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FCC Test Report

Test report On Behalf of Shenzhen Anran Security Technology Co., Ltd For Security Camera

Security Camera Model No.: C3, C3 Pro, C3 Max, C4, C5, C2, C2 Pro, C2 Max, Q3 Pro, Q1, Q1 Pro, Q3 Max, Q3, Q4, Q4 Pro, Q4 Max, Q5, Q6, S3, S4, F1, F2, G1, G1 Pro, G2, G2 Pro, R1, R2, P7, P7 Pro

FCC ID: 2AZUX-C3

Prepared For : Shenzhen Anran Security Technology Co., Ltd Room 1711, Building 4, Tianan Yungu Industrial Park, Bantian Street, Longgang District, Shenzhen, Guangdong, 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:
 Nov. 27, 2024 ~ Dec. 11, 2024

 Date of Report:
 Dec. 11, 2024

 Report Number:
 HK2411277260-E

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Test Result Certification

Applicant's name	Shenzhen Anran Security Technology Co., Ltd
Address	Room 1711, Building 4, Tianan Yungu Industrial Park, Bantian Street, Longgang District, Shenzhen, Guangdong, China
Manufacturer's Name	Shenzhen Anran Security Technology Co., Ltd
Address	Room 1711, Building 4, Tianan Yungu Industrial Park, Bantian Street, Longgang District, Shenzhen, Guangdong, China
Product description	
Trade Mark:	N/A
Product name:	Security Camera
Model and/or type reference .:	C3, C3 Pro, C3 Max, C4, C5, C2, C2 Pro, C2 Max, Q3 Pro, Q1, Q1 Pro, Q3 Max, Q3, Q4, Q4 Pro, Q4 Max, Q5, Q6, S3, S4, F1, F2, G1, G1 Pro, G2, G2 Pro, R1, R2, P7, P7 Pro
Standards	FCC Rules and Regulations Part 15 Subpart C Section 15.247 ANSI C63.10: 2013
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Date of Test	
Date (s) of performance of tests:	Nov. 27, 2024 ~ Dec. 11, 2024
Date of Issue:	Dec. 11, 2024
Test Result	Pass

Testing Engineer

(Len Liao)

Technical Manager

Siver Mon

(Sliver Wan)

Authorized Signatory :

ason thou

(Jason Zhou)

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** Modified History **

Revision	Description	Issued Data	Remark	
Revision 1.0	Initial Test Report Release	Dec. 11, 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 %.

Item	MU
Conducted Emission	±2.71dB
RF power, conducted	±0.37dB
Spurious emissions, conducted	±0.11dB
All emissions, radiated(<1G)	±3.90dB
All emissions, radiated(>1G)	±4.28dB
Temperature	±0.1°C
Humidity	±1.0%
	Conducted Emission RF power, conducted Spurious emissions, conducted All emissions, radiated(<1G) All emissions, radiated(>1G) Temperature

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2. EUT Description

HUAK TESTING

2.1. General Description of EUT

Equipment:	Security Camera	HUNK TESTING	- WAK TEST			
Model Name:	C3	0	0.			
Series Models:	C3 Pro, C3 Max, C4, C5, C2, C2 Pro, C2 Max, Q3 Pro, Q1, Q1 Pro, Q3 Max, Q3, Q4, Q4 Pro, Q4 Max, Q5, Q6, S3, S4, F1, F2, G1, G1 Pro, G2, G2 Pro, R1, R2, P7, P7 Pro					
Model Difference:	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample mode: C3.					
FCC ID:	2AZUX-C3	Bin				
Antenna Type:	Iron sheet antenna	C HUAK TEST	CHUAK TEST			
Antenna Gain:	1.94dBi	TESTING				
Operation frequency:	802.11b/g/n (HT20):2412~24 802.11n (HT40): 2422~2452		HUAKTESTING			
Number of Channels:	802.11b/g/n(HT20): 11CH 802.11n (HT40): 7CH	LAKTESTING				
Modulation Type:	DSSS, OFDM	HUAKTESTING	HUAKTESTIC			
Power Source:	DC 5V From Type-C or DC 3	3.7V From Battery	,			
Power Rating:	DC 5V From Type-C or DC 3	3.7V From Battery	TESTI			

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

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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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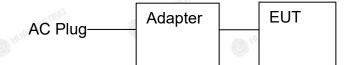
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2.4. Description of Test Setup

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



Operation of EUT during above1GHz radiation testing:

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.

	ltem	Equipment	Trade Mark	Model/Type No.	Specification	Remark
21-	1	Security Camera	N/A	C3	N/A	EUT
-	3 2	USB Cable	N/A	N/A	Length:1.0m	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
	HUAK TES.	HUAK TES	HUP	KTED. HUAKTED.	HUAKTES	HUAKTES

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.

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3. Genera Information

3.1. Test Environment and Mode

Operating E	nvironment:
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5	Temperature:	25.0 °C	HUAKTESI	HUAKTES
	Humidity:	56 % RH	ø	0
3	Atmospheric Pressure:	1010 mbar	AK TESTING	лG

Test Mode:

Engineering mode.	Keep the EUT in continuous transmitting by select channel and modulations
G ALLOW	by select charmer 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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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

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	0.93	-0.32
802.11g	0.95	-0.22
802.11n(HT20)	0.94	-0.27
802.11n(HT40)	0.94	-0.27

Test plots as follows:

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4. Test Results and Measurement Data

4.1. Conducted Emission

Test Specification

stopechication	TING	TING	TING				
Test Requirement:	FCC Part15 C Sect	FCC Part15 C Section 15.207					
Test Method:	ANSI C63.10:2013						
Frequency Range:	150 kHz to 30 MHz	hunx in	a Ve	TESTING			
Receiver setup:	RBW=9 kHz, VBW=	-30 kHz, Sweep	time=auto				
	Frequency range	Limit (dBuV)	and and			
	(MHz)	Quasi-peak	Average	OK TESTIN			
Limits:	0.15-0.5	66 to 56*	56 to 46*				
	0.5-5	56	46				
	5-30	60	50				
	TESTING	TESTING	TESTING	TES			
	Refe	erence Plane					
Test Setup:	٨						
	400	n					
		LISN	1				
	E.U.T	power 80cm	-				
	NG		ter — AC power				
	Test table/Insulation	plane					
	Remark: Receiver						
	E.U.T. Equipment Under Test LISN: Line Impedence Stabilization Network						
	Test table height=0.8m						
		~					
Test Mode:	transmitting with mo	odulation					
	1. The E.U.T is con	nected to the m	ain power thr	ouah			
		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 500hm/50uH						
		- 1 D.S.*					
Test Procedure:	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 rela	ative positions of	equipment ar	nd all c			
	the interface cables must be changed according to						
	ANSI C63.10: 20	13 on conducted	measuremer	nt.			
Test Result:	PASS	di la constante da la constante	STING				
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	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	N/A	N/A		
10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	Feb. 20, 2024	Feb. 19, 2025		

Test Instruments

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

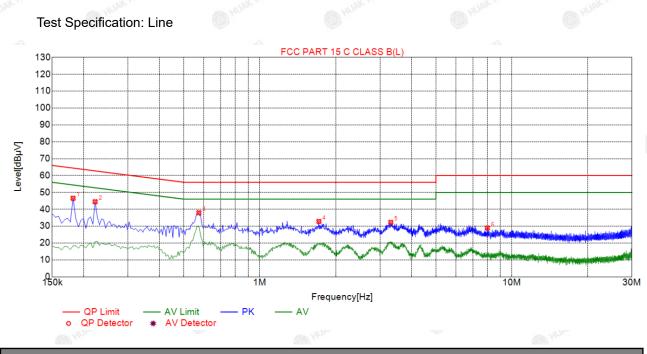
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4.2. Test Result

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	Suspected List									
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Туре		
1	0. <mark>1</mark> 815	46.55	19.86	64.42	17.87	26.69	PK	L		
2	0.2220	44.50	19.84	62.74	18.24	24.66	PK	L		
3	0.5730	37.96	19.86	56.00	18.04	18.10	PK	L		
4	1.7160	32.80	19.95	56.00	23.20	12.85	PK	L		
5	3.3090	32.25	20.07	56.00	23.75	12.18	PK	L		
6	7.9980	28.91	20.03	60.00	31.09	8.88	PK	L		

Remark: Margin = Limit – Level

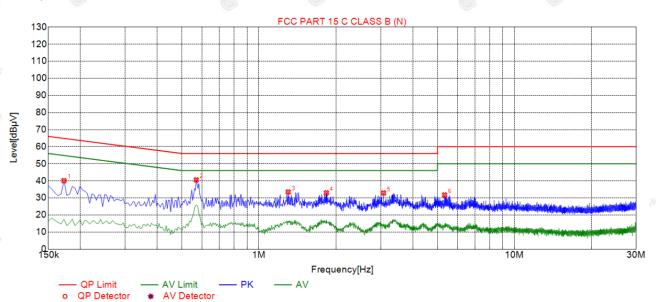
Correction factor = Cable lose + LISN insertion loss Level=Test receiver reading + correction factor

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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	0.1725	40.13	19.73	64.84	24.71	20.40	PK	Ν
2	0.5685	40.57	19.74	56.00	15.43	20.83	PK	Ν
3	1.3020	33.48	19.78	56.00	22.52	13.70	PK	Ν
4	1.8375	32.97	19.83	56.00	23.03	13.14	PK	Ν
5	3.0750	32.90	19.93	56.00	23.10	12.97	PK	Ν
6	5.3295	31.73	20.00	60.00	28.27	11.73	PK	Ν

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

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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				
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 Date	Calibration Due	
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 20, 2024	Feb. 19, 2025	
Power meter	Agilent M	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 3.5.39	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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Test Data

Mode	Test Channel	Frequency	Maximum Peak Conducted Output Power	LIMIT
	Onanner	(MHz)	(dBm)	dBm
802.11b	CH01	2412	13.34	30
802.11b	CH06	2437	12.81	30
802.11b	CH11	2462	12.97	30
802.11g	CH01	2412	12.34	30
802.11g	CH06	2437	12.95	30
802.11g	CH11	🧼 2462	12.82	30
802.11n(HT20)	CH01	2412	11.63	30
802.11n(HT20)	CH06	2437	11.97	³⁰ 30
802.11n(HT20)	CH11	2462	11.79	30
802.11n(HT40)	CH03	2422	11.75	30
802.11n(HT40)	CH06	2437	11.49	30
802.11n(HT40)	CH09	2452	12.01	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)
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02
Limit:	>500kHz
Test Setup:	Spectrum Analyzer
Test Mode:	Transmitting mode with modulation
Test Procedure:	 The testing follows FCC KDB Publication 558074 D0 15.247 Meas Guidance v05r02. Set to the maximum power setting and enable the EUT transmit continuously. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to mak an accurate measurement. The 6dB bandwidth mus be greater than 500 kHz. Measure and record the results in the test report.
Test Result:	PASS

Test Instruments

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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 3.5.39	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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Test data

Test channel	6dB Emission Bandwidth (MHz)					
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)		
Lowest	9.08	16.32	17.24	35.12		
Middle	10.00	16.24	16.68	35.04		
Highest	9.56	16.28	16.68	35.12		
Limit:	>500kHz					
Test Result:	PASS					

Test plots as follows:

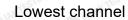
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802.11b Modulation





Middle channel



Highest channel



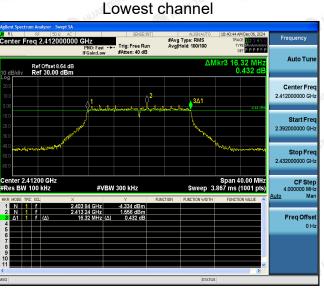
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802.11g Modulation



Middle channel



Highest channel



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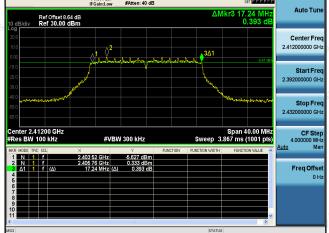
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802.11n (HT20) Modulation

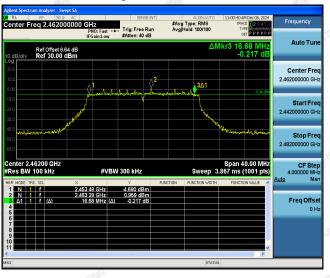




Middle channel



Highest channel



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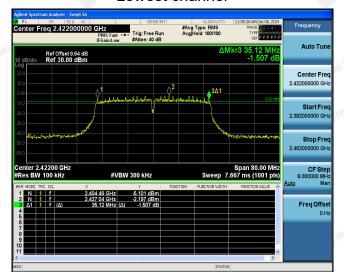
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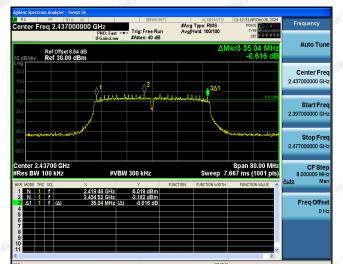
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802.11n (HT40) Modulation

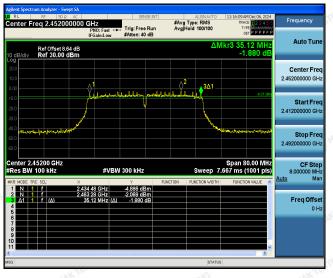
Lowest channel



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:	 Transmitting mode with modulation 1. The testing follows Measurement procedure 10.2 method PKPSD of FCC KDB Publication 558074 D01 15.247 Meas Guidance v05r02. 2. 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. 3. Set to the maximum power setting and enable the EUT transmit continuously. 4. 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. 5. Detector = Peak, Sweep time = auto couple. 6. Employ trace averaging (Peak) mode over a minimum of 100 traces. Use the peak marker function to determine the maximum power level. 7. 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-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 3.5.39	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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Test data

EUT Set Mode	Channel	Test Result (dBm/30kHz)	Result (dBm/3kHz)
802.11b	Lowest	1.94	-8.06
	Middle	2.72	-7.28
	Highest	3.11	-6.89
802.11g	Lowest	-2.79	-12.79
	Middle	-2.30	-12.3
	Highest	-2.63	-12.63
802.11n(HT20)	Lowest	-3.49	-13.49
	Middle	-3.43	-13.43
	Highest	-3.59	-13.59
802.11n(HT40)	Lowest	-5.33	-15.33
	Middle	-5.79	-15.79
	Highest	-5.15	-15.15
PSD test result (dB	m/3kHz)= PSD	test result (dBm/30k	Hz)-10
Limit: 8dBm/3kHz			
Test Result:	-c5TN	PASS	-csTING

Test plots as follows:

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Report No.: HK2411277260-E

٥V

802.11b Modulation



Middle channel



Highest channel



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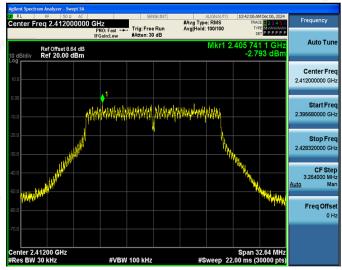


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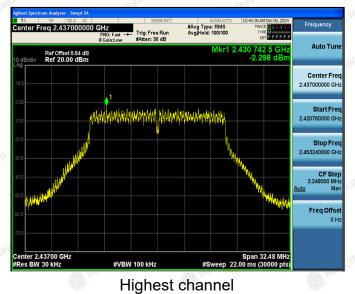
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802.11g Modulation

Lowest channel



Middle channel



Addend Spectrum Analyzer - Swept 5A At 1 197 1920 22 Center Freq. 2.462000000 GHz PI0: Fast 2 PID: Fast 2

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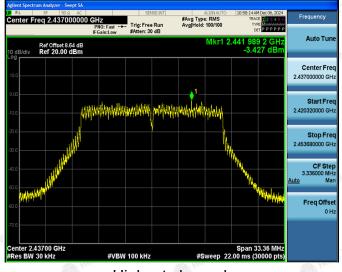
Report No.: HK2411277260-E

802.11n (HT20) Modulation

Lowest channel



Middle channel



Highest channel



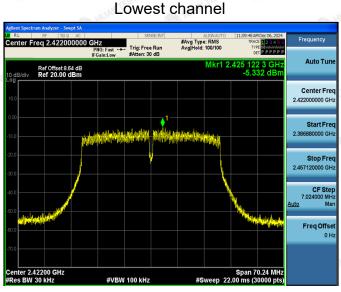
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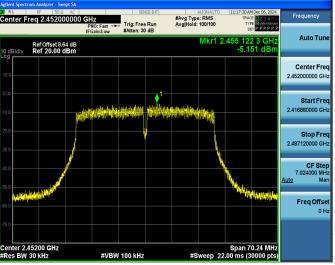
ACATA

802.11n (HT40) Modulation



Middle channel





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