# **TEST REPORT**

# For WiFi-2.4GHz Band

Report No:	CHTW24100001	Report Verification:	
Project No:	SHT2408069802W		
FCC ID::	2BKUV-3A0800V17		
Applicant's name:	OXON AG		
Address:	Waldeggstrasse 47 CH-309	7 Liebefeld Switzerlan	d
Product Name:	Oxocard Connect		
Trade Mark:	X		
Model No:	O X O N Oxocard Connect		
Listed Model(s)	Innovator Kit, Innovator Kit Make: Edition, Synthesizer-Combo, Pixelmatrix-Combo,		
Standard:	FCC CFR Title 47 Part 15 Subpart C § 15.247		
Date of receipt of test sample	Sep. 02, 2024		
Date of testing	Sep. 03, 2024 - Sep. 26, 20	24	
Date of issue	Oct. 08, 2024		
Result:	PASS		
Compiled by		( - A	Ch
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Supervised by		(ast)	ar Chen
(Position+Printed name+Signature):	Project Engineer Caspar Cl	hen	371371
Approved by (Position+Printed name+Signature):	RF Manager Xu yang	Lu	, Jong
Testing Laboratory Name:	Shenzhen Huatongwei Inte	ernational Inspection	Co., Ltd.
Address:	Building 7, Baiwang Idea Factory, No.1051, Songbai Road, Yangguang Community, Xili Subdistrict, Nanshan District,		

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Shenzhen, Guangdong, China

The test report merely correspond to the test sample.

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# 1. TEST STANDARDS AND REPORT VERSION

#### 1.1. Test Standards

The tests were performed according to following standards:

- FCC CFR Title 47 Part 15 Subpart C § 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz
- ANSI C63.10:2020: American National Standard for Testing Unlicensed Wireless Devices
- KDB 558074 D01 15.247 Meas Guidance v05r02: Guidance for Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating under Section 15.247 of The FCC Rules

# 1.2. Report version

Revision No.	Date of issue	Description
N/A	2024-10-08	Original

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# 2. TEST DESCRIPTION

Report clause	Test Items	Standard Requirement	Result	Test Engineer
5.1	Antenna Requirement	15.203/15.247(c)	PASS	Chenxin Ling
5.2	AC Conducted Emission	15.207	N/A	-
5.3	Peak Output Power	15.247(b)(3)	PASS	Chenxin Ling
5.4	Power Spectral Density	15.247(e)	PASS	Chenxin Ling
5.5	6dB Bandwidth	15.247(a)(2)	PASS	Chenxin Ling
5.6	99% Occupied Bandwidth	-	PASS <sup>*1</sup>	Chenxin Ling
5.7	Duty cycle	-	PASS <sup>*1</sup>	Chenxin Ling
5.8	Conducted Band Edge and Spurious Emission	15.247(d)/15.205	PASS	Chenxin Ling
5.9	Radiated Band Edge Emission	15.205/15.209	PASS	Yifan Wang
5.10	Radiated Spurious Emission	15.247(d)/15.205/15.209	PASS	Yifan Wang

# Note:

<sup>-</sup> The measurement uncertainty is not included in the test result.

 <sup>\*1:</sup> No requirement on standard, only report these test data.

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# 3. **SUMMARY**

# 3.1. Client Information

Applicant:	OXON AG	
Address:	Waldeggstrasse 47 CH-3097 Liebefeld Switzerland	
Manufacturer:	OXON AG	
Address:	Waldeggstrasse 47 CH-3097 Liebefeld Switzerland	

# 3.2. Product Description

Main unit information:		
Product Name:	Oxocard Connect	
Trade Mark:	OXON	
Model No.:	Oxocard Connect	
Listed Model(s):	Innovator Kit, Innovator Kit Make: Edition, Synthesizer-Combo, Pixelmatrix-Combo	
Power supply:	DC 5V	
Hardware version:	V1.7	
Software version:	ESP V4.7	

# 3.3. Radio Specification Description

Support type:	⊠ 802.11b	⊠ 802.11g	⊠ 802.11n
Support bandwidth:	⊠ 20MHz	⊠ 40MHz	
Modulation:	802.11b:	DBPSK, DQPSK, BPSK, QPSK	
Modulation.	802.11g/n:	BPSK, QPSK, 16QAM, (	64QAM
Operation fraguency	802.11b/g/n(HT20):	2412MHz~2462MHz	
Operation frequency:	802.11n(HT40)	2422MHz~2452MHz	
Channel number:	802.11b/g/n(HT20):	11	
Chamer number.	802.11n(HT40)	7	
Channel separation:	5MHz		
Antenna technology:	⊠ SISO	MIMO	
Antenna type:	PCB Antenna		
Antenna gain:	3.71dBi		

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# 3.4. Testing Laboratory Information

Laboratory Name	Shenzhen Huatongwei International Inspection Co., Ltd.	
Laboratory Location	Building 7, Baiwang Idea Factory, No.1051, Songbai Road, Yangguang Community, Xili Subdistrict, Nanshan District, Shenzhen, Guangdong, China	
Contact information:	Phone: 86-755-26715499 E-mail: cs@szhtw.com.cn http://www.szhtw.com.cn	
	Type Accreditation Number	
Qualifications	FCC Registration Number	762235
	FCC Designation Number CN1181	

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# 4. TEST CONFIGURATION

# 4.1. Test frequency list

According to section 15.31(m), regards to the operating frequency range over 10 MHz, must select three channels which were tested. The Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, please see the below blue front.

802.11b/g	802.11b/g/n(HT20)		802.11n(HT40)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	
01	2412	03	2422	
02	2417	04	2427	
· :	· :	· :	· :	
06	2437	06	2437	
· :	· :	· :	. ::	
10	2457	08	2447	
11	2462	09	2452	

## 4.2. Test mode

For RF test items

The engineering test program was provided and enabled to make EUT continuous transmit.

For Radiated spurious emissions

The engineering test program was provided and enabled to make EUT continuous transmit. The EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data Recorded in the report.

Preliminary tests were performed in different data rates, final test modes are considering the modulation and worse data rates as below table.

Modulation	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n(HT20)	MCS0
802.11n(HT40)	MCS0

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# 4.3. Test sample information

Test item	HTW sample no.	
RF Conducted test items	Please refer to the description in the appendix report	
RF Radiated test items	YPHT24080698002	
EMI test items	-	

Note:

RF Conducted test items: Peak Output Power, Power Spectral Density, 6dB Bandwidth, 99% Occupied Bandwidth, Duty cycle, Conducted Band Edge and Spurious Emission

RF Radiated test items: Radiated Band Edge Emission, Radiated Spurious Emission

EMI test items: AC Conducted Emission

# 4.4. Support unit used in test configuration and system

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The following peripheral devices and interface cables were connected during the measurement:

Whether support unit is used?			
✓ No			
Item	Equipment	Trade Name	Model No.
1			
2			

# 4.5. Testing environmental condition

Туре	Requirement	Actual
Temperature:	15~35°C	25°C
Relative Humidity:	25~75%	50%
Air Pressure:	860~1060mbar	1000mbar

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# 4.6. Statement of the measurement uncertainty

No.	Test Items	Measurement Uncertainty
1	AC Conducted Emission	3.21dB
2	Peak Output Power	1.07
3	Power Spectral Density	1.07
4	6dB Bandwidth	0.002%
5	99% Occupied Bandwidth	0.002%
6	Duty cycle	-
7	Conducted Band Edge and Spurious Emission	1.68dB
8	Radiated Band Edge Emission	4.54dB for 30MHz-1GHz
- O	radiated Band Edge Emission	5.10dB for above 1GHz
9	Redicted Spurious Emission	4.54dB for 30MHz-1GHz
9	Radiated Spurious Emission	5.10dB for above 1GHz

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

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# 4.7. Equipment Used during the Test

•	RF Conducted	test item					
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
•	Signal and spectrum Analyzer	R&S	HTWE0242	FSV40	100048	2024/08/27	2025/08/26
•	Signal & Spectrum Analyzer	R&S	HTWE0262	FSW26	103440	2024/08/21	2025/08/20
•	Vector signal generator	R&S	HTWE0244	SMBV100A	260790	2024/5/25	2025/5/24
•	Test software	Tonscend	N/A	JS1120	N/A	N/A	N/A

•	Radiated emis	ssion- 9kHz~30l	MHz				
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
•	Semi-Anechoic Chamber	Albatross projects	HTWE0127	SAC-3m-02	C11121	2023/04/06	2026/04/05
•	EMI Test Receiver	R&S	HTWE0099	ESCI 7	100900	2024/08/12	2025/08/11
•	Loop Antenna	R&S	HTWE0170	HFH2-Z2	100020	2024/04/08	2027/04/07
•	Test Software	R&S	N/A	EMC32	N/A	N/A	N/A

•	Radiated emi	ssion- 30MHz~1	GHz				
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
•	Semi-Anechoic Chamber	Albatross projects	HTWE0127	SAC-3m-02	C11121	2023/04/06	2026/04/05
•	EMI Test Receiver	R&S	HTWE0099	ESCI 7	100900	2024/08/12	2025/08/11
•	Ultra-Broadband Antenna	SCHWARZBECK	HTWE0119	VULB9163	546	2023/02/22	2026/02/21
•	Pre-Amplifer	SCHWARZBECK	HTWE0295	BBV 9742	/	2024/5/24	2025/5/23
•	Test Software	R&S	N/A	EMC32	N/A	N/A	N/A

•	Radiated emi	ssion- Above 10	GHz				
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
•	Semi-Anechoic Chamber	Albatross projects	HTWE0122	SAC-3m-01	C11121	2023/04/17	2026/04/16
•	Spectrum Analyzer	R&S	HTWE0098	FSP40	100597	2024/08/12	2025/08/11
•	Spectrum Analyzer	R&S	HTWE0385	N9020A	MY54486658	2024/08/12	2025/0811
•	Horn Antenna	SCHWARZBECK	HTWE0126	BBHA 9120D	1011	2023/02/14	2026/02/13
•	Pre-Amplifer	CD	HTWE0071	PAP-0102	12004	2024/06/06	2025/06/05
•	Broadband Pre- amplifier	SCHWARZBECK	HTWE0551	SCU18F	100855	2024/06/06	2025/06/05
•	Test Software	Audix	N/A	E3	N/A	N/A	N/A

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# 5. TEST CONDITIONS AND RESULTS

# 5.1. Antenna Requirement

## **REQUIREMENT**

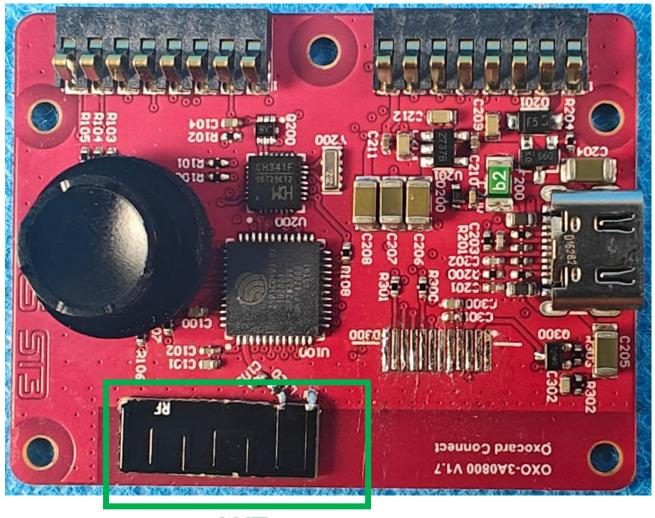
# FCC CFR Title 47 Part 15 Subpart C Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responseble party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

# **TEST RESULT**

$oxed{oxed}$ Passed	☐ Not Applicable
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The antenna type is a PCB antenna, please refer to the below antenna photo.



**ANT** 

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#### 5.2. AC Conducted Emission

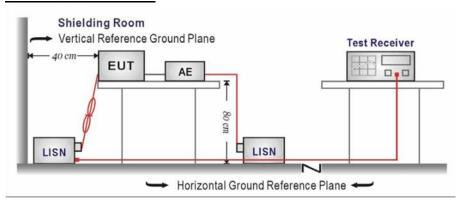
#### LIMIT

# FCC CFR Title 47 Part 15 Subpart C Section 15.207

Fragues ou range (MHz)	Limit (dBuV)						
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					

<sup>\*</sup> Decreases with the logarithm of the frequency.

#### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

- 1. The EUT was setup according to ANSI C63.10 requirements.
- 2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
- 3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment.
- 4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
- 5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
- 6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
- 7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
- 8. During the above scans, the emissions were maximized by cable manipulation.

#### TEST MODE

Refer to the clause 4.2

#### **TEST RESULT**

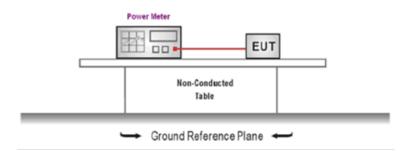
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# 5.3. Peak Output Power

#### LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (b)(3): 30dBm

#### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

- 1. The EUT was tested according to ANSI C63.10 and KDB 558074 D01 requirements.
- 2. The maximum peak conducted output power may be measured using a broadband peak RF power meter.
- 3. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.
- 4. Record the measurement data.

## **TEST MODE**

Refer to the clause 4.2

# **TEST RESULT**

## **TEST DATA**

Refer to the appendix report

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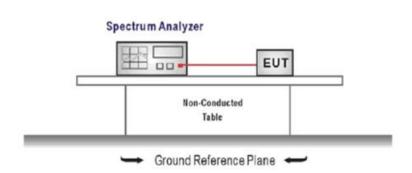
# 5.4. Power Spectral Density

#### LIMIT

## FCC CFR Title 47 Part 15 Subpart C Section 15.247 (e):

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

#### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

- 1. Connect the antenna port(s) to the spectrum analyzer input,
- Configure the spectrum analyzer as shown below:

Center frequency=DTS channel center frequency

Span =1.5 times the DTS bandwidth

RBW = 3 kHz ≤ RBW ≤ 100 kHz, VBW ≥ 3 × RBW

Sweep time = auto couple

Detector = peak

Trace mode = max hold

- 3. Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter wave form on the spectrum analyzer.
- 4. Use the peak marker function to determine the maximum amplitude level within the RBW.
- If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

#### **TEST MODE**

Refer to the clause 4.2

#### **TEST RESULT**

#### **TEST DATA**

Refer to the appendix report

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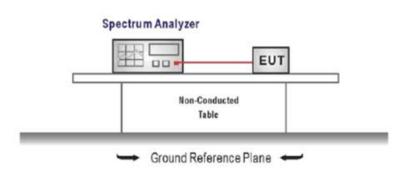
#### 5.5. 6dB bandwidth

#### LIMIT

## FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(2):

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

#### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

- 1. Connect the antenna port(s) to the spectrum analyzer input.
- Configure the spectrum analyzer as shown below (enter all losses between the transmitter output and the spectrum analyzer).

Center Frequency =DTS channel center frequency

Span=2 x DTS bandwidth

RBW = 100 kHz, VBW ≥ 3 × RBW

Sweep time= auto couple

Detector = Peak

Trace mode = max hold

- 3. Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter waveform on the spectrum analyzer.
- 4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission, and record the pertinent measurements.

#### **TEST MODE**

Refer to the clause 4.2

## **TEST RESULT**

# **TEST DATA**

Refer to the appendix report

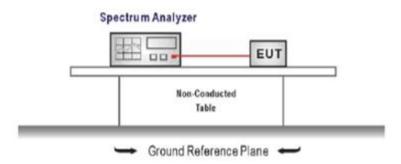
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# 5.6. 99% Occupied Bandwidth

## **LIMIT**

N/A

## **TEST CONFIGURATION**



## **TEST PROCEDURE**

- 1. Connect the antenna port(s) to the spectrum analyzer input.
- 2. Configure the spectrum analyzer as shown below (enter all losses between the transmitter output andthe spectrum analyzer).

Center Frequency = channel center frequency

Span≥1.5 x OBW

 $RBW = 1\%\sim5\%OBW$ 

VBW ≥ 3 × RBW

Sweep time= auto couple

Detector = Peak

Trace mode = max hold

3. Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter waveform on the spectrum analyzer.

#### **TEST MODE**

Refer to the clause 4.2

## **TEST RESULT**

#### **TEST DATA**

Refer to the appendix report

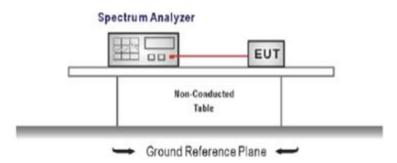
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# 5.7. Duty Cycle

#### LIMIT

N/A

#### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

- 1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement.
- 2. Set to the maximum power setting and enable the EUT transmit continuously
- 3. Use the following spectrum analyzer settings:
  - Span=zero span, Frequency=centered channel, RBW= 1 MHz, VBW ≥ RBW
  - Sweep=as necessary to capture the entire dwell time,
  - Detector function = peak, Trigger mode
- 4. Measure and record the duty cycle data

## **TEST MODE**

Refer to the clause 4.2

## **TEST DATA**

Refer to the appendix report

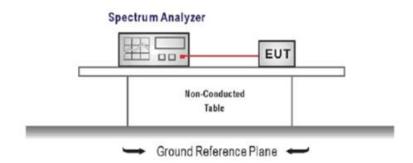
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# 5.8. Conducted Band edge and Spurious Emission

#### **LIMIT**

FCC CFR Title 47 Part 15 Subpart C Section15.247 (d):In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

#### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

- 1. Connect the antenna port(s) to the spectrum analyzer input.
- 2. Establish a reference level by using the following procedure

Center frequency=DTS channel center frequency

The span = 1.5 times the DTS bandwidth.

RBW = 100 kHz, VBW  $\geq$  3 x RBW

Detector = peak, Sweep time = auto couple, Trace mode = max hold

Allow trace to fully stabilize

Use the peak marker function to determine the maximum PSD level

Note that the channel found to contain the maximum PSD level can be used to establish the reference level

3. Emission level measurement

Set the center frequency and span to encompass frequency range to be measured

RBW = 100 kHz, VBW  $\geq$  3 x RBW

Detector = peak, Sweep time = auto couple, Trace mode = max hold

Allow trace to fully stabilize

Use the peak marker function to determine the maximum amplitude level.

- 4. Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter waveform on the spectrum analyzer.
- Ensure that the amplitude of all unwanted emission outside of the authorized frequency band excluding restricted frequency bands) are attenuated by at least the minimum requirements specified (at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz). Report the three highest emission relative to the limit.

#### **TEST MODE**

Refer to the clause 4.2

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# **TEST RESULT**

oxedow Passed oxedow Not Applicable

# **TEST DATA**

Refer to the appendix report

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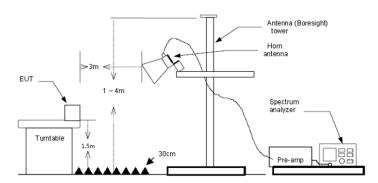
# 5.9. Radiated Band edge Emission

#### **LIMIT**

# FCC CFR Title 47 Part 15 Subpart C Section 15.247 (d):

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, Radiated Emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the Radiated Emissions limits specified in §15.209(a) (see §15.205(c)).

#### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

- 1. The EUT was setup and tested according to ANSI C63.10.
- 2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
- 3. The EUT waspositioned such that the distance from antenna to the EUT was 3 meters.
- 4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. Thisis repeated for both horizontal and vertical polarization of the antenna. In order to find themaximum emission, all of the interface cables were manipulated according to ANSI C63.10 on radiated measurement.
- 5. Use the following spectrum analyzer settings:
  - a) Span shall wide enough to fully capture the emission being measured
  - b) Set RBW=100kHz for <1GHz, VBW=3\*RBW, Sweep time=auto, Detector=peak, Trace=max hold
  - Set RBW=1MHz, VBW=3MHz for >1GHz, Sweep time=auto, Detector=peak, Trace=max hold for Peak measurement

For average measurement:

- VBW=10Hz, When duty cycle is no less than 98 percent
- VBW≥1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation, so refer to this clasue 5.7 duty cycle.

#### **TEST MODE**

Refer to the clause 4.2

#### **TEST RESULT**

#### Note:

- 1) Level= Reading + Factor; Factor = Antenna Factor+ Cable Loss- Preamp Factor
- 2) Over Limit = Level- Limit
- Average measurement was not performed if peak level is lower than average limit(54 dBuV/m).

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Гуре		8	302.1°	1b	Test c	hannel	CHO	)1	Po	larity		Horizontal
	Mark	Freque	ency	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
		MHZ		dBuV/m	dB	dB	dB	dB	dBuV/m	dBuV/m	limi	t
	1	2310.0	90	44.34	27.86	3.95	41.18	20.00	54.97	74.00	-19.0	3 Peak
	2	2390.0	91	43.38	27.54	4.08	41.11	20.00	53.89	74.00	-20.1	1 Peak
	Mark	Freque	nev	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
	CIDIT IS	MHZ	cy	dBuV/m	dB	dB	dB	dB	dBuV/m	dBuV/m	limit	
	1	2310.0	0	33.49	27.86	3.95	41.18	20.00	44.12		-9.88	
	2	2390.0		33.24	27.54	4.08	41.11	20.00	43.75		-10.25	
Гуре		8	302.1°	1h	Test c	hannel	СНО	)1	Po	larity		Vertical
700	DOUGH COMME				1.001.0	110111101	0.10		1.0	iaiity		Tortioai
	Mark	Freque	encv	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
		MHZ		dBuV/m	dB	dB	dB	dB	dBuV/m	dBuV/m	limit	
	1	2310.6	90	43.63	27.86	3.95	41.18	20.00	54.26	74.00	-19.74	Peak
	2	2390.6	91	42.59	27.54	4.08	41.11	20.00	53.10	74.00	-20.90	Peak
	Mark	Freque	ncy	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
		MHZ		dBuV/m	dB	dB	dB	dB	dBuV/m	dBuV/m	limit	
	1	2310.0	0	33.45	27.86	3.95	41.18	20.00	44.08	54.00	-9.92	Average
	2	2390.0	_	33.39	27.54	4.08	41.11	20.00	43.90	54.00	-10.10	Average

Гуре		802.1	1b	Test cl	nannel	CH1	1	Po	larity		Horizontal
	Mark	Frequency MHZ	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limi	10-10-10-10
	1	2483.49	43.27	27.33	4.18	41.04	20.00	53.74	74.00	-20.2	6 Peak
	2	2500.00	43.75	27.30	4.20	41.02	20.00	54.23	74.00	-19.7	7 Peak
	Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	dBuV/m	Limit dBuV/m	Over limit	Remark
	1	2483.49	33.25	27.33	4.18	41.04	20.00	43.72	54.00	-10.28	Average
	2	2500.00	33.58	27.30	4.20	41.02	20.00	44.06	54.00	-9.94	Average
ype		802.1	1b	Test cl	nannel	CH1	1	Po	larity		Vertical
	Mark	Frequency	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
		MHZ 2483.49	dBuV/m 42.82	dB 27.33	dB	dB 41.04	dB 20.00	dBuV/m 53.29	dBuV/m 74.00	limit -20.71	
	2	2500.00	43.82	27.30	4.18	41.02	20.00	54.30	74.00	-19.76	
	Mark	Frequency	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
		MHZ	dBuV/m	dB	dB	dB	dB	dBuV/m	dBuV/m	limit	
	1	2483.49	33.12	27.33	4.18	41.04	20.00	43.59	54.00	-10.41	Average
	2	2500.00	33.29	27.30	4.20	41.02	20.00	43.77	54.00	-10.23	Average

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Туре		802.1	1g	Test cl	nannel	CH0	1	Po	larity		Horizontal
	Mark	Frequency MHZ	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limi	CO. C.
	2	2310.00 2390.01	43.51	27.86 27.54	3.95 4.08	41.18	20.00	54.14 54.64	74.00 74.00	-19.8 -19.3	THE PARTY OF THE P
	Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over	
	1 2	2310.00 2390.01	33.50 34.42	27.86 27.54	3.95 4.08	41.18 41.11	20.00	44.13 44.93	54.00	-9.8 -9.0	7 Average
Гуре	802.11g		1g	Test channel		CH01		Polarity		Vertical	
	Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Ove	
	1 2	2310.00 2390.01	44.16 43.49	27.86 27.54	3.95 4.08	41.18 41.11	20.00 20.00		74.00 74.00		
	Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
	1 2	2310.00 2390.01	33.84 33.21	27.86 27.54	3.95 4.08	41.18 41.11	20.00	44.47 43.72	54.00	-9.53 -10.28	Average Average

Туре		802.	11g	Test cl	nannel	CH1	1	Pol	arity		Horizontal
	Mark	Frequency	Reading	Antenna	Cable	Preamp		Level	Limit	over	
		MHZ	dBuV/m	dB	dB	dB	dB	dBuV/m	dBuV/m	limi	it
	1	2483.49	43.51	27.33	4.18	41.04	20.00	53.98	74.00	-20.0	2 Peak
	2	2500.00	44.03	27.30	4.20	41.02	20.00	54.51	74.00	-19.4	9 Peak
	Mark	Frequency	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
	ridi K	MHZ	dBuV/m	dB	dB	dB	dB	dBuV/m	dBuV/m	limit	
	1	2483.49	33.28	27.33	4.18	41.04	20.00	43.75		-10.25	
	2	2500.00	33.39	27.30	4.20	41.02	20.00	43.87	54.00	-10.13	_
Туре		802.	11g	Test ch	nannel	CH1	1	Pol	arity		Vertical
	Mark	Frequency	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
		MHZ	dBuV/m	dB	dB	dB	dB	dBuV/m	dBuV/m	limit	
	1	2483.49	42.86	27.33	4.18	41.04	20.00	53.33	74.00	-20.67	
	2	2500.00	43.15	27.30	4.20	41.02	20.00	53.63	74.00	-20.37	Peak
	Mark	Frequency	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
		MHZ	dBuV/m	dB	dB	dB	dB	dBuV/m	dBuV/m	limit	
	1	2483.49	32.86	27.33	4.18	41.04	20.00	43.33	54.00	-10.67	
	2	2500.00	33.09	27.30	4.20	41.02	20.00	43.57		-10.43	

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Туре			802.1	1n(HT20)	Test cl	nannel	CHO	1	Po	olarity		Horizontal
	Mark	Free	quency	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux	Level dBuV/m	Limit dBuV/m	Over limit	Remark
	1		0.00	43.62	27.86	3.95	41.18	20.00	54.25	74.00	-19.75	
	2	2396	0.01	43.59	27.54	4.08	41.11	20.00	54.10	74.00	-19.96	Peak
	Mark	Fre	quency	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	dB	Level dBuV/m	Limit dBuV/m	Over	Remark
	1	2310	0.00	33.38	27.86	3.95	41.18	20.00	44.01		-9.99	
	2	2390	0.01	33.91	27.54	4.08	41.11	20.00	44.42	54.00	-9.58	Average
Гуре			802.1	1n(HT20)	Test cl	nannel	CHO	)1	Po	olarity		Vertical
	Mark	Enn	quency	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
	PIOI K	MHZ		dBuV/m	dB	dB	dB	dB	dBuV/m	dBuV/m	limit	
	1	1000	0.00	43.62	27.86	3.95	41.18	20.00	54.25	74.00	-19.75	
	2	2011	0.01	43.21	27.54	4.08	41.11	20.00	53.72	74.00	-20.28	
	Mark	Fred	quency	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
		MHZ		dBuV/m	dB	dB	dB	dB	dBuV/m	dBuV/m	limit	
	1	2316	0.00	33.51	27.86	3.95	41.18	20.00	44.14	54.00	-9.86	Average
	2	2396	0.01	33.02	27.54	4.08	41.11	20.00	43.53	54.00	-10.47	Average

Туре			802.1	1n(HT20)	Test cl	nannel	CH1	1	Pol	arity	I	Horizontal
	Mark	Frequ	uency	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
	1 2	2483 2500		42.99 44.24	27.33 27.30	4.18 4.20	41.04 41.02	20.00	53.46 54.72	74.00 74.00	-20.54 -19.28	Peak
	Mark	Frequ	uency	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
	1 2	2483 2500		33.34	27.33 27.30	4.18	41.04	20.00	43.81 43.73	54.00	-10.19 -10.27	Average Average
Туре			802.1	1n(HT20)	Test ch	nannel	CH1	1	Pol	arity	\	Vertical
	Mark	Frequence	uency	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
	1 2	2483 2500		43.47 44.60	27.33 27.30	4.18 4.20	41.04 41.02	20.00	53.94 55.08	74.00 74.00	-20.06	
	Mark	Frequ	ency	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
	1	MHZ 2483.	49	dBuV/m 33.07 33.31	dB 27.33 27.30	dB 4.18 4.20	dB 41.04 41.02	dB 20.00 20.00	dBuV/m 43.54 43.79	54.00 54.00	limit -10.46 -10.21	Average Average

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Туре			802.1	1n(HT40)	Test cl	nannel	CH0	3	Pol	arity		Horizontal
											0	Damanlı
	Mark	MHZ	quency	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level	Limit	Over limi	Remark
	1	2316	00	42.33	27.86	3.95	41.18	20.00	dBuV/m 52.96	dBuV/m 74.00		_
	2	2389		43.24	27.54	4.08	41.11	20.00	53.75	74.00		
		2505	,.,,	43.24	27.34	4.00	41.11	20.00	55.75	74.00	-20.2	o reak
	Mark	Free	uency	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
		MHZ		dBuV/m	dB	dB	dB	dB	dBuV/m	dBuV/m	limit	:
	1	2316	.00	33.24	27.86	3.95	41.18	20.00	43.87	54.00	-10.13	Average
	2	2389	.99	35.89	27.54	4.08	41.11	20.00	46.40	54.00	-7.60	) Average
Туре			802.1	1n(HT40)	Test cl	nannel	CH0	3	Pol	arity		Vertical
	Mank			Danding		Cable	Documen	Aune	Level		Over	Remark
	Mark	MHZ	uency	Reading	Antenna dB	Cable dB	Preamp dB	Aux dB		Limit	Over limit	
	1	2310	99	dBuV/m 42.12	27.86	3.95	41.18	20.00	dBuV/m 52.75	dBuV/m 74.00	-21.25	
	2	2389		42.12	27.54	4.08	41.11	20.00	52.67	74.00	-21.25	
	2	2303	. 55	42.10	27.34	4.00	41.11	20.00	52.67	74.00	-21.55	reak
	Mark	Freq	uency	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
		MHZ		dBuV/m	dB	dB	dB	dB	dBuV/m	dBuV/m	limit	
	1	2310	.00	33.32	27.86	3.95	41.18	20.00	43.95	54.00	-10.09	Average

Гуре			802.1	1n(HT40)	Test ch	nannel	CH0	9	Pol	arity		Horizontal
	Mank								1			Domonic
	Mark	MHZ	quency	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
	1		3.50	43.07	27.33	4.18	41.04	20.00	53.54	74.00		
	2		0.00	44.07	27.30	4.20	41.02	20.00	54.55	74.00		
	Mark	Free	quency	Reading	Antenna	Cable	Preamp	Aux	Level	Limit	Over	Remark
		MHZ	*	dBuV/m	dB	dB	dB	dB	dBuV/m	dBuV/m	limit	
	1	2483	3.50	33.77	27.33	4.18	41.04	20.00	44.24	54.00	-9.76	Average
	2	2500	0.00	33.16	27.30	4.20	41.02	20.00	43.64	54.00	-10.36	Average
Гуре			802.1	1n(HT40)	Test ch	nannel	CH0	9	Pol	arity	,	Vertical
	Mark	Freq	luency	Reading dBuV/m	Antenna dB	Cable	Preamp dB	Aux dB	dBuV/m	Limit dBuV/m	Over	Remark
	1	2483	.50	43.66	27.33	4.18	41.04	20.00	54.13	74.00	-19.87	
	2	2500	.00	43.90	27.30	4.20	41.02	20.00	54.38	74.00	-19.62	Peak
	Mark	Fred	quency	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over	Remark
	1		3.50	33.05	27.33	4.18	41.04	20.00	43.52	54.00	-10.48	Average
	2	2506	0.00	33.20	27.30	4.20	41.02	20.00	43.68	54.00	-10.32	Average

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# 5.10. Radiated Spurious Emission

## **LIMIT**

# FCC CFR Title 47 Part 15 Subpart C Section 15.209

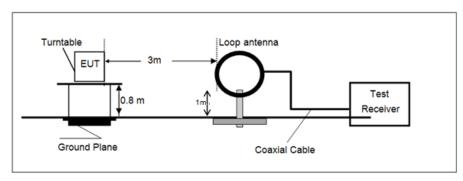
Frequency	Limit (dBuV/m)	Value
0.009 MHz ~0.49 MHz	2400/F(kHz) @300m	Quasi-peak
0.49 MHz ~ 1.705 MHz	24000/F(kHz) @30m	Quasi-peak
1.705 MHz ~30 MHz	30 @30m	Quasi-peak

Note: Limit dBuV/m @3m = Limit dBuV/m @300m + 40\*log(300/3) = Limit dBuV/m @300m +80, Limit dBuV/m @3m = Limit dBuV/m @30m +40\*log(30/3) = Limit dBuV/m @30m + 40.

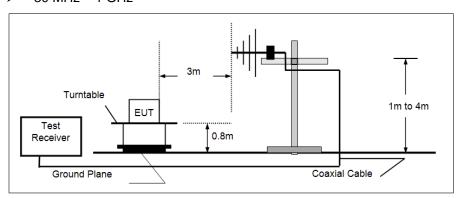
Frequency	Limit (dBuV/m @3m)	Value
30MHz~88MHz	40.00	Quasi-peak
88MHz~216MHz	43.50	Quasi-peak
216MHz~960MHz	46.00	Quasi-peak
960MHz~1GHz	54.00	Quasi-peak
Above 1GHz	54.00	Average
Above IGHZ	74.00	Peak

## **TEST CONFIGURATION**

#### → 9 kHz ~ 30 MHz

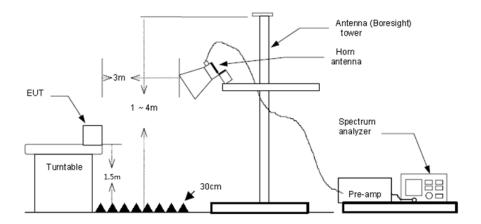


# > 30 MHz ~ 1 GHz



Above 1 GHz

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#### **TEST PROCEDURE**

- 1. The EUT was setup and tested according to ANSI C63.10.
- 2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
- 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
- 4. For each suspected emission, 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 to comply with the guidelines.
- 5. Set to the maximum power setting and enable the EUT transmit continuously.
- 6. Use the following spectrum analyzer settings
  - a) Span shall wide enough to fully capture the emission being measured;
  - b) Below 1 GHz:
    - RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;
    - If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
  - Set RBW=1MHz, VBW=3MHz for >1GHz, Sweep time=auto, Detector=peak, Trace=max hold for Peak measurement

For average measurement:

- VBW=10Hz, When duty cycle is no less than 98 percent
- VBW≥1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation, so refer to this clasue 5.7 duty cycle.

#### TEST MODE

Refer to the clause 4.2

#### TEST RESULT

#### Note:

- 1) Level= Reading + Factor/Transd; Factor/Transd = Antenna Factor+ Cable Loss- Preamp Factor
- 2) Over Limit = Level- Limit
- 3) Average measurement was not performed if peak level is lower than average limit(54 dBuV/m) for above 1GHz.

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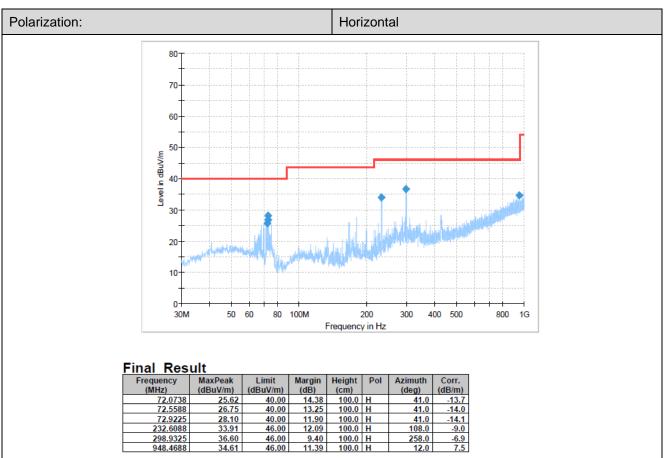
# For 9 kHz ~ 30 MHz

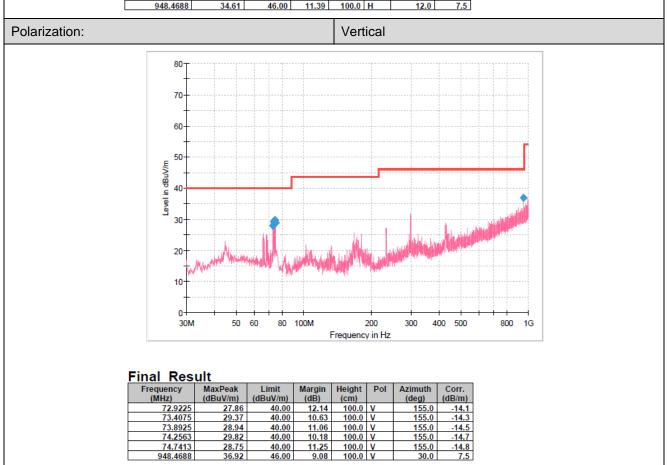
The EUT was pre-scanned this frequency band, found the radiated level 20dB lower than the limit, so don't show data on this report.

# For 30 MHz ~ 1000 MHz

Have pre-scan all test channel, found CH06 of 802.11B which it was worst case, so only show the worst case's data on this report.

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# For 1 GHz ~ 25 GHz

Туре		802.11b		Test channel		CH01		Polarity		Horizontal
	Mark	Frequency MHz	Reading dBuV/n		Cable	Preamp dB	Leve:		Over	
	1	2995.54	54.30	28.50	4.53	40.95	46.38	74.00	-27.62	
	2	4821.76	47.40	31.26	5.89	40.28	44.27	74.00	-29.73	
	3	6001.77	50.71	32.40	6.70	39.23	50.58	74.00	-23.42	
	4	10321.74	41.17	39.67	8.86	40.09	49.61	74.00	-24.39	Peak
Туре		802.11b		Test channel		CH01		Polarity		Vertical
	Mark	Frequency	Reading	Antenna	Cable	Preamp	Leve	l Limit	Over	r Remark
	FIG. K	MHZ	dBuV/m		dB	dB	dBuV/		limi	
	1	2995.54	54.98	28.50	4.53		47.06	74.00	-26.9	
	2	3983.75	54.96	29.77	5.41	40.33	49.81	74.00	-24.19	
	3	4821.76	47.20	31.26	5.89	40.28	44.07	74.00	-29.9	
	4	6001.77	50.05	32.40	6.70	39.23	49.92	74.00	-24.0	
Туре		802.11b		Test channel		CH06		Polarity		Horizontal
	Mark	Frequency	Reading dBuV/m		dB dB	e Preamp dB	dBuV/		Ove	
	1	2995.54	54.76	28.50	4.53	40.95	46.84	74.00	-27.1	6 Peak
	2	3249.76	53.08	28.60	4.82	40.80	45.70	74.00	-28.3	9 Peak
	3	4871.10	44.14	31.20	5.92	40.26	41.00	74.00	-33.0	9 Peak
	4	6001.77	49.63	32.40	6.70	39.23	49.50	74.00	-24.5	9 Peak
Туре		802.11b		Test channel		CH06		Polarity		Vertical
	Mark	Frequency	Reading	Antenna	Cable	Preamp	Level	l Limit	Over	Remark
	PIOI K	MHZ	dBuV/m		dB	dB	dBuV/r		limit	
	1	2995.54	53.99		4.53		46.07	74.00	-27.93	
	2	3993.90	52.94	29.79	5.43	40.32	47.84	74.00	-26.16	
	3		50.22		6.70	39.23	50.09	74.00	-23.91	
	4	10916.26	40.58		8.83	40.62	49.29	74.00	-24.71	
Туре		802.11b		Test channel		CH11		Polarity		Horizontal
	Mark	Engguengy	Deading	Antenna	Cable	Preamp	Level	Limit	Over	Remark
	PIOT K	Frequency	dBuV/m		dB	dB	dBuV/r		Over	
	1	3003.17	53.79		4.54		45.89	74.00	-28.11	
	2	3283.02	53.38	28.40	4.83	40.80	45.81	74.00	-28.19	
	3		47.67			40.23		74.00		
	4	6001.77	48.63		6.70			74.00		
Туре		802.11b		Test channel		CH11		Polarity		Vertical
	Mark	Frequency	Reading		Cable				Over	
		MHZ	dBuV/m		dB	dB	dBuV/n			
	1	3003.17	54.82		4.54		46.92	74.00	-27.08	
	-	4920.96	46.11	31.20	5.95	40.23	43.03	74.00	-30.97	
	2									
	3 4	6001.77	48.52		6.70 8.56		48.39	74.00	-25.61 -24.61	

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Туре		802.11g		Test channe	el	CH01		Polarity		Horizontal
	Mank	Forguenes	Reading	totooos	Cable	Decame	Level	Limit	0	Domank
	Mark	Frequency	dBuV/m		Cable dB	Preamp dB	dBuV/m		Over	
	4	3003.17	54.35		4.54	40.95	46.45			
	1			28.51				74.00	-27.55	
	2	3216.84	53.23		4.81	40.81	46.03	74.00	-27.97	
	3	4821.76	44.00	31.26	5.89 6.70		40.87	74.00	-33.13	
	4	6001.77	47.75	32.40	6.70	39.23	47.62	74.00	-26.38	Peak
Туре		802.11g		Test channe	el	CH01		Polarity		Vertical
	Mark	Frequency	Reading	Antenna	Cable	Preamp	Level	Limit	Over	Remark
	Mark								limit	Kemark
		MHZ	dBuV/m		dB	dB	dBuV/m			Danie.
	1	2995.54	54.99				47.07	74.00	-26.93	
	2		48.75		4.97		41.52	74.00	-32.48	
	3	6001.77	49.41		6.70		49.28	74.00	-24.72	
	4	9985.76	42.76	39.23	8.60	39.90	50.69	74.00	-23.31	Peak
Туре		802.11g		Test channe	el	CH06		Polarity		Horizontal
	Mark	Frequency	Reading		Cable				Ove	
		MHZ	dBuV/m		dB	dB	dBuV/r			
	1	2995.54	54.14	28.50	4.53			74.00	-27.7	
	2		53.67	28.60	4.82		46.29	74.00	-27.7	
	3	4004.08	46.18	29.81	5.44	40.31	41.12	74.00	-32.8	8 Peak
	4	6001.77	48.67	32.40	6.70	39.23	48.54	74.00	-25.4	6 Peak
Туре		802.11g		Test channe	el	CH06		Polarity		Vertical
	Mark	Frequency	Reading		Cable		Level	Limit	Over	
		MHZ	dBuV/m	dB	dB	dB	dBuV/m	dBuV/m	limit	
	1	2995.54	55.27	28.50	4.53	40.95	47.35	74.00	-26.65	Peak
	2	3983.75	52.07	29.77	5.41	40.33	46.92	74.00	-27.08	Peak
	3	6001.77	49.38	32.40	6.70	39.23	49.25	74.00	-24.75	Peak
	4	10321.74	41.01	39.67	8.86	40.09	49.45	74.00	-24.55	Peak
Туре		802.11g		Test channe	el	CH11		Polarity		Horizontal
	Mark				Cable				Over	
		MHZ	dBuV/m		dB	dB	dBuV/m	A TO SECURE A SECURE	limit	
	1		53.73	28.50	4.53		45.81		-28.19	
	2	3283.02	54.24	28.40	4.83	40.80	46.67	74.00	-27.33	Peak
	3	6001.77	49.29	32.40	6.70	39.23	49.16	74.00	-24.84	
	4	10916.26	41.10	40.50	8.83	40.62	49.81	74.00	-24.19	Peak
		802.11g		Test channe	el	CH11		Polarity		Vertical
Туре										
Туре				Antenna	Cable				Over	
Type	Mark	Frequency	Reading				America & Con-	of the state of th	72-24	
Type	Mark	Frequency MHZ	Reading dBuV/m		dB	dB	dBuV/m	dBuV/m	limit	
Туре	Mark 1		_		dB 4.53	dB 40.95	47.37	74.00	-26.63	
Type		MHZ	dBuV/m	dB			Company of the Compan			Peak
Type	1	MHZ 2995.54	dBuV/m 55.29	dB 28.50	4.53	40.95	47.37	74.00	-26.63	Peak Peak

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Туре		802.11n(	HT20)	Test channe	el	CH01		Polarity		Horizontal
	Mark	Frequency	Reading	Antenna	Cable	e Preamp	Level	Limit	Over	Remark
	PIUI IC	MHZ	dBuV/m		dB	dB	dBuV/m		limit	
	1	2995.54	54.38		4.53		46.46	74.00	-27.54	
	2		53.16	28.80	4.81		45.96	74.00	-28.04	
	3		42.03		6.37		40.46	74.00	-33.54	
	4	6001.77	48.56	32.40	6.70	39.23	48.43	74.00	-25.57	Peak
Туре		802.11n(	HT20)	Test channe	el le	CH01		Polarity		Vertical
	Mark	Frequency	Reading	Antenna	Cabl	e Preamp	Level	Limit	Over	Remark
	PIOI K	MHZ	dBuV/m		dB	dB	dBuV/m		limit	
	1	3003.17	54.68	28.51	4.54		46.78	74.00	-27.22	
	2		49.97	28.80	4.81		42.77	74.00	-31.23	
	3		52.26	32.37	6.70		52.10	74.00	-21.90	
	4	9809.40	40.70	39.32	8.60	39.86	48.76	74.00	-25.24	Peak
Туре		802.11n(	HT20)	Test channe	϶l	CH06		Polarity		Horizontal
	Mark	Engagener	Deading	Antenna	Cable	Doggeo	Level	Limit	Over	Domank
	PIOI K	Frequency	Reading		Cable					Remark
		MHZ	dBuV/m		dB	dB	dBuV/m	dBuV/m	limit	
	1	2995.54	54.79		4.53		46.87	74.00	-27.13	Peak
	2		53.18		4.82		45.80	74.00	-28.20	Peak
	3	6001.77	49.32		6.70		49.19	74.00	-24.81	Peak
	4	10507.31	40.97	40.00	9.00	40.21	49.76	74.00	-24.24	Peak
Туре		802.11n(	HT20)	Test channe	el le	CH06		Polarity		Vertical
							1			
	Mark	Frequency	Reading			e Preamp			Over	Remark
		MHZ	dBuV/m		dB	dB	dBuV/m		limit	Control
	1	2987.92	54.32				46.39	74.00	-27.61	Peak
	2	3249.76	53.73	28.60	4.82	40.80	46.35	74.00	-27.65	Peak
	3		49.14		6.70		49.01	74.00	-24.99	Peak
	4			32.40	6.70 9.00	39.23	49.01	74.00 74.00	-24.99 -23.96	Peak Peak
Туре		6001.77	49.14 41.25	32.40	9.00	39.23	50.04			
Туре	4	6001.77 10507.31 802.11n(	49.14 41.25 HT20)	32.40 40.00 Test channe	9.00 el	39.23 40.21 CH11	50.04	74.00 Polarity	-23.96	Peak Horizontal
Туре		6001.77 10507.31 802.11n(	49.14 41.25 HT20)	32.40 40.00 Test channe	9.00	39.23 40.21 CH11 e Preamp	50.04 Level	74.00 Polarity Limit	-23.96 Over	Peak Horizontal
Туре	4 Mark	6001.77 10507.31 802.11n( Frequency MHz	49.14 41.25 HT20) Reading	32.40 40.00 Test channe Antenna dB	9.00 El Cable	39.23 40.21 CH11 e Preamp	50.04 Level	74.00 Polarity Limit dBuV/m	-23.96 Over	Peak Horizontal Remark
Type	4 Mark	802.11n( Frequency MHz 2995.54	49.14 41.25 HT20) Reading dBuV/m 54.84	32.40 40.00 Test channe Antenna dB 28.50	9.00 el Cable dB 4.53	39.23 40.21 CH11 e Preamp dB 40.95	Level dBuV/m 46.92	Polarity  Limit dBuv/m 74.00	-23.96 Over limit -27.08	Peak Horizontal Remark Peak
Туре	Mark 1 2	802.11n( Frequency MHz 2995.54 3283.02	49.14 41.25 HT20) Reading dBuV/m 54.84 53.17	32.40 40.00 Test channe Antenna dB 28.50 28.40	9.00 Cable dB 4.53 4.83	39.23 40.21 CH11 e Preamp dB 40.95 40.80	Level dBuV/m 46.92 45.60	Polarity  Limit dBuV/m 74.00 74.00	-23.96 Over limit -27.08 -28.40	Peak Horizontal Remark Peak Peak
Туре	4 Mark	6001.77 10507.31 802.11n( Frequency MHz 2995.54 3283.02 6001.77	49.14 41.25 HT20)  Reading dBuV/m 54.84 53.17 47.78	32.40 40.00 Test channe Antenna dB 28.50 28.40 32.40	9.00 Cable dB 4.53 4.83 6.70	39.23 40.21 CH11 Preamp dB 40.95 40.80 39.23	Level dBuV/m 46.92 45.60 47.65	74.00  Polarity  Limit dBuV/m 74.00 74.00 74.00	-23.96 Over limit -27.08 -28.40 -26.35	Peak Horizontal Remark Peak Peak Peak Peak
Type	Mark 1 2	802.11n( Frequency MHz 2995.54 3283.02	49.14 41.25 HT20) Reading dBuV/m 54.84 53.17	32.40 40.00 Test channe Antenna dB 28.50 28.40	9.00 Cable dB 4.53 4.83 6.70	39.23 40.21 CH11 e Preamp dB 40.95 40.80	Level dBuV/m 46.92 45.60 47.65	Polarity  Limit dBuV/m 74.00 74.00	-23.96 Over limit -27.08 -28.40 -26.35	Peak Horizontal Remark Peak Peak Peak Peak
	Mark  1 2 3	6001.77 10507.31 802.11n( Frequency MHz 2995.54 3283.02 6001.77	49.14 41.25 HT20)  Reading dBuV/m 54.84 53.17 47.78 41.51	32.40 40.00 Test channe Antenna dB 28.50 28.40 32.40	9.00 Cable dB 4.53 4.83 6.70 8.71	39.23 40.21 CH11 Preamp dB 40.95 40.80 39.23	Level dBuV/m 46.92 45.60 47.65	74.00  Polarity  Limit dBuV/m 74.00 74.00 74.00	-23.96 Over limit -27.08 -28.40 -26.35	Peak Horizontal Remark Peak Peak Peak Peak
	Mark  1 2 3 4	802.11n( Frequency MHZ 2995.54 3283.02 6001.77 10139.45	49.14 41.25 HT20)  Reading dBuV/m 54.84 53.17 47.78 41.51  HT20)	32.40 40.00 Test channe Antenna dB 28.50 28.40 32.40 39.24 Test channe	Cable dB 4.53 4.83 6.70 8.71	39.23 40.21 CH11 e Preamp dB 40.95 40.80 39.23 39.98 CH11	Level dBuV/m 46.92 45.60 47.65 49.48	Polarity  Limit dBuV/m 74.00 74.00 74.00 74.00 74.00 Polarity	-23.96 Over limit -27.08 -28.40 -26.35 -24.52	Peak Horizontal  Remark Peak Peak Peak Peak Peak Vertical
	Mark  1 2 3	802.11n( Frequency MHz 2995.54 3283.02 6001.77 10139.45  802.11n(	49.14 41.25 HT20)  Reading dBuV/m 54.84 53.17 47.78 41.51  HT20)	32.40 40.00 Test channe Antenna dB 28.50 28.40 32.40 39.24 Test channe	Cable dB 4.53 4.83 6.70 8.71	39.23 40.21 CH11 e Preamp dB 40.95 40.80 39.23 39.98 CH11	Level dBuV/m 46.92 45.60 47.65 49.48 Level	Polarity  Limit dBuV/m 74.00 74.00 74.00 74.00 Polarity  Limit	-23.96 Over limit -27.08 -28.40 -26.35 -24.52	Peak Horizontal  Remark Peak Peak Peak Peak Vertical
Type Type	Mark  1 2 3 4	802.11n( Frequency MHz 2995.54 3283.02 6001.77 10139.45  802.11n( Frequency MHz	49.14 41.25 HT20)  Reading dBuV/m 54.84 53.17 47.78 41.51  HT20)  Reading dBuV/m	32.40 40.00 Test channe Antenna dB 28.50 28.40 32.40 39.24 Test channe	Cable dB 4.53 4.83 6.70 8.71 Cable dB	39.23 40.21 CH11 e Preamp dB 40.95 40.80 39.23 39.98 CH11	Level dBuV/m 46.92 45.60 47.65 49.48 Level dBuV/m	Polarity  Limit dBuV/m 74.00 74.00 74.00 74.00 Polarity  Limit dBuV/m	-23.96  Over limit -27.08 -28.40 -26.35 -24.52  Over limit	Peak Horizontal  Remark Peak Peak Peak Peak Peak Peak Peak
	Mark  1 2 3 4	802.11n( Frequency MHz 2995.54 3283.02 6001.77 10139.45  802.11n(	49.14 41.25 HT20)  Reading dBuV/m 54.84 53.17 47.78 41.51  HT20)	32.40 40.00 Test channe Antenna dB 28.50 28.40 32.40 39.24 Test channe	Cable dB 4.53 4.83 6.70 8.71	39.23 40.21 CH11 e Preamp dB 40.95 40.80 39.23 39.98 CH11	Level dBuV/m 46.92 45.60 47.65 49.48 Level	Polarity  Limit dBuV/m 74.00 74.00 74.00 74.00 Polarity  Limit	-23.96 Over limit -27.08 -28.40 -26.35 -24.52	Peak Horizontal  Remark Peak Peak Peak Peak Peak Peak Peak
	Mark  1 2 3 4	802.11n( Frequency MHz 2995.54 3283.02 6001.77 10139.45  802.11n( Frequency MHz	49.14 41.25 HT20)  Reading dBuV/m 54.84 53.17 47.78 41.51  HT20)  Reading dBuV/m	32.40 40.00 Test channe Antenna dB 28.50 28.40 32.40 39.24 Test channe	Cable dB 4.53 4.83 6.70 8.71 Cable dB	39.23 40.21 CH11 e Preamp dB 40.95 40.80 39.23 39.98 CH11	Level dBuV/m 46.92 45.60 47.65 49.48 Level dBuV/m	Polarity  Limit dBuV/m 74.00 74.00 74.00 74.00 Polarity  Limit dBuV/m	-23.96  Over limit -27.08 -28.40 -26.35 -24.52  Over limit	Peak Horizontal  Remark Peak Peak Peak Peak Peak Peak Peak
	Mark  1 2 3 4  Mark	802.11n( Frequency MHz 2995.54 3283.02 6001.77 10139.45  802.11n( Frequency MHz 2995.54	49.14 41.25 HT20)  Reading dBuV/m 54.84 53.17 47.78 41.51  HT20)  Reading dBuV/m 54.81	32.40 40.00 Test channe Antenna dB 28.50 28.40 32.40 39.24 Test channe Antenna dB 28.50	Cable dB 4.53 4.83 6.70 8.71 Cable dB 4.53	39.23 40.21 CH11 e Preamp dB 40.95 40.80 39.23 39.98 CH11 e Preamp dB 40.95 40.80	Level dBuV/m 46.92 45.60 47.65 49.48 Level dBuV/m 46.89	Polarity  Limit dBuV/m 74.00 74.00 74.00 74.00 Polarity  Limit dBuV/m 74.00	-23.96  Over limit -27.08 -28.40 -26.35 -24.52  Over limit -27.11	Peak Horizontal  Remark Peak Peak Peak Peak Peak Peak Peak Pea

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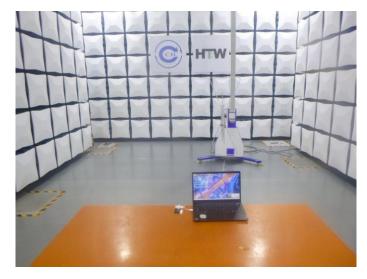
Туре		802.11n(l	HT40)	Test channe	el	CH03		Polarity		Horizontal
	Mark	Frequency	Readin		Cabl				Over	
		MHZ	dBuV/i		dB	dB	dBuV/n		limit	
	1	2995.54	55.05	28.50	4.53	40.95	47.13	74.00	-26.87	Peak
	2	3216.84	53.47	28.80	4.81	40.81	46.27	74.00	-27.73	Peak
	3	4834.05	44.87	31.23	5.90	40.27	41.73	74.00	-32.27	Peak
	4	6001.77	48.88	32.40	6.70	39.23	48.75	74.00	-25.25	Peak
Туре		802.11n(l	HT40)	Test channe	el	CH03		Polarity		Vertical
	Mark	Frequency	Readin		Cabl	100			Over	
		MHZ	dBuV/		dB	dB	dBuV/n		limit	
	1	2995.54	54.79	28.50	4.53		46.87	74.00	-27.13	
	2	3216.84	50.47	28.80	4.81		43.27	74.00	-30.73	
	3	6001.77	49.77	32.40	6.70	39.23	49.64	74.00	-24.36	Peak
	4	11515.68	40.29		9.22	40.22	49.76	74.00	-24.24	Peak
Туре		802.11n(l	HT40)	Test channe	el	CH06		Polarity		Horizontal
	Mark	Frequency	Reading	Antenna	Cable	Preamp	Level	Limit	Over	Remark
		MHZ	dBuV/m	dB	dB	dB	dBuV/m	dBuV/m	limit	
	1	2995.54	55.62	28.50	4.53	40.95	47.70	74.00	-26.30	Peak
	2		49.86		6.70	39.23	49.73	74.00	-24.27	Peak
	3		45.28		8.04		50.38	74.00	-23.62	
	4		42.46		8.60		50.39	74.00	-23.61	Peak
Туре		802.11n(l	HT40)	Test channe	el	CH06		Polarity		Vertical
71		`	,					,		
	Mark	Frequency	Reading	Antenna	Cable	e Preamp	Level	l Limit	Over	r Remark
	Hull K	MHZ	dBuV/n		dB	dB	dBuV/r			
	1		55.62	28.50	4.53		47.70	74.00	-26.36	
	2	3445.70	48.91	28.67	4.97	40.87	41.68	74.00	-32.32	
	3		49.86		6.70	39.23	49.73	74.00	-24.27	
	4	8002.06	45.28	37.00	8.04	39.94	50.38	74.00	-23.62	2 Peak
Туре		802.11n(l	HT40)	Test channe	el	CH09		Polarity		Horizontal
			Dan di							Page 15
	Mark	Frequency	Reading		Cable				Over	
	114.11	MHZ	dBuV/r		dB	dB	dBuV/m		limit	
	1	2995.54	55.29	28.50	4.53	40.95	47.37	74.00	-26.63	
	2	3283.02	53.51	28.40	4.83		45.94	74.00	-28.06	
	3	6001.77	48.68	32.40	6.70		48.55	74.00	-25.45	
	4	8002.06	42.60	37.00	8.04	39.94	47.70	74.00	-26.30	Peak
Туре		802.11n(l	HT40)	Test channe	el	CH09		Polarity		Vertical
	Mark	Eneguency	Readin	g Antenna	Cabl	e Preamp	Level	Limit	Over	Remark
	ridi K	Frequency							Over	
		MHZ	dBuV/i		dB	dB	dBuV/r			
	1000			28.50	4.53	40.95	47.47	74.00	-26.53	Peak
	1	2995.54	55.39							
	2	3993.90	55.29	29.79	5.43	40.32	50.19	74.00	-23.81	Peak
						40.32				Peak

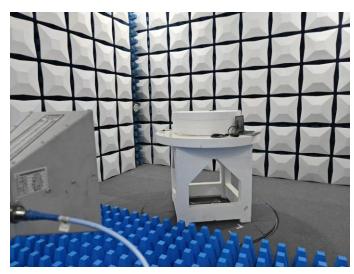
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# 6. TEST SETUP PHOTOS

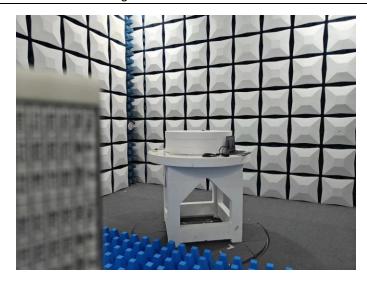
Radiated Emission

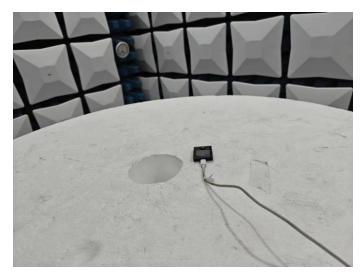






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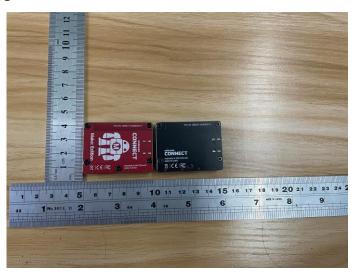


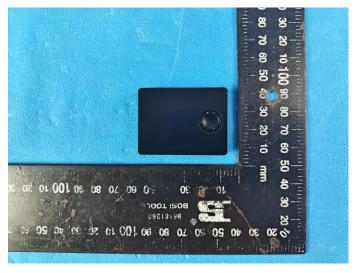


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# 7. EXTERNAL AND INTERNAL PHOTOS

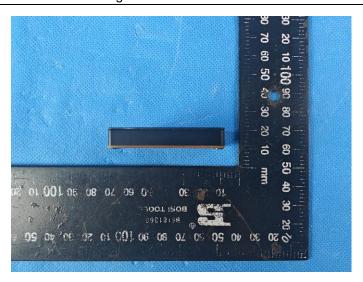
## 7.1. External Photos



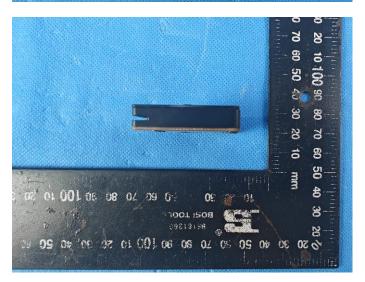




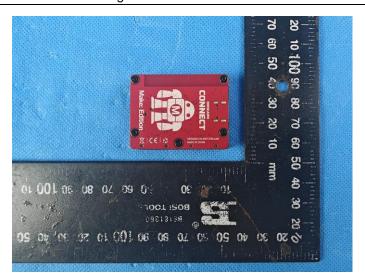
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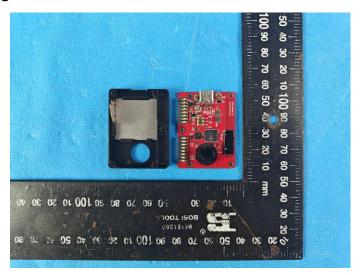


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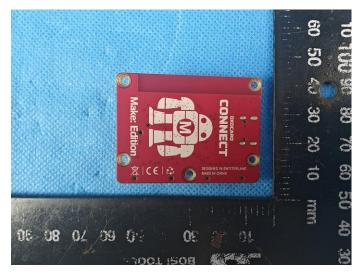


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#### 7.2. Internal Photos







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## 8. APPENDIX REPORT

# **APPENDIX REPORT**

Project No.	SHT2408069802W	Radio Specification	WIFI 2.4G	
Test sample No.	YPHT24080698002	Model No.	Oxocard Connect	
Start test date	2024-09-05	Finish date	2024-09-11	
Temperature	26.4℃	Humidity	48%	
Test Engineer	Chenxin Ling	Auditor	Xiaodong Zheo	

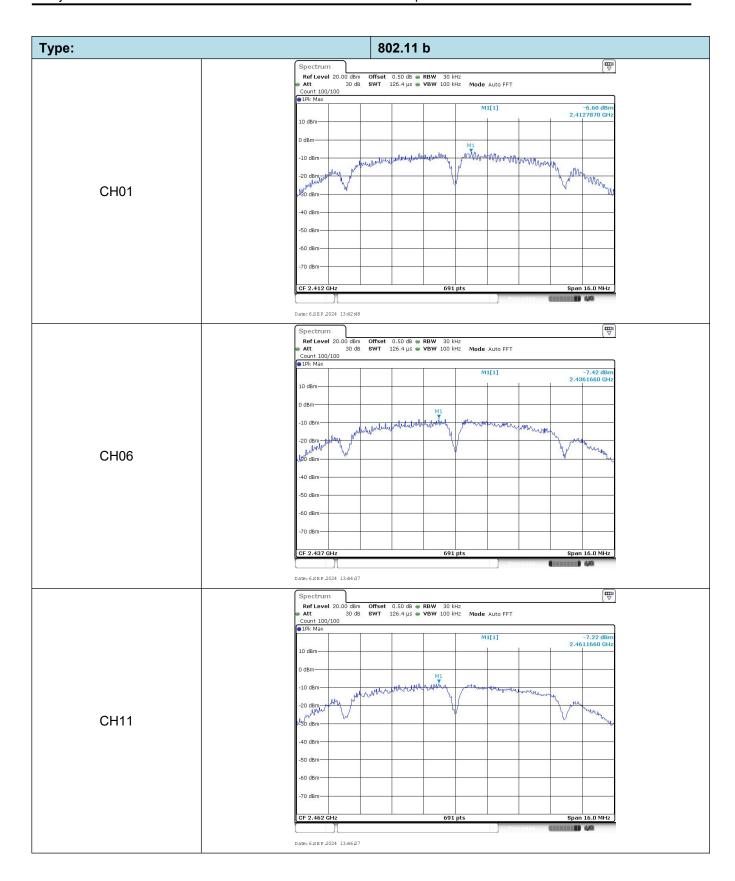
Appendix clause	Test item	Result
А	Conducted Peak Output Power	Pass
В	Power Spectral Density	Pass
С	6 dB Bandwidth	Pass
D	99% Occupied Bandwidth	Pass
Е	Duty Cycle	Pass
F	Band edge and Spurious Emissions (conducted)	Pass

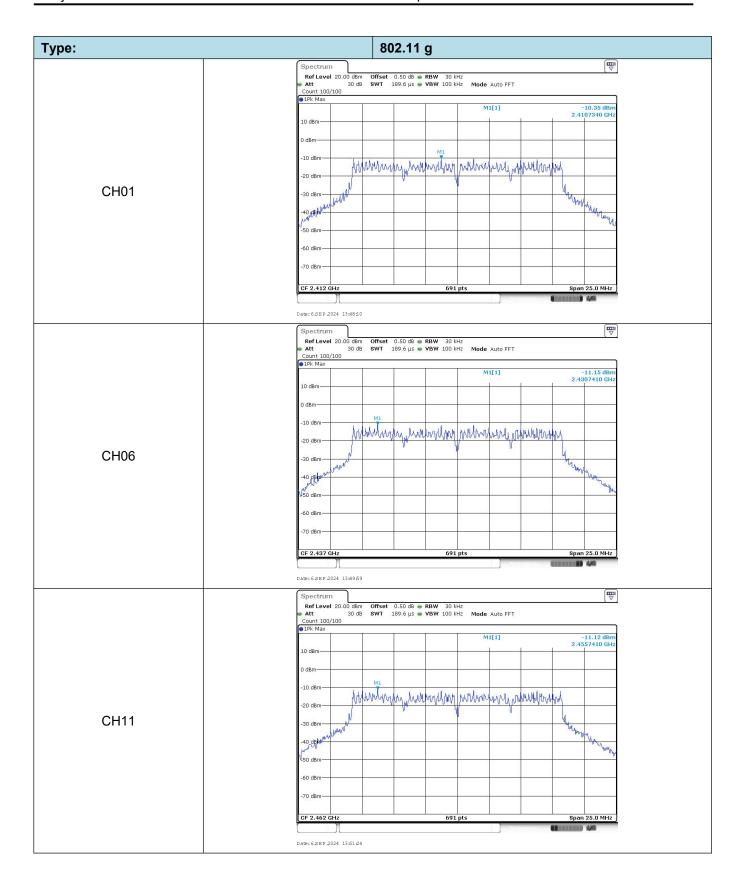
### Appendix A: Conducted Peak Output Power

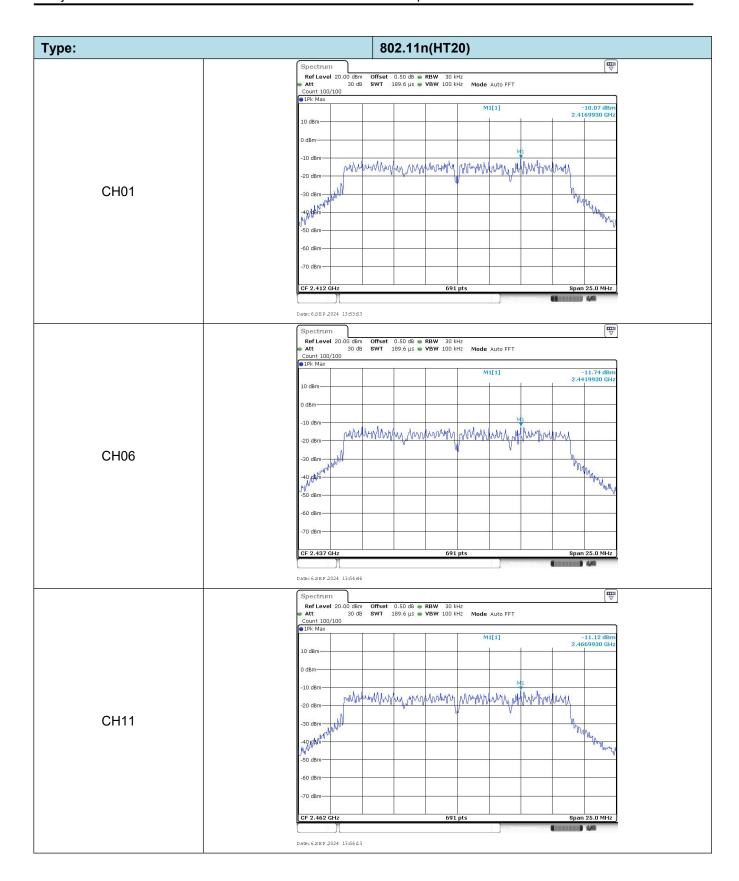
Туре	Channel	Peak Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
	01	10.51	9.86		Pass
802.11b	06	9.71	9.25	≤ 30.00	
	11	10.20	9.63		
802.11g	01	12.77	11.92		Pass
	06	11.81	10.96	≤ 30.00	
	11	12.38	11.68		
802.11n (HT20)	01	12.81	12.02		Pass
	06	11.72	11.00	≤ 30.00	
	11	12.31	11.64		
802.11n(HT40)	03	12.41	11.75		
	06	11.53	10.86	≤ 30.00	Pass
	09	11.97	11.28		

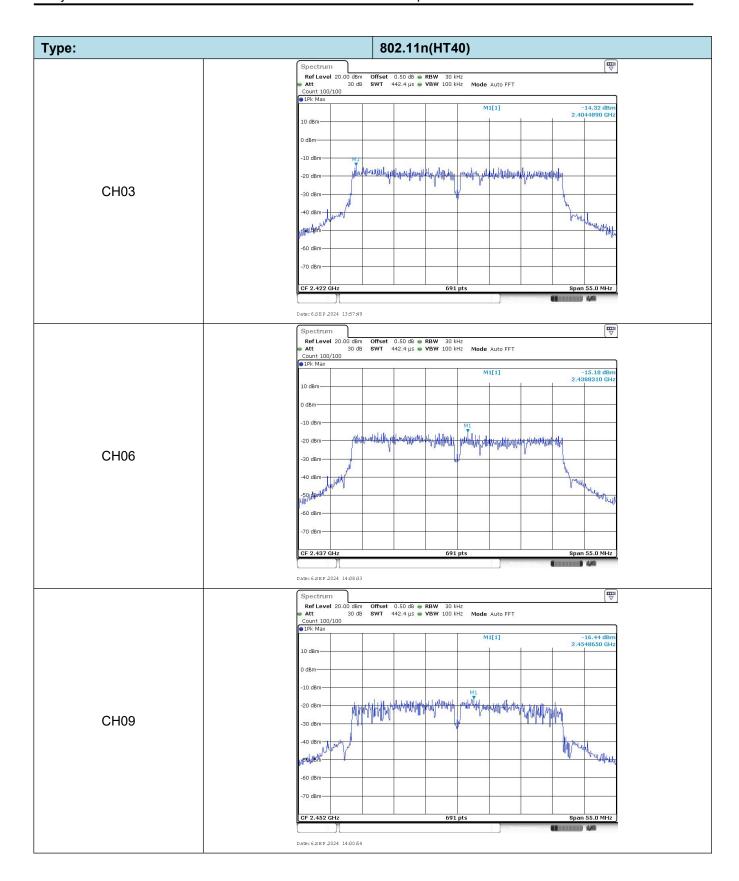
### Appendix B: Power Spectral Density

Туре	Channel	Power Spectral Density (dBm/30KHz)	Limit (dBm/3KHz)	Result
	01	-6.60		
802.11b	06	-7.42	≤8.00	Pass
	11	-7.22		
	01	-10.35	≤8.00	Pass
802.11g	06	-11.15		
	11	-11.12		
802.11n(HT20)	01	-10.07		Pass
	06	-11.74	≤8.00	
	11	-11.12		
802.11n(HT40)	03	-14.32		
	06	-15.18	≤8.00	Pass
	09	-16.44		









#### Appendix C: 6dB bandwidth

Туре	Channel	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11b	01	9.18		Pass
	06	9.66	≥0.5	
	11	9.36		
802.11g	01	16.44		Pass
	06	16.41	≥0.5	
	11	16.59		
	01	17.64		
802.11n(HT20)	06	17.88	≥0.5	Pass
	11	17.64		
	03	35.58		
802.11n(HT40)	06	35.76	≥0.5 Pass	Pass
	09	36.06		

