

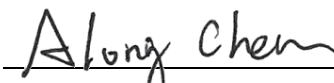
# FCC C2PC Test Report

**FCC ID** : P27-XIONESCM2  
**Equipment** : XiOne-SC (B)  
**Model No.** : SCXlxxBEIxCO; SCXlxxBEI  
(Refer to item 1.1.1 for more details.)  
**Brand Name** : Comcast Xfinity; Cox; Shaw  
(Refer to item 1.1.1 for more details.)  
**Applicant** : Sercomm Corporation  
**Address** : 8F, No. 3-1, YuanQu St., NanKang, Taipei 115,  
Taiwan. R.O.C.  
**Standard** : 47 CFR FCC Part 15.407  
**Received Date** : May 06, 2022  
**Tested Date** : May 18 ~ May 23, 2022

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:

  
\_\_\_\_\_  
Along Chen / Assistant Manager

  
\_\_\_\_\_  
Gary Chang / Manager

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## Release Record

Report No.	Version	Description	Issued Date
FR161001-05AN	Rev. 01	Initial issue	Jun. 08, 2022

## Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emissions	[dBuV]: 5.683MHz 50.31 (Margin -9.69dB) - QP	Pass
15.407(b) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 5470.00MHz 68.02 (Margin -0.18dB) - PK	Pass
15.407(a)	Conducted Output Power	Max Power [dBm]: <b>Non-beamforming mode</b> 5150~5250MHz: 22.93 5250~5350MHz: 23.10 5470~5725MHz: 23.40 5725~5850MHz: 26.32 <b>Beamforming mode</b> 5150~5250MHz: 19.92 5250~5350MHz: 20.09 5470~5725MHz: 20.39 5725~5850MHz: 23.31	Pass

### 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

This is a Class II Permissive Change report (C2PC).

This report is issued as a supplementary report to original report no. FR161001-04AN. The modifications are listed as follows:

- Adding 2nd source (RF and non-RF components) listed in part list document.

### 1.1.1 Product Details

The following models are provided to this EUT.

Brand Name	Model Name	Product Name	Description
Comcast Xfinity; Cox; Shaw	SCXIxxBEIxCO; SCXIxxBEI	XiOne-SC (B)	Where "x" may be any alphanumeric for External Body Color.
<ul style="list-style-type: none"><li>✦ All models are electrically identical, different model names are for marketing purpose.</li><li>✦ The above models, model <b>SCXI11BEI</b> was selected as a representative one for the final test and only its data was recorded in this report.</li></ul>			

## 1.1.2 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 <sub>TX</sub> )	Data Rate / MCS
5150-5250 5250-5350 5470-5725 5725-5850	a	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	2	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]	2	MCS 0-15
5150-5250 5250-5350 5470-5725 5725-5850	n (HT40)	5190-5230 5270-5310 5510-5710 5755-5795	38-46 [2] 54-62 [2] 102-142 [6] 151-159 [2]	2	MCS 0-15
5150-5250 5250-5350 5470-5725 5725-5850	ac (VHT20)	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	2	MCS 0-9
5150-5250 5250-5350 5470-5725 5725-5850	ac (VHT40)	5190-5230 5270-5310 5510-5710 5755-5795	38-46 [2] 54-62 [2] 102-142 [6] 151-159 [2]	2	MCS 0-9
5150-5250 5250-5350 5470-5725 5725-5850	ac (VHT80)	5210 5290 5530~5690 5775	42 [1] 58 [1] 106-138 [3] 155 [1]	2	MCS 0-9
5150-5250 5250-5350 5470-5725 5725-5850	ax (HE20)	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	2	MCS 0-11
5150-5250 5250-5350 5470-5725 5725-5850	ax (HE40)	5190-5230 5270-5310 5510-5710 5755-5795	38-46 [2] 54-62 [2] 102-142 [6] 151-159 [2]	2	MCS 0-11
5150-5250 5250-5350 5470-5725 5725-5850	ax (HE80)	5210 5290 5530~5690 5775	42 [1] 58 [1] 106-138 [3] 155 [1]	2	MCS 0-11

Note 1: BPSK, QPSK, 16QAM, 64QAM, 256QAM and 1024QAM modulation  
Note 2: 802.11ax supports beamforming function.

### 1.1.3 Antenna Details

Ant. No.	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)				
				2400~2483.5	5150~5250	5250~5350	5470~5725	5725~5850
1	Ant0	PIFA	UFL	3.37	3.7	3.87	3.8	3.5
2	Ant1	PIFA	NA	3.81	3.83	3.85	3.85	3.92

### 1.1.4 Power Supply Type of Equipment under Test (EUT)

<b>Power Supply Type</b>	5.0Vdc from AC adapter
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### 1.1.5 Accessories

Accessories		
No.	Equipment	Description
1	AC adapter	Brand: LEADER Model: ML08-7050150-A1 I/P: 100-120V~ 50/60Hz, 0.25A O/P: 5.0Vdc, 1.5A Power Line: 1.8m non-shielded without core
2	AC adapter	Brand: NetBit Model: NBC08A050150HU I/P: 100-120V~ 50/60Hz, 0.2A O/P: 5.0Vdc, 1.5A Power Line: 1.81m non-shielded without core
3	AC adapter	Brand: AcBel Model: WAK010 I/P: 100-120V~ 60Hz, 0.25A O/P: 5.0Vdc, 1.5A Power Line: 1.78m non-shielded without core

### 1.1.6 Channel List

802.11a / n HT20 / ac VHT20 / ax HE20		802.11n HT40 / ac VHT40 / ax HE40	
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	<b>802.11ac VHT80 / ax HE80</b>	
120	5600	42	5210
124	5620	58	5290
128	5640	106	5530
132	5660	122	5610
136	5680	138	5690
140	5700	155	5775
144	5720	---	---
149	5745	---	---
153	5765	---	---
157	5785	---	---
161	5805	---	---
165	5825	---	---

### 1.1.7 Test Tool and Duty Cycle

Test Tool	accessMtool, V3.1.0.2 ; Tera Term, V4.66		
Duty Cycle and Duty Factor	Mode	Duty Cycle (%)	Duty Factor (dB)
	11a	96.00%	0.18
	ax HE20	99.52%	0.02
	ax HE40	97.31%	0.12
ax HE80	95.08%	0.22	



### 1.1.8 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index
11a	5180	72
11a	5200	78
11a	5240	76
11a	5260	78
11a	5300	76
11a	5320	70
11a	5500	74
11a	5580	76
11a	5700	62
11a	5745	88
11a	5785	88
11a	5825	90
ax HE20	5180	72
ax HE20	5200	78
ax HE20	5240	76
ax HE20	5260	78
ax HE20	5300	76
ax HE20	5320	68
ax HE20	5500	70
ax HE20	5580	76
ax HE20	5700	60
ax HE20	5745	88
ax HE20	5785	88
ax HE20	5825	90

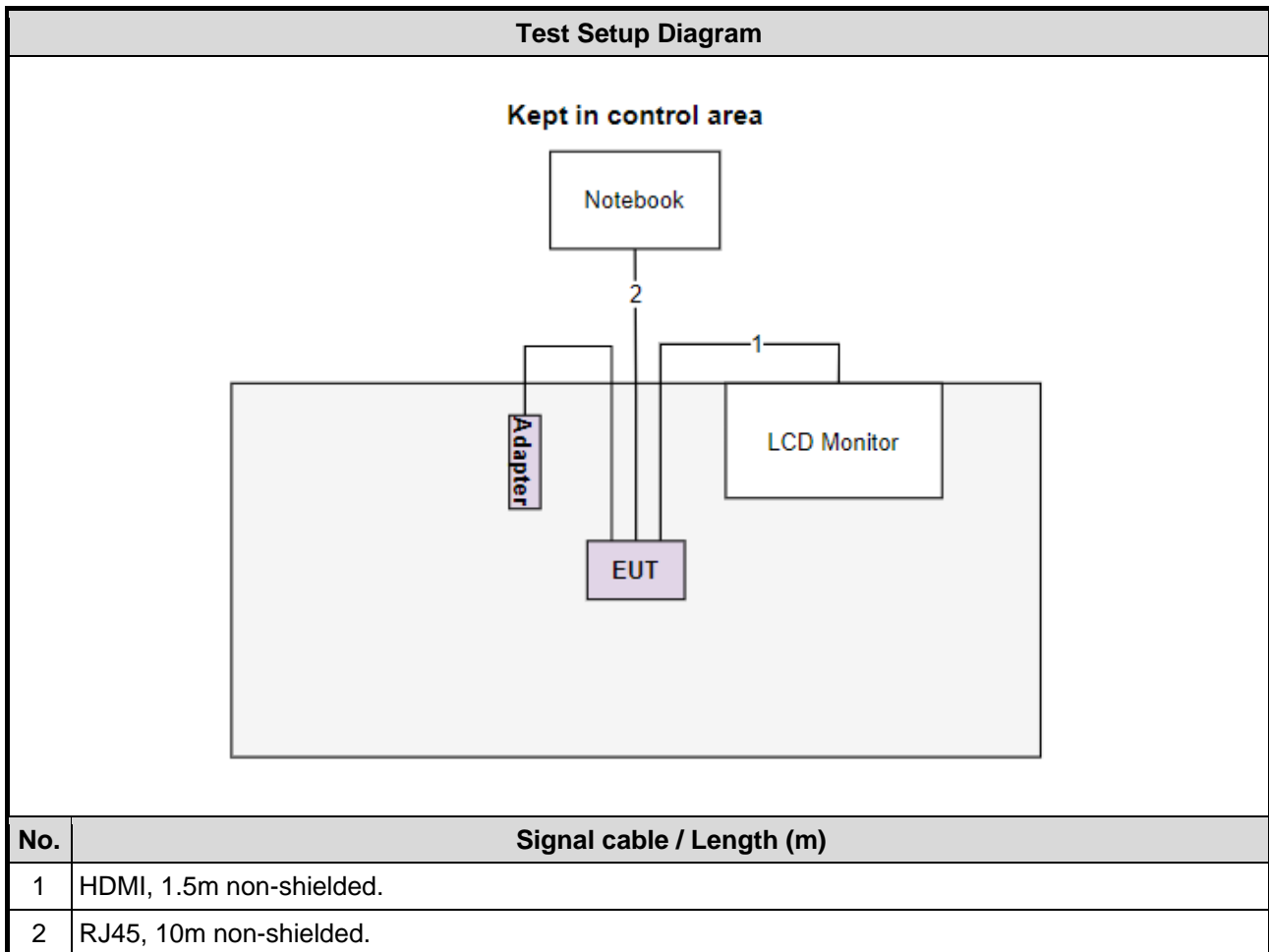
Modulation Mode	Test Frequency (MHz)	Power Index
ax HE40	5190	64
ax HE40	5230	72
ax HE40	5270	72
ax HE40	5310	64
ax HE40	5510	60
ax HE40	5590	76
ax HE40	5670	68
ax HE40	5755	92
ax HE40	5795	92
ax HE80	5210	60
ax HE80	5290	58
ax HE80	5530	58
ax HE80	5610	72
ax HE80	5775	74

Modulation Mode	Test Frequency (MHz)	Power Index
11a	5720	78
ax HE20	5720	76
ax HE40	5710	78
ax HE80	5690	80

## 1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Notebook	DELL	Latitude E5470	DoC	---
2	LCD Monitor	ASUS	MX27UCS	---	---

## 1.3 Test Setup Chart



## 1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	May 20, 2022				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101658	Feb. 16, 2022	Feb. 15, 2023
LISN	R&S	ENV216	101579	Apr. 21, 2022	Apr. 20, 2023
LISN (Support Unit)	SCHWARZBECK	NSLK 8127	8127667	Jan .07, 2022	Jan .06, 2023
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 19, 2021	Oct. 18, 2022
50 ohm terminal (Support Unit)	NA	50	04	May 25, 2021	May 24, 2022
Measurement Software	AUDIX	e3	6.120210k	NA	NA

Note: Calibration Interval of instruments listed above is one year.

Test Item	Radiated Emission				
Test Site	966 chamber1 / (03CH01-WS)				
Tested Date	May 18, 2022				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101657	Mar. 15, 2022	Mar. 14, 2023
Spectrum Analyzer	R&S	FSV40	101498	Nov. 29, 2021	Nov. 28, 2022
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 08, 2021	Nov. 07, 2022
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jun. 30, 2021	Jun. 29, 2022
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 03, 2021	Dec. 02, 2022
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170508	Jan. 11, 2022	Jan. 10, 2023
Preamplifier	EMC	EMC02325	980225	Jun. 29, 2021	Jun. 28, 2022
Preamplifier	Agilent	83017A	MY39501308	Sep. 28, 2021	Sep. 27, 2022
Preamplifier	EMC	EMC184045B	980192	Jul. 14, 2021	Jul. 13, 2022
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 05, 2021	Oct. 04, 2022
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 05, 2021	Oct. 04, 2022
LF cable 11M	EMC	EMCCFD400-NW-N W-11000	200801	Oct. 05, 2021	Oct. 04, 2022
LF cable 1M	EMC	EMCCFD400-NM-N M-1000	160502	Oct. 05, 2021	Oct. 04, 2022
RF Cable	EMC	EMC104-35M-35M-8000	210920	Oct. 05, 2021	Oct. 04, 2022
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 05, 2021	Oct. 04, 2022
Measurement Software	AUDIX	e3	6.120210g	NA	NA

Note: Calibration Interval of instruments listed above is one year.

<b>Test Item</b>	RF Conducted				
<b>Test Site</b>	(TH01-WS)				
<b>Tested Date</b>	May 23, 2022				
<b>Instrument</b>	<b>Brand</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Calibration Date</b>	<b>Calibration Until</b>
Spectrum Analyzer	R&S	FSV40	101910	Apr. 18, 2022	Apr. 17, 2023
Power Meter	Anritsu	ML2495A	1241002	Nov. 07, 2021	Nov. 06, 2022
Power Sensor	Anritsu	MA2411B	1207366	Nov. 07, 2021	Nov. 06, 2022
Measurement Software	Sporton	SENSE-15407_NII	V5.10.7.20	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

## 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 662911 D01 Multiple Transmitter Output v02r01  
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	±1×10 <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

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## 2 Test Configuration

### 2.1 Testing Facility

<b>Test Laboratory</b>	International Certification Corporation
<b>Test Site</b>	CO01-WS, 03CH01-WS, TH01-WS
<b>Address of Test Site</b>	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

### Non-beamforming mode

Frequency band 5150~5350 MHz / 5470~5725 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
AC Power Line Conducted Emissions	ax HE80	5690	MCS 0	--
Unwanted Emissions ≤1GHz	ax HE80	5690	MCS 0	---
Unwanted Emissions >1GHz	ax HE40	5190 / 5310 / 5510	MCS 0	---
Conducted Output Power	11a	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	6 Mbps	---
	ax HE20	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	MCS 0	
	ax HE40	5190 / 5230 / 5270 / 5310 / 5510 5590 / 5670 / 5710	MCS 0	
	ax HE80	5210 / 5290 / 5530 / 5610 / 5690	MCS 0	
Frequency band 5725-5850 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
AC Power Line Conducted Emissions	ax HE40	5795	MCS 0	--
Unwanted Emissions ≤1GHz	ax HE40	5795	MCS 0	--
Unwanted Emissions >1GHz	ax HE40	5795	MCS 0	---
Conducted Output Power	11a	5745 / 5785 / 5825	6 Mbps	---
	ax HE20	5745 / 5785 / 5825	MCS 0	
	ax HE40	5755 / 5795	MCS 0	
	ax HE80	5775	MCS 0	
<b>NOTE:</b>				
1. Three adapters (LEADER, NetBit & AcBel) had been covered during the pretest and found that <b>LEADER</b> adapter was the worst case and was selected for final testing.				



**Beamforming mode**

Frequency band 5150~5350 MHz / 5470~5725 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
Conducted Output Power	ax HE20	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	MCS 0	---
	ax HE40	5190 / 5230 / 5270 / 5310 / 5510 5590 / 5670 / 5710	MCS 0	
	ax HE80	5210 / 5290 / 5530 / 5610 / 5690	MCS 0	
Frequency band 5725-5850 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
Conducted Output Power	ax HE20	5745 / 5785 / 5825	MCS 0	---
	ax HE40	5755 / 5795	MCS 0	
	ax HE80	5775	MCS 0	
<b>NOTE:</b>				
1. Three adapters (LEADER, NetBit & AcBel) had been covered during the pretest and found that <b>LEADER</b> adapter was the worst case and was selected for final testing.				

### 3 Transmitter Test Results

#### 3.1 Conducted Output Power

##### 3.1.1 Limit of Conducted Output Power

Frequency band 5150-5250 MHz		
Operating Mode		Limit
<input type="checkbox"/>	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)
<input checked="" type="checkbox"/>	Indoor access point	Conducted Power: 1 W
<input type="checkbox"/>	Fixed point-to-point access points	Conducted Power: 1 W
<input type="checkbox"/>	Client devices	Conducted Power: 250 mW

Frequency Band (MHz)	Limit
<input checked="" type="checkbox"/> 5250 ~ 5350	Conducted Power: 250mW or 11dBm+10 log B
<input checked="" type="checkbox"/> 5470 ~ 5725	Conducted Power: 250mW or 11dBm+10 log B
<input checked="" type="checkbox"/> 5725 ~ 5850	Conducted Power: 1 W

Note: "B" is the 26dB emission bandwidth in MHz.

##### 3.1.2 Test Procedures

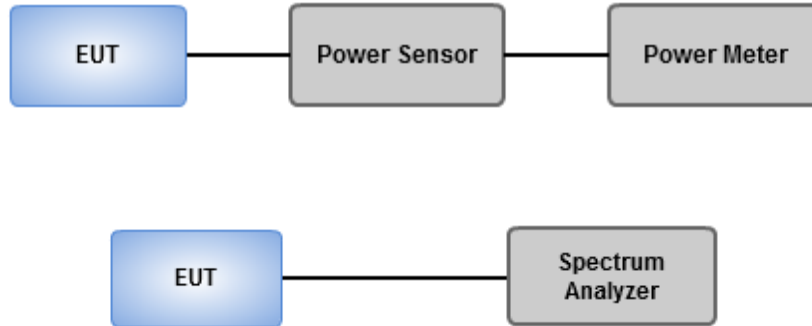
###### Method PM-G (Measurement using a gated RF average power meter)

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%).

### 3.1.3 Test Setup



### 3.1.4 Test Results

<b>Ambient Condition</b>	23°C / 67%	<b>Tested By</b>	Aska Huang
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Refer to Appendix A.

## 3.2 Unwanted Emissions

### 3.2.1 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.p. -27 dBm [68.2 dBuV/m@3m]
5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.47 - 5.725 GHz	e.i.r.p. -27 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 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 shall 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).

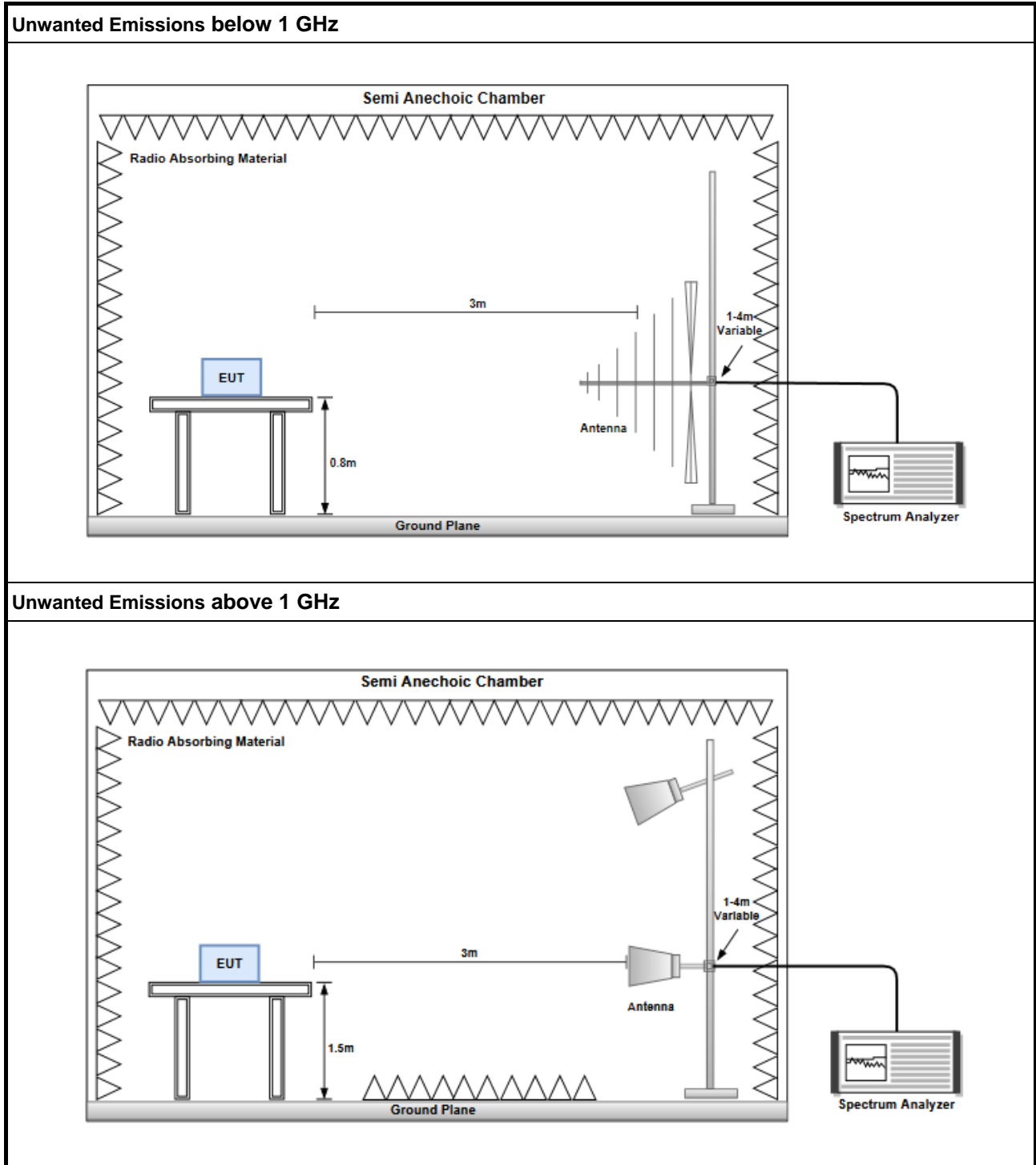
### 3.2.2 Test Procedures

1. 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
2. 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.

### 3.2.3 Test Setup



### 3.2.4 Test Results

Refer to Appendix B.

### 3.3 AC Power Line Conducted Emissions

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

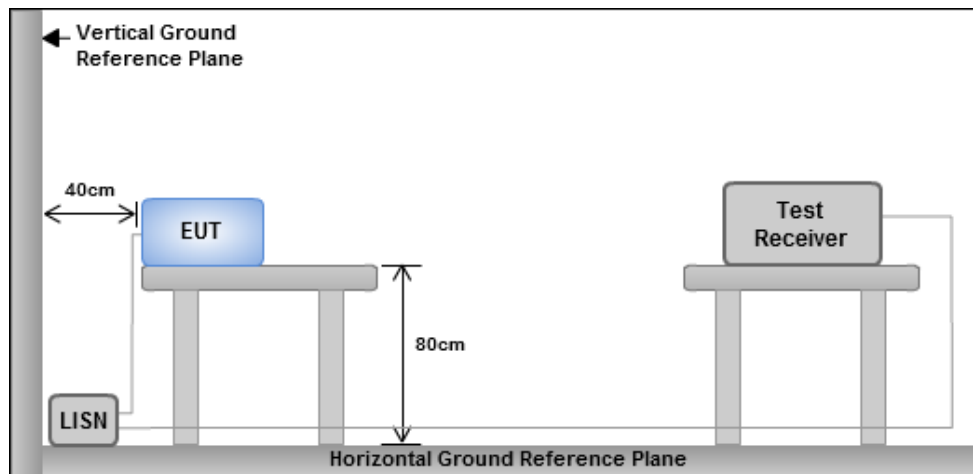
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: \* Decreases with the logarithm of the frequency.

#### 3.3.2 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  $\Omega$  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

#### 3.3.3 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

#### 3.3.4 Test Results

Refer to Appendix C.

## 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 <http://www.icertifi.com.tw>.

### **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 333, 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

==END==





Non-beamforming mode

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	22.78	0.18967	26.61	0.45814
802.11ax HEW20_Nss1,(MCS0)_2TX	<b>22.93</b>	0.19634	26.76	0.47424
802.11ax HEW40_Nss1,(MCS0)_2TX	22.06	0.16069	25.89	0.38815
802.11ax HEW80_Nss1,(MCS0)_2TX	17.93	0.06209	21.76	0.14997
5.25-5.35GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	23.01	0.19999	26.88	0.48753
802.11ax HEW20_Nss1,(MCS0)_2TX	<b>23.10</b>	0.20417	26.97	0.49774
802.11ax HEW40_Nss1,(MCS0)_2TX	21.95	0.15668	25.82	0.38194
802.11ax HEW80_Nss1,(MCS0)_2TX	18.07	0.06412	21.94	0.15631
5.47-5.725GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	22.41	0.17418	26.26	0.42267
802.11ax HEW20_Nss1,(MCS0)_2TX	22.65	0.18408	26.50	0.44668
802.11ax HEW40_Nss1,(MCS0)_2TX	23.26	0.21184	27.11	0.51404
802.11ax HEW80_Nss1,(MCS0)_2TX	<b>23.40</b>	0.21878	27.25	0.53088
5.725-5.85GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	25.56	0.35975	29.48	0.88716
802.11ax HEW20_Nss1,(MCS0)_2TX	25.71	0.37239	29.63	0.91833
802.11ax HEW40_Nss1,(MCS0)_2TX	<b>26.32</b>	0.42855	30.24	1.05682
802.11ax HEW80_Nss1,(MCS0)_2TX	21.83	0.15241	25.75	0.37584



**Conducted Output Power(Average)**

**Appendix A**

**Result**

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	3.83	17.45	18.56	21.05	24.00	24.88	30.00
5200MHz	Pass	3.83	19.35	20.16	22.78	24.00	26.61	30.00
5240MHz	Pass	3.83	19.24	19.89	22.59	24.00	26.42	30.00
5260MHz	Pass	3.87	19.85	20.15	23.01	24.00	26.88	30.00
5300MHz	Pass	3.87	19.26	20.01	22.66	24.00	26.53	30.00
5320MHz	Pass	3.87	18.26	18.22	21.25	24.00	25.12	30.00
5500MHz	Pass	3.85	18.62	18.66	21.65	24.00	25.50	30.00
5580MHz	Pass	3.85	19.35	19.45	22.41	24.00	26.26	30.00
5700MHz	Pass	3.85	15.91	15.49	18.72	24.00	22.57	30.00
5720MHz Straddle 5.47-5.725GHz	Pass	3.85	19.22	18.55	21.91	22.91	25.76	28.91
5720MHz Straddle 5.725-5.85GHz	Pass	3.92	13.2	12.37	15.82	30.00	19.74	36.00
5745MHz	Pass	3.92	22.35	22.13	25.25	30.00	29.17	36.00
5785MHz	Pass	3.92	22.21	21.81	25.02	30.00	28.94	36.00
5825MHz	Pass	3.92	22.75	22.35	25.56	30.00	29.48	36.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	3.83	17.54	18.56	21.09	24.00	24.92	30.00
5200MHz	Pass	3.83	19.45	20.34	22.93	24.00	26.76	30.00
5240MHz	Pass	3.83	19.35	20.06	22.73	24.00	26.56	30.00
5260MHz	Pass	3.87	19.82	20.35	23.10	24.00	26.97	30.00
5300MHz	Pass	3.87	19.56	20.15	22.88	24.00	26.75	30.00
5320MHz	Pass	3.87	17.81	18.15	20.99	24.00	24.86	30.00
5500MHz	Pass	3.85	18.11	17.85	20.99	24.00	24.84	30.00
5580MHz	Pass	3.85	19.52	19.76	22.65	24.00	26.50	30.00
5700MHz	Pass	3.85	15.77	15.35	18.58	24.00	22.43	30.00
5720MHz Straddle 5.47-5.725GHz	Pass	3.85	19.2	18.47	21.86	22.97	25.71	28.97
5720MHz Straddle 5.725-5.85GHz	Pass	3.92	14.11	13.37	16.77	30.00	20.69	36.00
5745MHz	Pass	3.92	22.64	22.26	25.46	30.00	29.38	36.00
5785MHz	Pass	3.92	22.43	22.12	25.29	30.00	29.21	36.00
5825MHz	Pass	3.92	22.72	22.67	25.71	30.00	29.63	36.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	3.83	15.71	16.62	19.20	24.00	23.03	30.00
5230MHz	Pass	3.83	18.88	19.21	22.06	24.00	25.89	30.00
5270MHz	Pass	3.87	18.65	19.22	21.95	24.00	25.82	30.00
5310MHz	Pass	3.87	16.87	17.04	19.97	24.00	23.84	30.00
5510MHz	Pass	3.85	15.88	15.85	18.88	24.00	22.73	30.00
5590MHz	Pass	3.85	19.91	20.12	23.03	24.00	26.88	30.00
5670MHz	Pass	3.85	17.84	17.45	20.66	24.00	24.51	30.00
5710MHz Straddle 5.47-5.725GHz	Pass	3.85	20.51	19.98	23.26	24.00	27.11	30.00
5710MHz Straddle 5.725-5.85GHz	Pass	3.92	10.95	10.37	13.68	30.00	17.60	36.00
5755MHz	Pass	3.92	23.35	23.27	26.32	30.00	30.24	36.00
5795MHz	Pass	3.92	23.26	23.16	26.22	30.00	30.14	36.00



## Conducted Output Power(Average)

## Appendix A

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	3.83	14.55	15.26	17.93	24.00	21.76	30.00
5290MHz	Pass	3.87	14.89	15.22	18.07	24.00	21.94	30.00
5530MHz	Pass	3.85	15.06	15.03	18.06	24.00	21.91	30.00
5610MHz	Pass	3.85	18.85	18.68	21.78	24.00	25.63	30.00
5690MHz Straddle 5.47-5.725GHz	Pass	3.85	20.59	20.19	23.40	24.00	27.25	30.00
5690MHz Straddle 5.725-5.85GHz	Pass	3.92	7.53	6.3	9.97	30.00	13.89	36.00
5775MHz	Pass	3.92	19.12	18.49	21.83	30.00	25.75	36.00

DG = Directional Gain; Port X = Port X output power

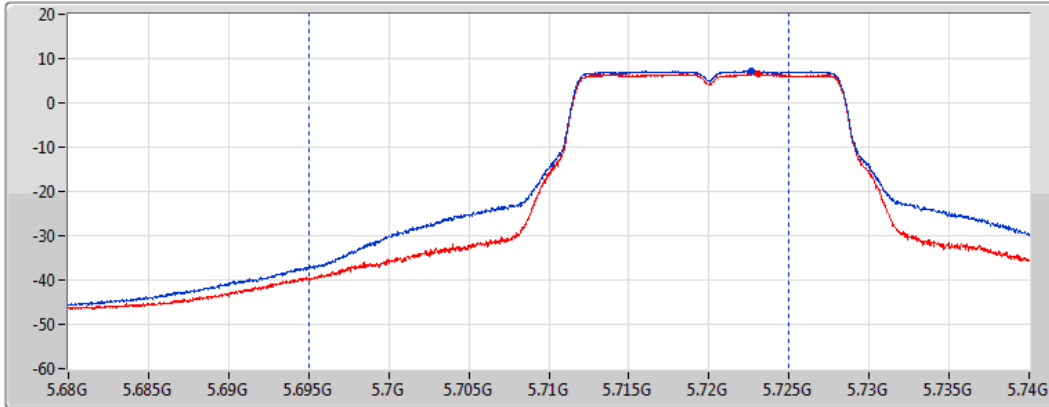


### 802.11a\_Nss1,(6Mbps)\_2TX

AV Power

#### 5720MHz Straddle 5.47-5.725GHz\_TnomVnom

CF  
5.71GHz  
Span  
60MHz  
RBW  
1MHz  
VBW  
3MHz  
Sweep Time  
5ms  
Detector Type  
RMS  
CP BW  
30MHz



Port 1   
Port 2

Sum= Total Power  
PX=Port X

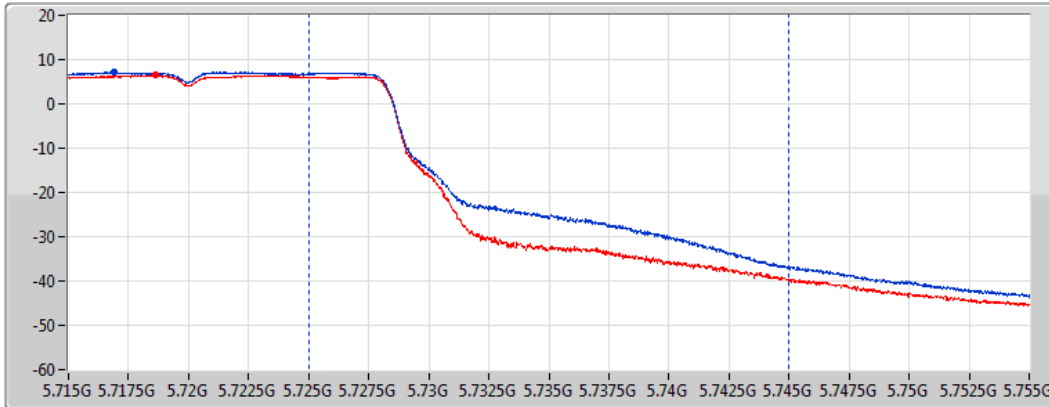
Sum(dBm)	P1(dBm)	P2(dBm)
21.91	19.22	18.55

### 802.11a\_Nss1,(6Mbps)\_2TX

AV Power

#### 5720MHz Straddle 5.725-5.85GHz\_TnomVnom

CF  
5.735GHz  
Span  
40MHz  
RBW  
1MHz  
VBW  
3MHz  
Sweep Time  
5ms  
Detector Type  
RMS  
CP BW  
20MHz



Port 1   
Port 2

Sum= Total Power  
PX=Port X

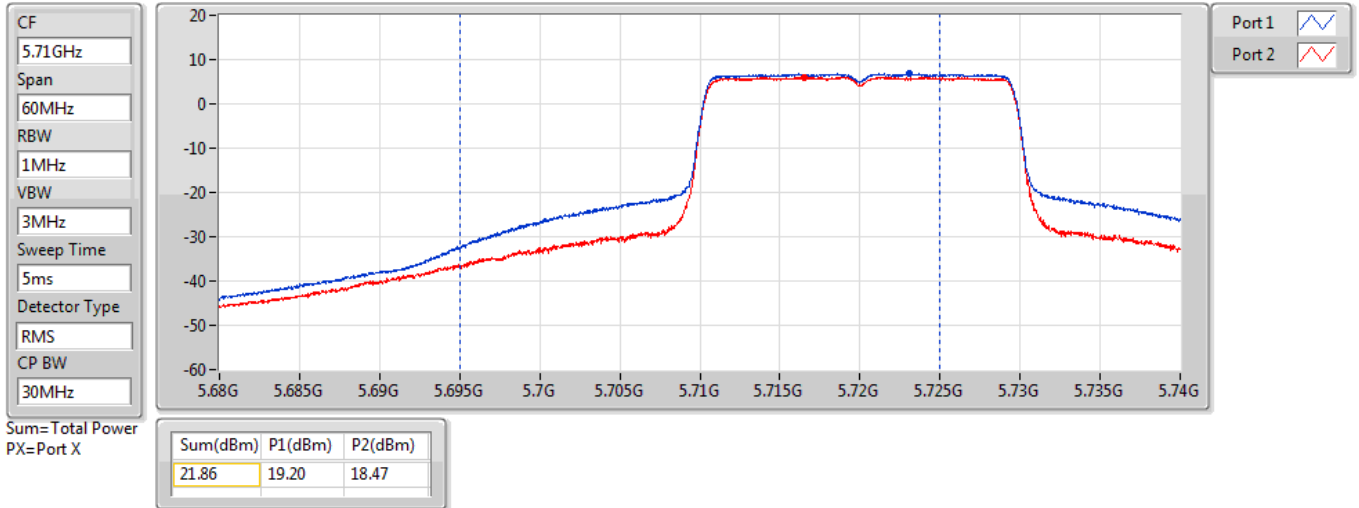
Sum(dBm)	P1(dBm)	P2(dBm)
15.82	13.20	12.37



802.11ax HEW20\_Nss1,(MCS0)\_2TX

AV Power

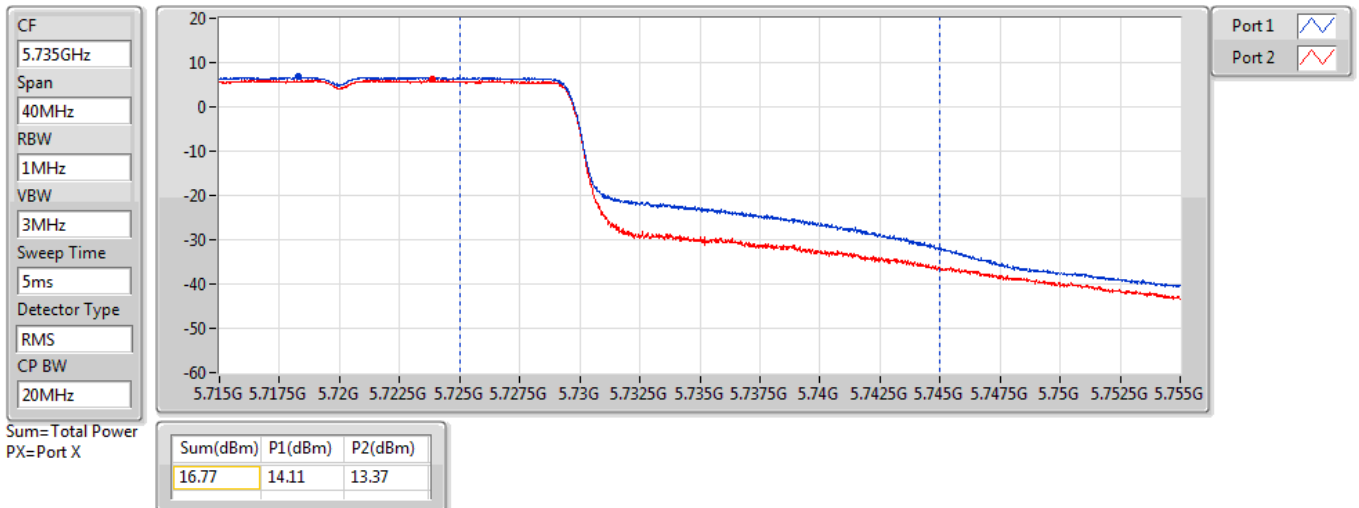
5720MHz Straddle 5.47-5.725GHz\_TnomVnom



802.11ax HEW20\_Nss1,(MCS0)\_2TX

AV Power

5720MHz Straddle 5.725-5.85GHz\_TnomVnom

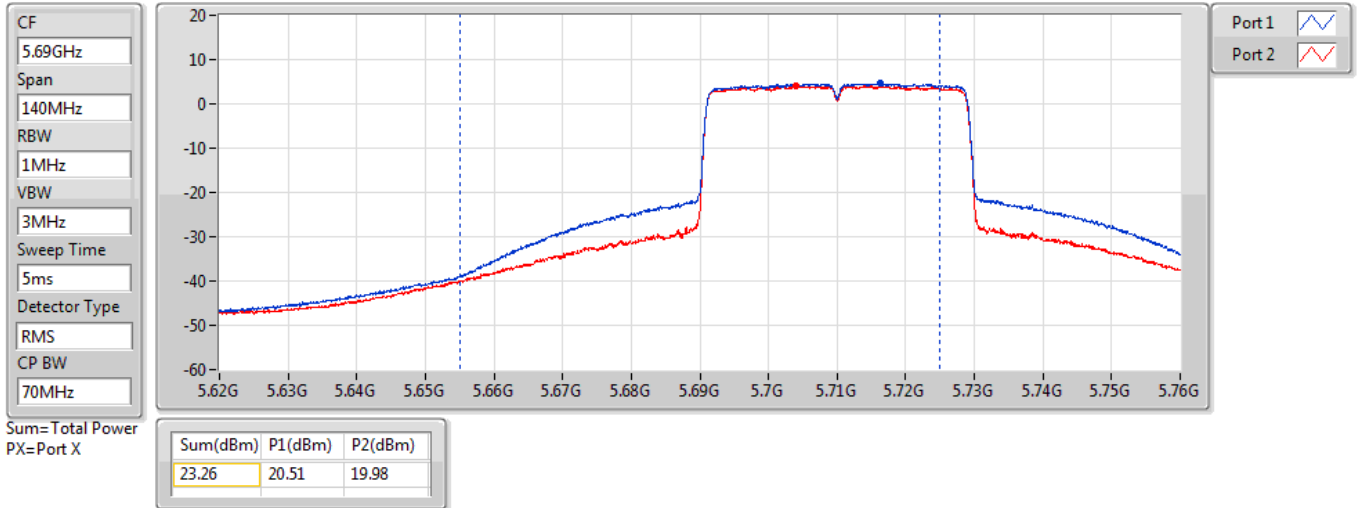




802.11ax HEW40\_Nss1,(MCS0)\_2TX

AV Power

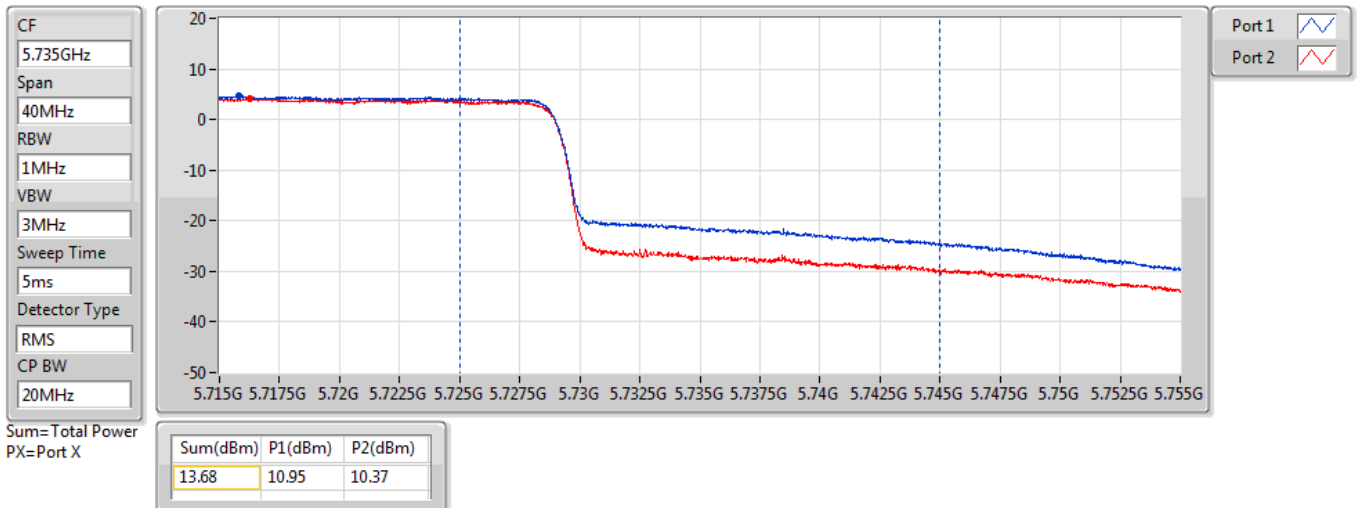
5710MHz Straddle 5.47-5.725GHz\_TnomVnom



802.11ax HEW40\_Nss1,(MCS0)\_2TX

AV Power

5710MHz Straddle 5.725-5.85GHz\_TnomVnom

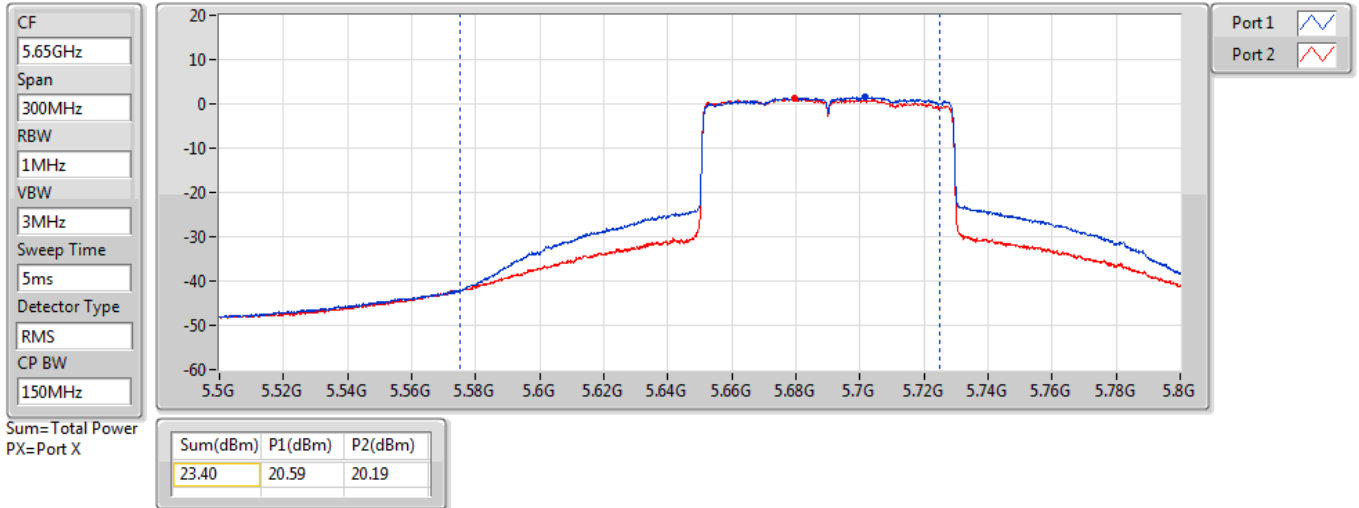




### 802.11ax HEW80\_Nss1,(MCS0)\_2TX

AV Power

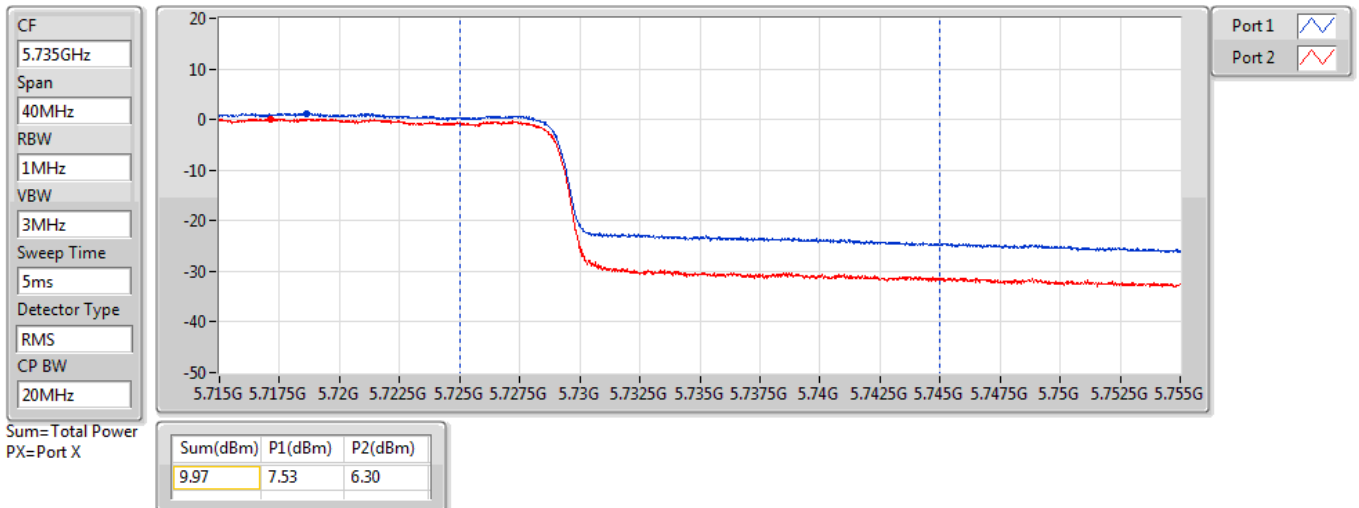
#### 5690MHz Straddle 5.47-5.725GHz\_TnomVnom



### 802.11ax HEW80\_Nss1,(MCS0)\_2TX

AV Power

#### 5690MHz Straddle 5.725-5.85GHz\_TnomVnom





**Beamforming mode**

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	19.92	0.09817	26.70	0.46774
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	19.05	0.08035	25.83	0.38282
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	14.92	0.03105	21.70	0.14791
5.25-5.35GHz	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	20.09	0.10209	26.96	0.49659
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	18.94	0.07834	25.81	0.38107
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	15.06	0.03206	21.93	0.15596
5.47-5.725GHz	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	19.64	0.09204	26.48	0.44463
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	20.25	0.10593	27.09	0.51168
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	20.39	0.10940	27.23	0.52845
5.725-5.85GHz	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	22.70	0.18621	29.42	0.87498
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	23.31	0.21429	30.03	1.00693
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	18.82	0.07621	25.54	0.35810





**Conducted Output Power(Average)**

**Appendix A**

**Result**

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	6.78	14.53	15.55	18.08	23.22	24.86	30.00
5200MHz	Pass	6.78	16.44	17.33	19.92	23.22	26.70	30.00
5240MHz	Pass	6.78	16.34	17.05	19.72	23.22	26.50	30.00
5260MHz	Pass	6.87	16.81	17.34	20.09	23.13	26.96	30.00
5300MHz	Pass	6.87	16.55	17.14	19.87	23.13	26.74	30.00
5320MHz	Pass	6.87	14.8	15.14	17.98	23.13	24.85	30.00
5500MHz	Pass	6.84	15.1	14.84	17.98	23.16	24.82	30.00
5580MHz	Pass	6.84	16.51	16.75	19.64	23.16	26.48	30.00
5700MHz	Pass	6.84	12.76	12.34	15.57	23.16	22.41	30.00
5720MHz Straddle 5.47-5.725GHz	Pass	6.84	16.19	15.46	18.85	23.16	25.69	30.00
5720MHz Straddle 5.725-5.85GHz	Pass	6.72	11.1	10.36	13.76	29.28	20.48	36.00
5745MHz	Pass	6.72	19.63	19.25	22.45	29.28	29.17	36.00
5785MHz	Pass	6.72	19.42	19.11	22.28	29.28	29.00	36.00
5825MHz	Pass	6.72	19.71	19.66	22.70	29.28	29.42	36.00
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	6.78	12.7	13.61	16.19	23.22	22.97	30.00
5230MHz	Pass	6.78	15.87	16.2	19.05	23.22	25.83	30.00
5270MHz	Pass	6.87	15.64	16.21	18.94	23.13	25.81	30.00
5310MHz	Pass	6.87	13.86	14.03	16.96	23.13	23.83	30.00
5510MHz	Pass	6.84	12.87	12.84	15.87	23.16	22.71	30.00
5590MHz	Pass	6.84	16.9	17.11	20.02	23.16	26.86	30.00
5670MHz	Pass	6.84	14.83	14.44	17.65	23.16	24.49	30.00
5710MHz Straddle 5.47-5.725GHz	Pass	6.84	17.5	16.97	20.25	23.16	27.09	30.00
5710MHz Straddle 5.725-5.85GHz	Pass	6.72	7.94	7.36	10.67	29.28	17.39	36.00
5755MHz	Pass	6.72	20.34	20.26	23.31	29.28	30.03	36.00
5795MHz	Pass	6.72	20.25	20.15	23.21	29.28	29.93	36.00
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	6.78	11.54	12.25	14.92	23.22	21.70	30.00
5290MHz	Pass	6.87	11.88	12.21	15.06	23.13	21.93	30.00
5530MHz	Pass	6.84	12.05	12.02	15.05	23.16	21.89	30.00
5610MHz	Pass	6.84	15.84	15.67	18.77	23.16	25.61	30.00
5690MHz Straddle 5.47-5.725GHz	Pass	6.84	17.58	17.18	20.39	23.16	27.23	30.00
5690MHz Straddle 5.725-5.85GHz	Pass	6.72	4.52	3.29	6.96	29.28	13.68	36.00
5775MHz	Pass	6.72	16.11	15.48	18.82	29.28	25.54	36.00

Port X = Port X output power



For 5.15 ~ 5.25 GHz

$$DG = \text{Directional Gain} = 10 * \log((10^{3.7/20} + 10^{3.83/20})^2 / 2) = 6.78 \text{ dBi}$$

$$\text{Limit shall be reduced to } 24 \text{ dBm} - (6.78 \text{ dBi} - 6 \text{ dBi}) = 23.22 \text{ dBm}$$

For 5.25 ~ 5.35 GHz

$$DG = \text{Directional Gain} = 10 * \log((10^{3.87/20} + 10^{3.85/20})^2 / 2) = 6.87 \text{ dBi}$$

$$\text{Limit shall be reduced to } 24 \text{ dBm} - (6.87 \text{ dBi} - 6 \text{ dBi}) = 23.13 \text{ dBm}$$

For 5.47 ~ 5.725 GHz

$$DG = \text{Directional Gain} = 10 * \log((10^{3.8/20} + 10^{3.85/20})^2 / 2) = 6.84 \text{ dBi}$$

$$\text{Limit shall be reduced to } 24 \text{ dBm} - (6.84 \text{ dBi} - 6 \text{ dBi}) = 23.16 \text{ dBm}$$

For 5.725 ~ 5.85 GHz

$$DG = \text{Directional Gain} = 10 * \log((10^{3.5/20} + 10^{3.92/20})^2 / 2) = 6.72 \text{ dBi}$$

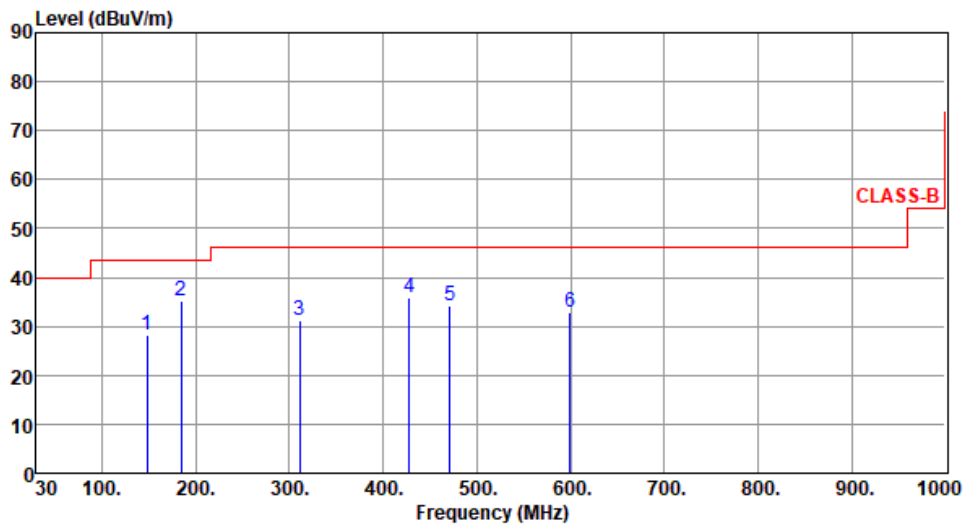
$$\text{Limit shall be reduced to } 30 \text{ dBm} - (6.72 \text{ dBi} - 6 \text{ dBi}) = 29.28 \text{ dBm}$$



Unwanted Emissions (Below 1GHz)

Modulation	ax HE80	Test Freq. (MHz)	5690
Polarization	Horizontal		

Test By :Brad Wu      Temperature(°C):24      Humidity(%):63



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	148.34	28.15	43.50	-15.35	37.13	-8.98	Peak	---	---
2	184.23	35.16	43.50	-8.34	45.79	-10.63	Peak	---	---
3	311.30	31.25	46.00	-14.75	39.01	-7.76	Peak	---	---
4	427.70	35.89	46.00	-10.11	40.79	-4.90	Peak	---	---
5	471.35	34.10	46.00	-11.90	38.04	-3.94	Peak	---	---
6	599.39	32.77	46.00	-13.23	33.82	-1.05	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)

\*Factor includes antenna factor , cable loss and amplifier gain

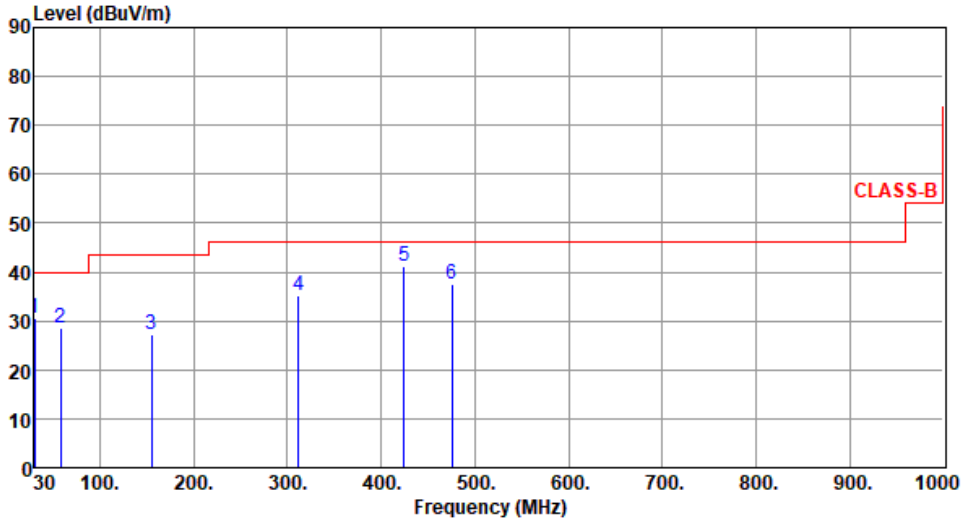
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.



<b>Modulation</b>	ax HE80	<b>Test Freq. (MHz)</b>	5690
<b>Polarization</b>	Vertical		

Test By :Brad Wu      Temperature(°C):24      Humidity(%):63



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	30.00	30.72	40.00	-9.28	40.66	-9.94	Peak	---	---
2	58.13	28.59	40.00	-11.41	37.78	-9.19	Peak	---	---
3	155.13	27.38	43.50	-16.12	36.08	-8.70	Peak	---	---
4	312.27	35.34	46.00	-10.66	43.07	-7.73	Peak	---	---
5	424.79	41.23	46.00	-4.77	46.25	-5.02	Peak	---	---
6	475.23	37.46	46.00	-8.54	41.32	-3.86	Peak	---	---

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV) + Factor\* (dB/m)

\*Factor includes antenna factor , cable loss and amplifier gain

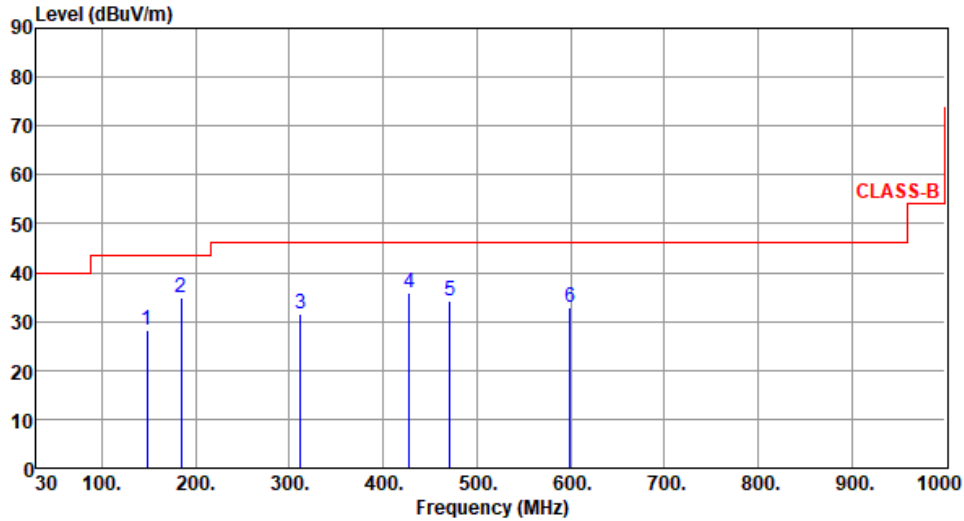
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.



<b>Modulation</b>	ax HE40	<b>Test Freq. (MHz)</b>	5795
<b>Polarization</b>	Horizontal		

Test By :Brad Wu      Temperature(°C):24      Humidity(%):63



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	148.45	28.25	43.50	-15.25	37.25	-9.00	Peak	---	---
2	184.45	35.02	43.50	-8.48	45.68	-10.66	Peak	---	---
3	311.45	31.52	46.00	-14.48	39.27	-7.75	Peak	---	---
4	427.65	35.96	46.00	-10.04	40.86	-4.90	Peak	---	---
5	471.44	34.26	46.00	-11.74	38.20	-3.94	Peak	---	---
6	599.45	32.81	46.00	-13.19	33.85	-1.04	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)

\*Factor includes antenna factor , cable loss and amplifier gain

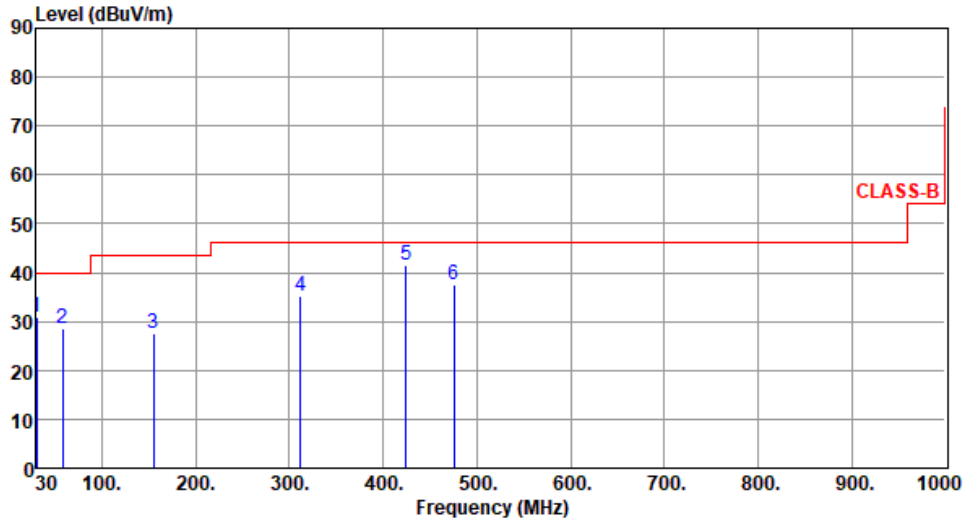
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.



<b>Modulation</b>	ax HE40	<b>Test Freq. (MHz)</b>	5795
<b>Polarization</b>	Vertical		

Test By :Brad Wu      Temperature(°C):24      Humidity(%):63



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	30.05	30.84	40.00	-9.16	40.78	-9.94	Peak	---	---
2	58.26	28.65	40.00	-11.35	37.86	-9.21	Peak	---	---
3	155.25	27.41	43.50	-16.09	36.11	-8.70	Peak	---	---
4	312.21	35.16	46.00	-10.84	42.90	-7.74	Peak	---	---
5	424.89	41.45	46.00	-4.55	46.47	-5.02	Peak	---	---
6	475.42	37.55	46.00	-8.45	41.40	-3.85	Peak	---	---

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV) + Factor\* (dB/m)

\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.



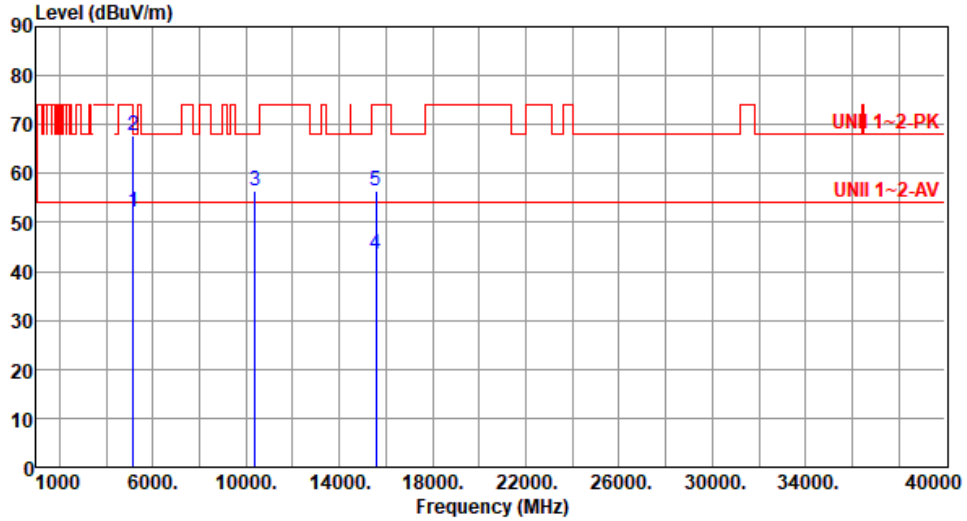
Unwanted Emission (Above 1GHz) for ax HE40

Modulation	ax HE40	Test Freq. (MHz)	5190						
Polarization	Horizontal								
Test By :Roger Lu      Temperature(°C):24      Humidity(%):63									
<p>The graph displays the unwanted emission spectrum for ax HE40. The y-axis represents Level in dBuV/m, ranging from 0 to 90. The x-axis represents Frequency in MHz, ranging from 1000 to 40000. Two horizontal red lines indicate the limits: UNII 1-2-AV at approximately 54 dBuV/m and UNII 1-2-PK at approximately 74 dBuV/m. The emission spectrum shows several peaks, with five specific points marked by blue vertical lines and numbered 1 through 5. Point 1 is at 5150 MHz, point 2 is at 5150 MHz (peak), point 3 is at 10380 MHz, point 4 is at 15570 MHz, and point 5 is at 15570 MHz (peak).</p>									
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	5150.00	53.14	54.00	-0.86	48.13	5.01	Average	100	305
2	5150.00	69.38	74.00	-4.62	64.37	5.01	Peak	100	305
3	10380.00	56.95	68.20	-11.25	42.68	14.27	Peak	100	146
4	15570.00	43.85	54.00	-10.15	30.37	13.48	Average	100	201
5	15570.00	57.24	74.00	-16.76	43.76	13.48	Peak	100	201
<p>Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)          *Factor includes antenna factor , cable loss and amplifier gain          Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).</p>									



Modulation	ax HE40	Test Freq. (MHz)	5190
Polarization	Vertical		

Test By : Roger Lu      Temperature(°C):24      Humidity(%):63



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	5150.00	52.11	54.00	-1.89	47.10	5.01	Average	100	336
2	5150.00	67.61	74.00	-6.39	62.60	5.01	Peak	100	336
3	10380.00	56.41	68.20	-11.79	42.14	14.27	Peak	100	52
4	15570.00	43.51	54.00	-10.49	30.03	13.48	Average	100	98
5	15570.00	56.62	74.00	-17.38	43.14	13.48	Peak	100	98

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)

\*Factor includes antenna factor , cable loss and amplifier gain

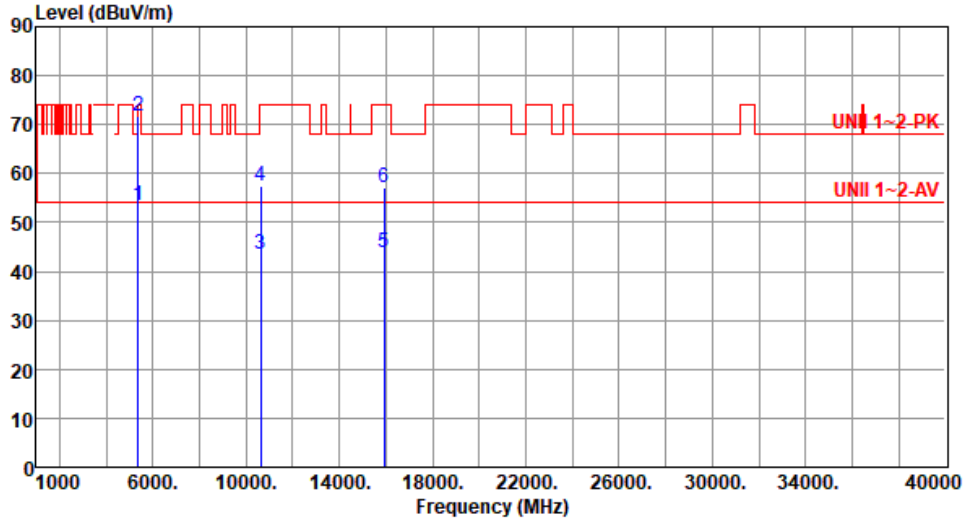
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).





<b>Modulation</b>	ax HE40	<b>Test Freq. (MHz)</b>	5310
<b>Polarization</b>	Horizontal		

Test By : Roger Lu      Temperature(°C):24      Humidity(%):63



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	5350.00	53.60	54.00	-0.40	49.18	4.42	Average	100	332
2	5350.00	71.65	74.00	-2.35	67.23	4.42	Peak	100	332
3	10620.00	43.54	54.00	-10.46	29.18	14.36	Average	100	141
4	10620.00	57.29	74.00	-16.71	42.93	14.36	Peak	100	141
5	15930.00	43.84	54.00	-10.16	30.21	13.63	Average	100	165
6	15930.00	57.12	74.00	-16.88	43.49	13.63	Peak	100	165

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)

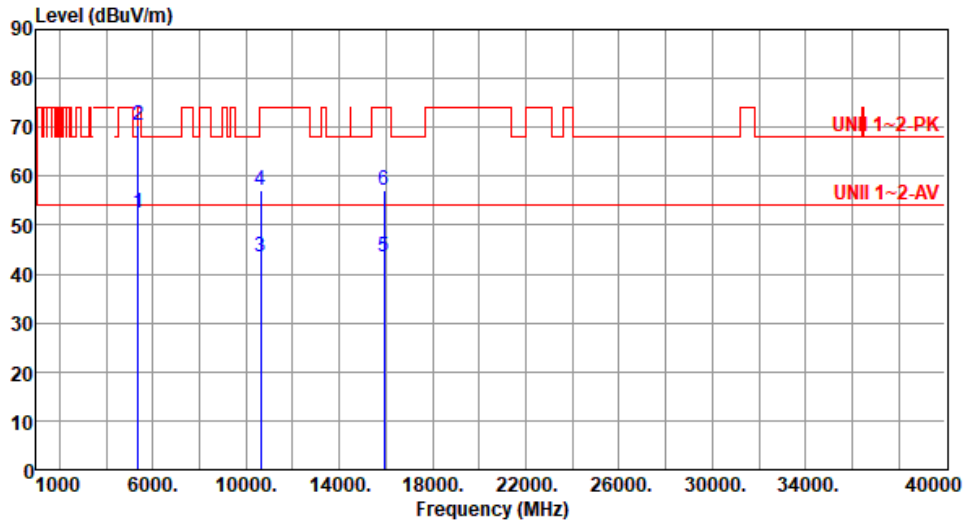
\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



Modulation	ax HE40	Test Freq. (MHz)	5310
Polarization	Vertical		

Test By : Roger Lu      Temperature(°C): 24      Humidity(%): 63



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	5350.00	52.45	54.00	-1.55	48.03	4.42	Average	100	333
2	5350.00	70.25	74.00	-3.75	65.83	4.42	Peak	100	333
3	10620.00	43.51	54.00	-10.49	29.15	14.36	Average	100	192
4	10620.00	57.28	74.00	-16.72	42.92	14.36	Peak	100	192
5	15930.00	43.39	54.00	-10.61	29.76	13.63	Average	100	59
6	15930.00	57.04	74.00	-16.96	43.41	13.63	Peak	100	59

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)

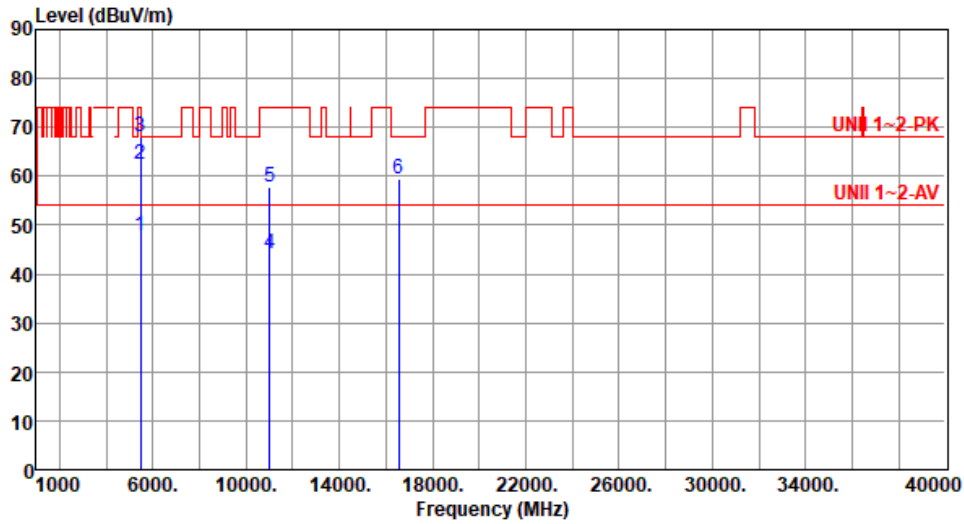
\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



Modulation	ax HE40	Test Freq. (MHz)	5510
Polarization	Horizontal		

Test By : Roger Lu      Temperature(°C): 24      Humidity(%): 63



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	5460.00	47.69	54.00	-6.31	43.02	4.67	Average	100	326
2	5460.00	62.45	74.00	-11.55	57.78	4.67	Peak	100	326
3	5470.00	68.02	68.20	-0.18	63.32	4.70	Peak	100	326
4	11020.00	44.18	54.00	-9.82	29.62	14.56	Average	100	149
5	11020.00	57.84	74.00	-16.16	43.28	14.56	Peak	100	149
6	16530.00	59.31	68.20	-8.89	43.07	16.24	Peak	100	161

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)

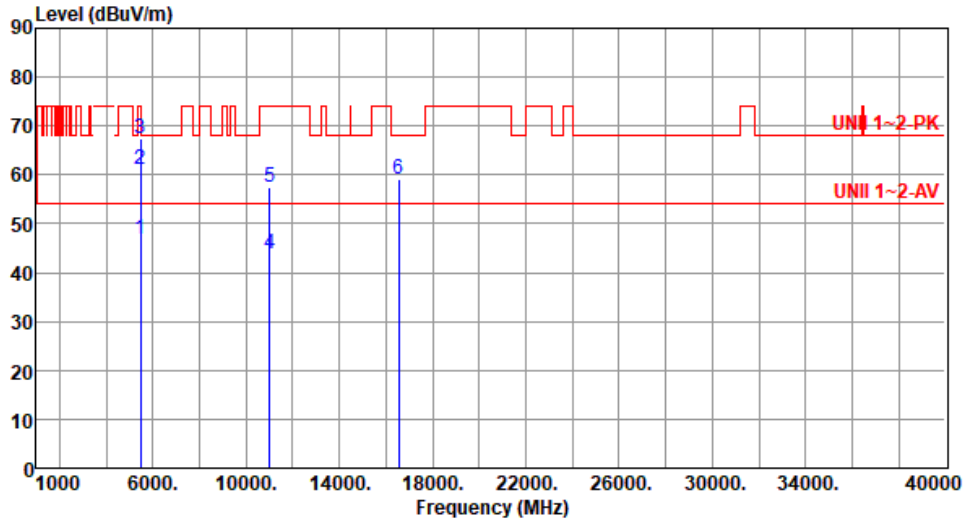
\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



Modulation	ax HE40	Test Freq. (MHz)	5510
Polarization	Vertical		

Test By : Roger Lu      Temperature(°C):24      Humidity(%):63



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	5460.00	46.83	54.00	-7.17	42.16	4.67	Average	304	103
2	5460.00	61.27	74.00	-12.73	56.60	4.67	Peak	304	103
3	5470.00	67.45	68.20	-0.75	62.75	4.70	Peak	304	103
4	11020.00	43.98	54.00	-10.02	29.42	14.56	Average	100	245
5	11020.00	57.56	74.00	-16.44	43.00	14.56	Peak	100	245
6	16530.00	59.02	68.20	-9.18	42.78	16.24	Peak	100	152

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)

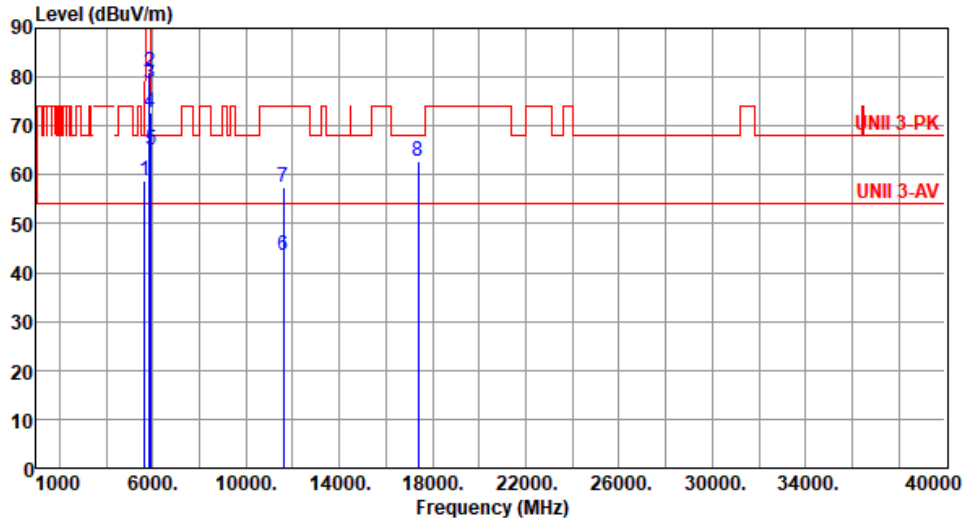
\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



<b>Modulation</b>	ax HE40	<b>Test Freq. (MHz)</b>	5795
<b>Polarization</b>	Horizontal		

Test By : Roger Lu      Temperature(°C):24      Humidity(%):63



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	5650.00	58.92	68.20	-9.28	54.11	4.81	Peak	100	290
2	5850.00	81.03	122.20	-41.17	75.38	5.65	Peak	100	290
3	5855.00	78.67	110.80	-32.13	73.02	5.65	Peak	100	290
4	5875.00	72.68	105.20	-32.52	67.02	5.66	Peak	100	290
5	5925.00	65.01	68.20	-3.19	59.40	5.61	Peak	100	290
6	11590.00	43.41	54.00	-10.59	29.22	14.19	Average	100	184
7	11590.00	57.56	74.00	-16.44	43.37	14.19	Peak	100	184
8	17385.00	62.88	68.20	-5.32	44.75	18.13	Peak	100	239

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)

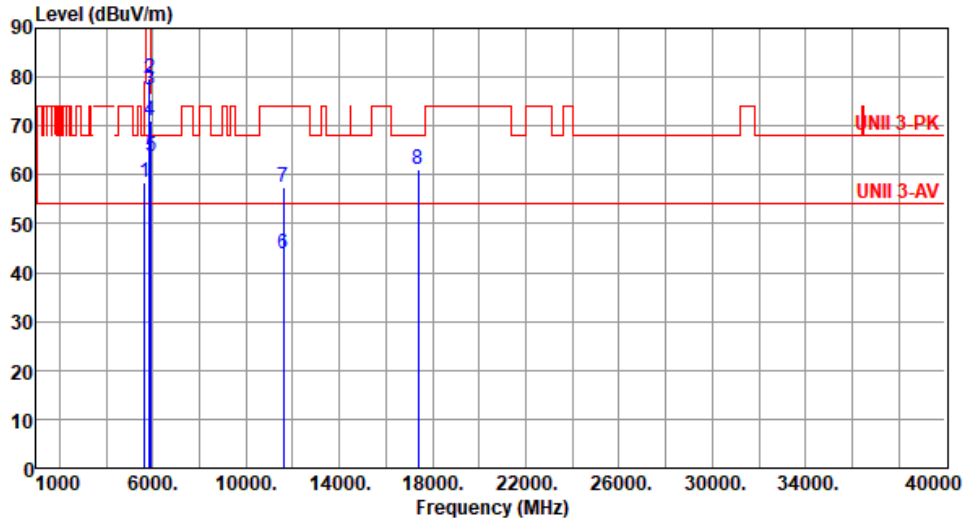
\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



Modulation	ax HE40	Test Freq. (MHz)	5795
Polarization	Vertical		

Test By : Roger Lu      Temperature(°C):24      Humidity(%):63



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	5650.00	58.36	68.20	-9.84	53.55	4.81	Peak	315	106
2	5850.00	79.80	122.20	-42.40	74.15	5.65	Peak	315	106
3	5855.00	77.24	110.80	-33.56	71.59	5.65	Peak	315	106
4	5875.00	71.11	105.20	-34.09	65.45	5.66	Peak	315	106
5	5925.00	63.84	68.20	-4.36	58.23	5.61	Peak	315	106
6	11590.00	43.68	54.00	-10.32	29.49	14.19	Average	100	129
7	11590.00	57.49	74.00	-16.51	43.30	14.19	Peak	100	129
8	17385.00	61.12	68.20	-7.08	42.99	18.13	Peak	100	181

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)

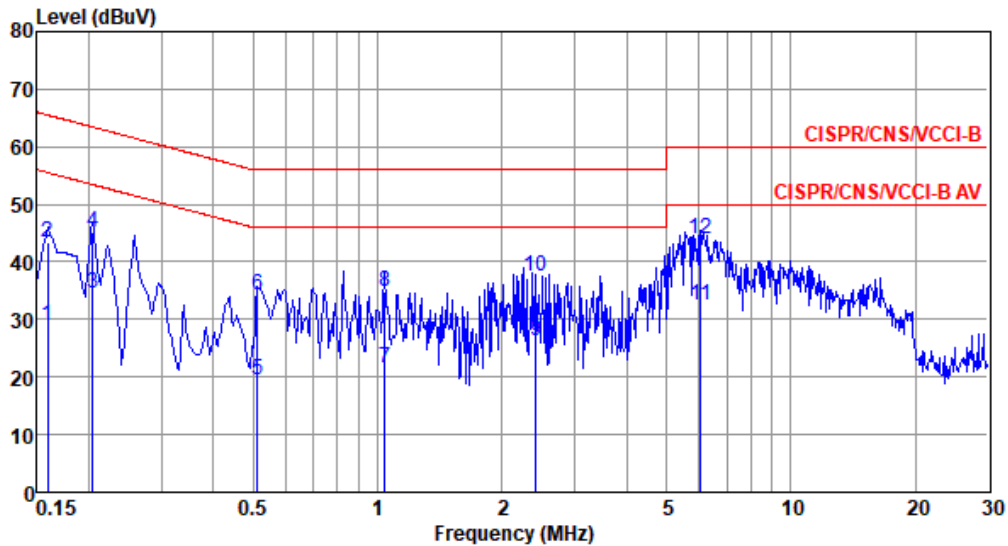
\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



Modulation Mode	ax HE80	Test Freq. (MHz)	5690
Power Phase	Line		

Test by : Joe Liao      Temperature: 21°C      Humidity: 63%



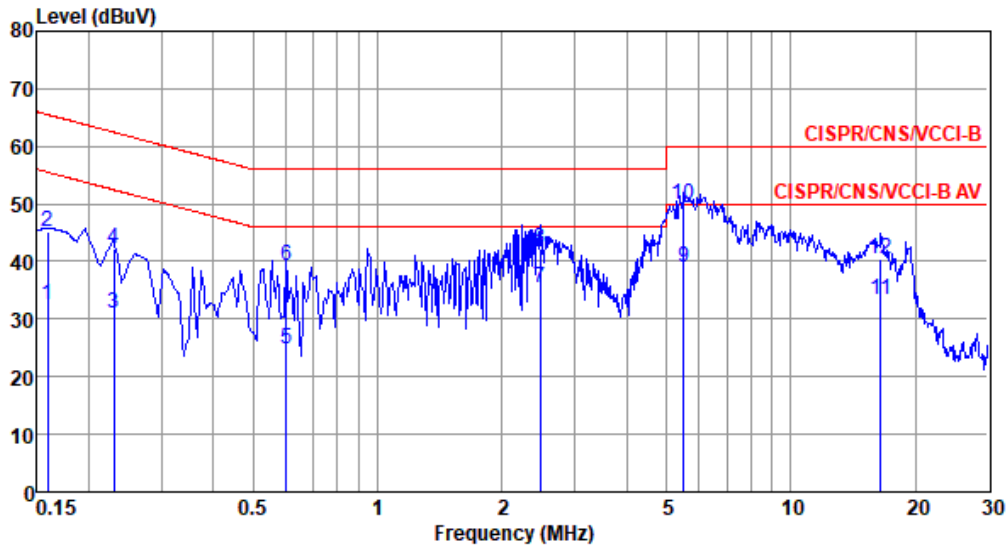
	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.159	28.87	55.52	-26.65	18.91	9.68	0.08	0.20	Average
2	0.159	43.46	65.52	-22.06	33.50	9.68	0.08	0.20	QP
3	0.204	34.43	53.45	-19.02	24.45	9.68	0.08	0.22	Average
4	0.204	45.11	63.45	-18.34	35.13	9.68	0.08	0.22	QP
5	0.513	19.44	46.00	-26.56	9.31	9.67	0.10	0.36	Average
6	0.513	34.20	56.00	-21.80	24.07	9.67	0.10	0.36	QP
7	1.043	21.46	46.00	-24.54	11.25	9.68	0.16	0.37	Average
8	1.043	34.80	56.00	-21.20	24.59	9.68	0.16	0.37	QP
9	2.422	26.30	46.00	-19.70	16.01	9.69	0.20	0.40	Average
10	2.422	37.38	56.00	-18.62	27.09	9.69	0.20	0.40	QP
11	6.056	32.58	50.00	-17.42	22.11	9.72	0.32	0.43	Average
12*	6.056	43.90	60.00	-16.10	33.43	9.72	0.32	0.43	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).  
 Note 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).



Modulation Mode	ax HE80	Test Freq. (MHz)	5690
Power Phase	Neutral		

Test by : Joe Liao      Temperature: 21°C      Humidity: 63%



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.159	32.56	55.52	-22.96	22.71	9.61	0.08	0.16	Average
2	0.159	45.20	65.52	-20.32	35.35	9.61	0.08	0.16	QP
3	0.230	31.01	52.44	-21.43	21.14	9.61	0.08	0.18	Average
4	0.230	42.14	62.44	-20.30	32.27	9.61	0.08	0.18	QP
5	0.601	24.79	46.00	-21.21	14.83	9.61	0.12	0.23	Average
6	0.601	39.18	56.00	-16.82	29.22	9.61	0.12	0.23	QP
7	2.474	35.37	46.00	-10.63	25.23	9.63	0.20	0.31	Average
8	2.474	42.25	56.00	-13.75	32.11	9.63	0.20	0.31	QP
9	5.505	39.11	50.00	-10.89	28.82	9.66	0.29	0.34	Average
10*	5.505	50.01	60.00	-9.99	39.72	9.66	0.29	0.34	QP
11	16.486	33.30	50.00	-16.70	22.49	9.76	0.59	0.46	Average
12	16.486	40.44	60.00	-19.56	29.63	9.76	0.59	0.46	QP

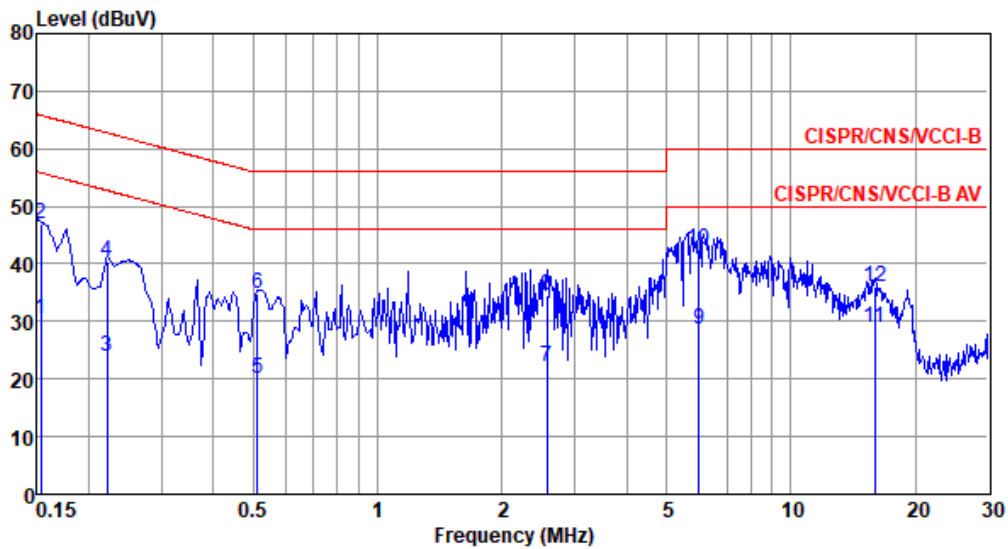
Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).  
 Note 2: Over Limit (dB) = Level (dBuV) - Limit Line (dBuV).





Modulation Mode	ax HE40	Test Freq. (MHz)	5795
Power Phase	Line		

Test by : Joe Liao      Temperature: 21°C      Humidity: 63%



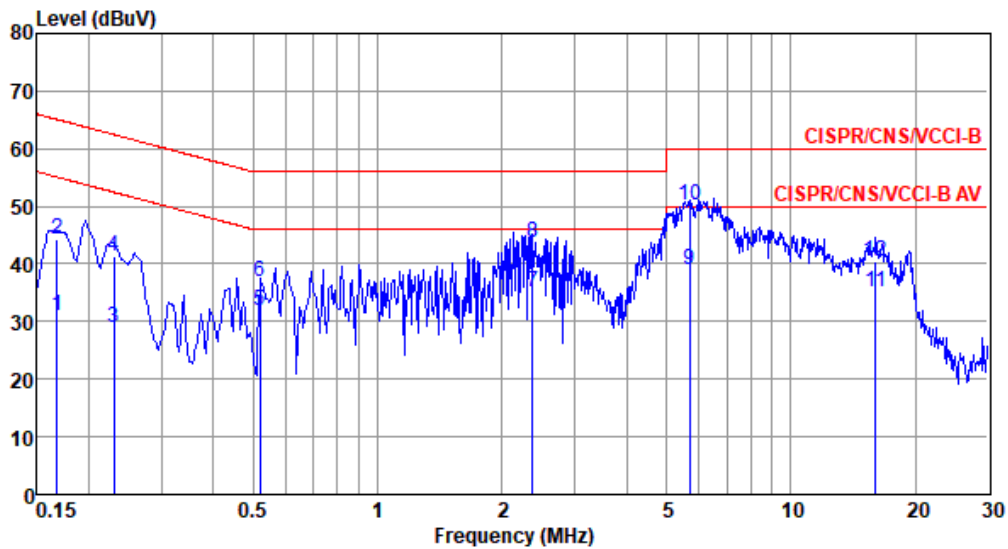
	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.153	30.55	55.82	-25.27	20.59	9.68	0.08	0.20	Average
2	0.153	46.93	65.82	-18.89	36.97	9.68	0.08	0.20	QP
3	0.222	23.85	52.74	-28.89	13.85	9.68	0.08	0.24	Average
4	0.222	40.50	62.74	-22.24	30.50	9.68	0.08	0.24	QP
5	0.513	20.10	46.00	-25.90	9.97	9.67	0.10	0.36	Average
6	0.513	34.91	56.00	-21.09	24.78	9.67	0.10	0.36	QP
7	2.567	22.27	46.00	-23.73	11.98	9.69	0.20	0.40	Average
8	2.567	34.47	56.00	-21.53	24.18	9.69	0.20	0.40	QP
9	5.993	28.65	50.00	-21.35	18.19	9.72	0.31	0.43	Average
10*	5.993	42.64	60.00	-17.36	32.18	9.72	0.31	0.43	QP
11	15.970	28.99	50.00	-21.01	18.13	9.73	0.58	0.55	Average
12	15.970	35.97	60.00	-24.03	25.11	9.73	0.58	0.55	QP

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).  
 2: Over Limit (dB) = Level (dBUV) - Limit Line (dBUV).



Modulation Mode	ax HE40	Test Freq. (MHz)	5795
Power Phase	Neutral		

Test by : Joe Liao      Temperature: 21°C      Humidity: 63%



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.168	31.13	55.08	-23.95	21.27	9.61	0.08	0.17	Average
2	0.168	44.20	65.08	-20.88	34.34	9.61	0.08	0.17	QP
3	0.230	28.99	52.44	-23.45	19.12	9.61	0.08	0.18	Average
4	0.230	41.24	62.44	-21.20	31.37	9.61	0.08	0.18	QP
5	0.518	31.78	46.00	-14.22	21.85	9.61	0.10	0.22	Average
6	0.518	36.95	56.00	-19.05	27.02	9.61	0.10	0.22	QP
7	2.371	35.05	46.00	-10.95	24.92	9.62	0.20	0.31	Average
8	2.371	43.65	56.00	-12.35	33.52	9.62	0.20	0.31	QP
9	5.683	39.00	50.00	-11.00	28.69	9.66	0.30	0.35	Average
10*	5.683	50.31	60.00	-9.69	40.00	9.66	0.30	0.35	QP
11	16.055	35.26	50.00	-14.74	24.45	9.76	0.58	0.47	Average
12	16.055	40.31	60.00	-19.69	29.50	9.76	0.58	0.47	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).  
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

## Part List

MODEL: BRAVO/BRAVO-SC						
Item	BOM.Ref Des	function	main source		Sercomm suggested substitute	
			Manufacturer	MPN	Manufacturer	MPN
1	FB5000,FB5015	BEAD	Murata	FERRITE BEAD BLM15PX601SN1D	INPAQ	MHC1005P601ZBPA90E4
2	FB5018	BEAD	Murata	FERRITE BEAD BLM15AX102SN1D	CHILISIN	PBY100505T-102Y-N
3	D4600,D4601,D4602,D8401	TVS	BENCENT	DIODE TVS ARRAY BV-FK05U4CA	MCC	ESD PROTECTOR ESDSLC0524F-TP
4	D4603, D4604, D8403, D8404	TVS	BENCENT	DIODE TVS BV-FA05UCA	MCC	CSPULC5V0LB(CSP1006-2)
5	L8002	RF LL	CHILISIN	INDUCTOR CLH1005T-6N8J-S	SUNLORD	SDCL1005C6N8JTDF
6	L8000	RF LL	Murata	INDUCTOR LQG15HN6N2S02D	SUNLORD	INDUCTOR SDCL1005C6N2STDF
7	L8001	RF LL	Murata	INDUCTOR LQG15HN5N6S02D	SUNLORD	INDUCTOR SDCL1005C5N6STDF
8	L8007	RF LL	Murata	INDUCTOR LQP03TN3N9B02D	SUNLORD	SDCL0603Q3N9BT02B03
9	L6013	RF LL	Murata	INDUCTOR LQP03TN1N1B02D	SUNLORD	SDCL0603Q1N1BT02B03
10	L6048	RF LL	Murata	INDUCTOR LQP03TN1N3B02D	SUNLORD	SDCL0603Q1N3BT02B03
11	L6010,L6012	RF LL	Murata	INDUCTOR LQP03TN3N2B02D	SUNLORD	SDCL0603Q3N2BT02B03
12	L8006	RF LL	TDK	INDUCTOR MLG0603P1N5BTZ10	SUNLORD	INDUCTOR SDCL0603Q1N5BT02B03
13	L7000,L7001	RF LL	Murata	INDUCTOR LQP03TN3N0B02D	SUNLORD	SDCL0603Q3N0BT02B03

## Part List

14	L6001	RF LL	Murata	INDUCTOR LQP03TN8N2H02D	SUNLORD	SDCL0603Q8N2HT02B03
15	L7008,L8005	RF LL	CHILISIN	INDUCTOR CLH1005T-22NJ-S	SUNLORD	SDCL1005C22NJTDF
16	L7002	RF LL	Murata	INDUCTOR LQP03TN2N7B02D	SUNLORD	INDUCTOR SDCL0603Q2N7BT02B03
17	F7000	RF Filter	TDK	RF FILTER(LP) DEA162690LT-5014A5	Walsin	RFLPF1606A13T
18	L4600,L4601,L4602,L4603	common chock	Murata	COMMON CHOKE NFG0QH542HS2D	TDK	TCM0605T-080-2P-T201
19	J1	CONN	LIYANG	JACK DC PWR LYDC000147	SHENZHEN UNIT ELECTRONICS	805-02200-000
20	J8400	CONN	LIYANG	CONN RJ45 LYWK045131	SHENZHEN UNIT ELECTRONICS	845-63060-000
21	FB5003, FB5004, FB5005, FB5006	BEAD	Murata	FERRITE BEAD BLM03AX121SN1D	SUNLORD	FERRITE BEAD PZ0603D121-R45TF
22	FB402	BEAD	CHILISIN	FERRITE BEAD 1.5A 0402	TAI-TECH	FERRITE BEAD HCB1005KF-121T15
23	FB5001, FB5002, FB5016, FB5017	BEAD	Murata	FERRITE BEAD BLM15PD121SN1D	TAI-TECH	FERRITE BEAD HCB1005KF-121T15
24	L8003	RF LL	CHILISIN	INDUCTOR BSCH001005053N6SCS	SUNLORD	INDUCTOR SDCL1005C3N6STDF
25	C8004,C8011	RF CAP	Murata	CAP CHIP GJM0335C1E100JB01D	WALSIN	RF03N100J500CT
26	J6001	RF CONN	Murata	CONN RF MM8030-2610RJ3	ECT	CONN RF 818011998
27	SK6000	RF CONN	Foxconn	CONN RF KK23011-32-7H	ECT	CONN RF 818000368
28	U6000,U6002	RF SWITCH	RICHWAVE	RF CHIP RTC6603SP	KCT	KCT2821L
29	C8413	CAP	Walsin	CAP CHIP 1808B102K202CT	YAGEO	CC1808KKX7RDBB102
30	U7000	RF SWITCH	RICHWAVE	RF CHIP RTC6617SP	MAXSCEND	MXD8730