TEST REPORT

Test report
On Behalf of
PAN-INTERNATIONAL ELECTRONICS (Malaysia) SDN. BHD.
For
Interactive Whiteboard
Model No.: Matrix85YUH, Matrix75YUH, Matrix65YUH
FCC ID: 2AU7C-MATRIX-YUH

Prepared for :	**PAN-INTERNATIONAL ELECTRONICS (Malaysia) SDN. BHD.** **Plot 4, Seberang Jaya Industrial Estate, 13700 Prai, Malaysia.**
Prepared By :	**Shenzhen HUAK Testing Technology Co., Ltd.** **1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China**

Date of Test:	**Nov. 28, 2019 ~ Dec. 04, 2019**
Date of Report:	**Dec. 04, 2019**
Report Number:	**HK1912053106-4E**

TEST RESULT CERTIFICATION

Applicant's name ..... :	PAN-INTERNATIONAL ELECTRONICS (Malaysia) SDN. BHD.
Address..... :	Plot 4, Seberang Jaya Industrial Estate, 13700 Prai, Malaysia.
Manufacture's Name ..... :	SHENZHEN DEVOPS TECHNOLOGY CO., LTD.
Address..... :	8F-B TOWER H CHUANGXINYUNGU, #48 PAOTAI ROAD, GONGMING, GUANGMING NEW DISTRICT, SHENZHEN

Product description

Trade Mark:	E-touch
Product name ..... :	Interactive Whiteboard
Model and/or type reference . :	Matrix85YUH, Matrix75YUH, Matrix65YUH
Standards ..... :	FCC Rules and Regulations Part 15 Subpart C Section 15.407 ANSI C63.10: 2013

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Date of Test..... :

Date (s) of performance of tests..... :	Nov. 28, 2019 ~ Dec. 04, 2019
Date of Issue..... :	Dec. 04, 2019
Test Result..... :	Pass

Prepared by: Gary Qian

Project Engineer

Reviewed by: Leo Zhang

Project Supervisor

Approved by: James Zhou

Technical Director

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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) §2.1046	PASS
6dB Emission Bandwidth	§15.407(e)	PASS
26dB Emission Bandwidth& 99% Occupied Bandwidth	§15.407(a) §2.1049	PASS
Power Spectral Density	§15.407(a)	PASS
Band edge	§15.407(a)	PASS
Radiated Emission	§15.407(a) §2.1053	PASS
Frequency Stability	§15.407(g) §2.1055	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. TEST FACILITY

Test Firm : Shenzhen HUAK Testing Technology Co., Ltd.

Address 1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China

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	±2.56dB
2	RF power, conducted	±0.12dB
3	Spurious emissions, conducted	±0.11dB
4	All emissions, radiated(<1G)	±3.92dB
5	All emissions, radiated(>1G)	±4.28dB
6	Temperature	±0.1°C
7	Humidity	±1.0%

2. EUT Description

2.1. GENERAL DESCRIPTION OF EUT

Equipment	Interactive Whiteboard
Model Name	Matrix85YUH
Serial No.	Matrix75YUH, Matrix65YUH
Trade Mark	E-touch
Model Difference	All model's the function, software and electric circuit are the same, only with a product size and model named different. Test sample model: Matrix85YUH
FCC ID	2AU7C-MATRIX-YUH
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
	IEEE 802.11a/n/ac(HT20)5.745GHz-5.825GHz IEEE 802.11n/ac(HT40)5.755GHz-5.795GHz IEEE 802.11ac(HT80) 5.775GHz
Modulation Technology:	IEEE 802.11a/n/ac
Modulation Type	CCK/OFDM/DBPSK/DAPSK
Antenna Type	ANT1: External Antenna （non-detachable） ANT2: External Antenna （non-detachable） 802.11a: SISO 802.11n/ac(HT20): MIMO 802.11n/ac(HT40): MIMO 802.11ac(HT80): MIMO
Antenna gain per antenna	1dBi
Power Source	AC 100-240V~50/60Hz
Power Supply:	AC100-240V~50/60Hz

Remark：Antenna directional gain=1+10log2=4.01dBi

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	155	5775
44	5220	151	5755		
48	5240	159	5795		
149	5745				
153	5765				
157	5785				
161	5805				
165	5825				

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)			Band IV (5725 - 5850 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
36	Low	5180	149	Low	5745
40	Mid	5200	157	Mid	5785
48	High	5240	165	High	5825

For 802.11n (HT40)/ ac(HT40)

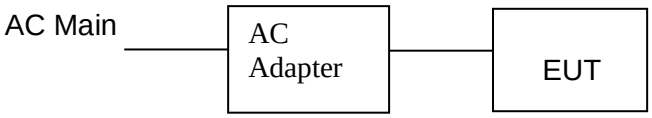
Band I (5150 - 5250 MHz)			Band IV (5725 - 5850 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
38	Low	5190	151	Low	5755
46	High	5230	159	High	5795

For 802.11ac(HT80)

Band I (5150 - 5250 MHz)		Band IV (5725 - 5850 MHz)	
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
42	5210	155	5775

2.4. DESCRIPTION OF TEST SETUP

Operation of EUT during conducted testing and Radiation and Above1GHz Radiation testing:



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)	/
Final Test Mode:	
Operation mode:	Keep the EUT in continuous transmitting with modulation

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
Monitor	SE2417HGC	CE2417HG	/	DELL

Note:

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

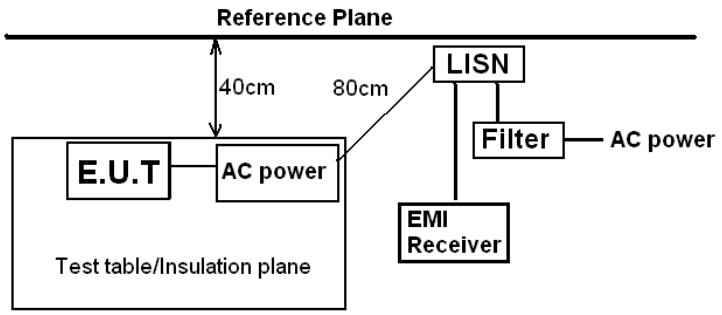
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

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.

4. Test Results and Measurement Data

4.1. Conducted Emission

4.1.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Frequency Range:</td><td>150 kHz to 30 MHz</td></tr>
<tr><td>Receiver setup:</td><td>RBW=9 kHz, VBW=30 kHz, Sweep time=auto</td></tr>
<tr><td>Limits:</td><td>
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
</td></tr>
<tr><td>Test Setup:</td><td>


Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m
</td></tr>
<tr><td>Test Mode:</td><td>Tx Mode</td></tr>
<tr><td>Test Procedure:</td><td>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.</td></tr>
<tr><td>Test Result:</td><td>PASS</td></tr>
</table>

4.1.2. Test Instruments

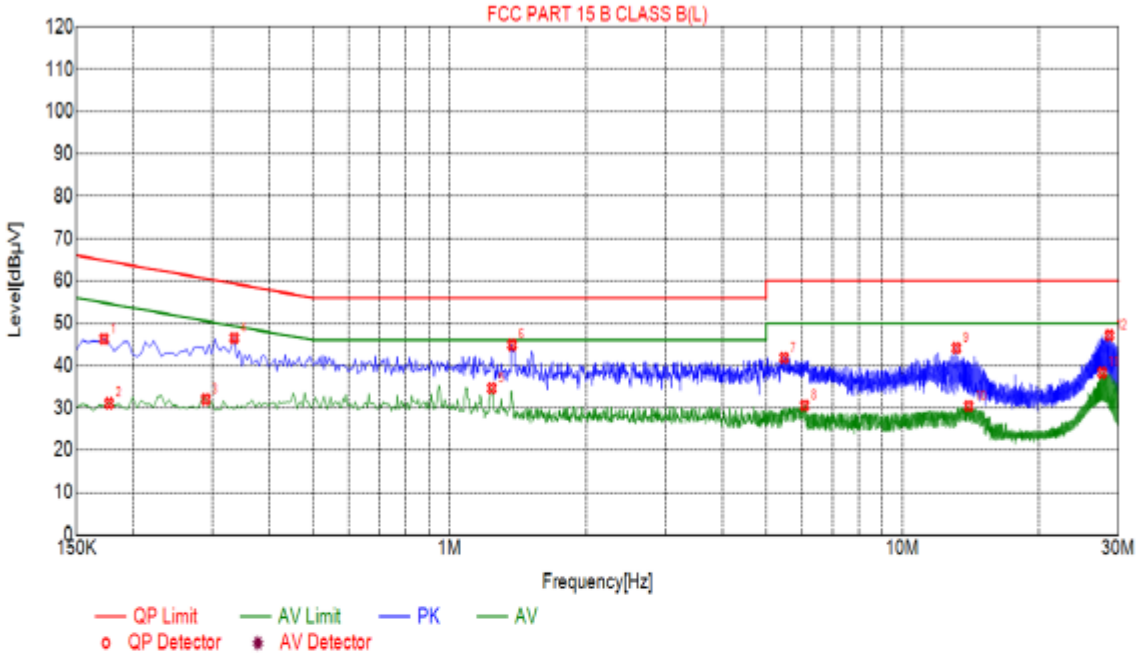
Conducted Emission Shielding Room Test Site (843)				
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Receiver	R&S	ESCI 7	HKE-010	Dec. 27, 2020
LISN	R&S	ENV216	HKE-002	Dec. 27, 2020
Coax cable (9KHz-30MHz)	Times	381806-002	N/A	Dec. 27, 2020
Conducted test software	Tonscend	TS+ Rev 2.5.0.0	HKE-081	N/A

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

Test data
ANT1 worst case
Remark: We tested three Channels in AC 120V/60Hz and AC 240V/60Hz, the worst case was recorded.

Please refer to following diagram for individual

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



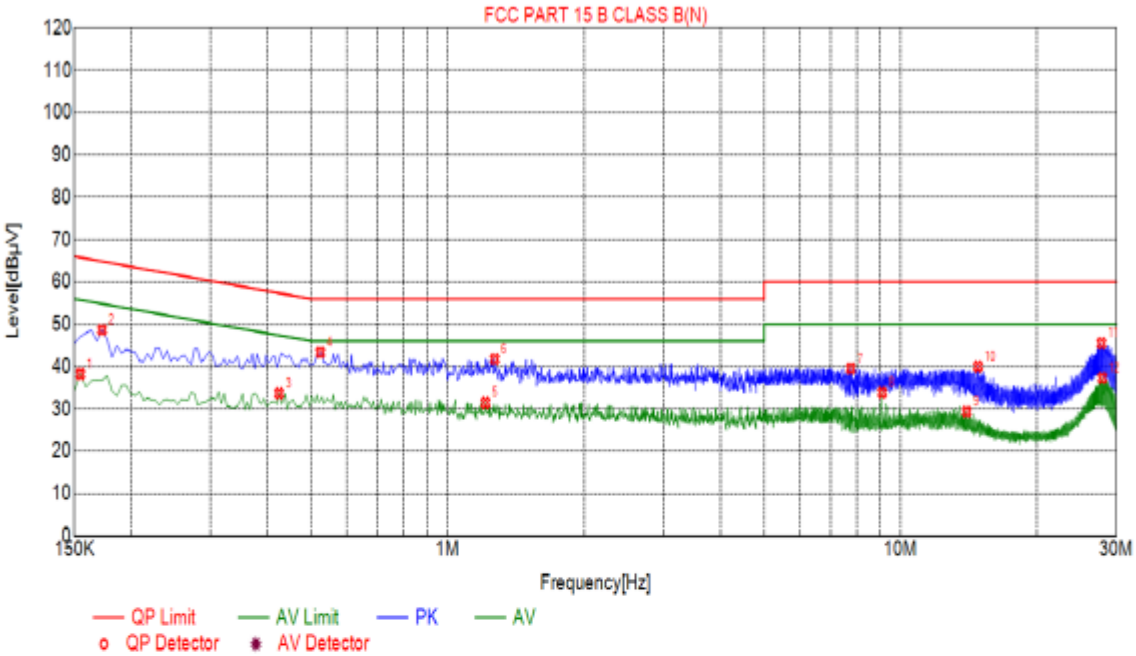
Suspected List						
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Detector
1	0.1725	46.34	10.04	64.84	18.50	PK
2	0.1770	31.11	10.05	54.63	23.52	AV
3	0.2895	32.01	10.03	50.54	18.53	AV
4	0.3345	46.53	10.04	59.34	12.81	PK
5	1.2390	34.65	10.09	46.00	11.35	AV
6	1.3740	44.90	10.11	56.00	11.10	PK
7	5.4780	41.86	10.28	60.00	18.14	PK
8	6.0810	30.58	10.23	50.00	19.42	AV
9	13.1550	44.18	9.96	60.00	15.82	PK
10	14.0055	30.43	9.96	50.00	19.57	AV
11	27.6045	38.33	10.28	50.00	11.67	AV
12	28.6440	47.12	10.28	60.00	12.88	PK

Remark: Transd = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Cable Loss*
4. *If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.*

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]	Detector
1	0.1545	38.24	10.03	55.75	17.51	AV
2	0.1725	48.70	10.04	64.84	16.14	PK
3	0.4245	33.67	10.04	47.36	13.69	AV
4	0.5235	43.35	10.04	56.00	12.65	PK
5	1.2120	31.43	10.09	46.00	14.57	AV
6	1.2705	41.78	10.09	56.00	14.22	PK
7	7.7685	39.55	10.16	60.00	20.45	PK
8	9.1140	33.84	10.11	50.00	16.16	AV
9	14.0010	29.37	9.96	50.00	20.63	AV
10	14.8380	40.01	9.95	60.00	19.99	PK
11	27.7890	45.48	10.26	60.00	14.52	PK
12	27.9195	37.34	10.26	50.00	12.66	AV

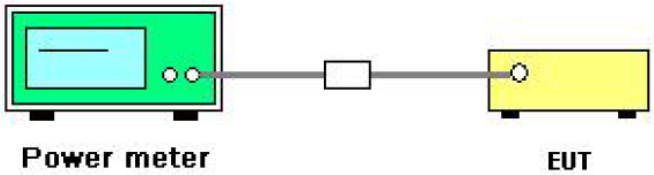
Remark: Transd = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Cable Loss.*
4. *If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.*

4.2. Maximum Conducted Output Power

4.2.1. Test Specification

Test Requirement:	FCC Part15 E Section 15.407(a)& Part 2 J Section 2.1046
Test Method:	KDB789033 D02 General UNII Test Procedures New Rules v02.r01 Section E
Limit:	Frequency Band (MHz) / Limit 5150-5250 / 250mW for client devices 5725-5850 / 1 W
Test Setup:	
Test Mode:	Transmitting mode with modulation
Test Procedure:	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.
Test Result:	PASS
Remark:	Conducted output power= measurement power +10log(1/x) X is duty cycle=1, so 10log(1/1)=0 Conducted output power= measurement power

4.2.2. Test Instruments

RF Test Room				
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 27, 2020
Power meter	Agilent	E4419B	HKE-085	Dec. 27, 2020
Power Sensor	Agilent	E9300A	HKE-086	Dec. 27, 2020
RF cable	Times	1-40G	HKE-034	Dec. 27, 2020
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 27, 2020

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

4.2.3. Test Data

ANT1

Configuration Band I (5150 - 5250 MHz)				
Mode	Test channel	Maximum Conducted Output Power (dBm)	FCC Limit (dBm)	Result
11a	CH36	14.65	24	PASS
11a	CH40	14.288	24	PASS
11a	CH48	14.509	24	PASS
11n(HT20)	CH36	13.78	24	PASS
11n(HT20)	CH40	14.296	24	PASS
11n(HT20)	CH48	13.885	24	PASS
11n(HT40)	CH38	12.114	24	PASS
11n(HT40)	CH46	11.96	24	PASS
11ac(HT20)	CH36	14.517	24	PASS
11ac(HT20)	CH40	14.254	24	PASS
11ac(HT20)	CH48	14.334	24	PASS
11ac(HT40)	CH38	12.419	24	PASS
11ac(HT40)	CH46	12.023	24	PASS
11ac(HT80)	CH42	10.965	24	PASS

Configuration Band IV (5725 - 5850 MHz)				
Mode	Test channel	Maximum Conducted Output Power (dBm)	FCC Limit (dBm)	Result
11a	CH149	14.291	30	PASS
11a	CH157	14.181	30	PASS
11a	CH165	15.445	30	PASS
11n (HT20)	CH149	14.227	30	PASS
11n (HT20)	CH157	13.796	30	PASS
11n (HT20)	CH165	15.668	30	PASS
11n (HT40)	CH151	12.492	30	PASS
11n (HT40)	CH159	11.653	30	PASS
11ac(HT20)	CH149	14.358	30	PASS
11ac(HT20)	CH157	14.178	30	PASS
11ac(HT20)	CH165	15.535	30	PASS
11ac(HT40)	CH151	12.37	30	PASS
11ac(HT40)	CH159	11.697	30	PASS
11ac(HT80)	CH155	10.075	30	PASS

ANT2

Configuration Band I (5150 - 5250 MHz)				
Mode	Test channel	Maximum Conducted Output Power (dBm)	FCC Limit (dBm)	Result
11a	CH36	14.363	24	PASS
11a	CH40	14.015	24	PASS
11a	CH48	14.099	24	PASS
11n(HT20)	CH36	13.82	24	PASS
11n(HT20)	CH40	14.265	24	PASS
11n(HT20)	CH48	13.885	24	PASS
11n(HT40)	CH38	12.136	24	PASS
11n(HT40)	CH46	11.619	24	PASS
11ac(HT20)	CH36	14.222	24	PASS
11ac(HT20)	CH40	13.836	24	PASS
11ac(HT20)	CH48	14.085	24	PASS
11ac(HT40)	CH38	11.7	24	PASS
11ac(HT40)	CH46	11.653	24	PASS
11ac(HT80)	CH42	10.351	24	PASS

Configuration Band IV (5725 - 5850 MHz)				
Mode	Test channel	Maximum Conducted Output Power (dBm)	FCC Limit (dBm)	Result
11a	CH149	13.526	30	PASS
11a	CH157	13.725	30	PASS
11a	CH165	14.797	30	PASS
11n (HT20)	CH149	13.272	30	PASS
11n (HT20)	CH157	13.272	30	PASS
11n (HT20)	CH165	14.696	30	PASS
11n (HT40)	CH151	12.275	30	PASS
11n (HT40)	CH159	11.628	30	PASS
11ac(HT20)	CH149	13.256	30	PASS
11ac(HT20)	CH157	13.527	30	PASS
11ac(HT20)	CH165	14.647	30	PASS
11ac(HT40)	CH151	12.323	30	PASS
11ac(HT40)	CH159	11.058	30	PASS
11ac(HT80)	CH155	9.951	30	PASS

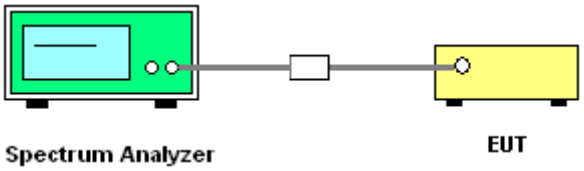
MIMO: ANT1+ANT2

Configuration Band I (5150 - 5250 MHz)				
Mode	Test channel	Maximum Conducted Output Power (dBm)	FCC Limit (dBm)	Result
11n(HT20)	CH36	16.810	24	PASS
11n(HT20)	CH40	17.291	24	PASS
11n(HT20)	CH48	16.895	24	PASS
11n(HT40)	CH38	15.135	24	PASS
11n(HT40)	CH46	14.803	24	PASS
11ac(HT20)	CH36	17.382	24	PASS
11ac(HT20)	CH40	17.060	24	PASS
11ac(HT20)	CH48	17.222	24	PASS
11ac(HT40)	CH38	15.085	24	PASS
11ac(HT40)	CH46	14.852	24	PASS
11ac(HT80)	CH42	13.679	24	PASS

Configuration Band IV (5725 - 5850 MHz)				
Mode	Test channel	Maximum Conducted Output Power (dBm)	FCC Limit (dBm)	Result
11n (HT20)	CH149	16.786	30	PASS
11n (HT20)	CH157	16.552	30	PASS
11n (HT20)	CH165	18.219	30	PASS
11n (HT40)	CH151	15.395	30	PASS
11n (HT40)	CH159	14.651	30	PASS
11ac(HT20)	CH149	16.852	30	PASS
11ac(HT20)	CH157	16.875	30	PASS
11ac(HT20)	CH165	18.124	30	PASS
11ac(HT40)	CH151	15.357	30	PASS
11ac(HT40)	CH159	14.400	30	PASS
11ac(HT80)	CH155	13.024	30	PASS

4.3. 6dB Emission Bandwidth

4.3.1. Test Specification

Test Requirement:	FCC CFR47 Part 15 Section 15.407(e)& Part 2 J Section 2.1049
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 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) = 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 Due**
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 27, 2020
RF cable	Times	1-40G	HKE-034	Dec. 27, 2020
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 27, 2020

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

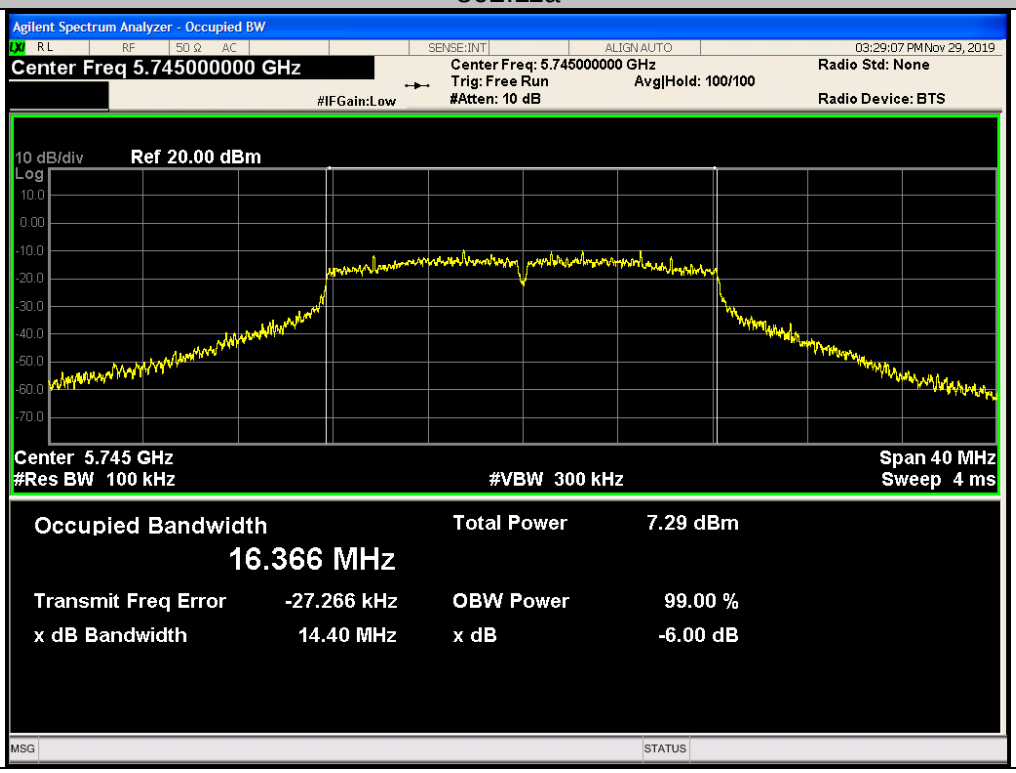
ANT1 worst case

	Band IV (5725 - 5850 MHz)					
Mode	Test channel	Frequency (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
11a	CH149	5745	16.3659	14.3984	0.5	PASS
11a	CH157	5785	16.3931	12.5741	0.5	PASS
11a	CH165	5825	16.3784	11.8023	0.5	PASS
11n(HT20)	CH149	5745	17.5729	16.531	0.5	PASS
11n(HT20)	CH157	5785	17.6004	11.4087	0.5	PASS
11n(HT20)	CH165	5825	17.6046	13.8192	0.5	PASS
11n(HT40)	CH151	5755	35.8855	33.8462	0.5	PASS
11n(HT40)	CH159	5795	35.9752	35.1312	0.5	PASS
11ac(HT20)	CH149	5745	17.5698	15.0625	0.5	PASS
11ac(HT20)	CH157	5785	17.6114	15.0985	0.5	PASS
11ac(HT20)	CH165	5825	17.6036	12.8738	0.5	PASS
11ac(HT40)	CH151	5755	35.9078	35.0675	0.5	PASS
11ac(HT40)	CH159	5795	35.9863	33.6769	0.5	PASS
11ac(HT80)	CH155	5775	75.2692	75.1174	0.5	PASS

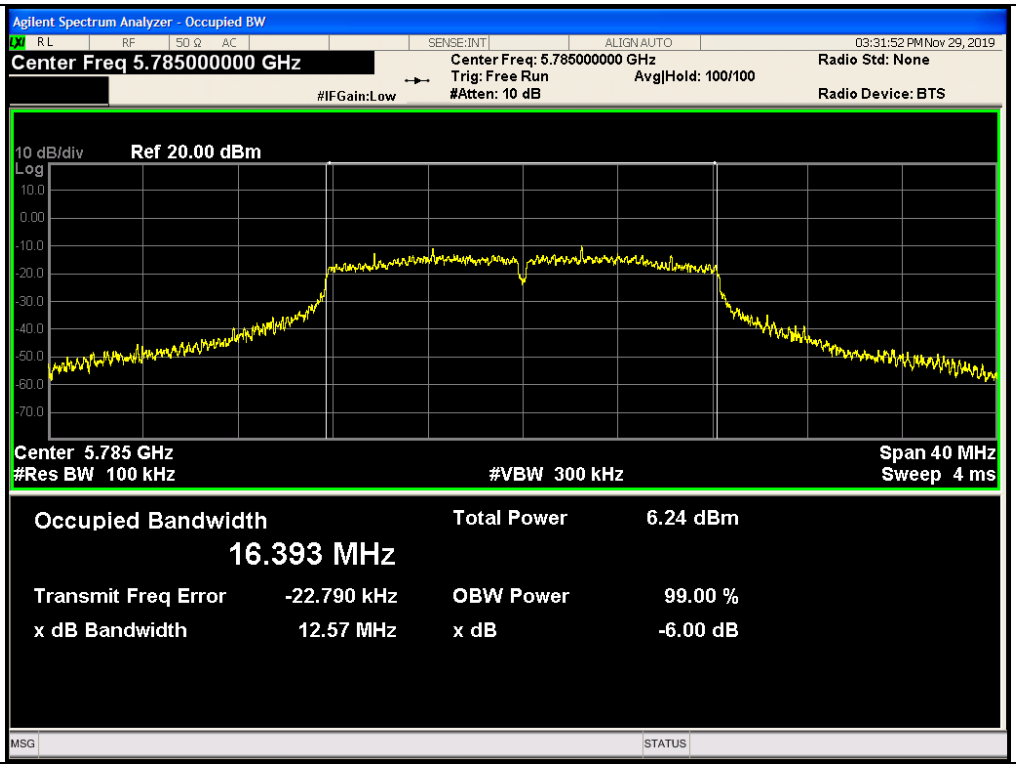
Test plots as follows:

Band IV (5725 – 5850 MHz)

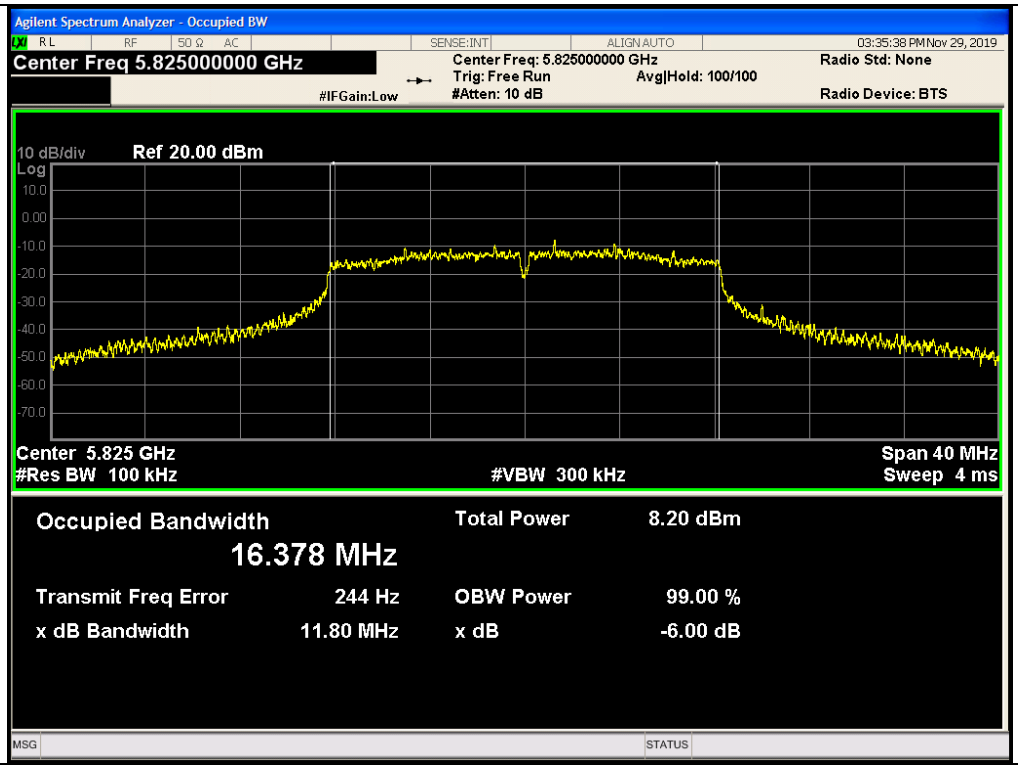
802.11a



Low

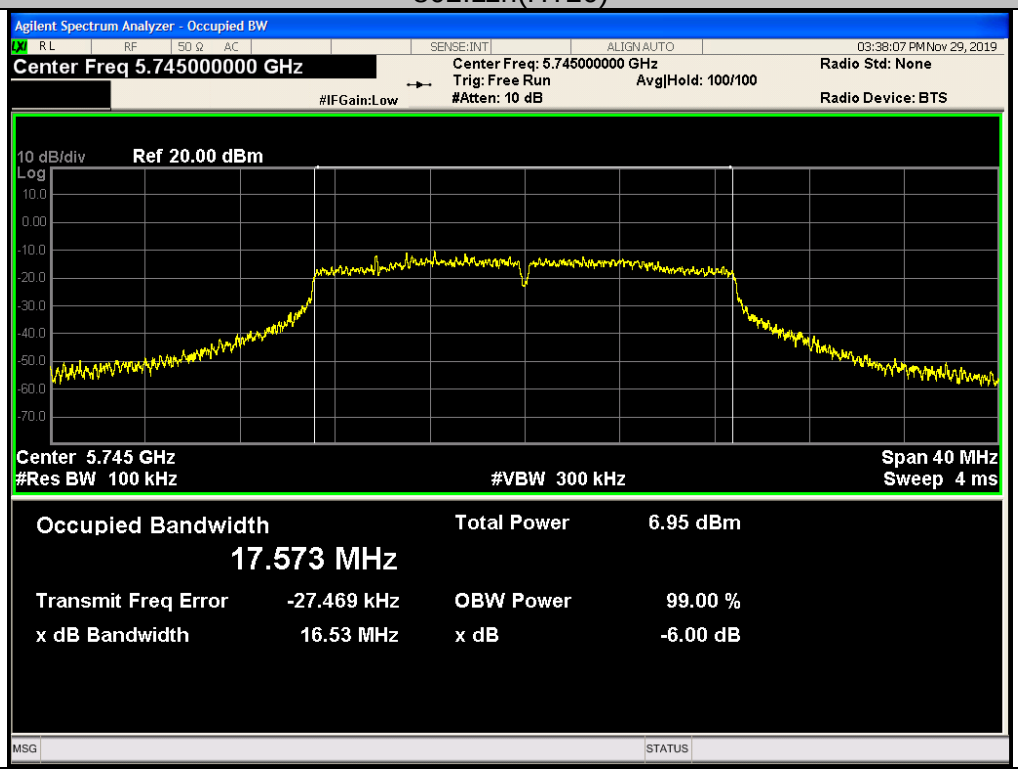


Mid

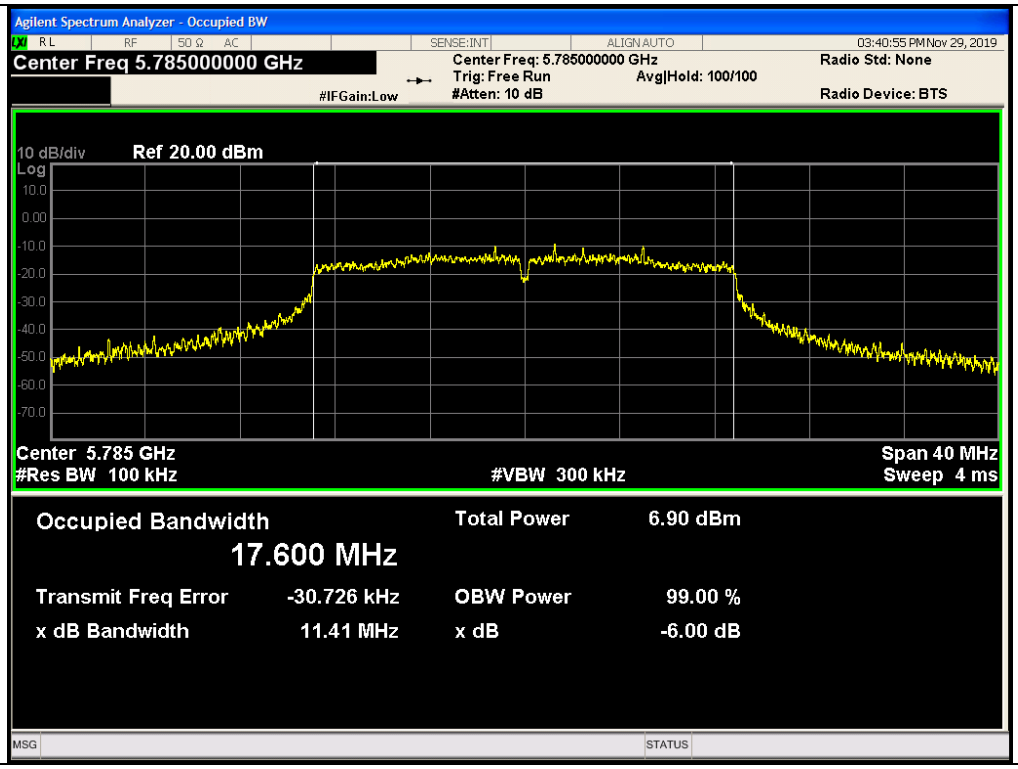


High

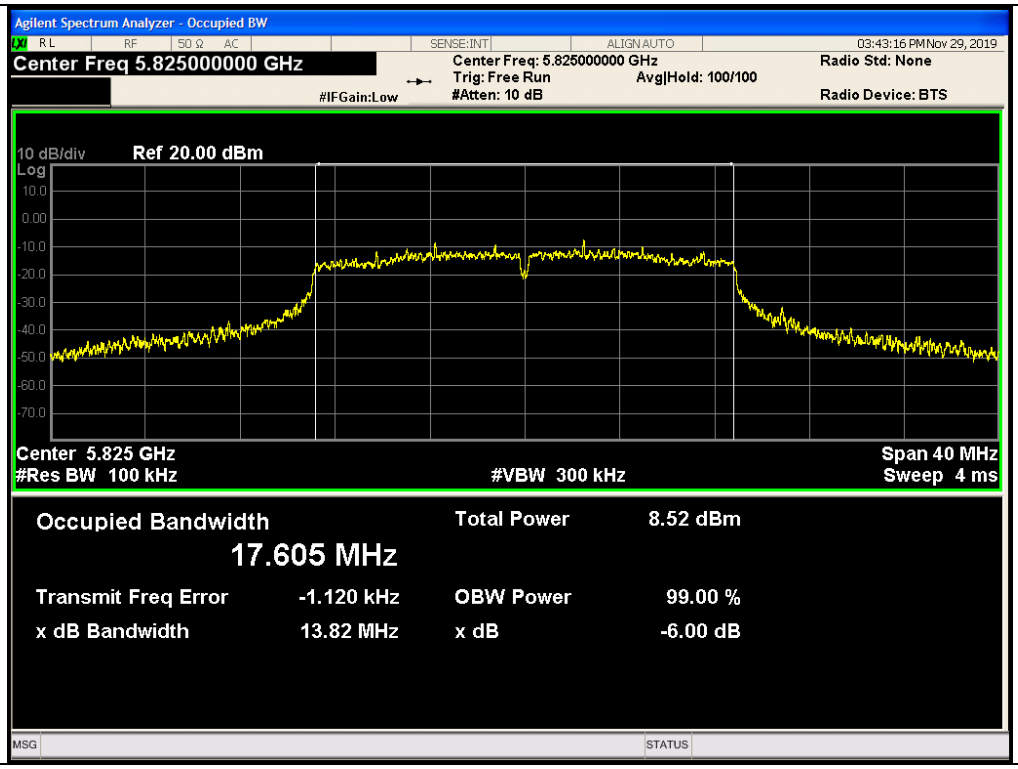
802.11n(HT20)



Low

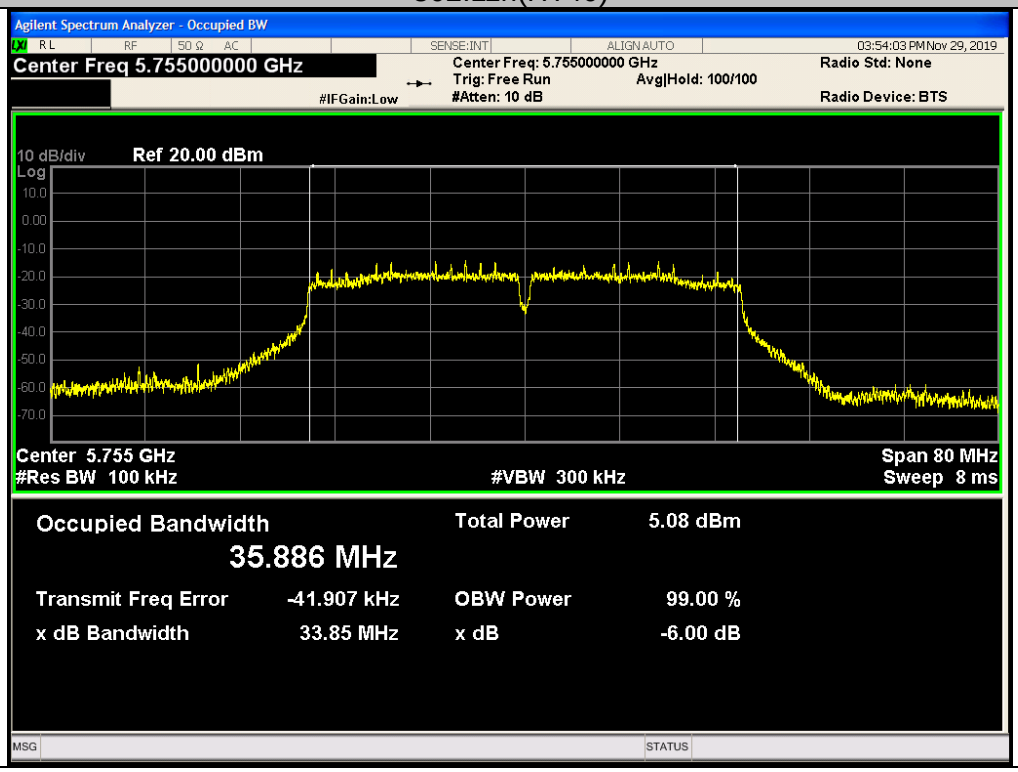

Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.785000000 GHz
Center Freq: 5.785000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 10 dB
#IFGain:Low
03:40:55 PM Nov 29, 2019
Radio Std: None
Radio Device: BTS
10 dB/div
Ref 20.00 dBm
Center 5.785 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 40 MHz
Sweep 4 ms
Occupied Bandwidth
17.600 MHz
Total Power 6.90 dBm
Transmit Freq Error -30.726 kHz
OBW Power 99.00 %
x dB Bandwidth 11.41 MHz
x dB -6.00 dB

Mid

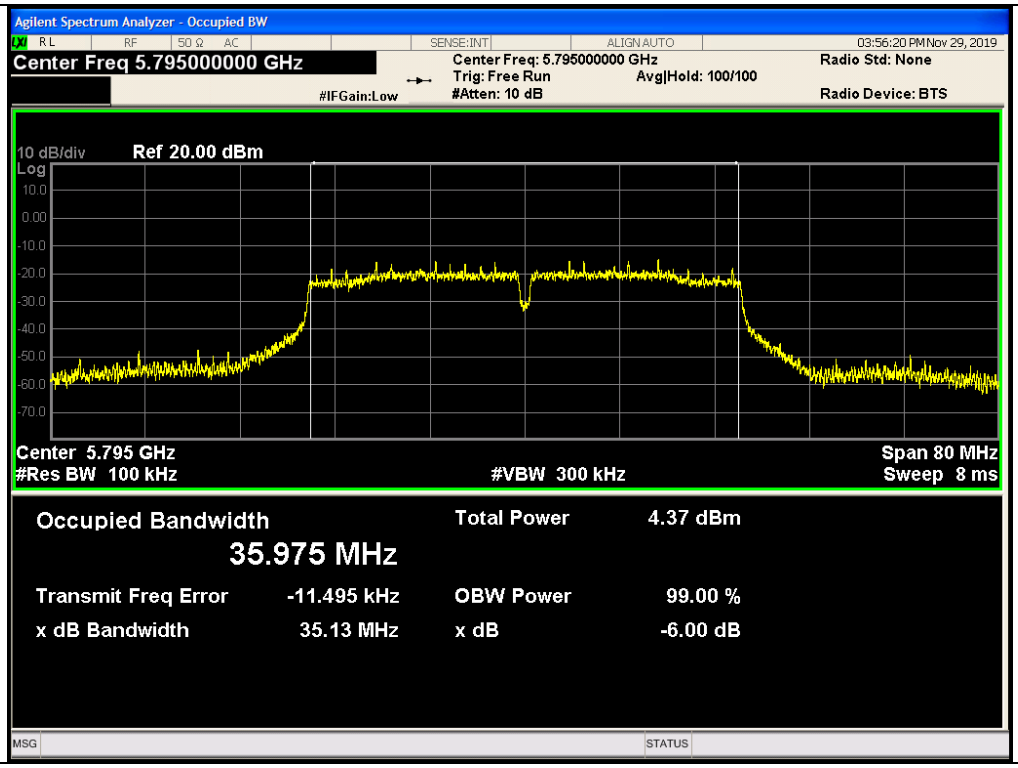

Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.825000000 GHz
Center Freq: 5.825000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 10 dB
#IFGain:Low
03:43:16 PM Nov 29, 2019
Radio Std: None
Radio Device: BTS
10 dB/div
Ref 20.00 dBm
Center 5.825 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 40 MHz
Sweep 4 ms
Occupied Bandwidth
17.605 MHz
Total Power 8.52 dBm
Transmit Freq Error -1.120 kHz
OBW Power 99.00 %
x dB Bandwidth 13.82 MHz
x dB -6.00 dB

High

802.11n(HT40)

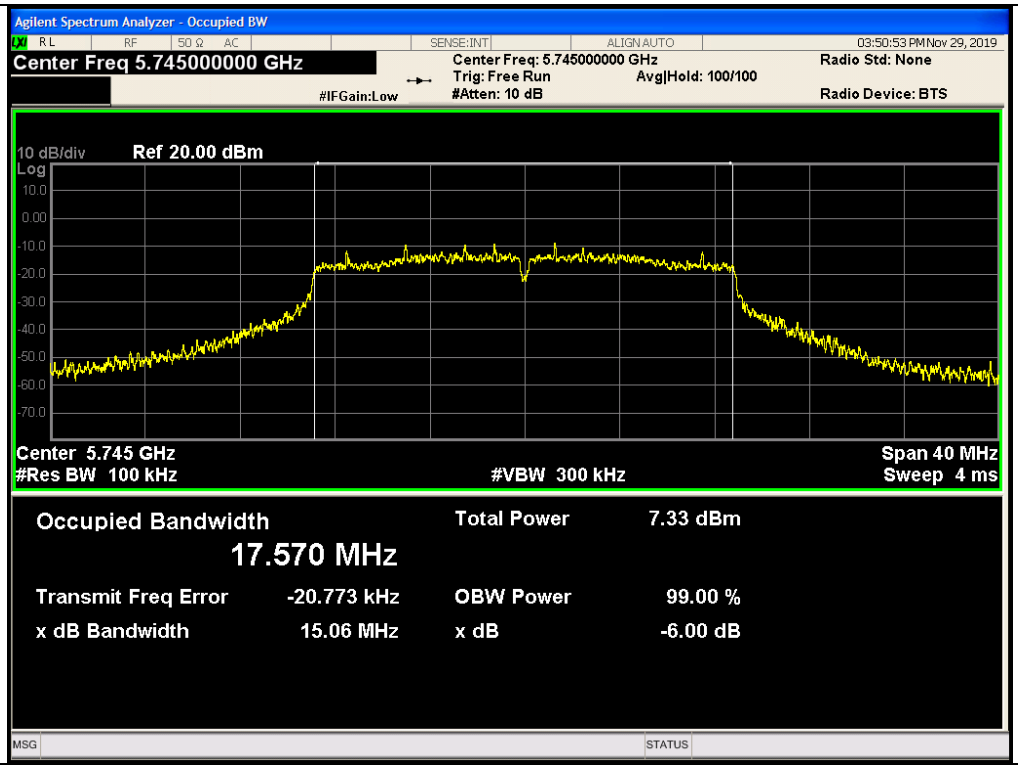


Low

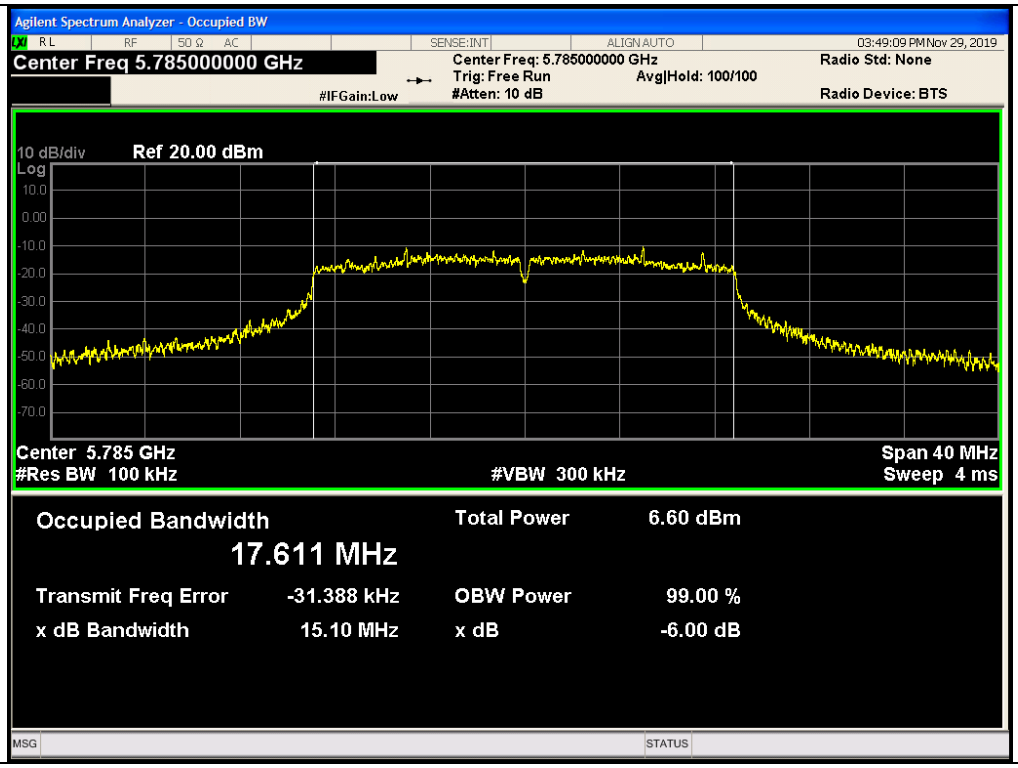


High

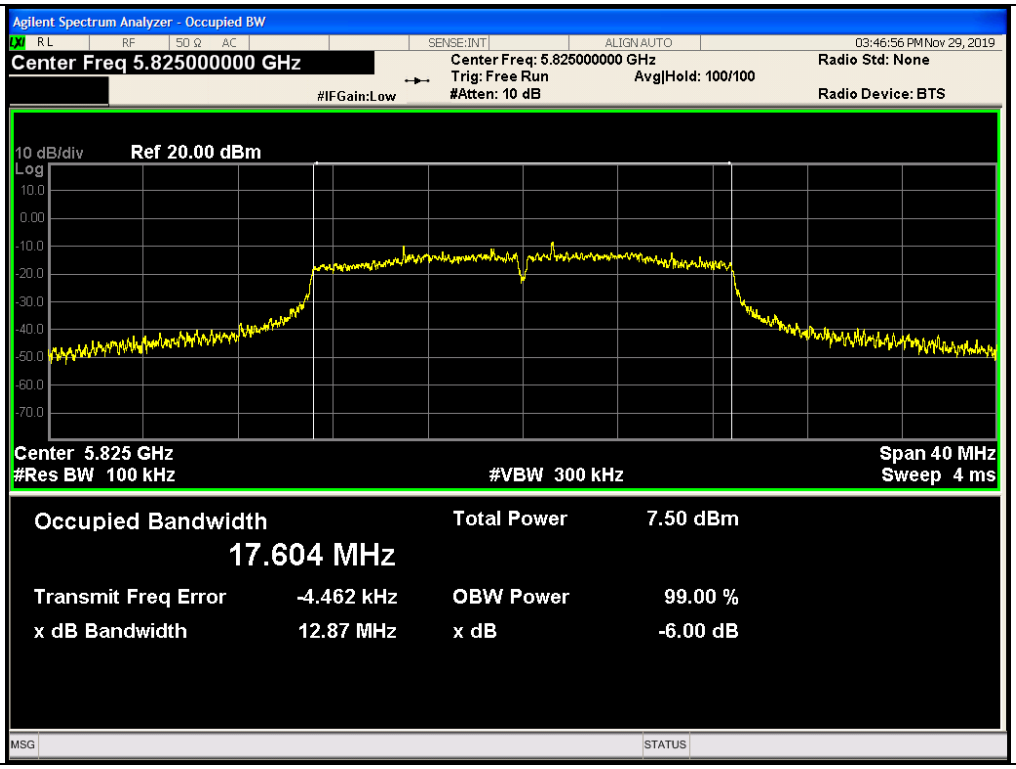
802.11ac(HT20)


Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.745000000 GHz
Center Freq: 5.745000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 10 dB
#IFGain:Low
03:50:53 PM Nov 29, 2019
Radio Std: None
Radio Device: BTS
10 dB/div
Ref 20.00 dBm
Log
Center 5.745 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 40 MHz
Sweep 4 ms
Occupied Bandwidth
17.570 MHz
Total Power 7.33 dBm
Transmit Freq Error -20.773 kHz
OBW Power 99.00 %
x dB Bandwidth 15.06 MHz
x dB -6.00 dB
MSG
STATUS

Low

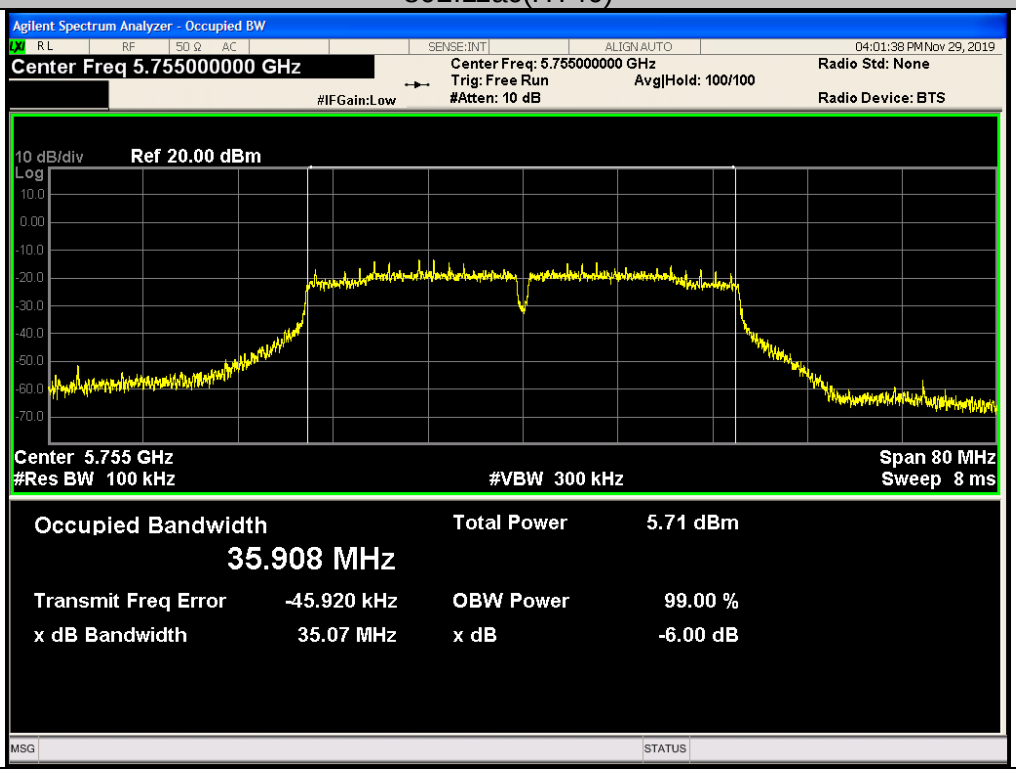

Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.785000000 GHz
Center Freq: 5.785000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 10 dB
#IFGain:Low
03:49:09 PM Nov 29, 2019
Radio Std: None
Radio Device: BTS
10 dB/div
Ref 20.00 dBm
Log
Center 5.785 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 40 MHz
Sweep 4 ms
Occupied Bandwidth
17.611 MHz
Total Power 6.60 dBm
Transmit Freq Error -31.388 kHz
OBW Power 99.00 %
x dB Bandwidth 15.10 MHz
x dB -6.00 dB
MSG
STATUS

Mid

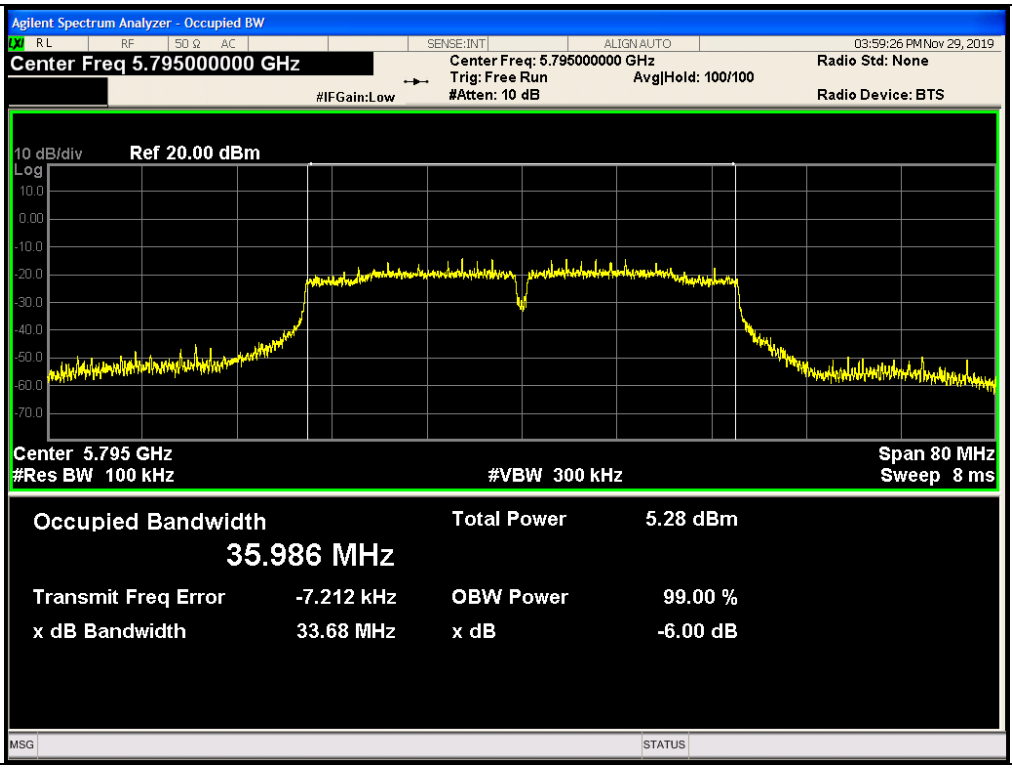


High

802.11ac(HT40)

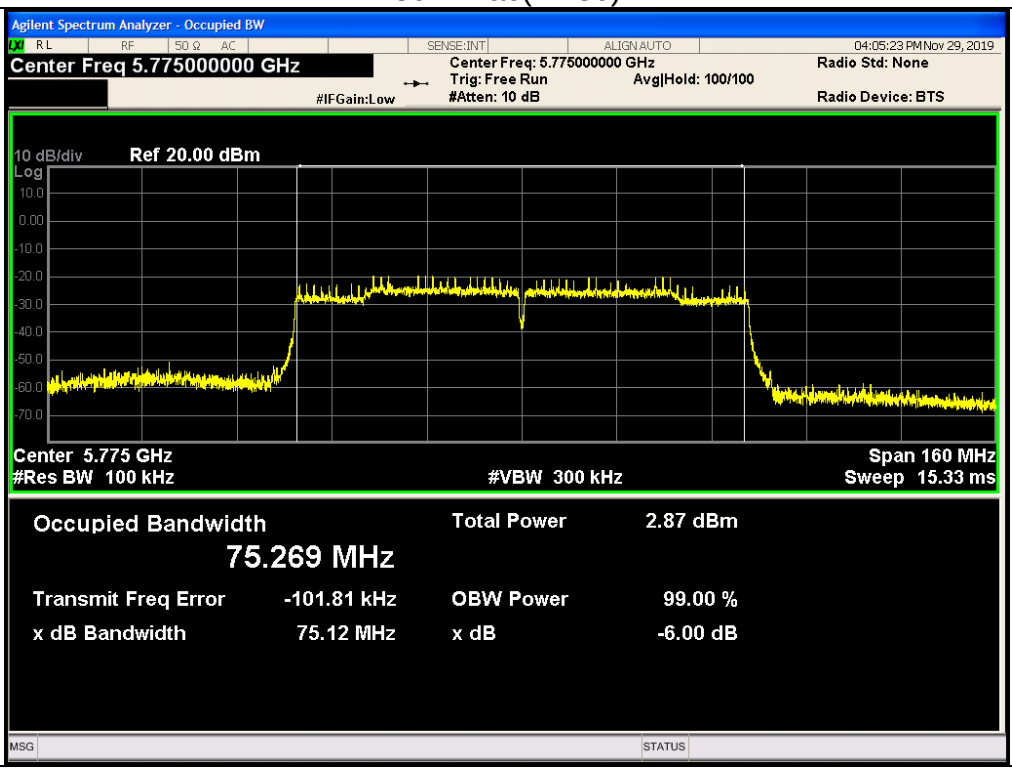


Low



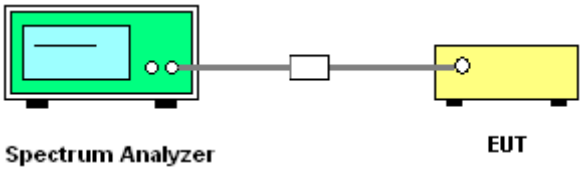
High

802.11ac(HT80)



4.4. 26dB Bandwidth and 99% Occupied Bandwidth

4.4.1. Test Specification

Test Requirement:	47 CFR Part 15C Section 15.407 (a)& Part 2 J Section 2.1049
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 Due**
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 27, 2020
RF cable	Times	1-40G	HKE-034	Dec. 27, 2020
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 27, 2020

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

4.4.3. Test data

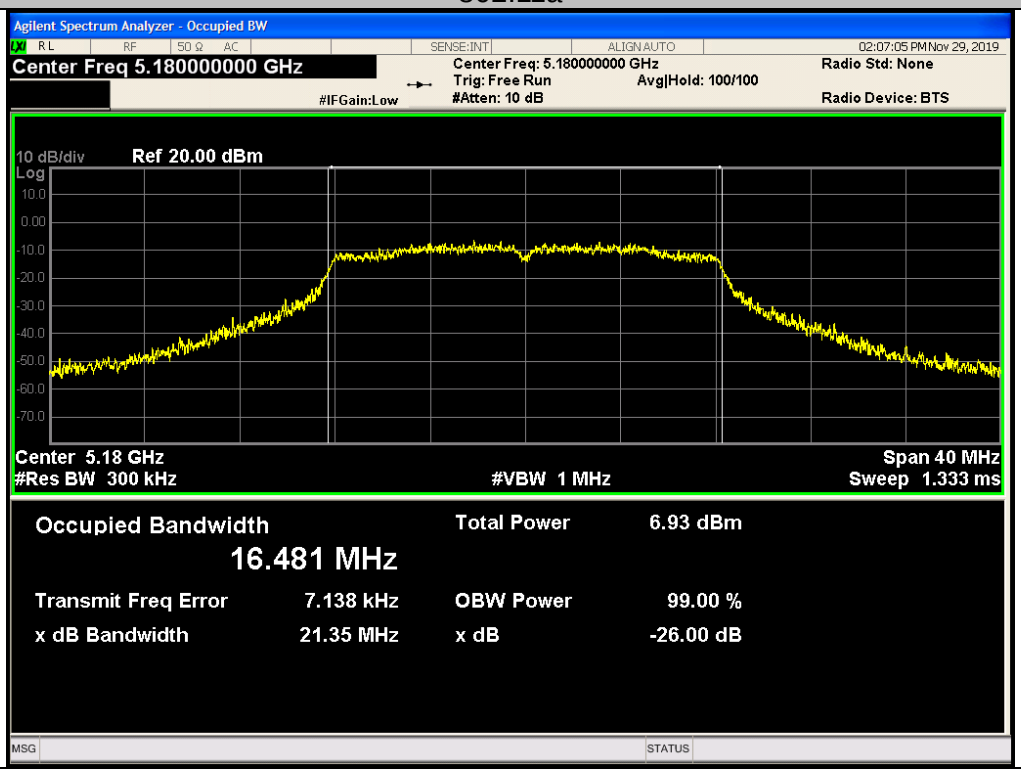
ANT1 worst case
Band I

Mode	Test channel	Frequency (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	Verdict
11a	CH36	5180	16.4805	21.3474	PASS
11a	CH40	5200	16.5718	22.0684	PASS
11a	CH48	5240	16.5831	23.2019	PASS
11n(HT20)	CH36	5180	17.7294	22.3272	PASS
11n(HT20)	CH40	5200	17.6996	22.7319	PASS
11n(HT20)	CH48	5240	17.7004	22.6758	PASS
11n(HT40)	CH38	5190	35.9934	41.3595	PASS
11n(HT40)	CH46	5230	36.0037	42.1563	PASS
11ac(HT20)	CH36	5180	17.6792	23.0135	PASS
11ac(HT20)	CH40	5200	17.7091	22.7957	PASS
11ac(HT20)	CH48	5240	17.7111	23.4461	PASS
11ac(HT40)	CH38	5190	35.9553	40.4494	PASS
11ac(HT40)	CH46	5230	35.9511	41.3298	PASS
11ac(HT80)	CH42	5210	75.2304	79.3272	PASS

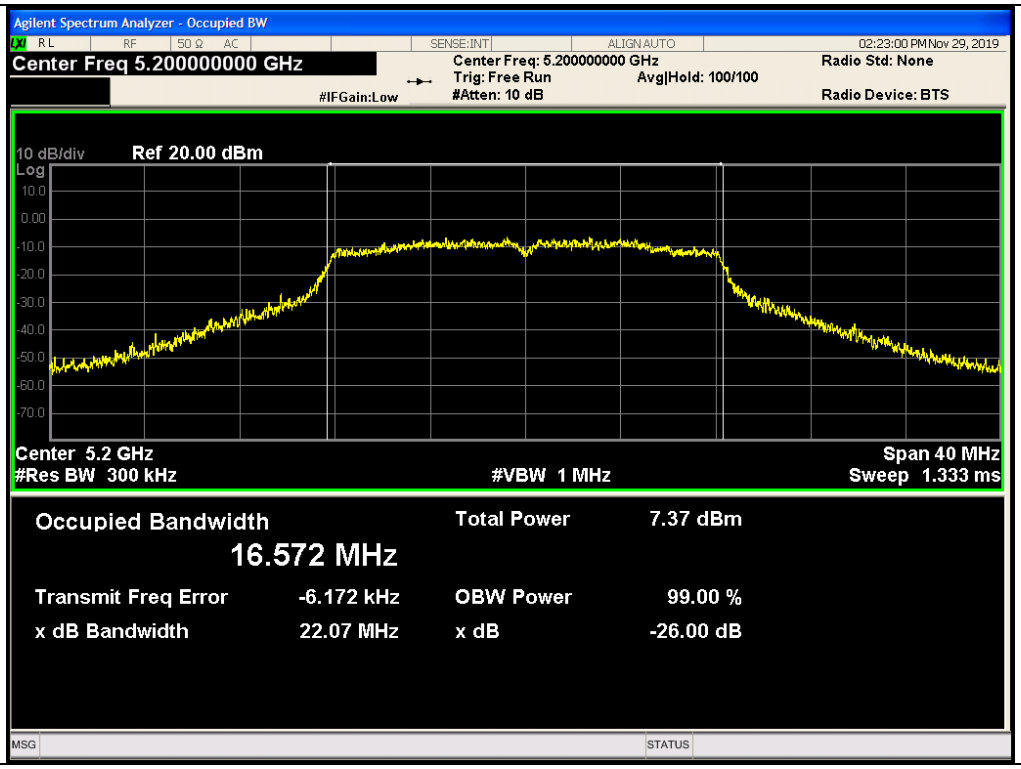
Test plots as follows:

Band I （5150 – 5250 MHz）

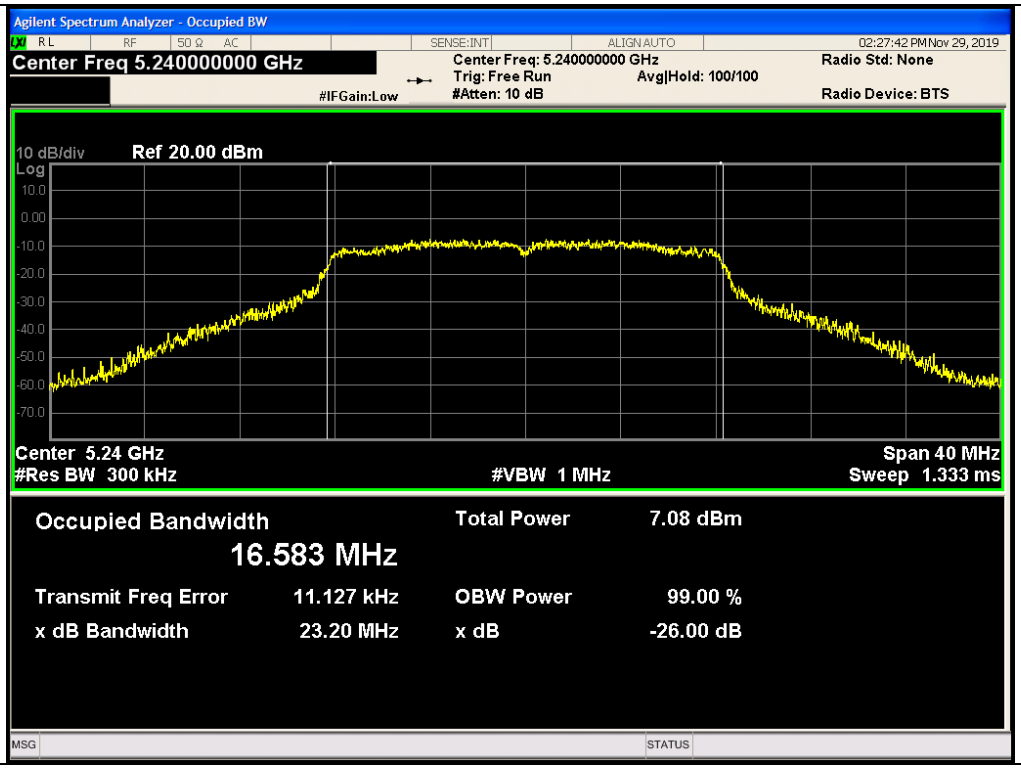
802.11a



Low

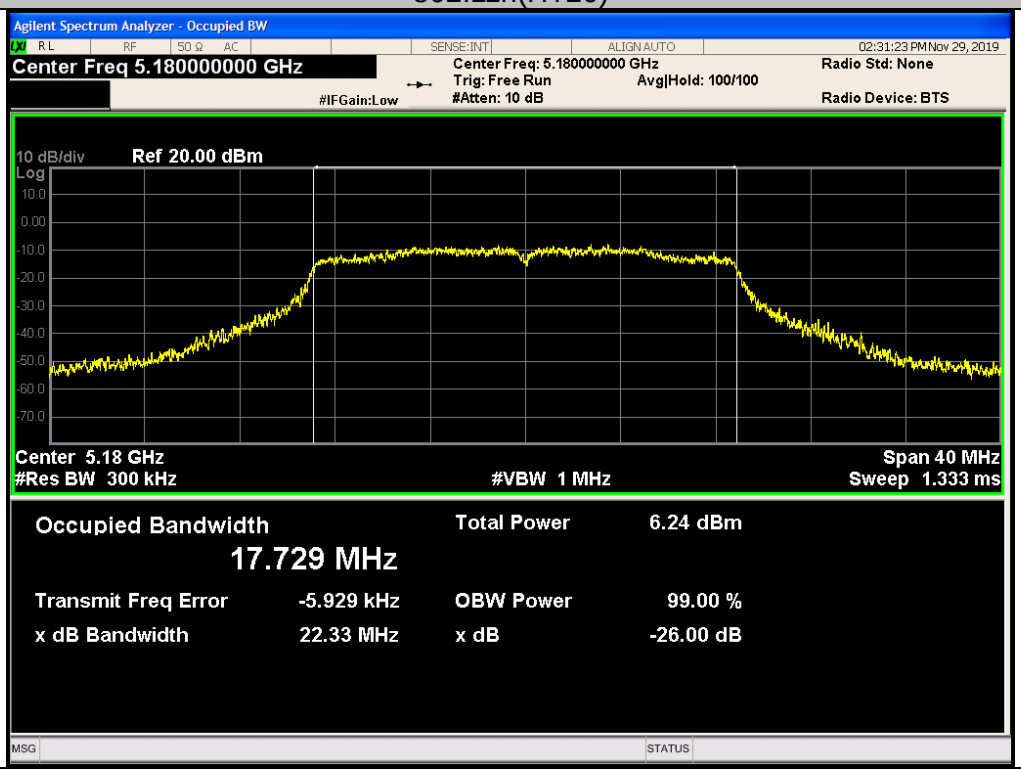


Mid

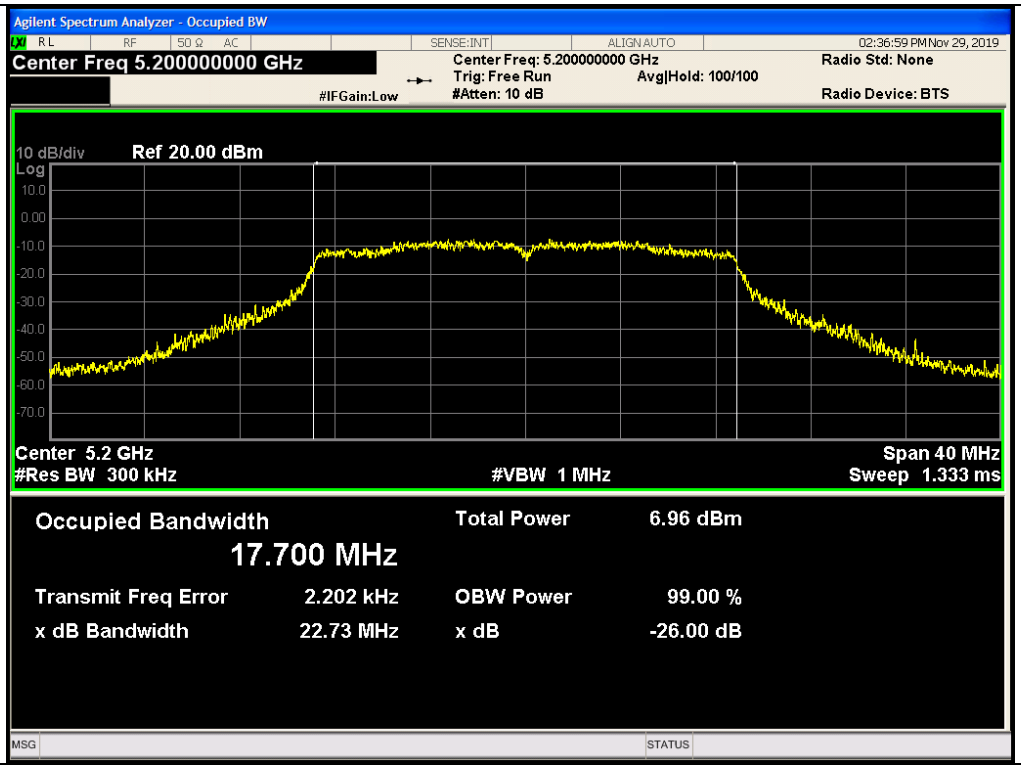


High

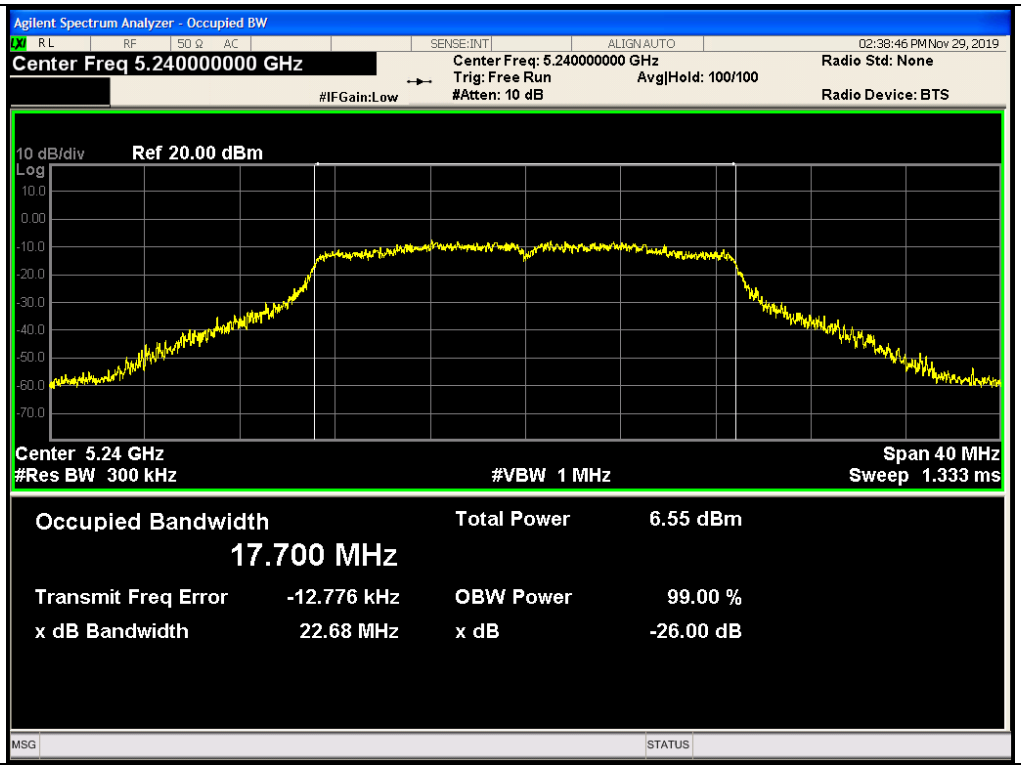
802.11n(HT20)



Low

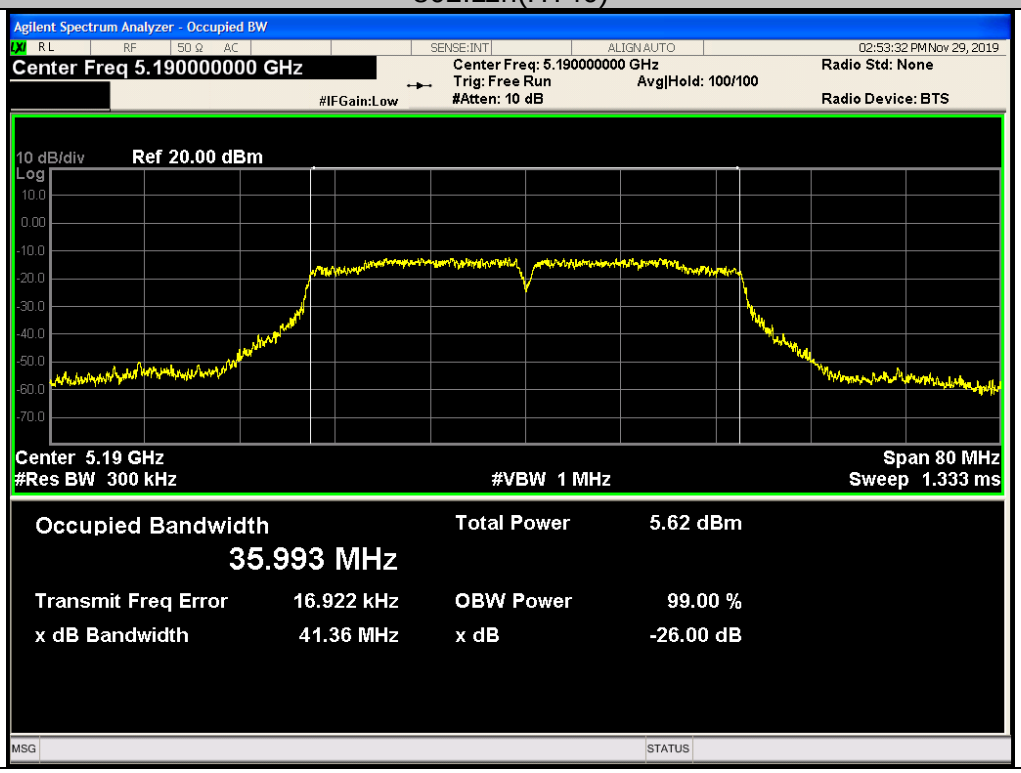

Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.200000000 GHz
Center Freq: 5.200000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 10 dB
#IFGain:Low
02:36:59 PM Nov 29, 2019
Radio Std: None
Radio Device: BTS
10 dB/div
Ref 20.00 dBm
Center 5.2 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1.333 ms
Occupied Bandwidth
17.700 MHz
Total Power 6.96 dBm
Transmit Freq Error 2.202 kHz
OBW Power 99.00 %
x dB Bandwidth 22.73 MHz
x dB -26.00 dB

Mid

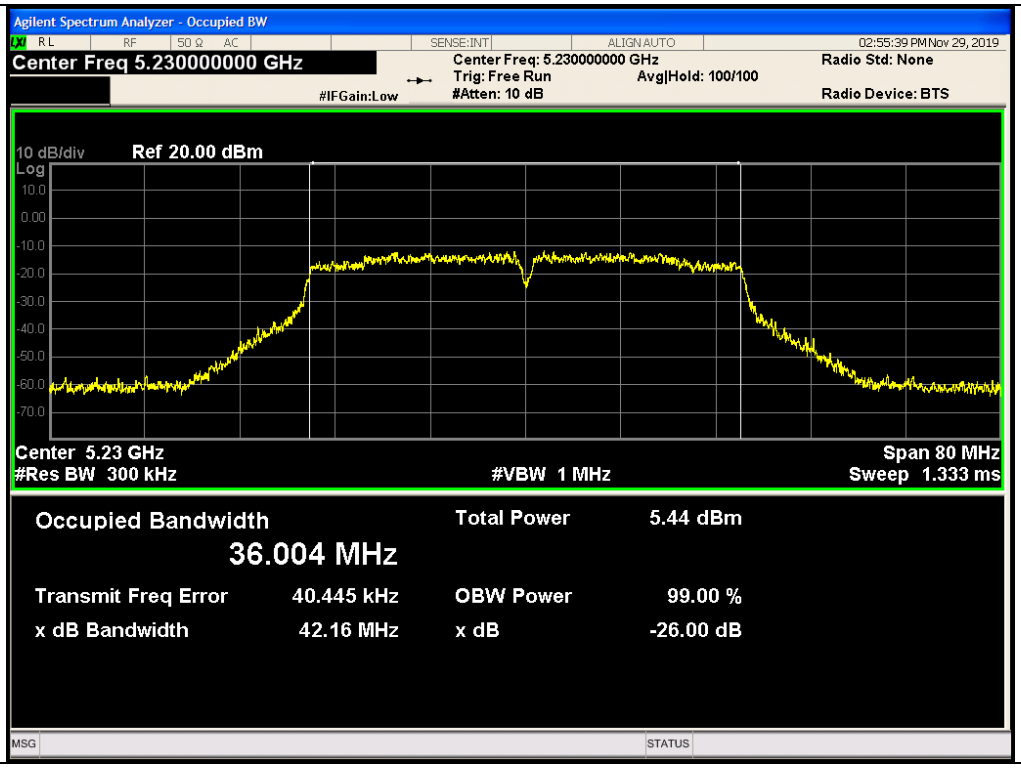

Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.240000000 GHz
Center Freq: 5.240000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 10 dB
#IFGain:Low
02:38:46 PM Nov 29, 2019
Radio Std: None
Radio Device: BTS
10 dB/div
Ref 20.00 dBm
Center 5.24 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1.333 ms
Occupied Bandwidth
17.700 MHz
Total Power 6.55 dBm
Transmit Freq Error -12.776 kHz
OBW Power 99.00 %
x dB Bandwidth 22.68 MHz
x dB -26.00 dB

High

802.11n(HT40)

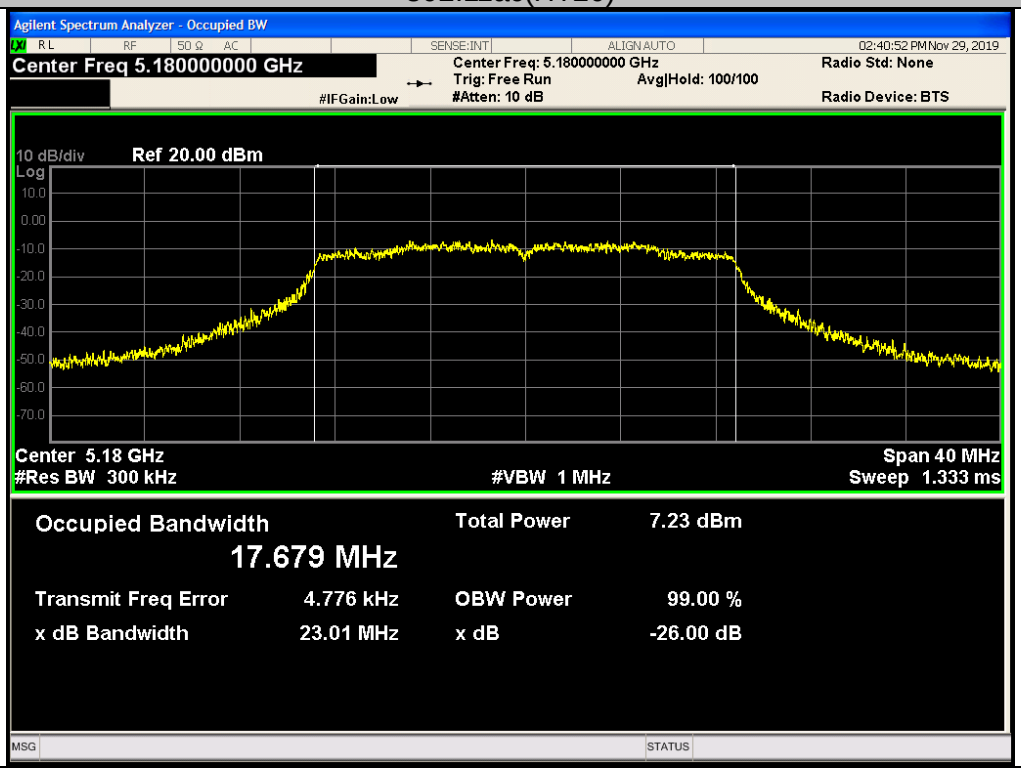


Low

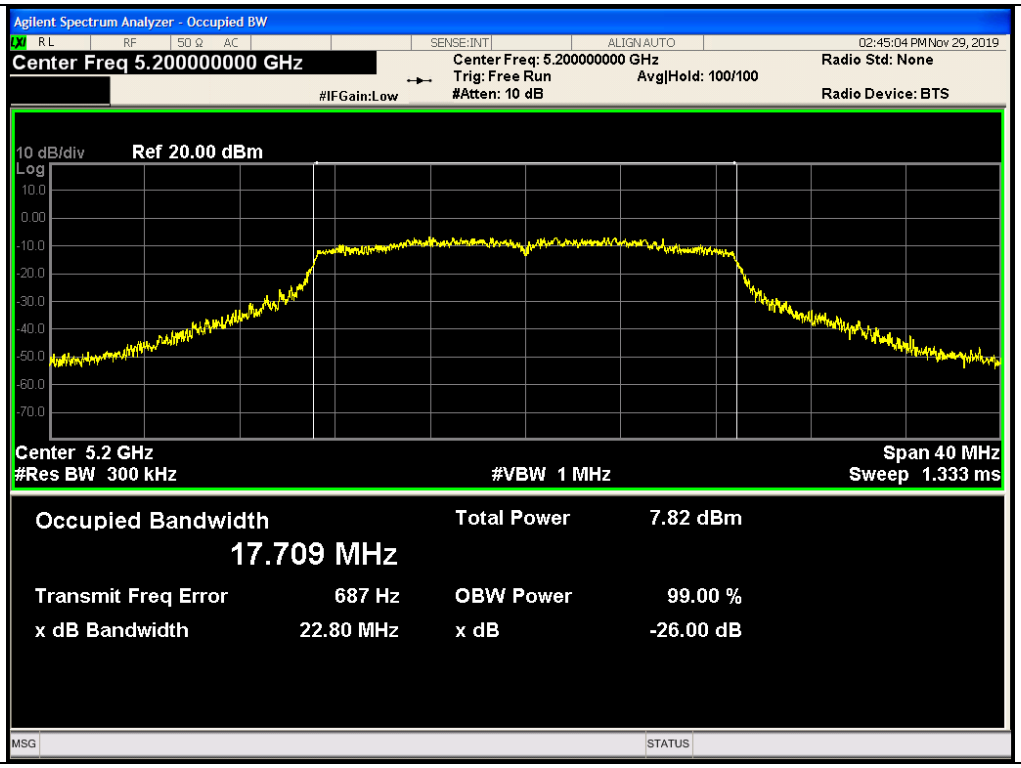


High

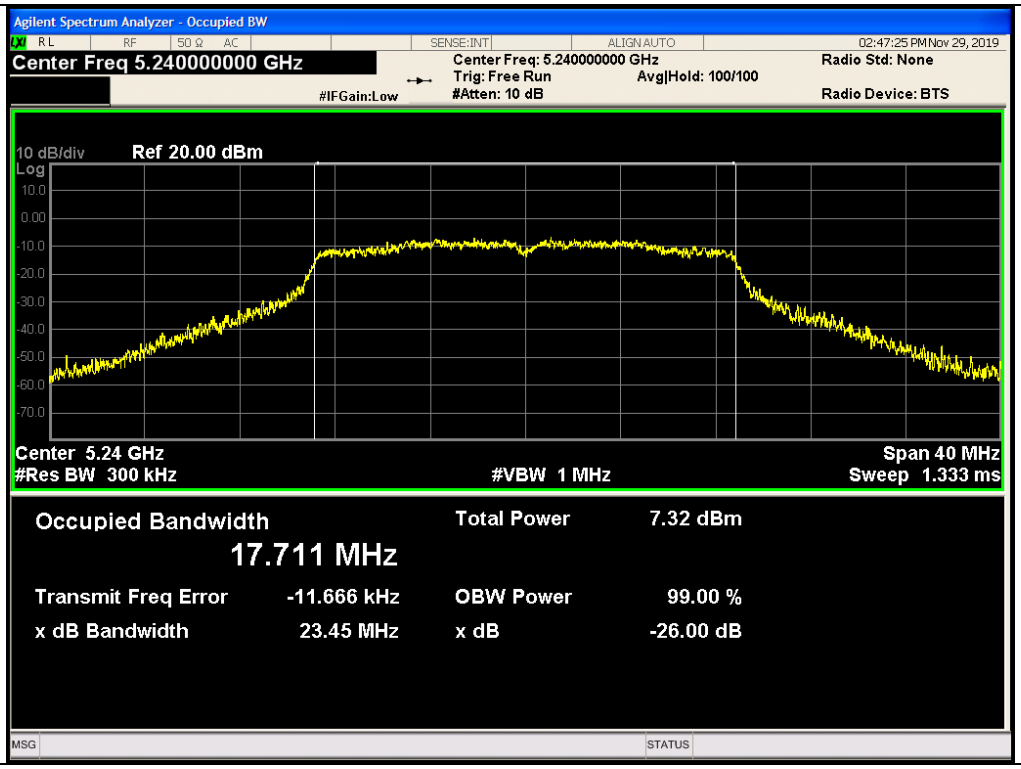
802.11ac(HT20)



Low

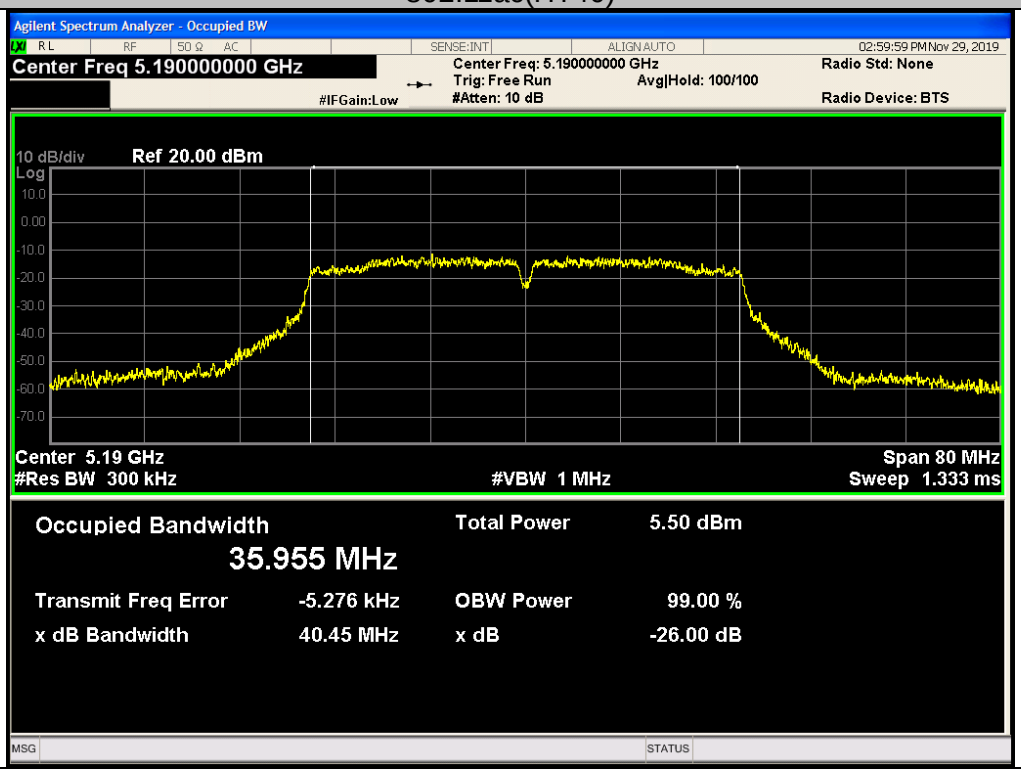


Mid

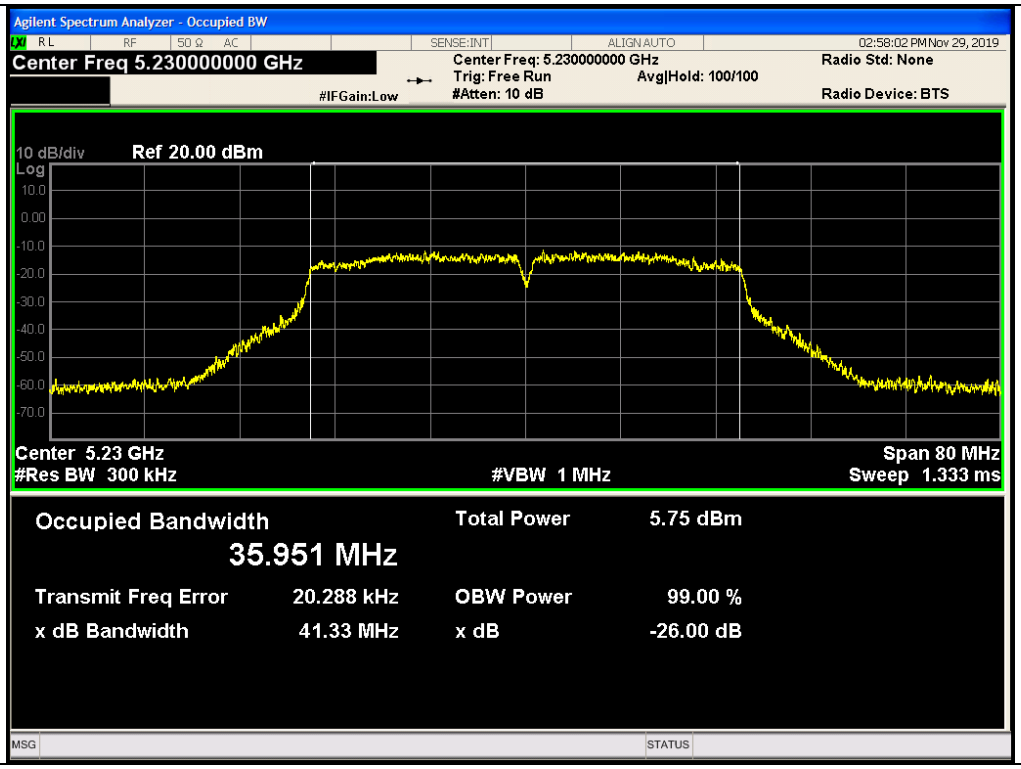


High

802.11ac(HT40)

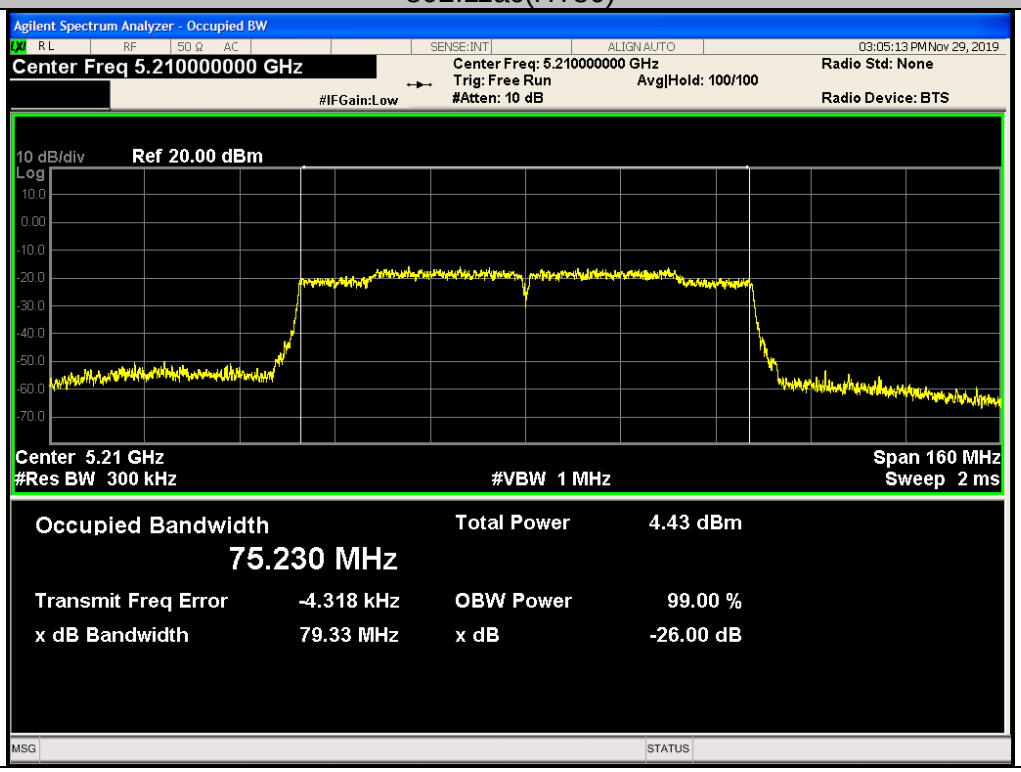


Low



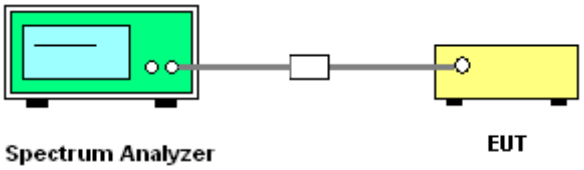
High

802.11ac(HT80)



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 ≤30.00dBm/500KHz for Band IV 5725MHz-5850MHz The e.i,r,p spectral density for Band I 5150MHz – 5250 MHz should not exceed 10dBm/MHz
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 = 510 kHz/1 MHz, 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 Due**
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 27, 2020
RF cable	Times	1-40G	HKE-034	Dec. 27, 2020
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 27, 2020

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

4.5.3. Test data

ANT1

Configuration Band I (5150 - 5250 MHz)						
Mode	Test channel	Level [dBm/MHz]	10log(1/x) Factor [dB]	Power Spectral Density	Limit (dBm/MHz)	Result
11a	CH36	-0.112	0	-0.112	11	PASS
11a	CH40	0.24	0	0.24	11	PASS
11a	CH48	0.177	0	0.177	11	PASS
11n(HT20)	CH36	0.217	0	0.217	11	PASS
11n(HT20)	CH40	0.282	0	0.282	11	PASS
11n(HT20)	CH48	-0.105	0	-0.105	11	PASS
11n(HT40)	CH38	-5.825	0	-5.825	11	PASS
11n(HT40)	CH46	-5.433	0	-5.433	11	PASS
11ac(HT20)	CH36	0.18	0	0.18	11	PASS
11ac(HT20)	CH40	-0.168	0	-0.168	11	PASS
11ac(HT20)	CH48	-0.589	0	-0.589	11	PASS
11ac(HT40)	CH38	-5.782	0	-5.782	11	PASS
11ac(HT40)	CH46	-5.371	0	-5.371	11	PASS
11ac(HT80)	CH42	-10.429	0	-10.429	11	PASS

Configuration Band IV (5725 - 5850 MHz)						
Mode	Test channel	Level [dBm/500kHz]	10log(1/x) Factor[dB]	Power Spectral Density	Limit (dBm/500kHz)	Result
11a	CH149	-2.483	0	-2.483	30	PASS
11a	CH157	-2.789	0	-2.789	30	PASS
11a	CH161	-1.452	0	-1.452	30	PASS
11n(HT20)	CH149	-3.182	0	-3.182	30	PASS
11n(HT20)	CH157	-3.12	0	-3.12	30	PASS
11n(HT20)	CH161	-1.226	0	-1.226	30	PASS
11n(HT40)	CH151	-7.91	0	-7.91	30	PASS
11n(HT40)	CH159	-8.697	0	-8.697	30	PASS
11ac(HT20)	CH149	-2.849	0	-2.849	30	PASS
11ac(HT20)	CH157	-3.106	0	-3.106	30	PASS
11ac(HT20)	CH161	-1.361	0	-1.361	30	PASS
11ac(HT40)	CH151	-0.678	0	-0.678	30	PASS
11ac(HT40)	CH159	-8.547	0	-8.547	30	PASS
11ac(HT80)	CH155	-13.8	0	-13.8	30	PASS

ANT2

Configuration Band I (5150 - 5250 MHz)						
Mode	Test channel	Level [dBm/MHz]	10log(1/x) Factor [dB]	Power Spectral Density	Limit (dBm/MHz)	Result
11a	CH36	-0.114	0	-0.114	11	PASS
11a	CH40	-0.607	0	-0.607	11	PASS
11a	CH48	-0.501	0	-0.501	11	PASS
11n(HT20)	CH36	-0.097	0	-0.097	11	PASS
11n(HT20)	CH40	0.024	0	0.024	11	PASS
11n(HT20)	CH48	-0.66	0	-0.66	11	PASS
11n(HT40)	CH38	-6.04	0	-6.04	11	PASS
11n(HT40)	CH46	-6.192	0	-6.192	11	PASS
11ac(HT20)	CH36	-0.648	0	-0.648	11	PASS
11ac(HT20)	CH40	-0.041	0	-0.041	11	PASS
11ac(HT20)	CH48	-1.101	0	-1.101	11	PASS
11ac(HT40)	CH38	-5.839	0	-5.839	11	PASS
11ac(HT40)	CH46	-6.517	0	-6.517	11	PASS
11ac(HT80)	CH42	-10.72	0	-10.72	11	PASS

Configuration Band IV (5725 - 5850 MHz)						
Mode	Test channel	Level [dBm/500kHz]	10log(1/x) Factor[dB]	Power Spectral Density	Limit (dBm/500kHz)	Result
11a	CH149	-3.154	0	-3.154	30	PASS
11a	CH157	-2.562	0	-2.562	30	PASS
11a	CH161	-1.64	0	-1.64	30	PASS
11n(HT20)	CH149	-3.949	0	-3.949	30	PASS
11n(HT20)	CH157	-3.294	0	-3.294	30	PASS
11n(HT20)	CH161	-1.98	0	--1.98	30	PASS
11n(HT40)	CH151	-8.14	0	-8.14	30	PASS
11n(HT40)	CH159	-8.712	0	-8.712	30	PASS
11ac(HT20)	CH149	-3.56	0	-3.56	30	PASS
11ac(HT20)	CH157	-3.426	0	-3.426	30	PASS
11ac(HT20)	CH161	-2.552	0	-2.552	30	PASS
11ac(HT40)	CH151	-8.16	0	-8.16	30	PASS
11ac(HT40)	CH159	-9.106	0	-9.106	30	PASS
11ac(HT80)	CH155	-14.119	0	-14.119	30	PASS

MIMO: ANT1+ANT2

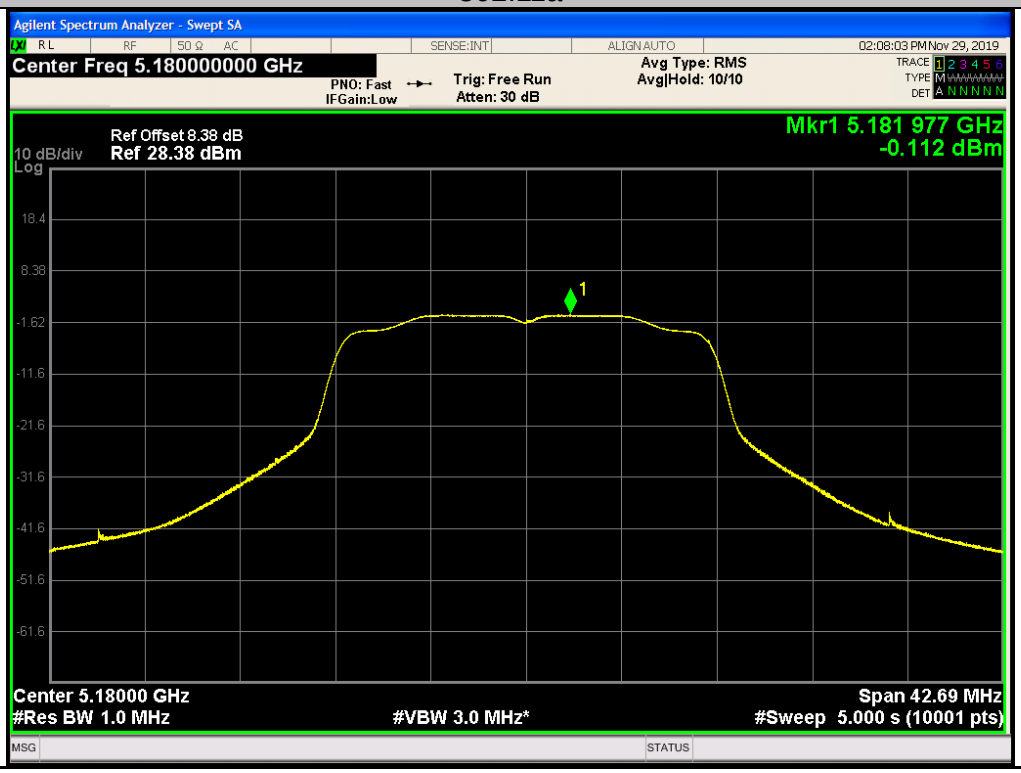
Configuration Band I (5150 - 5250 MHz)						
Mode	Test channel	Level [dBm/MHz]	10log(1/x) Factor [dB]	Power Spectral Density	Limit (dBm/MHz)	Result
11n(HT20)	CH36	3.073	0	3.073	11	PASS
11n(HT20)	CH40	3.165	0	3.165	11	PASS
11n(HT20)	CH48	2.637	0	2.637	11	PASS
11n(HT40)	CH38	-2.921	0	-2.921	11	PASS
11n(HT40)	CH46	-2.786	0	-2.786	11	PASS
11ac(HT20)	CH36	2.796	0	2.796	11	PASS
11ac(HT20)	CH40	2.906	0	2.906	11	PASS
11ac(HT20)	CH48	2.173	0	2.173	11	PASS
11ac(HT40)	CH38	-2.800	0	-2.800	11	PASS
11ac(HT40)	CH46	-2.896	0	-2.896	11	PASS
11ac(HT80)	CH42	-7.562	0	-7.562	11	PASS

Configuration Band IV (5725 - 5850 MHz)						
Mode	Test channel	Level [dBm/500kHz]	10log(1/x) Factor[dB]	Power Spectral Density	Limit (dBm/500kHz)	Result
11n(HT20)	CH149	-0.538	0	-0.538	30	PASS
11n(HT20)	CH157	-0.196	0	-0.196	30	PASS
11n(HT20)	CH161	3.677	0	3.677	30	PASS
11n(HT40)	CH151	-5.013	0	-5.013	30	PASS
11n(HT40)	CH159	-5.694	0	-5.694	30	PASS
11ac(HT20)	CH149	-0.180	0	-0.180	30	PASS
11ac(HT20)	CH157	-0.253	0	-0.253	30	PASS
11ac(HT20)	CH161	1.094	0	1.094	30	PASS
11ac(HT40)	CH151	0.036	0	0.036	30	PASS
11ac(HT40)	CH159	-5.807	0	-5.807	30	PASS
11ac(HT80)	CH155	-10.946	0	-10.946	30	PASS

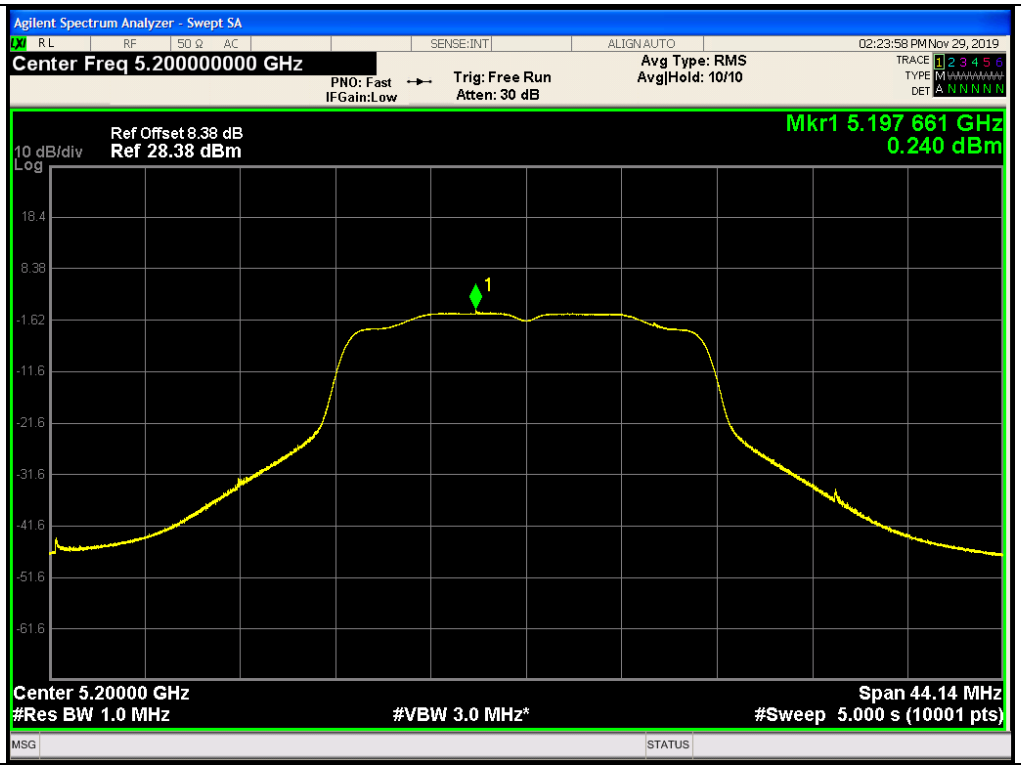
Test plots as follows:

ANT1
Band I （5150 – 5250 MHz）

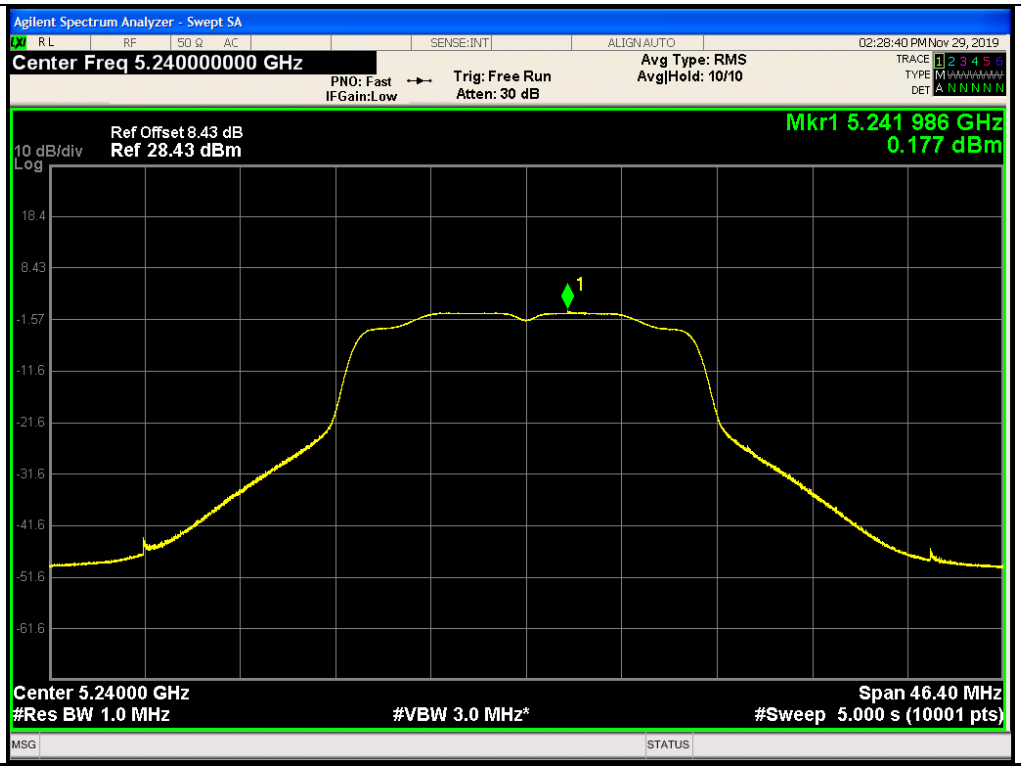
802.11a



Low

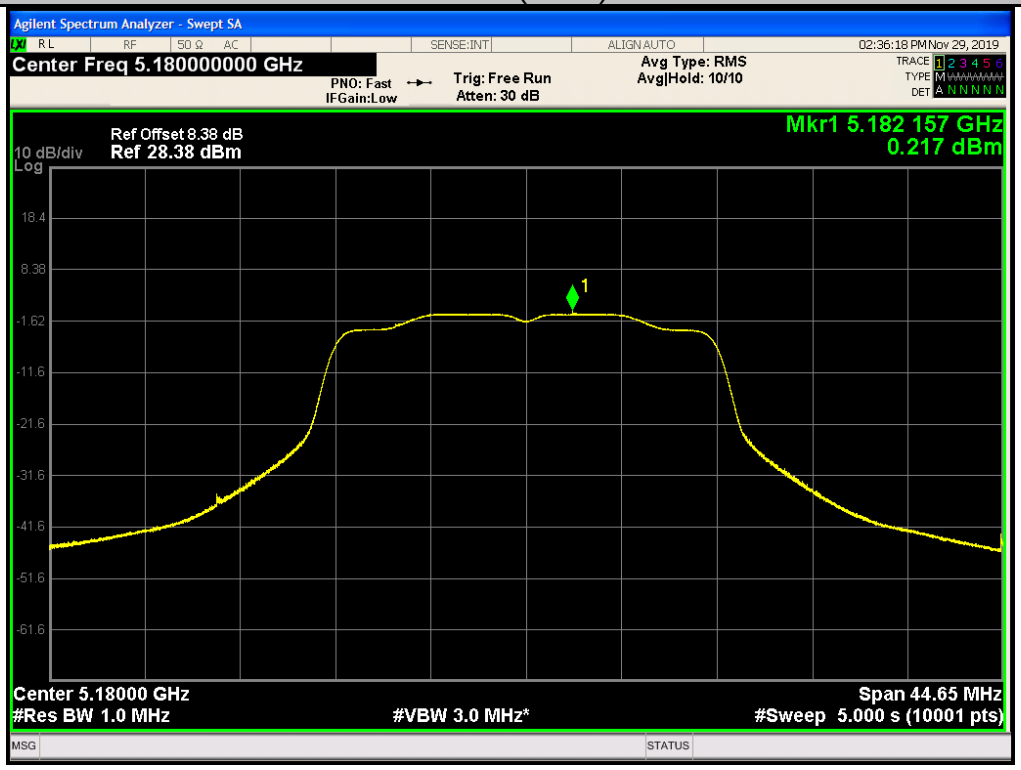


Mid

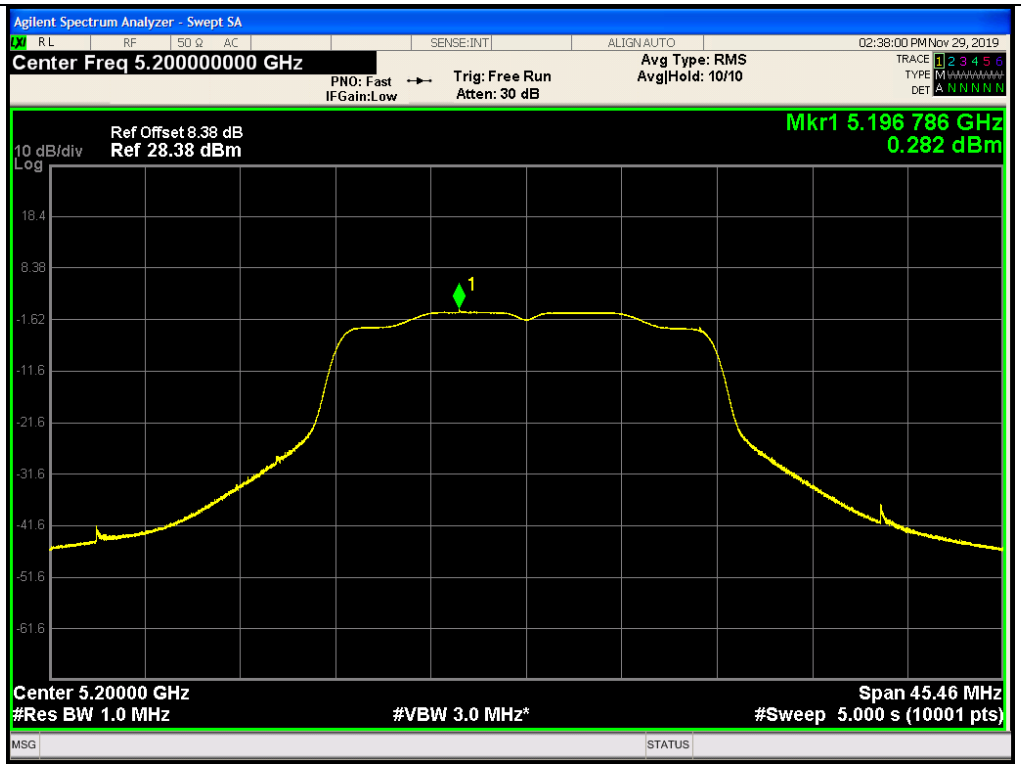


High

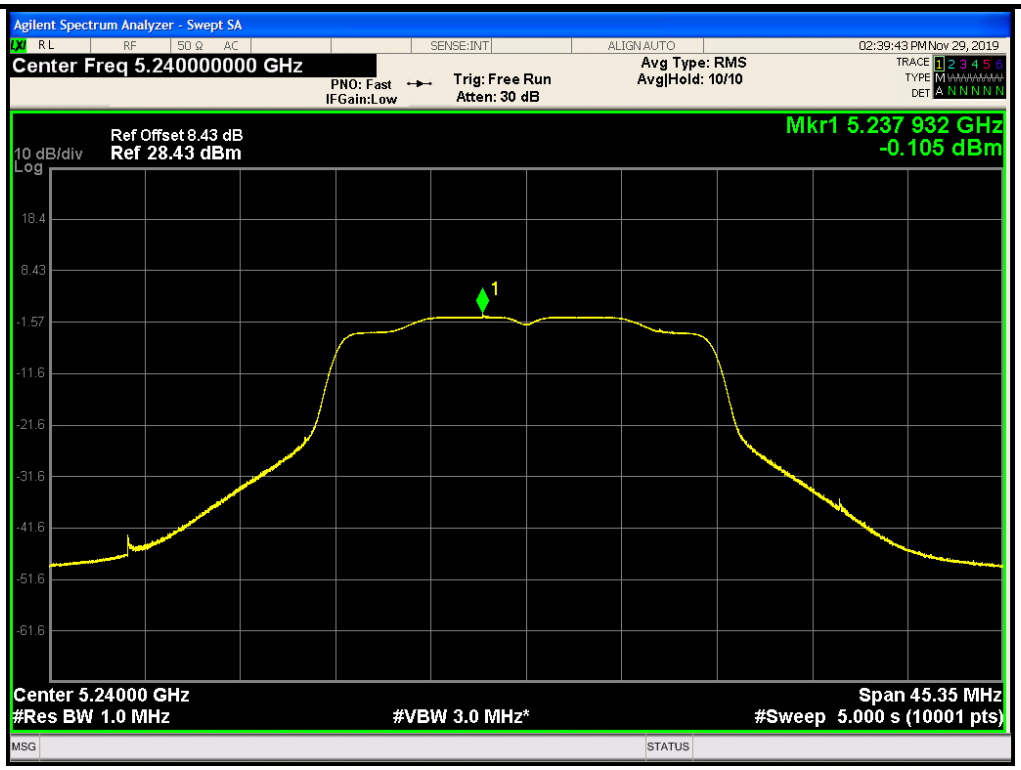
802.11n(HT20)



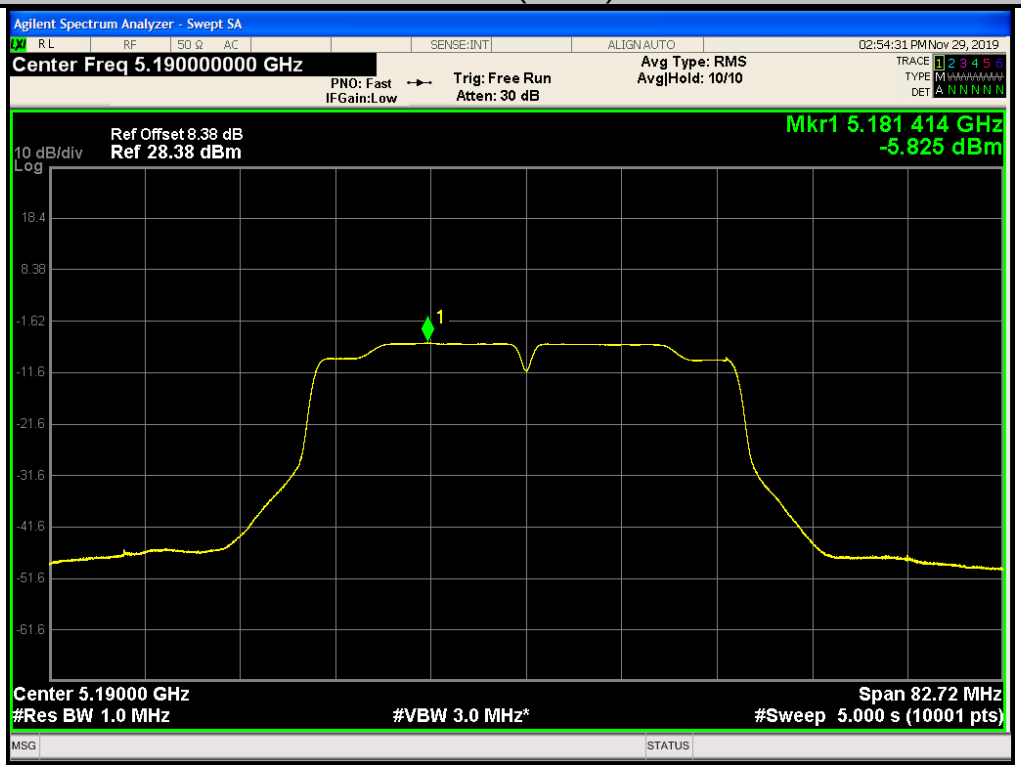
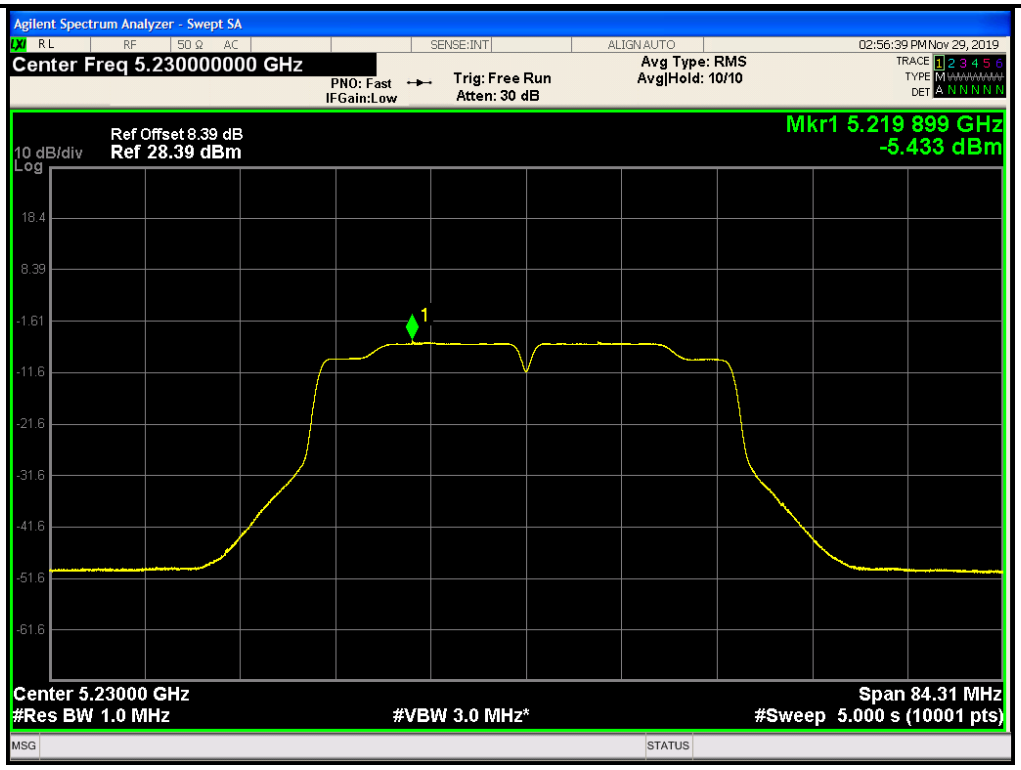
Low


Agilent Spectrum Analyzer - Swept SA
Center Freq 5.200000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: RMS
Avg|Hold: 10/10
02:38:00 PM Nov 29, 2019
Ref Offset 8.38 dB
10 dB/div
Ref 28.38 dBm
Mkr1 5.196 786 GHz
0.282 dBm
Center 5.20000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Span 45.46 MHz
#Sweep 5.000 s (10001 pts)

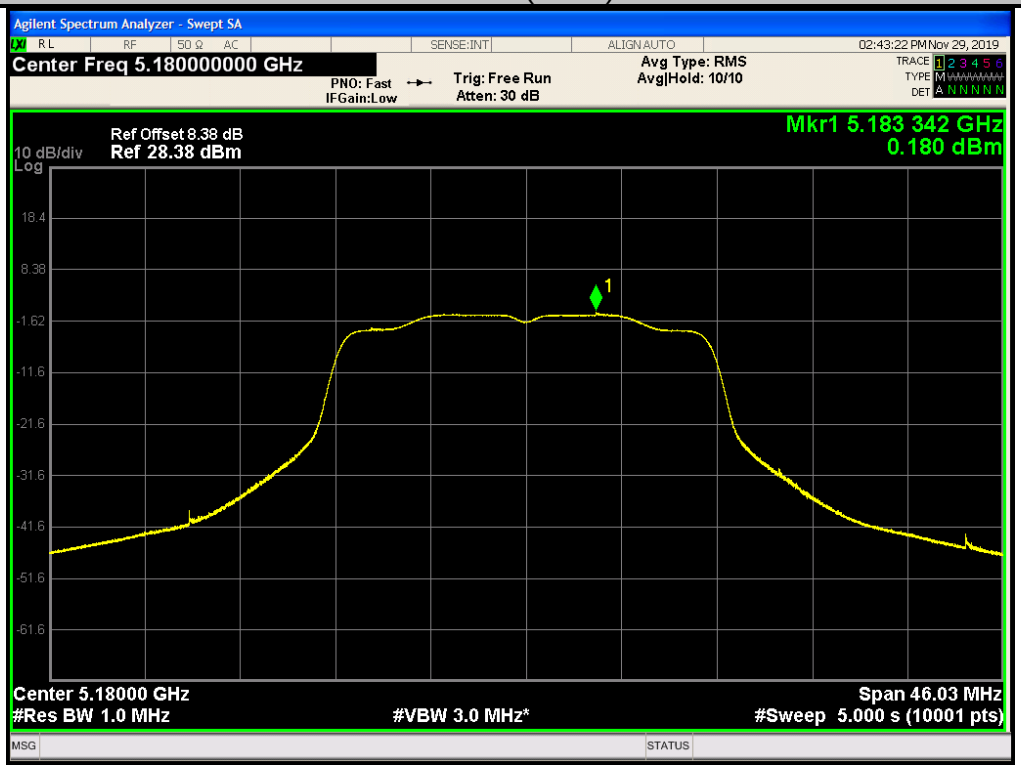
Mid


Agilent Spectrum Analyzer - Swept SA
Center Freq 5.240000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: RMS
Avg|Hold: 10/10
02:39:43 PM Nov 29, 2019
Ref Offset 8.43 dB
10 dB/div
Ref 28.43 dBm
Mkr1 5.237 932 GHz
-0.105 dBm
Center 5.24000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Span 45.35 MHz
#Sweep 5.000 s (10001 pts)

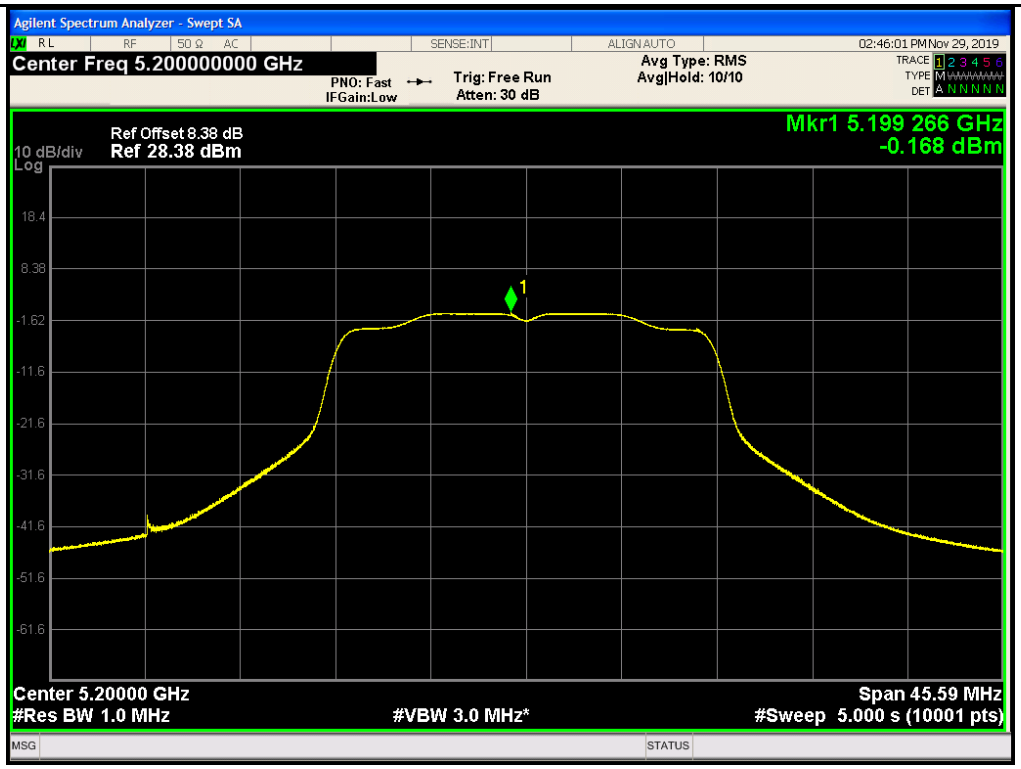
High

802.11n(HT40)

Low

High

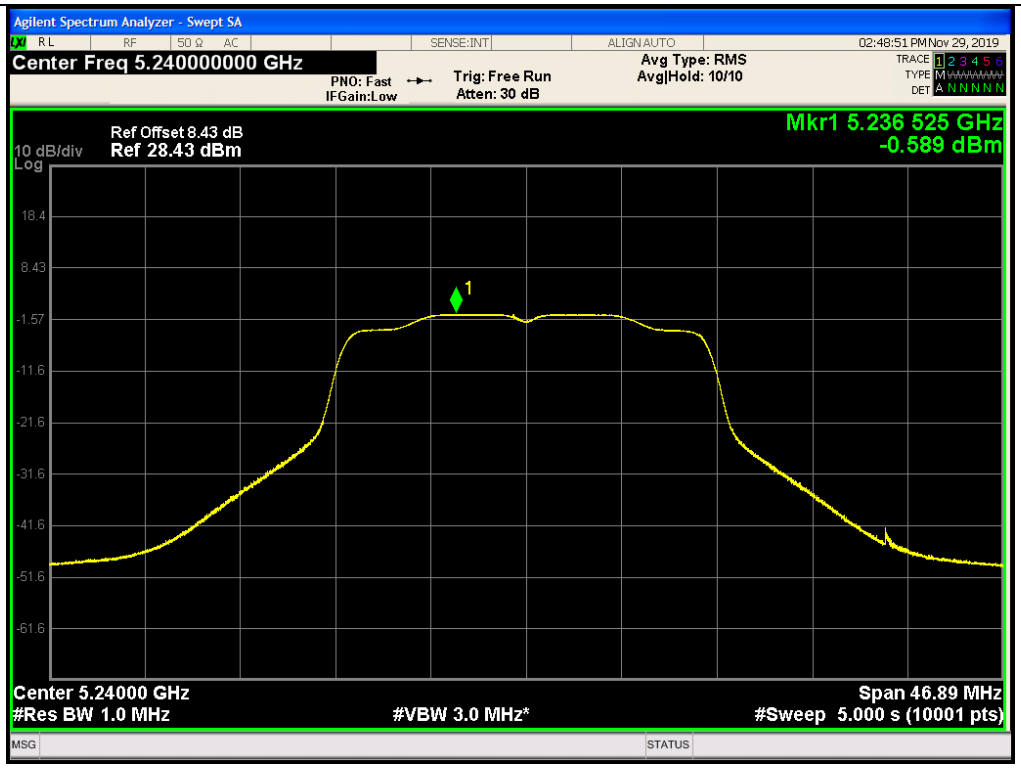
802.11ac(HT20)



Low

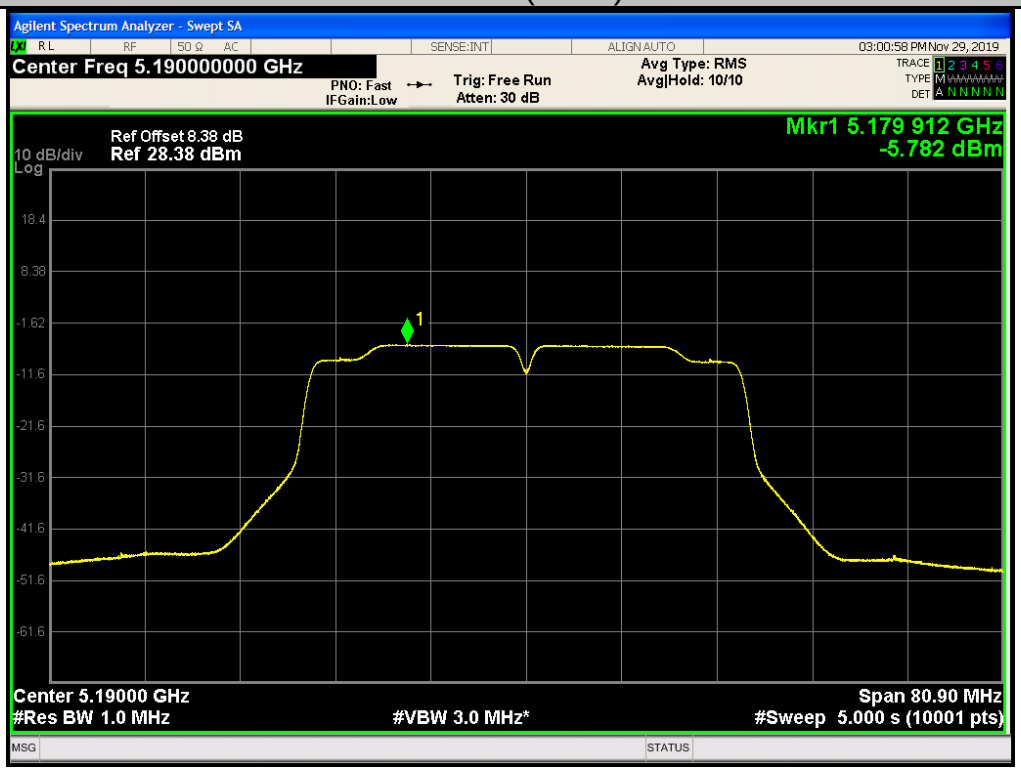


Mid

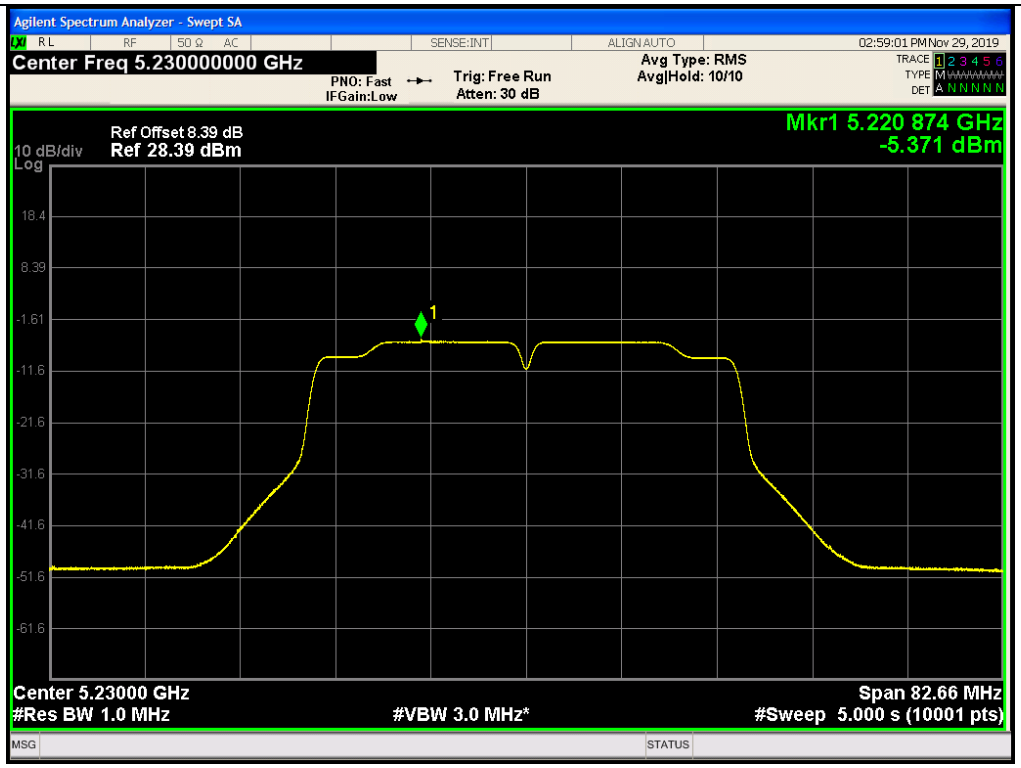


High

802.11ac(HT40)

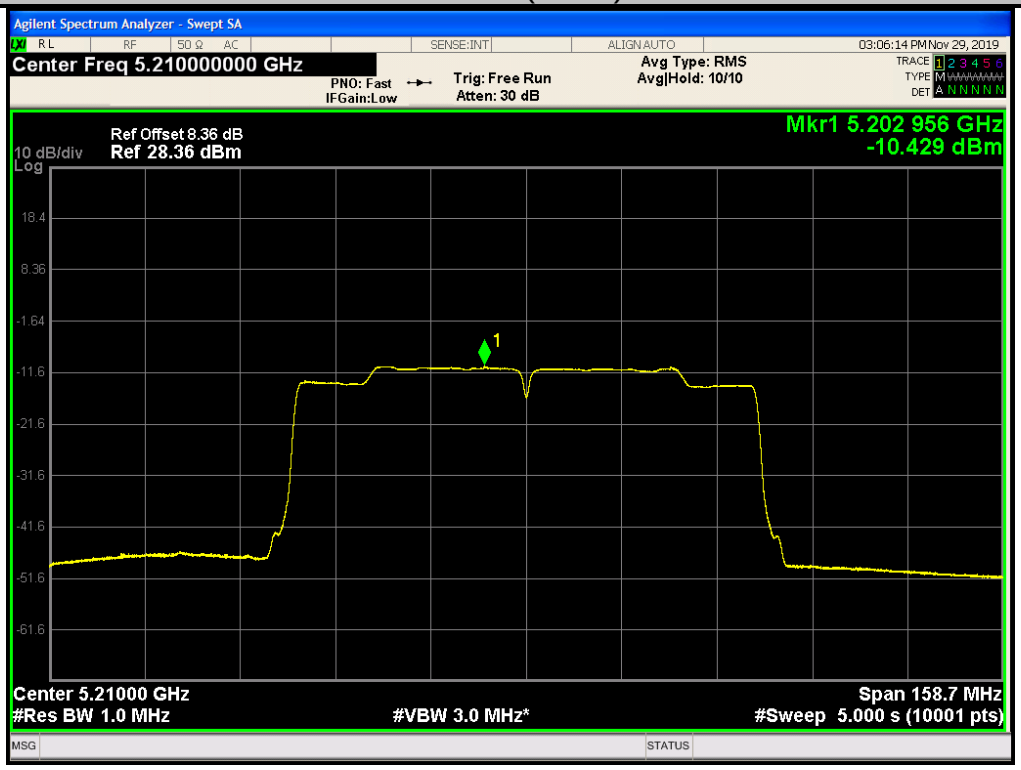


Low



High

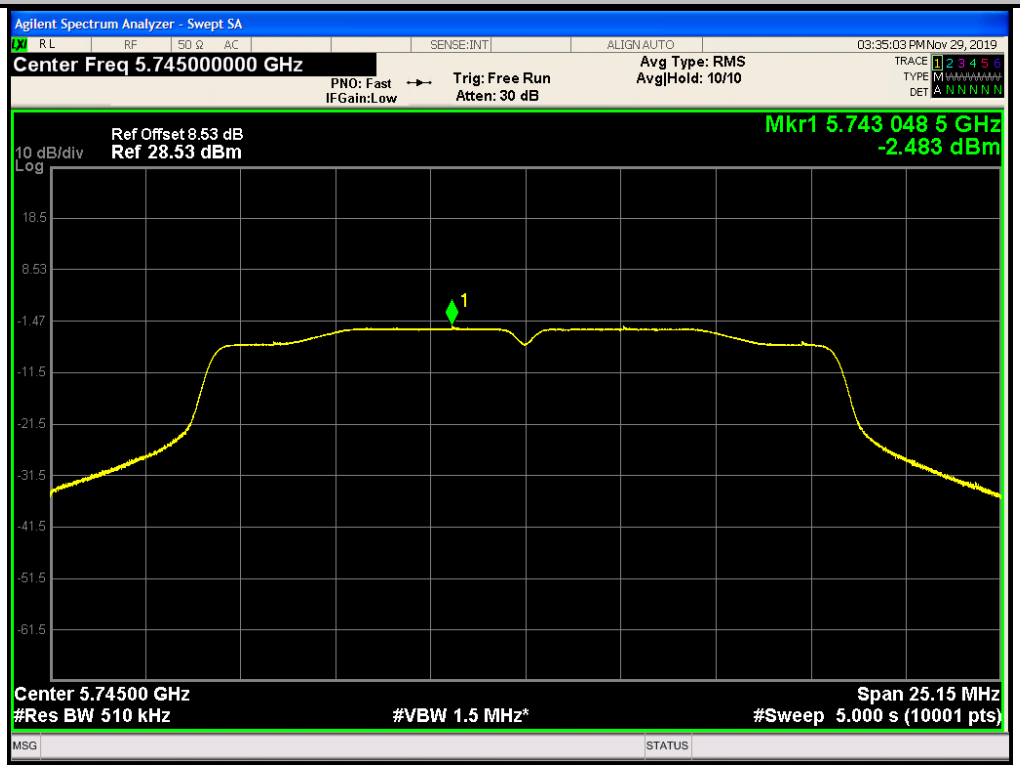
802.11ac(HT80)



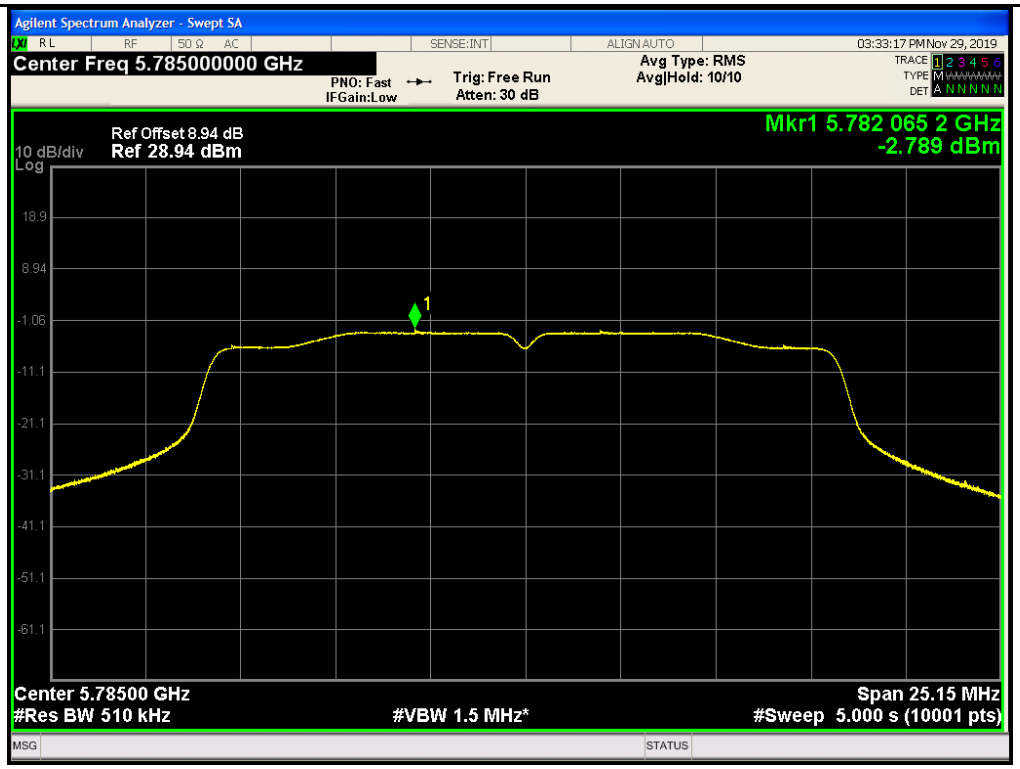
Low

Band IV (5725 – 5850 MHz)

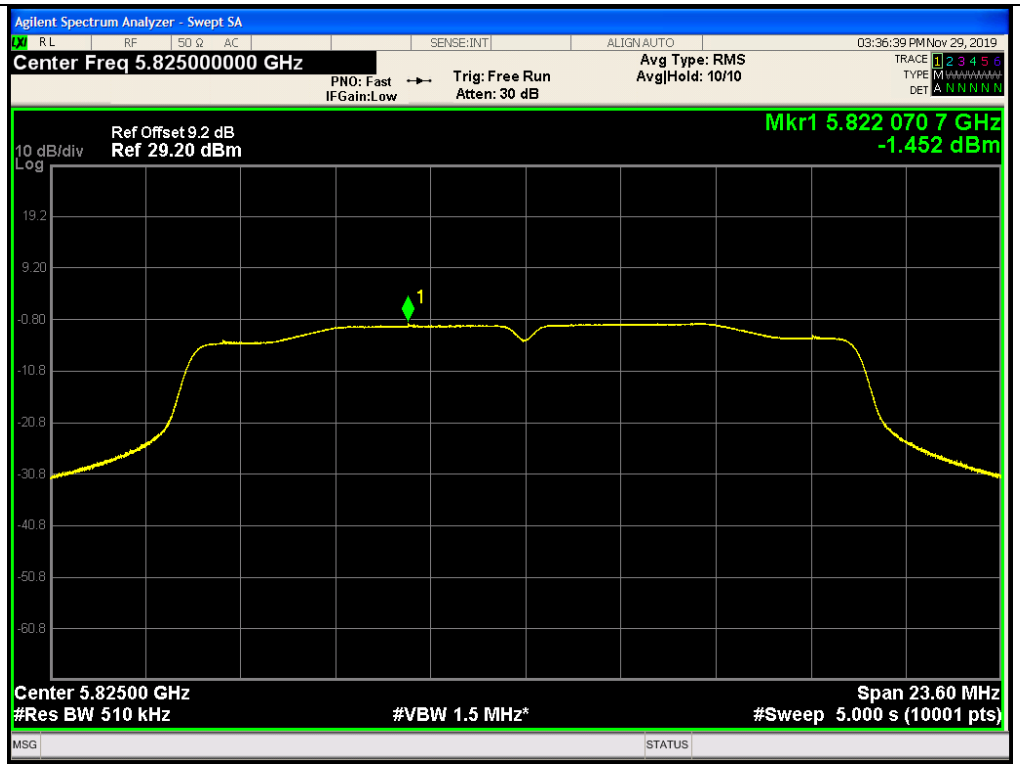
802.11a



Low

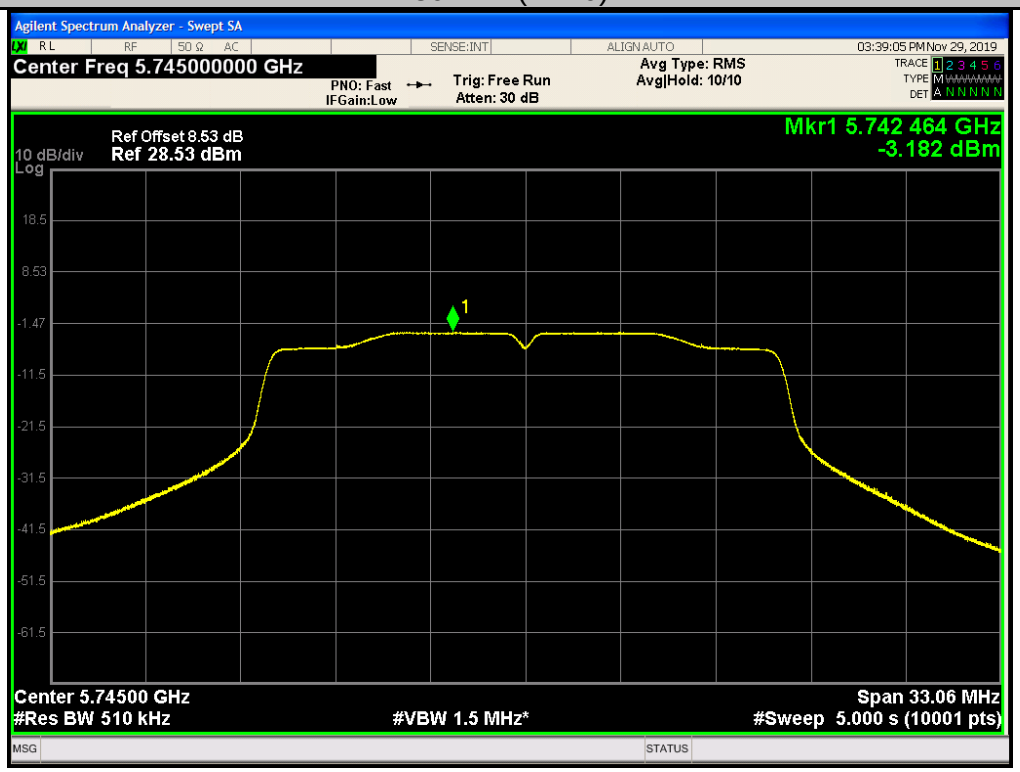


Mid

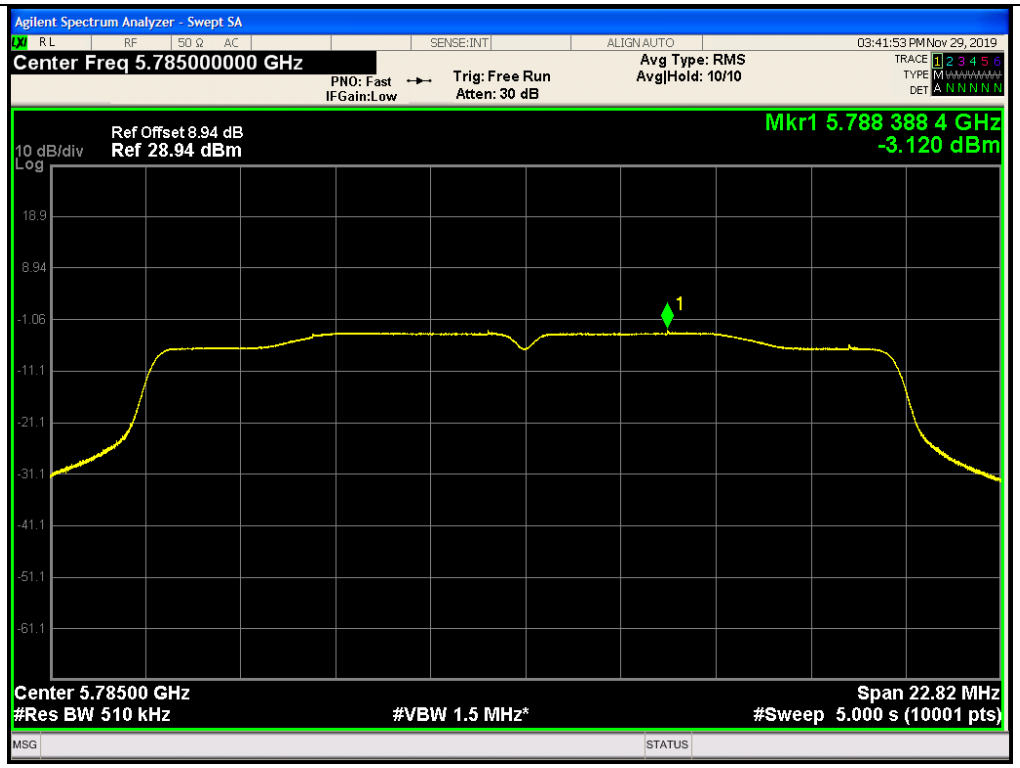


High

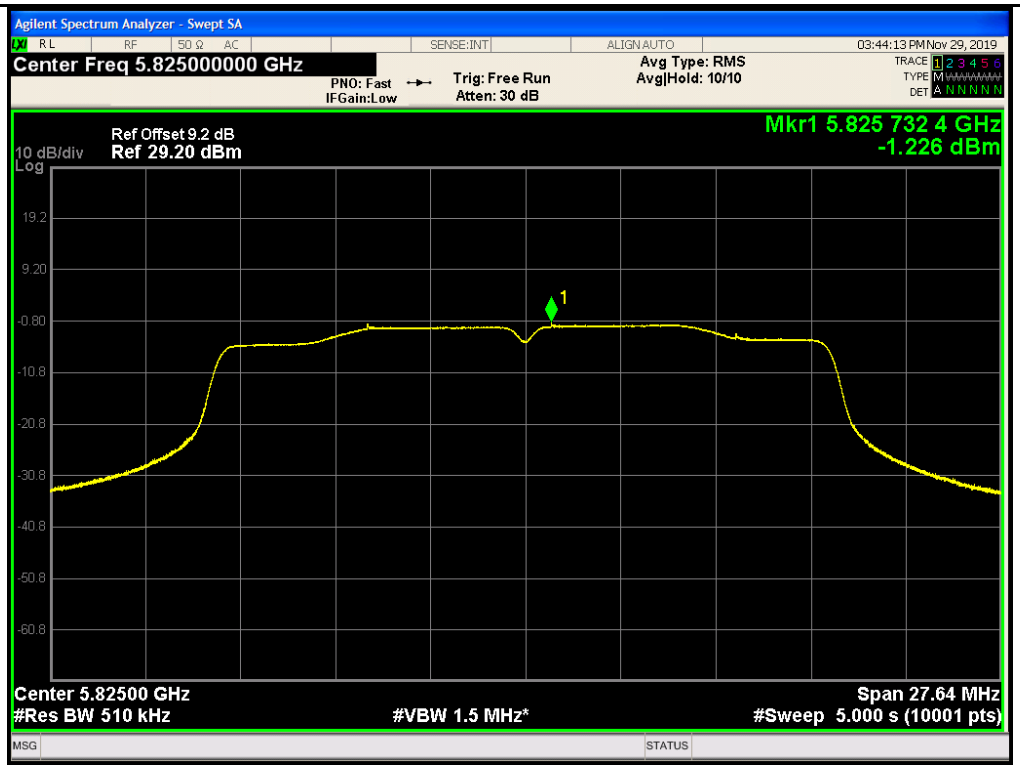
802.11n(HT20)



Low

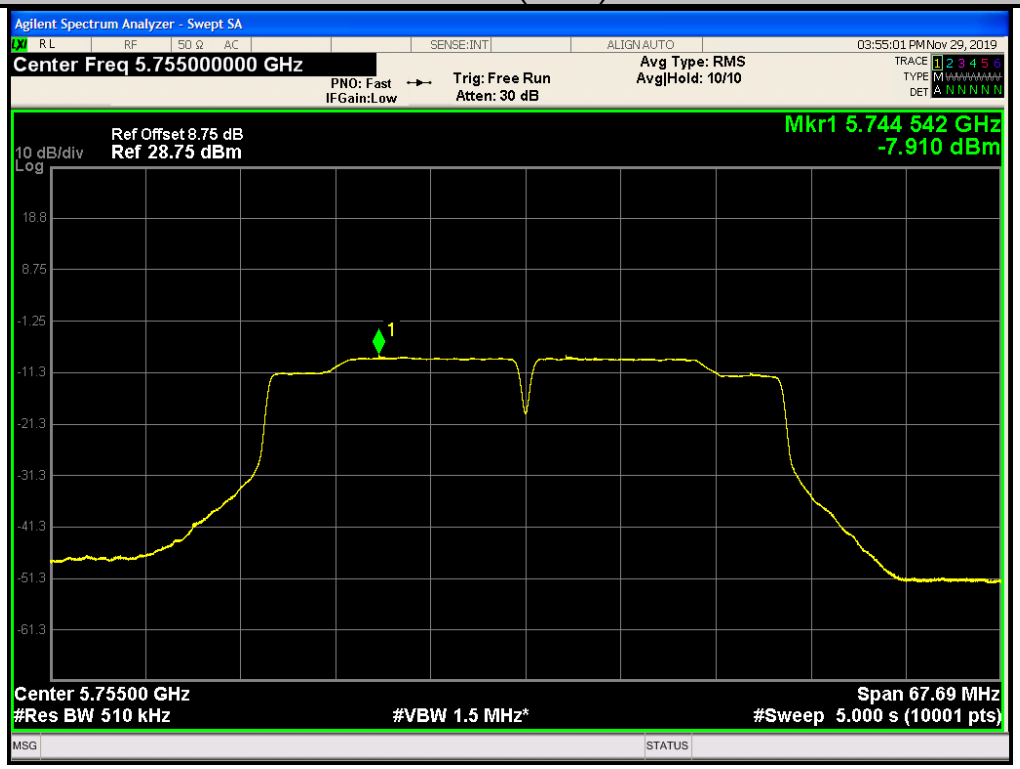

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.785000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: RMS
Avg|Hold: 10/10
03:41:53 PM Nov 29, 2019
Ref Offset 8.94 dB
10 dB/div
Ref 28.94 dBm
Log
Mkr1 5.788 388 4 GHz
-3.120 dBm
Center 5.78500 GHz
#Res BW 510 kHz
#VBW 1.5 MHz*
Span 22.82 MHz
#Sweep 5.000 s (10001 pts)

Mid

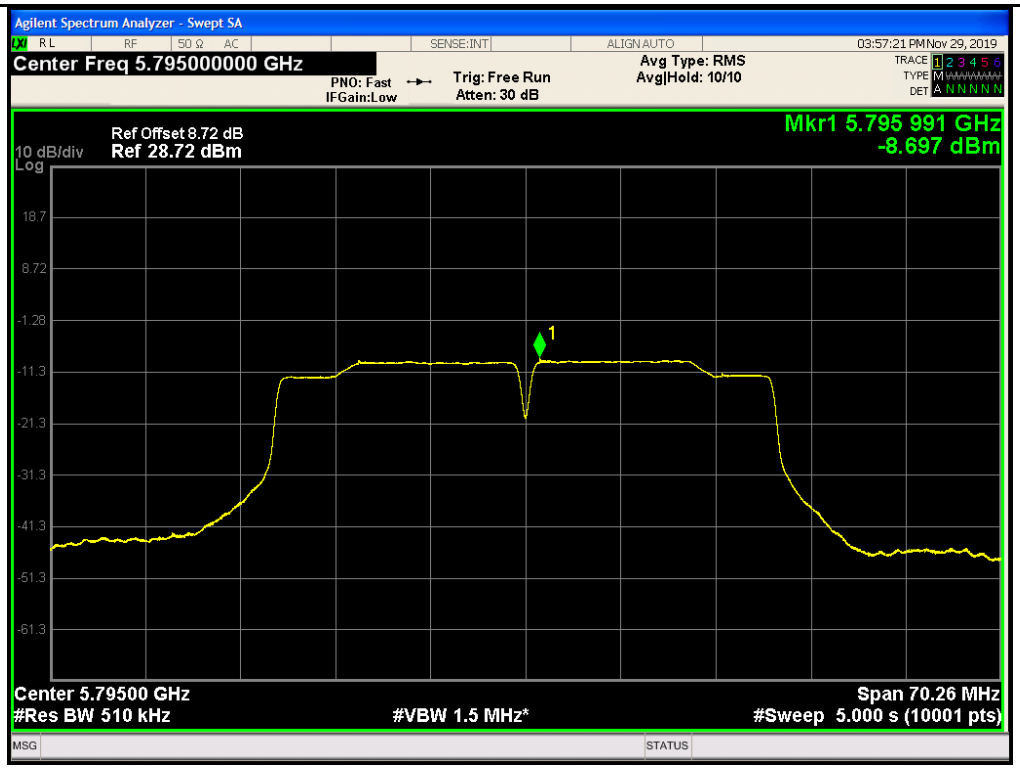

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.825000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: RMS
Avg|Hold: 10/10
03:44:13 PM Nov 29, 2019
Ref Offset 9.2 dB
10 dB/div
Ref 29.20 dBm
Log
Mkr1 5.825 732 4 GHz
-1.226 dBm
Center 5.82500 GHz
#Res BW 510 kHz
#VBW 1.5 MHz*
Span 27.64 MHz
#Sweep 5.000 s (10001 pts)

High

802.11n(HT40)

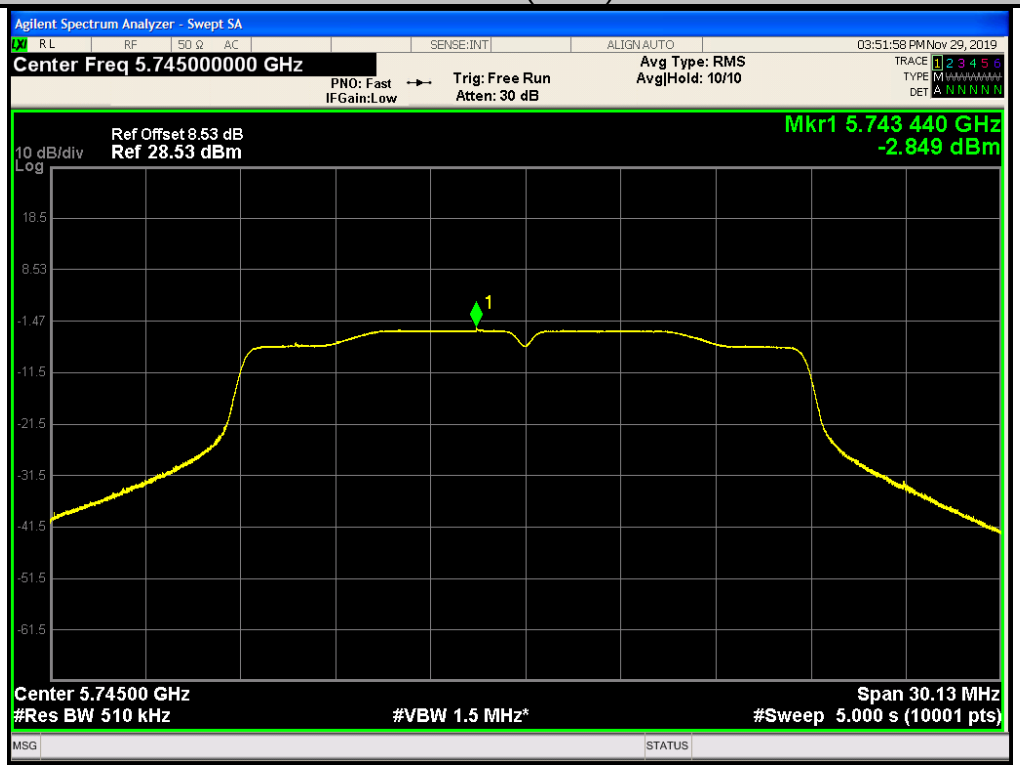


Low

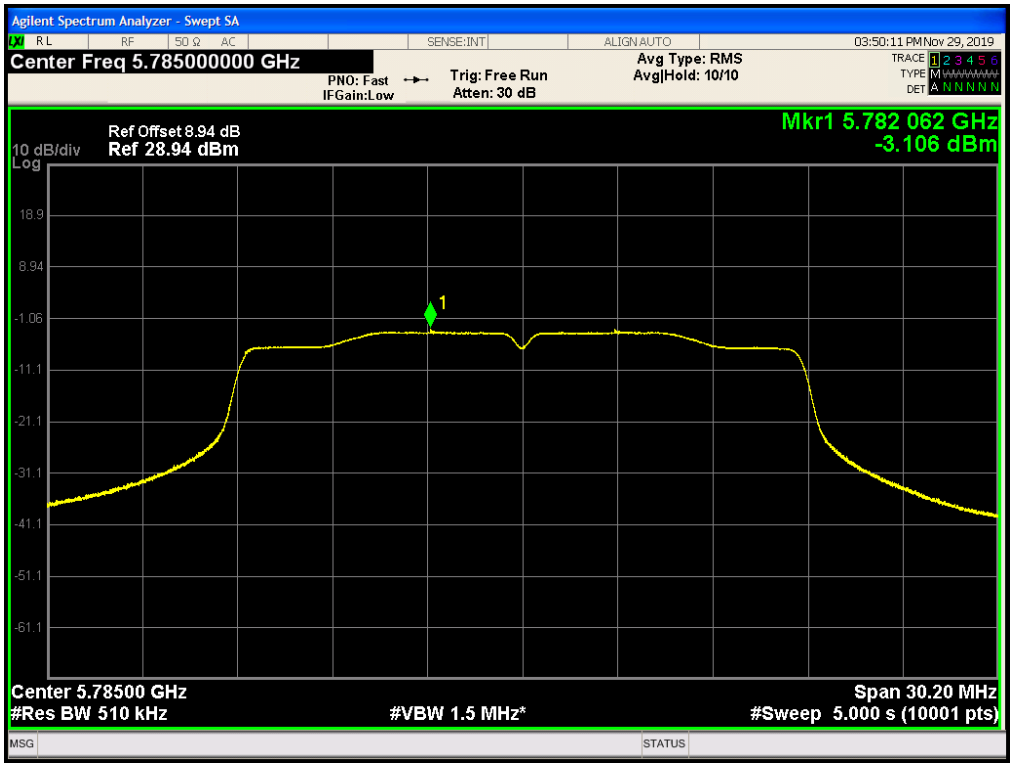


High

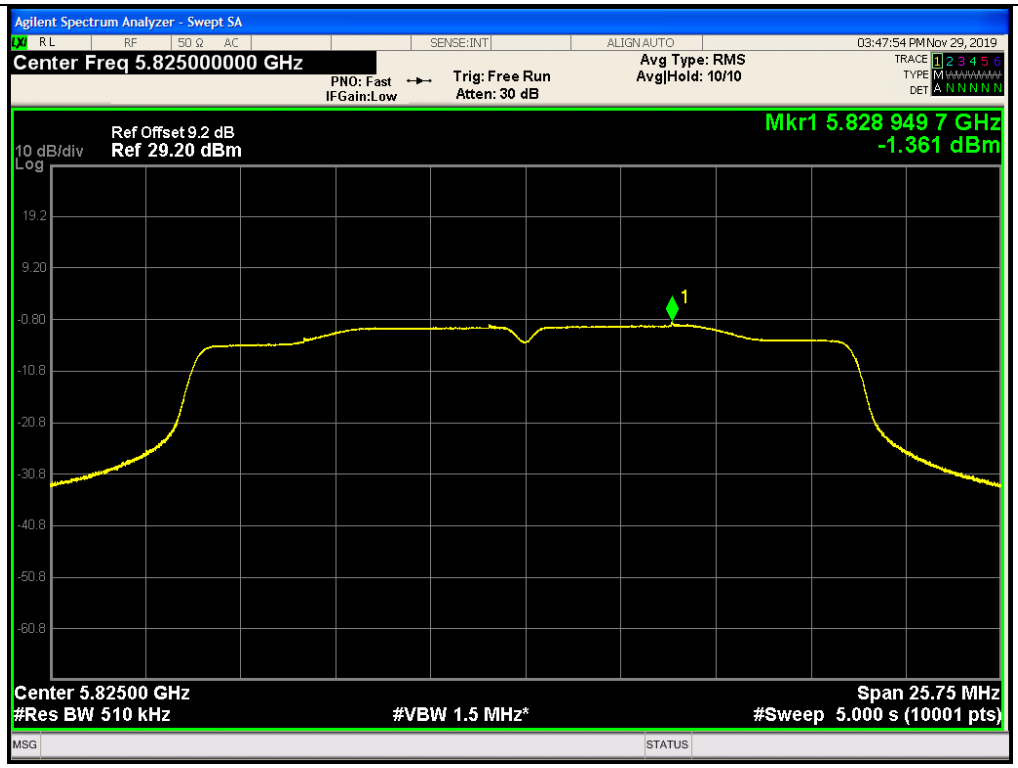
802.11ac(HT20)



Low

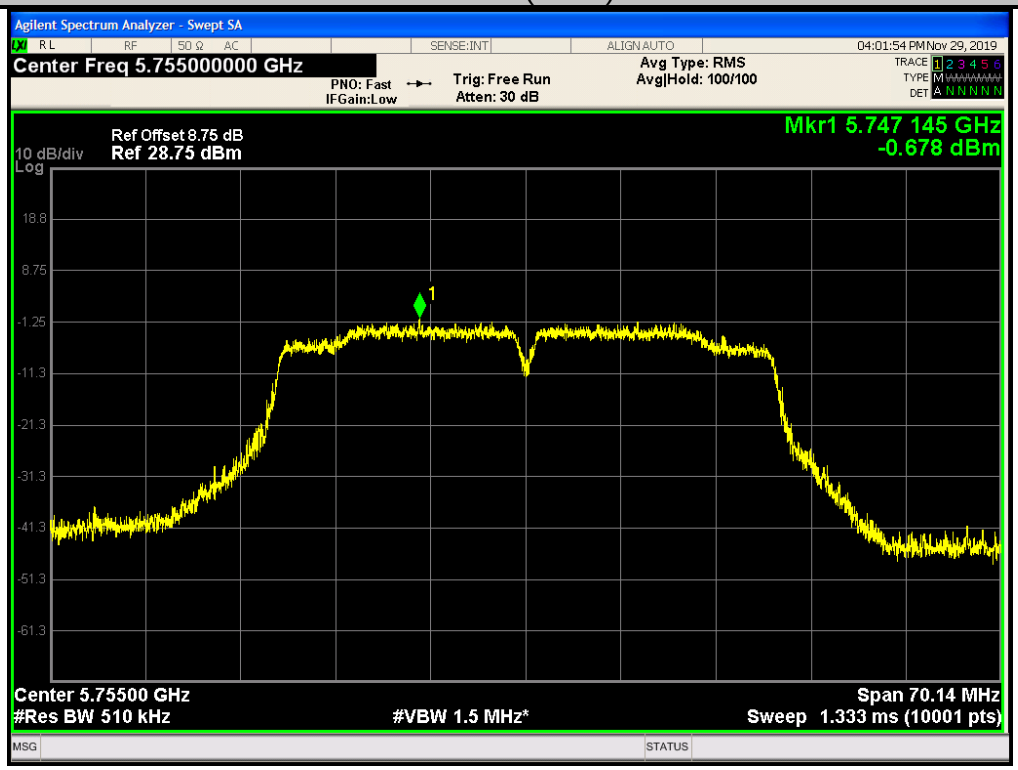


Mid

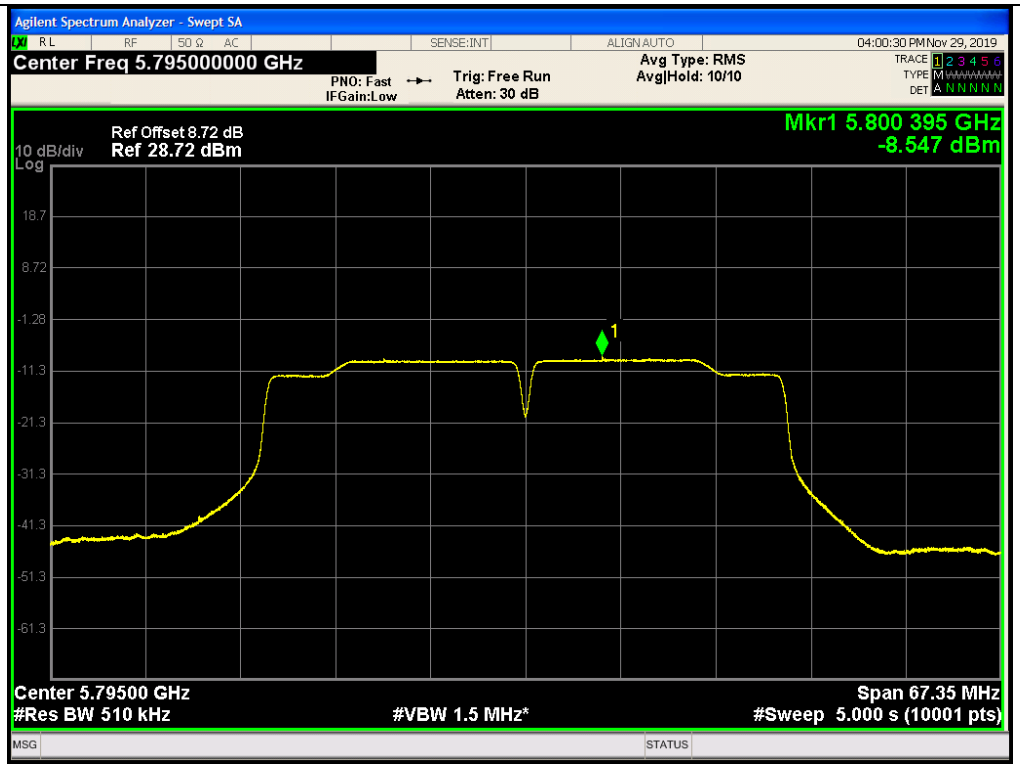


High

802.11ac(HT40)

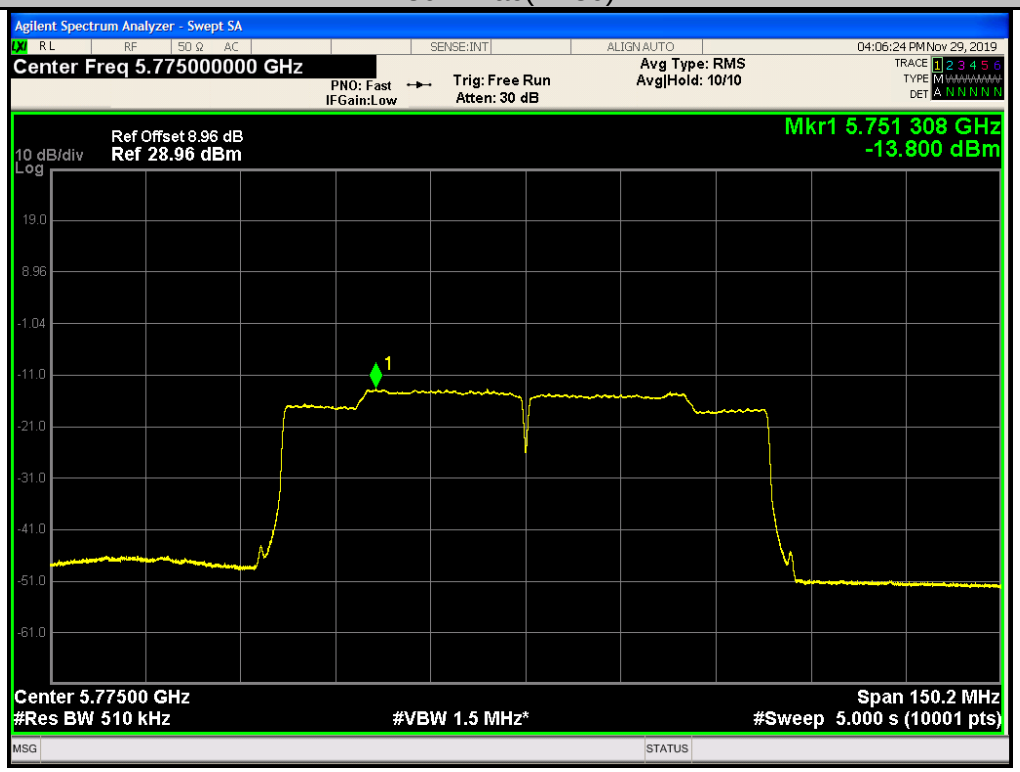


Low



High

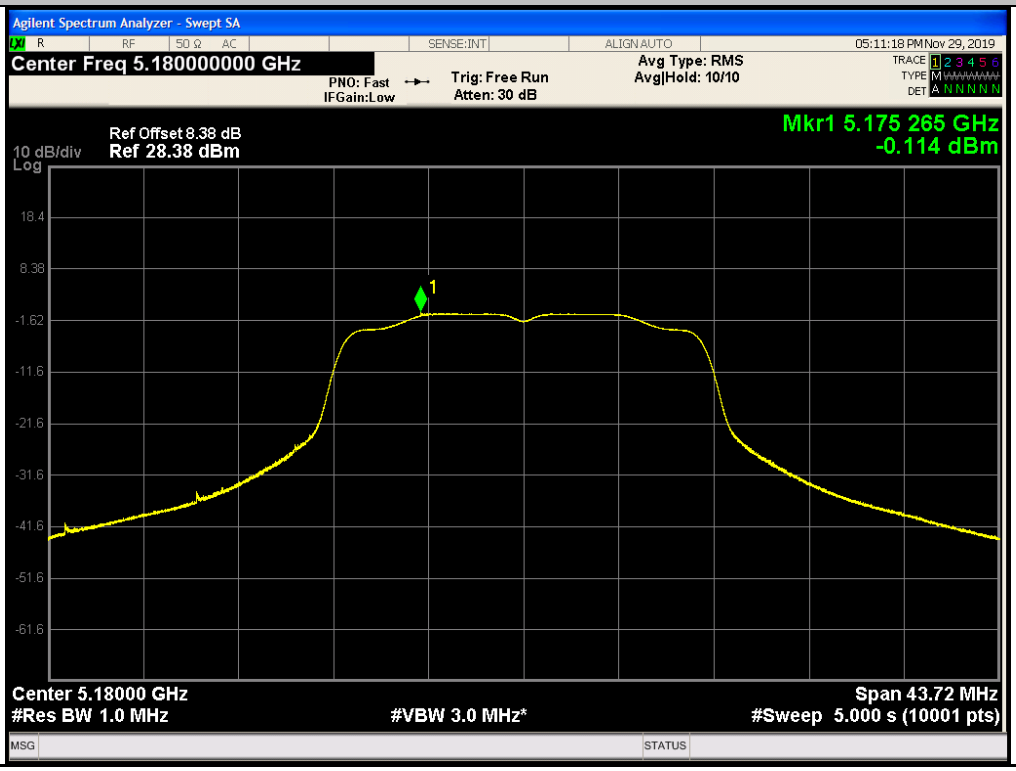
802.11ac(HT80)



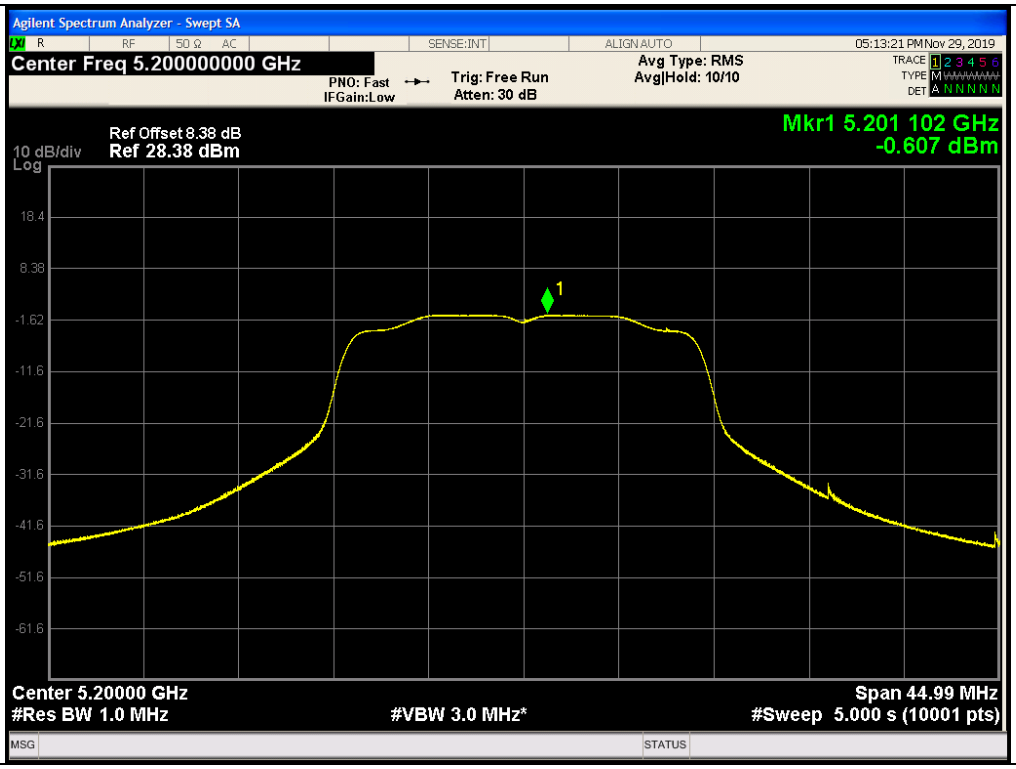
Low

ANT2
Band I （5150 – 5250 MHz）

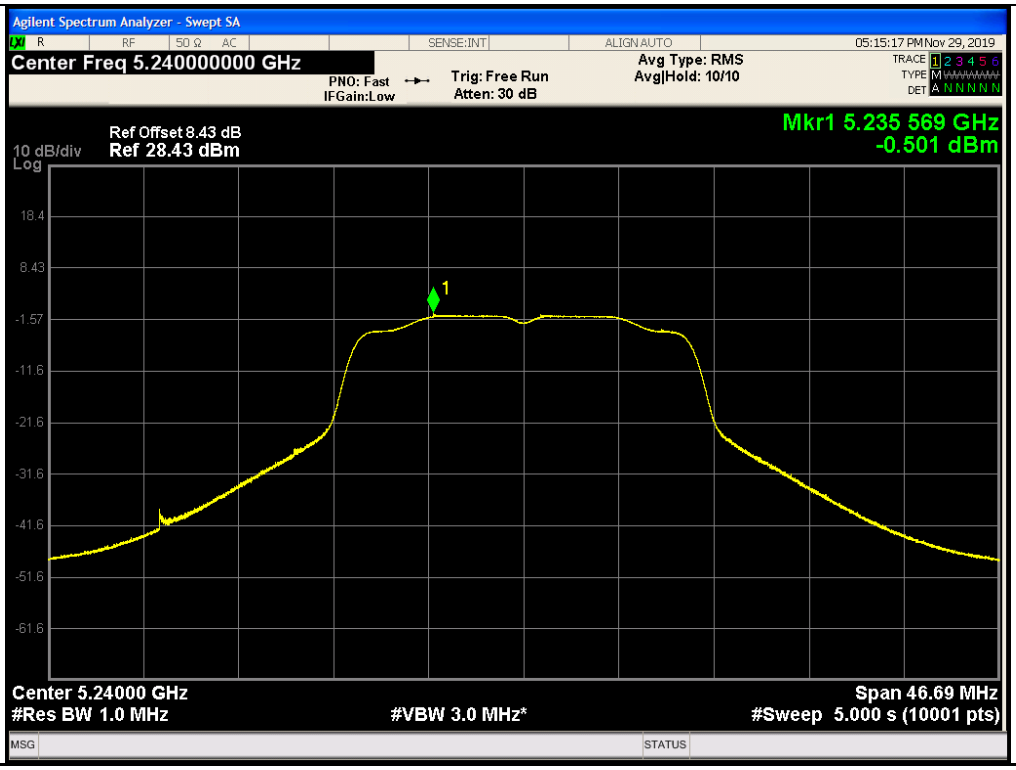
802.11a



Low

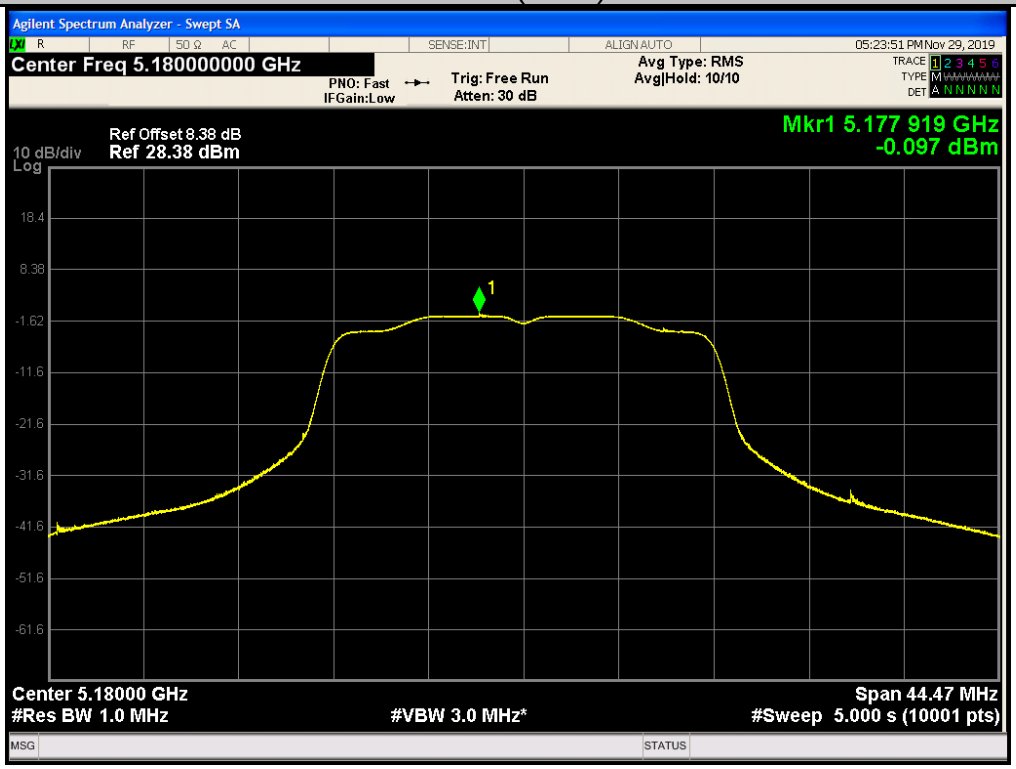


Mid

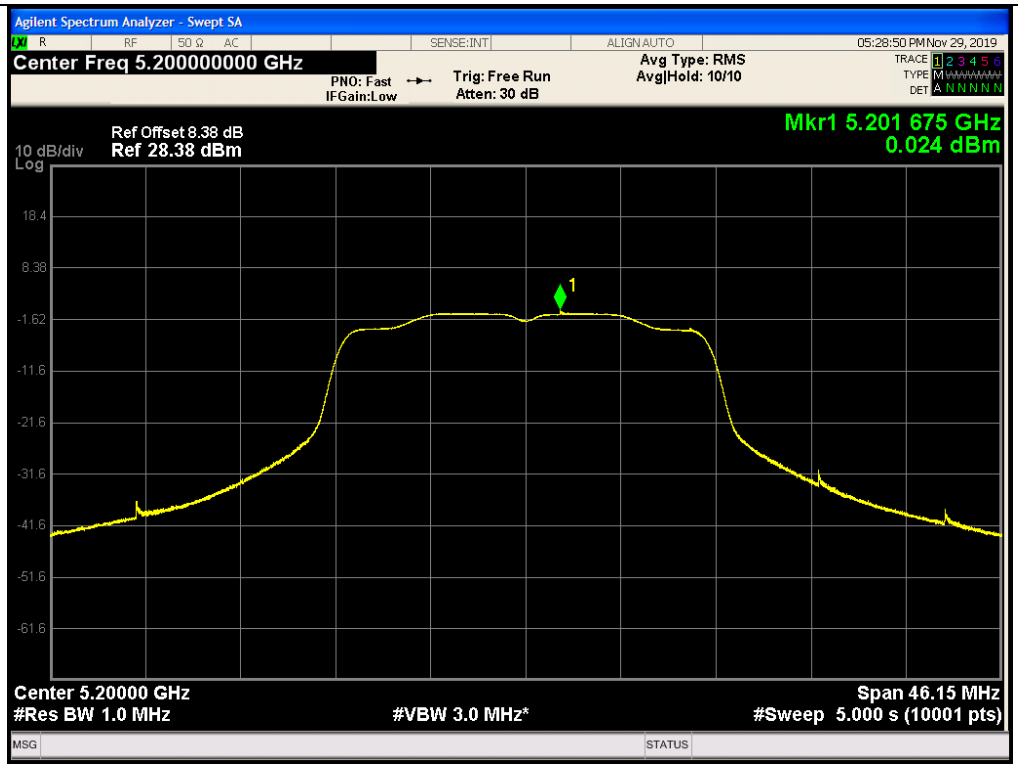


High

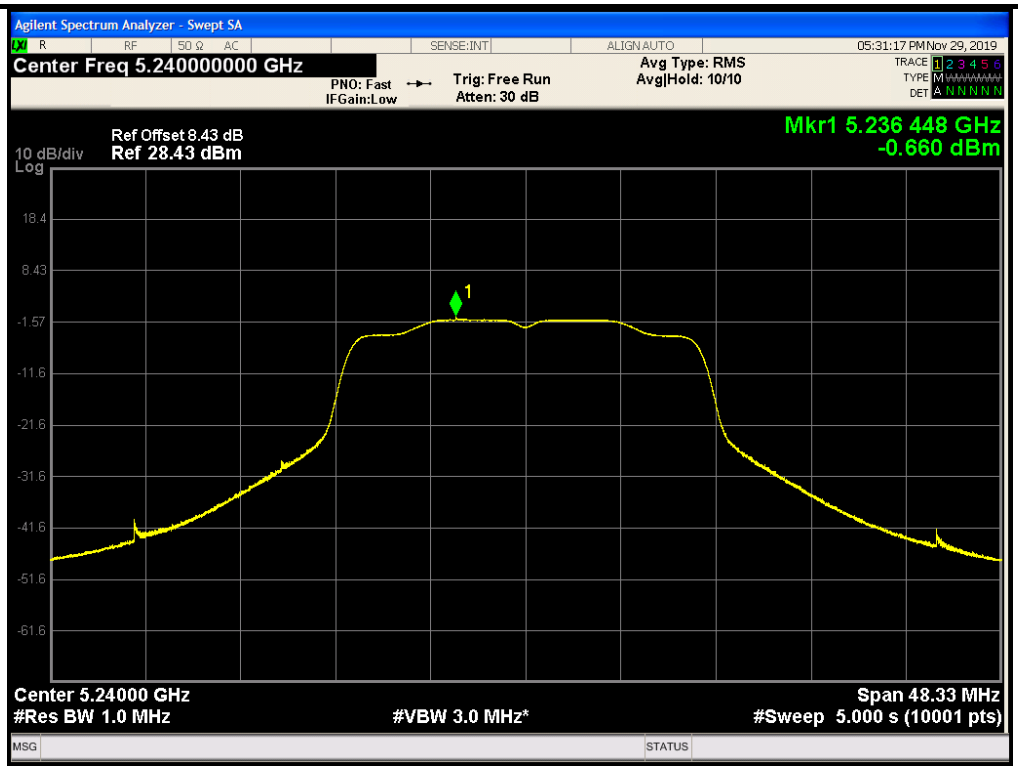
802.11n(HT20)



Low

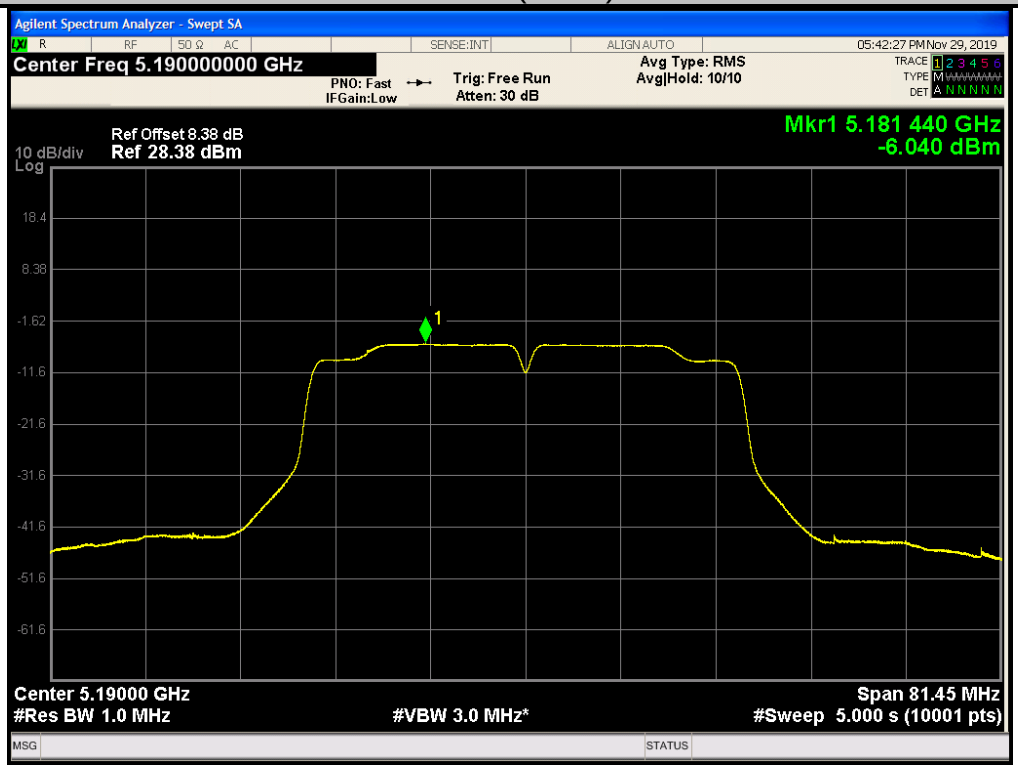

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.200000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: RMS
Avg|Hold: 10/10
05:28:50 PM Nov 29, 2019
Ref Offset 8.38 dB
10 dB/div
Ref 28.38 dBm
Log
Mkr1 5.201 675 GHz
0.024 dBm
Center 5.20000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Span 46.15 MHz
#Sweep 5.000 s (10001 pts)

Mid

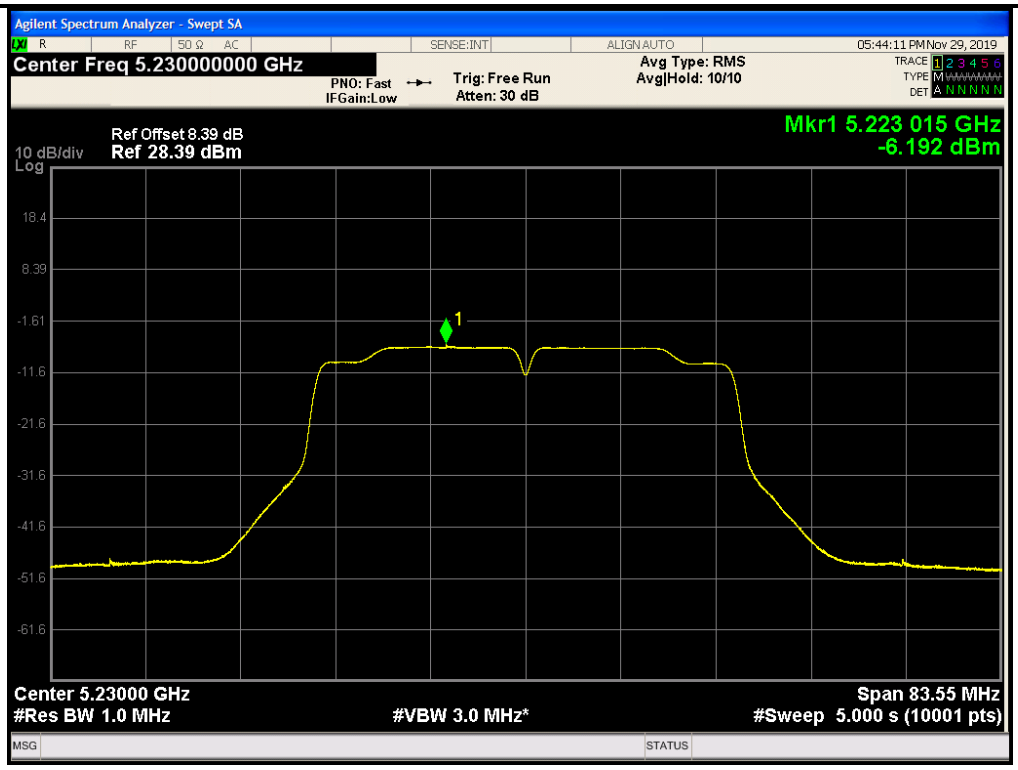

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.240000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: RMS
Avg|Hold: 10/10
05:31:17 PM Nov 29, 2019
Ref Offset 8.43 dB
10 dB/div
Ref 28.43 dBm
Log
Mkr1 5.236 448 GHz
-0.660 dBm
Center 5.24000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Span 48.33 MHz
#Sweep 5.000 s (10001 pts)

High

802.11n(HT40)

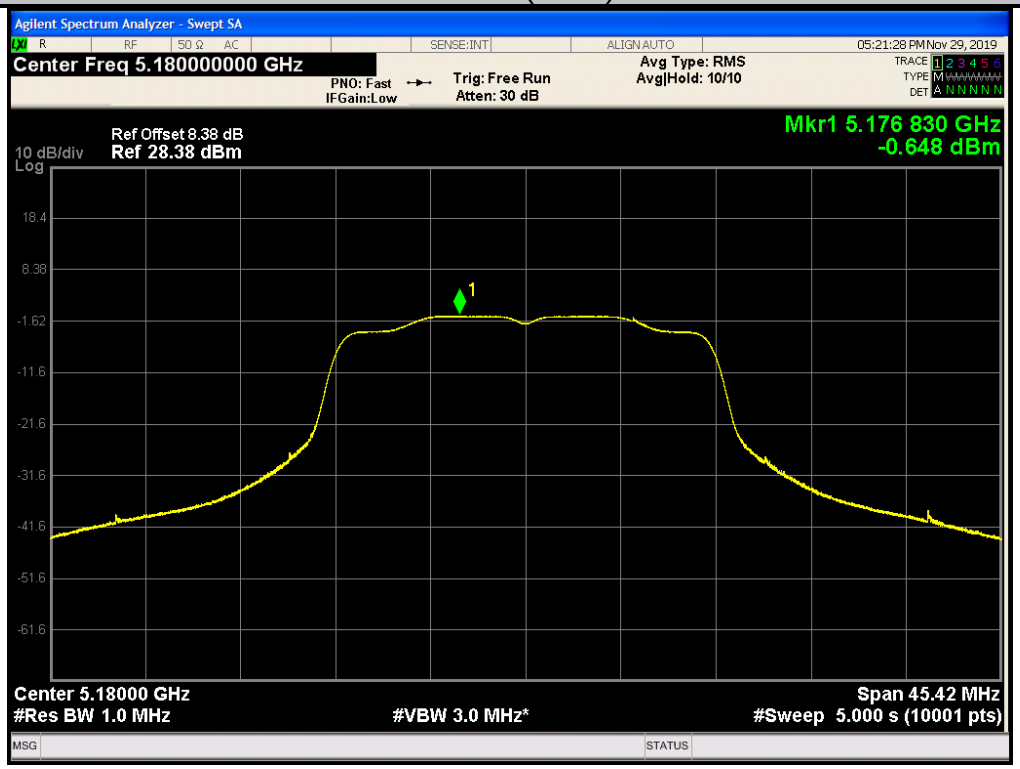


Low

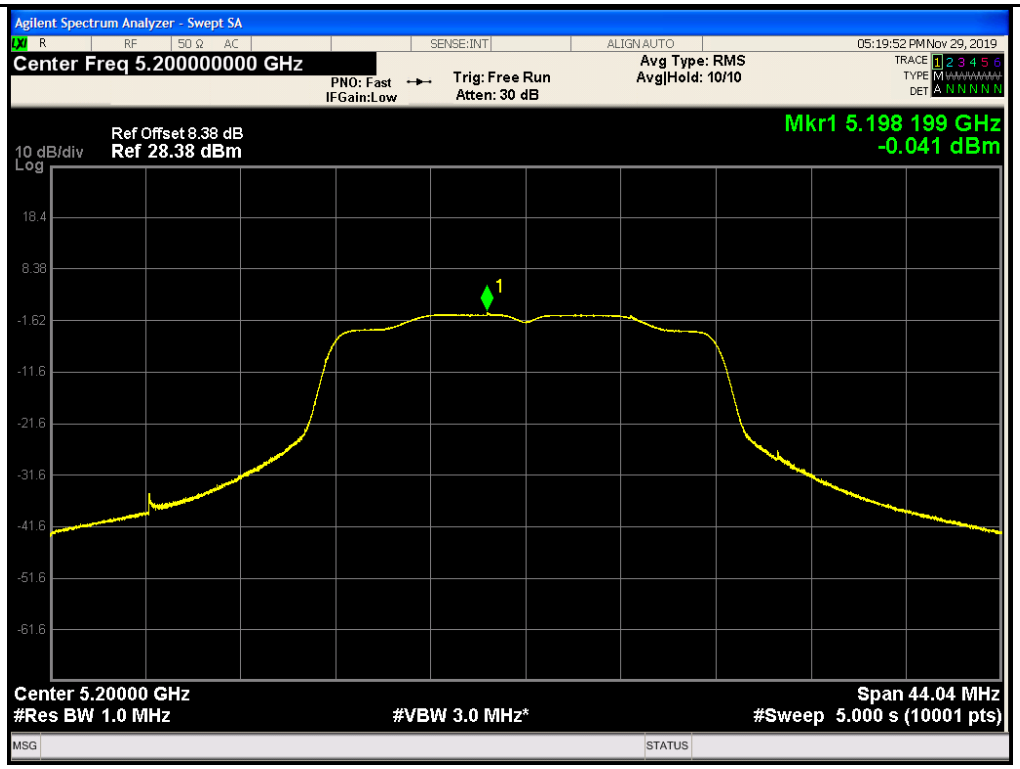


High

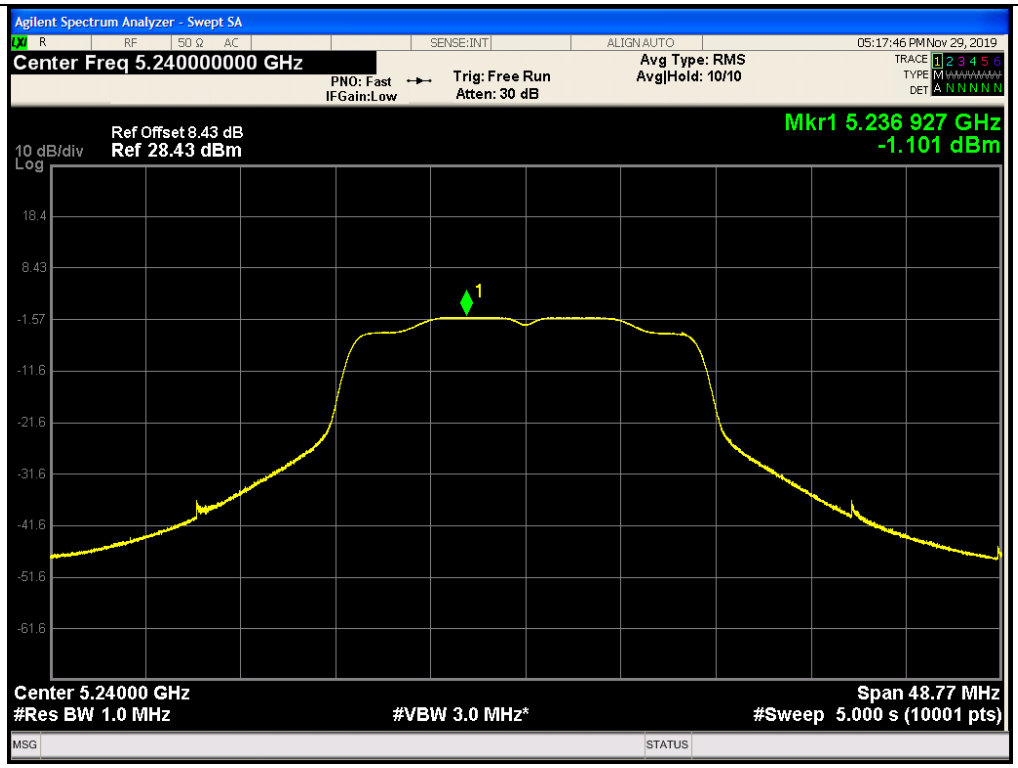
802.11ac(HT20)



Low

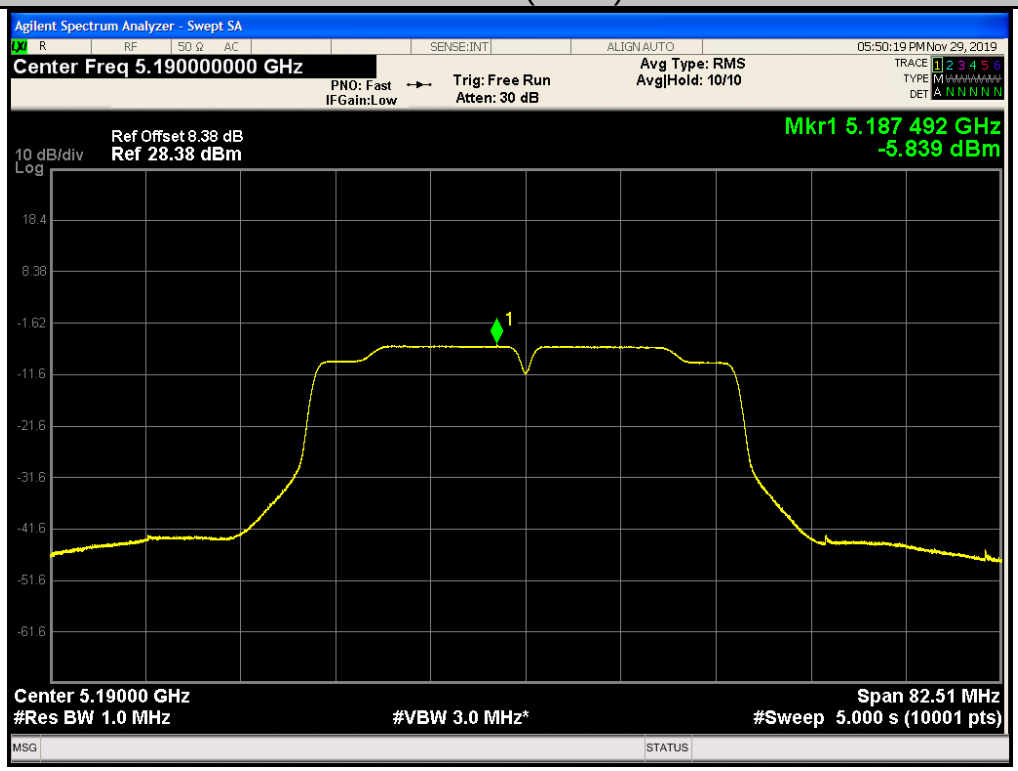


Mid



High

802.11ac(HT40)



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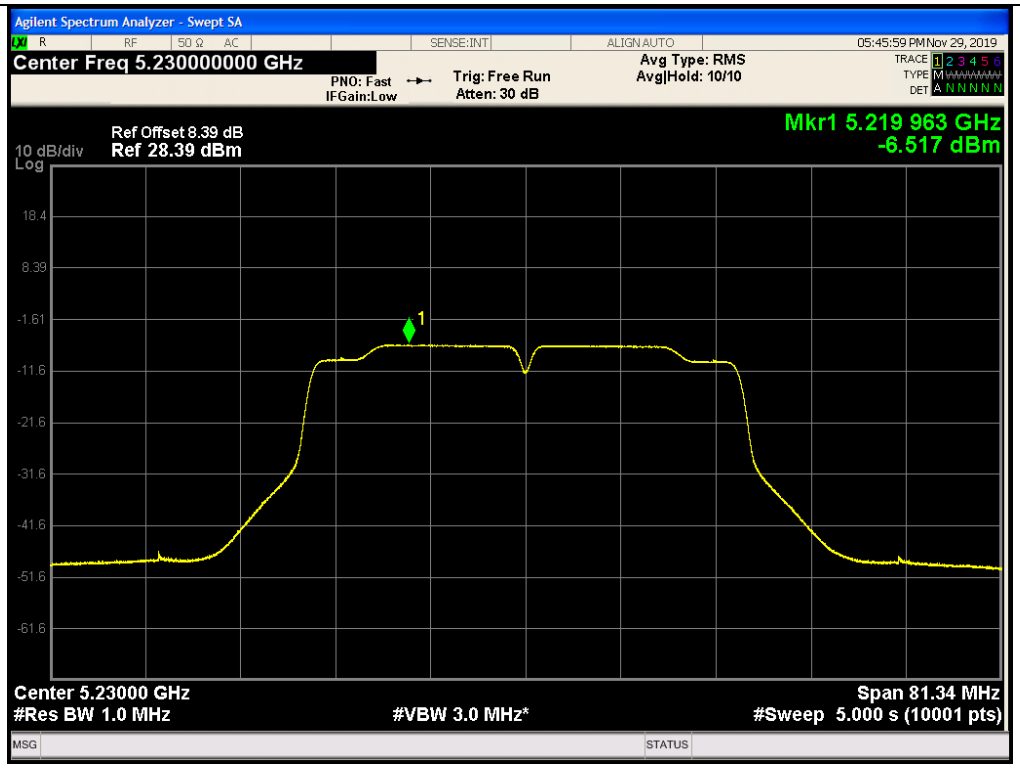
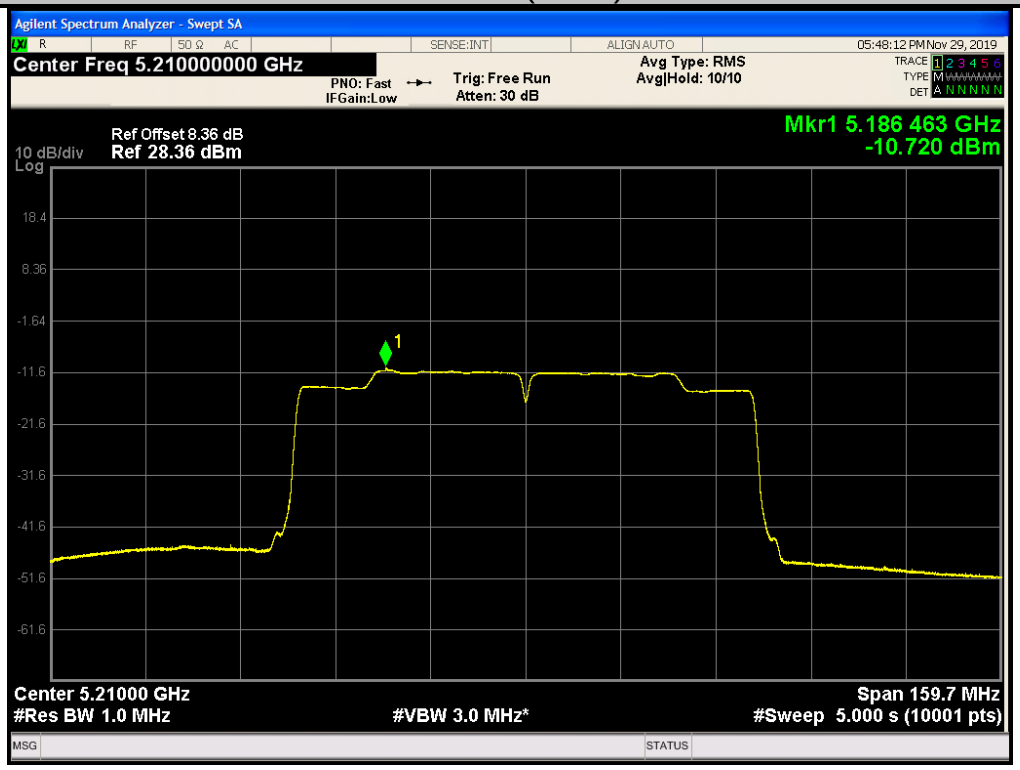


High

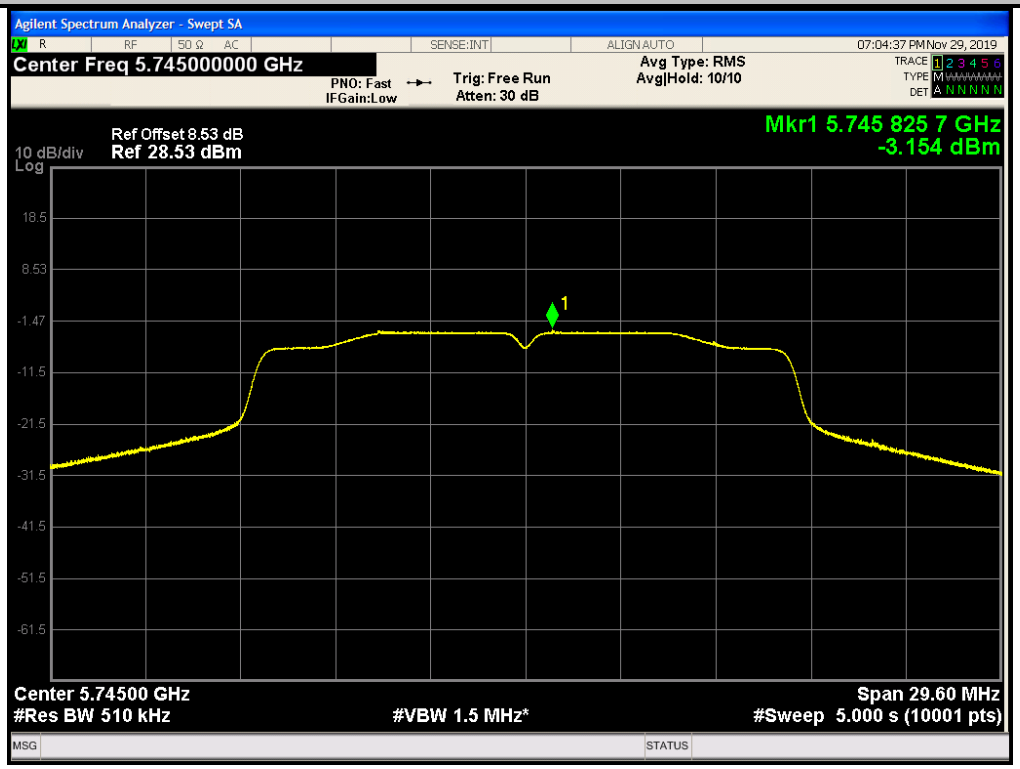
802.11ac(HT80)



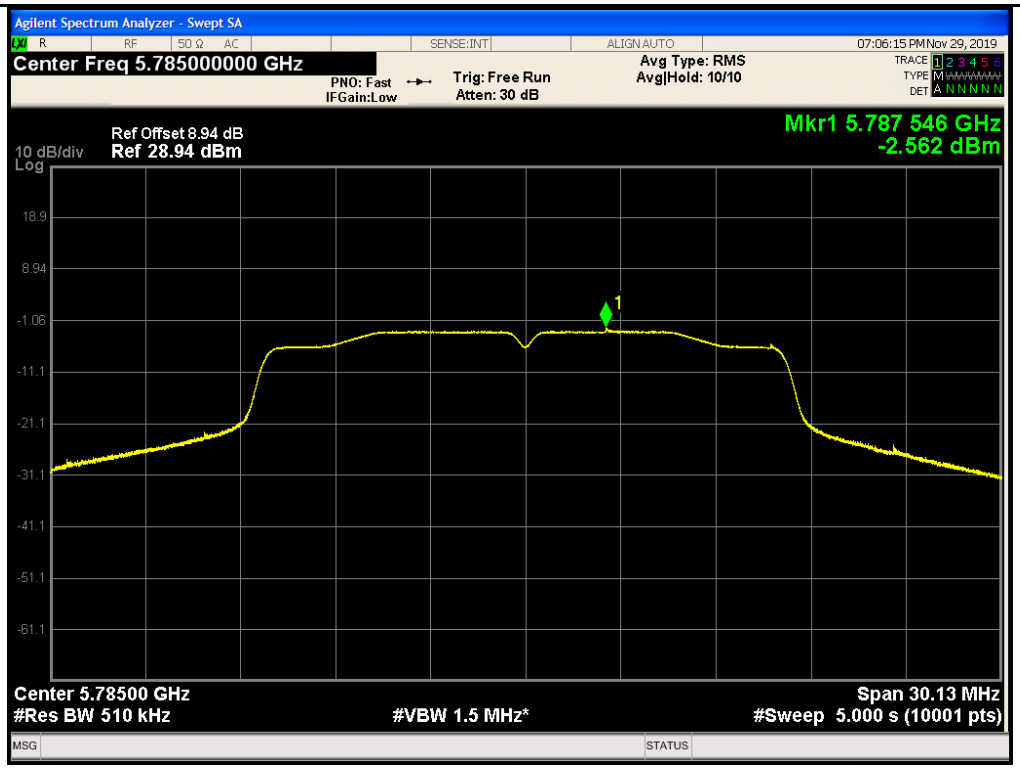
Low

Band IV (5725 – 5850 MHz)

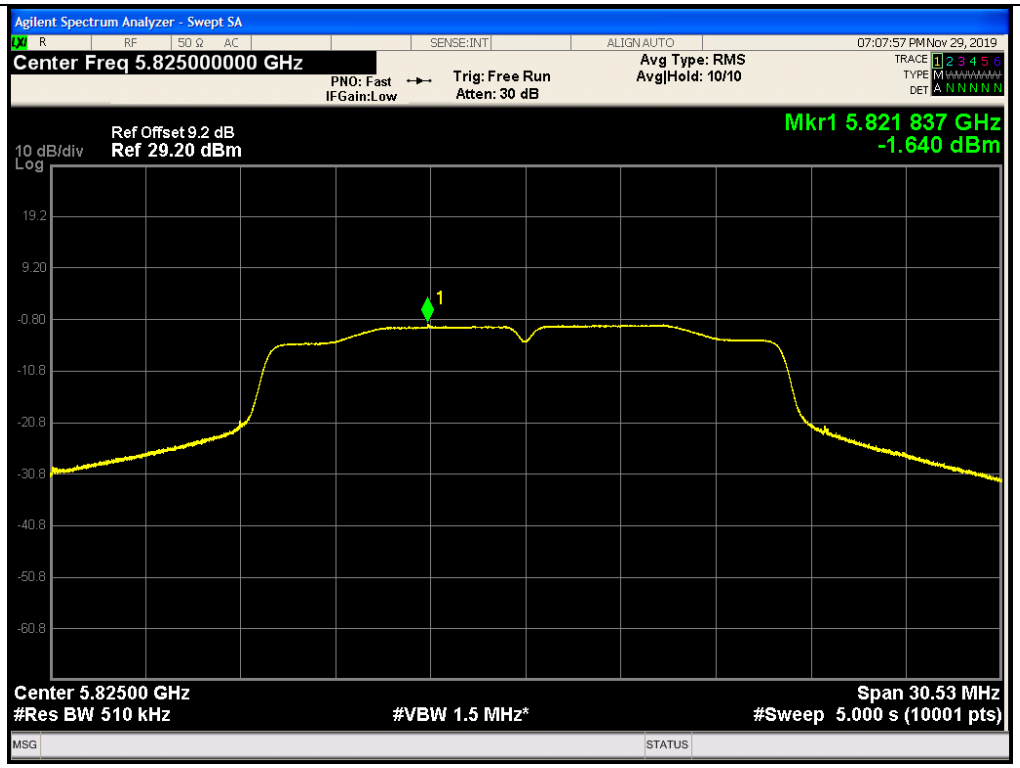
802.11a



Low

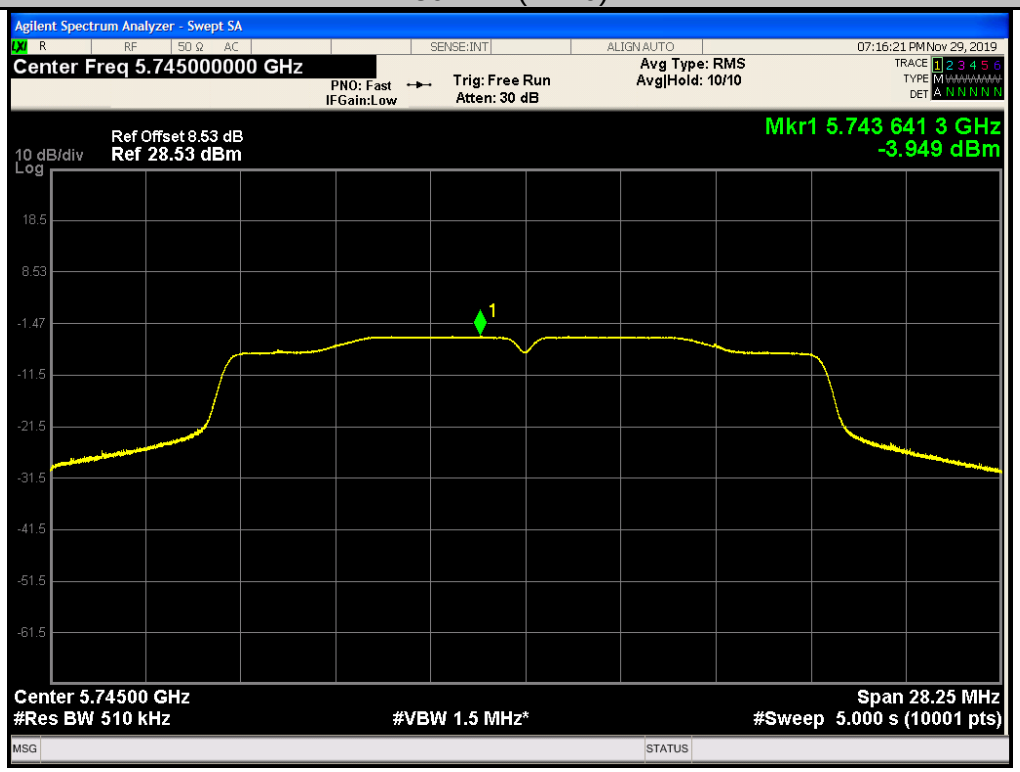


Mid

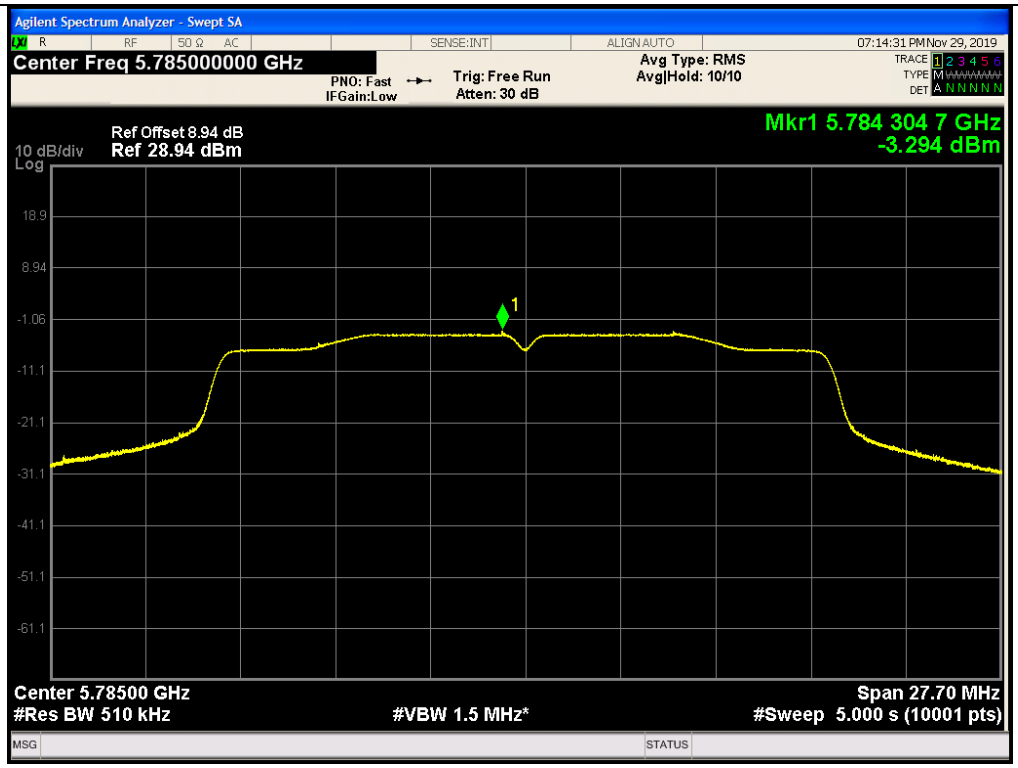


High

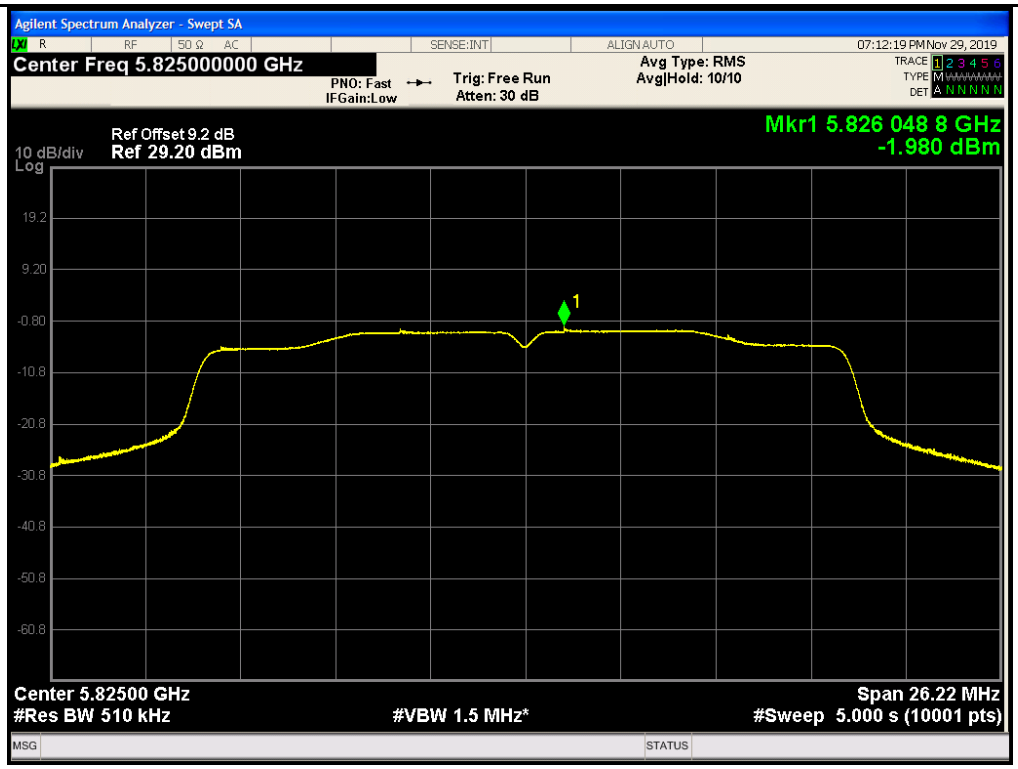
802.11n(HT20)



Low

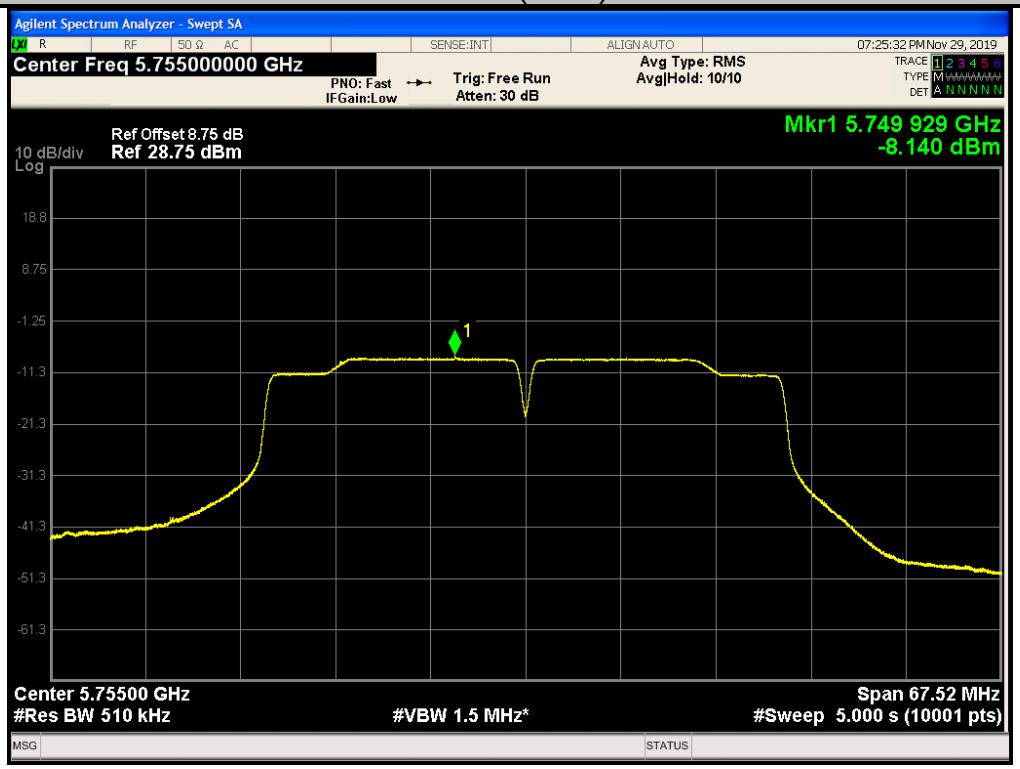

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.785000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: RMS
Avg|Hold: 10/10
07:14:31 PM Nov 29, 2019
Ref Offset 8.94 dB
10 dB/div
Ref 28.94 dBm
Log
Mkr1 5.784 304 7 GHz
-3.294 dBm
Center 5.78500 GHz
#Res BW 510 kHz
#VBW 1.5 MHz*
Span 27.70 MHz
#Sweep 5.000 s (10001 pts)

Mid

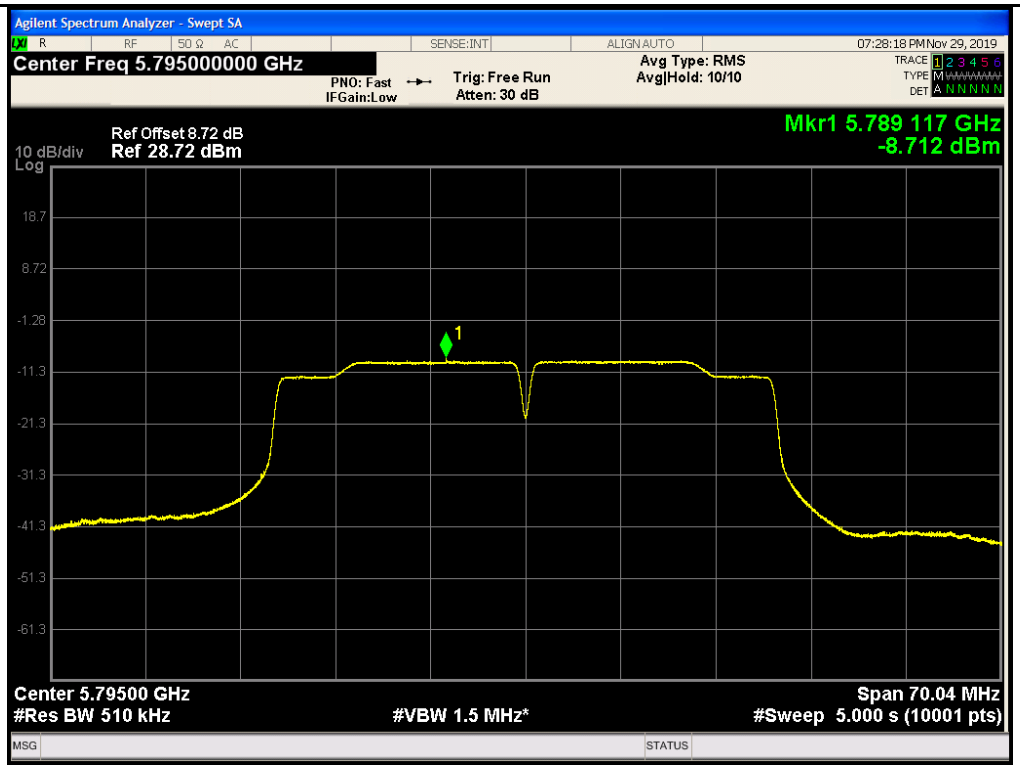

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.825000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: RMS
Avg|Hold: 10/10
07:12:19 PM Nov 29, 2019
Ref Offset 9.2 dB
10 dB/div
Ref 29.20 dBm
Log
Mkr1 5.826 048 8 GHz
-1.980 dBm
Center 5.82500 GHz
#Res BW 510 kHz
#VBW 1.5 MHz*
Span 26.22 MHz
#Sweep 5.000 s (10001 pts)

High

802.11n(HT40)

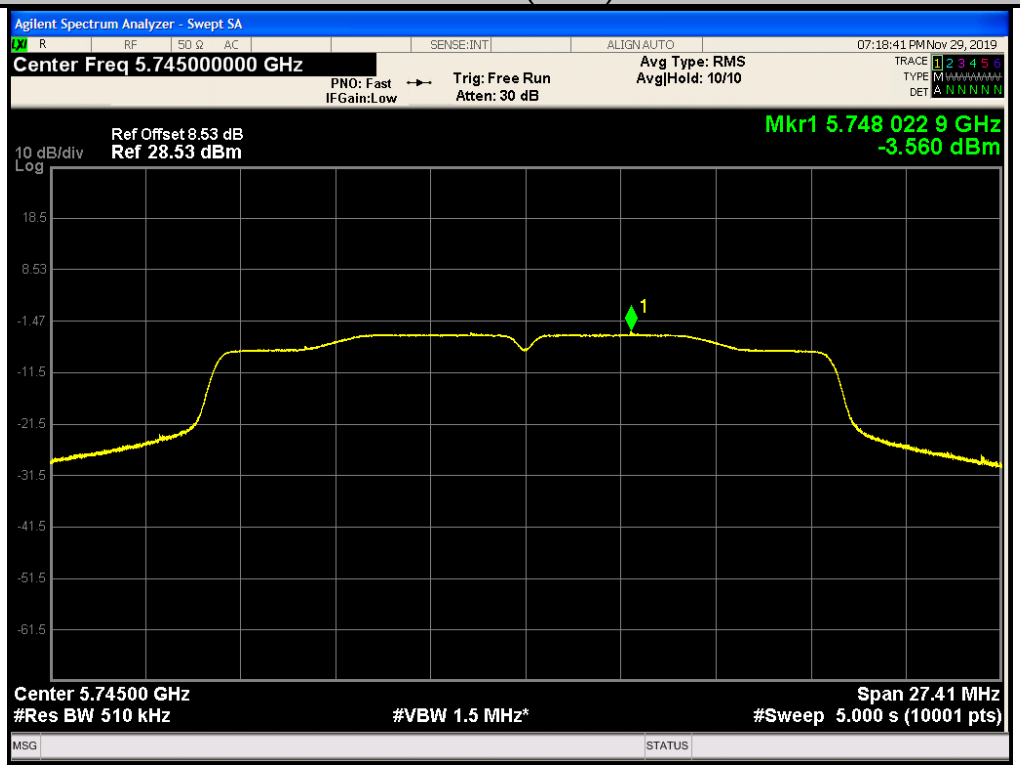


Low

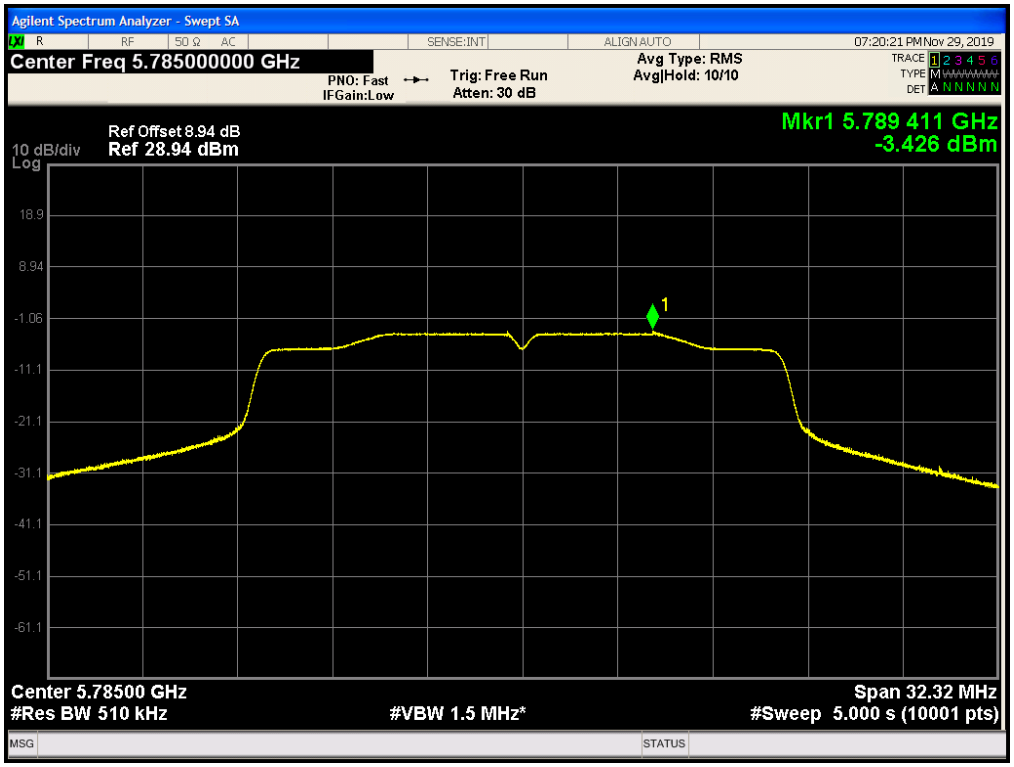


High

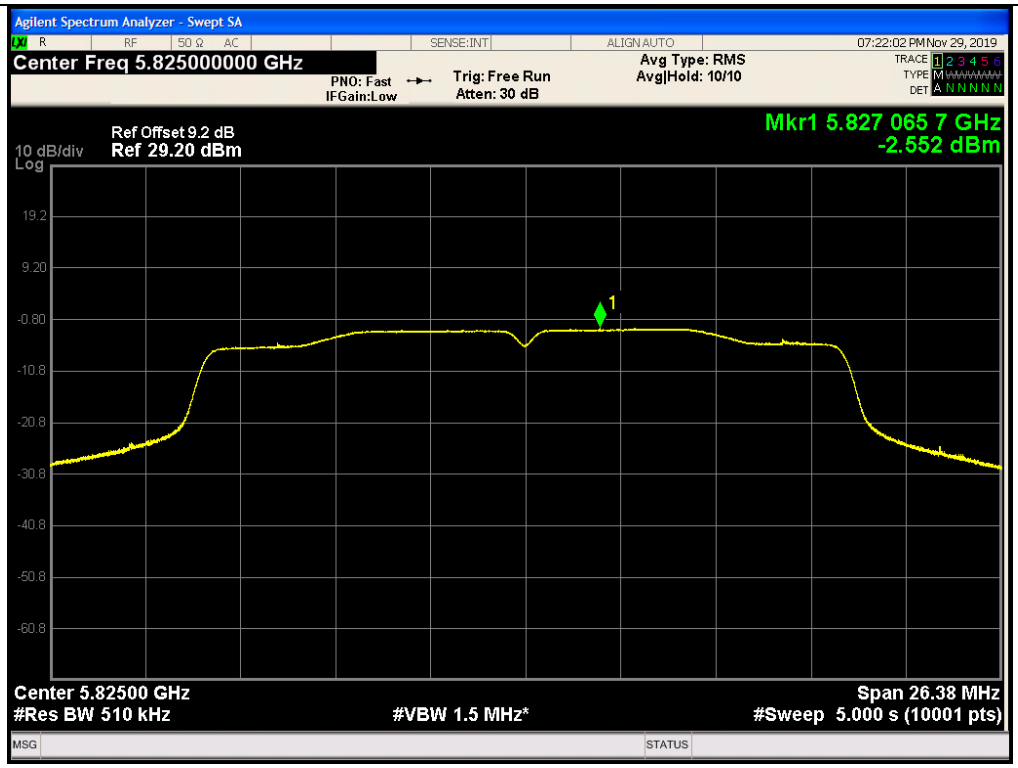
802.11ac(HT20)



Low

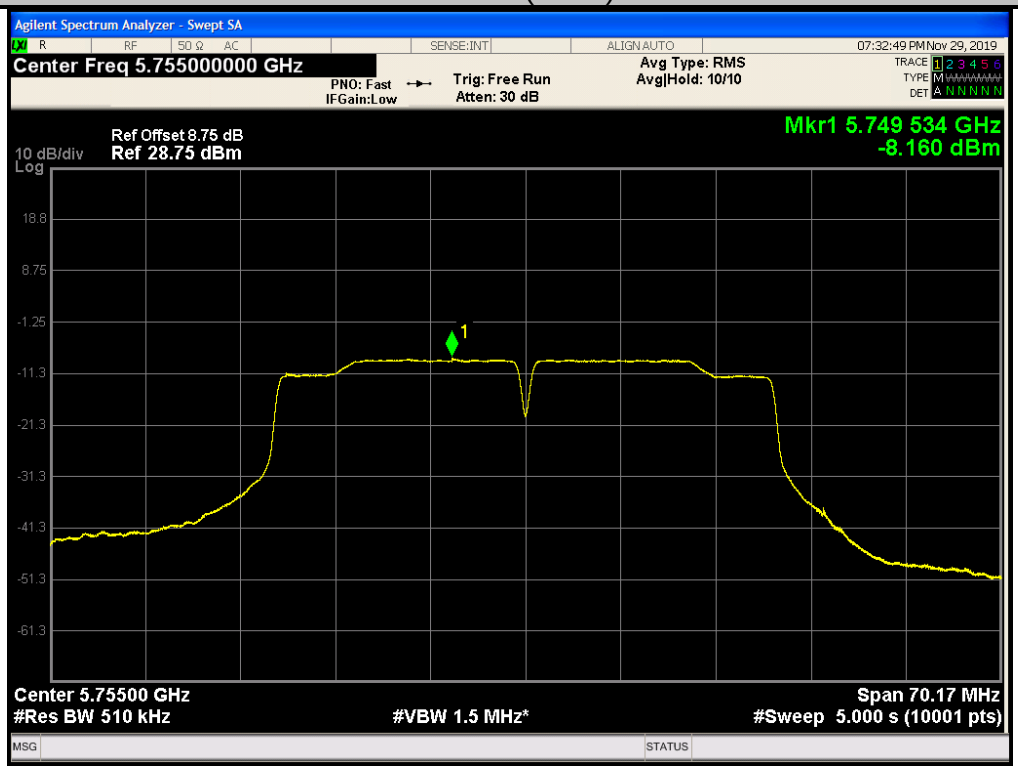


Mid

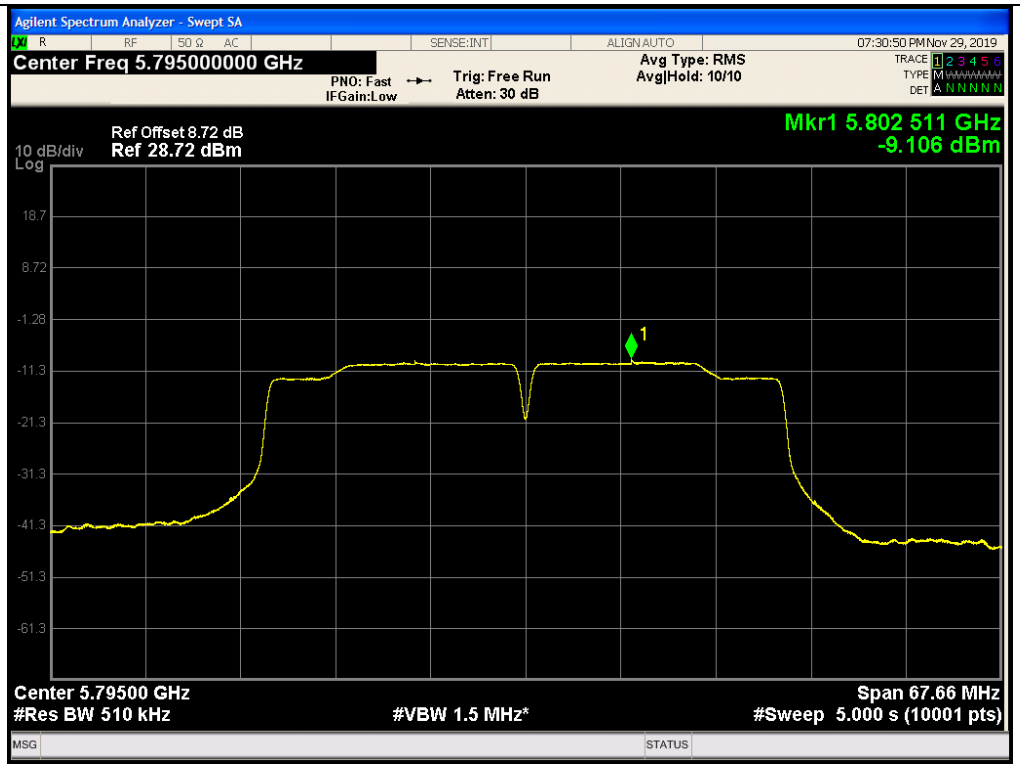


High

802.11ac(HT40)

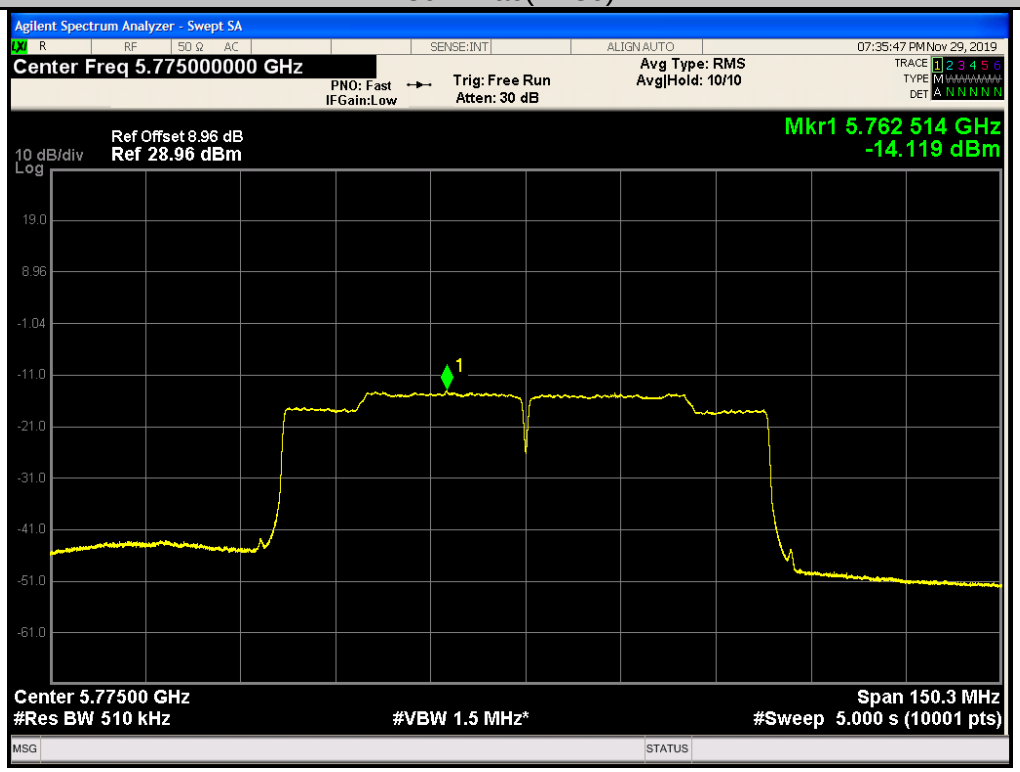


Low



High

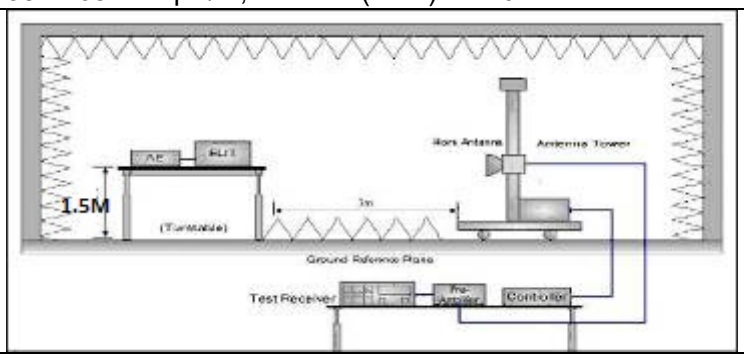
802.11ac(HT80)



Low

4.6. Band edge

4.6.1. Test Specification

Test Requirement:	FCC CFR47 Part 15E Section 15.407
Test Method:	ANSI C63.10 2013
Limit:	For band I&II&III: E[dBμV/m] = EIRP[dBm] + 95.2=68.2 dBμV/m, for EIRP(dBm)= **-27dBm** For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. For band IV(5715-5725MHz&5850-5860MHz): E[dBμV/m] = EIRP[dBm] + 95.2=78.2 dBμV/m, for EIRP(dBm)= **-27dBm**; For band IV(other un-restricted band):E[dBμV/m] = EIRP[dBm] + 95.2=68.2 dBμV/m, for EIRP(dBm)= **-27dBm**
Test Setup:	
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the

	maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasipeak or average method as specified and then reported in a data sheet.
Test Result:	PASS

4.6.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Receiver	R&S	ESRP3	HKE-005	Dec. 27, 2020
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 27, 2020
Preamplifier	EMCI	EMC051845SE	HKE-015	Dec. 27, 2020
Preamplifier	Agilent	83051A	HKE-016	Dec. 27, 2020
Loop antenna	Schwarzbeck	FMZB 1519 B	HKE-014	Sep. 26, 2020
Broadband antenna	Schwarzbeck	VULB 9163	HKE-012	Sep. 26, 2020
Horn antenna	Schwarzbeck	9120D	HKE-013	Sep. 26, 2020
Antenna Mast	Keleto	CC-A-4M	N/A	N/A
Position controller	Taiwan MF	MF7802	HKE-011	Dec. 27, 2020
Radiated test software	Tonscend	TS+ Rev 2.5.0.0	HKE-082	N/A
RF cable (9KHz-1GHz)	Times	381806-001	N/A	N/A
Hf antenna	Schwarzbeck	LB-180400-KF	HKE-031	Sep. 27, 2020
RF cable	Tonscend	1-18G	HKE-099	Dec. 27, 2020
RF cable	Times	1-40G	HKE-034	Dec. 27, 2020

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

4.6.3. Test Data

ANT1(WORSE CASE) :

Radiated Band Edge Test:

Operation Mode: 802.11a Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5150	53.26	-2.49	50.77	74	-23.23	peak
5150	/	-2.49	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5150	51.56	-2.49	49.07	74	-24.93	peak
5150	/	-2.49	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Operation Mode: TX CH High with 5.2G

Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5250	52.35	-2.28	50.07	74	-23.93	peak
5250	/	-2.28	/	54	/	AVG
5350	53.08	-2.11	50.97	74	-23.03	peak
5350	/	-2.11	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5250	51.46	-2.28	49.18	74	-24.82	peak
5250	/	-2.28	/	54	/	AVG
5350	53.46	-2.11	51.35	74	-22.65	peak
5350	/	-2.11	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: 802.11n20 Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5150	54.62	-2.49	52.13	74	-21.87	peak
5150	/	-2.49	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5150	52.63	-2.49	50.14	74	-23.86	peak
5150	/	-2.49	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: TX CH High with 5.2G

Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5250	53.62	-2.28	51.34	74	-22.66	peak
5250	/	-2.28	/	54	/	AVG
5350	51.23	-2.11	49.12	74	-24.88	peak
5350	/	-2.11	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5250	52.62	-2.28	50.34	74	-23.66	peak
5250	/	-2.28	/	54	/	AVG
5350	51.42	-2.11	49.31	74	-24.69	peak
5350	/	-2.11	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: 802.11 n40 Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5150	52.38	-2.49	49.89	74	-24.11	peak
5150	/	-2.49	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5150	52.28	-2.49	49.79	74	-24.21	peak
5150	/	-2.49	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5250	52.49	-2.28	50.21	74	-23.79	peak
5250	/	-2.28	/	54	/	AVG
5350	51.28	-2.11	49.17	74	-24.83	peak
5350	/	-2.11	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5250	54.26	-2.28	51.98	74	-22.02	peak
5250	/	-2.28	/	54	/	AVG
5350	52.11	-2.11	50	74	-24	peak
5350	/	-2.11	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: 802.11 ac20 Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5150	53.16	-2.49	50.67	74	-23.33	peak
5150	/	-2.49	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5150	51.88	-2.49	49.39	74	-24.61	peak
5150	/	-2.49	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5250	53.96	-2.28	51.68	74	-22.32	peak
5250	/	-2.28	/	54	/	AVG
5350	52.63	-2.11	50.52	74	-23.48	peak
5350	/	-2.11	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5250	52.66	-2.28	50.38	74	-23.62	peak
5250	/	-2.28	/	54	/	AVG
5350	51.63	-2.11	49.52	74	-24.48	peak
5350	/	-2.11	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: 802.11 ac40 Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5150	52.18	-2.49	49.69	74	-24.31	peak
5150	/	-2.49	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5150	52.69	-2.49	50.2	74	-23.8	peak
5150	/	-2.49	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5250	53.22	-2.28	50.94	74	-23.06	peak
5250	/	-2.28	/	54	/	AVG
5350	50.98	-2.11	48.87	74	-25.13	peak
5350	/	-2.11	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5250	52.67	-2.28	50.39	74	-23.61	peak
5250	/	-2.28	/	54	/	AVG
5350	51.37	-2.11	49.26	74	-24.74	peak
5350	/	-2.11	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: 802.11 ac80 Mode with 5.2G TX

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5150	54.38	-2.49	51.89	74	-22.11	peak
5150	/	-2.49	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5150	52.65	-2.49	50.16	74	-23.84	peak
5150	/	-2.49	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: TX CH

Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5250	52.49	-2.28	50.21	74	-23.79	peak
5250	/	-2.28	/	54	/	AVG
5350	51.25	-2.11	49.14	74	-24.86	peak
5350	/	-2.11	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5250	53.62	-2.28	51.34	74	-22.66	peak
5250	/	-2.28	/	54	/	AVG
5350	51.64	-2.11	49.53	74	-24.47	peak
5350	/	-2.11	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

ANT1(WORSE CASE):

Operation Mode: 802.11a Mode with 5.8G TX CH Low

Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5650	56.26	-2.06	54.2	68.2	-14	peak
5650	/	-2.06	/	48.2	/	AVG
5700	93.56	-1.96	91.6	105.2	-13.6	peak
5700	/	-1.96	/	85.2	/	AVG
5720	92.65	-2.87	89.78	110.8	-21.02	peak
5720	/	-2.87	/	90.8	/	AVG
5725	113.65	-2.14	111.51	122.2	-10.69	peak
5725	/	-2.14	/	102.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5650	55.96	-2.06	53.9	68.2	-14.3	peak
5650	/	-2.06	/	48.2	/	AVG
5700	93.52	-1.96	91.56	105.2	-13.64	peak
5700	/	-1.96	/	85.2	/	AVG
5720	96.45	-2.87	93.58	110.8	-17.22	peak
5720	/	-2.87	/	90.8	/	AVG
5725	112.56	-2.14	110.42	122.2	-11.78	peak
5725	/	-2.14	/	102.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Operation Mode: TX CH High with 5.8G

Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5850	112.56	-1.97	110.59	122.2	-11.61	peak
5850	/	-1.97	/	102.2	/	AVG
5855	96.42	-2.13	94.29	110.8	-16.51	peak
5855	/	-2.13	/	90.8	/	AVG
5875	86.56	-2.65	83.91	105.2	-21.29	peak
5875	/	-2.65	/	85.2	/	AVG
5925	53.28	-2.28	51	68.2	-17.2	peak
5925	/	-2.28	/	48.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5850	112.32	-1.97	110.35	122.2	-11.85	peak
5850	/	-1.97	/	102.2	/	AVG
5855	93.26	-2.13	91.13	110.8	-19.67	peak
5855	/	-2.13	/	90.8	/	AVG
5875	86.15	-2.65	83.5	105.2	-21.7	peak
5875	/	-2.65	/	85.2	/	AVG
5925	54.96	-2.28	52.68	68.2	-15.52	peak
5925	/	-2.28	/	48.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: 802.11n20 Mode with 5.8G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5650	57.52	-2.06	55.46	68.2	-12.74	peak
5650	/	-2.06	/	48.2	/	AVG
5700	92.96	-1.96	91	105.2	-14.2	peak
5700	/	-1.96	/	85.2	/	AVG
5720	94.12	-2.87	91.25	110.8	-19.55	peak
5720	/	-2.87	/	90.8	/	AVG
5725	113.63	-2.14	111.49	122.2	-10.71	peak
5725	/	-2.14	/	102.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5650	62.34	-2.06	60.28	68.2	-7.92	peak
5650	/	-2.06	/	48.2	/	AVG
5700	96.53	-1.96	94.57	105.2	-10.63	peak
5700	/	-1.96	/	85.2	/	AVG
5720	94.56	-2.87	91.69	110.8	-19.11	peak
5720	/	-2.87	/	90.8	/	AVG
5725	114.36	-2.14	112.22	122.2	-9.98	peak
5725	/	-2.14	/	102.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: TX CH High with 5.8G
Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5850	113.23	-1.97	111.26	122.2	-10.94	peak
5850	/	-1.97	/	102.2	/	AVG
5855	96.06	-2.13	93.93	110.8	-16.87	peak
5855	/	-2.13	/	90.8	/	AVG
5875	85.32	-2.65	82.67	105.2	-22.53	peak
5875	/	-2.65	/	85.2	/	AVG
5925	53.55	-2.28	51.27	68.2	-16.93	peak
5925	/	-2.28	/	48.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5850	111.36	-1.97	109.39	122.2	-12.81	peak
5850	/	-1.97	/	102.2	/	AVG
5855	93.83	-2.13	91.7	110.8	-19.1	peak
5855	/	-2.13	/	90.8	/	AVG
5875	87.99	-2.65	85.34	105.2	-19.86	peak
5875	/	-2.65	/	85.2	/	AVG
5925	56.92	-2.28	54.64	68.2	-13.56	peak
5925	/	-2.28	/	48.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: 802.11n40 Mode with 5.8G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5650	55.43	-2.06	53.37	68.2	-14.83	peak
5650	/	-2.06	/	48.2	/	AVG
5700	93.46	-1.96	91.5	105.2	-13.7	peak
5700	/	-1.96	/	85.2	/	AVG
5720	92.96	-2.87	90.09	110.8	-20.71	peak
5720	/	-2.87	/	90.8	/	AVG
5725	113.06	-2.14	110.92	122.2	-11.28	peak
5725	/	-2.14	/	102.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5650	55.43	-2.06	53.37	68.2	-14.83	peak
5650	/	-2.06	/	48.2	/	AVG
5700	93.46	-1.96	91.5	105.2	-13.7	peak
5700	/	-1.96	/	85.2	/	AVG
5720	92.96	-2.87	90.09	110.8	-20.71	peak
5720	/	-2.87	/	90.8	/	AVG
5725	113.06	-2.14	110.92	122.2	-11.28	peak
5725	/	-2.14	/	102.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:
Operation Mode: TX CH High with 5.8G
Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5850	112.52	-1.97	110.55	122.2	-11.65	peak
5850	/	-1.97	/	102.2	/	AVG
5855	94.56	-2.13	92.43	110.8	-18.37	peak
5855	/	-2.13	/	90.8	/	AVG
5875	84.53	-2.65	81.88	105.2	-23.32	peak
5875	/	-2.65	/	85.2	/	AVG
5925	54.86	-2.28	52.58	68.2	-15.62	peak
5925	/	-2.28	/	48.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5850	114.23	-1.97	112.26	122.2	-9.94	peak
5850	/	-1.97	/	102.2	/	AVG
5855	94.52	-2.13	92.39	110.8	-18.41	peak
5855	/	-2.13	/	90.8	/	AVG
5875	85.26	-2.65	82.61	105.2	-22.59	peak
5875	/	-2.65	/	85.2	/	AVG
5925	55.84	-2.28	53.56	68.2	-14.64	peak
5925	/	-2.28	/	48.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: 802.11ac20 Mode with 5.8G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5650	58.89	-2.06	56.83	68.2	-11.37	peak
5650	/	-2.06	/	48.2	/	AVG
5700	90.61	-1.96	88.65	105.2	-16.55	peak
5700	/	-1.96	/	85.2	/	AVG
5720	93.56	-2.87	90.69	110.8	-20.11	peak
5720	/	-2.87	/	90.8	/	AVG
5725	111.27	-2.14	109.13	122.2	-13.07	peak
5725	/	-2.14	/	102.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
5650	59.62	-2.06	57.56	68.2	-10.64	peak
5650	/	-2.06	/	48.2	/	AVG
5700	90.86	-1.96	88.9	105.2	-16.3	peak
5700	/	-1.96	/	85.2	/	AVG
5720	95.12	-2.87	92.25	110.8	-18.55	peak
5720	/	-2.87	/	90.8	/	AVG
5725	112.56	-2.14	110.42	122.2	-11.78	peak
5725	/	-2.14	/	102.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: TX CH High with 5.8G

Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5850	112.43	-1.97	110.46	122.2	-11.74	peak
5850	/	-1.97	/	102.2	/	AVG
5855	93.51	-2.13	91.38	110.8	-19.42	peak
5855	/	-2.13	/	90.8	/	AVG
5875	86.58	-2.65	83.93	105.2	-21.27	peak
5875	/	-2.65	/	85.2	/	AVG
5925	52.55	-2.28	50.27	68.2	-17.93	peak
5925	/	-2.28	/	48.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5850	114.02	-1.97	112.05	122.2	-10.15	peak
5850	/	-1.97	/	102.2	/	AVG
5855	93.49	-2.13	91.36	110.8	-19.44	peak
5855	/	-2.13	/	90.8	/	AVG
5875	84.64	-2.65	81.99	105.2	-23.21	peak
5875	/	-2.65	/	85.2	/	AVG
5925	54.86	-2.28	52.58	68.2	-15.62	peak
5925	/	-2.28	/	48.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: 802.11ac40 Mode with 5.8G TX CH Low

Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5650	56.26	-2.06	54.2	68.2	-14	peak
5650	/	-2.06	/	48.2	/	AVG
5700	92.36	-1.96	90.4	105.2	-14.8	peak
5700	/	-1.96	/	85.2	/	AVG
5720	94.33	-2.87	91.46	110.8	-19.34	peak
5720	/	-2.87	/	90.8	/	AVG
5725	110.78	-2.14	108.64	122.2	-13.56	peak
5725	/	-2.14	/	102.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5650	58.29	-2.06	56.23	68.2	-11.97	peak
5650	/	-2.06	/	48.2	/	AVG
5700	93.53	-1.96	91.57	105.2	-13.63	peak
5700	/	-1.96	/	85.2	/	AVG
5720	94.66	-2.87	91.79	110.8	-19.01	peak
5720	/	-2.87	/	90.8	/	AVG
5725	110.65	-2.14	108.51	122.2	-13.69	peak
5725	/	-2.14	/	102.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: TX CH High with 5.8G

Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5850	116.52	-1.97	114.55	122.2	-7.65	peak
5850	/	-1.97	/	102.2	/	AVG
5855	94.52	-2.13	92.39	110.8	-18.41	peak
5855	/	-2.13	/	90.8	/	AVG
5875	86.53	-2.65	83.88	105.2	-21.32	peak
5875	/	-2.65	/	85.2	/	AVG
5925	54.71	-2.28	52.43	68.2	-15.77	peak
5925	/	-2.28	/	48.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5850	115.26	-1.97	113.29	122.2	-8.91	peak
5850	/	-1.97	/	102.2	/	AVG
5855	93.52	-2.13	91.39	110.8	-19.41	peak
5855	/	-2.13	/	90.8	/	AVG
5875	84.51	-2.65	81.86	105.2	-23.34	peak
5875	/	-2.65	/	85.2	/	AVG
5925	56.25	-2.28	53.97	68.2	-14.23	peak
5925	/	-2.28	/	48.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: 802.11ac80 Mode with 5.8G TX

Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5650	52.54	-2.06	50.48	68.2	-17.72	peak
5650	/	-2.06	/	48.2	/	AVG
5700	93.46	-1.96	91.5	105.2	-13.7	peak
5700	/	-1.96	/	85.2	/	AVG
5720	93.43	-2.87	90.56	110.8	-20.24	peak
5720	/	-2.87	/	90.8	/	AVG
5725	115.28	-2.14	113.14	122.2	-9.06	peak
5725	/	-2.14	/	102.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5650	58.36	-2.06	56.3	68.2	-11.9	peak
5650	/	-2.06	/	48.2	/	AVG
5700	92.35	-1.96	90.39	105.2	-14.81	peak
5700	/	-1.96	/	85.2	/	AVG
5720	94.56	-2.87	91.69	110.8	-19.11	peak
5720	/	-2.87	/	90.8	/	AVG
5725	112.05	-2.14	109.91	122.2	-12.29	peak
5725	/	-2.14	/	102.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MIMO:

Operation Mode: TX with 5.8G

Horizontal

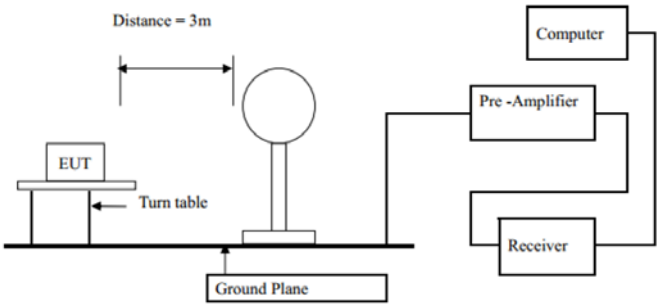
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5850	113.52	-1.97	111.55	122.2	-10.65	peak
5850	/	-1.97	/	102.2	/	AVG
5855	95.82	-2.13	93.69	110.8	-17.11	peak
5855	/	-2.13	/	90.8	/	AVG
5875	86.42	-2.65	83.77	105.2	-21.43	peak
5875	/	-2.65	/	85.2	/	AVG
5925	53.19	-2.28	50.91	68.2	-17.29	peak
5925	/	-2.28	/	48.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

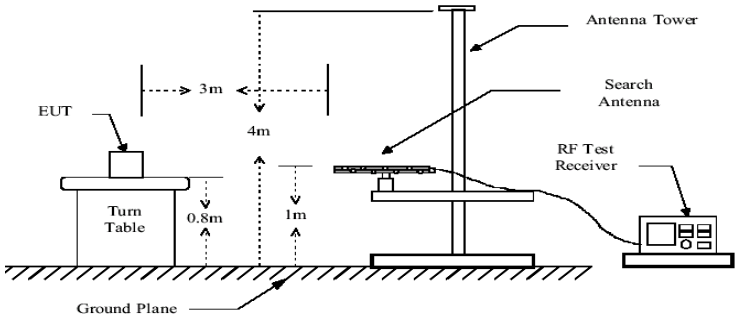
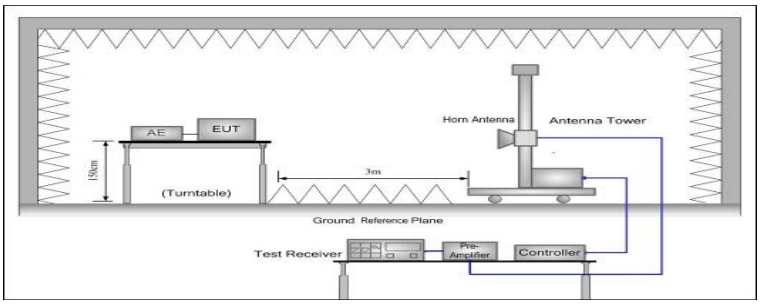
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
5850	112.54	-1.97	110.57	122.2	-11.63	peak
5850	/	-1.97	/	102.2	/	AVG
5855	94.58	-2.13	92.45	110.8	-18.35	peak
5855	/	-2.13	/	90.8	/	AVG
5875	85.79	-2.65	83.14	105.2	-22.06	peak
5875	/	-2.65	/	85.2	/	AVG
5925	54.86	-2.28	52.58	68.2	-15.62	peak
5925	/	-2.28	/	48.2	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

4.7. Spurious Emission

4.7.1.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC CFR47 Part 15 Section 15.407 & 15.209 & 15.205</td></tr>
<tr><td>Test Method:</td><td>KDB 789033 D02 v02r01</td></tr>
<tr><td>Frequency Range:</td><td>9kHz to 40GHz</td></tr>
<tr><td>Measurement Distance:</td><td>3 m</td></tr>
<tr><td>Antenna Polarization:</td><td>Horizontal & Vertical</td></tr>
<tr><td>Operation mode:</td><td>Transmitting mode with modulation</td></tr>
<tr><td>Receiver Setup:</td><td>
<table>
<tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td>9kHz- 150kHz</td><td>Quasi-peak</td><td>200Hz</td><td>1kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>150kHz-30MHz</td><td>Quasi-peak</td><td>9kHz</td><td>30kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,
<table>
<tr><td>Frequency</td><td>Field Strength (microvolts/meter)</td><td>Measurement Distance (meters)</td></tr>
<tr><td>0.009-0.490</td><td>2400/F(KHz)</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(KHz)</td><td>30</td></tr>
<tr><td>1.705-30</td><td>30</td><td>30</td></tr>
<tr><td>30-88</td><td>100</td><td>3</td></tr>
<tr><td>88-216</td><td>150</td><td>3</td></tr>
<tr><td>216-960</td><td>200</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>3</td></tr>
</table>
<table>
<tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Detector</td></tr>
<tr><td rowspan="2">Above 1G</td><td>74.0</td><td>Peak</td></tr>
<tr><td>54.0</td><td>Average</td></tr>
</table>
</td></tr>
<tr><td>Test setup:</td><td>For radiated emissions below 30MHz


30MHz to 1GHz</td></tr>
</table>

	 Above 1GHz 
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8(<1GHz) /1.5(>1GHz) meters above the groundat a 3 meter camber. The table was rotated 360 degrees todetermine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, whichwas mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and thenthe antenna was tuned to heights from 1 meter to 4 meters and the rotatablewas turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and SpecifiedBandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limitspecified, then testing could be stopped and the peak values of the EUT wouldbe reported. Otherwise the emissions that did not have 10dB margin would bere-tested one by one using peak, quasi-peak or average method as specified andthen reported in a data sheet.
Test results:	PASS

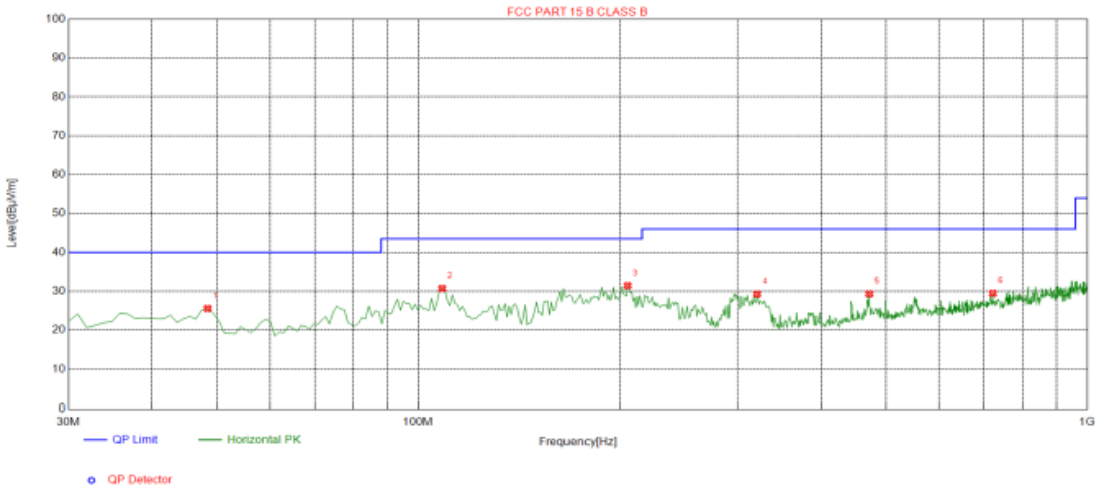
4.7.2. Test Data

Remark: We tested all Channels, the ANT1 worst case was recorded.

Please refer to following diagram for individual

Below 1GHz

Horizontal

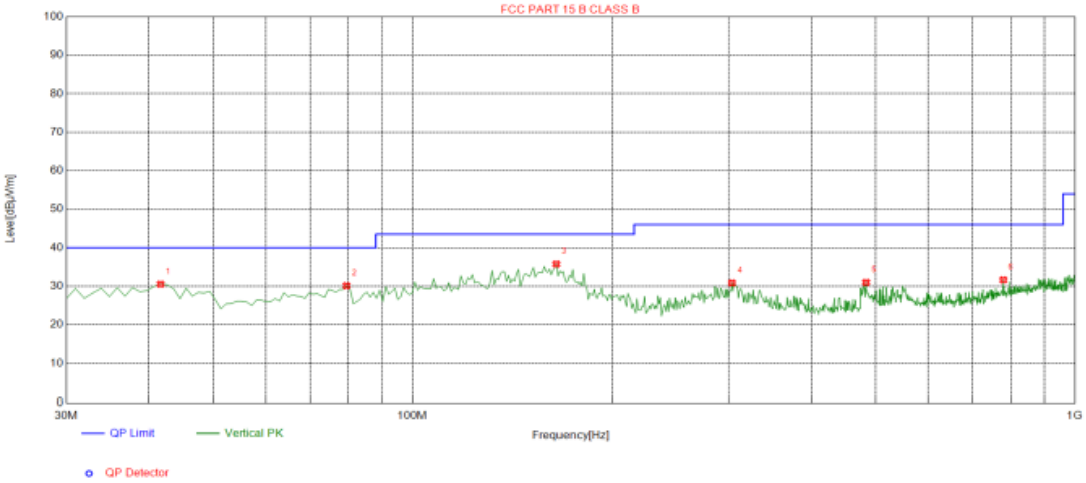


Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	48.4300	25.56	-13.65	40.00	14.44	100	1	Horizontal
2	108.570	30.71	-15.43	43.50	12.79	100	61	Horizontal
3	205.570	31.44	-14.92	43.50	12.06	100	74	Horizontal
4	321.000	29.28	-12.05	46.00	16.72	100	249	Horizontal
5	472.320	29.32	-8.36	46.00	16.68	100	287	Horizontal
6	722.580	29.47	-4.67	46.00	16.53	100	138	Horizontal

Remark: Transd = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	41.6400	30.54	-14.25	40.00	9.46	100	209	Vertical
2	79.4700	30.12	-19.37	40.00	9.88	100	180	Vertical
3	164.830	35.76	-17.78	43.50	7.74	100	63	Vertical
4	303.540	30.85	-12.69	46.00	15.15	100	108	Vertical
5	483.960	30.98	-8.49	46.00	15.02	100	115	Vertical
6	779.810	31.64	-3.26	46.00	14.36	100	66	Vertical

Remark: Transd = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

ANT1 WORST CASE

Above 1GHz

LOW CH 36 (802.11 a Mode with 5.2G)/5180

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	62.82	-4.59	58.23	74.00	-15.77	peak
3647	48.35	-4.59	43.76	54.00	-10.24	AVG
10360	53.02	3.74	56.76	74.00	-17.24	peak
10360	41.86	3.74	45.60	54.00	-8.40	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	62.76	-4.59	58.17	74.00	-15.83	peak
3647	49.93	-4.59	45.34	54.00	-8.66	AVG
10360	54.78	3.74	58.52	74.00	-15.48	peak
10360	43.22	3.74	46.96	54.00	-7.04	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MID CH40 (802.11 a Mode with 5.2G)/5200
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.62	-4.59	60.03	74.00	-13.97	peak
3647	46.86	-4.59	42.27	54.00	-11.73	AVG
10400	55.49	3.74	59.23	74.00	-14.77	peak
10400	44.10	3.74	47.84	54.00	-6.16	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.44	-4.59	59.85	74.00	-14.15	peak
3647	48.30	-4.59	43.71	54.00	-10.29	AVG
10400	55.66	3.74	59.40	74.00	-14.60	peak
10400	41.58	3.74	45.32	54.00	-8.68	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH 48 (802.11a Mode with 5.2G)/5240
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.38	-4.59	59.79	74.00	-14.21	peak
3647	48.42	-4.59	43.83	54.00	-10.17	AVG
10480	55.38	3.75	59.13	74.00	-14.87	peak
10480	42.04	3.75	45.79	54.00	-8.21	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.28	-4.59	58.69	74.00	-15.31	peak
3647	48.38	-4.59	43.79	54.00	-10.21	AVG
10480	52.99	3.75	56.74	74.00	-17.26	peak
10480	40.30	3.75	44.05	54.00	-9.95	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark:
(1) Measuring frequencies from 1 GHz to the 40 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement within this frequency range shown “--- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

LOW CH 149 (802.11 a Mode with 5.8G)/5745

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.24	-4.59	59.65	74.00	-14.35	peak
3647	48.56	-4.59	43.97	54.00	-10.03	AVG
11570	55.67	4.21	59.88	74.00	-14.12	peak
11570	41.10	4.21	45.31	54.00	-8.69	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	61.91	-4.59	57.32	74.00	-16.68	peak
3647	49.67	-4.59	45.08	54.00	-8.92	AVG
11570	54.56	4.21	58.77	74.00	-15.23	peak
11570	41.16	4.21	45.37	54.00	-8.63	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MID CH157 (802.11 a Mode with 5.8G)/5785

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.39	-4.59	58.80	74.00	-15.20	peak
3647	49.24	-4.59	44.65	54.00	-9.35	AVG
11570	55.50	4.21	59.71	74.00	-14.29	peak
11570	41.92	4.21	46.13	54.00	-7.87	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	61.67	-4.59	57.08	74.00	-16.92	peak
3647	49.09	-4.59	44.50	54.00	-9.50	AVG
11570	53.70	4.21	57.91	74.00	-16.09	peak
11570	39.75	4.21	43.96	54.00	-10.04	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH 165 (802.11a Mode with 5.8G)/5825

Horizontal:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
3647	64.12	-4.59	59.53	74.00	-14.47	peak
3647	47.71	-4.59	43.12	54.00	-10.88	AVG
11650	57.78	4.84	62.62	74.00	-11.38	peak
11650	43.59	4.84	48.43	54.00	-5.57	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
3647	61.99	-4.59	57.40	74.00	-16.60	peak
3647	48.63	-4.59	44.04	54.00	-9.96	AVG
11650	54.80	4.84	59.64	74.00	-14.36	peak
11650	43.35	4.84	48.19	54.00	-5.81	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark：
(1) Measuring frequencies from 1 GHz to the 40 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement within this frequency range shown “--- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

MIMO: ANT1+ANT2

LOW CH 36 [802.11 n(HT20) Mode with 5.2G]/5180

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.92	-4.59	60.33	74.00	-13.67	peak
3647	48.63	-4.59	44.04	54.00	-9.96	AVG
10360	53.37	3.74	57.11	74.00	-16.89	peak
10360	43.65	3.74	47.39	54.00	-6.61	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.69	-4.59	59.10	74.00	-14.90	peak
3647	49.02	-4.59	44.43	54.00	-9.57	AVG
10360	53.57	3.74	57.31	74.00	-16.69	peak
10360	43.99	3.74	47.73	54.00	-6.27	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MID CH40 [802.11 n(HT20) Mode with 5.2G]/5200
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	62.96	-4.59	58.37	74.00	-15.63	peak
3647	48.29	-4.59	43.70	54.00	-10.30	AVG
10400	55.19	3.74	58.93	74.00	-15.07	peak
10400	42.11	3.74	45.85	54.00	-8.15	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	62.80	-4.59	58.21	74.00	-15.79	peak
3647	47.73	-4.59	43.14	54.00	-10.86	AVG
10400	54.27	3.74	58.01	74.00	-15.99	peak
10400	42.33	3.74	46.07	54.00	-7.93	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH 48 [802.11 n(HT20) Mode with 5.2G]/5240
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	61.82	-4.59	57.23	74.00	-16.77	peak
3647	47.76	-4.59	43.17	54.00	-10.83	AVG
10480	54.61	3.75	58.36	74.00	-15.64	peak
10480	42.93	3.75	46.68	54.00	-7.32	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.23	-4.59	58.64	74.00	-15.36	peak
3647	46.98	-4.59	42.39	54.00	-11.61	AVG
10480	54.09	3.75	57.84	74.00	-16.16	peak
10480	42.31	3.75	46.06	54.00	-7.94	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark：
(1) Measuring frequencies from 1 GHz to the 40 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement within this frequency range shown “--- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

LOW CH 149 [802.11 n(HT20) Mode with 5.8G]/5745

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.18	-4.59	59.59	74.00	-14.41	peak
3647	48.70	-4.59	44.11	54.00	-9.89	AVG
11570	56.62	4.21	60.83	74.00	-13.17	peak
11570	42.46	4.21	46.67	54.00	-7.33	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.32	-4.59	59.73	74.00	-14.27	peak
3647	47.43	-4.59	42.84	54.00	-11.16	AVG
11570	55.43	4.21	59.64	74.00	-14.36	peak
11570	42.90	4.21	47.11	54.00	-6.89	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MID CH157 [802.11 n(HT20) Mode with 5.8G]/5785

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.22	-4.59	58.63	74.00	-15.37	peak
3647	47.88	-4.59	43.29	54.00	-10.71	AVG
11570	57.10	4.21	61.31	74.00	-12.69	peak
11570	42.43	4.21	46.64	54.00	-7.36	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	61.43	-4.59	56.84	74.00	-17.16	peak
3647	46.71	-4.59	42.12	54.00	-11.88	AVG
11570	55.05	4.21	59.26	74.00	-14.74	peak
11570	41.52	4.21	45.73	54.00	-8.27	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH 165 [802.11 n(HT20) Mode with 5.8G]/5825

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	65.32	-4.59	60.73	74.00	-13.27	peak
3647	48.63	-4.59	44.04	54.00	-9.96	AVG
11650	57.18	4.84	62.02	74.00	-11.98	peak
11650	43.55	4.84	48.39	54.00	-5.61	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.34	-4.59	58.75	74.00	-15.25	peak
3647	48.40	-4.59	43.81	54.00	-10.19	AVG
11650	55.01	4.84	59.85	74.00	-14.15	peak
11650	43.18	4.84	48.02	54.00	-5.98	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark：
(1) Measuring frequencies from 1 GHz to the 40 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement within this frequency range shown “--- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

LOW CH 36 [802.11 n(HT40) Mode with 5.2G]/5190

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.60	-4.59	60.01	74.00	-13.99	peak
3647	49.86	-4.59	45.27	54.00	-8.73	AVG
10380	54.01	3.76	57.77	74.00	-16.23	peak
10380	42.02	3.76	45.78	54.00	-8.22	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.52	-4.59	58.93	74.00	-15.07	peak
3647	48.46	-4.59	43.87	54.00	-10.13	AVG
10380	52.61	3.76	56.37	74.00	-17.63	peak
10380	41.94	3.76	45.70	54.00	-8.30	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH 48 [802.11 n(HT40) Mode with 5.2G]/5230
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	62.23	-4.59	57.64	74.00	-16.36	peak
3647	46.88	-4.59	42.29	54.00	-11.71	AVG
10460	55.33	3.72	59.05	74.00	-14.95	peak
10460	43.25	3.72	46.97	54.00	-7.03	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	61.87	-4.59	57.28	74.00	-16.72	peak
3647	48.72	-4.59	44.13	54.00	-9.87	AVG
10460	53.62	3.72	57.34	74.00	-16.66	peak
10460	41.53	3.72	45.25	54.00	-8.75	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark：
(1) Measuring frequencies from 1 GHz to the 40 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement within this frequency range shown “--- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

LOW CH 149 [802.11 n(HT40) Mode with 5.8G]/5755

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.01	-4.59	59.42	74.00	-14.58	peak
3647	47.23	-4.59	42.64	54.00	-11.36	AVG
11510	56.77	4.18	60.95	74.00	-13.05	peak
11510	42.83	4.18	47.01	54.00	-6.99	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	62.85	-4.59	58.26	74.00	-15.74	peak
3647	49.04	-4.59	44.45	54.00	-9.55	AVG
11510	54.66	4.18	58.84	74.00	-15.16	peak
11510	40.97	4.18	45.15	54.00	-8.85	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH 165 [802.11 n(HT40) Mode with 5.8G]/5795

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.84	-4.59	59.25	74.00	-14.75	peak
3647	47.21	-4.59	42.62	54.00	-11.38	AVG
11590	57.61	4.81	62.42	74.00	-11.58	peak
11590	44.86	4.81	49.67	54.00	-4.33	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.51	-4.59	58.92	74.00	-15.08	peak
3647	47.22	-4.59	42.63	54.00	-11.37	AVG
11590	55.08	4.81	59.89	74.00	-14.11	peak
11590	42.40	4.81	47.21	54.00	-6.79	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark：
(1) Measuring frequencies from 1 GHz to the 40 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement within this frequency range shown “--- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

LOW CH 36 [802.11 ac(HT20) Mode with 5.2G]/5180

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.39	-4.59	58.80	74.00	-15.20	peak
3647	47.85	-4.59	43.26	54.00	-10.74	AVG
10360	53.91	3.74	57.65	74.00	-16.35	peak
10360	41.78	3.74	45.52	54.00	-8.48	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.13	-4.59	59.54	74.00	-14.46	peak
3647	48.54	-4.59	43.95	54.00	-10.05	AVG
10360	53.27	3.74	57.01	74.00	-16.99	peak
10360	43.18	3.74	46.92	54.00	-7.08	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MID CH40 [802.11 ac(HT20) Mode with 5.2G]/5200
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.84	-4.59	60.25	74.00	-13.75	peak
3647	48.38	-4.59	43.79	54.00	-10.21	AVG
10400	56.09	3.74	59.83	74.00	-14.17	peak
10400	42.00	3.74	45.74	54.00	-8.26	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.78	-4.59	60.19	74.00	-13.81	peak
3647	46.87	-4.59	42.28	54.00	-11.72	AVG
10400	56.25	3.74	59.99	74.00	-14.01	peak
10400	41.85	3.74	45.59	54.00	-8.41	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH 48 [802.11 ac(HT20) Mode with 5.2G]/5240
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.40	-4.59	59.81	74.00	-14.19	peak
3647	48.50	-4.59	43.91	54.00	-10.09	AVG
10480	56.08	3.75	59.83	74.00	-14.17	peak
10480	43.24	3.75	46.99	54.00	-7.01	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.45	-4.59	58.86	74.00	-15.14	peak
3647	47.07	-4.59	42.48	54.00	-11.52	AVG
10480	52.86	3.75	56.61	74.00	-17.39	peak
10480	42.49	3.75	46.24	54.00	-7.76	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark：
(1) Measuring frequencies from 1 GHz to the 40 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement within this frequency range shown “--- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

LOW CH 149 [802.11 ac(HT20) Mode with 5.8G]/5745

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	62.86	-4.59	58.27	74.00	-15.73	peak
3647	49.41	-4.59	44.82	54.00	-9.18	AVG
11570	56.97	4.21	61.18	74.00	-12.82	peak
11570	43.03	4.21	47.24	54.00	-6.76	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	62.77	-4.59	58.18	74.00	-15.82	peak
3647	49.37	-4.59	44.78	54.00	-9.22	AVG
11570	57.10	4.21	61.31	74.00	-12.69	peak
11570	42.89	4.21	47.10	54.00	-6.90	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MID CH157 [802.11 ac(HT20) Mode with 5.8G]/5785

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.69	-4.59	59.10	74.00	-14.90	peak
3647	47.83	-4.59	43.24	54.00	-10.76	AVG
11570	55.57	4.21	59.78	74.00	-14.22	peak
11570	41.04	4.21	45.25	54.00	-8.75	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	61.26	-4.59	56.67	74.00	-17.33	peak
3647	47.02	-4.59	42.43	54.00	-11.57	AVG
11570	54.33	4.21	58.54	74.00	-15.46	peak
11570	40.73	4.21	44.94	54.00	-9.06	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH 165 [802.11 ac(HT20) Mode with 5.8G]/5825

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	65.47	-4.59	60.88	74.00	-13.12	peak
3647	48.05	-4.59	43.46	54.00	-10.54	AVG
11650	55.06	4.84	59.90	74.00	-14.10	peak
11650	42.44	4.84	47.28	54.00	-6.72	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	62.79	-4.59	58.20	74.00	-15.80	peak
3647	46.87	-4.59	42.28	54.00	-11.72	AVG
11650	54.61	4.84	59.45	74.00	-14.55	peak
11650	41.39	4.84	46.23	54.00	-7.77	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark：
(1) Measuring frequencies from 1 GHz to the 40 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement within this frequency range shown “--- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

LOW CH 36 [802.11 ac(HT40) Mode with 5.2G]/5190

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.11	-4.59	59.52	74.00	-14.48	peak
3647	49.23	-4.59	44.64	54.00	-9.36	AVG
10380	54.59	3.76	58.35	74.00	-15.65	peak
10380	43.34	3.76	47.10	54.00	-6.90	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	62.53	-4.59	57.94	74.00	-16.06	peak
3647	49.01	-4.59	44.42	54.00	-9.58	AVG
10380	54.41	3.76	58.17	74.00	-15.83	peak
10380	41.29	3.76	45.05	54.00	-8.95	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH 48 [802.11 ac(HT40) Mode with 5.2G]/5230
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.04	-4.59	58.45	74.00	-15.55	peak
3647	48.54	-4.59	43.95	54.00	-10.05	AVG
10460	56.14	3.72	59.86	74.00	-14.14	peak
10460	40.84	3.72	44.56	54.00	-9.44	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.34	-4.59	58.75	74.00	-15.25	peak
3647	47.54	-4.59	42.95	54.00	-11.05	AVG
10460	53.39	3.72	57.11	74.00	-16.89	peak
10460	42.44	3.72	46.16	54.00	-7.84	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark：
(1) Measuring frequencies from 1 GHz to the 40 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement within this frequency range shown “--- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

LOW CH 149 [802.11 ac(HT40) Mode with 5.8G]/5755

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.46	-4.59	59.87	74.00	-14.13	peak
3647	48.53	-4.59	43.94	54.00	-10.06	AVG
11510	56.00	4.18	60.18	74.00	-13.82	peak
11510	42.79	4.18	46.97	54.00	-7.03	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.68	-4.59	59.09	74.00	-14.91	peak
3647	49.30	-4.59	44.71	54.00	-9.29	AVG
11510	56.10	4.18	60.28	74.00	-13.72	peak
11510	42.48	4.18	46.66	54.00	-7.34	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH 165 [802.11 ac(HT40) Mode with 5.8G]/5795

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.77	-4.59	60.18	74.00	-13.82	peak
3647	47.36	-4.59	42.77	54.00	-11.23	AVG
11590	56.01	4.81	60.82	74.00	-13.18	peak
11590	44.56	4.81	49.37	54.00	-4.63	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.35	-4.59	59.76	74.00	-14.24	peak
3647	46.53	-4.59	41.94	54.00	-12.06	AVG
11590	54.63	4.81	59.44	74.00	-14.56	peak
11590	44.12	4.81	48.93	54.00	-5.07	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark：
(1) Measuring frequencies from 1 GHz to the 40 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement within this frequency range shown “--- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

CH 48 [802.11 ac(HT80) Mode with 5.2G]/5210
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	63.65	-4.59	59.06	74.00	-14.94	peak
3647	46.94	-4.59	42.35	54.00	-11.65	AVG
10420	55.83	3.69	59.52	74.00	-14.48	peak
10420	42.93	3.69	46.62	54.00	-7.38	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	61.77	-4.59	57.18	74.00	-16.82	peak
3647	48.38	-4.59	43.79	54.00	-10.21	AVG
10420	54.07	3.69	57.76	74.00	-16.24	peak
10420	40.44	3.69	44.13	54.00	-9.87	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark：
(1) Measuring frequencies from 1 GHz to the 40 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement within this frequency range shown “--- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

CH 165 [802.11 ac(HT80) Mode with 5.8G]/5775

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	64.40	-4.59	59.81	74.00	-14.19	peak
3647	48.31	-4.59	43.72	54.00	-10.28	AVG
11550	57.37	4.78	62.15	74.00	-11.85	peak
11550	43.01	4.78	47.79	54.00	-6.21	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

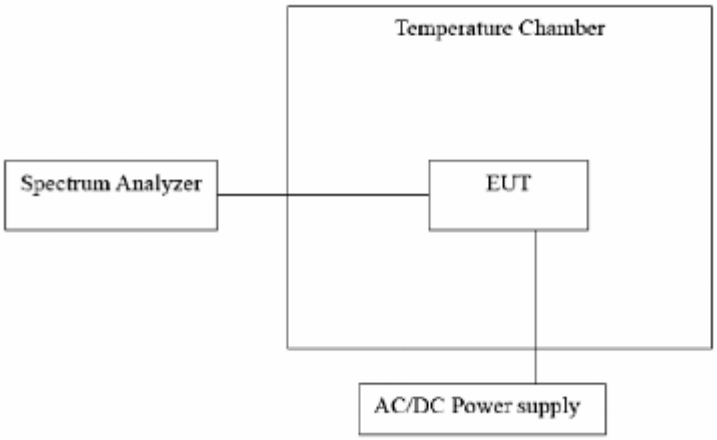
Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3647	62.12	-4.59	57.53	74.00	-16.47	peak
3647	48.62	-4.59	44.03	54.00	-9.97	AVG
11550	56.99	4.78	61.77	74.00	-12.23	peak
11550	42.45	4.78	47.23	54.00	-6.77	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark：
(1) Measuring frequencies from 1 GHz to the 40 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement within this frequency range shown “--- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

4.8. Frequency Stability Measurement

4.8.1. Test Specification

Test Requirement:	FCC Part15 Section 15.407(g) &Part2 J Section 2.1055
Test Method:	ANSI C63.10: 2013
Limit:	The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.
Test Setup:	
Test Procedure:	The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage. b. Turn the EUT on and couple its output to a spectrum analyzer. c. Turn the EUT off and set the chamber to the highest temperature specified. d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature. f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.
Test Result:	PASS
Remark:	N/A

Test Result as follows:

ANT1 worst case

Mode	Voltage (V)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
5.2G Band	132 V	5179.973	27	5239.969	31
	120 V	5179.970	30	5239.968	32
	108 V	5179.984	16	5239.972	28

Mode	Temperature (℃)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
5.2G Band	-30	5179.989	11	5239.977	23
	-20	5179.974	26	5239.976	24
	-10	5179.983	17	5239.969	31
	0	5179.971	29	5239.987	13
	10	5179.989	11	5239.975	25
	20	5179.970	30	5239.968	32
	30	5179.981	19	5239.970	30
	40	5179.987	13	5239.973	27
	50	5179.974	26	5239.981	19

Mode	Voltage (V)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
5.8G Band	132 V	5744.973	27	5824.979	21
	120 V	5744.969	32	5824.968	33
	108 V	5744.983	17	5824.972	28

Mode	Temperature (℃)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
5.8G Band	-30	5744.988	12	5824.985	15
	-20	5744.983	17	5824.978	22
	-10	5744.969	31	5824.976	24
	0	5744.978	22	5824.978	22
	10	5744.974	26	5824.985	15
	20	5744.969	32	5824.968	33
	30	5744.969	31	5824.979	21
	40	5744.978	22	5824.973	27
	50	5744.969	31	5824.975	25

ANTENNA REQUIREMENT

Standard Applicable

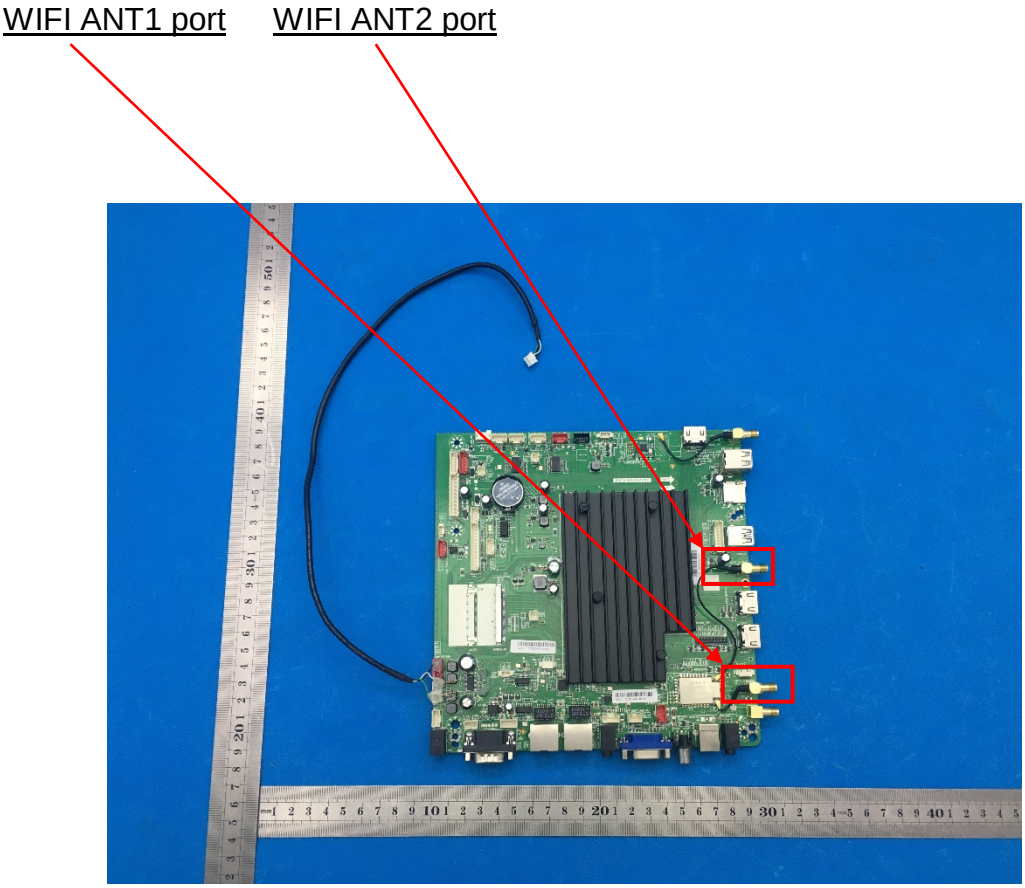
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

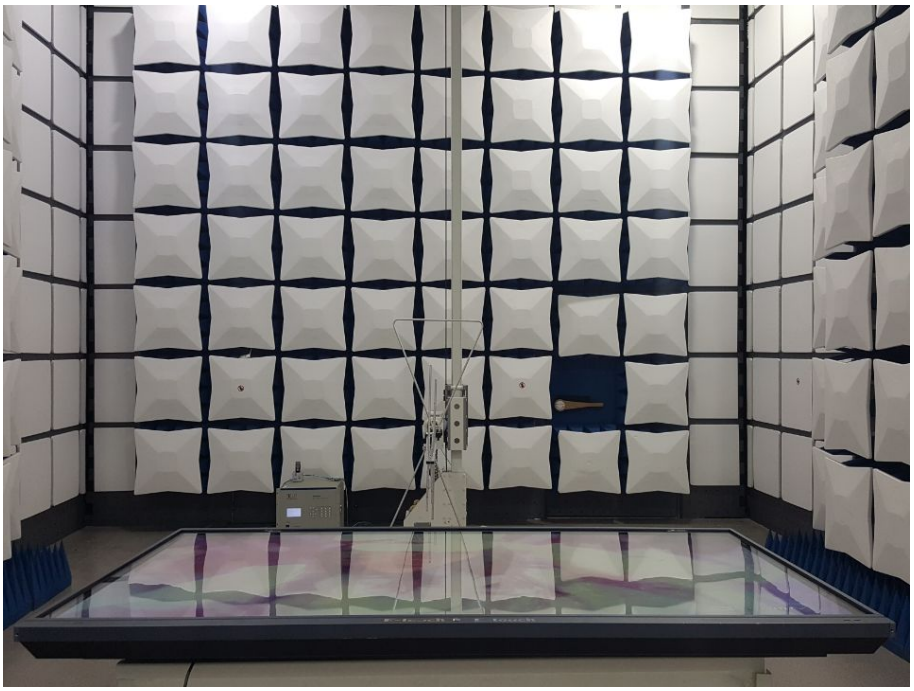
Antenna Connected Construction

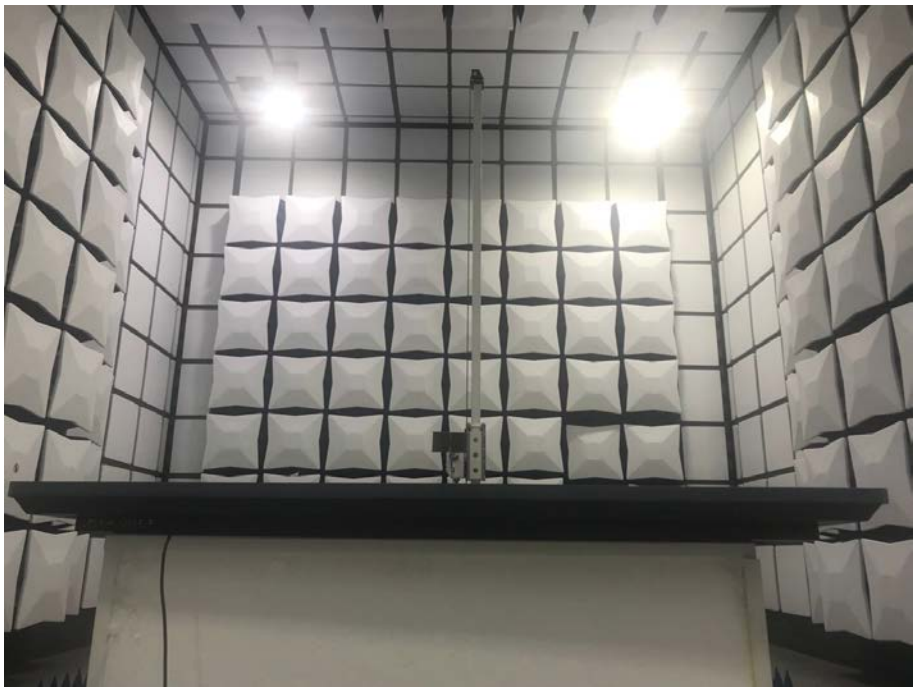
The antenna used in this product is a Internal Antenna, The directional gains of antenna used for transmitting is 4.01dBi.



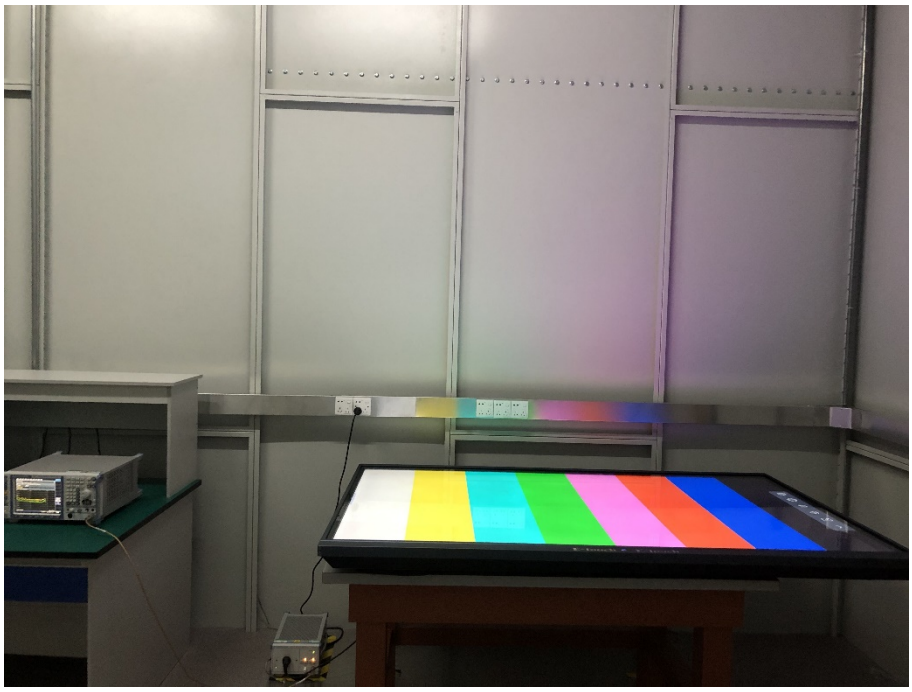
4.9. Photographs of Test Setup

Radiated Emission





Conducted Emission



The end