



# FCC Test Report

FCC ID	:	ACJ-V3WA
Equipment	:	Wireless Module
Model No.	:	PIOT-V3(WA)
Brand Name	:	Panasonic
Applicant	:	Panasonic Corporation of North America
Address	:	Two Riverfront Plaza, Newark, NJ 07102 5490
Standard	:	47 CFR FCC Part 15.407
<b>Received Date</b>	:	Sep. 19, 2024
Tested Date	:	Sep. 20 ~ Sep. 26, 2024

We, International Certification Corporation, would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It shall not be reproduced except in full without the written approval of our laboratory.

**Reviewed by:** 

Approved by:

ons Chen

Along Cheil/ Assistant Manager

Gary Chang / Manager



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# **Release Record**

Report No.	Version	Description	Issued Date
FR491901AN	Rev. 01	Initial issue	Dec. 25, 2024



FCC Rules	Test Items	Measured	Result	
15.207	AC Power Line Conducted Emissions	[dBuV]: 0.524MHz 32.37 (Margin -13.63dB) - AV [dBuV]: 0.521MHz 32.37 (Margin -13.63dB) - AV	Pass	
15.407(b)	Unwanted Emissions	[dBuV/m at 3m]: 5.47GHz	Dooo	
15.209	Unwanted Emissions	67.18 (Margin -1.02dB) - PK	Pass	
15.407(a)	Emission Bandwidth	Meet the requirement of limit	Pass	
15.407(e)	6dB bandwidth	Meet the requirement of limit	Pass	
15.407(a)	Conducted Output Power	Max Power [dBm]: 5150~5250MHz: 19.43 5250~5350MHz: 19.46 5470~5725MHz: 19.46 5725~5850MHz: 19.63	Pass	
15.407(a)	Power Spectral Density	Meet the requirement of limit	Pass	
15.407(g)	Frequency Stability	Meet the requirement of limit	Pass	
15.203	Antenna Requirement	Meet the requirement of limit	Pass	

## **Summary of Test Results**

#### **Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

#### **Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.



### **1** General Description

### 1.1 Information

### 1.1.1 Specification of the Equipment under Test (EUT)

	RF General Information							
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N⊤x)	Data Rate / MCS			
5150-5250 5250-5350 5470-5725 5725-5850	а	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	1	6-54 Mbps			
5150-5250 5250-5350 5470-5725 5725-5850	n (HT20)	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	1	MCS 0-7			
5150-5250     5190-5230     38-46 [2]       5250-5350     5270-5310     54-62 [2]       5470-5725     5510-5710     102-142 [6]       5725-5850     5755-5795     151-159 [2]								
	Note 1: RF output power specifies that Maximum Conducted Output Power. Note 2: 802.11a/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.							

#### 1.1.2 Antenna Details

Brand	Model			Type Connecto		Operating Frequencies (MHz) / Antenna Gain (dBi)				
Drand	model	Type	Connector	2400~2483.5	5150~5250	5250~5350	5470~5725	5725~5850		
WNC	DHSK-P21_ ANT-0	Monopole	No	1.46	4.96	4.93	4.41	3.75		
WNC	DHSK-P21_ ANT-1	Monopole	No	1	4.99	4.6	3.86	4.48		

### 1.1.3 Configuration of Equipment under Test (EUT)

Power Supply Type	5Vdc from host		
ТРС	Support	☑ Not support	

#### 1.1.4 Accessories

N/A



### 1.1.5 Channel List

802.11a	/ n HT20	802.11	n HT40
Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	38	5190
40	5200	46	5230
44	5220	54	5270
48	5240	62	5310
52	5260	102	5510
56	5280	110	5550
60	5300	118	5590
64	5320	126	5630
100	5500	134	5670
104	5520	142	5710
108	5540	151	5755
112	5560	159	5795
116	5580		
120	5600		
124	5620		
128	5640		
132	5660		
136	5680		
140	5700		
144	5720		
149	5745		
153	5765		
157	5785		
161	5805		
165	5825		

### 1.1.6 Test Tool and Duty Cycle

Test Tool	UI_mptool, version: 1V7					
Duty Cycle and Duty Factor	Mode	Duty Cycle (%)	Duty Factor (dB)			
	11a	100.00%	0.00			
	HT20	100.00%	0.00			
	HT40	100.00%	0.00			



### 1.1.7 Power Index of Test Tool

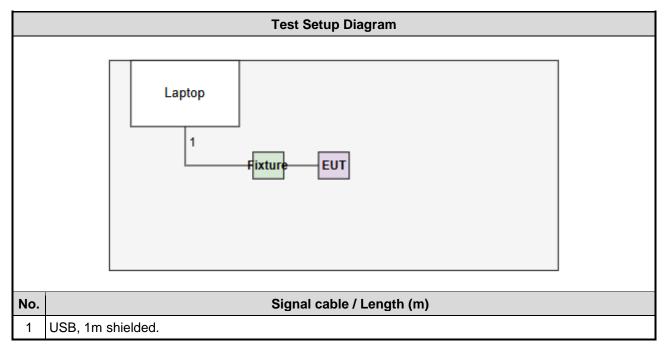
Modulation Mode	Test Frequency (MHz)	Power Index
11a	5180	105
11a	5200	106
11a	5240	106
11a	5260	106
11a	5300	106
11a	5320	104
11a	5500	95
11a	5580	106
11a	5700	86
11a	5720	96
11a	5745	100
11a	5785	100
11a	5825	102
HT20	5180	104
HT20	5200	104
HT20	5240	104
HT20	5260	104
HT20	5300	104
HT20	5320	104
HT20	5500	95
HT20	5580	104
HT20	5700	82
HT20	5720	94
HT20	5745	100
HT20	5785	100
HT20	5825	102
HT40	5190	99
HT40	5230	110
HT40	5270	108
HT40	5310	99
HT40	5510	87
HT40	5590	108
HT40	5670	94
HT40	5710	96
HT40	5755	102
HT40	5795	102



### **1.2 Local Support Equipment List**

	Support Equipment List							
No.	No. Equipment Brand Model FCC ID Remarks							
1	Laptop	DELL	Latitude 5400	DoC				
2	Fixture	WNC	DHSK-P21_TB 01		Provided by applicant.			

### 1.3 Test Setup Chart





### 1.4 The Equipment List

Conducted Emission								
Conduction room 1 / (CO01-WS)								
Sep. 24, 2024								
Brand	Brand Model No. Serial No. Calibration Date Calibration Until							
R&S	ESR3	101658	Feb. 23, 2024	Feb. 22, 2025				
R&S	ENV216	101579	May 09, 2024	May 08, 2025				
SCHWARZBECK	Schwarzbeck 8127	8127667	Jan. 10, 2024	Jan. 09, 2025				
Woken	CFD200-NL	CFD200-NL-001	Oct. 11, 2023	Oct. 10, 2024				
NA	50	01	Jun. 19, 2024	Jun. 18, 2025				
AUDIX e3 6.120210k NA NA								
	Sep. 24, 2024 Brand R&S R&S SCHWARZBECK Woken NA	Conduction room 1 / (CO01-WS)Sep. 24, 2024Model No.BrandModel No.R&SESR3R&SENV216SCHWARZBECKSchwarzbeck 8127WokenCFD200-NLNA50	Conduction room 1 / (CO01-WS)       Sep. 24, 2024       Brand     Model No.     Serial No.       R&S     ESR3     101658       R&S     ENV216     101579       SCHWARZBECK     Schwarzbeck 8127     8127667       Woken     CFD200-NL     CFD200-NL-001       NA     50     01	Conduction room 1 / (CO01-WS)       Sep. 24, 2024       Brand     Model No.     Serial No.     Calibration Date       R&S     ESR3     101658     Feb. 23, 2024       R&S     ENV216     101579     May 09, 2024       SCHWARZBECK     Schwarzbeck 8127     8127667     Jan. 10, 2024       Woken     CFD200-NL     CFD200-NL-001     Oct. 11, 2023       NA     50     01     Jun. 19, 2024				

Test Item	Test Item Radiated Emission   Test Site 966 chamber1 / (03CH01-WS)					
Test Site						
Tested Date	Sep. 20 ~ Sep. 24, 20	Sep. 20 ~ Sep. 24, 2024				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until	
Receiver	R&S	ESR3	101657	Mar. 05, 2024	Mar. 04, 2025	
Spectrum Analyzer	R&S	FSV40	101498	Nov. 23, 2023	Nov. 22, 2024	
Loop Antenna	R&S	HFH2-Z2	100330	Oct. 31, 2023	Oct. 30, 2024	
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Aug. 09, 2024	Aug. 08, 2025	
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Nov. 27, 2023	Nov. 26, 2024	
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 30, 2023	Oct. 29, 2024	
Preamplifier	EMC	EMC02325	980225	Jun. 17, 2024	Jun. 16, 2025	
Preamplifier	EMC	EMC118A45SE	980898	Jul. 05, 2024	Jul. 04, 2025	
Preamplifier	EMC	EMC184045SE	980903	Jul. 30, 2024	Jul. 29, 2025	
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 03, 2023	Oct. 02, 2024	
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 03, 2023	Oct. 02, 2024	
LF cable 11M	EMC	EMCCFD400-NW-N W-11000	200801	Oct. 03, 2023	Oct. 02, 2024	
LF cable 1M	EMC	EMCCFD400-NM-N M-1000	160502	Oct. 03, 2023	Oct. 02, 2024	
RF Cable	EMC	EMC104-35M-35M- 8000	210920	Oct. 03, 2023	Oct. 02, 2024	
RF Cable	EMC	EMC104-35M-35M- 3000	210922	Oct. 03, 2023	Oct. 02, 2024	
Attenuator	Pasternack	PE7005-10	10-1	Oct. 05, 2023	Oct. 04, 2024	
HIGHPASS FILTER 7-18G	K&L	11SH10-7000/T1800 0-O/OP	18	Oct. 05, 2023	Oct. 04, 2024	
Measurement Software	Sporton	SENSE-15407_NII	V5.11	NA	NA	
Measurement Software	Sporton	SENSE-EMI	V5.11	NA	NA	



Test Item	RF Conducted	F Conducted				
Test Site	(TH01-WS)					
Tested Date     Sep. 24 ~ Sep. 26, 2024						
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until	
Spectrum Analyzer	R&S	FSV40	101910	Apr. 18, 2024	Apr. 17, 2025	
Power Meter	Anritsu	ML2495A	1241002	Nov. 21, 2023	Nov. 20, 2024	
Power Sensor	Anritsu	MA2411B	1207366	Nov. 21, 2023	Nov. 20, 2024	
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Jul. 01, 2024	Jun. 30, 2025	
AC POWER SOURCE	APC	AFC-500W	F312060012	Dec. 16, 2023	Dec. 15, 2024	
Attenuator	Pasternack	PE7005-10	10-2	Oct. 05, 2023	Oct. 04, 2024	
Measurement Software	Sporton	SENSE-15407_NII	V5.11	NA	NA	
Note: Calibration Inte	rval of instruments liste	ed above is one year.		1	1	

### 1.5 Test Standards

47 CFR FCC Part 15.407 ANSI C63.10-2013

### **1.6 Reference Guidance**

FCC KDB 412172 D01 Determining ERP and EIRP v01r01 FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01

### **1.7** Deviation from Test Standard and Measurement Procedure

None



### 1.8 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

Measurement Uncertainty		
Parameters	Uncertainty	
Bandwidth	±34.130 Hz	
Conducted power	±0.808 dB	
Frequency error	±1x10 <sup>-9</sup>	
Power density	±0.583 dB	
Conducted emission	±2.715 dB	
AC conducted emission	±2.92 dB	
Unwanted Emission ≤ 1GHz	±3.41 dB	
Unwanted Emission > 1GHz	±4.59 dB	
Time	±0.1%	
Temperature	±0.4 °C	



### 2 Test Configuration

### 2.1 Testing Facility

Test Laboratory	International Certification Corporation
Test Site	CO01-WS, 03CH01-WS, TH01-WS
Address of Test Site	No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

➢ FCC Designation No.: TW2732

➢ FCC site registration No.: 181692

➢ ISED#: 10807A

➤ CAB identifier: TW2732

### 2.2 The Worst Test Modes and Channel Details

Frequency band 5150~5350 MHz / 5470~5725 MHz						
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration		
AC Power Line Conducted Emissions	HT40	5590	MCS 0			
Unwanted Emissions ≤1GHz	HT40	5590	MCS 0	(Mode 1)		
Unwanted Emissions >1GHz	11a	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	6 Mbps			
Conducted Output Power Emission Bandwidth	HT20	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	MCS 0			
Power Spectral Density	HT40	5190 / 5230 / 5270 / 5310 / 5510 5590 / 5670 / 5710	MCS 0			
Frequency Stability	Un-modulation	5300				
Frequency band 5725-5850 MHz						
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration		
AC Power Line Conducted Emissions	HT40	5795	MCS 0			
Unwanted Emissions ≤1GHz	HT40	5795	MCS 0	(Mode 2)		
Unwanted Emissions >1GHz Conducted Output Power	11a	5745 / 5785 / 5825	6 Mbps			
Emission Bandwidth 6dB bandwidth	HT20	5745 / 5785 / 5825	MCS 0			
Power Spectral Density	HT40	5755 / 5795	MCS 0			
	Un-modulation	5785				

1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Z-plane** results were found as the worst case and were shown in this report.



### **3** Transmitter Test Results

### 3.1 Emission Bandwidth

#### 3.1.1 Limit of Emission Bandwidth

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

#### 3.1.2 Test Procedures

#### 26dB Bandwidth

- 1. Set RBW = approximately 1% of the emission bandwidth.
- 2. Set the VBW > RBW, Detector = Peak.
- 3. Trace mode = max hold.
- 4. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.

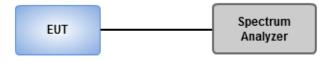
#### Occupied Bandwidth

- 1. Set RBW = 1 % to 5 % of the OBW.
- 2. Set VBW  $\geq$  3 RBW.
- 3. Sample detection and single sweep mode shall be used.
- 4. Use the 99 % power bandwidth function of the instrument.

#### 6dB Bandwidth

- 1. Set RBW = 100kHz, VBW = 300kHz.
- 2. Detector = Peak,Trace mode = max hold.
- 3. Allow the trace to stabilize.
- 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.

#### 3.1.3 Test Setup



#### 3.1.4 Test Results

Amblent Condition 23-24°C / 62-65% Tested By Akun Chung	Ambient Condition 23-24°C	C / 62-65% Tested B	<b>y</b> Akun Chun	g
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Refer to Appendix A.



### 3.2 Conducted Output Power

#### 3.2.1 Limit of Conducted Output Power

	Frequ	iency band 5150-5250 MHz
Оре	rating Mode	Limit
	Outdoor access point	Conducted Power: 1 W The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm)
	Indoor access point	Conducted Power: 1 W
	Fixed point-to-point access points	Conducted Power: 1 W
$\square$	Client devices	Conducted Power: 250 mW

Free	quency Band (MHz)	Limit
	5250 ~ 5350	Conducted Power: 250mW or 11dBm+10 log B EIRP < = 500 mW *TPC mechanism is not supported.
	5470 ~ 5725	Conducted Power: 250mW or 11dBm+10 log B EIRP < = 500 mW *TPC mechanism is not supported.
$\boxtimes$	5725 ~ 5850	Conducted Power: 1 W
Note	e: "B" is the 26dB emission bandwidth i	n MHz.

#### 3.2.2 Test Procedures

#### Method PM-G (Measurement using a gated RF average power meter)

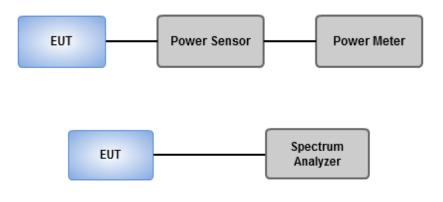
Measurements is performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

#### Spectrum analyzer (For channel that extends across the 5.725 GHz boundary)

- 1. Set RBW = 1MHz, VBW = 3MHz, Sweep time = Auto, Detector = RMS.
- 2. Trace average at least 100 traces in power averaging mode.
- 3. Compute power by integrating the spectrum across the 26 dB EBW.
- 4. Add 10 log(1/X, X:duty cycle) if duty cycle is <98%).



### 3.2.3 Test Setup



#### 3.2.4 Test Results

Ambient Condition 23-24°C / 62-65%	Tested By	Akun Chung
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Refer to Appendix B.



### 3.3 Power Spectral Density

### 3.3.1 Limit of Power Spectral Density

	Frequency band 5150-5250 MHz			
Оре	erating Mode	Limit		
	Outdoor access point	17 dBm / MHz		
	Indoor access point	17 dBm / MHz		
	Fixed point-to-point access points	17 dBm / MHz		
$\square$	Client devices	11 dBm / MHz		

Free	quency Band (MHz)	Limit
$\square$	5250 ~ 5350	11 dBm / MHz
$\square$	5470 ~ 5725	11 dBm / MHz
$\square$	5725 ~ 5850	30 dBm /500 kHz



#### 3.3.2 Test Procedures

#### For 5150 ~ 5250 MHz / 5250 ~ 5350 MHz / 5470 ~ 5725 MHz

Duty cycle ≥ 98 %

- 1. Set RBW = 1 MHz, VBW = 3 MHz, Sweep time = auto, Detector = RMS.
- 2. Trace average 100 traces.
- 3. Use the peak marker function to determine the maximum amplitude level.

Duty cycle < 98 %

- 1. Set RBW = 1 MHz, VBW = 3 MHz, Detector = RMS.
- 2. Set sweep time  $\geq$  10 \* (number of points in sweep) \* (total on/off period of the transmitted signal).
- 3. Perform a single sweep.
- 4. Use the peak marker function to determine the maximum amplitude level.
- 5. Add 10  $\log(1/x)$ , where x is the duty cycle.

#### For 5725 ~ 5850 MHz

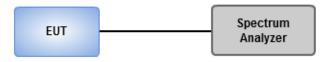
Duty cycle ≥ 98 %

- 1. Set RBW = 500 kHz, VBW = 3 MHz, Sweep time = auto, Detector = RMS.
- 2. Trace average 100 traces.
- 3. Use the peak marker function to determine the maximum amplitude level.

Duty cycle < 98 %

- 1. Set RBW = 500 kHz, VBW = 3 MHz, Detector = RMS.
- 2. Set sweep time  $\geq$  10 \* (number of points in sweep) \* (total on/off period of the transmitted signal).
- 3. Perform a single sweep.
- 4. Use the peak marker function to determine the maximum amplitude level.
- 5. Add 10  $\log(1/x)$ , where x is the duty cycle.

#### 3.3.3 Test Setup



#### 3.3.4 Test Results

	Ambient Condition	23-24°C / 62-65%	Tested By	Akun Chung
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Refer to Appendix C.



### 3.4 Unwanted Emissions

#### 3.4.1 Limit of Unwanted Emissions

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

#### Note 1:

Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit **Note 2:** 

Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

Un-restricted band emissions above 1GHz Limit			
Operating Band Limit			
5.15 - 5.25 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]		
5.25 - 5.35 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]		
5.47 - 5.725 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]		
5.725 - 5.850 GHz 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 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at 5 MHz above or below the band edge.			
Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shal be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).			



#### 3.4.2 Test Procedures

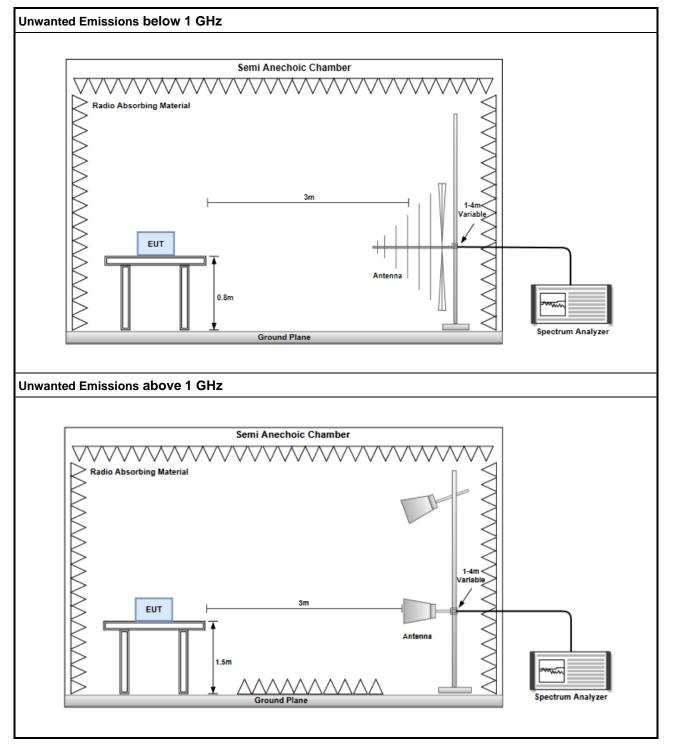
- Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
- Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
- 3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

Note:

- 1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
- 2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
- 3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.



#### 3.4.3 Test Setup



#### 3.4.4 Test Results

	Ambient Condition	24-26°C / 63-64%	Tested By	Roger Lu / Allen Lee
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Refer to Appendix D.



### 3.5 Frequency Stability

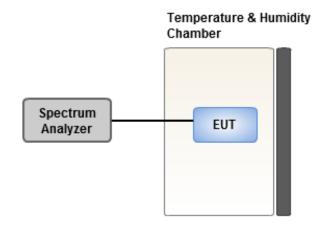
#### 3.5.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

#### 3.5.2 Test Procedures

- 1. The EUT is installed in an environment test chamber with external power source.
- 2. Set the chamber to operate at 20 centigrade and external power source to output at nominal voltage of EUT.
- 3. A sufficient stabilization period at each temperature is used prior to each frequency measurement.
- 4. When temperature is stabled, measure the frequency stability.
- 5. The test shall be performed under normal and extreme condition for temperature and voltage.

#### 3.5.3 Test Setup



#### 3.5.4 Test Results

	Ambient Condition	23-24°C / 62-65%	Tested By	Akun Chung
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Refer to Appendix E.



#### 3.6 **AC Power Line Conducted Emissions**

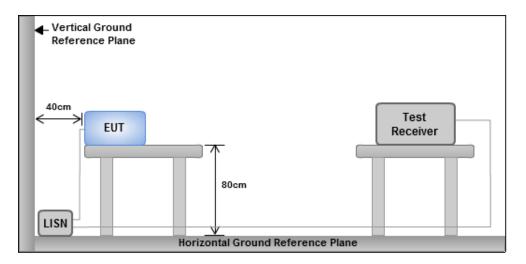
#### 3.6.1 Limit of AC Power Line Conducted Emissions

Conducted Emissions Limit				
Frequency Emission (MHz)	Quasi-Peak	Average		
0.15-0.5	66 - 56 *	56 - 46 *		
0.5-5	56	46		
5-30	60	50		
Note 1: * Decreases with the logarithm of the frequency.				

#### 3.6.2 Test Procedures

- 1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
- 2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
- 3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
- 4. This measurement was performed with AC 120V/60Hz

#### 3.6.3 Test Setup



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

#### 3.6.4 Test Results

Refer to Appendix F.



### 4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corporation (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <u>http://www.icertifi.com.tw</u>.

#### Linkou

Tel: 886-2-2601-1640 No.30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan (R.O.C.)

#### Kwei Shan

Tel: 886-3-271-8666 No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.) No.2-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

#### Kwei Shan Site II

Tel: 886-3-271-8640 No.14-1, Lane 19, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666 Fax: 886-3-318-0345 Email: ICC\_Service@icertifi.com.tw

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