FCC TEST REPORT

Test report
On Behalf of
Lenovo (Beijing) Limited
For
Lenovo Smart Projector
Model No.: LXP200, P200, P200 PLUS

FCC ID: A5M-LXP200

Prepared for :	**Lenovo (Beijing) Limited** **201-H2-6, Floor2, Building 2, No. 6 Shangdi West Road, Haidian District, Beijing, China**
Prepared By :	**Shenzhen HUAK Testing Technology Co., Ltd.** **1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China**
Date of Test:	**Sept. 02, 2021 ~ Sept. 15, 2021**
Date of Report:	**Sept. 15, 2021**
Report Number:	**HK2109023247-3E**

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TEST RESULT CERTIFICATION

Applicant's name.....:	Lenovo (Beijing) Limited
Address .....:	201-H2-6, Floor2, Building 2, No. 6 Shangdi West Road, Haidian District, Beijing, China
Manufacture's Name.....:	Lenovo (Beijing) Limited
Address .....:	201-H2-6, Floor2, Building 2, No. 6 Shangdi West Road, Haidian District, Beijing, China

Product description

Trade Mark:	Lenovo
Product name.....:	Lenovo Smart Projector
Model and/or type reference .:	LXP200, P200, P200 PLUS
Standards.....:	FCC Rules and Regulations Part 15 Subpart E Section 15.407 ANSI C63.10: 2013

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Date of Test.....:	
Date (s) of performance of tests .....:	Sept. 02, 2021 ~ Sept. 15, 2021
Date of Issue.....:	Sept. 15, 2021
Test Result.....:	Pass

Prepared by: Gang Qian

Project Engineer

Reviewed by: Zden Hu

Project Supervisor

Approved by: Jason Zhou

Technical Director

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** Modified History **

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Sept. 15, 2021	Jason Zhou

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1. TEST RESULT SUMMARY

1.1. TEST PROCEDURES AND RESULTS

Requirement	CFR 47 Section	Result
Antenna requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	PASS
Maximum Conducted Output Power	§15.407(a)	PASS
6dB Emission Bandwidth	§15.407(e)	N/A
26dB Emission Bandwidth& 99% Occupied Bandwidth	§15.407(a)	PASS
Power Spectral Density	§15.407(a)	PASS
Band edge	§15.407(b)/15.209/15.205	PASS
Radiated Emission	§15.407(b)/15.209/15.205	PASS
Frequency Stability	§15.407(g)	PASS

Note:

1. PASS: Test item meets the requirement.

2. Fail: Test item does not meet the requirement.

3. N/A: Test case does not apply to the test object.

4. The test result judgment is decided by the limit of test standard.

1.2. Information of the Test Laboratory

Shenzhen HUAK Testing Technology Co., Ltd.
Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Testing Laboratory Authorization：

A2LA Accreditation Code is 4781.01.
FCC Designation Number is CN1229.
Canada IC CAB identifier is CN0045.
CNAS Registration Number is L9589.

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1.3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	±2.71dB
2	RF power, conducted	±0.37dB
3	Spurious emissions, conducted	±0.11dB
4	All emissions, radiated(<1G)	±3.90dB
5	All emissions, radiated(>1G)	±4.28dB
6	Temperature	±0.1°C
7	Humidity	±1.0%

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2. EUT DESCRIPTION

2.1. GENERAL DESCRIPTION OF EUT

Equipment	Lenovo Smart Projector
Model Name	LXP200
Serial No.	P200, P200 PLUS
Trade Mark	Lenovo
Model Difference	All model's the function, software and electric circuit are the same, only with a product color, appearance and model named different. Test sample model: LXP200.
FCC ID	A5M-LXP200
Operation Frequency:	IEEE 802.11a/n/ac(HT20) 5.180GHz-5.240GHz IEEE 802.11n/ac(HT40) 5.190GHz-5.230GHz IEEE 802.11ac(HT80) 5.210GHz
Modulation Technology:	IEEE 802.11a/n/ac
Modulation Type	OFDM
Antenna Type	Internal Antenna
Antenna Gain	Antenna 1:1dBi Antenna 2:1dBi MIMO: 4.01dBi
Power Source	DC 7.6V from battery or DC 12V, 3A from Adapter with AC100-240V 50/60Hz, 1.5A
Power Supply:	DC 7.6V from battery or DC 12V, 3A from Adapter with AC100-240V 50/60Hz, 1.5A
Note: The EUT incorporates a MIMO function. Physically, it provides two completed transmitters and receivers(2T2R), two transmit signals are completely correlated, then, Direction gain= GANT + Array Gain(Array Gain=10 log(2) dB for power spectral density; Array Gain=0 for power measurement)	

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2.2. OPERATION FREQUENCY EACH OF CHANNEL

802.11a/802.11n(HT20) 802.11ac(HT20)		802.11n(HT40)/ 802.11ac(HT40)		802.11ac(HT80)	
Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

2.3. OPERATION OF EUT DURING TESTING

For 802.11a/n (HT20)/ac(HT20)

Band I (5150 - 5250 MHz)		
Channel Number	Channel	Frequency (MHz)
36	Low	5180
40	Mid	5200
48	High	5240

For 802.11n (HT40)/ ac(HT40)

Band I (5150 - 5250 MHz)		
Channel Number	Channel	Frequency (MHz)
38	Low	5190
46	High	5230

For 802.11ac(HT80)

Band I (5150 - 5250 MHz)	
Channel Number	Frequency (MHz)
42	5210

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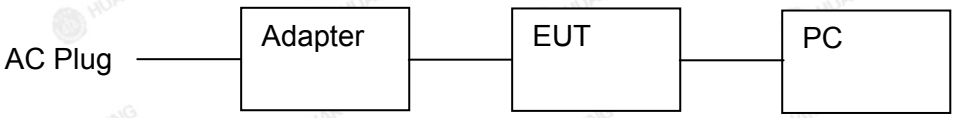
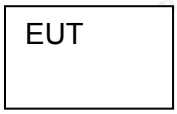
2.4. DESCRIPTION OF TEST SETUP

Operation of EUT during conducted testing and radiation below 1GHz testing:



Operation of EUT during radiation above 1GHz testing:



Adapter information
Model: S-TR-155DCU
Input: 100-240V, 50/60Hz, 1.5A
Output: 5V 3A 15W, 9V 3A 27W, 12V 3A 36W, 15V 3A 45W, 20V 2.25A 45W, 3.3V-16V 2A 6.6-32W
Total Output: 45W Max

PC information
Model: TP00067A
Input: DC20V, 2.25-3.25A
Output: 5VDC, 0.5A

The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations.The emissions worst-case are shown in Test Results of the following pages. The worst case is X position.

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3. GENERA INFORMATION

3.1. TEST ENVIRONMENT AND MODE

Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations(The value of duty cycle is 100%)
The sample was placed 0.8m/1.5m for blow/above 1GHz above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.	

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:	
Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.	
Mode	Data rate
802.11a	6 Mbps
802.11n(HT20)	MCS0
802.11n(HT40)	MCS0
802.11ac(HT20)/ac(HT40)/ac(HT80)	MCS0
Final Test Mode:	
Operation mode:	Keep the EUT in continuous transmitting with modulation

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3.2. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
/	/	/	/	/

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

3. For conducted measurements (Output Power, Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

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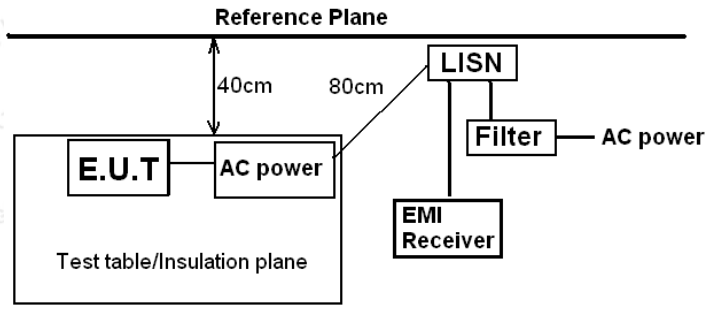
4. TEST RESULTS AND MEASUREMENT DATA

4.1. CONDUCTED EMISSION

4.1.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Frequency Range:	150 kHz to 30 MHz
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto
Limits:	Frequency range (MHz) / Limit (dBuV): Quasi-peak / Average 0.15-0.5: 66 to 56* / 56 to 46* 0.5-5: 56 / 46 5-30: 60 / 50
Test Setup:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*
Test Mode:	Tx Mode
Test Procedure:	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.
Test Result:	PASS

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4.1.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Receiver	R&S	ESCI 7	HKE-010	Dec. 10, 2020	Dec. 09, 2021
LISN	R&S	ENV216	HKE-002	Dec. 10, 2020	Dec. 09, 2021
Coax cable (9KHz-30MHz)	Times	381806-002	N/A	Dec. 10, 2020	Dec. 09, 2021
Conducted test software	Tonscend	TS+ Rev 2.5.0.0	HKE-081	N/A	N/A

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

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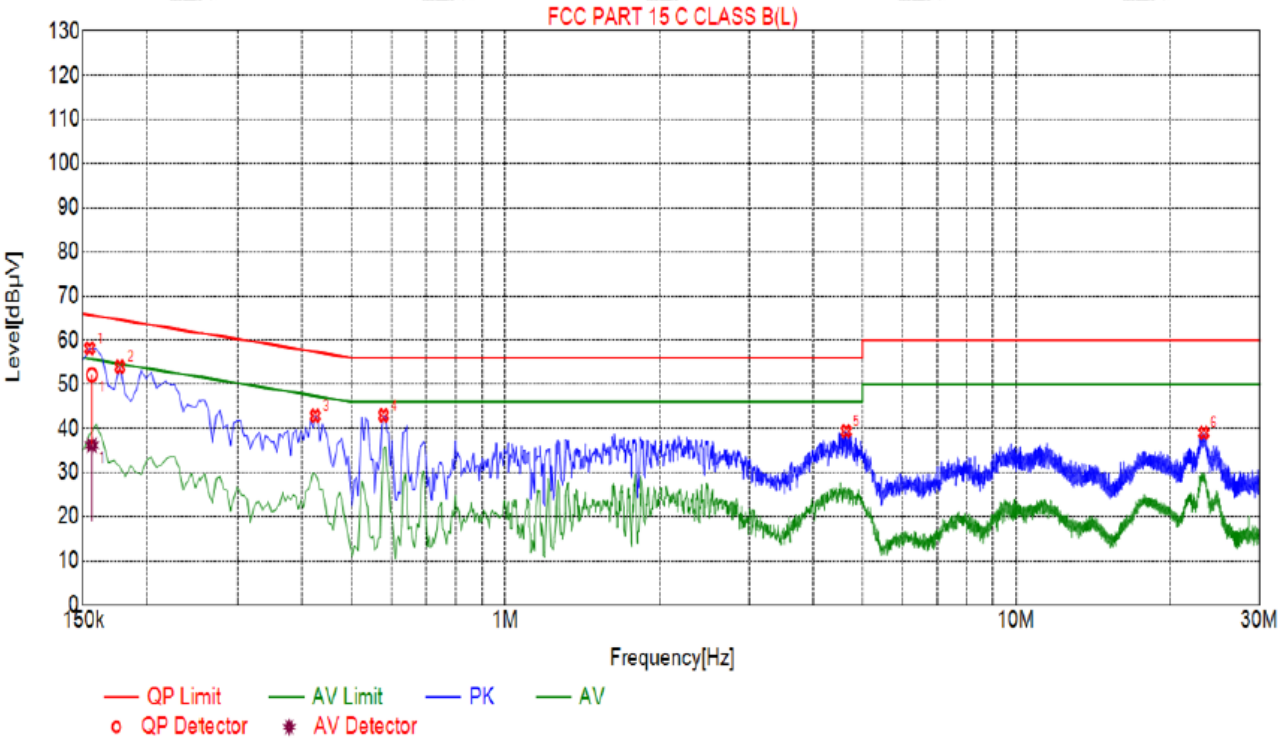
4.1.3. Test data

All the test modes completed for test. only the worst result was reported as below:
Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)



Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1545	58.11	20.03	65.75	7.64	38.08	PK	L
2	0.1770	53.97	20.05	64.63	10.66	33.92	PK	L
3	0.4245	42.86	20.04	57.36	14.50	22.82	PK	L
4	0.5775	42.94	20.05	56.00	13.06	22.89	PK	L
5	4.6455	39.37	20.26	56.00	16.63	19.11	PK	L
6	23.3205	39.00	20.20	60.00	21.00	18.80	PK	L

Final Data List											
NO.	Freq. [MHz]	Correction factor[dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	QP Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	AV Reading [dBµV]	Type
1	0.1560	20.02	52.16	65.67	13.51	32.14	36.20	55.67	19.47	16.18	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

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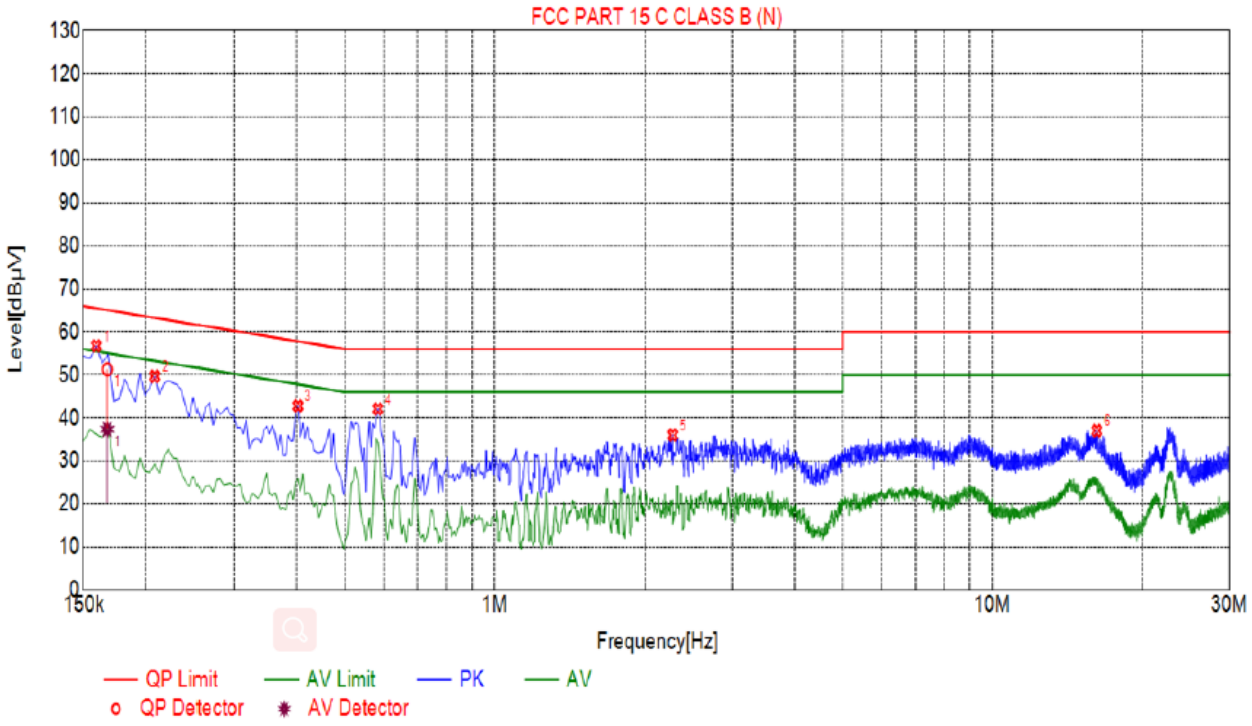
Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)



Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1590	56.76	20.01	65.52	8.76	36.75	PK	N
2	0.2085	49.67	20.04	63.26	13.59	29.63	PK	N
3	0.4020	42.78	20.04	57.81	15.03	22.74	PK	N
4	0.5820	42.08	20.05	56.00	13.92	22.03	PK	N
5	2.2785	36.04	20.18	56.00	19.96	15.86	PK	N
6	16.2150	37.04	19.98	60.00	22.96	17.06	PK	N

Final Data List											
NO.	Freq. [MHz]	Correction factor[dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	QP Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	AV Reading [dBµV]	Type
1	0.1674	20.01	51.31	65.09	13.78	31.30	37.38	55.09	17.71	17.37	N

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

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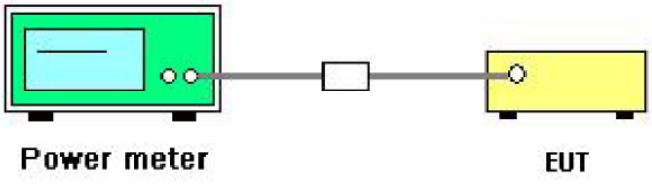
4.2. MAXIMUM CONDUCTED OUTPUT POWER

4.2.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 E Section 15.407(a)</td></tr>
<tr><td>Test Method:</td><td>KDB789033 D02 General UNII Test Procedures New Rules v02.r01 Section E</td></tr>
<tr><td>Limit:</td><td><table><tr><td>Frequency Band (MHz)</td><td>Limit</td></tr><tr><td>5150-5250</td><td>250mW for client devices</td></tr><tr><td>5725-5850</td><td>1 W</td></tr></table></td></tr>
<tr><td>Test Setup:</td><td> 
</td></tr>
<tr><td>Test Mode:</td><td>Transmitting mode with modulation</td></tr>
<tr><td>Test Procedure:</td><td>1. The testing follows the Measurement Procedure of KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section E, 3, a.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
5. Measure the conducted output power and record the results in the test report.</td></tr>
<tr><td>Test Result:</td><td>PASS</td></tr>
<tr><td>Remark:</td><td>Conducted output power= measurement power +10log(1/x) X is duty cycle=1, so 10log(1/1)=0
Conducted output power= measurement power</td></tr>
</table>

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4.2.2. Test Instruments

RF Test Room					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 10, 2020	Dec. 09, 2021
Power meter	Agilent	E4419B	HKE-085	Dec. 10, 2020	Dec. 09, 2021
Power Sensor	Agilent	E9300A	HKE-086	Dec. 10, 2020	Dec. 09, 2021
RF cable	Times	1-40G	HKE-034	Dec. 10, 2020	Dec. 09, 2021
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 10, 2020	Dec. 09, 2021

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

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4.2.3. Test Data

Configuration Band I (5150 - 5250 MHz)						
Mode	Test channel	Maximum Conducted Output Power (dBm)			FCC Limit (dBm)	Result
		Antenna 1	Antenna 2	MIMO		
11a	CH36	12.38	10.67	/	24	PASS
11a	CH40	12.27	11.64	/	24	PASS
11a	CH48	12.54	11.61	/	24	PASS
11n(HT20)	CH36	13.21	11.51	15.45	24	PASS
11n(HT20)	CH40	12.58	11.52	15.09	24	PASS
11n(HT20)	CH48	12.36	11.53	14.98	24	PASS
11n(HT40)	CH38	13.36	11.61	15.58	24	PASS
11n(HT40)	CH46	12.69	11.60	15.19	24	PASS
11ac(HT20)	CH36	13.19	11.53	15.45	24	PASS
11ac(HT20)	CH40	12.56	11.53	15.09	24	PASS
11ac(HT20)	CH48	12.43	11.54	15.02	24	PASS
11ac(HT40)	CH38	12.81	11.71	15.31	24	PASS
11ac(HT40)	CH46	12.73	11.69	15.25	24	PASS
11ac(HT80)	CH42	12.79	11.95	15.40	24	PASS
Note: This product supports antenna 1 and antenna 2 launch, but only support 802.11 n/ac for MIMO mode, not support 802.11 a for MIMO mode.						

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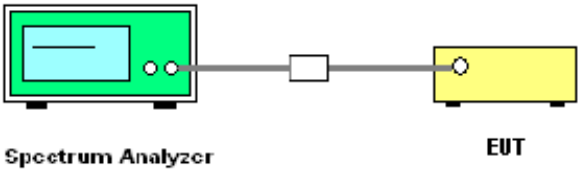
4.3. 6DB EMISSION BANDWIDTH

4.3.1. Test Specification

Test Requirement:	FCC CFR47 Part 15 Section 15.407(e)
Test Method:	KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C
Limit:	>500kHz
Test Setup:	
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. KDB789033 D02 General UNII Test Procedures New Rules v01r04 Section C. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz. 4. Measure and record the results in the test report.
Test Result:	PASS

4.3.2. Test Instruments

RF Test Room					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 10, 2020	Dec. 09, 2021
RF cable	Times	1-40G	HKE-034	Dec. 10, 2020	Dec. 09, 2021
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 10, 2020	Dec. 09, 2021

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

4.3.3. Test data

N/A

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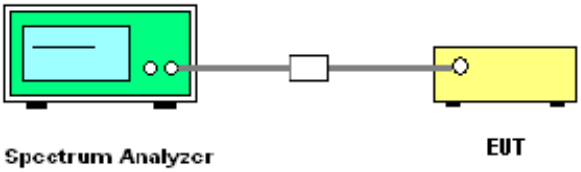
4.4. 26DB BANDWIDTH AND 99% OCCUPIED BANDWIDTH

4.4.1. Test Specification

Test Requirement:	47 CFR Part 15C Section 15.407 (a)
Test Method:	KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C
Limit:	No restriction limits
Test Setup:	
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Make the measurement with the spectrum analyzer's resolution bandwidth RBW = 1% EBW, VBW≥3RBW, In order to make an accurate measurement. 4. Measure and record the results in the test report.
Test Result:	PASS

4.4.2. Test Instruments

RF Test Room					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 10, 2020	Dec. 09, 2021
RF cable	Times	1-40G	HKE-034	Dec. 10, 2020	Dec. 09, 2021
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 10, 2020	Dec. 09, 2021

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

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4.4.3. Test data

Band I
ANT 1

Mode	Test channel	Frequency (MHz)	26 dB Bandwidth (MHz)	Verdict
11a	CH36	5180	20.360	PASS
11a	CH40	5200	20.440	PASS
11a	CH48	5240	20.920	PASS
11n(HT20)	CH36	5180	20.480	PASS
11n(HT20)	CH40	5200	20.680	PASS
11n(HT20)	CH48	5240	20.680	PASS
11n(HT40)	CH38	5190	42.080	PASS
11n(HT40)	CH46	5230	50.400	PASS
11ac(HT20)	CH36	5180	20.560	PASS
11ac(HT20)	CH40	5200	20.520	PASS
11ac(HT20)	CH48	5240	20.800	PASS
11ac(HT40)	CH38	5190	41.200	PASS
11ac(HT40)	CH46	5230	54.400	PASS
11ac(HT80)	CH42	5210	84.320	PASS

Test plots as follows:

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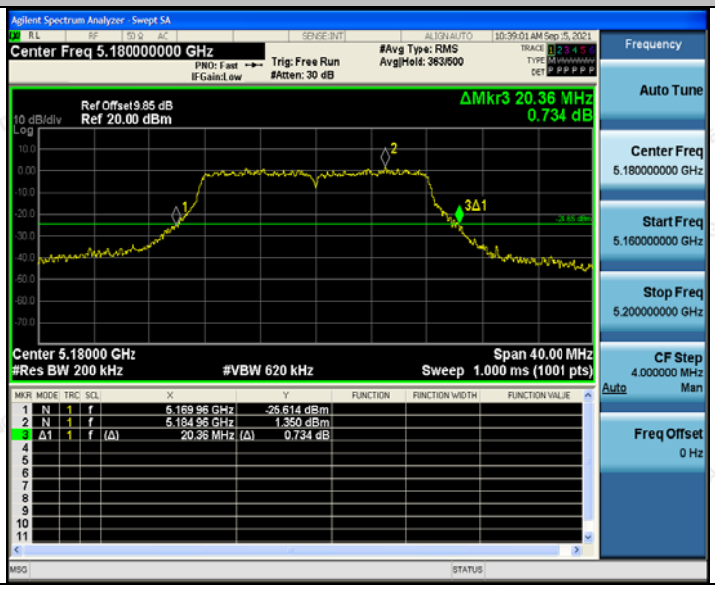
Band I （5150 – 5250 MHz）

802.11a

Low

Mid

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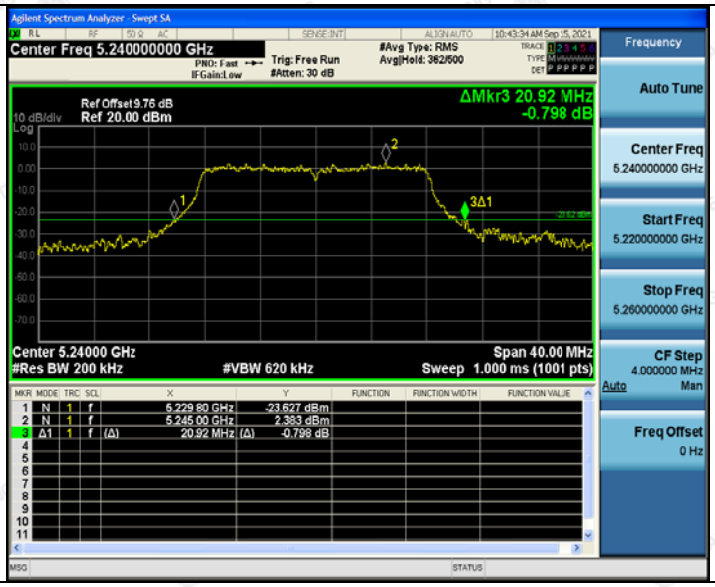

High

802.11n(HT20)

Low

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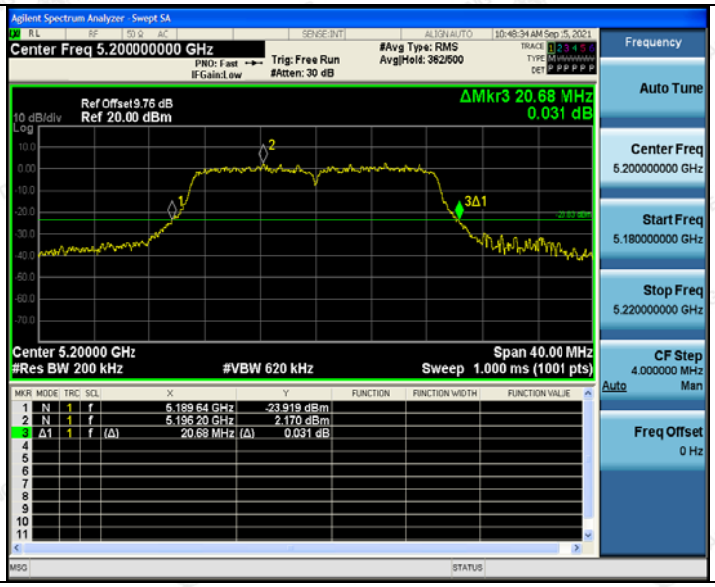
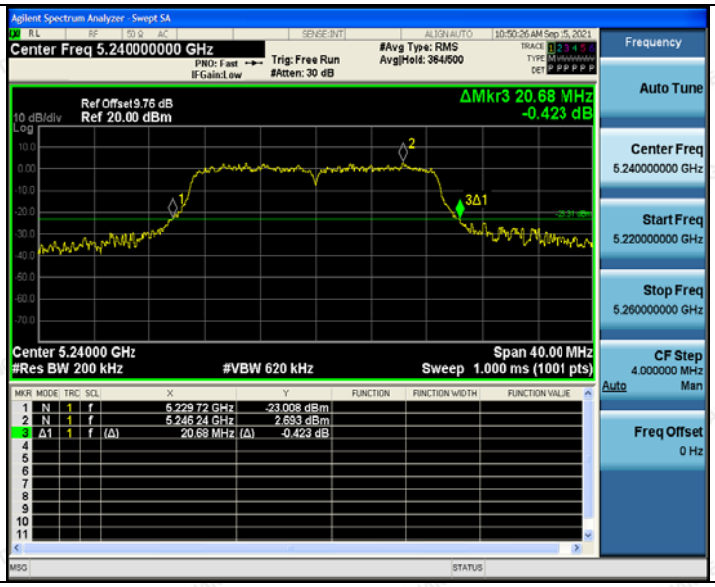


Mid



High

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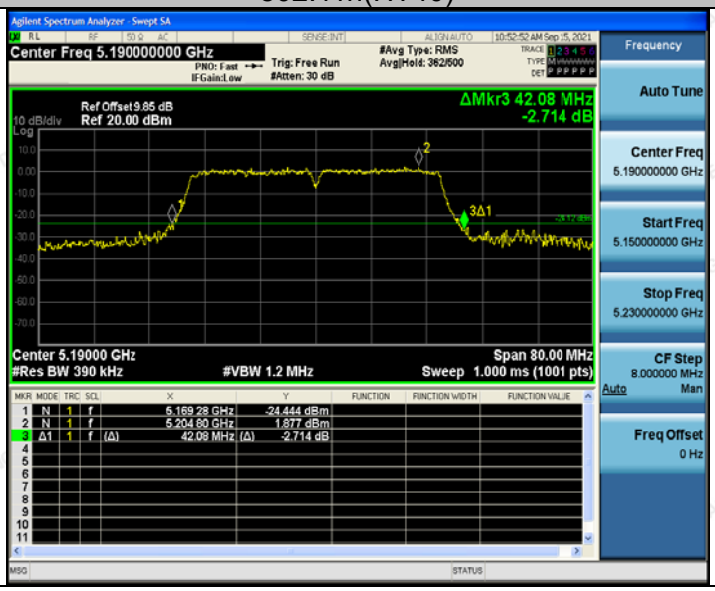
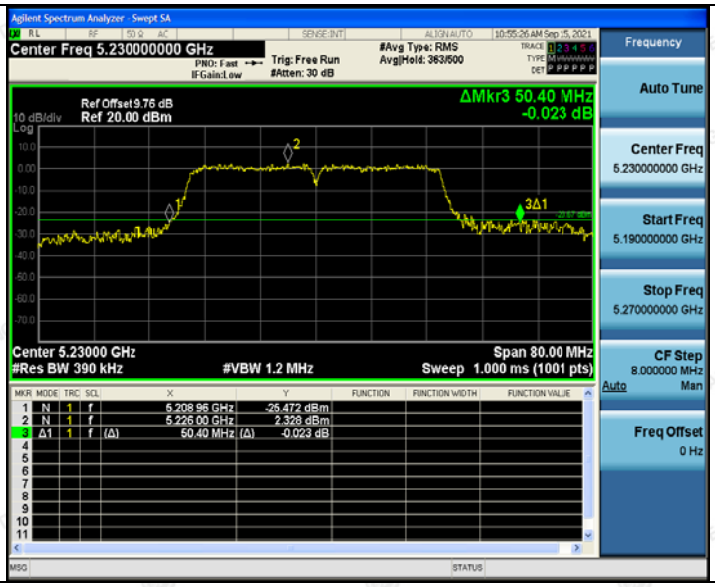
802.11n(HT40)

Low

High

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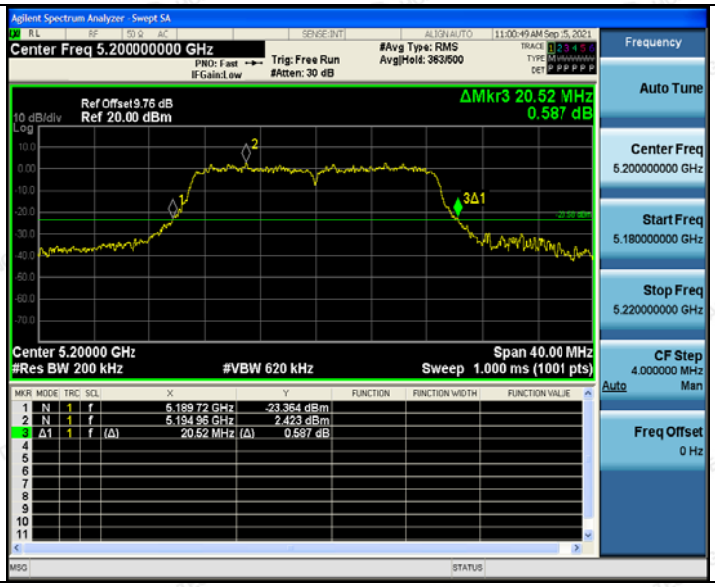
802.11ac(HT20)

Low

Mid

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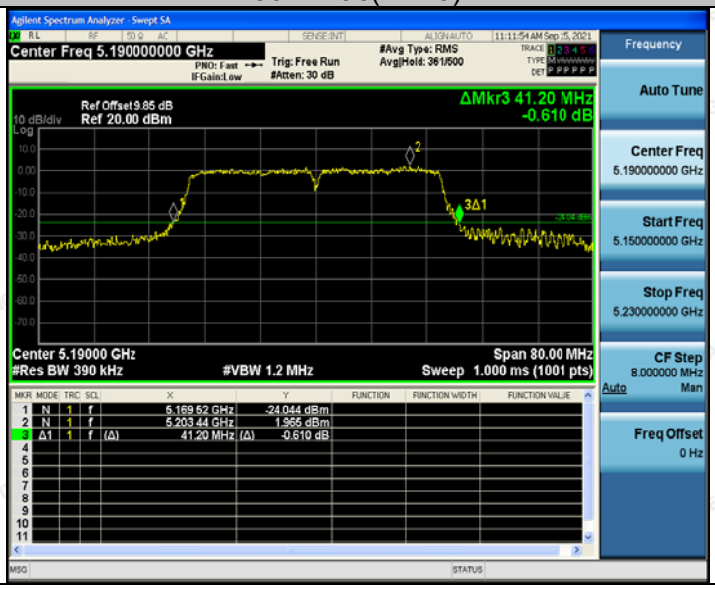
High

802.11ac(HT40)



Low

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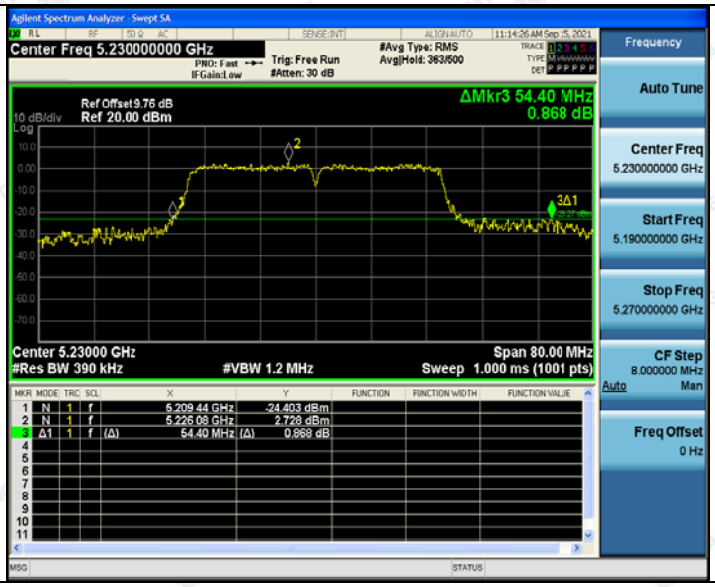
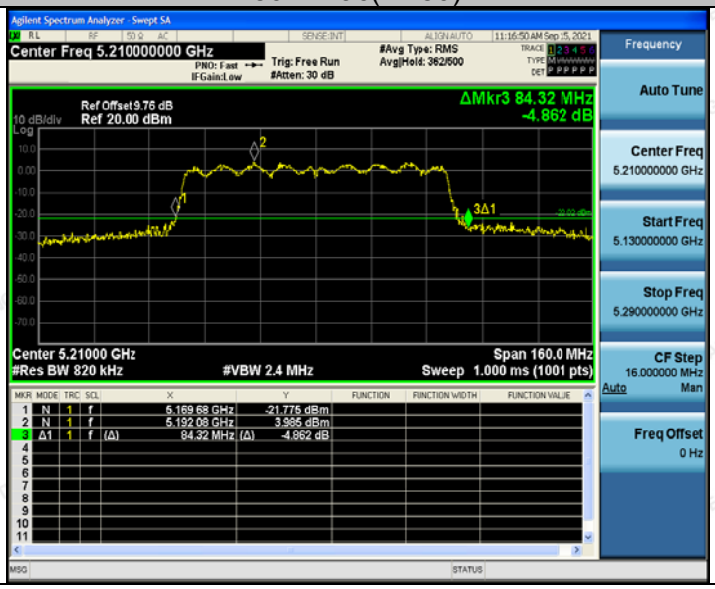


High

802.11ac(HT80)



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ANT 2

Mode	Test channel	Frequency (MHz)	26 dB Bandwidth (MHz)	Verdict
11a	CH36	5180	20.080	PASS
11a	CH40	5200	19.760	PASS
11a	CH48	5240	20.120	PASS
11n(HT20)	CH36	5180	19.720	PASS
11n(HT20)	CH40	5200	20.000	PASS
11n(HT20)	CH48	5240	19.800	PASS
11n(HT40)	CH38	5190	40.240	PASS
11n(HT40)	CH46	5230	40.240	PASS
11ac(HT20)	CH36	5180	19.800	PASS
11ac(HT20)	CH40	5200	19.880	PASS
11ac(HT20)	CH48	5240	19.960	PASS
11ac(HT40)	CH38	5190	40.400	PASS
11ac(HT40)	CH46	5230	40.400	PASS
11ac(HT80)	CH42	5210	81.440	PASS

Test plots as follows:

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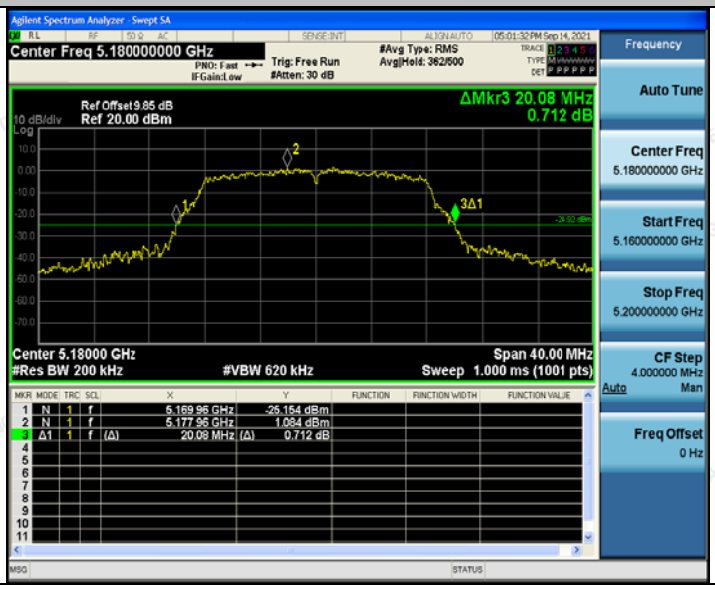
Band I （5150 – 5250 MHz）

802.11a

Low

Mid

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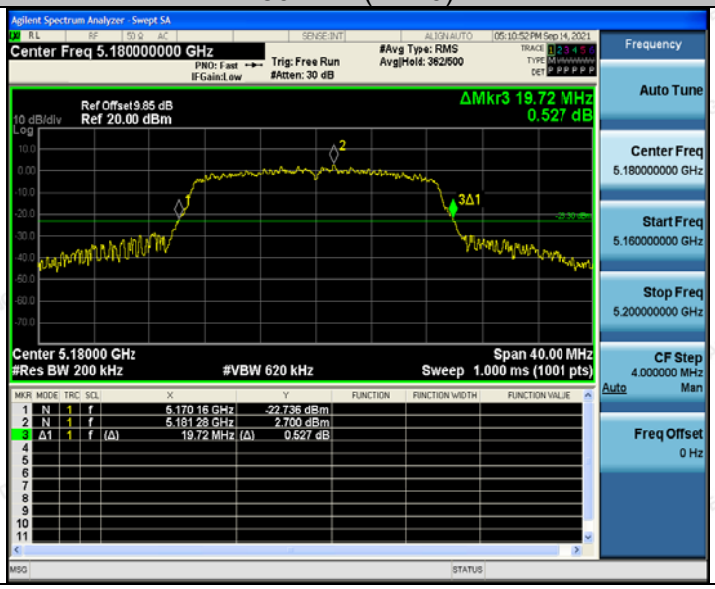
High

802.11n(HT20)



Low

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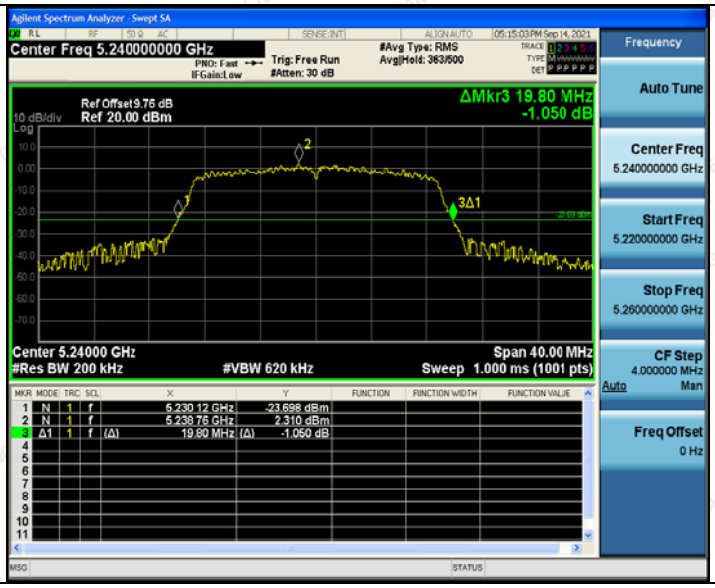
Mid

High

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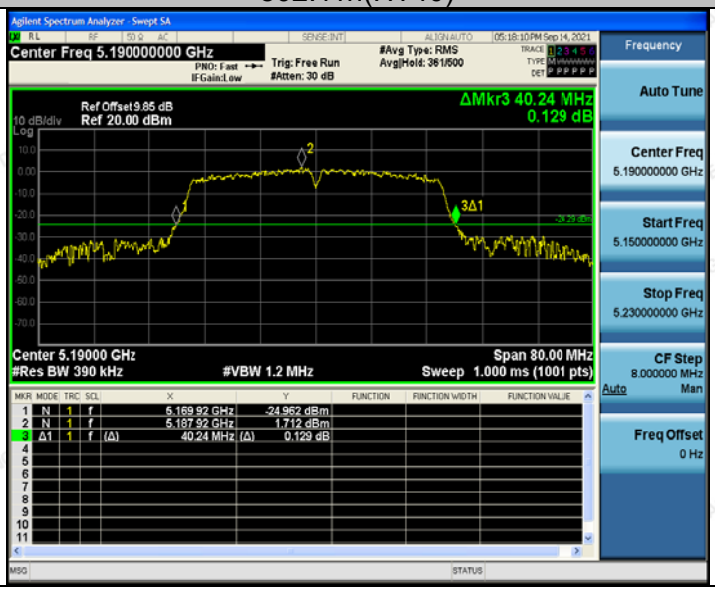
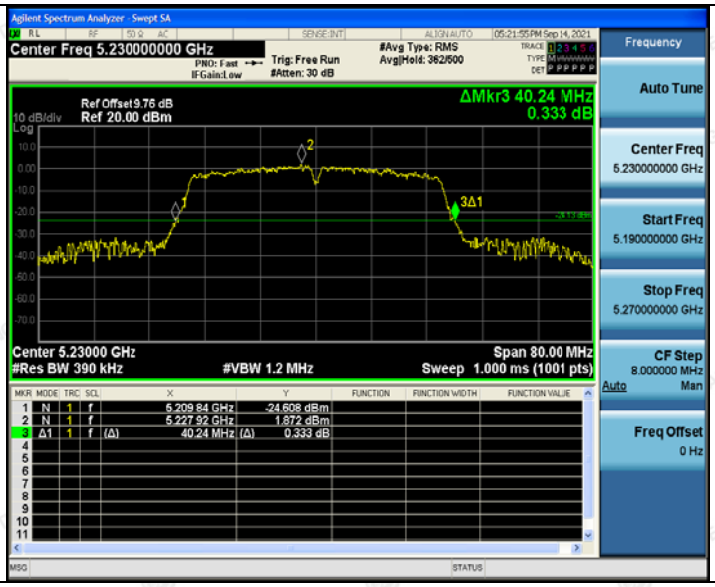
802.11n(HT40)

Low

High

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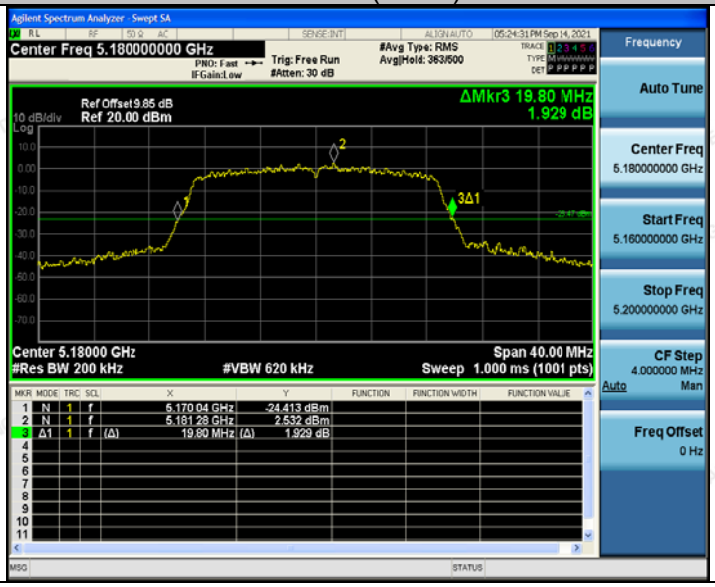
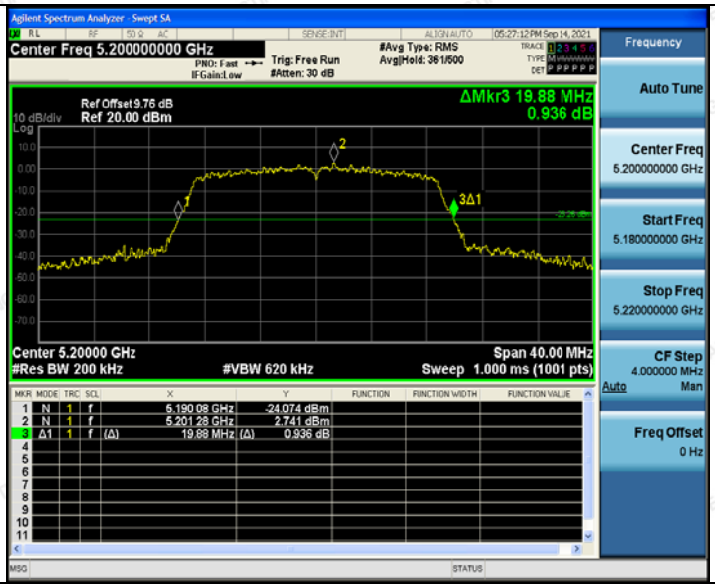
802.11ac(HT20)

Low

Mid

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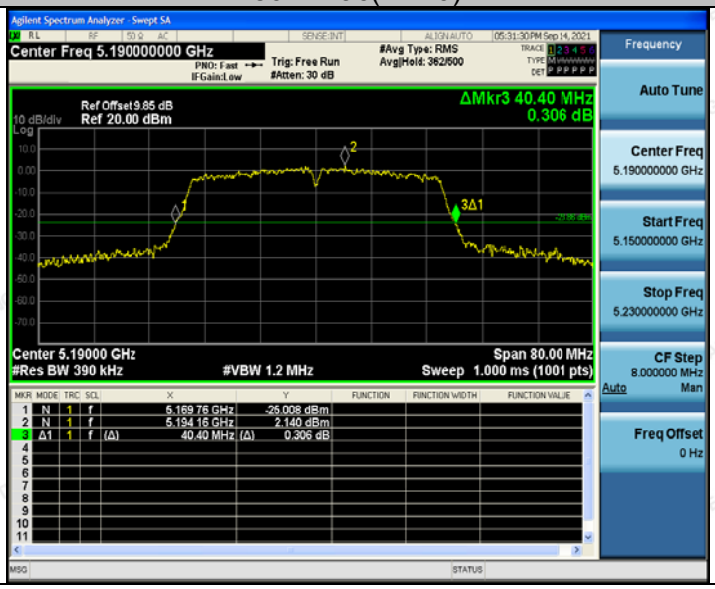
High

802.11ac(HT40)



Low

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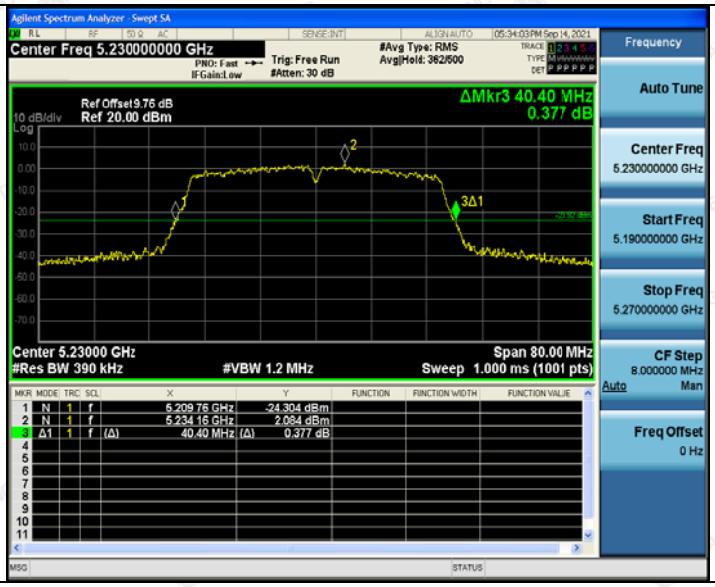

High

802.11ac(HT80)

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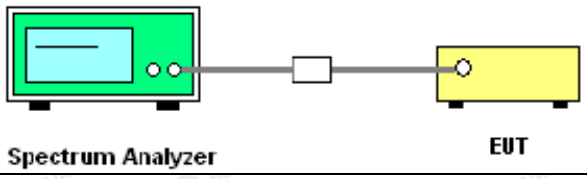
4.5. POWER SPECTRAL DENSITY

4.5.1. Test Specification

Test Requirement:	FCC Part15 E Section 15.407 (a)
Test Method:	KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section F
Limit:	≤11.00dBm/MHz for Band I 5150MHz-5250MHz ≤17dBm/MHz for access device
Test Setup:	
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. Set the spectrum analyzer or EMI receiver span to view the entire emission bandwidth. 1. Set RBW = 1MHz, VBW ≥ 3*RBW, Sweep time = Auto, Detector = RMS. 2. Allow the sweeps to continue until the trace stabilizes. 3. Use the peak marker function to determine the maximum amplitude level. 4. The E.I.R.P spectral density used radiated test method. At a test site that has been validated using the procedures of ANSI C63.4 or the latest CISPR 16-1-4 for measurements above 1 GHz, so as to simulate a near free-space environment.
Test Result:	PASS

4.5.2. Test Instruments

RF Test Room					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 10, 2020	Dec. 09, 2021
RF cable	Times	1-40G	HKE-034	Dec. 10, 2020	Dec. 09, 2021
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 10, 2020	Dec. 09, 2021

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

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4.5.3. Test data

ANT 1

Configuration Band I (5150 - 5250 MHz)

Mode	Test channel	Level [dBm/MHz]	Limit (dBm/MHz)	Result
11a	CH36	7.5	11	PASS
11a	CH40	7.38	11	PASS
11a	CH48	7.62	11	PASS
11n(HT20)	CH36	8.03	11	PASS
11n(HT20)	CH40	7.62	11	PASS
11n(HT20)	CH48	7.43	11	PASS
11n(HT40)	CH38	5.89	11	PASS
11n(HT40)	CH46	4.88	11	PASS
11ac(HT20)	CH36	8.27	11	PASS
11ac(HT20)	CH40	7.71	11	PASS
11ac(HT20)	CH48	7.2	11	PASS
11ac(HT40)	CH38	4.89	11	PASS
11ac(HT40)	CH46	4.97	11	PASS
11ac(HT80)	CH42	3.13	11	PASS

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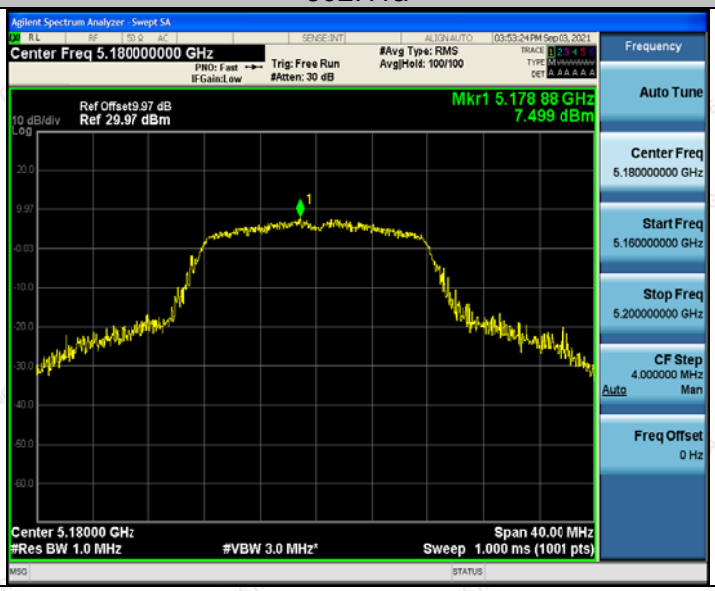
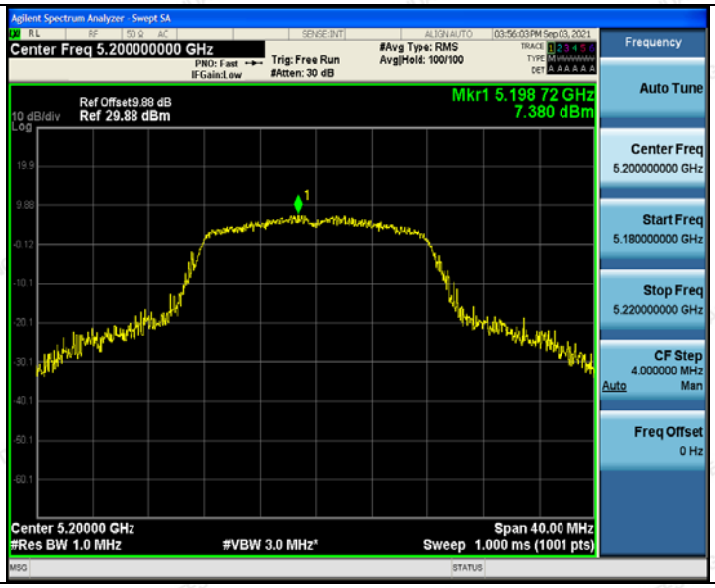
Test plots as follows:

Band I （5150 – 5250 MHz）

802.11a

Low

Mid

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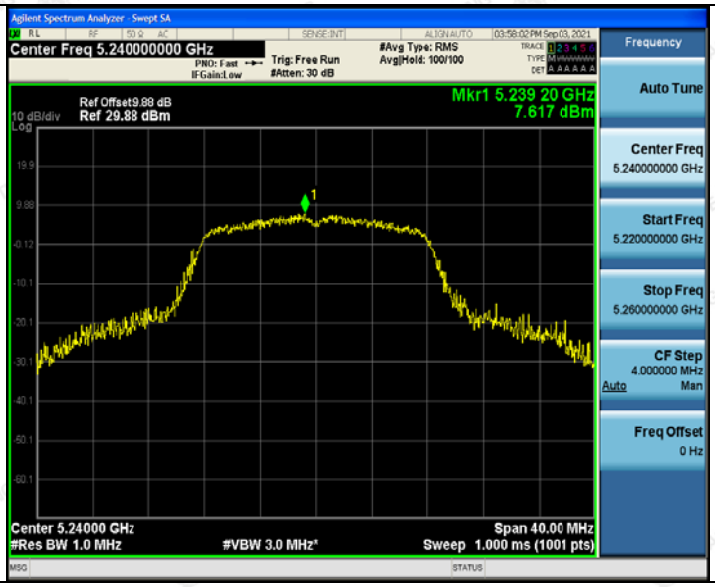

High

802.11n(HT20)

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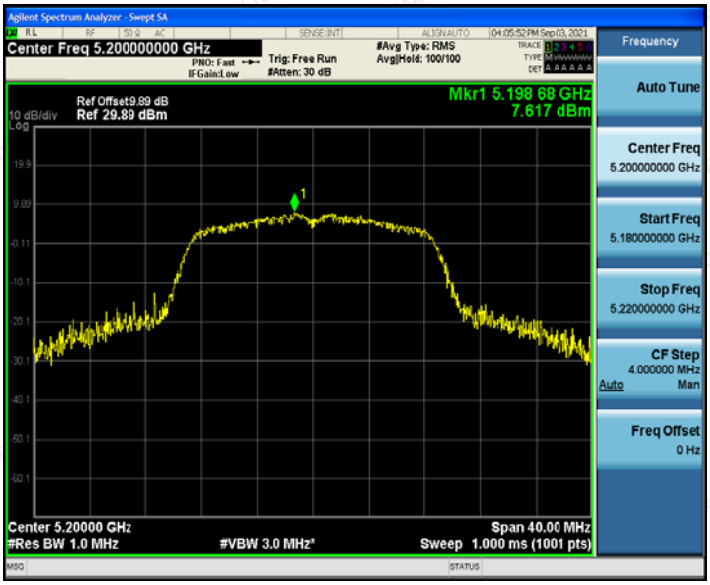
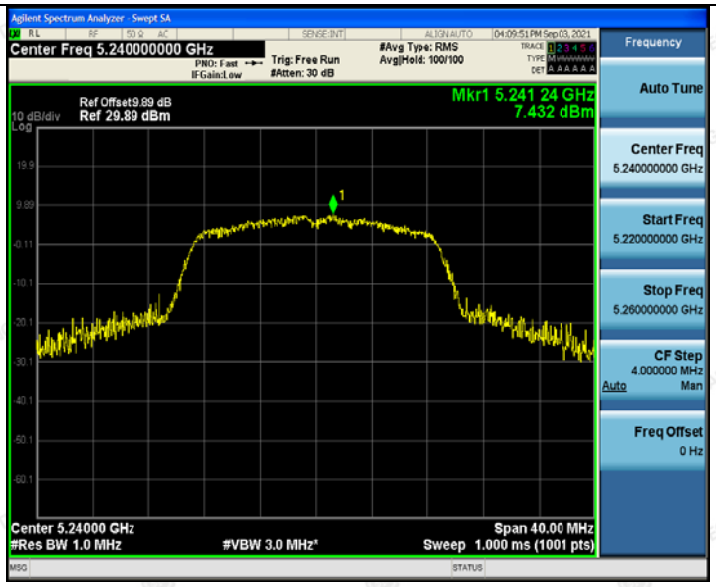
Low



Mid



High

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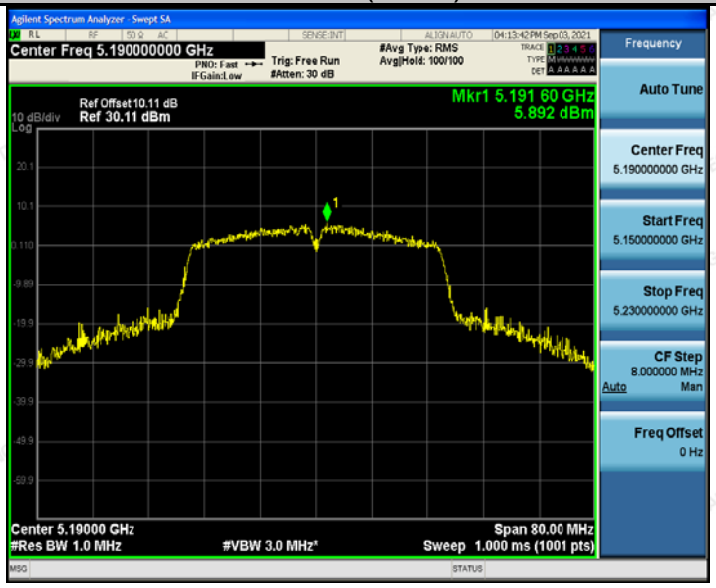
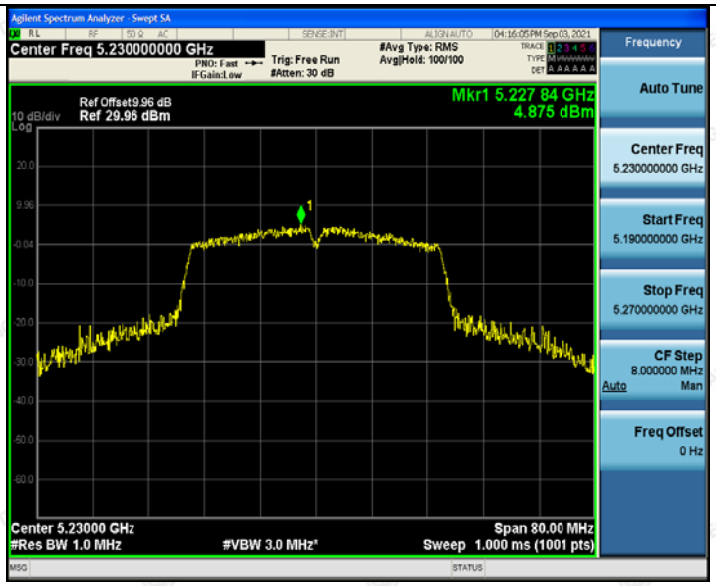
802.11n(HT40)
 Low
 High

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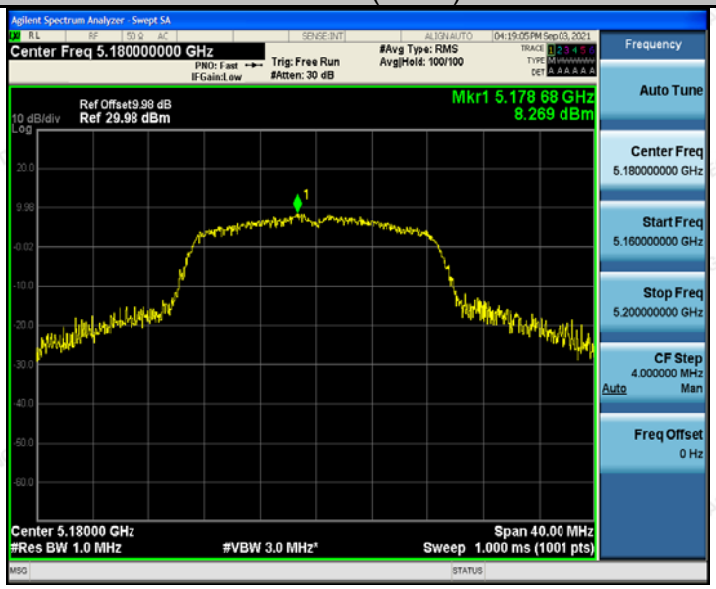
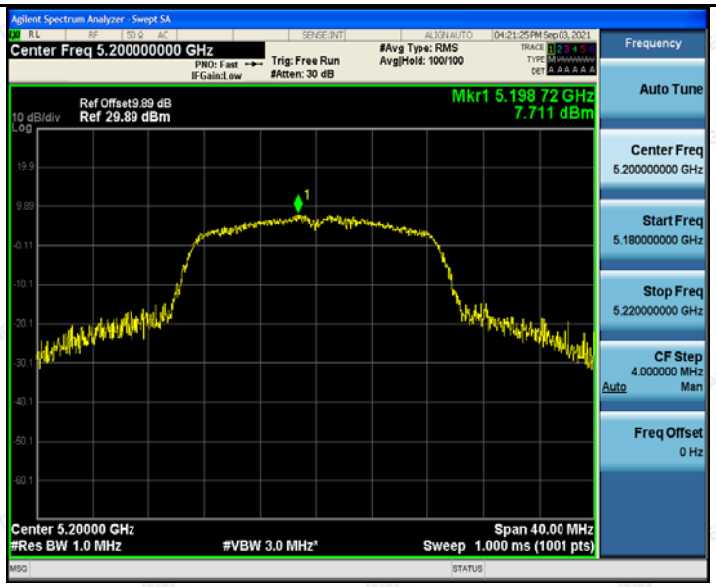
802.11ac(HT20)
 Low
 Mid

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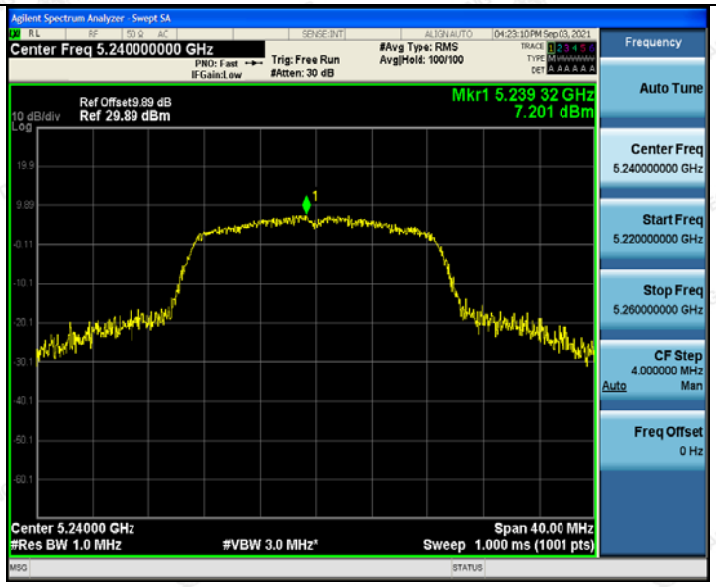
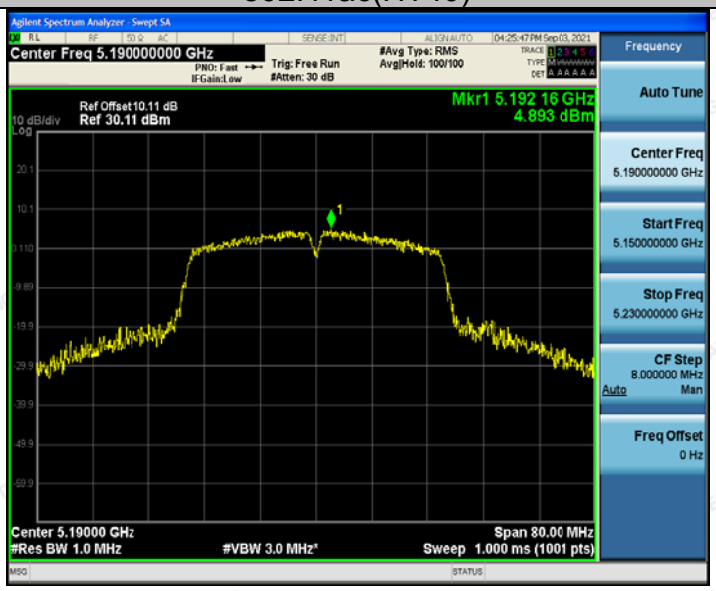


High

802.11ac(HT40)



Low

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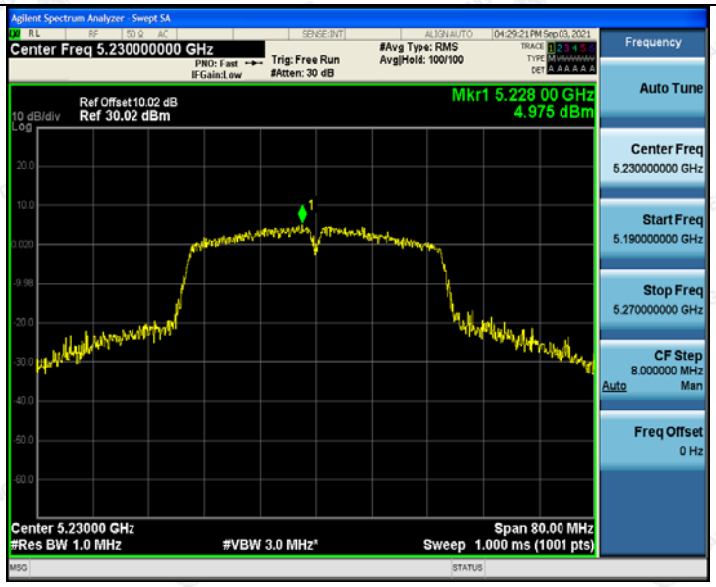

High

802.11ac(HT80)

Low

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ANT 2

Configuration Band I (5150 - 5250 MHz)

Mode	Test channel	Level [dBm/MHz]	Limit (dBm/MHz)	Result
11a	CH36	5.57	11	PASS
11a	CH40	6.67	11	PASS
11a	CH48	6.86	11	PASS
11n(HT20)	CH36	6.5	11	PASS
11n(HT20)	CH40	6.6	11	PASS
11n(HT20)	CH48	6.66	11	PASS
11n(HT40)	CH38	4.19	11	PASS
11n(HT40)	CH46	4.16	11	PASS
11ac(HT20)	CH36	6.69	11	PASS
11ac(HT20)	CH40	6.57	11	PASS
11ac(HT20)	CH48	6.57	11	PASS
11ac(HT40)	CH38	3.86	11	PASS
11ac(HT40)	CH46	3.79	11	PASS
11ac(HT80)	CH42	1.91	11	PASS

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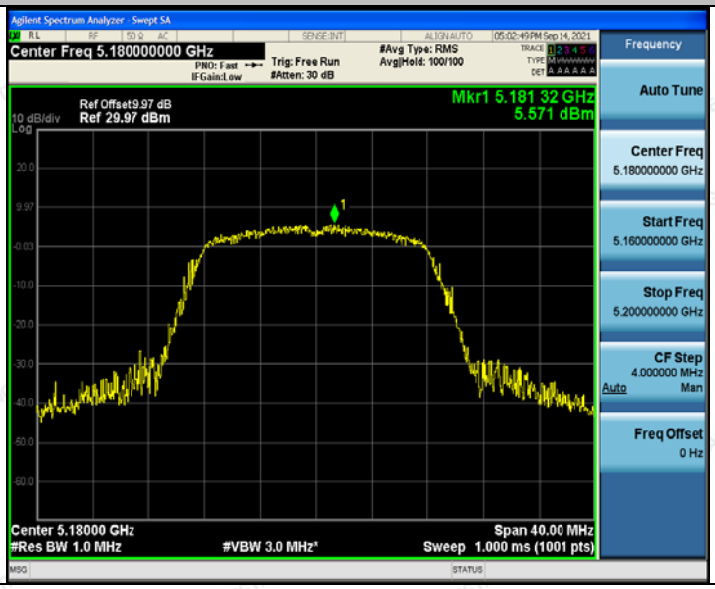
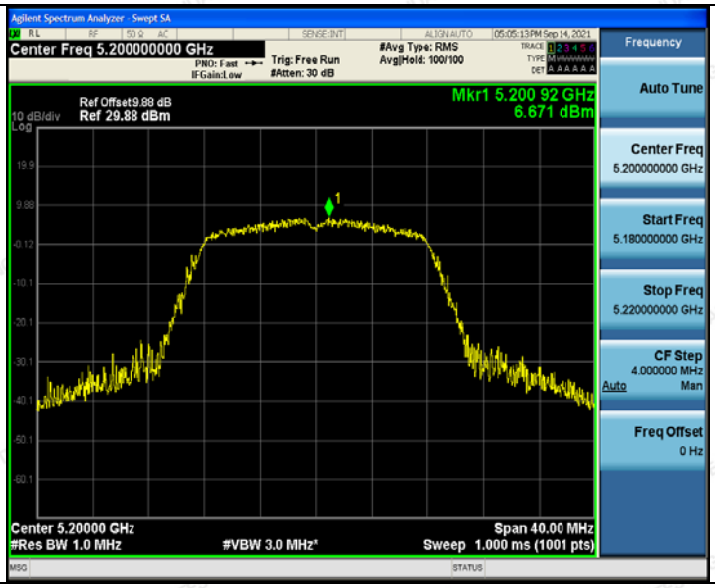
Test plots as follows:
Band I （5150 – 5250 MHz）

802.11a

Low

Mid

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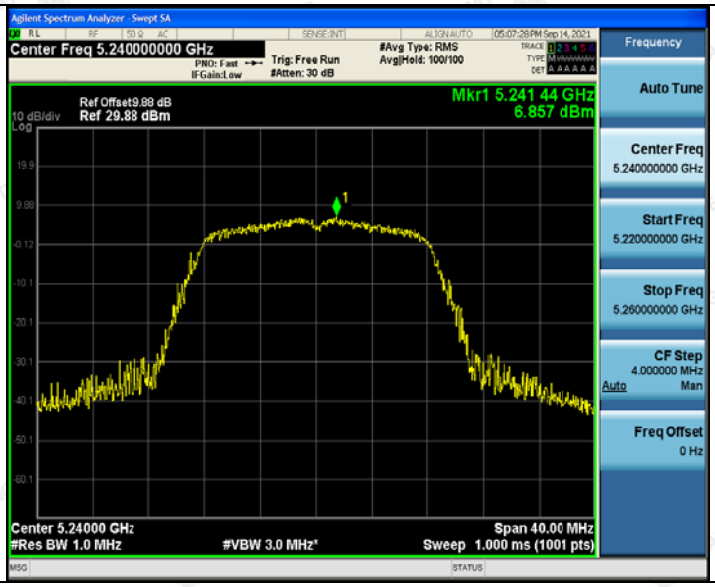
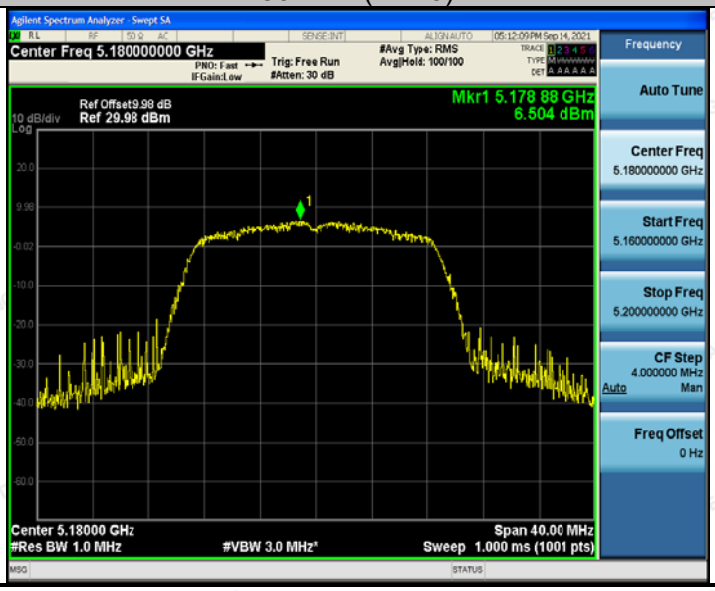


High

802.11n(HT20)



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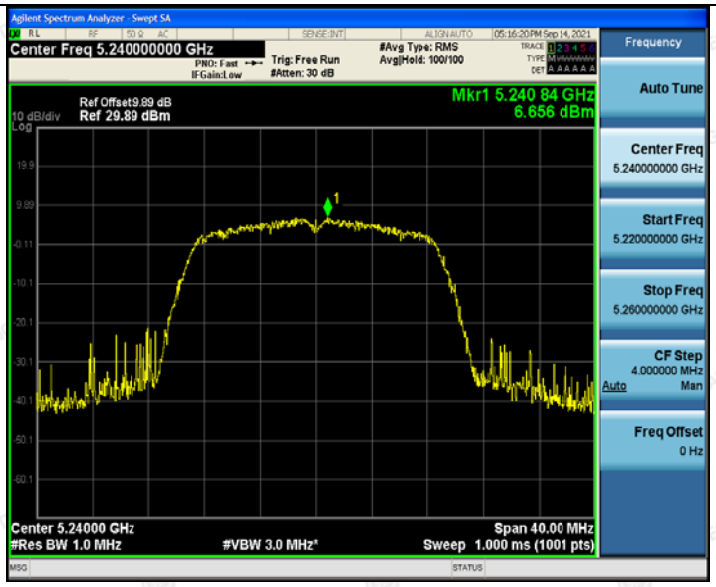
Low

Mid



High

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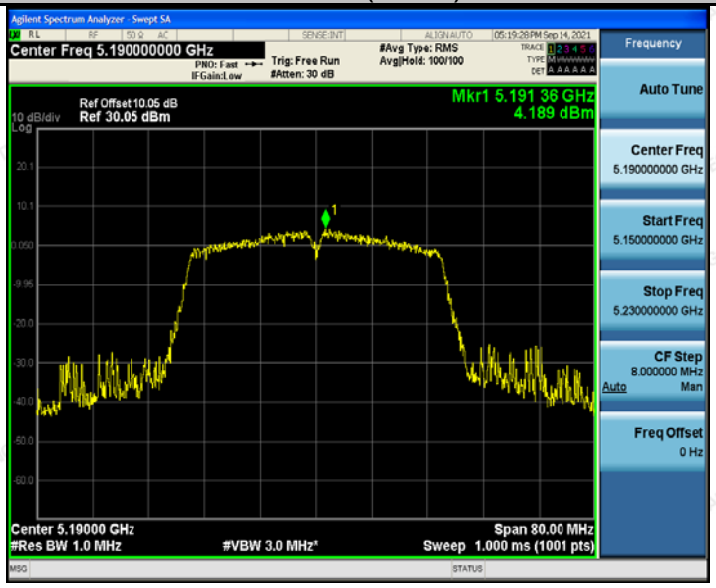
802.11n(HT40)
 Low
 High

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