



# FCC TEST REPORT

**Test report**

**On Behalf of**

**Shenzhen Xunman Technology Co., LTD.**

**For**

**Wireless dual-band network card**

**Model No.: M-18A, M-18B, M-18C, M-18D, M-18E, M-18F, N32,  
N21, M-30A, M-30B, M-30C, M-30D, M-30E, M-30F**

**FCC ID: 2A5M6-M-18A**

**Prepared For :** Shenzhen Xunman Technology Co., LTD.  
Floor 3, Building B, No.7, Tongfu Road, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

**Prepared By :** Shenzhen HUAK Testing Technology Co., Ltd.  
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**Date of Test:** Nov. 11, 2022 ~ Dec. 20, 2022

**Date of Report:** Dec. 20, 2022

**Report Number:** HK2211255331-3E



### TEST RESULT CERTIFICATION

**Applicant's name** .....: Shenzhen Xunman Technology Co., LTD.  
**Address** .....: Floor 3, Building B, No.7, Tongfu Road, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

**Manufacture's Name**.....: Shenzhen Xunman Technology Co., LTD.  
**Address** .....: Floor 3, Building B, No.7, Tongfu Road, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

**Product description**  
**Trade Mark:** N/A  
**Product name** ..... : Wireless dual-band network card  
**Model and/or type reference** : M-18A, M-18B, M-18C, M-18D, M-18E, M-18F, N32, N21, M-30A, M-30B, M-30C, M-30D, M-30E, M-30F  
 FCC Rules and Regulations Part 15 Subpart E Section  
**Standards** .....: 15.407  
 ANSI C63.10: 2013

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**Date of Test** .....:   
**Date (s) of performance of tests** .....: **Nov. 11, 2022 ~ Dec. 20, 2022**  
**Date of Issue**.....: **Dec. 20, 2022**  
**Test Result** .....: **Pass**

Testing Engineer : *Gary Qian*  
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 (Gary Qian)

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 (Eden Hu)

Authorized Signatory : *Jason Zhou*  
 \_\_\_\_\_  
 (Jason Zhou)

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**\*\* Modified History \*\***

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Dec. 20, 2022	Jason Zhou





# 1. TEST RESULT SUMMARY

## 1.1. TEST PROCEDURES AND RESULTS

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

**Note:**

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

## 1.2. INFORMATION OF THE TEST LABORATORY

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

**Testing Laboratory Authorization:**

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



### 1.3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded 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	$\pm 0.37\text{dB}$
2	RF power, conducted	$\pm 3.35\text{dB}$
3	Spurious emissions, conducted	$\pm 2.20\text{dB}$
4	All emissions, radiated(<1G)	$\pm 3.90\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.28\text{dB}$
6	Temperature	$\pm 0.1^\circ\text{C}$
7	Humidity	$\pm 1.0\%$



## 2. EUT DESCRIPTION

### 2.1. GENERAL DESCRIPTION OF EUT

Equipment:	Wireless dual-band network card
Model Name:	M-18A
Serial Model:	M-18B, M-18C, M-18D, M-18E, M-18F, N32, N21, M-30A, M-30B, M-30C, M-30D, M-30E, M-30F
Model Difference:	All model's the function, software and electric circuit are the same, only with appearance and model named different. Test sample model: M-18A
Trade Mark:	N/A
FCC ID:	2A5M6-M-18A
Operation Frequency:	IEEE 802.11a/n/ac/ax(HT20)5.745GHz-5.825GHz IEEE 802.11n/ac/ax(HT40)5.755GHz-5.795GHz IEEE 802.11ac/ax(HT80) 5.775GHz
Modulation Technology:	IEEE 802.11a/n/ac/ax
Modulation Type:	OFDM, OFDMA
Antenna Type:	External Antenna
Antenna Gain:	Antenna 1:2.31dBi Antenna 2:2.31dBi MIMO: 5.320dBi
Power Source:	DC 5V
Power Supply:	DC 5V
Hardware Version:	V1
Software Version:	V1.3
<p>Note: The EUT incorporates a MIMO function. Physically, it provides two completed transmitters and receivers(2T2R), two transmit signals are completely correlated, then, Direction gain= GANT + Array Gain(Array Gain=10 log(2) dB for power spectral density; Array Gain=0 for power measurement)</p>	



### 2.2. OPERATION FREQUENCY EACH OF CHANNEL

802.11a/802.11n(HT20) 802.11ac(HT20) 802.11ax(HT20)		802.11n(HT40)/ 802.11ac(HT40) 802.11ax(HT40)		802.11ac(HT80) 802.11ax(HT80)	
Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745	151	5755	155	5775
153	5765	159	5795		
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

Band IV (5725 - 5850 MHz)		
For 802.11a/n (HT20)/ac(HT20)/axHT20)		
Channel Number	Channel	Frequency (MHz)
149	Low	5745
157	Mid	5785
165	High	5825

For 802.11n (HT40)/ ac(HT40)/axHT40)		
Channel Number	Channel	Frequency (MHz)
151	Low	5755
159	High	5795

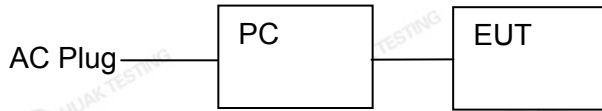
For 802.11ac(HT80)/ax(HT80)		
Channel Number	Channel	Frequency (MHz)
155	/	5775



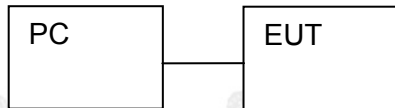


## 2.4. DESCRIPTION OF TEST SETUP

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



Operation of EUT during Above1GHz Radiation testing:



PC information  
Model: TP00067A  
Input: DC 20V, 2.25-30.25A  
Output: 5VDC, 0.5A

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



### 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%)
<p>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 &amp; 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.</p>	

<p>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:</p>	
<p><b>Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.</b></p>	
Mode	Data rate
802.11a	6 Mbps
802.11n(HT20)	MCS0
802.11n(HT40)	MCS0
802.11ac(HT20)/ac(HT40)/ac(HT80)	MCS0
802.11ax(HT20)/ax(HT40)/ax(HT80)	MCS0
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
/	/	/	/	/

**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

<b>Test Requirement:</b>	FCC Part15 C Section 15.207		
<b>Test Method:</b>	ANSI C63.10:2013		
<b>Frequency Range:</b>	150 kHz to 30 MHz		
<b>Receiver setup:</b>	RBW=9 kHz, VBW=30 kHz, Sweep time=auto		
<b>Limits:</b>	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
<b>Test Setup:</b>	<p>Reference Plane</p> <p>40cm</p> <p>80cm</p> <p>E.U.T</p> <p>AC power</p> <p>LISN</p> <p>Filter</p> <p>AC power</p> <p>EMI Receiver</p> <p>Test table/Insulation plane</p> <p><i>Remark:</i>  E.U.T: Equipment Under Test  LISN: Line Impedance Stabilization Network  Test table height=0.8m</p>		
<b>Test Mode:</b>	Tx Mode		
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>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.</li> <li>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).</li> <li>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.</li> </ol>		
<b>Test Result:</b>	Pass		

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4.1.2. Test Instruments

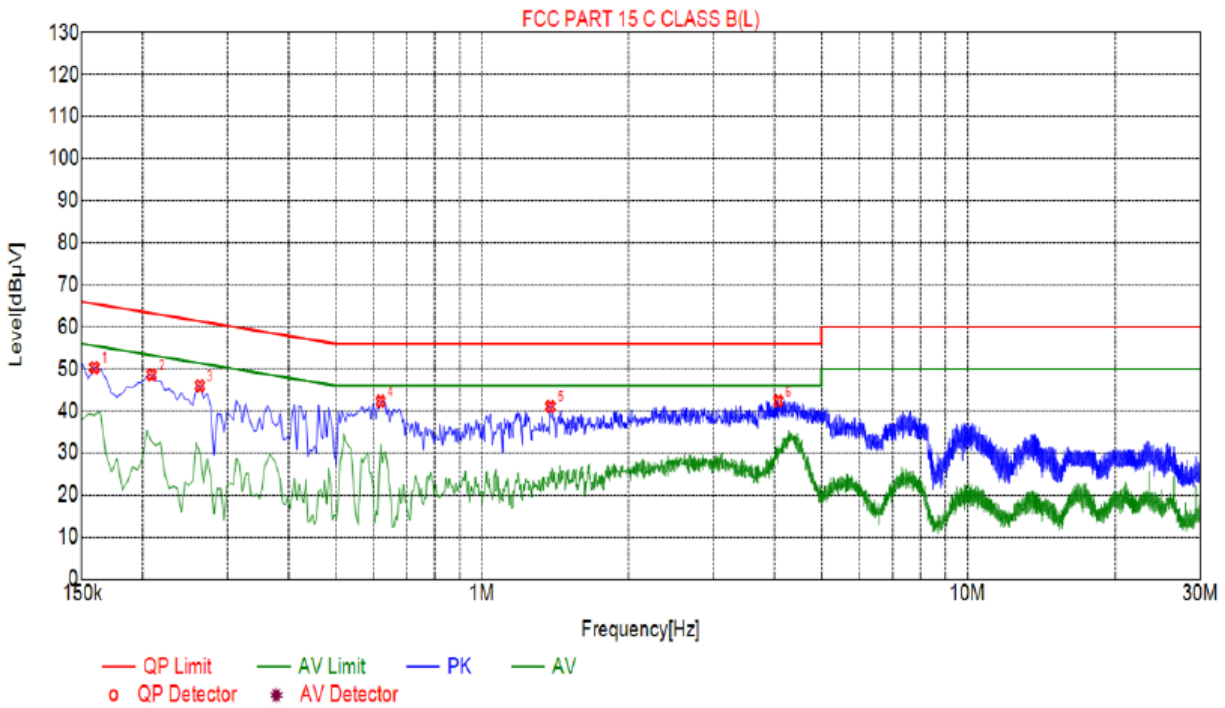
Conducted Emission Shielding Room Test Site (843)					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Receiver	R&S	ESR-7	HKE-010	Feb. 18, 2022	Feb. 17, 2023
LISN	R&S	ENV216	HKE-002	Feb. 18, 2022	Feb. 17, 2023
Coax cable (9KHz-30MHz)	Times	381806-00 2	N/A	Feb. 18, 2022	Feb. 17, 2023
Conducted test software	Tonscend	TS+ Rev 2.5.0.0	HKE-081	N/A	N/A

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



### 4.1.3. Test data

Test Specification: Line

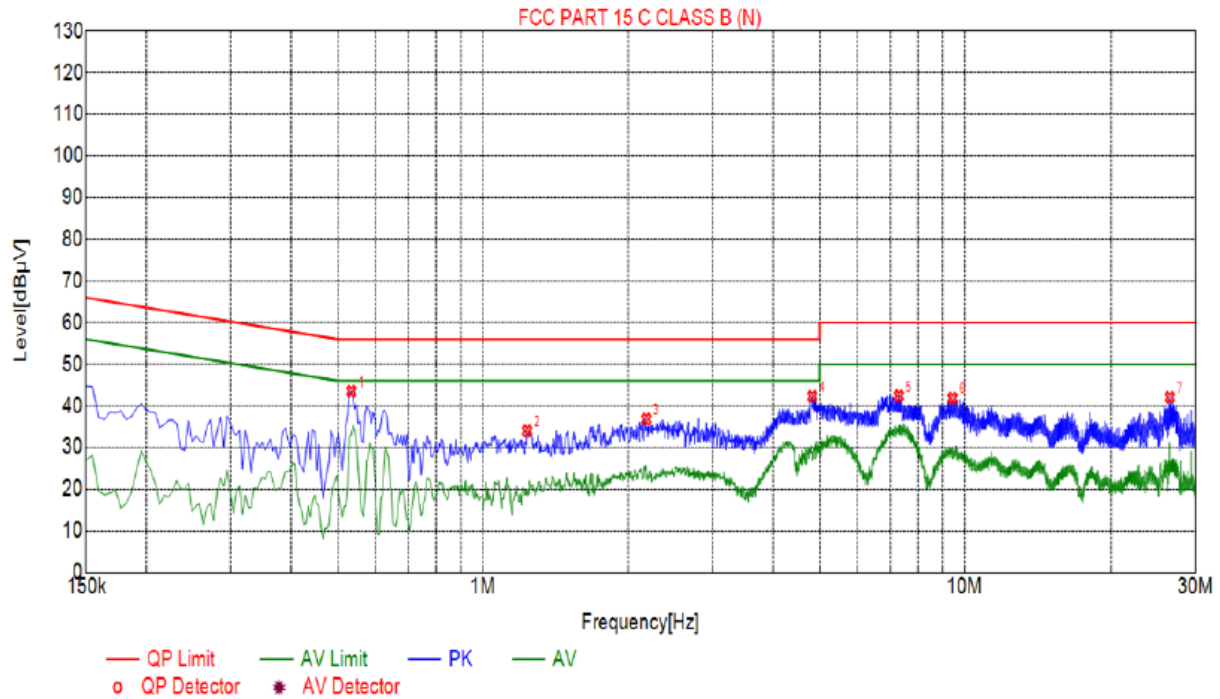


Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1590	50.33	20.01	65.52	15.19	30.32	PK	L
2	0.2085	48.63	20.04	63.26	14.63	28.59	PK	L
3	0.2625	46.00	20.03	61.35	15.35	25.97	PK	L
4	0.6180	42.27	20.05	56.00	13.73	22.22	PK	L
5	1.3830	41.01	20.11	56.00	14.99	20.90	PK	L
6	4.0785	42.34	20.25	56.00	13.66	22.09	PK	L

Remark: Margin = Limit – Level  
 Correction factor = Cable lose + LISN insertion loss  
 Level=Test receiver reading + correction factor



Test Specification: Neutral



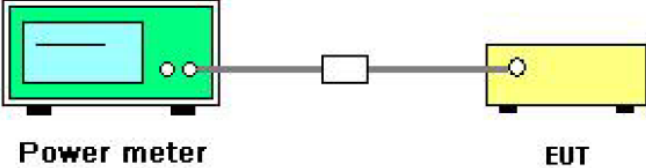
Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.5325	43.52	20.05	56.00	12.48	23.47	PK	N
2	1.2345	33.97	20.09	56.00	22.03	13.88	PK	N
3	2.1840	36.81	20.16	56.00	19.19	16.65	PK	N
4	4.8255	42.27	20.26	56.00	13.73	22.01	PK	N
5	7.3095	42.37	20.18	60.00	17.63	22.19	PK	N
6	9.4380	41.86	20.09	60.00	18.14	21.77	PK	N
7	26.4975	42.07	20.26	60.00	17.93	21.81	PK	N

Remark: Margin = Limit – Level  
 Correction factor = Cable lose + LISN insertion loss  
 Level=Test receiver reading + correction factor



### 4.2. MAXIMUM CONDUCTED OUTPUT POWER

#### 4.2.1. Test Specification

<b>Test Requirement:</b>	FCC Part15 E Section 15.407(a)				
<b>Test Method:</b>	KDB789033 D02 General UNII Test Procedures New Rules v02.r01 Section E				
<b>Limit:</b>	<table border="1"> <thead> <tr> <th>Frequency Band (MHz)</th> <th>Limit</th> </tr> </thead> <tbody> <tr> <td>5725-5850</td> <td>1 W</td> </tr> </tbody> </table>	Frequency Band (MHz)	Limit	5725-5850	1 W
	Frequency Band (MHz)	Limit			
5725-5850	1 W				
<b>Test Setup:</b>	 <p>The diagram illustrates the test setup. On the left is a green box labeled 'Power meter'. A cable connects it to a small white box labeled 'Attenuator'. Another cable connects the attenuator to a yellow box labeled 'EUT' (Equipment Under Test).</p>				
<b>Test Mode:</b>	Transmitting mode with modulation				
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. The testing follows the Measurement Procedure of KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section E, 3, a.</li> <li>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.</li> <li>3. Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>4. Measure the conducted output power and record the results in the test report.</li> </ol>				
<b>Test Result:</b>	PASS				
<b>Remark:</b>	<p>Conducted output power= measurement power +10log(1/x) X is duty cycle=1, so 10log(1/1)=0</p> <p>Conducted output power= measurement power</p>				





4.2.2. Test Instruments

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 18, 2022	Feb. 17, 2023
Power meter	Agilent	E4419B	HKE-085	Feb. 18, 2022	Feb. 17, 2023
Power Sensor	Agilent	E9300A	HKE-086	Feb. 18, 2022	Feb. 17, 2023
RF cable	Times	1-40G	HKE-034	Feb. 18, 2022	Feb. 17, 2023
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 18, 2022	Feb. 17, 2023

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



Test Data

Configuration Band IV (5725 - 5850 MHz )					
Mode	Test channel	Maximum Conducted Output Power (dBm)		FCC Limit (dBm)	Result
		Antenna port 1	Antenna port 2		
11a	CH149	3.19	3.64	30	PASS
11a	CH157	3.88	3.85	30	PASS
11a	CH165	3.98	3.26	30	PASS
11n(HT20)	CH149	3.49	3.41	30	PASS
11n(HT20)	CH157	3.30	3.22	30	PASS
11n(HT20)	CH165	3.52	3.16	30	PASS
11n(HT40)	CH151	3.70	2.91	30	PASS
11n(HT40)	CH159	3.76	3.77	30	PASS
11ac(HT20)	CH149	3.29	3.75	30	PASS
11ac(HT20)	CH157	3.74	3.13	30	PASS
11ac(HT20)	CH165	3.93	3.84	30	PASS
11ac(HT40)	CH151	2.99	3.80	30	PASS
11ac(HT40)	CH159	2.14	3.77	30	PASS
11ac(HT80)	CH155	2.00	3.10	30	PASS
11ax(HT20)	CH149	2.98	2.68	30	PASS
11ax(HT20)	CH157	2.55	2.68	30	PASS
11ax(HT20)	CH165	2.82	2.78	30	PASS
11ax(HT40)	CH151	2.95	2.13	30	PASS
11ax(HT40)	CH159	2.92	2.00	30	PASS
11ax(HT80)	CH155	2.59	2.55	30	PASS

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Configuration Band IV (5725 - 5850 MHz )				
Mode	Test channel	Maximum Conducted Output Power (dBm)	FCC Limit (dBm)	Result
		MIMO		
11n(HT20)	CH149	6.46	30	PASS
11n(HT20)	CH157	6.27	30	PASS
11n(HT20)	CH165	6.35	30	PASS
11n(HT40)	CH151	6.33	30	PASS
11n(HT40)	CH159	6.78	30	PASS
11ac(HT20)	CH149	6.54	30	PASS
11ac(HT20)	CH157	6.46	30	PASS
11ac(HT20)	CH165	6.90	30	PASS
11ac(HT40)	CH151	6.42	30	PASS
11ac(HT40)	CH159	6.04	30	PASS
11ac(HT80)	CH155	5.60	30	PASS
11ax(HT20)	CH157	5.84	30	PASS
11ax(HT20)	CH165	5.63	30	PASS
11ax(HT20)	CH165	5.81	30	PASS
11ax(HT40)	CH151	5.57	30	PASS
11ax(HT40)	CH159	5.49	30	PASS
11ax(HT80)	CH155	5.58	30	PASS


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### 4.3. 6DB EMISSION BANDWIDTH

#### 4.3.1. Test Specification

<b>Test Requirement:</b>	FCC CFR47 Part 15 Section 15.407(e)
<b>Test Method:</b>	KDB789033 D02 General UNII Test Procedures New Rules v01r04 Section C
<b>Limit:</b>	>500kHz
<b>Test Setup:</b>	 <p style="text-align: center;">Spectrum Analyzer                      EUT</p>
<b>Test Mode:</b>	Transmitting mode with modulation
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C.</li> <li>2. Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>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.</li> <li>4. Measure and record the results in the test report.</li> </ol>
<b>Test Result:</b>	PASS

#### 4.3.2. Test Instruments

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 18, 2022	Feb. 17, 2023
RF cable	Times	1-40G	HKE-034	Feb. 18, 2022	Feb. 17, 2023
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 18, 2022	Feb. 17, 2023

**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

ANT 1

Band IV (5725 - 5850 MHz )					
Mode	Test channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
11a	CH149	5745	16.280	0.5	PASS
11a	CH157	5785	16.280	0.5	PASS
11a	CH165	5825	16.040	0.5	PASS
11n(HT20)	CH149	5745	17.200	0.5	PASS
11n(HT20)	CH157	5785	17.000	0.5	PASS
11n(HT20)	CH165	5825	17.160	0.5	PASS
11n(HT40)	CH151	5755	35.760	0.5	PASS
11n(HT40)	CH159	5795	36.000	0.5	PASS
11ac(HT20)	CH149	5745	17.120	0.5	PASS
11ac(HT20)	CH157	5785	16.840	0.5	PASS
11ac(HT20)	CH165	5825	17.000	0.5	PASS
11ac(HT40)	CH151	5755	35.840	0.5	PASS
11ac(HT40)	CH159	5795	35.440	0.5	PASS
11ac(HT80)	CH155	5775	76.160	0.5	PASS
11ax(HT20)	CH149	5745	18.200	0.5	PASS
11ax(HT20)	CH157	5785	18.640	0.5	PASS
11ax(HT20)	CH165	5825	18.840	0.5	PASS
11ax(HT40)	CH151	5755	37.920	0.5	PASS
11ax(HT40)	CH159	5795	37.920	0.5	PASS
11ax(HT80)	CH155	5775	77.600	0.5	PASS

Test plots as follows:



Band IV (5725 – 5850 MHz)

802.11a



Low



Mid

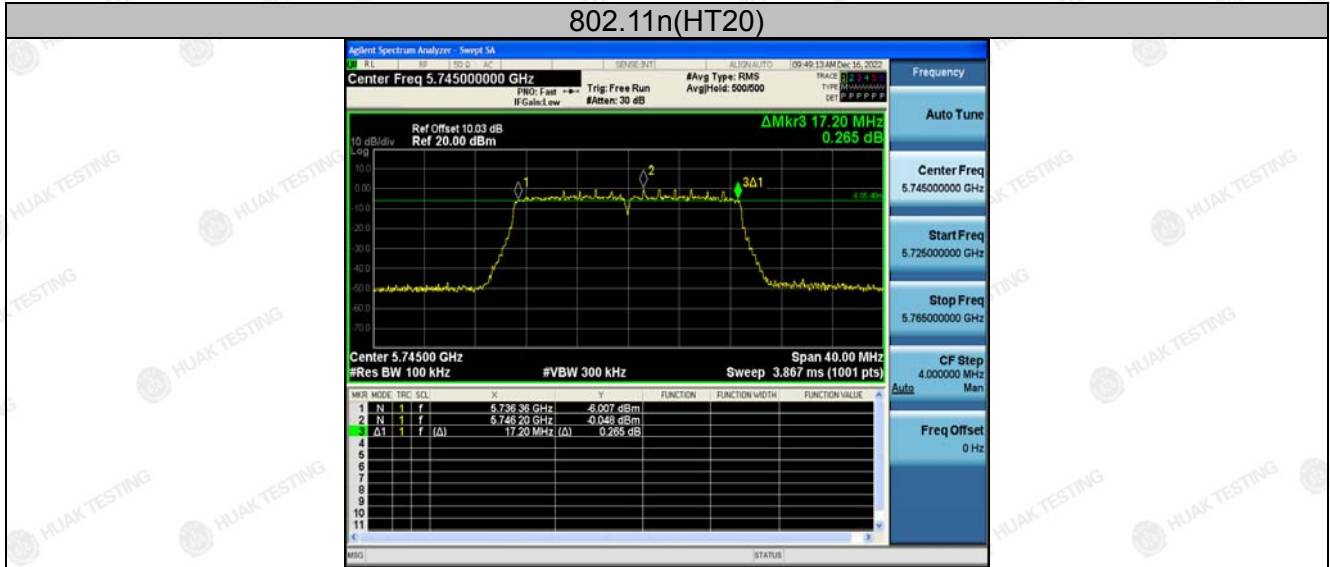


High

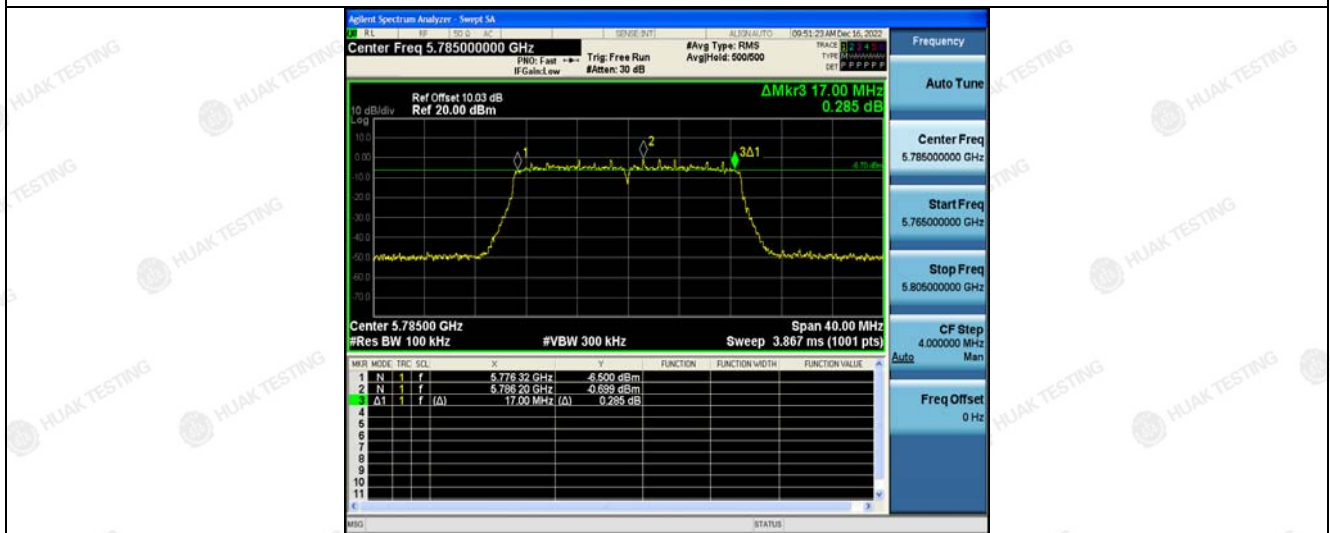
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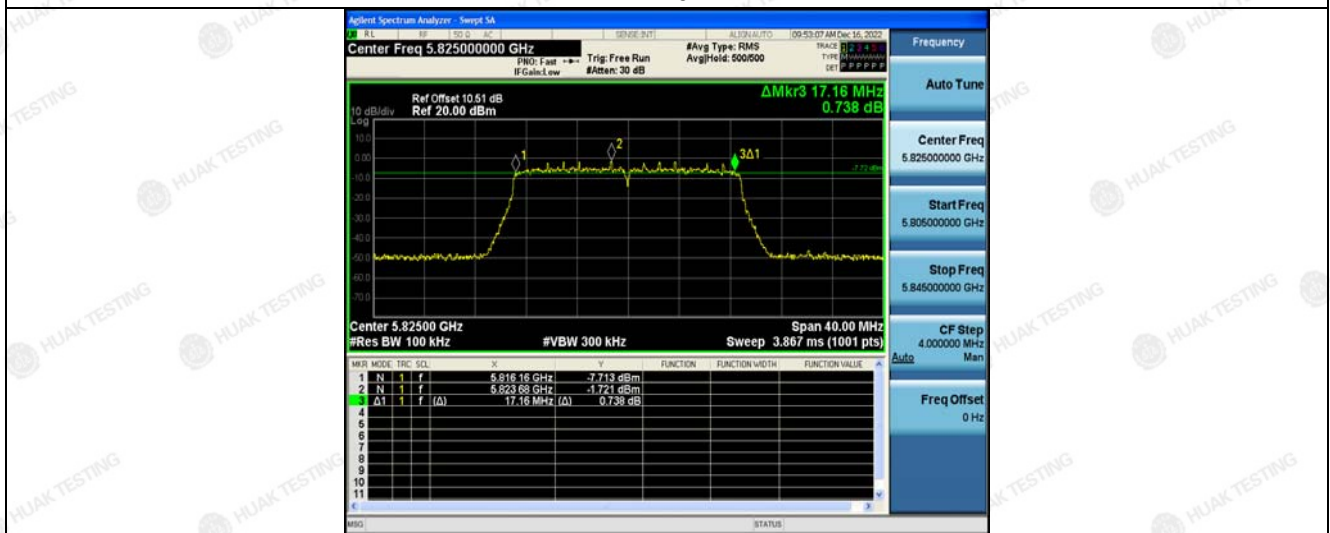
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



Low



Mid



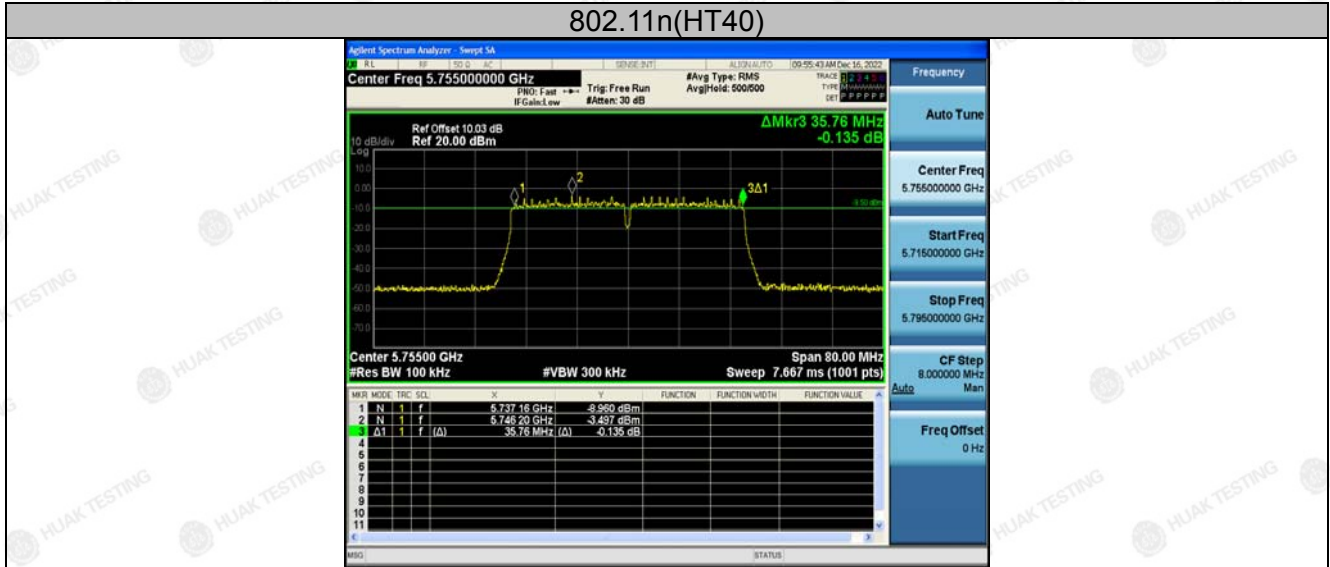
High

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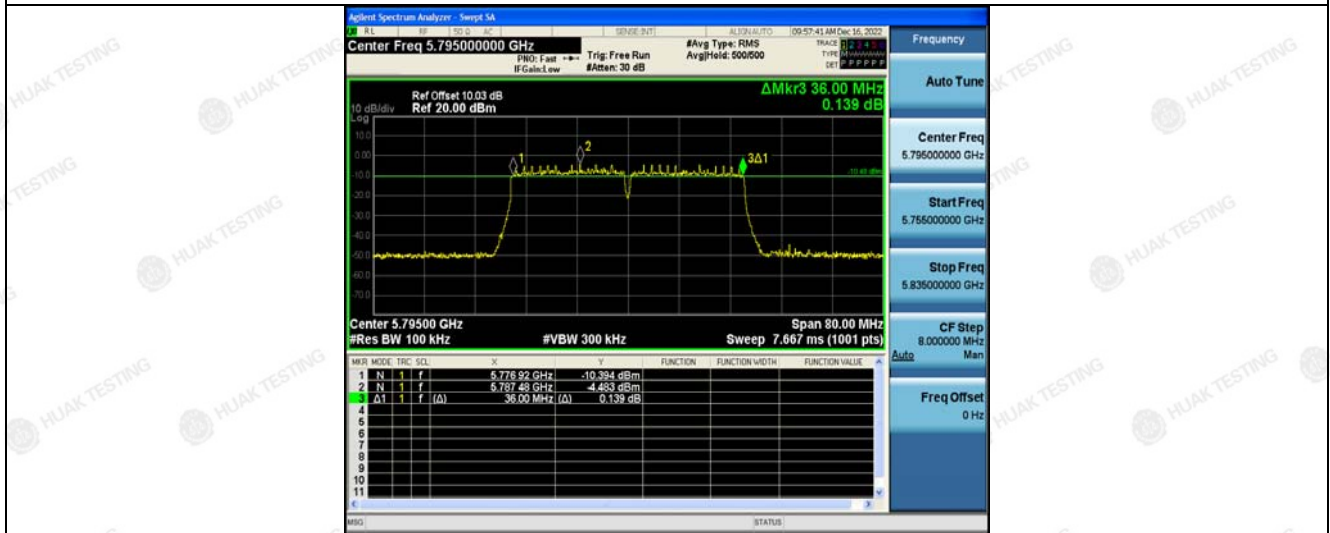
TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : service@cer-mark.com

Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China





Low



High

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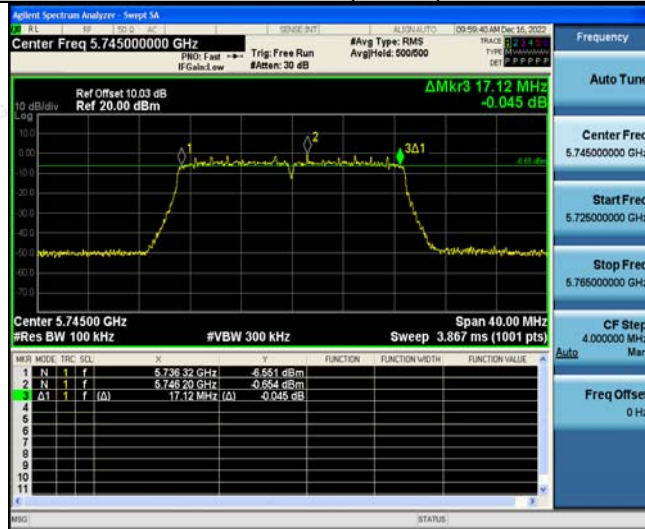
TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : service@cer-mark.com

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802.11ac(HT20)



Low



Mid



High

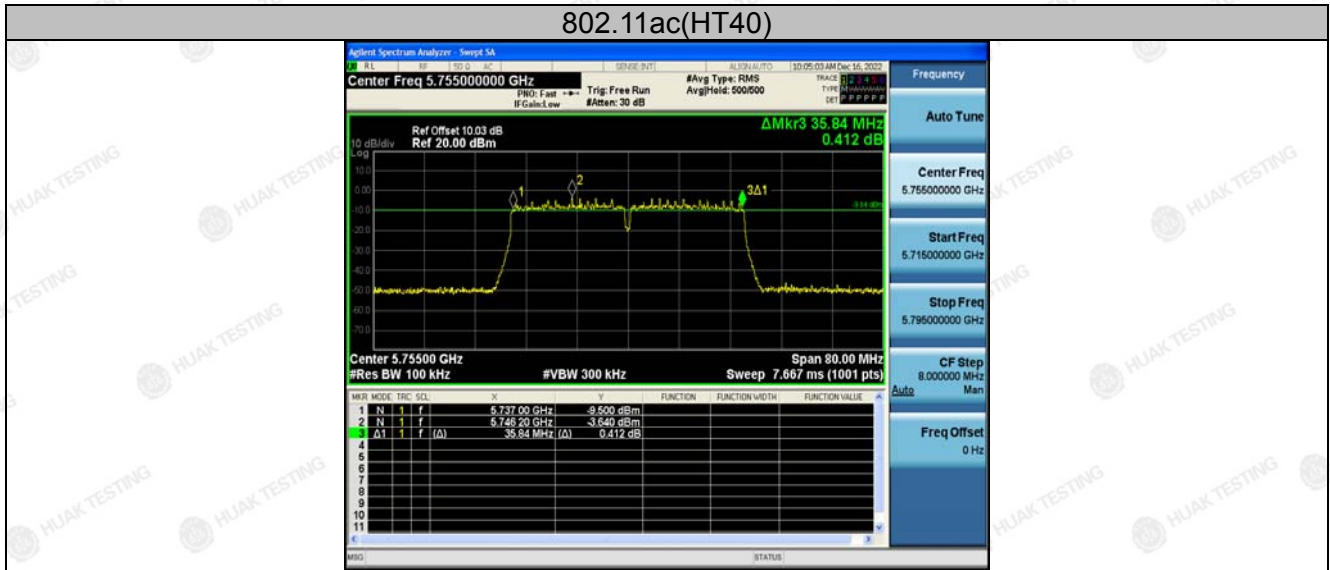
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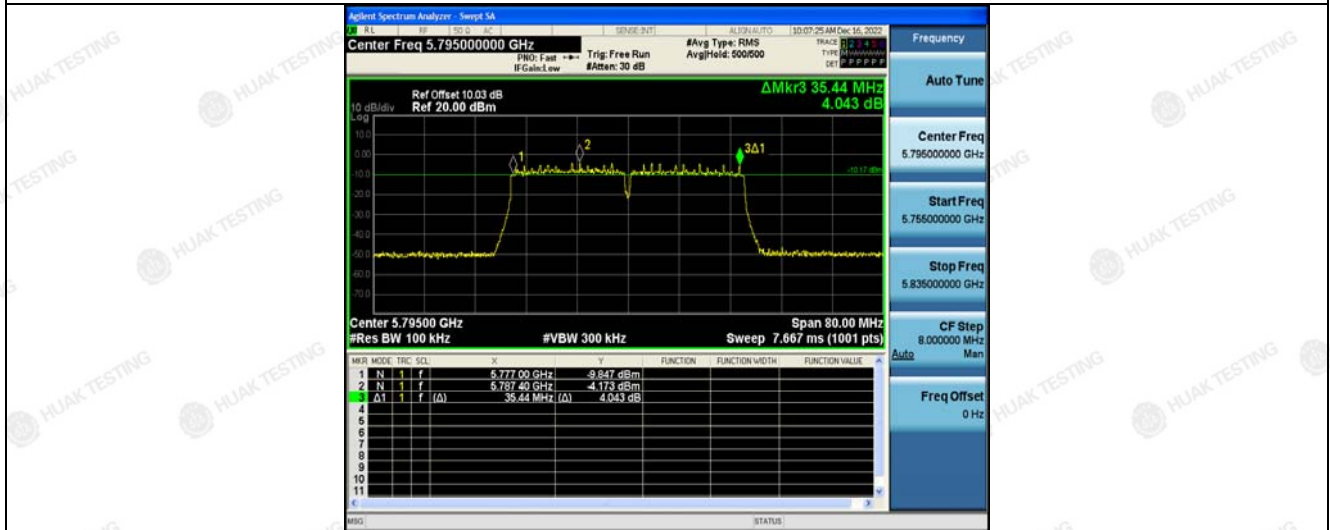
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



802.11ac(HT40)



Low

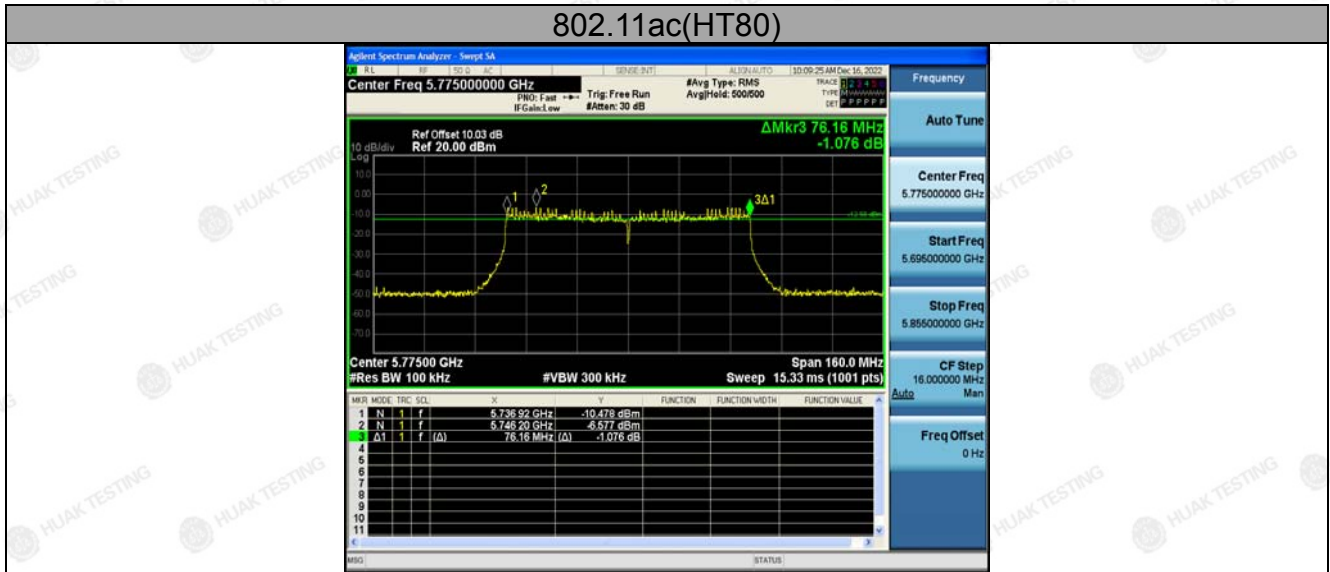


High

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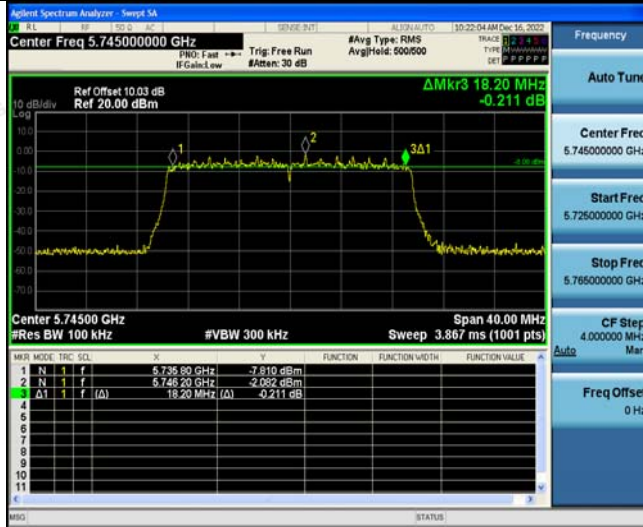
TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : service@cer-mark.com

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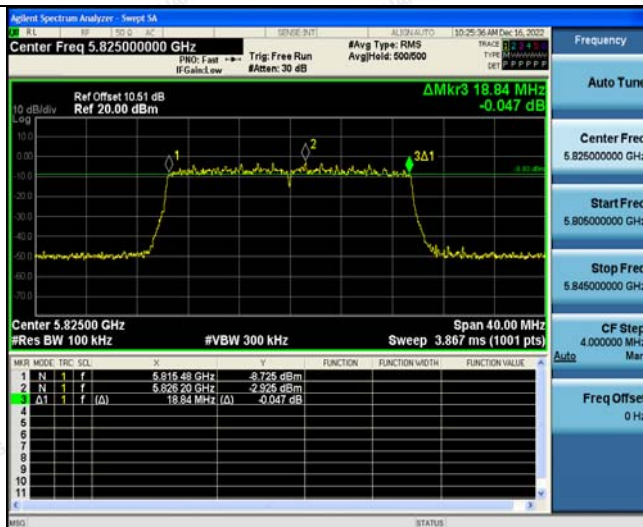
802.11ax(HT20)



Low



Mid



High

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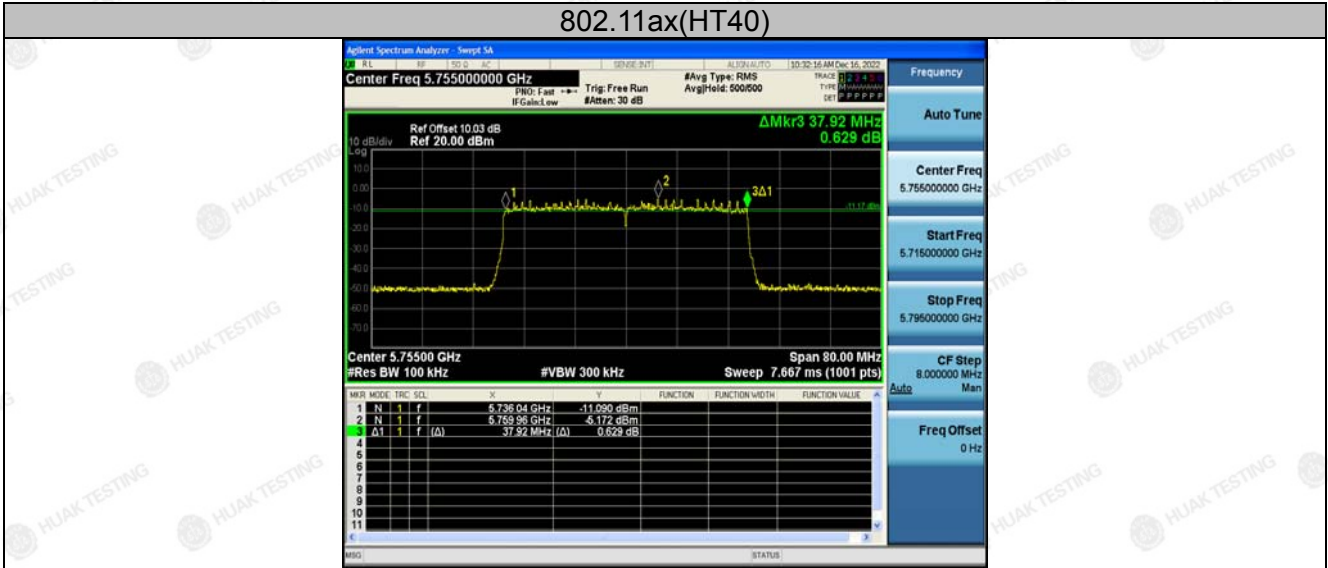
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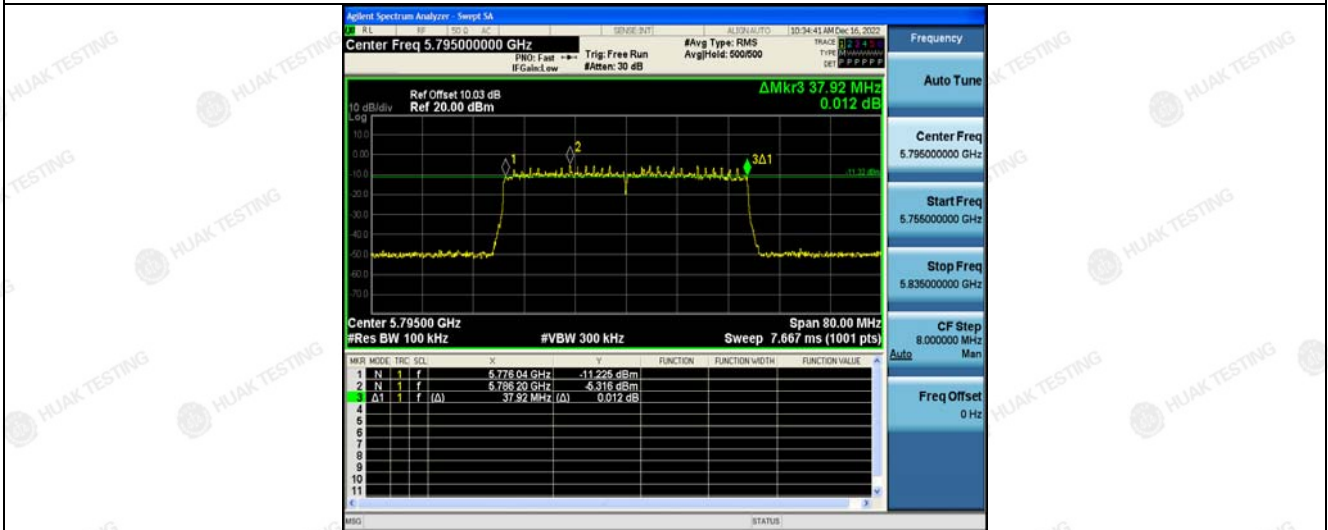




802.11ax(HT40)



Low

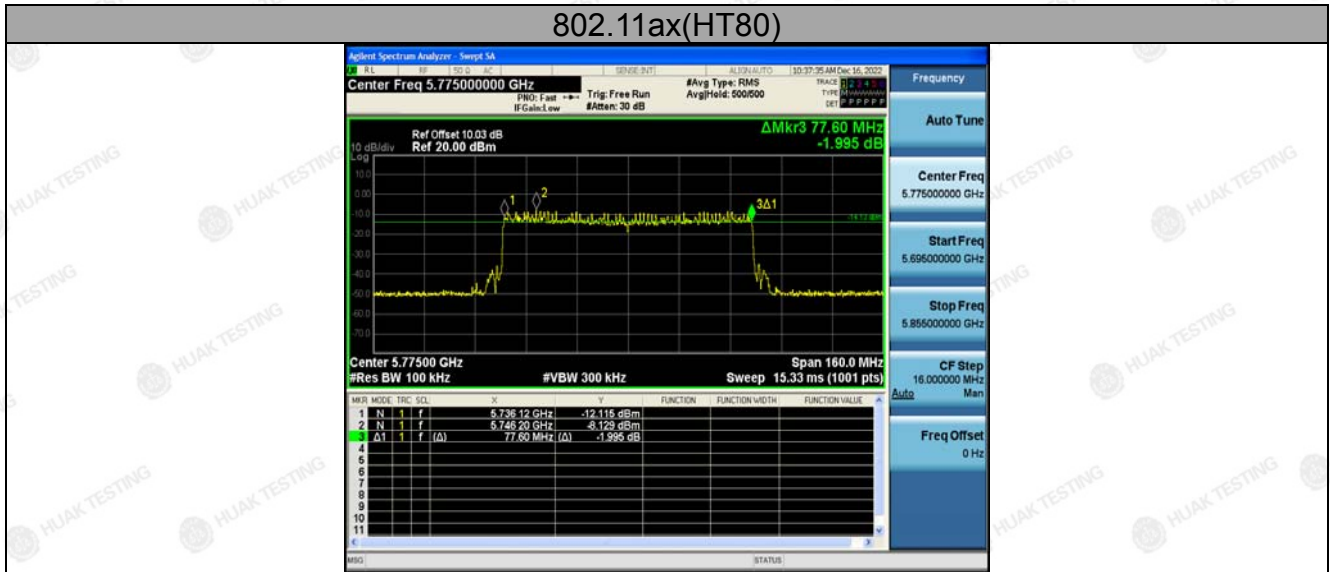


High

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ANT 2

Band IV (5725 - 5850 MHz )					
Mode	Test channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
11a	CH149	5745	16.320	0.5	PASS
11a	CH157	5785	16.320	0.5	PASS
11a	CH161	5825	16.080	0.5	PASS
11n(HT20)	CH149	5745	17.120	0.5	PASS
11n(HT20)	CH157	5785	17.240	0.5	PASS
11n(HT20)	CH161	5825	16.920	0.5	PASS
11n(HT40)	CH151	5755	35.920	0.5	PASS
11n(HT40)	CH159	5795	35.760	0.5	PASS
11ac(HT20)	CH149	5745	17.520	0.5	PASS
11ac(HT20)	CH157	5785	17.120	0.5	PASS
11ac(HT20)	CH165	5825	17.400	0.5	PASS
11ac(HT40)	CH151	5755	35.920	0.5	PASS
11ac(HT40)	CH159	5795	35.440	0.5	PASS
11ac(HT80)	CH155	5775	76.160	0.5	PASS
11ax(HT20)	CH149	5745	18.600	0.5	PASS
11ax(HT20)	CH157	5785	18.040	0.5	PASS
11ax(HT20)	CH165	5825	17.960	0.5	PASS
11ax(HT40)	CH151	5755	37.600	0.5	PASS
11ax(HT40)	CH159	5795	37.520	0.5	PASS
11ax(HT80)	CH155	5775	77.440	0.5	PASS

Test plots as follows:





Band IV (5725 – 5850 MHz)

802.11a



Low



Mid



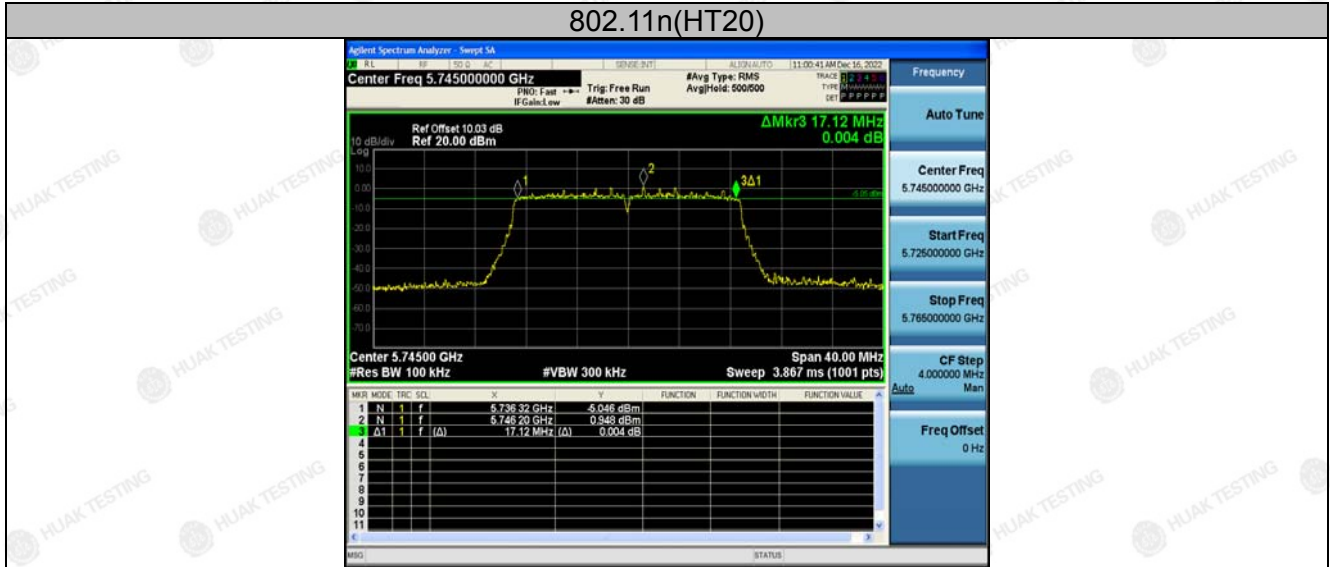
High

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Low



Mid



High

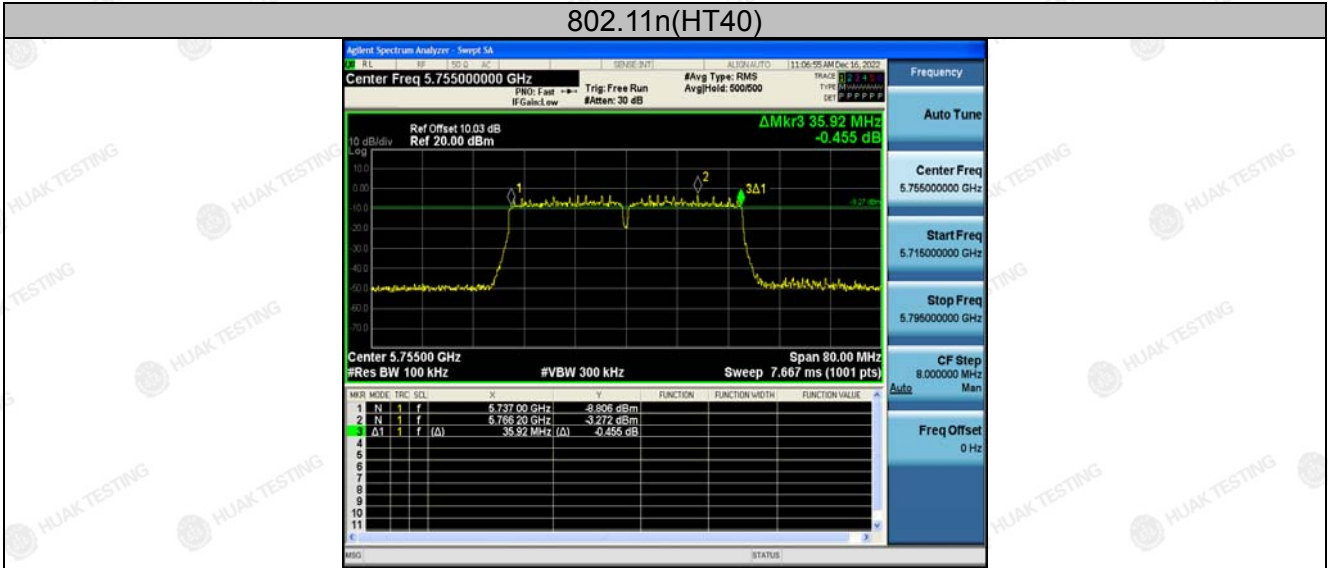
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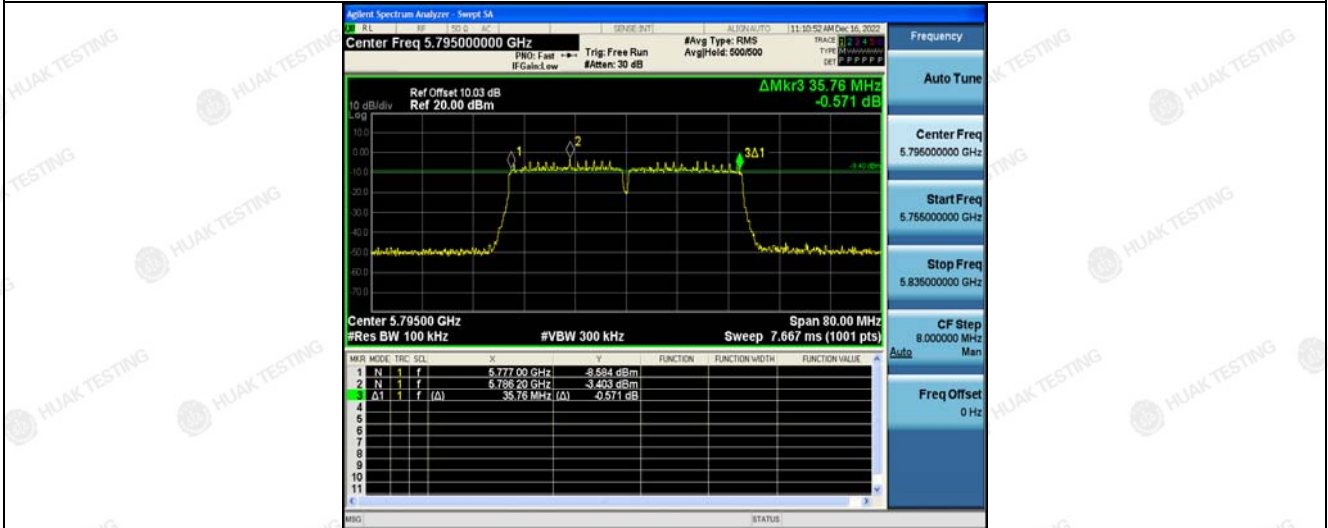
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



802.11n(HT40)



Low



High

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802.11ac(HT20)



Low



Mid



High

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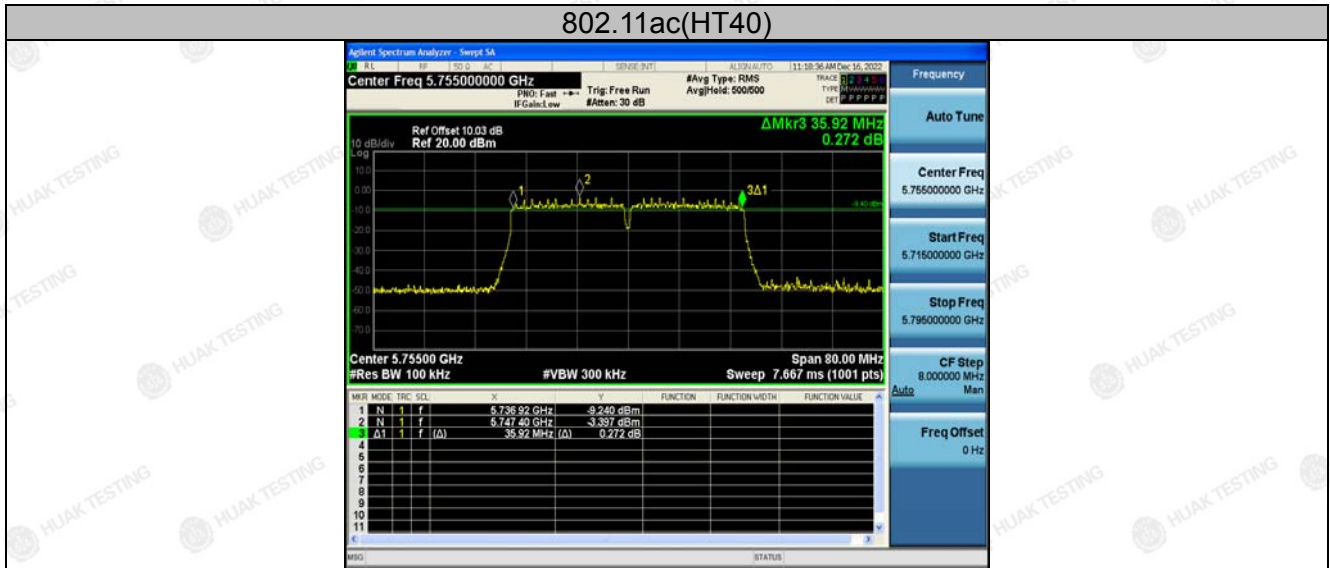
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Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

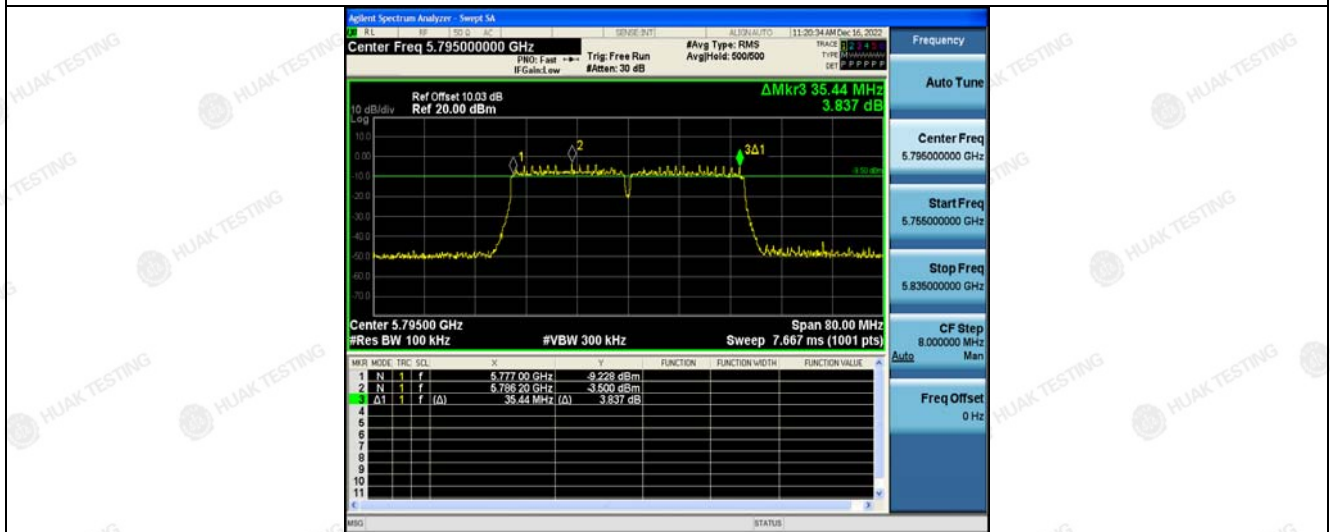




802.11ac(HT40)



Low



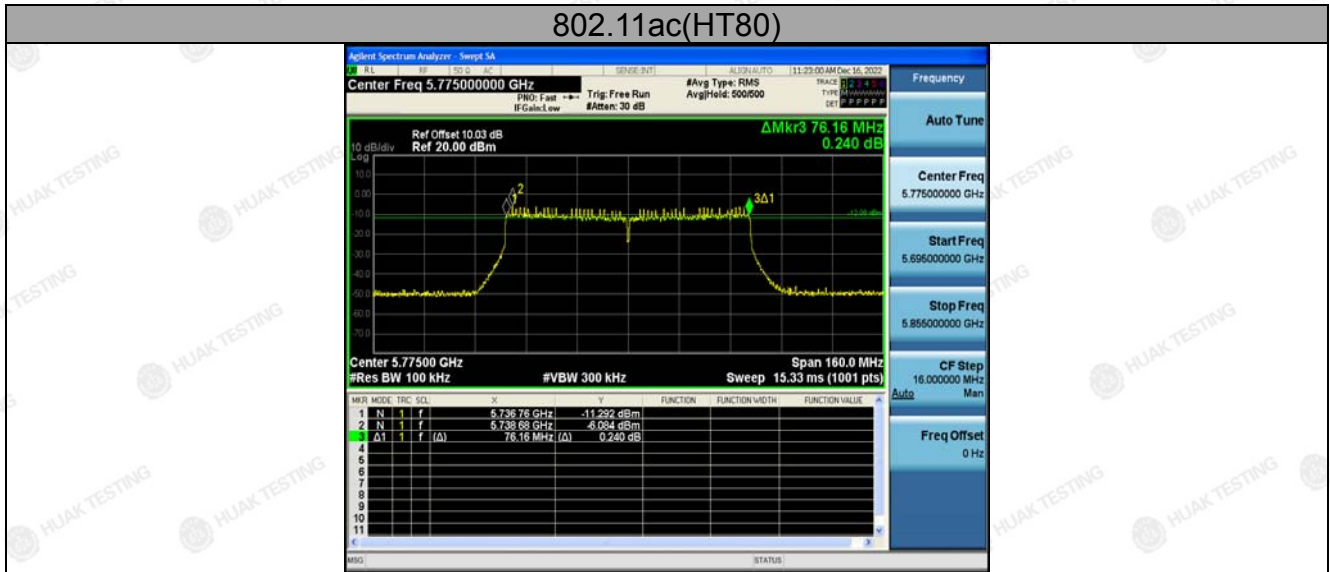
High

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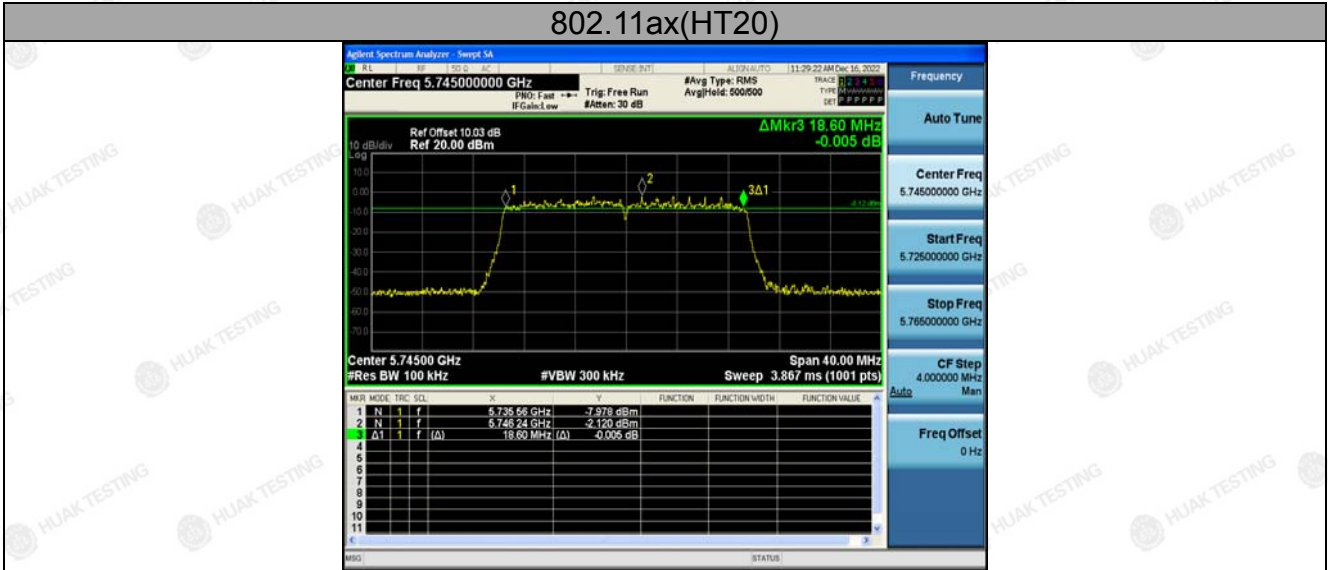
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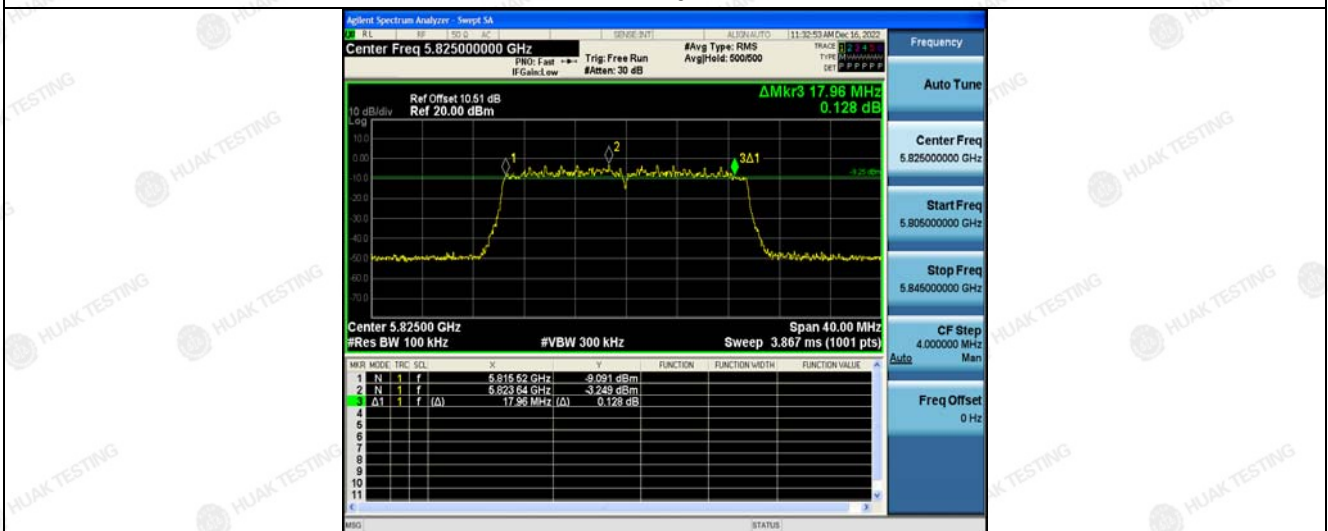
802.11ax(HT20)



Low



Mid



High

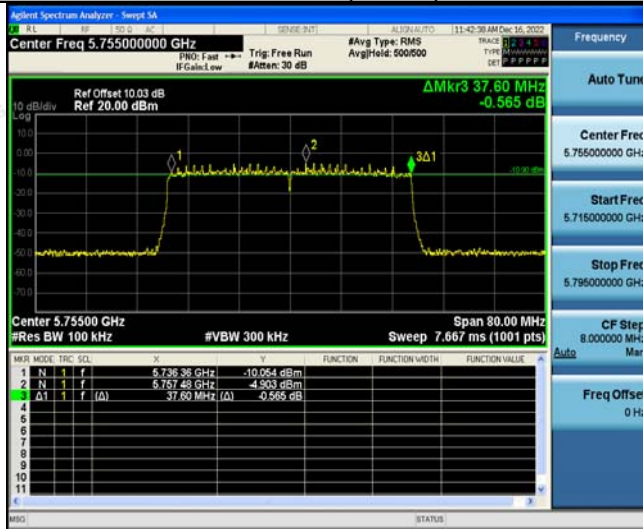
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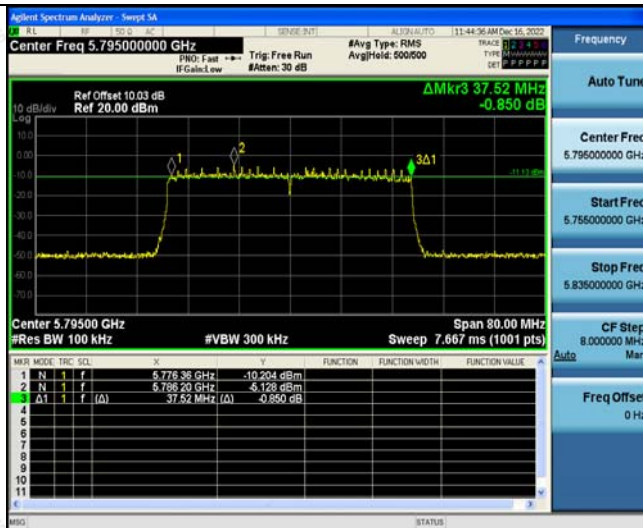
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



802.11ax(HT40)



Low



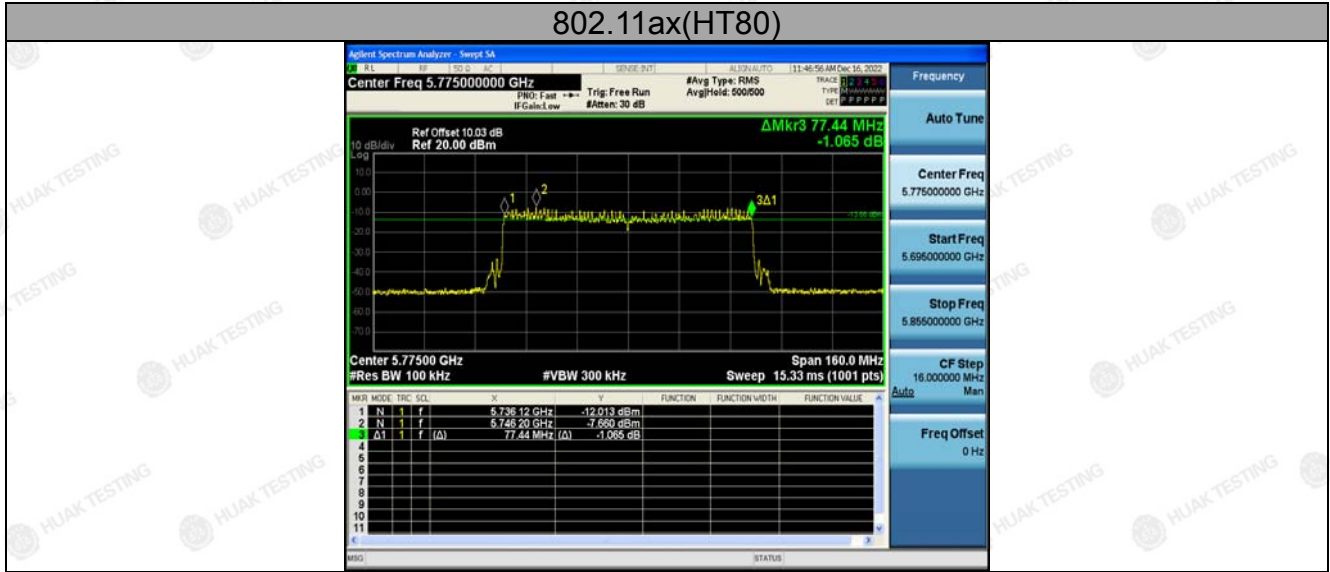
High

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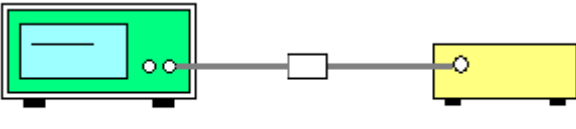
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China





## 4.4. 26DB BANDWIDTH AND 99% OCCUPIED BANDWIDTH

### 4.4.1. Test Specification

<b>Test Requirement:</b>	47 CFR Part 15C Section 15.407 (a)
<b>Test Method:</b>	KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C
<b>Limit:</b>	No restriction limits
<b>Test Setup:</b>	 Spectrum Analyzer                      EUT
<b>Test Mode:</b>	Transmitting mode with modulation
<b>Test Procedure:</b>	<ol style="list-style-type: none"><li>1. KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C.</li><li>2. Set to the maximum power setting and enable the EUT transmit continuously.</li><li>3. Make the measurement with the spectrum analyzer's resolution bandwidth RBW = 1% EBW, VBW≥3RBW, In order to make an accurate measurement.</li><li>4. Measure and record the results in the test report.</li></ol>
<b>Test Result:</b>	N/A

### 4.4.2. Test Instruments

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 18, 2022	Feb. 17, 2023
RF cable	Times	1-40G	HKE-034	Feb. 18, 2022	Feb. 17, 2023
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 18, 2022	Feb. 17, 2023

**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 Result

N/A



### 4.5. POWER SPECTRAL DENSITY

#### 4.5.1. Test Specification

<b>Test Requirement:</b>	FCC Part15 E Section 15.407 (a)
<b>Test Method:</b>	KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section F
<b>Limit:</b>	≤30.00dBm/500KHz for Band IV 5725MHz-5850MHz
<b>Test Setup:</b>	 <p><b>Spectrum Analyzer</b>                          <b>EUT</b></p>
<b>Test Mode:</b>	Transmitting mode with modulation
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. Set the spectrum analyzer or EMI receiver span to view the entire emission bandwidth.</li> <li>2. Set RBW = 510 kHz/1 MHz, VBW ≥ 3*RBW, Sweep time = Auto, Detector = RMS.</li> <li>3. Allow the sweeps to continue until the trace stabilizes.</li> <li>4. Use the peak marker function to determine the maximum amplitude level.</li> <li>5. 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.</li> </ol>
<b>Test Result:</b>	PASS

#### 4.5.2. Test Instruments

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 18, 2022	Feb. 17, 2023
RF cable	Times	1-40G	HKE-034	Feb. 18, 2022	Feb. 17, 2023
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 18, 2022	Feb. 17, 2023

**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

ANT 1

Configuration Band IV (5725 - 5850 MHz )						
Mode	Test channel	Level [dBm/510kHz]	10log(500/510)	Power Spectral Density	Limit (dBm/500kHz)	Result
11a	CH149	7.59	-0.086	7.504	30	PASS
11a	CH157	7.08	-0.086	6.994	30	PASS
11a	CH165	7.05	-0.086	6.964	30	PASS
11n HT20	CH149	9.06	-0.086	8.974	30	PASS
11n HT20	CH157	8.08	-0.086	7.994	30	PASS
11n HT20	CH165	7.11	-0.086	7.024	30	PASS
11n HT40	CH151	6.67	-0.086	6.584	30	PASS
11n HT40	CH159	5.76	-0.086	5.674	30	PASS
11ac HT20	CH149	8.63	-0.086	8.544	30	PASS
11ac HT20	CH157	7.82	-0.086	7.734	30	PASS
11ac HT20	CH165	7.3	-0.086	7.214	30	PASS
11ac HT40	CH151	6.14	-0.086	6.054	30	PASS
11ac HT40	CH159	7.03	-0.086	6.944	30	PASS
11ac HT80	CH155	6.54	-0.086	6.454	30	PASS
11ax HT20	CH149	9.23	-0.086	9.144	30	PASS
11ax HT20	CH157	8.1	-0.086	8.014	30	PASS
11ax HT20	CH165	8.9	-0.086	8.814	30	PASS
11ax HT40	CH151	7.38	-0.086	7.294	30	PASS
11ax HT40	CH159	8.37	-0.086	8.284	30	PASS
11ax HT80	CH155	6.27	-0.086	6.184	30	PASS

Note: Power Spectral Density= Level [dBm/510kHz]+ (10log(Limit RBW/Test RBW))

Test plots as follows:





Band IV (5725-5850 MHz)

802.11a



Low



Mid



High

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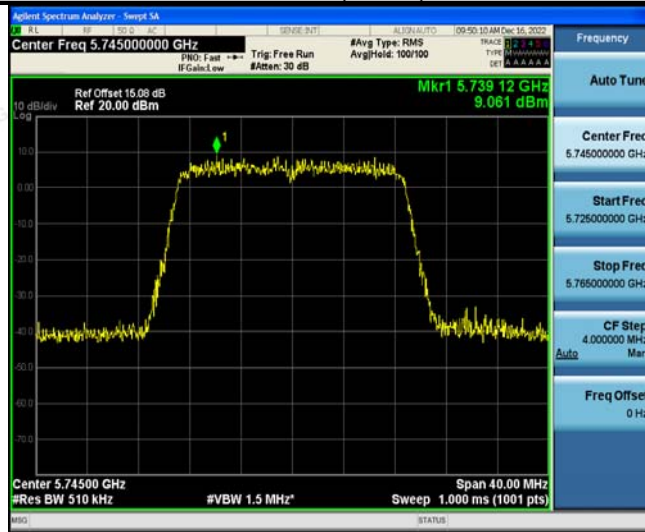
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802.11n(HT20)



Low



Mid



High

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802.11n(HT40)



Low



High

802.11ac(HT20)



Low

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Mid



High  
802.11ac(HT40)



Low

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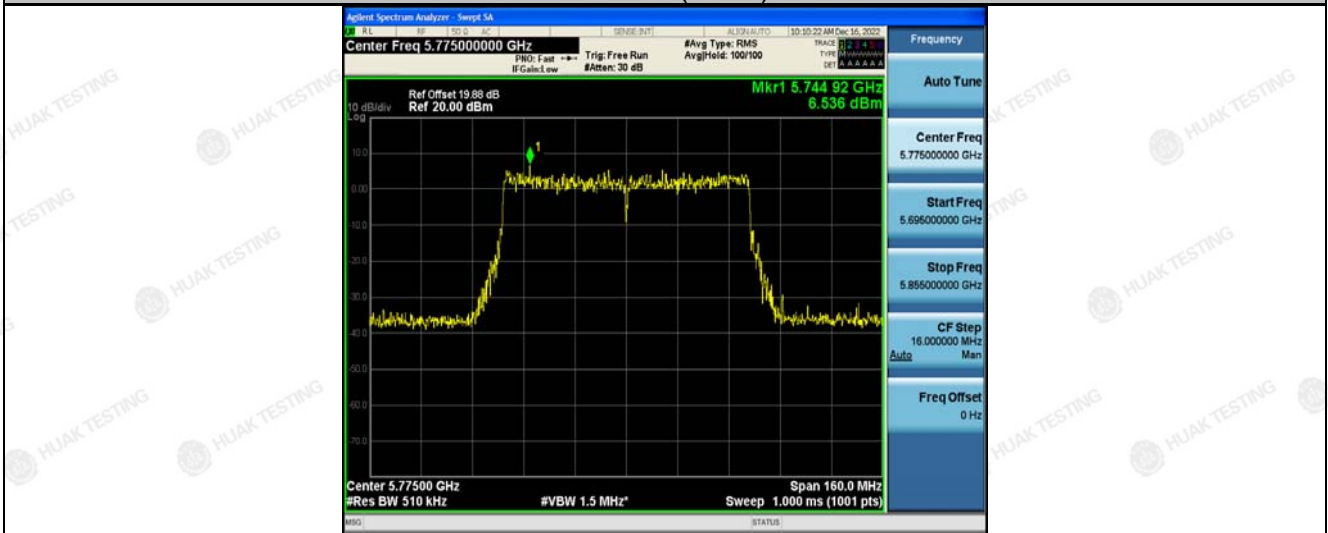
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



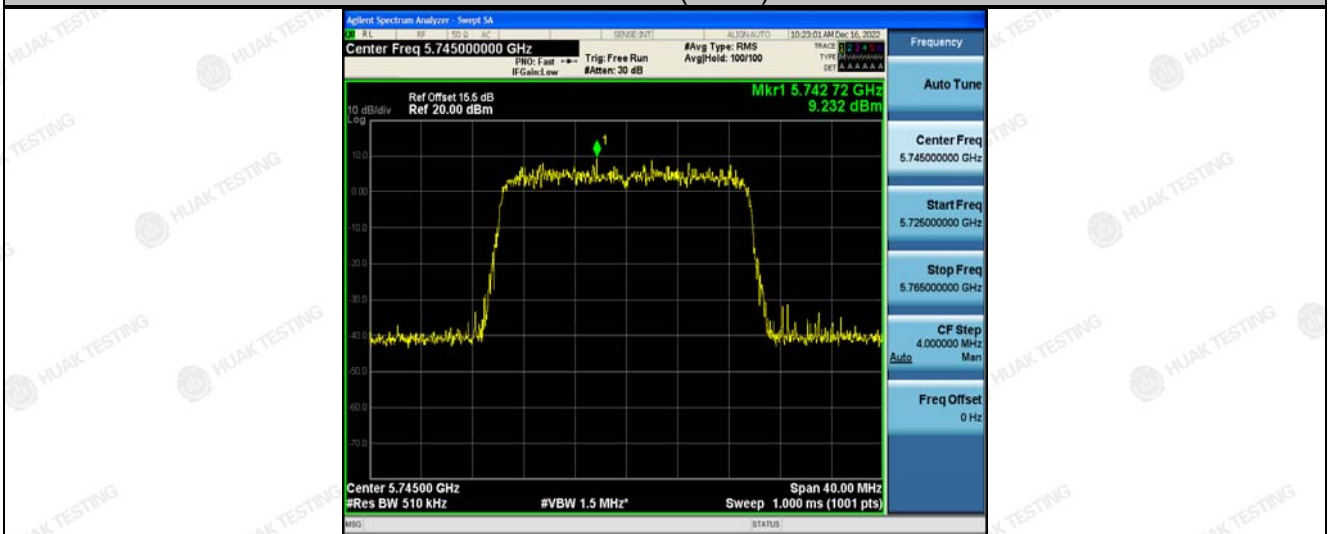


High

802.11ac(HT80)



802.11ax(HT20)



Low

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