



FCC SAR TEST REPORT

FCC ID : B94HNC09CMCL
Equipment : Convertible PC
Brand Name : HP
Model Name : HSN-C09C
Marketing Name : HP Start Up Notebook PC
Applicant : HP Inc.
1501 Page Mill Road, Palo Alto CA 94304 USA
Standard : FCC 47 CFR Part 2 (2.1093)

The product was received on Sep. 09, 2020 and testing was started from Sep. 24, 2020 and completed on Sep. 27, 2020. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample provide by manufacturer and the test data has been evaluated in accordance with the test procedures given in 47 CFR Part 2.1093 and FCC KDB and has been pass the FCC requirement.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Cona Huang / Deputy Manager

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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History of this test report

Report No.	Version	Description	Issued Date
FA082123	01	Initial issue of report	Nov. 05, 2020

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for HP Inc., Convertible PC, HSN-C09C, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary	Highest Simultaneous Transmission 1g SAR (W/kg)
		Body	
		1g SAR (W/kg)	
Licensed	WCDMA II	1.15	1.59
	WCDMA IV	1.02	
	WCDMA V	1.02	
	LTE Band 7	1.03	
	LTE Band 12 / 17	1.09	
	LTE Band 13	1.10	
	LTE Band 14	1.15	
	LTE Band 2 / 25	1.20	
	LTE Band 5 / 26	1.14	
	LTE Band 30	1.13	
	LTE Band 38 / 41	1.15	
	LTE Band 4 / 66	1.16	
Date of Testing:		2020/9/24 ~ 2020/9/27	

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test. 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.

Reviewed by: Jason Wang
Report Producer: Daisy Peng

2. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards, if the KDB standards were not list within TAF approval, because it is include in the FCC KDB 447498.

- 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

3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	Convertible PC
Brand Name	HP
Model Name	HSN-C09C
Marketing Name	HP Start Up Notebook PC
FCC ID	B94HNC09CMCL
Integrated WWAN Module	Brand Name: FOXCONN Model Name: T77W968
Integrated WLAN Module	Brand Name: Murata Model Name: LBEE58D1VF
Wireless Technology and Frequency Range	WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 MHz WLAN 2.4GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.6GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8GHz Band: 5725 MHz ~ 5825 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz
Mode	RMC 12.2Kbps HSDPA HSUPA DC-HSDPA LTE: QPSK, 16QAM, 64QAM WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/HE20/HE40/HE80 Bluetooth BR/EDR/LE
EUT Stage	Production Unit
Remark: - The device implements sensor detection for SAR compliance, the RF exposure is according to KDB 616217 and KDB inquiry to be evaluated for this device. - The device is a 360 convertible laptop computer, users can swipe the screen to select tablet mode or NB mode. - The Murata LBEE58D1VF is also integrated into this host, the 2.4GHz/5 GHz WLAN and Bluetooth SAR results are referenced from Sporton SAR report, report number: FA001919(FCC: B94-C09CWLM) and these SAR results are also used to perform simultaneous transmission analysis.	

WLAN Antenna Information_NB Mode			
Antenna Part Number	Manufacture	Antenna Type	Peak Gain (dBi)
260-24315 (DC33002FX20)	HONG-BO	Couple	2400-2500MHz -2.40 dBi (peak)
			5150-5350MHz -4.28 dBi (peak)
			5470-5725MHz -3.23 dBi (peak)
			5725-5850MHz -3.34 dBi (peak)
260-24315 (DC33002FX20)	HONG-BO	Couple	2400-2500MHz -3.14 dBi (peak)
			5150-5350MHz -1.51 dBi (peak)
			5470-5725MHz -5.06 dBi (peak)
			5725-5850MHz -6.14 dBi (peak)

WLAN Antenna Information_TB Mode			
Antenna Part Number	Manufacture	Antenna Type	Peak Gain (dBi)
260-24315 (DC33002FX20)	HONG-BO	Couple	2400-2500MHz -0.27 dBi (peak)
			5150-5350MHz -3.44 dBi (peak)
			5470-5725MHz -1.80 dBi (peak)
			5725-5850MHz -6.96 dBi (peak)
260-24315 (DC33002FX20)	HONG-BO	Couple	2400-2500MHz 0.00 dBi (peak)
			5150-5350MHz -6.93 dBi (peak)
			5470-5725MHz -5.64 dBi (peak)
			5725-5850MHz -6.11 dBi (peak)

WWAN Antenna Information_NB Mode			
Antenna Part Number	Manufacture	Antenna Type	Peak Gain (dBi)
Tx1 Main Antenna 260-24315 (DC33002FX20)	HONG-BO	PIFA	824-849MHz -5.33 dBi (peak)
			880-915MHz -5.19 dBi (peak)
			1710-1785MHz -3.50 dBi (peak)
			1850-1910MHz -1.81 dBi (peak)
			1920-1980MHz -0.23 dBi (peak)
			704-716MHz -5.56 dBi (peak)
			746-756MHz -3.93 dBi (peak)
			777-787MHz -5.35 dBi (peak)
			832-862MHz -4.85 dBi (peak)
			1710-1755MHz -4.61 dBi (peak)
			2500-2570MHz -1.34 dBi (peak)
			2570-2620MHz -3.21 dBi (peak)
			2300-2400MHz 0.40 dBi (peak)

WWAN Antenna Information_TB Mode			
Antenna Part Number	Manufacture	Antenna Type	Peak Gain loss (dBi)
Tx1 Main Antenna 260-24315 (DC33002FX20)	HONG-BO	PIFA	824-849MHz -4.92 dBi (peak)
			880-915MHz -5.52 dBi (peak)
			1710-1785MHz -0.09 dBi (peak)
			1850-1910MHz -0.45 dBi (peak)
			1920-1980MHz -0.17 dBi (peak)
			704-716MHz -8.11 dBi (peak)
			746-756MHz -7.17 dBi (peak)
			777-787MHz -6.54 dBi (peak)
			832-862MHz -4.92 dBi (peak)
			1710-1755MHz -0.31 dBi (peak)
			2500-2570MHz -3.24dBi (peak)
			2570-2620MHz -3.24 dBi (peak)
			2300-2400MHz -0.58 dBi (peak)

3.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																																							
FCC ID	B94HNC09CMCL																																																																						
Equipment Name	Convertible PC																																																																						
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 MHz																																																																						
Channel Bandwidth	LTE Band 02:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 04:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 05:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 07: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 14: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz 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																																																																						
uplink modulations used	QPSK / 16QAM / 64QAM																																																																						
LTE Voice / Data requirements	Data only																																																																						
LTE MPR permanently built-in by design	<table><tr><th colspan="8">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</th></tr><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>	Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3								Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3	256 QAM	≥ 1						≤ 5
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64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2																																																																
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3																																																																
256 QAM	≥ 1						≤ 5																																																																
LTE A-MPR	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)																																																																						
Spectrum plots for RB configuration	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.																																																																						
Power reduction applied to satisfy SAR compliance	Yes, Proximity Sensor.																																																																						
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 12																																																																						
LTE Carrier Aggregation Additional Information	This device supports maximum of 5 carriers in the downlink and 2 carriers in the uplink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.																																																																						

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)	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)	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)	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 14														
	Bandwidth 5 MHz				Bandwidth 10 MHz									
	Channel #		Channel #		Channel #		Freq.(MHz)							
L	23305		790.5		23330		793							
M	23330		793											
H	23355		795.5											
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 25												
	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	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905
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)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5	26790	824
M	26865	831.5	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	26940	839
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)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580	37875	2582.5	37900	2585
M	38000	2595	38000	2595	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610	38125	2607.5	38100	2605
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)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506	39775	2508.5	39800	2511
L	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5	40197	2550.5	40210	2551.5
M	40620	2593	40620	2593	40620	2593	40620	2593	40620	2593	40620	2593
H	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5	41042	2635	41030	2634
M	41565	2687.5	41540	2685	41515	2682.5	41490	2680	41465	2677.5	41440	2675
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

4. Sensor Detection Evaluated

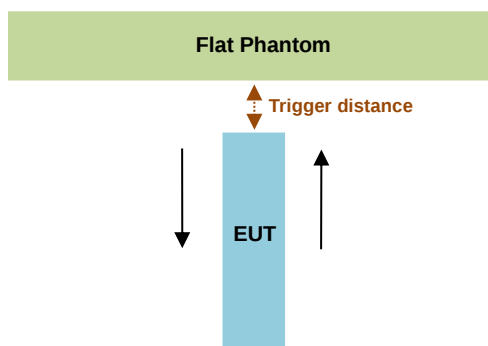
4.1 Proximity Sensor

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

For the device is fully integrated, touch sensing capacitive sensor. It uses a charge transfer capacitive acquisition method that is capable of near range proximity detection. In this device offers a state of the art capacitive sensing engine with an embedded sampling capacitor and voltage regulator allowing the overall solution cost to be reduced and improving system immunity in noisy environments.

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 as following, and the shortest triggering distances were reported and used for SAR assessment.

In the preliminary triggering distance testing, the tissue-equivalent medium for different frequency bands were used for verification; no other frequency bands tissue-equivalent medium was found to result in shortest triggering distance than that for 1900MHz, and the tissue-equivalent medium for 1900MHz was used for formal proximity sensor triggering testing.



Proximity Sensor Trigger Distance (mm)						
Position	Bottom Face		Bottom of Laptop		Edge 1	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	25	18	18	16	28	23

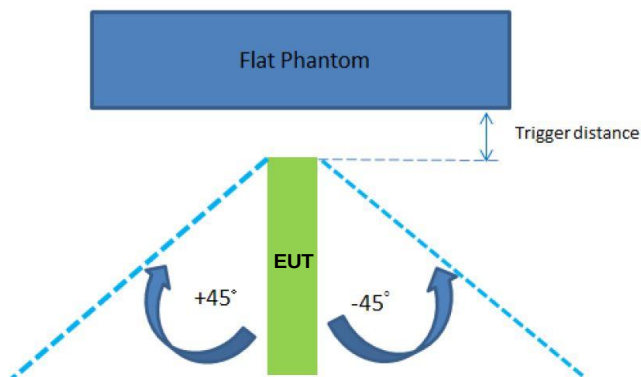
<Proximity Sensor Triggering Coverage (KDB 616217 D04 section 6.3)>:

Illustrated the sensor pad in the test setup photo exhibit, Since the antenna and sensor are collocated and all of the peak SAR location is overlapping with the sensor pad for this device, therefore, According to KDB 616217 section 6.3, these procedures do not apply and are not required for Bottom face, Bottom of Laptop and Edge 1 due to the antenna and sensor are collocated and the peak SAR location is overlapping with the sensor on this device.

<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 above separation distance.

Rotating the tablet around the edge next to the phantom in $\leq 10^\circ$ increments until the tablet is $\pm 45^\circ$ from the vertical position at 0° , and the maximum output power remains in the reduced mode.



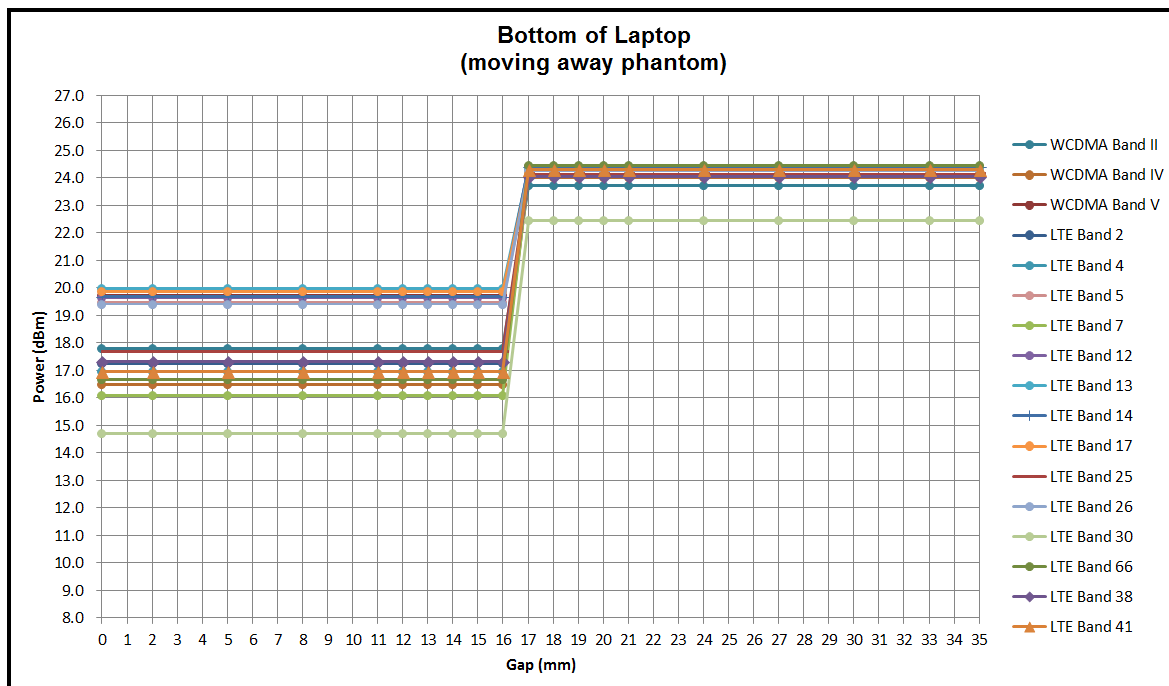
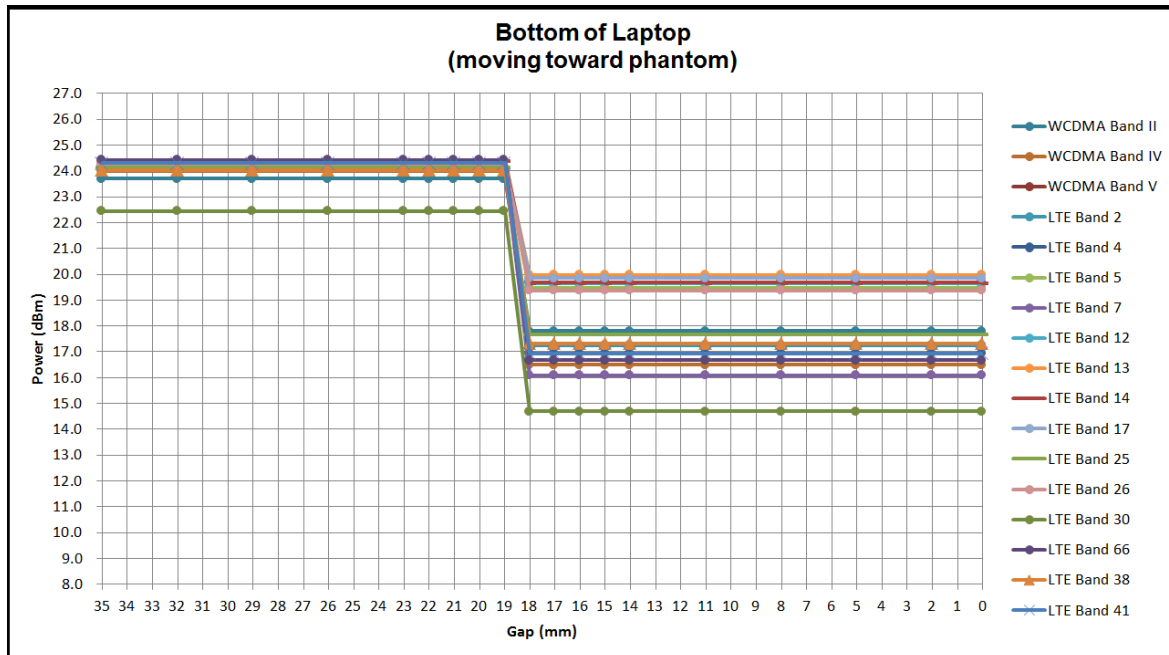
The Sensor Trigger Distance (mm)	
Position	Edge 1
Minimum	22

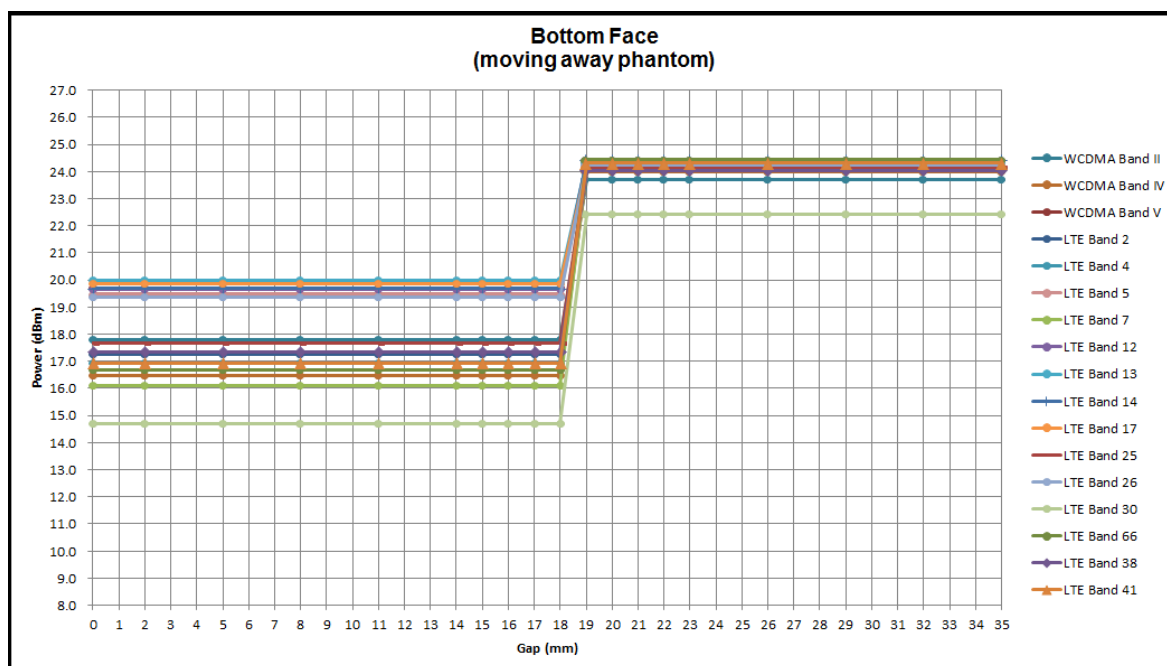
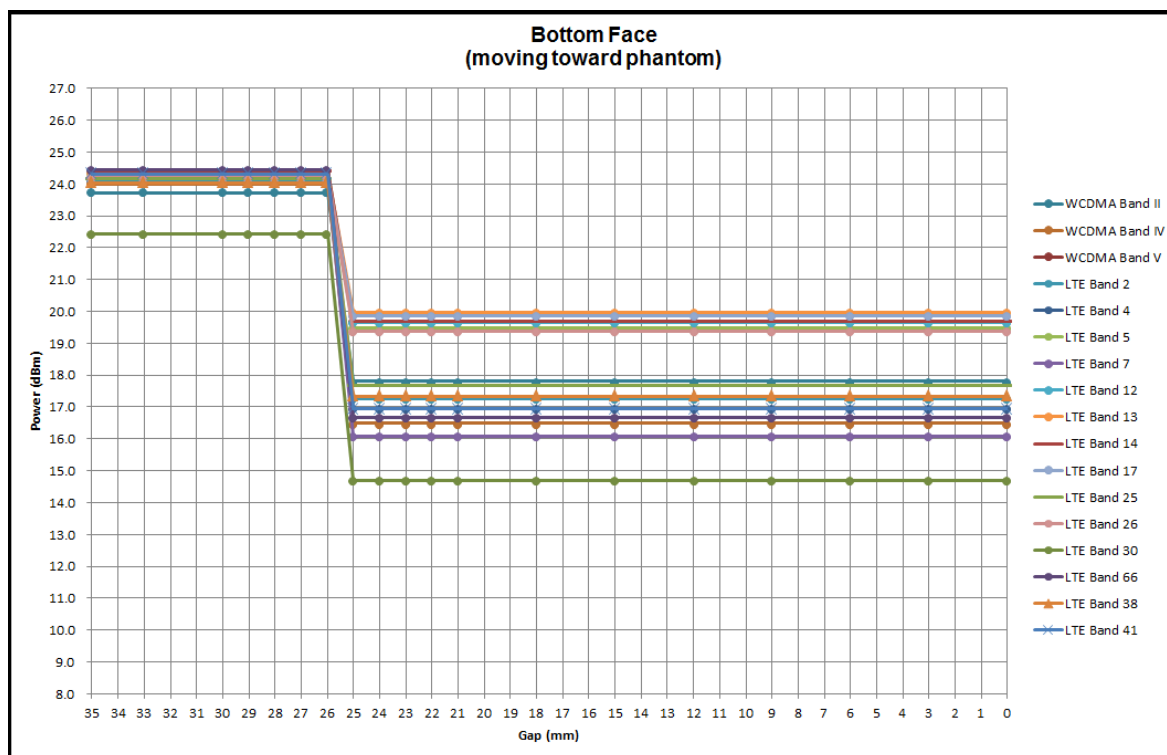
Proximity sensor power reduction

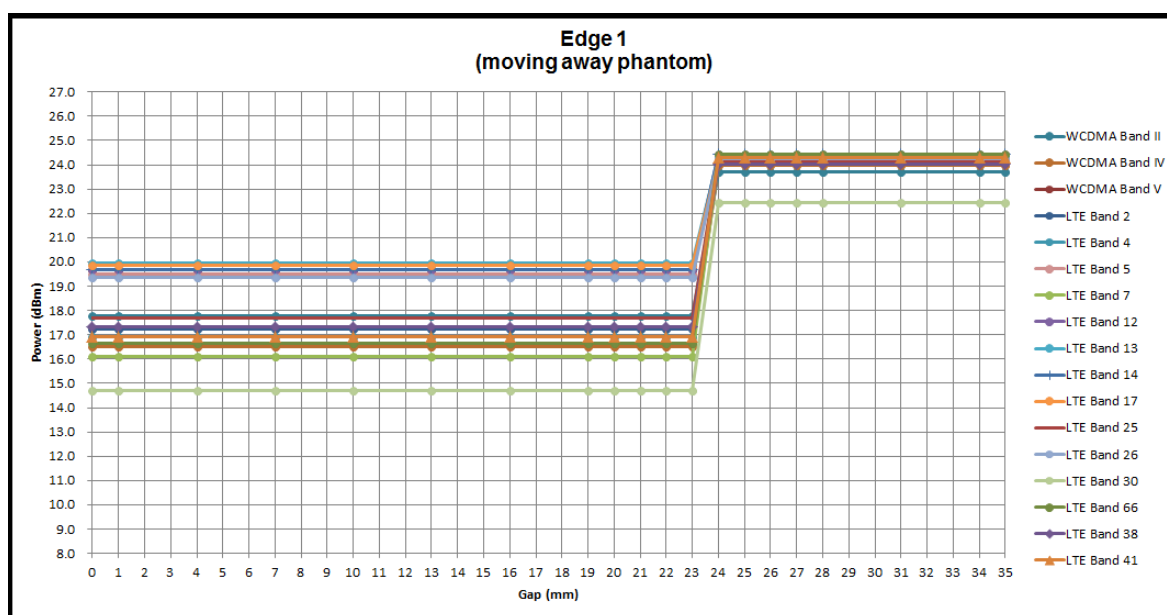
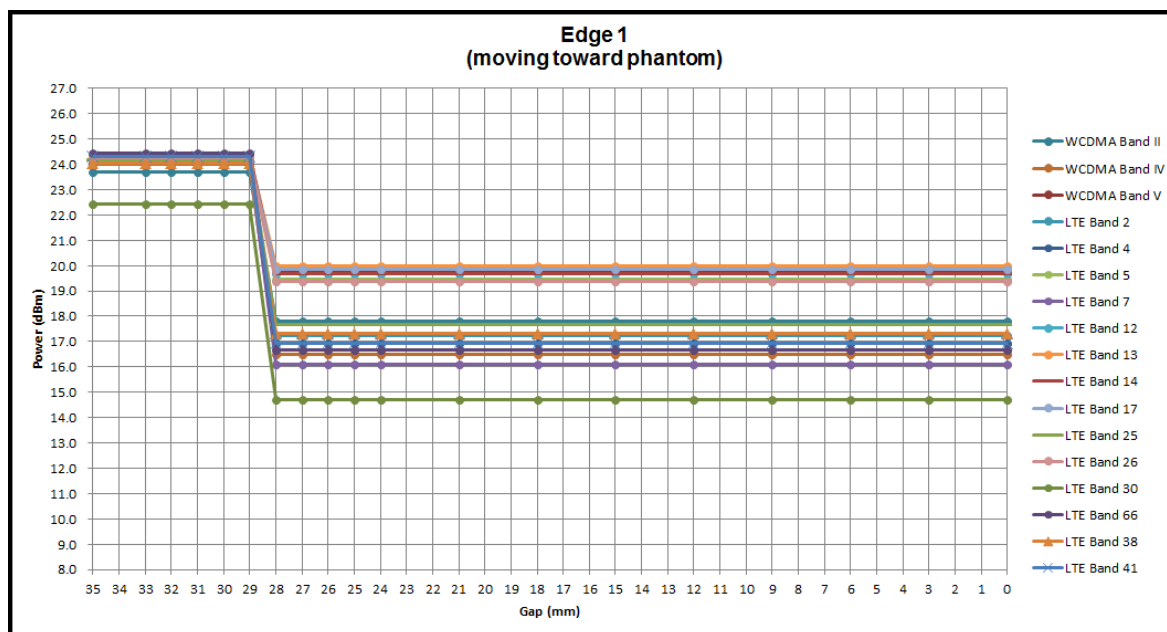
Exposure Position / wireless mode	Bottom Face / Bottom of Laptop / Edge 1
WCDMA Band V	4.5 dB
WCDMA Band II	6.5 dB
WCDMA Band IV	8 dB
LTE Band 2	6 dB
LTE Band 4	7 dB
LTE Band 5	4 dB
LTE Band 7	8 dB
LTE Band 12	4 dB
LTE Band 13	3.5 dB
LTE Band 14	4 dB
LTE Band 17	4 dB
LTE Band 25	6.5 dB
LTE Band 26	4.5 dB
LTE Band 30	7.5 dB
LTE Band 38	7 dB
LTE Band 41	7 dB
LTE Band 66	7.5 dB

Remark:

- ⁽¹⁾: Reduced maximum limit applied by activation of proximity sensor.
- Power reduction is not applicable for WLAN and Bluetooth.
- 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 as below
- 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: [17 mm](#)
 - Edge1: [22 mm](#)
 - Bottom of Laptop: [15mm](#)

Power Measurement during Sensor Trigger distance testing


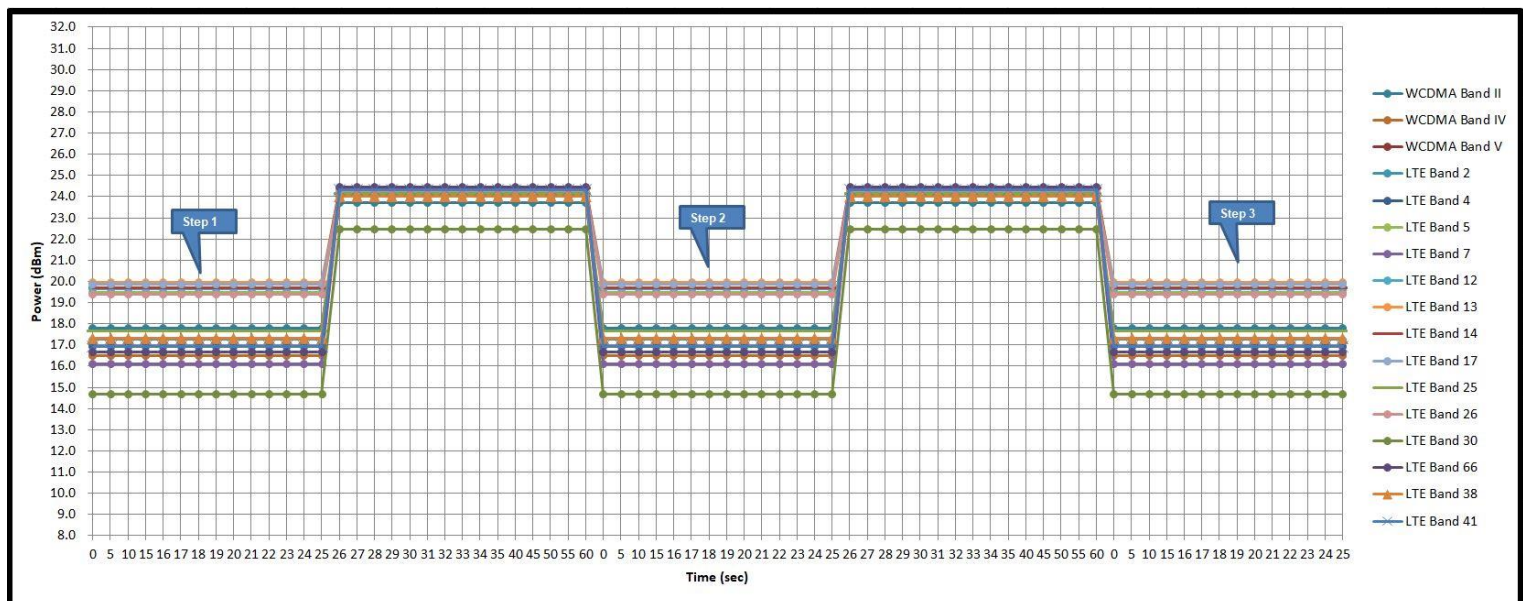




4.2 Steady Sensing

General Note:

1. The device import steady sensing to detect ambient capacity is change or not, when the product in steady for more than 25 seconds, the product will increase the output power level. The below test procedure was confirm via a KDB inquiry.
 - a. Step1: Hold the device in same position in static space for 25 secs. The transmit output power states will resume to HIGH. DPR is released
 - b. Step2: Check the device moving away SAR phantom. The transmit output power will be back to LOW. DPR is triggered. Timer is re-calibrate/reset for next 25 seconds.
 - c. Step3: Check the device moving toward SAR phantom. The transmit output power will be back to LOW. DPR is triggered. Timer is re-calibrate/reset for next 25 seconds.
 - d. Step4: Monitor the step1-3 of device transmits output power remains LOW. DPR is triggered by default



5. RF Exposure Limits

5.1 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.

5.2 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

1. 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.

6. Specific Absorption Rate (SAR)

6.1 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.

6.2 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:

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

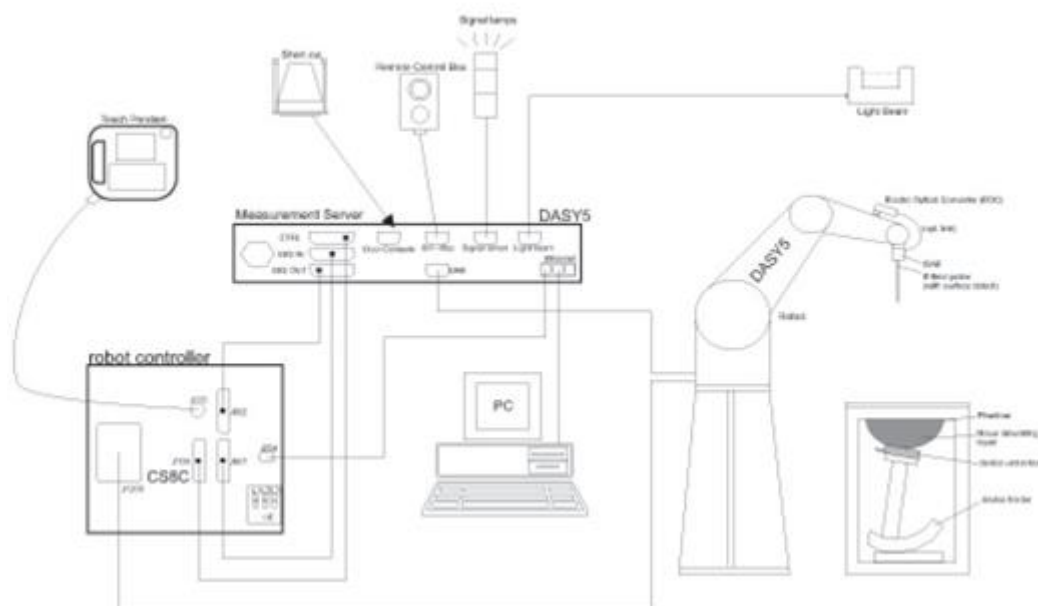
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. 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.

7.1 Test Site Location

Sporton Lab and below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190 and 0007) and the FCC designation No. TW1190 and TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory			
Test Site Location	TW1190 No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, CHINESE TAIPEI		TW0007 No. 58, Aly. 75, Ln. 564, Wehnuia 3rd, Rd., Guishan Dist., Taoyuan City, CHINESE TAIPEI	
Test Site No.	SAR01-HY	SAR03-HY	SAR08-HY	SAR09-HY
	SAR04-HY	SAR05-HY	SAR11-HY	SAR12-HY
	SAR06-HY	SAR10-HY		

7.2 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.

<ES3DV3 Probe>

Construction	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – 4 GHz; Linearity: ± 0.2 dB (30 MHz – 4 GHz)	
Directivity	± 0.2 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 μ W/g – >100 mW/g; Linearity: ± 0.2 dB	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 3.9 mm (body: 12 mm) Distance from probe tip to dipole centers: 3.0 mm	

<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 μ W/g – >100 mW/g Linearity: ± 0.2 dB (noise: typically <1 μ W/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	

7.3 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.



Fig 5.1 Photo of DAE

7.4 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.

7.5 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

8. 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

8.1 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 from 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

8.2 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.

8.3 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	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
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 $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

8.4 Zoom Scan

Zoom scans are used to 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 whose 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: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$			≤ 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: $\Delta z_{\text{Zoom}}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{\text{Zoom}}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$	
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 <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> 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.				

8.5 Volume Scan Procedures

The volume scan is used to 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.

8.6 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.

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit ⁽²⁾	D750V3	1107	Mar. 08, 2019	Mar. 06, 2021
SPEAG	835MHz System Validation Kit	D835V2	4d167	Nov. 25, 2019	Nov. 24, 2020
SPEAG	1750MHz System Validation Kit ⁽²⁾	D1750V2	1112	Mar. 07, 2019	Mar. 05, 2021
SPEAG	1900MHz System Validation Kit ⁽²⁾	D1900V2	5d041	Sep. 11, 2018	Sep. 08, 2021
SPEAG	2300MHz System Validation Kit ⁽²⁾	D2300V2	1006	Jan. 28, 2019	Jan. 26, 2021
SPEAG	2600MHz System Validation Kit ⁽²⁾	D2600V2	1008	Aug. 31, 2018	Aug. 28, 2021
SPEAG	Data Acquisition Electronics	DAE4	854	May. 26, 2020	May. 25, 2021
SPEAG	Dosimetric E-Field Probe	EX3DV4	3753	Jun. 25, 2020	Jun. 24, 2021
RCPTWN	Thermometer	HTC-1	TM685-1	Nov. 12, 2019	Nov. 11, 2020
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Oct. 31, 2019	Oct. 30, 2020
Agilent	Wireless Communication Test Set	E5515C	MY50267236	Mar. 18, 2020	Mar. 17, 2021
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Nov. 20, 2019	Nov. 19, 2020
Agilent	ENA Network Analyzer	E5071C	MY46101588	Jun. 10, 2020	Jun. 09, 2021
SPEAG	Dielectric Probe Kit	DAK-3.5	1146	Jul. 22, 2020	Jul. 21, 2021
LINE SEIKI	Digital Thermometer	DTM3000-spezial	2942	Nov. 18, 2019	Nov. 17, 2020
Anritsu	Power Meter	ML2495A	1419002	Aug. 19, 2020	Aug. 18, 2021
Anritsu	Power Sensor	MA2411B	1911176	Aug. 18, 2020	Aug. 17, 2021
Anritsu	Power Meter	ML2495A	0932001	Oct. 03, 2019	Oct. 02, 2020
Anritsu	Power Sensor	MA2411B	0846202	Oct. 03, 2019	Oct. 02, 2020
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jun. 30, 2020	Jun. 29, 2021
Anritsu	Spectrum Analyzer	N9010A	MY53470118	Mar. 12, 2020	Mar. 11, 2021
Mini-Circuits	Power Amplifier	ZHL-42W+	321501827	Aug. 06, 2020	Aug. 05, 2021
Mini-Circuits	Power Amplifier	ZHL-42W+	715701915	May. 07, 2020	May. 06, 2021
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.
2. The dipole calibration interval can be extended to 3 years with justification according to KDB 865664 D01. The dipoles are also not physically damaged, or repaired during the interval. The justification data in appendix C can be found which the return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration for each dipole.

10. System Verification

10.1 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 head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.1. 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. 10.2.

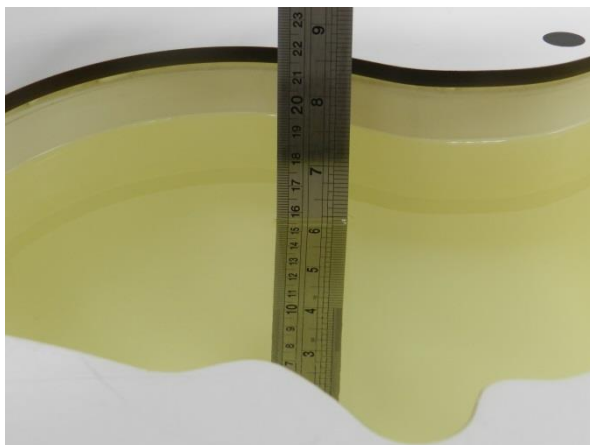


Fig 10.1Photo of Liquid Height for Head SAR



Fig 10.2 Photo of Liquid Height for Body SAR

10.2 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 (ϵ_r)
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0

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)	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
750	22.5	0.895	43.476	0.89	41.90	0.56	3.76	±5	2020/9/24
835	22.5	0.926	42.880	0.90	41.50	2.89	3.33	±5	2020/9/24
1750	22.5	1.369	40.623	1.37	40.10	-0.07	1.30	±5	2020/9/26
1750	22.5	1.358	40.568	1.37	40.10	-0.88	1.17	±5	2020/9/27
1900	22.5	1.384	40.370	1.40	40.00	-1.14	0.92	±5	2020/9/26
1900	22.5	1.405	38.726	1.40	40.00	0.36	-3.19	±5	2020/9/27
2300	22.5	1.699	39.147	1.67	39.50	1.74	-0.89	±5	2020/9/25
2600	22.5	2.045	37.933	1.96	39.00	4.34	-2.74	±5	2020/9/25

10.3 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) ²	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 (%)
2020/9/24	750	50	D750V3-1107	EX3DV4 - SN3753	DAE4 Sn854	0.381	8.32	7.62	-8.41
2020/9/24	835	50	D835V2-4d167	EX3DV4 - SN3753	DAE4 Sn854	0.479	9.55	9.58	0.31
2020/9/26	1750	50	D1750V2-1112	EX3DV4 - SN3753	DAE4 Sn854	1.78	36.70	35.6	-3.00
2020/9/27	1750	50	D1750V2-1112	EX3DV4 - SN3753	DAE4 Sn854	1.77	36.70	35.4	-3.54
2020/9/26	1900	50	D1900V2-5d041	EX3DV4 - SN3753	DAE4 Sn854	1.82	40.20	36.4	-9.45
2020/9/27	1900	50	D1900V2-5d041	EX3DV4 - SN3753	DAE4 Sn854	1.84	40.20	36.8	-8.46
2020/9/25	2300	50	D2300V2-1006	EX3DV4 - SN3753	DAE4 Sn854	2.41	48.70	48.2	-1.03
2020/9/25	2600	50	D2600V2-1008	EX3DV4 - SN3753	DAE4 Sn854	3.01	56.40	60.2	6.74

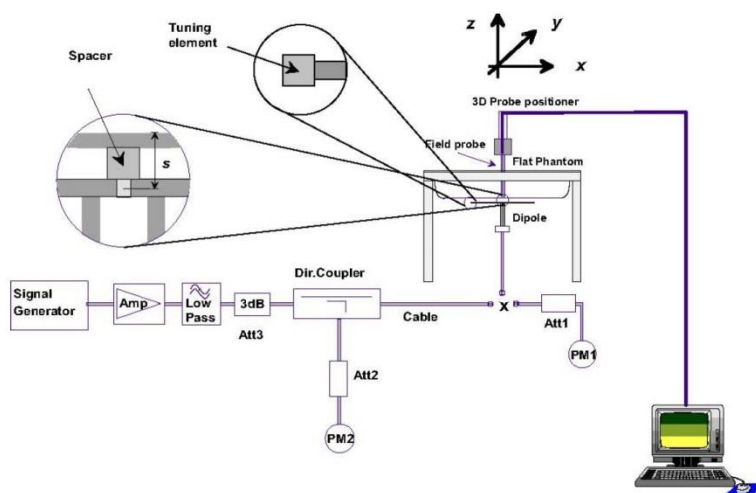


Fig 8.3.1 System Performance Check Setup



Fig 8.3.2 Setup Photo

11. RF Exposure Positions

11.1 SAR Testing for Tablet

This device can be used also in full sized tablet exposure conditions, due to its size. Per FCC KDB 616217, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR exclusion threshold in KDB 447498 D01v06 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

12. UMTS/LTE 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} (Note 1, 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 $\Delta_{CQI} = 30/15$ 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 $\Delta_{NACK} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$, and $\Delta_{CQI} = 24/15$ with $\beta_{HS} = 24/15 * \beta_c$.

Note 3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{HS}/\beta_c = 24/15$. For all other combinations of DPCCH, DPDCCH 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 $\beta_c = 11/15$ and $\beta_d = 15/15$.

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} (Note 1)	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	209/25	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	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 $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 5/15$ with $\beta_{hs} = 5/15 * \beta_c$.

Note 2: CM = 1 for $\beta_d/\beta_c = 12/15$, $\beta_{hs}/\beta_c = 24/15$. 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 $\beta_c = 10/15$ and $\beta_d = 15/15$.

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

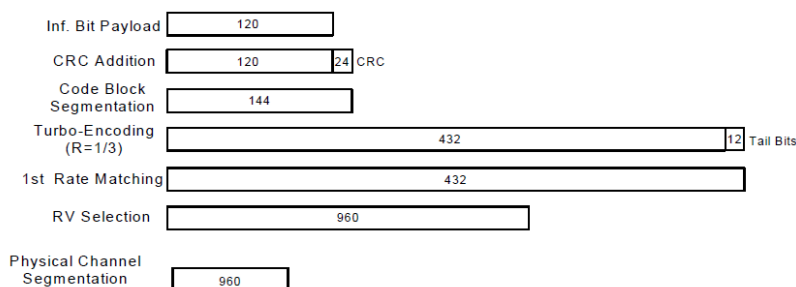
DC-HSDPA 3GPP release 8 Setup Configuration:

- 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: $\beta_c/\beta_d=2/15$
 - b). Subtest 2: $\beta_c/\beta_d=12/15$
 - c). Subtest 3: $\beta_c/\beta_d=15/8$
 - d). Subtest 4: $\beta_c/\beta_d=15/4$
 - 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 Cycle to 2
 - x. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

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

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

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


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

<WCDMA Conducted Power>
General Note:

1. 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 $\leq \frac{1}{4}$ 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 $\frac{1}{4}$ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

Default Power Mode

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA 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	23.66	23.71	23.65	24.50	23.88	24.00	23.73	24.50	23.92	24.11	23.97	24.50
3GPP Rel 6	HSDPA Subtest-1	22.76	22.60	22.67	23.50	22.90	23.02	22.84	23.50	22.91	23.13	22.99	23.50
3GPP Rel 6	HSDPA Subtest-2	22.70	22.62	22.60	23.50	22.93	23.04	22.77	23.50	22.96	23.15	23.03	23.50
3GPP Rel 6	HSDPA Subtest-3	22.31	22.15	22.19	23.00	22.43	22.53	22.27	23.00	22.47	22.65	22.54	23.00
3GPP Rel 6	HSDPA Subtest-4	22.31	22.25	22.20	23.00	22.40	22.53	22.37	23.00	22.49	22.63	22.55	23.00
3GPP Rel 8	DC-HSDPA Subtest-1	22.72	22.50	22.64	23.50	22.89	22.99	22.80	23.50	22.90	23.09	22.89	23.50
3GPP Rel 8	DC-HSDPA Subtest-2	22.66	22.54	22.54	23.50	22.87	22.94	22.70	23.50	22.96	23.07	23.01	23.50
3GPP Rel 8	DC-HSDPA Subtest-3	22.21	22.08	22.17	23.00	22.41	22.45	22.21	23.00	22.39	22.61	22.48	23.00
3GPP Rel 8	DC-HSDPA Subtest-4	22.23	22.24	22.11	23.00	22.35	22.51	22.35	23.00	22.40	22.53	22.50	23.00
3GPP Rel 6	HSUPA Subtest-1	22.76	22.70	22.76	23.50	22.89	23.11	22.84	23.50	22.93	23.12	23.00	23.50
3GPP Rel 6	HSUPA Subtest-2	20.78	20.73	20.77	21.50	20.92	21.11	20.86	21.50	20.79	21.14	21.04	21.50
3GPP Rel 6	HSUPA Subtest-3	21.78	21.71	21.78	22.50	21.91	22.11	21.85	22.50	21.99	22.15	22.00	22.50
3GPP Rel 6	HSUPA Subtest-4	20.76	20.72	20.74	21.50	20.88	21.11	20.83	21.50	20.95	21.13	21.02	21.50
3GPP Rel 6	HSUPA Subtest-5	22.70	22.62	22.67	23.50	22.92	23.04	22.74	23.50	22.96	23.15	23.03	23.50

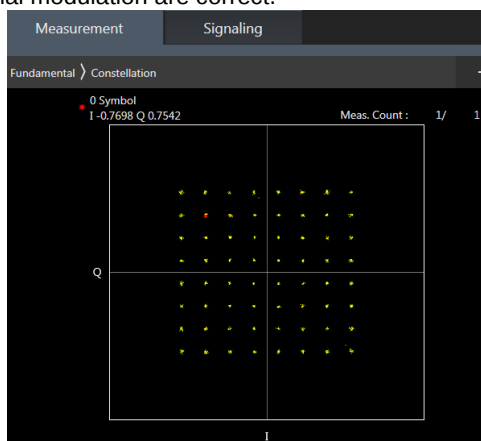
Reduced Power Mode

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA 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	17.80	17.78	17.79	18.00	16.40	16.49	16.38	16.50	19.69	19.70	19.52	20.00
3GPP Rel 6	HSDPA Subtest-1	17.34	17.54	17.31	18.00	15.38	15.42	15.26	16.00	18.48	18.55	18.52	19.00
3GPP Rel 6	HSDPA Subtest-2	17.44	17.64	17.41	18.00	15.47	15.51	15.35	16.00	18.50	18.57	18.54	19.00
3GPP Rel 6	HSDPA Subtest-3	17.31	17.41	17.31	17.50	15.28	15.32	15.16	15.50	18.02	18.09	18.06	18.50
3GPP Rel 6	HSDPA Subtest-4	17.26	17.49	17.24	17.50	15.29	15.33	15.17	15.50	18.01	18.08	18.05	18.50
3GPP Rel 8	DC-HSDPA Subtest-1	17.42	17.62	17.41	18.00	15.59	15.63	15.52	16.00	18.47	18.49	18.51	19.00
3GPP Rel 8	DC-HSDPA Subtest-2	17.63	17.56	17.58	18.00	15.67	15.75	15.63	16.00	18.50	18.49	18.49	19.00
3GPP Rel 8	DC-HSDPA Subtest-3	17.20	17.43	17.14	17.50	15.18	15.31	15.06	15.50	17.95	18.05	18.06	18.50
3GPP Rel 8	DC-HSDPA Subtest-4	17.34	17.45	17.39	17.50	15.20	15.32	15.10	15.50	17.99	18.04	18.05	18.50
3GPP Rel 6	HSUPA Subtest-1	17.43	17.63	17.40	18.00	15.75	15.79	15.63	16.00	18.46	18.53	18.50	19.00
3GPP Rel 6	HSUPA Subtest-2	15.49	15.52	15.59	16.00	13.71	13.75	13.59	14.00	16.50	16.57	16.54	17.00
3GPP Rel 6	HSUPA Subtest-3	16.46	16.66	16.43	17.00	14.69	14.73	14.57	15.00	17.50	17.57	17.54	18.00
3GPP Rel 6	HSUPA Subtest-4	15.62	15.82	15.59	16.00	13.83	13.87	13.71	14.00	16.64	16.71	16.68	17.00
3GPP Rel 6	HSUPA Subtest-5	17.46	17.66	17.43	18.00	15.79	15.83	15.67	16.00	18.62	18.69	18.66	19.00

<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 $\frac{1}{2}$ 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 $\frac{1}{2}$ 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 band 2/4/5/17/38 SAR test was covered by Band 25/66/26/12/41; 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 $\leq$ 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
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



64QAM



16QAM

Default Power Mode
<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	24.14	23.91	24.11	24.5	0
20	QPSK	1	49	23.92	23.71	23.94		
20	QPSK	1	99	23.81	23.63	23.93		
20	QPSK	50	0	23.05	22.86	23.02	23.5	1
20	QPSK	50	24	22.95	22.79	23.02		
20	QPSK	50	50	22.78	22.74	22.97		
20	QPSK	100	0	22.87	22.81	22.93	23.5	1
20	16QAM	1	0	23.38	23.28	23.45		
20	16QAM	1	49	23.17	23.07	23.30		
20	16QAM	1	99	23.06	23.00	23.29	22.5	2
20	16QAM	50	0	22.08	21.97	22.09		
20	16QAM	50	24	21.98	21.90	22.11		
20	16QAM	50	50	21.92	21.82	22.05	22.5	2
20	16QAM	100	0	21.97	21.90	22.01		
20	64QAM	1	0	22.28	22.20	22.36		
20	64QAM	1	49	22.07	22.00	22.23	22.5	2
20	64QAM	1	99	21.98	21.93	22.22		
20	64QAM	50	0	21.09	20.97	21.11	21.5	3
20	64QAM	50	24	20.99	20.91	21.13		
20	64QAM	50	50	20.91	20.84	21.08		
20	64QAM	100	0	20.97	20.92	21.06		
Channel				18675	18900	19125		
Frequency (MHz)				1857.5	1880	1902.5	Tune-up limit (dBm)	MPR (dB)
15	QPSK	1	0	24.08	23.82	24.02	24.5	0
15	QPSK	1	37	23.90	23.64	23.86		
15	QPSK	1	74	23.72	23.56	23.90		
15	QPSK	36	0	22.98	22.77	22.93	23.5	1
15	QPSK	36	20	22.92	22.72	23.01		
15	QPSK	36	39	22.75	22.72	22.96		
15	QPSK	75	0	22.82	22.79	22.93	23.5	1
15	16QAM	1	0	23.30	23.19	23.44		
15	16QAM	1	37	23.16	23.02	23.22		
15	16QAM	1	74	23.05	22.97	23.27	22.5	2
15	16QAM	36	0	22.08	21.88	22.00		
15	16QAM	36	20	21.98	21.90	22.04		
15	16QAM	36	39	21.83	21.77	22.05	22.5	2
15	16QAM	75	0	21.87	21.87	21.94		
15	64QAM	1	0	22.25	22.12	22.33		
15	64QAM	1	37	21.98	21.97	22.21	22.5	2
15	64QAM	1	74	21.91	21.83	22.16		
15	64QAM	36	0	21.00	20.94	21.06		
15	64QAM	36	20	20.97	20.87	21.13	21.5	3
15	64QAM	36	39	20.88	20.74	21.03		
15	64QAM	75	0	20.92	20.89	21.03		
Channel				18650	18900	19150		
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	24.06	23.89	24.09	24.5	0
10	QPSK	1	25	23.83	23.64	23.85		
10	QPSK	1	49	23.79	23.63	23.84		
10	QPSK	25	0	22.95	22.79	23.00	23.5	1



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10	QPSK	25	12	22.94	22.76	22.94		
10	QPSK	25	25	22.77	22.72	22.94		
10	QPSK	50	0	22.82	22.78	22.93		
10	16QAM	1	0	23.30	23.18	23.44	23.5	1
10	16QAM	1	25	23.15	23.06	23.20		
10	16QAM	1	49	23.00	23.00	23.29		
10	16QAM	25	0	22.00	21.97	22.07	22.5	2
10	16QAM	25	12	21.94	21.84	22.10		
10	16QAM	25	25	21.84	21.77	21.98		
10	16QAM	50	0	21.96	21.88	21.92	22.5	2
10	64QAM	1	0	22.19	22.14	22.36		
10	64QAM	1	25	21.98	21.98	22.15		
10	64QAM	1	49	21.93	21.91	22.20	21.5	3
10	64QAM	25	0	21.07	20.87	21.02		
10	64QAM	25	12	20.97	20.91	21.06		
10	64QAM	25	25	20.85	20.78	20.98	20.93	
10	64QAM	50	0	20.93	20.84	21.01		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	24.11	23.82	24.06	24.5	0
5	QPSK	1	12	23.83	23.62	23.86		
5	QPSK	1	24	23.75	23.54	23.89		
5	QPSK	12	0	22.99	22.84	22.98	23.5	1
5	QPSK	12	7	22.91	22.75	22.92		
5	QPSK	12	13	22.68	22.71	22.94		
5	QPSK	25	0	22.81	22.77	22.93	23.5	1
5	16QAM	1	0	23.36	23.28	23.38		
5	16QAM	1	12	23.08	23.04	23.27		
5	16QAM	1	24	23.01	22.90	23.29	22.5	2
5	16QAM	12	0	21.99	21.94	22.03		
5	16QAM	12	7	21.90	21.86	22.09		
5	16QAM	12	13	21.83	21.72	22.02	22.5	2
5	16QAM	25	0	21.92	21.83	21.99		
5	64QAM	1	0	22.27	22.10	22.28		
5	64QAM	1	12	22.03	21.92	22.15	22.5	2
5	64QAM	1	24	21.95	21.85	22.20		
5	64QAM	12	0	21.05	20.90	21.06		
5	64QAM	12	7	20.91	20.89	21.10	21.5	3
5	64QAM	12	13	20.81	20.82	21.06		
5	64QAM	25	0	20.95	20.87	21.01		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	24.10	23.89	24.09	24.5	0
3	QPSK	1	8	23.88	23.63	23.85		
3	QPSK	1	14	23.75	23.56	23.87		
3	QPSK	8	0	22.95	22.78	22.93	23.5	1
3	QPSK	8	4	22.88	22.75	22.95		
3	QPSK	8	7	22.71	22.65	22.90		
3	QPSK	15	0	22.85	22.81	22.86	23.5	1
3	16QAM	1	0	23.36	23.19	23.45		
3	16QAM	1	8	23.11	22.97	23.24		
3	16QAM	1	14	23.06	22.94	23.19	22.5	2
3	16QAM	8	0	22.06	21.93	21.99		
3	16QAM	8	4	21.91	21.84	22.05		
3	16QAM	8	7	21.92	21.73	22.03	21.93	
3	16QAM	15	0	21.93	21.82	21.91		



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3	64QAM	1	0	22.25	22.12	22.31	22.5	2
3	64QAM	1	8	21.98	21.95	22.13		
3	64QAM	1	14	21.94	21.83	22.13		
3	64QAM	8	0	21.03	20.89	21.09	21.5	3
3	64QAM	8	4	20.94	20.84	21.12		
3	64QAM	8	7	20.88	20.83	20.98		
3	64QAM	15	0	20.96	20.84	20.99		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	24.08	23.81	24.06	24.5	0
1.4	QPSK	1	3	23.82	23.71	23.93		
1.4	QPSK	1	5	23.76	23.60	23.88		
1.4	QPSK	3	0	22.95	22.83	22.96		
1.4	QPSK	3	1	22.92	22.72	22.92		
1.4	QPSK	3	3	22.73	22.73	22.91		
1.4	QPSK	6	0	22.84	22.72	22.85	23.5	1
1.4	16QAM	1	0	23.33	23.27	23.44	23.5	1
1.4	16QAM	1	3	23.07	23.00	23.30		
1.4	16QAM	1	5	23.03	22.92	23.28		
1.4	16QAM	3	0	22.02	21.91	22.07		
1.4	16QAM	3	1	21.93	21.83	22.09		
1.4	16QAM	3	3	21.86	21.74	21.98		
1.4	16QAM	6	0	21.92	21.87	21.97	22.5	2
1.4	64QAM	1	0	22.26	22.11	22.30	22.5	2
1.4	64QAM	1	3	22.00	21.93	22.23		
1.4	64QAM	1	5	21.90	21.93	22.16		
1.4	64QAM	3	0	21.03	20.87	21.07		
1.4	64QAM	3	1	20.91	20.87	21.10		
1.4	64QAM	3	3	20.86	20.77	21.00		
1.4	64QAM	6	0	20.87	20.85	21.05	21.5	3



<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	24.16	24.14	24.12		
20	QPSK	1	49	23.81	23.86	23.85	24.5	0
20	QPSK	1	99	23.91	23.85	23.84		
20	QPSK	50	0	23.01	23.06	23.05		
20	QPSK	50	24	23.05	22.99	22.92	23.5	1
20	QPSK	50	50	22.99	22.92	22.89		
20	QPSK	100	0	23.02	22.97	22.96		
20	16QAM	1	0	23.47	23.48	23.47	23.5	1
20	16QAM	1	49	23.10	23.21	23.26		
20	16QAM	1	99	23.26	23.23	23.23		
20	16QAM	50	0	22.11	22.15	22.14	22.5	2
20	16QAM	50	24	22.12	22.09	22.08		
20	16QAM	50	50	22.07	22.03	21.99		
20	16QAM	100	0	22.12	22.06	22.05	22.5	2
20	64QAM	1	0	22.42	22.42	22.35		
20	64QAM	1	49	22.00	22.11	22.14		
20	64QAM	1	99	22.14	22.11	22.15	21.5	3
20	64QAM	50	0	21.13	21.16	21.15		
20	64QAM	50	24	21.14	21.07	21.09		
20	64QAM	50	50	21.07	21.02	21.01	21.5	3
20	64QAM	100	0	21.14	21.08	21.06		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	24.15	24.08	24.08		
15	QPSK	1	37	23.78	23.77	23.79	24.5	0
15	QPSK	1	74	23.86	23.82	23.80		
15	QPSK	36	0	23.00	22.96	23.04		
15	QPSK	36	20	22.99	22.95	22.90	23.5	1
15	QPSK	36	39	22.91	22.84	22.79		
15	QPSK	75	0	22.99	22.96	22.96		
15	16QAM	1	0	23.46	23.41	23.40	23.5	1
15	16QAM	1	37	23.02	23.18	23.20		
15	16QAM	1	74	23.20	23.17	23.17		
15	16QAM	36	0	22.02	22.13	22.11	22.5	2
15	16QAM	36	20	22.11	22.07	22.01		
15	16QAM	36	39	22.03	21.98	21.97		
15	16QAM	75	0	22.06	22.05	22.02	22.5	2
15	64QAM	1	0	22.38	22.40	22.29		
15	64QAM	1	37	21.93	22.10	22.13		
15	64QAM	1	74	22.11	22.09	22.11	21.5	3
15	64QAM	36	0	21.06	21.08	21.08		
15	64QAM	36	20	21.04	21.01	21.02		
15	64QAM	36	39	21.05	20.97	20.99	21.5	3
15	64QAM	75	0	21.09	21.07	20.98		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	24.10	24.09	24.12		
10	QPSK	1	25	23.72	23.79	23.84	24.5	0
10	QPSK	1	49	23.83	23.77	23.84		
10	QPSK	25	0	22.93	23.04	22.99		
10	QPSK	25	12	23.00	22.90	22.91	23.5	1

10	QPSK	25	25	22.98	22.84	22.80		
10	QPSK	50	0	23.02	22.88	22.95		
10	16QAM	1	0	23.38	23.43	23.39		
10	16QAM	1	25	23.07	23.13	23.25	23.5	1
10	16QAM	1	49	23.19	23.17	23.13		
10	16QAM	25	0	22.03	22.10	22.13		
10	16QAM	25	12	22.05	22.06	22.01	22.5	2
10	16QAM	25	25	22.06	21.94	21.97		
10	16QAM	50	0	22.09	22.03	22.05		
10	64QAM	1	0	22.39	22.42	22.26	22.5	2
10	64QAM	1	25	21.96	22.08	22.11		
10	64QAM	1	49	22.14	22.10	22.11		
10	64QAM	25	0	21.07	21.15	21.13	21.5	3
10	64QAM	25	12	21.11	21.06	21.04		
10	64QAM	25	25	20.98	20.97	20.98		
10	64QAM	50	0	21.08	20.98	20.96		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	24.13	24.09	24.05	24.5	0
5	QPSK	1	12	23.80	23.79	23.77		
5	QPSK	1	24	23.89	23.75	23.75		
5	QPSK	12	0	22.91	23.06	23.04	23.5	1
5	QPSK	12	7	23.04	22.93	22.92		
5	QPSK	12	13	22.94	22.88	22.82		
5	QPSK	25	0	23.00	22.95	22.88	23.5	1
5	16QAM	1	0	23.46	23.48	23.43		
5	16QAM	1	12	23.03	23.16	23.19		
5	16QAM	1	24	23.17	23.19	23.16	22.5	2
5	16QAM	12	0	22.05	22.06	22.10		
5	16QAM	12	7	22.09	21.99	21.99		
5	16QAM	12	13	22.00	21.93	21.91	22.5	2
5	16QAM	25	0	22.08	22.05	22.02		
5	64QAM	1	0	22.32	22.36	22.27		
5	64QAM	1	12	21.95	22.11	22.09	22.5	2
5	64QAM	1	24	22.10	22.02	22.13		
5	64QAM	12	0	21.12	21.10	21.05		
5	64QAM	12	7	21.05	20.97	21.08	21.5	3
5	64QAM	12	13	21.03	20.92	20.93		
5	64QAM	25	0	21.14	21.06	20.98		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	24.15	24.14	24.07	24.5	0
3	QPSK	1	8	23.75	23.84	23.83		
3	QPSK	1	14	23.89	23.77	23.74		
3	QPSK	8	0	22.91	22.98	23.05	23.5	1
3	QPSK	8	4	22.98	22.96	22.86		
3	QPSK	8	7	22.89	22.84	22.84		
3	QPSK	15	0	22.96	22.88	22.95	23.5	1
3	16QAM	1	0	23.42	23.39	23.40		
3	16QAM	1	8	23.05	23.11	23.18		
3	16QAM	1	14	23.20	23.16	23.16	22.5	2
3	16QAM	8	0	22.06	22.15	22.07		
3	16QAM	8	4	22.10	21.99	22.07		
3	16QAM	8	7	22.03	21.98	21.91	22.5	2
3	16QAM	15	0	22.08	21.97	22.05		
3	64QAM	1	0	22.41	22.37	22.33	22.5	2



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3	64QAM	1	8	21.91	22.08	22.10	21.5	3
3	64QAM	1	14	22.09	22.06	22.15		
3	64QAM	8	0	21.12	21.11	21.10		
3	64QAM	8	4	21.12	21.02	21.06		
3	64QAM	8	7	21.07	21.00	21.00		
3	64QAM	15	0	21.12	21.00	21.02		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	24.06	24.08	24.10	24.5	0
1.4	QPSK	1	3	23.71	23.79	23.75		
1.4	QPSK	1	5	23.88	23.75	23.74		
1.4	QPSK	3	0	23.00	22.96	23.04		
1.4	QPSK	3	1	23.01	22.99	22.84		
1.4	QPSK	3	3	22.93	22.92	22.80		
1.4	QPSK	6	0	22.94	22.95	22.86	23.5	1
1.4	16QAM	1	0	23.45	23.44	23.44	23.5	1
1.4	16QAM	1	3	23.04	23.19	23.23		
1.4	16QAM	1	5	23.26	23.19	23.13		
1.4	16QAM	3	0	22.04	22.11	22.05		
1.4	16QAM	3	1	22.06	22.06	22.07		
1.4	16QAM	3	3	22.04	21.95	21.97		
1.4	16QAM	6	0	22.07	21.97	22.04	22.5	2
1.4	64QAM	1	0	22.32	22.39	22.30	22.5	2
1.4	64QAM	1	3	21.96	22.09	22.08		
1.4	64QAM	1	5	22.04	22.10	22.06		
1.4	64QAM	3	0	21.08	21.07	21.07		
1.4	64QAM	3	1	21.14	21.02	21.03		
1.4	64QAM	3	3	21.06	20.94	20.98		
1.4	64QAM	6	0	21.11	21.04	21.02	21.5	3



<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	24.33	24.10	24.20	24.5	0
10	QPSK	1	25	24.21	24.10	24.11		
10	QPSK	1	49	24.29	24.17	24.12		
10	QPSK	25	0	23.32	23.20	23.17	23.5	1
10	QPSK	25	12	23.20	23.15	23.17		
10	QPSK	25	25	23.30	23.13	23.11		
10	QPSK	50	0	23.32	23.14	23.14	23.5	1
10	16QAM	1	0	23.41	23.45	23.34		
10	16QAM	1	25	23.47	23.46	23.42		
10	16QAM	1	49	23.49	23.39	23.49	22.5	2
10	16QAM	25	0	22.37	22.30	22.25		
10	16QAM	25	12	22.38	22.27	22.19		
10	16QAM	25	25	22.41	22.21	22.17	22.5	2
10	16QAM	50	0	22.36	22.22	22.22		
10	64QAM	1	0	22.48	22.31	22.44	22.5	2
10	64QAM	1	25	22.46	22.36	22.33		
10	64QAM	1	49	22.49	22.38	22.36		
10	64QAM	25	0	21.37	21.28	21.26	21.5	3
10	64QAM	25	12	21.37	21.30	21.22		
10	64QAM	25	25	21.40	21.23	21.16		
10	64QAM	50	0	21.36	21.23	21.22		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	24.31	24.05	24.12	24.5	0
5	QPSK	1	12	24.17	24.01	24.05		
5	QPSK	1	24	24.25	24.16	24.07		
5	QPSK	12	0	23.30	23.19	23.09	23.5	1
5	QPSK	12	7	23.12	23.15	23.15		
5	QPSK	12	13	23.22	23.10	23.01		
5	QPSK	25	0	23.28	23.10	23.06	23.5	1
5	16QAM	1	0	23.39	23.45	23.29		
5	16QAM	1	12	23.40	23.42	23.39		
5	16QAM	1	24	23.39	23.29	23.42	22.5	2
5	16QAM	12	0	22.30	22.28	22.20		
5	16QAM	12	7	22.33	22.21	22.16		
5	16QAM	12	13	22.40	22.17	22.07	22.5	2
5	16QAM	25	0	22.36	22.22	22.14		
5	64QAM	1	0	22.48	22.28	22.35		
5	64QAM	1	12	22.43	22.35	22.23	22.5	2
5	64QAM	1	24	22.42	22.36	22.35		
5	64QAM	12	0	21.32	21.27	21.26	21.5	3
5	64QAM	12	7	21.28	21.25	21.22		
5	64QAM	12	13	21.37	21.16	21.15		
5	64QAM	25	0	21.36	21.20	21.22		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	24.27	24.00	24.20	24.5	0
3	QPSK	1	8	24.19	24.02	24.08		
3	QPSK	1	14	24.19	24.11	24.04		
3	QPSK	8	0	23.25	23.13	23.07	23.5	1
3	QPSK	8	4	23.14	23.08	23.09		



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3	QPSK	8	7	23.26	23.08	23.09		
3	QPSK	15	0	23.31	23.11	23.07		
3	16QAM	1	0	23.39	23.45	23.33		
3	16QAM	1	8	23.37	23.41	23.35	23.5	1
3	16QAM	1	14	23.46	23.39	23.48		
3	16QAM	8	0	22.35	22.29	22.16		
3	16QAM	8	4	22.29	22.24	22.12	22.5	2
3	16QAM	8	7	22.36	22.11	22.12		
3	16QAM	15	0	22.28	22.19	22.19		
3	64QAM	1	0	22.48	22.21	22.35	22.5	2
3	64QAM	1	8	22.43	22.35	22.27		
3	64QAM	1	14	22.43	22.28	22.30		
3	64QAM	8	0	21.34	21.24	21.21	21.5	3
3	64QAM	8	4	21.36	21.22	21.18		
3	64QAM	8	7	21.37	21.17	21.16		
3	64QAM	15	0	21.36	21.21	21.13		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	24.26	24.07	24.18	24.5	0
1.4	QPSK	1	3	24.13	24.09	24.07		
1.4	QPSK	1	5	24.19	24.07	24.09		
1.4	QPSK	3	0	24.28	24.08	24.19		
1.4	QPSK	3	1	24.19	24.09	24.02		
1.4	QPSK	3	3	24.26	24.17	24.03		
1.4	QPSK	6	0	23.22	23.18	23.07	23.5	1
1.4	16QAM	1	0	23.10	23.09	23.17	23.5	1
1.4	16QAM	1	3	23.26	23.03	23.09		
1.4	16QAM	1	5	23.22	23.12	23.04		
1.4	16QAM	3	0	23.41	23.36	23.30		
1.4	16QAM	3	1	23.45	23.39	23.40		
1.4	16QAM	3	3	23.45	23.35	23.48		
1.4	16QAM	6	0	22.28	22.23	22.19	22.5	2
1.4	64QAM	1	0	22.37	22.20	22.10	22.5	2
1.4	64QAM	1	3	22.39	22.14	22.07		
1.4	64QAM	1	5	22.34	22.17	22.18		
1.4	64QAM	3	0	22.42	22.30	22.34		
1.4	64QAM	3	1	22.46	22.33	22.33		
1.4	64QAM	3	3	22.41	22.36	22.26		
1.4	64QAM	6	0	21.30	21.25	21.26	21.5	3

<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	24.5	0
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	24.02	23.98	24.17		
20	QPSK	1	49	23.82	23.89	24.07	23.5	1
20	QPSK	1	99	23.82	24.12	23.99		
20	QPSK	50	0	22.96	23.02	23.09		
20	QPSK	50	24	22.91	22.99	23.06	23.5	1
20	QPSK	50	50	22.89	23.06	23.02		
20	QPSK	100	0	22.92	22.95	23.08		
20	16QAM	1	0	23.37	23.30	23.45	23.5	1
20	16QAM	1	49	23.22	23.24	23.42		
20	16QAM	1	99	23.18	23.48	23.30		
20	16QAM	50	0	22.06	22.13	22.19	22.5	2
20	16QAM	50	24	22.03	22.08	22.15		
20	16QAM	50	50	21.98	22.14	22.10		
20	16QAM	100	0	22.01	22.06	22.14	22.5	2
20	64QAM	1	0	22.27	22.21	22.43		
20	64QAM	1	49	22.08	22.14	22.34		
20	64QAM	1	99	22.08	22.33	22.21	21.5	3
20	64QAM	50	0	21.08	21.15	21.22		
20	64QAM	50	24	21.02	21.10	21.17		
20	64QAM	50	50	20.99	21.13	21.10	21.5	3
20	64QAM	100	0	21.01	21.06	21.16		
Channel				20825	21100	21375	24.5	0
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	24.02	23.92	24.06		
15	QPSK	1	37	23.81	23.81	24.00	23.5	1
15	QPSK	1	74	23.77	24.12	23.89		
15	QPSK	36	0	22.86	22.94	23.06		
15	QPSK	36	20	22.88	22.92	23.04	23.5	1
15	QPSK	36	39	22.85	22.98	22.92		
15	QPSK	75	0	22.92	22.94	22.98		
15	16QAM	1	0	23.31	23.20	23.41	23.5	1
15	16QAM	1	37	23.12	23.22	23.32		
15	16QAM	1	74	23.08	23.48	23.21		
15	16QAM	36	0	22.06	22.11	22.09	22.5	2
15	16QAM	36	20	21.93	22.00	22.10		
15	16QAM	36	39	21.98	22.13	22.09		
15	16QAM	75	0	21.97	22.01	22.11	22.5	2
15	64QAM	1	0	22.26	22.16	22.34		
15	64QAM	1	37	22.07	22.13	22.33		
15	64QAM	1	74	22.04	22.24	22.15	21.5	3
15	64QAM	36	0	21.07	21.08	21.18		
15	64QAM	36	20	21.01	21.03	21.12		
15	64QAM	36	39	20.94	21.13	21.07	21.5	3
15	64QAM	75	0	20.95	21.06	21.14		
Channel				20800	21100	21400	24.5	0
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	24.00	23.91	24.13		
10	QPSK	1	25	23.77	23.86	23.98	23.5	1
10	QPSK	1	49	23.73	24.10	23.98		
10	QPSK	25	0	22.86	22.96	23.01		
10	QPSK	25	12	22.83	22.91	23.05	23.5	1



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10	QPSK	25	25	22.83	23.04	22.98		
10	QPSK	50	0	22.83	22.88	23.05		
10	16QAM	1	0	23.30	23.22	23.44		
10	16QAM	1	25	23.19	23.21	23.35	23.5	1
10	16QAM	1	49	23.12	23.41	23.27		
10	16QAM	25	0	22.03	22.11	22.09		
10	16QAM	25	12	22.02	22.07	22.12	22.5	2
10	16QAM	25	25	21.95	22.09	22.07		
10	16QAM	50	0	21.93	22.02	22.04		
10	64QAM	1	0	22.22	22.21	22.42	22.5	2
10	64QAM	1	25	22.05	22.04	22.27		
10	64QAM	1	49	21.99	22.23	22.21		
10	64QAM	25	0	21.03	21.15	21.13	21.5	3
10	64QAM	25	12	20.97	21.01	21.13		
10	64QAM	25	25	20.99	21.06	21.03		
10	64QAM	50	0	20.96	20.96	21.12		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	23.96	23.90	24.06	24.5	0
5	QPSK	1	12	23.73	23.82	23.99		
5	QPSK	1	24	23.77	24.03	23.96		
5	QPSK	12	0	22.91	23.02	23.06	23.5	1
5	QPSK	12	7	22.91	22.94	23.02		
5	QPSK	12	13	22.86	23.02	22.95		
5	QPSK	25	0	22.83	22.88	23.03	23.5	1
5	16QAM	1	0	23.31	23.29	23.40		
5	16QAM	1	12	23.13	23.15	23.40		
5	16QAM	1	24	23.12	23.45	23.25	22.5	2
5	16QAM	12	0	22.05	22.03	22.11		
5	16QAM	12	7	21.98	22.00	22.07		
5	16QAM	12	13	21.94	22.10	22.02	22.5	2
5	16QAM	25	0	22.00	22.00	22.13		
5	64QAM	1	0	22.25	22.21	22.36		
5	64QAM	1	12	22.01	22.04	22.25	21.5	3
5	64QAM	1	24	22.04	22.26	22.16		
5	64QAM	12	0	21.08	21.05	21.13		
5	64QAM	12	7	20.98	21.03	21.13	21.5	3
5	64QAM	12	13	20.91	21.11	21.04		
5	64QAM	25	0	20.98	21.01	21.13		

<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	24.41	24.28	24.31	24.5	0
10	QPSK	1	25	24.27	24.23	24.38		
10	QPSK	1	49	24.24	24.26	24.33		
10	QPSK	25	0	23.36	23.33	23.38	23.5	1
10	QPSK	25	12	23.34	23.30	23.38		
10	QPSK	25	25	23.32	23.29	23.30		
10	QPSK	50	0	23.35	23.31	23.36	23.5	1
10	16QAM	1	0	23.45	23.42	23.42		
10	16QAM	1	25	23.38	23.45	23.49		
10	16QAM	1	49	23.46	23.35	23.33	22.5	2
10	16QAM	25	0	22.45	22.42	22.47		
10	16QAM	25	12	22.45	22.39	22.44		
10	16QAM	25	25	22.40	22.34	22.49	22.5	2
10	16QAM	50	0	22.41	22.40	22.40		
10	64QAM	1	0	22.48	22.50	22.38		
10	64QAM	1	25	22.49	22.44	22.31	22.5	2
10	64QAM	1	49	22.45	22.41	22.49		
10	64QAM	25	0	21.48	21.42	21.43		
10	64QAM	25	12	21.44	21.42	21.47	21.5	3
10	64QAM	25	25	21.41	21.34	21.33		
10	64QAM	50	0	21.44	21.40	21.44		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	24.37	24.27	24.23	24.5	0
5	QPSK	1	12	24.19	24.16	24.29		
5	QPSK	1	24	24.24	24.24	24.31		
5	QPSK	12	0	23.26	23.21	23.37	23.5	1
5	QPSK	12	7	23.28	23.33	23.33		
5	QPSK	12	13	23.28	23.28	23.36		
5	QPSK	25	0	23.29	23.25	23.26	23.5	1
5	16QAM	1	0	23.44	23.40	23.36		
5	16QAM	1	12	23.38	23.35	23.48		
5	16QAM	1	24	23.36	23.30	23.26	22.5	2
5	16QAM	12	0	22.39	22.37	22.41		
5	16QAM	12	7	22.35	22.36	22.40		
5	16QAM	12	13	22.32	22.31	22.44	22.5	2
5	16QAM	25	0	22.31	22.36	22.31		
5	64QAM	1	0	22.42	22.40	22.28		
5	64QAM	1	12	22.41	22.36	22.24	22.5	2
5	64QAM	1	24	22.44	22.33	22.49		
5	64QAM	12	0	21.41	21.32	21.38		
5	64QAM	12	7	21.36	21.36	21.45	21.5	3
5	64QAM	12	13	21.39	21.28	21.32		
5	64QAM	25	0	21.35	21.31	21.42		
Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	24.31	24.21	24.25	24.5	0
3	QPSK	1	8	24.25	24.16	24.29		
3	QPSK	1	14	24.17	24.26	24.25		
3	QPSK	8	0	23.29	23.23	23.36	23.5	1
3	QPSK	8	4	23.27	23.28	23.33		



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3	QPSK	8	7	23.22	23.22	23.36		
3	QPSK	15	0	23.31	23.31	23.31		
3	16QAM	1	0	23.45	23.40	23.39		
3	16QAM	1	8	23.28	23.39	23.43	23.5	1
3	16QAM	1	14	23.45	23.27	23.23		
3	16QAM	8	0	22.44	22.34	22.47		
3	16QAM	8	4	22.39	22.35	22.41	22.5	2
3	16QAM	8	7	22.32	22.28	22.40		
3	16QAM	15	0	22.40	22.40	22.35		
3	64QAM	1	0	22.39	22.43	22.31	22.5	2
3	64QAM	1	8	22.42	22.34	22.28		
3	64QAM	1	14	22.44	22.33	22.49		
3	64QAM	8	0	21.40	21.37	21.40	21.5	3
3	64QAM	8	4	21.43	21.39	21.40		
3	64QAM	8	7	21.35	21.25	21.30		
3	64QAM	15	0	21.44	21.35	21.43		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	24.36	24.28	24.21	24.5	0
1.4	QPSK	1	3	24.18	24.23	24.30		
1.4	QPSK	1	5	24.17	24.24	24.28		
1.4	QPSK	3	0	24.37	24.26	24.26		
1.4	QPSK	3	1	24.22	24.13	24.29		
1.4	QPSK	3	3	24.19	24.23	24.33		
1.4	QPSK	6	0	23.34	23.25	23.33	23.5	1
1.4	16QAM	1	0	23.33	23.27	23.30	23.5	1
1.4	16QAM	1	3	23.29	23.23	23.32		
1.4	16QAM	1	5	23.25	23.29	23.34		
1.4	16QAM	3	0	23.36	23.38	23.36		
1.4	16QAM	3	1	23.38	23.43	23.48		
1.4	16QAM	3	3	23.45	23.33	23.33		
1.4	16QAM	6	0	22.39	22.40	22.43	22.5	2
1.4	64QAM	1	0	22.35	22.36	22.42	22.5	2
1.4	64QAM	1	3	22.36	22.30	22.47		
1.4	64QAM	1	5	22.35	22.34	22.38		
1.4	64QAM	3	0	22.48	22.41	22.36		
1.4	64QAM	3	1	22.47	22.41	22.30		
1.4	64QAM	3	3	22.37	22.38	22.48		
1.4	64QAM	6	0	21.45	21.34	21.40	21.5	3

<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			24.5	0
Frequency (MHz)				782				
10	QPSK	1	0		24.35		24.5	0
10	QPSK	1	25		24.31			
10	QPSK	1	49		23.78			
10	QPSK	25	0		23.41		23.5	1
10	QPSK	25	12		23.32			
10	QPSK	25	25		23.35			
10	QPSK	50	0		23.38		23.5	1
10	16QAM	1	0		23.50			
10	16QAM	1	25		23.49			
10	16QAM	1	49		22.96		22.5	2
10	16QAM	25	0		22.39			
10	16QAM	25	12		22.48			
10	16QAM	25	25		22.43		22.5	2
10	16QAM	50	0		22.46			
10	64QAM	1	0		22.43			
10	64QAM	1	25		22.43		22.5	2
10	64QAM	1	49		21.88			
10	64QAM	25	0		21.40			
10	64QAM	25	12		21.45		21.5	3
10	64QAM	25	25		21.44			
10	64QAM	50	0		21.44			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	24.31	24.25	24.30	24.5	0
5	QPSK	1	12	24.22	24.24	24.22		
5	QPSK	1	24	23.76	23.71	23.74		
5	QPSK	12	0	23.27	23.29	23.29	23.5	1
5	QPSK	12	7	23.41	23.33	23.38		
5	QPSK	12	13	23.28	23.28	23.35		
5	QPSK	25	0	23.28	23.38	23.33	23.5	1
5	16QAM	1	0	23.45	23.48	23.49		
5	16QAM	1	12	23.41	23.46	23.41		
5	16QAM	1	24	22.90	22.87	22.90	22.5	2
5	16QAM	12	0	22.35	22.35	22.29		
5	16QAM	12	7	22.43	22.45	22.41		
5	16QAM	12	13	22.41	22.36	22.33	22.5	2
5	16QAM	25	0	22.38	22.37	22.39		
5	64QAM	1	0	22.37	22.41	22.37		
5	64QAM	1	12	22.36	22.41	22.33	22.5	2
5	64QAM	1	24	21.78	21.80	21.85		
5	64QAM	12	0	21.36	21.32	21.31		
5	64QAM	12	7	21.40	21.45	21.40	21.5	3
5	64QAM	12	13	21.36	21.44	21.42		
5	64QAM	25	0	21.44	21.36	21.37		

<LTE Band 14>

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				23330			Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				793				
10	QPSK	1	0		24.41		24.5	0
10	QPSK	1	25		24.31			
10	QPSK	1	49		24.20			
10	QPSK	25	0		23.39		23.5	1
10	QPSK	25	12		23.38			
10	QPSK	25	25		23.29			
10	QPSK	50	0		23.33		23.5	1
10	16QAM	1	0		23.48			
10	16QAM	1	25		23.38			
10	16QAM	1	49		23.35		22.5	2
10	16QAM	25	0		22.50			
10	16QAM	25	12		22.47			
10	16QAM	25	25		22.40		22.5	2
10	16QAM	50	0		22.43			
10	64QAM	1	0		21.47			
10	64QAM	1	25		22.43		22.5	2
10	64QAM	1	49		22.48			
10	64QAM	25	0		21.42		21.5	3
10	64QAM	25	12		21.48			
10	64QAM	25	25		21.38			
10	64QAM	50	0		21.46			
Channel				23305	23330	23355	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				790.5	793	795.5		
5	QPSK	1	0	24.40	24.36	24.38	24.5	0
5	QPSK	1	12	24.26	24.29	24.29		
5	QPSK	1	24	24.15	24.13	24.18		
5	QPSK	12	0	23.30	23.32	23.35	23.5	1
5	QPSK	12	7	23.33	23.30	23.32		
5	QPSK	12	13	23.23	23.27	23.22		
5	QPSK	25	0	23.29	23.24	23.30	23.5	1
5	16QAM	1	0	23.46	23.39	23.46		
5	16QAM	1	12	23.38	23.37	23.28		
5	16QAM	1	24	23.34	23.26	23.34	22.5	2
5	16QAM	12	0	22.42	22.42	22.44		
5	16QAM	12	7	22.40	22.41	22.44		
5	16QAM	12	13	22.30	22.37	22.32	22.5	2
5	16QAM	25	0	22.38	22.35	22.34		
5	64QAM	1	0	21.38	21.47	21.46		
5	64QAM	1	12	22.36	22.43	22.36	22.5	2
5	64QAM	1	24	22.42	22.45	22.39		
5	64QAM	12	0	21.34	21.38	21.41		
5	64QAM	12	7	21.39	21.43	21.45	21.5	3
5	64QAM	12	13	21.37	21.36	21.28		
5	64QAM	25	0	21.36	21.40	21.38		

<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	24.5	0
Frequency (MHz)				709	710	711		
10	QPSK	1	0	24.16	24.12	24.10		
10	QPSK	1	25	24.09	24.03	24.05	23.5	1
10	QPSK	1	49	24.14	24.14	24.11		
10	QPSK	25	0	23.12	23.12	23.09		
10	QPSK	25	12	23.13	23.12	23.13	23.5	1
10	QPSK	25	25	23.09	23.07	23.06		
10	QPSK	50	0	23.13	23.08	23.10		
10	16QAM	1	0	23.49	23.47	23.45	23.5	1
10	16QAM	1	25	23.44	23.42	23.37		
10	16QAM	1	49	23.49	23.49	23.46		
10	16QAM	25	0	22.23	22.22	22.18	22.5	2
10	16QAM	25	12	22.24	22.20	22.20		
10	16QAM	25	25	22.19	22.17	22.15		
10	16QAM	50	0	22.19	22.18	22.18	22.5	2
10	64QAM	1	0	22.37	22.34	22.33		
10	64QAM	1	25	22.31	22.31	22.28		
10	64QAM	1	49	22.43	22.39	22.35	21.5	3
10	64QAM	25	0	21.23	21.20	21.20		
10	64QAM	25	12	21.24	21.21	21.20		
10	64QAM	25	25	21.17	21.18	21.15	21.5	3
10	64QAM	50	0	21.23	21.22	21.17		
Channel				23755	23790	23825	24.5	0
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	24.08	24.08	24.10		
5	QPSK	1	12	23.99	23.95	24.02	23.5	1
5	QPSK	1	24	24.12	24.13	24.11		
5	QPSK	12	0	23.04	23.03	23.05		
5	QPSK	12	7	23.12	23.10	23.09	23.5	1
5	QPSK	12	13	23.01	23.05	23.03		
5	QPSK	25	0	23.07	23.01	23.05		
5	16QAM	1	0	23.43	23.41	23.42	23.5	1
5	16QAM	1	12	23.38	23.35	23.32		
5	16QAM	1	24	23.46	23.49	23.40		
5	16QAM	12	0	22.21	22.15	22.14	22.5	2
5	16QAM	12	7	22.17	22.13	22.16		
5	16QAM	12	13	22.16	22.07	22.08		
5	16QAM	25	0	22.18	22.14	22.17	22.5	2
5	64QAM	1	0	22.37	22.34	22.32		
5	64QAM	1	12	22.26	22.25	22.19		
5	64QAM	1	24	22.39	22.31	22.32	21.5	3
5	64QAM	12	0	21.20	21.18	21.13		
5	64QAM	12	7	21.20	21.13	21.20		
5	64QAM	12	13	21.13	21.13	21.11	21.5	3
5	64QAM	25	0	21.15	21.19	21.11		

<LTE Band 25>

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				26140	26340	26590	24.5	0
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	23.78	23.84	24.16	24.5	0
20	QPSK	1	49	23.72	23.66	23.95		
20	QPSK	1	99	23.65	23.75	23.81		
20	QPSK	50	0	22.76	22.69	23.01	23.5	1
20	QPSK	50	24	22.71	22.61	22.89		
20	QPSK	50	50	22.73	22.65	22.98		
20	QPSK	100	0	22.71	22.61	23.21		
20	16QAM	1	0	23.16	23.21	23.47	23.5	1
20	16QAM	1	49	23.04	23.01	23.37		
20	16QAM	1	99	23.02	22.99	23.10		
20	16QAM	50	0	21.88	21.80	22.10	22.5	2
20	16QAM	50	24	21.78	21.69	21.98		
20	16QAM	50	50	21.80	21.74	22.05		
20	16QAM	100	0	21.81	21.72	22.32		
20	64QAM	1	0	22.06	22.11	22.36	22.5	2
20	64QAM	1	49	21.94	21.89	22.27		
20	64QAM	1	99	21.90	21.88	22.04		
20	64QAM	50	0	20.86	20.80	21.11	21.5	3
20	64QAM	50	24	20.81	20.72	20.99		
20	64QAM	50	50	20.81	20.75	21.06		
20	64QAM	100	0	20.78	20.71	21.22		
Channel				26115	26340	26615	24.5	0
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	23.70	23.79	24.05	24.5	0
15	QPSK	1	37	23.66	23.64	23.91		
15	QPSK	1	74	23.59	23.71	23.78		
15	QPSK	36	0	22.66	22.65	22.95	23.5	1
15	QPSK	36	20	22.69	22.56	22.86		
15	QPSK	36	39	22.64	22.65	22.94		
15	QPSK	75	0	22.67	22.53	23.21		
15	16QAM	1	0	23.13	23.17	23.43	23.5	1
15	16QAM	1	37	22.96	23.00	23.31		
15	16QAM	1	74	23.01	22.97	23.09		
15	16QAM	36	0	21.86	21.73	22.10	22.5	2
15	16QAM	36	20	21.72	21.65	21.88		
15	16QAM	36	39	21.79	21.67	22.05		
15	16QAM	75	0	21.77	21.67	22.24		
15	64QAM	1	0	21.97	22.02	22.26	22.5	2
15	64QAM	1	37	21.85	21.86	22.25		
15	64QAM	1	74	21.82	21.80	21.95		
15	64QAM	36	0	20.86	20.79	21.10	21.5	3
15	64QAM	36	20	20.75	20.63	20.89		
15	64QAM	36	39	20.77	20.72	21.04		
15	64QAM	75	0	20.74	20.63	21.17		
Channel				26090	26340	26640	24.5	0
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	23.72	23.75	24.09	24.5	0
10	QPSK	1	25	23.66	23.60	23.85		
10	QPSK	1	49	23.56	23.67	23.79		
10	QPSK	25	0	22.74	22.63	22.98	23.5	1



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10	QPSK	25	12	22.61	22.52	22.88		
10	QPSK	25	25	22.70	22.55	22.94		
10	QPSK	50	0	22.63	22.60	23.20		
10	16QAM	1	0	23.06	23.15	23.43	23.5	1
10	16QAM	1	25	23.04	23.00	23.34		
10	16QAM	1	49	22.99	22.98	23.03		
10	16QAM	25	0	21.87	21.73	22.03	22.5	2
10	16QAM	25	12	21.74	21.69	21.88		
10	16QAM	25	25	21.71	21.72	22.03		
10	16QAM	50	0	21.79	21.63	22.23	22.5	2
10	64QAM	1	0	21.97	22.02	22.30		
10	64QAM	1	25	21.85	21.85	22.17		
10	64QAM	1	49	21.82	21.86	21.98	21.5	3
10	64QAM	25	0	20.76	20.77	21.08		
10	64QAM	25	12	20.80	20.65	20.91		
10	64QAM	25	25	20.79	20.66	20.99	20.78	
10	64QAM	50	0	20.78	20.68	21.20		
Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	23.69	23.81	24.09	24.5	0
5	QPSK	1	12	23.62	23.62	23.89		
5	QPSK	1	24	23.63	23.70	23.75		
5	QPSK	12	0	22.69	22.59	22.96	23.5	1
5	QPSK	12	7	22.68	22.51	22.84		
5	QPSK	12	13	22.63	22.55	22.89		
5	QPSK	25	0	22.69	22.58	23.13	23.5	1
5	16QAM	1	0	23.15	23.12	23.44		
5	16QAM	1	12	22.94	22.94	23.32		
5	16QAM	1	24	22.96	22.89	23.00	22.5	2
5	16QAM	12	0	21.86	21.71	22.06		
5	16QAM	12	7	21.68	21.59	21.94		
5	16QAM	12	13	21.74	21.69	22.03	22.5	2
5	16QAM	25	0	21.75	21.66	22.26		
5	64QAM	1	0	21.96	22.08	22.34		
5	64QAM	1	12	21.94	21.89	22.19	22.5	2
5	64QAM	1	24	21.84	21.84	21.95		
5	64QAM	12	0	20.84	20.78	21.10		
5	64QAM	12	7	20.80	20.63	20.92	21.5	3
5	64QAM	12	13	20.71	20.67	20.99		
5	64QAM	25	0	20.77	20.66	21.19		
Channel				26055	26340	26675	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	23.68	23.81	24.15	24.5	0
3	QPSK	1	8	23.65	23.65	23.85		
3	QPSK	1	14	23.58	23.68	23.73		
3	QPSK	8	0	22.76	22.61	22.99	23.5	1
3	QPSK	8	4	22.71	22.60	22.88		
3	QPSK	8	7	22.69	22.59	22.97		
3	QPSK	15	0	22.61	22.60	23.21	23.5	1
3	16QAM	1	0	23.11	23.21	23.39		
3	16QAM	1	8	23.00	22.97	23.32		
3	16QAM	1	14	22.95	22.98	23.04	22.5	2
3	16QAM	8	0	21.78	21.78	22.09		
3	16QAM	8	4	21.68	21.60	21.97		
3	16QAM	8	7	21.79	21.71	22.05	21.81	
3	16QAM	15	0	21.81	21.69	22.32		



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3	64QAM	1	0	21.98	22.11	22.30	22.5	2
3	64QAM	1	8	21.88	21.83	22.27		
3	64QAM	1	14	21.81	21.80	22.04		
3	64QAM	8	0	20.80	20.75	21.05	21.5	3
3	64QAM	8	4	20.72	20.66	20.98		
3	64QAM	8	7	20.77	20.67	21.01		
3	64QAM	15	0	20.73	20.61	21.22		
Channel				26047	26340	26683	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	23.77	23.84	24.09	24.5	0
1.4	QPSK	1	3	23.64	23.59	23.93		
1.4	QPSK	1	5	23.59	23.72	23.77		
1.4	QPSK	3	0	23.73	23.74	24.08		
1.4	QPSK	3	1	23.69	23.66	23.86		
1.4	QPSK	3	3	23.55	23.74	23.78		
1.4	QPSK	6	0	22.74	22.65	22.95	23.5	1
1.4	16QAM	1	0	22.63	22.61	22.80	23.5	1
1.4	16QAM	1	3	22.63	22.56	22.93		
1.4	16QAM	1	5	22.71	22.54	23.21		
1.4	16QAM	3	0	23.07	23.20	23.45		
1.4	16QAM	3	1	23.02	23.01	23.27		
1.4	16QAM	3	3	23.01	22.93	23.08		
1.4	16QAM	6	0	21.81	21.80	22.01	22.5	2
1.4	64QAM	1	0	21.69	21.66	21.89	22.5	2
1.4	64QAM	1	3	21.70	21.74	22.02		
1.4	64QAM	1	5	21.79	21.72	22.24		
1.4	64QAM	3	0	22.01	22.05	22.27		
1.4	64QAM	3	1	21.89	21.84	22.18		
1.4	64QAM	3	3	21.84	21.87	22.03		
1.4	64QAM	6	0	20.77	20.79	21.01	21.5	3

<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	24.20	24.26	24.20	24.5	0
15	QPSK	1	37	24.22	24.18	24.20		
15	QPSK	1	74	24.23	24.16	24.09		
15	QPSK	36	0	23.29	23.25	23.20	23.5	1
15	QPSK	36	20	23.37	23.22	23.13		
15	QPSK	36	39	23.30	23.13	23.17		
15	QPSK	75	0	23.34	23.19	23.14	23.5	1
15	16QAM	1	0	23.49	23.42	23.47		
15	16QAM	1	37	23.39	23.36	23.36		
15	16QAM	1	74	23.36	23.44	23.46	22.5	2
15	16QAM	36	0	22.38	22.33	22.25		
15	16QAM	36	20	22.46	22.31	22.25		
15	16QAM	36	39	22.37	22.20	22.25	22.5	2
15	16QAM	75	0	22.42	22.28	22.21		
15	64QAM	1	0	22.43	22.40	22.49	22.5	2
15	64QAM	1	37	22.50	22.44	22.45		
15	64QAM	1	74	22.48	22.40	22.36		
15	64QAM	36	0	21.41	21.34	21.32	21.5	3
15	64QAM	36	20	21.42	21.35	21.28		
15	64QAM	36	39	21.39	21.27	21.30		
15	64QAM	75	0	21.42	21.29	21.22		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	24.12	24.16	24.17	24.5	0
10	QPSK	1	25	24.20	24.14	24.15		
10	QPSK	1	49	24.14	24.08	24.02		
10	QPSK	25	0	23.26	23.17	23.10	23.5	1
10	QPSK	25	12	23.32	23.14	23.10		
10	QPSK	25	25	23.23	23.12	23.14		
10	QPSK	50	0	23.29	23.13	23.12	23.5	1
10	16QAM	1	0	23.47	23.35	23.38		
10	16QAM	1	25	23.32	23.30	23.34		
10	16QAM	1	49	23.30	23.39	23.41	22.5	2
10	16QAM	25	0	22.35	22.27	22.15		
10	16QAM	25	12	22.36	22.24	22.15		
10	16QAM	25	25	22.37	22.16	22.19	22.5	2
10	16QAM	50	0	22.36	22.18	22.20		
10	64QAM	1	0	22.42	22.40	22.49		
10	64QAM	1	25	22.47	22.35	22.45	22.5	2
10	64QAM	1	49	22.39	22.32	22.34		
10	64QAM	25	0	21.35	21.29	21.29	21.5	3
10	64QAM	25	12	21.38	21.31	21.28		
10	64QAM	25	25	21.31	21.26	21.29		
10	64QAM	50	0	21.32	21.29	21.12		
Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	24.20	24.19	24.19	24.5	0
5	QPSK	1	12	24.16	24.14	24.13		
5	QPSK	1	24	24.22	24.07	24.07		
5	QPSK	12	0	23.21	23.15	23.20	23.5	1
5	QPSK	12	7	23.36	23.13	23.11		



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5	QPSK	12	13	23.25	23.03	23.14		
5	QPSK	25	0	23.32	23.16	23.08		
5	16QAM	1	0	23.44	23.32	23.45		
5	16QAM	1	12	23.38	23.33	23.31	23.5	1
5	16QAM	1	24	23.29	23.38	23.40		
5	16QAM	12	0	22.34	22.23	22.16		
5	16QAM	12	7	22.42	22.22	22.20	22.5	2
5	16QAM	12	13	22.32	22.17	22.21		
5	16QAM	25	0	22.40	22.22	22.15		
5	64QAM	1	0	22.43	22.39	22.39	22.5	2
5	64QAM	1	12	22.45	22.39	22.43		
5	64QAM	1	24	22.48	22.31	22.32		
5	64QAM	12	0	21.31	21.33	21.28	21.5	3
5	64QAM	12	7	21.32	21.27	21.21		
5	64QAM	12	13	21.39	21.21	21.22		
5	64QAM	25	0	21.38	21.22	21.19		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	24.19	24.25	24.14	24.5	0
3	QPSK	1	8	24.19	24.16	24.11		
3	QPSK	1	14	24.19	24.13	24.02		
3	QPSK	8	0	23.25	23.15	23.16	23.5	1
3	QPSK	8	4	23.35	23.22	23.08		
3	QPSK	8	7	23.27	23.08	23.13		
3	QPSK	15	0	23.27	23.09	23.10	23.5	1
3	16QAM	1	0	23.46	23.36	23.41		
3	16QAM	1	8	23.31	23.31	23.31		
3	16QAM	1	14	23.35	23.44	23.42	22.5	2
3	16QAM	8	0	22.32	22.33	22.22		
3	16QAM	8	4	22.40	22.27	22.19		
3	16QAM	8	7	22.34	22.10	22.24	22.5	2
3	16QAM	15	0	22.41	22.26	22.11		
3	64QAM	1	0	22.33	22.32	22.49		
3	64QAM	1	8	22.44	22.40	22.37	22.5	2
3	64QAM	1	14	22.40	22.30	22.30		
3	64QAM	8	0	21.32	21.30	21.22		
3	64QAM	8	4	21.34	21.33	21.27	21.5	3
3	64QAM	8	7	21.36	21.27	21.23		
3	64QAM	15	0	21.36	21.23	21.18		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	24.10	24.20	24.15	24.5	0
1.4	QPSK	1	3	24.18	24.16	24.17		
1.4	QPSK	1	5	24.21	24.12	24.02		
1.4	QPSK	3	0	24.16	24.20	24.12		
1.4	QPSK	3	1	24.12	24.09	24.18		
1.4	QPSK	3	3	24.15	24.15	24.04	23.5	1
1.4	QPSK	6	0	23.21	23.24	23.13		
1.4	16QAM	1	0	23.35	23.16	23.10	23.5	1
1.4	16QAM	1	3	23.24	23.12	23.15		
1.4	16QAM	1	5	23.24	23.17	23.11		
1.4	16QAM	3	0	23.44	23.36	23.42		
1.4	16QAM	3	1	23.36	23.31	23.33		
1.4	16QAM	3	3	23.26	23.44	23.43	22.5	2
1.4	16QAM	6	0	22.34	22.30	22.16		
1.4	64QAM	1	0	22.46	22.23	22.24	22.5	2



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1.4	64QAM	1	3	22.27	22.11	22.16		
1.4	64QAM	1	5	22.36	22.22	22.17		
1.4	64QAM	3	0	22.36	22.37	22.49		
1.4	64QAM	3	1	22.44	22.35	22.44		
1.4	64QAM	3	3	22.47	22.38	22.33		
1.4	64QAM	6	0	21.36	21.31	21.32	21.5	3

<LTE Band 30>

LTE Band 30				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		22.44		23	0
10	QPSK	1	25		22.16			
10	QPSK	1	49		22.07			
10	QPSK	25	0		21.23		22	1
10	QPSK	25	12		21.22			
10	QPSK	25	25		21.18			
10	QPSK	50	0		21.21		22	1
10	16QAM	1	0		21.83			
10	16QAM	1	25		21.50			
10	16QAM	1	49		21.39		21	2
10	16QAM	25	0		20.33			
10	16QAM	25	12		20.30			
10	16QAM	25	25		20.23		21	2
10	16QAM	50	0		20.31			
10	64QAM	1	0		20.69			
10	64QAM	1	25		20.41		21	2
10	64QAM	1	49		20.30			
10	64QAM	25	0		19.33		20	3
10	64QAM	25	12		19.31			
10	64QAM	25	25		19.29			
10	64QAM	50	0		19.33		27685	2307.5
Channel				27710				
Frequency (MHz)				2310			23	0
5	QPSK	1	0	22.35	22.37	22.33		
5	QPSK	1	12	22.11	22.13	22.15	22	1
5	QPSK	1	24	21.97	22.02	21.99		
5	QPSK	12	0	21.17	21.14	21.20		
5	QPSK	12	7	21.14	21.21	21.14	22	1
5	QPSK	12	13	21.18	21.15	21.18		
5	QPSK	25	0	21.15	21.20	21.12		
5	16QAM	1	0	21.74	21.76	21.77	22	1
5	16QAM	1	12	21.45	21.47	21.40		
5	16QAM	1	24	21.37	21.38	21.36		
5	16QAM	12	0	20.30	20.31	20.27	21	2
5	16QAM	12	7	20.24	20.30	20.29		
5	16QAM	12	13	20.16	20.16	20.23		
5	16QAM	25	0	20.31	20.27	20.30	21	2
5	64QAM	1	0	20.63	20.65	20.60		
5	64QAM	1	12	20.36	20.40	20.37		
5	64QAM	1	24	20.30	20.28	20.27	20	3
5	64QAM	12	0	19.29	19.27	19.24		
5	64QAM	12	7	19.26	19.23	19.21		
5	64QAM	12	13	19.25	19.23	19.24	19.32	19.28
5	64QAM	25	0	19.32	19.28	19.27		



<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	24.5	0
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	24.43	24.32	24.21		
20	QPSK	1	49	24.12	24.04	23.97	23.5	1
20	QPSK	1	99	24.10	24.02	23.90		
20	QPSK	50	0	23.30	23.23	23.08		
20	QPSK	50	24	23.22	23.12	23.04	23.5	1
20	QPSK	50	50	23.14	23.09	22.97		
20	QPSK	100	0	23.22	23.15	22.97		
20	16QAM	1	0	23.50	23.38	23.34	23.5	1
20	16QAM	1	49	23.47	23.44	23.33		
20	16QAM	1	99	23.48	23.41	23.27		
20	16QAM	50	0	22.42	22.32	22.17	22.5	2
20	16QAM	50	24	22.33	22.24	22.17		
20	16QAM	50	50	22.28	22.18	22.09		
20	16QAM	100	0	22.31	22.23	22.05	22.5	2
20	64QAM	1	0	22.48	22.46	22.44		
20	64QAM	1	49	22.32	22.32	22.20		
20	64QAM	1	99	22.36	22.30	22.21	21.5	3
20	64QAM	50	0	21.43	21.34	21.19		
20	64QAM	50	24	21.33	21.27	21.16		
20	64QAM	50	50	21.29	21.19	21.11	21.5	3
20	64QAM	100	0	21.35	21.27	21.09		
Channel				132047	132322	132597	24.5	0
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	24.36	24.32	24.11		
15	QPSK	1	37	24.10	23.94	23.93	23.5	1
15	QPSK	1	74	24.09	23.99	23.87		
15	QPSK	36	0	23.30	23.23	23.00		
15	QPSK	36	20	23.16	23.09	23.02	23.5	1
15	QPSK	36	39	23.12	23.08	22.93		
15	QPSK	75	0	23.22	23.05	22.89		
15	16QAM	1	0	23.50	23.37	23.30	23.5	1
15	16QAM	1	37	23.37	23.38	23.27		
15	16QAM	1	74	23.48	23.36	23.21		
15	16QAM	36	0	22.37	22.24	22.14	22.5	2
15	16QAM	36	20	22.29	22.19	22.11		
15	16QAM	36	39	22.22	22.11	22.00		
15	16QAM	75	0	22.22	22.18	21.95	22.5	2
15	64QAM	1	0	22.48	22.45	22.38		
15	64QAM	1	37	22.23	22.27	22.16		
15	64QAM	1	74	22.28	22.27	22.20	21.5	3
15	64QAM	36	0	21.43	21.29	21.18		
15	64QAM	36	20	21.23	21.27	21.12		
15	64QAM	36	39	21.20	21.15	21.01	21.5	3
15	64QAM	75	0	21.32	21.23	21.08		
Channel				132022	132322	132622	24.5	0
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	24.41	24.32	24.16		
10	QPSK	1	25	24.12	23.99	23.94	23.5	1
10	QPSK	1	49	24.01	24.02	23.81		
10	QPSK	25	0	23.26	23.23	23.03		
10	QPSK	25	12	23.17	23.03	22.98	23.5	1



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10	QPSK	25	25	23.12	23.08	22.91		
10	QPSK	50	0	23.13	23.14	22.92		
10	16QAM	1	0	23.46	23.32	23.26		
10	16QAM	1	25	23.38	23.42	23.25	23.5	1
10	16QAM	1	49	23.45	23.34	23.17		
10	16QAM	25	0	22.32	22.22	22.12		
10	16QAM	25	12	22.26	22.19	22.07	22.5	2
10	16QAM	25	25	22.26	22.14	22.00		
10	16QAM	50	0	22.25	22.14	22.05		
10	64QAM	1	0	22.41	22.39	22.37	22.5	2
10	64QAM	1	25	22.24	22.22	22.14		
10	64QAM	1	49	22.33	22.24	22.19		
10	64QAM	25	0	21.37	21.31	21.14	21.5	3
10	64QAM	25	12	21.33	21.24	21.11		
10	64QAM	25	25	21.28	21.15	21.04		
10	64QAM	50	0	21.25	21.24	21.04		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	24.39	24.32	24.11	24.5	0
5	QPSK	1	12	24.02	23.99	23.88		
5	QPSK	1	24	24.01	23.95	23.89		
5	QPSK	12	0	23.30	23.18	23.04	23.5	1
5	QPSK	12	7	23.15	23.10	23.04		
5	QPSK	12	13	23.13	23.08	22.90		
5	QPSK	25	0	23.12	23.14	22.89	23.5	1
5	16QAM	1	0	23.49	23.29	23.28		
5	16QAM	1	12	23.41	23.35	23.23		
5	16QAM	1	24	23.48	23.40	23.24	22.5	2
5	16QAM	12	0	22.33	22.27	22.10		
5	16QAM	12	7	22.25	22.22	22.09		
5	16QAM	12	13	22.20	22.10	22.09	22.5	2
5	16QAM	25	0	22.24	22.14	21.98		
5	64QAM	1	0	22.44	22.45	22.36		
5	64QAM	1	12	22.23	22.30	22.13	22.5	2
5	64QAM	1	24	22.27	22.20	22.17		
5	64QAM	12	0	21.43	21.26	21.14		
5	64QAM	12	7	21.26	21.19	21.14	21.5	3
5	64QAM	12	13	21.28	21.10	21.06		
5	64QAM	25	0	21.29	21.27	21.04		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	24.34	24.22	24.13	24.5	0
3	QPSK	1	8	24.06	23.94	23.95		
3	QPSK	1	14	24.01	23.95	23.82		
3	QPSK	8	0	23.29	23.23	23.00	23.5	1
3	QPSK	8	4	23.21	23.02	23.00		
3	QPSK	8	7	23.14	23.07	22.96		
3	QPSK	15	0	23.16	23.09	22.90	23.5	1
3	16QAM	1	0	23.47	23.29	23.28		
3	16QAM	1	8	23.39	23.38	23.27		
3	16QAM	1	14	23.38	23.41	23.18	22.5	2
3	16QAM	8	0	22.32	22.25	22.09		
3	16QAM	8	4	22.28	22.15	22.09		
3	16QAM	8	7	22.23	22.13	22.04	22.5	2
3	16QAM	15	0	22.29	22.23	22.04		
3	64QAM	1	0	22.41	22.41	22.40	22.5	2



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3	64QAM	1	8	22.23	22.30	22.13	21.5	3
3	64QAM	1	14	22.30	22.28	22.13		
3	64QAM	8	0	21.39	21.28	21.17		
3	64QAM	8	4	21.32	21.19	21.14		
3	64QAM	8	7	21.28	21.16	21.07		
3	64QAM	15	0	21.25	21.18	21.02		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	24.35	24.22	24.11	24.5	0
1.4	QPSK	1	3	24.06	24.03	23.93		
1.4	QPSK	1	5	24.03	23.92	23.85		
1.4	QPSK	3	0	24.36	24.26	24.21		
1.4	QPSK	3	1	24.12	23.94	23.96		
1.4	QPSK	3	3	24.01	24.00	23.80		
1.4	QPSK	6	0	23.22	23.22	23.00	23.5	1
1.4	16QAM	1	0	23.21	23.07	23.03	23.5	1
1.4	16QAM	1	3	23.13	23.02	22.93		
1.4	16QAM	1	5	23.22	23.14	22.88		
1.4	16QAM	3	0	23.48	23.32	23.29		
1.4	16QAM	3	1	23.37	23.35	23.28		
1.4	16QAM	3	3	23.48	23.33	23.20		
1.4	16QAM	6	0	22.34	22.27	22.11	22.5	2
1.4	64QAM	1	0	22.30	22.22	22.08	22.5	2
1.4	64QAM	1	3	22.24	22.13	22.07		
1.4	64QAM	1	5	22.22	22.15	21.95		
1.4	64QAM	3	0	22.48	22.38	22.37		
1.4	64QAM	3	1	22.29	22.22	22.18		
1.4	64QAM	3	3	22.35	22.22	22.12		
1.4	64QAM	6	0	21.43	21.29	21.13	21.5	3

Reduced Power Mode
<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	17.23	17.25	17.19	18.5	0
20	QPSK	1	49	17.00	16.85	17.08		
20	QPSK	1	99	16.82	16.72	16.99		
20	QPSK	50	0	16.16	16.05	16.15	17.5	1
20	QPSK	50	24	16.06	15.94	16.15		
20	QPSK	50	50	15.96	15.84	16.07		
20	QPSK	100	0	16.05	15.94	16.06		
20	16QAM	1	0	16.55	16.45	16.54	17.5	1
20	16QAM	1	49	16.32	16.17	16.40		
20	16QAM	1	99	16.17	16.06	16.37		
20	16QAM	50	0	15.29	15.13	15.24	16.5	2
20	16QAM	50	24	15.16	15.03	15.24		
20	16QAM	50	50	15.07	14.94	15.20		
20	16QAM	100	0	15.16	15.04	15.17		
20	64QAM	1	0	15.46	15.33	15.52	16.5	2
20	64QAM	1	49	15.23	15.12	15.35		
20	64QAM	1	99	15.04	14.97	15.28		
20	64QAM	50	0	14.29	14.13	14.26	15.5	3
20	64QAM	50	24	14.18	14.04	14.26		
20	64QAM	50	50	14.07	13.96	14.18		
20	64QAM	100	0	14.14	14.03	14.17		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	17.19	17.02	17.21	18.5	0
15	QPSK	1	37	17.00	16.82	16.97		
15	QPSK	1	74	16.66	16.72	16.97		
15	QPSK	36	0	16.06	16.05	15.98	17.5	1
15	QPSK	36	20	15.87	15.84	16.08		
15	QPSK	36	39	15.93	15.76	16.00		
15	QPSK	75	0	16.01	15.81	15.93		
15	16QAM	1	0	16.36	16.38	16.48	17.5	1
15	16QAM	1	37	16.15	16.10	16.22		
15	16QAM	1	74	16.05	16.03	16.31		
15	16QAM	36	0	15.27	14.94	15.17	16.5	2
15	16QAM	36	20	15.02	14.85	15.06		
15	16QAM	36	39	14.97	14.93	15.17		
15	16QAM	75	0	14.97	14.84	15.09		
15	64QAM	1	0	15.42	15.19	15.36	16.5	2
15	64QAM	1	37	15.17	15.05	15.27		
15	64QAM	1	74	15.04	14.87	15.27		
15	64QAM	36	0	14.20	14.02	14.14	15.5	3
15	64QAM	36	20	14.01	14.04	14.17		
15	64QAM	36	39	14.03	13.89	14.16		
15	64QAM	75	0	13.96	13.92	14.15		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	17.11	16.95	17.14	18.5	0
10	QPSK	1	25	16.96	16.81	16.92		
10	QPSK	1	49	16.65	16.64	16.93		
10	QPSK	25	0	16.02	16.00	15.90	17.5	1



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10	QPSK	25	12	15.80	15.83	16.03		
10	QPSK	25	25	15.91	15.69	15.94		
10	QPSK	50	0	15.92	15.77	15.92		
10	16QAM	1	0	16.31	16.30	16.46	17.5	1
10	16QAM	1	25	16.09	16.06	16.14		
10	16QAM	1	49	16.03	15.98	16.28		
10	16QAM	25	0	15.17	14.93	15.09	16.5	2
10	16QAM	25	12	14.98	14.81	15.05		
10	16QAM	25	25	14.87	14.85	15.07		
10	16QAM	50	0	14.96	14.83	15.01	16.5	2
10	64QAM	1	0	15.34	15.11	15.35		
10	64QAM	1	25	15.10	15.02	15.23		
10	64QAM	1	49	15.04	14.87	15.18	15.5	3
10	64QAM	25	0	14.13	13.93	14.11		
10	64QAM	25	12	14.01	13.95	14.15		
10	64QAM	25	25	13.93	13.86	14.12	13.96	13.91
10	64QAM	50	0	13.96	13.91	14.10		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	16.96	16.76	17.01	18.5	0
5	QPSK	1	12	16.82	16.62	16.86		
5	QPSK	1	24	16.48	16.60	16.74		
5	QPSK	12	0	15.97	15.83	15.74	17.5	1
5	QPSK	12	7	15.76	15.66	16.02		
5	QPSK	12	13	15.87	15.67	15.80		
5	QPSK	25	0	15.79	15.65	15.88	17.5	1
5	16QAM	1	0	16.29	16.15	16.29		
5	16QAM	1	12	15.93	15.86	15.99		
5	16QAM	1	24	15.86	15.94	16.28	16.5	2
5	16QAM	12	0	15.14	14.92	15.04		
5	16QAM	12	7	14.78	14.77	14.99		
5	16QAM	12	13	14.87	14.71	15.06	16.5	2
5	16QAM	25	0	14.92	14.80	14.81		
5	64QAM	1	0	15.16	15.06	15.35		
5	64QAM	1	12	14.97	14.96	15.13	16.5	2
5	64QAM	1	24	14.96	14.67	15.10		
5	64QAM	12	0	14.10	13.84	13.98		
5	64QAM	12	7	13.93	13.91	14.15	15.5	3
5	64QAM	12	13	13.74	13.82	14.11		
5	64QAM	25	0	13.94	13.76	14.04		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	16.89	16.71	17.01	18.5	0
3	QPSK	1	8	16.75	16.55	16.82		
3	QPSK	1	14	16.47	16.51	16.64		
3	QPSK	8	0	15.94	15.74	15.74	17.5	1
3	QPSK	8	4	15.70	15.64	15.98		
3	QPSK	8	7	15.85	15.59	15.80		
3	QPSK	15	0	15.70	15.61	15.81	17.5	1
3	16QAM	1	0	16.23	16.09	16.26		
3	16QAM	1	8	15.83	15.83	15.95		
3	16QAM	1	14	15.76	15.92	16.22	16.5	2
3	16QAM	8	0	15.04	14.88	14.95		
3	16QAM	8	4	14.73	14.67	14.97		
3	16QAM	8	7	14.78	14.71	15.06	14.86	14.77
3	16QAM	15	0	14.86	14.77	14.77		



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3	64QAM	1	0	15.08	15.01	15.28	16.5	2
3	64QAM	1	8	14.92	14.91	15.06		
3	64QAM	1	14	14.96	14.60	15.10		
3	64QAM	8	0	14.00	13.78	13.88	15.5	3
3	64QAM	8	4	13.87	13.83	14.14		
3	64QAM	8	7	13.68	13.78	14.01		
3	64QAM	15	0	13.94	13.74	13.95		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	17.11	16.86	17.08	18.5	0
1.4	QPSK	1	3	16.91	16.81	16.83		
1.4	QPSK	1	5	16.56	16.63	16.85		
1.4	QPSK	3	0	16.02	16.00	16.09		
1.4	QPSK	3	1	16.12	16.18	16.07		
1.4	QPSK	3	3	16.05	16.09	16.03		
1.4	QPSK	6	0	15.86	15.77	15.90	17.5	1
1.4	16QAM	1	0	16.22	16.29	16.41	17.5	1
1.4	16QAM	1	3	16.00	16.00	16.12		
1.4	16QAM	1	5	16.03	15.96	15.20		
1.4	16QAM	3	0	15.11	15.22	15.02		
1.4	16QAM	3	1	15.17	16.11	15.08		
1.4	16QAM	3	3	15.07	15.04	15.01		
1.4	16QAM	6	0	14.94	14.77	14.91	16.5	2
1.4	64QAM	1	0	15.33	15.10	15.26	16.5	2
1.4	64QAM	1	3	15.01	14.99	15.14		
1.4	64QAM	1	5	15.04	14.85	15.16		
1.4	64QAM	3	0	14.15	14.07	14.23		
1.4	64QAM	3	1	14.04	14.04	14.18		
1.4	64QAM	3	3	14.05	14.04	14.18		
1.4	64QAM	6	0	13.95	13.89	14.08	15.5	3



<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	16.78	16.94	16.81		
20	QPSK	1	49	16.47	16.53	16.46	17.5	0
20	QPSK	1	99	16.66	16.53	16.50		
20	QPSK	50	0	15.75	15.80	15.69		
20	QPSK	50	24	15.70	15.60	15.60	16.5	1
20	QPSK	50	50	15.66	15.57	15.54		
20	QPSK	100	0	15.73	15.64	15.60		
20	16QAM	1	0	15.84	15.98	16.02	16.5	1
20	16QAM	1	49	15.77	16.09	15.70		
20	16QAM	1	99	15.69	15.99	15.81		
20	16QAM	50	0	14.78	14.81	14.73	15.5	2
20	16QAM	50	24	14.81	14.66	14.70		
20	16QAM	50	50	14.68	14.71	14.52		
20	16QAM	100	0	14.78	14.74	14.65	15.5	2
20	64QAM	1	0	15.14	15.18	15.08		
20	64QAM	1	49	14.57	14.63	14.41		
20	64QAM	1	99	14.73	14.81	14.81	14.5	3
20	64QAM	50	0	13.80	13.80	13.79		
20	64QAM	50	24	13.80	13.76	13.66		
20	64QAM	50	50	13.67	13.71	13.67	14.5	3
20	64QAM	100	0	13.84	13.65	13.70		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	16.68	16.93	16.66		
15	QPSK	1	37	16.28	16.33	16.32	17.5	0
15	QPSK	1	74	16.59	16.35	16.46		
15	QPSK	36	0	15.65	15.67	15.51		
15	QPSK	36	20	15.58	15.46	15.48	16.5	1
15	QPSK	36	39	15.61	15.41	15.54		
15	QPSK	75	0	15.69	15.46	15.48		
15	16QAM	1	0	15.80	15.80	15.82	16.5	1
15	16QAM	1	37	15.71	15.94	15.69		
15	16QAM	1	74	15.64	15.84	15.64		
15	16QAM	36	0	14.72	14.68	14.73	15.5	2
15	16QAM	36	20	14.70	14.51	14.70		
15	16QAM	36	39	14.50	14.66	14.42		
15	16QAM	75	0	14.58	14.54	14.60	15.5	2
15	64QAM	1	0	15.11	15.02	15.07		
15	64QAM	1	37	14.39	14.55	14.41		
15	64QAM	1	74	14.63	14.61	14.62	14.5	3
15	64QAM	36	0	13.76	13.65	13.62		
15	64QAM	36	20	13.72	13.65	13.61		
15	64QAM	36	39	13.61	13.71	13.50	14.5	3
15	64QAM	75	0	13.73	13.58	13.64		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	16.54	16.75	16.46		
10	QPSK	1	25	16.20	16.16	16.24	17.5	0
10	QPSK	1	49	16.59	16.23	16.28		
10	QPSK	25	0	15.57	15.61	15.35		
10	QPSK	25	12	15.45	15.46	15.39	16.5	1



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10	QPSK	25	25	15.45	15.41	15.44		
10	QPSK	50	0	15.49	15.36	15.40		
10	16QAM	1	0	15.76	15.65	15.62		
10	16QAM	1	25	15.60	15.76	15.65	16.5	1
10	16QAM	1	49	15.44	15.65	15.51		
10	16QAM	25	0	14.67	14.50	14.56		
10	16QAM	25	12	14.65	14.38	14.64	15.5	2
10	16QAM	25	25	14.39	14.60	14.37		
10	16QAM	50	0	14.46	14.35	14.57		
10	64QAM	1	0	15.05	14.87	15.03	15.5	2
10	64QAM	1	25	14.27	14.37	14.38		
10	64QAM	1	49	14.60	14.42	14.62		
10	64QAM	25	0	13.58	13.62	13.62	14.5	3
10	64QAM	25	12	13.58	13.54	13.45		
10	64QAM	25	25	13.51	13.55	13.49		
10	64QAM	50	0	13.72	13.52	13.63		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	16.47	16.73	16.33	17.5	0
5	QPSK	1	12	16.00	16.06	16.07		
5	QPSK	1	24	16.53	16.10	16.21		
5	QPSK	12	0	15.55	15.60	15.15	16.5	1
5	QPSK	12	7	15.36	15.46	15.26		
5	QPSK	12	13	15.34	15.23	15.40		
5	QPSK	25	0	15.31	15.23	15.38	16.5	1
5	16QAM	1	0	15.70	15.57	15.51		
5	16QAM	1	12	15.51	15.70	15.64		
5	16QAM	1	24	15.33	15.60	15.38	15.5	2
5	16QAM	12	0	14.48	14.41	14.41		
5	16QAM	12	7	14.64	14.23	14.49		
5	16QAM	12	13	14.24	14.54	14.25	15.5	2
5	16QAM	25	0	14.32	14.35	14.38		
5	64QAM	1	0	15.01	14.78	14.96		
5	64QAM	1	12	14.19	14.29	14.31	15.5	2
5	64QAM	1	24	14.55	14.35	14.53		
5	64QAM	12	0	13.48	13.45	13.62		
5	64QAM	12	7	13.58	13.41	13.32	14.5	3
5	64QAM	12	13	13.43	13.38	13.41		
5	64QAM	25	0	13.66	13.33	13.55		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	16.44	16.73	16.26	17.5	0
3	QPSK	1	8	15.90	15.94	16.05		
3	QPSK	1	14	16.45	16.06	16.21		
3	QPSK	8	0	15.47	15.50	14.95	16.5	1
3	QPSK	8	4	15.34	15.43	15.09		
3	QPSK	8	7	15.20	15.20	15.30		
3	QPSK	15	0	15.12	15.07	15.23	16.5	1
3	16QAM	1	0	15.59	15.38	15.34		
3	16QAM	1	8	15.35	15.52	15.52		
3	16QAM	1	14	15.26	15.57	15.24	15.5	2
3	16QAM	8	0	14.38	14.39	14.22		
3	16QAM	8	4	14.57	14.09	14.29		
3	16QAM	8	7	14.13	14.52	14.15	15.5	2
3	16QAM	15	0	14.17	14.16	14.26		
3	64QAM	1	0	14.92	14.67	14.84	15.5	2



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3	64QAM	1	8	14.19	14.24	14.29	14.5	3
3	64QAM	1	14	14.38	14.29	14.37		
3	64QAM	8	0	13.38	13.40	13.43		
3	64QAM	8	4	13.51	13.36	13.29		
3	64QAM	8	7	13.39	13.27	13.32		
3	64QAM	15	0	13.63	13.14	13.36		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	16.58	16.90	16.68	17.5	0
1.4	QPSK	1	3	16.38	16.40	16.38		
1.4	QPSK	1	5	16.57	16.34	16.40		
1.4	QPSK	3	0	15.67	15.74	15.67		
1.4	QPSK	3	1	15.63	15.54	15.52		
1.4	QPSK	3	3	15.51	15.57	15.50		
1.4	QPSK	6	0	15.55	15.50	15.55	16.5	1
1.4	16QAM	1	0	15.73	15.80	15.94	16.5	1
1.4	16QAM	1	3	15.60	16.00	15.62		
1.4	16QAM	1	5	15.56	15.86	15.62		
1.4	16QAM	3	0	14.59	14.67	14.62		
1.4	16QAM	3	1	14.75	14.59	14.63		
1.4	16QAM	3	3	14.59	14.71	14.39		
1.4	16QAM	6	0	14.69	14.62	14.63	15.5	2
1.4	64QAM	1	0	15.09	15.10	14.97	15.5	2
1.4	64QAM	1	3	14.52	14.55	14.35		
1.4	64QAM	1	5	14.64	14.76	14.71		
1.4	64QAM	3	0	13.60	13.78	13.68		
1.4	64QAM	3	1	13.68	13.76	13.63		
1.4	64QAM	3	3	13.58	13.57	13.49		
1.4	64QAM	6	0	13.74	13.56	13.53	14.5	3



<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	19.48	19.45	19.47	20	0
10	QPSK	1	25	19.41	19.39	19.43		
10	QPSK	1	49	19.38	19.35	19.41		
10	QPSK	25	0	18.62	18.54	18.55	19	1
10	QPSK	25	12	18.60	18.45	18.49		
10	QPSK	25	25	18.67	18.45	18.44		
10	QPSK	50	0	18.58	18.49	18.46	19	1
10	16QAM	1	0	18.78	18.47	18.47		
10	16QAM	1	25	18.94	19.04	18.61		
10	16QAM	1	49	19.09	18.78	19.05	18	2
10	16QAM	25	0	17.69	17.42	17.54		
10	16QAM	25	12	17.69	17.60	17.56		
10	16QAM	25	25	17.73	17.51	17.49	18	2
10	16QAM	50	0	17.60	17.62	17.51		
10	64QAM	1	0	17.80	17.31	17.74		
10	64QAM	1	25	17.83	17.80	17.71	18	2
10	64QAM	1	49	17.93	17.44	17.81		
10	64QAM	25	0	16.68	16.46	16.67		
10	64QAM	25	12	16.66	16.59	16.55	17	3
10	64QAM	25	25	16.68	16.48	16.57		
10	64QAM	50	0	16.63	16.54	16.47		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	19.42	19.43	19.28	20	0
5	QPSK	1	12	19.25	19.34	19.41		
5	QPSK	1	24	19.34	19.34	19.28		
5	QPSK	12	0	18.45	18.36	18.52	19	1
5	QPSK	12	7	18.51	18.27	18.38		
5	QPSK	12	13	18.56	18.32	18.38		
5	QPSK	25	0	18.50	18.44	18.30	19	1
5	16QAM	1	0	18.63	18.41	18.47		
5	16QAM	1	12	18.78	18.96	18.43		
5	16QAM	1	24	18.94	18.73	18.93	18	2
5	16QAM	12	0	17.50	17.26	17.39		
5	16QAM	12	7	17.50	17.53	17.41		
5	16QAM	12	13	17.59	17.51	17.42	18	2
5	16QAM	25	0	17.53	17.47	17.50		
5	64QAM	1	0	17.72	17.31	17.56		
5	64QAM	1	12	17.75	17.62	17.55	18	2
5	64QAM	1	24	17.92	17.32	17.78		
5	64QAM	12	0	16.66	16.26	16.65		
5	64QAM	12	7	16.48	16.53	16.41	17	3
5	64QAM	12	13	16.50	16.36	16.54		
5	64QAM	25	0	16.50	16.53	16.43		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	19.41	19.27	19.12	20	0
3	QPSK	1	8	19.23	19.19	19.40		
3	QPSK	1	14	19.15	19.24	19.15		
3	QPSK	8	0	18.27	18.19	18.48	19	1
3	QPSK	8	4	18.47	18.17	18.30		



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3	QPSK	8	7	18.44	18.16	18.26		
3	QPSK	15	0	18.35	18.43	18.25		
3	16QAM	1	0	18.49	18.26	18.45		
3	16QAM	1	8	18.71	18.78	18.38	19	1
3	16QAM	1	14	18.88	18.54	18.84		
3	16QAM	8	0	17.45	17.07	17.35		
3	16QAM	8	4	17.34	17.33	17.40	18	2
3	16QAM	8	7	17.41	17.42	17.31		
3	16QAM	15	0	17.42	17.41	17.43		
3	64QAM	1	0	17.70	17.14	17.55	18	2
3	64QAM	1	8	17.67	17.45	17.38		
3	64QAM	1	14	17.87	17.25	17.70		
3	64QAM	8	0	16.61	16.14	16.49	17	3
3	64QAM	8	4	16.36	16.35	16.33		
3	64QAM	8	7	16.44	16.19	16.54		
3	64QAM	15	0	16.31	16.40	16.40		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	19.38	19.38	19.21	20	0
1.4	QPSK	1	3	19.18	19.30	19.32		
1.4	QPSK	1	5	19.31	19.31	19.24		
1.4	QPSK	3	0	18.85	18.77	18.91		
1.4	QPSK	3	1	18.96	18.69	18.73		
1.4	QPSK	3	3	18.94	18.75	18.79		
1.4	QPSK	6	0	18.42	18.40	18.24	19	1
1.4	16QAM	1	0	18.58	18.37	18.38	19	1
1.4	16QAM	1	3	18.77	18.96	18.43		
1.4	16QAM	1	5	18.84	18.70	18.93		
1.4	16QAM	3	0	17.65	17.52	17.55		
1.4	16QAM	3	1	17.67	17.62	17.59		
1.4	16QAM	3	3	17.75	17.66	17.60		
1.4	16QAM	6	0	17.53	17.42	17.46	18	2
1.4	64QAM	1	0	17.63	17.29	17.48	18	2
1.4	64QAM	1	3	17.74	17.57	17.53		
1.4	64QAM	1	5	17.90	17.23	17.76		
1.4	64QAM	3	0	16.84	16.50	16.76		
1.4	64QAM	3	1	16.57	16.71	16.56		
1.4	64QAM	3	3	16.65	16.62	16.71		
1.4	64QAM	6	0	16.48	16.53	16.43	17	3

<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	16.00	15.91	16.09	16.5	0
20	QPSK	1	49	15.83	15.88	16.08		
20	QPSK	1	99	15.90	15.79	16.08		
20	QPSK	50	0	14.87	14.77	14.94	15.5	1
20	QPSK	50	24	14.80	14.72	14.74		
20	QPSK	50	50	14.81	14.72	14.89		
20	QPSK	100	0	14.82	14.79	14.87	15.5	1
20	16QAM	1	0	15.64	15.37	15.37		
20	16QAM	1	49	15.00	15.37	15.72		
20	16QAM	1	99	15.79	15.09	14.99	14.5	2
20	16QAM	50	0	13.85	13.92	14.14		
20	16QAM	50	24	14.21	13.83	14.04		
20	16QAM	50	50	13.93	13.84	14.17	14.5	2
20	16QAM	100	0	13.90	14.05	14.21		
20	64QAM	1	0	14.19	14.22	14.73	14.5	2
20	64QAM	1	49	14.79	14.35	14.68		
20	64QAM	1	99	14.52	14.50	13.96		
20	64QAM	50	0	12.88	12.95	13.20	13.5	3
20	64QAM	50	24	12.82	13.14	13.26		
20	64QAM	50	50	12.71	13.09	13.07		
20	64QAM	100	0	12.81	12.85	13.25		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	15.90	15.95	15.86	16.5	0
15	QPSK	1	37	15.66	15.71	15.99		
15	QPSK	1	74	15.73	15.76	15.90		
15	QPSK	36	0	14.68	14.71	14.77	15.5	1
15	QPSK	36	20	14.80	14.71	14.64		
15	QPSK	36	39	14.75	14.53	14.80		
15	QPSK	75	0	14.63	14.76	14.75	15.5	1
15	16QAM	1	0	15.40	15.22	15.36		
15	16QAM	1	37	14.89	15.28	15.37		
15	16QAM	1	74	15.72	14.94	14.96	14.5	2
15	16QAM	36	0	13.79	13.88	14.05		
15	16QAM	36	20	14.17	13.78	13.88		
15	16QAM	36	39	13.89	13.68	14.02	14.5	2
15	16QAM	75	0	13.90	14.04	14.08		
15	64QAM	1	0	14.16	14.15	14.29		
15	64QAM	1	37	14.31	14.19	14.38	14.5	2
15	64QAM	1	74	14.31	14.30	13.82		
15	64QAM	36	0	12.85	12.94	13.19		
15	64QAM	36	20	12.71	12.98	13.13	13.5	3
15	64QAM	36	39	12.59	12.89	13.07		
15	64QAM	75	0	12.62	12.67	13.13		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	15.82	15.77	15.74	16.5	0
10	QPSK	1	25	15.53	15.71	15.96		
10	QPSK	1	49	15.64	15.73	15.90		
10	QPSK	25	0	14.48	14.58	14.77	15.5	1
10	QPSK	25	12	14.62	14.59	14.44		



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10	QPSK	25	25	14.72	14.35	14.62		
10	QPSK	50	0	14.55	14.75	14.75		
10	16QAM	1	0	15.25	15.11	15.36		
10	16QAM	1	25	14.88	15.25	15.35	15.5	1
10	16QAM	1	49	15.58	14.81	14.76		
10	16QAM	25	0	13.70	13.75	13.97		
10	16QAM	25	12	14.03	13.77	13.75	14.5	2
10	16QAM	25	25	13.86	13.60	13.89		
10	16QAM	50	0	13.83	13.85	13.92		
10	64QAM	1	0	14.06	14.10	14.20	14.5	2
10	64QAM	1	25	14.15	13.99	14.37		
10	64QAM	1	49	14.28	14.21	13.81		
10	64QAM	25	0	12.73	12.84	13.17	13.5	3
10	64QAM	25	12	12.64	12.81	13.05		
10	64QAM	25	25	12.50	12.88	12.96		
10	64QAM	50	0	12.51	12.63	12.94		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	15.65	15.75	15.64	16.5	0
5	QPSK	1	12	15.46	15.52	15.93		
5	QPSK	1	24	15.62	15.63	15.83		
5	QPSK	12	0	14.44	14.38	14.72	15.5	1
5	QPSK	12	7	14.45	14.57	14.30		
5	QPSK	12	13	14.57	14.29	14.57		
5	QPSK	25	0	14.53	14.63	14.72	15.5	1
5	16QAM	1	0	15.09	15.08	15.25		
5	16QAM	1	12	14.80	15.18	15.32		
5	16QAM	1	24	15.53	14.61	14.65	14.5	2
5	16QAM	12	0	13.55	13.69	13.91		
5	16QAM	12	7	13.96	13.60	13.64		
5	16QAM	12	13	13.85	13.46	13.86	14.5	2
5	16QAM	25	0	13.81	13.75	13.80		
5	64QAM	1	0	13.91	13.91	14.16		
5	64QAM	1	12	13.97	13.88	14.19	14.5	2
5	64QAM	1	24	14.18	14.11	13.81		
5	64QAM	12	0	12.54	12.76	13.13		
5	64QAM	12	7	12.45	12.67	12.98	13.5	3
5	64QAM	12	13	12.45	12.83	12.76		
5	64QAM	25	0	12.39	12.47	12.90		

<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	19.68	19.66	19.88	20.5	0
10	QPSK	1	25	19.65	19.63	19.84		
10	QPSK	1	49	19.62	19.61	19.63		
10	QPSK	25	0	18.73	18.69	18.75	19.5	1
10	QPSK	25	12	18.71	18.68	18.71		
10	QPSK	25	25	18.67	18.63	18.67		
10	QPSK	50	0	18.72	18.61	18.70	19.5	1
10	16QAM	1	0	19.02	19.11	19.28		
10	16QAM	1	25	19.04	18.62	18.70		
10	16QAM	1	49	18.91	18.91	19.04	18.5	2
10	16QAM	25	0	17.85	17.80	17.79		
10	16QAM	25	12	17.87	17.79	17.86		
10	16QAM	25	25	17.85	17.65	17.90	18.5	2
10	16QAM	50	0	17.82	17.64	17.73		
10	64QAM	1	0	17.64	17.92	18.11		
10	64QAM	1	25	17.70	17.71	17.90	18.5	2
10	64QAM	1	49	17.97	18.12	18.25		
10	64QAM	25	0	16.87	16.77	16.77		
10	64QAM	25	12	16.78	16.79	16.82	17.5	3
10	64QAM	25	25	16.84	16.77	16.83		
10	64QAM	50	0	16.83	16.80	16.82		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	19.65	19.58	19.73	20.5	0
5	QPSK	1	12	19.52	19.56	19.64		
5	QPSK	1	24	19.50	19.41	19.50		
5	QPSK	12	0	18.68	18.69	18.63	19.5	1
5	QPSK	12	7	18.53	18.53	18.57		
5	QPSK	12	13	18.47	18.51	18.59		
5	QPSK	25	0	18.64	18.56	18.67	19.5	1
5	16QAM	1	0	18.90	18.98	19.24		
5	16QAM	1	12	19.00	18.46	18.63		
5	16QAM	1	24	18.82	18.90	19.00	18.5	2
5	16QAM	12	0	17.85	17.64	17.60		
5	16QAM	12	7	17.71	17.68	17.71		
5	16QAM	12	13	17.79	17.62	17.81	18.5	2
5	16QAM	25	0	17.69	17.50	17.66		
5	64QAM	1	0	17.59	17.90	17.91		
5	64QAM	1	12	17.56	17.57	17.74	18.5	2
5	64QAM	1	24	17.84	18.01	18.18		
5	64QAM	12	0	16.82	16.68	16.59		
5	64QAM	12	7	16.70	16.71	16.75	17.5	3
5	64QAM	12	13	16.67	16.64	16.67		
5	64QAM	25	0	16.63	16.76	16.71		
Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	19.54	19.58	19.66	20.5	0
3	QPSK	1	8	19.39	19.44	19.59		
3	QPSK	1	14	19.50	19.39	19.40		
3	QPSK	8	0	18.61	18.50	18.44	19.5	1
3	QPSK	8	4	18.33	18.52	18.40		



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3	QPSK	8	7	18.34	18.42	18.56		
3	QPSK	15	0	18.61	18.41	18.53		
3	16QAM	1	0	18.84	18.88	19.21		
3	16QAM	1	8	18.94	18.38	18.58	19.5	1
3	16QAM	1	14	18.80	18.89	18.93		
3	16QAM	8	0	17.69	17.52	17.44		
3	16QAM	8	4	17.69	17.64	17.52	18.5	2
3	16QAM	8	7	17.60	17.48	17.74		
3	16QAM	15	0	17.49	17.44	17.55		
3	64QAM	1	0	17.39	17.83	17.78	18.5	2
3	64QAM	1	8	17.38	17.48	17.73		
3	64QAM	1	14	17.84	17.99	18.05		
3	64QAM	8	0	16.80	16.50	16.53	17.5	3
3	64QAM	8	4	16.63	16.65	16.56		
3	64QAM	8	7	16.62	16.49	16.66		
3	64QAM	15	0	16.54	16.65	16.65		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	19.52	19.44	19.52	20.5	0
1.4	QPSK	1	3	19.24	19.26	19.41		
1.4	QPSK	1	5	19.44	19.22	19.27		
1.4	QPSK	3	0	18.78	18.64	18.61		
1.4	QPSK	3	1	18.54	18.63	18.55		
1.4	QPSK	3	3	18.54	18.65	18.66		
1.4	QPSK	6	0	18.61	18.36	18.39	19.5	1
1.4	16QAM	1	0	18.67	18.74	19.20	19.5	1
1.4	16QAM	1	3	18.87	18.31	18.48		
1.4	16QAM	1	5	18.76	18.74	18.74		
1.4	16QAM	3	0	17.63	17.84	17.85		
1.4	16QAM	3	1	17.90	17.55	17.50		
1.4	16QAM	3	3	17.59	17.84	17.66		
1.4	16QAM	6	0	17.39	17.43	17.40	18.5	2
1.4	64QAM	1	0	17.32	17.64	17.64	18.5	2
1.4	64QAM	1	3	17.19	17.43	17.63		
1.4	64QAM	1	5	17.83	17.83	17.90		
1.4	64QAM	3	0	16.68	16.94	16.50		
1.4	64QAM	3	1	16.77	16.54	16.71		
1.4	64QAM	3	3	16.63	16.64	16.51		
1.4	64QAM	6	0	16.36	16.59	16.45	17.5	3



<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		19.97		21	0
10	QPSK	1	25		19.87			
10	QPSK	1	49		19.84			
10	QPSK	25	0		19.01		20	1
10	QPSK	25	12		18.95			
10	QPSK	25	25		18.98			
10	QPSK	50	0		19.08		20	1
10	16QAM	1	0		19.35			
10	16QAM	1	25		19.13			
10	16QAM	1	49		19.69		19	2
10	16QAM	25	0		18.06			
10	16QAM	25	12		18.19			
10	16QAM	25	25		18.16		19	2
10	16QAM	50	0		18.05			
10	64QAM	1	0		18.26		19	2
10	64QAM	1	25		18.05			
10	64QAM	1	49		18.66			
10	64QAM	25	0		17.03		18	3
10	64QAM	25	12		17.18			
10	64QAM	25	25		17.14			
10	64QAM	50	0		17.06			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	19.87	19.93	19.92	21	0
5	QPSK	1	12	19.73	19.80	19.69		
5	QPSK	1	24	19.71	19.77	19.71		
5	QPSK	12	0	18.88	18.89	18.98	20	1
5	QPSK	12	7	18.85	18.96	18.91		
5	QPSK	12	13	18.76	18.91	18.86		
5	QPSK	25	0	18.98	19.08	18.99	20	1
5	16QAM	1	0	19.34	19.33	19.29		
5	16QAM	1	12	19.10	19.10	19.10		
5	16QAM	1	24	19.54	19.60	19.62	19	2
5	16QAM	12	0	18.06	18.02	18.11		
5	16QAM	12	7	18.11	18.16	18.07		
5	16QAM	12	13	17.95	18.09	18.14	19	2
5	16QAM	25	0	17.96	17.96	18.02		
5	64QAM	1	0	18.09	18.24	18.28	19	2
5	64QAM	1	12	18.01	18.03	17.94		
5	64QAM	1	24	18.46	18.58	18.49		
5	64QAM	12	0	16.97	16.95	16.99	18	3
5	64QAM	12	7	17.06	17.18	17.07		
5	64QAM	12	13	17.09	17.14	17.04		
5	64QAM	25	0	16.95	16.98	16.90		

<LTE Band 14>

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				23330				
Frequency (MHz)				793				
10	QPSK	1	0		19.68		20.5	0
10	QPSK	1	25		19.65			
10	QPSK	1	49		19.57			
10	QPSK	25	0		18.74		19.5	1
10	QPSK	25	12		18.73			
10	QPSK	25	25		18.58			
10	QPSK	50	0		18.63		19.5	1
10	16QAM	1	0		19.34			
10	16QAM	1	25		18.90			
10	16QAM	1	49		19.07		18.5	2
10	16QAM	25	0		17.81			
10	16QAM	25	12		17.86			
10	16QAM	25	25		17.67		18.5	2
10	16QAM	50	0		17.73			
10	64QAM	1	0		18.16			
10	64QAM	1	25		17.74		18.5	2
10	64QAM	1	49		17.89			
10	64QAM	25	0		16.77			
10	64QAM	25	12		16.74		17.5	3
10	64QAM	25	25		16.79			
10	64QAM	50	0		16.74			
Channel				23305	23330	23355	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				790.5	793	795.5		
5	QPSK	1	0	19.63	19.67	19.65	20.5	0
5	QPSK	1	12	19.54	19.63	19.52		
5	QPSK	1	24	19.46	19.50	19.38		
5	QPSK	12	0	18.53	18.67	18.70	19.5	1
5	QPSK	12	7	18.61	18.65	18.59		
5	QPSK	12	13	18.49	18.56	18.51		
5	QPSK	25	0	18.40	18.54	18.62	19.5	1
5	16QAM	1	0	19.28	19.25	19.17		
5	16QAM	1	12	18.86	18.89	18.85		
5	16QAM	1	24	18.97	18.98	18.99	18.5	2
5	16QAM	12	0	17.62	17.73	17.78		
5	16QAM	12	7	17.82	17.80	17.81		
5	16QAM	12	13	17.64	17.64	17.52	18.5	2
5	16QAM	25	0	17.55	17.65	17.58		
5	64QAM	1	0	18.15	18.16	18.24		
5	64QAM	1	12	17.71	17.74	17.63	18.5	2
5	64QAM	1	24	17.82	17.86	17.75		
5	64QAM	12	0	16.77	16.73	16.61		
5	64QAM	12	7	16.60	16.69	16.59	17.5	3
5	64QAM	12	13	16.75	16.77	16.79		
5	64QAM	25	0	16.59	16.68	16.76		

<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	19.75	19.86	19.81		
10	QPSK	1	25	19.71	19.65	19.81	20.5	0
10	QPSK	1	49	19.55	19.75	19.80		
10	QPSK	25	0	18.75	18.76	18.77		
10	QPSK	25	12	18.72	18.74	18.76	19.5	1
10	QPSK	25	25	18.75	18.71	18.65		
10	QPSK	50	0	18.78	18.73	18.74		
10	16QAM	1	0	18.84	19.05	19.00	19.5	1
10	16QAM	1	25	18.96	19.20	18.79		
10	16QAM	1	49	18.98	19.14	19.31		
10	16QAM	25	0	17.93	17.92	17.90	18.5	2
10	16QAM	25	12	17.94	17.89	17.91		
10	16QAM	25	25	17.83	17.71	17.79		
10	16QAM	50	0	17.91	17.92	17.75	18.5	2
10	64QAM	1	0	18.15	17.91	18.18		
10	64QAM	1	25	17.79	18.12	17.89		
10	64QAM	1	49	18.12	17.96	18.22	17.5	3
10	64QAM	25	0	16.84	16.91	16.81		
10	64QAM	25	12	16.86	16.88	16.85		
10	64QAM	25	25	16.87	16.75	16.81	17.5	3
10	64QAM	50	0	16.82	16.89	16.80		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	19.64	19.75	19.61		
5	QPSK	1	12	19.62	19.54	19.73	20.5	0
5	QPSK	1	24	19.47	19.72	19.80		
5	QPSK	12	0	18.64	18.63	18.76	19.5	1
5	QPSK	12	7	18.53	18.62	18.63		
5	QPSK	12	13	18.66	18.60	18.47		
5	QPSK	25	0	18.64	18.65	18.63	19.5	1
5	16QAM	1	0	18.70	18.91	18.92		
5	16QAM	1	12	18.92	19.05	18.70		
5	16QAM	1	24	18.87	19.05	19.22	18.5	2
5	16QAM	12	0	17.89	17.73	17.89		
5	16QAM	12	7	17.86	17.86	17.75		
5	16QAM	12	13	17.75	17.51	17.78	18.5	2
5	16QAM	25	0	17.72	17.72	17.58		
5	64QAM	1	0	18.01	17.71	18.16	18.5	2
5	64QAM	1	12	17.61	18.02	17.69		
5	64QAM	1	24	17.97	17.93	18.21		
5	64QAM	12	0	16.81	16.73	16.68	17.5	3
5	64QAM	12	7	16.80	16.72	16.76		
5	64QAM	12	13	16.69	16.58	16.81		
5	64QAM	25	0	16.63	16.87	16.80		

<LTE Band 25>

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				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	17.19	17.51	17.68	18	0
20	QPSK	1	49	17.05	16.97	17.27		
20	QPSK	1	99	16.91	16.95	17.20		
20	QPSK	50	0	16.18	16.06	16.38	17	1
20	QPSK	50	24	16.09	15.95	16.21		
20	QPSK	50	50	16.08	15.98	16.25		
20	QPSK	100	0	16.07	15.96	16.69		
20	16QAM	1	0	16.55	16.56	16.73	17	1
20	16QAM	1	49	16.35	16.29	16.73		
20	16QAM	1	99	16.30	16.14	16.49		
20	16QAM	50	0	15.24	15.18	15.45	16	2
20	16QAM	50	24	15.14	15.08	15.33		
20	16QAM	50	50	15.15	15.05	15.33		
20	16QAM	100	0	15.15	15.05	15.35		
20	64QAM	1	0	15.44	15.43	15.66	16	2
20	64QAM	1	49	15.29	15.22	15.65		
20	64QAM	1	99	15.20	15.07	15.40		
20	64QAM	50	0	14.25	14.18	14.48	15	3
20	64QAM	50	24	14.18	14.07	14.35		
20	64QAM	50	50	14.19	14.06	14.37		
20	64QAM	100	0	14.16	14.06	14.38		
Channel				26115	26340	26615		
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	17.09	17.47	17.39	18	0
15	QPSK	1	37	16.94	16.84	17.17		
15	QPSK	1	74	16.82	16.95	17.09		
15	QPSK	36	0	16.17	16.02	16.35	17	1
15	QPSK	36	20	15.92	15.95	16.11		
15	QPSK	36	39	15.89	15.85	16.17		
15	QPSK	75	0	15.96	15.84	16.52		
15	16QAM	1	0	16.43	16.48	16.63	17	1
15	16QAM	1	37	16.26	16.25	16.65		
15	16QAM	1	74	16.23	16.12	16.35		
15	16QAM	36	0	15.15	15.03	15.41	16	2
15	16QAM	36	20	15.04	14.89	15.24		
15	16QAM	36	39	15.00	15.01	15.24		
15	16QAM	75	0	15.01	14.88	15.26		
15	64QAM	1	0	15.38	15.41	15.58	16	2
15	64QAM	1	37	15.16	15.08	15.55		
15	64QAM	1	74	15.08	15.05	15.34		
15	64QAM	36	0	14.07	14.18	14.34	15	3
15	64QAM	36	20	14.03	13.98	14.29		
15	64QAM	36	39	14.16	13.97	14.28		
15	64QAM	75	0	13.98	13.89	14.28		
Channel				26090	26340	26640		
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	16.90	17.27	17.33	18	0
10	QPSK	1	25	16.92	16.83	17.00		
10	QPSK	1	49	16.78	16.91	16.92		
10	QPSK	25	0	16.15	15.85	16.27	17	1



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10	QPSK	25	12	15.76	15.82	16.05		
10	QPSK	25	25	15.89	15.79	16.10		
10	QPSK	50	0	15.85	15.72	16.49		
10	16QAM	1	0	16.33	16.40	16.51	17	1
10	16QAM	1	25	16.15	16.07	16.54		
10	16QAM	1	49	16.22	15.93	16.26		
10	16QAM	25	0	15.05	15.01	15.24	16	2
10	16QAM	25	12	14.86	14.71	15.16		
10	16QAM	25	25	14.89	14.94	15.20		
10	16QAM	50	0	14.84	14.88	15.17	16	2
10	64QAM	1	0	15.37	15.31	15.56		
10	64QAM	1	25	15.14	15.04	15.40		
10	64QAM	1	49	15.05	15.04	15.26	15	3
10	64QAM	25	0	13.88	14.09	14.32		
10	64QAM	25	12	14.00	13.94	14.17		
10	64QAM	25	25	14.07	13.90	14.08	15	3
10	64QAM	50	0	13.78	13.81	14.24		
Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	16.84	17.19	17.32	18	0
5	QPSK	1	12	16.83	16.73	16.93		
5	QPSK	1	24	16.77	16.84	16.90		
5	QPSK	12	0	16.11	15.76	16.18	17	1
5	QPSK	12	7	15.76	15.82	15.95		
5	QPSK	12	13	15.81	15.72	16.07		
5	QPSK	25	0	15.85	15.69	16.42	17	1
5	16QAM	1	0	16.24	16.33	16.41		
5	16QAM	1	12	16.13	16.05	16.51		
5	16QAM	1	24	16.13	15.89	16.19	16	2
5	16QAM	12	0	15.05	14.93	15.22		
5	16QAM	12	7	14.80	14.61	15.11		
5	16QAM	12	13	14.82	14.92	15.19	16	2
5	16QAM	25	0	14.76	14.78	15.11		
5	64QAM	1	0	15.28	15.22	15.55		
5	64QAM	1	12	15.04	15.01	15.38	16	2
5	64QAM	1	24	15.03	14.94	15.17		
5	64QAM	12	0	13.81	14.02	14.32		
5	64QAM	12	7	13.90	13.92	14.08	15	3
5	64QAM	12	13	13.99	13.90	14.05		
5	64QAM	25	0	13.69	13.71	14.20		
Channel				26055	26340	26675	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	16.74	17.12	17.24	18	0
3	QPSK	1	8	16.75	16.68	16.85		
3	QPSK	1	14	16.71	16.77	16.82		
3	QPSK	8	0	16.02	15.69	16.12	17	1
3	QPSK	8	4	15.73	15.74	15.89		
3	QPSK	8	7	15.72	15.71	15.97		
3	QPSK	15	0	15.84	15.61	16.35	17	1
3	16QAM	1	0	16.22	16.33	16.31		
3	16QAM	1	8	16.05	16.03	16.48		
3	16QAM	1	14	16.06	15.81	16.17	16	2
3	16QAM	8	0	15.01	14.85	15.17		
3	16QAM	8	4	14.77	14.55	15.10		
3	16QAM	8	7	14.77	14.90	15.13	16	2
3	16QAM	15	0	14.70	14.73	15.07		



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3	64QAM	1	0	15.19	15.15	15.54	16	2
3	64QAM	1	8	14.95	14.91	15.38		
3	64QAM	1	14	15.01	14.87	15.07		
3	64QAM	8	0	13.73	13.94	14.22	15	3
3	64QAM	8	4	13.81	13.85	13.98		
3	64QAM	8	7	13.90	13.88	13.96		
3	64QAM	15	0	13.60	13.61	14.12		
Channel				26047	26340	26683	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	16.71	17.11	17.23	18	0
1.4	QPSK	1	3	16.72	16.59	16.80		
1.4	QPSK	1	5	16.69	16.76	16.75		
1.4	QPSK	3	0	15.93	15.60	16.12		
1.4	QPSK	3	1	15.67	15.67	15.87		
1.4	QPSK	3	3	15.65	15.70	15.90		
1.4	QPSK	6	0	15.82	15.56	16.33	17	1
1.4	16QAM	1	0	16.14	16.23	16.30	17	1
1.4	16QAM	1	3	16.03	15.94	16.40		
1.4	16QAM	1	5	16.05	15.78	16.08		
1.4	16QAM	3	0	14.91	14.85	15.10		
1.4	16QAM	3	1	14.76	14.50	15.08		
1.4	16QAM	3	3	14.69	14.84	15.13		
1.4	16QAM	6	0	14.68	14.67	14.97	16	2
1.4	64QAM	1	0	15.17	15.09	15.53	16	2
1.4	64QAM	1	3	14.92	14.88	15.32		
1.4	64QAM	1	5	14.95	14.87	15.00		
1.4	64QAM	3	0	13.63	13.92	14.17		
1.4	64QAM	3	1	13.76	13.85	13.89		
1.4	64QAM	3	3	13.87	13.88	13.94		
1.4	64QAM	6	0	13.60	13.61	14.03	15	3

<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	20	0
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	19.43	19.38	19.29		
15	QPSK	1	37	19.31	19.33	19.24	19	1
15	QPSK	1	74	19.37	19.35	19.25		
15	QPSK	36	0	18.60	18.49	18.48		
15	QPSK	36	20	18.53	18.30	18.41	19	1
15	QPSK	36	39	18.56	18.41	18.29		
15	QPSK	75	0	18.40	18.32	18.29		
15	16QAM	1	0	18.66	18.45	18.37	19	1
15	16QAM	1	37	18.87	18.86	18.41		
15	16QAM	1	74	19.02	18.66	18.91		
15	16QAM	36	0	17.63	17.34	17.38	18	2
15	16QAM	36	20	17.52	17.40	17.50		
15	16QAM	36	39	17.61	17.40	17.47		
15	16QAM	75	0	17.60	17.57	17.49	18	2
15	64QAM	1	0	17.67	17.29	17.55		
15	64QAM	1	37	17.75	17.73	17.67		
15	64QAM	1	74	17.93	17.37	17.77	17	3
15	64QAM	36	0	16.52	16.37	16.66		
15	64QAM	36	20	16.51	16.48	16.43		
15	64QAM	36	39	16.52	16.30	16.56	17	3
15	64QAM	75	0	16.53	16.50	16.41		
Channel				26740	26865	26990	20	0
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	19.43	19.37	19.13		
10	QPSK	1	25	19.16	19.31	19.15	19	1
10	QPSK	1	49	19.32	19.28	19.20		
10	QPSK	25	0	18.41	18.48	18.35		
10	QPSK	25	12	18.44	18.19	18.35	19	1
10	QPSK	25	25	18.55	18.40	18.15		
10	QPSK	50	0	18.34	18.14	18.17		
10	16QAM	1	0	18.65	18.27	18.17	19	1
10	16QAM	1	25	18.69	18.74	18.27		
10	16QAM	1	49	18.93	18.48	18.88		
10	16QAM	25	0	17.61	17.24	17.32	18	2
10	16QAM	25	12	17.47	17.25	17.32		
10	16QAM	25	25	17.50	17.30	17.36		
10	16QAM	50	0	17.59	17.55	17.33	18	2
10	64QAM	1	0	17.66	17.16	17.44		
10	64QAM	1	25	17.72	17.71	17.65		
10	64QAM	1	49	17.92	17.33	17.58	17	3
10	64QAM	25	0	16.44	16.26	16.65		
10	64QAM	25	12	16.42	16.37	16.38		
10	64QAM	25	25	16.32	16.13	16.37	17	3
10	64QAM	50	0	16.47	16.48	16.29		
Channel				26715	26865	27015	20	0
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	19.33	19.19	18.98		
5	QPSK	1	12	19.14	19.24	19.03	19	1
5	QPSK	1	24	19.22	19.09	19.10		
5	QPSK	12	0	18.33	18.40	18.25		
5	QPSK	12	7	18.25	18.06	18.32	19	1



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5	QPSK	12	13	18.41	18.36	18.13		
5	QPSK	25	0	18.20	18.00	18.12		
5	16QAM	1	0	18.63	18.27	18.04		
5	16QAM	1	12	18.49	18.73	18.07	19	1
5	16QAM	1	24	18.89	18.36	18.86		
5	16QAM	12	0	17.49	17.23	17.30		
5	16QAM	12	7	17.43	17.05	17.19	18	2
5	16QAM	12	13	17.38	17.18	17.20		
5	16QAM	25	0	17.53	17.53	17.25		
5	64QAM	1	0	17.55	17.12	17.43	18	2
5	64QAM	1	12	17.58	17.67	17.63		
5	64QAM	1	24	17.76	17.33	17.56		
5	64QAM	12	0	16.39	16.08	16.58	17	3
5	64QAM	12	7	16.42	16.25	16.22		
5	64QAM	12	13	16.26	16.05	16.28		
5	64QAM	25	0	16.45	16.44	16.19		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	19.30	19.11	18.92	20	0
3	QPSK	1	8	19.14	19.20	18.99		
3	QPSK	1	14	19.12	18.99	19.06		
3	QPSK	8	0	18.25	18.30	18.22	19	1
3	QPSK	8	4	18.21	17.96	18.30		
3	QPSK	8	7	18.41	18.26	18.13		
3	QPSK	15	0	18.10	17.93	18.03	19	1
3	16QAM	1	0	18.61	18.25	18.03		
3	16QAM	1	8	18.39	18.69	18.06		
3	16QAM	1	14	18.87	18.36	18.76	18	2
3	16QAM	8	0	17.44	17.14	17.23		
3	16QAM	8	4	17.43	16.97	17.10		
3	16QAM	8	7	17.36	17.14	17.18	18	2
3	16QAM	15	0	17.51	17.48	17.17		
3	64QAM	1	0	17.52	17.12	17.38		
3	64QAM	1	8	17.56	17.66	17.62	18	2
3	64QAM	1	14	17.73	17.23	17.52		
3	64QAM	8	0	16.38	16.00	16.53		
3	64QAM	8	4	16.39	16.22	16.14	17	3
3	64QAM	8	7	16.21	15.97	16.21		
3	64QAM	15	0	16.40	16.39	16.17		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	19.19	19.03	18.87	20	0
1.4	QPSK	1	3	19.11	19.02	18.89		
1.4	QPSK	1	5	18.97	18.97	18.97		
1.4	QPSK	3	0	18.25	18.17	18.08		
1.4	QPSK	3	1	18.10	18.09	18.10		
1.4	QPSK	3	3	18.21	18.16	18.08		
1.4	QPSK	6	0	18.05	17.78	17.92	19	1
1.4	16QAM	1	0	18.52	18.15	17.98	19	1
1.4	16QAM	1	3	18.32	18.65	17.96		
1.4	16QAM	1	5	18.86	18.36	18.57		
1.4	16QAM	3	0	17.32	17.07	17.07		
1.4	16QAM	3	1	17.35	17.05	17.04		
1.4	16QAM	3	3	17.24	17.01	17.00		
1.4	16QAM	6	0	17.36	17.45	16.97	18	2
1.4	64QAM	1	0	17.38	16.95	17.24	18	2



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1.4	64QAM	1	3	17.40	17.57	17.57		
1.4	64QAM	1	5	17.57	17.18	17.36		
1.4	64QAM	3	0	16.31	16.07	16.53		
1.4	64QAM	3	1	16.26	16.05	16.15		
1.4	64QAM	3	3	16.17	16.12	16.13		
1.4	64QAM	6	0	16.21	16.39	16.03	17	3

<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			15.5	0
Frequency (MHz)				2310				
10	QPSK	1	0		14.69		15.5	0
10	QPSK	1	25		14.62			
10	QPSK	1	49		14.63			
10	QPSK	25	0		13.64		14.5	1
10	QPSK	25	12		13.54			
10	QPSK	25	25		13.50			
10	QPSK	50	0		13.52		14.5	1
10	16QAM	1	0		13.97			
10	16QAM	1	25		13.73			
10	16QAM	1	49		13.92		13.5	2
10	16QAM	25	0		12.82			
10	16QAM	25	12		12.85			
10	16QAM	25	25		12.87		13.5	2
10	16QAM	50	0		12.73			
10	64QAM	1	0		13.40			
10	64QAM	1	25		13.34		13.5	2
10	64QAM	1	49		13.14			
10	64QAM	25	0		11.87		12.5	3
10	64QAM	25	12		11.93			
10	64QAM	25	25		12.14			
10	64QAM	50	0		11.79		12.5	3
Channel				27685	27710	27735		
Frequency (MHz)				2307.5	2310	2312.5	Tune-up limit (dBm)	MPR (dB)
5	QPSK	1	0	14.60	14.62	14.58	15.5	0
5	QPSK	1	12	14.52	14.59	14.48		
5	QPSK	1	24	14.61	14.58	14.46		
5	QPSK	12	0	13.56	13.55	13.48	14.5	1
5	QPSK	12	7	13.57	13.53	13.39		
5	QPSK	12	13	13.42	13.47	13.38		
5	QPSK	25	0	13.44	13.51	13.55	14.5	1
5	16QAM	1	0	13.86	13.90	13.87		
5	16QAM	1	12	13.74	13.70	13.70		
5	16QAM	1	24	13.98	13.91	13.95	13.5	2
5	16QAM	12	0	12.72	12.80	12.83		
5	16QAM	12	7	12.88	12.85	12.74		
5	16QAM	12	13	12.76	12.80	12.67	13.5	2
5	16QAM	25	0	12.75	12.69	12.62		
5	64QAM	1	0	13.42	13.36	13.34		
5	64QAM	1	12	13.39	13.33	13.29	13.5	2
5	64QAM	1	24	13.06	13.12	13.13		
5	64QAM	12	0	11.81	11.81	11.85		
5	64QAM	12	7	11.89	11.85	11.72	12.5	3
5	64QAM	12	13	12.08	12.08	12.14		
5	64QAM	25	0	11.76	11.74	11.74		



<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	17	0
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	16.67	16.53	16.55		
20	QPSK	1	49	16.39	16.30	16.26	16	1
20	QPSK	1	99	16.42	16.27	16.16		
20	QPSK	50	0	15.52	15.51	15.39		
20	QPSK	50	24	15.50	15.40	15.31	16	1
20	QPSK	50	50	15.50	15.33	15.26		
20	QPSK	100	0	15.54	15.44	15.27		
20	16QAM	1	0	16.20	15.89	16.05	16	1
20	16QAM	1	49	15.60	15.74	15.86		
20	16QAM	1	99	15.39	15.54	15.39		
20	16QAM	50	0	14.70	14.57	14.36	15	2
20	16QAM	50	24	14.61	14.48	14.38		
20	16QAM	50	50	14.54	14.38	14.36		
20	16QAM	100	0	14.61	14.53	14.33	15	2
20	64QAM	1	0	14.90	14.75	14.77		
20	64QAM	1	49	14.75	14.41	14.43		
20	64QAM	1	99	14.54	14.59	14.47	14	3
20	64QAM	50	0	13.67	13.60	13.45		
20	64QAM	50	24	13.63	13.56	13.42		
20	64QAM	50	50	13.55	13.45	13.36	14	3
20	64QAM	100	0	13.61	13.56	13.39		
Channel				132047	132322	132597	17	0
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	16.39	16.65	16.40		
15	QPSK	1	37	16.25	16.11	16.22	16	1
15	QPSK	1	74	16.34	16.07	16.07		
15	QPSK	36	0	15.41	15.43	15.38		
15	QPSK	36	20	15.40	15.40	15.27	16	1
15	QPSK	36	39	15.50	15.16	15.06		
15	QPSK	75	0	15.43	15.28	15.13		
15	16QAM	1	0	16.15	15.80	15.86	16	1
15	16QAM	1	37	15.57	15.65	15.71		
15	16QAM	1	74	15.34	15.52	15.36		
15	16QAM	36	0	14.67	14.38	14.18	15	2
15	16QAM	36	20	14.56	14.35	14.25		
15	16QAM	36	39	14.46	14.29	14.24		
15	16QAM	75	0	14.60	14.39	14.15	15	2
15	64QAM	1	0	14.87	14.67	14.58		
15	64QAM	1	37	14.63	14.34	14.25		
15	64QAM	1	74	14.37	14.58	14.44	14	3
15	64QAM	36	0	13.59	13.56	13.39		
15	64QAM	36	20	13.54	13.37	13.23		
15	64QAM	36	39	13.45	13.31	13.21	14	3
15	64QAM	75	0	13.45	13.41	13.34		
Channel				132022	132322	132622	17	0
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	16.25	16.50	16.21		
10	QPSK	1	25	16.08	16.08	16.21	16	1
10	QPSK	1	49	16.28	16.07	16.03		
10	QPSK	25	0	15.33	15.29	15.23		
10	QPSK	25	12	15.24	15.27	15.14	16	1

10	QPSK	25	25	15.36	15.16	15.08		
10	QPSK	50	0	15.37	15.18	15.01		
10	16QAM	1	0	15.91	15.63	15.73		
10	16QAM	1	25	15.51	15.62	15.60	16	1
10	16QAM	1	49	15.34	15.33	15.18		
10	16QAM	25	0	14.67	14.37	14.16		
10	16QAM	25	12	14.53	14.19	14.12	15	2
10	16QAM	25	25	14.30	14.28	14.14		
10	16QAM	50	0	14.46	14.38	14.09		
10	64QAM	1	0	14.86	14.62	14.44	15	2
10	64QAM	1	25	14.45	14.31	14.10		
10	64QAM	1	49	14.30	14.45	14.24		
10	64QAM	25	0	13.49	13.52	13.33	14	3
10	64QAM	25	12	13.41	13.25	13.18		
10	64QAM	25	25	13.44	13.27	13.09		
10	64QAM	50	0	13.33	13.22	13.33		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	16.21	16.40	16.17	17	0
5	QPSK	1	12	16.04	16.02	16.12		
5	QPSK	1	24	16.25	15.99	15.98		
5	QPSK	12	0	15.32	15.19	15.18	16	1
5	QPSK	12	7	15.18	15.24	15.13		
5	QPSK	12	13	15.29	15.09	15.04		
5	QPSK	25	0	15.28	15.12	14.95		
5	16QAM	1	0	15.85	15.59	15.70	16	1
5	16QAM	1	12	15.41	15.62	15.55		
5	16QAM	1	24	15.33	15.28	15.12		
5	16QAM	12	0	14.57	14.34	14.07	15	2
5	16QAM	12	7	14.50	14.19	14.08		
5	16QAM	12	13	14.26	14.19	14.06		
5	16QAM	25	0	14.37	14.32	14.01		
5	64QAM	1	0	14.84	14.53	14.34	15	2
5	64QAM	1	12	14.40	14.30	14.00		
5	64QAM	1	24	14.26	14.35	14.18		
5	64QAM	12	0	13.45	13.52	13.23	14	3
5	64QAM	12	7	13.34	13.20	13.14		
5	64QAM	12	13	13.34	13.18	13.03		
5	64QAM	25	0	13.28	13.12	13.23		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	16.18	16.38	16.14	17	0
3	QPSK	1	8	15.94	16.02	16.12		
3	QPSK	1	14	16.24	15.93	15.93		
3	QPSK	8	0	15.31	15.10	15.13	16	1
3	QPSK	8	4	15.10	15.15	15.10		
3	QPSK	8	7	15.27	14.99	15.01		
3	QPSK	15	0	15.24	15.03	14.88		
3	16QAM	1	0	15.83	15.51	15.63	16	1
3	16QAM	1	8	15.36	15.53	15.47		
3	16QAM	1	14	15.25	15.19	15.02		
3	16QAM	8	0	14.56	14.29	14.03	15	2
3	16QAM	8	4	14.42	14.12	14.08		
3	16QAM	8	7	14.16	14.09	14.00		
3	16QAM	15	0	14.33	14.32	13.99		
3	64QAM	1	0	14.74	14.44	14.30	15	2



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3	64QAM	1	8	14.33	14.21	14.00	14	3
3	64QAM	1	14	14.21	14.32	14.17		
3	64QAM	8	0	13.35	13.49	13.18		
3	64QAM	8	4	13.28	13.11	13.08		
3	64QAM	8	7	13.32	13.14	12.97		
3	64QAM	15	0	13.23	13.10	13.14		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	16.15	16.30	16.07	17	0
1.4	QPSK	1	3	15.91	15.92	16.07		
1.4	QPSK	1	5	16.22	15.87	15.87		
1.4	QPSK	3	0	15.28	15.05	15.09		
1.4	QPSK	3	1	15.07	15.08	15.10		
1.4	QPSK	3	3	15.26	14.99	14.96		
1.4	QPSK	6	0	15.17	15.03	14.80	16	1
1.4	16QAM	1	0	15.77	15.46	15.62	16	1
1.4	16QAM	1	3	15.29	15.47	15.38		
1.4	16QAM	1	5	15.24	15.12	14.93		
1.4	16QAM	3	0	14.49	14.26	14.01		
1.4	16QAM	3	1	14.40	14.04	14.08		
1.4	16QAM	3	3	14.15	14.01	13.95		
1.4	16QAM	6	0	14.27	14.29	13.89	15	2
1.4	64QAM	1	0	14.67	14.37	14.25	15	2
1.4	64QAM	1	3	14.32	14.14	13.99		
1.4	64QAM	1	5	14.13	14.26	14.17		
1.4	64QAM	3	0	13.30	13.39	13.16		
1.4	64QAM	3	1	13.22	13.08	13.02		
1.4	64QAM	3	3	13.23	13.04	12.90		
1.4	64QAM	6	0	13.14	13.07	13.06	14	3

<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.

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

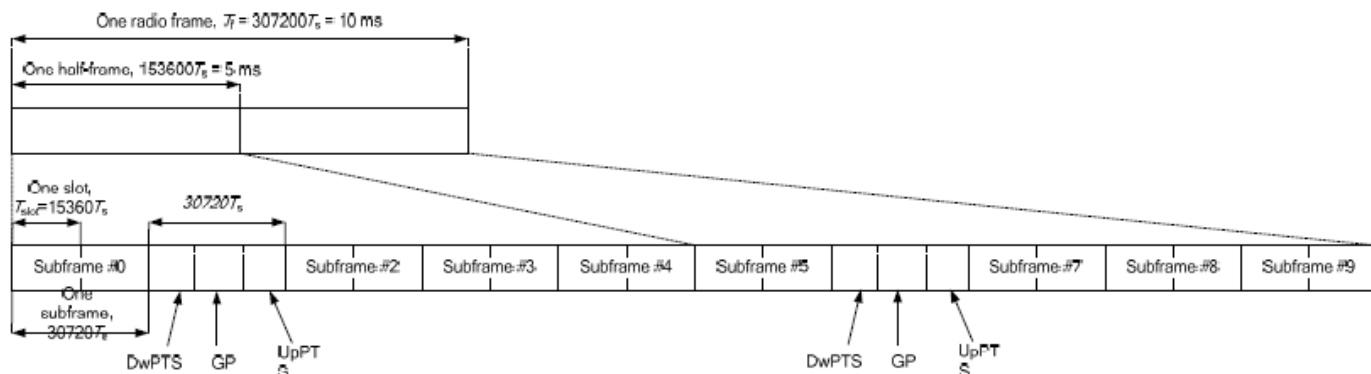


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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	$26336 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$			$20480 \cdot T_s$		
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:

- Uplink-downlink configuration: 0. In a half-frame consisted of 5 subframes, uplink operation is in 3 uplink subframes and 1 special subframe.
- special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink
- for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is:
 $(3+0.167)/5 = 63.3\%$
- for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is:
 $(3+0.143)/5 = 62.9\%$
- 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.

Default Power Mode
<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	24.00	24.01	24.03	24.5	0
20	QPSK	1	49	23.78	23.84	23.88		
20	QPSK	1	99	23.78	23.79	23.81		
20	QPSK	50	0	22.96	23.02	22.94	23.5	1
20	QPSK	50	24	22.99	22.93	22.87		
20	QPSK	50	50	22.86	22.83	22.87		
20	QPSK	100	0	22.97	22.93	22.85	23.5	1
20	16QAM	1	0	23.16	23.17	23.19		
20	16QAM	1	49	22.90	22.90	22.96		
20	16QAM	1	99	22.90	22.94	22.92	22.5	2
20	16QAM	50	0	22.07	22.09	22.03		
20	16QAM	50	24	22.07	22.02	21.95		
20	16QAM	50	50	21.97	21.94	21.97	22.5	2
20	16QAM	100	0	22.06	22.01	21.95		
20	64QAM	1	0	21.88	21.90	21.90		
20	64QAM	1	49	21.65	21.65	21.73	22.5	2
20	64QAM	1	99	21.67	21.63	21.67		
20	64QAM	50	0	21.07	21.09	21.01		
20	64QAM	50	24	21.08	21.03	20.96	21.5	3
20	64QAM	50	50	20.97	20.97	20.98		
20	64QAM	100	0	21.07	21.02	20.95		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	23.90	23.93	23.98	24.5	0
15	QPSK	1	37	23.76	23.83	23.88		
15	QPSK	1	74	23.77	23.70	23.76		
15	QPSK	36	0	22.96	22.93	22.91	23.5	1
15	QPSK	36	20	22.93	22.90	22.79		
15	QPSK	36	39	22.76	22.79	22.83		
15	QPSK	75	0	22.92	22.83	22.78	23.5	1
15	16QAM	1	0	23.10	23.17	23.18		
15	16QAM	1	37	22.80	22.90	22.96		
15	16QAM	1	74	22.82	22.93	22.88	22.5	2
15	16QAM	36	0	21.98	22.03	21.96		
15	16QAM	36	20	21.99	21.99	21.94		
15	16QAM	36	39	21.89	21.90	21.90	22.5	2
15	16QAM	75	0	22.01	21.99	21.85		
15	64QAM	1	0	21.82	21.90	21.89		
15	64QAM	1	37	21.64	21.56	21.70	22.5	2
15	64QAM	1	74	21.59	21.59	21.57		
15	64QAM	36	0	20.99	21.00	20.91		
15	64QAM	36	20	21.05	21.01	20.89	21.5	3
15	64QAM	36	39	20.90	20.87	20.93		
15	64QAM	75	0	21.06	20.99	20.95		
Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	23.94	23.92	24.02	24.5	0
10	QPSK	1	25	23.77	23.76	23.78		
10	QPSK	1	49	23.69	23.78	23.80		
10	QPSK	25	0	22.95	23.02	22.84	23.5	1



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10	QPSK	25	12	22.93	22.88	22.82		
10	QPSK	25	25	22.81	22.74	22.77		
10	QPSK	50	0	22.93	22.90	22.77		
10	16QAM	1	0	23.09	23.12	23.19	23.5	1
10	16QAM	1	25	22.84	22.89	22.93		
10	16QAM	1	49	22.80	22.86	22.82		
10	16QAM	25	0	22.02	22.09	21.94	22.5	2
10	16QAM	25	12	21.97	22.01	21.86		
10	16QAM	25	25	21.88	21.84	21.96		
10	16QAM	50	0	22.02	21.99	21.87	22.5	2
10	64QAM	1	0	21.81	21.89	21.86		
10	64QAM	1	25	21.56	21.57	21.70		
10	64QAM	1	49	21.62	21.54	21.63	21.5	3
10	64QAM	25	0	21.04	21.09	20.98		
10	64QAM	25	12	21.03	20.96	20.95		
10	64QAM	25	25	20.87	20.95	20.97	21.5	3
10	64QAM	50	0	20.99	20.92	20.95		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	23.90	24.00	23.94	24.5	0
5	QPSK	1	12	23.76	23.76	23.88		
5	QPSK	1	24	23.70	23.70	23.79		
5	QPSK	12	0	22.91	23.01	22.94	23.5	1
5	QPSK	12	7	22.89	22.85	22.80		
5	QPSK	12	13	22.82	22.83	22.87		
5	QPSK	25	0	22.96	22.92	22.77	23.5	1
5	16QAM	1	0	23.06	23.10	23.11		
5	16QAM	1	12	22.81	22.88	22.90		
5	16QAM	1	24	22.87	22.94	22.88	22.5	2
5	16QAM	12	0	21.99	22.01	21.97		
5	16QAM	12	7	22.06	21.93	21.87		
5	16QAM	12	13	21.89	21.87	21.92	22.5	2
5	16QAM	25	0	22.01	21.91	21.95		
5	64QAM	1	0	21.82	21.83	21.89		
5	64QAM	1	12	21.63	21.55	21.66	22.5	2
5	64QAM	1	24	21.57	21.58	21.66		
5	64QAM	12	0	21.02	21.06	20.93		
5	64QAM	12	7	21.03	20.99	20.93	21.5	3
5	64QAM	12	13	20.90	20.88	20.97		
5	64QAM	25	0	21.01	21.01	20.95		



<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	24.5	0
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	24.20	24.31	24.23	24.07	23.86		
20	QPSK	1	49	23.91	24.16	23.93	24.03	23.65	24.5	0
20	QPSK	1	99	23.77	24.10	23.90	23.84	23.45		
20	QPSK	50	0	23.10	23.32	23.11	22.97	22.76		
20	QPSK	50	24	23.02	23.22	23.01	22.99	22.80	23.5	1
20	QPSK	50	50	22.95	23.15	22.95	23.00	22.63		
20	QPSK	100	0	23.02	22.65	23.04	22.80	22.64		
20	16QAM	1	0	23.31	23.40	23.36	23.20	22.98	23.5	1
20	16QAM	1	49	23.03	23.26	23.07	23.15	22.80		
20	16QAM	1	99	22.91	23.19	23.02	22.98	22.61		
20	16QAM	50	0	22.22	22.41	22.22	22.04	21.86	22.5	2
20	16QAM	50	24	22.11	22.32	22.12	22.09	21.89		
20	16QAM	50	50	22.06	22.25	22.07	22.09	21.73		
20	16QAM	100	0	22.12	22.04	22.13	22.05	21.70	22.5	2
20	64QAM	1	0	22.08	22.19	22.11	21.95	21.81		
20	64QAM	1	49	21.79	22.01	21.82	21.92	21.55		
20	64QAM	1	99	21.65	21.95	21.74	21.75	21.35	21.5	3
20	64QAM	50	0	21.23	21.41	21.21	21.04	20.87		
20	64QAM	50	24	21.13	21.33	21.13	21.06	20.90		
20	64QAM	50	50	21.07	21.25	21.05	21.07	20.73	21.5	3
20	64QAM	100	0	21.12	21.20	21.12	21.07	20.70		
Channel				39725	40173	40620	41068	41515	24.5	0
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	24.12	24.28	24.15	24.03	23.82		
15	QPSK	1	37	23.82	24.10	23.88	23.94	23.60	24.5	0
15	QPSK	1	74	23.73	24.04	23.89	23.80	23.45		
15	QPSK	36	0	23.01	23.26	23.09	22.94	22.75	23.5	1
15	QPSK	36	20	22.96	23.13	22.93	22.97	22.72		
15	QPSK	36	39	22.95	23.10	22.95	22.92	22.56		
15	QPSK	75	0	22.93	22.55	23.00	22.75	22.62	23.5	1
15	16QAM	1	0	23.27	23.35	23.26	23.16	22.88		
15	16QAM	1	37	23.01	23.16	22.99	23.08	22.78		
15	16QAM	1	74	22.86	23.17	22.94	22.98	22.61	22.5	2
15	16QAM	36	0	22.18	22.34	22.18	21.95	21.85		
15	16QAM	36	20	22.02	22.31	22.06	22.05	21.81		
15	16QAM	36	39	22.03	22.22	21.99	21.99	21.67	22.5	2
15	16QAM	75	0	22.11	21.94	22.03	21.96	21.64		
15	64QAM	1	0	21.98	22.16	22.07	21.86	21.74		
15	64QAM	1	37	21.69	21.91	21.78	21.82	21.51	22.5	2
15	64QAM	1	74	21.62	21.92	21.70	21.68	21.30		
15	64QAM	36	0	21.13	21.34	21.19	21.01	20.83	21.5	3
15	64QAM	36	20	21.11	21.30	21.04	21.04	20.81		
15	64QAM	36	39	21.01	21.23	21.03	21.02	20.70		
15	64QAM	75	0	21.11	21.16	21.03	20.99	20.64	24.5	0
Channel				39700	40160	40620	41080	41540		
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	24.12	24.28	24.16	24.05	23.81	24.5	0
10	QPSK	1	25	23.85	24.07	23.91	23.97	23.59		
10	QPSK	1	49	23.76	24.07	23.83	23.76	23.36		
10	QPSK	25	0	23.04	23.22	23.11	22.95	22.68	23.5	1
10	QPSK	25	12	23.01	23.16	22.99	22.89	22.78		

10	QPSK	25	25	22.86	23.12	22.89	22.93	22.55		
10	QPSK	50	0	22.94	22.55	23.00	22.76	22.59		
10	16QAM	1	0	23.31	23.40	23.36	23.18	22.91		
10	16QAM	1	25	23.03	23.16	23.00	23.14	22.72	23.5	1
10	16QAM	1	49	22.84	23.16	22.92	22.96	22.56		
10	16QAM	25	0	22.22	22.36	22.16	22.03	21.85		
10	16QAM	25	12	22.04	22.27	22.12	22.05	21.79	22.5	2
10	16QAM	25	25	21.97	22.23	21.99	22.01	21.73		
10	16QAM	50	0	22.02	22.04	22.03	22.00	21.64		
10	64QAM	1	0	22.02	22.19	22.07	21.87	21.74	22.5	2
10	64QAM	1	25	21.69	22.00	21.76	21.87	21.55		
10	64QAM	1	49	21.55	21.93	21.64	21.73	21.30		
10	64QAM	25	0	21.14	21.39	21.12	21.03	20.87	21.5	3
10	64QAM	25	12	21.06	21.25	21.05	20.99	20.80		
10	64QAM	25	25	21.03	21.22	21.03	21.06	20.65		
10	64QAM	50	0	21.02	21.14	21.07	21.01	20.69		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	24.13	24.20	24.19	24.07	23.76	24.5	0
5	QPSK	1	12	23.81	24.08	23.93	23.98	23.56		
5	QPSK	1	24	23.73	24.01	23.83	23.81	23.37		
5	QPSK	12	0	23.09	23.32	23.08	22.91	22.71	23.5	1
5	QPSK	12	7	22.98	23.15	22.97	22.98	22.74		
5	QPSK	12	13	22.92	23.10	22.85	22.98	22.54		
5	QPSK	25	0	23.00	22.64	23.00	22.79	22.55		
5	16QAM	1	0	23.26	23.36	23.34	23.15	22.97	23.5	1
5	16QAM	1	12	23.03	23.21	23.00	23.10	22.80		
5	16QAM	1	24	22.81	23.13	22.97	22.97	22.55		
5	16QAM	12	0	22.12	22.33	22.14	22.01	21.83	22.5	2
5	16QAM	12	7	22.10	22.23	22.12	22.04	21.85		
5	16QAM	12	13	21.99	22.15	22.07	22.02	21.67		
5	16QAM	25	0	22.11	22.03	22.03	21.99	21.70		
5	64QAM	1	0	22.00	22.14	22.08	21.92	21.71	22.5	2
5	64QAM	1	12	21.76	21.93	21.81	21.87	21.53		
5	64QAM	1	24	21.60	21.85	21.65	21.66	21.30		
5	64QAM	12	0	21.14	21.33	21.15	21.02	20.79	21.5	3
5	64QAM	12	7	21.06	21.27	21.04	20.97	20.84		
5	64QAM	12	13	21.07	21.18	21.01	21.00	20.71		
5	64QAM	25	0	21.09	21.15	21.03	21.00	20.62		

Reduced Power Mode
<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	16.91	17.33	17.27	17.5	0
20	QPSK	1	49	16.67	17.17	17.12		
20	QPSK	1	99	16.87	16.99	16.66		
20	QPSK	50	0	15.94	15.97	15.84	16.5	1
20	QPSK	50	24	15.91	15.96	15.86		
20	QPSK	50	50	15.79	15.79	15.89		
20	QPSK	100	0	15.93	15.89	15.80	16.5	1
20	16QAM	1	0	16.08	16.12	16.06		
20	16QAM	1	49	16.31	15.96	16.39		
20	16QAM	1	99	16.35	15.94	16.32	15.5	2
20	16QAM	50	0	15.05	15.07	14.94		
20	16QAM	50	24	15.16	15.06	15.10		
20	16QAM	50	50	14.92	14.93	14.89	15.5	2
20	16QAM	100	0	15.04	15.11	15.02		
20	64QAM	1	0	15.17	14.85	14.79		
20	64QAM	1	49	15.04	14.58	14.66	15.5	2
20	64QAM	1	99	14.98	14.57	14.97		
20	64QAM	50	0	14.08	14.10	14.11		
20	64QAM	50	24	14.09	14.00	14.03	14.5	3
20	64QAM	50	50	14.09	13.84	13.94		
20	64QAM	100	0	14.09	14.03	13.95		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	16.72	17.26	17.25	17.5	0
15	QPSK	1	37	16.50	17.06	16.98		
15	QPSK	1	74	16.68	16.95	16.60		
15	QPSK	36	0	15.83	15.82	15.79	16.5	1
15	QPSK	36	20	15.82	15.90	15.81		
15	QPSK	36	39	15.68	15.60	15.73		
15	QPSK	75	0	15.85	15.86	15.68	16.5	1
15	16QAM	1	0	15.94	15.93	15.92		
15	16QAM	1	37	16.27	15.90	16.20		
15	16QAM	1	74	16.16	15.90	16.13	15.5	2
15	16QAM	36	0	14.99	14.95	14.92		
15	16QAM	36	20	14.99	14.94	14.94		
15	16QAM	36	39	14.88	14.74	14.76	15.5	2
15	16QAM	75	0	14.89	15.11	14.84		
15	64QAM	1	0	15.04	14.78	14.77		
15	64QAM	1	37	14.89	14.49	14.62	14.5	3
15	64QAM	1	74	14.95	14.50	14.95		
15	64QAM	36	0	13.97	14.06	13.93		
15	64QAM	36	20	13.93	13.98	14.02	14.5	3
15	64QAM	36	39	13.98	13.78	13.90		
15	64QAM	75	0	13.97	13.88	13.80		
Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	16.69	17.21	17.09	17.5	0
10	QPSK	1	25	16.38	16.92	16.94		
10	QPSK	1	49	16.57	16.80	16.46		
10	QPSK	25	0	15.81	15.80	15.66	16.5	1



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10	QPSK	25	12	15.65	15.80	15.67		
10	QPSK	25	25	15.62	15.57	15.66		
10	QPSK	50	0	15.65	15.75	15.57		
10	16QAM	1	0	15.88	15.75	15.78	16.5	1
10	16QAM	1	25	16.08	15.73	16.07		
10	16QAM	1	49	16.03	15.76	16.01		
10	16QAM	25	0	14.94	14.76	14.80	15.5	2
10	16QAM	25	12	14.93	14.85	14.87		
10	16QAM	25	25	14.83	14.61	14.73		
10	16QAM	50	0	14.78	14.93	14.76	15.5	2
10	64QAM	1	0	14.93	14.60	14.77		
10	64QAM	1	25	14.78	14.33	14.50		
10	64QAM	1	49	14.92	14.49	14.80	14.5	3
10	64QAM	25	0	13.92	13.88	13.89		
10	64QAM	25	12	13.79	13.84	13.90		
10	64QAM	25	25	13.78	13.72	13.89	14.5	3
10	64QAM	50	0	13.81	13.71	13.68		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	16.67	17.11	17.07	17.5	0
5	QPSK	1	12	16.38	16.87	16.84		
5	QPSK	1	24	16.50	16.79	16.38		
5	QPSK	12	0	15.77	15.77	15.60	16.5	1
5	QPSK	12	7	15.59	15.78	15.58		
5	QPSK	12	13	15.55	15.56	15.66		
5	QPSK	25	0	15.56	15.69	15.53	16.5	1
5	16QAM	1	0	15.83	15.70	15.76		
5	16QAM	1	12	16.06	15.67	15.99		
5	16QAM	1	24	16.01	15.72	15.92	15.5	2
5	16QAM	12	0	14.92	14.68	14.70		
5	16QAM	12	7	14.91	14.78	14.84		
5	16QAM	12	13	14.76	14.51	14.67	15.5	2
5	16QAM	25	0	14.74	14.92	14.76		
5	64QAM	1	0	14.93	14.54	14.72		
5	64QAM	1	12	14.77	14.33	14.50	15.5	2
5	64QAM	1	24	14.88	14.46	14.80		
5	64QAM	12	0	13.86	13.78	13.79		
5	64QAM	12	7	13.77	13.80	13.84	14.5	3
5	64QAM	12	13	13.75	13.68	13.84		
5	64QAM	25	0	13.80	13.61	13.64		



<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	17.5	0
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	16.79	16.94	16.84	16.83	16.71		
20	QPSK	1	49	16.76	16.89	16.69	16.66	16.70	16.5	1
20	QPSK	1	99	16.71	16.84	16.80	16.44	16.54		
20	QPSK	50	0	15.63	15.78	15.66	15.59	15.69		
20	QPSK	50	24	15.50	15.68	15.71	15.54	15.66	16.5	1
20	QPSK	50	50	15.52	15.66	15.51	15.48	15.46		
20	QPSK	100	0	15.46	15.83	15.58	15.74	15.57		
20	16QAM	1	0	16.05	16.02	15.92	15.99	16.22	16.5	1
20	16QAM	1	49	15.83	15.79	16.07	16.28	15.97		
20	16QAM	1	99	16.08	15.81	16.09	15.87	15.78		
20	16QAM	50	0	14.90	14.98	15.01	14.81	14.81	15.5	2
20	16QAM	50	24	14.83	14.89	14.69	14.86	14.79		
20	16QAM	50	50	14.46	14.81	14.86	15.03	14.60		
20	16QAM	100	0	14.65	14.94	14.80	14.98	14.58	15.5	2
20	64QAM	1	0	15.08	14.65	15.13	14.98	14.83		
20	64QAM	1	49	14.75	15.12	14.45	14.94	14.77		
20	64QAM	1	99	14.78	15.03	14.83	14.78	14.46	14.5	3
20	64QAM	50	0	13.75	14.25	13.79	13.88	13.90		
20	64QAM	50	24	13.70	13.94	13.86	14.05	13.88		
20	64QAM	50	50	13.76	13.97	13.78	13.98	13.68	14.5	3
20	64QAM	100	0	13.64	14.23	13.72	13.81	13.67		
Channel				39725	40173	40620	41068	41515	17.5	0
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	16.67	16.90	16.66	16.77	16.59		
15	QPSK	1	37	16.59	16.75	16.66	16.48	16.58	16.5	1
15	QPSK	1	74	16.61	16.82	16.72	16.31	16.35		
15	QPSK	36	0	15.56	15.70	15.57	15.48	15.58		
15	QPSK	36	20	15.38	15.52	15.58	15.37	15.54	16.5	1
15	QPSK	36	39	15.42	15.66	15.36	15.40	15.27		
15	QPSK	75	0	15.28	15.67	15.53	15.72	15.53		
15	16QAM	1	0	15.92	15.98	15.77	15.89	16.08	16.5	1
15	16QAM	1	37	15.64	15.76	15.93	16.25	15.86		
15	16QAM	1	74	15.98	15.74	15.95	15.87	15.68		
15	16QAM	36	0	14.88	14.97	14.85	14.73	14.76	15.5	2
15	16QAM	36	20	14.63	14.71	14.53	14.66	14.64		
15	16QAM	36	39	14.37	14.68	14.86	14.97	14.48		
15	16QAM	75	0	14.49	14.81	14.68	14.83	14.56	15.5	2
15	64QAM	1	0	14.99	14.58	14.99	14.84	14.76		
15	64QAM	1	37	14.57	14.98	14.35	14.93	14.73		
15	64QAM	1	74	14.60	14.86	14.81	14.66	14.26	14.5	3
15	64QAM	36	0	13.58	14.14	13.78	13.68	13.87		
15	64QAM	36	20	13.65	13.86	13.79	13.94	13.75		
15	64QAM	36	39	13.67	13.91	13.61	13.96	13.58	14.5	3
15	64QAM	75	0	13.54	14.23	13.62	13.73	13.53		
Channel				39700	40160	40620	41080	41540	17.5	0
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	16.63	16.85	16.61	16.68	16.56		
10	QPSK	1	25	16.59	16.66	16.63	16.45	16.49	16.5	1
10	QPSK	1	49	16.55	16.76	16.66	16.22	16.26		
10	QPSK	25	0	15.53	15.70	15.47	15.41	15.52		
10	QPSK	25	12	15.28	15.46	15.52	15.31	15.44	16.5	1



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10	QPSK	25	25	15.32	15.56	15.34	15.31	15.23		
10	QPSK	50	0	15.28	15.58	15.49	15.66	15.44		
10	16QAM	1	0	15.92	15.90	15.76	15.79	16.07		
10	16QAM	1	25	15.58	15.76	15.91	16.15	15.84	16.5	1
10	16QAM	1	49	15.97	15.72	15.85	15.83	15.63		
10	16QAM	25	0	14.83	14.88	14.79	14.72	14.71		
10	16QAM	25	12	14.60	14.66	14.45	14.63	14.64	15.5	2
10	16QAM	25	25	14.31	14.62	14.82	14.88	14.47		
10	16QAM	50	0	14.47	14.75	14.59	14.79	14.47		
10	64QAM	1	0	14.91	14.52	14.99	14.81	14.67	15.5	2
10	64QAM	1	25	14.52	14.95	14.28	14.93	14.64		
10	64QAM	1	49	14.57	14.80	14.75	14.61	14.25		
10	64QAM	25	0	13.53	14.06	13.69	13.62	13.79	14.5	3
10	64QAM	25	12	13.55	13.81	13.71	13.89	13.66		
10	64QAM	25	25	13.62	13.88	13.61	13.89	13.55		
10	64QAM	50	0	13.47	14.13	13.57	13.71	13.48	Tune-up limit (dBm)	MPR (dB)
Channel				39675	40148	40620	41093	41565		
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	16.60	16.76	16.53	16.62	16.47	17.5	0
5	QPSK	1	12	16.55	16.64	16.57	16.45	16.45		
5	QPSK	1	24	16.52	16.68	16.62	16.16	16.21		
5	QPSK	12	0	15.49	15.70	15.45	15.40	15.43	16.5	1
5	QPSK	12	7	15.27	15.38	15.43	15.31	15.44		
5	QPSK	12	13	15.27	15.55	15.31	15.24	15.14		
5	QPSK	25	0	15.20	15.53	15.42	15.56	15.44	16.5	1
5	16QAM	1	0	15.82	15.88	15.74	15.74	15.98		
5	16QAM	1	12	15.51	15.74	15.86	16.13	15.74		
5	16QAM	1	24	15.97	15.63	15.82	15.82	15.61	15.5	2
5	16QAM	12	0	14.77	14.82	14.74	14.72	14.67		
5	16QAM	12	7	14.56	14.58	14.39	14.63	14.62		
5	16QAM	12	13	14.31	14.52	14.77	14.88	14.38	15.5	2
5	16QAM	25	0	14.42	14.65	14.55	14.71	14.42		
5	64QAM	1	0	14.85	14.43	14.91	14.71	14.57		
5	64QAM	1	12	14.51	14.86	14.19	14.93	14.62	15.5	2
5	64QAM	1	24	14.53	14.74	14.70	14.55	14.20		
5	64QAM	12	0	13.43	13.99	13.67	13.54	13.73		
5	64QAM	12	7	13.45	13.71	13.64	13.84	13.60	14.5	3
5	64QAM	12	13	13.55	13.78	13.53	13.87	13.52		
5	64QAM	25	0	13.41	14.07	13.48	13.64	13.41		

<LTE Carrier Aggregation combinations>
General Note:

1. This device supports Carrier Aggregation on downlink only for inter and intra band, Uplink CA is not supported. For the device supports combination bands and configurations are according to 3GPP.
2. In applying the existing power measurement procedure of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of the frequency band and CCs in each row need consideration, and that configurations require power measurement should be highlighted in the below table.

2CC Downlink Carrier Aggregation			3CC Downlink Carrier Aggregation		
Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset
1	12A-30A	37	37	12A-30A-66A	79
2	12A-66A	38	38	12A-66A-66A	79
3	14A-30A	42	39	14A-66A-66A	
4	14A-66A	39	40	2A-12A-66A	80
5	2A-12A	40	41	2A-12A-30A	80
6	2A-14A	42	42	2A-14A-30A	
7	2A-29A		43	2A-2A-30A	84
8	2A-30A	43	44	2A-2A-5A	85
9	2A-5A	44	45	2A-2A-66A	86
10	2A-66A	45	46	2A-5A-66A	86
13	30A-66A	49	47	2A-5A-30A	85
14	5A-30A	47	48	2A-5B	87
15	5A-66A	46	49	2A-30A-66A	89
16	5B	48	50	2A-66A-66A	88
17	13A-66A	56	51	30A-66A-66A	89
18	2A-13A	58	52	5A-30A-66A	90
19	2A-2A	59	53	5A-66A-66A	91
20	2A-4A	62	54	5B-30A	92
21	2A-5A	61	55	5B-66A	93
22	2A-66A	62	56	13A-66A-66A	112
23	4A-13A	63	57	13A-66C	114
24	4A-4A	64	58	2A-13A-66A	103
25	4A-5A	65	59	2A-2A-13A	103
26	5A-66A	67	60	2A-2A-4A	
27	66A-66A	68	61	2A-2A-5A	110
28	66B	73	62	2A-2A-66A	111
29	66C	74	63	2A-4A-13A	
30	2A-46A	99	64	2A-4A-4A	
31	4A-46A		65	4A-4A-5A	
32	13A-46A	127	66	2A-4A-5A	
33	46A-66A	126	67	2A-5A-66A	86
34	25A-25A		68	2A-66A-66A	88
35	25A-26A		69	2A-66C	105
36	41C				
			71	5A-66A-66A	108
			72	5A-66C	106
			73	66A-66B	74
			74	66A-66C	
			75	66D	
			76	13A-66B	101
			77	2A-66B	104
			78	5A-66B	107

4CC Downlink Carrier Aggregation			5CC Downlink Carrier Aggregation		
Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset
79	12A-30A-66A-66A		110	2A-5B-30A-66A	
80	2A-12A-30A-66A		111	2A-5B-66A-66A	
81	2A-12A-66A-66A		112	5B-30A-66A-66A	
82	2A-2A-12A-66A		113	2A-2A-5A-66C	
83	2A-2A-12A-30A		114	2A-2A-5A-66B	113
84	2A-2A-30A-66A		115	2A-5B-66C	
85	2A-2A-5A-30A		116	2A-13A-46D	
86	2A-2A-5A-66A	113	117	2A-46D-66A	
87	2A-2A-5B		118	13A-46D-66A	
88	2A-2A-66A-66A				
89	2A-30A-66A-66A				
90	2A-5A-30A-66A	110			
91	2A-5A-66A-66A	111			
92	2A-5B-30A	110			
93	2A-5B-66A	111			
94	5A-30A-66A-66A	112			
95	5B-30A-66A	112			
96	5B-66A-66A	111			
97	2A-2A-5A-66A	113			
99	2A-46D	117			
100	2A-13A-66A-66A				
101	2A-13A-66B	102			
102	2A-13A-66C				
103	2A-2A-13A-66A				
104	2A-2A-66B	105			
105	2A-2A-66C	113			
106	2A-5A-66C	113			
107	2A-5A-66B	106			
108	5B-66A-66A	111			
109	5B-66C	115			

<Power verification when LTE Carrier Aggregation Active>
General Note:

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

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

<Two Carrier Aggregation>

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)	W/O CA Tx.Power (dBm)
Inter-Band		2A-29A	2	20	1860	18700	QPSK	1	0	29	10	722.5	9715	24.05	24.14
		4A-46A	4	20	1720	20050	QPSK	1	0	46	20	5537.5	50665	24.00	24.16
		25A-26A	25	20	1905	26590	QPSK	1	0	26	15	876.5	8865	24.02	24.16
Intra-Band	Non-Contiguous	25A-25A	25	20	1905	26590	QPSK	1	0	25	20	1940	8140	24.08	24.16
	Contiguous	41C	41	20	2549.5	40185	QPSK	1	0	41	20	2569.3	40383	24.25	24.31

<Three Carrier Aggregation>

Configure		CA Configuration (BCS)	PCC						SCC				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)	W/O CA Tx.Power (dBm)
Inter-Band		2A-2A-4A	2	20	1860	18700	QPSK	1	0	2	20	1980	1100	4	20	2132.5	2175	24.09	24.14
		2A-4A-4A	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	4	20	2145	2300	24.07	24.14
		2A-4A-5A	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	5	10	881.5	2525	24.00	24.14
		2A-4A-13A	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	13	10	751	5230	24.11	24.14
		2A-14A-30A	2	20	1860	18700	QPSK	1	0	14	10	763	5330	30	10	2355	9820	23.99	24.14
		4A-4A-5A	4	20	1720	20050	QPSK	1	0	4	20	2145	2300	5	10	881.5	2525	24.04	24.16
		14A-66A-66A	14	10	793	23330	QPSK	1	0	66	20	2155	66886	66	20	2190	67236	24.25	24.41
Intra-Band	Non-Contiguous	66A-66C	66	20	1720	132072	QPSK	1	0	66	20	2190	67236	66	20	2170.2	67038	24.22	24.43
	Contiguous	66D	66	20	1720	132072	QPSK	1	0	66	20	2139.8	66734	66	20	2159.6	66932	24.31	24.43

<Four Carrier Aggregation>

Configure	CA Configuration (BCS)	PCC							SCC1				SCC2				SCC3				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	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2A-2A-5B	2	20	1860	18700	QPSK	1	0	2	20	1980	1100	5	10	881.5	2525	5	10	891.4	2624	24.00	24.14
	2A-2A-5A-30A	2	20	1860	18700	QPSK	1	0	2	20	1980	1100	5	10	881.5	2525	30	10	2355	9820	23.98	24.14
	2A-2A-12A-30A	2	20	1860	18700	QPSK	1	0	2	20	1980	1100	12	10	737.5	5095	30	10	2355	9820	24.05	24.14
	2A-2A-12A-66A	2	20	1860	18700	QPSK	1	0	2	20	1980	1100	12	10	737.5	5095	66	20	2155	66886	24.10	24.14
	2A-2A-13A-66A	2	20	1860	18700	QPSK	1	0	2	20	1980	1100	13	10	751	5230	66	20	2155	66886	24.20	24.14
	2A-2A-30A-66A	2	20	1860	18700	QPSK	1	0	2	20	1980	1100	30	10	2355	9820	66	20	2155	66886	24.22	24.14
	2A-2A-66A-66A	2	20	1860	18700	QPSK	1	0	2	20	1980	1100	66	20	2155	66886	66	20	2190	67236	24.31	24.14
	2A-12A-30A-66A	2	20	1860	18700	QPSK	1	0	12	10	737.5	5095	30	10	2355	9820	66	20	2155	66886	23.90	24.14
	2A-12A-66A-66A	2	20	1860	18700	QPSK	1	0	12	10	737.5	5095	66	20	2155	66886	66	20	2190	67236	23.96	24.14
	2A-13A-66A-66A	2	20	1860	18700	QPSK	1	0	13	10	751	5230	66	20	2155	66886	66	20	2190	67236	24.21	24.14
	2A-13A-66C	2	20	1860	18700	QPSK	1	0	13	10	751	5230	66	20	2155	66886	66	20	2174.8	67084	24.11	24.14
	2A-30A-66A-66A	2	20	1860	18700	QPSK	1	0	30	10	2355	9820	66	20	2155	66886	66	20	2190	67236	24.15	24.14
	12A-30A-66A-66A	12	10	704	23060	QPSK	1	0	30	10	2355	9820	66	20	2155	66886	66	20	2190	67236	24.22	24.41

<Five Carrier Aggregation>

Configure	CA Configuration (BCS)	PCC							SCC1				SCC2				SCC3				SCC4				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	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2A-2A-5A-66C	2	20	1860	18700	QPSK	1	0	2	20	1980	1100	5	10	881.5	2525	66	20	2155	66886	66	20	2174.8	67084	24.23	24.14
	2A-5B-30A-66A	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	5	10	891.4	2624	30	10	2355	9820	66	20	2155	66886	24.30	24.14
	2A-5B-66A-66A	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	5	10	891.4	2624	66	20	2155	66886	66	20	2190	67236	24.11	24.14
	2A-5B-66C	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	5	10	891.4	2624	66	20	2155	66886	66	20	2174.8	67084	24.15	24.14
	2A-13A-46D	2	20	1860	18700	QPSK	1	0	13	10	751	5230	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	24.08	24.14
	2A-46D-66A	2	20	1860	18700	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	66	20	2155	66886	24.09	24.14
	5B-30A-66A-66A	5	10	829	20450	QPSK	1	0	5	10	883.9	2549	30	10	2355	9820	66	20	2155	66886	66	20	2190	67236	24.15	24.33
	13A-46D-66A	13	10	782	23230	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	66	20	2155	66886	24.45	24.35

<LTE Uplink carrier aggregation>

2CC Uplink Carrier Aggregation	
Number	Combination
1	5B
2	7C
3	38C
4	41C

<Intra-band>
General Note:

- i. The device supports intra-band uplink carrier aggregation for LTE B5/7/66/38/41/48 with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre 3GPP requirement.
- ii. The device supports uplink carrier aggregation with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre the 3GPP requirement.
- iii. According TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
- iv. According TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
- v. Additional SAR measurement for LTE UL CA whit other DL CA combinations active were not required since the maximum output power for this configuration was not > 0.25dB higher than the maximum output power for UL CA active.

CA_5B										
Combination 10MHz+10MHz (50RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20450	20549	QPSK	1	0	0	0	1	0	19.32	20
20525	20426	QPSK	1	0	1	49	2	0	19.38	20
20600	20501	QPSK	1	0	1	49	2	0	19.29	20

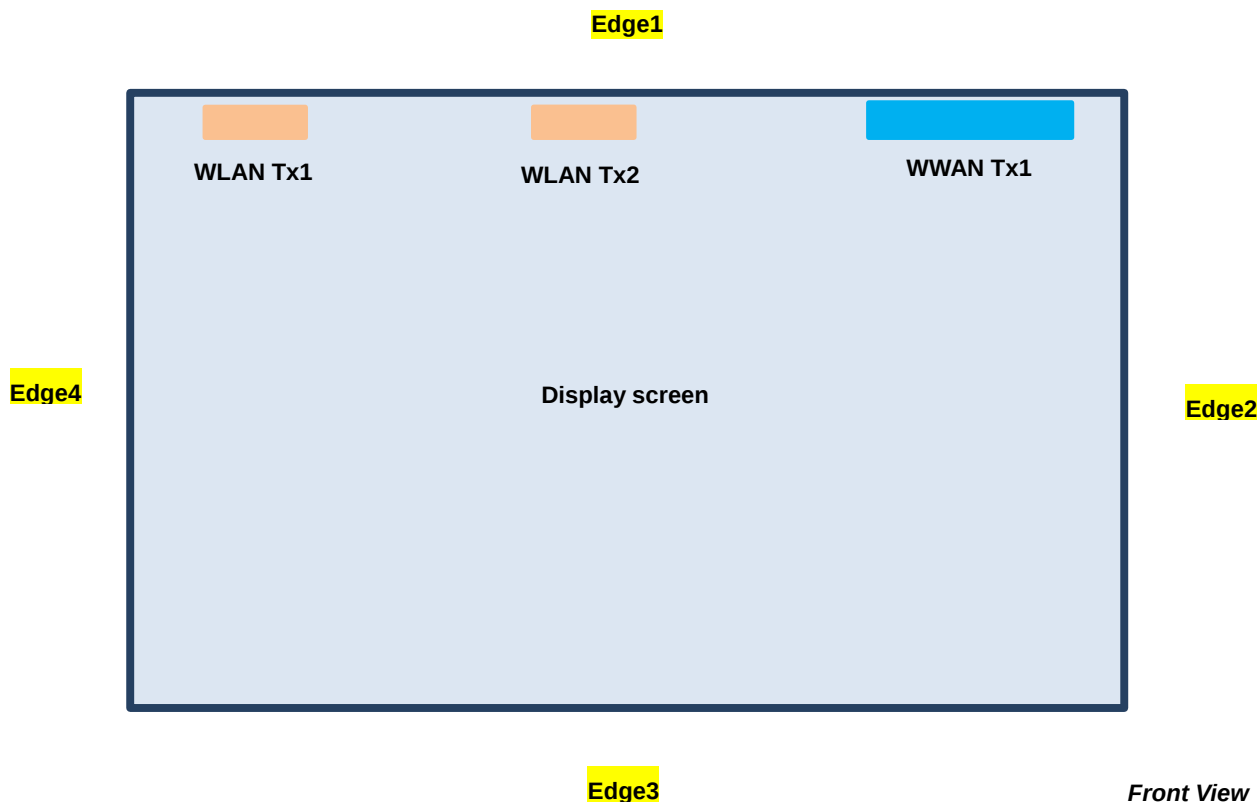
CA_7C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20850	21048	QPSK	1	0	0	0	1	0	15.83	16.5
21100	20902	QPSK	1	0	1	99	2	0	15.92	16.5
21350	21152	QPSK	1	0	1	99	2	0	15.86	16.5

CA_38C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
37850	38048	QPSK	1	0	0	0	1	0	17.21	17.5
37901	38099	QPSK	1	0	0	0	1	0	17.28	17.5
38150	37952	QPSK	1	0	1	99	2	0	17.19	17.5

CA_41C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
39750	39948	QPSK	1	0	0	0	1	0	16.68	17.5
40185	39987	QPSK	1	0	1	99	2	0	16.72	17.5
40620	40422	QPSK	1	0	1	99	2	0	16.76	17.5
41055	40857	QPSK	1	0	1	99	2	0	16.66	17.5
41490	41292	QPSK	1	0	1	99	2	0	16.54	17.5

13. Antenna Location

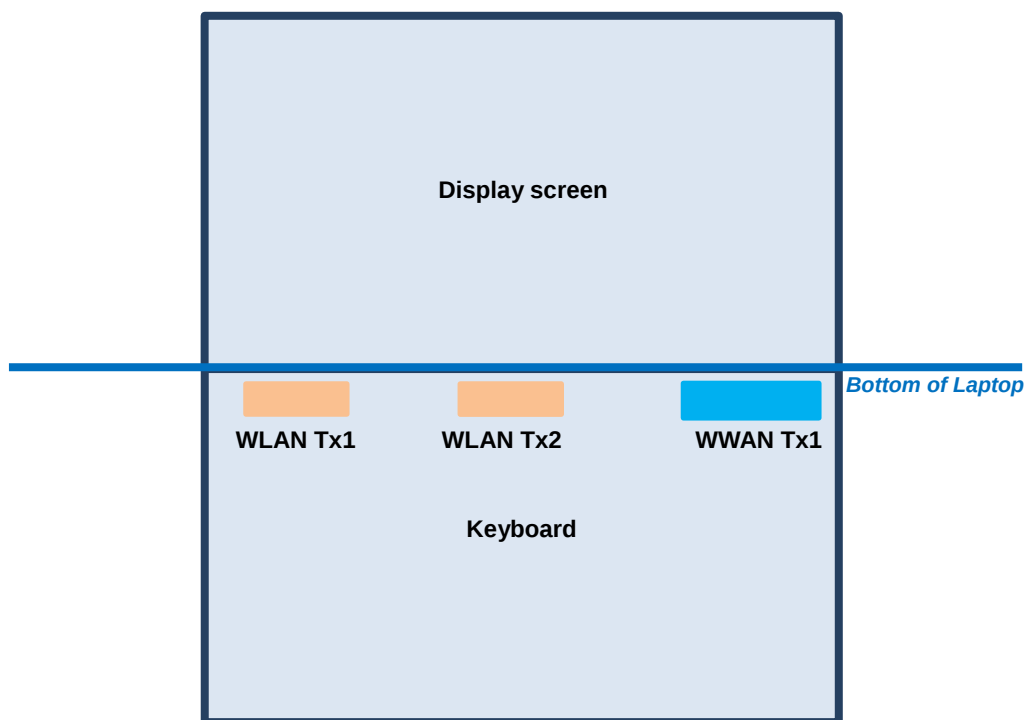
For Tablet



The separation distance for antenna to edge :

Antenna	To Edge1 (mm)	To Edge2 (mm)	To Edge 3 (mm)	To Edge4 (mm)
WWAN Tx1	<5	46.61	219.51	176.61
WLAN Tx 1	<5	237.61	219.51	46.61
WLAN Tx 2	<5	151.61	219.51	132.61

For Laptop



The separation distance for antenna to edge :

Antenna	To Bottom of Laptop (mm)
WWAN Tx1	1.21
WLAN Tx 1	1.21
WLAN Tx 2	1.21

<SAR test exclusion table>
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:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR}$$
 - 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 14	LTE Band 13	LTE Band 5/26	LTE Band 4/66	LTE Band 2/25	LTE Band 30	LTE Band 7	LTE Band 38/41
	Calculated Frequency	846MHz	1750MHz	1907MHz	715MHz	795MHz	784MHz	848MHz	1779MHz	1914MHz	2312MHz	2567MHz	2687MHz
	Maximum power (dBm)	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	23.00	24.50	24.50
	Maximum rated power(mW)	282.0	282.0	282.0	282.0	282.0	282.0	282.0	282.0	282.0	200.0	282.0	282.0
Bottom Face	Separation distance(mm)	5.0											
	exclusion threshold	51.9	74.6	77.9	47.7	50.3	49.9	51.9	75.2	78.0	60.8	90.4	92.5
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edge 1	Separation distance(mm)	5.0											
	exclusion threshold	51.9	74.6	77.9	47.7	50.3	49.9	51.9	75.2	78.0	60.8	90.4	92.5
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edge 2	Separation distance(mm)	46.61											
	exclusion threshold	5.6	8.0	8.4	5.1	5.4	5.4	5.6	8.1	8.4	6.5	9.7	9.9
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edge 3	Separation distance(mm)	219.51											
	exclusion threshold	1119.0	1808.0	1804.0	985.0	1067.0	1055.0	1121.0	1808.0	1804.0	1794.0	1789.0	1787.0
	Testing required?	No	No	No	No	No	No	No	No	No	No	No	No
Edge 4	Separation distance(mm)	176.61											
	exclusion threshold	877.0	1379.0	1375.0	781.0	839.0	831.0	879.0	1379.0	1375.0	1365.0	1360.0	1358.0
	Testing required?	No	No	No	No	No	No	No	No	No	No	No	No
Bottom of Laptop	Separation distance(mm)	5.0											
	exclusion threshold	51.9	74.6	77.9	47.7	50.3	49.9	51.9	75.2	78.0	60.8	90.4	92.5
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

14. 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 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 ≥ 0.8 W/kg.

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 $\leq \frac{1}{4}$ 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 $\frac{1}{4}$ 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 $\frac{1}{2}$ 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 $\frac{1}{2}$ 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 band 2/4/5/17/38 SAR test was covered by Band 25/66/26/12/41; according to TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. The maximum output power, including tolerance, for the smaller band is $\leq$ 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.

14.1 Body SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Configure	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)
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	15mm	Laptop	OFF	9400	1880	23.71	24.50	1.199	-0.03	0.125	0.150
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	Laptop	ON	9262	1852.4	17.80	18.00	1.047	-0.06	0.747	0.782
	WCDMA II	RMC 12.2Kbps	Bottom Face	17mm	Tablet	OFF	9400	1880	23.71	24.50	1.199	-0.03	0.131	0.157
	WCDMA II	RMC 12.2Kbps	Edge 1	22mm	Tablet	OFF	9400	1880	23.71	24.50	1.199	-0.06	0.183	0.220
	WCDMA II	RMC 12.2Kbps	Bottom Face	0mm	Tablet	ON	9262	1852.4	17.80	18.00	1.047	0.01	1.010	1.058
	WCDMA II	RMC 12.2Kbps	Bottom Face	0mm	Tablet	ON	9400	1880	17.78	18.00	1.052	-0.11	0.986	1.037
	WCDMA II	RMC 12.2Kbps	Bottom Face	0mm	Tablet	ON	9538	1907.6	17.79	18.00	1.050	-0.07	0.990	1.039
	WCDMA II	RMC 12.2Kbps	Edge 1	0mm	Tablet	ON	9262	1852.4	17.80	18.00	1.047	0	1.090	1.141
	WCDMA II	RMC 12.2Kbps	Edge 1	0mm	Tablet	ON	9400	1880	17.78	18.00	1.052	-0.03	1.070	1.126
01	WCDMA II	RMC 12.2Kbps	Edge 1	0mm	Tablet	ON	9538	1907.6	17.79	18.00	1.050	-0.03	1.100	1.154
	WCDMA II	RMC 12.2Kbps	Edge 2	0mm	Tablet	OFF	9400	1880	23.71	24.50	1.199	-0.15	0.145	0.174
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	15mm	Laptop	OFF	1413	1732.6	24.00	24.50	1.122	-0.03	0.248	0.278
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	Laptop	ON	1413	1732.6	16.49	16.50	1.002	0.04	0.698	0.700
	WCDMA IV	RMC 12.2Kbps	Bottom Face	17mm	Tablet	OFF	1413	1732.6	24.00	24.50	1.122	-0.03	0.253	0.284
	WCDMA IV	RMC 12.2Kbps	Edge 1	22mm	Tablet	OFF	1413	1732.6	24.00	24.50	1.122	-0.15	0.260	0.292
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0mm	Tablet	ON	1413	1732.6	16.49	16.50	1.002	-0.17	0.801	0.803
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0mm	Tablet	ON	1312	1712.4	16.40	16.50	1.023	0.04	0.789	0.807
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0mm	Tablet	ON	1513	1752.6	16.38	16.50	1.028	-0.13	0.783	0.805
02	WCDMA IV	RMC 12.2Kbps	Edge 1	0mm	Tablet	ON	1413	1732.6	16.49	16.50	1.002	-0.11	1.020	1.022
	WCDMA IV	RMC 12.2Kbps	Edge 1	0mm	Tablet	ON	1312	1712.4	16.40	16.50	1.023	-0.11	0.986	1.009
	WCDMA IV	RMC 12.2Kbps	Edge 1	0mm	Tablet	ON	1513	1752.6	16.38	16.50	1.028	-0.01	0.968	0.995
	WCDMA IV	RMC 12.2Kbps	Edge 2	0mm	Tablet	OFF	1413	1732.6	24.00	24.50	1.122	0.13	0.131	0.147
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	15mm	Laptop	OFF	4182	836.4	24.11	24.50	1.094	-0.03	0.193	0.211
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	Laptop	ON	4182	836.4	19.70	20.00	1.072	0.1	0.369	0.395
	WCDMA V	RMC 12.2Kbps	Bottom Face	17mm	Tablet	OFF	4182	836.4	24.11	24.50	1.094	-0.03	0.177	0.194
	WCDMA V	RMC 12.2Kbps	Edge 1	22mm	Tablet	OFF	4182	836.4	24.11	24.50	1.094	-0.15	0.145	0.159
	WCDMA V	RMC 12.2Kbps	Bottom Face	0mm	Tablet	ON	4182	836.4	19.70	20.00	1.072	0.13	0.680	0.729
	WCDMA V	RMC 12.2Kbps	Edge 1	0mm	Tablet	ON	4182	836.4	19.70	20.00	1.072	0.08	0.920	0.986
03	WCDMA V	RMC 12.2Kbps	Edge 1	0mm	Tablet	ON	4132	826.4	19.69	20.00	1.074	0.14	0.949	1.019
	WCDMA V	RMC 12.2Kbps	Edge 1	0mm	Tablet	ON	4233	846.6	19.52	20.00	1.117	0.05	0.858	0.958
	WCDMA V	RMC 12.2Kbps	Edge 2	0mm	Tablet	OFF	4182	836.4	24.11	24.50	1.094	-0.09	0.062	0.068
	WCDMA V	RMC 12.2Kbps	Edge 3	0mm	Tablet	OFF	4182	836.4	24.11	24.50	1.094	0.03	0.001	0.001
	WCDMA V	RMC 12.2Kbps	Edge 4	0mm	Tablet	OFF	4182	836.4	24.11	24.50	1.094	0	0.001	0.001

**<FDD LTE SAR>**

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Configure	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)
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	15mm	Laptop	OFF	21350	2560	24.17	24.50	1.079	-0.03	0.266	0.287
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	15mm	Laptop	OFF	21350	2560	23.09	23.50	1.099	-0.03	0.228	0.251
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	0mm	Laptop	ON	21350	2560	16.09	16.50	1.099	0.14	0.334	0.367
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	Laptop	ON	21350	2560	14.94	15.50	1.138	-0.09	0.244	0.278
	LTE Band 7	20M	QPSK	1	0	Bottom Face	17mm	Tablet	OFF	21350	2560	24.17	24.50	1.079	-0.03	0.137	0.148
	LTE Band 7	20M	QPSK	50	0	Bottom Face	17mm	Tablet	OFF	21350	2560	23.09	23.50	1.099	-0.03	0.112	0.123
	LTE Band 7	20M	QPSK	1	0	Edge 1	22mm	Tablet	OFF	21350	2560	24.17	24.50	1.079	-0.1	0.289	0.312
	LTE Band 7	20M	QPSK	50	0	Edge 1	22mm	Tablet	OFF	21350	2560	23.09	23.50	1.099	-0.15	0.230	0.253
	LTE Band 7	20M	QPSK	1	0	Bottom Face	0mm	Tablet	ON	21350	2560	16.09	16.50	1.099	0.07	0.270	0.297
	LTE Band 7	20M	QPSK	50	0	Bottom Face	0mm	Tablet	ON	21350	2560	14.94	15.50	1.138	0.13	0.226	0.257
04	LTE Band 7	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	21350	2560	16.09	16.50	1.099	0.14	0.936	1.029
	LTE Band 7	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	20850	2510	16.00	16.50	1.122	0.16	0.872	0.978
	LTE Band 7	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	21100	2535	15.91	16.50	1.146	0.19	0.845	0.968
	LTE Band 7	20M	QPSK	50	0	Edge 1	0mm	Tablet	ON	21350	2560	14.94	15.50	1.138	0.03	0.664	0.755
	LTE Band 7	20M	QPSK	100	0	Edge 1	0mm	Tablet	ON	21350	2560	14.87	15.50	1.156	-0.04	0.682	0.788
	LTE Band 7	20M	QPSK	1	0	Edge 2	0mm	Tablet	OFF	21350	2560	24.17	24.50	1.079	0.02	0.050	0.054
	LTE Band 7	20M	QPSK	50	0	Edge 2	0mm	Tablet	OFF	21350	2560	23.09	23.50	1.099	0.09	0.041	0.045
	LTE Band 7C	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	21100	2535	15.92	16.50	1.143	0.06	0.879	1.005
	LTE Band 12	10M	QPSK	1	0	Bottom of Laptop	15mm	Laptop	OFF	23095	707.5	24.28	24.50	1.052	-0.03	0.078	0.082
	LTE Band 12	10M	QPSK	25	0	Bottom of Laptop	15mm	Laptop	OFF	23095	707.5	23.33	23.50	1.040	-0.07	0.065	0.068
	LTE Band 12	10M	QPSK	1	0	Bottom of Laptop	0mm	Laptop	ON	23095	707.5	19.66	20.50	1.213	0.09	0.252	0.306
	LTE Band 12	10M	QPSK	25	0	Bottom of Laptop	0mm	Laptop	ON	23095	707.5	18.69	19.50	1.205	-0.18	0.114	0.137
	LTE Band 12	10M	QPSK	1	0	Bottom Face	17mm	Tablet	OFF	23095	707.5	24.28	24.50	1.052	-0.03	0.041	0.043
	LTE Band 12	10M	QPSK	25	0	Bottom Face	17mm	Tablet	OFF	23095	707.5	23.33	23.50	1.040	0	0.034	0.035
	LTE Band 12	10M	QPSK	1	0	Edge 1	22mm	Tablet	OFF	23095	707.5	24.28	24.50	1.052	0.11	0.053	0.056
	LTE Band 12	10M	QPSK	25	0	Edge 1	22mm	Tablet	OFF	23095	707.5	23.33	23.50	1.040	-0.15	0.044	0.046
	LTE Band 12	10M	QPSK	1	0	Bottom Face	0mm	Tablet	ON	23095	707.5	19.66	20.50	1.213	0.07	0.244	0.296
	LTE Band 12	10M	QPSK	25	0	Bottom Face	0mm	Tablet	ON	23095	707.5	18.69	19.50	1.205	0.11	0.215	0.259
05	LTE Band 12	10M	QPSK	1	0	Edge 1	0mm	Tablet	ON	23095	707.5	19.66	20.50	1.213	-0.06	0.900	1.092
	LTE Band 12	10M	QPSK	25	0	Edge 1	0mm	Tablet	ON	23095	707.5	18.69	19.50	1.205	0.12	0.705	0.850
	LTE Band 12	10M	QPSK	50	0	Edge 1	0mm	Tablet	ON	23095	707.5	18.61	19.50	1.227	0.15	0.698	0.857
	LTE Band 12	10M	QPSK	1	0	Edge 2	0mm	Tablet	OFF	23095	707.5	24.28	24.50	1.052	0	0.058	0.061
	LTE Band 12	10M	QPSK	25	0	Edge 2	0mm	Tablet	OFF	23095	707.5	23.33	23.50	1.040	0.06	0.045	0.047
	LTE Band 12	10M	QPSK	1	0	Edge 3	0mm	Tablet	OFF	23095	707.5	24.28	24.50	1.052	0.04	0.001	0.001
	LTE Band 12	10M	QPSK	25	0	Edge 3	0mm	Tablet	OFF	23095	707.5	23.33	23.50	1.040	0.02	0.001	0.001
	LTE Band 12	10M	QPSK	1	0	Edge 4	0mm	Tablet	OFF	23095	707.5	24.28	24.50	1.052	0	0.001	0.001
	LTE Band 12	10M	QPSK	25	0	Edge 4	0mm	Tablet	OFF	23095	707.5	23.33	23.50	1.040	0	0.001	0.001



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Configure	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)
	LTE Band 13	10M	QPSK	1	0	Bottom of Laptop	15mm	Laptop	OFF	23230	782	24.35	24.50	1.035	0.04	0.100	0.104
	LTE Band 13	10M	QPSK	25	0	Bottom of Laptop	15mm	Laptop	OFF	23230	782	23.41	23.50	1.021	-0.03	0.083	0.085
	LTE Band 13	10M	QPSK	1	0	Bottom of Laptop	0mm	Laptop	ON	23230	782	19.97	21.00	1.268	-0.02	0.381	0.483
	LTE Band 13	10M	QPSK	25	0	Bottom of Laptop	0mm	Laptop	ON	23230	782	19.01	20.00	1.256	-0.11	0.254	0.319
	LTE Band 13	10M	QPSK	1	0	Bottom Face	17mm	Tablet	OFF	23230	782	24.35	24.50	1.035	-0.06	0.038	0.039
	LTE Band 13	10M	QPSK	25	0	Bottom Face	17mm	Tablet	OFF	23230	782	23.41	23.50	1.021	-0.13	0.032	0.033
	LTE Band 13	10M	QPSK	1	0	Edge 1	22mm	Tablet	OFF	23230	782	24.35	24.50	1.035	-0.11	0.050	0.052
	LTE Band 13	10M	QPSK	25	0	Edge 1	22mm	Tablet	OFF	23230	782	23.41	23.50	1.021	0.1	0.042	0.043
	LTE Band 13	10M	QPSK	1	0	Bottom Face	0mm	Tablet	ON	23230	782	19.97	21.00	1.268	-0.02	0.450	0.570
	LTE Band 13	10M	QPSK	25	0	Bottom Face	0mm	Tablet	ON	23230	782	19.01	20.00	1.256	-0.12	0.362	0.455
06	LTE Band 13	10M	QPSK	1	0	Edge 1	0mm	Tablet	ON	23230	782	19.97	21.00	1.268	0.11	0.871	1.104
	LTE Band 13	10M	QPSK	25	0	Edge 1	0mm	Tablet	ON	23230	782	19.01	20.00	1.256	0.07	0.697	0.875
	LTE Band 13	10M	QPSK	50	0	Edge 1	0mm	Tablet	ON	23230	782	19.08	20.00	1.236	0.02	0.726	0.897
	LTE Band 13	10M	QPSK	1	0	Edge 2	0mm	Tablet	OFF	23230	782	24.35	24.50	1.035	0.09	0.052	0.054
	LTE Band 13	10M	QPSK	25	0	Edge 2	0mm	Tablet	OFF	23230	782	23.41	23.50	1.021	0.13	0.040	0.041
	LTE Band 13	10M	QPSK	1	0	Edge 3	0mm	Tablet	OFF	23230	782	24.35	24.50	1.035	0.03	0.001	0.001
	LTE Band 13	10M	QPSK	25	0	Edge 3	0mm	Tablet	OFF	23230	782	23.41	23.50	1.021	0.01	0.001	0.001
	LTE Band 13	10M	QPSK	1	0	Edge 4	0mm	Tablet	OFF	23230	782	24.35	24.50	1.035	0	0.001	0.001
	LTE Band 13	10M	QPSK	25	0	Edge 4	0mm	Tablet	OFF	23230	782	23.41	23.50	1.021	0	0.001	0.001
	LTE Band 14	10M	QPSK	1	0	Bottom of Laptop	15mm	Laptop	OFF	23330	793	24.41	24.50	1.021	-0.03	0.111	0.113
	LTE Band 14	10M	QPSK	25	0	Bottom of Laptop	15mm	Laptop	OFF	23330	793	23.39	23.50	1.026	0	0.092	0.094
	LTE Band 14	10M	QPSK	1	0	Bottom of Laptop	0mm	Laptop	ON	23330	793	19.68	20.50	1.208	-0.02	0.379	0.458
	LTE Band 14	10M	QPSK	25	0	Bottom of Laptop	0mm	Laptop	ON	23330	793	18.74	19.50	1.191	-0.03	0.226	0.269
	LTE Band 14	10M	QPSK	1	0	Bottom Face	17mm	Tablet	OFF	23330	793	24.41	24.50	1.021	0.06	0.049	0.050
	LTE Band 14	10M	QPSK	25	0	Bottom Face	17mm	Tablet	OFF	23330	793	23.39	23.50	1.026	0.1	0.035	0.036
	LTE Band 14	10M	QPSK	1	0	Edge 1	22mm	Tablet	OFF	23330	793	24.41	24.50	1.021	-0.12	0.066	0.067
	LTE Band 14	10M	QPSK	25	0	Edge 1	22mm	Tablet	OFF	23330	793	23.39	23.50	1.026	-0.15	0.051	0.052
	LTE Band 14	10M	QPSK	1	0	Bottom Face	0mm	Tablet	ON	23330	793	19.68	20.50	1.208	0.1	0.443	0.535
	LTE Band 14	10M	QPSK	25	0	Bottom Face	0mm	Tablet	ON	23330	793	18.74	19.50	1.191	-0.06	0.359	0.428
07	LTE Band 14	10M	QPSK	1	0	Edge 1	0mm	Tablet	ON	23330	793	19.68	20.50	1.208	-0.09	0.948	1.145
	LTE Band 14	10M	QPSK	25	0	Edge 1	0mm	Tablet	ON	23330	793	18.74	19.50	1.191	0.12	0.771	0.918
	LTE Band 14	10M	QPSK	50	0	Edge 1	0mm	Tablet	ON	23330	793	18.63	19.50	1.222	0.09	0.752	0.919
	LTE Band 14	10M	QPSK	1	0	Edge 2	0mm	Tablet	OFF	23330	793	24.41	24.50	1.021	-0.02	0.046	0.047
	LTE Band 14	10M	QPSK	25	0	Edge 2	0mm	Tablet	OFF	23330	793	23.39	23.50	1.026	-0.05	0.035	0.036
	LTE Band 14	10M	QPSK	1	0	Edge 3	0mm	Tablet	OFF	23330	793	24.41	24.50	1.021	0.02	0.001	0.001
	LTE Band 14	10M	QPSK	25	0	Edge 3	0mm	Tablet	OFF	23330	793	23.39	23.50	1.026	0.05	0.001	0.001
	LTE Band 14	10M	QPSK	1	0	Edge 4	0mm	Tablet	OFF	23330	793	24.41	24.50	1.021	0	0.001	0.001
	LTE Band 14	10M	QPSK	25	0	Edge 4	0mm	Tablet	OFF	23330	793	23.39	23.50	1.026	0	0.001	0.001



FCC SAR TEST REPORT

Report No. : FA082123

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Configure	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)
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	15mm	Laptop	OFF	26590	1905	24.16	24.50	1.081	-0.03	0.122	0.132
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	15mm	Laptop	OFF	26590	1905	23.01	23.50	1.119	-0.08	0.100	0.112
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	Laptop	ON	26590	1905	17.68	18.00	1.076	0.01	0.724	0.779
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	0mm	Laptop	ON	26590	1905	16.38	17.00	1.153	-0.03	0.520	0.600
	LTE Band 25	20M	QPSK	1	0	Bottom Face	17mm	Tablet	OFF	26590	1905	24.16	24.50	1.081	-0.13	0.153	0.165
	LTE Band 25	20M	QPSK	50	0	Bottom Face	17mm	Tablet	OFF	26590	1905	23.01	23.50	1.119	-0.06	0.131	0.147
	LTE Band 25	20M	QPSK	1	0	Edge 1	22mm	Tablet	OFF	26590	1905	24.16	24.50	1.081	-0.06	0.183	0.198
	LTE Band 25	20M	QPSK	50	0	Edge 1	22mm	Tablet	OFF	26590	1905	23.01	23.50	1.119	-0.11	0.157	0.176
	LTE Band 25	20M	QPSK	1	0	Bottom Face	0mm	Tablet	ON	26590	1905	17.68	18.00	1.076	-0.14	0.982	1.057
	LTE Band 25	20M	QPSK	1	0	Bottom Face	0mm	Tablet	ON	26140	1860	17.19	18.00	1.205	-0.1	0.871	1.050
	LTE Band 25	20M	QPSK	1	0	Bottom Face	0mm	Tablet	ON	26340	1880	17.51	18.00	1.119	-0.04	0.925	1.035
	LTE Band 25	20M	QPSK	50	0	Bottom Face	0mm	Tablet	ON	26590	1905	16.38	17.00	1.153	-0.12	0.778	0.897
	LTE Band 25	20M	QPSK	50	0	Bottom Face	0mm	Tablet	ON	26140	1860	16.18	17.00	1.208	-0.14	0.708	0.855
	LTE Band 25	20M	QPSK	50	0	Bottom Face	0mm	Tablet	ON	26340	1880	16.06	17.00	1.242	-0.16	0.720	0.894
	LTE Band 25	20M	QPSK	100	0	Bottom Face	0mm	Tablet	ON	26590	1905	16.69	17.00	1.074	-0.1	0.800	0.859
08	LTE Band 25	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	26590	1905	17.68	18.00	1.076	0.18	1.110	1.195
	LTE Band 25	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	26140	1860	17.19	18.00	1.205	0.02	0.943	1.136
	LTE Band 25	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	26340	1880	17.51	18.00	1.119	0.11	1.000	1.119
	LTE Band 25	20M	QPSK	50	0	Edge 1	0mm	Tablet	ON	26590	1905	16.38	17.00	1.153	-0.05	0.835	0.963
	LTE Band 25	20M	QPSK	50	0	Edge 1	0mm	Tablet	ON	26140	1860	16.18	17.00	1.208	0.06	0.730	0.882
	LTE Band 25	20M	QPSK	50	0	Edge 1	0mm	Tablet	ON	26340	1880	16.06	17.00	1.242	0.04	0.754	0.936
	LTE Band 25	20M	QPSK	100	0	Edge 1	0mm	Tablet	ON	26590	1905	16.69	17.00	1.074	0.15	0.669	0.718
	LTE Band 25	20M	QPSK	1	0	Edge 2	0mm	Tablet	OFF	26590	1905	24.16	24.50	1.081	0.06	0.145	0.157
	LTE Band 25	20M	QPSK	50	0	Edge 2	0mm	Tablet	OFF	26590	1905	23.01	23.50	1.119	-0.04	0.112	0.125
	LTE Band 26	15M	QPSK	1	0	Bottom of Laptop	15mm	Laptop	OFF	26865	831.5	24.26	24.50	1.057	0.01	0.175	0.185
	LTE Band 26	15M	QPSK	36	0	Bottom of Laptop	15mm	Laptop	OFF	26865	831.5	23.25	23.50	1.059	-0.1	0.158	0.167
	LTE Band 26	15M	QPSK	1	0	Bottom of Laptop	0mm	Laptop	ON	26865	831.5	19.38	20.00	1.153	-0.05	0.399	0.460
	LTE Band 26	15M	QPSK	36	0	Bottom of Laptop	0mm	Laptop	ON	26865	831.5	18.49	19.00	1.125	0.01	0.199	0.224
	LTE Band 26	15M	QPSK	1	0	Bottom Face	17mm	Tablet	OFF	26865	831.5	24.26	24.50	1.057	-0.11	0.165	0.174
	LTE Band 26	15M	QPSK	36	0	Bottom Face	17mm	Tablet	OFF	26865	831.5	23.25	23.50	1.059	-0.15	0.139	0.147
	LTE Band 26	15M	QPSK	1	0	Edge 1	22mm	Tablet	OFF	26865	831.5	24.26	24.50	1.057	-0.08	0.129	0.136
	LTE Band 26	15M	QPSK	36	0	Edge 1	22mm	Tablet	OFF	26865	831.5	23.25	23.50	1.059	-0.01	0.108	0.114
	LTE Band 26	15M	QPSK	1	0	Bottom Face	0mm	Tablet	ON	26865	831.5	19.38	20.00	1.153	0.06	0.499	0.576
	LTE Band 26	15M	QPSK	36	0	Bottom Face	0mm	Tablet	ON	26865	831.5	18.49	19.00	1.125	0.15	0.408	0.459
09	LTE Band 26	15M	QPSK	1	0	Edge 1	0mm	Tablet	ON	26865	831.5	19.38	20.00	1.153	0.08	0.986	1.137
	LTE Band 26	15M	QPSK	36	0	Edge 1	0mm	Tablet	ON	26865	831.5	18.49	19.00	1.125	0.08	0.720	0.810
	LTE Band 26	15M	QPSK	75	0	Edge 1	0mm	Tablet	ON	26865	831.5	18.32	19.00	1.169	0.07	0.695	0.813
	LTE Band 26	15M	QPSK	1	0	Edge 2	0mm	Tablet	OFF	26865	831.5	24.26	24.50	1.057	0.13	0.051	0.054
	LTE Band 26	15M	QPSK	36	0	Edge 2	0mm	Tablet	OFF	26865	831.5	23.25	23.50	1.059	0.19	0.040	0.042
	LTE Band 26	15M	QPSK	1	0	Edge 3	0mm	Tablet	OFF	26865	831.5	24.26	24.50	1.057	0.09	0.001	0.001
	LTE Band 26	15M	QPSK	36	0	Edge 3	0mm	Tablet	OFF	26865	831.5	23.25	23.50	1.059	0.12	0.001	0.001
	LTE Band 26	15M	QPSK	1	0	Edge 4	0mm	Tablet	OFF	26865	831.5	24.26	24.50	1.057	0	0.001	0.001
	LTE Band 26	15M	QPSK	36	0	Edge 4	0mm	Tablet	OFF	26865	831.5	23.25	23.50	1.059	0	0.001	0.001
	LTE Band 5B	10M	QPSK	1	0	Edge 1	0mm	Tablet	ON	20525	831.5	19.38	20.00	1.153	0.12	0.958	1.105



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Configure	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)
	LTE Band 30	10M	QPSK	1	0	Bottom of Laptop	15mm	Laptop	OFF	27710	2310	22.44	23.00	1.138	-0.08	0.268	0.305
	LTE Band 30	10M	QPSK	25	0	Bottom of Laptop	15mm	Laptop	OFF	27710	2310	21.23	22.00	1.194	-0.07	0.242	0.289
	LTE Band 30	10M	QPSK	1	0	Bottom of Laptop	0mm	Laptop	ON	27710	2310	14.69	15.50	1.205	0.01	0.687	0.828
	LTE Band 30	10M	QPSK	25	0	Bottom of Laptop	0mm	Laptop	ON	27710	2310	13.64	14.50	1.219	-0.06	0.449	0.547
	LTE Band 30	10M	QPSK	50	0	Bottom of Laptop	0mm	Laptop	ON	27710	2310	13.52	14.50	1.253	-0.06	0.401	0.503
	LTE Band 30	10M	QPSK	1	0	Bottom Face	17mm	Tablet	OFF	27710	2310	22.44	23.00	1.138	-0.13	0.352	0.400
	LTE Band 30	10M	QPSK	25	0	Bottom Face	17mm	Tablet	OFF	27710	2310	21.23	22.00	1.194	-0.19	0.318	0.380
	LTE Band 30	10M	QPSK	1	0	Edge 1	22mm	Tablet	OFF	27710	2310	22.44	23.00	1.138	-0.11	0.713	0.811
	LTE Band 30	10M	QPSK	25	0	Edge 1	22mm	Tablet	OFF	27710	2310	21.23	22.00	1.194	-0.01	0.588	0.702
	LTE Band 30	10M	QPSK	50	0	Edge 1	22mm	Tablet	OFF	27710	2310	21.21	22.00	1.199	-0.01	0.544	0.653
	LTE Band 30	10M	QPSK	1	0	Bottom Face	0mm	Tablet	ON	27710	2310	14.69	15.50	1.205	-0.16	0.583	0.703
	LTE Band 30	10M	QPSK	25	0	Bottom Face	0mm	Tablet	ON	27710	2310	13.64	14.50	1.219	-0.13	0.429	0.523
10	LTE Band 30	10M	QPSK	1	0	Edge 1	0mm	Tablet	ON	27710	2310	14.69	15.50	1.205	0.02	0.941	1.134
	LTE Band 30	10M	QPSK	25	0	Edge 1	0mm	Tablet	ON	27710	2310	13.64	14.50	1.219	-0.06	0.778	0.948
	LTE Band 30	10M	QPSK	50	0	Edge 1	0mm	Tablet	ON	27710	2310	13.52	14.50	1.253	0.1	0.773	0.969
	LTE Band 30	10M	QPSK	1	0	Edge 2	0mm	Tablet	OFF	27710	2310	22.44	23.00	1.138	-0.17	0.063	0.072
	LTE Band 30	10M	QPSK	25	0	Edge 2	0mm	Tablet	OFF	27710	2310	21.23	22.00	1.194	-0.13	0.050	0.060
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	15mm	Laptop	OFF	132072	1720	24.43	24.50	1.016	-0.08	0.255	0.259
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	15mm	Laptop	OFF	132072	1720	23.30	23.50	1.047	-0.15	0.206	0.216
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	Laptop	ON	132072	1720	16.67	17.00	1.079	0.02	0.776	0.837
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	Laptop	ON	132322	1745	16.53	17.00	1.114	0.03	0.742	0.827
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	Laptop	ON	132572	1770	16.55	17.00	1.109	0.04	0.735	0.815
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	0mm	Laptop	ON	132072	1720	15.52	16.00	1.117	0.08	0.654	0.730
	LTE Band 66	20M	QPSK	100	0	Bottom of Laptop	0mm	Laptop	ON	132072	1720	15.54	16.00	1.112	-0.06	0.642	0.714
	LTE Band 66	20M	QPSK	1	0	Bottom Face	17mm	Tablet	OFF	132072	1720	24.43	24.50	1.016	-0.16	0.253	0.257
	LTE Band 66	20M	QPSK	50	0	Bottom Face	17mm	Tablet	OFF	132072	1720	23.30	23.50	1.047	-0.08	0.201	0.210
	LTE Band 66	20M	QPSK	1	0	Edge 1	22mm	Tablet	OFF	132072	1720	24.43	24.50	1.016	-0.12	0.297	0.302
	LTE Band 66	20M	QPSK	50	0	Edge 1	22mm	Tablet	OFF	132072	1720	23.30	23.50	1.047	-0.05	0.240	0.251
	LTE Band 66	20M	QPSK	1	0	Bottom Face	0mm	Tablet	ON	132072	1720	16.67	17.00	1.079	-0.11	0.879	0.948
	LTE Band 66	20M	QPSK	1	0	Bottom Face	0mm	Tablet	ON	132322	1745	16.53	17.00	1.114	-0.15	0.878	0.978
	LTE Band 66	20M	QPSK	1	0	Bottom Face	0mm	Tablet	ON	132572	1770	16.55	17.00	1.109	-0.12	0.865	0.959
	LTE Band 66	20M	QPSK	50	0	Bottom Face	0mm	Tablet	ON	132072	1720	15.52	16.00	1.117	-0.08	0.721	0.805
	LTE Band 66	20M	QPSK	50	0	Bottom Face	0mm	Tablet	ON	132322	1745	15.51	16.00	1.119	-0.14	0.696	0.779
	LTE Band 66	20M	QPSK	50	0	Bottom Face	0mm	Tablet	ON	132572	1770	15.39	16.00	1.151	-0.18	0.689	0.793
	LTE Band 66	20M	QPSK	100	0	Bottom Face	0mm	Tablet	ON	132072	1720	15.54	16.00	1.112	-0.16	0.687	0.764
	LTE Band 66	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	132072	1720	16.67	17.00	1.079	-0.03	1.040	1.122
11	LTE Band 66	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	132322	1745	16.53	17.00	1.114	0.03	1.040	1.159
	LTE Band 66	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	132572	1770	16.55	17.00	1.109	0	1.010	1.120
	LTE Band 66	20M	QPSK	50	0	Edge 1	0mm	Tablet	ON	132072	1720	15.52	16.00	1.117	-0.03	0.827	0.924
	LTE Band 66	20M	QPSK	50	0	Edge 1	0mm	Tablet	ON	132322	1745	15.51	16.00	1.119	-0.12	0.826	0.925
	LTE Band 66	20M	QPSK	50	0	Edge 1	0mm	Tablet	ON	132572	1770	15.39	16.00	1.151	-0.02	0.801	0.922
	LTE Band 66	20M	QPSK	100	0	Edge 1	0mm	Tablet	ON	132072	1720	15.54	16.00	1.112	-0.03	0.825	0.917
	LTE Band 66	20M	QPSK	1	0	Edge 2	0mm	Tablet	OFF	132072	1720	24.43	24.50	1.016	-0.09	0.132	0.134
	LTE Band 66	20M	QPSK	50	0	Edge 2	0mm	Tablet	OFF	132072	1720	23.30	23.50	1.047	-0.1	0.105	0.110



<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Configure	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)
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	15mm	Laptop	OFF	40185	2549.5	24.31	24.50	1.045	62.9	1.006	-0.08	0.137	0.144
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	15mm	Laptop	OFF	40185	2549.5	23.32	23.50	1.042	62.9	1.006	-0.03	0.114	0.120
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	Laptop	ON	40185	2549.5	16.94	17.50	1.138	62.9	1.006	-0.05	0.265	0.303
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	Laptop	ON	40185	2549.5	15.78	16.50	1.180	62.9	1.006	-0.12	0.189	0.224
	LTE Band 41	20M	QPSK	1	0	Bottom Face	17mm	Tablet	OFF	40185	2549.5	24.31	24.50	1.045	62.9	1.006	-0.16	0.080	0.084
	LTE Band 41	20M	QPSK	50	0	Bottom Face	17mm	Tablet	OFF	40185	2549.5	23.32	23.50	1.042	62.9	1.006	-0.18	0.067	0.070
	LTE Band 41	20M	QPSK	1	0	Edge 1	22mm	Tablet	OFF	40185	2549.5	24.31	24.50	1.045	62.9	1.006	-0.15	0.286	0.301
	LTE Band 41	20M	QPSK	50	0	Edge 1	22mm	Tablet	OFF	40185	2549.5	23.32	23.50	1.042	62.9	1.006	-0.04	0.133	0.139
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm	Tablet	ON	40185	2549.5	16.94	17.50	1.138	62.9	1.006	0.06	0.160	0.183
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm	Tablet	ON	40185	2549.5	15.78	16.50	1.180	62.9	1.006	0.1	0.142	0.169
	LTE Band 41	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	40185	2549.5	16.94	17.50	1.138	62.9	1.006	-0.14	0.710	0.813
	LTE Band 41	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	39750	2506	16.79	17.50	1.178	62.9	1.006	-0.02	0.649	0.769
	LTE Band 41	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	40620	2593	16.84	17.50	1.164	62.9	1.006	-0.07	0.739	0.865
	LTE Band 41	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	41055	2636.5	16.83	17.50	1.167	62.9	1.006	0.03	0.798	0.937
12	LTE Band 41	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	41490	2680	16.71	17.50	1.199	62.9	1.006	-0.05	0.953	1.150
	LTE Band 41	20M	QPSK	50	0	Edge 1	0mm	Tablet	ON	40185	2549.5	15.78	16.50	1.180	62.9	1.006	-0.15	0.502	0.596
	LTE Band 41	20M	QPSK	100	0	Edge 1	0mm	Tablet	ON	40185	2549.5	15.83	16.50	1.167	62.9	1.006	-0.13	0.504	0.592
	LTE Band 41	20M	QPSK	1	0	Edge 2	0mm	Tablet	OFF	40185	2549.5	24.31	24.50	1.045	62.9	1.006	0.19	0.048	0.050
	LTE Band 41	20M	QPSK	50	0	Edge 2	0mm	Tablet	OFF	40185	2549.5	23.32	23.50	1.042	62.9	1.006	0.15	0.041	0.043
	LTE Band 41C	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	40620	2593	16.76	17.50	1.186	62.9	1.006	0.02	0.941	1.123

14.2 Repeated SAR Measurement

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Configure	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)	Ratio	Reported 1g SAR (W/kg)
1st	LTE Band 14	10M	QPSK	1	0	Edge 1	0mm	Tablet	ON	23330	793	19.68	20.50	1.208			-0.09	0.948	-	1.145
2nd	LTE Band 14	10M	QPSK	1	0	Edge 1	0mm	Tablet	ON	23330	793	19.68	20.50	1.208			-0.1	0.922	1.03	1.114
1st	LTE Band 25	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	26590	1905	17.68	18.00	1.076			0.18	1.110	-	1.195
2nd	LTE Band 25	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	26590	1905	17.68	18.00	1.076			0.08	0.987	1.12	1.062
1st	LTE Band 26	15M	QPSK	1	0	Edge 1	0mm	Tablet	ON	26865	831.5	19.38	20.00	1.153			0.08	0.986	-	1.137
2nd	LTE Band 26	15M	QPSK	1	0	Edge 1	0mm	Tablet	ON	26865	831.5	19.38	20.00	1.153			0.1	0.970	1.02	1.119
1st	LTE Band 30	10M	QPSK	1	0	Edge 1	0mm	Tablet	ON	27710	2310	14.69	15.50	1.205			0.02	0.941	-	1.134
2nd	LTE Band 30	10M	QPSK	1	0	Edge 1	0mm	Tablet	ON	27710	2310	14.69	15.50	1.205			0.19	0.899	1.05	1.083
1st	LTE Band 41	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	41490	2680	16.71	17.50	1.199	62.9	1.006	-0.05	0.953	-	1.150
2nd	LTE Band 41	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	41490	2680	16.71	17.50	1.199	62.9	1.006	0.01	0.923	1.03	1.114
1st	LTE Band 66	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	132322	1745	16.53	17.00	1.114			0.03	1.040	-	1.159
2nd	LTE Band 66	20M	QPSK	1	0	Edge 1	0mm	Tablet	ON	132322	1745	16.53	17.00	1.114			-0.03	0.982	1.06	1.094

General Note:

- Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is $\geq 0.8\text{W/kg}$.
- Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR $< 1.45\text{W/kg}$, only one repeated measurement is required.
- The ratio is the difference in percentage between original and repeated *measured SAR*.
- All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Body
1.	WWAN + 2.4GHz WLAN 1 + 2.4GHz WLAN 2	Yes
2.	WWAN + 2.4GHz WLAN 2 + Bluetooth 1	Yes
3.	WWAN + 5GHz WLAN 1 + 5GHz WLAN 2 + Bluetooth 1	Yes

General Note:

1. WLAN RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode. Therefore SPLSR calculation was choose worst case with SAR test results of each antenna in SISO mode perform evaluation.
2. For 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.
3. All licensed modes share the same antenna part and cannot transmit simultaneously
4. 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.
5. The Scaled SAR summation is calculated based on the same configuration and test position.
6. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - i) Scalar SAR summation < 1.6W/kg.
 - ii) $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$, 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 $SPLSR \leq 0.04$, 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 15.2.

15.1 Body Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+3+6 Summed 1g SAR (W/kg)	1+4+5+6 Summed 1g SAR (W/kg)	SPLSR	Case No
		WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 1					
		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 II	Bottom of Laptop at 0mm	0.782	0.169	0.052	0.423	0.163	0.001	1.003	0.835	1.369		
	Bottom Face at 0mm	1.058	0.155	0.001	0.359	0.166	0.001	1.214	1.060	1.584		
	Edge 1 at 0mm	1.154	0.940	0.445	1.110	0.323	0.001	2.539	1.600	2.588	0.02	Case 1
	Edge 2 at 0mm	0.174						0.174	0.174	0.174		
WCDMA IV	Bottom of Laptop at 0mm	0.700	0.169	0.052	0.423	0.163	0.001	0.921	0.753	1.287		
	Bottom Face at 0mm	0.807	0.155	0.001	0.359	0.166	0.001	0.963	0.809	1.333		
	Edge 1 at 0mm	1.022	0.940	0.445	1.110	0.323	0.001	2.407	1.468	2.456	0.02	Case 2
	Edge 2 at 0mm	0.147						0.147	0.147	0.147		
WCDMA V	Bottom of Laptop at 0mm	0.395	0.169	0.052	0.423	0.163	0.001	0.616	0.448	0.982		
	Bottom Face at 0mm	0.729	0.155	0.001	0.359	0.166	0.001	0.885	0.731	1.255		
	Edge 1 at 0mm	1.019	0.940	0.445	1.110	0.323	0.001	2.404	1.465	2.453	0.04	Case 3
	Edge 2 at 0mm	0.068						0.068	0.068	0.068		
	Edge 3 at 0mm	0.001						0.001	0.001	0.001		
	Edge 4 at 0mm	0.001						0.001	0.001	0.001		
LTE Band 7	Bottom of Laptop at 0mm	0.367	0.169	0.052	0.423	0.163	0.001	0.588	0.420	0.954		
	Bottom Face at 0mm	0.297	0.155	0.001	0.359	0.166	0.001	0.453	0.299	0.823		
	Edge 1 at 0mm	1.029	0.940	0.445	1.110	0.323	0.001	2.414	1.475	2.463	0.02	Case 4
	Edge 2 at 0mm	0.054						0.054	0.054	0.054		
LTE Band 12	Bottom of Laptop at 0mm	0.306	0.169	0.052	0.423	0.163	0.001	0.527	0.359	0.893		
	Bottom Face at 0mm	0.296	0.155	0.001	0.359	0.166	0.001	0.452	0.298	0.822		
	Edge 1 at 0mm	1.092	0.940	0.445	1.110	0.323	0.001	2.477	1.538	2.526	0.04	Case 5
	Edge 2 at 0mm	0.061						0.061	0.061	0.061		
	Edge 3 at 0mm	0.001						0.001	0.001	0.001		
	Edge 4 at 0mm	0.001						0.001	0.001	0.001		



FCC SAR TEST REPORT

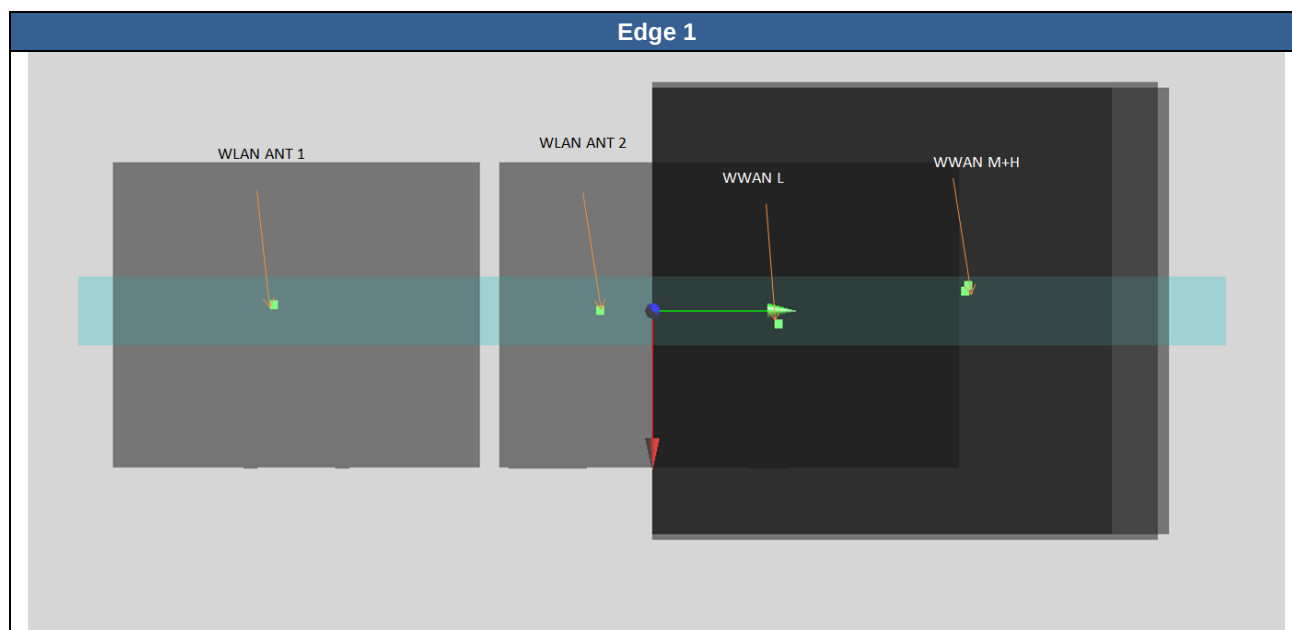
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LTE Band 13	Bottom of Laptop at 0mm	0.483	0.169	0.052	0.423	0.163	0.001	0.704	0.536	1.070		
	Bottom Face at 0mm	0.570	0.155	0.001	0.359	0.166	0.001	0.726	0.572	1.096		
	Edge 1 at 0mm	1.104	0.940	0.445	1.110	0.323	0.001	2.489	1.550	2.538	0.04	Case 6
	Edge 2 at 0mm	0.054						0.054	0.054	0.054		
	Edge 3 at 0mm	0.001						0.001	0.001	0.001		
	Edge 4 at 0mm	0.001						0.001	0.001	0.001		
LTE Band 14	Bottom of Laptop at 0mm	0.458	0.169	0.052	0.423	0.163	0.001	0.679	0.511	1.045		
	Bottom Face at 0mm	0.535	0.155	0.001	0.359	0.166	0.001	0.691	0.537	1.061		
	Edge 1 at 0mm	1.145	0.940	0.445	1.110	0.323	0.001	2.530	1.591	2.579	0.04	Case 7
	Edge 2 at 0mm	0.047						0.047	0.047	0.047		
	Edge 3 at 0mm	0.001						0.001	0.001	0.001		
	Edge 4 at 0mm	0.001						0.001	0.001	0.001		
LTE Band 25	Bottom of Laptop at 0mm	0.779	0.169	0.052	0.423	0.163	0.001	1.000	0.832	1.366		
	Bottom Face at 0mm	1.057	0.155	0.001	0.359	0.166	0.001	1.213	1.059	1.583		
	Edge 1 at 0mm	1.195	0.940	0.445	1.110	0.323	0.001	2.580	1.641	2.629	0.02	Case 8
	Edge 2 at 0mm	0.157						0.157	0.157	0.157		
LTE Band 26	Bottom of Laptop at 0mm	0.460	0.169	0.052	0.423	0.163	0.001	0.681	0.513	1.047		
	Bottom Face at 0mm	0.576	0.155	0.001	0.359	0.166	0.001	0.732	0.578	1.102		
	Edge 1 at 0mm	1.137	0.940	0.445	1.110	0.323	0.001	2.522	1.583	2.571	0.04	Case 9
	Edge 2 at 0mm	0.054						0.054	0.054	0.054		
	Edge 3 at 0mm	0.001						0.001	0.001	0.001		
	Edge 4 at 0mm	0.001						0.001	0.001	0.001		
LTE Band 30	Bottom of Laptop at 0mm	0.828	0.169	0.052	0.423	0.163	0.001	1.049	0.881	1.415		
	Bottom Face at 0mm	0.703	0.155	0.001	0.359	0.166	0.001	0.859	0.705	1.229		
	Edge 1 at 0mm	1.134	0.940	0.445	1.110	0.323	0.001	2.519	1.580	2.568	0.02	Case 10
	Edge 2 at 0mm	0.072						0.072	0.072	0.072		
LTE Band 41	Bottom of Laptop at 0mm	0.303	0.169	0.052	0.423	0.163	0.001	0.524	0.356	0.890		
	Bottom Face at 0mm	0.183	0.155	0.001	0.359	0.166	0.001	0.339	0.185	0.709		
	Edge 1 at 0mm	1.150	0.940	0.445	1.110	0.323	0.001	2.535	1.596	2.584	0.03	Case 11
	Edge 2 at 0mm	0.050						0.050	0.050	0.050		
LTE Band 66	Bottom of Laptop at 0mm	0.837	0.169	0.052	0.423	0.163	0.001	1.058	0.890	1.424		
	Bottom Face at 0mm	0.978	0.155	0.001	0.359	0.166	0.001	1.134	0.980	1.504		
	Edge 1 at 0mm	1.159	0.940	0.445	1.110	0.323	0.001	2.544	1.605	2.593	0.02	Case 12
	Edge 2 at 0mm	0.134						0.134	0.134	0.134		

15.2 SPLSR Evaluation and Analysis

General Note:

1. $SPLSR = (SAR_1 + SAR_2)^{1.5} / (min. \text{ separation distance, mm})$. If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary
2. The detail hotspot point for each transmitter in each exposure condition are showing as below figure and the minimum 3D distance for each sum combination is used for SPLSR analysis.



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 1	WCDMA II	Edge 1	1.154	0mm	-4.37	82.71	-3.23	181.8	2.09	0.02	Not required
	WLAN2.4G_Ant 1		0.94	0mm	-1.38	-99.03	-4.02				
	WCDMA II	Edge 1	1.154	0mm	-4.37	82.71	-3.23	91.8	1.60	0.02	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	WCDMA II	Edge 1	1.154	0mm	-4.37	82.71	-3.23	178.4	2.27	0.02	Not required
	WLAN5G_Ant 1+BT Ant 1		1.111	0mm	-0.78	-95.61	-2.49				
	WCDMA II	Edge 1	1.154	0mm	-4.37	82.71	-3.23	96.8	1.48	0.02	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
	WLAN2.4G_Ant 1	Edge 1	0.94	0mm	-1.38	-99.03	-4.02	90.7	1.39	0.02	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	WLAN5G_Ant 1+BT Ant 1	Edge 1	1.111	0mm	-0.78	-95.61	-2.49	81.6	1.43	0.02	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
	WLAN2.4G_Ant 2	Edge 1	0.445	0mm	4.86	-8.61	-1.32	87.2	0.45	0.00	Not required
	BT_Ant 1		0.001	0mm	-0.78	-95.61	-2.49				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
	Case 2	WCDMA IV	Edge 1	1.022	0mm	-5.95	84.11	-3.34	183.2	1.96	0.02
WLAN2.4G_Ant 1		0.94		0mm	-1.38	-99.03	-4.02				
WCDMA IV		Edge 1	1.022	0mm	-5.95	84.11	-3.34	93.4	1.47	0.02	Not required
WLAN2.4G_Ant 2			0.445	0mm	4.86	-8.61	-1.32				
WCDMA IV		Edge 1	1.022	0mm	-5.95	84.11	-3.34	179.8	2.13	0.02	Not required
WLAN5G_Ant 1+BT Ant 1			1.111	0mm	-0.78	-95.61	-2.49				
WCDMA IV		Edge 1	1.022	0mm	-5.95	84.11	-3.34	98.3	1.35	0.02	Not required
WLAN5G_Ant 2			0.323	0mm	0.04	-14	-4.06				
WLAN2.4G_Ant 1		Edge 1	0.94	0mm	-1.38	-99.03	-4.02	90.7	1.39	0.02	Not required
WLAN2.4G_Ant 2			0.445	0mm	4.86	-8.61	-1.32				
WLAN5G_Ant 1+BT Ant 1		Edge 1	1.111	0mm	-0.78	-95.61	-2.49	81.6	1.43	0.02	Not required
WLAN5G_Ant 2			0.323	0mm	0.04	-14	-4.06				
Case 3	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA V	Edge 1	1.019	0mm	-2.89	30.01	-3.24	129.1	1.96	0.02	Not required
			0.94	0mm	-1.38	-99.03	-4.02				
	WCDMA V	Edge 1	1.019	0mm	-2.89	30.01	-3.24	39.4	1.46	0.04	Not required
			0.445	0mm	4.86	-8.61	-1.32				
	WCDMA V	Edge 1	1.019	0mm	-2.89	30.01	-3.24	125.6	2.13	0.02	Not required
			1.111	0mm	-0.78	-95.61	-2.49				
	WCDMA V	Edge 1	1.019	0mm	-2.89	30.01	-3.24	44.1	1.34	0.04	Not required
			0.323	0mm	0.04	-14	-4.06				
	WLAN2.4G_Ant 1	Edge 1	0.94	0mm	-1.38	-99.03	-4.02	90.7	1.39	0.02	Not required
			0.445	0mm	4.86	-8.61	-1.32				
	WLAN5G_Ant 1+BT Ant 1	Edge 1	1.111	0mm	-0.78	-95.61	-2.49	81.6	1.43	0.02	Not required
0.323			0mm	0.04	-14	-4.06					
Case 4	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 7	Edge 1	1.029	0mm	-3.76	85.61	-3.42	184.7	1.97	0.01	Not required
			0.94	0mm	-1.38	-99.03	-4.02				
	LTE Band 7	Edge 1	1.029	0mm	-3.76	85.61	-3.42	94.6	1.47	0.02	Not required
			0.445	0mm	4.86	-8.61	-1.32				
	LTE Band 7	Edge 1	1.029	0mm	-3.76	85.61	-3.42	181.2	2.14	0.02	Not required
			1.111	0mm	-0.78	-95.61	-2.49				
	LTE Band 7	Edge 1	1.029	0mm	-3.76	85.61	-3.42	99.7	1.35	0.02	Not required
			0.323	0mm	0.04	-14	-4.06				
	WLAN2.4G_Ant 1	Edge 1	0.94	0mm	-1.38	-99.03	-4.02	90.7	1.39	0.02	Not required
			0.445	0mm	4.86	-8.61	-1.32				
	WLAN5G_Ant 1+BT Ant 1	Edge 1	1.111	0mm	-0.78	-95.61	-2.49	81.6	1.43	0.02	Not required
0.323			0mm	0.04	-14	-4.06					
Case 5	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 12	Edge 1	1.092	0mm	-0.17	28.2	-3.39	127.2	2.03	0.02	Not required
			0.94	0mm	-1.38	-99.03	-4.02				
	LTE Band 12	Edge 1	1.092	0mm	-0.17	35	-3.39	43.9	1.41	0.04	Not required
			0.32	0mm	4.86	-8.61	-1.32				
	LTE Band 12	Edge 1	1.092	0mm	-0.17	28.2	-3.39	123.8	2.20	0.03	Not required
			1.111	0mm	-0.78	-95.61	-2.49				
	LTE Band 12	Edge 1	1.092	0mm	-0.17	28.2	-3.39	42.2	1.42	0.04	Not required
			0.323	0mm	0.04	-14	-4.06				
	WLAN2.4G_Ant 1	Edge 1	0.94	0mm	-1.38	-99.03	-4.02	90.7	1.39	0.02	Not required
			0.445	0mm	4.86	-8.61	-1.32				
	WLAN5G_Ant 1+BT Ant 1	Edge 1	1.111	0mm	-0.78	-95.61	-2.49	81.6	1.43	0.02	Not required
0.323			0mm	0.04	-14	-4.06					

	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				
Case 6	LTE Band 13	Edge 1	1.104	0mm	-2.78	31.61	-3.5	130.6	2.04	0.02	Not required
	WLAN2.4G_Ant 1		0.94	0mm	-1.38	-99.03	-4.02				
	LTE Band 13	Edge 1	1.104	0mm	-2.78	35.4	-3.5	44.7	1.55	0.04	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	LTE Band 13	Edge 1	1.104	0mm	-2.78	31.61	-3.5	127.2	2.22	0.03	Not required
	WLAN5G_Ant 1+BT Ant 1		1.111	0mm	-0.78	-95.61	-2.49				
	LTE Band 13	Edge 1	1.104	0mm	-2.78	31.61	-3.5	45.7	1.43	0.04	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
	WLAN2.4G_Ant 1	Edge 1	0.94	0mm	-1.38	-99.03	-4.02	90.7	1.39	0.02	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	WLAN5G_Ant 1+BT Ant 1	Edge 1	1.111	0mm	-0.78	-95.61	-2.49	81.6	1.43	0.02	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
Case 7	LTE Band 14	Edge 1	1.145	0mm	-0.83	30.01	-3.33	129.0	2.09	0.02	Not required
	WLAN2.4G_Ant 1		0.94	0mm	-1.38	-99.03	-4.02				
	LTE Band 14	Edge 1	1.145	0mm	-0.83	35.64	-3.33	44.7	1.59	0.04	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	LTE Band 14	Edge 1	1.145	0mm	-0.83	30.01	-3.33	125.6	2.26	0.03	Not required
	WLAN5G_Ant 1+BT Ant 1		1.111	0mm	-0.78	-95.61	-2.49				
	LTE Band 14	Edge 1	1.145	0mm	-0.83	30.01	-3.33	44.0	1.47	0.04	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
	WLAN2.4G_Ant 1	Edge 1	0.94	0mm	-1.38	-99.03	-4.02	90.7	1.39	0.02	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	WLAN5G_Ant 1+BT Ant 1	Edge 1	1.111	0mm	-0.78	-95.61	-2.49	81.6	1.43	0.02	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
Case 8	LTE Band 25	Edge 1	1.195	0mm	-4.36	84.1	-3.71	183.2	2.14	0.02	Not required
	WLAN2.4G_Ant 1		0.94	0mm	-1.38	-99.03	-4.02				
	LTE Band 25	Edge 1	1.195	0mm	-4.36	84.1	-3.71	93.2	1.64	0.02	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	LTE Band 25	Edge 1	1.195	0mm	-4.36	84.1	-3.71	179.7	2.31	0.02	Not required
	WLAN5G_Ant 1+BT Ant 1		1.111	0mm	-0.78	-95.61	-2.49				
	LTE Band 25	Edge 1	1.195	0mm	-4.36	84.1	-3.71	98.2	1.52	0.02	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
	WLAN2.4G_Ant 1	Edge 1	0.94	0mm	-1.38	-99.03	-4.02	90.7	1.39	0.02	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	WLAN5G_Ant 1+BT Ant 1	Edge 1	1.111	0mm	-0.78	-95.61	-2.49	81.6	1.43	0.02	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
	WLAN2.4G_Ant 2	Edge 1	0.445	0mm	4.86	-8.61	-1.32	87.2	0.45	0.00	Not required
	BT_Ant 1		0.001	0mm	-0.78	-95.61	-2.49				

	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				
Case 9	LTE Band 26	Edge 1	1.137	0mm	-2.86	31.6	-3.43	130.6	2.08	0.02	Not required
	WLAN2.4G_Ant 1		0.94	0mm	-1.38	-99.03	-4.02				
	LTE Band 26	Edge 1	1.137	0mm	-2.86	35.66	-3.43	45.0	1.58	0.04	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	LTE Band 26	Edge 1	1.137	0mm	-2.86	31.6	-3.43	127.2	2.25	0.03	Not required
	WLAN5G_Ant 1+BT Ant 1		1.111	0mm	-0.78	-95.61	-2.49				
	LTE Band 26	Edge 1	1.137	0mm	-2.86	31.6	-3.43	45.7	1.46	0.04	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
	WLAN2.4G_Ant 1	Edge 1	0.94	0mm	-1.38	-99.03	-4.02	90.7	1.39	0.02	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
Case 10	WLAN5G_Ant 1+BT Ant 1	Edge 1	1.111	0mm	-0.78	-95.61	-2.49	81.6	1.43	0.02	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
	LTE Band 30	Edge 1	1.134	0mm	1.04	89.2	-3.93	188.2	2.07	0.02	Not required
	WLAN2.4G_Ant 1		0.94	0mm	-1.38	-99.03	-4.02				
	LTE Band 30	Edge 1	1.134	0mm	1.04	89.2	-3.93	97.9	1.58	0.02	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	LTE Band 30	Edge 1	1.134	0mm	1.04	89.2	-3.93	184.8	2.25	0.02	Not required
	WLAN5G_Ant 1+BT Ant 1		1.111	0mm	-0.78	-95.61	-2.49				
	LTE Band 30	Edge 1	1.134	0mm	1.04	89.2	-3.93	103.2	1.46	0.02	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
Case 11	WLAN2.4G_Ant 1	Edge 1	0.94	0mm	-1.38	-99.03	-4.02	90.7	1.39	0.02	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	WLAN5G_Ant 1+BT Ant 1	Edge 1	1.111	0mm	-0.78	-95.61	-2.49	81.6	1.43	0.02	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
	LTE Band 41	Edge 1	1.15	0mm	-8.78	61.6	-1.91	160.8	2.09	0.02	Not required
	WLAN2.4G_Ant 1		0.94	0mm	-1.38	-99.03	-4.02				
	LTE Band 41	Edge 1	1.15	0mm	-8.78	61.6	-1.91	71.5	1.60	0.03	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	LTE Band 41	Edge 1	1.15	0mm	-8.78	61.6	-1.91	157.4	2.26	0.02	Not required
	WLAN5G_Ant 1+BT Ant 1		1.111	0mm	-0.78	-95.61	-2.49				
	LTE Band 41	Edge 1	1.15	0mm	-8.78	61.6	-1.91	76.1	1.47	0.02	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
	WLAN2.4G_Ant 1	Edge 1	0.94	0mm	-1.38	-99.03	-4.02	90.7	1.39	0.02	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	WLAN5G_Ant 1+BT Ant 1	Edge 1	1.111	0mm	-0.78	-95.61	-2.49	81.6	1.43	0.02	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
	WLAN2.4G_Ant 2	Edge 1	0.445	0mm	4.86	-8.61	-1.32	87.2	0.45	0.00	Not required
	BT_Ant 1		0.001	0mm	-0.78	-95.61	-2.49				

	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				
Case 12	LTE Band 66	Edge 1	1.159	0mm	-5.97	84.11	-1.82	183.2	2.10	0.02	Not required
	WLAN2.4G_Ant 1		0.94	0mm	-1.38	-99.03	-4.02				
	LTE Band 66	Edge 1	1.159	0mm	-5.97	84.11	-1.82	93.4	1.60	0.02	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	LTE Band 66	Edge 1	1.159	0mm	-5.97	84.11	-1.82	179.8	2.27	0.02	Not required
	WLAN5G_Ant 1+BT Ant 1		1.111	0mm	-0.78	-95.61	-2.49				
	LTE Band 66	Edge 1	1.159	0mm	-5.97	84.11	-1.82	98.3	1.48	0.02	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
	WLAN2.4G_Ant 1	Edge 1	0.94	0mm	-1.38	-99.03	-4.02	90.7	1.39	0.02	Not required
	WLAN2.4G_Ant 2		0.445	0mm	4.86	-8.61	-1.32				
	WLAN5G_Ant 1+BT Ant 1	Edge 1	1.111	0mm	-0.78	-95.61	-2.49	81.6	1.43	0.02	Not required
	WLAN5G_Ant 2		0.323	0mm	0.04	-14	-4.06				
	WLAN2.4G_Ant 2	Edge 1	0.445	0mm	4.86	-8.61	-1.32	87.2	0.45	0.00	Not required
	BT_Ant 1		0.001	0mm	-0.78	-95.61	-2.49				

Test Engineer : Willie Huang and Jay Jian

16. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be $\leq 30\%$, for a confidence interval of $k = 2$. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg. Therefore, the measurement uncertainty table is not required in this report.

Declaration of Conformity:

The test results with all measurement uncertainty excluded is presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

17. References

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
- [3] IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", Sep 2013
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 248227 D01 v02r02, "SAR Guidance for IEEE 802.11 (WiFi) Transmitters", Oct 2015.
- [6] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [7] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [8] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [9] FCC KDB 616217 D04 v01r02, "SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers", Oct 2015
- [10] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [11] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.