FCC SAR Test Report

APPLICANT	:	Lenovo (Shanghai) Electronics Technology Co., Ltd.
EQUIPMENT	:	Notebook Computer
BRAND NAME	:	Lenovo
MODEL NAME	:	Lenovo YB-J912L
FCC ID	:	O57YBJ912L
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013

We, Sporton International (Kunshan) 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 (Kunshan) Inc., the test report shall not be reproduced except in full.

Mark Qu

Approved by: Mark Qu / Manager

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TESTING
NVLAP LAB CODE 600155-0

Sporton International (Kunshan) Inc.
No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA810315-01	Rev. 01	Initial issue of report	Jun. 29, 2018

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Lenovo (Shanghai) Electronics Technology Co., Ltd.**, **Notebook Computer, Lenovo YB-J912L,** are as follows.

Highest Standalone 1g SAR Summary				
Equipment Class	Frequency Band		Body 1g SAR (W/kg)	Highest Simultaneous Transmission 1g SAR (W/kg)
Licensed	WCDMA	Band V	1.00	1.50
		Band IV	1.04	
		Band II	0.98	
	LTE	Band 12/ Band 17	0.87	
		Band 13	1.07	
		Band 26/Band 5	0.92	
		Band 66/Band 4	0.76	
		Band 2	1.07	
		Band 30	0.54	
		Band 7	0.99	
		Band 41/Band 38	1.05	
DTS	WLAN	2.4GHz WLAN	1.03	1.38
NII		5GHz WLAN	**1.20**	1.50
DSS	Bluetooth	Bluetooth	0.35	1.38
Date of Testing:		2018/6/1~2018/6/3		
Remark: This device supports LTE B4 / B5 / B17 / B38 and LTE B66 / B26 / B12 / B41. Since the supported frequency span for LTE B4 / B5 / B17 / B38 falls completely within the supports frequency span for LTE B66 / B26 / B12 / B41, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B66 / B26 / B12 / B41.				

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 1528-2013 and FCC KDB publications.

2. Administration Data

Testing Laboratory	
Test Site	Sporton International (Kunshan) Inc.
Test Site Location	No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL : +86-512-57900158 FAX : +86-512-57900958

Applicant	
Company Name	Lenovo (Shanghai) Electronics Technology Co., Ltd.
Address	NO.68 BUILDING, 199 FENJU RD, Pilot Free Trade Zone, 200131, China

Manufacturer	
Company Name	Lenovo PC HK Limited
Address	23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong

3. Guidance Applied

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 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Notebook Computer
Brand Name	Lenovo
Model Name	Lenovo YB-J912L
FCC ID	O57YBJ912L
Wireless Technology and Frequency Range	WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 30: 2307.5 MHz ~ 2312.5 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2472 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	RMC 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+ (16QAM uplink is not supported) LTE: QPSK, 16QAM WLAN 2.4GHz : 802.11b/g/n HT20/HT40 WLAN 5GHz : 802.11a/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth v3.0+EDR, Bluetooth v4.0 LE, Bluetooth v4.1 LE, Bluetooth v4.2 LE
HW Version	Lenovo YB-J912L
SW Version	Windows 10
EUT Stage	Identical Prototype

Remark:

1. This device has no voice function.
2. This EUT has two typical use conditions which are laptop mode and tablet mode.
3. This device implanted proximity sensor function at bottom, bottom face and edge 1, power reduction will be implemented immediately at all WWAN bands.
4. This device implanted proximity sensor function at bottom, bottom face and edge 3, power reduction will be implemented immediately at all 2.4GHz/5GHz WLAN bands.
5. This is a variant report for Lenovo YB-J912L, the product equality declaration could be referred to Appendix E. Based on the similarity between two models, 2.4GHz WLAN performed full SAR testing, All WWAN Bands and 5GHz WLAN verified the worse cases from reference report (Sporton Report Number FA810315) were verified for difference.

4.2 General LTE SAR Test and Reporting Considerations

<table>
<tr><th colspan="2">Summarized necessary items addressed in KDB 941225 D05 v02r05</th></tr>
<tr><td>FCC ID</td><td>O57YBJ912L</td></tr>
<tr><td>Equipment Name</td><td>Notebook Computer</td></tr>
<tr><td>Operating Frequency Range of each LTE transmission band</td><td>LTE Band 2: 1850.7 MHz ~ 1909.3 MHz
LTE Band 4: 1710.7 MHz ~ 1754.3 MHz
LTE Band 5: 824.7 MHz ~ 848.3 MHz
LTE Band 7: 2502.5 MHz ~ 2567.5 MHz
LTE Band 12: 699.7 MHz ~ 715.3 MHz
LTE Band 13: 779.5 MHz ~ 784.5 MHz
LTE Band 17: 706.5 MHz ~ 713.5 MHz
LTE Band 26: 814.7 MHz ~ 848.3 MHz
LTE Band 30: 2307.5 MHz ~ 2312.5 MHz
LTE Band 38: 2572.5 MHz ~ 2617.5 MHz
LTE Band 41: 2498.5 MHz ~ 2687.5 MHz
LTE Band 66: 1710.7 MHz ~ 1779.3 MHz</td></tr>
<tr><td>Channel Bandwidth</td><td>LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz
LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz
LTE Band 13: 5MHz, 10MHz
LTE Band 17: 5MHz, 10MHz
LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz
LTE Band 30: 5MHz, 10MHz
LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz</td></tr>
<tr><td>Uplink Modulations Used</td><td>QPSK / 16QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Data only</td></tr>
<tr><td>LTE Release</td><td>R11, Cat9</td></tr>
<tr><td>CA Support</td><td>Downlink 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 1, 2 and 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{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>
<tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr>
<tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</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>1. Yes, Proximity Sensor.
2. Power reduction will be active at all WWAN bands.</td></tr>
<tr><td>LTE Carrier Aggregation Combinations</td><td>Inter-Band and Intra-Band possible combinations as below page and the detail power verification please referred to section 13.</td></tr>
<tr><td>LTE Carrier Aggregation Additional Information</td><td>This device supports maximum of 2 and 3 carriers in the downlink only. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. Due to carrier capability, only the combinations listed above are supported. The following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.</td></tr>
</table>

Transmission (H, M, L) channel numbers and frequencies in each LTE band												
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 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 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 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
LTE Band 12								
	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	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711
LTE Band 13						
	Bandwidth 5 MHz			Bandwidth 10 MHz		
	Channel #		Freq.(MHz)	Channel #		Freq.(MHz)
L	23205		779.5	23230		782
M	23230		782			
H	23255		784.5			
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 26										
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5

LTE Band 30				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	27685	2307.5	27710	2310
M	27710	2310		
H	27735	2312.5		

LTE Band 38								
	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	37775	2572.5	37800	2575	37825	2577.5	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610

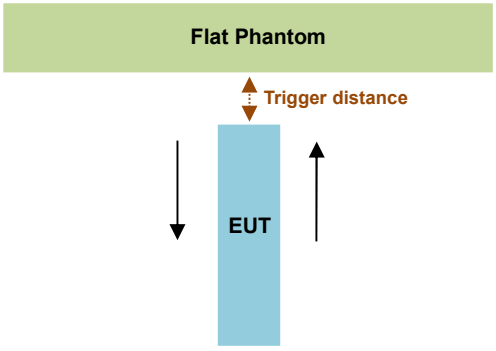
LTE Band 41								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5
M	40620	2593	40620	2593	40620	2593	40620	2593
HM	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680

LTE Band 66												
	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	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770

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.



<WWAN Frequency Bands>

Proximity Sensor Trigger Distance (mm)			
Position	Bottom	Bottom Face	Edge 1
Minimum	19	24	20

<2.4GHz/5GHz WLAN Frequency Bands>

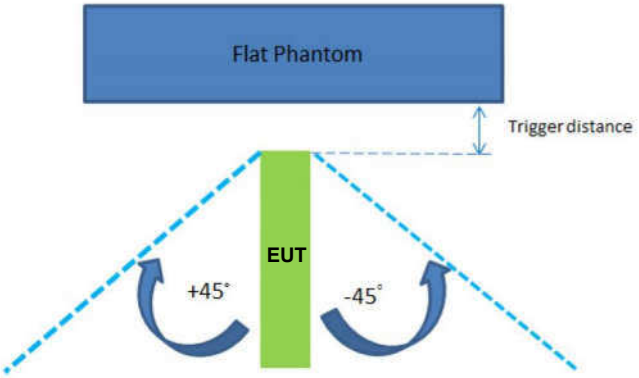
Proximity Sensor Trigger Distance (mm)			
Position	Bottom	Bottom Face	Edge 3
Minimum	11	13	13

<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 20 mm separation for WWAN bands at Edge 1 and 13 mm separation for 2.4GHz/ 5GHz WLAN bands at Edge 3.
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.



<WWAN Frequency Bands>

Proximity Sensor Trigger Distance (mm)	
Position	Edge 1
Minimum	20

<2.4GHz/5GHz WLAN Frequency Bands>

Proximity Sensor Trigger Distance (mm)	
Position	Edge 3
Minimum	13

Proximity sensor power reduction

Exposure Position / wireless mode	Bottom(1)	Bottom Face(1)	Edge 1(1)	Edge 2	Edge 3(1)	Edge 4
WCDMA Band II	8.5 dB	8.5 dB	8.5 dB	0 dB	0 dB	0 dB
WCDMA Band IV	8.5 dB	8.5 dB	8.5 dB	0 dB	0 dB	0 dB
WCDMA Band V	5.0 dB	5.0 dB	5.0 dB	0 dB	0 dB	0 dB
LTE Band 2	7.5 dB	7.5 dB	7.5 dB	0 dB	0 dB	0 dB
LTE Band 4	8.0 dB	8.0 dB	8.0 dB	0 dB	0 dB	0 dB
LTE Band 5	4.0 dB	4.0 dB	4.0 dB	0 dB	0 dB	0 dB
LTE Band 7	10.5 dB	10.5 dB	10.5 dB	0 dB	0 dB	0 dB
LTE Band 12	1.0 dB	1.0 dB	1.0 dB	0 dB	0 dB	0 dB
LTE Band 13	4.5 dB	4.5 dB	4.5 dB	0 dB	0 dB	0 dB
LTE Band 17	1.0 dB	1.0 dB	1.0 dB	0 dB	0 dB	0 dB
LTE Band 26	4.0 dB	4.0 dB	4.0 dB	0 dB	0 dB	0 dB
LTE Band 30	11.5 dB	11.5 dB	11.5 dB	0 dB	0 dB	0 dB
LTE Band 38	7.5 dB	7.5 dB	7.5 dB	0 dB	0 dB	0 dB
LTE Band 41	7.5 dB	7.5 dB	7.5 dB	0 dB	0 dB	0 dB
LTE Band 66	8.0 dB	8.0 dB	8.0 dB	0 dB	0 dB	0 dB
WLAN 2.4GHz Ant.1	1.5 dB	1.5 dB	0 dB	0 dB	1.5 dB	0 dB
WLAN 2.4GHz Ant.2	1.0 dB	1.0 dB	0 dB	0 dB	1.0 dB	0 dB
WLAN 2.4GHz Ant.1+2	1.5 dB	1.5 dB	0 dB	0 dB	1.5 dB	0 dB
WLAN 5.2GHz Ant.1	11.0 dB	11.0 dB	0 dB	0 dB	11.0 dB	0 dB
WLAN 5.2GHz Ant.2	10.5 dB	10.5 dB	0 dB	0 dB	10.5 dB	0 dB
WLAN 5.2GHz Ant.1+2	10.0 dB	10.0 dB	0 dB	0 dB	10.0 dB	0 dB
WLAN 5.3GHz Ant.1	11.0 dB	11.0 dB	0 dB	0 dB	11.0 dB	0 dB
WLAN 5.3GHz Ant.2	10.5 dB	10.5 dB	0 dB	0 dB	10.5 dB	0 dB
WLAN 5.3GHz Ant.1+2	10.0 dB	10.0 dB	0 dB	0 dB	10.0 dB	0 dB
WLAN 5.6GHz Ant.1	10.7 dB	10.7 dB	0 dB	0 dB	10.7 dB	0 dB
WLAN 5.6GHz Ant.2	10.5 dB	10.5 dB	0 dB	0 dB	10.5 dB	0 dB
WLAN 5.6GHz Ant.1+2	9.7 dB	9.7 dB	0 dB	0 dB	9.7 dB	0 dB
WLAN 5.8GHz Ant.1	10.5 dB	10.5 dB	0 dB	0 dB	10.5 dB	0 dB
WLAN 5.8GHz Ant.2	10.5 dB	10.5 dB	0 dB	0 dB	10.5 dB	0 dB
WLAN 5.8GHz Ant. 1+2	9.5 dB	9.5 dB	0 dB	0 dB	9.5 dB	0 dB

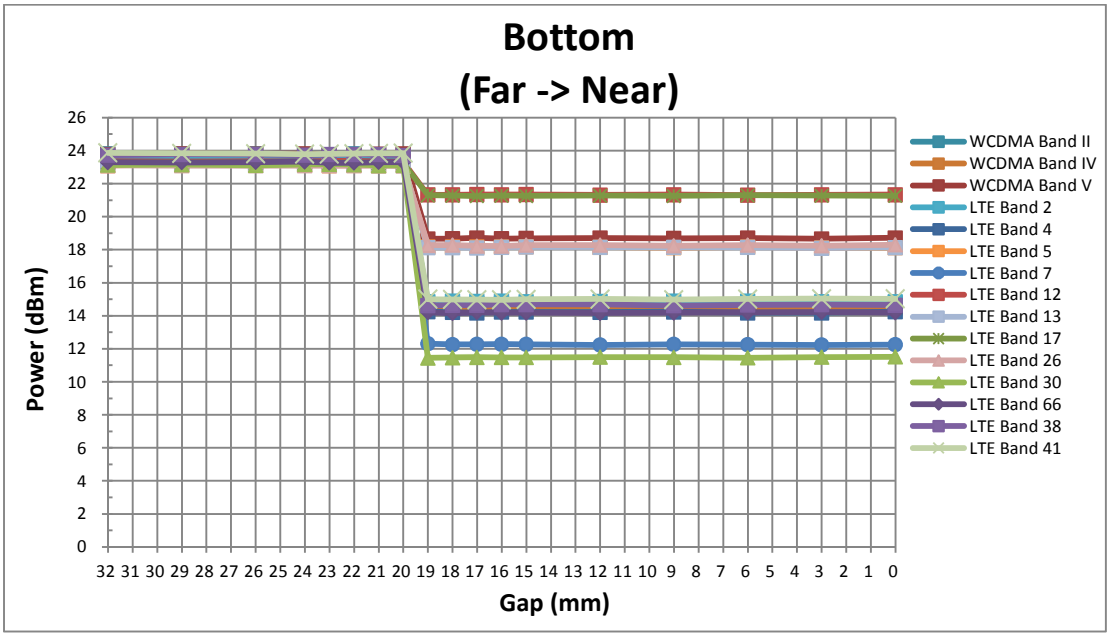
Remark:

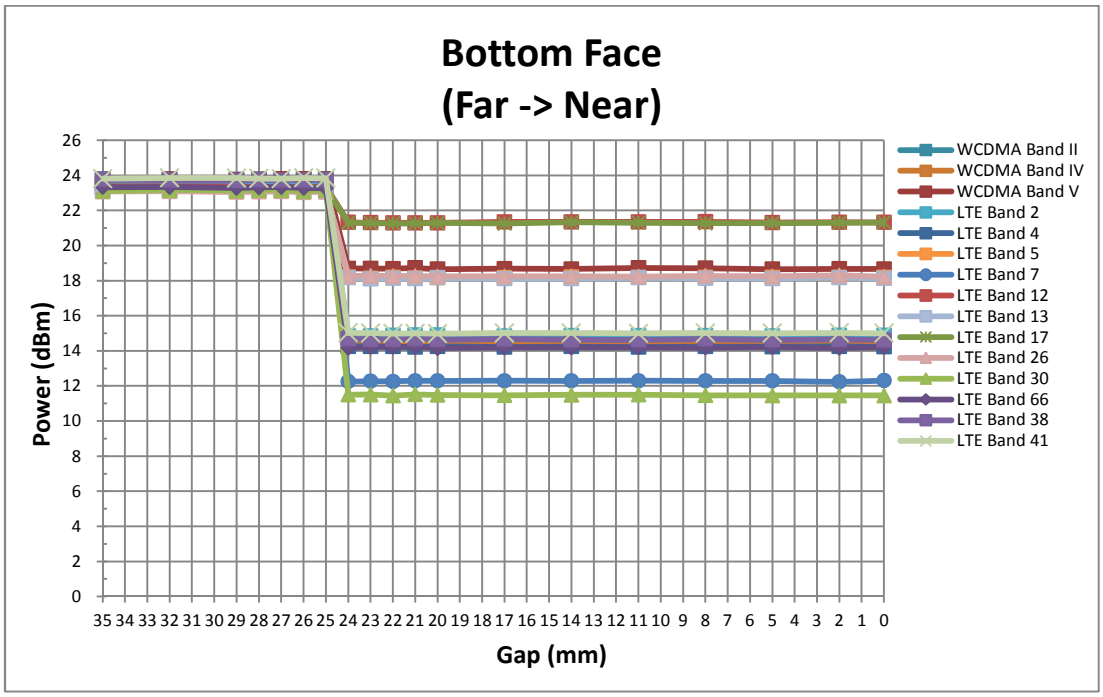
1. (1): Reduced maximum limit applied by activation of proximity sensor.
2. Power reduction is not applicable for Bluetooth.
3. Tests were performed in accordance with KDB 616217 D04 section 6.1, 6.2, 6.3, 6.4 and 6.5 and compliant results are shown and described in exhibit “P-Sensor operational description
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/Edge 1: 18 mm for WWAN Frequency Bands
   - Bottom Face/Edge 3: 10 mm for 2.4GHz /5GHz WLAN Frequency Bands
5. According to the normal usage, we didn’t evaluate the distance SAR at laptop of bottom.

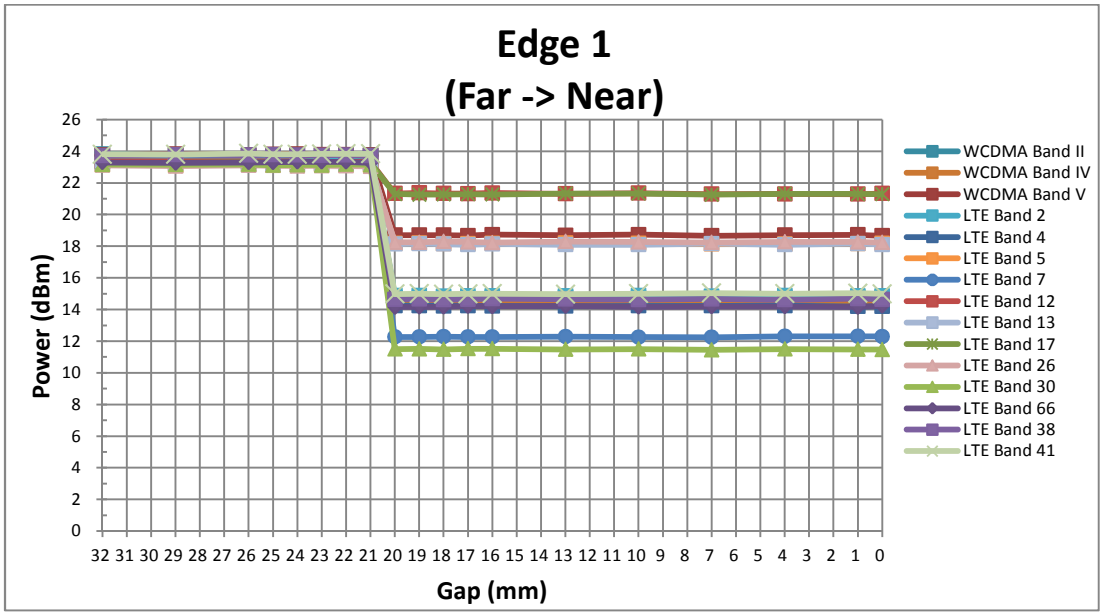
Power Measurement during Sensor Trigger distance testing

Band/Mode	Ch #	Measured power reduction (dBm)		Reduction Levels
		w/o power back-off	w/ power back-off	(dB)
WCDMA Band II (RMC 12.2Kbps)	9400	23.68	14.63	9.05
WCDMA Band IV (RMC 12.2Kbps)	1413	23.48	14.45	9.03
WCDMA Band V (RMC 12.2Kbps)	4182	23.51	18.42	5.09
LTE Band 2 (QPSK, 20M, 1RB 0Offset)	18900	22.93	14.83	8.10
LTE Band 4 (QPSK, 20M, 1RB 0Offset)	20175	23.29	14.18	9.11
LTE Band 5 (QPSK, 10M, 1RB 0Offset)	20525	22.44	17.77	4.67
LTE Band 7 (QPSK, 20M, 1RB 0Offset)	21100	22.68	11.53	11.15
LTE Band 12 (QPSK, 10M, 1RB 0Offset)	23095	22.96	21.29	1.67
LTE Band 13 (QPSK, 10M, 1RB 0Offset)	23230	23.13	18.09	5.04
LTE Band 17 (QPSK, 10M, 1RB 0Offset)	23790	22.83	21.14	1.69
LTE Band 26 (QPSK, 15M, 1RB 0Offset)	26865	22.84	18.22	4.62
LTE Band 30 (QPSK, 10M, 1RB 0Offset)	27710	23.10	11.44	11.66
LTE Band 38 (QPSK, 20M, 1RB 0Offset)	38000	22.80	14.54	8.26
LTE Band 41 (QPSK, 20M, 1RB 0Offset)	40620	22.54	14.42	8.12
LTE Band 66 (QPSK, 20M, 1RB 0Offset)	132322	23.12	14.04	9.08
WLAN 2.4GHz Ant.1	6	13.67	12.15	1.52
WLAN 2.4GHz Ant.2	6	13.72	12.78	0.94
WLAN 2.4GHz Ant.1+2	6	16.72	14.66	2.06
WLAN 5.2GHz Ant.1	44	18.82	8.42	10.40
WLAN 5.2GHz Ant.2	44	18.81	8.57	10.24
WLAN 5.2GHz Ant.1+2	44	19.76	10.77	8.99
WLAN 5.3GHz Ant.1	60	18.83	8.02	10.81
WLAN 5.3GHz Ant.2	60	18.80	8.64	10.16
WLAN 5.3GHz Ant.1+2	60	19.83	10.62	9.21
WLAN 5.6GHz Ant.1	116	18.86	8.28	10.58
WLAN 5.6GHz Ant.2	116	18.73	8.49	10.24
WLAN 5.6GHz Ant.1+2	116	19.75	10.75	9.00
WLAN 5.8GHz Ant.1	157	18.72	7.79	10.93
WLAN 5.8GHz Ant.2	157	18.76	8.74	10.02
WLAN 5.8GHz Ant. 1+2	157	20.73	10.56	10.17

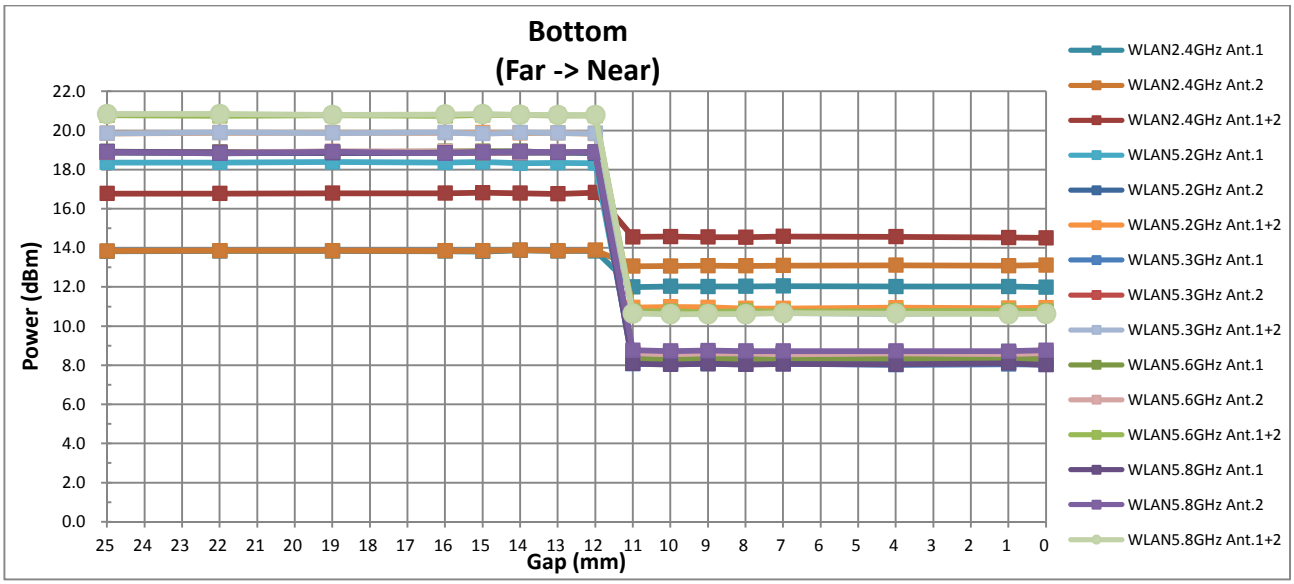
<WWAN Frequency Bands>

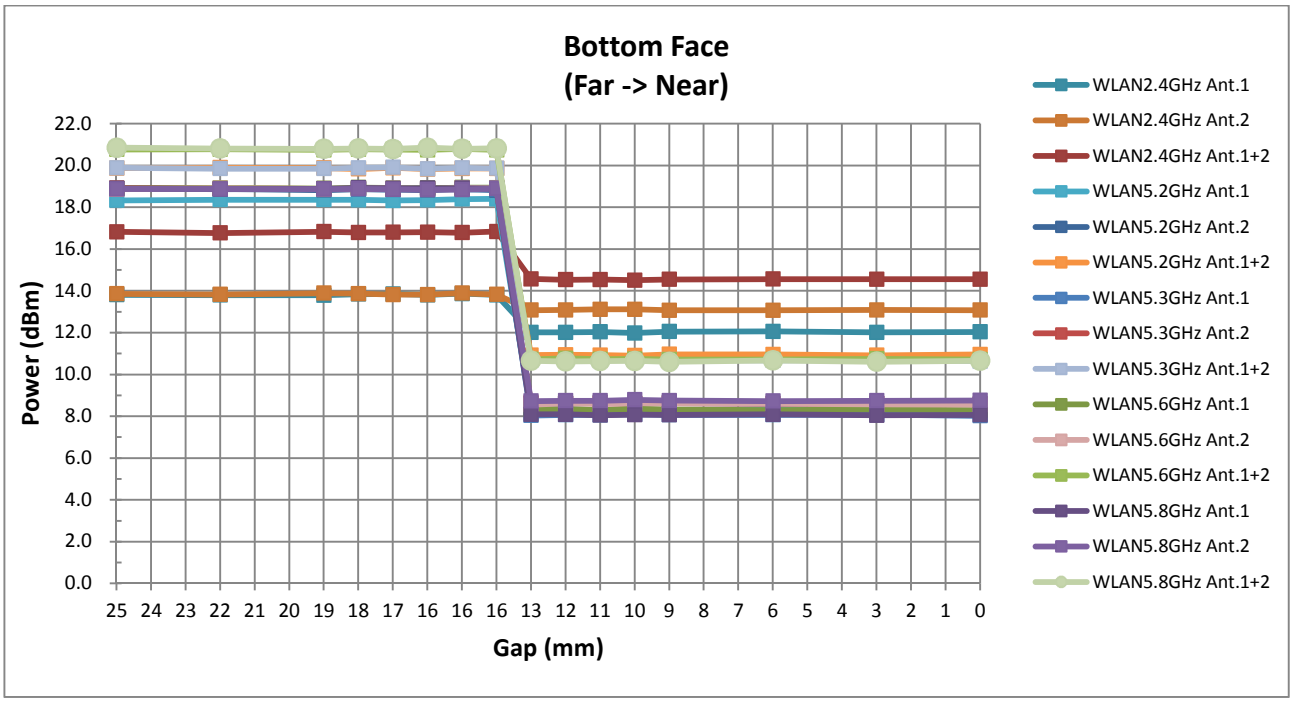


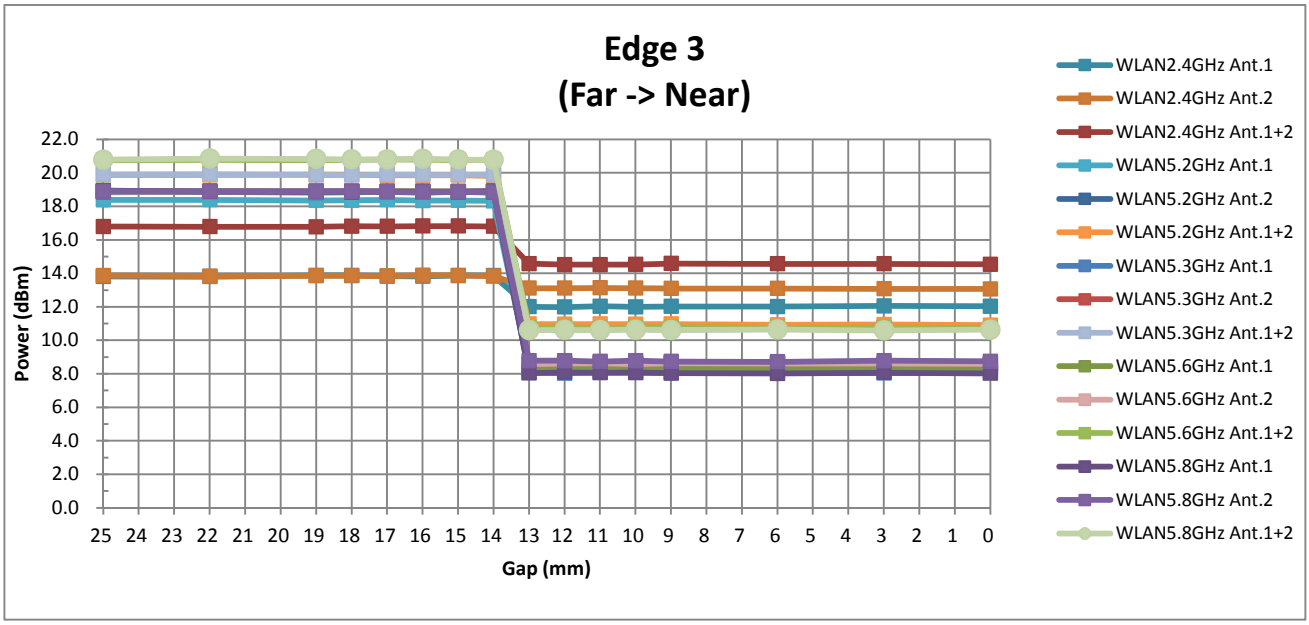

Bottom Face
(Far -> Near)
Power (dBm)
Gap (mm)
WCDMA Band II
WCDMA Band IV
WCDMA Band V
LTE Band 2
LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 12
LTE Band 13
LTE Band 17
LTE Band 26
LTE Band 30
LTE Band 66
LTE Band 38
LTE Band 41


Edge 1
(Far -> Near)
Power (dBm)
Gap (mm)
WCDMA Band II
WCDMA Band IV
WCDMA Band V
LTE Band 2
LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 12
LTE Band 13
LTE Band 17
LTE Band 26
LTE Band 30
LTE Band 66
LTE Band 38
LTE Band 41

<WLAN Frequency Bands>






Edge 3
(Far -> Near)
Power (dBm)
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
Gap (mm)
WLAN2.4GHz Ant.1
WLAN2.4GHz Ant.2
WLAN2.4GHz Ant.1+2
WLAN5.2GHz Ant.1
WLAN5.2GHz Ant.2
WLAN5.2GHz Ant.1+2
WLAN5.3GHz Ant.1
WLAN5.3GHz Ant.2
WLAN5.3GHz Ant.1+2
WLAN5.6GHz Ant.1
WLAN5.6GHz Ant.2
WLAN5.6GHz Ant.1+2
WLAN5.8GHz Ant.1
WLAN5.8GHz Ant.2
WLAN5.8GHz Ant.1+2

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:

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

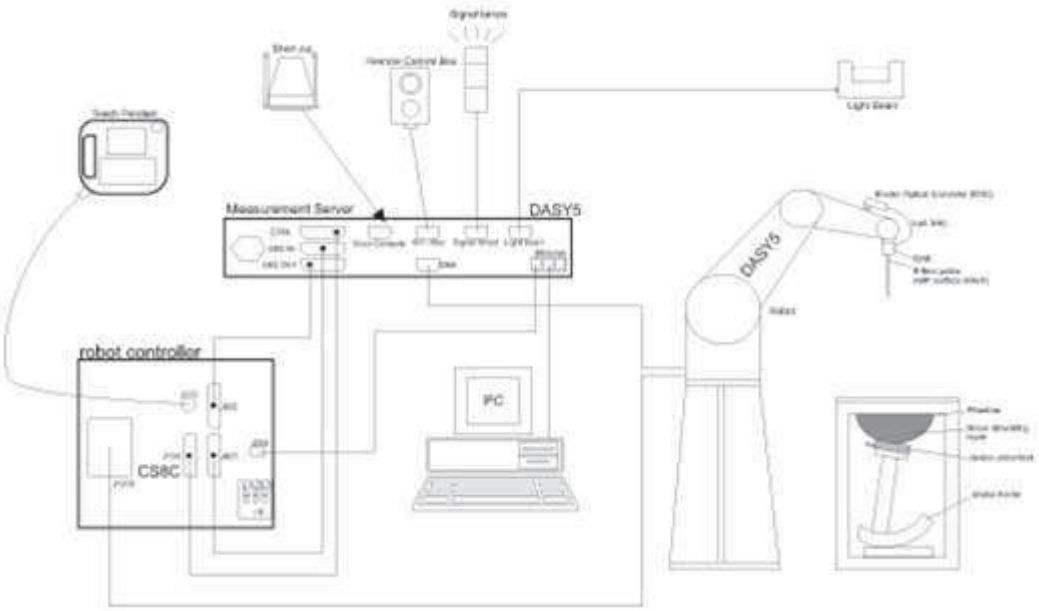
SAR is expressed in units of Watts per kilogram (W/kg)

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

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.

8.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG).The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Frequency	10 MHz – >6 GHz Linearity: ±0.2 dB (30 MHz – 6 GHz)
Directivity	±0.3 dB in TSL (rotation around probe axis) ±0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g – >100 mW/g Linearity: ±0.2 dB (noise: typically <1 µW/g)
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm

8.2 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Photo of DAE

8.3 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)
Filling Volume	Approx. 30 liters
Dimensions	Major ellipse axis: 600 mm Minor axis: 400 mm

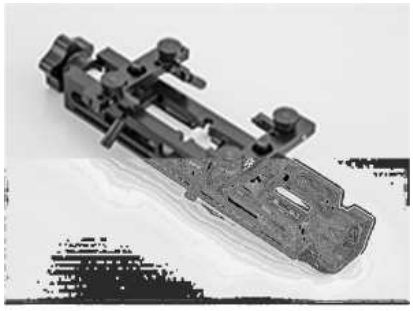
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

8.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.

Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

<Mounting Device for Laptops and other Body-Worn Transmitters>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.

Mounting Device for Laptops

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 D01v01r04 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 D01v01r04 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	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
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	1065	2017/12/4	2018/12/3
SPEAG	835MHz System Validation Kit	D835V2	4d091	2017/12/5	2018/12/4
SPEAG	1750MHz System Validation Kit	D1750V2	1069	2017/12/5	2018/12/4
SPEAG	1900MHz System Validation Kit	D1900V2	5d118	2017/12/6	2018/12/5
SPEAG	2300MHz System Validation Kit	D2300V2	1055	2017/8/30	2018/8/29
SPEAG	2450MHz System Validation Kit	D2450V2	840	2017/12/7	2018/12/6
SPEAG	2600MHz System Validation Kit	D2600V2	1061	2017/12/7	2018/12/6
SPEAG	5000MHz System Validation Kit	D5GHzV2	1006	2017/9/26	2018/9/25
SPEAG	Data Acquisition Electronics	DAE4	910	2017/7/13	2018/7/12
SPEAG	Dosimetric E-Field Probe	EX3DV4	7375	2017/12/18	2018/12/17
SPEAG	ELI4 Phantom	QD OVA 001 BB	TP-1025	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201563814	2018/1/18	2019/1/17
Agilent	Wireless Communication Test Set	E5515C	MY52102706	2018/4/17	2019/4/16
Agilent	ENA Series Network Analyzer	E5071C	MY46111157	2018/4/17	2019/4/16
SPEAG	DAK Kit	DAK3.5	1146	2017/7/18	2018/7/17
R&S	Signal Generator	SML03	103818	2017/8/17	2018/8/16
Anritsu	Power Meter	ML2495A	1218006	2017/10/6	2018/10/5
Anritsu	Power Sensor	MA2411B	1207363	2017/10/6	2018/10/5
Testo	Hygrometer	608-H1	1241332096	2017/8/21	2018/8/20
FLUKE	DIGITAC THERMOMETER	51II	97240029	2017/8/3	2018/8/2
R&S	CBT BLUETOOTH TESTER	CBT	100783	2017/8/8	2018/8/7
EXA	Spectrum Analyzer	FSV7	101742	2018/1/19	2019/1/18
ARRA	Power Divider	A3200-2	N/A	Note	
MCL	Attenuation1	BW-S10W5+	N/A	Note	
MCL	Attenuation2	BW-S10W5+	N/A	Note	
MCL	Attenuation3	BW-S10W5+	N/A	Note	
AR	Amplifier	5S1G4	333096	Note	
mini-circuits	Amplifier	ZVE-3W-83+	162601250	Note	
Agilent	Dual Directional Coupler	778D	50422	Note	
PASTERNACK	Dual Directional Coupler	PE2214-10	N/A	Note	

Note:
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.

11. System Verification

11.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.1.

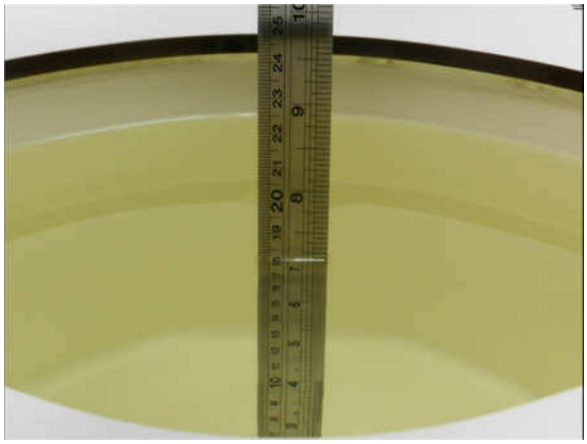


Fig 10.1 Photo of Liquid Height for Body SAR

11.2 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
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	22.6	0.968	56.659	0.96	55.50	0.83	2.09	±5	2018/6/1
835	Body	22.6	0.982	54.617	0.97	55.20	1.24	-1.06	±5	2018/6/1
1750	Body	22.8	1.478	54.616	1.49	53.40	-0.81	2.28	±5	2018/6/1
1900	Body	22.9	1.524	51.744	1.52	53.30	0.26	-2.92	±5	2018/6/1
2300	Body	22.6	1.763	52.894	1.81	52.90	-2.60	-0.01	±5	2018/6/1
2450	Body	22.7	1.957	52.432	1.95	52.70	0.36	-0.51	±5	2018/6/2
2600	Body	22.8	2.172	51.861	2.16	52.50	0.56	-1.22	±5	2018/6/1
5250	Body	22.8	5.548	47.011	5.36	48.90	3.51	-3.86	±5	2018/6/3
5600	Body	22.9	6.014	46.383	5.77	48.50	4.23	-4.36	±5	2018/6/3
5750	Body	22.6	6.226	46.149	5.94	48.3	4.81	-4.41	±5	2018/6/3

11.3 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 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2018/6/1	750	Body	250	1065	7375	910	2.21	8.72	8.84	1.38
2018/6/1	835	Body	250	4d091	7375	910	2.23	9.72	8.92	-8.23
2018/6/1	1750	Body	250	1069	7375	910	9.25	38.00	37.00	-2.63
2018/6/1	1900	Body	250	5d118	7375	910	9.38	40.40	37.52	-7.13
2018/6/1	2300	Body	250	1055	7375	910	11.45	48.90	45.80	-6.34
2018/6/2	2450	Body	250	840	7375	910	12.03	51.90	48.12	-7.28
2018/6/1	2600	Body	250	1061	7375	910	13.23	56.40	52.92	-6.17
2018/6/3	5250	Body	100	1006	7375	910	7.80	77.00	78.00	1.30
2018/6/3	5600	Body	100	1006	7375	910	7.54	80.10	75.40	-5.87
2018/6/3	5750	Body	100	1006	7375	910	7.42	75.10	74.20	-1.20

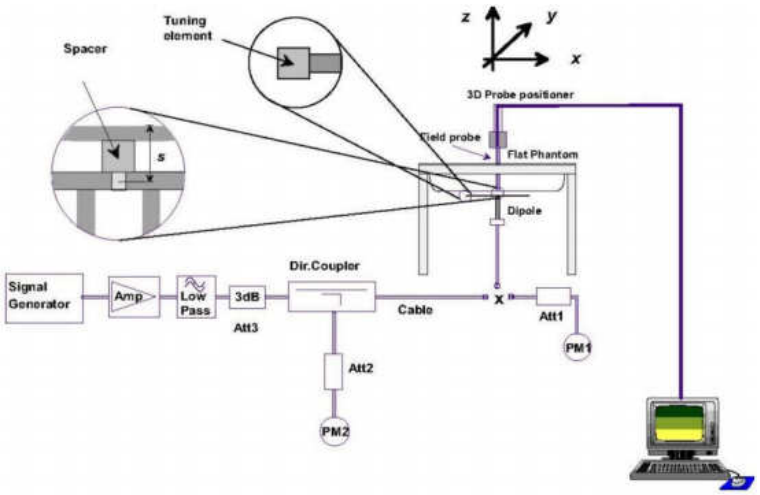


Fig 11.3.1 System Performance Check Setup

Fig 11.3.2 Setup Photo

12. RF Exposure Positions

This DUT has two typical use conditions which are laptop mode and tablet mode, so the DUT were tested in bottom and back of display screen were tested for laptop mode; bottom face and edge1 / edge2 / edge3 / edge4 for tablet mode.

EUT has proximity sensor function, it would be on bottom, bottom face, edge1 and edge3. The distance is 18 mm for WWAN frequency bands at bottom face and edge1 when EUT transmitting with full power was performed and 0mm with reduced power. The distance is 10 mm for 2.4GHz/5GHz WLAN frequency bands at bottom face and edge3 when EUT transmitting with full power was performed and 0mm with reduced power. According to the normal usage, we didn't evaluate the distance SAR at laptop of bottom. Additional the surface of EUT is touching with phantom 0mm with full power.

<EUT Setup Photos>

Please refer to Appendix D for the test setup photos.

13. Conducted RF Output Power (Unit: dBm)

<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 D01v03r01 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 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	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	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 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	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c. For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * 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: 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 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

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	Proces ses	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.		

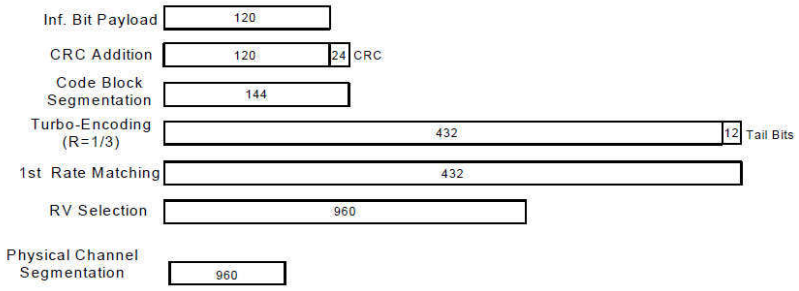


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

General Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

<Maximum Average RF Power (Proximity Sensor Inactive)>

Band		WCDMA Band II			Tune-up Limit (dBm)	WCDMA Band IV			Tune-up Limit (dBm)	WCDMA Band V			Tune-up Limit (dBm)
Tx Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	RMC 12.2Kbps	23.74	23.68	23.73	24.00	23.44	23.48	23.50	24.00	23.75	23.51	23.64	24.00
3GPP Rel 6	HSDPA Subtest-1	22.55	22.76	22.75	23.00	22.21	22.25	22.14	23.00	22.79	22.67	22.84	23.00
3GPP Rel 6	HSDPA Subtest-2	22.55	22.80	22.68	23.00	22.19	22.31	22.08	23.00	22.78	22.70	22.84	23.00
3GPP Rel 6	HSDPA Subtest-3	22.10	22.29	22.27	22.50	21.78	21.86	21.62	22.50	22.31	22.24	22.40	22.50
3GPP Rel 6	HSDPA Subtest-4	22.08	22.28	22.27	22.50	21.70	21.80	21.62	22.50	22.31	22.19	22.34	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	22.71	22.79	22.73	23.00	22.21	22.34	22.24	23.00	22.89	22.62	22.70	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	22.71	22.70	22.72	23.00	22.30	22.30	22.25	23.00	22.93	22.68	22.76	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	22.28	22.37	22.32	22.50	21.79	21.83	21.81	22.50	22.34	22.19	22.16	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	22.30	22.38	22.33	22.50	21.86	21.90	21.81	22.50	22.35	22.22	22.11	22.50
3GPP Rel 6	HSUPA Subtest-1	20.68	20.81	20.74	21.00	20.30	20.29	20.21	21.00	20.76	20.67	20.84	21.00
3GPP Rel 6	HSUPA Subtest-2	20.58	20.80	20.73	21.00	20.23	20.26	20.15	21.00	20.76	20.69	20.82	21.00
3GPP Rel 6	HSUPA Subtest-3	21.57	21.80	21.76	22.00	21.16	21.29	21.12	22.00	21.76	21.67	21.83	22.00
3GPP Rel 6	HSUPA Subtest-4	20.17	20.25	20.20	21.00	19.77	19.75	19.67	21.00	20.20	20.09	20.28	21.00
3GPP Rel 6	HSUPA Subtest-5	22.56	22.71	22.73	23.00	22.19	22.18	22.12	23.00	22.79	22.60	22.78	23.00

<Maximum Average RF Power (Proximity Sensor Active)>

Band		WCDMA Band II			Tune-up Limit (dBm)	WCDMA Band IV			Tune-up Limit (dBm)	WCDMA Band V			Tune-up Limit (dBm)
Tx Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	RMC 12.2Kbps	14.71	14.63	14.61	15.50	14.42	14.45	14.46	15.50	18.65	18.42	18.53	19.00
3GPP Rel 6	HSDPA Subtest-1	13.70	13.65	13.69	14.50	13.38	13.35	13.49	14.50	17.67	17.44	17.57	18.00
3GPP Rel 6	HSDPA Subtest-2	13.74	13.63	13.63	14.50	13.41	13.51	13.49	14.50	17.68	17.44	17.51	18.00
3GPP Rel 6	HSDPA Subtest-3	13.27	13.17	13.13	14.00	12.93	13.03	13.02	14.00	17.14	16.98	17.01	17.50
3GPP Rel 6	HSDPA Subtest-4	13.02	12.89	12.88	14.00	12.67	12.76	12.78	14.00	16.91	16.92	16.80	17.50
3GPP Rel 8	DC-HSDPA Subtest-1	13.65	13.61	13.65	14.50	13.38	13.31	13.41	14.50	17.61	17.44	17.51	18.00
3GPP Rel 8	DC-HSDPA Subtest-2	13.68	13.68	13.58	14.50	13.41	13.50	13.50	14.50	17.65	17.38	17.48	18.00
3GPP Rel 8	DC-HSDPA Subtest-3	13.15	13.08	13.08	14.00	12.91	13.05	13.15	14.00	17.05	17.01	17.05	17.50
3GPP Rel 8	DC-HSDPA Subtest-4	13.22	13.01	12.98	14.00	12.88	12.98	13.08	14.00	17.15	16.92	16.98	17.50
3GPP Rel 6	HSUPA Subtest-1	13.25	13.12	13.15	14.00	12.96	12.98	12.97	14.00	17.72	18.05	17.57	19.00
3GPP Rel 6	HSUPA Subtest-2	11.54	11.40	11.43	12.00	11.26	11.24	11.28	12.00	15.46	15.51	15.24	16.00
3GPP Rel 6	HSUPA Subtest-3	12.27	12.14	12.15	13.00	11.97	11.98	12.01	13.00	16.28	16.32	16.02	17.00
3GPP Rel 6	HSUPA Subtest-4	11.79	11.71	11.73	12.00	11.49	11.51	11.57	12.00	15.74	15.45	15.60	16.00
3GPP Rel 6	HSUPA Subtest-5	13.80	13.70	13.80	14.00	13.50	13.50	13.60	14.00	17.70	17.50	17.60	18.00

<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 D05v02r05, 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 D05v02r05, 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 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, 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 D05v02r05, 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 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, 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 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B17 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE B 4 / B5 / B17 / B38 SAR test was covered by LTE B66 / B26 / B12 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
    a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
    b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

<Maximum Average RF Power (Proximity Sensor Inactive)>

<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	22.71	22.93	22.75	23	0
20	QPSK	1	49	22.68	22.82	22.37		
20	QPSK	1	99	22.54	22.79	22.71		
20	QPSK	50	0	21.80	21.86	21.59	22	1
20	QPSK	50	24	21.72	21.83	21.49		
20	QPSK	50	50	21.58	21.81	21.57		
20	QPSK	100	0	21.84	21.90	21.66		
20	16QAM	1	0	21.96	21.66	21.65	22	1
20	16QAM	1	49	21.69	21.86	21.40		
20	16QAM	1	99	21.50	21.79	21.74		
20	16QAM	50	0	20.53	20.60	20.25	21	2
20	16QAM	50	24	20.44	20.57	20.19		
20	16QAM	50	50	20.32	20.54	20.35		
20	16QAM	100	0	20.57	20.60	20.45		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.88	22.81	22.55	23	0
15	QPSK	1	37	22.73	22.77	22.46		
15	QPSK	1	74	22.51	22.81	22.75		
15	QPSK	36	0	21.77	21.83	21.45	22	1
15	QPSK	36	20	21.74	21.83	21.46		
15	QPSK	36	39	21.64	21.77	21.59		
15	QPSK	75	0	21.76	21.79	21.63		
15	16QAM	1	0	21.90	21.73	21.52	22	1
15	16QAM	1	37	21.74	21.73	21.31		
15	16QAM	1	74	21.48	21.76	21.69		
15	16QAM	36	0	20.53	20.60	20.19	21	2
15	16QAM	36	20	20.50	20.61	20.20		
15	16QAM	36	39	20.39	20.55	20.32		
15	16QAM	75	0	20.47	20.54	20.32		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.88	22.88	22.44	23	0
10	QPSK	1	25	22.71	22.88	22.51		
10	QPSK	1	49	22.68	22.83	22.81		
10	QPSK	25	0	21.83	21.87	21.53	22	1
10	QPSK	25	12	21.76	21.86	21.58		
10	QPSK	25	25	21.74	21.83	21.78		
10	QPSK	50	0	21.74	21.82	21.59		
10	16QAM	1	0	21.84	21.82	21.46	22	1
10	16QAM	1	25	21.75	21.85	21.48		
10	16QAM	1	49	21.66	21.88	21.77		
10	16QAM	25	0	20.59	20.67	20.30	21	2
10	16QAM	25	12	20.53	20.66	20.32		
10	16QAM	25	25	20.51	20.58	20.51		
10	16QAM	50	0	20.47	20.52	20.35		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.85	22.88	22.48	23	0
5	QPSK	1	12	22.80	22.76	22.67		
5	QPSK	1	24	22.77	22.76	22.74		
5	QPSK	12	0	21.98	21.98	21.80	22	1
5	QPSK	12	7	21.95	21.99	21.84		
5	QPSK	12	13	21.89	21.96	21.83		
5	QPSK	25	0	21.46	21.44	21.38		
5	16QAM	1	0	21.77	21.89	21.40	22	1
5	16QAM	1	12	21.75	21.73	21.58		
5	16QAM	1	24	21.70	21.74	21.65		
5	16QAM	12	0	20.97	20.95	20.76	21	2
5	16QAM	12	7	21.00	20.96	20.85		
5	16QAM	12	13	20.95	20.92	20.86		
5	16QAM	25	0	20.50	20.49	20.34		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.82	22.76	22.62	23	0
3	QPSK	1	8	22.83	22.76	22.68		
3	QPSK	1	14	22.74	22.77	22.68		
3	QPSK	8	0	21.80	21.78	21.67	22	1
3	QPSK	8	4	21.72	21.72	21.69		
3	QPSK	8	7	21.73	21.75	21.71		
3	QPSK	15	0	21.72	21.71	21.67		
3	16QAM	1	0	21.90	21.94	21.88	22	1
3	16QAM	1	8	21.95	21.95	21.98		
3	16QAM	1	14	21.95	21.99	21.94		
3	16QAM	8	0	20.87	20.79	20.69	21	2
3	16QAM	8	4	20.81	20.72	20.71		
3	16QAM	8	7	20.85	20.74	20.71		
3	16QAM	15	0	20.78	20.71	20.69		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.88	22.86	22.72	23	0
1.4	QPSK	1	3	22.84	22.82	22.68		
1.4	QPSK	1	5	22.90	22.81	22.73		
1.4	QPSK	3	0	22.86	22.83	22.71		
1.4	QPSK	3	1	22.85	22.84	22.71		
1.4	QPSK	3	3	22.85	22.79	22.72		
1.4	QPSK	6	0	21.86	21.78	21.73	22	1
1.4	16QAM	1	0	21.77	21.81	21.75	22	1
1.4	16QAM	1	3	21.82	21.79	21.72		
1.4	16QAM	1	5	21.86	21.79	21.66		
1.4	16QAM	3	0	21.68	21.59	21.50		
1.4	16QAM	3	1	21.67	21.56	21.44		
1.4	16QAM	3	3	21.68	21.55	21.47		
1.4	16QAM	6	0	20.63	20.49	20.41	21	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	23.22	23.29	23.27	23.5	0
20	QPSK	1	49	23.04	23.04	22.95		
20	QPSK	1	99	23.08	22.95	23.19		
20	QPSK	50	0	22.21	22.24	22.05	22.5	1
20	QPSK	50	24	22.17	22.09	22.03		
20	QPSK	50	50	22.14	21.99	22.15		
20	QPSK	100	0	22.12	22.31	22.29		
20	16QAM	1	0	22.37	22.46	22.38	22.5	1
20	16QAM	1	49	22.49	22.29	22.20		
20	16QAM	1	99	22.33	22.20	22.42		
20	16QAM	50	0	21.27	21.19	21.07	21.5	2
20	16QAM	50	24	21.27	21.10	21.04		
20	16QAM	50	50	21.16	21.02	21.17		
20	16QAM	100	0	21.30	21.14	21.29		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.98	23.21	22.98	23.5	0
15	QPSK	1	37	23.18	23.07	23.09		
15	QPSK	1	74	23.09	22.95	23.25		
15	QPSK	36	0	22.09	22.14	22.05	22.5	1
15	QPSK	36	20	22.21	22.08	22.15		
15	QPSK	36	39	22.16	22.03	22.18		
15	QPSK	75	0	22.26	22.05	22.21		
15	16QAM	1	0	22.30	22.41	22.24	22.5	1
15	16QAM	1	37	22.42	22.32	22.26		
15	16QAM	1	74	22.35	22.16	22.47		
15	16QAM	36	0	21.12	21.18	21.09	21.5	2
15	16QAM	36	20	21.24	21.12	21.18		
15	16QAM	36	39	21.18	21.05	21.19		
15	16QAM	75	0	21.27	21.06	21.20		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	23.04	23.17	23.12	23.5	0
10	QPSK	1	25	23.08	23.08	23.16		
10	QPSK	1	49	23.17	22.99	23.27		
10	QPSK	25	0	22.06	22.13	22.17	22.5	1
10	QPSK	25	12	22.07	22.07	22.20		
10	QPSK	25	25	22.19	22.03	22.26		
10	QPSK	50	0	22.12	22.05	22.16		
10	16QAM	1	0	22.30	22.43	22.39	22.5	1
10	16QAM	1	25	22.39	22.32	22.47		
10	16QAM	1	49	22.43	22.26	22.42		
10	16QAM	25	0	21.20	21.24	21.29	21.5	2
10	16QAM	25	12	21.20	21.23	21.29		
10	16QAM	25	25	21.30	21.17	21.36		
10	16QAM	50	0	21.21	21.10	21.24		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.98	23.13	23.17	23.5	0
5	QPSK	1	12	22.98	23.03	23.21		
5	QPSK	1	24	23.04	23.00	23.31		
5	QPSK	12	0	22.44	22.47	22.41	22.5	1
5	QPSK	12	7	22.49	22.43	22.44		
5	QPSK	12	13	22.40	22.45	22.47		
5	QPSK	25	0	22.06	22.04	22.21		
5	16QAM	1	0	22.24	22.41	22.31	22.5	1
5	16QAM	1	12	22.24	22.31	22.39		
5	16QAM	1	24	22.30	22.30	22.46		
5	16QAM	12	0	21.48	21.41	21.42	21.5	2
5	16QAM	12	7	21.41	21.49	21.45		
5	16QAM	12	13	21.42	21.46	21.43		
5	16QAM	25	0	21.08	21.12	21.22		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.91	23.05	23.15	23.5	0
3	QPSK	1	8	22.94	23.05	23.24		
3	QPSK	1	14	22.95	22.96	23.26		
3	QPSK	8	0	21.97	22.08	22.24	22.5	1
3	QPSK	8	4	21.93	22.04	22.25		
3	QPSK	8	7	21.99	22.03	22.29		
3	QPSK	15	0	21.92	22.05	22.26		
3	16QAM	1	0	22.09	22.30	22.44	22.5	1
3	16QAM	1	8	22.12	22.32	22.41		
3	16QAM	1	14	22.17	22.25	22.43		
3	16QAM	8	0	20.95	21.14	21.25	21.5	2
3	16QAM	8	4	20.91	21.09	21.27		
3	16QAM	8	7	20.98	21.07	21.27		
3	16QAM	15	0	20.92	21.08	21.24		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.96	23.08	23.29	23.5	0
1.4	QPSK	1	3	22.90	23.04	23.27		
1.4	QPSK	1	5	22.93	23.06	23.32		
1.4	QPSK	3	0	22.93	23.06	23.27		
1.4	QPSK	3	1	22.93	23.05	23.25		
1.4	QPSK	3	3	22.93	23.06	23.26		
1.4	QPSK	6	0	21.96	22.08	22.28	22.5	1
1.4	16QAM	1	0	22.15	22.32	22.42	22.5	1
1.4	16QAM	1	3	22.18	22.39	22.41		
1.4	16QAM	1	5	22.18	22.31	22.45		
1.4	16QAM	3	0	22.00	22.13	22.33		
1.4	16QAM	3	1	21.98	22.14	22.35		
1.4	16QAM	3	3	22.00	22.12	22.33		
1.4	16QAM	6	0	20.95	21.12	21.29	21.5	2

<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	22.44	22.39	23	0
10	QPSK	1	25	22.59	22.43	22.46		
10	QPSK	1	49	22.47	22.40	22.60		
10	QPSK	25	0	21.71	21.55	21.47	22	1
10	QPSK	25	12	21.64	21.50	21.51		
10	QPSK	25	25	21.49	21.44	21.67		
10	QPSK	50	0	21.58	21.48	21.70		
10	16QAM	1	0	21.97	21.77	21.74	22	1
10	16QAM	1	25	21.82	21.79	21.78		
10	16QAM	1	49	21.71	21.77	21.88		
10	16QAM	25	0	20.78	20.64	20.59	21	2
10	16QAM	25	12	20.74	20.59	20.61		
10	16QAM	25	25	20.60	20.53	20.74		
10	16QAM	50	0	20.71	20.56	20.76		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.76	22.45	22.48	23	0
5	QPSK	1	12	22.60	22.37	22.55		
5	QPSK	1	24	22.55	22.33	22.51		
5	QPSK	12	0	21.74	21.42	21.60	22	1
5	QPSK	12	7	21.67	21.38	21.54		
5	QPSK	12	13	21.55	21.33	21.49		
5	QPSK	25	0	21.63	21.40	21.58		
5	16QAM	1	0	21.96	21.70	21.81	22	1
5	16QAM	1	12	21.88	21.63	21.82		
5	16QAM	1	24	21.82	21.67	21.80		
5	16QAM	12	0	20.79	20.53	20.62	21	2
5	16QAM	12	7	20.74	20.48	20.60		
5	16QAM	12	13	20.63	20.40	20.55		
5	16QAM	25	0	20.68	20.45	20.61		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.69	22.36	22.51	23	0
3	QPSK	1	8	22.70	22.38	22.51		
3	QPSK	1	14	22.56	22.24	22.45		
3	QPSK	8	0	21.73	21.38	21.51	22	1
3	QPSK	8	4	21.71	21.35	21.47		
3	QPSK	8	7	21.66	21.30	21.47		
3	QPSK	15	0	21.77	21.36	21.45		
3	16QAM	1	0	21.92	21.71	21.79	22	1
3	16QAM	1	8	21.93	21.70	21.81		
3	16QAM	1	14	21.89	21.60	21.80		
3	16QAM	8	0	20.77	20.46	20.57	21	2
3	16QAM	8	4	20.75	20.43	20.50		
3	16QAM	8	7	20.70	20.36	20.55		
3	16QAM	15	0	20.78	20.43	20.48		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.74	22.38	22.52	23	0
1.4	QPSK	1	3	22.71	22.33	22.47		
1.4	QPSK	1	5	22.74	22.37	22.46		
1.4	QPSK	3	0	22.74	22.37	22.46		
1.4	QPSK	3	1	22.72	22.35	22.45		
1.4	QPSK	3	3	22.72	22.35	22.44		
1.4	QPSK	6	0	21.72	21.36	21.46	22	1
1.4	16QAM	1	0	21.91	21.73	21.72	22	1
1.4	16QAM	1	3	21.94	21.67	21.84		
1.4	16QAM	1	5	21.92	21.65	21.74		
1.4	16QAM	3	0	21.81	21.49	21.56		
1.4	16QAM	3	1	21.76	21.47	21.58		
1.4	16QAM	3	3	21.83	21.45	21.56		
1.4	16QAM	6	0	20.80	20.45	20.49	21	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	22.63	22.68	23.27	23.5	0
20	QPSK	1	49	22.67	22.96	23.12		
20	QPSK	1	99	22.68	23.26	23.21		
20	QPSK	50	0	21.74	21.90	22.23	22.5	1
20	QPSK	50	24	21.74	22.02	22.19		
20	QPSK	50	50	21.70	22.16	22.24		
20	QPSK	100	0	21.80	22.16	22.28		
20	16QAM	1	0	21.88	21.98	22.41	22.5	1
20	16QAM	1	49	22.01	22.25	22.43		
20	16QAM	1	99	21.98	22.42	22.41		
20	16QAM	50	0	20.77	20.94	21.30	21.5	2
20	16QAM	50	24	20.77	21.07	21.24		
20	16QAM	50	50	20.75	21.18	21.32		
20	16QAM	100	0	20.87	21.20	21.33		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	22.61	22.70	23.21	23.5	0
15	QPSK	1	37	22.71	22.99	23.18		
15	QPSK	1	74	22.70	23.20	23.21		
15	QPSK	36	0	21.74	21.92	22.23	22.5	1
15	QPSK	36	20	21.77	22.04	22.25		
15	QPSK	36	39	21.81	22.12	22.24		
15	QPSK	75	0	21.76	22.08	22.27		
15	16QAM	1	0	21.87	21.93	22.49	22.5	1
15	16QAM	1	37	21.99	22.23	22.42		
15	16QAM	1	74	22.01	22.47	22.42		
15	16QAM	36	0	20.78	20.93	21.27	21.5	2
15	16QAM	36	20	20.82	21.05	21.29		
15	16QAM	36	39	20.86	21.15	21.29		
15	16QAM	75	0	20.81	21.08	21.31		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	22.63	22.85	23.19	23.5	0
10	QPSK	1	25	22.69	22.98	23.15		
10	QPSK	1	49	22.76	23.15	23.21		
10	QPSK	25	0	21.67	22.01	22.22	22.5	1
10	QPSK	25	12	21.73	22.05	22.23		
10	QPSK	25	25	21.73	22.12	22.22		
10	QPSK	50	0	21.72	22.03	22.23		
10	16QAM	1	0	21.87	22.06	22.41	22.5	1
10	16QAM	1	25	22.02	22.21	22.44		
10	16QAM	1	49	22.00	22.41	22.48		
10	16QAM	25	0	20.74	21.04	21.29	21.5	2
10	16QAM	25	12	20.86	21.08	21.32		
10	16QAM	25	25	20.86	21.14	21.30		
10	16QAM	50	0	20.81	21.03	21.29		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	22.58	22.93	23.13	23.5	0
5	QPSK	1	12	22.59	22.94	23.08		
5	QPSK	1	24	22.68	23.04	23.17		
5	QPSK	12	0	21.66	21.95	22.14	22.5	1
5	QPSK	12	7	21.63	21.96	22.13		
5	QPSK	12	13	21.67	21.99	22.19		
5	QPSK	25	0	21.65	21.99	22.15		
5	16QAM	1	0	21.83	22.15	22.36	22.5	1
5	16QAM	1	12	21.81	22.16	22.33		
5	16QAM	1	24	21.89	22.30	22.35		
5	16QAM	12	0	20.73	20.96	21.20	21.5	2
5	16QAM	12	7	20.68	20.99	21.19		
5	16QAM	12	13	20.71	21.00	21.23		
5	16QAM	25	0	20.66	20.96	21.17		

<LTE Band 12>

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				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	22.89	22.96	22.86	23	0
10	QPSK	1	25	22.85	22.81	22.76		
10	QPSK	1	49	22.84	22.88	22.82		
10	QPSK	25	0	21.95	21.97	21.92	22	1
10	QPSK	25	12	21.92	21.88	21.86		
10	QPSK	25	25	21.87	21.90	21.86		
10	QPSK	50	0	21.95	21.98	21.96		
10	16QAM	1	0	21.93	22.00	21.92	22	1
10	16QAM	1	25	21.95	21.90	21.94		
10	16QAM	1	49	21.93	21.94	21.93		
10	16QAM	25	0	20.83	20.80	20.81	21	2
10	16QAM	25	12	20.79	20.77	20.88		
10	16QAM	25	25	20.83	20.82	20.75		
10	16QAM	50	0	20.83	20.86	20.84		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	22.79	22.81	22.83	23	0
5	QPSK	1	12	22.84	22.77	22.76		
5	QPSK	1	24	22.87	22.85	22.73		
5	QPSK	12	0	21.86	21.81	21.78	22	1
5	QPSK	12	7	21.84	21.77	21.73		
5	QPSK	12	13	21.8	21.80	21.76		
5	QPSK	25	0	21.83	21.81	21.72		
5	16QAM	1	0	21.95	21.91	22.00	22	1
5	16QAM	1	12	21.96	21.91	21.94		
5	16QAM	1	24	21.97	22.00	21.89		
5	16QAM	12	0	20.74	20.69	20.64	21	2
5	16QAM	12	7	20.72	20.69	20.55		
5	16QAM	12	13	20.67	20.71	20.6		
5	16QAM	25	0	20.67	20.67	20.53		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	22.75	22.75	22.69	23	0
3	QPSK	1	8	22.87	22.79	22.74		
3	QPSK	1	14	22.81	22.77	22.63		
3	QPSK	8	0	21.83	21.79	21.67	22	1
3	QPSK	8	4	21.85	21.79	21.67		
3	QPSK	8	7	21.82	21.81	21.70		
3	QPSK	15	0	21.89	21.79	21.64		
3	16QAM	1	0	21.94	21.89	21.89	22	1
3	16QAM	1	8	21.98	21.94	21.91		
3	16QAM	1	14	21.98	21.89	21.78		
3	16QAM	8	0	20.73	20.71	20.50	21	2
3	16QAM	8	4	20.76	20.65	20.54		
3	16QAM	8	7	20.73	20.68	20.56		
3	16QAM	15	0	20.75	20.69	20.53		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	22.82	22.78	22.70	23	0
1.4	QPSK	1	3	22.80	22.75	22.70		
1.4	QPSK	1	5	22.87	22.77	22.66		
1.4	QPSK	3	0	22.78	22.76	22.70		
1.4	QPSK	3	1	22.78	22.77	22.68		
1.4	QPSK	3	3	22.80	22.77	22.65		
1.4	QPSK	6	0	21.82	21.78	21.72	22	1
1.4	16QAM	1	0	21.97	21.85	21.81	22	1
1.4	16QAM	1	3	21.92	21.94	21.85		
1.4	16QAM	1	5	21.92	21.94	21.8		
1.4	16QAM	3	0	21.72	21.69	21.66		
1.4	16QAM	3	1	21.71	21.70	21.64		
1.4	16QAM	3	3	21.73	21.72	21.66		
1.4	16QAM	6	0	20.69	20.71	20.55	21	2

<LTE Band 13>

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					23230			
Frequency (MHz)					782			
10	QPSK	1	0		23.13		23.5	0
10	QPSK	1	25		23.04			
10	QPSK	1	49		23.07			
10	QPSK	25	0		22.17		22.5	1
10	QPSK	25	12		22.08			
10	QPSK	25	25		22.05			
10	QPSK	50	0		22.27			
10	16QAM	1	0		22.45		22.5	1
10	16QAM	1	25		22.50			
10	16QAM	1	49		22.45			
10	16QAM	25	0		21.09		21.5	2
10	16QAM	25	12		21.14			
10	16QAM	25	25		21.24			
10	16QAM	50	0		21.31			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	23.03	22.95	23.09	23.5	0
5	QPSK	1	12	22.96	23.06	23.08		
5	QPSK	1	24	23.03	23.10	23.08		
5	QPSK	12	0	21.89	21.89	21.99	22.5	1
5	QPSK	12	7	21.92	21.89	22.01		
5	QPSK	12	13	21.88	22.01	21.96		
5	QPSK	25	0	21.91	22.01	22.03		
5	16QAM	1	0	22.41	22.39	22.41	22.5	1
5	16QAM	1	12	22.41	22.43	22.41		
5	16QAM	1	24	22.40	22.43	22.48		
5	16QAM	12	0	20.97	20.90	21.06	21.5	2
5	16QAM	12	7	20.99	20.95	21.11		
5	16QAM	12	13	20.93	21.03	21.01		
5	16QAM	25	0	20.98	21.03	21.08		

<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	22.80	22.83	22.83	23	0
10	QPSK	1	25	22.82	22.87	22.93		
10	QPSK	1	49	22.88	22.90	22.86		
10	QPSK	25	0	21.89	21.90	21.90	22	1
10	QPSK	25	12	21.91	21.96	21.98		
10	QPSK	25	25	21.97	21.94	21.89		
10	QPSK	50	0	21.84	21.90	21.86		
10	16QAM	1	0	21.92	21.94	21.96	22	1
10	16QAM	1	25	21.93	21.91	21.92		
10	16QAM	1	49	21.91	21.94	21.96		
10	16QAM	25	0	20.79	20.82	20.84	21	2
10	16QAM	25	12	20.81	20.86	20.88		
10	16QAM	25	25	20.85	20.83	20.77		
10	16QAM	50	0	20.91	20.93	20.90		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	22.85	22.81	22.85	23	0
5	QPSK	1	12	22.84	22.84	22.80		
5	QPSK	1	24	22.86	22.90	22.77		
5	QPSK	12	0	21.87	21.84	21.81	22	1
5	QPSK	12	7	21.85	21.88	21.77		
5	QPSK	12	13	21.86	21.91	21.78		
5	QPSK	25	0	21.88	21.88	21.76		
5	16QAM	1	0	21.94	21.92	21.90	22	1
5	16QAM	1	12	21.92	21.93	21.95		
5	16QAM	1	24	21.94	21.92	21.96		
5	16QAM	12	0	20.94	20.98	20.87	21	2
5	16QAM	12	7	20.93	20.99	20.80		
5	16QAM	12	13	20.94	20.92	20.85		
5	16QAM	25	0	20.93	20.96	20.78		

<LTE Band 26>

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				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	22.82	22.84	22.55	23	0
15	QPSK	1	37	22.82	22.48	22.50		
15	QPSK	1	74	22.59	22.41	22.62		
15	QPSK	36	0	21.89	21.94	21.47	22	1
15	QPSK	36	20	21.92	21.57	21.54		
15	QPSK	36	39	21.91	21.59	21.73		
15	QPSK	75	0	21.80	21.99	21.82		
15	16QAM	1	0	21.91	20.96	21.91	22	1
15	16QAM	1	37	21.92	21.77	21.86		
15	16QAM	1	74	21.98	21.79	21.99		
15	16QAM	36	0	20.93	20.79	20.55	21	2
15	16QAM	36	20	20.95	20.60	20.64		
15	16QAM	36	39	20.92	20.65	20.79		
15	16QAM	75	0	20.94	20.71	20.88		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.98	22.71	22.42	23	0
10	QPSK	1	25	22.84	22.47	22.48		
10	QPSK	1	49	22.90	22.53	22.59		
10	QPSK	25	0	21.96	21.64	21.54	22	1
10	QPSK	25	12	21.89	21.55	21.57		
10	QPSK	25	25	21.91	21.54	21.71		
10	QPSK	50	0	21.91	21.54	21.73		
10	16QAM	1	0	21.95	21.91	21.80	22	1
10	16QAM	1	25	21.91	21.81	21.84		
10	16QAM	1	49	21.91	21.89	21.91		
10	16QAM	25	0	20.95	20.71	20.63	21	2
10	16QAM	25	12	20.95	20.59	20.62		
10	16QAM	25	25	20.91	20.62	20.74		
10	16QAM	50	0	20.97	20.58	20.78		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.91	22.54	22.56	23	0
5	QPSK	1	12	22.82	22.40	22.57		
5	QPSK	1	24	22.82	22.44	22.57		
5	QPSK	12	0	21.92	21.51	21.62	22	1
5	QPSK	12	7	21.84	21.43	21.58		
5	QPSK	12	13	21.84	21.44	21.51		
5	QPSK	25	0	21.88	21.47	21.60		
5	16QAM	1	0	21.93	21.80	21.80	22	1
5	16QAM	1	12	21.95	21.66	21.83		
5	16QAM	1	24	21.93	21.73	21.84		
5	16QAM	12	0	20.97	20.50	20.69	21	2
5	16QAM	12	7	20.90	20.46	20.62		
5	16QAM	12	13	20.93	20.48	20.56		
5	16QAM	25	0	20.91	20.45	20.60		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.85	22.43	22.54	23	0
3	QPSK	1	8	22.92	22.41	22.55		
3	QPSK	1	14	22.81	22.40	22.50		
3	QPSK	8	0	21.89	21.46	21.56	22	1
3	QPSK	8	4	21.90	21.41	21.51		
3	QPSK	8	7	21.84	21.42	21.52		
3	QPSK	15	0	21.86	21.35	21.46		
3	16QAM	1	0	21.96	21.67	21.78	22	1
3	16QAM	1	8	21.96	21.73	21.80		
3	16QAM	1	14	21.98	21.69	21.84		
3	16QAM	8	0	20.94	20.50	20.63	21	2
3	16QAM	8	4	20.95	20.44	20.56		
3	16QAM	8	7	20.93	20.48	20.60		
3	16QAM	15	0	20.91	20.43	20.50		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.92	22.45	22.56	23	0
1.4	QPSK	1	3	22.86	22.43	22.55		
1.4	QPSK	1	5	22.93	22.46	22.57		
1.4	QPSK	3	0	22.89	22.41	22.54		
1.4	QPSK	3	1	22.88	22.42	22.51		
1.4	QPSK	3	3	22.90	22.44	22.51		
1.4	QPSK	6	0	21.93	21.46	21.57	22	1
1.4	16QAM	1	0	21.91	21.75	21.93	22	1
1.4	16QAM	1	3	21.99	21.77	21.87		
1.4	16QAM	1	5	21.91	21.78	21.93		
1.4	16QAM	3	0	22.00	21.52	21.66		
1.4	16QAM	3	1	22.00	21.54	21.72		
1.4	16QAM	3	3	21.92	21.53	21.67		
1.4	16QAM	6	0	20.97	20.48	20.60	21	2

<LTE Band 30>

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					27710			
Frequency (MHz)					2310			
10	QPSK	1	0		23.10		23.5	0
10	QPSK	1	25		22.92			
10	QPSK	1	49		22.83			
10	QPSK	25	0		22.02		22.5	1
10	QPSK	25	12		21.97			
10	QPSK	25	25		21.89			
10	QPSK	50	0		22.06			
10	16QAM	1	0		22.42		22.5	1
10	16QAM	1	25		22.23			
10	16QAM	1	49		22.16			
10	16QAM	25	0		21.10		21.5	2
10	16QAM	25	12		21.06			
10	16QAM	25	25		20.97			
10	16QAM	50	0		21.11			
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	23.02	22.98	22.97	23.5	0
5	QPSK	1	12	22.93	23.00	22.79		
5	QPSK	1	24	22.90	22.83	22.82		
5	QPSK	12	0	22.01	22.04	21.87	22.5	1
5	QPSK	12	7	21.95	21.93	21.80		
5	QPSK	12	13	22.00	21.95	21.81		
5	QPSK	25	0	21.95	21.99	21.82		
5	16QAM	1	0	22.36	22.26	22.23	22.5	1
5	16QAM	1	12	22.26	22.26	22.05		
5	16QAM	1	24	22.24	22.08	22.06		
5	16QAM	12	0	21.06	21.09	20.94	21.5	2
5	16QAM	12	7	21.00	20.97	20.83		
5	16QAM	12	13	21.08	21.00	20.86		
5	16QAM	25	0	20.98	21.02	20.80		

<LTE Band 66>

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				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	23.11	23.12	23.26	23.5	0
20	QPSK	1	49	23.07	22.90	23.10		
20	QPSK	1	99	23.04	23.08	23.11		
20	QPSK	50	0	22.07	22.09	22.26	22.5	1
20	QPSK	50	24	22.04	21.98	22.13		
20	QPSK	50	50	22.02	22.05	21.98		
20	QPSK	100	0	22.17	22.24	22.25		
20	16QAM	1	0	22.23	22.30	21.49	22.5	1
20	16QAM	1	49	22.21	22.11	22.40		
20	16QAM	1	99	22.22	22.33	22.38		
20	16QAM	50	0	21.01	21.06	21.16	21.5	2
20	16QAM	50	24	21.00	20.93	21.02		
20	16QAM	50	50	20.97	21.00	20.94		
20	16QAM	100	0	21.21	21.18	21.22		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	22.59	22.97	23.20	23.5	0
15	QPSK	1	37	23.08	22.98	22.95		
15	QPSK	1	74	23.03	23.04	23.11		
15	QPSK	36	0	22.05	21.97	22.06	22.5	1
15	QPSK	36	20	22.09	21.93	22.01		
15	QPSK	36	39	22.10	22.03	22.05		
15	QPSK	75	0	22.21	22.13	22.15		
15	16QAM	1	0	22.17	22.19	21.44	22.5	1
15	16QAM	1	37	22.34	22.18	22.23		
15	16QAM	1	74	22.32	22.29	22.39		
15	16QAM	36	0	20.92	20.87	21.00	21.5	2
15	16QAM	36	20	20.98	20.83	20.96		
15	16QAM	36	39	20.98	20.90	20.95		
15	16QAM	75	0	21.12	21.08	21.09		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	22.94	23.02	23.05	23.5	0
10	QPSK	1	25	23.03	22.91	22.93		
10	QPSK	1	49	23.11	23.04	23.16		
10	QPSK	25	0	21.98	21.94	21.92	22.5	1
10	QPSK	25	12	21.99	21.86	21.94		
10	QPSK	25	25	22.03	21.91	22.02		
10	QPSK	50	0	22.10	22.04	22.07		
10	16QAM	1	0	22.11	22.21	22.36	22.5	1
10	16QAM	1	25	22.26	22.12	22.23		
10	16QAM	1	49	22.34	22.25	22.45		
10	16QAM	25	0	20.89	20.82	20.84	21.5	2
10	16QAM	25	12	20.89	20.74	20.84		
10	16QAM	25	25	20.93	20.78	20.89		
10	16QAM	50	0	21.00	20.97	21.04		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	22.84	22.91	22.95	23.5	0
5	QPSK	1	12	22.92	22.94	22.99		
5	QPSK	1	24	22.98	22.90	23.15		
5	QPSK	12	0	21.72	21.70	21.79	22.5	1
5	QPSK	12	7	21.78	21.68	21.83		
5	QPSK	12	13	21.77	21.73	21.91		
5	QPSK	25	0	21.93	21.92	22.06		
5	16QAM	1	0	22.04	22.16	22.17	22.5	1
5	16QAM	1	12	22.11	22.18	22.25		
5	16QAM	1	24	22.19	22.15	22.38		
5	16QAM	12	0	20.64	20.62	20.70	21.5	2
5	16QAM	12	7	20.68	20.55	20.78		
5	16QAM	12	13	20.64	20.66	20.80		
5	16QAM	25	0	20.83	20.81	20.92		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	22.78	22.78	22.92	23.5	0
3	QPSK	1	8	22.86	22.92	23.02		
3	QPSK	1	14	22.83	22.84	23.10		
3	QPSK	8	0	21.73	21.71	21.86	22.5	1
3	QPSK	8	4	21.70	21.74	21.94		
3	QPSK	8	7	21.78	21.76	21.97		
3	QPSK	15	0	21.77	21.81	21.97		
3	16QAM	1	0	22.00	22.02	22.22	22.5	1
3	16QAM	1	8	22.10	22.14	22.37		
3	16QAM	1	14	22.09	22.03	22.29		
3	16QAM	8	0	20.58	20.58	20.74	21.5	2
3	16QAM	8	4	20.59	20.58	20.79		
3	16QAM	8	7	20.67	20.60	20.82		
3	16QAM	15	0	20.69	20.72	20.89		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	22.77	22.84	23.09	23.5	0
1.4	QPSK	1	3	22.77	22.85	23.09		
1.4	QPSK	1	5	22.85	22.82	23.11		
1.4	QPSK	3	0	22.74	22.72	22.98		
1.4	QPSK	3	1	22.69	22.73	23.02		
1.4	QPSK	3	3	22.70	22.74	23.05		
1.4	QPSK	6	0	21.77	21.77	22.02	22.5	1
1.4	16QAM	1	0	22.06	22.09	22.44	22.5	1
1.4	16QAM	1	3	22.07	22.16	22.45		
1.4	16QAM	1	5	22.10	22.21	22.42		
1.4	16QAM	3	0	21.77	21.74	22.09		
1.4	16QAM	3	1	21.75	21.73	22.05		
1.4	16QAM	3	3	21.80	21.80	22.12		
1.4	16QAM	6	0	20.62	20.58	20.90	21.5	2

<Maximum Average RF Power (Proximity Sensor Active)>

<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	14.76	14.83	14.49	15.5	0
20	QPSK	1	49	14.74	14.81	14.49		
20	QPSK	1	99	14.74	14.77	14.69		
20	QPSK	50	0	13.82	13.86	13.56	14.5	1
20	QPSK	50	24	13.80	13.82	13.57		
20	QPSK	50	50	13.80	13.74	13.72		
20	QPSK	100	0	13.74	13.78	13.61		
20	16QAM	1	0	14.15	13.93	13.68	14.5	1
20	16QAM	1	49	14.06	14.10	13.74		
20	16QAM	1	99	14.05	14.06	13.93		
20	16QAM	50	0	12.87	12.95	12.59	13.5	2
20	16QAM	50	24	12.84	12.95	12.57		
20	16QAM	50	50	12.84	12.84	12.73		
20	16QAM	100	0	12.80	12.82	12.60		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	14.80	14.74	14.56	15.5	0
15	QPSK	1	37	14.73	14.74	14.39		
15	QPSK	1	74	14.56	14.69	14.64		
15	QPSK	36	0	13.76	13.82	13.48	14.5	1
15	QPSK	36	20	13.79	13.79	13.47		
15	QPSK	36	39	13.73	13.74	13.61		
15	QPSK	75	0	13.81	13.79	13.60		
15	16QAM	1	0	14.10	14.03	13.80	14.5	1
15	16QAM	1	37	14.04	13.98	13.67		
15	16QAM	1	74	13.85	13.91	13.88		
15	16QAM	36	0	12.82	12.86	12.56	13.5	2
15	16QAM	36	20	12.87	12.81	12.53		
15	16QAM	36	39	12.79	12.79	12.61		
15	16QAM	75	0	12.84	12.78	12.64		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	14.88	14.83	14.64	15.5	0
10	QPSK	1	25	14.78	14.84	14.64		
10	QPSK	1	49	14.80	14.84	14.84		
10	QPSK	25	0	13.83	13.87	13.67	14.5	1
10	QPSK	25	12	13.83	13.88	13.66		
10	QPSK	25	25	13.85	13.77	13.85		
10	QPSK	50	0	13.81	13.79	13.74		
10	16QAM	1	0	14.16	14.09	13.91	14.5	1
10	16QAM	1	25	14.09	14.19	13.87		
10	16QAM	1	49	14.10	14.12	14.15		
10	16QAM	25	0	12.91	12.94	12.68	13.5	2
10	16QAM	25	12	12.82	12.94	12.72		
10	16QAM	25	25	12.84	12.86	12.86		
10	16QAM	50	0	12.78	12.83	12.80		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	14.81	14.84	14.65	15.5	0
5	QPSK	1	12	14.72	14.76	14.78		
5	QPSK	1	24	14.72	14.78	14.83		
5	QPSK	12	0	13.81	13.82	13.69	14.5	1
5	QPSK	12	7	13.76	13.82	13.79		
5	QPSK	12	13	13.70	13.77	13.81		
5	QPSK	25	0	13.76	13.79	13.79		
5	16QAM	1	0	14.08	14.09	13.90	14.5	1
5	16QAM	1	12	14.02	14.07	14.09		
5	16QAM	1	24	14.05	14.04	14.11		
5	16QAM	12	0	12.87	12.92	12.75	13.5	2
5	16QAM	12	7	12.84	12.92	12.89		
5	16QAM	12	13	12.78	12.84	12.87		
5	16QAM	25	0	12.78	12.79	12.80		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	14.74	14.78	14.79	15.5	0
3	QPSK	1	8	14.71	14.74	14.81		
3	QPSK	1	14	14.71	14.73	14.77		
3	QPSK	8	0	13.75	13.83	13.78	14.5	1
3	QPSK	8	4	13.70	13.75	13.79		
3	QPSK	8	7	13.72	13.77	13.79		
3	QPSK	15	0	13.72	13.77	13.79		
3	16QAM	1	0	14.00	14.07	14.12	14.5	1
3	16QAM	1	8	13.99	14.05	14.12		
3	16QAM	1	14	14.01	14.04	14.13		
3	16QAM	8	0	12.80	12.95	12.86	13.5	2
3	16QAM	8	4	12.75	12.88	12.84		
3	16QAM	8	7	12.75	12.87	12.87		
3	16QAM	15	0	12.69	12.85	12.83		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	14.76	14.85	14.81	15.5	0
1.4	QPSK	1	3	14.76	14.77	14.78		
1.4	QPSK	1	5	14.78	14.80	14.81		
1.4	QPSK	3	0	14.76	14.87	14.81		
1.4	QPSK	3	1	14.75	14.85	14.81		
1.4	QPSK	3	3	14.77	14.81	14.83		
1.4	QPSK	6	0	13.79	13.83	13.81	14.5	1
1.4	16QAM	1	0	14.11	14.12	14.14	14.5	1
1.4	16QAM	1	3	14.11	14.11	14.15		
1.4	16QAM	1	5	14.11	14.09	14.16		
1.4	16QAM	3	0	13.88	13.93	13.88		
1.4	16QAM	3	1	13.88	13.90	13.87		
1.4	16QAM	3	3	13.87	13.90	13.88		
1.4	16QAM	6	0	12.83	12.87	12.80	13.5	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	13.97	14.18	14.13	15.5	0
20	QPSK	1	49	14.09	14.03	13.96		
20	QPSK	1	99	14.02	13.96	14.21		
20	QPSK	50	0	13.19	13.12	13.09	14.5	1
20	QPSK	50	24	13.16	13.08	13.04		
20	QPSK	50	50	13.06	13.03	13.14		
20	QPSK	100	0	13.23	13.14	13.30		
20	16QAM	1	0	13.37	13.59	13.53	14.5	1
20	16QAM	1	49	13.48	13.39	13.36		
20	16QAM	1	99	13.35	13.31	13.67		
20	16QAM	50	0	12.20	12.17	12.15	13.5	2
20	16QAM	50	24	12.20	12.16	12.07		
20	16QAM	50	50	12.07	12.09	12.18		
20	16QAM	100	0	12.26	12.19	12.33		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	13.92	14.11	13.98	15.5	0
15	QPSK	1	37	14.05	14.02	14.02		
15	QPSK	1	74	13.96	13.94	14.13		
15	QPSK	36	0	13.10	13.15	13.08	14.5	1
15	QPSK	36	20	13.20	13.10	13.15		
15	QPSK	36	39	13.13	13.06	13.15		
15	QPSK	75	0	13.23	13.08	13.19		
15	16QAM	1	0	13.34	13.50	13.39	14.5	1
15	16QAM	1	37	13.46	13.41	13.43		
15	16QAM	1	74	13.38	13.33	13.59		
15	16QAM	36	0	12.15	12.21	12.10	13.5	2
15	16QAM	36	20	12.22	12.17	12.19		
15	16QAM	36	39	12.19	12.12	12.17		
15	16QAM	75	0	12.24	12.15	12.23		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	13.91	14.10	14.06	15.5	0
10	QPSK	1	25	13.91	14.03	14.04		
10	QPSK	1	49	14.06	14.01	14.20		
10	QPSK	25	0	13.09	13.13	13.16	14.5	1
10	QPSK	25	12	13.07	13.10	13.17		
10	QPSK	25	25	13.15	13.06	13.19		
10	QPSK	50	0	13.11	13.06	13.14		
10	16QAM	1	0	13.31	13.49	13.35	14.5	1
10	16QAM	1	25	13.35	13.44	13.41		
10	16QAM	1	49	13.55	13.42	13.62		
10	16QAM	25	0	12.15	12.23	12.23	13.5	2
10	16QAM	25	12	12.14	12.18	12.23		
10	16QAM	25	25	12.18	12.17	12.25		
10	16QAM	50	0	12.15	12.11	12.17		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	13.96	14.08	14.13	15.5	0
5	QPSK	1	12	13.93	14.01	14.10		
5	QPSK	1	24	13.97	14.00	14.24		
5	QPSK	12	0	12.93	13.08	13.11	14.5	1
5	QPSK	12	7	12.95	13.04	13.09		
5	QPSK	12	13	12.95	13.04	13.10		
5	QPSK	25	0	13.02	13.10	13.13		
5	16QAM	1	0	13.40	13.51	13.49	14.5	1
5	16QAM	1	12	13.38	13.44	13.50		
5	16QAM	1	24	13.39	13.45	13.69		
5	16QAM	12	0	12.08	12.20	12.27	13.5	2
5	16QAM	12	7	12.10	12.19	12.26		
5	16QAM	12	13	12.11	12.17	12.30		
5	16QAM	25	0	12.07	12.15	12.21		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	13.90	14.06	14.07	15.5	0
3	QPSK	1	8	13.90	14.06	14.13		
3	QPSK	1	14	13.94	14.01	14.18		
3	QPSK	8	0	13.03	13.15	13.17	14.5	1
3	QPSK	8	4	13.00	13.13	13.18		
3	QPSK	8	7	13.06	13.13	13.22		
3	QPSK	15	0	13.00	13.14	13.22		
3	16QAM	1	0	13.39	13.53	13.49	14.5	1
3	16QAM	1	8	13.38	13.53	13.59		
3	16QAM	1	14	13.42	13.46	13.66		
3	16QAM	8	0	12.12	12.24	12.24	13.5	2
3	16QAM	8	4	12.06	12.20	12.25		
3	16QAM	8	7	12.13	12.22	12.31		
3	16QAM	15	0	12.06	12.19	12.22		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	13.91	14.05	14.10	15.5	0
1.4	QPSK	1	3	13.85	13.96	14.06		
1.4	QPSK	1	5	13.89	13.97	14.17		
1.4	QPSK	3	0	13.87	14.06	14.10		
1.4	QPSK	3	1	13.88	14.04	14.09		
1.4	QPSK	3	3	13.90	14.03	14.14		
1.4	QPSK	6	0	12.99	13.05	13.16	14.5	1
1.4	16QAM	1	0	13.35	13.42	13.46	14.5	1
1.4	16QAM	1	3	13.29	13.34	13.43		
1.4	16QAM	1	5	13.34	13.34	13.57		
1.4	16QAM	3	0	12.99	13.16	13.17		
1.4	16QAM	3	1	13.01	13.15	13.17		
1.4	16QAM	3	3	13.01	13.12	13.21		
1.4	16QAM	6	0	12.02	12.10	12.16	13.5	2

<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	18.12	17.77	17.72	19	0
10	QPSK	1	25	17.92	17.74	17.77		
10	QPSK	1	49	17.77	17.72	17.90		
10	QPSK	25	0	17.04	16.86	16.80	18	1
10	QPSK	25	12	16.97	16.79	16.85		
10	QPSK	25	25	16.83	16.74	16.96		
10	QPSK	50	0	16.91	16.79	17.02		
10	16QAM	1	0	17.38	17.12	17.08	18	1
10	16QAM	1	25	17.16	17.14	17.06		
10	16QAM	1	49	17.08	17.07	17.22		
10	16QAM	25	0	16.10	15.92	15.89	17	2
10	16QAM	25	12	16.00	15.85	15.90		
10	16QAM	25	25	15.84	15.81	16.02		
10	16QAM	50	0	15.95	15.85	16.06		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	18.08	17.79	17.85	19	0
5	QPSK	1	12	17.93	17.71	17.90		
5	QPSK	1	24	17.91	17.68	17.89		
5	QPSK	12	0	17.07	16.76	16.93	18	1
5	QPSK	12	7	17.00	16.72	16.90		
5	QPSK	12	13	16.90	16.64	16.87		
5	QPSK	25	0	16.97	16.73	16.92		
5	16QAM	1	0	17.39	17.04	17.11	18	1
5	16QAM	1	12	17.20	16.96	17.09		
5	16QAM	1	24	17.08	16.94	17.18		
5	16QAM	12	0	16.14	15.79	15.94	17	2
5	16QAM	12	7	16.07	15.77	15.93		
5	16QAM	12	13	15.97	15.68	15.88		
5	16QAM	25	0	16.01	15.76	15.94		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	18.07	17.78	17.84	19	0
3	QPSK	1	8	18.07	17.78	17.90		
3	QPSK	1	14	17.93	17.64	17.88		
3	QPSK	8	0	17.08	16.78	16.90	18	1
3	QPSK	8	4	17.05	16.74	16.85		
3	QPSK	8	7	16.97	16.68	16.87		
3	QPSK	15	0	17.07	16.75	16.85		
3	16QAM	1	0	17.38	17.08	17.08	18	1
3	16QAM	1	8	17.36	17.14	17.21		
3	16QAM	1	14	17.19	16.97	17.20		
3	16QAM	8	0	16.08	15.82	15.93	17	2
3	16QAM	8	4	16.07	15.83	15.92		
3	16QAM	8	7	16.03	15.71	15.94		
3	16QAM	15	0	16.08	15.79	15.85		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	18.14	17.80	17.87	19	0
1.4	QPSK	1	3	18.09	17.75	17.84		
1.4	QPSK	1	5	18.12	17.76	17.90		
1.4	QPSK	3	0	18.10	17.78	17.89		
1.4	QPSK	3	1	18.09	17.77	17.89		
1.4	QPSK	3	3	18.07	17.76	17.92		
1.4	QPSK	6	0	17.09	16.74	16.83	18	1
1.4	16QAM	1	0	17.45	17.20	17.17	18	1
1.4	16QAM	1	3	17.36	17.16	17.11		
1.4	16QAM	1	5	17.41	17.10	17.18		
1.4	16QAM	3	0	17.25	16.82	16.92		
1.4	16QAM	3	1	17.23	16.83	16.91		
1.4	16QAM	3	3	17.16	16.80	16.93		
1.4	16QAM	6	0	16.08	15.76	15.88	17	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	11.54	11.53	12.23	13	0
20	QPSK	1	49	11.50	11.75	12.05		
20	QPSK	1	99	11.59	12.04	12.08		
20	QPSK	50	0	10.54	10.78	11.16	12	1
20	QPSK	50	24	10.61	10.88	11.11		
20	QPSK	50	50	10.65	10.98	11.20		
20	QPSK	100	0	10.71	11.00	11.19		
20	16QAM	1	0	10.54	10.81	11.35	12	1
20	16QAM	1	49	10.73	11.02	11.17		
20	16QAM	1	99	10.77	11.14	11.20		
20	16QAM	50	0	9.57	9.82	10.22	11	2
20	16QAM	50	24	9.63	9.93	10.15		
20	16QAM	50	50	9.63	10.07	10.19		
20	16QAM	100	0	9.73	10.05	10.23		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	11.36	11.57	12.11	13	0
15	QPSK	1	37	11.46	11.72	12.09		
15	QPSK	1	74	11.53	11.88	12.03		
15	QPSK	36	0	10.54	10.76	11.14	12	1
15	QPSK	36	20	10.61	10.88	11.13		
15	QPSK	36	39	10.69	10.94	11.16		
15	QPSK	75	0	10.61	10.90	11.14		
15	16QAM	1	0	10.52	10.68	11.37	12	1
15	16QAM	1	37	10.70	10.87	11.25		
15	16QAM	1	74	10.73	11.12	11.29		
15	16QAM	36	0	9.61	9.82	10.18	11	2
15	16QAM	36	20	9.68	9.95	10.17		
15	16QAM	36	39	9.72	10.01	10.17		
15	16QAM	75	0	9.65	9.96	10.17		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	11.39	11.68	12.21	13	0
10	QPSK	1	25	11.50	11.80	12.09		
10	QPSK	1	49	11.60	11.95	12.12		
10	QPSK	25	0	10.53	10.88	11.25	12	1
10	QPSK	25	12	10.60	10.91	11.23		
10	QPSK	25	25	10.64	10.96	11.21		
10	QPSK	50	0	10.60	10.90	11.22		
10	16QAM	1	0	10.60	10.79	11.48	12	1
10	16QAM	1	25	10.73	10.91	11.31		
10	16QAM	1	49	10.91	11.05	11.30		
10	16QAM	25	0	9.62	9.97	10.25	11	2
10	16QAM	25	12	9.69	9.98	10.26		
10	16QAM	25	25	9.71	10.03	10.23		
10	16QAM	50	0	9.64	9.96	10.24		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	11.29	11.75	12.02	13	0
5	QPSK	1	12	11.28	11.77	11.95		
5	QPSK	1	24	11.44	11.88	12.04		
5	QPSK	12	0	10.40	10.83	11.06	12	1
5	QPSK	12	7	10.37	10.85	11.04		
5	QPSK	12	13	10.40	10.86	11.09		
5	QPSK	25	0	10.40	10.85	11.06		
5	16QAM	1	0	10.51	10.91	11.19	12	1
5	16QAM	1	12	10.46	10.92	11.16		
5	16QAM	1	24	10.60	10.97	11.19		
5	16QAM	12	0	9.47	9.90	10.09	11	2
5	16QAM	12	7	9.43	9.91	10.06		
5	16QAM	12	13	9.49	9.92	10.10		
5	16QAM	25	0	9.43	9.91	10.07		

<LTE Band 12>

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				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	21.26	21.29	21.17	22	0
10	QPSK	1	25	21.25	21.16	21.27		
10	QPSK	1	49	21.28	21.27	21.17		
10	QPSK	25	0	20.32	20.33	20.24	21	1
10	QPSK	25	12	20.22	20.21	20.30		
10	QPSK	25	25	20.25	20.28	20.22		
10	QPSK	50	0	20.30	20.37	20.32		
10	16QAM	1	0	20.57	20.58	20.52	21	1
10	16QAM	1	25	20.56	20.52	20.61		
10	16QAM	1	49	20.55	20.65	20.51		
10	16QAM	25	0	19.32	19.32	19.33	20	2
10	16QAM	25	12	19.31	19.30	19.41		
10	16QAM	25	25	19.35	19.36	19.30		
10	16QAM	50	0	19.37	19.40	19.46		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	21.23	21.19	21.18	22	0
5	QPSK	1	12	21.25	21.15	21.07		
5	QPSK	1	24	21.24	21.22	21.04		
5	QPSK	12	0	20.30	20.07	20.14	21	1
5	QPSK	12	7	20.27	20.07	20.05		
5	QPSK	12	13	20.21	20.10	20.07		
5	QPSK	25	0	20.26	20.11	20.08		
5	16QAM	1	0	20.63	20.56	20.47	21	1
5	16QAM	1	12	20.66	20.50	20.43		
5	16QAM	1	24	20.65	20.59	20.35		
5	16QAM	12	0	19.39	19.19	19.19	20	2
5	16QAM	12	7	19.33	19.20	19.11		
5	16QAM	12	13	19.25	19.22	19.14		
5	16QAM	25	0	19.30	19.18	19.07		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	21.13	21.13	21.06	22	0
3	QPSK	1	8	21.25	21.16	21.04		
3	QPSK	1	14	21.21	21.14	20.98		
3	QPSK	8	0	20.21	20.14	20.01	21	1
3	QPSK	8	4	20.23	20.13	20.03		
3	QPSK	8	7	20.17	20.10	20.00		
3	QPSK	15	0	20.21	20.08	20.07		
3	16QAM	1	0	20.55	20.47	20.40	21	1
3	16QAM	1	8	20.66	20.52	20.40		
3	16QAM	1	14	20.58	20.49	20.38		
3	16QAM	8	0	19.25	19.19	19.12	20	2
3	16QAM	8	4	19.28	19.18	19.11		
3	16QAM	8	7	19.25	19.20	19.13		
3	16QAM	15	0	19.30	19.15	19.11		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	21.19	21.12	21.04	22	0
1.4	QPSK	1	3	21.20	21.10	21.00		
1.4	QPSK	1	5	21.26	21.13	21.00		
1.4	QPSK	3	0	21.15	21.10	21.05		
1.4	QPSK	3	1	21.16	21.09	21.03		
1.4	QPSK	3	3	21.19	21.10	21.00		
1.4	QPSK	6	0	20.16	20.10	20.01	21	1
1.4	16QAM	1	0	20.58	20.46	20.41	21	1
1.4	16QAM	1	3	20.56	20.49	20.45		
1.4	16QAM	1	5	20.69	20.48	20.40		
1.4	16QAM	3	0	20.26	20.25	20.19		
1.4	16QAM	3	1	20.24	20.22	20.16		
1.4	16QAM	3	3	20.24	20.23	20.11		
1.4	16QAM	6	0	19.27	19.19	19.10	20	2

<LTE Band 13>

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					23230			
Frequency (MHz)					782			
10	QPSK	1	0		18.09		19	0
10	QPSK	1	25		17.97			
10	QPSK	1	49		18.07			
10	QPSK	25	0		17.11		18	1
10	QPSK	25	12		17.05			
10	QPSK	25	25		16.99			
10	QPSK	50	0		17.23			
10	16QAM	1	0		17.26		18	1
10	16QAM	1	25		17.18			
10	16QAM	1	49		17.36			
10	16QAM	25	0		16.00		17	2
10	16QAM	25	12		16.02			
10	16QAM	25	25		16.12			
10	16QAM	50	0		16.26			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	18.07	17.96	18.07	19	0
5	QPSK	1	12	17.95	18.03	18.07		
5	QPSK	1	24	18.02	18.15	18.10		
5	QPSK	12	0	16.91	16.92	17.00	18	1
5	QPSK	12	7	16.89	16.94	17.01		
5	QPSK	12	13	16.86	17.06	16.97		
5	QPSK	25	0	16.94	17.04	17.04		
5	16QAM	1	0	17.25	17.21	17.25	18	1
5	16QAM	1	12	17.15	17.21	17.28		
5	16QAM	1	24	17.24	17.36	17.31		
5	16QAM	12	0	15.92	15.94	15.98	17	2
5	16QAM	12	7	15.92	15.91	16.06		
5	16QAM	12	13	15.86	16.04	15.95		
5	16QAM	25	0	15.92	16.01	16.05		

<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	21.11	21.14	21.15	22	0
10	QPSK	1	25	21.14	21.17	21.25		
10	QPSK	1	49	21.16	21.18	21.13		
10	QPSK	25	0	20.16	20.18	20.19	21	1
10	QPSK	25	12	20.18	20.24	20.26		
10	QPSK	25	25	20.23	20.23	20.16		
10	QPSK	50	0	20.33	20.37	20.29		
10	16QAM	1	0	20.48	20.54	20.38	21	1
10	16QAM	1	25	20.49	20.54	20.49		
10	16QAM	1	49	20.51	20.54	20.37		
10	16QAM	25	0	19.25	19.29	19.24	20	2
10	16QAM	25	12	19.28	19.34	19.32		
10	16QAM	25	25	19.31	19.30	19.19		
10	16QAM	50	0	19.39	19.40	19.33		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	21.09	21.06	21.12	22	0
5	QPSK	1	12	21.06	21.10	21.01		
5	QPSK	1	24	21.13	21.14	20.99		
5	QPSK	12	0	20.08	20.06	20.04	21	1
5	QPSK	12	7	20.06	20.11	19.97		
5	QPSK	12	13	20.09	20.15	19.97		
5	QPSK	25	0	20.10	20.14	19.97		
5	16QAM	1	0	20.44	20.41	20.52	21	1
5	16QAM	1	12	20.41	20.50	20.37		
5	16QAM	1	24	20.48	20.49	20.41		
5	16QAM	12	0	19.13	19.15	19.16	20	2
5	16QAM	12	7	19.14	19.16	19.05		
5	16QAM	12	13	19.15	19.20	19.05		
5	16QAM	25	0	19.15	19.21	19.05		

<LTE Band 26>

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				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	18.01	18.22	17.70	19	0
15	QPSK	1	37	17.65	18.09	17.66		
15	QPSK	1	74	17.55	17.84	17.77		
15	QPSK	36	0	16.91	17.14	16.59	18	1
15	QPSK	36	20	16.71	17.11	16.70		
15	QPSK	36	39	16.73	17.11	16.91		
15	QPSK	75	0	16.81	17.23	16.90		
15	16QAM	1	0	17.21	17.44	16.94	18	1
15	16QAM	1	37	16.89	17.34	16.89		
15	16QAM	1	74	16.82	17.04	17.06		
15	16QAM	36	0	15.96	16.20	15.64	17	2
15	16QAM	36	20	15.77	16.20	15.74		
15	16QAM	36	39	15.78	16.15	15.94		
15	16QAM	75	0	15.84	16.35	15.93		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	18.20	17.88	17.59	19	0
10	QPSK	1	25	18.01	17.62	17.64		
10	QPSK	1	49	18.04	17.69	17.77		
10	QPSK	25	0	17.14	16.79	16.67	18	1
10	QPSK	25	12	17.07	16.69	16.70		
10	QPSK	25	25	17.09	16.69	16.85		
10	QPSK	50	0	17.18	16.68	16.87		
10	16QAM	1	0	17.42	17.10	16.94	18	1
10	16QAM	1	25	17.30	16.84	16.88		
10	16QAM	1	49	17.29	16.98	17.03		
10	16QAM	25	0	16.25	15.81	15.74	17	2
10	16QAM	25	12	16.17	15.74	15.75		
10	16QAM	25	25	16.18	15.75	15.86		
10	16QAM	50	0	16.25	15.76	15.95		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	18.12	17.68	17.75	19	0
5	QPSK	1	12	18.03	17.57	17.82		
5	QPSK	1	24	18.00	17.62	17.80		
5	QPSK	12	0	17.08	16.63	16.76	18	1
5	QPSK	12	7	17.02	16.59	16.74		
5	QPSK	12	13	17.01	16.60	16.71		
5	QPSK	25	0	17.03	16.60	16.80		
5	16QAM	1	0	17.33	16.87	16.98	18	1
5	16QAM	1	12	17.27	16.73	17.01		
5	16QAM	1	24	17.27	16.82	17.06		
5	16QAM	12	0	16.11	15.63	15.79	17	2
5	16QAM	12	7	16.05	15.61	15.77		
5	16QAM	12	13	16.04	15.63	15.72		
5	16QAM	25	0	16.07	15.61	15.77		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	18.20	17.79	17.84	19	0
3	QPSK	1	8	18.26	17.74	17.89		
3	QPSK	1	14	18.19	17.76	17.85		
3	QPSK	8	0	17.19	16.79	16.87	18	1
3	QPSK	8	4	17.20	16.74	16.78		
3	QPSK	8	7	17.15	16.75	16.75		
3	QPSK	15	0	17.20	16.75	16.81		
3	16QAM	1	0	17.47	17.06	17.11	18	1
3	16QAM	1	8	17.59	17.03	17.21		
3	16QAM	1	14	17.50	17.09	17.13		
3	16QAM	8	0	16.22	15.88	15.88	17	2
3	16QAM	8	4	16.26	15.76	15.85		
3	16QAM	8	7	16.24	15.80	15.85		
3	16QAM	15	0	16.23	15.76	15.79		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	18.23	17.74	17.92	19	0
1.4	QPSK	1	3	18.20	17.70	17.85		
1.4	QPSK	1	5	18.24	17.73	17.88		
1.4	QPSK	3	0	18.20	17.75	17.86		
1.4	QPSK	3	1	18.21	17.74	17.87		
1.4	QPSK	3	3	18.24	17.73	17.89		
1.4	QPSK	6	0	17.21	16.74	16.85	18	1
1.4	16QAM	1	0	17.50	17.06	17.20	18	1
1.4	16QAM	1	3	17.51	16.98	17.13		
1.4	16QAM	1	5	17.59	17.08	17.12		
1.4	16QAM	3	0	17.30	16.79	16.88		
1.4	16QAM	3	1	17.31	16.79	16.90		
1.4	16QAM	3	3	17.34	16.76	16.89		
1.4	16QAM	6	0	16.24	15.76	15.88	17	2

<LTE Band 30>

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					27710			
Frequency (MHz)					2310			
10	QPSK	1	0		11.44		12	0
10	QPSK	1	25		11.33			
10	QPSK	1	49		11.19			
10	QPSK	25	0		10.39		11	1
10	QPSK	25	12		10.35			
10	QPSK	25	25		10.25			
10	QPSK	50	0		10.40			
10	16QAM	1	0		10.53		11	1
10	16QAM	1	25		10.43			
10	16QAM	1	49		10.34			
10	16QAM	25	0		9.36		10	2
10	16QAM	25	12		9.34			
10	16QAM	25	25		9.24			
10	16QAM	50	0		9.40			
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	11.34	11.31	11.33	12	0
5	QPSK	1	12	11.23	11.34	11.07		
5	QPSK	1	24	11.19	11.19	11.16		
5	QPSK	12	0	10.31	10.35	10.21	11	1
5	QPSK	12	7	10.24	10.31	10.11		
5	QPSK	12	13	10.26	10.34	10.12		
5	QPSK	25	0	10.26	10.38	10.15		
5	16QAM	1	0	10.47	10.54	10.51	11	1
5	16QAM	1	12	10.38	10.62	10.23		
5	16QAM	1	24	10.37	10.41	10.33		
5	16QAM	12	0	9.32	9.32	9.20	10	2
5	16QAM	12	7	9.22	9.29	9.11		
5	16QAM	12	13	9.28	9.35	9.10		
5	16QAM	25	0	9.23	9.34	9.12		

<LTE Band 66>

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				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	13.97	14.04	14.15	15.5	0
20	QPSK	1	49	14.00	13.83	14.02		
20	QPSK	1	99	13.94	14.09	14.02		
20	QPSK	50	0	13.04	13.07	13.27	14.5	1
20	QPSK	50	24	13.05	12.91	13.13		
20	QPSK	50	50	13.00	13.00	13.01		
20	QPSK	100	0	13.22	13.21	13.27		
20	16QAM	1	0	13.37	13.33	13.66	14.5	1
20	16QAM	1	49	13.41	13.06	13.54		
20	16QAM	1	99	13.27	13.34	13.48		
20	16QAM	50	0	11.96	11.95	12.18	13.5	2
20	16QAM	50	24	11.94	11.85	12.10		
20	16QAM	50	50	11.91	11.91	11.95		
20	16QAM	100	0	12.17	12.18	12.26		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	13.86	13.99	14.12	15.5	0
15	QPSK	1	37	13.90	13.97	13.97		
15	QPSK	1	74	13.89	13.95	13.99		
15	QPSK	36	0	12.97	12.99	13.07	14.5	1
15	QPSK	36	20	13.01	12.97	13.03		
15	QPSK	36	39	12.97	12.98	12.99		
15	QPSK	75	0	13.12	13.10	13.17		
15	16QAM	1	0	13.28	13.35	13.61	14.5	1
15	16QAM	1	37	13.22	13.27	13.35		
15	16QAM	1	74	13.25	13.29	13.36		
15	16QAM	36	0	11.91	11.94	12.05	13.5	2
15	16QAM	36	20	11.94	11.94	11.98		
15	16QAM	36	39	11.90	11.94	11.97		
15	16QAM	75	0	12.11	12.11	12.17		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	13.89	14.03	14.11	15.5	0
10	QPSK	1	25	13.94	13.82	13.94		
10	QPSK	1	49	14.01	14.01	14.06		
10	QPSK	25	0	12.96	12.91	12.97	14.5	1
10	QPSK	25	12	12.95	12.82	12.95		
10	QPSK	25	25	12.96	12.86	13.02		
10	QPSK	50	0	13.06	13.02	13.09		
10	16QAM	1	0	13.26	13.32	13.56	14.5	1
10	16QAM	1	25	13.28	13.17	13.29		
10	16QAM	1	49	13.38	13.27	13.40		
10	16QAM	25	0	11.86	11.82	11.94	13.5	2
10	16QAM	25	12	11.85	11.75	11.87		
10	16QAM	25	25	11.87	11.80	11.89		
10	16QAM	50	0	11.99	11.95	12.01		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	13.86	13.92	13.91	15.5	0
5	QPSK	1	12	13.86	13.89	13.95		
5	QPSK	1	24	13.95	13.89	14.03		
5	QPSK	12	0	12.71	12.69	12.83	14.5	1
5	QPSK	12	7	12.74	12.64	12.83		
5	QPSK	12	13	12.75	12.70	12.90		
5	QPSK	25	0	12.91	12.88	13.05		
5	16QAM	1	0	13.18	13.23	13.27	14.5	1
5	16QAM	1	12	13.22	13.18	13.30		
5	16QAM	1	24	13.22	13.18	13.52		
5	16QAM	12	0	11.63	11.61	11.72	13.5	2
5	16QAM	12	7	11.64	11.57	11.71		
5	16QAM	12	13	11.65	11.65	11.79		
5	16QAM	25	0	11.83	11.83	11.90		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	13.67	13.77	13.79	15.5	0
3	QPSK	1	8	13.73	13.75	13.90		
3	QPSK	1	14	13.80	13.78	13.84		
3	QPSK	8	0	12.67	12.63	12.76	14.5	1
3	QPSK	8	4	12.65	12.67	12.85		
3	QPSK	8	7	12.72	12.64	12.83		
3	QPSK	15	0	12.73	12.75	12.93		
3	16QAM	1	0	13.16	13.09	13.24	14.5	1
3	16QAM	1	8	13.23	13.15	13.32		
3	16QAM	1	14	13.30	13.21	13.30		
3	16QAM	8	0	11.58	11.55	11.76	13.5	2
3	16QAM	8	4	11.60	11.58	11.76		
3	16QAM	8	7	11.66	11.58	11.76		
3	16QAM	15	0	11.65	11.69	11.76		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	13.63	13.72	13.97	15.5	0
1.4	QPSK	1	3	13.68	13.83	13.88		
1.4	QPSK	1	5	13.74	13.79	13.92		
1.4	QPSK	3	0	13.55	13.74	13.73		
1.4	QPSK	3	1	13.62	13.68	13.73		
1.4	QPSK	3	3	13.72	13.78	13.75		
1.4	QPSK	6	0	12.71	12.76	12.79	14.5	1
1.4	16QAM	1	0	13.08	13.19	13.28	14.5	1
1.4	16QAM	1	3	13.11	13.19	13.36		
1.4	16QAM	1	5	13.10	13.23	13.41		
1.4	16QAM	3	0	12.54	12.62	12.97		
1.4	16QAM	3	1	12.58	12.74	13.00		
1.4	16QAM	3	3	12.63	12.84	13.00		
1.4	16QAM	6	0	11.55	11.67	11.75	13.5	2

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

a. 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations

b. "special subframe S" contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS

c. Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

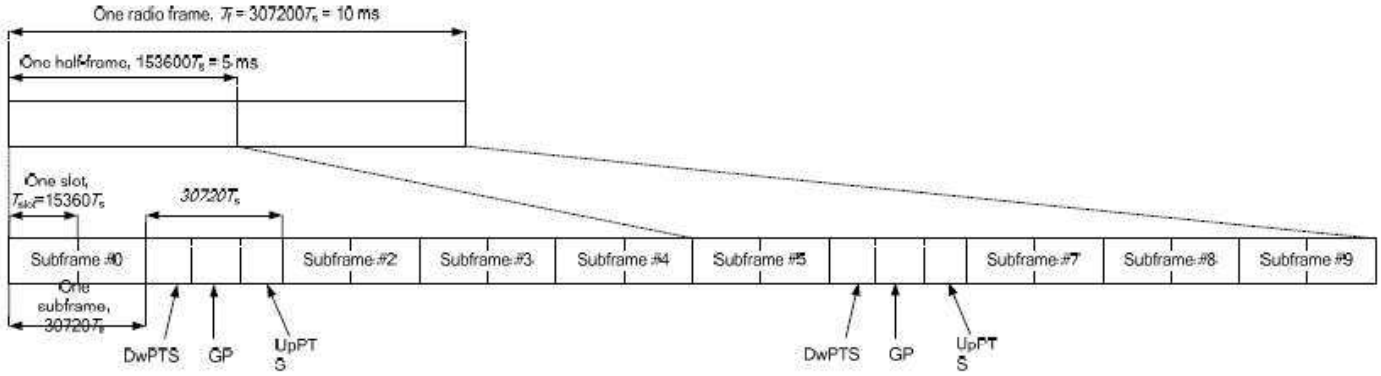


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Special subframe (30720·T_s): Normal cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	**Normal cyclic prefix in uplink**	**Extended cyclic prefix in uplink**
Uplink duty factor in one special subframe	**0~4**	7.13%	8.33%
	5~9	14.3%	16.7%

Special subframe(30720·T_s): Extended cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	**Normal cyclic prefix in uplink**	**Extended cyclic prefix in uplink**
Uplink duty factor in one special subframe	**0~3**	7.13%	8.33%
	4~7	14.3%	16.7%

The highest duty factor is resulted from:

i. Uplink-downlink configuration: 0. In a half-frame consisted of 5 subfames, uplink operation is in 3 uplink subframes and 1 special subframe.

ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink

iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.167)/5 = 63.3%

iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.143)/5 = 62.9%

v. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.

<Maximum Average RF Power (Proximity Sensor Inactive)>

<LTE Band 38>

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				37850	38000	38150		
Frequency (MHz)				2580	2595	2610		
20	QPSK	1	0	22.83	22.80	22.91	23	0
20	QPSK	1	49	22.72	22.70	22.80		
20	QPSK	1	99	22.74	22.72	22.79		
20	QPSK	50	0	21.79	21.73	21.86	22	1
20	QPSK	50	24	21.75	21.70	21.81		
20	QPSK	50	50	21.73	21.69	21.78		
20	QPSK	100	0	21.73	21.73	21.83		
20	16QAM	1	0	21.49	21.36	21.47	22	1
20	16QAM	1	49	21.37	21.36	21.52		
20	16QAM	1	99	21.44	21.49	21.63		
20	16QAM	50	0	20.81	20.70	20.82	21	2
20	16QAM	50	24	20.77	20.71	20.85		
20	16QAM	50	50	20.76	20.74	20.93		
20	16QAM	100	0	20.79	20.75	20.91		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	22.87	22.73	22.83	23	0
15	QPSK	1	37	22.82	22.76	22.89		
15	QPSK	1	74	22.78	22.79	22.93		
15	QPSK	36	0	21.81	21.72	21.87	22	1
15	QPSK	36	20	21.80	21.74	21.91		
15	QPSK	36	39	21.77	21.75	21.93		
15	QPSK	75	0	21.78	21.72	21.88		
15	16QAM	1	0	21.51	21.36	21.53	22	1
15	16QAM	1	37	21.45	21.40	21.60		
15	16QAM	1	74	21.40	21.47	21.65		
15	16QAM	36	0	20.92	20.82	20.99	21	2
15	16QAM	36	20	20.90	20.84	20.93		
15	16QAM	36	39	20.87	20.85	20.95		
15	16QAM	75	0	20.81	20.72	20.89		

Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	22.84	22.71	22.87	23	0
10	QPSK	1	25	22.77	22.70	22.87		
10	QPSK	1	49	22.78	22.75	22.94		
10	QPSK	25	0	21.84	21.72	21.93	22	1
10	QPSK	25	12	21.80	21.72	21.93		
10	QPSK	25	25	21.80	21.74	21.96		
10	QPSK	50	0	21.81	21.72	21.91		
10	16QAM	1	0	21.52	21.39	21.62	22	1
10	16QAM	1	25	21.44	21.38	21.62		
10	16QAM	1	49	21.44	21.44	21.68		
10	16QAM	25	0	21.00	20.88	20.91	21	2
10	16QAM	25	12	20.97	20.87	20.91		
10	16QAM	25	25	20.95	20.90	20.93		
10	16QAM	50	0	20.79	20.73	20.95		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	22.79	22.69	22.88	23	0
5	QPSK	1	12	22.76	22.67	22.88		
5	QPSK	1	24	22.77	22.71	22.92		
5	QPSK	12	0	21.84	21.74	21.96	22	1
5	QPSK	12	7	21.81	21.72	21.94		
5	QPSK	12	13	21.80	21.74	21.95		
5	QPSK	25	0	21.77	21.69	21.91		
5	16QAM	1	0	21.49	21.37	21.62	22	1
5	16QAM	1	12	21.45	21.36	21.62		
5	16QAM	1	24	21.45	21.41	21.66		
5	16QAM	12	0	20.81	20.72	20.97	21	2
5	16QAM	12	7	20.78	20.71	20.96		
5	16QAM	12	13	20.78	20.73	20.96		
5	16QAM	25	0	20.89	20.82	20.93		

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	22.68	22.84	22.54	22.5	22.99	23	0
20	QPSK	1	49	22.67	22.85	22.55	22.46	22.84		
20	QPSK	1	99	22.91	22.89	22.59	22.56	22.72		
20	QPSK	50	0	21.7	21.88	21.58	21.48	21.96	22	1
20	QPSK	50	24	21.73	21.9	21.6	21.47	21.91		
20	QPSK	50	50	21.77	21.91	21.61	21.5	21.86		
20	QPSK	100	0	21.83	21.88	21.58	21.51	21.9		
20	16QAM	1	0	21.36	21.57	21.27	21.17	21.72	22	1
20	16QAM	1	49	21.35	21.57	21.27	21.13	21.58		
20	16QAM	1	99	21.62	21.6	21.3	21.26	21.47		
20	16QAM	50	0	20.69	20.9	20.6	20.5	21	21	2
20	16QAM	50	24	20.73	20.91	20.61	20.49	20.94		
20	16QAM	50	50	20.79	20.92	20.62	20.53	20.89		
20	16QAM	100	0	20.86	20.9	20.6	20.55	20.95		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	22.65	22.82	22.52	22.51	22.92	23	0
15	QPSK	1	37	22.66	22.87	22.57	22.51	22.89		
15	QPSK	1	74	22.74	22.9	22.6	22.56	22.79		
15	QPSK	36	0	21.66	21.86	21.56	21.48	21.95	22	1
15	QPSK	36	20	21.68	21.87	21.57	21.49	21.91		
15	QPSK	36	39	21.7	21.88	21.58	21.5	21.84		
15	QPSK	75	0	21.73	21.87	21.57	21.47	21.9		
15	16QAM	1	0	21.32	21.52	21.22	21.13	21.63	22	1
15	16QAM	1	37	21.32	21.57	21.27	21.15	21.6		
15	16QAM	1	74	21.42	21.58	21.28	21.21	21.5		
15	16QAM	36	0	20.79	21	20.7	20.59	20.91	21	2
15	16QAM	36	20	20.8	20.91	20.71	20.6	20.95		
15	16QAM	36	39	20.81	20.91	20.71	20.61	20.98		
15	16QAM	75	0	20.75	20.94	20.64	20.48	20.96		

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	22.66	22.66	22.82	22.52	22.49	23	0
10	QPSK	1	25	22.60	22.6	22.82	22.52	22.47		
10	QPSK	1	49	22.67	22.67	22.87	22.57	22.52		
10	QPSK	25	0	21.62	21.62	21.87	21.57	21.49	22	1
10	QPSK	25	12	21.62	21.62	21.87	21.57	21.48		
10	QPSK	25	25	21.66	21.66	21.88	21.58	21.5		
10	QPSK	50	0	21.68	21.68	21.88	21.58	21.48		
10	16QAM	1	0	21.33	21.33	21.55	21.25	21.15	22	1
10	16QAM	1	25	21.27	21.27	21.55	21.25	21.13		
10	16QAM	1	49	21.35	21.35	21.59	21.29	21.2		
10	16QAM	25	0	20.79	20.79	20.96	20.76	20.67	21	2
10	16QAM	25	12	20.79	20.79	20.96	20.76	20.67		
10	16QAM	25	25	20.82	20.82	20.98	20.78	20.68		
10	16QAM	50	0	20.66	20.66	20.89	20.59	20.5		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.3	2687.5		
5	QPSK	1	0	22.63	22.63	22.8	22.5	22.45	23	0
5	QPSK	1	12	22.55	22.55	22.78	22.48	22.44		
5	QPSK	1	24	22.59	22.59	22.83	22.53	22.47		
5	QPSK	12	0	21.61	21.61	21.88	21.58	21.5	22	1
5	QPSK	12	7	21.57	21.57	21.87	21.57	21.49		
5	QPSK	12	13	21.60	21.6	21.88	21.58	21.49		
5	QPSK	25	0	21.54	21.54	21.82	21.52	21.45		
5	16QAM	1	0	21.28	21.28	21.52	21.22	21.13	22	1
5	16QAM	1	12	21.23	21.23	21.5	21.2	21.12		
5	16QAM	1	24	21.27	21.27	21.56	21.26	21.17		
5	16QAM	12	0	20.60	20.6	20.9	20.6	20.5	21	2
5	16QAM	12	7	20.55	20.55	20.88	20.58	20.48		
5	16QAM	12	13	20.60	20.6	20.88	20.58	20.51		
5	16QAM	25	0	20.66	20.66	20.96	20.66	20.64		

< Maximum Average RF Power (Proximity Sensor Active)>

<LTE Band 38>

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				37850	38000	38150		
Frequency (MHz)				2580	2595	2610		
20	QPSK	1	0	14.66	14.54	14.61	15.5	0
20	QPSK	1	49	14.54	14.52	14.67		
20	QPSK	1	99	14.52	14.64	14.83		
20	QPSK	50	0	13.49	13.40	13.52	14.5	1
20	QPSK	50	24	13.44	13.41	13.56		
20	QPSK	50	50	13.42	13.47	13.62		
20	QPSK	100	0	13.47	13.44	13.56		
20	16QAM	1	0	13.70	13.57	13.68	14.5	1
20	16QAM	1	49	13.58	13.57	13.75		
20	16QAM	1	99	13.59	13.69	13.90		
20	16QAM	50	0	12.46	12.42	12.56	13.5	2
20	16QAM	50	24	12.41	12.44	12.59		
20	16QAM	50	50	12.39	12.49	12.64		
20	16QAM	100	0	12.45	12.49	12.60		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	14.79	14.59	14.69	15.5	0
15	QPSK	1	37	14.69	14.60	14.77		
15	QPSK	1	74	14.66	14.66	14.85		
15	QPSK	36	0	13.54	13.43	13.57	14.5	1
15	QPSK	36	20	13.52	13.45	13.63		
15	QPSK	36	39	13.48	13.46	13.64		
15	QPSK	75	0	13.49	13.41	13.58		
15	16QAM	1	0	13.73	13.55	13.67	14.5	1
15	16QAM	1	37	13.66	13.58	13.76		
15	16QAM	1	74	13.61	13.63	13.85		
15	16QAM	36	0	12.62	12.49	12.64	13.5	2
15	16QAM	36	20	12.60	12.52	12.68		
15	16QAM	36	39	12.57	12.53	12.71		
15	16QAM	75	0	12.47	12.43	12.62		

Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	14.70	14.49	14.70	15.5	0
10	QPSK	1	25	14.61	14.50	14.71		
10	QPSK	1	49	14.60	14.57	14.81		
10	QPSK	25	0	13.55	13.41	13.63	14.5	1
10	QPSK	25	12	13.52	13.41	13.64		
10	QPSK	25	25	13.52	13.45	13.66		
10	QPSK	50	0	13.52	13.40	13.60		
10	16QAM	1	0	13.74	13.55	13.78	14.5	1
10	16QAM	1	25	13.63	13.53	13.78		
10	16QAM	1	49	13.62	13.62	13.87		
10	16QAM	25	0	12.60	12.48	12.70	13.5	2
10	16QAM	25	12	12.56	12.49	12.72		
10	16QAM	25	25	12.56	12.52	12.75		
10	16QAM	50	0	12.50	12.41	12.64		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	14.63	14.44	14.73	15.5	0
5	QPSK	1	12	14.55	14.44	14.70		
5	QPSK	1	24	14.56	14.47	14.76		
5	QPSK	12	0	13.56	13.43	13.65	14.5	1
5	QPSK	12	7	13.54	13.43	13.65		
5	QPSK	12	13	13.54	13.44	13.65		
5	QPSK	25	0	13.48	13.35	13.61		
5	16QAM	1	0	13.62	13.46	13.75	14.5	1
5	16QAM	1	12	13.57	13.44	13.74		
5	16QAM	1	24	13.57	13.52	13.79		
5	16QAM	12	0	12.57	12.43	12.64	13.5	2
5	16QAM	12	7	12.55	12.43	12.64		
5	16QAM	12	13	12.54	12.44	12.64		
5	16QAM	25	0	12.52	12.39	12.65		

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	13.91	14.46	14.42	14.96	14.41	15.5	0
20	QPSK	1	49	13.96	14.51	14.42	14.93	14.33		
20	QPSK	1	99	14.21	14.60	14.59	14.84	14.52		
20	QPSK	50	0	13.00	13.50	13.43	13.93	13.37	14.5	1
20	QPSK	50	24	13.01	13.51	13.47	13.91	13.40		
20	QPSK	50	50	13.07	13.59	13.53	13.90	13.49		
20	QPSK	100	0	13.09	13.53	13.46	13.88	13.41		
20	16QAM	1	0	13.13	13.70	13.64	14.25	13.70	14.5	1
20	16QAM	1	49	13.15	13.73	13.66	14.17	13.60		
20	16QAM	1	99	13.45	13.79	13.84	14.13	13.81		
20	16QAM	50	0	11.93	12.46	12.39	12.83	12.34	13.5	2
20	16QAM	50	24	11.97	12.46	12.42	12.85	12.39		
20	16QAM	50	50	12.04	12.52	12.49	12.88	12.44		
20	16QAM	100	0	12.15	12.60	12.50	12.94	12.49		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	13.93	14.47	14.41	14.98	14.39	15.5	0
15	QPSK	1	37	13.95	14.50	14.42	14.93	14.33		
15	QPSK	1	74	14.21	14.63	14.59	14.83	14.53		
15	QPSK	36	0	12.97	13.51	13.42	13.94	13.39	14.5	1
15	QPSK	36	20	13.00	13.53	13.47	13.88	13.38		
15	QPSK	36	39	13.04	13.59	13.53	13.92	13.48		
15	QPSK	75	0	13.08	13.53	13.46	13.88	13.45		
15	16QAM	1	0	13.13	13.70	13.64	14.27	13.70	14.5	1
15	16QAM	1	37	13.15	13.72	13.62	14.17	13.59		
15	16QAM	1	74	13.50	13.80	13.82	14.14	13.79		
15	16QAM	36	0	11.93	12.47	12.42	12.86	12.35	13.5	2
15	16QAM	36	20	11.96	12.51	12.44	12.86	12.36		
15	16QAM	36	39	12.03	12.53	12.50	12.88	12.46		
15	16QAM	75	0	12.15	12.60	12.50	12.96	12.48		

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	13.96	14.62	14.49	15.16	14.46	15.5	0
10	QPSK	1	25	13.89	14.63	14.50	15.09	14.54		
10	QPSK	1	49	13.95	14.66	14.60	15.01	14.72		
10	QPSK	25	0	12.89	13.58	13.44	14.03	13.40	14.5	1
10	QPSK	25	12	12.90	13.60	13.45	14.03	13.45		
10	QPSK	25	25	12.90	13.63	13.48	13.98	13.48		
10	QPSK	50	0	12.89	13.57	13.45	13.93	13.46		
10	16QAM	1	0	13.34	14.29	14.09	13.88	14.01	14.5	1
10	16QAM	1	25	13.31	14.26	14.09	13.82	14.07		
10	16QAM	1	49	13.42	14.28	14.22	13.76	14.26		
10	16QAM	25	0	11.98	12.62	12.49	13.02	12.47	13.5	2
10	16QAM	25	12	11.97	12.60	12.50	13.05	12.54		
10	16QAM	25	25	11.98	12.63	12.53	12.98	12.57		
10	16QAM	50	0	12.02	12.60	12.47	12.93	12.51		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.3	2687.5		
5	QPSK	1	0	13.93	14.45	14.39	14.92	14.35	15.5	0
5	QPSK	1	12	13.90	14.51	14.43	14.95	14.40		
5	QPSK	1	24	13.99	14.55	14.52	14.86	14.59		
5	QPSK	12	0	12.95	13.50	13.43	14.00	13.43	14.5	1
5	QPSK	12	7	12.92	13.55	13.47	13.98	13.46		
5	QPSK	12	13	12.96	13.56	13.51	13.95	13.57		
5	QPSK	25	0	12.98	13.53	13.44	13.95	13.43		
5	16QAM	1	0	13.13	13.69	13.60	14.23	13.62	14.5	1
5	16QAM	1	12	13.10	13.72	13.65	14.22	13.67		
5	16QAM	1	24	13.24	13.76	13.77	14.16	13.91		
5	16QAM	12	0	12.01	12.54	12.46	13.01	12.49	13.5	2
5	16QAM	12	7	12.01	12.56	12.50	13.03	12.51		
5	16QAM	12	13	12.01	12.59	12.53	12.99	12.58		
5	16QAM	25	0	12.05	12.52	12.45	12.95	12.45		

<LTE Carrier Aggregation>

General Note:

This device supports Carrier Aggregation on downlink for inter and intra band, uplink CA is not supported. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.

<Inter-Band for Two Carrier Combination>

E-UTRA CA configuration / Bandwidth combination set										
E-UTRA CA Configuration	Uplink CA configurations	E- UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_2A-4A	-	2	Yes	Yes	Yes	Yes	Yes	Yes	40	0
		4			Yes	Yes	Yes	Yes		
		2			Yes	Yes			20	1
		4			Yes	Yes				
		2			Yes	Yes	Yes	Yes	40	2
		4			Yes	Yes	Yes	Yes		
CA_2A-5A	-	2			Yes	Yes	Yes	Yes	30	0
		5			Yes	Yes				
		2			Yes	Yes			20	1
		5			Yes	Yes				
CA_2A-12A	-	2			Yes	Yes	Yes	Yes	30	0
		12			Yes	Yes				
		2			Yes	Yes	Yes	Yes	30	1
		12		Yes	Yes	Yes				
		2			Yes	Yes			20	2
		12			Yes	Yes				
CA_2A-13A	-	2			Yes	Yes	Yes	Yes	30	0
		13				Yes				
		2			Yes	Yes			20	1
		13				Yes				
CA_2A-17A	-	2			Yes	Yes			20	0
		17			Yes	Yes				
CA_2A-29A	-	2			Yes	Yes			20	0
		29		Yes	Yes	Yes				
		2			Yes	Yes			20	1
		29			Yes	Yes				
		2			Yes	Yes	Yes	Yes	30	2
		29			Yes	Yes				
CA_2A-30A	-	2			Yes	Yes	Yes	Yes	30	0
		30			Yes	Yes				
CA_2A-66A	-	2	Yes	Yes	Yes	Yes	Yes	Yes	40	0
		66			Yes	Yes	Yes	Yes		
		2			Yes	Yes			20	1
		66			Yes	Yes				
		2			Yes	Yes	Yes	Yes	40	2
		66			Yes	Yes	Yes	Yes		

E-UTRA CA configuration / Bandwidth combination set										
E-UTRA CA Configuration	Uplink CA configurations	E- UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_4A-5A	-	4			Yes	Yes			20	0
		5			Yes	Yes				
		4			Yes	Yes	Yes	Yes	30	0
		5			Yes	Yes				
CA_4A-12A	-	4	Yes	Yes	Yes	Yes			20	0
		12			Yes	Yes				
		4	Yes	Yes	Yes	Yes	Yes	Yes	30	1
		12			Yes	Yes				
		4			Yes	Yes	Yes	Yes	30	2
		12		Yes	Yes	Yes				
		4			Yes	Yes			20	3
		12			Yes	Yes				
		4			Yes	Yes	Yes	Yes	30	4
		12			Yes	Yes				
		4			Yes	Yes	Yes		20	5
		12			Yes					
CA_4A-13A	-	4			Yes	Yes	Yes	Yes	30	0
		13				Yes				
		4			Yes	Yes			20	1
		13				Yes				
CA_4A-17A	-	4			Yes	Yes			20	0
		17			Yes	Yes				
CA_4A-29A	-	4			Yes	Yes			20	0
		29		Yes	Yes	Yes				
		4			Yes	Yes			20	1
		29			Yes	Yes				
		4			Yes	Yes	Yes	Yes	30	2
		29			Yes	Yes				
CA_4A-30A	-	4			Yes	Yes	Yes	Yes	30	0
		30			Yes	Yes				

E-UTRA CA configuration / Bandwidth combination set										
E-UTRA CA Configuration	Uplink CA configurations	E- UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_5A-7A	-	5	Yes	Yes	Yes	Yes			30	0
		7				Yes	Yes	Yes		
		5			Yes	Yes			30	1
		7				Yes	Yes	Yes		
CA_5A-30A	-	5			Yes	Yes			20	0
		30			Yes	Yes				
CA_5A-66A	-	5			Yes	Yes			30	0
		66			Yes	Yes	Yes	Yes		
CA_7A-12A	-	7			Yes	Yes	Yes	Yes	30	0
		12			Yes	Yes				
CA_12A-30A	-	12			Yes	Yes			20	0
		30			Yes	Yes				
CA_12A-66A	-	12			Yes	Yes			20	0
		66	Yes	Yes	Yes	Yes				
		12			Yes	Yes			30	1
		66	Yes	Yes	Yes	Yes	Yes	Yes		
		12		Yes	Yes	Yes			30	2
		66			Yes	Yes	Yes	Yes		
		12			Yes	Yes			20	3
		66			Yes	Yes				
		12			Yes	Yes			30	4
		66			Yes	Yes	Yes	Yes		
		12			Yes				20	5
		66			Yes	Yes	Yes			
CA_13A-66A	-	13			Yes	Yes			30	0
		66			Yes	Yes	Yes	Yes		
CA_29A-30A	-	29			Yes	Yes			20	0
		30			Yes	Yes				
CA_29A-66A	-	29			Yes	Yes			30	0
		66			Yes	Yes	Yes	Yes		

<Inter-Band for Three Carrier Combination> (three bands)

E-UTRA CA configuration / Bandwidth combination set										
E-UTRA CA Configuration	Uplink CA configurations	E- UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_2A-4A-5A	-	2			Yes	Yes	Yes	Yes	50	0
		4			Yes	Yes	Yes	Yes		
		5			Yes	Yes				
CA_2A-4A-12A	-	2			Yes	Yes	Yes	Yes	50	0
		4			Yes	Yes	Yes	Yes		
		12			Yes	Yes				
CA_2A-4A-13A	-	2			Yes	Yes	Yes	Yes	50	0
		4			Yes	Yes	Yes	Yes		
		13				Yes				
CA_2A-4A-29A	-	2			Yes	Yes	Yes	Yes	50	0
		4			Yes	Yes	Yes	Yes		
		29			Yes	Yes				
CA_2A-4A-30A	-	2			Yes	Yes	Yes	Yes	50	0
		4			Yes	Yes	Yes	Yes		
		30			Yes	Yes				
CA_2A-5A-30A	-	2			Yes	Yes	Yes	Yes	40	0
		5			Yes	Yes				
		30			Yes	Yes				
CA_2A-5A-66A	-	2			Yes	Yes	Yes	Yes	50	0
		5			Yes	Yes				
		66			Yes	Yes	Yes	Yes		
CA_2A-12A-30A	-	2			Yes	Yes	Yes	Yes	40	0
		12			Yes	Yes				
		30			Yes	Yes				
CA_2A-12A-66A	-	2			Yes	Yes	Yes	Yes	50	0
		12			Yes	Yes				
		66			Yes	Yes	Yes	Yes		
		2			Yes	Yes			40	1
		12			Yes	Yes				
		66			Yes	Yes	Yes	Yes		
CA_2A-13A-66A	-	2			Yes	Yes	Yes	Yes	50	0
		13			Yes	Yes				
		66			Yes	Yes	Yes	Yes		
CA_2A-29A-30A	-	2			Yes	Yes	Yes	Yes	40	0
		29			Yes	Yes				
		30			Yes	Yes				
CA_4A-5A-30A	-	4			Yes	Yes	Yes	Yes	40	0
		5			Yes	Yes				
		30			Yes	Yes				
CA_4A-12A-30A	-	4			Yes	Yes	Yes	Yes	40	0
		12			Yes	Yes				
		30			Yes	Yes				
CA_4A-29A-30A	-	4			Yes	Yes	Yes	Yes	40	0
		29			Yes	Yes				
		30			Yes	Yes				

<Inter-Band for Three Carrier Combination> (two bands)

E-UTRA CA configuration / Bandwidth combination set										
E-UTRA CA Configuration	Uplink CA configurations	E- UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_2A-2A-5A	-	2	See CA_2A-2A Bandwidth Combination Set 0 in Table 5.6A.1-3						50	0
		5			Yes	Yes				
CA_2A-2A-13A	-	2	See CA_2A-2A Bandwidth Combination Set 0 in Table 5.6A.1-3						50	0
		13				Yes				
CA_4A-4A-5A	-	4	See CA_4A-4A Bandwidth Combination Set 0 in Table 5.6A.1-3						50	0
		5			Yes	Yes				
CA_4A-4A-12A	-	4	See CA_4A-4A Bandwidth Combination Set 0 in Table 5.6A.1-3						50	0
		12			Yes	Yes				
CA_4A-4A-13A	-	4	See CA_4A-4A Bandwidth Combination Set 0 in Table 5.6A.1-3						50	0
		13				Yes				
CA_2A-66A-66A	-	2			Yes	Yes	Yes	Yes	60	0
		66	See CA_66A-66A Bandwidth Combination Set 0 in Table 5.6A.1-3							
CA_5A-66A-66A	-	5			Yes	Yes			50	0
		66	See CA_66A-66A Bandwidth Combination Set 0 in Table 5.6A.1-3							
CA_13A-66A-66A	-	13			Yes	Yes			50	0
		66	See CA_66A-66A Bandwidth Combination Set 0 in Table 5.6A.1-3							
CA_2C-5A	-	2	See CA_2C Bandwidth Combination Set 0 in Table 5.6A.1-1						50	0
		5			Yes	Yes				
CA_2A-66B	-	2			Yes	Yes	Yes	Yes	40	0
		66	See CA_66B Bandwidth Combination Set 0 in Table 5.6A.1-1							
CA_2A-66C	-	2			Yes	Yes	Yes	Yes	60	0
		66	See CA_66C Bandwidth Combination Set 0 in Table 5.6A.1-1							
CA_5A-66B	-	5			Yes	Yes			30	0
		66	See CA_66B Bandwidth Combination Set 0 in Table 5.6A.1-1							
CA_5A-66C	-	5			Yes	Yes			50	0
		66	See CA_66C Bandwidth Combination Set 0 in Table 5.6A.1-1							
CA_13A-66B	-	13			Yes	Yes			30	0
		66	See CA_66B Bandwidth Combination Set 0 in Table 5.6A.1-1							
CA_13A-66C	-	13			Yes	Yes			50	0
		66	See CA_66C Bandwidth Combination Set 0 in Table 5.6A.1-1							

<Intra-Band Carrier Combination> (Contiguous)

E-UTRA CA configuration / Bandwidth combination set							
E-UTRA CA configuration	Uplink CA configurations	Component carriers in order of increasing carrier frequency				Maximum aggregated bandwidth [MHz]	Bandwidth combination set
		Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]		
CA_2C	-	5	20			40	0
		10	15, 20				
		15	10, 15, 20				
		20	5, 10, 15, 20				
CA_5B	-	5, 10	10			20	0
		10	5				
		3	5			8	1
		5	3				
CA_7B	-	15	5			20	0
CA_7C	-	15	15			40	0
		20	20				
		10	20			40	1
		15	15, 20				
		20	10, 15, 20				
		15	10, 15			40	2
		20	15, 20				
CA_41C	-	10	20			40	0
		15	15, 20				
		20	10, 15, 20				
		5, 10	20			40	1
		15	15, 20				
		20	5, 10, 15, 20				
		10	15, 20			40	2
		15	10, 15, 20				
		20	10, 15, 20				
		10	20			40	3
		20	20				
CA_41D	-	10	20	15		60	0
		10	15, 20	20			
		15	20	10, 15			
		15	10, 15, 20	20			
		20	15, 20	10			
		20	10, 15, 20	15, 20			
CA_66B	-	5	5, 10, 15			20	0
		10	5, 10				
		15	5				
CA_66C	-	5	20			40	0
		10	15, 20				
		15	10, 15, 20				
		20	5, 10, 15, 20				

CA_66D	-	5	20	20		60	0
		20	5	20			
		20	20	5			
		10	20	15			
		15	20	10			
		10, 15, 20	15, 20	20			
		15, 20	10	20			
		15	15, 20	15			
		20	15, 20	10, 15			
		20	10	15			

<Intra-Band Carrier Combination> (Non-Contiguous)

E-UTRA CA configuration / Bandwidth combination set							
E-UTRA CA configuration	Uplink CA configurations	Component carriers in order of increasing carrier frequency				Maximum aggregated bandwidth [MHz]	Bandwidth combination set
		Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]		
CA_2A-2A	-	5, 10, 15, 20	5, 10, 15, 20			40	0
CA_4A-4A	-	5, 10, 15, 20	5, 10, 15, 20			40	0
		5, 10	5, 10			20	1
CA_5A-5A	-	5, 10	5, 10			20	0
		3	5			8	1
CA_7A-7A	-	5	15			40	0
		10	10, 15				
		15	15, 20				
		20	20				
		5, 10, 15, 20	5, 10, 15, 20			40	1
		5, 10, 15, 20	5, 10			30	2
		10, 15, 20	10, 15, 20			40	3
CA_41A-41A	-	10, 15, 20	10, 15, 20			40	0
		5, 10, 15, 20	5, 10, 15, 20			40	1
CA_66A-66A	-	5, 10, 15, 20	5, 10, 15, 20			40	0
CA_41A-41A-41A	-	5, 10, 15, 20	5, 10, 15, 20	5, 10, 15, 20		60	0
		5, 10, 15, 20	5, 10, 15, 20	5, 10, 15, 20			
CA_66A-66A-66A	-	5, 10, 15, 20	5, 10, 15, 20	5, 10, 15, 20		60	0
CA_41A-41C	-	5, 10, 15, 20	See CA_41C Bandwidth Combination Set 1 in Table 5.6A.1-1			60	0
		See CA_41C Bandwidth Combination Set 1 in Table 5.6A.1-1			5, 10, 15, 20		
CA_66A-66B	-	5, 10, 15, 20	See CA_66B Bandwidth Combination Set 0 in Table 5.6A.1-1			40	0
		See CA_66B Bandwidth Combination Set 0 in Table 5.6A.1-1			5, 10, 15, 20		
CA_66A-66C	-	5, 10, 15, 20	See CA_66C Bandwidth Combination Set 1 in Table 5.6A.1-1			60	0
		See CA_66C Bandwidth Combination Set 1 in Table 5.6A.1-1			5, 10, 15, 20		

<DL CA power measurement test reduction for UL SAR test exclusion>

General Note:

1. This device supports Carrier Aggregation on downlink for inter and intra band, uplink CA is not supported. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. In applying the existing power measurement procedures of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of frequency bands and CCs in each row need combination, and that configurations require power measurement should be highlighted in the below table.
3. All permutations exist. No restrictions on Pcell & Scell combinations. Only LTE Band 29A is limited to Scell.
4. Only the conducted powers of DL CA which were boldface marked were reported.

<Inter-Band Carrier Combination>

2 bands / 2 CC	2 bands / 3 CC	3 bands / 3 CC
CA_2A-4A		**CA_2A-4A-5A**
CA_2A-5A	**CA_2A-2A-5A**	
CA_4A-5A	**CA_4A-4A-5A**	
CA_2A-12A		**CA_2A-4A-12A**
CA_4A-12A	**CA_4A-4A-12A**	
CA_2A-13A	**CA_2A-2A-13A**	**CA_2A-4A-13A**
CA_4A-13A	**CA_4A-4A-13A**	
CA_2A-29A		**CA_2A-29A-30A**
CA_2A-30A		
CA_29A-30A		
		CA_2A-4A-29A
		CA_2A-4A-30A
CA_12A-30A		**CA_2A-12A-30A**
		CA_2A-5A-30A
CA_2A-66A	**CA_2A-66A-66A**	**CA_2A-5A-66A**
CA_12A-66A		**CA_2A-12A-66A**
CA_13A-66A	**CA_13A-66A-66A**	**CA_2A-13A-66A**
CA_4A-29A		**CA_4A-29A-30A**
CA_4A-30A		
		CA_4A-5A-30A
		CA_4A-12A-30A
	CA_5A-66A-66A	
CA_2A-17A		
CA_4A-17A		
CA_5A-7A		
CA_5A-30A		
CA_5A-66A		
CA_7A-12A		
CA_29A-66A		
	2C-5A	
	2A-66B	
	2A-66C	
	5A-66B	
	5A-66C	
	13A-66B	
	13A-66C	

<Intra-Band Carrier Combination>

Contiguous	Non-Contiguous
CA_2C	CA_2A_2A
CA_5B	CA_4A_4A
CA_7B	CA_5A_5A
CA_7C	CA_7A_7A
CA_41C	CA_41A_41A
CA_66B	CA_66A_66A
CA_66C	CA_41A_41A_41A
41D	CA_66A_66A_66A
66D	41A-41C
	66A-66B
	66A-66C

LTE Carrier Aggregation Conducted Power (Downlink)

i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.

ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.

iii. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.

iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.

v. For inter-band CA, the SCC selected highest bandwidth and near the middle of its transmission band. For SCC DL RB size and offset will base on the PCC corresponding RB allocation.

vi. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.

vii. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

$$\text{Nominal channel spacing} = \left\lfloor \frac{BW_{Channel(1)} + BW_{Channel(2)} - 0.1\left|BW_{Channel(1)} - BW_{Channel(2)}\right|}{0.6} \right\rfloor 0.3 \ \ [\text{MHz}]$$

<Maximum Average RF Power (Proximity Sensor Inactive)>

<Two Carrier power verification>

Configure		CA Configuration (BCS)	PCC							SCC				Power	
			LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx. Power (dBm)	Without CA Tx. Power (dBm)
Inter-Band		CA_2A-17A	Band 2	10M	1880	18900	QPSK	1	0	Band 17	10M	740	5790	22.91	22.88
			Band 17	10M	711	23800	QPSK	1	25	Band 2	10M	1960	900	22.92	22.93
		CA_4A-17A	Band 4	10M	1745	20300	QPSK	1	0	Band 17	10M	740	5790	23.21	23.27
			Band 17	10M	711	23800	QPSK	1	25	Band 4	10M	2132.5	2175	22.94	22.93
		CA_5A-7A	Band 5	10M	829	20450	QPSK	1	0	Band 7	20M	2655	3100	22.81	22.79
			Band 7	20M	2560	21350	QPSK	1	0	Band 5	10M	881.5	2525	23.15	23.27
		CA_5A-30A	Band 5	10M	829	20450	QPSK	1	0	Band 30	10M	2355	9820	22.75	22.79
			Band 30	10M	2310	27710	QPSK	1	0	Band 5	10M	881.5	2525	23.05	23.10
		CA_5A-66A	Band 5	10M	829	20450	QPSK	1	0	Band 66	20M	2155	66886	22.82	22.79
			Band 66	20M	1770	132572	QPSK	1	0	Band 5	10M	881.5	2525	23.25	23.26
		CA_7A-12A	Band 7	20M	2560	21350	QPSK	1	0	Band 12	10M	737.5	5095	23.24	23.27
			Band 12	10M	707.5	23095	QPSK	1	0	Band 7	20M	2655	3100	22.98	22.96
		CA_29A-66A	Band 66	20M	1770	132572	QPSK	1	0	Band 29	10M	722.5	9715	23.21	23.26
Intra-Band	Contiguous	CA_2C	Band 2	20M	1880	18900	QPSK	1	0	Band 2	20M	1979.8	1098	22.88	22.93
		CA_5B	Band 5	10M	829	20450	QPSK	1	0	Band 5	10M	883.9	2549	22.77	22.79
		CA_7B	Band 7	15M	2562.5	21375	QPSK	1	0	Band 7	5M	2678.2	3332	23.18	23.21
		CA_7C	Band 7	20M	2560	21350	QPSK	1	0	Band 7	20M	2660.2	3152	23.25	23.27
		CA_41C	Band 41	20M	2680	41490	QPSK	1	0	Band 41	20M	2660.2	41292	22.93	22.99
		CA_66B	Band 66	15M	1772.5	132597	QPSK	1	0	Band 66	5M	2188.2	67218	23.18	23.20
		CA_66C	Band 66	20M	1770	132572	QPSK	1	0	Band 66	20M	2170.2	67038	23.21	23.26
	Non-Contiguous	CA_2A_2A	Band 2	20M	1880	18900	QPSK	1	0	Band 2	5M	1932.5	625	22.92	22.93
		CA_4A_4A	Band 4	20M	1732.5	20175	QPSK	1	0	Band 4	5M	2152.5	2375	23.21	23.29
		CA_5A_5A	Band 5	10M	829	20450	QPSK	1	0	Band 5	5M	891.5	2625	22.75	22.79
		CA_7A_7A	Band 7	20M	2560	21350	QPSK	1	0	Band 7	5M	2622.5	2775	23.26	23.27
		CA_41A_41A	Band 41	20M	2680	41490	QPSK	1	0	Band 41	5M	2498.5	39675	22.89	22.99
		CA_66A_66A	Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	23.25	23.26

<Three Carrier power verification>

Configure	CA Configuration (BCS)	PCC							SCC1				SCC2				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx. Power (dBm)	Without CA Tx. Power (dBm)
Inter-Band	CA_2A-2A-5A	Band 2	20M	1880	18900	QPSK	1	0	Band 2	5M	1987.5	1175	Band 5	10M	881.5	2525	22.91	22.93
		Band 5	10M	829	20450	QPSK	1	0	Band 2	20M	1960	900	Band 2	5M	1987.5	1175	22.71	22.79
	CA_4A-4A-5A	Band 4	20M	1732.5	20175	QPSK	1	0	Band 4	5M	2152.5	2375	Band 5	10M	881.5	2525	23.15	23.29
		Band 5	10M	829	20450	QPSK	1	0	Band 4	20M	2132.5	2175	Band 4	5M	2152.5	2375	22.71	22.79
	CA_4A-4A-12A	Band 4	20M	1732.5	20175	QPSK	1	0	Band 4	5M	2152.5	2375	Band 12	10M	737.5	5095	23.25	23.29
		Band 12	10M	707.5	23095	QPSK	1	0	Band 4	20M	2132.5	2175	Band 4	5M	2152.5	2375	22.91	22.96
	CA_2A-2A-13A	Band 2	20M	1880	18900	QPSK	1	0	Band 2	5M	1987.5	1175	Band 13	10M	751	5230	22.92	22.93
		Band 13	10M	782	23230	QPSK	1	0	Band 2	20M	1960	900	Band 2	5M	1987.5	1175	23.05	23.13
	CA_4A-4A-13A	Band 4	20M	1732.5	20175	QPSK	1	0	Band 4	5M	2152.5	2375	Band 13	10M	751	5230	23.25	23.29
		Band 13	10M	782	23230	QPSK	1	0	Band 4	20M	2132.5	2175	Band 4	5M	2152.5	2375	23.08	23.13
	CA_2A-66A-66A	Band 2	20M	1880	18900	QPSK	1	0	Band 66	20M	2155	66886	Band 66	5M	2197.5	67311	22.91	22.93
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	Band 2	20M	1960	900	23.21	23.26
	CA_13A-66A-66A	Band 13	10M	782	23230	QPSK	1	0	Band 66	20M	2155	66886	Band 66	5M	2197.5	67311	23.08	23.13
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	Band 13	10M	751	5230	23.18	23.26
	CA_5A-66A-66A	Band 5	10M	829	20450	QPSK	1	0	Band 66	20M	2155	66886	Band 66	5M	2197.5	67311	22.71	22.79
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	Band 5	10M	881.5	2525	23.18	23.26
	CA_2C-5A	Band 2	20M	1880	18900	QPSK	1	0	Band 2	20M	1959.8	898	Band 5	10M	881.5	2525	22.91	22.93
		Band 5	10M	829	20450	QPSK	1	0	Band 2	20M	1960	900	Band 2	20M	1979.8	1098	22.75	22.79
	CA_2A-66B	Band 2	20M	1880	18900	QPSK	1	0	Band 66	15M	2155	66886	Band 66	5M	2164.3	66979	22.88	22.93
		Band 66	15M	1772.5	132597	QPSK	1	0	Band 66	5M	2188.2	67218	Band 2	20M	1960	900	23.12	23.20
	CA_2A-66C	Band 2	20M	1880	18900	QPSK	1	0	Band 66	20M	2155	66886	Band 66	20M	2174.8	67084	22.91	22.93
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	20M	2170.2	67038	Band 2	20M	1960	900	23.25	23.26
	CA_5A-66B	Band 5	10M	829	20450	QPSK	1	0	Band 66	15M	2155	66886	Band 66	5M	2164.3	66979	22.78	22.79
		Band 66	15M	1772.5	132597	QPSK	1	0	Band 66	5M	2188.2	67218	Band 5	10M	881.5	2525	23.18	23.20
	CA_5A-66C	Band 5	10M	829	20450	QPSK	1	0	Band 66	20M	2155	66886	Band 66	20M	2174.8	67084	22.75	22.79
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	20M	2170.2	67038	Band 5	10M	881.5	2525	23.08	23.26
	CA_13A-66B	Band 13	10M	782	23230	QPSK	1	0	Band 66	15M	2155	66886	Band 66	5M	2164.3	66979	23.08	23.13
		Band 66	15M	1772.5	132597	QPSK	1	0	Band 66	5M	2188.2	67218	Band 13	10M	751	5230	23.15	23.20
	CA_13A-66C	Band 13	10M	782	23230	QPSK	1	0	Band 66	20M	2155	66886	Band 66	20M	2174.8	67084	23.08	23.13
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	20M	2170.2	67038	Band 13	10M	751	5230	23.15	23.26

Configure		CA Configuration (BCS)	PCC							SCC1					SCC2				Power	
			LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx. Power (dBm)	Without CA Tx. Power (dBm)
Inter-Band		CA_2A-4A-5A	Band 2	20M	1880	18900	QPSK	1	0	Band 4	20M	2132.5	2175	Band 5	10M	881.5	2525	22.91	22.93
			Band 4	20M	1732.5	20175	QPSK	1	0	Band 5	10M	881.5	2525	Band 2	20M	1960	900	23.25	23.29
			Band 5	10M	829	20450	QPSK	1	0	Band 2	20M	1960	900	Band 4	20M	2132.5	2175	22.75	22.79
		CA_2A-4A-12A	Band 2	20M	1880	18900	QPSK	1	0	Band 4	20M	2132.5	2175	Band 12	10M	737.5	5095	22.88	22.93
			Band 4	20M	1732.5	20175	QPSK	1	0	Band 12	10M	737.5	5095	Band 2	20M	1960	900	23.21	23.29
			Band 12	10M	707.5	23095	QPSK	1	0	Band 2	20M	1960	900	Band 4	20M	2132.5	2175	22.85	22.96
		CA_2A-4A-13A	Band 2	20M	1880	18900	QPSK	1	0	Band 4	20M	2132.5	2175	Band 13	10M	751	5230	22.91	22.93
			Band 4	20M	1732.5	20175	QPSK	1	0	Band 13	10M	751	5230	Band 2	20M	1960	900	23.24	23.29
			Band 13	10M	782	23230	QPSK	1	0	Band 2	20M	1960	900	Band 4	20M	2132.5	2175	23.08	23.13
		CA_2A-29A-30A	Band 2	20M	1880	18900	QPSK	1	0	Band 29	10M	722.5	9715	Band 30	10M	2355	9820	22.91	22.93
			Band 30	10M	2310	27710	QPSK	1	0	Band 2	20M	1960	900	Band 29	10M	722.5	9715	23.05	23.10
		CA_2A-4A-29A	Band 2	20M	1880	18900	QPSK	1	0	Band 4	20M	2132.5	2175	Band 29	10M	722.5	9715	22.89	22.93
			Band 4	20M	1732.5	20175	QPSK	1	0	Band 29	10M	722.5	9715	Band 2	20M	1960	900	23.25	23.29
		CA_2A-4A-30A	Band 2	20M	1880	18900	QPSK	1	0	Band 4	20M	2132.5	2175	Band 30	10M	2355	9820	22.87	22.93
			Band 4	20M	1732.5	20175	QPSK	1	0	Band 30	10M	2355	9820	Band 2	20M	1960	900	23.25	23.29
			Band 30	10M	2310	27710	QPSK	1	0	Band 2	20M	1960	900	Band 4	20M	2132.5	2175	23.05	23.10
		CA_2A-12A-30A	Band 2	20M	1880	18900	QPSK	1	0	Band 12	10M	737.5	5095	Band 30	10M	2355	9820	22.91	22.93
			Band 12	10M	707.5	23095	QPSK	1	0	Band 30	10M	2355	9820	Band 2	20M	1960	900	22.95	22.96
			Band 30	10M	2310	27710	QPSK	1	0	Band 2	20M	1960	900	Band 12	10M	737.5	5095	23.05	23.10
		CA_2A-5A-30A	Band 2	20M	1880	18900	QPSK	1	0	Band 5	10M	881.5	2525	Band 30	10M	2355	9820	22.91	22.93
			Band 5	10M	829	20450	QPSK	1	0	Band 30	10M	2355	9820	Band 2	20M	1960	900	22.71	22.79
			Band 30	10M	2310	27710	QPSK	1	0	Band 2	20M	1960	900	Band 5	10M	881.5	2525	23.05	23.10
		CA_2A-5A-66A	Band 2	20M	1880	18900	QPSK	1	0	Band 5	10M	881.5	2525	Band 66	20M	2155	66886	22.89	22.93
			Band 5	10M	829	20450	QPSK	1	0	Band 66	20M	2155	66886	Band 2	20M	1960	900	22.71	22.79
			Band 66	20M	1770	132572	QPSK	1	0	Band 2	20M	1960	900	Band 5	10M	881.5	2525	23.21	23.26
		CA_2A-12A-66A	Band 2	20M	1880	18900	QPSK	1	0	Band 12	10M	737.5	5095	Band 66	20M	2155	66886	22.9	22.93
			Band 12	10M	707.5	23095	QPSK	1	0	Band 66	20M	2155	66886	Band 2	20M	1960	900	22.91	22.96
			Band 66	20M	1770	132572	QPSK	1	0	Band 2	20M	1960	900	Band 12	10M	737.5	5095	23.25	23.26
		CA_2A-13A-66A	Band 2	20M	1880	18900	QPSK	1	0	Band 13	10M	751	5230	Band 66	20M	2155	66886	22.91	22.93
			Band 13	10M	782	23230	QPSK	1	0	Band 66	20M	2155	66886	Band 2	20M	1960	900	23.02	23.13
			Band 66	20M	1770	132572	QPSK	1	0	Band 2	20M	1960	900	Band 13	10M	751	5230	23.25	23.26
		CA_4A-29A-30A	Band 4	20M	1732.5	20175	QPSK	1	0	Band 29	10M	722.5	9715	Band 30	10M	2355	9820	23.21	23.29
			Band 30	10M	2310	27710	QPSK	1	0	Band 4	20M	2132.5	2175	Band 29	10M	722.5	9715	23.08	23.10
		CA_4A-5A-30A	Band 4	20M	1732.5	20175	QPSK	1	0	Band 5	10M	881.5	2525	Band 30	10M	2355	9820	23.25	23.29
			Band 5	10M	829	20450	QPSK	1	0	Band 30	10M	2355	9820	Band 4	20M	2132.5	2175	22.71	22.79
			Band 30	10M	2310	27710	QPSK	1	0	Band 4	20M	2132.5	2175	Band 5	10M	881.5	2525	23.05	23.10
		CA_4A-12A-30A	Band 4	20M	1732.5	20175	QPSK	1	0	Band 12	10M	737.5	5095	Band 30	10M	2355	9820	23.21	23.29
			Band 12	10M	707.5	23095	QPSK	1	0	Band 30	10M	2355	9820	Band 4	20M	2132.5	2175	22.91	22.96
			Band 30	10M	2310	27710	QPSK	1	0	Band 4	20M	2132.5	2175	Band 12	10M	737.5	5095	23.05	23.10
Intra-Band	Contiguous	CA_41D	Band 41	20M	2680	41490	QPSK	1	0	Band 41	20M	2660.2	41292	Band 41	20M	2640.4	41094	22.95	22.99
		CA_61D	Band 66	20M	1770	132572	QPSK	1	0	Band 66	20M	2170.2	67038	Band 66	20M	2150.4	66840	23.18	23.26
	Non-Contiguous	CA_41A_41A_41A	Band 41	20M	2680	41490	QPSK	1	0	Band 41	5M	2498.5	39675	Band 41	20M	2680	41490	22.89	22.99
		CA_66A_66A_66A	Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	Band 66	20M	2155	66886	22.92	23.26
		CA_41A-41C	Band 41	20M	2680	41490	QPSK	1	0	Band 41	5M	2498.5	39675	Band 41	20M	2510.2	39792	22.91	22.99
			Band 41	20M	2680	41490	QPSK	1	0	Band 41	20M	2660.2	41292	Band 41	5M	2498.5	39675	22.95	22.99
		CA_66A-66B	Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	Band 66	15M	2121.8	66554	23.19	23.26
			Band 66	15M	1772.5	132597	QPSK	1	0	Band 66	5M	2188.2	67218	Band 66	20M	2155	66886	23.15	23.20
		CA_66A-66C	Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	Band 66	20M	2124.2	66578	23.21	23.26
			Band 66	20M	1770	132572	QPSK	1	0	Band 66	20M	1750.2	132374	Band 66	5M	2112.5	66461	23.18	23.26

<Maximum Average RF Power (Proximity Sensor Active)>

<Two Carrier power verification>

Configure		CA Configuration (BCS)	PCC							SCC				Power	
			LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx. Power (dBm)	Without CA Tx. Power (dBm)
Inter-Band		CA_2A-17A	Band 2	10M	1855	18650	QPSK	1	0	Band 17	10M	740	5790	14.81	14.88
			Band 17	10M	711	23800	QPSK	1	25	Band 2	10M	1960	900	21.21	21.25
		CA_4A-17A	Band 4	10M	1750	20350	QPSK	1	49	Band 17	10M	740	5790	14.17	14.20
			Band 17	10M	711	23800	QPSK	1	25	Band 4	10M	2132.5	2175	21.23	21.25
		CA_5A-7A	Band 5	10M	829	20450	QPSK	1	0	Band 7	20M	2655	3100	18.08	18.12
			Band 7	20M	2560	21350	QPSK	1	0	Band 5	10M	881.5	2525	12.18	12.23
		CA_5A-30A	Band 5	10M	829	20450	QPSK	1	0	Band 30	10M	2355	9820	18.05	18.12
			Band 30	10M	2310	27710	QPSK	1	0	Band 5	10M	881.5	2525	11.38	11.44
		CA_5A-66A	Band 5	10M	829	20450	QPSK	1	0	Band 66	20M	2155	66886	18.08	18.12
			Band 66	20M	1770	132572	QPSK	1	0	Band 5	10M	881.5	2525	14.07	14.15
		CA_7A-12A	Band 7	20M	2560	21350	QPSK	1	0	Band 12	10M	737.5	5095	12.21	12.23
			Band 12	10M	707.5	23095	QPSK	1	0	Band 7	20M	2655	3100	21.23	21.29
		CA_29A-66A	Band 66	20M	1770	132572	QPSK	1	0	Band 29	10M	722.5	9715	14.12	14.15
Intra-Band	Contiguous	CA_2C	Band 2	20M	1880	18900	QPSK	1	0	Band 2	20M	1979.8	1098	14.78	14.83
		CA_5B	Band 5	10M	829	20450	QPSK	1	0	Band 5	10M	883.9	2549	18.05	18.12
		CA_7B	Band 7	15M	2562.5	21375	QPSK	1	0	Band 7	5M	2678.2	3332	12.05	12.11
		CA_7C	Band 7	20M	2560	21350	QPSK	1	0	Band 7	20M	2660.2	3152	12.18	12.23
		CA_41C	Band 41	20M	2636.5	41055	QPSK	1	0	Band 41	20M	2656.3	41253	14.92	14.96
		CA_66B	Band 66	15M	1772.5	132597	QPSK	1	0	Band 66	5M	2188.2	67218	14.09	14.12
		CA_66C	Band 66	20M	1770	132572	QPSK	1	0	Band 66	20M	2170.2	67038	14.05	14.15
	Non-Contiguous	CA_2A_2A	Band 2	20M	1880	18900	QPSK	1	0	Band 2	5M	1932.5	625	14.78	14.83
		CA_4A_4A	Band 4	20M	1745	20300	QPSK	1	99	Band 4	5M	2152.5	2375	14.38	14.21
		CA_5A_5A	Band 5	10M	829	20450	QPSK	1	0	Band 5	5M	891.5	2625	18.10	18.12
		CA_7A_7A	Band 7	20M	2560	21350	QPSK	1	0	Band 7	5M	2622.5	2775	12.19	12.23
		CA_41A_41A	Band 41	20M	2636.5	41055	QPSK	1	0	Band 41	5M	2498.5	39675	14.92	14.96
		CA_66A_66A	Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	14.13	14.15

<Three Carrier power verification>

Configure	CA Configuration (BCS)	PCC							SCC1				SCC2				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx. Power (dBm)	Without CA Tx. Power (dBm)
Inter-Band	CA_2A-2A-5A	Band 2	20M	1880	18900	QPSK	1	0	Band 2	5M	1987.5	1175	Band 5	10M	881.5	2525	14.81	14.83
		Band 5	10M	829	20450	QPSK	1	0	Band 2	20M	1960	900	Band 2	5M	1987.5	1175	18.12	18.12
	CA_4A-4A-5A	Band 4	20M	1745	20300	QPSK	1	99	Band 4	5M	2112.5	1975	Band 5	10M	881.5	2525	14.21	14.21
		Band 5	10M	829	20450	QPSK	1	0	Band 4	20M	2132.5	2175	Band 4	5M	2152.5	2375	18.08	18.12
	CA_4A-4A-12A	Band 4	20M	1745	20300	QPSK	1	99	Band 4	5M	2112.5	1975	Band 12	10M	737.5	5095	14.18	14.21
		Band 12	10M	707.5	23095	QPSK	1	0	Band 4	20M	2132.5	2175	Band 4	5M	2152.5	2375	21.26	21.29
	CA_2A-2A-13A	Band 2	20M	1880	18900	QPSK	1	0	Band 2	5M	1987.5	1175	Band 13	10M	751	5230	14.78	14.83
		Band 13	10M	782	23230	QPSK	1	0	Band 2	20M	1960	900	Band 2	5M	1987.5	1175	18.05	18.09
	CA_4A-4A-13A	Band 4	20M	1745	20300	QPSK	1	99	Band 4	5M	2112.5	1975	Band 13	10M	751	5230	14.18	14.21
		Band 13	10M	782	23230	QPSK	1	0	Band 4	20M	2132.5	2175	Band 4	5M	2152.5	2375	18.05	18.09
	CA_2A-66A-66A	Band 2	20M	1880	18900	QPSK	1	0	Band 66	20M	2155	66886	Band 66	5M	2197.5	67311	14.82	14.83
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	Band 2	20M	1960	900	14.08	14.15
	CA_13A-66A-66A	Band 13	10M	782	23230	QPSK	1	0	Band 66	20M	2155	66886	Band 66	5M	2197.5	67311	18.05	18.09
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	Band 13	10M	751	5230	14.08	14.15
	CA_5A-66A-66A	Band 5	10M	829	20450	QPSK	1	0	Band 66	20M	2155	66886	Band 66	5M	2197.5	67311	18.08	18.12
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	Band 5	10M	881.5	2525	14.14	14.15
	CA_2C-5A	Band 2	20M	1880	18900	QPSK	1	0	Band 2	20M	1979.8	1098	Band 5	10M	881.5	2525	14.81	14.83
		Band 5	10M	829	20450	QPSK	1	0	Band 2	20M	1960	900	Band 2	20M	1979.8	1098	18.08	18.12
	CA_2A-66B	Band 2	20M	1880	18900	QPSK	1	0	Band 66	15M	2155	66886	Band 66	5M	2164.3	66979	14.78	14.83
		Band 66	15M	1772.5	132597	QPSK	1	0	Band 66	5M	2188.2	67218	Band 2	20M	1960	900	14.05	14.12
	CA_2A-66C	Band 2	20M	1880	18900	QPSK	1	0	Band 66	20M	2155	66886	Band 66	20M	2174.8	67084	14.81	14.83
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	20M	2170.2	67038	Band 2	20M	1960	900	14.08	14.15
	CA_5A-66B	Band 5	10M	829	20450	QPSK	1	0	Band 66	15M	2155	66886	Band 66	5M	2164.3	66979	18.08	18.12
		Band 66	15M	1772.5	132597	QPSK	1	0	Band 66	5M	2188.2	67218	Band 5	10M	881.5	2525	14.07	14.12
	CA_5A-66C	Band 5	10M	829	20450	QPSK	1	0	Band 66	20M	2155	66886	Band 66	20M	2174.8	67084	18.05	18.12
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	20M	2170.2	67038	Band 5	10M	881.5	2525	14.13	14.15
	CA_13A-66B	Band 13	10M	782	23230	QPSK	1	0	Band 66	15M	2155	66886	Band 66	5M	2164.3	66979	18.05	18.09
		Band 66	15M	1772.5	132597	QPSK	1	0	Band 66	5M	2188.2	67218	Band 13	10M	751	5230	14.08	14.12
	CA_13A-66C	Band 13	10M	782	23230	QPSK	1	0	Band 66	20M	2155	66886	Band 66	20M	2174.8	67084	18.04	18.09
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	20M	2170.2	67038	Band 13	10M	751	5230	14.12	14.15

Configure		CA Configuration (BCS)	PCC							SCC1					SCC2				Power	
			LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx. Power (dBm)	Without CA Tx. Power (dBm)
Inter-Band		CA_2A-4A-5A	Band 2	20M	1880	18900	QPSK	1	0	Band 4	20M	2132.5	2175	Band 5	10M	881.5	2525	14.81	14.83
			Band 4	20M	1745	20300	QPSK	1	99	Band 5	10M	881.5	2525	Band 2	20M	1960	900	14.18	14.21
			Band 5	10M	829	20450	QPSK	1	0	Band 2	20M	1960	900	Band 4	20M	2132.5	2175	18.01	18.12
		CA_2A-4A-12A	Band 2	20M	1880	18900	QPSK	1	0	Band 4	20M	2132.5	2175	Band 12	10M	737.5	5095	14.81	14.83
			Band 4	20M	1745	20300	QPSK	1	99	Band 12	10M	737.5	5095	Band 2	20M	1960	900	14.05	14.21
			Band 12	10M	707.5	23095	QPSK	1	0	Band 2	20M	1960	900	Band 4	20M	2132.5	2175	21.23	21.29
		CA_2A-4A-13A	Band 2	20M	1880	18900	QPSK	1	0	Band 4	20M	2132.5	2175	Band 13	10M	751	5230	18.35	18.43
			Band 4	20M	1745	20300	QPSK	1	99	Band 13	10M	751	5230	Band 2	20M	1960	900	14.09	14.21
			Band 13	10M	782	23230	QPSK	1	0	Band 2	20M	1960	900	Band 4	20M	2132.5	2175	18.01	18.09
		CA_2A-29A-30A	Band 2	20M	1880	18900	QPSK	1	0	Band 29	10M	722.5	9715	Band 30	10M	2355	9820	14.82	14.83
			Band 30	10M	2310	27710	QPSK	1	0	Band 2	20M	1960	900	Band 29	10M	722.5	9715	11.38	11.44
		CA_2A-4A-29A	Band 2	20M	1880	18900	QPSK	1	0	Band 4	20M	2132.5	2175	Band 29	10M	722.5	9715	14.82	14.83
			Band 4	20M	1745	20300	QPSK	1	99	Band 29	10M	722.5	9715	Band 2	20M	1960	900	14.08	14.21
		CA_2A-4A-30A	Band 2	20M	1880	18900	QPSK	1	0	Band 4	20M	2132.5	2175	Band 30	10M	2355	9820	14.78	14.83
			Band 4	20M	1732.5	20175	QPSK	1	99	Band 30	10M	2355	9820	Band 2	20M	1960	900	14.18	14.21
			Band 30	10M	2310	27710	QPSK	1	0	Band 2	20M	1960	900	Band 4	20M	2132.5	2175	11.38	11.44
		CA_2A-12A-30A	Band 2	20M	1880	18900	QPSK	1	0	Band 12	10M	737.5	5095	Band 30	10M	2355	9820	14.81	14.83
			Band 12	10M	707.5	23095	QPSK	1	0	Band 30	10M	2355	9820	Band 2	20M	1960	900	21.25	21.29
			Band 30	10M	2310	27710	QPSK	1	0	Band 2	20M	1960	900	Band 12	10M	737.5	5095	11.36	11.44
		CA_2A-5A-30A	Band 2	20M	1880	18900	QPSK	1	0	Band 5	10M	881.5	2525	Band 30	10M	2355	9820	14.75	14.83
			Band 5	10M	829	20450	QPSK	1	0	Band 30	10M	2355	9820	Band 2	20M	1960	900	18.09	18.12
			Band 30	10M	2310	27710	QPSK	1	0	Band 2	20M	1960	900	Band 5	10M	881.5	2525	11.35	11.44
		CA_2A-5A-66A	Band 2	20M	1880	18900	QPSK	1	0	Band 5	10M	881.5	2525	Band 66	20M	2155	66886	14.78	14.83
			Band 5	10M	829	20450	QPSK	1	0	Band 66	20M	2155	66886	Band 2	20M	1960	900	18.08	18.12
			Band 66	20M	1770	132572	QPSK	1	0	Band 2	20M	1960	900	Band 5	10M	881.5	2525	14.05	14.15
		CA_2A-12A-66A	Band 2	20M	1880	18900	QPSK	1	0	Band 12	10M	737.5	5095	Band 66	20M	2155	66886	14.82	14.83
			Band 12	10M	707.5	23095	QPSK	1	0	Band 66	20M	2155	66886	Band 2	20M	1960	900	21.25	21.29
			Band 66	20M	1770	132572	QPSK	1	0	Band 2	20M	1960	900	Band 12	10M	737.5	5095	14.15	14.15
		CA_2A-13A-66A	Band 2	20M	1880	18900	QPSK	1	0	Band 13	10M	751	5230	Band 66	20M	2155	66886	14.72	14.83
			Band 13	10M	782	23230	QPSK	1	0	Band 66	20M	2155	66886	Band 2	20M	1960	900	18.05	18.09
			Band 66	20M	1770	132572	QPSK	1	0	Band 2	20M	1960	900	Band 13	10M	751	5230	14.13	14.15
		CA_4A-29A-30A	Band 4	20M	1732.5	20175	QPSK	1	99	Band 29	10M	722.5	9715	Band 30	10M	2355	9820	14.13	14.21
			Band 30	10M	2310	27710	QPSK	1	0	Band 4	20M	2132.5	2175	Band 29	10M	722.5	9715	11.35	11.44
		CA_4A-5A-30A	Band 4	20M	1732.5	20175	QPSK	1	99	Band 5	10M	881.5	2525	Band 30	10M	2355	9820	14.2	14.21
			Band 5	10M	829	20450	QPSK	1	0	Band 30	10M	2355	9820	Band 4	20M	2132.5	2175	18.08	18.12
			Band 30	10M	2310	27710	QPSK	1	0	Band 4	20M	2132.5	2175	Band 5	10M	881.5	2525	11.35	11.44
		CA_4A-12A-30A	Band 4	20M	1732.5	20175	QPSK	1	99	Band 12	10M	737.5	5095	Band 30	10M	2355	9820	14.2	14.21
			Band 12	10M	707.5	23095	QPSK	1	0	Band 30	10M	2355	9820	Band 4	20M	2132.5	2175	21.21	21.29
			Band 30	10M	2310	27710	QPSK	1	0	Band 4	20M	2132.5	2175	Band 12	10M	737.5	5095	11.36	11.44
Intra-Band	Contiguous	CA_41D	Band 41	20M	2636.5	41055	QPSK	1	0	Band 41	20M	2656.3	41253	Band 41	20M	2676.1	41451	14.88	14.96
		CA_61D	Band 66	20M	1770	132572	QPSK	1	0	Band 66	20M	2170.2	67038	Band 66	20M	2150.4	66840	14.09	14.15
	Non-Contiguous	CA_41A_41A_41A	Band 41	20M	2636.5	41055	QPSK	1	0	Band 41	5M	2498.5	39675	Band 41	20M	2506	39750	14.95	14.96
		CA_66A_66A_66A	Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	Band 66	20M	2155	66886	14.09	14.15
		CA_41A-41C	Band 41	20M	2636.5	41055	QPSK	1	0	Band 41	5M	2498.5	39675	Band 41	20M	2510.2	39792	14.89	14.96
			Band 41	20M	2636.5	41055	QPSK	1	0	Band 41	20M	2656.3	41253	Band 41	5M	2498.5	39675	14.92	14.96
		CA_66A-66B	Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	Band 66	15M	2121.8	66554	14.08	14.15
			Band 66	15M	1772.5	132597	QPSK	1	0	Band 66	5M	2188.2	67218	Band 66	20M	2155	66886	14.11	14.12
		CA_66A-66C	Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	Band 66	20M	2124.2	66578	14.13	14.15
			Band 66	20M	1770	132572	QPSK	1	0	Band 66	20M	1750.2	132374	Band 66	5M	2112.5	66461	14.10	14.15

<WLAN Conducted Power>

General Note:

1. For each antenna, transmit power in SISO operation is larger than (or equal to) the power in MIMO operation, RF exposure compliance of MIMO mode can be deduced from the compliance simultaneous transmission of antennas operating in SISO mode.
2. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
3. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
4. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
5. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
    a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
    b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
    c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

<Maximum Average RF Power (Proximity Sensor Inactive)>

<2.4GHz WLAN Ant.1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	13.79	14.50	100
		6	2437	13.67	14.50	
		11	2462	13.66	14.50	
		12	2467	13.68	14.50	
		13	2472	8.19	10.00	
	802.11g 6Mbps	1	2412	13.76	14.00	94.63
		6	2437	13.62	14.00	
		11	2462	13.68	14.00	
		12	2467	11.39	12.00	
		13	2472	-2.57	-2.00	
	802.11n-HT20 MCS0	1	2412	13.71	14.00	95.08
		6	2437	13.68	14.00	
		11	2462	13.75	14.00	
		12	2467	10.80	11.00	
		13	2472	-2.70	-2.00	
	802.11n-HT40 MCS0	3	2422	13.77	14.00	83.94
		6	2437	13.68	14.00	
		9	2452	13.73	14.00	
		10	2457	12.32	13.00	
		11	2462	-2.82	-2.00	

<2.4GHz WLAN Ant.2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	13.81	14.50	100
		6	2437	13.72	14.50	
		11	2462	13.75	14.50	
		12	2467	13.64	14.50	
		13	2472	8.41	10.00	
	802.11g 6Mbps	1	2412	13.77	14.00	94.63
		6	2437	13.71	14.00	
		11	2462	13.65	14.00	
		12	2467	10.36	11.00	
		13	2472	-2.74	-2.00	
	802.11n-HT20 MCS0	1	2412	13.76	14.00	95.64
		6	2437	13.61	14.00	
		11	2462	13.67	14.00	
		12	2467	10.61	11.00	
		13	2472	-2.92	-2.00	
	802.11n-HT40 MCS0	3	2422	13.79	14.00	84.31
		6	2437	13.70	14.00	
		9	2452	13.62	14.00	
		10	2457	12.62	13.00	
		11	2462	-2.84	-2.00	

<2.4GHz WLAN Ant.1+2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11n-HT20 MCS0	1	2412	16.76	17.50	84.25
		6	2437	16.72	17.50	
		11	2462	16.69	17.50	
		12	2467	13.49	14.50	
		13	2472	-3.09	-2.50	
	802.11n-HT40 MCS0	3	2422	16.73	17.50	83.70
		6	2437	16.73	17.50	
		9	2452	16.67	17.50	
		10	2457	13.54	14.50	
		11	2462	-1.85	-1.50	

<5GHz WLAN Ant.1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	16.82	18.50	94.65
		40	5200	18.80	19.50	
		44	5220	18.82	19.50	
		48	5240	18.32	19.50	
	802.11n-HT20 MCS0	36	5180	16.73	18.00	95.65
		40	5200	18.78	19.00	
		44	5220	18.81	19.00	
		48	5240	18.25	19.00	
	802.11n-HT40 MCS0	38	5190	16.80	18.00	84.31
		46	5230	18.82	19.00	
	802.11ac-VHT20 MCS0	36	5180	16.68	18.00	95.31
		40	5200	18.75	19.00	
		44	5220	18.76	19.00	
		48	5240	18.22	19.00	
	802.11ac-VHT40 MCS0	38	5190	16.70	18.00	84.42
		46	5230	18.78	19.00	
	802.11ac-VHT80 MCS0	42	5210	12.79	14.00	83.82

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	18.80	19.50	94.65
		56	5280	18.77	19.50	
		60	5300	18.83	19.50	
		64	5320	14.85	16.00	
	802.11n-HT20 MCS0	52	5260	18.82	19.00	95.65
		56	5280	18.76	19.00	
		60	5300	18.80	19.00	
		64	5320	14.77	16.00	
	802.11n-HT40 MCS0	54	5270	18.79	19.00	84.31
		62	5310	13.26	15.00	
	802.11ac-VHT20 MCS0	52	5260	18.78	19.00	95.31
		56	5280	18.73	19.00	
		60	5300	18.75	19.00	
		64	5320	14.75	16.00	
	802.11ac-VHT40 MCS0	54	5270	18.75	19.00	84.42
		62	5310	13.25	15.00	
	802.11ac-VHT80 MCS0	58	5290	10.84	12.00	83.82

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	15.23	17.00	94.65
		116	5580	18.86	19.50	
		124	5620	18.77	19.50	
		132	5660	18.83	19.50	
		140	5700	14.81	16.00	
		144	5720	18.72	19.50	
	802.11n-HT20 MCS0	100	5500	15.27	17.00	95.65
		116	5580	18.74	19.00	
		124	5620	18.68	19.00	
		132	5660	18.84	19.00	
		140	5700	14.82	16.00	
		144	5720	18.83	19.00	
	802.11n-HT40 MCS0	102	5510	15.21	17.00	84.31
		110	5550	18.78	19.00	
		126	5630	18.80	19.00	
		134	5670	15.72	17.00	
		142	5710	18.82	19.00	
	802.11ac-VHT20 MCS0	100	5500	15.22	17.00	95.31
		116	5580	18.67	19.00	
		124	5620	18.59	19.00	
		132	5660	18.77	19.00	
		140	5700	14.77	16.00	
		144	5720	18.76	19.00	
	802.11ac-VHT40 MCS0	102	5510	15.09	17.00	84.42
		110	5550	18.66	19.00	
		126	5630	18.68	19.00	
		134	5670	15.67	17.00	
		142	5710	18.76	19.00	
	802.11ac-VHT80 MCS0	106	5530	12.24	14.00	83.82
		122	5610	16.23	18.00	
		138	5690	18.80	19.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	18.77	19.50	94.65
		157	5785	18.72	19.50	
		165	5825	18.85	19.50	
	802.11n-HT20 MCS0	149	5745	18.80	19.00	95.65
		157	5785	18.76	19.00	
		165	5825	18.85	19.00	
	802.11n-HT40 MCS0	151	5755	18.73	19.00	84.31
		159	5795	18.83	19.00	
	802.11ac-VHT20 MCS0	149	5745	18.72	19.00	95.31
		157	5785	18.69	19.00	
		165	5825	18.74	19.00	
	802.11ac-VHT40 MCS0	151	5755	18.70	19.00	84.42
		159	5795	18.76	19.00	
	802.11ac-VHT80 MCS0	155	5775	16.29	18.00	83.82

<5GHz WLAN Ant.2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	16.30	18.00	94.53
		40	5200	18.35	19.50	
		44	5220	18.81	19.50	
		48	5240	18.28	19.50	
	802.11n-HT20 MCS0	36	5180	16.26	18.00	95.86
		40	5200	18.31	19.00	
		44	5220	18.80	19.00	
		48	5240	18.29	19.00	
	802.11n-HT40 MCS0	38	5190	16.80	18.00	84.63
		46	5230	18.70	19.00	
	802.11ac-VHT20 MCS0	36	5180	16.23	18.00	95.51
		40	5200	18.27	19.00	
		44	5220	18.75	19.00	
		48	5240	18.25	19.00	
	802.11ac-VHT40 MCS0	38	5190	16.76	18.00	84.73
		46	5230	18.66	19.00	
	802.11ac-VHT80 MCS0	42	5210	12.81	14.00	83.68

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	18.83	19.50	94.53
		56	5280	18.75	19.50	
		60	5300	18.80	19.50	
		64	5320	15.23	17.00	
	802.11n-HT20 MCS0	52	5260	18.85	19.00	95.86
		56	5280	18.80	19.00	
		60	5300	18.84	19.00	
		64	5320	15.26	17.00	
	802.11n-HT40 MCS0	54	5270	18.74	19.00	84.63
		62	5310	13.77	15.00	
	802.11ac-VHT20 MCS0	52	5260	18.76	19.00	95.51
		56	5280	18.72	19.00	
		60	5300	18.71	19.00	
		64	5320	15.14	17.00	
	802.11ac-VHT40 MCS0	54	5270	18.67	19.00	84.73
		62	5310	13.70	15.00	
	802.11ac-VHT80 MCS0	58	5290	10.75	12.00	83.68

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	16.31	18.00	94.53
		116	5580	18.73	19.50	
		124	5620	18.78	19.50	
		132	5660	18.71	19.50	
		140	5700	14.76	16.00	
		144	5720	18.85	19.50	
	802.11n-HT20 MCS0	100	5500	16.25	18.00	95.86
		116	5580	18.77	19.00	
		124	5620	18.73	19.00	
		132	5660	18.72	19.00	
		140	5700	14.79	16.00	
		144	5720	18.74	19.00	
	802.11n-HT40 MCS0	102	5510	15.23	17.00	84.63
		110	5550	18.79	19.00	
		126	5630	18.78	19.00	
		134	5670	15.81	17.00	
		142	5710	18.74	19.00	
	802.11ac-VHT20 MCS0	100	5500	16.16	18.00	95.51
		116	5580	18.73	19.00	
		124	5620	18.72	19.00	
		132	5660	18.64	19.00	
		140	5700	14.73	16.00	
		144	5720	18.67	19.00	
	802.11ac-VHT40 MCS0	102	5510	15.17	17.00	84.73
		110	5550	18.76	19.00	
		126	5630	18.75	19.00	
		134	5670	15.74	17.00	
		142	5710	18.70	19.00	
	802.11ac-VHT80 MCS0	106	5530	12.78	14.00	83.68
		122	5610	17.34	18.00	
		138	5690	18.82	19.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	18.82	19.50	94.53
		157	5785	18.76	19.50	
		165	5825	18.83	19.50	
	802.11n-HT20 MCS0	149	5745	18.77	19.00	95.86
		157	5785	18.81	19.00	
		165	5825	18.83	19.00	
	802.11n-HT40 MCS0	151	5755	18.80	19.00	84.63
		159	5795	18.76	19.00	
	802.11ac-VHT20 MCS0	149	5745	18.72	19.00	95.51
		157	5785	18.76	19.00	
		165	5825	18.80	19.00	
	802.11ac-VHT40 MCS0	151	5755	18.74	19.00	84.73
		159	5795	18.67	19.00	
	802.11ac-VHT80 MCS0	155	5775	16.22	18.00	83.68

<5GHz WLAN Ant.1+2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11n-HT20 MCS0	36	5180	17.79	19.50	84.75
		40	5200	19.76	21.50	
		44	5220	19.76	21.50	
		48	5240	19.73	21.50	
	802.11n-HT40 MCS0	38	5190	15.28	17.00	83.37
		46	5230	19.81	21.50	
	802.11ac-VHT20 MCS0	36	5180	17.75	19.50	91.17
		40	5200	19.70	21.50	
		44	5220	19.71	21.50	
		48	5240	19.63	21.50	
	802.11ac-VHT40 MCS0	38	5190	15.23	17.00	91.00
		46	5230	19.75	21.50	
	802.11ac-VHT80 MCS0	42	5210	13.79	14.00	89.89

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11n-HT20 MCS0	52	5260	19.76	21.50	84.75
		56	5280	19.75	21.50	
		60	5300	19.83	21.50	
		64	5320	17.24	19.00	
	802.11n-HT40 MCS0	54	5270	19.79	21.50	83.37
		62	5310	13.80	15.50	
	802.11ac-VHT20 MCS0	52	5260	19.72	21.50	91.17
		56	5280	19.71	21.50	
		60	5300	19.80	21.50	
		64	5320	17.17	19.00	
	802.11ac-VHT40 MCS0	54	5270	19.74	21.50	91.00
		62	5310	13.69	15.50	
	802.11ac-VHT80 MCS0	58	5290	12.28	14.00	89.89

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11n-HT20 MCS0	100	5500	17.75	19.50	84.75
		116	5580	19.75	21.50	
		124	5620	19.76	21.50	
		132	5660	19.75	21.50	
		140	5700	15.77	17.50	
		144	5720	19.80	21.50	
	802.11n-HT40 MCS0	102	5510	13.80	15.50	83.37
		110	5550	19.81	21.50	
		126	5630	19.75	21.50	
		134	5670	18.27	20.00	
		142	5710	19.80	21.50	
	802.11ac-VHT20 MCS0	100	5500	17.70	19.50	91.17
		116	5580	19.69	21.50	
		124	5620	19.73	21.50	
		132	5660	19.67	21.50	
		140	5700	15.68	17.50	
		144	5720	19.74	21.50	
	802.11ac-VHT40 MCS0	102	5510	13.70	15.50	91.00
		110	5550	19.77	21.50	
		126	5630	19.69	21.50	
		134	5670	18.19	20.00	
		142	5710	19.73	21.50	
	802.11ac-VHT80 MCS0	106	5530	12.24	14.00	89.89
		122	5610	19.79	21.50	
		138	5690	20.74	21.50	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11n-HT20 MCS0	149	5745	20.76	21.50	84.75
		157	5785	20.73	21.50	
		165	5825	20.78	21.50	
	802.11n-HT40 MCS0	151	5755	20.76	21.50	83.37
		159	5795	20.78	21.50	
	802.11ac-VHT20 MCS0	149	5745	20.69	21.50	91.17
		157	5785	20.66	21.50	
		165	5825	20.72	21.50	
	802.11ac-VHT40 MCS0	151	5755	20.70	21.50	91
		159	5795	20.68	21.50	
	802.11ac-VHT80 MCS0	155	5775	18.77	20.50	89.89

<Maximum Average RF Power (Proximity Sensor Active)>

<2.4GHz WLAN Ant.1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	11.98	13.00	100
		6	2437	12.15	13.00	
		11	2462	12.18	13.00	
		12	2467	12.13	13.00	
		13	2472	8.19	10.00	
	802.11g 6Mbps	1	2412	11.71	12.50	94.67
		6	2437	11.86	12.50	
		11	2462	11.92	12.50	
		12	2467	11.39	12.00	
		13	2472	-2.57	-2.00	
	802.11n-HT20 MCS0	1	2412	11.74	12.50	95.65
		6	2437	11.90	12.50	
		11	2462	11.92	12.50	
		12	2467	10.80	11.00	
		13	2472	-2.70	-2.00	
	802.11n-HT40 MCS0	3	2422	11.75	12.50	84.31
		6	2437	11.89	12.50	
		9	2452	11.92	12.50	
		10	2457	10.32	11.00	
		11	2462	-2.82	-2.00	

<2.4GHz WLAN Ant.2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	13.05	13.50	100
		6	2437	12.78	13.50	
		11	2462	12.66	13.50	
		12	2467	12.21	13.50	
		13	2472	8.41	10.00	
	802.11g 6Mbps	1	2412	12.76	13.00	94.63
		6	2437	12.51	13.00	
		11	2462	12.43	13.00	
		12	2467	10.36	11.00	
		13	2472	-2.74	-2.00	
	802.11n-HT20 MCS0	1	2412	12.76	13.00	95.65
		6	2437	12.52	13.00	
		11	2462	12.41	13.00	
		12	2467	10.61	11.00	
		13	2472	-2.92	-2.00	
	802.11n-HT40 MCS0	3	2422	12.77	13.00	84.31
		6	2437	12.54	13.00	
		9	2452	12.42	13.00	
		10	2457	10.62	11.00	
		11	2462	-2.84	-2.00	

<2.4GHz WLAN Ant.1+2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11n-HT20 MCS0	1	2412	14.50	16.00	84.25
		6	2437	14.66	16.00	
		11	2462	14.65	16.00	
		12	2467	13.49	14.50	
		13	2472	-3.09	-2.50	
	802.11n-HT40 MCS0	3	2422	14.54	15.00	83.70
		6	2437	14.59	15.00	
		9	2452	14.66	15.00	
		10	2457	13.54	14.50	
		11	2462	-1.85	-1.50	

<5GHz WLAN Ant.1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	8.30	8.50	94.65
		40	5200	8.38	8.50	
		44	5220	8.42	8.50	
		48	5240	8.25	8.50	
	802.11n-HT20 MCS0	36	5180	8.08	8.40	95.65
		40	5200	8.14	8.40	
		44	5220	8.17	8.40	
		48	5240	7.98	8.40	
	802.11n-HT40 MCS0	38	5190	8.10	8.40	84.31
		46	5230	8.16	8.40	
	802.11ac-VHT20 MCS0	36	5180	8.05	8.40	95.31
		40	5200	8.11	8.40	
		44	5220	8.16	8.40	
		48	5240	7.96	8.40	
	802.11ac-VHT40 MCS0	38	5190	8.09	8.40	84.42
		46	5230	8.14	8.40	
	802.11ac-VHT80 MCS0	42	5210	8.20	8.40	83.82

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	8.18	8.50	94.65
		56	5280	8.11	8.50	
		60	5300	8.02	8.50	
		64	5320	8.08	8.50	
	802.11n-HT20 MCS0	52	5260	7.90	8.40	95.65
		56	5280	7.88	8.40	
		60	5300	7.76	8.40	
		64	5320	7.80	8.40	
	802.11n-HT40 MCS0	54	5270	7.93	8.40	84.31
		62	5310	7.85	8.40	
	802.11ac-VHT20 MCS0	52	5260	7.89	8.40	95.31
		56	5280	7.86	8.40	
		60	5300	7.75	8.40	
		64	5320	7.78	8.40	
	802.11ac-VHT40 MCS0	54	5270	7.90	8.40	84.42
		62	5310	7.77	8.40	
	802.11ac-VHT80 MCS0	58	5290	7.93	8.40	83.82

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	8.45	8.80	94.65
		116	5580	8.28	8.80	
		124	5620	7.95	8.80	
		132	5660	8.11	8.80	
		140	5700	8.02	8.80	
		144	5720	7.93	8.80	
	802.11n-HT20 MCS0	100	5500	8.20	8.30	95.65
		116	5580	7.99	8.30	
		124	5620	7.67	8.30	
		132	5660	7.82	8.30	
		140	5700	7.76	8.30	
		144	5720	7.71	8.30	
	802.11n-HT40 MCS0	102	5510	8.27	8.30	84.31
		110	5550	8.23	8.30	
		126	5630	7.81	8.30	
		134	5670	7.85	8.30	
		142	5710	7.83	8.30	
	802.11ac-VHT20 MCS0	100	5500	8.19	8.30	95.31
		116	5580	7.98	8.30	
		124	5620	7.64	8.30	
		132	5660	7.81	8.30	
		140	5700	7.73	8.30	
		144	5720	7.69	8.30	
	802.11ac-VHT40 MCS0	102	5510	8.26	8.30	84.42
		110	5550	8.22	8.30	
		126	5630	7.79	8.30	
		134	5670	7.82	8.30	
		142	5710	7.80	8.30	
	802.11ac-VHT80 MCS0	106	5530	8.25	8.30	83.82
		122	5610	7.90	8.30	
		138	5690	7.74	8.30	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	7.75	9.00	94.65
		157	5785	7.79	9.00	
		165	5825	8.02	9.00	
	802.11n-HT20 MCS0	149	5745	7.48	8.50	95.65
		157	5785	7.52	8.50	
		165	5825	7.80	8.50	
	802.11n-HT40 MCS0	151	5755	7.57	8.50	84.31
		159	5795	7.77	8.50	
	802.11ac-VHT20 MCS0	149	5745	7.45	8.50	95.31
		157	5785	7.51	8.50	
		165	5825	7.78	8.50	
	802.11ac-VHT40 MCS0	151	5755	7.56	8.50	84.42
		159	5795	7.76	8.50	
	802.11ac-VHT80 MCS0	155	5775	7.71	8.50	83.82

<5GHz WLAN Ant.2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	8.67	9.00	94.53
		40	5200	8.55	9.00	
		44	5220	8.57	9.00	
		48	5240	8.58	9.00	
	802.11n-HT20 MCS0	36	5180	8.45	8.50	95.86
		40	5200	8.40	8.50	
		44	5220	8.34	8.50	
		48	5240	8.37	8.50	
	802.11n-HT40 MCS0	38	5190	8.45	8.50	84.63
		46	5230	8.32	8.50	
	802.11ac-VHT20 MCS0	36	5180	8.43	8.50	95.51
		40	5200	8.38	8.50	
		44	5220	8.33	8.50	
		48	5240	8.34	8.50	
	802.11ac-VHT40 MCS0	38	5190	8.41	8.50	84.73
		46	5230	8.30	8.50	
	802.11ac-VHT80 MCS0	42	5210	8.20	8.50	83.63

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	8.56	9.00	94.53
		56	5280	8.59	9.00	
		60	5300	8.64	9.00	
		64	5320	8.77	9.00	
	802.11n-HT20 MCS0	52	5260	8.33	8.60	95.64
		56	5280	8.37	8.60	
		60	5300	8.41	8.60	
		64	5320	8.53	8.60	
	802.11n-HT40 MCS0	54	5270	8.41	8.60	84.42
		62	5310	8.55	8.60	
	802.11ac-VHT20 MCS0	52	5260	8.32	8.60	95.67
		56	5280	8.36	8.60	
		60	5300	8.39	8.60	
		64	5320	8.52	8.60	
	802.11ac-VHT40 MCS0	54	5270	8.38	8.60	84.42
		62	5310	8.54	8.60	
	802.11ac-VHT80 MCS0	58	5290	7.93	8.60	84.13

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	8.56	9.00	94.53
		116	5580	8.49	9.00	
		124	5620	7.97	9.00	
		132	5660	8.65	9.00	
		140	5700	8.37	9.00	
		144	5720	8.55	9.00	
	802.11n-HT20 MCS0	100	5500	8.31	8.50	95.86
		116	5580	8.26	8.50	
		124	5620	7.72	8.50	
		132	5660	8.37	8.50	
		140	5700	8.17	8.50	
		144	5720	8.31	8.50	
	802.11n-HT40 MCS0	102	5510	8.35	8.50	84.63
		110	5550	8.38	8.50	
		126	5630	7.79	8.50	
		134	5670	8.44	8.50	
		142	5710	8.26	8.50	
	802.11ac-VHT20 MCS0	100	5500	8.30	8.50	95.51
		116	5580	8.23	8.50	
		124	5620	7.71	8.50	
		132	5660	8.36	8.50	
		140	5700	8.15	8.50	
		144	5720	8.28	8.50	
	802.11ac-VHT40 MCS0	102	5510	8.33	8.50	84.73
		110	5550	8.36	8.50	
		126	5630	7.77	8.50	
		134	5670	8.43	8.50	
		142	5710	8.24	8.50	
	802.11ac-VHT80 MCS0	106	5530	8.25	8.50	83.63
		122	5610	7.90	8.50	
		138	5690	7.74	8.50	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	8.77	9.00	94.53
		157	5785	8.74	9.00	
		165	5825	8.71	9.00	
	802.11n-HT20 MCS0	149	5745	8.54	8.60	95.86
		157	5785	8.51	8.60	
		165	5825	8.47	8.60	
	802.11n-HT40 MCS0	151	5755	8.53	8.60	84.63
		159	5795	8.55	8.60	
	802.11ac-VHT20 MCS0	149	5745	8.53	8.60	95.51
		157	5785	8.50	8.60	
		165	5825	8.45	8.60	
	802.11ac-VHT40 MCS0	151	5755	8.50	8.60	84.73
		159	5795	8.53	8.60	
	802.11ac-VHT80 MCS0	155	5775	7.71	8.60	83.63

<5GHz WLAN Ant.1+2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11n-HT20 MCS0	36	5180	10.93	11.50	84.75
		40	5200	10.90	11.50	
		44	5220	10.77	11.50	
		48	5240	10.73	11.50	
	802.11n-HT40 MCS0	38	5190	10.91	11.50	83.37
		46	5230	10.90	11.50	
	802.11ac-VHT20 MCS0	36	5180	10.89	11.50	91.17
		40	5200	10.88	11.50	
		44	5220	10.74	11.50	
		48	5240	10.70	11.50	
	802.11ac-VHT40 MCS0	38	5190	10.88	11.50	91
		46	5230	10.87	11.50	
	802.11ac-VHT80 MCS0	42	5210	10.97	11.50	89.89

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11n-HT20 MCS0	52	5260	10.65	11.50	84.75
		56	5280	10.59	11.50	
		60	5300	10.62	11.50	
		64	5320	10.66	11.50	
	802.11n-HT40 MCS0	54	5270	10.70	11.50	83.37
		62	5310	10.71	11.50	
	802.11ac-VHT20 MCS0	52	5260	10.63	11.50	91.17
		56	5280	10.57	11.50	
		60	5300	10.60	11.50	
		64	5320	10.65	11.50	
	802.11ac-VHT40 MCS0	54	5270	10.67	11.50	91
		62	5310	10.68	11.50	
	802.11ac-VHT80 MCS0	58	5290	10.68	11.50	89.89

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11n-HT20 MCS0	100	5500	10.86	11.80	84.75
		116	5580	10.75	11.80	
		124	5620	10.30	11.80	
		132	5660	10.79	11.80	
		140	5700	10.61	11.80	
		144	5720	10.68	11.80	
	802.11n-HT40 MCS0	102	5510	11.02	11.80	83.37
		110	5550	10.96	11.80	
		126	5630	10.42	11.80	
		134	5670	10.79	11.80	
		142	5710	10.71	11.80	
	802.11ac-VHT20 MCS0	100	5500	10.84	11.80	91.17
		116	5580	10.72	11.80	
		124	5620	10.28	11.80	
		132	5660	10.75	11.80	
		140	5700	10.58	11.80	
		144	5720	10.66	11.80	
	802.11ac-VHT40 MCS0	102	5510	10.99	11.80	91
		110	5550	10.94	11.80	
		126	5630	10.40	11.80	
		134	5670	10.78	11.80	
		142	5710	10.67	11.80	
	802.11ac-VHT80 MCS0	106	5530	10.97	11.80	89.89
		122	5610	10.51	11.80	
		138	5690	10.71	11.80	

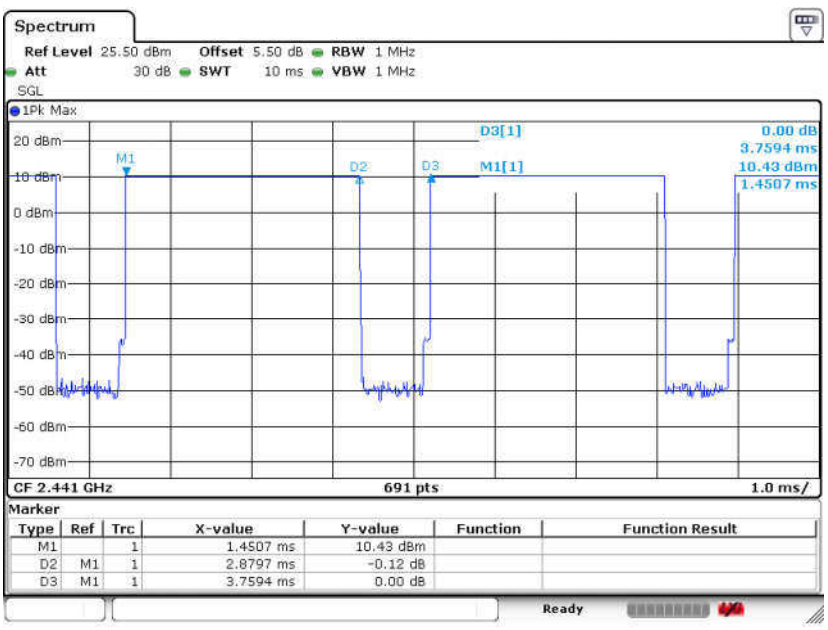
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11n-HT20 MCS0	149	5745	10.57	12.00	84.75
		157	5785	10.56	12.00	
		165	5825	10.59	12.00	
	802.11n-HT40 MCS0	151	5755	10.54	12.00	83.37
		159	5795	10.59	12.00	
	802.11ac-VHT20 MCS0	149	5745	10.54	12.00	91.17
		157	5785	10.54	12.00	
		165	5825	10.58	12.00	
	802.11ac-VHT40 MCS0	151	5755	10.51	12.00	91
		159	5795	10.56	12.00	
	802.11ac-VHT80 MCS0	155	5775	10.49	12.00	89.89

<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 76.6 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the theoretical duty cycle is 83.3%, therefore the actual duty cycle will be scaled up to the theoretical value of Bluetooth reported SAR calculation

Bluetooth time-domain plot

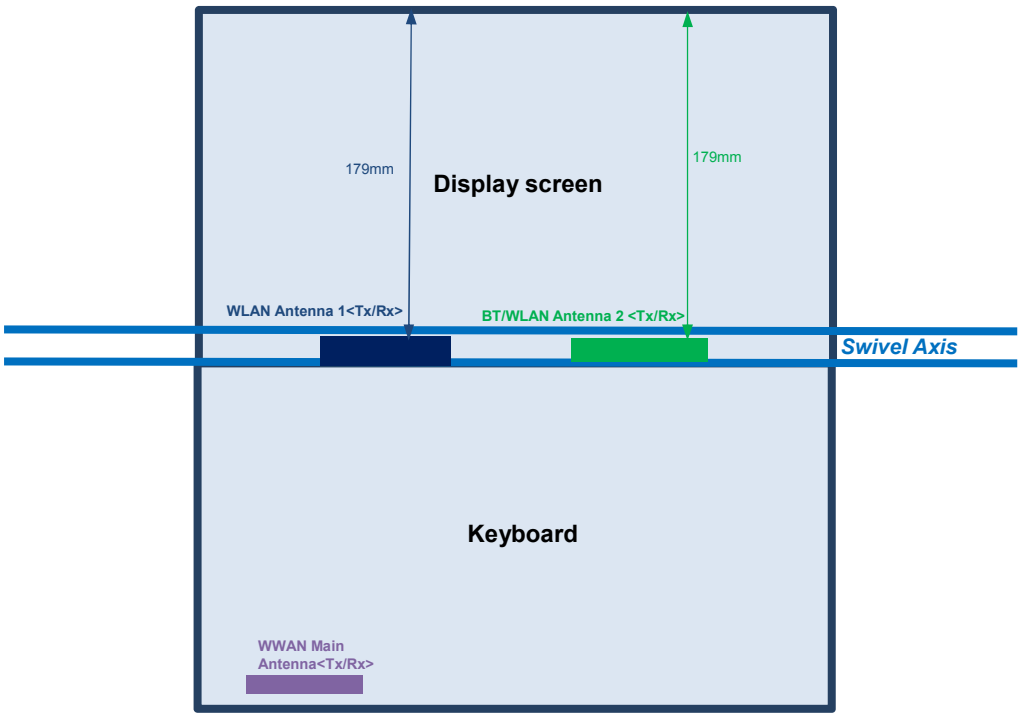


Mode	Channel	Frequency (MHz)	Average power (dBm)
			1Mbps
v3.0+EDR	CH 00	2402	9.49
	CH 39	2441	10.22
	CH 78	2480	8.83
Tune-up limit (dBm)			10.50

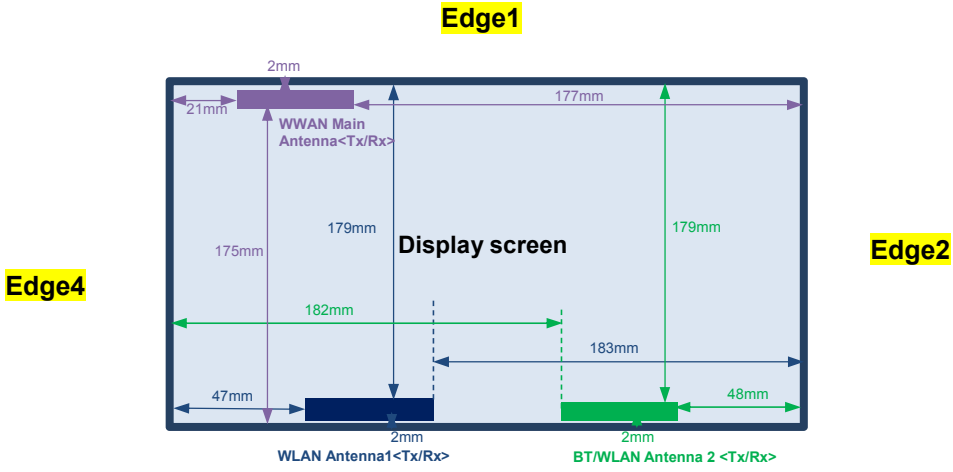
Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
v4.0/4.1/4.2 LE	CH 00	2402	4.70
	CH 19	2440	5.23
	CH 39	2480	4.12
Tune-up limit (dBm)			6.00

14. Antenna Location

<Laptop Mode>



<Tablet Mode>



Diagonal Dimension: 314mm

Front View

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 D01v06, 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 D01v06, 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 D01v06, 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*)] ·[√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 D01v06, 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

Exposure Position	Wireless Interface	WCDMA Band V	WCDMA Band IV	WCDMA Band II	LTE Band 12/17	LTE Band 13	LTE Band 26/5	LTE Band 66/4	LTE Band 2	LTE Band 30	LTE Band 7	LTE Band 41/38
	Calculated Frequency (MHz)	846.6	1752.6	1907.6	715.3	784.5	848.3	1779.3	1909.3	2312.5	2567.5	2687.5
	Maximum power (dBm)	24.00	24.00	24.00	23.00	23.50	23.00	23.50	23.00	23.50	23.50	23.00
	Maximum rated power(mW)	251	251	251	200	224	200	224	200	224	224	200
Bottom Face	Separation Distance(mm)	0										
	Exclusion Threshold	46.17	66.41	69.32	33.82	39.67	36.83	59.33	55.27	61.98	71.82	65.58
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Edge 1	Separation Distance(mm)	2										
	Exclusion Threshold	46.17	66.41	69.32	33.82	39.67	36.83	59.33	55.27	61.98	71.82	65.58
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Edge 2	Separation Distance(mm)	177										
	Exclusion Threshold	879	1383	1379	783	833	881	1383	1379	1378	1364	1361
	Testing required?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**
Edge 3	Separation Distance(mm)	175										
	Exclusion Threshold	868	1363	1359	773	823	870	1363	1359	1358	1344	1341
	Testing required?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**
Edge 4	Separation Distance(mm)	21										
	Exclusion Threshold	10.99	15.81	16.51	8.05	9.44	8.77	14.13	13.16	14.76	17.1	15.61
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Bottom of Laptop	Separation Distance(mm)	0										
	Exclusion Threshold	46.17	66.41	69.32	33.82	39.67	36.83	59.33	55.27	61.98	71.82	65.58
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Exposure Position	Wireless Interface	WLAN2.4GHz Ant.1	WLAN5GHz Ant.1	WLAN2.4GHz Ant.2	WLAN5GHz Ant.2	Bluetooth Ant.2
	Calculated Frequency (MHz)	2472	5825	2472	5825	2480
	Maximum power (dBm)	14.50	19.50	14.50	19.50	10.50
	Maximum rated power(mW)	28	89	28	89	11
Bottom Face	Separation Distance(mm)	0		0		
	Exclusion Threshold	8.79	42.96	8.79	42.96	3.46
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Edge 1	Separation Distance(mm)	179		179		
	Exclusion Threshold	1386	1352	1386	1352	1385
	Testing required?	**No**	**No**	**No**	**No**	**No**
Edge 2	Separation Distance(mm)	183		48		
	Exclusion Threshold	1426	1392	0.92	4.48	0.36
	Testing required?	**No**	**No**	**No**	**Yes**	**No**
Edge 3	Separation Distance(mm)	2		2		
	Exclusion Threshold	8.79	42.96	8.79	42.96	3.46
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Edge 4	Separation Distance(mm)	47		182		
	Exclusion Threshold	0.93	4.57	1416	1382	1415
	Testing required?	**No**	**Yes**	**No**	**No**	**No**
Bottom of Laptop	Separation Distance(mm)	0		0		
	Exclusion Threshold	8.79	42.96	8.79	42.96	3.46
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

15. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, 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/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, 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. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
4. This EUT has two typical use conditions which are laptop mode and tablet mode.
5. This device implanted proximity sensor function at bottom, bottom face and edge 1, power reduction will be implemented immediately at all WWAN bands.
6. This device implanted proximity sensor function at bottom, bottom face and edge 3, power reduction will be implemented immediately at all 2.4GHz/5GHz WLAN bands.
7. According to the normal usage, we didn't evaluate the distance SAR at laptop of bottom.

Tablet Note:

1. 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; 18mm for bottom face / edge1 for WWAN frequency bands, 10mm for bottom face / edge3 for 2.4GHz/5GHz WLAN frequency bands.
2. Considering the curvature transition from bottom face to the edge, SAR testing at the curvature was performed. The SAR test setup is included in test setup photo exhibit, and the details of the curvature are included in operation description exhibit.
3. For SAR testing of the curved region of the device, the device was placed directly against the phantom at the point where the distance between the antenna and device exterior is a minimum.
4. When the minimum distance between antenna and device edge along the curve is less than bottom face and surface edge, the curved SAR is necessary, more detail information which can be referred to setup photo.
5. Additional all WWAN frequency bands SAR test with 10mm separation at bottom face, and BT/WLAN SAR test with 18mm separation at bottom face were for conservative simultaneous transmission analysis.

UMTS Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

LTE Note:

1. Per KDB 941225 D05v02r05, 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.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, 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.
4. Per KDB 941225 D05v02r05, 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 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, 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 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B17 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B 4 / B5 / B17 / B38 SAR test was covered by LTE B66 / B26 / B12 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. For WLAN SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
6. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

15.1 Body SAR

<WCDMA SAR>

Plot No.	EUT Type	Band	Mode	Test Position	Gap (mm)	Power Reduction	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)
	Laptop	WCDMA Band V	RMC 12.2Kbps	Bottom	0	On	4132	826.4	18.65	19.00	1.084	-0.05	0.825	0.894
01	Laptop	WCDMA Band V	RMC 12.2Kbps	Bottom	0	On	4182	836.4	18.42	19.00	1.143	0.05	0.878	**1.003**
	Laptop	WCDMA Band V	RMC 12.2Kbps	Bottom	0	On	4233	846.6	18.53	19.00	1.114	0	0.825	0.919
02	Laptop	WCDMA Band IV	RMC 12.2Kbps	Bottom	0	On	1312	1712.4	14.42	15.50	1.282	-0.06	0.810	**1.039**
	Laptop	WCDMA Band IV	RMC 12.2Kbps	Bottom	0	On	1413	1732.6	14.45	15.50	1.274	-0.05	0.793	1.010
	Laptop	WCDMA Band IV	RMC 12.2Kbps	Bottom	0	On	1513	1752.6	14.46	15.50	1.271	-0.14	0.761	0.967
03	Tablet	WCDMA Band II	RMC 12.2Kbps	Bottom Face	0	On	9538	1907.6	14.61	15.50	1.227	-0.05	0.796	**0.977**
	Tablet	WCDMA Band II	RMC 12.2Kbps	Bottom Face	0	On	9262	1852.4	14.71	15.50	1.199	-0.02	0.732	0.878
	Tablet	WCDMA Band II	RMC 12.2Kbps	Bottom Face	0	On	9400	1907.6	14.63	15.50	1.222	-0.03	0.782	0.955

<FDD LTE SAR>

Plot No.	EUT Type	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	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)
04	Laptop	LTE Band 12	10M	QPSK	1	0	Bottom	0	On	23095	707.5	21.29	22.00	1.178	-0.03	0.736	**0.867**
05	Laptop	LTE Band 13	10M	QPSK	1	0	Bottom	0	On	23230	782	18.09	19.00	1.233	0.01	0.865	**1.067**
06	Laptop	LTE Band 26	15M	QPSK	1	0	Bottom	0	On	26865	831.5	18.22	19.00	1.197	0.05	0.765	**0.916**
	Tablet	LTE Band 66	20M	QPSK	1	0	Edge 1	18	Off	132072	1720	23.11	23.50	1.094	0.02	0.518	0.567
07	Tablet	LTE Band 66	20M	QPSK	1	0	Edge 1	18	Off	132322	1745	23.12	23.50	1.091	-0.04	0.695	**0.759**
	Tablet	LTE Band 66	20M	QPSK	1	0	Edge 1	18	Off	132572	1770	23.26	23.50	1.057	0.05	0.613	0.648
08	Tablet	LTE Band 2	20M	QPSK	1	0	Bottom Face	0	On	19100	1900	14.49	15.50	1.262	0.08	0.848	**1.070**
	Tablet	LTE Band 2	20M	QPSK	1	0	Bottom Face	0	On	18700	1860	14.76	15.50	1.186	-0.07	0.776	0.920
	Tablet	LTE Band 2	20M	QPSK	1	0	Bottom Face	0	On	18900	1880	14.83	15.50	1.167	-0.04	0.760	0.887
09	Tablet	LTE Band 30	10M	QPSK	1	0	Bottom Face	0	On	27710	2310	11.44	12.00	1.138	0.05	0.476	**0.542**
	Laptop	LTE Band 7	20M	QPSK	1	0	Bottom	0	On	21350	2560	12.23	13.00	1.194	0.02	0.671	0.801
	Laptop	LTE Band 7	20M	QPSK	1	0	Bottom	0	On	20850	2510	11.54	13.00	1.400	-0.06	0.702	0.983
10	Laptop	LTE Band 7	20M	QPSK	1	0	Bottom	0	On	21100	2535	11.53	13.00	1.403	-0.02	0.704	**0.988**

<TDD LTE SAR>

Plot No.	EUT Type	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	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)
	Laptop	LTE Band 41	20M	QPSK	1	0	Bottom	0	On	40620	2593	14.42	15.50	1.282	62.9	1.006	0.12	0.792	1.022
	Laptop	LTE Band 41	20M	QPSK	1	0	Bottom	0	On	39790	2510	13.90	15.50	1.445	62.9	1.006	0.05	0.684	0.995
	Laptop	LTE Band 41	20M	QPSK	1	0	Bottom	0	On	39750	2506	13.91	15.50	1.442	62.9	1.006	-0.09	0.712	1.033
	Laptop	LTE Band 41	20M	QPSK	1	0	Bottom	0	On	41055	2636.5	14.96	15.50	1.132	62.9	1.006	-0.02	0.811	0.924
	Laptop	LTE Band 41	20M	QPSK	1	0	Bottom	0	On	40185	2549.5	14.46	15.50	1.271	62.9	1.006	0.04	0.746	0.954
11	Laptop	LTE Band 41	20M	QPSK	1	0	Bottom	0	On	41490	2680	14.41	15.50	1.285	62.9	1.006	0.02	0.815	**1.054**

<WLAN2.4G SAR>

Plot No.	EUT Type	Ant. Port	Band	Mode	Test Position	Gap (mm)	Power Reduction	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)
12	Laptop	1	WLAN2.4GHz	802.11b 1Mbps	Bottom	0	On	6	2437	12.15	13.00	1.216	100	1.000	0.09	0.847	**1.030**
	Laptop	1	WLAN2.4GHz	802.11b 1Mbps	Bottom	0	On	1	2412	11.98	13.00	1.265	100	1.000	0.02	0.775	0.980
	Laptop	1	WLAN2.4GHz	802.11b 1Mbps	Bottom	0	On	11	2462	12.18	13.00	1.208	100	1.000	0.06	0.834	1.007
	Laptop	1	WLAN2.4GHz	802.11b 1Mbps	Bottom	0	Off	13	2472	8.19	10.00	1.517	100	1.000	0.01	0.032	0.049
	Laptop	1	WLAN2.4GHz	802.11b 1Mbps	Back of Display Screen	25	Off	1	2412	13.79	14.50	1.178	100	1.000	-0.02	0.008	0.009
	Tablet	1	WLAN2.4GHz	802.11b 1Mbps	Curved surface of Edge3	0	Off	1	2412	13.79	14.50	1.178	100	1.000	0.12	0.631	0.743
	Tablet	1	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0	Off	1	2412	13.79	14.50	1.178	100	1.000	-0.09	0.650	0.765
	Tablet	1	WLAN2.4GHz	802.11b 1Mbps	Edge 3	0	Off	1	2412	13.79	14.50	1.178	100	1.000	0.03	0.323	0.380
	Tablet	1	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	18	Off	1	2412	13.79	14.50	1.178	100	1.000	0.08	0.007	0.008
	Laptop	2	WLAN2.4GHz	802.11b 1Mbps	Bottom	0	On	11	2462	12.66	13.50	1.213	100	1.000	0.02	0.594	0.721
13	Laptop	2	WLAN2.4GHz	802.11b 1Mbps	Bottom	0	On	1	2412	13.05	13.50	1.109	100	1.000	-0.01	0.709	**0.786**
	Laptop	2	WLAN2.4GHz	802.11b 1Mbps	Bottom	0	On	6	2437	12.78	13.50	1.180	100	1.000	0.06	0.487	0.575
	Laptop	2	WLAN2.4GHz	802.11b 1Mbps	Bottom	0	Off	13	2472	8.41	10.00	1.442	100	1.000	-0.08	0.079	0.114
	Laptop	2	WLAN2.4GHz	802.11b 1Mbps	Back of Display Screen	25	Off	1	2412	13.81	14.50	1.172	100	1.000	-0.07	0.009	0.010
	Tablet	2	WLAN2.4GHz	802.11b 1Mbps	Curved surface of Edge3	0	Off	1	2412	13.81	14.50	1.172	100	1.000	0.04	0.496	0.581
	Tablet	2	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0	On	1	2412	13.05	13.50	1.109	100	1.000	0.05	0.492	0.546
	Tablet	2	WLAN2.4GHz	802.11b 1Mbps	Edge 3	0	Off	1	2412	13.81	14.50	1.172	100	1.000	0.16	0.339	0.397
	Tablet	2	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	10	Off	1	2412	13.81	14.50	1.172	100	1.000	-0.01	0.130	0.152
	Tablet	2	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	18	Off	1	2412	13.81	14.50	1.172	100	1.000	0.08	0.004	0.005

<Bluetooth SAR>

Plot No.	EUT Type	Ant. Port	Band	Mode	Test Position	Gap (mm)	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)
	Laptop	2	Bluetooth	1Mbps	Bottom	0	78	2480	8.83	10.50	1.469	76.6	1.087	0.01	0.216	0.345
	Laptop	2	Bluetooth	1Mbps	Bottom	0	0	2402	9.49	10.50	1.262	76.6	1.087	0.03	0.228	0.313
14	Laptop	2	Bluetooth	1Mbps	Bottom	0	39	2441	10.22	10.50	1.067	76.6	1.087	0.05	0.302	**0.350**

<WLAN5G SAR>

Plot No.	EUT Type	Ant. Port	Band	Mode	Test Position	Gap (mm)	Power Reduction	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)
15	Tablet	1	WLAN5.3GHz	802.11a 6Mbps	Curved surface of Edge3	0	On	52	5260	8.18	8.50	1.076	94.65	1.057	0.04	1.010	**1.149**
	Tablet	1	WLAN5.3GHz	802.11a 6Mbps	Curved surface of Edge3	0	On	56	5280	8.11	8.50	1.093	94.65	1.057	0.06	0.869	1.004
	Tablet	1	WLAN5.3GHz	802.11a 6Mbps	Curved surface of Edge3	0	On	64	5320	8.08	8.50	1.100	94.65	1.057	0.05	0.957	1.113
	Tablet	2	WLAN5.3GHz	802.11a 6Mbps	Curved surface of Edge3	0	On	60	5300	8.64	9.00	1.086	94.53	1.058	0.02	0.925	1.063
16	Tablet	2	WLAN5.3GHz	802.11a 6Mbps	Curved surface of Edge3	0	On	52	5260	8.56	9.00	1.106	94.53	1.058	0.03	0.982	**1.149**
	Tablet	2	WLAN5.3GHz	802.11a 6Mbps	Curved surface of Edge3	0	On	64	5320	8.77	9.00	1.053	94.53	1.058	0.03	0.948	1.057

Plot No.	EUT Type	Ant. Port	Band	Mode	Test Position	Gap (mm)	Power Reduction	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)
	Laptop	1	WLAN5.5GHz	802.11a 6Mbps	Bottom	0	On	116	5580	8.28	8.80	1.127	94.65	1.057	0.02	0.446	0.531
17	Laptop	1	WLAN5.5GHz	802.11a 6Mbps	Bottom	0	On	100	5500	8.45	8.80	1.083	94.65	1.057	0.01	0.550	**0.630**
	Laptop	1	WLAN5.5GHz	802.11a 6Mbps	Bottom	0	On	144	5720	7.93	8.80	1.222	94.65	1.057	0.05	0.483	0.624
	Tablet	2	WLAN5.5GHz	802.11a 6Mbps	Bottom Face	0	On	140	5700	8.37	9.00	1.156	94.53	1.058	0.05	0.884	1.081
18	Tablet	2	WLAN5.5GHz	802.11a 6Mbps	Bottom Face	0	On	100	5500	8.56	9.00	1.107	94.53	1.058	0.02	0.935	**1.095**
	Tablet	2	WLAN5.5GHz	802.11a 6Mbps	Bottom Face	0	On	144	5720	8.55	9.00	1.109	94.53	1.058	0.09	0.886	1.040

Plot No.	EUT Type	Ant. Port	Band	Mode	Test Position	Gap (mm)	Power Reduction	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)
19	Tablet	1	WLAN5.8GHz	802.11a 6Mbps	Curved surface of Edge3	0	On	165	5825	8.02	9.00	1.253	94.65	1.057	0.04	0.909	**1.204**
	Tablet	1	WLAN5.8GHz	802.11a 6Mbps	Curved surface of Edge3	0	On	149	5745	7.75	9.00	1.332	94.65	1.057	0.02	0.844	1.189
	Tablet	1	WLAN5.8GHz	802.11a 6Mbps	Curved surface of Edge3	0	On	157	5785	7.79	9.00	1.320	94.65	1.057	0.05	0.855	1.193
	Tablet	2	WLAN5.8GHz	802.11a 6Mbps	Curved surface of Edge3	0	On	157	5785	8.74	9.00	1.062	94.53	1.058	0.03	0.708	0.795
	Tablet	2	WLAN5.8GHz	802.11a 6Mbps	Curved surface of Edge3	0	On	149	5745	8.77	9.00	1.053	94.53	1.058	0.02	0.791	0.882
20	Tablet	2	WLAN5.8GHz	802.11a 6Mbps	Curved surface of Edge3	0	On	165	5825	8.71	9.00	1.068	94.53	1.058	0.02	0.894	**1.010**

15.2 Repeated SAR Measurement

No.	Ant. Port	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Sensor	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)	Ratio	Reported 1g SAR (W/kg)
1st	-	WCDMA Band V	-	-	-	-	RMC 12.2Kbps	Bottom	0	On	4182	836.4	18.42	19.00	1.143	-	-	0.05	0.878	1	1.003
2nd	-	WCDMA Band V	-	-	-	-	RMC 12.2Kbps	Bottom	0	On	4182	836.4	18.42	19.00	1.143	-	-	0.09	0.856	1.026	0.978
1st	-	WCDMA Band IV	-	-	-	-	RMC 12.2Kbps	Bottom	0	On	1312	1712.4	14.42	15.50	1.282	-	-	-0.06	0.810	1	1.039
2nd	-	WCDMA Band IV	-	-	-	-	RMC 12.2Kbps	Bottom	0	On	1312	1712.4	14.42	15.50	1.282	-	-	0.08	0.802	1.010	1.028
1st	-	LTE Band 13	10M	QPSK	1	0	-	Bottom	0	On	23230	782	18.09	19.00	1.233	-	-	0.01	0.865	1	1.067
2nd	-	LTE Band 13	10M	QPSK	1	0	-	Bottom	0	On	23230	782	18.09	19.00	1.233	-	-	0.09	0.856	1.010	1.056
1st	-	LTE Band 2	20M	QPSK	1	0	-	Bottom Face	0	On	19100	1900	14.49	15.50	1.262	-	-	0.08	0.848	1	1.070
2nd	-	LTE Band 2	20M	QPSK	1	0	-	Bottom Face	0	On	19100	1900	14.49	15.50	1.262	-	-	0.09	0.835	1.016	1.054
1st	-	LTE Band 41	20M	QPSK	1	0	-	Bottom	0	On	41490	2680	14.41	15.50	1.285	62.9	1.006	0.02	0.815	1	1.054
2nd	-	LTE Band 41	20M	QPSK	1	0	-	Bottom	0	On	41490	2680	14.41	15.50	1.285	62.9	1.006	0.09	0.812	1.004	1.050
1st	1	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Bottom	0	On	6	2437	12.15	13.00	1.216	100	1.000	0.09	0.847	1	1.030
2nd	1	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Bottom	0	On	6	2437	12.15	13.00	1.216	100	1.000	0.08	0.839	1.010	1.020
1st	1	WLAN5.3GHz	-	-	-	-	802.11a 6Mbps	Curved surface of Edge3	0	On	52	5260	8.18	8.50	1.076	94.65	1.057	0.04	1.010	1	1.149
2nd	1	WLAN5.3GHz	-	-	-	-	802.11a 6Mbps	Curved surface of Edge3	0	On	52	5260	8.18	8.50	1.076	94.65	1.057	0.09	0.995	1.015	1.132
1st	2	WLAN5.5GHz	-	-	-	-	802.11a 6Mbps	Bottom Face	0	On	100	5500	8.56	9.00	1.107	94.53	1.058	0.02	0.935	1	1.095
2nd	2	WLAN5.5GHz	-	-	-	-	802.11a 6Mbps	Bottom Face	0	On	100	5500	8.56	9.00	1.107	94.53	1.058	0.09	0.930	1.005	1.089
1st	1	WLAN5.8GHz	-	-	-	-	802.11a 6Mbps	Curved surface of Edge3	0	On	165	5825	8.02	9.00	1.253	94.65	1.057	0.04	0.909	1	1.204
2nd	1	WLAN5.8GHz	-	-	-	-	802.11a 6Mbps	Curved surface of Edge3	0	On	165	5825	8.02	9.00	1.253	94.65	1.057	0.08	0.900	1.010	1.192

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r04, 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	Body
1.	WCDMA(Data) + WLAN2.4GHz SISO(data)	Yes
2.	WCDMA(Data) + WLAN2.4GHz MIMO(data)	Yes
3.	WCDMA(Data) + WLAN5 GHz SISO(data)	Yes
4.	WCDMA(Data) + WLAN5 GHz MIMO(data)	Yes
5.	WCDMA(Data) + Bluetooth Ant.2(data)	Yes
6.	WCDMA(Data) + WLAN2.4GHz Ant.1(data) + Bluetooth Ant.2(data)	Yes
7.	WCDMA(Data) + WLAN5GHz Ant.1(data) + Bluetooth Ant.2(data)	Yes
8.	LTE (Data) + WLAN2.4GHz SISO(data)	Yes
9.	LTE (Data) + WLAN2.4GHz MIMO(data)	Yes
10.	LTE (Data) + WLAN5 GHz SISO(data)	Yes
11.	LTE (Data) + WLAN5 GHz MIMO(data)	Yes
12.	LTE (Data) + Bluetooth Ant.2(data)	Yes
13.	LTE (Data) + WLAN2.4GHz Ant.1(data) + Bluetooth Ant.2(data)	Yes
14.	LTE (Data) + WLAN5GHz Ant.1(data) + Bluetooth Ant.2(data)	Yes
15.	WLAN2.4GHz Ant.1(data) + WLAN2.4GHz Ant.2(data)	Yes
16.	WLAN5GHz Ant.1(data) + WLAN5GHz Ant.2(data)	Yes
17.	WLAN2.4GHz Ant.1(data) + Bluetooth Ant.2(data)	Yes
18.	WLAN5GHz Ant.1(data) + Bluetooth Ant.2(data)	Yes

General Note:

1. EUT will choose either WCDMA or LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
2. WLAN Ant.2 and Bluetooth share the same antenna, and cannot transmit simultaneously.
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 simultaneously analysis, since the SAR summation of 3 transmitters can cover others combination of 2 transmitters, therefore in this section did not additional to evaluate 2TX combination of simultaneously transmission.
5. The reported SAR summation is calculated based on the same configuration and test position.
6. The worst case 5 GHz WLAN reported SAR for each configuration was used for SAR summation.
7. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) 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.
   v) The SPLSR calculated results please refer to section 16.2.

16.1 Body Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3			1+4+5			1+2+6			1+4+6		
			WWAN	2.4GHz WLAN Ant.1	2.4GHz WLAN Ant.2	5GHz WLAN Ant.1	5GHz WLAN Ant.2	Bluetooth Ant.2	Summed 1g SAR (W/kg)	SPLSR	Case No	Summed 1g SAR (W/kg)	SPLSR	Case No	Summed 1g SAR (W/kg)	SPLSR	Case No	Summed 1g SAR (W/kg)	SPLSR	Case No
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)												
WCDMA	Band V	Bottom Face at 18mm		0.008	0.005				0.01						0.01					
		Bottom at 0mm	1.003	1.030	0.786	0.630		0.350	**2.82**	**#1**	**0.02**	**1.63**	**#12**	**0.01**	**2.38**	**#22**	**0.02**	**1.98**	**#29**	**0.01**
		Bottom Face at 0mm		0.765	0.546		1.095		1.31			1.10			0.77					
		Edge 3 at 0mm		0.380	0.397				0.78						0.38					
		Bottom Face at 10mm			0.152				0.15											
		Back of Display Screen at 25mm		0.009	0.010				0.02						0.01					
		Curved surface of Edge3		0.743	0.581	1.204	1.149		1.32			**2.35**	**#13**	**0.02**	0.74			1.20		
	Band IV	Bottom Face at 18mm		0.008	0.005				0.01						0.01					
		Bottom at 0mm	1.039	1.030	0.786	0.630		0.350	**2.86**	**#2**	**0.02**	**1.67**	**#14**	**0.01**	**2.42**	**#23**	**0.02**	**2.02**	**#30**	**0.01**
		Bottom Face at 0mm		0.765	0.546		1.095		1.31			1.10			0.77					
		Edge 3 at 0mm		0.380	0.397				0.78						0.38					
		Bottom Face at 10mm			0.152				0.15											
		Back of Display Screen at 25mm		0.009	0.010				0.02						0.01					
		Curved surface of Edge3		0.743	0.581	1.204	1.149		1.32			**2.35**	**#13**	**0.02**	0.74			1.20		
	Band II	Bottom Face at 18mm		0.008	0.005				0.01						0.01					
		Bottom at 0mm		1.030	0.786	0.630		0.350	**1.82**	**#3**	**0.02**	0.63			**1.38**			0.98		
		Bottom Face at 0mm	0.977	0.765	0.546		1.095		**2.29**	**#4**	**0.01**	**2.07**	**#15**	**0.01**	**1.74**	**#4-1**	**0.01**	0.98		
		Edge 3 at 0mm		0.380	0.397				0.78						0.38					
		Bottom Face at 10mm			0.152				0.15											
		Back of Display Screen at 25mm		0.009	0.010				0.02						0.01					
		Curved surface of Edge3		0.743	0.581	1.204	1.149		1.32			**2.35**	**#13**	**0.02**	0.74			1.20		

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3			1+4+5			1+2+6			1+4+6		
			WWAN	2.4GHz WLAN Ant.1	2.4GHz WLAN Ant.2	5GHz WLAN Ant.1	5GHz WLAN Ant.2	Bluetooth Ant.2	Summed 1g SAR (W/kg)	SPLSR	Case No	Summed 1g SAR (W/kg)	SPLSR	Case No	Summed 1g SAR (W/kg)	SPLSR	Case No	Summed 1g SAR (W/kg)	SPLSR	Case No
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)												
LTE	Band 12	Bottom Face at 18mm		0.008	0.005				0.01						0.01					
		Bottom at 0mm	0.867	1.030	0.786	0.630		0.350	**2.68**	**#5**	**0.02**	**1.50**			**2.25**	**#24**	**0.01**	**1.85**	**#31**	**0.01**
		Bottom Face at 0mm		0.765	0.546		1.095		1.31			1.10			0.77					
		Edge 3 at 0mm		0.380	0.397				0.78						0.38					
		Bottom Face at 10mm			0.152				0.15											
		Back of Display Screen at 25mm		0.009	0.010				0.02						0.01					
		Curved surface of Edge3		0.743	0.581	1.204	1.149		1.32			**2.35**	**#13**	**0.02**	0.74			1.20		
	Band 13	Bottom Face at 18mm		0.008	0.005				0.01						0.01					
		Bottom at 0mm	1.067	1.030	0.786	0.630		0.350	**2.88**	**#6**	**0.02**	**1.70**	**#16**	**0.01**	**2.45**	**#25**	**0.02**	**2.05**	**#32**	**0.01**
		Bottom Face at 0mm		0.765	0.546		1.095		1.31			1.10			0.77					
		Edge 3 at 0mm		0.380	0.397				0.78						0.38					
		Bottom Face at 10mm			0.152				0.15											
		Back of Display Screen at 25mm		0.009	0.010				0.02						0.01					
		Curved surface of Edge3		0.743	0.581	1.204	1.149		1.32			**2.35**	**#13**	**0.02**	0.74			1.20		
	Band 26	Bottom Face at 18mm		0.008	0.005				0.01						0.01					
		Bottom at 0mm	0.916	1.030	0.786	0.630		0.350	**2.73**	**#7**	**0.02**	**1.55**	**#17**	**0.01**	**2.30**	**#26**	**0.02**	**1.90**	**#33**	**0.01**
		Bottom Face at 0mm		0.765	0.546		1.095		1.31			1.10			0.77					
		Edge 3 at 0mm		0.380	0.397				0.78						0.38					
		Bottom Face at 10mm			0.152				0.15											
		Back of Display Screen at 25mm		0.009	0.010				0.02						0.01					
		Curved surface of Edge3		0.743	0.581	1.204	1.149		1.32			**2.35**	**#13**	**0.02**	0.74			1.20		
	Band 66	Bottom Face at 18mm		0.008	0.005				0.01						0.01					
		Edge 1 at 18mm	0.759						0.76			0.76			0.76			0.76		
		Bottom at 0mm		1.030	0.786	0.630		0.350	**1.82**	**#1**	**0.02**	0.63			1.38			0.98		
		Bottom Face at 0mm		0.765	0.546		1.095		1.31			1.10			0.77					
		Edge 3 at 0mm		0.380	0.397				0.78						0.38					
		Bottom Face at 10mm			0.152				0.15											
		Back of Display Screen at 25mm		0.009	0.010				0.02						0.01					
		Curved surface of Edge3		0.743	0.581	1.204	1.149		1.32			**2.35**	**#13**	**0.02**	0.74			1.20		
	Band 2	Bottom Face at 18mm		0.008	0.005				0.01						0.01					
		Bottom at 0mm		1.030	0.786	0.630		0.350	**1.82**	**#1**	**0.02**	0.63			1.38			0.98		
		Bottom Face at 0mm	1.070	0.765	0.546		1.095		**2.38**	**#8**	**0.01**	**2.17**	**#18**	**0.01**	**1.84**	**#8-1**	**0.01**	1.07		
		Edge 3 at 0mm		0.380	0.397				0.78						0.38					
		Bottom Face at 10mm			0.152				0.15											
		Back of Display Screen at 25mm		0.009	0.010				0.02						0.01					
		Curved surface of Edge3		0.743	0.581	1.204	1.149		1.32			**2.35**	**#13**	**0.02**	0.74			1.20		

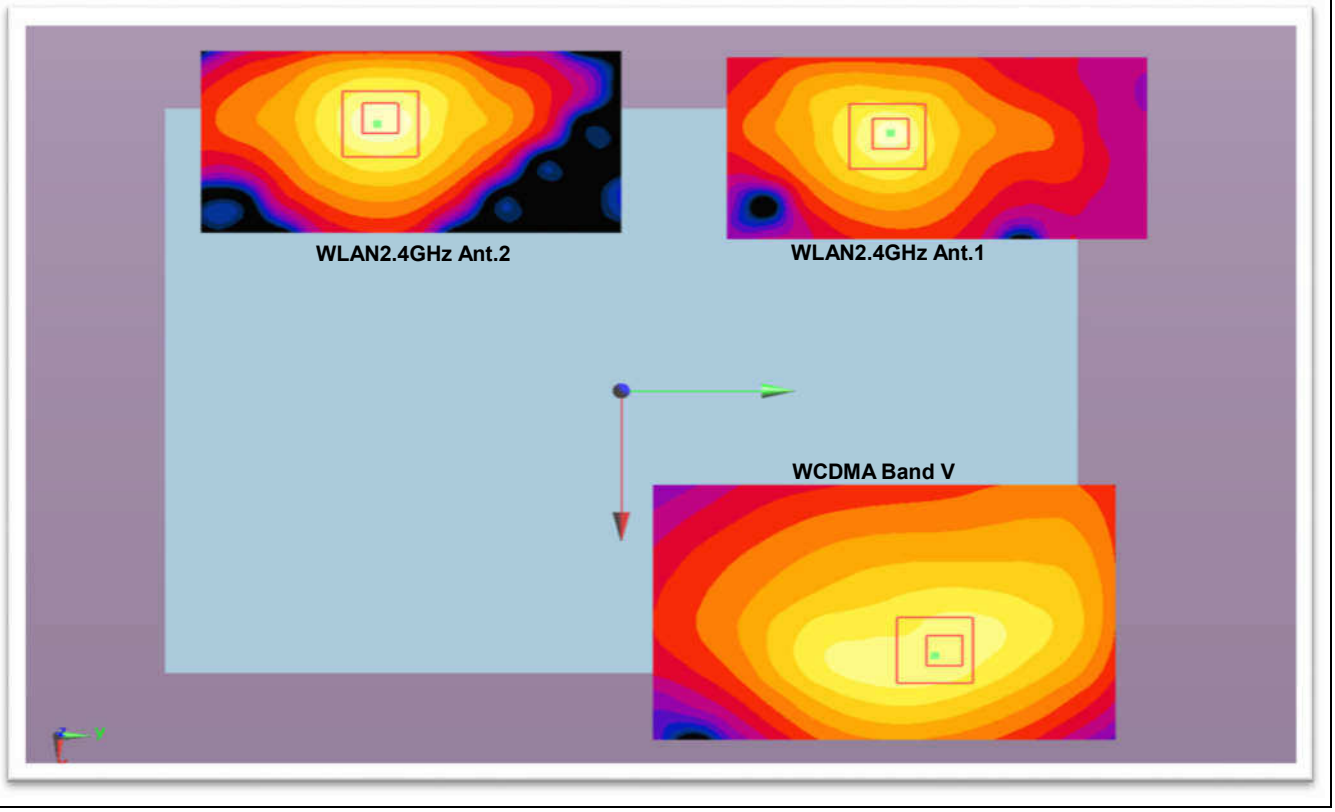
WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3			1+4+5			1+2+6			1+4+6		
			WWAN	2.4GHz WLAN Ant.1	2.4GHz WLAN Ant.2	5GHz WLAN Ant.1	5GHz WLAN Ant.2	Bluetooth Ant.2	Summed 1g SAR (W/kg)	SPLSR	Case No	Summed 1g SAR (W/kg)	SPLSR	Case No	Summed 1g SAR (W/kg)	SPLSR	Case No	Summed 1g SAR (W/kg)	SPLSR	Case No
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)												
LTE	Band 30	Bottom Face at 18mm		0.008	0.005				0.01						0.01					
		Bottom at 0mm		1.030	0.786	0.630		0.350	**1.82**	**#1**	**0.02**	0.63			1.38			0.98		
		Bottom Face at 0mm	0.542	0.765	0.546		1.095		**1.85**	**#9**	**0.01**	**1.64**	**#19**	**0.01**	1.31			0.54		
		Edge 3 at 0mm		0.380	0.397				0.78											
		Bottom Face at 10mm			0.152				0.15											
		Back of Display Screen at 25mm		0.009	0.010				0.02						0.01					
		Curved surface of Edge3		0.743	0.581	1.204	1.149		1.32			**2.35**	**#13**	**0.02**	0.74			1.20		
	Band 7	Bottom Face at 18mm		0.008	0.005				0.01						0.01					
		Bottom at 0mm	0.988	1.030	0.786	0.630		0.350	**2.80**	**#10**	**0.02**	**1.62**	**#20**	**0.01**	**2.37**	**#27**	**0.02**	**0.97**	**#34**	**0.01**
		Bottom Face at 0mm		0.765	0.546		1.095		1.31			1.10			0.77					
		Edge 3 at 0mm		0.380	0.397				0.78						0.38					
		Bottom Face at 10mm			0.152				0.15											
		Back of Display Screen at 25mm		0.009	0.010				0.02						0.01					
		Curved surface of Edge3		0.743	0.581	1.204	1.149		1.32			**2.35**	**#13**	**0.02**	0.74			1.20		
	Band 41	Bottom Face at 18mm		0.008	0.005				0.01						0.01					
		Bottom at 0mm	1.054	1.030	0.786	0.630		0.350	**2.87**	**#11**	**0.02**	**1.68**	**#21**	**0.01**	**2.43**	**#28**	**0.02**	**2.03**	**#35**	**0.01**
		Bottom Face at 0mm		0.765	0.546		1.095		1.31			1.10			0.77					
		Edge 3 at 0mm		0.380	0.397				0.78						0.38					
		Bottom Face at 10mm			0.152				0.15											
		Back of Display Screen at 25mm		0.009	0.010				0.02						0.01					
		Curved surface of Edge3		0.743	0.581	1.204	1.149		1.32			**2.35**	**#13**	**0.02**	0.74			1.20		

16.2 SPLSR Evaluation and Analysis

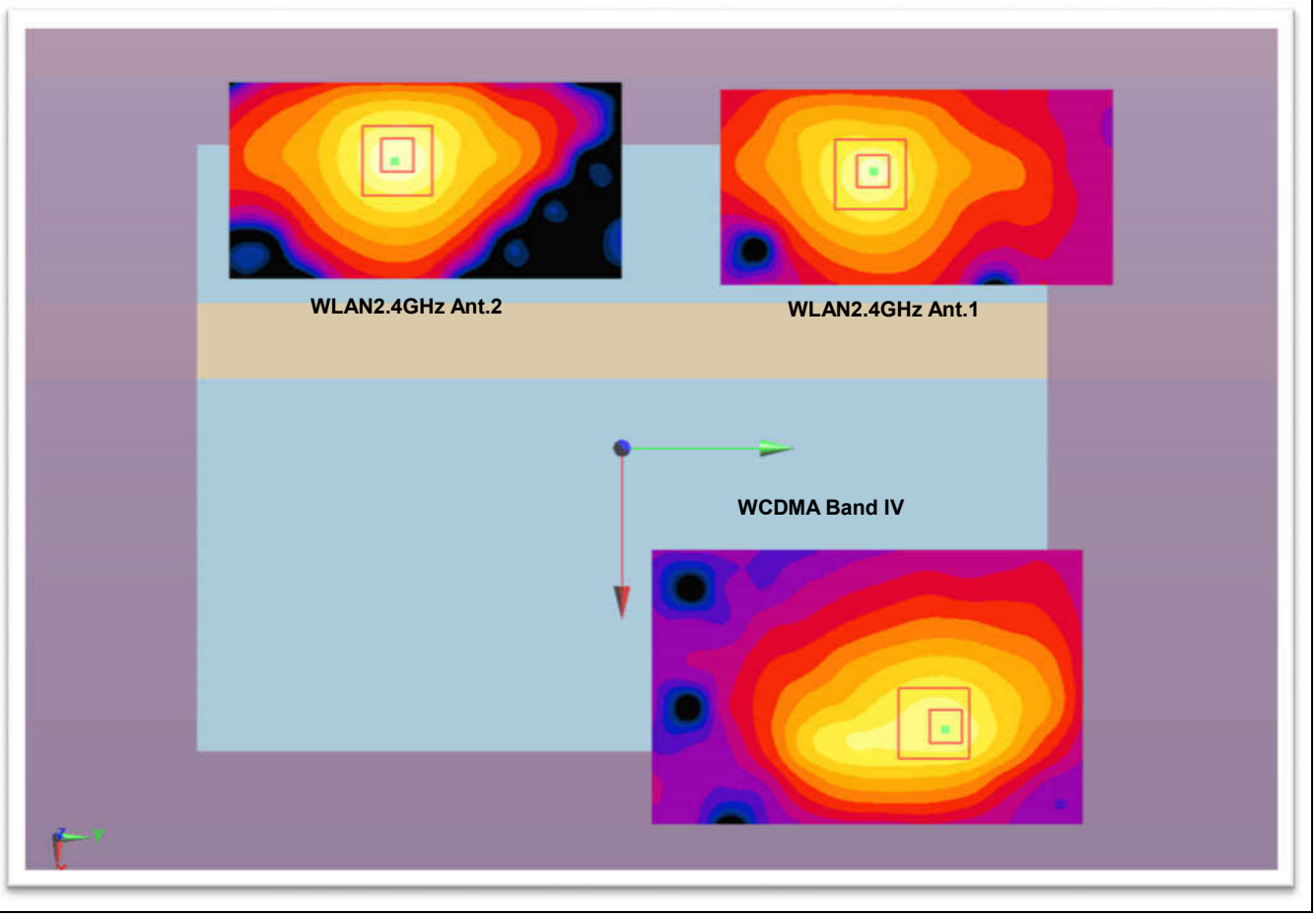
General Note:

1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of [(x1−x2)2 + (y1−y2)2 + (z1−z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate.
2. SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*). If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.

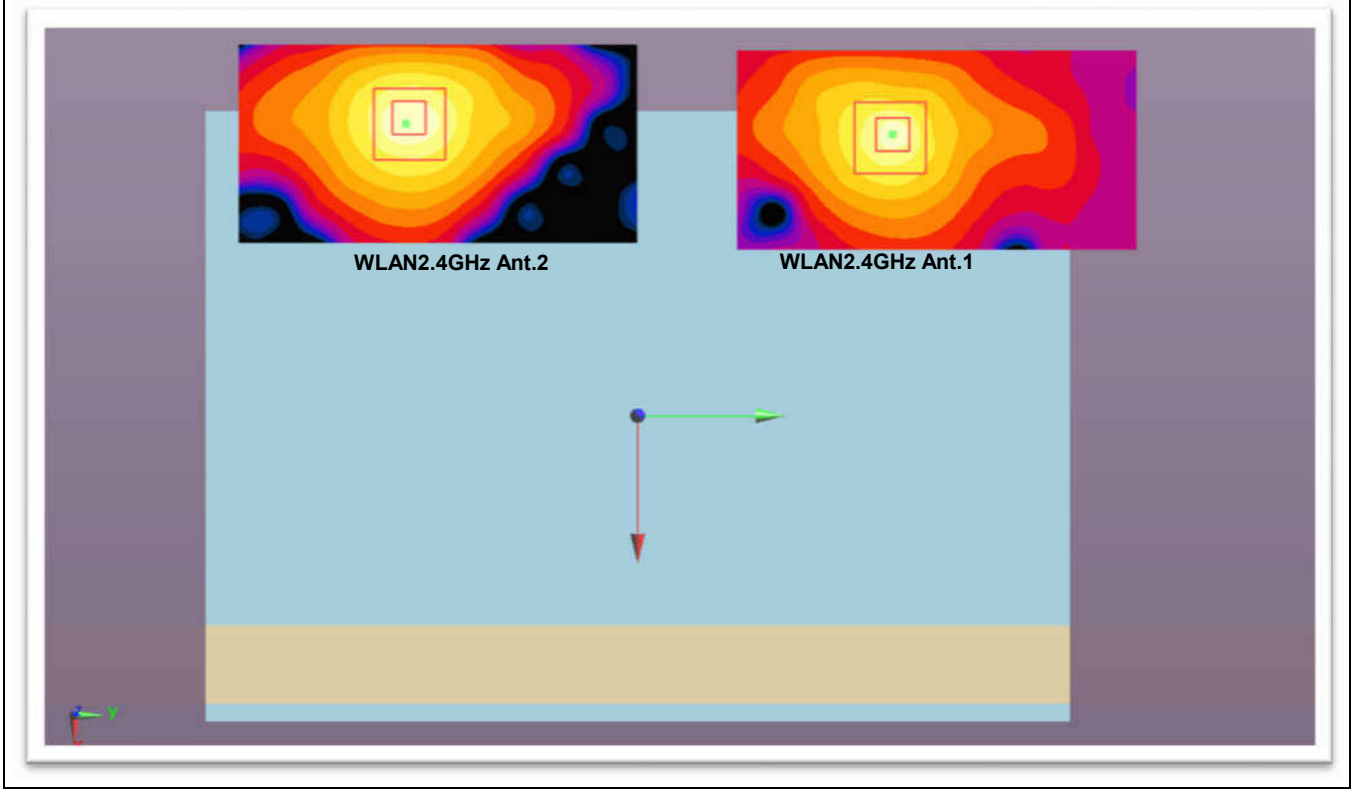
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #1	WCDMA Band V	Bottom	1.003	0	8.48	9.42	0	170.40	2.03	0.02	Not required
	WLAN2.4GHz Ant.1		1.030	0	-8.48	7.78	0.17				
	WCDMA Band V		1.003	0	8.48	9.42	0	235.77	1.79	0.01	Not required
	WLAN2.4GHz Ant.2		0.786	0	-9.02	-6.38	-0.01				
	WLAN2.4GHz Ant.1		1.030	0	-8.48	7.78	0.17	141.71	1.82	0.02	Not required
	WLAN2.4GHz Ant.2		0.786	0	-9.02	-6.38	-0.01				



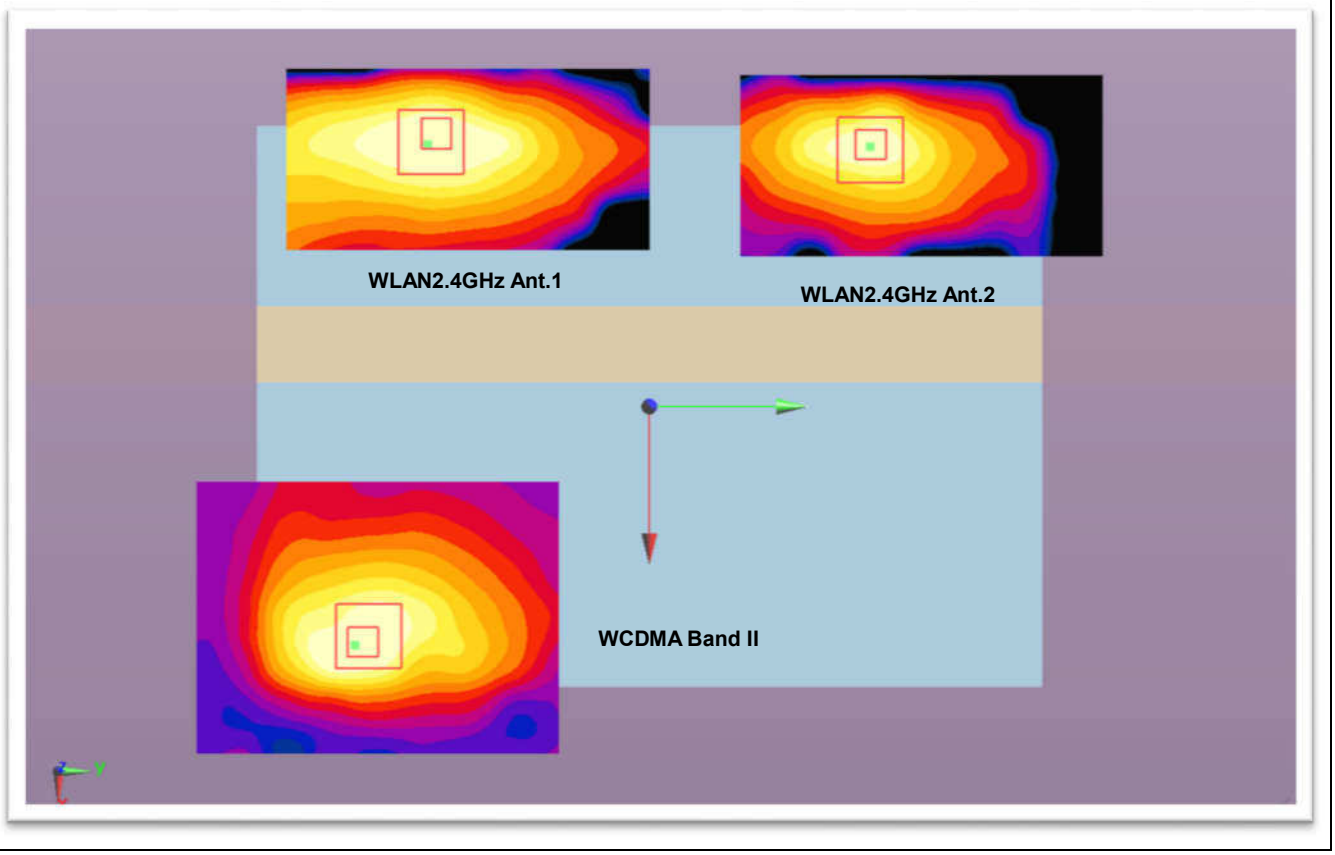
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #2	WCDMA Band IV	Bottom	1.039	0	8.52	10	0.13	171.44	2.07	0.02	Not required
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17				
	WCDMA Band IV		1.039	0	8.52	10	0.13	239.99	1.83	0.01	Not required
	WLAN2.4G Ant.2		0.786	0	-9.02	-6.38	-0.01				
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17	141.71	1.82	0.02	Not required
	WLAN2.4G Ant.2		0.786	0	-9.02	-6.38	-0.01				



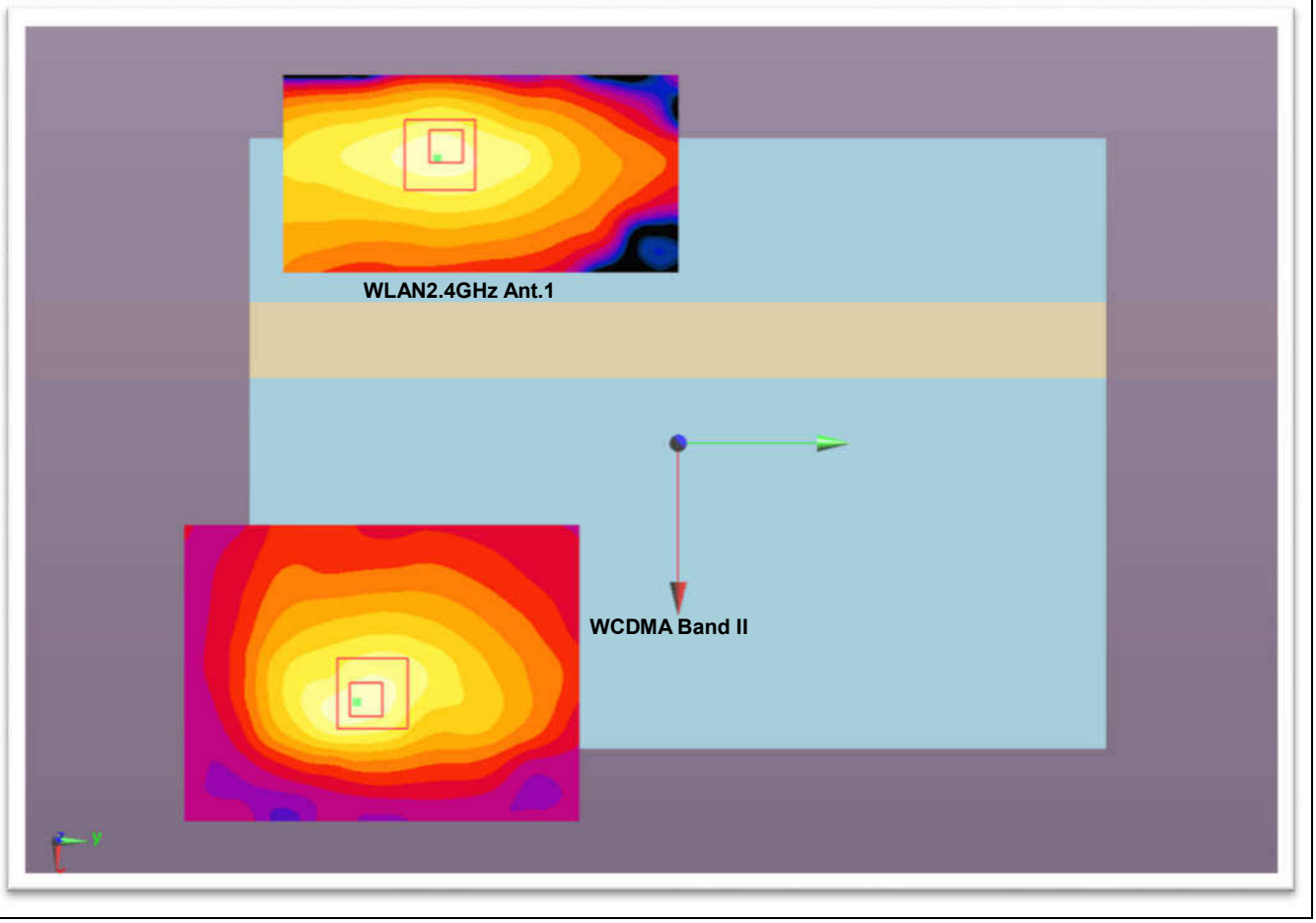
Case #3	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WLAN2.4G Ant.1	Bottom	1.030	0	-8.48	7.78	0.17	141.71	1.82	0.02	Not required
	WLAN2.4G Ant.2		0.786	0	-9.02	-6.38	-0.01				



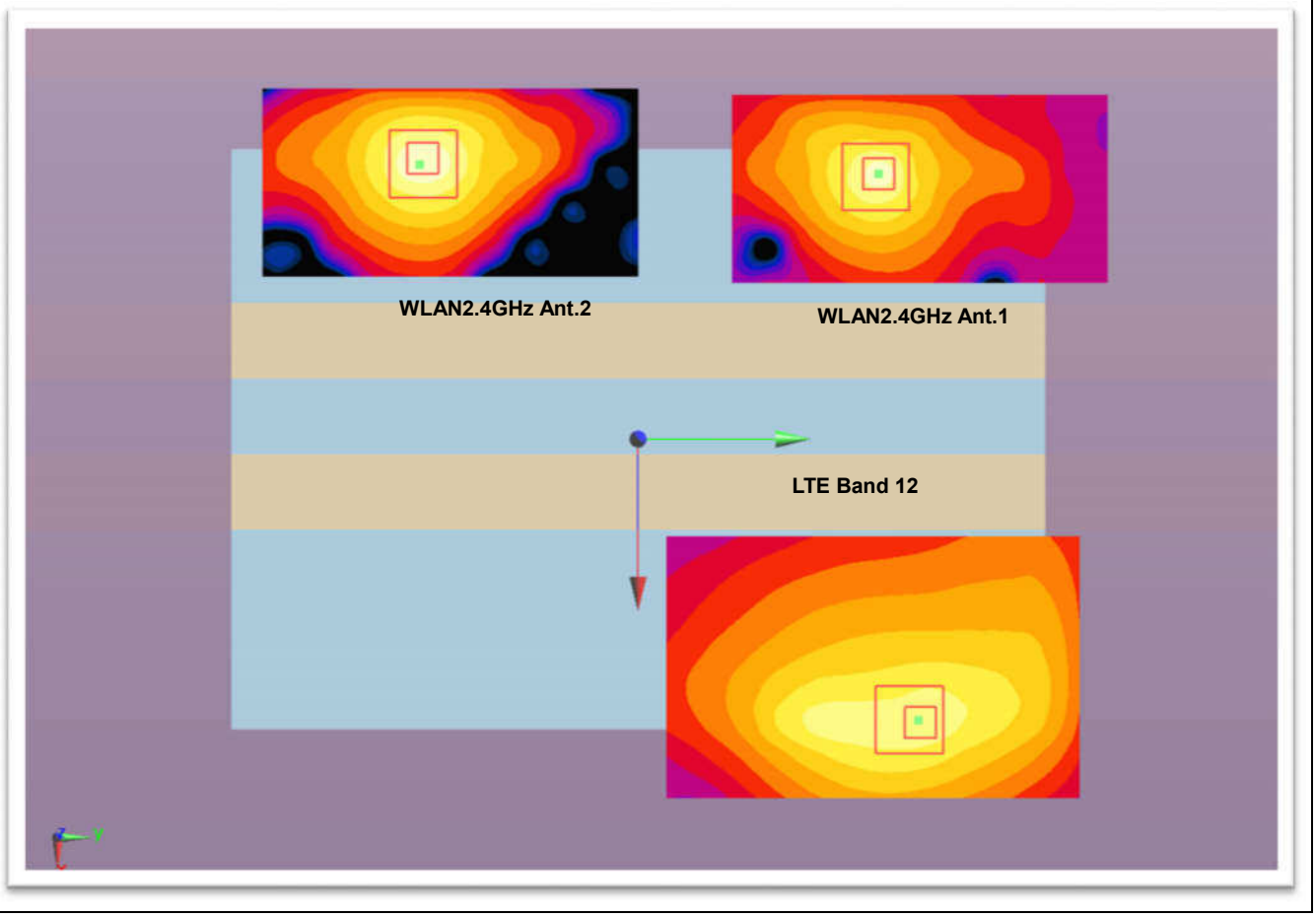
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #4	WCDMA Band II	Bottom Face	0.977	0	7.9	-9.43	0.02	171.65	1.74	0.01	Not required
	WLAN2.4G Ant.1		0.765	0	-9.08	-6.92	0.02				
	WCDMA Band II		0.977	0	7.9	-9.43	0.02	236.53	1.52	0.01	Not required
	WLAN2.4G Ant.2		0.546	0	-8.9	7.22	0.03				
	WLAN2.4G Ant.1		0.765	0	-9.08	-6.92	0.02	141.41	1.31	0.01	Not required
	WLAN2.4G Ant.2		0.546	0	-8.9	7.22	0.03				



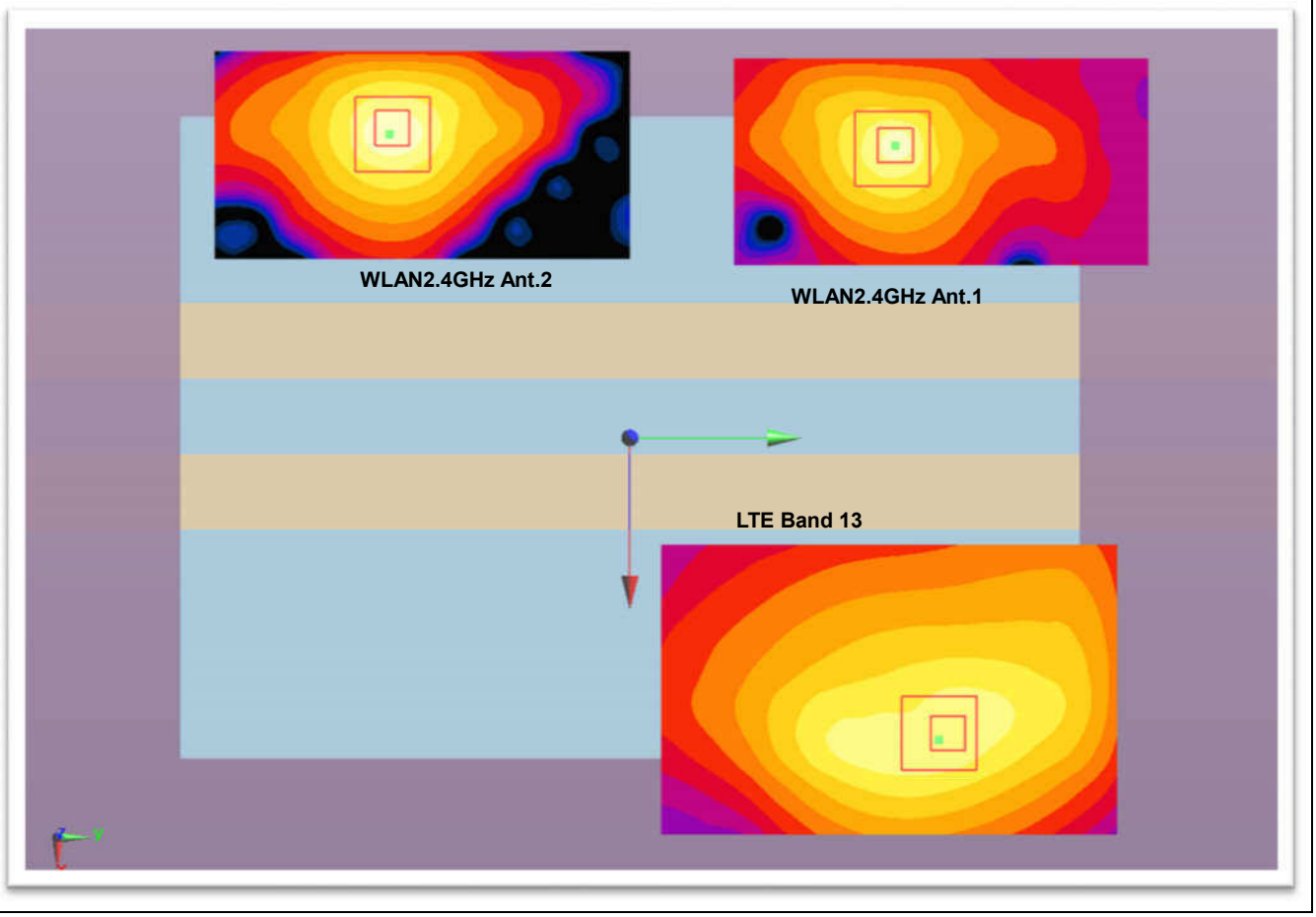
Case #4-1	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	WCDMA Band II	Bottom Face	0.977	0	7.9	-9.43	0.02	171.65	1.74	0.01	Not required
	WLAN2.4G Ant.1		0.765	0	-9.08	-6.92	0.02				



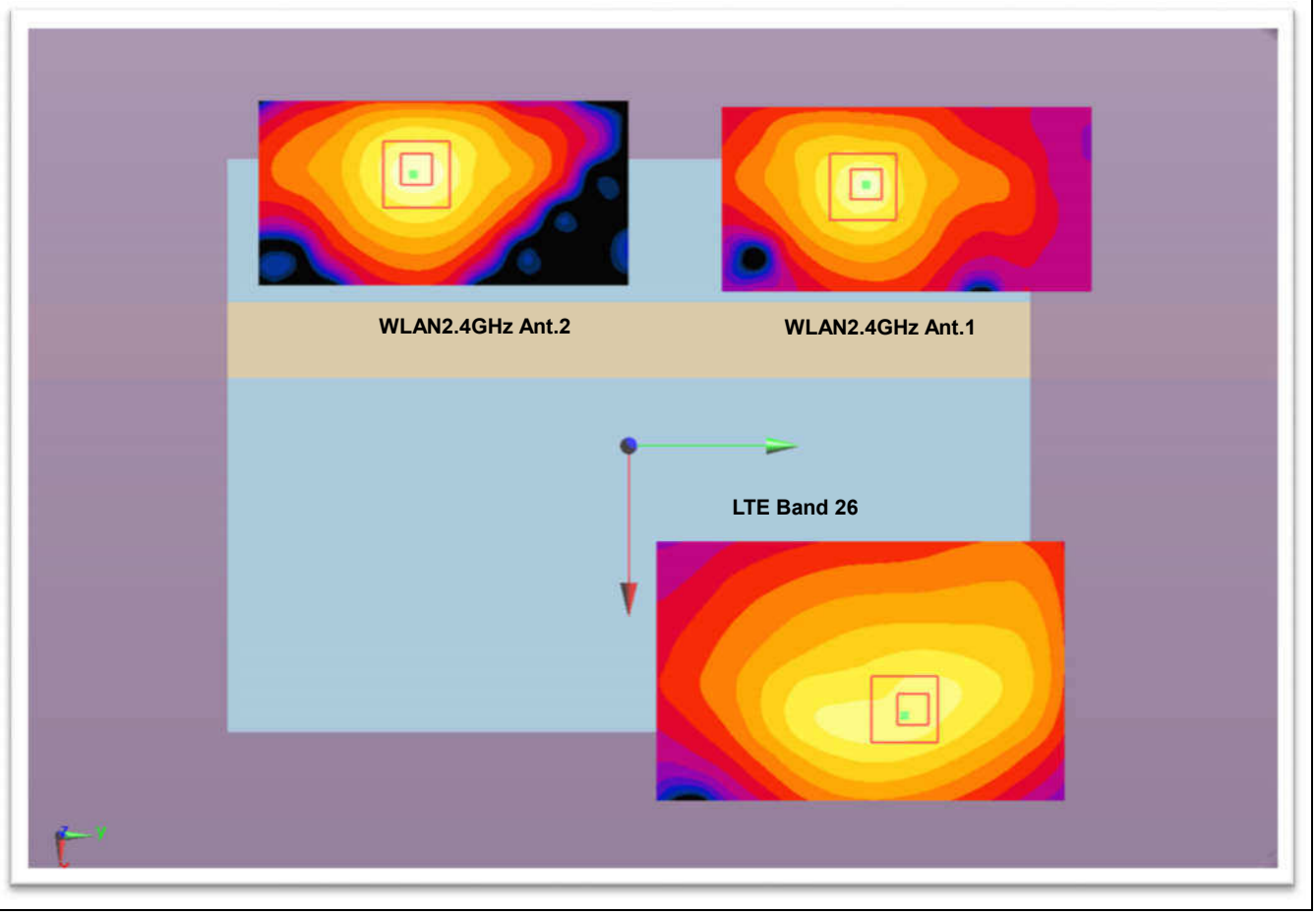
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #5	LTE Band 12	Bottom	0.867	0	8.98	9.24	0.15	175.21	1.90	0.01	Not required
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17				
	LTE Band 12		0.867	0	8.98	9.24	0.15	238.33	1.65	0.01	Not required
	WLAN2.4G Ant.2		0.786	0	-9.02	-6.38	-0.01				
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17	141.71	1.82	0.02	Not required
	WLAN2.4G Ant.2		0.786	0	-9.02	-6.38	-0.01				



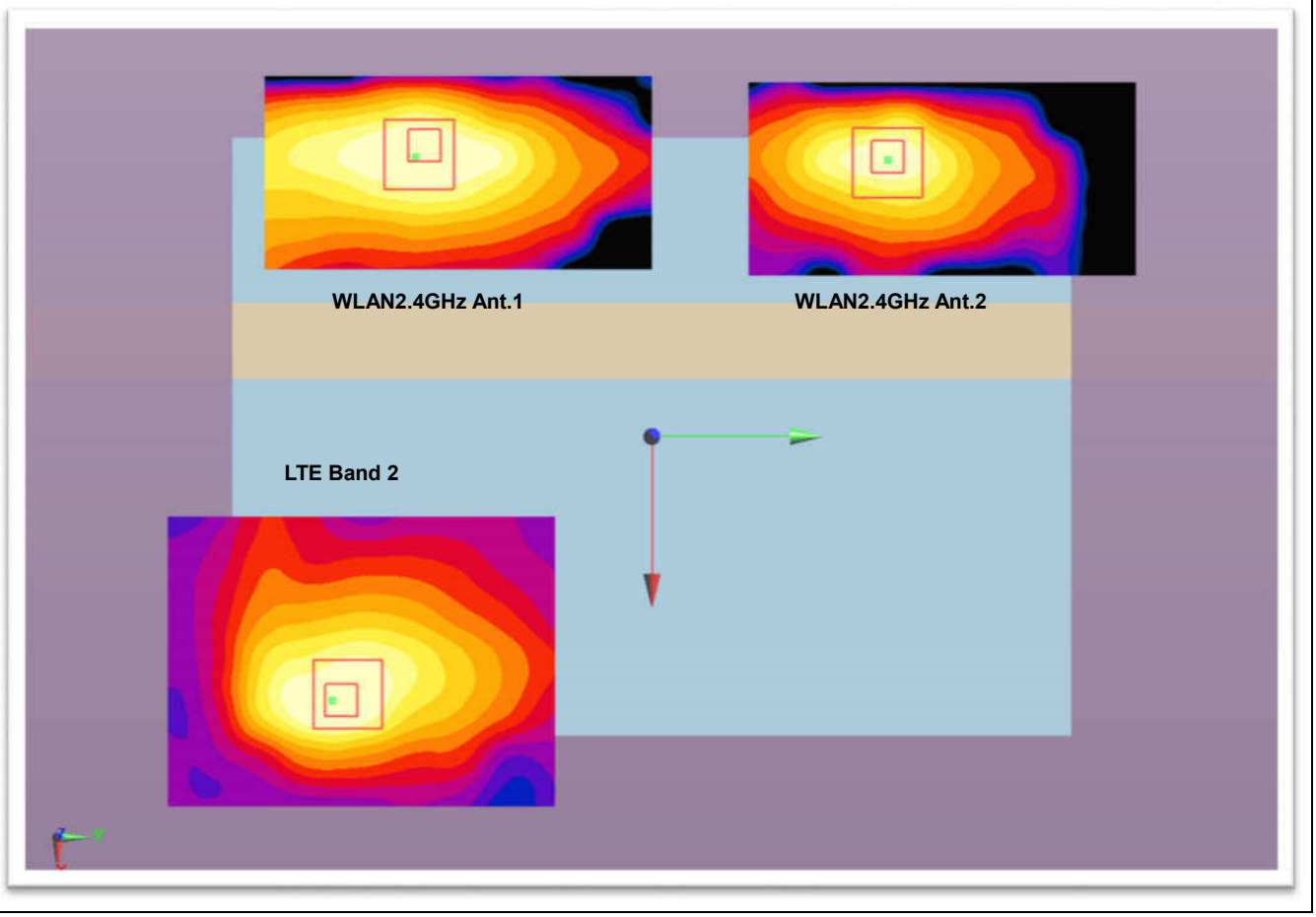
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #6	LTE Band 13	Bottom	1.067	0	8.42	0.42	0	184.34	2.10	0.02	Not required
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17				
	LTE Band 13		1.067	0	8.42	0.42	0	187.19	1.85	0.01	Not required
	WLAN2.4G Ant.2		0.786	0	-9.02	-6.38	-0.01				
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17	141.71	1.82	0.02	Not required
	WLAN2.4G Ant.2		0.786	0	-9.02	-6.38	-0.01				



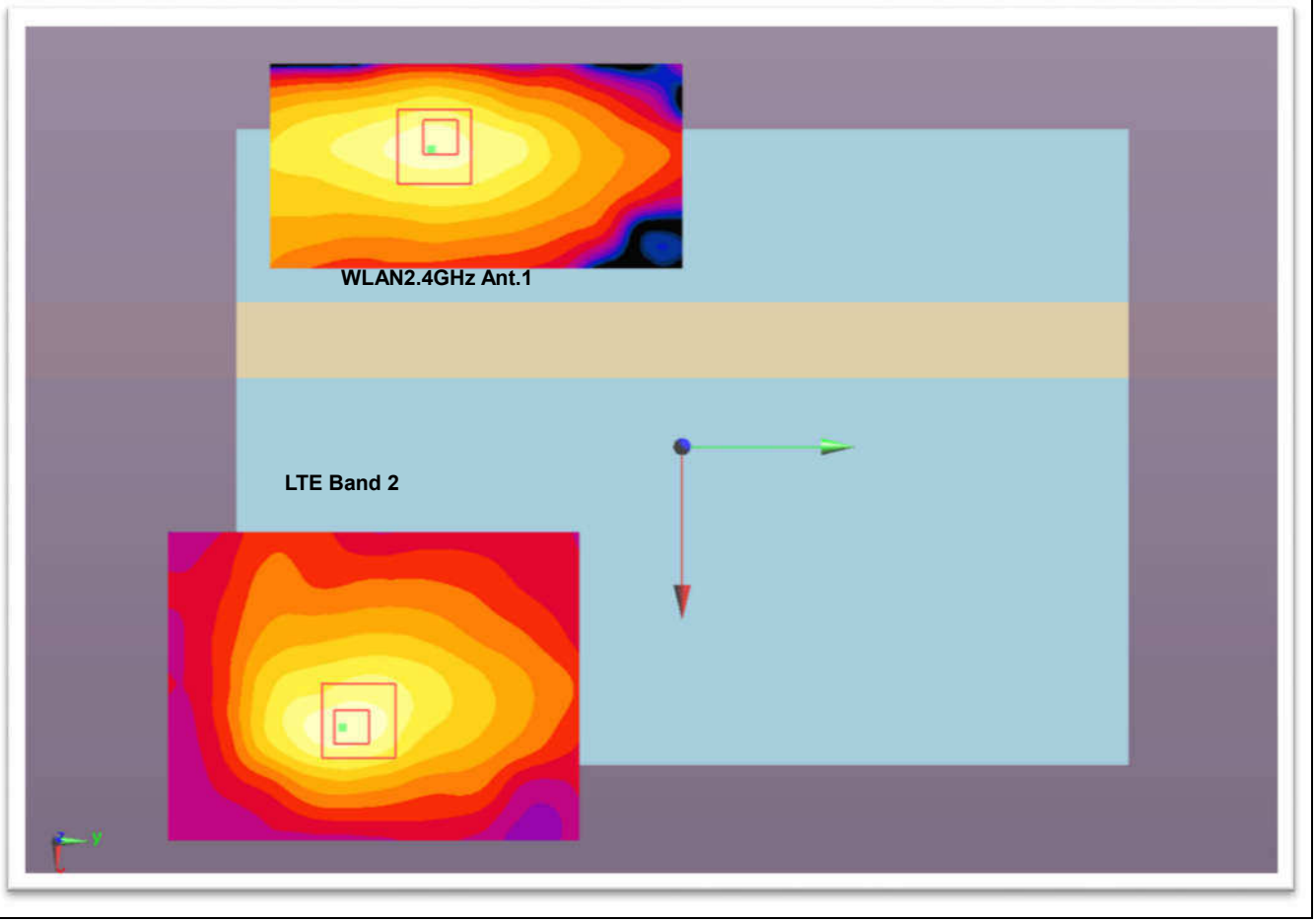
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #7	LTE Band 26	Bottom	0.916	0	8.42	9.42	0	169.80	1.95	0.02	Not required
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17				
	LTE Band 26		0.916	0	8.42	9.42	0	235.33	1.70	0.01	Not required
	WLAN2.4G Ant.2		0.786	0	-9.02	-6.38	-0.01				
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17	141.71	1.82	0.02	Not required
	WLAN2.4G Ant.2		0.786	0	-9.02	-6.38	-0.01				



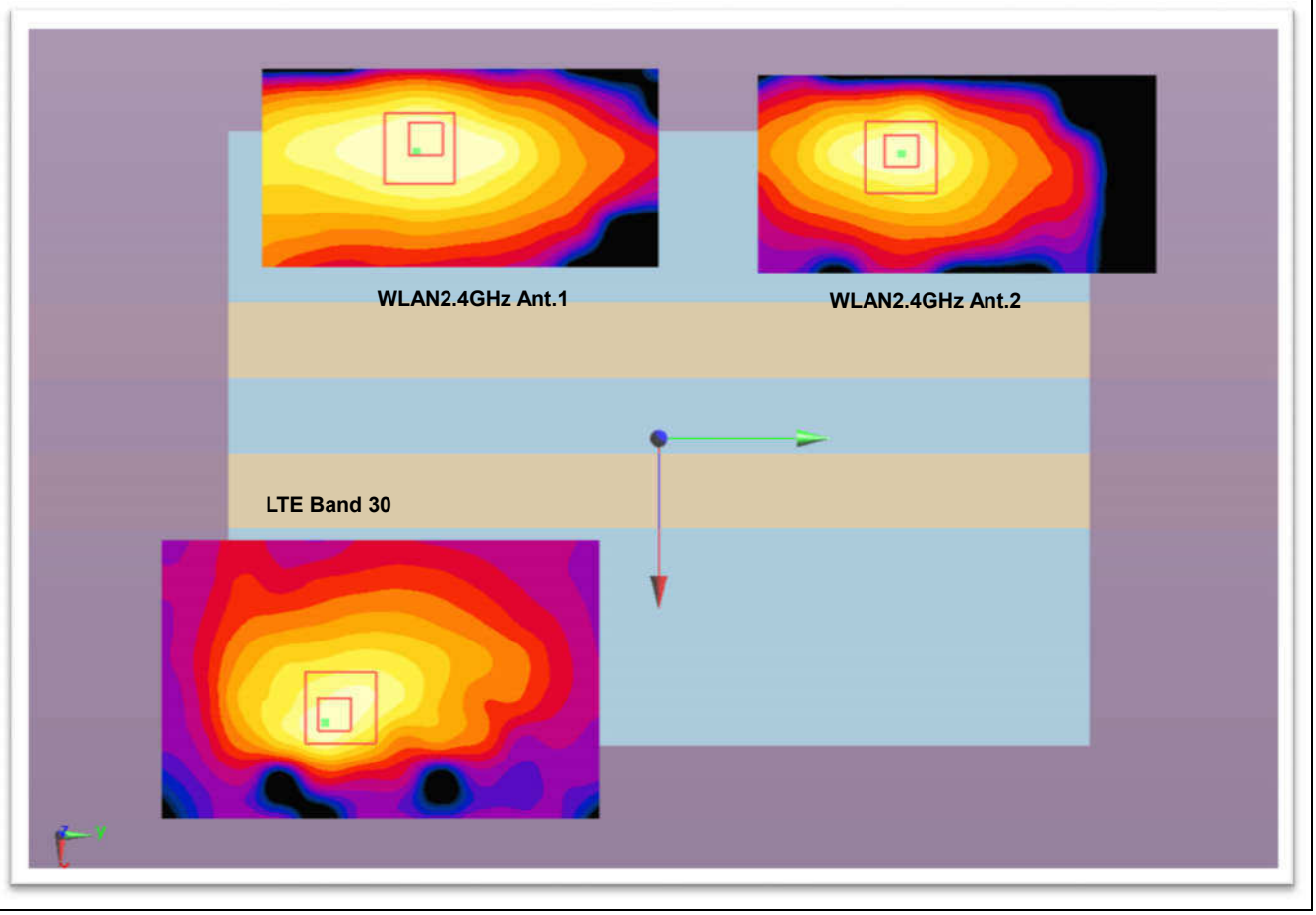
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #8	LTE Band 2	Bottom Face	1.070	0	8.2	-9.58	0.15	174.84	1.84	0.01	Not required
	WLAN2.4G Ant.1		0.765	0	-9.08	-6.92	0.02				
	LTE Band 2		1.070	0	8.2	-9.58	0.15	239.72	1.62	0.01	Not required
	WLAN2.4G Ant.2		0.546	0	-8.9	7.22	0.03				
	WLAN2.4G Ant.1		0.765	0	-9.08	-6.92	0.02	141.41	1.31	0.01	Not required
	WLAN2.4G Ant.2		0.546	0	-8.9	7.22	0.03				



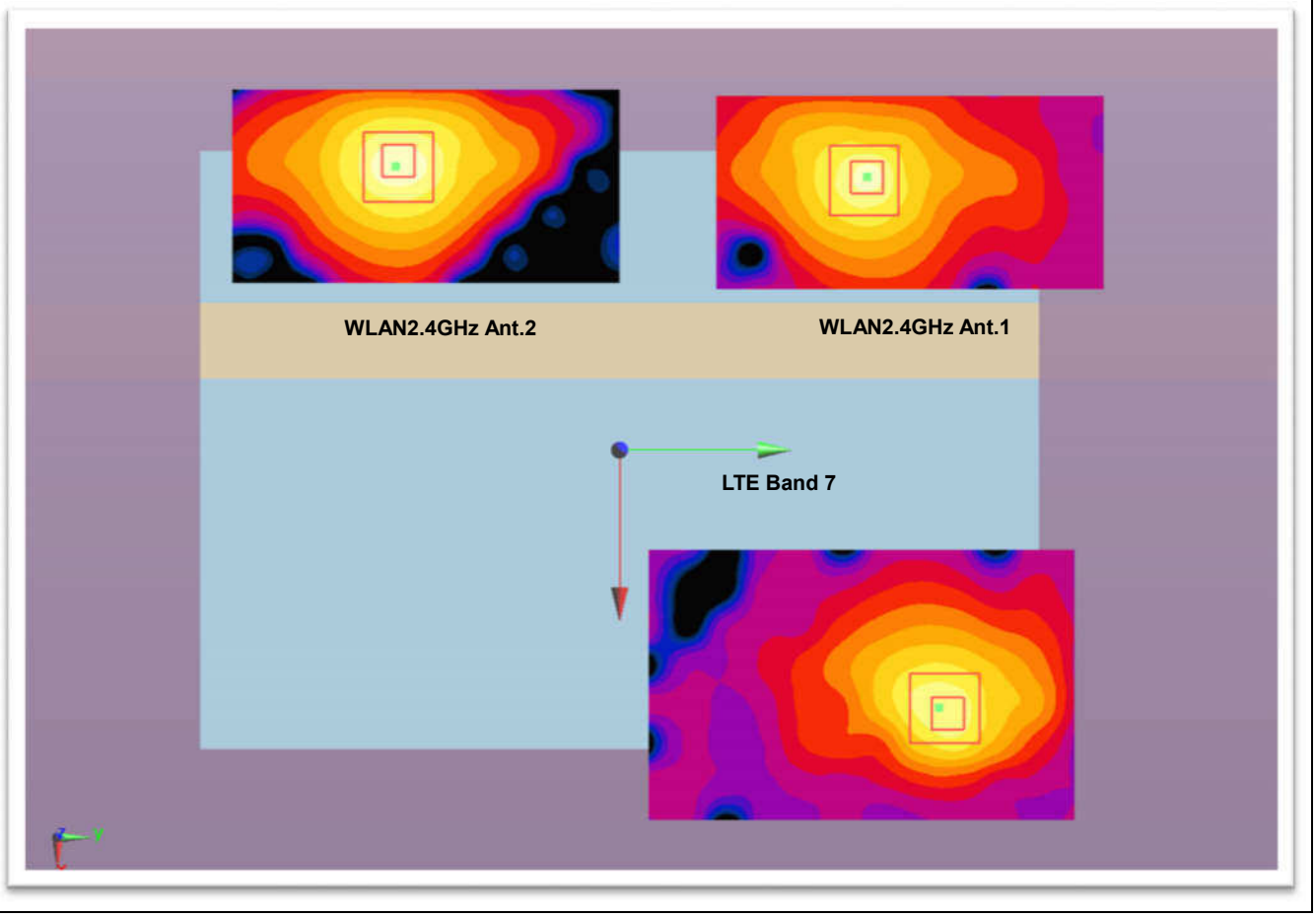
Case #8-1	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE Band 2	Bottom Face	1.070	0	8.2	-9.58	0.15	174.84	1.84	0.01	Not required
	WLAN2.4G Ant.1		0.765	0	-9.08	-6.92	0.02				



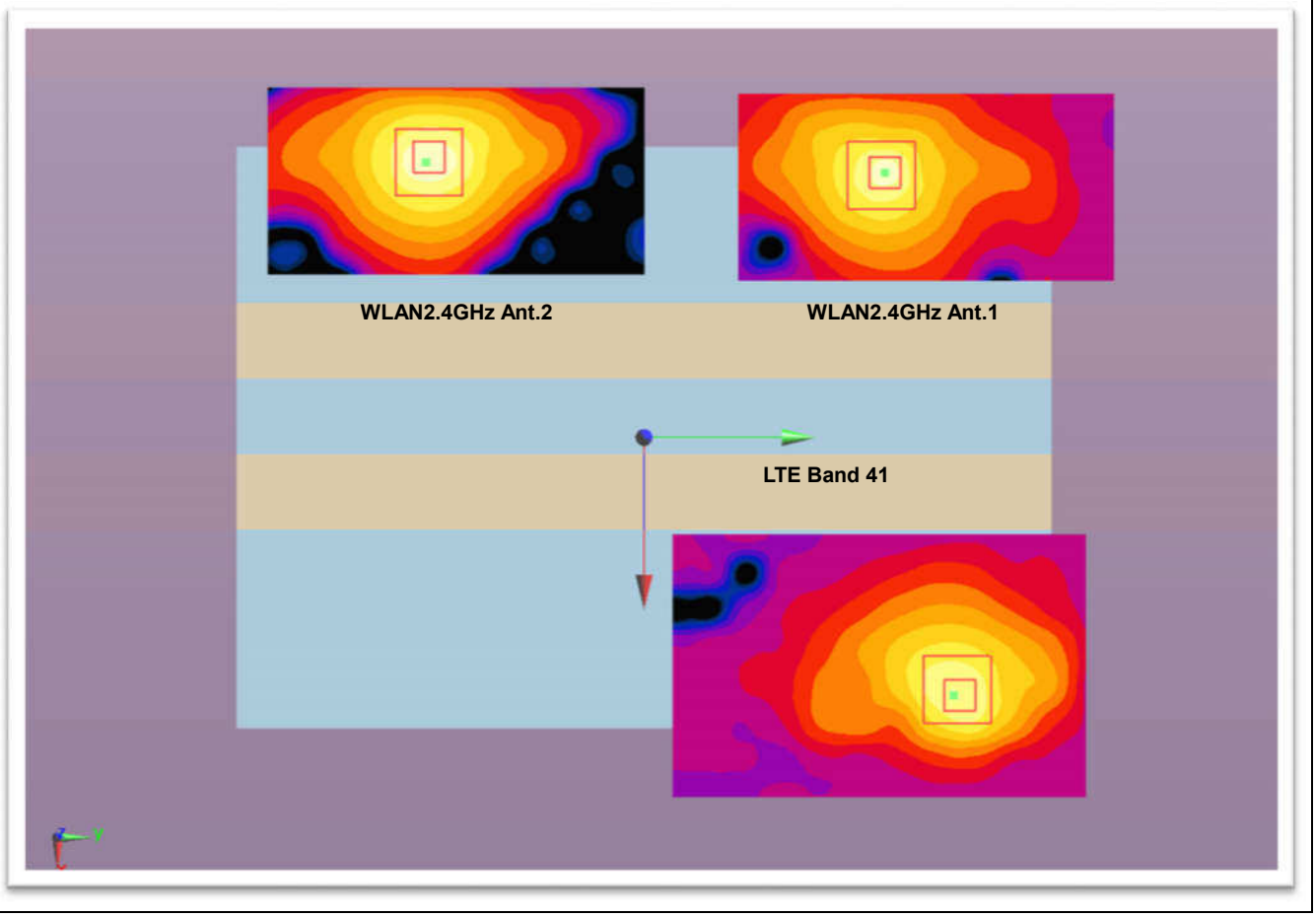
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #9	LTE Band 30	Bottom Face	0.542	0	8.52	-9.88	0.02	178.47	1.31	0.01	Not required
	WLAN2.4G Ant.1		0.765	0	-9.08	-6.92	0.02				
	LTE Band 30		0.542	0	8.52	-9.88	0.02	244.10	1.09	0.00	Not required
	WLAN2.4G Ant.2		0.546	0	-8.9	7.22	0.03				
	WLAN2.4G Ant.1		0.765	0	-9.08	-6.92	0.02	141.41	1.31	0.01	Not required
	WLAN2.4G Ant.2		0.546	0	-8.9	7.22	0.03				



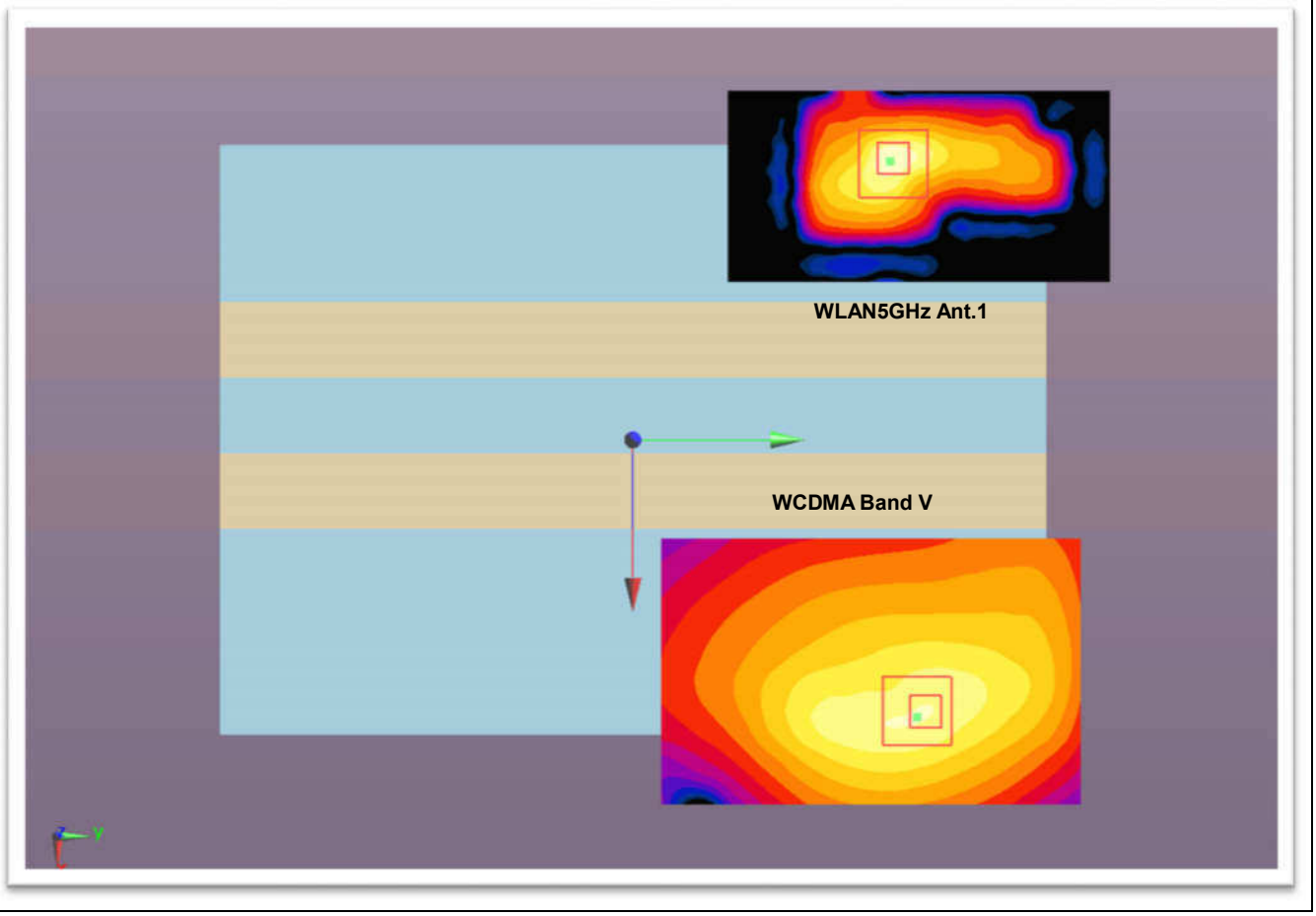
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #10	LTE Band 7	Bottom	0.988	0	8.32	10.1	0	169.60	2.02	0.02	Not required
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17				
	LTE Band 7		0.988	0	8.32	10.1	0	239.22	1.77	0.01	Not required
	WLAN2.4G Ant.2		0.786	0	-9.02	-6.38	-0.01				
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17	141.71	1.82	0.02	Not required
	WLAN2.4G Ant.2		0.786	0	-9.02	-6.38	-0.01				



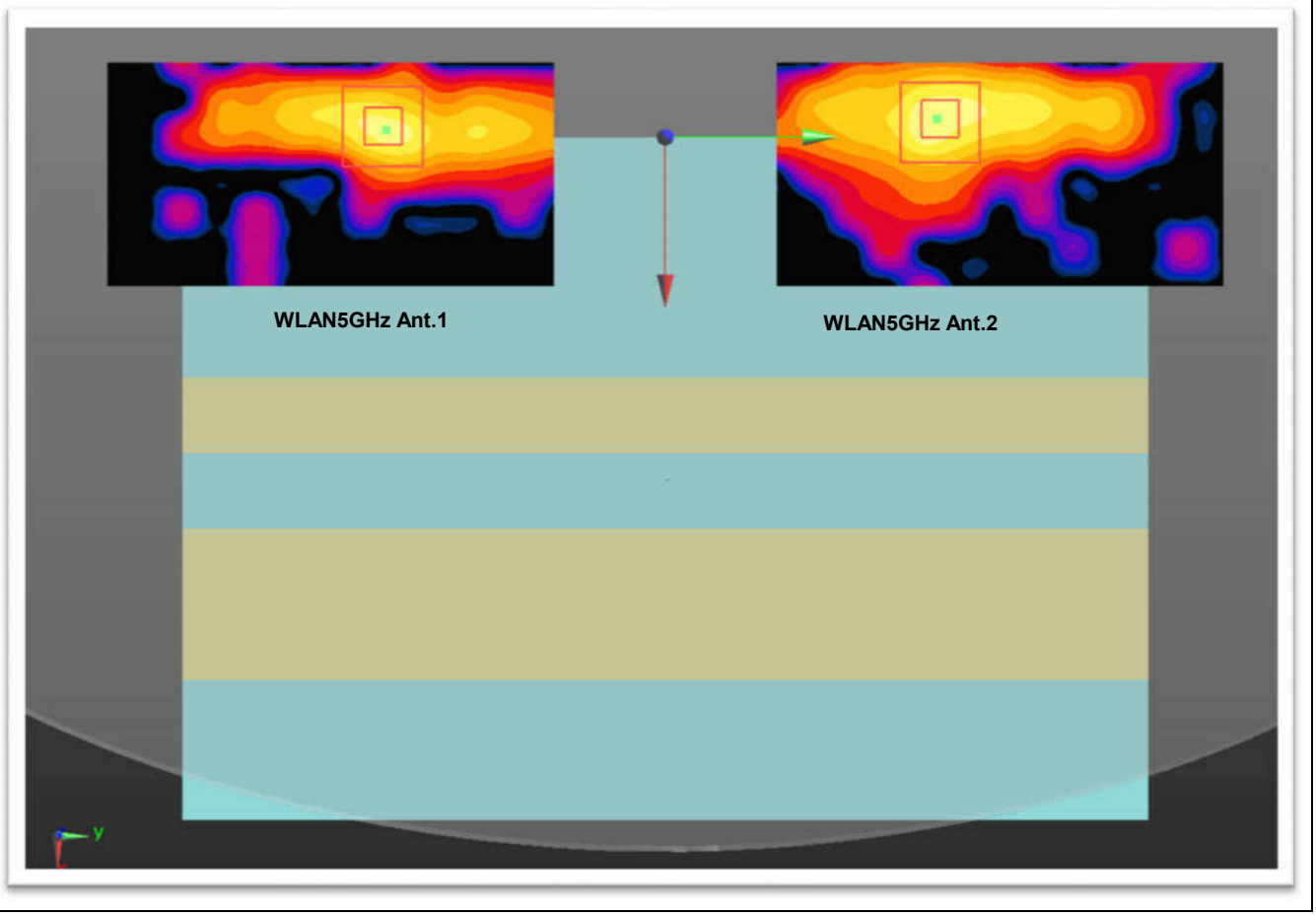
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #11	LTE Band 41	Bottom	0.054	0	8.36	10.1	0.01	170.00	1.08	0.01	Not required
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17				
	LTE Band 41		1.054	0	8.36	10.1	0.01	239.51	1.84	0.01	Not required
	WLAN2.4G Ant.2		0.786	0	-9.02	-6.38	-0.01				
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17	141.71	1.82	0.02	Not required
	WLAN2.4G Ant.2		0.786	0	-9.02	-6.38	-0.01				



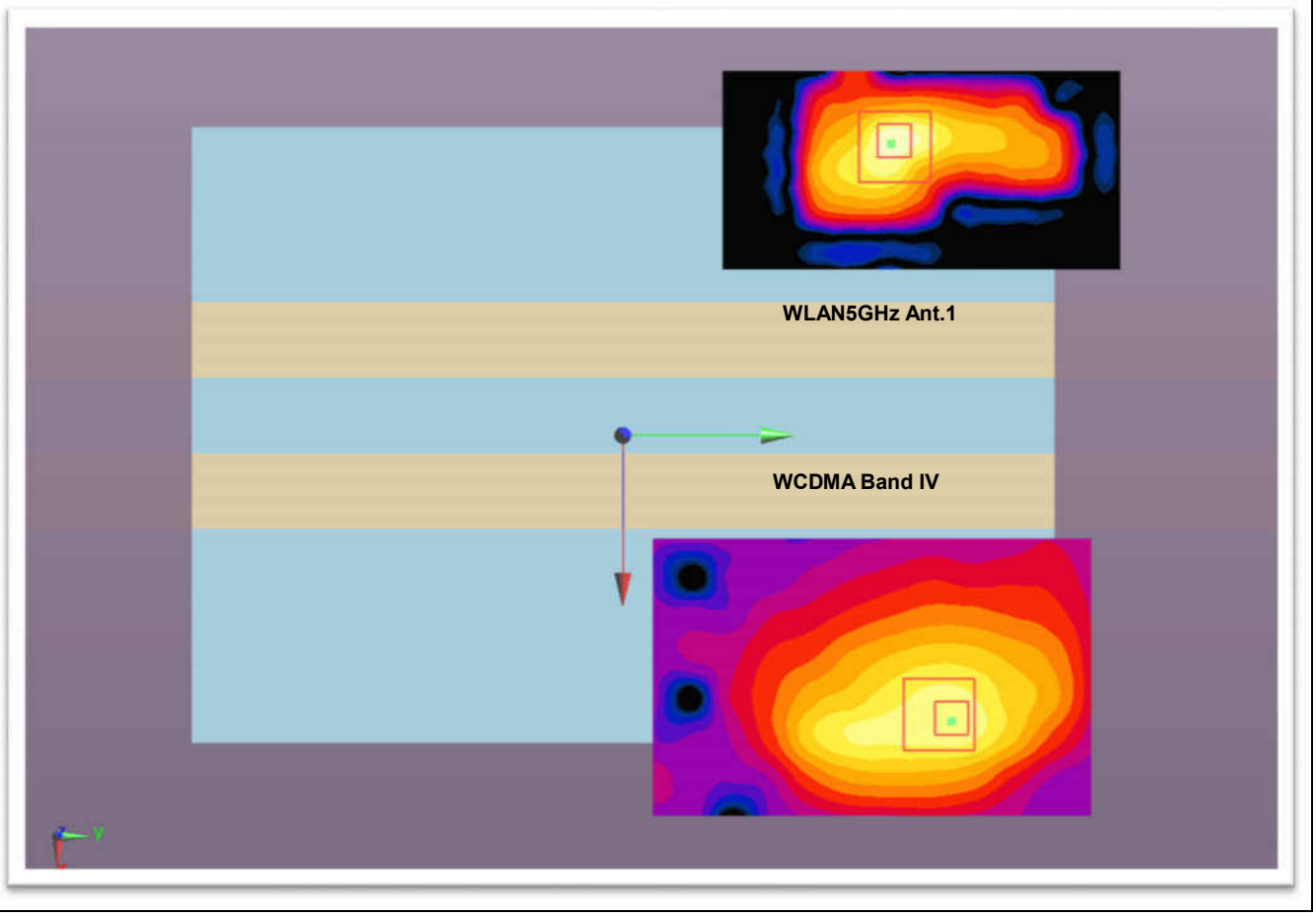
Case #12	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA Band V	Bottom	1.003	0	8.48	9.42	0	173.30	1.63	0.01	Not required
	WLAN5G Ant.1		0.630	0	-8.8	8.1	0.07				



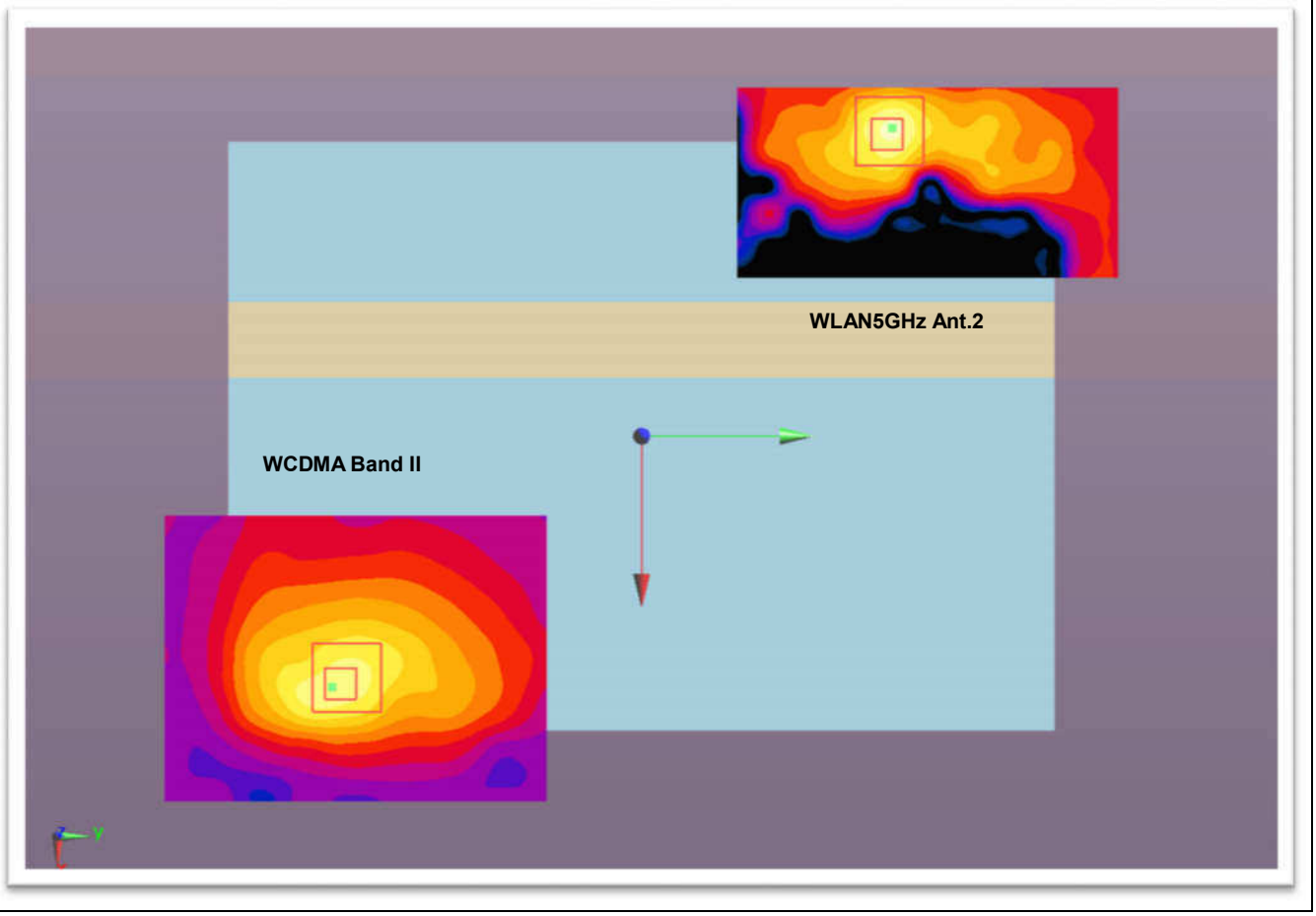
Case #13	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WLAN5G Ant.1	Curved surface of Edge3	1.204	0	-0.36	-7.52	-0.29	156.62	2.35	0.02	Not required
	WLAN5G Ant.2		1.149	0	-0.5	7.46	-0.29				



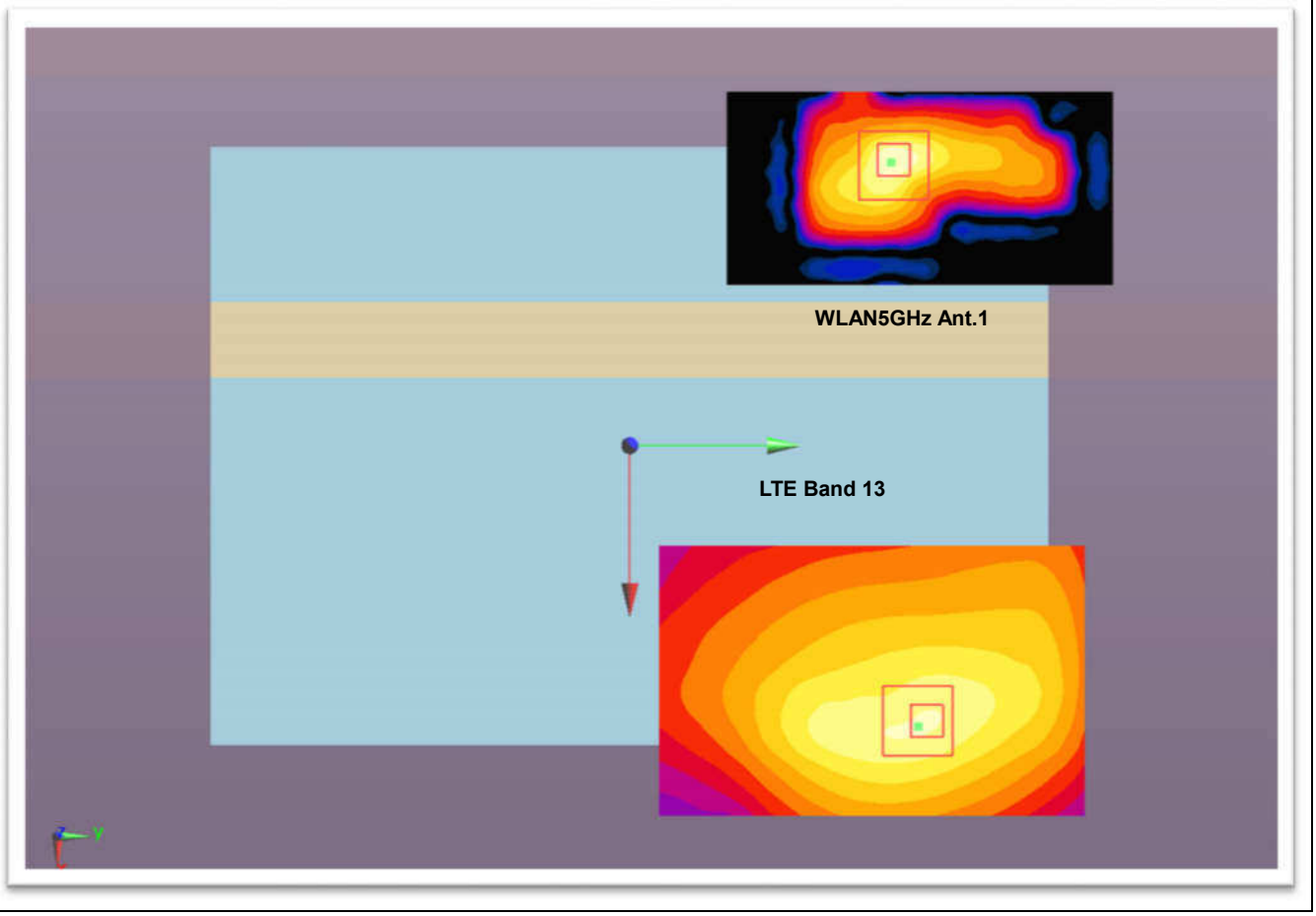
Case #14	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA Band IV	Bottom	1.039	0	8.52	10	0.13	174.24	1.67	0.01	Not required
	WLAN5G Ant.1		0.630	0	-8.8	8.1	0.07				



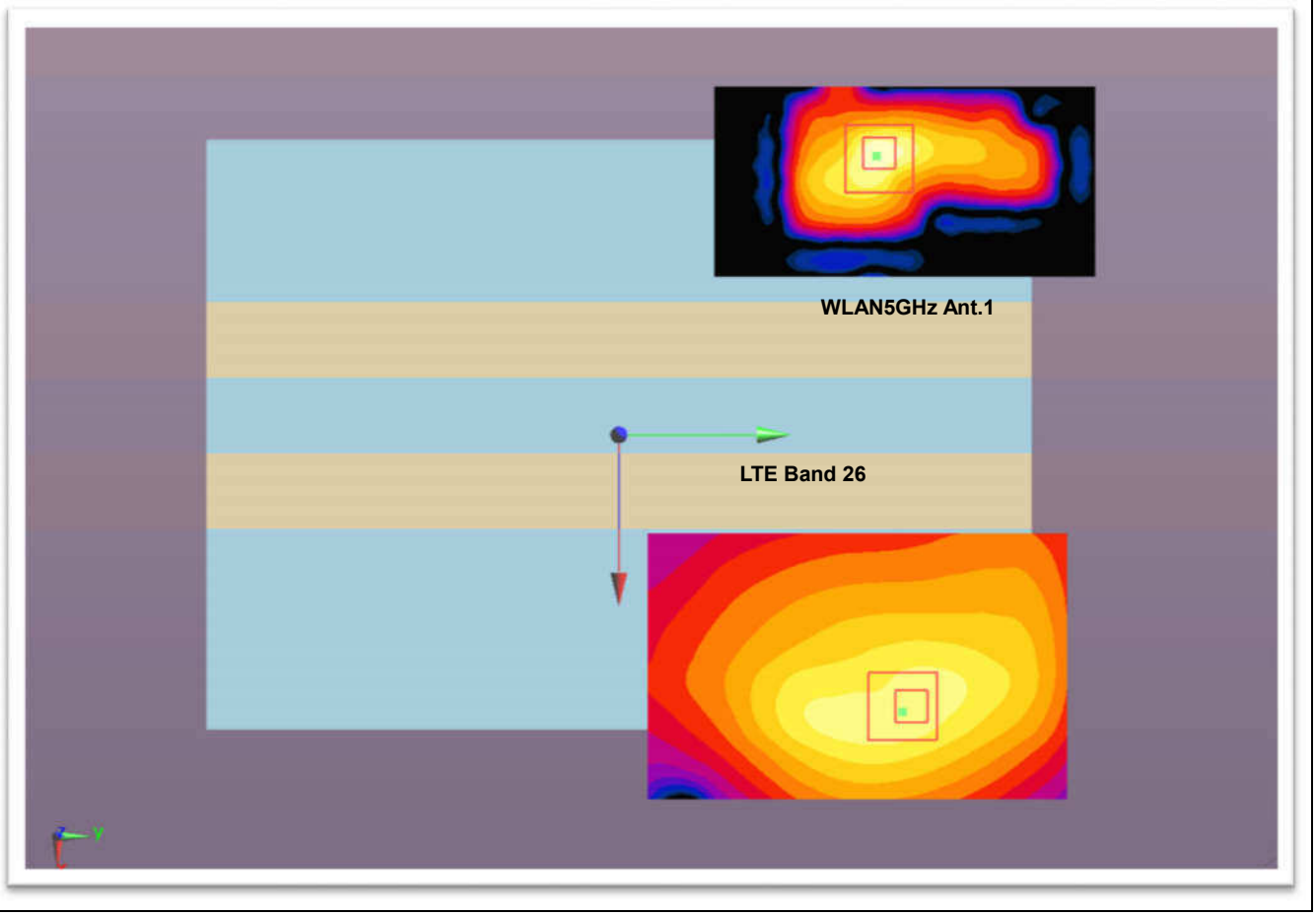
Case #15	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA Band II	Bottom Face	0.977	0	7.9	-9.43	0.02	244.75	2.07	0.01	Not required
	WLAN5G Ant.2		1.095	0	-9.62	7.66	0.05				



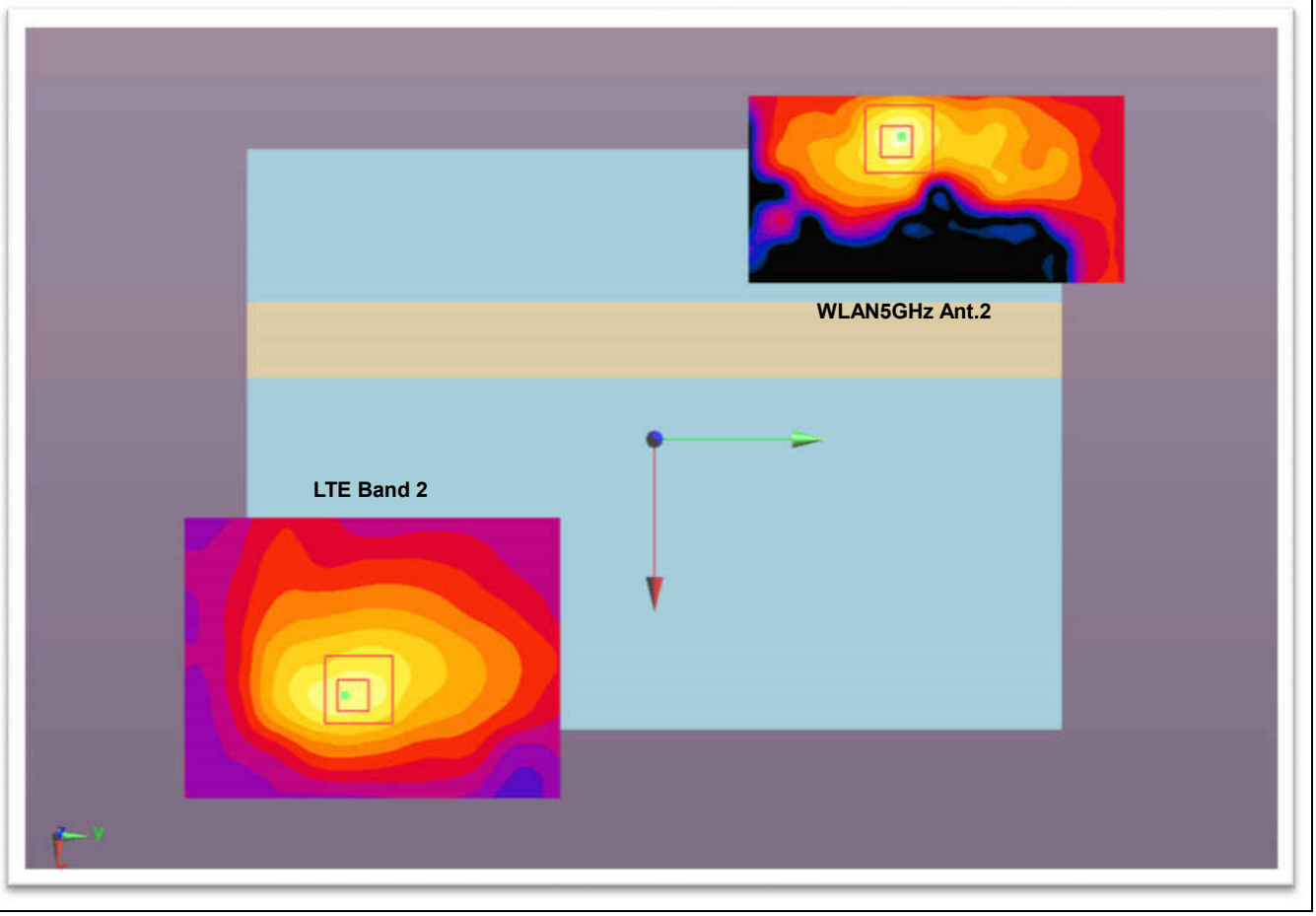
Case #16	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 13	Bottom	1.067	0	8.42	0.42	0	188.55	1.70	0.01	Not required
	WLAN5G Ant.1		0.630	0	-8.8	8.1	0.07				



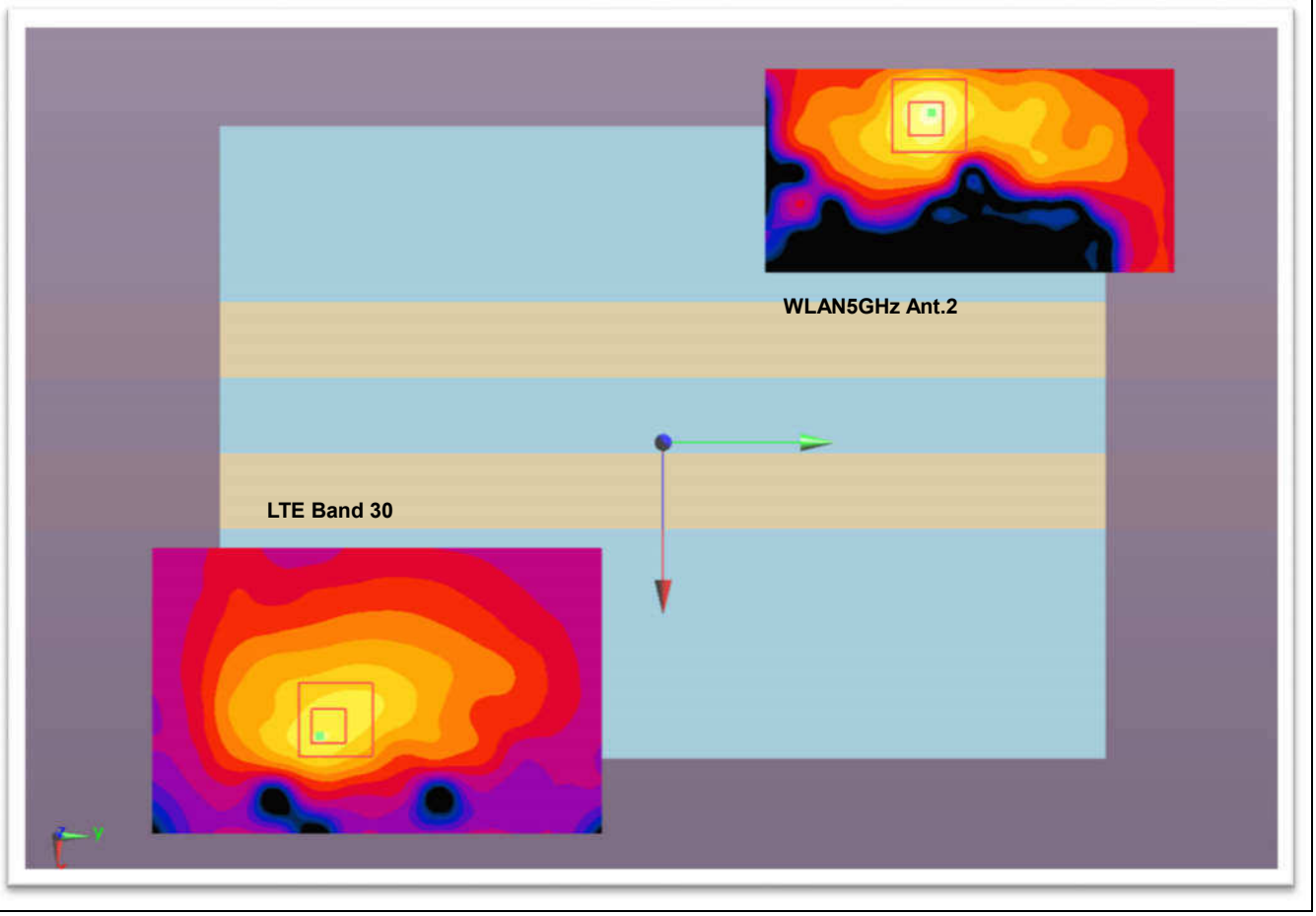
Case #17	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 26	Bottom	0.916	0	8.42	9.42	0	172.71	1.55	0.01	Not required
	WLAN5G Ant.1		0.630	0	-8.8	8.1	0.07				



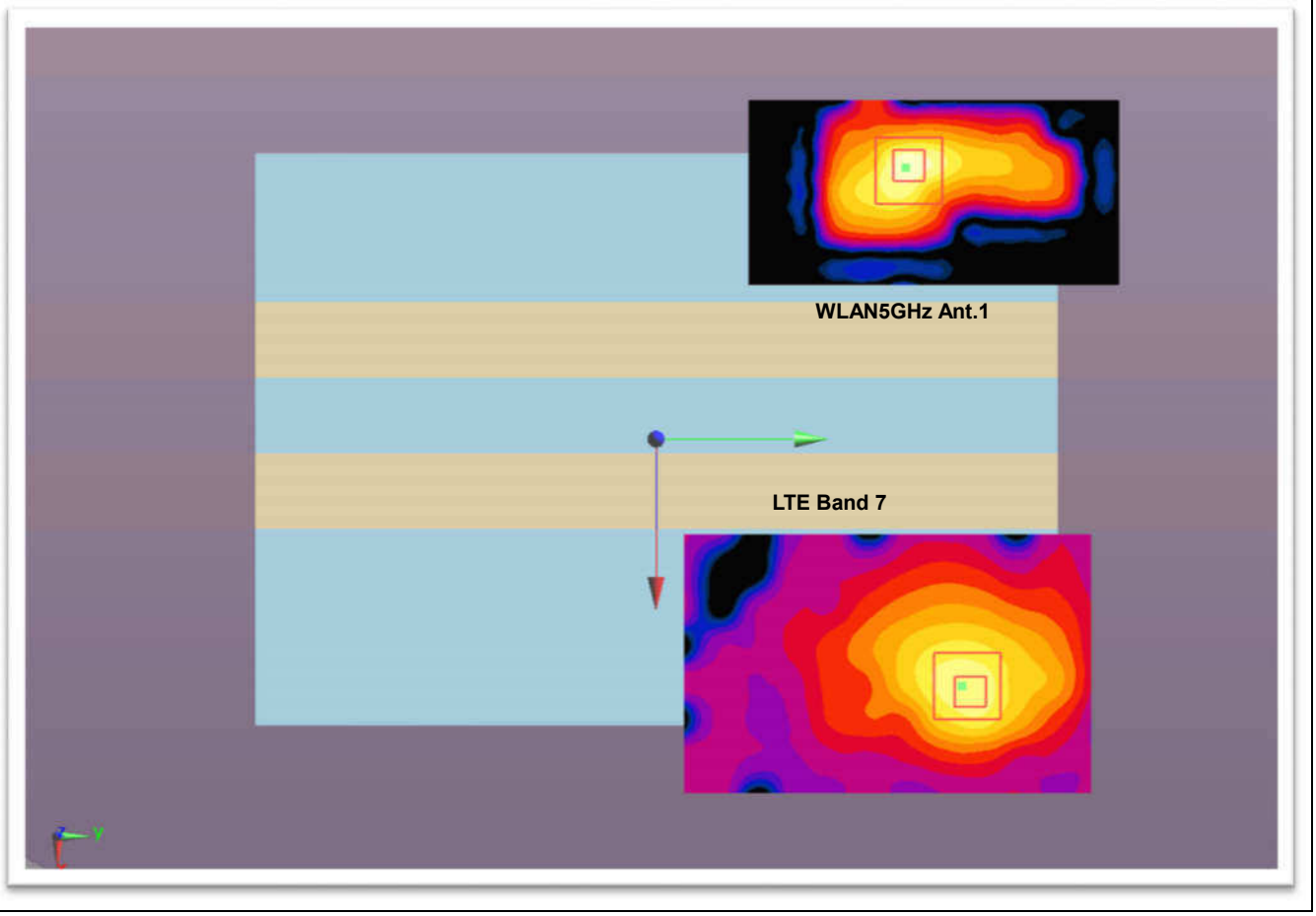
Case #18	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 2	Bottom Face	1.070	0	8.2	-9.58	0.15	247.95	2.17	0.01	Not required
	WLAN5G Ant.2		1.095	0	-9.62	7.66	0.05				



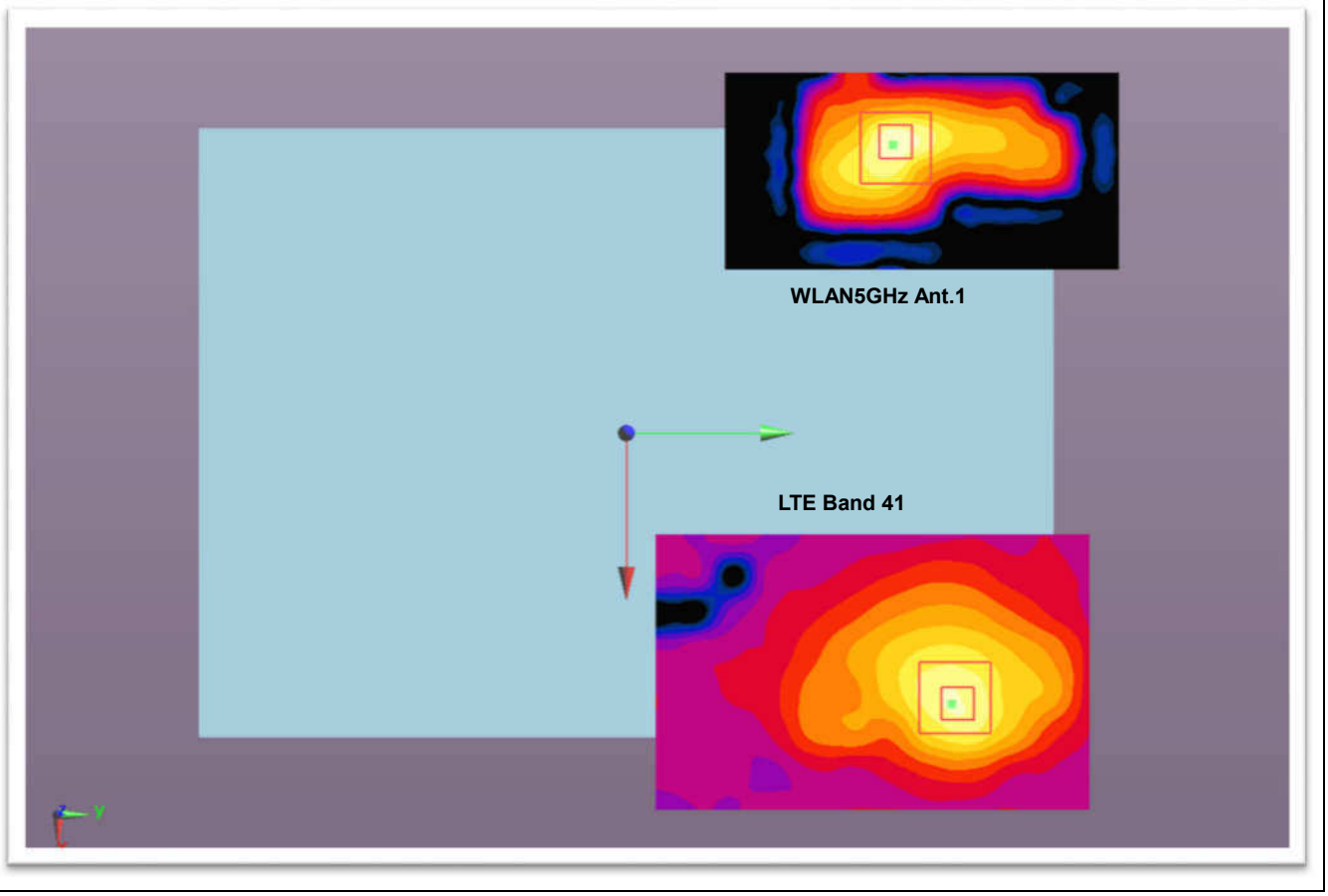
Case #19	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 30	Bottom Face	0.542	0	8.52	-9.88	0.02	252.33	1.64	0.01	Not required
	WLAN5G Ant.2		1.095	0	-9.62	7.66	0.05				



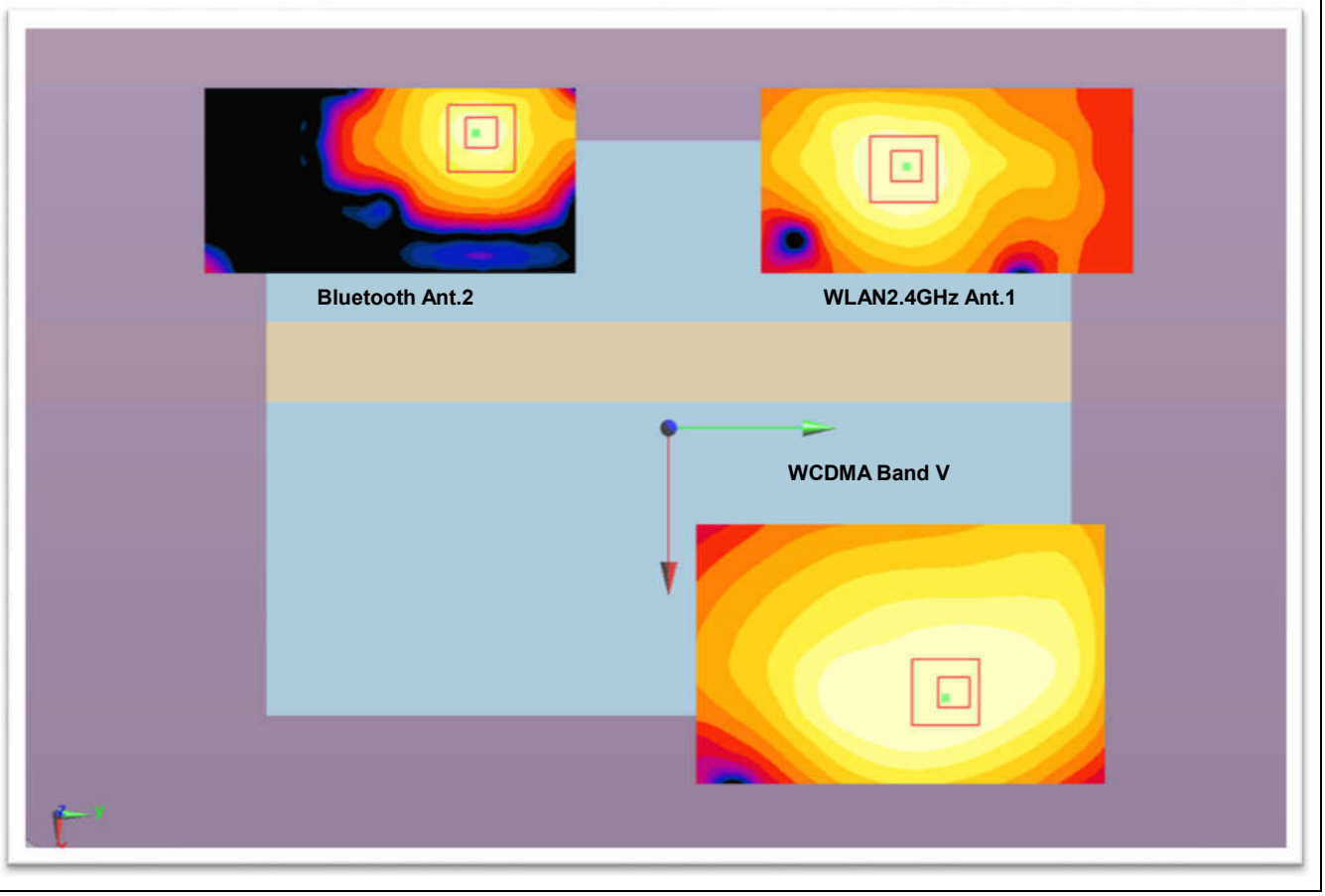
Case #20	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 7	Bottom	0.988	0	8.32	10.1	0	172.37	1.62	0.01	Not required
	WLAN5G Ant.1		0.630	0	-8.8	8.1	0.07				



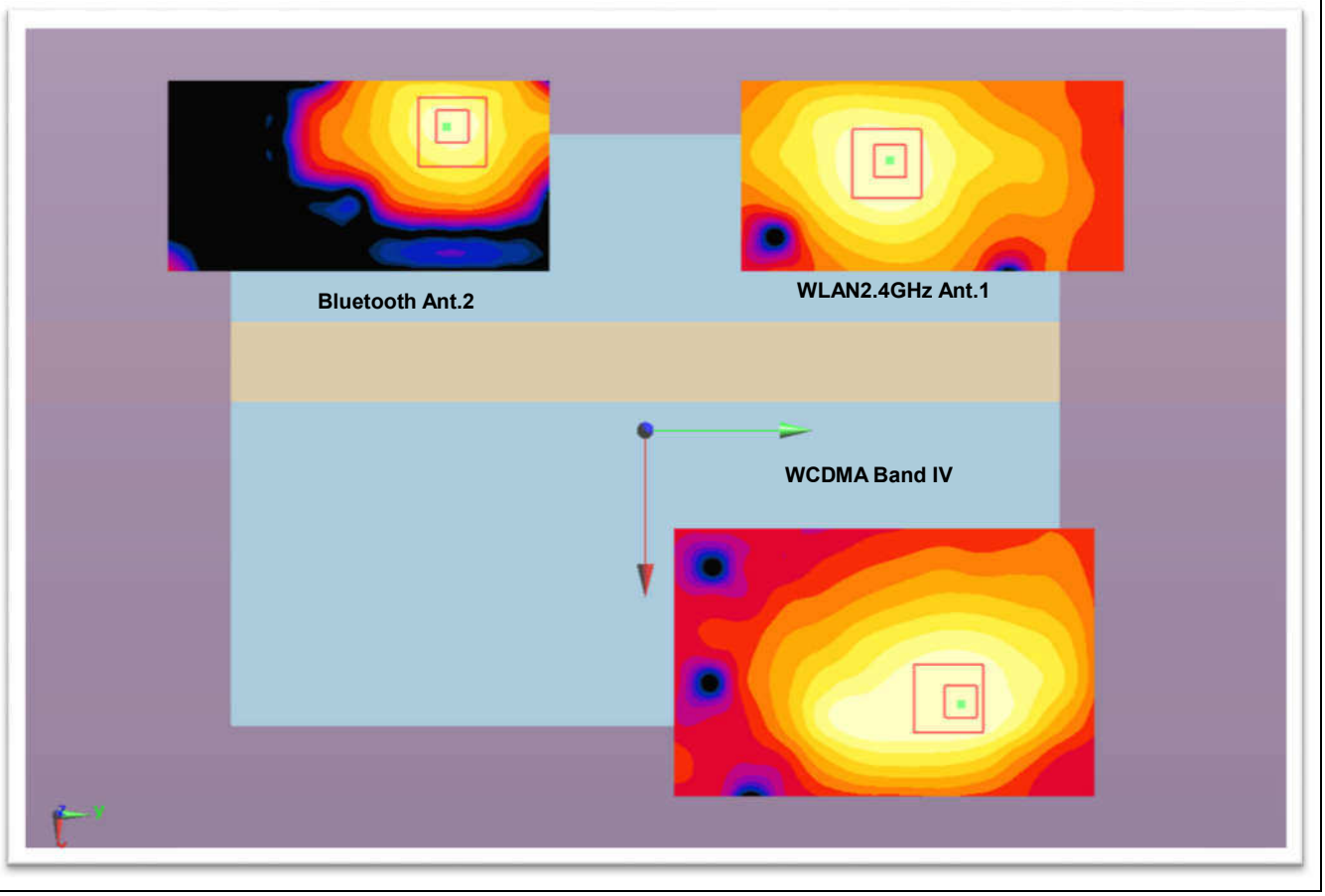
Case #21	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 41	Bottom	1.054	0	8.36	10.1	0.01	172.76	1.68	0.01	Not required
	WLAN5G Ant.1		0.630	0	-8.8	8.1	0.07				



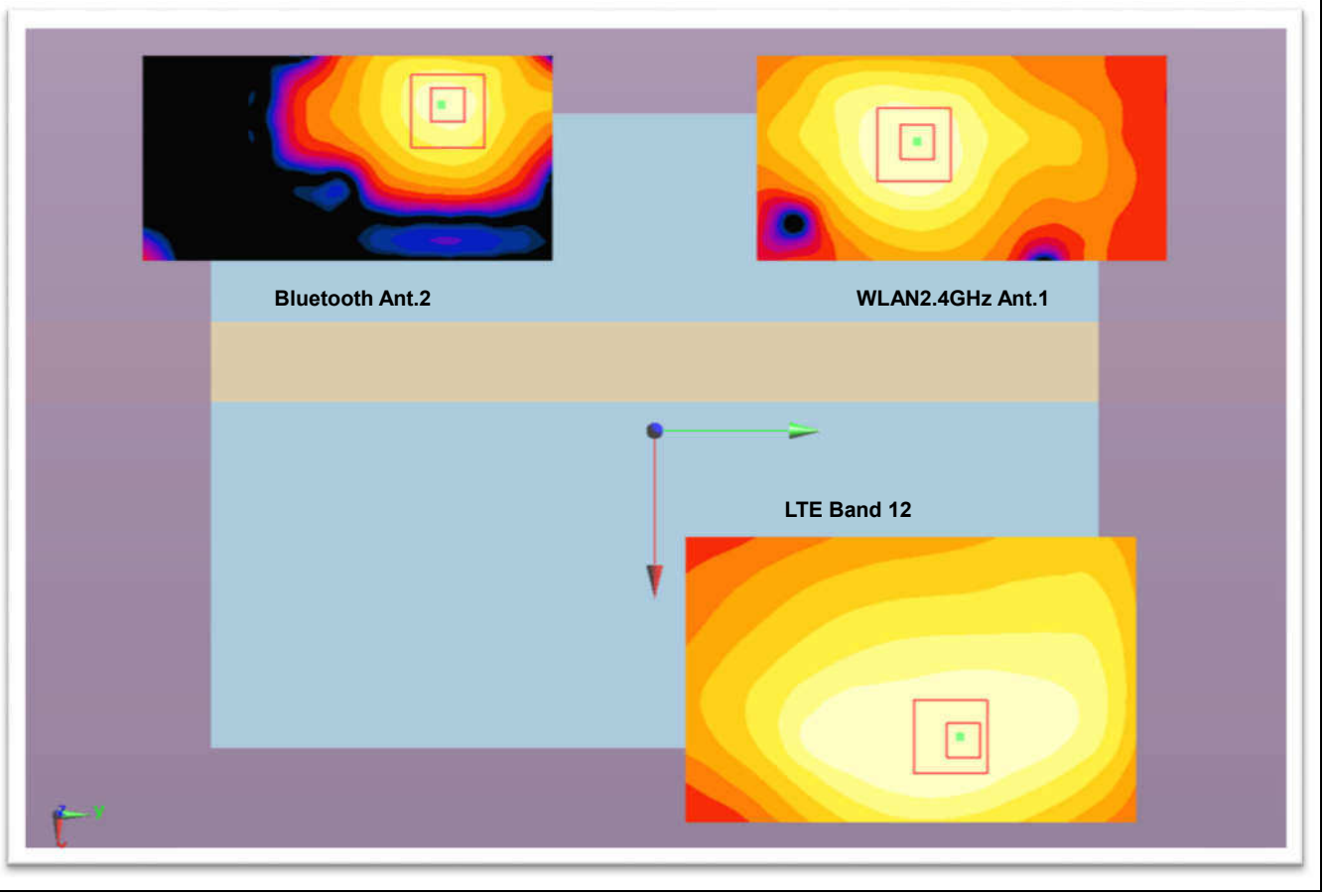
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #22	WCDMA Band V	Bottom	1.003	0	8.48	9.42	0	170.40	2.03	0.02	Not required
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17				
	WCDMA Band V		1.003	0	8.48	9.42	0	240.96	1.35	0.01	Not required
	Bluetooth Ant.2		0.350	0	-9.66	-6.44	0.02				
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17	142.70	1.38	0.01	Not required
	Bluetooth Ant.2		0.350	0	-9.66	-6.44	0.02				



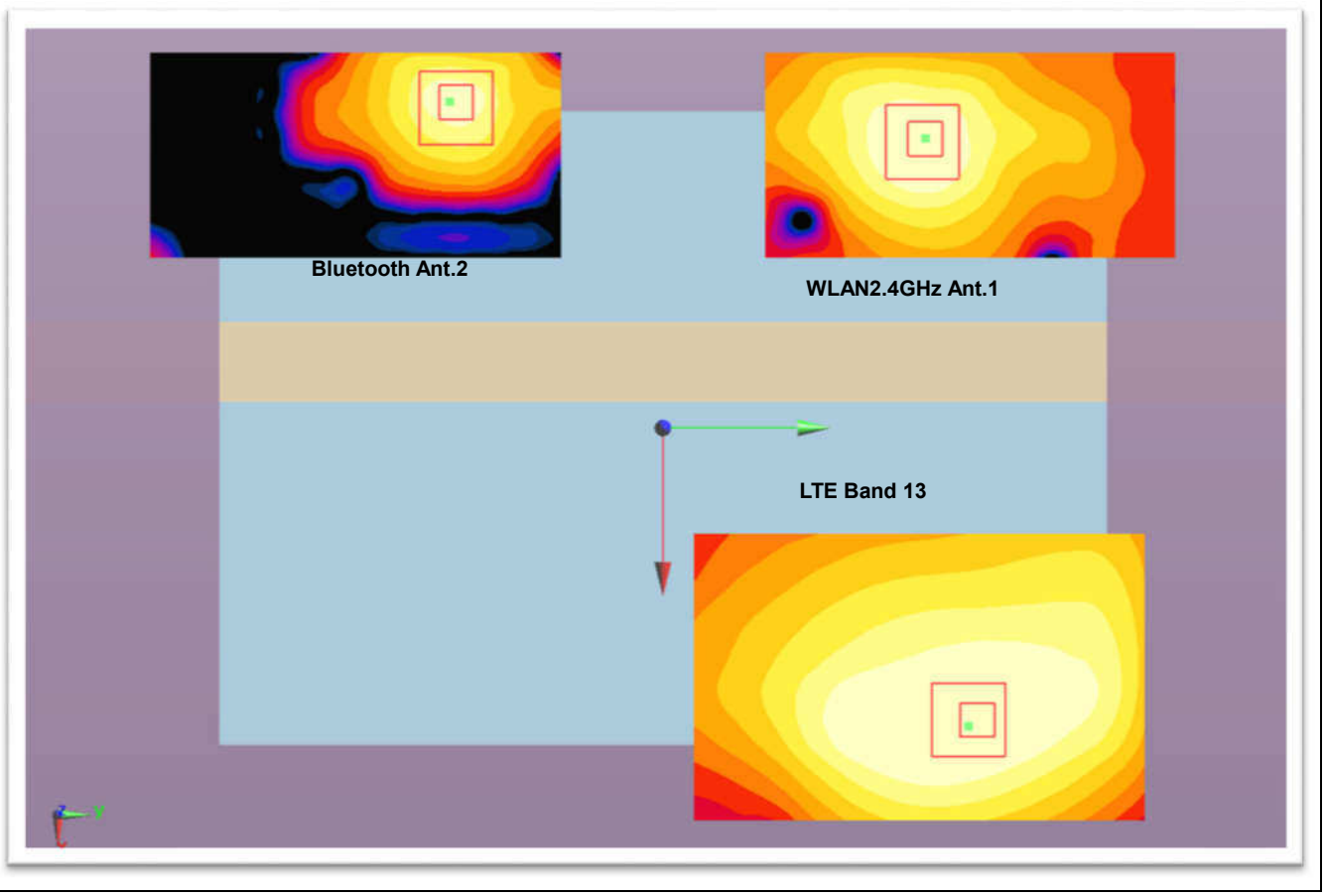
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #23	WCDMA Band IV	Bottom	1.039	0	8.52	10	0.13	171.44	2.07	0.02	Not required
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17				
	WCDMA Band IV		1.039	0	8.52	10	0.13	245.11	1.39	0.01	Not required
	Bluetooth Ant.2		0.350	0	-9.66	-6.44	0.02				
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17	142.70	1.38	0.01	Not required
	Bluetooth Ant.2		0.350	0	-9.66	-6.44	0.02				



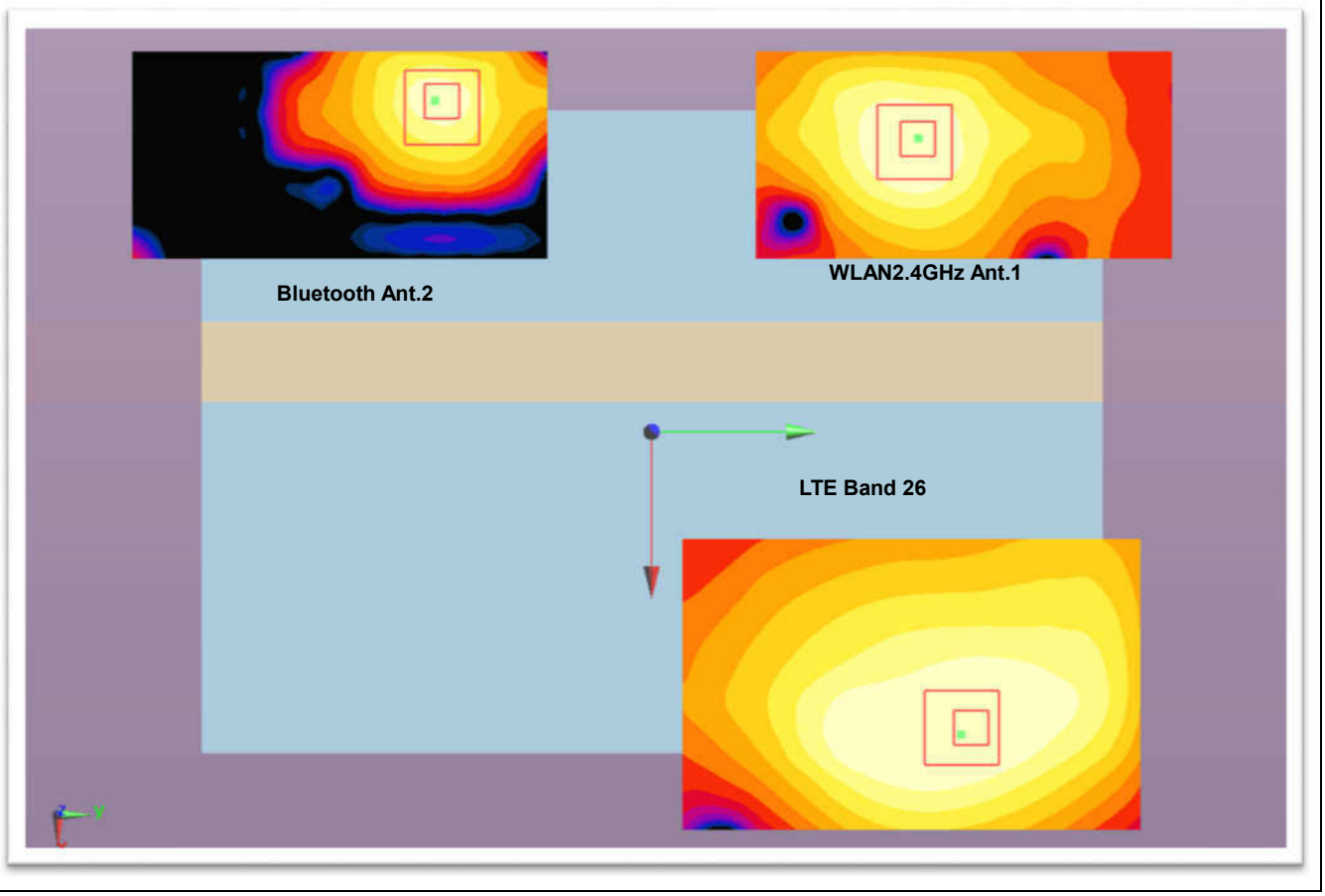
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #24	LTE Band 12	Bottom	0.867	0	8.98	9.24	0.15	175.21	1.90	0.01	Not required
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17				
	LTE Band 12		0.867	0	8.98	9.24	0.15	243.58	1.22	0.01	Not required
	Bluetooth Ant.2		0.350	0	-9.66	-6.44	0.02				
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17	142.70	1.38	0.01	Not required
	Bluetooth Ant.2		0.350	0	-9.66	-6.44	0.02				



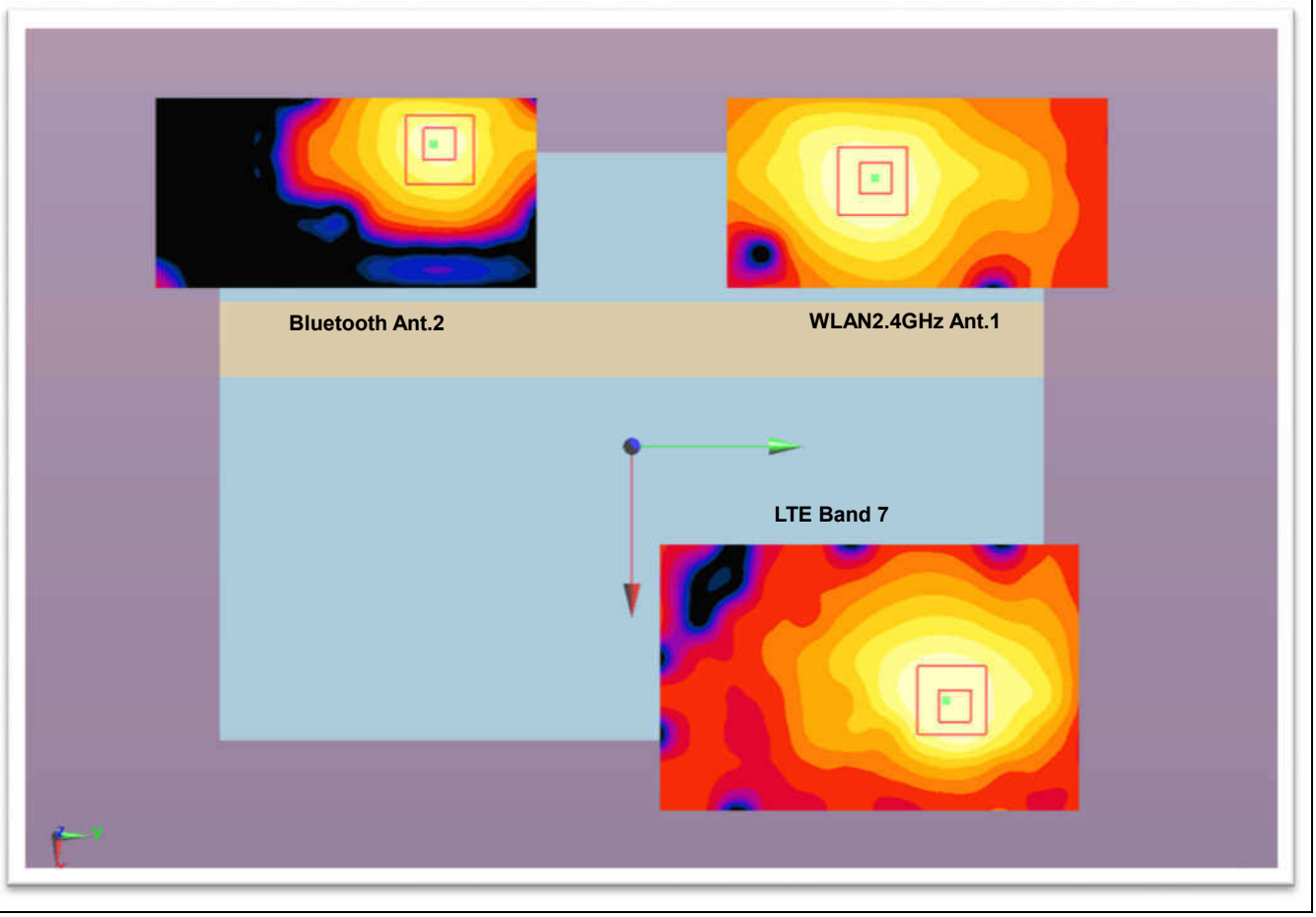
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #25	LTE Band 13	Bottom	1.067	0	8.42	0.42	0	184.34	2.10	0.02	Not required
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17				
	LTE Band 13		1.067	0	8.42	0.42	0	193.38	1.42	0.01	Not required
	Bluetooth Ant.2		0.350	0	-9.66	-6.44	0.02				
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17	142.70	1.38	0.01	Not required
	Bluetooth Ant.2		0.350	0	-9.66	-6.44	0.02				



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #26	LTE Band 26	Bottom	0.916	0	8.42	9.42	0	169.80	1.95	0.02	Not required
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17				
	LTE Band 26		0.916	0	8.42	9.42	0	240.50	1.27	0.01	Not required
	Bluetooth Ant.2		0.350	0	-9.66	-6.44	0.02				
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17	142.70	1.38	0.01	Not required
	Bluetooth Ant.2		0.350	0	-9.66	-6.44	0.02				



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #27	LTE Band 7	Bottom	0.988	0	8.32	10.1	0	169.60	2.02	0.02	Not required
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17				
	LTE Band 7		0.988	0	8.32	10.1	0	244.31	1.34	0.01	Not required
	Bluetooth Ant.2		0.350	0	-9.66	-6.44	0.02				
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17	142.70	1.38	0.01	Not required
	Bluetooth Ant.2		0.350	0	-9.66	-6.44	0.02				



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #28	LTE Band 41	Bottom	1.054	0	8.36	10.1	0.01	170.00	2.08	0.02	Not required
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17				
	LTE Band 41		1.054	0	8.36	10.1	0.01	244.60	1.40	0.01	Not required
	Bluetooth Ant.2		0.350	0	-9.66	-6.44	0.02				
	WLAN2.4G Ant.1		1.030	0	-8.48	7.78	0.17	142.70	1.38	0.01	Not required
	Bluetooth Ant.2		0.350	0	-9.66	-6.44	0.02