

FCC Test Report

**Test Report
On Behalf of
Hangzhou Tanlink Technology Co.,Ltd.
For
Dash Cam**

**Model No.: ZoomPix1, ZoomPix1 Plus, ZoomPix1 Pro,
ZoomPix1 Lite, ZoomPix1 Max, F9-N, F9 Lite-N, F7NP-N,
F7NP-128G, F7N-N, F11-N, A3-N, G900PRO-N,
G900 TriPro bumper-N, G900 TriPro cabin-N, G840H-N,
G840S-64G, 107-64G, F7NP-EX**

FCC ID: 2BBBN-ZOOMPIX1

Prepared For: Hangzhou Tanlink Technology Co.,Ltd.
Room 701, South Building, Building 3, No.16 Longtan Road, Cangqian Street,
Yuhang District, Hangzhou, Zhejiang, 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: Dec. 03, 2025 ~ Dec. 17, 2025

Date of Report: Dec. 17, 2025

Report Number: HK2512036397-2E

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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

Test Result Certification

Applicant's name: Hangzhou Tanlink Technology Co.,Ltd.
Address: Room 701, South Building, Building 3, No.16 Longtan Road,
Cangqian Street, Yuhang District, Hangzhou, Zhejiang, China

Manufacturer's Name: Hangzhou Tanlink Technology Co.,Ltd.
Address: Room 701, South Building, Building 3, No.16 Longtan Road,
Cangqian Street, Yuhang District, Hangzhou, Zhejiang, China

Product Description

Trade Mark: Redtiger
Product Name: Dash Cam

Model and/or Type Reference : ZoomPix1, ZoomPix1 Plus, ZoomPix1 Pro, ZoomPix1 Lite,
ZoomPix1 Max, F9-N, F9 Lite-N, F7NP-N, F7NP-128G, F7N-N,
F11-N, A3-N, G900PRO-N, G900 TriPro bumper-N,
G900 TriPro cabin-N, G840H-N, G840S-64G, 107-64G, F7NP-EX

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: **Dec. 03, 2025 ~ Dec. 17, 2025**

Date of Issue: **Dec. 17, 2025**

Test Result: **Pass**

Testing Engineer



Len Liao

Technical Manager



Sliver Wan

Authorized Signatory



Jason Zhou



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**** Issued history ****

Revision	Description	Issued Date	Remark
Revision 1.0	Initial Test Report Release	Dec. 17, 2025	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
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 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

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	Dash Cam
Model Name	ZoomPix1
Series Model(s)	ZoomPix1 Plus, ZoomPix1 Pro, ZoomPix1 Lite, ZoomPix1 Max, F9-N, F9 Lite-N, F7NP-N, F7NP-128G, F7N-N, F11-N, A3-N, G900PRO-N, G900 TriPro bumper-N, G900 TriPro cabin-N, G840H-N, G840S-64G, 107-64G, F7NP-EX
Model Difference	All model's the function, software and electric circuit are the same, only with a product model named different. Test sample model: ZoomPix1.
Trade Mark	Redtiger
FCC ID	2BBBN-ZOOMPIX1
Operation Frequency:	IEEE 802.11a/n/ac (HT20) 5.180GHz-5.240GHz IEEE 802.11n/ac (HT40) 5.190GHz-5.230GHz
Modulation Technology:	IEEE 802.11a/n/ac
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Antenna Type	FPC Antenna
Antenna Gain	3.17dBi
Power Source	DC5V From Car Charger or DC5V From Type-C
Power Supply:	DC5V From Car Charger or DC5V From Type-C
Hardware Version	ZP1_NT98529_MAIN_V02
Software Version	ZP1_V1.0.21_20251126
Note: 1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2. Antenna gain Refer to the antenna specifications. 3. The cable loss data is obtained from the supplier. 4. The test results in the report only apply to the tested sample.	

2.2. Operation Frequency Each of Channel

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

Note:

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

2.3. Operation of EUT during Testing

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

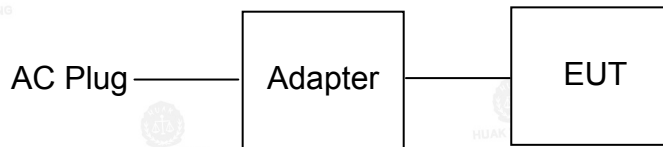
Band I (5150 - 5250 MHz)		
Channel Number	Channel	Frequency (MHz)
36	Low	5180
40	Mid	5200
48	High	5240

For 802.11n (HT40)/ac(HT40)

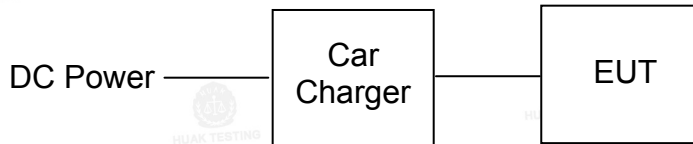
Band I (5150 - 5250 MHz)		
Channel Number	Channel	Frequency (MHz)
38	Low	5190
46	High	5230

2.4. Description of Test Setup

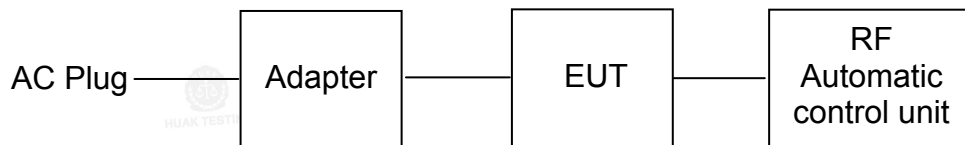
Operation of EUT during AC Conducted testing:



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 emissions worst-case are shown in Test Results of the following pages. 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	Dash Cam	Redtiger	ZoomPix1	N/A	EUT
2	Car Charger	N/A	N/A	Input: DC12-24V Output: DC5V/2.5A USB: DC5V/2.0A	Accessory
3	Adapter	N/A	CD289	Input: AC100-240V, 50/60Hz, 2A Max USB-C1 Output: DC5V/3A, 9V3A, 12V/3A, 15V/3A, 20V/5A, 28V/5A 140W MAX USB-C2 Output: DC5V/3A, 9V/3A, 12V/3A, 15V/3A, 20V/5A 100W MAX USB-A Output: DC5V/4.5A, 4.5V/5A, 5V/3A, 9V/2A, 12V/1.5A 22.5W MAX Total Output: 140W Max	Peripheral

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

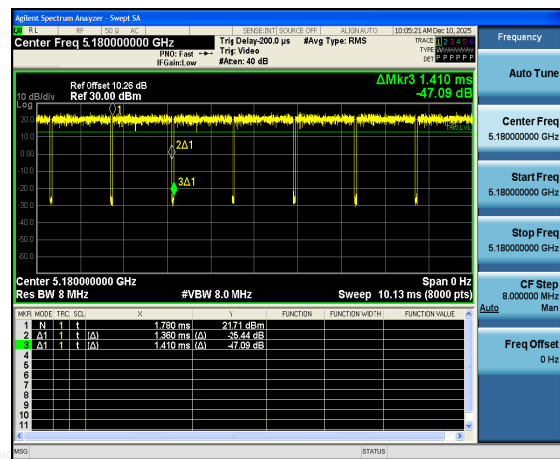
Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations
We have verified the construction and function in typical operation. All the test modes were carried out 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)	MCS0
Final Test Mode:	
Operation mode:	Keep the EUT in continuous transmitting with modulation

Mode Test Duty Cycle:

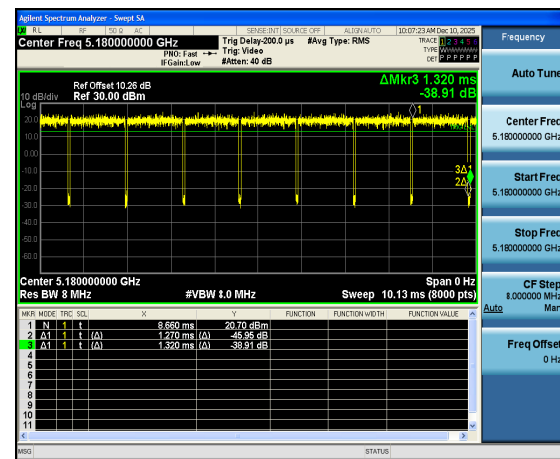
Mode	Duty Cycle
802.11a	0.9645
802.11n(HT20)	0.9621
802.11n(HT40)	0.9130
802.11ac(HT20)	0.9549
802.11ac(HT40)	0.9275

Test plots as follows:

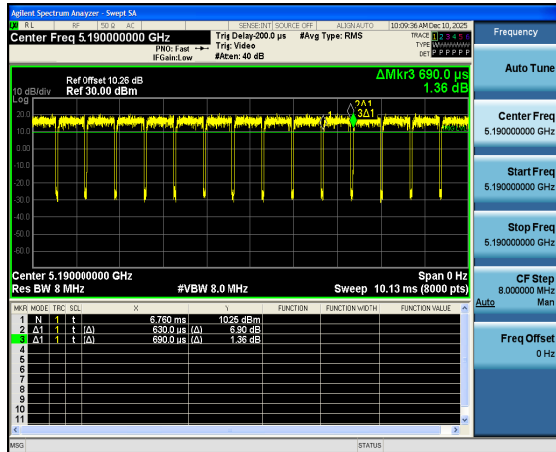
802.11a



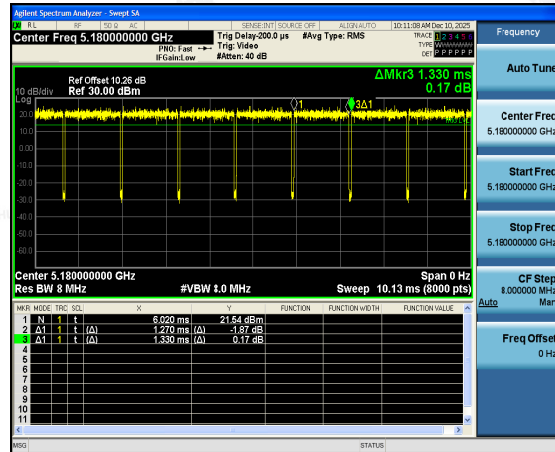
802.11n(HT20)



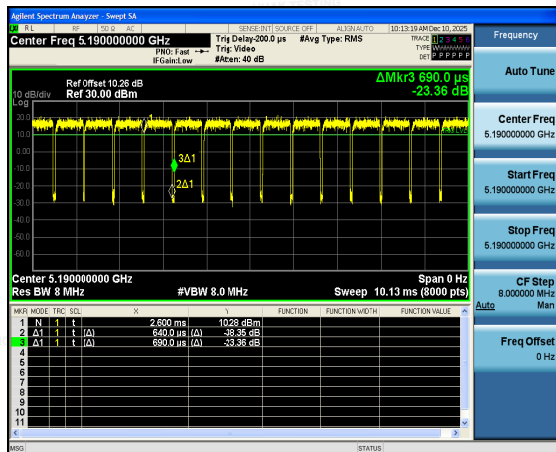
802.11n(HT40)



802.11ac(HT20)



802.11ac(HT40)



4. Test Results and Measurement Data

4.1. AC Power Line 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

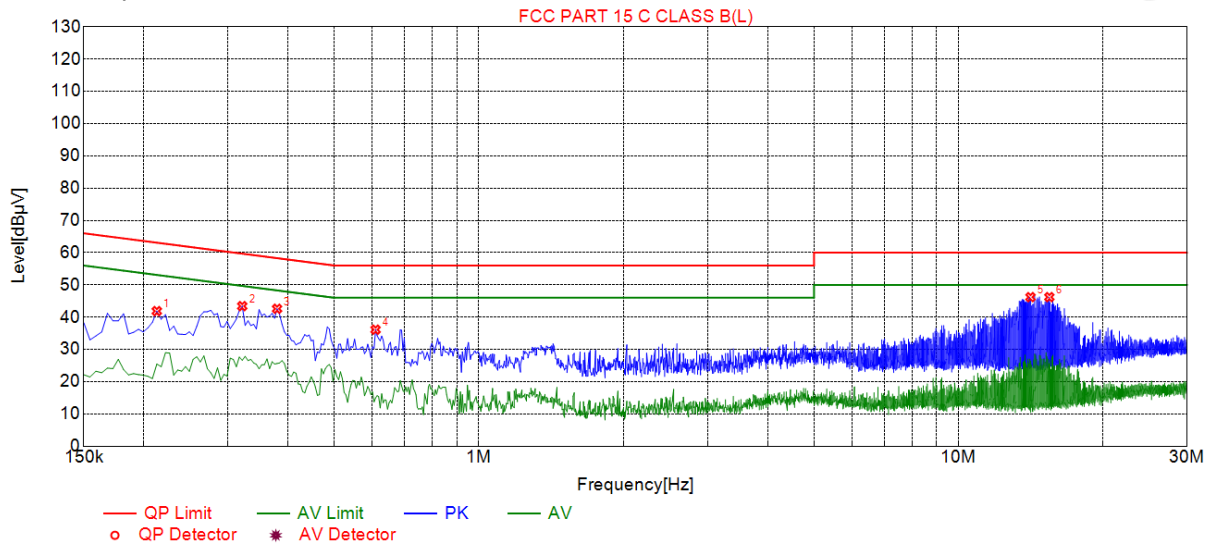
Conducted Emission Shielding Room Test Site (843)					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Receiver	R&S	ESR	HKE-005	Feb. 19, 2025	Feb. 18, 2026
LISN	R&S	ENV216	HKE-002	Feb. 19, 2025	Feb. 18, 2026
LISN	R&S	ENV216	HKE-059	Feb. 19, 2025	Feb. 18, 2026
Coax cable (9KHz-30MHz)	Times	381806-002	N/A	Feb. 19, 2025	Feb. 18, 2026
EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	N/A	N/A
10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	Feb. 19, 2025	Feb. 18, 2026

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

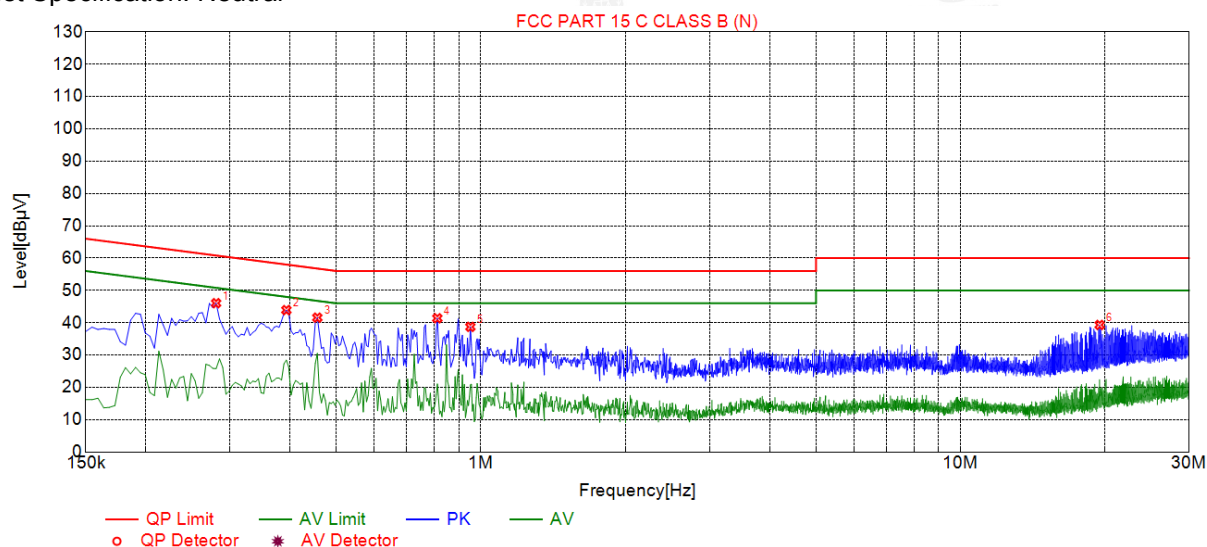
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.2130	41.87	19.85	63.09	21.22	22.02	PK	L
2	0.3210	43.42	19.85	59.68	16.26	23.57	PK	L
3	0.3795	42.60	19.85	58.29	15.69	22.75	PK	L
4	0.6090	36.12	19.74	56.00	19.88	16.38	PK	L
5	14.1405	46.21	21.72	60.00	13.79	24.49	PK	L
6	15.4815	46.22	21.96	60.00	13.78	24.26	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	0.2805	46.05	19.67	60.80	14.75	26.38	PK	N
2	0.3930	43.91	19.70	58.00	14.09	24.21	PK	N
3	0.4560	41.57	19.73	56.77	15.20	21.84	PK	N
4	0.8115	41.38	19.76	56.00	14.62	21.62	PK	N
5	0.9510	38.71	19.76	56.00	17.29	18.95	PK	N
6	19.5225	39.31	22.97	60.00	20.69	16.34	PK	N

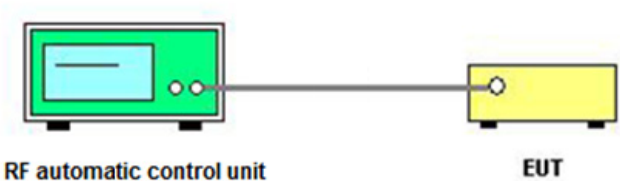
Remark: Margin = Limit – Level

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 for client devices
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 $+10\log(1/x)$ X is duty cycle=1, so $10\log(1/1)=0$ 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-025	Feb. 19, 2025	Feb. 18, 2026
Spectrum analyzer	Agilent	N9020A	HKE-117	Feb. 19, 2025	Feb. 18, 2026
Power meter	Agilent	E4419B	HKE-085	Feb. 19, 2025	Feb. 18, 2026
Power Sensor	Agilent	E9300A	HKE-086	Feb. 19, 2025	Feb. 18, 2026
RF cable	Times	1-40G	HKE-034	Feb. 19, 2025	Feb. 18, 2026
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 19, 2025	Feb. 18, 2026
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	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).

4.2.3. Test Data

Configuration Band I (5150 - 5250 MHz)				
Mode	Test Channel	Maximum Conducted Output Power (dBm)	FCC Limit (dBm)	Result
802.11a	CH36	7.38	24	PASS
802.11a	CH40	6.84	24	PASS
802.11a	CH48	6.93	24	PASS
802.11n(HT20)	CH36	6.92	24	PASS
802.11n(HT20)	CH40	6.79	24	PASS
802.11n(HT20)	CH48	6.82	24	PASS
802.11n(HT40)	CH38	7.20	24	PASS
802.11n(HT40)	CH46	6.91	24	PASS
802.11ac(HT20)	CH36	6.80	24	PASS
802.11ac(HT20)	CH40	6.79	24	PASS
802.11ac(HT20)	CH48	7.82	24	PASS
802.11ac(HT40)	CH38	6.96	24	PASS
802.11ac(HT40)	CH46	6.79	24	PASS
Note: 1.The test results including the cable lose.				

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:	 The diagram illustrates the test setup. On the left is a green box labeled 'Spectrum Analyzer'. A black cable connects it to a yellow box on the right labeled 'EUT' (Equipment Under Test).
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Make the measurement with the spectrum analyzer's resolution bandwidth $RBW = 1\% EBW$, $VBW \geq 3RBW$, 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. 19, 2025	Feb. 18, 2026
Spectrum analyzer	Agilent	N9020A	HKE-117	Feb. 19, 2025	Feb. 18, 2026
RF cable	Times	1-40G	HKE-034	Feb. 19, 2025	Feb. 18, 2026
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 19, 2025	Feb. 18, 2026
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	N/A	N/A

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

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

4.3.3. Test Data

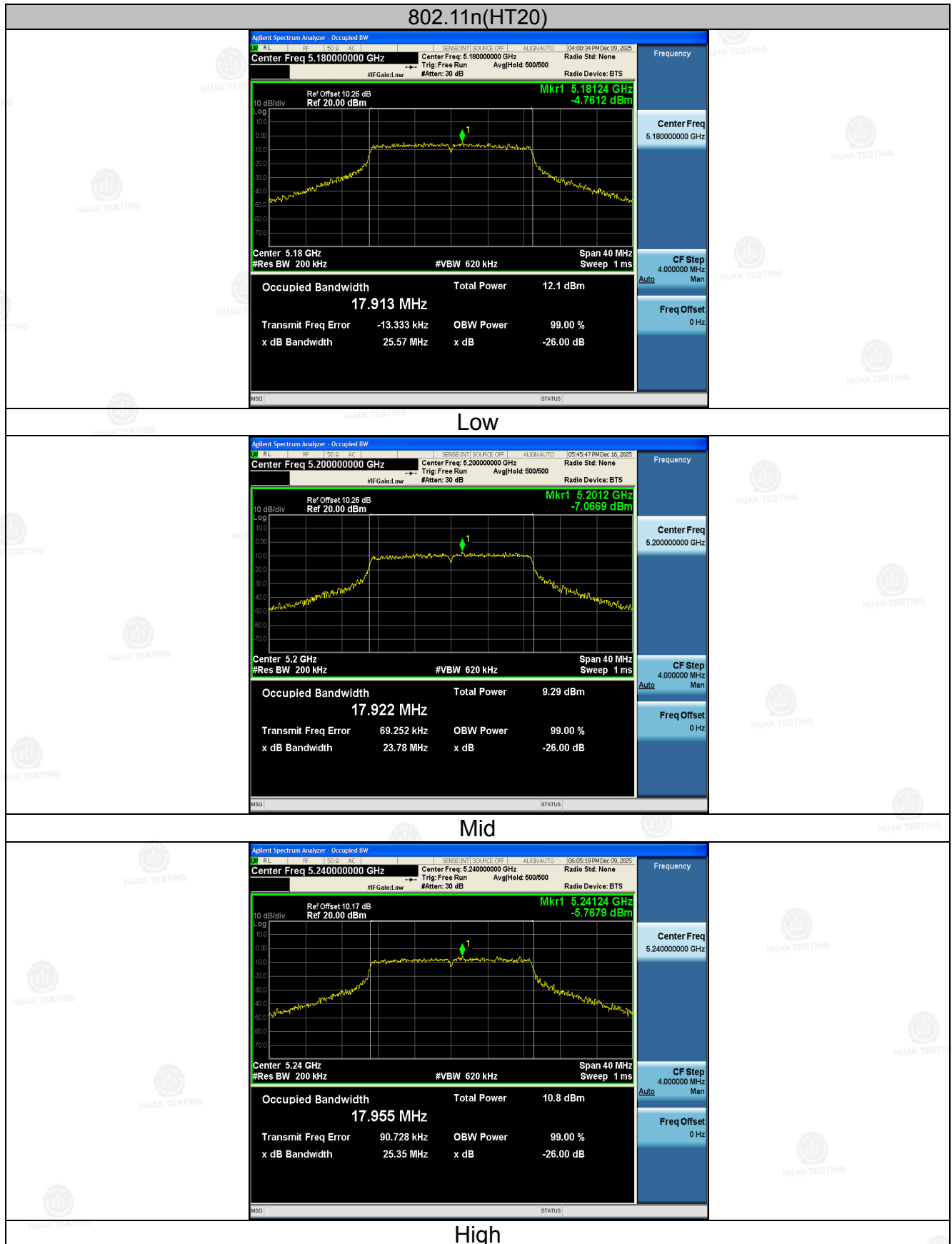
Mode	Test Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	Verdict
802.11a	CH36	5180	23.36	PASS
802.11a	CH40	5200	23.94	PASS
802.11a	CH48	5240	23.08	PASS
802.11n(HT20)	CH36	5180	25.57	PASS
802.11n(HT20)	CH40	5200	23.78	PASS
802.11n(HT20)	CH48	5240	25.35	PASS
802.11n(HT40)	CH38	5190	44.94	PASS
802.11n(HT40)	CH46	5230	44.48	PASS
802.11ac(HT20)	CH36	5180	25.13	PASS
802.11ac(HT20)	CH40	5200	24.66	PASS
802.11ac(HT20)	CH48	5240	24.98	PASS
802.11ac(HT40)	CH38	5190	47.02	PASS
802.11ac(HT40)	CH46	5230	45.56	PASS

Test plots as follows:

Band I (5150 – 5250MHz)



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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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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:	$\leq 11.00\text{dBm/MHz}$ 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 $\geq 3 \times$ 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

4.4.2. Test Instruments

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 19, 2025	Feb. 18, 2026
Spectrum analyzer	Agilent	N9020A	HKE-117	Feb. 19, 2025	Feb. 18, 2026
RF cable	Times	1-40G	HKE-034	Feb. 19, 2025	Feb. 18, 2026
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 19, 2025	Feb. 18, 2026
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	N/A	N/A

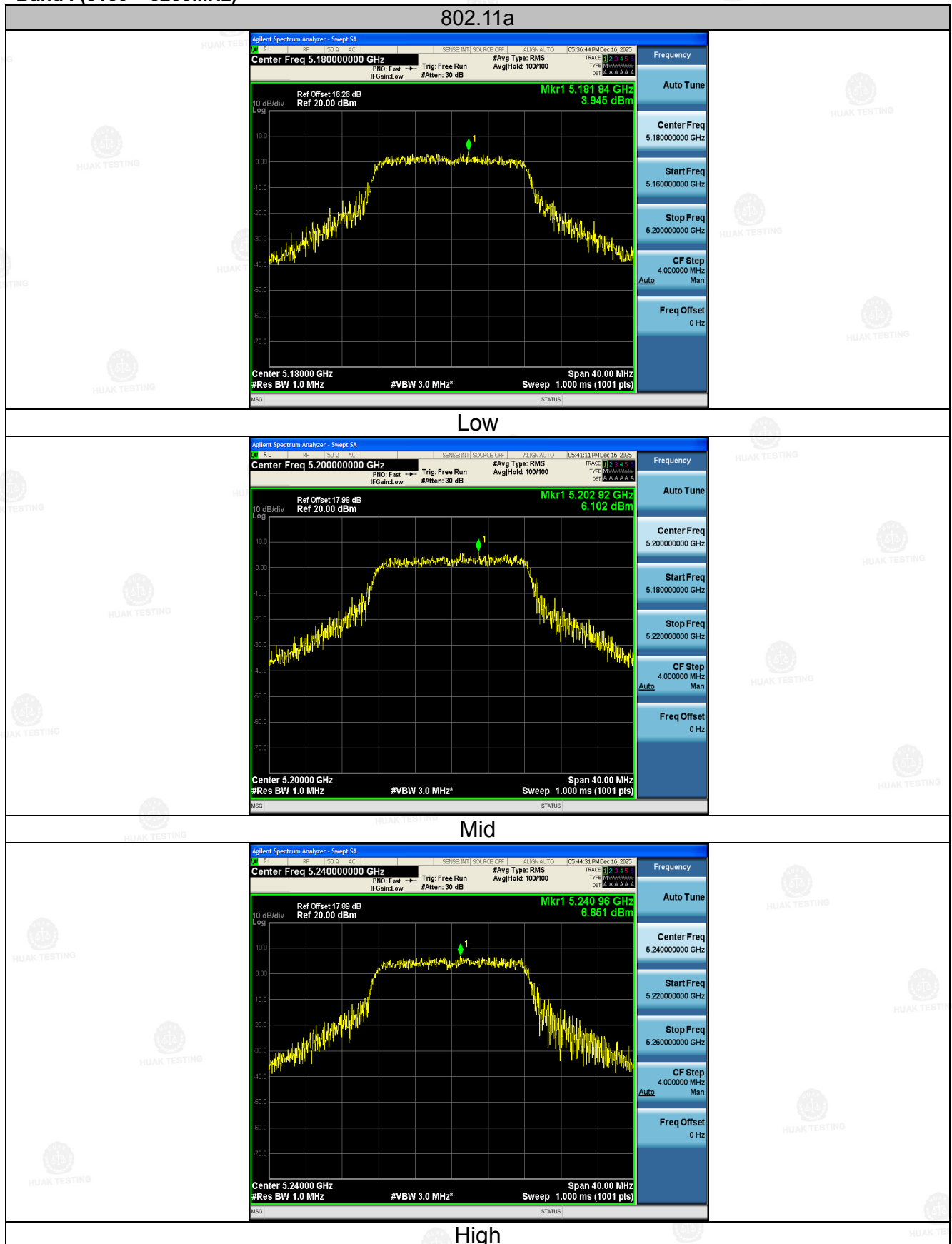
Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

4.4.3. Test Data

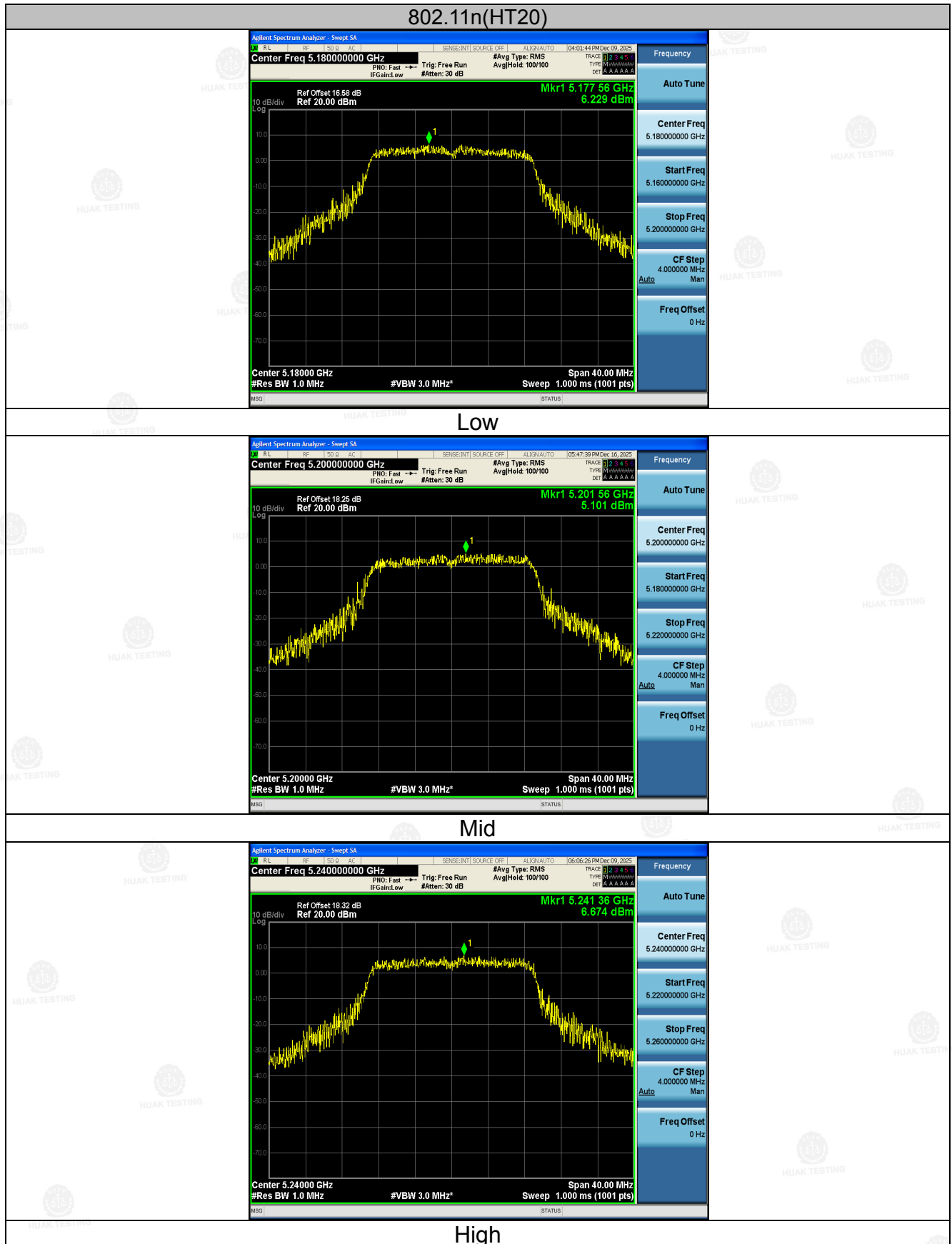
Mode	Test Channel	Level [dBm/MHz]	Limit (dBm/MHz)	Result
802.11a	CH36	3.95	11	PASS
802.11a	CH40	6.10	11	PASS
802.11a	CH48	6.65	11	PASS
802.11n(HT20)	CH36	6.23	11	PASS
802.11n(HT20)	CH40	5.10	11	PASS
802.11n(HT20)	CH48	6.67	11	PASS
802.11n(HT40)	CH38	5.17	11	PASS
802.11n(HT40)	CH46	6.77	11	PASS
802.11ac(HT20)	CH36	3.52	11	PASS
802.11ac(HT20)	CH40	6.40	11	PASS
802.11ac(HT20)	CH48	6.05	11	PASS
802.11ac(HT40)	CH38	4.63	11	PASS
802.11ac(HT40)	CH46	6.48	11	PASS

Note: Instrument attenuation and cable loss See test diagram

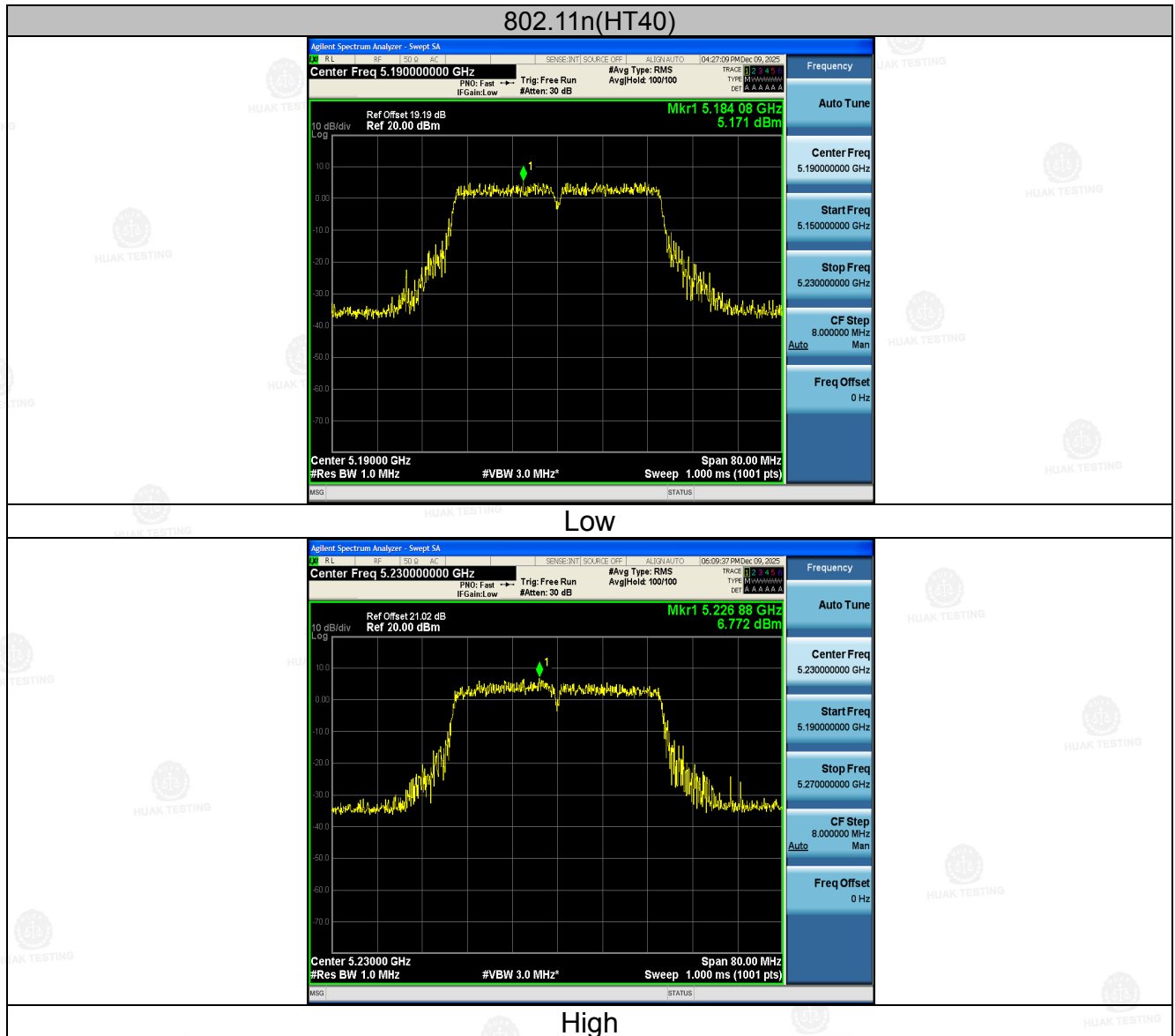
Test plots as follows:
Band I (5150 – 5250MHz)



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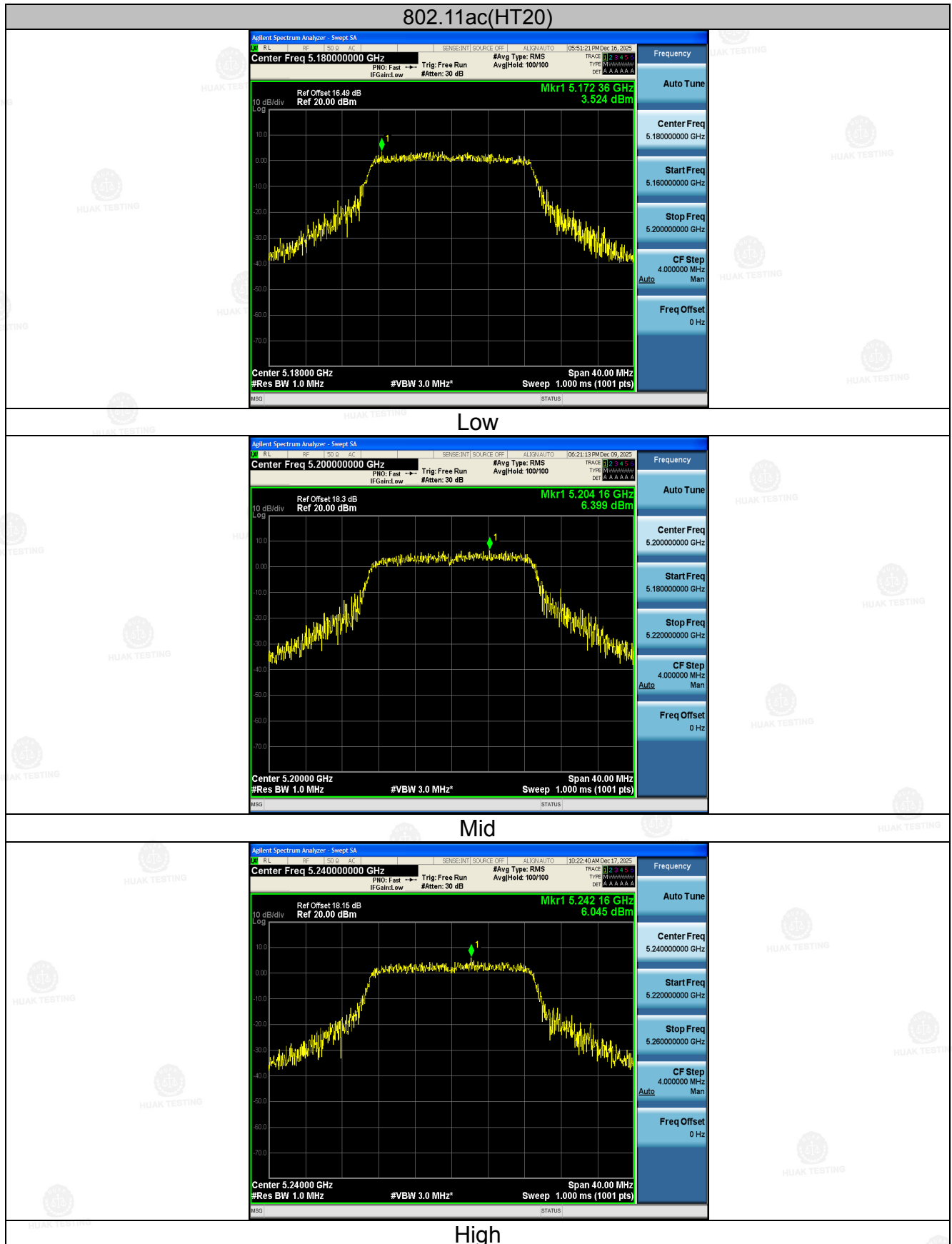


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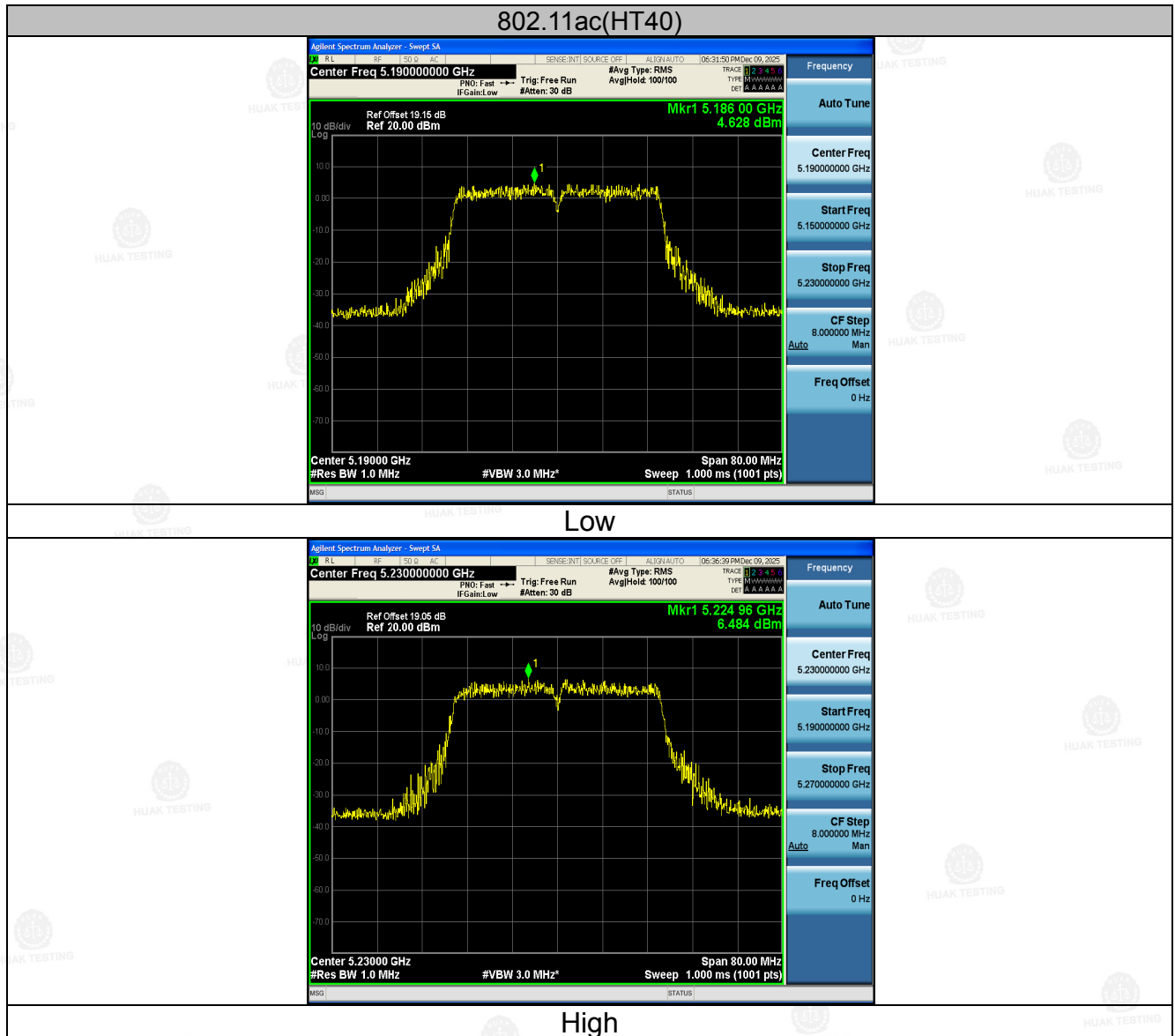


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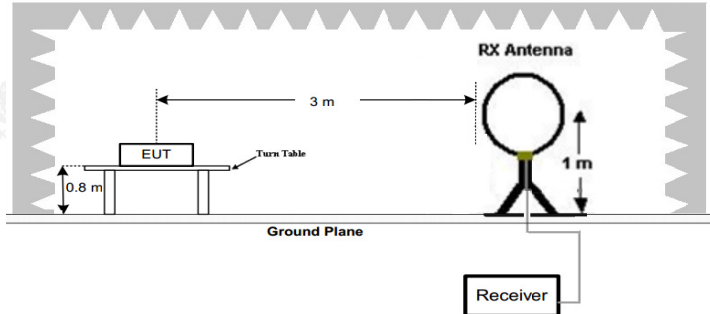
4.5. Spurious Emission

4.5.1. Test Specification

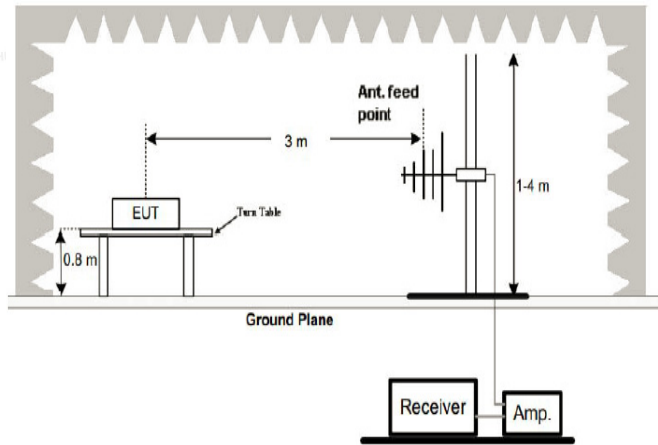
Test Requirement:	FCC CFR47 Part 15 Section 15.407				
Test Method:	KDB 789033 D02 v02r01				
Frequency Range:	9kHz to 40GHz				
Measurement Distance:	3 m				
Antenna Polarization:	Horizontal & Vertical				
Operation mode:	Transmitting mode with modulation				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
Limit:		Peak	1MHz	10Hz	Average Value
	(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. (i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. The limit of frequency below 1GHz and which fall in rest ricted bands should complies 15.209.				

Test Setup:

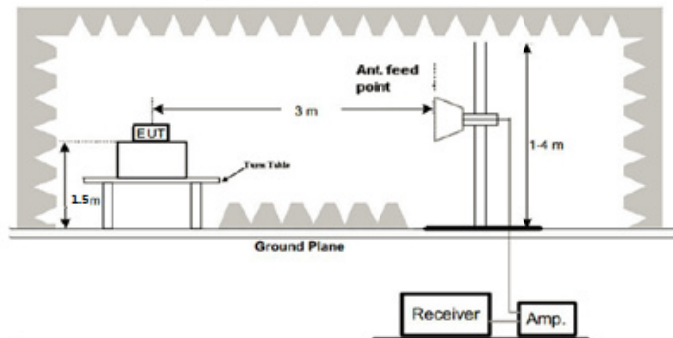
For radiated emissions below 30MHz



30MHz to 1GHz



Above 1GHz



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

4.5.2. Test Instruments

Radiated Emission Test Site (966)

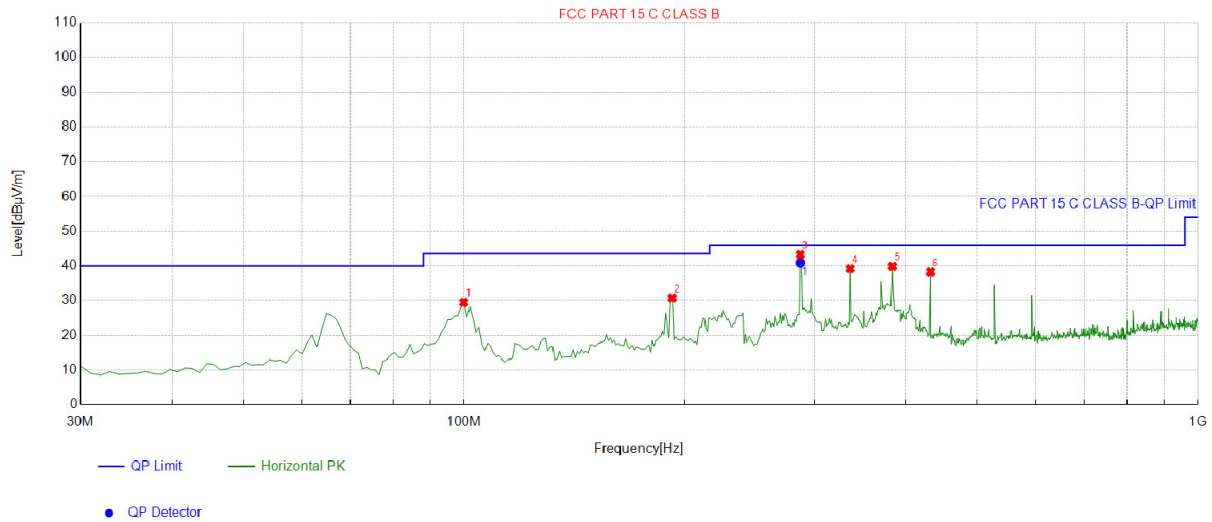
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 19, 2025	Feb. 18, 2026
Spectrum analyzer	Agilent	N9020A	HKE-117	Feb. 19, 2025	Feb. 18, 2026
Spectrum analyzer	R&S	FSV3044	HKE-126	Feb. 19, 2025	Feb. 18, 2026
Preamplifier	EMCI	EMC051845S	HKE-006	Feb. 19, 2025	Feb. 18, 2026
Preamplifier	Schwarzbeck	BBV 9743	HKE-016	Feb. 19, 2025	Feb. 18, 2026
Preamplifier	A.H. Systems	SAS-574	HKE-182	Feb. 19, 2025	Feb. 18, 2026
6dB Attenuator	Pasternack	6db	HKE-184	Feb. 19, 2025	Feb. 18, 2026
EMI Test Receiver	Rohde & Schwarz	ESR-7	HKE-010	Feb. 19, 2025	Feb. 18, 2026
Broadband Antenna	Schwarzbeck	VULB9168	HKE-167	Feb. 21, 2024	Feb. 20, 2026
Loop Antenna	COM-POWER	AL-130R	HKE-014	Feb. 21, 2024	Feb. 20, 2026
Horn Antenna	Schwarzbeck	9120D	HKE-013	Feb. 21, 2024	Feb. 20, 2026
EMI Test Software	Tonscend	JS32-RE 5.0.0	HKE-082	N/A	N/A
RSE Test Software	Tonscend	JS36-RSE 5.0.0	HKE-184	N/A	N/A

4.5.3. Test Data

Below 1GHz Test Results:

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

Antenna polarity: Horizontal

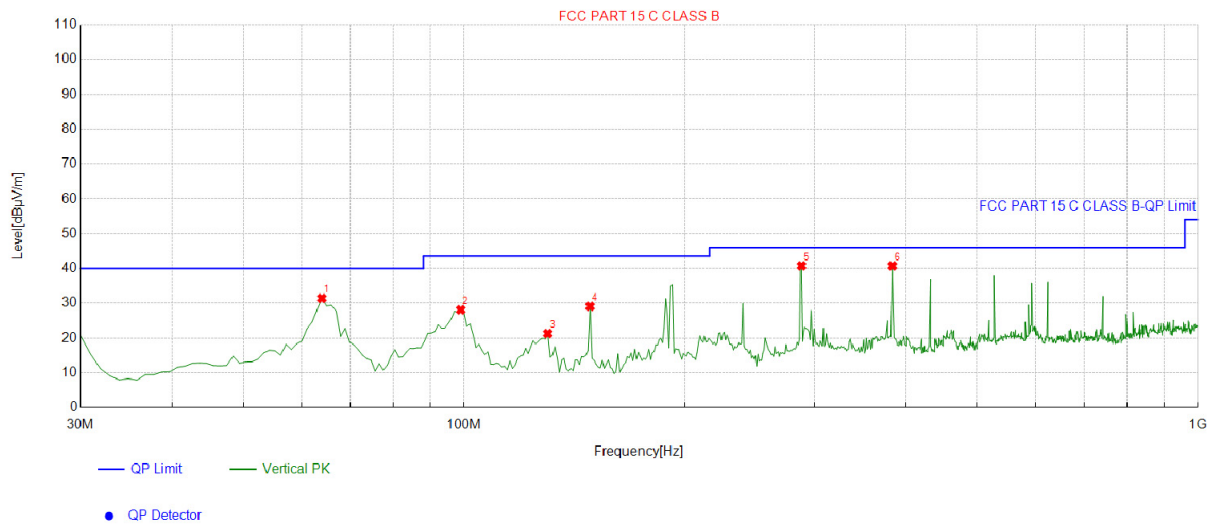


Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	99.9099	-14.70	44.15	29.45	43.50	14.05	100	149	Horizontal
2	192.1522	-15.74	46.50	30.76	43.50	12.74	100	106	Horizontal
3	287.3073	-12.28	55.54	43.26	46.00	2.74	100	131	Horizontal
4	335.8559	-10.57	49.73	39.16	46.00	6.84	100	2	Horizontal
5	383.4334	-9.11	48.95	39.84	46.00	6.16	100	221	Horizontal
6	431.9820	-8.85	47.13	38.28	46.00	7.72	100	232	Horizontal

Final Data List									
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBμV/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	287.307	-12.28	53.2	40.92	46.00	5.08	100	131	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

Antenna polarity: Vertical



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	63.9840	-14.38	45.80	31.42	40.00	8.58	100	106	Vertical
2	98.9389	-14.83	42.94	28.11	43.50	15.39	100	124	Vertical
3	130.0100	-17.24	38.54	21.30	43.50	22.20	100	185	Vertical
4	148.4585	-18.14	47.24	29.10	43.50	14.40	100	268	Vertical
5	288.2783	-12.19	52.93	40.74	46.00	5.26	100	63	Vertical
6	383.4334	-9.11	49.83	40.72	46.00	5.28	100	351	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplicifier; Level = Reading + Factor; Margin = Limit – Level

Harmonics and Spurious Emissions Frequency Range (9kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

Note: 1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor.

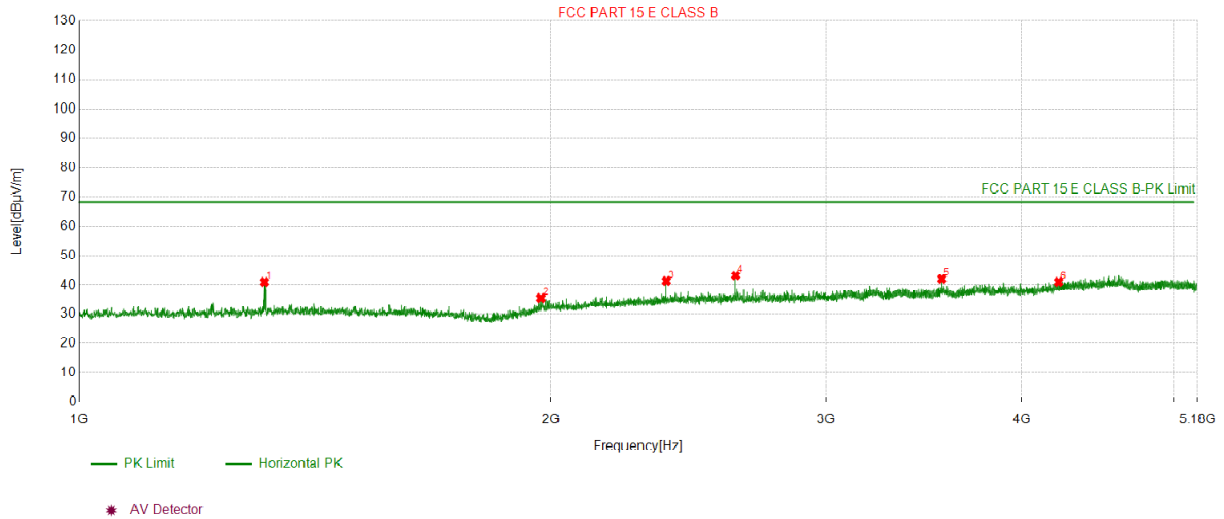
2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement.

Above 1GHz Test Results

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

For 1GHz to 5.18GHz

Antenna polarity: Horizontal

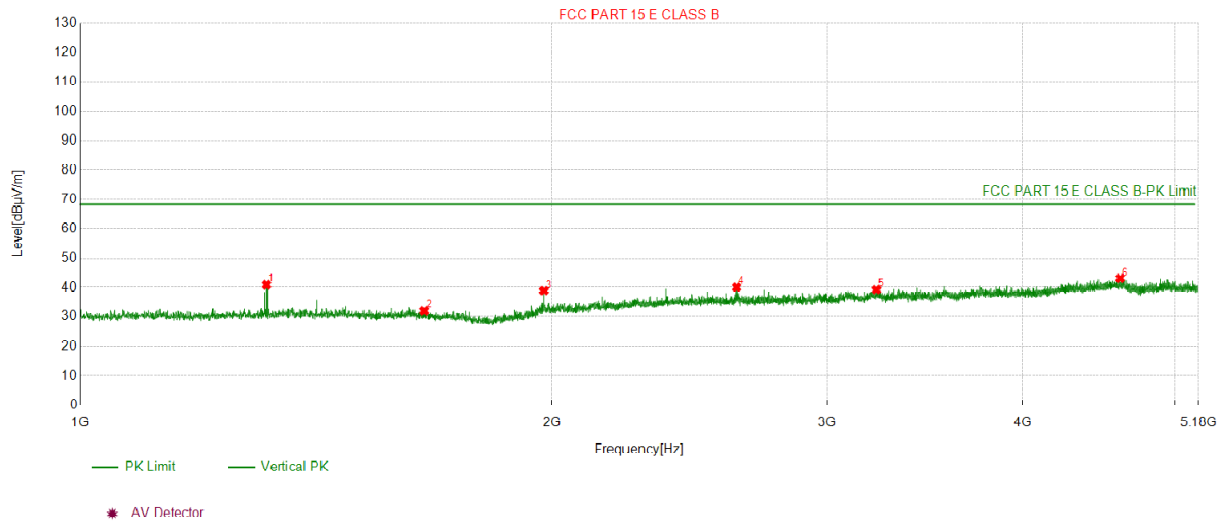


Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1313.113	61.64	40.96	-20.68	68.20	27.24	150	340	Horizontal
2	1971.947	53.95	35.52	-18.43	68.20	32.68	150	290	Horizontal
3	2370.759	57.64	41.31	-16.33	68.20	26.89	150	150	Horizontal
4	2625.764	59.22	43.18	-16.04	68.20	25.02	150	330	Horizontal
5	3555.907	55.73	42.01	-13.72	68.20	26.19	150	200	Horizontal
6	4223.520	51.76	40.99	-10.77	68.20	27.21	150	220	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

Antenna polarity: Vertical

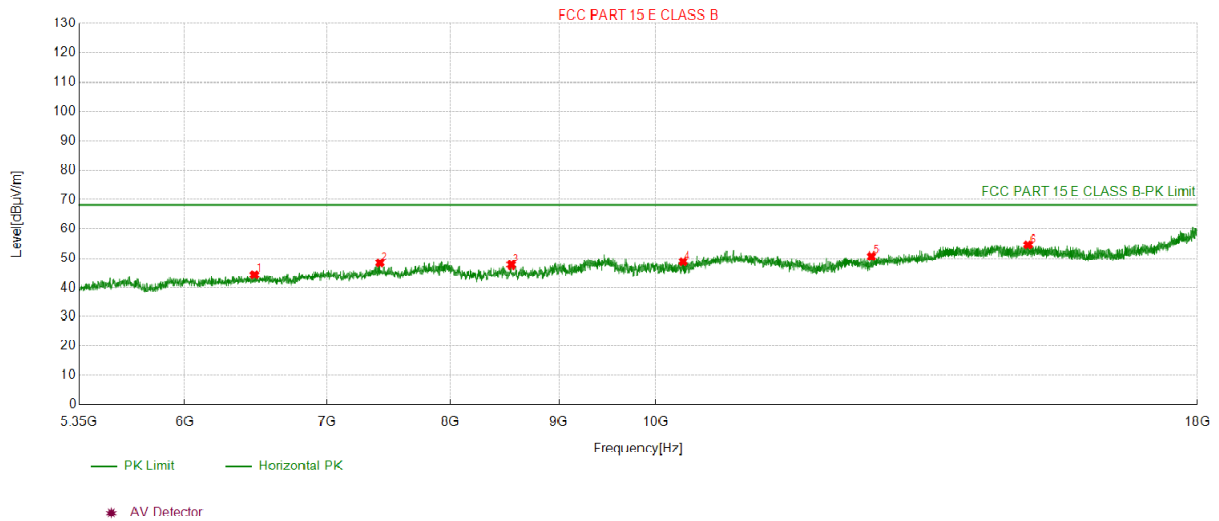


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1315.203	61.52	40.84	-20.68	68.20	27.36	150	300	Vertical
2	1658.415	52.06	31.93	-20.13	68.20	36.27	150	260	Vertical
3	1977.381	57.18	38.78	-18.40	68.20	29.42	150	190	Vertical
4	2625.764	56.07	40.03	-16.04	68.20	28.17	150	190	Vertical
5	3224.818	53.63	39.11	-14.52	68.20	29.09	150	60	Vertical
6	4615.225	52.58	43.05	-9.53	68.20	25.15	150	50	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

For 5.35GHz to 18GHz

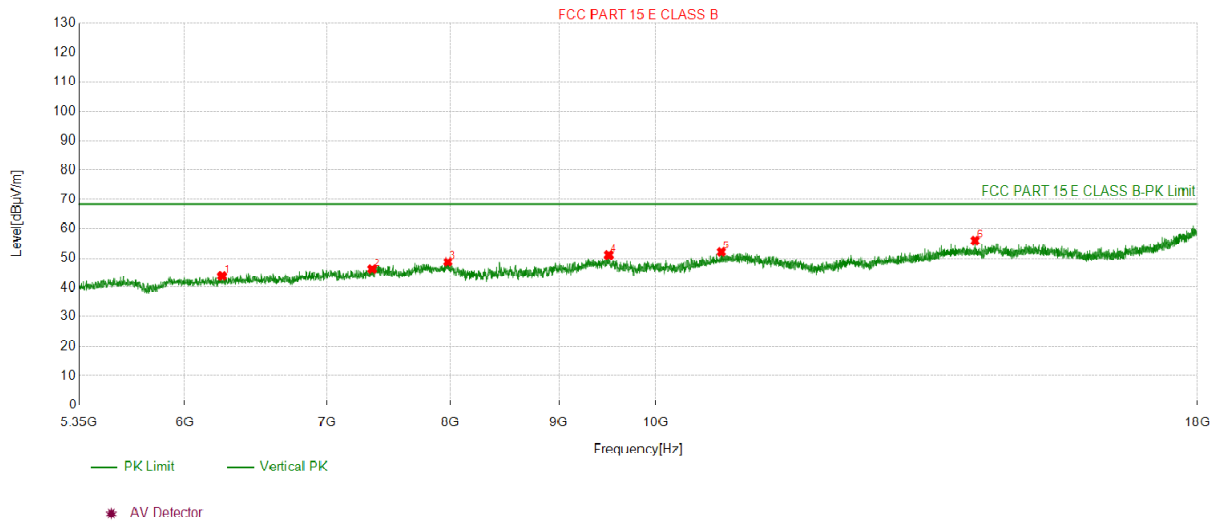
Antenna polarity: Horizontal



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	6469.637	51.30	44.35	-6.95	68.20	23.85	150	270	Horizontal
2	7413.421	52.26	48.35	-3.91	68.20	19.85	150	230	Horizontal
3	8548.239	49.85	47.68	-2.17	68.20	20.52	150	200	Horizontal
4	10299.17	48.73	48.76	0.03	68.20	19.44	150	200	Horizontal
5	12635.86	48.16	50.63	2.47	68.20	17.57	150	200	Horizontal
6	14975.08	48.04	54.49	6.45	68.20	13.71	150	340	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

Antenna polarity: Vertical

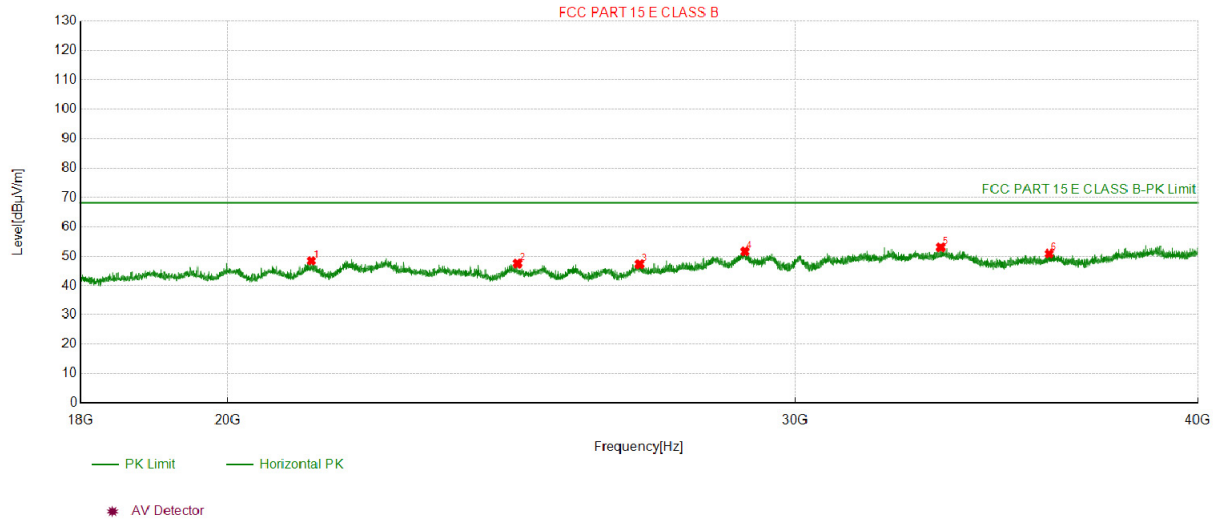


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	6246.974	51.40	43.82	-7.58	68.20	24.38	150	350	Vertical
2	7351.430	50.51	46.14	-4.37	68.20	22.06	150	90	Vertical
3	7980.198	50.76	48.61	-2.15	68.20	19.59	150	240	Vertical
4	9503.410	51.36	50.97	-0.39	68.20	17.23	150	120	Vertical
5	10738.17	51.02	51.97	0.95	68.20	16.23	150	100	Vertical
6	14141.36	49.51	55.82	6.31	68.20	12.38	150	320	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

For 18GHz to 40GHz

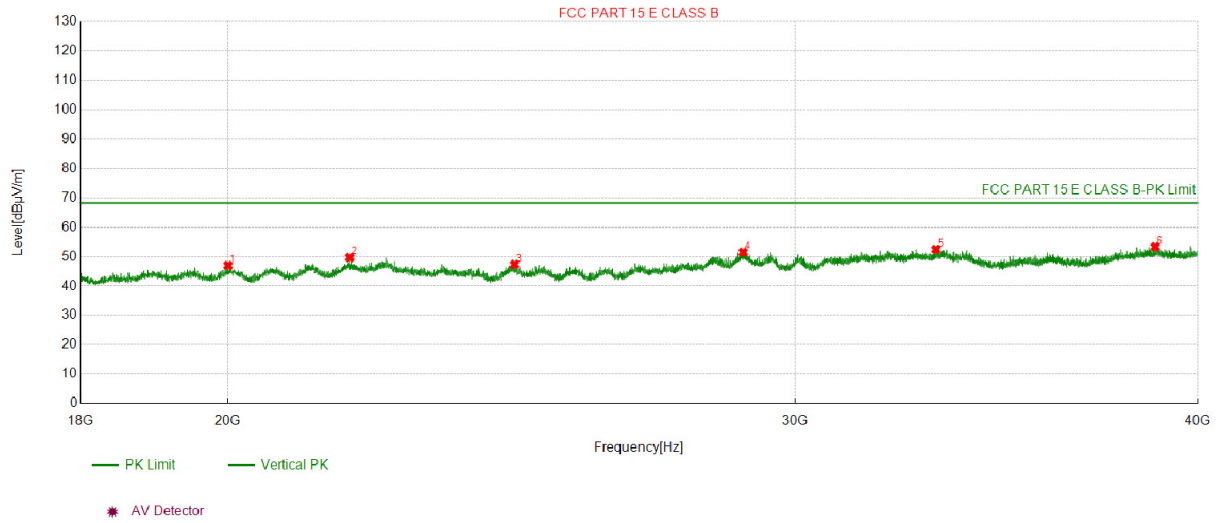
Antenna polarity: Horizontal



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	21232.12	43.08	48.36	5.28	68.20	19.84	150	200	Horizontal
2	24598.45	41.65	47.51	5.86	68.20	20.69	150	210	Horizontal
3	26840.48	39.92	47.27	7.35	68.20	20.93	150	60	Horizontal
4	28937.29	42.61	51.60	8.99	68.20	16.60	150	50	Horizontal
5	33284.92	42.07	53.01	10.94	68.20	15.19	150	140	Horizontal
6	35964.79	41.93	50.85	8.92	68.20	17.35	150	140	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

Antenna polarity: Vertical

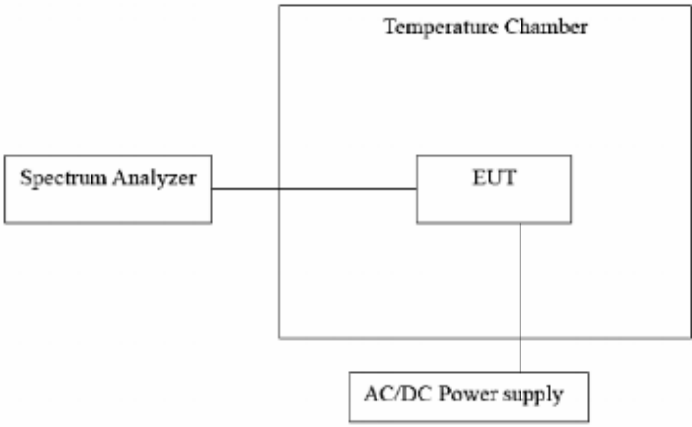


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	20002.20	40.77	46.98	6.21	68.20	21.22	150	270	Vertical
2	21819.58	44.12	49.70	5.58	68.20	18.50	150	160	Vertical
3	24547.85	41.54	47.33	5.79	68.20	20.87	150	290	Vertical
4	28902.09	42.51	51.49	8.98	68.20	16.71	150	330	Vertical
5	33172.71	41.49	52.44	10.95	68.20	15.76	150	0	Vertical
6	38798.67	42.26	53.32	11.06	68.20	14.88	150	220	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

4.6. Frequency Stability Measurement

4.6.1. Test Specification

Test Requirement:	FCC Part15 Section 15.407(g)
Test Method:	ANSI C63.10: 2020
Limit:	The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.
Test Setup:	 <pre> graph LR SA[Spectrum Analyzer] --- EUT[EUT] subgraph TC [Temperature Chamber] EUT end P[AC/DC Power supply] --- EUT </pre>
Test Procedure:	- The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage. - Turn the EUT on and couple its output to a spectrum analyzer. - Turn the EUT off and set the chamber to the highest temperature specified. - Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. - Repeat step 2 and 3 with the temperature chamber set to the lowest temperature. - The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.
Test Result:	PASS
Remark:	N/A

4.6.2. Test Instruments

RF Test Room

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 19, 2025	Feb. 18, 2026
Spectrum analyzer	Agilent	N9020A	HKE-117	Feb. 19, 2025	Feb. 18, 2026
Power meter	Agilent	E4419B	HKE-085	Feb. 19, 2025	Feb. 18, 2026
Power Sensor	Agilent	E9300A	HKE-086	Feb. 19, 2025	Feb. 18, 2026
RF cable	Times	1-40G	HKE-034	Feb. 19, 2025	Feb. 18, 2026
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 19, 2025	Feb. 18, 2026
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	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).

4.6.3. Test Result

Mode	Voltage (V)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
5.2G Band	4.25	5179.977	-23	5239.955	-45
	5.00	5179.991	-9	5239.963	-37
	5.75	5179.984	-16	5239.982	-18

Mode	Temperature (°C)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
5.2G Band	-30	5179.973	-27	5239.975	-25
	-20	5179.981	-19	5239.969	-31
	-10	5180.044	44	5239.989	-11
	0	5179.976	-24	5239.968	-32
	10	5179.982	-18	5239.969	-31
	20	5179.997	-3	5239.993	-7
	30	5179.948	-52	5239.944	-56
	40	5179.97	-30	5239.954	-46
	50	5179.943	-57	5239.967	-33

4.7. Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

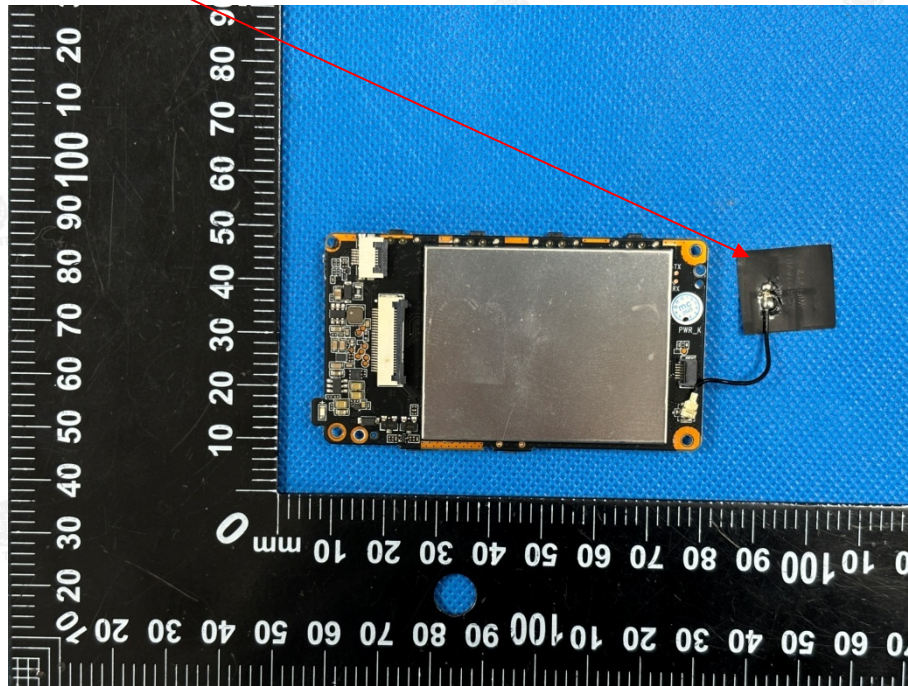
Refer to statement below for compliance.

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

Antenna Connected Construction

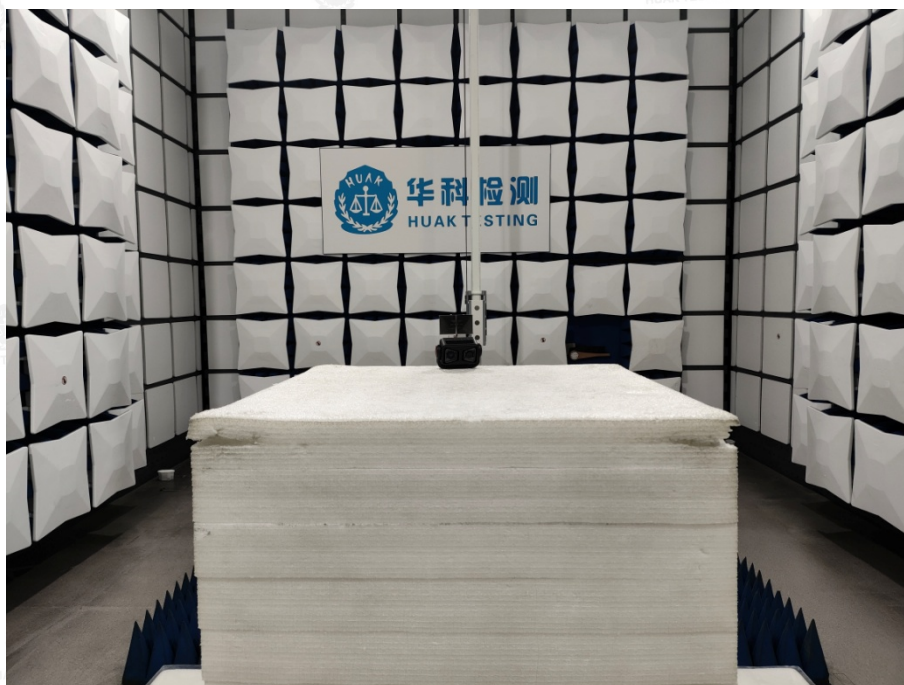
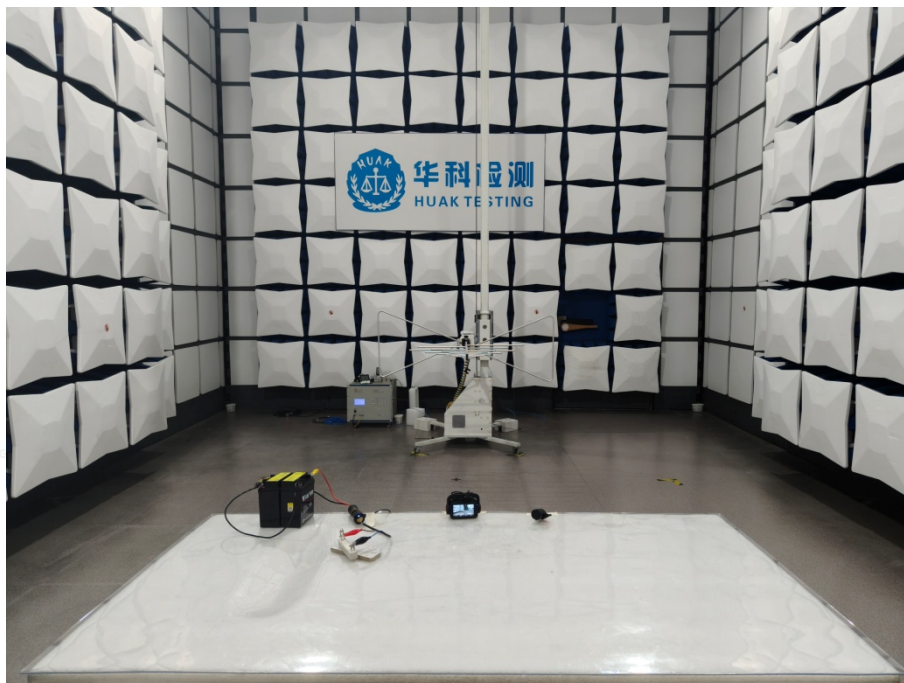
The antenna used in this product is a FPC Antenna, need professional installation, not easy to remove. It conforms to the standard requirements. The directional gains of antenna used for transmitting is 3.17dBi.

WIFI Antenna



5. Test Setup Photos of the EUT

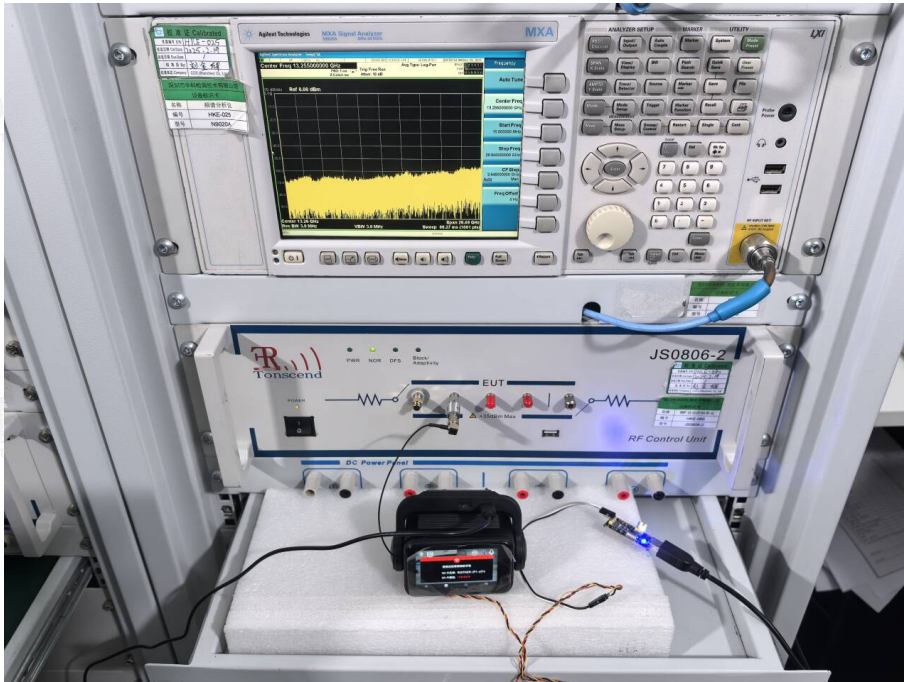
Radiated Emissions



AC Conducted Emission



RF Conducted Emission



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

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

6. Photos of the EUT

Reference to the report: ANNEX A of external photos and ANNEX B of internal photos

-----End of Test Report-----