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FCC Test Report

Test report On Behalf of TEVII TECHNOLOGY CO., LTD. For Wireless HDMI Extender Model No.: E100 RX, Present + Share USB-C Edition

FCC ID: 2ALU5E100RX

Prepared For : TEVII TECHNOLOGY CO., LTD.

10F, No. 125, Sec. 2, Datong Rd. 22183 Xizhi District, New Taipei City, Taiwan

Prepared By : Sł

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:
 Jun. 08, 2023 ~ Jul. 17, 2023

 Date of Report:
 Jul. 17, 2023

 Report Number:
 HK2306092426-E

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Test Result Certification

Applicant's name	TEVII TECHNOLOGY CO., LTD.
Address	10F, No. 125, Sec. 2, Datong Rd. 22183 Xizhi District, New Taipei City, Taiwan
Manufacture's Name	TEVII TECHNOLOGY CO., LTD.
Address	10F, No. 125, Sec. 2, Datong Rd. 22183 Xizhi District, New Taipei City, Taiwan
Product description	
Trade Mark:	TEVII, ClearClick, SIIG
Product name:	Wireless HDMI Extender
Model and/or type reference .:	E100 RX, Present + Share USB-C Edition
Standards	FCC Rules and Regulations Part 15 Subpart E Section 15.407 ANSI C63.10: 2013

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Date of Test	
Date (s) of performance of tests	Jun. 08, 2023 ~ Jul. 17, 2023
Date of Issue	Jul. 17, 2023
Test Result	Pass

Prepared by:

Cramp Dian

Project Engineer

Reviewed by:

Zden

Project Supervisor

Approved by:

asin Mou

Technical Director

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Т 691

** Modified History **

Revision Description		Issued Data	Remark
Revision 1.0 Initial Test Report Release		Jul. 17, 2023	Jason Zhou
CTING	TING	STING	G

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1. Test Result Summary

1.1. Test Procedures and Results

Requirement	uirement CFR 47 Section	
Antenna requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	PASS
Maximum Conducted Output Power	§15.407(a)	PASS
6dB Emission Bandwidth	§15.407(e)	N/A
26dB Emission Bandwidth& 99% Occupied Bandwidth	§15.407(a)	PASS
Power Spectral Density	§15.407(a)	PASS
Band edge	§15.407(b)/15.209/15.205	PASS
Radiated Emission	§15.407(b)/15.209/15.205	PASS
Frequency Stability	y Stability §15.407(g)	

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
NG 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%

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2. EUT Description

2.1. General Description of EUT

Equipment:	Wireless HDMI Extender
Model Name:	E100 RX
Serial No.:	Present + Share USB-C Edition
Model Difference:	All model's the function, software and electric circuit are the same, only with a product model named different. Test sample model: E100 RX
Trade Mark:	TEVII, ClearClick, SIIG
FCC ID:	2ALU5E100RX
Operation Frequency:	IEEE 802.11a/n (HT20) 5.180GHz-5.240GHz IEEE 802.11n (HT40) 5.190GHz-5.230GHz
Modulation Technology:	IEEE 802.11a/n
Modulation Type:	CCK/OFDM/DBPSK/DAPSK
Antenna Type:	Iron sheet antenna
Antenna Gain:	2.22dBi
Power Source:	DC 5V from Type-C
Power Supply:	DC 5V from Type-C

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2.2.	Operation	Frequency	Each of	Channel
2.2.	Operation	Frequency	Each of	Channe

802.11a/8	02.11n(HT20)	802.1	1n(HT40)
Channel	Frequency	Channel	Frequency
36	5180	38	5190
40	5200	46	5230
44	5220		STING
48	5240	resting	HUAKTE
<u>e</u>		WAR	
	STING		STING
NG HUAK	<u></u>	ali a	HUAK
TEST	NY TESTING	ALAKTEST.	, NY
	O HOL		C HOI

Note:

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

2.3. Operation of EUT During Testing

For 802.11a/n (HT20)

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

For 802.11n (HT40)

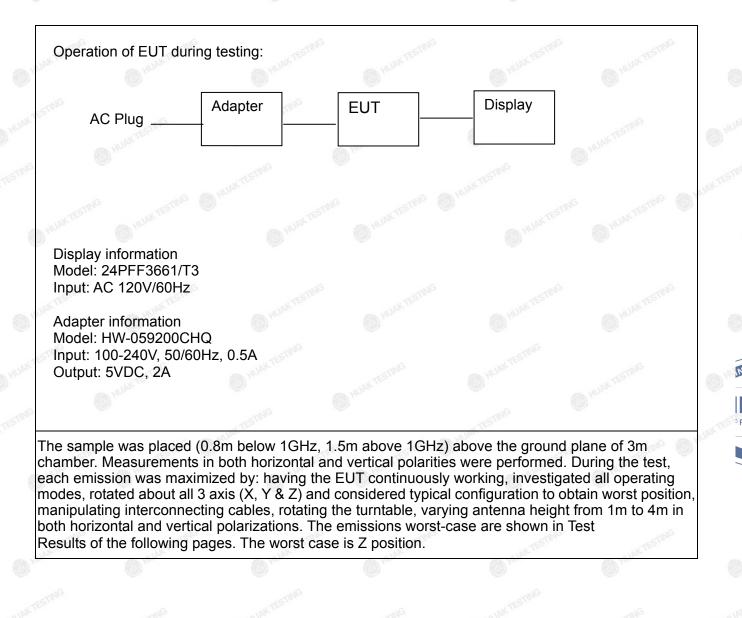
	100		
Ba	and I (5150	- 5250 MHz)	JA1
Channel Number	Channel	Frequency (MHz)	1251
38	Low	5190	
46	High	5230	

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2.4. Description of Test Setup



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3. Genera Information

3.1. Test Environment and Mode

Operating Environment:			
Temperature:	25.0 °C	HUAKTES	HUAKTES
Humidity:	56 % RH	TING	
Atmospheric Pressure:	1010 mbar	HUAKTES	TESTING

Test Mode:

Kee	o the EUT in continuous transmitting
	elect channel and modulations(The elect channel and modulations) e of duty cycle is 100%)

The sample was placed 0.8m/1.5m for blow/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.

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.

TESTING	Mode	AK TESTING	Data rate	AKTESTIN
	802.11a	O HOY	6 Mbps	O Hon
NG	802.11n(HT20)	and	MCS0	and
6	802.11n(HT40)	AUAKTES	MCS0	HUAKTEST
Final T	est Mode:			
Оре	ration mode:	Keep the El with modula	JT in continuous t ition	ransmitting

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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
1	NG / HUAKTEST	I come	HUAK TESTING	I STANG

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, 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

4.1.1. Test Specification

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sound sound	STAG STA	NG CT	NG				
Test Requirement:	FCC Part15 C Section	15.207	O HUAK TL				
Test Method:	ANSI C63.10:2013						
Frequency Range:	150 kHz to 30 MHz	O HUAK I	WAX TESTING				
Receiver setup:	RBW=9 kHz, VBW=30	kHz, Sweep time	=auto				
Limits:	Frequency range (MHz) 0.15-0.5 0.5-5 5-30	Limit (c Quasi-peak 66 to 56* 56 60	BuV) Average 56 to 46* 46 50				
Test Setup:	Reference Plane 40cm LISN Test table/Insulation plane Remark E.U.T. Equipment Under Test LISN Line Impedence Stabilization Network Test table height=0.8m						
Test Mode:	Tx Mode		6				
Test Procedure:	 Tx Mode 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement. 						
	the interface cables	must be change	ed according to				

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4.1.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)										
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due					
Receiver	R&S	ESR-7	HKE-005	Feb. 17, 2023	Feb. 16, 2024					
LISN	R&S	ENV216	HKE-002	Feb. 17, 2023	Feb. 16, 2024					
Coax cable (9KHz-30MHz)	Times	381806-002	N/A	Feb. 17, 2023	Feb. 16, 2024					
Conducted test software	Tonscend	TS+ Rev 2.5.0.0	HKE-081	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).

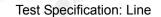
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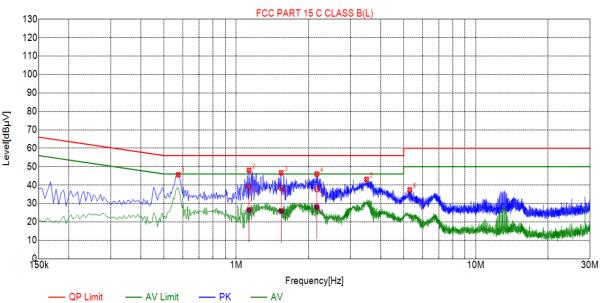
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Test data







Sus	Suspected List									
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Туре		
1	0.5730	45.62	20.05	56.00	10.38	25.57	PK	L		
2	1.1310	48.05	20.08	56.00	7.95	27.97	PK	L		
3	1.5405	46.64	20.11	56.00	9.36	26.53	PK	L		
4	2.1705	46.01	20.16	56.00	9.99	25.85	PK	L		
5	3.4980	43.07	20.25	56.00	12.93	22.82	PK	L		
6	5.3025	37.37	20.26	60.00	22.63	17.11	PK	L		

Final Data List

0

14	NO.	Freq. [MHz]	Correction factor[dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	QP Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	AV Reading [dBµV]	Туре
	1	1.1310	20.08	39.21	56.00	16.79	19.13	26.45	46.00	19.55	6.37	L
0	2	1.5405	20.11	38.35	56.00	17.65	18.24	25.95	46.00	20.05	5.84	L
2	3	2.1705	20.16	37.71	56.00	18.29	17.55	28.07	46.00	17.93	7.91	L

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

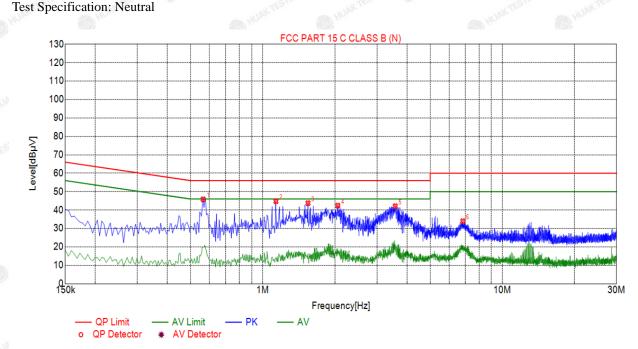
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NG



Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Туре	
1	0.5640	45.84	20.06	56.00	10.16	25.78	PK	N	
2	1.1355	44.78	20.09	56.00	11.22	24.69	PK	N	
3	1.5450	43.75	20.11	56.00	12.25	23.64	PK	N	
4	2.0580	42.40	20.15	56.00	13.60	22.25	PK	N	
5	3.5745	42.12	20.25	56.00	13.88	21.87	PK	N	
6	6.8415	33.98	20.20	60.00	26.02	13.78	PK	N	

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

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4.2. Maximum Conducted Output Power

4.2.1. Test Specification

Test Requirement:	FCC Part15 E Section 15.407(a)				
Test Method:	KDB789033 D02 General UNII Test Procedures New Rules v02.r01 Section E				
Limit:	Frequency Band (MHz)	Limit	WAX TESTING		
	5150-5250	250mW for client of	devices		
Test Setup:	Power meter		D D D D D D D D D D D D D D D D D D D		
Test Mode:	Transmitting mode	with modulation	¢		
Test Procedure:	 The testing follows the Measurement Procedure of KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section E, 3, a. The RF output of EUT was connected to the power meter 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 conducted output power and record the results in the test report. 				
Test Result:	PASS	AL TEL	HUAKTE		
Remark:	Conducted output power= measurement power +10log(1/x) X is duty cycle=1, so 10log(1/1)=0 Conducted output power= measurement power				

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4.2.2. Test Instruments

	RF Test Room									
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due					
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 17, 2023	Feb. 16, 2024					
Power meter	Agilent	E4419B	HKE-085	Feb. 17, 2023	Feb. 16, 2024					
Power Sensor	Agilent	E9300A	HKE-086	Feb. 17, 2023	Feb. 16, 2024					
RF cable	Times	[©] 1-40G	HKE-034	Feb. 17, 2023	Feb. 16, 2024					
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 17, 2023	Feb. 16, 2024					

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

	Allow You		ALL		Allen He						
	Configuration Band I (5150 - 5250 MHz)										
Mode	Test channel	Reading Conducted Output Power (dBm)	Cable loss	Maximum Conducted Output Power (dBm)	FCC Limit (dBm)	Result					
11a	CH36	7.57	0.8	8.37	24	PASS					
11a	CH40	6.77	0.8	7.57	24	MPASS					
11a 🍵	CH48	6.26	0.8	7.06	24	PASS					
11n(HT20)	CH36	7.01	0.8	7.81	24	PASS					
11n(HT20)	CH40	5.84	0.8	6.64	24	PASS					
11n(HT20)	CH48	6.21	0.8	7.01	24	PASS					
11n(HT40)	CH38	9.73	0.8	10.53	24	PASS					
11n(HT40)	CH46	6.78	0.8	7.58	ି 24	PASS					
LIAK .	Agri	4 Alt	May	101		IAN					

Note: Maximum Conducted Output Power(dBm)= Reading Conducted Output Power(dBm)+ Cable loss

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4.3. 6db Emission Bandwidth

4.3.1. Test Specification

Test Requirement:	FCC CFR47 Part 15 Section 15.407(e)
Test Method:	KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C
Limit:	>500kHz
Test Setup:	Spectrum Analyzer
Test Mode:	Transmitting mode with modulation
Test Procedure:	 KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C. 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:	N/A

4.3.2. Test Instruments

RF Test Room								
EquipmentManufacturerModelSerial NumberCalibration DateCalibrat Due								
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 17, 2023	Feb. 16, 2024			
RF cable	Times	1-40G	HKE-034	Feb. 17, 2023	Feb. 16, 2024			
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 17, 2023	Feb. 16, 2024			

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to

international system unit (SI).

4.3.3Test data

N/A

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4.4. 26db Bandwidth and 99% Occupied Bandwidth

4.4.1. Test Specification

Test Requirement:	47 CFR Part 15C Section 15.407
Test Method:	KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C
Limit:	No restriction limits
Test Setup:	Spectrum Analyzer
Test Mode:	Transmitting mode with modulation
Test Procedure:	 KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C. Set to the maximum power setting and enable the EUT transmit continuously. Make the measurement with the spectrum analyzer's resolution bandwidth RBW = 1% EBW, VBW≥3RBW, In order to make an accurate measurement. Measure and record the results in the test report.
Test Result:	PASS

4.4.2. Test Instruments

RF Test Room							
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due		
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 17, 2023	Feb. 16, 2024		
RF cable	Times	_o 1-40G	HKE-034	Feb. 17, 2023	Feb. 16, 2024		
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 17, 2023	Feb. 16, 2024		

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

Band I

Mode	Test channel	Frequency (MHz)	26 dB Bandwidth (MHz)	Verdict
11a	CH36	5180	19.32	PASS
11a 🌒	CH40	5200	19.32	PASS
11a	CH48	s 5240	19.80	PASS
11n(HT20)	CH36	5180	19.80	PASS
11n(HT20)	CH40	5200	20.08	PASS
11n(HT20)	CH48	5240	20.04	PASS
11n(HT40)	CH38	5190	38.08	PASS
11n(HT40)	CH46	5230	38.16	PASS
(259)		(3232)	(1737)	0000

Test plots as follows:

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Band I (5150 - 5250 MHz)



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Report No.: HK2306092426-E



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4.5. POWER SPECTRAL DENSITY

4.5.1. Test Specification

Test Requirement:	FCC Part15 E Section 15.407 (a)				
Test Method:	KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section F				
Limit:	≤11.00dBm/MHz for Band I 5150MHz-5250MHz				
Test Setup:	Spectrum Analyzer EUT				
Test Mode:	Transmitting mode with modulation				
Test Procedure:	 Set the spectrum analyzer or EMI receiver span to view the entire emission bandwidth. Set RBW = 1 MHz, VBW ≥ 3*RBW, Sweep time = Auto, Detector = RMS. Allow the sweeps to continue until the trace stabilizes. Use the peak marker function to determine the maximum amplitude level. The E.I.R.P spectral density used radiated test method. At a test site that has been validated using the procedures of ANSI C63.4 or the latest CISPR 16-1-4 for measurements above 1 GHz, so as to simulate a near free-space environment. 				
Test Result:	PASS				

4.5.2. Test Instruments

RF Test Room								
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due			
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 17, 2023	Feb. 16, 2024			
RF cable	Times	1-40G	HKE-034	Feb. 17, 2023	Feb. 16, 2024			
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 17, 2023	Feb. 16, 2024			

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to

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4.5.3. Test data

Mode	Test channel	Level [dBm/MHz]	Limit (dBm/MHz)	Result
11a	CH36	4.25	11 mg	PASS
11a	CH40	4.55	11	PASS
11a	CH48	2.98	11	PASS
11ac(HT20)	CH36	4.14	11	PASS
11ac(HT20)	CH40	4.23	ی 11	PASS
11ac(HT20)	CH48	3.37	11HUM	PASS
11ac(HT40)	CH38	5.17	11	PASS
11ac(HT40)	CH46	2.59	11	PASS

Note: Instrument attenuation and cable loss See test diagram

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Band I (5150 - 5250 MHz)



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ACATION:

4.6. BAND EDGE

4.6.1. Test Specification

Test Requirement:	FCC CFR47 Part 15E Section 15.407
Test Method:	ANSI C63.10 2013
Limit:	 For band I&II&III: E[dBµV/m] = EIRP[dBm] + 95.2=68.2 dBµV/m, for EIRP(dBm)= -27dBm For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. For band IV(5715-5725MHz&5850-5860MHz): E[dBµV/m] = EIRP[dBm] + 95.2=78.2 dBµV/m, for EIRP(dBm)= -27dBm; For band IV(other un-restricted band):E[dBµV/m] = EIRP[dBm] + 95.2=68.2 dBµV/m, for EIRP(dBm)= -27dBm
Test Setup:	Ant. feed point tues Talk Ground Plane Receiver Amp.
Test Mode:	Transmitting mode with modulation
Test Procedure:	 The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

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Test Procedu	ıre:	 4. For each suspected emist to its worst case and then the heights from 1 meter to 4 meters to 4 meters from 0 degrees to 30 maximum reading. 5. The test-receiver system Function and Specified Ban Mode. 6. If the emission level of the 10dB lower than the limit spectre stopped and the peak value reported. Otherwise the emistion and be re-tee quasi peak or average methed. 	he antenna was tuned to beters and the rota table was 50 degrees to find the was set to Peak Detect dwidth with Maximum Hold e EUT in peak mode was becified, then testing could es of the EUT would be issions that did not have ested one by one using pea
Test Result:		PASS	(i) · · · · · · · · · · · · · · · · · · ·

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4.6.2. Test Instruments

	Rac	diated Emission	Test Site (96	6)		
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due	
Receiver	R&S	ESRP3	HKE-005	Feb. 17, 2023	Feb. 16, 2024	
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 17, 2023	Feb. 16, 2024	
Preamplifier	EMCI	EMC051845S E	HKE-015	Feb. 17, 2023	Feb. 16, 2024	
Preamplifier	Agilent	83051A	HKE-016	Feb. 17, 2023	Feb. 16, 2024	
Loop antenna	Schwarzbeck	FMZB 1519 B	HKE-014	Feb. 17, 2023	Feb. 16, 2024	
Broadband antenna	Schwarzbeck	VULB 9163	HKE-012	Feb. 17, 2023	Feb. 16, 2024	
Horn antenna	Schwarzbeck	9120D	HKE-013	Feb. 17, 2023	Feb. 16, 2024	
Antenna Mast	Keleto	CC-A-4M	N/A	N/A	N/A	
Position controller	Taiwan MF	MF7802	HKE-011	Feb. 17, 2023	Feb. 16, 2024	
Radiated test software	Tonscend	TS+ Rev 2.5.0.0	HKE-082	N/A	N/A	
RF cable (9KHz-1GHz)	Times	381806-001	N/A	N/A	N/A	
Hf antenna	Schwarzbeck	LB-180400-K F	HKE-031	Feb. 17, 2023	Feb. 16, 2024	
RF cable	Tonscend	1-18G	HKE-099	Feb. 17, 2023	Feb. 16, 2024	
RF cable	Times	1-40G	HKE-034	Feb. 17, 2023	Feb. 16, 2024	

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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4.6.3. Test Data

Radiated Band Edge Test:

Operation Mode: 802.11a Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	HUNKIE
5150	54.54	-2.49	52.05	74	-21.95	peak
5150	ALTESTING O	-2.49	ESTING AKTES	54	TESTING	AVG

Vertical:

TES	AK TES	AK TES	AK TE	P	AKTES	NAK TES
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	TESTING
5150	52.14	-2.49	49.65	74	-24.35	peak
5150	1	-2.49	/	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
5350	56.88	-2.11	54.77	74	-19.23	peak
5350	- and	-2.11	1	54	AKTES NO /	AVG

Vertical:

CTIN	15°		ether (5)		-CTIN-	15
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
5350	54.23	-2.11	52.12	s ^{MG} 74	-21.88	peak
5350	Maria I	-2.11	() HUM	54	HUM 1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: 802.11n20 Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
5150	55.26	-2.49	52.77	74	-21.23	peak
5150	1	-2.49	C HUMAN	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	HUAKTESTI
5150	53.16	-2.49	50.67	74	-23.33	peak
5150	-csmig /	-2.49	/ resting	54	WTES !!	AVG
. 10	N.		10m			105

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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FICATION

Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
5350	54.57	-2.11	52.46	74	-21.54	peak
5350		-2.11		54	TESTIN /	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	HUAKTE
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.61	-2.11	51.5	۶4 🕬	-22.5	peak
5350	HUAN	-2.11	HUAN	54	NUAR I	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: 802.11 n40 Mode with 5.2G TX CH Low

Horizontal

Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
54.65	-2.49	52.16	74	-21.84	peak
1	-2.49	O HUAN	54	1	AVG
	(dBµV)	(dBµV) (dB) 54.65 -2.49	(dBµV) (dB) (dBµV/m) 54.65 -2.49 52.16	(dBµV) (dB) (dBµV/m) (dBµV/m) 54.65 -2.49 52.16 74	(dBµV) (dB) (dBµV/m) (dBµV/m) (dBµV/m) 54.65 -2.49 52.16 74 -21.84

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	🤌 Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	O HOLE
[©] 5150	51.33	-2.49	48.84	74	-25.16	peak
5150	1	-2.49	HUAKTESI	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	HUAN TES
5350	53.15	-2.11	51.04	74	-22.96	peak
5350	TING /	-2.11	1	54	1	AVG

Vertical:

TEST	-51	IN TEST	1	STIN	TEST
Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
52.95	-2.11	50.84	⁶⁶ 74	-23.16	peak
1	-2.11	1 Hos	54	1	AVG
	(dBµV)	(dBµV) (dB) 52.95 -2.11	(dBµV) (dB) (dBµV/m) 52.95 -2.11 50.84	(dBµV) (dB) (dBµV/m) (dBµV/m) 52.95 -2.11 50.84 74	(dBµV) (dB) (dBµV/m) (dBµV/m) (dB) 52.95 -2.11 50.84 74 -23.16

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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4.7. Spurious Emission

4.7.1.1. Test Specification

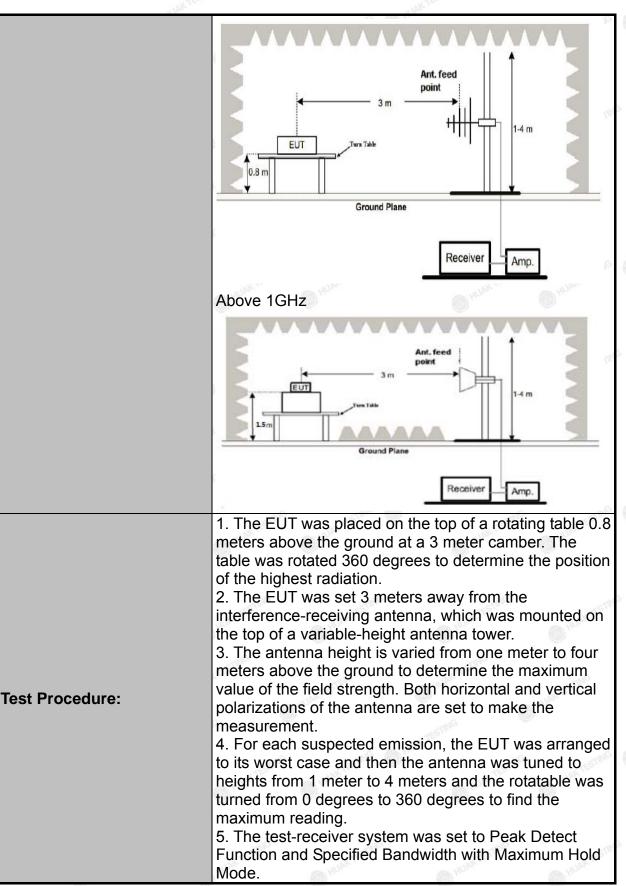
Test Requirement:	FCC CFR47	Part 15 Se	ction 15	407	
Test Method:	KDB 789033	5 D02 v02r0)1 (HUAN	C HUM
Frequency Range:	9kHz to 40G	Hz		CSTING	
Measurement Distance:	3 m	NKTESTING	O ¹⁴¹	low .	AKTESTING
Antenna Polarization:	Horizontal &	Vertical		alG	O HO
Operation mode:	Transmitting	mode with	modulat	ion	
Receiver Setup:	Frequency 9kHz- 150kHz 150kHz- 30MHz 30MHz-1GHz	Detector Quasi-peak Quasi-peak Quasi-peak Peak	RBW 200Hz 9kHz 120KHz 1MHz	VBW 1kHz 30kHz 300KHz 3MHz	Remark Quasi-peak Valu Quasi-peak Valu Quasi-peak Valu Peak Value
	Above 1GHz	Peak	1MHZ	10Hz	Average Value
Limit:	shall not exc (i) All emiss dBm/MHz at edge increas above or below or below the 15.6 dBm/MI and from 5 increasing lin edge.	eed an e.i.i sions shall 55 MHz of sing linear ow the ban band edge Hz at 5 MHz MHz abo nearly to a l requency b	r.p. of −2 be limi r more a ly to 10 d edge, a e increas z above ove or evel of 2 elow 1G	7 dBm/N ted to a bove or dBm/M and from ing linea or below below th 7 dBm/N Hz and v	5.35 GHz ban 1Hz. a level of -2 below the ban Hz at 25 MH 25 MHz abov rly to a level of the band edge he band edge 1Hz at the ban which fall in res
	For radiated		below 30	0MHz RX Ante	
Test setup:	30MHz to 10	Ground	Plane	Receive	

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Report No.: HK2306092426-E



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Test results:	PASS
Test Procedure:	6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would bere-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

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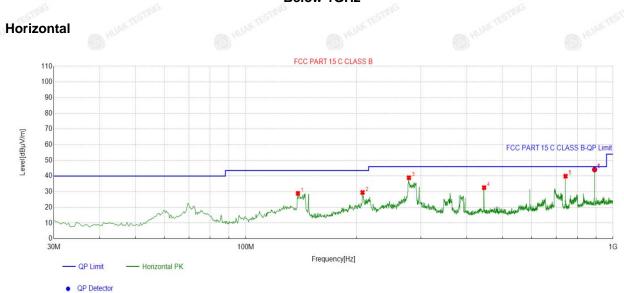
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FICATION

4.7.2. Test Data

All the test modes completed for test. only the worst result of (802.11a at 5180MHz) was reported Below 1GHz



QP Dete

	Suspe	Suspected List									
3	NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	
	1	138.6762	-17.81	46.77	28.96	43.50	14.54	100	122	Horizontal	
5	2	207.8926	-14.60	44.09	29.49	43.50	14.01	100	2	Horizontal	
	3	278.0794	-12.58	51.50	38.92	46.00	7.08	100	18	Horizontal	
	4	445.6219	-8.41	41.02	32.61	46.00	13.39	100	264	Horizontal	
	5	742.5408	-2.96	42.89	39.93	46.00	6.07	100	11	Horizontal	
8	6	891.0003	-0.68	44.78	44.10	46.00	1.90	100	135	Horizontal	
	Final [Data List									
ş	NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBµV/m	∫ [dBuV/m]		QP Març [dB]	gin Heigi [cm]		Polarity	
	1	891.0003	-0.68	44.86	44.18	46.00	1.82	100	135	5 Horizontal	

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

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QP Detector

Suspe	Suspected List										
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	69.4598	-15.77	48.80	33.03	40.00	6.97	100	249	Vertical		
2	148.3795	-18.67	60.33	41.66	43.50	1.84	100	249	Vertical		
3	289.3998	-12.36	47.75	35.39	46.00	10.61	100	34	Vertical		
4	445.6219	-8.41	41.13	32.72	46.00	13.28	100	75	Vertical		
5	742.5408	-2.96	41.15	38.19	46.00	7.81	100	308	Vertical		
6	891.0003	-0.68	44.48	43.80	46.00	2.20	100	138	Vertical		
Final I	Data List										
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBµV/m]	[dBuV/m]	QP Limit [dBµV/m]	QP Margir [dB]	Height	Angle [°]	Polarity		
1	891.0003	-0.68	44.24	43.56	46.00	2.44	100	138	Vertical		

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

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Above 1GHz

LOW CH 36 (802.11 a Mode with 5.2G)/5180

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
3647	57.08	-4.59	52.49	74	-21.51	peak
3647	45.52	-4.59	40.93	54	-13.07	AVG
10360	50.38	3.74	54.12	74	-19.88	peak
10360	42.39	3.74	46.13	54	-7.87	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
MHz) (MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
3647	57.73	-4.59	53.14	74	-20.86	peak
3647	41.9	-4.59	37.31	54	-16.69	AVG
10360	53.71	3.74	57.45	74	-16.55	peak
10360	40.57	3.74	44.31	54	-9.69	AVG
1	0	A1033			(157)	0000

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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MID CH40 (802.11 a Mode with 5.2G)/5200

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
3647	58.56	-4.59	53.97	74	-20.03	peak
3647	41.6	-4.59	37.01	54	-16.99	AVG
10400	51.19	3.74	54.93	74	-19.07	peak
10400	40.03	3.74	43.77	54	-10.23	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

CTING	CTING	10	TING	CTING	CTING	6
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
3647	59.53	-4.59	54.94	74	-19.06	peak
3647	44.47	-4.59	39.88	54	-14.12	AVG
10400	54.5	3.74	58.24	74	-15.76	peak
10400	39.08	3.74	42.82	54	-11.18	AVG
1 Hours		and the			Con the second s	

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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HIGH CH 48 (802.11a Mode with 5.2G)/5240

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	State Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
3647	57.58	-4.59	52.99	74	-21.01	peak
3647	41.63	-4.59	37.04	54	-16.96	AVG
10480	51.22	3.75	54.97	74	-19.03	peak
10480	40.21	3.75	43.96	54 MARTIN	-10.04	AVG
aNG	STING OD		TING	We W	-mvc	STING

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	s ^{m6} Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
3647 ³	59.14	-4.59	54.55	74	-19.45	peak
3647	40.93	-4.59	36.34	54	-17.66	AVG
10480	51.57	3.75	55.32	74	-18.68	peak
10480	38.46	3.75	42.21	54	-11.79	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark:

(1) Measuring frequencies from 1 GHz to the 40 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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4.8. Frequency Stability Measurement

4.8.1. Test Specification

Test Requirement:	FCC Part15 Section 15.407(g)
Test Method:	ANSI C63.10: 2013
Limit:	The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.
Test Setup:	Spectrum Analyzer EUT AC/DC Power supply
Test Procedure:	The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage. b. Turn the EUT on and couple its output to a spectrum analyzer. c. Turn the EUT off and set the chamber to the highest temperature specified. d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature. f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.
Test Result:	PASS
Remark:	N/A

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TEICATION

4.8.2. Test Instruments

RF Test Room							
Equipment	Manufacturer	Manufacturer Model Serial Numbe		Calibration Date	Calibration Due		
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 17, 2023	Feb. 16, 2024		
Temperature and humidity meter	Boyang	HTC-1	HKE-077	Feb. 17, 2023	Feb. 16, 2024		
programmable power supply	Agilent	E3646A	HKE-092	Feb. 17, 2023	Feb. 16, 2024		

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 Result as follows:

Mode	Voltage (V)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
	4.25V	5179.979	-21	5239.977	-23
5.2G Band	5V	5179.962	-38	5239.952	-48
0	5.75V	5179.986	-14	5239.971	-29

ella	Also hills	elle.		- NO	
Mode	Temperature (℃)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
	-30	5179.984	-16	5239.965	-35
	-20	5179.976	-24	5239.985	-15
	-10	5180.021	21	5239.981	-19
	0	5179.976	-24	5239.973	-27
5.2G Band	10	5179.983	-17	5239.946	-54
	20	5179.984	-16 MM	5239.979	-21
	30	5179.980	-20	5239.983	-17
	40	5179.972	-28	5239.966	-34
	50	5179.956	-44	5239.988	-12
(1775) [*]		(C)		(1933) *	1020

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4.9. Antenna Requirement

Standard Applicable

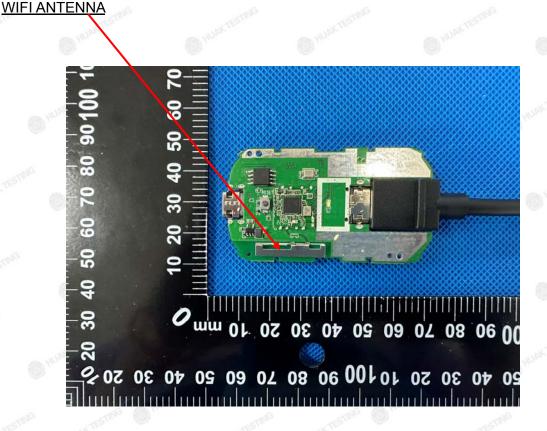
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Refer to statement below for compliance.

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

Antenna Connected Construction

The antenna used in this product is a Iron sheet antenna, which permanently attached. It conforms to the standard requirements. The directional gains of antenna used for transmitting is 2.22dBi.



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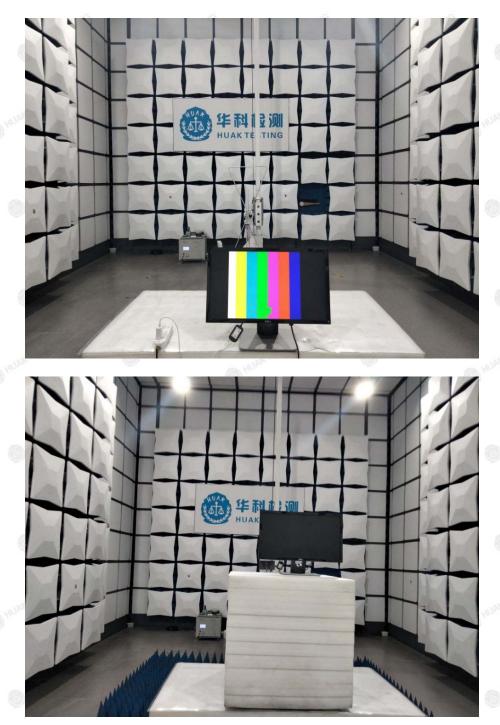


PRO'

*

5. Photographs of Test Setup

Radiated Emission



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Report No.: HK2306092426-E

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Conducted Emission



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TIFICATION

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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