

FCC TEST REPORT

Test report
On Behalf of

Shenzhen Yunqi Youkong Intelligent Equipment Co., Ltd.

For

digital photo frame Model No.: YQ101009, YQ101010, YQ101011, YQ101012, YQ101013, YQ008001, YQ008002, YQ008003

FCC ID: 2A6L2-YQ101009

Prepared For: Shenzhen Yunqi Youkong Intelligent Equipment Co., Ltd.

Room 328, 3rd Floor, Building C, Economic Building, Baoyuan Huafeng Headquarters, Xixiang Street, Baoan District, Shenzhen City, Guangdong

Province, China

Prepared By: Shenzhen HUAK Testing Technology Co., Ltd.

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Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Date of Test: Apr. 15, 2022 ~ Apr. 24, 2022

Date of Report: Apr. 24, 2022

Report Number: HK2204201634-E

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TEST RESULT CERTIFICATION

Room 328, 3rd Floor, Building C, Economic Building, Baoyuan

Report No.: HK2204201634-E

Address Huafeng Headquarters, Xixiang Street, Baoan District, Shenzhen

City, Guangdong Province, China

Manufacture's Name...... Shenzhen Yungi Youkong Intelligent Equipment Co., Ltd.

Room 328, 3rd Floor, Building C, Economic Building, Baoyuan

Address Huafeng Headquarters, Xixiang Street, Baoan District, Shenzhen

City, Guangdong Province, China

Product description

Trade Mark: N/A

Product name..... digital photo frame

Model and/or type reference : YQ101009, YQ101010, YQ101011, YQ101012, YQ101013,

YQ008001, YQ008002, YQ008003

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 Apr. 15, 2022 ~ Apr. 24, 2022

Date of Issue...... Apr. 24, 2022

Test Result..... Pass

Testing Engineer :

(Gary Qian)

Technical Manager

2den

(Eden Hu)

Authorized Signatory:

Jason Wou

(Jason Zhou)

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** Modified History **

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Apr. 24, 2022	Jason Zhou
-TING	TING	TING	G TING

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1. TEST RESULT SUMMARY

1.1. TEST PROCEDURES AND RESULTS

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.

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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	All emissions, radiated(>1G)	±4.28dB
6	Temperature	±0.1°C
7	Humidity	±1.0%

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2. EUT DESCRIPTION

2.1. GENERAL DESCRIPTION OF EUT

Equipment:	digital photo frame
Model Name:	YQ101009
Series Model:	YQ101010, YQ101011, YQ101012, YQ101013, YQ008001, YQ008002, YQ008003
Model Difference:	All model's the function, software and electric circuit are the same, only with a product color, appearance and model named different. Test sample model: YQ101009.
FCC ID:	2A6L2-YQ101009
Antenna Type:	Internal Antenna
Antenna Gain:	2.5dBi
Operation frequency:	802.11b/g/n 20:2412~2462 MHz 802.11n 40: 2422~2452MHz
Number of Channels:	802.11b/g/n20: 11CH 802.11n 40: 7CH
Modulation Type:	CCK/OFDM/DBPSK/DAPSK
Power Source:	DC 5V from Adapter
Power Rating:	DC 5V from Adapter

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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_	XTESTING (04	2427	07	2442	- TESTIN	WTE
@ H		05	2432	08	2447	HILAK	Monage Home
03	2422	06	2437	09	2452		

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)

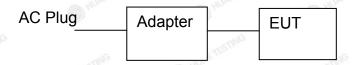
Low Channel: 2422MHz Middle Channel: 2437MHz High Channel: 2452MHz

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2.4. DESCRIPTION OF TEST SETUP

Operation of EUT during testing:



Adapter information Model: BOS050200-11A

Input: 100-240V, 50-60Hz, 0.45A

Output:5V, 2000mA

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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3. ENERA INFORMATION

3.1. TEST ENVIRONMENT AND MODE

Operating Environment:		
Temperature:	25.0 °C	HUAKTE
Humidity:	56 % RH	(iii)
Atmospheric Pressure:	1010 mbar	
Test Mode:		
Engineering mode:	Keep the EUT in continuous to by select channel and modula value of duty cycle is 98.46%	itions(The

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.

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.

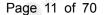
STING	Mode	TESTING	TESTING	Data rate	3
	802.11b	HUAR	HUAN	1Mbps	W HILDER
is .	802.11g	TING		6Mbps	
	802.11n(H20)	HK TES	ESTING	6.5Mbps	STING
W HU	802.11n(H40)	W III	AKTE	13.5Mbps	HUAKTE

Final Test Mode:

Operation mode:	STING	Keep the EUT in o	continuous tra	ansmitting
Operation mode:	THAK TES	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), 13.5Mbps for 802.11(H40). Duty cycle setting during the transmission is 98.5% with maximum power setting for all modulations.

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3.2. DESCRIPTION OF SUPPORT UNITS
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to

form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
(NG /	IG I HURK TESTI	I STING	I HUAY TESTIN	1 STING

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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4. TEST RESULTS AND MEASUREMENT DATA

4.1. CONDUCTED EMISSION

Test Specification

	TING TING TING			
Test Requirement:	FCC Part15 C Section 15.207			
Test Method:	ANSI C63.10:2013			
Frequency Range:	150 kHz to 30 MHz			
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto			
Limits:	Frequency range (MHz) 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 80cm Filter AC power EMI Receiver Remark E.U.T. Equipment Under Test LISN Line Impedence Stabilization Network Test table height=0.8m			
Test Mode:	Charging + transmitting with modulation			
Test Procedure:	 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. 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). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement. 			
Test Result:	PASS			

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Test Instruments

Conducted Emission Shielding Room Test Site (843)						
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due	
Receiver	R&S	ESCI 7	HKE-010	Feb. 18, 2022	Feb. 17, 2023	
LISN	R&S	ENV216	HKE-002	Feb. 18, 2022	Feb. 17, 2023	
Coax cable (9KHz-30MHz)	Times	381806-002	N/A	Feb. 18, 2022	Feb. 17, 2023	
Conducted test software	Tonscend	TS+ Rev 2.5.0.0	HKE-081	_{MCTES} TIES N/A	N/A	

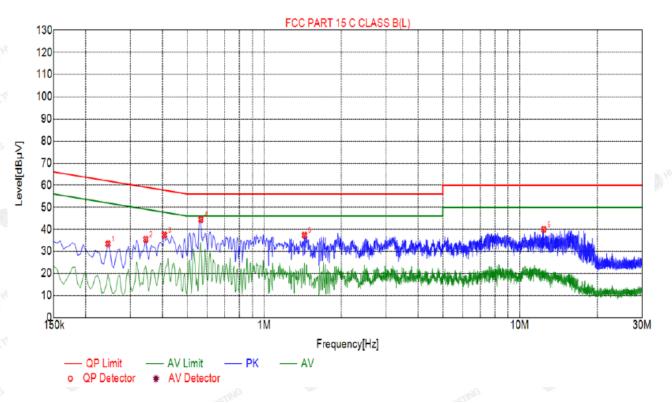
Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

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4.2. TEST RESULT

Test Specification: Line



Sus	Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Туре	
1	0.2445	33.45	20.03	61.94	28.49	13.42	PK	L	
2	0.3435	35.48	20.03	59.12	23.64	15.45	PK	L	
3	0.4065	37.46	20.03	57.72	20.26	17.43	PK	L	
4	0.5640	44.45	20.06	56.00	11.55	24.39	PK	L	
5	1.4370	37.35	20.10	56.00	18.65	17.25	PK	L	
6	12.4350	39.99	19.98	60.00	20.01	20.01	PK	L	

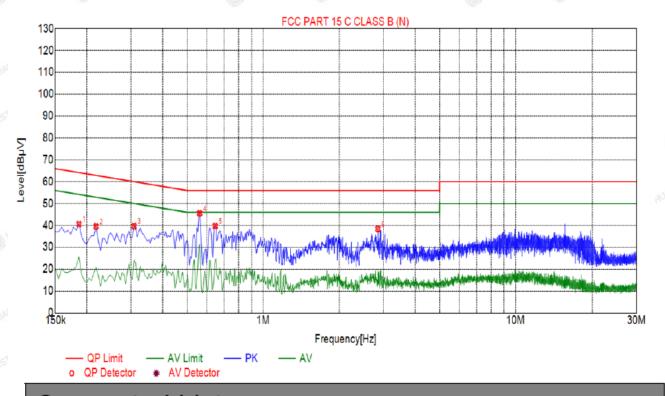
Remark: Margin = Limit — Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

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Test Specification: Neutral



Suspec	ted	List

	-							
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBμV]	Detector	Туре
1	0.1860	40.59	20.05	64.21	23.62	20.54	PK	N
2	0.2175	39.50	20.05	62.91	23.41	19.45	PK	N
3	0.3075	39.62	20.05	60.04	20.42	19.57	PK	N
4	0.5595	45.53	20.06	56.00	10.47	25.47	PK	N
5	0.6450	39.64	20.05	56.00	16.36	19.59	PK	N
6	2.8500	38.40	20.21	56.00	17.60	18.19	PK	N

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	White House	(1) HOM		
Limit:	30dBm	AN TESTING	-NG		
Test Setup:	Power meter	EUT	HUAKTESING		
Test Mode:	Transmitting mode with mode	dulation			
Test Procedure:	1. The testing follows the M FCC KDB 558074 D01 v05r02. 2. The RF output of EUT was meter by RF cable and a compensated to the results. Set to the maximum pow EUT transmit continuous 4. Measure the Peak output in the test report.	15.247 Meas Gu as connected to f attenuator. The p ults for each mea er setting and er sly.	idance the power eath loss was asurement. nable the		
Test Result:	PASS	O HULL	0 "		

Test Instruments

THE HUM	HOM	A HUM	The HUM	THE HUM	THE HOME		
RF Test Room							
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due		
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 18, 2022	Feb. 17, 2023		
Power meter	Agilent	E4419B	HKE-085	Feb. 18, 2022	Feb. 17, 2023		
Power Sensor	Agilent	E9300A	HKE-086	Feb. 18, 2022	Feb. 17, 2023		
RF cable	Times	1-40G	HKE-034	Feb. 18, 2022	Feb. 17, 2023		
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 18, 2022	Feb. 17, 2023		

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

TING	MG	TING TING	TING
KTES.	HUAK TES.	TX 802.11b Mode	HUAKTES!
Test	Frequency	Maximum Peak Conducted Output Power	LIMIT
Channel	(MHz)	(dBm)	dBm
CH01	2412	13.28	30
CH06	2437	15.93	30
CH11	2462	17.62	30
		TX 802.11g Mode	
CH01	2412	14.05	30
CH06	2437	14.33	JUNK TES TO THE TES TO
CH11	2462	15.08	30
ş-	TESTING	TX 802.11n20 Mode	TESTING.
CH01	2412	14.07	30
CH06	2437	14.45	30
CH11	2462	15.05	30 mm Tes
- '		TX 802.11n40 Mode	9
CH03	2422	14.28	30
CH06	2437	14.17 MTP	30 HUMETER
CH09	2452	14.45	30

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4.4. EMISSION BANDWIDTH

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)					
Test Method:	KDB 558074	● HOPE	MONTH OF THE PARTY			
Limit:	>500kHz	AK TESTING	(G			
Test Setup:	Spectrum Analyzer	EUT	MILANTES INC			
Test Mode:	Transmitting mode with	modulation				
Test Procedure:	 The testing follows FCC KDB Publication 558074 D01 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 make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz. Measure and record the results in the test report. 					
Test Result:	PASS	O HUNG				

Test Instruments

ATTAL HOUSE	20,	a HO.	ALL HO.	ALC:	ALC: HO		
RF Test Room							
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due		
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 18, 2022	Feb. 17, 2023		
RF cable	Times	1-40G	HKE-034	Feb. 18, 2022	Feb. 17, 2023		
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 18, 2022	Feb. 17, 2023		

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(H20)	802.11n(H40)		
Lowest	9.04	16.32	17.28	35.04		
Middle	8.56	16.32	17.32	35.04		
Highest	8.56	16.36	17.16	35.04		
Limit:	HUAKTES		>500k			
Test Result:	Law.	ESTING - YUAKTESTI	PASS	THE WAY TESTING		

Test plots as follows:

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802.11b Modulation

Lowest channel



Middle channel



Highest channel



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802.11g Modulation

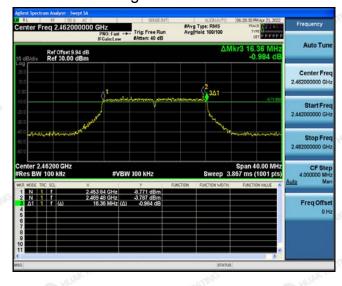
Lowest channel



Middle channel



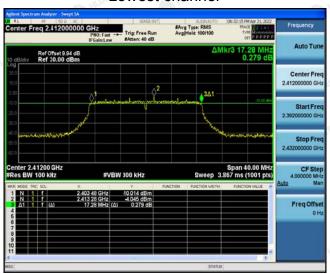
Highest channel



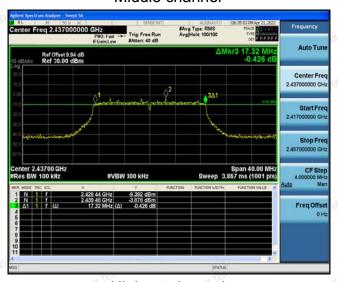
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity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

802.11n (HT20) Modulation

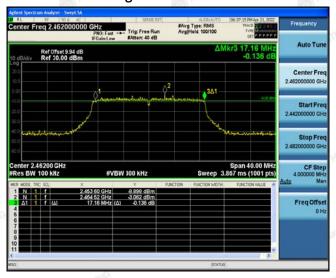
Lowest channel



Middle channel



Highest channel



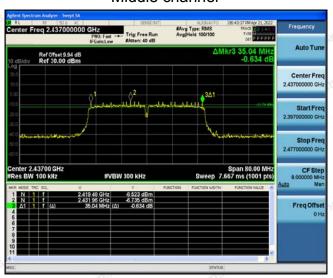
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802.11n (HT40) Modulation

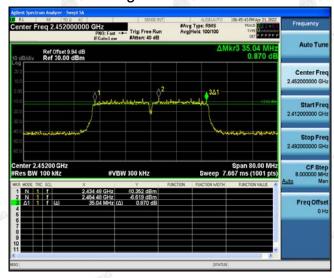
Lowest channel



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					
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 EUI					
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 (Market Market Mar					

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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. 18, 2022	Feb. 17, 2023	
RF Cable (9KHz-26.5GHz)	Tonscend	170660	N/A	Feb. 18, 2022	Feb. 17, 2023	
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 18, 2022	Feb. 17, 2023	
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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Test data

EUT Set Mode	Channel	Result (dBm/30kHz)	Result (dBm/3kHz)			
	Lowest	-1.79	-11.79			
802.11b	Middle	-0.19	-10.19			
	Highest	1.64	-8.36			
802.11g	Lowest	-8.9	-18.9 TESTING			
	Middle	-9.35	-19.35			
	Highest	-8.5	-18.5			
802.11n(H20)	Lowest	-9.28	-19.28			
	Middle	-8.91	-18.91			
	Highest	-8.11	-18.11			
802.11n(H40)	Lowest	-11.68	-21.68			
	Middle	-11.97	-21.97			
	Highest	-11	-21			
PSD test result (dBm/	3kHz)= PSD test	t result (dBm/30kHz)-10				
Limit: 8dBm/3kHz						
Test Result:	PASS					

Test plots as follows:

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802.11b Modulation

Lowest channel



Middle channel



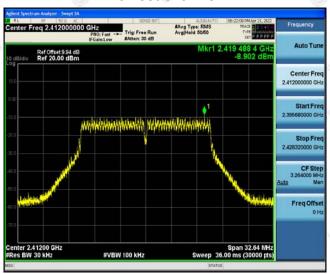
Highest channel



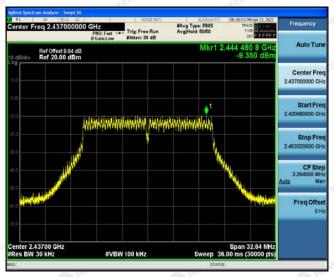
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802.11g Modulation

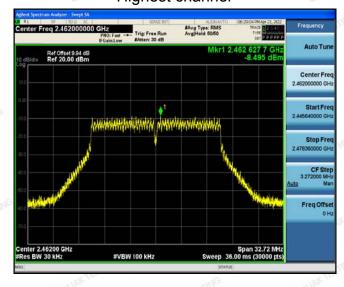
Lowest channel



Middle channel



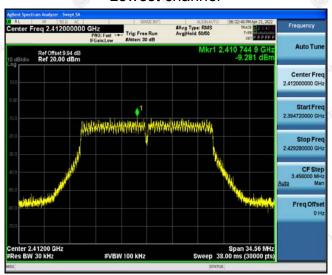
Highest channel



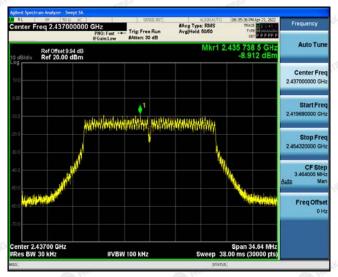
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannon be reproduced except in full with our prior written permission. The more details and the authenticity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

802.11n (HT20) Modulation

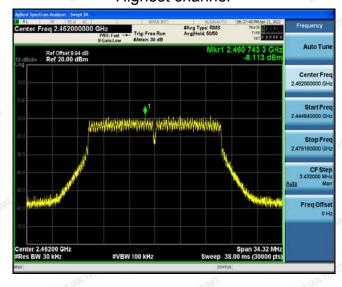
Lowest channel



Middle channel



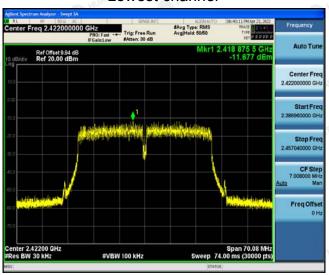
Highest channel



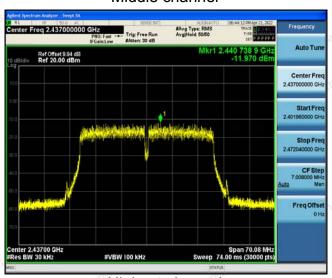
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity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

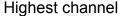
802.11n (HT40) Modulation

Lowest channel



Middle channel







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4.6. CONDUCTED BAND EDGE AND SPURIOUS EMISSION MEASUREMENT

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (d)			
Test Method:	KDB558074			
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:	 The testing follows 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. 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). Measure and record the results in the test report. The RF fundamental frequency should be excluded 			
Test Result:	against the limit line in the operating frequency band. PASS			

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Test Instruments

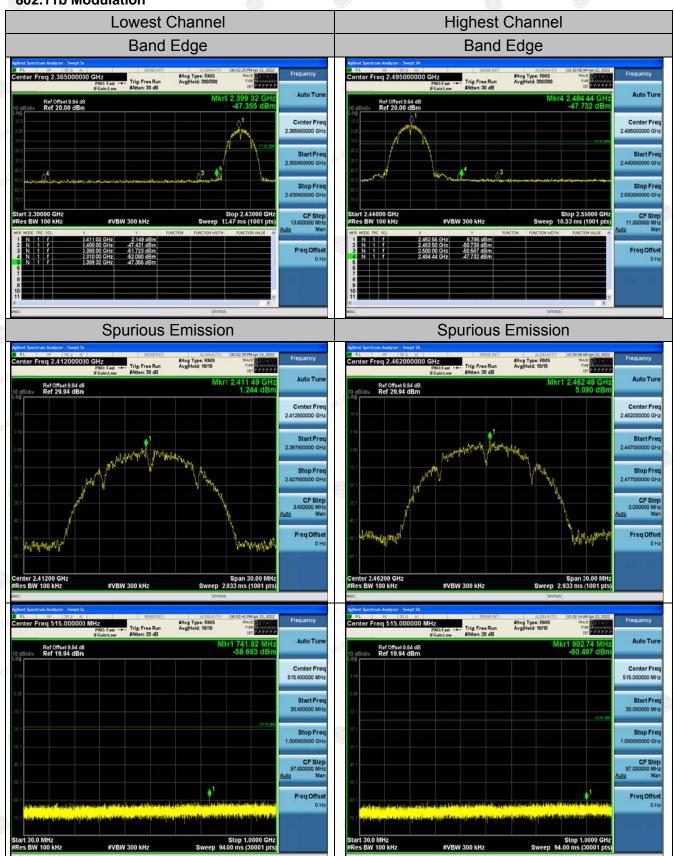
RF Test Room							
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due		
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 18, 2022	Feb. 17, 2023		
High pass filter unit	Tonscend	JS0806-F	HKE-055	Feb. 18, 2022	Feb. 17, 2023		
RF Cable (9KHz-26.5GHz)	Tonscend	170660	N/A	Feb. 18, 2022	Feb. 17, 2023		
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 18, 2022	Feb. 17, 2023		
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).

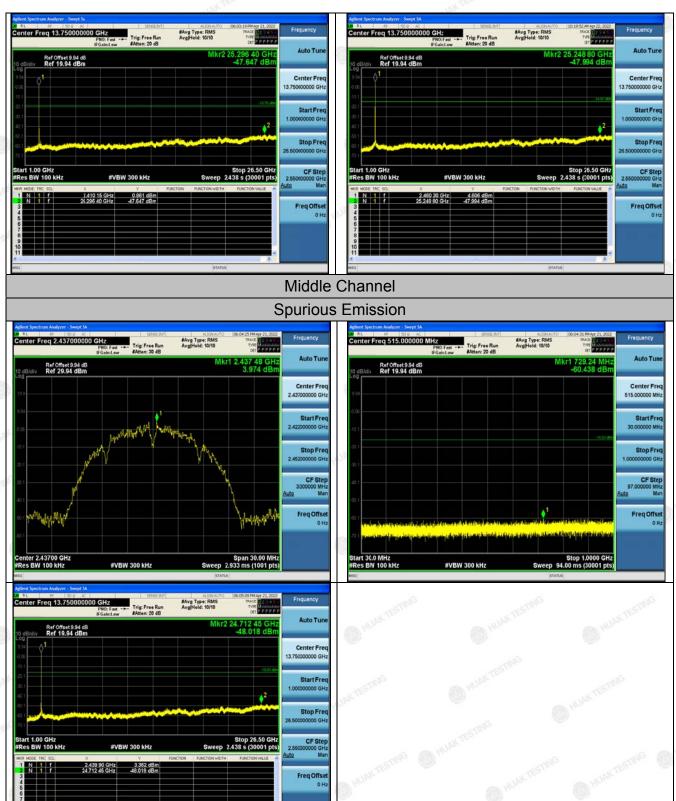
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannon be reproduced except in full with our prior written permission. The more details and the authenticity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

Test Data

802.11b Modulation



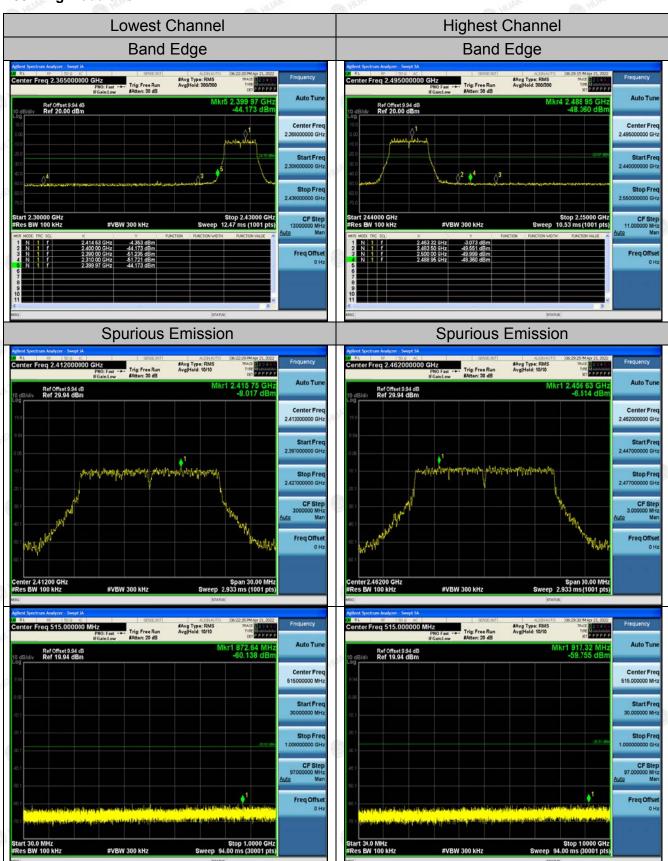
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannon be reproduced except in full with our prior written permission. The more details and the authenticity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



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802.11g Modulation



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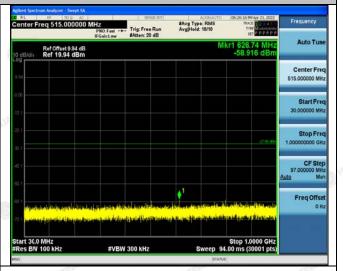




Middle Channel

Spurious Emission

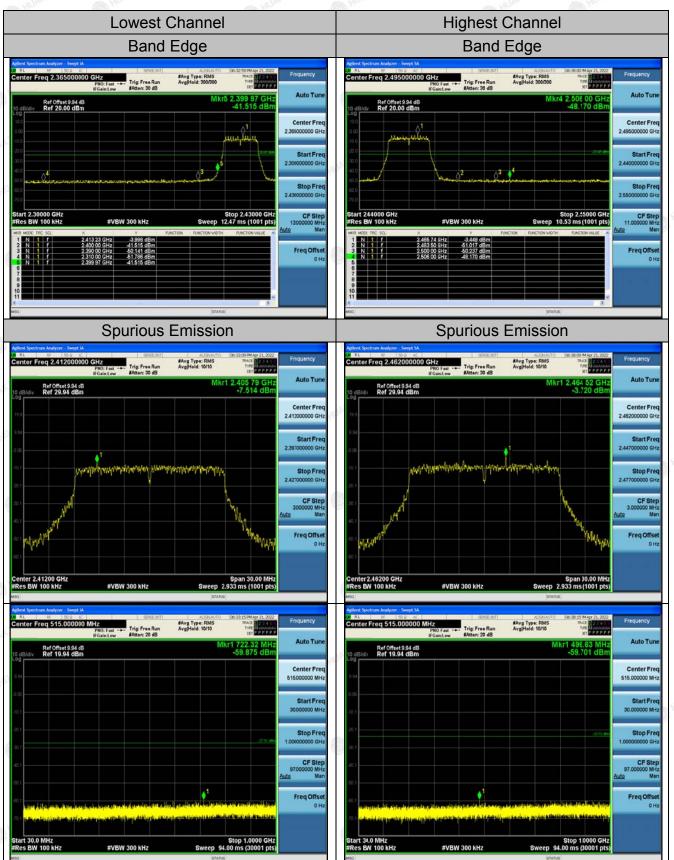






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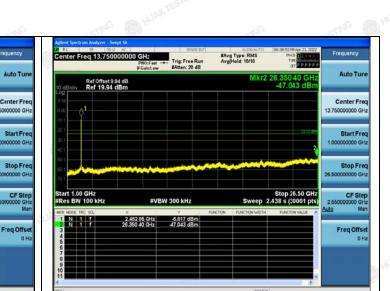
802.11n (HT20) Modulation



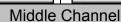
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity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

Ref Offset 9.94 dB Ref 19.94 dBm

> -5.103 dBm -47.127 dBm



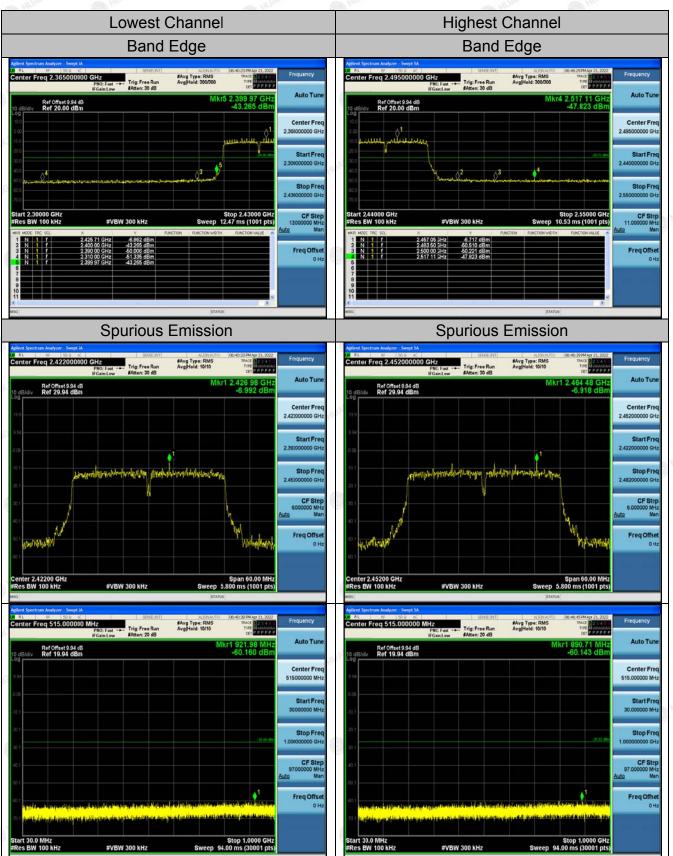
Report No.: HK2204201634-E





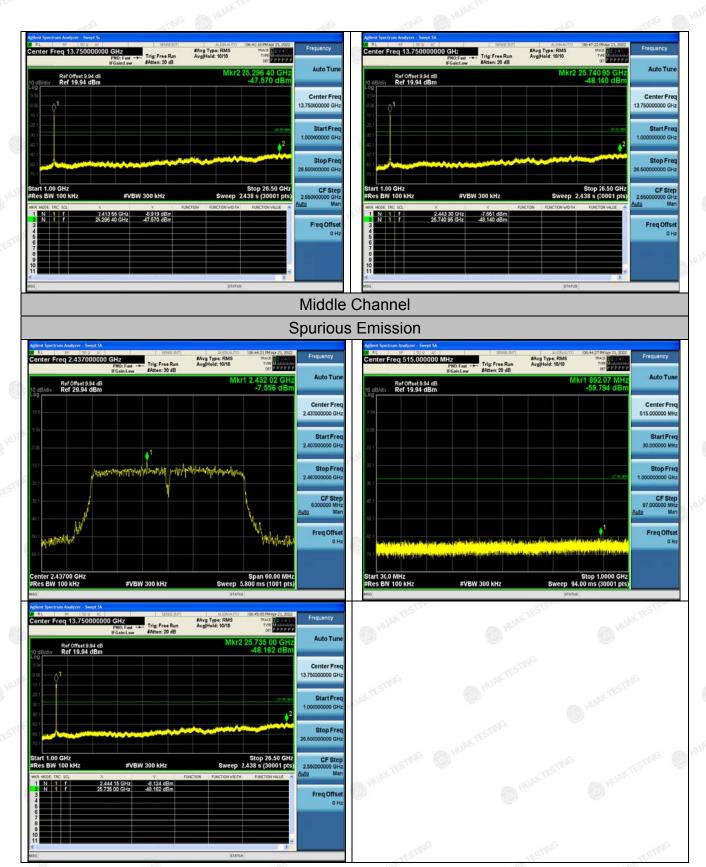
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannont be reproduced except in full with our prior written permission. The more details and the authenticity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

802.11n (HT40) Modulation



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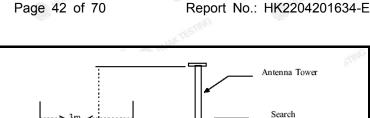


4.7. RADIATED SPURIOUS EMISSION MEASUREMENT

Test Specification

Test Requirement:	FCC Part15	C Section	on 1	15.209	TESTI	₫G	TESTIN
Test Method:	ANSI C63.10): 2013			HUAR		(1) HUAR
Frequency Range:	9 kHz to 25 (GHz			CTING		
Measurement Distance:	3 m	TESTING		AL HU	AKTE		TESTING
Antenna Polarization:	Horizontal &	Vertical			^	0	HUAR
Operation mode:	Transmitting	mode w	/ith	modulati	ion		
	Frequency 9kHz- 150kHz		Detector Quasi-peak		VBW 1kHz		Remark si-peak Value
Receiver Setup:	150kHz- Quasi-pe 30MHz		ak	9kHz	30kHz	Quasi-peak Val	
	30MHz-1GHz	Quasi-pe	ak	120KHz	300KHz		si-peak Value
	Above 1GHz	Peak	STIL	1MHz	3MHz	+	eak Value
	70	Peak		1MHz	10Hz	AVE	erage Value
	Frequency			Field Strength (microvolts/meter)		Measurement Distance (meters)	
	0.009-0.4	- 332		2400/F(k	•		300
	0.490-1.7			24000/F(KHz)	DECTE:	30
	1.705-3 30-88			30	MG		30
	88-216			100 150	<u> </u>		3
Limit:	216-960			200		TING	3
	Above 960			500	THUAK T		3
						•	
	Frequency		Field Strength (microvolts/meter)		Measure Distan (mete	ce	Detector
	WAK TE	THE WAY TO	5	500	3	Average	
	Above 1GHz		5	000	3		Peak
	For radiated	emissio	ns	below 30	MHz		-=TING
Test setup:	0.8 m		n Table	i m	RX Anto	enna ↑ 1 m	PAG
	30MHz to 10	6Hz			Receive	er]_	HUAN STI

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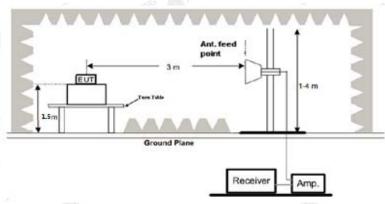
Antenna

Above 1GHz

Turn Table

Ground Plane

EUT



Test Procedure:

- 1. For the radiated emission test below 1GHz: The EUT was placed on a turntable with 0.8 meter above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high PASS filter are used for the test in order to get better signal level.
- 2. For the radiated emission test above 1GHz: Place the measurement antenna on a turntable with 0.1 meter above ground, which is away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal.

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100		1010		
	that which measuren emissions from 1 m ground pla 3. Corrected Read Lev 4. For measuren detector a level will be measuren detector a 5. Use the fol (1) Span se emission (2) Set RES Sweep max hor (3) Set RES peak m 6. For average cycle is no duty cycle minimum transmitter power contractions.	Reading: Antennal el - Preamp Factor rement below 10 T measured by the note applicable li be reported. Othe nent will be repea- and reported. lowing spectrum shall wide enough on being measure sW=120 kHz for f auto; Detector	emissions. The vation for maxed to a range of ground or reference a Factor + Capor = Level BHz, If the emity the peak detection of the peak detection expensively. The second of the peak detection of	imum of heights of erence ble Loss + ssion level toris 3 dB emission ssion quasi-peak ngs: re the N ≥RBW; ak;Trace = 1 GHz for , when duty (T, when T is the h the maximum
Test results:	PASS			

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Test Instruments

	Rad	iated Emission	Test Site (966)	
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Receiver	R&S	ESCI-7	HKE-010	Feb. 18, 2022	Feb. 17, 2023
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 18, 2022	Feb. 17, 2023
Spectrum analyzer	R&S	FSP40	HKE-025	Feb. 18, 2022	Feb. 17, 2023
High gain antenna	Schwarzbeck	LB-180400KF	HKE-054	Feb. 18, 2022	Feb. 17, 2023
Preamplifier	Schwarzbeck	BBV 9743	HKE-006	Feb. 18, 2022	Feb. 17, 2023
Preamplifier	EMCI	EMC051845S E	HKE-015	Feb. 18, 2022	Feb. 17, 2023
Preamplifier	Agilent	83051A	HKE-016	Feb. 18, 2022	Feb. 17, 2023
Loop antenna	Schwarzbeck	FMZB 1519 B	HKE-014	Feb. 18, 2022	Feb. 17, 2023
Broadband antenna	Schwarzbeck	VULB 9163	HKE-012	Feb. 18, 2022	Feb. 17, 2023
Horn antenna	Schwarzbeck	9120D	HKE-013	Feb. 18, 2022	Feb. 17, 2023
High pass filter unit	Tonscend	JS0806-F	HKE-055	Feb. 18, 2022	Feb. 17, 2023
Antenna Mast	Keleto	CC-A-4M	N/A	N/A	N/A
Position controller	Taiwan MF	MF7802	HKE-011	Feb. 18, 2022	Feb. 17, 2023
Radiated test software	Tonscend	TS+ Rev 2.5.0.0	HKE-082	N/A	N/A
RF cable	Times	9kHz-1GHz	HKE-117	Feb. 18, 2022	Feb. 17, 2023
RF cable	Times	1-40G	HKE-034	Feb. 18, 2022	Feb. 17, 2023
Horn Antenna	Schewarzbeck	BBHA 9170	HKE-017	Feb. 18, 2022	Feb. 17, 2023

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

All the test modes completed for test. only the worst result of (802.11b at 2412MHz) was reported as below:

Below 1GHz

Horizontal



QP Detector

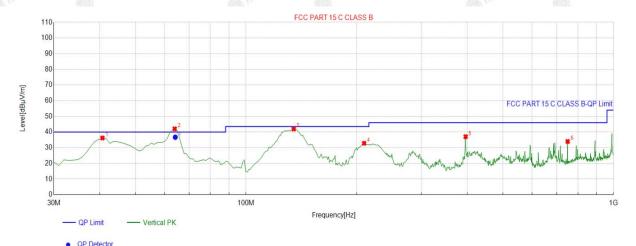
Suspe	Suspected List											
NO	Freq.	Factor	Reading	Level	Limit	Margin	Height	Angle	Delevite			
NO.	[MHz]	[dB]	[dBµV/m]	[dBµV/m]	[dBµV/m]	[dB]	[cm]	[°]	Polarity			
1	63.9840	-18.80	45.32	26.52	40.00	13.48	100	159	Horizontal			
2	136.8068	-13.03	38.98	25.95	43.50	17.55	100	318	Horizontal			
3	207.6877	-13.94	41.37	27.43	43.50	16.07	100	44	Horizontal			
4	396.0561	-10.71	50.92	40.21	46.00	5.79	100	187	Horizontal			
5	687.3473	-4.62	42.94	38.32	46.00	7.68	100	214	Horizontal			
6	750.4605	-3.16	42.28	39.12	46.00	6.88	100	218	Horizontal			

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

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Vertical



Suspected List											
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	40.6807	-13.45	49.66	36.21	40.00	3.79	100	4	Vertical		
2	63.9840	-18.80	60.83	42.03	40.00	-2.03	100	142	Vertical		
3	134.8649	-13.19	55.14	41.95	43.50	1.55	100	22	Vertical		
4	209.6296	-14.01	46.85	32.84	43.50	10.66	100	86	Vertical		
5	396.0561	-10.71	47.73	37.02	46.00	8.98	100	70	Vertical		
6	750.4605	-3.16	37.15	33.99	46.00	12.01	100	11	Vertical		

	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
Electrical states	1	64.2081	-18.80	55.51	36.71	40.00	3.29	200	148.4	Vertical

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

Harmonics and Spurious Emissions

Frequency Range (9kHz-30MHz)

Frequency (MHz)	Level@3m (dBµV/m)	Limit@3m (dBµV/m)		
WTES	<u></u>	AKTESTING		
TING HUN	THE THE MY	TING		
LINKTES!" WILLY TE	WAXTES!	JAKTES II		
.	6 19	• • ·		

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

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

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Above 1GHz

RADIATED EMISSION TEST

LOW CH1 (802.11b Mode)/2412

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4824	56.75	-3.64	53.11	74	-20.89	peak
4824	45.06	-3.64	41.42	54	-12.58	AVG
7236	48.01	-0.95	47.06	74	-26.94	peak
7236	39.98	-0.95	39.03	54	-14.97	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Type	
4824	60.22	-3.64	56.58	74	-17.42	peak	
4824	37.39	-3.64	33.75	54	-20.25	AVG	
7236	55.42	-0.95	54.47	74	-19.53	peak	
7236	33.62	-0.95	32.67	54	-21.33	AVG	

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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MID CH6 (802.11b Mode)/2437

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4874	58.31	-3.51	54.8	74	-19.2	peak
4874	39.36	-3.51	35.85	54	-18.15	AVG
7311	55.41	-0.82	54.59	74	-19.41	peak
7311	38.99	-0.82	38.17	54	-15.83	AVG

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4874	56.95	-3.51	53.44	74	-20.56	peak
4874	41.76	-3.51	38.25	54	-15.75	AVG
7311	51.35	-0.82	50.53	74	-23.47	peak
7311	38.77	-0.82	37.95	54	-16.05	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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HIGH CH11 (802.11b Mode)/2462

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4924	54.21	-3.43	50.78	74	-23.22	peak
4924	46.44	-3.43	43.01	54	-10.99	AVG
7386	52.78	-0.75	52.03	74	-21.97	peak
7386	35.23	-0.75	34.48	54	-19.52	AVG

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4924	56.81	-3.43	53.38	74	-20.62	peak
4924	49.17	-3.43	45.74	54	-8.26	AVG
7386	52.66	-0.75	51.91	74	-22.09	peak
7386	39.44	-0.75	38.69	54	-15.31	AVG
All the A	-		Access 1		- 19	

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency; "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) The emissions are attenuated more than 20dB below the permissible limits are not recorded in the report.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54dBuV/m(AV Limit), the Average Detected not need to completed.

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LOW CH1 (802.11g Mode)/2412

Horizontal:

Reading Result	Factor	Emission Level	Limits	Margin	Detector
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Type
51.71	-3.64	48.07	74	-25.93	peak
38.19	-3.64	34.55	54	-19.45	AVG
47.55	-0.95	46.6	74	-27.4	peak
36.88	-0.95	35.93	54	-18.07	AVG
	51.71 38.19 47.55	51.71 -3.64 38.19 -3.64 47.55 -0.95	51.71 -3.64 48.07 38.19 -3.64 34.55 47.55 -0.95 46.6	51.71 -3.64 48.07 74 38.19 -3.64 34.55 54 47.55 -0.95 46.6 74	51.71 -3.64 48.07 74 -25.93 38.19 -3.64 34.55 54 -19.45 47.55 -0.95 46.6 74 -27.4

Vertical:

U.	ACCUMANTAL STATES			Margin	Detector
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
50.71	-3.64	47.07	74	-26.93	peak
37.71	-3.64	34.07	54	-19.93	AVG
47.21	-0.95	46.26	74	-27.74	peak
34.13	-0.95	33.18	54	-20.82	AVG
	37.71 47.21	37.71 -3.64 47.21 -0.95	37.71 -3.64 34.07 47.21 -0.95 46.26	37.71 -3.64 34.07 54 47.21 -0.95 46.26 74	37.71 -3.64 34.07 54 -19.93 47.21 -0.95 46.26 74 -27.74

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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MID CH6 (802.11g Mode)/2437

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4874	57.99	-3.51	54.48	74	-19.52	peak
4874	45.91	-3.51	42.4	54	-11.6	AVG
7311	54.76	-0.82	53.94	74	-20.06	peak
7311	42.49	-0.82	41.67	54	-12.33	AVG

Vertical:

Reading Result	Factor	Emission Level	Limits	Margin	Detector
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Type
60.15	-3.51	56.64	74	-17.36	peak
38.83	-3.51	35.32	54	-18.68	AVG
53.31	-0.82	52.49	74	-21.51	peak
37.1	-0.82	36.28	54	-17.72	AVG
	(dBµV) 60.15 38.83 53.31	(dBµV) (dB) 60.15 -3.51 38.83 -3.51 53.31 -0.82	(dBμV) (dB) (dBμV/m) 60.15 -3.51 56.64 38.83 -3.51 35.32 53.31 -0.82 52.49	(dBμV) (dB) (dBμV/m) (dBμV/m) 60.15 -3.51 56.64 74 38.83 -3.51 35.32 54 53.31 -0.82 52.49 74	(dBμV) (dB) (dBμV/m) (dBμV/m) (dBμV/m) 60.15 -3.51 56.64 74 -17.36 38.83 -3.51 35.32 54 -18.68 53.31 -0.82 52.49 74 -21.51

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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HIGH CH11 (802.11g Mode)/2462

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4924	61.67	-3.43	58.24	74	-15.76	peak
4924	46.54	-3.43	43.11	54	-10.89	AVG
7386	51.44	-0.75	50.69	74	-23.31	peak
7386	42.61	-0.75	41.86	54	-12.14	AVG

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4924	53.28	-3.43	49.85	74	-24.15	peak
4924	42.79	-3.43	39.36	54	-14.64	AVG
7386	52.11	-0.75	51.36	74	-22.64	peak
7386	40.46	-0.75	39.71	54	-14.29	AVG
	-	-100	-	70	300	-

Remark:

(1) Measuring frequencies from 1 GHz to the 25 GHz.

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency; "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) The emissions are attenuated more than 20dB below the permissible limits are not recorded in the report.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54dBuV/m(AV Limit), the Average Detected not need to completed.

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LOW CH1 (802.11n/H20 Mode)/2412

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4824	50.96	-3.64	47.32	74	-26.68	peak
4824	39.04	-3.64	35.4	54	-18.6	AVG
7236	48.77	-0.95	47.82	74	-26.18	peak
7236	37.64	-0.95	36.69	54	-17.31	AVG

Vertical:

Reading Result	Factor	Emission Level	Limits	Margin	Detector
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Type
54.48	-3.64	50.84	74	-23.16	peak
46.73	-3.64	43.09	54	-10.91	AVG
50.35	-0.95	49.4	74	-24.6	peak
40.73	-0.95	39.78	54	-14.22	AVG
	(dBµV) 54.48 46.73 50.35	(dBµV) (dB) 54.48 -3.64 46.73 -3.64 50.35 -0.95	(dBμV) (dB) (dBμV/m) 54.48 -3.64 50.84 46.73 -3.64 43.09 50.35 -0.95 49.4	(dBμV) (dB) (dBμV/m) (dBμV/m) 54.48 -3.64 50.84 74 46.73 -3.64 43.09 54 50.35 -0.95 49.4 74	(dBμV) (dB) (dBμV/m) (dBμV/m) (dBμV/m) 54.48 -3.64 50.84 74 -23.16 46.73 -3.64 43.09 54 -10.91 50.35 -0.95 49.4 74 -24.6

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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MID CH6 (802.11n/H20 Mode)/2437

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4874	56.64	-3.51	53.13	74.00	-20.87	peak
4874	44.63	-3.51	41.12	54.00	-12.88	AVG
7311	51.59	-0.82	50.77	74.00	-23.23	peak
7311	40.16	-0.82	39.34	54.00	-14.66	AVG
Remark: Factor	r = Antenna Factor -	Cable Loss	– Pre-amplifier	Me William	TING	STR

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4874	57.09	-3.51	53.58	74.00	-20.42	peak
4874	46.55	-3.51	43.04	54.00	-10.96	AVG
7311	53.78	-0.82	52.96	74.00	-21.04	peak
7311	41.63	-0.82	40.81	54.00	-13.19	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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HIGH CH11 (802.11n/H20 Mode)/2462

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Data star Trina
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
4924	51.72	-3.43	48.29	74	-25.71	peak
4924	42.55	-3.43	39.12	54	-14.88	AVG
7386	49.19	-0.75	48.44	74	-25.56	peak
7386	38.41	-0.75	37.66	54	-16.34	AVG

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Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Turns
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
4924	52.31	-3.43	48.88	74	-25.12	peak
4924	43.48	-3.43	40.05	54	-13.95	AVG
7386	50.96	-0.75	50.21	74	-23.79	peak
7386	41.55	-0.75	40.8	54	-13.2	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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LOW CH3 (802.11n/H40 Mode)/2422

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Data star Tura
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
4844	59.07	-3.63	55.44	74	-18.56	peak
4844	45.66	-3.63	42.03	54	-11.97	AVG
7266	57.91	-0.94	56.97	74	-17.03	peak
7266	44.01	-0.94	43.07	54	-10.93	AVG

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
4844	52.71	-3.63	49.08	74	-24.92	peak
4844	36.78	-3.63	33.15	54	-20.85	AVG
7266	49.74	-0.94	48.8	74	-25.2	peak
7266	34.79	-0.94	33.85	54	-20.15	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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MID CH6 (802.11n/H40 Mode)/2437

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Data atau Tuma
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
4874	60.3	-3.51	56.79	74	-17.21	peak
4874	39.9	-3.51	36.39	54	-17.61	AVG
7311	57.75	-0.82	56.93	74	-17.07	peak
7311	38.47	-0.82	37.65	54	-16.35	AVG

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Data atau Tura
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
4874	54.33	-3.51	50.82	74	-23.18	peak
4874	40.56	-3.51	37.05	54	-16.95	AVG
7311	51.91	-0.82	51.09	74	-22.91	peak
7311	38.05	-0.82	37.23	54	-16.77	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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HIGH CH9 (802.11n/H40 Mode)/2452

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Data at an Tanak
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
4904	55.93	-3.43	52.5	74	-21.5	peak
4904	43.55	-3.43	40.12	54	-13.88	AVG
7356	54.15	-0.75	53.4	74	-20.6	peak
7356	40.25	-0.75	39.5	54	·14.5	AVG

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier.

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
4904	51.9	-3.43	48.47	74	-25.53	peak
4904	41.06	-3.43	37.63	54	-16.37	AVG
7356	49.57	-0.75	48.82	74	-25.18	peak
7356	39.21	-0.75	38.46	54	-15.54	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency; "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) The emissions are attenuated more than 20dB below the permissible limits are not recorded in the report.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

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Test Result of Radiated Spurious at Band edges

Operation Mode:

802.11b Mode TX CH Low (2412MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Data star Tuna
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2310.00	53.79	-5.81	47.98	74	-26.02	peak
2310.00	42.12	-5.81	36.31	54	-17.69	AVG
2390.00	52.70	-5.84	46.86	74	-27.14	peak
2390.00	39.89	-5.84	34.05	54	-19.95	AVG

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Datis Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2310.00	51.31	-5.81	45.5	74	-28.5	peak
2310.00	44.03	-5.81	38.22	54	-15.78	AVG
2390.00	50.66	-5.84	44.82	74	-29.18	peak
2390.00	40.99	-5.84	35.15	54	-18.85	AVG
emark: Factor	= Antenna Factor	+ Cable Loss	- Pre-amplifier.	ING	TING	TING

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AL



Operation Mode: TX CH High (2462MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Datastar Tyra
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2483.50	53.01	-5.81	47.2	74	-26.8	peak
2483.50	40.51	-5.81	34.7	54	-19.3	AVG
2500.00	48.84	-6.06	42.78	74	-31.22	peak
2500.00	38.6	-6.06	32.54	54	-21.46	AVG

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2483.50	51.67	-5.81	45.86	74 HUAI	-28.14	peak
2483.50	40.33	-5.81	34.52	54	-19.48	AVG
2500.00	49.88	-6.06	43.82	74	-30.18	peak
2500.00	36.99	-6.06	30.93	54	-23.07	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.

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Operation Mode: 802.11g Mode TX CH Low (2412MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Data Mar Tuna
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2310.00	56.32	-5.81	50.51	74	-23.49	peak
2310.00	44.01	-5.81	38.2	54	-15.8	AVG
2390.00	52.35	-5.84	46.51	74	-27.49	peak
2390.00	39.61	-5.84	33.77	54	-20.23	AVG

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2310.00	49.31	-5.81	43.5	74	-30.5	peak
2310.00	42.93	-5.81	37.12	54	-16.88	AVG
2390.00	50.17	-5.84	44.33	74	-29.67	peak
2390.00	39.77	-5.84	33.93	54	-20.07	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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Operation Mode: TX CH High (2462MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	w Limits	Margin	Data da Ting
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2483.50	51.85	-5.65	46.2	74	-27.8	peak
2483.50	40.03	-5.65	34.38	54	-19.62	AVG
2500.00	50.12	-5.65	44.47	74	-29.53	peak
2500.00	39.15	-5.65	33.5	54	-20.5	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2483.50	50.2	-5.65	44.55	74	-29.45	peak
2483.50	40.15	-5.65	34.5	54	-19.5	AVG
2500.00	49.69	-5.65	44.04	74	-29.96	peak
2500.00	36.06	-5.65	30.41	54	-23.59	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.

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Operation Mode: 802.11n/H20 Mode TX CH Low (2412MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	D. L. L. TING
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2310.00	50.1	-5.81	44.29	74	-29.71	peak
2310.00	41.39	-5.81	35.58	54	-18.42	AVG
2390.00	50.05	-5.84	44.21	74	-29.79	peak
2390.00	36.55	-5.84	30.71	54	-23.29	AVG
Remark: Factor	r = Antenna Factor	+ Cable Loss –	Pre-amplifier.	Ac Why	TING	STING

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2310.00	51.69	-5.81	45.88	74	-28.12	peak
2310.00	41.92	-5.81	36.11	54	-17.89	AVG
2390.00	47.70	-5.84	41.86	74	-32.14	peak
2390.00	39.26	-5.84	33.42	54	-20.58	AVG

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Operation Mode: TX CH High (2462MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Data stan Tuna
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2483.50	50.91	-5.65	45.26	74	-28.74	peak
2483.50	39.6	-5.65	33.95	54	-20.05	AVG
2500.00	48.52	-5.65	42.87	74	-31.13	peak
2500.00	36.31	-5.65	30.66	54	-23.34	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

-411.a	-711-2	-7	ll.a.	Alla	-411/4	2112
Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2483.50	52.4	-5.65	46.75	74	-27.25	peak
2483.50	41.47	-5.65	35.82	54	-18.18	AVG
2500.00	48.42	-5.65	42.77	74	-31.23	peak
2500.00	39.45	-5.65	33.8	54	-20.2	AVG

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.

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Operation Mode: 802.11n/H40 Mode TX CH Low (2422MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Data star Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2310.00	53.04	-5.81	47.23	74	-26.77	peak
2310.00	STING /	-5.81	/ TESTING	54	1	AVG
2390.00	61.58	-5.84	55.74	74	-18.26	peak
2390.00	44.31	-5.84	38.47	54	-15.53	AVG
Remark: Factor	= Antenna Factor	+ Cable Loss -	Pre-amplifier.	G WHOM	TING	STING

Vertical:

Frequency	Reading Result	Factor	Emission Level	。 Limits	Margin	Detector Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2310.00	55.24	-5.81	49.43	74	-24.57	peak
2310.00	ESTING /	-5.81	W TESTING	54	1	AVG
2390.00	60.12	-5.84	54.28	74	-19.72	peak
2390.00	51.68	-5.84	45.84	54	-8.16	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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Operation Mode: TX CH High (2452MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2483.50	52.79	-5.65	47.14	74 HUAN	-26.86	peak
2483.50	1	-5.65	MANAR.	54	1	AVG
2500.00	50.22	-5.65	44.57	74	-29.43	peak
2500.00	A LEZUNG (B)	-5.65	NG / TESTIN	54	STING	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

4.35	and the second second		at V		4.37	
Frequency	Reading Result	Factor	Emission Level	Limits 💮	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2483.50	55.17	-5.65	49.52	74	-24.48	peak
2483.50	1	-5.65	· /	54	1 (1)	AVG
2500.00	52.69	-5.65	47.04	74	-26.96	peak
2500.00	HJAKTES /	-5.65	AUAK TE	54	AHJAK TEST	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



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4.8. 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. And according to FCC 47 CFR Section 15.247, if transmitting antennas of directional gain greater than6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

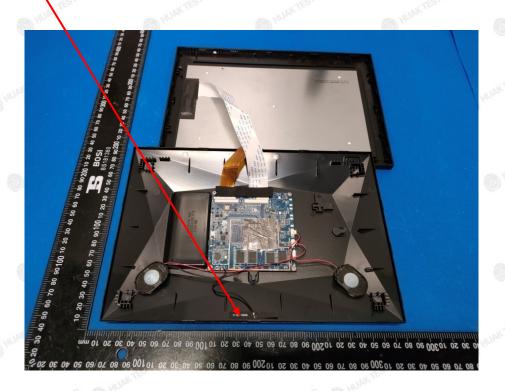
Refer to statement below for compliance.

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 Internal Antenna, need professional installation. It conforms to the standard requirements. The directional gains of antenna used for transmitting is 2.5dBi.

WIFI ANTENNA

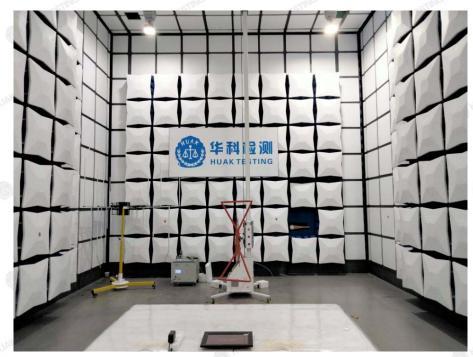


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5. PHOTOGRAPH OF TEST

Radiated Emissions





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Conducted Emission



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6. PHOTOS OF THE EUT

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

-----End of test report-----

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