



FCC TEST REPORT

**Test report
On Behalf of
Bowe Technology Co., Ltd
For
XGSPON
Model No.: WAG-8F2W6-XS
FCC ID: 2AVWB-WAG-8F2W6-XS**

Prepared for : **Bowe Technology Co., Ltd**
2F, Building No. 6C, 1658, Gumei Rd., Xuhui District, Shanghai, China

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

Date of Test: **Aug. 27, 2021 ~ Sept. 07, 2021**

Date of Report: **Sept. 07, 2021**

Report Number: **HK2108303184-3E**



TEST RESULT CERTIFICATION

Applicant's name: Bowei Technology Co., Ltd

Address: 2F, Building No. 6C, 1658, Gumei Rd., Xuhui District,
Shanghai, China

Manufacture's Name.....: TDG Technology Co., Ltd

Address: No.1 Yatai Road, Jiaxing City, Zhejiang Province, P.R.C.

Product description

Trade Mark:

AZORES BOW

Product name: XGSPON

Model and/or type reference ..: WAG-8F2W6-XS

FCC Rules and Regulations Part 15 Subpart E Section

Standards: 15.407

ANSI C63.10: 2013

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen HUAKE Testing Technology Co., Ltd. is acknowledged as copyright owner and source of the material. Shenzhen HUAKE Testing Technology Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

Date of Test.....:

Date (s) of performance of tests: **Aug. 27, 2021 ~ Sept. 07, 2021**

Date of Issue.....: **Sept. 07, 2021**

Test Result: Pass

Testing Engineer :

Gary Qian

(Gary Qian)

Technical Manager :

Zden Hu

(Eden Hu)

Authorized Signatory :

Jason Zhou

(Jason Zhou)



TABLE OF CONTENTS

1. Test Result Summary	5
1.1. TEST PROCEDURES AND RESULTS.....	5
1.2. TEST FACILITY	5
1.3. MEASUREMENT UNCERTAINTY	6
2. EUT Description	7
2.1. GENERAL DESCRIPTION OF EUT	7
2.2. OPERATION FREQUENCY EACH OF CHANNEL.....	8
2.3. OPERATION OF EUT DURING TESTING	8
2.4. DESCRIPTION OF TEST SETUP	9
3. General Information.....	10
3.1. TEST ENVIRONMENT AND MODE	10
3.2. DESCRIPTION OF SUPPORT UNITS	11
4. Test Results and Measurement Data	12
4.1. CONDUCTED EMISSION	12
4.2. MAXIMUM CONDUCTED OUTPUT POWER	18
4.3. 6dB EMISSION BANDWIDTH	22
4.4. 26dB BANDWIDTH AND 99% OCCUPIED BANDWIDTH.....	59
4.5. POWER SPECTRAL DENSITY	61
4.6. BAND EDGE.....	95
4.7. SPURIOUS EMISSION	116
4.8. FREQUENCY STABILITY MEASUREMENT.....	147
4.9. ANTENNA REQUIREMENT	149
4.10. PHOTOGRAPHS OF TEST SETUP.....	150
4.11. PHOTOS OF THE EUT	150

**** Modified History ****

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Sept. 07, 2021	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. TEST FACILITY

Information of the Test Laboratory

Shenzhen HUAKE 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	$\pm 2.56\text{dB}$
2	RF power, conducted	$\pm 0.12\text{dB}$
3	Spurious emissions, conducted	$\pm 0.11\text{dB}$
4	All emissions, radiated(<1G)	$\pm 3.92\text{dB}$
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	XGSPON
Model Name	WAG-8F2W6-XS
Serial No.	N/A
Trade Mark	AZORES BOW
Model Difference	N/A
FCC ID	2AVWB-WAG-8F2W6-XS
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 1:5dBi Antenna 2:5dBi Antenna 3:5dBi Antenna 4:5dBi MIMO: 11.021dBi
Power Source	DC 12V from Adapter
Power Supply:	DC 12V from Adapter
Hardware Version	V1.1
Software Version	V1.1.073
Note: The EUT incorporates a MIMO function. Physically, it provides two completed transmitters and receivers(4T4R), two transmit signals are completely correlated, then, Direction gain=GANT + Array Gain(Array Gain=10 log(4) dB for power spectral density; Array Gain=0 for power measurement)	



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	5790		
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

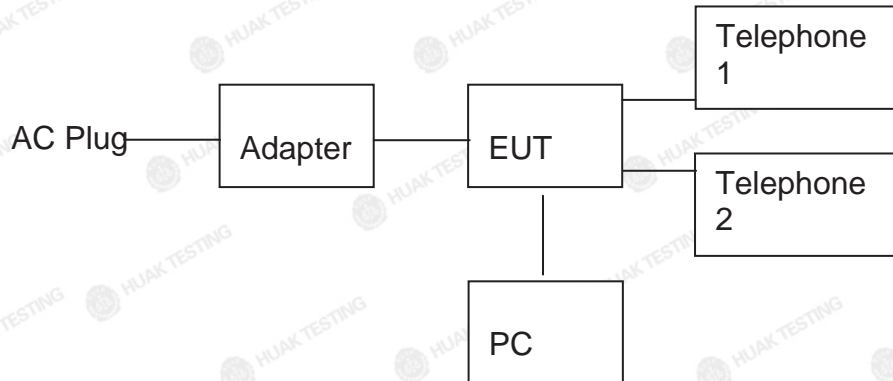
For 802.11ac(HT80)/ax(HT80)		
Channel Number	Channel	Frequency (MHz)
155	/	5775

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

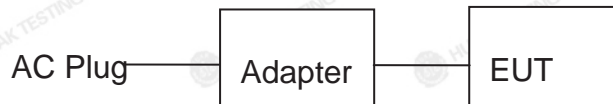


2.4. DESCRIPTION OF TEST SETUP

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



Operation of EUT during Above 1GHz Radiation testing:



- PC information
Model: TP00067A
Input: DC 20V, 2.25~3.25A
Output: 5VDC, 0.5A
- Adapter information
Adapter 1:
Model: MSS-V2000WR120-024E0-US
Input: 100-240V~50-60Hz 0.7A max
Output: DC12V 2.0A
Adapter 2:
Model: RD1202000-C55-154MG
Input: 100-240V~50-60Hz 1.0A MAX
Output: DC12V 2.0A

Telephone information
Model: HCD2968(95)TSD

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. 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(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 & 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>	

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(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

Test Requirement:	FCC Part15 C Section 15.207														
Test Method:	ANSI C63.10:2013														
Frequency Range:	150 kHz to 30 MHz														
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto														
Limits:	<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:	<div><p>Reference Plane</p><p>40cm 80cm</p><p>E.U.T AC power LISN Filter AC power EMI Receiver</p><p>Test table/Insulation plane</p><p>Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p></div>														
Test Mode:	Tx Mode														
Test Procedure:	<ol style="list-style-type: none">1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.														
Test Result:	Pass														

**4.1.2. Test Instruments**

Conducted Emission Shielding Room Test Site (843)					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Receiver	R&S	ESCI 7	HKE-010	Dec. 10, 2020	Dec. 09, 2021
LISN	R&S	ENV216	HKE-002	Dec. 10, 2020	Dec. 09, 2021
Coax cable (9KHz-30MHz)	Times	381806-00 2	N/A	Dec. 10, 2020	Dec. 09, 2021
Conducted test software	Tonscend	TS+ Rev 2.5.0.0	HKE-081	N/A	N/A

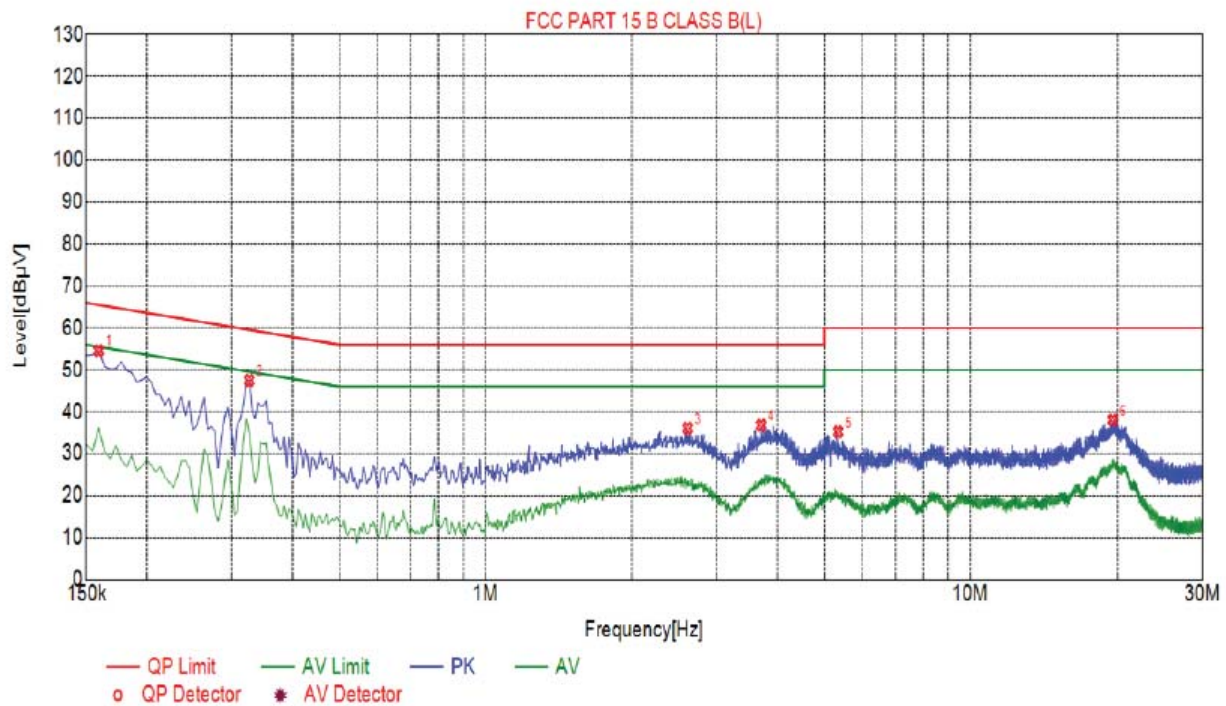
Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



4.1.3. Test data

Adapter 1:

Test Specification: Line



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1590	54.59	20.01	65.52	10.93	34.58	PK	L
2	0.3255	47.50	20.05	59.57	12.07	27.45	PK	L
3	2.6115	36.05	20.21	56.00	19.95	15.84	PK	L
4	3.7050	36.79	20.25	56.00	19.21	16.54	PK	L
5	5.3385	35.22	20.26	60.00	24.78	14.96	PK	L
6	19.5630	38.01	20.09	60.00	21.99	17.92	PK	L

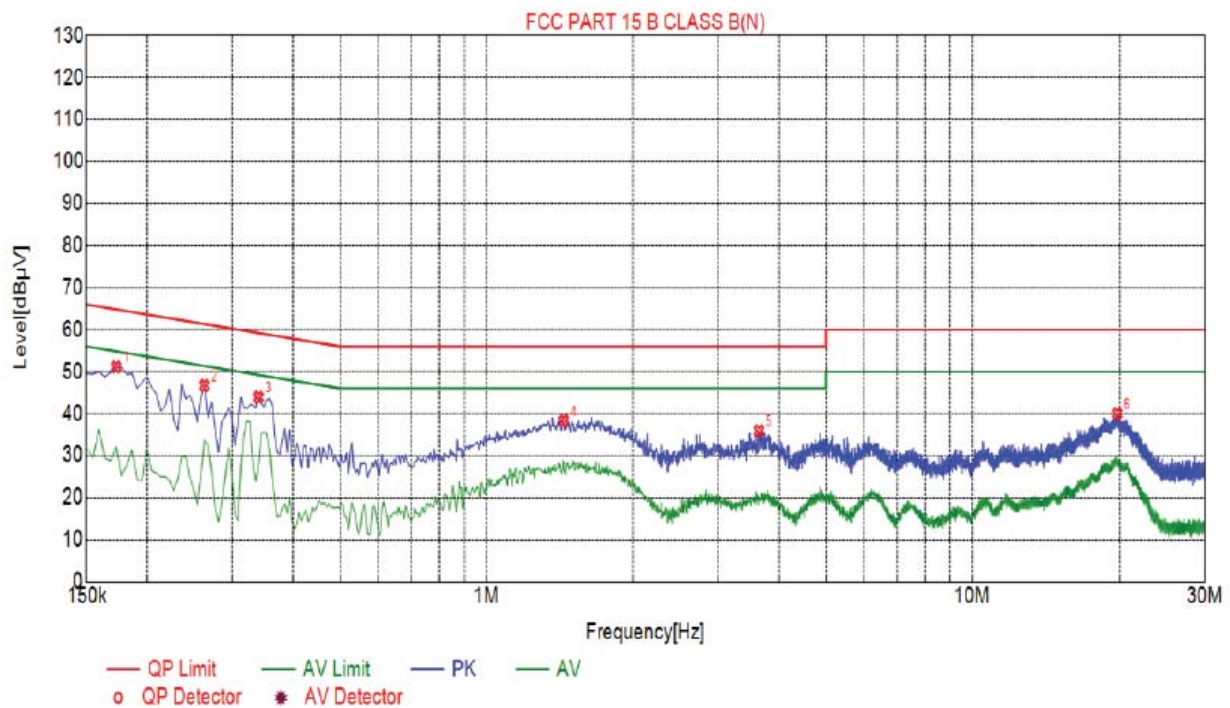
Remark: Margin = Limit – Level

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	0.1725	51.13	20.04	64.84	13.71	31.09	PK	N
2	0.2625	46.70	20.03	61.35	14.65	26.67	PK	N
3	0.3390	43.91	20.03	59.23	15.32	23.88	PK	N
4	1.4415	38.31	20.10	56.00	17.69	18.21	PK	N
5	3.6420	35.89	20.25	56.00	20.11	15.64	PK	N
6	19.7745	40.00	20.09	60.00	20.00	19.91	PK	N

Remark: Margin = Limit – Level

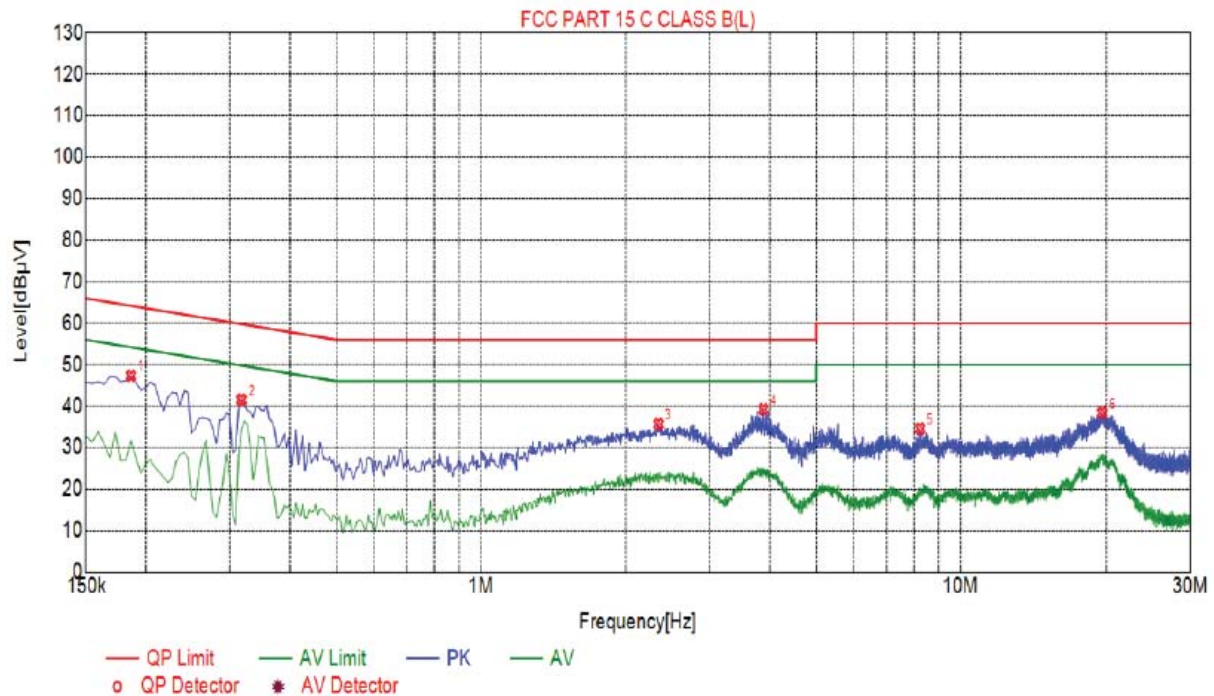
Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor



Adapter 2:

Test Specification: Line



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1860	47.33	20.05	64.21	16.88	27.28	PK	L
2	0.3165	41.52	20.05	59.80	18.28	21.47	PK	L
3	2.3460	35.66	20.18	56.00	20.34	15.48	PK	L
4	3.8805	39.22	20.25	56.00	16.78	18.97	PK	L
5	8.2365	34.55	20.14	60.00	25.45	14.41	PK	L
6	19.6260	38.37	20.09	60.00	21.63	18.28	PK	L

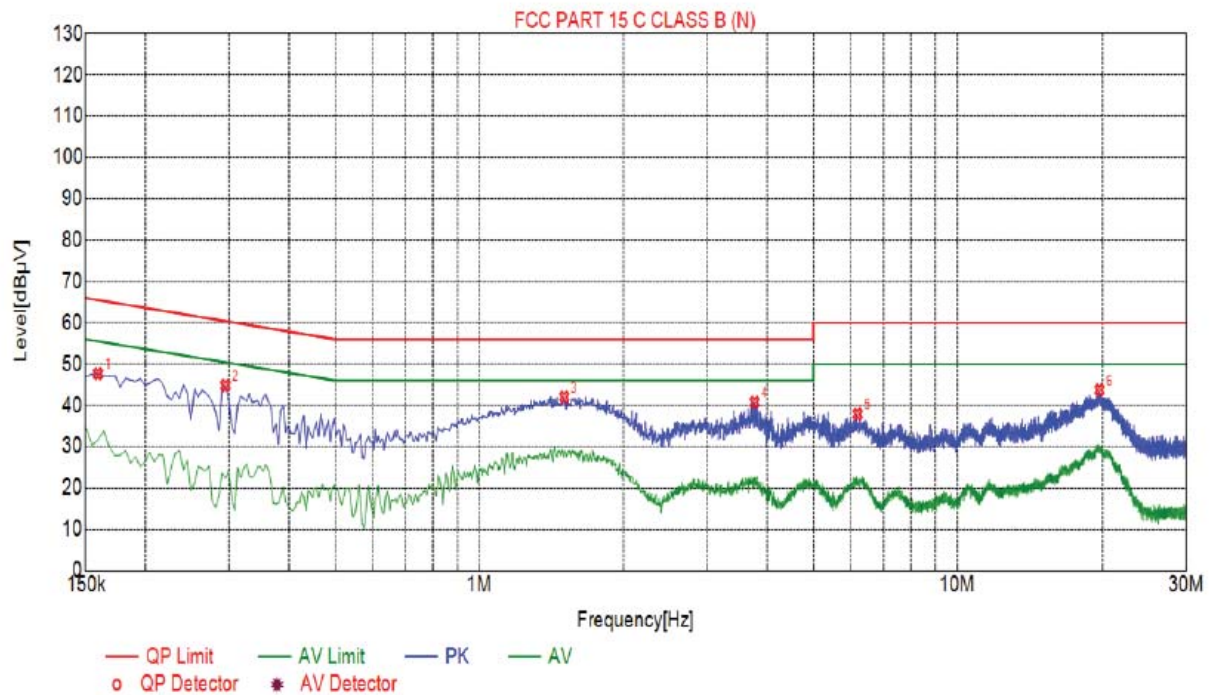
Remark: Margin = Limit – Level

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	47.69	20.01	65.52	17.83	27.68	PK	N
2	0.2940	44.83	20.03	60.41	15.58	24.80	PK	N
3	1.5045	42.01	20.11	56.00	13.99	21.90	PK	N
4	3.7680	40.75	20.25	56.00	15.25	20.50	PK	N
5	6.1890	37.88	20.22	60.00	22.12	17.66	PK	N
6	19.7205	43.74	20.09	60.00	16.26	23.65	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
	5725-5850	1 W
Test Setup:	 Power meter EUT	
Test Mode:	Transmitting mode with modulation	
Test Procedure:	<ol style="list-style-type: none">1. The testing follows the Measurement Procedure of KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section E, 3, a2. 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 Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 10, 2020	Dec. 09, 2021
Power meter	Agilent	E4419B	HKE-085	Dec. 10, 2020	Dec. 09, 2021
Power Sensor	Agilent	E9300A	HKE-086	Dec. 10, 2020	Dec. 09, 2021
RF cable	Times	1-40G	HKE-034	Dec. 10, 2020	Dec. 09, 2021
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 10, 2020	Dec. 09, 2021

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



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	Antenna port 3	Antenna port 4		
11a	CH149	6.67	7.34	9.60	7.83	30	PASS
11a	CH157	6.62	7.09	9.10	7.72	30	PASS
11a	CH165	6.68	7.30	9.02	8.11	30	PASS
11n(HT20)	CH149	6.76	7.29	9.42	8.04	30	PASS
11n(HT20)	CH157	6.67	7.11	9.63	7.84	30	PASS
11n(HT20)	CH165	6.78	7.59	9.87	8.07	30	PASS
11n(HT40)	CH151	6.92	7.57	9.96	7.84	30	PASS
11n(HT40)	CH159	6.65	7.43	9.88	7.66	30	PASS
11ac(HT20)	CH149	6.76	7.32	9.81	7.84	30	PASS
11ac(HT20)	CH157	6.56	6.96	9.49	7.61	30	PASS
11ac(HT20)	CH165	6.60	7.19	9.64	7.84	30	PASS
11ac(HT40)	CH151	6.79	7.59	10.02	8.05	30	PASS
11ac(HT40)	CH159	6.56	7.33	9.64	7.66	30	PASS
11ac(HT80)	CH155	6.90	8.99	9.92	7.86	30	PASS
11ax(HT20)	CH149	6.98	7.51	10.10	8.24	30	PASS
11ax(HT20)	CH157	6.80	7.18	9.79	7.96	30	PASS
11ax(HT20)	CH165	6.83	7.61	10.14	8.37	30	PASS
11ax(HT40)	CH151	7.22	7.85	10.32	8.33	30	PASS
11ax(HT40)	CH159	6.95	7.77	10.21	8.31	30	PASS
11ax(HT80)	CH155	7.14	9.22	10.24	7.83	30	PASS

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.




Configuration Band IV (5725 - 5850 MHz)				
Mode	Test channel	Maximum Conducted Output Power (dBm)	FCC Limit (dBm)	Result
		MIMO		
11n(HT20)	CH149	14.02	30	PASS
11n(HT20)	CH157	13.99	30	PASS
11n(HT20)	CH165	14.25	30	PASS
11n(HT40)	CH151	14.25	30	PASS
11n(HT40)	CH159	14.10	30	PASS
11ac(HT20)	CH149	14.11	30	PASS
11ac(HT20)	CH157	13.83	30	PASS
11ac(HT20)	CH165	14.00	30	PASS
11ac(HT40)	CH151	14.30	30	PASS
11ac(HT40)	CH159	13.98	30	PASS
11ac(HT80)	CH155	14.59	30	PASS
11ax(HT20)	CH157	14.40	30	PASS
11ax(HT20)	CH165	14.11	30	PASS
11ax(HT40)	CH151	14.44	30	PASS
11ax(HT40)	CH159	14.61	30	PASS
11ax(HT80)	CH155	14.50	30	PASS



4.3. 6dB Emission Bandwidth

4.3.1. Test Specification

Test Requirement:	FCC CFR47 Part 15 Section 15.407(e)
Test Method:	KDB789033 D02 General UNII Test Procedures New Rules v01r04 Section C
Limit:	>500kHz
Test Setup:	 Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	<ol style="list-style-type: none">1. KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C2. Set to the maximum power setting and enable the EUT transmit continuously.3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz.4. Measure and record the results in the test report.
Test Result:	PASS

4.3.2. Test Instruments

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

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



4.3.3. Test data

ANT 1

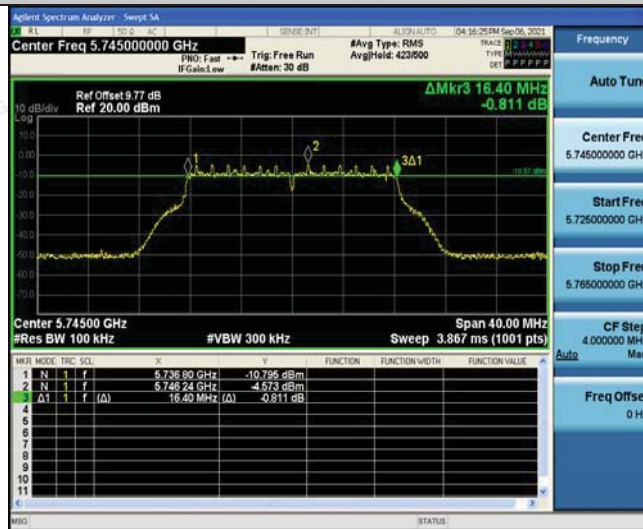
Band IV (5725 - 5850 MHz)					
Mode	Test channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
11a	CH149	5745	16.400	0.5	PASS
11a	CH157	5785	16.360	0.5	PASS
11a	CH165	5825	16.400	0.5	PASS
11n(HT20)	CH149	5745	17.640	0.5	PASS
11n(HT20)	CH157	5785	17.640	0.5	PASS
11n(HT20)	CH165	5825	17.640	0.5	PASS
11n(HT40)	CH151	5755	36.480	0.5	PASS
11n(HT40)	CH159	5795	36.480	0.5	PASS
11ac(HT20)	CH149	5745	17.680	0.5	PASS
11ac(HT20)	CH157	5785	17.640	0.5	PASS
11ac(HT20)	CH165	5825	17.640	0.5	PASS
11ac(HT40)	CH151	5755	36.480	0.5	PASS
11ac(HT40)	CH159	5795	36.480	0.5	PASS
11ac(HT80)	CH155	5775	75.840	0.5	PASS
11ax(HT20)	CH149	5745	18.960	0.5	PASS
11ax(HT20)	CH157	5785	18.960	0.5	PASS
11ax(HT20)	CH165	5825	18.960	0.5	PASS
11ax(HT40)	CH151	5755	37.520	0.5	PASS
11ax(HT40)	CH159	5795	37.520	0.5	PASS
11ax(HT80)	CH155	5775	76.480	0.5	PASS

Test plots as follows:



Band IV (5725 – 5850 MHz)

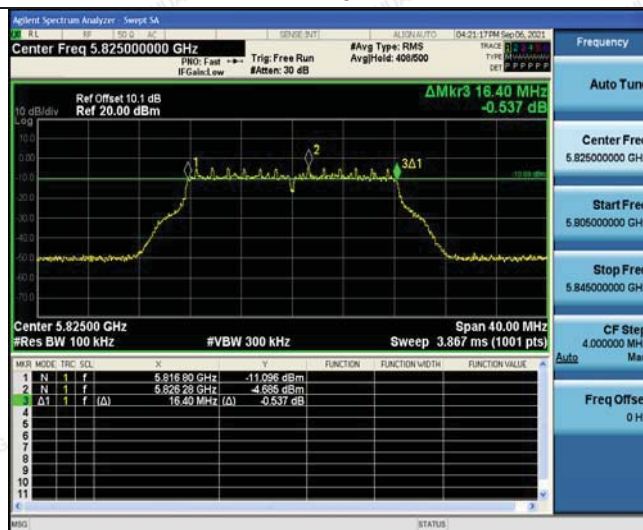
802.11a



Low



Mid

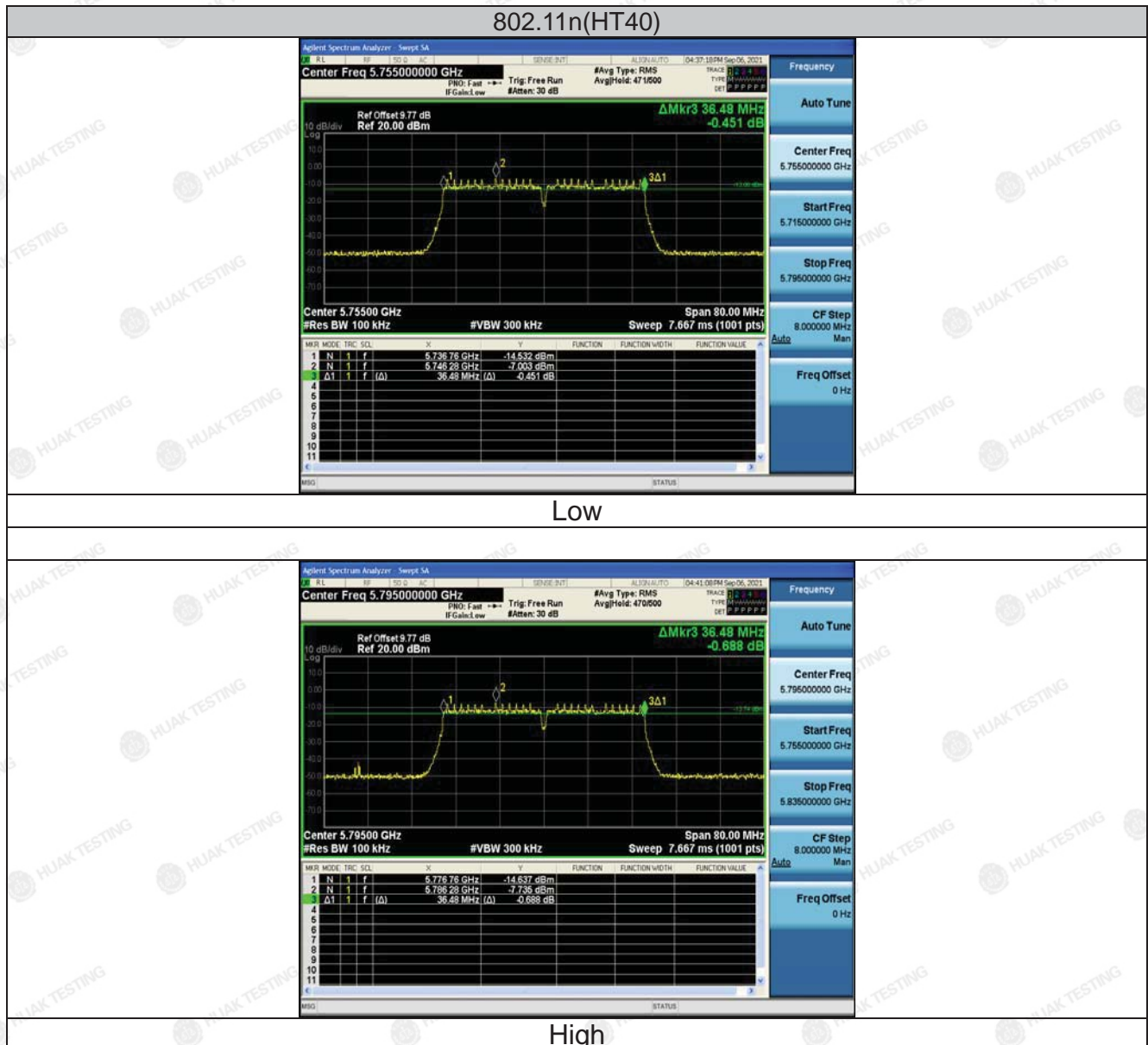


High

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

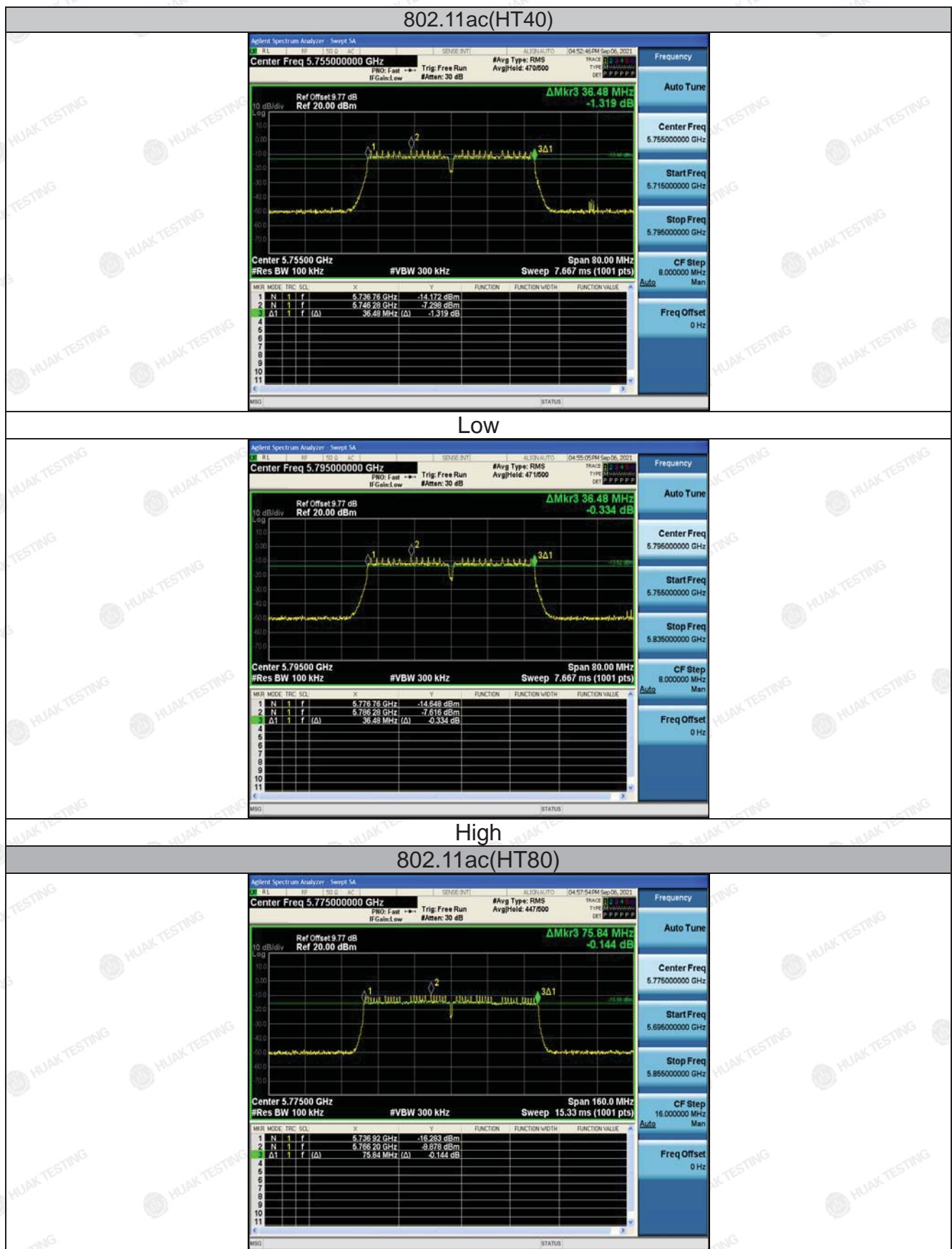


The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.





The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

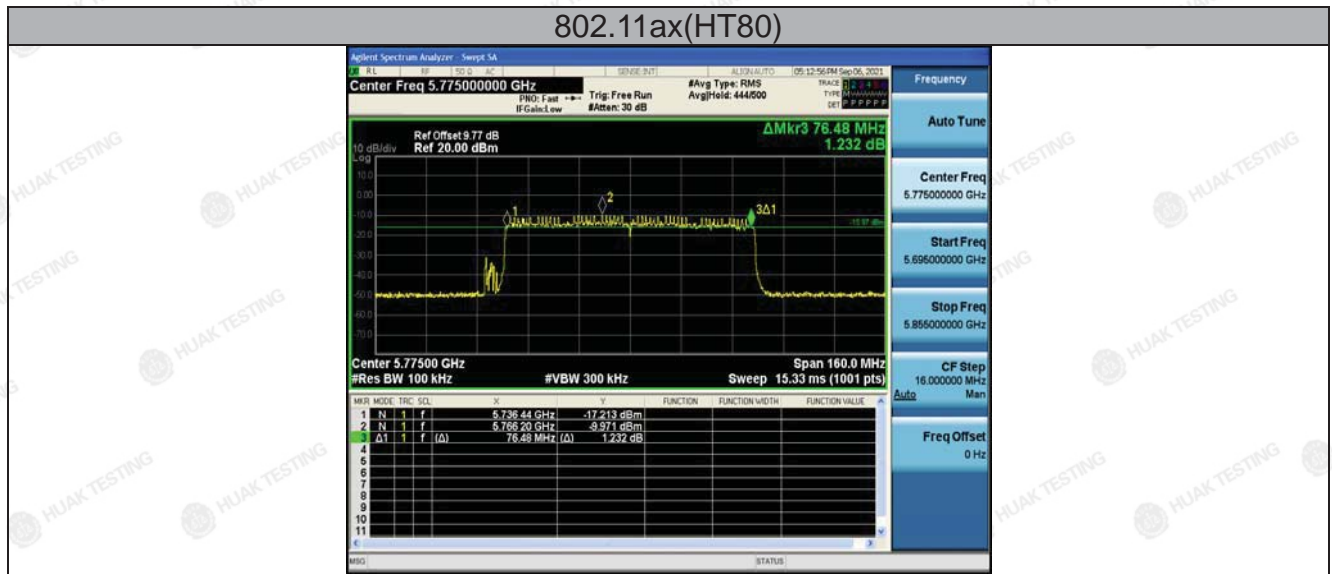


The results shown in this test report refer only to the sample(s) tested otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.





The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

**ANT 2**

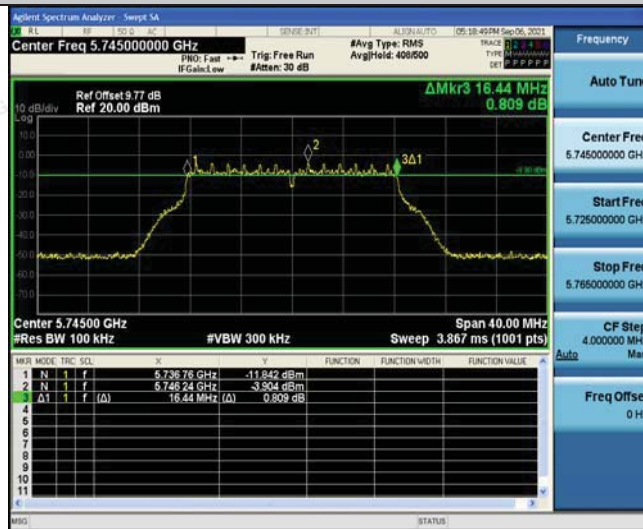
Band IV (5725 - 5850 MHz)					
Mode	Test channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
11a	CH149	5745	16.440	0.5	PASS
11a	CH157	5785	16.360	0.5	PASS
11a	CH161	5825	16.400	0.5	PASS
11n(HT20)	CH149	5745	17.640	0.5	PASS
11n(HT20)	CH157	5785	17.680	0.5	PASS
11n(HT20)	CH161	5825	17.640	0.5	PASS
11n(HT40)	CH151	5755	36.480	0.5	PASS
11n(HT40)	CH159	5795	36.480	0.5	PASS
11ac(HT20)	CH149	5745	17.680	0.5	PASS
11ac(HT20)	CH157	5785	17.640	0.5	PASS
11ac(HT20)	CH165	5825	17.640	0.5	PASS
11ac(HT40)	CH151	5755	36.480	0.5	PASS
11ac(HT40)	CH159	5795	36.480	0.5	PASS
11ac(HT80)	CH155	5755	75.840	0.5	PASS
11ax(HT20)	CH149	5745	18.960	0.5	PASS
11ax(HT20)	CH157	5785	19.000	0.5	PASS
11ax(HT20)	CH165	5825	18.960	0.5	PASS
11ax(HT40)	CH151	5755	37.760	0.5	PASS
11ax(HT40)	CH159	5795	37.600	0.5	PASS
11ax(HT80)	CH155	5755	77.120	0.5	PASS

Test plots as follows:



Band IV (5725 – 5850 MHz)

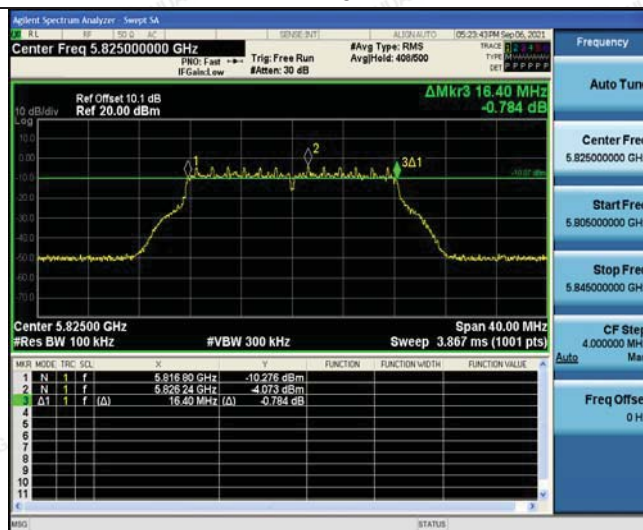
802.11a



Low



Mid



High

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

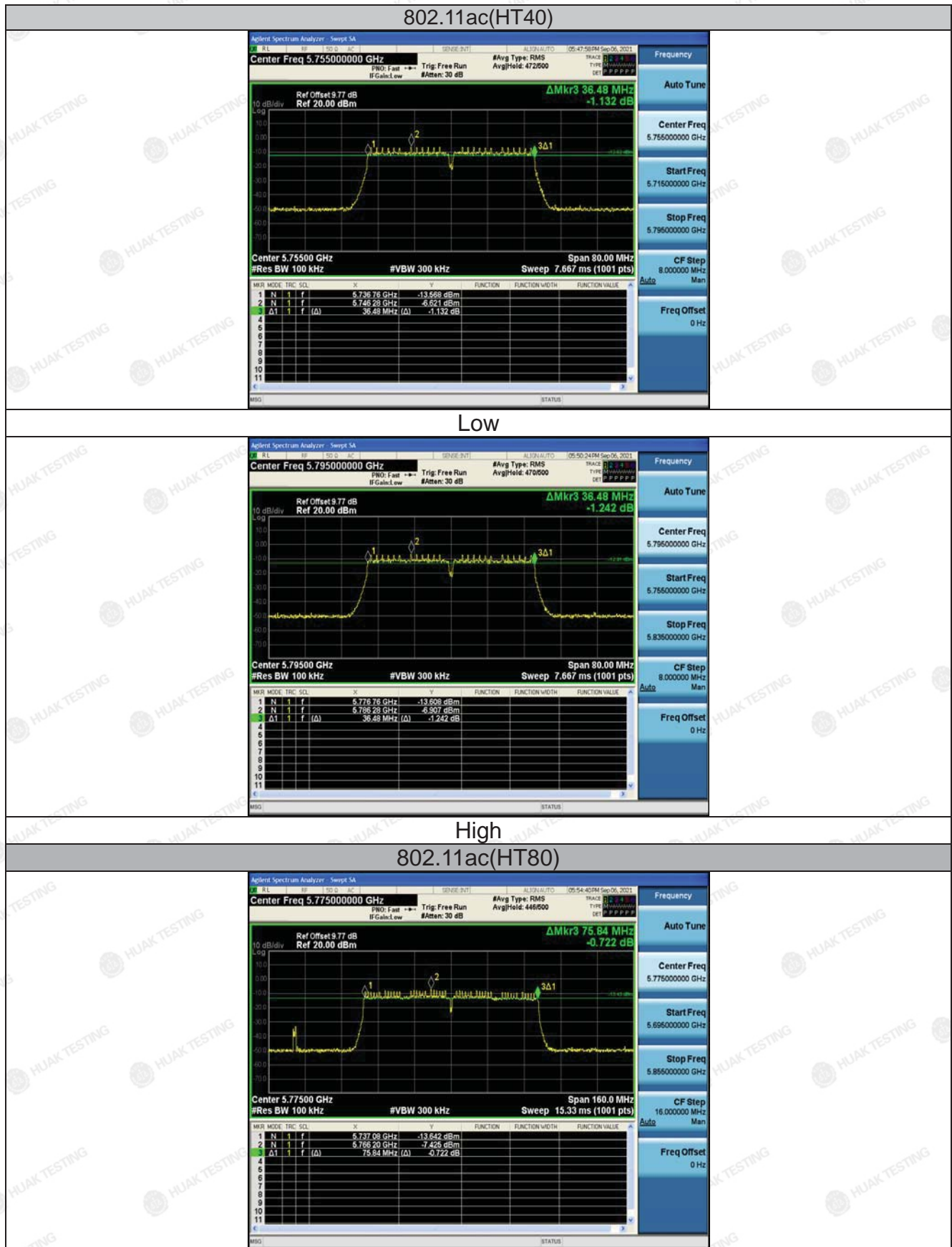


The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.





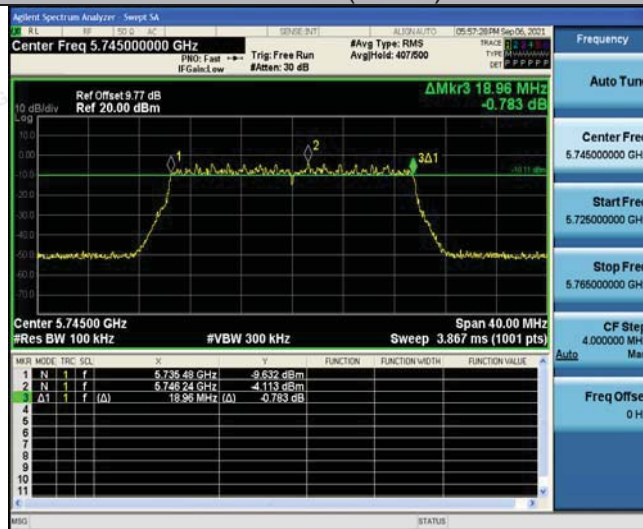
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.



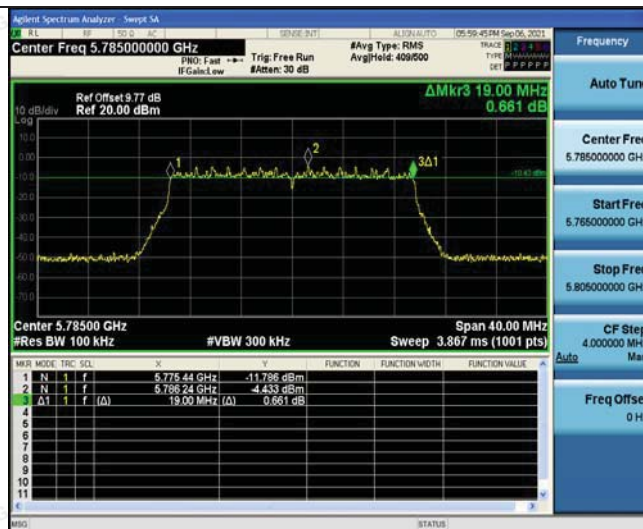
The results shown in this test report refer only to the sample(s) tested otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.



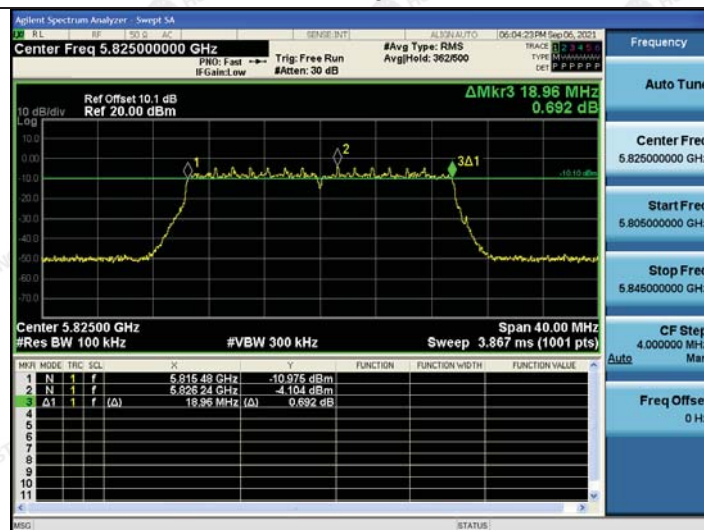
802.11ax(HT20)



Low

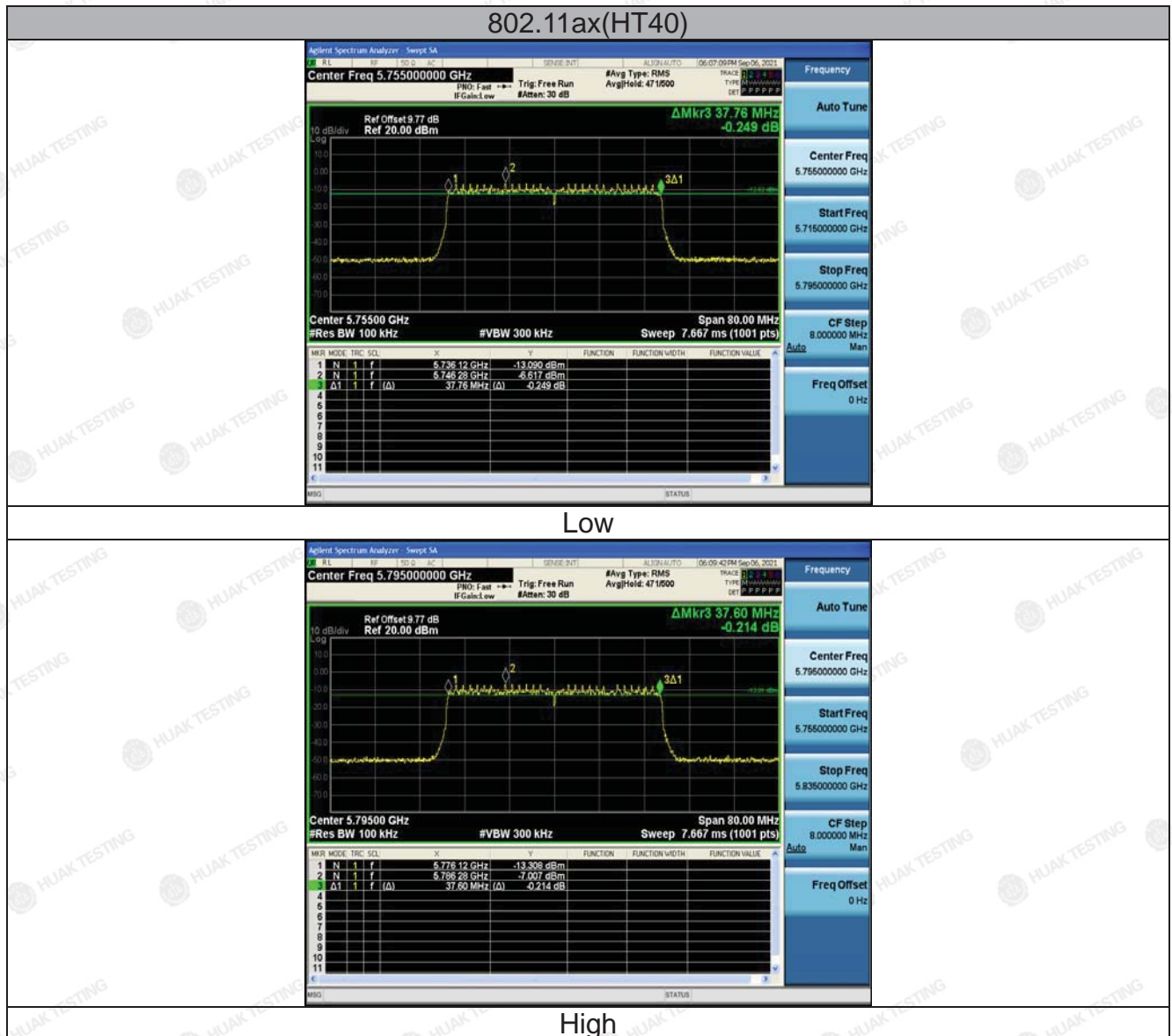


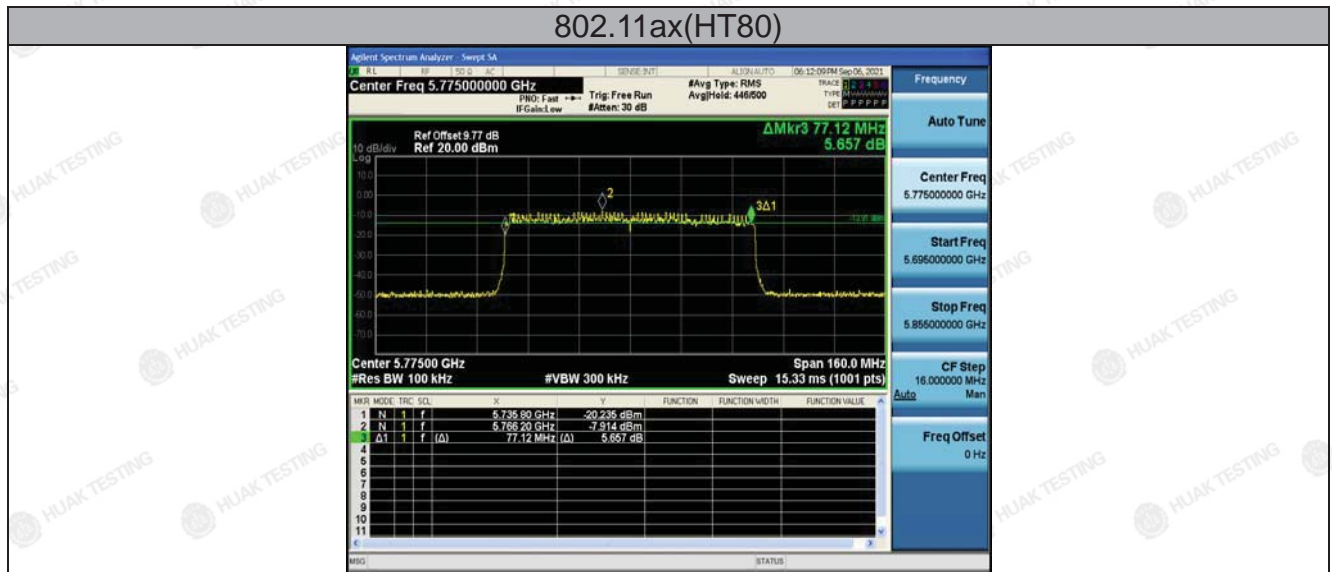
Mid



High

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.





The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

**ANT 3**

Band IV (5725 - 5850 MHz)					
Mode	Test channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
11a	CH149	5745	16.400	0.5	PASS
11a	CH157	5785	16.440	0.5	PASS
11a	CH165	5825	16.400	0.5	PASS
11n(HT20)	CH149	5745	17.680	0.5	PASS
11n(HT20)	CH157	5785	17.640	0.5	PASS
11n(HT20)	CH165	5825	17.640	0.5	PASS
11n(HT40)	CH151	5755	36.400	0.5	PASS
11n(HT40)	CH159	5795	36.480	0.5	PASS
11ac(HT20)	CH149	5745	17.640	0.5	PASS
11ac(HT20)	CH157	5785	17.640	0.5	PASS
11ac(HT20)	CH165	5825	17.640	0.5	PASS
11ac(HT40)	CH151	5755	36.480	0.5	PASS
11ac(HT40)	CH159	5795	36.480	0.5	PASS
11ac(HT80)	CH155	5775	76.640	0.5	PASS
11ax(HT20)	CH149	5745	18.880	0.5	PASS
11ax(HT20)	CH157	5785	18.920	0.5	PASS
11ax(HT20)	CH165	5825	18.920	0.5	PASS
11ax(HT40)	CH151	5755	37.760	0.5	PASS
11ax(HT40)	CH159	5795	37.760	0.5	PASS
11ax(HT80)	CH155	5775	77.280	0.5	PASS

Test plots as follows:



Band IV (5725 – 5850 MHz)

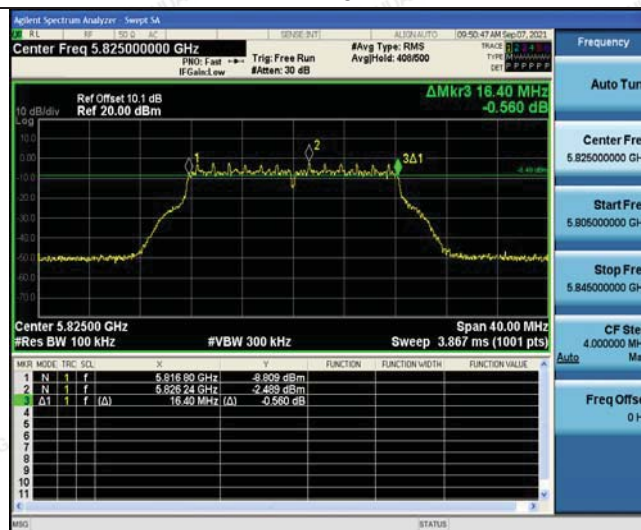
802.11a



Low



Mid

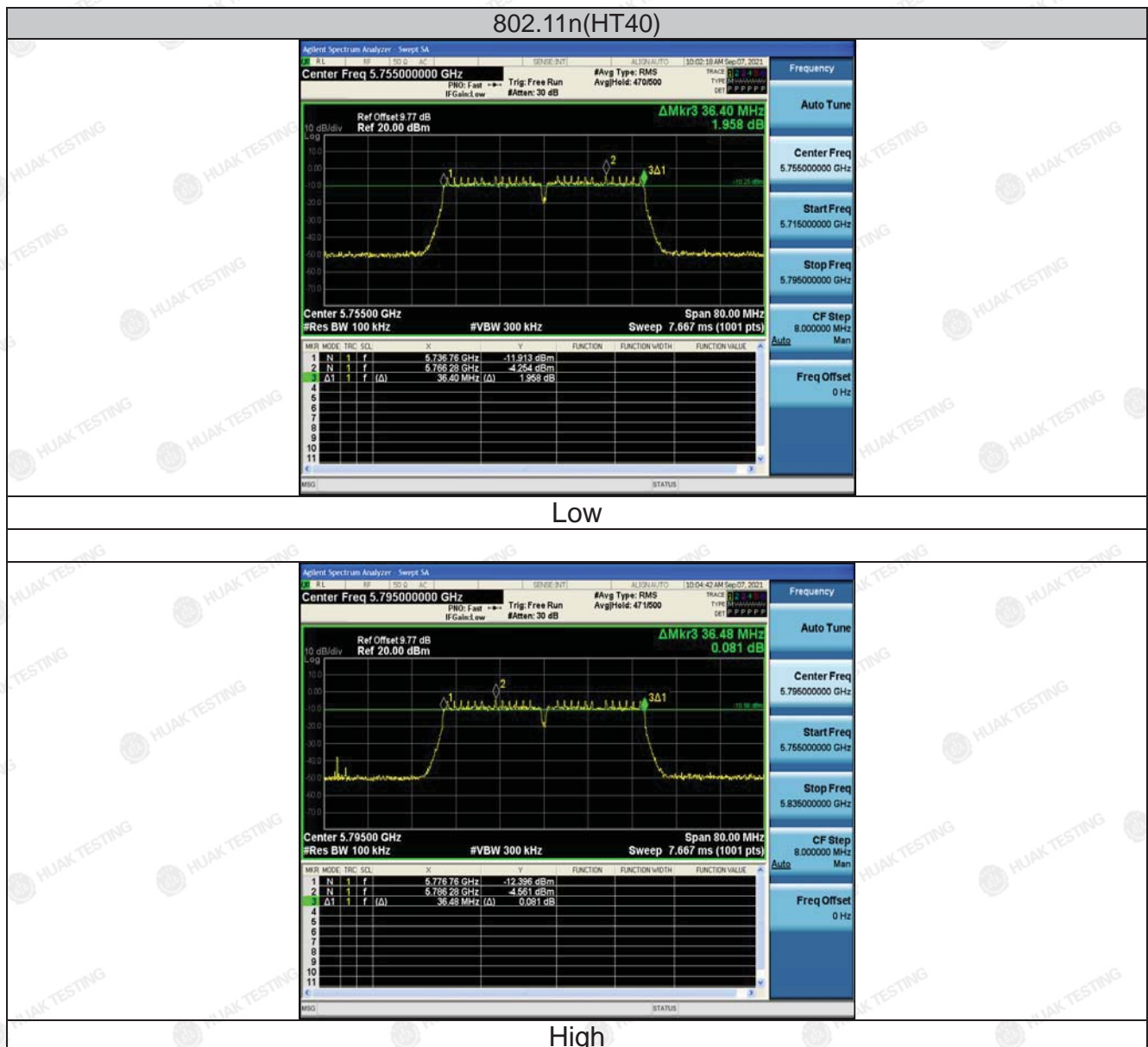


High

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.



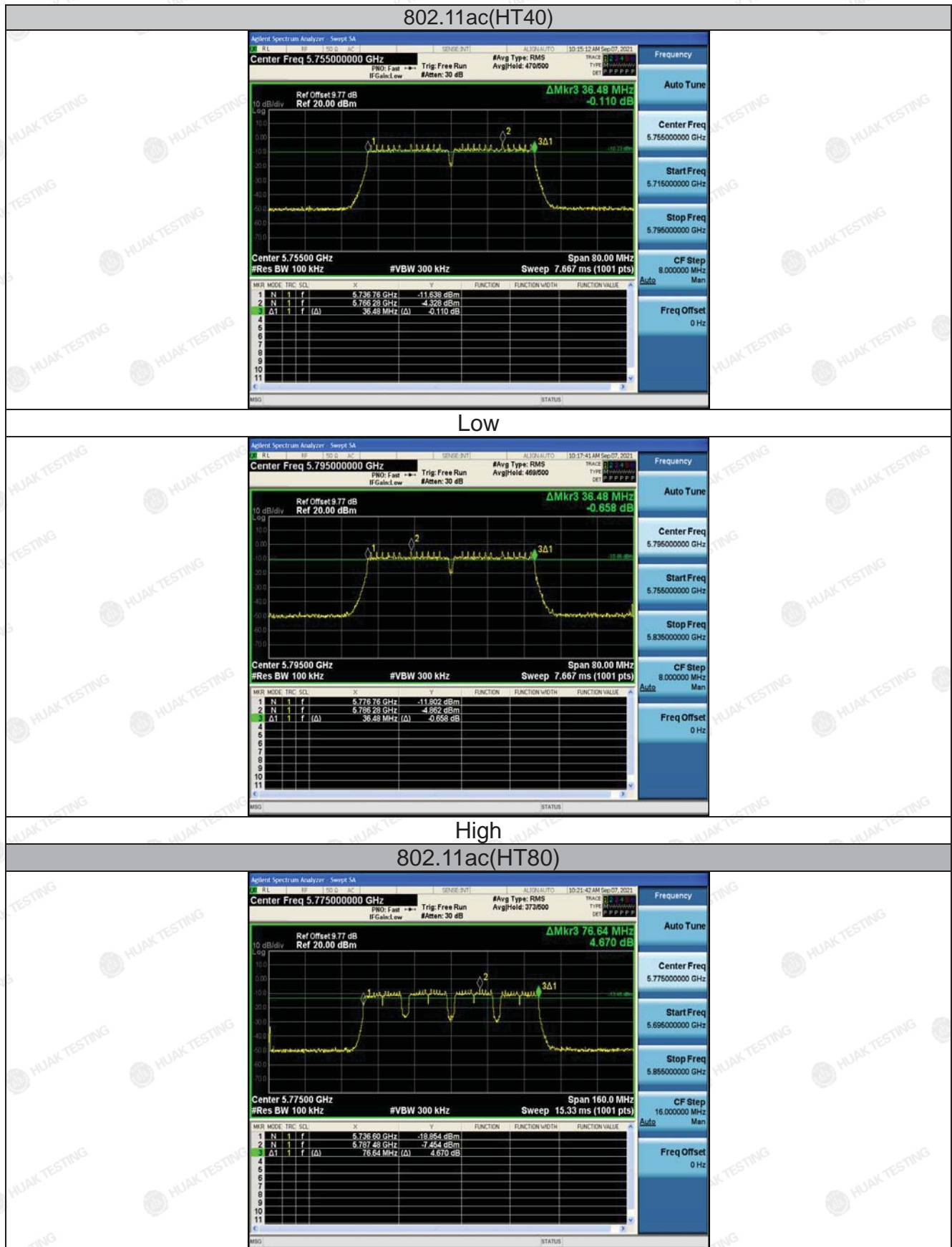
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.



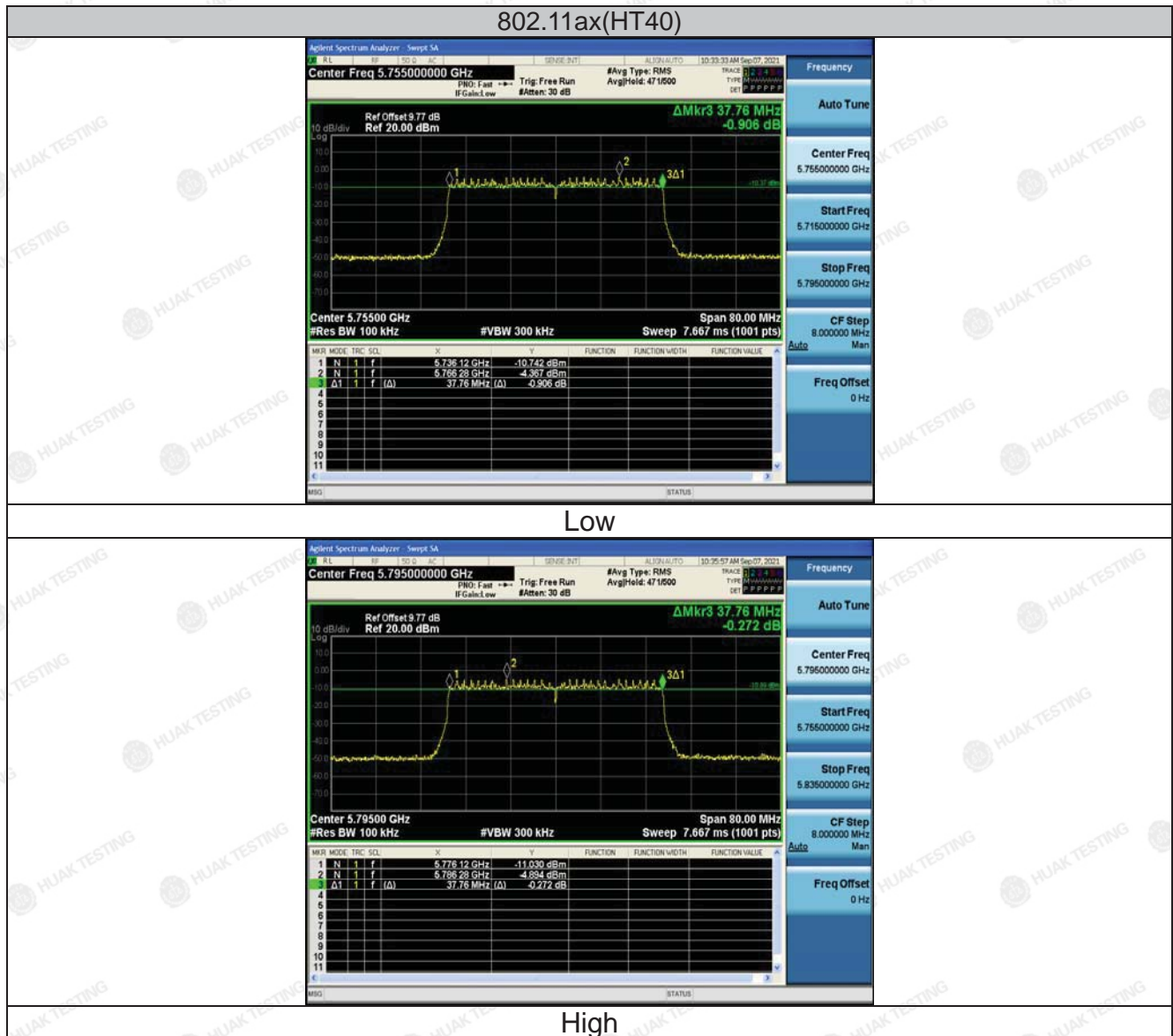
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

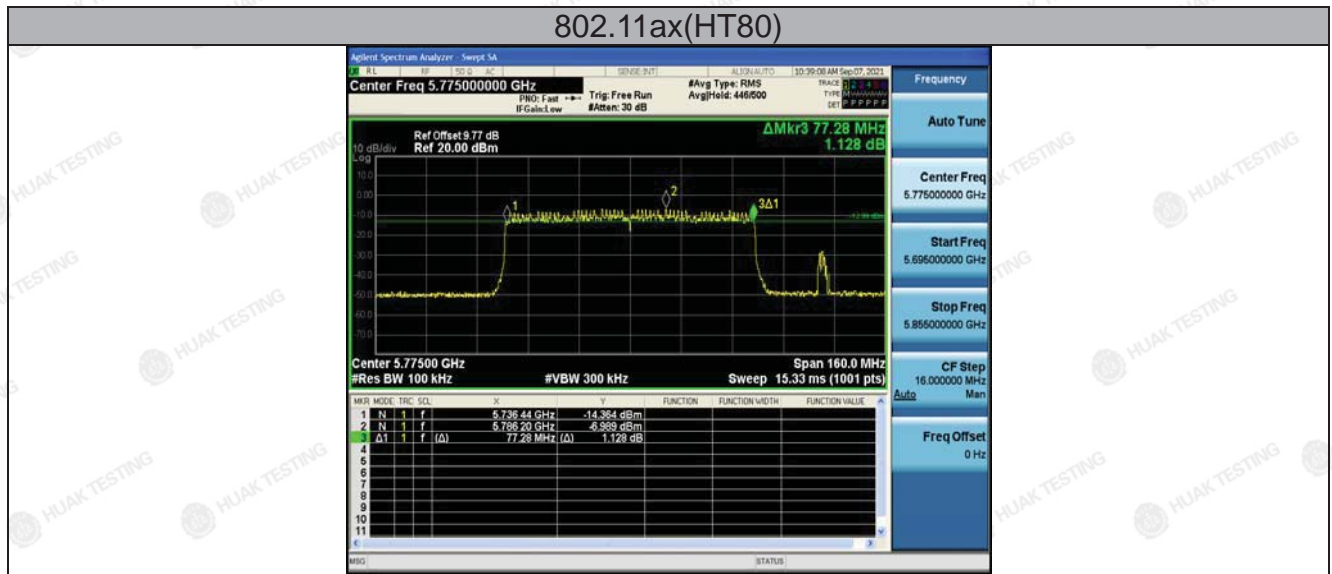


The results shown in this test report refer only to the sample(s) tested otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.





The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

**ANT 4**

Band IV (5725 - 5850 MHz)					
Mode	Test channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
11a	CH149	5745	16.400	0.5	PASS
11a	CH157	5785	16.400	0.5	PASS
11a	CH161	5825	16.440	0.5	PASS
11n(HT20)	CH149	5745	17.680	0.5	PASS
11n(HT20)	CH157	5785	17.640	0.5	PASS
11n(HT20)	CH161	5825	17.640	0.5	PASS
11n(HT40)	CH151	5755	36.480	0.5	PASS
11n(HT40)	CH159	5795	36.480	0.5	PASS
11ac(HT20)	CH149	5745	17.680	0.5	PASS
11ac(HT20)	CH157	5785	17.640	0.5	PASS
11ac(HT20)	CH165	5825	17.680	0.5	PASS
11ac(HT40)	CH151	5755	36.480	0.5	PASS
11ac(HT40)	CH159	5795	36.480	0.5	PASS
11ac(HT80)	CH155	5755	75.840	0.5	PASS
11ax(HT20)	CH149	5745	18.920	0.5	PASS
11ax(HT20)	CH157	5785	19.040	0.5	PASS
11ax(HT20)	CH165	5825	19.000	0.5	PASS
11ax(HT40)	CH151	5755	37.760	0.5	PASS
11ax(HT40)	CH159	5795	37.760	0.5	PASS
11ax(HT80)	CH155	5755	76.480	0.5	PASS

Test plots as follows:



Band IV (5725 – 5850 MHz)

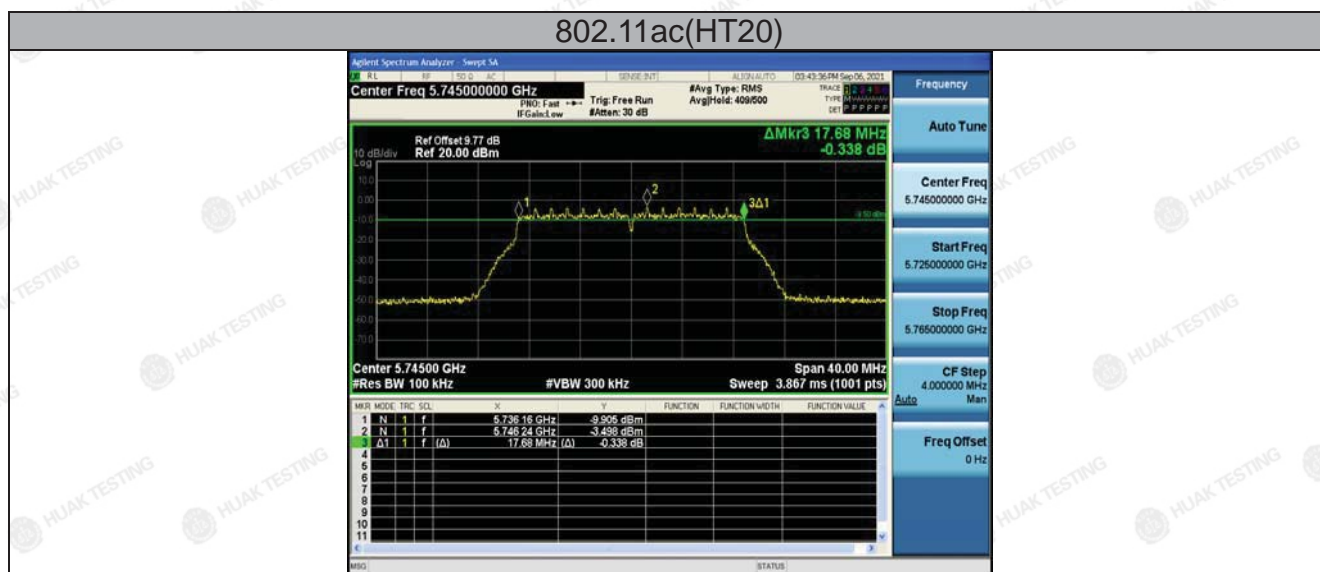


The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

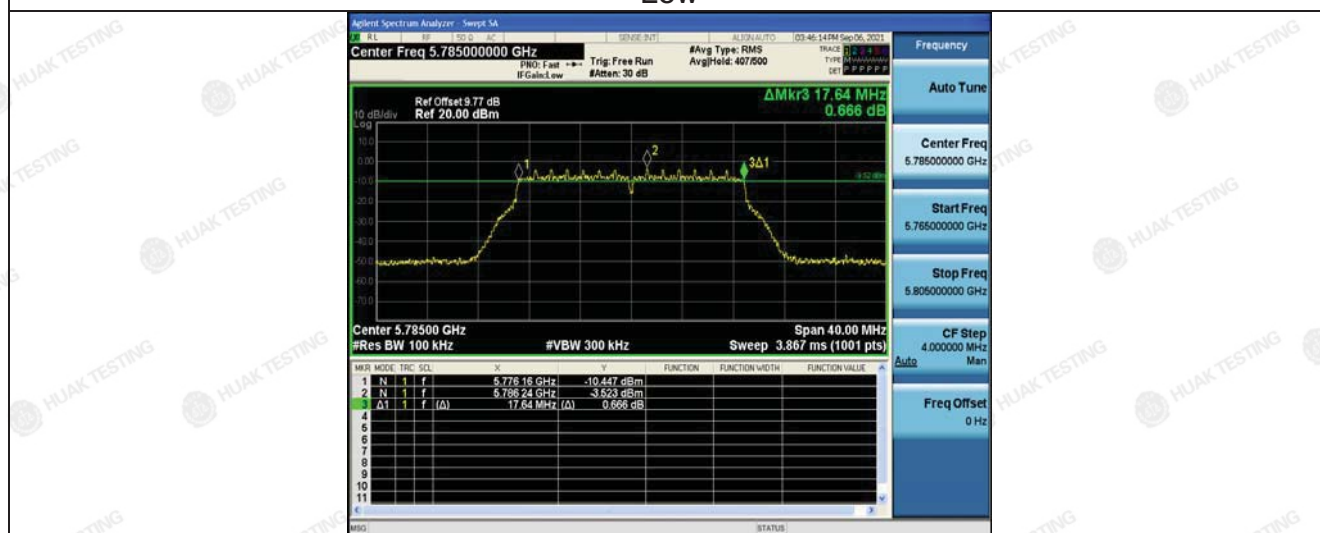


The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.





Low

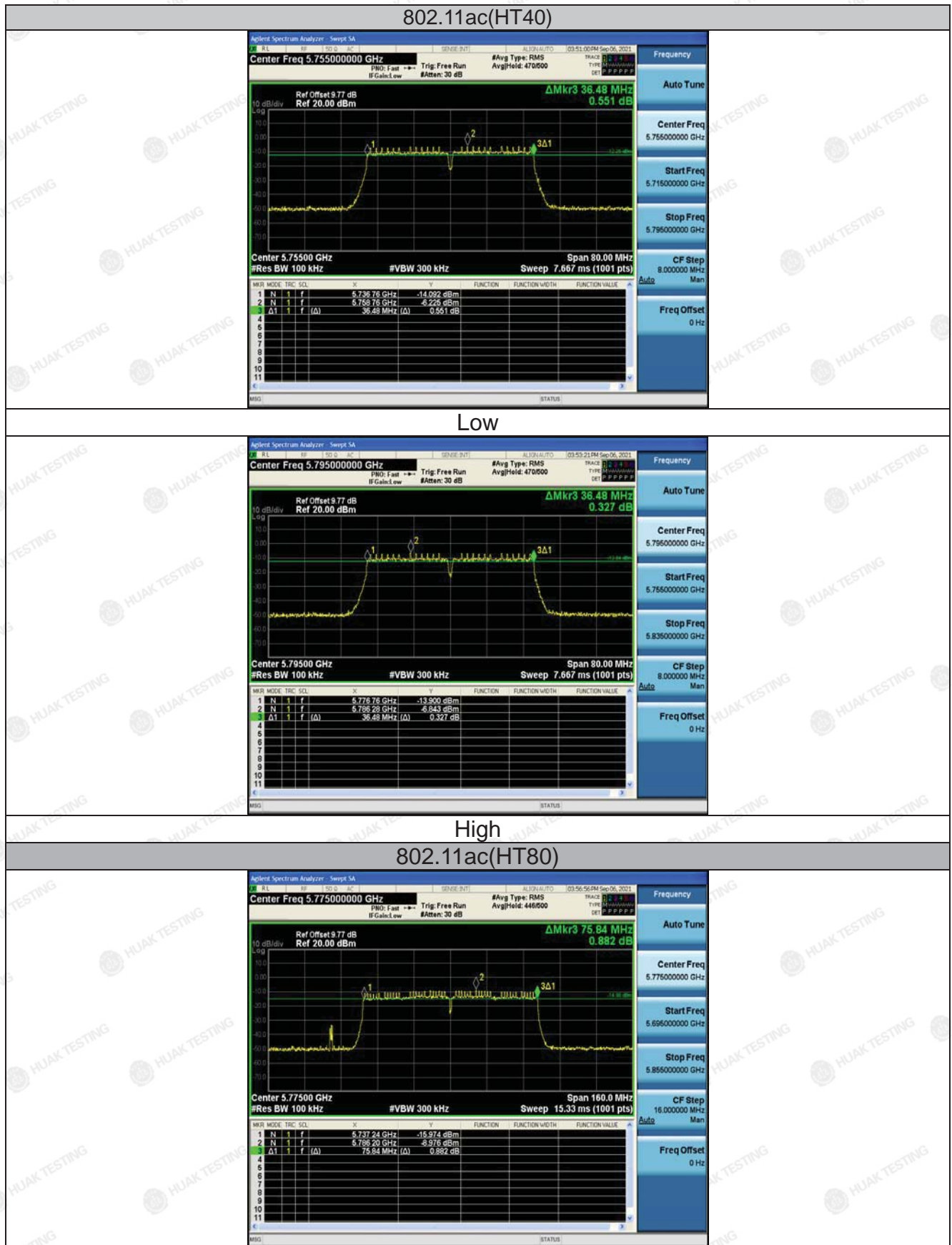


Mid



High

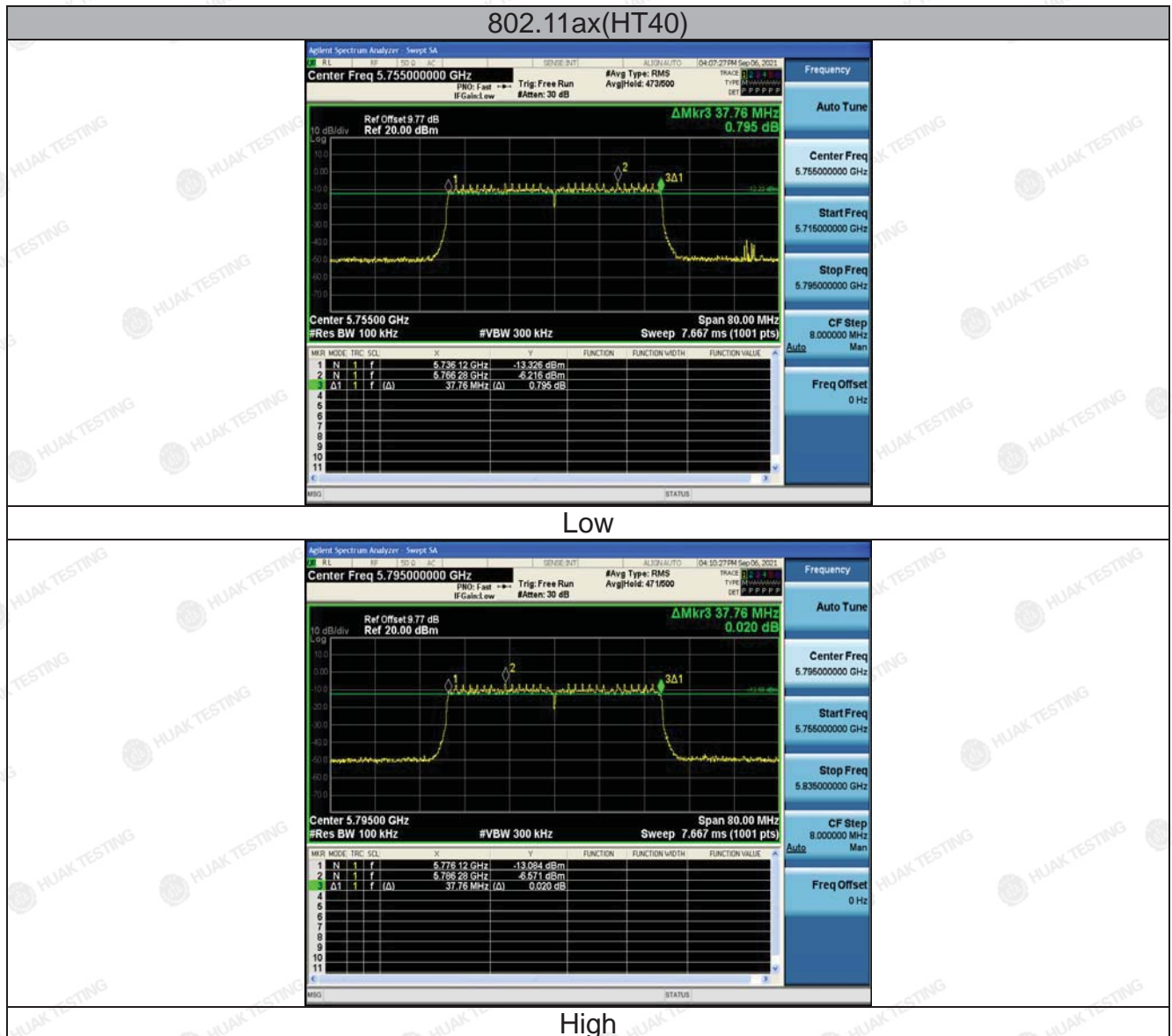
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAQ, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

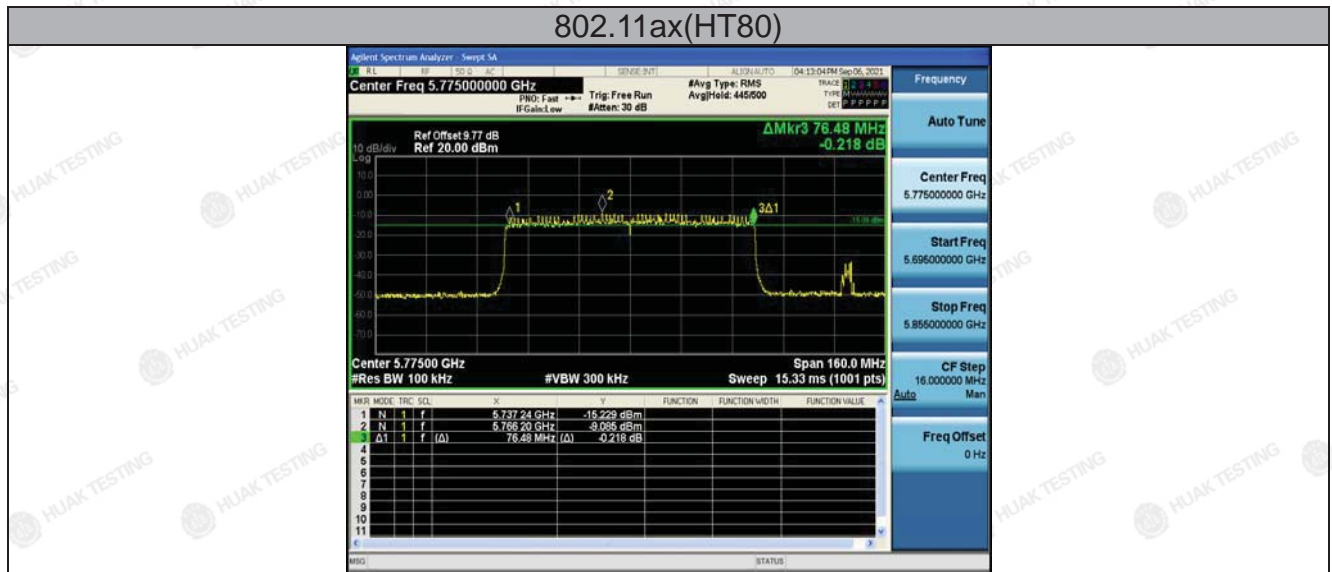


The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.






The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.



4.4. 26dB Bandwidth and 99% Occupied Bandwidth

4.4.1. Test Specification

Test Requirement:	47 CFR Part 15C Section 15.407 (a)
Test Method:	KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C
Limit:	No restriction limits
Test Setup:	 <p style="text-align: center;">Spectrum Analyzer EUT</p>
Test Mode:	Transmitting mode with modulation
Test Procedure:	<ol style="list-style-type: none"> 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:	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	Dec. 10, 2020	Dec. 09, 2021
RF cable	Times	1-40G	HKE-034	Dec. 10, 2020	Dec. 09, 2021
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 10, 2020	Dec. 09, 2021

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



4.4.3. Test Result

N/A