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FCC Test Report

Test report On Behalf of Shenzhen Tianzhishan Technology Co., Ltd. For Wifi Camera Model No.: Q3, Q5, Q6, Q7, Q8, Q9, A3, A4, A5, A6, A7, A8

FCC ID: 2BF2O-Q3

Prepared For : Shenzhen Tianzhishan Technology Co., Ltd. Room 109, Building 1, 1970 Science and Technology Town, Minzhi Street, Longhua District, Shenzhen City, 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:
 Apr. 15, 2024 ~ Apr. 22, 2024

 Date of Report:
 Apr. 22, 2024

 Report Number:
 HK2404151789-E

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Test Result Certification

Applicant's name	Shenzhen Tianzhishan Technology Co., Ltd.			
Address	Room 109, Building 1, 1970 Science and Technology Minzhi Street, Longhua District, Shenzhen City, China			
Manufacturer's Name: Shenzhen Tianzhishan Technology Co., Ltd.				
Address	Room 109, Building 1, 1970 Science and Technology Town, Minzhi Street, Longhua District, Shenzhen City, China			
Product description				
Trade Mark:	N/A			
Product name	Wifi Camera			
Model and/or type reference .:	Q3, Q5, Q6, Q7, Q8, Q9, A3, A4, A5, A6, A7, A8			

Standards FCC Rules and Regulations Part 15 Subpart C Section 15.247 ANSI C63.10: 2013

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Date of lest	
Date (s) of performance of tests	Apr. 15, 2024 ~ Apr. 22, 2024
Date of Issue	Apr. 22, 2024
Test Result:	Pass

Testing Engineer

len lias

(Len Liao)

Technical Manager

Siver Mon

(Sliver Wan)

Authorized Signatory:

ason thou

(Jason Zhou)

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Т 691

** Modified History **

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Apr. 22, 2024	Jason Zhou
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1. Test Result Summary

1.1. Test Procedures and Results

CFR 47 Section	Result
§15.203/§15.247(b)(4)	PASS
§15.207	PASS
§15.247(b)(3)	PASS
§15.247(a)(2)	PASS
§15.247(e)	PASS
§15.247(d)	PASS
§15.205/§15.209	PASS
	§15.203/§15.247(b)(4) §15.207 §15.247(b)(3) §15.247(a)(2) §15.247(e) §15.247(d)

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.

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1.3. Measurement Uncertainty

The reported uncertainty of measurement y \pm 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.	Item	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
5.00	All emissions, radiated(>1G)	±4.28dB
6	Temperature	±0.1°C
7	Humidity	±1.0%
7	Humidity	ť

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2. EUT Description

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2.1. General Description of EUT

Equipment:	Wifi Camera	HUAKTES	HUNKTES
Model Name:	Q3	- MG	
Series Model:	Q5, Q6, Q7, Q8, Q9, A3, A	A4, A5, A6, A7, A8	TESTING
Model Difference:	All model's the function, so same, only with a product Test sample mode: Q3.		
FCC ID:	2BF2O-Q3	O HUM	O HO
Antenna Type:	PCB Antenna	G	1
Antenna Gain:	3dBi	HUAKTESTIN	HUAKTESTI
Operation frequency:	802.11b/g/n (HT20):2412~ 802.11n (HT40): 2422~24		- -
Number of Channels:	802.11b/g/n(HT20): 11CH 802.11n (HT40): 7CH	0,00	HUAKTESTING
Modulation Type:	CCK/OFDM/DBPSK/DAP	SK	
Power Source:	DC 5V From Micro USB	HUAKTESTING	HUAKTESTING
Power Rating:	DC 5V From Micro USB		

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2.2. Carrier Frequency of Channels

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

Channel List For 802.11n (HT40)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
STING	KTESTING C	04	2427	07	2442	TESTIN	NTE
@ ⁺¹²		05 📉	2432	08	2447	HUAN	CO-HOM
03	2422	06	2437	09	2452	e <u></u>	

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 mode is used: Transmitting mode for 802.11n (HT40)

Low Channel: 2422MHz Middle Channel: 2437MHz High Channel: 2452MHz

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2.4. Description of Test Setup

Operation of EUT during testing:

AC Plug Adapter EUT

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.

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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.

NP	ltem	Equipment	Trade Mark	Model/Type No.	Specification	Remark
	1	Wifi Camera	N/A	Q3	N/A	EUT
TI	ິ 2	USB Cable	N/A	N/A	Length:0.81m	Accessory
	3	Adapter	N/A	MDY-10-EH	Input: 100-240V, 50/60Hz, 0.7A Output: 5V, 3A/9V, 3A/12V, 2.25A/20V, 1.35A	Peripheral
	4	Adapter	N/A	N/A	Input: 100-240V, 50/60Hz, 0.5A Output: 5VDC, 2A	Peripheral
8	HOM	O HUAN	O HUN	O HUM	O HUM	HUM

Note:

- All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
 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.

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3. Genera Information

3.1. Test Environment and Mode

Operating E	nvironment:
--------------------	-------------

S	Temperature:	25.0 °C	HUAKTESI	HUAKTES
	Humidity:	56 % RH	©	0
3	Atmospheric Pressure:	1010 mbar	AKTESTING	G

Test Mode:

Engineering mode.	Keep the EUT in continuous transmitting
g g g	by select channel and modulations

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.

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ICATIO,



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(HT20)	6.5Mbps
802.11n(HT40)	13.5Mbps

Final Test Mode:

Operation mode:	Keep the EUT in continuous transmitting with modulation
	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(HT20), 13.5Mbps for 802.11n(HT40).

3. Mode Test Duty Cycle

Mode	Duty Cycle	Duty Cycle Factor (dB)
802.11b	0.89	-0.51
802.11g	0.82	-0.86
802.11n(HT20)	0.81	-0.92
802.11n(HT40)	0.81	-0.92

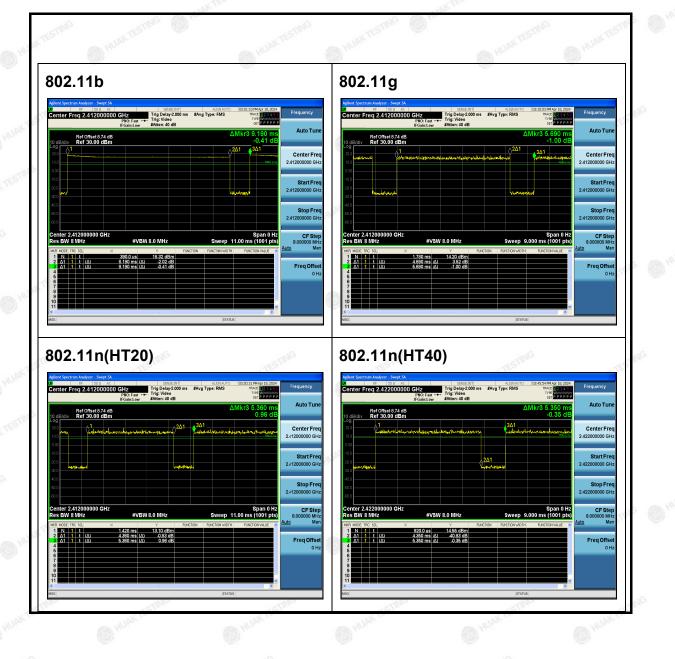
Test plots as follows:

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4. Test Results and Measurement Data

4.1. Conducted Emission

Test Specification

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:		OMPC.	PATTING	MANG	15
Frequency Range: 150 kHz to 30 MHz Receiver setup: RBW=9 kHz, VBW=30 kHz, Sweep time=auto Limits:	Test Requirement:	FCC Part15 C Sec	tion 15.207	JAK IL	HUAKIL
Receiver setup: RBW=9 kHz, VBW=30 kHz, Sweep time=auto Limits: Frequency range (MHz) Quasi-peak Average 0.15-0.5 66 to 56* 56 to 46* 0.5-5 56 46 Imits: Reference Plane Rescription Reference Plane Imits: Reference Plane Rescription Reference Plane Imits: Reference Pl	Test Method:	ANSI C63.10:2013	3		
Limits: Frequency range Limit (dBuV) (MHz) Quasi-peak Average 0.15-0.5 66 to 56* 56 to 46* 0.5-5 56 46 5-30 60 50 Reference Plane Image: Colspan="2">Limit (dBuV) Image: Colspan="2">Colspan="2" Test Mode: Test Mode: The E.U.T is connected to the main power through line impedance stabilization network (L.I.S.N.). Thi provides a 500hm/50uH coupling impedance for th measuring equipment. Test Mode: The peripheral devices are also connected to the main power through a LISN t	Frequency Range:	150 kHz to 30 MH	Z MUAK I		TESTING
Limits: Quasi-peak Average 0.15-0.5 66 to 56* 56 to 46* 0.5-5 56 46 5-30 60 50 Reference Plane Journal Filter ac power Ferrence Plane Journal Filter ac power Ferrence Plane Journal Filter ac power Ferrence EM	Receiver setup:	RBW=9 kHz, VBW	/=30 kHz, Sweep	time=auto	
Limits: 0.15-0.5 66 to 56* 56 to 46* 0.5-5 56 46 5-30 60 50 Reference Plane Image: Solar of the solar solar of the solar solar solar of the solar so		Frequency range	e Limit (dBuV)	
0.5-5 56 46 5-30 60 50 Reference Plane Image: Colspan="2">Image: Colspan="2" Test Setup: Test Mode: transmitting with modulation 1. The E.U.T is connected to the main power through line impedance stabilization network (L.I.S.N.). Thi provides a 50ohm/50uH coupling impedance for the measuring equipment. Test Procedure: Test Procedure: It as the block diagram of the test setup an photographs). Both sides of A.C. line are checked for maximur conducted interference. In order to find the maximur emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.		(MHz)	Quasi-peak	Average	I LAK TES !!
5-30 60 50 Reference Plane	Limits:	0.15-0.5	66 to 56*	56 to 46*	
Test Setup: Reference Plane Image: Parade Image: Parade Test Mode: transmitting with modulation 1. The E.U.T is connected to the main power through line impedance stabilization network (L.I.S.N.). Thi provides a 50ohm/50ul coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50ul coupling impedance with 50ohm termination. (Pleas refer to		0.5-5	56	46	
Test Setup: Image: Test table/Insulation plane Image: Test table/Insulation plane Image: Test table/Insulation plane Test Mode: transmitting with modulation 1. The E.U.T is connected to the main power through line impedance stabilization network (L.I.S.N.). This provides a 500hm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance for the measuring equipment. 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.		5-30	60	50	
Test Setup: Image: Comparison of the second sec		UPAKTESTING	KTESTING	AKTESTING	NKTES
Test Setup: Image: E.U.T for power intermet. Social for the power intermet. Remark: Example intermet. Remark: Example intermet. Social for the power intermet. Test Mode: transmitting with modulation 1. The E.U.T is connected to the main power through line impedance stabilization network (L.I.S.N.). This provides a 500hm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance of the measuring impedance with 500hm termination. (Pleas refer to the block diagram of the test setup an photographs). 3. Both sides of A.C. line are checked for maximum emission, the relative positions of equipment and all of the interface cables must be changed according to the interface cables must be changed accord		Re Re	ference Plane		
Test Setup: Image: E.U.T for power and the power of the table/Insulation plane for the table/Insulation Network (L.I.S.N.). This provides a 500hm/50uH coupling impedance for the measuring equipment. Test Procedure: 1. The E.U.T is connected to the main power through line impedance stabilization network (L.I.S.N.). This provides a 500hm/50uH coupling impedance for the measuring equipment. Test Procedure: 2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Pleas refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum emission, the relative positions of equipment and all of the interface cables must be changed according to the interface cables must be ch			cm		
Test Setup: Image: Test table/Insulation plane Borm filter Ac power Remark E.U.T. Exclusioned Under Test ENT. Exclusioned Under Test USE Live Impedances Stabilization Network Test table height=0.8m Test Mode: 1. The E.U.T is connected to the main power through line impedance stabilization network (L.I.S.N.). This provides a 500hm/50uH coupling impedance for the measuring equipment. Test Procedure: 2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50ul coupling impedance with 500hm termination. (Pleas refer to the block diagram of the test setup an photographs). 3. Both sides of A.C. line are checked for maximur conducted interference. In order to find the maximur emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.		K TES			
 The E.U.T is connected to the main power through line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50ul coupling impedance with 50ohm termination. (Pleas refer to the block diagram of the test setup an photographs). Both sides of A.C. line are checked for 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. 		E.U.T: Equipment Under Tes LISN: Line Impedence Stabil	Receiver		
 Ine impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the mais power through a LISN that provides a 50ohm/50ul coupling impedance with 50ohm termination. (Pleas refer to the block diagram of the test setup an photographs). 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 Mode:	transmitting with m	odulation		
Dia Dia	Test Procedure:	 line impedance provides a 500 measuring equip 2. The peripheral of power through coupling impedarefer to the bliphotographs). 3. Both sides of a conducted interferent emission, the reducted conducted conducted	stabilization net nm/50uH coupling oment. levices are also co a LISN that prov ance with 50ohm ock diagram of A.C. line are cho ference. In order lative positions of ables must be ch	work (L.I.S.N g impedance onnected to the rides a 50ohr termination. If the test setu ecked for ma to find the ma equipment ar nanged accor	.). This for the me main m/50ul (Please up and aximun aximun ad all c ding te
	Tost Posult:				n.

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All		Allan He	0.0990.	ATTAL PIC	ACTAL 1			
Conducted Emission Shielding Room Test Site (843)								
EquipmentManufacturerModelSerial NumberCalibration DateCalibration Due								
Receiver	R&S	ESR-7	HKE-005	Feb. 20, 2024	Feb. 19, 2025			
LISN	R&S	ENV216	HKE-002	Feb. 20, 2024	Feb. 19, 2025			
Coax cable (9KHz-30MHz)	Times	381806-002	N/A	Feb. 20, 2024	Feb. 19, 2025			
10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	Feb. 20, 2024	Feb. 19, 2025			
Conducted test software	Tonscend	TS+ Rev 2.5.0.0	HKE-081	N/A	N/A			

Test Instruments

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

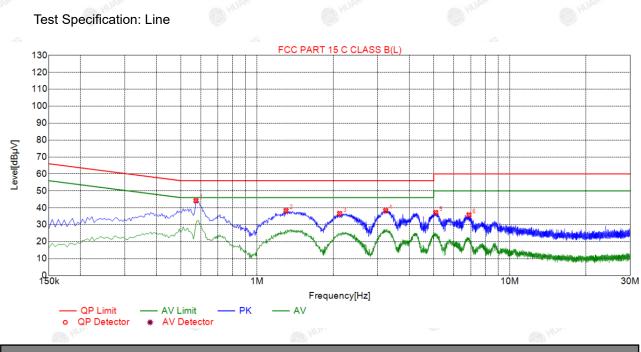
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4.2. Test Result

Remark: All the test modes completed for test. only the worst result Of was reported as below: Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)



Sus	spected	l List						
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Туре
1	0.5730	44.17	20.05	56.00	11.83	24.12	PK	L
2	1.3020	38.36	20.10	56.00	17.64	18.26	PK	L
3	2.1210	36.63	20.16	56.00	19.37	16.47	PK	L
4	3.2280	38.36	20.23	56.00	17.64	18.13	PK	L
5	5.0910	37.19	20.26	60.00	22.81	16.93	PK	L
6	6.8955	35.80	20.20	60.00	24.20	15.60	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss Level=Test receiver reading + correction factor

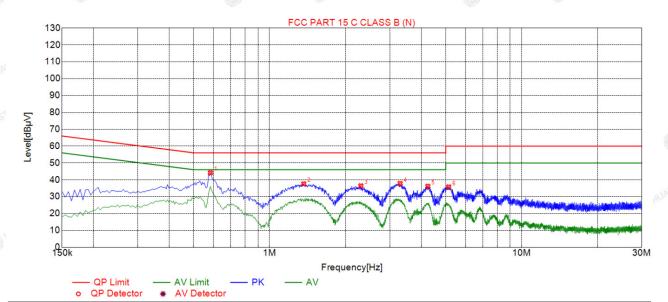
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Test Specification: Neutral



Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Туре
1	0.5820	44.17	20.05	56.00	11.83	24.12	PK	Ν
2	1.3650	37.62	20.11	56.00	18.38	17.51	PK	Ν
3	2.3010	36.42	20.18	56.00	19.58	16.24	PK	Ν
4	3.2955	37.83	20.24	56.00	18.17	17.59	PK	Ν
5	4.2450	36. <mark>1</mark> 5	20.25	56.00	19.85	15.90	PK	N
6	5.1360	35.78	20.26	60.00	24.22	15.52	PK	N

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

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CATION

HUAK TESTING

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
Test Mode:	Transmitting mode with modulation
Test Procedure:	 The testing follows the Measurement Procedure of FCC KDB 558074 D01 15.247 Meas Guidance v05r02. 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. Set to the maximum power setting and enable the EUT transmit continuously. Measure the Peak output power and record the results in the test report.
Test Result:	PASS

Test Instruments

	RF Test Room								
Equipment Manufacturer Model Serial Number Calibration Calibration									
Spectrum analyzer	Agilent	[©] N9020A	HKE-048	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				

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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Test Data

Mode	Test Channel	Frequency	Maximum Peak Conducted Output Power	LIMIT
	•	(MHz)	(dBm)	dBm
802.11b	CH01	2412	12.88	30
802.11b	CH06	2437	13.09	30
802.11b	CH11	2462	13.03	30
802.11g	CH01	2412	11.22	30
802.11g	CH06	2437	12.06	30
802.11g	CH11	2462	12.07	30
802.11n(HT20)	CH01	2412	10.56	30
802.11n(HT20)	CH06	2437	11.02	30
802.11n(HT20)	CH11	2462	11.21	30
802.11n(HT40)	CH03	2422	11.84	30
802.11n(HT40)	CH06	2437	12.30	30
802.11n(HT40)	CH09	2452	10.13	30

Note: 1. The test results including the cable lose.

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4.4. Emission Bandwidth

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)	K TESTA
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02	HUM
Limit:	>500kHz	-NG
Test Setup:	Spectrum Analyzer	REAL
Test Mode:	Transmitting mode with modulation	
Test Procedure:	 The testing follows FCC KDB Publication 5580 15.247 Meas Guidance v05r02. Set to the maximum power setting and enable EUT transmit continuously. Make the measurement with the spectrum anal resolution bandwidth (RBW) = 100 kHz. Set th Video bandwidth (VBW) = 300 kHz. In order to an accurate measurement. The 6dB bandwidt be greater than 500 kHz. Measure and record the results in the test repo	the lyzer's ie o make h must
Test Result:	PASS	No.

Test Instruments

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-048	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

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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Test data

Test channel	6dB Emission Bandwidth (MHz)				
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)	
Lowest	10.08	16.12	17.32	35.12	
Middle	9.60	15.64	15.96	35.04	
Highest	10.00	16.32	17.00	35.92	
Limit:	>500kHz				
Test Result:	PASS				
0	0."	0		(W)	

Test plots as follows:

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802.11b Modulation

Lowest channel



Middle channel



Highest channel

er Freq 2.462000000 GHz #Avg Type: RMS Avg[Hold: 100/100 Trig: Free Run #Atten: 40 dB PPPP Auto Tu Ref Offset 8.74 dB Ref 30.00 dBm Center Fre Start Fr 2.442000000 Stop Fre Center 2.46200 GHz #Res BW 100 kHz Span 40.00 MHz Sweep 3.867 ms (1001 pts) CF Ste 4.000000 MH #VBW 300 kHz 2.457 00 GHz 2.463 00 GHz 10.00 MHz (Δ) -1.062 dBn 4.652 dBn 0.881 dF Freq Offs

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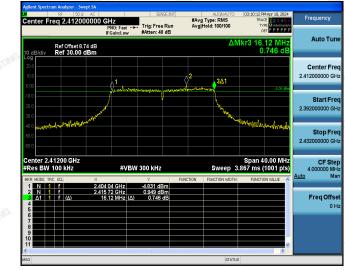


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Report No.: HK2404151789-E

802.11g Modulation

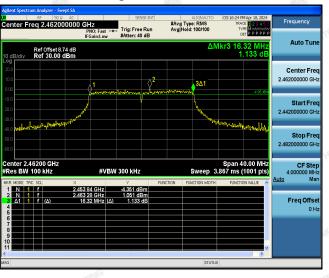
Lowest channel



Middle channel



Highest channel



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Center Fre

Start Fre

Stop Fre

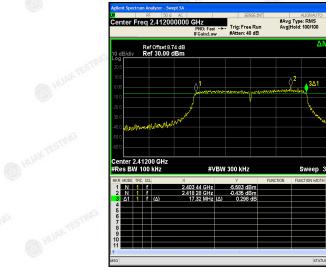
CFS

Freq Offs

Span 40.00 M 67 ms (1001 p

802.11n (HT20) Modulation

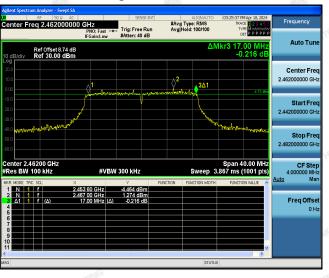
Lowest channel



Middle channel



Highest channel



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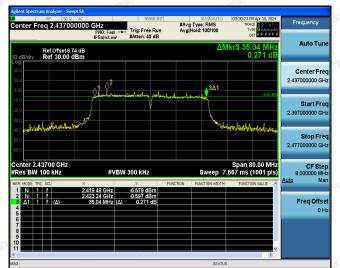
Report No.: HK2404151789-E

802.11n (HT40) Modulation

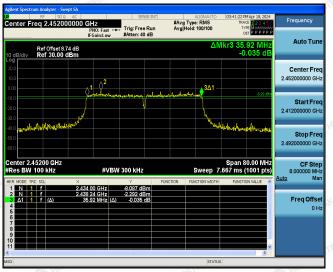
Lowest channel



Middle channel



Highest channel



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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				
Test Mode:	Transmitting mode with modulation				
Test Procedure:	 The testing follows Measurement procedure 10.2 method PKPSD of FCC KDB Publication 558074 D01 15.247 Meas Guidance v05r02. 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. Set to the maximum power setting and enable the EUT transmit continuously. 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. Detector = Peak, Sweep time = auto couple. Employ trace averaging (Peak) mode over a minimum of 100 traces. Use the peak marker function to determine the maximum power level. Measure and record the results in the test report. 				
Test Result:	PASS				

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Test Instruments

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 20, 2024	Feb. 19, 2025
RF Cable (9KHz-26.5GHz)	Tonscend	170660	N/A	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-B Version 2.6	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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ER.

Test data

EUT Set Mode	Channel	Test Result (dBm/30kHz)	Result (dBm/3kHz)
802.11b	Lowest	0.17	-9.83
	Middle	0.38	-9.62
	Highest	0.70	-9.30
802.11g	Lowest	-4.02	-14.02
	Middle	-2.49	-12.49
	Highest	-2.99	-12.99
802.11n(H20)	Lowest	-3.17	-13.17
	Middle	-3.14	-13.14
	Highest	-3.27	-13.27
802.11n(H40)	Lowest	-4.28	-14.28
	Middle	-3.73	-13.73
	Highest	-4.84	-14.84
PSD test result (dE	3m/3kHz)= PSD	test result (dBm/30k	Hz)-10
Limit: 8dBm/3kHz			
Test Result:	STIN	PASS	STING

Test plots as follows:

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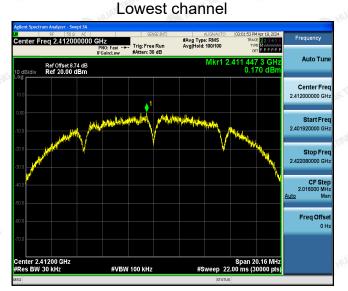


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٥V

802.11b Modulation



Middle channel



Highest channel



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802.11g Modulation

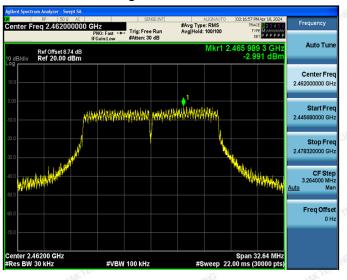
Lowest channel



Middle channel



Highest channel



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Report No.: HK2404151789-E

802.11n (HT20) Modulation

Lowest channel



Middle channel



Highest channel



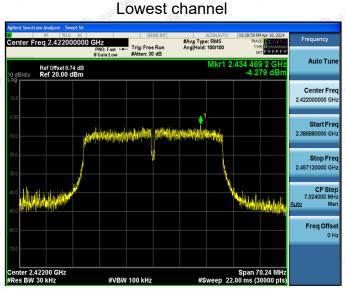
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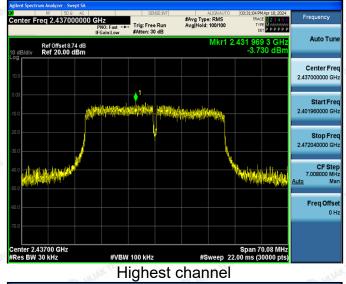


ACATA

802.11n (HT40) Modulation



Middle channel



DO GHZ PNO: Fast ---- Trig: Free Run #Atten: 30 dB Frequency #Avg Type: RMS Avg|Hold: 100/100 Auto Tur Ref Offset 8.74 dB Ref 20.00 dBm 4.841 di Center Fre 2 452000000 GH Start Fre Stop Fre CF Ste 7.184000 MH "All adapted to a Auto Freq Offs Span 71.84 M ep 22.00 ms (30000 enter 2.45200 GHz tes BW 30 kHz #VBW 100 kHz

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