FCC SAR Test Report

APPLICANT	:	DELL Inc.
EQUIPMENT	:	Tablet PC
BRAND NAME	:	Dell
MODEL NAME	:	T02D; T02D004
TYPE NAME	:	T02D004
FCC ID	:	E2K-T02D004
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2003

We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and had been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (SHENZHEN) INC., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Deputy Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
2353

SPORTON INTERNATIONAL (SHENZHEN) INC.
No. 101, Complex Building C, Guanlong Village, Xili Town, Nanshan District, Shenzhen, Guangdong, P.R.C.

Table of Contents

1. Statement of Compliance 4
2. Administration Data 5
3. Guidance Standard 5
4. Equipment Under Test (EUT) 6
4.1 General Information 6
4.2 Maximum Tune-up Limit 7
4.3 General LTE SAR Test and Reporting Considerations 12
5. Proximity Sensor Triggering Test 14
6. RF Exposure Limits 18
6.1 Uncontrolled Environment 18
6.2 Controlled Environment 18
7. Specific Absorption Rate (SAR) 19
7.1 Introduction 19
7.2 SAR Definition 19
8. System Description and Setup 20
9. Measurement Procedures 21
9.1 Spatial Peak SAR Evaluation 21
9.2 Power Reference Measurement 22
9.3 Area Scan 22
9.4 Zoom Scan 23
9.5 Volume Scan Procedures 23
9.6 Power Drift Monitoring 23
10. Test Equipment List 24
11. System Verification 25
11.1 Tissue Verification 25
11.2 System Performance Check Results 26
11.3 SAR Testing for Tablet 27
12. Conducted RF Output Power (Unit: dBm) 28
13. Bluetooth Exclusions Applied 58
14. Antenna Location 59
15. SAR Test Results 62
15.1 Body SAR 63
15.2 Repeated SAR Measurement 68
16. Simultaneous Transmission Analysis 69
16.1 Tablet Body Exposure Conditions 70
16.2 SPLSR Evaluation and Analysis 76
17. Uncertainty Assessment 93
18. References 96
Appendix A. Plots of System Performance Check
Appendix B. Plots of High SAR Measurement
Appendix C. DASY Calibration Certificate
Appendix D. Test Setup Photos

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA431806-01	Rev. 01	Initial issue of report	Aug. 29, 2014

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **DELL Inc., Tablet PC, T02D; T02D004** are as follows.

Equipment Class	Frequency Band	Operating Mode	Highest SAR Summary	
			Body 1g SAR (W/kg)	Simultaneous Transmission SAR (W/kg)
PCB	GSM850	Data	0.92	1.58
	GSM1900	Data	1.18	
	WCDMA Band V	Data	1.07	
	WCDMA Band IV	Data	1.19	
	WCDMA Band II	Data	1.17	
	LTE Band 17	Data	1.11	
	LTE Band 5	Data	1.10	
	LTE Band 4	Data	1.12	
	LTE Band 2	Data	1.17	
	LTE Band 7	Data	1.19	
DTS	WLAN 2.4GHz Band	Data	0.66	1.58
	WLAN 5.8GHz Band	Data	0.93	
NII	WLAN 5.2GHz Band	Data	1.19	1.57
	WLAN 5.3GHz Band	Data	1.03	
	WLAN 5.5GHz Band	Data	1.08	
DSS	Bluetooth	Data		1.32
Date of Testing:			Aug. 01, 2014 ~ Aug. 11, 2014	

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2003.

2. Administration Data

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.
Test Site Location	No. 101, Complex Building C, Guanlong Village, Xili Town, Nanshan District, Shenzhen, Guangdong, P.R.C. TEL: +86-755-8637-9589 FAX: +86-755-8637-9595

Applicant	
Company Name	DELL Inc.
Address	One Dell Way, Round Rock, Texas 78682, United States

Manufacturer	
Company Name	DELL Inc.
Address	One Dell Way, Round Rock, Texas 78682, United States

3. Guidance Standard

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2003
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03
- FCC KDB 865664 D02 SAR Reporting v01r01
- FCC KDB 447498 D01 General RF Exposure Guidance v05r02
- FCC KDB 248227 D01 SAR meas for 802 11abg v01r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r01
- FCC KDB 941225 D01 SAR test for 3G devices v02
- FCC KDB 941225 D02 HSPA and 1x Advanced v02r02
- FCC KDB 941225 D03 SAR Test Reduction GSM GPRS EDGE v01
- FCC KDB 941225 D05 SAR for LTE Devices v02r03

4. Equipment Under Test (EUT)

4.1 General Information

Product Feature & Specification	
Equipment Name	Tablet PC
Brand Name	Dell
Model Name	T02D; T02D004
Type Name	T02D004
FCC ID	E2K-T02D004
IMEI Code	004999010640000
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	• GSM/GPRS/EGPRS • RMC/AMR 12.2Kbps • HSDPA • HSUPA • DC-HSDPA • HSPA+ (Downlink Only) • LTE • WLAN 2.4GHz 802.11b/g/n (HT20/HT40) • WLAN 5GHz 802.11a/n (HT20/HT40) • WLAN 5GHz 802.11ac (VHT20/VHT40/VHT80) • Bluetooth v3.0+EDR, Bluetooth v4.0 LE
HW Version	DVT-B-V0.40
SW Version	YTP802A410830
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype

Remark:

1. WLAN operation in 5600 MHz ~ 5650 MHz is notched
2. This device 2.4GHz WLAN supports hotspot operation, and 2.4GHz / 5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.2GHz / 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
3. This device supports GRPS/EGPRS mode up to multi-slot class33.
4. The voice is only limited to speakerphone mode and it does not supported near to the ear voice mode during normal using.

4.2 Maximum Tune-up Limit

Mode	Burst average power (dBm)			
	GSM 850		GSM 1900	
	Full power mode	Reduced power mode	Full power mode	Reduced power mode
GSM (GMSK, 1 Tx slot)	32.5	29.0	30.5	23.5
GPRS (GMSK, 1 Tx slot)	32.5	29.0	30.5	23.5
GPRS (GMSK, 2 Tx slots)	29.5	26.0	28.0	21.5
GPRS (GMSK, 3 Tx slots)	28.0	24.5	26.0	19.5
GPRS (GMSK, 4 Tx slots)	27.0	23.5	26.5	20.0
EDGE (8PSK, 1 Tx slot)	27.0	23.5	26.5	20.0
EDGE (8PSK, 2 Tx slots)	27.0	23.5	24.5	18.0
EDGE (8PSK, 3 Tx slots)	26.0	23.0	22.5	16.0
EDGE (8PSK, 4 Tx slots)	25.0	21.5	22.5	16.0

Mode	Average power (dBm)					
	WCDMA Band V		WCDMA Band IV		WCDMA Band II	
	Full power mode	Reduced power mode	Full power mode	Reduced power mode	Full power mode	Reduced power mode
AMR 12.2Kbps	23.5	21.0	23.5	16.5	23.0	16.5
RMC 12.2Kbps	23.5	21.0	23.5	16.5	23.0	16.5
HSDPA Subtest-1	23.5	21.0	23.5	16.5	22.5	16.0
HSDPA Subtest-2	23.5	21.0	23.5	16.5	22.5	16.0
HSDPA Subtest-3	23.0	21.0	23.0	16.5	22.5	16.0
HSDPA Subtest-4	23.0	21.0	23.0	16.5	22.5	16.0
DC-HSDPA Subtest-1	23.5	21.0	23.5	16.5	22.5	16.0
DC-HSDPA Subtest-2	23.5	21.0	23.5	16.5	22.5	16.0
DC-HSDPA Subtest-3	23.0	21.0	23.0	16.5	22.5	16.0
DC-HSDPA Subtest-4	23.0	21.0	23.0	16.5	22.5	16.0
HSUPA Subtest-1	22.5	20.5	23.0	16.0	22.5	16.0
HSUPA Subtest-2	21.0	20.0	21.5	16.0	21.5	15.0
HSUPA Subtest-3	22.0	20.5	22.5	16.5	22.5	15.0
HSUPA Subtest-4	21.0	21.0	21.5	16.5	22.0	15.0
HSUPA Subtest-5	23.0	20.5	23.5	16.0	22.5	16.0

LTE Band 17					
Average Power (dBm)					
Modulation	BW (MHz)	RB size	MPR	Full power mode	Reduced power mode
QPSK	10	≤ 12	0	24.0	22.0
QPSK	10	> 12	0-1	23.0	21.0
16QAM	10	≤ 12	0-1	23.0	21.0
16QAM	10	> 12	0-2	22.0	20.0
QPSK	5	≤ 8	0	24.0	22.0
QPSK	5	> 8	0-1	23.0	21.0
16QAM	5	≤ 8	0-1	23.0	21.0
16QAM	5	> 8	0-2	22.0	20.0

LTE Band 5					
Average Power (dBm)					
Modulation	BW (MHz)	RB size	MPR	Full power mode	Reduced power mode
QPSK	10	≤ 12	0	24.0	21.0
QPSK	10	> 12	0-1	23.5	20.0
16QAM	10	≤ 12	0-1	23.5	20.5
16QAM	10	> 12	0-2	22.5	19.5
QPSK	5	≤ 8	0	24.0	21.0
QPSK	5	> 8	0-1	23.5	20.0
16QAM	5	≤ 8	0-1	23.5	20.5
16QAM	5	> 8	0-2	22.5	19.5
QPSK	3	≤ 4	0	24.0	21.0
QPSK	3	> 4	0-1	23.5	20.0
16QAM	3	≤ 4	0-1	23.5	20.5
16QAM	3	> 4	0-2	22.5	19.5
QPSK	1.4	≤ 5	0	24.0	21.0
QPSK	1.4	> 5	0-1	23.5	20.0
16QAM	1.4	≤ 5	0-1	23.5	20.5
16QAM	1.4	> 5	0-2	22.5	19.5

LTE Band 4					
Average Power (dBm)					
Modulation	BW (MHz)	RB size	MPR	Full power mode	Reduced power mode
QPSK	20	≤ 18	0	23.5	16.5
QPSK	20	> 18	0-1	22.5	15.5
16QAM	20	≤ 18	0-1	22.5	15.5
16QAM	20	> 18	0-2	22.0	14.5
QPSK	15	≤ 16	0	23.5	16.5
QPSK	15	> 16	0-1	22.5	15.5
16QAM	15	≤ 16	0-1	22.5	15.5
16QAM	15	> 16	0-2	22.0	14.5
QPSK	10	≤ 12	0	23.5	16.5
QPSK	10	> 12	0-1	22.5	15.5
16QAM	10	≤ 12	0-1	22.5	15.5
16QAM	10	> 12	0-2	22.0	14.5
QPSK	5	≤ 8	0	23.5	16.5
QPSK	5	> 8	0-1	22.5	15.5
16QAM	5	≤ 8	0-1	22.5	15.5
16QAM	5	> 8	0-2	22.0	14.5
QPSK	3	≤ 4	0	23.5	16.5
QPSK	3	> 4	0-1	22.5	15.5
16QAM	3	≤ 4	0-1	22.5	15.5
16QAM	3	> 4	0-2	22.0	14.5
QPSK	1.4	≤ 5	0	23.5	16.5
QPSK	1.4	> 5	0-1	22.5	15.5
16QAM	1.4	≤ 5	0-1	22.5	15.5
16QAM	1.4	> 5	0-2	22.0	14.5

LTE Band 2					
Average Power (dBm)					
Modulation	BW (MHz)	RB size	MPR	Full power mode	Reduced power mode
QPSK	20	≤ 18	0	23.5	17.5
QPSK	20	> 18	0-1	22.5	16.5
16QAM	20	≤ 18	0-1	22.5	16.5
16QAM	20	> 18	0-2	22.0	15.5
QPSK	15	≤ 16	0	23.5	17.5
QPSK	15	> 16	0-1	22.5	16.5
16QAM	15	≤ 16	0-1	22.5	16.5
16QAM	15	> 16	0-2	22.0	15.5
QPSK	10	≤ 12	0	23.5	17.5
QPSK	10	> 12	0-1	22.5	16.5
16QAM	10	≤ 12	0-1	22.5	16.5
16QAM	10	> 12	0-2	22.0	15.5
QPSK	5	≤ 8	0	23.5	17.5
QPSK	5	> 8	0-1	22.5	16.5
16QAM	5	≤ 8	0-1	22.5	16.5
16QAM	5	> 8	0-2	22.0	15.5
QPSK	3	≤ 4	0	23.5	17.5
QPSK	3	> 4	0-1	22.5	16.5
16QAM	3	≤ 4	0-1	22.5	16.5
16QAM	3	> 4	0-2	22.0	15.5
QPSK	1.4	≤ 5	0	23.5	17.5
QPSK	1.4	> 5	0-1	22.5	16.5
16QAM	1.4	≤ 5	0-1	22.5	16.5
16QAM	1.4	> 5	0-2	22.0	15.5

LTE Band 7					
Average Power (dBm)					
Modulation	BW (MHz)	RB size	MPR	Full power mode	Reduced power mode
QPSK	20	≤ 18	0	22.0	15.5
QPSK	20	> 18	0-1	21.0	14.5
16QAM	20	≤ 18	0-1	21.0	14.5
16QAM	20	> 18	0-2	20.0	13.5
QPSK	15	≤ 16	0	22.0	15.5
QPSK	15	> 16	0-1	21.0	14.5
16QAM	15	≤ 16	0-1	21.0	14.5
16QAM	15	> 16	0-2	20.0	13.5
QPSK	10	≤ 12	0	22.0	15.5
QPSK	10	> 12	0-1	21.0	14.5
16QAM	10	≤ 12	0-1	21.0	14.5
16QAM	10	> 12	0-2	20.0	13.5
QPSK	5	≤ 8	0	22.0	15.5
QPSK	5	> 8	0-1	21.0	14.5
16QAM	5	≤ 8	0-1	21.0	14.5
16QAM	5	> 8	0-2	20.0	13.5

Mode		Maximum Average Power (dBm)
2.4GHz	802.11b	13.5
	802.11g	13.0
	802.11n HT20	12.5
	802.11n HT40	13.0
5.2GHz	802.11a	10.0
	802.11n HT20	9.5
	802.11n HT40	10.5
	802.11ac VHT20	10.0
	802.11ac VHT40	10.0
	802.11ac VHT80	10.5
5.3GHz	802.11a	12.0
	802.11n HT20	11.5
	802.11n HT40	11.5
	802.11ac VHT20	12.0
	802.11ac VHT40	11.5
	802.11ac VHT80	12.0
5.5GHz	802.11a	9.0
	802.11n HT20	9.0
	802.11n HT40	9.5
	802.11ac VHT20	9.0
	802.11ac VHT40	9.0
	802.11ac VHT80	9.5
5.8GHz	802.11a	11.0
	802.11n HT20	11.0
	802.11n HT40	11.0
	802.11ac VHT20	11.0
	802.11ac VHT40	11.0
	802.11ac VHT80	11.0
Bluetooth v3.0 + EDR		4.5
Bluetooth v4.0 LE		3.0

4.3 General LTE SAR Test and Reporting Considerations

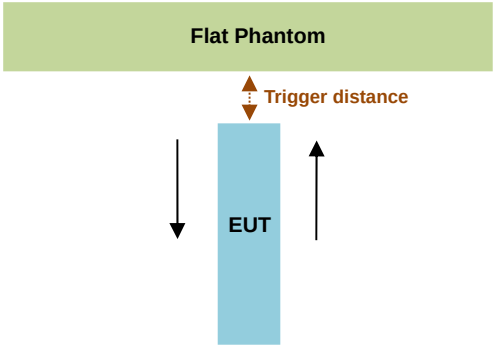
<table>
<tr><th colspan="2">Summarized necessary items addressed in KDB 941225 D05 v02r03</th></tr>
<tr><td>FCC ID</td><td>E2K-T02D004</td></tr>
<tr><td>Equipment Name</td><td>Tablet PC</td></tr>
<tr><td>Operating Frequency Range of each LTE transmission band</td><td>LTE Band 17: 706.5 MHz ~ 713.5 MHz
LTE Band 5: 824.7 MHz ~ 848.3 MHz
LTE Band 4: 1710.7 MHz ~ 1754.3 MHz
LTE Band 2: 1850.7 MHz ~ 1909.3 MHz
LTE Band 7: 2502.5 MHz ~ 2567.5 MHz</td></tr>
<tr><td>Channel Bandwidth</td><td>5MHz, 10MHz (LTE Band 17)
1.4MHz, 3MHz, 5MHz, 10MHz (LTE Band 5)
1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz (LTE Band 2/4)
5MHz, 10MHz, 15MHz, 20MHz (LTE Band 7)</td></tr>
<tr><td>uplink modulations used</td><td>QPSK and 16QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Data only</td></tr>
<tr><td>LTE MPR permanently built-in by design</td><td>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (RB)</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr>
</table></td></tr>
<tr><td>LTE A-MPR</td><td>In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)</td></tr>
<tr><td>Spectrum plots for RB configuration</td><td>A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.</td></tr>
<tr><td>Power reduction applied to satisfy SAR compliance</td><td>Yes, proximity sensor.</td></tr>
</table>

Transmission (L, M, H) channel numbers and frequencies in each LTE band												
LTE Band 17												
	Bandwidth 5 MHz						Bandwidth 10 MHz					
	Channel #		Freq.(MHz)				Channel #		Freq. (MHz)			
L	23755		706.5				23780		709			
M	23790		710				23790		710			
H	23825		713.5				23800		711			
LTE Band 5												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz				Bandwidth 5 MHz		Bandwidth 10 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)			Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	20407	824.7	20415	825.5			20425	826.5	20450	829		
M	20525	836.5	20525	836.5			20525	836.5	20525	836.5		
H	20643	848.3	20635	847.5			20625	846.5	20600	844		
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 7												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510				
M	21100	2535	21100	2535	21100	2535	21100	2535				
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560				

5. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance (KDB 616217 D04 section 6.2)>:

Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed. The details are illustrated in the exhibit "P-Sensor operational description", and the shortest triggering distances were reported and used for SAR assessment.
In the preliminary triggering distance testing, the tissue-equivalent medium for different frequency bands were used for verification; no other frequency bands tissue-equivalent medium was found to result in shortest triggering distance than that for 1900MHz, and the tissue-equivalent medium for 1900MHz was used for formal proximity sensor triggering testing.



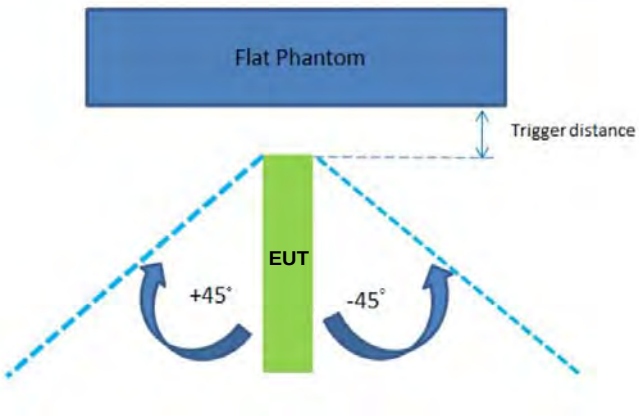
Proximity Sensor Trigger Distance (mm)		
Position	Bottom Face	Edge 1
Minimum	13	11

<Proximity Sensor Triggering Coverage (KDB 616217 D04 section 6.3)>:

If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing, the device is moved and “along the direction of maximum antenna and sensor offset”.
Illustrated in the internal photo exhibit, although the senor is spatially offset, there is no trigger condition where the antenna is next to the user but the sensor is laterally further away, therefore proximity sensor coverage testing is not required.
This procedure is not required because antenna and sensor are collocated and the peak SAR location is overlapping with the sensor.

<Tablet Tilt angle influences to proximity sensor triggering (KDB 616217 D04 section 6.4)>:

The influence of table tilt angles to proximity sensor triggering was determined by positioning each tablet edge that contains a transmitting antenna, perpendicular to the flat phantom, at 11 mm separation.
Rotating the tablet around the edge next to the phantom in ≤ 10° increments until the tablet is ± 45° from the vertical position at 0°, and the maximum output power remains in the reduced mode.



The Sensor Trigger Distance (mm)	
Position	Edge 1
Minimum	11

<Proximity sensor power reduction>

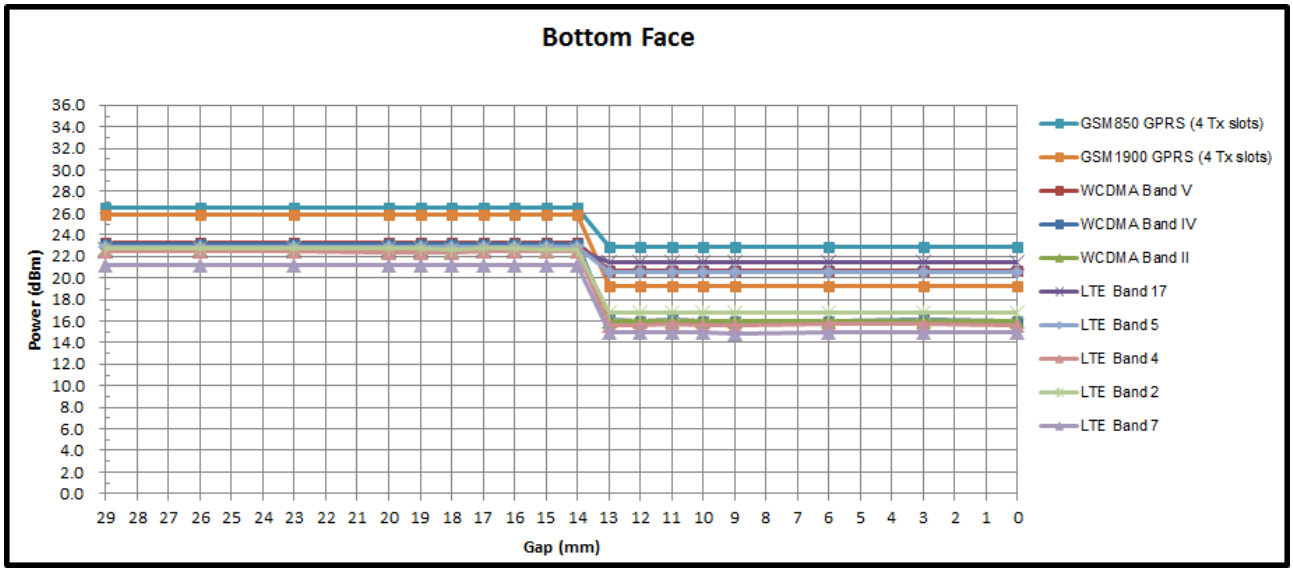
Exposure Position / wireless mode	Bottom Face(1)	Edge 1(1)	Edge 3	Edge 4
GSM850 GSM (GMSK 1 Tx slot) - CS1	3.5 dB	3.5 dB	0 dB	0 dB
GSM850 GPRS (GMSK 1 Tx slot) - CS1	3.5 dB	3.5 dB	0 dB	0 dB
GSM850 GPRS (GMSK 2 Tx slots) - CS1	3.5 dB	3.5 dB	0 dB	0 dB
GSM850 GPRS (GMSK 3 Tx slots) - CS1	3.5 dB	3.5 dB	0 dB	0 dB
GSM850 GPRS (GMSK 4 Tx slots) - CS1	3.5 dB	3.5 dB	0 dB	0 dB
GSM850 EDGE (8PSK 1 Tx slot) - MCS5	3.5 dB	3.5 dB	0 dB	0 dB
GSM850 EDGE (8PSK 2 Tx slots) - MCS5	3.5 dB	3.5 dB	0 dB	0 dB
GSM850 EDGE (8PSK 3 Tx slots) - MCS5	3.0 dB	3.0 dB	0 dB	0 dB
GSM850 EDGE (8PSK 4 Tx slots) - MCS5	3.5 dB	3.5 dB	0 dB	0 dB
GSM1900 GSM (GMSK 1 Tx slot) - CS1	7.0 dB	7.0 dB	0 dB	0 dB
GSM1900 GPRS (GMSK 1 Tx slot) - CS1	7.0 dB	7.0 dB	0 dB	0 dB
GSM1900 GPRS (GMSK 2 Tx slots) - CS1	6.5 dB	6.5 dB	0 dB	0 dB
GSM1900 GPRS (GMSK 3 Tx slots) - CS1	6.5 dB	6.5 dB	0 dB	0 dB
GSM1900 GPRS (GMSK 4 Tx slots) - CS1	6.5 dB	6.5 dB	0 dB	0 dB
GSM1900 EDGE (8PSK 1 Tx slot) - MCS5	6.5 dB	6.5 dB	0 dB	0 dB
GSM1900 EDGE (8PSK 2 Tx slots) - MCS5	6.5 dB	6.5 dB	0 dB	0 dB
GSM1900 EDGE (8PSK 3 Tx slots) - MCS5	6.5 dB	6.5 dB	0 dB	0 dB
GSM1900 EDGE (8PSK 4 Tx slots) - MCS5	6.5 dB	6.5 dB	0 dB	0 dB
WCDMA Band V RMC 12.2kbps	2.5 dB	2.5 dB	0 dB	0 dB
WCDMA Band IV RMC 12.2kbps	7.0 dB	7.0 dB	0 dB	0 dB
WCDMA Band II RMC 12.2kbps	6.5 dB	6.5 dB	0 dB	0 dB
LTE Band 17 (BW10,RB Size 1,RB Offset 0)	2.0 dB	2.0 dB	0 dB	0 dB
LTE Band 5 (BW10,RB Size 1,RB Offset 0)	3.0 dB	3.0 dB	0 dB	0 dB
LTE Band 4 (BW20,RB Size 1,RB Offset 0)	7.0 dB	7.0 dB	0 dB	0 dB
LTE Band 2 (BW20,RB Size 1,RB Offset 0)	6.0 dB	6.0 dB	0 dB	0 dB
LTE Band 7 (BW20,RB Size 1,RB Offset 0)	6.5 dB	6.5 dB	0 dB	0 dB

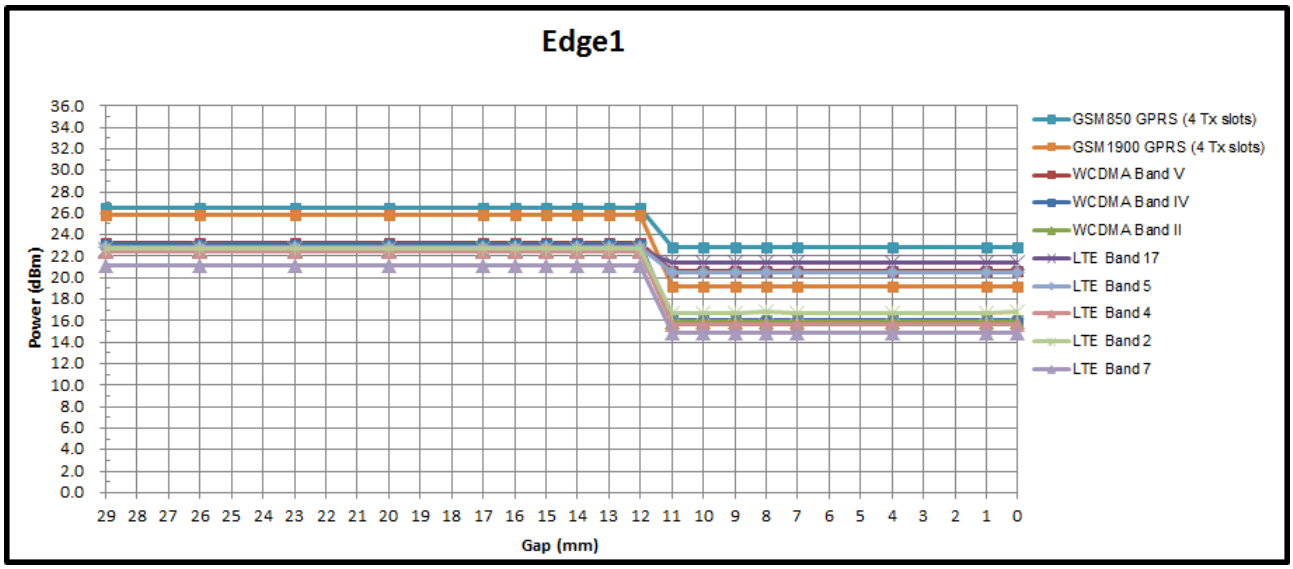
Remark:

1. (1): Reduced maximum limit applied by activation of proximity sensor.
2. Power reduction is not applicable for WLAN and Bluetooth.
3. Tests were performed in accordance with KDB 616217 D04 section 6.1, 6.2, 6.3, 6.4 and 6.5 and compliant results are shown and described in exhibit “P-Sensor operational description”.
4. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
   - Bottom Face: 10 mm
   - Edge1: 10 mm

<Power Measurement during Sensor Trigger distance testing>

Band/Mode	Ch #	Measured power reduction (dBm)		Reduction Levels
		w/o power back-off	w/ power back-off	(dB)
GSM850 GPRS (GMSK 4 Tx slots)	189	26.47	22.87	3.60
GSM1900 GPRS (GMSK 4 Tx slots)	661	25.81	19.20	6.61
WCDMA Band V RMC 12.2kbps	4182	23.22	20.64	2.58
WCDMA Band IV RMC 12.2kbps	1413	23.13	16.04	7.09
WCDMA Band II RMC 12.2kbps	9400	22.43	15.93	6.50
LTE Band 17 (BW10,RB Size 1,RB Offset 0)	23790	22.61	21.39	1.22
LTE Band 5 (BW10,RB Size 1,RB Offset 0)	20525	22.87	20.48	2.39
LTE Band 4 (BW20,RB Size 1,RB Offset 0)	20175	22.41	15.66	6.75
LTE Band 2 (BW20,RB Size 1,RB Offset 0)	18900	22.66	16.75	5.91
LTE Band 7 (BW20,RB Size 1,RB Offset 0)	21100	21.14	14.89	6.25





6. RF Exposure Limits

6.1 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.

6.2 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. The 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.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

7. Specific Absorption Rate (SAR)

7.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

7.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

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

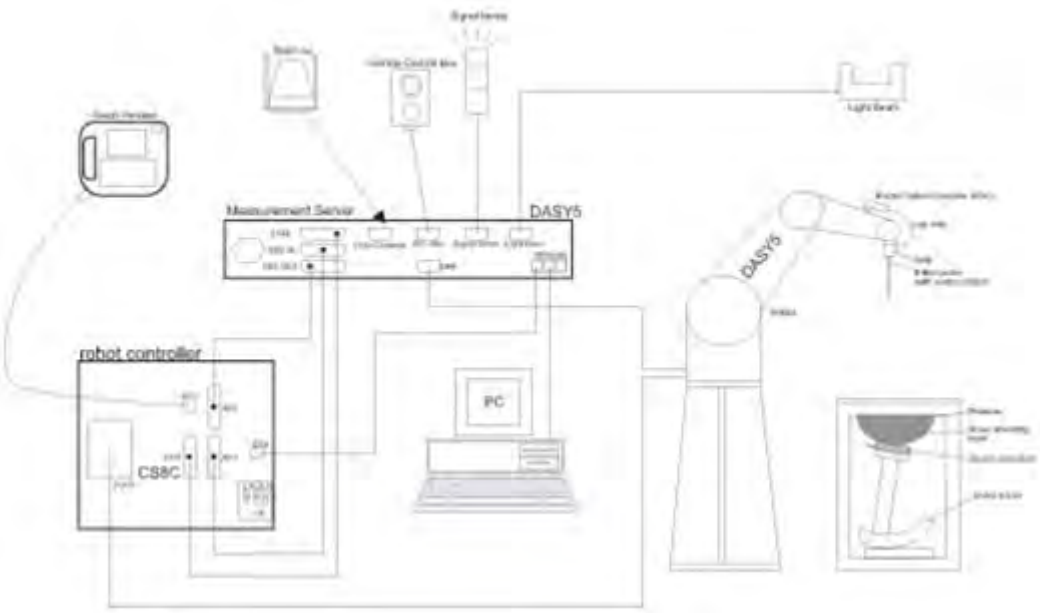
SAR is expressed in units of Watts per kilogram (W/kg)

$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}|\mathbf{E}|^2}{\boldsymbol{\rho}}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

8. System Description and Setup

The DASY system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

9. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

(a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
(b) Read the WWAN RF power level from the base station simulator.
(c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
(d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
(b) Place the EUT in the positions as Appendix D demonstrates.
(c) Set scan area, grid size and other setting on the DASY software.
(d) Measure SAR results for the highest power channel on each testing position.
(e) Find out the largest SAR result on these testing positions of each band
(f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

9.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

9.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

9.3 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r03 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

9.4 Zoom Scan

Zoom scans are used assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r03 SAR measurement 100 MHz to 6 GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

9.5 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

9.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.

10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1099	Nov. 11, 2013	Nov. 10, 2014
SPEAG	835MHz System Validation Kit	D835V2	4d091	Nov. 18, 2011	Nov. 14, 2014
SPEAG	1750MHz System Validation Kit	D1750V2	1090	Mar. 27, 2013	Mar. 25, 2015
SPEAG	1900MHz System Validation Kit	D1900V2	5d118	Nov. 21, 2011	Nov. 14, 2014
SPEAG	2450MHz System Validation Kit	D2450V2	908	Mar. 26, 2013	Mar. 25, 2015
SPEAG	2600MHz System Validation Kit	D2600V2	1061	Mar. 26, 2013	Mar. 24, 2015
SPEAG	5000MHz System Validation Kit	D5GHV2	1006	Sep. 23, 2013	Sep. 22, 2014
SPEAG	Data Acquisition Electronics	DAE3	569	Nov. 22, 2013	Nov. 21, 2014
SPEAG	Dosimetric E-Field Probe	EX3DV4	3819	Nov. 27, 2013	Nov. 26, 2014
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
SPEAG	ELI4 Phantom	QD OVA 002 AA	1149	NCR	NCR
Agilent	Wireless Communication Test Set	E5515C	MY50267224	Oct. 10, 2013	Oct. 09, 2014
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May 06, 2014	May 05, 2015
Anritsu	Radio communication analyzer	MT8820C	6201091028	Jul. 17, 2014	Jul. 16, 2015
R&S	Network Analyzer	ZVB8	100106	Nov .07, 2013	Nov. 06, 2014
SPEAG	Dielectric Assessment Kit	DAK-3.5	1032	NCR	NCR
Agilent	Signal Generator	N5181A	MY50145381	Jan. 04, 2014	Jan. 03, 2015
Anritsu	Power Senor	MA2411B	0917070	Feb. 27, 2014	Feb. 26, 2015
Anritsu	Power Meter	ML2495A	1005002	Feb. 27. 2014	Feb. 26, 2015
ARRA	Power Divider	A3200-2	N/A	NA	NA
R&S	Spectrum Analyzer	FSP7	101230	Jun. 13, 2014	Jun. 12, 2015
Agilent	Dual Directional Coupler	778D	50422	Note 1	
Woken	Attenuator	WK0602-XX	N/A	Note 1	
PE	Attenuator	PE7005-10	N/A	Note 1	
PE	Attenuator	PE7005- 3	N/A	Note 1	
AR	Power Amplifier	5S1G4M2	0328767	Note 1	
Mini-Circuits	Power Amplifier	ZVE-3W	162601250	Note 1	
Mini-Circuits	Power Amplifier	ZHL-42W+	13440021344	Note 1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.
2. Referring to KDB 865664 D01v01r03, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The justification data of dipole D835V2, SN: 4d091, D1750V2, SN: 1090, D1900V2, SN: 5d118, D2450V2, SN: 908 and D2600V2, SN: 1061 can be found in appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.

11. System Verification

11.1 Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
1750	70.2	0	0	0.4	0	29.4	1.49	53.4
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	Body	22.7	0.970	54.633	0.96	55.50	1.04	-1.56	±5	Aug. 10, 2014
835	Body	22.6	1.000	54.086	0.97	55.20	3.09	-2.02	±5	Aug. 11, 2014
1750	Body	22.6	1.527	52.020	1.49	53.40	2.48	-2.58	±5	Aug. 07, 2014
1900	Body	22.7	1.576	54.212	1.52	53.30	3.68	1.71	±5	Aug. 08, 2014
2450	Body	22.7	1.991	52.320	1.95	52.70	2.10	-0.72	±5	Aug. 02, 2014
2600	Body	22.8	2.201	52.823	2.16	52.50	1.90	0.62	±5	Aug. 01, 2014
5200	Body	22.7	5.137	48.164	5.30	49.00	-3.08	-1.71	±5	Aug. 03, 2014
5300	Body	22.7	5.251	47.988	5.42	48.90	-3.12	-1.87	±5	Aug. 04, 2014
5600	Body	22.6	5.644	47.452	5.77	48.50	-2.18	-2.16	±5	Aug. 05, 2014
5800	Body	22.8	5.868	46.994	6.00	48.20	-2.20	-2.50	±5	Aug. 06, 2014

11.2 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured SAR (W/kg)	Targeted SAR (W/kg)	Normalized SAR (W/kg)	Deviation (%)
Aug. 10, 2014	750	Body	250	1099	3819	569	2.26	8.56	9.04	5.61
Aug. 11, 2014	835	Body	250	4d091	3819	569	2.27	9.42	9.08	-3.61
Aug. 07, 2014	1750	Body	250	1090	3819	569	9.59	38.10	38.36	0.68
Aug. 08, 2014	1900	Body	250	5d118	3819	569	10.70	41.80	42.8	2.39
Aug. 02, 2014	2450	Body	250	908	3819	569	13.80	50.40	55.2	9.52
Aug. 01, 2014	2600	Body	250	1061	3819	569	13.30	55.60	53.2	-4.32
Aug. 03, 2014	5200	Body	100	1006	3819	569	7.25	71.5	72.5	1.40
Aug. 04, 2014	5300	Body	100	1006	3819	569	7.60	75.2	76	1.06
Aug. 05, 2014	5600	Body	100	1006	3819	569	7.76	77.8	77.6	-0.26
Aug. 06, 2014	5800	Body	100	1006	3819	569	7.43	72.3	74.3	2.77

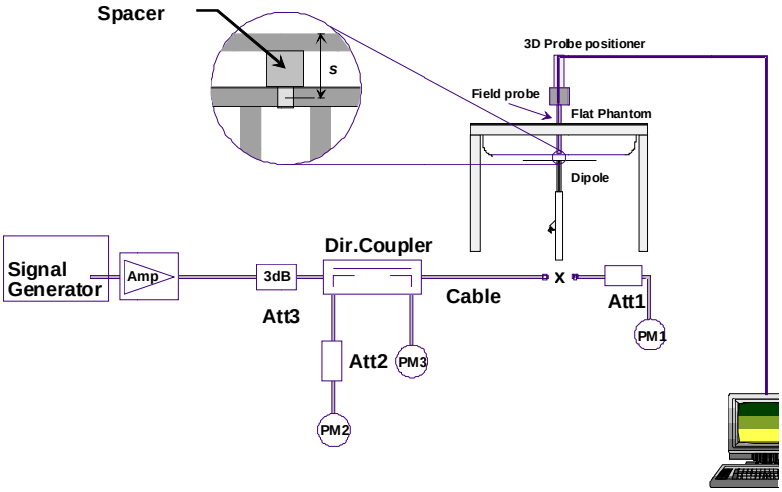


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

11.3 SAR Testing for Tablet

This device can be used also in full sized tablet exposure conditions, due to its size. Per FCC KDB 616217, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR exclusion threshold in KDB 447498 D01v05r02 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

This EUT was tested in four different positions. They are bottom-face of tablet PC, Edge1, Edge3 and Edge4. EUT has proximity sensor function, it would be on bottom-face and Edge1 active, the sensor trigger distance is 1.0cm for bottom-face and Edge1, EUT transmitting full power in normal mode was performed. Additional the surface of EUT is touching with phantom 0 cm for bottom-face and Edge1 with reduce power, Edge3 and Edge4 with full power.

12. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

General Note:

1. Per KDB 447498 D01v05r02, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. For body SAR testing was following KDB 941225 D03v01, the GPRS 4Tx slots modes was selected when EUT operating without power back-off and operating with power back-off, according to the highest frame average output power.

Maximum Average RF Power (Proximity Sensor Inactive)

Band GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM (GMSK, 1 Tx slot)	31.96	32.09	32.04	32.5	22.96	23.09	23.04	23.5
GPRS (GMSK, 1 Tx slot) – CS1	31.97	**32.10**	32.06	32.5	22.97	23.10	23.06	23.5
GPRS (GMSK, 2 Tx slots) – CS1	29.36	29.41	29.40	29.5	23.36	23.41	23.40	23.5
GPRS (GMSK, 3 Tx slots) – CS1	27.62	27.65	27.63	28.0	23.36	23.39	23.37	23.74
GPRS (GMSK, 4 Tx slots) – CS1	26.45	26.47	26.46	27.0	23.45	23.47	23.46	24
EDGE (8PSK, 1 Tx slot) – MCS5	26.72	26.73	26.67	27.0	17.72	17.73	17.67	18
EDGE (8PSK, 2 Tx slots) – MCS5	26.71	26.72	26.66	27.0	20.71	20.72	20.66	21
EDGE (8PSK, 3 Tx slots) – MCS5	25.93	25.92	25.88	26.0	21.67	21.66	21.62	21.74
EDGE (8PSK, 4 Tx slots) – MCS5	24.82	24.77	24.75	25.0	21.82	21.77	21.75	22
Band GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM (GMSK, 1 Tx slot)	30.00	30.09	30.09	30.5	21.00	21.09	21.09	21.5
GPRS (GMSK, 1 Tx slot) – CS1	30.01	30.09	**30.11**	30.5	21.01	21.09	21.11	21.5
GPRS (GMSK, 2 Tx slots) – CS1	27.74	27.87	27.93	28.0	21.74	21.87	21.93	22
GPRS (GMSK, 3 Tx slots) – CS1	25.73	25.82	25.92	26.0	21.47	21.56	21.66	21.74
GPRS (GMSK, 4 Tx slots) – CS1	25.70	25.81	25.90	26.5	22.70	22.81	22.90	23.5
EDGE (8PSK, 1 Tx slot) – MCS5	26.13	26.25	26.45	26.5	17.13	17.25	17.45	17.5
EDGE (8PSK, 2 Tx slots) – MCS5	24.05	24.17	24.33	24.5	18.05	18.17	18.33	18.5
EDGE (8PSK, 3 Tx slots) – MCS5	22.09	22.23	22.40	22.5	17.83	17.97	18.14	18.24
EDGE (8PSK, 4 Tx slots) – MCS5	22.08	22.22	22.39	22.5	19.08	19.22	19.39	19.5

Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots.
The calculated method are shown as below:
Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB
Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB
Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB
Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3 dB

Reduced Average RF Power (Proximity Sensor Active)

Band GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM (GMSK, 1 Tx slot)	28.82	28.86	**28.92**	29.0	19.82	19.86	19.92	20
GPRS (GMSK, 1 Tx slot) – CS1	28.81	28.84	28.82	29.0	19.81	19.84	19.82	20
GPRS (GMSK, 2 Tx slots) – CS1	25.79	25.79	25.82	26.0	19.79	19.79	19.82	20
GPRS (GMSK, 3 Tx slots) – CS1	23.94	23.94	23.99	24.5	19.68	19.68	19.73	20.24
GPRS (GMSK, 4 Tx slots) – CS1	22.79	22.87	22.85	23.5	19.79	19.87	19.85	20.5
EDGE (8PSK, 1 Tx slot) – MCS5	23.43	23.38	23.37	23.5	14.43	14.38	14.37	14.5
EDGE (8PSK, 2 Tx slots) – MCS5	23.41	23.37	23.35	23.5	17.41	17.37	17.35	17.5
EDGE (8PSK, 3 Tx slots) – MCS5	22.59	22.58	22.57	23.0	18.33	18.32	18.31	18.74
EDGE (8PSK, 4 Tx slots) – MCS5	21.44	21.42	21.41	21.5	18.44	18.42	18.41	18.5
Band GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM (GMSK, 1 Tx slot)	23.37	**23.44**	23.35	23.5	14.37	14.44	14.35	14.5
GPRS (GMSK, 1 Tx slot) – CS1	23.25	23.31	23.33	23.5	14.25	14.31	14.33	14.5
GPRS (GMSK, 2 Tx slots) – CS1	21.21	21.25	21.20	21.5	15.21	15.25	15.20	15.5
GPRS (GMSK, 3 Tx slots) – CS1	19.20	19.23	19.24	19.5	14.94	14.97	14.98	15.24
GPRS (GMSK, 4 Tx slots) – CS1	19.21	19.20	19.23	20.0	16.21	16.20	16.23	17
EDGE (8PSK, 1 Tx slot) – MCS5	19.65	19.73	19.91	20.0	10.65	10.73	10.91	11
EDGE (8PSK, 2 Tx slots) – MCS5	17.65	17.73	17.86	18.0	11.65	11.73	11.86	12
EDGE (8PSK, 3 Tx slots) – MCS5	15.80	15.87	15.99	16.0	11.54	11.61	11.73	11.74
EDGE (8PSK, 4 Tx slots) – MCS5	15.75	15.75	15.89	16.0	12.75	12.75	12.89	13

Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots.
The calculated method are shown as below:
Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB
Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB
Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB
Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3 dB

<WCDMA Conducted Power>

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
3. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set Gain Factors (β_c and β_d) and parameters were set according to each
   ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
   iii. Set RMC 12.2Kbps + HSDPA mode.
   iv. Set Cell Power = -86 dBm
   v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
   vi. Select HSDPA Uplink Parameters
   vii. Set Delta ACK, Delta NACK and Delta CQI = 8
   viii. Set Ack-Nack Repetition Factor to 3
   ix. Set CQI Feedback Cycle (k) to 4 ms
   x. Set CQI Repetition Factor to 2
   xi. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with $\beta_{hs} = 30/15 * \beta_c$.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and Δ_{NACK} = 30/15 with $\beta_{hs} = 30/15 * \beta_c$, and Δ_{CQI} = 24/15 with $\beta_{hs} = 24/15 * \beta_c$.

Note 3: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

Setup Configuration

HSUPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting * :
   i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
   ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
   iii. Set Cell Power = -86 dBm
   iv. Set Channel Type = 12.2k + HSPA
   v. Set UE Target Power
   vi. Power Ctrl Mode= Alternating bits
   vii. Set and observe the E-TFCI
   viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
d. The transmitted maximum output power was recorded.

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 5) (Note 6)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed}1: 47/15 β_{ed}2: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c .

Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.

Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.

Note 5: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 6: β_{ed} can not be set directly, it is set by Absolute Grant Value.

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set RMC 12.2Kbps + HSDPA mode.
   ii. Set Cell Power = -25 dBm
   iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
   iv. Select HSDPA Uplink Parameters
   v. Set Gain Factors (β_c and β_d) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
      a). Subtest 1: β_c/β_d=2/15
      b). Subtest 2: β_c/β_d=12/15
      c). Subtest 3: β_c/β_d=15/8
      d). Subtest 4: β_c/β_d=15/4
   vi. Set Delta ACK, Delta NACK and Delta CQI = 8
   vii. Set Ack-Nack Repetition Factor to 3
   viii. Set CQI Feedback Cycle (k) to 4 ms
   ix. Set CQI Repetition Factor to 2
   x. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
A summary of these settings are illustrated below:

C.8.1.12 Fixed Reference Channel Definition H-Set 12

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

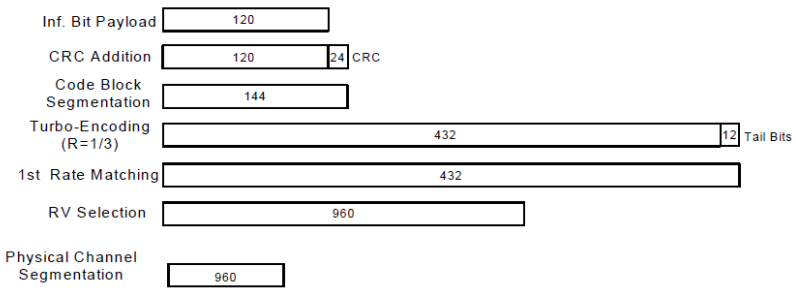


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

General Note:

1. SAR testing in AMR configuration is not required when the maximum average output of each RF channel for AMR 12.2Kbps is less than 0.25dB higher than that measured in RMC 12.2Kbps.
2. Per KDB 941225 D02v02r02, RMC 12.2kbps setting is used to evaluate SAR when EUT operating without power back-off and operating with power back-off. If HSDPA/HSUPA/DC-HSDPA output power is < 0.25dB higher than RMC, or reported SAR with RMC 12.2kbps setting is ≤ 1.2W/kg, HSDPA/HSUPA/DC-HSDPA SAR evaluation can be excluded.

Maximum Average RF Power (Proximity Sensor Inactive)

Band			WCDMA Band V				WCDMA Band II			
Tx Channel			4132	4182	4233	Tune-up Limit (dBm)	9262	9400	9538	Tune-up Limit (dBm)
Rx Channel			4357	4407	4458		9662	9800	9938	
Frequency (MHz)			826.4	836.4	846.6		1852.4	1880	1907.6	
MPR (dB)	3GPP Rel 99	AMR 12.2Kbps	23.08	23.21	23.20	23.5	22.35	22.42	22.38	23.0
	3GPP Rel 99	RMC 12.2Kbps	23.09	**23.22**	23.21	23.5	22.38	**22.43**	22.40	23.0
0	3GPP Rel 6	HSDPA Subtest-1	23.03	23.11	23.16	23.5	22.25	22.35	22.35	22.5
0	3GPP Rel 6	HSDPA Subtest-2	22.74	22.85	22.90	23.5	22.21	22.37	22.32	22.5
0.5	3GPP Rel 6	HSDPA Subtest-3	22.24	22.36	22.40	23.0	22.21	22.35	22.35	22.5
0.5	3GPP Rel 6	HSDPA Subtest-4	21.98	22.11	22.14	23.0	22.26	22.35	22.36	22.5
0	3GPP Rel 8	DC-HSDPA Subtest-1	22.94	23.10	23.07	23.5	22.17	22.24	22.12	22.5
0	3GPP Rel 8	DC-HSDPA Subtest-2	22.93	23.08	22.53	23.5	22.16	22.31	21.68	22.5
0.5	3GPP Rel 8	DC-HSDPA Subtest-3	22.41	22.58	22.03	23.0	21.68	21.68	21.19	22.5
0.5	3GPP Rel 8	DC-HSDPA Subtest-4	22.40	22.56	21.79	23.0	21.56	21.64	20.93	22.5
0	3GPP Rel 6	HSUPA Subtest-1	22.15	21.85	21.95	22.5	21.91	22.07	21.97	22.5
2	3GPP Rel 6	HSUPA Subtest-2	20.41	20.59	20.60	21.0	21.22	21.27	21.17	21.5
1	3GPP Rel 6	HSUPA Subtest-3	21.45	21.62	21.62	22.0	21.83	22.11	22.03	22.5
2	3GPP Rel 6	HSUPA Subtest-4	20.70	20.87	20.89	21.0	21.53	21.55	21.42	22.0
0	3GPP Rel 6	HSUPA Subtest-5	22.60	22.80	22.90	23.0	22.25	22.25	22.24	22.5

Band			WCDMA Band IV			
Tx Channel			1312	1413	1513	Tune-up Limit (dBm)
Rx Channel			1537	1638	1738	
Frequency (MHz)			1712.4	1732.6	1752.6	
MPR (dB)	3GPP Rel 99	AMR 12.2Kbps	23.00	23.10	23.21	23.5
		RMC 12.2Kbps	23.01	23.13	**23.22**	23.5
0	3GPP Rel 6	HSDPA Subtest-1	23.07	23.09	23.18	23.5
0	3GPP Rel 6	HSDPA Subtest-2	23.01	23.04	23.13	23.5
0.5	3GPP Rel 6	HSDPA Subtest-3	22.64	22.74	22.85	23.0
0.5	3GPP Rel 6	HSDPA Subtest-4	22.34	22.50	22.60	23.0
0	3GPP Rel 8	DC-HSDPA Subtest-1	23.20	23.15	23.18	23.5
0	3GPP Rel 8	DC-HSDPA Subtest-2	23.19	23.14	22.70	23.5
0.5	3GPP Rel 8	DC-HSDPA Subtest-3	22.62	22.65	22.20	23.0
0.5	3GPP Rel 8	DC-HSDPA Subtest-4	22.61	22.64	21.98	23.0
0	3GPP Rel 6	HSUPA Subtest-1	22.53	22.79	22.85	23.0
2	3GPP Rel 6	HSUPA Subtest-2	20.77	20.85	20.99	21.5
1	3GPP Rel 6	HSUPA Subtest-3	21.76	21.91	22.04	22.5
2	3GPP Rel 6	HSUPA Subtest-4	21.01	21.16	21.21	21.5
0	3GPP Rel 6	HSUPA Subtest-5	23.01	23.00	23.03	23.5

Reduced Average RF Power (Proximity Sensor Active)

Band			WCDMA Band V				WCDMA Band II			
Tx Channel			4132	4182	4233	Tune-up Limit (dBm)	9262	9400	9538	Tune-up Limit (dBm)
Rx Channel			4357	4407	4458		9662	9800	9938	
Frequency (MHz)			826.4	836.4	846.6		1852.4	1880	1907.6	
MPR (dB)	3GPP Rel 99	AMR 12.2Kbps	20.53	20.62	20.60	21.0	15.83	15.92	15.88	16.5
	3GPP Rel 99	RMC 12.2Kbps	20.54	**20.64**	20.61	21.0	15.84	**15.93**	15.89	16.5
0	3GPP Rel 6	HSDPA Subtest-1	20.53	20.60	20.60	21.0	15.75	15.87	15.75	16.0
0	3GPP Rel 6	HSDPA Subtest-2	20.51	20.61	20.58	21.0	15.79	15.91	15.74	16.0
0.5	3GPP Rel 6	HSDPA Subtest-3	20.50	20.62	20.59	21.0	15.77	15.90	15.76	16.0
0.5	3GPP Rel 6	HSDPA Subtest-4	20.52	20.63	20.57	21.0	15.78	15.92	15.74	16.0
0	3GPP Rel 8	DC-HSDPA Subtest-1	20.32	20.56	20.53	21.0	15.58	15.68	15.61	16.0
0	3GPP Rel 8	DC-HSDPA Subtest-2	20.45	20.56	20.42	21.0	15.65	15.78	15.16	16.0
0.5	3GPP Rel 8	DC-HSDPA Subtest-3	19.89	20.04	19.52	21.0	15.17	15.16	15.63	16.0
0.5	3GPP Rel 8	DC-HSDPA Subtest-4	19.88	20.03	19.31	21.0	15.04	15.08	14.82	16.0
0	3GPP Rel 6	HSUPA Subtest-1	20.16	20.26	20.29	20.5	15.49	15.39	15.29	16.0
2	3GPP Rel 6	HSUPA Subtest-2	19.46	19.56	19.75	20.0	14.49	14.58	14.52	15.0
1	3GPP Rel 6	HSUPA Subtest-3	20.19	20.29	20.33	20.5	14.74	14.49	14.39	15.0
2	3GPP Rel 6	HSUPA Subtest-4	20.42	20.52	20.57	21.0	14.63	14.53	14.49	15.0
0	3GPP Rel 6	HSUPA Subtest-5	20.18	20.28	20.33	20.5	15.74	15.43	15.33	16.0

Band			WCDMA Band IV			
Tx Channel			1312	1413	1513	Tune-up Limit (dBm)
Rx Channel			1537	1638	1738	
Frequency (MHz)			1712.4	1732.6	1752.6	
MPR (dB)	3GPP Rel 99	AMR 12.2Kbps	15.96	16.03	16.14	16.5
		RMC 12.2Kbps	15.97	16.04	**16.15**	16.5
0	3GPP Rel 6	HSDPA Subtest-1	15.95	16.01	16.12	16.5
0	3GPP Rel 6	HSDPA Subtest-2	15.93	16.02	16.12	16.5
0.5	3GPP Rel 6	HSDPA Subtest-3	15.92	16.03	15.14	16.5
0.5	3GPP Rel 6	HSDPA Subtest-4	15.96	15.98	16.10	16.5
0	3GPP Rel 8	DC-HSDPA Subtest-1	16.23	16.18	16.15	16.5
0	3GPP Rel 8	DC-HSDPA Subtest-2	16.15	16.17	16.13	16.5
0.5	3GPP Rel 8	DC-HSDPA Subtest-3	15.66	15.68	15.25	16.5
0.5	3GPP Rel 8	DC-HSDPA Subtest-4	15.56	15.62	15.17	16.5
0	3GPP Rel 6	HSUPA Subtest-1	15.69	15.79	15.89	16.0
2	3GPP Rel 6	HSUPA Subtest-2	15.68	15.85	15.95	16.0
1	3GPP Rel 6	HSUPA Subtest-3	15.82	15.94	16.02	16.5
2	3GPP Rel 6	HSUPA Subtest-4	15.87	16.01	16.13	16.5
0	3GPP Rel 6	HSUPA Subtest-5	15.73	15.83	15.93	16.0

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r03, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r03, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r03, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r03, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r03, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r03, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r03, smaller bandwidth SAR testing is not required.
8. Tests were performed when EUT operating without power back-off and operating with power back-off in accordance with general note 3, 4, 5, 6, 7 above.

Maximum Average RF Power (Proximity Sensor Inactive)
<LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	22.59	**22.61**	22.48	24.0	0
10	QPSK	1	24	22.54	22.34	22.59		
10	QPSK	1	49	22.27	22.26	22.26		
10	QPSK	25	0	21.79	21.80	21.78	23.0	0-1
10	QPSK	25	12	21.68	21.66	21.63		
10	QPSK	25	24	21.68	21.75	21.51		
10	QPSK	50	0	21.67	21.78	21.72		
10	16QAM	1	0	21.88	22.29	21.91	23.0	0-1
10	16QAM	1	24	22.21	21.89	21.61		
10	16QAM	1	49	21.71	21.83	21.47		
10	16QAM	25	0	20.91	21.03	20.92	22.0	0-2
10	16QAM	25	12	20.85	20.84	20.61		
10	16QAM	25	24	20.92	21.03	20.76		
10	16QAM	50	0	20.81	20.93	20.91		
Channel				23755	23790	23825	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	22.46	22.59	22.35	24.0	0
5	QPSK	1	12	22.31	22.24	22.15		
5	QPSK	1	24	22.58	22.45	22.19		
5	QPSK	12	0	21.72	21.72	21.58	23.0	0-1
5	QPSK	12	6	21.77	21.65	21.54		
5	QPSK	12	11	21.71	21.67	21.52		
5	QPSK	25	0	22.54	22.54	22.34		
5	16QAM	1	0	22.17	22.10	21.83	23.0	0-1
5	16QAM	1	12	22.12	21.62	21.62		
5	16QAM	1	24	21.74	21.59	21.27		
5	16QAM	12	0	20.83	20.61	20.74	22.0	0-2
5	16QAM	12	6	20.86	20.74	20.73		
5	16QAM	12	11	20.84	20.68	20.76		
5	16QAM	25	0	21.95	21.77	21.49		

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.79	22.87	22.66	24.0	0
10	QPSK	1	24	**23.16**	23.00	22.72		
10	QPSK	1	49	22.70	22.56	22.51		
10	QPSK	25	0	22.15	22.11	21.91	23.5	0-1
10	QPSK	25	12	22.11	22.05	21.83		
10	QPSK	25	24	22.00	21.91	21.70		
10	QPSK	50	0	22.05	22.00	21.86		
10	16QAM	1	0	21.92	21.90	22.34	23.5	0-1
10	16QAM	1	24	22.69	21.98	21.97		
10	16QAM	1	49	22.28	21.79	21.83		
10	16QAM	25	0	21.28	21.22	20.97	22.5	0-2
10	16QAM	25	12	21.28	21.07	21.00		
10	16QAM	25	24	21.13	20.94	20.78		
10	16QAM	50	0	21.15	21.11	20.89		
Channel				20425	20525	20625	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.86	22.81	22.70	24.0	0
5	QPSK	1	12	23.04	22.78	22.54		
5	QPSK	1	24	22.89	22.94	22.61		
5	QPSK	12	0	22.22	22.01	21.79	23.5	0-1
5	QPSK	12	6	22.21	22.02	21.81		
5	QPSK	12	11	22.21	22.02	21.75		
5	QPSK	25	0	23.01	22.90	22.70		
5	16QAM	1	0	22.48	22.40	21.84	23.5	0-1
5	16QAM	1	12	21.99	22.29	21.87		
5	16QAM	1	24	21.88	22.12	21.62		
5	16QAM	12	0	21.27	21.13	20.94	22.5	0-2
5	16QAM	12	6	21.25	21.11	20.96		
5	16QAM	12	11	21.32	21.14	20.98		
5	16QAM	25	0	22.23	22.20	21.61		

Channel				20415	20525	20635	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.88	22.85	22.44	24.0	0
3	QPSK	1	7	23.14	22.88	22.82		
3	QPSK	1	14	23.00	23.03	22.48		
3	QPSK	8	0	23.10	23.00	22.76	23.5	0-1
3	QPSK	8	4	23.12	22.96	22.77		
3	QPSK	8	7	23.11	22.99	22.78		
3	QPSK	15	0	23.06	22.97	22.78		
3	16QAM	1	0	22.32	22.24	22.19	23.5	0-1
3	16QAM	1	7	21.83	21.85	22.49		
3	16QAM	1	14	21.83	22.05	22.19		
3	16QAM	8	0	22.29	22.18	21.91	22.5	0-2
3	16QAM	8	4	22.30	22.23	22.17		
3	16QAM	8	7	22.28	22.22	21.91		
3	16QAM	15	0	22.24	22.22	21.89		
Channel				20407	20525	20643	Tune up Limit (dBm)	Target MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	23.03	22.99	22.66	24.0	0
1.4	QPSK	1	2	23.13	22.89	22.72		
1.4	QPSK	1	5	23.04	22.97	22.75		
1.4	QPSK	3	0	23.07	22.91	22.71		
1.4	QPSK	3	1	23.12	22.84	22.71		
1.4	QPSK	3	2	23.07	22.89	22.74		
1.4	QPSK	6	0	22.98	22.92	22.65	23.5	0-1
1.4	16QAM	1	0	22.29	22.39	21.74	23.5	0-1
1.4	16QAM	1	2	22.62	22.51	22.01		
1.4	16QAM	1	5	22.57	22.47	22.02		
1.4	16QAM	3	0	22.23	22.11	21.97		
1.4	16QAM	3	1	22.21	22.11	21.91		
1.4	16QAM	3	2	22.18	22.09	21.89		
1.4	16QAM	6	0	22.24	22.09	21.91	22.5	0-2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	22.34	22.41	22.16	23.5	0
20	QPSK	1	49	22.57	**22.63**	22.18		
20	QPSK	1	99	22.08	21.95	21.79		
20	QPSK	50	0	21.71	21.76	21.56	22.5	0-1
20	QPSK	50	24	21.60	21.63	21.49		
20	QPSK	50	49	21.39	21.33	21.26		
20	QPSK	100	0	21.48	21.53	21.30		
20	16QAM	1	0	22.01	21.73	22.00	22.5	0-1
20	16QAM	1	49	21.99	21.94	21.95		
20	16QAM	1	99	21.36	21.63	21.03		
20	16QAM	50	0	20.87	20.86	20.69	22.0	0-2
20	16QAM	50	24	20.75	20.74	20.70		
20	16QAM	50	49	20.49	20.45	20.30		
20	16QAM	100	0	20.72	20.68	20.58		
Channel				20025	20175	20325	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.32	22.53	22.31	23.5	0
15	QPSK	1	37	22.19	22.20	22.27		
15	QPSK	1	74	22.04	21.99	21.87		
15	QPSK	36	0	21.48	21.65	21.57	22.5	0-1
15	QPSK	36	18	21.39	21.38	21.38		
15	QPSK	36	37	21.30	21.25	21.17		
15	QPSK	75	0	21.41	21.53	21.35		
15	16QAM	1	0	21.47	22.37	21.89	22.5	0-1
15	16QAM	1	37	21.97	21.93	21.98		
15	16QAM	1	74	21.45	21.46	21.21		
15	16QAM	36	0	20.74	20.81	20.60	22.0	0-2
15	16QAM	36	18	20.53	20.74	20.42		
15	16QAM	36	37	20.51	20.48	20.38		
15	16QAM	75	0	20.57	20.60	20.51		
Channel				20000	20175	20350	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.44	22.40	22.24	23.5	0
10	QPSK	1	24	22.17	21.91	22.14		
10	QPSK	1	49	22.01	21.96	21.93		
10	QPSK	25	0	21.42	21.44	21.36	22.5	0-1
10	QPSK	25	12	21.28	21.28	21.25		
10	QPSK	25	24	21.16	21.36	21.09		
10	QPSK	50	0	21.35	21.27	21.26		
10	16QAM	1	0	22.09	21.77	21.80	22.5	0-1
10	16QAM	1	24	21.24	21.80	21.78		
10	16QAM	1	49	21.74	21.67	21.67		
10	16QAM	25	0	20.59	20.61	20.50	22.0	0-2
10	16QAM	25	12	20.42	20.50	20.34		
10	16QAM	25	24	20.52	20.53	20.33		
10	16QAM	50	0	20.61	20.48	20.40		

Channel				19975	20175	20375	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.25	22.13	22.10	23.5	0
5	QPSK	1	12	21.98	21.79	21.90		
5	QPSK	1	24	22.07	22.11	21.95		
5	QPSK	12	0	21.29	21.26	21.14	22.5	0-1
5	QPSK	12	6	21.29	21.44	21.22		
5	QPSK	12	11	21.30	21.26	21.14		
5	QPSK	25	0	22.19	22.06	22.09		
5	16QAM	1	0	21.88	21.38	21.19	22.5	0-1
5	16QAM	1	12	21.27	20.90	21.31		
5	16QAM	1	24	21.44	21.11	21.48		
5	16QAM	12	0	20.37	20.44	20.34	22.0	0-2
5	16QAM	12	6	20.50	20.37	20.43		
5	16QAM	12	11	20.37	20.45	20.37		
5	16QAM	25	0	21.58	21.35	21.29		
Channel				19965	20175	20385	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.08	22.14	22.15	23.5	0
3	QPSK	1	7	22.29	22.21	22.10		
3	QPSK	1	14	22.10	22.28	22.00		
3	QPSK	8	0	22.24	22.23	22.01	22.5	0-1
3	QPSK	8	4	22.23	22.25	22.12		
3	QPSK	8	7	22.26	22.27	22.06		
3	QPSK	15	0	22.27	22.26	22.11		
3	16QAM	1	0	21.58	21.51	21.72	22.5	0-1
3	16QAM	1	7	21.81	21.52	21.71		
3	16QAM	1	14	21.76	21.65	21.79		
3	16QAM	8	0	21.53	21.63	21.47	22.0	0-2
3	16QAM	8	4	21.41	21.37	21.28		
3	16QAM	8	7	21.80	21.55	21.40		
3	16QAM	15	0	21.45	21.53	21.40		
Channel				19957	20175	20393	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.14	22.15	22.12	23.5	0
1.4	QPSK	1	2	22.17	22.18	21.97		
1.4	QPSK	1	5	22.16	22.19	21.98		
1.4	QPSK	3	0	22.06	22.11	22.03		
1.4	QPSK	3	1	22.02	22.17	21.96		
1.4	QPSK	3	2	22.08	22.16	22.03		
1.4	QPSK	6	0	22.00	22.12	22.02	22.5	0-1
1.4	16QAM	1	0	21.68	22.01	21.11	22.5	0-1
1.4	16QAM	1	2	21.48	21.55	21.11		
1.4	16QAM	1	5	21.55	21.75	21.69		
1.4	16QAM	3	0	21.45	21.38	21.28		
1.4	16QAM	3	1	21.46	21.44	21.25		
1.4	16QAM	3	2	21.52	21.20	21.25		
1.4	16QAM	6	0	21.52	21.39	21.26	22.0	0-2

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	22.58	22.66	22.88	23.5	0
20	QPSK	1	49	22.51	22.62	22.55		
20	QPSK	1	99	22.34	22.36	22.39		
20	QPSK	50	0	21.80	21.84	21.97	22.5	0-1
20	QPSK	50	24	21.68	21.73	21.83		
20	QPSK	50	49	21.51	21.58	21.76		
20	QPSK	100	0	21.62	21.73	21.75		
20	16QAM	1	0	21.83	21.90	21.98	22.5	0-1
20	16QAM	1	49	21.53	22.22	21.92		
20	16QAM	1	99	21.61	21.78	21.69		
20	16QAM	50	0	20.63	20.87	20.94	22.0	0-2
20	16QAM	50	24	20.51	20.70	20.74		
20	16QAM	50	49	20.39	20.50	20.74		
20	16QAM	100	0	20.57	20.68	20.84		
Channel				18675	18900	19125	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.55	22.78	22.77	23.5	0
15	QPSK	1	37	22.48	22.53	22.63		
15	QPSK	1	74	22.23	22.31	22.46		
15	QPSK	36	0	21.67	21.85	22.01	22.5	0-1
15	QPSK	36	18	21.54	21.67	21.77		
15	QPSK	36	37	21.42	21.64	21.64		
15	QPSK	75	0	21.58	21.66	21.81		
15	16QAM	1	0	22.22	21.73	22.24	22.5	0-1
15	16QAM	1	37	21.65	22.06	22.10		
15	16QAM	1	74	21.44	21.58	21.74		
15	16QAM	36	0	20.60	20.86	20.92	22.0	0-2
15	16QAM	36	18	20.55	20.75	20.82		
15	16QAM	36	37	20.44	20.59	20.66		
15	16QAM	75	0	20.54	20.71	20.80		
Channel				18650	18900	19150	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.49	22.61	22.56	23.5	0
10	QPSK	1	24	22.47	22.27	22.24		
10	QPSK	1	49	22.12	22.21	21.87		
10	QPSK	25	0	21.56	21.67	21.63	22.5	0-1
10	QPSK	25	12	21.37	21.48	21.51		
10	QPSK	25	24	21.35	21.50	21.40		
10	QPSK	50	0	21.44	21.57	21.48		
10	16QAM	1	0	22.04	22.18	22.03	22.5	0-1
10	16QAM	1	24	21.38	21.38	21.89		
10	16QAM	1	49	21.78	21.64	21.08		
10	16QAM	25	0	20.60	20.65	20.62	22.0	0-2
10	16QAM	25	12	20.44	20.67	20.44		
10	16QAM	25	24	20.37	20.43	20.39		
10	16QAM	50	0	20.49	20.63	20.61		

Channel				18625	18900	19175	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.23	22.59	22.30	23.5	0
5	QPSK	1	12	22.16	22.40	21.99		
5	QPSK	1	24	22.43	22.45	22.51		
5	QPSK	12	0	21.35	21.60	21.43	22.5	0-1
5	QPSK	12	6	21.40	21.57	21.45		
5	QPSK	12	11	21.40	21.50	21.46		
5	QPSK	25	0	22.40	22.47	22.49		
5	16QAM	1	0	21.56	21.77	21.58	22.5	0-1
5	16QAM	1	12	21.26	21.54	21.44		
5	16QAM	1	24	21.36	22.00	21.61		
5	16QAM	12	0	20.46	20.60	20.43	22.0	0-2
5	16QAM	12	6	20.38	20.57	20.48		
5	16QAM	12	11	20.46	20.59	20.55		
5	16QAM	25	0	21.54	21.69	21.53		
Channel				18615	18900	19185	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.31	22.35	22.20	23.5	0
3	QPSK	1	7	22.47	22.32	22.14		
3	QPSK	1	14	22.26	22.47	22.35		
3	QPSK	8	0	22.32	22.42	22.32	22.5	0-1
3	QPSK	8	4	22.41	22.44	22.32		
3	QPSK	8	7	22.37	22.38	22.33		
3	QPSK	15	0	22.44	22.44	22.21		
3	16QAM	1	0	21.74	21.58	21.49	22.5	0-1
3	16QAM	1	7	21.88	21.82	21.45		
3	16QAM	1	14	21.54	21.59	21.08		
3	16QAM	8	0	21.35	21.63	21.44	22.0	0-2
3	16QAM	8	4	21.32	21.54	21.28		
3	16QAM	8	7	21.34	21.67	21.48		
3	16QAM	15	0	21.57	21.65	21.28		
Channel				18607	18900	19193	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.33	22.45	22.28	23.5	0
1.4	QPSK	1	2	22.33	22.52	22.30		
1.4	QPSK	1	5	22.40	22.44	22.50		
1.4	QPSK	3	0	22.23	22.50	22.23		
1.4	QPSK	3	1	22.27	22.39	22.25		
1.4	QPSK	3	2	22.23	22.50	22.26		
1.4	QPSK	6	0	22.29	22.49	22.21	22.5	0-1
1.4	16QAM	1	0	21.80	21.88	21.71	22.5	0-1
1.4	16QAM	1	2	21.80	21.71	21.60		
1.4	16QAM	1	5	21.99	21.87	21.59		
1.4	16QAM	3	0	21.65	21.64	21.40		
1.4	16QAM	3	1	21.61	21.53	21.37		
1.4	16QAM	3	2	21.53	21.66	21.26		
1.4	16QAM	6	0	21.61	21.52	21.40	22.0	0-2

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	21.02	21.14	21.42	22.0	0
20	QPSK	1	49	20.72	21.05	20.93		
20	QPSK	1	99	20.39	20.50	20.87		
20	QPSK	50	0	20.17	20.34	20.45	21.0	0-1
20	QPSK	50	24	19.83	20.08	20.08		
20	QPSK	50	49	19.77	19.95	20.05		
20	QPSK	100	0	19.97	20.15	20.21		
20	16QAM	1	0	20.26	20.45	20.79	21.0	0-1
20	16QAM	1	49	20.33	20.20	19.94		
20	16QAM	1	99	19.91	19.98	19.95		
20	16QAM	50	0	18.88	19.13	19.15	20.0	0-2
20	16QAM	50	24	18.65	18.73	18.81		
20	16QAM	50	49	18.55	18.66	18.88		
20	16QAM	100	0	18.76	18.85	18.93		
Channel				20825	21100	21375	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	21.32	**21.46**	**21.46**	22.0	0
15	QPSK	1	37	20.73	20.84	20.91		
15	QPSK	1	74	20.62	20.85	20.95		
15	QPSK	36	0	20.13	20.36	20.46	21.0	0-1
15	QPSK	36	18	19.79	20.07	20.22		
15	QPSK	36	37	19.83	20.06	20.18		
15	QPSK	75	0	20.00	20.20	20.31		
15	16QAM	1	0	20.69	20.91	20.63	21.0	0-1
15	16QAM	1	37	19.87	20.46	20.03		
15	16QAM	1	74	20.02	20.06	19.94		
15	16QAM	36	0	18.93	19.01	19.14	20.0	0-2
15	16QAM	36	18	18.63	18.83	18.87		
15	16QAM	36	37	18.65	18.80	18.76		
15	16QAM	75	0	18.74	18.87	18.96		

Channel				20800	21100	21400	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	20.86	21.17	21.18	22.0	0
10	QPSK	1	24	20.72	20.88	20.99		
10	QPSK	1	49	20.59	20.77	20.86		
10	QPSK	25	0	19.90	20.22	20.20	21.0	0-1
10	QPSK	25	12	19.70	19.99	20.03		
10	QPSK	25	24	19.71	20.06	20.00		
10	QPSK	50	0	19.85	20.14	20.12		
10	16QAM	1	0	20.49	20.23	20.69	21.0	0-1
10	16QAM	1	24	20.02	20.61	20.08		
10	16QAM	1	49	19.85	20.37	20.11		
10	16QAM	25	0	18.69	19.00	18.90	20.0	0-2
10	16QAM	25	12	18.56	18.80	18.92		
10	16QAM	25	24	18.44	18.80	18.77		
10	16QAM	50	0	18.56	18.84	18.84		
Channel				20775	21100	21425	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	20.57	20.95	20.95	22.0	0
5	QPSK	1	12	20.74	20.85	20.92		
5	QPSK	1	24	20.52	20.89	20.76		
5	QPSK	12	0	19.79	20.07	20.14	21.0	0-1
5	QPSK	12	6	19.68	19.98	20.06		
5	QPSK	12	11	19.70	20.01	20.14		
5	QPSK	25	0	19.70	20.06	20.22		
5	16QAM	1	0	19.94	20.16	20.16	21.0	0-1
5	16QAM	1	12	20.26	20.05	20.42		
5	16QAM	1	24	19.85	20.07	20.36		
5	16QAM	12	0	18.63	18.91	18.98	20.0	0-2
5	16QAM	12	6	18.59	18.75	18.93		
5	16QAM	12	11	18.49	18.80	18.92		
5	16QAM	25	0	18.54	18.91	18.95		

Reduced Average RF Power (Proximity Sensor Active)

<LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	21.17	**21.39**	21.16	22.0	0
10	QPSK	1	24	21.11	21.10	21.01		
10	QPSK	1	49	20.73	20.88	20.90		
10	QPSK	25	0	20.29	20.41	20.30	21.0	0-1
10	QPSK	25	12	20.28	20.39	20.23		
10	QPSK	25	24	20.18	20.20	20.21		
10	QPSK	50	0	20.34	20.36	20.26		
10	16QAM	1	0	20.56	20.92	20.48	21.0	0-1
10	16QAM	1	24	20.31	20.25	20.69		
10	16QAM	1	49	19.91	20.00	20.32		
10	16QAM	25	0	19.38	19.50	19.42	20.0	0-2
10	16QAM	25	12	19.39	19.52	19.29		
10	16QAM	25	24	19.21	19.33	19.37		
10	16QAM	50	0	19.27	19.52	19.36		
Channel				23755	23790	23825	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	20.86	20.81	20.65	22.0	0
5	QPSK	1	12	20.91	20.78	20.76		
5	QPSK	1	24	20.82	20.59	20.57		
5	QPSK	12	0	20.33	20.37	20.13	21.0	0-1
5	QPSK	12	6	20.28	20.18	20.06		
5	QPSK	12	11	20.22	20.10	20.06		
5	QPSK	25	0	20.19	20.16	20.05		
5	16QAM	1	0	20.23	20.13	19.86	21.0	0-1
5	16QAM	1	12	20.32	20.55	20.40		
5	16QAM	1	24	20.45	19.83	20.36		
5	16QAM	12	0	19.40	19.28	19.17	20.0	0-2
5	16QAM	12	6	19.32	19.30	19.17		
5	16QAM	12	11	19.37	19.29	19.14		
5	16QAM	25	0	19.38	19.35	19.13		

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	20.50	20.48	20.10	21.0	0
10	QPSK	1	24	**20.53**	20.50	20.31		
10	QPSK	1	49	20.28	20.20	19.99		
10	QPSK	25	0	19.61	19.60	19.56	20.0	0-1
10	QPSK	25	12	19.59	19.57	19.50		
10	QPSK	25	24	19.54	19.52	19.39		
10	QPSK	50	0	19.65	19.62	19.57		
10	16QAM	1	0	19.93	20.21	19.85	20.5	0-1
10	16QAM	1	24	19.98	20.22	19.49		
10	16QAM	1	49	19.41	20.24	19.48		
10	16QAM	25	0	18.74	19.10	18.84	19.5	0-2
10	16QAM	25	12	18.62	18.91	18.68		
10	16QAM	25	24	18.53	18.98	18.61		
10	16QAM	50	0	18.80	18.67	18.62		
Channel				20425	20525	20625	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	20.41	20.33	20.06	21.0	0
5	QPSK	1	12	20.34	20.26	20.00		
5	QPSK	1	24	20.31	20.07	20.01		
5	QPSK	12	0	19.64	19.50	19.27	20.0	0-1
5	QPSK	12	6	19.64	19.46	19.27		
5	QPSK	12	11	19.59	19.42	19.24		
5	QPSK	25	0	19.64	19.42	19.27		
5	16QAM	1	0	19.83	19.31	19.08	20.5	0-1
5	16QAM	1	12	19.48	19.49	19.47		
5	16QAM	1	24	19.90	19.39	19.62		
5	16QAM	12	0	18.81	18.81	18.52	19.5	0-2
5	16QAM	12	6	18.70	18.75	18.48		
5	16QAM	12	11	18.57	18.72	18.46		
5	16QAM	25	0	18.64	18.53	18.39		

Channel				20415	20525	20635	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	20.38	20.35	20.05	21.0	0
3	QPSK	1	7	20.33	20.32	20.03		
3	QPSK	1	14	20.34	20.23	20.03		
3	QPSK	8	0	19.52	19.48	19.23	20.0	0-1
3	QPSK	8	4	19.51	19.50	19.24		
3	QPSK	8	7	19.53	19.45	19.34		
3	QPSK	15	0	19.52	19.47	19.26		
3	16QAM	1	0	19.66	19.51	19.62	20.5	0-1
3	16QAM	1	7	20.03	19.42	19.07		
3	16QAM	1	14	19.93	19.54	19.74		
3	16QAM	8	0	18.65	18.79	18.45	19.5	0-2
3	16QAM	8	4	18.81	18.75	18.46		
3	16QAM	8	7	18.82	18.72	18.39		
3	16QAM	15	0	18.60	18.52	18.41		
Channel				20407	20525	20643	Tune up Limit (dBm)	Target MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	20.42	20.37	20.16	21.0	0
1.4	QPSK	1	2	20.41	20.35	20.14		
1.4	QPSK	1	5	20.27	20.33	20.15		
1.4	QPSK	3	0	20.48	20.30	20.14		
1.4	QPSK	3	1	20.41	20.35	20.13		
1.4	QPSK	3	2	20.26	20.34	20.11		
1.4	QPSK	6	0	19.59	19.50	19.32	20.0	0-1
1.4	16QAM	1	0	19.86	20.00	19.30	20.5	0-1
1.4	16QAM	1	2	19.38	19.69	19.84		
1.4	16QAM	1	5	19.41	19.53	19.39		
1.4	16QAM	3	0	19.78	19.27	19.45		
1.4	16QAM	3	1	19.33	19.54	19.41		
1.4	16QAM	3	2	19.50	19.49	19.13		
1.4	16QAM	6	0	18.72	18.70	18.27	19.5	0-2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	15.56	15.66	15.63	16.5	0
20	QPSK	1	49	15.12	15.08	15.62		
20	QPSK	1	99	14.92	15.06	15.60		
20	QPSK	50	0	14.58	15.34	14.61	15.5	0-1
20	QPSK	50	24	14.28	15.31	14.12		
20	QPSK	50	49	14.15	14.09	14.01		
20	QPSK	100	0	14.27	14.36	14.22		
20	16QAM	1	0	14.88	14.91	14.66	15.5	0-1
20	16QAM	1	49	14.76	14.72	14.16		
20	16QAM	1	99	14.43	14.03	14.14		
20	16QAM	50	0	13.43	13.46	13.76	14.5	0-2
20	16QAM	50	24	13.38	13.47	13.75		
20	16QAM	50	49	13.36	13.46	13.74		
20	16QAM	100	0	13.40	13.49	13.75		
Channel				20025	20175	20325	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	15.31	**15.69**	15.57	16.5	0
15	QPSK	1	37	15.55	15.02	15.02		
15	QPSK	1	74	15.30	15.02	14.91		
15	QPSK	36	0	14.48	14.56	14.54	15.5	0-1
15	QPSK	36	18	14.34	14.32	14.29		
15	QPSK	36	37	14.18	14.18	14.13		
15	QPSK	75	0	14.35	14.37	14.37		
15	16QAM	1	0	15.06	14.89	15.35	15.5	0-1
15	16QAM	1	37	14.58	14.91	14.51		
15	16QAM	1	74	14.56	14.24	14.58		
15	16QAM	36	0	13.46	13.55	13.44	14.5	0-2
15	16QAM	36	18	13.47	13.58	13.37		
15	16QAM	36	37	13.42	13.56	13.38		
15	16QAM	75	0	13.40	13.50	13.37		
Channel				20000	20175	20350	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	15.37	15.57	15.32	16.5	0
10	QPSK	1	24	15.32	15.24	15.01		
10	QPSK	1	49	15.00	15.14	14.98		
10	QPSK	25	0	14.50	14.52	14.28	15.5	0-1
10	QPSK	25	12	14.30	14.27	14.18		
10	QPSK	25	24	14.25	14.33	14.12		
10	QPSK	50	0	14.43	14.40	14.19		
10	16QAM	1	0	14.88	14.81	15.00	15.5	0-1
10	16QAM	1	24	14.52	14.54	14.68		
10	16QAM	1	49	14.41	14.28	14.33		
10	16QAM	25	0	13.35	13.82	13.32	14.5	0-2
10	16QAM	25	12	13.17	13.72	13.36		
10	16QAM	25	24	13.20	13.70	13.31		
10	16QAM	50	0	13.27	13.60	13.30		

Channel				19975	20175	20375	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	15.33	15.26	15.08	16.5	0
5	QPSK	1	12	15.07	15.40	14.94		
5	QPSK	1	24	15.02	15.28	14.99		
5	QPSK	12	0	14.31	14.40	14.15	15.5	0-1
5	QPSK	12	6	14.33	14.28	14.15		
5	QPSK	12	11	14.08	14.29	14.16		
5	QPSK	25	0	14.32	14.37	14.24		
5	16QAM	1	0	14.54	14.42	14.39	15.5	0-1
5	16QAM	1	12	14.64	14.98	14.44		
5	16QAM	1	24	14.34	14.51	14.16		
5	16QAM	12	0	13.40	13.35	13.01	14.5	0-2
5	16QAM	12	6	13.30	13.31	13.07		
5	16QAM	12	11	13.27	13.24	13.12		
5	16QAM	25	0	13.27	13.28	13.11		
Channel				19965	20175	20385	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	15.28	15.32	15.12	16.5	0
3	QPSK	1	7	15.06	15.41	14.96		
3	QPSK	1	14	15.16	15.20	15.02		
3	QPSK	8	0	14.41	14.42	14.24	15.5	0-1
3	QPSK	8	4	14.23	14.42	14.21		
3	QPSK	8	7	14.36	14.30	14.16		
3	QPSK	15	0	14.31	14.34	14.17		
3	16QAM	1	0	14.57	14.52	14.50	15.5	0-1
3	16QAM	1	7	15.04	14.81	14.84		
3	16QAM	1	14	14.44	14.48	14.64		
3	16QAM	8	0	13.34	13.48	13.13	14.5	0-2
3	16QAM	8	4	13.38	13.38	12.93		
3	16QAM	8	7	13.35	13.31	13.17		
3	16QAM	15	0	13.24	13.49	13.34		
Channel				19957	20175	20393	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	15.21	15.25	15.03	16.5	0
1.4	QPSK	1	2	15.16	15.34	15.02		
1.4	QPSK	1	5	15.13	15.32	15.05		
1.4	QPSK	3	0	15.17	15.24	15.17		
1.4	QPSK	3	1	15.03	15.26	15.24		
1.4	QPSK	3	2	15.17	15.21	15.08		
1.4	QPSK	6	0	14.27	14.38	14.22	15.5	0-1
1.4	16QAM	1	0	14.54	15.06	14.53	15.5	0-1
1.4	16QAM	1	2	14.60	15.08	14.41		
1.4	16QAM	1	5	14.55	14.63	14.78		
1.4	16QAM	3	0	14.48	14.46	14.26		
1.4	16QAM	3	1	14.54	14.29	14.33		
1.4	16QAM	3	2	14.44	14.32	14.16		
1.4	16QAM	6	0	13.24	13.44	13.17	14.5	0-2

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	16.63	16.75	**16.80**	17.5	0
20	QPSK	1	49	16.53	16.24	16.55		
20	QPSK	1	99	16.20	16.21	16.52		
20	QPSK	50	0	15.65	15.67	15.96	16.5	0-1
20	QPSK	50	24	15.50	15.56	15.85		
20	QPSK	50	49	15.59	15.55	15.82		
20	QPSK	100	0	15.58	15.55	15.80		
20	16QAM	1	0	15.57	15.60	16.18	16.5	0-1
20	16QAM	1	49	15.13	15.30	15.59		
20	16QAM	1	99	15.10	15.17	15.22		
20	16QAM	50	0	14.86	14.90	14.90	15.5	0-2
20	16QAM	50	24	14.70	14.86	14.88		
20	16QAM	50	49	14.60	14.82	14.86		
20	16QAM	100	0	14.56	14.79	14.68		
Channel				18675	18900	19125	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	16.60	16.49	16.64	17.5	0
15	QPSK	1	37	16.23	16.05	16.23		
15	QPSK	1	74	15.92	16.03	15.99		
15	QPSK	36	0	15.42	15.42	15.56	16.5	0-1
15	QPSK	36	18	15.43	15.30	15.53		
15	QPSK	36	37	15.44	15.29	15.49		
15	QPSK	75	0	15.44	15.29	15.45		
15	16QAM	1	0	15.62	15.52	15.64	16.5	0-1
15	16QAM	1	37	15.53	15.56	15.27		
15	16QAM	1	74	15.04	15.03	15.21		
15	16QAM	36	0	14.91	14.35	14.49	15.5	0-2
15	16QAM	36	18	14.89	14.33	14.47		
15	16QAM	36	37	14.88	14.32	14.45		
15	16QAM	75	0	14.78	14.36	14.46		
Channel				18650	18900	19150	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	16.38	16.34	16.33	17.5	0
10	QPSK	1	24	16.19	15.99	16.19		
10	QPSK	1	49	15.81	16.02	15.91		
10	QPSK	25	0	16.10	15.28	15.42	16.5	0-1
10	QPSK	25	12	16.05	15.24	15.30		
10	QPSK	25	24	16.35	15.23	15.13		
10	QPSK	50	0	15.18	15.29	15.29		
10	16QAM	1	0	15.67	15.78	15.96	16.5	0-1
10	16QAM	1	24	15.32	15.45	15.38		
10	16QAM	1	49	15.37	15.17	15.41		
10	16QAM	25	0	14.89	14.29	14.27	15.5	0-2
10	16QAM	25	12	14.83	14.17	14.29		
10	16QAM	25	24	14.87	14.17	14.14		
10	16QAM	50	0	14.82	14.19	14.22		

Channel				18625	18900	19175	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	16.25	16.23	16.29	17.5	0
5	QPSK	1	12	16.00	16.38	16.13		
5	QPSK	1	24	15.94	16.08	15.97		
5	QPSK	12	0	15.20	15.28	15.26	16.5	0-1
5	QPSK	12	6	15.16	15.19	15.17		
5	QPSK	12	11	15.08	15.18	15.13		
5	QPSK	25	0	15.13	15.22	15.19		
5	16QAM	1	0	15.17	15.35	15.06	16.5	0-1
5	16QAM	1	12	15.21	15.83	15.01		
5	16QAM	1	24	15.08	15.53	15.10		
5	16QAM	12	0	14.29	14.42	14.13	15.5	0-2
5	16QAM	12	6	14.05	14.21	14.13		
5	16QAM	12	11	14.20	14.32	14.11		
5	16QAM	25	0	14.16	14.26	14.13		
Channel				18615	18900	19185	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	16.15	16.09	16.21	17.5	0
3	QPSK	1	7	16.16	16.16	16.20		
3	QPSK	1	14	16.11	16.14	15.99		
3	QPSK	8	0	15.18	15.22	15.23	16.5	0-1
3	QPSK	8	4	15.14	15.15	15.20		
3	QPSK	8	7	15.14	15.24	15.20		
3	QPSK	15	0	15.15	15.22	15.17		
3	16QAM	1	0	15.11	15.32	15.40	16.5	0-1
3	16QAM	1	7	15.37	15.64	15.28		
3	16QAM	1	14	15.29	15.68	14.87		
3	16QAM	8	0	14.21	14.27	14.20	15.5	0-2
3	16QAM	8	4	14.03	14.12	14.12		
3	16QAM	8	7	14.20	14.17	14.11		
3	16QAM	15	0	14.00	14.02	14.28		
Channel				18607	18900	19193	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	16.16	16.18	16.11	17.5	0
1.4	QPSK	1	2	16.11	16.16	16.10		
1.4	QPSK	1	5	16.21	16.18	16.09		
1.4	QPSK	3	0	16.22	16.14	16.25		
1.4	QPSK	3	1	16.20	16.22	16.10		
1.4	QPSK	3	2	16.24	16.13	16.02		
1.4	QPSK	6	0	15.20	15.26	15.17	16.5	0-1
1.4	16QAM	1	0	15.83	15.51	15.00	16.5	0-1
1.4	16QAM	1	2	15.29	15.37	14.96		
1.4	16QAM	1	5	15.50	15.80	15.23		
1.4	16QAM	3	0	15.30	15.30	15.22		
1.4	16QAM	3	1	15.26	15.19	15.23		
1.4	16QAM	3	2	15.26	15.27	15.14		
1.4	16QAM	6	0	14.23	14.21	14.14	15.5	0-2

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	14.72	14.89	**14.92**	15.5	0
20	QPSK	1	49	14.18	14.33	14.30		
20	QPSK	1	99	14.10	14.29	14.24		
20	QPSK	50	0	13.51	13.74	13.76	14.5	0-1
20	QPSK	50	24	13.13	13.48	13.41		
20	QPSK	50	49	13.10	13.45	13.36		
20	QPSK	100	0	13.28	13.52	13.55		
20	16QAM	1	0	13.90	14.16	14.09	14.5	0-1
20	16QAM	1	49	13.34	13.28	13.47		
20	16QAM	1	99	13.33	13.28	13.25		
20	16QAM	50	0	12.25	12.48	12.48	13.5	0-2
20	16QAM	50	24	12.20	12.36	12.30		
20	16QAM	50	49	12.10	12.24	12.25		
20	16QAM	100	0	12.03	12.32	12.27		
Channel				20825	21100	21375	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	14.70	14.85	14.91	15.5	0
15	QPSK	1	37	14.10	14.34	14.36		
15	QPSK	1	74	14.03	14.32	14.43		
15	QPSK	36	0	13.49	13.72	13.76	14.5	0-1
15	QPSK	36	18	13.36	13.42	13.43		
15	QPSK	36	37	13.21	13.39	13.46		
15	QPSK	75	0	13.34	13.47	13.59		
15	16QAM	1	0	14.19	14.18	13.89	14.5	0-1
15	16QAM	1	37	13.65	13.50	13.50		
15	16QAM	1	74	13.34	13.16	13.81		
15	16QAM	36	0	12.20	12.49	12.43	13.5	0-2
15	16QAM	36	18	12.16	12.23	12.25		
15	16QAM	36	37	12.14	12.18	12.30		
15	16QAM	75	0	12.12	12.23	12.30		

Channel				20800	21100	21400	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	14.39	14.61	14.73	15.5	0
10	QPSK	1	24	14.21	14.38	14.52		
10	QPSK	1	49	14.01	14.20	14.31		
10	QPSK	25	0	13.29	13.56	13.60	14.5	0-1
10	QPSK	25	12	13.15	13.31	13.45		
10	QPSK	25	24	13.05	13.30	13.43		
10	QPSK	50	0	13.18	13.45	13.54		
10	16QAM	1	0	13.44	13.87	14.27	14.5	0-1
10	16QAM	1	24	13.28	13.56	13.73		
10	16QAM	1	49	13.00	13.71	13.60		
10	16QAM	25	0	12.06	12.27	12.32	13.5	0-2
10	16QAM	25	12	11.93	12.13	12.18		
10	16QAM	25	24	11.97	12.02	12.20		
10	16QAM	50	0	11.93	12.16	12.25		
Channel				20775	21100	21425	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	14.17	14.52	14.43	15.5	0
5	QPSK	1	12	14.05	14.38	14.31		
5	QPSK	1	24	13.94	14.21	14.31		
5	QPSK	12	0	13.13	13.45	13.50	14.5	0-1
5	QPSK	12	6	13.12	13.30	13.43		
5	QPSK	12	11	13.04	13.25	13.41		
5	QPSK	25	0	13.12	13.36	13.42		
5	16QAM	1	0	13.16	13.88	13.38	14.5	0-1
5	16QAM	1	12	13.53	13.20	13.85		
5	16QAM	1	24	12.85	13.21	13.81		
5	16QAM	12	0	12.09	12.12	12.26	13.5	0-2
5	16QAM	12	6	11.90	12.03	12.15		
5	16QAM	12	11	11.88	11.90	12.10		
5	16QAM	25	0	11.86	12.04	12.33		

<WLAN Conducted Power>

General Note:

1. For IEEE802.11a/b/g SAR testing, highest average RF output power channel for the lowest data rate for 802.11b and 802.11a were selected for SAR evaluation. 802.11g were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of 802.11b mode.
2. For IEEE802.11n/ac, SAR testing can be conducted on channel with the highest output power when taking into consideration tune-up tolerance for same test configuration that was identified during SAR evaluations for IEEE802.11a/b/g (as applicable) provided bandwidth and test position are the same.
3. For IEEE802.11n/ac with multiple channel BW configurations, highest channel BW configuration with highest output power limit shall be tested.
4. Testing of lower BW configurations is not required when the maximum average output of the default test channels in each lower BW configuration is less than 1/4dB higher than the default test channel in the highest BW configuration.

<WLAN 2.4GHz>

WLAN 2.4GHz 802.11b Average Power (dBm)						Tune up Limit (dBm)
Power vs. Channel		Power vs. Data Rate				
Channel	Frequency (MHz)	1Mbps	2Mbps	5.5Mbps	11Mbps	
CH 01	2412	12.69	12.67	12.63	12.64	13.5
CH 06	2437	12.83	12.80	12.81	12.79	
CH 11	2462	**13.29**	13.27	13.26	13.24	

WLAN 2.4GHz 802.11g Average Power (dBm)										Tune up Limit (dBm)
Power vs. Channel		Power vs. Data Rate								
Channel	Frequency (MHz)	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps	
CH 01	2412	12.15	12.12	12.10	12.09	11.98	12.12	12.10	12.07	13.0
CH 06	2437	12.34	12.29	12.25	12.22	12.15	12.25	12.21	12.16	
CH 11	2462	**12.76**	12.71	12.66	12.60	12.51	12.67	12.59	12.62	

WLAN 2.4GHz 802.11n HT20 Average Power (dBm)										Tune up Limit (dBm)
Power vs. Channel		Power vs. MCS Index								
Channel	Frequency (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	
CH 01	2412	11.65	11.61	11.61	11.55	11.55	11.56	11.54	11.51	12.5
CH 06	2437	11.77	11.70	11.70	11.64	11.64	11.65	11.63	11.60	
CH 11	2462	**12.24**	12.18	12.21	12.22	12.22	12.21	12.21	12.18	

WLAN 2.4GHz 802.11n HT40 Average Power (dBm)										Tune up Limit (dBm)
Power vs. Channel		Power vs. MCS Index								
Channel	Frequency (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	
CH 03	2422	12.02	11.94	11.98	11.91	11.99	11.97	11.82	11.78	13.0
CH 06	2437	12.37	12.27	12.31	12.24	12.32	12.30	12.15	12.11	
CH 09	2452	**12.70**	12.59	12.63	12.56	12.64	12.62	12.47	12.43	

<WLAN 5GHz>

WLAN 5GHz 802.11a Average Power (dBm)										Tune up Limit (dBm)
Power vs. Channel		Power vs. Data Rate								
Channel	Frequency (MHz)	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps	
CH 36	5180	**9.33**	9.29	9.30	9.30	9.23	9.19	9.28	9.29	10.0
CH 40	5200	9.24	9.20	9.21	9.21	9.14	9.10	9.19	9.20	
CH 44	5220	9.19	9.15	9.16	9.16	9.09	9.05	9.14	9.15	
CH 48	5240	9.24	9.20	9.21	9.21	9.14	9.10	9.19	9.20	
CH 52	5260	**11.58**	11.41	11.50	11.53	11.49	11.37	11.56	11.48	12.0
CH 56	5280	11.49	11.32	11.41	11.44	11.40	11.28	11.47	11.39	
CH 60	5300	11.40	11.23	11.32	11.35	11.31	11.19	11.38	11.30	
CH 64	5320	11.30	11.13	11.22	11.25	11.21	11.09	11.28	11.20	
CH 100	5500	**8.76**	8.73	8.74	8.73	8.74	8.55	8.74	8.69	9.0
CH 104	5520	8.71	8.68	8.69	8.68	8.69	8.50	8.69	8.64	
CH 108	5540	8.68	8.65	8.66	8.65	8.66	8.47	8.66	8.61	
CH 112	5560	8.61	8.58	8.59	8.58	8.59	8.40	8.59	8.54	
CH 116	5580	8.68	8.65	8.66	8.65	8.66	8.47	8.66	8.61	
CH 136	5680	8.46	8.43	8.44	8.43	8.44	8.25	8.44	8.39	
CH 140	5700	8.51	8.48	8.49	8.48	8.49	8.30	8.49	8.44	
CH 149	5745	10.24	10.18	10.20	10.22	10.18	10.12	10.16	10.10	11.0
CH 153	5765	10.16	10.10	10.12	10.14	10.10	10.04	10.08	10.02	
CH 157	5785	10.33	10.27	10.29	10.31	10.27	10.21	10.25	10.19	
CH 161	5805	10.39	10.33	10.35	10.37	10.33	10.27	10.31	10.25	
CH 165	5825	**10.73**	10.67	10.69	10.71	10.67	10.61	10.65	10.59	

WLAN 5GHz 802.11n HT20 Average Power (dBm)										Tune up Limit (dBm)
Power vs. Channel		Power vs. MCS Index								
Channel	Frequency (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	
CH 36	5180	**9.32**	9.23	9.30	9.31	9.22	9.30	9.28	9.30	9.5
CH 40	5200	9.23	9.24	9.23	9.23	9.20	9.22	9.23	9.22	
CH 44	5220	9.19	9.10	9.17	9.18	9.09	9.17	9.15	9.17	
CH 48	5240	8.84	8.75	8.82	8.83	8.74	8.82	8.80	8.82	
CH 52	5260	**11.46**	11.37	11.44	11.45	11.36	11.44	11.42	11.44	11.5
CH 56	5280	11.41	11.30	11.37	11.38	11.34	11.40	11.40	11.42	
CH 60	5300	11.42	11.33	11.40	11.41	11.32	11.40	11.38	11.40	
CH 64	5320	11.24	11.15	11.22	11.23	11.14	11.22	11.20	11.22	
CH 100	5500	**8.78**	8.69	8.76	8.77	8.68	8.76	8.74	8.76	9.0
CH 104	5520	8.71	8.62	8.69	8.70	8.61	8.69	8.67	8.69	
CH 108	5540	8.63	8.54	8.61	8.62	8.53	8.61	8.59	8.61	
CH 112	5560	8.52	8.43	8.50	8.51	8.42	8.50	8.48	8.50	
CH 116	5580	8.67	8.58	8.65	8.66	8.57	8.65	8.63	8.65	
CH 136	5680	8.55	8.46	8.53	8.54	8.45	8.53	8.51	8.53	
CH 140	5700	8.75	8.66	8.73	8.74	8.65	8.73	8.71	8.73	
CH 149	5745	10.16	10.07	10.14	10.15	10.06	10.14	10.12	10.14	11.0
CH 153	5765	10.19	10.10	10.17	10.18	10.09	10.17	10.15	10.17	
CH 157	5785	**10.27**	10.18	10.25	10.26	10.17	10.25	10.23	10.25	
CH 161	5805	10.25	10.16	10.23	10.24	10.15	10.23	10.21	10.23	
CH 165	5825	10.21	10.12	10.19	10.20	10.11	10.19	10.17	10.19	

WLAN 5GHz 802.11n HT40 Average Power (dBm)										Tune up Limit (dBm)
Power vs. Channel		Power vs. MCS Index								
Channel	Frequency (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	
CH 38	5190	**9.97**	9.95	9.93	9.55	9.64	9.75	9.65	9.66	10.5
CH 46	5230	9.34	9.32	9.30	8.92	9.01	9.12	9.02	9.03	
CH 54	5270	**11.31**	11.29	11.27	10.89	10.98	11.09	10.99	11.00	11.5
CH 62	5310	11.29	11.27	11.25	10.87	10.96	11.07	10.97	10.98	
CH 102	5510	**9.18**	9.16	9.14	8.76	8.85	8.96	8.86	8.87	9.5
CH 110	5550	8.83	8.81	8.79	8.41	8.50	8.61	8.51	8.52	
CH 134	5670	8.53	8.51	8.49	8.11	8.20	8.31	8.21	8.22	
CH 151	5755	10.15	10.13	10.11	9.73	9.82	9.93	9.83	9.84	11.0
CH 159	5795	**10.52**	10.50	10.48	10.10	10.19	10.30	10.20	10.21	

WLAN 5GHz 802.11ac VHT20 Average Power (dBm)											Tune up Limit (dBm)
Power vs. Channel		Power vs. MCS Index									
Channel	Frequency (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	
CH 36	5180	**9.41**	9.37	9.36	9.12	8.97	8.96	9.01	8.99	8.98	10.0
CH 40	5200	9.36	9.32	9.31	9.07	8.92	8.91	8.96	8.94	8.93	
CH 44	5220	9.30	9.26	9.25	9.01	8.86	8.85	8.90	8.88	8.87	
CH 48	5240	8.86	8.82	8.81	8.57	8.42	8.41	8.46	8.44	8.43	
CH 52	5260	**11.56**	11.52	11.51	11.27	11.12	11.11	11.16	11.14	11.13	12.0
CH 56	5280	11.49	11.45	11.44	11.20	11.05	11.04	11.09	11.07	11.06	
CH 60	5300	11.45	11.41	11.40	11.16	11.01	11.00	11.05	11.03	11.02	
CH 64	5320	11.24	11.20	11.19	10.95	10.80	10.79	10.84	10.82	10.81	
CH 100	5500	**8.83**	8.79	8.78	8.54	8.39	8.38	8.43	8.41	8.40	9.0
CH 104	5520	8.79	8.75	8.74	8.50	8.35	8.34	8.39	8.37	8.36	
CH 108	5540	8.61	8.57	8.56	8.32	8.17	8.16	8.21	8.19	8.18	
CH 112	5560	8.68	8.64	8.63	8.39	8.24	8.23	8.28	8.26	8.25	
CH 116	5580	8.69	8.65	8.64	8.40	8.25	8.24	8.29	8.27	8.26	
CH 136	5680	8.62	8.58	8.57	8.33	8.18	8.17	8.22	8.20	8.19	
CH 140	5700	8.77	8.73	8.72	8.48	8.33	8.32	8.37	8.35	8.34	
CH 149	5745	10.17	10.13	10.12	9.88	9.73	9.72	9.77	9.75	9.74	11.0
CH 153	5765	10.29	10.25	10.24	10.00	9.85	9.84	9.89	9.87	9.86	
CH 157	5785	**10.38**	10.34	10.33	10.09	9.94	9.93	9.98	9.96	9.95	
CH 161	5805	10.23	10.19	10.18	9.94	9.79	9.78	9.83	9.81	9.80	
CH 165	5825	10.16	10.12	10.11	9.87	9.72	9.71	9.76	9.74	9.73	

WLAN 5GHz 802.11ac VHT40 Average Power (dBm)												Tune up Limit (dBm)
Power vs. Channel		Power vs. MCS Index										
Channel	Frequency (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	
CH 38	5190	**9.44**	9.38	9.40	9.42	9.42	9.17	9.28	9.18	9.12	9.27	10.0
CH 46	5230	9.38	9.32	9.34	9.36	9.36	9.11	9.22	9.12	9.06	9.21	
CH 54	5270	11.31	11.25	11.27	11.29	11.29	11.04	11.15	11.05	10.99	11.14	11.5
CH 62	5310	**11.33**	11.27	11.29	11.31	11.31	11.06	11.17	11.07	11.01	11.16	
CH 102	5510	**8.85**	8.69	8.71	8.73	8.73	8.48	8.59	8.49	8.43	8.58	9.0
CH 110	5550	8.80	8.74	8.76	8.78	8.78	8.53	8.64	8.54	8.48	8.63	
CH 134	5670	8.75	8.69	8.71	8.73	8.73	8.48	8.59	8.49	8.43	8.58	
CH 151	5755	10.25	10.19	10.21	10.23	10.23	9.98	10.09	9.99	9.93	10.08	11.0
CH 159	5795	**10.54**	10.48	10.50	10.52	10.52	10.27	10.38	10.28	10.22	10.37	

WLAN 5GHz 802.11ac VHT80 Average Power (dBm)												Tune up Limit (dBm)
Power vs. Channel		Power vs. MCS Index										
Channel	Frequency (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	
CH 42	5210	**9.85**	9.71	9.76	9.61	9.55	9.64	9.60	9.67	9.63	9.51	10.5
CH 58	5290	**11.85**	11.71	11.76	11.61	11.55	11.64	11.60	11.67	11.63	11.51	12.0
CH 106	5530	**9.24**	9.10	9.15	9.00	8.94	9.03	8.99	9.06	9.02	8.90	9.5
CH 155	5775	**10.53**	10.33	10.43	10.32	10.23	10.43	10.38	10.33	10.33	10.22	11.0

13. Bluetooth Exclusions Applied

Mode Band	Average power(dBm)	
	Bluetooth v3.0+EDR	Bluetooth v4.0 LE
2.4GHz Bluetooth	4.5	3.0

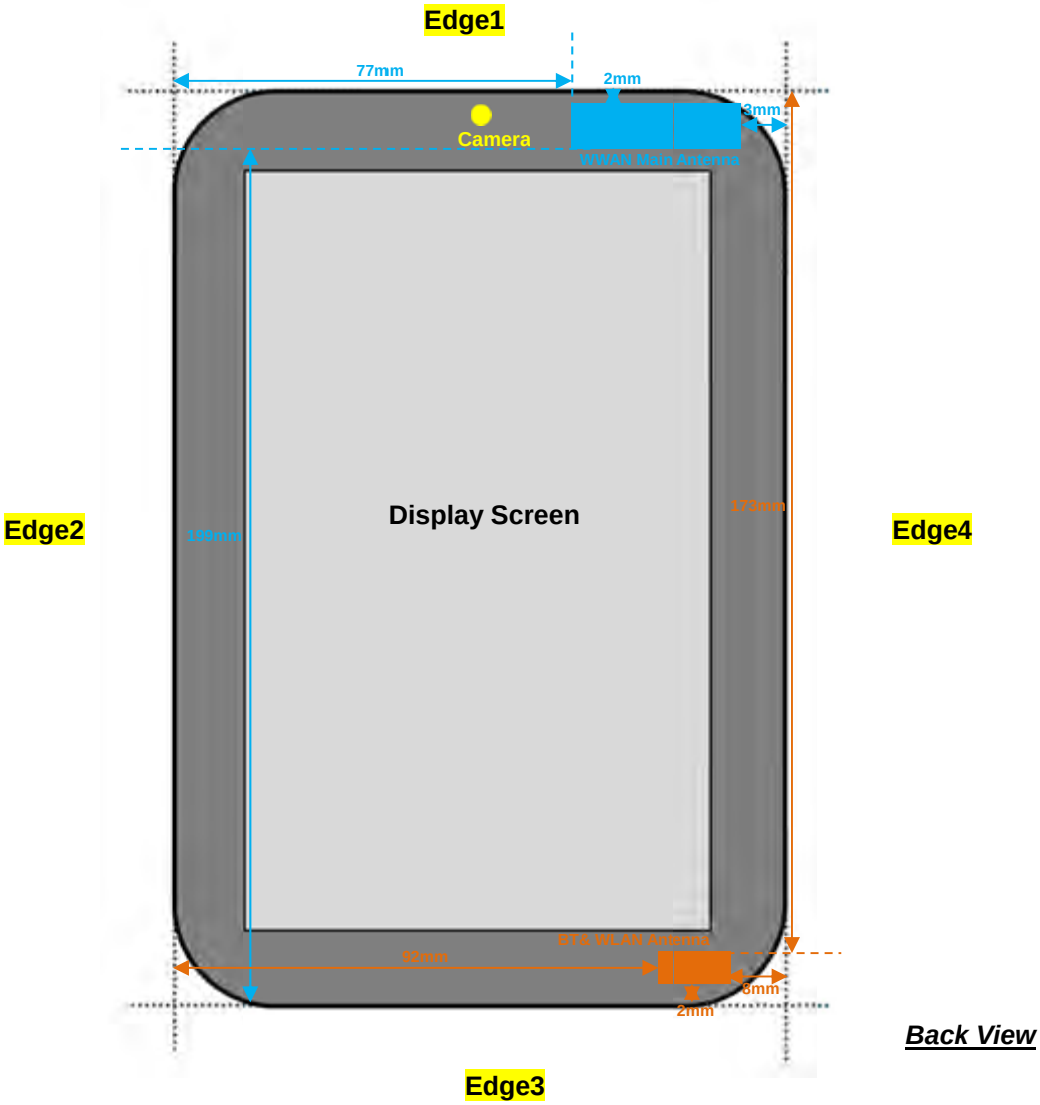
Note:

1. Per KDB 447498 D01v05r02, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:
   [(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] ·[$\sqrt{f(GHz)}$] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR
   - f(GHz) is the RF channel transmit frequency in GHz
   - Power and distance are rounded to the nearest mW and mm before calculation
   - The result is rounded to one decimal place for comparison

Bluetooth Max Power (dBm)	Separation Distance (mm)	Frequency (GHz)	Exclusion Thresholds
4.5	0	2.48	0.9

Note:
Per KDB 447498 D01v05r02, when the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion. The test exclusion threshold is 0.9 which is <= 3, SAR testing is not required.

14. Antenna Location



General Note:

1. The below table, when the distance is < 50 mm exclusion threshold is "Ratio", when the distance is > 50 mm exclusion threshold is "mW"
2. Maximum power is the source-based time-average power and represents the maximum RF output power among production units
3. Per KDB 447498 D01v05r02, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
4. Per KDB 447498 D01v05r02, standalone SAR test exclusion threshold is applied; If the test separation distance is < 5mm, 5mm is used to determine SAR exclusion threshold.
5. Per KDB 447498 D01v05r02, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:
   [(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] ·[$\sqrt{f(GHz)}$] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR
   - f(GHz) is the RF channel transmit frequency in GHz
   - Power and distance are rounded to the nearest mW and mm before calculation
   - The result is rounded to one decimal place for comparison
6. Per KDB 447498 D01v05r02, at 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following
   a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz
   b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

SAR test exclusion table distance is ≤ 50mm

Exposure Position	Wireless Interface	GPRS850 4 Tx slots	GPRS1900 4 Tx slots	WCDMA Band V	WCDMA Band IV	WCDMA Band II	LTE Band 17	LTE Band 5	LTE Band 4	LTE Band 2	LTE Band 7
	Calculated Frequency (MHz)	848.8	1909.8	846.6	1752.6	1907.6	713.5	848.3	1754.3	1909.3	2567.5
	Tune-up Maximum power (dBm)	24.0	23.5	23.5	23.5	23.0	24.0	24.0	23.5	23.5	22.0
Bottom Face	Antenna to user (mm)	0									
	SAR exclusion threshold	46	62	41	59	55	42	46	59	62	51
	SAR testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Edge 1	Antenna to user (mm)	2									
	SAR exclusion threshold	46	62	41	59	55	42	46	59	62	51
	SAR testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Edge 4	Antenna to user (mm)	3									
	SAR exclusion threshold	46	62	41	59	55	42	46	59	62	51
	SAR testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Exposure Position	Wireless Interface	WLAN 2.4GHz 802.11b	WLAN 5.2GHz 802.11a	WLAN 5.3GHz 802.11a	WLAN 5.5GHz 802.11a	WLAN 5.8GHz 802.11a
	Calculated Frequency (MHz)	2462	5240	5320	5700	5825
	Tune-up Maximum power (dBm)	13.5	10.0	12.0	9.0	11.0
Bottom Face	Antenna to user (mm)	0				
	SAR exclusion threshold	7	5	7	4	6
	SAR testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Edge 3	Antenna to user (mm)	2				
	SAR exclusion threshold	7	5	7	4	6
	SAR testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Edge 4	Antenna to user (mm)	8				
	SAR exclusion threshold	4	3	5	2	4
	SAR testing required?	**Yes**	**No**	**Yes**	**No**	**Yes**

SAR test exclusion table distance is > 50mm

	Wireless Interface	GPRS850 4 Tx slots	GPRS1900 4 Tx slots	WCDMA Band V	WCDMA Band IV	WCDMA Band II	LTE Band 17	LTE Band 5	LTE Band 4	LTE Band 2	LTE Band 7
Exposure Position	Calculated Frequency (MHz)	848.8	1909.8	846.6	1752.6	1907.6	713.5	848.3	1754.3	1909.3	2567.5
	Tune-up Maximum power (dBm)	24.0	23.5	23.5	23.5	23.0	24.0	24.0	23.5	23.5	22.0
	Tune-up Maximum rated power (mW)	251	224	224	224	200	251	251	224	224	158
Edge 2	Antenna to user (mm)	77									
	SAR exclusion threshold (mW)	316	379	315	383	379	306	316	383	379	364
	SAR testing required?	No	No	No	No	No	No	No	No	No	No
Edge 3	Antenna to user (mm)	199									
	SAR exclusion threshold (mW)	1005	1599	1003	1603	1599	886	1005	1603	1599	1584
	SAR testing required?	No	No	No	No	No	No	No	No	No	No

	Wireless Interface	WLAN 2.4GHz 802.11b	WLAN 5.2GHz 802.11a	WLAN 5.3GHz 802.11a	WLAN 5.5GHz 802.11a	WLAN 5.8GHz 802.11a
Exposure Position	Calculated Frequency (MHz)	2462	5240	5320	5700	5825
	Tune-up Maximum power (dBm)	13.5	10.0	12.0	9.0	11.0
	Tune-up Maximum rated power (mW)	22	10	16	8	13
Edge 1	Antenna to user (mm)	173				
	SAR exclusion threshold (mW)	1326	1296	1295	1293	1292
	SAR testing required?	No	No	No	No	No
Edge 2	Antenna to user (mm)	92				
	SAR exclusion threshold (mW)	516	486	485	483	482
	SAR testing required?	No	No	No	No	No

15. SAR Test Results

General Note:

1. Per KDB 447498 D01v05r02, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
2. Per KDB 447498 D01v05r02, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. For body SAR testing was following KDB 941225 D03v01, the GPRS 4Tx slots modes was selected when EUT operating without power back-off and operating with power back-off, according to the highest frame average output power.
4. Per KDB 941225 D02v02r02, RMC 12.2kbps setting is used to evaluate SAR when EUT operating without power back-off and operating with power back-off. If HSDPA/HSUPA/DC-HSDPA output power is < 0.25dB higher than RMC, or reported SAR with RMC 12.2kbps setting is ≤ 1.2W/kg, HSDPA/HSUPA/DC-HSDPA SAR evaluation can be excluded.
5. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
6. Per KDB 941225 D05v02r03, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
7. Per KDB 941225 D05v02r03, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
8. Per KDB 941225 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
9. Per KDB 941225 D05v02r03, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
10. Per KDB 941225 D05v02r03, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r03, 16QAM SAR testing is not required.
11. Per KDB 941225 D05v02r03, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r03, smaller bandwidth SAR testing is not required.
12. Tests were performed when EUT operating without power back-off and operating with power back-off in accordance with general note 7, 8, 9, 10, 11 above.
13. For the exposure positions that proximity sensor power reduction is applied for SAR compliance, additional SAR testing with EUT transmitting full power in normal mode was performed; 1.0cm for bottom face and edge1.

15.1 Body SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Power Back-off	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS (4 Tx slots)	Bottom Face	0	On	189	836.4	22.87	23.5	1.156	0.08	0.717	0.829
	GSM850	GPRS (4 Tx slots)	Bottom Face	0	On	128	824.2	22.79	23.5	1.178	0.01	0.687	0.809
	GSM850	GPRS (4 Tx slots)	Bottom Face	0	On	251	848.8	22.85	23.5	1.161	0.05	0.772	0.897
	GSM850	GPRS (4 Tx slots)	Edge 1	0	On	189	836.4	22.87	23.5	1.156	0.01	0.513	0.593
	GSM850	GPRS (4 Tx slots)	Edge 4	0	Off	189	836.4	26.47	27	1.130	0.06	0.776	0.877
	GSM850	GPRS (4 Tx slots)	Edge 4	0	Off	128	824.2	26.45	27	1.135	0.09	0.756	0.858
#01	GSM850	GPRS (4 Tx slots)	Edge 4	0	Off	251	848.8	26.46	27	1.132	0.08	0.810	**0.917**
	GSM850	GPRS (4 Tx slots)	Bottom Face	1	Off	189	836.4	26.47	27	1.130	0.04	0.519	0.586
	GSM850	GPRS (4 Tx slots)	Edge 1	1	Off	189	836.4	26.47	27	1.130	0.18	0.342	0.386
	GSM1900	GPRS (4 Tx slots)	Bottom Face	0	On	810	1909.8	19.23	20	1.194	0.09	0.884	1.055
	GSM1900	GPRS (4 Tx slots)	Bottom Face	0	On	512	1850.2	19.21	20	1.199	0.09	0.834	1.000
	GSM1900	GPRS (4 Tx slots)	Bottom Face	0	On	661	1880	19.2	20	1.202	0.06	0.868	1.044
	GSM1900	GPRS (4 Tx slots)	Edge 1	0	On	810	1909.8	19.23	20	1.194	0.09	0.409	0.488
	GSM1900	GPRS (4 Tx slots)	Edge 4	0	Off	810	1909.8	25.9	26.5	1.148	-0.11	0.474	0.544
	GSM1900	GPRS (4 Tx slots)	Bottom Face	1	Off	810	1909.8	25.9	26.5	1.148	0.09	0.994	1.141
	GSM1900	GPRS (4 Tx slots)	Bottom Face	1	Off	512	1850.2	25.7	26.5	1.202	0.07	0.981	1.179
#02	GSM1900	GPRS (4 Tx slots)	Bottom Face	1	Off	661	1880	25.81	26.5	1.172	0.03	1.010	**1.184**
	GSM1900	GPRS (4 Tx slots)	Edge 1	1	Off	810	1909.8	25.9	26.5	1.148	-0.1	0.657	0.754

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Power Back-off	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA Band V	RMC 12.2Kbps	Bottom Face	0	On	4182	836.4	20.64	21	1.086	0.06	0.976	1.060
	WCDMA Band V	RMC 12.2Kbps	Bottom Face	0	On	4132	826.4	20.54	21	1.112	0.03	0.887	0.986
#03	WCDMA Band V	RMC 12.2Kbps	Bottom Face	0	On	4233	846.6	20.61	21	1.094	0.04	0.982	**1.074**
	WCDMA Band V	RMC 12.2Kbps	Edge 1	0	On	4182	836.4	20.64	21	1.086	0.04	0.608	0.661
	WCDMA Band V	RMC 12.2Kbps	Edge 4	0	Off	4182	836.4	23.22	23.5	1.067	0.13	0.728	0.776
	WCDMA Band V	RMC 12.2Kbps	Bottom Face	1	Off	4182	836.4	23.22	23.5	1.067	0.04	0.611	0.652
	WCDMA Band V	RMC 12.2Kbps	Edge 1	1	Off	4182	836.4	23.22	23.5	1.067	0.05	0.385	0.411
	WCDMA Band IV	RMC 12.2Kbps	Bottom Face	0	On	1513	1752.6	16.15	16.5	1.084	0.13	1.030	1.116
#04	WCDMA Band IV	RMC 12.2Kbps	Bottom Face	0	On	1312	1712.4	15.97	16.5	1.130	0.18	1.050	**1.186**
	WCDMA Band IV	RMC 12.2Kbps	Bottom Face	0	On	1413	1732.6	16.04	16.5	1.112	-0.02	1.030	1.145
	WCDMA Band IV	RMC 12.2Kbps	Edge 1	0	On	1513	1752.6	16.15	16.5	1.084	-0.01	0.507	0.550
	WCDMA Band IV	RMC 12.2Kbps	Edge 4	0	Off	1513	1752.6	23.22	23.5	1.067	-0.11	0.541	0.577
	WCDMA Band IV	RMC 12.2Kbps	Bottom Face	1	Off	1513	1752.6	23.22	23.5	1.067	0.03	0.748	0.798
	WCDMA Band IV	RMC 12.2Kbps	Edge 1	1	Off	1513	1752.6	23.22	23.5	1.067	0.08	0.743	0.792
#05	WCDMA Band II	RMC 12.2Kbps	Bottom Face	0	On	9400	1880	15.93	16.5	1.140	-0.05	1.030	**1.174**
	WCDMA Band II	RMC 12.2Kbps	Bottom Face	0	On	9262	1852.4	15.84	16.5	1.164	0.09	0.993	1.156
	WCDMA Band II	RMC 12.2Kbps	Bottom Face	0	On	9538	1907.6	15.89	16.5	1.151	-0.05	1.010	1.162
	WCDMA Band II	RMC 12.2Kbps	Edge 1	0	On	9400	1880	15.93	16.5	1.140	0.09	0.432	0.493
	WCDMA Band II	RMC 12.2Kbps	Edge 4	0	Off	9400	1880	22.43	23	1.140	-0.06	0.444	0.506
	WCDMA Band II	RMC 12.2Kbps	Bottom Face	1	Off	9400	1880	22.43	23	1.140	0.07	0.918	1.047
	WCDMA Band II	RMC 12.2Kbps	Bottom Face	1	Off	9262	1852.4	22.38	23	1.153	0.16	0.943	1.088
	WCDMA Band II	RMC 12.2Kbps	Bottom Face	1	Off	9538	1907.6	22.4	23	1.148	0.09	0.915	1.051
	WCDMA Band II	RMC 12.2Kbps	Edge 1	1	Off	9400	1880	22.43	23	1.140	-0.01	0.627	0.715

<LTE SAR>

Plot No.	Band	BW (MHz)	RB Size	RB Offset	Mode	Test Position	Gap (cm)	Power Back-off	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 17	10M	1	0	QPSK	Bottom Face	0	On	23790	710	21.39	22	1.151	0.05	0.874	1.006
#06	LTE Band 17	10M	1	0	QPSK	Bottom Face	0	On	23780	709	21.17	22	1.211	0.05	0.919	**1.113**
	LTE Band 17	10M	1	0	QPSK	Bottom Face	0	On	23800	711	21.16	22	1.213	0.11	0.855	1.037
	LTE Band 17	10M	25	0	QPSK	Bottom Face	0	On	23790	710	20.41	21	1.146	0.09	0.744	0.852
	LTE Band 17	10M	25	0	QPSK	Bottom Face	0	On	23780	709	20.29	21	1.178	0.05	0.747	0.880
	LTE Band 17	10M	25	0	QPSK	Bottom Face	0	On	23800	711	20.3	21	1.175	0.11	0.739	0.868
	LTE Band 17	10M	50	0	QPSK	Bottom Face	0	On	23790	710	20.36	21	1.159	0.11	0.740	0.857
	LTE Band 17	10M	1	0	QPSK	Edge 1	0	On	23790	710	21.39	22	1.151	0.17	0.647	0.745
	LTE Band 17	10M	25	0	QPSK	Edge 1	0	On	23790	710	20.41	21	1.146	0.07	0.554	0.635
	LTE Band 17	10M	1	0	QPSK	Edge 4	0	Off	23790	710	22.61	24	1.377	0.14	0.326	0.449
	LTE Band 17	10M	25	0	QPSK	Edge 4	0	Off	23790	710	21.8	23	1.318	0.07	0.279	0.368
	LTE Band 17	10M	1	0	QPSK	Bottom Face	1	Off	23790	710	22.61	24	1.377	0.06	0.405	0.558
	LTE Band 17	10M	25	0	QPSK	Bottom Face	1	Off	23790	710	21.8	23	1.318	0.11	0.346	0.456
	LTE Band 17	10M	1	0	QPSK	Edge 1	1	Off	23790	710	22.61	24	1.377	0.14	0.302	0.416
	LTE Band 17	10M	25	0	QPSK	Edge 1	1	Off	23790	710	21.8	23	1.318	0.07	0.258	0.340
	LTE Band 5	10M	1	24	QPSK	Bottom Face	0	On	20450	829	20.53	21	1.114	0.04	0.873	0.973
	LTE Band 5	10M	1	24	QPSK	Bottom Face	0	On	20525	836.5	20.5	21	1.122	0.08	0.870	0.976
	LTE Band 5	10M	1	24	QPSK	Bottom Face	0	On	20600	844	20.31	21	1.172	0.11	0.858	1.006
	LTE Band 5	10M	25	0	QPSK	Bottom Face	0	On	20450	829	19.61	20	1.094	0.05	0.737	0.806
	LTE Band 5	10M	25	0	QPSK	Bottom Face	0	On	20525	836.5	19.6	20	1.096	0.12	0.726	0.796
	LTE Band 5	10M	25	0	QPSK	Bottom Face	0	On	20600	844	19.56	20	1.107	0.07	0.719	0.796
	LTE Band 5	10M	50	0	QPSK	Bottom Face	0	On	20450	829	19.65	20	1.084	0.07	0.731	0.792
	LTE Band 5	10M	1	24	QPSK	Edge 1	0	On	20450	829	20.53	21	1.114	0.01	0.593	0.661
	LTE Band 5	10M	25	0	QPSK	Edge 1	0	On	20450	829	19.61	20	1.094	0.13	0.489	0.535
	LTE Band 5	10M	1	24	QPSK	Edge 4	0	Off	20450	829	23.16	24	1.213	0.08	0.826	1.002
	LTE Band 5	10M	1	24	QPSK	Edge 4	0	Off	20525	836.5	23	24	1.259	0.03	0.856	1.078
#07	LTE Band 5	10M	1	24	QPSK	Edge 4	0	Off	20600	844	22.72	24	1.343	0.03	0.820	**1.101**
	LTE Band 5	10M	25	0	QPSK	Edge 4	0	Off	20450	829	22.15	23.5	1.365	0.05	0.695	0.948
	LTE Band 5	10M	25	0	QPSK	Edge 4	0	Off	20525	836.5	22.11	23.5	1.377	0.16	0.710	0.978
	LTE Band 5	10M	25	0	QPSK	Edge 4	0	Off	20600	844	21.91	23.5	1.442	0.16	0.668	0.963
	LTE Band 5	10M	50	0	QPSK	Edge 4	0	Off	20450	829	22.05	23.5	1.396	0.07	0.680	0.950
	LTE Band 5	10M	1	24	QPSK	Bottom Face	1	Off	20450	829	23.16	24	1.213	0.01	0.539	0.654
	LTE Band 5	10M	25	0	QPSK	Bottom Face	1	Off	20450	829	22.15	23.5	1.365	0.02	0.442	0.603
	LTE Band 5	10M	1	24	QPSK	Edge 1	1	Off	20450	829	23.16	24	1.213	0.08	0.357	0.433
	LTE Band 5	10M	25	0	QPSK	Edge 1	1	Off	20450	829	22.15	23.5	1.365	0.08	0.303	0.413

Plot No.	Band	BW (MHz)	RB Size	RB offest	Modulation	Test Position	Gap (cm)	Power Back-off	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
#08	LTE Band 4	20M	1	0	QPSK	Bottom Face	0	On	20175	1732.5	15.66	16.5	1.213	-0.04	0.921	**1.118**
	LTE Band 4	20M	1	0	QPSK	Bottom Face	0	On	20050	1720	15.56	16.5	1.242	0.13	0.853	1.059
	LTE Band 4	20M	1	0	QPSK	Bottom Face	0	On	20300	1745	15.63	16.5	1.222	-0.06	0.831	1.015
	LTE Band 4	20M	50	0	QPSK	Bottom Face	0	On	20175	1732.5	15.34	15.5	1.038	0.01	0.708	0.735
	LTE Band 4	20M	100	0	QPSK	Bottom Face	0	On	20175	1732.5	14.36	15.5	1.300	0.09	0.672	0.874
	LTE Band 4	20M	1	0	QPSK	Edge 1	0	On	20175	1732.5	15.66	16.5	1.213	0.03	0.359	0.436
	LTE Band 4	20M	50	0	QPSK	Edge 1	0	On	20175	1732.5	15.34	15.5	1.038	-0.02	0.276	0.286
	LTE Band 4	20M	1	0	QPSK	Edge 4	0	Off	20175	1732.5	22.63	23.5	1.222	-0.12	0.365	0.446
	LTE Band 4	20M	50	0	QPSK	Edge 4	0	Off	20175	1732.5	21.76	22.5	1.186	0.03	0.311	0.369
	LTE Band 4	20M	1	0	QPSK	Bottom Face	1	Off	20175	1732.5	22.63	23.5	1.222	0.09	0.495	0.605
	LTE Band 4	20M	50	0	QPSK	Bottom Face	1	Off	20175	1732.5	21.76	22.5	1.186	0.01	0.418	0.496
	LTE Band 4	20M	1	0	QPSK	Edge 1	1	Off	20175	1732.5	22.63	23.5	1.222	0.03	0.514	0.628
	LTE Band 4	20M	50	0	QPSK	Edge 1	1	Off	20175	1732.5	21.76	22.5	1.186	0.03	0.429	0.509
	LTE Band 2	20M	1	0	QPSK	Bottom Face	0	On	19100	1900	16.8	17.5	1.175	-0.02	0.955	1.122
#09	LTE Band 2	20M	1	0	QPSK	Bottom Face	0	On	18700	1860	16.63	17.5	1.222	-0.07	0.957	**1.169**
	LTE Band 2	20M	1	0	QPSK	Bottom Face	0	On	18900	1880	16.75	17.5	1.189	-0.04	0.964	1.146
	LTE Band 2	20M	50	0	QPSK	Bottom Face	0	On	19100	1900	15.96	16.5	1.132	-0.09	0.772	0.874
	LTE Band 2	20M	50	0	QPSK	Bottom Face	0	On	18700	1860	15.65	16.5	1.216	0.09	0.861	1.047
	LTE Band 2	20M	50	0	QPSK	Bottom Face	0	On	18900	1880	15.67	16.5	1.211	-0.08	0.902	1.092
	LTE Band 2	20M	100	0	QPSK	Bottom Face	0	On	19100	1900	15.8	16.5	1.175	-0.09	0.734	0.862
	LTE Band 2	20M	1	0	QPSK	Edge 1	0	On	19100	1900	16.8	17.5	1.175	-0.01	0.491	0.577
	LTE Band 2	20M	50	0	QPSK	Edge 1	0	On	19100	1900	15.96	16.5	1.132	-0.02	0.490	0.555
	LTE Band 2	20M	1	0	QPSK	Edge 4	0	Off	19100	1900	22.88	23.5	1.153	-0.1	0.474	0.547
	LTE Band 2	20M	50	0	QPSK	Edge 4	0	Off	19100	1900	21.97	22.5	1.130	-0.04	0.396	0.447
	LTE Band 2	20M	1	0	QPSK	Bottom Face	1	Off	19100	1900	22.88	23.5	1.153	0.03	0.913	1.053
	LTE Band 2	20M	1	0	QPSK	Bottom Face	1	Off	18700	1860	22.58	23.5	1.236	0.05	0.764	0.944
	LTE Band 2	20M	1	0	QPSK	Bottom Face	1	Off	18900	1880	22.66	23.5	1.213	0.05	0.748	0.908
	LTE Band 2	20M	50	0	QPSK	Bottom Face	1	Off	19100	1900	21.97	22.5	1.130	0.07	0.749	0.846
	LTE Band 2	20M	50	0	QPSK	Bottom Face	1	Off	18700	1860	21.8	22.5	1.175	0.06	0.682	0.801
	LTE Band 2	20M	50	0	QPSK	Bottom Face	1	Off	18900	1880	21.84	22.5	1.164	0.05	0.743	0.865
	LTE Band 2	20M	100	0	QPSK	Bottom Face	1	Off	19100	1900	21.75	22.5	1.189	0.09	0.756	0.899
	LTE Band 2	20M	1	0	QPSK	Edge 1	1	Off	19100	1900	22.88	23.5	1.153	0.15	0.689	0.795
	LTE Band 2	20M	50	0	QPSK	Edge 1	1	Off	19100	1900	21.97	22.5	1.130	0.1	0.572	0.646
	LTE Band 7	20M	1	0	QPSK	Bottom Face	0	On	21350	2560	14.92	15.5	1.143	0.08	0.952	1.088
#10	LTE Band 7	20M	1	0	QPSK	Bottom Face	0	On	20850	2510	14.72	15.5	1.197	0.02	0.998	**1.194**
	LTE Band 7	20M	1	0	QPSK	Bottom Face	0	On	21100	2535	14.89	15.5	1.151	0.08	0.990	1.139
	LTE Band 7	20M	50	0	QPSK	Bottom Face	0	On	21350	2560	13.76	14.5	1.186	-0.05	0.744	0.882
	LTE Band 7	20M	50	0	QPSK	Bottom Face	0	On	20850	2510	13.51	14.5	1.256	-0.08	0.759	0.953
	LTE Band 7	20M	50	0	QPSK	Bottom Face	0	On	21100	2535	13.74	14.5	1.191	0.08	0.761	0.907
	LTE Band 7	20M	100	0	QPSK	Bottom Face	0	On	21350	2560	13.55	14.5	1.245	0.02	0.693	0.862
	LTE Band 7	20M	1	0	QPSK	Edge 1	0	On	21350	2560	14.92	15.5	1.143	-0.06	0.424	0.485
	LTE Band 7	20M	50	0	QPSK	Edge 1	0	On	21350	2560	13.76	14.5	1.186	-0.05	0.405	0.480
	LTE Band 7	20M	1	0	QPSK	Edge 4	0	Off	21350	2560	21.42	22	1.143	0.07	0.413	0.472
	LTE Band 7	20M	50	0	QPSK	Edge 4	0	Off	21350	2560	20.45	21	1.135	0.05	0.303	0.344
	LTE Band 7	20M	1	0	QPSK	Bottom Face	1	Off	21350	2560	21.42	22	1.143	-0.08	0.610	0.697
	LTE Band 7	20M	50	0	QPSK	Bottom Face	1	Off	21350	2560	20.45	21	1.135	0.06	0.463	0.526
	LTE Band 7	20M	1	0	QPSK	Edge 1	1	Off	21350	2560	21.42	22	1.143	-0.09	0.627	0.717
	LTE Band 7	20M	50	0	QPSK	Edge 1	1	Off	21350	2560	20.45	21	1.135	-0.08	0.468	0.531

<DTS WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN 2.4GHz	802.11b 1Mbps	Bottom Face	0	11	2462	13.29	13.5	1.050	100	1.000	0.11	0.537	0.564
	WLAN 2.4GHz	802.11b 1Mbps	Edge 3	0	11	2462	13.29	13.5	1.050	100	1.000	-0.01	0.162	0.170
	WLAN 2.4GHz	802.11b 1Mbps	Edge 4	0	11	2462	13.29	13.5	1.050	100	1.000	0.14	0.195	0.205
	WLAN 2.4GHz	802.11b 1Mbps	Bottom Face	0	1	2412	12.69	13.5	1.205	100	1.000	0.05	0.459	0.553
#11	WLAN 2.4GHz	802.11b 1Mbps	Bottom Face	0	6	2437	12.83	13.5	1.167	100	1.000	0.04	0.564	**0.658**
	WLAN 2.4GHz	802.11n HT40 MCS0	Bottom Face	0	9	2452	12.7	13	1.072	86.75	1.153	0.1	0.412	0.509
#12	WLAN 5.8GHz	802.11a 6Mbps	Bottom Face	0	165	5825	10.73	11	1.064	93.46	1.070	-0.02	0.817	**0.930**
	WLAN 5.8GHz	802.11a 6Mbps	Bottom Face	0	149	5745	10.24	11	1.191	93.46	1.070	-0.12	0.511	0.651
	WLAN 5.8GHz	802.11a 6Mbps	Bottom Face	0	157	5785	10.33	11	1.167	93.46	1.070	0.09	0.707	0.883
	WLAN 5.8GHz	802.11a 6Mbps	Edge 3	0	165	5825	10.73	11	1.064	93.46	1.070	0.01	0.814	0.927
	WLAN 5.8GHz	802.11a 6Mbps	Edge 3	0	149	5745	10.24	11	1.191	93.46	1.070	0.01	0.506	0.645
	WLAN 5.8GHz	802.11a 6Mbps	Edge 3	0	157	5785	10.33	11	1.167	93.46	1.070	-0.08	0.625	0.780
	WLAN 5.8GHz	802.11a 6Mbps	Edge 4	0	165	5825	10.73	11	1.064	93.46	1.070	-0.09	0.355	0.404
	WLAN 5.8GHz	802.11n HT40 MCS0	Bottom Face	0	159	5795	10.52	11	1.117	87.71	1.140	0.01	0.688	0.876
	WLAN 5.8GHz	802.11n HT40 MCS0	Bottom Face	0	151	5755	10.15	11	1.216	87.71	1.140	-0.05	0.491	0.681
	WLAN 5.8GHz	802.11ac VHT80 MCS0	Bottom Face	0	155	5775	10.53	11	1.114	76.15	1.313	-0.09	0.472	0.691

<UNII WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN 5.2GHz	802.11a 6Mbps	Bottom Face	0	36	5180	9.33	10	1.167	93.46	1.070	-0.03	0.775	0.968
	WLAN 5.2GHz	802.11a 6Mbps	Bottom Face	0	48	5240	9.24	10	1.191	93.46	1.070	-0.05	0.555	0.707
	WLAN 5.2GHz	802.11a 6Mbps	Edge 3	0	36	5180	9.33	10	1.167	93.46	1.070	-0.09	0.827	1.032
	WLAN 5.2GHz	802.11a 6Mbps	Edge 3	0	48	5240	9.24	10	1.191	93.46	1.070	-0.09	0.647	0.825
	WLAN 5.2GHz	802.11a 6Mbps	Edge 4	0	36	5180	9.33	10	1.167	93.46	1.070	0.04	0.215	0.268
#13	WLAN 5.2GHz	802.11n HT40 MCS0	Edge 3	0	38	5190	9.97	10.5	1.130	87.71	1.140	-0.01	0.925	**1.191**
	WLAN 5.2GHz	802.11n HT40 MCS0	Edge 3	0	46	5230	9.34	10.5	1.306	87.71	1.140	-0.09	0.765	1.139
	WLAN 5.2GHz	802.11ac VHT80 MCS0	Edge 3	0	42	5210	9.85	10.5	1.161	76.15	1.313	-0.03	0.683	1.042
	WLAN 5.3GHz	802.11a 6Mbps	Bottom Face	0	52	5260	11.58	12	1.102	93.46	1.070	-0.02	0.664	0.783
#14	WLAN 5.3GHz	802.11a 6Mbps	Edge 3	0	52	5260	11.58	12	1.102	93.46	1.070	0.07	0.871	**1.027**
	WLAN 5.3GHz	802.11a 6Mbps	Edge 3	0	60	5300	11.40	12	1.148	93.46	1.070	0.02	0.666	0.818
	WLAN 5.3GHz	802.11a 6Mbps	Edge 4	0	52	5260	11.58	12	1.102	93.46	1.070	0.11	0.320	0.377
	WLAN 5.3GHz	802.11n HT40 MCS0	Edge 3	0	54	5270	11.31	11.5	1.045	87.71	1.140	-0.03	0.858	1.022
	WLAN 5.3GHz	802.11n HT40 MCS0	Edge 3	0	62	5310	11.29	11.5	1.050	87.71	1.140	-0.04	0.642	0.768
	WLAN 5.3GHz	802.11ac VHT80 MCS0	Edge 3	0	58	5290	11.85	12	1.035	76.15	1.313	0.03	0.641	0.871
	WLAN 5.5GHz	802.11a 6Mbps	Bottom Face	0	100	5500	8.76	9	1.057	93.46	1.070	-0.02	0.779	0.881
	WLAN 5.5GHz	802.11a 6Mbps	Bottom Face	0	116	5580	8.68	9	1.076	93.46	1.070	0.05	0.548	0.631
	WLAN 5.5GHz	802.11a 6Mbps	Bottom Face	0	140	5700	8.51	9	1.119	93.46	1.070	-0.07	0.415	0.497
	WLAN 5.5GHz	802.11a 6Mbps	Edge 3	0	100	5500	8.76	9	1.057	93.46	1.070	-0.06	0.856	0.968
	WLAN 5.5GHz	802.11a 6Mbps	Edge 3	0	116	5580	8.68	9	1.076	93.46	1.070	0.07	0.699	0.805
	WLAN 5.5GHz	802.11a 6Mbps	Edge 3	0	140	5700	8.51	9	1.119	93.46	1.070	-0.09	0.42	0.503
	WLAN 5.5GHz	802.11a 6Mbps	Edge 4	0	100	5500	8.76	9	1.102	93.46	1.070	-0.03	0.464	0.547
	WLAN 5.5GHz	802.11a 6Mbps	Edge 4	0	116	5580	8.68	9	1.102	93.46	1.070	-0.09	0.375	0.442
	WLAN 5.5GHz	802.11a 6Mbps	Edge 4	0	140	5700	8.51	9	1.102	93.46	1.070	-0.07	0.195	0.230
	WLAN 5.5GHz	802.11n HT40 MCS0	Edge 3	0	102	5510	9.18	9.5	1.076	87.71	1.140	-0.15	0.836	1.026
#15	WLAN 5.5GHz	802.11n HT40 MCS0	Edge 3	0	110	5550	8.83	9.5	1.167	87.71	1.140	-0.02	0.808	**1.075**
	WLAN 5.5GHz	802.11n HT40 MCS0	Edge 3	0	134	5670	8.53	9.5	1.250	87.71	1.140	-0.01	0.473	0.674
	WLAN 5.5GHz	802.11ac VHT80 MCS0	Edge 3	0	106	5530	9.24	9.5	1.062	76.15	1.313	-0.01	0.696	0.970

15.2 Repeated SAR Measurement

No.	Band	BW (MHz)	RB Size	RB offest	Modulation	Test Position	Gap (cm)	Power Back-off	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA Band V	-	-	-	RMC 12.2Kbps	Bottom Face	0	On	4233	846.6	20.61	21	1.094	0.04	0.982	1	1.074
2nd	WCDMA Band V	-	-	-	RMC 12.2Kbps	Bottom Face	0	On	4233	846.6	20.61	21	1.094	0.07	0.973	1.009	1.064
1st	WCDMA Band IV	-	-	-	RMC 12.2Kbps	Bottom Face	0	On	1312	1712.4	15.97	16.5	1.130	0.18	1.050	1	1.186
2nd	WCDMA Band IV	-	-	-	RMC 12.2Kbps	Bottom Face	0	On	1312	1712.4	15.97	16.5	1.130	-0.03	1.010	1.040	1.141
1st	WCDMA Band II	-	-	-	RMC 12.2Kbps	Bottom Face	0	On	9400	1880	15.93	16.5	1.140	-0.05	1.030	1	1.174
2nd	WCDMA Band II	-	-	-	RMC 12.2Kbps	Bottom Face	0	On	9400	1880	15.93	16.5	1.140	0.03	0.990	1.040	1.129
1st	LTE Band 17	10M	1	0	QPSK	Bottom Face	0	On	23780	709	21.17	22	1.211	0.05	0.919	1	1.113
2nd	LTE Band 17	10M	1	0	QPSK	Bottom Face	0	On	23780	709	21.17	22	1.211	0.08	0.903	1.018	1.093
1st	LTE Band 7	20M	1	0	QPSK	Bottom Face	0	On	20850	2510	14.72	15.5	1.197	0.02	0.998	1	1.194
2nd	LTE Band 7	20M	1	0	QPSK	Bottom Face	0	On	20850	2510	14.72	15.5	1.197	-0.07	0.985	1.013	1.179
1st	WLAN 5.8GHz	-	-	-	802.11a 6Mbps	Bottom Face	0	-	165	5825	10.73	11	1.064	-0.02	0.817	1	0.930
2nd	WLAN 5.8GHz	-	-	-	802.11a 6Mbps	Bottom Face	0	-	165	5825	10.73	11	1.064	-0.07	0.816	1.001	0.929
1st	WLAN 5.2GHz	-	-	-	802.11n HT40 MCS0	Edge 3	0	-	38	5190	9.97	10.5	1.130	-0.01	0.925	1	1.191
2nd	WLAN 5.2GHz	-	-	-	802.11n HT40 MCS0	Edge 3	0	-	38	5190	9.97	10.5	1.130	-0.05	0.891	1.038	1.148
1st	WLAN 5.3GHz	-	-	-	802.11a 6Mbps	Edge 3	0	-	52	5260	11.58	12	1.102	0.07	0.871	1	1.027
2nd	WLAN 5.3GHz	-	-	-	802.11a 6Mbps	Edge 3	0	-	52	5260	11.58	12	1.102	0.05	0.870	1.001	1.025
1st	WLAN 5.5GHz	-	-	-	802.11a 6Mbps	Edge 3	0	-	100	5500	8.76	9	1.057	-0.06	0.856	1	0.968
2nd	WLAN 5.5GHz	-	-	-	802.11a 6Mbps	Edge 3	0	-	100	5500	8.76	9	1.057	-0.02	0.853	1.004	0.965

General Note:

1. Per KDB 865664 D01v01r03, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r03, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

16. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Tablet	Note
		Body	
1.	GPRS/EDGE(data) + WLAN2.4GHz(data)	Yes	2.4GHz Hotspot
2.	WCDMA(data) + WLAN2.4GHz(data)	Yes	2.4GHz Hotspot
3.	LTE(data) + WLAN2.4GHz(data)	Yes	2.4GHz Hotspot
4.	GPRS/EDGE(data) + WLAN5.8GHz(data)	Yes	WiFi Direct (GC/GO)
5.	WCDMA(data) + WLAN5.8GHz(data)	Yes	WiFi Direct (GC/GO)
6.	LTE(data) + WLAN5.8GHz(data)	Yes	WiFi Direct (GC/GO)
7.	GPRS/EDGE(data) + WLAN5.2/5.3/5.5GHz(data)	Yes	WiFi Direct (GC)
8.	WCDMA(data) + WLAN5.2/5.3/5.5GHz(data)	Yes	WiFi Direct (GC)
9.	LTE(data) + WLAN5.2/5.3/5.5GHz(data)	Yes	WiFi Direct (GC)
10.	GPRS/EDGE(data) + Bluetooth(data)	Yes	Bluetooth Tethering
11.	WCDMA(data) + Bluetooth(data)	Yes	Bluetooth Tethering
12.	LTE(data) + Bluetooth(data)	Yes	Bluetooth Tethering

General Note:

1. This device 2.4GHz WLAN supports hotspot operation, and 2.4GHz / 5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.2GHz / 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
2. EUT will choose each GSM, WCDMA and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
3. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
4. For simultaneous transmission analysis for exposure position of bottom face 1.0cm, WLAN SAR tested at 0mm separation is worse and the test data is used for conservative SAR summation.
5. The reported SAR summation is calculated based on the same configuration and test position.
6. Per KDB 447498 D01v05r02, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*), and the peak separation distance is determined from the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
7. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v05r02 based on the formula below.
   i) (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[$\sqrt{f(GHz)}/x$] W/kg for *test separation distances* ≤ 50 mm; where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.
   ii) 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distances* is > 50 mm.
   iii) Bluetooth estimated SAR is conservatively determined by 5mm separation, for all applicable exposure positions.

Bluetooth Max Power	Exposure Position	Test separation	All Positions
4.5 dBm	Estimated SAR (W/kg)	5mm	0.126W/kg

16.1 Tablet Body Exposure Conditions

<WWAN PCB + WLAN DTS>

WWAN Band		Exposure Position	WWAN PCB	WLAN DTS		Summed SAR (W/kg)	SPLSR	Case No
			Max. WWAN SAR (W/kg)	Band	Max. WLAN SAR (W/kg)			
GSM	GSM850	Bottom Face at 1.0cm	0.586	WLAN 5.8GHz	0.930	1.52		
		Edge1 at 1.0cm	0.386			0.39		
		Bottom Face at 0cm	0.897	WLAN 5.8GHz	0.930	**1.83**	**0.01**	**#1**
		Edge1 at 0cm	0.593			0.59		
		Edge3 at 0cm		WLAN 5.8GHz	0.927	0.93		
		Edge4 at 0cm	0.917	WLAN 5.8GHz	0.404	1.32		
	GSM1900	Bottom Face at 1.0cm	1.184	WLAN 5.8GHz	0.930	**2.11**	**0.02**	**#2**
		Edge1 at 1.0cm	0.754			0.75		
		Bottom Face at 0cm	1.055	WLAN 5.8GHz	0.930	**1.99**	**0.01**	**#3**
		Edge1 at 0cm	0.488			0.49		
		Edge3 at 0cm		WLAN 5.8GHz	0.927	0.93		
		Edge4 at 0cm	0.544	WLAN 5.8GHz	0.404	0.95		
WCMDA	Band V	Bottom Face at 1.0cm	0.652	WLAN 5.8GHz	0.930	**1.58**		
		Edge1 at 1.0cm	0.411			0.41		
		Bottom Face at 0cm	1.074	WLAN 5.8GHz	0.930	**2.00**	**0.01**	**#4**
		Edge1 at 0cm	0.661			0.66		
		Edge3 at 0cm		WLAN 5.8GHz	0.927	0.93		
		Edge4 at 0cm	0.776	WLAN 5.8GHz	0.404	1.18		
	Band IV	Bottom Face at 1.0cm	0.798	WLAN 5.8GHz	0.930	**1.73**	**0.01**	**#5**
		Edge1 at 1.0cm	0.792			0.79		
		Bottom Face at 0cm	1.186	WLAN 5.8GHz	0.930	**2.12**	**0.02**	**#6**
		Edge1 at 0cm	0.550			0.55		
		Edge3 at 0cm		WLAN 5.8GHz	0.927	0.93		
		Edge4 at 0cm	0.577	WLAN 5.8GHz	0.404	0.98		
	Band II	Bottom Face at 1.0cm	1.088	WLAN 5.8GHz	0.930	**2.02**	**0.01**	**#7**
		Edge1 at 1.0cm	0.715			0.72		
		Bottom Face at 0cm	1.174	WLAN 5.8GHz	0.930	**2.10**	**0.02**	**#8**
		Edge1 at 0cm	0.493			0.49		
		Edge3 at 0cm		WLAN 5.8GHz	0.927	0.93		
		Edge4 at 0cm	0.506	WLAN 5.8GHz	0.404	0.91		

WWAN Band		Exposure Position	WWAN PCB	WLAN DTS		Summed SAR (W/kg)	SPLSR	Case No
			Max. WWAN SAR (W/kg)	Band	Max. WLAN SAR (W/kg)			
LTE	Band 17	Bottom Face at 1.0cm	0.558	WLAN 5.8GHz	0.930	1.49		
		Edge1 at 1.0cm	0.416			0.42		
		Bottom Face at 0cm	1.113	WLAN 5.8GHz	0.930	**2.04**	**0.01**	**#9**
		Edge1 at 0cm	0.745			0.75		
		Edge3 at 0cm		WLAN 5.8GHz	0.927	0.93		
		Edge4 at 0cm	0.449	WLAN 5.8GHz	0.404	0.85		
	Band 5	Bottom Face at 1.0cm	0.654	WLAN 5.8GHz	0.930	**1.58**		
		Edge1 at 1.0cm	0.433			0.43		
		Bottom Face at 0cm	1.006	WLAN 5.8GHz	0.930	**1.94**	**0.01**	**#10**
		Edge1 at 0cm	0.661			0.66		
		Edge3 at 0cm		WLAN 5.8GHz	0.927	0.93		
		Edge4 at 0cm	1.101	WLAN 5.8GHz	0.404	1.51		
	Band 4	Bottom Face at 1.0cm	0.605	WLAN 5.8GHz	0.930	1.54		
		Edge1 at 1.0cm	0.628			0.63		
		Bottom Face at 0cm	1.118	WLAN 5.8GHz	0.930	**2.05**	**0.01**	**#11**
		Edge1 at 0cm	0.436			0.44		
		Edge3 at 0cm		WLAN 5.8GHz	0.927	0.93		
		Edge4 at 0cm	0.446	WLAN 5.8GHz	0.404	0.85		
	Band 2	Bottom Face at 1.0cm	1.053	WLAN 5.8GHz	0.930	**1.98**	**0.01**	**#12**
		Edge1 at 1.0cm	0.795			0.80		
		Bottom Face at 0cm	1.169	WLAN 5.8GHz	0.930	**2.10**	**0.01**	**#13**
		Edge1 at 0cm	0.577			0.58		
		Edge3 at 0cm		WLAN 5.8GHz	0.927	0.93		
		Edge4 at 0cm	0.547	WLAN 5.8GHz	0.404	0.95		
	Band 7	Bottom Face at 1.0cm	0.697	WLAN 5.8GHz	0.930	**1.63**	**0.01**	**#14**
		Edge1 at 1.0cm	0.717			0.72		
		Bottom Face at 0cm	1.194	WLAN 5.8GHz	0.930	**2.12**	**0.02**	**#15**
		Edge1 at 0cm	0.485			0.49		
		Edge3 at 0cm		WLAN 5.8GHz	0.927	0.93		
		Edge4 at 0cm	0.472	WLAN 5.8GHz	0.404	0.88		

<WWAN PCB + WLAN NII>

WWAN Band		Exposure Position	WWAN PCB	WLAN NII		Summed SAR (W/kg)	SPLSR	Case No
			Max. WWAN SAR (W/kg)	Band	Max. WLAN SAR (W/kg)			
GSM	GSM850	Bottom Face at 1.0cm	0.586	WLAN 5.2GHz	0.968	1.55		
		Edge1 at 1.0cm	0.386			0.39		
		Bottom Face at 0cm	0.897	WLAN 5.2GHz	0.968	**1.87**	**0.01**	**#16**
		Edge1 at 0cm	0.593			0.59		
		Edge3 at 0cm		WLAN 5.2GHz	1.191	1.19		
		Edge4 at 0cm	0.917	WLAN 5.5GHz	0.547	1.46		
	GSM1900	Bottom Face at 1.0cm	1.184	WLAN 5.2GHz	0.968	**2.15**	**0.02**	**#17**
		Edge1 at 1.0cm	0.754			0.75		
		Bottom Face at 0cm	1.055	WLAN 5.2GHz	0.968	**2.02**	**0.01**	**#18**
		Edge1 at 0cm	0.488			0.49		
		Edge3 at 0cm		WLAN 5.2GHz	1.191	1.19		
		Edge4 at 0cm	0.544	WLAN 5.5GHz	0.547	1.09		
WCMDA	Band V	Bottom Face at 1.0cm	0.652	WLAN 5.2GHz	0.968	**1.62**	**0.01**	**#19**
		Edge1 at 1.0cm	0.411			0.41		
		Bottom Face at 0cm	1.074	WLAN 5.2GHz	0.968	**2.04**	**0.01**	**#20**
		Edge1 at 0cm	0.661			0.66		
		Edge3 at 0cm		WLAN 5.2GHz	1.191	1.19		
		Edge4 at 0cm	0.776	WLAN 5.5GHz	0.547	1.32		
	Band IV	Bottom Face at 1.0cm	0.798	WLAN 5.2GHz	0.968	**1.77**	**0.01**	**#21**
		Edge1 at 1.0cm	0.792			0.79		
		Bottom Face at 0cm	1.186	WLAN 5.2GHz	0.968	**2.15**	**0.02**	**#22**
		Edge1 at 0cm	0.550			0.55		
		Edge3 at 0cm		WLAN 5.2GHz	1.191	1.19		
		Edge4 at 0cm	0.577	WLAN 5.5GHz	0.547	1.12		
	Band II	Bottom Face at 1.0cm	1.088	WLAN 5.2GHz	0.968	**2.06**	**0.01**	**#23**
		Edge1 at 1.0cm	0.715			0.72		
		Bottom Face at 0cm	1.174	WLAN 5.2GHz	0.968	**2.14**	**0.02**	**#24**
		Edge1 at 0cm	0.493			0.49		
		Edge3 at 0cm		WLAN 5.2GHz	1.191	1.19		
		Edge4 at 0cm	0.506	WLAN 5.5GHz	0.547	1.05		

WWAN Band		Exposure Position	WWAN PCB	WLAN NII		Summed SAR (W/kg)	SPLSR	Case No
			Max. WWAN SAR (W/kg)	Band	Max. WLAN SAR (W/kg)			
LTE	Band 17	Bottom Face at 1.0cm	0.558	WLAN 5.2GHz	0.968	1.53		
		Edge1 at 1.0cm	0.416			0.42		
		Bottom Face at 0cm	1.113	WLAN 5.2GHz	0.968	**2.08**	**0.02**	**#25**
		Edge1 at 0cm	0.745			0.75		
		Edge3 at 0cm		WLAN 5.2GHz	1.191	1.19		
		Edge4 at 0cm	0.449	WLAN 5.5GHz	0.547	1.00		
	Band 5	Bottom Face at 1.0cm	0.654	WLAN 5.2GHz	0.968	**1.62**	**0.01**	**#26**
		Edge1 at 1.0cm	0.433			0.43		
		Bottom Face at 0cm	1.006	WLAN 5.2GHz	0.968	**1.97**	**0.01**	**#27**
		Edge1 at 0cm	0.661			0.66		
		Edge3 at 0cm		WLAN 5.2GHz	1.191	1.19		
		Edge4 at 0cm	1.101	WLAN 5.5GHz	0.547	**1.65**	**0.01**	**#28**
	Band 4	Bottom Face at 1.0cm	0.605	WLAN 5.2GHz	0.968	**1.57**		
		Edge1 at 1.0cm	0.628			0.63		
		Bottom Face at 0cm	1.118	WLAN 5.2GHz	0.968	**2.09**	**0.02**	**#29**
		Edge1 at 0cm	0.436			0.44		
		Edge3 at 0cm		WLAN 5.2GHz	1.191	1.19		
		Edge4 at 0cm	0.446	WLAN 5.5GHz	0.547	0.99		
	Band 2	Bottom Face at 1.0cm	1.053	WLAN 5.2GHz	0.968	**2.02**	**0.01**	**#30**
		Edge1 at 1.0cm	0.795			0.80		
		Bottom Face at 0cm	1.169	WLAN 5.2GHz	0.968	**2.14**	**0.01**	**#31**
		Edge1 at 0cm	0.577			0.58		
		Edge3 at 0cm		WLAN 5.2GHz	1.191	1.19		
		Edge4 at 0cm	0.547	WLAN 5.5GHz	0.547	1.09		
	Band 7	Bottom Face at 1.0cm	0.697	WLAN 5.2GHz	0.968	**1.67**	**0.01**	**#32**
		Edge1 at 1.0cm	0.717			0.72		
		Bottom Face at 0cm	1.194	WLAN 5.2GHz	0.968	**2.16**	**0.02**	**#33**
		Edge1 at 0cm	0.485			0.49		
		Edge3 at 0cm		WLAN 5.2GHz	1.191	1.19		
		Edge4 at 0cm	0.472	WLAN 5.5GHz	0.547	1.02		

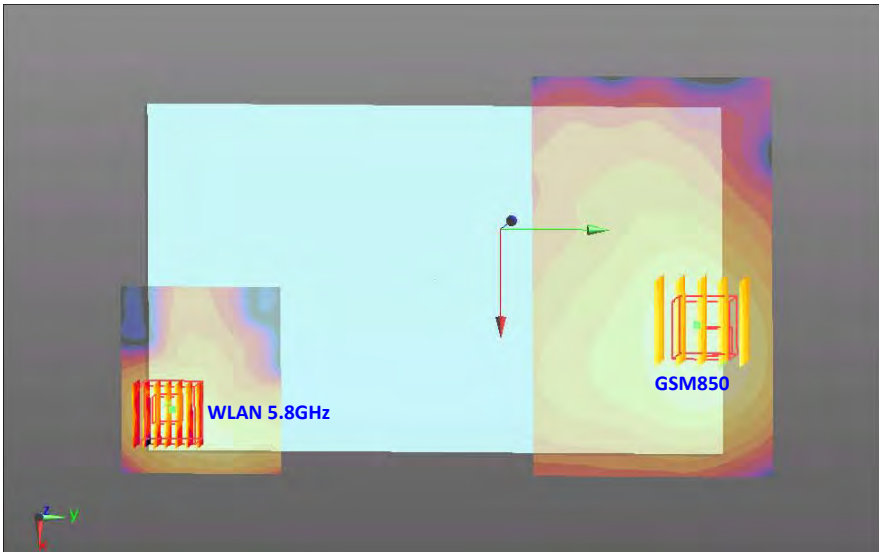
<WWAN PCB + Bluetooth DSS>

WWAN Band		Exposure Position	WWAN PCB Max. WWAN SAR (W/kg)	Bluetooth DSS Max. Bluetooth SAR (W/kg)	Summed SAR (W/kg)	SPLSR	Case No
GSM	GSM850	Bottom Face at 1.0cm	0.586	0.126	0.71		
		Edge1 at 1.0cm	0.386	0.126	0.51		
		Bottom Face at 0cm	0.897	0.126	1.02		
		Edge1 at 0cm	0.593	0.126	0.72		
		Edge3 at 0cm		0.126	0.13		
		Edge4 at 0cm	0.917	0.126	1.04		
	GSM1900	Bottom Face at 1.0cm	1.184	0.126	1.31		
		Edge1 at 1.0cm	0.754	0.126	0.88		
		Bottom Face at 0cm	1.055	0.126	1.18		
		Edge1 at 0cm	0.488	0.126	0.61		
		Edge3 at 0cm		0.126	0.13		
		Edge4 at 0cm	0.544	0.126	0.67		
WCMDA	Band V	Bottom Face at 1.0cm	0.652	0.126	0.78		
		Edge1 at 1.0cm	0.411	0.126	0.54		
		Bottom Face at 0cm	1.074	0.126	1.20		
		Edge1 at 0cm	0.661	0.126	0.79		
		Edge3 at 0cm		0.126	0.13		
		Edge4 at 0cm	0.776	0.126	0.90		
	Band IV	Bottom Face at 1.0cm	0.798	0.126	0.92		
		Edge1 at 1.0cm	0.792	0.126	0.92		
		Bottom Face at 0cm	1.186	0.126	1.31		
		Edge1 at 0cm	0.550	0.126	0.68		
		Edge3 at 0cm		0.126	0.13		
		Edge4 at 0cm	0.577	0.126	0.70		
	Band II	Bottom Face at 1.0cm	1.088	0.126	1.21		
		Edge1 at 1.0cm	0.715	0.126	0.84		
		Bottom Face at 0cm	1.174	0.126	1.30		
		Edge1 at 0cm	0.493	0.126	0.62		
		Edge3 at 0cm		0.126	0.13		
		Edge4 at 0cm	0.506	0.126	0.63		

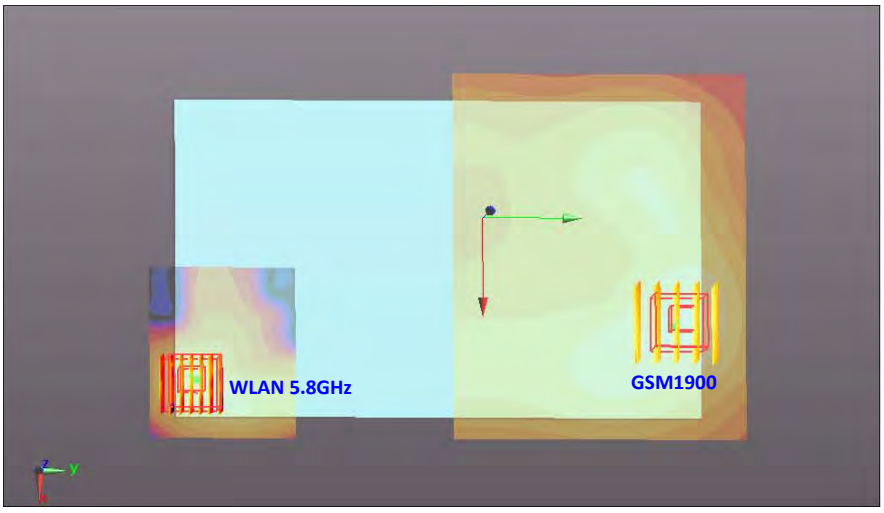
WWAN Band		Exposure Position	WWAN PCB Max. WWAN SAR (W/kg)	Bluetooth DSS Max. Bluetooth SAR (W/kg)	Summed SAR (W/kg)	SPLSR	Case No
LTE	Band 17	Bottom Face at 1.0cm	0.558	0.126	0.68		
		Edge1 at 1.0cm	0.416	0.126	0.54		
		Bottom Face at 0cm	1.113	0.126	1.24		
		Edge1 at 0cm	0.745	0.126	0.87		
		Edge3 at 0cm		0.126	0.13		
		Edge4 at 0cm	0.449	0.126	0.58		
	Band 5	Bottom Face at 1.0cm	0.654	0.126	0.78		
		Edge1 at 1.0cm	0.433	0.126	0.56		
		Bottom Face at 0cm	1.006	0.126	1.13		
		Edge1 at 0cm	0.661	0.126	0.79		
		Edge3 at 0cm		0.126	0.13		
		Edge4 at 0cm	1.101	0.126	1.23		
	Band 4	Bottom Face at 1.0cm	0.605	0.126	0.73		
		Edge1 at 1.0cm	0.628	0.126	0.75		
		Bottom Face at 0cm	1.118	0.126	1.24		
		Edge1 at 0cm	0.436	0.126	0.56		
		Edge3 at 0cm		0.126	0.13		
		Edge4 at 0cm	0.446	0.126	0.57		
	Band 2	Bottom Face at 1.0cm	1.053	0.126	1.18		
		Edge1 at 1.0cm	0.795	0.126	0.92		
		Bottom Face at 0cm	1.169	0.126	1.30		
		Edge1 at 0cm	0.577	0.126	0.70		
		Edge3 at 0cm		0.126	0.13		
		Edge4 at 0cm	0.547	0.126	0.67		
	Band 7	Bottom Face at 1.0cm	0.697	0.126	0.82		
		Edge1 at 1.0cm	0.717	0.126	0.84		
		Bottom Face at 0cm	1.194	0.126	**1.32**		
		Edge1 at 0cm	0.485	0.126	0.61		
		Edge3 at 0cm		0.126	0.13		
		Edge4 at 0cm	0.472	0.126	0.60		

16.2 SPLSR Evaluation and Analysis

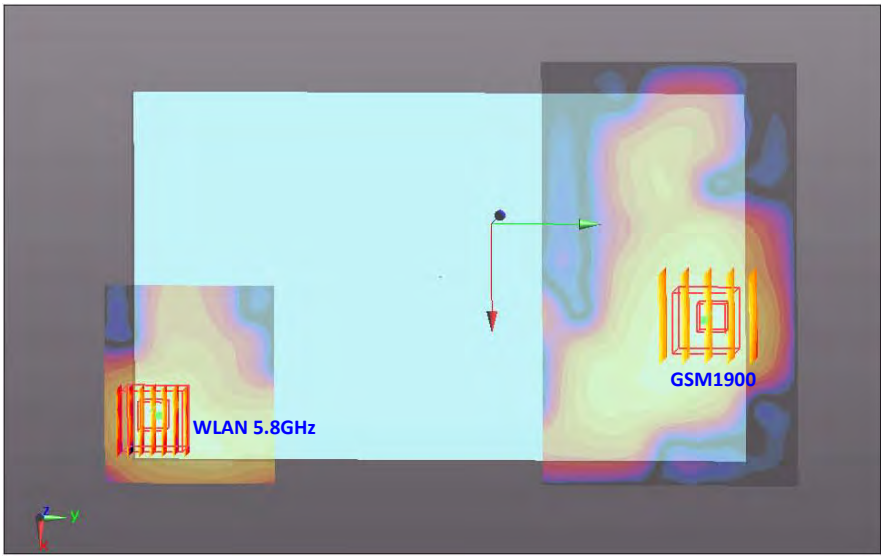
Case No #1 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	GSM850	0.897	0	0.034	0.105	-0.181	209.6	1.83	0.01	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



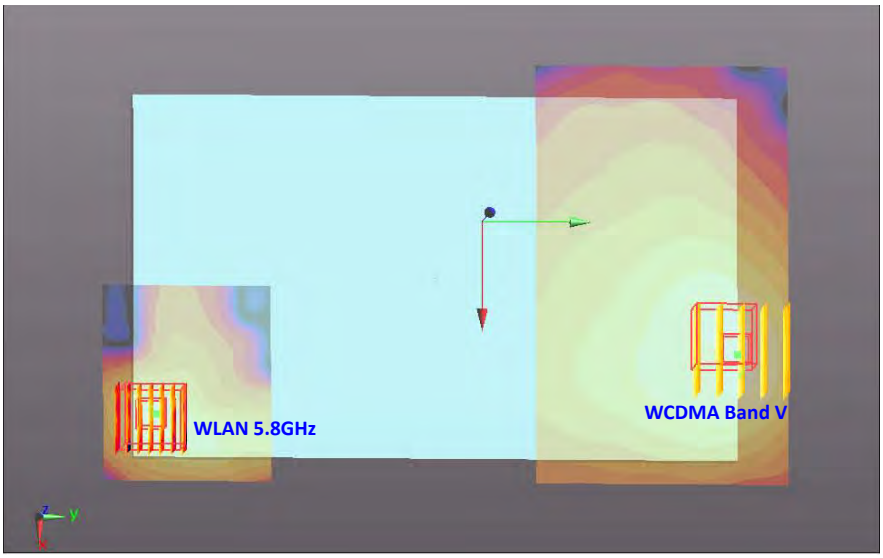
Case No #2 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	GSM1900	1.184	1	0.0285	0.095	-0.181	200.2	2.11	0.02	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



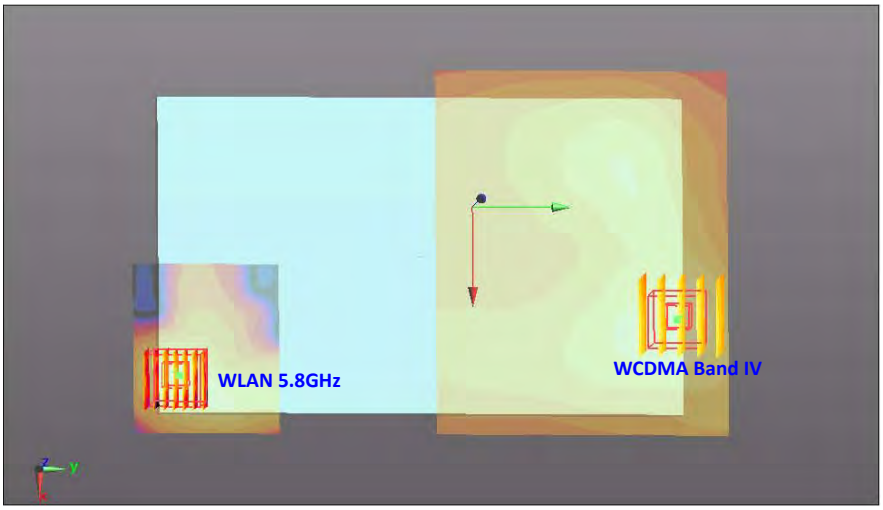
Case No #3 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	GSM1900	1.055	0	0.0165	0.092	-0.181	198.8	1.99	0.01	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



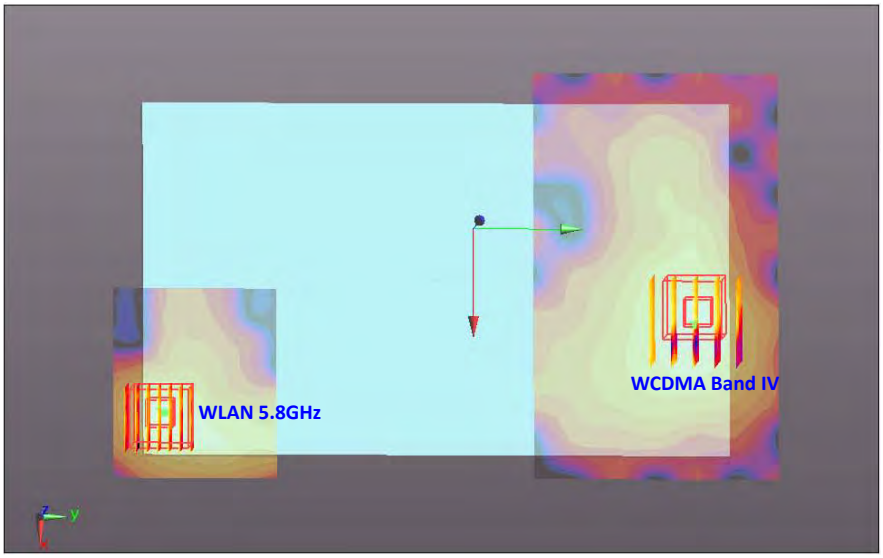
Case No #4 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	WCDMA Band V	1.074	0	0.0365	0.107	-0.181	211.4	2.00	0.01	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



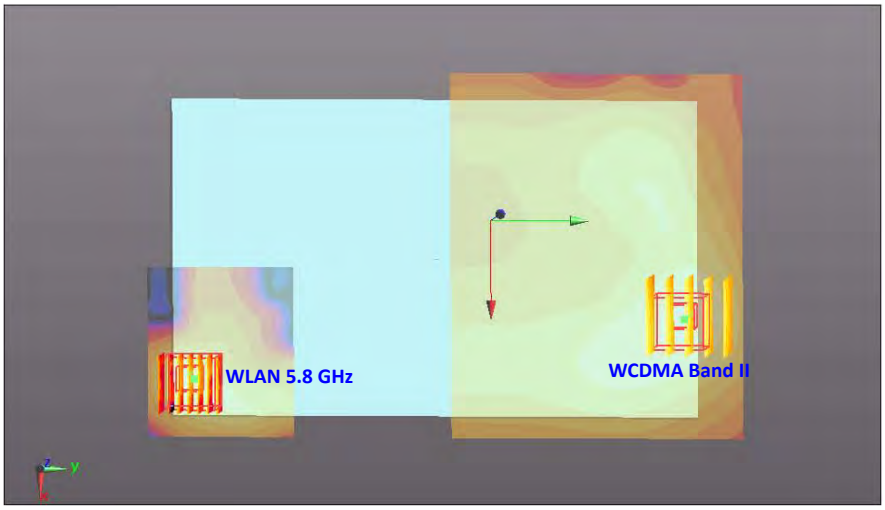
Case No #5 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	WCDMA Band IV	0.798	1	0.027	0.104	-0.181	209.3	1.73	0.01	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



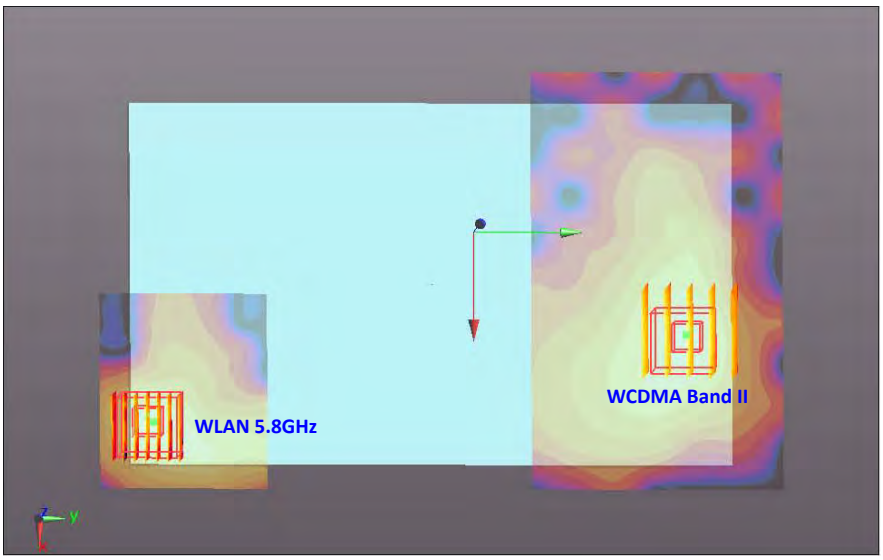
Case No #6 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	WCDMA Band IV	1.186	0	0.018	0.0935	-0.181	200.1	2.12	0.02	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



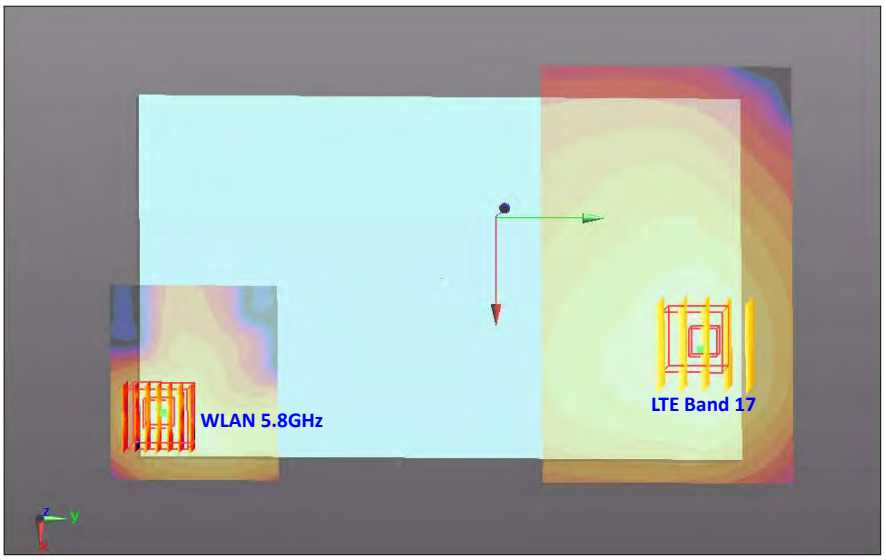
Case No #7 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	WCDMA Band II	1.088	1	0.0255	0.101	-0.181	206.5	2.02	0.01	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



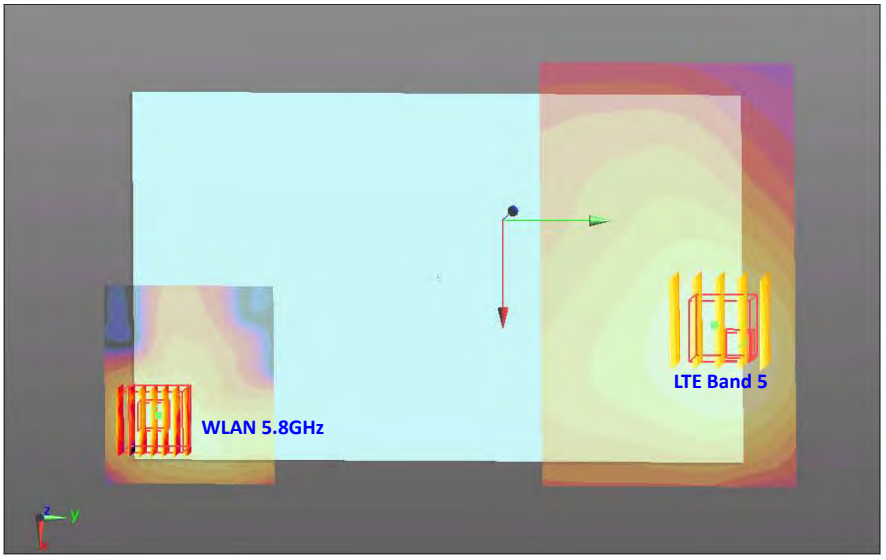
Case No #8 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	WCDMA Band II	1.174	0	0.0195	0.0905	-0.181	196.9	2.10	0.02	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



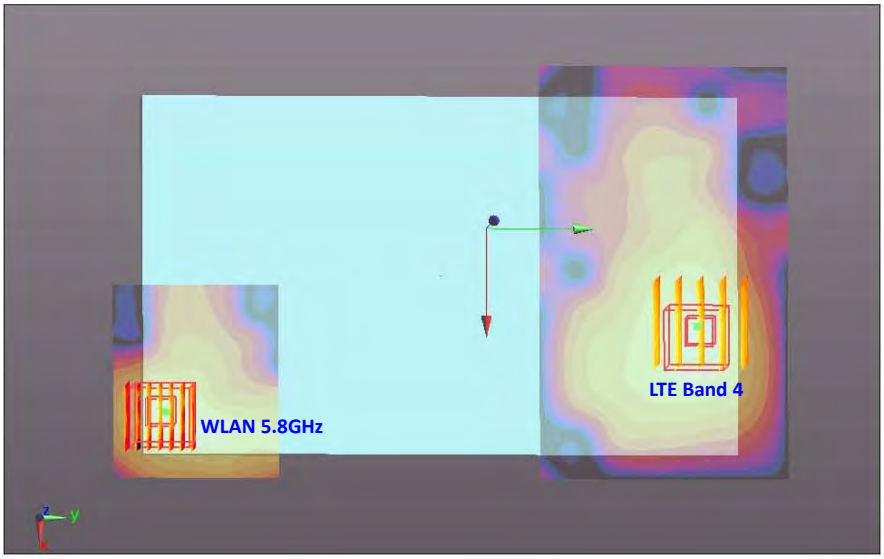
Case No #9 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 17	1.113	0	0.027	0.092	-0.181	197.3	2.04	0.01	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



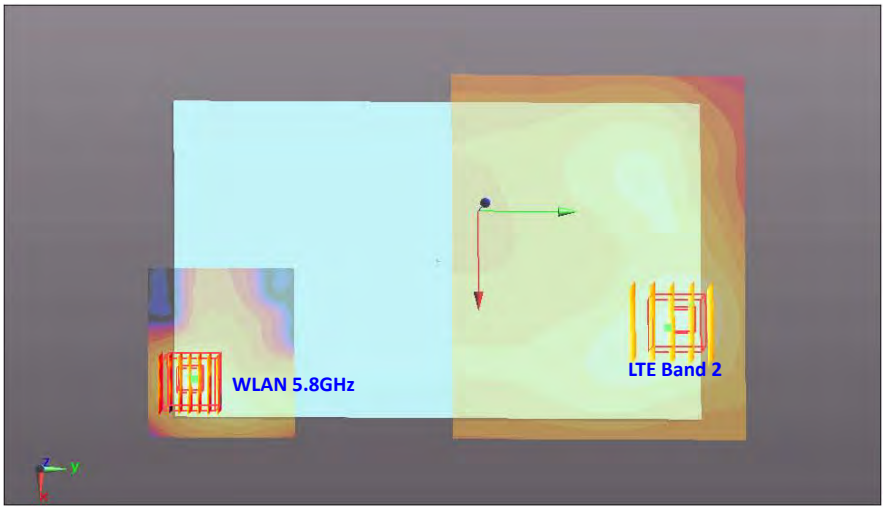
Case No #10 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 5	1.006	0	0.026	0.105	-0.181	210.4	1.94	0.01	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



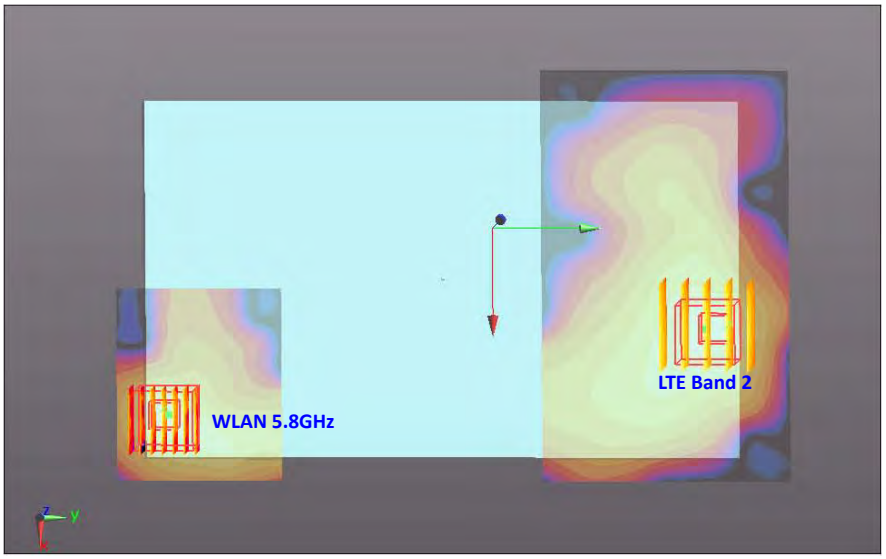
Case No #11 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 4	1.118	0	0.0195	0.092	-0.181	198.4	2.05	0.01	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



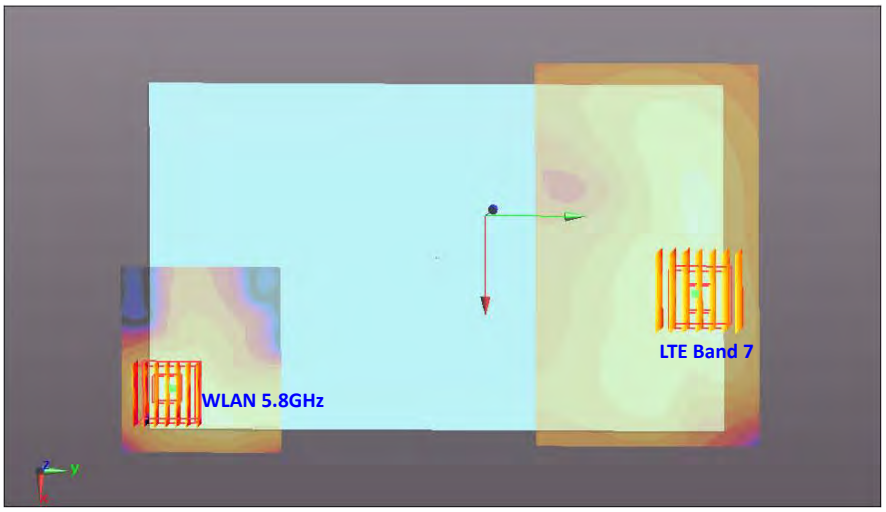
Case No #12 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 2	1.053	1	0.0205	0.102	-0.181	208.1	1.98	0.01	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



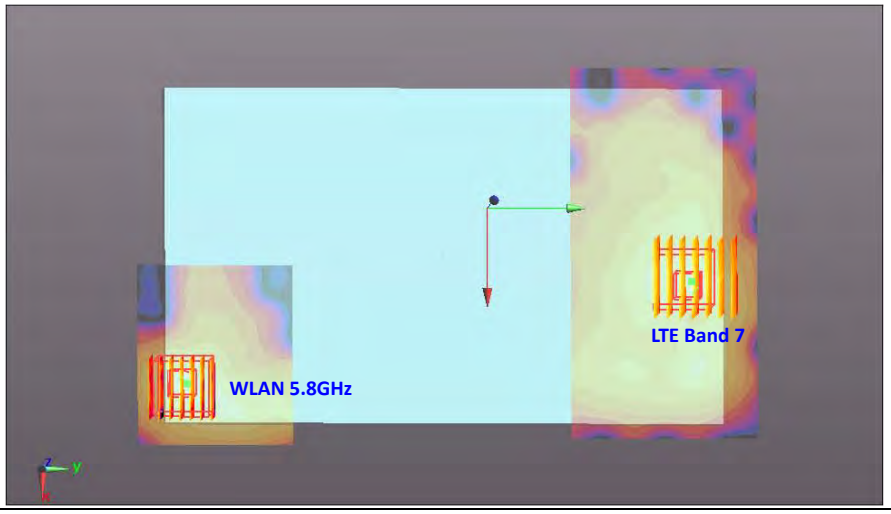
Case No #13 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 2	1.169	0	0.0195	0.102	-0.181	208.2	2.10	0.01	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



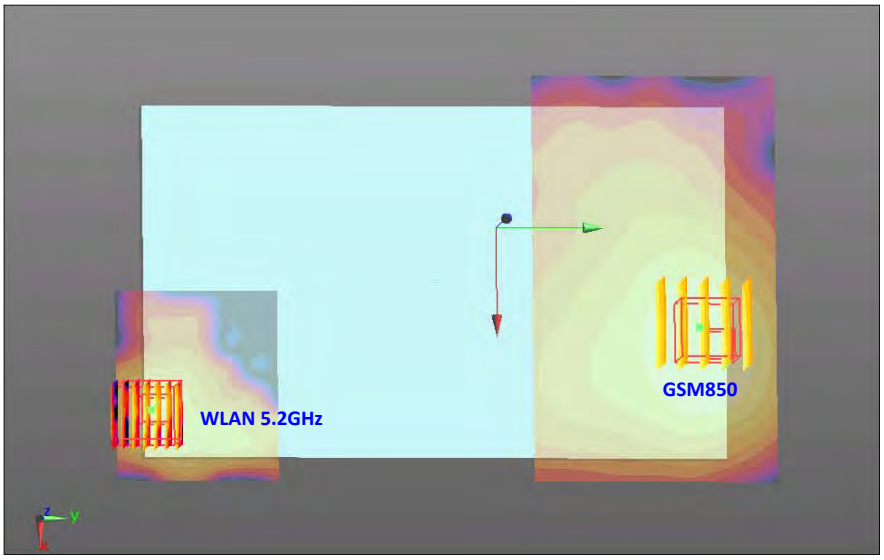
Case No #14 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 7	0.697	1	0.0144	0.096	-0.182	203.1	1.63	0.01	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



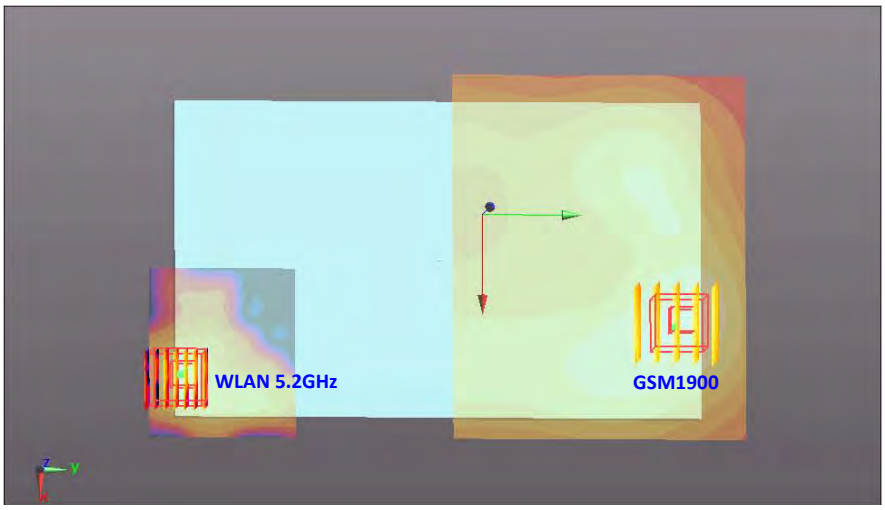
Case No #15 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 7	1.194	0	0.0158	0.0948	-0.182	201.7	2.12	0.02	Not required
	WLAN 5.8GHz	0.930	0	0.05	-0.104	-0.181				



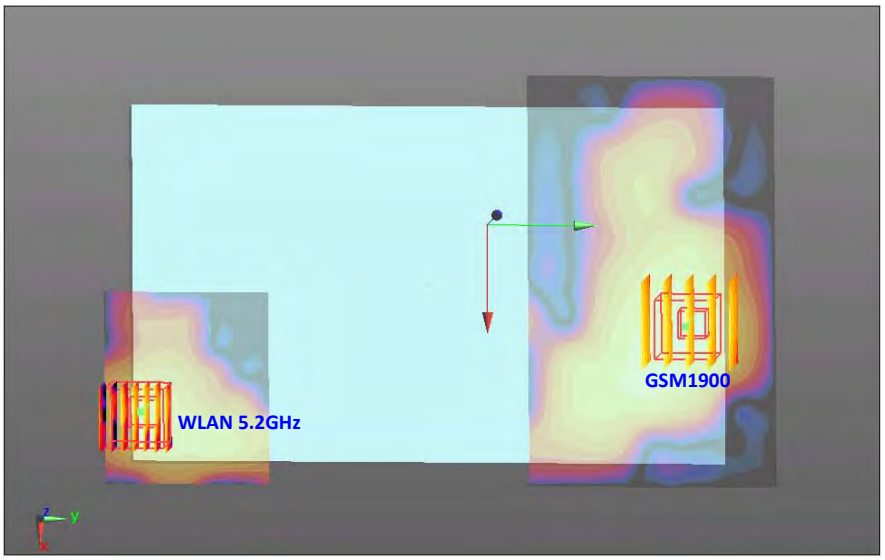
Case No #16 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	GSM850	0.897	0	0.034	0.105	-0.181	211.5	1.87	0.01	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



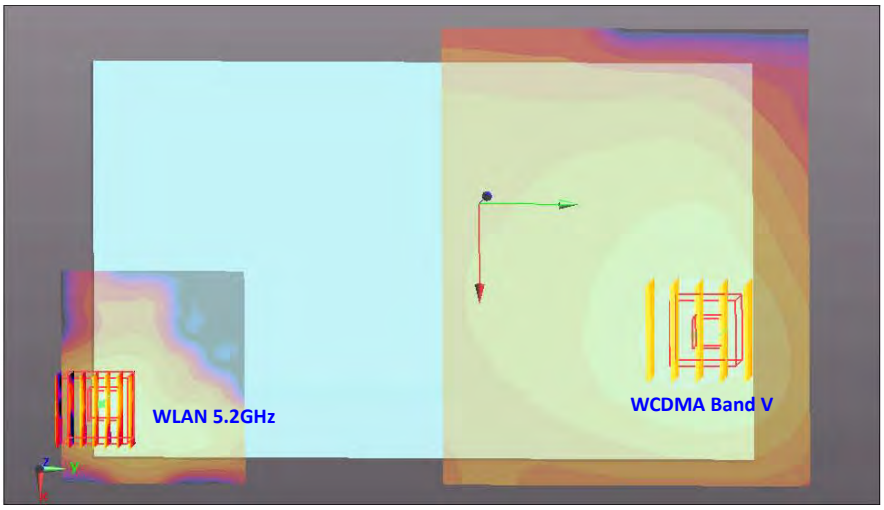
Case No #17 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	GSM1900	1.184	1	0.0285	0.095	-0.181	201.9	2.15	0.02	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



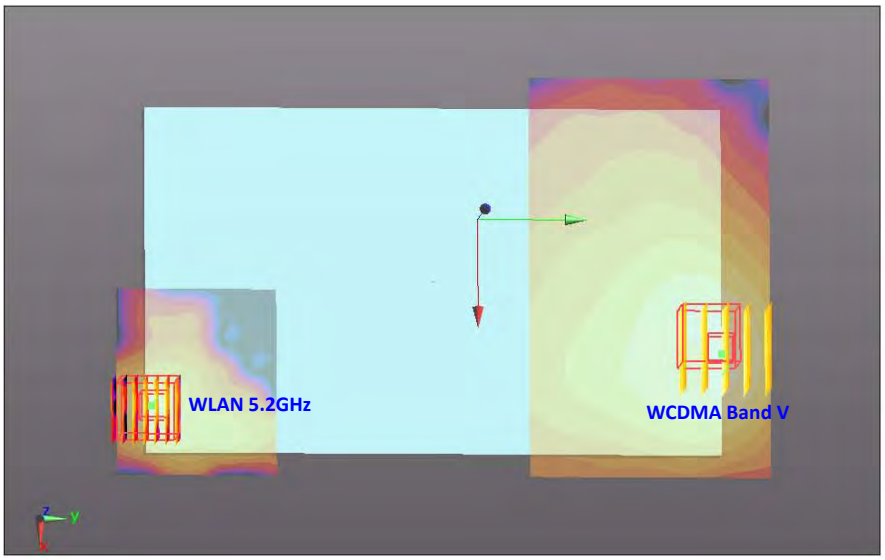
Case No #18 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	GSM1900	1.055	0	0.0165	0.092	-0.181	200.5	2.02	0.01	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



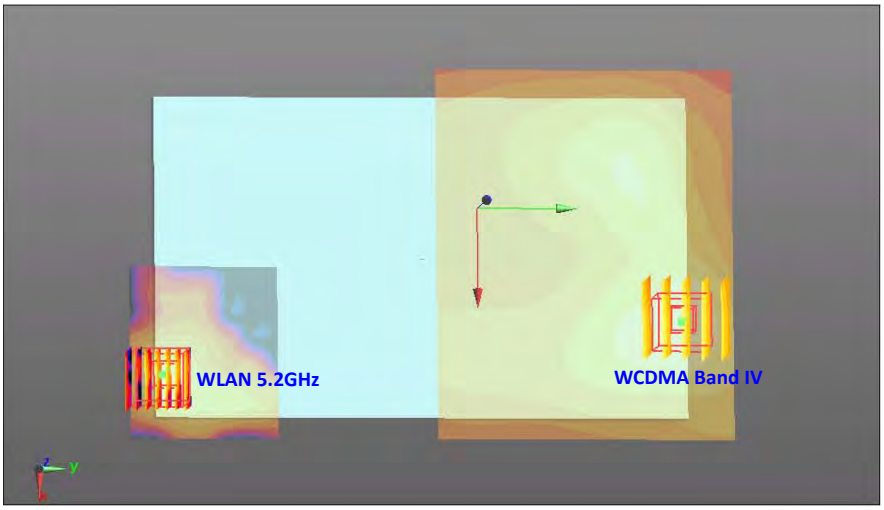
Case No #19 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	WCDMA Band V	0.652	1	0.0255	0.0955	-0.182	202.8	1.62	0.01	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



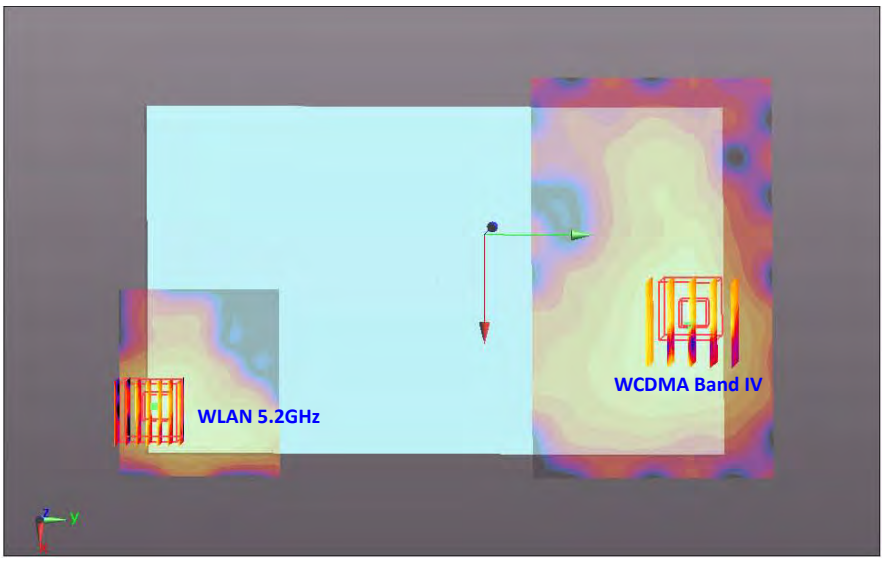
Case No #20 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	WCDMA Band V	1.074	0	0.0365	0.107	-0.181	213.3	2.04	0.01	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



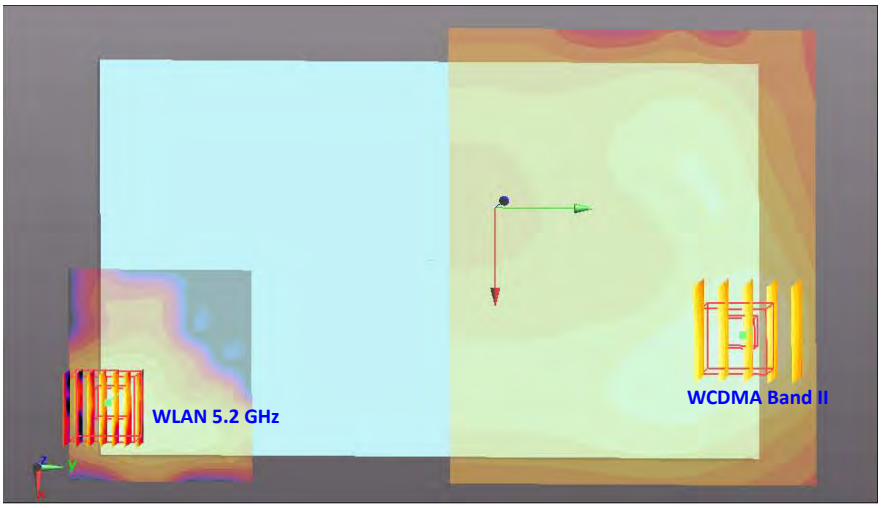
Case No #21 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	WCDMA Band IV	0.798	1	0.027	0.104	-0.181	211.0	1.77	0.01	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



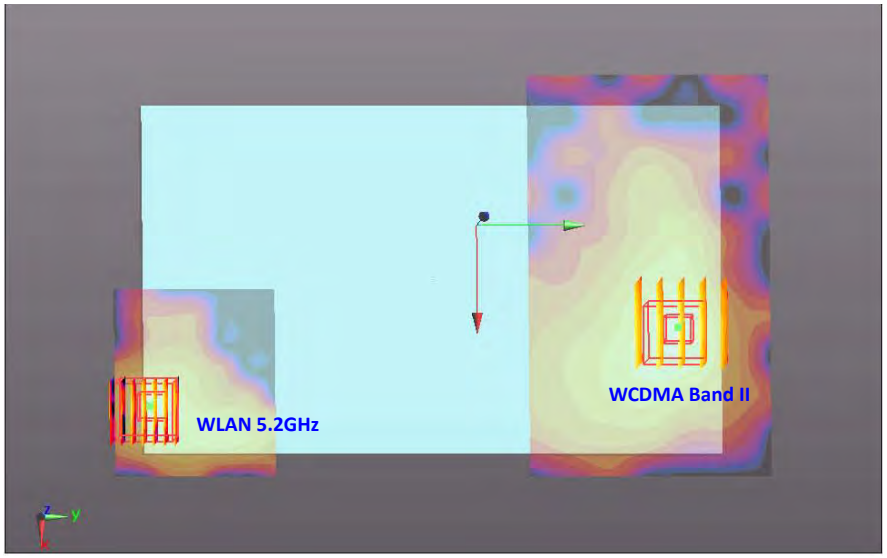
Case No #22 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	WCDMA Band IV	1.186	0	0.018	0.0935	-0.181	201.7	2.15	0.02	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



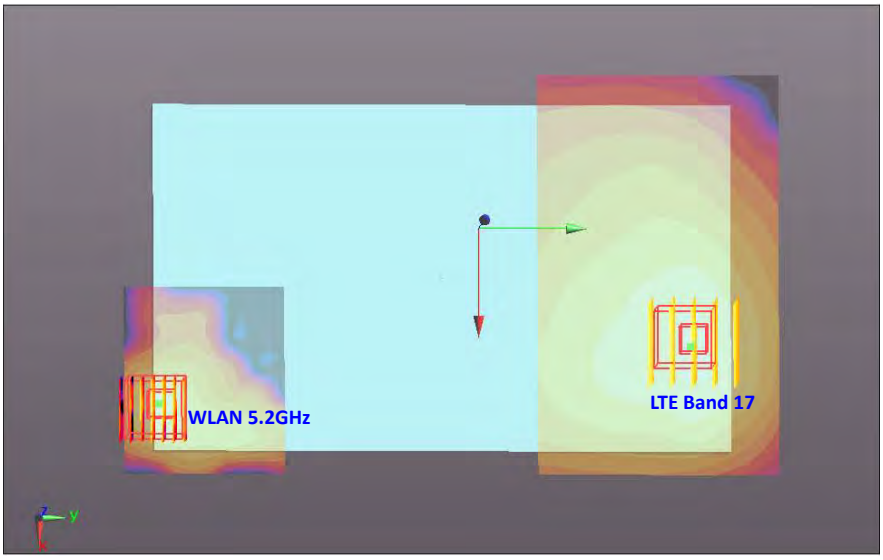
Case No #23 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	WCDMA Band II	1.088	1	0.0255	0.101	-0.181	208.2	2.06	0.01	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



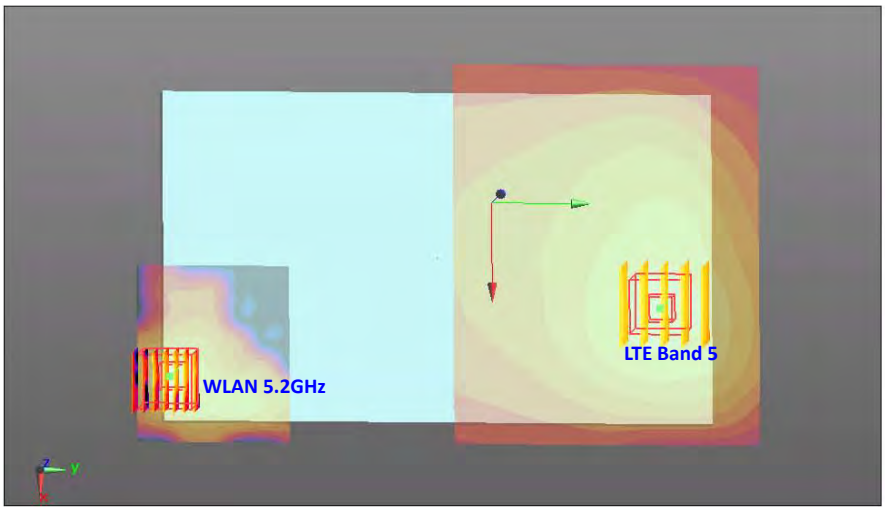
Case No #24 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	WCDMA Band II	1.174	0	0.0195	0.0905	-0.181	198.6	2.14	0.02	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



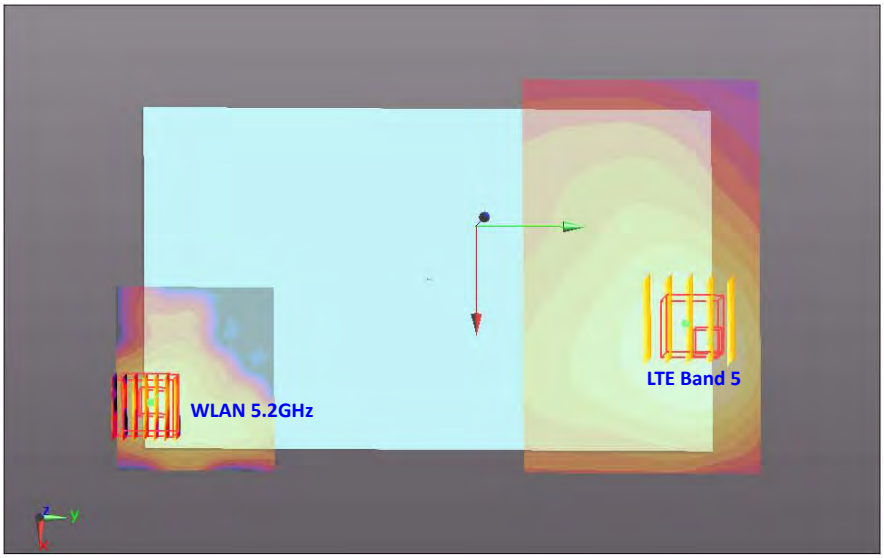
Case No #25 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 17	1.113	0	0.027	0.092	-0.181	199.1	2.08	0.02	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



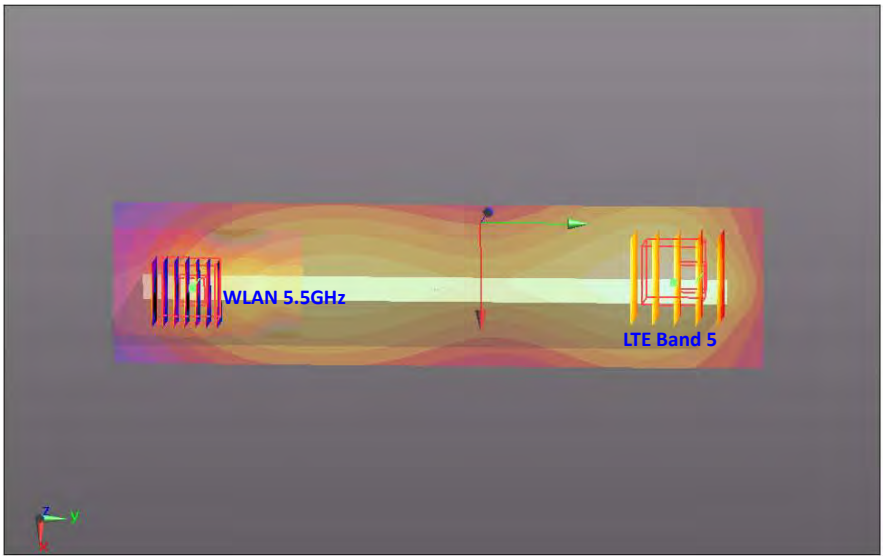
Case No #26 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 5	0.654	1	0.024	0.0815	-0.182	189.0	1.62	0.01	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



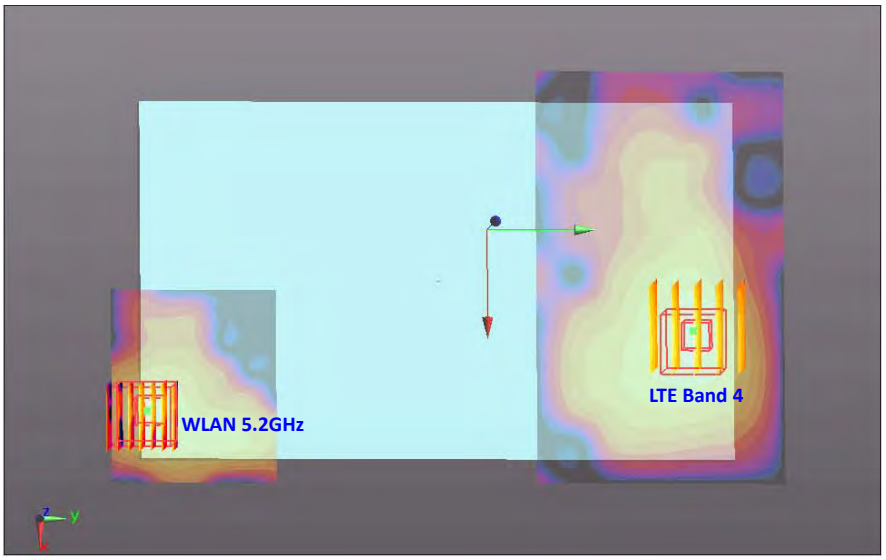
Case No #27 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 5	1.006	0	0.026	0.105	-0.181	212.1	1.97	0.01	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



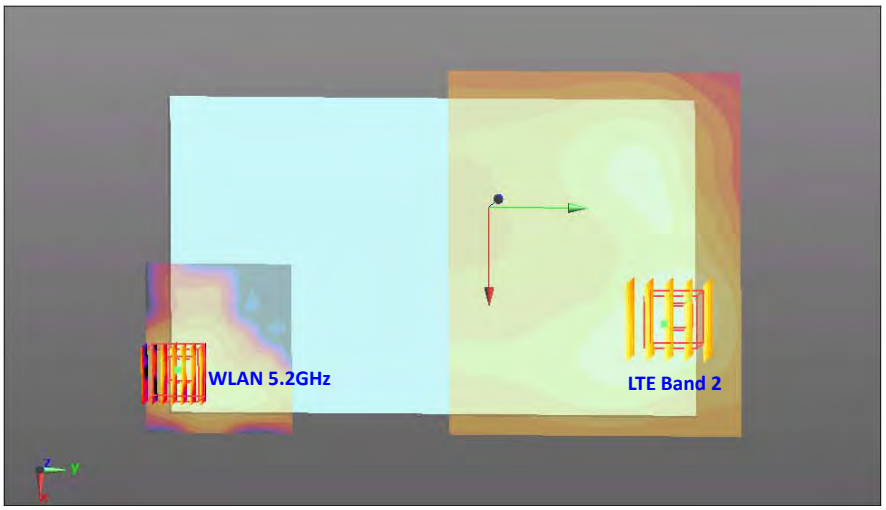
Case No #28 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Edge 4	LTE Band 5	1.101	0	-0.0015	0.095	-0.182	185.0	1.65	0.01	Not required
	WLAN 5.5GHz	0.547	0	0.001	-0.09	-0.182				



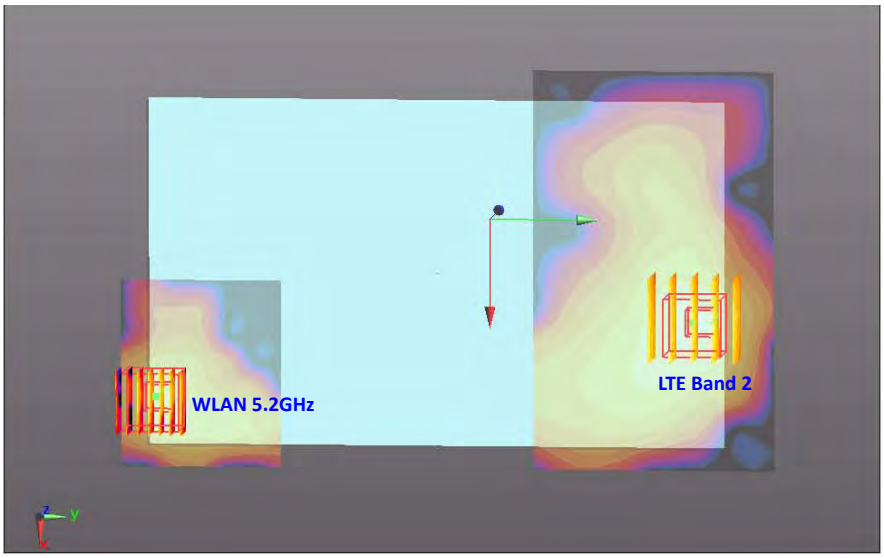
Case No #29 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 4	1.118	0	0.0195	0.092	-0.181	200.0	2.09	0.02	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



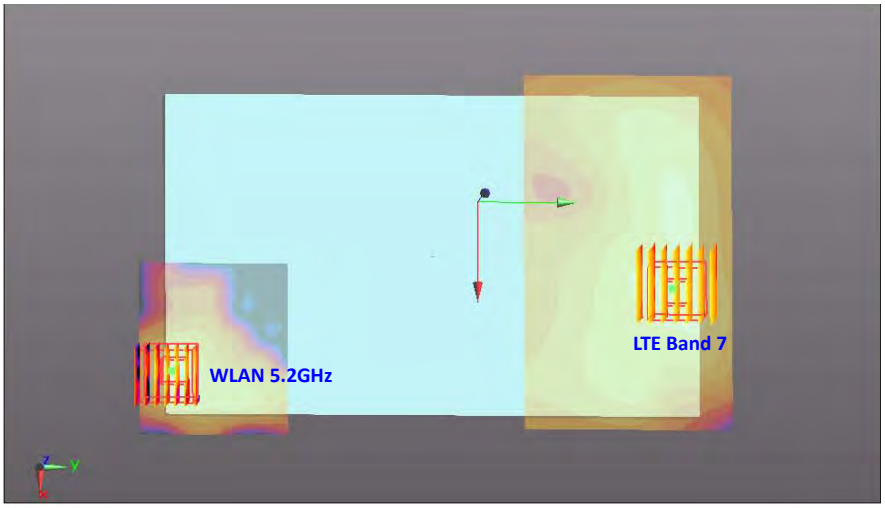
Case No #30 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 2	1.053	1	0.0205	0.102	-0.181	209.8	2.02	0.01	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



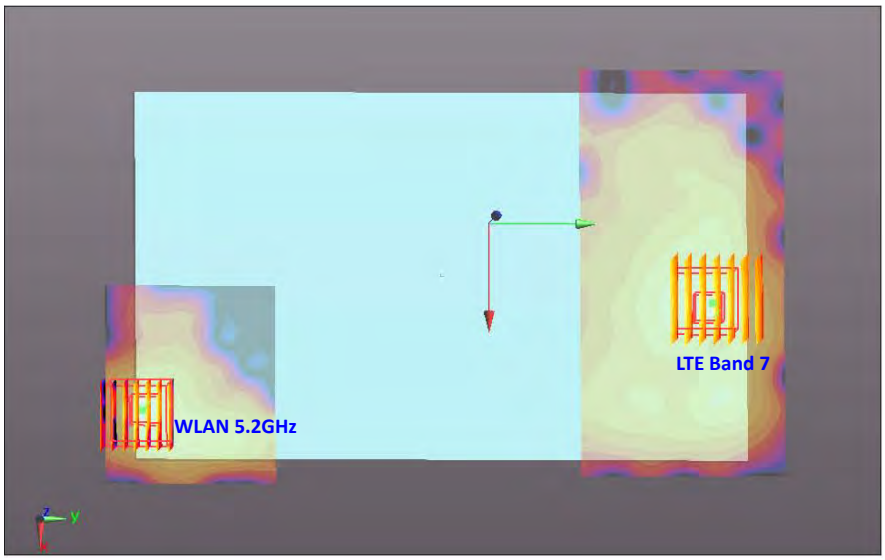
Case No #31 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 2	1.169	0	0.0195	0.102	-0.181	209.9	2.14	0.01	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



Case No #32 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 7	0.697	1	0.0144	0.096	-0.182	204.8	1.67	0.01	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



Case No #33 Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
				X	Y	Z				
Bottom Face	LTE Band 7	1.194	0	0.0158	0.0948	-0.182	203.4	2.16	0.02	Not required
	WLAN 5.2GHz	0.968	0	0.048	-0.106	-0.181				



General Note:
SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*). If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.

Test Engineer： Luke Lu

17. Uncertainty Assessment

The component of uncertainly may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainly by the statistical analysis of a series of observations is termed a Type An evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor[(a)]	1/k[(b)]	$1/\sqrt{3}$	$1/\sqrt{6}$	$1/\sqrt{2}$

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) κ is the coverage factor

Table 17.1. Standard Uncertainty for Assumed Distribution

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

Error Description	Uncertainty Value (±%)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)
Measurement System							
Probe Calibration	6.0	Normal	1	1	1	± 6.0 %	± 6.0 %
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	± 3.9 %	± 3.9 %
Boundary Effects	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Linearity	4.7	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Readout Electronics	0.3	Normal	1	1	1	± 0.3 %	± 0.3 %
Response Time	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	0.4	Rectangular	√3	1	1	± 0.2 %	± 0.2 %
Probe Positioning	2.9	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Max. SAR Eval.	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Test Sample Related							
Device Positioning	2.9	Normal	1	1	1	± 2.9 %	± 2.9 %
Device Holder	3.6	Normal	1	1	1	± 3.6 %	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %
Phantom and Setup							
Phantom Uncertainty	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Normal	1	0.64	0.43	± 1.6 %	± 1.1 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Normal	1	0.6	0.49	± 1.5 %	± 1.2 %
Combined Standard Uncertainty						± 11.0 %	± 10.8 %
Coverage Factor for 95 %						K=2	
Expanded Uncertainty						**± 22.0 %**	**± 21.5 %**

Table 17.2. Uncertainty Budget for frequency range 300 MHz to 3 GHz

Error Description	Uncertainty Value (±%)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)
Measurement System							
Probe Calibration	6.55	Normal	1	1	1	± 6.55 %	± 6.55 %
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	± 3.9 %	± 3.9 %
Boundary Effects	2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %
Linearity	4.7	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Readout Electronics	0.3	Normal	1	1	1	± 0.3 %	± 0.3 %
Response Time	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Probe Positioning	9.9	Rectangular	√3	1	1	± 5.7 %	± 5.7 %
Max. SAR Eval.	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Test Sample Related							
Device Positioning	2.9	Normal	1	1	1	± 2.9 %	± 2.9 %
Device Holder	3.6	Normal	1	1	1	± 3.6 %	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %
Phantom and Setup							
Phantom Uncertainty	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Normal	1	0.64	0.43	± 1.6 %	± 1.1 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Normal	1	0.6	0.49	± 1.5 %	± 1.2 %
Combined Standard Uncertainty						± 12.8 %	± 12.6 %
Coverage Factor for 95 %						K=2	
Expanded Uncertainty						**± 25.6 %**	**± 25.2 %**

Table 17.3. Uncertainty Budget for frequency range 3 GHz to 6 GHz

18. References

[1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3] IEEE Std. 1528-2003, “Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, December 2003

[4] SPEAG DASY System Handbook

[5] FCC KDB 865664 D01 v01r03, "SAR Measurement Requirements for 100 MHz to 6 GHz", February 2014.

[6] FCC KDB 865664 D02 v01r01, “RF Exposure Compliance Reporting and Documentation Considerations” May 2013.

[7] FCC KDB 447498 D01 v05r02, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, February 2014.

[8] FCC KDB 248227 D01 v01r02, “SAR Measurement Procedures for 802.11 a/b/g Transmitters”, May 2007.

[9] FCC KDB 616217 D04 v01r01, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, May 2013.

[10] FCC KDB 941225 D01 v02, “SAR Measurement Procedures for 3G Devices – CDMA 2000 / Ev-Do / WCDMA / HSDPA / HSPA”, October 2007.

[11] FCC KDB 941225 D02 v02r02, “SAR Guidance for HSPA, HSPA+, DC-HSDPA and 1x-Advanced”, May 2013.

[12] FCC KDB 941225 D03 v01, “Recommended SAR Test Reduction Procedures for GSM / GPRS / EDGE”, December 2008.

[13] FCC KDB 941225 D05 v02r03, “SAR Evaluation Considerations for LTE Devices”, December 2013.

Appendix A. Plots of System Performance Check

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.10

System Check_Body_750MHz_140810

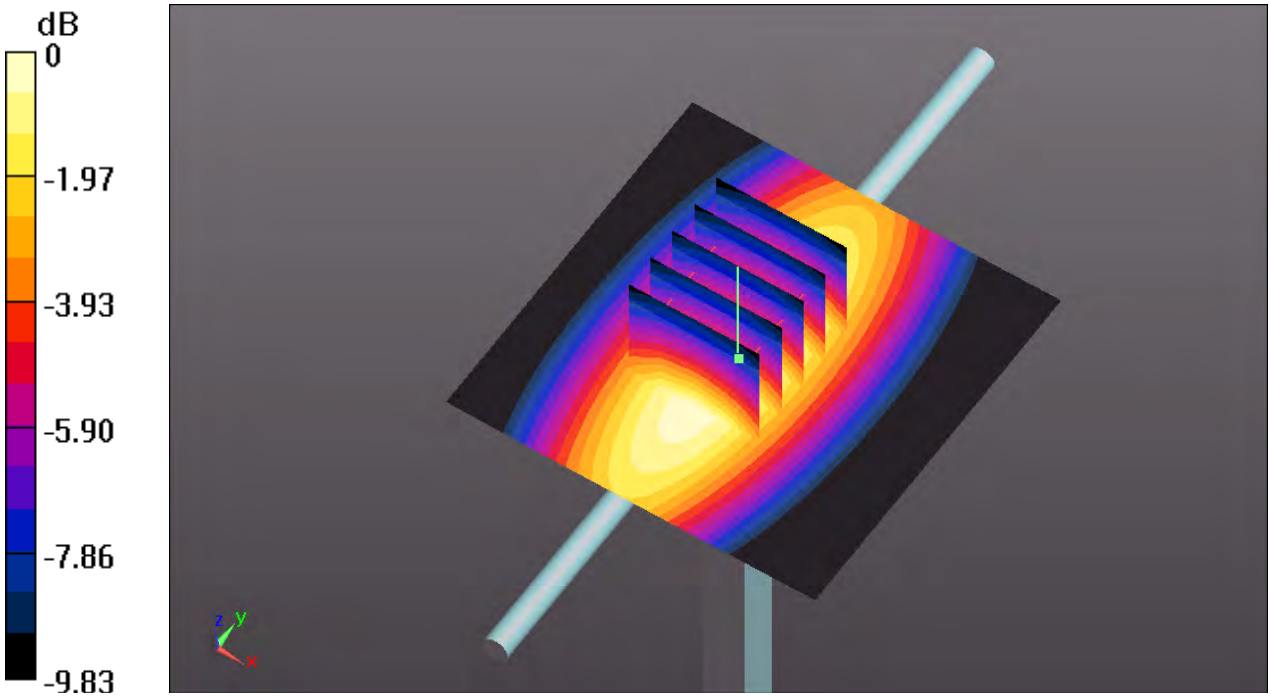
DUT: D750V3 - SN: 1099

Communication System: UID 0, CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: MSL_750_140810 Medium parameters used: f = 750 MHz; σ = 0.97 S/m; ε_r = 54.633; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(9.71, 9.71, 9.71); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.81 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.803 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.27 W/kg
SAR(1 g) = 2.26 W/kg; SAR(10 g) = 1.52 W/kg
Maximum value of SAR (measured) = 2.82 W/kg



0 dB = 2.82 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.11

System Check_Body_835MHz_140811

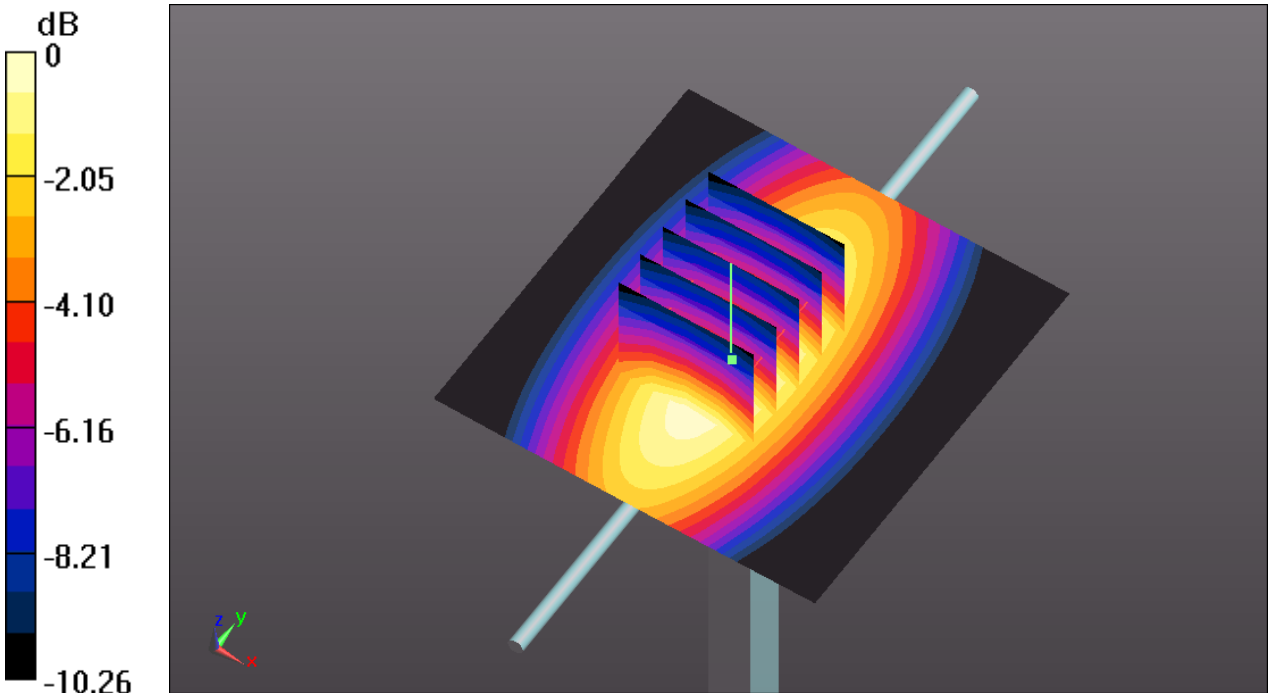
DUT: D835V2 - SN: 4d091

Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_835_140811 Medium parameters used: f = 835 MHz; σ = 1 S/m; ε_r = 54.086; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(9.54, 9.54, 9.54); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.45 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.686 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.26 W/kg
SAR(1 g) = 2.27 W/kg; SAR(10 g) = 1.5 W/kg
Maximum value of SAR (measured) = 2.44 W/kg



0 dB = 2.44 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.07

System Check_Body_1750MHz_140807

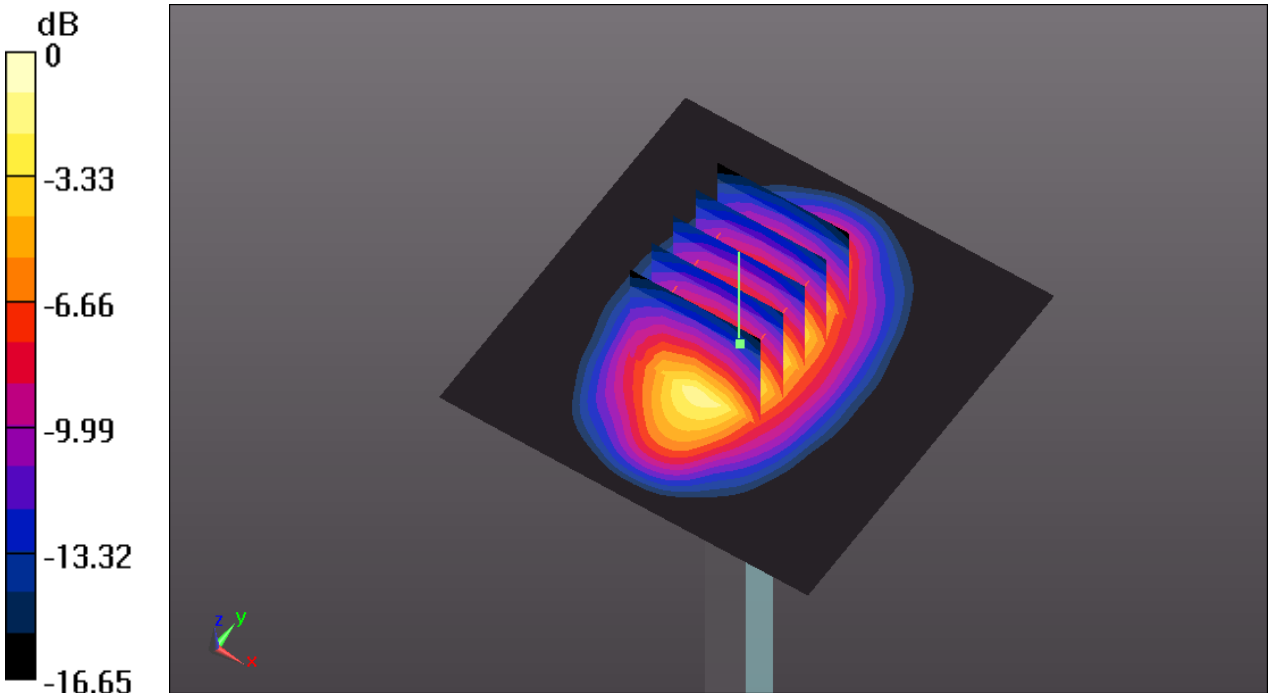
DUT: D1750V2 - SN: 1090

Communication System: UID 0, CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: MSL_1800_140807 Medium parameters used: f = 1750 MHz; σ = 1.527 S/m; ε_r = 52.02; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(8.01, 8.01, 8.01); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.5 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 94.925 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 16.9 W/kg
SAR(1 g) = 9.59 W/kg; SAR(10 g) = 5.12 W/kg
Maximum value of SAR (measured) = 13.4 W/kg



0 dB = 13.4 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.08

System Check_Body_1900MHz_140808

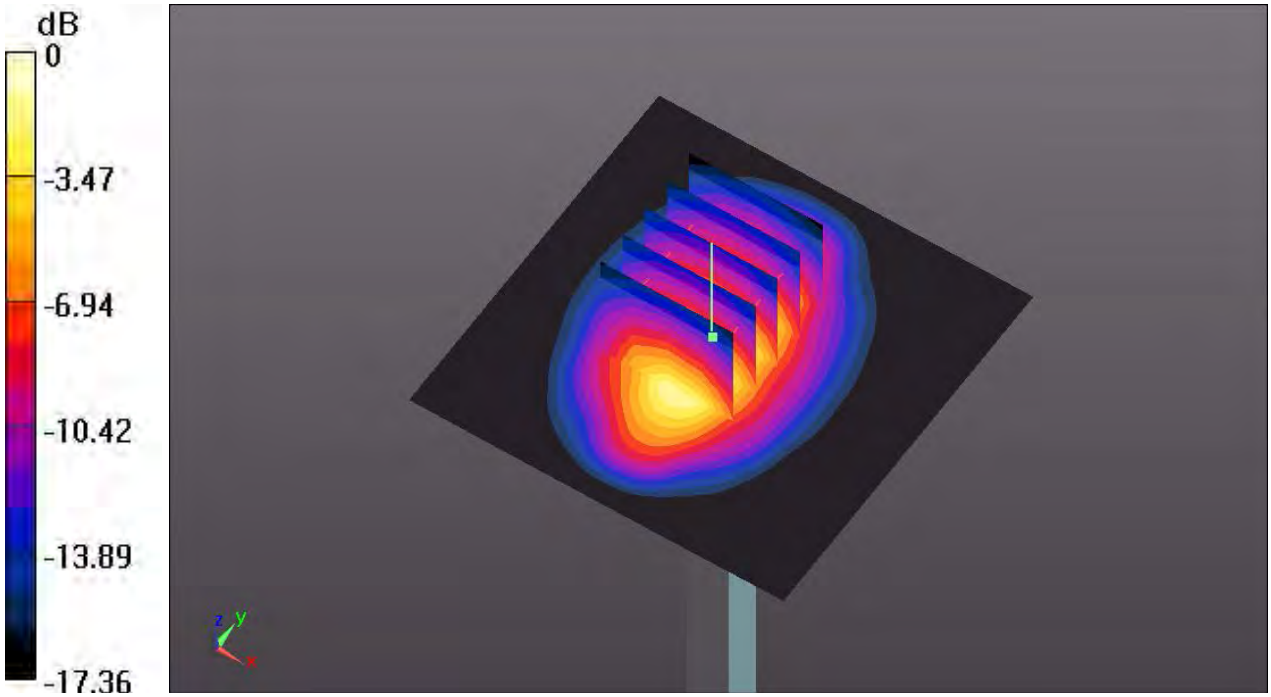
DUT: D1900V2 - SN: 5d118

Communication System: UID 0, CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL_1900_140808 Medium parameters used: f = 1900 MHz; σ = 1.576 S/m; ε_r = 54.212; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.55, 7.55, 7.55); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 15.0 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 85.635 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 18.8 W/kg
SAR(1 g) = 10.7 W/kg; SAR(10 g) = 5.6 W/kg
Maximum value of SAR (measured) = 14.9 W/kg



0 dB = 14.9 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.02

System Check_Body_2450MHz_140802

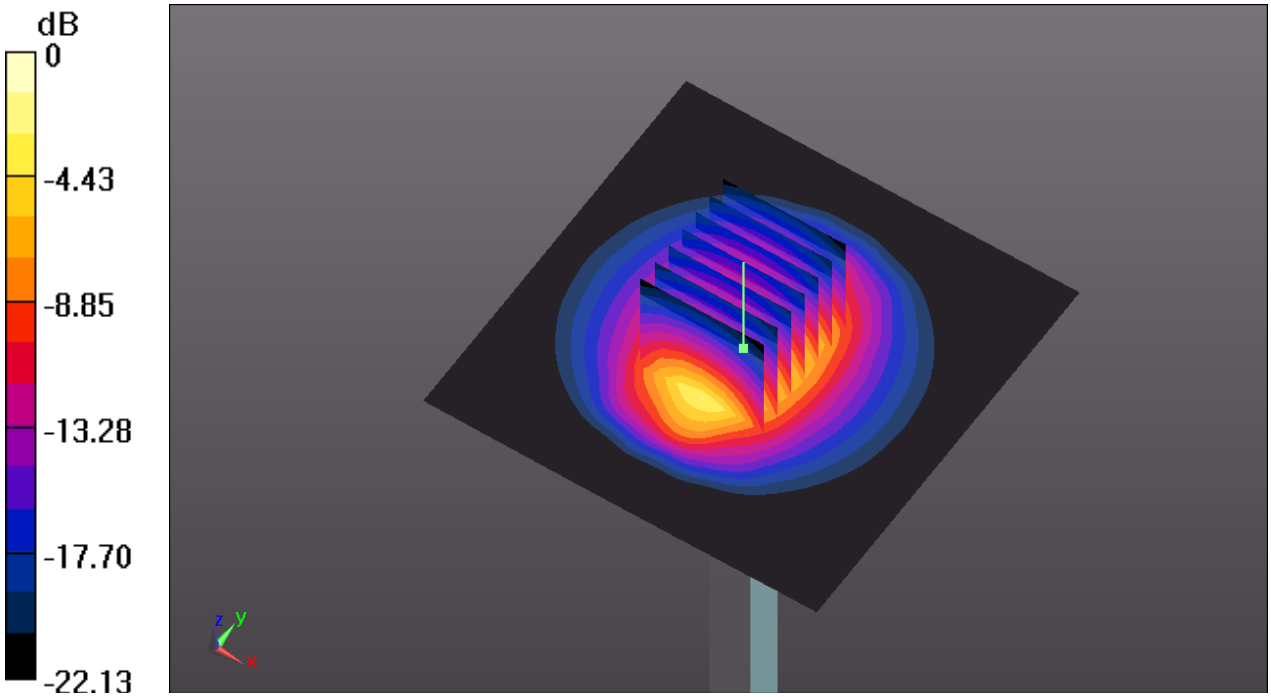
DUT: D2450V2 - SN: 908

Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: MSL_2450_140802 Medium parameters used: f = 2450 MHz; σ = 1.991 S/m; ε_r = 52.32; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.07, 7.07, 7.07); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 21.0 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 88.690 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 28.3 W/kg
SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.32 W/kg
Maximum value of SAR (measured) = 21.1 W/kg



0 dB = 21.1 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.01

System Check_Body_2600MHz_140801

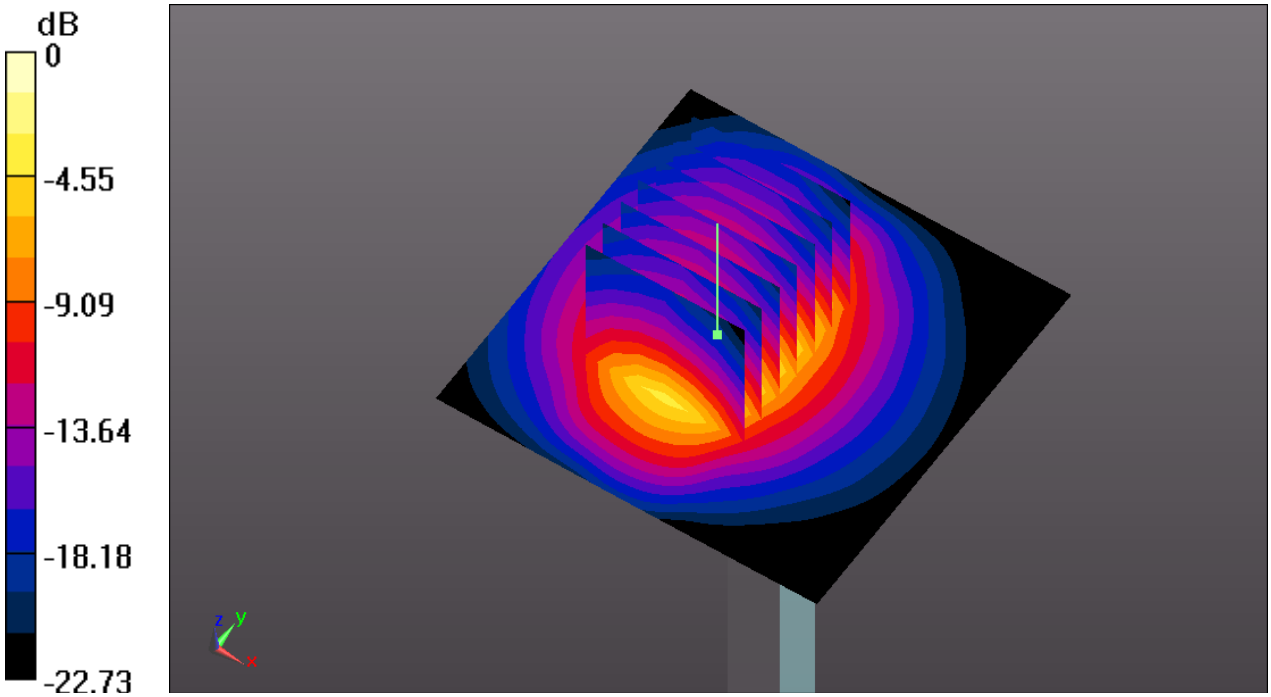
DUT: D2600V2 - SN: 1061

Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: MSL_2600_140801 Medium parameters used: f = 2600 MHz; σ = 2.201 S/m; ε_r = 52.823; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(6.79, 6.79, 6.79); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 21.3 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 84.618 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 27.9 W/kg
SAR(1 g) = 13.3 W/kg; SAR(10 g) = 5.95 W/kg
Maximum value of SAR (measured) = 20.5 W/kg



0 dB = 20.5 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.03

System Check_Body_5200MHz_140803

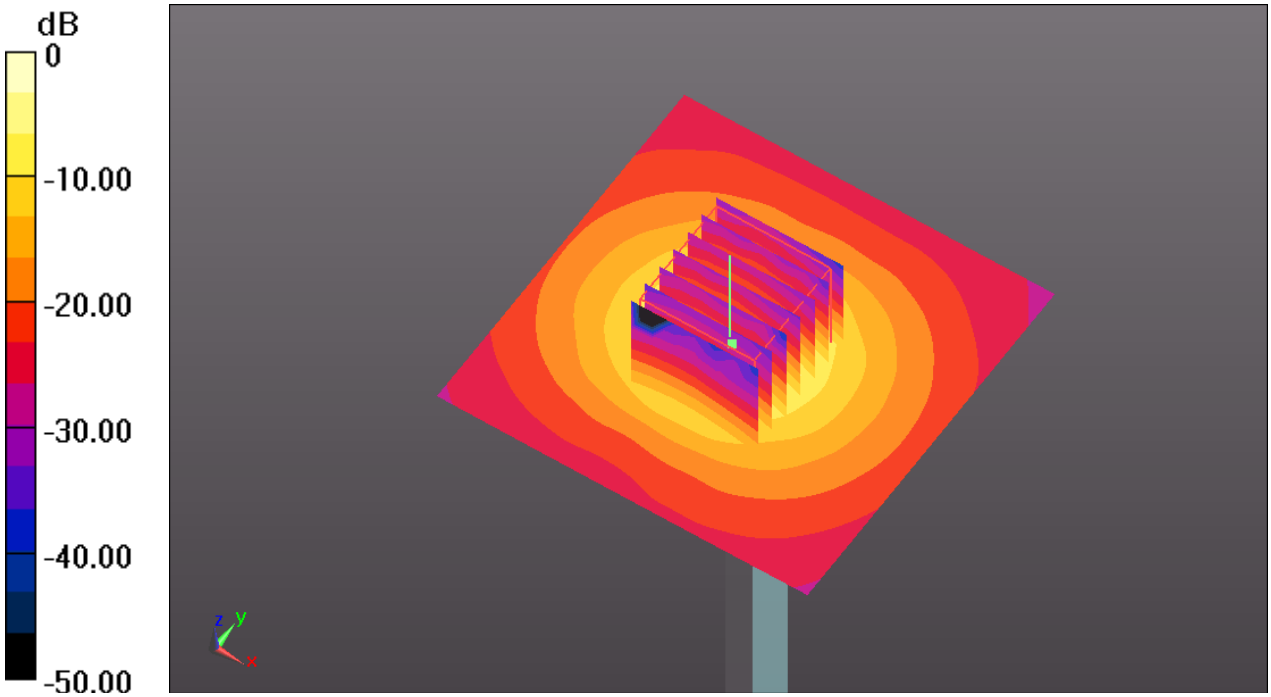
DUT: D5GHzV2 - SN: 1006

Communication System: UID 0, CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: MSL_5200_140803 Medium parameters used: f = 5200 MHz; σ = 5.137 S/m; ε_r = 48.164; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.61, 4.61, 4.61); Calibrated: 2013.11.27;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 17.1 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 47.852 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 28.8 W/kg
SAR(1 g) = 7.25 W/kg; SAR(10 g) = 1.98 W/kg
Maximum value of SAR (measured) = 17.7 W/kg



0 dB = 17.7 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.04

System Check_Body_5300MHz_140804

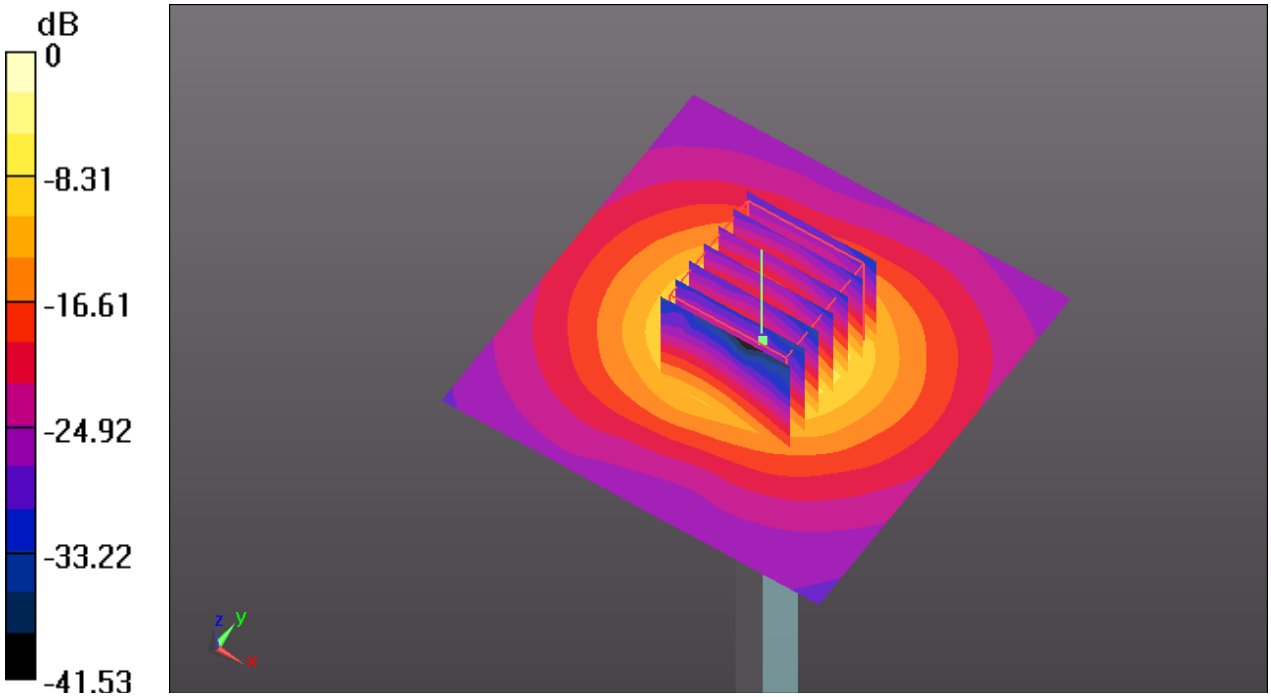
DUT: D5GHzV2 - SN: 1006

Communication System: UID 0, CW (0); Frequency: 5300 MHz;Duty Cycle: 1:1
Medium: MSL_5300_140804 Medium parameters used: f = 5300 MHz; σ = 5.251 S/m; ε_r = 47.988; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.34, 4.34, 4.34); Calibrated: 2013.11.27;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 21.1 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 50.903 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 32.5 W/kg
SAR(1 g) = 7.6 W/kg; SAR(10 g) = 2.39 W/kg
Maximum value of SAR (measured) = 20.4 W/kg



0 dB = 20.4 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.05

System Check_Body_5600MHz_140805

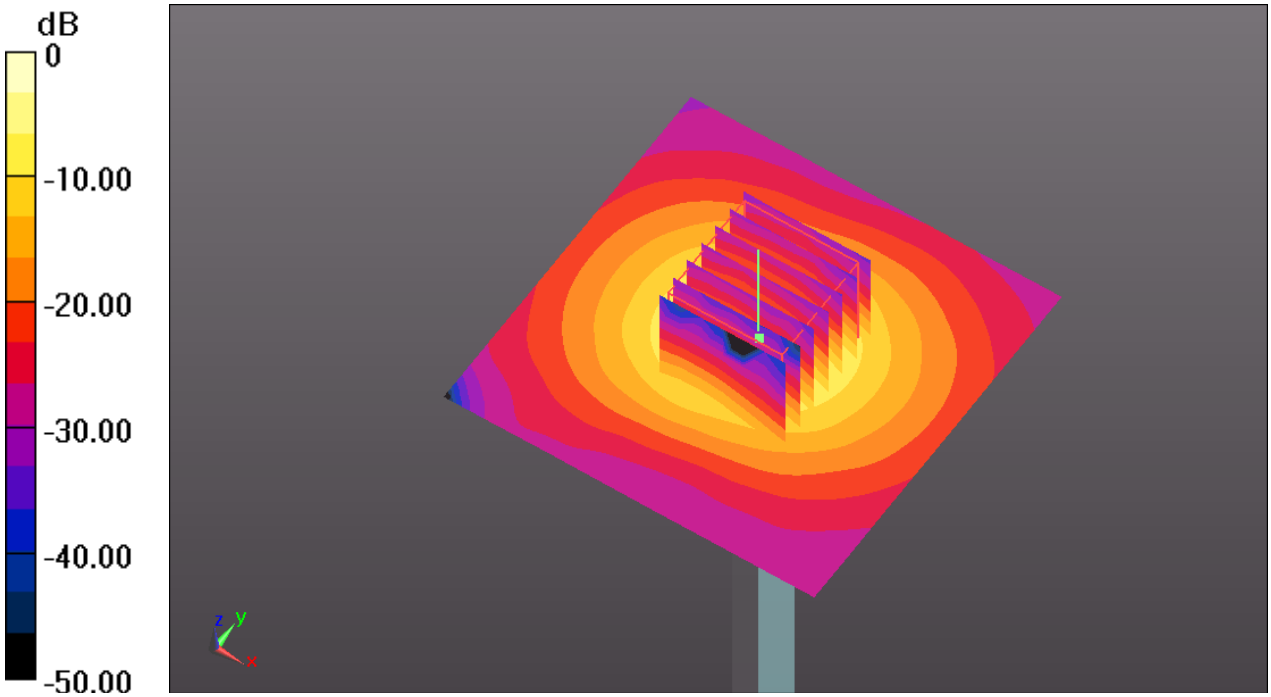
DUT: D5GHzV2 - SN: 1006

Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium: MSL_5600_140805 Medium parameters used: f = 5600 MHz; σ = 5.644 S/m; ε_r = 47.452; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(3.89, 3.89, 3.89); Calibrated: 2013.11.27;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 23.8 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 52.114 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 40.6 W/kg
SAR(1 g) = 7.76 W/kg; SAR(10 g) = 2.71 W/kg
Maximum value of SAR (measured) = 23.6 W/kg



0 dB = 23.6 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.06

System Check_Body_5800MHz_140806

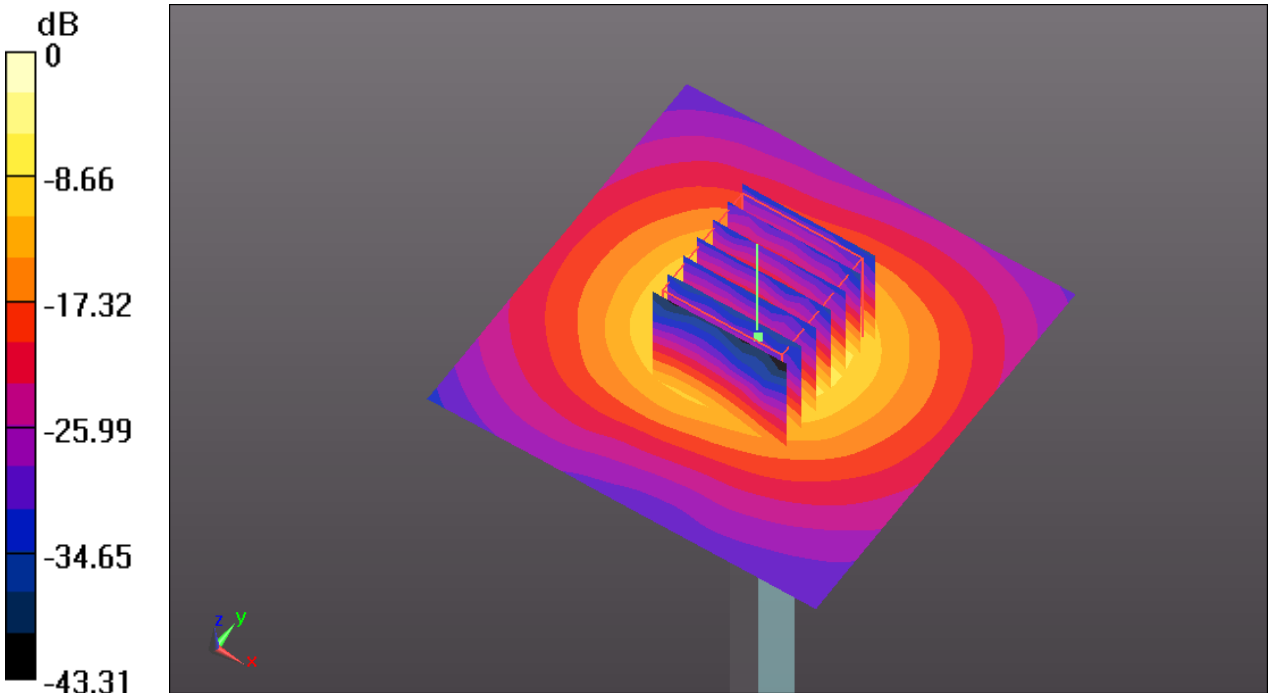
DUT: D5GHzV2 - SN: 1006

Communication System: UID 0, CW (0); Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: MSL_5800_140806 Medium parameters used: f = 5800 MHz; σ = 5.868 S/m; ε_r = 46.994; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.02, 4.02, 4.02); Calibrated: 2013.11.27;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 20.8 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 48.309 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 35.3 W/kg
SAR(1 g) = 7.43 W/kg; SAR(10 g) = 2.31 W/kg
Maximum value of SAR (measured) = 21.1 W/kg



0 dB = 21.1 W/kg

Appendix B. Plots of High SAR Measurement

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.11

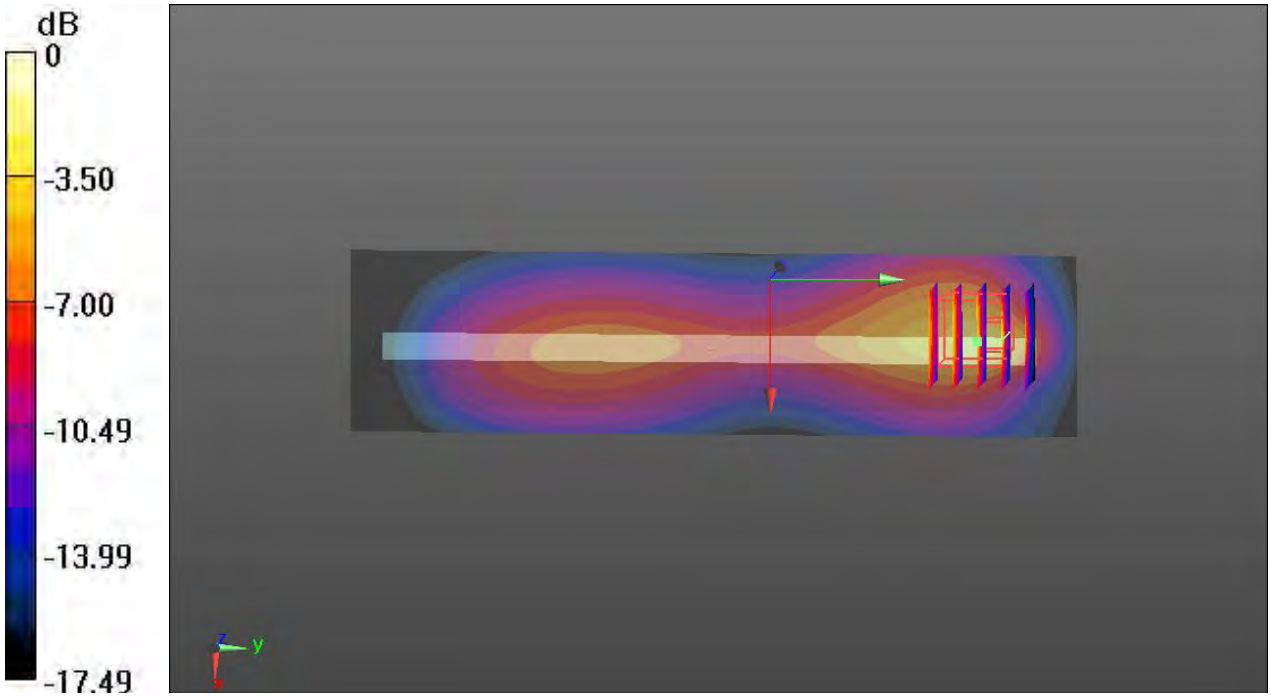
#01_GSM850_GPRS(4 Tx slots)_Edge 4_0cm_Ch251_Sensor Off

Communication System: UID 0, GPRS/EDGE12 (0); Frequency: 848.8 MHz;Duty Cycle: 1:2.08
Medium: MSL_835_140811 Medium parameters used: f = 848.8 MHz; σ = 1.018 S/m; ε_r = 53.954; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(9.54, 9.54, 9.54); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch251/Area Scan (41x161x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.00 W/kg

Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.202 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 2.16 W/kg
SAR(1 g) = 0.810 W/kg; SAR(10 g) = 0.409 W/kg
Maximum value of SAR (measured) = 1.65 W/kg



0 dB = 1.65 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.08

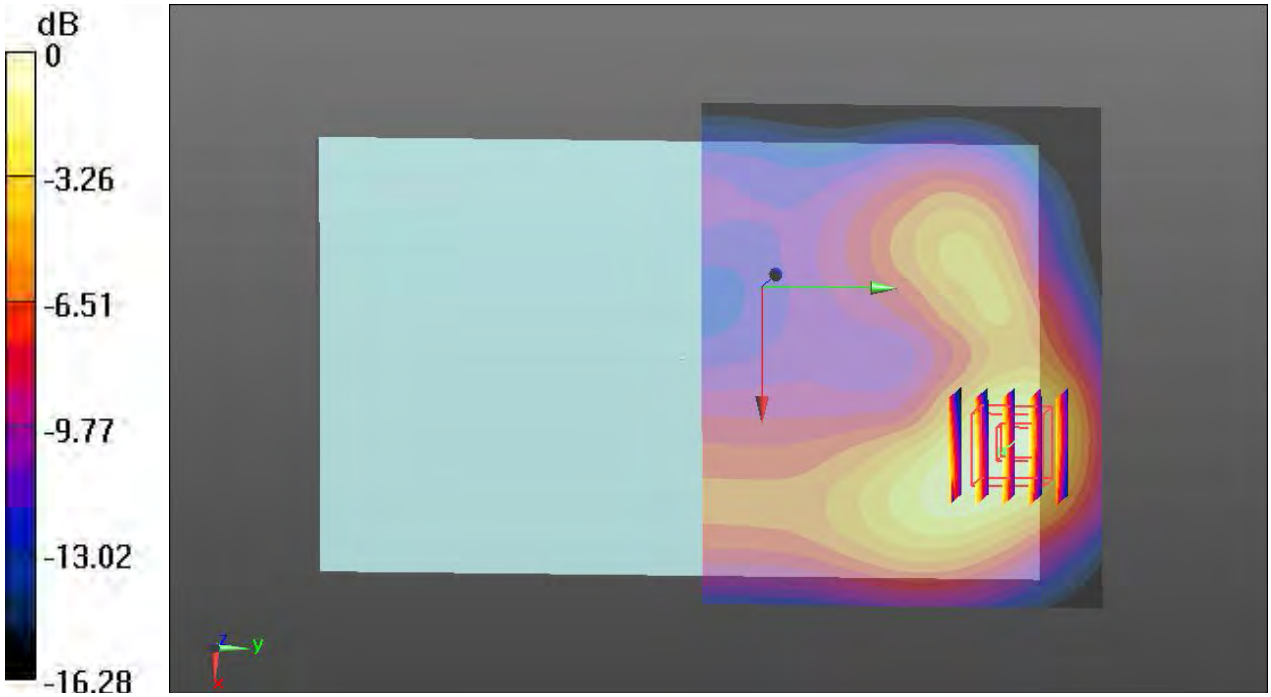
#02_GSM1900_GPRS(4 Tx slots)_Bottom Face_1cm_Ch661_Sensor Off

Communication System: UID 0, GPRS/EDGE12 (0); Frequency: 1880 MHz;Duty Cycle: 1:2.08
Medium: MSL_1900_140808 Medium parameters used: f = 1880 MHz; σ = 1.554 S/m; ε_r = 54.286; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.55, 7.55, 7.55); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch661/Area Scan (101x81x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.30 W/kg

Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.517 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.64 W/kg
SAR(1 g) = 1.010 W/kg; SAR(10 g) = 0.604 W/kg
Maximum value of SAR (measured) = 1.29 W/kg



0 dB = 1.29 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.11

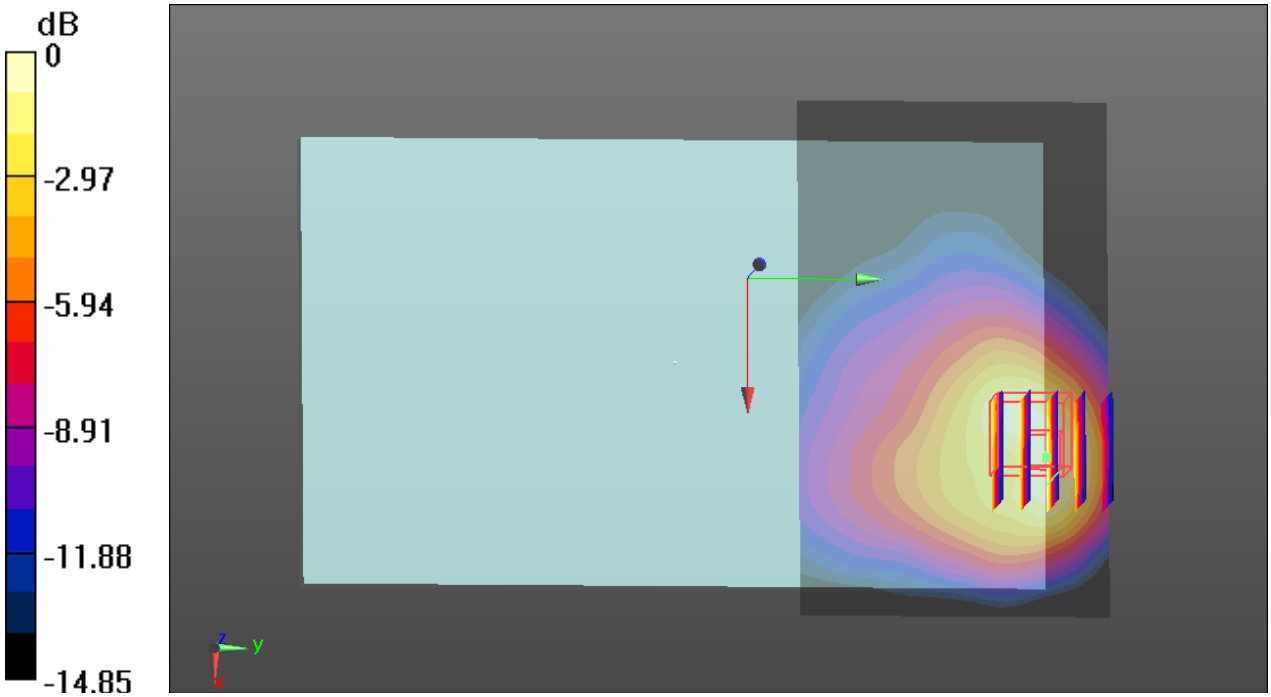
#03_WCDMA Band V_RMC 12.2K_Bottom Face_0cm_Ch4233_Sensor On

Communication System: UID 0, UMTS (0); Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: MSL_835_140811 Medium parameters used: f = 846.6 MHz; σ = 1.015 S/m; ε_r = 53.97; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(9.54, 9.54, 9.54); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch4233/Area Scan (101x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.33 W/kg

Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.282 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.65 W/kg
SAR(1 g) = 0.982 W/kg; SAR(10 g) = 0.578 W/kg
Maximum value of SAR (measured) = 1.39 W/kg



0 dB = 1.39 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.07

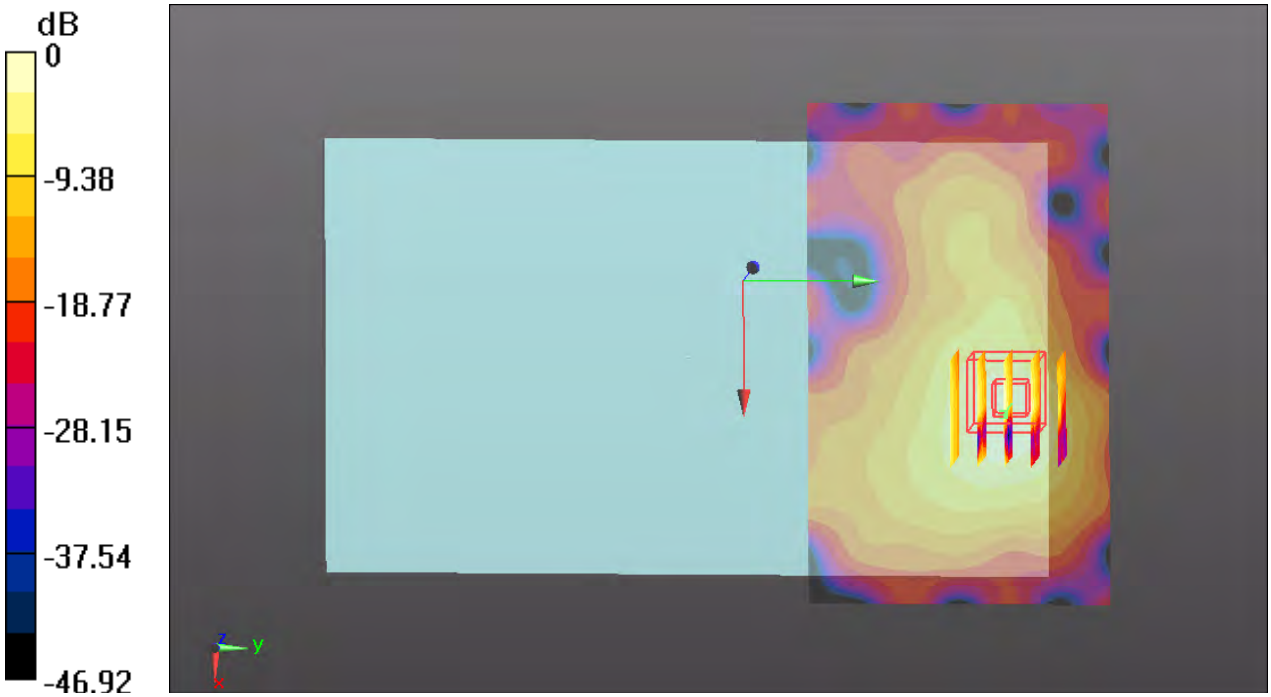
#04_WCDMA Band IV_RMC 12.2K_Bottom Face_0cm_Ch1312_Sensor On

Communication System: UID 0, UMTS (0); Frequency: 1712.4 MHz;Duty Cycle: 1:1
Medium: MSL_1800_140807 Medium parameters used: f = 1712.4 MHz; σ = 1.486 S/m; ε_r = 52.188; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(8.01, 8.01, 8.01); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch1312/Area Scan (101x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.70 W/kg

Ch1312/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.418 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 2.14 W/kg
SAR(1 g) = 1.05 W/kg; SAR(10 g) = 0.481 W/kg
Maximum value of SAR (measured) = 1.46 W/kg



0 dB = 1.46 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.08

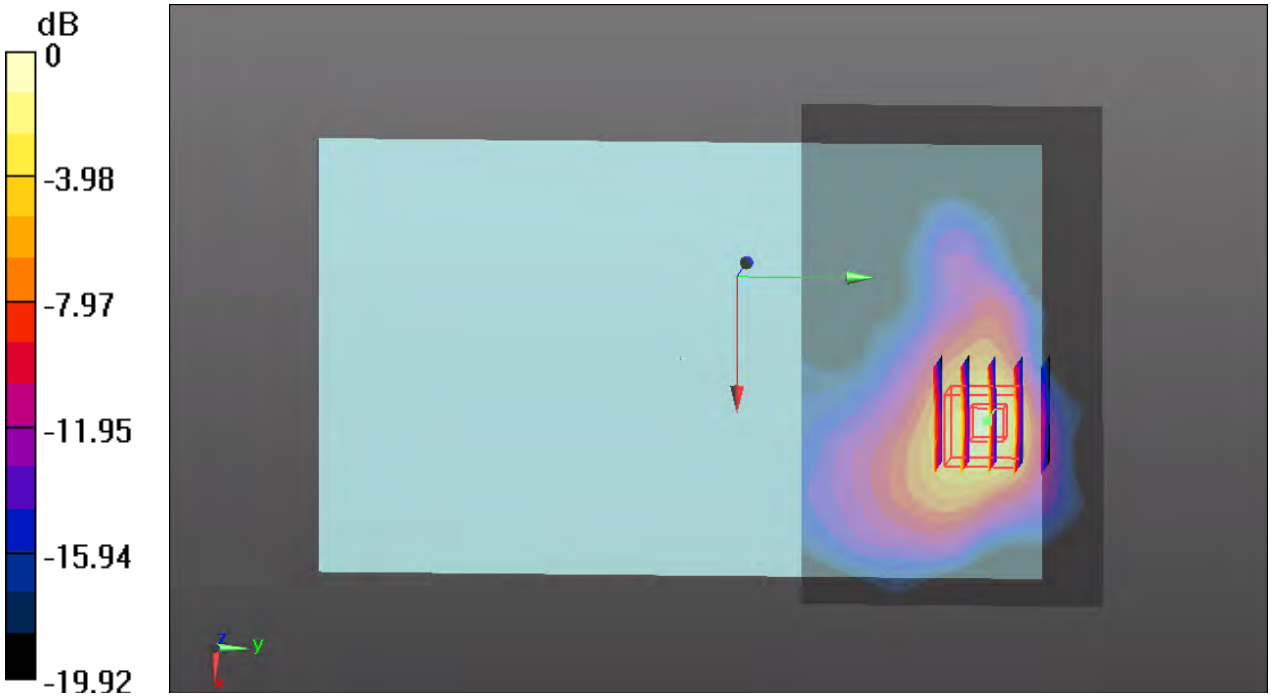
#05_WCDMA Band II_RMC 12.2K_Bottom Face_0cm_Ch9400_Sensor On

Communication System: UID 0, UMTS (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: MSL_1900_140808 Medium parameters used: f = 1880 MHz; σ = 1.554 S/m; ε_r = 54.286; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.55, 7.55, 7.55); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch9400/Area Scan (101x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.50 W/kg

Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.234 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 2.16 W/kg
SAR(1 g) = 1.030 W/kg; SAR(10 g) = 0.474 W/kg
Maximum value of SAR (measured) = 1.71 W/kg



0 dB = 1.71 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.10

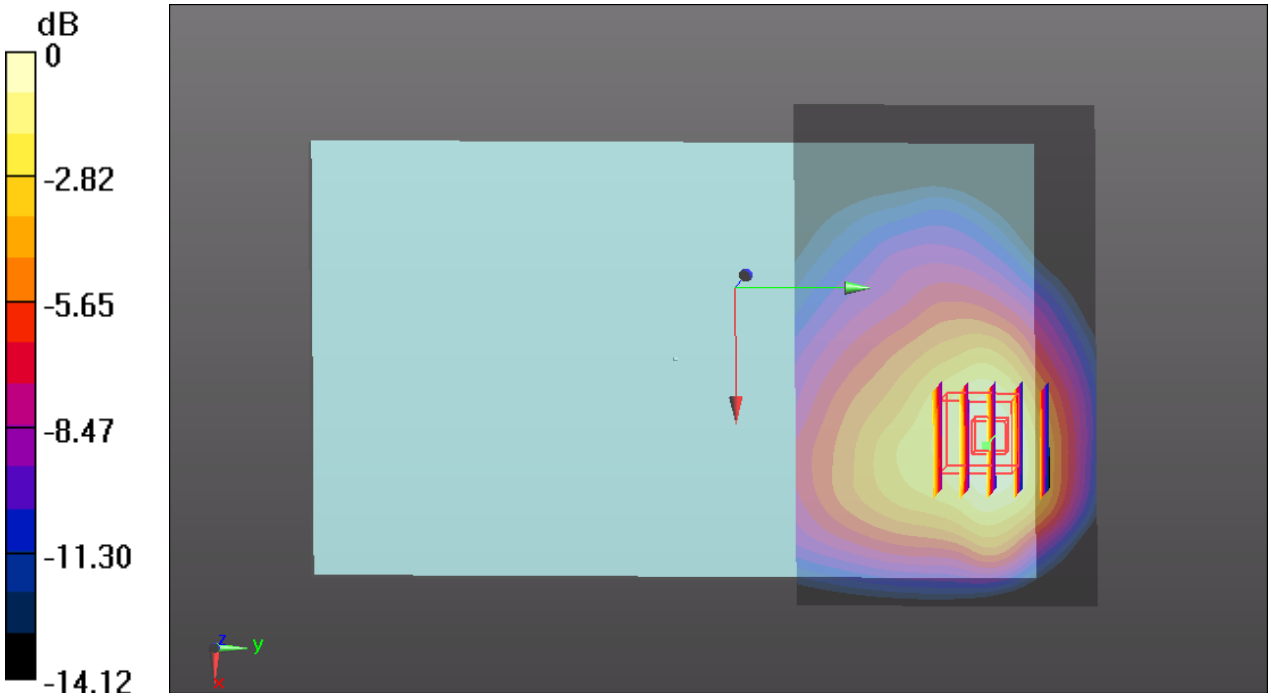
#06_LTE Band 17_10M_QPSK_1RB_0Offset_Bottom Face_0cm_Ch23780_Sensor On

Communication System: UID 0, LTE (0); Frequency: 709 MHz;Duty Cycle: 1:1
Medium: MSL_750_140810 Medium parameters used: f = 709 MHz; σ = 0.942 S/m; ε_r = 55.563; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(9.71, 9.71, 9.71); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch23780/Area Scan (101x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.21 W/kg

Ch23780/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.612 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.919 W/kg; SAR(10 g) = 0.577 W/kg
Maximum value of SAR (measured) = 1.18 W/kg



0 dB = 1.18 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.11

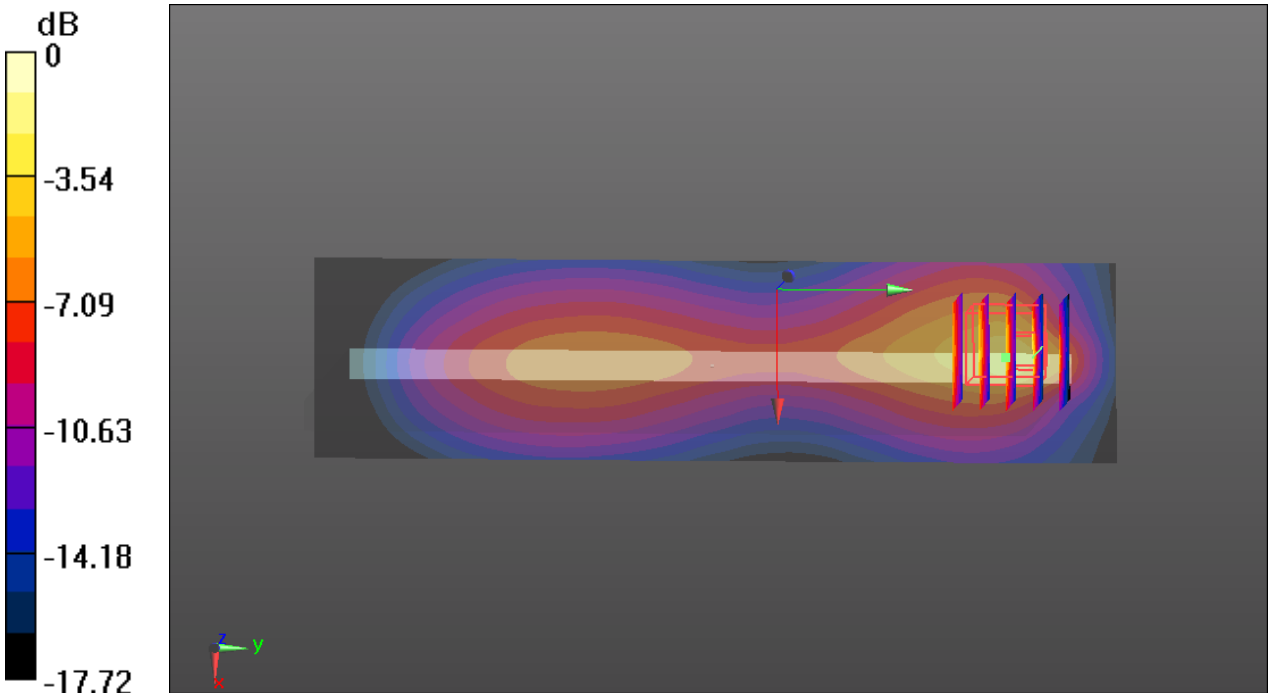
#07_LTE Band 5_10M_QPSK_1RB_24Offset_Edge 4_0cm_Ch20600_Sensor Off

Communication System: UID 0, LTE (0); Frequency: 844 MHz;Duty Cycle: 1:1
Medium: MSL_835_140811 Medium parameters used: f = 844 MHz; σ = 1.012 S/m; ε_r = 53.995; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(9.54, 9.54, 9.54); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch20600/Area Scan (41x161x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.01 W/kg

Ch20600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.740 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 2.21 W/kg
SAR(1 g) = 0.820 W/kg; SAR(10 g) = 0.411 W/kg
Maximum value of SAR (measured) = 1.74 W/kg



0 dB = 1.74 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.07

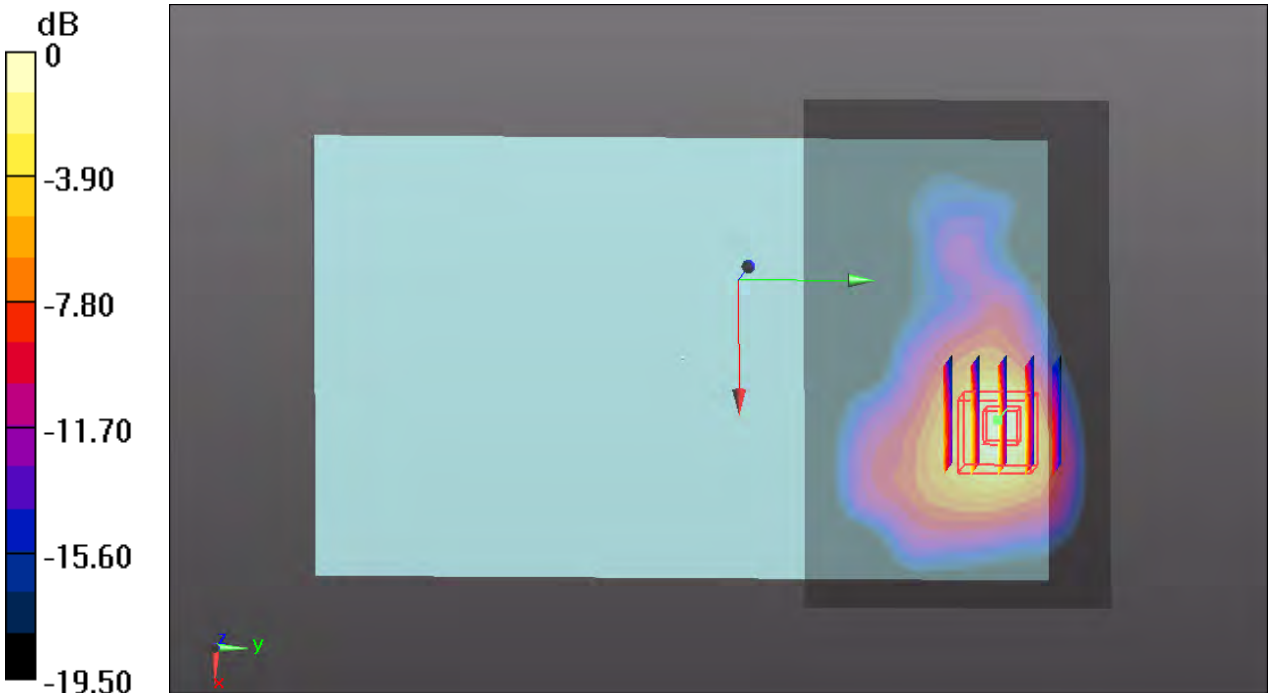
#08_LTE Band 4_20M_QPSK_1RB_0Offset_Bottom Face_0cm_Ch20175_Sensor On

Communication System: UID 0, LTE (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: MSL_1800_140807 Medium parameters used: f = 1732.5 MHz; σ = 1.506 S/m; ε_r = 52.091; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(8.01, 8.01, 8.01); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch20175/Area Scan (101x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.47 W/kg

Ch20175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.242 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.86 W/kg
SAR(1 g) = 0.921 W/kg; SAR(10 g) = 0.451 W/kg
Maximum value of SAR (measured) = 1.44 W/kg



0 dB = 1.44 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.08

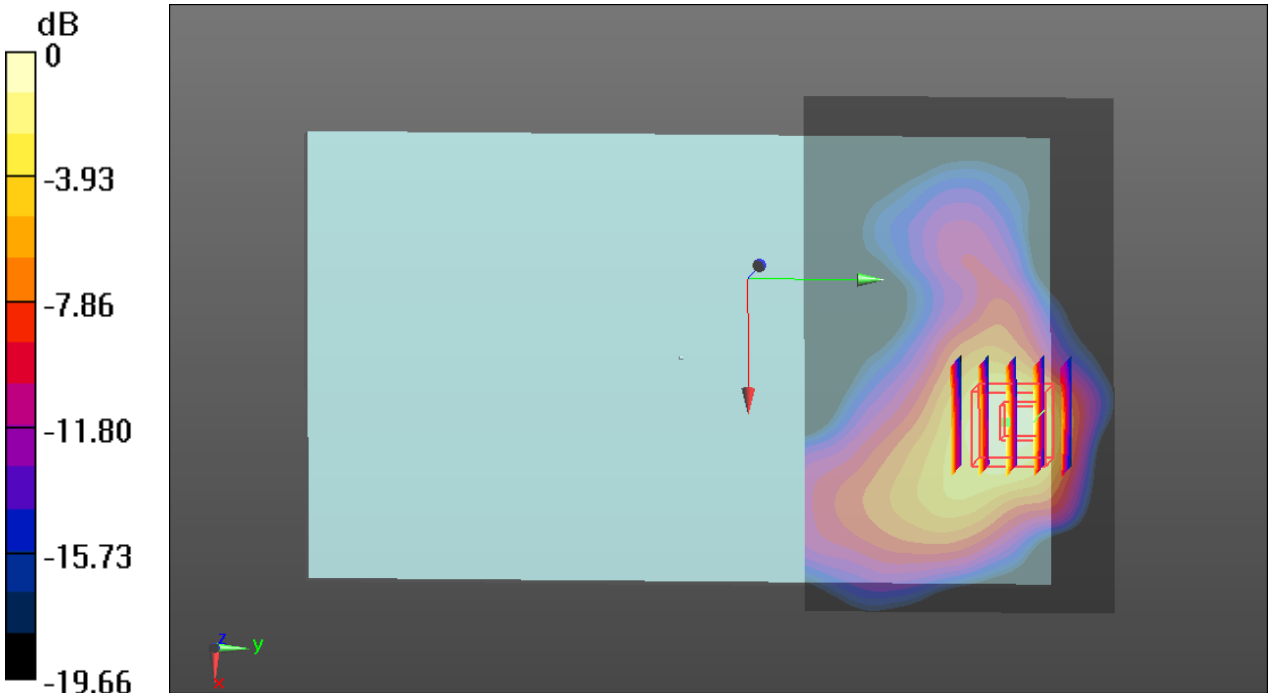
#09_LTE Band 2_20M_QPSK_1RB_0Offset_Bottom Face_0cm_Ch18700_Sensor On

Communication System: UID 0, LTE (0); Frequency: 1860 MHz;Duty Cycle: 1:1
Medium: MSL_1900_140808 Medium parameters used: f = 1860 MHz; σ = 1.532 S/m; ε_r = 54.361; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.55, 7.55, 7.55); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch18700/Area Scan (101x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.46 W/kg

Ch18700/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.825 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.83 W/kg
SAR(1 g) = 0.957 W/kg; SAR(10 g) = 0.481 W/kg
Maximum value of SAR (measured) = 1.29 W/kg



0 dB = 1.29 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.01

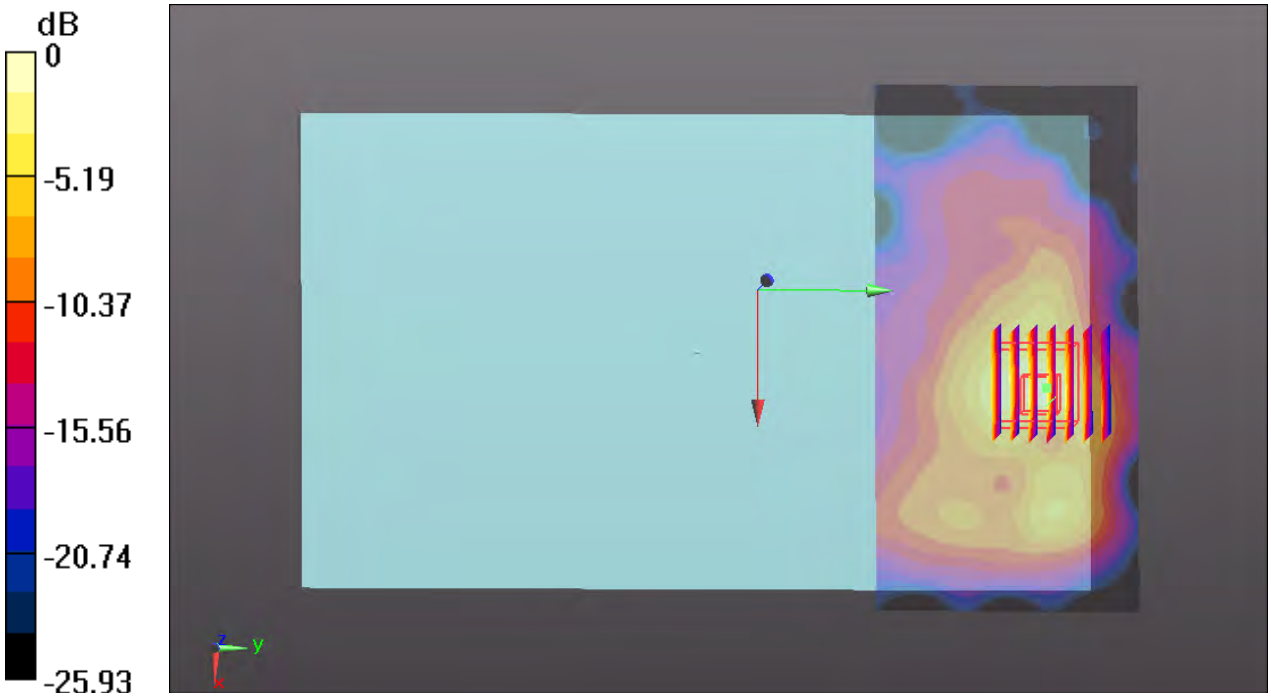
#10_LTE Band 7_20M_QPSK_1RB_0Offset_Bottom Face_0cm_Ch20850_Sensor On

Communication System: UID 0, LTE (0); Frequency: 2510 MHz;Duty Cycle: 1:1
Medium: MSL_2600_140801 Medium parameters used: f = 2510 MHz; σ = 2.085 S/m; ε_r = 52.993; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(6.79, 6.79, 6.79); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch20850/Area Scan (121x61x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.64 W/kg

Ch20850/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.701 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 2.40 W/kg
SAR(1 g) = 0.998 W/kg; SAR(10 g) = 0.410 W/kg
Maximum value of SAR (measured) = 1.61 W/kg



0 dB = 1.61 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.02

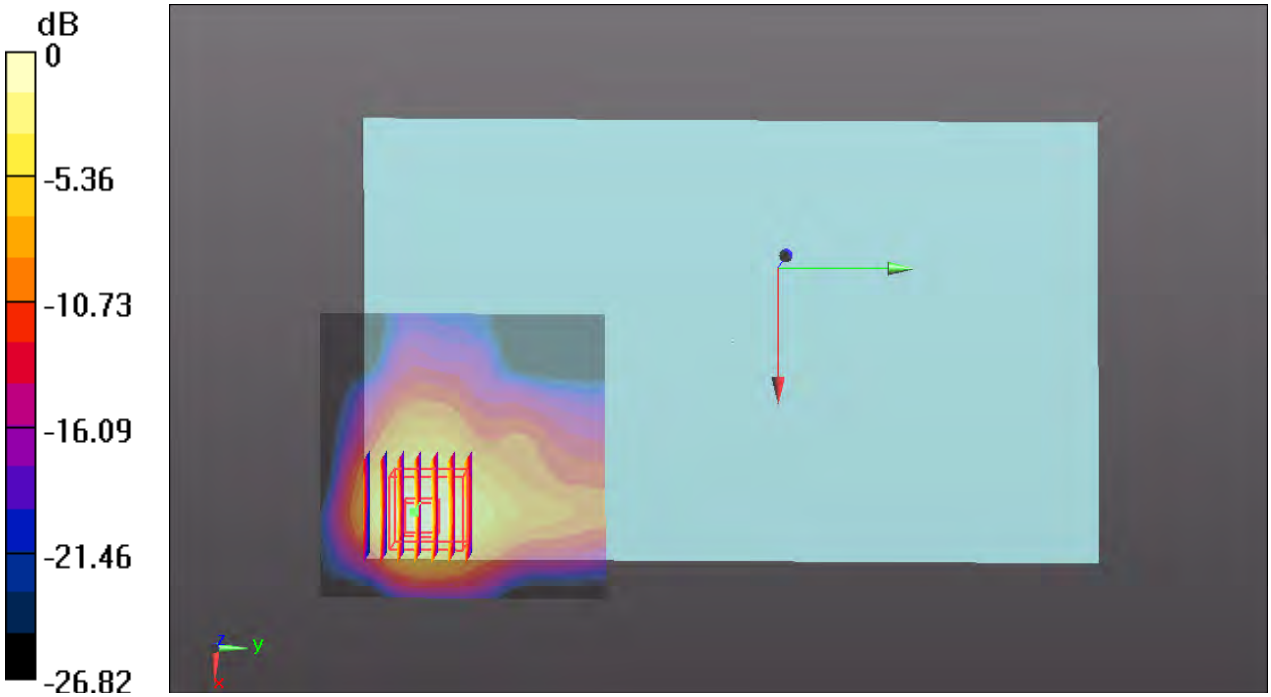
#11_WLAN 2.4GHz_802.11b 1Mbps_Bottom Face_0cm_Ch6

Communication System: UID 0, WIFI (0); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: MSL_2450_140802 Medium parameters used: f = 2437 MHz; σ = 1.973 S/m; ε_r = 52.403; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.07, 7.07, 7.07); Calibrated: 2013.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch6/Area Scan (71x71x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.00 W/kg

Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.925 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.564 W/kg; SAR(10 g) = 0.255 W/kg
Maximum value of SAR (measured) = 0.866 W/kg



0 dB = 0.866 W/kg

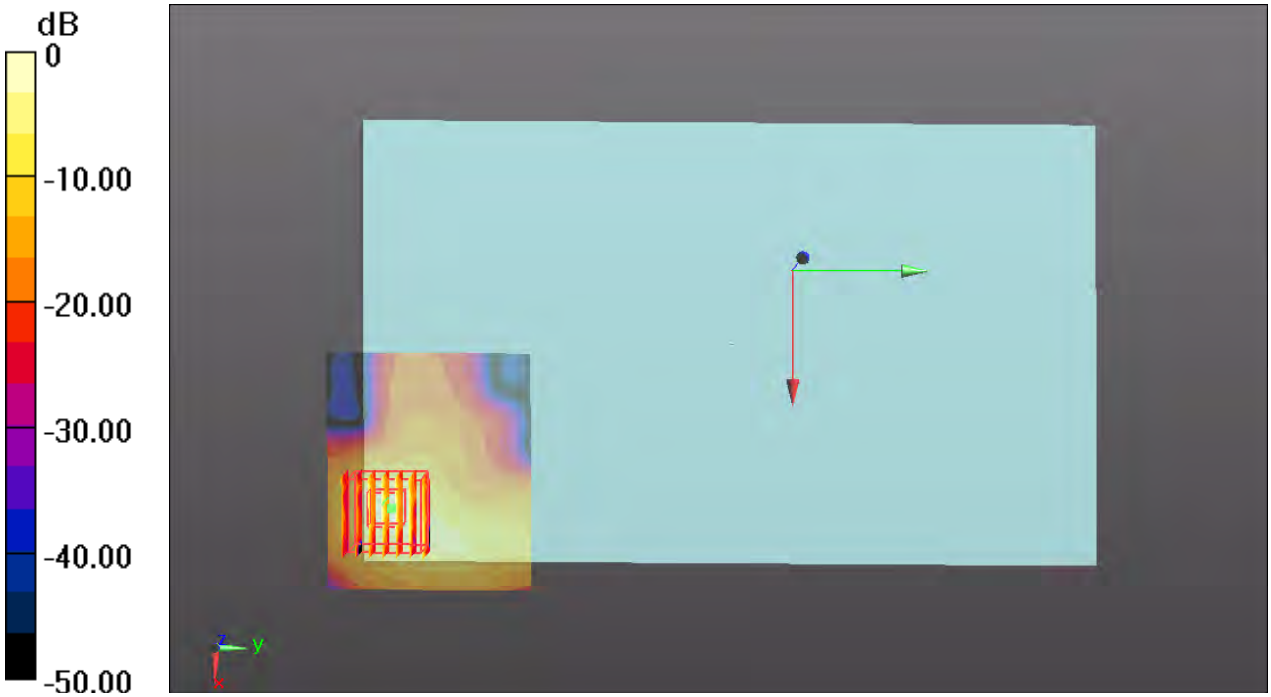
#12 WLAN 5.8GHz_802.11a 6Mbps_Bottom Face_0cm_Ch165

Communication System: UID 0, WIFI (0); Frequency: 5825 MHz;Duty Cycle: 1:1.070
Medium: MSL_5800_140806 Medium parameters used: f = 5825 MHz; σ = 5.918 S/m; ε_r = 47.027; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.02, 4.02, 4.02); Calibrated: 2013.11.27;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch165/Area Scan (71x61x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.67 W/kg

Ch165/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 0.570 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 3.71 W/kg
SAR(1 g) = 0.817 W/kg; SAR(10 g) = 0.214 W/kg
Maximum value of SAR (measured) = 2.16 W/kg



0 dB = 2.16 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.03

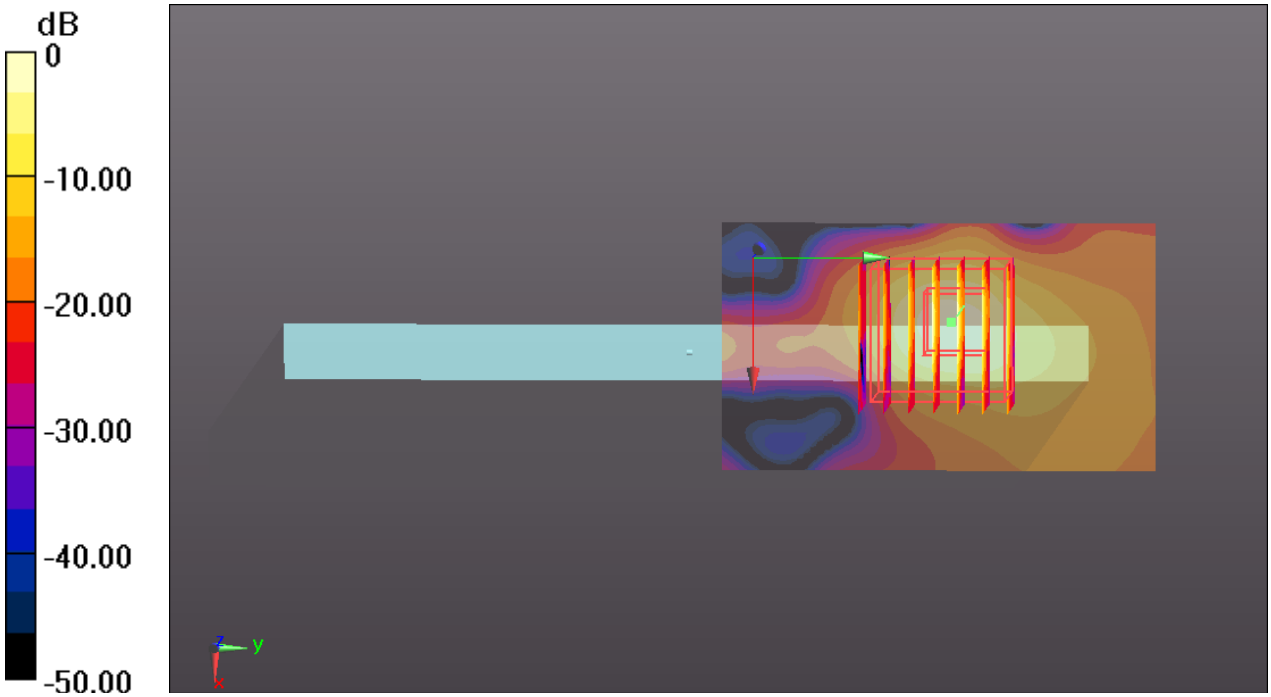
#13 WLAN 5.2GHz_802.11n_HT40 MCS0_Edge 3_0cm_Ch38

Communication System: UID 0, WIFI (0); Frequency: 5190 MHz;Duty Cycle: 1:1.140
Medium: MSL_5200_140803 Medium parameters used: f = 5190 MHz; σ = 5.124 S/m; ε_r = 48.211; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.61, 4.61, 4.61); Calibrated: 2013.11.27;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch38/Area Scan (41x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.02 W/kg

Ch38/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.448 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 4.55 W/kg
SAR(1 g) = 0.925 W/kg; SAR(10 g) = 0.199 W/kg
Maximum value of SAR (measured) = 2.62 W/kg



0 dB = 2.62 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.04

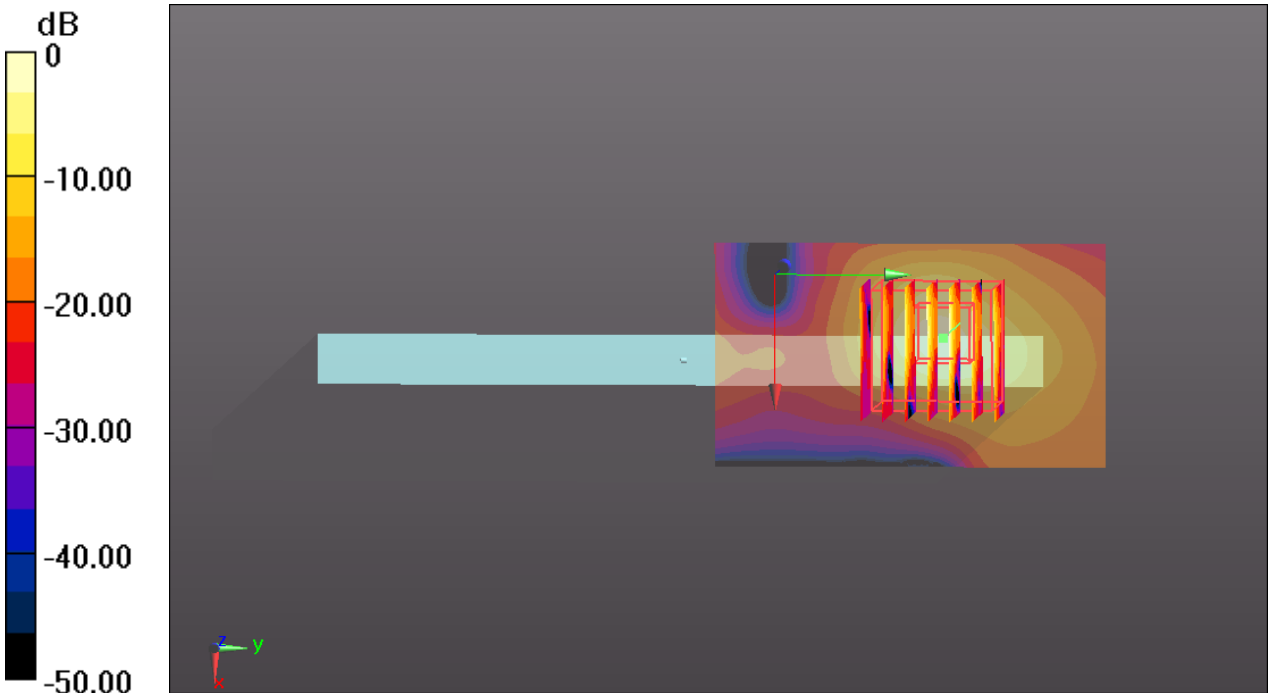
#14 WLAN 5.3GHz_802.11a 6Mbps_Edge 3_0cm_Ch52

Communication System: UID 0, WIFI (0); Frequency: 5260 MHz;Duty Cycle: 1:1.070
Medium: MSL_5300_140804 Medium parameters used: f = 5260 MHz; σ = 5.232 S/m; ε_r = 48.095; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.34, 4.34, 4.34); Calibrated: 2013.11.27;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch52/Area Scan (41x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.74 W/kg

Ch52/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.594 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 4.32 W/kg
SAR(1 g) = 0.871 W/kg; SAR(10 g) = 0.186 W/kg
Maximum value of SAR (measured) = 2.53 W/kg



0 dB = 2.53 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2014.08.05

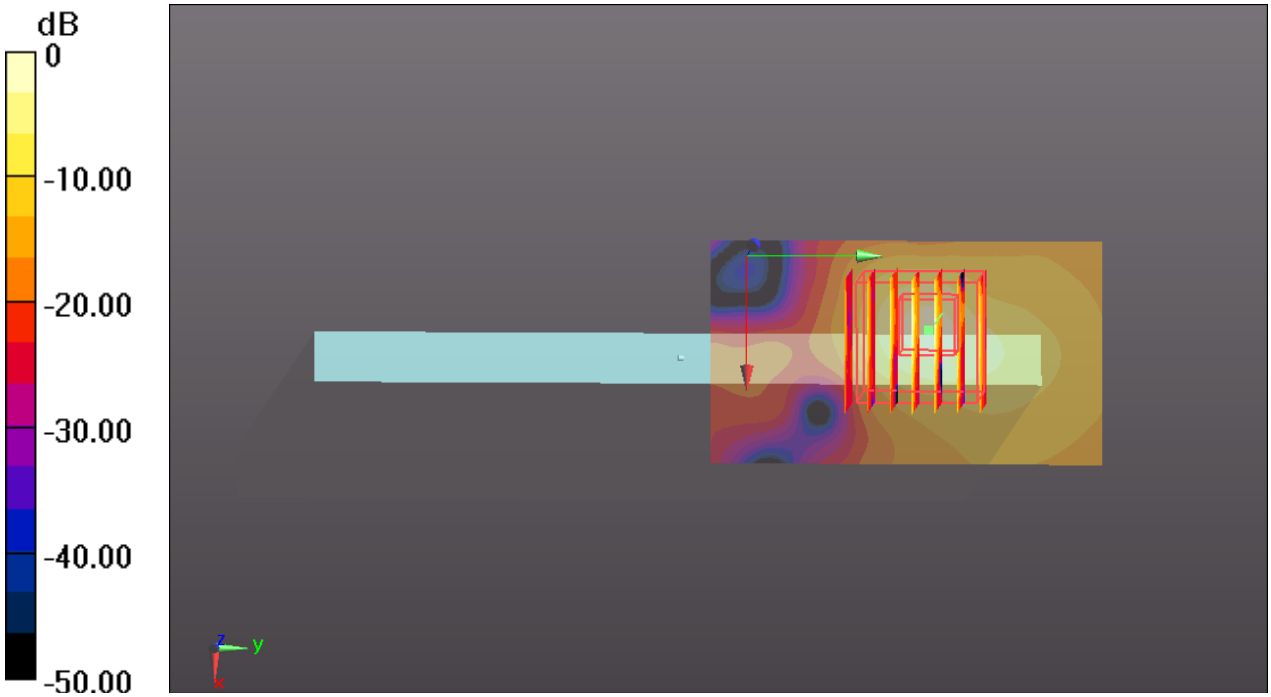
#15 WLAN 5.5GHz_802.11n_HT40 MCS0_Edge 3_0cm_Ch110

Communication System: UID 0, WIFI (0); Frequency: 5550 MHz;Duty Cycle: 1:1.140
Medium: MSL_5600_140805 Medium parameters used: f = 5550 MHz; σ = 5.547 S/m; ε_r = 47.47; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.06, 4.06, 4.06); Calibrated: 2013.11.27;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2013.11.22
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Ch110/Area Scan (41x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.48 W/kg

Ch110/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 3.379 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 4.10 W/kg
SAR(1 g) = 0.808 W/kg; SAR(10 g) = 0.178 W/kg
Maximum value of SAR (measured) = 2.30 W/kg



0 dB = 2.30 W/kg