FCC SAR TEST REPORT

FCC ID	:	**2AQ68T99W175**
Equipment	:	**5G WWAN Module**
Brand Name	:	**FOXCONN**
Model Name	:	**T99W175**
Applicant	:	**Hon Lin Technology Co., Ltd. 11F, No.32, Jihu Rd., Neihu Dist., Taipei City, Taiwan 114**
Manufacturer	:	**Hon Lin Technology Co., Ltd. 11F, No.32, Jihu Rd., Neihu Dist., Taipei City, Taiwan 114**
Standard	:	**FCC 47 CFR Part 2 (2.1093)**

The product was installed into Notebook Computer (Brand Name DELL, Model Name: P149G, P149G001) during test.

The product was received on Jul 08, 2021 and testing was started from Aug 07, 2021 and completed on Aug 17, 2021. 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

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History of this test report

Report No.	Version	Description	Issued Date
FA171610	01	Initial issue of report	Sep. 27, 2021

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Hon Lin Technology Co., Ltd., 5G WWAN Module, T99W175, are as follows.

Equipment Class	Frequency Band		Highest SAR Summary Body (Separation 0mm) 1g SAR (W/kg)	Highest Simultaneous Transmission 1g SAR (W/kg)
Licensed	WCDMA	WCDMA II	< 0.01	< 0.01
		WCDMA IV	< 0.01	
		WCDMA V	< 0.01	
	LTE	LTE Band 2	< 0.01	
		LTE Band 7	< 0.01	
		LTE Band 12 / 17	< 0.01	
		LTE Band 13	< 0.01	
		LTE Band 14	< 0.01	
		LTE Band 25	< 0.01	
		LTE Band 5 / 26	< 0.01	
		LTE Band 30	< 0.01	
		LTE Band 38 / 41	< 0.01	
		LTE Band 4 / 66	< 0.01	
		LTE Band 42 / 48	< 0.01	
	FR1	FR1 n2	< 0.01	
		FR1 n5	< 0.01	
		FR1 n7	< 0.01	
		FR1 n12	< 0.01	
		FR1 n41	< 0.01	
		FR1 n66	< 0.01	
Date of Testing:			2021/8/7 ~ 2021/8/17	

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 for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) 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: Carlie Tsai

2. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards, the below KDB and IEC/IEEE standard may not including in the TAF code without accreditation.

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- IEC/IEEE 62209-1528:2020

3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	5G WWAN Module
Brand Name	FOXCONN
Model Name	T99W175
FCC ID	2AQ68T99W175
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 42: 3550 MHz ~ 3600 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz RFID : 13.56 MHz
Mode	RMC 12.2Kbps HSDPA HSUPA DC-HSDPA LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM RFID: ASK

Host Information	
Equipment Name	Notebook Computer
Brand Name	DELL
Model Name	P149G, P149G001
EUT Stage	Design Verification Test

WLAN Module Information	
FCC ID	PD9AX210NG
Integrated WLAN Module	Brand Name: Intel Model Name: AX210NGW
Wireless Technology and Frequency Range	WLAN 2.4 GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2 GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3 GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.6 GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8 GHz Band: 5725 MHz ~ 5850 MHz WLAN 6E: 5925 MHz ~ 6425 MHz, 6425 MHz ~ 6525 MHz, 6525 MHz ~ 6875 MHz, 6875 MHz ~ 7125 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz
Mode	WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE
Remark: 1. The Intel AX210NGW (FCC ID: PD9AX210NG) WLAN/BT module is also integrated into DELL P149G, P149G001 host. In this report section14.2 additional WLAN/BT SAR to evaluated Sim-Tx analysis with WWAN transmitter	

3.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	2AQ68T99W175
Equipment Name	5G WWAN Module
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 42: 3550 MHz ~ 3600 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 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 42: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
uplink modulations used	QPSK / 16QAM / 64QAM / 256QAM
LTE Voice / Data requirements	Data only
LTE MPR permanently built-in by design	**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

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.
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 10.
LTE Carrier Aggregation Additional Information	This device supports maximum of 6 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)
L	20407	824.7	20415	825.5	20425	826.5	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844
LTE Band 7								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560
LTE Band 12								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711
LTE Band 13						
	Bandwidth 5 MHz			Bandwidth 10 MHz		
	Channel #		Freq.(MHz)	Channel #		Freq.(MHz)
L	23205		779.5	23230		782
M	23230		782			
H	23255		784.5			
LTE Band 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)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5

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

LTE Band 38								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610

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

LTE Band 42								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	43315	3552.5	43140	3555	43165	3557.5	43190	3560
M	43340	3575	43340	3575	43340	3575	43340	3575
H	43565	3597.5	43540	3595	43515	3592.5	43490	3590

LTE Band 48								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	55265	3552.5	55290	3555	55315	3557.5	55340	3560
LM	55810	3607	55815	3607.5	55820	3608	55830	3609
MH	56170	3643	56165	3642.5	56160	3642	56150	3641
H	56715	3697.5	56690	3695	56665	3692.5	56640	3690

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

3.3 General 5G NR SAR Test and Reporting Considerations

5G NR Information	
FCC ID	2AQ68T99W175
Equipment Name	5G WWAN Module
Operating Frequency Range of each 5G NR transmission band	5G NR n2: 1850 MHz ~ 1910 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n12: 699 MHz ~ 716 MHz 5G NR n41: 2496 MHz ~ 2690 MHz 5G NR n66: 1710 MHz ~ 1780 MHz
Channel Bandwidth	5G NR n2: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n5: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n7: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n12: 5MHz, 10MHz, 15MHz 5G NR n41: 20MHz, 40MHz, 50MHz, 60MHz, 80MHz, 90MHz, 100MHz 5G NR n66: 5MHz, 10MHz, 15MHz, 20MHz
SCS	FDD: SCS15KHz, TDD: SCS30KHz
uplink modulations used	DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM CP-OFDM QPSK / 16QAM / 64QAM / 256QAM
A-MPR (Additional MPR) disabled for SAR Testing?	Yes
LTE Anchor Bands for n2	LTE B5/12/13/48
LTE Anchor Bands for n5	LTE B2/7/48/66
LTE Anchor Bands for n7	LTE B5/12
LTE Anchor Bands for n12	LTE B2/66
LTE Anchor Bands for n41	LTE B2/25/26/66
LTE Anchor Bands for n66	LTE B5/12/13/48

NR Band 2

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	370500	1852.5	371000	1855	371500	1857.5	372000	1860
M	376000	1880	376000	1880	376000	1880	376000	1880
H	381500	1907.5	381000	1905	380500	1902.5	380000	1900

NR Band 5

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	165300	826.5	165800	829	166300	831.5	166800	834
M	167300	836.5	167300	836.5	167300	836.5	167300	836.5
H	169300	846.5	168800	844	168300	841.5	167800	839

NR Band 7

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	500500	2502.5	501000	2505	501500	2507.5	502000	2510
M	507000	2535	507000	2535	507000	2535	507000	2535
H	513500	2567.5	513000	2565	512500	2562.5	512000	2560

NR Band 12

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	140300	701.5	140800	704	141300	706.5
M	141500	707.5	141500	707.5	141500	707.5
H	142700	713.5	142200	711	141700	708.5

NR Band 41

	Bandwidth20MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	501204	2506.02	503202	2516.01	504204	2521.02	505200	2526	507204	2536.02	508200	2541	509202	2546.01
M	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99
H	535998	2679.99	534000	2670	532998	2664.99	531996	2659.98	529998	2649.99	528996	2644.98	528000	2640

NR Band 66

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	342500	1712.5	343000	1715	343500	1717.5	344000	1720
M	349000	1745	349000	1745	349000	1745	349000	1745
H	355500	1777.5	355000	1775	354500	1772.5	354000	1770

4. RF Exposure Limits

4.1 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.

4.2 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.

5. Specific Absorption Rate (SAR)

5.1 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.

5.2 SAR Definition

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

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

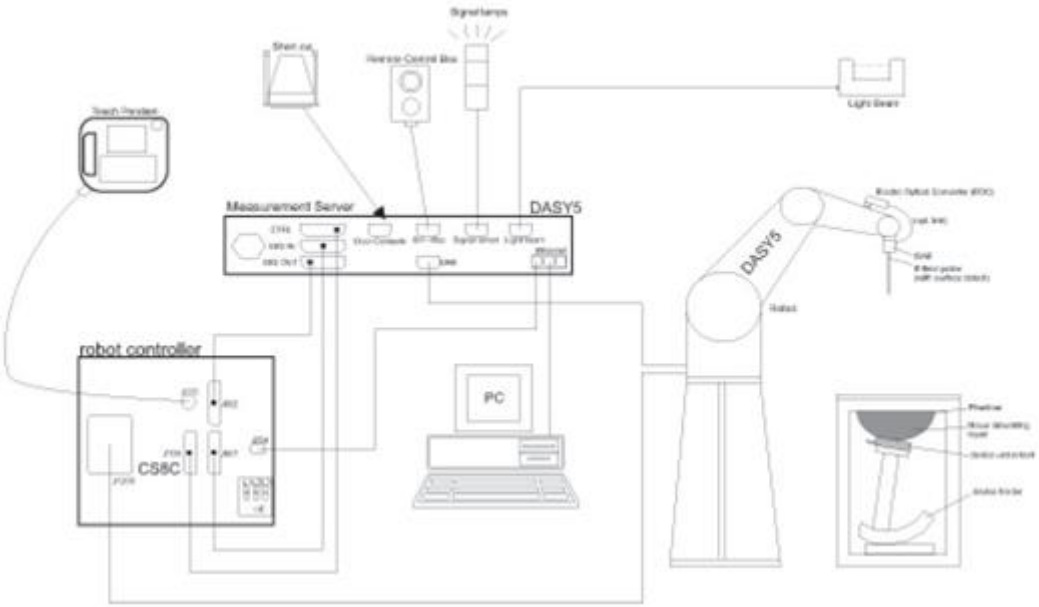
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

6. 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.

6.1 Test Site Location

The SAR measurement facilities used to collect data are within both Sporton Lab list below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190 and 3786) and the FCC designation No. TW1190 and TW3786 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

Test Site	EMC & Wireless Communications Laboratory		Wensan Laboratory		
Test Site Location	TW1190 No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan		TW3786 No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan		
Test Site No.	SAR01-HY	SAR03-HY	SAR08-HY	SAR09-HY	SAR15-HY
	SAR04-HY	SAR05-HY	SAR11-HY	SAR12-HY	
	SAR06-HY	SAR10-HY	SAR13-HY	SAR14-HY	

6.2 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 µW/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 µW/g – >100 mW/g Linearity: ±0.2 dB (noise: typically <1 µW/g)	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

6.3 Data Acquisition Electronics (DAE)

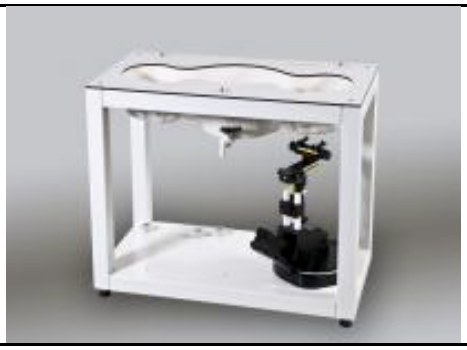
The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an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

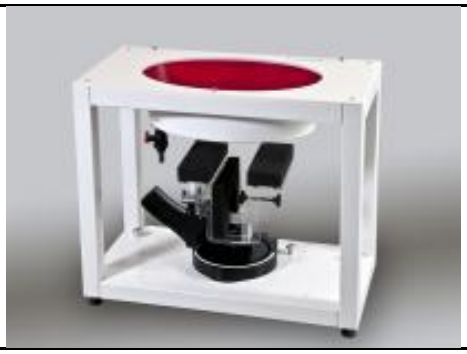
6.4 Phantom

<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.

6.5 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

7. 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

7.1 Spatial Peak SAR Evaluation

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

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

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

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

7.2 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.

7.3 Area Scan

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

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

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

7.4 Zoom Scan

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

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

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

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

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

7.5 Volume Scan Procedures

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

7.6 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.

8. 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. 05, 2022
SPEAG	835MHz System Validation Kit(2)	D835V2	4d167	Nov. 25, 2019	Nov. 23, 2021
SPEAG	1750MHz System Validation Kit(2)	D1750V2	1112	Mar. 07, 2019	Mar. 04, 2022
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. 25, 2022
SPEAG	2450MHz System Validation Kit(2)	D2450V2	736	Aug. 31, 2018	Aug. 28, 2021
SPEAG	2600MHz System Validation Kit(2)	D2600V2	1008	Aug. 31, 2018	Aug. 28, 2021
SPEAG	3500MHz System Validation Kit(2)	D3500V2	1014	Jan. 29, 2019	Jan. 26, 2022
SPEAG	3700MHz System Validation Kit(2)	D3700V2	1006	Mar. 05, 2019	Mar. 02, 2022
SPEAG	5GHz System Validation Kit(2)	D5GHzV2	1128	Dec. 16, 2019	Dec. 14, 2021
SPEAG	6500MHz System Validation Kit(2)	D6.5GHzV2	1003	Feb. 04, 2020	Feb. 02, 2022
SPEAG	Data Acquisition Electronics	DAE4	316	Jan. 19, 2021	Jan. 18, 2022
SPEAG	Data Acquisition Electronics	DAE4	1311	Aug. 25, 2020	Aug. 24, 2021
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	Apr. 23, 2021	Apr. 22, 2022
SPEAG	Dosimetric E-Field Probe	EX3DV4	3976	Jan. 27, 2021	Jan. 26, 2022
RCPTWN	Thermometer	HTC-1	TM685-1	Nov. 10, 2020	Nov. 09, 2021
RCPTWN	Thermometer	HTC-1	TM560-2	Nov. 10, 2020	Nov. 09, 2021
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Nov. 10, 2020	Nov. 09, 2021
Keysight	Wireless Communication Test Set	E5515C	MY50267236	Mar. 21, 2021	Mar. 20, 2022
R&S	BT Base Station	CBT	100815	Feb. 19, 2021	Feb. 18, 2022
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Nov. 11, 2020	Nov. 10, 2021
Keysight	ENA Network Analyzer	E5071C	MY46104758	Sep. 03, 2020	Sep. 02, 2021
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 16, 2020	Sep. 15, 2021
LINE SEIKI	Digital Thermometer	DTM3000-spezial	2942	Nov. 06, 2020	Nov. 05, 2021
Anritsu	Power Meter	ML2495A	2119003	Jun. 09, 2021	Jun. 08, 2022
Anritsu	Power Sensor	MA2411B	1911334	Jun. 01, 2021	May. 31, 2022
Anritsu	Power Meter	ML2495A	1804003	Oct. 21, 2020	Oct. 20, 2021
Anritsu	Power Sensor	MA2411B	1726150	Oct. 21, 2020	Oct. 20, 2021
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 27, 2020	Aug. 26, 2021
Anritsu	Spectrum Analyzer	N9010A	MY53470118	Jan. 15, 2021	Jan. 14, 2022
Mini-Circuits	Power Amplifier	ZVE-8G+	6418	Oct. 21, 2020	Oct. 20, 2021
Mini-Circuits	Power Amplifier	ZHL-42W+	715701915	May. 11, 2021	May. 10, 2022
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.

9. System Verification

9.1 Tissue Verification

The tissue dielectric parameters of tissue-equivalent media used for SAR measurements must be characterized within a temperature range of 18℃ to 25℃, measured with calibrated instruments and apparatuses, such as network analyzers and temperature probes. The temperature of the tissue-equivalent medium during SAR measurement must also be within 18℃ to 25℃ and within ± 2℃ of the temperature when the tissue parameters are characterized. The tissue dielectric measurement system must be calibrated before use. The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements.
The liquid tissue depth was at least 15cm in the phantom for all SAR testing

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	22.4	0.901	40.936	0.89	41.90	1.24	-2.30	±5	2021/8/8
835	22.4	0.896	42.792	0.90	41.50	-0.44	3.11	±5	2021/8/8
1750	22.5	1.382	40.730	1.37	40.10	0.88	1.57	±5	2021/8/9
1750	22.5	1.382	40.730	1.37	40.10	0.88	1.57	±5	2021/8/9
1900	22.5	1.429	39.314	1.40	40.00	2.07	-1.72	±5	2021/8/9
1900	22.5	1.429	39.314	1.40	40.00	2.07	-1.72	±5	2021/8/9
2300	22.4	1.622	39.730	1.67	39.50	-2.87	0.58	±5	2021/8/7
2450	22.5	1.787	39.183	1.80	39.20	-0.72	-0.04	±5	2021/8/10
2600	22.4	1.955	38.607	1.96	39.00	-0.26	-1.01	±5	2021/8/7
2600	22.4	1.955	38.607	1.96	39.00	-0.26	-1.01	±5	2021/8/7
3500	22.4	2.916	38.043	2.91	37.90	0.21	0.38	±5	2021/8/8
3700	22.4	3.121	37.817	3.12	37.70	0.03	0.31	±5	2021/8/8
5250	22.3	4.548	36.099	4.71	35.95	-3.44	0.41	±5	2021/8/11
5250	22.3	4.548	36.099	4.71	35.95	-3.44	0.41	±5	2021/8/11
5600	22.3	4.902	35.617	5.07	35.50	-3.31	0.33	±5	2021/8/11
5600	22.3	4.902	35.617	5.07	35.50	-3.31	0.33	±5	2021/8/11
5750	22.3	5.051	35.341	5.22	35.35	-3.24	-0.03	±5	2021/8/11
6500	22.5	6.100	35.600	6.07	34.50	0.49	3.19	±5	2021/8/17

9.2 System Performance Check Results

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

Test Site	Date	Frequency (MHz)	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 (%)
SAR01	2021/8/8	750	50	D750V3-1107	EX3DV4 - SN3925	DAE4 Sn1311	0.399	8.32	7.98	-4.09
SAR01	2021/8/8	835	50	D835V2-4d167	EX3DV4 - SN3925	DAE4 Sn1311	0.442	9.55	8.84	-7.43
SAR01	2021/8/9	1750	50	D1750V2-1112	EX3DV4 - SN3925	DAE4 Sn1311	1.83	36.70	36.6	-0.27
SAR01	2021/8/9	1750	50	D1750V2-1112	EX3DV4 - SN3925	DAE4 Sn316	1.83	36.70	36.6	-0.27
SAR01	2021/8/9	1900	50	D1900V2-5d041	EX3DV4 - SN3925	DAE4 Sn1311	1.96	40.20	39.2	-2.49
SAR01	2021/8/9	1900	50	D1900V2-5d041	EX3DV4 - SN3925	DAE4 Sn316	1.95	40.20	39	-2.99
SAR01	2021/8/7	2300	50	D2300V2-1006	EX3DV4 - SN3925	DAE4 Sn1311	2.32	48.70	46.4	-4.72
SAR01	2021/8/10	2450	50	D2450V2-736	EX3DV4 - SN3925	DAE4 Sn1311	2.43	52.70	48.6	-7.78
SAR01	2021/8/7	2600	50	D2600V2-1008	EX3DV4 - SN3925	DAE4 Sn1311	2.57	56.40	51.4	-8.87
SAR01	2021/8/7	2600	50	D2600V2-1008	EX3DV4 - SN3925	DAE4 Sn316	2.59	56.40	51.8	-8.16
SAR01	2021/8/8	3500	50	D3500V2-1014	EX3DV4 - SN3925	DAE4 Sn1311	3.21	67.90	64.2	-5.45
SAR01	2021/8/8	3700	50	D3700V2-1006	EX3DV4 - SN3925	DAE4 Sn1311	3.19	67.30	63.8	-5.20
SAR01	2021/8/11	5250	100	D5GHzV2-1128-5250	EX3DV4 - SN3925	DAE4 Sn1311	7.23	80.00	72.3	-9.62
SAR01	2021/8/11	5250	100	D5GHzV2-1128-5250	EX3DV4 - SN3925	DAE4 Sn316	7.42	80.00	74.2	-7.25
SAR01	2021/8/11	5600	100	D5GHzV2-1128-5600	EX3DV4 - SN3925	DAE4 Sn1311	7.72	82.40	77.2	-6.31
SAR01	2021/8/11	5600	100	D5GHzV2-1128-5600	EX3DV4 - SN3925	DAE4 Sn316	7.69	82.40	76.9	-6.67
SAR01	2021/8/11	5750	100	D5GHzV2-1128-5750	EX3DV4 - SN3925	DAE4 Sn1311	7.31	79.10	73.1	-7.59
SAR05	2021/8/17	6500	100	D6.5GHzV2-1003	EX3DV4 - SN3976	DAE4 Sn316	30.70	299.00	307	2.68

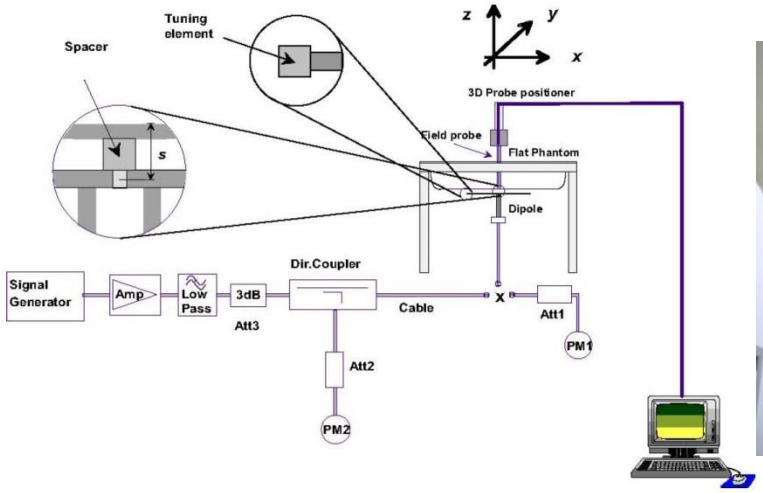


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

10. 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} (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

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

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

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

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

Setup Configuration

HSUPA Setup Configuration:

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

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c . For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * β_c .

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

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

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

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

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

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

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	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.		

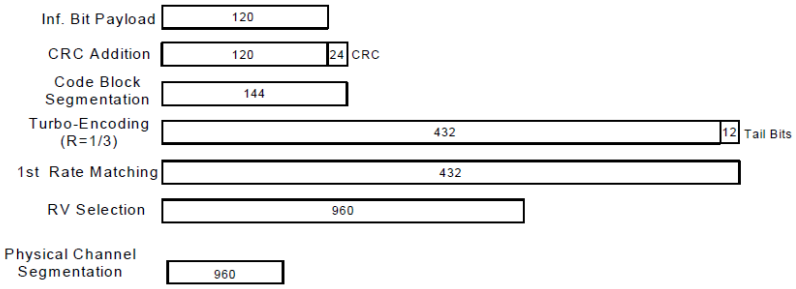


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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 ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

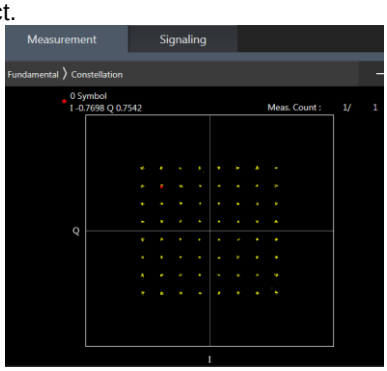
Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	RMC 12.2Kbps	23.29	23.45	23.26	24.50	23.40	23.44	23.52	24.50	23.82	23.84	23.71	24.50
3GPP Rel 6	HSDPA Subtest-1	22.29	22.44	22.26	23.50	22.39	22.43	22.51	23.50	22.81	22.84	22.71	23.50
3GPP Rel 6	HSDPA Subtest-2	22.28	22.45	22.27	23.50	22.38	22.44	22.53	23.50	22.79	22.81	22.70	23.50
3GPP Rel 6	HSDPA Subtest-3	21.81	21.96	21.78	23.00	21.89	21.94	22.02	23.00	22.31	22.33	22.19	23.00
3GPP Rel 6	HSDPA Subtest-4	21.79	21.95	21.79	23.00	21.88	21.95	22.03	23.00	22.30	22.35	22.18	23.00
3GPP Rel 8	DC-HSDPA Subtest-1	22.29	22.44	22.26	23.50	22.39	22.43	22.51	23.50	22.81	22.84	22.71	23.50
3GPP Rel 8	DC-HSDPA Subtest-2	22.28	22.45	22.27	23.50	22.38	22.44	22.53	23.50	22.79	22.81	22.70	23.50
3GPP Rel 8	DC-HSDPA Subtest-3	21.81	21.96	21.78	23.00	21.89	21.94	22.02	23.00	22.31	22.33	22.19	23.00
3GPP Rel 8	DC-HSDPA Subtest-4	21.79	21.95	21.79	23.00	21.88	21.95	22.03	23.00	22.30	22.35	22.18	23.00
3GPP Rel 6	HSUPA Subtest-1	22.28	22.44	22.25	23.50	22.40	22.45	22.52	23.50	22.80	22.85	22.73	23.50
3GPP Rel 6	HSUPA Subtest-2	20.25	20.40	20.24	21.50	20.39	20.46	20.52	21.50	20.78	20.79	20.68	21.50
3GPP Rel 6	HSUPA Subtest-3	21.27	21.42	21.26	22.50	21.37	21.44	21.50	22.50	21.77	21.78	21.70	22.50
3GPP Rel 6	HSUPA Subtest-4	20.26	20.41	20.25	21.50	20.38	20.47	20.53	21.50	20.76	20.78	20.69	21.50
3GPP Rel 6	HSUPA Subtest-5	22.30	22.45	22.27	23.50	22.41	22.46	22.53	23.50	22.79	22.88	22.75	23.50

<LTE Conducted Power>

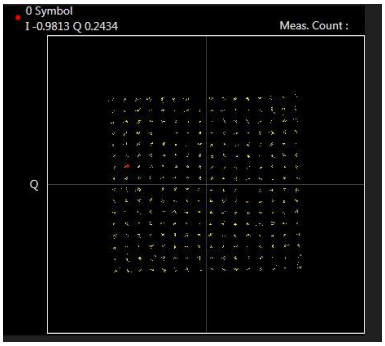
General Note:

1. Anritsu MT8821C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4/B5/B12/B17/B26/B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE band 4/5/17/38/42 SAR test was covered by Band 66/26/12/41/48; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 16QAM, 64QAM, 256QAM 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 16QAM, 64QAM, 256QAM signal modulation are correct.

16QAM



64QAM



256QAM

<LTE Band 2 Main>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	22.52	22.30	22.33	24	0
20	QPSK	1	49	22.33	22.37	22.13		
20	QPSK	1	99	22.28	22.16	22.29		
20	QPSK	50	0	21.58	21.49	21.41	23	1
20	QPSK	50	24	21.45	21.46	21.51		
20	QPSK	50	50	21.54	21.48	21.36		
20	QPSK	100	0	21.53	21.47	21.47		
20	16QAM	1	0	22.01	21.82	21.92	23	1
20	16QAM	1	49	21.72	21.31	21.81		
20	16QAM	1	99	21.94	21.68	21.83		
20	16QAM	50	0	20.42	20.40	20.44	22	2
20	16QAM	50	24	20.53	20.47	20.53		
20	16QAM	50	50	20.51	20.45	20.51		
20	16QAM	100	0	20.43	20.39	20.46		
20	64QAM	1	0	20.34	20.22	20.58	22	2
20	64QAM	1	49	20.41	20.65	20.15		
20	64QAM	1	99	20.78	20.62	20.49		
20	64QAM	50	0	19.42	19.41	19.52	21	3
20	64QAM	50	24	19.62	19.47	19.55		
20	64QAM	50	50	19.60	19.51	19.46		
20	64QAM	100	0	19.53	19.45	19.49		
20	256QAM	1	0	18.89	18.77	19.10	20	4
20	256QAM	1	49	19.01	19.25	18.70		
20	256QAM	1	99	19.30	19.20	19.09		
20	256QAM	50	0	18.02	17.94	18.09	19.5	4.5
20	256QAM	50	24	18.22	18.07	18.15		
20	256QAM	50	50	18.12	18.10	17.97		
20	256QAM	100	0	18.13	18.05	17.99		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.49	22.21	22.32	24	0
15	QPSK	1	37	22.29	22.36	22.04		
15	QPSK	1	74	22.24	22.14	22.22		
15	QPSK	36	0	21.36	21.40	21.39	23	1
15	QPSK	36	20	21.45	21.44	21.48		
15	QPSK	36	39	21.47	21.44	21.33		
15	QPSK	75	0	21.48	21.38	21.41		
15	16QAM	1	0	21.98	21.74	21.86	23	1
15	16QAM	1	37	21.70	21.30	21.80		
15	16QAM	1	74	21.93	21.66	21.80		
15	16QAM	36	0	20.34	20.32	20.34	22	2
15	16QAM	36	20	20.50	20.41	20.49		
15	16QAM	36	39	20.50	20.35	20.43		
15	16QAM	75	0	20.42	20.35	20.44		
15	64QAM	1	0	20.27	20.20	20.53	22	2
15	64QAM	1	37	20.35	20.65	20.13		
15	64QAM	1	74	20.72	20.53	20.41		
15	64QAM	36	0	19.33	19.35	19.48	21	3
15	64QAM	36	20	19.58	19.43	19.51		
15	64QAM	36	39	19.56	19.46	19.46		
15	64QAM	75	0	19.49	19.36	19.49		

15	256QAM	1	0	18.87	18.75	19.11	20	4
15	256QAM	1	37	18.93	19.24	18.66		
15	256QAM	1	74	19.26	19.06	19.00		
15	256QAM	36	0	17.87	17.93	18.07	19.5	4.5
15	256QAM	36	20	18.08	18.03	18.04		
15	256QAM	36	39	18.12	17.97	17.99		
15	256QAM	75	0	18.02	17.86	18.05		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.44	22.11	22.30	24	0
10	QPSK	1	25	22.23	22.29	22.24		
10	QPSK	1	49	22.14	22.09	22.21		
10	QPSK	25	0	21.35	21.39	21.31	23	1
10	QPSK	25	12	21.41	21.40	21.39		
10	QPSK	25	25	21.45	21.39	21.28		
10	QPSK	50	0	21.44	21.38	21.40		
10	16QAM	1	0	21.89	21.66	21.84	23	1
10	16QAM	1	25	21.69	21.27	21.78		
10	16QAM	1	49	21.89	21.61	21.74		
10	16QAM	25	0	20.30	20.29	20.29	22	2
10	16QAM	25	12	20.41	20.31	20.42		
10	16QAM	25	25	20.50	20.30	20.36		
10	16QAM	50	0	20.42	20.28	20.43		
10	64QAM	1	0	20.20	20.15	20.52	22	2
10	64QAM	1	25	20.34	20.61	20.07		
10	64QAM	1	49	20.66	20.50	20.31		
10	64QAM	25	0	19.24	19.28	19.40	21	3
10	64QAM	25	12	19.53	19.40	19.42		
10	64QAM	25	25	19.48	19.37	19.45		
10	64QAM	50	0	19.39	19.30	19.39		
10	256QAM	1	0	18.75	18.70	19.03	20	4
10	256QAM	1	25	18.85	19.12	18.65		
10	256QAM	1	49	19.18	19.03	18.87		
10	256QAM	25	0	17.75	17.81	17.99	19.5	4.5
10	256QAM	25	12	18.07	17.96	17.96		
10	256QAM	25	25	18.07	17.90	18.05		
10	256QAM	50	0	17.94	17.80	17.97		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.35	22.07	22.24	24	0
5	QPSK	1	12	22.21	22.29	22.14		
5	QPSK	1	24	22.12	22.04	22.20		
5	QPSK	12	0	21.35	21.36	21.24	23	1
5	QPSK	12	7	21.37	21.34	21.38		
5	QPSK	12	13	21.39	21.38	21.27		
5	QPSK	25	0	21.34	21.28	21.30		
5	16QAM	1	0	21.80	21.65	21.76	23	1
5	16QAM	1	12	21.69	21.19	21.72		
5	16QAM	1	24	21.86	21.57	21.72		
5	16QAM	12	0	20.27	20.29	20.29	22	2
5	16QAM	12	7	20.36	20.27	20.35		
5	16QAM	12	13	20.43	20.22	20.35		
5	16QAM	25	0	20.42	20.19	20.38		
5	64QAM	1	0	20.14	20.15	20.51	22	2
5	64QAM	1	12	20.34	20.51	20.01		
5	64QAM	1	24	20.61	20.48	20.25		

5	64QAM	12	0	19.22	19.20	19.32	21	3
5	64QAM	12	7	19.51	19.40	19.32		
5	64QAM	12	13	19.41	19.27	19.35		
5	64QAM	25	0	19.34	19.30	19.36		
5	256QAM	1	0	18.68	18.72	19.11	20	4
5	256QAM	1	12	18.90	19.05	18.54		
5	256QAM	1	24	19.18	19.06	18.83		
5	256QAM	12	0	17.72	17.72	17.90	19.5	4.5
5	256QAM	12	7	18.03	17.97	17.86		
5	256QAM	12	13	17.96	17.80	17.91		
5	256QAM	25	0	17.90	17.88	17.90		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.28	22.06	22.19	24	0
3	QPSK	1	8	22.11	22.23	22.14		
3	QPSK	1	14	22.03	22.17	22.19		
3	QPSK	8	0	21.35	21.32	21.21	23	1
3	QPSK	8	4	21.35	21.27	21.32		
3	QPSK	8	7	21.29	21.28	21.19		
3	QPSK	15	0	21.28	21.18	21.26		
3	16QAM	1	0	21.75	21.60	21.66	23	1
3	16QAM	1	8	21.63	21.18	21.69		
3	16QAM	1	14	21.77	21.47	21.62		
3	16QAM	8	0	20.17	20.21	20.26	22	2
3	16QAM	8	4	20.26	20.17	20.26		
3	16QAM	8	7	20.39	20.19	20.33		
3	16QAM	15	0	20.38	20.09	20.30		
3	64QAM	1	0	20.05	20.07	20.46	22	2
3	64QAM	1	8	20.29	20.41	20.37		
3	64QAM	1	14	20.61	20.41	20.24		
3	64QAM	8	0	19.22	19.13	19.28	21	3
3	64QAM	8	4	19.43	19.32	19.31		
3	64QAM	8	7	19.35	19.25	19.30		
3	64QAM	15	0	19.25	19.20	19.31		
3	256QAM	1	0	18.61	18.62	19.06	20	4
3	256QAM	1	8	18.80	18.96	18.88		
3	256QAM	1	14	19.15	18.93	18.74		
3	256QAM	8	0	17.76	17.67	17.78	19.5	4.5
3	256QAM	8	4	17.93	17.89	17.88		
3	256QAM	8	7	17.91	17.79	17.83		
3	256QAM	15	0	17.75	17.72	17.83		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.18	22.00	22.09	24	0
1.4	QPSK	1	3	22.03	22.18	22.14		
1.4	QPSK	1	5	22.03	22.15	22.17		
1.4	QPSK	3	0	22.27	22.06	22.14		
1.4	QPSK	3	1	22.04	22.18	22.13		
1.4	QPSK	3	3	22.01	22.17	22.12		
1.4	QPSK	6	0	21.24	21.11	21.19	23	1
1.4	16QAM	1	0	21.70	21.58	21.61	23	1
1.4	16QAM	1	3	21.55	21.11	21.60		
1.4	16QAM	1	5	21.67	21.43	21.53		
1.4	16QAM	3	0	21.68	21.55	21.56		
1.4	16QAM	3	1	21.58	21.16	21.62		
1.4	16QAM	3	3	21.75	21.40	21.53		

1.4	16QAM	6	0	20.34	20.04	20.24	22	2
1.4	64QAM	1	0	20.29	20.07	20.20	22	2
1.4	64QAM	1	3	20.26	20.33	20.32		
1.4	64QAM	1	5	20.58	20.31	20.20		
1.4	64QAM	3	0	20.00	20.04	20.45		
1.4	64QAM	3	1	20.23	20.41	20.35		
1.4	64QAM	3	3	20.61	20.31	20.18		
1.4	64QAM	6	0	19.22	19.10	19.25	21	3
1.4	256QAM	1	0	18.85	18.65	18.74	20	4
1.4	256QAM	1	3	18.86	18.87	18.88		
1.4	256QAM	1	5	19.09	18.84	18.70		
1.4	256QAM	3	0	18.57	18.57	18.96		
1.4	256QAM	3	1	18.74	18.94	18.91		
1.4	256QAM	3	3	19.11	18.91	18.74		
1.4	256QAM	6	0	17.77	17.63	17.85	19.5	4.5

<LTE Band 2_Aux 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	22.70	22.82	22.79	24	0
20	QPSK	1	49	22.71	22.74	22.65		
20	QPSK	1	99	22.68	22.71	22.70		
20	QPSK	50	0	21.83	21.94	21.80	23	1
20	QPSK	50	24	21.83	21.85	21.77		
20	QPSK	50	50	21.88	21.92	21.82		
20	QPSK	100	0	21.79	21.85	21.78		
20	16QAM	1	0	22.10	22.20	22.16	23	1
20	16QAM	1	49	22.11	22.13	22.10		
20	16QAM	1	99	22.13	22.16	22.09		
20	16QAM	50	0	20.72	20.77	20.73	22	2
20	16QAM	50	24	20.80	20.86	20.85		
20	16QAM	50	50	20.89	20.98	20.94		
20	16QAM	100	0	20.74	20.83	20.77		
20	64QAM	1	0	20.60	20.67	20.58	22	2
20	64QAM	1	49	20.86	20.87	20.82		
20	64QAM	1	99	20.86	20.86	20.77		
20	64QAM	50	0	19.87	19.89	19.81	21	3
20	64QAM	50	24	19.81	19.90	19.89		
20	64QAM	50	50	19.99	20.01	20.01		
20	64QAM	100	0	19.77	19.83	19.78		
20	256QAM	1	0	19.12	19.20	19.13	19.5	4.5
20	256QAM	1	49	19.46	19.38	19.33		
20	256QAM	1	99	19.41	19.45	19.30		
20	256QAM	50	0	18.43	18.45	18.41	19.5	4.5
20	256QAM	50	24	18.38	18.40	18.39		
20	256QAM	50	50	18.53	18.52	18.55		
20	256QAM	100	0	18.35	18.39	18.35		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.69	22.74	22.79	24	0
15	QPSK	1	37	22.64	22.73	22.65		
15	QPSK	1	74	22.67	22.65	22.68		

15	QPSK	36	0	21.83	21.78	21.70	23	1
15	QPSK	36	20	21.77	21.75	21.69		
15	QPSK	36	39	21.82	21.87	21.73		
15	QPSK	75	0	21.77	21.81	21.71		
15	16QAM	1	0	22.07	22.12	22.13	23	1
15	16QAM	1	37	22.03	22.07	22.10		
15	16QAM	1	74	22.13	22.11	22.00		
15	16QAM	36	0	20.65	20.76	20.67	22	2
15	16QAM	36	20	20.76	20.77	20.82		
15	16QAM	36	39	20.89	20.98	20.85		
15	16QAM	75	0	20.73	20.77	20.73		
15	64QAM	1	0	20.59	20.61	20.51	22	2
15	64QAM	1	37	20.79	20.84	20.73		
15	64QAM	1	74	20.82	20.83	20.76		
15	64QAM	36	0	19.82	19.88	19.76	21	3
15	64QAM	36	20	19.80	19.84	19.83		
15	64QAM	36	39	19.99	19.98	19.93		
15	64QAM	75	0	19.69	19.73	19.76		
15	256QAM	1	0	19.17	19.13	19.06	19.5	4.5
15	256QAM	1	37	19.33	19.44	19.24		
15	256QAM	1	74	19.33	19.33	19.36		
15	256QAM	36	0	18.40	18.39	18.30	19.5	4.5
15	256QAM	36	20	18.35	18.38	18.40		
15	256QAM	36	39	18.49	18.57	18.50		
15	256QAM	75	0	18.27	18.31	18.30		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.68	22.70	22.70	24	0
10	QPSK	1	25	22.61	22.70	22.58		
10	QPSK	1	49	22.65	22.60	22.58		
10	QPSK	25	0	21.73	21.69	21.67	23	1
10	QPSK	25	12	21.70	21.73	21.65		
10	QPSK	25	25	21.79	21.78	21.69		
10	QPSK	50	0	21.68	21.81	21.65		
10	16QAM	1	0	22.03	22.05	22.05	23	1
10	16QAM	1	25	21.99	22.00	22.07		
10	16QAM	1	49	22.13	22.02	21.97		
10	16QAM	25	0	20.58	20.71	20.66	22	2
10	16QAM	25	12	20.70	20.68	20.77		
10	16QAM	25	25	20.84	20.89	20.81		
10	16QAM	50	0	20.65	20.76	20.69		
10	64QAM	1	0	20.59	20.53	20.51	22	2
10	64QAM	1	25	20.79	20.78	20.66		
10	64QAM	1	49	20.79	20.74	20.67		
10	64QAM	25	0	19.72	19.87	19.75	21	3
10	64QAM	25	12	19.70	19.75	19.81		
10	64QAM	25	25	19.90	19.91	19.90		
10	64QAM	50	0	19.61	19.63	19.67		
10	256QAM	1	0	19.10	19.12	19.07	19.5	4.5
10	256QAM	1	25	19.29	19.29	19.26		
10	256QAM	1	49	19.31	19.25	19.27		
10	256QAM	25	0	18.22	18.47	18.31	19.5	4.5
10	256QAM	25	12	18.21	18.26	18.40		
10	256QAM	25	25	18.44	18.45	18.42		
10	256QAM	50	0	18.21	18.15	18.24		
Channel				18625	18900	19175	Tune-up limit	MPR

Frequency (MHz)				1852.5	1880	1907.5	(dBm)	(dB)
5	QPSK	1	0	22.59	22.65	22.60	24	0
5	QPSK	1	12	22.56	22.62	22.51		
5	QPSK	1	24	22.60	22.50	22.57		
5	QPSK	12	0	21.64	21.61	21.60	23	1
5	QPSK	12	7	21.65	21.63	21.65		
5	QPSK	12	13	21.70	21.70	21.64		
5	QPSK	25	0	21.59	21.78	21.56		
5	16QAM	1	0	21.97	22.02	21.95	23	1
5	16QAM	1	12	21.91	21.92	22.06		
5	16QAM	1	24	22.04	21.97	21.88		
5	16QAM	12	0	20.54	20.69	20.59	22	2
5	16QAM	12	7	20.69	20.65	20.76		
5	16QAM	12	13	20.83	20.80	20.74		
5	16QAM	25	0	20.61	20.72	20.66		
5	64QAM	1	0	20.55	20.48	20.45	22	2
5	64QAM	1	12	20.70	20.74	20.65		
5	64QAM	1	24	20.73	20.67	20.61		
5	64QAM	12	0	19.69	19.85	19.70	21	3
5	64QAM	12	7	19.68	19.73	19.73		
5	64QAM	12	13	19.90	19.82	19.87		
5	64QAM	25	0	19.53	19.60	19.67		
5	256QAM	1	0	19.05	18.99	19.02	19.5	4.5
5	256QAM	1	12	19.26	19.26	19.25		
5	256QAM	1	24	19.32	19.18	19.17		
5	256QAM	12	0	18.27	18.37	18.29	19.5	4.5
5	256QAM	12	7	18.26	18.24	18.27		
5	256QAM	12	13	18.47	18.36	18.45		
5	256QAM	25	0	18.12	18.19	18.20		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.57	22.64	22.53	24	0
3	QPSK	1	8	22.53	22.56	22.46		
3	QPSK	1	14	22.53	22.50	22.49		
3	QPSK	8	0	21.62	21.51	21.58	23	1
3	QPSK	8	4	21.56	21.53	21.56		
3	QPSK	8	7	21.67	21.62	21.55		
3	QPSK	15	0	21.51	21.68	21.50		
3	16QAM	1	0	21.96	21.95	21.86	23	1
3	16QAM	1	8	21.87	21.89	22.05		
3	16QAM	1	14	22.00	21.96	21.82		
3	16QAM	8	0	20.47	20.68	20.54	22	2
3	16QAM	8	4	20.68	20.63	20.66		
3	16QAM	8	7	20.81	20.77	20.71		
3	16QAM	15	0	20.52	20.66	20.64		
3	64QAM	1	0	20.52	20.46	20.43	22	2
3	64QAM	1	8	20.67	20.69	20.55		
3	64QAM	1	14	20.67	20.62	20.57		
3	64QAM	8	0	19.65	19.79	19.64	21	3
3	64QAM	8	4	19.68	19.70	19.64		
3	64QAM	8	7	19.86	19.75	19.87		
3	64QAM	15	0	19.52	19.55	19.62		
3	256QAM	1	0	19.12	18.99	19.03	19.5	4.5
3	256QAM	1	8	19.17	19.26	19.11		
3	256QAM	1	14	19.20	19.13	19.13		
3	256QAM	8	0	18.20	18.29	18.20	19.5	4.5

3	256QAM	8	4	18.27	18.20	18.22		
3	256QAM	8	7	18.37	18.30	18.41		
3	256QAM	15	0	18.07	18.06	18.20		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.56	22.59	22.52	24	0
1.4	QPSK	1	3	22.44	22.49	22.43		
1.4	QPSK	1	5	22.48	22.45	22.45		
1.4	QPSK	3	0	22.47	22.63	22.43		
1.4	QPSK	3	1	22.44	22.47	22.42		
1.4	QPSK	3	3	22.44	22.48	22.43		
1.4	QPSK	6	0	21.50	21.64	21.40	23	1
1.4	16QAM	1	0	21.96	21.92	21.78	23	1
1.4	16QAM	1	3	21.81	21.89	21.96		
1.4	16QAM	1	5	21.93	21.89	21.81		
1.4	16QAM	3	0	21.89	21.85	21.81		
1.4	16QAM	3	1	21.84	21.88	21.98		
1.4	16QAM	3	3	21.93	21.94	21.82		
1.4	16QAM	6	0	20.51	20.57	20.58	22	2
1.4	64QAM	1	0	20.52	20.46	20.39	22	2
1.4	64QAM	1	3	20.67	20.67	20.46		
1.4	64QAM	1	5	20.66	20.61	20.53		
1.4	64QAM	3	0	20.51	20.40	20.33		
1.4	64QAM	3	1	20.59	20.68	20.49		
1.4	64QAM	3	3	20.58	20.57	20.47		
1.4	64QAM	6	0	19.49	19.45	19.56	21	3
1.4	256QAM	1	0	19.03	19.00	18.97	19.5	4.5
1.4	256QAM	1	3	19.25	19.23	19.05		
1.4	256QAM	1	5	19.24	19.20	19.08		
1.4	256QAM	3	0	19.02	18.99	18.91		
1.4	256QAM	3	1	19.10	19.28	19.04		
1.4	256QAM	3	3	19.16	19.17	19.04		
1.4	256QAM	6	0	18.03	18.02	18.10	19.5	4.5

<LTE Band 4_Main>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	22.47	22.53	22.61	24	0
20	QPSK	1	49	22.26	22.31	22.44		
20	QPSK	1	99	22.56	22.59	22.38		
20	QPSK	50	0	21.57	21.64	21.69	23	1
20	QPSK	50	24	21.58	21.57	21.67		
20	QPSK	50	50	21.54	21.49	21.65		
20	QPSK	100	0	21.61	21.50	21.58		
20	16QAM	1	0	21.77	21.97	21.91	23	1
20	16QAM	1	49	21.78	21.99	21.81		
20	16QAM	1	99	21.53	21.57	21.92		
20	16QAM	50	0	20.56	20.59	20.67	22	2
20	16QAM	50	24	20.57	20.45	20.63		
20	16QAM	50	50	20.55	20.53	20.60		
20	16QAM	100	0	20.57	20.49	20.52		
20	64QAM	1	0	21.00	20.80	21.02	22	2

20	64QAM	1	49	20.54	20.61	20.69		
20	64QAM	1	99	20.42	20.58	20.34		
20	64QAM	50	0	19.68	19.73	19.66	21	3
20	64QAM	50	24	19.62	19.60	19.54		
20	64QAM	50	50	19.57	19.57	19.57		
20	64QAM	100	0	19.59	19.56	19.64		
20	256QAM	1	0	19.52	19.31	19.58	20	4
20	256QAM	1	49	19.11	19.16	19.19		
20	256QAM	1	99	18.96	19.09	18.85		
20	256QAM	50	0	18.22	18.24	18.23	19.5	4.5
20	256QAM	50	24	18.13	18.13	18.04		
20	256QAM	50	50	18.17	18.09	18.08		
20	256QAM	100	0	18.12	18.09	18.21		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.47	22.49	22.54	24	0
15	QPSK	1	37	22.26	22.27	22.35		
15	QPSK	1	74	22.50	22.49	22.32		
15	QPSK	36	0	21.56	21.61	21.63	23	1
15	QPSK	36	20	21.53	21.56	21.61		
15	QPSK	36	39	21.50	21.45	21.63		
15	QPSK	75	0	21.60	21.40	21.49		
15	16QAM	1	0	21.75	21.95	21.84	23	1
15	16QAM	1	37	21.77	21.95	21.78		
15	16QAM	1	74	21.47	21.54	21.87		
15	16QAM	36	0	20.54	20.53	20.65	22	2
15	16QAM	36	20	20.48	20.41	20.53		
15	16QAM	36	39	20.53	20.48	20.52		
15	16QAM	75	0	20.57	20.40	20.43		
15	64QAM	1	0	20.97	20.76	20.93	22	2
15	64QAM	1	37	20.45	20.56	20.61		
15	64QAM	1	74	20.35	20.48	20.27		
15	64QAM	36	0	19.59	19.63	19.62	21	3
15	64QAM	36	20	19.58	19.53	19.51		
15	64QAM	36	39	19.50	19.49	19.49		
15	64QAM	75	0	19.53	19.53	19.59		
15	256QAM	1	0	19.50	19.34	19.51	20	4
15	256QAM	1	37	19.02	19.10	19.18		
15	256QAM	1	74	18.94	19.05	18.83		
15	256QAM	36	0	18.11	18.21	18.13	19.5	4.5
15	256QAM	36	20	18.17	18.06	18.04		
15	256QAM	36	39	18.00	18.08	18.01		
15	256QAM	75	0	18.13	18.12	18.13		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.43	22.44	22.49	24	0
10	QPSK	1	25	22.17	22.27	22.35		
10	QPSK	1	49	22.40	22.48	22.22		
10	QPSK	25	0	21.53	21.53	21.53	23	1
10	QPSK	25	12	21.52	21.48	21.61		
10	QPSK	25	25	21.45	21.43	21.59		
10	QPSK	50	0	21.54	21.38	21.48		
10	16QAM	1	0	21.68	21.93	21.83	23	1
10	16QAM	1	25	21.68	21.91	21.68		
10	16QAM	1	49	21.44	21.54	21.85		
10	16QAM	25	0	20.52	20.46	20.57	22	2

10	16QAM	25	12	20.40	20.40	20.43		
10	16QAM	25	25	20.50	20.45	20.44		
10	16QAM	50	0	20.56	20.35	20.40		
10	64QAM	1	0	20.87	20.71	20.90	22	2
10	64QAM	1	25	20.42	20.50	20.61		
10	64QAM	1	49	20.30	20.48	20.21		
10	64QAM	25	0	19.49	19.63	19.60	21	3
10	64QAM	25	12	19.58	19.47	19.41		
10	64QAM	25	25	19.44	19.46	19.39		
10	64QAM	50	0	19.46	19.47	19.57		
10	256QAM	1	0	19.45	19.30	19.47	20	4
10	256QAM	1	25	19.02	19.09	19.18		
10	256QAM	1	49	18.85	19.00	18.80		
10	256QAM	25	0	18.08	18.19	18.19	19.5	4.5
10	256QAM	25	12	18.10	17.97	17.95		
10	256QAM	25	25	17.95	17.97	17.97		
10	256QAM	50	0	18.01	18.06	18.10		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.33	22.42	22.49	24	0
5	QPSK	1	12	22.15	22.23	22.27		
5	QPSK	1	24	22.37	22.39	22.13		
5	QPSK	12	0	21.51	21.51	21.45	23	1
5	QPSK	12	7	21.52	21.42	21.54		
5	QPSK	12	13	21.42	21.36	21.53		
5	QPSK	25	0	21.46	21.32	21.40		
5	16QAM	1	0	21.58	21.86	21.83	23	1
5	16QAM	1	12	21.59	21.86	21.58		
5	16QAM	1	24	21.43	21.54	21.85		
5	16QAM	12	0	20.47	20.36	20.52	22	2
5	16QAM	12	7	20.30	20.31	20.42		
5	16QAM	12	13	20.40	20.44	20.43		
5	16QAM	25	0	20.49	20.26	20.30		
5	64QAM	1	0	20.84	20.69	20.81	22	2
5	64QAM	1	12	20.39	20.40	20.54		
5	64QAM	1	24	20.30	20.46	20.12		
5	64QAM	12	0	19.40	19.62	19.58	21	3
5	64QAM	12	7	19.51	19.43	19.40		
5	64QAM	12	13	19.34	19.44	19.33		
5	64QAM	25	0	19.41	19.45	19.55		
5	256QAM	1	0	19.35	19.24	19.41	20	4
5	256QAM	1	12	18.92	18.99	19.07		
5	256QAM	1	24	18.84	19.04	18.69		
5	256QAM	12	0	17.90	18.19	18.16	19.5	4.5
5	256QAM	12	7	18.07	17.98	18.00		
5	256QAM	12	13	17.87	18.02	17.92		
5	256QAM	25	0	17.91	18.03	18.07		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.24	22.36	22.45	24	0
3	QPSK	1	8	22.05	22.22	22.26		
3	QPSK	1	14	22.30	22.29	22.05		
3	QPSK	8	0	21.45	21.46	21.37	23	1
3	QPSK	8	4	21.49	21.42	21.45		
3	QPSK	8	7	21.42	21.29	21.45		
3	QPSK	15	0	21.39	21.22	21.32		

3	16QAM	1	0	21.56	21.79	21.76	23	1
3	16QAM	1	8	21.49	21.77	21.54		
3	16QAM	1	14	21.34	21.51	21.81		
3	16QAM	8	0	20.46	20.33	20.46	22	2
3	16QAM	8	4	20.26	20.29	20.35		
3	16QAM	8	7	20.30	20.42	20.38		
3	16QAM	15	0	20.48	20.23	20.30		
3	64QAM	1	0	20.83	20.67	20.73	22	2
3	64QAM	1	8	20.36	20.31	20.53		
3	64QAM	1	14	20.21	20.38	20.12		
3	64QAM	8	0	19.38	19.61	19.58	21	3
3	64QAM	8	4	19.49	19.35	19.33		
3	64QAM	8	7	19.27	19.42	19.32		
3	64QAM	15	0	19.34	19.40	19.54		
3	256QAM	1	0	19.41	19.23	19.23	20	4
3	256QAM	1	8	18.86	18.88	19.11		
3	256QAM	1	14	18.73	18.93	18.70		
3	256QAM	8	0	17.91	18.21	18.15	19.5	4.5
3	256QAM	8	4	18.07	17.95	17.91		
3	256QAM	8	7	17.85	17.93	17.91		
3	256QAM	15	0	17.84	17.96	18.10		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.24	22.33	22.43	24	0
1.4	QPSK	1	3	22.04	22.12	22.18		
1.4	QPSK	1	5	22.21	22.28	22.04		
1.4	QPSK	3	0	22.18	22.31	22.43		
1.4	QPSK	3	1	22.05	22.21	22.26		
1.4	QPSK	3	3	22.30	22.29	22.06		
1.4	QPSK	6	0	21.38	21.22	21.27	23	1
1.4	16QAM	1	0	21.55	21.76	21.73	23	1
1.4	16QAM	1	3	21.43	21.77	21.48		
1.4	16QAM	1	5	21.31	21.50	21.76		
1.4	16QAM	3	0	21.55	21.77	21.66		
1.4	16QAM	3	1	21.39	21.75	21.52		
1.4	16QAM	3	3	21.27	21.42	21.74		
1.4	16QAM	6	0	20.46	20.16	20.23	22	2
1.4	64QAM	1	0	20.82	20.61	20.64	22	2
1.4	64QAM	1	3	20.29	20.25	20.50		
1.4	64QAM	1	5	20.17	20.31	20.11		
1.4	64QAM	3	0	20.81	20.62	20.68		
1.4	64QAM	3	1	20.29	20.21	20.44		
1.4	64QAM	3	3	20.18	20.34	20.03		
1.4	64QAM	6	0	19.34	19.39	19.54	21	3
1.4	256QAM	1	0	19.38	19.18	19.14	20	4
1.4	256QAM	1	3	18.86	18.81	19.03		
1.4	256QAM	1	5	18.68	18.85	18.71		
1.4	256QAM	3	0	19.36	19.14	19.25		
1.4	256QAM	3	1	18.81	18.73	18.99		
1.4	256QAM	3	3	18.72	18.94	18.56		
1.4	256QAM	6	0	17.93	17.91	18.08	19.5	4.5

<LTE Band 5 Main>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.59	22.86	22.70	24.5	0
10	QPSK	1	25	22.57	22.79	22.70		
10	QPSK	1	49	22.84	22.69	22.50		
10	QPSK	25	0	21.74	21.96	21.73	23.5	1
10	QPSK	25	12	21.78	21.87	21.90		
10	QPSK	25	25	21.72	21.85	21.88		
10	QPSK	50	0	21.79	21.96	21.68		
10	16QAM	1	0	22.18	22.41	22.33	23.5	1
10	16QAM	1	25	22.21	22.20	22.25		
10	16QAM	1	49	21.91	21.97	22.04		
10	16QAM	25	0	20.72	21.05	20.74	22.5	2
10	16QAM	25	12	20.76	20.91	20.98		
10	16QAM	25	25	20.90	20.96	20.85		
10	16QAM	50	0	20.84	20.74	20.85		
10	64QAM	1	0	21.26	20.88	20.77	22.5	2
10	64QAM	1	25	20.79	20.77	20.58		
10	64QAM	1	49	21.29	21.05	20.82		
10	64QAM	25	0	19.70	19.96	19.87	21.5	3
10	64QAM	25	12	19.92	19.96	20.03		
10	64QAM	25	25	19.87	19.89	19.74		
10	64QAM	50	0	19.78	19.78	19.84		
10	256QAM	1	0	19.83	19.44	19.28	20.5	4
10	256QAM	1	25	19.33	19.29	19.17		
10	256QAM	1	49	19.80	19.56	19.38		
10	256QAM	25	0	18.25	18.55	18.47	20	4.5
10	256QAM	25	12	18.48	18.52	18.61		
10	256QAM	25	25	18.41	18.39	18.25		
10	256QAM	50	0	18.37	18.32	18.36		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.58	22.76	22.69	24.5	0
5	QPSK	1	12	22.52	22.78	22.67		
5	QPSK	1	24	22.83	22.67	22.63		
5	QPSK	12	0	21.73	21.93	21.65	23.5	1
5	QPSK	12	7	21.78	21.81	21.81		
5	QPSK	12	13	21.62	21.78	21.83		
5	QPSK	25	0	21.72	21.93	21.62		
5	16QAM	1	0	22.16	22.35	22.23	23.5	1
5	16QAM	1	12	22.15	22.20	22.19		
5	16QAM	1	24	21.83	21.90	21.97		
5	16QAM	12	0	20.62	20.96	20.72	22.5	2
5	16QAM	12	7	20.71	20.86	20.95		
5	16QAM	12	13	20.88	20.89	20.76		
5	16QAM	25	0	20.78	20.65	20.75		
5	64QAM	1	0	21.24	20.86	20.69	22.5	2
5	64QAM	1	12	20.76	20.67	20.69		
5	64QAM	1	24	21.21	21.00	20.73		
5	64QAM	12	0	19.63	19.90	19.84	21.5	3
5	64QAM	12	7	19.91	19.95	19.99		
5	64QAM	12	13	19.84	19.81	19.64		
5	64QAM	25	0	19.74	19.78	19.76		

5	256QAM	1	0	19.77	19.42	19.24	20.5	4
5	256QAM	1	12	19.27	19.22	19.25		
5	256QAM	1	24	19.80	19.54	19.29		
5	256QAM	12	0	18.22	18.49	18.35	20	4.5
5	256QAM	12	7	18.49	18.52	18.50		
5	256QAM	12	13	18.41	18.35	18.16		
5	256QAM	25	0	18.33	18.32	18.34		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.57	22.68	22.68	24.5	0
3	QPSK	1	8	22.65	22.71	22.58		
3	QPSK	1	14	22.76	22.62	22.59		
3	QPSK	8	0	21.68	21.93	21.63	23.5	1
3	QPSK	8	4	21.73	21.79	21.78		
3	QPSK	8	7	21.60	21.73	21.78		
3	QPSK	15	0	21.72	21.86	21.52		
3	16QAM	1	0	22.15	22.34	22.14	23.5	1
3	16QAM	1	8	22.09	22.18	22.14		
3	16QAM	1	14	21.74	21.82	21.93		
3	16QAM	8	0	20.57	20.88	20.65	22.5	2
3	16QAM	8	4	20.67	20.76	20.88		
3	16QAM	8	7	20.83	20.89	20.74		
3	16QAM	15	0	20.74	20.59	20.71		
3	64QAM	1	0	21.14	20.77	20.65	22.5	2
3	64QAM	1	8	20.76	20.63	20.62		
3	64QAM	1	14	21.18	20.95	20.64		
3	64QAM	8	0	19.61	19.85	19.76	21.5	3
3	64QAM	8	4	19.84	19.89	19.92		
3	64QAM	8	7	19.82	19.78	19.61		
3	64QAM	15	0	19.69	19.77	19.66		
3	256QAM	1	0	19.74	19.28	19.19	20.5	4
3	256QAM	1	8	19.31	19.23	19.12		
3	256QAM	1	14	19.69	19.51	19.15		
3	256QAM	8	0	18.17	18.40	18.35	20	4.5
3	256QAM	8	4	18.41	18.47	18.50		
3	256QAM	8	7	18.38	18.36	18.19		
3	256QAM	15	0	18.23	18.37	18.26		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.54	22.66	22.68	24.5	0
1.4	QPSK	1	3	22.50	22.68	22.54		
1.4	QPSK	1	5	22.70	22.62	22.53		
1.4	QPSK	3	0	22.54	22.65	22.62		
1.4	QPSK	3	1	22.64	22.64	22.50		
1.4	QPSK	3	3	22.75	22.60	22.59		
1.4	QPSK	6	0	21.67	21.78	21.52	23.5	1
1.4	16QAM	1	0	22.14	22.25	22.04	23.5	1
1.4	16QAM	1	3	22.07	22.08	22.12		
1.4	16QAM	1	5	21.64	21.72	21.86		
1.4	16QAM	3	0	22.05	22.25	22.07		
1.4	16QAM	3	1	22.05	22.09	22.04		
1.4	16QAM	3	3	21.67	21.81	21.93		
1.4	16QAM	6	0	20.74	20.55	20.69	22.5	2
1.4	64QAM	1	0	21.11	20.70	20.59	22.5	2
1.4	64QAM	1	3	20.70	20.54	20.52		
1.4	64QAM	1	5	21.15	20.85	20.61		

1.4	64QAM	3	0	21.07	20.69	20.61		
1.4	64QAM	3	1	20.75	20.56	20.59		
1.4	64QAM	3	3	21.18	20.90	20.60		
1.4	64QAM	6	0	19.62	19.67	19.65	21.5	3
1.4	256QAM	1	0	19.68	19.20	19.14	20.5	4
1.4	256QAM	1	3	19.24	19.11	19.12		
1.4	256QAM	1	5	19.71	19.41	19.16		
1.4	256QAM	3	0	19.67	19.22	19.15		
1.4	256QAM	3	1	19.32	19.16	19.09		
1.4	256QAM	3	3	19.75	19.49	19.11		
1.4	256QAM	6	0	18.18	18.22	18.16	20	4.5

<LTE Band 7_Main>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	22.42	22.44	22.61	24	0
20	QPSK	1	49	22.43	22.46	22.57		
20	QPSK	1	99	22.44	22.44	22.33		
20	QPSK	50	0	21.53	21.53	21.70	23	1
20	QPSK	50	24	21.61	21.57	21.57		
20	QPSK	50	50	21.68	21.60	21.62		
20	QPSK	100	0	21.60	21.54	21.55		
20	16QAM	1	0	21.64	22.01	21.81	23	1
20	16QAM	1	49	22.04	22.06	22.10		
20	16QAM	1	99	21.61	21.38	21.61		
20	16QAM	50	0	20.58	20.41	20.51	22	2
20	16QAM	50	24	20.58	20.51	20.53		
20	16QAM	50	50	20.64	20.58	20.58		
20	16QAM	100	0	20.70	20.53	20.49		
20	64QAM	1	0	20.59	20.49	20.31	22	2
20	64QAM	1	49	20.59	20.70	20.44		
20	64QAM	1	99	20.70	20.66	20.47		
20	64QAM	50	0	19.56	19.62	19.43	21	3
20	64QAM	50	24	19.60	19.58	19.11		
20	64QAM	50	50	19.61	19.58	19.07		
20	64QAM	100	0	19.58	19.51	19.13		
20	256QAM	1	0	19.13	19.09	18.88	20	4
20	256QAM	1	49	19.17	19.23	18.95		
20	256QAM	1	99	19.26	19.26	18.98		
20	256QAM	50	0	18.12	18.19	17.97	19.5	4.5
20	256QAM	50	24	18.10	18.13	17.63		
20	256QAM	50	50	18.19	18.17	17.65		
20	256QAM	100	0	18.17	18.01	17.69		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	22.42	22.40	22.52	24	0
15	QPSK	1	37	22.42	22.42	22.49		
15	QPSK	1	74	22.35	22.36	22.29		
15	QPSK	36	0	21.49	21.45	21.41	23	1
15	QPSK	36	20	21.67	21.47	21.56		
15	QPSK	36	39	21.60	21.56	21.62		
15	QPSK	75	0	21.52	21.44	21.51		

15	16QAM	1	0	21.57	21.95	21.80	23	1
15	16QAM	1	37	22.00	21.99	22.08		
15	16QAM	1	74	21.53	21.32	21.56		
15	16QAM	36	0	20.53	20.32	20.45	22	2
15	16QAM	36	20	20.50	20.44	20.52		
15	16QAM	36	39	20.63	20.57	20.54		
15	16QAM	75	0	20.66	20.45	20.44		
15	64QAM	1	0	20.57	20.47	20.21	22	2
15	64QAM	1	37	20.50	20.60	20.37		
15	64QAM	1	74	20.70	20.58	20.45		
15	64QAM	36	0	19.56	19.52	19.41	21	3
15	64QAM	36	20	19.52	19.51	19.11		
15	64QAM	36	39	19.60	19.54	19.39		
15	64QAM	75	0	19.49	19.51	19.07		
15	256QAM	1	0	19.07	18.99	18.72	20	4
15	256QAM	1	37	19.01	19.20	18.91		
15	256QAM	1	74	19.24	19.13	18.95		
15	256QAM	36	0	18.16	18.06	17.96	19.5	4.5
15	256QAM	36	20	18.06	18.10	17.62		
15	256QAM	36	39	18.20	18.10	17.91		
15	256QAM	75	0	18.08	18.03	17.64		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	22.35	22.40	22.44	24	0
10	QPSK	1	25	22.39	22.39	22.47		
10	QPSK	1	49	22.28	22.28	22.28		
10	QPSK	25	0	21.45	21.35	21.34	23	1
10	QPSK	25	12	21.63	21.39	21.49		
10	QPSK	25	25	21.58	21.56	21.60		
10	QPSK	50	0	21.46	21.43	21.48		
10	16QAM	1	0	21.57	21.89	21.80	23	1
10	16QAM	1	25	21.96	21.89	22.05		
10	16QAM	1	49	21.47	21.29	21.52		
10	16QAM	25	0	20.48	20.27	20.39	22	2
10	16QAM	25	12	20.50	20.42	20.42		
10	16QAM	25	25	20.54	20.52	20.47		
10	16QAM	50	0	20.65	20.38	20.35		
10	64QAM	1	0	20.48	20.44	20.11	22	2
10	64QAM	1	25	20.44	20.56	20.29		
10	64QAM	1	49	20.69	20.49	20.45		
10	64QAM	25	0	19.51	19.50	19.38	21	3
10	64QAM	25	12	19.51	19.50	19.07		
10	64QAM	25	25	19.54	19.48	19.29		
10	64QAM	50	0	19.41	19.47	19.29		
10	256QAM	1	0	19.02	18.97	18.62	20	4
10	256QAM	1	25	18.99	19.11	18.82		
10	256QAM	1	49	19.29	19.01	18.99		
10	256QAM	25	0	18.05	18.02	17.90	19.5	4.5
10	256QAM	25	12	18.01	18.08	17.66		
10	256QAM	25	25	18.05	18.03	17.89		
10	256QAM	50	0	17.99	18.06	17.85		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	22.35	22.31	22.42	24	0
5	QPSK	1	12	22.32	22.36	22.41		
5	QPSK	1	24	22.25	22.28	22.27		

5	QPSK	12	0	21.40	21.34	21.29	23	1
5	QPSK	12	7	21.54	21.39	21.42		
5	QPSK	12	13	21.52	21.48	21.51		
5	QPSK	25	0	21.44	21.42	21.44		
5	16QAM	1	0	21.53	21.85	21.74	23	1
5	16QAM	1	12	21.88	21.81	22.04		
5	16QAM	1	24	21.41	21.26	21.42		
5	16QAM	12	0	20.47	20.24	20.34	22	2
5	16QAM	12	7	20.45	20.41	20.35		
5	16QAM	12	13	20.52	20.52	20.46		
5	16QAM	25	0	20.60	20.38	20.34		
5	64QAM	1	0	20.43	20.40	20.04	22	2
5	64QAM	1	12	20.41	20.52	20.29		
5	64QAM	1	24	20.67	20.44	20.45		
5	64QAM	12	0	19.48	19.43	19.31	21	3
5	64QAM	12	7	19.44	19.44	19.06		
5	64QAM	12	13	19.48	19.38	19.23		
5	64QAM	25	0	19.37	19.44	19.19		
5	256QAM	1	0	18.93	18.91	18.59	20	4
5	256QAM	1	12	18.95	19.02	18.89		
5	256QAM	1	24	19.27	18.99	18.96		
5	256QAM	12	0	18.05	17.94	17.82	19.5	4.5
5	256QAM	12	7	17.97	17.94	17.64		
5	256QAM	12	13	17.99	17.88	17.73		
5	256QAM	25	0	17.87	17.96	17.77		

<LTE Band 7_Aux 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				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	22.81	22.90	22.95	24	0
20	QPSK	1	49	22.81	22.74	22.75		
20	QPSK	1	99	22.86	22.86	22.86		
20	QPSK	50	0	22.05	21.97	22.10	23	1
20	QPSK	50	24	22.00	21.95	21.93		
20	QPSK	50	50	22.05	21.91	21.91		
20	QPSK	100	0	21.97	21.94	21.98		
20	16QAM	1	0	21.99	21.95	21.95	23	1
20	16QAM	1	49	22.18	22.12	22.13		
20	16QAM	1	99	22.35	22.31	22.29		
20	16QAM	50	0	20.89	20.89	20.85	22	2
20	16QAM	50	24	20.93	20.93	20.97		
20	16QAM	50	50	21.03	21.02	21.02		
20	16QAM	100	0	20.99	20.96	20.96		
20	64QAM	1	0	20.34	20.31	20.49	22	2
20	64QAM	1	49	20.85	20.84	20.81		
20	64QAM	1	99	20.97	20.96	20.98		
20	64QAM	50	0	19.95	19.96	19.95	21	3
20	64QAM	50	24	20.07	20.01	20.02		
20	64QAM	50	50	20.09	20.08	20.06		
20	64QAM	100	0	19.95	19.95	19.93		
20	256QAM	1	0	18.46	18.51	18.48	20	4
20	256QAM	1	49	19.43	19.39	19.39		

20	256QAM	1	99	19.55	19.54	19.51		
20	256QAM	50	0	18.48	18.50	18.45	19.5	4.5
20	256QAM	50	24	18.57	18.60	18.55		
20	256QAM	50	50	18.65	18.66	18.66		
20	256QAM	100	0	18.52	18.55	18.44		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	22.74	22.84	22.87	24	0
15	QPSK	1	37	22.73	22.72	22.68		
15	QPSK	1	74	22.85	22.86	22.83		
15	QPSK	36	0	21.99	21.89	21.94	23	1
15	QPSK	36	20	21.96	21.89	21.84		
15	QPSK	36	39	22.08	22.06	22.05		
15	QPSK	75	0	21.95	21.87	21.88		
15	16QAM	1	0	21.98	21.95	21.90	23	1
15	16QAM	1	37	22.16	22.06	22.12		
15	16QAM	1	74	22.33	22.30	22.20		
15	16QAM	36	0	20.86	20.89	20.80	22	2
15	16QAM	36	20	20.90	20.88	20.94		
15	16QAM	36	39	21.03	20.95	20.96		
15	16QAM	75	0	20.91	20.95	20.87		
15	64QAM	1	0	20.31	20.31	20.39	22	2
15	64QAM	1	37	20.85	20.82	20.71		
15	64QAM	1	74	20.96	20.86	20.96		
15	64QAM	36	0	19.89	19.87	19.88	21	3
15	64QAM	36	20	20.06	19.98	19.93		
15	64QAM	36	39	20.09	20.01	19.98		
15	64QAM	75	0	19.89	19.90	19.92		
15	256QAM	1	0	18.47	18.31	18.49	20	4
15	256QAM	1	37	19.42	19.37	19.22		
15	256QAM	1	74	19.55	19.38	19.48		
15	256QAM	36	0	18.49	18.37	18.43	19.5	4.5
15	256QAM	36	20	18.65	18.48	18.49		
15	256QAM	36	39	18.60	18.59	18.53		
15	256QAM	75	0	18.45	18.47	18.48		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	22.73	22.85	22.93	24	0
10	QPSK	1	25	22.79	22.65	22.67		
10	QPSK	1	49	22.86	22.86	22.85		
10	QPSK	25	0	21.97	21.87	21.89	23	1
10	QPSK	25	12	21.94	21.88	21.86		
10	QPSK	25	25	22.08	22.02	22.04		
10	QPSK	50	0	21.95	21.90	21.91		
10	16QAM	1	0	21.89	21.93	21.90	23	1
10	16QAM	1	25	22.12	22.03	22.06		
10	16QAM	1	49	22.27	22.31	22.26		
10	16QAM	25	0	20.81	20.84	20.78	22	2
10	16QAM	25	12	20.89	20.91	20.92		
10	16QAM	25	25	21.02	21.00	20.98		
10	16QAM	50	0	20.93	20.86	20.91		
10	64QAM	1	0	20.30	20.34	20.41	22	2
10	64QAM	1	25	20.84	20.78	20.74		
10	64QAM	1	49	20.96	20.87	20.98		
10	64QAM	25	0	19.92	19.92	19.94	21	3
10	64QAM	25	12	20.05	19.91	19.97		

10	64QAM	25	25	20.02	20.02	20.00		
10	64QAM	50	0	19.88	19.89	19.91		
10	256QAM	1	0	18.50	18.35	18.36	20	4
10	256QAM	1	25	19.43	19.33	19.29		
10	256QAM	1	49	19.49	19.47	19.56		
10	256QAM	25	0	18.49	18.42	18.47	19.5	4.5
10	256QAM	25	12	18.64	18.51	18.52		
10	256QAM	25	25	18.59	18.60	18.52		
10	256QAM	50	0	18.39	18.43	18.50		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	22.75	22.82	22.92	24	0
5	QPSK	1	12	22.79	22.73	22.69		
5	QPSK	1	24	22.76	22.76	22.83		
5	QPSK	12	0	21.97	21.90	21.98	23	1
5	QPSK	12	7	22.00	21.88	21.93		
5	QPSK	12	13	22.14	22.11	22.09		
5	QPSK	25	0	21.91	21.86	21.98		
5	16QAM	1	0	21.90	21.92	21.85	23	1
5	16QAM	1	12	22.13	22.08	22.08		
5	16QAM	1	24	22.27	22.21	22.21		
5	16QAM	12	0	20.80	20.86	20.76	22	2
5	16QAM	12	7	20.86	20.87	20.94		
5	16QAM	12	13	21.03	20.97	20.98		
5	16QAM	25	0	20.91	20.87	20.95		
5	64QAM	1	0	20.31	20.37	20.39	22	2
5	64QAM	1	12	20.80	20.74	20.81		
5	64QAM	1	24	20.91	20.96	20.96		
5	64QAM	12	0	19.93	19.86	19.88	21	3
5	64QAM	12	7	20.00	19.97	20.00		
5	64QAM	12	13	20.07	19.99	20.06		
5	64QAM	25	0	19.92	19.95	19.90		
5	256QAM	1	0	18.48	18.43	18.39	20	4
5	256QAM	1	12	19.36	19.28	19.39		
5	256QAM	1	24	19.50	19.54	19.40		
5	256QAM	12	0	18.45	18.36	18.40	19.5	4.5
5	256QAM	12	7	18.60	18.48	18.58		
5	256QAM	12	13	18.65	18.58	18.59		
5	256QAM	25	0	18.43	18.46	18.46		

<LTE Band 12_Main>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	22.99	22.99	22.93	24.5	0
10	QPSK	1	25	22.92	22.95	22.86		
10	QPSK	1	49	22.81	22.95	22.72		
10	QPSK	25	0	22.12	22.00	21.98	23.5	1
10	QPSK	25	12	22.09	21.98	22.09		
10	QPSK	25	25	21.94	21.97	21.89		
10	QPSK	50	0	22.10	22.05	22.06		
10	16QAM	1	0	22.08	22.20	22.45	23.5	1
10	16QAM	1	25	22.51	22.27	22.28		

10	16QAM	1	49	22.36	22.62	22.19		
10	16QAM	25	0	21.00	21.07	21.03	22.5	2
10	16QAM	25	12	21.12	20.78	20.94		
10	16QAM	25	25	21.13	20.94	20.94		
10	16QAM	50	0	21.10	21.04	20.96		
10	64QAM	1	0	20.94	21.24	21.06	22.5	2
10	64QAM	1	25	21.14	21.36	21.29		
10	64QAM	1	49	20.99	21.27	21.11		
10	64QAM	25	0	20.11	20.13	20.10	21.5	3
10	64QAM	25	12	20.18	20.04	20.10		
10	64QAM	25	25	19.97	20.02	19.95		
10	64QAM	50	0	20.07	20.13	20.07		
10	256QAM	1	0	19.44	19.83	19.66	20.5	4
10	256QAM	1	25	19.69	19.92	19.81		
10	256QAM	1	49	19.49	19.84	19.62		
10	256QAM	25	0	18.63	18.73	18.62	20	4.5
10	256QAM	25	12	18.77	18.59	18.66		
10	256QAM	25	25	18.57	18.61	18.50		
10	256QAM	50	0	18.57	18.71	18.66		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	22.95	22.81	22.65	24.5	0
5	QPSK	1	12	22.92	22.91	22.86		
5	QPSK	1	24	22.75	22.88	22.67		
5	QPSK	12	0	21.98	21.90	21.88	23.5	1
5	QPSK	12	7	21.99	21.95	22.01		
5	QPSK	12	13	21.84	21.92	21.82		
5	QPSK	25	0	22.01	21.96	22.02		
5	16QAM	1	0	22.05	22.13	22.40	23.5	1
5	16QAM	1	12	22.46	22.18	22.23		
5	16QAM	1	24	22.26	22.54	22.13		
5	16QAM	12	0	20.91	21.06	21.01	22.5	2
5	16QAM	12	7	21.02	20.72	20.93		
5	16QAM	12	13	21.13	20.88	20.89		
5	16QAM	25	0	21.03	20.96	20.90		
5	64QAM	1	0	20.84	21.14	20.98	22.5	2
5	64QAM	1	12	21.12	21.27	21.22		
5	64QAM	1	24	20.89	21.21	21.08		
5	64QAM	12	0	20.11	20.10	20.00	21.5	3
5	64QAM	12	7	20.11	20.01	20.09		
5	64QAM	12	13	19.93	20.02	19.86		
5	64QAM	25	0	20.04	20.13	19.99		
5	256QAM	1	0	19.37	19.66	19.52	20.5	4
5	256QAM	1	12	19.70	19.87	19.74		
5	256QAM	1	24	19.49	19.75	19.62		
5	256QAM	12	0	18.61	18.60	18.54	20	4.5
5	256QAM	12	7	18.71	18.58	18.59		
5	256QAM	12	13	18.52	18.61	18.43		
5	256QAM	25	0	18.57	18.63	18.57		
Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	22.94	22.77	22.64	24.5	0
3	QPSK	1	8	22.84	22.91	22.84		
3	QPSK	1	14	22.66	22.88	22.58		
3	QPSK	8	0	21.95	21.81	21.82	23.5	1
3	QPSK	8	4	21.94	21.93	22.01		

3	QPSK	8	7	21.79	21.86	21.80		
3	QPSK	15	0	21.92	21.88	21.96		
3	16QAM	1	0	22.04	22.09	22.38	23.5	1
3	16QAM	1	8	22.36	22.18	22.17		
3	16QAM	1	14	22.25	22.46	22.11		
3	16QAM	8	0	20.82	21.01	20.96	22.5	2
3	16QAM	8	4	20.94	20.68	20.90		
3	16QAM	8	7	21.06	20.86	20.89		
3	16QAM	15	0	20.95	20.93	20.82		
3	64QAM	1	0	20.74	21.09	20.98	22.5	2
3	64QAM	1	8	21.11	21.20	21.16		
3	64QAM	1	14	20.89	21.11	20.99		
3	64QAM	8	0	20.01	20.07	19.91	21.5	3
3	64QAM	8	4	20.04	19.94	20.08		
3	64QAM	8	7	19.84	19.92	19.80		
3	64QAM	15	0	20.01	20.09	19.91		
3	256QAM	1	0	19.30	19.65	19.53	20.5	4
3	256QAM	1	8	19.66	19.71	19.72		
3	256QAM	1	14	19.41	19.65	19.50		
3	256QAM	8	0	18.57	18.59	18.47	20	4.5
3	256QAM	8	4	18.54	18.53	18.61		
3	256QAM	8	7	18.39	18.49	18.31		
3	256QAM	15	0	18.60	18.61	18.49		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	22.87	22.76	22.57	24.5	0
1.4	QPSK	1	3	22.75	22.87	22.77		
1.4	QPSK	1	5	22.58	22.88	22.56		
1.4	QPSK	3	0	22.94	22.71	22.60		
1.4	QPSK	3	1	22.74	22.81	22.76		
1.4	QPSK	3	3	22.61	22.80	22.50		
1.4	QPSK	6	0	21.84	21.86	21.93	23.5	1
1.4	16QAM	1	0	21.94	22.01	22.37	23.5	1
1.4	16QAM	1	3	22.36	22.11	22.08		
1.4	16QAM	1	5	22.17	22.40	22.04		
1.4	16QAM	3	0	21.94	22.02	22.28		
1.4	16QAM	3	1	22.34	22.08	22.14		
1.4	16QAM	3	3	22.15	22.43	22.11		
1.4	16QAM	6	0	20.86	20.88	20.80	22.5	2
1.4	64QAM	1	0	20.69	21.09	20.98	22.5	2
1.4	64QAM	1	3	21.09	21.12	21.14		
1.4	64QAM	1	5	20.79	21.10	20.99		
1.4	64QAM	3	0	20.69	21.06	20.90		
1.4	64QAM	3	1	21.01	21.19	21.07		
1.4	64QAM	3	3	20.87	21.04	20.96		
1.4	64QAM	6	0	19.94	20.08	19.91	21.5	3
1.4	256QAM	1	0	19.20	19.69	19.52	20.5	4
1.4	256QAM	1	3	19.64	19.69	19.66		
1.4	256QAM	1	5	19.33	19.62	19.57		
1.4	256QAM	3	0	19.22	19.65	19.43		
1.4	256QAM	3	1	19.53	19.75	19.67		
1.4	256QAM	3	3	19.44	19.57	19.56		
1.4	256QAM	6	0	18.49	18.66	18.49	20	4.5

<LTE Band 13 Main>

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		22.80		24.5	0
10	QPSK	1	25		22.74			
10	QPSK	1	49		22.52			
10	QPSK	25	0		21.74		23.5	1
10	QPSK	25	12		21.69			
10	QPSK	25	25		21.66			
10	QPSK	50	0		21.82			
10	16QAM	1	0		22.01		23.5	1
10	16QAM	1	25		21.73			
10	16QAM	1	49		21.86			
10	16QAM	25	0		20.52		22.5	2
10	16QAM	25	12		20.65			
10	16QAM	25	25		20.73			
10	16QAM	50	0		20.77			
10	64QAM	1	0		20.85		22.5	2
10	64QAM	1	25		20.87			
10	64QAM	1	49		20.78			
10	64QAM	25	0		19.67		21.5	3
10	64QAM	25	12		19.81			
10	64QAM	25	25		19.67			
10	64QAM	50	0		19.93			
10	256QAM	1	0		19.37		20.5	4
10	256QAM	1	25		19.40			
10	256QAM	1	49		19.37			
10	256QAM	25	0		18.17		20	4.5
10	256QAM	25	12		18.33			
10	256QAM	25	25		18.19			
10	256QAM	50	0		18.50			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	22.80	22.74	22.76	24.5	0
5	QPSK	1	12	22.68	22.69	22.65		
5	QPSK	1	24	22.51	22.50	22.50		
5	QPSK	12	0	21.72	21.71	21.67	23.5	1
5	QPSK	12	7	21.68	21.59	21.60		
5	QPSK	12	13	21.60	21.61	21.56		
5	QPSK	25	0	21.82	21.79	21.78		
5	16QAM	1	0	21.93	21.97	21.91	23.5	1
5	16QAM	1	12	21.66	21.68	21.72		
5	16QAM	1	24	21.83	21.80	21.83		
5	16QAM	12	0	20.56	20.56	20.54	22.5	2
5	16QAM	12	7	20.58	20.64	20.63		
5	16QAM	12	13	20.69	20.64	20.63		
5	16QAM	25	0	20.73	20.72	20.72		
5	64QAM	1	0	20.81	20.83	20.82	22.5	2
5	64QAM	1	12	20.84	20.86	20.79		
5	64QAM	1	24	20.75	20.70	20.76		
5	64QAM	12	0	19.63	19.65	19.63	21.5	3
5	64QAM	12	7	19.73	19.77	19.74		
5	64QAM	12	13	19.57	19.65	19.63		
5	64QAM	25	0	19.91	19.86	19.83		

5	256QAM	1	0	19.36	19.38	19.40	20.5	4
5	256QAM	1	12	19.36	19.46	19.38		
5	256QAM	1	24	19.27	19.24	19.34		
5	256QAM	12	0	18.22	18.17	18.20	20	4.5
5	256QAM	12	7	18.31	18.29	18.29		
5	256QAM	12	13	18.17	18.15	18.22		
5	256QAM	25	0	18.47	18.40	18.35		

<LTE Band 14 Main>

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		22.69		24.5	0
10	QPSK	1	25		22.66			
10	QPSK	1	49		22.61			
10	QPSK	25	0		21.89		23.5	1
10	QPSK	25	12		21.74			
10	QPSK	25	25		21.80			
10	QPSK	50	0		21.75			
10	16QAM	1	0		21.90		23.5	1
10	16QAM	1	25		21.86			
10	16QAM	1	49		21.99			
10	16QAM	25	0		20.77		22.5	2
10	16QAM	25	12		20.59			
10	16QAM	25	25		20.71			
10	16QAM	50	0		20.83			
10	64QAM	1	0		20.61		22.5	2
10	64QAM	1	25		20.96			
10	64QAM	1	49		21.07			
10	64QAM	25	0		19.64		21.5	3
10	64QAM	25	12		19.85			
10	64QAM	25	25		19.81			
10	64QAM	50	0		19.79			
10	256QAM	1	0		19.21		20.5	4
10	256QAM	1	25		19.52			
10	256QAM	1	49		19.61			
10	256QAM	25	0		18.20		20	4.5
10	256QAM	25	12		18.39			
10	256QAM	25	25		18.36			
10	256QAM	50	0		18.33			
Channel				23305	23330	23355	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				790.5	793	795.5		
5	QPSK	1	0	22.65	22.65	22.62	24.5	0
5	QPSK	1	12	22.57	22.65	22.57		
5	QPSK	1	24	22.54	22.58	22.54		
5	QPSK	12	0	21.62	21.69	21.63	23.5	1
5	QPSK	12	7	21.69	21.74	21.71		
5	QPSK	12	13	21.75	21.71	21.72		
5	QPSK	25	0	21.68	21.67	21.68		
5	16QAM	1	0	21.85	21.84	21.87	23.5	1
5	16QAM	1	12	21.82	21.79	21.80		
5	16QAM	1	24	21.89	21.96	21.93		
5	16QAM	12	0	20.72	20.71	20.76	22.5	2

5	16QAM	12	7	20.55	20.50	20.50		
5	16QAM	12	13	20.62	20.61	20.62		
5	16QAM	25	0	20.75	20.77	20.75		
5	64QAM	1	0	20.51	20.51	20.61	22.5	2
5	64QAM	1	12	20.94	20.90	20.87		
5	64QAM	1	24	21.06	21.06	20.99		
5	64QAM	12	0	19.60	19.63	19.56	21.5	3
5	64QAM	12	7	19.78	19.84	19.80		
5	64QAM	12	13	19.71	19.73	19.77		
5	64QAM	25	0	19.78	19.72	19.70		
5	256QAM	1	0	19.09	19.08	19.18	20.5	4
5	256QAM	1	12	19.50	19.42	19.41		
5	256QAM	1	24	19.65	19.58	19.55		
5	256QAM	12	0	18.12	18.16	18.12	20	4.5
5	256QAM	12	7	18.38	18.41	18.38		
5	256QAM	12	13	18.28	18.24	18.27		
5	256QAM	25	0	18.35	18.22	18.25		

<LTE Band 17_Main>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	22.94	22.85	22.98	24.5	0
10	QPSK	1	25	22.69	22.67	22.80		
10	QPSK	1	49	22.79	22.61	22.84		
10	QPSK	25	0	21.88	21.84	21.96	23.5	1
10	QPSK	25	12	21.92	21.92	21.84		
10	QPSK	25	25	21.94	21.86	21.92		
10	QPSK	50	0	21.93	21.89	21.95		
10	16QAM	1	0	22.14	22.07	22.06	23.5	1
10	16QAM	1	25	21.78	21.94	22.36		
10	16QAM	1	49	22.27	22.10	22.02		
10	16QAM	25	0	20.92	20.84	20.88	22.5	2
10	16QAM	25	12	20.92	21.03	20.92		
10	16QAM	25	25	20.76	20.97	20.95		
10	16QAM	50	0	20.99	20.93	20.87		
10	64QAM	1	0	21.35	21.19	20.95	22.5	2
10	64QAM	1	25	21.01	20.93	21.08		
10	64QAM	1	49	21.12	21.17	20.90		
10	64QAM	25	0	19.90	20.03	19.72	21.5	3
10	64QAM	25	12	19.88	20.01	20.01		
10	64QAM	25	25	20.02	19.97	19.88		
10	64QAM	50	0	19.93	19.91	19.91		
10	256QAM	1	0	19.90	19.79	19.55	20.5	4
10	256QAM	1	25	19.61	19.50	19.67		
10	256QAM	1	49	19.68	19.70	19.46		
10	256QAM	25	0	18.40	18.55	18.29	20	4.5
10	256QAM	25	12	18.42	18.54	18.61		
10	256QAM	25	25	18.53	18.52	18.42		
10	256QAM	50	0	18.46	18.47	18.44		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	22.90	22.80	22.90	24.5	0

5	QPSK	1	12	22.59	22.65	22.73		
5	QPSK	1	24	22.76	22.61	22.82		
5	QPSK	12	0	21.80	21.84	21.74	23.5	1
5	QPSK	12	7	21.91	21.85	21.80		
5	QPSK	12	13	21.88	21.95	21.92		
5	QPSK	25	0	21.83	21.88	21.92		
5	16QAM	1	0	22.04	21.98	21.99	23.5	1
5	16QAM	1	12	21.76	21.89	22.28		
5	16QAM	1	24	22.17	22.04	21.93		
5	16QAM	12	0	20.83	20.79	20.86	22.5	2
5	16QAM	12	7	20.90	21.03	20.82		
5	16QAM	12	13	20.76	20.90	20.88		
5	16QAM	25	0	20.89	20.83	20.84		
5	64QAM	1	0	21.31	21.14	20.89	22.5	2
5	64QAM	1	12	20.91	20.85	21.04		
5	64QAM	1	24	21.07	21.13	20.90		
5	64QAM	12	0	19.82	20.01	19.64	21.5	3
5	64QAM	12	7	19.87	20.01	20.01		
5	64QAM	12	13	19.99	19.93	19.84		
5	64QAM	25	0	19.86	19.83	19.83		
5	256QAM	1	0	19.81	19.71	19.44	20.5	4
5	256QAM	1	12	19.43	19.44	19.62		
5	256QAM	1	24	19.58	19.72	19.47		
5	256QAM	12	0	18.42	18.51	18.21	20	4.5
5	256QAM	12	7	18.45	18.60	18.58		
5	256QAM	12	13	18.56	18.49	18.39		
5	256QAM	25	0	18.43	18.37	18.37		

<LTE Band 25_Main>

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	22.27	22.28	22.49	24	0
20	QPSK	1	49	22.28	22.35	22.32		
20	QPSK	1	99	22.23	22.43	22.27		
20	QPSK	50	0	21.43	21.53	21.55	23	1
20	QPSK	50	24	21.43	21.53	21.45		
20	QPSK	50	50	21.50	21.50	21.46		
20	QPSK	100	0	21.48	21.40	21.53		
20	16QAM	1	0	21.58	21.56	21.57	23	1
20	16QAM	1	49	21.56	21.44	21.69		
20	16QAM	1	99	21.71	21.51	21.41		
20	16QAM	50	0	20.30	20.57	20.47	22	2
20	16QAM	50	24	20.52	20.65	20.43		
20	16QAM	50	50	20.49	20.51	20.45		
20	16QAM	100	0	20.44	20.49	20.48		
20	64QAM	1	0	20.65	20.48	20.45	22	2
20	64QAM	1	49	20.39	20.73	20.19		
20	64QAM	1	99	20.53	20.20	20.12		
20	64QAM	50	0	19.49	19.53	19.55	21	3
20	64QAM	50	24	19.50	19.64	19.53		
20	64QAM	50	50	19.36	19.52	19.51		
20	64QAM	100	0	19.40	19.52	19.33		

20	256QAM	1	0	19.23	19.02	19.04	20	4
20	256QAM	1	49	18.89	19.26	18.74		
20	256QAM	1	99	19.06	18.77	18.65		
20	256QAM	50	0	18.06	18.12	18.08	19.5	4.5
20	256QAM	50	24	18.03	18.20	18.12		
20	256QAM	50	50	17.94	18.03	18.11		
20	256QAM	100	0	17.97	18.10	17.85		
Channel				26115	26340	26615	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	22.24	22.22	22.41	24	0
15	QPSK	1	37	22.23	22.32	22.30		
15	QPSK	1	74	22.21	22.40	22.26		
15	QPSK	36	0	21.41	21.49	21.43	23	1
15	QPSK	36	20	21.39	21.45	21.41		
15	QPSK	36	39	21.46	21.42	21.37		
15	QPSK	75	0	21.41	21.35	21.44		
15	16QAM	1	0	21.57	21.54	21.50	23	1
15	16QAM	1	37	21.56	21.36	21.68		
15	16QAM	1	74	21.68	21.50	21.35		
15	16QAM	36	0	20.26	20.53	20.44	22	2
15	16QAM	36	20	20.48	20.55	20.35		
15	16QAM	36	39	20.49	20.43	20.37		
15	16QAM	75	0	20.43	20.44	20.41		
15	64QAM	1	0	20.59	20.40	20.36	22	2
15	64QAM	1	37	20.32	20.64	20.12		
15	64QAM	1	74	20.46	20.10	20.07		
15	64QAM	36	0	19.40	19.51	19.48	21	3
15	64QAM	36	20	19.49	19.63	19.51		
15	64QAM	36	39	19.32	19.50	19.50		
15	64QAM	75	0	19.38	19.42	19.30		
15	256QAM	1	0	19.23	19.02	19.04	20	4
15	256QAM	1	37	18.89	19.26	18.74		
15	256QAM	1	74	19.06	18.77	18.65		
15	256QAM	36	0	18.06	18.12	18.08	19.5	4.5
15	256QAM	36	20	18.03	18.20	18.12		
15	256QAM	36	39	17.94	18.03	18.11		
15	256QAM	75	0	17.97	18.10	17.85		
Channel				26090	26340	26640	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	22.16	22.21	22.33	24	0
10	QPSK	1	25	22.23	22.26	22.30		
10	QPSK	1	49	22.20	22.37	22.18		
10	QPSK	25	0	21.41	21.47	21.40	23	1
10	QPSK	25	12	21.29	21.43	21.35		
10	QPSK	25	25	21.46	21.38	21.34		
10	QPSK	50	0	21.40	21.26	21.34		
10	16QAM	1	0	21.55	21.46	21.44	23	1
10	16QAM	1	25	21.52	21.28	21.67		
10	16QAM	1	49	21.63	21.47	21.26		
10	16QAM	25	0	20.19	20.50	20.42	22	2
10	16QAM	25	12	20.45	20.45	20.34		
10	16QAM	25	25	20.49	20.38	20.29		
10	16QAM	50	0	20.43	20.43	20.31		
10	64QAM	1	0	20.59	20.33	20.33	22	2
10	64QAM	1	25	20.26	20.60	20.09		
10	64QAM	1	49	20.39	20.04	20.02		

10	64QAM	25	0	19.30	19.42	19.46	21	3
10	64QAM	25	12	19.41	19.53	19.41		
10	64QAM	25	25	19.30	19.48	19.41		
10	64QAM	50	0	19.38	19.35	19.25		
10	256QAM	1	0	19.13	18.88	18.88	20	4
10	256QAM	1	25	18.85	19.18	18.63		
10	256QAM	1	49	18.98	18.54	18.58		
10	256QAM	25	0	17.88	17.92	17.98	19.5	4.5
10	256QAM	25	12	17.99	18.05	17.93		
10	256QAM	25	25	17.86	18.08	17.93		
10	256QAM	50	0	17.94	17.91	17.85		
Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	22.07	22.21	22.31	24	0
5	QPSK	1	12	22.20	22.20	22.25		
5	QPSK	1	24	22.16	22.27	22.12		
5	QPSK	12	0	21.35	21.42	21.33	23	1
5	QPSK	12	7	21.28	21.37	21.27		
5	QPSK	12	13	21.37	21.32	21.24		
5	QPSK	25	0	21.40	21.25	21.34		
5	16QAM	1	0	21.48	21.36	21.42	23	1
5	16QAM	1	12	21.51	21.24	21.67		
5	16QAM	1	24	21.63	21.41	21.22		
5	16QAM	12	0	20.16	20.46	20.34	22	2
5	16QAM	12	7	20.44	20.40	20.25		
5	16QAM	12	13	20.44	20.38	20.20		
5	16QAM	25	0	20.40	20.39	20.22		
5	64QAM	1	0	20.58	20.31	20.27	22	2
5	64QAM	1	12	20.16	20.53	20.20		
5	64QAM	1	24	20.34	20.02	20.01		
5	64QAM	12	0	19.20	19.33	19.38	21	3
5	64QAM	12	7	19.33	19.48	19.41		
5	64QAM	12	13	19.25	19.44	19.33		
5	64QAM	25	0	19.30	19.25	19.24		
5	256QAM	1	0	19.14	18.88	18.86	20	4
5	256QAM	1	12	18.75	19.09	18.75		
5	256QAM	1	24	18.88	18.58	18.52		
5	256QAM	12	0	17.70	17.92	17.90	19.5	4.5
5	256QAM	12	7	17.90	18.05	17.97		
5	256QAM	12	13	17.79	17.95	17.89		
5	256QAM	25	0	17.85	17.75	17.76		
Channel				26055	26340	26675	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	22.17	22.15	22.23	24	0
3	QPSK	1	8	22.11	22.19	22.18		
3	QPSK	1	14	22.15	22.18	22.10		
3	QPSK	8	0	21.25	21.34	21.29	23	1
3	QPSK	8	4	21.25	21.33	21.18		
3	QPSK	8	7	21.30	21.32	21.15		
3	QPSK	15	0	21.32	21.16	21.24		
3	16QAM	1	0	21.40	21.26	21.42	23	1
3	16QAM	1	8	21.46	21.21	21.67		
3	16QAM	1	14	21.53	21.39	21.21		
3	16QAM	8	0	20.10	20.40	20.31	22	2
3	16QAM	8	4	20.37	20.35	20.17		
3	16QAM	8	7	20.38	20.38	20.11		

3	16QAM	15	0	20.35	20.29	20.18		
3	64QAM	1	0	20.50	20.22	20.20	22	2
3	64QAM	1	8	20.10	20.49	20.16		
3	64QAM	1	14	20.24	20.02	20.06		
3	64QAM	8	0	19.19	19.29	19.32	21	3
3	64QAM	8	4	19.24	19.44	19.38		
3	64QAM	8	7	19.25	19.41	19.33		
3	64QAM	15	0	19.30	19.25	19.20		
3	256QAM	1	0	19.10	18.81	18.73	20	4
3	256QAM	1	8	18.63	19.00	18.70		
3	256QAM	1	14	18.75	18.62	18.65		
3	256QAM	8	0	17.71	17.79	17.92	19.5	4.5
3	256QAM	8	4	17.74	18.02	17.96		
3	256QAM	8	7	17.81	17.93	17.86		
3	256QAM	15	0	17.81	17.76	17.78		
Channel				26047	26340	26683	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	22.14	22.11	22.14	24	0
1.4	QPSK	1	3	22.07	22.12	22.11		
1.4	QPSK	1	5	22.11	22.17	22.02		
1.4	QPSK	3	0	22.09	22.10	22.14		
1.4	QPSK	3	1	22.07	22.12	22.10		
1.4	QPSK	3	3	22.07	22.08	22.10		
1.4	QPSK	6	0	21.31	21.14	21.20	23	1
1.4	16QAM	1	0	21.30	21.19	21.34	23	1
1.4	16QAM	1	3	21.43	21.17	21.65		
1.4	16QAM	1	5	21.43	21.34	21.15		
1.4	16QAM	3	0	21.35	21.25	21.38		
1.4	16QAM	3	1	21.42	21.16	21.67		
1.4	16QAM	3	3	21.46	21.33	21.16		
1.4	16QAM	6	0	20.28	20.29	20.13	22	2
1.4	64QAM	1	0	20.45	20.17	20.10	22	2
1.4	64QAM	1	3	20.10	20.46	20.14		
1.4	64QAM	1	5	20.18	20.00	20.01		
1.4	64QAM	3	0	20.40	20.12	20.13		
1.4	64QAM	3	1	20.06	20.40	20.12		
1.4	64QAM	3	3	20.15	20.02	20.06		
1.4	64QAM	6	0	19.22	19.18	19.20	21	3
1.4	256QAM	1	0	19.03	18.75	18.61	20	4
1.4	256QAM	1	3	18.60	18.98	18.72		
1.4	256QAM	1	5	18.78	18.55	18.60		
1.4	256QAM	3	0	18.95	18.67	18.66		
1.4	256QAM	3	1	18.66	18.90	18.64		
1.4	256QAM	3	3	18.72	18.61	18.56		
1.4	256QAM	6	0	17.76	17.69	17.76	19.5	4.5

<LTE Band 26_Main>

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	23.14	23.15	23.12	24.5	0
15	QPSK	1	37	23.01	23.09	23.05		
15	QPSK	1	74	23.05	23.10	22.72		

15	QPSK	36	0	22.28	22.24	22.26	23.5	1
15	QPSK	36	20	22.22	22.22	22.26		
15	QPSK	36	39	22.11	22.16	22.26		
15	QPSK	75	0	22.25	22.24	22.17		
15	16QAM	1	0	22.40	22.67	22.36	23.5	1
15	16QAM	1	37	22.35	22.62	22.72		
15	16QAM	1	74	22.16	22.37	22.03		
15	16QAM	36	0	21.23	21.33	21.21	22.5	2
15	16QAM	36	20	21.26	21.30	21.29		
15	16QAM	36	39	21.14	21.22	21.06		
15	16QAM	75	0	21.19	21.28	21.20		
15	64QAM	1	0	21.15	21.24	21.06	22.5	2
15	64QAM	1	37	21.13	21.39	21.53		
15	64QAM	1	74	21.16	21.47	21.37		
15	64QAM	36	0	20.10	20.36	20.29	21.5	3
15	64QAM	36	20	20.24	20.52	20.21		
15	64QAM	36	39	20.23	20.35	20.14		
15	64QAM	75	0	20.22	20.29	20.11		
15	256QAM	1	0	19.74	19.83	19.57	20.5	4
15	256QAM	1	37	19.63	19.95	20.12		
15	256QAM	1	74	19.71	20.07	19.94		
15	256QAM	36	0	18.69	18.88	18.87	20	4.5
15	256QAM	36	20	18.74	19.02	18.80		
15	256QAM	36	39	18.77	18.88	18.65		
15	256QAM	75	0	18.79	18.81	18.66		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	23.05	22.94	23.11	24.5	0
10	QPSK	1	25	22.93	23.04	23.03		
10	QPSK	1	49	23.01	23.03	22.70		
10	QPSK	25	0	22.08	22.20	22.21	23.5	1
10	QPSK	25	12	22.19	22.32	22.21		
10	QPSK	25	25	22.06	22.19	22.23		
10	QPSK	50	0	22.25	22.15	22.07		
10	16QAM	1	0	22.35	22.63	22.29	23.5	1
10	16QAM	1	25	22.28	22.53	22.67		
10	16QAM	1	49	22.10	22.30	21.97		
10	16QAM	25	0	21.13	21.30	21.12	22.5	2
10	16QAM	25	12	21.20	21.23	21.29		
10	16QAM	25	25	21.06	21.21	21.03		
10	16QAM	50	0	21.10	21.20	21.17		
10	64QAM	1	0	21.09	21.17	20.97	22.5	2
10	64QAM	1	25	21.11	21.31	21.52		
10	64QAM	1	49	21.07	21.41	21.30		
10	64QAM	25	0	20.04	20.29	20.22	21.5	3
10	64QAM	25	12	20.18	20.47	20.14		
10	64QAM	25	25	20.17	20.30	20.10		
10	64QAM	50	0	20.20	20.23	20.10		
10	256QAM	1	0	19.63	19.72	19.52	20.5	4
10	256QAM	1	25	19.67	19.88	20.12		
10	256QAM	1	49	19.62	19.94	19.81		
10	256QAM	25	0	18.54	18.86	18.82	20	4.5
10	256QAM	25	12	18.69	19.03	18.68		
10	256QAM	25	25	18.69	18.90	18.61		
10	256QAM	50	0	18.79	18.81	18.60		
Channel				26715	26865	27015	Tune-up limit	MPR

Frequency (MHz)				816.5	831.5	846.5	(dBm)	(dB)
5	QPSK	1	0	23.01	22.92	23.05	24.5	0
5	QPSK	1	12	22.90	22.99	22.98		
5	QPSK	1	24	22.97	22.96	22.68		
5	QPSK	12	0	22.06	22.12	22.17	23.5	1
5	QPSK	12	7	22.13	22.25	22.15		
5	QPSK	12	13	22.04	22.16	22.18		
5	QPSK	25	0	22.17	22.12	21.97		
5	16QAM	1	0	22.27	22.57	22.22	23.5	1
5	16QAM	1	12	22.26	22.51	22.57		
5	16QAM	1	24	22.00	22.25	21.97		
5	16QAM	12	0	21.07	21.21	21.10	22.5	2
5	16QAM	12	7	21.19	21.22	21.22		
5	16QAM	12	13	21.05	21.14	20.93		
5	16QAM	25	0	21.07	21.18	21.07		
5	64QAM	1	0	21.08	21.14	20.90	22.5	2
5	64QAM	1	12	21.07	21.26	21.47		
5	64QAM	1	24	21.04	21.34	21.27		
5	64QAM	12	0	20.03	20.25	20.16	21.5	3
5	64QAM	12	7	20.18	20.40	20.05		
5	64QAM	12	13	20.08	20.29	20.09		
5	64QAM	25	0	20.12	20.16	20.10		
5	256QAM	1	0	19.58	19.72	19.42	20.5	4
5	256QAM	1	12	19.64	19.80	20.00		
5	256QAM	1	24	19.57	19.87	19.79		
5	256QAM	12	0	18.58	18.80	18.68	20	4.5
5	256QAM	12	7	18.75	18.99	18.62		
5	256QAM	12	13	18.62	18.85	18.61		
5	256QAM	25	0	18.70	18.72	18.63		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.98	22.88	22.97	24.5	0
3	QPSK	1	8	22.82	22.94	22.90		
3	QPSK	1	14	22.88	22.92	22.62		
3	QPSK	8	0	22.06	22.04	22.15	23.5	1
3	QPSK	8	4	22.13	22.23	22.11		
3	QPSK	8	7	21.98	22.10	22.17		
3	QPSK	15	0	22.10	22.06	21.97		
3	16QAM	1	0	22.23	22.51	22.19	23.5	1
3	16QAM	1	8	22.20	22.48	22.49		
3	16QAM	1	14	21.99	22.20	21.95		
3	16QAM	8	0	20.97	21.16	21.03	22.5	2
3	16QAM	8	4	21.19	21.19	21.13		
3	16QAM	8	7	21.01	21.14	20.92		
3	16QAM	15	0	21.07	21.15	20.97		
3	64QAM	1	0	21.04	21.05	20.85	22.5	2
3	64QAM	1	8	21.04	21.18	21.45		
3	64QAM	1	14	21.01	21.34	21.17		
3	64QAM	8	0	19.94	20.18	20.07	21.5	3
3	64QAM	8	4	20.10	20.38	20.01		
3	64QAM	8	7	19.99	20.27	20.05		
3	64QAM	15	0	20.12	20.10	20.06		
3	256QAM	1	0	19.57	19.62	19.43	20.5	4
3	256QAM	1	8	19.62	19.71	19.95		
3	256QAM	1	14	19.61	19.90	19.68		
3	256QAM	8	0	18.46	18.75	18.59	20	4.5

3	256QAM	8	4	18.66	18.95	18.51		
3	256QAM	8	7	18.49	18.81	18.56		
3	256QAM	15	0	18.67	18.67	18.56		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.91	22.79	22.87	24.5	0
1.4	QPSK	1	3	22.77	22.90	22.90		
1.4	QPSK	1	5	22.88	22.89	22.61		
1.4	QPSK	3	0	22.97	22.80	22.88		
1.4	QPSK	3	1	22.75	22.85	22.80		
1.4	QPSK	3	3	22.79	22.88	22.54		
1.4	QPSK	6	0	22.09	22.00	21.91	23.5	1
1.4	16QAM	1	0	22.13	22.48	22.13	23.5	1
1.4	16QAM	1	3	22.11	22.42	22.49		
1.4	16QAM	1	5	21.98	22.20	21.93		
1.4	16QAM	3	0	22.22	22.47	22.15		
1.4	16QAM	3	1	22.10	22.47	22.46		
1.4	16QAM	3	3	21.96	22.19	21.88		
1.4	16QAM	6	0	20.98	21.05	20.88	22.5	2
1.4	64QAM	1	0	21.02	21.03	20.81	22.5	2
1.4	64QAM	1	3	20.99	21.14	21.40		
1.4	64QAM	1	5	20.93	21.28	21.11		
1.4	64QAM	3	0	20.97	20.96	20.79		
1.4	64QAM	3	1	20.99	21.18	21.36		
1.4	64QAM	3	3	20.96	21.28	21.13		
1.4	64QAM	6	0	20.09	20.09	20.00	21.5	3
1.4	256QAM	1	0	19.62	19.61	19.34	20.5	4
1.4	256QAM	1	3	19.50	19.68	19.93		
1.4	256QAM	1	5	19.45	19.88	19.62		
1.4	256QAM	3	0	19.57	19.52	19.32		
1.4	256QAM	3	1	19.58	19.69	19.92		
1.4	256QAM	3	3	19.47	19.82	19.69		
1.4	256QAM	6	0	18.68	18.62	18.54	20	4.5

<LTE Band 30_Main>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel					27710			
Frequency (MHz)					2310			
10	QPSK	1	0		21.20		23	0
10	QPSK	1	25		21.15			
10	QPSK	1	49		21.14			
10	QPSK	25	0		20.29		22	1
10	QPSK	25	12		20.20			
10	QPSK	25	25		20.08			
10	QPSK	50	0		20.11			
10	16QAM	1	0		20.26		22	1
10	16QAM	1	25		20.60			
10	16QAM	1	49		20.35			
10	16QAM	25	0		19.24		21	2
10	16QAM	25	12		19.20			
10	16QAM	25	25		19.19			
10	16QAM	50	0		19.15			
10	64QAM	1	0		19.51		21	2

10	64QAM	1	25		19.57			
10	64QAM	1	49		19.32			
10	64QAM	25	0		18.17		20	3
10	64QAM	25	12		18.25			
10	64QAM	25	25		18.15			
10	64QAM	50	0		18.14			
10	256QAM	1	0		18.03		19	4
10	256QAM	1	25		18.10			
10	256QAM	1	49		17.89			
10	256QAM	25	0		16.70		18.5	4.5
10	256QAM	25	12		16.84			
10	256QAM	25	25		16.69			
10	256QAM	50	0		16.67			
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	21.19	21.10	21.13	23	0
5	QPSK	1	12	21.12	21.05	21.10		
5	QPSK	1	24	21.06	21.09	21.08		
5	QPSK	12	0	20.15	20.17	20.17	22	1
5	QPSK	12	7	20.14	20.19	20.11		
5	QPSK	12	13	20.00	20.06	20.06		
5	QPSK	25	0	20.02	20.08	20.11		
5	16QAM	1	0	20.16	20.26	20.21	22	1
5	16QAM	1	12	20.50	20.60	20.50		
5	16QAM	1	24	20.28	20.25	20.34		
5	16QAM	12	0	19.20	19.24	19.22	21	2
5	16QAM	12	7	19.14	19.16	19.10		
5	16QAM	12	13	19.19	19.11	19.19		
5	16QAM	25	0	19.06	19.14	19.14		
5	64QAM	1	0	19.46	19.49	19.48	21	2
5	64QAM	1	12	19.54	19.48	19.50		
5	64QAM	1	24	19.22	19.22	19.28		
5	64QAM	12	0	18.14	18.14	18.17	20	3
5	64QAM	12	7	18.17	18.15	18.24		
5	64QAM	12	13	18.12	18.15	18.09		
5	64QAM	25	0	18.04	18.04	18.04		
5	256QAM	1	0	17.99	18.02	18.07	19	4
5	256QAM	1	12	18.08	18.06	18.00		
5	256QAM	1	24	17.73	17.81	17.88		
5	256QAM	12	0	16.69	16.74	16.73	18.5	4.5
5	256QAM	12	7	16.70	16.75	16.75		
5	256QAM	12	13	16.65	16.65	16.65		
5	256QAM	25	0	16.64	16.57	16.54		

<LTE Band 66_Main>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	22.53	22.60	22.54	24	0
20	QPSK	1	49	22.41	22.36	22.25		
20	QPSK	1	99	22.33	22.55	22.37		
20	QPSK	50	0	21.60	21.66	21.54	23	1
20	QPSK	50	24	21.61	21.55	21.52		

20	QPSK	50	50	21.61	21.57	21.46		
20	QPSK	100	0	21.57	21.41	21.58		
20	16QAM	1	0	21.84	21.70	22.14	23	1
20	16QAM	1	49	21.78	21.81	21.98		
20	16QAM	1	99	21.60	22.05	21.59		
20	16QAM	50	0	20.57	20.53	20.47	22	2
20	16QAM	50	24	20.66	20.46	20.56		
20	16QAM	50	50	20.49	20.62	20.52		
20	16QAM	100	0	20.62	20.47	20.59		
20	64QAM	1	0	20.67	20.89	20.61	22	2
20	64QAM	1	49	20.42	20.56	20.73		
20	64QAM	1	99	20.43	20.52	20.48		
20	64QAM	50	0	19.53	19.64	19.58	21	3
20	64QAM	50	24	19.70	19.53	19.56		
20	64QAM	50	50	19.62	19.59	19.44		
20	64QAM	100	0	19.68	19.41	19.61		
20	256QAM	1	0	19.20	19.49	19.20	20	4
20	256QAM	1	49	18.98	19.10	19.30		
20	256QAM	1	99	18.99	19.06	19.01		
20	256QAM	50	0	18.08	18.20	18.13	19.5	4.5
20	256QAM	50	24	18.30	18.05	18.15		
20	256QAM	50	50	18.12	18.19	17.98		
20	256QAM	100	0	18.25	17.97	18.16		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	22.50	22.53	22.50	24	0
15	QPSK	1	37	22.36	22.29	22.20		
15	QPSK	1	74	22.32	22.55	22.36		
15	QPSK	36	0	21.51	21.53	21.42	23	1
15	QPSK	36	20	21.61	21.49	21.42		
15	QPSK	36	39	21.57	21.55	21.46		
15	QPSK	75	0	21.55	21.38	21.49		
15	16QAM	1	0	21.77	21.61	22.09	23	1
15	16QAM	1	37	21.78	21.72	21.97		
15	16QAM	1	74	21.53	22.04	21.52		
15	16QAM	36	0	20.52	20.51	20.44	22	2
15	16QAM	36	20	20.58	20.37	20.54		
15	16QAM	36	39	20.39	20.60	20.46		
15	16QAM	75	0	20.56	20.42	20.50		
15	64QAM	1	0	20.58	20.83	20.53	22	2
15	64QAM	1	37	20.42	20.51	20.71		
15	64QAM	1	74	20.38	20.52	20.46		
15	64QAM	36	0	19.53	19.56	19.50	21	3
15	64QAM	36	20	19.64	19.48	19.56		
15	64QAM	36	39	19.54	19.58	19.38		
15	64QAM	75	0	19.67	19.38	19.55		
15	256QAM	1	0	19.17	19.42	19.10	20	4
15	256QAM	1	37	18.98	19.02	19.21		
15	256QAM	1	74	18.91	19.08	19.04		
15	256QAM	36	0	18.04	18.11	18.08	19.5	4.5
15	256QAM	36	20	18.17	18.06	18.12		
15	256QAM	36	39	18.06	18.11	17.95		
15	256QAM	75	0	18.18	17.88	18.08		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	22.42	22.52	22.42	24	0

10	QPSK	1	25	22.29	22.19	22.11		
10	QPSK	1	49	22.26	22.47	22.30		
10	QPSK	25	0	21.45	21.52	21.38	23	1
10	QPSK	25	12	21.56	21.45	21.42		
10	QPSK	25	25	21.56	21.48	21.43		
10	QPSK	50	0	21.47	21.37	21.45		
10	16QAM	1	0	21.77	21.57	22.08	23	1
10	16QAM	1	25	21.71	21.64	21.97		
10	16QAM	1	49	21.45	22.03	21.45		
10	16QAM	25	0	20.51	20.43	20.34	22	2
10	16QAM	25	12	20.49	20.28	20.53		
10	16QAM	25	25	20.36	20.59	20.38		
10	16QAM	50	0	20.52	20.37	20.50		
10	64QAM	1	0	20.50	20.78	20.44	22	2
10	64QAM	1	25	20.32	20.43	20.69		
10	64QAM	1	49	20.28	20.52	20.36		
10	64QAM	25	0	19.43	19.56	19.42	21	3
10	64QAM	25	12	19.55	19.46	19.48		
10	64QAM	25	25	19.49	19.51	19.30		
10	64QAM	50	0	19.60	19.33	19.53		
10	256QAM	1	0	19.06	19.30	19.00	20	4
10	256QAM	1	25	18.89	18.95	19.21		
10	256QAM	1	49	18.79	19.12	18.92		
10	256QAM	25	0	17.97	18.15	18.00	19.5	4.5
10	256QAM	25	12	18.14	18.00	18.08		
10	256QAM	25	25	18.04	18.02	17.83		
10	256QAM	50	0	18.14	17.87	18.11		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	22.42	22.45	22.40	24	0
5	QPSK	1	12	22.19	22.19	22.10		
5	QPSK	1	24	22.17	22.41	22.26		
5	QPSK	12	0	21.40	21.45	21.29	23	1
5	QPSK	12	7	21.47	21.40	21.37		
5	QPSK	12	13	21.56	21.45	21.35		
5	QPSK	25	0	21.39	21.30	21.45		
5	16QAM	1	0	21.76	21.53	22.08	23	1
5	16QAM	1	12	21.69	21.55	21.87		
5	16QAM	1	24	21.35	22.02	21.35		
5	16QAM	12	0	20.44	20.40	20.24	22	2
5	16QAM	12	7	20.48	20.28	20.45		
5	16QAM	12	13	20.27	20.50	20.33		
5	16QAM	25	0	20.47	20.32	20.40		
5	64QAM	1	0	20.45	20.75	20.42	22	2
5	64QAM	1	12	20.22	20.34	20.64		
5	64QAM	1	24	20.23	20.45	20.34		
5	64QAM	12	0	19.38	19.51	19.40	21	3
5	64QAM	12	7	19.45	19.46	19.44		
5	64QAM	12	13	19.44	19.51	19.22		
5	64QAM	25	0	19.56	19.26	19.51		
5	256QAM	1	0	19.03	19.30	18.94	20	4
5	256QAM	1	12	18.81	18.90	19.24		
5	256QAM	1	24	18.83	19.03	18.90		
5	256QAM	12	0	17.97	18.02	17.96	19.5	4.5
5	256QAM	12	7	18.02	18.04	17.99		
5	256QAM	12	13	17.94	18.10	17.81		

5	256QAM	25	0	18.13	17.83	18.11		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	22.37	22.37	22.36	24	0
3	QPSK	1	8	22.10	22.13	22.07		
3	QPSK	1	14	22.15	22.38	22.24		
3	QPSK	8	0	21.32	21.41	21.20	23	1
3	QPSK	8	4	21.47	21.32	21.28		
3	QPSK	8	7	21.51	21.43	21.31		
3	QPSK	15	0	21.37	21.21	21.42		
3	16QAM	1	0	21.70	21.52	22.00	23	1
3	16QAM	1	8	21.68	21.52	21.82		
3	16QAM	1	14	21.33	21.94	21.32		
3	16QAM	8	0	20.35	20.32	20.23	22	2
3	16QAM	8	4	20.42	20.21	20.42		
3	16QAM	8	7	20.25	20.50	20.26		
3	16QAM	15	0	20.41	20.23	20.37		
3	64QAM	1	0	20.35	20.65	20.41	22	2
3	64QAM	1	8	20.13	20.29	20.62		
3	64QAM	1	14	20.13	20.44	20.34		
3	64QAM	8	0	19.36	19.42	19.40	21	3
3	64QAM	8	4	19.37	19.41	19.42		
3	64QAM	8	7	19.34	19.45	19.14		
3	64QAM	15	0	19.50	19.24	19.47		
3	256QAM	1	0	18.86	19.22	18.92	20	4
3	256QAM	1	8	18.63	18.85	19.13		
3	256QAM	1	14	18.71	18.94	18.91		
3	256QAM	8	0	17.94	17.92	17.98	19.5	4.5
3	256QAM	8	4	17.87	17.92	18.00		
3	256QAM	8	7	17.90	18.02	17.68		
3	256QAM	15	0	18.02	17.81	18.05		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	22.33	22.33	22.30	24	0
1.4	QPSK	1	3	22.01	22.07	22.00		
1.4	QPSK	1	5	22.05	22.31	22.22		
1.4	QPSK	3	0	22.27	22.32	22.26		
1.4	QPSK	3	1	22.07	22.04	22.01		
1.4	QPSK	3	3	22.13	22.33	22.19		
1.4	QPSK	6	0	21.32	21.18	21.33	23	1
1.4	16QAM	1	0	21.64	21.45	21.91	23	1
1.4	16QAM	1	3	21.59	21.49	21.75		
1.4	16QAM	1	5	21.28	21.90	21.29		
1.4	16QAM	3	0	21.60	21.46	21.90		
1.4	16QAM	3	1	21.64	21.46	21.79		
1.4	16QAM	3	3	21.33	21.89	21.22		
1.4	16QAM	6	0	20.40	20.16	20.37	22	2
1.4	64QAM	1	0	20.31	20.59	20.31	22	2
1.4	64QAM	1	3	20.05	20.19	20.60		
1.4	64QAM	1	5	20.08	20.39	20.28		
1.4	64QAM	3	0	20.34	20.60	20.36		
1.4	64QAM	3	1	20.12	20.25	20.60		
1.4	64QAM	3	3	20.13	20.35	20.25		
1.4	64QAM	6	0	19.44	19.22	19.45	21	3
1.4	256QAM	1	0	18.85	19.11	18.86	20	4
1.4	256QAM	1	3	18.61	18.71	19.17		

1.4	256QAM	1	5	18.62	18.97	18.81		
1.4	256QAM	3	0	18.91	19.10	18.87		
1.4	256QAM	3	1	18.66	18.83	19.13		
1.4	256QAM	3	3	18.70	18.89	18.77		
1.4	256QAM	6	0	17.97	17.78	18.05	19.5	4.5

<LTE Band 66_Aux 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				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	22.70	22.68	22.98	24	0
20	QPSK	1	49	22.43	22.49	22.73		
20	QPSK	1	99	22.55	22.66	22.93		
20	QPSK	50	0	21.83	21.89	22.31	23	1
20	QPSK	50	24	21.89	21.96	22.23		
20	QPSK	50	50	21.82	21.94	22.24		
20	QPSK	100	0	21.92	22.02	22.22		
20	16QAM	1	0	21.24	21.29	21.53	23	1
20	16QAM	1	49	21.58	21.64	21.91		
20	16QAM	1	99	21.65	21.68	21.95		
20	16QAM	50	0	20.83	20.88	21.13	22	2
20	16QAM	50	24	20.95	21.00	21.20		
20	16QAM	50	50	20.92	20.99	21.20		
20	16QAM	100	0	20.88	20.94	21.22		
20	64QAM	1	0	20.14	20.03	20.32	22	2
20	64QAM	1	49	20.86	20.96	21.18		
20	64QAM	1	99	21.36	21.43	21.67		
20	64QAM	50	0	19.27	19.31	19.57	21	3
20	64QAM	50	24	19.75	19.78	19.98		
20	64QAM	50	50	19.88	19.93	20.18		
20	64QAM	100	0	19.62	19.73	19.96		
20	256QAM	1	0	18.68	18.63	18.92	20.5	3.5
20	256QAM	1	49	19.40	19.49	19.76		
20	256QAM	1	99	19.86	19.93	20.25		
20	256QAM	50	0	17.78	17.85	18.14	19.5	4.5
20	256QAM	50	24	18.32	18.37	18.55		
20	256QAM	50	50	18.44	18.47	18.76		
20	256QAM	100	0	18.21	18.25	18.48		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	22.60	22.60	22.97	24	0
15	QPSK	1	37	22.41	22.47	22.67		
15	QPSK	1	74	22.47	22.65	22.92		
15	QPSK	36	0	21.80	21.88	22.14	23	1
15	QPSK	36	20	21.80	21.86	22.18		
15	QPSK	36	39	21.72	21.86	22.20		
15	QPSK	75	0	21.90	22.01	22.17		
15	16QAM	1	0	21.15	21.23	21.51	23	1
15	16QAM	1	37	21.48	21.54	21.81		
15	16QAM	1	74	21.64	21.63	21.90		
15	16QAM	36	0	20.80	20.80	21.03	22	2
15	16QAM	36	20	20.93	20.93	21.20		
15	16QAM	36	39	20.87	20.96	21.13		

15	16QAM	75	0	20.83	20.93	21.14		
15	64QAM	1	0	20.06	20.02	20.24	22	2
15	64QAM	1	37	20.81	20.87	21.14		
15	64QAM	1	74	21.36	21.42	21.62		
15	64QAM	36	0	19.22	19.21	19.47	21	3
15	64QAM	36	20	19.66	19.78	19.89		
15	64QAM	36	39	19.85	19.84	20.16		
15	64QAM	75	0	19.59	19.69	19.95		
15	256QAM	1	0	18.64	18.62	18.76	20.5	3.5
15	256QAM	1	37	19.41	19.45	19.65		
15	256QAM	1	74	19.92	19.99	20.17		
15	256QAM	36	0	17.73	17.79	17.99	19.5	4.5
15	256QAM	36	20	18.24	18.31	18.45		
15	256QAM	36	39	18.35	18.41	18.75		
15	256QAM	75	0	18.12	18.25	18.52		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	22.67	22.67	22.88	24	0
10	QPSK	1	25	22.37	22.48	22.68		
10	QPSK	1	49	22.50	22.60	22.85		
10	QPSK	25	0	21.77	21.80	22.13	23	1
10	QPSK	25	12	21.79	21.89	22.14		
10	QPSK	25	25	21.79	21.88	22.23		
10	QPSK	50	0	21.91	22.01	22.21		
10	16QAM	1	0	21.21	21.22	21.45	23	1
10	16QAM	1	25	21.50	21.61	21.82		
10	16QAM	1	49	21.58	21.63	21.85		
10	16QAM	25	0	20.82	20.80	21.09	22	2
10	16QAM	25	12	20.95	21.00	21.14		
10	16QAM	25	25	20.91	20.97	21.14		
10	16QAM	50	0	20.78	20.89	21.21		
10	64QAM	1	0	20.07	20.03	20.31	22	2
10	64QAM	1	25	20.81	20.87	21.17		
10	64QAM	1	49	21.27	21.43	21.57		
10	64QAM	25	0	19.21	19.24	19.48	21	3
10	64QAM	25	12	19.73	19.73	19.97		
10	64QAM	25	25	19.81	19.86	20.14		
10	64QAM	50	0	19.62	19.68	19.89		
10	256QAM	1	0	18.67	18.54	18.89	20.5	3.5
10	256QAM	1	25	19.33	19.46	19.71		
10	256QAM	1	49	19.87	20.01	20.08		
10	256QAM	25	0	17.81	17.76	17.98	19.5	4.5
10	256QAM	25	12	18.24	18.26	18.49		
10	256QAM	25	25	18.41	18.42	18.69		
10	256QAM	50	0	18.18	18.22	18.48		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	22.60	22.66	22.94	24	0
5	QPSK	1	12	22.41	22.45	22.67		
5	QPSK	1	24	22.55	22.63	22.88		
5	QPSK	12	0	21.77	21.80	22.17	23	1
5	QPSK	12	7	21.86	21.94	22.21		
5	QPSK	12	13	21.76	21.84	22.21		
5	QPSK	25	0	21.87	21.92	22.12		
5	16QAM	1	0	21.24	21.20	21.49	23	1
5	16QAM	1	12	21.48	21.61	21.82		

5	16QAM	1	24	21.64	21.61	21.93		
5	16QAM	12	0	20.80	20.82	21.04	22	2
5	16QAM	12	7	20.86	20.96	21.19		
5	16QAM	12	13	20.91	20.96	21.10		
5	16QAM	25	0	20.82	20.87	21.16		
5	64QAM	1	0	20.11	20.01	20.31	22	2
5	64QAM	1	12	20.80	20.95	21.14		
5	64QAM	1	24	21.35	21.37	21.63		
5	64QAM	12	0	19.22	19.29	19.52	21	3
5	64QAM	12	7	19.65	19.71	19.96		
5	64QAM	12	13	19.79	19.89	20.15		
5	64QAM	25	0	19.56	19.66	19.89		
5	256QAM	1	0	18.64	18.57	18.85	20.5	3.5
5	256QAM	1	12	19.35	19.55	19.73		
5	256QAM	1	24	19.94	19.89	20.14		
5	256QAM	12	0	17.75	17.85	18.06	19.5	4.5
5	256QAM	12	7	18.22	18.27	18.48		
5	256QAM	12	13	18.33	18.46	18.72		
5	256QAM	25	0	18.14	18.19	18.44		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	22.64	22.62	22.94	24	0
3	QPSK	1	8	22.38	22.45	22.72		
3	QPSK	1	14	22.47	22.65	22.93		
3	QPSK	8	0	21.73	21.87	22.13	23	1
3	QPSK	8	4	21.79	21.88	22.15		
3	QPSK	8	7	21.75	21.91	22.17		
3	QPSK	15	0	21.85	21.93	22.18		
3	16QAM	1	0	21.22	21.28	21.52	23	1
3	16QAM	1	8	21.58	21.58	21.89		
3	16QAM	1	14	21.64	21.68	21.85		
3	16QAM	8	0	20.75	20.85	21.03	22	2
3	16QAM	8	4	20.87	20.91	21.12		
3	16QAM	8	7	20.82	20.94	21.15		
3	16QAM	15	0	20.83	20.94	21.16		
3	64QAM	1	0	20.12	20.00	20.28	22	2
3	64QAM	1	8	20.82	20.87	21.09		
3	64QAM	1	14	21.33	21.41	21.65		
3	64QAM	8	0	19.23	19.21	19.49	21	3
3	64QAM	8	4	19.74	19.73	19.95		
3	64QAM	8	7	19.83	19.84	20.11		
3	64QAM	15	0	19.59	19.64	19.92		
3	256QAM	1	0	18.69	18.59	18.86	20.5	3.5
3	256QAM	1	8	19.34	19.40	19.62		
3	256QAM	1	14	19.88	19.98	20.18		
3	256QAM	8	0	17.80	17.75	18.00	19.5	4.5
3	256QAM	8	4	18.25	18.33	18.55		
3	256QAM	8	7	18.42	18.34	18.68		
3	256QAM	15	0	18.18	18.19	18.47		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	22.65	22.66	22.88	24	0
1.4	QPSK	1	3	22.42	22.45	22.64		
1.4	QPSK	1	5	22.50	22.65	22.86		
1.4	QPSK	3	0	22.64	22.59	22.92		
1.4	QPSK	3	1	22.43	22.39	22.71		

1.4	QPSK	3	3	22.54	22.61	22.88		
1.4	QPSK	6	0	21.79	21.88	22.17	23	1
1.4	16QAM	1	0	21.18	21.22	21.44	23	1
1.4	16QAM	1	3	21.51	21.60	21.90		
1.4	16QAM	1	5	21.62	21.58	21.85		
1.4	16QAM	3	0	21.18	21.22	21.52		
1.4	16QAM	3	1	21.52	21.63	21.85		
1.4	16QAM	3	3	21.56	21.59	21.93		
1.4	16QAM	6	0	20.74	20.79	21.03	22	2
1.4	64QAM	1	0	20.07	20.03	20.27	22	2
1.4	64QAM	1	3	20.86	20.92	21.18		
1.4	64QAM	1	5	21.36	21.34	21.63		
1.4	64QAM	3	0	20.08	20.17	20.30		
1.4	64QAM	3	1	20.77	20.87	21.16		
1.4	64QAM	3	3	21.30	21.37	21.65		
1.4	64QAM	6	0	19.52	19.66	19.95	21	3
1.4	256QAM	1	0	18.59	18.58	18.79	19.5	4.5
1.4	256QAM	1	3	19.43	19.45	19.45		
1.4	256QAM	1	5	19.41	19.39	19.44		
1.4	256QAM	3	0	18.63	18.75	18.81		
1.4	256QAM	3	1	19.27	19.43	19.19		
1.4	256QAM	3	3	19.30	19.47	19.22		
1.4	256QAM	6	0	18.06	18.20	18.47	19.5	4.5

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

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

a. 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
b. "special subframe S" contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS
c. Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

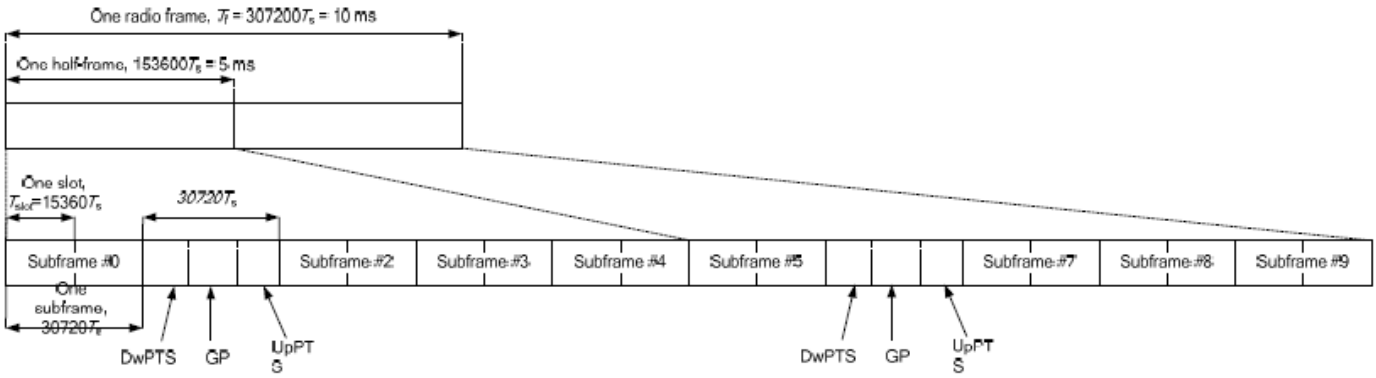


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

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

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

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

The highest duty factor is resulted from:

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

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

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

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

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

vi. The device supports Power Class 3 uplink-downlink configurations 0 and 6, and Power Class 2 uplink-downlink configurations 1 to 5 operations for LTE Band 41.

vii. The highest available duty cycle for Power Class 2 operation is 43.3% using UL-DL configuration 1, for Power Class 3 operation is 63.3% using UL-DL configuration 0. Per FCC Guidance, all SAR tests were performed using Power Class 3. SAR with Power Class 2 at the available duty factor was additionally performed for the Power Class 3 configuration with the highest SAR among all exposure condition.

<LTE Band 38 Main>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				37850	38000	38150		
Frequency (MHz)				2580	2595	2610		
20	QPSK	1	0	22.58	22.54	22.43	24	0
20	QPSK	1	49	22.53	22.34	22.35		
20	QPSK	1	99	22.40	22.38	22.32		
20	QPSK	50	0	21.72	21.53	21.55	23	1
20	QPSK	50	24	21.64	21.66	21.47		
20	QPSK	50	50	21.65	21.62	21.60		
20	QPSK	100	0	21.66	21.55	21.47		
20	16QAM	1	0	21.57	21.51	21.65	23	1
20	16QAM	1	49	21.53	21.63	21.46		
20	16QAM	1	99	21.52	21.58	21.65		
20	16QAM	50	0	20.65	20.58	20.62	22	2
20	16QAM	50	24	20.62	20.58	20.49		
20	16QAM	50	50	20.66	20.61	20.58		
20	16QAM	100	0	20.70	20.54	20.58		
20	64QAM	1	0	20.31	20.34	20.14	22	2
20	64QAM	1	49	20.24	20.28	20.18		
20	64QAM	1	99	20.32	20.35	20.26		
20	64QAM	50	0	19.63	19.65	19.52	21	3
20	64QAM	50	24	19.69	19.57	19.58		
20	64QAM	50	50	19.68	19.63	19.68		
20	64QAM	100	0	19.67	19.64	19.60		
20	256QAM	1	0	18.87	18.93	18.68	19	5
20	256QAM	1	49	18.76	18.83	18.68		
20	256QAM	1	99	18.92	18.95	18.80		
20	256QAM	50	0	18.16	18.17	18.12	19	5
20	256QAM	50	24	18.21	18.08	18.08		
20	256QAM	50	50	18.18	18.21	18.23		
20	256QAM	100	0	18.22	18.20	18.17		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	22.52	22.54	22.35	24	0
15	QPSK	1	37	22.53	22.25	22.27		
15	QPSK	1	74	22.30	22.36	22.27		
15	QPSK	36	0	21.47	21.48	21.50	23	1
15	QPSK	36	20	21.64	21.65	21.45		
15	QPSK	36	39	21.57	21.55	21.56		
15	QPSK	75	0	21.60	21.50	21.47		
15	16QAM	1	0	21.56	21.51	21.60	23	1
15	16QAM	1	37	21.53	21.53	21.44		
15	16QAM	1	74	21.48	21.51	21.56		
15	16QAM	36	0	20.62	20.48	20.61	22	2
15	16QAM	36	20	20.60	20.49	20.45		
15	16QAM	36	39	20.65	20.60	20.57		
15	16QAM	75	0	20.65	20.46	20.50		
15	64QAM	1	0	20.27	20.34	20.05	22	2
15	64QAM	1	37	20.17	20.24	20.12		
15	64QAM	1	74	20.29	20.30	20.19		
15	64QAM	36	0	19.59	19.59	19.50	21	3
15	64QAM	36	20	19.62	19.52	19.57		
15	64QAM	36	39	19.68	19.55	19.58		
15	64QAM	75	0	19.58	19.62	19.51		

15	256QAM	1	0	18.80	18.89	18.65	19	5
15	256QAM	1	37	18.74	18.84	18.62		
15	256QAM	1	74	18.89	18.87	18.70		
15	256QAM	36	0	18.13	18.14	18.05	19	5
15	256QAM	36	20	18.20	18.12	18.17		
15	256QAM	36	39	18.18	18.13	18.14		
15	256QAM	75	0	18.13	18.21	18.07		
Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	22.44	22.49	22.34	24	0
10	QPSK	1	25	22.52	22.21	22.20		
10	QPSK	1	49	22.29	22.36	22.24		
10	QPSK	25	0	21.39	21.46	21.45	23	1
10	QPSK	25	12	21.57	21.56	21.41		
10	QPSK	25	25	21.52	21.53	21.49		
10	QPSK	50	0	21.60	21.48	21.43		
10	16QAM	1	0	21.56	21.44	21.50	23	1
10	16QAM	1	25	21.52	21.46	21.42		
10	16QAM	1	49	21.47	21.43	21.54		
10	16QAM	25	0	20.57	20.38	20.60	22	2
10	16QAM	25	12	20.55	20.48	20.41		
10	16QAM	25	25	20.60	20.56	20.52		
10	16QAM	50	0	20.63	20.38	20.46		
10	64QAM	1	0	20.24	20.29	20.05	22	2
10	64QAM	1	25	20.11	20.24	20.07		
10	64QAM	1	49	20.26	20.23	20.17		
10	64QAM	25	0	19.58	19.54	19.41	21	3
10	64QAM	25	12	19.59	19.42	19.56		
10	64QAM	25	25	19.58	19.51	19.53		
10	64QAM	50	0	19.48	19.53	19.42		
10	256QAM	1	0	18.76	18.82	18.56	19	5
10	256QAM	1	25	18.67	18.83	18.63		
10	256QAM	1	49	18.83	18.74	18.69		
10	256QAM	25	0	18.13	18.09	17.91	19	5
10	256QAM	25	12	18.17	18.01	18.15		
10	256QAM	25	25	18.14	18.01	18.03		
10	256QAM	50	0	18.01	18.11	18.01		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	22.44	22.44	22.29	24	0
5	QPSK	1	12	22.45	22.13	22.15		
5	QPSK	1	24	22.23	22.35	22.14		
5	QPSK	12	0	21.36	21.46	21.40	23	1
5	QPSK	12	7	21.50	21.49	21.34		
5	QPSK	12	13	21.49	21.46	21.47		
5	QPSK	25	0	21.59	21.42	21.34		
5	16QAM	1	0	21.51	21.37	21.48	23	1
5	16QAM	1	12	21.45	21.37	21.33		
5	16QAM	1	24	21.40	21.43	21.49		
5	16QAM	12	0	20.55	20.32	20.50	22	2
5	16QAM	12	7	20.48	20.47	20.40		
5	16QAM	12	13	20.52	20.55	20.52		
5	16QAM	25	0	20.55	20.29	20.38		
5	64QAM	1	0	20.24	20.28	20.04	22	2
5	64QAM	1	12	20.03	20.22	20.01		
5	64QAM	1	24	20.22	20.18	20.13		

5	64QAM	12	0	19.54	19.49	19.36	21	3
5	64QAM	12	7	19.57	19.39	19.47		
5	64QAM	12	13	19.49	19.51	19.49		
5	64QAM	25	0	19.38	19.49	19.41		
5	256QAM	1	0	18.81	18.80	18.64	19	5
5	256QAM	1	12	18.63	18.82	18.57		
5	256QAM	1	24	18.81	18.74	18.69		
5	256QAM	12	0	18.10	17.99	17.86	19	5
5	256QAM	12	7	18.13	17.95	18.07		
5	256QAM	12	13	18.05	18.02	18.04		
5	256QAM	25	0	17.97	18.03	17.97		

<LTE Band 41_Main>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	22.62	22.64	22.65	22.61	22.38	24	0
20	QPSK	1	49	22.54	22.53	22.53	22.47	22.27		
20	QPSK	1	99	22.57	22.61	22.54	22.52	22.23		
20	QPSK	50	0	21.77	21.75	21.82	21.75	21.52	23	1
20	QPSK	50	24	21.79	21.76	21.75	21.71	21.54		
20	QPSK	50	50	21.74	21.69	21.70	21.61	21.47		
20	QPSK	100	0	21.73	21.67	21.76	21.58	21.47		
20	16QAM	1	0	21.70	21.74	21.74	21.74	21.45	23	1
20	16QAM	1	49	21.60	21.64	21.66	21.54	21.31		
20	16QAM	1	99	21.74	21.61	21.78	21.54	21.42		
20	16QAM	50	0	20.84	20.67	20.74	20.65	20.41	22	2
20	16QAM	50	24	20.80	20.76	20.73	20.75	20.58		
20	16QAM	50	50	20.89	20.68	20.73	20.64	20.51		
20	16QAM	100	0	20.77	20.73	20.70	20.71	20.52		
20	64QAM	1	0	20.52	20.43	20.47	20.43	20.11	22	2
20	64QAM	1	49	20.38	20.45	20.35	20.36	20.12		
20	64QAM	1	99	20.53	20.71	20.46	20.62	20.11		
20	64QAM	50	0	19.77	19.73	19.75	19.66	19.48	21	3
20	64QAM	50	24	19.78	19.79	19.74	19.73	19.49		
20	64QAM	50	50	19.79	19.82	19.80	19.72	19.45		
20	64QAM	100	0	19.79	19.75	19.76	19.71	19.46		
20	256QAM	1	0	19.05	19.00	19.05	18.96	18.64	19	5
20	256QAM	1	49	18.88	19.01	18.85	18.95	18.67		
20	256QAM	1	99	19.06	19.26	19.00	19.12	18.67		
20	256QAM	50	0	18.28	18.32	18.25	18.23	18.00	19	5
20	256QAM	50	24	18.29	18.33	18.27	18.31	18.07		
20	256QAM	50	50	18.29	18.36	18.39	18.23	17.97		
20	256QAM	100	0	18.33	18.32	18.29	18.28	17.96		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	22.57	22.60	22.62	22.59	22.33	24.00	0
15	QPSK	1	37	22.50	22.50	22.53	22.43	22.26		
15	QPSK	1	74	22.49	22.60	22.45	22.50	22.22		
15	QPSK	36	0	21.69	21.66	21.52	21.75	21.52	23	1
15	QPSK	36	20	21.77	21.69	21.70	21.67	21.51		
15	QPSK	36	39	21.66	21.64	21.63	21.57	21.43		
15	QPSK	75	0	21.65	21.59	21.76	21.54	21.47		

15	16QAM	1	0	21.66	21.64	21.66	21.66	21.38	23	1
15	16QAM	1	37	21.55	21.63	21.57	21.46	21.24		
15	16QAM	1	74	21.67	21.53	21.74	21.51	21.42		
15	16QAM	36	0	20.84	20.60	20.67	20.59	20.32	22	2
15	16QAM	36	20	20.76	20.71	20.65	20.69	20.52		
15	16QAM	36	39	20.81	20.59	20.72	20.56	20.47		
15	16QAM	75	0	20.75	20.67	20.62	20.67	20.52		
15	64QAM	1	0	20.46	20.37	20.44	20.41	20.11	22	2
15	64QAM	1	37	20.29	20.43	20.32	20.30	20.10		
15	64QAM	1	74	20.45	20.65	20.40	20.60	20.10		
15	64QAM	36	0	19.77	19.64	19.68	19.66	19.47	21	3
15	64QAM	36	20	19.71	19.69	19.73	19.73	19.39		
15	64QAM	36	39	19.79	19.77	19.74	19.70	19.38		
15	64QAM	75	0	19.77	19.74	19.69	19.69	19.45		
15	256QAM	1	0	19.03	18.92	18.95	19.01	18.67	19	5
15	256QAM	1	37	18.84	18.98	18.84	18.85	18.61		
15	256QAM	1	74	18.98	19.15	18.93	19.12	18.63		
15	256QAM	36	0	18.36	18.23	18.28	18.16	18.01	19	5
15	256QAM	36	20	18.27	18.23	18.31	18.29	17.89		
15	256QAM	36	39	18.31	18.33	18.32	18.22	17.96		
15	256QAM	75	0	18.31	18.24	18.22	18.19	18.03		
Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	22.54	22.51	22.56	22.50	22.30	24.00	0
10	QPSK	1	25	22.46	22.44	22.47	22.38	22.22		
10	QPSK	1	49	22.40	22.59	22.38	22.45	22.17		
10	QPSK	25	0	21.63	21.66	21.47	21.66	21.50	23	1
10	QPSK	25	12	21.76	21.68	21.68	21.57	21.44		
10	QPSK	25	25	21.63	21.59	21.59	21.47	21.34		
10	QPSK	50	0	21.62	21.49	21.70	21.44	21.39		
10	16QAM	1	0	21.57	21.55	21.58	21.65	21.28	23	1
10	16QAM	1	25	21.52	21.61	21.48	21.43	21.16		
10	16QAM	1	49	21.58	21.51	21.66	21.47	21.40		
10	16QAM	25	0	20.78	20.57	20.57	20.51	20.25	22	2
10	16QAM	25	12	20.74	20.64	20.57	20.62	20.49		
10	16QAM	25	25	20.75	20.53	20.65	20.53	20.46		
10	16QAM	50	0	20.69	20.57	20.54	20.66	20.51		
10	64QAM	1	0	20.41	20.33	20.42	20.41	20.01	22	2
10	64QAM	1	25	20.19	20.41	20.32	20.20	20.10		
10	64QAM	1	49	20.40	20.57	20.37	20.55	20.10		
10	64QAM	25	0	19.70	19.55	19.61	19.62	19.44	21	3
10	64QAM	25	12	19.66	19.64	19.67	19.68	19.37		
10	64QAM	25	25	19.75	19.74	19.72	19.61	19.36		
10	64QAM	50	0	19.74	19.67	19.64	19.66	19.39		
10	256QAM	1	0	19.00	18.84	18.99	18.97	18.52	19	5
10	256QAM	1	25	18.78	18.98	18.84	18.71	18.62		
10	256QAM	1	49	19.00	19.00	18.96	19.00	18.66		
10	256QAM	25	0	18.24	18.13	18.18	18.15	18.04	19	5
10	256QAM	25	12	18.18	18.24	18.17	18.24	17.90		
10	256QAM	25	25	18.29	18.30	18.27	18.14	17.88		
10	256QAM	50	0	18.32	18.19	18.19	18.20	17.97		
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	22.52	22.43	22.50	22.50	22.26	24	0
5	QPSK	1	12	22.46	22.34	22.43	22.30	22.20		
5	QPSK	1	24	22.40	22.53	22.33	22.38	22.13		

5	QPSK	12	0	21.56	21.61	21.44	21.60	21.47	23	1
5	QPSK	12	7	21.68	21.62	21.61	21.55	21.44		
5	QPSK	12	13	21.56	21.52	21.55	21.38	21.28		
5	QPSK	25	0	21.55	21.46	21.61	21.35	21.39		
5	16QAM	1	0	21.49	21.54	21.50	21.59	21.23	23	1
5	16QAM	1	12	21.51	21.57	21.45	21.41	21.14		
5	16QAM	1	24	21.57	21.49	21.57	21.45	21.37		
5	16QAM	12	0	20.69	20.56	20.47	20.47	20.15	22	2
5	16QAM	12	7	20.71	20.59	20.49	20.58	20.42		
5	16QAM	12	13	20.68	20.53	20.56	20.45	20.44		
5	16QAM	25	0	20.68	20.50	20.54	20.60	20.51		
5	64QAM	1	0	20.37	20.24	20.40	20.36	19.94	22	2
5	64QAM	1	12	20.09	20.31	20.22	20.13	20.06		
5	64QAM	1	24	20.30	20.53	20.34	20.48	20.02		
5	64QAM	12	0	19.62	19.52	19.51	19.56	19.42	21	3
5	64QAM	12	7	19.65	19.58	19.62	19.67	19.36		
5	64QAM	12	13	19.67	19.64	19.63	19.56	19.31		
5	64QAM	25	0	19.71	19.58	19.55	19.61	19.30		
5	256QAM	1	0	18.92	18.84	18.99	18.91	18.44	19	5
5	256QAM	1	12	18.64	18.87	18.82	18.66	18.63		
5	256QAM	1	24	18.82	19.05	18.90	19.08	18.58		
5	256QAM	12	0	18.13	18.08	18.04	18.15	17.94	19	5
5	256QAM	12	7	18.18	18.11	18.20	18.17	17.95		
5	256QAM	12	13	18.24	18.15	18.17	18.12	17.83		
5	256QAM	25	0	18.28	18.09	18.11	18.15	17.80		

<LTE Band 41_HPUE_Main>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	25.36	25.24	25.21	25.06	24.72	27	0
20	QPSK	1	49	25.20	25.28	25.15	25.00	24.57		
20	QPSK	1	99	25.30	25.27	25.08	25.06	23.89		
20	QPSK	50	0	24.78	24.55	24.43	24.32	24.02	26	1
20	QPSK	50	24	24.59	24.66	24.42	24.25	23.69		
20	QPSK	50	50	24.62	24.55	24.28	24.29	23.19		
20	QPSK	100	0	24.62	24.61	24.35	24.29	23.64		
20	16QAM	1	0	24.76	24.65	24.56	24.28	23.96	26	1
20	16QAM	1	49	24.70	24.62	24.49	24.35	23.86		
20	16QAM	1	99	24.63	24.59	24.43	24.40	23.15		
20	16QAM	50	0	23.61	23.56	23.53	23.43	23.05	25	2
20	16QAM	50	24	23.61	23.65	23.56	23.37	22.83		
20	16QAM	50	50	23.52	23.56	23.49	23.35	22.41		
20	16QAM	100	0	23.61	23.64	23.49	23.38	22.60		
20	64QAM	1	0	23.22	23.43	22.56	22.31	21.93	25	2
20	64QAM	1	49	23.32	23.41	22.51	22.64	21.87		
20	64QAM	1	99	23.51	23.39	22.50	22.39	21.25		
20	64QAM	50	0	22.37	22.57	21.68	21.54	21.08	24	3
20	64QAM	50	24	22.50	22.52	21.63	21.65	20.94		
20	64QAM	50	50	22.64	22.44	21.67	21.61	20.39		
20	64QAM	100	0	22.46	22.39	21.61	21.56	20.62		
20	256QAM	1	0	21.75	21.99	21.11	20.89	20.67	22	5
20	256QAM	1	49	21.88	21.96	21.07	21.21	20.66		

20	256QAM	1	99	22.01	21.92	21.06	20.99	20.53		
20	256QAM	50	0	20.97	21.10	20.26	20.04	20.58	22	5
20	256QAM	50	24	21.03	21.10	20.17	20.16	20.40		
20	256QAM	50	50	21.19	21.00	20.27	20.16	20.31		
20	256QAM	100	0	21.04	20.99	20.17	20.06	20.16		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	25.29	25.14	25.12	25.01	24.62	27.00	0
15	QPSK	1	37	25.14	25.18	25.08	25.00	24.52		
15	QPSK	1	74	25.24	25.21	25.02	25.06	23.80		
15	QPSK	36	0	24.45	24.54	24.42	24.25	24.01	26	1
15	QPSK	36	20	24.57	24.65	24.33	24.17	23.62		
15	QPSK	36	39	24.56	24.53	24.23	24.26	23.10		
15	QPSK	75	0	24.52	24.55	24.28	24.19	23.54		
15	16QAM	1	0	24.69	24.55	24.50	24.18	23.96	26	1
15	16QAM	1	37	24.66	24.56	24.39	24.34	23.76		
15	16QAM	1	74	24.62	24.59	24.36	24.31	23.15		
15	16QAM	36	0	23.60	23.52	23.46	23.43	23.01	25	2
15	16QAM	36	20	23.52	23.55	23.50	23.34	22.79		
15	16QAM	36	39	23.45	23.49	23.42	23.30	22.31		
15	16QAM	75	0	23.58	23.58	23.49	23.33	22.58		
15	64QAM	1	0	23.21	23.38	23.19	23.38	21.83	25	2
15	64QAM	1	37	23.31	23.32	23.23	23.23	21.77		
15	64QAM	1	74	23.49	23.29	23.41	23.21	21.20		
15	64QAM	36	0	22.34	22.54	22.25	22.51	20.98	24	3
15	64QAM	36	20	22.46	22.47	22.43	22.38	20.84		
15	64QAM	36	39	22.58	22.44	22.51	22.41	20.37		
15	64QAM	75	0	22.38	22.37	22.30	22.34	20.61		
15	256QAM	1	0	21.65	21.97	21.03	20.83	20.66	22	5
15	256QAM	1	37	21.88	21.96	21.04	21.11	20.56		
15	256QAM	1	74	21.91	21.92	21.00	20.91	20.50		
15	256QAM	36	0	20.87	21.08	20.18	20.04	20.56	22	5
15	256QAM	36	20	21.01	21.03	20.08	20.09	20.30		
15	256QAM	36	39	21.12	20.92	20.18	20.10	20.24		
15	256QAM	75	0	20.94	20.93	20.10	20.00	20.09		
Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	25.22	25.07	25.21	25.04	24.54	27.00	0
10	QPSK	1	25	25.06	25.12	25.08	25.11	24.48		
10	QPSK	1	49	25.22	25.12	25.16	25.12	23.73		
10	QPSK	25	0	24.38	24.48	24.34	24.21	23.94	26	1
10	QPSK	25	12	24.49	24.61	24.24	24.08	23.57		
10	QPSK	25	25	24.51	24.53	24.17	24.24	23.05		
10	QPSK	50	0	24.51	24.54	24.27	24.18	23.48		
10	16QAM	1	0	24.63	24.51	24.42	24.14	23.95	26	1
10	16QAM	1	25	24.57	24.47	24.36	24.30	23.73		
10	16QAM	1	49	24.61	24.57	24.32	24.25	23.11		
10	16QAM	25	0	23.55	23.46	23.43	23.33	22.96	25	2
10	16QAM	25	12	23.52	23.48	23.50	23.28	22.75		
10	16QAM	25	25	23.43	23.49	23.34	23.20	22.31		
10	16QAM	50	0	23.57	23.50	23.46	23.33	22.51		
10	64QAM	1	0	23.12	23.30	23.11	23.35	21.76	25	2
10	64QAM	1	25	23.26	23.32	23.30	23.26	21.70		
10	64QAM	1	49	23.49	23.21	23.45	23.27	21.10		
10	64QAM	25	0	22.27	22.44	22.25	22.51	20.98	24	3
10	64QAM	25	12	22.37	22.41	22.39	22.47	20.82		

10	64QAM	25	25	22.49	22.44	22.48	22.36	20.36		
10	64QAM	50	0	22.32	22.28	22.37	22.34	20.55		
10	256QAM	1	0	21.67	21.96	21.11	20.89	20.59	22	5
10	256QAM	1	25	21.79	21.90	21.05	21.15	20.57		
10	256QAM	1	49	21.95	21.92	20.97	20.92	20.58		
10	256QAM	25	0	20.93	21.10	20.25	20.04	20.48	22	5
10	256QAM	25	12	20.96	21.02	20.11	20.13	20.32		
10	256QAM	25	25	21.09	20.98	20.23	20.13	20.26		
10	256QAM	50	0	21.01	20.97	20.17	20.17	20.12		
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	25.22	25.04	25.17	25.03	24.49	27	0
5	QPSK	1	12	25.00	25.07	25.01	25.08	24.41		
5	QPSK	1	24	25.14	25.10	25.06	25.08	23.69		
5	QPSK	12	0	24.36	24.47	24.33	24.21	23.88	26	1
5	QPSK	12	7	24.40	24.55	24.23	24.05	23.51		
5	QPSK	12	13	24.42	24.53	24.08	24.16	22.97		
5	QPSK	25	0	24.43	24.45	24.18	24.17	23.45		
5	16QAM	1	0	24.58	24.48	24.35	24.06	23.87	26	1
5	16QAM	1	12	24.51	24.40	24.36	24.27	23.71		
5	16QAM	1	24	24.52	24.50	24.29	24.16	23.04		
5	16QAM	12	0	23.52	23.41	23.43	23.26	22.95	25	2
5	16QAM	12	7	23.46	23.42	23.40	23.19	22.66		
5	16QAM	12	13	23.37	23.39	23.34	23.12	22.23		
5	16QAM	25	0	23.53	23.43	23.36	23.25	22.50		
5	64QAM	1	0	23.03	23.23	23.01	23.29	21.73	25	2
5	64QAM	1	12	23.26	23.25	23.21	23.26	21.68		
5	64QAM	1	24	23.39	23.17	23.41	23.21	21.10		
5	64QAM	12	0	22.18	22.42	22.18	22.44	20.91	24	3
5	64QAM	12	7	22.37	22.40	22.30	22.43	20.72		
5	64QAM	12	13	22.47	22.43	22.43	22.30	20.33		
5	64QAM	25	0	22.32	22.27	22.33	22.28	20.50		
5	256QAM	1	0	21.73	21.92	21.09	20.82	20.67	22	5
5	256QAM	1	12	21.86	21.91	21.07	21.18	20.60		
5	256QAM	1	24	21.91	21.88	20.99	20.97	20.51		
5	256QAM	12	0	20.97	21.04	20.20	20.04	20.50	22	5
5	256QAM	12	7	21.03	21.02	20.07	20.06	20.35		
5	256QAM	12	13	21.18	20.97	20.24	20.13	20.21		
5	256QAM	25	0	20.97	20.89	20.14	20.05	20.10		

<LTE Band 42 Aux 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				43190	43340	43490		
Frequency (MHz)				3560	3575	3590		
20	QPSK	1	0	21.37	21.47	21.25	22	0
20	QPSK	1	49	21.29	21.34	21.19		
20	QPSK	1	99	21.27	21.27	21.09		
20	QPSK	50	0	20.36	20.47	20.46	21	1
20	QPSK	50	24	20.37	20.38	20.45		
20	QPSK	50	50	20.39	20.26	20.35		
20	QPSK	100	0	20.39	20.43	20.46		
20	16QAM	1	0	20.53	20.39	20.42	21	1
20	16QAM	1	49	20.44	20.50	20.48		

20	16QAM	1	99	20.33	20.37	20.25		
20	16QAM	50	0	19.45	19.41	19.54	20	2
20	16QAM	50	24	19.41	19.41	19.49		
20	16QAM	50	50	19.40	19.23	19.30		
20	16QAM	100	0	19.41	19.37	19.44		
20	64QAM	1	0	19.23	19.23	19.22	20	2
20	64QAM	1	49	19.21	19.15	19.05		
20	64QAM	1	99	19.21	19.11	19.03		
20	64QAM	50	0	18.46	18.35	18.45	19	3
20	64QAM	50	24	18.46	18.39	18.40		
20	64QAM	50	50	18.40	18.29	18.29		
20	64QAM	100	0	18.48	18.45	18.30		
20	256QAM	1	0	17.83	17.73	17.72	18	4
20	256QAM	1	49	17.74	17.70	17.62		
20	256QAM	1	99	17.71	17.64	17.60		
20	256QAM	50	0	16.99	16.86	17.00	18	4
20	256QAM	50	24	17.01	16.95	16.98		
20	256QAM	50	50	16.93	16.81	16.86		
20	256QAM	100	0	17.08	17.02	16.84		
Channel				43165	43340	43515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3557.5	3575	3592.5		
15	QPSK	1	0	21.37	21.42	21.15	22	0
15	QPSK	1	37	21.19	21.28	21.11		
15	QPSK	1	74	21.24	21.20	21.08		
15	QPSK	36	0	20.30	20.26	20.45	21	1
15	QPSK	36	20	20.30	20.29	20.45		
15	QPSK	36	39	20.39	20.17	20.29		
15	QPSK	75	0	20.37	20.35	20.45		
15	16QAM	1	0	20.49	20.37	20.34	21	1
15	16QAM	1	37	20.43	20.41	20.45		
15	16QAM	1	74	20.29	20.34	20.15		
15	16QAM	36	0	19.44	19.39	19.45	20	2
15	16QAM	36	20	19.41	19.32	19.44		
15	16QAM	36	39	19.39	19.16	19.23		
15	16QAM	75	0	19.34	19.30	19.38		
15	64QAM	1	0	19.23	19.18	19.16	20	2
15	64QAM	1	37	19.12	19.14	19.02		
15	64QAM	1	74	19.12	19.05	18.97		
15	64QAM	36	0	18.44	18.29	18.40	19	3
15	64QAM	36	20	18.45	18.38	18.39		
15	64QAM	36	39	18.40	18.26	18.21		
15	64QAM	75	0	18.44	18.36	18.20		
15	256QAM	1	0	17.76	17.73	17.69	18	4
15	256QAM	1	37	17.63	17.72	17.55		
15	256QAM	1	74	17.66	17.62	17.52		
15	256QAM	36	0	16.99	16.84	16.91	18	4
15	256QAM	36	20	16.99	16.96	16.90		
15	256QAM	36	39	16.97	16.82	16.77		
15	256QAM	75	0	16.97	16.86	16.72		
Channel				43140	43340	43540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3555	3575	3595		
10	QPSK	1	0	21.30	21.39	21.07	22	0
10	QPSK	1	25	21.19	21.25	21.08		
10	QPSK	1	49	21.24	21.11	21.03		
10	QPSK	25	0	20.29	20.16	20.39	21	1
10	QPSK	25	12	20.23	20.24	20.40		

10	QPSK	25	25	20.37	20.17	20.24		
10	QPSK	50	0	20.27	20.32	20.36		
10	16QAM	1	0	20.44	20.35	20.31	21	1
10	16QAM	1	25	20.38	20.39	20.42		
10	16QAM	1	49	20.21	20.30	20.05		
10	16QAM	25	0	19.35	19.36	19.44	20	2
10	16QAM	25	12	19.32	19.26	19.38		
10	16QAM	25	25	19.33	19.09	19.17		
10	16QAM	50	0	19.28	19.24	19.31		
10	64QAM	1	0	19.17	19.11	19.08	20	2
10	64QAM	1	25	19.06	19.05	19.00		
10	64QAM	1	49	19.11	18.99	18.91		
10	64QAM	25	0	18.35	18.22	18.38	19	3
10	64QAM	25	12	18.38	18.38	18.37		
10	64QAM	25	25	18.35	18.17	18.21		
10	64QAM	50	0	18.42	18.35	18.10		
10	256QAM	1	0	17.67	17.61	17.63	18	4
10	256QAM	1	25	17.57	17.59	17.55		
10	256QAM	1	49	17.68	17.50	17.41		
10	256QAM	25	0	16.94	16.78	16.96	18	4
10	256QAM	25	12	16.90	16.96	16.94		
10	256QAM	25	25	16.92	16.72	16.71		
10	256QAM	50	0	16.92	16.87	16.70		
Channel				43115	43340	43565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3552.5	3575	3597.5		
5	QPSK	1	0	21.30	21.36	21.00	22	0
5	QPSK	1	12	21.09	21.20	21.06		
5	QPSK	1	24	21.17	21.10	21.00		
5	QPSK	12	0	20.20	20.09	20.32	21	1
5	QPSK	12	7	20.15	20.19	20.37		
5	QPSK	12	13	20.37	20.13	20.24		
5	QPSK	25	0	20.27	20.26	20.28		
5	16QAM	1	0	20.42	20.27	20.22	21	1
5	16QAM	1	12	20.34	20.35	20.42		
5	16QAM	1	24	20.14	20.23	19.96		
5	16QAM	12	0	19.31	19.33	19.39	20	2
5	16QAM	12	7	19.30	19.18	19.33		
5	16QAM	12	13	19.23	19.06	19.10		
5	16QAM	25	0	19.23	19.23	19.29		
5	64QAM	1	0	19.15	19.03	19.00	20	2
5	64QAM	1	12	19.02	18.95	18.97		
5	64QAM	1	24	19.02	18.96	18.89		
5	64QAM	12	0	18.29	18.12	18.34	19	3
5	64QAM	12	7	18.30	18.32	18.33		
5	64QAM	12	13	18.33	18.08	18.17		
5	64QAM	25	0	18.34	18.31	18.07		
5	256QAM	1	0	17.73	17.62	17.53	18	4
5	256QAM	1	12	17.57	17.55	17.52		
5	256QAM	1	24	17.61	17.51	17.40		
5	256QAM	12	0	16.80	16.67	16.85	18	4
5	256QAM	12	7	16.83	16.90	16.92		
5	256QAM	12	13	16.93	16.67	16.67		
5	256QAM	25	0	16.86	16.84	16.61		

<LTE Band 48 Aux 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				55340	55830	56150	56640		
Frequency (MHz)				3560	3609	3641	3690		
20	QPSK	1	0	20.63	20.29	20.28	20.20	22	0
20	QPSK	1	49	20.54	20.10	20.02	20.00		
20	QPSK	1	99	20.57	20.26	20.20	20.04		
20	QPSK	50	0	19.80	19.45	19.37	19.31	21	1
20	QPSK	50	24	19.63	19.38	19.24	19.25		
20	QPSK	50	50	19.56	19.24	19.18	19.23		
20	QPSK	100	0	19.58	19.38	19.22	19.29		
20	16QAM	1	0	19.67	19.55	19.39	19.35	21	1
20	16QAM	1	49	19.57	19.36	19.19	19.11		
20	16QAM	1	99	19.61	19.40	19.16	19.26		
20	16QAM	50	0	18.81	18.46	18.30	18.37	20	2
20	16QAM	50	24	18.63	18.34	18.25	18.25		
20	16QAM	50	50	18.63	18.34	18.16	18.24		
20	16QAM	100	0	18.66	18.39	18.20	18.27		
20	64QAM	1	0	18.52	18.32	18.19	18.19	20	2
20	64QAM	1	49	18.40	18.04	18.21	18.29		
20	64QAM	1	99	18.39	18.01	18.25	18.27		
20	64QAM	50	0	17.67	17.46	17.25	17.34	19	3
20	64QAM	50	24	17.63	17.29	17.25	17.27		
20	64QAM	50	50	17.59	17.27	17.18	17.20		
20	64QAM	100	0	17.68	17.34	17.33	17.28		
20	256QAM	1	0	17.09	16.82	16.78	16.70	18	4
20	256QAM	1	49	16.95	16.55	16.76	16.85		
20	256QAM	1	99	16.95	16.55	16.84	16.85		
20	256QAM	50	0	16.24	15.96	15.84	15.84	17.5	4.5
20	256QAM	50	24	16.16	15.84	15.82	15.83		
20	256QAM	50	50	16.10	15.81	15.72	15.76		
20	256QAM	100	0	16.25	15.88	15.88	15.79		
Channel				55315	55820	56160	56665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3557.5	3608	3642	3692.5		
15	QPSK	1	0	20.55	20.28	20.19	20.13	22	0
15	QPSK	1	37	20.54	20.09	20.00	20.22		
15	QPSK	1	74	20.49	20.23	20.13	20.17		
15	QPSK	36	0	19.78	19.42	19.31	19.21	21	1
15	QPSK	36	20	19.55	19.29	19.17	19.23		
15	QPSK	36	39	19.54	19.14	19.13	19.14		
15	QPSK	75	0	19.48	19.36	19.16	19.26		
15	16QAM	1	0	19.60	19.47	19.37	19.32	21	1
15	16QAM	1	37	19.52	19.27	19.17	19.07		
15	16QAM	1	74	19.60	19.38	19.12	19.18		
15	16QAM	36	0	18.79	18.40	18.26	18.27	20	2
15	16QAM	36	20	18.54	18.25	18.20	18.15		
15	16QAM	36	39	18.61	18.31	18.10	18.15		
15	16QAM	75	0	18.64	18.31	18.19	18.18		
15	64QAM	1	0	18.44	18.30	18.11	18.19	20	2
15	64QAM	1	37	18.36	18.07	18.14	18.19		
15	64QAM	1	74	18.36	18.01	18.22	18.24		
15	64QAM	36	0	17.67	17.40	17.19	17.25	19	3
15	64QAM	36	20	17.61	17.23	17.25	17.18		
15	64QAM	36	39	17.50	17.19	17.16	17.12		
15	64QAM	75	0	17.65	17.26	17.28	17.25		

15	256QAM	1	0	16.96	16.82	16.61	16.79	18	4
15	256QAM	1	37	16.91	16.62	16.73	16.74		
15	256QAM	1	74	16.96	16.55	16.73	16.82		
15	256QAM	36	0	16.24	15.99	15.72	15.81	17.5	4.5
15	256QAM	36	20	16.20	15.82	15.82	15.74		
15	256QAM	36	39	16.09	15.71	15.76	15.71		
15	256QAM	75	0	16.15	15.82	15.86	15.78		
Channel				55290	55815	56165	56690	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3555	3607.5	3642.5	3695		
10	QPSK	1	0	20.47	20.20	20.14	20.12	22	0
10	QPSK	1	25	20.54	20.07	20.17	20.15		
10	QPSK	1	49	20.45	20.15	20.12	20.16		
10	QPSK	25	0	19.68	19.33	19.25	19.12	21	1
10	QPSK	25	12	19.55	19.22	19.16	19.14		
10	QPSK	25	25	19.50	19.06	19.08	19.07		
10	QPSK	50	0	19.42	19.36	19.07	19.26		
10	16QAM	1	0	19.52	19.47	19.28	19.30	21	1
10	16QAM	1	25	19.45	19.23	19.14	19.02		
10	16QAM	1	49	19.53	19.32	19.09	19.17		
10	16QAM	25	0	18.71	18.32	18.25	18.20	20	2
10	16QAM	25	12	18.47	18.15	18.10	18.06		
10	16QAM	25	25	18.53	18.29	18.04	18.08		
10	16QAM	50	0	18.58	18.30	18.17	18.17		
10	64QAM	1	0	18.42	18.21	18.06	18.15	20	2
10	64QAM	1	25	18.35	18.07	18.06	18.13		
10	64QAM	1	49	18.36	18.24	18.17	18.22		
10	64QAM	25	0	17.59	17.32	17.17	17.19	19	3
10	64QAM	25	12	17.57	17.19	17.17	17.10		
10	64QAM	25	25	17.40	17.09	17.12	17.04		
10	64QAM	50	0	17.62	17.23	17.22	17.18		
10	256QAM	1	0	17.01	16.71	16.64	16.65	18	4
10	256QAM	1	25	16.87	16.66	16.64	16.63		
10	256QAM	1	49	16.88	16.81	16.76	16.75		
10	256QAM	25	0	16.14	15.91	15.68	15.69	17.5	4.5
10	256QAM	25	12	16.09	15.78	15.70	15.63		
10	256QAM	25	25	15.90	15.60	15.65	15.60		
10	256QAM	50	0	16.18	15.76	15.73	15.74		
Channel				55265	55810	56170	56715	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3552.5	3607	3643	3697.5		
5	QPSK	1	0	20.38	20.20	20.12	20.05	22	0
5	QPSK	1	12	20.44	20.04	20.08	20.12		
5	QPSK	1	24	20.41	20.05	20.06	20.14		
5	QPSK	12	0	19.61	19.32	19.18	19.05	21	1
5	QPSK	12	7	19.50	19.20	19.16	19.07		
5	QPSK	12	13	19.46	19.03	19.08	19.07		
5	QPSK	25	0	19.38	19.33	19.09	19.21		
5	16QAM	1	0	19.42	19.40	19.26	19.22	21	1
5	16QAM	1	12	19.40	19.23	19.09	19.07		
5	16QAM	1	24	19.44	19.30	19.00	19.08		
5	16QAM	12	0	18.62	18.24	18.17	18.20	20	2
5	16QAM	12	7	18.46	18.12	18.06	18.02		
5	16QAM	12	13	18.52	18.20	18.08	18.04		
5	16QAM	25	0	18.53	18.27	18.07	18.10		
5	64QAM	1	0	18.32	18.20	18.09	18.13	20	2
5	64QAM	1	12	18.30	18.04	18.08	18.09		
5	64QAM	1	24	18.34	18.24	18.10	18.19		

5	64QAM	12	0	17.49	17.25	17.09	17.11	19	3
5	64QAM	12	7	17.48	17.13	17.17	17.07		
5	64QAM	12	13	17.33	17.08	17.10	17.01		
5	64QAM	25	0	17.52	17.14	17.15	17.15		
5	256QAM	1	0	16.83	16.76	16.61	16.64	18	4
5	256QAM	1	12	16.80	16.59	16.67	16.63		
5	256QAM	1	24	16.88	16.76	16.62	16.72		
5	256QAM	12	0	16.07	15.83	15.62	15.65	17.5	4.5
5	256QAM	12	7	16.01	15.64	15.70	15.62		
5	256QAM	12	13	15.91	15.67	15.60	15.56		
5	256QAM	25	0	16.02	15.72	15.65	15.70		

<LTE Carrier Aggregation combinations>

General Note:

1. This device supports Carrier Aggregation on downlink only for inter and intra band. 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-12A	3CC-87	69	12A-30A-66A	4CC-191
2	12A-25A		70	12A-66A-66A	4CC-192
3	12A-30A	3CC-69	71	12A-66C	4CC-210
4	12A-66A	3CC-70	72	12B-66A	4CC-192
5	12B	3CC-72	73	13A-48A-48A	4CC-194
6	13A-48A	3CC-73	74	13A-48A-66A	4CC-196
7	13A-66A	3CC-76	75	13A-48C	4CC-197
8	14A-30A	3CC-79	76	13A-66A-66A	4CC-199
9	14A-66A	3CC-80	77	13A-66B	4CC-195
10	25A-25A	3CC-81	78	13A-66C	4CC-196
11	25A-26A	3CC-82	79	14A-30A-66A	4CC-203
12	25A-41A	3CC-83	80	14A-66A-66A	4CC-204
13	26A-41A	3CC-86	81	25A-25A-25A	
14	2A-12A	3CC-87	82	25A-25A-26A	
15	2A-13A	3CC-91	83	25A-25A-41A	4CC-205
16	2A-14A	3CC-93	84	25A-26A-41A	4CC-206
17	2A-2A	3CC-95	85	25A-41C	4CC-205
18	2A-30A	3CC-98	86	26A-41C	4CC-206
19	2A-48A	3CC-105	87	2A-12A-12A	4CC-219
20	2A-4A	3CC-108	88	2A-12A-30A	4CC-220
21	2A-5A	3CC-115	89	2A-12A-66A	4CC-210
22	2A-66A	3CC-120	90	2A-12B	4CC-222
24	2A-7A	3CC-126	91	2A-13A-48A	4CC-211
25	2C	3CC-128	92	2A-13A-66A	4CC-214
26	30A-66A	3CC-132	93	2A-14A-30A	4CC-217
27	38A-40A	3CC-133	94	2A-14A-66A	4CC-218
28	38C		95	2A-2A-12A	4CC-219
29	41A-41A	3CC-134	96	2A-2A-13A	4CC-223
30	41A-42A	3CC-137	97	2A-2A-14A	4CC-224
31	41A-48A		98	2A-2A-30A	4CC-226
32	41C	5CC-380	99	2A-2A-4A	4CC-228
33	42A-42A	3CC-136	100	2A-2A-5A	4CC-231
34	42C	5CC-379	101	2A-2A-66A	4CC-234
35	48A-48A	3CC-142	103	2A-2A-7A	4CC-238
36	48A-66A	3CC-142	104	2A-30A-66A	4CC-226
38	48C	3CC-107	105	2A-48A-48A	4CC-240
39	4A-12A	3CC-108	106	2A-48A-66A	4CC-240
40	4A-13A	3CC-109	107	2A-48C	4CC-242
41	4A-30A	3CC-110	108	2A-4A-12A	4CC-244
42	4A-48A	4CC-298	109	2A-4A-13A	
43	4A-4A	3CC-111	110	2A-4A-30A	4CC-249
44	4A-5A	3CC-112	111	2A-4A-4A	4CC-247
46	4A-7A	3CC-114	112	2A-4A-5A	4CC-249
47	5A-25A		114	2A-4A-7A	4CC-251
48	5A-30A	3CC-115	115	2A-5A-30A	4CC-254

49	5A-38A		116	2A-5A-48A	4CC-255
50	5A-40A	3CC-166	117	2A-5A-66A	4CC-256
51	5A-41A		118	2A-5A-7A	
52	5A-48A	3CC-116	119	2A-5B	4CC-233
53	5A-5A	3CC-169	120	2A-66A-66A	4CC-234
54	5A-66A	3CC-170	122	2A-66B	4CC-236
55	5A-7A	3CC-173	123	2A-66C	4CC-237
56	5B	3CC-119	124	2A-7A-12A	4CC-251
57	66A-66A	3CC-132	125	2A-7A-66A	4CC-238
59	66B	3CC-145	126	2A-7A-7A	4CC-252
60	66C	3CC-146	127	2A-7C	4CC-253
61	7A-12A	3CC-124	128	2C-12A	4CC-272
62	7A-42A		129	2C-30A	4CC-261
63	7A-66A	3CC-125	130	2C-5A	4CC-273
64	7A-7A	3CC-126	131	2C-66A	4CC-274
65	7B	3CC-127	132	30A-66A-66A	4CC-239
66	7C	3CC-127	133	41A-41A-41A	4CC-275
67	4A-17A		134	41A-41C	4CC-275
68	2A-17A		135	41A-42A-42A	4CC-277
			136	41A-42C	4CC-277
			137	41C-42A	4CC-280
			138	41D	4CC-276
			139	42A-42C	4CC-277
			140	42D	4CC-278
			141	48A-48A-66A	4CC-286
			143	48A-48C	4CC-289
			144	48A-66A-66A	4CC-286
			145	48A-66B	4CC-287
			146	48A-66C	4CC-288
			147	48C-66A	4CC-289
			149	48D	4CC-290
			150	4A-12A-12A	4CC-299
			151	4A-12A-30A	4CC-300
			152	4A-12B	4CC-301
			153	4A-48C	
			154	4A-4A-12A	4CC-299
			155	4A-4A-13A	
			156	4A-4A-30A	4CC-300
			157	4A-4A-5A	4CC-303
			159	4A-4A-7A	
			160	4A-5A-30A	4CC-302
			161	4A-5B	4CC-303
			162	4A-7A-12A	4CC-251
			163	4A-7A-7A	4CC-252
			164	4A-7C	4CC-253
			165	5A-30A-66A	4CC-305
			166	5A-48A-48A	4CC-306
			167	5A-48A-66A	4CC-306
			168	5A-48C	4CC-308
			169	5A-5A-66A	4CC-310
			170	5A-66A-66A	4CC-310
			171	5A-66B	4CC-311
			172	5A-66C	4CC-312
			173	5A-7A-7A	3CC-174
			174	5A-7C	
			175	5B-30A	4CC-316

			176	5B-66A	4CC-317
			177	66A-66A-66A	4CC-263
			179	66A-66B	4CC-313
			180	66A-66C	4CC-314
			182	66D	4CC-268
			183	7A-12A-66A	4CC-269
			184	7A-12B	4CC-320
			185	7A-66A-66A	4CC-326
			186	7C-66A	4CC-321
			187	2A-48A-66A	4CC-325
			188	48A-66B	4CC-195
			189	7A-7A-66A	4CC-326
			190	7A-7A-13A	4CC-328

4CC Downlink Carrier Aggregation			5CC Downlink Carrier Aggregation		
Number	Combination	Covered by Measurement Superset	Covered by Measurement Superset	Combination	Covered by Measurement Superset
191	12A-30A-66A-66A	5CC-338	329	13A-48A-48C-66A	
192	12B-66A-66A	5CC-402	330	13A-48A-48D	
193	13A-48A-48A-66A	5CC-339	331	13A-48C-48C	
194	13A-48A-48C	5CC-329	332	13A-48C-66B	
195	13A-48A-66B	5CC-333	333	13A-48C-66C	
196	13A-48A-66C	5CC-333	334	13A-48D-66A	
197	13A-48C-66A	5CC-341	335	13A-48E	5CC-407
198	13A-48D	5CC-334	336	25A-25A-41D	
199	13A-66A-66A-66A	5CC-345	337	25A-41E	
200	13A-66A-66B	5CC-343	338	2A-12A-30A-66A-66A	
201	13A-66A-66C	5CC-344	339	2A-13A-48A-48A-66A	
202	13A-66D	5CC-345	340	2A-13A-48A-48C	
203	14A-30A-66A-66A	5CC-346	341	2A-13A-48C-66A	
204	14A-66A-66A-66A	5CC-347	342	2A-13A-48D	
205	25A-25A-41C	5CC-336	343	2A-13A-66A-66B	
206	25A-26A-41C		344	2A-13A-66A-66C	
207	25A-41D	5CC-336	345	2A-13A-66D	
208	2A-12A-30A-66A	5CC-338	346	2A-14A-30A-66A-66A	
209	2A-12A-66A-66A	5CC-349	347	2A-14A-66A-66A-66A	
210	2A-12A-66C		348	2A-2A-12A-30A-66A	
211	2A-13A-48A-48A	5CC-339	349	2A-2A-12A-66A-66A	
212	2A-13A-48A-66A	5CC-339	350	2A-2A-12B-66A	
213	2A-13A-48C	5CC-341	351	2A-2A-13A-66A-66A	
214	2A-13A-66A-66A	5CC-351	352	2A-2A-13A-66B	
215	2A-13A-66B	5CC-352	353	2A-2A-14A-30A-66A	
216	2A-13A-66C	5CC-344	354	2A-2A-14A-66A-66A	
217	2A-14A-30A-66A	5CC-346	355	2A-2A-5A-30A-66A	
218	2A-14A-66A-66A	5CC-347	356	2A-2A-5A-66A-66A	
219	2A-2A-12A-12A	5CC-350	357	2A-2A-5A-66B	
220	2A-2A-12A-30A	5CC-348	358	2A-2A-5A-66C	
221	2A-2A-12A-66A	5CC-349	359	2A-2A-5B-66A	
222	2A-2A-12B	5CC-350	360	2A-2A-66A-66B	
223	2A-2A-13A-66A	5CC-351	361	2A-2A-66A-66C	
224	2A-2A-14A-30A	5CC-353	362	2A-2A-7A-12A-66A	
225	2A-2A-14A-66A	5CC-354	363	2A-48A-48C-66A	
226	2A-2A-30A-66A	5CC-355	364	2A-48A-48D	
227	2A-2A-4A-12A		365	2A-48C-48C	
228	2A-2A-4A-4A		366	2A-48D-66A	
229	2A-2A-4A-5A		367	2A-48E	5CC-405

231	2A-2A-5A-30A	5CC-355	368	2A-4A-5B-30A	
232	2A-2A-5A-66A	5CC-356	369	2A-5A-30A-66A-66A	
233	2A-2A-5B	5CC-359	370	2A-5A-48A-48A-66A	
234	2A-2A-66A-66A		371	2A-5A-48A-48C	
236	2A-2A-66B	5CC-360	372	2A-5A-48C-66A	
237	2A-2A-66C	5CC-361	373	2A-5A-48D	
238	2A-2A-7A-66A	5CC-362	374	2A-5B-30A-66A	
239	2A-30A-66A-66A	5CC-338	375	2A-5B-66A-66A	
240	2A-48A-48A-66A	5CC-370	376	2A-5B-66B	
241	2A-48A-48C	5CC-363	377	2A-5B-66C	
242	2A-48C-66A	5CC-363	378	2A-7A-12B-66A	
243	2A-48D	5CC-366	379	2C-5B-30A	
244	2A-4A-12A-12A	4CC-246	380	41A-42C-42C	
245	2A-4A-12A-30A		381	41C-41D	
246	2A-4A-12B		382	41C-42A-42C	
247	2A-4A-4A-12A		383	41D-42C	
248	2A-4A-4A-5A		384	48A-48C-66B	
249	2A-4A-5A-30A		385	48A-48C-66C	
250	2A-4A-5B	5CC-368	386	48A-48D-66A	
251	2A-4A-7A-12A		387	48C-48C-66A	
252	2A-4A-7A-7A	4CC-253	388	48C-48D	
253	2A-4A-7C		389	48C-66A-66A-66A	
254	2A-5A-30A-66A	5CC-369	390	48E-66A	
255	2A-5A-48A-48A	5CC-370	391	48F	
256	2A-5A-48A-66A	5CC-370	392	4A-48E	
257	2A-5A-48C	5CC-372	393	4A-4A-5B-30A	
258	2A-5A-66A-66A	5CC-356	394	5A-48A-48C-66A	
259	2A-5A-66B	5CC-357	395	5A-48C-48C	
260	2A-5A-66C	5CC-358	396	5A-48E	
261	2A-5B-30A	5CC-374	397	5B-30A-66A-66A	
262	2A-5B-66A	5CC-375	398	5B-66A-66B	
263	2A-66A-66A-66A	5CC-347	399	5B-66A-66C	
265	2A-66A-66B	5CC-360	400	5A-48A-48D	
266	2A-66A-66C	5CC-361	401	5A-48D-66A	
268	2A-66D	5CC-345	402	2A-12B-66A-66A	
269	2A-7A-12A-66A	5CC-362	403	2A-7C-66A-66A	
270	2A-7A-12B	5CC-378	404	2A-7A-7A-66A-66A	
271	2A-7A-66A-66A	5CC-404			
272	2C-12A-30A				
273	2C-5A-30A		6CC Downlink Carrier Aggregation		
274	2C-66A-66A		Number	Combination	Covered by Measurement Superset
275	41A-41A-41C	4CC-276			
276	41A-41D		405	2A-48E-66A	
277	41A-42A-42C	4CC-278	406	41C-42C-42C	
278	41A-42D		407	13A-48E-66A	
279	41C-41C				
280	41C-42C	5CC-382			
281	41D-42A				
282	41E	5CC-337			
283	42A-42D				
284	42C-42C	5CC-380			
285	42E				
286	48A-48A-66A-66A				
287	48A-48A-66B	4CC-288			
288	48A-48A-66C				
289	48A-48C-66A	5CC-394			

290	48A-48D	5CC-400			
291	48A-66A-66A-66A				
292	48C-48C	5CC-395			
293	48C-66A-66A	5CC-385			
294	48C-66B	5CC-384			
295	48C-66C	5CC-385			
296	48D-66A	5CC-401			
297	48E	5CC-396			
298	4A-48D				
299	4A-4A-12A-12A	4CC-301			
300	4A-4A-12A-30A				
301	4A-4A-12B				
302	4A-4A-5A-30A				
303	4A-4A-5B	5CC-393			
304	4A-5B-30A	5CC-393			
305	5A-30A-66A-66A	5CC-369			
306	5A-48A-48A-66A	5CC-370			
307	5A-48A-48C	5CC-371			
308	5A-48C-66A	5CC-372			
309	5A-48D	5CC-373			
310	5A-5A-66A-66A	4CC-315			
311	5A-5A-66B	4CC-315			
312	5A-5A-66C	4CC-315			
313	5A-66A-66B	4CC-315			
314	5A-66A-66C	4CC-315			
315	5A-66D				
316	5B-30A-66A	5CC-397			
317	5B-66A-66A	5CC-397			
318	5B-66B	5CC-376			
319	5B-66C	5CC-377			
320	7A-12B-66A	5CC-378			
321	7C-66A-66A	5CC-403			
322	2A-12B-66A	5CC-350			
323	2A-7A-7A-66A	5CC-404			
324	2A-7C-66A	5CC-403			
325	2A-48A-66A-66A				
326	7A-7A-66A-66A	5CC-404			
327	2A-2A-7A-12A	5CC-362			
328	2A-7A-7A-13A				

<Power verification when LTE Carrier Aggregation Active>

General Note:

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

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

iii. 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.

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

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

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

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

<Two Carrier power verification>

Configure		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		2	20	1860	18700	QPSK	1	0	17	10	740	5790	23.11	23.04
		4	20	1720	20050	QPSK	1	0	17	10	740	5790	23.09	23.18
		5	10	844	20600	QPSK	1	0	25	20	1960	8340	23.29	23.28
		5	10	844	20600	QPSK	1	0	38	20	2595	38000	23.32	23.28
		5	10	844	20600	QPSK	1	0	41	20	2593	40620	23.41	23.28
		7	20	2535	21100	QPSK	1	0	42	20	3575	43340	23.19	23.05
		12	10	704	23060	QPSK	1	0	25	20	1960	8340	23.42	23.31
		41	20	2549.5	40185	QPSK	1	0	48	20	3609	55830	23.22	23.07
Intra-Band	Contiguous	38	20	2580	37850	QPSK	1	0	38	20	2599.80	38048	23.06	22.95

<Three Carrier power verification>

Configure	PCC							SCC1				SCC2				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	13	10	751	5230	23.17	23.04
	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	7	20	2655	3100	23.20	23.04
	4	20	1720	20050	QPSK	1	0	4	5	2112.5	1975	7	20	2655	3100	23.01	23.18
	4	20	1720	20050	QPSK	1	0	4	5	2112.5	1975	13	10	751	5230	22.97	23.18
	4	20	1720	20050	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	23.10	23.18
	5	10	844	20600	QPSK	1	0	7	20	2655	3100	7	20	2674.8	3298	23.15	23.28
	25	20	1905	26590	QPSK	1	0	25	5	1932.5	8065	25	20	1985	8590	22.98	22.91
	25	20	1905	26590	QPSK	1	0	25	5	1932.5	8065	26	15	876.5	8865	23.05	22.91

<Four Carrier power verification>

Configure	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	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	4	20	2132.5	2175	12	10	737.5	5095	22.95	23.04
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	4	20	2132.5	2175	4	5	2152.5	2375	22.97	23.04
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	4	20	2132.5	2175	5	10	881.5	2525	23.00	23.04
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	66	20	2155	66886	66	5	2197.5	67311	22.94	23.04
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	4	5	2112.5	1975	5	10	881.5	2525	22.92	23.04
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	4	5	2112.5	1975	12	10	737.5	5095	22.89	23.04
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	5	10	881.5	2525	30	10	2355	9820	23.02	23.04
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	7	20	2655	3100	12	10	737.5	5095	23.01	23.04
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	7	20	2655	3100	7	20	2674.8	3298	22.85	23.04
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	12	10	737.5	5095	30	10	2355	9820	22.86	23.04
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	12	5	737.5	5095	12	10	744.7	5167	22.97	23.04
	2	20	1860	18700	QPSK	1	0	12	10	737.5	5095	66	20	2155	66886	66	20	2174.8	67084	22.94	23.04
	2	20	1860	18700	QPSK	1	0	7	20	2655	3100	7	5	2687.5	3425	13	10	751	5230	23.00	23.04
	2	20	1860	18700	QPSK	1	0	48	20	3609	55830	66	20	2155	66886	66	5	2197.5	67311	23.02	23.04
	2	20	1860	18700	QPSK	1	0	2	20	1959.8	898	5	10	881.5	2525	30	10	2355	9820	22.98	23.04
	2	20	1860	18700	QPSK	1	0	2	20	1959.8	898	12	10	737.5	5095	30	10	2355	9820	22.94	23.04
	2	20	1860	18700	QPSK	1	0	2	20	1959.8	898	66	20	2155	66886	66	5	2197.5	67311	22.95	23.04
	4	20	1720	20050	QPSK	1	0	4	5	2112.5	1975	5	10	881.5	2525	30	10	2355	9820	23.05	23.18
	4	20	1720	20050	QPSK	1	0	4	5	2112.5	1975	12	10	737.5	5095	30	10	2355	9820	23.26	23.18
	4	20	1720	20050	QPSK	1	0	4	5	2112.5	1975	12	5	737.5	5095	12	10	744.7	5167	23.11	23.18
	4	20	1720	20050	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	23.14	23.18
	5	10	844	20600	QPSK	1	0	66	20	2155	66886	66	20	2174.8	67084	66	20	2194.6	67282	23.28	23.28
	25	20	1905	26590	QPSK	1	0	26	15	876.5	8865	41	20	2593	40620	41	20	2612.8	40818	22.95	22.91
	41	20	2549.5	40185	QPSK	1	0	41	5	2687.5	41565	41	20	2675.8	41448	41	20	2719	41646	22.95	23.07
	41	20	2549.5	40185	QPSK	1	0	41	20	2569.3	40383	41	5	2687.5	41565	41	20	2675.8	41448	23.05	23.07
	41	20	2549.5	40185	QPSK	1	0	41	20	2569.3	40383	41	20	2589.1	40581	42	20	3575	43340	23.13	23.07
	42	20	3575	43340	QPSK	1	0	42	5	3587	43457	42	20	3599	43574	42	20	3611	43691	20.32	20.39
	42	20	3575	43340	QPSK	1	0	42	20	3594.8	43538	42	20	3614.6	43736	42	20	3634.4	43934	20.48	20.39
	48	20	3560	55340	QPSK	1	0	48	5	3571.7	55457	66	20	2155	66886	66	5	2197.5	67311	20.70	20.72
	48	20	3560	55340	QPSK	1	0	48	5	3571.7	55457	66	20	2155	66886	66	20	2174.8	67084	20.65	20.72
	48	20	3560	55340	QPSK	1	0	66	20	2155	66886	66	5	2197.5	67311	66	20	2120	66536	20.84	20.72

<Five Carrier power verification>

Configure	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	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	12	10	737.5	5095	30	10	2355	9820	66	20	2155	66886	23.01	23.04
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	12	10	737.5	5095	66	20	2155	66886	66	5	2197.5	67311	23.15	23.04
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	12	5	737.5	5095	12	10	744.7	5167	66	20	2155	66886	23.05	23.04
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	13	10	751	5230	66	15	2155	66886	66	5	2164.3	66979	22.87	23.04
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	14	10	763	5330	30	10	2355	9820	66	20	2155	66886	23.07	23.04
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	14	10	763	5330	66	20	2155	66886	66	5	2197.5	67311	23.00	23.04
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	5	10	881.5	2525	30	10	2355	9820	66	20	2155	66886	23.15	23.04
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	5	10	881.5	2525	66	20	2155	66886	66	5	2197.5	67311	22.88	23.04
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	5	10	881.5	2525	66	20	2155	66886	66	20	2174.8	67084	23.22	23.04
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	5	10	881.5	2525	5	10	891.4	2624	66	20	2155	66886	23.03	23.04
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	66	20	2155	66886	66	5	2197.5	67311	66	20	2209.2	67428	23.18	23.04
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	7	20	2655	3100	12	10	737.5	5095	66	20	2155	66886	23.24	23.04
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	5	10	881.5	2525	5	10	891.4	2624	30	10	2355	9820	23.05	23.04
	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	30	10	2355	9820	66	20	2155	66886	66	5	2197.5	67311	22.97	23.04
	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	22.97	23.04

	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	48	20	3609	55830	48	20	3628.8	56028	66	20	2155	66886	22.88	23.04
	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.7	56227	22.99	23.04
	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	23.20	23.04
	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	22.95	23.04
	2	20	1860	18700	QPSK	1	0	7	20	2655	3100	12	5	737.5	5095	12	10	744.7	5167	66	20	2155	66886	22.86	23.04
	2	20	1860	18700	QPSK	1	0	7	20	2655	3100	7	20	2674.8	3298	66	20	2155	66886	66	5	2197.5	67311	23.21	23.04
	2	20	1860	18700	QPSK	1	0	12	5	737.5	5095	12	10	744.7	5167	66	20	2155	66886	66	5	2197.5	67311	23.15	23.04
	2	20	1860	18700	QPSK	1	0	12	10	737.5	5095	30	10	2355	9820	66	20	2155	66886	66	5	2197.5	67311	23.09	23.04
	2	20	1860	18700	QPSK	1	0	13	10	751	5230	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	22.89	23.04
	2	20	1860	18700	QPSK	1	0	13	10	751	5230	48	20	3609	55830	48	20	3628.8	56028	66	20	2155	66886	22.86	23.04
	2	20	1860	18700	QPSK	1	0	13	10	751	5230	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	22.88	23.04
	2	20	1860	18700	QPSK	1	0	13	10	751	5230	66	20	2155	66886	66	5	2197.5	67311	66	20	2209.2	67428	23.18	23.04
	2	20	1860	18700	QPSK	1	0	13	10	751	5230	66	20	2155	66886	66	20	2174.8	67084	66	20	2194.6	67282	22.85	23.04
	2	20	1860	18700	QPSK	1	0	14	10	763	5330	30	10	2355	9820	66	20	2155	66886	66	5	2197.5	67311	23.23	23.04
	2	20	1860	18700	QPSK	1	0	14	10	763	5330	66	20	2155	66886	66	5	2197.5	67311	66	20	2120	66536	23.00	23.04
	2	20	1860	18700	QPSK	1	0	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	66	20	2155	66886	22.86	23.04
	2	20	1860	18700	QPSK	1	0	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	48	20	3729	57030	22.99	23.04
	2	20	1860	18700	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	5	3697.5	56715	48	20	3709.2	56832	23.07	23.04
	2	20	1860	18700	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	66	20	2155	66886	22.95	23.04
	4	20	1720	20050	QPSK	1	0	4	5	2112.5	1975	5	10	881.5	2525	5	10	891.4	2624	30	10	2355	9820	23.24	23.18
	4	20	1720	20050	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	48	20	3668.4	56424	23.07	23.18
	5	10	844	20600	QPSK	1	0	5	10	834.1	2501	66	20	2155	66886	66	5	2197.5	67311	66	20	2209.2	67428	23.22	23.28
	5	10	844	20600	QPSK	1	0	5	10	834.1	2501	30	10	2355	9820	66	20	2155	66886	66	5	2197.5	67311	23.11	23.28
	5	10	844	20600	QPSK	1	0	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	66	20	2155	66886	23.13	23.28
	5	10	844	20600	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	5	3697.5	56715	48	20	3709.2	56832	23.26	23.28
	5	10	844	20600	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	48	20	3668.4	56424	23.33	23.28
	5	10	844	20600	QPSK	1	0	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	48	20	3729	57030	23.41	23.28
	5	10	844	20600	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	66	20	2155	66886	23.26	23.28
	13	10	782	23230	QPSK	1	0	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	66	20	2155	66886	23.13	23.27
	13	10	782	23230	QPSK	1	0	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	48	20	3729	57030	23.48	23.27
	13	10	782	23230	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	5	3697.5	56715	48	20	3709.2	56832	23.26	23.27
	13	10	782	23230	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	66	20	2155	66886	66	20	2174.8	67084	23.24	23.27
	13	10	782	23230	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	66	20	2155	66886	23.25	23.27
	25	20	1905	26590	QPSK	1	0	25	5	1932.5	8065	41	20	2593	40620	41	20	2612.8	40818	41	20	2632.6	41016	23.08	22.91
	25	20	1905	26590	QPSK	1	0	41	20	2593	40620	41	20	2612.8	40818	41	20	2632.6	41016	41	20	2652.4	41214	23.11	22.91
	41	20	2549.5	40185	QPSK	1	0	41	20	2569.3	40383	41	5	2687.5	41565	41	20	2675.8	41448	41	20	2656	41250	22.94	23.07
	41	20	2549.5	40185	QPSK	1	0	41	20	2569.3	40383	42	20	3575	43340	42	5	3597.5	43565	42	20	3609.2	43682	22.97	23.07
	41	20	2549.5	40185	QPSK	1	0	41	20	2569.3	40383	41	20	2589.1	40581	42	20	3575	43340	42	20	3594.8	43538	22.95	23.07
	41	20	2549.5	40185	QPSK	1	0	42	20	3575	43340	42	20	3594.8	43538	42	5	3597.5	43565	42	20	3609.2	43682	22.92	23.07
	48	20	3560	55340	QPSK	1	0	48	5	3697.5	56715	48	20	3685.8	56598	66	20	2155	66886	66	20	2174.8	67084	20.54	20.72
	48	20	3560	55340	QPSK	1	0	48	5	3697.5	56715	48	20	3709.2	56832	48	20	3729	57030	66	20	2155	66886	20.54	20.72
	48	20	3560	55340	QPSK	1	0	48	20	3579.8	55538	48	5	3697.5	56715	48	20	3685.8	56598	66	20	2155	66886	20.54	20.72
	48	20	3560	55340	QPSK	1	0	48	20	3579.8	55538	48	5	3697.5	56715	48	20	3685.8	56598	48	20	3666	56400	20.67	20.72
	48	20	3560	55340	QPSK	1	0	48	20	3579.8	55538	66	20	2155	66886	66	5	2197.5	67311	66	20	2120	66536	20.93	20.72
	48	20	3560	55340	QPSK	1	0	48	20	3579.8	55538	48	20	3599.6	55736	48	20	3619.4	55934	66	20	2155	66886	20.90	20.72
	48	20	3560	55340	QPSK	1	0	48	20	3579.8	55538	48	20	3599.6	55736	48	20	3619.4	55934	48	20	3639.2	56132	20.75	20.72

<Six Carrier power verification>

Configure	PCC							SCC1				SCC2				SCC3				SCC4				SCC5				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	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2	20	1860	18700	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	48	20	3668.4	56424	66	20	2155	66886	23.14	23.04
	13	10	782	23230	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	48	20	3668.4	56424	66	20	2155	66886	23.41	23.27
	41	20	2549.5	40185	QPSK	1	0	41	20	2569.3	40383	42	20	3575	43340	42	20	3594.8	43538	42	5	3597.5	43565	42	20	3609.2	43682	23.22	23.07

<LTE Uplink carrier aggregation>

2CC Uplink Carrier Aggregation	
Number	Combination
1	5B
2	7C
3	38C
4	41C
5	48C
6	66B
7	66C

<Intra-band>

General Note:

i. The device supports intra-band uplink carrier aggregation for LTE B5/B7/B66/B38/B41/B48 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. 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_Main										
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) Typ. target power with tolerance: +1dbm
			RB Size	RB offset	RB Size	RB offset				
20450	20549	QPSK	1	0	0	0	1	0	22.55	24.5
20575	20476	QPSK	1	0	1	49	2	0	22.8	24.5
20600	20501	QPSK	1	0	1	49	2	0	22.65	24.5

CA_7C_Main										
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) Typ. target power with tolerance: +1dbm
			RB Size	RB offset	RB Size	RB offset				
20850	21048	QPSK	1	0	0	0	1	0	22.32	24
21100	20902	QPSK	1	0	1	99	2	0	22.34	24
21350	21152	QPSK	1	0	1	99	2	0	22.5	24

CA_66B_Main										
Combination 15MHz+5MHz (75RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm) Typ. target power with tolerance: +1dbm
			RB Size	RB offset	RB Size	RB offset				
132047	132140	QPSK	1	0	0	0	1	0	22.41	24
132322	132229	QPSK	1	0	1	24	2	0	22.51	24
132597	132504	QPSK	1	0	1	24	2	0	22.48	24

CA_66C_Main										
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) Typ. target power with tolerance: +1dbm
			RB Size	RB offset	RB Size	RB offset				
132072	132270	QPSK	1	0	0	0	1	0	22.41	24
132322	132124	QPSK	1	0	1	99	2	0	22.52	24
132572	132374	QPSK	1	0	1	99	2	0	22.34	24

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) Typ. target power with tolerance: +1dbm
			RB Size	RB offset	RB Size	RB offset				
37850	38048	QPSK	1	0	0	0	1	0	22.46	24
37901	38099	QPSK	1	0	0	0	1	0	22.52	24
38150	37952	QPSK	1	0	1	99	2	0	22.23	24

CA_41C_Main										
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) Typ. target power with tolerance: +1dbm
			RB Size	RB offset	RB Size	RB offset				
39750	39948	QPSK	1	0	0	0	1	0	22.51	24
40185	39987	QPSK	1	0	1	99	2	0	22.54	24
40620	40422	QPSK	1	0	1	99	2	0	22.35	24

CA_48C_Aux 2										
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) Typ. target power with tolerance: +1dbm
			RB Size	RB offset	RB Size	RB offset				
55340	55538	QPSK	1	0	0	0	1	0	20.56	22
55830	55632	QPSK	1	0	1	99	2	0	20.12	22
56150	55952	QPSK	1	0	1	99	2	0	20.18	22

11. 5G NR Output Power (Unit: dBm)

General Note:

1. Referencing the procedure in KDB 941225, the test procedures are outlined as below
   a. For DFT-OFDM output power measurement, full measurement was done for Pi/2 BPSK and QPSK and for the largest supported bandwidth, repeat test for 16QAM/64QAM/256QAM under 1RB 1Offset configuration. For smaller bandwidth, measure conducted power for Pi/2 BPSK and 1RB 1Offset configuration.
   b. According to the tune-up, CP-OFDM output power is not ½ dB higher than DFT-OFDM mode, and the reported SAR of DFT-OFDM mode reported SAR is ≤ 1.45 W/kg, SAR test and thus conducted power for CP-OFDM mode is not required.
   c. To start SAR test for the largest channel bandwidth for PI/2 BPSK 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. Also do SAR test for 50% RB allocation for PI/2 BPSK SAR testing using 1RB PI/2 BPSK allocation procedure
   d. For PI/2 BPSK with 100% RB allocation, SAR test 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.
   e. For higher modulation QPSK/16QAM/64QAM/256QAM, according to tune-up document the power level is not ½ dB higher than the same configuration in PI/2 BPSK, also reported SAR for the PI/2 BPSK configuration is less than 1.45 W/kg, QPSK/16QAM/64QAM/256QAM SAR testing are not required.
   f. Smaller bandwidth output power for each RB allocation configuration for this device is not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
2. Due to test setup limitations, SAR testing for NR was performed using Factory Test Mode software to establish the connection and perform SAR with 100% transmission.

<3GPP 38.101 MPR for EN-DC>

Table 6.2.2-1 Maximum power reduction (MPR) for power class 3

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 3.5[1]	≤ 1.2[1]	≤ 0.2[1]
		≤ 0.5[2]	≤ 0.5[2]	0[2]
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3		≤ 1.5
	16 QAM	≤ 3		≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

NOTE 1: Applicable for UE operating in TDD mode with Pi/2 BPSK modulation and UE indicates support for UE capability *powerBoosting-pi2BPSK* and if the IE *powerBoostPi2BPSK* is set to 1 and 40 % or less slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79. The reference power of 0 dB MPR is 26 dBm.

NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n40, n41, n77, n78 and n79 with Pi/2 BPSK modulation and if the IE *powerBoostPi2BPSK* is set to 0 and if more than 40 % of slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79.

Table 6.2.2-2 Maximum power reduction (MPR) for power class 2

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 3.5	≤ 0.5	0
	QPSK	≤ 3.5	≤ 1	0
	16 QAM	≤ 3.5	≤ 2	≤ 1
	64 QAM	≤ 3.5	≤ 2.5	
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3.5	≤ 3	≤ 1.5
	16 QAM	≤ 3.5	≤ 3	≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

<n2_Main>

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				372000	376000	380000		
Frequency (MHz)				1860	1880	1900		
20	PI/2 BPSK	1	1	23.22	23.37	23.15	24.0	0.0
20	PI/2 BPSK	1	53	23.14	23.16	23.16		
20	PI/2 BPSK	1	104	23.21	23.23	23.13		
20	PI/2 BPSK	50	0	23.28	23.35	23.34	23.5	0.5
20	PI/2 BPSK	50	28	23.24	23.31	23.23	24.0	0.0
20	PI/2 BPSK	50	56	22.84	22.92	22.90	23.5	0.5
20	PI/2 BPSK	100	0	22.80	22.90	22.88		
20	QPSK	1	1	22.97	23.06	23.00	24.0	0.0
20	QPSK	1	53	23.17	23.24	23.21		
20	QPSK	1	104	23.09	23.18	23.12		
20	QPSK	50	0	22.32	22.34	22.24	23.0	1.0
20	QPSK	50	28	23.29	23.29	23.26	24.0	0.0
20	QPSK	50	56	22.35	22.41	22.31	23.0	1.0
20	QPSK	100	0	22.27	22.36	22.29		
20	16QAM	1	1	22.52	22.60	22.54	23.0	1.0
20	64QAM	1	1	20.99	21.01	20.97	21.5	2.5
20	256QAM	1	1	18.71	18.76	18.67	19.5	4.5
Channel				371500	376000	380500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	PI/2 BPSK	1	1	23.12	23.18	23.04	24.0	0.0
Channel				371000	376000	381000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	PI/2 BPSK	1	1	23.08	23.10	22.99	24.0	0.0
Channel				370500	376000	381500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	PI/2 BPSK	1	1	22.99	23.01	22.93	24.0	0.0

<n2_Aux 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				372000	376000	380000		
Frequency (MHz)				1860	1880	1900		
20	PI/2 BPSK	1	1	23.35	23.37	23.30	24.0	0.0
20	PI/2 BPSK	1	53	23.31	23.33	23.24		
20	PI/2 BPSK	1	104	23.11	23.19	23.17		
20	PI/2 BPSK	50	0	23.06	23.07	23.02	23.5	0.5
20	PI/2 BPSK	50	28	22.97	22.90	22.99	24.0	0.0
20	PI/2 BPSK	50	56	22.62	22.68	22.61	23.5	0.5
20	PI/2 BPSK	100	0	22.72	22.77	22.74		
20	QPSK	1	1	22.95	22.95	22.88	24.0	0.0
20	QPSK	1	53	23.02	23.08	22.99		
20	QPSK	1	104	23.04	23.06	23.00		
20	QPSK	50	0	22.17	22.25	22.24	23.0	1.0
20	QPSK	50	28	23.18	23.21	23.14	24.0	0.0
20	QPSK	50	56	22.29	22.31	22.26	23.0	1.0
20	QPSK	100	0	22.19	22.24	22.23		
20	16QAM	1	1	21.69	21.79	21.77	23.0	1.0
20	64QAM	1	1	20.68	20.69	20.64	21.5	2.5
20	256QAM	1	1	18.68	18.75	18.72	19.5	4.5
Channel				371500	376000	380500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	PI/2 BPSK	1	1	22.90	22.93	23.17	24.0	0.0
Channel				371000	376000	381000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	PI/2 BPSK	1	1	22.82	22.88	23.13	24.0	0.0
Channel				370500	376000	381500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	PI/2 BPSK	1	1	22.79	22.88	23.12	24.0	0.0

<n5_Main>

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				166800	167300	167800		
Frequency (MHz)				834	836.5	839		
20	PI/2 BPSK	1	1	23.44	23.41	23.60	24.0	0.0
20	PI/2 BPSK	1	53	23.27	23.34	23.30		
20	PI/2 BPSK	1	104	23.38	23.39	23.44		
20	PI/2 BPSK	50	0	23.36	23.41	23.43	23.5	0.5
20	PI/2 BPSK	50	28	23.31	23.38	23.36	24.0	0.0
20	PI/2 BPSK	50	56	23.11	23.20	23.15	23.5	0.5
20	PI/2 BPSK	100	0	22.83	22.89	23.07		
20	QPSK	1	1	23.26	23.28	23.20	24.0	0.0
20	QPSK	1	53	23.41	23.40	23.43		
20	QPSK	1	104	23.41	23.41	23.33		
20	QPSK	50	0	22.56	22.63	22.57	23.0	1.0
20	QPSK	50	28	23.59	23.59	23.59	24.0	0.0
20	QPSK	50	56	22.44	22.54	22.53	23.0	1.0
20	QPSK	100	0	22.43	22.45	22.41		
20	16QAM	1	1	22.85	22.87	22.87	23.0	1.0
20	64QAM	1	1	21.37	21.42	21.36	21.5	2.5
20	256QAM	1	1	19.23	19.23	19.17	19.5	4.5
Channel				166300	167300	168300	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				831.5	836.5	841.5		
15	PI/2 BPSK	1	1	23.33	23.23	23.57	24.0	0.0
Channel				165800	167300	168800	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				829	836.5	844		
10	PI/2 BPSK	1	1	23.29	23.13	23.48	24.0	0.0
Channel				165300	167300	169300	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	PI/2 BPSK	1	1	23.28	23.06	23.41	24.0	0.0

<n7_Aux 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				502000	507000	512000		
Frequency (MHz)				2510	2535	2560		
20	PI/2 BPSK	1	1	23.34	23.36	23.35	24.0	0.0
20	PI/2 BPSK	1	53	22.94	22.96	22.97		
20	PI/2 BPSK	1	104	23.01	23.10	23.08		
20	PI/2 BPSK	50	0	23.14	23.16	23.12	23.5	0.5
20	PI/2 BPSK	50	28	22.74	22.76	22.72	24.0	0.0
20	PI/2 BPSK	50	56	22.69	22.77	22.68	23.5	0.5
20	PI/2 BPSK	100	0	22.63	22.73	22.70		
20	QPSK	1	1	22.93	23.01	22.94	24.0	0.0
20	QPSK	1	53	23.01	23.05	22.99		
20	QPSK	1	104	23.04	23.06	23.04		
20	QPSK	50	0	22.16	22.24	22.24	23.0	1.0
20	QPSK	50	28	23.06	23.14	23.09	24.0	0.0
20	QPSK	50	56	22.20	22.25	22.24	23.0	1.0
20	QPSK	100	0	22.17	22.25	22.15		
20	16QAM	1	1	21.88	21.88	21.81	23.0	1.0
20	64QAM	1	1	20.72	20.73	20.70	21.5	2.5
20	256QAM	1	1	18.45	18.50	18.50	19.5	4.5
Channel				501500	507000	512500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	PI/2 BPSK	1	1	22.73	22.96	22.95	24.0	0.0
Channel				501000	507000	513000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	PI/2 BPSK	1	1	22.66	22.96	22.88	24.0	0.0
Channel				500500	507000	513500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	PI/2 BPSK	1	1	22.57	22.95	22.83	24.0	0.0

<n12_Main>

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				141300	141500	141700		
Frequency (MHz)				706.5	707.5	708.5		
15	PI/2 BPSK	1	1	23.08	23.09	23.08	24.0	0.0
15	PI/2 BPSK	1	40	22.74	22.75	22.70		
15	PI/2 BPSK	1	77	22.99	22.99	22.91		
15	PI/2 BPSK	36	0	22.99	23.00	22.95	23.5	0.5
15	PI/2 BPSK	36	22	22.96	22.98	22.95	24.0	0.0
15	PI/2 BPSK	36	43	22.78	22.75	22.74	23.5	0.5
15	PI/2 BPSK	75	0	22.71	22.75	22.73		
15	QPSK	1	1	22.94	22.96	22.90	24.0	0.0
15	QPSK	1	40	22.66	22.76	22.71		
15	QPSK	1	77	22.92	22.96	22.94		
15	QPSK	36	0	22.81	22.82	22.79	23.0	1.0
15	QPSK	36	22	22.76	22.82	22.76	24.0	0.0
15	QPSK	36	43	22.52	22.57	22.47	23.0	1.0
15	QPSK	75	0	22.32	22.42	22.33		
15	16QAM	1	1	22.81	22.90	22.85	23.0	1.0
15	64QAM	1	1	21.71	21.75	21.74	21.5	2.5
15	256QAM	1	1	19.48	19.50	19.45	19.5	4.5
Channel				140800	141500	142200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				704	707.5	711		
10	PI/2 BPSK	1	1	22.77	23.01	23.02	24.0	0.0
Channel				140300	141500	142700	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	PI/2 BPSK	1	1	22.69	22.92	22.99	24.0	0.0

<n41_Aux 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				509202	518598	528000		
Frequency (MHz)				2546.01	2592.99	2640		
100	PI/2 BPSK	1	1	23.38	23.41	23.34	24.0	0.0
100	PI/2 BPSK	1	137	22.82	22.92	22.84		
100	PI/2 BPSK	1	271	22.76	22.86	22.76		
100	PI/2 BPSK	135	0	23.03	23.04	22.95	23.5	0.5
100	PI/2 BPSK	135	69	23.00	22.94	22.70	24.0	0.0
100	PI/2 BPSK	135	138	22.97	23.03	22.96	23.5	0.5
100	PI/2 BPSK	270	0	22.88	22.96	22.92		
100	QPSK	1	1	22.75	22.77	22.67	24.0	0.0
100	QPSK	1	137	22.76	22.84	22.84		
100	QPSK	1	271	22.71	22.72	22.72		
100	QPSK	135	0	22.80	22.89	22.88	23.0	1.0
100	QPSK	135	69	23.34	23.35	23.34	24.0	0.0
100	QPSK	135	138	22.88	22.91	22.83	23.0	1.0
100	QPSK	270	0	22.78	22.82	22.81		
100	16QAM	1	1	22.81	22.82	22.78	23.0	1.0
100	64QAM	1	1	22.78	22.81	22.78	21.5	2.5
100	256QAM	1	1	21.78	21.88	21.85	19.5	4.5
Channel				508200	518598	528996	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2541	2592.99	2644.98		
90	PI/2 BPSK	1	1	22.93	22.93	22.63	24.0	0.0
Channel				507204	518598	529998	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2536.02	2592.99	2649.99		
80	PI/2 BPSK	1	1	22.92	22.93	22.60	24.0	0.0
Channel				505200	518598	531996	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2526	2592.99	2659.98		
60	PI/2 BPSK	1	1	22.90	22.83	22.44	24.0	0.0
Channel				504204	518598	532998	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2521.02	2592.99	2664.99		
50	PI/2 BPSK	1	1	22.81	22.81	22.42	24.0	0.0
Channel				503202	518598	534000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2516.01	2592.99	2670		
40	PI/2 BPSK	1	1	22.81	22.81	22.38	24.0	0.0
Channel				501204	518598	535998	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2506.02	2592.99	2679.99		
20	PI/2 BPSK	1	1	22.79	22.72	22.30	24.0	0.0

<n66_Main>

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				344000	349000	354000		
Frequency (MHz)				1720	1745	1770		
20	PI/2 BPSK	1	1	23.20	23.27	23.19	24.0	0.0
20	PI/2 BPSK	1	53	23.12	23.17	23.13		
20	PI/2 BPSK	1	104	23.06	23.11	23.02		
20	PI/2 BPSK	50	0	23.14	23.18	23.15	23.5	0.5
20	PI/2 BPSK	50	28	23.13	23.16	23.12	24.0	0.0
20	PI/2 BPSK	50	56	22.78	22.82	22.76	23.5	0.5
20	PI/2 BPSK	100	0	22.75	22.78	22.76		
20	QPSK	1	1	22.90	22.92	22.83	24.0	0.0
20	QPSK	1	53	23.15	23.23	23.14		
20	QPSK	1	104	23.11	23.14	23.09		
20	QPSK	50	0	22.24	22.27	22.19	23.0	1.0
20	QPSK	50	28	23.09	23.19	23.14	24.0	0.0
20	QPSK	50	56	22.29	22.33	22.25	23.0	1.0
20	QPSK	100	0	22.17	22.27	22.20		
20	16QAM	1	1	22.00	22.00	21.90	23.0	1.0
20	64QAM	1	1	20.55	20.64	20.60	21.5	2.5
20	256QAM	1	1	18.70	18.77	18.74	19.5	4.5
Channel				343500	349000	354500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	PI/2 BPSK	1	1	22.85	22.90	23.01	24.0	0.0
Channel				343000	349000	355000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	PI/2 BPSK	1	1	22.78	22.90	22.94	24.0	0.0
Channel				342500	349000	355500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	PI/2 BPSK	1	1	22.74	22.89	22.88	24.0	0.0

<n66_Aux 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				344000	349000	354000		
Frequency (MHz)				1720	1745	1770		
20	PI/2 BPSK	1	1	23.11	23.15	23.20	24.0	0.0
20	PI/2 BPSK	1	53	23.09	23.11	23.02		
20	PI/2 BPSK	1	104	22.99	23.01	23.01		
20	PI/2 BPSK	50	0	22.91	23.00	23.01	23.5	0.5
20	PI/2 BPSK	50	28	22.65	22.66	22.60	24.0	0.0
20	PI/2 BPSK	50	56	22.41	22.47	22.39	23.5	0.5
20	PI/2 BPSK	100	0	22.48	22.51	22.44		
20	QPSK	1	1	23.00	23.05	23.00	24.0	0.0
20	QPSK	1	53	22.77	22.85	22.85		
20	QPSK	1	104	22.84	22.88	22.84		
20	QPSK	50	0	22.12	22.12	22.04	23.0	1.0
20	QPSK	50	28	22.82	22.90	22.83	24.0	0.0
20	QPSK	50	56	21.97	21.97	21.95	23.0	1.0
20	QPSK	100	0	21.99	22.01	21.98		
20	16QAM	1	1	22.14	22.15	22.06	23.0	1.0
20	64QAM	1	1	20.85	20.85	20.84	21.5	2.5
20	256QAM	1	1	18.68	18.74	18.68	19.5	4.5
Channel				343500	349000	354500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	PI/2 BPSK	1	1	23.09	23.10	23.16	24.0	0.0
Channel				343000	349000	355000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	PI/2 BPSK	1	1	23.01	23.05	23.12	24.0	0.0
Channel				342500	349000	355500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	PI/2 BPSK	1	1	22.93	22.95	23.12	24.0	0.0

12. WiFi/Bluetooth Output Power (Unit: dBm)

General Note:

1. For each antenna, transmit power in SISO operation is larger than (or equal to) the power in MIMO operation, RF exposure compliance of MIMO mode can be deduced from the compliance simultaneous transmission of antennas operating in SISO mode.
2. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6W/kg and SAR peak to location ratio ≤ 0.04, no additional SAR measurements for MIMO.
3. The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures. For “Not required”, SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, additional output power measurements were not necessary.
4. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
5. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
6. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
7. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
   a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
   b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
   c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
8. Per 201904 TCBC workshops, General principles of FCC KDB Publication 248227 D01 can be applied to determine the SAR Initial Test Configurations and test reduction for 802.11ax SAR testing. For the table below the 802.11ax maximum power is SU (non-OFDMA), and the SU maximum power also higher than RU (OFDMA)
9. In applying the test guidance, the IEEE 802.11 mode with the maximum output power (out of all modes) should be considered for testing
10. For modes with the same maximum output power, the guidance from section 5.3.2 a) of FCC KDB Publication 248227 D01 should be applied, with 802.11ax being considered as the highest 802.11 mode for the appropriate frequency bands
11. When SAR testing for 802.11ax is required
    a. If the maximum output power is highest for OFDMA scenarios, choose the tone size with the maximum number of tones and the highest maximum output power
    b. Otherwise, consider the fully allocated channel for SAR testing
    c. When SAR testing is required on RU sizes less than the fully allocated channel, use the RU number closest to the middle of the channel, choosing the higher RU number when two RUs are equidistant to the middle of the channel

<2.4GHz WLAN>

2.4GHz WLAN				Ant 1			Ant 2			Ant 1+2		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	20.50	21.50	97.50	20.80	21.50	97.50			
		6	2437	21.40	21.50		21.40	21.50				
		11	2462	21.40	21.50		21.30	21.50				
	802.11g 6Mbps	1	2412	Not Required	19.00	Not Required	Not Required	19.25	Not Required			
		6	2437		21.00			21.00				
		11	2462		18.00			19.00				
	802.11n-HT20 MCS0	1	2412		19.00			19.25		Not Required	22.00	Not Required
		6	2437		21.00			21.00			24.00	
		11	2462		18.00			19.00			21.00	
	802.11n-HT40 MCS0	3	2422		16.75			17.75			19.75	
		6	2437		18.00			18.25			21.00	
		9	2452		17.25			17.50			20.25	
	802.11ac-VHT20 MCS0	1	2412		19.00			19.25			22.00	
		6	2437		21.00			21.00			24.00	
		11	2462		18.00			19.00			21.00	
	802.11ac-VHT40 MCS0	3	2422		16.75			17.75			19.75	
		6	2437		18.00			18.25			21.00	
		9	2452		17.25			17.50			20.25	
	802.11ax-HE20 MCS0	1	2412		19.00			19.25			22.00	
		6	2437		21.00			21.00			24.00	
		11	2462		18.00			19.00			21.00	
	802.11ax-HE40 MCS0	3	2422		16.75			17.75			19.75	
		6	2437		18.00			18.25			21.00	
		9	2452		17.25			17.50			20.25	

<5GHz WLAN>

5.2GHz WLAN				Ant 1			Ant 2			Ant 1+2		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	Not Required	19.75	Not Required	Not Required	19.50	Not Required			
		40	5200		21.00			21.00				
		44	5220		21.00			21.00				
		48	5240		21.00			21.00				
	802.11n-HT20 MCS0	36	5180		19.75			19.50		Not Required	22.50	Not Required
		40	5200		21.00			21.00			24.00	
		44	5220		21.00			21.00			24.00	
		48	5240		21.00			21.00			24.00	
	802.11n-HT40 MCS0	38	5190		16.75			16.50			19.50	
		46	5230		20.25			20.00			23.00	
	802.11ac-VHT20 MCS0	36	5180		19.75			19.50			22.50	
		40	5200		21.00			21.00			24.00	
		44	5220		21.00			21.00			24.00	
		48	5240		21.00			21.00			24.00	
	802.11ac-VHT40 MCS0	38	5190		16.75			16.50			19.50	
		46	5230		20.25			20.00			23.00	
	802.11ac-VHT80 MCS0	42	5210		18.50			17.25			20.25	
	802.11ax-HE20 MCS0	36	5180		19.75			19.50			22.50	
		40	5200		21.00			21.00			24.00	
		44	5220		21.00			21.00			24.00	
		48	5240		21.00			21.00			24.00	
	802.11ax-HE40 MCS0	38	5190		16.75			16.50			19.50	
		46	5230		20.25			20.00			23.00	
	802.11ax-HE80 MCS0	42	5210		18.50			17.25			20.25	

5.3GHz WLAN				Ant 1			Ant 2			Ant 1+2		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	20.70	21.00	95.40	20.70	21.00	95.40			
		56	5280	20.80	21.00		20.80	21.00				
		60	5300	20.80	21.00		20.90	21.00				
		64	5320	19.80	20.25		19.90	20.00				
	802.11n-HT20 MCS0	52	5260	Not Required	21.00	Not Required	Not Required	21.00	Not Required	Not Required	24.00	Not Required
		56	5280		21.00			21.00			24.00	
		60	5300		21.00			21.00			24.00	
		64	5320		20.25			20.00			23.00	
	802.11n-HT40 MCS0	54	5270		20.00			20.25			23.00	
		62	5310		16.75			17.00			19.75	
	802.11ac-VHT20 MCS0	52	5260		21.00			21.00			24.00	
		56	5280		21.00			21.00			24.00	
		60	5300		21.00			21.00			24.00	
		64	5320		20.25			20.00			23.00	
	802.11ac-VHT40 MCS0	54	5270		20.00			20.25			23.00	
		62	5310		16.75			17.00			19.75	
	802.11ac-VHT80 MCS0	58	5290		16.75			16.50			19.50	
	802.11ac-VHT160 MCS0	50	5250		14.00			15.00			17.00	
	802.11ax-HE20 MCS0	52	5260		21.00			21.00			24.00	
		56	5280		21.00			21.00			24.00	
		60	5300		21.00			21.00			24.00	
		64	5320		20.25			20.00			23.00	
	802.11ax-HE40 MCS0	54	5270		20.00			20.25			23.00	
		62	5310		16.75			17.00			19.75	
	802.11ax-HE80 MCS0	58	5290		16.75			16.50			19.50	
	802.11ax-HE160 MCS0	50	5250		14.00			15.00			17.00	

5.5GHz WLAN				Ant 1			Ant 2			Ant 1+2		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	Not Required	20.00	Not Required	Not Required	20.25	Not Required			
		116	5580		21.00			21.00				
		124	5620		21.00			21.00				
		132	5660		21.00			21.00				
		144	5720		21.00			21.00				
	802.11n-HT20 MCS0	100	5500		20.00			20.25		Not Required	23.00	Not Required
		116	5580		21.00			21.00			24.00	
		124	5620		21.00			21.00			24.00	
		132	5660		21.00			21.00			24.00	
		144	5720		21.00			21.00			24.00	
	802.11n-HT40 MCS0	102	5510		17.00			18.25			20.00	
		110	5550		21.00			21.00			24.00	
		126	5630		21.00			21.00			24.00	
		134	5670		21.00			21.00			24.00	
		142	5710		21.00			21.00			24.00	
	802.11ac-VHT20 MCS0	100	5500		20.00			20.25			23.00	
		116	5580		21.00			21.00			24.00	
		124	5620		21.00			21.00			24.00	
		132	5660		21.00			21.00			24.00	
		144	5720		21.00			21.00			24.00	
	802.11ac-VHT40 MCS0	102	5510		17.00			18.25			20.00	
		110	5550		21.00			21.00			24.00	
		126	5630		21.00			21.00			24.00	
		134	5670		21.00			21.00			24.00	
		142	5710		21.00			21.00			24.00	
	802.11ac-VHT80 MCS0	106	5530	18.20	18.25	97.80	18.70	18.75	97.80		21.25	
		122	5610	20.30	21.00		20.90	21.00			24.00	
		138	5690	20.90	21.00		20.70	21.00			24.00	
	802.11ac-VHT160 MCS0	114	5570	Not Required	15.50	Not Required	Not Required	16.75	Not Required		18.50	
	802.11ax-HE20 MCS0	100	5500		20.00			20.25			23.00	
		116	5580		21.00			21.00			24.00	
		124	5620		21.00			21.00			24.00	
		132	5660		21.00			21.00			24.00	
		144	5720		21.00			21.00			24.00	
	802.11ax-HE40 MCS0	102	5510		17.00			18.25			20.00	
		110	5550		21.00			21.00			24.00	
		126	5630		21.00			21.00			24.00	
		134	5670		21.00			21.00			24.00	
		142	5710		21.00			21.00			24.00	
	802.11ax-HE80 MCS0	106	5530		18.25			18.75			21.25	
		122	5610		21.00			21.00			24.00	
		138	5690		21.00			21.00			24.00	
	802.11ax-HE160 MCS0	114	5570		15.50			16.75			18.50	

5.8GHz WLAN				Ant 1			Ant 2			Ant 1+2		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	21.00	Not Required	Not Required	21.00	Not Required			
		157	5785		21.00			21.00				
		165	5825		21.00			21.00				
	802.11n-HT20 MCS0	149	5745		21.00			21.00		Not Required	24.00	Not Required
		157	5785		21.00			21.00			24.00	
		165	5825		21.00			21.00			24.00	
	802.11n-HT40 MCS0	151	5755	20.70	21.00	98.80	20.70	21.00	98.80		24.00	
		159	5795	20.70	21.00		20.80	21.00			24.00	
	802.11ac-VHT20 MCS0	149	5745	Not Required	21.00	Not Required	Not Required	21.00	Not Required		24.00	
		157	5785		21.00			21.00			24.00	
		165	5825		21.00			21.00			24.00	
	802.11ac-VHT40 MCS0	151	5755		21.00			21.00			24.00	
		159	5795		21.00			21.00			24.00	
	802.11ac-VHT80 MCS0	155	5775		20.75			20.50			23.50	
	802.11ax-HE20 MCS0	149	5745		21.00			21.00			24.00	
		157	5785		21.00			21.00			24.00	
		165	5825		21.00			21.00			24.00	
	802.11ax-HE40 MCS0	151	5755		21.00			21.00			24.00	
		159	5795		21.00			21.00			24.00	
	802.11ax-HE80 MCS0	155	5775		20.75			20.50			23.50	

<6GHz WLAN>

WiFi 6E				Ant 1			Ant 2			Ant 1+2		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %
WiFi 6E	802.11a 6Mbps	1	5955	Not Required	13.50	Not Required	Not Required	13.50	Not Required			
		57	6235		13.50			13.50				
		113	6515		13.50			13.50				
		173	6815		13.50			13.50				
		233	7115		13.50			13.50				
	802.11n-HT20 MCS0	1	5955		13.50			13.50		Not Required	16.50	Not Required
		57	6235		13.50			13.50			16.50	
		113	6515		13.50			13.50			16.50	
		173	6815		13.50			13.50			16.50	
		233	7115		13.50			13.50			16.50	
	802.11n-HT40 MCS0	3	5965		13.50			13.50			16.50	
		59	6245		13.50			13.50			16.50	
		107	6485		13.50			13.50			16.50	
		171	6805		13.50			13.50			16.50	
		227	7085		13.50			13.50			16.50	
	802.11ac-VHT20 MCS0	1	5955		13.50			13.50			16.50	
		57	6235		13.50			13.50			16.50	
		113	6515		13.50			13.50			16.50	
		173	6815		13.50			13.50			16.50	
		233	7115		13.50			13.50			16.50	
	802.11ac-VHT40 MCS0	3	5965		13.50			13.50			16.50	
		59	6245		13.50			13.50			16.50	
		107	6485		13.50			13.50			16.50	
		171	6805		13.50			13.50			16.50	
		227	7085		13.50			13.50			16.50	
	802.11ac-VHT80 MCS0	7	5985		13.50			13.50			16.50	
		71	6305		13.50			13.50			16.50	
		119	6545		13.50			13.50			16.50	
		167	6785		13.50			13.50			16.50	
		215	7025		13.50			13.50			16.50	
	802.11ac-VHT160 MCS0	15	6025		13.50			13.50			16.50	
		47	6185		13.50			13.50			16.50	
		111	6505		13.50			13.50			16.50	
		175	6825		13.50			13.50			16.50	
		207	6985		13.50			13.50			16.50	
	802.11ax-HE20 MCS0	1	5955		13.50			13.50			16.50	
		57	6235		13.50			13.50			16.50	
		113	6515		13.50			13.50			16.50	
		173	6815		13.50			13.50			16.50	
		233	7115		13.50			13.50			16.50	
	802.11ax-HE40 MCS0	3	5965		13.50			13.50			16.50	
		59	6245		13.50			13.50			16.50	
		107	6485		13.50			13.50			16.50	
		171	6805		13.50			13.50			16.50	
		227	7085		13.50			13.50			16.50	
	802.11ax-HE80 MCS0	7	5985		13.50			13.50			16.50	
		71	6305		13.50			13.50			16.50	
		119	6545		13.50			13.50			16.50	
		167	6785		13.50			13.50			16.50	
		215	7025		13.50			13.50			16.50	
	802.11ax-HE160 MCS0	15	6025	13.50	13.50	96.00	13.20	13.50	96.00		16.50	
		47	6185	13.10	13.50		13.20	13.50			16.50	
		111	6505	13.50	13.50		13.50	13.50			16.50	
		175	6825	13.20	13.50		13.20	13.50			16.50	
		207	6985	13.40	13.50		13.20	13.50			16.50	

<2.4GHz Bluetooth>

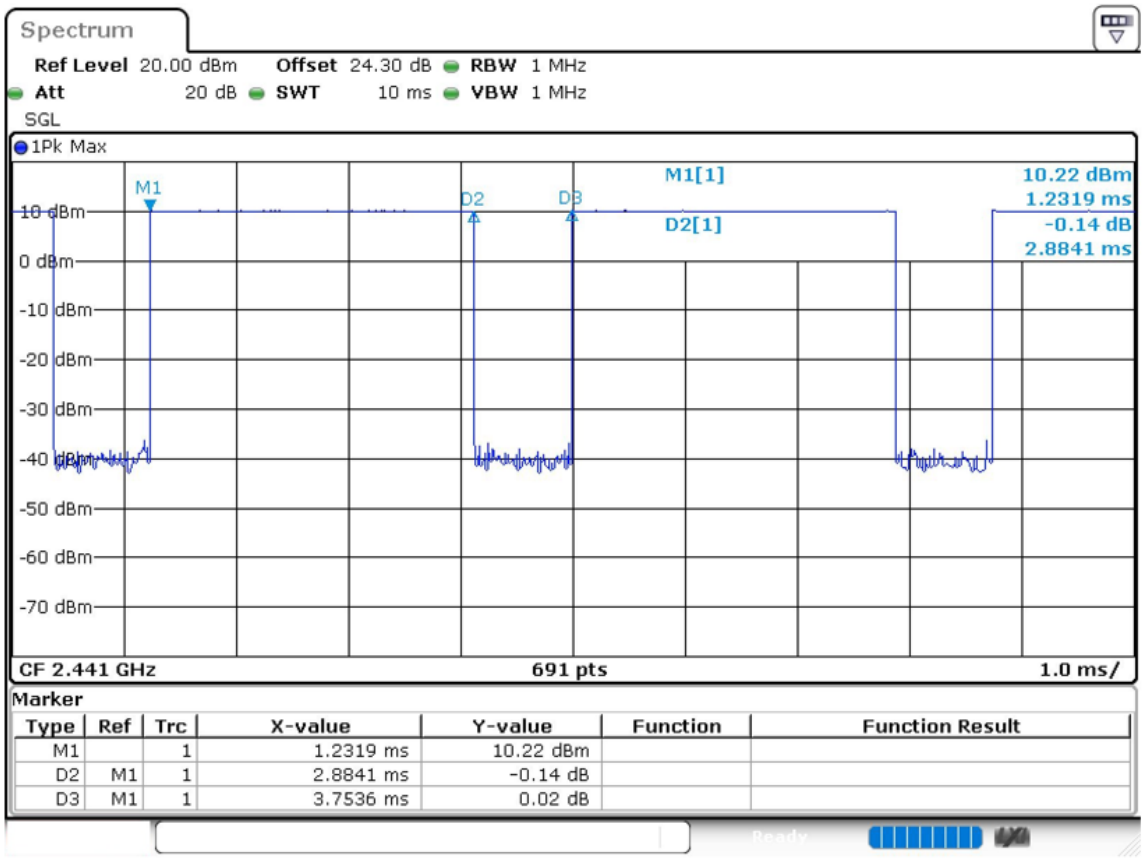
Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	9.90	Not Required	Not Required
	CH 39	2441	9.90		
	CH 78	2480	10.10		
Tune-up Limit			11.5	11	11

Mode	Channel	Frequency (MHz)	Average power (dBm)	
			1Mbps	2Mbps
LE	CH 00	2402	Not Required	Not Required
	CH 19	2440		
	CH 39	2480		
Tune-up Limit			10	10

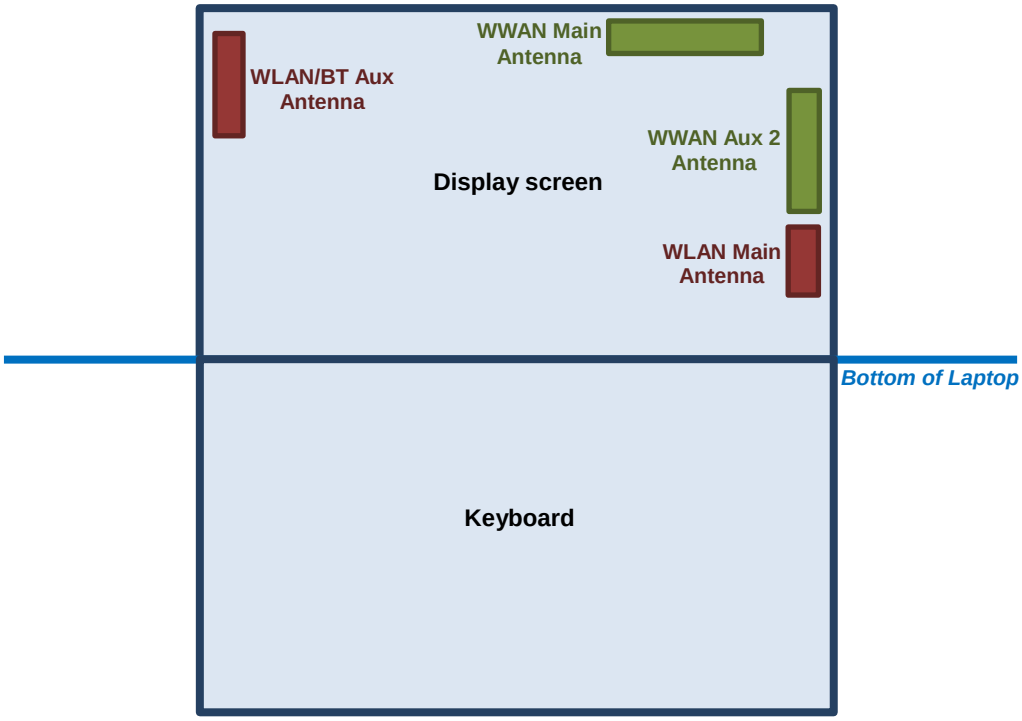
General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps due to its highest average power and duty cycle is 76.83% considered in SAR testing, and the duty cycle would be scaled to theoretical 83.3% in reported SAR calculation.

BT Duty cycle



13. Antenna Location



Front View

The separation distance for antenna to edge:

Antenna	To Bottom of Laptop (mm)
WWAN Main Antenna	226.6
WWAN Aux 2 Antenna	101.3
WLAN Main Antenna	53.3
WLAN/BT Aux Antenna	179.3

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 WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

UMTS Note:

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

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4/B5/B12/B17/B26/B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE band 4/5/17/38/42 SAR test was covered by Band 66/26/12/41/48; 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 ≤ 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.

5G NR Note:

1. Referencing the procedure in KDB 941225, the test procedures are outlined as below:
   a. To start SAR test for the largest channel bandwidth for PI/2 BPSK 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. Also do SAR test for 50% RB allocation for PI/2 BPSK SAR testing using 1RB PI/2 BPSK allocation procedure
   b. For PI/2 BPSK with 100% RB allocation, SAR test 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.
   c. For higher modulation QPSK/16QAM/64QAM/256QAM, according to tune-up document the power level is not ½ dB higher than the same configuration in PI/2 BPSK, also reported SAR for the PI/2 BPSK configuration is less than 1.45 W/kg, QPSK/16QAM/64QAM/256QAM SAR testing are not required.
   d. Smaller bandwidth output power for each RB allocation configuration for this device is not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
   e. For 5G FR1 n5/n12/n41, the maximum channel bandwidth does not support three non-overlapping channels in the frequency band, the middle channel of the group of overlapping channels were selected for testing.
   f. Due to test setup limitations, SAR testing for NR was performed using Factory Test Mode software to establish the connection and perform SAR with 100% transmission.

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, WLAN5.2GHz SAR testing is not required when the WLAN5.3GHz band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for WLAN5.2GHz band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. For WLAN SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
6. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6W/kg and SAR peak to location ratio ≤ 0.04, no additional SAR measurements for MIMO.
7. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

14.1 WWAN SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
01	WCDMA II_Main	RMC 12.2Kbps	Bottom of Laptop	0mm	9400	1880	23.45	24.50	1.274	0	< 0.001	< 0.001
02	WCDMA IV_Main	RMC 12.2Kbps	Bottom of Laptop	0mm	1513	1752.6	23.52	24.50	1.253	0	< 0.001	< 0.001
03	WCDMA V_Main	RMC 12.2Kbps	Bottom of Laptop	0mm	4182	836.4	23.84	24.50	1.164	0	< 0.001	< 0.001

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
04	LTE Band 2_Aux 2	20M	QPSK	1	0	Bottom of Laptop	0mm	18900	1880	22.82	24.00	1.312	0	< 0.001	< 0.001
	LTE Band 2_Aux 2	20M	QPSK	50	0	Bottom of Laptop	0mm	18900	1880	21.94	23.00	1.276	0	< 0.001	< 0.001
05	LTE Band 7_Main	20M	QPSK	1	0	Bottom of Laptop	0mm	21350	2560	22.61	24.00	1.377	0	< 0.001	< 0.001
	LTE Band 7_Main	20M	QPSK	50	0	Bottom of Laptop	0mm	21350	2560	21.70	23.00	1.349	0	< 0.001	< 0.001
	LTE Band 7C_Main	20M	QPSK	1	0	Bottom of Laptop	0mm	21350+21152	2560	22.50	24.00	1.413	0	< 0.001	< 0.001
	LTE Band 7_Aux 2	20M	QPSK	1	0	Bottom of Laptop	0mm	21350	2560	22.95	24.00	1.274	0	< 0.001	< 0.001
	LTE Band 7_Aux 2	20M	QPSK	50	0	Bottom of Laptop	0mm	21350	2560	22.10	23.00	1.230	0	< 0.001	< 0.001
06	LTE Band 12_Main	10M	QPSK	1	0	Bottom of Laptop	0mm	23095	707.5	22.99	24.50	1.416	0	< 0.001	< 0.001
	LTE Band 12_Main	10M	QPSK	25	0	Bottom of Laptop	0mm	23095	707.5	22.00	23.50	1.413	0	< 0.001	< 0.001
07	LTE Band 13_Main	10M	QPSK	1	0	Bottom of Laptop	0mm	23230	782	22.80	24.50	1.479	0	< 0.001	< 0.001
	LTE Band 13_Main	10M	QPSK	25	0	Bottom of Laptop	0mm	23230	782	21.74	23.50	1.500	0	< 0.001	< 0.001
08	LTE Band 14_Main	10M	QPSK	1	0	Bottom of Laptop	0mm	23330	793	22.69	24.50	1.517	0	< 0.001	< 0.001
	LTE Band 14_Main	10M	QPSK	25	0	Bottom of Laptop	0mm	23330	793	21.89	23.50	1.449	0	< 0.001	< 0.001
09	LTE Band 25_Main	20M	QPSK	1	0	Bottom of Laptop	0mm	26590	1905	22.49	24.00	1.416	0	< 0.001	< 0.001
	LTE Band 25_Main	20M	QPSK	50	0	Bottom of Laptop	0mm	26590	1905	21.55	23.00	1.396	0	< 0.001	< 0.001
10	LTE Band 26_Main	15M	QPSK	1	0	Bottom of Laptop	0mm	26865	831.5	23.15	24.50	1.365	0	< 0.001	< 0.001
	LTE Band 26_Main	15M	QPSK	36	0	Bottom of Laptop	0mm	26865	831.5	22.24	23.50	1.337	0	< 0.001	< 0.001
	LTE Band 5B_Main	10M	QPSK	1	0	Bottom of Laptop	0mm	20525+20476	836.5	22.80	24.50	1.479	0	< 0.001	< 0.001
11	LTE Band 30_Main	10M	QPSK	1	0	Bottom of Laptop	0mm	27710	2310	21.20	23.00	1.514	0	< 0.001	< 0.001
	LTE Band 30_Main	10M	QPSK	25	0	Bottom of Laptop	0mm	27710	2310	20.29	22.00	1.483	0	< 0.001	< 0.001
12	LTE Band 66_Main	20M	QPSK	1	0	Bottom of Laptop	0mm	132322	1745	22.60	24.00	1.380	0	< 0.001	< 0.001
	LTE Band 66_Main	20M	QPSK	50	0	Bottom of Laptop	0mm	132322	1745	21.66	23.00	1.361	0	< 0.001	< 0.001
	LTE Band 66B_Main	15M	QPSK	1	0	Bottom of Laptop	0mm	132322+132229	1745	22.51	24.00	1.409	0	< 0.001	< 0.001
	LTE Band 66C_Main	20M	QPSK	1	0	Bottom of Laptop	0mm	132322+132124	1745	22.52	24.00	1.406	0	< 0.001	< 0.001
	LTE Band 66_Aux 2	20M	QPSK	1	0	Bottom of Laptop	0mm	132572	1770	22.98	24.00	1.265	0	< 0.001	< 0.001
	LTE Band 66_Aux 2	20M	QPSK	50	0	Bottom of Laptop	0mm	132572	1770	22.31	23.00	1.172	0	< 0.001	< 0.001

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
13	LTE Band 41_Main	20M	QPSK	1	0	Bottom of Laptop	0mm	40620	2593	22.65	24.00	1.365	62.9	1.006	0	< 0.001	< 0.001
	LTE Band 41_Main	20M	QPSK	50	0	Bottom of Laptop	0mm	40620	2593	21.82	23.00	1.312	62.9	1.006	0	< 0.001	< 0.001
	LTE Band 41_HPUE_Main	20M	QPSK	1	0	Bottom of Laptop	0mm	39750	2506	25.36	27.00	1.459	42.9	1.009	0	< 0.001	< 0.001
	LTE Band 41C_Main	20M	QPSK	1	0	Bottom of Laptop	0mm	40185+39987	2549.5	22.54	24.00	1.400	62.9	1.006	0	< 0.001	< 0.001
14	LTE Band 48_Aux 2	20M	QPSK	1	0	Bottom of Laptop	0mm	55340	3560	20.63	22.00	1.371	62.9	1.006	0	< 0.001	< 0.001
	LTE Band 48_Aux 2	20M	QPSK	50	0	Bottom of Laptop	0mm	55340	3560	19.80	21.00	1.318	62.9	1.006	0	< 0.001	< 0.001
	LTE Band 48C_Aux 2	20M	QPSK	1	0	Bottom of Laptop	0mm	55340+55538	3560	20.56	22.00	1.393	62.9	1.006	0	< 0.001	< 0.001

<5G NR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	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)
15	FR1 n2_Main	20M	BPSK	1	1	Bottom of Laptop	0mm	376000	1880	23.37	24.00	1.156	0	< 0.001	< 0.001
	FR1 n2_Main	20M	BPSK	50	0	Bottom of Laptop	0mm	376000	1880	23.35	23.50	1.035	0	< 0.001	< 0.001
	FR1 n2_Aux 2	20M	BPSK	1	1	Bottom of Laptop	0mm	376000	1880	23.37	24.00	1.156	0	< 0.001	< 0.001
	FR1 n2_Aux 2	20M	BPSK	50	0	Bottom of Laptop	0mm	376000	1880	23.07	23.50	1.104	0	< 0.001	< 0.001
16	FR1 n5_Main	20M	BPSK	1	1	Bottom of Laptop	0mm	167300	836.5	23.41	24.00	1.146	0	< 0.001	< 0.001
	FR1 n5_Main	20M	BPSK	50	0	Bottom of Laptop	0mm	167300	836.5	23.41	23.50	1.021	0	< 0.001	< 0.001
17	FR1 n7_Aux 2	20M	BPSK	1	1	Bottom of Laptop	0mm	507000	2535	23.36	24.00	1.159	0	< 0.001	< 0.001
	FR1 n7_Aux 2	20M	BPSK	50	0	Bottom of Laptop	0mm	507000	2535	23.16	23.50	1.081	0	< 0.001	< 0.001
18	FR1 n12_Main	15M	BPSK	1	1	Bottom of Laptop	0mm	141500	707.5	23.09	24.00	1.233	0	< 0.001	< 0.001
	FR1 n12_Main	15M	BPSK	36	0	Bottom of Laptop	0mm	141500	707.5	23.00	23.50	1.122	0	< 0.001	< 0.001
19	FR1 n41_Aux 2	100M	BPSK	1	1	Bottom of Laptop	0mm	518598	2592.99	23.41	24.00	1.146	0	< 0.001	< 0.001
	FR1 n41_Aux 2	100M	BPSK	135	0	Bottom of Laptop	0mm	518598	2592.99	23.04	23.50	1.112	0	< 0.001	< 0.001
20	FR1 n66_Main	20M	BPSK	1	1	Bottom of Laptop	0mm	349000	1745	23.27	24.00	1.183	0	< 0.001	< 0.001
	FR1 n66_Main	20M	BPSK	50	0	Bottom of Laptop	0mm	349000	1745	23.18	23.50	1.076	0	< 0.001	< 0.001
	FR1 n66_Aux 2	20M	BPSK	1	1	Bottom of Laptop	0mm	354000	1770	23.20	24.00	1.202	0	< 0.001	< 0.001
	FR1 n66_Aux 2	20M	BPSK	50	0	Bottom of Laptop	0mm	354000	1770	23.01	23.50	1.119	0	< 0.001	< 0.001

14.2 WLAN/BT SAR

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	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)
21	WLAN2.4GHz	802.11b 1Mbps	Bottom of Laptop	0mm	Main	6	2437	21.40	21.50	1.023	97.5	1.026	0	< 0.001	< 0.001
	WLAN2.4GHz	802.11b 1Mbps	Bottom of Laptop	0mm	Aux	6	2437	21.40	21.50	1.023	97.5	1.026	0	< 0.001	< 0.001
22	WLAN5GHz	802.11a 6Mbps	Bottom of Laptop	0mm	Main	60	5300	20.80	21.00	1.047	95.4	1.048	0	< 0.001	< 0.001
	WLAN5GHz	802.11a 6Mbps	Bottom of Laptop	0mm	Aux	60	5300	20.90	21.00	1.023	95.4	1.048	0	< 0.001	< 0.001
23	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom of Laptop	0mm	Main	138	5690	20.90	21.00	1.023	97.8	1.022	0	< 0.001	< 0.001
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom of Laptop	0mm	Aux	122	5610	20.90	21.00	1.023	97.8	1.022	0	< 0.001	< 0.001
24	WLAN5GHz	802.11n-HT40 MCS0	Bottom of Laptop	0mm	Main	151	5755	20.70	21.00	1.072	97.8	1.022	0	< 0.001	< 0.001
	WLAN5GHz	802.11n-HT40 MCS0	Bottom of Laptop	0mm	Aux	159	5795	20.80	21.00	1.047	97.8	1.022	0	< 0.001	< 0.001
25	WLAN6GHz	802.11ax-HE160 MCS0	Bottom of Laptop	0mm	Main	15	6025	13.50	13.50	1.000	96	1.042	0.1	0.003	0.003
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom of Laptop	0mm	Aux	111	6505	13.50	13.50	1.000	96	1.042	0.01	0.001	0.001

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	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)
26	Bluetooth	1Mbps	Bottom of Laptop	0mm	Aux	78	2480	10.10	11.50	1.380	76.83	1.084	0	< 0.001	< 0.001

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

This device support Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operation is 43.3% using UL-DL configuration 1. Per FCC Guidance based on the device behavior, all SAR tests were performed using Power Class 3. Power Class 2 is tested using the highest SAR test configuration in Power Class 3 for each LTE configuration and exposure condition combination, according to the highest time averaged power for all applicable uplink-downlink configurations in Power Class 2. When the reported SAR vs. output power is linearly scaled with < 10% discrepancy between power classes and all reported SAR are < 1.4 W/kg, Separate SAR testing for Power Class 2 is not required
Use PC3 power level and SAR to estimated PC2 SAR linearly, and check if the deviation from the measured PC2 SAR is <10%

	LTE Band 41	LTE Band 41
	(Power Class 3)	(Power Class 2)
Maximum Tune up Power (dBm)	24	27
Reported 1g SAR (W/kg)	< 0.001	< 0.001
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	159.00	217.01
Linearity SAR(W/kg)	-	
% deviation from expected linearity		-

15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Body
1.	WWAN Main + WWAN Aux 2 + 2.4GHz WLAN Main + Bluetooth Aux + FR1	Yes
2.	WWAN Main + WWAN Aux 2 + 2.4GHz WLAN Main + 2.4GHz WLAN Aux + FR1	Yes
3.	WWAN Main + WWAN Aux 2 + 5/6GHz WLAN Main + 5/6GHz WLAN Aux + Bluetooth Aux + FR1	Yes

General Note:

1. The Scaled SAR summation is calculated based on the same configuration and test position.
2. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.

15.1 Body Exposure Conditions

Exposure Position	1	2	3	4	5	6	7	1+2+3+7 Summed 1g SAR (W/kg)	1+2+3+4 Summed 1g SAR (W/kg)	1+2+5+6+7 Summed 1g SAR (W/kg)
	Maximum WWAN Main	Maximum WWAN Aux 2	2.4GHz WLAN Main	2.4GHz WLAN Aux	5G/6GHz WLAN Main	5G/6GHz WLAN Aux	Bluetooth Aux			
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
Bottom of Laptop at 0mm	0.001	0.001	0.001	0.001	0.003	0.001	0.001	**0.004**	**0.004**	**0.007**

Test Engineer： Mood Huang and Carter Jhuang

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 ≤ 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 941225 D05A v01r02, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Oct 2015

[10] FCC KDB 616217 D04 v01r02, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, Oct 2015

[11] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.

[12] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.