

FCC SAR TEST REPORT

FCC ID : 2AJN7-TP00145F
Equipment : Notebook Computer
Brand Name : Lenovo
Model Name : TP00145F
Applicant : LC Future Center Limited Taiwan Branch
7F., No.780, Beian Rd., Zhongshan Dist., Taipei 104, Taiwan
Manufacturer : Lenovo Ireland International Limited
Viscount House, 6/7 Fitzwilliam Square East, Dublin, D02 Y447,
Ireland
Standard : FCC 47 CFR Part 2 (2.1093)

Equipment: Rolling RW350R-GL tested inside of Lenovo Notebook Computer.

The product was received on Mar. 18, 2026 and testing was started from Mar. 20, 2026 and completed on Apr. 17, 2026. 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. Laboratory, the test report shall not be reproduced except in full.



Approved by: Cona Huang / Deputy Manager



Sporton International Inc. Wensan Laboratory



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History of this test report

Report No.	Version	Description	Issued Date
FA4D0659-02	01	Initial issue of report	Apr. 24, 2026

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) for **LC Future Center Limited Taiwan Branch, Notebook Computer, TP00145F**, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary	Highest Simultaneous Transmission 1g SAR (W/kg)
		Body	
		1g SAR (W/kg)	
Licensed	WCDMA II	1.09	1.19
	WCDMA IV	1.19	
	WCDMA V	0.27	
	LTE Band 7	0.91	
	LTE Band 12/17	0.46	
	LTE Band 13	0.64	
	LTE Band 14	0.55	
	LTE Band 25/2	1.09	
	LTE Band 26/5	0.36	
	LTE Band 30	1.08	
	LTE Band 41/38	0.52	
	LTE Band 42	0.60	
	LTE Band 43	0.92	
	LTE Band 48	1.04	
	LTE Band 66	1.09	
	LTE Band 71	0.36	
	FR1 n5	0.35	
	FR1 n7	1.03	
	FR1 n12	0.29	
	FR1 n14	0.45	
	FR1 n25/2	1.08	
	FR1 n26	0.33	
	FR1 n30	1.08	
	FR1 n41/38	1.14	
	FR1 n48	0.84	
	FR1 n66	1.08	
	FR1 n71	0.29	
	FR1 n77/78	1.11	
Date of Testing:		2026/3/20 ~ 2026/4/17	

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation and the FCC designation No. TW3786 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) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications

Reviewed by: Jason Wang
Report Producer: Daisy Peng

2. Guidance Applied

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



3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	Notebook Computer
Brand Name	Lenovo
Model Name	TP00145F
FCC ID	2AJN7-TP00145F
Integrated WWAN Module	Brand Name: Rolling Model Name: RW350R-GL
Integrated WLAN Module	Brand Name: Intel Model Name: BE211D2W
Integrated NFC Module	Brand Name: Foxconn Model Name: T77H747
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 43: 3600 MHz ~ 3700 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 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 n14 : 788 MHz ~ 798 MHz 5G NR n25 : 1850 MHz ~ 1915 MHz 5G NR n26 : 814 MHz ~ 849 MHz 5G NR n30 : 2305 MHz ~ 2315 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n48 : 3550 MHz ~ 3700 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n71 : 663 MHz ~ 698 MHz 5G NR n77: 3700 MHz ~ 3980 MHz, 3450MHz ~ 3550MHz 5G NR n78: 3700 MHz ~ 3800 MHz, 3450MHz ~ 3550MHz 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 5.9 GHz Band: 5850 MHz ~ 5895 MHz UNII4 WLAN 6GHz Band: 5925 MHz ~ 6425 MHz, 6425 MHz ~ 6525 MHz, 6525 MHz ~ 6875 MHz, 6875 MHz ~ 7125 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz

Mode	RMC 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+ (16QAM uplink) LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM WLAN: 802.11a/b/g/n/ac/ax/be HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160/HE320/EHT20/EHT40/EHT80/EHT160/EHT320 Bluetooth BR/EDR/LE NFC: ASK
EUT Stage	Production Unit
Remark: 1. Variant report includes verification worst case found in original report, Sporton SAR Report, Report No. FA4D0659 and additional reduce power level for n77 MIMO1 and Aux ant.	

WWAN Antenna Information				
Main Antenna	Manufacturer	Amphenol Taiwan Corporation	Peak gain(dBi)	1.93
	Part number	DC330025X30	Type	PIFA
	Manufacturer	Speed	Peak gain(dBi)	1.93
	Part number	DC330025Y30	Type	PIFA
MIMO2 Antenna	Manufacturer	Amphenol Taiwan Corporation	Peak gain(dBi)	1.87
	Part number	DC330025X40	Type	PIFA
	Manufacturer	Speed	Peak gain(dBi)	1.87
	Part number	DC330025Y40	Type	PIFA
Auxiliary Antenna	Manufacturer	Amphenol Taiwan Corporation	Peak gain(dBi)	1.81
	Part number	DC330025X40	Type	PIFA
	Manufacturer	Speed	Peak gain(dBi)	1.81
	Part number	DC330025Y40	Type	PIFA

Antenna Information					
Antenna 1	Manufacturer	Amphenol Taiwan Corporation			
	Antenna Type	PIFA Antenna		PIFA Antenna	
	Part number	DC330025X00		DC330025X00	
	Peak gain (dbi)	Main Antenna :		Aux Antenna :	
		BT/WLAN(2.4G):	1.43 dBi	BT/WLAN(2.4G):	1.92 dBi
		WLAN(5G B1):	0.54 dBi	WLAN(5G B1):	2.84 dBi
		WLAN(5G B2):	1.59 dBi	WLAN(5G B2):	2.84 dBi
		WLAN(5G B3):	2.22 dBi	WLAN(5G B3):	2.46 dBi
		WLAN(5G B4):	2.26 dBi	WLAN(5G B4):	2.22 dBi
		UNII-4	1.87 dBi	UNII-4	1.07 dBi
		UNII-5	2.05 dBi	UNII-5	1.74 dBi
		UNII-6	2.05 dBi	UNII-6	2.05 dBi
		UNII-7	1.25 dBi	UNII-7	2.05 dBi
		UNII-8	2.32 dBi	UNII-8	0.90 dBi
Antenna 2	Manufacturer	SPEEDWIRE			
	Antenna Type	PIFA Antenna		PIFA Antenna	
	Part number	DC330025Y00		DC330025Y00	
	Peak gain (dbi)	Main Antenna :		Aux Antenna :	
		BT/WLAN(2.4G):	1.43 dBi	BT/WLAN(2.4G):	1.92 dBi
		WLAN(5G B1):	0.54 dBi	WLAN(5G B1):	2.84 dBi
		WLAN(5G B2):	1.59 dBi	WLAN(5G B2):	2.84 dBi
		WLAN(5G B3):	2.22 dBi	WLAN(5G B3):	2.46 dBi
		WLAN(5G B4):	2.26 dBi	WLAN(5G B4):	2.22 dBi
		UNII-4	1.87 dBi	UNII-4	1.07 dBi
		UNII-5	2.05 dBi	UNII-5	1.74 dBi
		UNII-6	2.05 dBi	UNII-6	2.05 dBi
		UNII-7	1.25 dBi	UNII-7	2.05 dBi
		UNII-8	2.32 dBi	UNII-8	0.90 dBi

3.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05									
FCC ID		2AJN7-TP00145F							
Equipment Name		Notebook Computer							
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 43: 3600 MHz ~ 3700 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 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 43: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 71: 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.							
Power reduction applied to satisfy SAR compliance		Yes, Proximity Sensor and the power verification refer to original report no.: FA4D0659.							
LTE Carrier Aggregation Combinations		Intra-Band possible combinations and the detail power measurement please referred to original report.							
LTE Carrier Aggregation Additional Information		This device supports maximum of 2 carriers in the uplink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.							

Transmission (H, M, L) channel numbers and frequencies in each LTE band														
LTE Band 2														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860		
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880		
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900		
LTE Band 4														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720		
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5		
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745		
LTE Band 5														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	20407	824.7	20415	825.5	20425	826.5	20450	829						
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5						
H	20643	848.3	20635	847.5	20625	846.5	20600	844						
LTE Band 7														
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510						
M	21100	2535	21100	2535	21100	2535	21100	2535						
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560						
LTE Band 12														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	23017	699.7	23025	700.5	23035	701.5	23060	704						
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5						
H	23173	715.3	23165	714.5	23155	713.5	23130	711						
LTE Band 13														
	Bandwidth 5 MHz				Bandwidth 10 MHz									
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)							
L	23205		779.5		23230		782							
M	23230		782											
H	23255		784.5											
LTE Band 14														
	Bandwidth 5 MHz				Bandwidth 10 MHz									
	Channel #		Channel #		Channel #		Freq.(MHz)							
L	23305		790.5		23330		793							
M	23330		793											
H	23355		795.5											
LTE Band 17														
	Bandwidth 5 MHz				Bandwidth 10 MHz									
	Channel #		Freq.(MHz)		Channel #		Freq. (MHz)							
L	23755		706.5		23780		709							
M	23790		710		23790		710							
H	23825		713.5		23800		711							
LTE Band 25														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860		
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880		
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905		
LTE Band 26														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		



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Report No. : FA4D0659-02

	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				
	40620	2593	40620	2593	40620	2593	40620	2593				
HM	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5				
	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 43												
	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	43615	3602.5	43640	3605	43665	3607.5	43690	3610				
M	44090	3650	44090	3650	44090	3650	44090	3650				
H	44565	3697.5	44540	3695	44515	3692.5	44490	3690				
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				
	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
LTE Band 71												
	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	133147	665.5	133172	668	133197	670.5	133222	673				
M	133297	680.5	133297	680.5	133297	680.5	133297	680.5				
H	133447	695.5	133422	693	133397	690.5	133372	688				



3.3 General 5G NR SAR Test and Reporting Considerations

5G NR Information												
FCC ID	2AJN7-TP00145F											
Equipment Name	Notebook Computer											
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 n14 : 788 MHz ~ 798 MHz											
	5G NR n25: 1850 MHz ~ 1915 MHz											
	5G NR n26: 814 MHz ~ 849 MHz											
	5G NR n30 : 2305 MHz ~ 2315 MHz											
	5G NR n38: 2570 MHz ~ 2620 MHz											
	5G NR n41: 2496 MHz ~ 2690 MHz											
	5G NR n48 : 3550 MHz ~ 3700 MHz											
	5G NR n66: 1710 MHz ~ 1780 MHz											
	5G NR n71: 663 MHz ~ 698 MHz											
	5G NR n77: 3700 MHz ~ 3980 MHz, 3450MHz ~ 3550MHz											
5G NR n78: 3700 MHz ~ 3800 MHz, 3450MHz ~ 3550MHz												
Channel Bandwidth	5G NR n2: 5MHz, 10MHz, 15MHz, 20MHz, 25MHz, 30MHz											
	5G NR n5: 5MHz, 10MHz, 15MHz, 20MHz, 25MHz											
	5G NR n7: 5MHz, 10MHz, 15MHz, 20MHz, 25 MHz, 30MHz, 40MHz, 50MHz											
	5G NR n12: 5MHz, 10MHz, 15MHz											
	5G NR n14: 5MHz, 10MHz											
	5G NR n25: 5MHz, 10MHz, 15MHz, 20MHz, 25 MHz 30MHz, ,35MHz, 40MHz, 45MHz											
	5G NR n26: 5MHz, 10MHz, 15MHz, 20MHz											
	5G NR n30: 5MHz, 10MHz											
	5G NR n38: 5MHz, 10MHz, 15MHz, 20MHz, 25 MHz, 30MHz, 40MHz											
	5G NR n41: 10MHz, 15MHz, 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz											
	5G NR n48: 5MHz ,10MHz, 15MHz, 20MHz, 30MHz, 40MHz											
	5G NR n66: 5MHz, 10MHz, 15MHz, 20MHz, 25 MHz,30MHz, 35MHz, 40MHz, 45MHz											
	5G NR n71: 5MHz, 10MHz, 15MHz, 20MHz											
	5G NR n77: 10MHz, 15MHz, 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz											
5G NR n78: 10MHz, 15MHz, 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz												
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 B2/5/12/13/14/30/66											
LTE Anchor Bands for n5	LTE B2/30/48/66											
LTE Anchor Bands for n25	LTE B66											
LTE Anchor Bands for n41	LTE B2/66/41											
LTE Anchor Bands for n48	LTE B2/66											
LTE Anchor Bands for n66	LTE B5/12/13/48											
LTE Anchor Bands for n71	LTE B2/66											
LTE Anchor Bands for n77	LTE B2/5/12/13/14/30/41/66											
LTE Anchor Bands for n78	LTE B2/5/7/38											
NR Band 2												
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	370500	1852.5	371000	1855	371500	1857.5	372000	1860	372500	1862.5	373000	1865
M	376000	1880	376000	1880	376000	1880	376000	1880	376000	1880	376000	1880
H	381500	1907.5	381000	1905	380500	1902.5	380000	1900	379500	1897.5	379000	1895

NR Band 5																						
	Bandwidth 5MHz			Bandwidth 10MHz			Bandwidth 15MHz			Bandwidth 20MHz			Bandwidth 25MHz									
	Ch. #		Freq. (MHz)	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	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		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)						
L	500500	2502.5	501000	2505	501500	2507.5	502000	2510	502500	2512.5	503000	2515	504000	2520	505000	2525						
M	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535						
H	513500	2567.5	513000	2565	512500	2562.5	512000	2560	511500	2557.5	511000	2555	510000	2550	509000	2545						
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 14																						
	Bandwidth 5MHz						Bandwidth 10MHz															
	Ch. #			Freq. (MHz)			Ch. #			Freq. (MHz)												
L	158100			790.5			158600			793												
M	158600			793																		
H	159100			795.5																		
NR Band 25																						
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz		Bandwidth 45MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	370500	1852.5	371000	1855	371500	1857.5	372000	1860	372500	1862.5	373000	1865	373500	1867.5	374000	1870	374500	1872.5				
M	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5				
H	382500	1912.5	382000	1910	381500	1907.5	381000	1905	380500	1902.5	380000	1900	379500	1897.5	379000	1895	378500	1892.5				
NR Band 26																						
	Bandwidth 5MHz				Bandwidth 10MHz				Bandwidth 15MHz				Bandwidth 20MHz									
	Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)							
L	163300		816.5		163800		819		164300		821.5		164800		824							
M	166300		831.5		166300		831.5		166300		831.5		166300		831.5							
H	169300		846.5		168800		844		168300		841.5		167800		839							
NR Band 30																						
	Bandwidth 5MHz						Bandwidth 10MHz															
	Ch. #			Freq. (MHz)			Ch. #			Freq. (MHz)												
L	461500			2307.5			462000			2310												
M	462000			2310																		
H	462500			2312.5																		
NR Band 38																						
	Bandwidth 5Hz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz									
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)								
L	514500	2572.5	515004	2575.02	515502	2577.51	516000	2580	516504	2582.52	517002	2585.01	518004	2590.02								
M	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595								
H	523500	2617.5	522996	2614.98	522498	2612.49	522000	2610	521496	2607.48	520998	2604.99	519996	2599.98								
NR Band 41																						
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	500202	2501.01	500700	2503.5	501204	2506.02	502200	2511	503202	2516.01	504204	2521.02	505200	2526	506202	2531.01	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	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99
H	537000	2685	536496	2682.48	535998	2679.99	534996	2674.98	534000	2670	532998	2664.99	531996	2659.98	531000	2655	529998	2649.99	528996	2644.98	528000	2640



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NR Band 48																						
	Bandwidth5MHz		Bandwidth10MHz		Bandwidth 15MHz		Bandwidth20MHz		Bandwidth30MHz		Bandwidth 40MHz											
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)										
L	636834	3552.51	637000	3555	637168	3557.52	637334	3560.01	637668	3565.02	638000	3570										
M	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99										
H	646500	3697.5	646332	3694.98	646166	3692.49	646000	3690	645666	3684.99	645332	3679.98										
NR Band 66																						
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz		Bandwidth 45MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	342500	1712.5	343000	1715	343500	1717.5	344000	1720	344500	1722.5	345000	1725	345500	1727.5	342500	1712.5	346500	1732.5				
M	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745				
H	355500	1777.5	355000	1775	354500	1772.5	354000	1770	353500	1767.5	353000	1765	352500	1762.5	355500	1777.5	351500	1757.5				
NR Band 71																						
	Bandwidth 5MHz				Bandwidth 10MHz				Bandwidth 15MHz				Bandwidth 20MHz									
	Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)							
L	133100		665.5		133600		668		13410		670.5		134600		673							
M	136100		680.5		136100		680.5		136100		680.5		136100		680.5							
H	139100		695.5		138600		693		13810		690.5		137600		688							
NR Band 77_Part 270																						
	Bandwidth10MHz		Bandwidth15MHz		Bandwidth 20MHz		Bandwidth30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		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)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647000	3705	647168	3707.52	647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02	650000	3750
M	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H	665000	3975	664832	3972.48	664666	3969.99	664332	3964.98	664000	3960	663666	3954.99	663332	3949.98	663000	3945	662666	3939.99	662332	3934.98	662000	3930
NR Band 78_Part 270																						
	Bandwidth10MHz		Bandwidth15MHz		Bandwidth 20MHz		Bandwidth30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		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)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647000	3705	647168	3707.52	647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02	650000	3750
M	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750		
H	653000	3795	652832	3792.48	652666	3789.99	652332	3784.98	652000	3780	651666	3774.99	651332	3769.98	651000	3765	650666	3759.99	650332	3754.98		
NR Band 77/78_Part 270Q																						
	Bandwidth10MHz		Bandwidth15MHz		Bandwidth 20MHz		Bandwidth30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		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)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	630334	3455.01	630500	3457.5	630668	3460.02	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632334	3485.01	632668	3490.02	633000	3495	633332	3499.98
M	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98		
H	636332	3544.98	636166	3542.49	636000	3540	635666	3534.99	635332	3529.98	635000	3525	634666	3519.99	634332	3514.98	634000	3510	633666	3504.99		

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.

4.3 RF Exposure limit for above 6GHz

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Peak Spatially Averaged Power Density was evaluated over a circular area of 4cm² per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

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:

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

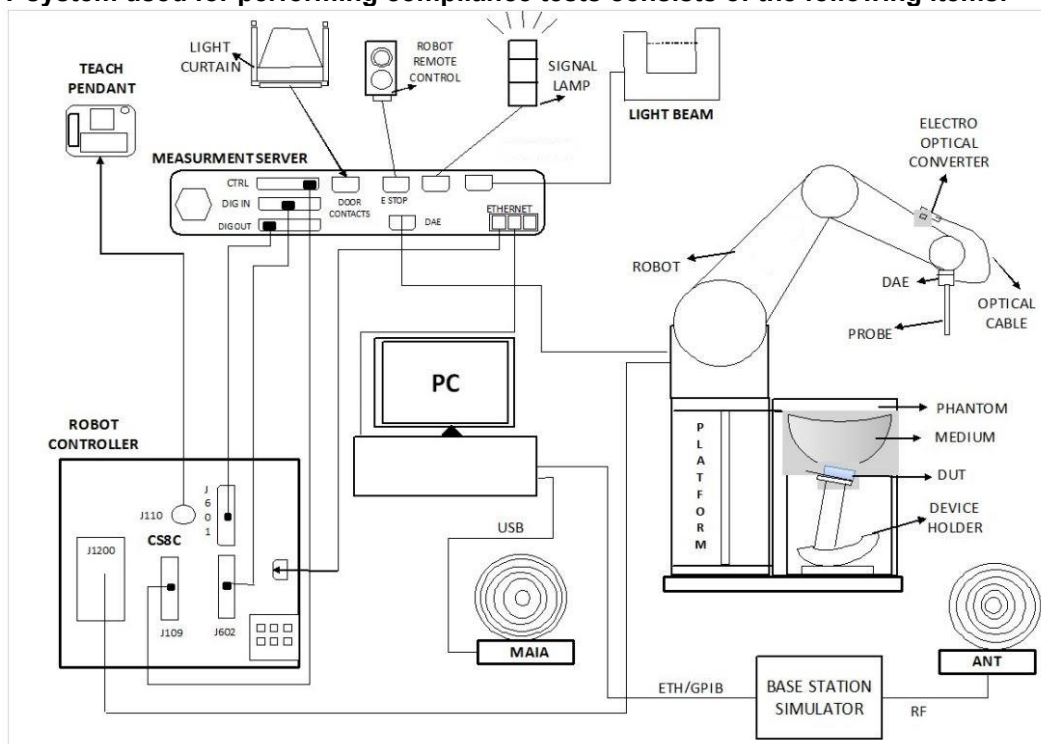
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

6. System Description and Setup

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



- The DASY system in SAR Configuration is shown above
- 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 windows software and the DASY 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.

Laboratory	EMC & Wireless Communications Laboratory		Wensan Laboratory				
Test Site Location	TW1190 No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333		TW3786 No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010				
Test Site No.	SAR01-HY	SAR03-HY	SAR08-HY	SAR09-HY	SAR15-HY	SAR18-HY	SAR21-HY
	SAR04-HY	SAR05-HY	SAR11-HY	SAR12-HY	SAR16-HY	SAR19-HY	SAR22-HY
	SAR06-HY	SAR10-HY	SAR13-HY	SAR14-HY	SAR17-HY	SAR20-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	4 MHz – 4 GHz; Linearity: ± 0.2 dB (30 MHz – 4 GHz)	
Directivity	± 0.2 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 μ W/g – >100 mW/g; Linearity: ± 0.2 dB	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 3.9 mm (body: 12 mm) Distance from probe tip to dipole centers: 3.0 mm	

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	4 MHz – >6 GHz Linearity: ± 0.2 dB (30 MHz – 6 GHz)	
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 μ W/g – >100 mW/g Linearity: ± 0.2 dB (noise: typically <1 μ W/g)	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

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:

- (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 from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

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	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}	≤ 2 GHz: ≤ 15 mm $2 - 3$ GHz: ≤ 12 mm	$3 - 4$ GHz: ≤ 12 mm $4 - 6$ GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

7.4 Zoom Scan

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

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

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$			≤ 2 GHz: ≤ 8 mm $2 - 3$ GHz: ≤ 5 mm*	$3 - 4$ GHz: ≤ 5 mm* $4 - 6$ GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{\text{Zoom}}(n)$		≤ 5 mm	$3 - 4$ GHz: ≤ 4 mm $4 - 5$ GHz: ≤ 3 mm $5 - 6$ GHz: ≤ 2 mm
	graded grid	$\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	$3 - 4$ GHz: ≤ 3 mm $4 - 5$ GHz: ≤ 2.5 mm $5 - 6$ GHz: ≤ 2 mm
		$\Delta z_{\text{Zoom}}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	$3 - 4$ GHz: ≥ 28 mm $4 - 5$ GHz: ≥ 25 mm $5 - 6$ GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.				
* When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

7.5 Volume Scan Procedures

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

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	Last Cal.	Due Date
SPEAG	1750MHz System Validation Kit	D1750V2	1112	Feb. 20, 2025	Feb. 18, 2027
SPEAG	2600MHz System Validation Kit	D2600V2	1008	Aug. 15, 2024	Aug. 13, 2026
SPEAG	3500MHz System Validation Kit	D3500V2	1014	Jan. 15, 2025	Jan. 13, 2027
SPEAG	3700MHz System Validation Kit	D3700V2	1006	Jun. 12, 2025	Jun. 11, 2026
SPEAG	3900MHz System Validation Kit	D3900V2	1092	May. 15, 2023	May. 12, 2026
SPEAG	Data Acquisition Electronics	DAE4	661	May. 19, 2025	May. 18, 2026
SPEAG	Data Acquisition Electronics	DAE4	1805	May. 21, 2025	May. 20, 2026
SPEAG	Data Acquisition Electronics	DAE4	699	Feb. 13, 2026	Feb. 12, 2027
SPEAG	Dosimetric E-Field Probe	EX3DV4	7695	Jul. 01, 2025	Jun. 30, 2026
SPEAG	Dosimetric E-Field Probe	EX3DV4	7700	Jan. 26, 2026	Jan. 25, 2027
SPEAG	Dosimetric E-Field Probe	EX3DV4	7793	Feb. 23, 2026	Feb. 22, 2027
SPEAG	Dielectric Probe Kit	DAK-3.5	1270	May. 19, 2025	May. 18, 2026
Testo	Hygro meter	608-H1	45196600	Nov. 04, 2025	Nov. 03, 2026
Testo	Hygro meter	608-H1	45207528	Nov. 04, 2025	Nov. 03, 2026
Anritsu	Radio Communication Analyzer	MT8821C	6201074414	Aug. 19, 2025	Aug. 18, 2026
Keysight	5G Wireless Test Platform	E7515B	MY59321595	Jun. 20, 2025	Jun. 19, 2026
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Sep. 24, 2025	Sep. 23, 2026
Keysight	ENA Network Analyzer	E5071C	MY46104758	Oct. 14, 2025	Oct. 13, 2026
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3690	Aug. 14, 2025	Aug. 13, 2026
Anritsu	Power Meter	ML2496A	2119003	Jul. 14, 2025	Jul. 13, 2026
Anritsu	Power Sensor	MA2411B	1911334	Jul. 14, 2025	Jul. 13, 2026
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jul. 09, 2025	Jul. 08, 2026
Mini-Circuits	Power Amplifier	ZHL-42W+	715701915	May. 19, 2025	May. 18, 2026
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Warison	Directional Coupler	WCOU-10-50S-10	WR889BMC4B1	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°C to 25°C, 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°C to 25°C and within $\pm 2^\circ\text{C}$ 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

The SPEAG Dasy Measurement system implement a SAR error compensation algorithm as documented in IEEE Std 1528-2013 to automatically compensate the measured SAR results for deviations between the measured and required tissue dielectric parameters, according to KDB 865664 D01 and IEC/IEEE 62209-1528, the tolerance for "Delta (σ)" and "Delta (ϵ_r)" can be relaxed to $\pm 10\%$

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Liquid Temp (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
1750	22.5	1.31	42.2	1.37	40.1	-4.38	5.24	± 10.0	2026/3/20
2600	22.5	1.9	41	1.96	39	-3.06	5.13	± 10.0	2026/3/20
3500	22.5	2.73	39.2	2.91	37.9	-6.19	3.43	± 10.0	2026/4/15
3500	22.5	2.8	39.6	2.91	37.9	-3.78	4.49	± 10.0	2026/4/16
3500	22.5	2.73	37.7	2.91	37.9	-6.19	-0.53	± 10.0	2026/4/17
3700	22.5	2.92	38.9	3.12	37.7	-6.41	3.18	± 10.0	2026/4/15
3700	22.5	2.99	39.4	3.12	37.7	-4.17	4.51	± 10.0	2026/4/16
3700	22.5	2.87	37.4	3.12	37.7	-8.01	-0.8	± 10.0	2026/4/17
3900	22.5	3.1	38.6	3.33	37.51	-6.91	2.91	± 10.0	2026/4/15
3900	22.5	3.2	39.1	3.33	37.51	-3.9	4.24	± 10.0	2026/4/16
3900	22.5	3.05	37.4	3.33	37.51	-8.41	-0.29	± 10.0	2026/4/17

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.

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 (%)	Test Site
2026/3/20	1750	251.19	D1750V2 - 1112	EX3DV4 - SN7793	DAE4 Sn699	9.15	36.3	36.427	0.35	SAR09
2026/3/20	2600	251.19	D2600V2 - 1008	EX3DV4 - SN7793	DAE4 Sn699	14.1	55.7	56.133	0.78	SAR09
2026/4/15	3500	50.12	D3500V2 - 1014	EX3DV4 - SN7700	DAE4 Sn1805	3.45	65.7	68.835	4.77	SAR10
2026/4/16	3500	50.12	D3500V2 - 1014	EX3DV4 - SN7695	DAE4 Sn661	3.13	65.7	62.45	-4.95	SAR13
2026/4/17	3500	50.12	D3500V2 - 1014	EX3DV4 - SN7695	DAE4 Sn661	3.05	65.7	60.854	-7.38	SAR13
2026/4/15	3700	50.12	D3700V2 - 1006	EX3DV4 - SN7700	DAE4 Sn1805	3.43	69.9	68.436	-2.09	SAR10
2026/4/16	3700	50.12	D3700V2 - 1006	EX3DV4 - SN7695	DAE4 Sn661	3.7	69.9	73.823	5.61	SAR13
2026/4/17	3700	50.12	D3700V2 - 1006	EX3DV4 - SN7695	DAE4 Sn661	3.53	69.9	70.431	0.76	SAR13
2026/4/15	3900	50.12	D3900V2 - 1092	EX3DV4 - SN7700	DAE4 Sn1805	3.19	67	63.647	-5	SAR10
2026/4/16	3900	50.12	D3900V2 - 1092	EX3DV4 - SN7695	DAE4 Sn661	3.41	67	68.037	1.55	SAR13
2026/4/17	3900	50.12	D3900V2 - 1092	EX3DV4 - SN7695	DAE4 Sn661	3.41	67	68.037	1.55	SAR13

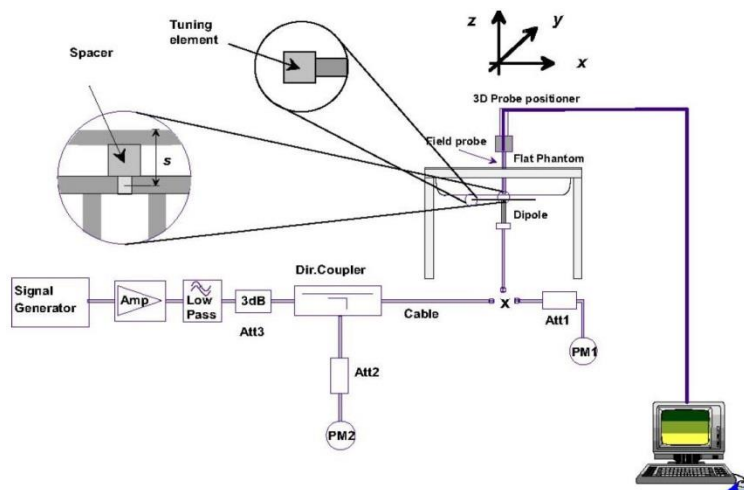


Fig 8.3.1 System Performance Check Setup



Fig 8.3.2 Setup Photo

10. UMTS 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 HSPA+ devices supporting 16 QAM in the uplink, power measurements procedure is according to the configurations in Table C.11.1.4 of 3GPP TS 34.121-1.
4. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

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

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

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

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

Setup Configuration

HSUPA Setup Configuration:

- The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- The RF path losses were compensated into the measurements.
- A call was established between EUT and Base Station with following setting * :
 - Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
 - 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
 - Set Cell Power = -86 dBm
 - Set Channel Type = 12.2k + HSPA
 - Set UE Target Power
 - Power Ctrl Mode= Alternating bits
 - Set and observe the E-TFCI
 - Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
- The transmitted maximum output power was recorded.

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 5/15$ with $\beta_{hs} = 5/15 * \beta_c$.

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

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

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

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

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

Setup Configuration

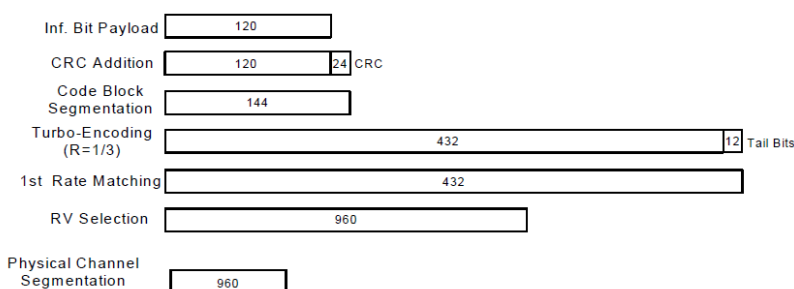
DC-HSDPA 3GPP release 8 Setup Configuration:

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

HSPA+ 3GPP release 7 (uplink category 7) 16QAM, 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 = 5.2E:HSPA+:UL with 16QAM
 - 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, C11.1.4, quoted from the TS 34.121-1 s5.2E
 - iii. Set Channel Params
 - iv. Set Cell Power = -86 dBm
 - v. Set Channel Type = HSPA
 - vi. Set UE Target Power =21 dBm
 - vii. Power Ctrl Mode= All Up Bits
 - viii. Set Manual Uplink DPCH Bc/Bd = Manual
 - ix. Set Manual Uplink DPCH Bc and Bd=15,15(for 34.121-1 v8.10.0 table C11.1.4 sub-test 1)
 - x. Set HSPA Conn DL Channel Levels
 - xi. Set HS-SCCH Configs
 - xii. Set RB Test Mode Setup
 - xiii. Set Common HSUPA Parameters
 - xiv. Set Serving Grant
 - xv. Confirm that E-TFCI is equal to the target E-TFCI of 105 for sub-test 1, and other subtest's E-TFCI
- d. The transmitted maximum output power was recorded.

Table C.11.1.4: β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM

Sub-test	β_c (Note 3)	β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$.
 Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).
 Note 3: DPDCH is not configured, therefore the β_c is set to 1 and $\beta_d = 0$ by default.
 Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.
 Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signaled to use the extrapolation algorithm.

Setup Configuration

<WCDMA Conducted Power>
General Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than $\frac{1}{4}$ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

【WCDMA IV_MIMO2_Sensor OFF】

TX Channel		1312	1413	1513	Tune-up Limit (dBm)
Frequency (MHz)		1712.4	1732.6	1752.6	
3GPP Rel 99	RMC 12.2Kbps	23.39	23.37	23.28	24.00
3GPP Rel 6	HSDPA Subtest-1	22.32	22.28	22.14	23.00
3GPP Rel 6	HSDPA Subtest-2	22.23	22.24	22.20	23.00
3GPP Rel 6	HSDPA Subtest-3	21.85	21.77	21.79	22.50
3GPP Rel 6	HSDPA Subtest-4	21.79	21.78	21.72	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	22.32	22.24	22.10	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	22.29	22.12	22.14	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	21.77	21.82	21.76	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	21.76	21.72	21.65	22.50
3GPP Rel 6	HSUPA Subtest-1	21.39	21.24	21.36	23.00
3GPP Rel 6	HSUPA Subtest-2	20.31	20.24	20.21	21.00
3GPP Rel 6	HSUPA Subtest-3	21.26	21.16	21.23	22.00
3GPP Rel 6	HSUPA Subtest-4	19.83	19.87	19.85	21.00
3GPP Rel 6	HSUPA Subtest-5	21.20	21.27	21.17	23.00
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	20.13	20.24	20.21	20.50

【WCDMA IV_MIMO2_Sensor ON】

TX Channel		1312	1413	1513	Tune-up Limit (dBm)
Frequency (MHz)		1712.4	1732.6	1752.6	
3GPP Rel 99	RMC 12.2Kbps	17.45	17.41	17.38	19.00
3GPP Rel 6	HSDPA Subtest-1	16.42	16.46	16.25	18.00
3GPP Rel 6	HSDPA Subtest-2	16.38	16.43	16.40	18.00
3GPP Rel 6	HSDPA Subtest-3	15.92	15.88	15.89	17.50
3GPP Rel 6	HSDPA Subtest-4	15.90	15.87	15.83	17.50
3GPP Rel 8	DC-HSDPA Subtest-1	16.39	16.35	16.24	18.00
3GPP Rel 8	DC-HSDPA Subtest-2	16.37	16.30	16.27	18.00
3GPP Rel 8	DC-HSDPA Subtest-3	15.91	15.92	15.87	17.50
3GPP Rel 8	DC-HSDPA Subtest-4	15.89	15.77	15.85	17.50
3GPP Rel 6	HSUPA Subtest-1	14.18	14.20	14.04	16.00
3GPP Rel 6	HSUPA Subtest-2	14.02	14.17	14.09	16.00
3GPP Rel 6	HSUPA Subtest-3	15.21	15.00	15.00	16.00
3GPP Rel 6	HSUPA Subtest-4	14.12	14.18	14.06	16.00
3GPP Rel 6	HSUPA Subtest-5	15.15	15.09	15.03	17.00
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	14.58	14.35	14.21	16.00

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. And only for TDD power class2 was performed using Factory Test Mode software to establish the connection and perform SAR with 50% 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	$\leq 3.5^1$	$\leq 1.2^1$	$\leq 0.2^1$
		$\leq 0.5^2$	$\leq 0.5^2$	0 ²
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
CP-OFDM	256 QAM	≤ 4.5		
	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		

【FR1 n7_MIMO2_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				505000	507000	509000	
Frequency (MHz)				2525	2535	2545	
50	PI/2 BPSK	1	1	22.83	22.69	22.92	24.00
50	PI/2 BPSK	1	135	22.84	22.80	22.96	24.00
50	PI/2 BPSK	1	268	23.06	23.06	23.18	24.00
50	PI/2 BPSK	135	0	22.42	22.23	22.50	23.50
50	PI/2 BPSK	135	68	22.91	23.01	23.05	24.00
50	PI/2 BPSK	135	135	22.38	22.35	22.54	23.50
50	PI/2 BPSK	270	0	22.56	22.52	22.73	23.50
50	QPSK	1	1	22.47	22.52	22.70	24.00
50	QPSK	1	135	22.69	22.63	22.92	24.00
50	QPSK	1	268	22.91	22.85	23.05	24.00
50	QPSK	135	0	22.07	22.06	22.29	23.00
50	QPSK	135	68	22.87	22.72	22.94	24.00
50	QPSK	135	135	21.87	21.89	22.14	23.00
50	QPSK	270	0	21.86	21.77	22.07	23.00
50	16QAM	1	1	21.45	21.41	21.55	23.00
50	64QAM	1	1	19.63	19.62	19.90	21.50
50	256QAM	1	1	18.22	18.07	18.33	19.50
Channel				504000	507000	510000	Tune-up limit (dBm)
Frequency (MHz)				2520	2535	2550	
40	PI/2 BPSK	1	1	22.79	22.58	22.87	24.00
Channel				503500	507000	510500	Tune-up limit (dBm)
Frequency (MHz)				2517.5	2535	2552.5	
35	PI/2 BPSK	1	1	22.76	22.63	22.85	24.00
Channel				503000	507000	511000	Tune-up limit (dBm)
Frequency (MHz)				2515	2535	2555	
30	PI/2 BPSK	1	1	22.71	22.55	22.77	24.00
Channel				502500	507000	511500	Tune-up limit (dBm)
Frequency (MHz)				2512.5	2535	2557.5	
25	PI/2 BPSK	1	1	22.81	22.64	22.79	24.00
Channel				502000	507000	512000	Tune-up limit (dBm)
Frequency (MHz)				2510	2535	2560	
20	PI/2 BPSK	1	1	22.68	22.64	22.87	24.00
Channel				501500	507000	512500	Tune-up limit (dBm)
Frequency (MHz)				2507.5	2535	2562.5	
15	PI/2 BPSK	1	1	22.79	22.61	22.90	24.00
Channel				501000	507000	513000	Tune-up limit (dBm)
Frequency (MHz)				2505	2535	2565	
10	PI/2 BPSK	1	1	22.75	22.60	22.80	24.00
Channel				500500	507000	513500	Tune-up limit (dBm)
Frequency (MHz)				2502.5	2535	2567.5	
5	PI/2 BPSK	1	1	22.74	22.64	22.80	24.00

【FR1 n7_MIMO2_Sensor ON】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				505000	507000	509000	
Frequency (MHz)				2525	2535	2545	
50	PI/2 BPSK	1	1	19.67	19.63	19.76	20.00
50	PI/2 BPSK	1	135	19.77	19.63	19.71	20.00
50	PI/2 BPSK	1	268	19.63	19.75	19.88	20.00
50	PI/2 BPSK	135	0	19.65	19.74	19.71	20.00
50	PI/2 BPSK	135	68	19.71	19.70	19.81	20.00
50	PI/2 BPSK	135	135	19.68	19.66	19.79	20.00
50	PI/2 BPSK	270	0	19.83	19.69	19.87	20.00
50	QPSK	1	1	19.54	19.50	19.63	20.00
50	QPSK	1	135	19.67	19.57	19.66	20.00
50	QPSK	1	268	19.71	19.66	19.78	20.00
50	QPSK	135	0	19.75	19.68	19.72	20.00
50	QPSK	135	68	19.68	19.73	19.78	20.00
50	QPSK	135	135	19.64	19.65	19.81	20.00
50	QPSK	270	0	19.78	19.68	19.81	20.00
50	16QAM	1	1	19.39	19.40	19.51	20.00
50	64QAM	1	1	19.14	19.08	19.27	19.50
50	256QAM	1	1	19.13	18.99	19.17	19.50

Channel				504000	507000	510000	Tune-up limit
Frequency (MHz)				2520	2535	2550	(dBm)
40	PI/2 BPSK	1	1	19.55	19.53	19.64	20.00
Channel				503500	507000	510500	Tune-up limit
Frequency (MHz)				2517.5	2535	2552.5	(dBm)
35	PI/2 BPSK	1	1	19.58	19.49	19.70	20.00
Channel				503000	507000	511000	Tune-up limit
Frequency (MHz)				2515	2535	2555	(dBm)
30	PI/2 BPSK	1	1	19.62	19.57	19.74	20.00
Channel				502500	507000	511500	Tune-up limit
Frequency (MHz)				2512.5	2535	2557.5	(dBm)
25	PI/2 BPSK	1	1	19.56	19.60	19.62	20.00
Channel				502000	507000	512000	Tune-up limit
Frequency (MHz)				2510	2535	2560	(dBm)
20	PI/2 BPSK	1	1	19.52	19.50	19.62	20.00
Channel				501500	507000	512500	Tune-up limit
Frequency (MHz)				2507.5	2535	2562.5	(dBm)
15	PI/2 BPSK	1	1	19.53	19.57	19.69	20.00
Channel				501000	507000	513000	Tune-up limit
Frequency (MHz)				2505	2535	2565	(dBm)
10	PI/2 BPSK	1	1	19.55	19.61	19.64	20.00
Channel				500500	507000	513500	Tune-up limit
Frequency (MHz)				2502.5	2535	2567.5	(dBm)
5	PI/2 BPSK	1	1	19.63	19.58	19.73	20.00

【FR1 n41 _FCC_Main_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				509202	518598	528000	
Frequency (MHz)				2546.01	2592.99	2640	
100	PI/2 BPSK	1	1	22.46	22.71	22.34	24.00
100	PI/2 BPSK	1	137	22.38	22.55	22.26	24.00
100	PI/2 BPSK	1	271	22.16	22.50	22.32	24.00
100	PI/2 BPSK	135	0	22.43	22.86	22.92	23.50
100	PI/2 BPSK	135	69	22.31	22.79	22.93	24.00
100	PI/2 BPSK	135	138	22.15	22.67	22.65	23.50
100	PI/2 BPSK	270	0	22.17	22.68	22.71	23.50
100	QPSK	1	1	22.10	22.41	22.56	24.00
100	QPSK	1	137	22.05	22.40	22.33	24.00
100	QPSK	1	271	22.07	22.10	22.09	24.00
100	QPSK	135	0	22.32	22.89	22.90	23.00
100	QPSK	135	69	22.33	22.68	22.85	24.00
100	QPSK	135	138	22.27	22.61	22.65	23.00
100	QPSK	270	0	22.27	22.82	22.79	23.00
100	16QAM	1	1	21.68	22.24	22.29	23.00
100	64QAM	1	1	20.88	21.04	21.05	21.50
100	256QAM	1	1	19.41	19.35	19.32	19.50
Channel				508200	518598	528996	Tune-up limit
Frequency (MHz)				2541	2592.99	2644.98	(dBm)
90	PI/2 BPSK	1	1	22.35	22.66	22.32	24.00
Channel				507204	518598	529998	Tune-up limit
Frequency (MHz)				2536.02	2592.99	2649.99	(dBm)
80	PI/2 BPSK	1	1	22.40	22.56	22.31	24.00
Channel				506202	518598	531000	Tune-up limit
Frequency (MHz)				2531.01	2592.99	2655	(dBm)
70	PI/2 BPSK	1	1	22.44	22.58	22.33	24.00
Channel				505200	518598	531996	Tune-up limit
Frequency (MHz)				2526	2592.99	2659.98	(dBm)
60	PI/2 BPSK	1	1	22.32	22.66	22.23	24.00
Channel				504204	518598	532998	Tune-up limit
Frequency (MHz)				2521.02	2592.99	2664.99	(dBm)
50	PI/2 BPSK	1	1	22.32	22.65	22.28	24.00
Channel				503700	518598	533496	Tune-up limit
Frequency (MHz)				2518.5	2592.99	2667.48	(dBm)
45	PI/2 BPSK	1	1	22.32	22.64	22.23	24.00
Channel				503202	518598	534000	Tune-up limit
Frequency (MHz)				2516.01	2592.99	2670	(dBm)
40	PI/2 BPSK	1	1	22.33	22.69	22.33	24.00
Channel				502704	518598	534498	Tune-up limit
Frequency (MHz)				2513.52	2592.99	2672.49	(dBm)
35	PI/2 BPSK	1	1	22.39	22.60	22.22	24.00
Channel				502200	518598	534996	Tune-up limit
Frequency (MHz)				2511	2592.99	2674.98	(dBm)
30	PI/2 BPSK	1	1	22.42	22.66	22.23	24.00

Channel				501702	518598	535500	Tune-up limit
Frequency (MHz)				2508.51	2592.99	2677.5	(dBm)
25	PI/2 BPSK	1	1	22.33	22.65	22.29	24.00
Channel				501204	518598	535998	Tune-up limit
Frequency (MHz)				2506.02	2592.99	2679.99	(dBm)
20	PI/2 BPSK	1	1	22.34	22.66	22.30	24.00
Channel				500700	518598	536496	Tune-up limit
Frequency (MHz)				2503.5	2592.99	2682.48	(dBm)
15	PI/2 BPSK	1	1	22.40	22.58	22.21	24.00
Channel				500202	518598	537000	Tune-up limit
Frequency (MHz)				2501.01	2592.99	2685	(dBm)
10	PI/2 BPSK	1	1	22.34	22.58	22.29	24.00

【FR1 n41 _FCC_Aux_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				509202	518598	528000	Tune-up limit
Frequency (MHz)				2546.01	2592.99	2640	
100	PI/2 BPSK	1	1	22.43	22.68	22.26	24.00
100	PI/2 BPSK	1	137	22.25	22.48	22.20	24.00
100	PI/2 BPSK	1	271	22.16	22.50	22.30	24.00
100	PI/2 BPSK	135	0	22.47	22.88	22.90	23.50
100	PI/2 BPSK	135	69	22.31	22.78	22.95	24.00
100	PI/2 BPSK	135	138	22.10	22.56	22.58	23.50
100	PI/2 BPSK	270	0	22.15	22.59	22.66	23.50
100	QPSK	1	1	22.00	22.41	22.48	24.00
100	QPSK	1	137	22.10	22.29	22.31	24.00
100	QPSK	1	271	22.05	22.07	22.07	24.00
100	QPSK	135	0	22.25	22.78	22.86	23.00
100	QPSK	135	69	22.26	22.70	22.84	24.00
100	QPSK	135	138	22.13	22.50	22.69	23.00
100	QPSK	270	0	22.13	22.81	22.72	23.00
100	16QAM	1	1	21.68	22.18	22.26	23.00
100	64QAM	1	1	20.85	20.93	20.91	21.50
100	256QAM	1	1	19.42	19.30	19.32	19.50
Channel				508200	518598	528996	Tune-up limit
Frequency (MHz)				2541	2592.99	2644.98	(dBm)
90	PI/2 BPSK	1	1	22.36	22.67	22.21	24.00
Channel				507204	518598	529998	Tune-up limit
Frequency (MHz)				2536.02	2592.99	2649.99	(dBm)
80	PI/2 BPSK	1	1	22.30	22.66	22.25	24.00
Channel				506202	518598	531000	Tune-up limit
Frequency (MHz)				2531.01	2592.99	2655	(dBm)
70	PI/2 BPSK	1	1	22.36	22.59	22.16	24.00
Channel				505200	518598	531996	Tune-up limit
Frequency (MHz)				2526	2592.99	2659.98	(dBm)
60	PI/2 BPSK	1	1	22.38	22.56	22.20	24.00
Channel				504204	518598	532998	Tune-up limit
Frequency (MHz)				2521.02	2592.99	2664.99	(dBm)
50	PI/2 BPSK	1	1	22.34	22.59	22.20	24.00
Channel				503700	518598	533496	Tune-up limit
Frequency (MHz)				2518.5	2592.99	2667.48	(dBm)
45	PI/2 BPSK	1	1	22.40	22.56	22.25	24.00
Channel				503202	518598	534000	Tune-up limit
Frequency (MHz)				2516.01	2592.99	2670	(dBm)
40	PI/2 BPSK	1	1	22.41	22.65	22.18	24.00
Channel				502704	518598	534498	Tune-up limit
Frequency (MHz)				2513.52	2592.99	2672.49	(dBm)
35	PI/2 BPSK	1	1	22.30	22.65	22.16	24.00
Channel				502200	518598	534996	Tune-up limit
Frequency (MHz)				2511	2592.99	2674.98	(dBm)
30	PI/2 BPSK	1	1	22.41	22.66	22.13	24.00
Channel				501702	518598	535500	Tune-up limit
Frequency (MHz)				2508.51	2592.99	2677.5	(dBm)
25	PI/2 BPSK	1	1	22.33	22.61	22.14	24.00
Channel				501204	518598	535998	Tune-up limit
Frequency (MHz)				2506.02	2592.99	2679.99	(dBm)
20	PI/2 BPSK	1	1	22.31	22.57	22.13	24.00
Channel				500700	518598	536496	Tune-up limit
Frequency (MHz)				2503.5	2592.99	2682.48	(dBm)
15	PI/2 BPSK	1	1	22.31	22.57	22.23	24.00
Channel				500202	518598	537000	Tune-up limit
Frequency (MHz)				2501.01	2592.99	2685	(dBm)
10	PI/2 BPSK	1	1	22.39	22.59	22.17	24.00

【FR1 n41_FCC_MIMO1_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				509202	518598	528000	Tune-up limit (dBm)
Frequency (MHz)				2546.01	2592.99	2640	
100	PI/2 BPSK	1	1	14.53	14.74	14.52	15.50
100	PI/2 BPSK	1	137	14.23	14.45	14.22	15.50
100	PI/2 BPSK	1	271	14.33	14.49	14.33	15.50
100	PI/2 BPSK	135	0	14.42	14.87	15.15	15.50
100	PI/2 BPSK	135	69	14.59	14.78	14.73	15.50
100	PI/2 BPSK	135	138	14.47	14.73	14.72	15.50
100	PI/2 BPSK	270	0	14.52	15.16	14.68	15.50
100	QPSK	1	1	14.29	14.55	14.47	15.50
100	QPSK	1	137	13.95	14.43	14.28	15.50
100	QPSK	1	271	14.18	14.46	14.35	15.50
100	QPSK	135	0	14.55	14.79	14.68	15.50
100	QPSK	135	69	14.53	14.80	14.70	15.50
100	QPSK	135	138	14.39	14.71	14.64	15.50
100	QPSK	270	0	14.48	14.88	14.74	15.50
100	16QAM	1	1	14.24	14.61	14.44	15.50
100	64QAM	1	1	13.95	14.31	14.16	15.50
100	256QAM	1	1	14.57	14.73	14.68	15.50
Channel				508200	518598	528996	Tune-up limit (dBm)
Frequency (MHz)				2541	2592.99	2644.98	
90	PI/2 BPSK	1	1	14.48	14.68	14.41	15.50
Channel				507204	518598	529998	Tune-up limit (dBm)
Frequency (MHz)				2536.02	2592.99	2649.99	
80	PI/2 BPSK	1	1	14.49	14.60	14.48	15.50
Channel				506202	518598	531000	Tune-up limit (dBm)
Frequency (MHz)				2531.01	2592.99	2655	
70	PI/2 BPSK	1	1	14.39	14.60	14.39	15.50
Channel				505200	518598	531996	Tune-up limit (dBm)
Frequency (MHz)				2526	2592.99	2659.98	
60	PI/2 BPSK	1	1	14.48	14.65	14.49	15.50
Channel				504204	518598	532998	Tune-up limit (dBm)
Frequency (MHz)				2521.02	2592.99	2664.99	
50	PI/2 BPSK	1	1	14.51	14.68	14.40	15.50
Channel				503700	518598	533496	Tune-up limit (dBm)
Frequency (MHz)				2518.5	2592.99	2667.48	
45	PI/2 BPSK	1	1	14.42	14.61	14.48	15.50
Channel				503202	518598	534000	Tune-up limit (dBm)
Frequency (MHz)				2516.01	2592.99	2670	
40	PI/2 BPSK	1	1	14.45	14.68	14.48	15.50
Channel				502704	518598	534498	Tune-up limit (dBm)
Frequency (MHz)				2513.52	2592.99	2672.49	
35	PI/2 BPSK	1	1	14.39	14.62	14.49	15.50
Channel				502200	518598	534996	Tune-up limit (dBm)
Frequency (MHz)				2511	2592.99	2674.98	
30	PI/2 BPSK	1	1	14.50	14.60	14.48	15.50
Channel				501702	518598	535500	Tune-up limit (dBm)
Frequency (MHz)				2508.51	2592.99	2677.5	
25	PI/2 BPSK	1	1	14.47	14.63	14.49	15.50
Channel				501204	518598	535998	Tune-up limit (dBm)
Frequency (MHz)				2506.02	2592.99	2679.99	
20	PI/2 BPSK	1	1	14.51	14.66	14.48	15.50
Channel				500700	518598	536496	Tune-up limit (dBm)
Frequency (MHz)				2503.5	2592.99	2682.48	
15	PI/2 BPSK	1	1	14.42	14.66	14.43	15.50
Channel				500202	518598	537000	Tune-up limit (dBm)
Frequency (MHz)				2501.01	2592.99	2685	
10	PI/2 BPSK	1	1	14.42	14.60	14.50	15.50

【FR1 n41_FCC_HPUE_Main_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				509202	518598	528000	Tune-up limit (dBm)
Frequency (MHz)				2546.01	2592.99	2640	
100	PI/2 BPSK	1	1	25.35	25.50	25.29	27.00
100	PI/2 BPSK	1	137	25.25	25.60	25.19	27.00



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100	PI/2 BPSK	1	271	25.97	26.19	25.92	27.00
100	PI/2 BPSK	135	0	25.69	25.97	25.58	26.50
100	PI/2 BPSK	135	69	26.00	26.02	26.02	27.00
100	PI/2 BPSK	135	138	25.66	25.64	25.63	26.50
100	PI/2 BPSK	270	0	25.90	25.97	25.91	26.50
100	QPSK	1	1	25.44	25.49	25.34	27.00
100	QPSK	1	137	25.43	25.43	25.43	27.00
100	QPSK	1	271	26.17	26.19	26.19	27.00
100	QPSK	135	0	25.51	25.56	25.61	26.00
100	QPSK	135	69	25.99	25.95	25.86	27.00
100	QPSK	135	138	25.53	25.61	25.52	26.00
100	QPSK	270	0	25.85	25.78	25.68	26.00
100	16QAM	1	1	25.27	25.39	25.36	26.00
100	64QAM	1	1	24.31	24.27	24.28	24.50
100	256QAM	1	1	22.40	22.22	22.24	22.50
Channel				508200	518598	528996	Tune-up limit
Frequency (MHz)				2541	2592.99	2644.98	(dBm)
90	PI/2 BPSK	1	1	25.29	25.46	25.16	27.00
Channel				507204	518598	529998	Tune-up limit
Frequency (MHz)				2536.02	2592.99	2649.99	(dBm)
80	PI/2 BPSK	1	1	25.26	25.40	25.18	27.00
Channel				506202	518598	531000	Tune-up limit
Frequency (MHz)				2531.01	2592.99	2655	(dBm)
70	PI/2 BPSK	1	1	25.21	25.49	25.25	27.00
Channel				505200	518598	531996	Tune-up limit
Frequency (MHz)				2526	2592.99	2659.98	(dBm)
60	PI/2 BPSK	1	1	25.24	25.36	25.21	27.00
Channel				504204	518598	532998	Tune-up limit
Frequency (MHz)				2521.02	2592.99	2664.99	(dBm)
50	PI/2 BPSK	1	1	25.33	25.44	25.16	27.00
Channel				503700	518598	533496	Tune-up limit
Frequency (MHz)				2518.5	2592.99	2667.48	(dBm)
45	PI/2 BPSK	1	1	25.33	25.38	25.15	27.00
Channel				503202	518598	534000	Tune-up limit
Frequency (MHz)				2516.01	2592.99	2670	(dBm)
40	PI/2 BPSK	1	1	25.25	25.48	25.23	27.00
Channel				502704	518598	534498	Tune-up limit
Frequency (MHz)				2513.52	2592.99	2672.49	(dBm)
35	PI/2 BPSK	1	1	25.20	25.48	25.26	27.00
Channel				502200	518598	534996	Tune-up limit
Frequency (MHz)				2511	2592.99	2674.98	(dBm)
30	PI/2 BPSK	1	1	25.22	25.37	25.22	27.00
Channel				501702	518598	535500	Tune-up limit
Frequency (MHz)				2508.51	2592.99	2677.5	(dBm)
25	PI/2 BPSK	1	1	25.25	25.39	25.26	27.00
Channel				501204	518598	535998	Tune-up limit
Frequency (MHz)				2506.02	2592.99	2679.99	(dBm)
20	PI/2 BPSK	1	1	25.26	25.40	25.23	27.00
Channel				500700	518598	536496	Tune-up limit
Frequency (MHz)				2503.5	2592.99	2682.48	(dBm)
15	PI/2 BPSK	1	1	25.31	25.45	25.23	27.00
Channel				500202	518598	537000	Tune-up limit
Frequency (MHz)				2501.01	2592.99	2685	(dBm)
10	PI/2 BPSK	1	1	25.22	25.40	25.26	27.00

【FR1 n41_FCC_HPUE_Aux_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				509202	518598	528000	
Frequency (MHz)				2546.01	2592.99	2640	
100	PI/2 BPSK	1	1	25.16	25.50	25.24	27.00
100	PI/2 BPSK	1	137	25.23	25.50	25.10	27.00
100	PI/2 BPSK	1	271	25.99	26.15	25.80	27.00
100	PI/2 BPSK	135	0	25.63	25.91	25.50	26.50
100	PI/2 BPSK	135	69	25.92	25.96	25.92	27.00
100	PI/2 BPSK	135	138	25.70	25.53	25.58	26.50
100	PI/2 BPSK	270	0	25.89	25.93	25.78	26.50
100	QPSK	1	1	25.42	25.43	25.29	27.00
100	QPSK	1	137	25.33	25.28	25.30	27.00
100	QPSK	1	271	26.09	26.13	26.11	27.00
100	QPSK	135	0	25.56	25.54	25.49	26.00
100	QPSK	135	69	25.91	25.90	25.80	27.00
100	QPSK	135	138	25.47	25.66	25.42	26.00
100	QPSK	270	0	25.78	25.69	25.59	26.00



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100	16QAM	1	1	25.23	25.23	25.25	26.00
100	64QAM	1	1	24.24	24.29	24.29	24.50
100	256QAM	1	1	22.33	22.28	22.16	22.50
Channel				508200	518598	528996	Tune-up limit
Frequency (MHz)				2541	2592.99	2644.98	(dBm)
90	PI/2 BPSK	1	1	25.13	25.36	25.13	27.00
Channel				507204	518598	529998	Tune-up limit
Frequency (MHz)				2536.02	2592.99	2649.99	(dBm)
80	PI/2 BPSK	1	1	25.05	25.43	25.22	27.00
Channel				506202	518598	531000	Tune-up limit
Frequency (MHz)				2531.01	2592.99	2655	(dBm)
70	PI/2 BPSK	1	1	25.04	25.47	25.20	27.00
Channel				505200	518598	531996	Tune-up limit
Frequency (MHz)				2526	2592.99	2659.98	(dBm)
60	PI/2 BPSK	1	1	25.12	25.38	25.10	27.00
Channel				504204	518598	532998	Tune-up limit
Frequency (MHz)				2521.02	2592.99	2664.99	(dBm)
50	PI/2 BPSK	1	1	25.10	25.39	25.09	27.00
Channel				503700	518598	533496	Tune-up limit
Frequency (MHz)				2518.5	2592.99	2667.48	(dBm)
45	PI/2 BPSK	1	1	25.14	25.47	25.18	27.00
Channel				503202	518598	534000	Tune-up limit
Frequency (MHz)				2516.01	2592.99	2670	(dBm)
40	PI/2 BPSK	1	1	25.06	25.49	25.09	27.00
Channel				502704	518598	534498	Tune-up limit
Frequency (MHz)				2513.52	2592.99	2672.49	(dBm)
35	PI/2 BPSK	1	1	25.01	25.47	25.20	27.00
Channel				502200	518598	534996	Tune-up limit
Frequency (MHz)				2511	2592.99	2674.98	(dBm)
30	PI/2 BPSK	1	1	25.10	25.38	25.11	27.00
Channel				501702	518598	535500	Tune-up limit
Frequency (MHz)				2508.51	2592.99	2677.5	(dBm)
25	PI/2 BPSK	1	1	25.09	25.37	25.22	27.00
Channel				501204	518598	535998	Tune-up limit
Frequency (MHz)				2506.02	2592.99	2679.99	(dBm)
20	PI/2 BPSK	1	1	25.12	25.43	25.16	27.00
Channel				500700	518598	536496	Tune-up limit
Frequency (MHz)				2503.5	2592.99	2682.48	(dBm)
15	PI/2 BPSK	1	1	25.12	25.41	25.18	27.00
Channel				500202	518598	537000	Tune-up limit
Frequency (MHz)				2501.01	2592.99	2685	(dBm)
10	PI/2 BPSK	1	1	25.06	25.48	25.12	27.00

【FR1 n41_FCC_HPUE_MIMO1_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				509202	518598	528000	
Frequency (MHz)				2546.01	2592.99	2640	
100	PI/2 BPSK	1	1	17.53	17.76	17.56	18.50
100	PI/2 BPSK	1	137	17.25	17.41	17.29	18.50
100	PI/2 BPSK	1	271	17.30	17.49	17.37	18.50
100	PI/2 BPSK	135	0	17.51	17.88	18.17	18.50
100	PI/2 BPSK	135	69	17.63	17.88	17.77	18.50
100	PI/2 BPSK	135	138	17.52	17.75	17.62	18.50
100	PI/2 BPSK	270	0	17.52	17.86	17.75	18.50
100	QPSK	1	1	17.29	17.56	17.46	18.50
100	QPSK	1	137	17.05	17.35	17.21	18.50
100	QPSK	1	271	17.16	17.48	17.33	18.50
100	QPSK	135	0	17.56	17.84	17.70	18.50
100	QPSK	135	69	17.50	17.85	17.69	18.50
100	QPSK	135	138	17.39	17.77	17.68	18.50
100	QPSK	270	0	17.56	17.79	17.66	18.50
100	16QAM	1	1	17.23	17.53	17.51	18.50
100	64QAM	1	1	17.07	17.36	17.14	18.50
100	256QAM	1	1	17.50	17.80	17.75	18.50
Channel				508200	518598	528996	Tune-up limit
Frequency (MHz)				2541	2592.99	2644.98	(dBm)
90	PI/2 BPSK	1	1	17.50	17.66	17.50	18.50
Channel				507204	518598	529998	Tune-up limit
Frequency (MHz)				2536.02	2592.99	2649.99	(dBm)
80	PI/2 BPSK	1	1	17.50	17.72	17.41	18.50
Channel				506202	518598	531000	Tune-up limit
Frequency (MHz)				2531.01	2592.99	2655	(dBm)
70	PI/2 BPSK	1	1	17.47	17.63	17.47	18.50



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Channel				505200	518598	531996	Tune-up limit
Frequency (MHz)				2526	2592.99	2659.98	(dBm)
60	PI/2 BPSK	1	1	17.40	17.64	17.43	18.50
Channel				504204	518598	532998	Tune-up limit
Frequency (MHz)				2521.02	2592.99	2664.99	(dBm)
50	PI/2 BPSK	1	1	17.39	17.71	17.55	18.50
Channel				503700	518598	533496	Tune-up limit
Frequency (MHz)				2518.5	2592.99	2667.48	(dBm)
45	PI/2 BPSK	1	1	17.39	17.68	17.42	18.50
Channel				503202	518598	534000	Tune-up limit
Frequency (MHz)				2516.01	2592.99	2670	(dBm)
40	PI/2 BPSK	1	1	17.47	17.66	17.43	18.50
Channel				502704	518598	534498	Tune-up limit
Frequency (MHz)				2513.52	2592.99	2672.49	(dBm)
35	PI/2 BPSK	1	1	17.48	17.67	17.45	18.50
Channel				502200	518598	534996	Tune-up limit
Frequency (MHz)				2511	2592.99	2674.98	(dBm)
30	PI/2 BPSK	1	1	17.50	17.63	17.43	18.50
Channel				501702	518598	535500	Tune-up limit
Frequency (MHz)				2508.51	2592.99	2677.5	(dBm)
25	PI/2 BPSK	1	1	17.46	17.71	17.52	18.50
Channel				501204	518598	535998	Tune-up limit
Frequency (MHz)				2506.02	2592.99	2679.99	(dBm)
20	PI/2 BPSK	1	1	17.39	17.67	17.45	18.50
Channel				500700	518598	536496	Tune-up limit
Frequency (MHz)				2503.5	2592.99	2682.48	(dBm)
15	PI/2 BPSK	1	1	17.49	17.62	17.55	18.50
Channel				500202	518598	537000	Tune-up limit
Frequency (MHz)				2501.01	2592.99	2685	(dBm)
10	PI/2 BPSK	1	1	17.38	17.62	17.52	18.50

【FR1 n41_FCC_Main_Sensor ON】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				509202	518598	528000	
Frequency (MHz)				2546.01	2592.99	2640	
100	PI/2 BPSK	1	1	14.46	14.68	14.49	15.50
100	PI/2 BPSK	1	137	14.21	14.46	14.20	15.50
100	PI/2 BPSK	1	271	14.34	14.49	14.33	15.50
100	PI/2 BPSK	135	0	14.40	14.73	15.10	15.50
100	PI/2 BPSK	135	69	14.54	14.74	14.72	15.50
100	PI/2 BPSK	135	138	14.44	14.63	14.70	15.50
100	PI/2 BPSK	270	0	14.38	14.83	14.69	15.50
100	QPSK	1	1	14.23	14.49	14.45	15.50
100	QPSK	1	137	13.94	14.36	14.18	15.50
100	QPSK	1	271	14.07	14.38	14.37	15.50
100	QPSK	135	0	14.43	14.81	14.66	15.50
100	QPSK	135	69	14.43	14.73	14.64	15.50
100	QPSK	135	138	14.29	14.69	14.52	15.50
100	QPSK	270	0	14.40	14.75	14.70	15.50
100	16QAM	1	1	14.12	14.51	14.49	15.50
100	64QAM	1	1	13.91	14.26	14.13	15.50
100	256QAM	1	1	14.48	14.76	14.58	15.50
Channel				508200	518598	528996	Tune-up limit
Frequency (MHz)				2541	2592.99	2644.98	(dBm)
90	PI/2 BPSK	1	1	14.33	14.54	14.37	15.50
Channel				507204	518598	529998	Tune-up limit
Frequency (MHz)				2536.02	2592.99	2649.99	(dBm)
80	PI/2 BPSK	1	1	14.32	14.56	14.47	15.50
Channel				506202	518598	531000	Tune-up limit
Frequency (MHz)				2531.01	2592.99	2655	(dBm)
70	PI/2 BPSK	1	1	14.39	14.58	14.41	15.50
Channel				505200	518598	531996	Tune-up limit
Frequency (MHz)				2526	2592.99	2659.98	(dBm)
60	PI/2 BPSK	1	1	14.39	14.61	14.39	15.50
Channel				504204	518598	532998	Tune-up limit
Frequency (MHz)				2521.02	2592.99	2664.99	(dBm)
50	PI/2 BPSK	1	1	14.39	14.66	14.35	15.50
Channel				503700	518598	533496	Tune-up limit
Frequency (MHz)				2518.5	2592.99	2667.48	(dBm)
45	PI/2 BPSK	1	1	14.43	14.62	14.40	15.50
Channel				503202	518598	534000	Tune-up limit
Frequency (MHz)				2516.01	2592.99	2670	(dBm)
40	PI/2 BPSK	1	1	14.35	14.61	14.46	15.50



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Channel				502704	518598	534498	Tune-up limit
Frequency (MHz)				2513.52	2592.99	2672.49	(dBm)
35	PI/2 BPSK	1	1	14.31	14.54	14.45	15.50
Channel				502200	518598	534996	Tune-up limit
Frequency (MHz)				2511	2592.99	2674.98	(dBm)
30	PI/2 BPSK	1	1	14.36	14.57	14.42	15.50
Channel				501702	518598	535500	Tune-up limit
Frequency (MHz)				2508.51	2592.99	2677.5	(dBm)
25	PI/2 BPSK	1	1	14.33	14.62	14.45	15.50
Channel				501204	518598	535998	Tune-up limit
Frequency (MHz)				2506.02	2592.99	2679.99	(dBm)
20	PI/2 BPSK	1	1	14.36	14.63	14.46	15.50
Channel				500700	518598	536496	Tune-up limit
Frequency (MHz)				2503.5	2592.99	2682.48	(dBm)
15	PI/2 BPSK	1	1	14.35	14.58	14.37	15.50
Channel				500202	518598	537000	Tune-up limit
Frequency (MHz)				2501.01	2592.99	2685	(dBm)
10	PI/2 BPSK	1	1	14.39	14.62	14.45	15.50

【FR1 n41_FCC_Aux_Sensor ON】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				509202	518598	528000	
Frequency (MHz)				2546.01	2592.99	2640	
100	PI/2 BPSK	1	1	18.76	19.06	18.82	19.50
100	PI/2 BPSK	1	137	18.41	18.58	18.42	19.50
100	PI/2 BPSK	1	271	18.62	18.67	18.51	19.50
100	PI/2 BPSK	135	0	18.62	18.98	19.30	19.50
100	PI/2 BPSK	135	69	18.69	19.07	18.91	19.50
100	PI/2 BPSK	135	138	18.66	18.94	18.87	19.50
100	PI/2 BPSK	270	0	18.67	19.10	18.92	19.50
100	QPSK	1	1	18.48	18.81	18.62	19.50
100	QPSK	1	137	18.15	18.54	18.37	19.50
100	QPSK	1	271	18.30	18.59	18.51	19.50
100	QPSK	135	0	18.66	18.99	18.84	19.50
100	QPSK	135	69	18.70	19.08	18.91	19.50
100	QPSK	135	138	18.65	18.97	18.79	19.50
100	QPSK	270	0	18.57	19.01	18.86	19.50
100	16QAM	1	1	18.37	18.87	18.60	19.50
100	64QAM	1	1	18.16	18.59	18.36	19.50
100	256QAM	1	1	18.74	19.00	18.80	19.50
Channel				508200	518598	528996	Tune-up limit
Frequency (MHz)				2541	2592.99	2644.98	(dBm)
90	PI/2 BPSK	1	1	18.73	18.93	18.77	19.50
Channel				507204	518598	529998	Tune-up limit
Frequency (MHz)				2536.02	2592.99	2649.99	(dBm)
80	PI/2 BPSK	1	1	18.66	19.00	18.75	19.50
Channel				506202	518598	531000	Tune-up limit
Frequency (MHz)				2531.01	2592.99	2655	(dBm)
70	PI/2 BPSK	1	1	18.74	19.01	18.72	19.50
Channel				505200	518598	531996	Tune-up limit
Frequency (MHz)				2526	2592.99	2659.98	(dBm)
60	PI/2 BPSK	1	1	18.71	18.99	18.81	19.50
Channel				504204	518598	532998	Tune-up limit
Frequency (MHz)				2521.02	2592.99	2664.99	(dBm)
50	PI/2 BPSK	1	1	18.66	18.98	18.79	19.50
Channel				503700	518598	533496	Tune-up limit
Frequency (MHz)				2518.5	2592.99	2667.48	(dBm)
45	PI/2 BPSK	1	1	18.73	18.93	18.68	19.50
Channel				503202	518598	534000	Tune-up limit
Frequency (MHz)				2516.01	2592.99	2670	(dBm)
40	PI/2 BPSK	1	1	18.63	18.99	18.80	19.50
Channel				502704	518598	534498	Tune-up limit
Frequency (MHz)				2513.52	2592.99	2672.49	(dBm)
35	PI/2 BPSK	1	1	18.73	18.93	18.78	19.50
Channel				502200	518598	534996	Tune-up limit
Frequency (MHz)				2511	2592.99	2674.98	(dBm)
30	PI/2 BPSK	1	1	18.67	18.98	18.78	19.50
Channel				501702	518598	535500	Tune-up limit
Frequency (MHz)				2508.51	2592.99	2677.5	(dBm)
25	PI/2 BPSK	1	1	18.64	19.03	18.73	19.50
Channel				501204	518598	535998	Tune-up limit
Frequency (MHz)				2506.02	2592.99	2679.99	(dBm)
20	PI/2 BPSK	1	1	18.65	19.02	18.78	19.50



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Channel				500700	518598	536496	Tune-up limit
Frequency (MHz)				2503.5	2592.99	2682.48	(dBm)
15	PI/2 BPSK	1	1	18.74	19.00	18.80	19.50
Channel				500202	518598	537000	Tune-up limit
Frequency (MHz)				2501.01	2592.99	2685	(dBm)
10	PI/2 BPSK	1	1	18.63	18.94	18.71	19.50

【FR1 n41_FCC_HPUE_Main_Sensor ON】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				509202	518598	528000	
Frequency (MHz)				2546.01	2592.99	2640	
100	PI/2 BPSK	1	1	17.51	17.65	17.44	18.50
100	PI/2 BPSK	1	137	17.17	17.40	17.21	18.50
100	PI/2 BPSK	1	271	17.21	17.38	17.25	18.50
100	PI/2 BPSK	135	0	17.39	17.73	18.15	18.50
100	PI/2 BPSK	135	69	17.62	17.87	17.73	18.50
100	PI/2 BPSK	135	138	17.43	17.71	17.53	18.50
100	PI/2 BPSK	270	0	17.47	17.82	17.67	18.50
100	QPSK	1	1	17.25	17.47	17.33	18.50
100	QPSK	1	137	16.95	17.34	17.17	18.50
100	QPSK	1	271	17.02	17.40	17.28	18.50
100	QPSK	135	0	17.47	17.72	17.66	18.50
100	QPSK	135	69	17.40	17.80	17.66	18.50
100	QPSK	135	138	17.36	17.62	17.65	18.50
100	QPSK	270	0	17.50	17.69	17.60	18.50
100	16QAM	1	1	17.09	17.40	17.36	18.50
100	64QAM	1	1	16.95	17.32	17.02	18.50
100	256QAM	1	1	17.45	17.75	17.63	18.50
Channel				508200	518598	528996	Tune-up limit
Frequency (MHz)				2541	2592.99	2644.98	(dBm)
90	PI/2 BPSK	1	1	17.37	17.53	17.32	18.50
Channel				507204	518598	529998	Tune-up limit
Frequency (MHz)				2536.02	2592.99	2649.99	(dBm)
80	PI/2 BPSK	1	1	17.37	17.63	17.37	18.50
Channel				506202	518598	531000	Tune-up limit
Frequency (MHz)				2531.01	2592.99	2655	(dBm)
70	PI/2 BPSK	1	1	17.50	17.59	17.36	18.50
Channel				505200	518598	531996	Tune-up limit
Frequency (MHz)				2526	2592.99	2659.98	(dBm)
60	PI/2 BPSK	1	1	17.47	17.55	17.42	18.50
Channel				504204	518598	532998	Tune-up limit
Frequency (MHz)				2521.02	2592.99	2664.99	(dBm)
50	PI/2 BPSK	1	1	17.42	17.61	17.35	18.50
Channel				503700	518598	533496	Tune-up limit
Frequency (MHz)				2518.5	2592.99	2667.48	(dBm)
45	PI/2 BPSK	1	1	17.49	17.56	17.29	18.50
Channel				503202	518598	534000	Tune-up limit
Frequency (MHz)				2516.01	2592.99	2670	(dBm)
40	PI/2 BPSK	1	1	17.39	17.61	17.42	18.50
Channel				502704	518598	534498	Tune-up limit
Frequency (MHz)				2513.52	2592.99	2672.49	(dBm)
35	PI/2 BPSK	1	1	17.43	17.62	17.39	18.50
Channel				502200	518598	534996	Tune-up limit
Frequency (MHz)				2511	2592.99	2674.98	(dBm)
30	PI/2 BPSK	1	1	17.39	17.52	17.37	18.50
Channel				501702	518598	535500	Tune-up limit
Frequency (MHz)				2508.51	2592.99	2677.5	(dBm)
25	PI/2 BPSK	1	1	17.48	17.61	17.33	18.50
Channel				501204	518598	535998	Tune-up limit
Frequency (MHz)				2506.02	2592.99	2679.99	(dBm)
20	PI/2 BPSK	1	1	17.48	17.52	17.36	18.50
Channel				500700	518598	536496	Tune-up limit
Frequency (MHz)				2503.5	2592.99	2682.48	(dBm)
15	PI/2 BPSK	1	1	17.37	17.53	17.39	18.50
Channel				500202	518598	537000	Tune-up limit
Frequency (MHz)				2501.01	2592.99	2685	(dBm)
10	PI/2 BPSK	1	1	17.47	17.54	17.41	18.50

【FR1 n41_FCC_HPUE_Aux_Sensor ON】

BW [MHz]	Modulation	RB Size	RB Offset	Power	Power	Power	Tune-up limit
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				Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.	(dBm)
Channel				509202	518598	528000	
Frequency (MHz)				2546.01	2592.99	2640	
100	PI/2 BPSK	1	1	21.54	21.59	21.54	22.50
100	PI/2 BPSK	1	137	21.24	21.36	21.13	22.50
100	PI/2 BPSK	1	271	21.29	21.24	21.28	22.50
100	PI/2 BPSK	135	0	21.51	21.63	22.13	22.50
100	PI/2 BPSK	135	69	21.54	21.66	21.68	22.50
100	PI/2 BPSK	135	138	21.50	21.45	21.59	22.50
100	PI/2 BPSK	270	0	21.49	21.69	21.56	22.50
100	QPSK	1	1	21.32	21.28	21.31	22.50
100	QPSK	1	137	21.04	21.22	21.10	22.50
100	QPSK	1	271	21.15	21.17	21.27	22.50
100	QPSK	135	0	21.57	21.58	21.66	22.50
100	QPSK	135	69	21.61	21.69	21.48	22.50
100	QPSK	135	138	21.40	21.44	21.42	22.50
100	QPSK	270	0	21.56	21.64	21.65	22.50
100	16QAM	1	1	21.23	21.49	21.37	22.50
100	64QAM	1	1	20.93	21.12	21.10	22.50
100	256QAM	1	1	21.55	21.66	21.61	22.50
Channel				508200	518598	528996	Tune-up limit
Frequency (MHz)				2541	2592.99	2644.98	(dBm)
90	PI/2 BPSK	1	1	21.53	21.50	21.43	22.50
Channel				507204	518598	529998	Tune-up limit
Frequency (MHz)				2536.02	2592.99	2649.99	(dBm)
80	PI/2 BPSK	1	1	21.42	21.57	21.53	22.50
Channel				506202	518598	531000	Tune-up limit
Frequency (MHz)				2531.01	2592.99	2655	(dBm)
70	PI/2 BPSK	1	1	21.51	21.47	21.49	22.50
Channel				505200	518598	531996	Tune-up limit
Frequency (MHz)				2526	2592.99	2659.98	(dBm)
60	PI/2 BPSK	1	1	21.44	21.57	21.50	22.50
Channel				504204	518598	532998	Tune-up limit
Frequency (MHz)				2521.02	2592.99	2664.99	(dBm)
50	PI/2 BPSK	1	1	21.48	21.48	21.43	22.50
Channel				503700	518598	533496	Tune-up limit
Frequency (MHz)				2518.5	2592.99	2667.48	(dBm)
45	PI/2 BPSK	1	1	21.40	21.58	21.44	22.50
Channel				503202	518598	534000	Tune-up limit
Frequency (MHz)				2516.01	2592.99	2670	(dBm)
40	PI/2 BPSK	1	1	21.51	21.55	21.51	22.50
Channel				502704	518598	534498	Tune-up limit
Frequency (MHz)				2513.52	2592.99	2672.49	(dBm)
35	PI/2 BPSK	1	1	21.46	21.50	21.44	22.50
Channel				502200	518598	534996	Tune-up limit
Frequency (MHz)				2511	2592.99	2674.98	(dBm)
30	PI/2 BPSK	1	1	21.52	21.49	21.47	22.50
Channel				501702	518598	535500	Tune-up limit
Frequency (MHz)				2508.51	2592.99	2677.5	(dBm)
25	PI/2 BPSK	1	1	21.40	21.48	21.43	22.50
Channel				501204	518598	535998	Tune-up limit
Frequency (MHz)				2506.02	2592.99	2679.99	(dBm)
20	PI/2 BPSK	1	1	21.44	21.52	21.42	22.50
Channel				500700	518598	536496	Tune-up limit
Frequency (MHz)				2503.5	2592.99	2682.48	(dBm)
15	PI/2 BPSK	1	1	21.44	21.58	21.43	22.50
Channel				500202	518598	537000	Tune-up limit
Frequency (MHz)				2501.01	2592.99	2685	(dBm)
10	PI/2 BPSK	1	1	21.49	21.46	21.40	22.50

【FR1 n77 (27Q)_FCC_Part 27Q (3450~3550MHz)_Aux_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					633332		
Frequency (MHz)					3499.98		
100	PI/2 BPSK	1	1		22.94		24.00
100	PI/2 BPSK	1	137		23.73		24.00
100	PI/2 BPSK	1	271		22.99		24.00
100	PI/2 BPSK	135	0		23.14		23.50
100	PI/2 BPSK	135	69		23.77		24.00
100	PI/2 BPSK	135	138		22.94		23.50
100	PI/2 BPSK	270	0		23.10		23.50
100	QPSK	1	1		23.23		24.00



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100	QPSK	1	137		23.72		24.00
100	QPSK	1	271		23.00		24.00
100	QPSK	135	0		22.17		23.00
100	QPSK	135	69		23.62		24.00
100	QPSK	135	138		22.57		23.00
100	QPSK	270	0		22.58		23.00
100	16QAM	1	1		22.14		23.00
100	64QAM	1	1		20.73		21.50
100	256QAM	1	1		19.21		19.50
Channel				633000	633332	633666	Tune-up limit
Frequency (MHz)				3495	3499.98	3504.99	(dBm)
90	PI/2 BPSK	1	1	22.87	22.91	22.88	24.00
Channel				632668	633332	634000	Tune-up limit
Frequency (MHz)				3490.02	3499.98	3510	(dBm)
80	PI/2 BPSK	1	1	22.90	22.89	22.86	24.00
Channel				632334	633332	634332	Tune-up limit
Frequency (MHz)				3485.01	3499.98	3514.98	(dBm)
70	PI/2 BPSK	1	1	22.79	22.80	22.83	24.00
Channel				632000	633332	634666	Tune-up limit
Frequency (MHz)				3480	3499.98	3519.99	(dBm)
60	PI/2 BPSK	1	1	22.83	22.84	22.90	24.00
Channel				631668	633332	635000	Tune-up limit
Frequency (MHz)				3475.02	3499.98	3525	(dBm)
50	PI/2 BPSK	1	1	22.78	22.85	22.81	24.00
Channel				631334	633332	635332	Tune-up limit
Frequency (MHz)				3470.01	3499.98	3529.98	(dBm)
40	PI/2 BPSK	1	1	22.74	22.85	22.83	24.00
Channel				631000	633332	635666	Tune-up limit
Frequency (MHz)				3465	3499.98	3534.99	(dBm)
30	PI/2 BPSK	1	1	22.88	22.87	22.81	24.00
Channel				630668	633332	636000	Tune-up limit
Frequency (MHz)				3460.02	3499.98	3540	(dBm)
20	PI/2 BPSK	1	1	22.85	22.91	22.79	24.00
Channel				630500	633332	636166	Tune-up limit
Frequency (MHz)				3457.5	3499.98	3542.49	(dBm)
15	PI/2 BPSK	1	1	22.87	22.84	22.80	24.00
Channel				630334	633332	636332	Tune-up limit
Frequency (MHz)				3455.01	3499.98	3544.98	(dBm)
10	PI/2 BPSK	1	1	22.81	22.85	22.84	24.00

【FR1 n77 (270) FCC_Part 270 (3700~3980MHz)_Aux_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				650000	656000	662000	
Frequency (MHz)				3750	3840	3930	
100	PI/2 BPSK	1	1	23.05	23.34	23.01	24.00
100	PI/2 BPSK	1	137	22.88	23.70	22.95	24.00
100	PI/2 BPSK	1	271	22.58	22.91	22.65	24.00
100	PI/2 BPSK	135	0	22.84	23.20	22.78	23.50
100	PI/2 BPSK	135	69	23.00	23.74	23.09	24.00
100	PI/2 BPSK	135	138	22.68	22.93	22.65	23.50
100	PI/2 BPSK	270	0	22.75	23.09	22.63	23.50
100	QPSK	1	1	22.83	23.25	22.74	24.00
100	QPSK	1	137	23.02	23.75	23.01	24.00
100	QPSK	1	271	22.53	22.94	22.57	24.00
100	QPSK	135	0	21.80	22.20	21.80	23.00
100	QPSK	135	69	23.00	23.62	23.07	24.00
100	QPSK	135	138	22.15	22.54	22.13	23.00
100	QPSK	270	0	22.04	22.55	22.09	23.00
100	16QAM	1	1	21.77	22.22	21.83	23.00
100	64QAM	1	1	20.50	20.78	20.41	21.50
100	256QAM	1	1	18.94	19.25	18.81	19.50
Channel				649668	656000	662332	Tune-up limit
Frequency (MHz)				3745.02	3840	3934.98	(dBm)
90	PI/2 BPSK	1	1	22.95	23.19	22.92	24.00
Channel				649334	656000	662666	Tune-up limit
Frequency (MHz)				3740.01	3840	3939.99	(dBm)
80	PI/2 BPSK	1	1	23.02	23.23	22.92	24.00
Channel				649000	656000	663000	Tune-up limit
Frequency (MHz)				3735	3840	3945	(dBm)
70	PI/2 BPSK	1	1	22.94	23.28	22.96	24.00
Channel				648668	656000	663332	Tune-up limit
Frequency (MHz)				3730.02	3840	3949.98	(dBm)
60	PI/2 BPSK	1	1	22.99	23.30	22.92	24.00

Channel				648334	656000	663666	Tune-up limit
Frequency (MHz)				3725.01	3840	3954.99	(dBm)
50	PI/2 BPSK	1	1	23.03	23.22	22.98	24.00
Channel				648000	656000	664000	Tune-up limit
Frequency (MHz)				3720	3840	3960	(dBm)
40	PI/2 BPSK	1	1	22.95	23.21	22.97	24.00
Channel				647668	656000	664332	Tune-up limit
Frequency (MHz)				3715.02	3840	3964.98	(dBm)
30	PI/2 BPSK	1	1	22.97	23.28	22.88	24.00
Channel				647334	656000	664666	Tune-up limit
Frequency (MHz)				3710.01	3840	3969.99	(dBm)
20	PI/2 BPSK	1	1	22.94	23.24	22.93	24.00
Channel				647168	656000	664832	Tune-up limit
Frequency (MHz)				3707.52	3840	3972.48	(dBm)
15	PI/2 BPSK	1	1	22.92	23.32	22.87	24.00
Channel				647000	656000	665000	Tune-up limit
Frequency (MHz)				3705	3840	3975	(dBm)
10	PI/2 BPSK	1	1	23.04	23.32	22.91	24.00

【FR1 n77 (27Q) _FCC_Part 27Q (3450~3550MHz)_MIMO1_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					633332		
Frequency (MHz)					3499.98		
100	PI/2 BPSK	1	1		13.25		14.00
100	PI/2 BPSK	1	137		13.64		14.00
100	PI/2 BPSK	1	271		13.34		14.00
100	PI/2 BPSK	135	0		13.61		14.00
100	PI/2 BPSK	135	69		13.54		14.00
100	PI/2 BPSK	135	138		13.61		14.00
100	PI/2 BPSK	270	0		13.63		14.00
100	QPSK	1	1		13.25		14.00
100	QPSK	1	137		13.64		14.00
100	QPSK	1	271		13.30		14.00
100	QPSK	135	0		13.50		14.00
100	QPSK	135	69		13.46		14.00
100	QPSK	135	138		13.56		14.00
100	QPSK	270	0		13.52		14.00
100	16QAM	1	1		13.28		14.00
100	64QAM	1	1		13.17		14.00
100	256QAM	1	1		13.23		14.00
Channel				633000	633332	633666	Tune-up limit
Frequency (MHz)				3495	3499.98	3504.99	(dBm)
90	PI/2 BPSK	1	1	13.12	13.24	13.14	14.00
Channel				632668	633332	634000	Tune-up limit
Frequency (MHz)				3490.02	3499.98	3510	(dBm)
80	PI/2 BPSK	1	1	13.01	13.22	13.02	14.00
Channel				632334	633332	634332	Tune-up limit
Frequency (MHz)				3485.01	3499.98	3514.98	(dBm)
70	PI/2 BPSK	1	1	13.11	13.15	13.16	14.00
Channel				632000	633332	634666	Tune-up limit
Frequency (MHz)				3480	3499.98	3519.99	(dBm)
60	PI/2 BPSK	1	1	13.19	13.14	13.15	14.00
Channel				631668	633332	635000	Tune-up limit
Frequency (MHz)				3475.02	3499.98	3525	(dBm)
50	PI/2 BPSK	1	1	13.22	13.20	13.10	14.00
Channel				631334	633332	635332	Tune-up limit
Frequency (MHz)				3470.01	3499.98	3529.98	(dBm)
40	PI/2 BPSK	1	1	13.18	13.11	13.17	14.00
Channel				631000	633332	635666	Tune-up limit
Frequency (MHz)				3465	3499.98	3534.99	(dBm)
30	PI/2 BPSK	1	1	13.12	13.18	13.22	14.00
Channel				630668	633332	636000	Tune-up limit
Frequency (MHz)				3460.02	3499.98	3540	(dBm)
20	PI/2 BPSK	1	1	13.13	13.12	13.19	14.00
Channel				630500	633332	636166	Tune-up limit
Frequency (MHz)				3457.5	3499.98	3542.49	(dBm)
15	PI/2 BPSK	1	1	13.15	13.21	13.20	14.00
Channel				630334	633332	636332	Tune-up limit
Frequency (MHz)				3455.01	3499.98	3544.98	(dBm)
10	PI/2 BPSK	1	1	13.16	13.24	13.20	14.00

**【FR1 n77 (270) _FCC_Part 270 (3700~3980MHz)_MIMO1_Sensor OFF】**

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				650000	656000	662000	
Frequency (MHz)				3750	3840	3930	
100	PI/2 BPSK	1	1	13.31	13.15	13.07	14.00
100	PI/2 BPSK	1	137	13.70	13.51	13.41	14.00
100	PI/2 BPSK	1	271	13.40	13.25	13.14	14.00
100	PI/2 BPSK	135	0	13.69	13.50	13.36	14.00
100	PI/2 BPSK	135	69	13.74	13.53	13.44	14.00
100	PI/2 BPSK	135	138	13.66	13.39	13.35	14.00
100	PI/2 BPSK	270	0	13.64	13.46	13.34	14.00
100	QPSK	1	1	13.30	13.12	13.03	14.00
100	QPSK	1	137	13.62	13.51	13.41	14.00
100	QPSK	1	271	13.32	13.14	13.11	14.00
100	QPSK	135	0	13.58	13.42	13.32	14.00
100	QPSK	135	69	13.49	13.36	13.25	14.00
100	QPSK	135	138	13.67	13.44	13.38	14.00
100	QPSK	270	0	13.60	13.45	13.29	14.00
100	16QAM	1	1	13.30	13.11	13.03	14.00
100	64QAM	1	1	13.30	13.05	12.95	14.00
100	256QAM	1	1	13.32	13.10	12.93	14.00
Channel				649668	656000	662332	Tune-up limit (dBm)
Frequency (MHz)				3745.02	3840	3934.98	
90	PI/2 BPSK	1	1	13.19	13.09	12.98	14.00
Channel				649334	656000	662666	Tune-up limit (dBm)
Frequency (MHz)				3740.01	3840	3939.99	
80	PI/2 BPSK	1	1	13.24	13.04	13.04	14.00
Channel				649000	656000	663000	Tune-up limit (dBm)
Frequency (MHz)				3735	3840	3945	
70	PI/2 BPSK	1	1	13.28	13.07	12.92	14.00
Channel				648668	656000	663332	Tune-up limit (dBm)
Frequency (MHz)				3730.02	3840	3949.98	
60	PI/2 BPSK	1	1	13.18	13.10	13.03	14.00
Channel				648334	656000	663666	Tune-up limit (dBm)
Frequency (MHz)				3725.01	3840	3954.99	
50	PI/2 BPSK	1	1	13.26	13.06	12.97	14.00
Channel				648000	656000	664000	Tune-up limit (dBm)
Frequency (MHz)				3720	3840	3960	
40	PI/2 BPSK	1	1	13.23	13.10	13.01	14.00
Channel				647668	656000	664332	Tune-up limit (dBm)
Frequency (MHz)				3715.02	3840	3964.98	
30	PI/2 BPSK	1	1	13.25	13.03	13.03	14.00
Channel				647334	656000	664666	Tune-up limit (dBm)
Frequency (MHz)				3710.01	3840	3969.99	
20	PI/2 BPSK	1	1	13.22	13.14	12.95	14.00
Channel				647168	656000	664832	Tune-up limit (dBm)
Frequency (MHz)				3707.52	3840	3972.48	
15	PI/2 BPSK	1	1	13.23	13.04	13.05	14.00
Channel				647000	656000	665000	Tune-up limit (dBm)
Frequency (MHz)				3705	3840	3975	
10	PI/2 BPSK	1	1	13.24	13.05	13.04	14.00

【FR1 n77 (27Q) _FCC_Part 27Q (3450~3550MHz)_HPUE_Aux_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					633332		
Frequency (MHz)					3499.98		
100	PI/2 BPSK	1	1		25.75		27.00
100	PI/2 BPSK	1	137		26.56		27.00
100	PI/2 BPSK	1	271		25.83		27.00
100	PI/2 BPSK	135	0		26.04		26.50
100	PI/2 BPSK	135	69		26.67		27.00
100	PI/2 BPSK	135	138		25.84		26.50
100	PI/2 BPSK	270	0		25.92		26.50
100	QPSK	1	1		26.11		27.00
100	QPSK	1	137		26.56		27.00
100	QPSK	1	271		25.84		27.00
100	QPSK	135	0		25.04		26.00
100	QPSK	135	69		26.44		27.00
100	QPSK	135	138		25.46		26.00
100	QPSK	270	0		25.44		26.00



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100	16QAM	1	1		24.99		26.00
100	64QAM	1	1		23.59		24.50
100	256QAM	1	1		22.05		22.50
Channel				633000	633332	633666	Tune-up limit
Frequency (MHz)				3495	3499.98	3504.99	(dBm)
90	PI/2 BPSK	1	1	25.66	25.71	25.67	27.00
Channel				632668	633332	634000	Tune-up limit
Frequency (MHz)				3490.02	3499.98	3510	(dBm)
80	PI/2 BPSK	1	1	25.65	25.63	25.68	27.00
Channel				632334	633332	634332	Tune-up limit
Frequency (MHz)				3485.01	3499.98	3514.98	(dBm)
70	PI/2 BPSK	1	1	25.68	25.64	25.73	27.00
Channel				632000	633332	634666	Tune-up limit
Frequency (MHz)				3480	3499.98	3519.99	(dBm)
60	PI/2 BPSK	1	1	25.69	25.65	25.71	27.00
Channel				631668	633332	635000	Tune-up limit
Frequency (MHz)				3475.02	3499.98	3525	(dBm)
50	PI/2 BPSK	1	1	25.65	25.64	25.72	27.00
Channel				631334	633332	635332	Tune-up limit
Frequency (MHz)				3470.01	3499.98	3529.98	(dBm)
40	PI/2 BPSK	1	1	25.65	25.69	25.54	27.00
Channel				631000	633332	635666	Tune-up limit
Frequency (MHz)				3465	3499.98	3534.99	(dBm)
30	PI/2 BPSK	1	1	25.73	25.64	25.70	27.00
Channel				630668	633332	636000	Tune-up limit
Frequency (MHz)				3460.02	3499.98	3540	(dBm)
20	PI/2 BPSK	1	1	25.61	25.68	25.61	27.00
Channel				630500	633332	636166	Tune-up limit
Frequency (MHz)				3457.5	3499.98	3542.49	(dBm)
15	PI/2 BPSK	1	1	25.71	25.62	25.65	27.00
Channel				630334	633332	636332	Tune-up limit
Frequency (MHz)				3455.01	3499.98	3544.98	(dBm)
10	PI/2 BPSK	1	1	25.65	25.72	25.73	27.00

【FR1 n77 (270) FCC_Part 270 (3700~3980MHz) HPUE_Aux_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				650000	656000	662000	
Frequency (MHz)				3750	3840	3930	
100	PI/2 BPSK	1	1	25.86	26.20	25.81	27.00
100	PI/2 BPSK	1	137	25.77	26.54	25.81	27.00
100	PI/2 BPSK	1	271	25.44	25.78	25.47	27.00
100	PI/2 BPSK	135	0	25.69	26.05	25.68	26.50
100	PI/2 BPSK	135	69	25.89	26.57	25.98	27.00
100	PI/2 BPSK	135	138	25.56	25.79	25.52	26.50
100	PI/2 BPSK	270	0	25.65	25.97	25.51	26.50
100	QPSK	1	1	25.66	26.07	25.61	27.00
100	QPSK	1	137	25.85	26.64	25.89	27.00
100	QPSK	1	271	25.36	25.80	25.39	27.00
100	QPSK	135	0	24.67	25.04	24.65	26.00
100	QPSK	135	69	25.87	26.49	25.93	27.00
100	QPSK	135	138	25.03	25.39	25.00	26.00
100	QPSK	270	0	24.84	25.44	24.95	26.00
100	16QAM	1	1	24.64	25.05	24.66	26.00
100	64QAM	1	1	23.37	23.66	23.27	24.50
100	256QAM	1	1	21.83	22.05	21.62	22.50
Channel				649668	656000	662332	Tune-up limit
Frequency (MHz)				3745.02	3840	3934.98	(dBm)
90	PI/2 BPSK	1	1	25.76	26.06	25.71	27.00
Channel				649334	656000	662666	Tune-up limit
Frequency (MHz)				3740.01	3840	3939.99	(dBm)
80	PI/2 BPSK	1	1	25.77	26.10	25.73	27.00
Channel				649000	656000	663000	Tune-up limit
Frequency (MHz)				3735	3840	3945	(dBm)
70	PI/2 BPSK	1	1	25.79	26.16	25.67	27.00
Channel				648668	656000	663332	Tune-up limit
Frequency (MHz)				3730.02	3840	3949.98	(dBm)
60	PI/2 BPSK	1	1	25.76	26.17	25.68	27.00
Channel				648334	656000	663666	Tune-up limit
Frequency (MHz)				3725.01	3840	3954.99	(dBm)
50	PI/2 BPSK	1	1	25.78	26.15	25.79	27.00
Channel				648000	656000	664000	Tune-up limit
Frequency (MHz)				3720	3840	3960	(dBm)
40	PI/2 BPSK	1	1	25.73	26.19	25.68	27.00

Channel				647668	656000	664332	Tune-up limit
Frequency (MHz)				3715.02	3840	3964.98	(dBm)
30	PI/2 BPSK	1	1	25.73	26.16	25.79	27.00
Channel				647334	656000	664666	Tune-up limit
Frequency (MHz)				3710.01	3840	3969.99	(dBm)
20	PI/2 BPSK	1	1	25.75	26.18	25.76	27.00
Channel				647168	656000	664832	Tune-up limit
Frequency (MHz)				3707.52	3840	3972.48	(dBm)
15	PI/2 BPSK	1	1	25.77	26.06	25.66	27.00
Channel				647000	656000	665000	Tune-up limit
Frequency (MHz)				3705	3840	3975	(dBm)
10	PI/2 BPSK	1	1	25.74	26.11	25.74	27.00

【FR1 n77 (27Q) _FCC_Part 27Q (3450~3550MHz)_HPUE_MIMO1_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					633332		
Frequency (MHz)					3499.98		
100	PI/2 BPSK	1	1		16.19		17.00
100	PI/2 BPSK	1	137		16.58		17.00
100	PI/2 BPSK	1	271		16.30		17.00
100	PI/2 BPSK	135	0		16.50		17.00
100	PI/2 BPSK	135	69		16.55		17.00
100	PI/2 BPSK	135	138		16.52		17.00
100	PI/2 BPSK	270	0		16.58		17.00
100	QPSK	1	1		16.19		17.00
100	QPSK	1	137		16.57		17.00
100	QPSK	1	271		16.27		17.00
100	QPSK	135	0		16.43		17.00
100	QPSK	135	69		16.42		17.00
100	QPSK	135	138		16.51		17.00
100	QPSK	270	0		16.49		17.00
100	16QAM	1	1		16.21		17.00
100	64QAM	1	1		16.14		17.00
100	256QAM	1	1		16.18		17.00
Channel				633000	633332	633666	Tune-up limit
Frequency (MHz)				3495	3499.98	3504.99	(dBm)
90	PI/2 BPSK	1	1	16.12	16.15	16.11	17.00
Channel				632668	633332	634000	Tune-up limit
Frequency (MHz)				3490.02	3499.98	3510	(dBm)
80	PI/2 BPSK	1	1	15.97	16.10	16.05	17.00
Channel				632334	633332	634332	Tune-up limit
Frequency (MHz)				3485.01	3499.98	3514.98	(dBm)
70	PI/2 BPSK	1	1	16.02	16.06	16.03	17.00
Channel				632000	633332	634666	Tune-up limit
Frequency (MHz)				3480	3499.98	3519.99	(dBm)
60	PI/2 BPSK	1	1	16.07	16.08	16.17	17.00
Channel				631668	633332	635000	Tune-up limit
Frequency (MHz)				3475.02	3499.98	3525	(dBm)
50	PI/2 BPSK	1	1	16.17	16.05	16.10	17.00
Channel				631334	633332	635332	Tune-up limit
Frequency (MHz)				3470.01	3499.98	3529.98	(dBm)
40	PI/2 BPSK	1	1	16.06	16.09	16.17	17.00
Channel				631000	633332	635666	Tune-up limit
Frequency (MHz)				3465	3499.98	3534.99	(dBm)
30	PI/2 BPSK	1	1	16.09	16.11	16.15	17.00
Channel				630668	633332	636000	Tune-up limit
Frequency (MHz)				3460.02	3499.98	3540	(dBm)
20	PI/2 BPSK	1	1	16.07	16.09	16.07	17.00
Channel				630500	633332	636166	Tune-up limit
Frequency (MHz)				3457.5	3499.98	3542.49	(dBm)
15	PI/2 BPSK	1	1	16.12	16.09	16.14	17.00
Channel				630334	633332	636332	Tune-up limit
Frequency (MHz)				3455.01	3499.98	3544.98	(dBm)
10	PI/2 BPSK	1	1	16.12	16.08	16.10	17.00

【FR1 n77 (27O) _FCC_Part 27O (3700~3980MHz)_HPUE_MIMO1_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				650000	656000	662000	

Frequency (MHz)				3750	3840	3930	
100	PI/2 BPSK	1	1	16.18	15.99	15.89	17.00
100	PI/2 BPSK	1	137	16.51	16.40	16.29	17.00
100	PI/2 BPSK	1	271	16.29	16.06	15.95	17.00
100	PI/2 BPSK	135	0	16.59	16.40	16.22	17.00
100	PI/2 BPSK	135	69	16.60	16.42	16.33	17.00
100	PI/2 BPSK	135	138	16.56	16.20	16.20	17.00
100	PI/2 BPSK	270	0	16.48	16.35	16.16	17.00
100	QPSK	1	1	16.16	15.92	15.89	17.00
100	QPSK	1	137	16.47	16.31	16.24	17.00
100	QPSK	1	271	16.22	16.03	16.00	17.00
100	QPSK	135	0	16.44	16.29	16.12	17.00
100	QPSK	135	69	16.31	16.20	16.12	17.00
100	QPSK	135	138	16.51	16.32	16.25	17.00
100	QPSK	270	0	16.48	16.28	16.12	17.00
100	16QAM	1	1	16.19	15.97	15.89	17.00
100	64QAM	1	1	16.17	15.90	15.79	17.00
100	256QAM	1	1	16.19	15.92	15.82	17.00
Channel				649668	656000	662332	Tune-up limit
Frequency (MHz)				3745.02	3840	3934.98	(dBm)
90	PI/2 BPSK	1	1	16.11	15.95	15.80	17.00
Channel				649334	656000	662666	Tune-up limit
Frequency (MHz)				3740.01	3840	3939.99	(dBm)
80	PI/2 BPSK	1	1	16.07	15.94	15.77	17.00
Channel				649000	656000	663000	Tune-up limit
Frequency (MHz)				3735	3840	3945	(dBm)
70	PI/2 BPSK	1	1	16.16	15.94	15.85	17.00
Channel				648668	656000	663332	Tune-up limit
Frequency (MHz)				3730.02	3840	3949.98	(dBm)
60	PI/2 BPSK	1	1	16.12	15.96	15.79	17.00
Channel				648334	656000	663666	Tune-up limit
Frequency (MHz)				3725.01	3840	3954.99	(dBm)
50	PI/2 BPSK	1	1	16.16	15.85	15.85	17.00
Channel				648000	656000	664000	Tune-up limit
Frequency (MHz)				3720	3840	3960	(dBm)
40	PI/2 BPSK	1	1	16.05	15.84	15.74	17.00
Channel				647668	656000	664332	Tune-up limit
Frequency (MHz)				3715.02	3840	3964.98	(dBm)
30	PI/2 BPSK	1	1	16.12	15.85	15.77	17.00
Channel				647334	656000	664666	Tune-up limit
Frequency (MHz)				3710.01	3840	3969.99	(dBm)
20	PI/2 BPSK	1	1	16.05	15.96	15.87	17.00
Channel				647168	656000	664832	Tune-up limit
Frequency (MHz)				3707.52	3840	3972.48	(dBm)
15	PI/2 BPSK	1	1	16.07	15.93	15.87	17.00
Channel				647000	656000	665000	Tune-up limit
Frequency (MHz)				3705	3840	3975	(dBm)
10	PI/2 BPSK	1	1	16.11	15.87	15.86	17.00

【FR1 n77 (27Q)_FCC_Part 27Q (3450~3550MHz)_Aux_Sensor ON】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					633332		
Frequency (MHz)					3499.98		
100	PI/2 BPSK	1	1		14.00		14.50
100	PI/2 BPSK	1	137		14.39		14.50
100	PI/2 BPSK	1	271		14.08		14.50
100	PI/2 BPSK	135	0		14.34		14.50
100	PI/2 BPSK	135	69		14.25		14.50
100	PI/2 BPSK	135	138		14.37		14.50
100	PI/2 BPSK	270	0		14.33		14.50
100	QPSK	1	1		14.00		14.50
100	QPSK	1	137		14.37		14.50
100	QPSK	1	271		14.04		14.50
100	QPSK	135	0		14.20		14.50
100	QPSK	135	69		14.18		14.50
100	QPSK	135	138		14.26		14.50
100	QPSK	270	0		14.24		14.50
100	16QAM	1	1		14.00		14.50
100	64QAM	1	1		13.89		14.50
100	256QAM	1	1		13.94		14.50
Channel				633000	633332	633666	Tune-up limit
Frequency (MHz)				3495	3499.98	3504.99	(dBm)
90	PI/2 BPSK	1	1	13.87	13.96	13.98	14.50

Channel				632668	633332	634000	Tune-up limit
Frequency (MHz)				3490.02	3499.98	3510	(dBm)
80	PI/2 BPSK	1	1	13.73	13.82	13.93	14.50
Channel				632334	633332	634332	Tune-up limit
Frequency (MHz)				3485.01	3499.98	3514.98	(dBm)
70	PI/2 BPSK	1	1	13.78	13.92	13.94	14.50
Channel				632000	633332	634666	Tune-up limit
Frequency (MHz)				3480	3499.98	3519.99	(dBm)
60	PI/2 BPSK	1	1	13.90	13.98	13.88	14.50
Channel				631668	633332	635000	Tune-up limit
Frequency (MHz)				3475.02	3499.98	3525	(dBm)
50	PI/2 BPSK	1	1	13.95	13.95	13.97	14.50
Channel				631334	633332	635332	Tune-up limit
Frequency (MHz)				3470.01	3499.98	3529.98	(dBm)
40	PI/2 BPSK	1	1	13.92	13.90	13.87	14.50
Channel				631000	633332	635666	Tune-up limit
Frequency (MHz)				3465	3499.98	3534.99	(dBm)
30	PI/2 BPSK	1	1	13.85	13.85	13.89	14.50
Channel				630668	633332	636000	Tune-up limit
Frequency (MHz)				3460.02	3499.98	3540	(dBm)
20	PI/2 BPSK	1	1	13.99	13.92	13.86	14.50
Channel				630500	633332	636166	Tune-up limit
Frequency (MHz)				3457.5	3499.98	3542.49	(dBm)
15	PI/2 BPSK	1	1	13.85	13.90	13.92	14.50
Channel				630334	633332	636332	Tune-up limit
Frequency (MHz)				3455.01	3499.98	3544.98	(dBm)
10	PI/2 BPSK	1	1	13.92	13.91	13.86	14.50

【FR1 n77 (270)_FCC_Part 270 (3700~3980MHz)_Aux_Sensor ON】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				650000	656000	662000	
Frequency (MHz)				3750	3840	3930	
100	PI/2 BPSK	1	1	14.04	14.02	13.93	14.50
100	PI/2 BPSK	1	137	14.42	14.39	14.24	14.50
100	PI/2 BPSK	1	271	14.05	14.08	13.99	14.50
100	PI/2 BPSK	135	0	14.39	14.34	14.26	14.50
100	PI/2 BPSK	135	69	14.39	14.29	14.20	14.50
100	PI/2 BPSK	135	138	14.45	14.38	14.24	14.50
100	PI/2 BPSK	270	0	14.33	14.34	14.22	14.50
100	QPSK	1	1	13.99	13.97	13.83	14.50
100	QPSK	1	137	14.35	14.36	14.24	14.50
100	QPSK	1	271	13.97	13.95	13.98	14.50
100	QPSK	135	0	14.25	14.25	14.19	14.50
100	QPSK	135	69	14.22	14.18	14.09	14.50
100	QPSK	135	138	14.33	14.29	14.18	14.50
100	QPSK	270	0	14.28	14.35	14.14	14.50
100	16QAM	1	1	13.98	13.97	13.84	14.50
100	64QAM	1	1	13.96	13.86	13.76	14.50
100	256QAM	1	1	14.07	13.95	13.81	14.50
Channel				649668	656000	662332	Tune-up limit
Frequency (MHz)				3745.02	3840	3934.98	(dBm)
90	PI/2 BPSK	1	1	13.91	13.95	13.91	14.50
Channel				649334	656000	662666	Tune-up limit
Frequency (MHz)				3740.01	3840	3939.99	(dBm)
80	PI/2 BPSK	1	1	13.98	13.93	13.78	14.50
Channel				649000	656000	663000	Tune-up limit
Frequency (MHz)				3735	3840	3945	(dBm)
70	PI/2 BPSK	1	1	13.90	13.90	13.81	14.50
Channel				648668	656000	663332	Tune-up limit
Frequency (MHz)				3730.02	3840	3949.98	(dBm)
60	PI/2 BPSK	1	1	13.92	13.95	13.91	14.50
Channel				648334	656000	663666	Tune-up limit
Frequency (MHz)				3725.01	3840	3954.99	(dBm)
50	PI/2 BPSK	1	1	14.00	13.99	13.88	14.50
Channel				648000	656000	664000	Tune-up limit
Frequency (MHz)				3720	3840	3960	(dBm)
40	PI/2 BPSK	1	1	13.90	13.98	13.85	14.50
Channel				647668	656000	664332	Tune-up limit
Frequency (MHz)				3715.02	3840	3964.98	(dBm)
30	PI/2 BPSK	1	1	14.02	13.99	13.90	14.50
Channel				647334	656000	664666	Tune-up limit
Frequency (MHz)				3710.01	3840	3969.99	(dBm)
20	PI/2 BPSK	1	1	13.94	13.90	13.89	14.50

Channel				647168	656000	664832	Tune-up limit
Frequency (MHz)				3707.52	3840	3972.48	(dBm)
15	PI/2 BPSK	1	1	13.89	14.00	13.87	14.50
Channel				647000	656000	665000	Tune-up limit
Frequency (MHz)				3705	3840	3975	(dBm)
10	PI/2 BPSK	1	1	13.90	13.93	13.85	14.50

【FR1 n77 (27Q) FCC_Part 27Q (3450~3550MHz)_HPUE_Aux_Sensor ON】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					633332		
Frequency (MHz)					3499.98		
100	PI/2 BPSK	1	1		16.90		17.50
100	PI/2 BPSK	1	137		17.21		17.50
100	PI/2 BPSK	1	271		16.90		17.50
100	PI/2 BPSK	135	0		17.16		17.50
100	PI/2 BPSK	135	69		17.06		17.50
100	PI/2 BPSK	135	138		17.20		17.50
100	PI/2 BPSK	270	0		17.13		17.50
100	QPSK	1	1		16.81		17.50
100	QPSK	1	137		17.22		17.50
100	QPSK	1	271		16.84		17.50
100	QPSK	135	0		17.04		17.50
100	QPSK	135	69		17.01		17.50
100	QPSK	135	138		17.09		17.50
100	QPSK	270	0		17.08		17.50
100	16QAM	1	1		16.83		17.50
100	64QAM	1	1		16.73		17.50
100	256QAM	1	1		16.74		17.50
Channel				633000	633332	633666	Tune-up limit
Frequency (MHz)				3495	3499.98	3504.99	(dBm)
90	PI/2 BPSK	1	1	16.73	16.82	16.81	17.50
Channel				632668	633332	634000	Tune-up limit
Frequency (MHz)				3490.02	3499.98	3510	(dBm)
80	PI/2 BPSK	1	1	16.70	16.80	16.77	17.50
Channel				632334	633332	634332	Tune-up limit
Frequency (MHz)				3485.01	3499.98	3514.98	(dBm)
70	PI/2 BPSK	1	1	16.67	16.78	16.73	17.50
Channel				632000	633332	634666	Tune-up limit
Frequency (MHz)				3480	3499.98	3519.99	(dBm)
60	PI/2 BPSK	1	1	16.76	16.80	16.76	17.50
Channel				631668	633332	635000	Tune-up limit
Frequency (MHz)				3475.02	3499.98	3525	(dBm)
50	PI/2 BPSK	1	1	16.73	16.80	16.77	17.50
Channel				631334	633332	635332	Tune-up limit
Frequency (MHz)				3470.01	3499.98	3529.98	(dBm)
40	PI/2 BPSK	1	1	16.69	16.80	16.77	17.50
Channel				631000	633332	635666	Tune-up limit
Frequency (MHz)				3465	3499.98	3534.99	(dBm)
30	PI/2 BPSK	1	1	16.74	16.75	16.73	17.50
Channel				630668	633332	636000	Tune-up limit
Frequency (MHz)				3460.02	3499.98	3540	(dBm)
20	PI/2 BPSK	1	1	16.81	16.69	16.73	17.50
Channel				630500	633332	636166	Tune-up limit
Frequency (MHz)				3457.5	3499.98	3542.49	(dBm)
15	PI/2 BPSK	1	1	16.74	16.76	16.73	17.50
Channel				630334	633332	636332	Tune-up limit
Frequency (MHz)				3455.01	3499.98	3544.98	(dBm)
10	PI/2 BPSK	1	1	16.70	16.69	16.83	17.50

【FR1 n77 (27Q) FCC_Part 27Q (3700~3980MHz)_HPUE_Aux_Sensor ON】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					650000	662000	
Frequency (MHz)				3750	3840	3930	
100	PI/2 BPSK	1	1	16.86	16.84	16.78	17.50
100	PI/2 BPSK	1	137	17.23	17.20	17.07	17.50
100	PI/2 BPSK	1	271	16.88	16.92	16.83	17.50
100	PI/2 BPSK	135	0	17.21	17.17	17.07	17.50
100	PI/2 BPSK	135	69	17.20	17.13	17.00	17.50



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100	PI/2 BPSK	135	138	17.30	17.22	17.09	17.50
100	PI/2 BPSK	270	0	17.15	17.14	17.03	17.50
100	QPSK	1	1	16.81	16.80	16.66	17.50
100	QPSK	1	137	17.17	17.21	17.07	17.50
100	QPSK	1	271	16.78	16.76	16.78	17.50
100	QPSK	135	0	17.06	17.10	17.01	17.50
100	QPSK	135	69	17.07	17.02	16.94	17.50
100	QPSK	135	138	17.18	17.13	17.01	17.50
100	QPSK	270	0	17.11	17.17	16.96	17.50
100	16QAM	1	1	16.79	16.81	16.66	17.50
100	64QAM	1	1	16.76	16.70	16.57	17.50
100	256QAM	1	1	16.91	16.80	16.61	17.50
Channel				649668	656000	662332	Tune-up limit
Frequency (MHz)				3745.02	3840	3934.98	(dBm)
90	PI/2 BPSK	1	1	16.78	16.76	16.76	17.50
Channel				649334	656000	662666	Tune-up limit
Frequency (MHz)				3740.01	3840	3939.99	(dBm)
80	PI/2 BPSK	1	1	16.78	16.70	16.70	17.50
Channel				649000	656000	663000	Tune-up limit
Frequency (MHz)				3735	3840	3945	(dBm)
70	PI/2 BPSK	1	1	16.73	16.73	16.64	17.50
Channel				648668	656000	663332	Tune-up limit
Frequency (MHz)				3730.02	3840	3949.98	(dBm)
60	PI/2 BPSK	1	1	16.81	16.79	16.71	17.50
Channel				648334	656000	663666	Tune-up limit
Frequency (MHz)				3725.01	3840	3954.99	(dBm)
50	PI/2 BPSK	1	1	16.79	16.82	16.72	17.50
Channel				648000	656000	664000	Tune-up limit
Frequency (MHz)				3720	3840	3960	(dBm)
40	PI/2 BPSK	1	1	16.78	16.75	16.70	17.50
Channel				647668	656000	664332	Tune-up limit
Frequency (MHz)				3715.02	3840	3964.98	(dBm)
30	PI/2 BPSK	1	1	16.79	16.76	16.66	17.50
Channel				647334	656000	664666	Tune-up limit
Frequency (MHz)				3710.01	3840	3969.99	(dBm)
20	PI/2 BPSK	1	1	16.84	16.69	16.63	17.50
Channel				647168	656000	664832	Tune-up limit
Frequency (MHz)				3707.52	3840	3972.48	(dBm)
15	PI/2 BPSK	1	1	16.79	16.75	16.77	17.50
Channel				647000	656000	665000	Tune-up limit
Frequency (MHz)				3705	3840	3975	(dBm)
10	PI/2 BPSK	1	1	16.82	16.81	16.71	17.50

【FR1 n78 (27Q) FCC_Part 27Q (3450~3550MHz)_Aux_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					633332		
Frequency (MHz)					3499.98		
100	PI/2 BPSK	1	1		23.55		24.00
100	PI/2 BPSK	1	137		23.47		24.00
100	PI/2 BPSK	1	271		22.99		24.00
100	PI/2 BPSK	135	0		23.19		23.50
100	PI/2 BPSK	135	69		23.48		24.00
100	PI/2 BPSK	135	138		23.12		23.50
100	PI/2 BPSK	270	0		23.16		23.50
100	QPSK	1	1		23.35		24.00
100	QPSK	1	137		23.42		24.00
100	QPSK	1	271		23.04		24.00
100	QPSK	135	0		22.20		23.00
100	QPSK	135	69		23.47		24.00
100	QPSK	135	138		22.64		23.00
100	QPSK	270	0		22.59		23.00
100	16QAM	1	1		22.26		23.00
100	64QAM	1	1		20.78		21.50
100	256QAM	1	1		19.20		19.50
Channel				633000	633332	633666	Tune-up limit
Frequency (MHz)				3495	3499.98	3504.99	(dBm)
90	PI/2 BPSK	1	1	23.54	23.53	23.41	24.00
Channel				632668	633332	634000	Tune-up limit
Frequency (MHz)				3490.02	3499.98	3510	(dBm)
80	PI/2 BPSK	1	1	23.45	23.48	23.26	24.00
Channel				632334	633332	634332	Tune-up limit
Frequency (MHz)				3485.01	3499.98	3514.98	(dBm)
70	PI/2 BPSK	1	1	23.47	23.51	23.34	24.00

Channel				632000	633332	634666	Tune-up limit
Frequency (MHz)				3480	3499.98	3519.99	(dBm)
60	PI/2 BPSK	1	1	23.49	23.47	23.44	24.00
Channel				631668	633332	635000	Tune-up limit
Frequency (MHz)				3475.02	3499.98	3525	(dBm)
50	PI/2 BPSK	1	1	23.51	23.53	23.52	24.00
Channel				631334	633332	635332	Tune-up limit
Frequency (MHz)				3470.01	3499.98	3529.98	(dBm)
40	PI/2 BPSK	1	1	23.43	23.41	23.43	24.00
Channel				631000	633332	635666	Tune-up limit
Frequency (MHz)				3465	3499.98	3534.99	(dBm)
30	PI/2 BPSK	1	1	23.46	23.44	23.47	24.00
Channel				630668	633332	636000	Tune-up limit
Frequency (MHz)				3460.02	3499.98	3540	(dBm)
20	PI/2 BPSK	1	1	23.49	23.47	23.48	24.00
Channel				630500	633332	636166	Tune-up limit
Frequency (MHz)				3457.5	3499.98	3542.49	(dBm)
15	PI/2 BPSK	1	1	23.44	23.54	23.43	24.00
Channel				630334	633332	636332	Tune-up limit
Frequency (MHz)				3455.01	3499.98	3544.98	(dBm)
10	PI/2 BPSK	1	1	23.40	23.44	23.51	24.00

【FR1 n78 (270)_FCC_Part 270 (3700~3800MHz)_Aux_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					650000		
Frequency (MHz)					3750		
100	PI/2 BPSK	1	1		22.85		24.00
100	PI/2 BPSK	1	137		22.77		24.00
100	PI/2 BPSK	1	271		22.47		24.00
100	PI/2 BPSK	135	0		22.66		23.50
100	PI/2 BPSK	135	69		22.81		24.00
100	PI/2 BPSK	135	138		22.57		23.50
100	PI/2 BPSK	270	0		22.55		23.50
100	QPSK	1	1		22.73		24.00
100	QPSK	1	137		22.82		24.00
100	QPSK	1	271		22.41		24.00
100	QPSK	135	0		21.64		23.00
100	QPSK	135	69		22.83		24.00
100	QPSK	135	138		21.98		23.00
100	QPSK	270	0		21.86		23.00
100	16QAM	1	1		21.61		23.00
100	64QAM	1	1		20.37		21.50
100	256QAM	1	1		18.82		19.50
Channel				649668	650000	650332	Tune-up limit
Frequency (MHz)				3745.02	3750	3754.98	(dBm)
90	PI/2 BPSK	1	1	22.78	22.80	22.83	24.00
Channel				649334	650000	650666	Tune-up limit
Frequency (MHz)				3740.01	3750	3759.99	(dBm)
80	PI/2 BPSK	1	1	22.77	22.79	22.70	24.00
Channel				649000	650000	651000	Tune-up limit
Frequency (MHz)				3735	3750	3765	(dBm)
70	PI/2 BPSK	1	1	22.71	22.68	22.71	24.00
Channel				648668	650000	651332	Tune-up limit
Frequency (MHz)				3730.02	3750	3769.98	(dBm)
60	PI/2 BPSK	1	1	22.71	22.72	22.79	24.00
Channel				648334	650000	651666	Tune-up limit
Frequency (MHz)				3725.01	3750	3774.99	(dBm)
50	PI/2 BPSK	1	1	22.82	22.71	22.75	24.00
Channel				648000	650000	652000	Tune-up limit
Frequency (MHz)				3720	3750	3780	(dBm)
40	PI/2 BPSK	1	1	22.83	22.72	22.83	24.00
Channel				647668	650000	652332	Tune-up limit
Frequency (MHz)				3715.02	3750	3784.98	(dBm)
30	PI/2 BPSK	1	1	22.79	22.81	22.80	24.00
Channel				647334	650000	652666	Tune-up limit
Frequency (MHz)				3710.01	3750	3789.99	(dBm)
20	PI/2 BPSK	1	1	22.72	22.83	22.79	24.00
Channel				647168	650000	652832	Tune-up limit
Frequency (MHz)				3707.52	3750	3792.48	(dBm)
15	PI/2 BPSK	1	1	22.77	22.76	22.71	24.00
Channel				647000	650000	653000	Tune-up limit
Frequency (MHz)				3705	3750	3795	(dBm)
10	PI/2 BPSK	1	1	22.70	22.77	22.72	24.00

【FR1 n78 (27Q) _FCC_Part 27Q (3450~3550MHz)_MIMO1_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					633332		
Frequency (MHz)					3499.98		
100	PI/2 BPSK	1	1		13.16		14.00
100	PI/2 BPSK	1	137		13.54		14.00
100	PI/2 BPSK	1	271		13.17		14.00
100	PI/2 BPSK	135	0		13.41		14.00
100	PI/2 BPSK	135	69		13.50		14.00
100	PI/2 BPSK	135	138		13.49		14.00
100	PI/2 BPSK	270	0		13.45		14.00
100	QPSK	1	1		13.11		14.00
100	QPSK	1	137		13.53		14.00
100	QPSK	1	271		13.17		14.00
100	QPSK	135	0		13.30		14.00
100	QPSK	135	69		13.27		14.00
100	QPSK	135	138		13.46		14.00
100	QPSK	270	0		13.38		14.00
100	16QAM	1	1		13.08		14.00
100	64QAM	1	1		12.98		14.00
100	256QAM	1	1		13.11		14.00
Channel				633000	633332	633666	Tune-up limit (dBm)
Frequency (MHz)				3495	3499.98	3504.99	
90	PI/2 BPSK	1	1	13.03	13.14	13.10	14.00
Channel				632668	633332	634000	Tune-up limit (dBm)
Frequency (MHz)				3490.02	3499.98	3510	
80	PI/2 BPSK	1	1	13.06	13.05	13.02	14.00
Channel				632334	633332	634332	Tune-up limit (dBm)
Frequency (MHz)				3485.01	3499.98	3514.98	
70	PI/2 BPSK	1	1	13.04	13.10	13.13	14.00
Channel				632000	633332	634666	Tune-up limit (dBm)
Frequency (MHz)				3480	3499.98	3519.99	
60	PI/2 BPSK	1	1	13.11	13.05	13.10	14.00
Channel				631668	633332	635000	Tune-up limit (dBm)
Frequency (MHz)				3475.02	3499.98	3525	
50	PI/2 BPSK	1	1	12.92	12.99	12.96	14.00
Channel				631334	633332	635332	Tune-up limit (dBm)
Frequency (MHz)				3470.01	3499.98	3529.98	
40	PI/2 BPSK	1	1	12.91	13.11	13.01	14.00
Channel				631000	633332	635666	Tune-up limit (dBm)
Frequency (MHz)				3465	3499.98	3534.99	
30	PI/2 BPSK	1	1	13.04	13.07	13.09	14.00
Channel				630668	633332	636000	Tune-up limit (dBm)
Frequency (MHz)				3460.02	3499.98	3540	
20	PI/2 BPSK	1	1	13.11	13.11	13.02	14.00
Channel				630500	633332	636166	Tune-up limit (dBm)
Frequency (MHz)				3457.5	3499.98	3542.49	
15	PI/2 BPSK	1	1	13.04	13.06	13.11	14.00
Channel				630334	633332	636332	Tune-up limit (dBm)
Frequency (MHz)				3455.01	3499.98	3544.98	
10	PI/2 BPSK	1	1	13.03	13.04	13.12	14.00

【FR1 n78 (27Q) _FCC_Part 27Q (3700~3800MHz)_MIMO1_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					650000		
Frequency (MHz)					3750		
100	PI/2 BPSK	1	1		13.19		14.00
100	PI/2 BPSK	1	137		13.60		14.00
100	PI/2 BPSK	1	271		13.23		14.00
100	PI/2 BPSK	135	0		13.53		14.00
100	PI/2 BPSK	135	69		13.61		14.00
100	PI/2 BPSK	135	138		13.56		14.00
100	PI/2 BPSK	270	0		13.45		14.00
100	QPSK	1	1		13.10		14.00
100	QPSK	1	137		13.47		14.00
100	QPSK	1	271		13.17		14.00
100	QPSK	135	0		13.45		14.00



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100	QPSK	135	69		13.32		14.00
100	QPSK	135	138		13.48		14.00
100	QPSK	270	0		13.50		14.00
100	16QAM	1	1		13.20		14.00
100	64QAM	1	1		13.10		14.00
100	256QAM	1	1		13.15		14.00
Channel				649668	650000	650332	Tune-up limit
Frequency (MHz)				3745.02	3750	3754.98	(dBm)
90	PI/2 BPSK	1	1	13.06	13.17	13.13	14.00
Channel				649334	650000	650666	Tune-up limit
Frequency (MHz)				3740.01	3750	3759.99	(dBm)
80	PI/2 BPSK	1	1	12.97	13.09	13.03	14.00
Channel				649000	650000	651000	Tune-up limit
Frequency (MHz)				3735	3750	3765	(dBm)
70	PI/2 BPSK	1	1	13.00	13.05	13.07	14.00
Channel				648668	650000	651332	Tune-up limit
Frequency (MHz)				3730.02	3750	3769.98	(dBm)
60	PI/2 BPSK	1	1	13.08	13.09	13.04	14.00
Channel				648334	650000	651666	Tune-up limit
Frequency (MHz)				3725.01	3750	3774.99	(dBm)
50	PI/2 BPSK	1	1	13.12	13.11	13.08	14.00
Channel				648000	650000	652000	Tune-up limit
Frequency (MHz)				3720	3750	3780	(dBm)
40	PI/2 BPSK	1	1	13.15	13.15	13.08	14.00
Channel				647668	650000	652332	Tune-up limit
Frequency (MHz)				3715.02	3750	3784.98	(dBm)
30	PI/2 BPSK	1	1	13.12	13.13	13.17	14.00
Channel				647334	650000	652666	Tune-up limit
Frequency (MHz)				3710.01	3750	3789.99	(dBm)
20	PI/2 BPSK	1	1	13.07	13.13	13.11	14.00
Channel				647168	650000	652832	Tune-up limit
Frequency (MHz)				3707.52	3750	3792.48	(dBm)
15	PI/2 BPSK	1	1	13.13	13.12	13.14	14.00
Channel				647000	650000	653000	Tune-up limit
Frequency (MHz)				3705	3750	3795	(dBm)
10	PI/2 BPSK	1	1	13.07	13.06	13.10	14.00

【FR1 n78 (27Q) _FCC_Part 27Q (3450~3550MHz)_HPUE_Aux_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					633332		
Frequency (MHz)					3499.98		
100	PI/2 BPSK	1	1		26.37		27.00
100	PI/2 BPSK	1	137		26.32		27.00
100	PI/2 BPSK	1	271		25.80		27.00
100	PI/2 BPSK	135	0		26.04		26.50
100	PI/2 BPSK	135	69		26.28		27.00
100	PI/2 BPSK	135	138		25.97		26.50
100	PI/2 BPSK	270	0		25.99		26.50
100	QPSK	1	1		26.23		27.00
100	QPSK	1	137		26.32		27.00
100	QPSK	1	271		25.94		27.00
100	QPSK	135	0		25.06		26.00
100	QPSK	135	69		26.36		27.00
100	QPSK	135	138		25.46		26.00
100	QPSK	270	0		25.44		26.00
100	16QAM	1	1		25.09		26.00
100	64QAM	1	1		23.63		24.50
100	256QAM	1	1		22.00		22.50
Channel				633000	633332	633666	Tune-up limit
Frequency (MHz)				3495	3499.98	3504.99	(dBm)
90	PI/2 BPSK	1	1	26.23	26.36	26.34	27.00
Channel				632668	633332	634000	Tune-up limit
Frequency (MHz)				3490.02	3499.98	3510	(dBm)
80	PI/2 BPSK	1	1	26.23	26.22	26.32	27.00
Channel				632334	633332	634332	Tune-up limit
Frequency (MHz)				3485.01	3499.98	3514.98	(dBm)
70	PI/2 BPSK	1	1	26.32	26.27	26.33	27.00
Channel				632000	633332	634666	Tune-up limit
Frequency (MHz)				3480	3499.98	3519.99	(dBm)
60	PI/2 BPSK	1	1	26.28	26.29	26.29	27.00
Channel				631668	633332	635000	Tune-up limit
Frequency (MHz)				3475.02	3499.98	3525	(dBm)
50	PI/2 BPSK	1	1	26.31	26.31	26.23	27.00

Channel				631334	633332	635332	Tune-up limit
Frequency (MHz)				3470.01	3499.98	3529.98	(dBm)
40	PI/2 BPSK	1	1	26.15	26.22	26.33	27.00
Channel				631000	633332	635666	Tune-up limit
Frequency (MHz)				3465	3499.98	3534.99	(dBm)
30	PI/2 BPSK	1	1	26.32	26.30	26.33	27.00
Channel				630668	633332	636000	Tune-up limit
Frequency (MHz)				3460.02	3499.98	3540	(dBm)
20	PI/2 BPSK	1	1	26.33	26.26	26.28	27.00
Channel				630500	633332	636166	Tune-up limit
Frequency (MHz)				3457.5	3499.98	3542.49	(dBm)
15	PI/2 BPSK	1	1	26.33	26.31	26.23	27.00
Channel				630334	633332	636332	Tune-up limit
Frequency (MHz)				3455.01	3499.98	3544.98	(dBm)
10	PI/2 BPSK	1	1	26.31	26.35	26.31	27.00

【FR1 n78 (270) _FCC_Part 270 (3700~3800MHz)_HPUE_Aux_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					650000		
Frequency (MHz)					3750		
100	PI/2 BPSK	1	1		25.72		27.00
100	PI/2 BPSK	1	137		25.61		27.00
100	PI/2 BPSK	1	271		25.37		27.00
100	PI/2 BPSK	135	0		25.46		26.50
100	PI/2 BPSK	135	69		25.63		27.00
100	PI/2 BPSK	135	138		25.44		26.50
100	PI/2 BPSK	270	0		25.39		26.50
100	QPSK	1	1		25.53		27.00
100	QPSK	1	137		25.71		27.00
100	QPSK	1	271		25.30		27.00
100	QPSK	135	0		24.48		26.00
100	QPSK	135	69		25.67		27.00
100	QPSK	135	138		24.79		26.00
100	QPSK	270	0		24.68		26.00
100	16QAM	1	1		24.44		26.00
100	64QAM	1	1		23.20		24.50
100	256QAM	1	1		21.62		22.50
Channel				649668	650000	650332	Tune-up limit
Frequency (MHz)				3745.02	3750	3754.98	(dBm)
90	PI/2 BPSK	1	1	25.58	25.69	25.61	27.00
Channel				649334	650000	650666	Tune-up limit
Frequency (MHz)				3740.01	3750	3759.99	(dBm)
80	PI/2 BPSK	1	1	25.57	25.67	25.49	27.00
Channel				649000	650000	651000	Tune-up limit
Frequency (MHz)				3735	3750	3765	(dBm)
70	PI/2 BPSK	1	1	25.66	25.63	25.70	27.00
Channel				648668	650000	651332	Tune-up limit
Frequency (MHz)				3730.02	3750	3769.98	(dBm)
60	PI/2 BPSK	1	1	25.59	25.59	25.59	27.00
Channel				648334	650000	651666	Tune-up limit
Frequency (MHz)				3725.01	3750	3774.99	(dBm)
50	PI/2 BPSK	1	1	25.67	25.63	25.70	27.00
Channel				648000	650000	652000	Tune-up limit
Frequency (MHz)				3720	3750	3780	(dBm)
40	PI/2 BPSK	1	1	25.57	25.67	25.60	27.00
Channel				647668	650000	652332	Tune-up limit
Frequency (MHz)				3715.02	3750	3784.98	(dBm)
30	PI/2 BPSK	1	1	25.60	25.68	25.61	27.00
Channel				647334	650000	652666	Tune-up limit
Frequency (MHz)				3710.01	3750	3789.99	(dBm)
20	PI/2 BPSK	1	1	25.67	25.57	25.70	27.00
Channel				647168	650000	652832	Tune-up limit
Frequency (MHz)				3707.52	3750	3792.48	(dBm)
15	PI/2 BPSK	1	1	25.67	25.71	25.70	27.00
Channel				647000	650000	653000	Tune-up limit
Frequency (MHz)				3705	3750	3795	(dBm)
10	PI/2 BPSK	1	1	25.58	25.62	25.59	27.00

【FR1 n78 (27Q) _FCC_Part 27Q (3450~3550MHz)_HPUE_MIMO1_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power	Power	Power	Tune-up limit
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				Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.	(dBm)
Channel					633332		
Frequency (MHz)					3499.98		
100	PI/2 BPSK	1	1		15.96		17.00
100	PI/2 BPSK	1	137		16.40		17.00
100	PI/2 BPSK	1	271		15.97		17.00
100	PI/2 BPSK	135	0		16.28		17.00
100	PI/2 BPSK	135	69		16.36		17.00
100	PI/2 BPSK	135	138		16.30		17.00
100	PI/2 BPSK	270	0		16.34		17.00
100	QPSK	1	1		16.01		17.00
100	QPSK	1	137		16.39		17.00
100	QPSK	1	271		16.07		17.00
100	QPSK	135	0		16.17		17.00
100	QPSK	135	69		16.09		17.00
100	QPSK	135	138		16.33		17.00
100	QPSK	270	0		16.20		17.00
100	16QAM	1	1		15.93		17.00
100	64QAM	1	1		15.88		17.00
100	256QAM	1	1		15.91		17.00
Channel				633000	633332	633666	Tune-up limit
Frequency (MHz)				3495	3499.98	3504.99	(dBm)
90	PI/2 BPSK	1	1	15.85	15.90	15.85	17.00
Channel				632668	633332	634000	Tune-up limit
Frequency (MHz)				3490.02	3499.98	3510	(dBm)
80	PI/2 BPSK	1	1	15.73	15.77	15.82	17.00
Channel				632334	633332	634332	Tune-up limit
Frequency (MHz)				3485.01	3499.98	3514.98	(dBm)
70	PI/2 BPSK	1	1	15.80	15.80	15.81	17.00
Channel				632000	633332	634666	Tune-up limit
Frequency (MHz)				3480	3499.98	3519.99	(dBm)
60	PI/2 BPSK	1	1	15.85	15.86	15.95	17.00
Channel				631668	633332	635000	Tune-up limit
Frequency (MHz)				3475.02	3499.98	3525	(dBm)
50	PI/2 BPSK	1	1	15.83	15.91	15.93	17.00
Channel				631334	633332	635332	Tune-up limit
Frequency (MHz)				3470.01	3499.98	3529.98	(dBm)
40	PI/2 BPSK	1	1	15.91	15.92	15.85	17.00
Channel				631000	633332	635666	Tune-up limit
Frequency (MHz)				3465	3499.98	3534.99	(dBm)
30	PI/2 BPSK	1	1	15.82	15.85	15.91	17.00
Channel				630668	633332	636000	Tune-up limit
Frequency (MHz)				3460.02	3499.98	3540	(dBm)
20	PI/2 BPSK	1	1	15.94	15.87	15.94	17.00
Channel				630500	633332	636166	Tune-up limit
Frequency (MHz)				3457.5	3499.98	3542.49	(dBm)
15	PI/2 BPSK	1	1	15.88	15.91	15.83	17.00
Channel				630334	633332	636332	Tune-up limit
Frequency (MHz)				3455.01	3499.98	3544.98	(dBm)
10	PI/2 BPSK	1	1	15.95	15.83	15.91	17.00

【FR1 n78 (270) _ FCC_Part 270 (3700~3800MHz)_HPUE_MIMO1_Sensor OFF】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					650000		
Frequency (MHz)					3750		
100	PI/2 BPSK	1	1		16.13		17.00
100	PI/2 BPSK	1	137		16.33		17.00
100	PI/2 BPSK	1	271		16.16		17.00
100	PI/2 BPSK	135	0		16.45		17.00
100	PI/2 BPSK	135	69		16.50		17.00
100	PI/2 BPSK	135	138		16.43		17.00
100	PI/2 BPSK	270	0		16.38		17.00
100	QPSK	1	1		16.04		17.00
100	QPSK	1	137		16.28		17.00
100	QPSK	1	271		16.11		17.00
100	QPSK	135	0		16.27		17.00
100	QPSK	135	69		16.21		17.00
100	QPSK	135	138		16.34		17.00
100	QPSK	270	0		16.28		17.00
100	16QAM	1	1		16.02		17.00
100	64QAM	1	1		16.02		17.00
100	256QAM	1	1		16.08		17.00

Channel				649668	650000	650332	Tune-up limit
Frequency (MHz)				3745.02	3750	3754.98	(dBm)
90	PI/2 BPSK	1	1	15.99	16.10	16.00	17.00
Channel				649334	650000	650666	Tune-up limit
Frequency (MHz)				3740.01	3750	3759.99	(dBm)
80	PI/2 BPSK	1	1	15.98	16.08	15.93	17.00
Channel				649000	650000	651000	Tune-up limit
Frequency (MHz)				3735	3750	3765	(dBm)
70	PI/2 BPSK	1	1	15.87	16.02	15.91	17.00
Channel				648668	650000	651332	Tune-up limit
Frequency (MHz)				3730.02	3750	3769.98	(dBm)
60	PI/2 BPSK	1	1	15.88	16.06	15.87	17.00
Channel				648334	650000	651666	Tune-up limit
Frequency (MHz)				3725.01	3750	3774.99	(dBm)
50	PI/2 BPSK	1	1	16.01	16.00	16.03	17.00
Channel				648000	650000	652000	Tune-up limit
Frequency (MHz)				3720	3750	3780	(dBm)
40	PI/2 BPSK	1	1	16.08	16.07	16.01	17.00
Channel				647668	650000	652332	Tune-up limit
Frequency (MHz)				3715.02	3750	3784.98	(dBm)
30	PI/2 BPSK	1	1	16.05	16.04	16.00	17.00
Channel				647334	650000	652666	Tune-up limit
Frequency (MHz)				3710.01	3750	3789.99	(dBm)
20	PI/2 BPSK	1	1	16.07	15.98	16.06	17.00
Channel				647168	650000	652832	Tune-up limit
Frequency (MHz)				3707.52	3750	3792.48	(dBm)
15	PI/2 BPSK	1	1	16.03	16.09	15.99	17.00
Channel				647000	650000	653000	Tune-up limit
Frequency (MHz)				3705	3750	3795	(dBm)
10	PI/2 BPSK	1	1	16.11	15.99	16.05	17.00

【FR1 n78 (27Q) FCC_Part 27Q (3450~3550MHz)_Aux_Sensor ON】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					633332		
Frequency (MHz)					3499.98		
100	PI/2 BPSK	1	1		14.09		14.50
100	PI/2 BPSK	1	137		14.23		14.50
100	PI/2 BPSK	1	271		13.73		14.50
100	PI/2 BPSK	135	0		14.00		14.50
100	PI/2 BPSK	135	69		14.14		14.50
100	PI/2 BPSK	135	138		14.14		14.50
100	PI/2 BPSK	270	0		14.09		14.50
100	QPSK	1	1		14.08		14.50
100	QPSK	1	137		14.20		14.50
100	QPSK	1	271		13.89		14.50
100	QPSK	135	0		14.19		14.50
100	QPSK	135	69		14.22		14.50
100	QPSK	135	138		13.92		14.50
100	QPSK	270	0		13.70		14.50
100	16QAM	1	1		14.05		14.50
100	64QAM	1	1		13.87		14.50
100	256QAM	1	1		14.27		14.50
Channel				633000	633332	633666	Tune-up limit
Frequency (MHz)				3495	3499.98	3504.99	(dBm)
90	PI/2 BPSK	1	1	13.98	14.04	13.97	14.50
Channel				632668	633332	634000	Tune-up limit
Frequency (MHz)				3490.02	3499.98	3510	(dBm)
80	PI/2 BPSK	1	1	13.93	14.00	13.92	14.50
Channel				632334	633332	634332	Tune-up limit
Frequency (MHz)				3485.01	3499.98	3514.98	(dBm)
70	PI/2 BPSK	1	1	13.87	13.91	13.86	14.50
Channel				632000	633332	634666	Tune-up limit
Frequency (MHz)				3480	3499.98	3519.99	(dBm)
60	PI/2 BPSK	1	1	13.88	13.99	13.82	14.50
Channel				631668	633332	635000	Tune-up limit
Frequency (MHz)				3475.02	3499.98	3525	(dBm)
50	PI/2 BPSK	1	1	13.89	14.00	13.95	14.50
Channel				631334	633332	635332	Tune-up limit
Frequency (MHz)				3470.01	3499.98	3529.98	(dBm)
40	PI/2 BPSK	1	1	13.86	13.92	13.89	14.50
Channel				631000	633332	635666	Tune-up limit
Frequency (MHz)				3465	3499.98	3534.99	(dBm)
30	PI/2 BPSK	1	1	13.97	13.95	13.94	14.50

Channel				630668	633332	636000	Tune-up limit
Frequency (MHz)				3460.02	3499.98	3540	(dBm)
20	PI/2 BPSK	1	1	13.98	13.99	14.04	14.50
Channel				630500	633332	636166	Tune-up limit
Frequency (MHz)				3457.5	3499.98	3542.49	(dBm)
15	PI/2 BPSK	1	1	13.99	13.95	14.03	14.50
Channel				630334	633332	636332	Tune-up limit
Frequency (MHz)				3455.01	3499.98	3544.98	(dBm)
10	PI/2 BPSK	1	1	13.99	14.06	14.07	14.50

【FR1 n78 (270) _FCC_Part 270 (3700~3800MHz)_Aux_Sensor ON】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					650000		
Frequency (MHz)					3750		
100	PI/2 BPSK	1	1		14.22		14.50
100	PI/2 BPSK	1	137		14.14		14.50
100	PI/2 BPSK	1	271		13.73		14.50
100	PI/2 BPSK	135	0		13.95		14.50
100	PI/2 BPSK	135	69		14.00		14.50
100	PI/2 BPSK	135	138		13.99		14.50
100	PI/2 BPSK	270	0		14.13		14.50
100	QPSK	1	1		14.14		14.50
100	QPSK	1	137		13.97		14.50
100	QPSK	1	271		13.69		14.50
100	QPSK	135	0		13.97		14.50
100	QPSK	135	69		13.91		14.50
100	QPSK	135	138		14.02		14.50
100	QPSK	270	0		14.03		14.50
100	16QAM	1	1		13.84		14.50
100	64QAM	1	1		13.77		14.50
100	256QAM	1	1		13.70		14.50
Channel				649668	650000	650332	Tune-up limit
Frequency (MHz)				3745.02	3750	3754.98	(dBm)
90	PI/2 BPSK	1	1	14.13	14.19	14.11	14.50
Channel				649334	650000	650666	Tune-up limit
Frequency (MHz)				3740.01	3750	3759.99	(dBm)
80	PI/2 BPSK	1	1	14.06	14.11	13.99	14.50
Channel				649000	650000	651000	Tune-up limit
Frequency (MHz)				3735	3750	3765	(dBm)
70	PI/2 BPSK	1	1	14.02	14.06	13.99	14.50
Channel				648668	650000	651332	Tune-up limit
Frequency (MHz)				3730.02	3750	3769.98	(dBm)
60	PI/2 BPSK	1	1	14.06	14.11	14.02	14.50
Channel				648334	650000	651666	Tune-up limit
Frequency (MHz)				3725.01	3750	3774.99	(dBm)
50	PI/2 BPSK	1	1	14.04	14.04	13.99	14.50
Channel				648000	650000	652000	Tune-up limit
Frequency (MHz)				3720	3750	3780	(dBm)
40	PI/2 BPSK	1	1	14.03	14.08	14.02	14.50
Channel				647668	650000	652332	Tune-up limit
Frequency (MHz)				3715.02	3750	3784.98	(dBm)
30	PI/2 BPSK	1	1	14.12	14.06	14.04	14.50
Channel				647334	650000	652666	Tune-up limit
Frequency (MHz)				3710.01	3750	3789.99	(dBm)
20	PI/2 BPSK	1	1	14.09	14.05	14.01	14.50
Channel				647168	650000	652832	Tune-up limit
Frequency (MHz)				3707.52	3750	3792.48	(dBm)
15	PI/2 BPSK	1	1	14.08	14.10	13.99	14.50
Channel				647000	650000	653000	Tune-up limit
Frequency (MHz)				3705	3750	3795	(dBm)
10	PI/2 BPSK	1	1	14.12	14.14	14.19	14.50

【FR1 n78 (27Q) _FCC_Part 27Q (3450~3550MHz)_HPUE_Aux_Sensor ON】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					633332		
Frequency (MHz)					3499.98		
100	PI/2 BPSK	1	1		16.91		17.50
100	PI/2 BPSK	1	137		17.03		17.50



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100	PI/2 BPSK	1	271		16.62		17.50
100	PI/2 BPSK	135	0		16.86		17.50
100	PI/2 BPSK	135	69		17.01		17.50
100	PI/2 BPSK	135	138		16.97		17.50
100	PI/2 BPSK	270	0		16.93		17.50
100	QPSK	1	1		16.88		17.50
100	QPSK	1	137		17.00		17.50
100	QPSK	1	271		16.78		17.50
100	QPSK	135	0		17.07		17.50
100	QPSK	135	69		17.06		17.50
100	QPSK	135	138		16.82		17.50
100	QPSK	270	0		16.58		17.50
100	16QAM	1	1		16.92		17.50
100	64QAM	1	1		16.76		17.50
100	256QAM	1	1		17.08		17.50
Channel				633000	633332	633666	Tune-up limit
Frequency (MHz)				3495	3499.98	3504.99	(dBm)
90	PI/2 BPSK	1	1	16.84	16.89	16.86	17.50
Channel				632668	633332	634000	Tune-up limit
Frequency (MHz)				3490.02	3499.98	3510	(dBm)
80	PI/2 BPSK	1	1	16.79	16.80	16.83	17.50
Channel				632334	633332	634332	Tune-up limit
Frequency (MHz)				3485.01	3499.98	3514.98	(dBm)
70	PI/2 BPSK	1	1	16.75	16.87	16.72	17.50
Channel				632000	633332	634666	Tune-up limit
Frequency (MHz)				3480	3499.98	3519.99	(dBm)
60	PI/2 BPSK	1	1	16.76	16.77	16.75	17.50
Channel				631668	633332	635000	Tune-up limit
Frequency (MHz)				3475.02	3499.98	3525	(dBm)
50	PI/2 BPSK	1	1	16.83	16.76	16.80	17.50
Channel				631334	633332	635332	Tune-up limit
Frequency (MHz)				3470.01	3499.98	3529.98	(dBm)
40	PI/2 BPSK	1	1	16.81	16.77	16.85	17.50
Channel				631000	633332	635666	Tune-up limit
Frequency (MHz)				3465	3499.98	3534.99	(dBm)
30	PI/2 BPSK	1	1	16.79	16.84	16.76	17.50
Channel				630668	633332	636000	Tune-up limit
Frequency (MHz)				3460.02	3499.98	3540	(dBm)
20	PI/2 BPSK	1	1	16.87	16.82	16.82	17.50
Channel				630500	633332	636166	Tune-up limit
Frequency (MHz)				3457.5	3499.98	3542.49	(dBm)
15	PI/2 BPSK	1	1	16.81	16.83	16.89	17.50
Channel				630334	633332	636332	Tune-up limit
Frequency (MHz)				3455.01	3499.98	3544.98	(dBm)
10	PI/2 BPSK	1	1	16.76	16.85	16.80	17.50

【FR1 n78 (270) FCC_Part 270 (3700~3800MHz)_HPUE_Aux_Sensor ON】

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					650000		
Frequency (MHz)					3750		
100	PI/2 BPSK	1	1		17.10		17.50
100	PI/2 BPSK	1	137		16.99		17.50
100	PI/2 BPSK	1	271		16.62		17.50
100	PI/2 BPSK	135	0		16.82		17.50
100	PI/2 BPSK	135	69		16.88		17.50
100	PI/2 BPSK	135	138		16.80		17.50
100	PI/2 BPSK	270	0		16.97		17.50
100	QPSK	1	1		17.03		17.50
100	QPSK	1	137		16.82		17.50
100	QPSK	1	271		16.52		17.50
100	QPSK	135	0		16.83		17.50
100	QPSK	135	69		16.72		17.50
100	QPSK	135	138		16.86		17.50
100	QPSK	270	0		16.86		17.50
100	16QAM	1	1		16.69		17.50
100	64QAM	1	1		16.57		17.50
100	256QAM	1	1		16.56		17.50
Channel				649668	650000	650332	Tune-up limit
Frequency (MHz)				3745.02	3750	3754.98	(dBm)
90	PI/2 BPSK	1	1	17.08	17.10	17.01	17.50
Channel				649334	650000	650666	Tune-up limit
Frequency (MHz)				3740.01	3750	3759.99	(dBm)
80	PI/2 BPSK	1	1	16.98	17.09	16.90	17.50



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Channel				649000	650000	651000	Tune-up limit
Frequency (MHz)				3735	3750	3765	(dBm)
70	PI/2 BPSK	1	1	16.96	17.02	16.93	17.50
Channel				648668	650000	651332	Tune-up limit
Frequency (MHz)				3730.02	3750	3769.98	(dBm)
60	PI/2 BPSK	1	1	17.04	17.02	16.99	17.50
Channel				648334	650000	651666	Tune-up limit
Frequency (MHz)				3725.01	3750	3774.99	(dBm)
50	PI/2 BPSK	1	1	17.01	16.97	16.99	17.50
Channel				648000	650000	652000	Tune-up limit
Frequency (MHz)				3720	3750	3780	(dBm)
40	PI/2 BPSK	1	1	17.04	16.97	17.01	17.50
Channel				647668	650000	652332	Tune-up limit
Frequency (MHz)				3715.02	3750	3784.98	(dBm)
30	PI/2 BPSK	1	1	16.98	17.02	17.06	17.50
Channel				647334	650000	652666	Tune-up limit
Frequency (MHz)				3710.01	3750	3789.99	(dBm)
20	PI/2 BPSK	1	1	17.02	17.04	17.09	17.50
Channel				647168	650000	652832	Tune-up limit
Frequency (MHz)				3707.52	3750	3792.48	(dBm)
15	PI/2 BPSK	1	1	17.04	17.07	16.95	17.50
Channel				647000	650000	653000	Tune-up limit
Frequency (MHz)				3705	3750	3795	(dBm)
10	PI/2 BPSK	1	1	17.03	17.06	16.98	17.50

12. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
 - c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - d. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg.

12.1 Body SAR

【WCDMA SAR】

Plot No	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-Up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	MIMO2	Sensor ON	1312	1712.4	Speed	17.45	19.00	1.429	-0.00	0.721	1.030
	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	MIMO2	Sensor ON	1413	1732.6	Speed	17.41	19.00	1.442	0.11	0.642	0.926
01	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	MIMO2	Sensor ON	1513	1752.6	Speed	17.38	19.00	1.452	0.00	0.725	1.053
	WCDMA IV	RMC 12.2Kbps	Bottom Side	22mm	MIMO2	Sensor OFF	1312	1712.4	Speed	23.39	24.00	1.151	-0.01	0.194	0.223

【FR1 SAR】

Plot No	Band	BW	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-Up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	FR1 n41	100M	BPSK	1	1	Bottom Side	0mm	Main	Sensor ON	518598	2592.99	Speed	14.68	15.50	1.208	-0.06	0.519	0.627
	FR1 n41	100M	BPSK	135	69	Bottom Side	0mm	Main	Sensor ON	518598	2592.99	Speed	14.74	15.50	1.191	0.12	0.356	0.424
	FR1 n41	100M	BPSK	1	1	Bottom Side	38mm	Main	Sensor OFF	518598	2592.99	Speed	22.71	24.00	1.346	0.03	0.125	0.168
	FR1 n41	100M	BPSK	135	69	Bottom Side	38mm	Main	Sensor OFF	518598	2592.99	Speed	22.79	24.00	1.321	-0.04	0.046	0.061
	FR1 n41_HPUE	100M	BPSK	1	1	Bottom Side	0mm	Main	Sensor ON	518598	2592.99	Speed	17.65	18.50	1.216	-0.17	0.479	0.582
	FR1 n41	100M	BPSK	1	1	Bottom Side	0mm	Aux	Sensor ON	518598	2592.99	Speed	19.06	19.50	1.107	-0.11	0.845	0.935
	FR1 n41	100M	BPSK	135	69	Bottom Side	0mm	Aux	Sensor ON	518598	2592.99	Speed	19.07	19.50	1.104	-0.03	0.755	0.834
	FR1 n41	100M	BPSK	270	0	Bottom Side	0mm	Aux	Sensor ON	518598	2592.99	Speed	19.10	19.50	1.096	-0.12	0.785	0.860
	FR1 n41	100M	BPSK	1	1	Bottom Side	32mm	Aux	Sensor OFF	518598	2592.99	Speed	22.68	24.00	1.355	0.05	0.094	0.127
	FR1 n41	100M	BPSK	135	69	Bottom Side	32mm	Aux	Sensor OFF	518598	2592.99	Speed	22.78	24.00	1.324	0.14	0.080	0.106
	FR1 n41_HPUE	100M	BPSK	1	1	Bottom Side	0mm	Aux	Sensor ON	518598	2592.99	Speed	21.59	22.50	1.233	-0.06	0.738	0.910
	FR1 n41	100M	BPSK	1	1	Bottom Side	0mm	MIMO1	Sensor OFF	518598	2592.99	Speed	14.74	15.50	1.191	0.08	0.750	0.893
	FR1 n41	100M	BPSK	135	0	Bottom Side	0mm	MIMO1	Sensor OFF	518598	2592.99	Speed	14.87	15.50	1.156	0.07	0.928	1.073
02	FR1 n41	100M	BPSK	270	0	Bottom Side	0mm	MIMO1	Sensor OFF	518598	2592.99	Speed	15.16	15.50	1.081	0.00	1.040	1.124
	FR1 n41_HPUE	100M	BPSK	270	0	Bottom Side	0mm	MIMO1	Sensor OFF	518598	2592.99	Speed	17.86	18.50	1.159	0.06	0.922	1.069
	FR1 n77	100M	BPSK	1	137	Bottom Side	0mm	Aux	Sensor ON	633332	3499.98	Speed	14.39	14.50	1.026	0.08	0.395	0.405
	FR1 n77	100M	BPSK	135	138	Bottom Side	0mm	Aux	Sensor ON	633332	3499.98	Speed	14.37	14.50	1.03	-0.17	0.509	0.524
	FR1 n77	100M	BPSK	1	137	Bottom Side	32mm	Aux	Sensor OFF	633332	3499.98	Speed	23.73	24.00	1.064	-0.03	0.098	0.104
	FR1 n77	100M	BPSK	135	69	Bottom Side	32mm	Aux	Sensor OFF	633332	3499.98	Speed	23.77	24.00	1.054	0.14	0.088	0.093
	FR1 n77_HPUE	100M	BPSK	135	138	Bottom Side	0mm	Aux	Sensor ON	633332	3499.98	Speed	17.20	17.50	1.072	0.11	0.449	0.481
	FR1 n77	100M	BPSK	135	138	Bottom Side	0mm	Aux	Sensor ON	633332	3499.98	ATC	14.37	14.50	1.03	0.02	0.380	0.391
	FR1 n77	100M	BPSK	1	137	Bottom Side	0mm	MIMO1	Sensor OFF	633332	3499.98	Speed	13.64	14.00	1.086	0.03	0.611	0.664
	FR1 n77	100M	BPSK	135	0	Bottom Side	0mm	MIMO1	Sensor OFF	633332	3499.98	Speed	13.61	14.00	1.094	-0.00	0.731	0.800
	FR1 n77	100M	BPSK	270	0	Bottom Side	0mm	MIMO1	Sensor OFF	633332	3499.98	Speed	13.63	14.00	1.089	-0.10	0.725	0.790
	FR1 n77_HPUE	100M	BPSK	135	69	Bottom Side	0mm	MIMO1	Sensor OFF	633332	3499.98	Speed	16.55	17.00	1.109	0.07	0.709	0.786
	FR1 n77	100M	BPSK	135	0	Bottom Side	0mm	MIMO1	Sensor OFF	633332	3499.98	ATC	13.61	14.00	1.094	-0.05	0.721	0.789
	FR1 n77	100M	BPSK	1	137	Bottom Side	0mm	Aux	Sensor ON	656000	3840	Speed	14.39	14.50	1.026	-0.12	0.478	0.490
	FR1 n77	100M	BPSK	135	138	Bottom Side	0mm	Aux	Sensor ON	656000	3840	Speed	14.38	14.50	1.028	0.00	0.616	0.633
	FR1 n77	100M	BPSK	1	137	Bottom Side	32mm	Aux	Sensor OFF	656000	3840	Speed	23.70	24.00	1.072	0.15	0.118	0.126
	FR1 n77	100M	BPSK	135	69	Bottom Side	32mm	Aux	Sensor OFF	656000	3840	Speed	23.74	24.00	1.062	0.12	0.107	0.114
	FR1 n77_HPUE	100M	BPSK	135	138	Bottom Side	0mm	Aux	Sensor ON	656000	3840	Speed	17.22	17.50	1.067	0.10	0.544	0.580
	FR1 n77	100M	BPSK	135	138	Bottom Side	0mm	Aux	Sensor ON	656000	3840	ATC	14.38	14.50	1.028	0.01	0.460	0.473
03	FR1 n77	100M	BPSK	1	137	Bottom Side	0mm	MIMO1	Sensor OFF	656000	3840	Speed	13.51	14.00	1.119	0.00	0.990	1.108
	FR1 n77	100M	BPSK	135	69	Bottom Side	0mm	MIMO1	Sensor OFF	656000	3840	Speed	13.53	14.00	1.114	0.00	0.983	1.095
	FR1 n77	100M	BPSK	270	0	Bottom Side	0mm	MIMO1	Sensor OFF	656000	3840	Speed	13.46	14.00	1.132	0.08	0.975	1.104
	FR1 n77_HPUE	100M	BPSK	1	137	Bottom Side	0mm	MIMO1	Sensor OFF	656000	3840	Speed	16.40	17.00	1.148	-0.13	0.960	1.102
	FR1 n77	100M	BPSK	1	137	Bottom Side	0mm	MIMO1	Sensor OFF	656000	3840	ATC	13.51	14.00	1.119	0.18	0.976	1.092

12.2 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-Up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	Ratio
1st	FR1 n41	100M_BPSK_270_0	Bottom Side	0.0	MIMO1	Sensor OFF	518598	2592.99	Speed	15.16	15.50	1.081	0.00	1.040	1.124	-
2nd	FR1 n41	100M_BPSK_270_0	Bottom Side	0.0	MIMO1	Sensor OFF	518598	2592.99	Speed	15.16	15.50	1.081	0.03	1.020	1.103	1.02
1st	FR1 n77	100M_BPSK_1_137	Bottom Side	0.0	MIMO1	Sensor OFF	656000	3840	Speed	13.51	14.00	1.119	0.00	0.990	1.108	-
2nd	FR1 n77	100M_BPSK_1_137	Bottom Side	0.0	MIMO1	Sensor OFF	656000	3840	Speed	13.51	14.00	1.119	-0.05	0.978	1.094	1.01

General Note:

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

12.3 Power Class 2 and Power Class 3 Linearity

General Note:

This device support Power Class 2 and Power Class 3 operations. Per 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 and FR1 configuration and exposure condition combination, according to the highest time averaged power for 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%

【Body】

FR1 n41_Main	Power Class 3	Power Class 2
Max Tune Up Power (dBm)	15.5	18.5
Reported 1g SAR (W/kg)	0.627	0.582
Duty Cycle (%)	100.0 %	50.0 %
Frame Averaged (mW)	35.48	35.4
Linearity SAR (W/kg)	0.63	
% deviation from Expected Linearity		-6.97 %

FR1 n41_Aux	Power Class 3	Power Class 2
Max Tune Up Power (dBm)	19.5	22.5
Reported 1g SAR (W/kg)	0.935	0.910
Duty Cycle (%)	100.0 %	50.0 %
Frame Averaged (mW)	89.13	88.91
Linearity SAR (W/kg)	0.93	
% deviation from Expected Linearity		-2.43 %

FR1 n41_MIMO1	Power Class 3	Power Class 2
Max Tune Up Power (dBm)	15.5	18.5
Reported 1g SAR (W/kg)	1.124	1.069
Duty Cycle (%)	100.0 %	50.0 %
Frame Averaged (mW)	35.48	35.4
Linearity SAR (W/kg)	1.12	
% deviation from Expected Linearity		-4.68 %

FR1 n77 (27Q)_Aux	Power Class 3	Power Class 2
Max Tune Up Power (dBm)	14.5	17.5
Reported 1g SAR (W/kg)	0.524	0.481
Duty Cycle (%)	100.0 %	50.0 %
Frame Averaged (mW)	28.18	28.12
Linearity SAR (W/kg)	0.52	
% deviation from Expected Linearity		-8.01 %

FR1 n77 (27Q)_MIMO1	Power Class 3	Power Class 2
Max Tune Up Power (dBm)	14.0	17.0
Reported 1g SAR (W/kg)	0.800	0.786
Duty Cycle (%)	100.0 %	50.0 %
Frame Averaged (mW)	25.12	25.06
Linearity SAR (W/kg)	0.80	
% deviation from Expected Linearity		-1.51 %

FR1 n77 (27O)_Aux	Power Class 3	Power Class 2
Max Tune Up Power (dBm)	14.5	17.5
Reported 1g SAR (W/kg)	0.633	0.580
Duty Cycle (%)	100.0 %	50.0 %
Frame Averaged (mW)	28.18	28.12
Linearity SAR (W/kg)	0.63	
% deviation from Expected Linearity		-8.18 %

FR1 n77 (27O)_MIMO1	Power Class 3	Power Class 2
Max Tune Up Power (dBm)	14.0	17.0
Reported 1g SAR (W/kg)	1.108	1.102
Duty Cycle (%)	100.0 %	50.0 %



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Frame Averaged (m/W)	25.12	25.06
Linearity SAR (W/kg)	1.11	
% deviation from Expected Linearity		-0.30 %

13. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Body
1.	WWAN Main + WWAN MIMO2 + WLAN Main	Yes
2.	WWAN Main + WWAN MIMO2 + WLAN Aux	Yes
3.	WWAN Main + WWAN MIMO2 + Bluetooth	Yes
4.	WWAN MIMO1 + WLAN Main	Yes
5.	WWAN MIMO1 + WLAN Aux	Yes
6.	WWAN MIMO1 + Bluetooth	Yes
7.	WWAN Aux + WLAN Main	Yes
8.	WWAN Aux + WLAN Aux	Yes
9.	WWAN Aux + Bluetooth	Yes

General Note:

- The WiFi/BT SAR of 1.59 W/kg was used conservatively for the purpose of simultaneous transmission analysis. For the WLAN main and WLAN Aux Sim-Tx analysis include in WLAN SAR report. In this report only, assessment WWAN to each WLAN/BT antenna.
- The spot check results were not higher than original report no.: FA4D0659, therefore, the Sim-Tx analysis are the same with original report.
- The Scaled SAR summation is calculated based on the same configuration and test position.
- Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - Scalar SAR summation < 1.6W/kg.
 - $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary.
 - Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
 - The SPLSR calculated results please refer to section 14.2.

13.1 Body Exposure Conditions

Exposure Position	0	1	2	3	4	0+1+2	0+1+3	0+1+4	SPLSR	Case No
	Maximum WWAN Main	Maximum WWAN MIMO 2	WLAN Main	WLAN Aux	Bluetooth	Summed	Summed	Summed		
	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)	1g SAR (W/kg)		
Bottom Side at 0mm	0.754	1.194	1.590	1.590	1.590	3.538	3.538	3.538	0.030	Case 1

Exposure Position	1	2	3	4	1+2	1+3	1+4	SPLSR	Case No
	Maximum WWAN MIMO 1	WLAN Main	WLAN Aux	Bluetooth	Summed	Summed	Summed		
	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 Side at 0mm	1.135	1.590	1.590	1.590	2.725	2.725	2.725	0.030	Case 2

Exposure Position	1	2	3	4	1+2	1+3	1+4	SPLSR	Case No
	Maximum WWAN Aux	WLAN Main	WLAN Aux	Bluetooth	Summed	Summed	Summed		
	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 Side at 0mm	0.980	1.590	1.590	1.590	2.570	2.570	2.570	0.020	Case 3

13.2 SPLSR Evaluation and Analysis

General Note:

1. $SPLSR = (SAR_1 + SAR_2)^{1.5} / (\text{min. separation distance, mm})$. If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D/Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 1	Maximum WWAN Main	Bottom Side	0.754	0mm	-94.5	74	-177	220.5	1.95	0.01	Not required
	Maximum WWAN MIMO 2		1.194	0mm	-66	-144.6	-177				
	Maximum WWAN Main	Bottom Side	0.754	0mm				181.0	2.34	0.02	Not required
	WLAN Main		1.59	0mm							
	Maximum WWAN MIMO 2	Bottom Side	1.194	0mm				220.0	2.78	0.02	Not required
	WLAN Main		1.59	0mm							
	Maximum WWAN Main	Bottom Side	0.754	0mm				198.0	2.34	0.02	Not required
	WLAN Aux		1.59	0mm							
	Maximum WWAN MIMO 2	Bottom Side	1.194	0mm				177.0	2.78	0.03	Not required
	WLAN Aux		1.59	0mm							
	Maximum WWAN Main	Bottom Side	0.754	0mm				198.0	2.34	0.02	Not required
	Bluetooth		1.59	0mm							
	Maximum WWAN MIMO 2	Bottom Side	1.194	0mm				177.0	2.78	0.03	Not required
	Bluetooth		1.59	0mm							
Case 2	Maximum WWAN MIMO1	Bottom Side	1.135	0mm				146.0	2.73	0.03	Not required
	WLAN Main		1.59	0mm							
	Maximum WWAN MIMO1	Bottom Side	1.135	0mm				185.0	2.73	0.02	Not required
	WLAN Aux		1.59	0mm							
	Maximum WWAN MIMO1	Bottom Side	1.135	0mm				185.0	2.73	0.02	Not required
	Bluetooth		1.59	0mm							
Case 3	Maximum WWAN Aux	Bottom Side	0.98	0mm				214.0	2.57	0.02	Not required
	WLAN Main		1.59	0mm							
	Maximum WWAN Aux	Bottom Side	0.98	0mm				191.0	2.57	0.02	Not required
	WLAN Aux		1.59	0mm							
	Maximum WWAN Aux	Bottom Side	0.98	0mm				191.0	2.57	0.02	Not required
	Bluetooth		1.59	0mm							

Test Engineer : Luke Lee and Tony Wu

14. Uncertainty Assessment

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

15. 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 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [6] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [7] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [8] FCC KDB 941225 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015
- [9] FCC KDB 616217 D04 v01r02, "SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers", Oct 2015
- [10] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [11] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.