR to Peak Location Separation Ratio Plots

	
1	2

12.8 Simultaneous Transmission Conclusion

The above numerical summed SAR results and SPLSR analysis 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.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

13 SAR MEASUREMENT VARIABILITY

13.1 Measurement Variability

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

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

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

Table 13-1
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	# of Time Slots	Side	Spacing	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
835	848.80	251	GSM 850	GPRS	3	back	10 mm	0.953	0.925	1.03	N/A	N/A	N/A	N/A
1750	1752.60	1513	UMTS 1750	RMC	N/A	bottom	10 mm	1.250	1.250	1.00	N/A	N/A	N/A	N/A
1900	1882.50	26365	LTE Band 25 (PCS), 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	N/A	bottom	10 mm	1.200	1.160	1.03	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram							

Table 13-2
Phablet SAR Measurement Variability Results

PHABLET VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	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)	
1900	1852.40	9262	UMTS 1900	RMC	N/A	bottom	0 mm	3.150	3.110	1.01	N/A	N/A	N/A	N/A
1750	1770.00	132572	LTE Band 66 (AWS), 20 MHz Bandwidth	QPSK, 100 RB, 0 RB Offset	N/A	bottom	0 mm	3.060	2.840	1.08	N/A	N/A	N/A	N/A
5250	5280.00	56	802.11n, 20 MHz Bandwidth	OFDM , MIMO	13	back	0 mm	2.470	2.280	1.08	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams						

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

14 ADDITIONAL TESTING PER FCC GUIDANCE

14.1 LTE Band 41 Power Class 2 and Power Class 3 Linearity

This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per May 2017 TCB Workshop Notes based on the device behavior, all SAR tests were performed using Power Class 3. SAR with Power Class 2 at the highest power and available duty factor was additionally performed for the Power Class 3 configuration with the highest SAR for each exposure condition. The linearity between the Power Class 2 and Power Class 3 SAR results and the respective frame averaged powers was calculated to determine that the results were linear. When ULCA is active, the linearity between the Power Class 2 with ULCA active and Power Class 3 with ULCA active SAR results and the respective frame averaged powers was calculated to determine that the results were linear. Per May 2017 TCB Workshop, no additional SAR measurements were required since the linearity between power classes was < 10% and all reported SAR values were < 1.4 W/kg for 1g and < 3.5 W/kg for 10g.

Table 14-1
LTE Band 41 Standalone Head Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.20	27.70
Measured Output Power (dBm)	25.08	27.40
Measured SAR (W/kg)	0.281	0.326
Measured Power (mW)	322.11	549.54
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	203.89	237.95
% deviation from expected linearity		-0.59%

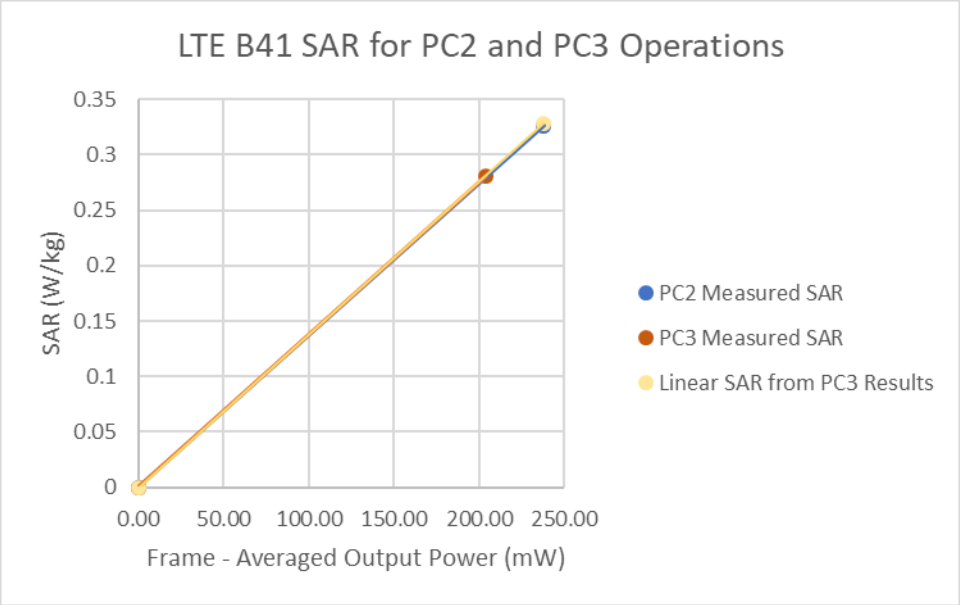


Figure 14-1
LTE Band 41 Standalone Head Linearity

© 2019 PCTEST Engineering Laboratory, Inc.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 14-2
LTE Band 41 ULCA Head Linearity Data

	LTE Band 41 PC3 ULCA	LTE Band 41 PC2 ULCA
Maximum Allowed Output Power (dBm)	25.20	27.70
Measured Output Power (dBm)	25.20	27.52
Measured SAR (W/kg)	0.290	0.341
Measured Power (mW)	331.13	564.94
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	209.61	244.62
% deviation from expected linearity		0.76%

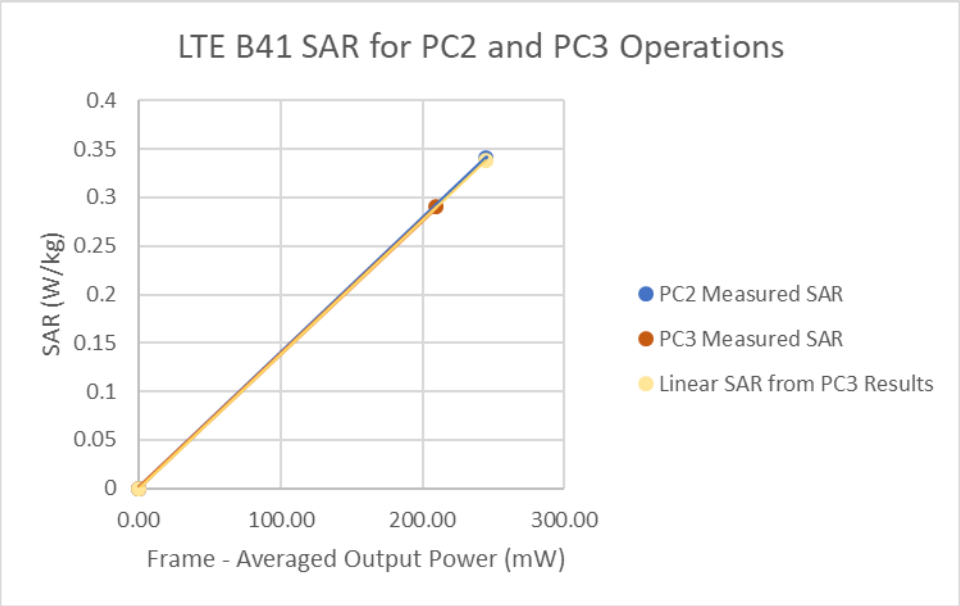


Figure 14-2
LTE Band 41 ULCA Head Linearity

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 14-3
LTE Band 41 Standalone Body-Worn Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.20	27.70
Measured Output Power (dBm)	25.08	27.40
Measured SAR (W/kg)	0.345	0.368
Measured Power (mW)	322.11	549.54
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	203.89	237.95
% deviation from expected linearity		-8.60%

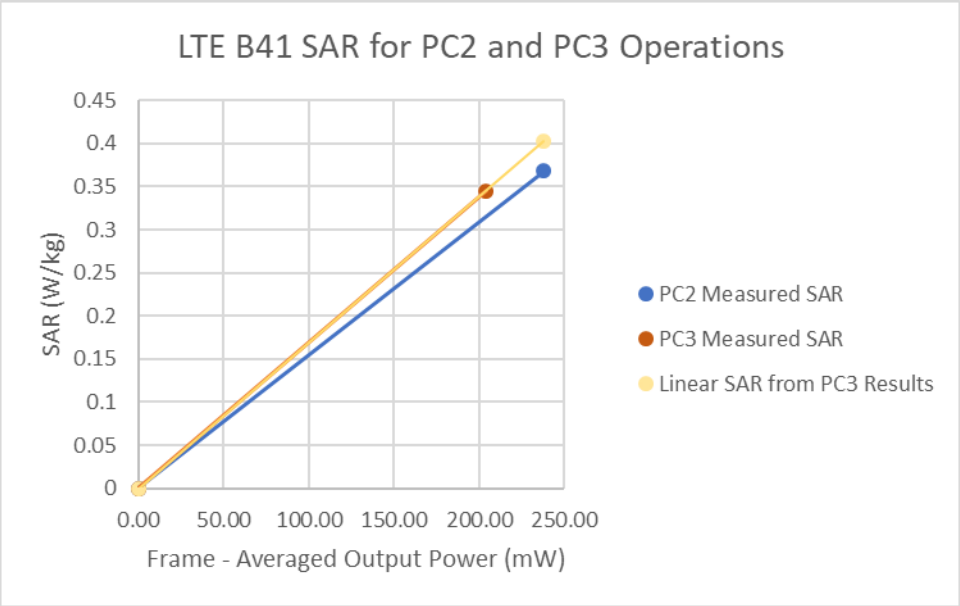


Figure 14-3
LTE Band 41 Standalone Body-Worn Linearity

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 14-4
LTE Band 41 ULCA Body-Worn Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.20	27.70
Measured Output Power (dBm)	25.20	27.52
Measured SAR (W/kg)	0.369	0.392
Measured Power (mW)	331.13	564.94
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	209.61	244.62
% deviation from expected linearity		-8.97%

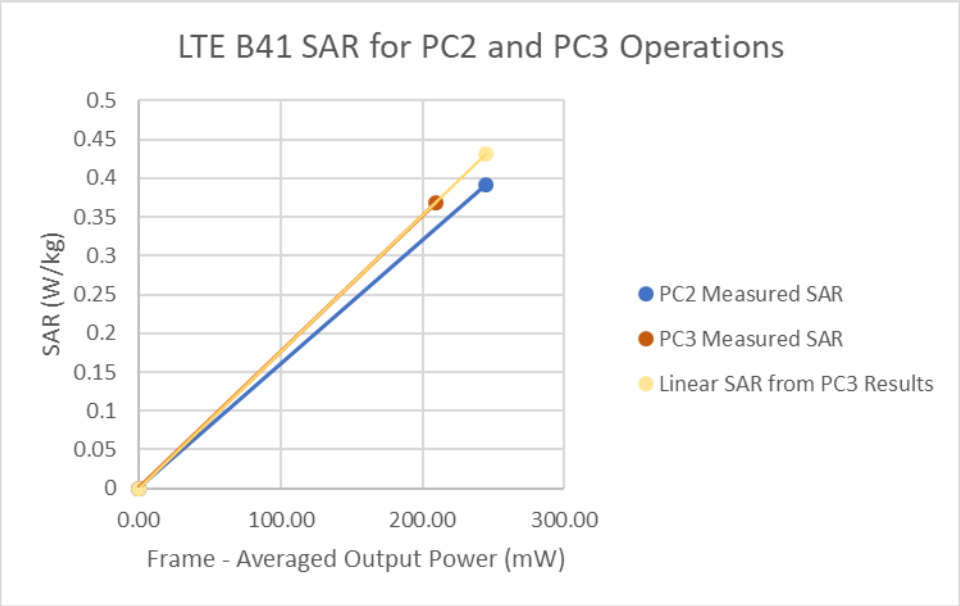


Figure 14-4
LTE Band 41 UCLA Body-Worn Linearity

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 14-5
LTE Band 41 Standalone Hotspot Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.20	27.70
Measured Output Power (dBm)	25.08	27.40
Measured SAR (W/kg)	0.413	0.444
Measured Power (mW)	322.11	549.54
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	203.89	237.95
% deviation from expected linearity		-7.88%

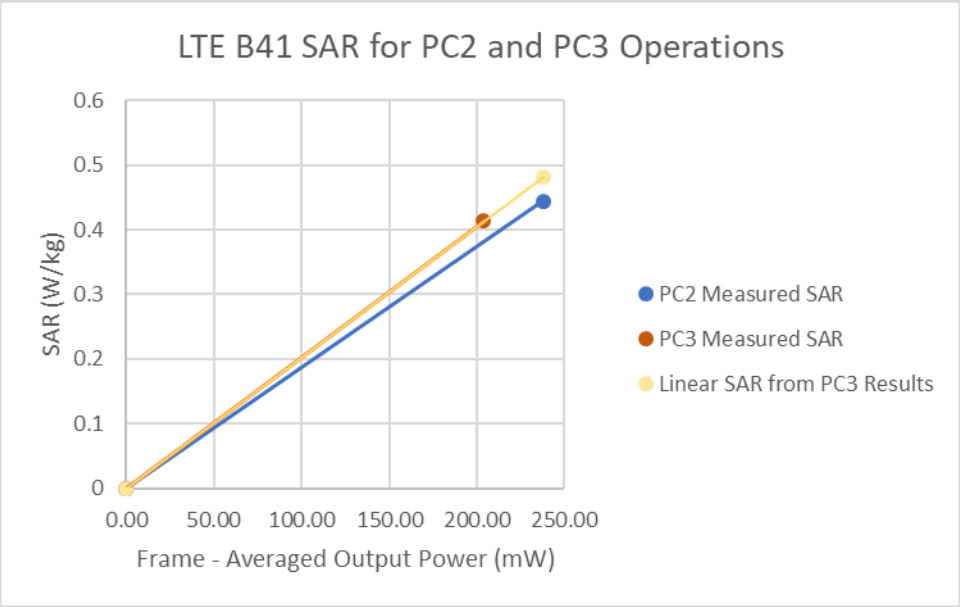


Figure 14-5
LTE Band 41 Standalone Hotspot Linearity

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Table 14-6
LTE Band 41 ULCA Hotspot Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.20	27.70
Measured Output Power (dBm)	25.20	27.52
Measured SAR (W/kg)	0.433	0.455
Measured Power (mW)	331.13	564.94
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	209.61	244.62
% deviation from expected linearity		-9.96%

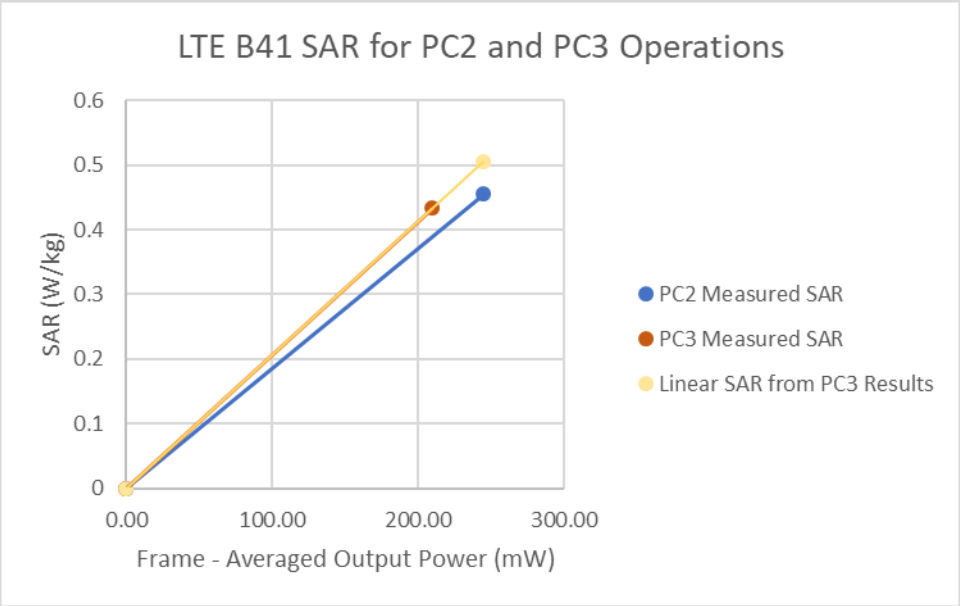


Figure 14-6
LTE Band 41 ULCA Hotspot Linearity

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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	8648D	(9kHz-4GHz) Signal Generator	CBT	N/A	CBT	3629U00687
Agilent	8753E	(30kHz-6GHz) Network Analyzer	9/28/2018	Annual	9/28/2019	JP38020182
Agilent	8753ES	S-Parameter Network Analyzer	10/2/2018	Annual	10/2/2019	US39170118
Agilent	E4432B	ESG-D Series Signal Generator	7/14/2019	Annual	7/14/2020	US40053896
Agilent	E4438C	ESG Vector Signal Generator	5/22/2019	Annual	5/22/2020	MY45091346
Agilent	E4440A	PSA Series Spectrum Analyzer	11/14/2018	Annual	11/14/2019	MY46186272
Agilent	E5515C	8960 Series 10 Wireless Communications Test Set	12/18/2018	Annual	12/18/2019	GB42230325
Agilent	E5515C	Wireless Communications Test Set	2/28/2018	Biennial	2/28/2020	GB41450275
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46170464
Agilent	N5182A	MXG Vector Signal Generator	11/28/2018	Annual	11/28/2019	MY47420603
Agilent	N9020A	MXA Signal Analyzer	4/20/2019	Annual	4/20/2020	US46470561
Agilent	N9030A	PXA Signal Analyzer (44GHz)	6/12/2019	Annual	6/12/2020	MY52350166
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343972
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343971
Anritsu	MA24106A	USB Power Sensor	10/19/2018	Annual	10/19/2019	1349503
Anritsu	MA24106A	USB Power Sensor	10/19/2018	Annual	10/19/2019	1344554
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1126066
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1207470
Anritsu	ML2495A	Power Meter	10/21/2018	Annual	10/21/2019	941001
Anritsu	ML2496A	Power Meter	10/21/2018	Annual	10/21/2019	1138001
Anritsu	MT8820C	Radio Communication Analyzer	3/29/2019	Annual	3/29/2020	6201300731
Anritsu	MT8821C	Radio Communication Analyzer	11/6/2018	Annual	11/6/2019	6200901190
Anritsu	MT8821C	Radio Communication Analyzer	1/25/2019	Annual	1/25/2020	6261895213
Anritsu	MT8821C	Radio Communication Analyzer	3/6/2019	Annual	3/6/2020	6201381794
Anritsu	MT8862A	Wireless Connectivity Test Set	8/8/2019	Annual	8/8/2020	6261782395
Control Company	4040	Therm./ Clock/ Humidity Monitor	1/8/2019	Annual	1/8/2020	160473909
Control Company	4040	Therm./ Clock/ Humidity Monitor	1/8/2019	Annual	1/8/2020	160574418
Control Company	4352	Ultra Long Stem Thermometer	1/4/2019	Annual	1/4/2020	160508097
Control Company	4352	Ultra Long Stem Thermometer	1/4/2019	Annual	1/4/2020	160508122
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	7/2/2019	Annual	7/2/2020	MY53401181
Keysight Technologies	AT/N6705B	DC Power Supply	CBT	N/A	CBT	MY53001315
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mitutoyo	CD-6"CSX	Digital Caliper	4/18/2018	Biennial	4/18/2020	13264165
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Pasternack	NC-100	Torque Wrench	5/23/2018	Biennial	5/23/2020	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	CMW500	Radio Communication Tester	4/15/2019	Annual	4/15/2020	167283
Rohde & Schwarz	CMW500	Radio Communication Tester	4/15/2019	Annual	4/15/2020	167284
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	10/30/2018	Annual	10/30/2019	164948
Seekonk	NC-100	Torque Wrench	11/1/2017	Biennial	11/1/2019	22313
SPEAG	D1750V2	1750 MHz SAR Dipole	5/15/2019	Annual	5/15/2020	1148
SPEAG	D1750V2	1750 MHz SAR Dipole	10/22/2018	Annual	10/22/2019	1150
SPEAG	D1765V2	1765 MHz SAR Dipole	5/23/2018	Biennial	5/23/2020	1008
SPEAG	D1900V2	1900 MHz SAR Dipole	2/21/2019	Annual	2/21/2020	5d148
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Annual	10/23/2019	5d080
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Annual	10/23/2019	5d149
SPEAG	D2300V2	2300 MHz SAR Dipole	8/13/2018	Biennial	8/13/2020	1073
SPEAG	D2300V2	2300 MHz SAR Dipole	11/8/2017	Biennial	11/8/2019	1064
SPEAG	D2450V2	2450 MHz SAR Dipole	9/11/2017	Biennial	9/11/2019	797
SPEAG	D2450V2	2450 MHz SAR Dipole	8/14/2019	Annual	8/14/2020	719
SPEAG	D2600V2	2600 MHz SAR Dipole	4/11/2018	Biennial	4/11/2020	1004
SPEAG	D2600V2	2600 MHz SAR Dipole	9/13/2016	Triennial	9/13/2019	1071
SPEAG	D3500V2	3500 MHz SAR Dipole	1/11/2018	Biennial	1/11/2020	1059
SPEAG	D3700V2	3700 MHz SAR Dipole	1/11/2018	Biennial	1/11/2020	1018
SPEAG	D5GHzV2	5 GHz SAR Dipole	8/10/2018	Biennial	8/10/2020	1237
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/16/2018	Biennial	1/16/2020	1057
SPEAG	D750V3	750 MHz Dipole	3/18/2019	Annual	3/18/2020	1054
SPEAG	D750V3	750 MHz SAR Dipole	1/15/2018	Biennial	1/15/2020	1003
SPEAG	D835V2	835 MHz SAR Dipole	3/13/2019	Annual	3/13/2020	4d047
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	4d133
SPEAG	D835V2	835 MHz SAR Dipole	1/22/2019	Annual	1/22/2020	4d132
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/8/2019	Annual	5/8/2020	728
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/8/2019	Annual	5/8/2020	859
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/20/2019	Annual	6/20/2020	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/11/2019	Annual	7/11/2020	1323
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/11/2019	Annual	7/11/2020	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/15/2019	Annual	1/15/2020	1530
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/18/2019	Annual	4/18/2020	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/13/2019	Annual	2/13/2020	665
SPEAG	DAE4	Data Acquisition Electronics	12/7/2018	Annual	12/7/2019	1533
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/7/2019	Annual	5/7/2020	1070
SPEAG	ES3DV3	SAR Probe	12/11/2018	Annual	12/11/2019	3288
SPEAG	EX3DV4	SAR Probe	5/16/2019	Annual	5/16/2020	7538
SPEAG	EX3DV4	SAR Probe	5/16/2019	Annual	5/16/2020	7406
SPEAG	EX3DV4	SAR Probe	6/19/2019	Annual	6/19/2020	7409
SPEAG	EX3DV4	SAR Probe	7/15/2019	Annual	7/15/2020	7547
SPEAG	EX3DV4	SAR Probe	7/16/2019	Annual	7/16/2020	7410
SPEAG	EX3DV4	SAR Probe	1/25/2019	Annual	1/25/2020	3589
SPEAG	EX3DV4	SAR Probe	4/24/2019	Annual	4/24/2020	7357
SPEAG	EX3DV4	SAR Probe	1/24/2019	Annual	1/24/2020	7488
SPEAG	EX3DV4	SAR Probe	2/19/2019	Annual	2/19/2020	7417

Note: 1) All equipment was used solely within its 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.

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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	

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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]

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

18 REFERENCES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

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

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

[20] IEC 62209-1, Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1: Devices used next to the ear (Frequency range of 300 MHz to 6 GHz), July 2016.

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

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

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

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

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

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

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

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

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

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

© 2019 PCTEST Engineering Laboratory, Inc. All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

APPENDIX A: SAR TEST DATA

© 2019 PCTEST Engineering Laboratory, Inc.

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

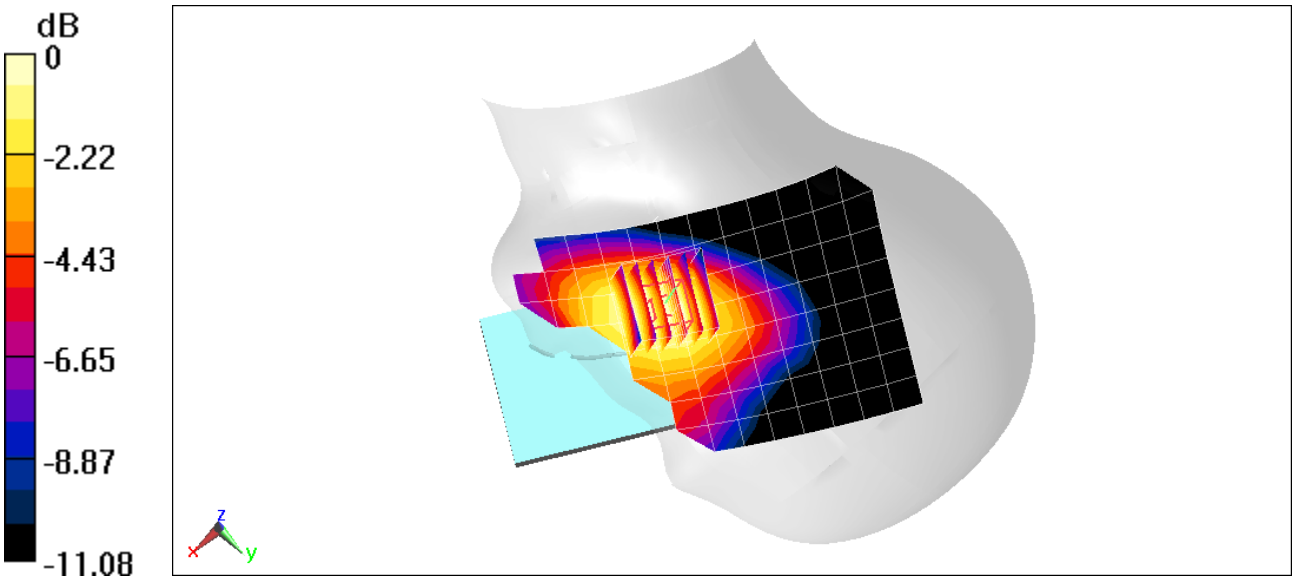
Communication System: UID 0, Cellular CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.926 S/m; ε_r = 43.134; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-05-2019; Ambient Temp: 22.5°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7406; ConvF(9.78, 9.78, 9.78) @ 820.1 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Right 20; Type: QD 000 P40 CD; Serial: 1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: Cell. EVDO Rev. A, Rule Part 90S, Left Head, Cheek, Mid.ch, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.79 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.180 W/kg
SAR(1 g) = 0.144 W/kg



0 dB = 0.167 W/kg = -7.77 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

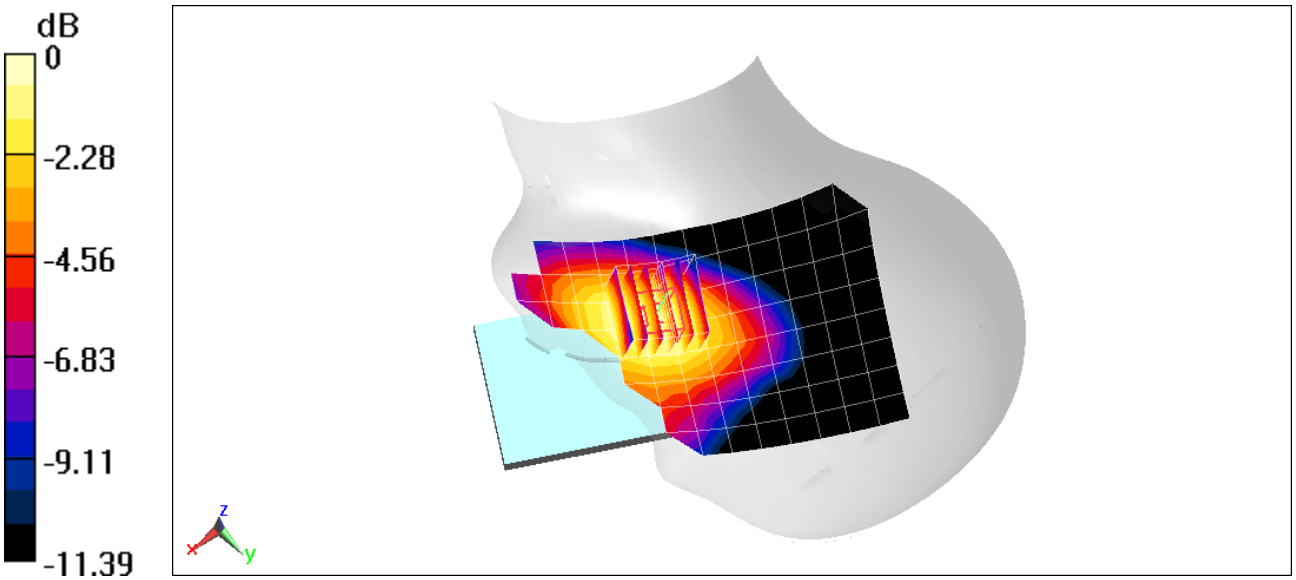
Communication System: UID 0, Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.933 S/m; ε_r = 43.109; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-05-2019; Ambient Temp: 22.5°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7406; ConvF(9.78, 9.78, 9.78) @ 836.52 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Right 20; Type: QD 000 P40 CD; Serial: 1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: Cell. EVDO Rev. A, Rule Part 22H, Left Head, Cheek, Mid.ch, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.11 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.164 W/kg
SAR(1 g) = 0.130 W/kg



0 dB = 0.151 W/kg = -8.21 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

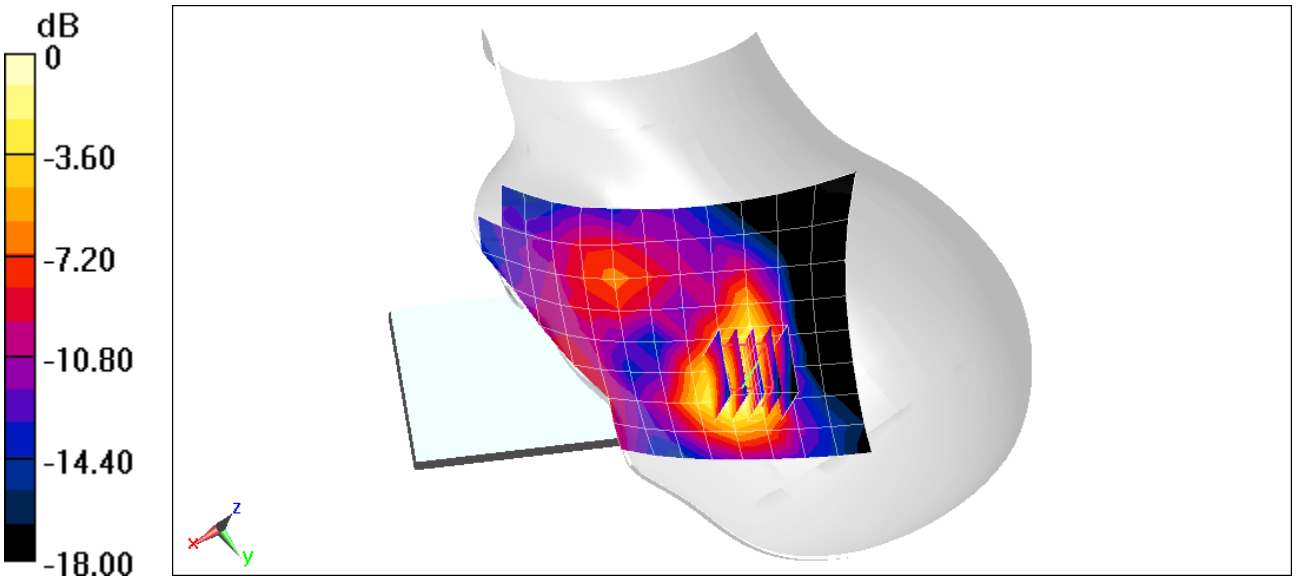
Communication System: UID 0, PCS CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.427 S/m; ε_r = 38.969; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-01-2019; Ambient Temp: 19.9°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7538; ConvF(8.32, 8.32, 8.32) @ 1880 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: PCS CDMA, Left Head, Tilt, Mid.ch, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.17 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.301 W/kg
SAR(1 g) = 0.186 W/kg



0 dB = 0.256 W/kg = -5.92 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

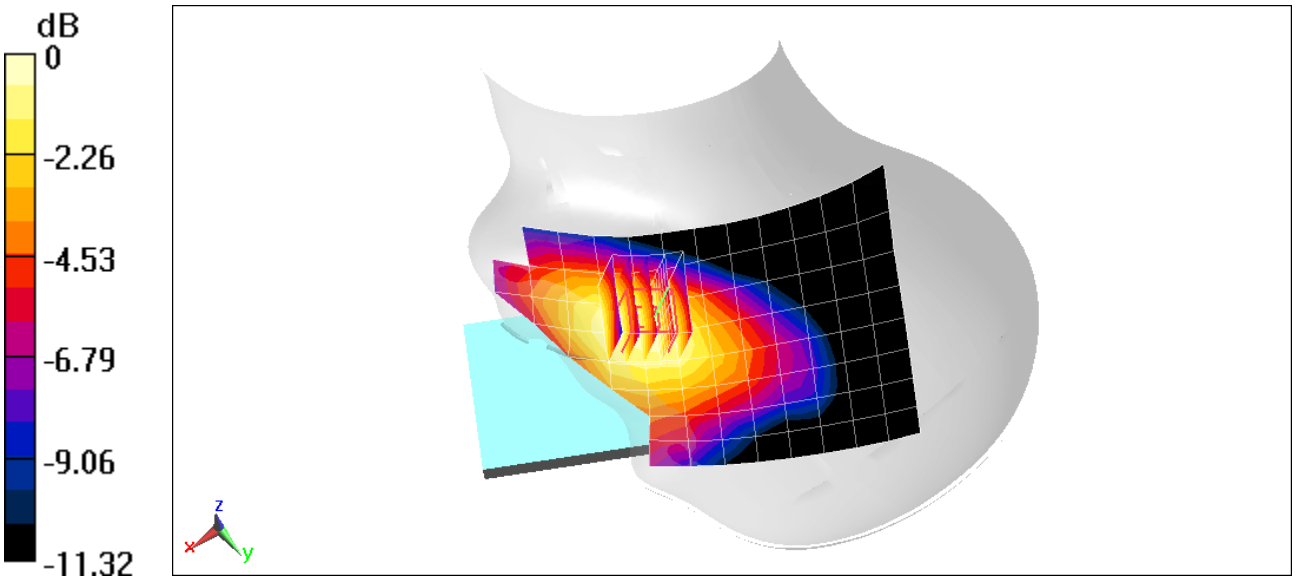
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:2.76
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.892 S/m; ε_r = 40.528; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-03-2019; Ambient Temp: 21.2 C; Tissue Temp:20.0°C

Probe: EX3DV4 - SN7538; ConvF(10.3, 10.3, 10.3) @ 836.6 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: GPRS 850, Left Head, Cheek, Mid.ch, 3 Tx slots, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.30 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.170 W/kg
SAR(1 g) = 0.130 W/kg



0 dB = 0.154 W/kg = -8.12 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

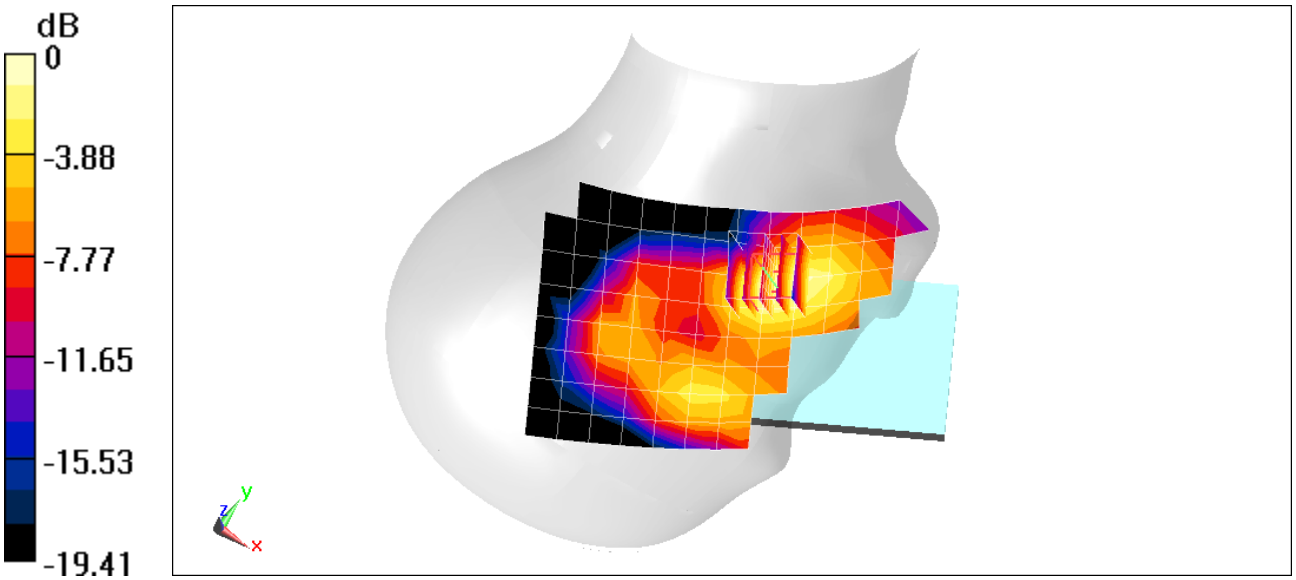
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.442 S/m; ε_r = 41.068; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-09-2019; Ambient Temp: 21.6°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7406; ConvF(8.18, 8.18, 8.18) @ 1880 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Right 20; Type: QD 000 P40 CD; Serial: 1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: GPRS 1900, Right Head, Cheek, Mid.ch, 3 Tx slots, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.601 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.184 W/kg
SAR(1 g) = 0.118 W/kg



0 dB = 0.163 W/kg = -7.88 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

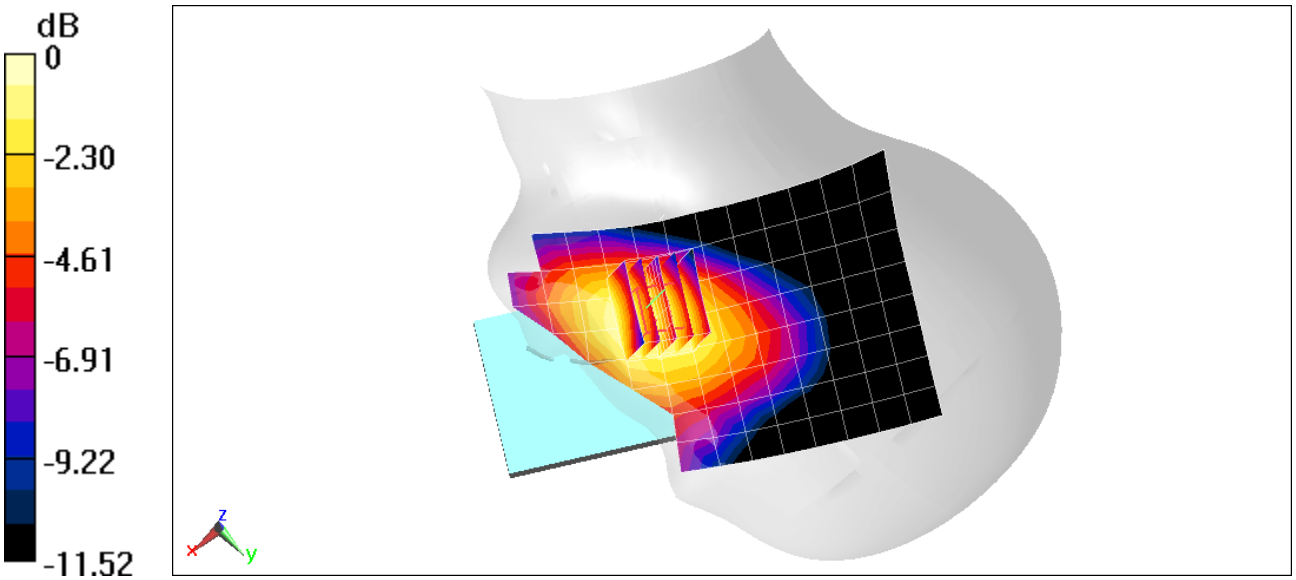
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.892 S/m; ε_r = 40.528; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-03-2019; Ambient Temp: 21.2 C; Tissue Temp:20.0°C

Probe: EX3DV4 - SN7538; ConvF(10.3, 10.3, 10.3) @ 836.6 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: UMTS 850, Left Head, Cheek, Mid.ch, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.19 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.192 W/kg
SAR(1 g) = 0.148 W/kg



0 dB = 0.176 W/kg = -7.54 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

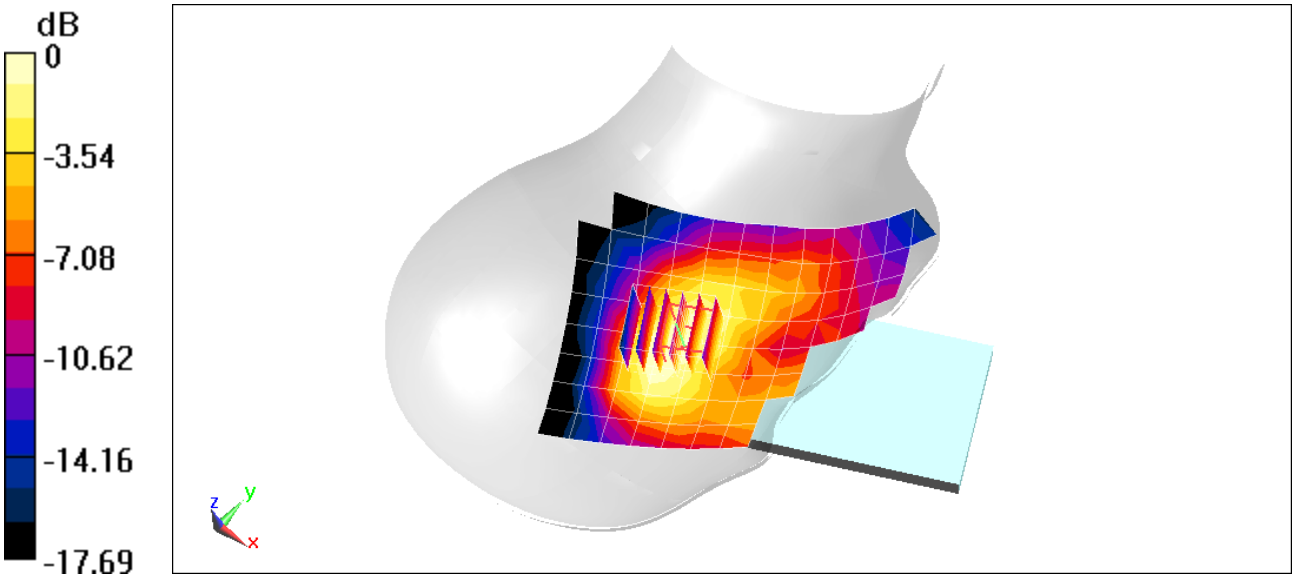
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1732.4 MHz; σ = 1.347 S/m; ε_r = 40.326; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-07-2019; Ambient Temp: 21.6°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7406; ConvF(8.57, 8.57, 8.57) @ 1732.4 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Right 20; Type: QD 000 P40 CD; Serial: 1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: UMTS 1750, Right Head, Tilt, Mid.ch,
with Dual Display Cover Position #3

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.692 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.216 W/kg
SAR(1 g) = 0.140 W/kg



0 dB = 0.190 W/kg = -7.21 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

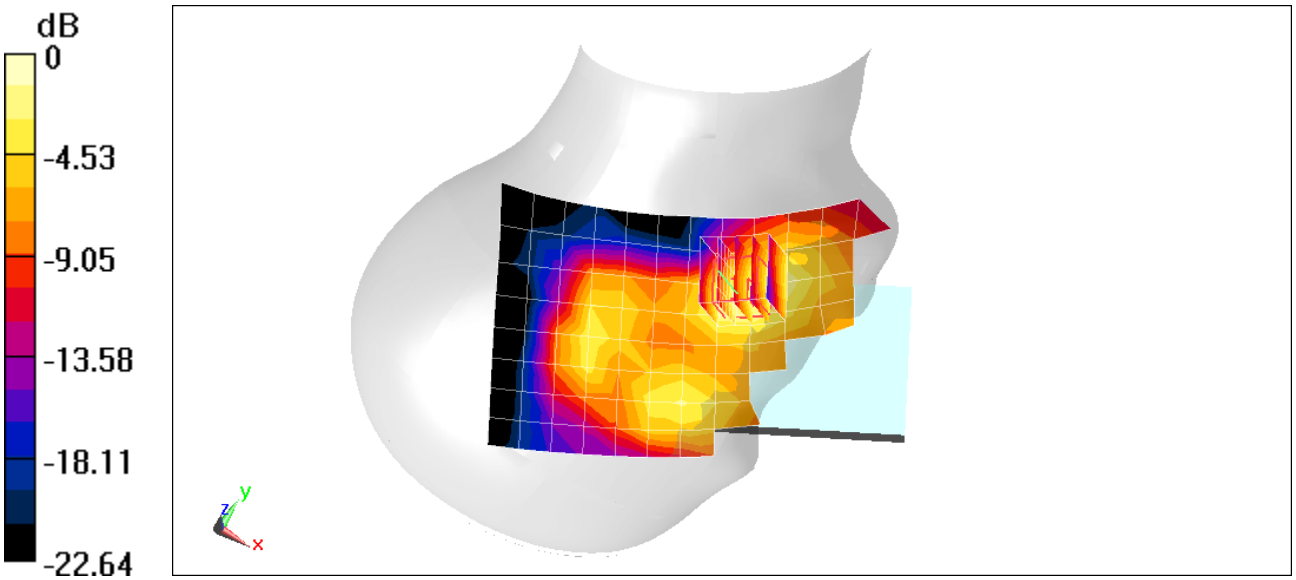
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.427 S/m; ε_r = 38.969; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-01-2019; Ambient Temp: 19.9°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7538; ConvF(8.32, 8.32, 8.32) @ 1880 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: UMTS 1900, Right Head, Cheek, Mid.ch, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.10 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.258 W/kg
SAR(1 g) = 0.163 W/kg



0 dB = 0.227 W/kg = -6.44 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

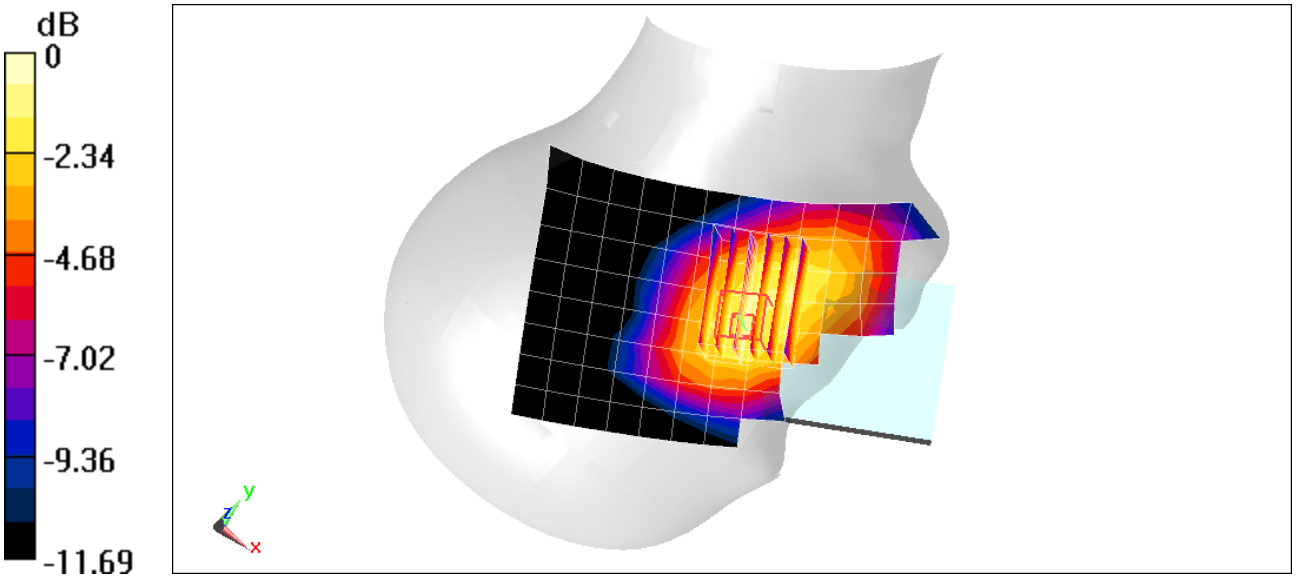
Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 680.5 MHz; σ = 0.861 S/m; ε_r = 42.013; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-27-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7538; ConvF(10.68, 10.68, 10.68) @ 680.5 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 71, Right Head, Cheek, Mid.ch, 20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (8x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.01 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.193 W/kg
SAR(1 g) = 0.159 W/kg



0 dB = 0.181 W/kg = -7.42 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

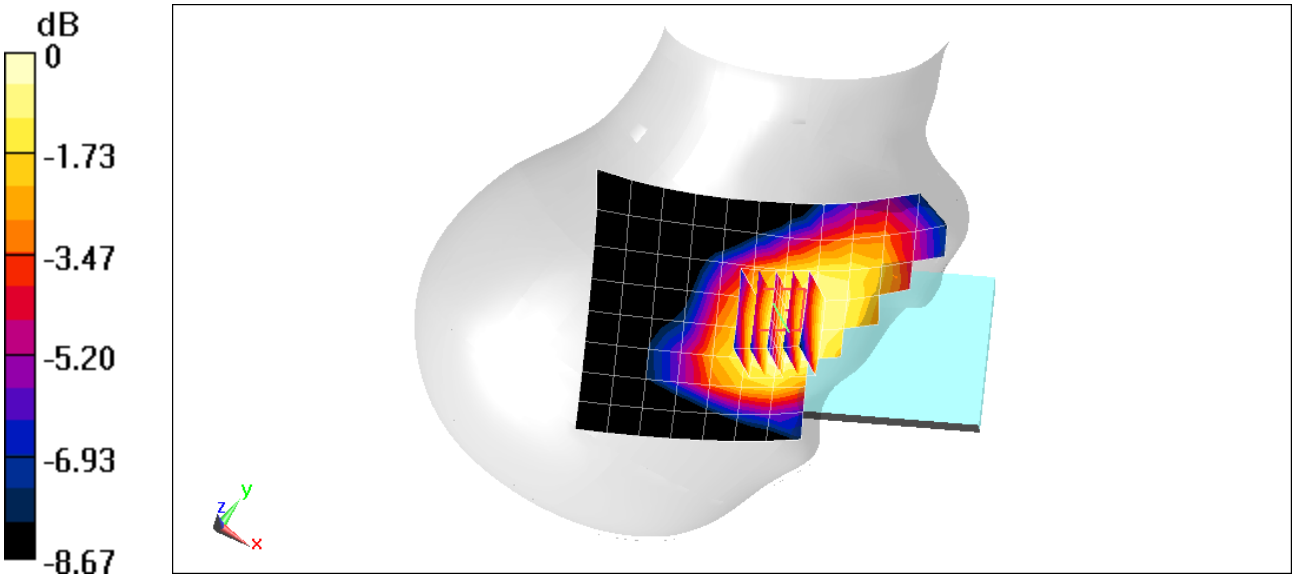
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.871 S/m; ε_r = 41.935; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-27-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7538; ConvF(10.68, 10.68, 10.68) @ 707.5 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 12, Right Head, Cheek, Mid.ch, 10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset without Accessory

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.904 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.170 W/kg
SAR(1 g) = 0.139 W/kg



0 dB = 0.159 W/kg = -7.99 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

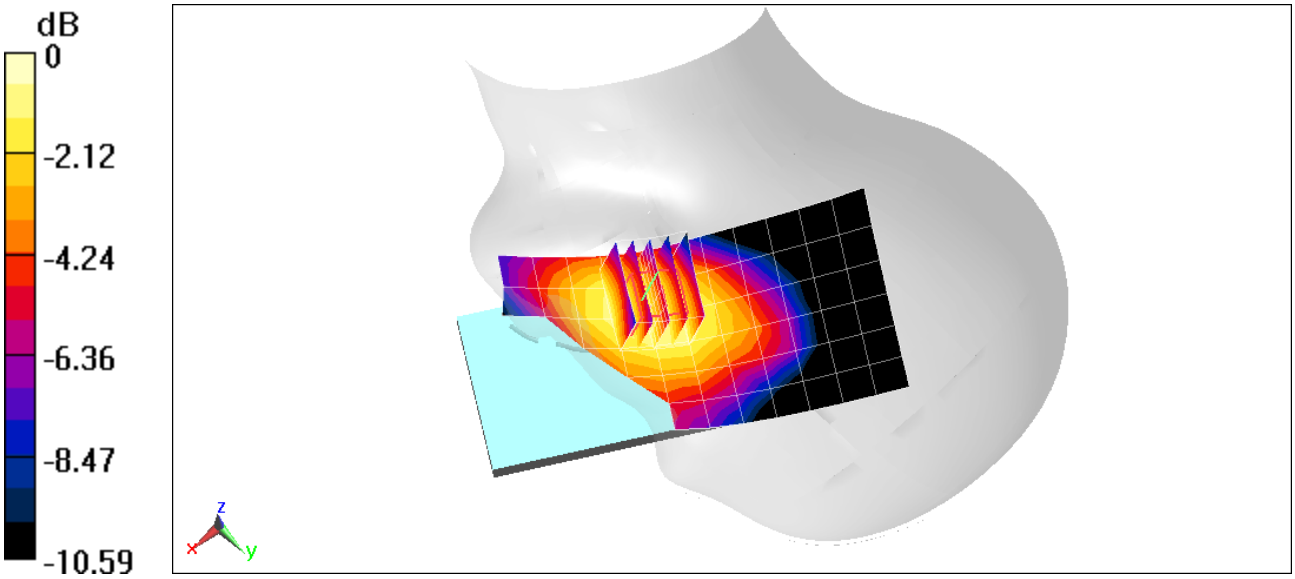
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 782 MHz; σ = 0.897 S/m; ε_r = 41.718; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-27-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7538; ConvF(10.68, 10.68, 10.68) @ 782 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 13, Left Head, Cheek, Mid.ch, QPSK,
10 MHz Bandwidth, 1 RB, 25 RB Offset without Accessory

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.97 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.246 W/kg
SAR(1 g) = 0.188 W/kg



0 dB = 0.225 W/kg = -6.48 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

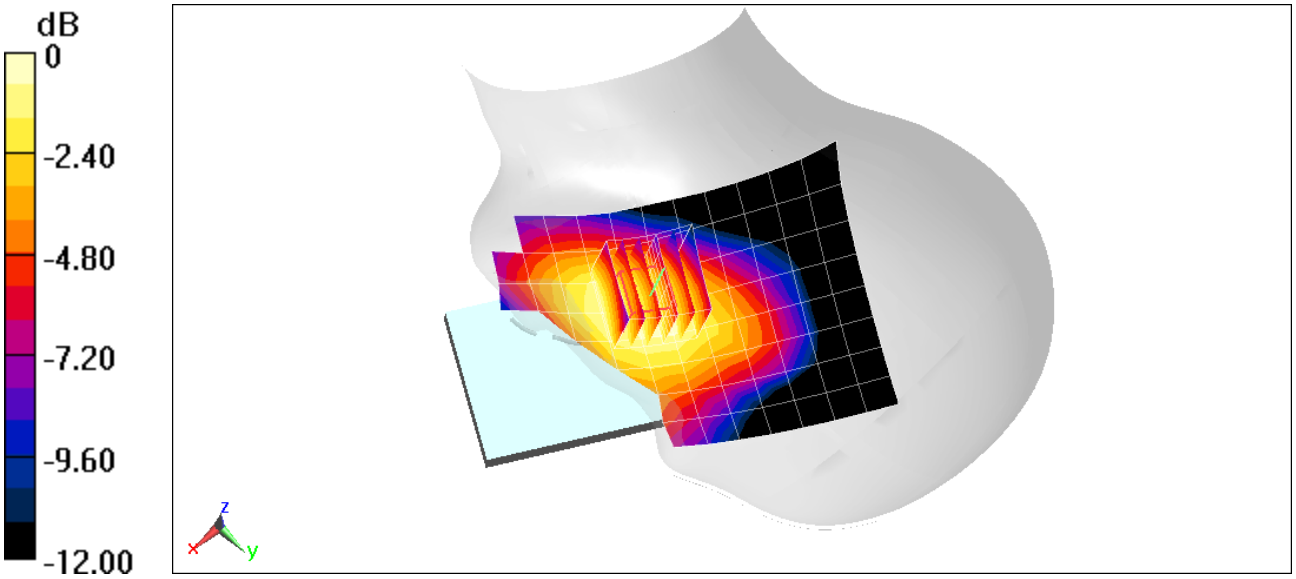
Communication System: UID 0, LTE Band 14; Frequency: 793 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 793 MHz; σ = 0.901 S/m; ε_r = 41.684; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-27-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7538; ConvF(10.68, 10.68, 10.68) @ 793 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 14, Left Head, Cheek, Mid.ch, QPSK,
10 MHz Bandwidth, 1 RB, 0 RB Offset without Accessory

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.18 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.193 W/kg
SAR(1 g) = 0.149 W/kg



0 dB = 0.175 W/kg = -7.57 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

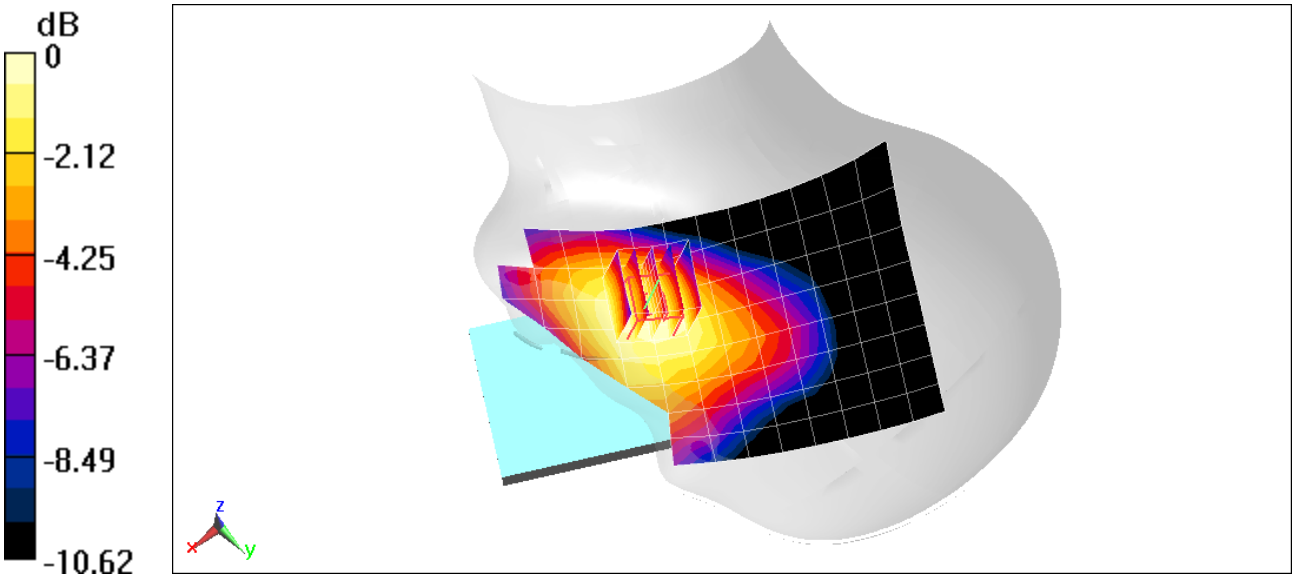
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.89 S/m; ε_r = 40.543; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-03-2019; Ambient Temp: 21.2 C; Tissue Temp:20.0°C

Probe: EX3DV4 - SN7538; ConvF(10.3, 10.3, 10.3) @ 831.5 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 26 (Cell.), Left Head, Cheek, Mid.ch,
15 MHz Bandwidth, QPSK, 1 RB, 74 RB Offset without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.06 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.150 W/kg
SAR(1 g) = 0.119 W/kg



0 dB = 0.138 W/kg = -8.60 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

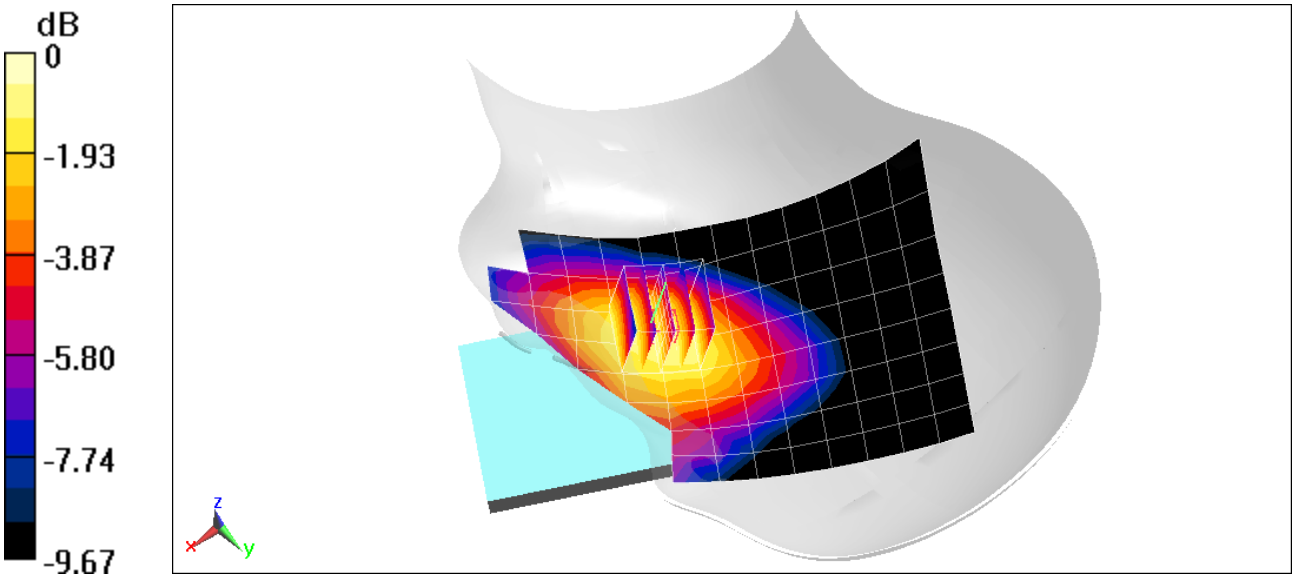
Communication System: UID 0, LTE Band 5 (Cell.); Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.892 S/m; ε_r = 40.528; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-03-2019; Ambient Temp: 21.2 C; Tissue Temp:20.0°C

Probe: EX3DV4 - SN7538; ConvF(10.3, 10.3, 10.3) @ 836.5 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 5 (Cell.), ULCA, Left Head, Cheek, Mid.ch, without Accessory
PCC: Ch. 20525,10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset
SCC: Ch. 20453, 5 MHz Bandwidth, QPSK, 1 RB, 24 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.89 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.185 W/kg
SAR(1 g) = 0.140 W/kg



0 dB = 0.167 W/kg = -7.77 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

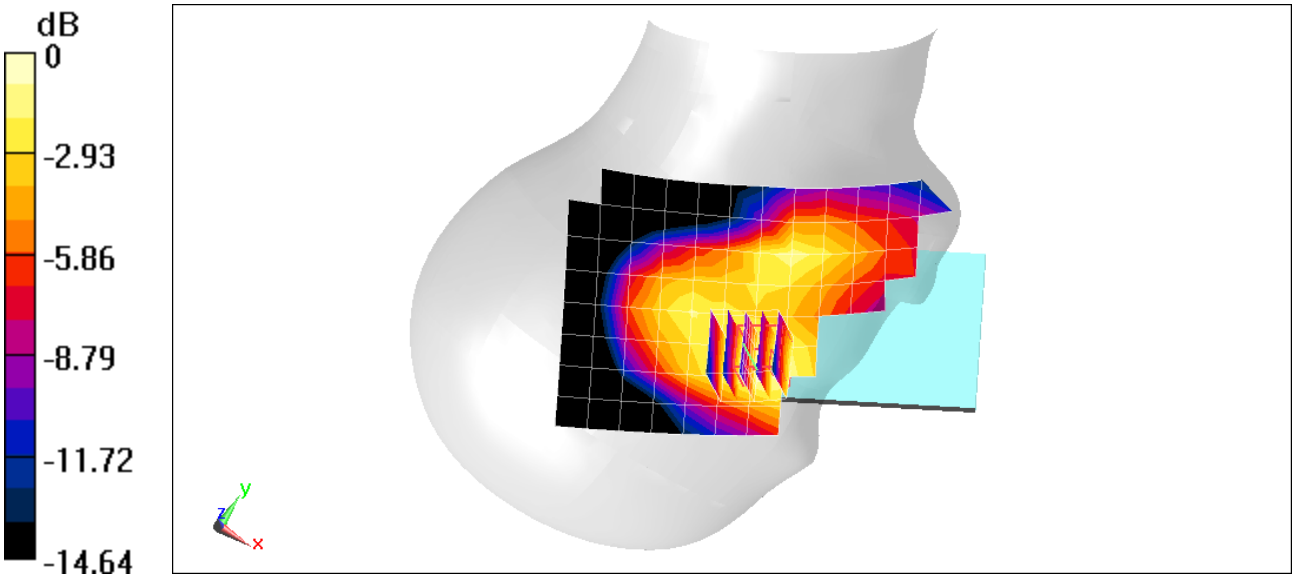
Communication System: UID 0, _LTE Band 66 (AWS); Frequency: 1745 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1745 MHz; σ = 1.355 S/m; ε_r = 40.303; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-07-2019; Ambient Temp: 21.6°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7406; ConvF(8.57, 8.57, 8.57) @ 1745 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Right 20; Type: QD 000 P40 CD; Serial: 1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 66 (AWS), Right Head, Cheek, Mid.ch, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset, with Dual Display Cover Position #3

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.32 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.343 W/kg
SAR(1 g) = 0.222 W/kg



0 dB = 0.300 W/kg = -5.23 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

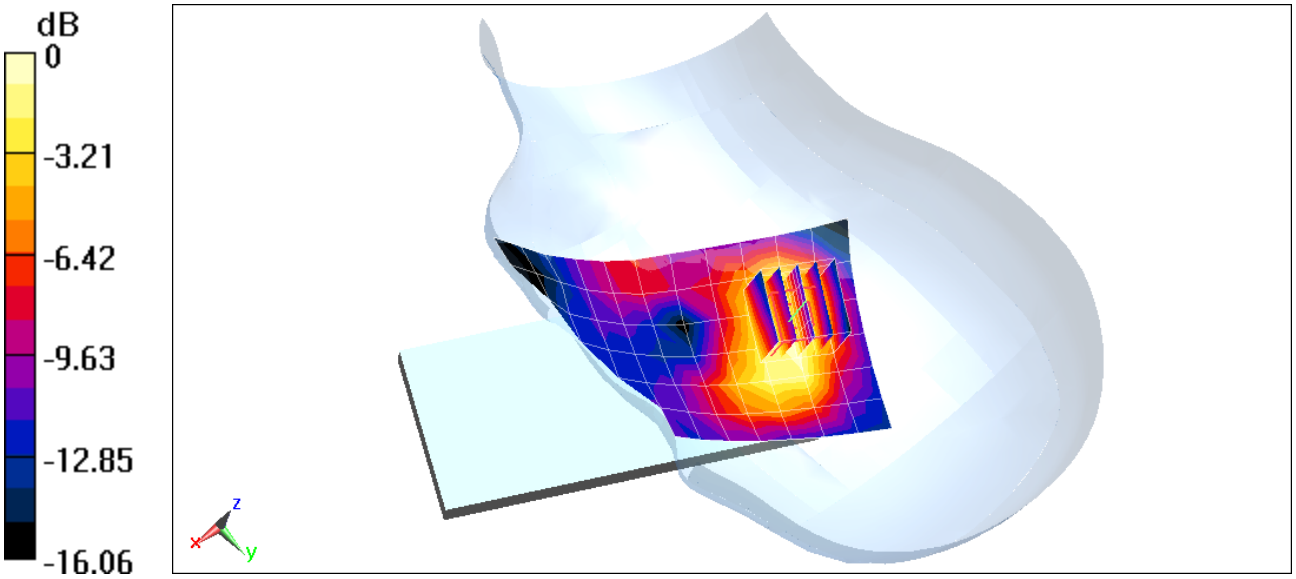
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1882.5 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1882.5 MHz; σ = 1.43 S/m; ε_r = 38.997; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-05-2019; Ambient Temp: 24.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7409; ConvF(8.01, 8.01, 8.01) @ 1882.5 MHz; Calibrated: 6/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/20/2019
Phantom: SAM Left; Type: QD000P40CA; Serial: TP:82355
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 25 (PCS), Left Head, Tilt, Mid.ch, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset, with Dual Display Cover Position #3

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.61 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.316 W/kg
SAR(1 g) = 0.189 W/kg



0 dB = 0.256 W/kg = -5.92 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

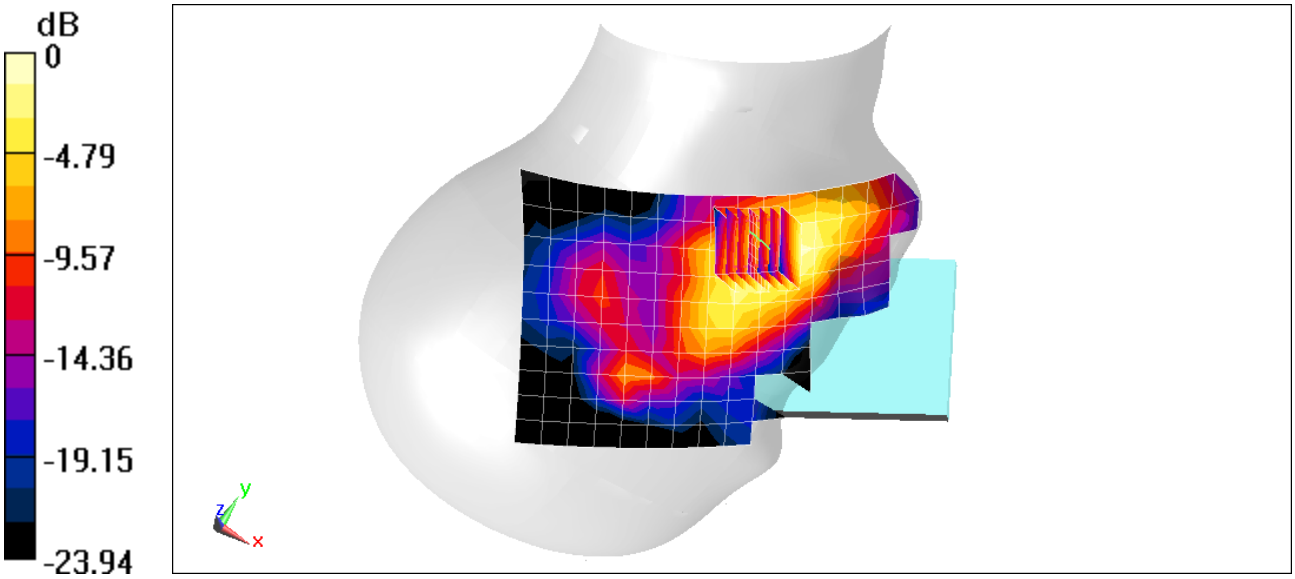
Communication System: UID 0, LTE Band 30; Frequency: 2310 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2310 MHz; σ = 1.725 S/m; ε_r = 39.005; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-27-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7538; ConvF(7.79, 7.79, 7.79) @ 2310 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 30, Right Head, Cheek, Mid.ch, 10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset, without Accessory

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.56 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.568 W/kg
SAR(1 g) = 0.321 W/kg



0 dB = 0.473 W/kg = -3.25 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

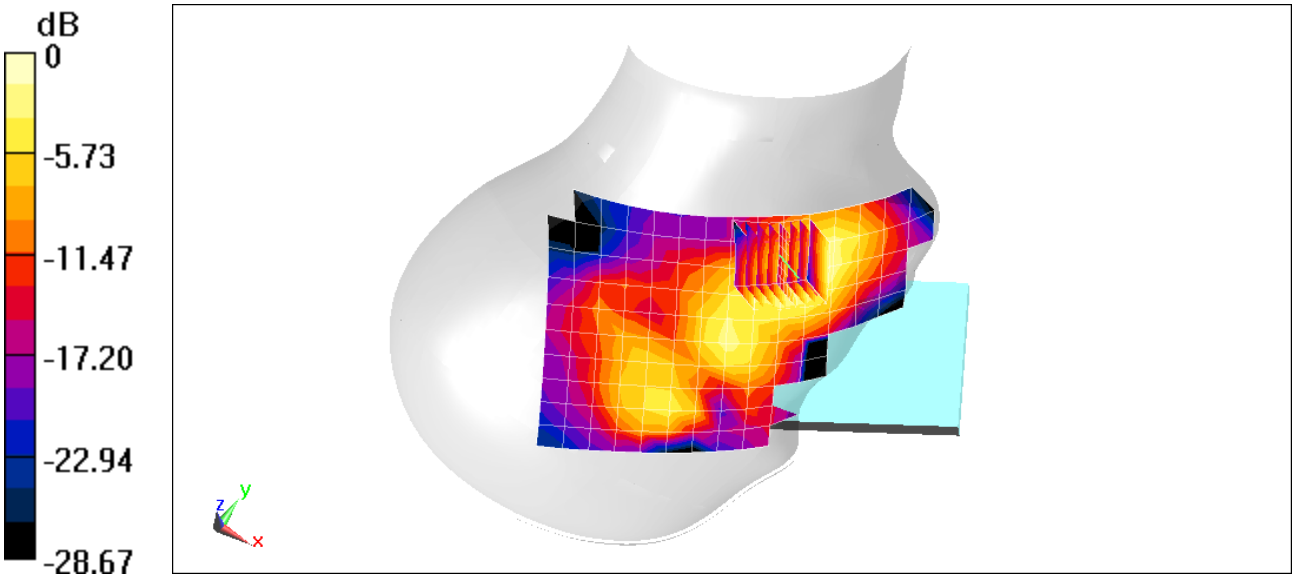
Communication System: UID 0, _LTE Band 7; Frequency: 2510 MHz; Duty Cycle: 1:1
Medium: 2450 MHz Head Medium parameters used (interpolated):
f = 2510 MHz; σ = 1.903 S/m; ε_r = 39.249; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date:09-05-2109; Ambient Temp: 22.2°C; Tissue Temp:20.3°C

Probe: EX3DV4 - SN7410; ConvF(7.47, 7.47, 7.47) @ 2510 MHz; Calibrated: 7/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2019
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1966
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 7, Right Head, Cheek, Low.ch, 20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset, with Dual Display Cover Position #3

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.84 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.520 W/kg
SAR(1 g) = 0.292 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03349

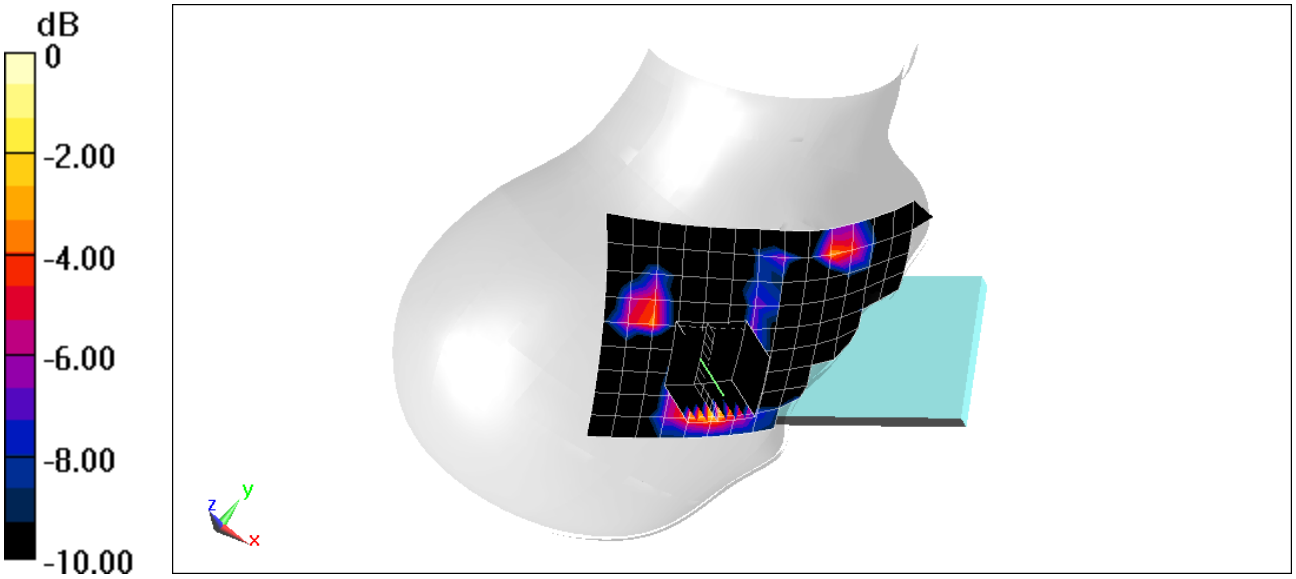
Communication System: UID 0, LTE Band 48; Frequency: 3646.7 MHz; Duty Cycle: 1:1.58
Medium: 3500-3700 Head Medium parameters used (interpolated):
f = 3646.7 MHz; σ = 2.958 S/m; ε_r = 39.332; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-03-2019; Ambient Temp: 21.2°C; Tissue Temp: 20.1°C

Probe: EX3DV4 - SN3589; ConvF(6.02, 6.02, 6.02) @ 3646.7 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 7/11/2019
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 48, Right Head, Cheek, Mid-High.ch, 20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset with Dual Display Cover Position #3

Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 4.293 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.123 W/kg
SAR(1 g) = 0.046 W/kg



0 dB = 0.0888 W/kg = -10.52 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

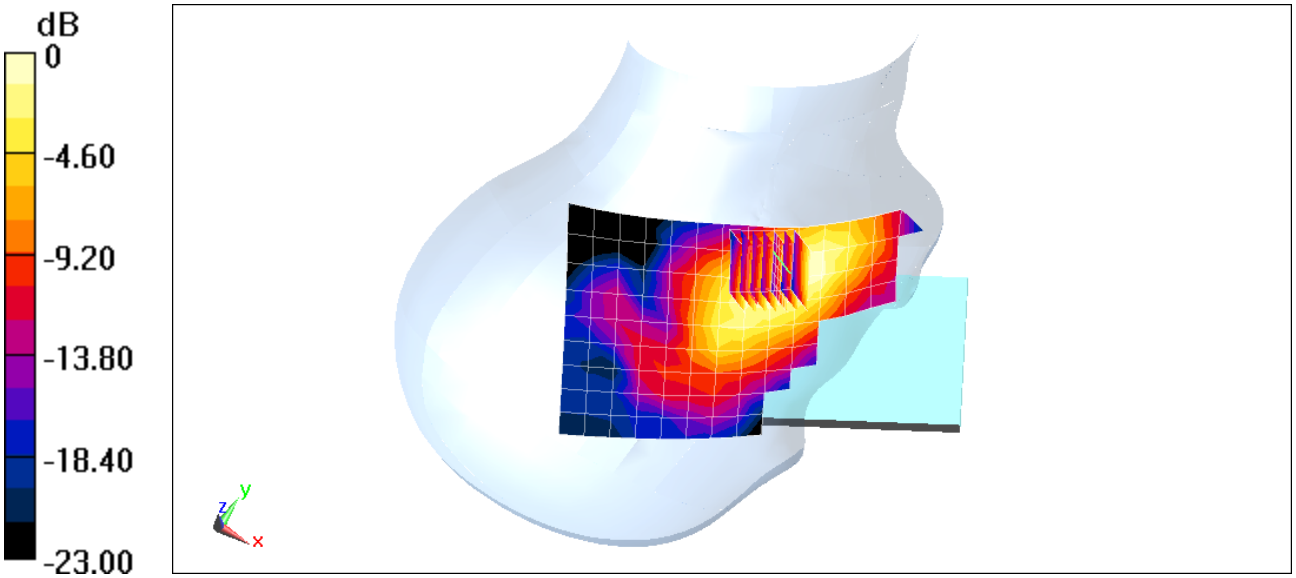
Communication System: UID 0, _LTE Band 41 (Class 2); Frequency: 2593 MHz; Duty Cycle: 1:2.31
Medium: 2450 Head Medium parameters used (interpolated):
f = 2593 MHz; σ = 1.979 S/m; ε_r = 39.374; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-04-2019; Ambient Temp: 23.0°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7547; ConvF(6.99, 6.99, 6.99) @ 2593 MHz; Calibrated: 7/15/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 7/11/2019
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 41, PC2, ULCA, Right Head, Cheek, Mid.ch, without Accessory
PCC: Ch. 40620, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset
SCC: Ch. 40422, 20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset

Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.55 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.616 W/kg
SAR(1 g) = 0.341 W/kg



0 dB = 0.506 W/kg = -2.96 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03240

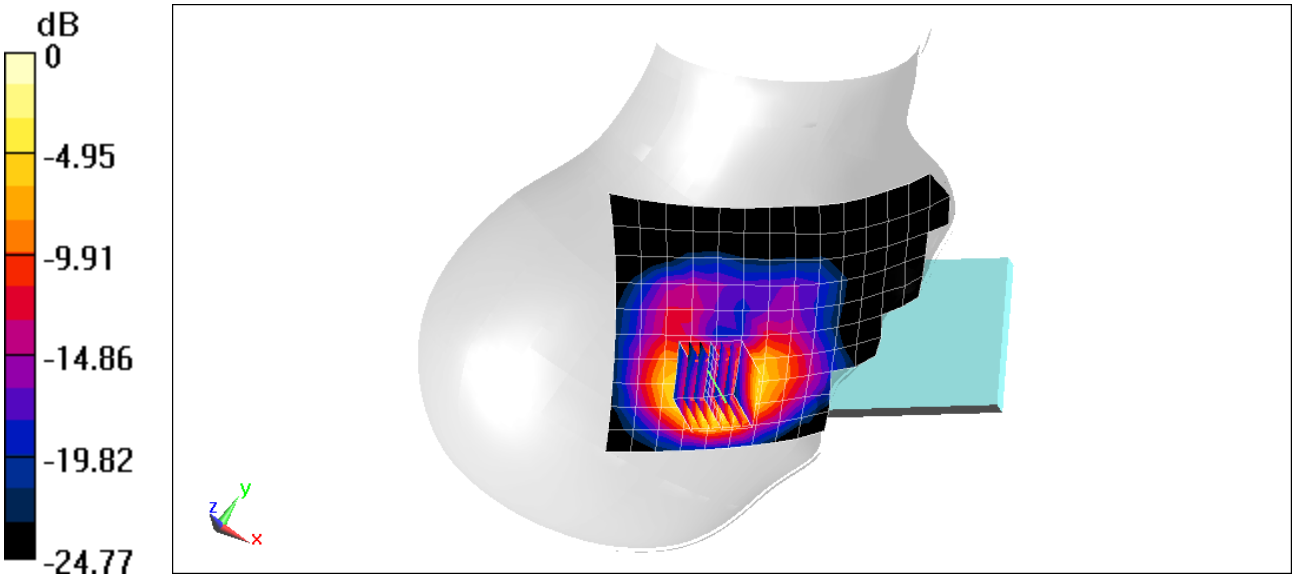
Communication System: UID 0, _IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 835-2600 Head Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.856 S/m; ε_r = 39.601; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-26-2019; Ambient Temp: 22.8°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN7547; ConvF(7.17, 7.17, 7.17) @ 2437 MHz; Calibrated: 7/15/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 7/11/2019
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: IEEE 802.11b, Antenna 2, 22 MHz Bandwidth,
Right Head, Cheek, Ch 6, 1 Mbps, without Accessory

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.348 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 1.65 W/kg
SAR(1 g) = 0.628 W/kg



0 dB = 1.22 W/kg = 0.86 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03257

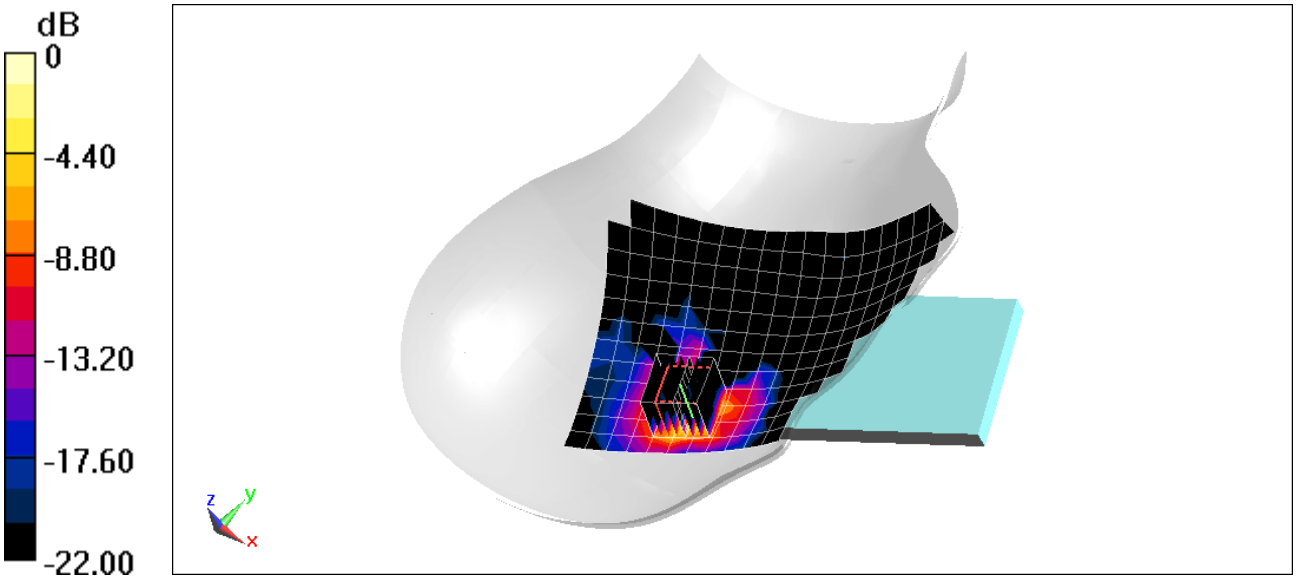
Communication System: UID 0, 802.11n 5.2-5.8 GHz Band; Frequency: 5510 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used (interpolated):
f = 5510 MHz; σ = 4.91 S/m; ε_r = 34.513; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-10-2019; Ambient Temp: 23.9°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7406; ConvF(4.94, 4.94, 4.94) @ 5510 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Right 20; Type: QD 000 P40 CD; Serial: 1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: IEEE 802.11n, U-NII-2C, 40 MHz Bandwidth, Right Head, Cheek, Ch 102, 13.5 Mbps, with Dual Display Cover Position #3

Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 1.239 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.40 W/kg
SAR(1 g) = 0.292 W/kg



0 dB = 0.736 W/kg = -1.33 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03240

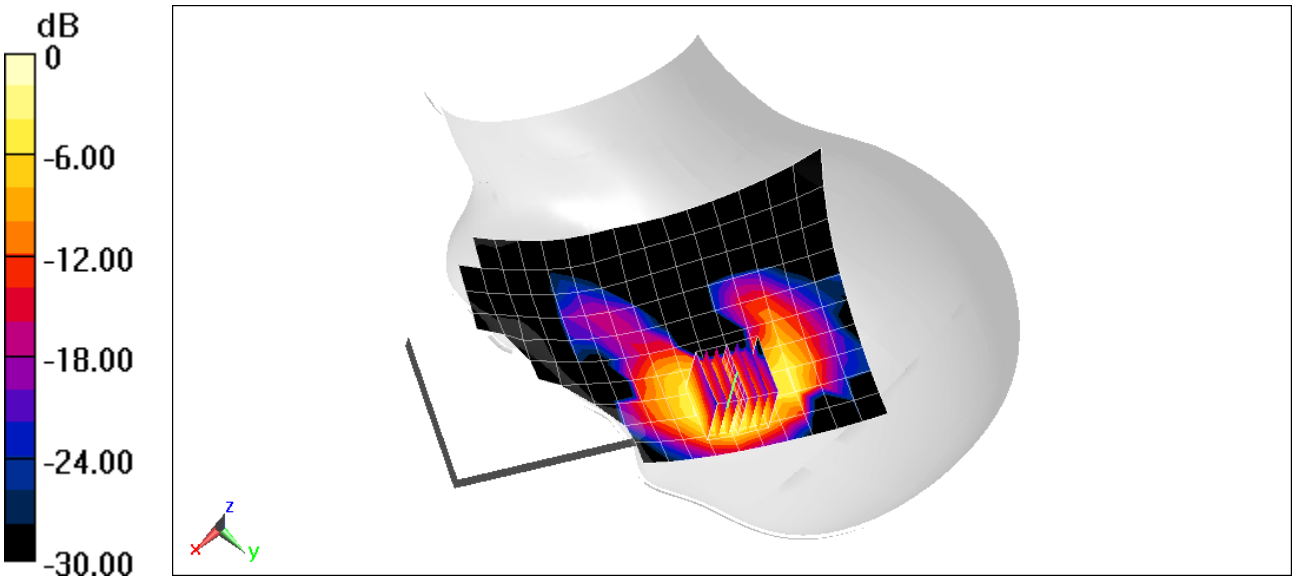
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.297
Medium: 835-2600 Head Medium parameters used (interpolated):
f = 2441 MHz; σ = 1.859 S/m; ε_r = 39.597; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-26-2019; Ambient Temp: 22.8°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN7547; ConvF(7.17, 7.17, 7.17) @ 2441 MHz; Calibrated: 7/15/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 7/11/2019
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: Bluetooth, Left Head, Cheek, Ch 39, 1 Mbps without Accessory

Area Scan (11x19x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.807 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.244 W/kg
SAR(1 g) = 0.105 W/kg



0 dB = 0.175 W/kg = -7.57 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03349

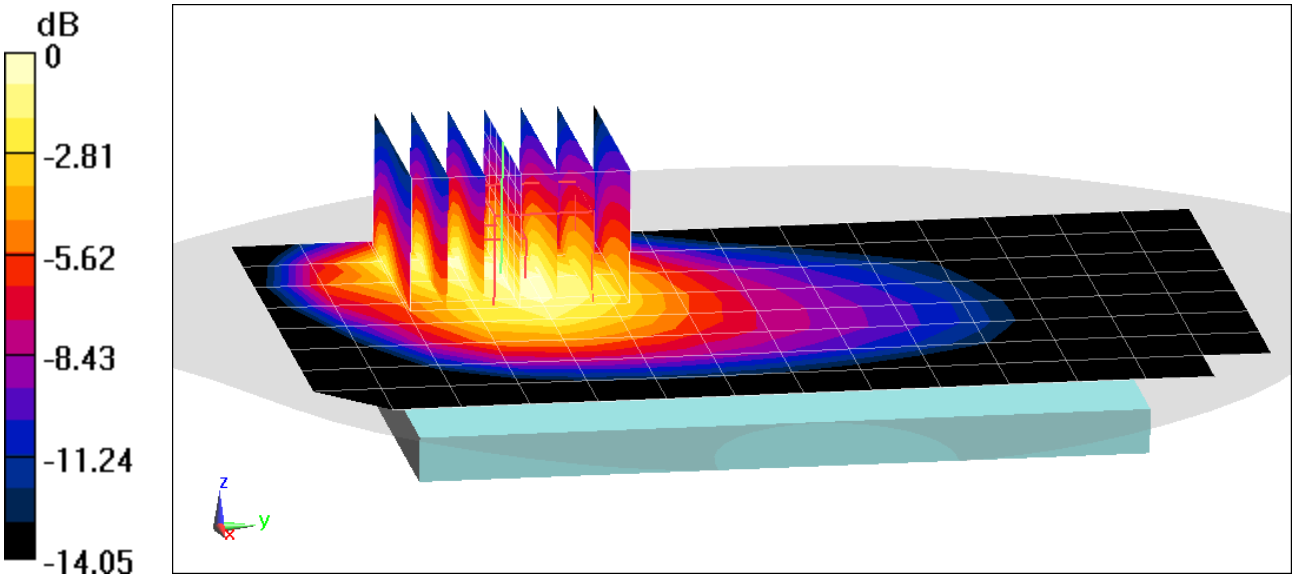
Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.948 S/m; ε_r = 56.891; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 21.0°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.78, 9.78, 9.78) @ 820.1 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 30; Type: QD 000 P40 CD; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: Cell. CDMA BC10, Rule Part 90S, Body SAR,
Back side, Mid.ch, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.22 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.24 W/kg
SAR(1 g) = 0.746 W/kg



0 dB = 1.03 W/kg = 0.13 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03349

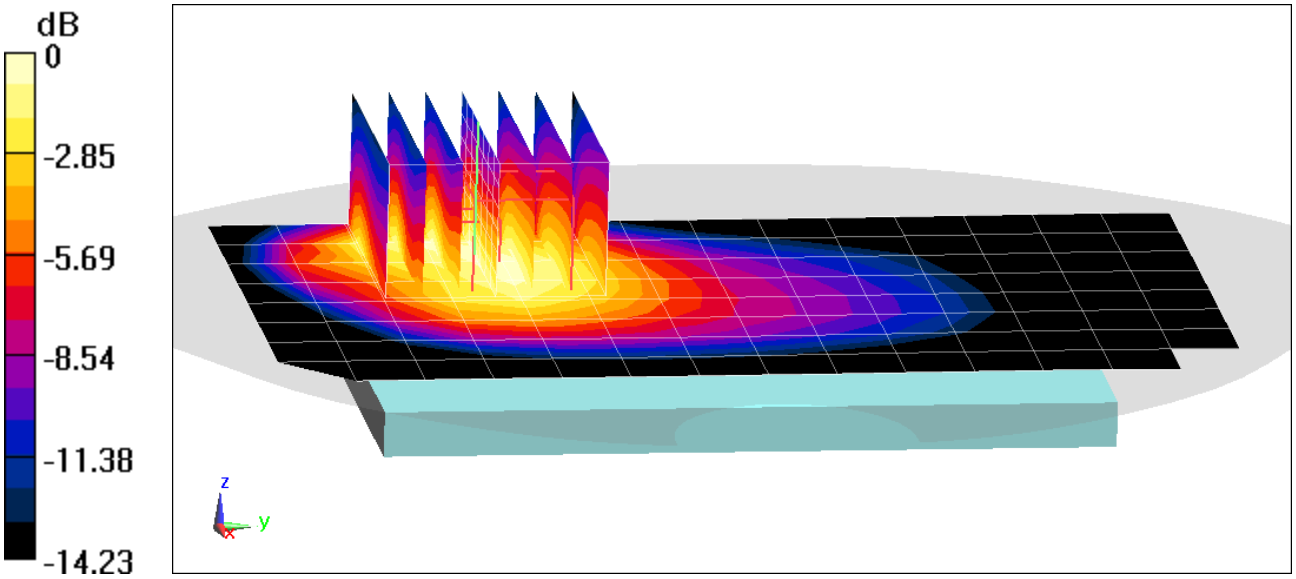
Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.948 S/m; ε_r = 56.891; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 21.0°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.78, 9.78, 9.78) @ 820.1 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 30; Type: QD 000 P40 CD; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: Cell. EVDO BC10, Rev 0, Rule Part 90S, Body SAR,
Back side, Mid.ch, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.13 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.733 W/kg



0 dB = 1.02 W/kg = 0.09 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03349

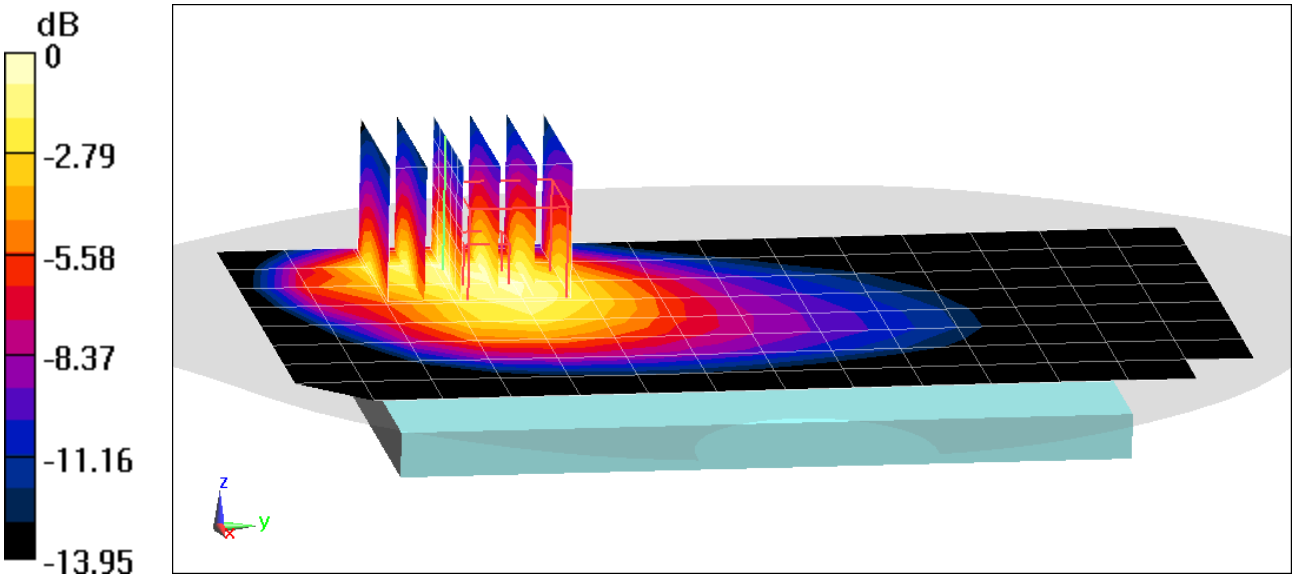
Communication System: UID 0, CDMA; Frequency: 824.7 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 824.7 MHz; σ = 0.95 S/m; ε_r = 56.885; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 21.0°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.78, 9.78, 9.78) @ 824.7 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 30; Type: QD 000 P40 CD; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: Cell. CDMA, Body SAR, Rule Part 22H,
Back side, Low.ch, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.54 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.811 W/kg



0 dB = 1.13 W/kg = 0.53 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03349

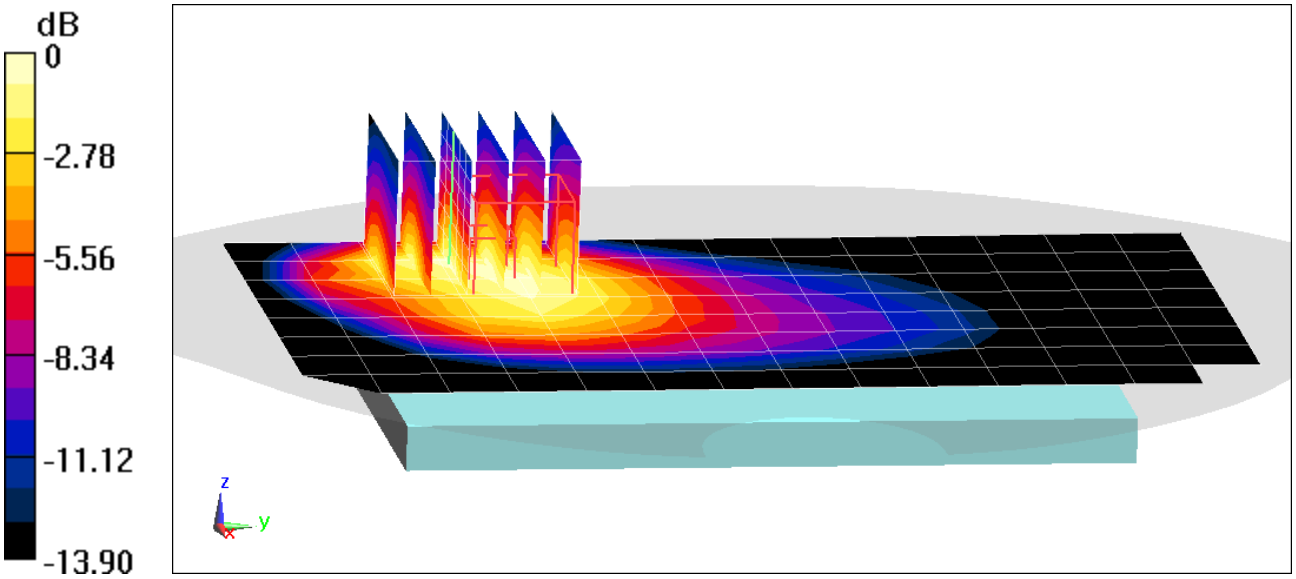
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.955 S/m; ε_r = 56.869; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 21.0°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.78, 9.78, 9.78) @ 836.52 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 30; Type: QD 000 P40 CD; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: Cell. EVDO, Rev 0, Body SAR, Rule Part 22H,
Back side, Mid.ch, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.83 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.773 W/kg



0 dB = 1.07 W/kg = 0.29 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

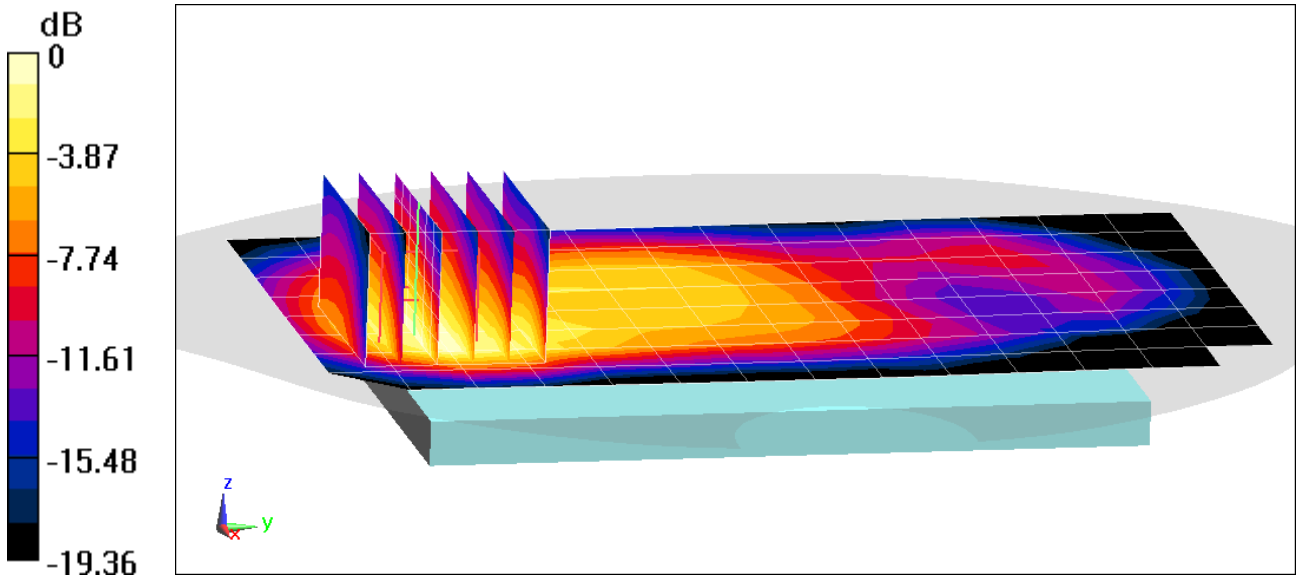
Communication System: UID 0, CDMA; Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1851.25 MHz; σ = 1.528 S/m; ε_r = 51.215; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-11-2019; Ambient Temp: 20.9°C; Tissue Temp: 20.9°C

Probe: EX3DV4 - SN7488; ConvF(8.37, 8.37, 8.37) @ 1851.25 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: PCS CDMA, Body SAR, Back side, Low.ch, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.78 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.675 W/kg



0 dB = 0.786 W/kg = -1.05 dBW/kg

0 dB = 0.921 W/kg = -0.36 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 12654

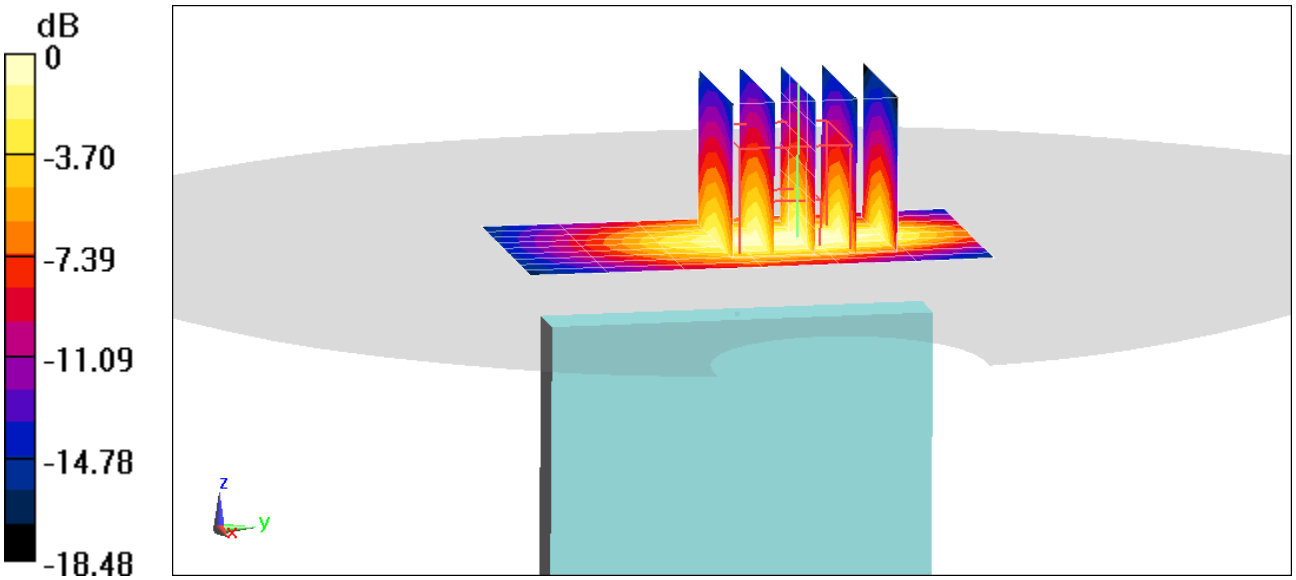
Communication System: UID 0, CDMA; Frequency: 1908.75 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1908.75 MHz; σ = 1.575 S/m; ε_r = 53.423; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-28-2019; Ambient Temp: 20.3°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7488; ConvF(8.37, 8.37, 8.37) @ 1908.75 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: PCS EVDO, Rev 0, Body SAR, Bottom Edge, High.ch, without Accessory

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.70 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 2.08 W/kg
SAR(1 g) = 1.17 W/kg



0 dB = 1.76 W/kg = 2.46 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03349

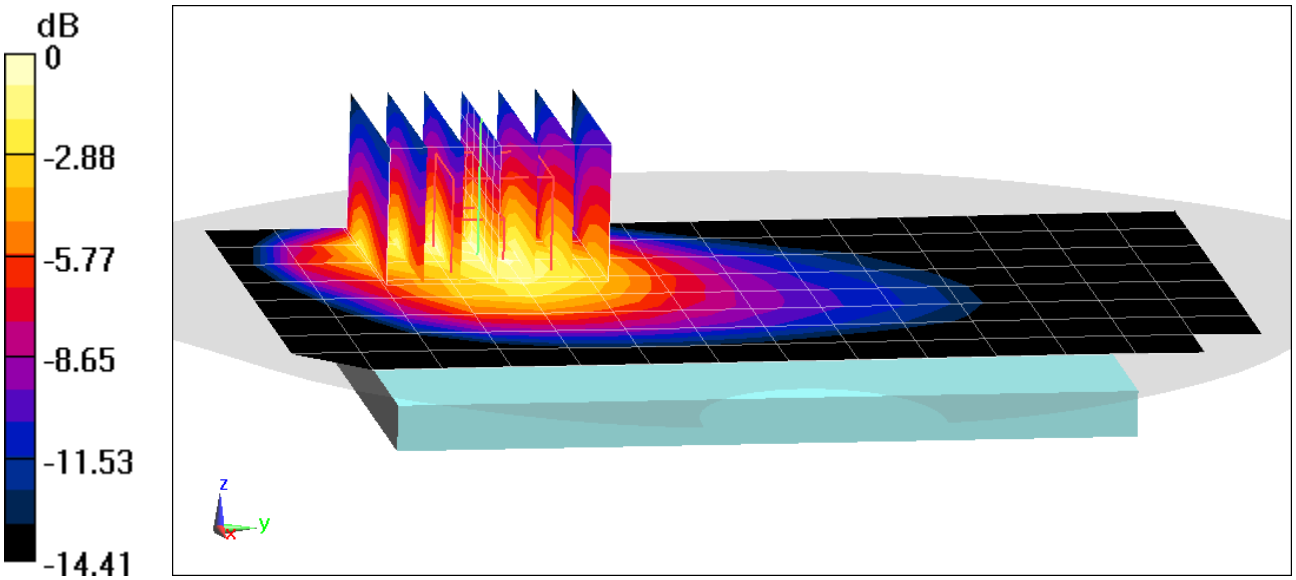
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 848.8 MHz; Duty Cycle: 1:2.76
Medium: 835 Body Medium parameters used (interpolated):
f = 848.8 MHz; σ = 0.961 S/m; ε_r = 56.854; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 21.0°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.78, 9.78, 9.78) @ 848.8 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 30; Type: QD 000 P40 CD; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: GPRS 850, Body SAR, Back side, High.ch, 3 Tx Slots, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan(7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.19 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.59 W/kg
SAR(1 g) = 0.953 W/kg



0 dB = 1.35 W/kg = 1.30 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

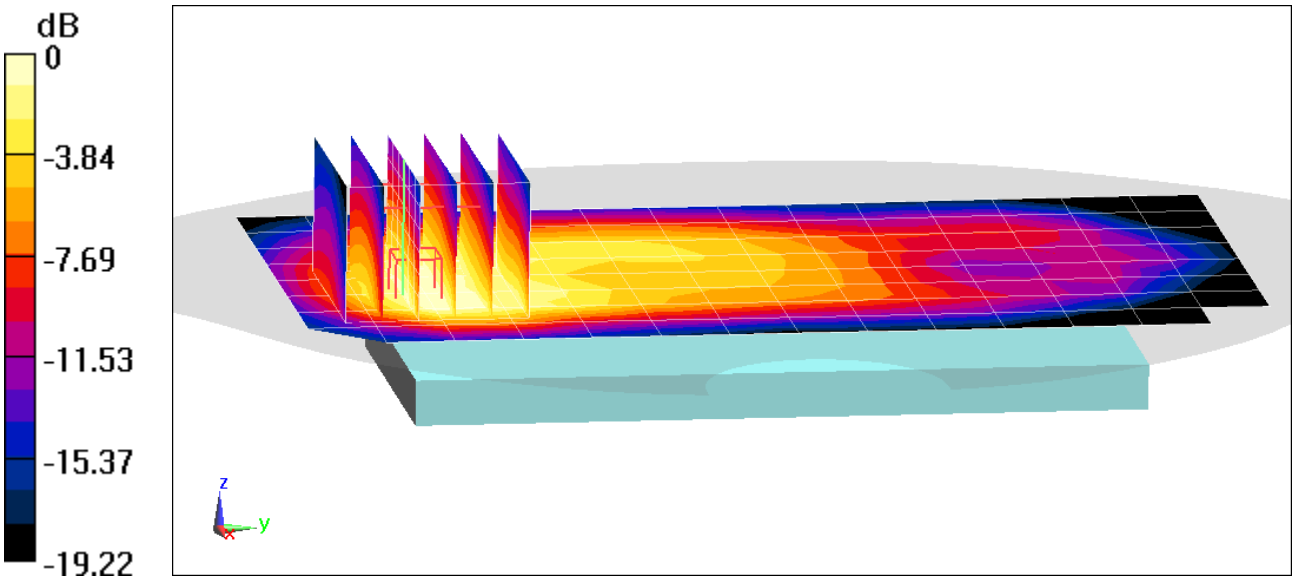
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.548 S/m; ε_r = 51.185; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-11-2019; Ambient Temp: 20.9°C; Tissue Temp: 20.9°C

Probe: EX3DV4 - SN7488; ConvF(8.37, 8.37, 8.37) @ 1880 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: GPRS 1900, Body SAR, Back side, Mid.ch, 3 Tx Slots, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.56 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.851 W/kg
SAR(1 g) = 0.486 W/kg



0 dB = 0.656 W/kg = -1.83 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

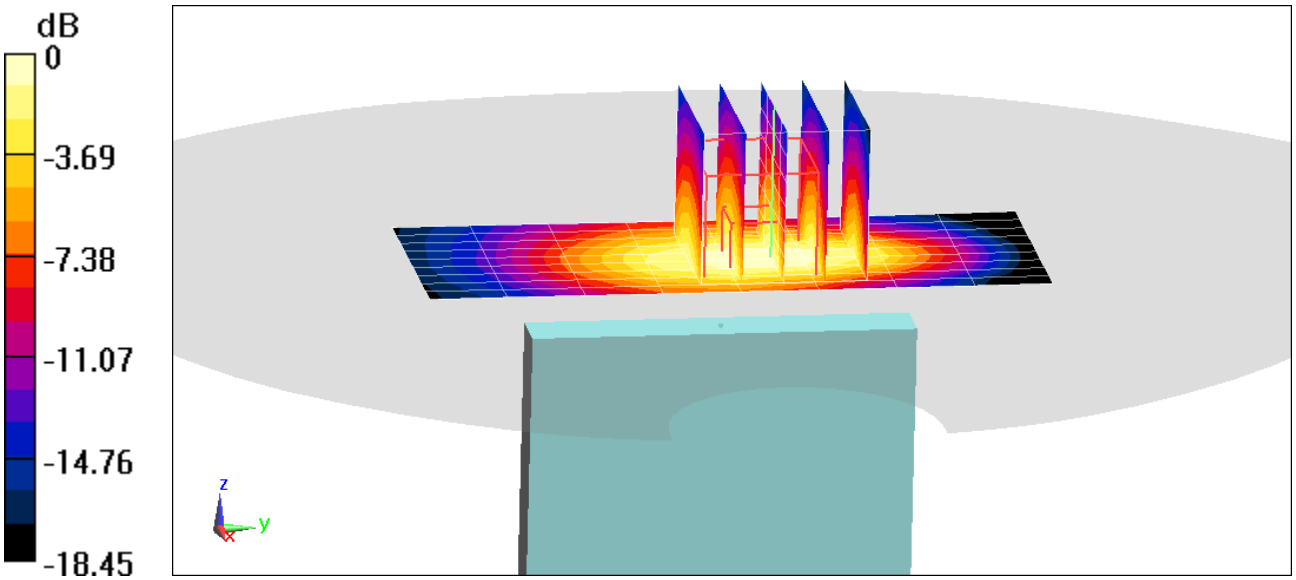
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.558 S/m; ε_r = 54.661; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-25-2019; Ambient Temp: 20.0°C; Tissue Temp: 20.1°C

Probe: EX3DV4 - SN7488; ConvF(8.37, 8.37, 8.37) @ 1880 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: GPRS 1900, Body SAR, Bottom Edge, Mid.ch, 3 Tx Slots, without Accessory

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.26 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.99 W/kg
SAR(1 g) = 1.14 W/kg



0 dB = 1.68 W/kg = 2.25 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03349

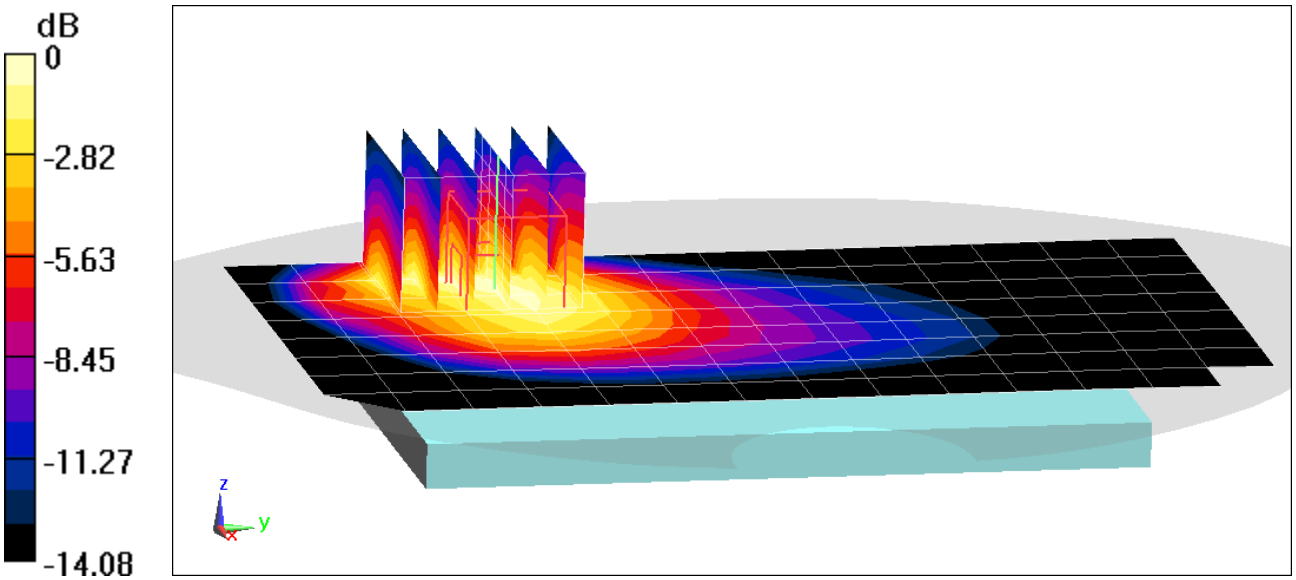
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.955 S/m; ε_r = 56.869; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 21.0°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.78, 9.78, 9.78) @ 836.6 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 30; Type: QD 000 P40 CD; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: UMTS 850, Body SAR, Back side, Mid.ch, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.42 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 1.49 W/kg
SAR(1 g) = 0.877 W/kg



0 dB = 1.22 W/kg = 0.86 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

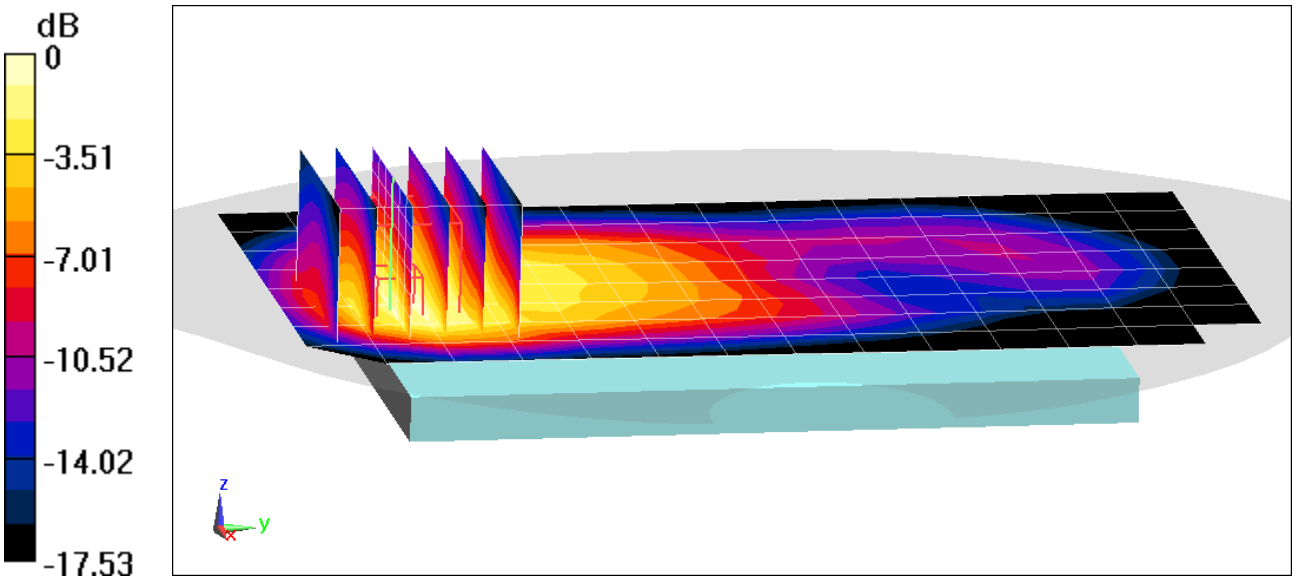
Communication System: UID 0, UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1752.6 MHz; σ = 1.481 S/m; ε_r = 52.223; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-22-2019; Ambient Temp: 22.4°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(7.85, 7.85, 7.85) @ 1752.6 MHz; Calibrated: 6/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/20/2019
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: UMTS 1750, Body SAR, Back side, High.ch, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.66 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.778 W/kg



0 dB = 1.16 W/kg = 0.64 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

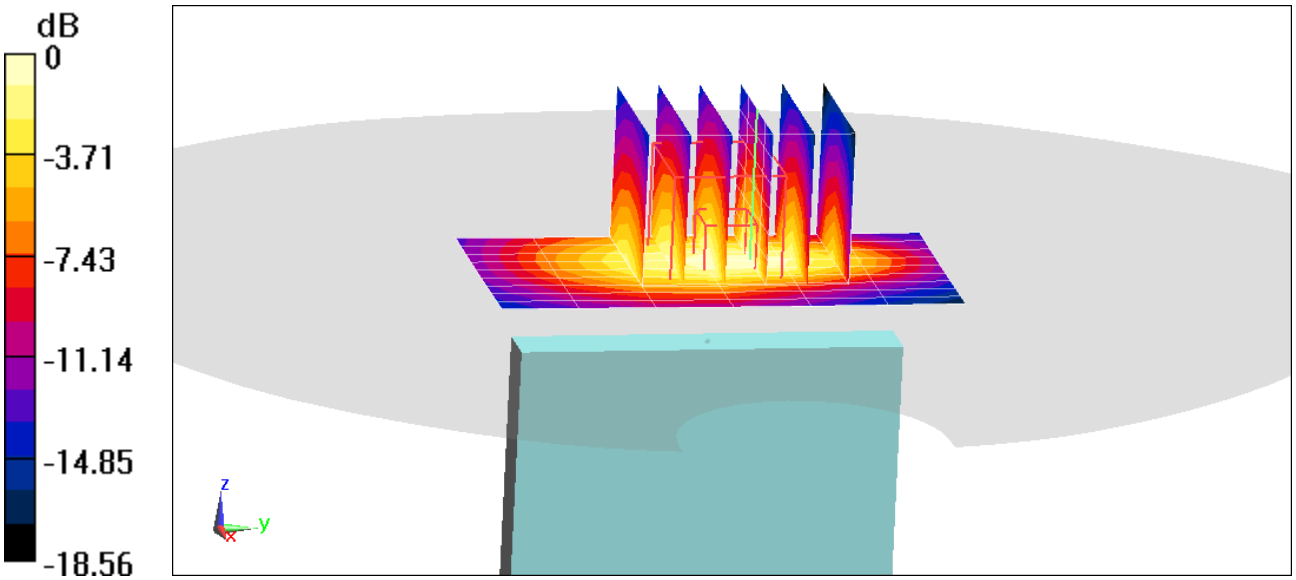
Communication System: UID 0, _UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1752.6 MHz; σ = 1.481 S/m; ε_r = 52.223; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-22-2019; Ambient Temp: 22.4°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(7.85, 7.85, 7.85) @ 1752.6 MHz; Calibrated: 6/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/20/2019
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: UMTS 1750, Body SAR, Bottom Edge, High.ch, without Accessory

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.22 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 2.22 W/kg
SAR(1 g) = 1.25 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 12654

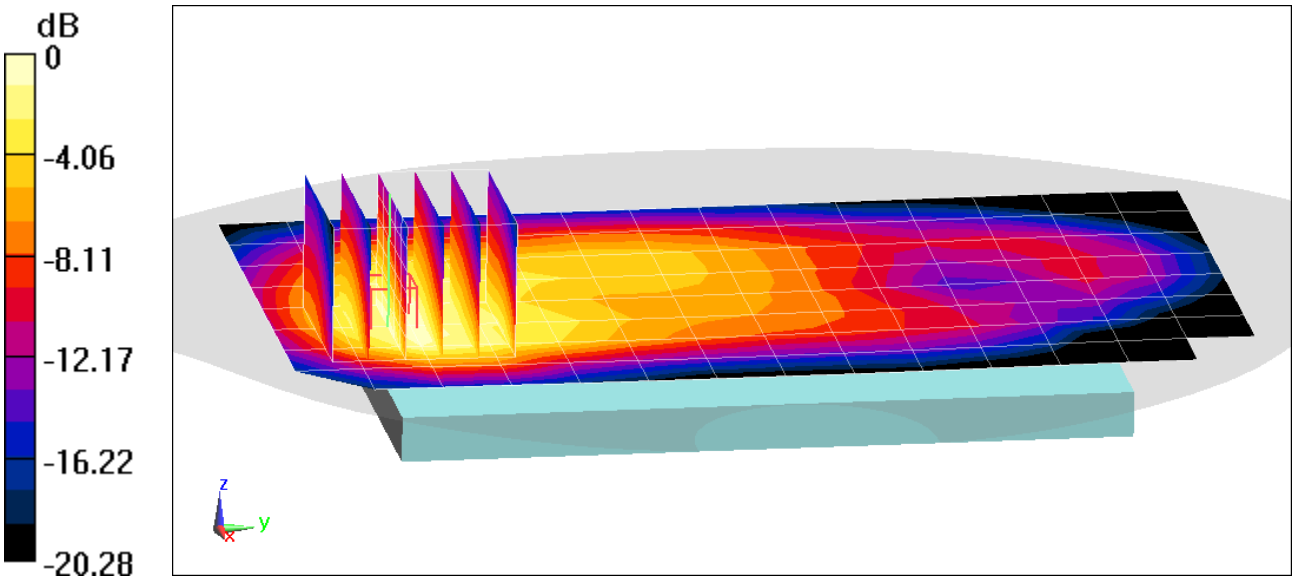
Communication System: UID 0, UMTS; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1907.6 MHz; σ = 1.572 S/m; ε_r = 51.497; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-05-2019; Ambient Temp: 22.5°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7357; ConvF(7.93, 7.93, 7.93) @ 1907.6 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: UMTS 1900, Body SAR, Back side, High.ch, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.67 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.654 W/kg



0 dB = 0.958 W/kg = -0.19 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 12654

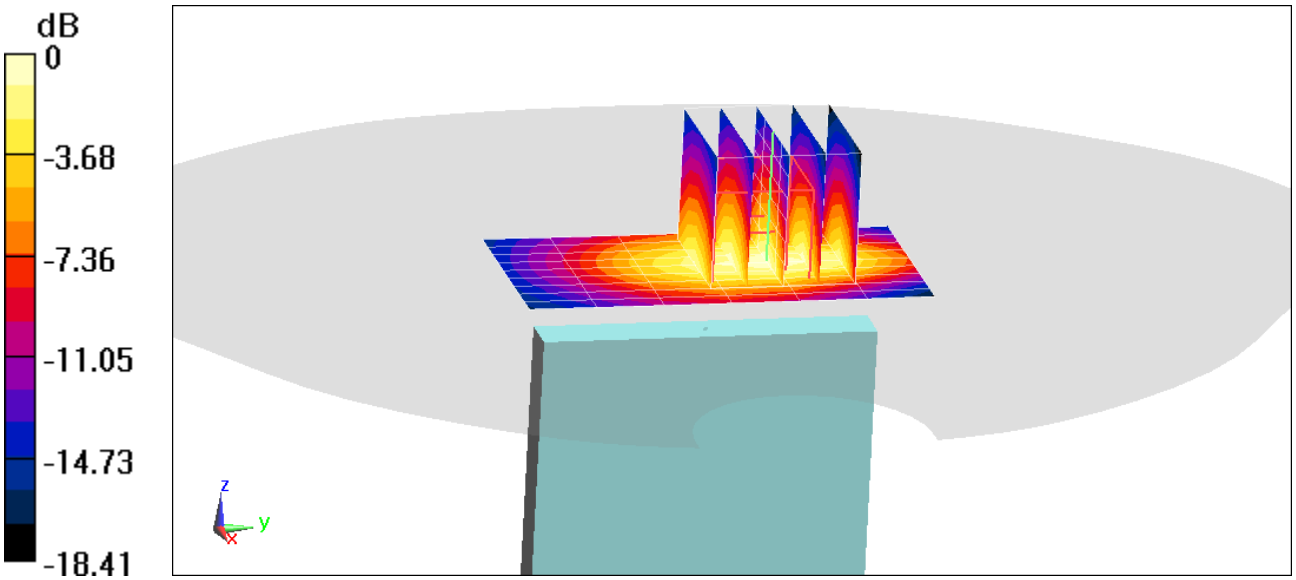
Communication System: UID 0, _UMTS; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1907.6 MHz; σ = 1.573 S/m; ε_r = 53.426; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-28-2019; Ambient Temp: 20.3°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7488; ConvF(8.37, 8.37, 8.37) @ 1907.6 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: UMTS 1900, Body SAR, Bottom Edge, High.ch, without Accessory

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.61 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 2.05 W/kg
SAR(1 g) = 1.16 W/kg



0 dB = 1.73 W/kg = 2.38 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

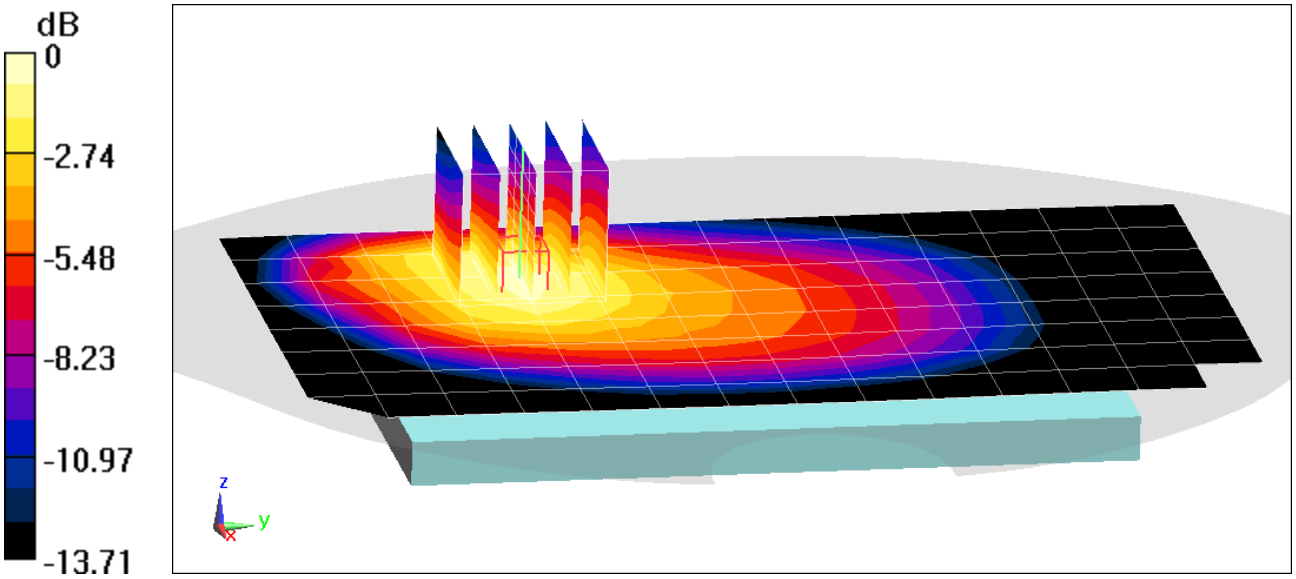
Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 680.5 MHz; σ = 0.935 S/m; ε_r = 54.352; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 22.3°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7357; ConvF(10.19, 10.19, 10.19) @ 680.5 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 71, Body SAR, Back side, Mid.ch, 20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.56 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.929 W/kg
SAR(1 g) = 0.578 W/kg



0 dB = 0.794 W/kg = -1.00 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

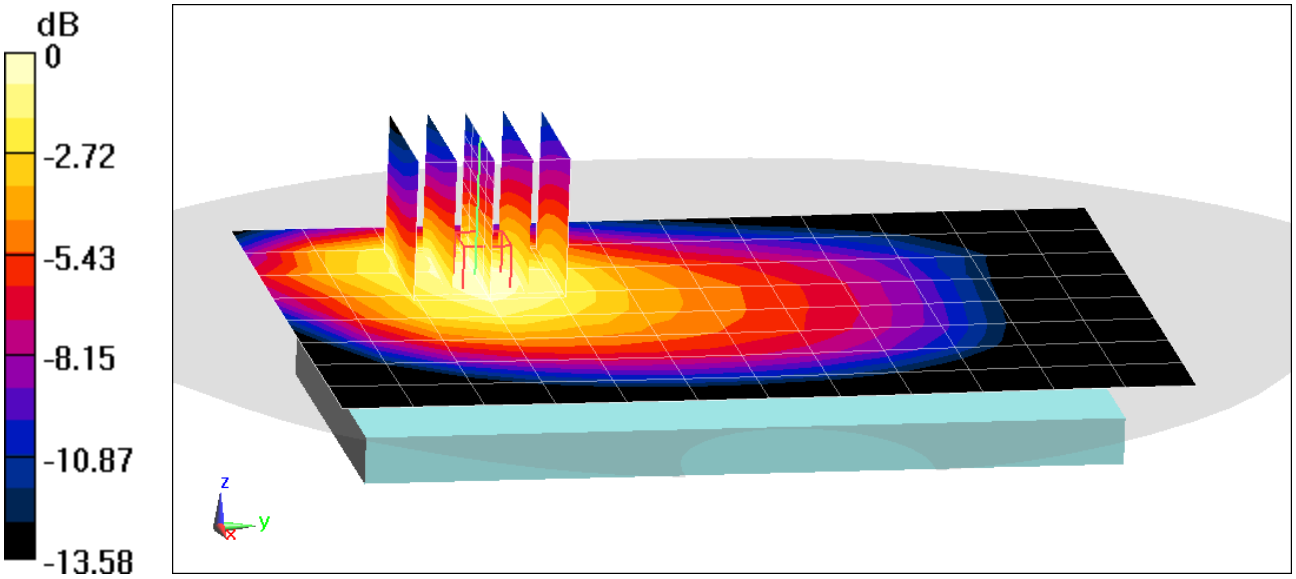
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.944 S/m; ε_r = 54.27; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 22.3°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7357; ConvF(10.19, 10.19, 10.19) @ 707.5 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 12, Body SAR, Back side, Mid.ch, 10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset, without Accessory

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.62 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.948 W/kg
SAR(1 g) = 0.588 W/kg



0 dB = 0.808 W/kg = -0.93 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

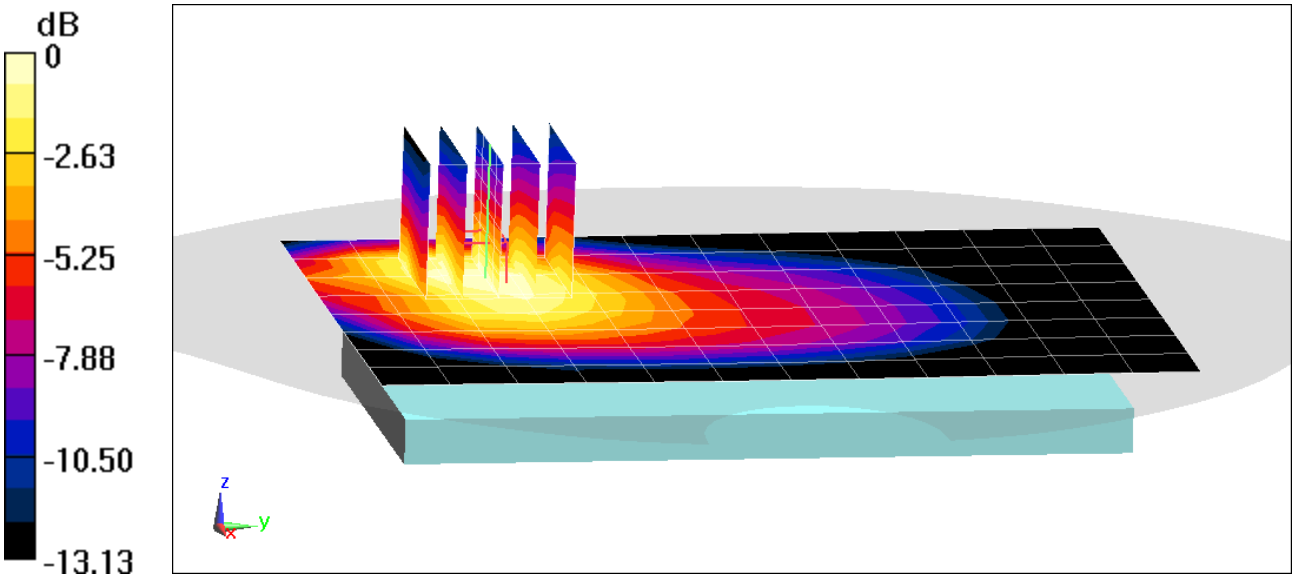
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 782 MHz; σ = 0.975 S/m; ε_r = 54.096; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 22.3°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7357; ConvF(10.19, 10.19, 10.19) @ 782 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 13, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset, without Accessory

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.00 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.770 W/kg



0 dB = 1.05 W/kg = 0.21 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

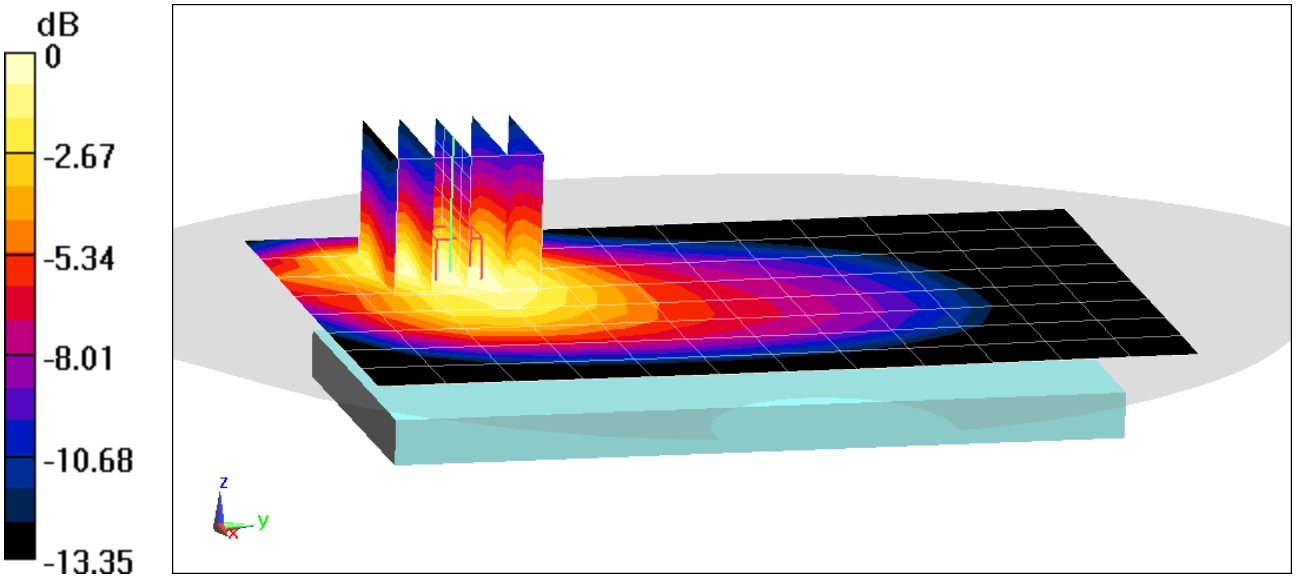
Communication System: UID 0, LTE Band 14; Frequency: 793 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 793 MHz; σ = 0.98 S/m; ε_r = 54.064; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 22.3°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7357; ConvF(10.19, 10.19, 10.19) @ 793 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 14, Body SAR, Back side, Mid.ch, 10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset, without Accessory

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.81 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.696 W/kg



0 dB = 0.970 W/kg = -0.13 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03349

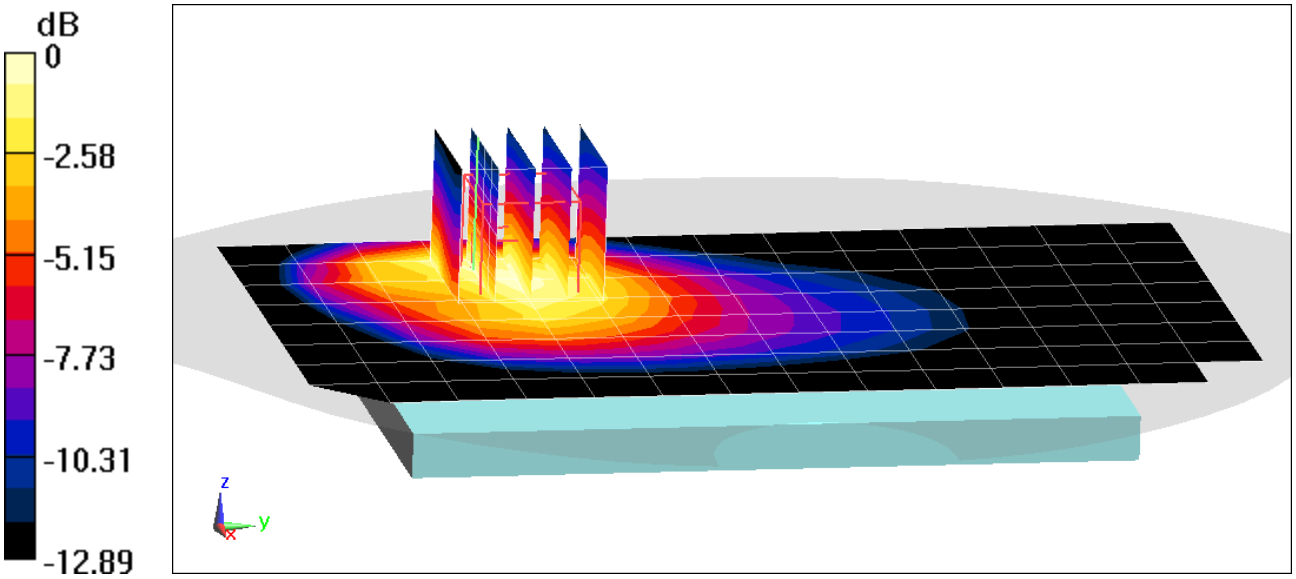
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.985 S/m; ε_r = 54.15; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-05-2019; Ambient Temp: 20.3°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7488; ConvF(11.03, 11.03, 11.03) @ 831.5 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 26 (Cell.), Body SAR, Back side, Mid.ch,
15 MHz Bandwidth, QPSK, 1 RB, 74 RB Offset, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.72 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 0.848 W/kg



0 dB = 1.20 W/kg = 0.79 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03349

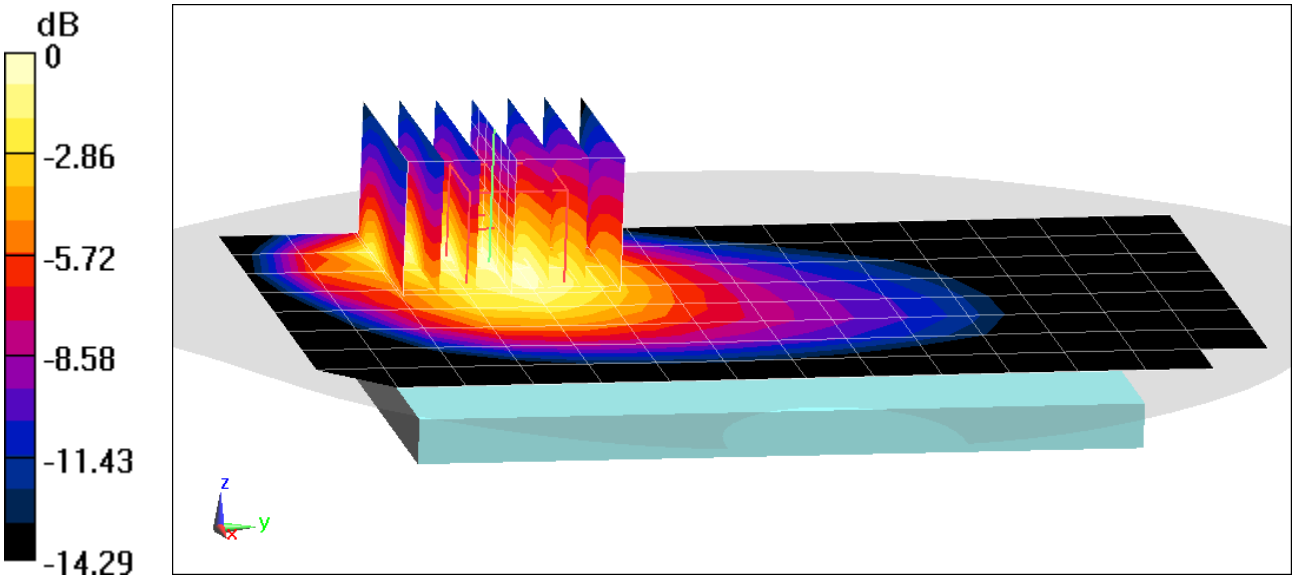
Communication System: UID 0, LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.955 S/m; ε_r = 56.869; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 21.0°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.78, 9.78, 9.78) @ 836.5 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 30; Type: QD 000 P40 CD; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 5 (Cell.), ULCA, Body SAR, Back side, Mid.ch, without Accessory
PCC: Ch.20525, 10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset
SCC: Ch.20453, 5 MHz Bandwidth, QPSK, 1 RB, 24 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.91 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.825 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

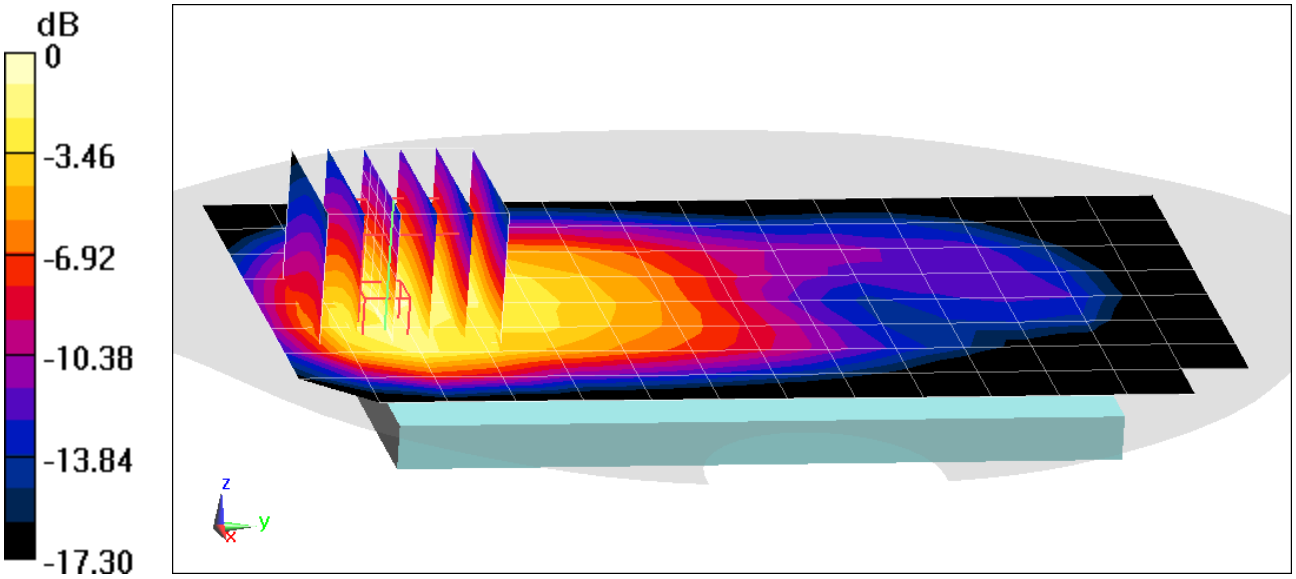
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1770 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1770 MHz; σ = 1.493 S/m; ε_r = 52.193; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-22-2019; Ambient Temp: 22.4°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(7.85, 7.85, 7.85) @ 1770 MHz; Calibrated: 6/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/20/2019
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 66 (AWS), Body SAR, Back side, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset, without Accessory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.31 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.837 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

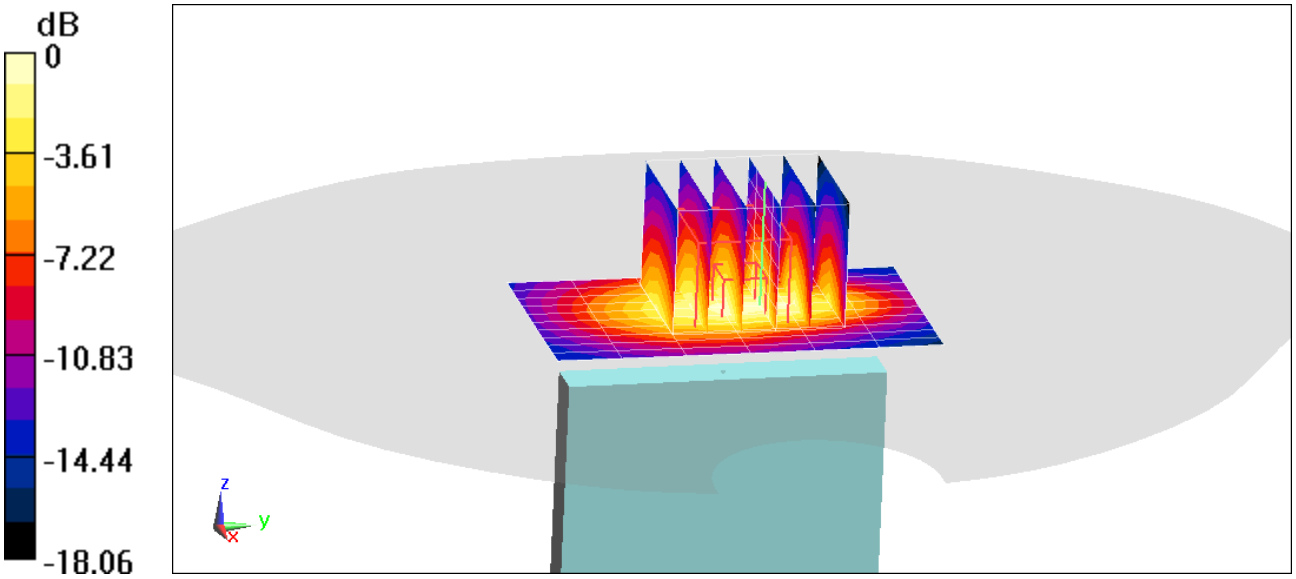
Communication System: UID 0, _LTE Band 66 (AWS); Frequency: 1770 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1770 MHz; σ = 1.493 S/m; ε_r = 52.193; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-22-2019; Ambient Temp: 22.4°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(7.85, 7.85, 7.85) @ 1770 MHz; Calibrated: 6/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/20/2019
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 66 (AWS), Body SAR, Bottom Edge, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset, without Accessory

Area Scan (11x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.14 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 2.18 W/kg
SAR(1 g) = 1.23 W/kg



0 dB = 1.81 W/kg = 2.58 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03349

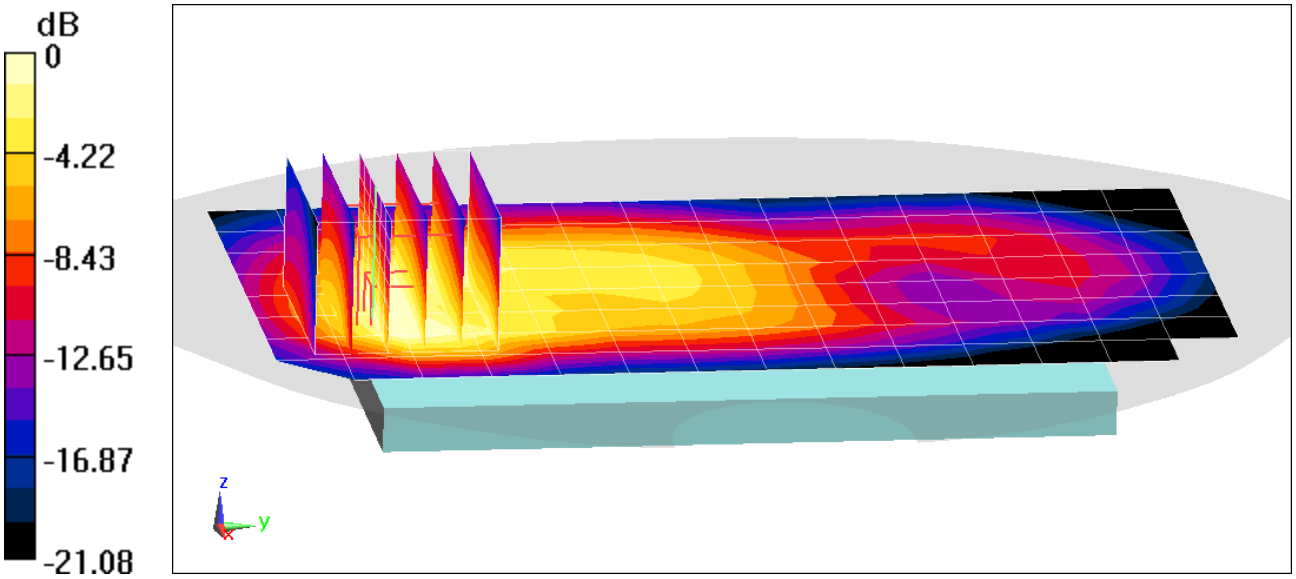
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1905 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1905 MHz; σ = 1.57 S/m; ε_r = 53.433; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-28-2019; Ambient Temp: 20.3°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7488; ConvF(8.37, 8.37, 8.37) @ 1905 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 25 (PCS), Body SAR, Back side, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset, without Accesory

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.30 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.670 W/kg



0 dB = 0.902 W/kg = -0.45 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03349

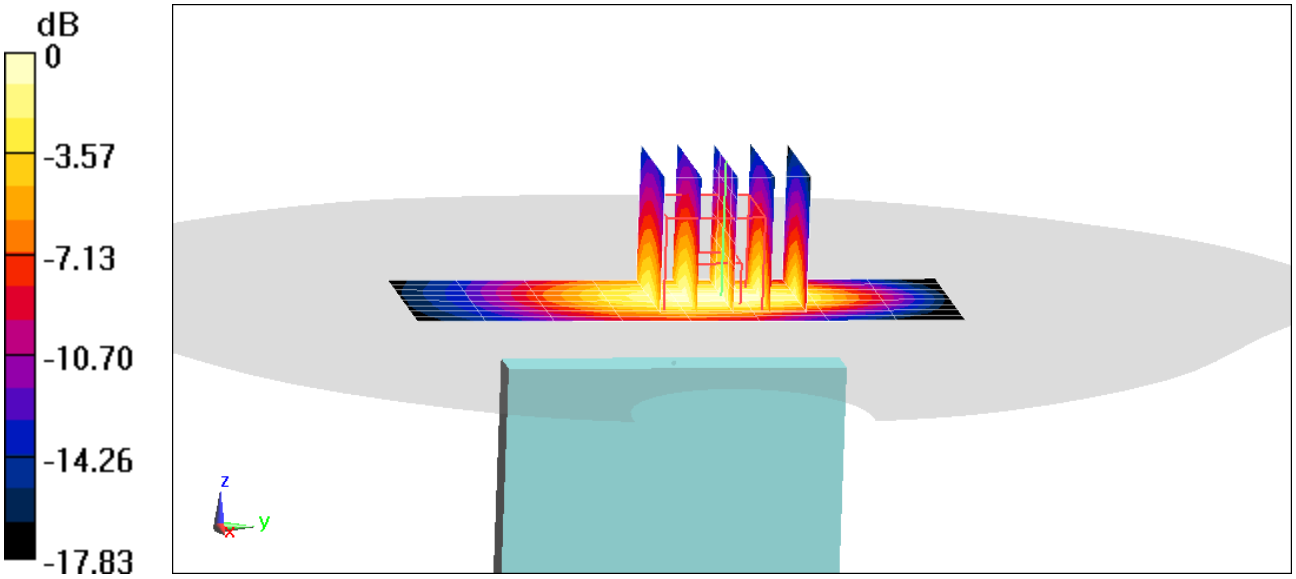
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1882.5 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1882.5 MHz; σ = 1.544 S/m; ε_r = 53.493; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-28-2019; Ambient Temp: 20.3°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7488; ConvF(8.37, 8.37, 8.37) @ 1882.5 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 25 (PCS), Body SAR, Bottom Edge, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset, without Accessory

Area Scan (9x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.38 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 2.07 W/kg
SAR(1 g) = 1.2 W/kg



0 dB = 1.76 W/kg = 2.46 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

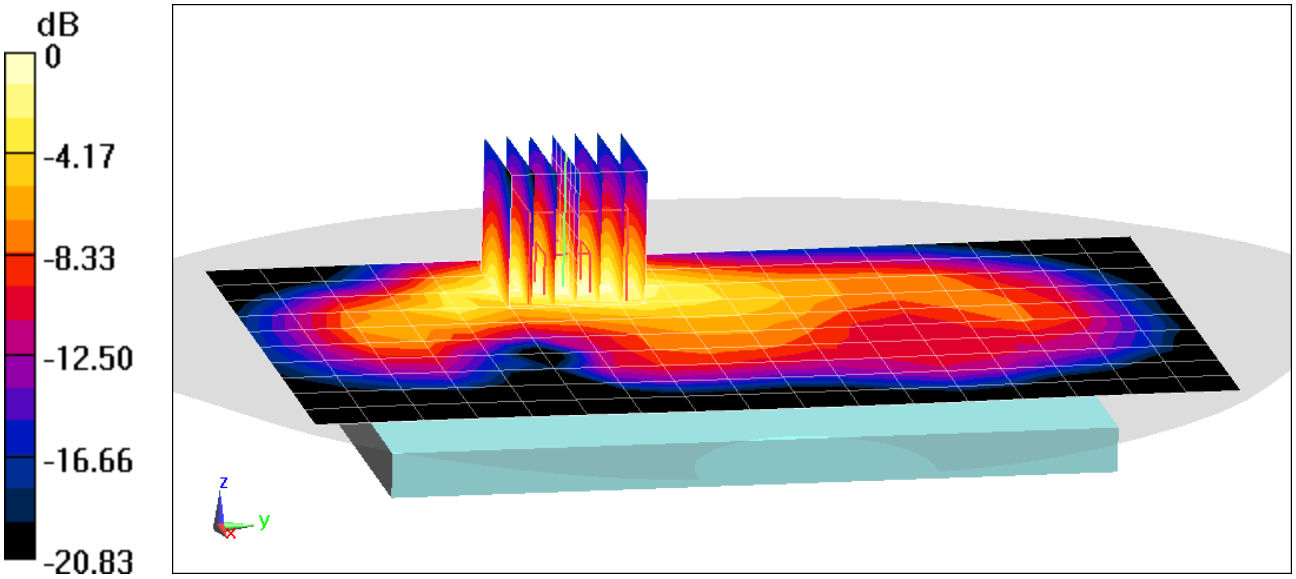
Communication System: UID 0, LTE Band 30; Frequency: 2310 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2310 MHz; σ = 1.884 S/m; ε_r = 51.911; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7417; ConvF(7.64, 7.64, 7.64) @ 2310 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 30, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset, without Accessory

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.70 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.583 W/kg



0 dB = 0.911 W/kg = -0.40 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

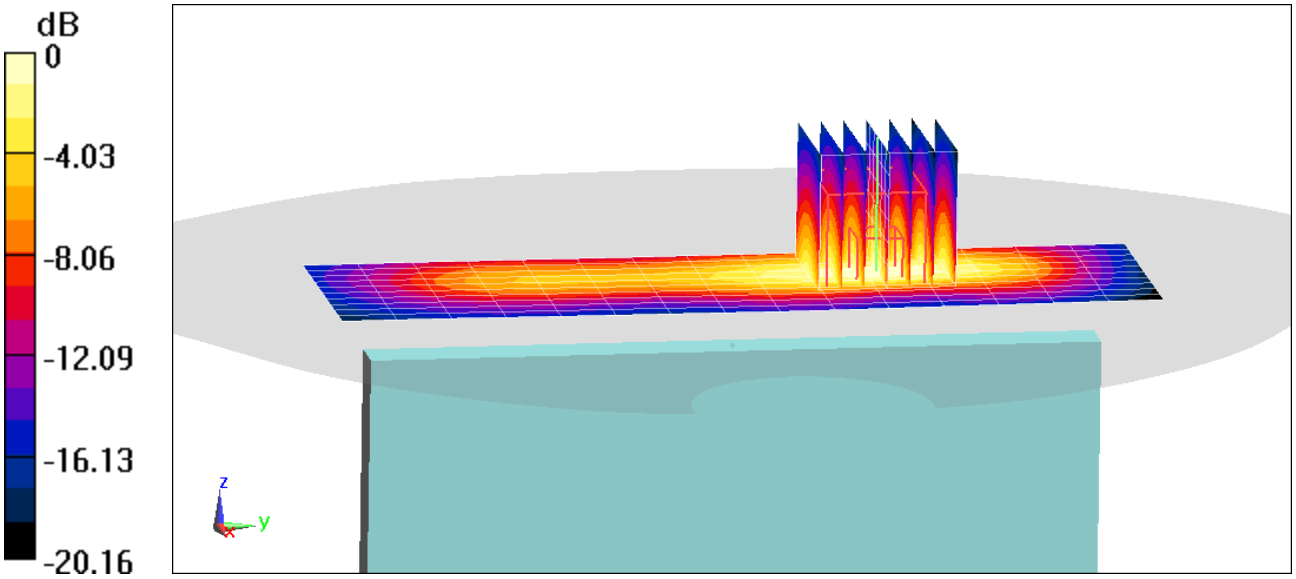
Communication System: UID 0, LTE Band 30; Frequency: 2310 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2310 MHz; σ = 1.884 S/m; ε_r = 51.911; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7417; ConvF(7.64, 7.64, 7.64) @ 2310 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 30, Body SAR, Right Edge, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset, without Accessory

Area Scan (11x16x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.60 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 1.42 W/kg
SAR(1 g) = 0.699 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

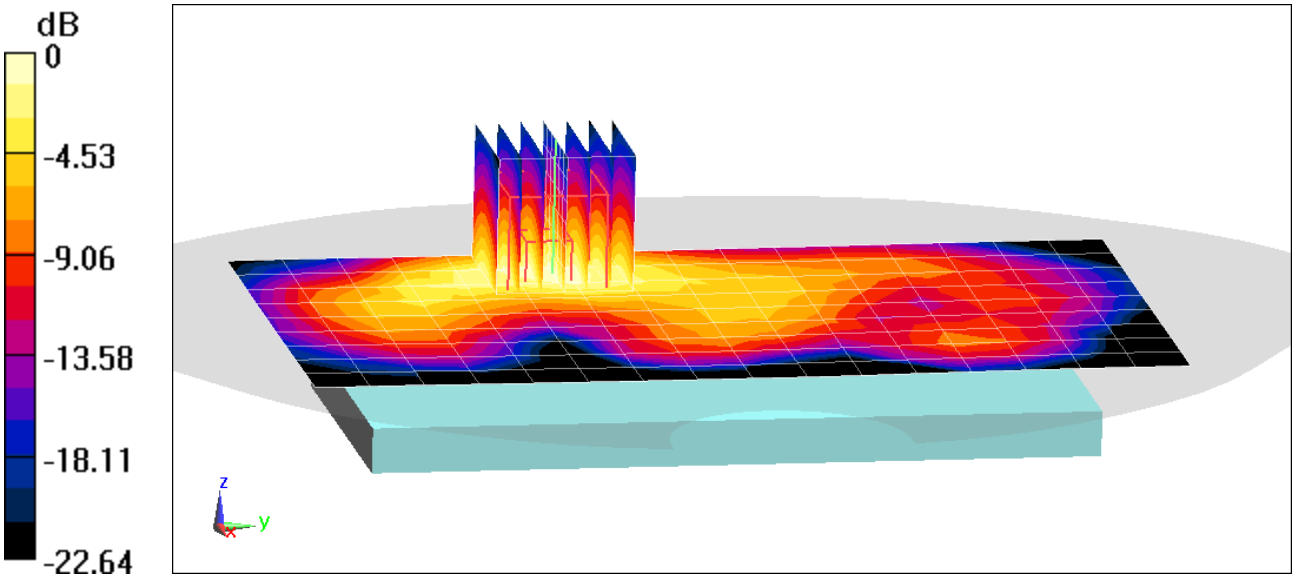
Communication System: UID 0, LTE Band 7; Frequency: 2510 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2510 MHz; σ = 2.129 S/m; ε_r = 52.199; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-21-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN7357; ConvF(7.59, 7.59, 7.59) @ 2510 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 7, Body SAR, Back side, Low.ch,
20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset, without Accessory

Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.09 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.922 W/kg
SAR(1 g) = 0.444 W/kg



0 dB = 0.723 W/kg = -1.41 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

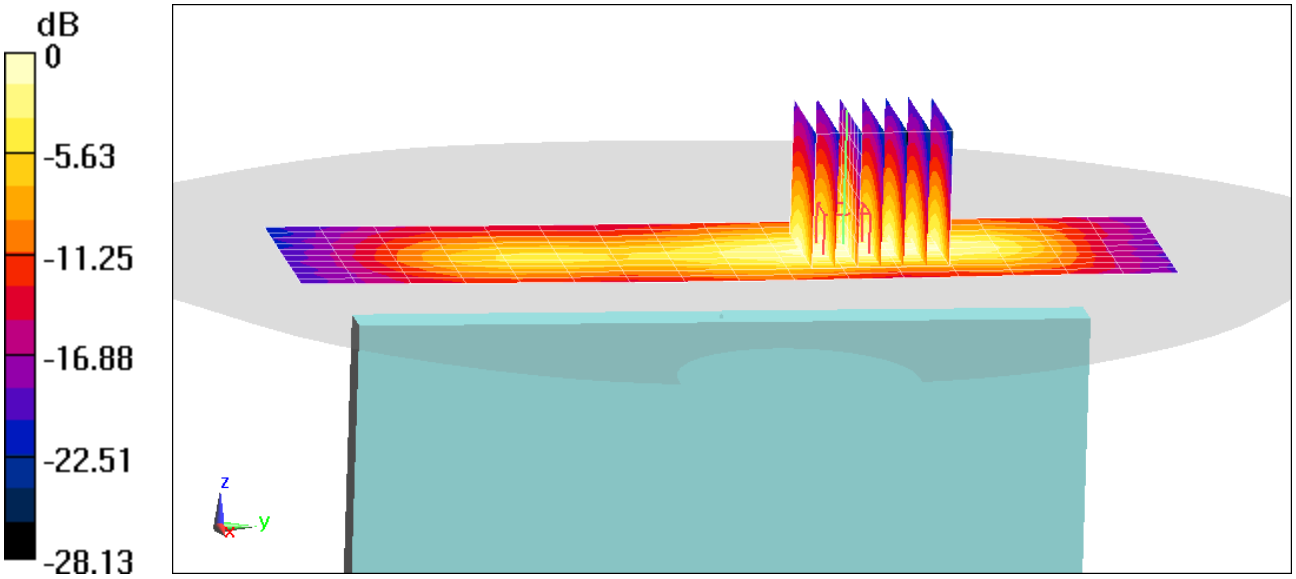
Communication System: UID 0, LTE Band 7; Frequency: 2560 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2560 MHz; σ = 2.199 S/m; ε_r = 51.992; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-21-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN7357; ConvF(7.39, 7.39, 7.39) @ 2560 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 7, Body SAR, Right Edge, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset, without Accessory

Area Scan (11x17x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.30 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 0.654 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03356

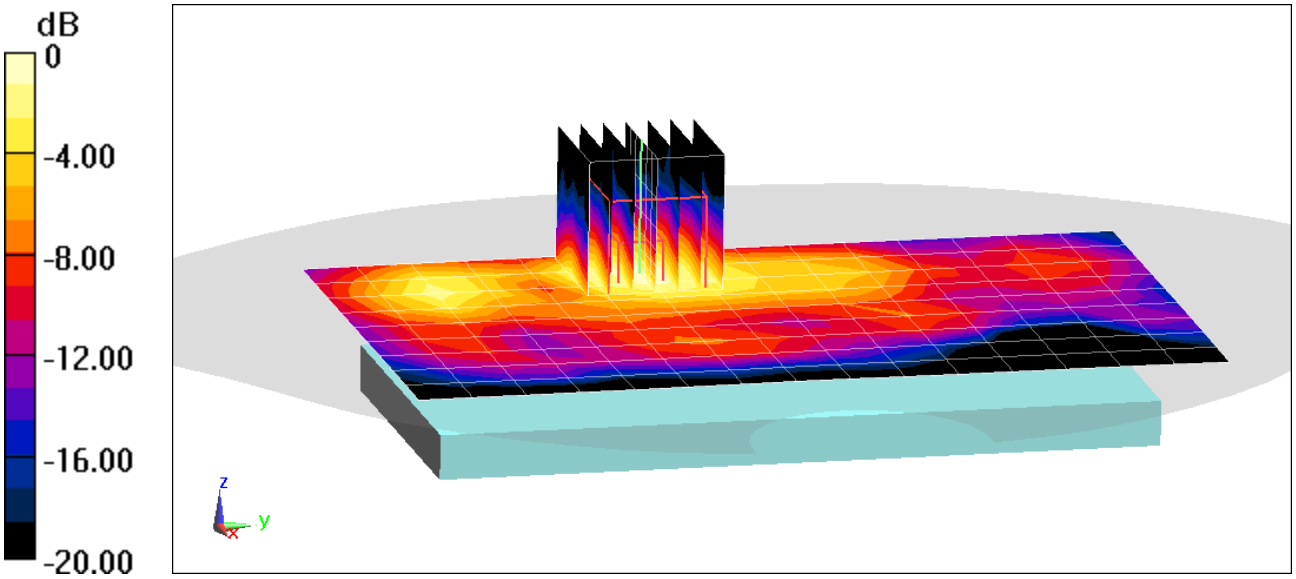
Communication System: UID 0, LTE Band 48; Frequency: 3646.7 MHz; Duty Cycle: 1:1.58
Medium: 3700 Body Medium parameters used (interpolated):
f = 3646.7 MHz; σ = 3.364 S/m; ε_r = 51.117; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-10-2019; Ambient Temp: 21.4°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN3589; ConvF(6.13, 6.13, 6.13) @ 3646.7 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/7/2018
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1177
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 48, Body SAR, Back side, Mid-High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset, without Accessory

Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 7.988 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.557 W/kg
SAR(1 g) = 0.199 W/kg



0 dB = 0.373 W/kg = -4.28 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 12654

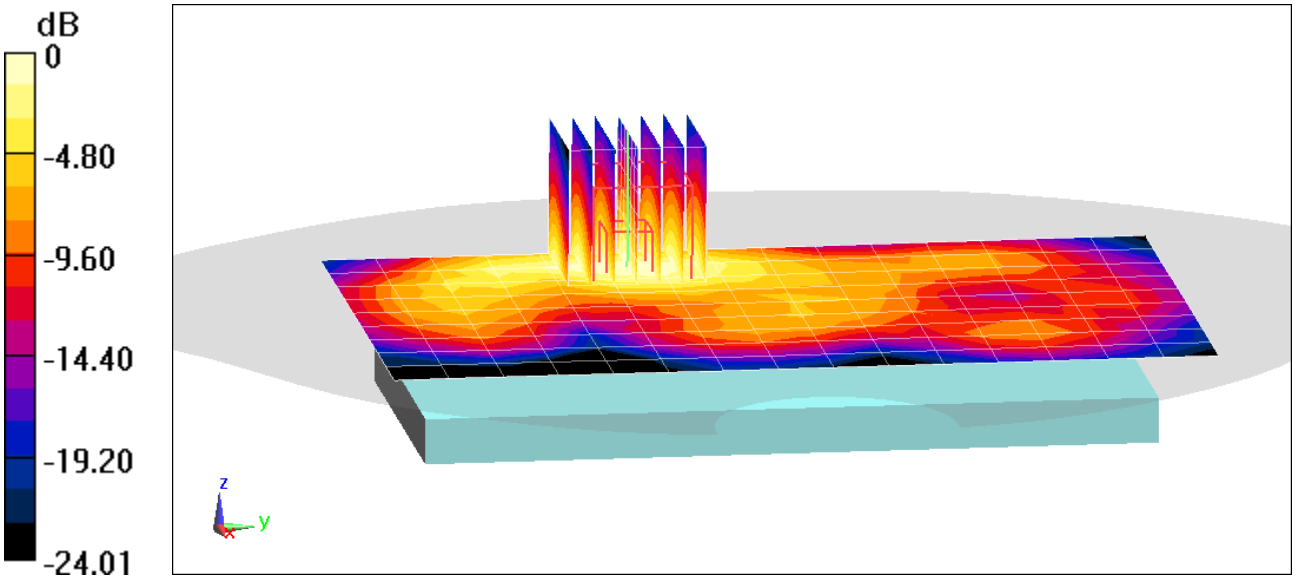
Communication System: UID 0, _LTE Band 41 (Class 2); Frequency: 2593 MHz; Duty Cycle: 1:2.31
Medium: 2450 MHz Body Medium parameters used (interpolated):
f = 2593 MHz; σ = 2.152 S/m; ε_r = 52.173; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-03-2019; Ambient Temp: 21.6°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN7410; ConvF(7.43, 7.43, 7.43) @ 2593 MHz; Calibrated: 7/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 41, PC2, ULCA, Body SAR, Back side, Mid.ch, without Accessory
PCC: Ch. 40620, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset
SCC: Ch. 40422, 20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset

Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.29 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.788 W/kg
SAR(1 g) = 0.392 W/kg



0 dB = 0.610 W/kg = -2.15 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 12654

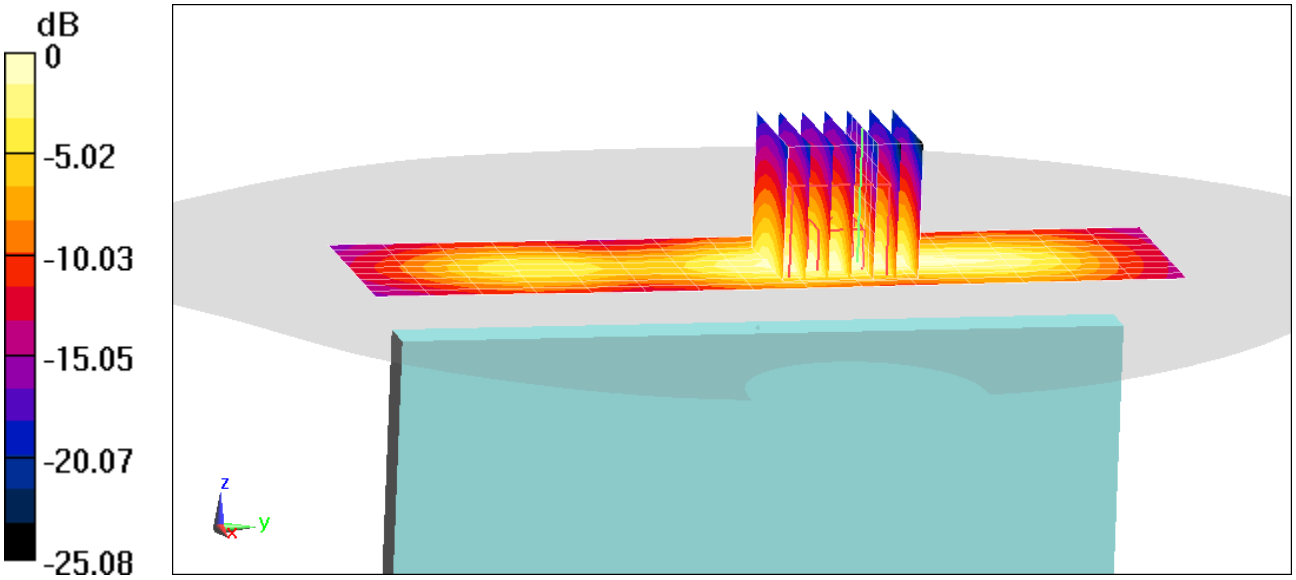
Communication System: UID 0, _LTE Band 41 (Class 2); Frequency: 2593 MHz; Duty Cycle: 1:2.31
Medium: 2450 MHz Body Medium parameters used (interpolated):
f = 2593 MHz; σ = 2.152 S/m; ε_r = 52.173; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-03-2019; Ambient Temp: 21.6°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN7410; ConvF(7.43, 7.43, 7.43) @ 2593 MHz; Calibrated: 7/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 41, PC2, ULCA, Body SAR, Right Edge, Mid.ch, without Accessory
PCC: Ch. 40620, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset
SCC: Ch. 40422, 20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset

Area Scan (10x16x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.36 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.956 W/kg
SAR(1 g) = 0.455 W/kg



0 dB = 0.755 W/kg = -1.22 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03240

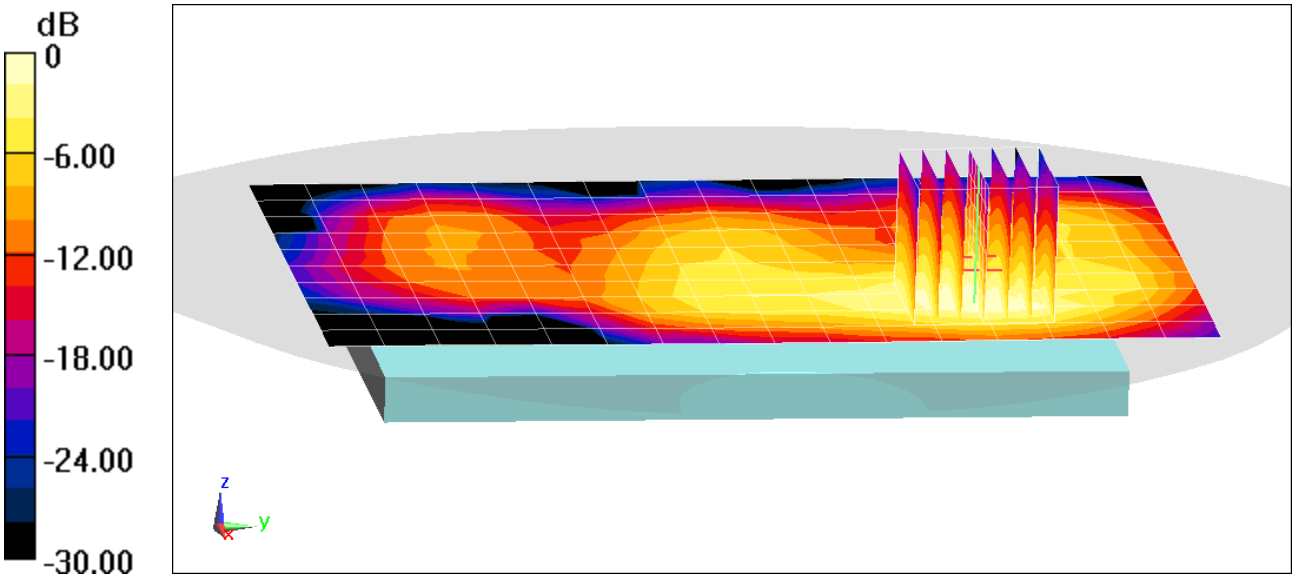
Communication System: UID 0, _IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2437 MHz; σ = 2.027 S/m; ε_r = 52.464; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-21-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN7357; ConvF(7.59, 7.59, 7.59) @ 2437 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: IEEE 802.11b, Antenna 2, 22 MHz Bandwidth, Body SAR, Ch 6, 1 Mbps, Back Side, without Accessory

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.355 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.477 W/kg
SAR(1 g) = 0.241 W/kg



0 dB = 0.379 W/kg = -4.21 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03240

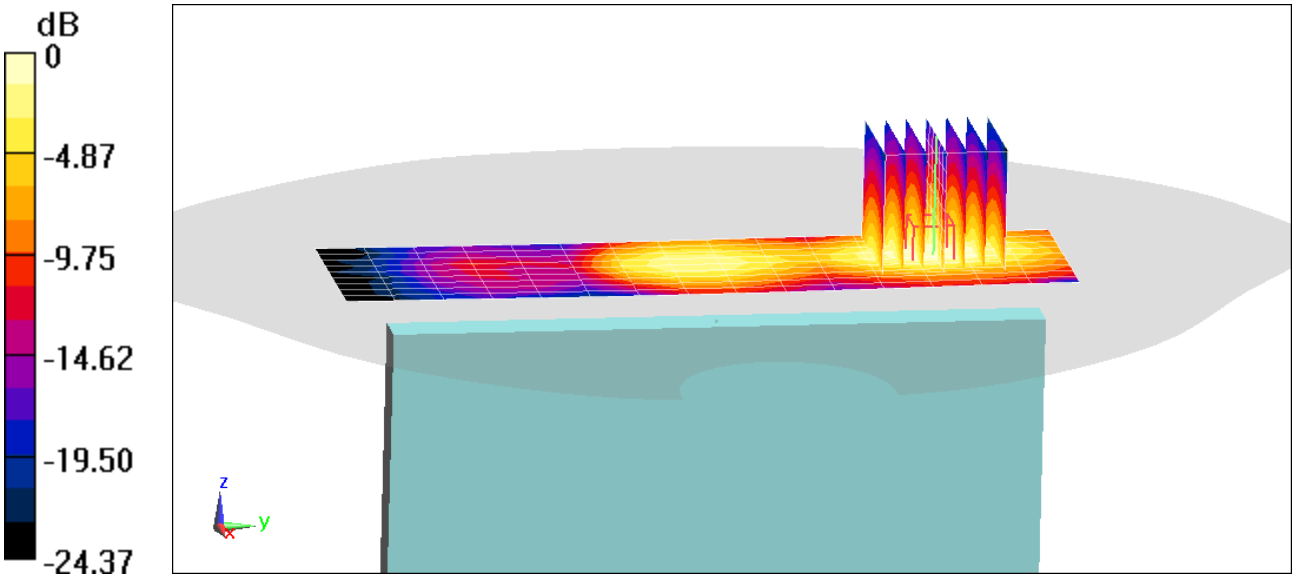
Communication System: UID 0, _IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2437 MHz; σ = 2.027 S/m; ε_r = 52.464; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-21-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN7357; ConvF(7.59, 7.59, 7.59) @ 2437 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: IEEE 802.11b, Antenna 2, 22 MHz Bandwidth, Body SAR,
Ch 6, 1 Mbps, Left Side, without Accessory

Area Scan (10x16x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.75 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.499 W/kg



0 dB = 0.816 W/kg = -0.88 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03257

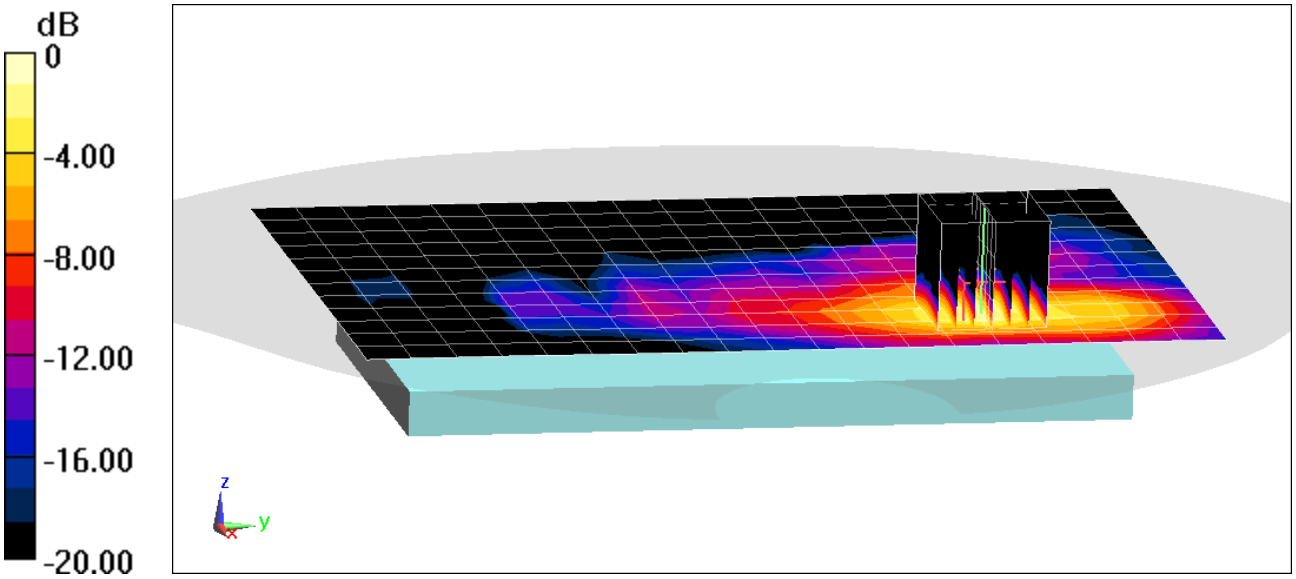
Communication System: UID 0, 802.11n 5.2-5.8 GHz Band; Frequency: 5785 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used:
f = 5785 MHz; σ = 6.201 S/m; ε_r = 46.917; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 22.2°C; Tissue Temp:20.5°C

Probe: EX3DV4 - SN7410; ConvF(4.6, 4.6, 4.6) @ 5785 MHz; Calibrated: 7/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: IEEE 802.11n, MIMO, UNII-3, 20 MHz Bandwidth,
Body SAR, Ch 157, 13 Mbps, Back Side, without Accessory

Area Scan (13x20x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 8.796 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.84 W/kg
SAR(1 g) = 0.431 W/kg



0 dB = 1.11 W/kg = 0.45 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03240

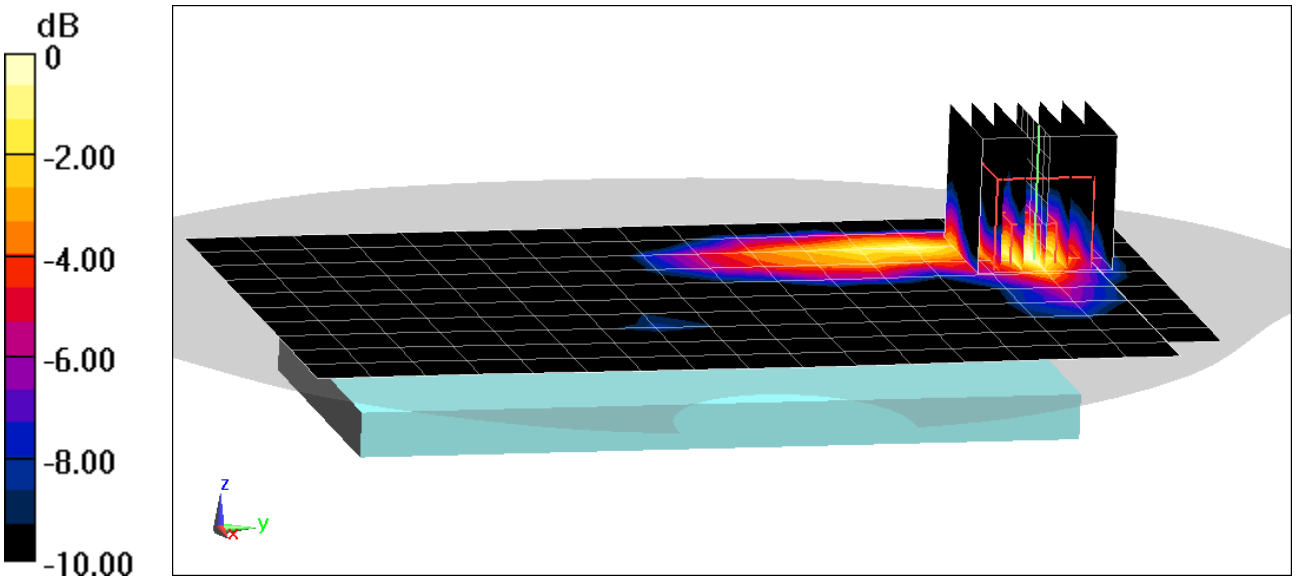
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.297
Medium: 2450 Body Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.009 S/m; ε_r = 52.23; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-11-2019; Ambient Temp: 20.5°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7357; ConvF(7.59, 7.59, 7.59) @ 2441 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: Bluetooth, Body SAR, Ch 39, 1 Mbps, Back Side, without Accessory

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.747 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.0720 W/kg
SAR(1 g) = 0.033 W/kg



0 dB = 0.0397 W/kg = -14.01 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03240

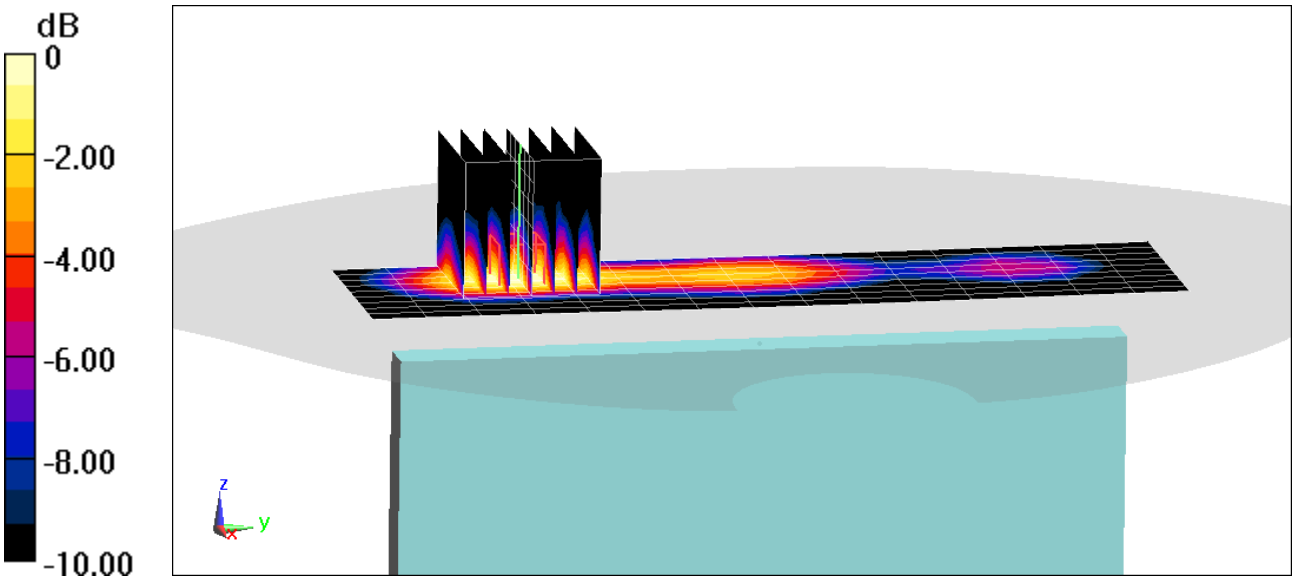
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.297
Medium: 2450 Body Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.035 S/m; ε_r = 51.567; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2441 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: Bluetooth, Body SAR, Ch 39, 1 Mbps, Right Edge, without Accessory

Area Scan (10x16x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.749 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.0800 W/kg
SAR(1 g) = 0.039 W/kg



0 dB = 0.0648 W/kg = -11.88 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

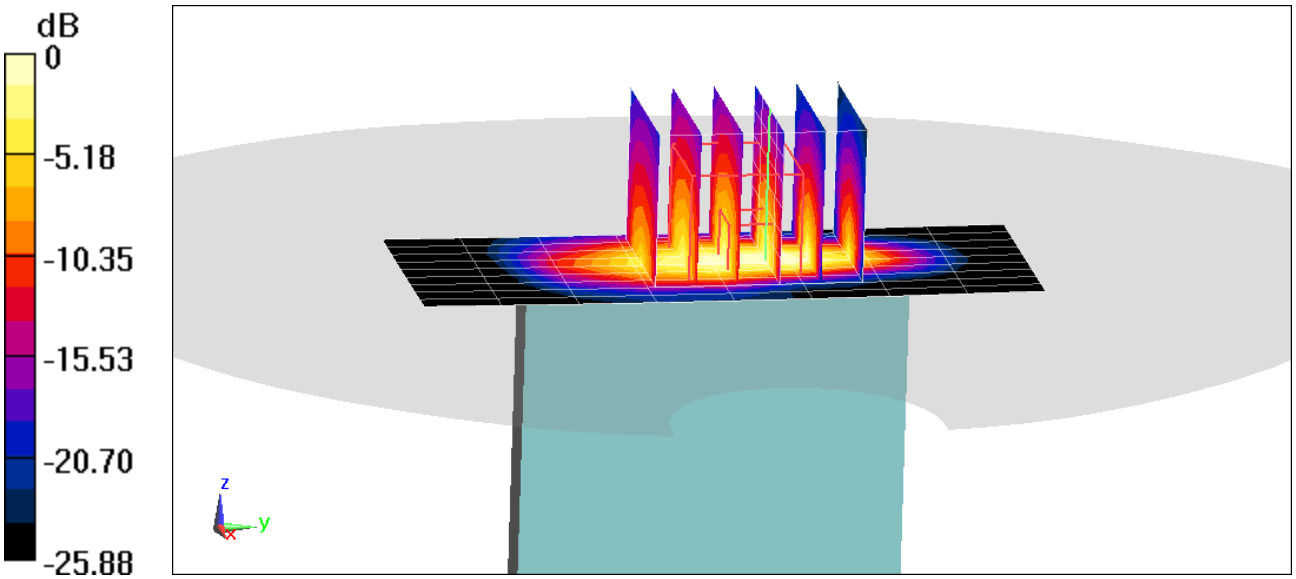
Communication System: UID 0, CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.553 S/m; ε_r = 51.529; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-05-2019; Ambient Temp: 22.5°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7357; ConvF(7.93, 7.93, 7.93) @ 1880 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: PCS EVDO, Rev 0, Phablet SAR, Bottom Edge, Mid.ch, without Accessory

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 71.21 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 16.6 W/kg
SAR(10 g) = 2.98 W/kg



0 dB = 13.2 W/kg = 11.21 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

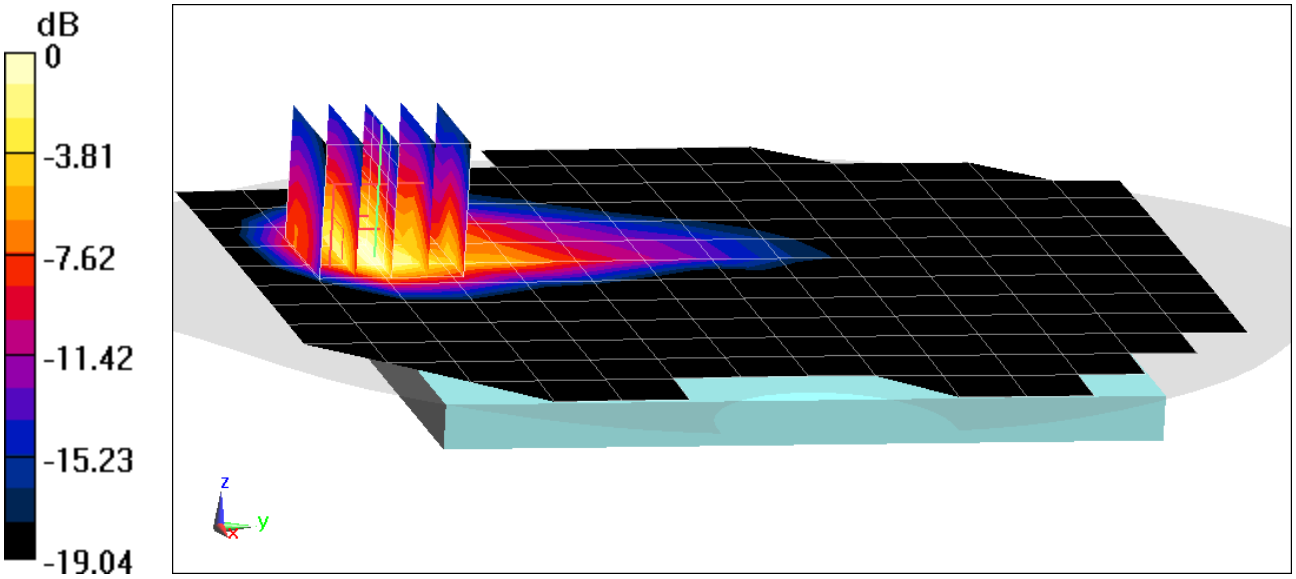
Communication System: UID 0, UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1752.6 MHz; σ = 1.438 S/m; ε_r = 53.881; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-12-2019; Ambient Temp: 21.2°C; Tissue Temp: 19.9°C

Probe: ES3DV3 - SN3288; ConvF(5.09, 5.09, 5.09) @ 1752.6 MHz; Calibrated: 12/11/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/7/2018
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1177
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: UMTS 1750, Phablet SAR, Back side,
High.ch, with Dual Display Cover Position # 2

Area Scan (15x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 68.92 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 12.7 W/kg
SAR(10 g) = 2.93 W/kg



0 dB = 7.68 W/kg = 8.85 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

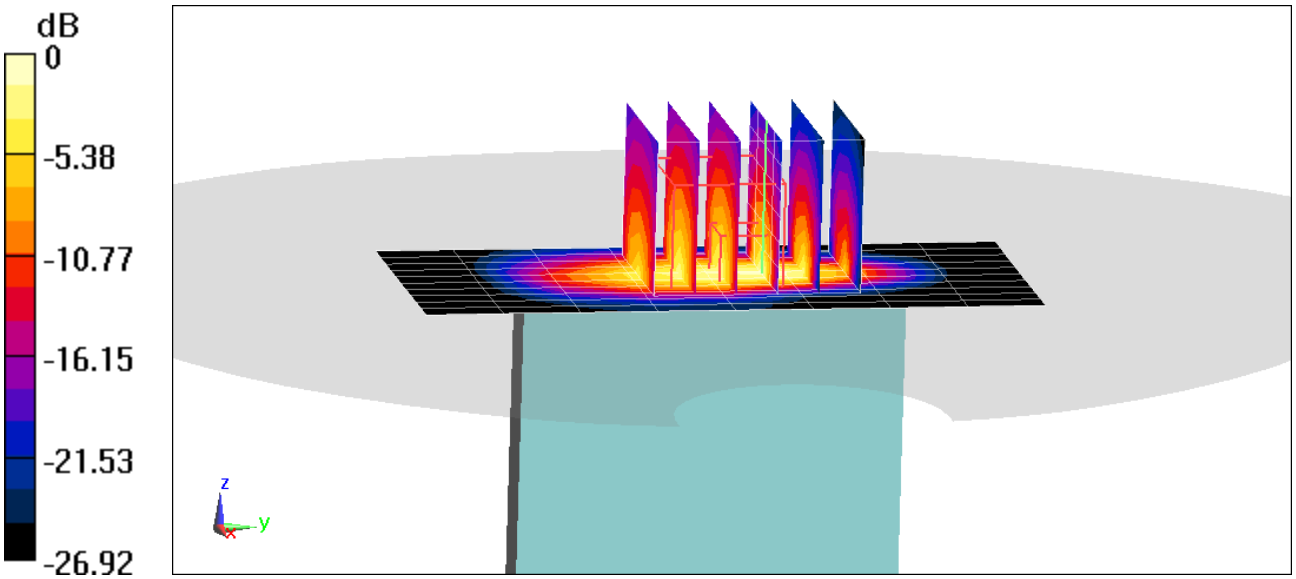
Communication System: UID 0, _UMTS; Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1852.4 MHz; σ = 1.541 S/m; ε_r = 52.242; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-09-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(7.67, 7.67, 7.67) @ 1852.4 MHz; Calibrated: 6/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/20/2019
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: UMTS 1900, Phablet SAR, Bottom Edge, Low.ch, without Accessory

Area Scan (11x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 76.04 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 20.6 W/kg
SAR(10 g) = 3.15 W/kg



0 dB = 16.5 W/kg = 12.17 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03331

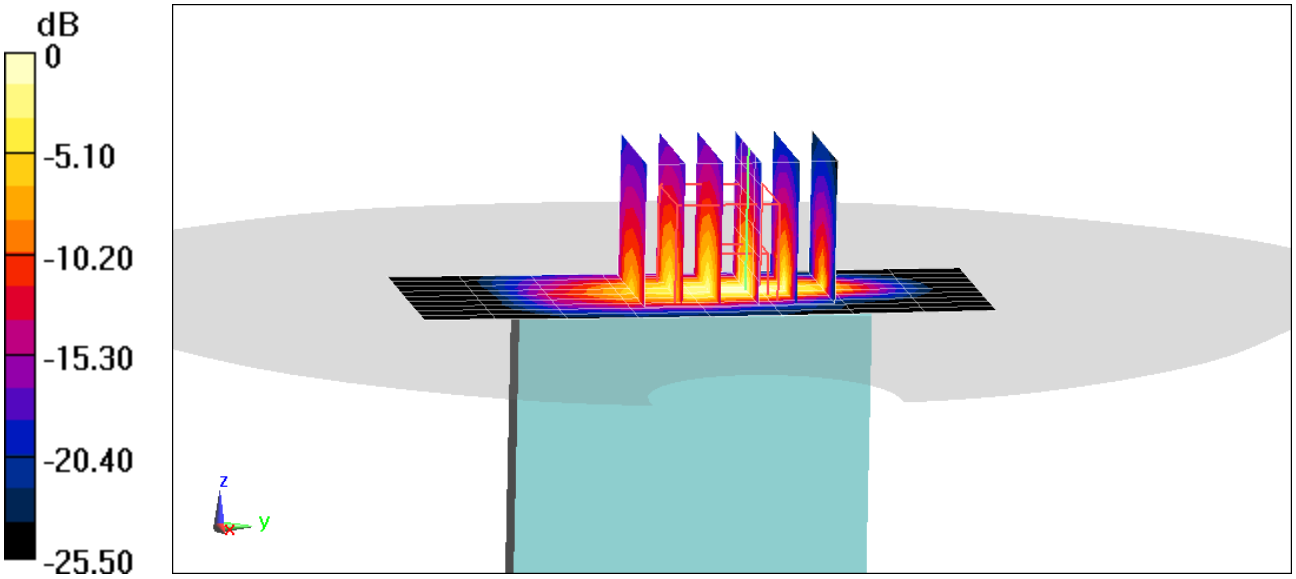
Communication System: UID 0, _LTE Band 66 (AWS); Frequency: 1770 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1770 MHz; σ = 1.472 S/m; ε_r = 51.767; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-09-2019; Ambient Temp: 19.6°C; Tissue Temp: 19.3°C

Probe: EX3DV4 - SN7357; ConvF(8.26, 8.26, 8.26) @ 1770 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 66 (AWS), Phablet SAR, Bottom Edge, High.ch, 20 MHz Bandwidth, QPSK, 100 RB, 0 RB Offset, without Accessory

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 77.21 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 19.1 W/kg
SAR(10 g) = 3.06 W/kg



0 dB = 15.6 W/kg = 11.93 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03349

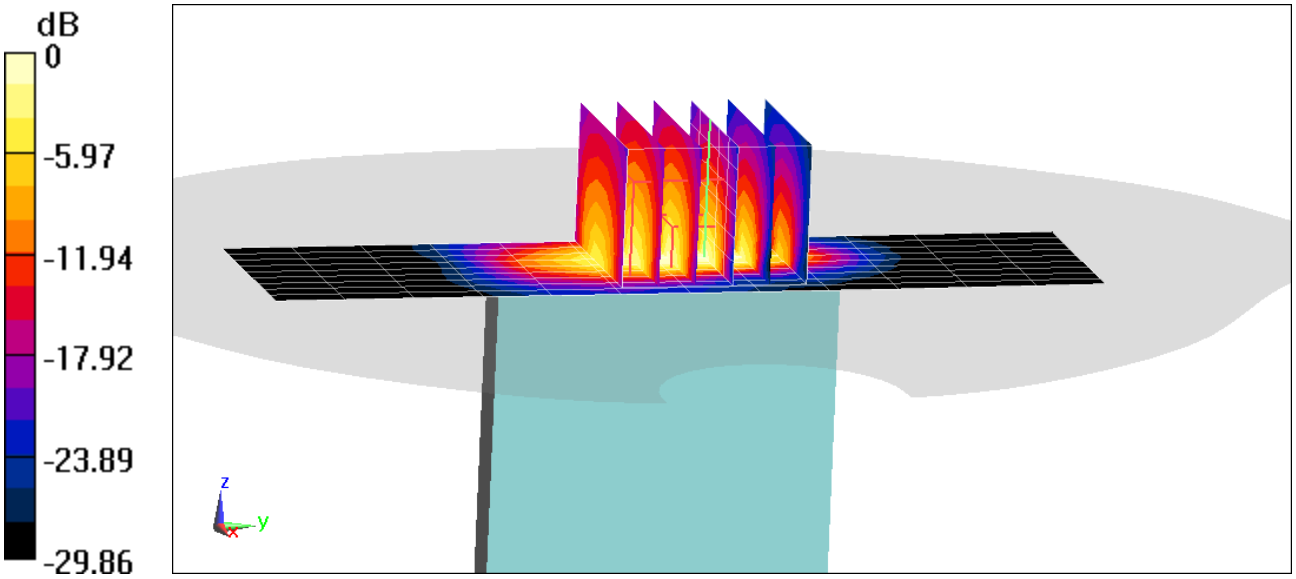
Communication System: UID 0, _LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1860 MHz; σ = 1.546 S/m; ε_r = 52.225; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-09-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(7.67, 7.67, 7.67) @ 1860 MHz; Calibrated: 6/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/20/2019
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 25 (PCS), Phablet SAR, Bottom Edge, Low.ch, 20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset, without Accessory

Area Scan (10x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 69.05 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 17.0 W/kg
SAR(10 g) = 2.92 W/kg



0 dB = 12.7 W/kg = 11.04 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFG850UM; Type: Portable Handset; Serial: 03257

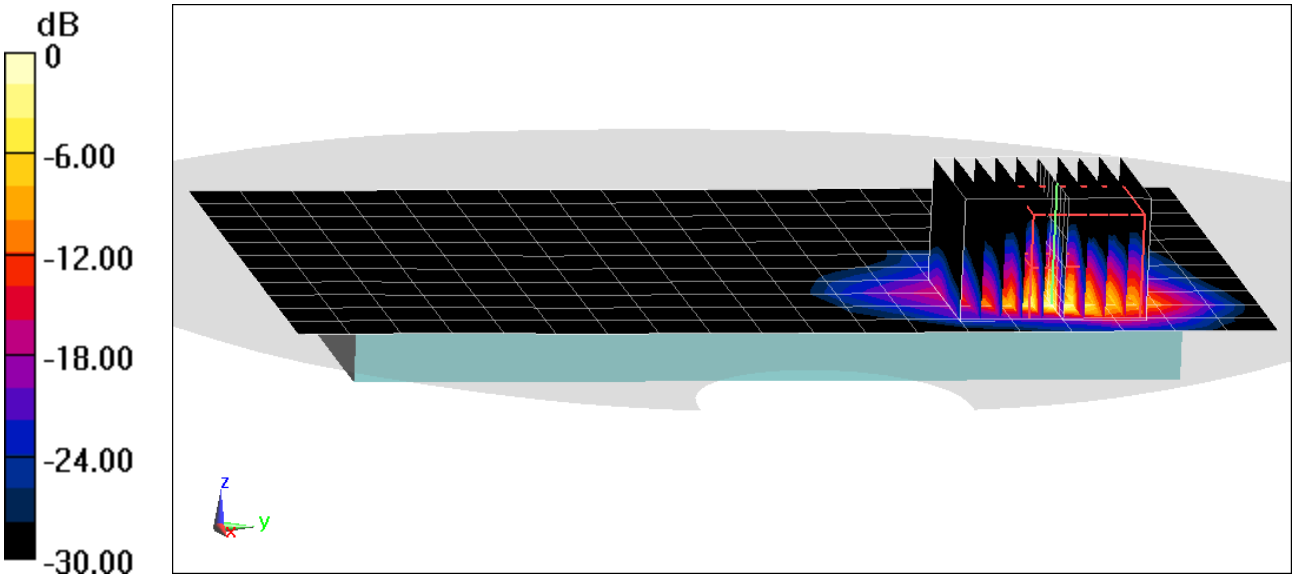
Communication System: UID 0, 802.11n 5.2-5.8 GHz Band; Frequency: 5280 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used:
f = 5280 MHz; σ = 5.457 S/m; ε_r = 47.826; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-26-2019; Ambient Temp: 22.2°C; Tissue Temp:20.5°C

Probe: EX3DV4 - SN7410; ConvF(4.95, 4.95, 4.95) @ 5280 MHz; Calibrated: 7/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: IEEE 802.11n, MIMO, U-NII-2A, 20 MHz Bandwidth, Phablet SAR, Ch 56, 13 Mbps, Back Side, without Accessory

Area Scan (12x20x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (9x10x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 3.465 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 100 W/kg
SAR(10 g) = 2.47 W/kg



0 dB = 53.7 W/kg = 17.30 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

© 2019 PCTEST Engineering Laboratory, Inc.

PCTEST ENGINEERING LABORATORY, INC.

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

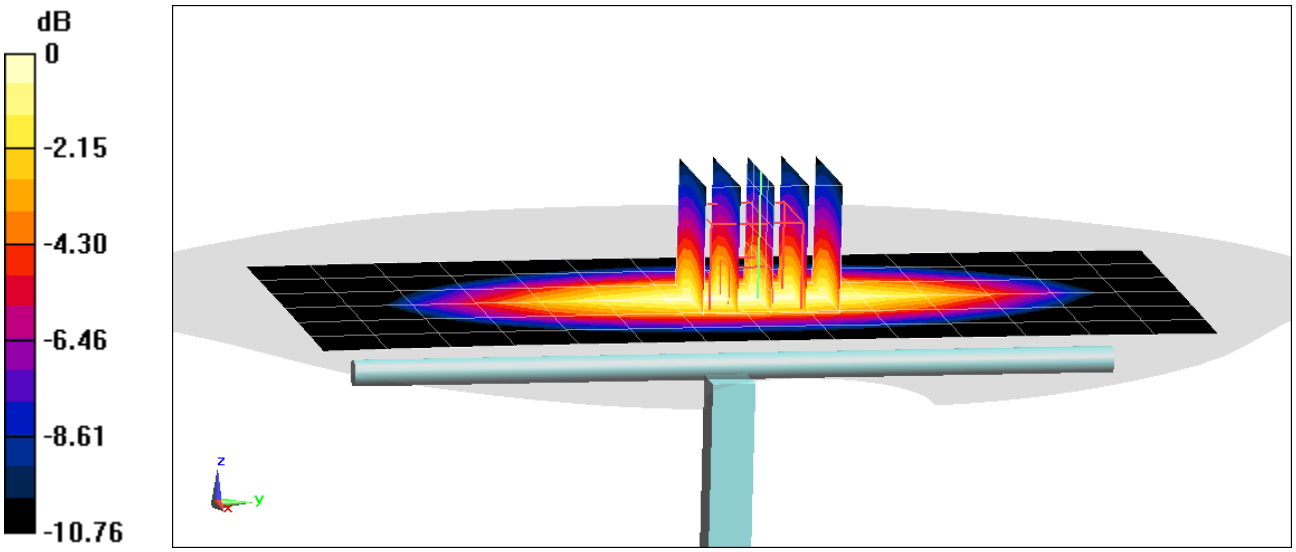
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 750 MHz; σ = 0.885 S/m; ε_r = 41.82; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-27-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7538; ConvF(10.68, 10.68, 10.68) @ 750 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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) = 2.74 W/kg
SAR(1 g) = 1.75 W/kg
Deviation(1 g) = 5.55%



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

PCTEST ENGINEERING LABORATORY, INC.

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

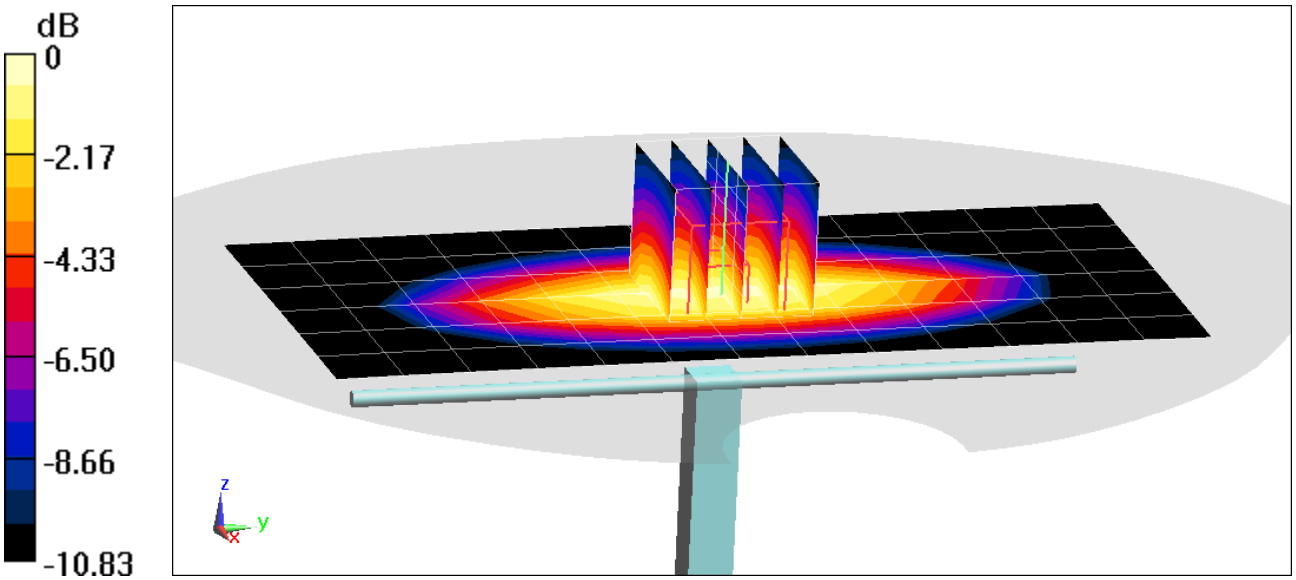
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.891 S/m; ε_r = 40.533; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09-03-2019; Ambient Temp: 21.2°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN7538; ConvF(10.3, 10.3, 10.3) @ 835 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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) = 3.04 W/kg
SAR(1 g) = 1.99 W/kg
Deviation(1 g) = 5.63%



0 dB = 2.67 W/kg = 4.27 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

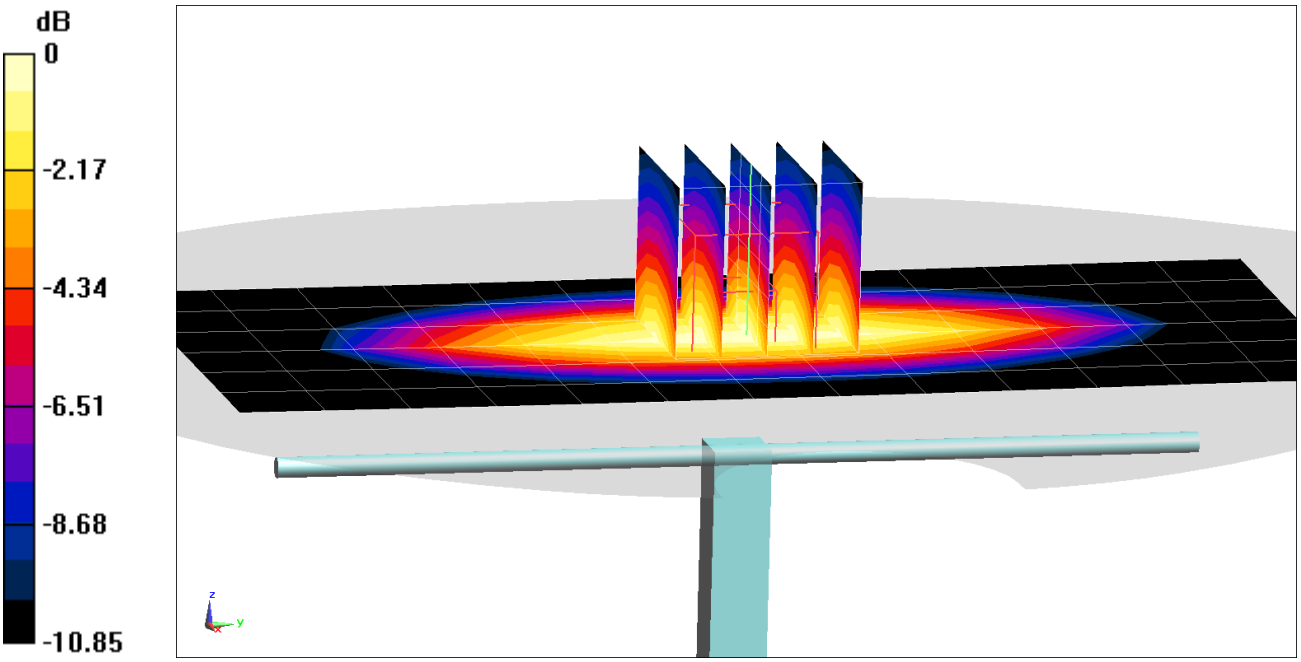
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.932 S/m; ε_r = 43.112; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09-05-2019; Ambient Temp: 22.5°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7406; ConvF(9.78, 9.78, 9.78) @ 835 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Right 20; Type: QD 000 P40 CD; Serial: 1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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) = 3.05 W/kg
SAR(1 g) = 2.01 W/kg
Deviation(1 g) = 6.57%



0 dB = 2.70 W/kg = 4.31 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V3; Serial: 1008

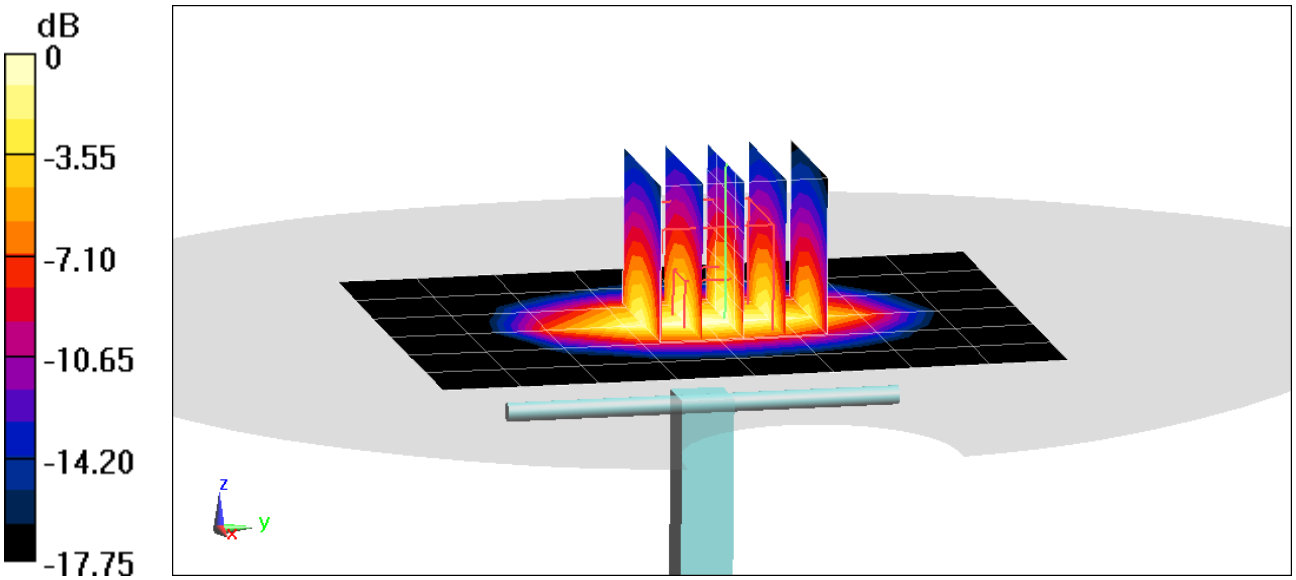
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used:
f = 1750 MHz; σ = 1.358 S/m; ε_r = 40.294; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-07-2019; Ambient Temp: 21.6°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7406; ConvF(8.57, 8.57, 8.57) @ 1750 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Right 20; Type: QD 000 P40 CD; Serial: 1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.02 W/kg
SAR(1 g) = 3.85 W/kg
Deviation(1 g) = 6.35%



0 dB = 5.81 W/kg = 7.64 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

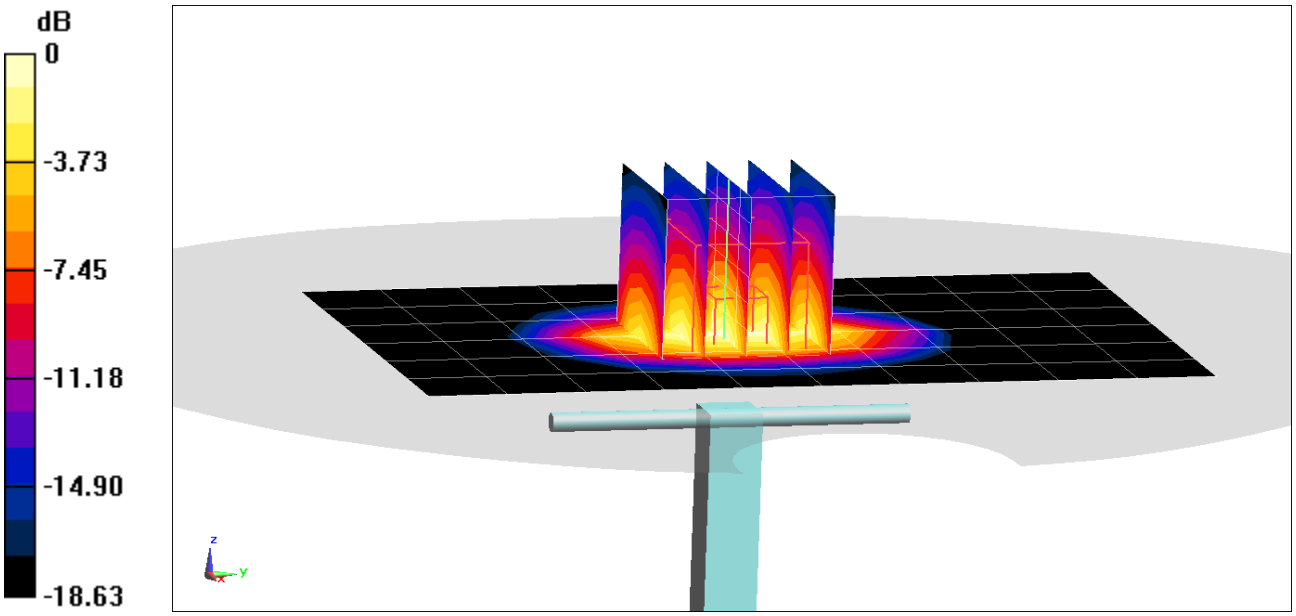
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.44 S/m; ε_r = 38.938; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-01-2019; Ambient Temp: 19.9°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7538; ConvF(8.32, 8.32, 8.32) @ 1900 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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) = 7.94 W/kg
SAR(1 g) = 4.21 W/kg
Deviation(1 g) = 7.67%



0 dB = 6.60 W/kg = 8.20 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

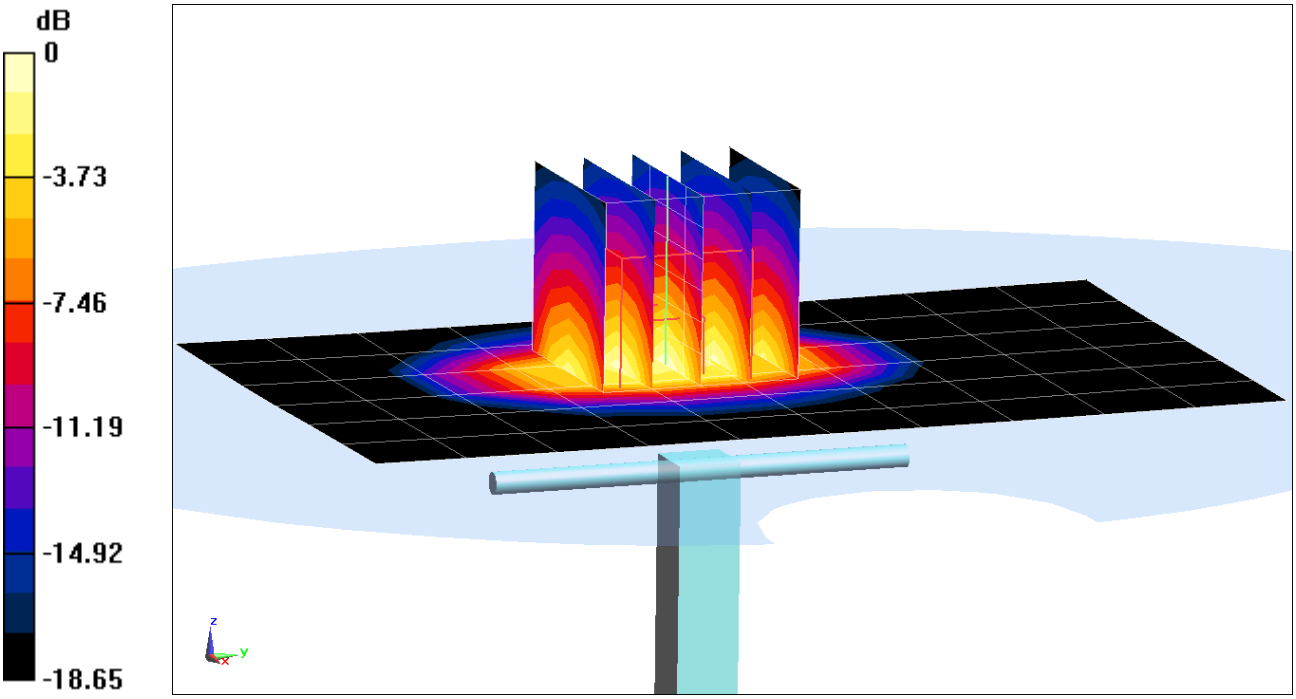
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.448 S/m; ε_r = 38.906; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-05-2019; Ambient Temp: 24.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7409; ConvF(8.01, 8.01, 8.01) @ 1900 MHz; Calibrated: 6/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/20/2019
Phantom: SAM Left; Type: QD000P40CA; Serial: TP:82355
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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) = 7.55 W/kg
SAR(1 g) = 3.89 W/kg
Deviation(1 g) = -2.26%



0 dB = 6.21 W/kg = 7.93 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

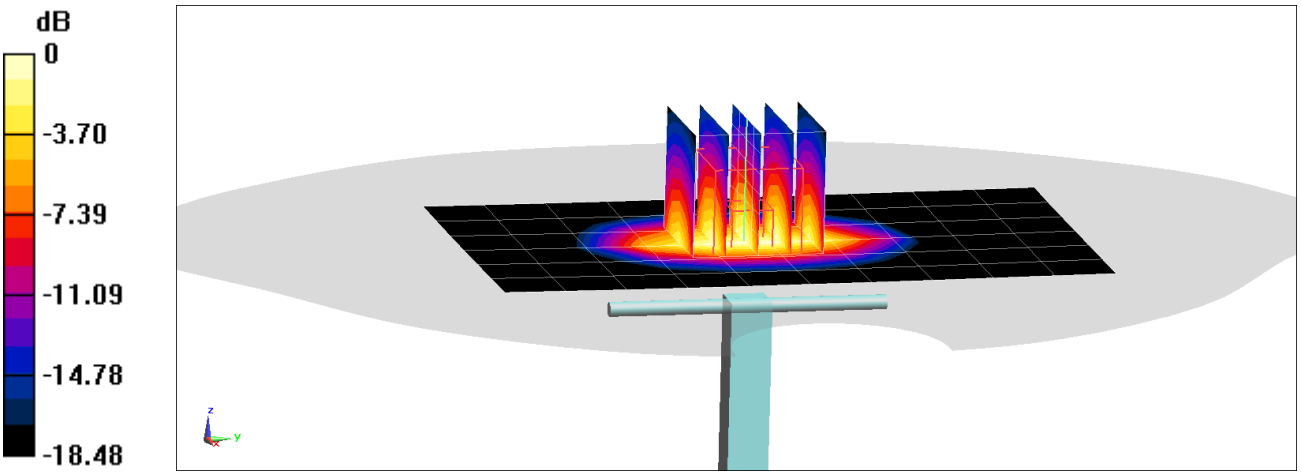
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.455 S/m; ε_r = 41.034; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-09-2019; Ambient Temp: 21.6°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7406; ConvF(8.18, 8.18, 8.18) @ 1900 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Right 20; Type: QD 000 P40 CD; Serial: 1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 8.38 W/kg
SAR(1 g) = 4.29 W/kg
Deviation(1 g) = 7.79%



0 dB = 6.91 W/kg = 8.39 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2300 MHz; Type: D2300V2; Serial: 1073

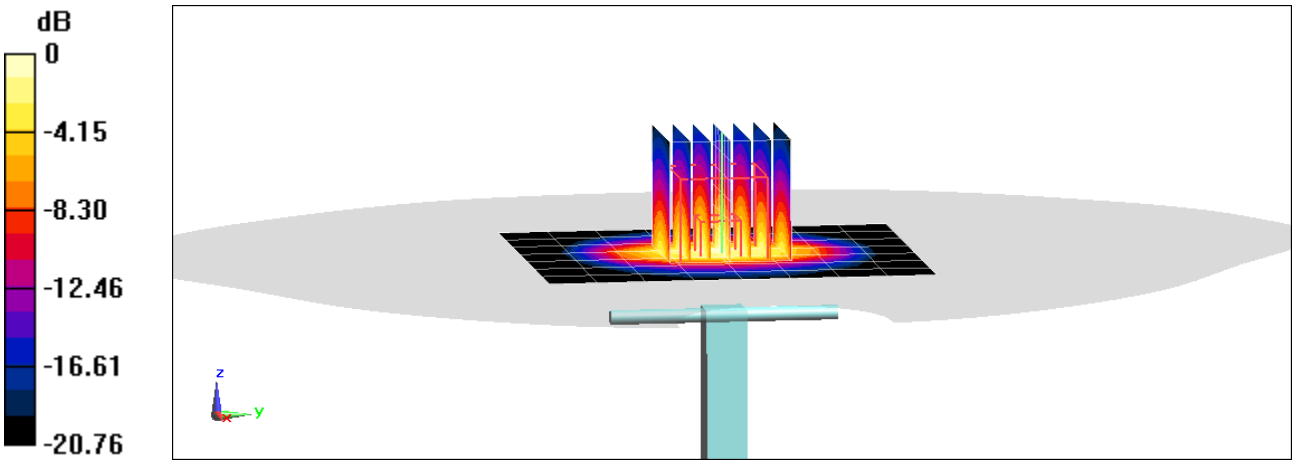
Communication System: UID 0, CW; Frequency: 2300 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2300 MHz; σ = 1.718 S/m; ε_r = 39.026; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-27-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7538; ConvF(7.79, 7.79, 7.79) @ 2300 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Left Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1792
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

2300 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) = 10.1 W/kg
SAR(1 g) = 5.03 W/kg
Deviation(1 g) = 2.24%



0 dB = 8.26 W/kg = 9.17 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

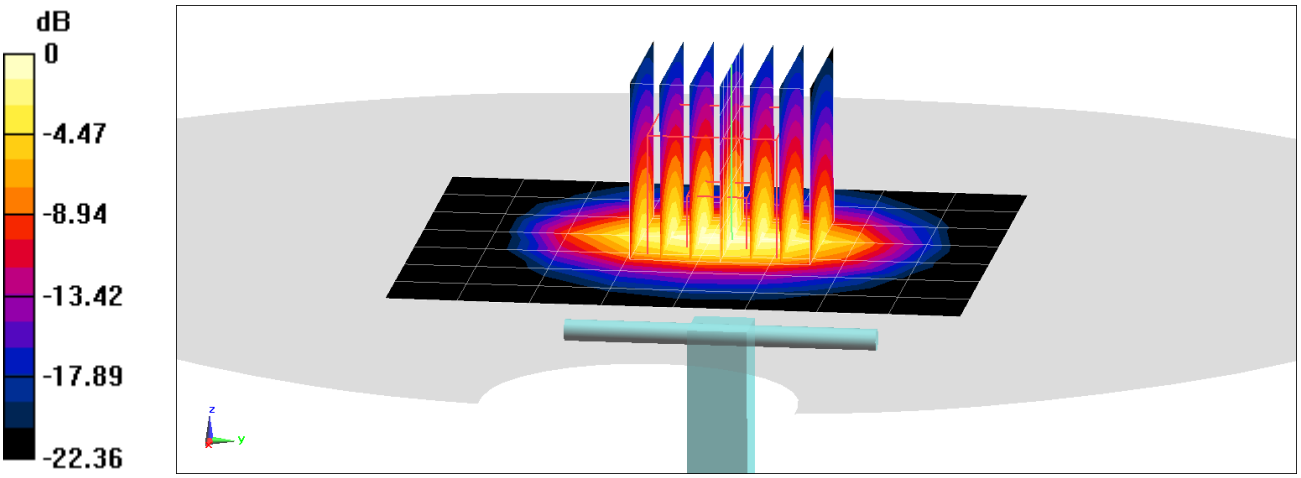
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.866 S/m; ε_r = 39.589; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2019; Ambient Temp: 22.8°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN7547; ConvF(7.17, 7.17, 7.17) @ 2450 MHz; Calibrated: 7/15/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 7/11/2019
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

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) = 11.7 W/kg
SAR(1 g) = 5.62 W/kg
Deviation(1 g) = 6.64%



0 dB = 9.38 W/kg = 9.72 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

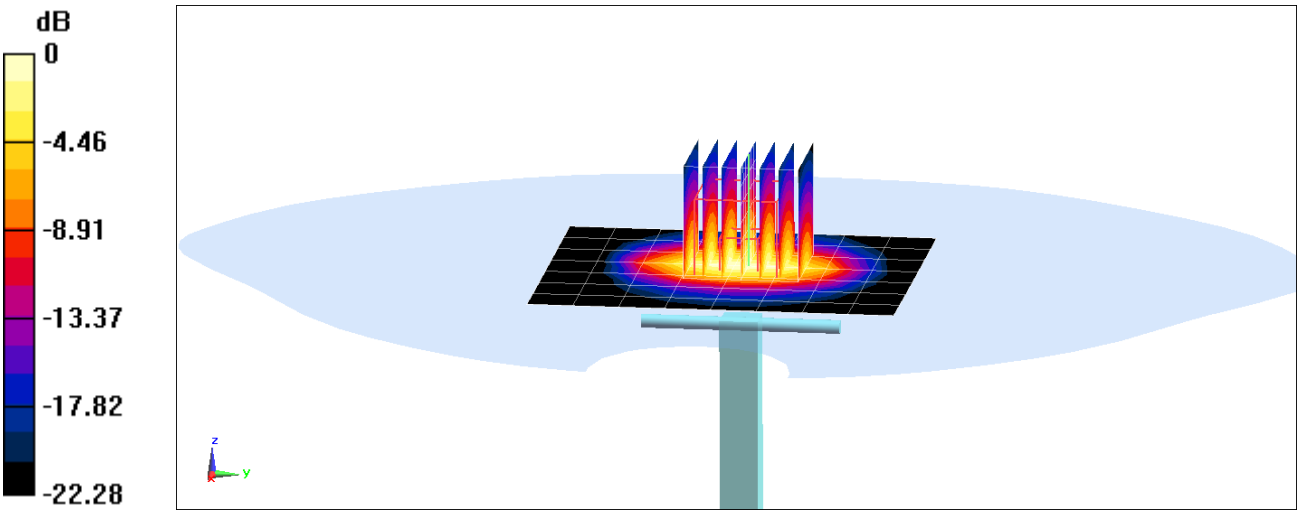
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.865 S/m; ε_r = 39.604; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-04-2019; Ambient Temp: 23.0°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7547; ConvF(7.17, 7.17, 7.17) @ 2450 MHz; Calibrated: 7/15/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 7/11/2019
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.6 W/kg
SAR(1 g) = 5.55 W/kg
Deviation(1 g) = 5.31%



0 dB = 9.24 W/kg = 9.66 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

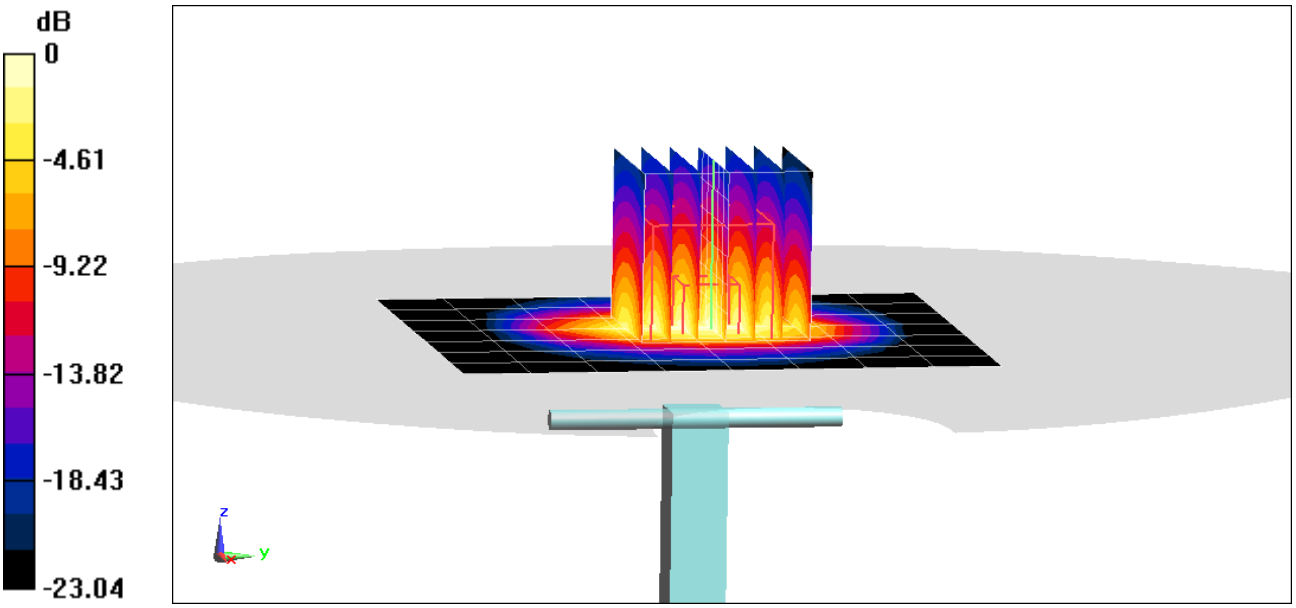
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 MHz Head Medium parameters used:
f = 2450 MHz; σ = 1.855 S/m; ε_r = 39.32; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date:09-05-2019; Ambient Temp: 22.2°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN7410; ConvF(7.47, 7.47, 7.47) @ 2450 MHz; Calibrated: 7/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2019
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1966
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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) = 5.47 W/kg
Deviation(1 g) = 3.01%



0 dB = 9.24 W/kg = 9.66 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

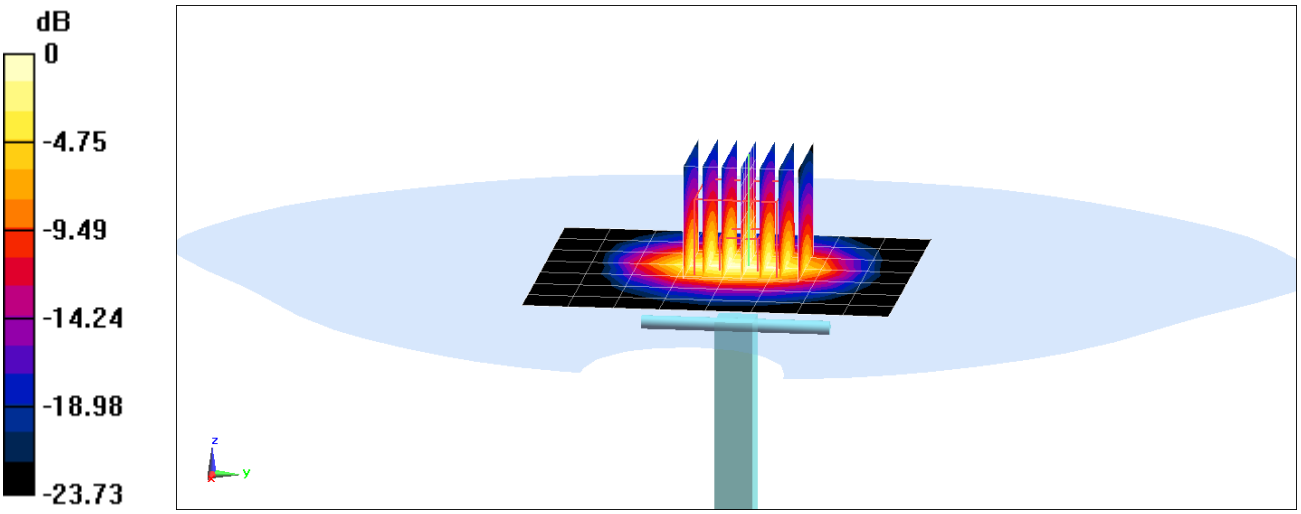
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2600 MHz; σ = 1.985 S/m; ε_r = 39.364; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-04-2019; Ambient Temp: 23.0°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7547; ConvF(6.99, 6.99, 6.99) @ 2600 MHz; Calibrated: 7/15/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 7/11/2019
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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) = 12.7 W/kg
SAR(1 g) = 5.99 W/kg
Deviation(1 g) = 7.16%



0 dB = 10.1 W/kg = 10.04 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

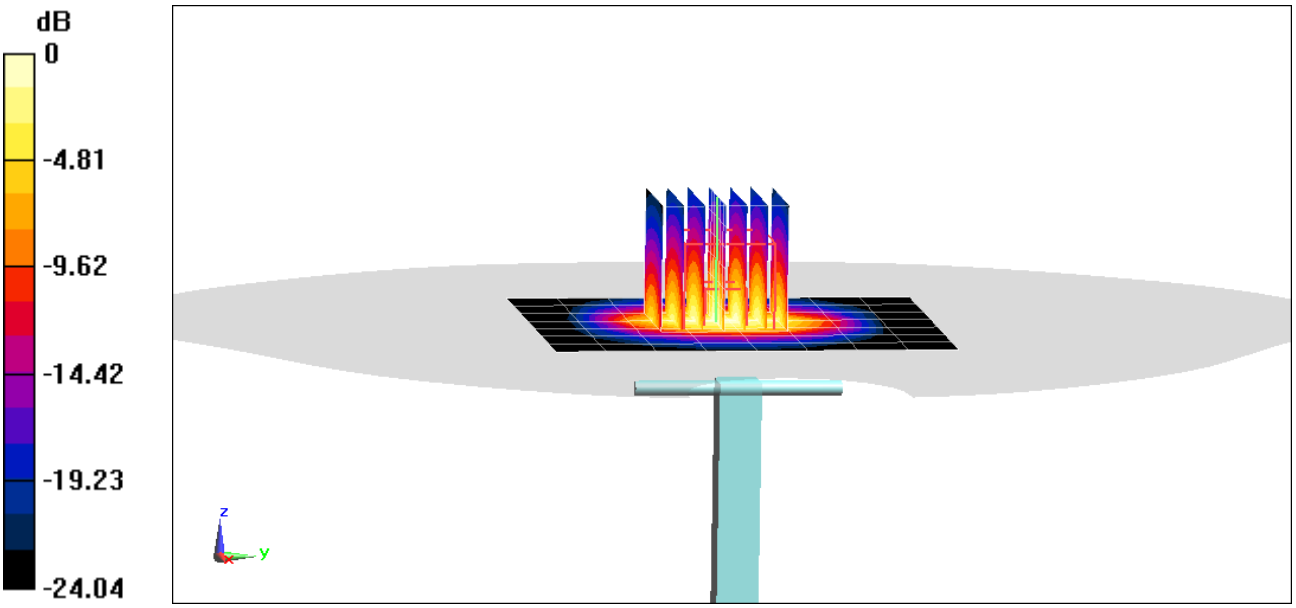
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2600 MHz Head Medium parameters used:
f = 2600 MHz; σ = 1.98 S/m; ε_r = 39.106; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date:09-05-2019; Ambient Temp: 22.2°C; Tissue Temp:20.3°C

Probe: EX3DV4 - SN7410; ConvF(7.33, 7.33, 7.33) @ 2600 MHz; Calibrated: 7/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2019
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1966
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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) = 12.4 W/kg
SAR(1 g) = 5.78 W/kg
Deviation(1 g) = 2.66%



0 dB = 9.82 W/kg = 9.92 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 3500 MHz; Type: D3500V2; Serial: 1059

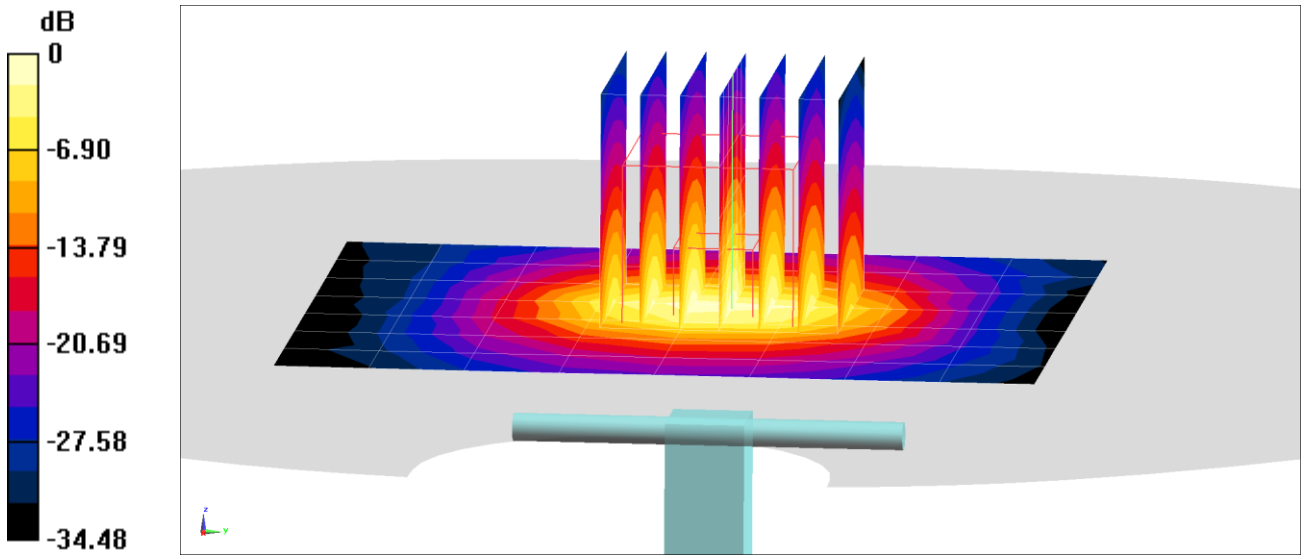
Communication System: UID 0, CW; Frequency: 3500 MHz; Duty Cycle: 1:1
Medium: 3500-3700 Head Medium parameters used:
f = 3500 MHz; σ = 2.817 S/m; ε_r = 39.568; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-03-2019; Ambient Temp: 21.2°C; Tissue Temp: 20.1°C

Probe: EX3DV4 - SN3589; ConvF(6.16, 6.16, 6.16) @ 3500 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 7/11/2019
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

3500 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 17.2 W/kg
SAR(1 g) = 6.39 W/kg
Deviation(1 g) = -1.08%



0 dB = 12.4 W/kg = 10.93 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 3700 MHz; Type: D3700V2; Serial: 1018

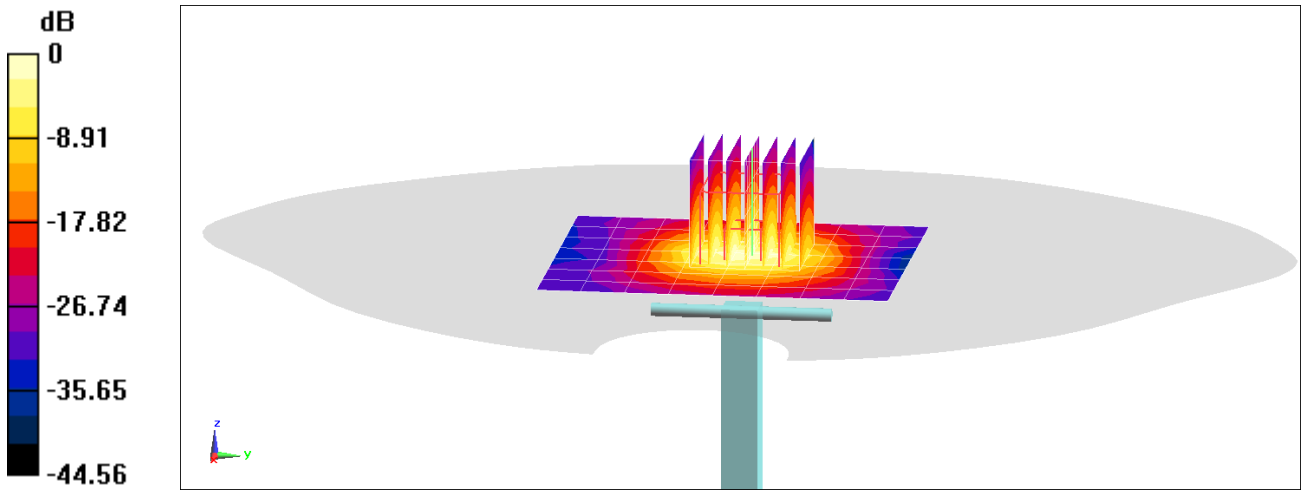
Communication System: UID 0, CW; Frequency: 3700 MHz; Duty Cycle: 1:1
Medium: 3500-3700 Head Medium parameters used (interpolated):
f = 3700 MHz; σ = 3.012 S/m; ε_r = 39.236; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-03-2019; Ambient Temp: 21.2°C; Tissue Temp: 20.1°C

Probe: EX3DV4 - SN3589; ConvF(6.02, 6.02, 6.02) @ 3700 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 7/11/2019
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

3700 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 17.6 W/kg
SAR(1 g) = 6.28 W/kg
Deviation(1 g) = -4.56%



0 dB = 12.5 W/kg = 10.97 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

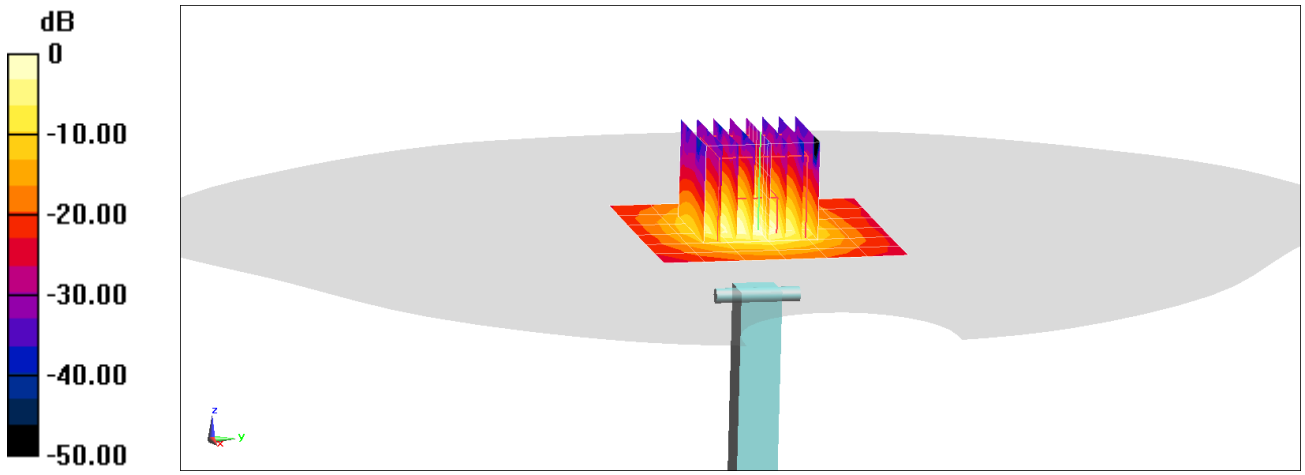
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used (interpolated):
f = 5250 MHz; σ = 4.619 S/m; ε_r = 34.958; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-10-2019; Ambient Temp: 23.9°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7406; ConvF(5.54, 5.54, 5.54) @ 5250 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Right 20; Type: QD 000 P40 CD; Serial: 1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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) = 15.9 W/kg
SAR(1 g) = 3.83 W/kg
Deviation(1 g) = -5.78%



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

PCTEST ENGINEERING LABORATORY, INC.

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

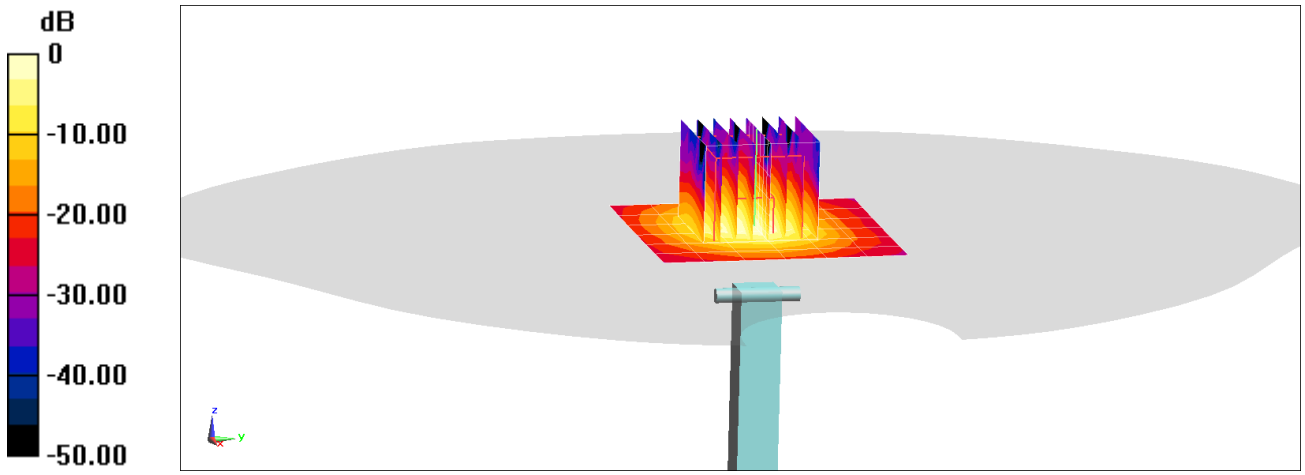
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used:
f = 5600 MHz; σ = 5.014 S/m; ε_r = 34.343; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-10-2019; Ambient Temp: 23.9°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7406; ConvF(4.94, 4.94, 4.94) @ 5600 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Right 20; Type: QD 000 P40 CD; Serial: 1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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) = 4.08 W/kg
Deviation(1 g) = -4.78%



0 dB = 9.75 W/kg = 9.89 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

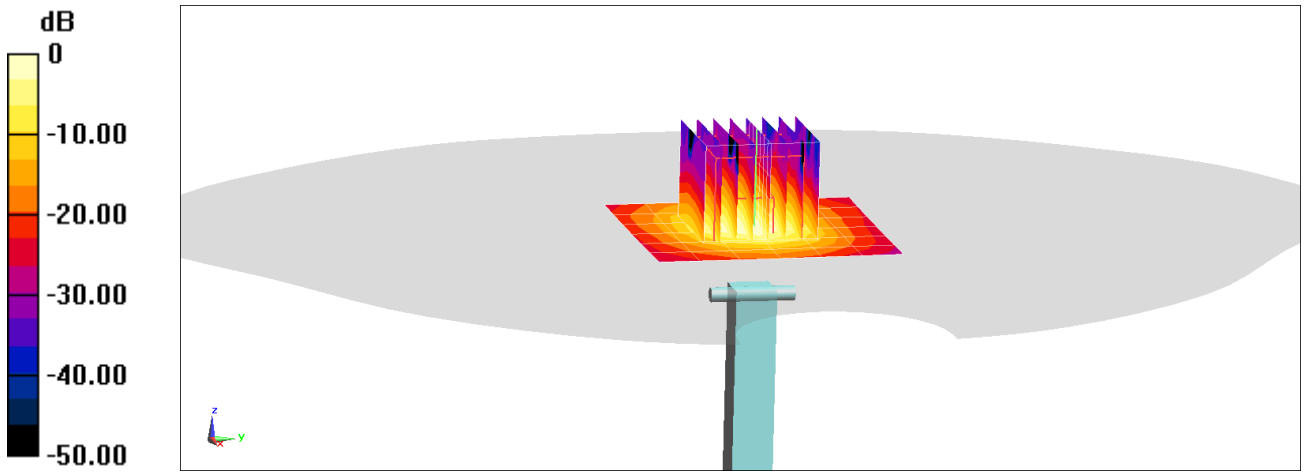
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used (interpolated):
f = 5750 MHz; σ = 5.187 S/m; ε_r = 34.096; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-10-2019; Ambient Temp: 23.9°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7406; ConvF(5.23, 5.23, 5.23) @ 5750 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Right 20; Type: QD 000 P40 CD; Serial: 1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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) = 17.8 W/kg
SAR(1 g) = 3.82 W/kg
Deviation(1 g) = -5.21%



0 dB = 9.41 W/kg = 9.74 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

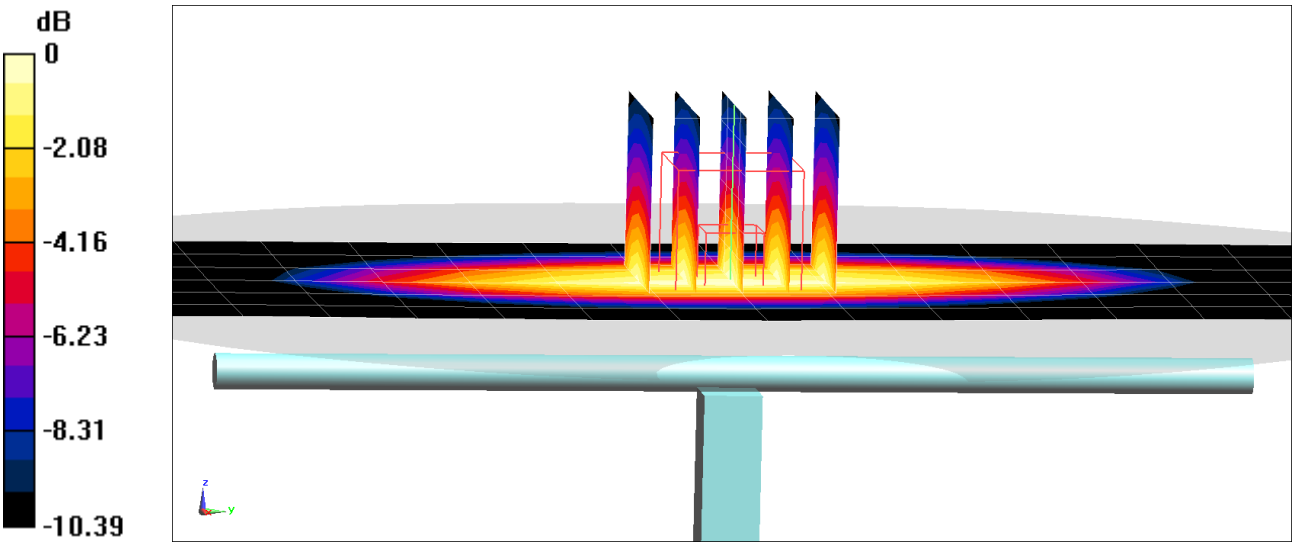
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used (interpolated):
f = 750 MHz; σ = 0.962 S/m; ε_r = 54.17; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-26-2019; Ambient Temp: 22.3°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7357; ConvF(10.19, 10.19, 10.19) @ 750 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Twin-SAM V4.0 (30); Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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) = 2.51 W/kg
SAR(1 g) = 1.65 W/kg
Deviation(1 g) = -3.85%



0 dB = 2.21 W/kg = 3.44 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

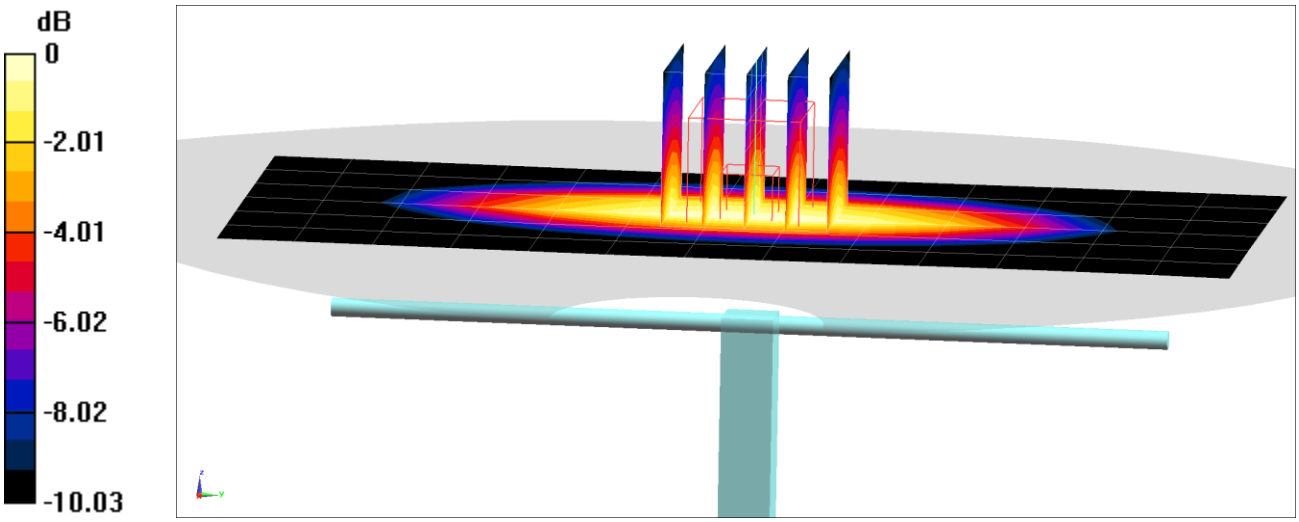
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.954 S/m; ε_r = 56.871; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-26-2019; Ambient Temp: 21.0°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.78, 9.78, 9.78) @ 835 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 30; Type: QD 000 P40 CD; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 3.00 W/kg
SAR(1 g) = 2 W/kg
Deviation(1 g) = 3.41%



0 dB = 2.66 W/kg = 4.25 dBW/kg