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:
12/09/2019 – 01/13/2020
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
1M1911260200-01-R1.ZNF

FCC ID: ZNFL555DL

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: LG L555DL
Additional Model(s) LG-L555DL, LM-K500UM, LM-K500QM, LM-K500QM5, LM-K500QM6, LM-K500MM, LM-K500UL, LM-K500VPP
LGL555DL, LMK500UM, LMK500QM, LMK500QM5, LMK500QM6, LMK500MM, LMK500UL, LMK500VPP
L555DL, K500UM, K500QM, K500QM5, K500QM6, K500MM, K500UL, K500VPP
Permissive Change(s): See FCC Change Document
Date of Original Certification: 12/13/2019

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	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.31	0.60	0.60	N/A
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	0.26	0.49	0.49	N/A
PCE	UMTS 850	826.40 - 846.60 MHz	0.26	0.58	0.58	N/A
PCE	UMTS 1750	1712.4 - 1752.6 MHz	0.37	0.83	0.83	2.70
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.56	0.99	0.99	2.61
PCE	CDMA/EVDO BC10 (§90S)	817.90 - 823.10 MHz	0.30	0.61	0.58	N/A
PCE	CDMA/EVDO BC0 (§22H)	824.70 - 848.31 MHz	0.22	0.54	0.71	N/A
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.48	1.01	1.01	2.33
PCE	LTE Band 71	665.5 - 695.5 MHz	0.10	0.19	0.29	N/A
PCE	LTE Band 12	699.7 - 715.3 MHz	0.10	0.21	0.29	N/A
PCE	LTE Band 13	779.5 - 784.5 MHz	0.26	0.54	0.54	N/A
PCE	LTE Band 26 (Cell)	814.7 - 848.3 MHz	0.21	0.49	0.49	N/A
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	0.32	0.85	0.85	3.03
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	0.43	1.20	1.20	2.92
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 41	2498.5 - 2687.5 MHz	< 0.1	1.08	1.27	2.03
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.87	0.45	0.45	N/A
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	0.66	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.94	0.63	N/A	1.63
NII	U-NII-2C	5500 - 5720 MHz	1.02	0.65	N/A	1.39
NII	U-NII-3	5745 - 5825 MHz	1.07	0.52	0.80	N/A
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.13	< 0.1	< 0.1	N/A
Simultaneous SAR per KDB 690783 D01v01r03:			1.57	1.53	1.58	3.96

Note: This revised test report (S/N: 1M1911260200-01-R1.A3L) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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

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

Randy Ortanez
President

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

© 2020 PCTEST Engineering Laboratory, Inc.
REV 21.4 M
09/11/2019

© 2020 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 12

3 INTRODUCTION 13

4 DOSIMETRIC ASSESSMENT 14

5 DEFINITION OF REFERENCE POINTS 15

6 TEST CONFIGURATION POSITIONS 16

7 RF EXPOSURE LIMITS 20

8 FCC MEASUREMENT PROCEDURES 21

9 RF CONDUCTED POWERS 28

10 SYSTEM VERIFICATION 64

11 SAR DATA SUMMARY 68

12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS 91

13 SAR MEASUREMENT VARIABILITY 108

14 ADDITIONAL TESTING PER FCC GUIDANCE 110

15 EQUIPMENT LIST 118

16 MEASUREMENT UNCERTAINTIES 119

17 CONCLUSION 120

18 REFERENCES 121

APPENDIX A: SAR TEST PLOTS

APPENDIX B: SAR DIPOLE VERIFICATION PLOTS

APPENDIX C: SAR TISSUE SPECIFICATIONS

APPENDIX D: SAR SYSTEM VALIDATION

APPENDIX E: DUT ANTENNA DIAGRAM & SAR TEST SETUP PHOTOGRAPHS

APPENDIX F: DOWNLINK LTE CA RF CONDUCTED POWERS

APPENDIX G: POWER REDUCTION VERIFICATION

APPENDIX H: PROBE AND DIPOLE CALIBRATION CERTIFICATES

© 2020 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
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
CDMA/EVDO BC10 (§90S)	Voice/Data	817.90 - 823.10 MHz
CDMA/EVDO BC0 (§22H)	Voice/Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
LTE Band 71	Voice/Data	665.5 - 695.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 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 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

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.

© 2020 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 Nominal and Maximum Output Power Specifications

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

1.3.1 Maximum Output Power

Mode / Band		Voice (dBm)	Burst Average GMSK (dBm)				Burst Average 8-PSK (dBm)			
		1 TX Slot	*1 TX Slots*	*2 TX Slots*	*3 TX Slots*	*4 TX Slots*	*1 TX Slots*	*2 TX Slots*	*3 TX Slots*	*4 TX Slots*
GSM/GPRS/EDGE 850	Maximum	**34.0**	**34.0**	**32.7**	**30.7**	**28.7**	**26.7**	**25.7**	**23.7**	**22.7**
	Nominal	**33.5**	**33.5**	**32.2**	**30.2**	**28.2**	**26.2**	**25.2**	**23.2**	**22.2**
GSM/GPRS/EDGE 1900	Maximum	**30.3**	**30.3**	**29.7**	**27.7**	**25.7**	**26.7**	**25.7**	**23.7**	**22.7**
	Nominal	**29.8**	**29.8**	**29.2**	**27.2**	**25.2**	**26.2**	**25.2**	**23.2**	**22.2**

Mode / Band		*3GPP WCDMA (dBm)*	*3GPP HSDPA (dBm)*				*3GPP HSUPA (dBm)*				
		RMC/AMR	*Subtest 1*	*Subtest 2*	*Subtest 3*	*Subtest 4*	*Subtest 1*	*Subtest 2*	*Subtest 3*	*Subtest 4*	*Subtest 5*
UMTS Band 5 (850 MHz)	Maximum	**25.2**	**24.2**	**24.2**	**23.7**	**23.7**	**22.2**	**22.2**	**23.2**	**21.7**	**23.2**
	Nominal	**24.7**	**23.7**	**23.7**	**23.2**	**23.2**	**21.7**	**21.7**	**22.7**	**21.2**	**22.7**
UMTS Band 4 (1750 MHz)	Maximum	**25.0**	**24.0**	**24.0**	**23.5**	**23.5**	**22.0**	**22.0**	**23.0**	**21.5**	**23.0**
	Nominal	**24.5**	**23.5**	**23.5**	**23.0**	**23.0**	**21.5**	**21.5**	**22.5**	**21.0**	**22.5**
UMTS Band 2 (1900 MHz)	Maximum	**25.0**	**24.0**	**24.0**	**23.5**	**23.5**	**22.0**	**22.0**	**23.0**	**21.5**	**23.0**
	Nominal	**24.5**	**23.5**	**23.5**	**23.0**	**23.0**	**21.5**	**21.5**	**22.5**	**21.0**	**22.5**

Mode / Band		Modulated Average (dBm)
CDMA/EVDO BC10 (§90S)	Maximum	**25.2**
	Nominal	**24.7**
CDMA/EVDO BC0 (§22H)	Maximum	**25.2**
	Nominal	**24.7**
PCS CDMA/EVDO	Maximum	**25.0**
	Nominal	**24.5**

© 2020 PCTEST Engineering Laboratory, Inc.

REV 21.4 M
09/11/2019

© 2020 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	**25.2**
	Nominal	**24.7**
LTE Band 12	Maximum	**25.2**
	Nominal	**24.7**
LTE Band 13	Maximum	**25.2**
	Nominal	**24.7**
LTE Band 26 (Cell)	Maximum	**25.2**
	Nominal	**24.7**
LTE Band 5 (Cell)	Maximum	**25.2**
	Nominal	**24.7**
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	**25.0**
	Nominal	**24.5**
LTE Band 2 (PCS)	Maximum	**25.0**
	Nominal	**24.5**
LTE Band 41 (PC3)	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 41 (PC2)	Maximum	**26.0**
	Nominal	**25.5**

© 2020 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)		
Channel		1 - 2	3 - 9	10 - 11
IEEE 802.11b (2.4 GHz)	Maximum	**22.0**		
	Nominal	**21.0**		
IEEE 802.11g (2.4 GHz)	Maximum	**18.5**	**21.0**	**18.0**
	Nominal	**17.5**	**20.0**	**17.0**
IEEE 802.11n (2.4 GHz)	Maximum	**17.5**	**20.0**	**17.0**
	Nominal	**16.5**	**19.0**	**16.0**

Mode / Band		Modulated Average (dBm)
Bluetooth	Maximum	**10.0**
	Nominal	**9.0**
Bluetooth LE	Maximum	**5.0**
	Nominal	**4.0**

Mode / Band		Modulated Average (dBm)																																	
		20 MHz Bandwidth													40 MHz Bandwidth												80 MHz Bandwidth					
Channel		36	40	44-48	52	56	60	64	100	104-140	144	149-153	157	161	165	38	46	54	62	102	110	118	126	134	142	151	159	42	58	106	122	138	155
IEEE 802.11a (5 GHz)	Maximum	**18.0**		**20.0**				**18.0**		**20.0**					**18.0**																				
	Nominal	**17.0**		**19.0**				**17.0**		**19.0**					**17.0**																				
IEEE 802.11n (5 GHz)	Maximum	**17.0**		**19.0**				**17.0**		**19.0**					**17.0**	**16.0**	**18.0**		**16.0**				**18.0**				**16.0**								
	Nominal	**16.0**		**18.0**				**16.0**		**18.0**					**16.0**	**15.0**	**17.0**		**15.0**				**17.0**				**15.0**								
IEEE 802.11ac (5 GHz)	Maximum	**17.0**		**19.0**				**17.0**		**19.0**					**17.0**	**16.0**	**18.0**		**16.0**				**18.0**				**16.0**			**15.0**					
	Nominal	**16.0**		**18.0**				**16.0**		**18.0**					**16.0**	**15.0**	**17.0**		**15.0**				**17.0**				**15.0**			**14.0**					

© 2020 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.

1.3.2 Reduced Output Power

Mode / Band		3GPP WCDMA (dBm)	3GPP HSDPA (dBm)				3GPP HSUPA (dBm)				
		RMC/AMR	Subtest 1	Subtest 2	Subtest 3	Subtest 4	Subtest 1	Subtest 2	Subtest 3	Subtest 4	Subtest 5
UMTS Band 4 (1750 MHz)	Maximum	23.0	23.0	23.0	22.5	22.5	21.0	21.0	22.0	20.5	22.0
	Nominal	22.5	22.5	22.5	22.0	22.0	20.5	20.5	21.5	20.0	21.5
UMTS Band 2 (1900 MHz)	Maximum	24.0	24.0	24.0	23.5	23.5	22.0	22.0	23.0	21.5	23.0
	Nominal	23.5	23.5	23.5	23.0	23.0	21.5	21.5	22.5	21.0	22.5

Mode / Band		Modulated Average (dBm)
PCS CDMA/EVDO	Maximum	24.0
	Nominal	23.5

Mode / Band		Modulated Average (dBm)
LTE Band 66 (AWS)	Maximum	23.0
	Nominal	22.5
LTE Band 4 (AWS)	Maximum	23.0
	Nominal	22.5
LTE Band 25 (PCS)	Maximum	24.0
	Nominal	23.5
LTE Band 2 (PCS)	Maximum	24.0
	Nominal	23.5

Mode / Band		Modulated Average (dBm)		
Channel		1 - 2	3 - 9	10 - 11
IEEE 802.11b (2.4 GHz)	Maximum	18.0		
	Nominal	17.0		
IEEE 802.11g (2.4 GHz)	Maximum	18.0		
	Nominal	17.0		
IEEE 802.11n (2.4 GHz)	Maximum	17.5	18.0	17.0
	Nominal	16.5	17.0	16.0

Mode / Band		Modulated Average (dBm)																																	
		20 MHz Bandwidth															40 MHz Bandwidth												80 MHz Bandwidth					
Channel		36	40	44-48	52	56	60	64	100	104-140	144	149-153	157	161	165	38	46	54	62	102	110	118	126	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													15.0					
	Nominal	15.0														15.0													14.0					

© 2020 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 DUT Antenna Locations

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

Table 1-1
Device Edges/Sides for SAR Testing

Mode	Back	Front	Top	Bottom	Right	Left
GPRS 850	Yes	Yes	No	Yes	Yes	Yes
GPRS 1900	Yes	Yes	No	Yes	No	Yes
UMTS 850	Yes	Yes	No	Yes	Yes	Yes
UMTS 1750	Yes	Yes	No	Yes	No	Yes
UMTS 1900	Yes	Yes	No	Yes	No	Yes
EVDO BC10 (§90S)	Yes	Yes	No	Yes	Yes	Yes
EVDO BC0 (§22H)	Yes	Yes	No	Yes	Yes	Yes
PCS EVDO	Yes	Yes	No	Yes	No	Yes
LTE Band 71	Yes	Yes	No	Yes	Yes	Yes
LTE Band 12	Yes	Yes	No	Yes	Yes	Yes
LTE Band 13	Yes	Yes	No	Yes	Yes	Yes
LTE Band 26 (Cell)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 66 (AWS)	Yes	Yes	No	Yes	No	Yes
LTE Band 25 (PCS)	Yes	Yes	No	Yes	No	Yes
LTE Band 41	Yes	Yes	No	Yes	Yes	Yes
2.4 GHz WLAN	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN	Yes	Yes	Yes	No	No	Yes
Bluetooth	Yes	Yes	Yes	No	No	Yes

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

© 2020 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 Simultaneous Transmission Capabilities

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

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

Table 1-2
Simultaneous Transmission Scenarios

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

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

© 2020 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.

1.6 Miscellaneous SAR Test Considerations

(A) WIFI/BT

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

This device supports IEEE 802.11ac with the following features:

a) Up to 80 MHz Bandwidth only
b) No aggregate channel configurations
c) 1 Tx antenna output
d) 256 QAM is supported
e) TDWR 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 2.4 GHz WLAN, U-NII-1 WLAN, U-NII-3 WLAN, and Bluetooth 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.

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.

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. Phablet SAR was not evaluated for licensed technologies since wireless router 1g SAR was < 1.2 W/kg for these modes.

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 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 41 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per 2017 Fall TCB Workshop Notes.

© 2020 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 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 Band 41 Power Class 2/3)
- April 2018 TCB Workshop Notes (LTE Carrier Aggregation)

1.8 Device Serial Numbers

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

© 2020 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 13 (779.5 - 784.5 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 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 13: 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 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 13: 5 MHz	779.5 (23205)		782 (23230)	784.5 (23255)	
LTE Band 13: 10 MHz	N/A		782 (23230)	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 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 7, 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 11. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release 11 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, WIFI Offloading, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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]

© 2020 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:

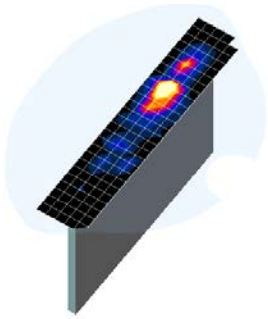


Figure 4-1
Sample SAR Area Scan

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

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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].

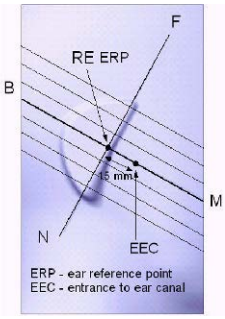


Figure 5-1
Close-Up Side view of ERP

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.

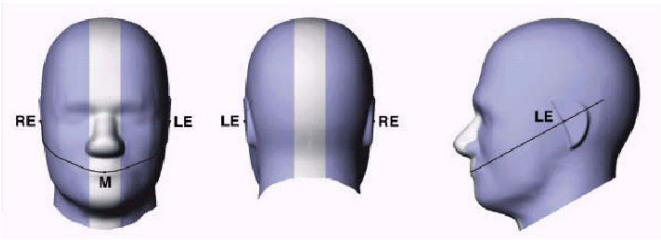


Figure 5-2
Front, back and side view of SAM Twin Phantom

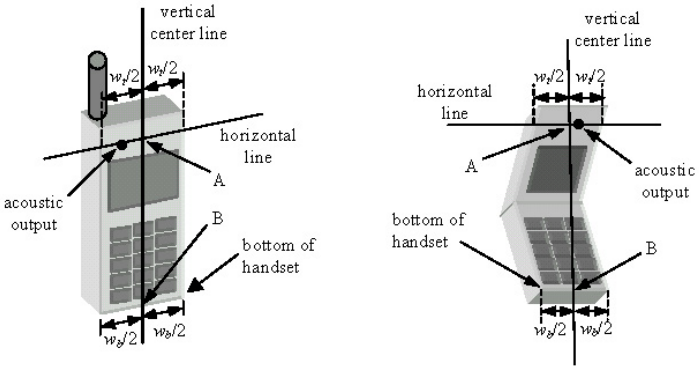


Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

© 2020 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).

© 2020 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.

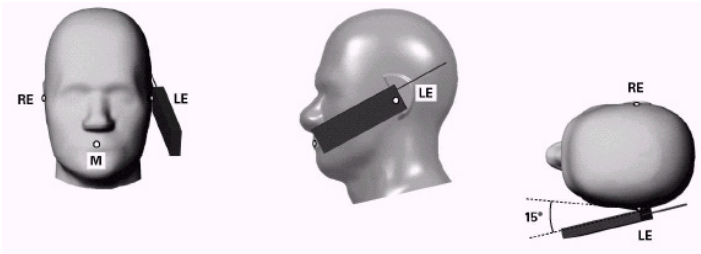


Figure 6-2 Front, Side and Top View of Ear/15º Tilt Position

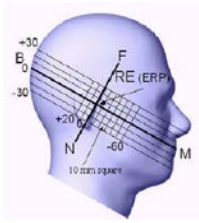


Figure 6-3
Side view w/ relevant markings

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.

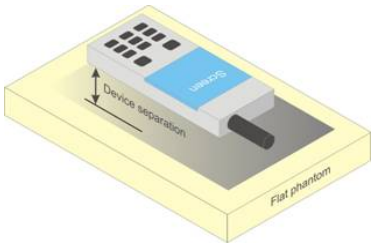


Figure 6-4
Sample Body-Worn Diagram

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

© 2020 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

© 2020 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 F.

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.

© 2020 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.

© 2020 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.

© 2020 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.

© 2020 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.

8.5 SAR Measurement Conditions for UMTS

8.5.1 Output Power Verification

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

8.5.2 Head SAR Measurements

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

8.5.3 Body SAR Measurements

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

8.5.4 SAR Measurements with Rel 5 HSDPA

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

© 2020 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 SAR Measurement Conditions for LTE

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

8.6.1 Spectrum Plots for RB Configurations

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

8.6.2 MPR

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

8.6.3 A-MPR

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

8.6.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

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

8.6.5 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

© 2020 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.

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 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

© 2020 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.

band gap channels are permanently disabled, SAR must be considered for these channels. Each band is tested independently according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

8.7.4 Initial Test Position Procedure

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

8.7.5 2.4 GHz SAR Test Requirements

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

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

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

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

8.7.6 OFDM Transmission Mode and SAR Test Channel Selection

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

8.7.7 Initial Test Configuration Procedure

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

© 2020 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.

The channel of the transmission mode with the highest average RF output conducted power will be the initial test configuration.

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

8.7.8 Subsequent Test Configuration Procedures

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

© 2020 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]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	564	90S	820.1	24.63	24.57	23.55	25.00	24.96	24.95
Cellular	1013	22H	824.7	24.52	24.49	23.52	24.49	24.51	24.85
	384	22H	836.52	24.66	24.63	23.61	24.63	24.70	25.01
	777	22H	848.31	24.69	24.68	23.65	24.67	24.65	25.00
PCS	25	24E	1851.25	24.70	24.77	23.80	24.99	24.89	24.92
	600	24E	1880	24.80	24.88	23.78	24.99	24.88	24.90
	1175	24E	1908.75	24.97	25.00	23.97	25.00	24.95	24.94

Table 9-2
Reduced Conducted Power

Band	Channel	Rule Part	Frequency	SO55 [dBm]	SO55 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	FCH+SCH	FCH	(RTAP)	(RETAP)
PCS	25	24E	1851.25	23.81	23.87	23.26	23.85	23.90	23.90
	600	24E	1880	23.92	23.95	23.30	23.98	23.81	23.72
	1175	24E	1908.75	24.00	23.99	23.49	24.00	23.96	23.73

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.

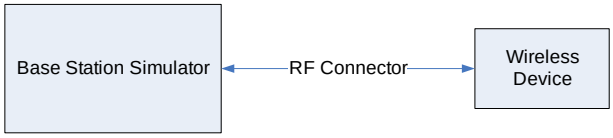


Figure 9-1
Power Measurement Setup

© 2020 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	33.76	33.78	32.26	**30.49**	28.51	26.64	25.40	23.40	22.40
	190	33.86	33.87	32.34	**30.56**	28.56	26.55	25.33	23.35	22.33
	251	33.76	33.77	32.26	**30.42**	28.41	26.41	25.31	23.32	22.22
GSM 1900	512	30.22	30.23	29.56	**27.69**	25.70	26.36	25.00	22.62	21.27
	661	30.22	30.22	29.46	**27.57**	25.58	26.41	25.01	22.59	21.11
	810	30.27	30.28	29.39	**27.50**	25.55	26.60	25.22	22.70	21.31

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	24.73	24.75	26.24	**26.23**	25.50	17.61	19.38	19.14	19.39
	190	24.83	24.84	26.32	**26.30**	25.55	17.52	19.31	19.09	19.32
	251	24.73	24.74	26.24	**26.16**	25.40	17.38	19.29	19.06	19.21
GSM 1900	512	21.19	21.20	23.54	**23.43**	22.69	17.33	18.98	18.36	18.26
	661	21.19	21.19	23.44	**23.31**	22.57	17.38	18.99	18.33	18.10
	810	21.24	21.25	23.37	**23.24**	22.54	17.57	19.20	18.44	18.30

GSM 850	**Frame Avg.Targets:**	24.47	24.47	26.18	**25.94**	25.19	17.17	19.18	18.94	19.19
GSM 1900		20.77	20.77	23.18	**22.94**	22.19	17.17	19.18	18.94	19.19

© 2020 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 8-PSK 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

© 2020 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	25.18	25.17	25.20	24.97	25.00	24.98	24.88	24.92	24.97	-
99		12.2 kbps AMR	25.18	25.16	25.20	24.98	25.00	24.99	24.96	24.99	24.99	-
6	HSDPA	Subtest 1	24.14	24.19	24.16	23.70	23.78	23.60	23.95	23.99	23.98	0
6		Subtest 2	24.18	24.15	24.17	23.67	23.76	23.62	23.92	24.00	23.94	0
6		Subtest 3	23.65	23.67	23.70	23.19	23.24	23.15	23.42	23.44	23.45	0.5
6		Subtest 4	23.66	23.67	23.69	23.15	23.23	23.09	23.45	23.46	23.44	0.5
6	HSUPA	Subtest 1	22.18	22.18	22.19	21.68	21.74	21.60	21.92	21.95	22.00	0
6		Subtest 2	22.19	22.20	22.20	21.66	21.77	21.65	21.93	21.96	22.00	2
6		Subtest 3	23.19	23.19	23.17	22.67	22.72	22.61	22.95	22.97	23.00	1
6		Subtest 4	21.68	21.67	21.68	21.19	21.26	21.12	21.45	21.44	21.50	2
6		Subtest 5	23.20	23.18	23.20	22.33	22.40	22.30	22.60	22.61	22.70	0

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	22.82	22.88	22.87	23.93	23.95	24.00	-
99		12.2 kbps AMR	22.86	22.94	22.76	23.94	23.98	24.00	-
6	HSDPA	Subtest 1	22.61	22.70	22.55	23.95	23.99	23.98	0
6		Subtest 2	22.62	22.68	22.54	23.92	24.00	23.94	0
6		Subtest 3	22.15	22.18	22.10	23.42	23.44	23.45	0.5
6		Subtest 4	22.12	22.18	22.08	23.45	23.46	23.44	0.5
6	HSUPA	Subtest 1	20.63	20.70	20.60	21.92	21.95	22.00	0
6		Subtest 2	20.64	20.71	20.61	21.93	21.96	22.00	2
6		Subtest 3	21.63	21.68	21.59	22.95	22.97	23.00	1
6		Subtest 4	20.16	20.25	20.08	21.45	21.44	21.50	2
6		Subtest 5	21.64	21.69	21.59	22.60	22.61	22.70	0

This device does not support DC-HSDPA.

Figure 9-3
Power Measurement Setup

© 2020 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	24.60	0	0
	1	50	**24.91**		0
	1	99	24.61		0
	50	0	**24.00**	0-1	1
	50	25	23.96		1
	50	50	23.93		1
	100	0	23.99		1
16QAM	1	0	24.10	0-1	1
	1	50	24.18		1
	1	99	23.87		1
	50	0	22.97	0-2	2
	50	25	22.94		2
	50	50	22.91		2
	100	0	22.95		2
64QAM	1	0	22.97	0-2	2
	1	50	23.12		2
	1	99	22.86		2
	50	0	21.99	0-3	3
	50	25	21.97		3
	50	50	21.91		3
	100	0	21.97		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.

© 2020 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 9-7
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	24.65	0	0
	1	36	24.69		0
	1	74	24.55		0
	36	0	23.83	0-1	1
	36	18	23.78		1
	36	37	23.82		1
	75	0	23.81		1
16QAM	1	0	23.85	0-1	1
	1	36	23.90		1
	1	74	23.90		1
	36	0	22.80	0-2	2
	36	18	22.78		2
	36	37	22.79		2
	75	0	22.80		2
64QAM	1	0	22.86	0-2	2
	1	36	22.85		2
	1	74	22.80		2
	36	0	21.87	0-3	3
	36	18	21.80		3
	36	37	21.86		3
	75	0	21.82		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.

© 2020 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	24.72	24.65	24.62	0	0
	1	25	24.82	24.83	24.74		0
	1	49	24.61	24.58	24.64		0
	25	0	23.69	23.76	23.85	0-1	1
	25	12	23.82	23.76	23.80		1
	25	25	23.84	23.80	23.73		1
	50	0	23.79	23.82	23.82		1
16QAM	1	0	23.83	23.80	23.80	0-1	1
	1	25	23.92	23.96	24.03		1
	1	49	23.83	23.89	23.85		1
	25	0	22.67	22.75	22.84	0-2	2
	25	12	22.80	22.78	22.79		2
	25	25	22.85	22.80	22.70		2
	50	0	22.76	22.80	22.79		2
64QAM	1	0	22.82	22.86	22.77	0-2	2
	1	25	22.99	22.93	22.93		2
	1	49	22.77	22.82	22.82		2
	25	0	21.72	21.80	21.83	0-3	3
	25	12	21.86	21.81	21.80		3
	25	25	21.86	21.85	21.72		3
	50	0	21.83	21.85	21.79		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	24.62	24.54	24.53	0	0
	1	12	24.88	24.76	25.02		0
	1	24	24.56	24.56	24.53		0
	12	0	23.75	23.67	23.78	0-1	1
	12	6	23.82	23.74	23.78		1
	12	13	23.87	23.71	23.74		1
	25	0	23.81	23.70	23.79		1
16QAM	1	0	23.75	23.77	23.83	0-1	1
	1	12	24.01	24.03	24.00		1
	1	24	23.76	23.75	23.73		1
	12	0	22.72	22.68	22.74	0-2	2
	12	6	22.82	22.75	22.78		2
	12	13	22.88	22.71	22.75		2
	25	0	22.80	22.70	22.75		2
64QAM	1	0	22.77	22.82	22.78	0-2	2
	1	12	23.00	22.96	23.04		2
	1	24	22.75	22.72	22.75		2
	12	0	21.78	21.73	21.79	0-3	3
	12	6	21.88	21.79	21.80		3
	12	13	21.83	21.77	21.75		3
	25	0	21.84	21.72	21.74		3

© 2020 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	**24.89**	0	0
	1	25	24.88		0
	1	49	24.80		0
	25	0	23.99	0-1	1
	25	12	**24.00**		1
	25	25	23.94		1
	50	0	23.95		1
16QAM	1	0	24.12	0-1	1
	1	25	24.09		1
	1	49	24.01		1
	25	0	22.93	0-2	2
	25	12	22.95		2
	25	25	22.88		2
	50	0	22.88		2
64QAM	1	0	23.08	0-2	2
	1	25	23.04		2
	1	49	23.00		2
	25	0	21.94	0-3	3
	25	12	21.96		3
	25	25	21.91		3
	50	0	21.91		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.

© 2020 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 9-11
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	24.63	24.62	24.59	0	0
	1	12	24.96	24.89	24.85		0
	1	24	24.63	24.58	24.58		0
	12	0	23.92	23.85	23.88	0-1	1
	12	6	23.92	23.88	23.86		1
	12	13	23.88	23.83	23.78		1
	25	0	23.92	23.84	23.86		1
16QAM	1	0	23.80	23.80	23.71	0-1	1
	1	12	24.01	24.02	24.00		1
	1	24	23.72	23.70	23.61		1
	12	0	22.88	22.82	22.74	0-2	2
	12	6	22.90	22.83	22.85		2
	12	13	22.85	22.80	22.73		2
	25	0	22.87	22.80	22.82		2
64QAM	1	0	22.77	22.80	22.75	0-2	2
	1	12	23.13	22.95	23.00		2
	1	24	22.77	22.73	22.65		2
	12	0	21.92	21.83	21.85	0-3	3
	12	6	21.92	21.85	21.86		3
	12	13	21.85	21.85	21.76		3
	25	0	21.87	21.82	21.80		3

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	24.75	24.74	24.70	0	0
	1	7	24.92	24.72	24.89		0
	1	14	24.75	24.66	24.68		0
	8	0	23.85	23.82	23.85	0-1	1
	8	4	23.90	23.90	23.86		1
	8	7	23.86	23.80	23.80		1
	15	0	23.91	23.86	23.86		1
16QAM	1	0	23.86	23.86	23.78	0-1	1
	1	7	24.09	23.99	23.98		1
	1	14	23.91	23.91	23.70		1
	8	0	22.86	22.82	22.83	0-2	2
	8	4	22.90	22.82	22.82		2
	8	7	22.87	22.77	22.77		2
	15	0	22.86	22.77	22.78		2
64QAM	1	0	22.93	22.85	22.83	0-2	2
	1	7	23.09	23.00	23.03		2
	1	14	22.92	22.80	22.74		2
	8	0	21.88	21.85	21.85	0-3	3
	8	4	21.91	21.84	21.86		3
	8	7	21.87	21.81	21.80		3
	15	0	21.86	21.80	21.79		3

© 2020 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 9-13
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	24.70	24.72	24.47	0	0
	1	2	24.90	24.85	24.88		0
	1	5	24.70	24.70	24.74		0
	3	0	24.85	24.85	24.84		0
	3	2	24.89	24.87	24.92		0
	3	3	24.85	24.85	24.83		0
	6	0	23.94	23.93	23.95	0-1	1
16QAM	1	0	23.81	23.81	23.85	0-1	1
	1	2	23.89	24.00	23.90		1
	1	5	23.72	23.83	23.77		1
	3	0	23.83	23.86	23.83		1
	3	2	23.82	23.86	23.85		1
	3	3	23.79	23.85	23.80		1
	6	0	22.88	22.94	22.91	0-2	2
64QAM	1	0	22.82	22.85	22.87	0-2	2
	1	2	22.93	23.00	22.92		2
	1	5	22.77	22.86	22.77		2
	3	0	22.86	22.89	22.85		2
	3	2	22.87	22.91	22.90		2
	3	3	22.83	22.89	22.80		2
	6	0	21.83	21.88	21.85	0-3	3

© 2020 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	24.96	0	0
	1	25	**25.01**		0
	1	49	24.82		0
	25	0	23.99	0-1	1
	25	12	**24.05**		1
	25	25	23.94		1
	50	0	23.96		1
16QAM	1	0	24.10	0-1	1
	1	25	24.17		1
	1	49	24.12		1
	25	0	22.99	0-2	2
	25	12	23.06		2
	25	25	22.97		2
	50	0	22.97		2
64QAM	1	0	23.13	0-2	2
	1	25	23.20		2
	1	49	23.11		2
	25	0	21.91	0-3	3
	25	12	22.05		3
	25	25	21.97		3
	50	0	22.00		3

© 2020 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 9-15
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	24.68	0	0
	1	12	24.97		0
	1	24	24.61		0
	12	0	23.77	0-1	1
	12	6	23.87		1
	12	13	23.76		1
	25	0	23.80		1
16QAM	1	0	23.75	0-1	1
	1	12	23.96		1
	1	24	23.74		1
	12	0	22.78	0-2	2
	12	6	22.87		2
	12	13	22.79		2
	25	0	22.80		2
64QAM	1	0	22.81	0-2	2
	1	12	23.01		2
	1	24	22.80		2
	12	0	21.82	0-3	3
	12	6	21.91		3
	12	13	21.80		3
	25	0	21.82		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.

© 2020 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 26 (Cell)

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

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	**RB Size**	**RB Offset**	**Mid Channel 26865 (831.5 MHz) Conducted Power [dBm]**	**MPR Allowed per 3GPP [dB]**	**MPR [dB]**
QPSK	1	0	24.84	0	0
	1	36	**24.92**		0
	1	74	24.87		0
	36	0	**24.07**	0-1	1
	36	18	24.05		1
	36	37	24.03		1
	75	0	24.04		1
16QAM	1	0	24.13	0-1	1
	1	36	24.18		1
	1	74	24.16		1
	36	0	23.03	0-2	2
	36	18	23.05		2
	36	37	23.03		2
	75	0	23.06		2
64QAM	1	0	23.16	0-2	2
	1	36	23.19		2
	1	74	23.13		2
	36	0	22.04	0-3	3
	36	18	21.99		3
	36	37	21.98		3
	75	0	22.00		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.

© 2020 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 9-17
LTE Band 26 (Cell) Conducted Powers - 10 MHz Bandwidth

LTE Band 26 (Cell) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26740 (819.0 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 26990 (844.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.74	24.76	24.77	0	0
	1	25	24.78	24.85	24.89		0
	1	49	24.70	24.70	24.70		0
	25	0	23.87	23.88	23.96	0-1	1
	25	12	23.83	23.84	23.87		1
	25	25	23.78	23.80	23.77		1
	50	0	23.84	23.86	23.90		1
16QAM	1	0	24.00	23.97	24.03	0-1	1
	1	25	23.98	24.10	24.07		1
	1	49	23.84	23.98	23.84		1
	25	0	22.88	22.90	22.98	0-2	2
	25	12	22.85	22.87	22.85		2
	25	25	22.81	22.81	22.77		2
	50	0	22.84	22.88	22.87		2
64QAM	1	0	22.90	22.91	23.00	0-2	2
	1	25	23.05	23.00	23.05		2
	1	49	22.89	22.95	22.85		2
	25	0	21.80	21.84	21.94	0-3	3
	25	12	21.76	21.80	21.95		3
	25	25	21.74	21.77	21.70		3
	50	0	21.78	21.85	21.86		3

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

LTE Band 26 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26715 (816.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27015 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.68	24.63	24.74	0	0
	1	12	24.90	24.90	24.95		0
	1	24	24.63	24.64	24.68		0
	12	0	23.83	23.83	23.89	0-1	1
	12	6	23.87	23.85	23.90		1
	12	13	23.78	23.77	23.78		1
	25	0	23.82	23.77	23.84		1
16QAM	1	0	23.85	23.89	24.00	0-1	1
	1	12	24.05	24.08	24.10		1
	1	24	23.85	23.85	23.82		1
	12	0	22.87	22.86	22.91	0-2	2
	12	6	22.91	22.92	22.90		2
	12	13	22.82	22.81	22.78		2
	25	0	22.82	22.82	22.82		2
64QAM	1	0	22.90	22.91	22.91	0-2	2
	1	12	23.00	23.08	23.13		2
	1	24	22.85	22.87	22.83		2
	12	0	21.75	21.76	21.84	0-3	3
	12	6	21.78	21.76	21.86		3
	12	13	21.69	21.69	21.72		3
	25	0	21.71	21.72	21.80		3

© 2020 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 9-19
LTE Band 26 (Cell) Conducted Powers - 3 MHz Bandwidth

LTE Band 26 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26705 (815.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27025 (847.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.78	24.75	24.78	0	0
	1	7	24.90	24.84	24.91		0
	1	14	24.78	24.74	24.76		0
	8	0	23.82	23.74	23.85	0-1	1
	8	4	23.85	23.79	23.89		1
	8	7	23.79	23.74	23.80		1
	15	0	23.84	23.75	23.87		1
16QAM	1	0	23.92	23.88	23.96	0-1	1
	1	7	24.04	24.00	24.08		1
	1	14	23.96	23.95	23.90		1
	8	0	22.87	22.86	22.87	0-2	2
	8	4	22.90	22.84	22.92		2
	8	7	22.88	22.79	22.82		2
	15	0	22.82	22.78	22.83		2
64QAM	1	0	23.00	22.92	22.94	0-2	2
	1	7	23.12	23.11	23.14		2
	1	14	22.96	22.95	22.95		2
	8	0	21.87	21.75	21.81	0-3	3
	8	4	21.79	21.78	21.83		3
	8	7	21.74	21.70	21.76		3
	15	0	21.73	21.73	21.80		3

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

LTE Band 26 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26697 (814.7 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27033 (848.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.70	24.64	24.68	0	0
	1	2	24.84	24.79	24.86		0
	1	5	24.69	24.69	24.71		0
	3	0	24.81	24.78	24.82		0
	3	2	24.83	24.78	24.85		0
	3	3	24.80	24.72	24.80		0
	6	0	23.83	23.79	23.87	0-1	1
16QAM	1	0	23.82	23.88	23.89	0-1	1
	1	2	24.03	24.04	23.99		1
	1	5	23.84	23.87	23.75		1
	3	0	23.86	23.81	23.83		1
	3	2	23.82	23.82	23.83		1
	3	3	23.80	23.79	23.78		1
	6	0	22.92	22.90	22.89	0-2	2
64QAM	1	0	22.92	23.06	22.90	0-2	2
	1	2	23.02	22.96	22.94		2
	1	5	22.90	22.89	22.83		2
	3	0	22.91	22.87	22.87		2
	3	2	22.96	22.92	22.91		2
	3	3	22.88	22.86	22.90		2
	6	0	21.77	21.73	21.75	0-3	3

© 2020 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 66 (AWS)

Table 9-21
LTE Band 66 (AWS) Maximum 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	24.49	24.46	24.50	0	0
	1	50	**24.79**	24.62	24.70		0
	1	99	24.63	24.45	24.39		0
	50	0	23.79	23.78	23.81	0-1	1
	50	25	23.88	23.71	23.76		1
	50	50	**23.95**	23.69	23.65		1
	100	0	23.83	23.67	23.73		1
16QAM	1	0	23.75	23.70	23.84	0-1	1
	1	50	23.90	23.90	23.96		1
	1	99	23.96	23.71	23.69		1
	50	0	22.74	22.75	22.77	0-2	2
	50	25	22.80	22.69	22.71		2
	50	50	22.90	22.63	22.62		2
	100	0	22.82	22.68	22.68		2
64QAM	1	0	22.66	22.69	22.78	0-2	2
	1	50	22.94	22.88	22.93		2
	1	99	22.91	22.76	22.63		2
	50	0	21.75	21.72	21.78	0-3	3
	50	25	21.80	21.68	21.73		3
	50	50	21.91	21.63	21.60		3
	100	0	21.77	21.66	21.68		3

Table 9-22
LTE Band 66 (AWS) Maximum 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	24.75	24.65	24.66	0	0
	1	36	24.77	24.67	24.65		0
	1	74	24.78	24.52	24.54		0
	36	0	23.90	23.91	23.91	0-1	1
	36	18	23.86	23.84	23.85		1
	36	37	23.89	23.78	23.81		1
	75	0	23.93	23.82	23.83		1
16QAM	1	0	23.94	24.00	23.80	0-1	1
	1	36	23.94	24.00	23.81		1
	1	74	24.00	23.98	23.70		1
	36	0	22.91	22.85	22.83	0-2	2
	36	18	22.86	22.82	22.78		2
	36	37	22.93	22.77	22.74		2
	75	0	22.92	22.78	22.86		2
64QAM	1	0	22.75	23.00	22.86	0-2	2
	1	36	22.80	22.98	22.81		2
	1	74	22.85	22.93	22.74		2
	36	0	21.82	21.81	21.90	0-3	3
	36	18	21.73	21.77	21.83		3
	36	37	21.79	21.74	21.80		3
	75	0	21.83	21.78	21.75		3

© 2020 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 9-23
LTE Band 66 (AWS) Maximum 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	24.64	24.70	24.72	0	0
	1	25	24.77	24.85	24.79		0
	1	49	24.67	24.60	24.62		0
	25	0	23.74	23.75	23.76	0-1	1
	25	12	23.73	23.72	23.74		1
	25	25	23.77	23.64	23.71		1
	50	0	23.81	23.74	23.76		1
16QAM	1	0	23.80	24.00	23.84	0-1	1
	1	25	23.96	24.00	23.89		1
	1	49	23.91	24.00	23.74		1
	25	0	22.81	22.81	22.83	0-2	2
	25	12	22.80	22.79	22.78		2
	25	25	22.85	22.75	22.74		2
	50	0	22.85	22.82	22.76		2
64QAM	1	0	22.74	23.00	22.85	0-2	2
	1	25	22.83	23.00	22.91		2
	1	49	22.85	22.97	22.72		2
	25	0	21.83	21.86	21.90	0-3	3
	25	12	21.84	21.82	21.90		3
	25	25	21.88	21.77	21.81		3
	50	0	21.88	21.81	21.81		3

Table 9-24
LTE Band 66 (AWS) Maximum 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	24.58	24.48	24.55	0	0
	1	12	24.85	24.74	24.81		0
	1	24	24.65	24.46	24.61		0
	12	0	23.74	23.71	23.72	0-1	1
	12	6	23.73	23.71	23.77		1
	12	13	23.70	23.66	23.75		1
	25	0	23.66	23.66	23.71		1
16QAM	1	0	23.86	23.66	23.86	0-1	1
	1	12	24.00	23.93	24.00		1
	1	24	23.85	23.71	23.87		1
	12	0	22.70	22.70	22.70	0-2	2
	12	6	22.74	22.70	22.75		2
	12	13	22.69	22.66	22.65		2
	25	0	22.66	22.71	22.67		2
64QAM	1	0	22.89	22.66	23.00	0-2	2
	1	12	23.00	22.81	23.00		2
	1	24	22.94	22.60	22.94		2
	12	0	21.74	21.70	21.75	0-3	3
	12	6	21.77	21.70	21.75		3
	12	13	21.70	21.66	21.68		3
	25	0	21.78	21.69	21.71		3

© 2020 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 66 (AWS) Maximum 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	24.66	24.62	24.64	0	0
	1	7	24.77	24.80	24.74		0
	1	14	24.64	24.70	24.66		0
	8	0	23.80	23.75	23.78	0-1	1
	8	4	23.80	23.77	23.72		1
	8	7	23.77	23.75	23.71		1
	15	0	23.74	23.74	23.70		1
16QAM	1	0	23.82	24.00	23.80	0-1	1
	1	7	23.95	24.00	23.90		1
	1	14	23.80	23.98	23.75		1
	8	0	22.81	22.82	22.70	0-2	2
	8	4	22.75	22.80	22.66		2
	8	7	22.74	22.80	22.65		2
	15	0	22.73	22.77	22.65		2
64QAM	1	0	22.75	23.00	22.65	0-2	2
	1	7	22.88	23.00	22.88		2
	1	14	22.70	22.98	22.81		2
	8	0	21.70	21.85	21.80	0-3	3
	8	4	21.70	21.84	21.72		3
	8	7	21.65	21.84	21.68		3
	15	0	21.77	21.70	21.78		3

Table 9-26
LTE Band 66 (AWS) Maximum 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	24.60	24.70	24.60	0	0
	1	2	24.71	24.78	24.74		0
	1	5	24.62	24.74	24.65		0
	3	0	24.70	24.71	24.69		0
	3	2	24.77	24.75	24.69		0
	3	3	24.77	24.70	24.69		0
	6	0	23.88	23.77	23.76	0-1	1
16QAM	1	0	23.77	23.50	23.67	0-1	1
	1	2	23.86	23.64	23.77		1
	1	5	23.80	23.56	23.73		1
	3	0	23.61	23.74	23.68		1
	3	2	23.61	23.78	23.73		1
	3	3	23.65	23.79	23.71		1
	6	0	22.80	22.88	22.76	0-2	2
64QAM	1	0	22.60	23.00	22.70	0-2	2
	1	2	22.75	23.00	22.81		2
	1	5	22.74	23.00	22.77		2
	3	0	22.87	22.94	22.72		2
	3	2	22.86	22.90	22.75		2
	3	3	22.90	23.00	22.70		2
	6	0	21.70	21.67	21.76	0-3	3

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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 9-27
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	22.35	22.37	22.50	0	0
	1	50	22.64	22.51	**22.78**		0
	1	99	22.43	22.34	22.36		0
	50	0	22.50	22.54	**22.68**	0-1	0
	50	25	22.58	22.49	22.56		0
	50	50	22.67	22.43	22.41		0
	100	0	22.56	22.48	22.57		0
16QAM	1	0	22.97	22.65	22.99	0-1	0
	1	50	22.86	22.81	22.97		0
	1	99	22.83	22.73	22.89		0
	50	0	22.63	22.55	22.67	0-2	0
	50	25	22.70	22.50	22.61		0
	50	50	22.78	22.44	22.53		0
	100	0	22.72	22.49	22.60		0
64QAM	1	0	22.62	22.53	23.00	0-2	0
	1	50	22.94	22.71	22.92		0
	1	99	22.67	22.58	22.78		0
	50	0	21.65	21.55	21.61	0-3	1
	50	25	21.67	21.50	21.61		1
	50	50	21.68	21.45	21.45		1
	100	0	21.69	21.48	21.60		1

Table 9-28
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	22.43	22.65	22.62	0	0
	1	36	22.64	22.75	22.73		0
	1	74	22.56	22.57	22.50		0
	36	0	22.75	22.79	22.86	0-1	0
	36	18	22.81	22.77	22.82		0
	36	37	22.84	22.69	22.72		0
	75	0	22.82	22.70	22.74		0
16QAM	1	0	22.68	22.85	22.99	0-1	0
	1	36	22.83	22.98	22.95		0
	1	74	22.70	22.82	22.76		0
	36	0	22.77	22.77	22.86	0-2	0
	36	18	22.84	22.77	22.82		0
	36	37	22.90	22.69	22.76		0
	75	0	22.80	22.77	22.79		0
64QAM	1	0	22.85	22.92	22.84	0-2	0
	1	36	23.00	22.99	22.91		0
	1	74	22.94	22.84	22.67		0
	36	0	21.72	21.88	21.85	0-3	1
	36	18	21.76	21.83	21.84		1
	36	37	21.83	21.77	21.76		1
	75	0	21.79	21.76	21.76		1

© 2020 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) 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	22.80	22.69	22.70	0	0
	1	25	22.92	22.81	22.77		0
	1	49	22.84	22.61	22.57		0
	25	0	22.71	22.74	22.77	0-1	0
	25	12	22.73	22.72	22.74		0
	25	25	22.78	22.68	22.69		0
	50	0	22.79	22.70	22.74		0
16QAM	1	0	23.00	22.89	22.92	0-1	0
	1	25	22.95	22.96	22.95		0
	1	49	22.94	22.86	22.82		0
	25	0	22.74	22.75	22.77	0-2	0
	25	12	22.72	22.70	22.75		0
	25	25	22.79	22.68	22.72		0
	50	0	22.86	22.75	22.76		0
64QAM	1	0	22.64	22.92	22.58	0-2	0
	1	25	22.97	23.00	22.54		0
	1	49	22.77	22.84	22.50		0
	25	0	21.80	21.82	21.87	0-3	1
	25	12	21.78	21.80	21.79		1
	25	25	21.83	21.76	21.79		1
	50	0	21.76	21.83	21.86		1

Table 9-30
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	22.62	22.47	22.57	0	0
	1	12	22.93	22.88	22.99		0
	1	24	22.56	22.44	22.53		0
	12	0	22.68	22.65	22.72	0-1	0
	12	6	22.78	22.70	22.74		0
	12	13	22.68	22.63	22.61		0
	25	0	22.68	22.66	22.67		0
16QAM	1	0	22.87	22.87	22.78	0-1	0
	1	12	22.59	22.56	22.99		0
	1	24	22.83	22.52	22.83		0
	12	0	22.64	22.67	22.71	0-2	0
	12	6	22.67	22.71	22.75		0
	12	13	22.59	22.64	22.71		0
	25	0	22.79	22.63	22.72		0
64QAM	1	0	22.71	22.73	22.87	0-2	0
	1	12	22.92	22.54	22.98		0
	1	24	22.68	22.95	22.76		0
	12	0	21.72	21.73	21.72	0-3	1
	12	6	21.78	21.81	21.71		1
	12	13	21.69	21.66	21.64		1
	25	0	21.75	21.59	21.60		1

© 2020 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) 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	22.84	22.67	22.64	0	0
	1	7	22.90	22.89	22.81		0
	1	14	22.82	22.62	22.62		0
	8	0	22.71	22.66	22.67	0-1	0
	8	4	22.79	22.69	22.78		0
	8	7	22.69	22.63	22.69		0
	15	0	22.73	22.66	22.67		0
16QAM	1	0	22.76	22.91	22.92	0-1	0
	1	7	22.69	22.92	22.89		0
	1	14	22.86	22.91	22.85		0
	8	0	22.81	22.60	22.68	0-2	0
	8	4	22.93	22.64	22.76		0
	8	7	22.89	22.58	22.70		0
	15	0	22.73	22.68	22.80		0
64QAM	1	0	22.74	22.97	22.91	0-2	0
	1	7	22.87	23.00	22.96		0
	1	14	22.67	22.91	22.79		0
	8	0	21.77	21.74	21.83	0-3	1
	8	4	21.86	21.82	21.89		1
	8	7	21.73	21.73	21.82		1
	15	0	21.67	21.74	21.64		1

Table 9-32
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	22.68	22.53	22.68	0	0
	1	2	22.85	22.79	22.89		0
	1	5	22.73	22.60	22.74		0
	3	0	22.76	22.77	22.69		0
	3	2	22.83	22.76	22.70		0
	3	3	22.74	22.60	22.63		0
	6	0	22.62	22.64	22.64	0-1	0
16QAM	1	0	22.96	22.85	22.80	0-1	0
	1	2	22.94	22.85	22.91		0
	1	5	22.99	22.88	22.78		0
	3	0	22.87	22.61	22.94		0
	3	2	22.88	22.65	22.89		0
	3	3	22.81	22.57	22.88		0
	6	0	22.89	22.55	22.82	0-2	0
64QAM	1	0	22.66	22.82	22.73	0-2	0
	1	2	22.88	22.88	22.87		0
	1	5	22.73	22.65	22.84		0
	3	0	22.98	22.78	22.78		0
	3	2	22.98	22.81	22.77		0
	3	3	22.88	22.83	22.71		0
	6	0	21.89	21.66	21.83	0-3	1

© 2020 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 25 (PCS)

Table 9-33
LTE Band 25 (PCS) Maximum 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	24.57	24.57	24.52	0	0
	1	50	24.71	24.75	**24.79**		0
	1	99	24.49	24.53	24.65		0
	50	0	23.67	23.80	**23.81**	0-1	1
	50	25	23.71	23.79	23.80		1
	50	50	23.70	23.70	23.72		1
	100	0	23.64	23.75	23.80		1
16QAM	1	0	23.90	23.82	23.76	0-1	1
	1	50	23.99	23.99	24.00		1
	1	99	23.80	23.76	23.80		1
	50	0	22.70	22.82	22.83	0-2	2
	50	25	22.72	22.80	22.84		2
	50	50	22.73	22.70	22.73		2
	100	0	22.70	22.75	22.80		2
64QAM	1	0	22.89	22.85	22.78	0-2	2
	1	50	22.97	22.98	23.00		2
	1	99	22.80	22.73	22.83		2
	50	0	21.70	21.81	21.83	0-3	3
	50	25	21.76	21.80	21.84		3
	50	50	21.75	21.70	21.73		3
	100	0	21.70	21.76	21.79		3

Table 9-34
LTE Band 25 (PCS) Maximum 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	24.56	24.40	24.50	0	0
	1	36	24.53	24.54	24.73		0
	1	74	24.44	24.53	24.84		0
	36	0	23.50	23.62	23.76	0-1	1
	36	18	23.48	23.65	23.83		1
	36	37	23.51	23.66	23.85		1
	75	0	23.50	23.64	23.85		1
16QAM	1	0	23.98	23.88	23.60	0-1	1
	1	36	23.66	24.00	23.69		1
	1	74	23.65	23.92	23.79		1
	36	0	22.43	22.62	22.80	0-2	2
	36	18	22.49	22.66	22.82		2
	36	37	22.51	22.67	22.80		2
	75	0	22.45	22.66	22.85		2
64QAM	1	0	22.49	22.77	22.70	0-2	2
	1	36	22.47	22.89	22.78		2
	1	74	22.44	22.87	22.81		2
	36	0	21.40	21.59	21.85	0-3	3
	36	18	21.38	21.59	21.88		3
	36	37	21.41	21.65	21.83		3
	75	0	21.43	21.64	21.80		3

© 2020 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 25 (PCS) Maximum 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	24.52	24.50	24.62	0	0
	1	25	24.55	24.70	24.90		0
	1	49	24.48	24.59	24.88		0
	25	0	23.44	23.52	23.75	0-1	1
	25	12	23.42	23.55	23.73		1
	25	25	23.40	23.52	23.66		1
	50	0	23.48	23.55	23.68		1
16QAM	1	0	23.93	23.90	23.71	0-1	1
	1	25	24.00	24.00	23.90		1
	1	49	23.78	23.92	23.80		1
	25	0	22.55	22.60	22.81	0-2	2
	25	12	22.55	22.62	22.81		2
	25	25	22.50	22.58	22.70		2
	50	0	22.53	22.63	22.77		2
64QAM	1	0	22.90	22.88	22.63	0-2	2
	1	25	22.96	23.00	22.80		2
	1	49	22.75	22.90	22.73		2
	25	0	21.58	21.66	21.83	0-3	3
	25	12	21.55	21.66	21.83		3
	25	25	21.55	21.66	21.77		3
	50	0	21.55	21.63	21.83		3

Table 9-36
LTE Band 25 (PCS) Maximum 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	24.38	24.31	24.70	0	0
	1	12	24.61	24.32	25.00		0
	1	24	24.27	24.33	24.96		0
	12	0	23.43	23.48	23.82	0-1	1
	12	6	23.49	23.55	23.85		1
	12	13	23.49	23.50	23.75		1
	25	0	23.46	23.49	23.73		1
16QAM	1	0	23.50	23.49	23.73	0-1	1
	1	12	23.74	23.75	24.00		1
	1	24	23.45	23.48	23.77		1
	12	0	22.50	22.50	22.81	0-2	2
	12	6	22.52	22.56	22.84		2
	12	13	22.55	22.52	22.74		2
	25	0	22.54	22.55	22.76		2
64QAM	1	0	22.42	22.41	22.60	0-2	2
	1	12	22.68	22.66	22.99		2
	1	24	22.37	22.44	22.78		2
	12	0	21.50	21.50	21.90	0-3	3
	12	6	21.51	21.55	21.93		3
	12	13	21.52	21.51	21.82		3
	25	0	21.53	21.53	21.81		3

© 2020 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 25 (PCS) Maximum 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	24.55	24.56	24.88	0	0
	1	7	24.66	24.55	25.00		0
	1	14	24.53	24.59	25.00		0
	8	0	23.60	23.57	23.88	0-1	1
	8	4	23.55	23.59	23.94		1
	8	7	23.53	23.56	23.88		1
	15	0	23.53	23.53	23.85		1
16QAM	1	0	23.62	23.93	23.82	0-1	1
	1	7	23.70	24.00	23.95		1
	1	14	23.56	23.95	23.88		1
	8	0	22.66	22.66	22.83	0-2	2
	8	4	22.55	22.68	22.88		2
	8	7	22.52	22.65	22.84		2
	15	0	22.58	22.62	22.83		2
64QAM	1	0	22.65	22.86	22.80	0-2	2
	1	7	22.75	23.00	22.98		2
	1	14	22.65	22.92	22.93		2
	8	0	21.50	21.71	21.95	0-3	3
	8	4	21.61	21.71	21.97		3
	8	7	21.57	21.66	21.95		3
	15	0	21.70	21.60	21.85		3

Table 9-38
LTE Band 25 (PCS) Maximum 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	24.47	24.59	24.87	0	0
	1	2	24.63	24.71	25.00		0
	1	5	24.44	24.61	25.00		0
	3	0	24.60	24.60	24.85		0
	3	2	24.60	24.61	24.87		0
	3	3	24.60	24.57	24.81		0
	6	0	23.60	23.59	23.96	0-1	1
16QAM	1	0	23.60	23.35	23.75	0-1	1
	1	2	23.70	23.44	23.90		1
	1	5	23.64	23.40	23.86		1
	3	0	23.48	23.50	23.70		1
	3	2	23.46	23.60	23.71		1
	3	3	23.44	23.55	23.72		1
	6	0	22.62	22.71	22.95	0-2	2
64QAM	1	0	22.59	22.93	22.78	0-2	2
	1	2	22.66	23.00	22.88		2
	1	5	22.55	22.98	22.85		2
	3	0	22.72	22.85	22.80		2
	3	2	22.75	22.75	22.83		2
	3	3	22.77	22.82	22.81		2
	6	0	21.50	21.53	21.90	0-3	3

© 2020 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 9-39
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	23.33	23.41	23.43	0	0
	1	50	23.51	**23.85**	23.78		0
	1	99	23.29	23.40	23.64		0
	50	0	23.33	23.51	23.56	0-1	0
	50	25	23.40	**23.61**	23.60		0
	50	50	23.35	23.44	23.52		0
	100	0	23.35	23.48	23.59		0
16QAM	1	0	23.82	23.51	23.90	0-1	0
	1	50	24.00	23.79	23.99		0
	1	99	23.75	23.52	23.90		0
	50	0	22.42	22.57	22.62	0-2	1
	50	25	22.47	22.58	22.68		1
	50	50	22.45	22.50	22.58		1
	100	0	22.43	22.55	22.62		1
64QAM	1	0	22.51	22.97	22.84	0-2	1
	1	50	22.69	23.00	22.90		1
	1	99	22.49	22.95	22.93		1
	50	0	21.41	21.63	21.58	0-3	2
	50	25	21.50	21.62	21.63		2
	50	50	21.41	21.57	21.51		2
	100	0	21.43	21.58	21.62		2

Table 9-40
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	23.32	23.43	23.43	0	0
	1	36	23.37	23.62	23.63		0
	1	74	23.25	23.46	23.61		0
	36	0	23.47	23.61	23.72	0-1	0
	36	18	23.52	23.66	23.84		0
	36	37	23.54	23.61	23.79		0
	75	0	23.50	23.62	23.78		0
16QAM	1	0	23.49	23.65	23.88	0-1	0
	1	36	23.54	23.81	23.72		0
	1	74	23.41	23.65	23.72		0
	36	0	22.53	22.61	22.80	0-2	1
	36	18	22.58	22.68	22.89		1
	36	37	22.59	22.64	22.82		1
	75	0	22.46	22.67	22.78		1
64QAM	1	0	22.91	22.95	22.88	0-2	1
	1	36	22.96	22.81	22.71		1
	1	74	22.83	22.95	22.76		1
	36	0	21.45	21.72	21.78	0-3	2
	36	18	21.46	21.77	21.89		2
	36	37	21.49	21.70	21.86		2
	75	0	21.48	21.67	21.77		2

© 2020 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) 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	23.67	23.55	23.52	0	0
	1	25	23.73	23.73	23.74		0
	1	49	23.54	23.55	23.64		0
	25	0	23.51	23.62	23.75	0-1	0
	25	12	23.51	23.64	23.71		0
	25	25	23.50	23.59	23.65		0
	50	0	23.50	23.59	23.71		0
16QAM	1	0	23.92	23.73	23.88	0-1	0
	1	25	23.94	23.84	23.50		0
	1	49	23.82	23.73	23.56		0
	25	0	22.55	22.64	22.86	0-2	1
	25	12	22.58	22.65	22.80		1
	25	25	22.58	22.61	22.72		1
	50	0	22.63	22.67	22.79		1
64QAM	1	0	22.62	22.85	22.87	0-2	1
	1	25	22.83	22.91	22.98		1
	1	49	22.46	22.83	22.90		1
	25	0	21.60	21.76	21.89	0-3	2
	25	12	21.63	21.74	21.84		2
	25	25	21.64	21.71	21.76		2
	50	0	21.59	21.76	21.85		2

Table 9-42
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	23.48	23.38	23.66	0	0
	1	12	23.79	23.78	23.78		0
	1	24	23.42	23.35	23.73		0
	12	0	23.54	23.55	23.75	0-1	0
	12	6	23.60	23.62	23.82		0
	12	13	23.55	23.55	23.66		0
	25	0	23.52	23.54	23.76		0
16QAM	1	0	23.77	23.90	23.88	0-1	0
	1	12	23.67	23.92	23.92		0
	1	24	23.66	23.87	23.98		0
	12	0	22.50	22.60	22.84	0-2	1
	12	6	22.53	22.67	22.87		1
	12	13	22.51	22.61	22.75		1
	25	0	22.69	22.56	22.81		1
64QAM	1	0	22.64	22.87	22.85	0-2	1
	1	12	22.72	22.97	22.69		1
	1	24	22.80	22.63	22.97		1
	12	0	21.61	21.66	21.82	0-3	2
	12	6	21.67	21.73	21.84		2
	12	13	21.62	21.64	21.71		2
	25	0	21.63	21.55	21.69		2

© 2020 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) 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	23.74	23.60	23.65	0	0
	1	7	23.79	23.84	23.82		0
	1	14	23.67	23.59	23.70		0
	8	0	23.60	23.57	23.83	0-1	0
	8	4	23.63	23.60	23.91		0
	8	7	23.54	23.59	23.85		0
	15	0	23.61	23.59	23.77		0
16QAM	1	0	23.93	23.74	23.97	0-1	0
	1	7	23.94	23.82	23.72		0
	1	14	23.92	23.78	23.51		0
	8	0	22.75	22.54	22.87	0-2	1
	8	4	22.86	22.60	22.94		1
	8	7	22.80	22.53	22.90		1
	15	0	22.64	22.60	22.93		1
64QAM	1	0	22.65	22.88	22.92	0-2	1
	1	7	22.85	22.92	22.62		1
	1	14	22.56	22.89	22.99		1
	8	0	21.68	21.68	21.99	0-3	2
	8	4	21.76	21.75	21.84		2
	8	7	21.65	21.64	21.97		2
	15	0	21.55	21.69	21.75		2

Table 9-44
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	23.57	23.46	23.75	0	0
	1	2	23.72	23.77	23.92		0
	1	5	23.57	23.55	23.83		0
	3	0	23.64	23.66	23.81		0
	3	2	23.69	23.66	23.81		0
	3	3	23.59	23.53	23.78		0
	6	0	23.47	23.56	23.85	0-1	0
16QAM	1	0	23.82	23.68	23.93	0-1	0
	1	2	23.85	23.87	23.83		0
	1	5	23.82	23.70	23.96		0
	3	0	23.76	23.51	23.99		0
	3	2	23.73	23.54	23.63		0
	3	3	23.63	23.47	23.95		0
	6	0	22.77	22.50	22.51	0-2	1
64QAM	1	0	22.57	22.73	22.94	0-2	1
	1	2	22.80	22.78	22.61		1
	1	5	22.62	22.56	22.67		1
	3	0	22.88	22.72	22.85		1
	3	2	22.87	22.74	22.86		1
	3	3	22.75	22.72	22.82		1
	6	0	21.80	21.62	21.98	0-3	2

© 2020 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 41

Table 9-45
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	23.49	23.48	23.56	23.55	23.53	0	0
	1	50	23.49	23.57	23.61	23.60	**23.69**		0
	1	99	23.50	23.56	23.51	23.55	23.51		0
	50	0	22.53	22.48	22.57	22.59	22.68	0-1	1
	50	25	22.56	22.55	22.59	22.60	**22.73**		1
	50	50	22.63	22.50	22.58	22.57	22.63		1
	100	0	22.55	22.44	22.52	22.52	22.72		1
16QAM	1	0	22.50	22.50	22.51	22.52	22.69	0-1	1
	1	50	22.57	22.58	22.69	22.70	22.81		1
	1	99	22.46	22.52	22.59	22.51	22.54		1
	50	0	21.58	21.57	21.64	21.68	21.83	0-2	2
	50	25	21.47	21.47	21.65	21.69	21.78		2
	50	50	21.57	21.55	21.57	21.63	21.70		2
	100	0	21.51	21.48	21.61	21.70	21.76		2
64QAM	1	0	21.40	21.49	21.68	21.63	21.64	0-2	2
	1	50	21.45	21.40	21.62	21.61	21.65		2
	1	99	21.55	21.64	21.50	21.66	21.53		2
	50	0	20.53	20.50	20.64	20.65	20.82	0-3	3
	50	25	20.45	20.41	20.60	20.66	20.78		3
	50	50	20.48	20.43	20.54	20.60	20.74		3
	100	0	20.45	20.44	20.54	20.60	20.75		3

Table 9-46
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	23.85	23.50	23.57	23.67	23.68	0	0
	1	36	23.88	23.72	23.70	23.98	23.85		0
	1	74	23.57	23.60	23.50	23.90	23.79		0
	36	0	22.91	22.63	22.76	22.88	22.90	0-1	1
	36	18	22.94	22.70	22.82	22.95	22.93		1
	36	37	22.88	22.68	22.76	22.99	22.91		1
	75	0	22.88	22.63	22.76	22.96	22.90		1
16QAM	1	0	22.73	22.76	22.41	22.89	22.58	0-1	1
	1	36	22.73	22.92	22.63	23.00	22.79		1
	1	74	22.44	22.84	22.37	22.90	22.62		1
	36	0	21.95	21.60	21.76	21.82	21.89	0-2	2
	36	18	21.86	21.70	21.78	21.92	21.94		2
	36	37	21.94	21.63	21.81	21.86	21.96		2
	75	0	21.87	21.63	21.75	21.88	21.92		2
64QAM	1	0	21.61	21.15	21.34	21.65	21.47	0-2	2
	1	36	21.66	21.39	21.50	21.90	21.62		2
	1	74	21.39	21.20	21.29	21.81	21.49		2
	36	0	20.87	20.52	20.67	20.74	20.86	0-3	3
	36	18	20.87	20.62	20.75	20.84	20.88		3
	36	37	20.82	20.60	20.70	20.79	20.86		3
	75	0	20.81	20.52	20.73	20.93	20.90		3

© 2020 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 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	23.82	23.63	23.82	23.86	23.81	0	0
	1	25	23.82	23.85	23.92	23.82	23.91		0
	1	49	23.86	23.71	23.81	23.96	23.85		0
	25	0	22.91	22.68	22.81	22.82	22.81	0-1	1
	25	12	22.91	22.72	22.79	22.94	22.79		1
	25	25	22.89	22.71	22.78	22.81	22.79		1
	50	0	22.88	22.67	22.74	22.99	22.80		1
16QAM	1	0	22.69	22.87	22.47	22.86	22.53	0-1	1
	1	25	22.85	22.79	22.74	22.98	22.80		1
	1	49	22.55	22.91	22.46	22.93	22.59		1
	25	0	21.98	21.66	21.83	21.92	21.89	0-2	2
	25	12	21.99	21.69	21.81	21.94	21.84		2
	25	25	21.81	21.69	21.84	21.91	21.83		2
	50	0	21.90	21.68	21.76	21.91	21.83		2
64QAM	1	0	21.94	21.34	21.71	21.80	21.67	0-2	2
	1	25	22.00	21.53	21.86	21.85	21.91		2
	1	49	21.82	21.34	21.71	21.90	21.76		2
	25	0	20.94	20.72	20.80	20.87	20.85	0-3	3
	25	12	20.96	20.68	20.75	20.88	20.77		3
	25	25	20.86	20.76	20.76	20.90	20.77		3
	50	0	20.87	20.67	20.73	20.92	20.74		3

Table 9-48
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	23.74	23.57	23.78	23.73	23.73	0	0
	1	12	23.84	23.93	23.87	23.88	23.84		0
	1	24	23.76	23.65	23.75	23.81	23.78		0
	12	0	22.76	22.66	22.78	22.91	22.75	0-1	1
	12	6	22.79	22.66	22.78	22.90	22.80		1
	12	13	22.77	22.62	22.75	22.92	22.74		1
	25	0	22.79	22.67	22.79	22.94	22.80		1
16QAM	1	0	22.77	22.28	22.74	22.50	22.69	0-1	1
	1	12	22.76	22.95	22.95	22.83	23.00		1
	1	24	22.76	22.27	22.67	22.50	22.75		1
	12	0	21.80	21.62	21.85	21.95	21.83	0-2	2
	12	6	21.76	21.66	21.86	21.97	21.87		2
	12	13	21.78	21.66	21.84	21.95	21.83		2
	25	0	21.75	21.59	21.69	21.90	21.75		2
64QAM	1	0	21.76	21.53	21.82	21.83	21.81	0-2	2
	1	12	21.73	21.92	21.99	21.87	21.98		2
	1	24	21.77	21.53	21.83	21.85	21.84		2
	12	0	20.77	20.62	20.75	20.84	20.73	0-3	3
	12	6	20.80	20.66	20.74	20.91	20.78		3
	12	13	20.78	20.62	20.71	20.84	20.72		3
	25	0	20.78	20.52	20.58	20.82	20.66		3

© 2020 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 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	25.90	25.58	25.65	25.97	25.70	0	0
	1	50	25.94	25.91	25.53	25.94	**26.00**		0
	1	99	25.74	25.56	25.64	25.74	25.99		0
	50	0	24.98	24.65	24.70	24.97	24.97	0-1	1
	50	25	24.99	24.75	24.72	24.98	**25.00**		1
	50	50	24.98	24.69	24.63	24.99	24.99		1
	100	0	24.90	24.73	24.64	24.93	24.97		1
16QAM	1	0	24.98	24.92	25.00	24.98	24.96	0-1	1
	1	50	25.00	24.97	24.98	25.00	24.85		1
	1	99	24.93	24.95	24.80	24.95	24.85		1
	50	0	23.90	23.63	23.68	23.92	23.92	0-2	2
	50	25	23.93	23.71	23.65	23.97	23.99		2
	50	50	23.94	23.67	23.60	23.91	23.96		2
	100	0	23.96	23.71	23.68	23.95	24.00		2
64QAM	1	0	23.71	23.97	23.87	23.89	23.63	0-2	2
	1	50	23.70	24.00	23.97	23.56	23.92		2
	1	99	23.60	23.93	23.73	23.98	23.85		2
	50	0	22.96	22.64	22.63	22.84	22.94	0-3	3
	50	25	22.92	22.74	22.68	22.88	22.91		3
	50	50	22.97	22.66	22.69	22.88	22.93		3
	100	0	22.96	22.69	22.58	22.85	22.99		3

Table 9-50
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	25.87	25.65	25.79	25.79	25.65	0	0
	1	36	25.94	25.80	25.93	25.86	25.80		0
	1	74	25.84	25.66	25.76	25.96	25.73		0
	36	0	24.83	24.75	24.84	24.99	24.77	0-1	1
	36	18	24.85	24.80	24.90	24.88	24.78		1
	36	37	24.98	24.78	24.85	24.86	24.77		1
	75	0	24.82	24.76	24.87	24.88	24.81		1
16QAM	1	0	24.98	24.92	24.90	24.98	24.82	0-1	1
	1	36	25.00	24.99	24.89	24.99	24.97		1
	1	74	24.96	24.86	24.85	24.90	24.87		1
	36	0	23.86	23.72	23.84	23.90	23.82	0-2	2
	36	18	23.89	23.77	23.90	24.00	23.82		2
	36	37	23.81	23.78	23.89	23.98	23.82		2
	75	0	23.99	23.76	23.87	23.81	23.76		2
64QAM	1	0	23.97	23.63	23.90	23.91	23.78	0-2	2
	1	36	24.00	23.84	23.86	23.98	23.93		2
	1	74	23.94	23.71	23.84	23.87	23.81		2
	36	0	22.84	22.67	22.85	22.83	22.71	0-3	3
	36	18	22.82	22.71	22.95	22.92	22.76		3
	36	37	22.93	22.72	22.83	22.92	22.71		3
	75	0	22.97	22.69	22.81	23.00	22.74		3

© 2020 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 9-51
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	25.74	25.78	25.84	25.91	25.73	0	0
	1	25	25.73	25.77	25.90	25.83	25.85		0
	1	49	25.62	25.76	25.82	25.81	25.79		0
	25	0	24.69	24.74	24.88	24.84	24.85	0-1	1
	25	12	24.73	24.77	24.92	24.85	24.84		1
	25	25	24.69	24.82	24.89	24.82	24.87		1
	50	0	24.71	24.78	24.84	24.86	24.85		1
16QAM	1	0	24.92	24.92	24.95	24.85	24.85	0-1	1
	1	25	24.95	24.87	24.81	24.91	24.77		1
	1	49	24.83	24.96	24.72	24.95	24.72		1
	25	0	23.77	23.76	23.95	23.99	23.94	0-2	2
	25	12	23.75	23.79	23.94	24.00	23.84		2
	25	25	23.74	23.82	23.91	23.97	23.90		2
	50	0	23.74	23.80	23.88	24.00	23.88		2
64QAM	1	0	23.85	23.75	23.71	23.83	23.79	0-2	2
	1	25	24.00	23.88	23.93	24.00	23.61		2
	1	49	23.98	23.78	23.81	23.93	23.77		2
	25	0	22.77	22.82	22.91	22.94	22.89	0-3	3
	25	12	22.75	22.82	22.86	22.96	22.84		3
	25	25	22.71	22.84	22.90	22.95	22.85		3
	50	0	22.69	22.77	22.83	23.00	22.84		3

Table 9-52
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	25.90	25.57	25.73	25.78	25.73	0	0
	1	12	25.95	25.77	26.00	25.88	25.85		0
	1	24	25.82	25.66	25.69	25.88	25.79		0
	12	0	24.99	24.69	24.82	24.96	24.85	0-1	1
	12	6	25.00	24.74	24.88	24.82	24.84		1
	12	13	24.93	24.71	24.82	24.98	24.87		1
	25	0	25.00	24.74	24.86	24.61	24.85		1
16QAM	1	0	24.97	24.69	24.78	24.99	24.85	0-1	1
	1	12	24.92	24.93	24.97	24.84	24.97		1
	1	24	24.99	24.74	24.88	24.72	24.82		1
	12	0	23.84	23.74	23.90	23.85	23.94	0-2	2
	12	6	23.87	23.81	23.96	23.80	23.84		2
	12	13	23.82	23.73	23.91	23.73	23.90		2
	25	0	23.95	23.70	23.82	23.64	23.88		2
64QAM	1	0	23.81	23.99	23.66	23.62	23.69	0-2	2
	1	12	23.90	23.91	23.77	23.79	23.71		2
	1	24	23.78	24.00	23.65	23.67	23.87		2
	12	0	22.94	22.72	22.83	22.95	22.89	0-3	3
	12	6	22.97	22.78	22.88	22.97	22.84		3
	12	13	22.95	22.74	22.84	22.96	22.85		3
	25	0	22.88	22.69	22.72	22.92	22.84		3

© 2020 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 Uplink Carrier Aggregation Conducted Powers

Table 9-53
LTE 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	39750	2506.0	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	0	23.78	23.50
CA_41C	LTE B41	20	41490	2680.0	QPSK	1	0	LTE B41	20	41292	2660.2	QPSK	1	99	23.82	23.53
	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	39750	2506.0	QPSK	1	99	LTE B41 PC2	20	39948	2525.8	QPSK	1	0	25.94	25.74
CA_41C	LTE B41 PC2	20	41490	2680.0	QPSK	1	0	LTE B41 PC2	20	41292	2660.2	QPSK	1	99	25.89	25.70

Notes:

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

© 2020 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 9-54
2.4 GHz WLAN Maximum Average RF Power

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	21.44	17.56	16.51
2437	6	21.46	20.40	19.33
2462	11	21.62	17.75	16.66

Table 9-55
5 GHz WLAN Maximum Average RF Power

5GHz (20MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
		Average	Average	Average
5180	36	17.33	16.84	16.41
5200	40	19.24	18.28	18.54
5220	44	19.54	18.46	18.21
5240	48	19.51	18.42	18.37
5260	52	19.36	18.39	18.35
5280	56	19.34	18.27	18.21
5300	60	19.31	18.25	18.18
5320	64	17.48	16.41	16.46
5500	100	17.54	16.87	16.85
5520	104	19.76	18.82	18.72
5600	120	19.74	18.56	18.44
5620	124	19.59	18.45	18.60
5720	144	19.70	18.38	18.14
5745	149	19.26	18.22	18.25
5785	157	19.33	18.35	18.46
5805	161	19.26	18.39	18.02
5825	165	17.61	16.90	16.91

© 2020 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 9-56
2.4 GHz WLAN Reduced Average RF Power

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	17.87	17.95	16.51
2437	6	17.51	17.60	17.54
2462	11	17.59	17.68	16.66

Table 9-57
5 GHz WLAN Reduced Average RF Power

5GHz (40MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11n	802.11ac
		Average	Average
5190	38	15.22	15.83
5230	46	15.04	15.07
5270	54	15.12	15.26
5310	62	15.46	15.47
5510	102	15.49	15.56
5590	118	15.43	15.37
5630	126	15.56	15.58
5710	142	15.47	15.32
5755	151	15.34	15.35
5795	159	15.56	15.43

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.

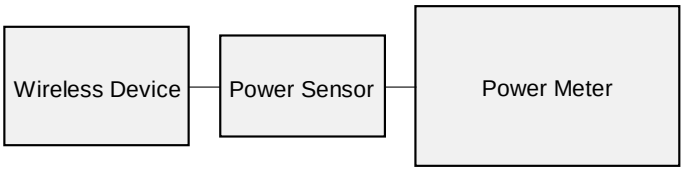


Figure 9-5
Power Measurement Setup

© 2020 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 9-58
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	7.28	5.341
2441	1.0	39	9.40	8.718
2480	1.0	78	8.52	7.109
2402	2.0	0	5.23	3.332
2441	2.0	39	6.95	4.952
2480	2.0	78	5.79	3.796
2402	3.0	0	5.34	3.417
2441	3.0	39	7.05	5.067
2480	3.0	78	5.85	3.850

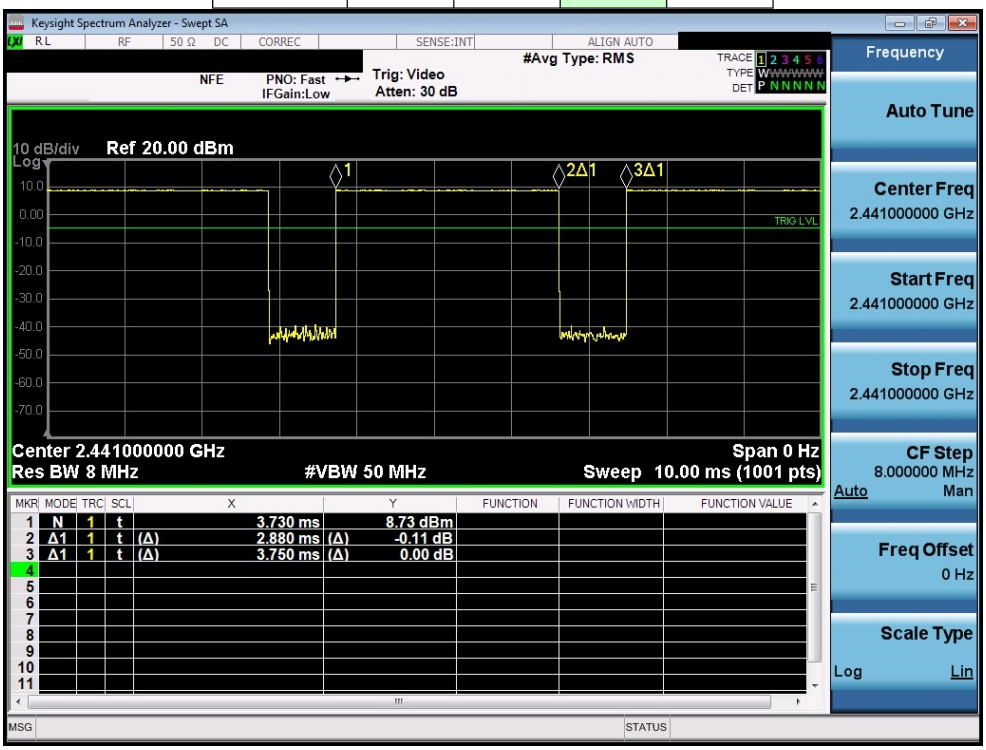


Figure 9-6
Bluetooth Transmission Plot

© 2020 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.

Equation 9-1
Bluetooth Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.88\ ms}{3.75\ ms} * 100\% = 76.8\%$$

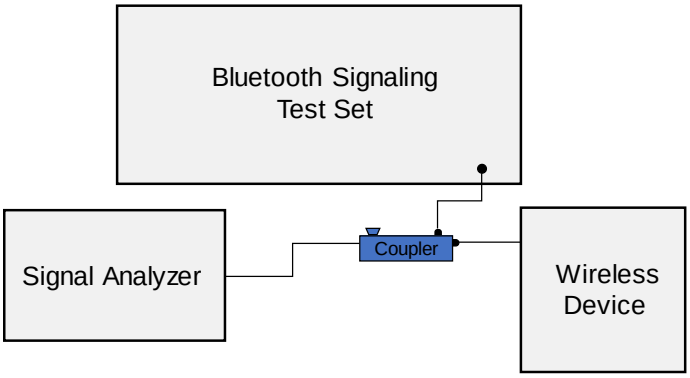


Figure 9-7
Power Measurement Setup

© 2020 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 Tissue Properties - Head

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
12/29/2019	750H	21.0	680	0.873	41.964	0.888	42.305	-1.69%	-0.81%
			695	0.878	41.925	0.889	42.227	-1.24%	-0.72%
			700	0.879	41.914	0.889	42.201	-1.12%	-0.68%
			710	0.883	41.886	0.890	42.149	-0.79%	-0.62%
			740	0.893	41.801	0.893	41.994	0.00%	-0.46%
			750	0.897	41.772	0.894	41.942	0.34%	-0.41%
			755	0.898	41.757	0.894	41.916	0.45%	-0.38%
			770	0.903	41.715	0.895	41.838	0.89%	-0.29%
			785	0.909	41.678	0.896	41.760	1.45%	-0.20%
01/08/2020	835H	20.2	820	0.903	40.374	0.899	41.578	0.44%	-2.90%
			835	0.909	40.306	0.900	41.500	1.00%	-2.88%
			850	0.915	40.249	0.916	41.500	-0.11%	-3.01%
01/01/2020	1750H	21.2	1710	1.317	39.588	1.348	40.142	-2.30%	-1.38%
			1720	1.323	39.572	1.354	40.126	-2.29%	-1.38%
			1745	1.341	39.534	1.368	40.087	-1.97%	-1.38%
			1750	1.345	39.526	1.371	40.079	-1.90%	-1.38%
			1770	1.357	39.492	1.383	40.047	-1.88%	-1.39%
			1790	1.368	39.449	1.394	40.016	-1.87%	-1.42%
01/04/2020	1900H	21.6	1850	1.406	39.411	1.400	40.000	0.43%	-1.47%
			1860	1.412	39.397	1.400	40.000	0.86%	-1.51%
			1880	1.423	39.364	1.400	40.000	1.64%	-1.59%
			1900	1.433	39.339	1.400	40.000	2.36%	-1.65%
			1905	1.436	39.332	1.400	40.000	2.57%	-1.67%
			1910	1.438	39.326	1.400	40.000	2.71%	-1.69%
12/29/2019	2450H	24.3	2400	1.814	37.626	1.756	39.289	3.30%	-4.23%
			2450	1.851	37.535	1.800	39.200	2.83%	-4.25%
			2500	1.886	37.457	1.855	39.136	1.67%	-4.29%
01/08/2020	2450H	20.7	2400	1.814	38.303	1.756	39.289	3.30%	-2.51%
			2450	1.855	38.213	1.800	39.200	3.06%	-2.52%
			2500	1.895	38.134	1.855	39.136	2.16%	-2.56%
01/10/2020	2450H	22.1	2400	1.734	39.666	1.756	39.289	-1.25%	0.96%
			2450	1.773	39.585	1.800	39.200	-1.50%	0.98%
			2500	1.809	39.516	1.855	39.136	-2.48%	0.97%
			2510	1.817	39.502	1.866	39.123	-2.63%	0.97%
			2535	1.838	39.462	1.893	39.092	-2.91%	0.95%
			2550	1.851	39.440	1.909	39.073	-3.04%	0.94%
			2560	1.859	39.429	1.920	39.060	-3.18%	0.94%
			2600	1.889	39.371	1.964	39.009	-3.82%	0.93%
			2650	1.932	39.288	2.018	38.945	-4.26%	0.88%
			2680	1.956	39.244	2.051	38.907	-4.63%	0.87%
			2700	1.971	39.210	2.073	38.882	-4.92%	0.84%
12/09/2019	5250-5750H	22.0	5180	4.491	34.617	4.635	36.009	-3.11%	-3.87%
			5190	4.498	34.606	4.645	35.998	-3.16%	-3.87%
			5200	4.507	34.592	4.655	35.986	-3.18%	-3.87%
			5210	4.515	34.588	4.666	35.975	-3.24%	-3.86%
			5220	4.525	34.565	4.676	35.963	-3.23%	-3.89%
			5240	4.544	34.526	4.696	35.940	-3.24%	-3.93%
			5250	4.555	34.508	4.706	35.929	-3.21%	-3.96%
			5260	4.567	34.489	4.717	35.917	-3.18%	-3.98%
			5270	4.579	34.473	4.727	35.906	-3.13%	-3.99%
			5280	4.590	34.459	4.737	35.894	-3.10%	-4.00%
			5290	4.601	34.452	4.748	35.883	-3.10%	-3.99%
			5300	4.612	34.443	4.758	35.871	-3.07%	-3.98%
			5310	4.619	34.429	4.768	35.860	-3.13%	-3.99%
			5320	4.625	34.415	4.778	35.849	-3.20%	-4.00%
			5500	4.808	34.160	4.963	35.643	-3.12%	-4.16%
			5510	4.818	34.155	4.973	35.632	-3.12%	-4.15%
			5520	4.827	34.152	4.983	35.620	-3.13%	-4.12%
			5530	4.836	34.142	4.994	35.609	-3.16%	-4.12%
			5540	4.842	34.130	5.004	35.597	-3.24%	-4.12%
			5550	4.848	34.114	5.014	35.586	-3.31%	-4.14%
			5560	4.857	34.086	5.024	35.574	-3.32%	-4.18%
			5580	4.885	34.042	5.045	35.551	-3.17%	-4.24%
			5600	4.913	34.013	5.065	35.529	-3.00%	-4.27%
			5610	4.924	33.995	5.076	35.518	-2.99%	-4.29%
			5620	4.935	33.987	5.086	35.506	-2.97%	-4.28%
			5640	4.955	33.981	5.106	35.483	-2.96%	-4.23%
			5660	4.968	33.956	5.127	35.460	-3.10%	-4.24%
			5670	4.976	33.933	5.137	35.449	-3.13%	-4.28%
			5680	4.987	33.901	5.147	35.437	-3.11%	-4.33%
			5690	4.999	33.872	5.158	35.426	-3.08%	-4.39%
			5700	5.011	33.848	5.168	35.414	-3.04%	-4.42%
			5710	5.024	33.839	5.178	35.403	-2.97%	-4.42%
			5720	5.039	33.839	5.188	35.391	-2.87%	-4.39%
			5745	5.069	33.833	5.214	35.363	-2.78%	-4.33%
			5750	5.075	33.826	5.219	35.357	-2.76%	-4.33%
			5755	5.077	33.822	5.224	35.351	-2.81%	-4.33%
			5765	5.084	33.815	5.234	35.340	-2.87%	-4.32%
			5775	5.092	33.801	5.245	35.329	-2.92%	-4.33%
			5785	5.101	33.776	5.255	35.317	-2.93%	-4.36%
			5795	5.112	33.750	5.265	35.305	-2.91%	-4.40%
			5800	5.116	33.738	5.270	35.300	-2.92%	-4.42%
			5805	5.121	33.728	5.275	35.294	-2.92%	-4.44%
			5825	5.147	33.702	5.296	35.271	-2.81%	-4.45%
01/13/2020	5250-5750H	21.5	5180	4.606	35.800	4.635	36.009	-0.63%	-0.58%
			5190	4.615	35.795	4.645	35.998	-0.65%	-0.56%
			5200	4.625	35.781	4.655	35.986	-0.64%	-0.57%
			5210	4.635	35.759	4.666	35.975	-0.66%	-0.60%
			5220	4.647	35.732	4.676	35.963	-0.62%	-0.64%
			5240	4.673	35.677	4.696	35.940	-0.49%	-0.73%
			5250	4.685	35.654	4.706	35.929	-0.45%	-0.77%
			5260	4.699	35.632	4.717	35.917	-0.38%	-0.79%
			5270	4.713	35.616	4.727	35.906	-0.30%	-0.81%
			5280	4.726	35.605	4.737	35.894	-0.23%	-0.81%
			5290	4.736	35.593	4.748	35.883	-0.25%	-0.81%
			5300	4.748	35.583	4.758	35.871	-0.21%	-0.80%
			5310	4.756	35.562	4.768	35.860	-0.25%	-0.83%
			5320	4.766	35.541	4.778	35.849	-0.25%	-0.86%
			5500	4.977	35.202	4.963	35.643	0.28%	-1.24%
			5510	4.992	35.192	4.973	35.632	0.38%	-1.23%
			5520	5.004	35.187	4.983	35.620	0.42%	-1.22%
			5530	5.014	35.177	4.994	35.609	0.40%	-1.21%
			5540	5.022	35.159	5.004	35.597	0.36%	-1.23%
			5550	5.028	35.134	5.014	35.586	0.28%	-1.27%
			5560	5.036	35.102	5.024	35.574	0.24%	-1.33%
			5580	5.064	35.049	5.045	35.551	0.38%	-1.41%
			5600	5.094	35.009	5.065	35.529	0.57%	-1.46%
			5610	5.106	34.997	5.076	35.518	0.59%	-1.47%
			5620	5.120	34.987	5.086	35.506	0.67%	-1.46%
			5640	5.146	34.969	5.106	35.483	0.78%	-1.45%
			5660	5.164	34.928	5.127	35.460	0.72%	-1.50%
			5670	5.173	34.905	5.137	35.449	0.70%	-1.53%
			5680	5.185	34.873	5.147	35.437	0.74%	-1.59%
			5690	5.199	34.847	5.158	35.426	0.79%	-1.62%
			5700	5.213	34.822	5.168	35.414	0.87%	-1.67%
			5710	5.227	34.808	5.178	35.403	0.95%	-1.68%
			5720	5.241	34.797	5.188	35.391	1.02%	-1.69%
			5745	5.273	34.772	5.214	35.363	1.13%	-1.67%
			5750	5.278	34.766	5.219	35.357	1.13%	-1.67%
			5755	5.283	34.759	5.224	35.351	1.13%	-1.67%
			5765	5.293	34.745	5.234	35.340	1.13%	-1.68%
			5775	5.303	34.719	5.245	35.329	1.11%	-1.79%
			5785	5.312	34.694	5.255	35.317	1.08%	-1.76%
			5795	5.324	34.665	5.265	35.305	1.12%	-1.81%
			5800	5.329	34.654	5.270	35.300	1.12%	-1.83%
			5805	5.338	34.647	5.275	35.294	1.19%	-1.83%
			5825	5.364	34.614	5.296	35.271	1.28%	-1.86%

© 2020 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 Tissue Properties - Body

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
12/26/2019	750B	19.8	680	0.914	53.701	0.958	55.804	-4.59%	-3.77%
			695	0.920	53.691	0.959	55.745	-4.07%	-3.68%
			700	0.921	53.684	0.959	55.726	-3.96%	-3.66%
			710	0.925	53.666	0.960	55.687	-3.65%	-3.63%
			740	0.935	53.555	0.963	55.570	-2.91%	-3.63%
			750	0.939	53.514	0.964	55.531	-2.59%	-3.63%
			755	0.942	53.498	0.964	55.512	-2.28%	-3.63%
			770	0.948	53.468	0.965	55.453	-1.76%	-3.58%
			785	0.954	53.453	0.966	55.395	-1.24%	-3.51%
			800	0.959	53.444	0.967	55.336	-0.83%	-3.42%
12/16/2019	835B	21.6	820	0.954	53.672	0.969	55.258	-1.55%	-2.87%
			835	0.961	53.635	0.970	55.200	-0.93%	-2.84%
			850	0.968	53.606	0.988	55.154	-2.02%	-2.81%
12/30/2019	1750B	20.7	1710	1.474	52.831	1.463	53.537	0.75%	-1.32%
			1720	1.487	52.790	1.469	53.511	1.23%	-1.35%
			1745	1.516	52.684	1.485	53.445	2.09%	-1.42%
			1750	1.521	52.663	1.488	53.432	2.22%	-1.44%
			1770	1.543	52.586	1.501	53.379	2.80%	-1.49%
			1790	1.565	52.512	1.514	53.326	3.37%	-1.53%
01/06/2020	1750B	21.0	1710	1.442	53.851	1.463	53.537	-1.44%	0.59%
			1720	1.454	53.808	1.469	53.511	-1.02%	0.56%
			1745	1.481	53.712	1.485	53.445	-0.27%	0.50%
			1750	1.487	53.692	1.488	53.432	-0.07%	0.49%
			1770	1.508	53.611	1.501	53.379	0.47%	0.43%
			1790	1.528	53.534	1.514	53.326	0.92%	0.39%
01/09/2020	1750B	21.1	1710	1.464	53.246	1.463	53.537	0.07%	-0.54%
			1720	1.476	53.201	1.469	53.511	0.48%	-0.58%
			1745	1.505	53.091	1.485	53.445	1.35%	-0.66%
			1750	1.510	53.069	1.488	53.432	1.48%	-0.68%
			1770	1.530	52.978	1.501	53.379	1.93%	-0.75%
			1790	1.550	52.894	1.514	53.326	2.38%	-0.81%
01/03/2020	1900B	23.0	1850	1.526	52.638	1.520	53.300	0.39%	-1.24%
			1860	1.537	52.608	1.520	53.300	1.12%	-1.30%
			1880	1.560	52.538	1.520	53.300	2.63%	-1.43%
			1900	1.583	52.463	1.520	53.300	4.14%	-1.57%
			1905	1.588	52.444	1.520	53.300	4.47%	-1.61%
			1910	1.594	52.425	1.520	53.300	4.87%	-1.64%
01/06/2020	1900B	23.2	1850	1.513	52.000	1.520	53.300	-0.46%	-2.44%
			1860	1.523	51.968	1.520	53.300	0.20%	-2.50%
			1880	1.546	51.901	1.520	53.300	1.71%	-2.62%
			1900	1.569	51.832	1.520	53.300	3.22%	-2.75%
			1905	1.574	51.812	1.520	53.300	3.55%	-2.79%
			1910	1.580	51.793	1.520	53.300	3.95%	-2.83%
01/12/2020	1900B	23.8	1850	1.507	52.158	1.520	53.300	-0.86%	-2.14%
			1860	1.517	52.129	1.520	53.300	-0.20%	-2.20%
			1880	1.538	52.070	1.520	53.300	1.18%	-2.31%
			1900	1.560	52.007	1.520	53.300	2.63%	-2.43%
			1905	1.566	51.991	1.520	53.300	3.03%	-2.46%
			1910	1.571	51.974	1.520	53.300	3.36%	-2.49%
01/06/2020	2450B	20.6	2400	1.976	52.409	1.902	52.767	3.89%	-0.68%
			2450	2.013	52.372	1.950	52.700	3.23%	-0.62%
			2500	2.068	52.254	2.021	52.636	2.33%	-0.73%
01/08/2020	2450B	24.2	2400	1.976	51.783	1.902	52.767	3.89%	-1.86%
			2450	2.036	51.644	1.950	52.700	4.41%	-2.00%
			2500	2.097	51.492	2.021	52.636	3.76%	-2.17%
			2510	2.109	51.466	2.035	52.623	3.64%	-2.20%
			2535	2.140	51.390	2.071	52.592	3.33%	-2.29%
			2550	2.158	51.344	2.092	52.573	3.15%	-2.34%
			2560	2.170	51.315	2.106	52.560	3.04%	-2.37%
			2600	2.217	51.187	2.163	52.509	2.50%	-2.52%
			2650	2.280	51.032	2.234	52.445	2.06%	-2.69%
			2680	2.316	50.940	2.277	52.407	1.71%	-2.80%
			2700	2.339	50.876	2.305	52.382	1.48%	-2.88%
01/13/2020	2450B	21.9	2400	1.973	50.578	1.902	52.767	3.73%	-4.15%
			2450	2.012	50.309	1.950	52.700	3.18%	-4.54%
			2500	2.065	50.418	2.021	52.636	2.18%	-4.21%
			2510	2.071	50.375	2.035	52.623	1.77%	-4.27%
			2535	2.087	50.197	2.071	52.592	0.77%	-4.55%
			2550	2.101	50.135	2.092	52.573	0.43%	-4.64%
			2560	2.114	50.142	2.106	52.560	0.38%	-4.60%
			2600	2.161	50.264	2.163	52.509	-0.09%	-4.28%
			2650	2.197	49.959	2.234	52.445	-1.66%	-4.74%
			2680	2.236	50.043	2.277	52.407	-1.80%	-4.51%
			2700	2.257	50.099	2.305	52.382	-2.08%	-4.36%
12/23/2019	5250-5750B	23.2	5180	5.455	47.102	5.276	49.041	3.39%	-3.95%
			5190	5.466	47.095	5.288	49.028	3.37%	-3.94%
			5200	5.477	47.072	5.299	49.014	3.36%	-3.96%
			5210	5.489	47.054	5.311	49.001	3.35%	-3.97%
			5220	5.502	47.032	5.323	48.987	3.36%	-3.99%
			5240	5.532	46.982	5.346	48.960	3.48%	-4.04%
			5250	5.545	46.967	5.358	48.947	3.49%	-4.05%
			5260	5.556	46.957	5.369	48.933	3.48%	-4.04%
			5270	5.570	46.937	5.381	48.919	3.51%	-4.05%
			5280	5.585	46.908	5.393	48.906	3.56%	-4.09%
			5290	5.600	46.886	5.404	48.892	3.63%	-4.10%
			5300	5.612	46.888	5.416	48.879	3.62%	-4.07%
			5310	5.621	46.875	5.428	48.865	3.56%	-4.07%
			5320	5.631	46.853	5.439	48.851	3.53%	-4.09%
			5500	5.873	46.530	5.650	48.607	3.95%	-4.27%
			5510	5.888	46.517	5.661	48.594	4.01%	-4.27%
			5520	5.902	46.495	5.673	48.580	4.04%	-4.29%
			5530	5.915	46.486	5.685	48.566	4.05%	-4.28%
			5540	5.926	46.478	5.696	48.553	4.04%	-4.27%
			5550	5.936	46.461	5.708	48.539	3.99%	-4.28%
			5560	5.947	46.438	5.720	48.526	3.97%	-4.30%
			5580	5.979	46.386	5.743	48.499	4.11%	-4.36%
			5600	6.015	46.347	5.766	48.471	4.32%	-4.38%
			5610	6.031	46.331	5.778	48.458	4.38%	-4.39%
			5620	6.046	46.322	5.790	48.444	4.42%	-4.38%
			5640	6.071	46.303	5.813	48.417	4.44%	-4.37%
			5660	6.092	46.273	5.837	48.390	4.37%	-4.37%
			5670	6.104	46.253	5.848	48.376	4.38%	-4.39%
			5680	6.117	46.227	5.860	48.363	4.39%	-4.42%
			5690	6.131	46.199	5.872	48.349	4.41%	-4.45%
			5700	6.146	46.171	5.883	48.336	4.47%	-4.48%
			5710	6.163	46.166	5.895	48.322	4.55%	-4.46%
			5720	6.180	46.160	5.907	48.309	4.62%	-4.45%
			5745	6.216	46.128	5.936	48.275	4.72%	-4.45%
			5750	6.221	46.117	5.942	48.268	4.70%	-4.46%
			5755	6.225	46.111	5.947	48.261	4.67%	-4.45%
			5765	6.236	46.103	5.959	48.248	4.65%	-4.45%
			5775	6.249	46.083	5.971	48.234	4.66%	-4.46%
			5785	6.262	46.062	5.982	48.220	4.68%	-4.48%
			5795	6.277	46.037	5.994	48.207	4.72%	-4.50%
			5800	6.284	46.023	6.000	48.200	4.73%	-4.52%
			5805	6.293	46.013	6.006	48.193	4.78%	-4.52%
			5825	6.324	45.988	6.029	48.166	4.89%	-4.52%

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB Publication 865664 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.

© 2020 PCTEST Engineering Laboratory, Inc.

REV 21.4 M
09/11/2019

© 2020 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 D.

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)	$Deviation_{1g}$ (%)
L	750	HEAD	12/29/2019	22.3	21.0	0.200	1161	7410	1.710	8.030	8.550	6.48%
M	835	HEAD	01/08/2020	20.9	20.2	0.200	4d047	7308	1.990	9.420	9.950	5.63%
H	1750	HEAD	01/01/2020	22.1	21.2	0.100	1148	7406	3.440	37.000	34.400	-7.03%
L	1900	HEAD	01/04/2020	23.2	21.6	0.100	5d148	7410	4.150	39.100	41.500	6.14%
E	2450	HEAD	12/29/2019	22.1	22.8	0.100	719	7417	5.530	53.100	55.300	4.14%
E	2450	HEAD	01/08/2020	22.9	20.7	0.100	719	7417	5.550	53.100	55.500	4.52%
G	2450	HEAD	01/10/2020	23.7	22.1	0.100	719	7409	5.490	53.100	54.900	3.39%
G	2600	HEAD	01/10/2020	23.7	22.1	0.100	1004	7409	5.780	55.900	57.800	3.40%
H	5250	HEAD	12/09/2019	22.0	23.0	0.050	1191	7406	3.780	80.800	75.600	-6.44%
H	5600	HEAD	12/09/2019	22.0	23.0	0.050	1191	7406	3.910	82.700	78.200	-5.44%
H	5750	HEAD	12/09/2019	22.0	23.0	0.050	1191	7406	3.610	80.200	72.200	-9.98%
H	5250	HEAD	01/13/2020	23.0	21.5	0.050	1191	7406	3.740	80.800	74.800	-7.43%
H	5600	HEAD	01/13/2020	23.0	21.5	0.050	1191	7406	3.780	82.700	75.600	-8.59%
H	5750	HEAD	01/13/2020	23.0	21.5	0.050	1191	7406	3.710	80.200	74.200	-7.48%
L	750	BODY	12/26/2019	20.3	19.8	0.200	1161	7410	1.680	8.430	8.400	-0.36%
L	835	BODY	12/16/2019	20.7	21.6	0.200	4d047	7410	2.000	9.470	10.000	5.60%
I	1750	BODY	12/30/2019	20.4	20.7	0.100	1148	7357	3.480	37.700	34.800	-7.69%
I	1750	BODY	01/09/2020	21.5	21.1	0.100	1148	7357	3.920	37.700	39.200	3.98%
J	1900	BODY	01/03/2020	21.9	21.4	0.100	5d080	7571	4.260	39.200	42.600	8.67%
J	1900	BODY	01/06/2020	22.9	22.7	0.100	5d080	7571	4.210	39.200	42.100	7.40%
J	1900	BODY	01/12/2020	24.1	23.5	0.100	5d080	7571	4.150	39.200	41.500	5.87%
L	2450	BODY	01/06/2020	22.3	20.8	0.100	981	7410	4.950	50.900	49.500	-2.75%
K	2450	BODY	01/08/2020	22.8	24.2	0.100	981	7547	5.200	50.900	52.000	2.16%
L	2450	BODY	01/13/2020	22.7	21.9	0.100	719	7410	5.450	50.800	54.500	7.28%
K	2600	BODY	01/08/2020	22.8	24.2	0.100	1064	7547	5.590	55.600	55.900	0.54%
L	2600	BODY	01/13/2020	22.7	21.9	0.100	1004	7410	5.340	54.800	53.400	-2.55%
G	5250	BODY	12/23/2019	23.0	22.0	0.050	1191	7409	3.800	77.000	76.000	-1.30%
G	5600	BODY	12/23/2019	23.0	22.0	0.050	1191	7409	4.080	78.600	81.600	3.82%
G	5750	BODY	12/23/2019	23.0	22.0	0.050	1191	7409	3.880	76.900	77.600	0.91%

© 2020 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	01/06/2020	22.7	21.0	0.100	1150	7357	1.970	19.400	19.700	1.55%
I	1750	BODY	01/09/2020	21.5	21.1	0.100	1148	7357	2.070	19.800	20.700	4.55%
J	1900	BODY	01/06/2020	22.9	22.7	0.100	5d080	7571	2.160	20.600	21.600	4.85%
L	2450	BODY	01/13/2020	22.7	21.9	0.100	719	7410	2.490	24.000	24.900	3.75%
L	2600	BODY	01/13/2020	22.7	21.9	0.100	1004	7410	2.390	24.700	23.900	-3.24%
G	5250	BODY	12/23/2019	23.0	22.0	0.050	1191	7409	1.060	21.400	21.200	-0.93%
G	5600	BODY	12/23/2019	23.0	22.0	0.050	1191	7409	1.120	21.900	22.400	2.28%
G	5750	BODY	12/23/2019	23.0	22.0	0.050	1191	7409	1.060	21.300	21.200	-0.47%

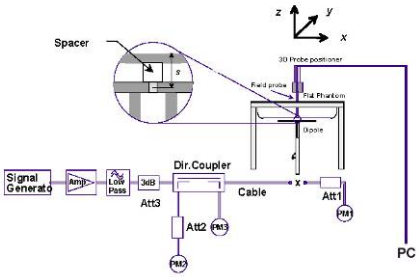


Figure 10-1
System Verification Setup Diagram

Figure 10-2
System Verification Setup Photo

© 2020 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
GSM 850 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	# of Time Slots	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	34.0	33.86	-0.04	Right	Cheek	14578	1	1:8.3	0.252	1.033	0.260	
836.60	190	GSM 850	GSM	34.0	33.86	0.06	Right	Tilt	14578	1	1:8.3	0.115	1.033	0.119	
836.60	190	GSM 850	GSM	34.0	33.86	0.01	Left	Cheek	14578	1	1:8.3	0.164	1.033	0.169	
836.60	190	GSM 850	GSM	34.0	33.86	0.09	Left	Tilt	14578	1	1:8.3	0.117	1.033	0.121	
836.60	190	GSM 850	GPRS	30.7	30.56	-0.04	Right	Cheek	14578	3	1:2.76	0.296	1.033	0.306	A1
836.60	190	GSM 850	GPRS	30.7	30.56	0.07	Right	Tilt	14578	3	1:2.76	0.136	1.033	0.140	
836.60	190	GSM 850	GPRS	30.7	30.56	0.05	Left	Cheek	14578	3	1:2.76	0.175	1.033	0.181	
836.60	190	GSM 850	GPRS	30.7	30.56	0.06	Left	Tilt	14578	3	1:2.76	0.126	1.033	0.130	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11-2
GSM 1900 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	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	30.3	30.22	-0.05	Right	Cheek	14578	1	1:8.3	0.096	1.019	0.098	
1880.00	661	GSM 1900	GSM	30.3	30.22	0.12	Right	Tilt	14578	1	1:8.3	0.089	1.019	0.091	
1880.00	661	GSM 1900	GSM	30.3	30.22	0.06	Left	Cheek	14578	1	1:8.3	0.203	1.019	0.207	
1880.00	661	GSM 1900	GSM	30.3	30.22	0.04	Left	Tilt	14578	1	1:8.3	0.093	1.019	0.095	
1880.00	661	GSM 1900	GPRS	27.7	27.57	0.11	Right	Cheek	14578	3	1:2.76	0.109	1.030	0.112	
1880.00	661	GSM 1900	GPRS	27.7	27.57	-0.16	Right	Tilt	14578	3	1:2.76	0.104	1.030	0.107	
1880.00	661	GSM 1900	GPRS	27.7	27.57	0.10	Left	Cheek	14578	3	1:2.76	0.249	1.030	0.256	A2
1880.00	661	GSM 1900	GPRS	27.7	27.57	0.11	Left	Tilt	14578	3	1:2.76	0.121	1.030	0.125	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

© 2020 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
UMTS 850 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.60	4183	UMTS 850	RMC	25.2	25.17	-0.04	Right	Cheek	14578	1:1	0.254	1.007	0.256	A3
836.60	4183	UMTS 850	RMC	25.2	25.17	0.00	Right	Tilt	14578	1:1	0.107	1.007	0.108	
836.60	4183	UMTS 850	RMC	25.2	25.17	0.04	Left	Cheek	14578	1:1	0.154	1.007	0.155	
836.60	4183	UMTS 850	RMC	25.2	25.17	0.06	Left	Tilt	14578	1:1	0.094	1.007	0.095	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-4
UMTS 1750 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1732.40	1412	UMTS 1750	RMC	25.0	25.00	0.12	Right	Cheek	14578	1:1	0.192	1.000	0.192	
1732.40	1412	UMTS 1750	RMC	25.0	25.00	0.19	Right	Tilt	14578	1:1	0.185	1.000	0.185	
1732.40	1412	UMTS 1750	RMC	25.0	25.00	0.07	Left	Cheek	14578	1:1	0.370	1.000	0.370	A4
1732.40	1412	UMTS 1750	RMC	25.0	25.00	0.06	Left	Tilt	14578	1:1	0.215	1.000	0.215	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-5
UMTS 1900 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	9400	UMTS 1900	RMC	25.0	24.92	0.08	Right	Cheek	14578	1:1	0.309	1.019	0.315	
1880.00	9400	UMTS 1900	RMC	25.0	24.92	0.10	Right	Tilt	14578	1:1	0.239	1.019	0.244	
1880.00	9400	UMTS 1900	RMC	25.0	24.92	-0.08	Left	Cheek	14578	1:1	0.545	1.019	**0.555**	A5
1880.00	9400	UMTS 1900	RMC	25.0	24.92	0.10	Left	Tilt	14578	1:1	0.268	1.019	0.273	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

© 2020 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 11-6
CDMA BC10 (§90S) Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.2	24.57	-0.09	Right	Cheek	14586	1:1	0.259	1.156	0.299	A6
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.2	24.57	0.06	Right	Tilt	14586	1:1	0.101	1.156	0.117	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.2	24.57	0.16	Left	Cheek	14586	1:1	0.167	1.156	0.193	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.2	24.57	0.07	Left	Tilt	14586	1:1	0.120	1.156	0.139	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.2	24.95	0.05	Right	Cheek	14586	1:1	0.233	1.059	0.247	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.2	24.95	0.17	Right	Tilt	14586	1:1	0.098	1.059	0.104	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.2	24.95	0.20	Left	Cheek	14586	1:1	0.164	1.059	0.174	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.2	24.95	-0.11	Left	Tilt	14586	1:1	0.120	1.059	0.127	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-7
CDMA BC0 (§22H) Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.2	24.63	-0.02	Right	Cheek	14586	1:1	0.176	1.140	0.201	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.2	24.63	-0.10	Right	Tilt	14586	1:1	0.062	1.140	0.071	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.2	24.63	0.14	Left	Cheek	14586	1:1	0.115	1.140	0.131	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.2	24.63	0.11	Left	Tilt	14586	1:1	0.061	1.140	0.070	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.2	25.01	0.06	Right	Cheek	14586	1:1	0.214	1.045	0.224	A7
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.2	25.01	0.05	Right	Tilt	14586	1:1	0.077	1.045	0.080	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.2	25.01	-0.11	Left	Cheek	14586	1:1	0.147	1.045	0.154	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.2	25.01	0.06	Left	Tilt	14586	1:1	0.082	1.045	0.086	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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 11-8
PCS CDMA Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.88	-0.04	Right	Cheek	14578	1:1	0.282	1.028	0.290	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.88	0.09	Right	Tilt	14578	1:1	0.223	1.028	0.229	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.88	0.00	Left	Cheek	14578	1:1	0.462	1.028	0.475	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.88	0.14	Left	Tilt	14578	1:1	0.242	1.028	0.249	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.90	0.05	Right	Cheek	14578	1:1	0.277	1.023	0.283	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.90	0.08	Right	Tilt	14578	1:1	0.198	1.023	0.203	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.90	-0.03	Left	Cheek	14578	1:1	0.464	1.023	0.475	A8
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.90	0.17	Left	Tilt	14578	1:1	0.243	1.023	0.249	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-9
LTE Band 71 Head SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
680.50	133297	Mid	LTE Band 71	20	25.2	24.91	0.07	0	Right	Cheek	QPSK	1	50	14594	1:1	0.091	1.069	0.097	A9
680.50	133297	Mid	LTE Band 71	20	24.2	24.00	0.16	1	Right	Cheek	QPSK	50	0	14594	1:1	0.075	1.047	0.079	
680.50	133297	Mid	LTE Band 71	20	25.2	24.91	0.12	0	Right	Tilt	QPSK	1	50	14594	1:1	0.031	1.069	0.033	
680.50	133297	Mid	LTE Band 71	20	24.2	24.00	0.05	1	Right	Tilt	QPSK	50	0	14594	1:1	0.026	1.047	0.027	
680.50	133297	Mid	LTE Band 71	20	25.2	24.91	0.13	0	Left	Cheek	QPSK	1	50	14594	1:1	0.073	1.069	0.078	
680.50	133297	Mid	LTE Band 71	20	24.2	24.00	0.13	1	Left	Cheek	QPSK	50	0	14594	1:1	0.062	1.047	0.065	
680.50	133297	Mid	LTE Band 71	20	25.2	24.91	0.14	0	Left	Tilt	QPSK	1	50	14594	1:1	0.026	1.069	0.028	
680.50	133297	Mid	LTE Band 71	20	24.2	24.00	0.16	1	Left	Tilt	QPSK	50	0	14594	1:1	0.024	1.047	0.025	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

© 2020 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]	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	25.2	24.89	0.05	0	Right	Cheek	QPSK	1	0	14594	1:1	0.089	1.074	0.096	A10
707.50	23095	Mid	LTE Band 12	10	24.2	24.00	0.03	1	Right	Cheek	QPSK	25	12	14594	1:1	0.075	1.047	0.079	
707.50	23095	Mid	LTE Band 12	10	25.2	24.89	0.20	0	Right	Tilt	QPSK	1	0	14594	1:1	0.035	1.074	0.038	
707.50	23095	Mid	LTE Band 12	10	24.2	24.00	0.10	1	Right	Tilt	QPSK	25	12	14594	1:1	0.031	1.047	0.032	
707.50	23095	Mid	LTE Band 12	10	25.2	24.89	0.11	0	Left	Cheek	QPSK	1	0	14594	1:1	0.074	1.074	0.079	
707.50	23095	Mid	LTE Band 12	10	24.2	24.00	0.14	1	Left	Cheek	QPSK	25	12	14594	1:1	0.068	1.047	0.071	
707.50	23095	Mid	LTE Band 12	10	25.2	24.89	-0.11	0	Left	Tilt	QPSK	1	0	14594	1:1	0.041	1.074	0.044	
707.50	23095	Mid	LTE Band 12	10	24.2	24.00	0.13	1	Left	Tilt	QPSK	25	12	14594	1:1	0.031	1.047	0.032	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-11
LTE Band 13 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	25.2	25.01	0.01	0	Right	Cheek	QPSK	1	25	14594	1:1	0.246	1.045	0.257	A11
782.00	23230	Mid	LTE Band 13	10	24.2	24.05	0.09	1	Right	Cheek	QPSK	25	12	14594	1:1	0.192	1.035	0.199	
782.00	23230	Mid	LTE Band 13	10	25.2	25.01	0.00	0	Right	Tilt	QPSK	1	25	14594	1:1	0.122	1.045	0.127	
782.00	23230	Mid	LTE Band 13	10	24.2	24.05	0.07	1	Right	Tilt	QPSK	25	12	14594	1:1	0.094	1.035	0.097	
782.00	23230	Mid	LTE Band 13	10	25.2	25.01	0.06	0	Left	Cheek	QPSK	1	25	14594	1:1	0.215	1.045	0.225	
782.00	23230	Mid	LTE Band 13	10	24.2	24.05	0.09	1	Left	Cheek	QPSK	25	12	14594	1:1	0.171	1.035	0.177	
782.00	23230	Mid	LTE Band 13	10	25.2	25.01	-0.03	0	Left	Tilt	QPSK	1	25	14594	1:1	0.107	1.045	0.112	
782.00	23230	Mid	LTE Band 13	10	24.2	24.05	0.06	1	Left	Tilt	QPSK	25	12	14594	1:1	0.082	1.035	0.085	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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 26 (Cell) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.92	-0.05	0	Right	Cheek	QPSK	1	36	14594	1:1	0.195	1.067	0.208	A12
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.07	0.05	1	Right	Cheek	QPSK	36	0	14594	1:1	0.146	1.030	0.150	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.92	0.11	0	Right	Tilt	QPSK	1	36	14594	1:1	0.077	1.067	0.082	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.07	0.08	1	Right	Tilt	QPSK	36	0	14594	1:1	0.056	1.030	0.058	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.92	0.05	0	Left	Cheek	QPSK	1	36	14594	1:1	0.128	1.067	0.137	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.07	0.14	1	Left	Cheek	QPSK	36	0	14594	1:1	0.092	1.030	0.095	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.92	-0.06	0	Left	Tilt	QPSK	1	36	14594	1:1	0.088	1.067	0.094	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.07	0.06	1	Left	Tilt	QPSK	36	0	14594	1:1	0.066	1.030	0.068	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-13
LTE Band 66 (AWS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.79	0.06	0	Right	Cheek	QPSK	1	50	14602	1:1	0.180	1.050	0.189	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.95	0.04	1	Right	Cheek	QPSK	50	50	14602	1:1	0.132	1.012	0.134	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.79	-0.02	0	Right	Tilt	QPSK	1	50	14602	1:1	0.176	1.050	0.185	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.95	-0.01	1	Right	Tilt	QPSK	50	50	14602	1:1	0.133	1.012	0.135	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.79	-0.02	0	Left	Cheek	QPSK	1	50	14602	1:1	0.303	1.050	0.318	A13
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.95	0.00	1	Left	Cheek	QPSK	50	50	14602	1:1	0.238	1.012	0.241	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.79	0.03	0	Left	Tilt	QPSK	1	50	14602	1:1	0.181	1.050	0.190	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.95	0.05	1	Left	Tilt	QPSK	50	50	14602	1:1	0.143	1.012	0.145	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-14
LTE Band 25 (PCS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.79	0.20	0	Right	Cheek	QPSK	1	50	14602	1:1	0.233	1.050	0.245	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.81	0.05	1	Right	Cheek	QPSK	50	0	14602	1:1	0.185	1.045	0.193	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.79	0.09	0	Right	Tilt	QPSK	1	50	14602	1:1	0.154	1.050	0.162	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.81	0.12	1	Right	Tilt	QPSK	50	0	14602	1:1	0.129	1.045	0.135	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.79	0.06	0	Left	Cheek	QPSK	1	50	14602	1:1	0.408	1.050	0.428	A14
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.81	0.05	1	Left	Cheek	QPSK	50	0	14602	1:1	0.311	1.045	0.325	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.79	0.01	0	Left	Tilt	QPSK	1	50	14602	1:1	0.177	1.050	0.186	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.81	-0.04	1	Left	Tilt	QPSK	50	0	14602	1:1	0.124	1.045	0.130	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

© 2020 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 11-15
LTE Band 41 Head SAR

MEASUREMENT RESULTS																					
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	23.53	0.12	0	Right	Cheek	QPSK	1	0	14602	1:1.58	0.074	1.114	0.082	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	23.69	0.06	0	Right	Cheek	QPSK	1	50	14602	1:1.58	0.069	1.074	0.074	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.73	0.15	1	Right	Cheek	QPSK	50	25	14602	1:1.58	0.048	1.064	0.051	
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	26.0	25.70	0.13	0	Right	Cheek	QPSK	1	0	14602	1:2.31	0.082	1.072	0.088	
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	26.0	26.00	0.13	0	Right	Cheek	QPSK	1	50	14602	1:2.31	0.074	1.000	0.074	
2 CC Uplink - Power Class 3	PCC	2680.00	41490	High	LTE Band 41	20	24.0	23.82	0.04	0	Right	Cheek	QPSK	1	0	14602	1:1.58	0.082	1.042	0.085	
2 CC Uplink - Power Class 3	SCC	2660.20	41292	High											99						
2 CC Uplink - Power Class 2	PCC	2680.00	41490	High	LTE Band 41	20	26.0	25.89	0.13	0	Right	Cheek	QPSK	1	0	14602	1:2.31	0.082	1.026	0.084	A15
2 CC Uplink - Power Class 2	SCC	2660.20	41292	High											99						
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	23.69	0.13	0	Right	Tilt	QPSK	1	50	14602	1:1.58	0.052	1.074	0.056	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.73	0.13	1	Right	Tilt	QPSK	50	25	14602	1:1.58	0.040	1.064	0.043	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	23.69	0.14	0	Left	Cheek	QPSK	1	50	14602	1:1.58	0.061	1.074	0.066	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.73	0.16	1	Left	Cheek	QPSK	50	25	14602	1:1.58	0.046	1.064	0.049	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	23.69	0.18	0	Left	Tilt	QPSK	1	50	14602	1:1.58	0.041	1.074	0.044	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.73	0.15	1	Left	Tilt	QPSK	50	25	14602	1:1.58	0.035	1.064	0.037	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 11-16
DTS Head SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	18.0	17.87	0.13	Right	Cheek	14610	1	99.1	0.927	0.602	1.030	1.009	0.626	
2437	6	802.11b	DSSS	22	18.0	17.51	-0.20	Right	Cheek	14610	1	99.1	1.017	0.642	1.119	1.009	0.725	
2462	11	802.11b	DSSS	22	18.0	17.59	0.18	Right	Cheek	14610	1	99.1	1.235	0.781	1.099	1.009	**0.866**	A16
2412	1	802.11b	DSSS	22	18.0	17.87	-0.08	Right	Tilt	14610	1	99.1	0.714	0.465	1.030	1.009	0.483	
2412	1	802.11b	DSSS	22	18.0	17.87	0.19	Left	Cheek	14610	1	99.1	0.400	0.291	1.030	1.009	0.302	
2412	1	802.11b	DSSS	22	18.0	17.87	0.13	Left	Tilt	14610	1	99.1	0.340	-	1.030	1.009	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram										

© 2020 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 11-17
NII Head SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
5270	54	802.11n	OFDM	40	16.0	15.12	0.19	Right	Cheek	14610	13.5	88.0	1.338	0.678	1.225	1.136	0.944	
5310	62	802.11n	OFDM	40	16.0	15.46	0.20	Right	Cheek	14610	13.5	88.0	1.276	0.652	1.132	1.136	0.838	
5270	54	802.11n	OFDM	40	16.0	15.12	0.13	Right	Tilt	14610	13.5	88.0	1.366	0.663	1.225	1.136	0.923	
5310	62	802.11n	OFDM	40	16.0	15.46	0.15	Right	Tilt	14610	13.5	88.0	1.383	0.677	1.132	1.136	0.871	
5310	62	802.11n	OFDM	40	16.0	15.46	0.00	Left	Cheek	14610	13.5	88.0	0.671	0.358	1.132	1.136	0.460	
5310	62	802.11n	OFDM	40	16.0	15.46	0.11	Left	Tilt	14610	13.5	88.0	0.744	0.358	1.132	1.136	0.460	
5510	102	802.11n	OFDM	40	16.0	15.49	0.07	Right	Cheek	14610	13.5	88.0	1.198	0.696	1.125	1.136	0.889	
5630	126	802.11n	OFDM	40	16.0	15.56	0.18	Right	Cheek	14610	13.5	88.0	1.571	0.763	1.107	1.136	0.960	
5710	142	802.11n	OFDM	40	16.0	15.47	-0.21	Right	Cheek	14610	13.5	88.0	1.408	0.674	1.130	1.136	0.865	
5510	102	802.11n	OFDM	40	16.0	15.49	0.14	Right	Tilt	14610	13.5	88.0	1.461	0.783	1.125	1.136	1.001	
5630	126	802.11n	OFDM	40	16.0	15.56	0.14	Right	Tilt	14610	13.5	88.0	1.587	0.813	1.107	1.136	1.022	
5710	142	802.11n	OFDM	40	16.0	15.47	-0.14	Right	Tilt	14610	13.5	88.0	1.190	0.690	1.130	1.136	0.886	
5630	126	802.11n	OFDM	40	16.0	15.56	-0.17	Left	Cheek	14610	13.5	88.0	1.310	0.590	1.107	1.136	0.742	
5630	126	802.11n	OFDM	40	16.0	15.56	0.12	Left	Tilt	14610	13.5	88.0	1.112	0.529	1.107	1.136	0.665	
5630	126	802.11n	OFDM	40	16.0	15.56	0.19	Right	Tilt	14610	13.5	88.0	1.486	0.733	1.107	1.136	0.922	
5755	151	802.11n	OFDM	40	16.0	15.34	0.14	Right	Cheek	14610	13.5	88.0	1.671	0.747	1.164	1.136	0.988	
5795	159	802.11n	OFDM	40	16.0	15.56	0.17	Right	Cheek	14610	13.5	88.0	1.646	0.743	1.107	1.136	0.934	
5755	151	802.11n	OFDM	40	16.0	15.34	0.12	Right	Tilt	14610	13.5	88.0	1.635	0.737	1.164	1.136	0.975	
5795	159	802.11n	OFDM	40	16.0	15.56	0.12	Right	Tilt	14610	13.5	88.0	1.998	0.852	1.107	1.136	**1.071**	A17
5795	159	802.11n	OFDM	40	16.0	15.56	-0.14	Left	Cheek	14610	13.5	88.0	1.223	0.528	1.107	1.136	0.664	
5795	159	802.11n	OFDM	40	16.0	15.56	-0.12	Left	Tilt	14610	13.5	88.0	1.326	0.592	1.107	1.136	0.744	
5795	159	802.11n	OFDM	40	16.0	15.56	0.13	Right	Tilt	14610	13.5	88.0	1.641	0.813	1.107	1.136	1.022	
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: Blue entries represent variability measurements.

Table 11-18
DSS Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441.00	39	Bluetooth	FHSS	10.0	9.40	0.09	Right	Cheek	14610	1	76.8	0.084	1.148	1.302	**0.126**	A18
2441.00	39	Bluetooth	FHSS	10.0	9.40	0.17	Right	Tilt	14610	1	76.8	0.054	1.148	1.302	0.081	
2441.00	39	Bluetooth	FHSS	10.0	9.40	0.16	Left	Cheek	14610	1	76.8	0.036	1.148	1.302	0.054	
2441.00	39	Bluetooth	FHSS	10.0	9.40	0.13	Left	Tilt	14610	1	76.8	0.034	1.148	1.302	0.051	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							**Head 1.6 W/kg (mW/g)** averaged over 1 gram									

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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 11-19
GSM/UMTS/CDMA Body-Worn SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	34.0	33.86	-0.16	10 mm	14586	1	1:8.3	back	0.526	1.033	0.543	
824.20	128	GSM 850	GPRS	30.7	30.49	0.00	10 mm	14586	3	1:2.76	back	0.560	1.050	0.588	
836.60	190	GSM 850	GPRS	30.7	30.56	0.02	10 mm	14586	3	1:2.76	back	0.584	1.033	0.603	A19
848.80	251	GSM 850	GPRS	30.7	30.42	0.03	10 mm	14586	3	1:2.76	back	0.502	1.067	0.536	
1880.00	661	GSM 1900	GSM	30.3	30.22	-0.13	10 mm	14586	1	1:8.3	back	0.389	1.019	0.396	
1880.00	661	GSM 1900	GPRS	27.7	27.57	-0.04	10 mm	14586	3	1:2.76	back	0.478	1.030	0.492	A20
836.60	4183	UMTS 850	RMC	25.2	25.17	-0.09	10 mm	14586	N/A	1:1	back	0.576	1.007	0.580	A21
1712.40	1312	UMTS 1750	RMC	25.0	24.97	0.05	10 mm	14586	N/A	1:1	back	0.767	1.007	0.772	
1732.40	1412	UMTS 1750	RMC	25.0	25.00	-0.14	10 mm	14586	N/A	1:1	back	0.790	1.000	0.790	
1752.60	1513	UMTS 1750	RMC	25.0	24.98	0.05	10 mm	14586	N/A	1:1	back	0.823	1.005	0.827	A22
1752.60	1513	UMTS 1750	RMC	25.0	24.98	0.00	10 mm	14586	N/A	1:1	back	0.749	1.005	0.753	
1852.40	9262	UMTS 1900	RMC	25.0	24.88	0.03	10 mm	14586	N/A	1:1	back	0.932	1.028	0.958	
1880.00	9400	UMTS 1900	RMC	25.0	24.92	-0.05	10 mm	14586	N/A	1:1	back	0.967	1.019	0.985	A23
1907.60	9538	UMTS 1900	RMC	25.0	24.97	-0.05	10 mm	14586	N/A	1:1	back	0.876	1.007	0.882	
820.10	564	CDMA BC10 (§90S)	TDSO / SO32	25.2	25.00	-0.12	10 mm	14586	N/A	1:1	back	0.583	1.047	0.610	A24
836.52	384	CDMA BC0 (§22H)	TDSO / SO32	25.2	24.63	-0.11	10 mm	14586	N/A	1:1	back	0.472	1.140	0.538	A26
1851.25	25	PCS CDMA	TDSO / SO32	25.0	24.99	-0.08	10 mm	14586	N/A	1:1	back	1.010	1.002	1.012	A28
1880.00	600	PCS CDMA	TDSO / SO32	25.0	24.99	-0.02	10 mm	14586	N/A	1:1	back	1.000	1.002	1.002	
1908.75	1175	PCS CDMA	TDSO / SO32	25.0	25.00	-0.09	10 mm	14586	N/A	1:1	back	0.902	1.000	0.902	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram								

Note: Blue entry represents variability measurements.

© 2020 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 Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
680.50	133297	Mid	LTE Band 71	20	25.2	24.91	-0.03	0	14594	QPSK	1	50	10 mm	back	1:1	0.177	1.069	0.189	A30
680.50	133297	Mid	LTE Band 71	20	24.2	24.00	-0.05	1	14594	QPSK	50	0	10 mm	back	1:1	0.139	1.047	0.146	
707.50	23095	Mid	LTE Band 12	10	25.2	24.89	-0.03	0	14594	QPSK	1	0	10 mm	back	1:1	0.192	1.074	0.206	A32
707.50	23095	Mid	LTE Band 12	10	24.2	24.00	-0.01	1	14594	QPSK	25	12	10 mm	back	1:1	0.162	1.047	0.170	
782.00	23230	Mid	LTE Band 13	10	25.2	25.01	-0.05	0	14594	QPSK	1	25	10 mm	back	1:1	0.517	1.045	0.540	A34
782.00	23230	Mid	LTE Band 13	10	24.2	24.05	-0.03	1	14594	QPSK	25	12	10 mm	back	1:1	0.396	1.035	0.410	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.92	-0.16	0	14594	QPSK	1	36	10 mm	back	1:1	0.459	1.067	0.490	A35
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.07	-0.11	1	14594	QPSK	36	0	10 mm	back	1:1	0.357	1.030	0.368	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.79	0.00	0	14594	QPSK	1	50	10 mm	back	1:1	0.662	1.050	0.695	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.0	24.62	-0.02	0	14594	QPSK	1	50	10 mm	back	1:1	0.687	1.091	0.750	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.0	24.70	0.01	0	14594	QPSK	1	50	10 mm	back	1:1	0.794	1.072	0.851	A36
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.95	-0.01	1	14594	QPSK	50	50	10 mm	back	1:1	0.522	1.012	0.528	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.83	-0.01	1	14594	QPSK	100	0	10 mm	back	1:1	0.525	1.040	0.546	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.0	24.71	0.02	0	14594	QPSK	1	50	10 mm	back	1:1	1.120	1.069	**1.197**	A37
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.0	24.75	0.02	0	14594	QPSK	1	50	10 mm	back	1:1	1.050	1.059	1.112	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.79	-0.04	0	14594	QPSK	1	50	10 mm	back	1:1	0.927	1.050	0.973	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.71	0.01	1	14594	QPSK	50	25	10 mm	back	1:1	0.885	1.069	0.946	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.80	0.03	1	14594	QPSK	50	0	10 mm	back	1:1	0.876	1.047	0.917	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.81	-0.03	1	14594	QPSK	50	0	10 mm	back	1:1	0.776	1.045	0.811	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.80	-0.07	1	14594	QPSK	100	0	10 mm	back	1:1	0.735	1.047	0.770	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.0	24.71	0.00	0	14594	QPSK	1	50	10 mm	back	1:1	1.060	1.069	1.133	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram										

Note: Blue entry represents variability measurements.

Table 11-21
LTE Band 41 Body-Worn SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	24.0	23.50	-0.17	0	14602	QPSK	1	99	10 mm	back	1:1.58	0.886	1.122	0.994	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.57	-0.08	0	14602	QPSK	1	50	10 mm	back	1:1.58	0.664	1.104	0.733	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.0	23.61	-0.07	0	14602	QPSK	1	50	10 mm	back	1:1.58	0.632	1.094	0.691	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	24.0	23.60	-0.03	0	14602	QPSK	1	50	10 mm	back	1:1.58	0.654	1.096	0.717	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	23.69	-0.03	0	14602	QPSK	1	50	10 mm	back	1:1.58	0.756	1.074	0.812	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	23.0	22.63	-0.19	1	14602	QPSK	50	50	10 mm	back	1:1.58	0.755	1.089	0.822	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	23.0	22.55	-0.11	1	14602	QPSK	50	25	10 mm	back	1:1.58	0.521	1.109	0.578	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	23.0	22.59	-0.05	1	14602	QPSK	50	25	10 mm	back	1:1.58	0.487	1.099	0.535	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	23.0	22.60	-0.03	1	14602	QPSK	50	25	10 mm	back	1:1.58	0.540	1.096	0.592	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.73	-0.02	1	14602	QPSK	50	25	10 mm	back	1:1.58	0.590	1.064	0.628	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.72	0.00	1	14602	QPSK	100	0	10 mm	back	1:1.58	0.605	1.067	0.646	
1 CC Uplink - Power Class 2	N/A	2506.00	39750	Low	LTE Band 41	20	26.0	25.74	-0.18	0	14602	QPSK	1	99	10 mm	back	1:2.31	0.970	1.062	1.030	
2 CC Uplink - Power Class 3	PCC	2506.00	39750	Low	LTE Band 41	20	24.0	23.78	-0.17	0	14602	QPSK	1	99	10 mm	back	1:1.58	0.975	1.052	1.026	
2 CC Uplink - Power Class 3	SCC	2525.80	39948											0							
2 CC Uplink - Power Class 2	PCC	2506.00	39750	Low	LTE Band 41	20	26.0	25.94	-0.19	0	14602	QPSK	1	99	10 mm	back	1:2.31	1.060	1.014	1.075	A38
2 CC Uplink - Power Class 2	SCC	2525.80	39948											0							
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram											

© 2020 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
DTS Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
2462	11	802.11b	DSSS	22	22.0	21.62	-0.08	10 mm	14610	1	back	99.1	0.613	0.409	1.091	1.009	**0.450**	A40
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								**Body 1.6 W/kg (mW/g)** averaged over 1 gram										

Table 11-23
NII Body-Worn SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
5260	52	802.11a	OFDM	20	20.0	19.36	0.05	10 mm	14610	6	back	96.9	0.930	0.526	1.159	1.032	0.629	
5520	104	802.11a	OFDM	20	20.0	19.76	-0.05	10 mm	14610	6	back	96.9	1.194	0.590	1.057	1.032	0.644	
5600	120	802.11a	OFDM	20	20.0	19.74	-0.03	10 mm	14610	6	back	96.9	1.249	0.596	1.062	1.032	0.653	A41
5720	144	802.11a	OFDM	20	20.0	19.70	0.10	10 mm	14610	6	back	96.9	1.048	0.523	1.072	1.032	0.579	
5785	157	802.11a	OFDM	20	20.0	19.33	-0.02	10 mm	14610	6	back	96.9	0.933	0.435	1.167	1.032	0.524	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								**Body 1.6 W/kg (mW/g)** averaged over 1 gram										

Table 11-24
DSS Body-Worn SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441	39	Bluetooth	FHSS	10.0	9.40	-0.06	10 mm	14610	1	back	76.8	0.015	1.148	1.302	0.022	A43
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							**Body 1.6 W/kg (mW/g)** averaged over 1 gram									

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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 11-25
GPRS/UMTS/CDMA Hotspot SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
824.20	128	GSM 850	GPRS	30.7	30.49	0.00	10 mm	14586	3	1:2.76	back	0.560	1.050	0.588	
836.60	190	GSM 850	GPRS	30.7	30.56	0.02	10 mm	14586	3	1:2.76	back	0.584	1.033	0.603	A19
848.80	251	GSM 850	GPRS	30.7	30.42	0.03	10 mm	14586	3	1:2.76	back	0.502	1.067	0.536	
836.60	190	GSM 850	GPRS	30.7	30.56	0.03	10 mm	14586	3	1:2.76	front	0.427	1.033	0.441	
836.60	190	GSM 850	GPRS	30.7	30.56	-0.04	10 mm	14586	3	1:2.76	bottom	0.468	1.033	0.483	
836.60	190	GSM 850	GPRS	30.7	30.56	-0.07	10 mm	14586	3	1:2.76	right	0.326	1.033	0.337	
836.60	190	GSM 850	GPRS	30.7	30.56	0.13	10 mm	14586	3	1:2.76	left	0.089	1.033	0.092	
1880.00	661	GSM 1900	GPRS	27.7	27.57	-0.04	10 mm	14586	3	1:2.76	back	0.478	1.030	0.492	A20
1880.00	661	GSM 1900	GPRS	27.7	27.57	-0.14	10 mm	14586	3	1:2.76	front	0.356	1.030	0.367	
1880.00	661	GSM 1900	GPRS	27.7	27.57	0.06	10 mm	14586	3	1:2.76	bottom	0.248	1.030	0.255	
1880.00	661	GSM 1900	GPRS	27.7	27.57	0.08	10 mm	14586	3	1:2.76	left	0.358	1.030	0.369	
836.60	4183	UMTS 850	RMC	25.2	25.17	-0.09	10 mm	14586	N/A	1:1	back	0.576	1.007	0.580	A21
836.60	4183	UMTS 850	RMC	25.2	25.17	0.03	10 mm	14586	N/A	1:1	front	0.399	1.007	0.402	
836.60	4183	UMTS 850	RMC	25.2	25.17	-0.10	10 mm	14586	N/A	1:1	bottom	0.381	1.007	0.384	
836.60	4183	UMTS 850	RMC	25.2	25.17	0.05	10 mm	14586	N/A	1:1	right	0.262	1.007	0.264	
836.60	4183	UMTS 850	RMC	25.2	25.17	0.03	10 mm	14586	N/A	1:1	left	0.063	1.007	0.063	
1712.40	1312	UMTS 1750	RMC	25.0	24.97	0.05	10 mm	14586	N/A	1:1	back	0.767	1.007	0.772	
1732.40	1412	UMTS 1750	RMC	25.0	25.00	-0.14	10 mm	14586	N/A	1:1	back	0.790	1.000	0.790	
1752.60	1513	UMTS 1750	RMC	25.0	24.98	0.05	10 mm	14586	N/A	1:1	back	0.823	1.005	0.827	A22
1732.40	1412	UMTS 1750	RMC	25.0	25.00	0.00	10 mm	14586	N/A	1:1	front	0.615	1.000	0.615	
1732.40	1412	UMTS 1750	RMC	25.0	25.00	0.00	10 mm	14586	N/A	1:1	bottom	0.550	1.000	0.550	
1732.40	1412	UMTS 1750	RMC	25.0	25.00	-0.02	10 mm	14586	N/A	1:1	left	0.761	1.000	0.761	
1752.60	1513	UMTS 1750	RMC	25.0	24.98	0.00	10 mm	14586	N/A	1:1	back	0.749	1.005	0.753	
1852.40	9262	UMTS 1900	RMC	25.0	24.88	0.03	10 mm	14586	N/A	1:1	back	0.932	1.028	0.958	
1880.00	9400	UMTS 1900	RMC	25.0	24.92	-0.05	10 mm	14586	N/A	1:1	back	0.967	1.019	0.985	A23
1907.60	9538	UMTS 1900	RMC	25.0	24.97	-0.05	10 mm	14586	N/A	1:1	back	0.876	1.007	0.882	
1880.00	9400	UMTS 1900	RMC	25.0	24.92	-0.19	10 mm	14586	N/A	1:1	front	0.655	1.019	0.667	
1880.00	9400	UMTS 1900	RMC	25.0	24.92	-0.09	10 mm	14586	N/A	1:1	bottom	0.514	1.019	0.524	
1852.40	9262	UMTS 1900	RMC	25.0	24.88	-0.02	10 mm	14586	N/A	1:1	left	0.732	1.028	0.752	
1880.00	9400	UMTS 1900	RMC	25.0	24.92	-0.12	10 mm	14586	N/A	1:1	left	0.755	1.019	0.769	
1907.60	9538	UMTS 1900	RMC	25.0	24.97	0.04	10 mm	14586	N/A	1:1	left	0.705	1.007	0.710	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.2	24.96	-0.02	10 mm	14586	N/A	1:1	back	0.549	1.057	0.580	A25
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.2	24.96	0.01	10 mm	14586	N/A	1:1	front	0.376	1.057	0.397	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.2	24.96	0.01	10 mm	14586	N/A	1:1	bottom	0.388	1.057	0.410	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.2	24.96	-0.02	10 mm	14586	N/A	1:1	right	0.293	1.057	0.310	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.2	24.96	0.09	10 mm	14586	N/A	1:1	left	0.079	1.057	0.084	
824.70	1013	CDMA BC0 (§22H)	EVDO Rev. 0	25.2	24.51	-0.10	10 mm	14586	N/A	1:1	back	0.603	1.172	0.707	A27
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.2	24.70	-0.09	10 mm	14586	N/A	1:1	back	0.537	1.122	0.603	
848.31	777	CDMA BC0 (§22H)	EVDO Rev. 0	25.2	24.65	-0.12	10 mm	14586	N/A	1:1	back	0.562	1.135	0.638	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.2	24.70	0.03	10 mm	14586	N/A	1:1	front	0.366	1.122	0.411	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.2	24.70	-0.03	10 mm	14586	N/A	1:1	bottom	0.362	1.122	0.406	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.2	24.70	0.06	10 mm	14586	N/A	1:1	right	0.239	1.122	0.268	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.2	24.70	-0.05	10 mm	14586	N/A	1:1	left	0.055	1.122	0.062	
1851.25	25	PCS CDMA	EVDO Rev. 0	25.0	24.89	-0.02	10 mm	14586	N/A	1:1	back	0.981	1.026	1.007	A29
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.88	-0.04	10 mm	14586	N/A	1:1	back	0.969	1.028	0.996	
1908.75	1175	PCS CDMA	EVDO Rev. 0	25.0	24.95	0.00	10 mm	14586	N/A	1:1	back	0.869	1.012	0.879	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.88	-0.04	10 mm	14586	N/A	1:1	front	0.694	1.028	0.713	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.88	-0.14	10 mm	14586	N/A	1:1	bottom	0.481	1.028	0.494	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.88	0.06	10 mm	14586	N/A	1:1	left	0.634	1.028	0.652	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram								

Note: Blue entry represents variability measurements.

© 2020 PCTEST Engineering Laboratory, Inc.

REV 21.4 M
09/11/2019

© 2020 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 71 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
680.50	133297	Mid	LTE Band 71	20	25.2	24.91	-0.03	0	14594	QPSK	1	50	10 mm	back	1:1	0.177	1.069	0.189	
680.50	133297	Mid	LTE Band 71	20	24.2	24.00	-0.05	1	14594	QPSK	50	0	10 mm	back	1:1	0.139	1.047	0.146	
680.50	133297	Mid	LTE Band 71	20	25.2	24.91	-0.14	0	14594	QPSK	1	50	10 mm	front	1:1	0.135	1.069	0.144	
680.50	133297	Mid	LTE Band 71	20	24.2	24.00	-0.06	1	14594	QPSK	50	0	10 mm	front	1:1	0.103	1.047	0.108	
680.50	133297	Mid	LTE Band 71	20	25.2	24.91	-0.13	0	14594	QPSK	1	50	10 mm	bottom	1:1	0.104	1.069	0.111	
680.50	133297	Mid	LTE Band 71	20	24.2	24.00	-0.02	1	14594	QPSK	50	0	10 mm	bottom	1:1	0.079	1.047	0.083	
680.50	133297	Mid	LTE Band 71	20	25.2	24.91	0.02	0	14594	QPSK	1	50	10 mm	right	1:1	0.273	1.069	0.292	A31
680.50	133297	Mid	LTE Band 71	20	24.2	24.00	0.00	1	14594	QPSK	50	0	10 mm	right	1:1	0.198	1.047	0.207	
680.50	133297	Mid	LTE Band 71	20	25.2	24.91	-0.16	0	14594	QPSK	1	50	10 mm	left	1:1	0.141	1.069	0.151	
680.50	133297	Mid	LTE Band 71	20	24.2	24.00	0.08	1	14594	QPSK	50	0	10 mm	left	1:1	0.096	1.047	0.101	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Body 1.6 W/kg (mW/g) averaged over 1 gram													

Table 11-27
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	25.2	24.89	-0.03	0	14594	QPSK	1	0	10 mm	back	1:1	0.192	1.074	0.206	
707.50	23095	Mid	LTE Band 12	10	24.2	24.00	-0.01	1	14594	QPSK	25	12	10 mm	back	1:1	0.162	1.047	0.170	
707.50	23095	Mid	LTE Band 12	10	25.2	24.89	0.03	0	14594	QPSK	1	0	10 mm	front	1:1	0.137	1.074	0.147	
707.50	23095	Mid	LTE Band 12	10	24.2	24.00	0.03	1	14594	QPSK	25	12	10 mm	front	1:1	0.105	1.047	0.110	
707.50	23095	Mid	LTE Band 12	10	25.2	24.89	-0.07	0	14594	QPSK	1	0	10 mm	bottom	1:1	0.111	1.074	0.119	
707.50	23095	Mid	LTE Band 12	10	24.2	24.00	-0.04	1	14594	QPSK	25	12	10 mm	bottom	1:1	0.097	1.047	0.102	
707.50	23095	Mid	LTE Band 12	10	25.2	24.89	0.01	0	14594	QPSK	1	0	10 mm	right	1:1	0.273	1.074	0.293	A33
707.50	23095	Mid	LTE Band 12	10	24.2	24.00	-0.03	1	14594	QPSK	25	12	10 mm	right	1:1	0.230	1.047	0.241	
707.50	23095	Mid	LTE Band 12	10	25.2	24.89	-0.03	0	14594	QPSK	1	0	10 mm	left	1:1	0.141	1.074	0.151	
707.50	23095	Mid	LTE Band 12	10	24.2	24.00	-0.15	1	14594	QPSK	25	12	10 mm	left	1:1	0.115	1.047	0.120	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Body 1.6 W/kg (mW/g) averaged over 1 gram													

© 2020 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 11-28
LTE Band 13 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	25.2	25.01	-0.05	0	14594	QPSK	1	25	10 mm	back	1:1	0.517	1.045	0.540	A34
782.00	23230	Mid	LTE Band 13	10	24.2	24.05	-0.03	1	14594	QPSK	25	12	10 mm	back	1:1	0.396	1.035	0.410	
782.00	23230	Mid	LTE Band 13	10	25.2	25.01	0.01	0	14594	QPSK	1	25	10 mm	front	1:1	0.375	1.045	0.392	
782.00	23230	Mid	LTE Band 13	10	24.2	24.05	0.04	1	14594	QPSK	25	12	10 mm	front	1:1	0.283	1.035	0.293	
782.00	23230	Mid	LTE Band 13	10	25.2	25.01	-0.13	0	14594	QPSK	1	25	10 mm	bottom	1:1	0.353	1.045	0.369	
782.00	23230	Mid	LTE Band 13	10	24.2	24.05	-0.01	1	14594	QPSK	25	12	10 mm	bottom	1:1	0.275	1.035	0.285	
782.00	23230	Mid	LTE Band 13	10	25.2	25.01	-0.02	0	14594	QPSK	1	25	10 mm	right	1:1	0.336	1.045	0.351	
782.00	23230	Mid	LTE Band 13	10	24.2	24.05	-0.02	1	14594	QPSK	25	12	10 mm	right	1:1	0.255	1.035	0.264	
782.00	23230	Mid	LTE Band 13	10	25.2	25.01	-0.01	0	14594	QPSK	1	25	10 mm	left	1:1	0.139	1.045	0.145	
782.00	23230	Mid	LTE Band 13	10	24.2	24.05	-0.01	1	14594	QPSK	25	12	10 mm	left	1:1	0.109	1.035	0.113	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-29
LTE Band 26 (Cell) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.92	-0.16	0	14594	QPSK	1	36	10 mm	back	1:1	0.459	1.067	0.490	A35
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.07	-0.11	1	14594	QPSK	36	0	10 mm	back	1:1	0.357	1.030	0.368	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.92	0.03	0	14594	QPSK	1	36	10 mm	front	1:1	0.317	1.067	0.338	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.07	0.02	1	14594	QPSK	36	0	10 mm	front	1:1	0.244	1.030	0.251	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.92	-0.06	0	14594	QPSK	1	36	10 mm	bottom	1:1	0.321	1.067	0.343	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.07	-0.03	1	14594	QPSK	36	0	10 mm	bottom	1:1	0.257	1.030	0.265	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.92	0.03	0	14594	QPSK	1	36	10 mm	right	1:1	0.224	1.067	0.239	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.07	-0.01	1	14594	QPSK	36	0	10 mm	right	1:1	0.177	1.030	0.182	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.92	0.00	0	14594	QPSK	1	36	10 mm	left	1:1	0.052	1.067	0.055	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.07	-0.06	1	14594	QPSK	36	0	10 mm	left	1:1	0.044	1.030	0.045	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

© 2020 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 11-30
LTE Band 66 (AWS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.79	0.00	0	14594	QPSK	1	50	10 mm	back	1:1	0.662	1.050	0.695	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.0	24.62	-0.02	0	14594	QPSK	1	50	10 mm	back	1:1	0.687	1.091	0.750	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.0	24.70	0.01	0	14594	QPSK	1	50	10 mm	back	1:1	0.794	1.072	0.851	A36
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.95	-0.01	1	14594	QPSK	50	50	10 mm	back	1:1	0.522	1.012	0.528	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.83	-0.01	1	14594	QPSK	100	0	10 mm	back	1:1	0.525	1.040	0.546	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.79	0.03	0	14594	QPSK	1	50	10 mm	front	1:1	0.554	1.050	0.582	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.95	0.07	1	14594	QPSK	50	50	10 mm	front	1:1	0.430	1.012	0.435	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.79	0.00	0	14594	QPSK	1	50	10 mm	bottom	1:1	0.518	1.050	0.544	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.95	-0.01	1	14594	QPSK	50	50	10 mm	bottom	1:1	0.416	1.012	0.421	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.79	-0.02	0	14594	QPSK	1	50	10 mm	left	1:1	0.655	1.050	0.688	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.95	0.00	1	14594	QPSK	50	50	10 mm	left	1:1	0.526	1.012	0.532	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram												

Table 11-31
LTE Band 25 (PCS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.0	24.71	0.02	0	14594	QPSK	1	50	10 mm	back	1:1	1.120	1.069	1.197	A37
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.0	24.75	0.02	0	14594	QPSK	1	50	10 mm	back	1:1	1.050	1.059	1.112	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.79	-0.04	0	14594	QPSK	1	50	10 mm	back	1:1	0.927	1.050	0.973	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.71	0.01	1	14594	QPSK	50	25	10 mm	back	1:1	0.885	1.069	0.946	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.80	0.03	1	14594	QPSK	50	0	10 mm	back	1:1	0.876	1.047	0.917	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.81	-0.03	1	14594	QPSK	50	0	10 mm	back	1:1	0.776	1.045	0.811	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.80	-0.07	1	14594	QPSK	100	0	10 mm	back	1:1	0.735	1.047	0.770	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.79	-0.02	0	14594	QPSK	1	50	10 mm	front	1:1	0.702	1.050	0.737	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.81	-0.14	1	14594	QPSK	50	0	10 mm	front	1:1	0.571	1.045	0.597	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.79	-0.01	0	14594	QPSK	1	50	10 mm	bottom	1:1	0.406	1.050	0.426	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.81	-0.04	1	14594	QPSK	50	0	10 mm	bottom	1:1	0.327	1.045	0.342	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.79	-0.02	0	14594	QPSK	1	50	10 mm	left	1:1	0.608	1.050	0.638	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.81	0.06	1	14594	QPSK	50	0	10 mm	left	1:1	0.493	1.045	0.515	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.0	24.71	0.00	0	14594	QPSK	1	50	10 mm	back	1:1	1.060	1.069	1.133	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram												

Note: Blue entry represents variability measurements.

© 2020 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 11-32
LTE Band 41 Hotspot SAR

MEASUREMENT RESULTS																					
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	24.0	23.50	-0.17	0	14602	QPSK	1	99	10 mm	back	1:1.58	0.886	1.122	0.994	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.57	-0.08	0	14602	QPSK	1	50	10 mm	back	1:1.58	0.664	1.104	0.733	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.0	23.61	-0.07	0	14602	QPSK	1	50	10 mm	back	1:1.58	0.632	1.094	0.691	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	24.0	23.60	-0.03	0	14602	QPSK	1	50	10 mm	back	1:1.58	0.654	1.096	0.717	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	23.69	-0.03	0	14602	QPSK	1	50	10 mm	back	1:1.58	0.756	1.074	0.812	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	23.0	22.63	-0.19	1	14602	QPSK	50	50	10 mm	back	1:1.58	0.755	1.089	0.822	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	23.0	22.55	-0.11	1	14602	QPSK	50	25	10 mm	back	1:1.58	0.521	1.109	0.578	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	23.0	22.59	-0.05	1	14602	QPSK	50	25	10 mm	back	1:1.58	0.487	1.099	0.535	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	23.0	22.60	-0.03	1	14602	QPSK	50	25	10 mm	back	1:1.58	0.540	1.096	0.592	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.73	-0.02	1	14602	QPSK	50	25	10 mm	back	1:1.58	0.590	1.064	0.628	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.72	0.00	1	14602	QPSK	100	0	10 mm	back	1:1.58	0.605	1.067	0.646	
2 CC Uplink - Power Class 2	PCC	2506.00	39750	Low	LTE Band 41	20	26.0	25.94	-0.19	0	14602	QPSK	1	99	10 mm	back	1:2.31	1.06	1.014	1.075	A38
2 CC Uplink - Power Class 2	SCC	2525.80	39948											0							
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	23.69	0.09	0	14602	QPSK	1	50	10 mm	front	1:1.58	0.329	1.074	0.353	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.73	0.05	1	14602	QPSK	50	25	10 mm	front	1:1.58	0.255	1.064	0.271	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	24.0	23.50	0.06	0	14602	QPSK	1	99	10 mm	bottom	1:1.58	1.080	1.122	1.212	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.57	-0.13	0	14602	QPSK	1	50	10 mm	bottom	1:1.58	0.877	1.104	0.968	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.0	23.61	-0.14	0	14602	QPSK	1	50	10 mm	bottom	1:1.58	0.915	1.094	1.001	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	24.0	23.60	-0.10	0	14602	QPSK	1	50	10 mm	bottom	1:1.58	0.940	1.096	1.030	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	23.69	-0.09	0	14602	QPSK	1	50	10 mm	bottom	1:1.58	0.975	1.074	1.047	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	23.0	22.63	-0.03	1	14602	QPSK	50	50	10 mm	bottom	1:1.58	0.758	1.089	0.825	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	23.0	22.55	-0.14	1	14602	QPSK	50	25	10 mm	bottom	1:1.58	0.679	1.109	0.753	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	23.0	22.59	-0.14	1	14602	QPSK	50	25	10 mm	bottom	1:1.58	0.703	1.099	0.773	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	23.0	22.60	-0.14	1	14602	QPSK	50	25	10 mm	bottom	1:1.58	0.716	1.096	0.785	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.73	-0.14	1	14602	QPSK	50	25	10 mm	bottom	1:1.58	0.753	1.064	0.801	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.72	-0.13	1	14602	QPSK	100	0	10 mm	bottom	1:1.58	0.710	1.067	0.758	
1 CC Uplink - Power Class 2	N/A	2506.00	39750	Low	LTE Band 41	20	26.0	25.74	0.15	0	14602	QPSK	1	99	10 mm	bottom	1:2.31	1.190	1.062	1.264	
2 CC Uplink - Power Class 3	PCC	2506.00	39750	Low	LTE Band 41	20	24.0	23.78	-0.01	0	14602	QPSK	1	99	10 mm	bottom	1:1.58	1.140	1.052	1.199	
2 CC Uplink - Power Class 3	SCC	2525.80	39948											0							
2 CC Uplink - Power Class 2	PCC	2506.00	39750	Low	LTE Band 41	20	26.0	25.94	-0.11	0	14602	QPSK	1	99	10 mm	bottom	1:2.31	1.250	1.014	1.268	A39
2 CC Uplink - Power Class 2	SCC	2525.80	39948											0							
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	23.69	0.06	0	14602	QPSK	1	50	10 mm	right	1:1.58	0.170	1.074	0.183	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.73	0.04	1	14602	QPSK	50	25	10 mm	right	1:1.58	0.128	1.064	0.136	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	23.69	0.11	0	14602	QPSK	1	50	10 mm	left	1:1.58	0.141	1.074	0.151	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.73	0.04	1	14602	QPSK	50	25	10 mm	left	1:1.58	0.106	1.064	0.113	
2 CC Uplink - Power Class 2	PCC	2506.00	39750	Low	LTE Band 41	20	26.0	25.94	0.15	0	14602	QPSK	1	99	10 mm	bottom	1:2.31	1.230	1.014	1.247	
2 CC Uplink - Power Class 2	SCC	2525.80	39948											0							
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	23.69	-0.13	0	14602	QPSK	1	50	10 mm	bottom	1:1.58	1.110	1.074	1.126	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Body 1.6 W/kg (mW/g) averaged over 1 gram					

Note: Blue entries represent variability measurements.

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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
WLAN Hotspot SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
2462	11	802.11b	DSSS	22	22.0	21.62	-0.08	10 mm	14610	1	back	99.1	0.613	0.409	1.091	1.009	**0.450**	A40
2462	11	802.11b	DSSS	22	22.0	21.62	0.13	10 mm	14610	1	front	99.1	0.503	-	1.091	1.009	-	
2462	11	802.11b	DSSS	22	22.0	21.62	-0.13	10 mm	14610	1	top	99.1	0.622	0.395	1.091	1.009	0.435	
2462	11	802.11b	DSSS	22	22.0	21.62	-0.19	10 mm	14610	1	left	99.1	0.476	-	1.091	1.009	-	
5220	44	802.11a	OFDM	20	20.0	19.54	0.01	10 mm	14610	6	back	96.9	1.121	0.556	1.112	1.032	0.638	
5220	44	802.11a	OFDM	20	20.0	19.54	-0.10	10 mm	14610	6	front	96.9	0.622	0.314	1.112	1.032	0.360	
5220	44	802.11a	OFDM	20	20.0	19.54	0.06	10 mm	14610	6	top	96.9	1.176	0.579	1.112	1.032	0.664	
5220	44	802.11a	OFDM	20	20.0	19.54	0.12	10 mm	14610	6	left	96.9	0.272	-	1.112	1.032	-	
5785	157	802.11a	OFDM	20	20.0	19.33	-0.02	10 mm	14610	6	back	96.9	0.933	0.435	1.167	1.032	0.524	
5785	157	802.11a	OFDM	20	20.0	19.33	-0.17	10 mm	14610	6	front	96.9	0.642	0.266	1.167	1.032	0.320	
5745	149	802.11a	OFDM	20	20.0	19.26	-0.09	10 mm	14610	6	top	96.9	1.449	0.651	1.186	1.032	**0.797**	A42
5785	157	802.11a	OFDM	20	20.0	19.33	0.03	10 mm	14610	6	top	96.9	1.312	0.578	1.167	1.032	0.696	
5805	161	802.11a	OFDM	20	20.0	19.26	0.12	10 mm	14610	6	top	96.9	1.444	0.625	1.186	1.032	0.765	
5785	157	802.11a	OFDM	20	20.0	19.33	0.16	10 mm	14610	6	left	96.9	0.482	-	1.167	1.032	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Body** **1.6 W/kg (mW/g)** averaged over 1 gram										

Table 11-34
DSS Hotspot SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441	39	Bluetooth	FHSS	10.0	9.40	-0.06	10 mm	14610	1	back	76.8	0.015	1.148	1.302	0.022	
2441	39	Bluetooth	FHSS	10.0	9.40	0.13	10 mm	14610	1	front	76.8	0.012	1.148	1.302	0.018	
2441	39	Bluetooth	FHSS	10.0	9.40	0.12	10 mm	14610	1	top	76.8	0.016	1.148	1.302	**0.024**	A44
2441	39	Bluetooth	FHSS	10.0	9.40	0.12	10 mm	14610	1	left	76.8	0.012	1.148	1.302	0.018	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**							**Body** **1.6 W/kg (mW/g)** averaged over 1 gram									

© 2020 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 11-35
UMTS/CDMA Phablet SAR Data

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1732.40	1412	UMTS 1750	RMC	25.0	25.00	-0.03	4 mm	14578	1:1	back	1.170	1.000	1.170	
1732.40	1412	UMTS 1750	RMC	25.0	25.00	-0.03	3 mm	14578	1:1	front	1.240	1.000	1.240	
1732.40	1412	UMTS 1750	RMC	25.0	25.00	0.00	4 mm	14578	1:1	bottom	0.766	1.000	0.766	
1732.40	1412	UMTS 1750	RMC	25.0	25.00	-0.06	3 mm	14578	1:1	left	1.170	1.000	1.170	
1712.40	1312	UMTS 1750	RMC	23.0	22.82	0.01	0 mm	14578	1:1	back	2.570	1.042	2.678	
1732.40	1412	UMTS 1750	RMC	23.0	22.88	0.01	0 mm	14578	1:1	back	2.630	1.028	2.704	A45
1752.60	1513	UMTS 1750	RMC	23.0	22.87	0.01	0 mm	14578	1:1	back	2.620	1.030	2.699	
1712.40	1312	UMTS 1750	RMC	23.0	22.82	0.00	0 mm	14578	1:1	front	2.100	1.042	2.188	
1732.40	1412	UMTS 1750	RMC	23.0	22.88	-0.01	0 mm	14578	1:1	front	2.140	1.028	2.200	
1752.60	1513	UMTS 1750	RMC	23.0	22.87	0.02	0 mm	14578	1:1	front	2.160	1.030	2.225	
1712.40	1312	UMTS 1750	RMC	23.0	22.82	-0.02	0 mm	14578	1:1	bottom	1.940	1.042	2.021	
1732.40	1412	UMTS 1750	RMC	23.0	22.88	-0.05	0 mm	14578	1:1	bottom	1.950	1.028	2.005	
1752.60	1513	UMTS 1750	RMC	23.0	22.87	-0.07	0 mm	14578	1:1	bottom	1.950	1.030	2.009	
1712.40	1312	UMTS 1750	RMC	23.0	22.82	-0.07	0 mm	14578	1:1	left	2.430	1.042	2.532	
1732.40	1412	UMTS 1750	RMC	23.0	22.88	-0.08	0 mm	14578	1:1	left	2.480	1.028	2.549	
1752.60	1513	UMTS 1750	RMC	23.0	22.87	-0.09	0 mm	14578	1:1	left	2.540	1.030	2.616	
1880.00	9400	UMTS 1900	RMC	25.0	24.92	0.12	4 mm	14586	1:1	back	1.320	1.019	1.345	
1880.00	9400	UMTS 1900	RMC	25.0	24.92	-0.15	3 mm	14586	1:1	front	1.420	1.019	1.447	
1880.00	9400	UMTS 1900	RMC	25.0	24.92	0.08	4 mm	14586	1:1	bottom	0.383	1.019	0.390	
1880.00	9400	UMTS 1900	RMC	25.0	24.92	-0.02	3 mm	14586	1:1	left	1.090	1.019	1.111	
1852.40	9262	UMTS 1900	RMC	24.0	23.93	0.14	0 mm	14586	1:1	back	2.570	1.016	2.611	A46
1880.00	9400	UMTS 1900	RMC	24.0	23.95	0.15	0 mm	14586	1:1	back	2.360	1.012	2.388	
1907.60	9538	UMTS 1900	RMC	24.0	24.00	0.16	0 mm	14586	1:1	back	2.130	1.000	2.130	
1852.40	9262	UMTS 1900	RMC	24.0	23.93	-0.15	0 mm	14586	1:1	front	2.310	1.016	2.347	
1880.00	9400	UMTS 1900	RMC	24.0	23.95	-0.21	0 mm	14586	1:1	front	2.180	1.012	2.206	
1907.60	9538	UMTS 1900	RMC	24.0	24.00	-0.18	0 mm	14586	1:1	front	1.960	1.000	1.960	
1880.00	9400	UMTS 1900	RMC	24.0	23.95	-0.06	0 mm	14586	1:1	bottom	1.440	1.012	1.457	
1880.00	9400	UMTS 1900	RMC	24.0	23.95	-0.06	0 mm	14586	1:1	left	1.710	1.012	1.731	
1852.40	9262	UMTS 1900	RMC	24.0	23.93	0.05	0 mm	14586	1:1	back	2.430	1.016	2.469	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.88	-0.13	4 mm	14586	1:1	back	0.860	1.028	0.884	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.88	-0.19	3 mm	14586	1:1	front	1.220	1.028	1.254	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.88	-0.07	4 mm	14586	1:1	bottom	0.606	1.028	0.623	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.88	-0.01	3 mm	14586	1:1	left	0.895	1.028	0.920	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.0	23.90	0.15	0 mm	14586	1:1	back	2.280	1.023	2.332	A47
1880.00	600	PCS CDMA	EVDO Rev. 0	24.0	23.81	0.15	0 mm	14586	1:1	back	1.920	1.045	2.006	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.0	23.96	0.16	0 mm	14586	1:1	back	1.850	1.009	1.867	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.0	23.81	-0.20	0 mm	14586	1:1	front	1.860	1.045	1.944	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.0	23.81	-0.18	0 mm	14586	1:1	bottom	1.510	1.045	1.578	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.0	23.81	0.06	0 mm	14586	1:1	left	1.510	1.045	1.578	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Phablet 4.0 W/kg (mW/g) averaged over 10 grams							

Note: Blue entry represents variability measurements.

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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 11-36
LTE Phablet SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.79	0.00	0	14594	QPSK	1	50	4 mm	back	1:1	1.320	1.050	1.386	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.95	0.00	1	14594	QPSK	50	50	4 mm	back	1:1	1.040	1.012	1.052	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.79	0.01	0	14594	QPSK	1	50	3 mm	front	1:1	1.320	1.050	1.386	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.95	-0.03	1	14594	QPSK	50	50	3 mm	front	1:1	1.050	1.012	1.063	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.79	0.04	0	14594	QPSK	1	50	4 mm	bottom	1:1	0.764	1.050	0.802	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.95	0.04	1	14594	QPSK	50	50	4 mm	bottom	1:1	0.616	1.012	0.623	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.79	0.00	0	14594	QPSK	1	50	3 mm	left	1:1	0.359	1.050	0.377	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.95	-0.03	1	14594	QPSK	50	50	3 mm	left	1:1	0.284	1.012	0.287	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.64	0.01	0	14594	QPSK	1	50	0 mm	back	1:1	2.520	1.086	2.737	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.51	0.00	0	14594	QPSK	1	50	0 mm	back	1:1	2.580	1.119	2.887	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.0	22.78	0.01	0	14594	QPSK	1	50	0 mm	back	1:1	2.630	1.052	2.767	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.67	0.03	0	14594	QPSK	50	50	0 mm	back	1:1	2.580	1.079	2.784	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.54	0.05	0	14594	QPSK	50	0	0 mm	back	1:1	2.680	1.112	2.980	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.0	22.68	0.12	0	14594	QPSK	50	0	0 mm	back	1:1	2.660	1.076	2.862	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.0	22.57	0.00	0	14594	QPSK	100	0	0 mm	back	1:1	2.610	1.104	2.881	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.64	0.03	0	14594	QPSK	1	50	0 mm	front	1:1	2.330	1.086	2.530	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.51	0.06	0	14594	QPSK	1	50	0 mm	front	1:1	2.370	1.119	2.652	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.0	22.78	0.03	0	14594	QPSK	1	50	0 mm	front	1:1	2.440	1.052	2.567	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.67	-0.01	0	14594	QPSK	50	50	0 mm	front	1:1	2.380	1.079	2.568	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.54	0.01	0	14594	QPSK	50	0	0 mm	front	1:1	2.460	1.112	2.736	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.0	22.68	0.02	0	14594	QPSK	50	0	0 mm	front	1:1	2.480	1.076	2.668	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.0	22.57	-0.09	0	14594	QPSK	100	0	0 mm	front	1:1	2.450	1.104	2.705	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.0	22.78	-0.09	0	14594	QPSK	1	50	0 mm	bottom	1:1	1.670	1.052	1.757	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.0	22.68	-0.08	0	14594	QPSK	50	0	0 mm	bottom	1:1	1.700	1.076	1.829	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.64	-0.07	0	14594	QPSK	1	50	0 mm	left	1:1	2.170	1.086	2.357	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.51	-0.08	0	14594	QPSK	1	50	0 mm	left	1:1	2.190	1.119	2.451	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.0	22.78	-0.08	0	14594	QPSK	1	50	0 mm	left	1:1	2.150	1.052	2.262	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.67	-0.08	0	14594	QPSK	50	50	0 mm	left	1:1	2.260	1.079	2.439	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.54	-0.08	0	14594	QPSK	50	0	0 mm	left	1:1	2.310	1.112	2.569	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.0	22.68	0.21	0	14594	QPSK	50	0	0 mm	left	1:1	2.190	1.076	2.356	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.0	22.57	-0.08	0	14594	QPSK	100	0	0 mm	left	1:1	2.140	1.104	2.363	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.0	22.54	0.02	0	14594	QPSK	50	0	0 mm	back	1:1	2.720	1.112	**3.025**	A48
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.79	0.00	0	14602	QPSK	1	50	4 mm	back	1:1	1.020	1.050	1.071	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.81	0.01	1	14602	QPSK	50	0	4 mm	back	1:1	0.841	1.045	0.879	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.79	-0.12	0	14602	QPSK	1	50	3 mm	front	1:1	0.976	1.050	1.025	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.81	-0.14	1	14602	QPSK	50	0	3 mm	front	1:1	0.806	1.045	0.842	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.79	-0.13	0	14602	QPSK	1	50	4 mm	bottom	1:1	0.528	1.050	0.554	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.81	-0.05	1	14602	QPSK	50	0	4 mm	bottom	1:1	0.447	1.045	0.467	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.79	0.00	0	14602	QPSK	1	50	3 mm	left	1:1	0.840	1.050	0.882	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.81	-0.13	1	14602	QPSK	50	0	3 mm	left	1:1	0.697	1.045	0.728	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.51	0.18	0	14602	QPSK	1	50	0 mm	back	1:1	2.480	1.119	2.775	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.85	0.16	0	14602	QPSK	1	50	0 mm	back	1:1	2.110	1.035	2.184	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.78	0.21	0	14602	QPSK	1	50	0 mm	back	1:1	2.190	1.052	2.304	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.40	0.20	0	14602	QPSK	50	25	0 mm	back	1:1	2.540	1.148	2.916	A49
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.61	0.12	0	14602	QPSK	50	25	0 mm	back	1:1	2.160	1.094	2.363	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.60	0.20	0	14602	QPSK	50	25	0 mm	back	1:1	2.240	1.096	2.455	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.59	0.12	0	14602	QPSK	100	0	0 mm	back	1:1	2.270	1.099	2.495	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.51	0.14	0	14602	QPSK	1	50	0 mm	front	1:1	2.090	1.119	2.339	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.85	-0.13	0	14602	QPSK	1	50	0 mm	front	1:1	2.010	1.035	2.080	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.78	0.14	0	14602	QPSK	1	50	0 mm	front	1:1	1.860	1.052	1.957	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.40	0.11	0	14602	QPSK	50	25	0 mm	front	1:1	2.140	1.148	2.457	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.61	-0.10	0	14602	QPSK	50	25	0 mm	front	1:1	2.070	1.094	2.265	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.60	0.11	0	14602	QPSK	50	25	0 mm	front	1:1	1.900	1.096	2.082	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.59	0.13	0	14602	QPSK	100	0	0 mm	front	1:1	1.900	1.099	2.088	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.85	0.04	0	14602	QPSK	1	50	0 mm	bottom	1:1	1.560	1.035	1.615	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.61	0.05	0	14602	QPSK	50	25	0 mm	bottom	1:1	1.610	1.094	1.761	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.85	-0.12	0	14602	QPSK	1	50	0 mm	left	1:1	1.400	1.035	1.449	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.61	-0.07	0	14602	QPSK	50	25	0 mm	left	1:1	1.400	1.094	1.532	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams											

Note: Blue entry represents variability measurements.

© 2020 PCTEST Engineering Laboratory, Inc.

REV 21.4 M
09/11/2019

© 2020 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 41 Phablet SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	24.0	23.50	-0.16	0	14602	QPSK	1	99	0 mm	bottom	1:1.58	1.680	1.122	1.885	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.57	0.17	0	14602	QPSK	1	50	0 mm	bottom	1:1.58	1.330	1.104	1.468	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.0	23.61	0.13	0	14602	QPSK	1	50	0 mm	bottom	1:1.58	1.240	1.094	1.357	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	24.0	23.60	0.11	0	14602	QPSK	1	50	0 mm	bottom	1:1.58	1.640	1.096	1.797	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	23.69	0.12	0	14602	QPSK	1	50	0 mm	bottom	1:1.58	1.740	1.074	1.869	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.73	0.12	1	14602	QPSK	50	25	0 mm	bottom	1:1.58	1.370	1.064	1.458	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.0	22.72	0.18	1	14602	QPSK	100	0	0 mm	bottom	1:1.58	1.080	1.067	1.152	
1 CC Uplink - Power Class 2	N/A	2506.00	39750	Low	LTE Band 41	20	26.0	25.74	-0.21	0	14602	QPSK	1	99	0 mm	bottom	1:2.31	1.820	1.062	1.933	
2 CC Uplink - Power Class 3	PCC	2506.00	39750	Low	LTE Band 41	20	24.0	23.78	-0.09	0	14602	QPSK	1	99	0 mm	bottom	1:1.58	1.880	1.052	1.978	
2 CC Uplink - Power Class 3	SCC	2525.80	39948											0							
2 CC Uplink - Power Class 2	PCC	2506.00	39750	Low	LTE Band 41	20	26.0	25.94	0.18	0	14602	QPSK	1	99	0 mm	bottom	1:2.31	2.000	1.014	2.028	A50
2 CC Uplink - Power Class 2	SCC	2525.80	39948											0							
2 CC Uplink - Power Class 2	PCC	2506.00	39750	Low	LTE Band 41	20	26.0	25.94	0.18	0	14602	QPSK	1	99	0 mm	bottom	1:2.31	1.960	1.014	1.987	
2 CC Uplink - Power Class 2	SCC	2525.80	39948											0							
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Phablet 4.0 W/kg (mW/g) averaged over 10 grams								

Note: Blue entry represents variability measurements.

Table 11-38
WLAN Phablet SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
5260	52	802.11a	OFDM	20	20.0	19.36	-0.12	0 mm	14610	6	back	96.9	8.714	1.360	1.159	1.032	1.627	A51
5280	56	802.11a	OFDM	20	20.0	19.34	-0.09	0 mm	14610	6	back	96.9	8.909	1.290	1.164	1.032	1.550	
5300	60	802.11a	OFDM	20	20.0	19.31	-0.04	0 mm	14610	6	back	96.9	7.861	1.190	1.172	1.032	1.439	
5260	52	802.11a	OFDM	20	20.0	19.36	0.10	0 mm	14610	6	front	96.9	7.907	0.860	1.159	1.032	1.029	
5260	52	802.11a	OFDM	20	20.0	19.36	0.13	0 mm	14610	6	top	96.9	8.056	1.050	1.159	1.032	1.256	
5260	52	802.11a	OFDM	20	20.0	19.36	0.18	0 mm	14610	6	left	96.9	1.884	0.205	1.159	1.032	0.245	
5520	104	802.11a	OFDM	20	20.0	19.76	-0.13	0 mm	14610	6	back	96.9	9.954	1.250	1.057	1.032	1.364	
5520	104	802.11a	OFDM	20	20.0	19.76	-0.13	0 mm	14610	6	front	96.9	4.691	0.825	1.057	1.032	0.900	
5520	104	802.11a	OFDM	20	20.0	19.76	0.13	0 mm	14610	6	top	96.9	15.570	1.270	1.057	1.032	1.385	
5520	104	802.11a	OFDM	20	20.0	19.76	-0.03	0 mm	14610	6	left	96.9	1.921	0.274	1.057	1.032	0.299	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams										

11.5 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.

© 2020 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. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 10 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB Publication 648474 D04v01r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was ≤ 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were required.
8. Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 13 for variability analysis.
9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 6.7 for more details).
10. Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is > 160 mm and < 200 mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.
11. Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds below.
12. This device utilizes power reduction for some wireless modes and technologies, as outlined in Section 1.3. The maximum output power allowed for each transmitter and exposure condition was evaluated for SAR compliance based on expected use conditions and simultaneous transmission scenarios.
13. Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6 (See Section 6.9 for more information).

GSM Test Notes:

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

© 2020 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 Notes:

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

UMTS Notes:

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

LTE Notes:

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

© 2020 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. For LTE Band 41, per FCC guidance, SAR was first measured with only a single carrier active in the uplink (carrier aggregation not active). For each exposure condition, the uplink CA scenario with two component carriers was additionally tested for the configuration with the highest SAR when carrier aggregation was not active. The SCC was configured with the closest available contiguous channel. The two component carriers were configured so the resource blocks are physically allocated side by side to achieve the maximum output power.

WLAN Notes:

1. For held-to-ear, hotspot, and phablet operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g evaluations, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 8.7.5 for more information.
3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 8.7.6 for more information.
4. When the maximum reported 1g averaged SAR is ≤0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.
5. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.

Bluetooth Notes

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

© 2020 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 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	GSM/GPRS 850	0.306	0.866	1.172
	GSM/GPRS 1900	0.256	0.866	1.122
	UMTS 850	0.256	0.866	1.122
	UMTS 1750	0.370	0.866	1.236
	UMTS 1900	0.555	0.866	**1.421**
	CDMA/EVDO BC10 (§90S)	0.299	0.866	1.165
	CDMA/EVDO BC0 (§22H)	0.224	0.866	1.090
	PCS CDMA/EVDO	0.475	0.866	1.341
	LTE Band 71	0.097	0.866	0.963
	LTE Band 12	0.096	0.866	0.962
	LTE Band 13	0.257	0.866	1.123
	LTE Band 26 (Cell)	0.208	0.866	1.074
	LTE Band 66 (AWS)	0.318	0.866	1.184
	LTE Band 25 (PCS)	0.428	0.866	1.294
	LTE Band 41	0.088	0.866	0.954

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	GSM/GPRS 850	0.306	1.071	1.377
	GSM/GPRS 1900	0.256	1.071	1.327
	UMTS 850	0.256	1.071	1.327
	UMTS 1750	0.370	1.071	1.441
	UMTS 1900	0.555	1.071	See Table Below
	CDMA/EVDO BC10 (§90S)	0.299	1.071	1.370
	CDMA/EVDO BC0 (§22H)	0.224	1.071	1.295
	PCS CDMA/EVDO	0.475	1.071	**1.546**
	LTE Band 71	0.097	1.071	1.168
	LTE Band 12	0.096	1.071	1.167
	LTE Band 13	0.257	1.071	1.328
	LTE Band 26 (Cell)	0.208	1.071	1.279
	LTE Band 66 (AWS)	0.318	1.071	1.389
	LTE Band 25 (PCS)	0.428	1.071	1.499
	LTE Band 41	0.088	1.071	1.159

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	Right Cheek	0.315	0.988	1.303
	Right Tilt	0.244	1.071	1.315
	Left Cheek	0.555	0.742	1.297
	Left Tilt	0.273	0.744	1.017

© 2020 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 Bluetooth (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	GSM/GPRS 850	0.306	0.126	0.432
	GSM/GPRS 1900	0.256	0.126	0.382
	UMTS 850	0.256	0.126	0.382
	UMTS 1750	0.370	0.126	0.496
	UMTS 1900	0.555	0.126	**0.681**
	CDMA/EVDO BC10 (§90S)	0.299	0.126	0.425
	CDMA/EVDO BC0 (§22H)	0.224	0.126	0.350
	PCS CDMA/EVDO	0.475	0.126	0.601
	LTE Band 71	0.097	0.126	0.223
	LTE Band 12	0.096	0.126	0.222
	LTE Band 13	0.257	0.126	0.383
	LTE Band 26 (Cell)	0.208	0.126	0.334
	LTE Band 66 (AWS)	0.318	0.126	0.444
	LTE Band 25 (PCS)	0.428	0.126	0.554
	LTE Band 41	0.088	0.126	0.214

© 2020 PCTEST Engineering Laboratory, Inc.

REV 21.4 M
09/11/2019

© 2020 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 5 GHz WLAN and Bluetooth (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	GSM/GPRS 850	0.306	0.126	1.071	1.503
	GSM/GPRS 1900	0.256	0.126	1.071	1.453
	UMTS 850	0.256	0.126	1.071	1.453
	UMTS 1750	0.370	0.126	1.071	**1.567**
	UMTS 1900	0.555	0.126	1.071	See Table Below
	CDMA/EVDO BC10 (§90S)	0.299	0.126	1.071	1.496
	CDMA/EVDO BC0 (§22H)	0.224	0.126	1.071	1.421
	PCS CDMA/EVDO	0.475	0.126	1.071	See Table Below
	LTE Band 71	0.097	0.126	1.071	1.294
	LTE Band 12	0.096	0.126	1.071	1.293
	LTE Band 13	0.257	0.126	1.071	1.454
	LTE Band 26 (Cell)	0.208	0.126	1.071	1.405
	LTE Band 66 (AWS)	0.318	0.126	1.071	1.515
	LTE Band 25 (PCS)	0.428	0.126	1.071	See Table Below
	LTE Band 41	0.088	0.126	1.071	1.285

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	Right Cheek	0.315	0.126	0.988	**1.429**
	Right Tilt	0.244	0.081	1.071	1.396
	Left Cheek	0.555	0.054	0.742	1.351
	Left Tilt	0.273	0.051	0.744	1.068

Simult Tx	Configuration	PCS CDMA SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	Right Cheek	0.290	0.126	0.988	**1.404**
	Right Tilt	0.229	0.081	1.071	1.381
	Left Cheek	0.475	0.054	0.742	1.271
	Left Tilt	0.249	0.051	0.744	1.044

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	Right Cheek	0.283	0.126	0.988	**1.397**
	Right Tilt	0.203	0.081	1.071	1.355
	Left Cheek	0.475	0.054	0.742	1.271
	Left Tilt	0.249	0.051	0.744	1.044

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	Right Cheek	0.245	0.126	0.988	**1.359**
	Right Tilt	0.162	0.081	1.071	1.314
	Left Cheek	0.428	0.054	0.742	1.224
	Left Tilt	0.186	0.051	0.744	0.981

© 2020 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 12-5
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body-Worn	GSM/GPRS 850	0.603	0.450	1.053	N/A
	GSM/GPRS 1900	0.492	0.450	0.942	N/A
	UMTS 850	0.580	0.450	1.030	N/A
	UMTS 1750	0.827	0.450	1.277	N/A
	UMTS 1900	0.985	0.450	1.435	N/A
	CDMA BC10 (§90S)	0.610	0.450	1.060	N/A
	CDMA BC0 (§22H)	0.538	0.450	0.988	N/A
	PCS CDMA	1.012	0.450	1.462	N/A
	LTE Band 71	0.189	0.450	0.639	N/A
	LTE Band 12	0.206	0.450	0.656	N/A
	LTE Band 13	0.540	0.450	0.990	N/A
	LTE Band 26 (Cell)	0.490	0.450	0.940	N/A
	LTE Band 66 (AWS)	0.851	0.450	1.301	N/A
	LTE Band 25 (PCS)	1.197	0.450	See Note 1	0.02
	LTE Band 41	1.075	0.450	**1.525**	N/A

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body-Worn	GSM/GPRS 850	0.603	0.653	1.256	N/A
	GSM/GPRS 1900	0.492	0.653	1.145	N/A
	UMTS 850	0.580	0.653	1.233	N/A
	UMTS 1750	0.827	0.653	1.480	N/A
	UMTS 1900	0.985	0.653	See Note 1	0.02
	CDMA BC10 (§90S)	0.610	0.653	1.263	N/A
	CDMA BC0 (§22H)	0.538	0.653	1.191	N/A
	PCS CDMA	1.012	0.653	See Note 1	0.02
	LTE Band 71	0.189	0.653	0.842	N/A
	LTE Band 12	0.206	0.653	0.859	N/A
	LTE Band 13	0.540	0.653	1.193	N/A
	LTE Band 26 (Cell)	0.490	0.653	1.143	N/A
	LTE Band 66 (AWS)	0.851	0.653	**1.504**	N/A
	LTE Band 25 (PCS)	1.197	0.653	See Note 1	0.02
	LTE Band 41	1.075	0.653	See Note 1	0.01

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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 (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	GSM/GPRS 850	0.603	0.022	0.625
	GSM/GPRS 1900	0.492	0.022	0.514
	UMTS 850	0.580	0.022	0.602
	UMTS 1750	0.827	0.022	0.849
	UMTS 1900	0.985	0.022	1.007
	CDMA BC10 (§90S)	0.610	0.022	0.632
	CDMA BC0 (§22H)	0.538	0.022	0.560
	PCS CDMA	1.012	0.022	1.034
	LTE Band 71	0.189	0.022	0.211
	LTE Band 12	0.206	0.022	0.228
	LTE Band 13	0.540	0.022	0.562
	LTE Band 26 (Cell)	0.490	0.022	0.512
	LTE Band 66 (AWS)	0.851	0.022	0.873
	LTE Band 25 (PCS)	1.197	0.022	**1.219**
	LTE Band 41	1.075	0.022	1.097

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Body-Worn	UMTS 1750	0.827	0.022	0.653	1.502	N/A	N/A	N/A
	UMTS 1900	0.985	0.022	0.653	See Note 1	0.01	0.02	0.03
	CDMA BC10 (§90S)	0.610	0.022	0.653	1.285	N/A	N/A	N/A
	CDMA BC0 (§22H)	0.538	0.022	0.653	1.213	N/A	N/A	N/A
	PCS CDMA	1.012	0.022	0.653	See Note 1	0.01	0.02	0.03
	LTE Band 71	0.189	0.022	0.653	0.864	N/A	N/A	N/A
	LTE Band 12	0.206	0.022	0.653	0.881	N/A	N/A	N/A
	LTE Band 13	0.540	0.022	0.653	1.215	N/A	N/A	N/A
	LTE Band 26 (Cell)	0.490	0.022	0.653	1.165	N/A	N/A	N/A
	LTE Band 66 (AWS)	0.851	0.022	0.653	**1.526**	N/A	N/A	N/A
	LTE Band 25 (PCS)	1.197	0.022	0.653	See Note 1	0.01	0.02	0.03
	LTE Band 41	1.075	0.022	0.653	See Note 1	0.01	0.01	0.03

Notes:

1. No evaluation was performed to determine the aggregate 1g SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.04 per FCC KDB 447498 D01v06. See Section 12.7 for detailed SPLS ratio analysis.

© 2020 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 12-9
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	GPRS 850	0.603	0.450	1.053
	GPRS 1900	0.492	0.450	0.942
	UMTS 850	0.580	0.450	1.030
	UMTS 1750	0.827	0.450	1.277
	UMTS 1900	0.985	0.450	1.435
	EVDO BC10 (§90S)	0.580	0.450	1.030
	EVDO BC0 (§22H)	0.707	0.450	1.157
	PCS EVDO	1.007	0.450	**1.457**
	LTE Band 71	0.292	0.450	0.742
	LTE Band 12	0.293	0.450	0.743
	LTE Band 13	0.540	0.450	0.990
	LTE Band 26 (Cell)	0.490	0.450	0.940
	LTE Band 66 (AWS)	0.851	0.450	1.301
	LTE Band 25 (PCS)	1.197	0.450	See Table Below
	LTE Band 41	1.268	0.450	See Table Below

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Hotspot SAR	Back	1.197	0.450	See Note 1	0.02
	Front	0.737	0.450*	**1.187**	N/A
	Top	-	0.435	0.435	N/A
	Bottom	0.426	-	0.426	N/A
	Right	-	-	0.000	N/A
	Left	0.638	0.450*	1.088	N/A

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	1.075	0.450	**1.525**
	Front	0.353	0.450*	0.803
	Top	-	0.435	0.435
	Bottom	1.268	-	1.268
	Right	0.183	-	0.183
	Left	0.151	0.450*	0.601

© 2020 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 (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	GPRS 850	0.603	0.797	1.400
	GPRS 1900	0.492	0.797	1.289
	UMTS 850	0.580	0.797	1.377
	UMTS 1750	0.827	0.797	See Table Below
	UMTS 1900	0.985	0.797	See Table Below
	EVDO BC10 (§90S)	0.580	0.797	1.377
	EVDO BC0 (§22H)	0.707	0.797	**1.504**
	PCS EVDO	1.007	0.797	See Table Below
	LTE Band 71	0.292	0.797	1.089
	LTE Band 12	0.293	0.797	1.090
	LTE Band 13	0.540	0.797	1.337
	LTE Band 26 (Cell)	0.490	0.797	1.287
	LTE Band 66 (AWS)	0.851	0.797	See Table Below
	LTE Band 25 (PCS)	1.197	0.797	See Table Below
	LTE Band 41	1.268	0.797	See Table Below

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2			1	2	1+2	1+2
Hotspot SAR	Back	0.827	0.638	1.465	Hotspot SAR	Back	0.985	0.638	See Note 1	0.01
	Front	0.615	0.360	0.975		Front	0.667	0.360	1.027	N/A
	Top	-	0.797	0.797		Top	-	0.797	0.797	N/A
	Bottom	0.550	-	0.550		Bottom	0.524	-	0.524	N/A
	Right	-	-	0.000		Right	-	-	0.000	N/A
	Left	0.761	0.797*	**1.558**		Left	0.769	0.797*	**1.566**	N/A

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2	1+2			1	2	1+2
Hotspot SAR	Back	1.007	0.638	See Note 1	0.01	Hotspot SAR	Back	0.851	0.638	**1.489**
	Front	0.713	0.360	1.073	N/A		Front	0.582	0.360	0.942
	Top	-	0.797	0.797	N/A		Top	-	0.797	0.797
	Bottom	0.494	-	0.494	N/A		Bottom	0.544	-	0.544
	Right	-	-	0.000	N/A		Right	-	-	0.000
	Left	0.652	0.797*	**1.449**	N/A		Left	0.688	0.797*	1.485

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Hotspot SAR	Back	1.197	0.638	See Note 1	0.02	Hotspot SAR	Back	1.075	0.638	See Note 1	0.01
	Front	0.737	0.360	1.097	N/A		Front	0.353	0.360	0.713	N/A
	Top	-	0.797	0.797	N/A		Top	-	0.797	0.797	N/A
	Bottom	0.426	-	0.426	N/A		Bottom	1.268	-	**1.268**	N/A
	Right	-	-	0.000	N/A		Right	0.183	-	0.183	N/A
	Left	0.638	0.797*	**1.435**	N/A		Left	0.151	0.797*	0.948	N/A

© 2020 PCTEST Engineering Laboratory, Inc.

REV 21.4 M
09/11/2019

© 2020 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 Bluetooth (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	GPRS 850	0.603	0.024	0.627
	GPRS 1900	0.492	0.024	0.516
	UMTS 850	0.580	0.024	0.604
	UMTS 1750	0.827	0.024	0.851
	UMTS 1900	0.985	0.024	1.009
	EVDO BC10 (§90S)	0.580	0.024	0.604
	EVDO BC0 (§22H)	0.707	0.024	0.731
	PCS EVDO	1.007	0.024	1.031
	LTE Band 71	0.292	0.024	0.316
	LTE Band 12	0.293	0.024	0.317
	LTE Band 13	0.540	0.024	0.564
	LTE Band 26 (Cell)	0.490	0.024	0.514
	LTE Band 66 (AWS)	0.851	0.024	0.875
	LTE Band 25 (PCS)	1.197	0.024	1.221
	LTE Band 41	1.268	0.024	**1.292**

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	GPRS 850	0.603	0.024	0.797	1.424
	GPRS 1900	0.492	0.024	0.797	1.313
	UMTS 850	0.580	0.024	0.797	1.401
	UMTS 1750	0.827	0.024	0.797	See Table Below
	UMTS 1900	0.985	0.024	0.797	See Table Below
	EVDO BC10 (§90S)	0.580	0.024	0.797	1.401
	EVDO BC0 (§22H)	0.707	0.024	0.797	**1.528**
	PCS EVDO	1.007	0.024	0.797	See Table Below
	LTE Band 71	0.292	0.024	0.797	1.113
	LTE Band 12	0.293	0.024	0.797	1.114
	LTE Band 13	0.540	0.024	0.797	1.361
	LTE Band 26 (Cell)	0.490	0.024	0.797	1.311
	LTE Band 66 (AWS)	0.851	0.024	0.797	See Table Below
	LTE Band 25 (PCS)	1.197	0.024	0.797	See Table Below
	LTE Band 41	1.268	0.024	0.797	See Table Below

© 2020 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 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.827	0.022	0.638	1.487
	Front	0.615	0.018	0.360	0.993
	Top	-	0.024	0.797	0.821
	Bottom	0.550	-	-	0.550
	Right	-	-	-	-
	Left	0.761	0.018	0.797*	**1.576**

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Hotspot SAR	Back	0.985	0.022	0.638	See Note 1	0.01	0.01	0.03
	Front	0.667	0.018	0.360	1.045	N/A	N/A	N/A
	Top	-	0.024	0.797	0.821	N/A	N/A	N/A
	Bottom	0.524	-	-	0.524	N/A	N/A	N/A
	Right	-	-	-	-	N/A	N/A	N/A
	Left	0.769	0.018	0.797*	**1.584**	N/A	N/A	N/A

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Hotspot SAR	Back	1.007	0.022	0.638	See Note 1	0.01	0.01	0.03
	Front	0.713	0.018	0.360	1.091	N/A	N/A	N/A
	Top	-	0.024	0.797	0.821	N/A	N/A	N/A
	Bottom	0.494	-	-	0.494	N/A	N/A	N/A
	Right	-	-	-	-	N/A	N/A	N/A
	Left	0.652	0.018	0.797*	**1.467**	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.851	0.022	0.638	**1.511**
	Front	0.582	0.018	0.360	0.960
	Top	-	0.024	0.797	0.821
	Bottom	0.544	-	-	0.544
	Right	-	-	-	-
	Left	0.688	0.018	0.797*	1.503

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Hotspot SAR	Back	1.197	0.022	0.638	See Note 1	0.01	0.02	0.03
	Front	0.737	0.018	0.360	1.115	N/A	N/A	N/A
	Top	-	0.024	0.797	0.821	N/A	N/A	N/A
	Bottom	0.426	-	-	0.426	N/A	N/A	N/A
	Right	-	-	-	-	N/A	N/A	N/A
	Left	0.638	0.018	0.797*	**1.453**	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Hotspot SAR	Back	1.075	0.022	0.638	See Note 1	0.01	0.01	0.03
	Front	0.353	0.018	0.360	0.731	N/A	N/A	N/A
	Top	-	0.024	0.797	0.821	N/A	N/A	N/A
	Bottom	1.268	-	-	**1.268**	N/A	N/A	N/A
	Right	0.183	-	-	0.183	N/A	N/A	N/A
	Left	0.151	0.018	0.797*	0.966	N/A	N/A	N/A

Notes:

1. No evaluation was performed to determine the aggregate 1g SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.04 per FCC KDB 447498 D01v06. See Section 12.7 for detailed SPLS ratio analysis.

© 2020 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.

12.6 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 ("-").

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	UMTS 1750	2.704	1.627	See Table Below
	UMTS 1900	2.611	1.627	See Table Below
	PCS EVDO	2.332	1.627	**3.959**
	LTE Band 66 (AWS)	3.025	1.627	See Table Below
	LTE Band 25 (PCS)	2.916	1.627	See Table Below
	LTE Band 41	2.028	1.627	3.655

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Phablet SAR	Back	2.704	1.627	See Note 1	0.06
	Front	2.225	1.029	**3.254**	N/A
	Top	-	1.385	1.385	N/A
	Bottom	2.021	-	2.021	N/A
	Right	-	-	0.000	N/A
	Left	2.616	0.299	2.915	N/A

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Phablet SAR	Back	2.611	1.627	See Note 1	0.06
	Front	2.347	1.029	**3.376**	N/A
	Top	-	1.385	1.385	N/A
	Bottom	1.457	-	1.457	N/A
	Right	-	-	0.000	N/A
	Left	1.731	0.299	2.030	N/A

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Phablet SAR	Back	3.025	1.627	See Note 1	0.07
	Front	2.736	1.029	**3.765**	N/A
	Top	-	1.385	1.385	N/A
	Bottom	1.829	-	1.829	N/A
	Right	-	-	0.000	N/A
	Left	2.569	0.299	2.868	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Phablet SAR	Back	2.916	1.627	See Note 1	0.07
	Front	2.457	1.029	**3.486**	N/A
	Top	-	1.385	1.385	N/A
	Bottom	1.761	-	1.761	N/A
	Right	-	-	0.000	N/A
	Left	1.532	0.299	1.831	N/A

Notes:

1. No evaluation was performed to determine the aggregate 1g SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.04 per FCC KDB 447498 D01v06. See Section 12.7 for detailed SPLS ratio analysis.

© 2020 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.

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

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

12.7.1 Body-Worn Back Side SPLSR Evaluation and Analysis

Table 12-14
Peak SAR Locations for Body-Worn Back Side

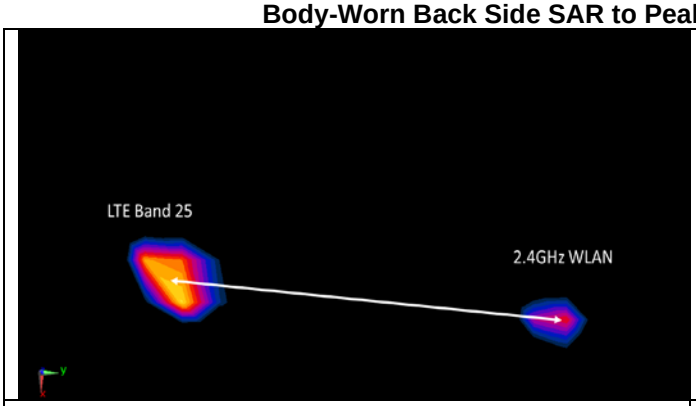
Mode/Band	x (mm)	y (mm)
5GHz WLAN	1.00	79.00
Bluetooth	17.00	69.60
2.4 GHz WLAN	12.20	67.20
UMTS 1900	10.00	-60.00
PCS CDMA	10.00	-63.00
LTE Band 25	11.50	-58.50
LTE Band 41	-44.00	-80.40

Table 12-15
Body-Worn Back Side SAR to Peak Location Separation Ratio Calculations

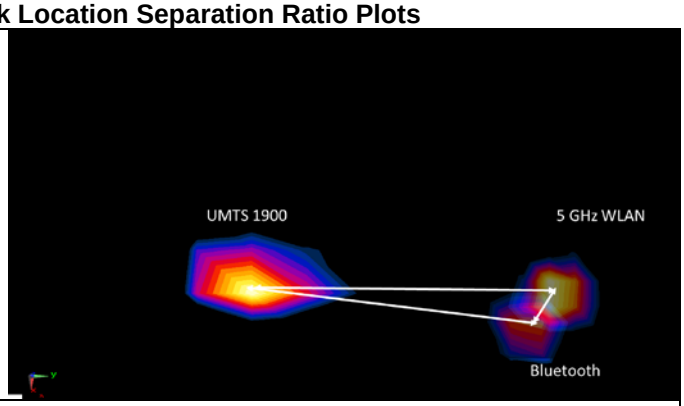
Antenna Pair		Standalone SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$	
2.4 GHz WLAN	LTE Band 25	0.450	1.197	1.647	125.70	0.02	1
5GHz WLAN	Bluetooth	0.653	0.022	0.675	18.56	0.03	2, 3, 4, 5
5GHz WLAN	UMTS 1900	0.653	0.985	1.638	139.29	0.02	2
Bluetooth	UMTS 1900	0.022	0.985	1.007	129.79	0.01	
5GHz WLAN	PCS CDMA	0.653	1.012	1.665	142.28	0.02	3
Bluetooth	PCS CDMA	0.022	1.012	1.034	132.78	0.01	
5GHz WLAN	LTE Band 25	0.653	1.197	1.85	137.90	0.02	4
Bluetooth	LTE Band 25	0.022	1.197	1.219	128.22	0.01	
5GHz WLAN	LTE Band 41	0.653	1.075	1.728	165.63	0.01	5
Bluetooth	LTE Band 41	0.022	1.075	1.097	161.93	0.01	

© 2020 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.

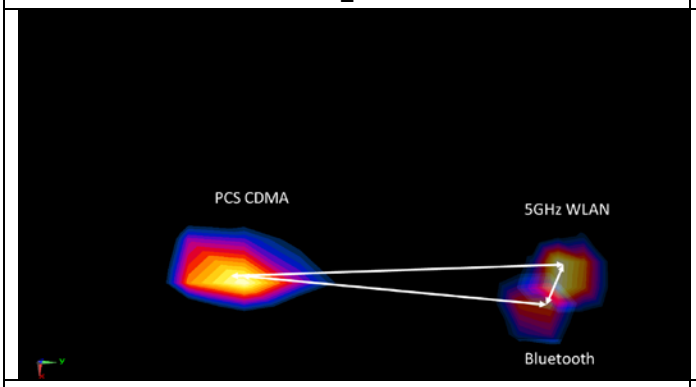
Table 12-16
Body-Worn Back Side SAR to Peak Location Separation Ratio Plots



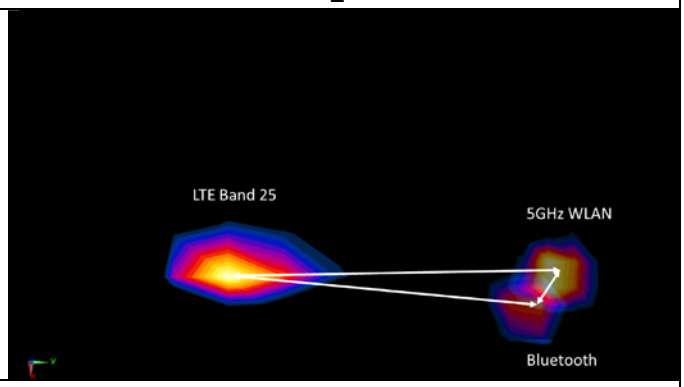
1



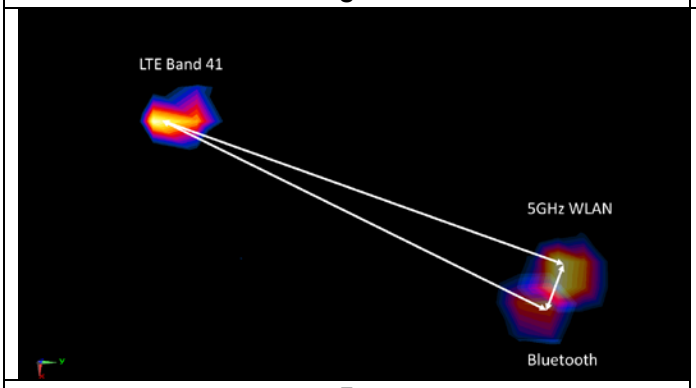
2



3



4



5

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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 Hotspot Back Side SPLSR Evaluation and Analysis

Table 12-17
Peak SAR Locations for Hotspot Back Side

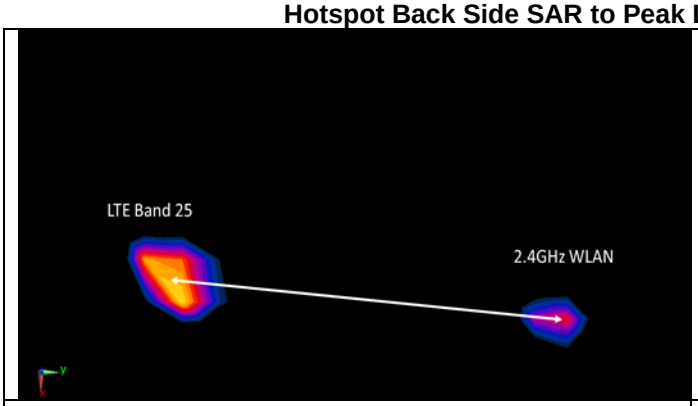
Mode/Band	x (mm)	y (mm)
5 GHz WLAN	-1.00	79.00
Bluetooth	17.00	69.60
UMTS 1900	10.00	-60.00
PCS EVDO	10.00	-61.50
LTE Band 25 (PCS)	11.50	-58.50
2.4 GHz WLAN	12.20	67.20
LTE Band 41	-44.00	-80.40

Table 12-18
Hotspot Back Side SAR to Peak Location Separation Ratio Calculations

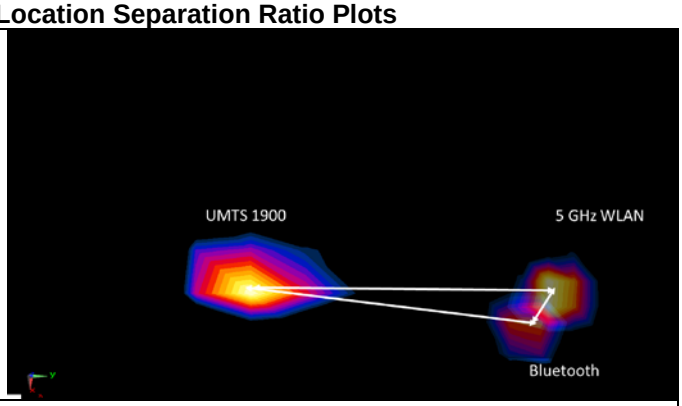
Antenna Pair		Standalone SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$	
LTE Band 25 (PCS)	2.4 GHz WLAN	1.197	0.450	1.647	125.70	0.02	1
Bluetooth	5 GHz WLAN	0.022	0.638	0.66	20.31	0.03	2, 3, 4, 5
UMTS 1900	Bluetooth	0.985	0.022	1.007	129.79	0.01	2
UMTS 1900	5 GHz WLAN	0.985	0.638	1.623	139.43	0.01	
PCS EVDO	Bluetooth	1.007	0.022	1.029	131.29	0.01	3
PCS EVDO	5 GHz WLAN	1.007	0.638	1.645	140.93	0.01	
LTE Band 25 (PCS)	Bluetooth	1.197	0.022	1.219	128.22	0.01	4
LTE Band 25 (PCS)	5 GHz WLAN	1.197	0.638	1.835	138.07	0.02	
LTE Band 41	5 GHz WLAN	1.075	0.638	1.713	165.10	0.01	5
LTE Band 41	Bluetooth	1.075	0.022	1.097	161.93	0.01	

© 2020 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.

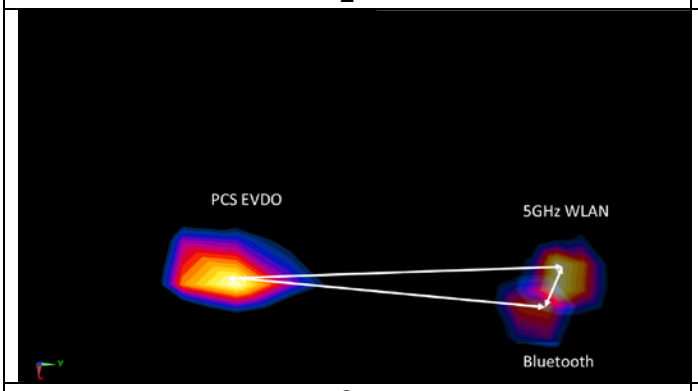
Table 12-19
Hotspot Back Side SAR to Peak Location Separation Ratio Plots



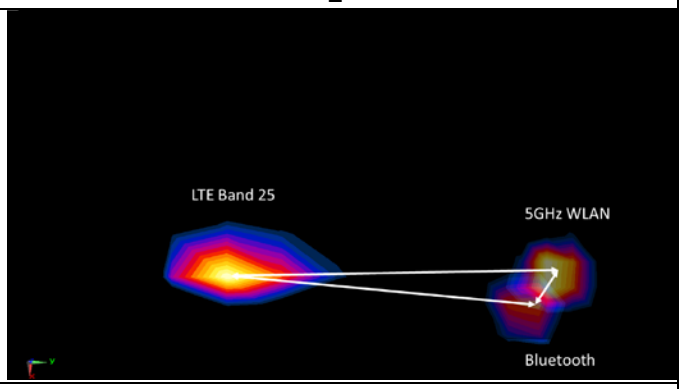
1



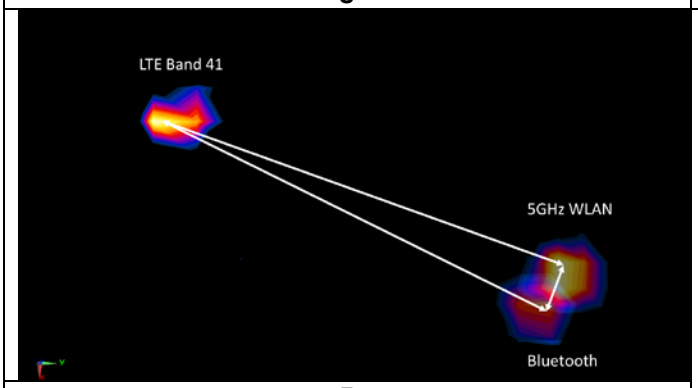
2



3



4



5

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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.

Phablet Back Side SPLSR Evaluation and Analysis

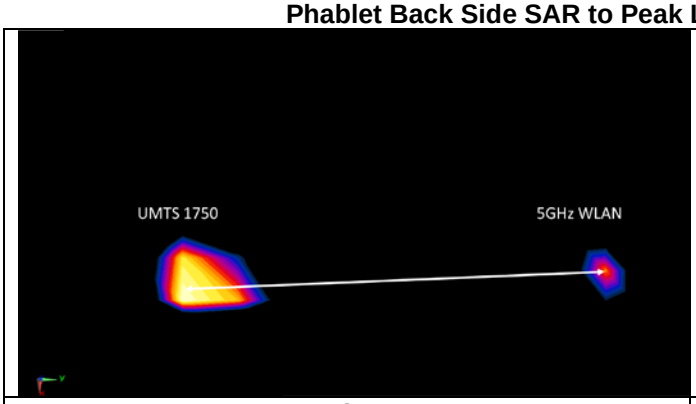
Table 12-20
Peak SAR Locations for Phablet Back Side

Mode/Band	x (mm)	y (mm)
5 GHz WLAN	-1.00	74.00
UMTS 1750	0.50	-70.50
UMTS 1900	13.00	-69.00
LTE Band 66	0.10	-76.20
LTE Band 25	8.50	-69.00

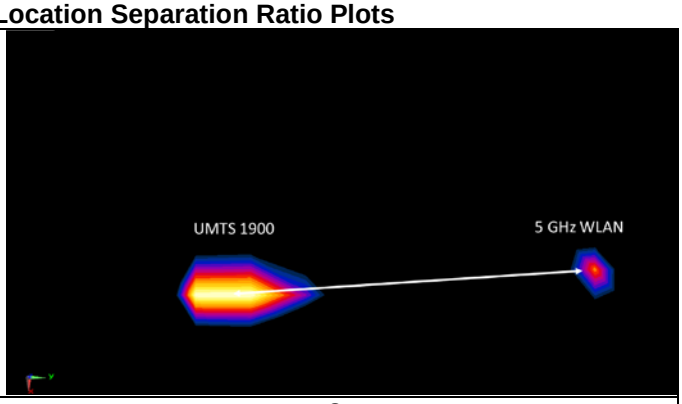
Table 12-21
Phablet Back Side SAR to Peak Location Separation Ratio Calculations

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	2.704	1.627	4.331	144.51	0.06	1
UMTS 1900	5 GHz WLAN	2.611	1.627	4.238	143.68	0.06	2
LTE Band 66	5 GHz WLAN	3.025	1.627	4.652	150.20	0.07	3
LTE Band 25	5 GHz WLAN	2.916	1.627	4.543	143.32	0.07	4

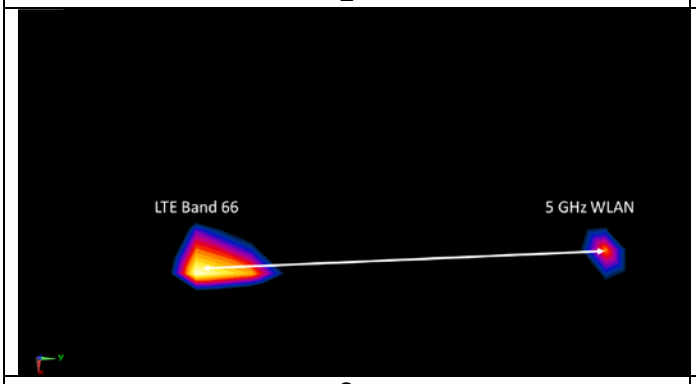
Table 12-22
Phablet Back Side SAR to Peak Location Separation Ratio Plots



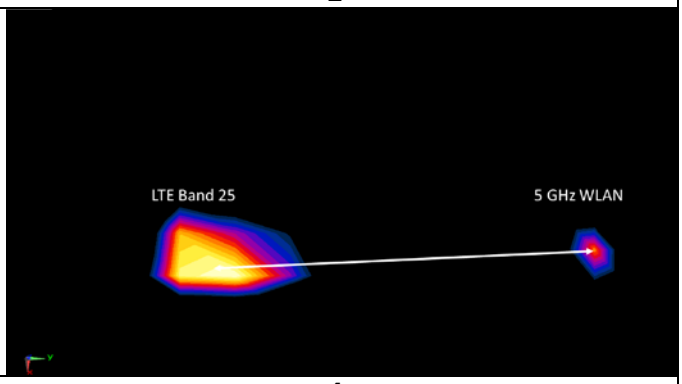
1



2



3



4

© 2020 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.

12.8 Simultaneous Transmission Conclusion

The above numerical summed SAR results and SPLSR analysis are 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.

© 2020 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
Head SAR Measurement Variability Results

HEAD VARIABILITY RESULTS															
Band	FREQUENCY		Mode	Service	Side	Test Position	Data Rate (Mbps)	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)	
5600	5630.00	126	802.11n, 40 MHz Bandwidth	OFDM	Right	Tilt	13.5	0.813	0.733	1.11	N/A	N/A	N/A	N/A
5750	5795.00	159	802.11n, 40 MHz Bandwidth	OFDM	Right	Tilt	13.5	0.852	0.813	1.05	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					Head 1.6 W/kg (mW/g) averaged over 1 gram									

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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 13-2
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Spacing	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1750	1752.60	1513	UMTS 1750	RMC	back	10 mm	0.823	0.749	1.10	N/A	N/A	N/A	N/A
1900	1860.00	26140	LTE Band 25 (PCS), 20 MHz Bandwidth	QPSK, 1 RB, 50 RB Offset	back	10 mm	1.120	1.060	1.06	N/A	N/A	N/A	N/A
2450	2506.00	39750	LTE Band 41, 20 MHz Bandwidth PCC	QPSK, 1 RB, 99 RB Offset	bottom	10 mm	1.250	1.230	1.02	N/A	N/A	N/A	N/A
2450	2525.80	39948	LTE Band 41, 20 MHz Bandwidth SCC	QPSK, 1 RB, 0 RB Offset						N/A	N/A	N/A	N/A
2600	2680.00	41490	LTE Band 41, 20 MHz Bandwidth	QPSK, 1 RB, 50 RB Offset	bottom	10 mm	0.975	1.110	1.14	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 13-3
Phablet SAR Measurement Variability Results

PHABLET VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Spacing	Measured SAR (10g)	1st Repeated SAR (10g)	Ratio	2nd Repeated SAR (10g)	Ratio	3rd Repeated SAR (10g)	Ratio
	MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1900	1852.40	9262	UMTS 1900	RMC	back	0 mm	2.570	2.430	1.06	N/A	N/A	N/A	N/A
1750	1745.00	132322	LTE Band 66 (AWS), 20 MHz Bandwidth	QPSK, 50 RB, 0 RB Offset	back	0 mm	2.680	2.720	1.01	N/A	N/A	N/A	N/A
2450	2506.00	39750	LTE Band 41, 20 MHz Bandwidth, PCC	QPSK, 1 RB, 99 RB Offset	bottom	0 mm	2.000	1.960	1.02	N/A	N/A	N/A	N/A
2450	2525.80	39948	LTE Band 41, 20 MHz Bandwidth, SCC	QPSK, 1 RB, 0 RB Offset						N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					**Phablet 4.0 W/kg (mW/g) averaged over 10 grams**								

13.2 Measurement Uncertainty

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

© 2020 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. 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.

LTE Band 41 SAR testing 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.

Table 14-1
LTE Band 41 Head Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24	26
Measured Output Power (dBm)	23.69	26
Measured SAR (W/kg)	0.069	0.074
Measured Power (mW)	233.88	398.11
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	148.05	172.38
% deviation from expected linearity		-7.89%

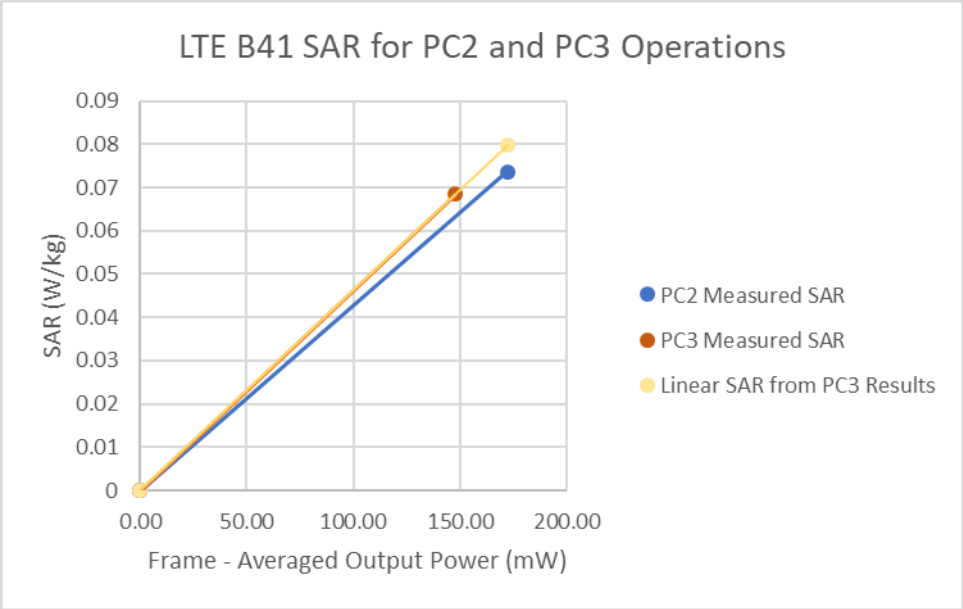


Figure 14-1
LTE Band 41 Head Linearity

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24	26
Measured Output Power (dBm)	23.82	25.89
Measured SAR (W/kg)	0.082	0.082
Measured Power (mW)	240.99	388.15
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	152.55	168.07
% deviation from expected linearity		-9.24%

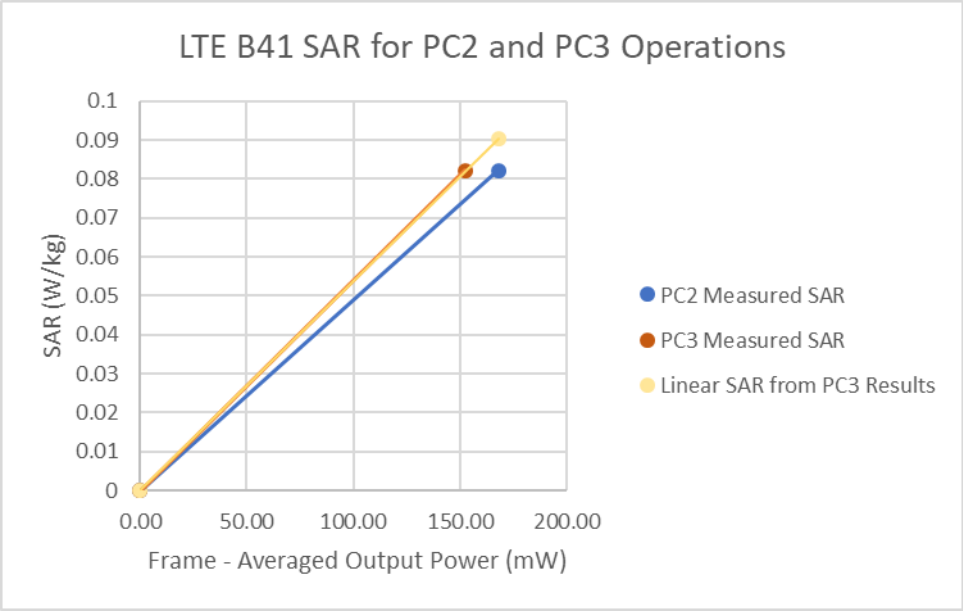


Figure 14-2
LTE Band 41 ULCA Head Linearity

© 2020 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 Body-Worn Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24	26
Measured Output Power (dBm)	23.5	25.74
Measured SAR (W/kg)	0.886	0.97
Measured Power (mW)	223.87	374.97
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	141.71	162.36
% deviation from expected linearity		-4.44%

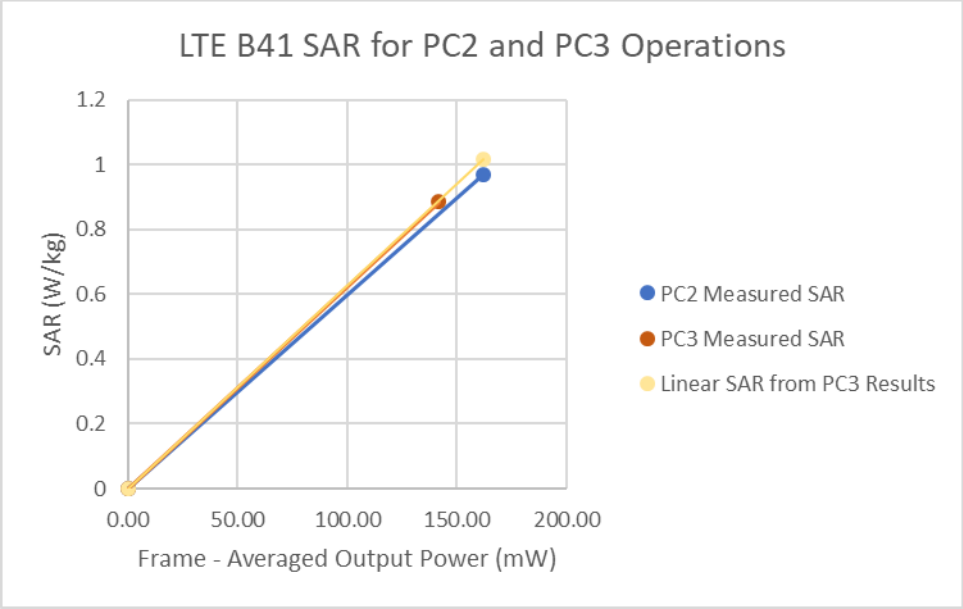


Figure 14-3
LTE Band 41 Body-Worn Linearity

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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)	24	26
Measured Output Power (dBm)	23.78	25.94
Measured SAR (W/kg)	0.975	1.06
Measured Power (mW)	238.78	392.64
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	151.15	170.02
% deviation from expected linearity		-3.35%

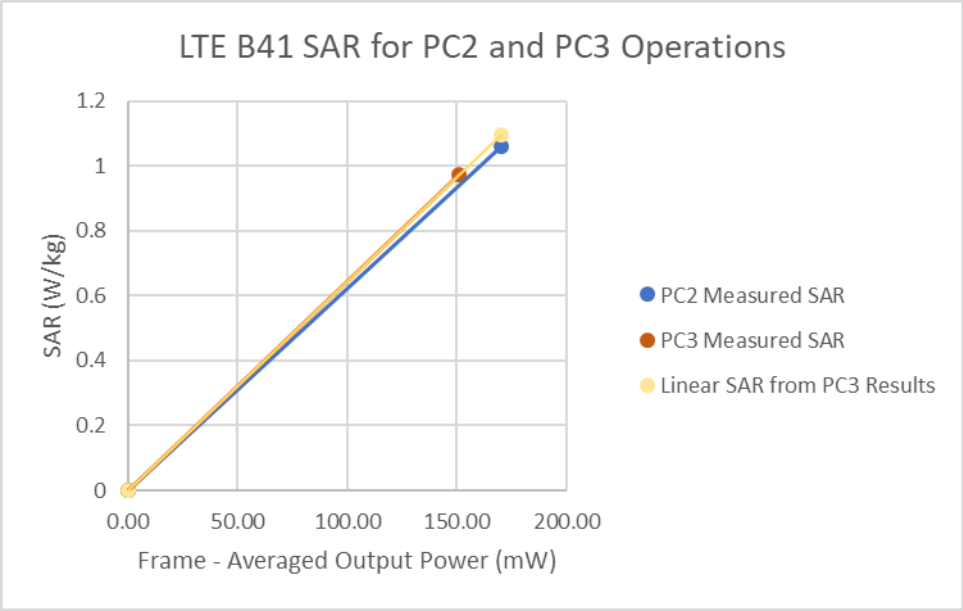


Figure 14-4
LTE Band 41 ULCA Body-Worn Linearity

© 2020 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 Hotspot Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24	26
Measured Output Power (dBm)	23.5	25.74
Measured SAR (W/kg)	1.08	1.19
Measured Power (mW)	223.87	374.97
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	141.71	162.36
% deviation from expected linearity		-3.83%

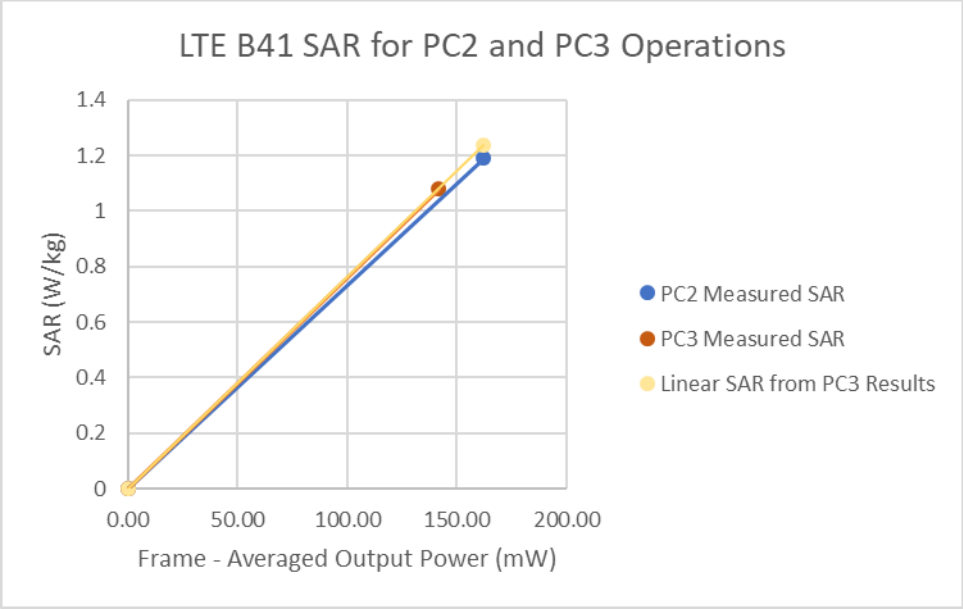


Figure 14-5
LTE Band 41 Hotspot Linearity

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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)	24	26
Measured Output Power (dBm)	23.78	25.94
Measured SAR (W/kg)	1.14	1.23
Measured Power (mW)	238.78	392.64
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	151.15	170.02
% deviation from expected linearity		-4.08%

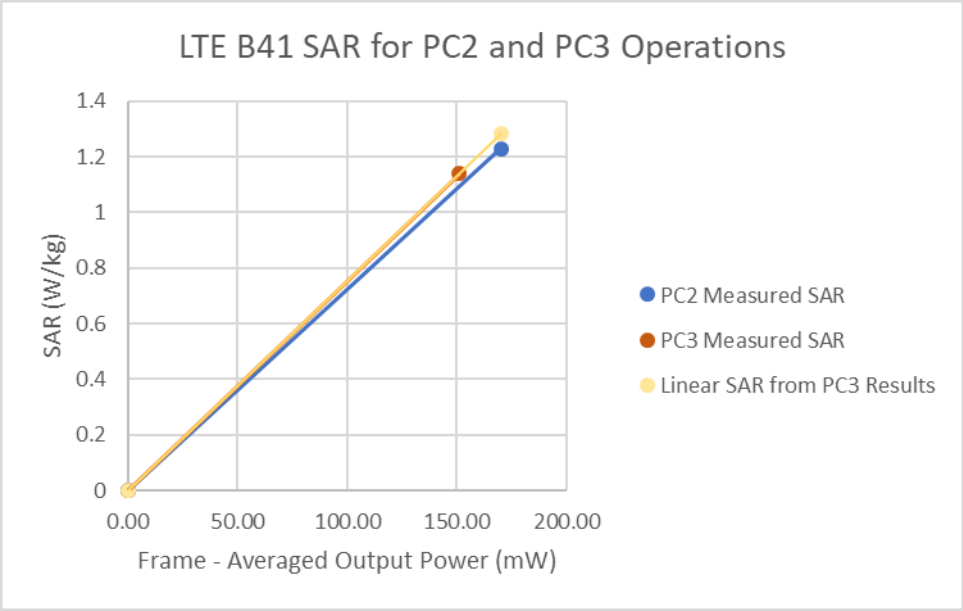


Figure 14-6
LTE Band 41 ULCA Hotspot Linearity

© 2020 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 14-7
LTE Band 41 Phablet Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24	26
Measured Output Power (dBm)	23.5	25.74
Measured SAR (W/kg)	1.68	1.82
Measured Power (mW)	223.87	374.97
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	141.71	162.36
% deviation from expected linearity		-5.45%

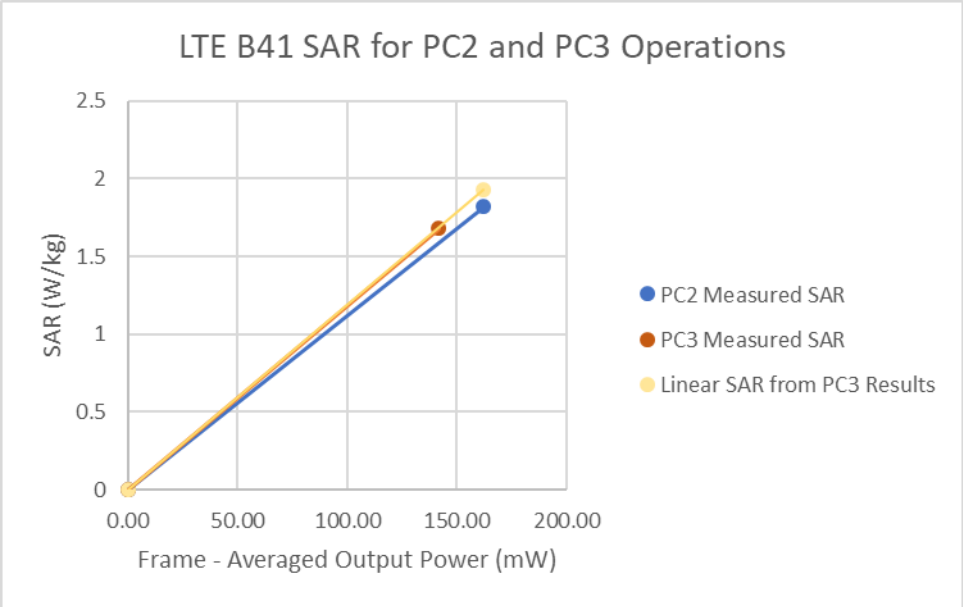


Figure 14-7
LTE Band 41 Phablet Linearity

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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 14-8
LTE Band 41 ULCA Phablet Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24	26
Measured Output Power (dBm)	23.78	25.94
Measured SAR (W/kg)	1.88	1.96
Measured Power (mW)	238.78	392.64
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	151.15	170.02
% deviation from expected linearity		-7.31%

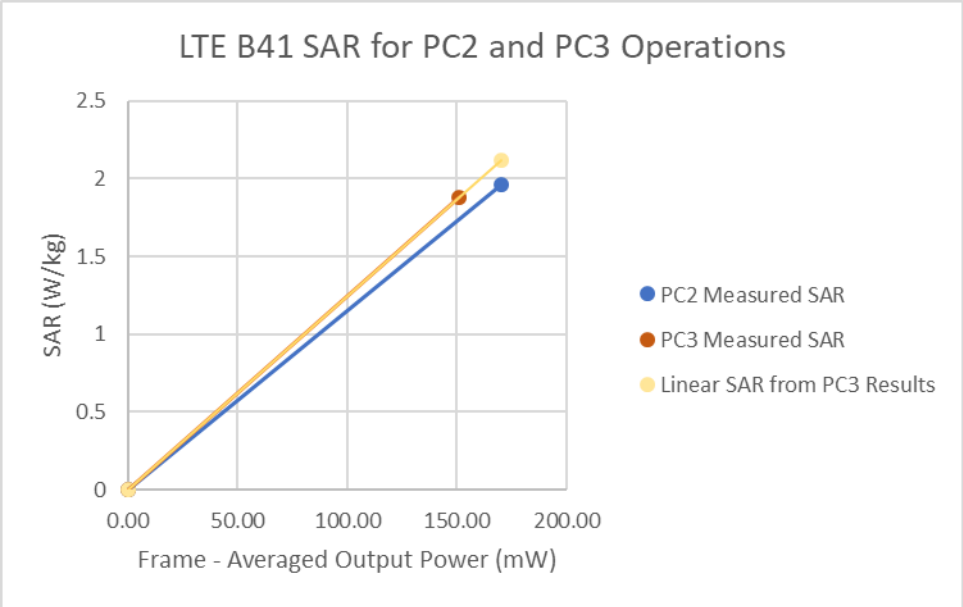


Figure 14-8
LTE Band 41 Phablet Linearity

© 2020 PCTEST Engineering Laboratory, Inc.

© 2020 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	N/A	N/A	N/A	3051A00187
Agilent	E4432B	ESG-D Series Signal Generator	7/14/2019	Annual	7/14/2020	US40053896
Agilent	N9020A	MXA Signal Analyzer	4/20/2019	Annual	4/20/2020	US46470561
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46170464
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB44450273
Agilent	E5515C	Wireless Communications Test Set	2/7/2018	Triennial	2/7/2021	GB43304447
Agilent	E5515C	Wireless Communications Test Set	6/26/2019	Annual	6/26/2020	MY50267125
Agilent	8753ES	S-Parameter Network Analyzer	3/11/2019	Annual	3/11/2020	US39170122
Agilent	N5182A	MXG Vector Signal Generator	7/10/2019	Annual	7/10/2020	MY47420800
Agilent	E4438C	ESG Vector Signal Generator	3/8/2019	Biennial	3/8/2021	MY42082385
Agilent	E4438C	ESG Vector Signal Generator	5/23/2019	Annual	5/23/2020	MY47270002
Agilent	E4438C	ESG Vector Signal Generator	5/22/2019	Annual	5/22/2020	MY45091346
Agilent	8753ES	S-Parameter Network Analyzer	8/26/2019	Annual	8/26/2020	MY40000670
Agilent	E5515C	Wireless Communications Test Set	9/25/2019	Annual	9/25/2020	GB43304278
Agilent	8753ES	S-Parameter Vector Network Analyzer	9/19/2019	Annual	9/19/2020	MY40003841
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433972
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433974
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433976
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433978
Anritsu	MA24106A	USB Power Sensor	5/6/2019	Annual	5/6/2020	1231538
Anritsu	MA24106A	USB Power Sensor	5/22/2019	Annual	5/22/2020	1231535
Anritsu	MA24106A	USB Power Sensor	1/31/2019	Annual	1/31/2020	1244524
Anritsu	MA2411B	Pulse Power Sensor	6/11/2019	Annual	6/11/2020	1207364
Anritsu	MT8820C	Radio Communication Analyzer	7/25/2019	Annual	7/25/2020	6201240328
Anritsu	MT8820C	Radio Communication Analyzer	3/29/2019	Annual	3/29/2020	6201300731
Anritsu	MT8821C	Radio Communication Analyzer	8/16/2019	Annual	8/16/2020	6201144418
Anritsu	ML2496A	Power Meter	11/6/2019	Annual	11/6/2020	1405003
Anritsu	MA2411B	Pulse Power Sensor	8/8/2019	Annual	8/8/2020	1339008
Anritsu	MA2411B	Pulse Power Sensor	3/6/2019	Annual	3/6/2020	1339018
Anritsu	MT8821C	Radio Communication Analyzer	10/2/2019	Annual	10/2/2020	6201664756
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
Anritsu	MT8821C	Radio Communication Analyzer	1/25/2019	Annual	1/25/2020	6261895213
Anritsu	MT8821C	Radio Communication Analyzer	5/13/2019	Annual	5/13/2020	6201524637
COMTECH	AR85729-5/5759B	Solid State Amplifier	CBT	N/A	CBT	M3W1A00-1002
COMTech	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M1S5A00-009
Control Company	4040	Therm./ Clock/ Humidity Monitor	10/9/2018	Biennial	10/9/2020	181647811
Control Company	4040	Therm./ Clock/ Humidity Monitor	10/9/2018	Biennial	10/9/2020	181647802
Control Company	4040	Therm./ Clock/ Humidity Monitor	10/9/2018	Biennial	10/9/2020	181647812
Control Company	4352	Ultra Long Stem Thermometer	11/29/2018	Biennial	11/29/2020	181766816
Control Company	4352	Ultra Long Stem Thermometer	11/29/2018	Biennial	11/29/2020	181766817
Control Company	4352	Ultra Long Stem Thermometer	11/29/2018	Biennial	11/29/2020	181766801
Control Company	4352	Ultra Long Stem Thermometer	11/29/2018	Biennial	11/29/2020	181766777
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	N6705B	DC Power Analyzer	4/27/2019	Biennial	4/27/2021	MY53004059
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	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	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mitutoyo	CD-6"CSX	Digital Caliper	4/18/2018	Biennial	4/18/2020	13264165
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	6/3/2019	Annual	6/3/2020	109892
Rohde & Schwarz	CMW500	Radio Communication Tester	8/26/2019	Annual	8/26/2020	100976
Rohde & Schwarz	CMW500	Radio Communication Tester	6/26/2019	Annual	6/26/2020	112347
Rohde & Schwarz	CMW500	Radio Communication Tester	10/15/2019	Annual	10/15/2020	109366
Rohde & Schwarz	CMW500	Radio Communication Tester	8/27/2019	Annual	8/27/2020	116743
Rohde & Schwarz	ZNLE6	Vector Network Analyzer	10/11/2019	Annual	10/11/2020	101307
Seekonk	NC-100	Torque Wrench (8" lb)	5/10/2018	Biennial	5/10/2020	21053
Seekonk	NC-100	Torque Wrench (8" lb)	5/23/2018	Biennial	5/23/2020	N/A
SPEAG	D835V2	835 MHz SAR Dipole	3/13/2019	Annual	3/13/2020	4d047
SPEAG	D1750V2	1750 MHz SAR Dipole	10/22/2018	Biennial	10/22/2020	1150
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Biennial	10/23/2020	5d080
SPEAG	D1900V2	1900 MHz SAR Dipole	2/21/2019	Annual	2/21/2020	5d148
SPEAG	D2450V2	2450 MHz SAR Dipole	8/14/2019	Annual	8/14/2020	719
SPEAG	D2450V2	2450 MHz SAR Dipole	8/16/2018	Biennial	8/16/2020	981
SPEAG	D2600V2	2600 MHz SAR Dipole	4/11/2018	Biennial	4/11/2020	1004
SPEAG	D2600V2	2600 MHz SAR Dipole	6/14/2019	Annual	6/14/2020	1064
SPEAG	D750V3	750 MHz SAR Dipole	10/19/2018	Biennial	10/19/2020	1161
SPEAG	D1750V2	1750 MHz SAR Dipole	5/15/2019	Annual	5/15/2020	1148
SPEAG	D5GHzV2	5 GHz SAR Dipole	9/17/2019	Annual	9/17/2020	1191
SPEAG	DAK-3.5	Dielectric Assessment Kit	10/22/2019	Annual	10/22/2020	1091
SPEAG	EX3DV4	SAR Probe	2/19/2019	Annual	2/19/2020	7417
SPEAG	EX3DV4	SAR Probe	6/19/2019	Annual	6/19/2020	7409
SPEAG	EX3DV4	SAR Probe	5/16/2019	Annual	5/16/2020	7406
SPEAG	EX3DV4	SAR Probe	7/16/2019	Annual	7/16/2020	7410
SPEAG	EX3DV4	SAR Probe	4/24/2019	Annual	4/24/2020	7357
SPEAG	EX3DV4	SAR Probe	8/16/2019	Annual	8/16/2020	7308
SPEAG	EX3DV4	SAR Probe	7/15/2019	Annual	7/15/2020	7547
SPEAG	EX3DV4	SAR Probe	12/11/2019	Annual	12/11/2020	7571
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/13/2019	Annual	2/13/2020	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/20/2019	Annual	6/20/2020	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/8/2019	Annual	5/8/2020	728
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/11/2019	Annual	7/11/2020	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/18/2019	Annual	4/18/2020	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/11/2019	Annual	7/11/2020	1323
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/14/2019	Annual	8/14/2020	1450
SPEAG	DAE4	DASY Data Acquisition Electronics	12/5/2019	Annual	12/5/2020	1533

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

© 2020 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	

© 2020 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]

© 2020 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.

© 2020 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.

© 2020 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: ZNFL555DL; Type: Portable Handset; Serial: 14578

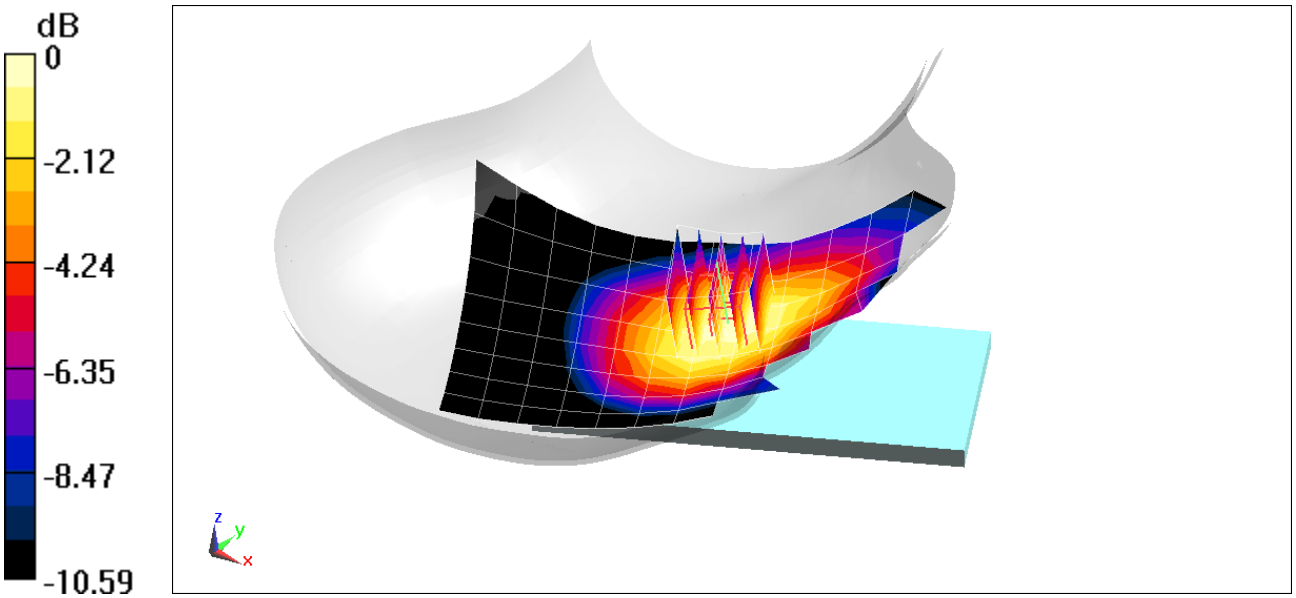
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:2.76
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.91 S/m; ε_r = 40.3; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-08-2020; Ambient Temp: 20.9°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7308; ConvF(9.87, 9.87, 9.87) @ 836.6 MHz; Calibrated: 8/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/14/2019
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.40 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.384 W/kg
SAR(1 g) = 0.296 W/kg



0 dB = 0.355 W/kg = -4.50 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14578

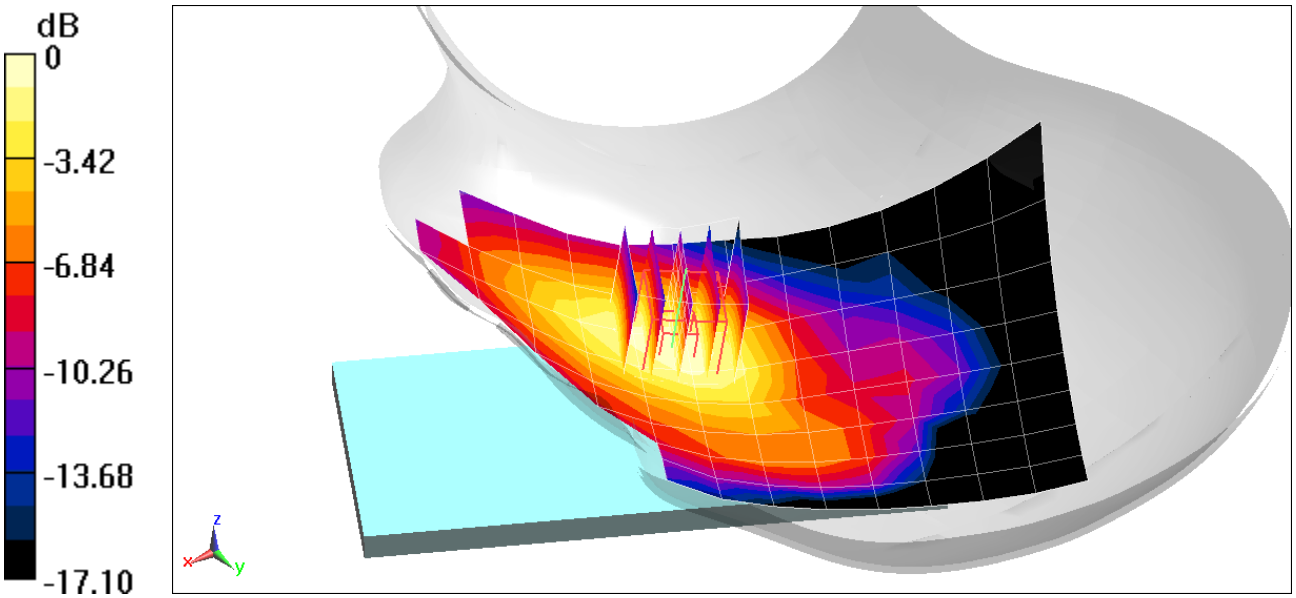
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.423 S/m; ε_r = 39.364; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-04-2020; Ambient Temp: 23.2°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7410; ConvF(8.11, 8.11, 8.11) @ 1880 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: GPRS 1900, Left Head, Cheek, Mid.ch, 3 Tx slots

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.65 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.388 W/kg
SAR(1 g) = 0.249 W/kg



0 dB = 0.332 W/kg = -4.79 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14578

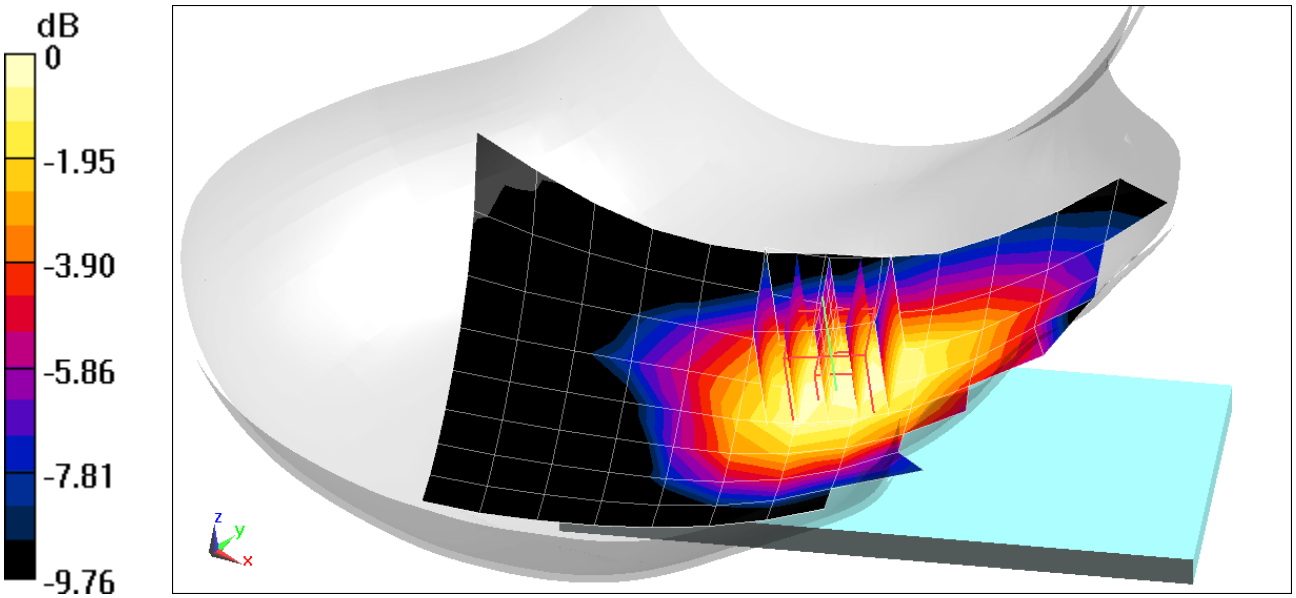
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.91 S/m; ε_r = 40.3; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-08-2020; Ambient Temp: 20.9°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7308; ConvF(9.87, 9.87, 9.87) @ 836.6 MHz; Calibrated: 8/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/14/2019
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.18 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.333 W/kg
SAR(1 g) = 0.254 W/kg



0 dB = 0.304 W/kg = -5.17 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14578

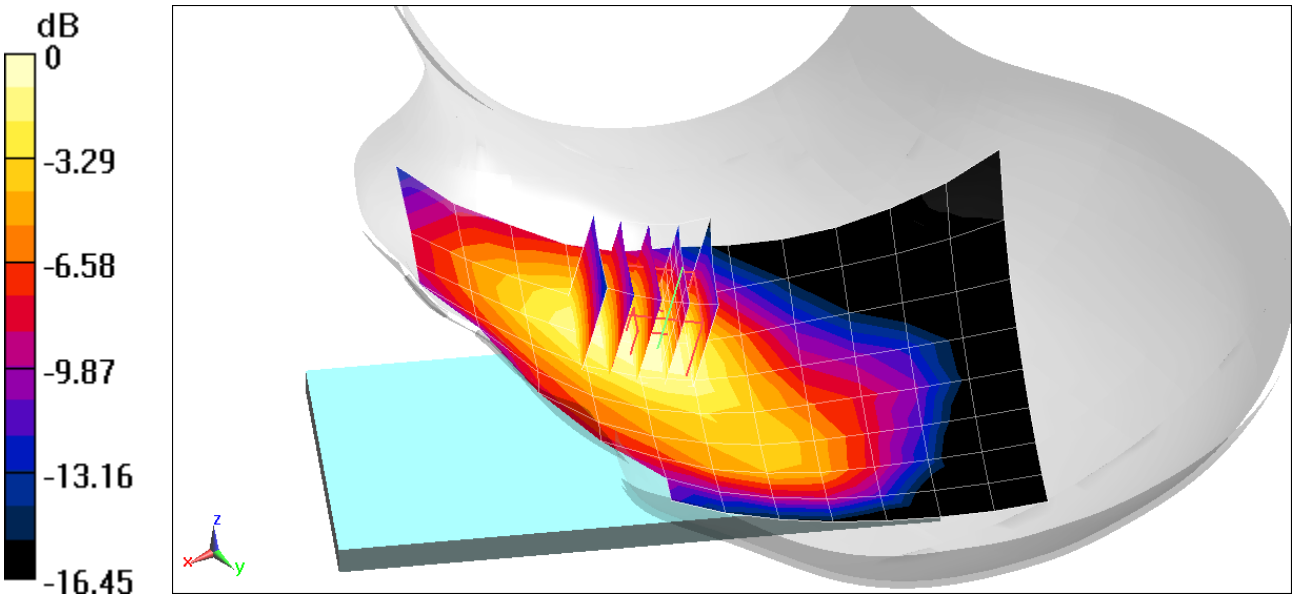
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1732.4 MHz; σ = 1.332 S/m; ε_r = 39.553; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-01-2020; Ambient Temp: 22.1°C; Tissue Temp: 21.2°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 Sn728; 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 1750, Left Head, Cheek, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.94 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.581 W/kg
SAR(1 g) = 0.370 W/kg



0 dB = 0.491 W/kg = -3.09 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14578

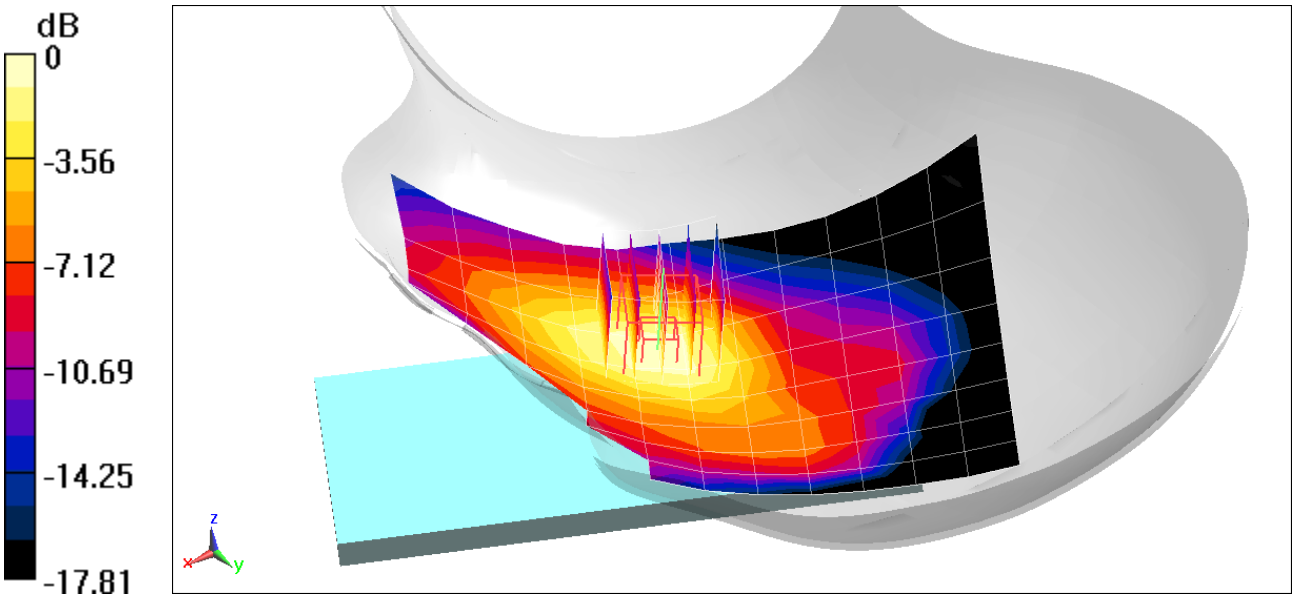
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.423 S/m; ε_r = 39.364; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-04-2020; Ambient Temp: 23.2°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7410; ConvF(8.11, 8.11, 8.11) @ 1880 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: UMTS 1900, Left Head, Cheek, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.70 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.843 W/kg
SAR(1 g) = 0.545 W/kg



0 dB = 0.740 W/kg = -1.31 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

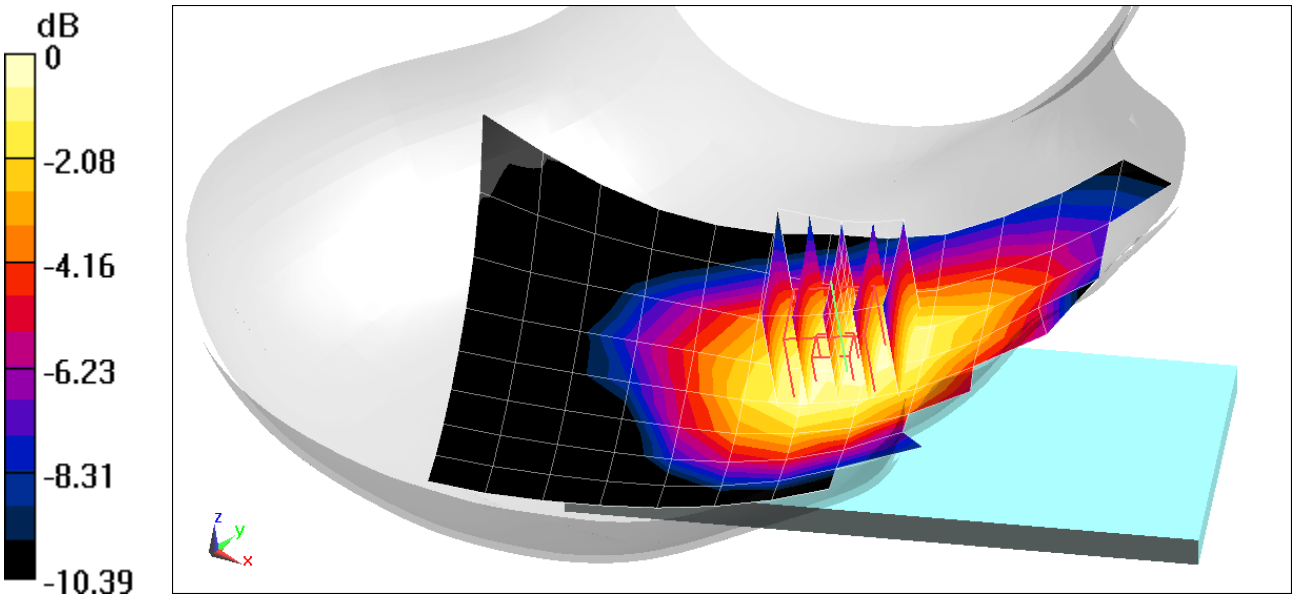
Communication System: UID 0, Cellular CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.903 S/m; ε_r = 40.373; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-08-2020; Ambient Temp: 20.9°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7308; ConvF(9.87, 9.87, 9.87) @ 820.1 MHz; Calibrated: 8/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/14/2019
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: Cell. CDMA, Rule Part 90S, Right Head, Cheek, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.13 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.335 W/kg
SAR(1 g) = 0.259 W/kg



0 dB = 0.306 W/kg = -5.14 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

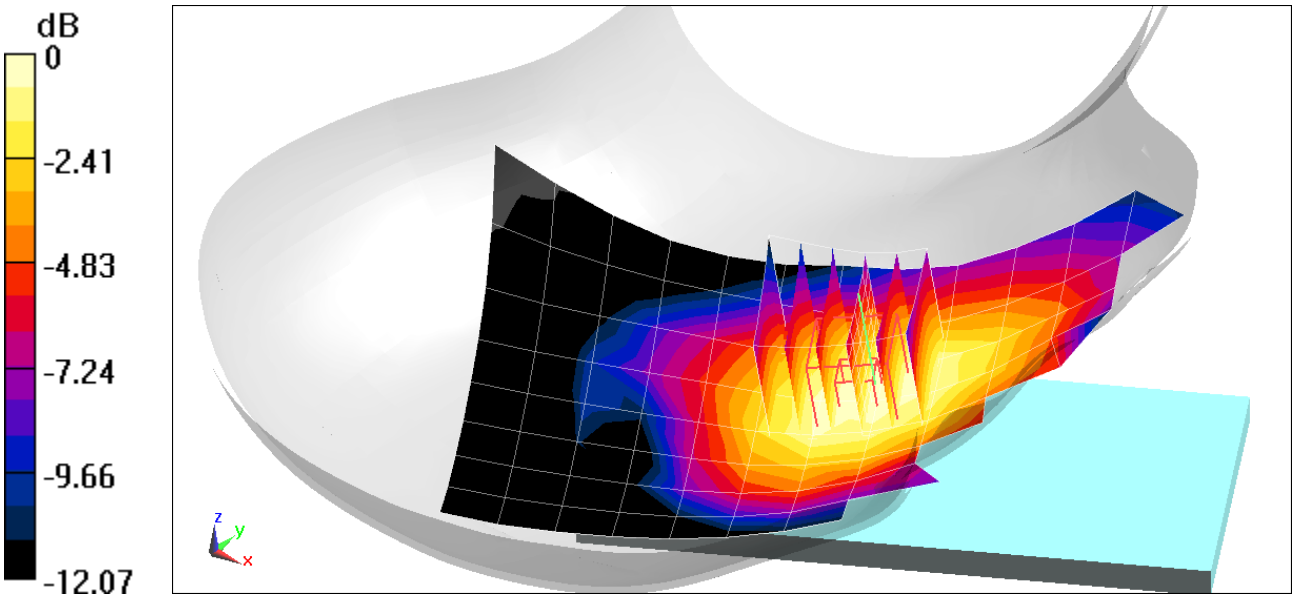
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.91 S/m; ε_r = 40.3; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-08-2020; Ambient Temp: 20.9°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7308; ConvF(9.87, 9.87, 9.87) @ 836.52 MHz; Calibrated: 8/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/14/2019
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: Cell. EVDO Rev. A, Rule Part 22H, Right Head, Cheek, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.71 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.281 W/kg
SAR(1 g) = 0.214 W/kg



0 dB = 0.257 W/kg = -5.90 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14578

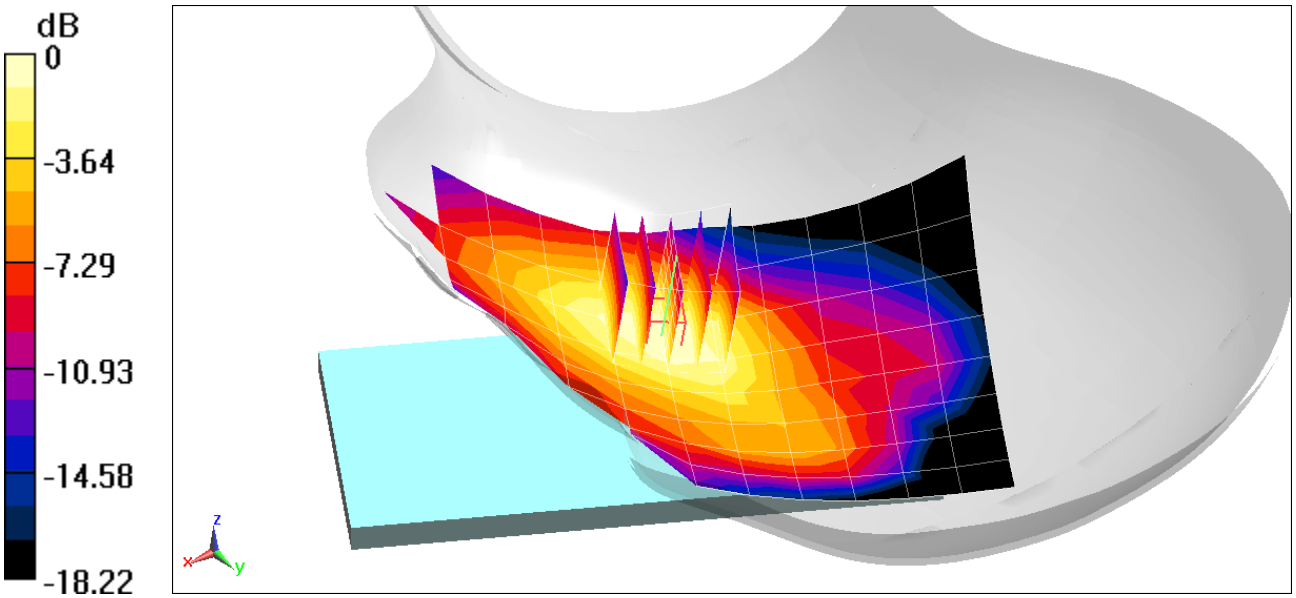
Communication System: UID 0, PCS CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.423 S/m; ε_r = 39.364; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-04-2020; Ambient Temp: 23.2°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7410; ConvF(8.11, 8.11, 8.11) @ 1880 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: PCS EVDO Rev A, Left Head, Cheek, Mid.ch

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.93 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.708 W/kg
SAR(1 g) = 0.464 W/kg



0 dB = 0.621 W/kg = -2.07 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14594

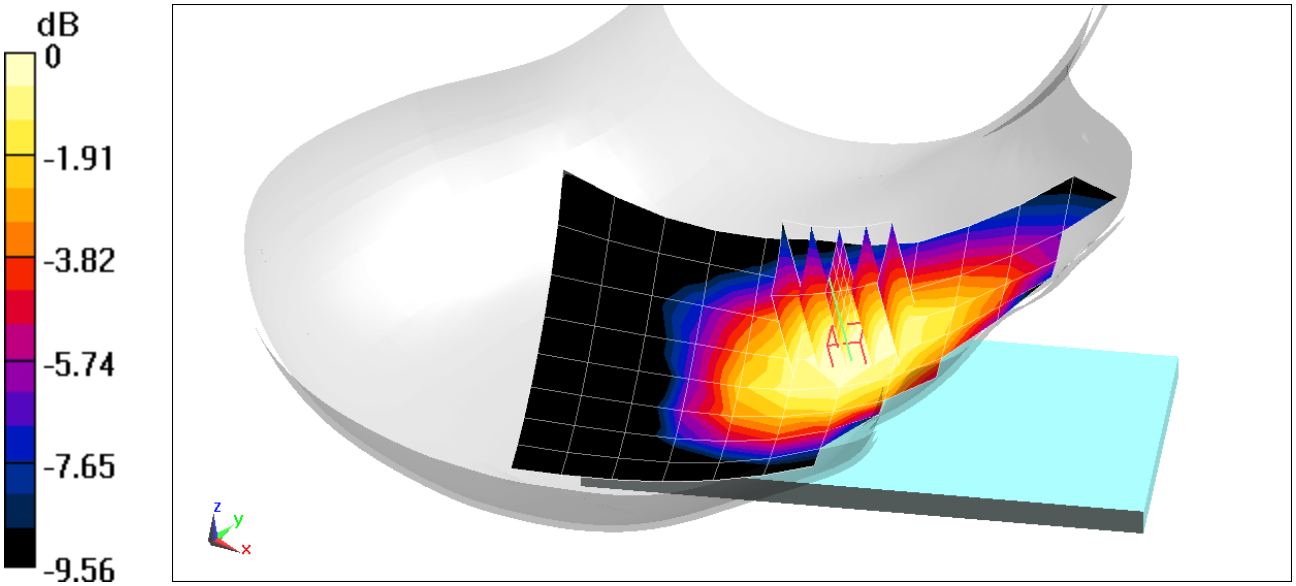
Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1
Medium: 700 Head Medium parameters used (interpolated):
f = 680.5 MHz; σ = 0.873 S/m; ε_r = 41.963; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-29-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7410; ConvF(9.95, 9.95, 9.95) @ 680.5 MHz; Calibrated: 07/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 07/11/2019
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 71, Right Head, Cheek, Mid.ch, 20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.73 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.107 W/kg
SAR(1 g) = 0.091 W/kg



0 dB = 0.102 W/kg = -9.91 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14594

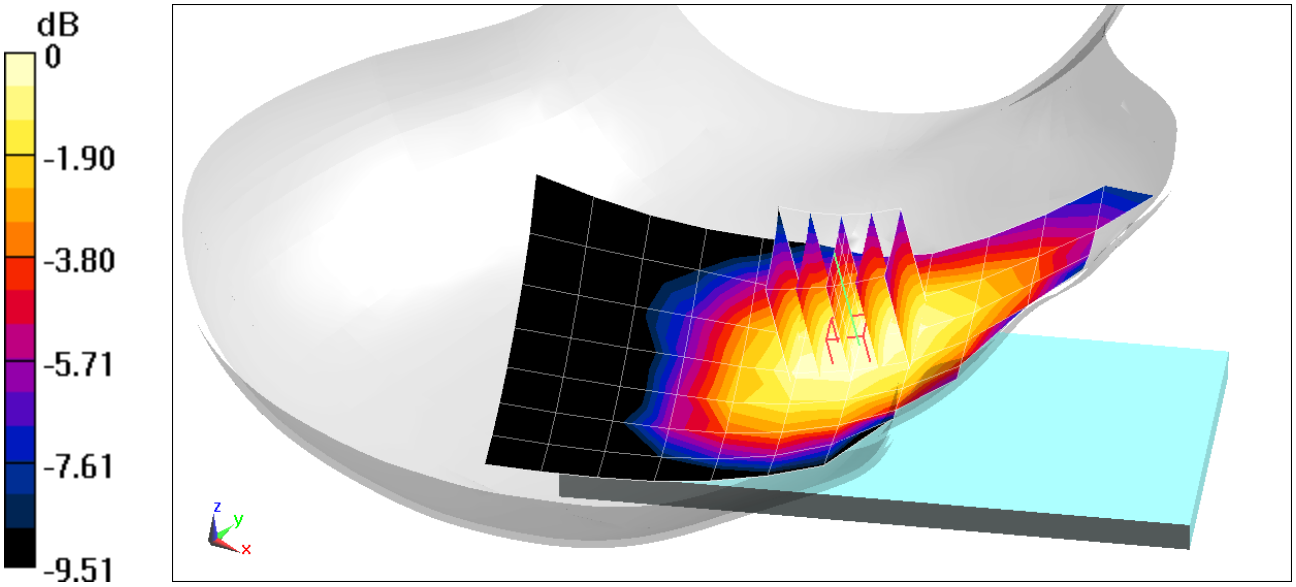
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 700 Head Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.882 S/m; ε_r = 41.893; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-29-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7410; ConvF(9.95, 9.95, 9.95) @ 707.5 MHz; Calibrated: 07/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 07/11/2019
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 12, Right Head, Cheek, Mid.ch, 10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.68 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.105 W/kg
SAR(1 g) = 0.089 W/kg



0 dB = 0.101 W/kg = -9.96 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14594

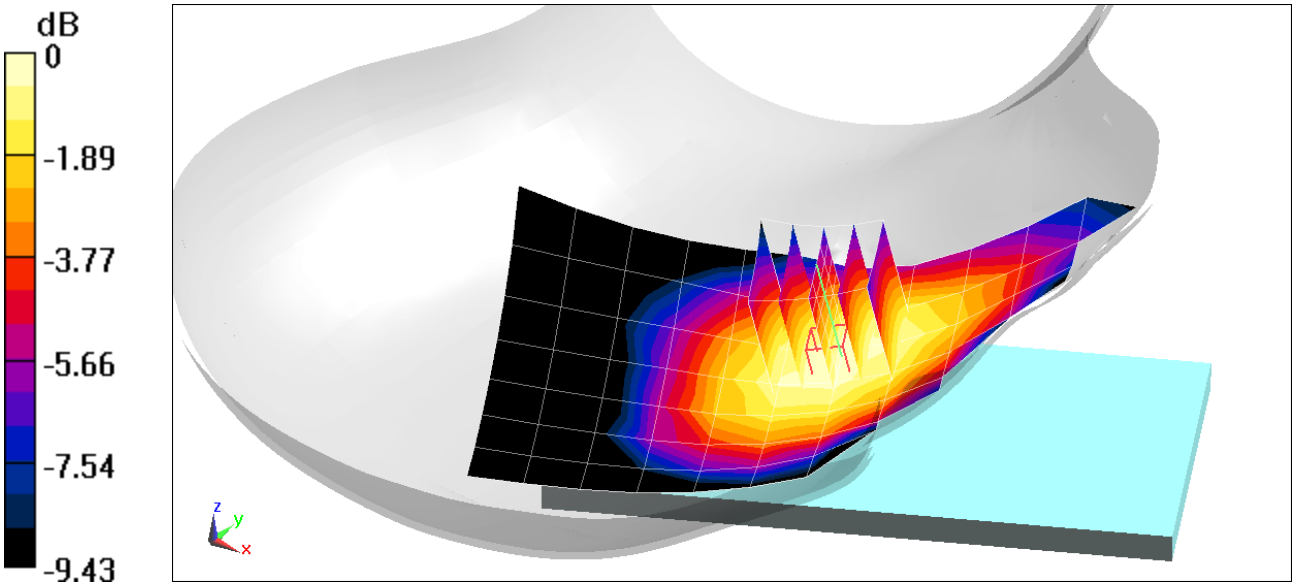
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 700 Head Medium parameters used (interpolated):
f = 782 MHz; σ = 0.908 S/m; ε_r = 41.686; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-29-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7410; ConvF(9.95, 9.95, 9.95) @ 782 MHz; Calibrated: 07/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 07/11/2019
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 13, Right Head, Cheek, Mid.ch, 10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.51 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.292 W/kg
SAR(1 g) = 0.246 W/kg



0 dB = 0.281 W/kg = -5.51 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14594

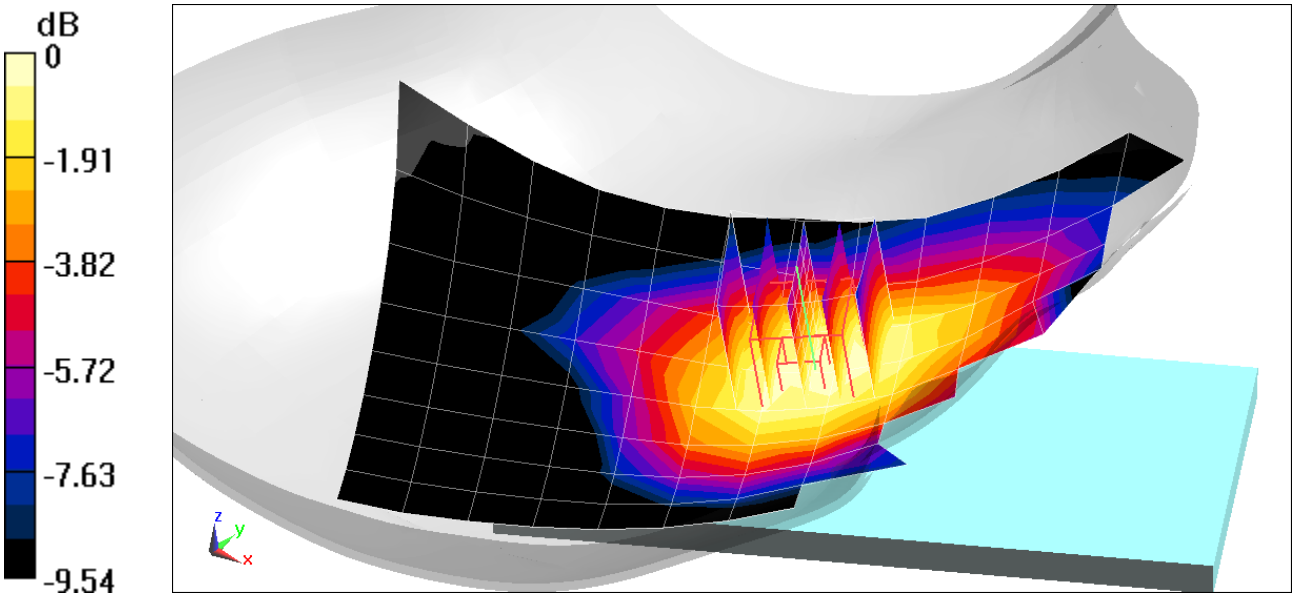
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.907 S/m; ε_r = 40.322; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-08-2020; Ambient Temp: 20.9°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7308; ConvF(9.87, 9.87, 9.87) @ 831.5 MHz; Calibrated: 8/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/14/2019
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 26 (Cell.), Right Head, Cheek, Mid.ch, 15 MHz Bandwidth QPSK, 1 RB, 36 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 = 15.48 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.253 W/kg
SAR(1 g) = 0.195 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14602

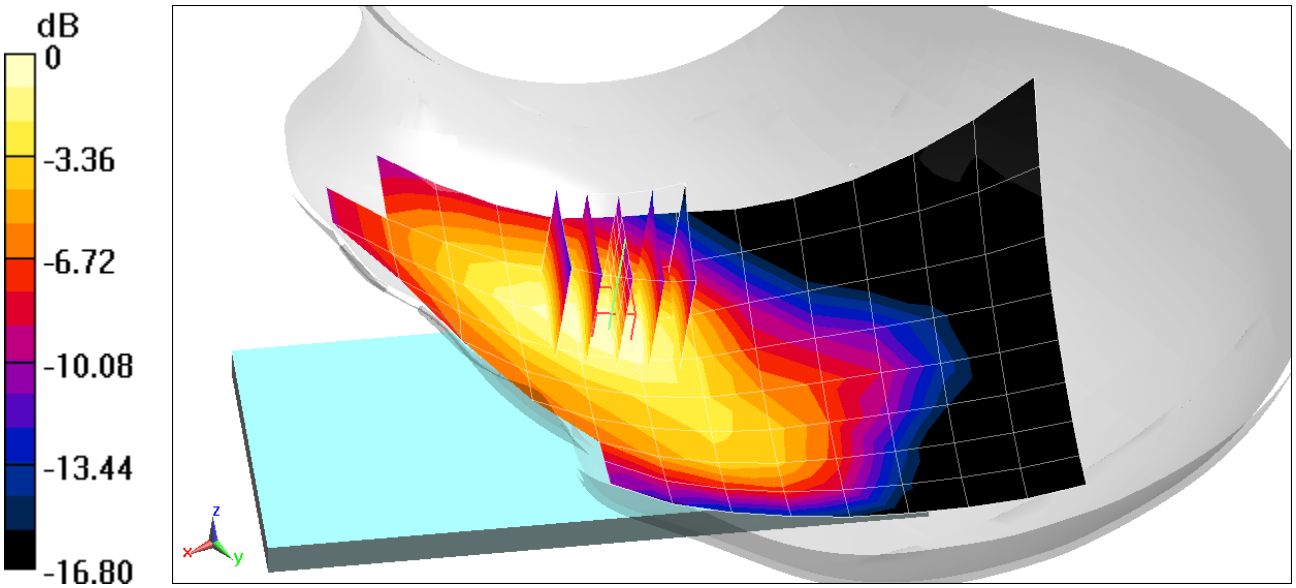
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used:
f = 1720 MHz; σ = 1.323 S/m; ε_r = 39.572; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-01-2020; Ambient Temp: 22.1°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7406; ConvF(8.57, 8.57, 8.57) @ 1720 MHz; Calibrated: 2019-05-16
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 2019-05-08
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 66 (AWS), Left Head, Cheek, Low.ch, 20 MHz Bandwidth QPSK, 1 RB, 50 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 = 16.38 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.477 W/kg
SAR(1 g) = 0.303 W/kg



0 dB = 0.408 W/kg = -3.89 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14602

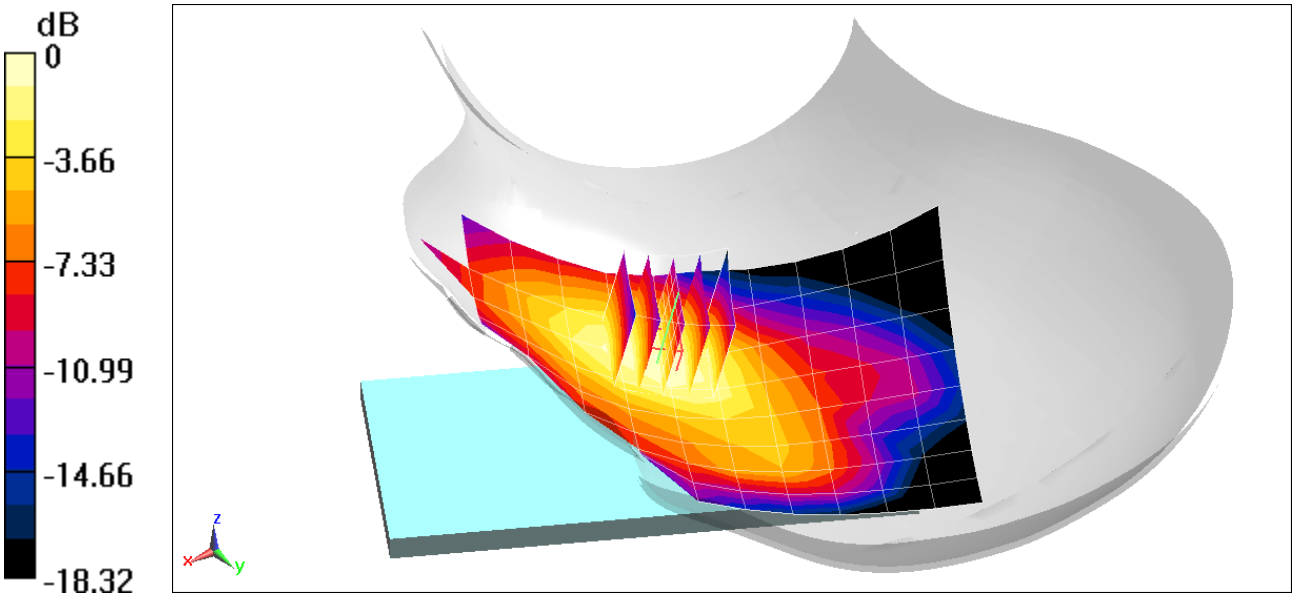
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1905 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1905 MHz; σ = 1.436 S/m; ε_r = 39.332; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-04-2020; Ambient Temp: 23.2°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7410; ConvF(8.11, 8.11, 8.11) @ 1905 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 25 (PCS), Left Head, Cheek, High.ch, 20 MHz Bandwidth QPSK, 1 RB, 50 RB Offset

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.24 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.628 W/kg
SAR(1 g) = 0.408 W/kg



0 dB = 0.537 W/kg = -2.70 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14602

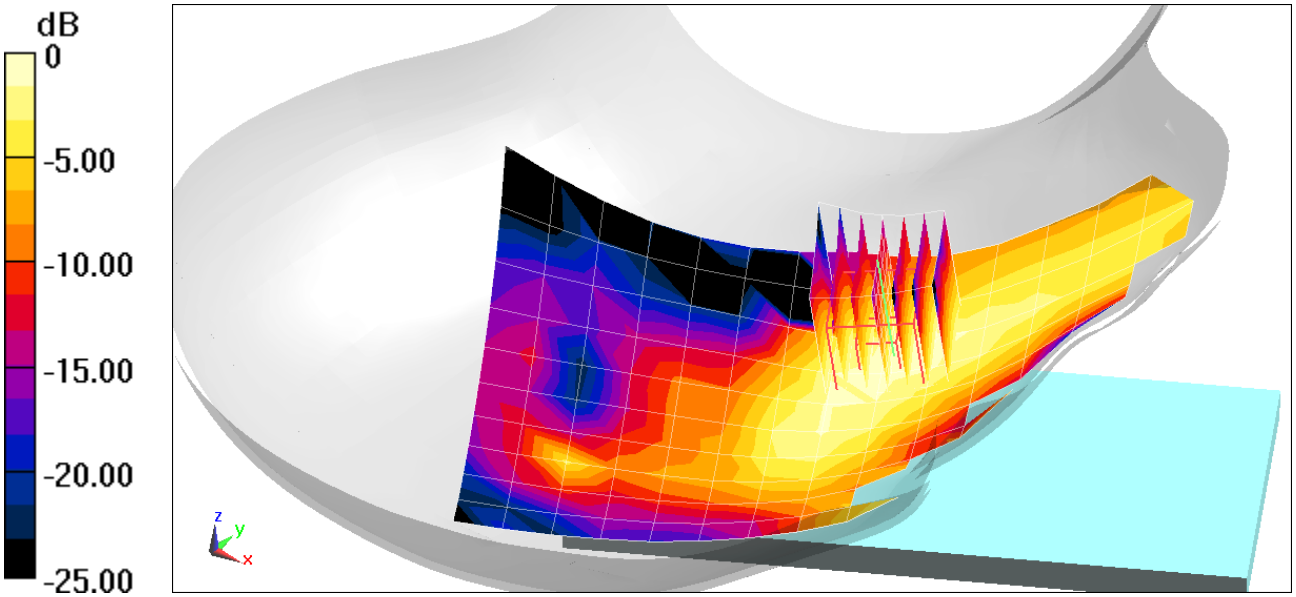
Communication System: UID 0, _LTE Band 41 (Class 2); Frequency: 2680 MHz; Duty Cycle: 1:2.31
Medium: 2450 Head Medium parameters used:
f = 2680 MHz; σ = 1.956 S/m; ε_r = 39.244; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-10-2020; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7409; ConvF(7.12, 7.12, 7.12) @ 2680 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 41 Power Class 2 ULCA, Right Head, Cheek
PCC: 20 MHz Bandwidth, QPSK, Ch 41490, 1 RB, 0 RB Offset
SCC: 20 MHz Bandwidth, QPSK, Ch 41292, 1 RB, 99 RB Offset

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.198 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.150 W/kg
SAR(1 g) = 0.082 W/kg



0 dB = 0.123 W/kg = -9.10 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14610

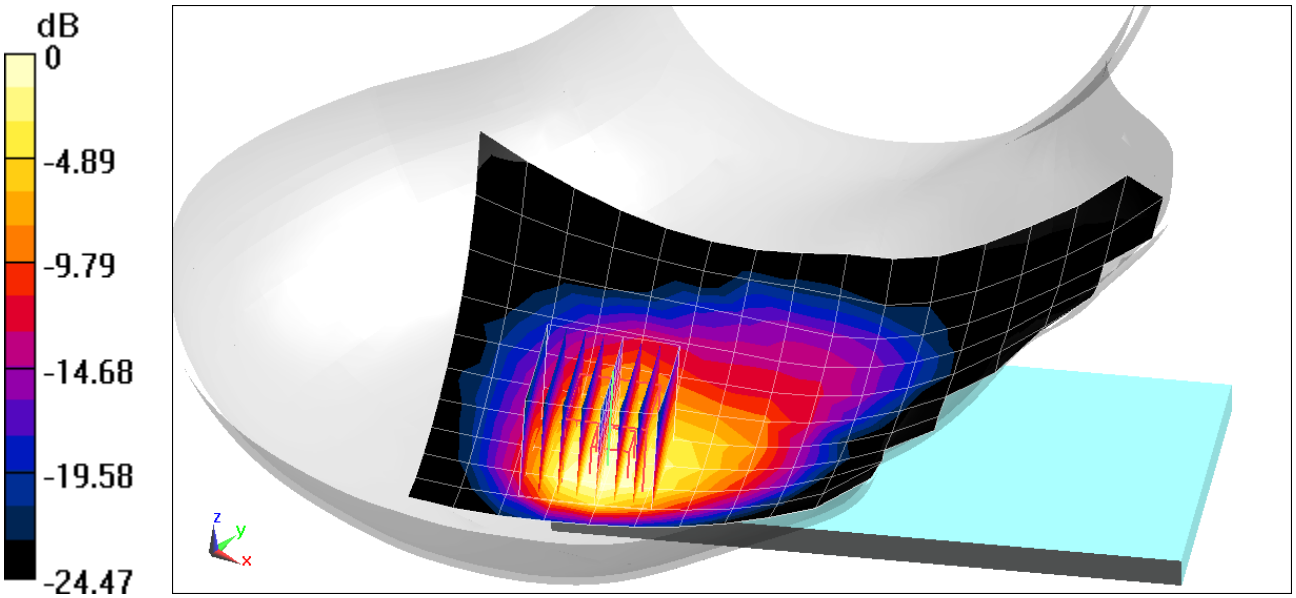
Communication System: UID 0, IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.859 S/m; ε_r = 37.516; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-29-2019; Ambient Temp: 22.1°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN7417; ConvF(7.46, 7.46, 7.46) @ 2462 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
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, 22 MHz Bandwidth, Right Head, Cheek, Ch 11, 1 Mbps

Area Scan (11x19x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.837 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.65 W/kg
SAR(1 g) = 0.781 W/kg



0 dB = 1.25 W/kg = 0.97 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14610

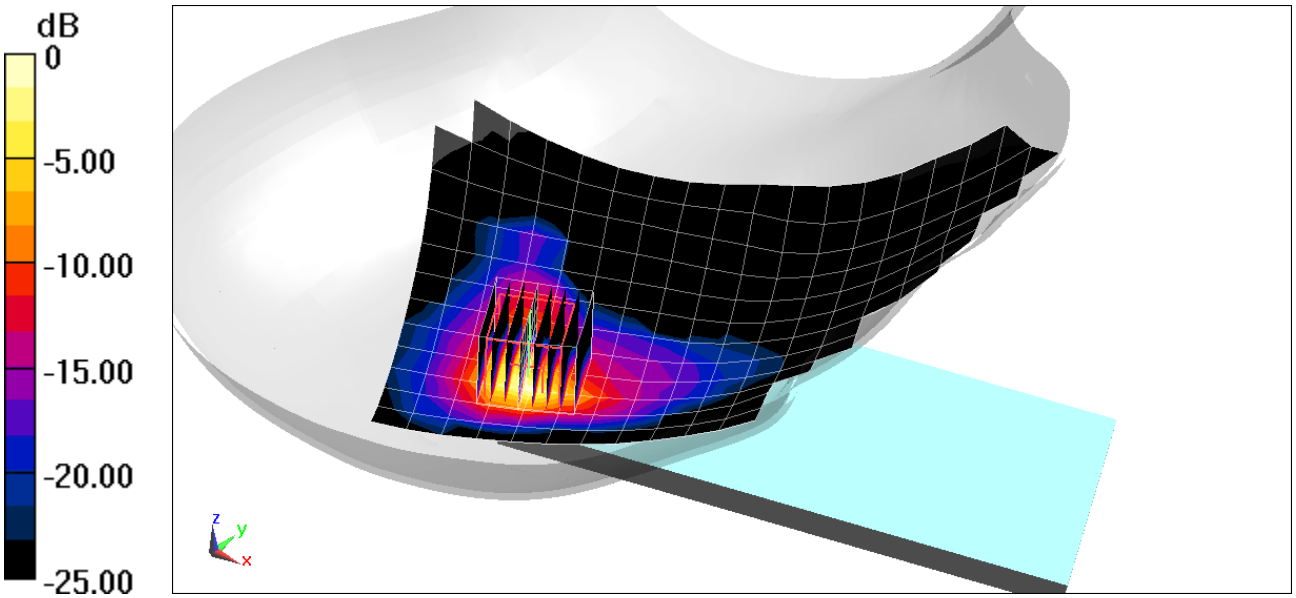
Communication System: UID 0, 802.11n 5.2-5.8 GHz Band; Frequency: 5795 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Head Medium parameters used:
f = 5795 MHz; σ = 5.112 S/m; ε_r = 33.75; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-09-2019; Ambient Temp: 22.0°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7406; ConvF(5.23, 5.23, 5.23) @ 5795 MHz; Calibrated: 5/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn728; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 20; Type: QD 000 P40 CD; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: IEEE 802.11n, U-NII-3, 40 MHz Bandwidth, Right Head, Tilt, Ch 159, 13.5 Mbps

Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 5.335 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 4.17 W/kg
SAR(1 g) = 0.852 W/kg



0 dB = 2.34 W/kg = 3.69 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14610

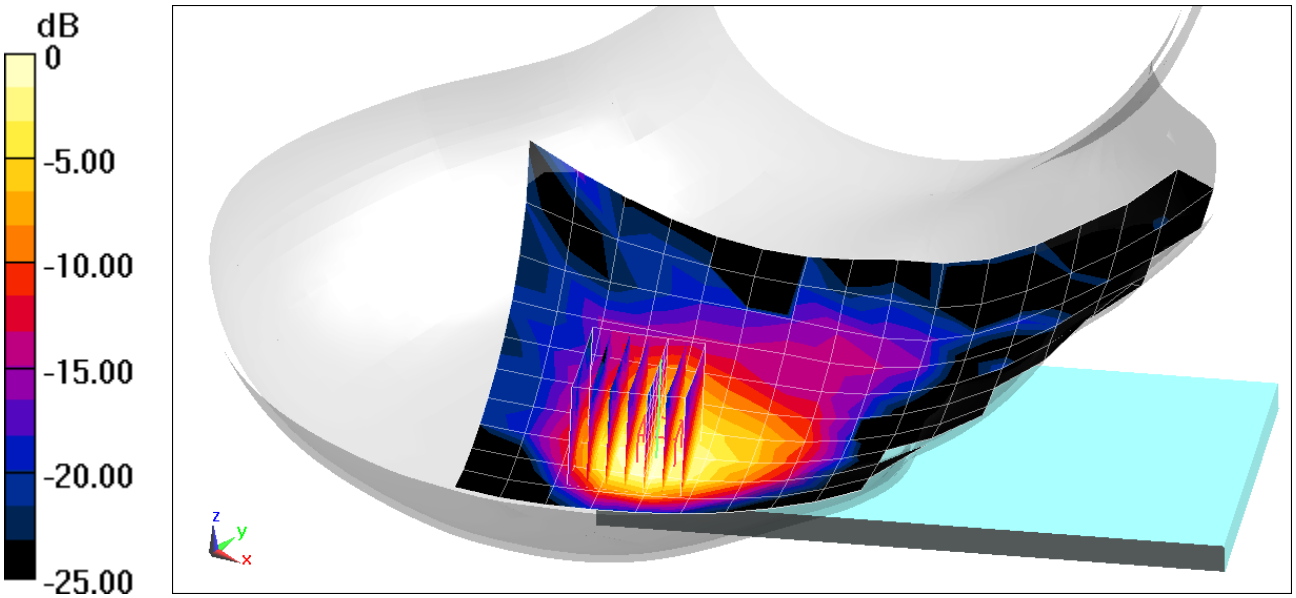
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.302
Medium: 2450 Head Medium parameters used (interpolated):
f = 2441 MHz; σ = 1.848 S/m; ε_r = 38.229; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-08-2020; Ambient Temp: 22.9°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7417; ConvF(7.46, 7.46, 7.46) @ 2441 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
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, Right Head, Cheek, Ch 39, 1Mbps

Area Scan (11x19x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.640 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.174 W/kg
SAR(1 g) = 0.084 W/kg



0 dB = 0.138 W/kg = -8.60 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

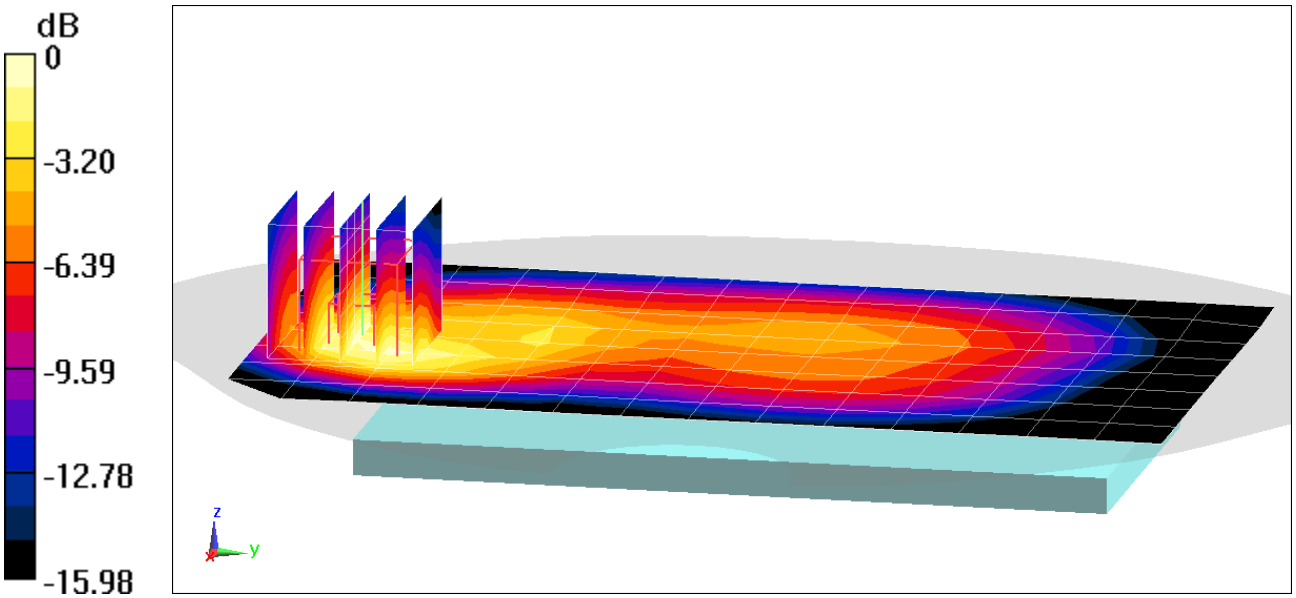
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:2.76
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.961 S/m; ε_r = 53.632; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-16-2019; Ambient Temp: 20.7°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7410; ConvF(9.79, 9.79, 9.79) @ 836.6 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: GPRS 850, Body SAR, Back side, Mid.ch, 3 Tx Slots

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.76 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.584 W/kg



0 dB = 0.869 W/kg = -0.61 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

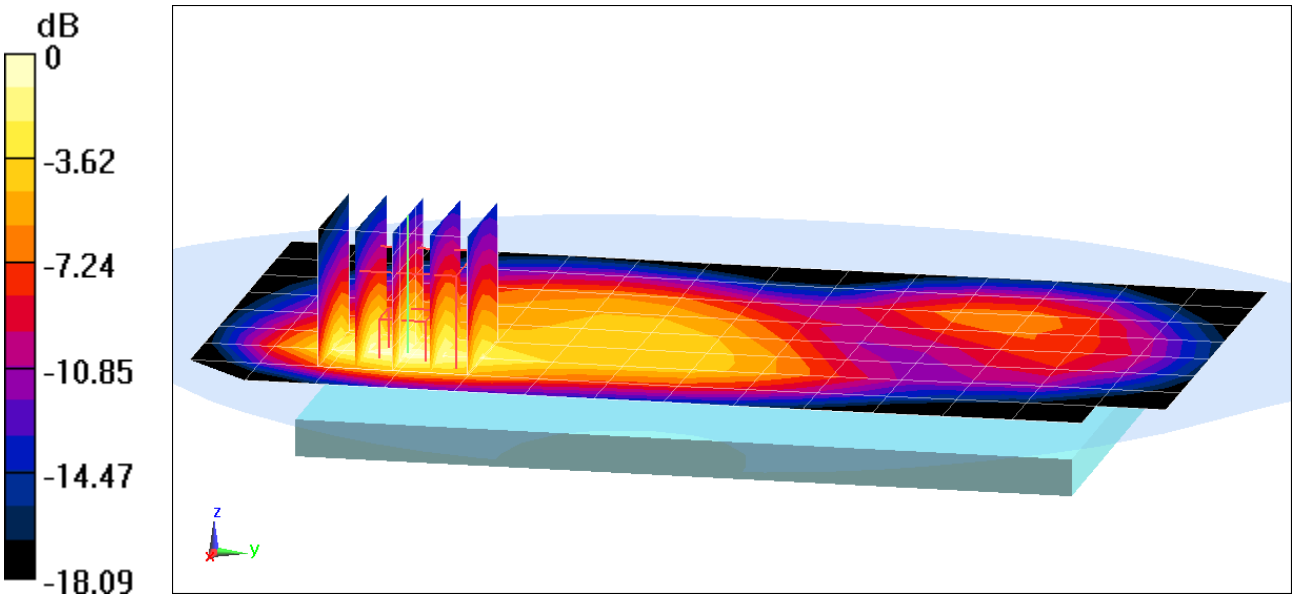
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.56 S/m; ε_r = 52.538; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-03-2020; Ambient Temp: 21.9°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1880 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.58 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.843 W/kg
SAR(1 g) = 0.478 W/kg



0 dB = 0.714 W/kg = -1.46 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

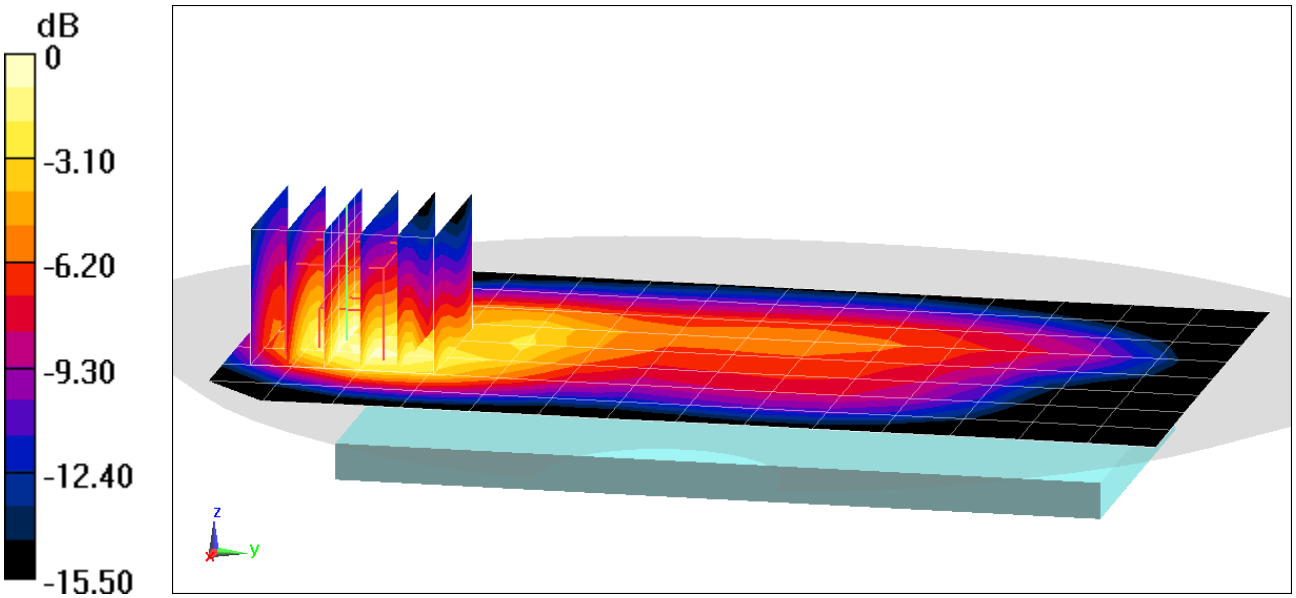
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.961 S/m; ε_r = 53.632; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-16-2019; Ambient Temp: 20.7°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7410; ConvF(9.79, 9.79, 9.79) @ 836.6 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: UMTS 850, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.97 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.576 W/kg



0 dB = 0.846 W/kg = -0.73 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

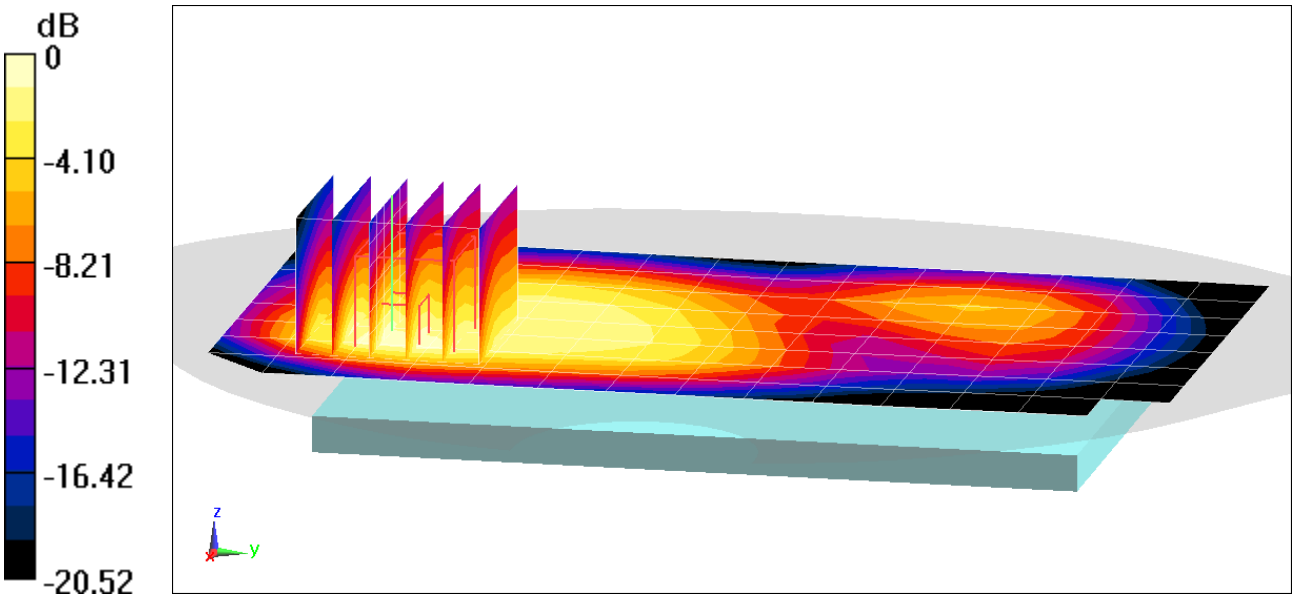
Communication System: UID 0, UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1752.6 MHz; σ = 1.524 S/m; ε_r = 52.653; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-30-2019; Ambient Temp: 20.4°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7357; ConvF(8.26, 8.26, 8.26) @ 1752.6 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Right Back Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.35 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.823 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

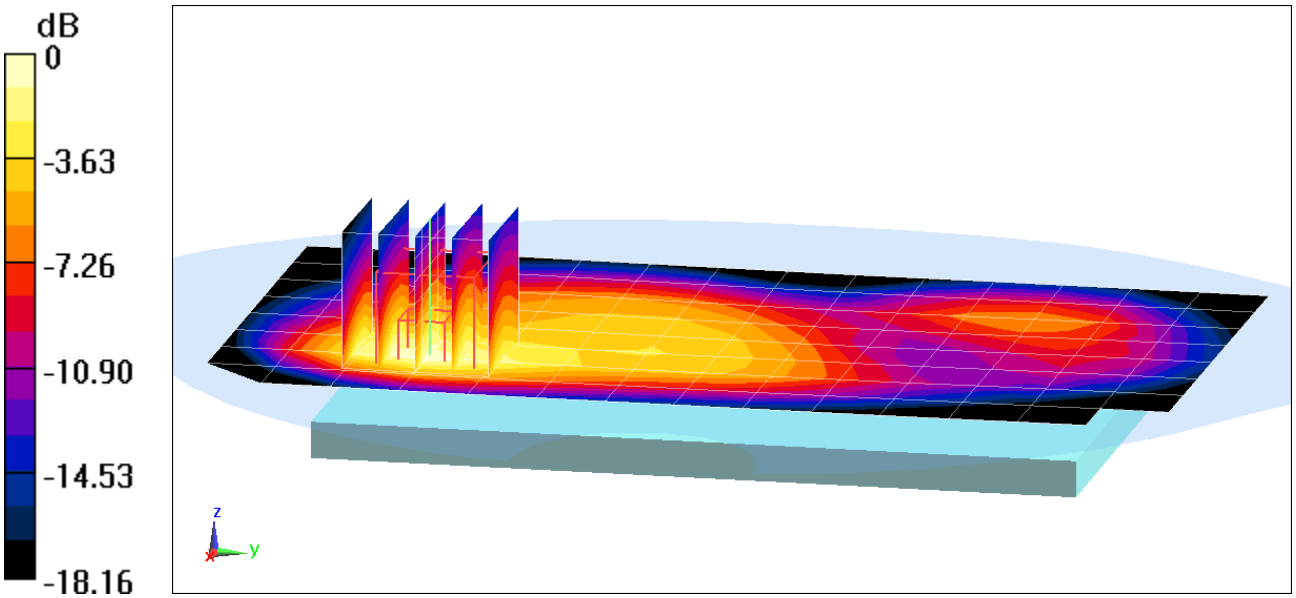
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.546 S/m; ε_r = 51.901; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-06-2020; Ambient Temp: 22.9°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1880 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.46 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.69 W/kg
SAR(1 g) = 0.967 W/kg



0 dB = 1.42 W/kg = 1.52 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

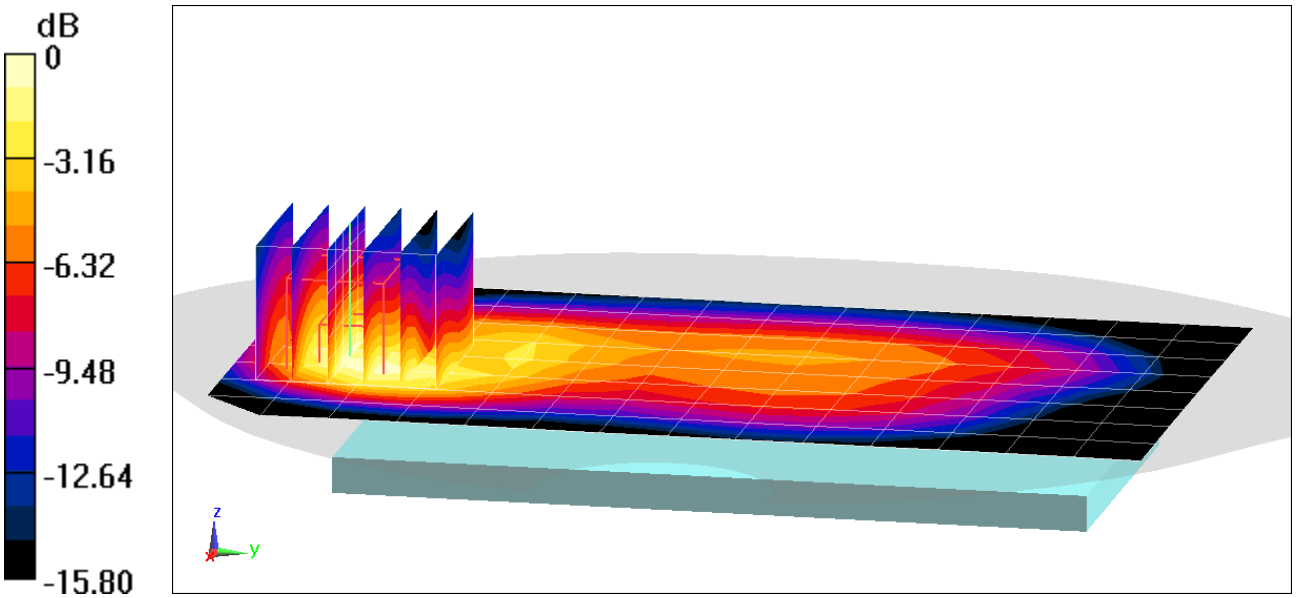
Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.954 S/m; ε_r = 53.672; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-16-2019; Ambient Temp: 20.7°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7410; ConvF(9.79, 9.79, 9.79) @ 820.1 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: Cell. CDMA Rule Part 90S, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.92 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.583 W/kg



0 dB = 0.871 W/kg = -0.60 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

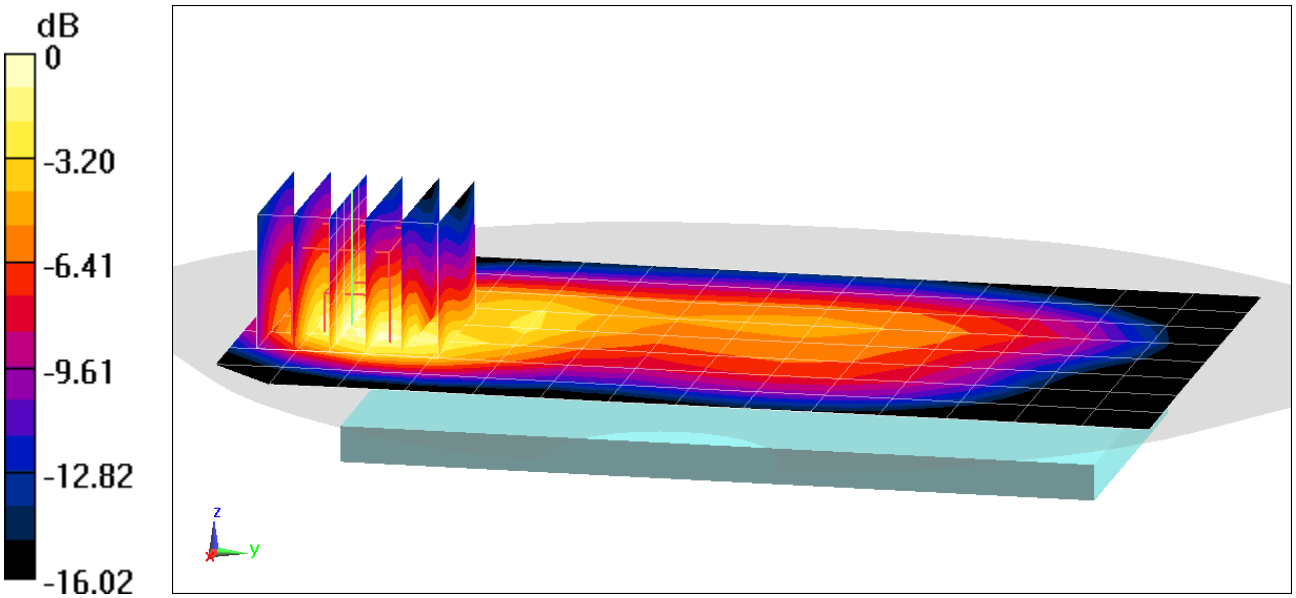
Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.954 S/m; ε_r = 53.672; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-16-2019; Ambient Temp: 20.7°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7410; ConvF(9.79, 9.79, 9.79) @ 820.1 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: Cell. EVDO Rev 0 Rule Part 90S, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.59 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.958 W/kg
SAR(1 g) = 0.549 W/kg



0 dB = 0.813 W/kg = -0.90 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

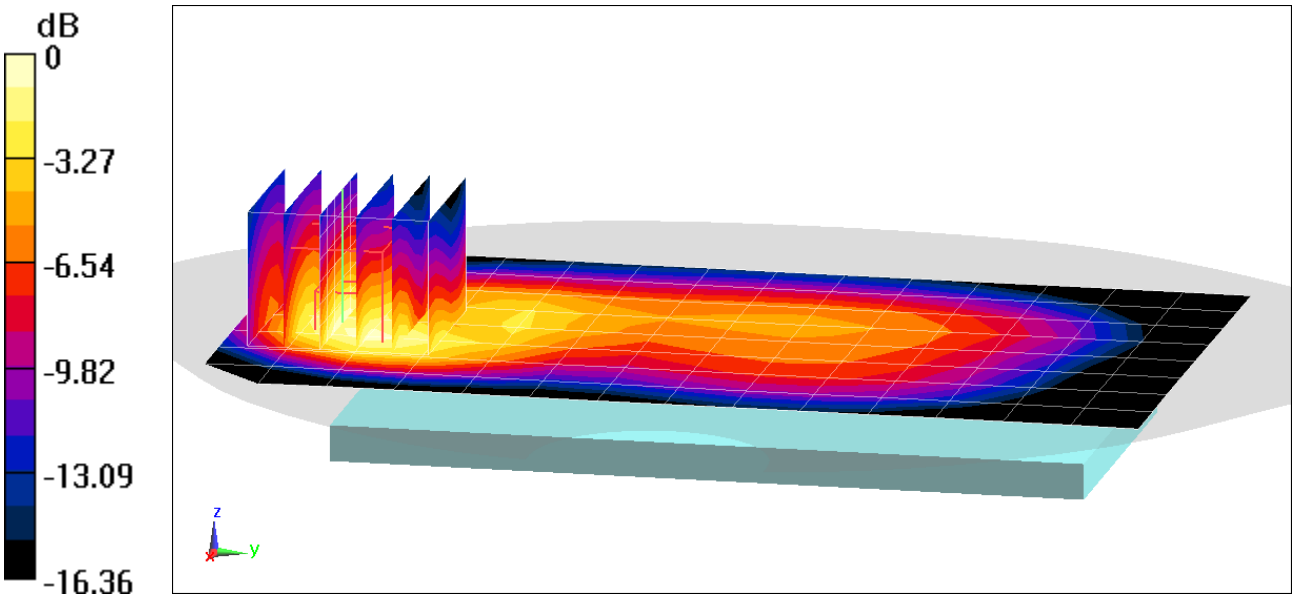
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.961 S/m; ε_r = 53.632; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-16-2019; Ambient Temp: 20.7°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7410; ConvF(9.79, 9.79, 9.79) @ 836.52 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: Cell. CDMA, Rule Part 22H, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.59 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.833 W/kg
SAR(1 g) = 0.472 W/kg



0 dB = 0.695 W/kg = -1.58 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

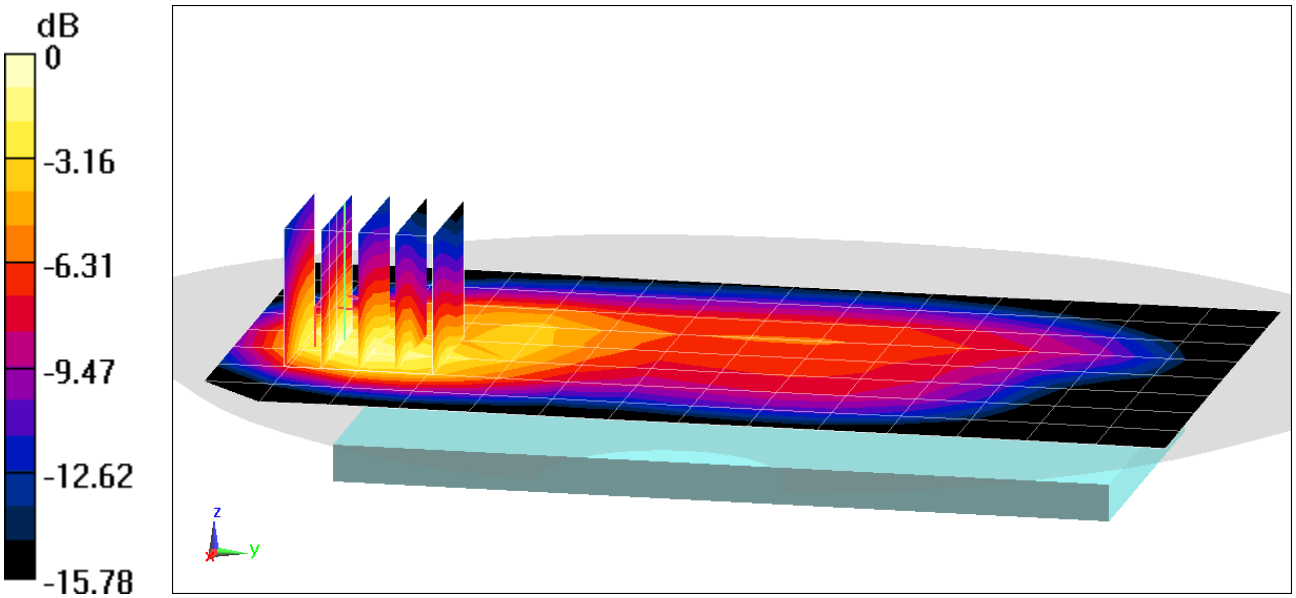
Communication System: UID 0, CDMA; Frequency: 824.7 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 824.7 MHz; σ = 0.956 S/m; ε_r = 53.661; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-16-2019; Ambient Temp: 20.7°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7410; ConvF(9.79, 9.79, 9.79) @ 824.7 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: Cell. EVDO Rev 0, Rule Part 22H, Body SAR, Back side, Low.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.63 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.603 W/kg



0 dB = 0.894 W/kg = -0.49 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

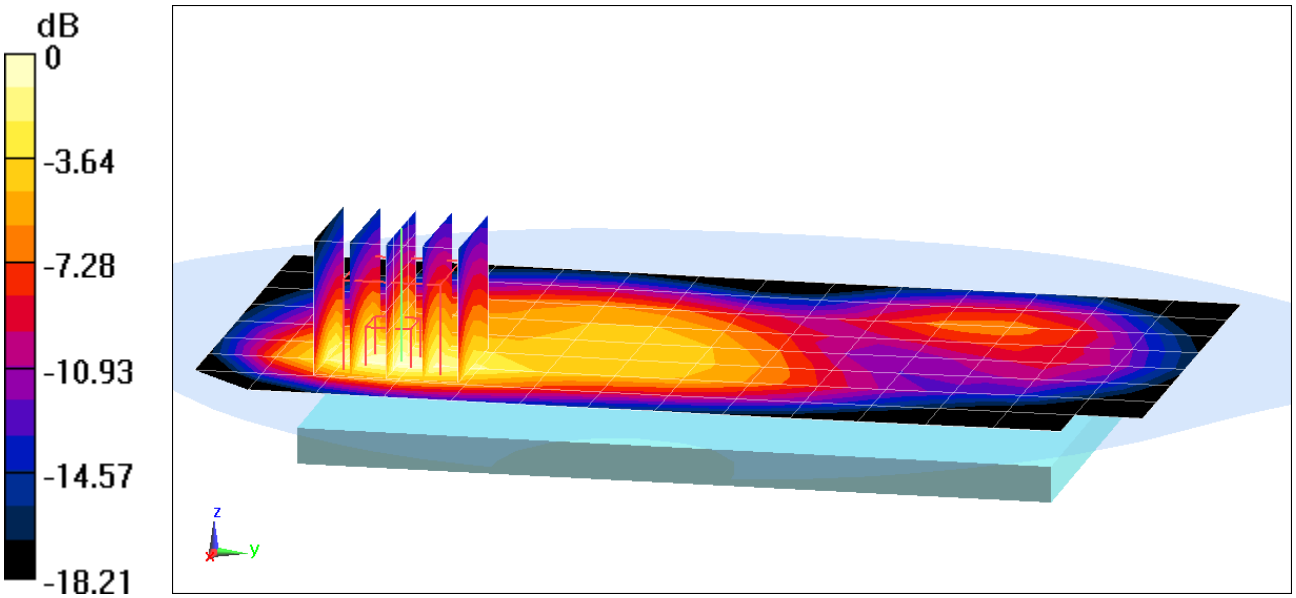
Communication System: UID 0, CDMA; Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1851.25 MHz; σ = 1.527 S/m; ε_r = 52.634; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-03-2020; Ambient Temp: 21.9°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1851.25 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: PCS CDMA, Body SAR, Back side, Low.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.20 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.80 W/kg
SAR(1 g) = 1.01 W/kg



0 dB = 1.50 W/kg = 1.76 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

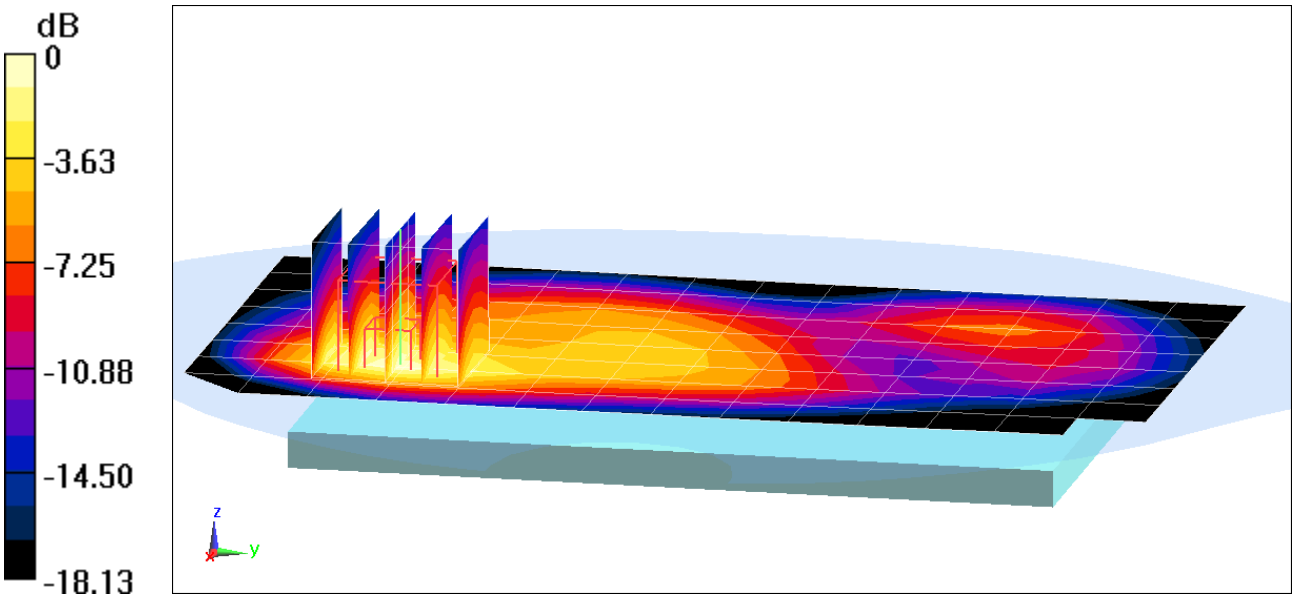
Communication System: UID 0, CDMA;Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1851.25 MHz; σ = 1.527 S/m; ε_r = 52.634; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-03-2020; Ambient Temp: 21.9°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1851.25 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: PCS EVDO Rev 0, Body SAR, Back side, Low.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.73 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.74 W/kg
SAR(1 g) = 0.981 W/kg



0 dB = 1.44 W/kg = 1.58 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14594

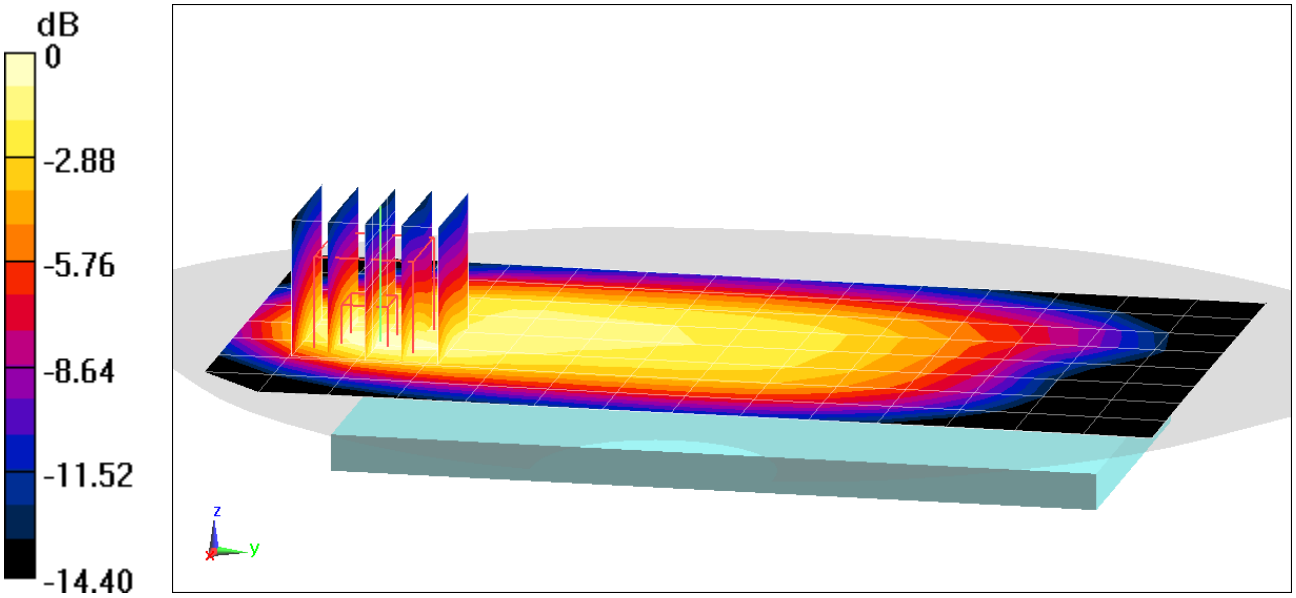
Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1
Medium: 700 Body Medium parameters used (interpolated):
f = 680.5 MHz; σ = 0.915 S/m; ε_r = 53.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-26-2019; Ambient Temp: 20.3°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7410; ConvF(10.01, 10.01, 10.01) @ 680.5 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 71, Body SAR, Back side, Mid.ch, 20 MHz Bandwidth QPSK, 1 RB, 50 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.53 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.318 W/kg
SAR(1 g) = 0.177 W/kg



0 dB = 0.265 W/kg = -5.77 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14594

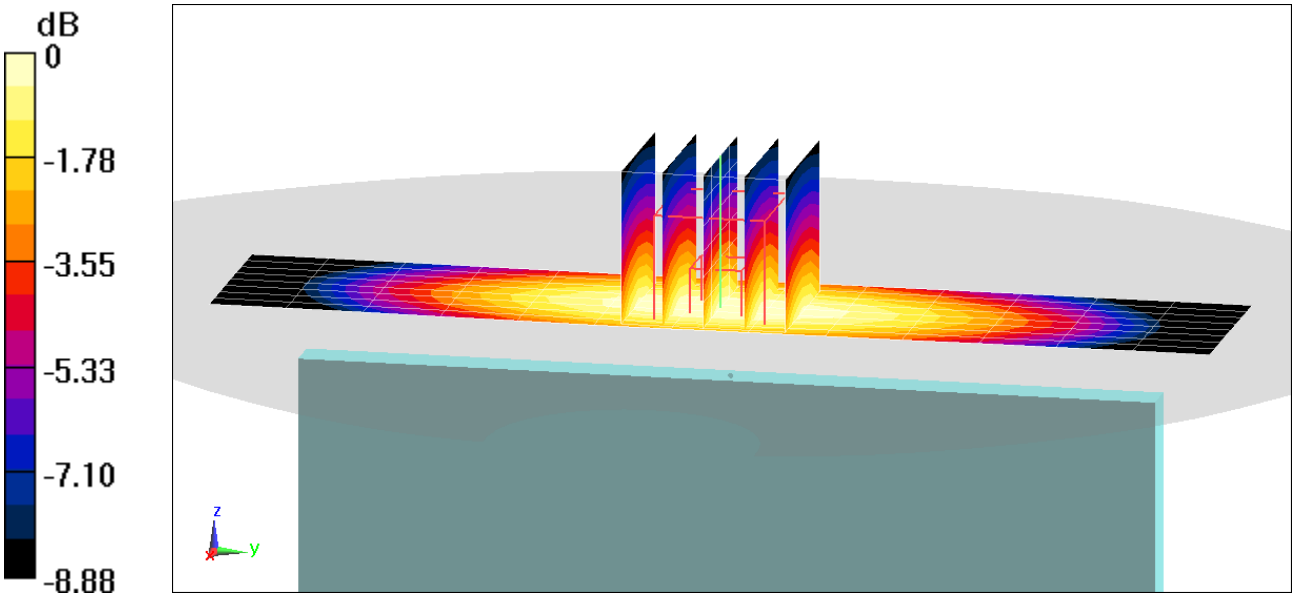
Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1
Medium: 700 Body Medium parameters used (interpolated):
f = 680.5 MHz; σ = 0.915 S/m; ε_r = 53.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-26-2019; Ambient Temp: 20.3°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7410; ConvF(10.01, 10.01, 10.01) @ 680.5 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 71, Body SAR, Right Edge, Mid.ch, 20 MHz Bandwidth QPSK, 1 RB, 50 RB Offset

Area Scan (9x14x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.77 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.390 W/kg
SAR(1 g) = 0.273 W/kg



0 dB = 0.351 W/kg = -4.55 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14594

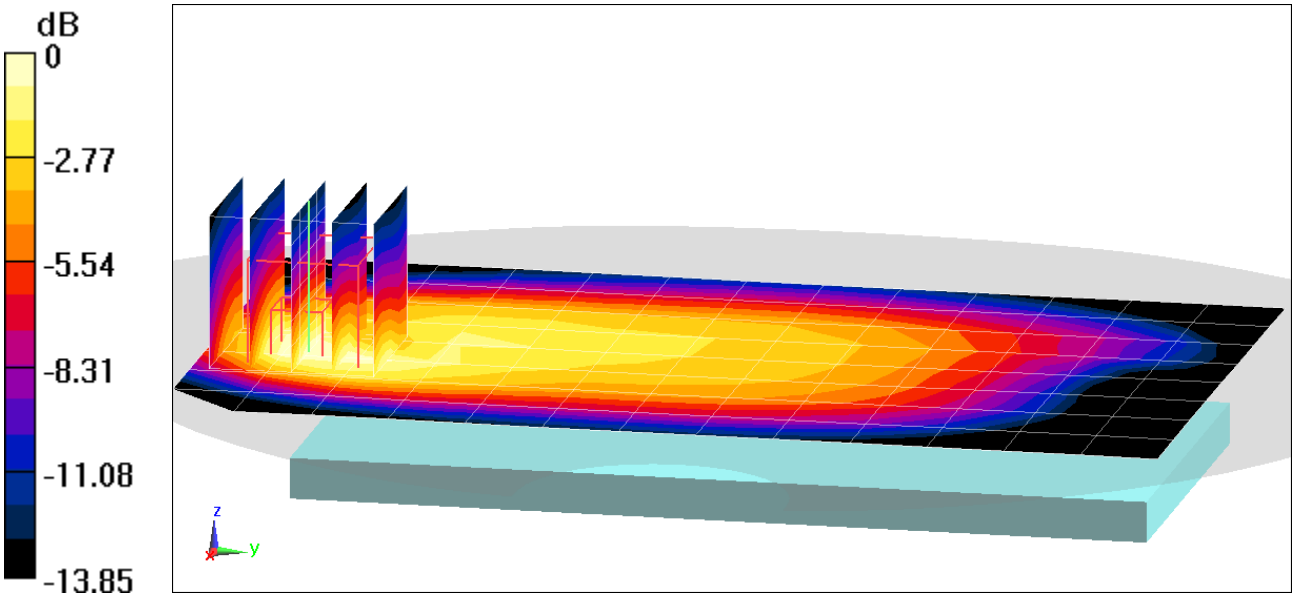
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 700 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.924 S/m; ε_r = 53.671; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-26-2019; Ambient Temp: 20.3°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7410; ConvF(10.01, 10.01, 10.01) @ 707.5 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 12, Body SAR, Back side, Mid.ch, 10 MHz Bandwidth QPSK, 1 RB, 0 RB Offset

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.05 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.344 W/kg
SAR(1 g) = 0.192 W/kg



0 dB = 0.287 W/kg = -5.42 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14594

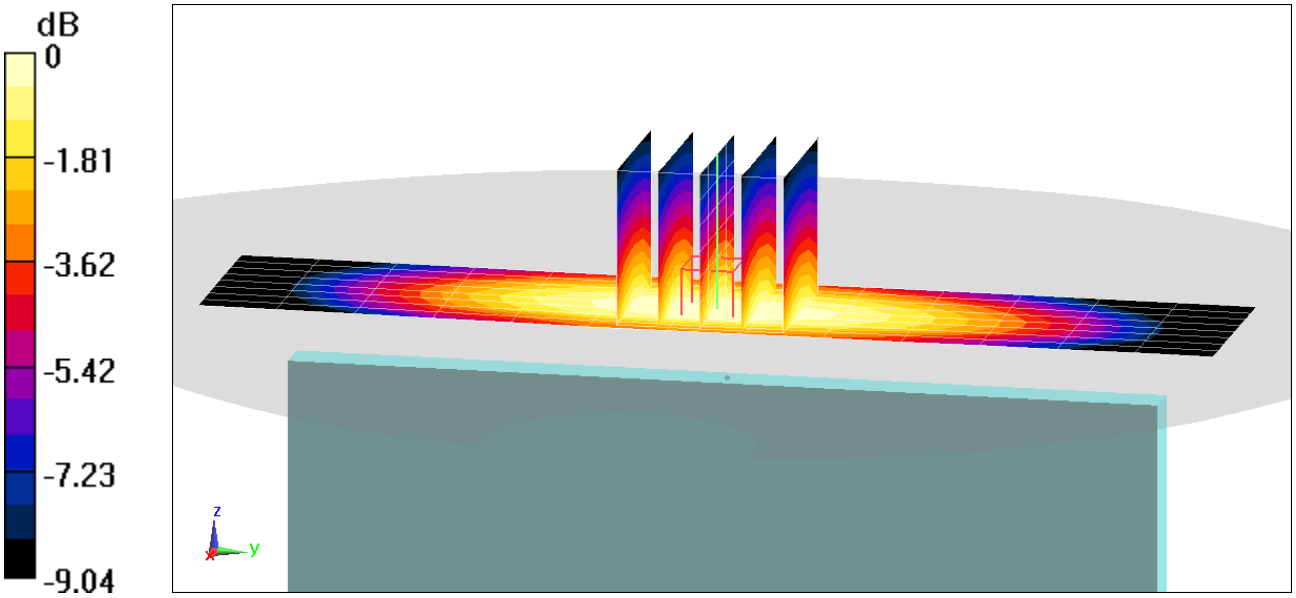
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 700 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.924 S/m; ε_r = 53.671; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-26-2019; Ambient Temp: 20.3°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7410; ConvF(10.01, 10.01, 10.01) @ 707.5 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 12, Body SAR, Right Edge, Mid.ch, 10 MHz Bandwidth QPSK, 1 RB, 0 RB Offset

Area Scan (9x14x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.66 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.391 W/kg
SAR(1 g) = 0.273 W/kg



0 dB = 0.351 W/kg = -4.55 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14594

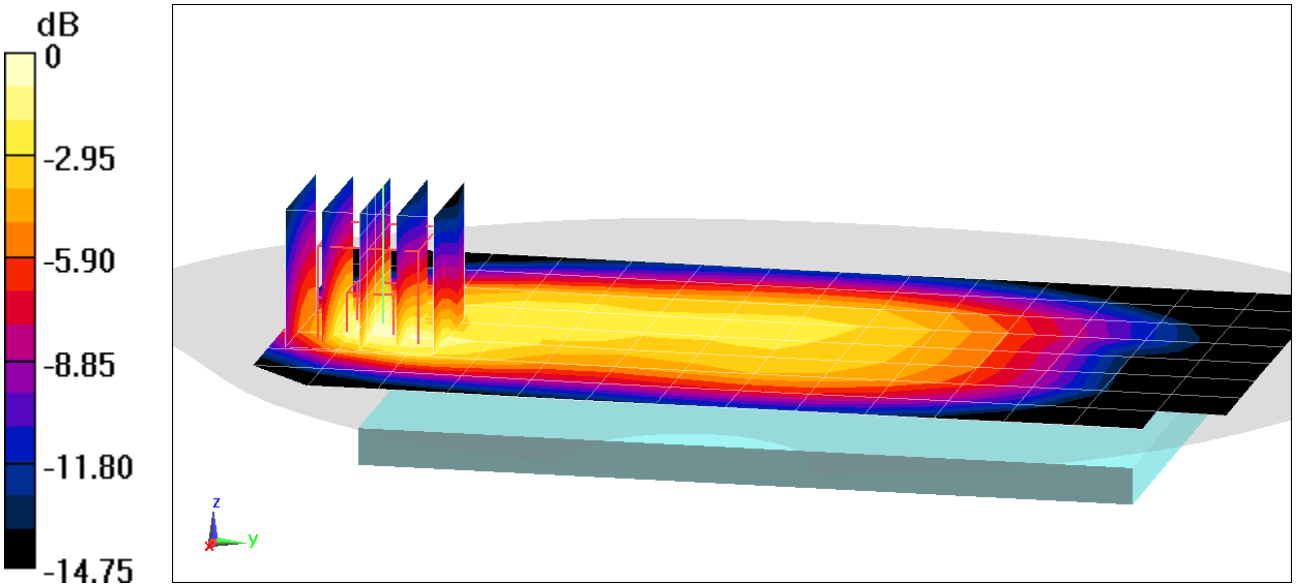
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 700 Body Medium parameters used (interpolated):
f = 782 MHz; σ = 0.953 S/m; ε_r = 53.456; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-26-2019; Ambient Temp: 20.3°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7410; ConvF(10.01, 10.01, 10.01) @ 782 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 13, Body SAR, Back side, Mid.ch, 10 MHz Bandwidth QPSK, 1 RB, 25 RB Offset

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.48 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.900 W/kg
SAR(1 g) = 0.517 W/kg



0 dB = 0.805 W/kg = -0.94 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14594

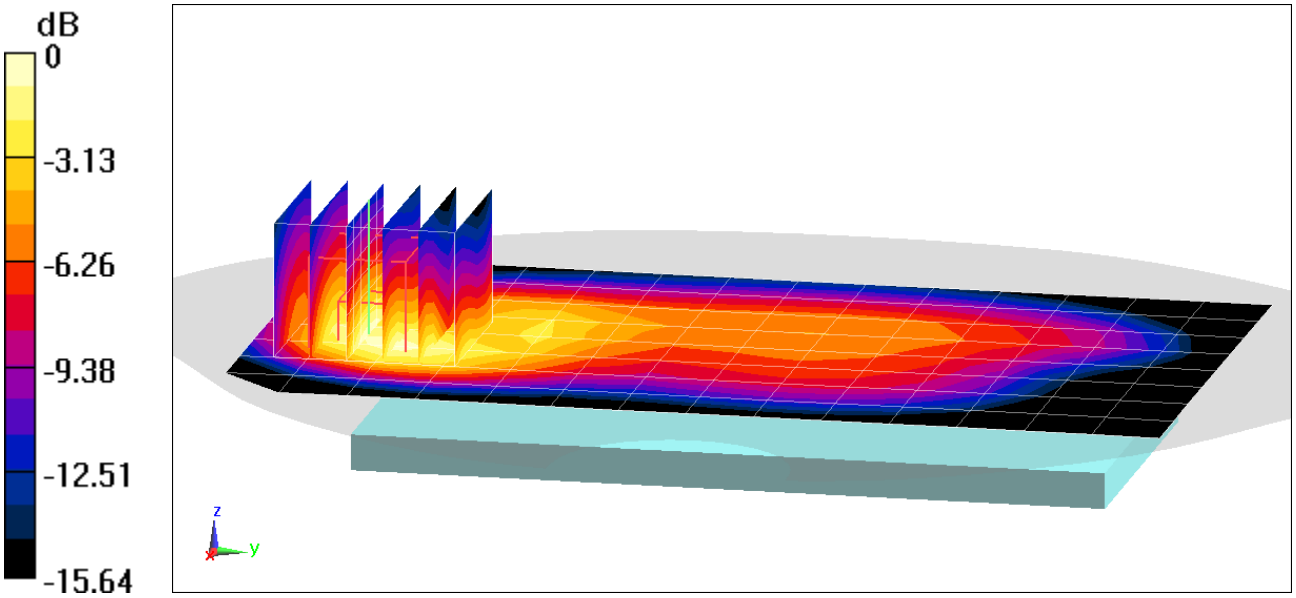
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.959 S/m; ε_r = 53.644; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-16-2019; Ambient Temp: 20.7°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7410; ConvF(9.79, 9.79, 9.79) @ 831.5 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 26 (Cell.), Body SAR, Back side, Mid.ch, 15 MHz Bandwidth QPSK, 1 RB, 36 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.52 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.798 W/kg
SAR(1 g) = 0.459 W/kg



0 dB = 0.681 W/kg = -1.67 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14594

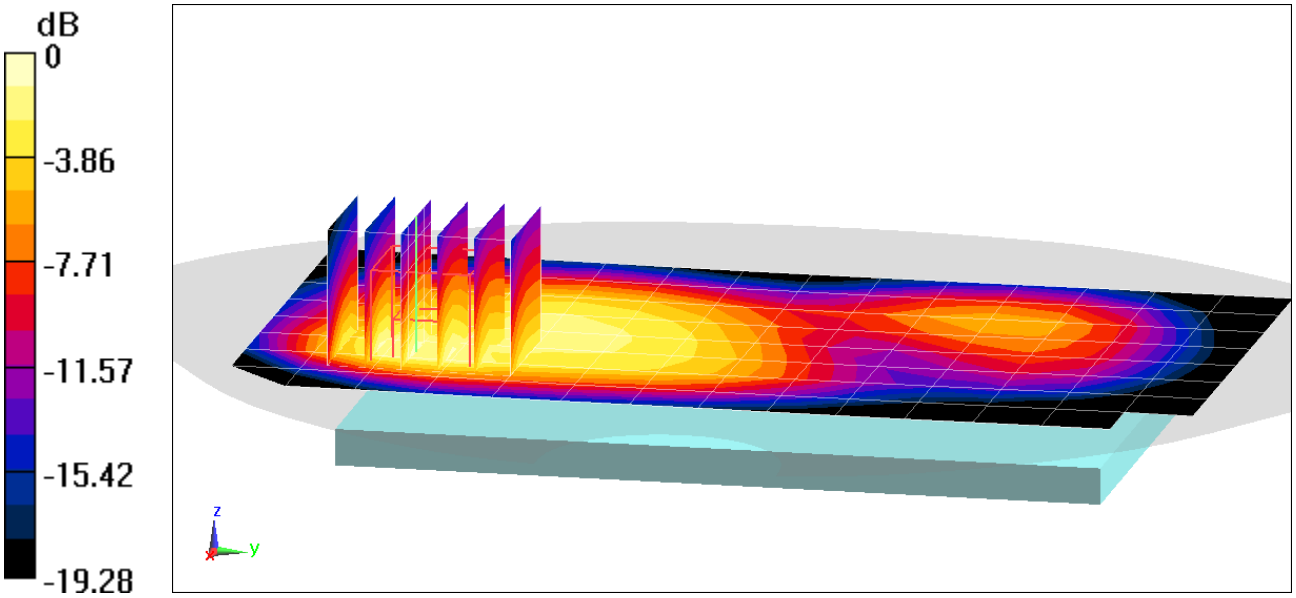
Communication System: UID 0, _LTE Band 66 (AWS); Frequency: 1770 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1770 MHz; σ = 1.53 S/m; ε_r = 52.978; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-09-2020; Ambient Temp: 21.5°C; Tissue Temp: 21.1°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: Right Back Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1692
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, 50 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.89 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.42 W/kg
SAR(1 g) = 0.794 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14594

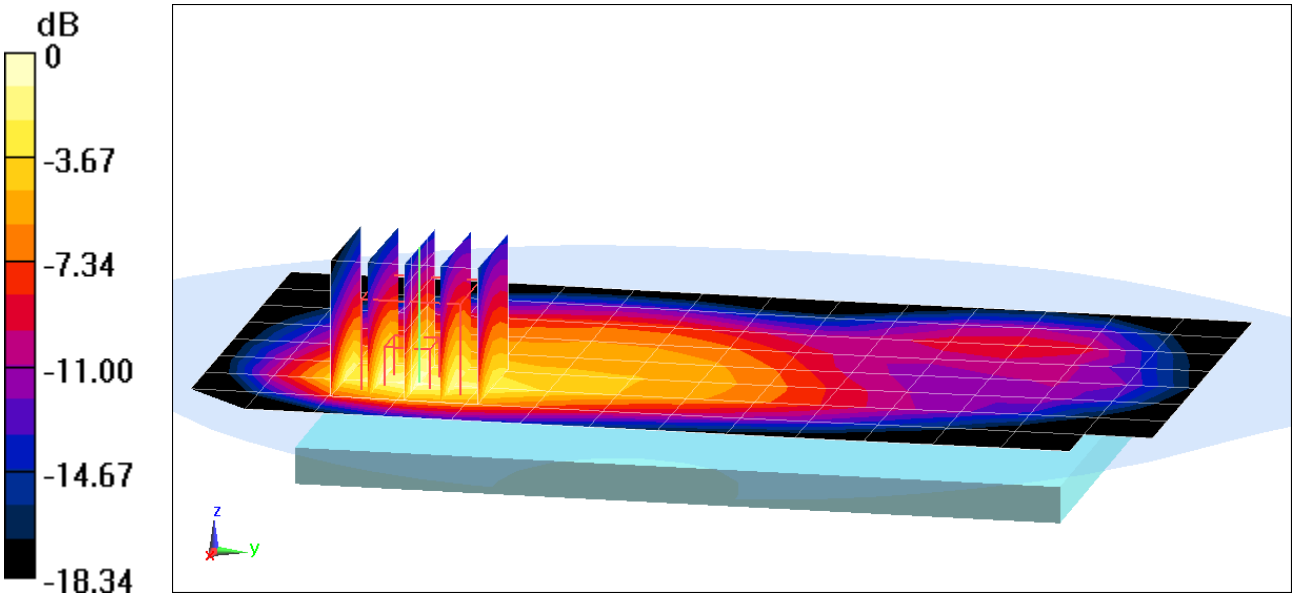
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1860 MHz; σ = 1.523 S/m; ε_r = 51.968; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-06-2020; Ambient Temp: 22.9°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1860 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 25 (PCS), Body SAR, Back side, Low.ch, 20 MHz Bandwidth QPSK, 1 RB, 50 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 = 28.52 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.99 W/kg
SAR(1 g) = 1.12 W/kg



0 dB = 1.64 W/kg = 2.15 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14602

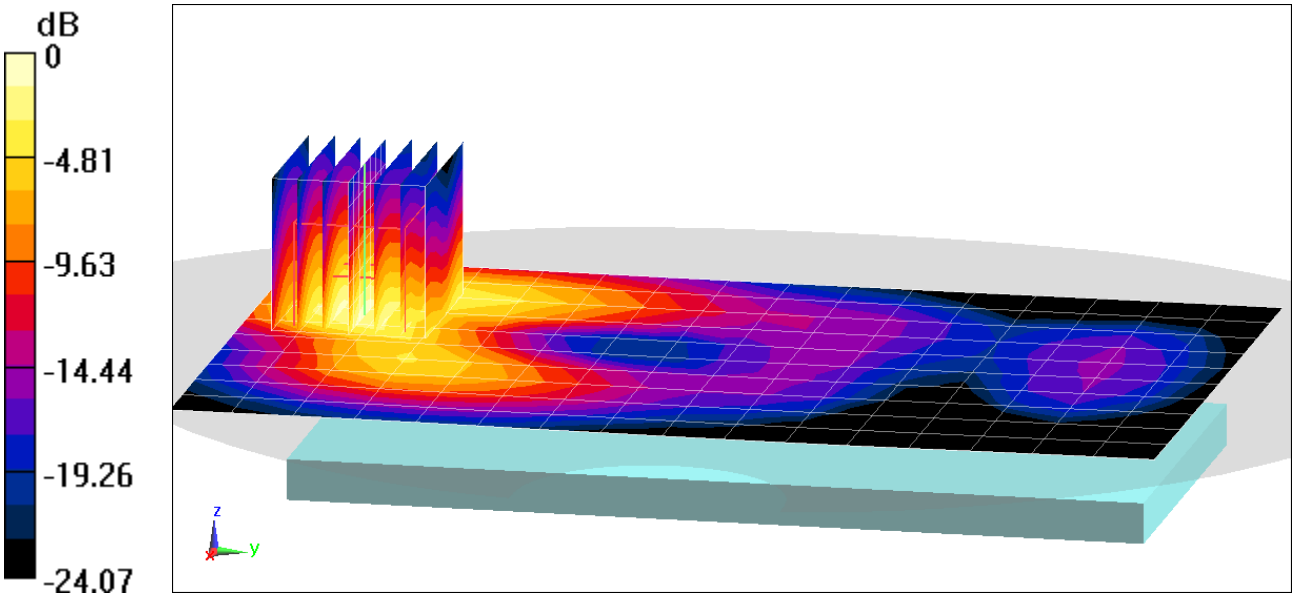
Communication System: UID 0, _LTE Band 41 (Class 2); Frequency: 2506 MHz; Duty Cycle: 1:2.31
Medium: 2450 Body Medium parameters used (interpolated):
f = 2506 MHz; σ = 2.104 S/m; ε_r = 51.477; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-08-2020; Ambient Temp: 22.8°C; Tissue Temp: 24.2°C

Probe: EX3DV4 - SN7547; ConvF(7.3, 7.3, 7.3) @ 2506 MHz; Calibrated: 7/15/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 7/11/2019
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 41 Power Class 2 ULCA, Body SAR, Back Side
PCC: 20 MHz Bandwidth, QPSK, Ch 39750, 1 RB, 99 RB Offset
SCC: 20 MHz Bandwidth, QPSK, Ch 39948, 1 RB, 0 RB Offset

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.15 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 2.16 W/kg
SAR(1 g) = 1.06 W/kg



0 dB = 1.75 W/kg = 2.43 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14602

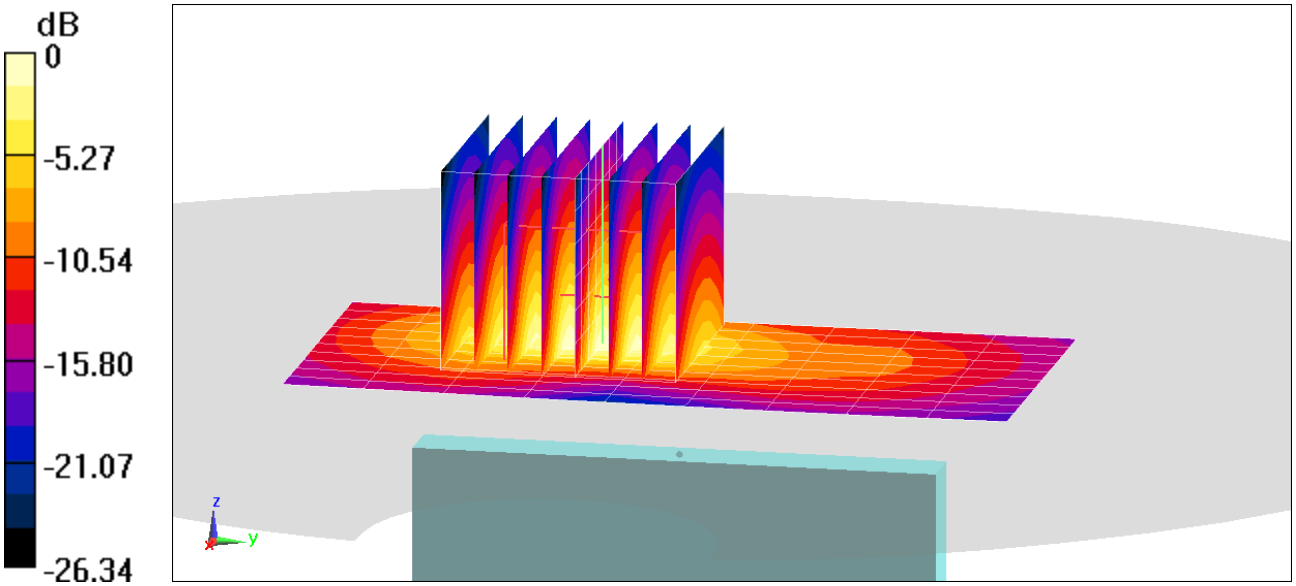
Communication System: UID 0, _LTE Band 41 (Class 2); Frequency: 2506 MHz; Duty Cycle: 1:2.31
Medium: 2450 Body Medium parameters used (interpolated):
f = 2506 MHz; σ = 2.104 S/m; ε_r = 51.477; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-08-2020; Ambient Temp: 22.8°C; Tissue Temp: 24.2°C

Probe: EX3DV4 - SN7547; ConvF(7.3, 7.3, 7.3) @ 2506 MHz; Calibrated: 7/15/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 7/11/2019
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 41 Power Class 2 ULCA, Body SAR, Bottom Edge
PCC: 20 MHz Bandwidth, QPSK, Ch 39750, 1 RB, 99 RB Offset
SCC: 20 MHz Bandwidth, QPSK, Ch 39948, 1 RB, 0 RB Offset

Area Scan (11x10x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.24 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 2.61 W/kg
SAR(1 g) = 1.25 W/kg



0 dB = 2.08 W/kg = 3.18 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14610

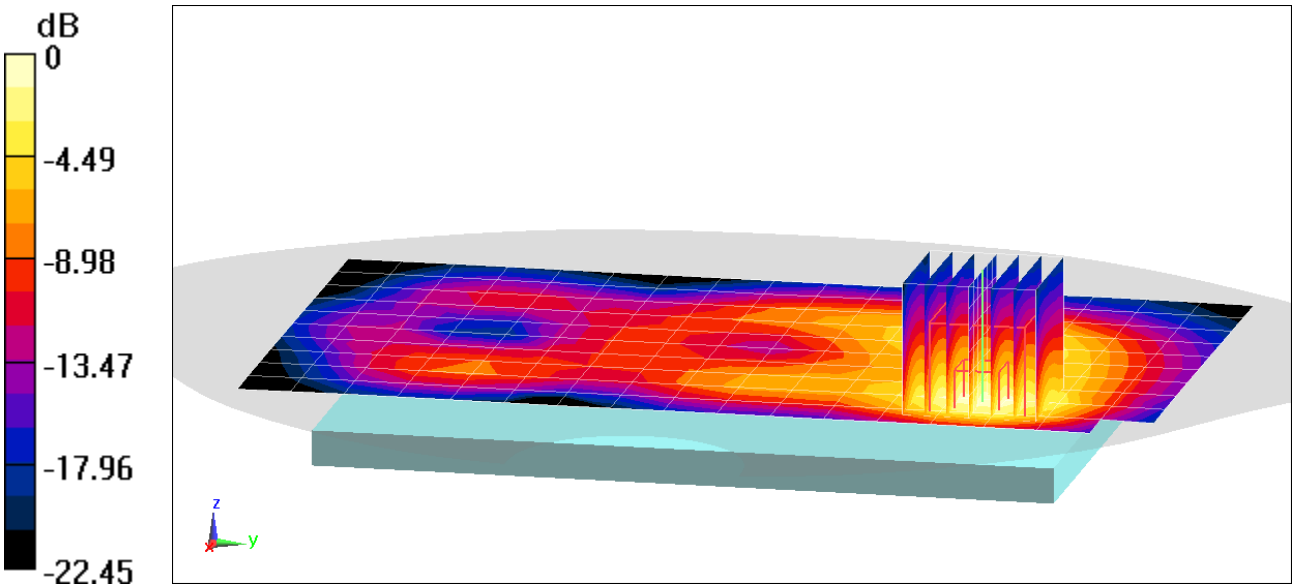
Communication System: UID 0, 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 2.026 S/m; ε_r = 52.344; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-06-2020; Ambient Temp: 22.3°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7410; ConvF(7.44, 7.44, 7.44) @ 2462 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 802.11b, 22 MHz Bandwidth, Body SAR, Ch 11, 1 Mbps, Back Side

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.12 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.852 W/kg
SAR(1 g) = 0.409 W/kg



0 dB = 0.674 W/kg = -1.71 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14610

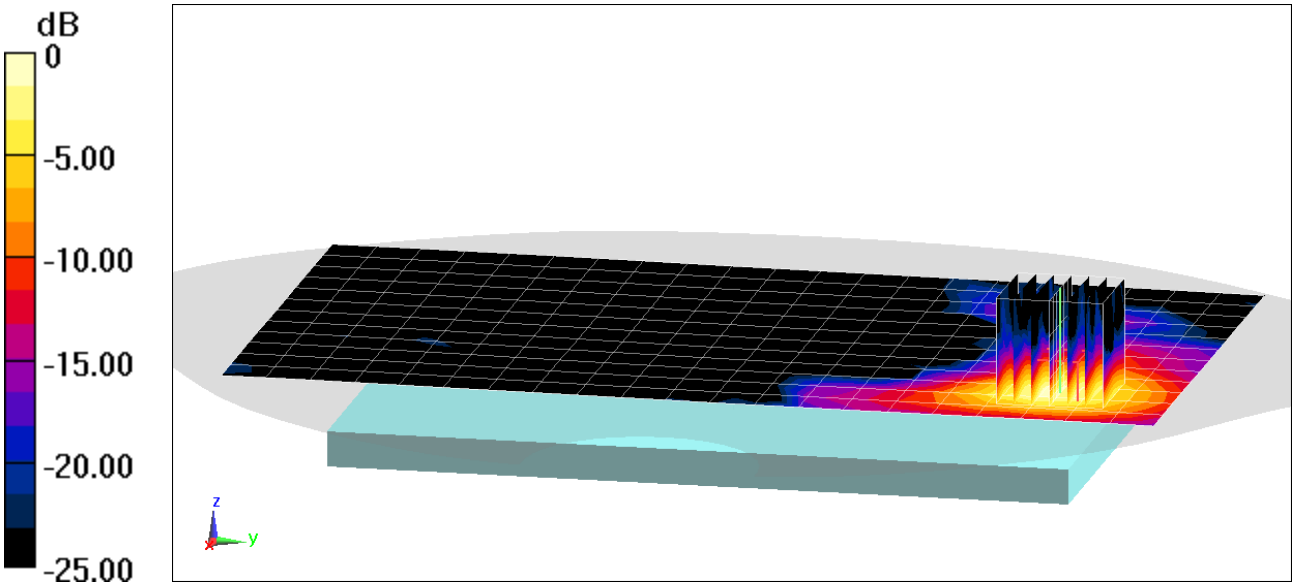
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body Medium parameters used:
f = 5600 MHz; σ = 6.015 S/m; ε_r = 46.347; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-23-2019; Ambient Temp: 23.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7409; ConvF(4.22, 4.22, 4.22) @ 5600 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: IEEE 802.11a, U-NII-2C, 20 MHz Bandwidth, Body SAR, Ch 120, 6 Mbps Back Side

Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 10.51 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 2.41 W/kg
SAR(1 g) = 0.596 W/kg



0 dB = 1.43 W/kg = 1.55 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14610

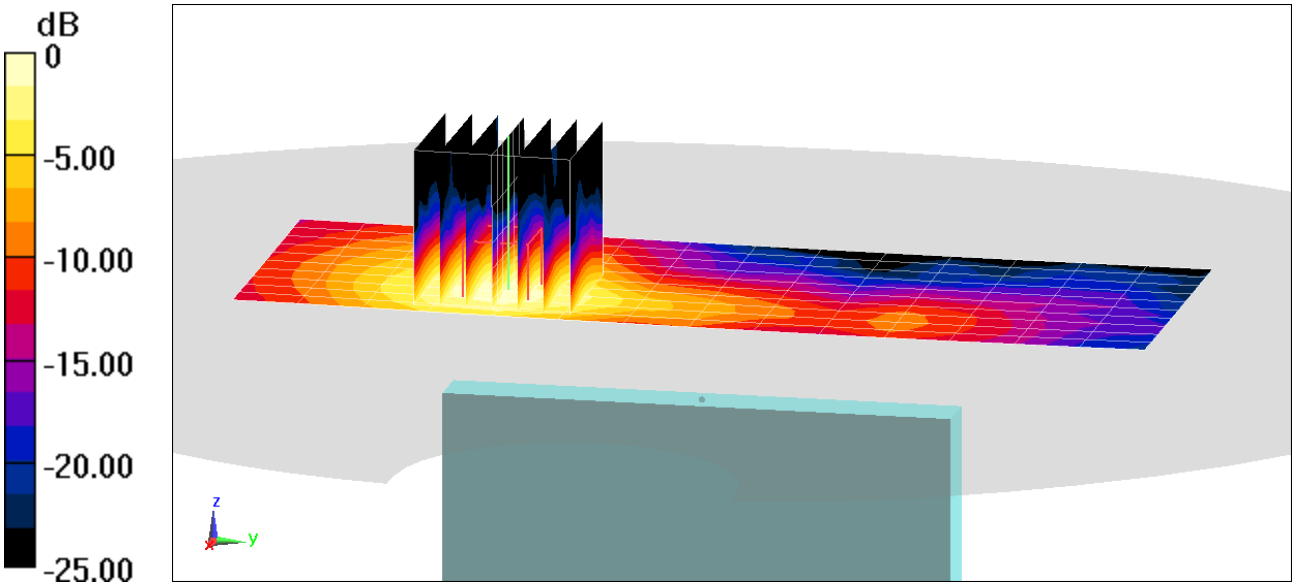
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body Medium parameters used:
f = 5745 MHz; σ = 6.216 S/m; ε_r = 46.128; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-23-2019; Ambient Temp: 23.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7409; ConvF(4.23, 4.23, 4.23) @ 5745 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: IEEE 802.11a, U-NII-3, 20 MHz Bandwidth, Body SAR, Ch 149, 6 Mbps Top Edge

Area Scan (11x15x1): Measurement grid: dx=5mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 10.38 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 2.80 W/kg
SAR(1 g) = 0.651 W/kg



0 dB = 1.55 W/kg = 1.90 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14610

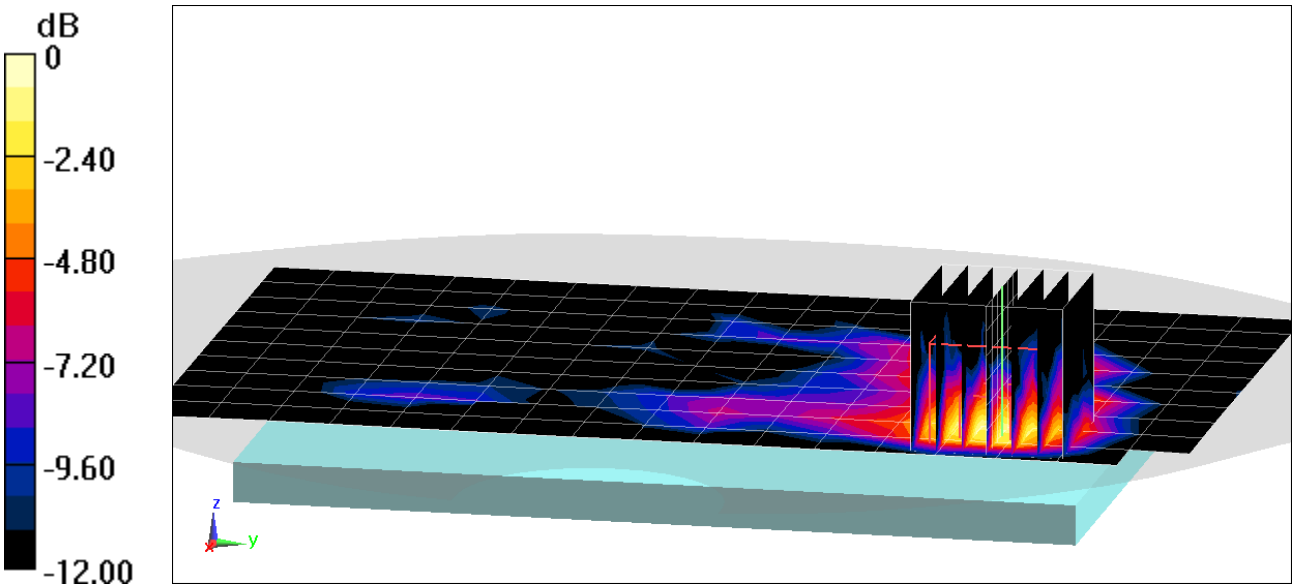
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.302
Medium: 2450 Body Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.006 S/m; ε_r = 52.379; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-06-2020; Ambient Temp: 22.3°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7410; ConvF(7.44, 7.44, 7.44) @ 2441 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: Bluetooth, Body SAR, Ch 39, 1 Mbps, Back Side

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.933 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.0420 W/kg
SAR(1 g) = 0.015 W/kg



0 dB = 0.0261 W/kg = -15.83 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14610

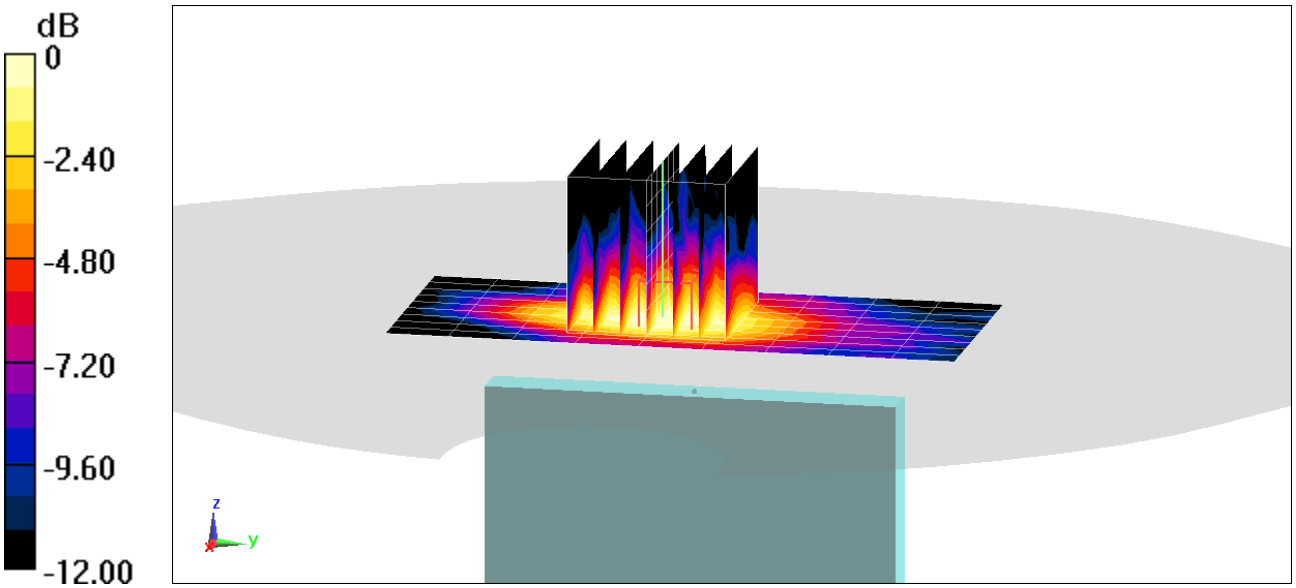
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.302
Medium: 2450 Body Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.006 S/m; ε_r = 52.379; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-06-2020; Ambient Temp: 22.3°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7410; ConvF(7.44, 7.44, 7.44) @ 2441 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: Bluetooth, Body SAR, Ch 39, 1 Mbps, Top Edge

Area Scan (10x10x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.901 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.0310 W/kg
SAR(1 g) = 0.016 W/kg



0 dB = 0.0245 W/kg = -16.11 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14578

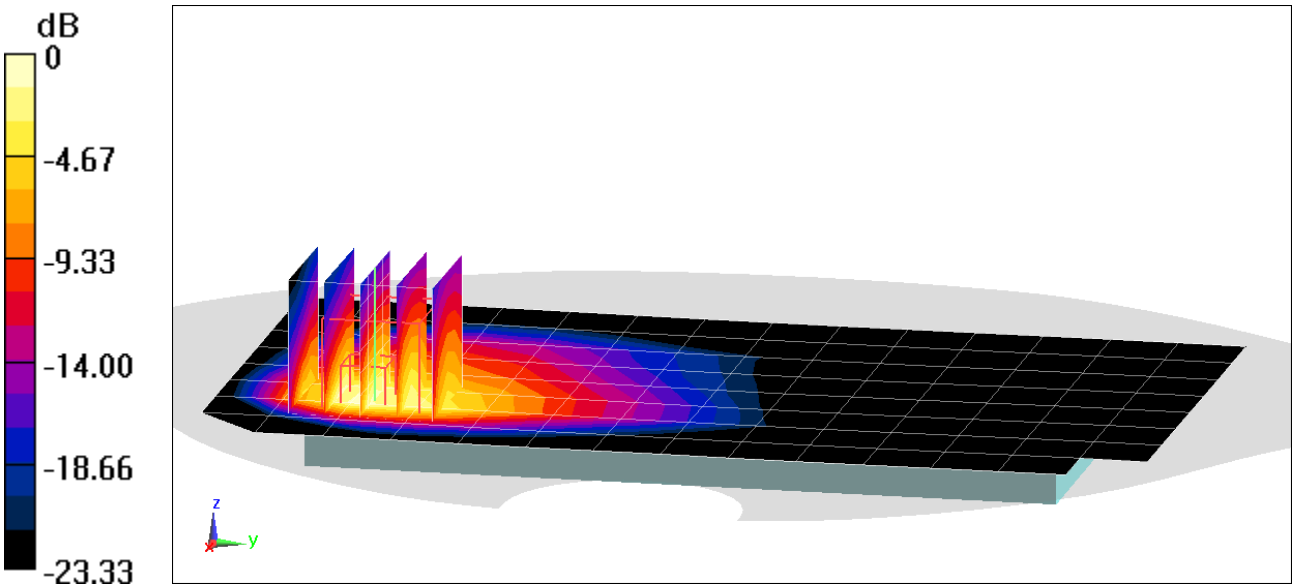
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.4 MHz; σ = 1.468 S/m; ε_r = 53.76; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-06-2020; Ambient Temp: 22.7°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7357; ConvF(8.26, 8.26, 8.26) @ 1732.4 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Right Back Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 62.49 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 12.6 W/kg
SAR(10 g) = 2.63 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

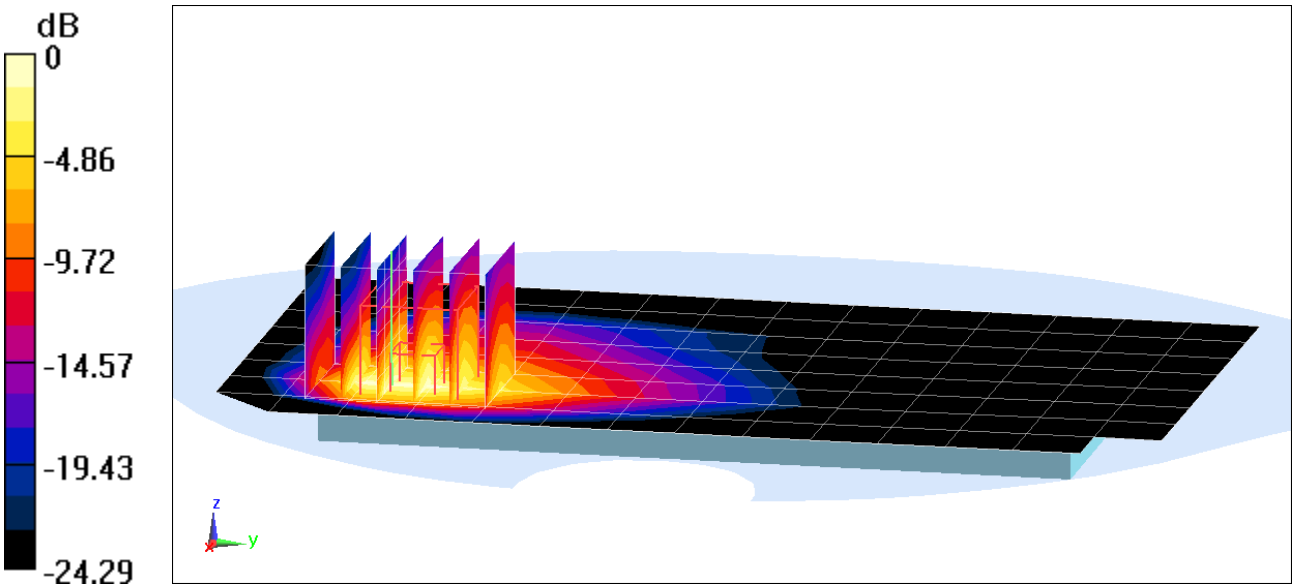
Communication System: UID 0, UMTS; Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1852.4 MHz; σ = 1.515 S/m; ε_r = 51.992; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-06-2020; Ambient Temp: 22.9°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1852.4 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 56.75 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 12.1 W/kg
SAR(10 g) = 2.57 W/kg



0 dB = 8.53 W/kg = 9.31 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14586

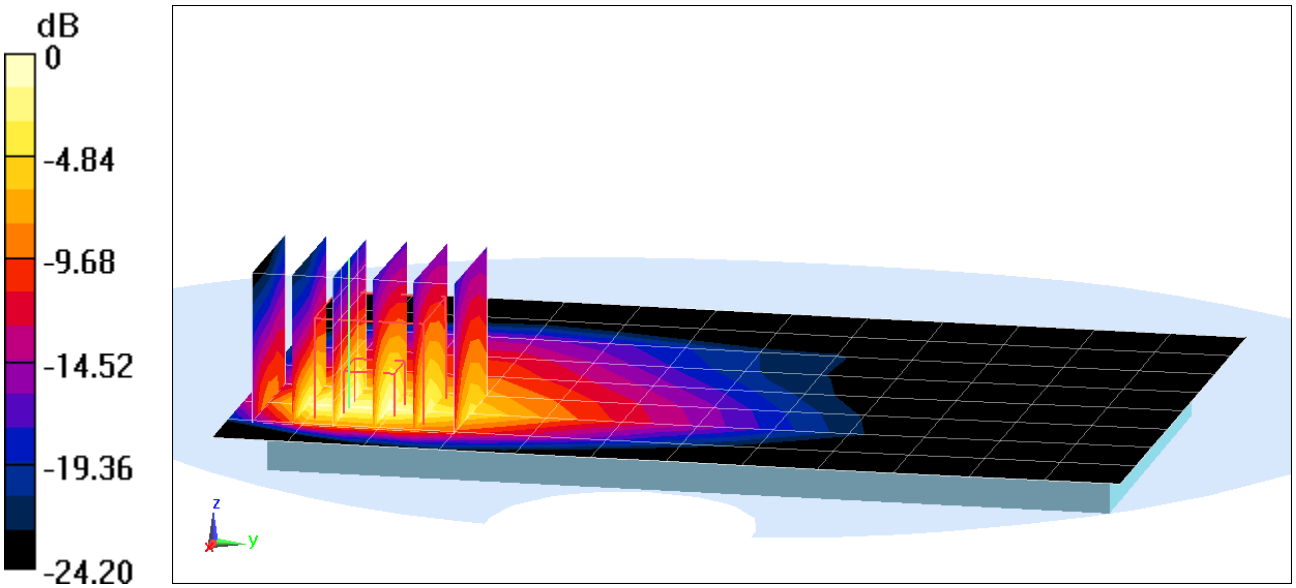
Communication System: UID 0, CDMA; Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1851.25 MHz; σ = 1.514 S/m; ε_r = 51.996; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-06-2020; Ambient Temp: 22.9°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1851.25 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: PCS EVDO Rev 0, Phablet SAR, Back side, Low.ch

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 53.41 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 10.2 W/kg
SAR(10 g) = 2.28 W/kg



0 dB = 7.55 W/kg = 8.78 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14594

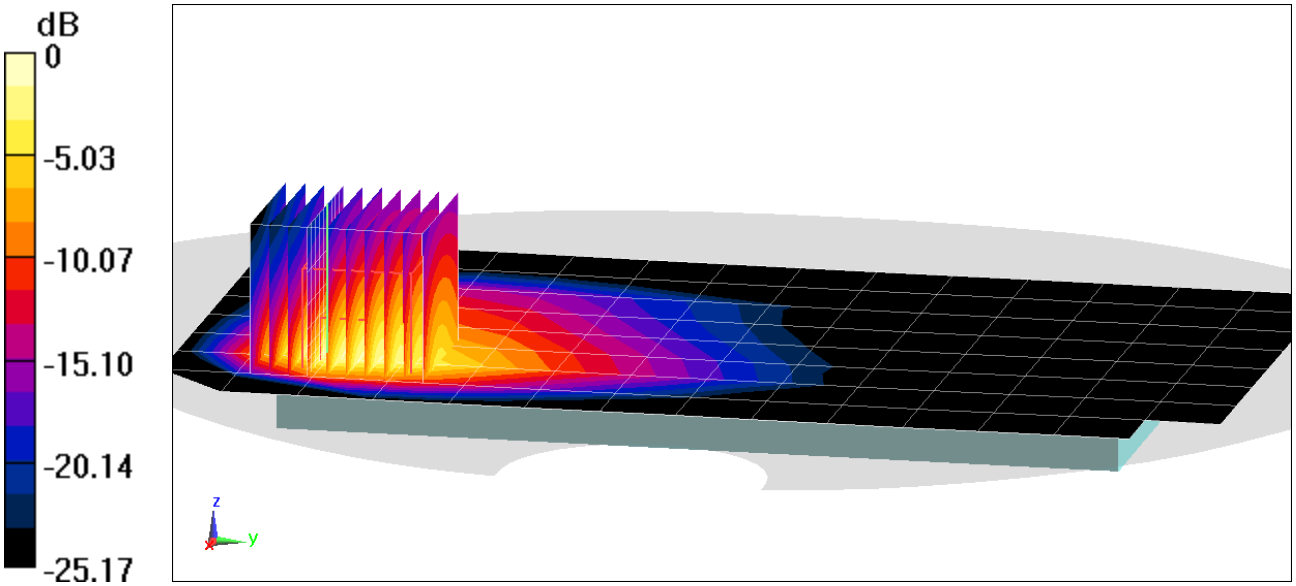
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1745 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1745 MHz; σ = 1.505 S/m; ε_r = 53.091; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-09-2020; Ambient Temp: 21.5°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7357; ConvF(8.26, 8.26, 8.26) @ 1745 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Right Back Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 66 (AWS), Phablet SAR, Back side, Mid.ch, 20 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (10x10x8)/Cube 0: Measurement grid: dx=3.8mm, dy=3.8mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 62.98 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 14.7 W/kg
SAR(10 g) = 2.72 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14602

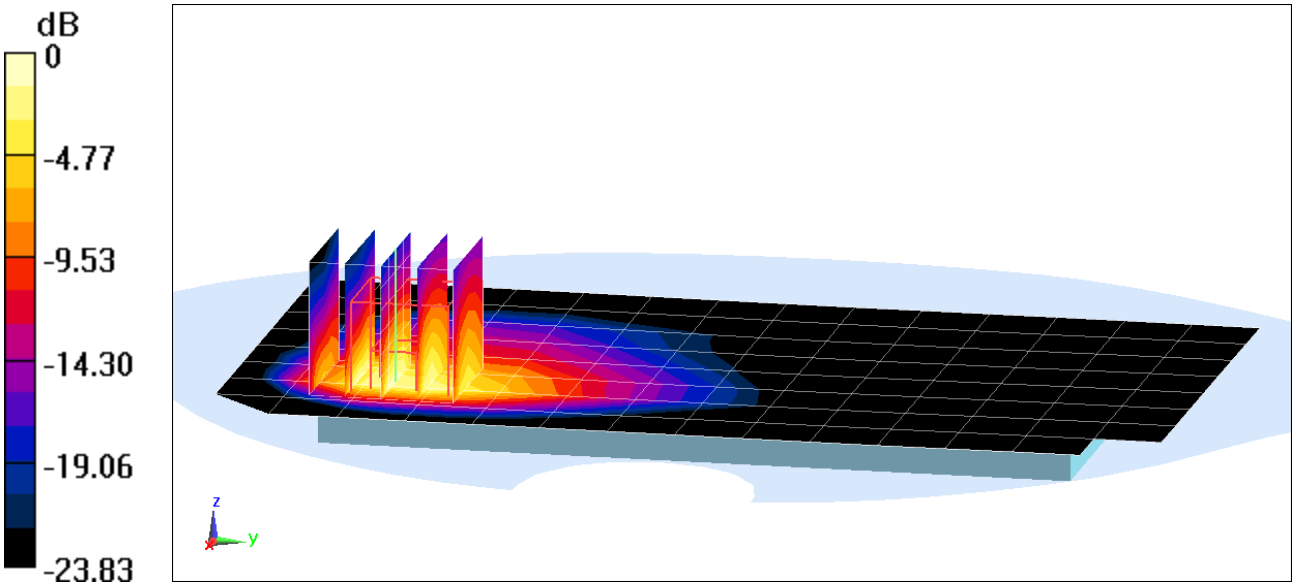
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1860 MHz; σ = 1.523 S/m; ε_r = 51.968; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-06-2020; Ambient Temp: 22.9°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1860 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: LTE Band 25 (PCS), Phablet SAR, Back side, Low.ch, 20 MHz Bandwidth, QPSK, 50 RB, 25 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 = 59.56 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 13.6 W/kg
SAR(10 g) = 2.54 W/kg



0 dB = 8.26 W/kg = 9.17 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14602

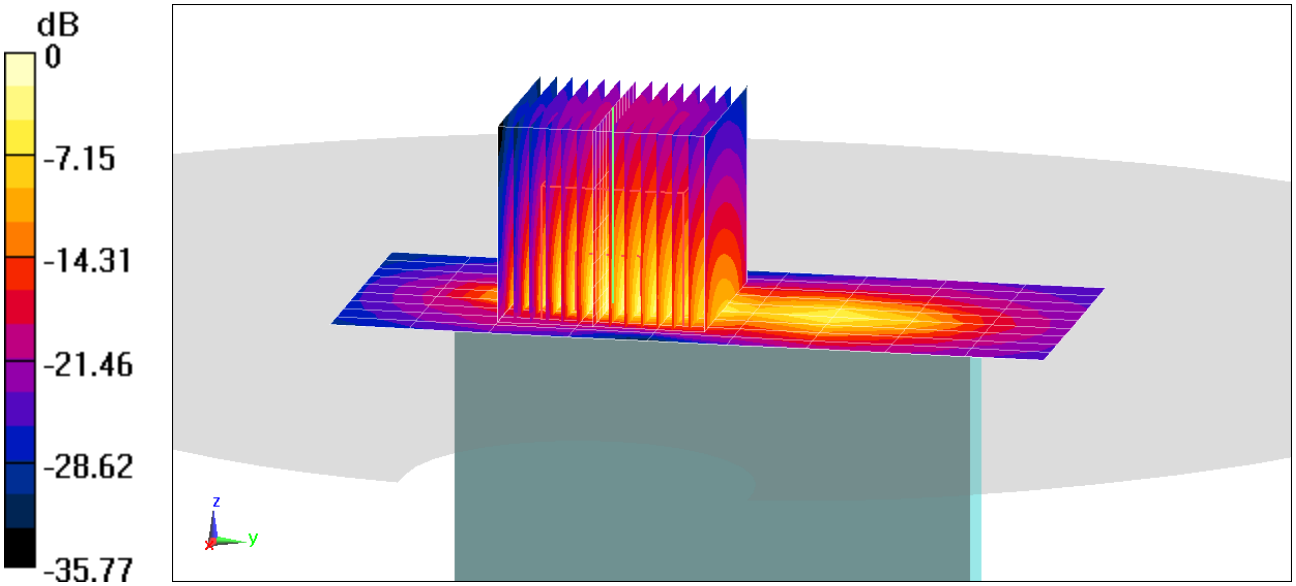
Communication System: UID 0, _LTE Band 41 (Class 2); Frequency: 2506 MHz; Duty Cycle: 1:2.31
Medium: 2450 Body Medium parameters used (interpolated):
f = 2506 MHz; σ = 2.069 S/m; ε_r = 50.392; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-13-2020; Ambient Temp: 22.7°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7410; ConvF(7.44, 7.44, 7.44) @ 2506 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 Power Class 2 ULCA, Phablet SAR, Bottom Edge, Low.ch,
PCC: 20 MHz Bandwidth, QPSK, Ch 39750, 1 RB, 99 RB Offset
SCC: 20 MHz Bandwidth, QPSK, Ch 39948, 1 RB, 0 RB Offset

Area Scan (10x10x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (14x14x8)/Cube 0: Measurement grid: dx=2.4mm, dy=2.4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 58.24 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 20.0 W/kg
SAR(10 g) = 2 W/kg



0 dB = 14.0 W/kg = 11.46 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFL555DL; Type: Portable Handset; Serial: 14610

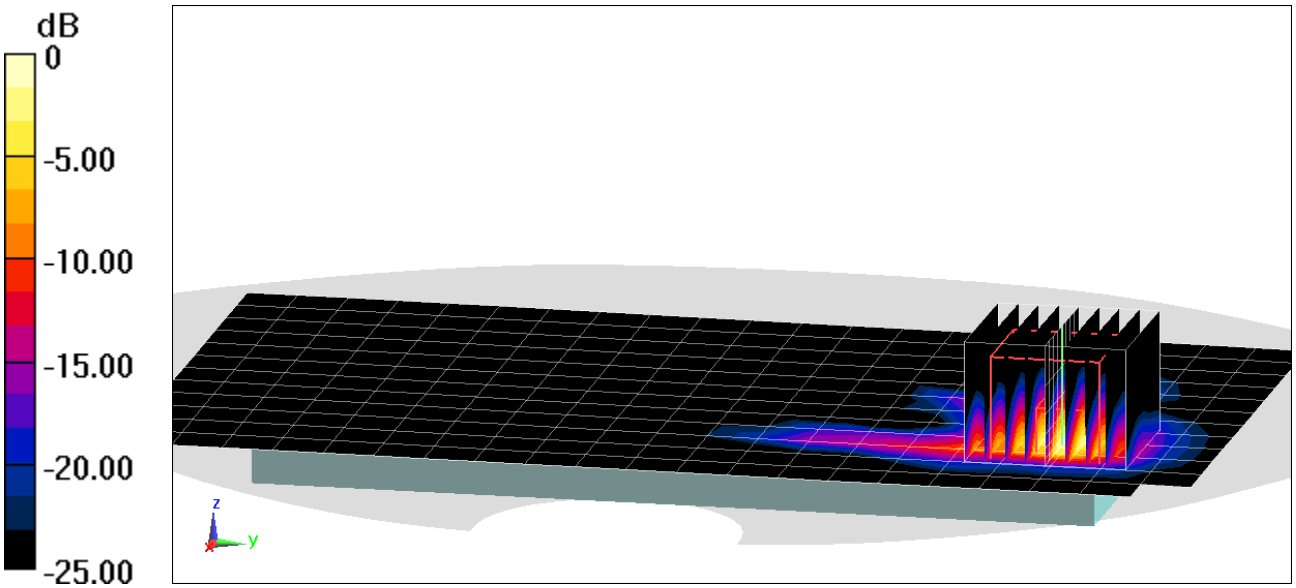
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5260 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body Medium parameters used:
f = 5260 MHz; σ = 5.556 S/m; ε_r = 46.957; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-23-2019; Ambient Temp: 23.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7409; ConvF(4.7, 4.7, 4.7) @ 5260 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: IEEE 802.11a, U-NII-2A, 20 MHz Bandwidth, Phablet SAR, Ch 52, 6 Mbps, Back Side

Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 37.31 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 27.0 W/kg
SAR(10 g) = 1.36 W/kg



0 dB = 15.1 W/kg = 11.79 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

© 2019 PCTEST Engineering Laboratory, Inc.

PCTEST ENGINEERING LABORATORY, INC.

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

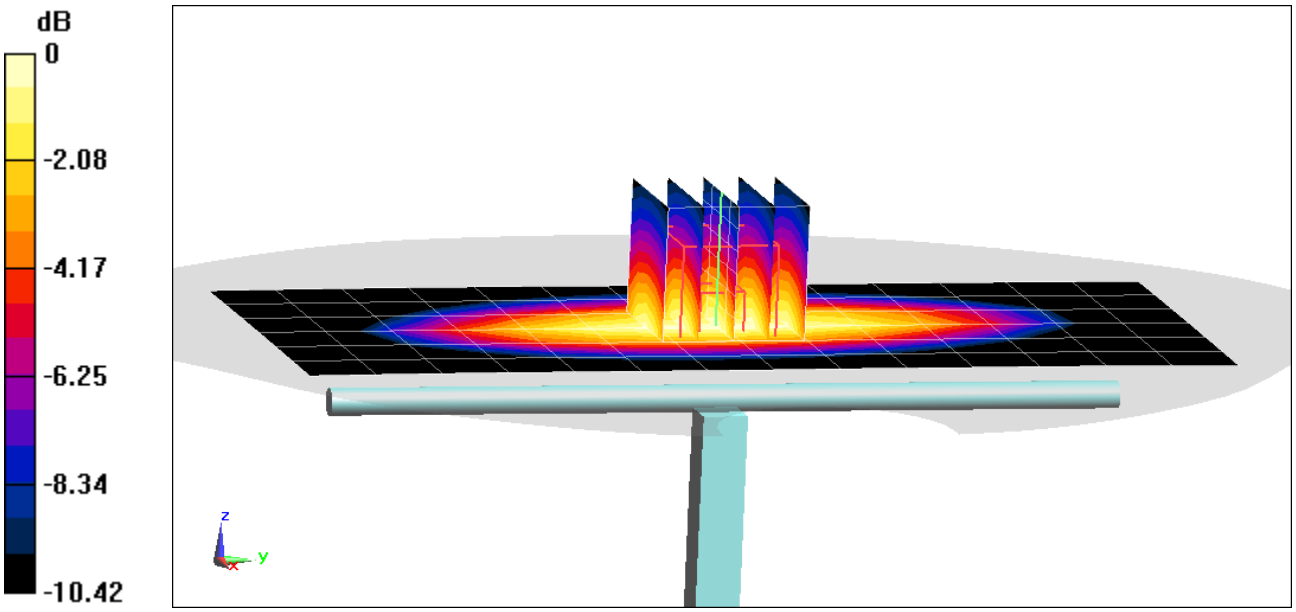
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 700 Head; Medium parameters used:
f = 750 MHz; σ = 0.897 S/m; ε_r = 41.772; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-29-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7410; ConvF(9.95, 9.95, 9.95) @ 750 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)

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) = 2.46 W/kg
SAR(1 g) = 1.71 W/kg
Deviation(1 g) = 6.48%



0 dB = 2.23 W/kg = 3.48 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

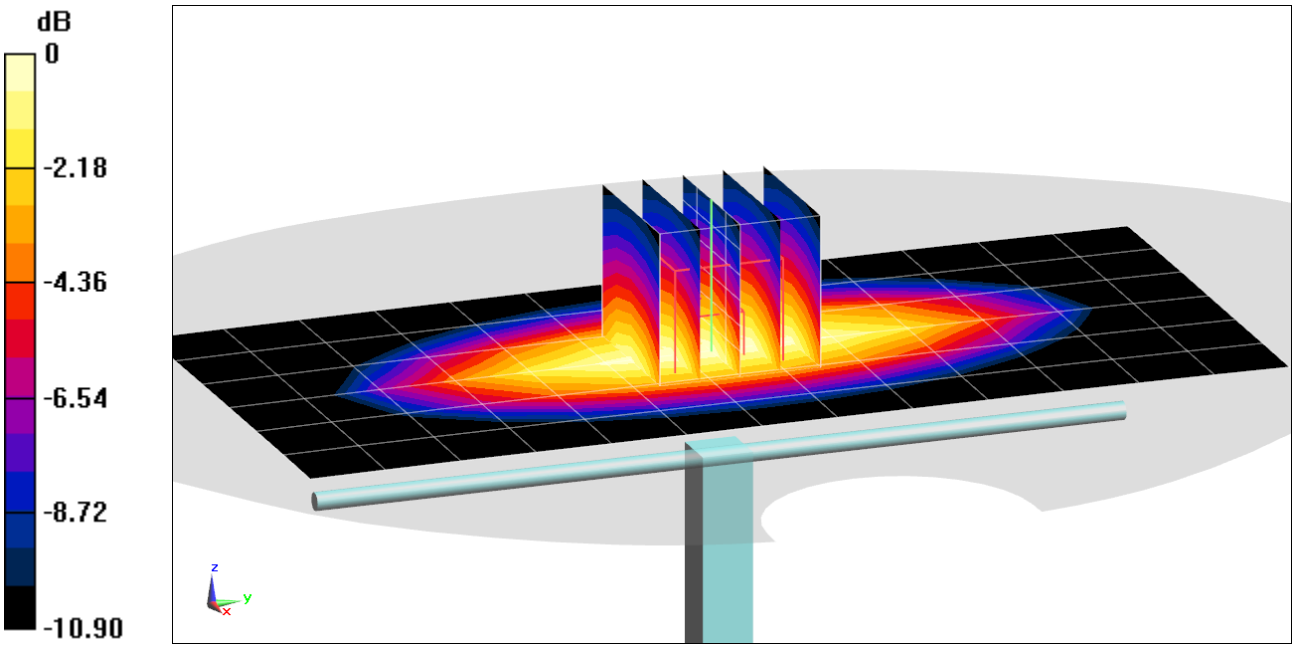
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.909 S/m; ε_r = 40.306; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-08-2020; Ambient Temp: 20.9°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7308; ConvF(9.87, 9.87, 9.87) @ 835 MHz; Calibrated: 8/16/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/14/2019
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
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) = 3.03 W/kg
SAR(1 g) = 1.99 W/kg
Deviation(1 g) = 5.63%



0 dB = 2.68 W/kg = 4.28 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

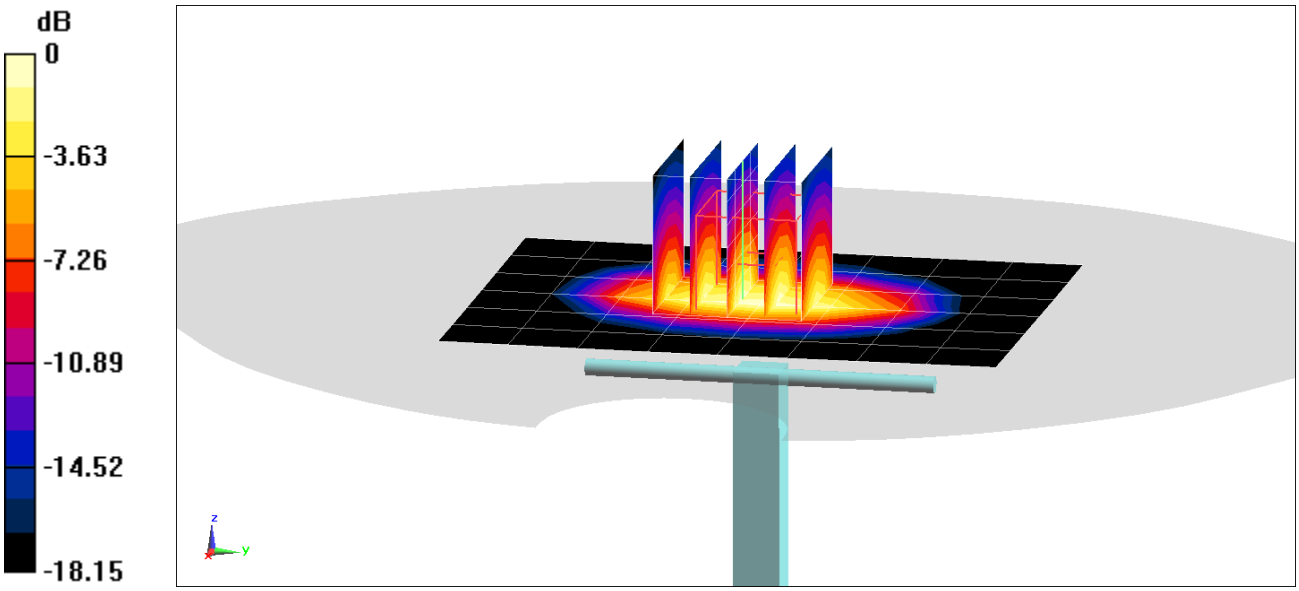
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head; Medium parameters used:
f = 1750 MHz; σ = 1.345 S/m; ε_r = 39.526; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-01-2020; Ambient Temp: 22.1°C; Tissue Temp: 21.2°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 Sn728; 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)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 6.47 W/kg
SAR(1 g) = 3.44 W/kg
Deviation(1 g) = -7.03%



0 dB = 5.33 W/kg = 7.27 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

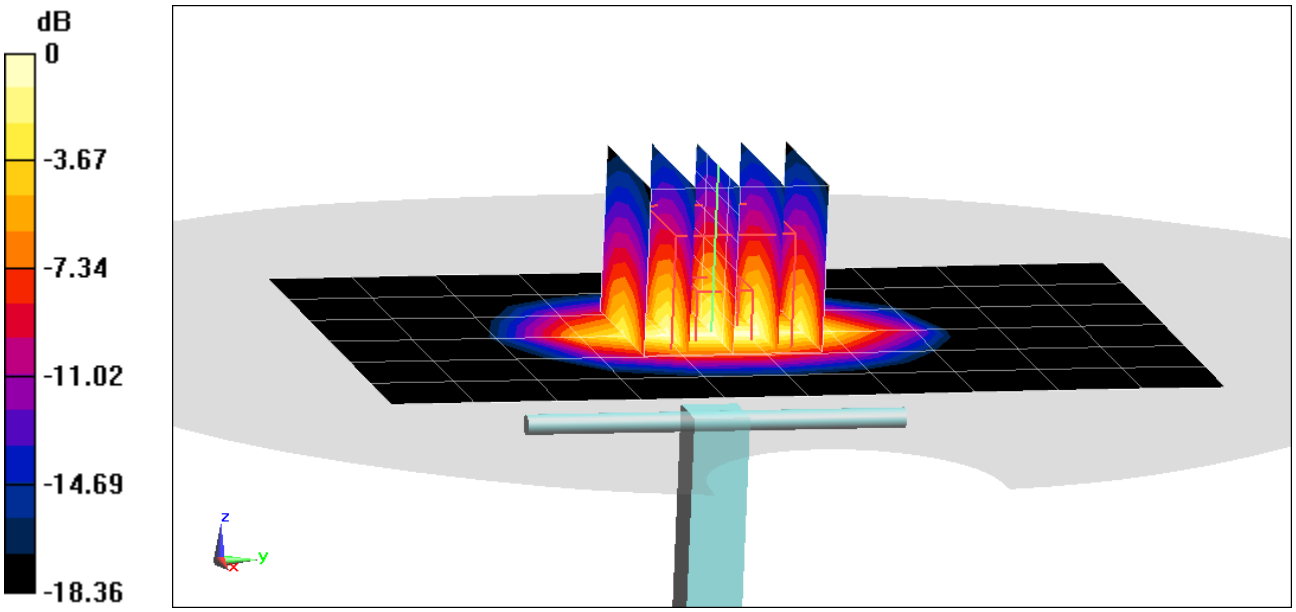
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used:
f = 1900 MHz; σ = 1.433 S/m; ε_r = 39.339; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-04-2020; Ambient Temp: 23.2°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7410; ConvF(8.11, 8.11, 8.11) @ 1900 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)

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) = 7.85 W/kg
SAR(1 g) = 4.15 W/kg
Deviation(1 g) = 6.14%



0 dB = 6.55 W/kg = 8.16 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

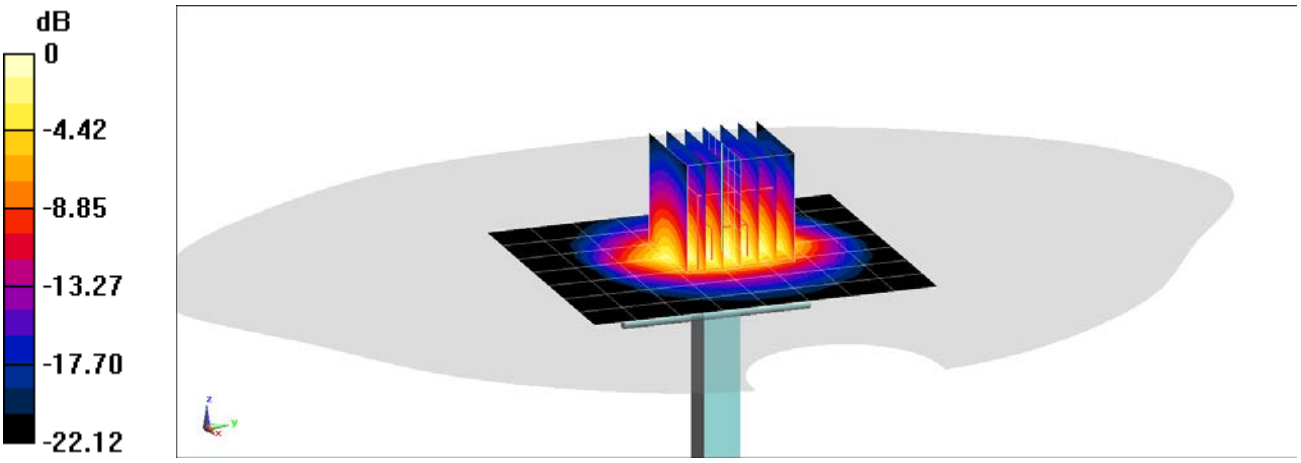
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.851 S/m; ε_r = 37.535; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-29-2019; Ambient Temp: 22.1°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN7417; ConvF(7.46, 7.46, 7.46) @ 2450 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
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) = 11.6 W/kg
SAR(1 g) = 5.53 W/kg
Deviation(1 g) = 4.14%



0 dB = 9.27 W/kg = 9.67 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

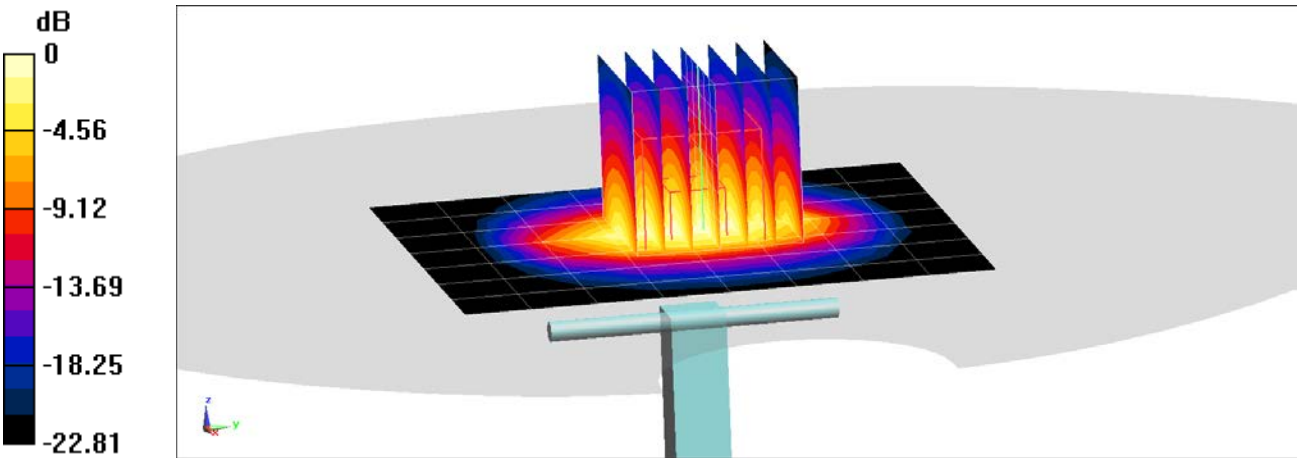
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.855 S/m; ε_r = 38.213; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-08-2020; Ambient Temp: 22.9°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7417; ConvF(7.46, 7.46, 7.46) @ 2450 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
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) = 11.5 W/kg
SAR(1 g) = 5.55 W/kg
Deviation(1 g) = 4.52%



0 dB = 9.19 W/kg = 9.63 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

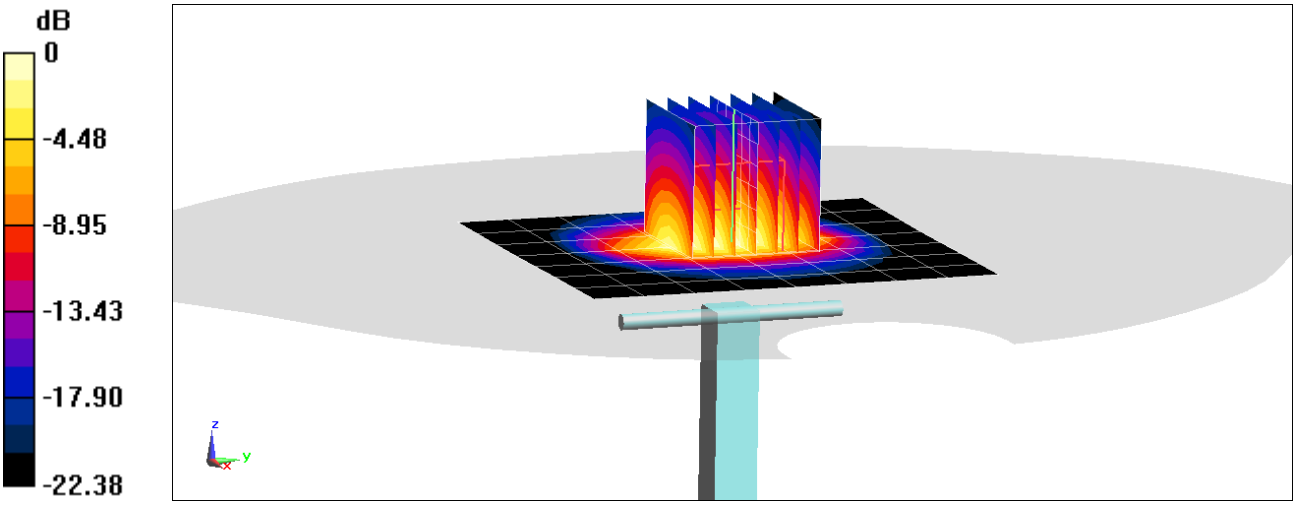
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.773 S/m; ε_r = 39.585; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-10-2020; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7409; ConvF(7.3, 7.3, 7.3) @ 2450 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)

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) = 11.3 W/kg
SAR(1 g) = 5.49 W/kg
Deviation(1 g) = 3.39%



0 dB = 9.05 W/kg = 9.57 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

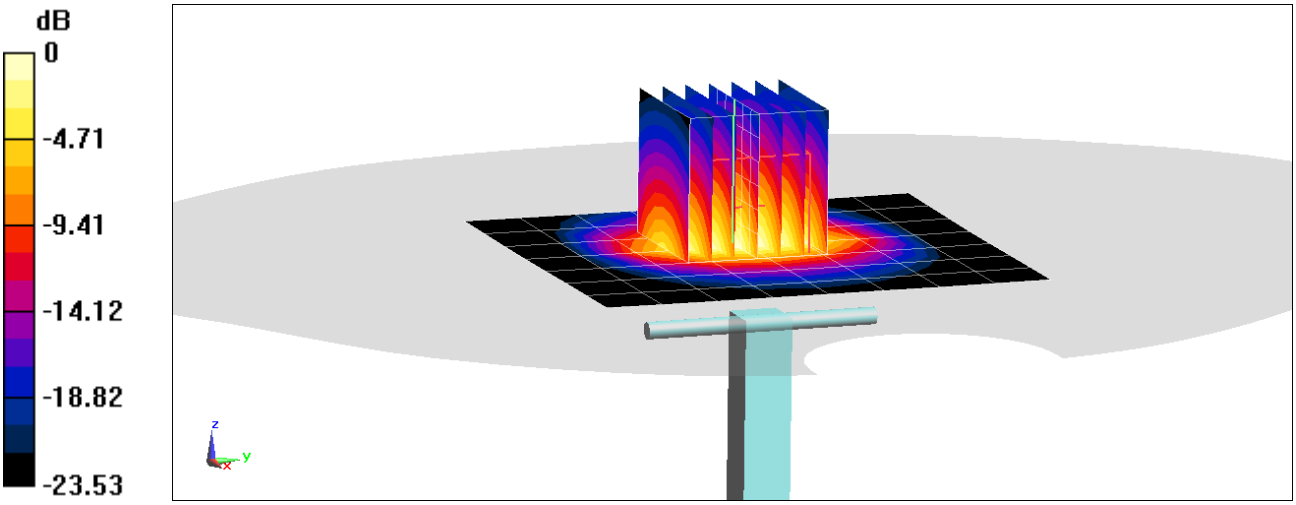
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2600 MHz; σ = 1.889 S/m; ε_r = 39.371; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-10-2020; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7409; ConvF(7.12, 7.12, 7.12) @ 2600 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)

2600 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 12.5 W/kg
SAR(1 g) = 5.78 W/kg
Deviation(1 g) = 3.40%



0 dB = 9.78 W/kg = 9.90 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

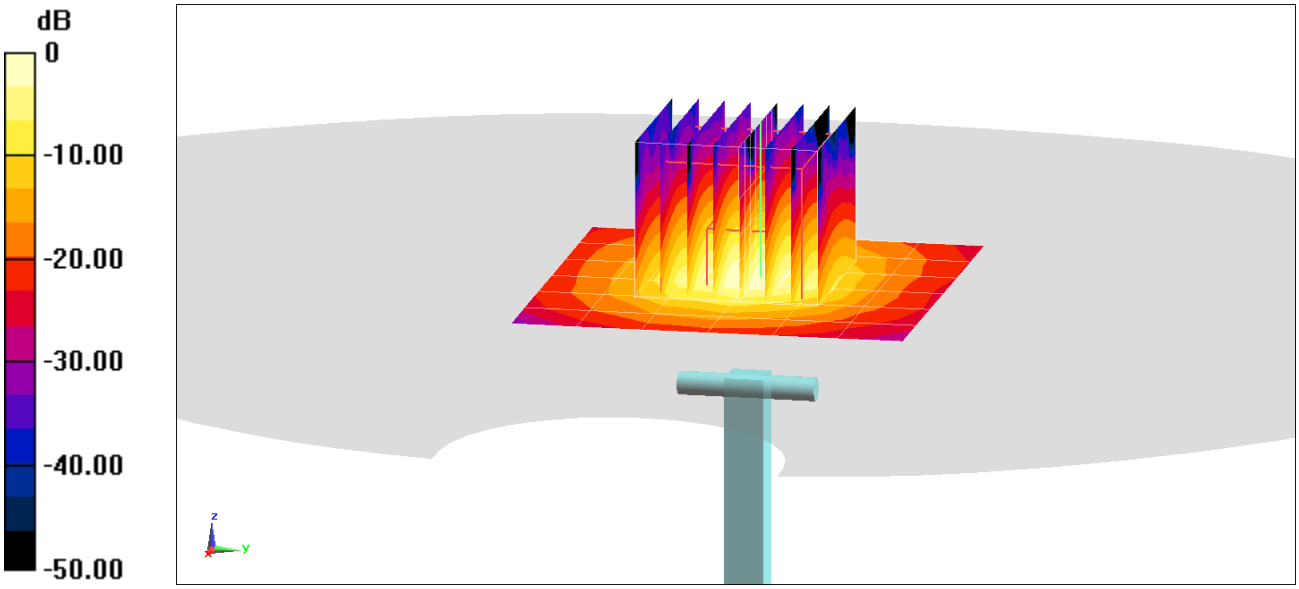
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Head; Medium parameters used:
f = 5250 MHz; σ = 4.555 S/m; ε_r = 34.508; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-09-2019; Ambient Temp: 22.0°C; Tissue Temp: 23.0°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 Sn728; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 20; Type: QD 000 P40 CD; Serial: 1715
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) = 15.5 W/kg
SAR(1 g) = 3.78 W/kg
Deviation(1 g) = -6.44%



0 dB = 9.04 W/kg = 9.56 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

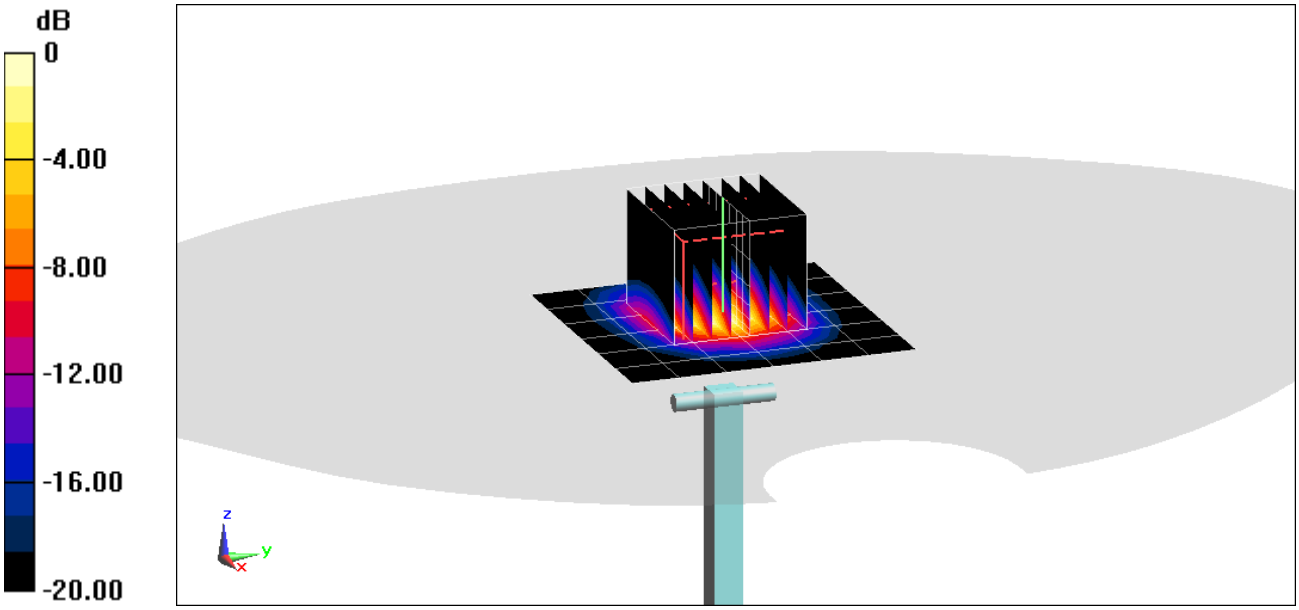
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Head; Medium parameters used:
f = 5250 MHz; σ = 4.685 S/m; ε_r = 35.654; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01/13/2020; Ambient Temp: 23.0°C; Tissue Temp: 21.5°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 Sn728; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 20; Type: QD 000 P40 CD; Serial: 1715
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) = 15.2 W/kg
SAR(1 g) = 3.74 W/kg
Deviation(1 g) = -7.43%



0 dB = 8.74 W/kg = 9.42 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

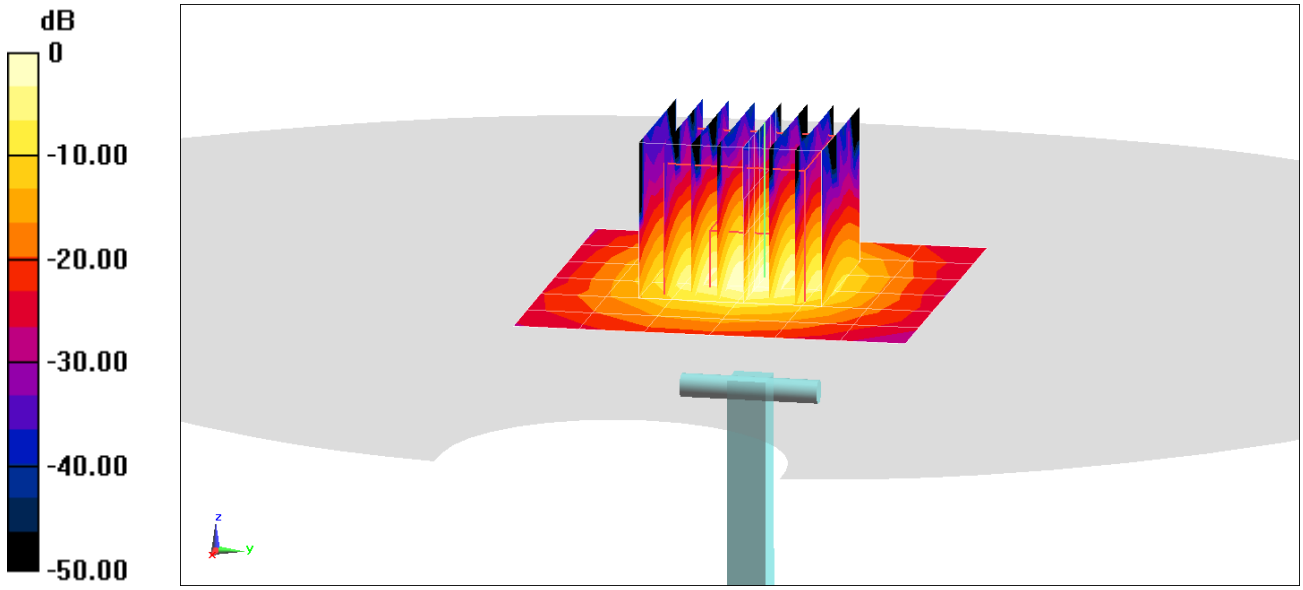
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Head; Medium parameters used:
f = 5600 MHz; σ = 4.913 S/m; ε_r = 34.013; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-09-2019; Ambient Temp: 22.0°C; Tissue Temp: 23.0°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 Sn728; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 20; Type: QD 000 P40 CD; Serial: 1715
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) = 16.9 W/kg
SAR(1 g) = 3.91 W/kg
Deviation(1 g) = -5.44%



0 dB = 9.30 W/kg = 9.68 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

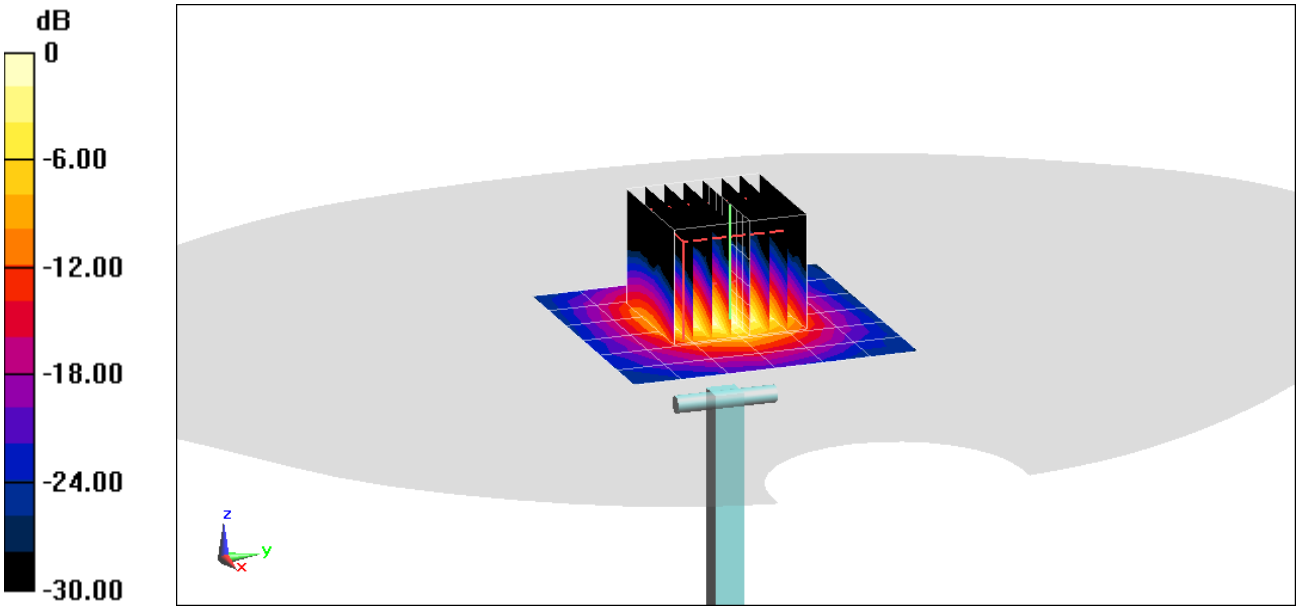
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Head; Medium parameters used:
f = 5600 MHz; σ = 5.094 S/m; ε_r = 35.009; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01/13/2020; Ambient Temp: 23.0°C; Tissue Temp: 21.5°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 Sn728; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 20; Type: QD 000 P40 CD; Serial: 1715
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) = 16.7 W/kg
SAR(1 g) = 3.78 W/kg
Deviation(1 g) = -8.59%



0 dB = 9.02 W/kg = 9.55 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

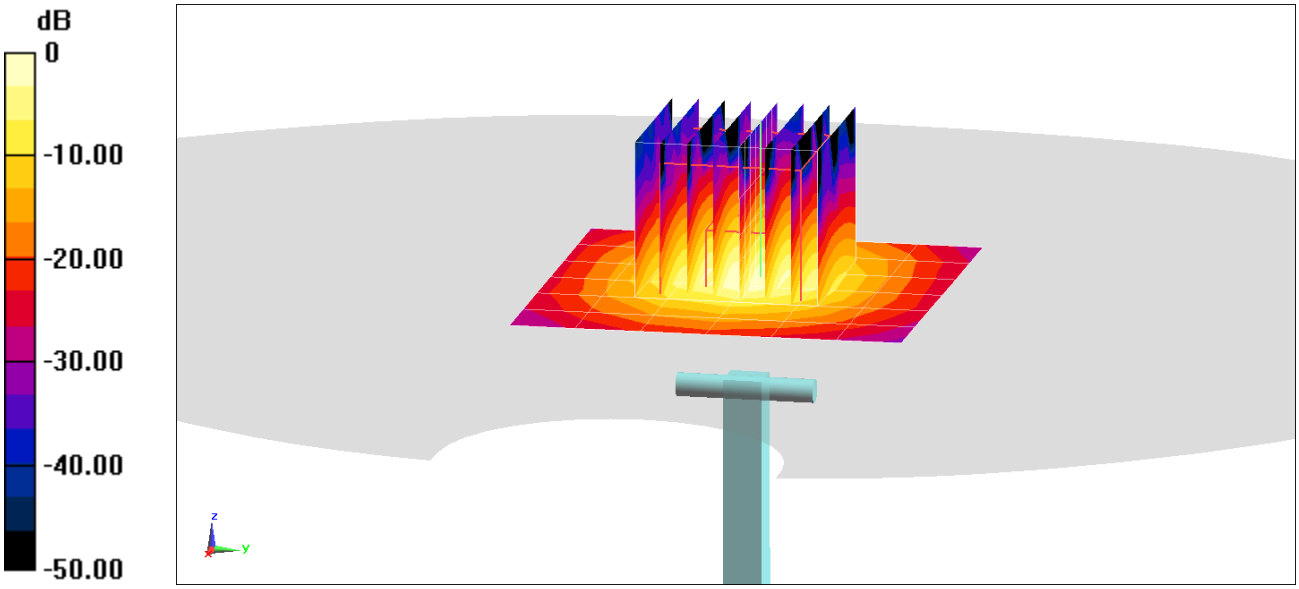
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Head; Medium parameters used:
f = 5750 MHz; σ = 5.075 S/m; ε_r = 33.826; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-09-2019; Ambient Temp: 22.0°C; Tissue Temp: 23.0°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 Sn728; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 20; Type: QD 000 P40 CD; Serial: 1715
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) = 16.2 W/kg
SAR(1 g) = 3.61 W/kg
Deviation(1 g) = -9.98%



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

PCTEST ENGINEERING LABORATORY, INC.

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

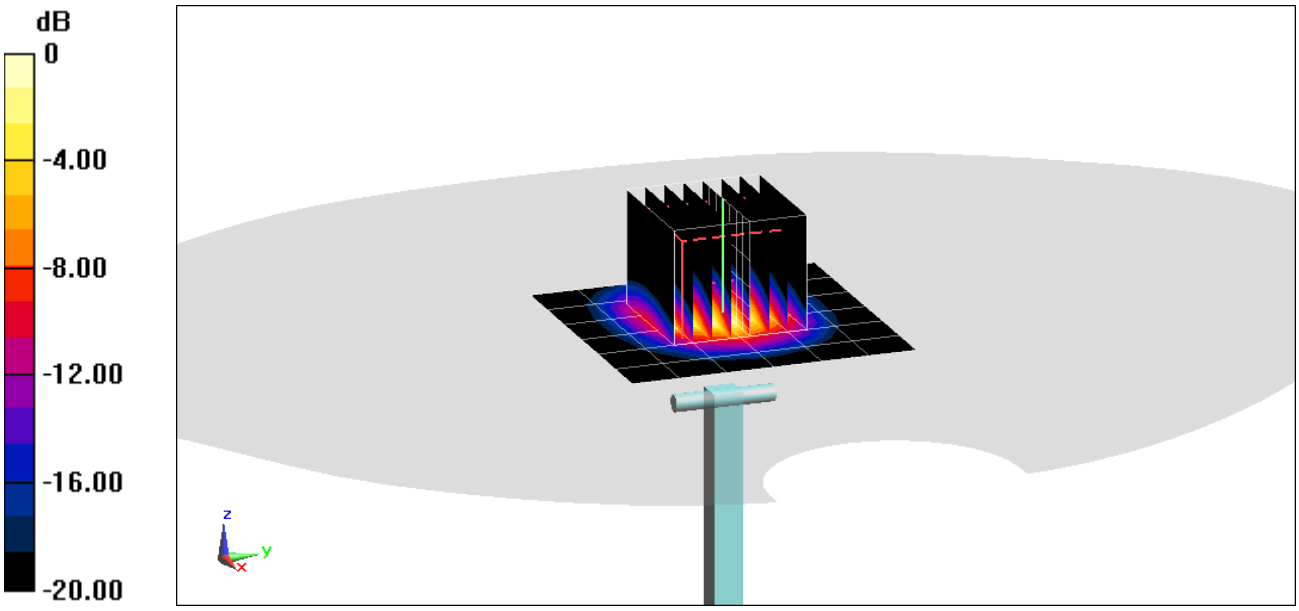
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Head; Medium parameters used:
f = 5750 MHz; σ = 5.278 S/m; ε_r = 34.766; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01/13/2020; Ambient Temp: 23.0°C; Tissue Temp: 21.5°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 Sn728; Calibrated: 5/8/2019
Phantom: Twin-SAM V5.0 Left 20; Type: QD 000 P40 CD; Serial: 1715
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) = 17.0 W/kg
SAR(1 g) = 3.71 W/kg
Deviation(1 g) = -7.48%



0 dB = 9.08 W/kg = 9.58 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

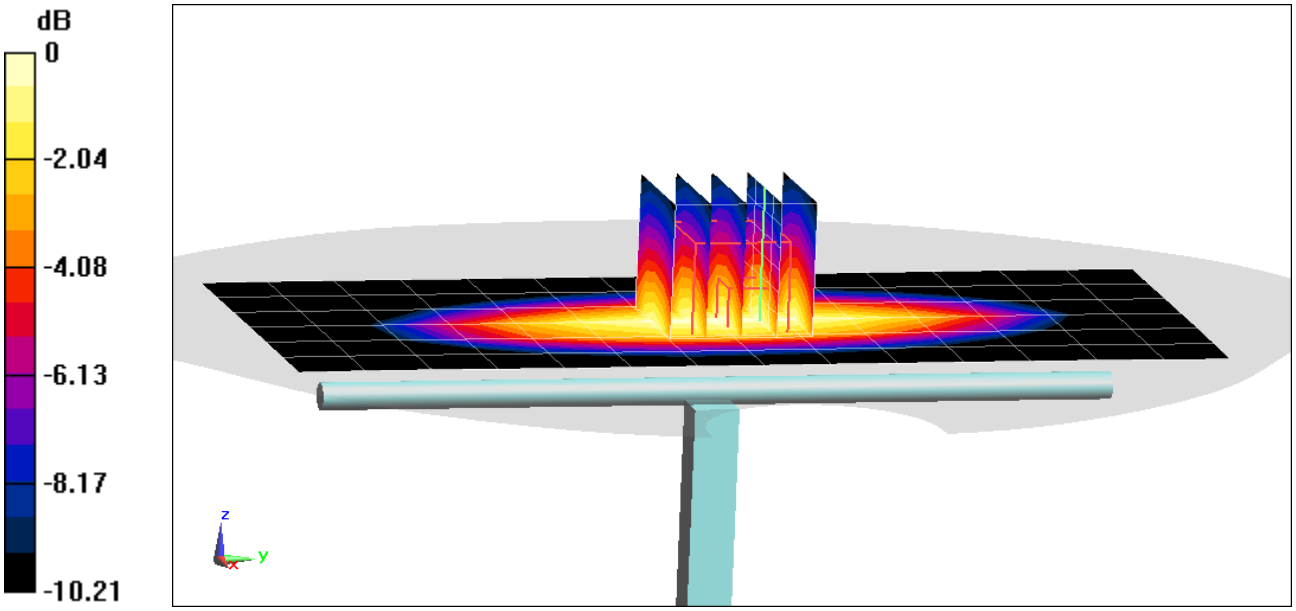
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 700 Body; Medium parameters used:
f = 750 MHz; σ = 0.939 S/m; ε_r = 53.514; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-26-2019; Ambient Temp: 20.3°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7410; ConvF(10.01, 10.01, 10.01) @ 750 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)

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) = 1.68 W/kg
Deviation(1 g) = -0.36%



0 dB = 2.25 W/kg = 3.52 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

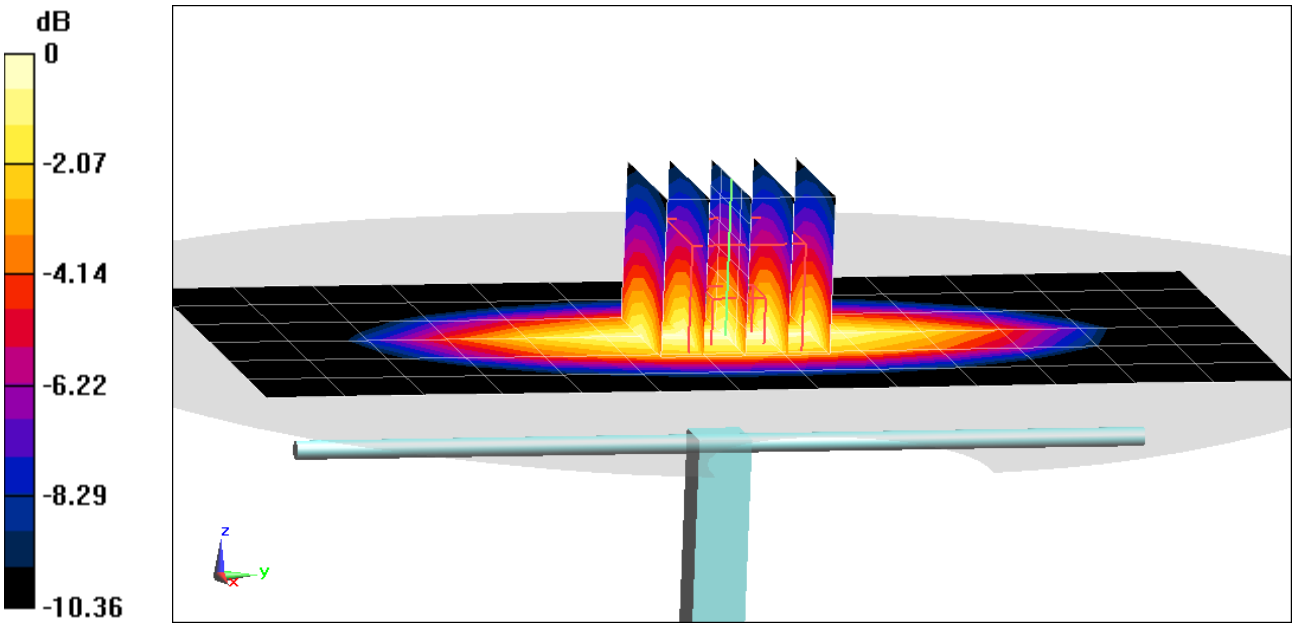
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.961 S/m; ε_r = 53.635; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-16-2019; Ambient Temp: 20.7°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7410; ConvF(9.79, 9.79, 9.79) @ 835 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)

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) = 3.02 W/kg
SAR(1 g) = 2 W/kg
Deviation(1 g) = 5.60%



0 dB = 2.68 W/kg = 4.28 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

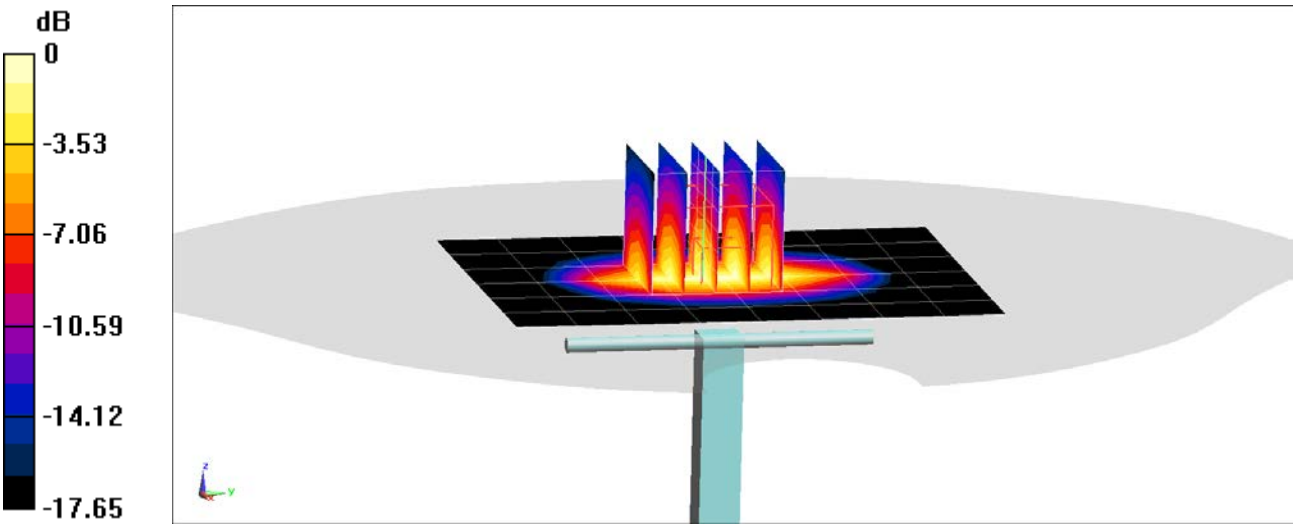
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used:
f = 1750 MHz; σ = 1.521 S/m; ε_r = 52.663; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-30-2019; Ambient Temp: 20.4°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7357; ConvF(8.26, 8.26, 8.26) @ 1750 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Right Back Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1692
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) = 6.35 W/kg
SAR(1 g) = 3.48 W/kg
Deviation(1 g) = -7.69%



0 dB = 5.27 W/kg = 7.22 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1150

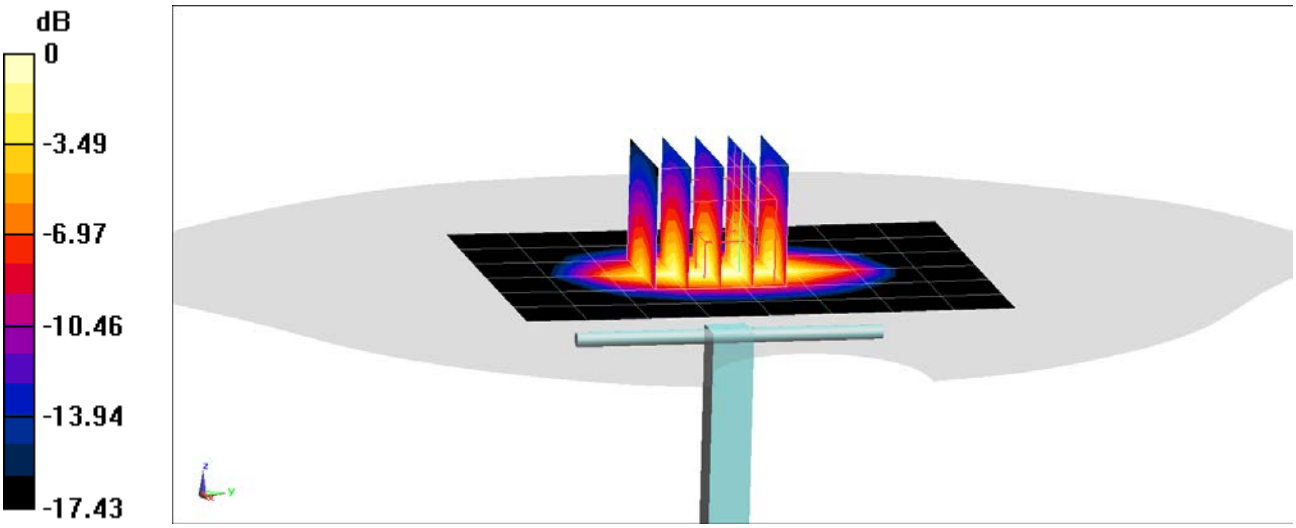
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used:
f = 1750 MHz; σ = 1.487 S/m; ε_r = 53.692; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-06-2020; Ambient Temp: 22.7°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7357; ConvF(8.26, 8.26, 8.26) @ 1750 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Right Back Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1692
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) = 6.74 W/kg
SAR(10 g) = 1.97 W/kg
Deviation(10 g) = 1.55%



0 dB = 5.58 W/kg = 7.47 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

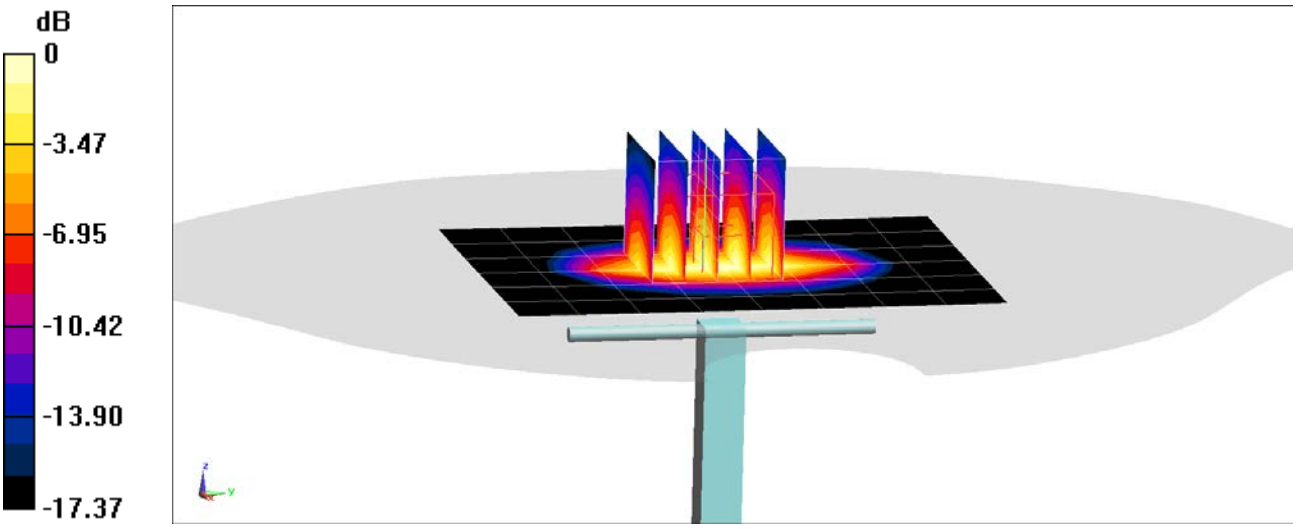
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used:
f = 1750 MHz; σ = 1.51 S/m; ε_r = 53.069; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-09-2020; Ambient Temp: 21.5°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7357; ConvF(8.26, 8.26, 8.26) @ 1750 MHz; Calibrated: 4/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/18/2019
Phantom: Right Back Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1692
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) = 7.27 W/kg
SAR(1 g) = 3.92 W/kg; SAR(10 g) = 2.07 W/kg
Deviation(1 g) = 3.98%; Deviation(10 g) = 4.55%



0 dB = 5.99 W/kg = 7.77 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

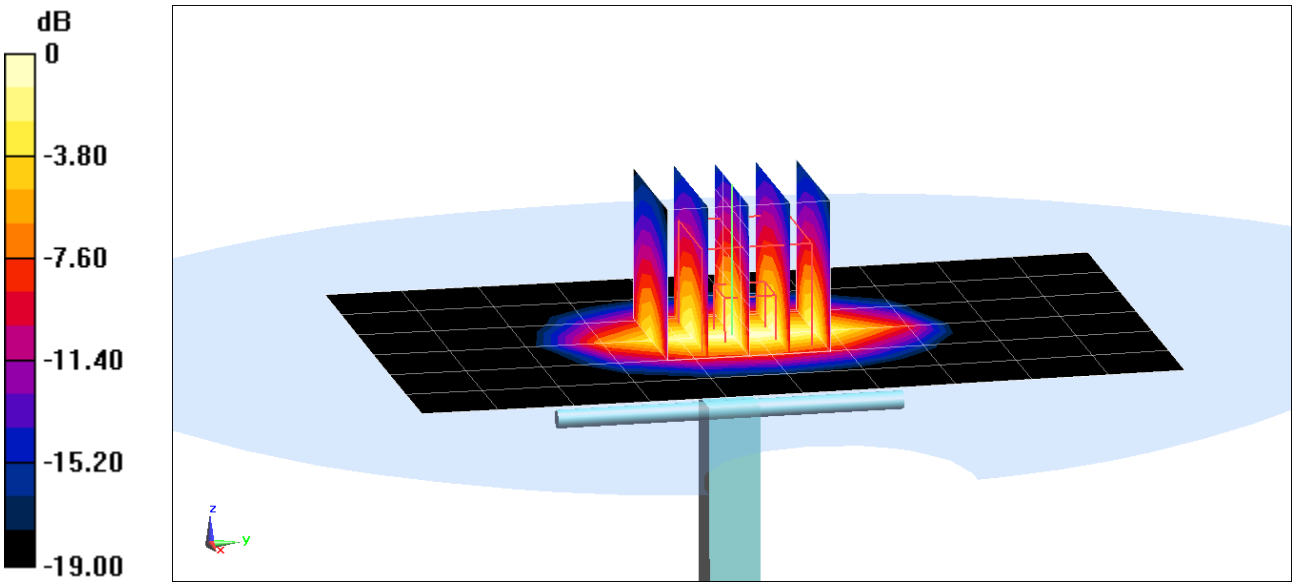
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1900 MHz; σ = 1.583 S/m; ε_r = 52.463; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-03-2020; Ambient Temp: 21.9°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1900 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (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) = 7.88 W/kg
SAR(1 g) = 4.26 W/kg
Deviation(1 g) = 8.67%



0 dB = 6.57 W/kg = 8.18 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

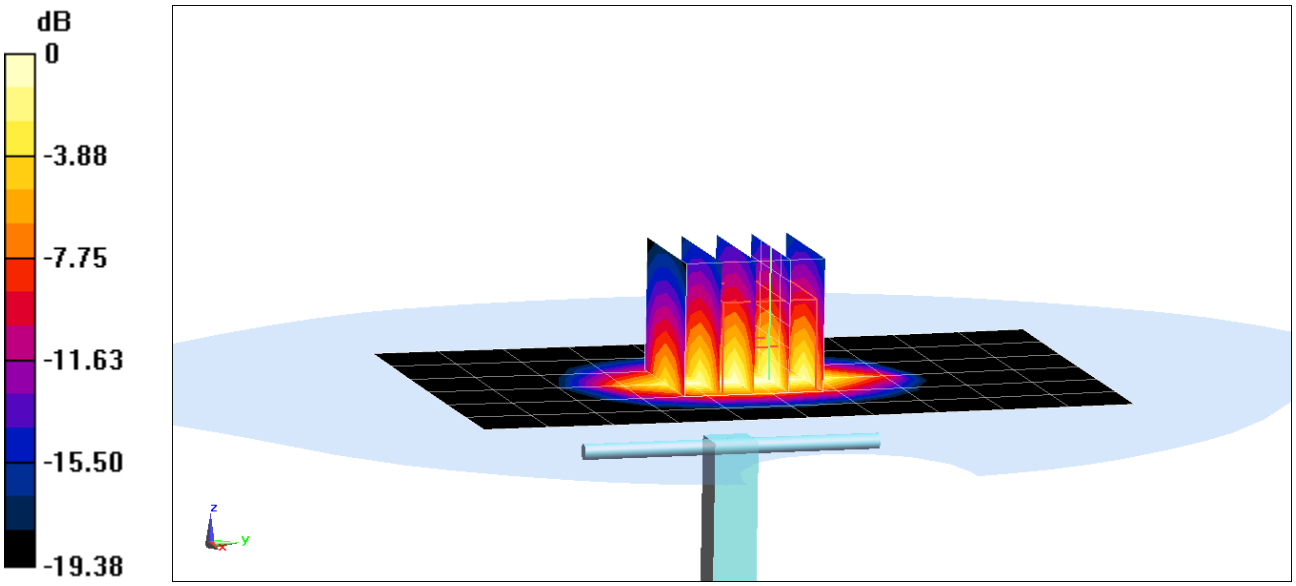
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1900 MHz; σ = 1.569 S/m; ε_r = 51.832; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-06-2020; Ambient Temp: 22.9°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7571; ConvF(7.56, 7.56, 7.56) @ 1900 MHz; Calibrated: 12/11/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1533; Calibrated: 12/5/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (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) = 7.78 W/kg
SAR(1 g) = 4.21 W/kg; SAR(10 g) = 2.16 W/kg
Deviation(1 g) = 7.40%; Deviation(10 g) = 4.85%



0 dB = 6.44 W/kg = 8.09 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

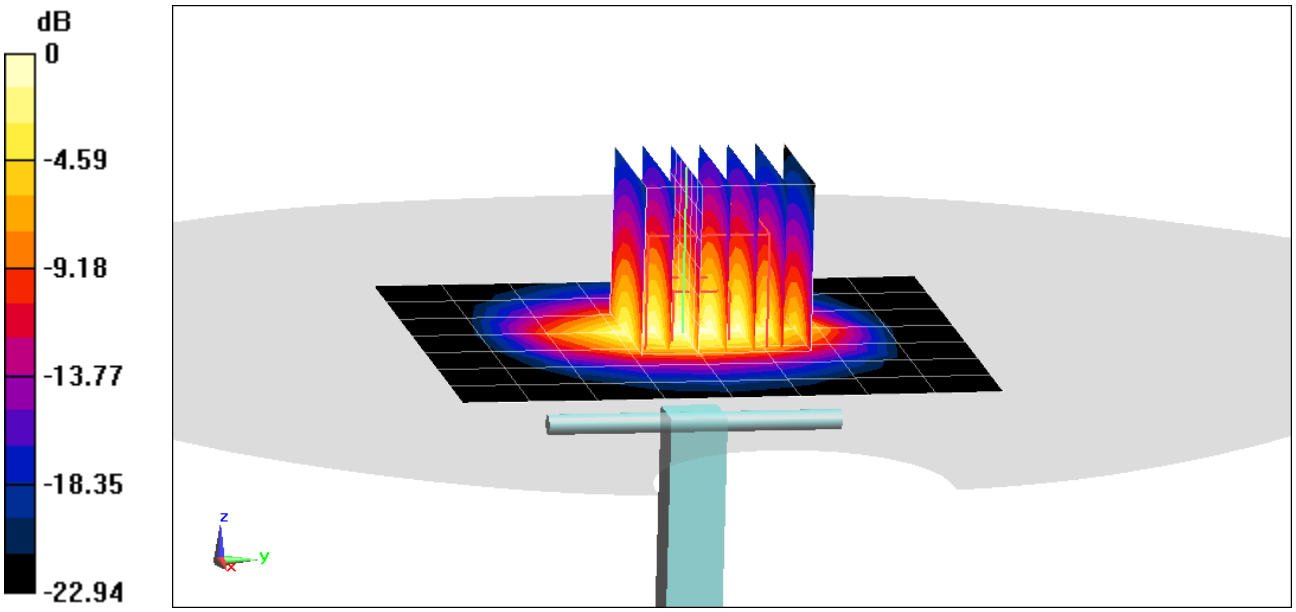
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2450 MHz; σ = 2.013 S/m; ε_r = 52.372; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-06-2020; Ambient Temp: 22.3°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7410; ConvF(7.44, 7.44, 7.44) @ 2450 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)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.3 W/kg
SAR(1 g) = 4.95 W/kg
Deviation(1 g) = 2.75%



0 dB = 8.22 W/kg = 9.15 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

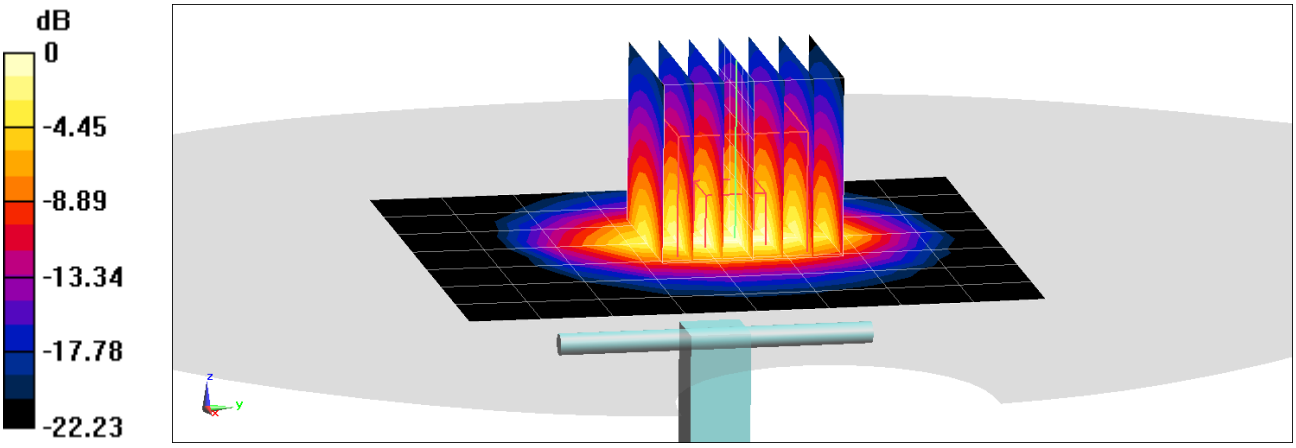
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2450 MHz; σ = 2.036 S/m; ε_r = 51.644; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-08-2020; Ambient Temp: 22.8°C; Tissue Temp: 24.2°C

Probe: EX3DV4 - SN7547; ConvF(7.3, 7.3, 7.3) @ 2450 MHz; Calibrated: 7/15/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 7/11/2019
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)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.8 W/kg
SAR(1 g) = 5.2 W/kg
Deviation(1 g) = 2.16%



0 dB = 8.74 W/kg = 9.42 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

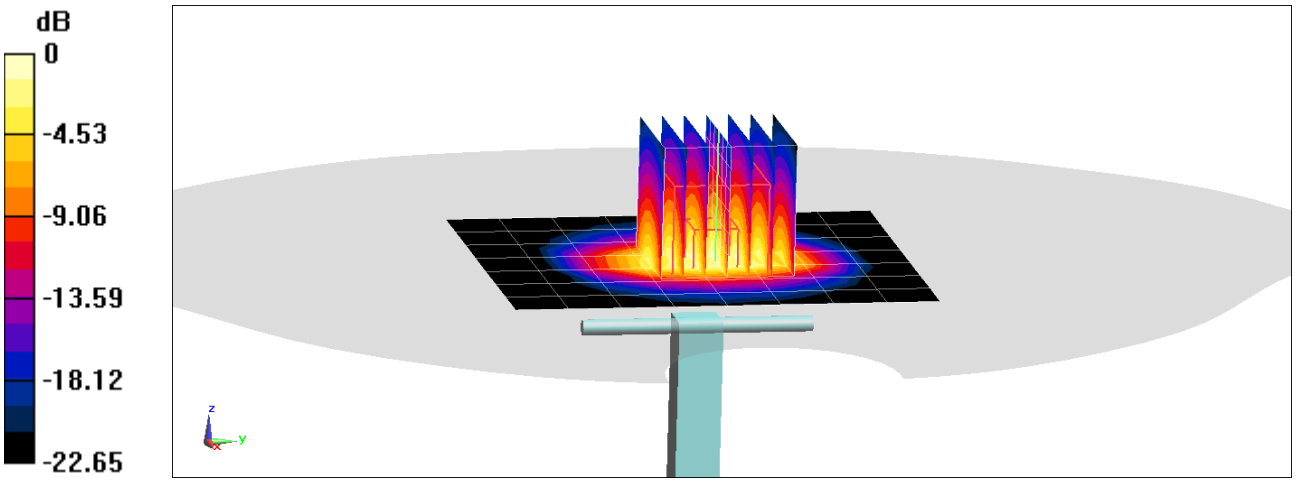
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2450 MHz; σ = 2.012 S/m; ε_r = 50.309; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-13-2020; Ambient Temp: 22.7°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7410; ConvF(7.44, 7.44, 7.44) @ 2450 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)

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) = 5.45 W/kg; SAR(10 g) = 2.49 W/kg
Deviation(1 g) = 7.28%; Deviation(10 g) = 3.75%



0 dB = 9.20 W/kg = 9.64 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1064

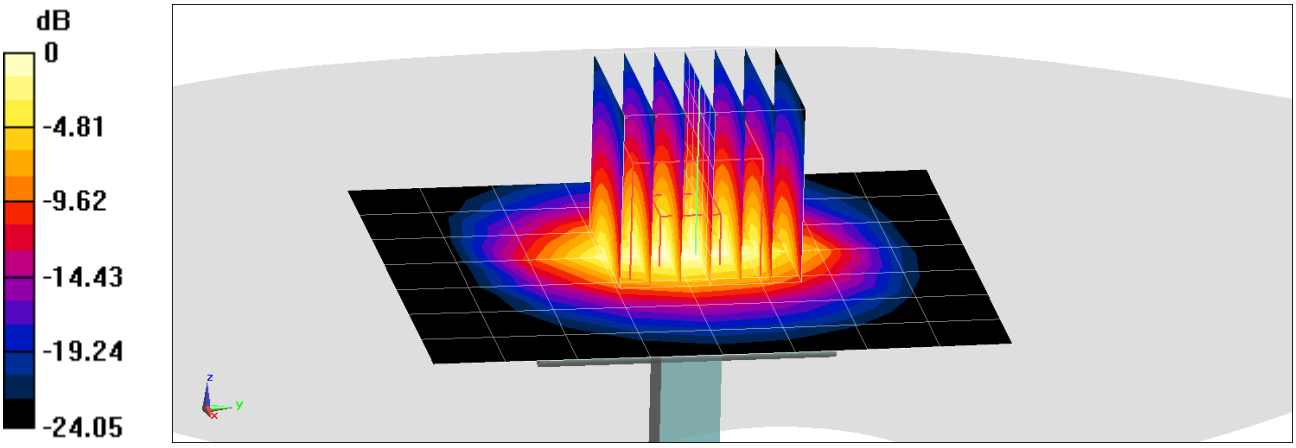
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2600 MHz; σ = 2.217 S/m; ε_r = 51.187; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-08-2020; Ambient Temp: 22.8°C; Tissue Temp: 24.2°C

Probe: EX3DV4 - SN7547; ConvF(7.18, 7.18, 7.18) @ 2600 MHz; Calibrated: 7/15/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 7/11/2019
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)

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) = 12.2 W/kg
SAR(1 g) = 5.59 W/kg
Deviation(1 g) = 0.54%



0 dB = 9.56 W/kg = 9.80 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

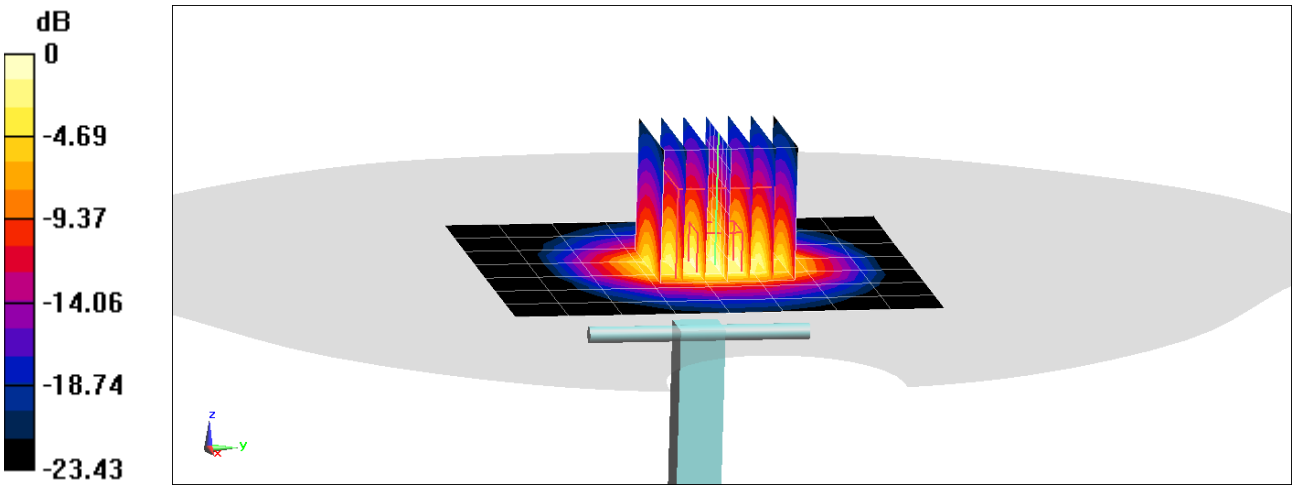
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2600 MHz; σ = 2.161 S/m; ε_r = 50.264; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-13-2020; Ambient Temp: 22.7°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7410; ConvF(7.43, 7.43, 7.43) @ 2600 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)

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) = 11.7 W/kg
SAR(1 g) = 5.34 W/kg; SAR(10 g) = 2.39 W/kg
Deviation(1 g) = -2.55%; Deviation(10 g) = -3.24%



0 dB = 9.31 W/kg = 9.69 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

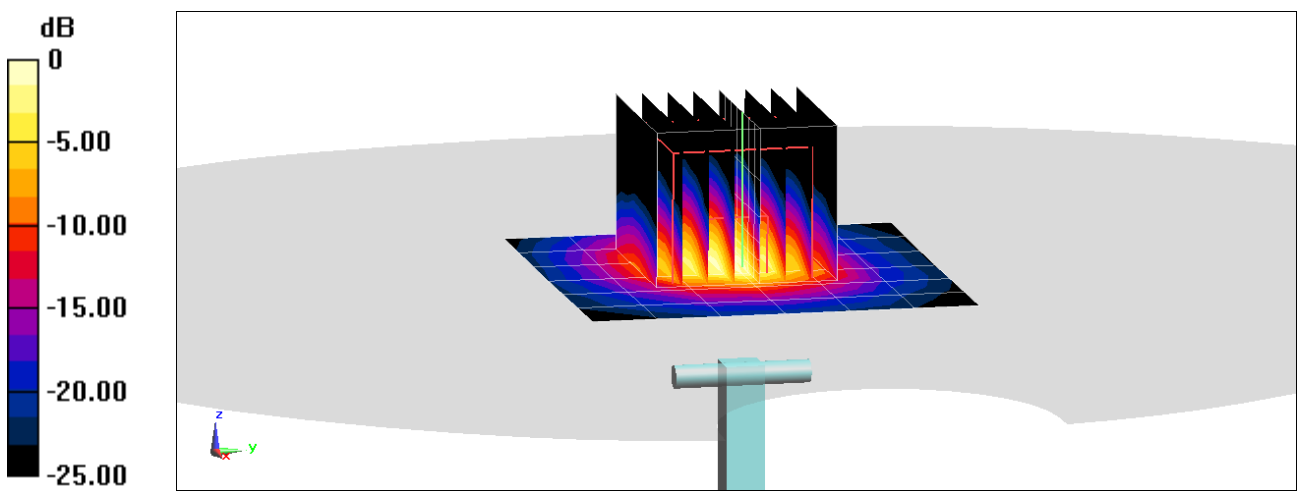
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body Medium parameters used:
f = 5250 MHz; σ = 5.545 S/m; ε_r = 46.967; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-23-2019; Ambient Temp: 23.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7409; ConvF(4.7, 4.7, 4.7) @ 5250 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)

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) = 15.7 W/kg
SAR(1 g) = 3.8 W/kg; SAR(10 g) = 1.06 W/kg
Deviation(1 g) = -1.30%; Deviation(10 g) = -0.93%



0 dB = 9.02 W/kg = 9.55 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

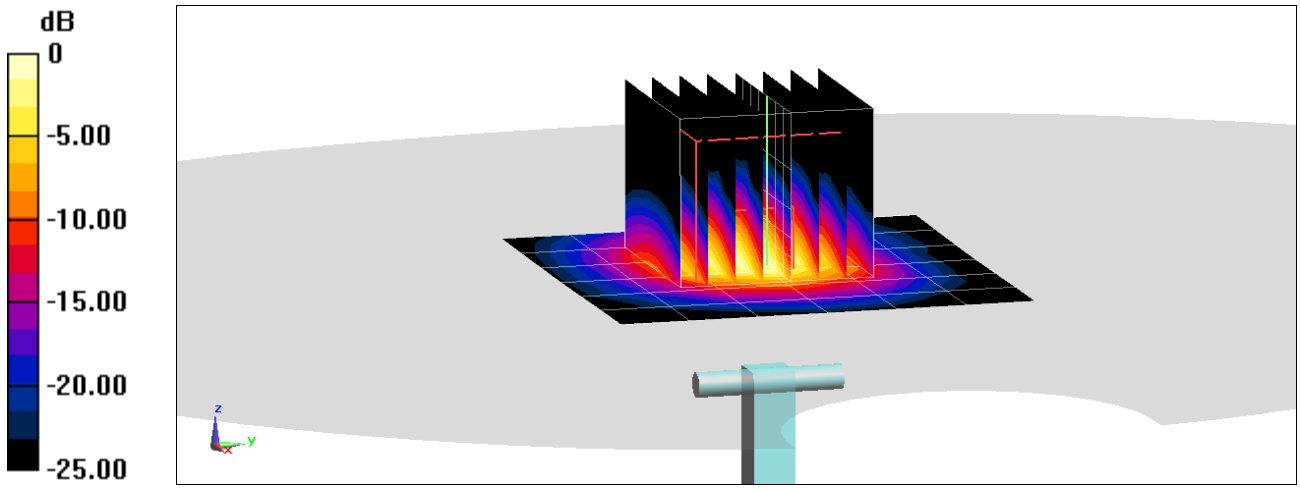
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body Medium parameters used:
f = 5600 MHz; σ = 6.015 S/m; ε_r = 46.347; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-23-2019; Ambient Temp: 23.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7409; ConvF(4.22, 4.22, 4.22) @ 5600 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)

5600 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 4.08 W/kg; SAR(10 g) = 1.12 W/kg
Deviation(1 g) = 3.82%; Deviation(10 g) = 2.28%



0 dB = 9.96 W/kg = 9.98 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

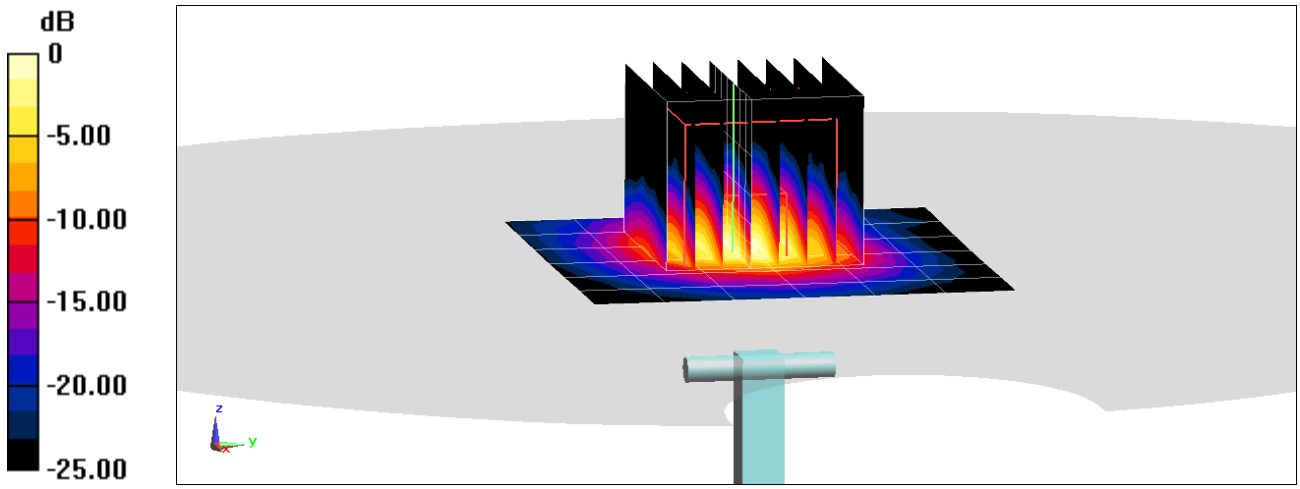
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5200-5800 Body Medium parameters used:
f = 5750 MHz; σ = 6.221 S/m; ε_r = 46.118; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-23-2019; Ambient Temp: 23.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7409; ConvF(4.23, 4.23, 4.23) @ 5750 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)

5750 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 18.6 W/kg
SAR(1 g) = 3.88 W/kg; SAR(10 g) = 1.06 W/kg
Deviation(1 g) = 0.91%; Deviation(10 g) = -0.47%



0 dB = 9.52 W/kg = 9.79 dBW/kg