

# **FCC Test Report**

# Test Report On Behalf of SHENZHEN BOVISION TECHNOLOGY CO.,LTD.

Solar-Powered Wireless Security Camera Kit Model No.: BF-A70, M802, M804, M302, M304, M32, M34, M38, IPC300, IPC300W, FZ700-1, FZ700-2, FZ700-3, FZ700-4, L80, 20HSC002, 20HSC003, 20HSC004, 20HSC005, A70W2, A70W4

FCC ID: 2AVKP-BF-A70

Prepared For: SHENZHEN BOVISION TECHNOLOGY CO.,LTD.

2nd floor, building G, no. 8, shangxue industrial park, bantian street, longgang

district, shenzhen, China

Prepared By: Shenzhen HUAK 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: Jan. 09, 2025 ~ Feb. 18, 2025

Date of Report: Feb. 18, 2025
Report Number: HK2501090211-E



**Test Result Certification** 

Applicant's Name.....: SHENZHEN BOVISION TECHNOLOGY CO.,LTD.

2nd floor, building G, no. 8, shangxue industrial park, bantian Address .....

street, longgang district, shenzhen, China

SHENZHEN BOVISION TECHNOLOGY CO.,LTD. Manufacturer's Name .....

2nd floor, building G, no. 8, shangxue industrial park, bantian Address .....

street, longgang district, shenzhen, China

**Product Description** 

Trade Mark ..... N/A

Product Name...... Solar-Powered Wireless Security Camera Kit

BF-A70, M802, M804, M302, M304, M32, M34, M38, IPC300,

Model and/or Type Reference: IPC300W, FZ700-1, FZ700-2, FZ700-3, FZ700-4, L80,

20HSC002, 20HSC003, 20HSC004, 20HSC005, A70W2, A70W4

Report No.: HK2501090211-E

FCC Rules and Regulations Part 15 Subpart C Section 15.247

Standards ..... ANSI C63.10: 2013

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen HUAK Testing Technology Co., Ltd. is acknowledged as copyright owner and source of the material. Shenzhen HUAK 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 .....: Jan. 09, 2025 ~ Feb. 18, 2025

Date of Issue....: Feb. 18, 2025

Test Result.....

Testing Engineer

Len Liao

Technical Manager

Sliver Wan

Authorized Signatory

Jason Zhou



# **Table of Contents**

1.	Te	est Result Summary	5
	<sub>5</sub> 1.1		5
	1.2	2 Information of the Test Laboratory	5
	1.3		
2.	EU	UT Description	7
	2.1		
	2.2		8
	2.3		8
	2.4	Description of Test Setup	9
3.	Ge	eneral Information	10
	3.1		
	3.2	We We	
4.	Te	est Results and Measurement Data	14
	4.1	Conducted Emission	14
	4.2		
	4.3		18
	4.4	Emission Bandwidth	21
	4.5		26
	4.6	Conducted Band Edge and Spurious Emission Measurement	32
	4.7	Radiated Spurious Emission Measurement	40
	4.8	3 Antenna Requirement	61
5.	Ph	hotographs of Test	62
G	Dh	hotos of the EUT	64





\*\* Modified History \*\*

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Feb. 18, 2025	Jason Zhou
UAN HUAN		HUAN	
			-

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 HUAK, this document cannont 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.

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

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



# 1. Test Result Summary

### 1.1 Test Procedures and Results

-711	-711	_7111"
Requirement	CFR 47 Section	Result
Antenna requirement	§15.203/§15.247(b)(4)	PASS
AC Power Line Conducted Emission	§15.207	PASS
Conducted Peak Output Power	§15.247(b)(3)	PASS
6dB Emission Bandwidth	§15.247(a)(2)	PASS
Power Spectral Density	§15.247(e)	PASS
Band Edge	§15.247(d)	PASS
Spurious Emission	§15.205/§15.209	PASS

#### Note:

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

# 1.2 Information of the Test Laboratory

Shenzhen HUAK Testing Technology Co., Ltd.

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

Testing Laboratory Authorization:

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

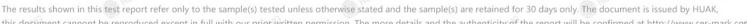
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannont be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.



1.3 Measurement Uncertainty

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %

No.	ltem	MU
1	Conducted Emission	±2.71dB
2	RF Power, Conducted	±0.37dB
3	Spurious Emissions, Conducted	±0.11dB
4	All Emissions, Radiated(<1G)	±3.90dB
5	All Emissions, Radiated(>1G)	±4.28dB
6	Temperature	±0.1°C
TES 7	Humidity	±1.0%





# 2. EUT Description

# 2.1 General Description of EUT

Equipment:	Solar-Powered Wireless Security Camera Kit
Model Name:	BF-A70
Series Model:	M802, M804, M302, M304, M32, M34, M38, IPC300, IPC300W, FZ700-1, FZ700-2, FZ700-3, FZ700-4, L80, 20HSC002, 20HSC003, 20HSC004, 20HSC005, A70W2, A70W4
Model Difference:	All model's the function, software and electric circuit are the same, only with product model named different. Test sample model: BF-A70.
FCC ID:	2AVKP-BF-A70
Antenna Type:	External Antenna
Antenna Gain:	3.81dBi
Operation Frequency:	802.11b/g/n 20:2412~2462 MHz
Number of Channels:	802.11b/g/n20: 11CH
Modulation Type:	DSSS, OFDM
Power Source:	DC5V from Type-C or DC3.6V from battery
Power Rating:	DC5V from Type-C or DC3.6V from battery

#### 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.

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 HUAK, this document cannon 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.



2.2 Carrier Frequency of Channels

	Channel List For 802.11b/802.11g/802.11n (HT20)						
Channol ' ' Channol ' ' Channol ' ' Channol '						Frequency (MHz)	
01	2412	04	2427	07	2442	<sup>AUP 10</sup>	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452	-STING	

#### 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

**Operating Mode** 

The mode is used: Transmitting mode for 802.11b/802.11g/802.11n (HT20)

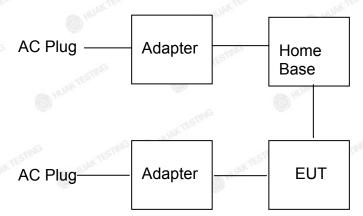
Low Channel: 2412MHz Middle Channel: 2437MHz High Channel: 2462MHz

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 HUAK, this document cannont 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 and below 1GHz Radiation testing:



Operation of EUT during above 1GHz Radiation 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.



# 3. General Information

## 3.1 Test Environment and Mode

perating Environment:			
Temperature:	25.0 °C	HUAKTESII	HUAKT
Humidity:	56 % RH	(i)	9
Atmospheric Pressure:	1010 mbar	AKTESTING	(G
est Mode:		3.55	200-
Engineering Mode:	Keep the EUT by select chann		

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. For the full battery state and The output power to the maximum state.

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 HUAK, this document cannont 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

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
802.11b	1Mbps
802.11g	6Mbps
802.11n(H20)	6.5Mbps

#### **Final Test Mode:**

Operation mode:	Keep the EUT in continuous transmitting
Operation mode.	with modulation

- 1. For WIFI function, the engineering test program was provided and enabled to make EUT continuous transmit/receive.
- 2.According to ANSI C63.10 standards, the test results are both the "worst case" and "worst setup" 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n(H20).

3. Mode Test Duty Cycle

	. 100		
Mode	Duty Cycle	Duty Cycle Factor (dB)	
802.11b	0.955	-0.200	
802.11g	0.955	-0.200	
802.11n(H20)	0.962	-0.168	

Test plots as follows:





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 HUAK, this document cannon 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.



# 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

Item	Equipment	Trade Mark	Model/Type No.	Specification	Remark
1 TESTING	Solar-Powered Wireless Security Camera Kit	N/A	BF-A70	N/A	EUT
2	Home Base	N/A	BF-BS01	N/A	Accessory
3	Adapter	N/A	GBUSA01200100WA	Input: AC100-240V, 50/60Hz, 0.5AMax Output: DC12.0V/1.0A, 12.0W	Accessory
Mak Tr	Adapter	N/A	MDY-10-EH	Input: AC100-240V, 50/60Hz, 0.7A Output: DC5V/3A, 9V/3A, 12V/2.25A, 20V/1.35A	Peripheral
"JAK TEST	WAY TESTIN	"IAKT	STILL	MAKTESTIN	WAK TESTING
	0,	0	(i)	(a)	

#### 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, 6dB 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

## **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	HURKTE			
Frequency Range: 150 kHz to 30 MHz  Receiver Setup: RBW=9 kHz, VBW=30 kHz, Sweep time=auto	ESTING			
Receiver Setup: RBW=9 kHz, VBW=30 kHz, Sweep time=auto	ESTING			
TESTIVE TO THE TIME TO THE TIM				
Frequency range   Limit (dBuV)   Quasi-peak   Average	W.TESTING			
Reference Plane  40cm  E.U.T AC power 80cm  Test table/Insulation plane  Remark  E.U.T Equipment Under Test LISN Line Impedence Stabilization Network Test table height=0.8m	NA TESTI			
Test Mode: Transmitting with modulation	MAKTESTI			
Ine impedance stabilization network (L.I.S.N.). provides a 50ohm/50uH coupling impedance for measuring equipment.  2. The peripheral devices are also connected to the power through a LISN that provides a 50ohm/50 coupling impedance with 50ohm termination. (Forefer to the block diagram of the test setup and photographs).  3. Both sides of A.C. line are checked for maximula conducted interference. In order to find the maximula emission, the relative positions of equipment are the interface cables must be changed according	<ol> <li>The E.U.T is connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.</li> <li>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</li> </ol>			
Test Result: PASS	a)G			

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 HUAK, this document cannon 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.



## **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. 20, 2024	Feb. 19, 2025	
LISN	R&S	ENV216	HKE-002	Feb. 20, 2024	Feb. 19, 2025	
LISN	R&S	ENV216	HKE-059	Feb. 20, 2024	Feb. 19, 2025	
Coax cable (9KHz-30MHz)	Times	381806-002	N/A	Feb. 20, 2024	Feb. 19, 2025	
EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	Feb. 20, 2024	Feb. 19, 2025	
10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	Feb. 20, 2024	Feb. 19, 2025	

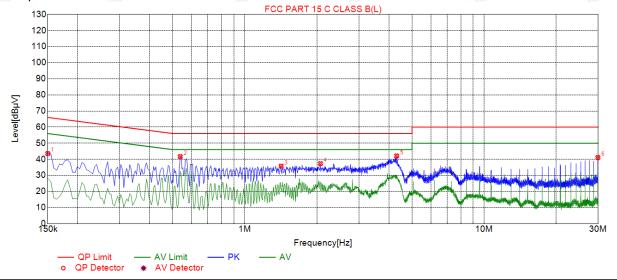
**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

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 HUAK, this document cannon 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.

## 4.2 Test Result

All modes have been tested. Only the worst result was reported as below:





Sus	spected	List

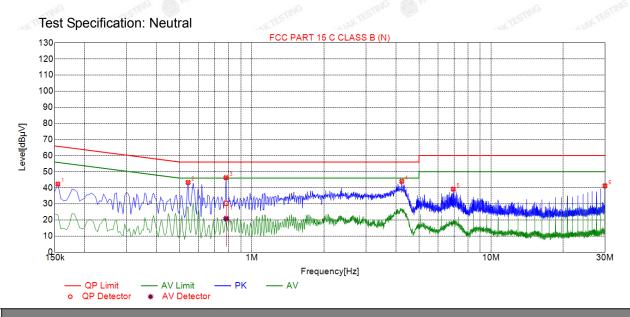
	•							
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Туре
1	0.1500	43.58	19.83	66.00	22.42	23.75	PK	L
2	0.5370	41.69	19.85	56.00	14.31	21.84	PK	L
3	1.4190	35.76	19.92	56.00	20.24	15.84	PK	L
4	2.0715	37.33	19.97	56.00	18.67	17.36	PK	L
5	4.3125	42.10	20.09	56.00	13.90	22.01	PK	L
6	29.9220	41.08	20.26	60.00	18.92	20.82	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor





Sus	Suspected List							
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Туре
1	0.1545	42.31	19.73	65.75	23.44	22.58	PK	N
2	0.5415	43.32	19.74	56.00	12.68	23.58	PK	N
3	0.7800	46.30	19.74	56.00	9.70	26.56	PK	N
4	4.2360	43.99	19.98	56.00	12.01	24.01	PK	N
5	6.9540	39.20	19.97	60.00	20.80	19.23	PK	N
6	29.9355	41.20	20.37	60.00	18.80	20.83	PK	N

3	Final Data List											
	NO.	Freq. [MHz]	Correction factor[dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	QP Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	ΑV Reading [dBμV]	Туре
<	1	0.7800	19.74	30.33	56.00	25.67	10.59	20.83	46.00	25.17	1.09	N

Remark: Margin = Limit - Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

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 HUAK, this document cannont 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.

# 4.3 Maximum Conducted Output Power

# **Test Specification**

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02
Limit:	30dBm
Test Setup:	RF automatic control unit  EUT  HUMATICS THIS
Test Mode:	Transmitting mode with modulation
Test Procedure:	<ol> <li>The testing follows the Measurement Procedure of FCC KDB 558074 D01 15.247 Meas Guidance v05r02.</li> <li>The RF output of EUT was connected to the RF automatic control unit by RF cable and attenuator. The path loss was compensated to the results for each measurement.</li> <li>Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>Measure the Peak output power and record the results in the test report.</li> </ol>
Test Result:	PASS

CATION



## **Test Instruments**

	RF Test Room							
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due			
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 20, 2024	Feb. 19, 2025			
Power meter	Agilent	E4419B	HKE-085	Feb. 20, 2024	Feb. 19, 2025			
Power Sensor	Agilent	E9300A	HKE-086	Feb. 20, 2024	Feb. 19, 2025			
RF cable	Times	1-40G	HKE-034	Feb. 20, 2024	Feb. 19, 2025			
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 20, 2024	Feb. 19, 2025			
RF Test Software	Tonscend	JS1120-3 Version 3.3.23	HKE-083	Feb. 20, 2024	Feb. 19, 2025			

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



## Test Data

3	NG	TX 802.11b Mode	G
Test Channel	Frequency	Maximum Peak Conducted Output Power	LIMIT
	(MHz)	(dBm)	dBm
CH01	2412	16.21 0 HD	30
CH06	2437	16.70	30
CH11	2462	15.95	30
HUARA	6	TX 802.11g Mode	( HUP
CH01	2412	15.40	30
CH06	2437	15.08	30
CH11	2462	16.17	30
6	N.T.	TX 802.11n20 Mode	
CH01	2412	15.99	30
CH06	2437	16.22	30
CH11	2462	17.55	30

Note: The test results including the cable loss.

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 HUAK, this document cannont 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 Emission Bandwidth

# **Test Specification**

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)					
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02					
Limit:	>500kHz					
Test Setup:	Spectrum Analyzer EUT	TING				
Test Mode:	Transmitting mode with modulation					
Test Procedure:	<ol> <li>The testing follows FCC KDB Publication 558074 D01 15.247 Meas Guidance v05r02.</li> <li>Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz.</li> <li>Measure and record the results in the test report.</li> </ol>					
Test Result:	PASS					

## **Test Instruments**

	RF Test Room							
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due			
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 20, 2024	Feb. 19, 2025			
RF cable	Times	1-40G	HKE-034	Feb. 20, 2024	Feb. 19, 2025			
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 20, 2024	Feb. 19, 2025			
RF Test Software	Tonscend	JS1120-3 Version 3.3.23	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).

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 HUAK, this document cannont 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.

# Test data

	6dB Emission Bandwidth (MHz)					
Test channel	802.11b	802.11g	802.11n(H20)			
Lowest	8.480	16.320	17.560			
Middle	8.960	16.360	17.560			
Highest	8.520	16.360	17.680			
Limit:		>500kHz	O WA			
Test Result:	MAKTESTING	PASS	100			

Test plots as follows:



#### 802.11b Modulation

#### Lowest channel



#### Middle channel



## Highest channel



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 HUAK, this document cannon 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.

TEICATION.

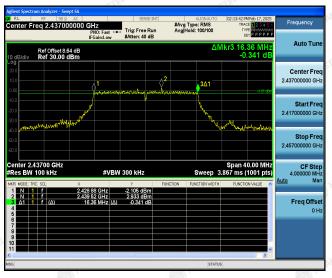


#### 802.11g Modulation

#### Lowest channel



#### Middle channel



### Highest channel



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 HUAK, this document cannon 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.

### 802.11n (HT20) Modulation

#### Lowest channel

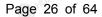


#### Middle channel



## Highest channel







4.5 Power Spectral Density

# **Test Specification**

Test Requirement:	FCC Part15 C Section 15.247 (e)					
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02					
Limit:	The average power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.					
Test Setup:	Spectrum Analyzer EUT					
Test Mode:	Transmitting mode with modulation					
Test Procedure:	<ol> <li>The testing follows Measurement procedure 10.2 method PKPSD of FCC KDB Publication 558074 D01 15.247 Meas Guidance v05r02.</li> <li>The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.</li> <li>Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>Make the measurement with the spectrum analyzer's resolution bandwidth (RBW): 3 kHz ≤ RBW ≤ 100 kHz. Video bandwidth VBW ≥ 3 x RBW. Set the span to at least 1.5 times the OBW.</li> <li>Detector = Peak, Sweep time = auto couple.</li> <li>Employ trace averaging (Peak) mode over a minimum of 100 traces. Use the peak marker function to determine the maximum power level.</li> <li>Measure and record the results in the test report.</li> </ol>					
Test Result:	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 HUAK, this document cannon 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.



## **Test Instruments**

RF Test Room						
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due	
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 20, 2024	Feb. 19, 2025	
RF cable	Times (	1-40G	HKE-034	Feb. 20, 2024	Feb. 19, 2025	
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 20, 2024	Feb. 19, 2025	
RF Test Software	Tonscend	JS1120-3 Version 3.3.23	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).



# Test data

_			_
EUT Set Mode	Channel	Result (dBm/30KHz)	Result (dBm/3kHz)
802.11b	Lowest	2.29	-7.71
	Middle	4.70	-5.30
	Highest	1.35	-8.65
802.11g	Lowest	-1.45	-11.45
	Middle	-1.48	-11.48
	Highest	-1.58	-11.58
802.11n(H20)	Lowest	1.38	-8.62
	Middle	-0.06	-10.06
	Highest	-0.17	-10.17
PSD Test Resu	It (dBm/3kHz)= P	SD Test Result (dBm/30kl	Hz)-10
Limit: 8dBm/3kl	-lz		
Test Result:	TESTIN	PASS	TESTING
4.957	1037	±W3	1537

Test plots as follows:

#### 802.11b Modulation

#### Lowest channel



#### Middle channel

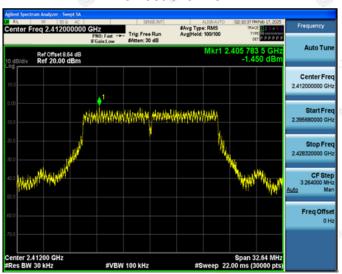


## Highest channel

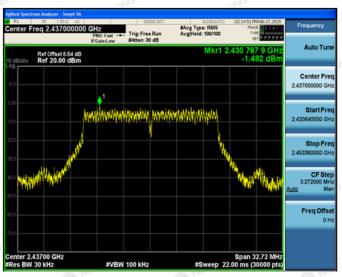


### 802.11g Modulation

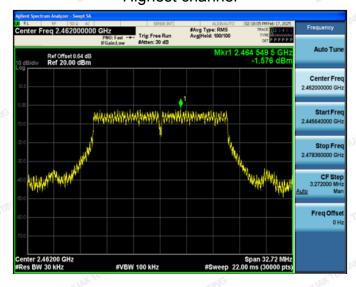
#### Lowest channel



Middle channel



Highest channel



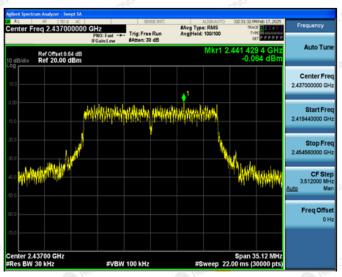


### 802.11n (HT20) Modulation

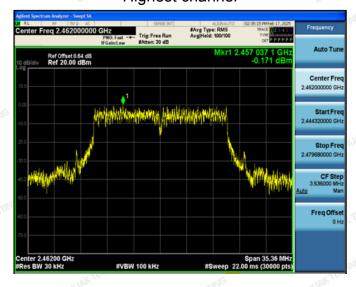
### Lowest channel



Middle channel



Highest channel





# 4.6 Conducted Band Edge and Spurious Emission Measurement

# **Test Specification**

Test Requirement:	FCC Part15 C Section 15.247 (d)		
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02		
Limit:	In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).		
Test Setup:	Spectrum Analyzer EUT		
Test Mode:	Transmitting mode with modulation		
Test Procedure:	<ol> <li>Transmitting mode with modulation</li> <li>The testing follows FCC KDB Publication 558074 D01 15.247 Meas Guidance v05r02.</li> <li>The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.</li> <li>Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).</li> <li>Measure and record the results in the test report.</li> <li>The RF fundamental frequency should be excluded against the limit line in the operating frequency band.</li> </ol>		
Test Result:	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 HUAK, this document cannon 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.