

FCC Test Report

**Test Report
On Behalf of
Fujian Centerm Information Co.,Ltd.
For
Chromebook**

Model No.: Centerm Chromebook M311A, Centerm Enterprise Chromebook M311A, Chromebook M311A, M311A Plus, M**, M31****, M***** (“*” may be alphanumeric characters, blank or other characters)**

FCC ID: 2AN9R-M311A

Prepared For: Fujian Centerm Information Co.,Ltd.
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Date of Test: Apr. 10, 2026 ~ Apr. 29, 2026

Date of Report: Apr. 29, 2026

Report Number: HK2604100402-4E

Test Result Certification

Applicant's Name.....: Fujian Centerm Information Co.,Ltd.
Address: #21-#22 Buildings,No.618,Jinshan Road,Jinshan Industrial Park,Cangshan District,Fuzhou City, Fujian Province,China
Manufacturer's Name: Fujian Centerm Information Co.,Ltd.
Address: #21-#22 Buildings,No.618,Jinshan Road,Jinshan Industrial Park,Cangshan District,Fuzhou City, Fujian Province,China
Product Description
Trade Mark: Centerm
Product Name.....: Chromebook
Model and/or Type Reference : Centerm Chromebook M311A, Centerm Enterprise Chromebook M311A, Chromebook M311A, M311A, M311A Plus, M****, M31****, M***** ("*" may be alphanumeric characters, blank or other characters)
Standards: FCC Rules and Regulations Part 15 Subpart E Section 15.407
ANSI C63.10: 2020

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Date of Test.....:
Date (s) of Performance of Tests: **Apr. 10, 2026 ~ Apr. 29, 2026**
Date of Issue.....: **Apr. 29, 2026**
Test Result.....: **Pass**

Testing Engineer

Len Liao

Len Liao

Technical Manager

Sliver Wan

Sliver Wan

Authorized Signatory

Jason Zhou

Jason Zhou



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**** Issued history ****

Revision	Description	Issued Date	Remark
Revision 1.0	Initial Test Report Release	Apr. 29, 2026	Jason Zhou

1. 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
26dB Emission Bandwidth& 99% Occupied Bandwidth	§15.407(a)	PASS
Power Spectral Density	§15.407(a)	PASS
Band Edge	§15.407(b)/15.209/15.205	PASS
Radiated Emission	§15.407(b)/15.209/15.205	PASS
Frequency Stability	§15.407(g)	PASS

Note:

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

1.2 Information of the Test Laboratory

Shenzhen HUAK Testing Technology Co., Ltd.

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

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 0.15~30MHz	$\pm 2.71\text{dB}$
2	All Emissions, Radiated(<1G)	$\pm 3.90\text{dB}$
3	All Emissions, Radiated(>1G)	$\pm 4.28\text{dB}$
4	Transmitter Power Conducted	$\pm 0.37\text{dB}$
5	Conducted Spurious Emission	$\pm 2.20\text{dB}$
6	Occupied Bandwidth	$\pm 1.5\%$
7	Temperature	$\pm 0.1^{\circ}\text{C}$
8	Humidity	$\pm 1.0\%$

2. EUT Description

2.1 General Description of EUT

Equipment	Chromebook
Model Name	Centerm Chromebook M311A
Series Model(s)	Centerm Enterprise Chromebook M311A, Chromebook M311A, M311A, M311A Plus, M****, M31****, M***** ("*" may be alphanumeric characters, blank or other characters)
Model Difference	All model's the function, software and electric circuit are the same, only with product model named different. Test sample model: Centerm Chromebook M311A.
Operation Frequency	IEEE 802.11a/n/ac(HT20)/ax(HE20) 5.180GHz-5.240GHz IEEE 802.11n/ac(HT40)/ax(HE40) 5.190GHz-5.230GHz IEEE 802.11ac(HT80)/ax(HE80) 5.210GHz
Modulation Technology	IEEE 802.11a/n/ac/ax
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only 1024QAM for OFDMA in 11ax mode only
Antenna Type	FPC Antenna
Antenna Gain	Antenna 1: 1.11dBi Antenna 2: 1.55dBi MIMO: 4.35dBi
Power Source	DC15V From Adapter with AC100-240V, 50/60Hz or DC11.1V From Battery
Power Supply	DC15V From Adapter with AC100-240V, 50/60Hz or DC11.1V From Battery
Hardware Version	V1.0
Software Version	V1.0

Note:

1. 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).
2. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
3. Antenna gain Refer to the antenna specifications.
4. The cable loss data is obtained from the supplier.
5. The test results in the report only apply to the tested sample.

2.2 Operation Frequency Each of Channel

802.11a/802.11n(HT20)/ 802.11ac(HT20)/ 802.11ax(HE20)		802.11n(HT40)/ 802.11ac(HT40)/ 802.11ax(HE40)		802.11ac(HT80)/ 802.11ax(HE80)	
Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

Note:

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

2.3 Operation of EUT during Testing

For 802.11a/n(HT20)/ ac(HT20)/ ax(HE20)

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

For 802.11n(HT40)/ ac(HT40)/ ax(HE40)

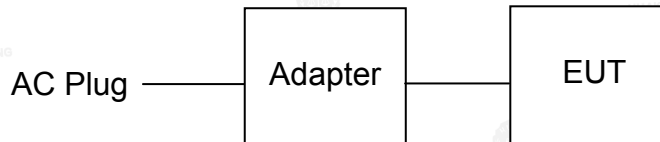
Band I (5150 - 5250 MHz)		
Channel Number	Channel	Frequency (MHz)
38	Low	5190
46	High	5230

For 802.11ac(HT80)/ ax(HE80)

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

2.4 Description of Test Setup

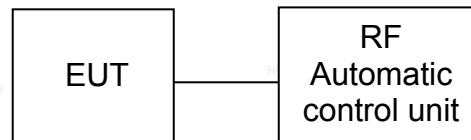
Operation of EUT during AC Conducted testing:



Operation of EUT during Radiation testing:



Operation of EUT during RF Conducted testing:



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 report only reflects the worst emission test results. The worst case is X position.

2.5 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.

Item	Equipment	Trade Mark	Model/Type No.	Specification	Remark
1	Chromebook	Centerm	Centerm Chromebook M311A	N/A	EUT
2	Adapter	N/A	TEKA-PC2A45WJPC	Input: AC100-240V, 50/60Hz, 1.2A MAX Output: DC5V/3A 15W, DC9V/3A 27W, DC12V/3A 36W, DC15V/3A 45W, DC20V/2.25A 45W	

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, 26db Bandwidth and 99% Occupied 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.

3. General Information

3.1 Test Environment and Mode

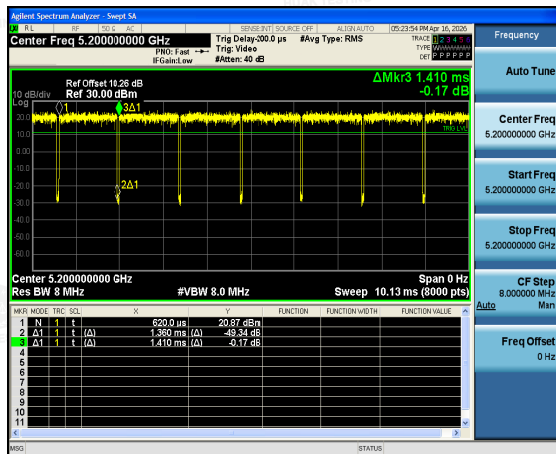
Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Engineering Mode:	Keep the EUT in continuous transmitting by select channel and modulations
We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:	
Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.	
Mode	Data Rate
802.11a	6 Mbps
802.11n(HT20)	MCS0
802.11n(HT40)	MCS0
802.11ac(HT20)/ac(HT40)/ac(HT80)	MCS0
802.11ax(HE20)/ax(HE40)/ax(HE80)	MCS0
Final Test Mode:	
Operation Mode:	Keep the EUT in continuous transmitting with modulation

Mode Test Duty Cycle ANT.1:

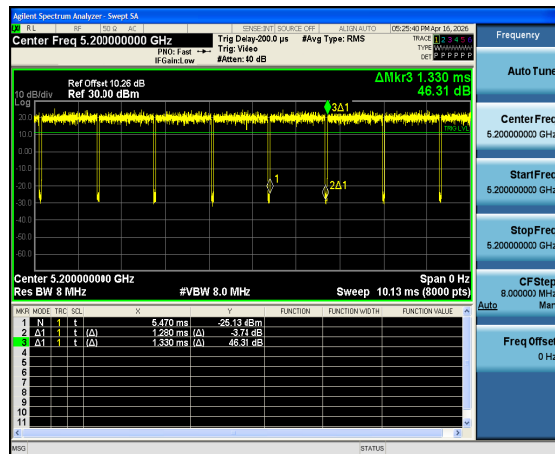
Mode	Duty Cycle
802.11a	96.45
802.11n(HT20)	96.24
802.11n(HT40)	91.30
802.11ac(HT20)	95.49
802.11ac(HT40)	92.75
802.11ac(HT80)	86.49
802.11ax(HE20)	96.21
802.11ax(HE40)	92.75
802.11ax(HE80)	86.49

Test plots as follows:

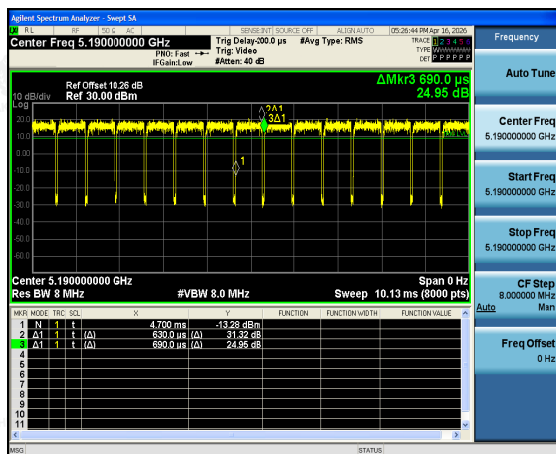
802.11a



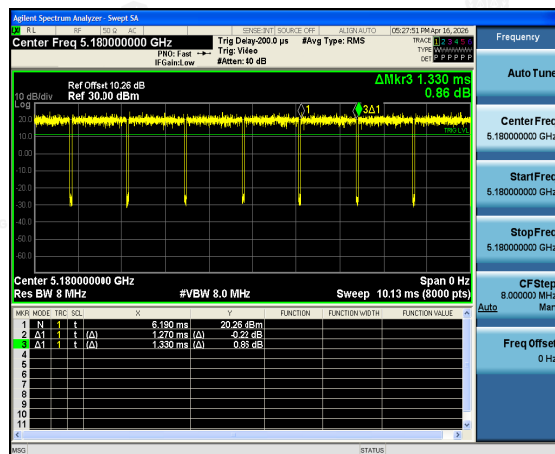
802.11n(HT20)



802.11n(HT40)

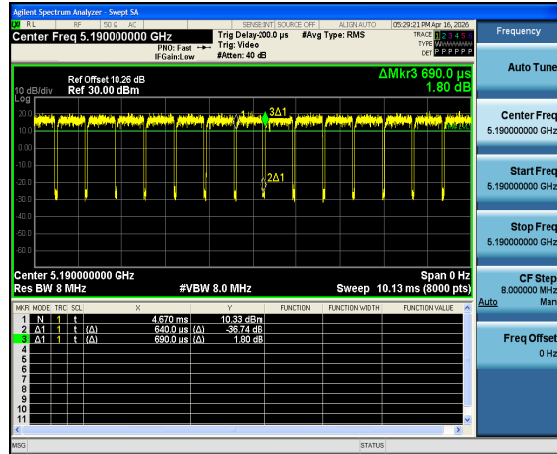


802.11ac(HT20)

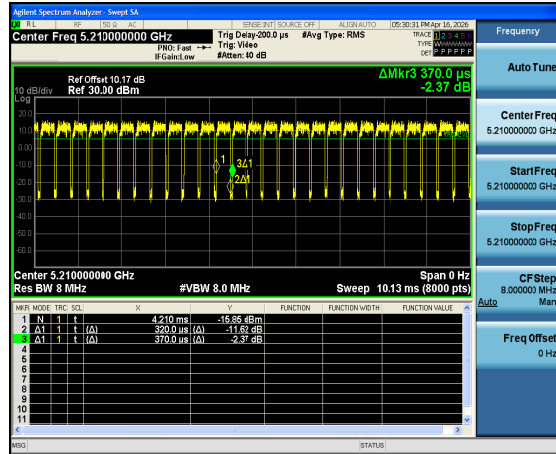


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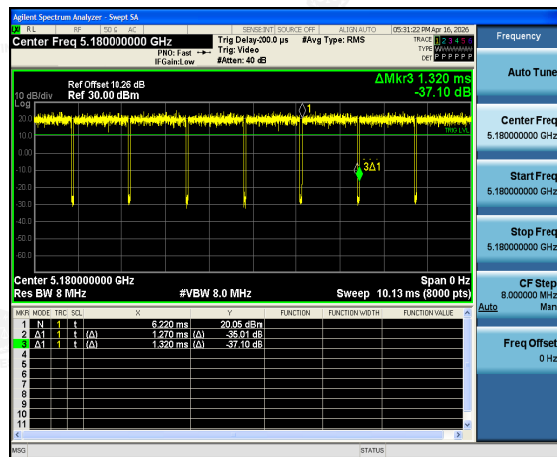
802.11ac(HT40)



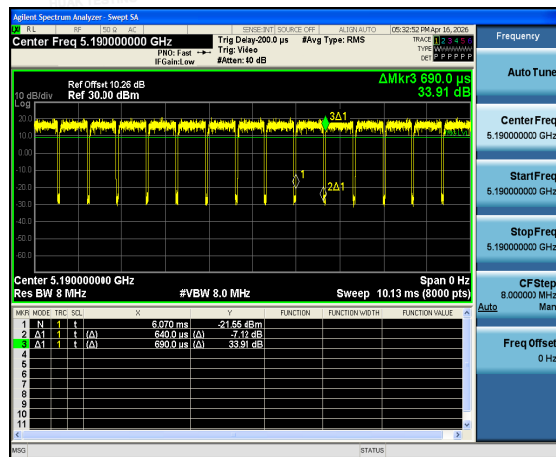
802.11ac(HT80)



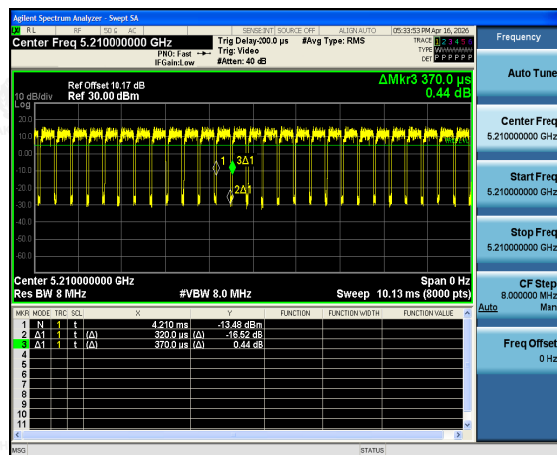
802.11ax(HE20)



802.11ax(HE40)



802.11ax(HE80)

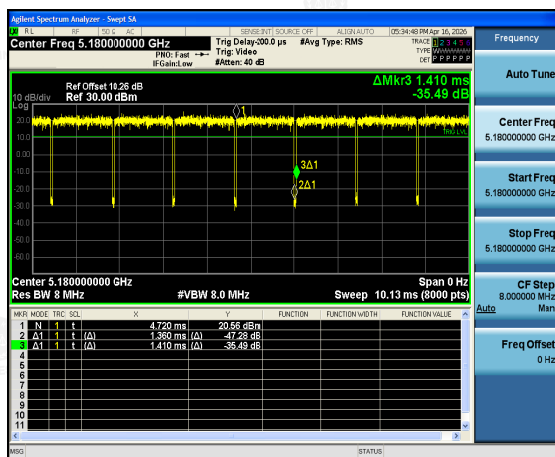


ANT.2:

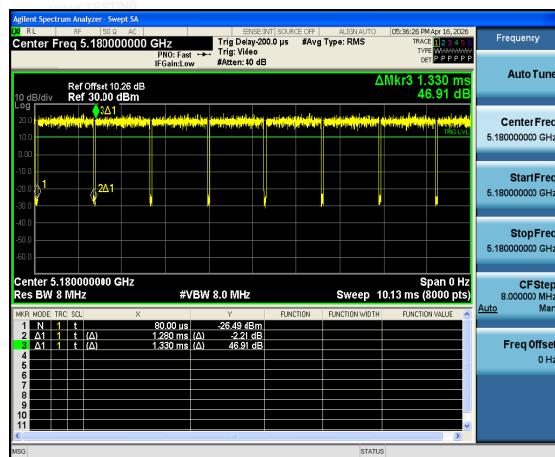
Mode	Duty Cycle
802.11a	96.45
802.11n(HT20)	96.24
802.11n(HT40)	92.65
802.11ac(HT20)	96.24
802.11ac(HT40)	92.75
802.11ac(HT80)	86.49
802.11ax(HE20)	96.24
802.11ax(HE40)	92.75
802.11ax(HE80)	86.49

Test plots as follows:

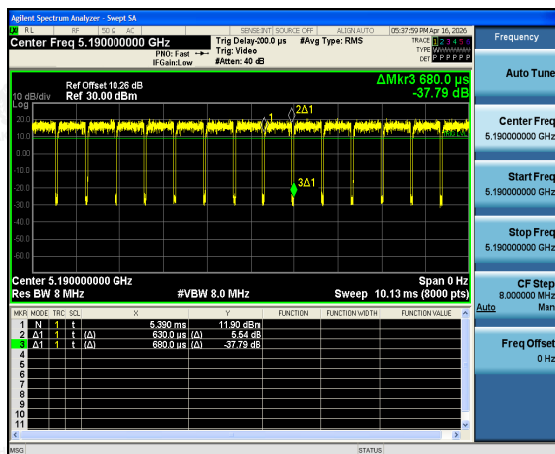
802.11a



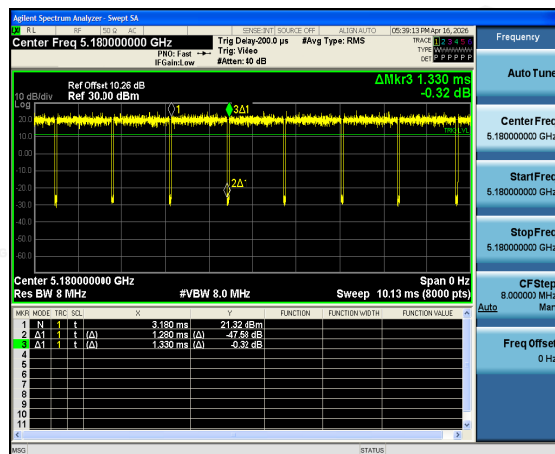
802.11n(HT20)



802.11n(HT40)

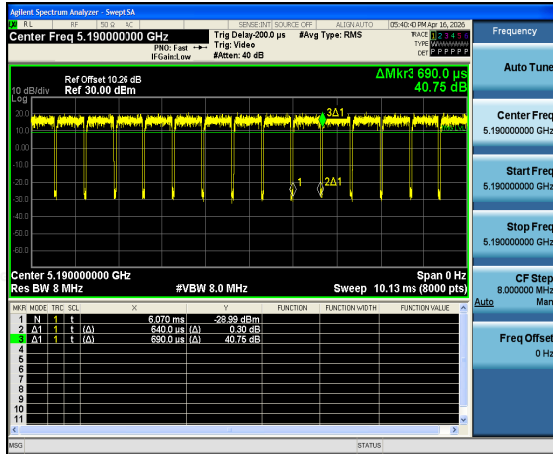


802.11ac(HT20)

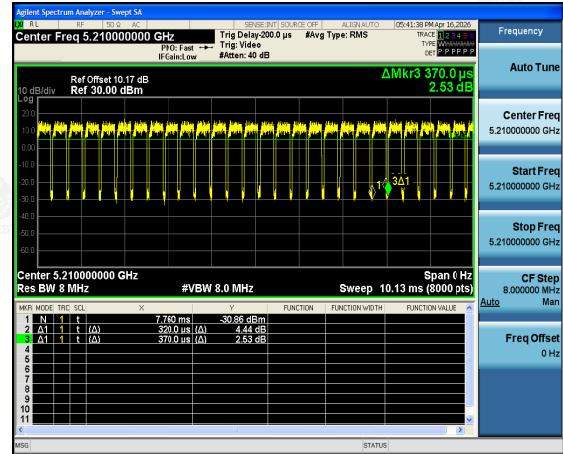


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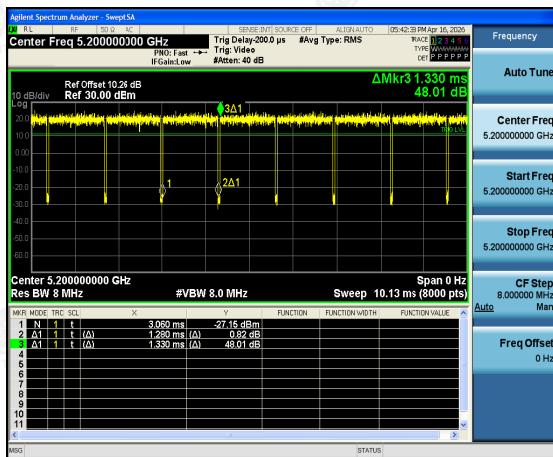
802.11ac(HT40)



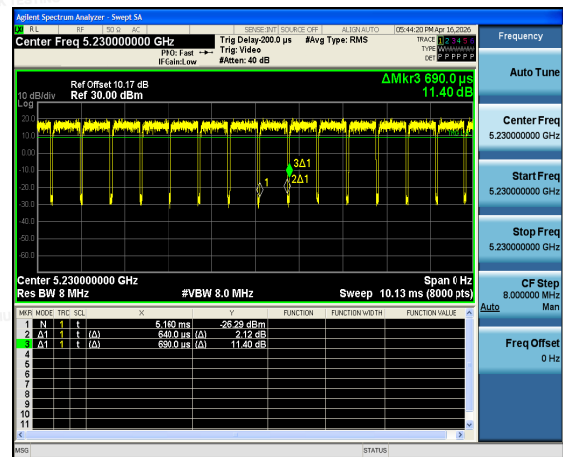
802.11ac(HT80)



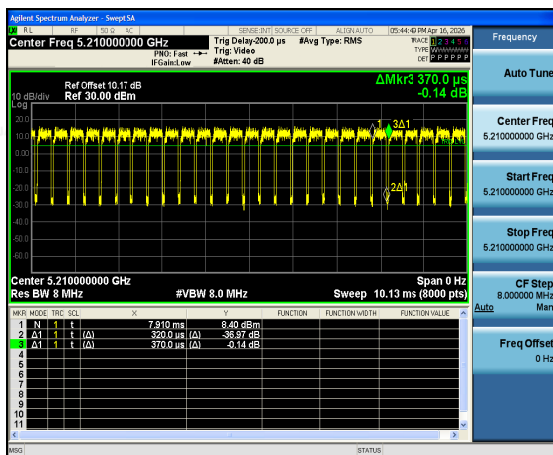
802.11ax(HE20)



802.11ax(HE40)



802.11ax(HE80)





4. Test Results and Measurement Data

4.1 AC Conducted Emission

4.1.1 Test Specification

Test Requirement:	FCC Part15 C Section 15.207														
Test Method:	ANSI C63.10: 2020														
Frequency Range:	150 kHz to 30 MHz														
Receiver Setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto														
Limits:	<table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></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>	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
Frequency range (MHz)	Limit (dBuV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
5-30	60	50													
Test Setup:	Reference Plane 40cm E.U.T AC power 80cm LISN Filter AC power EMI Receiver Test table/Insulation plane Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m														
Test Mode:	Tx Mode														
Test Procedure:	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2020 on conducted measurement.														
Test Result:	Pass														

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-005	Feb. 06, 2026	Feb. 05, 2027
LISN	R&S	ENV216	HKE-002	Feb. 11, 2026	Feb. 10, 2027
LISN	R&S	ENV216	HKE-059	Feb. 04, 2026	Feb. 03, 2027
Coax cable (9KHz-30MHz)	Times	381806-002	N/A	Feb. 04, 2026	Feb. 03, 2027
EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	/	/
10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	Feb. 04, 2026	Feb. 03, 2027

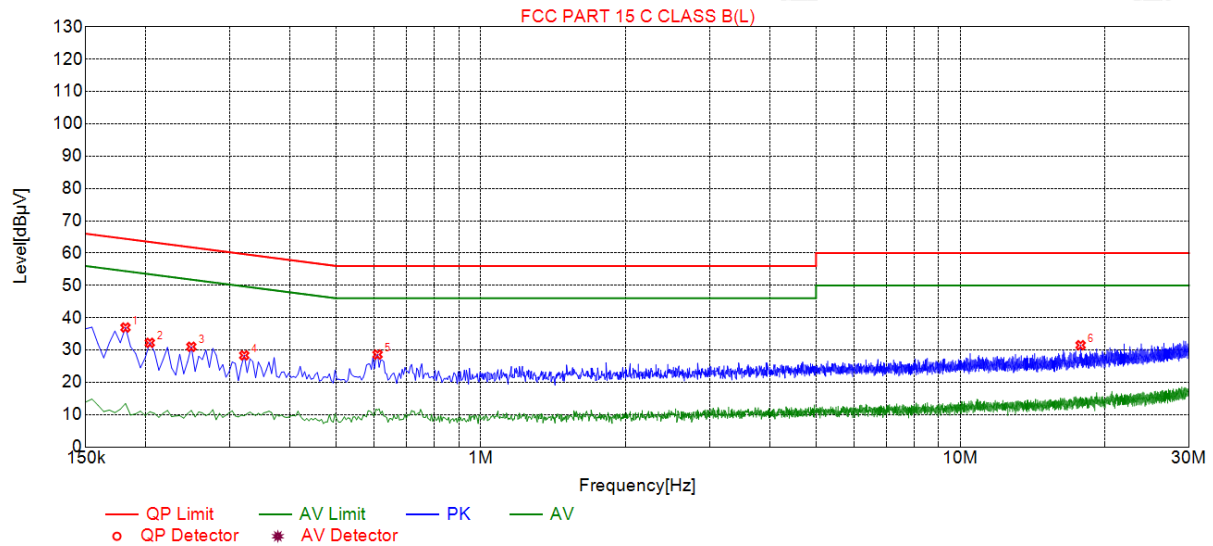
Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



4.1.3 Test Data

All the test modes completed for test. Only the worst result was reported as below:

Test Specification: Line:



Suspected List

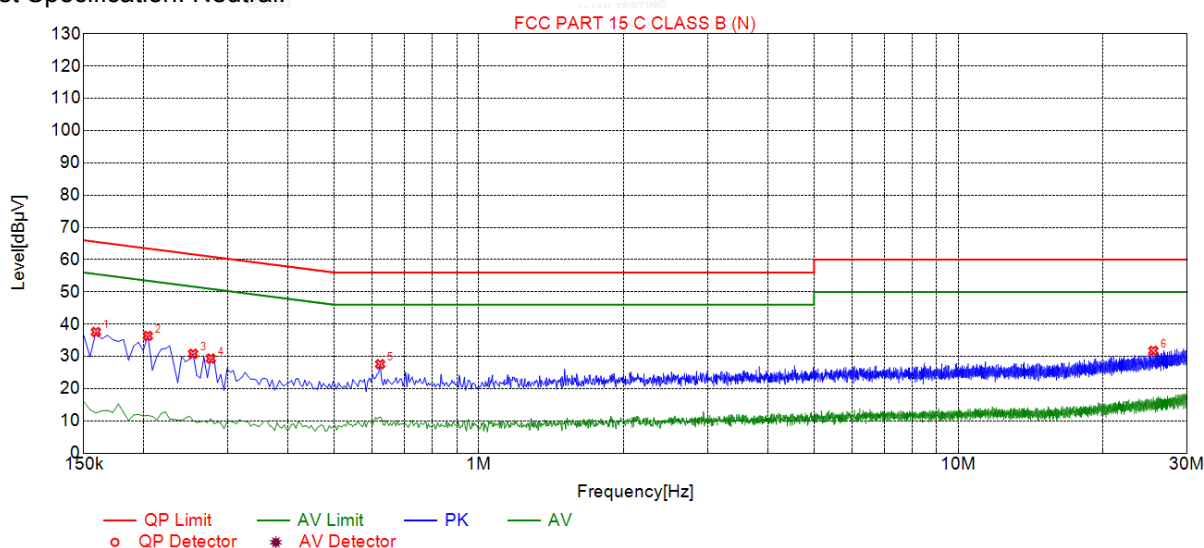
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1815	36.96	19.79	64.42	27.46	17.17	PK	L
2	0.2040	32.23	19.75	63.45	31.22	12.48	PK	L
3	0.2490	31.02	19.77	61.79	30.77	11.25	PK	L
4	0.3210	28.34	19.79	59.68	31.34	8.55	PK	L
5	0.6090	28.60	19.90	56.00	27.40	8.70	PK	L
6	17.8170	31.49	22.62	60.00	28.51	8.87	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	0.1590	37.56	19.91	65.52	27.96	17.65	PK	N
2	0.2040	36.35	19.75	63.45	27.10	16.60	PK	N
3	0.2535	30.80	19.79	61.64	30.84	11.01	PK	N
4	0.2760	29.32	19.80	60.94	31.62	9.52	PK	N
5	0.6225	27.59	19.95	56.00	28.41	7.64	PK	N
6	25.5075	31.74	24.28	60.00	28.26	7.46	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

Test Requirement:	FCC Part15 E Section 15.407(a)	
Test Method:	KDB789033 D02 General UNII Test Procedures New Rules v02.r01 Section E	
Limit:	Frequency Band (MHz)	Limit
	5150-5250	250mW
Test Setup:	 RF automatic control unit EUT	
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 RF automatic control unit by RF cable. The path loss was compensated to the results for each measurement. 3. Set to the maximum power setting and enable the EUT transmit continuously. 4. 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. During the test, the "duty cycle factor" has already been added to the testing software.	

4.2.2 Test Instruments

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 06, 2026	Feb. 05, 2027
Spectrum analyzer	KEYSIGHT	N9020A	HKE-117	Feb. 06, 2026	Feb. 05, 2027
Power meter	KEYSIGHT	E4419B	HKE-144	Feb. 06, 2026	Feb. 05, 2027
Power Sensor	Agilent	E9304A H18	HKE-165	Feb. 06, 2026	Feb. 05, 2027
RF cable	Times	1-40G	N/A	Feb. 06, 2026	Feb. 05, 2027
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 06, 2026	Feb. 05, 2027
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/

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

Configuration Band I (5150 - 5250 MHz)

Mode	Test Channel	Maximum Conducted Output Power (dBm)			Limit (dBm)	Result
		Antenna port 1	Antenna port 2	MIMO		
802.11a	CH36	5.82	6.08	/	24	PASS
802.11a	CH40	5.84	6.20	/	24	PASS
802.11a	CH48	5.26	5.79	/	24	PASS
802.11n(HT20)	CH36	5.21	5.35	8.29	24	PASS
802.11n(HT20)	CH40	5.09	6.79	9.03	24	PASS
802.11n(HT20)	CH48	5.65	6.20	8.94	24	PASS
802.11n(HT40)	CH38	5.06	5.97	8.55	24	PASS
802.11n(HT40)	CH46	5.68	6.53	9.14	24	PASS
802.11ac(HT20)	CH36	6.09	5.52	8.82	24	PASS
802.11ac(HT20)	CH40	6.45	6.83	9.65	24	PASS
802.11ac(HT20)	CH48	5.75	6.00	8.89	24	PASS
802.11ac(HT40)	CH38	5.83	5.92	8.89	24	PASS
802.11ac(HT40)	CH46	5.70	6.45	9.10	24	PASS
802.11ac(HT80)	CH42	5.97	5.79	8.89	24	PASS
802.11ax(HE20)	CH36	6.06	5.76	8.92	24	PASS
802.11ax(HE20)	CH40	6.64	6.90	9.78	24	PASS
802.11ax(HE20)	CH48	6.32	6.23	9.29	24	PASS
802.11ax(HE40)	CH38	5.52	5.32	8.43	24	PASS
802.11ax(HE40)	CH46	5.53	6.12	8.85	24	PASS
802.11ax(HE80)	CH42	5.45	5.66	8.57	24	PASS

4.3 26dB Bandwidth and 99% Occupied Bandwidth

4.3.1 Test Specification

Test Requirement:	47 CFR Part 15C Section 15.407
Test Method:	KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C
Limit:	No restriction limits
Test Setup:	 Spectrum Analyzer EUT
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 $RBW = 1\% \text{ EBW}$, $VBW \geq 3RBW$, In order to make an accurate measurement. 4. Measure and record the results in the test report.
Test Result:	PASS

4.3.2 Test Instruments

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 06, 2026	Feb. 05, 2027
Spectrum analyzer	KEYSIGHT	N9020A	HKE-117	Feb. 06, 2026	Feb. 05, 2027
RF cable	Times	1-40G	N/A	Feb. 06, 2026	Feb. 05, 2027
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 06, 2026	Feb. 05, 2027
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/

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

Band I
ANT. 1

Mode	Test Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Verdict
802.11a	CH36	5180	24.31	PASS
802.11a	CH40	5200	24.17	PASS
802.11a	CH48	5240	19.57	PASS
802.11n(HT20)	CH36	5180	25.11	PASS
802.11n(HT20)	CH40	5200	24.62	PASS
802.11n(HT20)	CH48	5240	20.12	PASS
802.11n(HT40)	CH38	5190	39.65	PASS
802.11n(HT40)	CH46	5230	39.58	PASS
802.11ac(HT20)	CH36	5180	24.33	PASS
802.11ac(HT20)	CH40	5200	24.36	PASS
802.11ac(HT20)	CH48	5240	20.05	PASS
802.11ac(HT40)	CH38	5190	39.79	PASS
802.11ac(HT40)	CH46	5230	39.55	PASS
802.11ac(HT80)	CH42	5210	79.85	PASS
802.11ax(HE20)	CH36	5180	21.42	PASS
802.11ax(HE20)	CH40	5200	22.09	PASS
802.11ax(HE20)	CH48	5240	19.86	PASS
802.11ax(HE40)	CH38	5190	40.21	PASS
802.11ax(HE40)	CH46	5230	39.93	PASS
802.11ax(HE80)	CH42	5210	82.89	PASS

Test plots as follows:

Band I (5150 – 5250 MHz)



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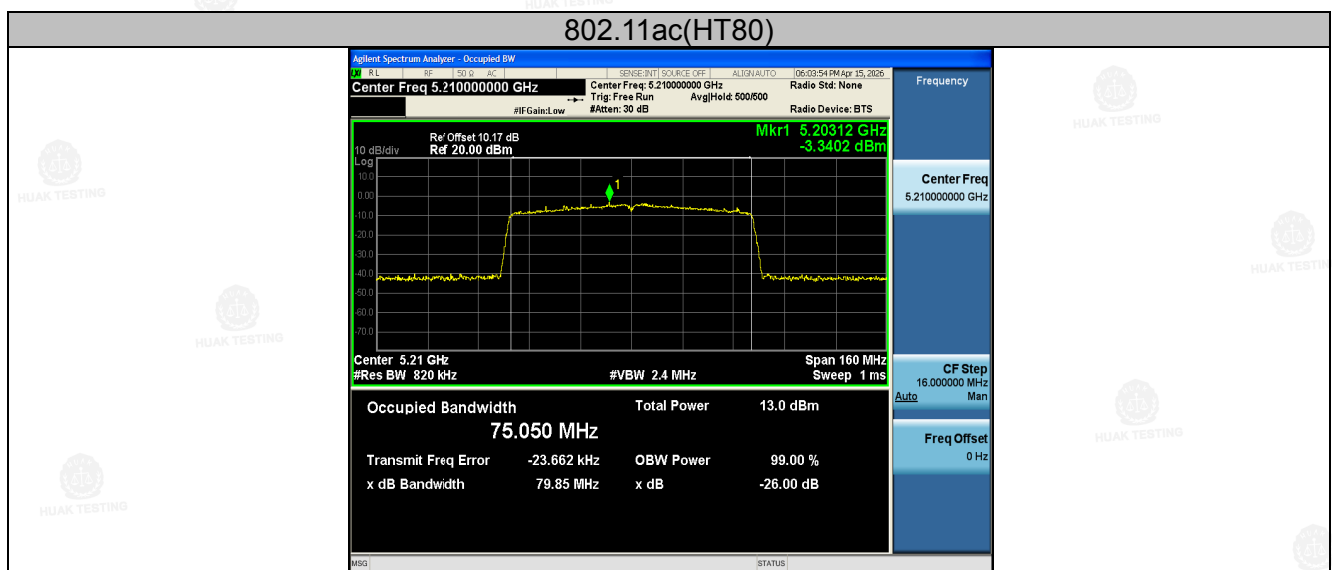
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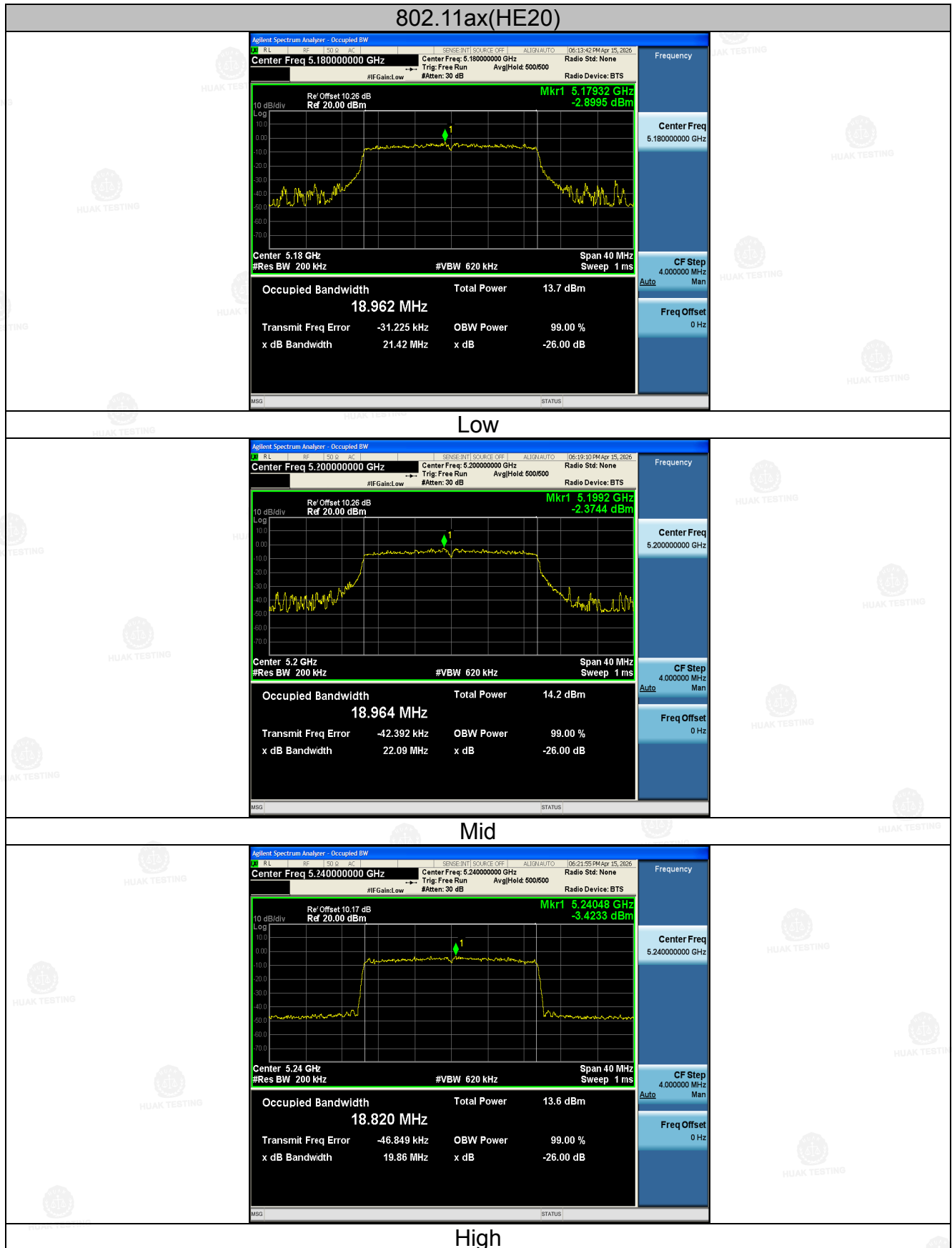
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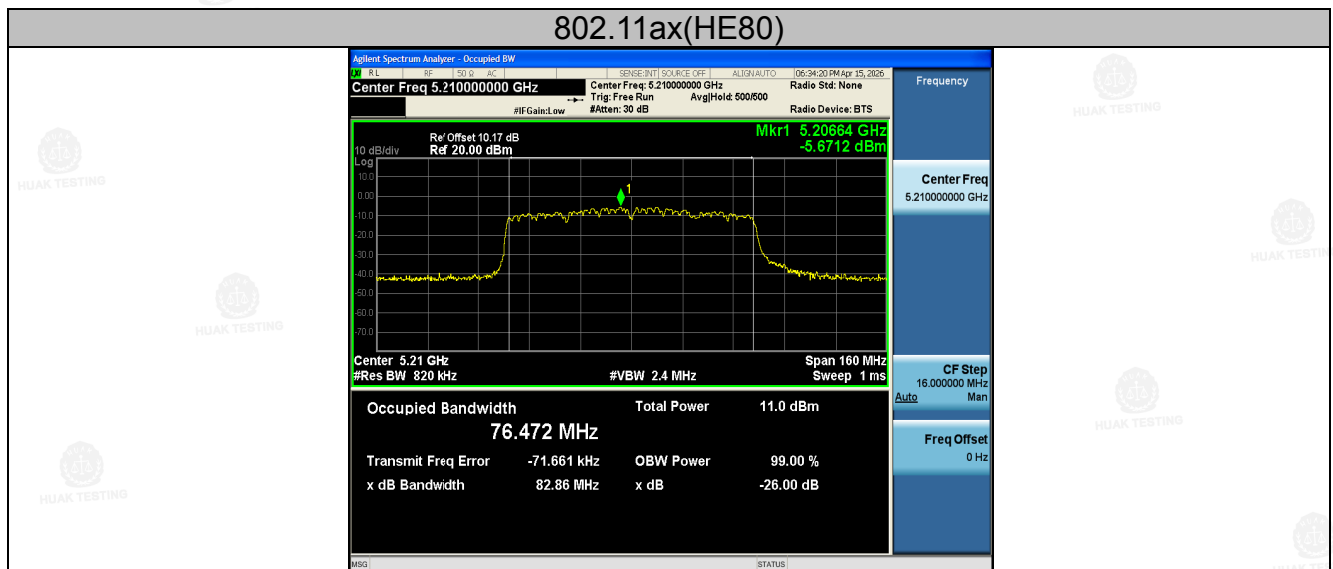
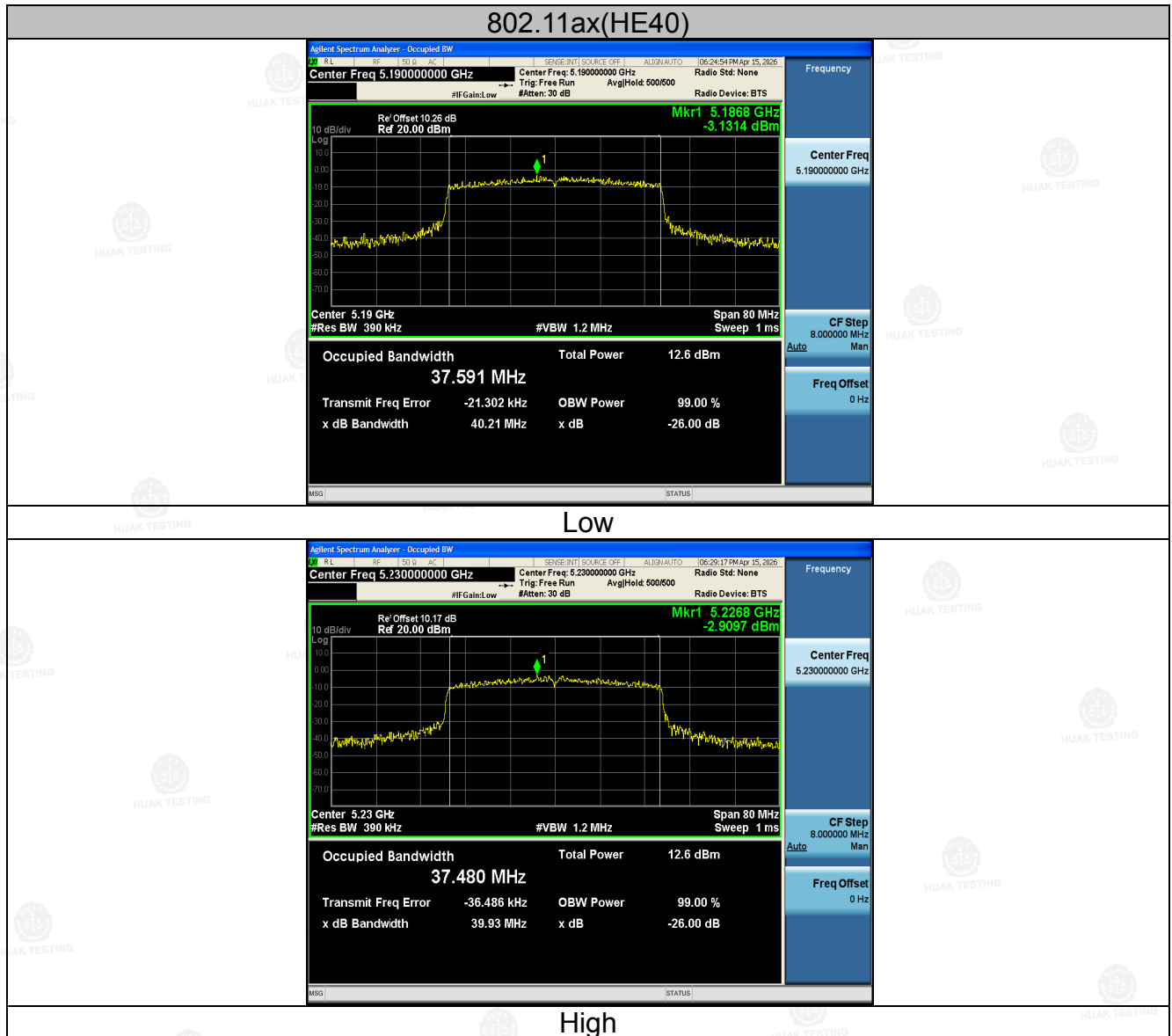
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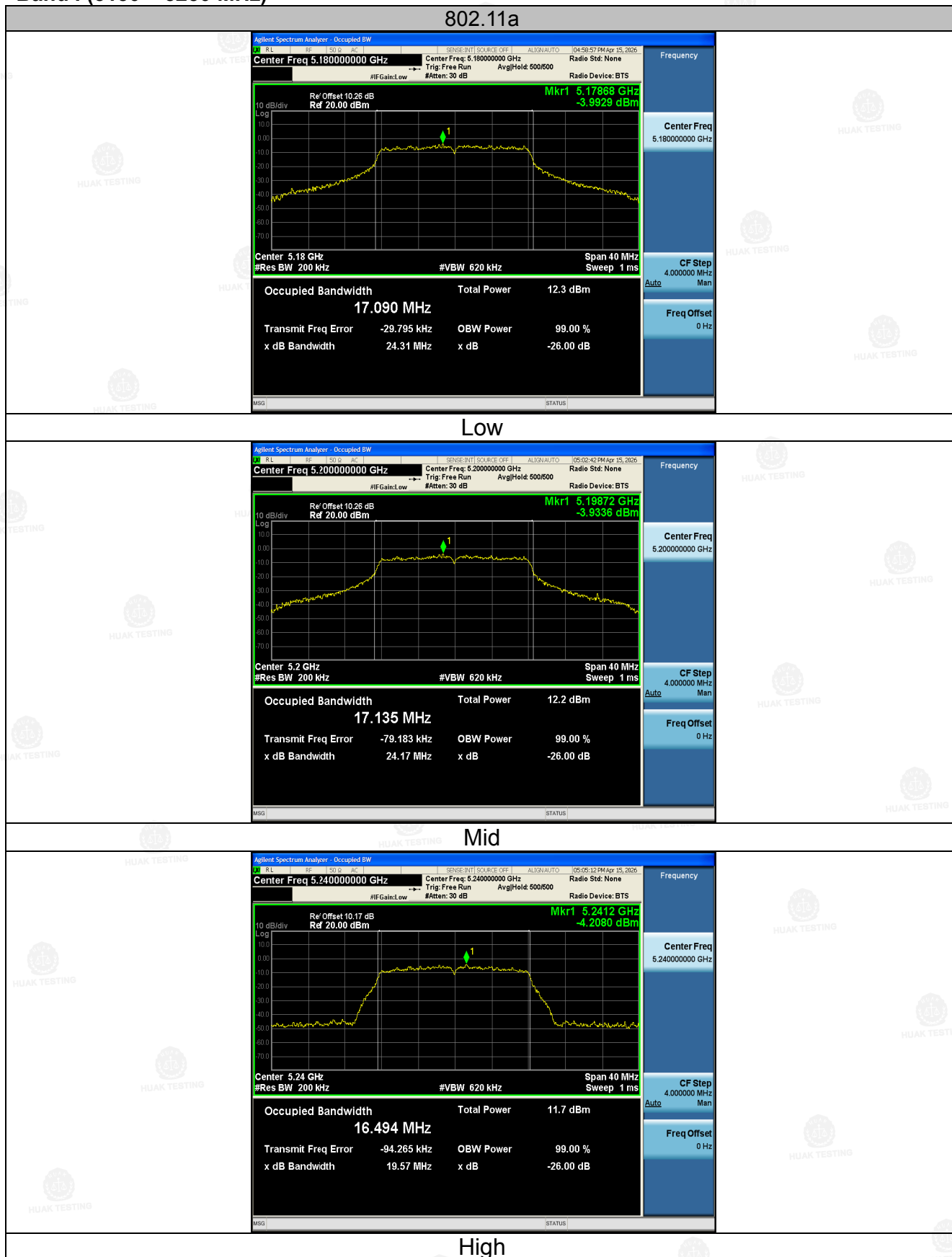
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ANT. 2

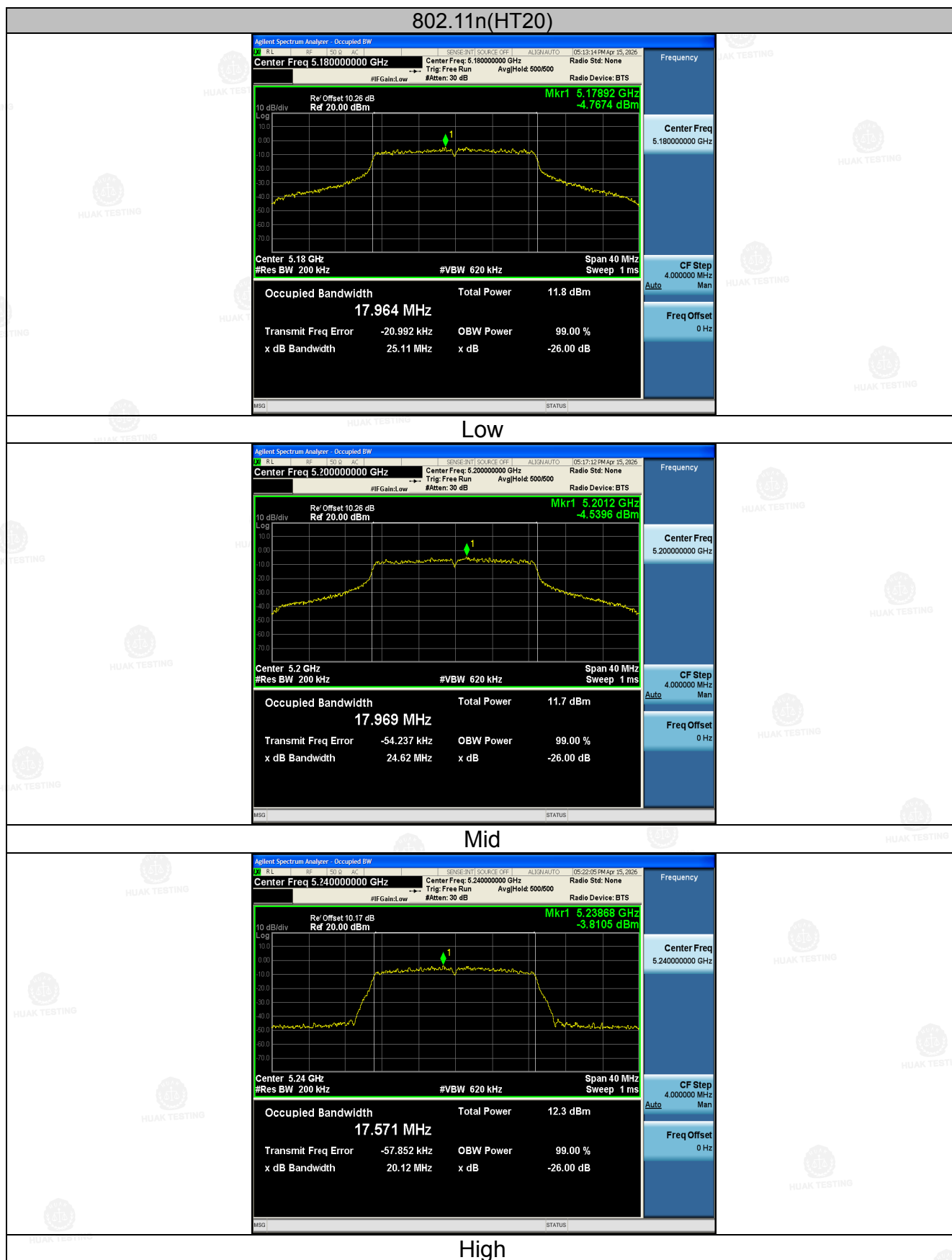
Mode	Test Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Verdict
802.11a	CH36	5180	24.31	PASS
802.11a	CH40	5200	24.17	PASS
802.11a	CH48	5240	19.57	PASS
802.11n(HT20)	CH36	5180	25.11	PASS
802.11n(HT20)	CH40	5200	24.62	PASS
802.11n(HT20)	CH48	5240	20.12	PASS
802.11n(HT40)	CH38	5190	39.65	PASS
802.11n(HT40)	CH46	5230	39.58	PASS
802.11ac(HT20)	CH36	5180	24.33	PASS
802.11ac(HT20)	CH40	5200	24.36	PASS
802.11ac(HT20)	CH48	5240	20.05	PASS
802.11ac(HT40)	CH38	5190	39.79	PASS
802.11ac(HT40)	CH46	5230	39.55	PASS
802.11ac(HT80)	CH42	5210	79.85	PASS
802.11ax(HE20)	CH36	5180	21.42	PASS
802.11ax(HE20)	CH40	5200	22.09	PASS
802.11ax(HE20)	CH48	5240	19.86	PASS
802.11ax(HE40)	CH38	5190	40.21	PASS
802.11ax(HE40)	CH46	5230	39.93	PASS
802.11ax(HE80)	CH42	5210	82.86	PASS

Test plots as follows:

Band I (5150 – 5250 MHz)



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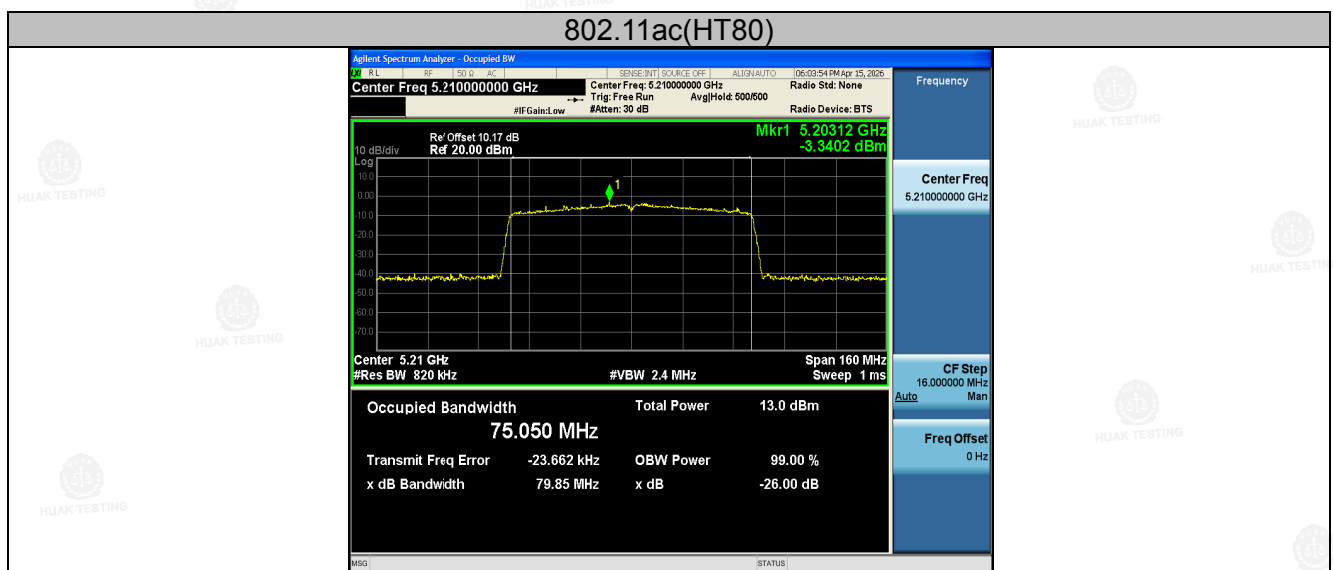


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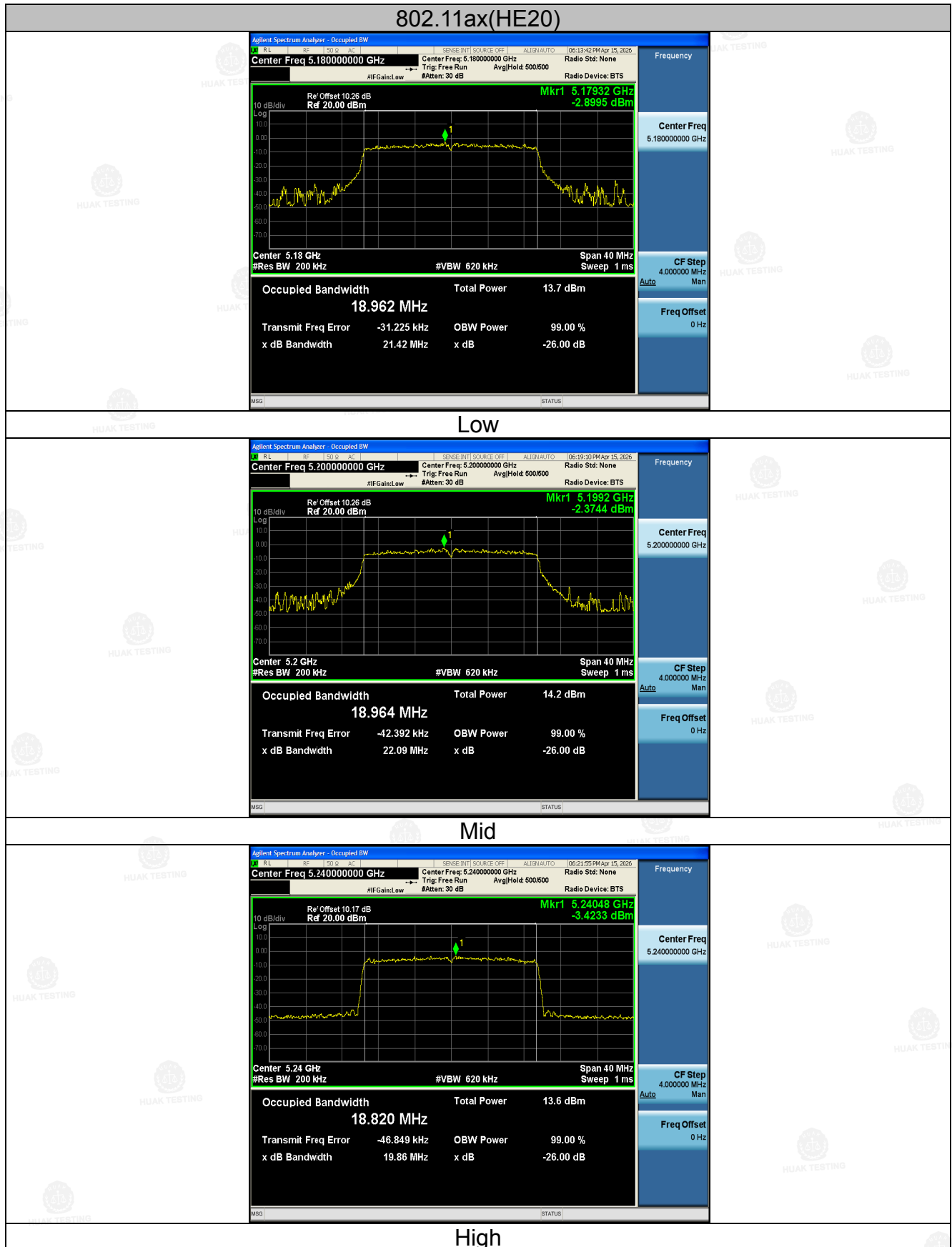
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 Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



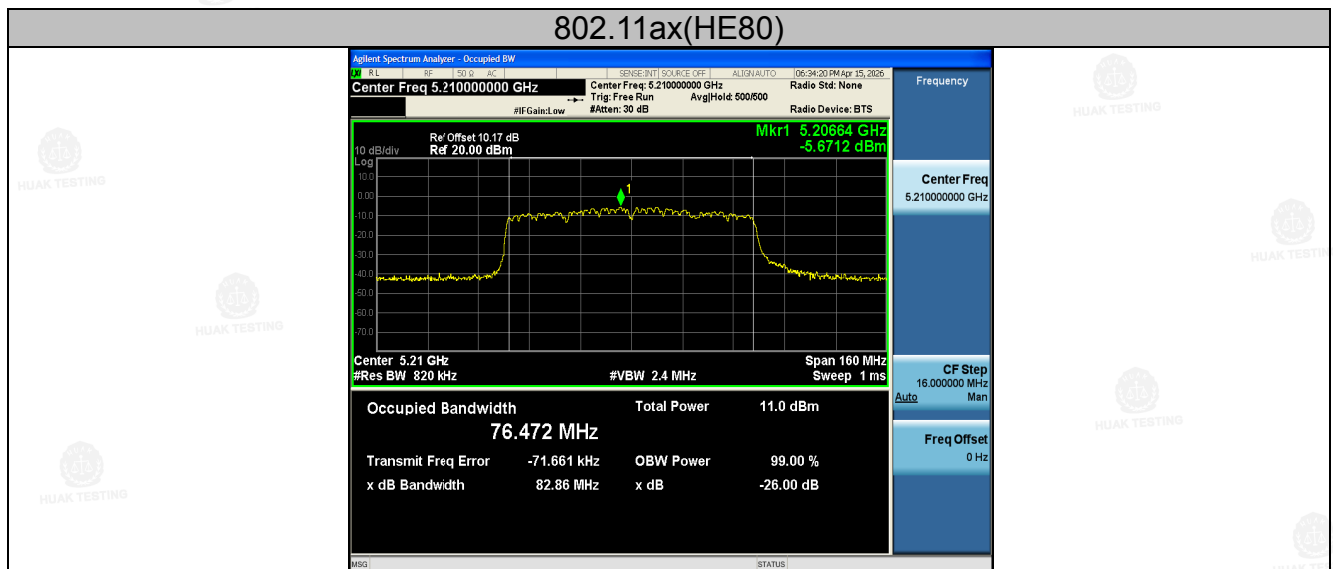
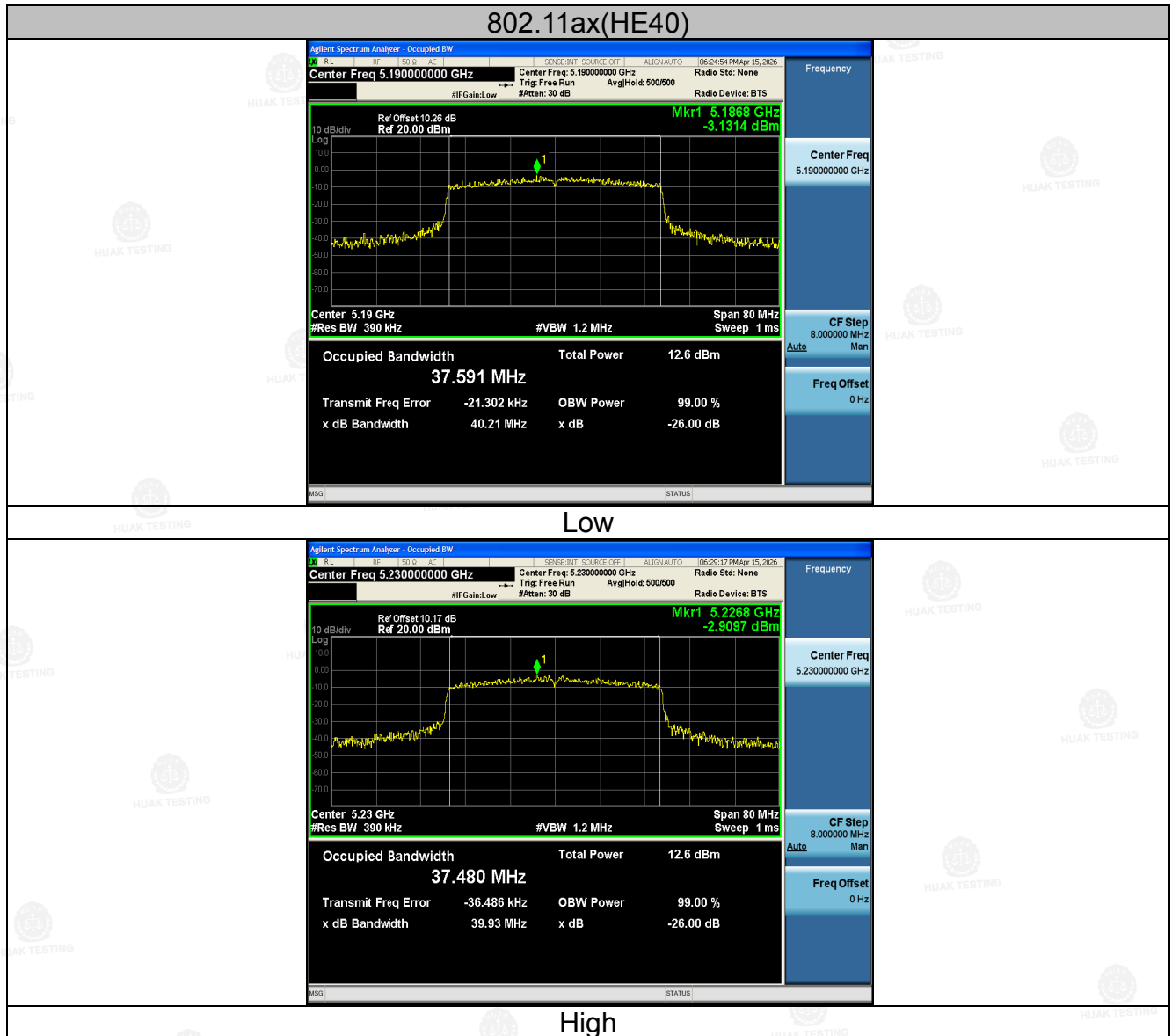
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4.4 Power Spectral Density

4.4.1 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:	11dBm/MHz for Band I 5150MHz-5250MHz
Test Setup:	 Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. Set the spectrum analyzer or EMI receiver span to view the entire emission bandwidth. 2. Set RBW = 1 MHz, VBW $\geq$ 3*RBW, Sweep time = Auto, Detector = RMS. 3. Allow the sweeps to continue until the trace stabilizes. 4. Use the peak marker function to determine the maximum amplitude level. 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.
Test Result:	PASS
Remark:	During the test, the "duty cycle factor" has already been added to the testing software.

4.4.2 Test Instruments

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 06, 2026	Feb. 05, 2027
Spectrum analyzer	KEYSIGHT	N9020A	HKE-117	Feb. 06, 2026	Feb. 05, 2027
RF cable	Times	1-40G	N/A	Feb. 06, 2026	Feb. 05, 2027
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 06, 2026	Feb. 05, 2027
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/

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

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4.4.3 Test Data

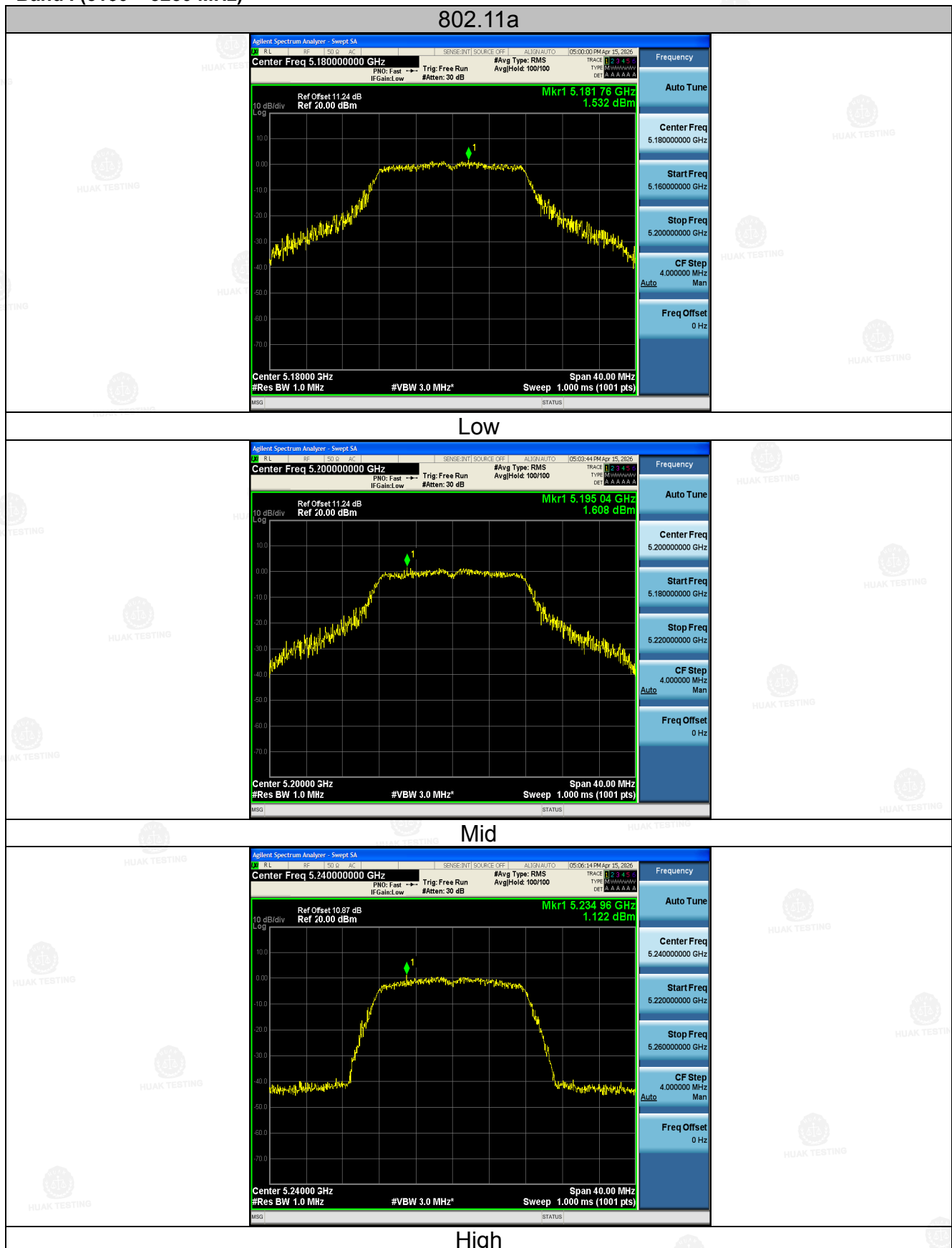
ANT.1

Mode	Test channel	Level [dBm/MHz]	Limit (dBm/MHz)	Result
802.11a	CH36	1.53	11	PASS
802.11a	CH40	1.61	11	PASS
802.11a	CH48	1.12	11	PASS
802.11n(HT20)	CH36	0.63	11	PASS
802.11n(HT20)	CH40	0.44	11	PASS
802.11n(HT20)	CH48	1.38	11	PASS
802.11n(HT40)	CH38	-1.05	11	PASS
802.11n(HT40)	CH46	0.00	11	PASS
802.11ac(HT20)	CH36	1.31	11	PASS
802.11ac(HT20)	CH40	1.65	11	PASS
802.11ac(HT20)	CH48	1.42	11	PASS
802.11ac(HT40)	CH38	-0.22	11	PASS
802.11ac(HT40)	CH46	-0.35	11	PASS
802.11ac(HT80)	CH42	-2.70	11	PASS
802.11ax(HE20)	CH36	5.02	11	PASS
802.11ax(HE20)	CH40	5.06	11	PASS
802.11ax(HE20)	CH48	4.46	11	PASS
802.11ax(HE40)	CH38	0.21	11	PASS
802.11ax(HE40)	CH46	-0.33	11	PASS
802.11ax(HE80)	CH42	-4.21	11	PASS

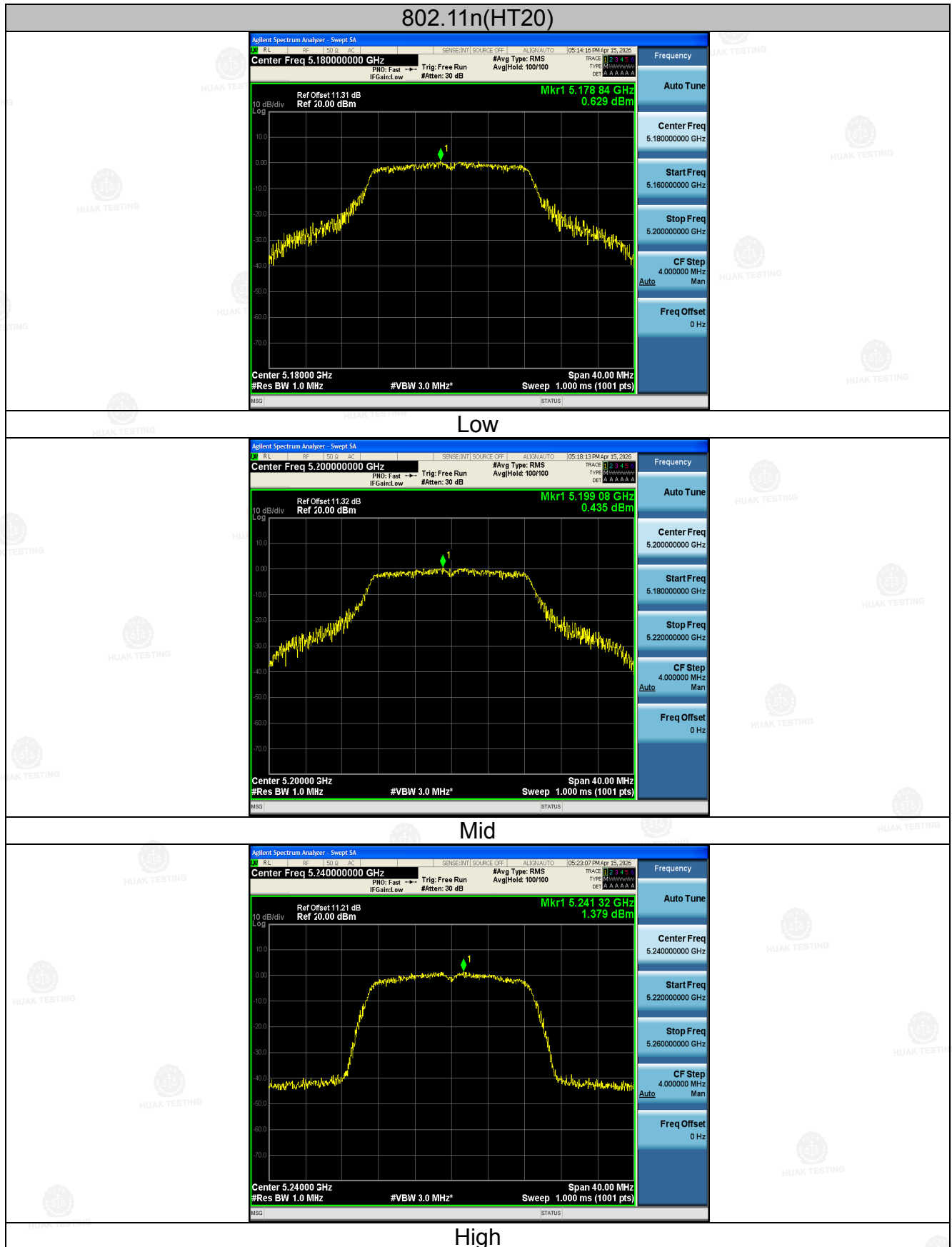
Note: Instrument attenuation and cable loss See test diagram

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



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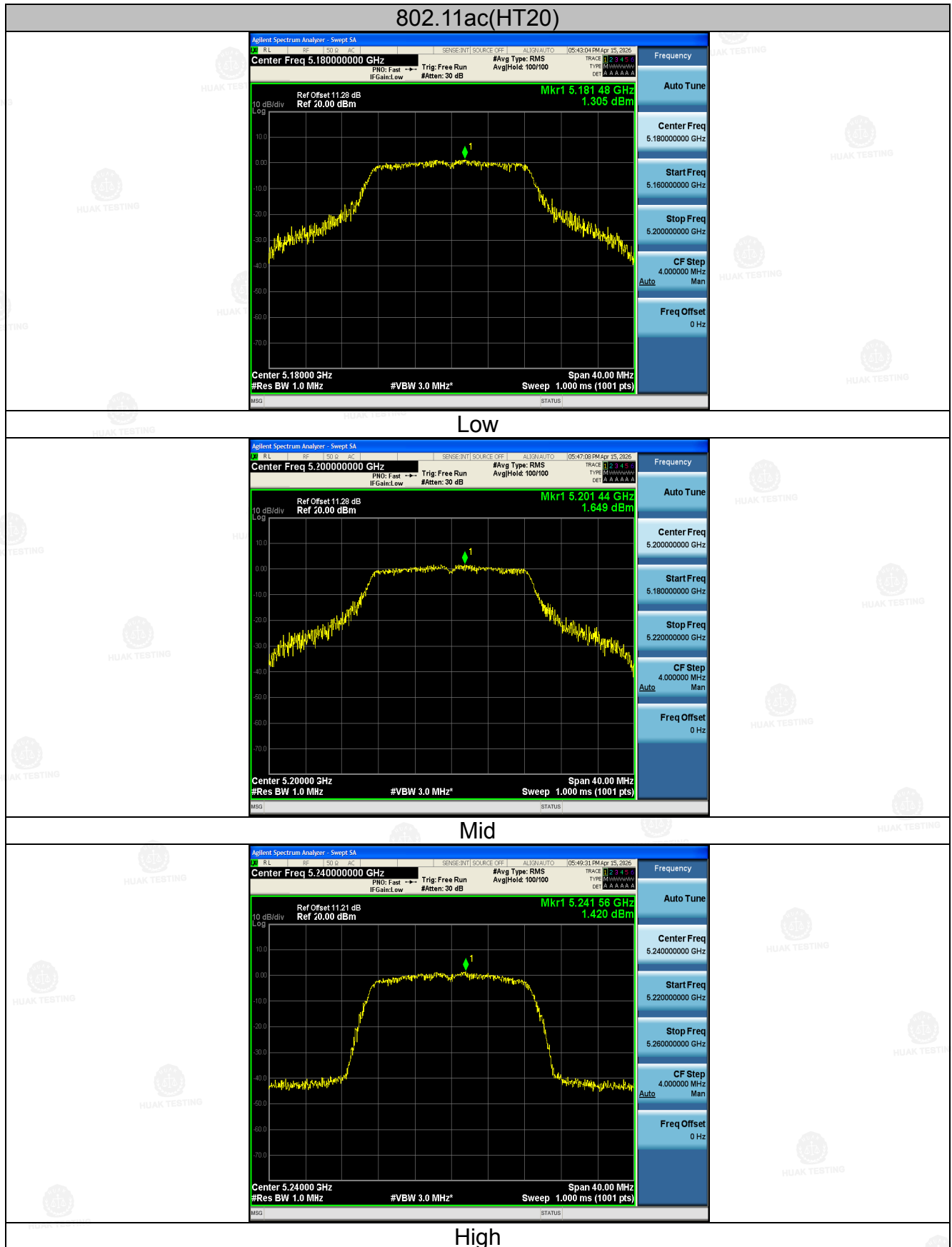


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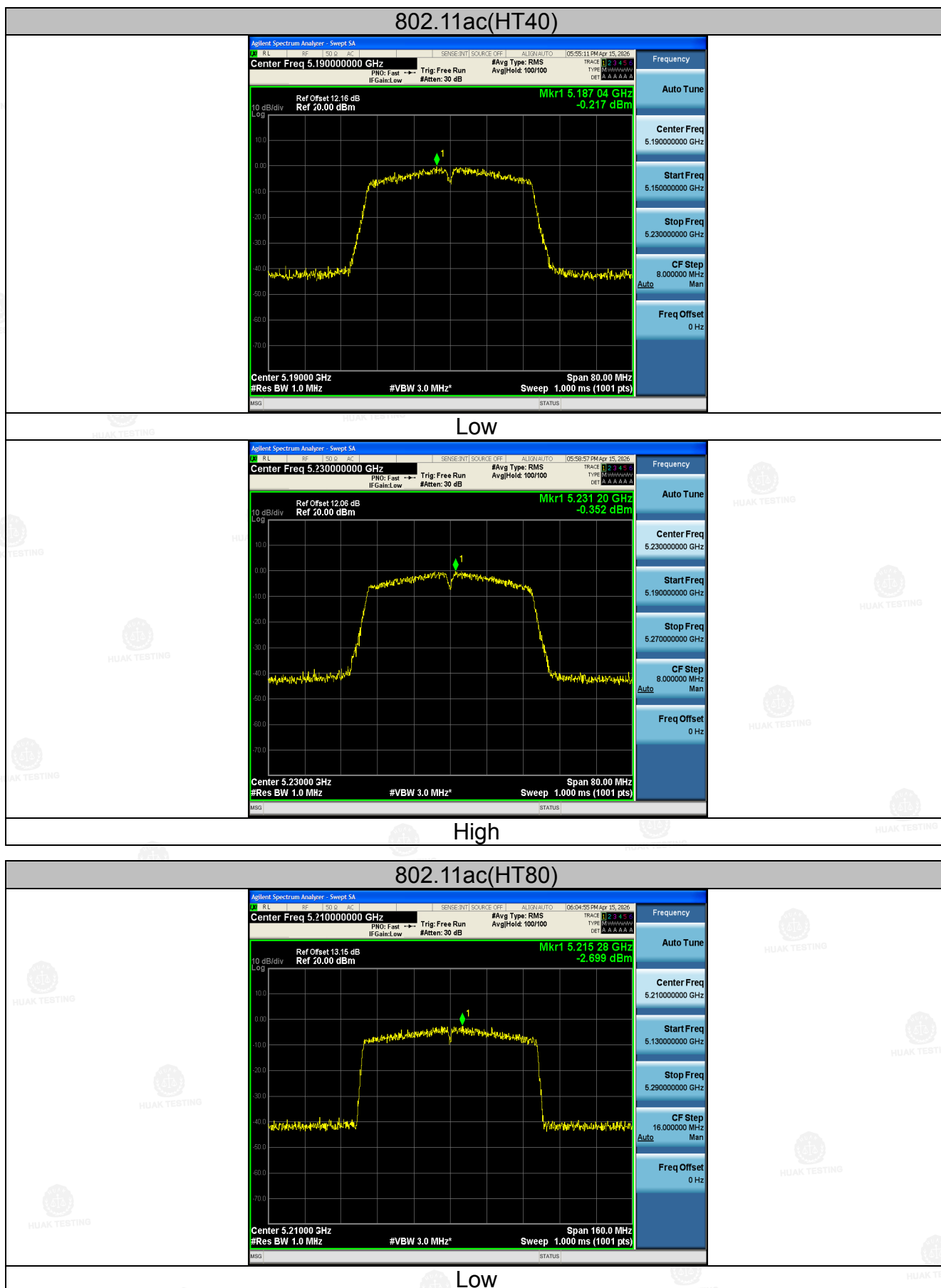


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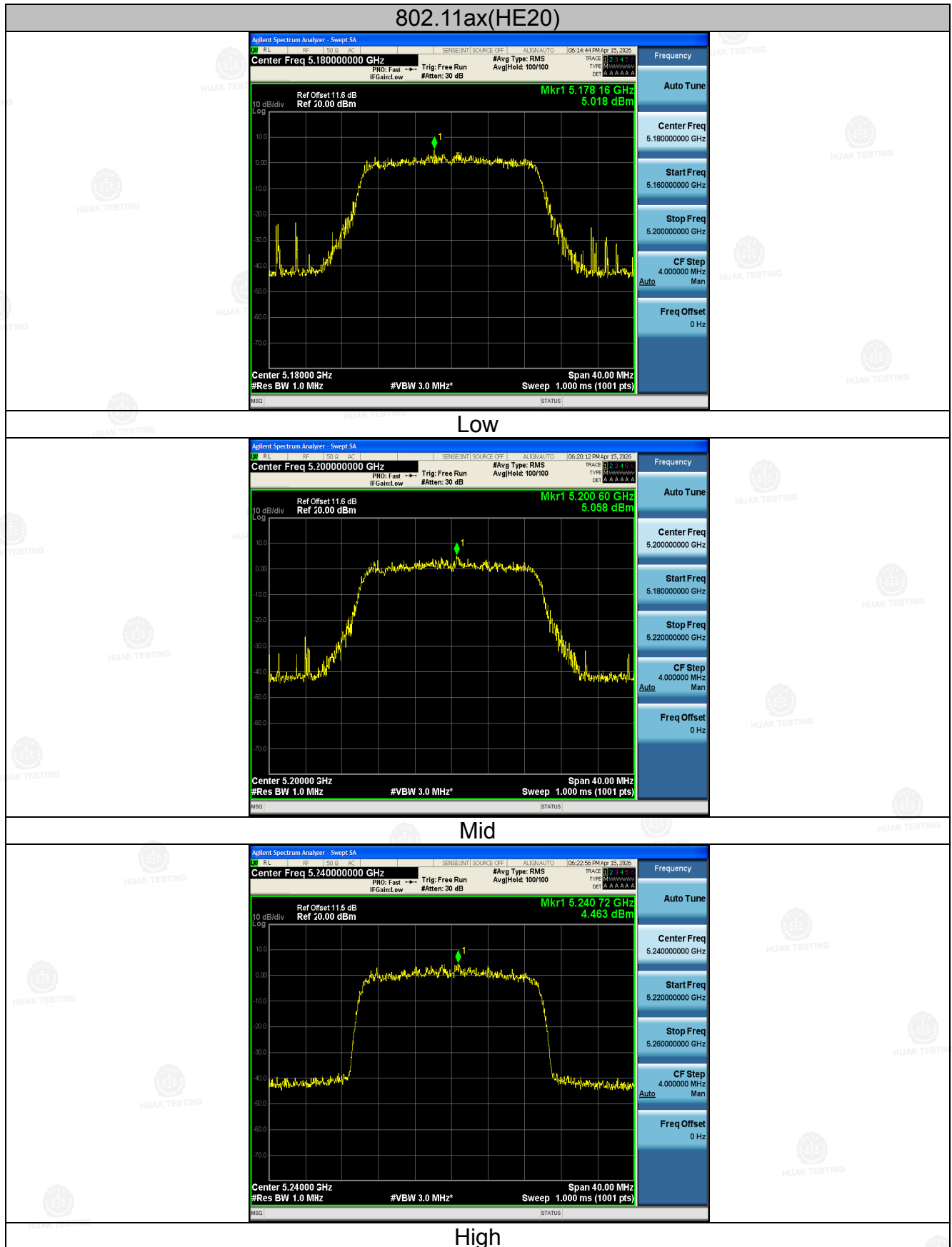
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 Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



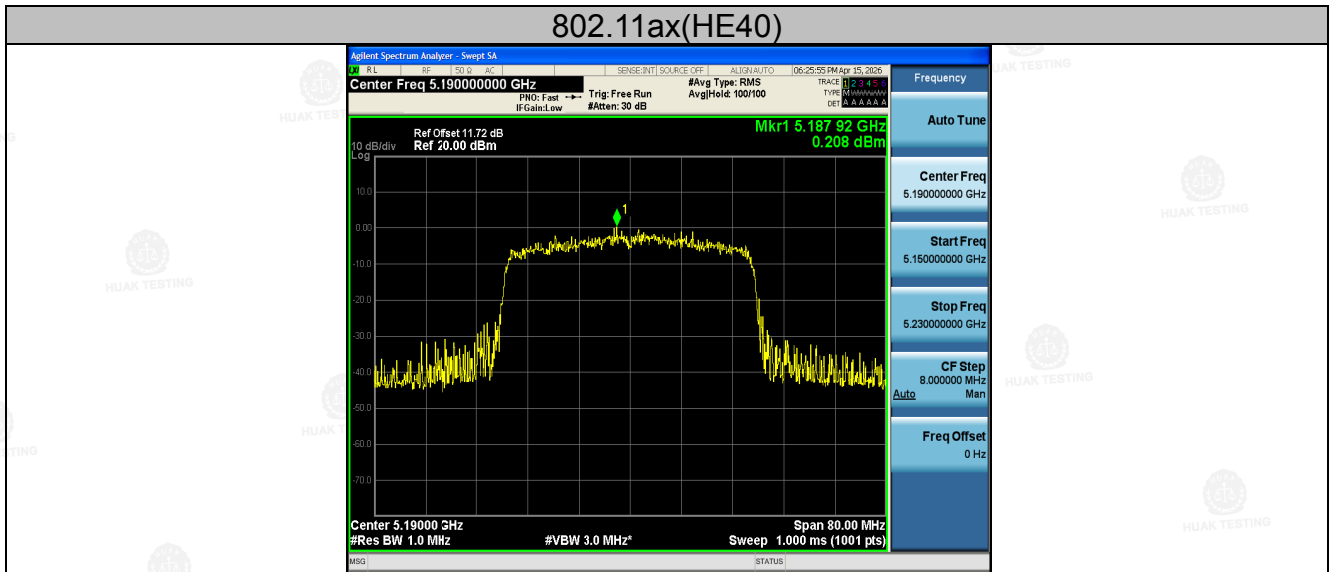
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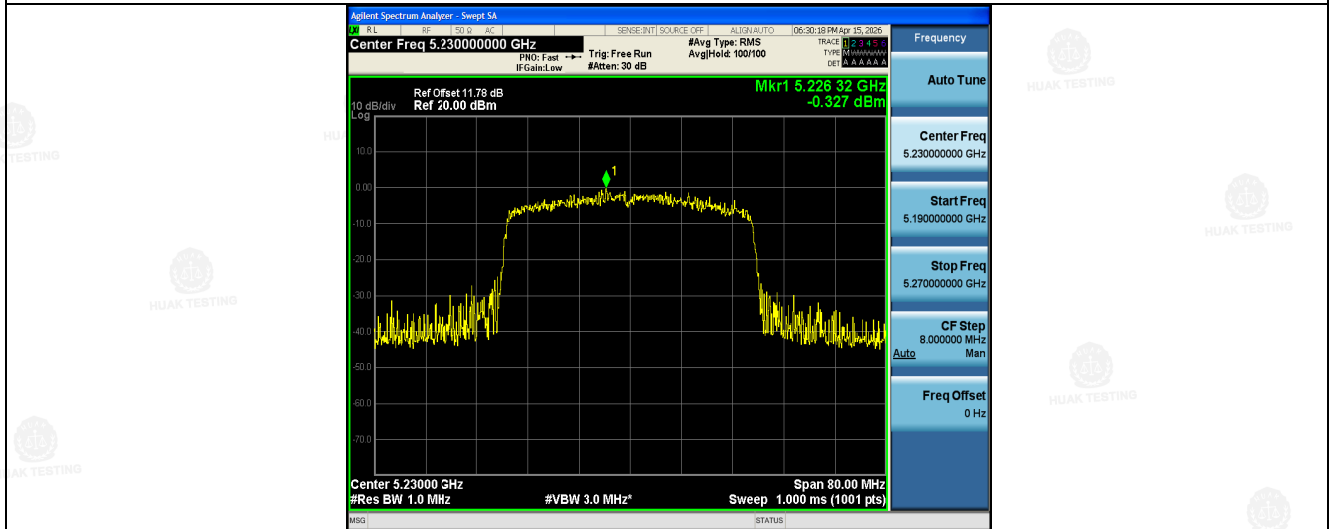
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Low



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ANT. 2

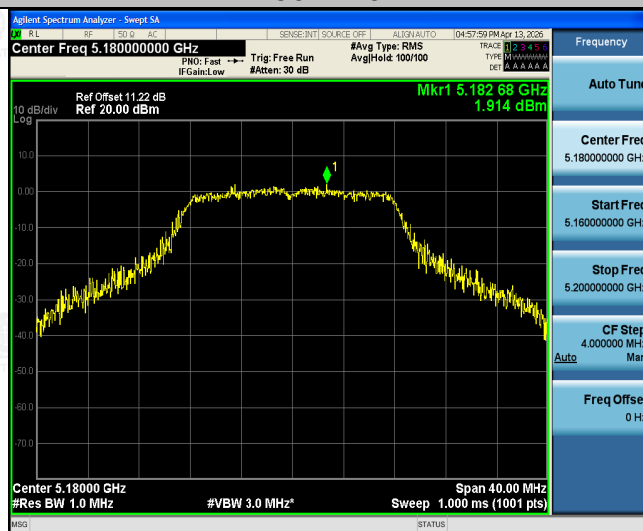
Mode	Test channel	Level [dBm/MHz]	Limit (dBm/MHz)	Result
802.11a	CH36	1.91	11	PASS
802.11a	CH40	1.79	11	PASS
802.11a	CH48	1.59	11	PASS
802.11n(HT20)	CH36	0.71	11	PASS
802.11n(HT20)	CH40	2.27	11	PASS
802.11n(HT20)	CH48	1.86	11	PASS
802.11n(HT40)	CH38	-0.01	11	PASS
802.11n(HT40)	CH46	0.65	11	PASS
802.11ac(HT20)	CH36	0.82	11	PASS
802.11ac(HT20)	CH40	2.36	11	PASS
802.11ac(HT20)	CH48	1.72	11	PASS
802.11ac(HT40)	CH38	0.27	11	PASS
802.11ac(HT40)	CH46	0.82	11	PASS
802.11ac(HT80)	CH42	-2.23	11	PASS
802.11ac(HT20)	CH36	4.57	11	PASS
802.11ac(HT20)	CH40	5.14	11	PASS
802.11ac(HT20)	CH48	4.39	11	PASS
802.11ac(HT40)	CH38	-0.12	11	PASS
802.11ac(HT40)	CH46	1.06	11	PASS
802.11ac(HT80)	CH42	-4.13	11	PASS

Note: Instrument attenuation and cable loss See test diagram

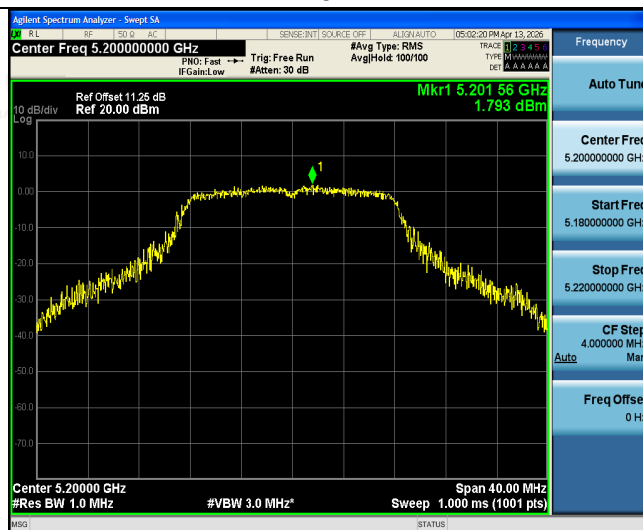
**HUAKE TESTING**

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

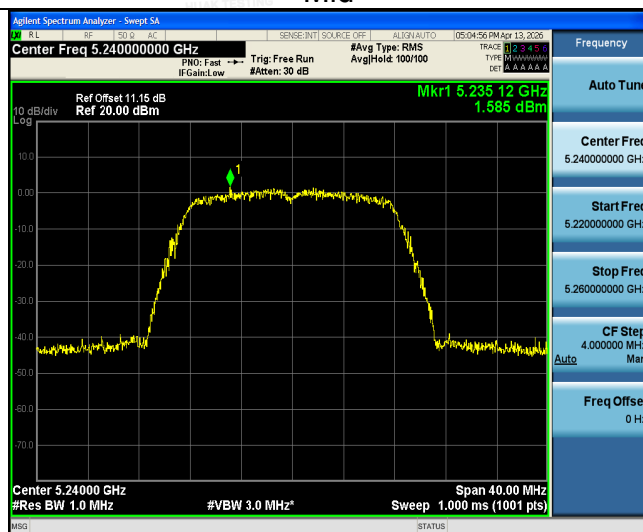
802.11a



Low



Mid



High

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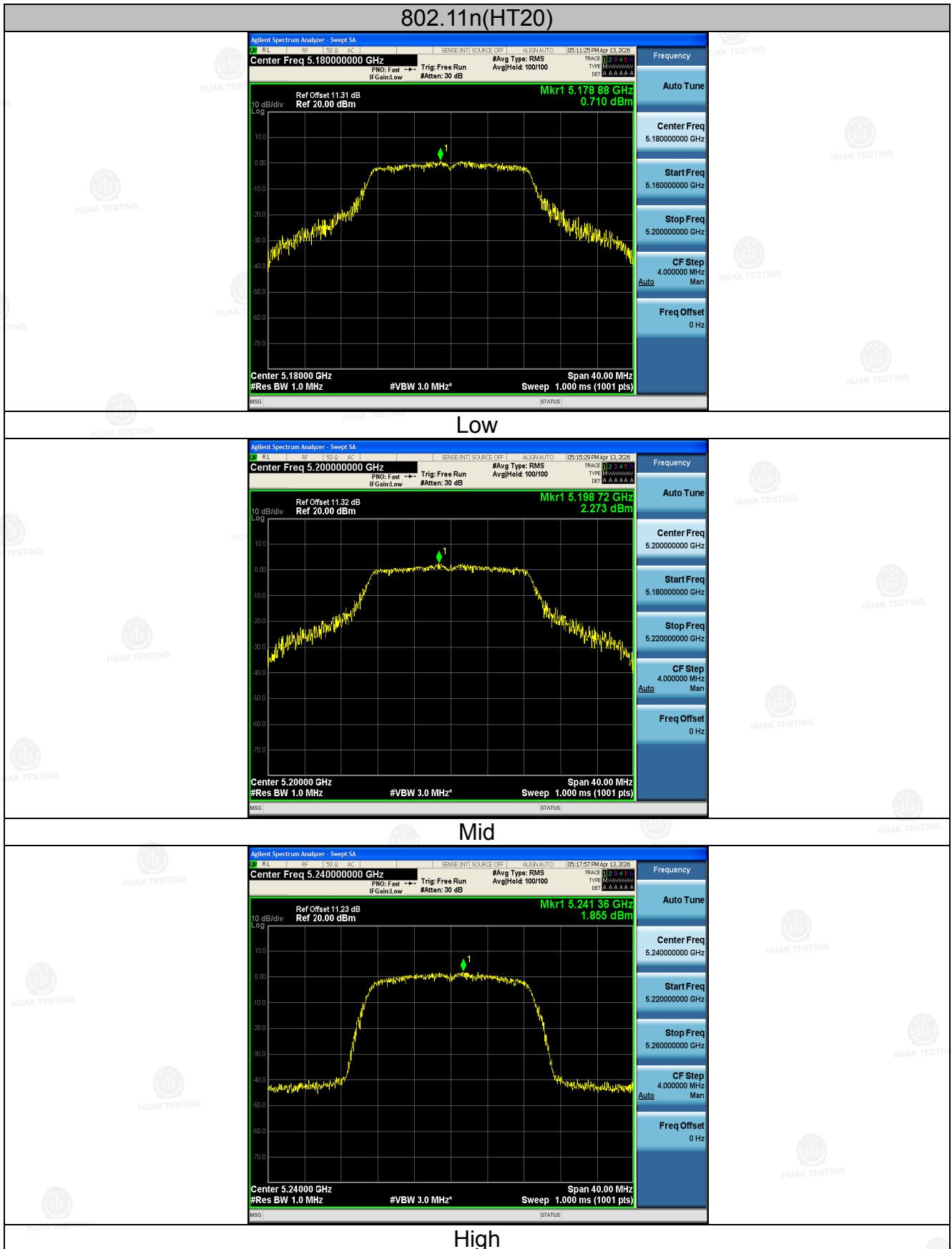
Shenzhen HUAKE Testing Technology Co., Ltd.

Tel.: +86-0755-2302 9901

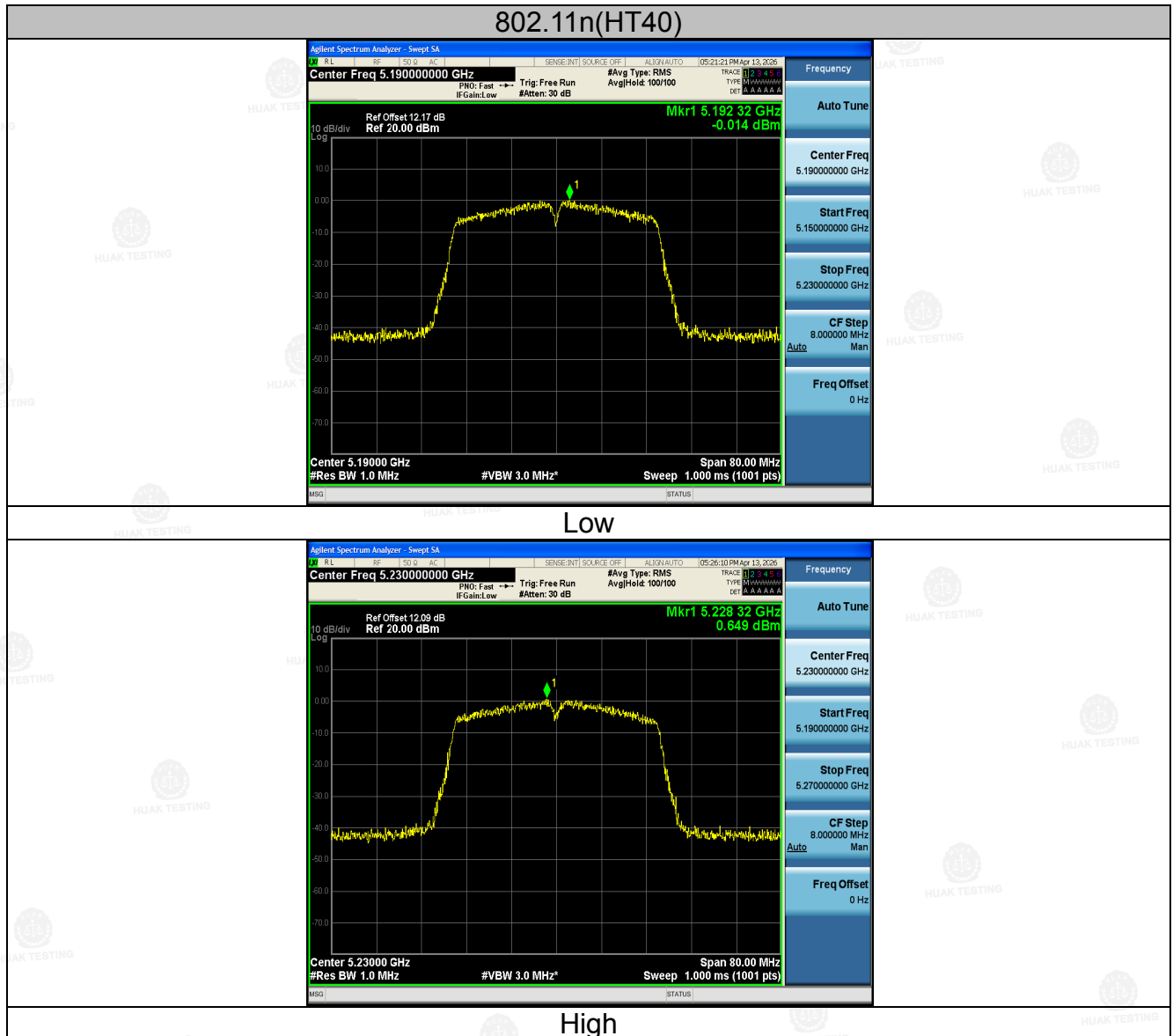
E-mail: info@huak.com

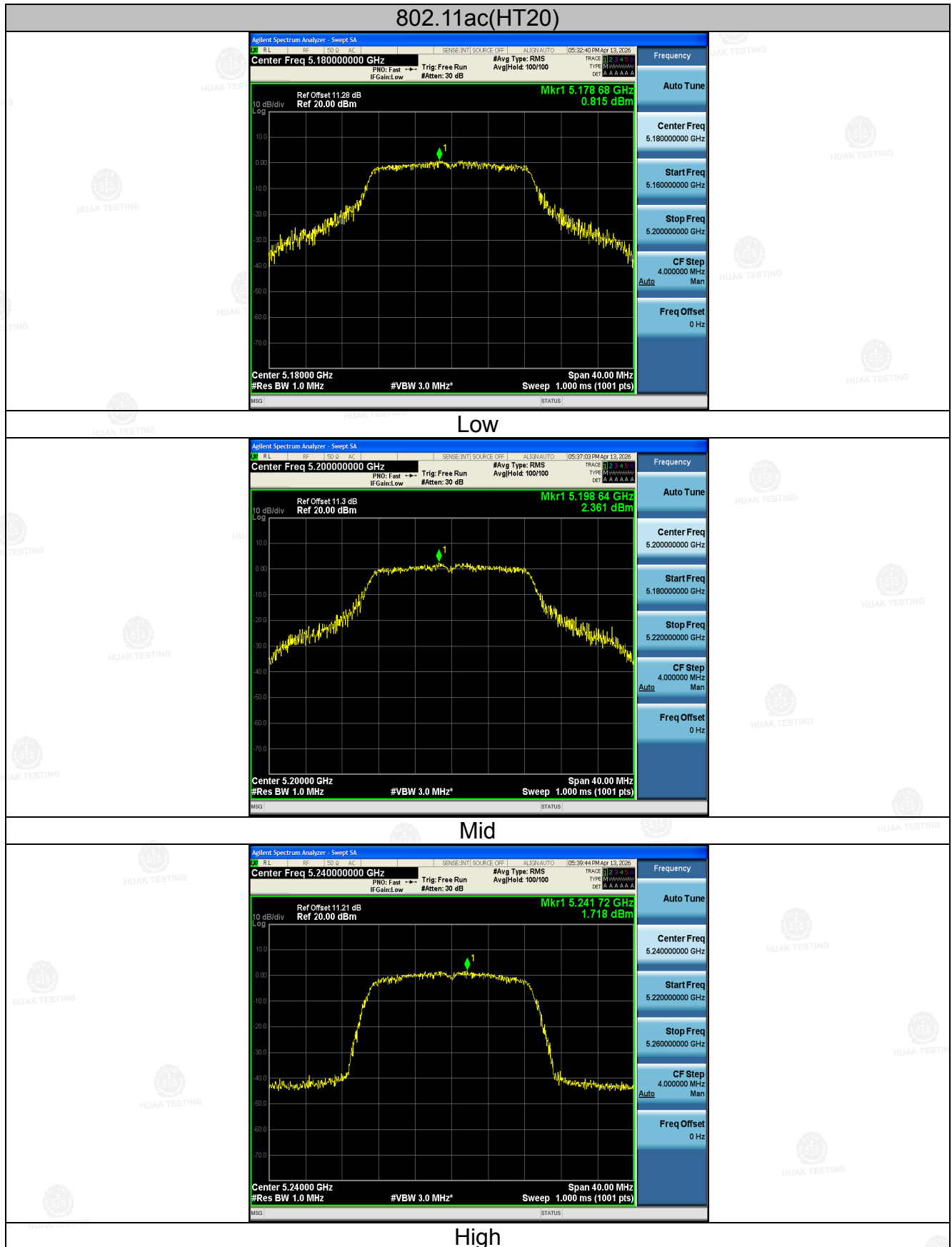
Web.: www.huak.com

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

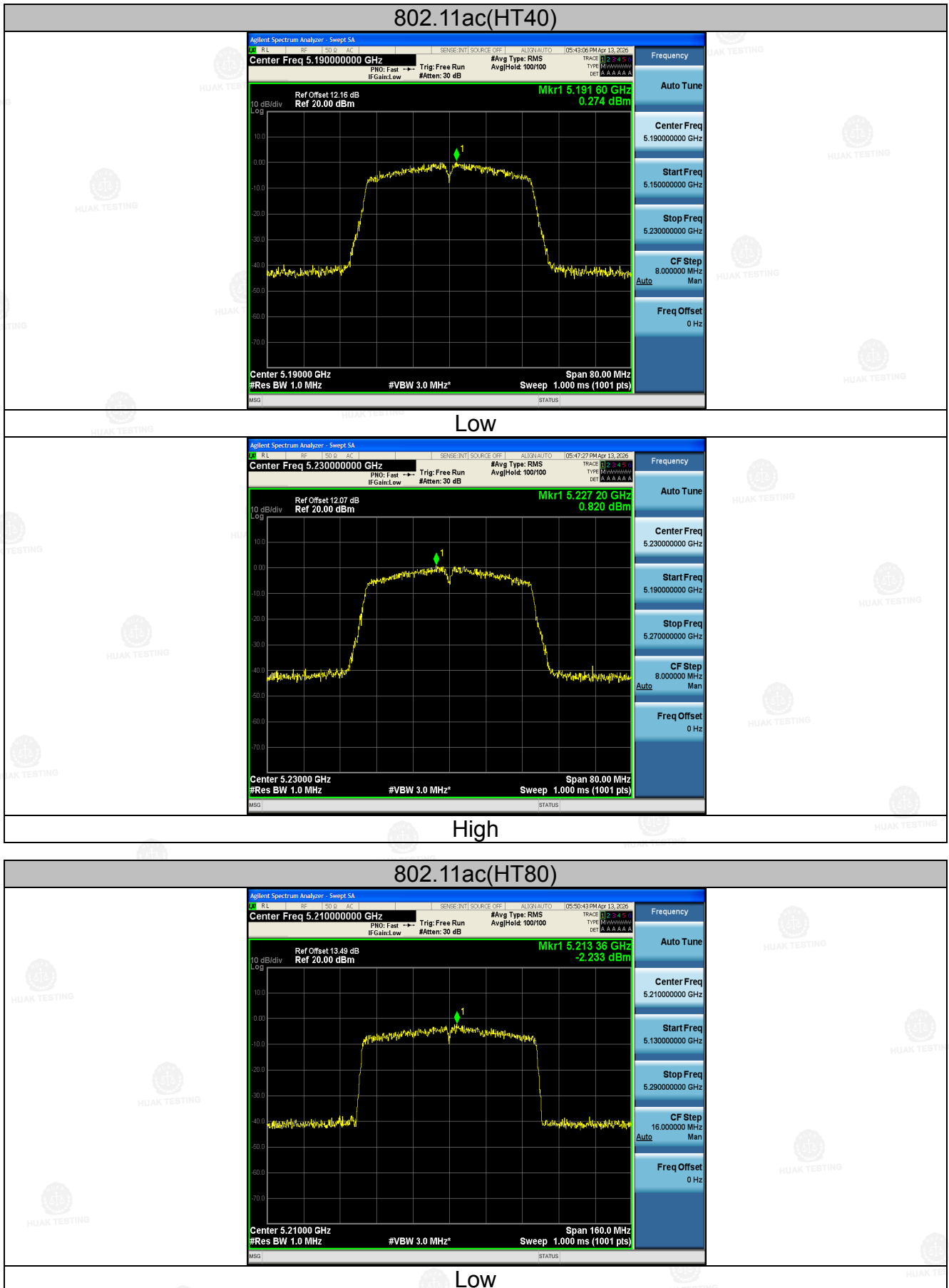


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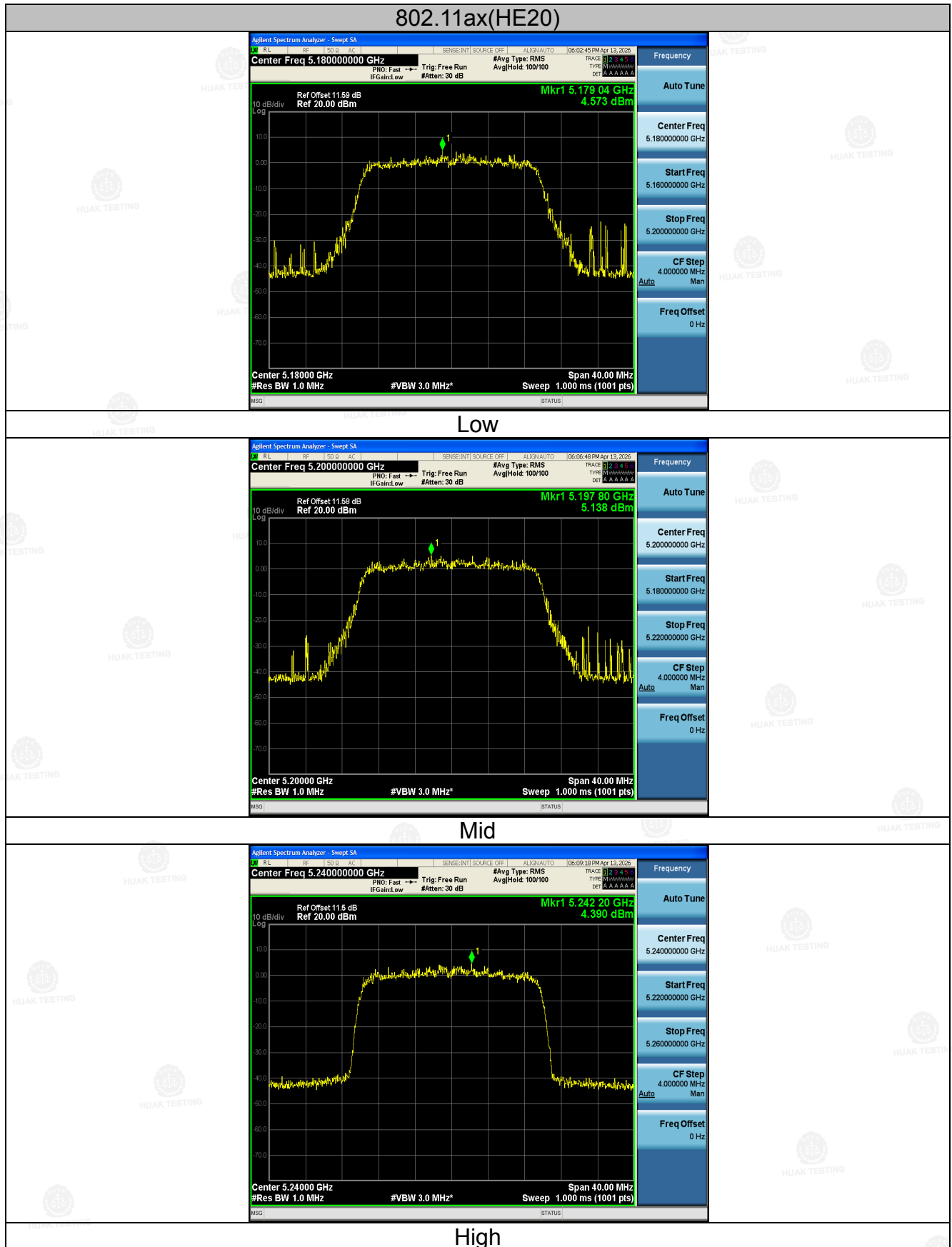




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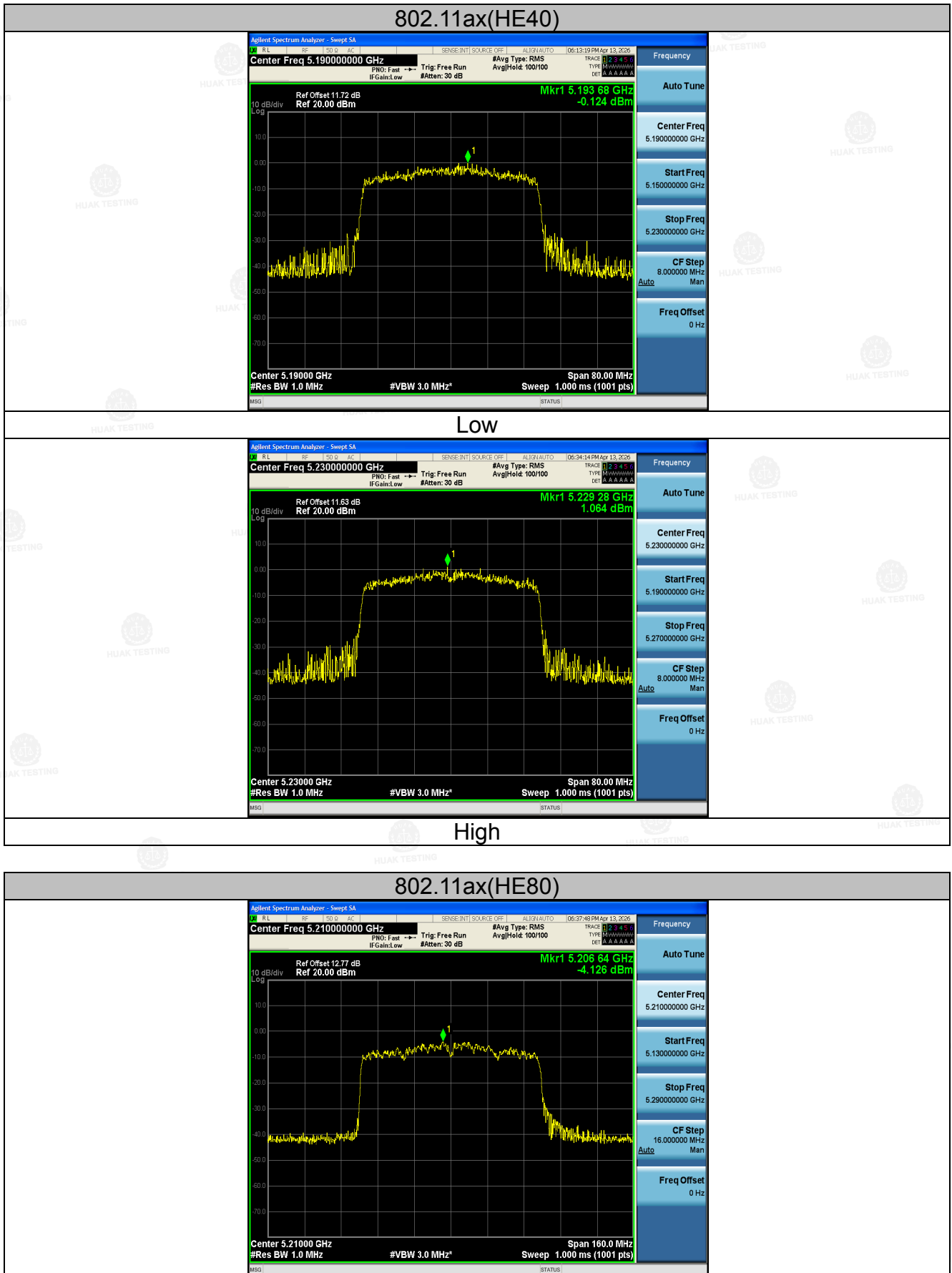


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For MIMO antenna port 1+antenna port 2

Configuration Band IV (5150 - 5250MHz)

Mode	Test channel	Power Density (dBm)	Limit (dBm/MHz)	Result
802.11n(HT20)	CH36	3.68	11	PASS
802.11n(HT20)	CH40	4.46	11	PASS
802.11n(HT20)	CH48	4.64	11	PASS
802.11n(HT40)	CH38	2.51	11	PASS
802.11n(HT40)	CH46	3.35	11	PASS
802.11ac(HT20)	CH36	4.08	11	PASS
802.11ac(HT20)	CH40	5.03	11	PASS
802.11ac(HT20)	CH48	4.58	11	PASS
802.11ac(HT40)	CH38	3.04	11	PASS
802.11ac(HT40)	CH46	3.28	11	PASS
802.11ac(HT80)	CH42	0.55	11	PASS
802.11ax(HE20)	CH36	7.81	11	PASS
802.11ax(HE20)	CH40	8.11	11	PASS
802.11ax(HE20)	CH48	7.44	11	PASS
802.11ax(HE40)	CH38	3.06	11	PASS
802.11ax(HE40)	CH46	3.43	11	PASS
802.11ax(HE80)	CH42	-1.16	11	PASS

Note:

1. According to KDB 662911, Result power = $10\log(10^{(\text{ant1}/10)} + 10^{(\text{ant2}/10)})$.
2. Result unit: W. The end result is converted to units of dBm.
Limit=11dBm
3. This product supports antenna 1 and antenna 2 launch, but only support 802.11 n/ac/ax for MIMO mode, not support 802.11 a for MIMO mode.