

# FCC Test Report

**FCC ID** : JVPVS10R  
**Equipment** : InstaShow Host  
**Model No.** : VS10R  
**Brand Name** : BenQ  
**Applicant** : BenQ Corporation  
**Address** : 16 Jihu Road, Neihu, Taipei 114, Taiwan  
**Standard** : 47 CFR FCC Part 15.407  
**Received Date** : Oct. 30, 2023  
**Tested Date** : Nov. 03 ~ Nov. 14, 2023

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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## Table of Contents

<b>1</b>	<b>GENERAL DESCRIPTION .....</b>	<b>5</b>
1.1	Information.....	5
1.2	Local Support Equipment List .....	9
1.3	Test Setup Chart .....	9
1.4	The Equipment List .....	10
1.5	Test Standards .....	11
1.6	Reference Guidance .....	11
1.7	Deviation from Test Standard and Measurement Procedure.....	11
1.8	Measurement Uncertainty .....	12
<b>2</b>	<b>TEST CONFIGURATION.....</b>	<b>13</b>
2.1	Testing Facility .....	13
2.2	The Worst Test Modes and Channel Details .....	14
<b>3</b>	<b>TRANSMITTER TEST RESULTS .....</b>	<b>15</b>
3.1	Emission Bandwidth .....	15
3.2	Conducted Output Power .....	16
3.3	Power Spectral Density .....	17
3.4	Unwanted Emissions.....	19
3.5	Frequency Stability.....	22
3.6	AC Power Line Conducted Emissions .....	23
<b>4</b>	<b>TEST LABORATORY INFORMATION .....</b>	<b>24</b>

**Appendix A. Emission Bandwidth**

**Appendix B. Conducted Output Power**

**Appendix C. Power Spectral Density**

**Appendix D. Unwanted Emissions**

**Appendix E. Frequency Stability**

**Appendix F. AC Power Line Conducted Emissions**

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## Release Record

Report No.	Version	Description	Issued Date
FR380402-01AN	Rev. 01	Initial issue	Nov. 28, 2023

## Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emissions	[dBuV]: 0.396MHz 40.15 (Margin -7.80dB) - AV	Pass
15.407(b) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 5150.00MHz 52.99 (Margin -1.01dB) - AV	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: 25.33 5725~5850MHz: 26.92	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

### 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 <sub>TX</sub> )	Data Rate / MCS
5150-5250 5725-5850	n (HT20)	5180-5240 5745-5825	36-48 [4] 149-165 [5]	2	MCS 0-15
5150-5250 5725-5850	n (HT40)	5190-5230 5755-5795	38-46 [2] 151-159 [2]	2	MCS 0-15
5150-5250 5725-5850	ac (VHT20)	5180-5240 5745-5825	36-48 [4] 149-165 [5]	2	MCS 0-9
5150-5250 5725-5850	ac (VHT40)	5190-5230 5755-5795	38-46 [2] 151-159 [2]	2	MCS 0-9
5150-5250 5725-5850	ac (VHT80)	5210 5775	42 [1] 155 [1]	2	MCS 0-9
5150-5250 5725-5850	n (HT20)	5180-5240 5745-5825	36-48 [4] 149-165 [5]	4	MCS 0-31
5150-5250 5725-5850	n (HT40)	5190-5230 5755-5795	38-46 [2] 151-159 [2]	4	MCS 0-31
5150-5250 5725-5850	ac (VHT20)	5180-5240 5745-5825	36-48 [4] 149-165 [5]	4	MCS 0-9
5150-5250 5725-5850	ac (VHT40)	5190-5230 5755-5795	38-46 [2] 151-159 [2]	4	MCS 0-9
5150-5250 5725-5850	ac (VHT80)	5210 5775	42 [1] 155 [1]	4	MCS 0-9

Note 1: OFDM BPSK, QPSK, 64QAM and 256QAM modulation.  
 Note 2: The conducted power of single chain is same for 2TX and 4TX operating mode. Therefore, 4TX configuration is chosen for final testing.

## 1.1.2 Antenna Details

### Configuration 1

Ant. No.	Brand / Model	Type	Connector	Operating Freq. (MHz / Gain (dBi))		Remarks
				5150~5250	5725~5850	
1	Invax / AN5800-5546BRS	Dipole	RP-SMA(M)	2.46	3.01	WF2 port
2	Invax / AN5800-5546BRS	Dipole	RP-SMA(M)	2.46	3.01	WF3 port
3	VSO/JR7Q00292	PIFA	I-PEX	2.2	2.9	WF0 port
4	VSO/JR7Q00292	PIFA	I-PEX	2.9	2.3	WF1 port

### Configuration 2

Ant. No.	Brand / Model	Type	Connector	Operating Freq. (MHz / Gain (dBi))		Remarks
				5150~5250	5725~5850	
1	Invax / AN5800-5546BRS	Dipole	RP-SMA(M)	2.46	3.01	WF2 port
2	Invax / AN5800-5546BRS	Dipole	RP-SMA(M)	2.46	3.01	WF3 port
3	EGRET / ET72-004	PIFA	I-PEX	2.188	2.766	WF0 port
4	EGRET / ET72-004	PIFA	I-PEX	2.481	2.083	WF1 port

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

<b>Power Supply Type</b>	12Vdc from adapter
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### 1.1.4 Accessories

Accessories		
No.	Equipment	Description
1	AC adapter	Brand: BILLION Model: DCT24W120200ZZ-A0 I/P: 100-240Vac, 50/60Hz, 0.7A max O/P: 12.0Vdc, 2.0A 24.0W Power Line: 1.5m non-shielded without core
2	HDMI Cable	0.8m shielded without core

### 1.1.5 Channel List

802.11n HT20 / ac VHT20		802.11n HT40 / ac VHT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	38	5190
40	5200	46	5230
44	5220	151	5755
48	5240	159	5795
149	5745	<b>802.11ac VHT80</b>	
153	5765	42	5210
157	5785	155	5775
161	5805	-	-
165	5825	-	-

### 1.1.6 Test Tool and Duty Cycle

Test Tool	Tera Term, Version: V4.89		
Duty Cycle and Duty Factor	Mode	Duty Cycle (%)	Duty Factor (dB)
	ac VHT20	87.22%	0.59
	ac VHT40	78.04%	1.08
	ac VHT80	84.27%	0.74

### 1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index
ac VHT20	5180	22
ac VHT20	5200	26
ac VHT20	5240	34
ac VHT20	5745	40
ac VHT20	5785	40
ac VHT20	5825	40
ac VHT40	5190	13
ac VHT40	5230	27
ac VHT40	5755	32
ac VHT40	5795	34
ac VHT80	5210	13
ac VHT80	5775	21

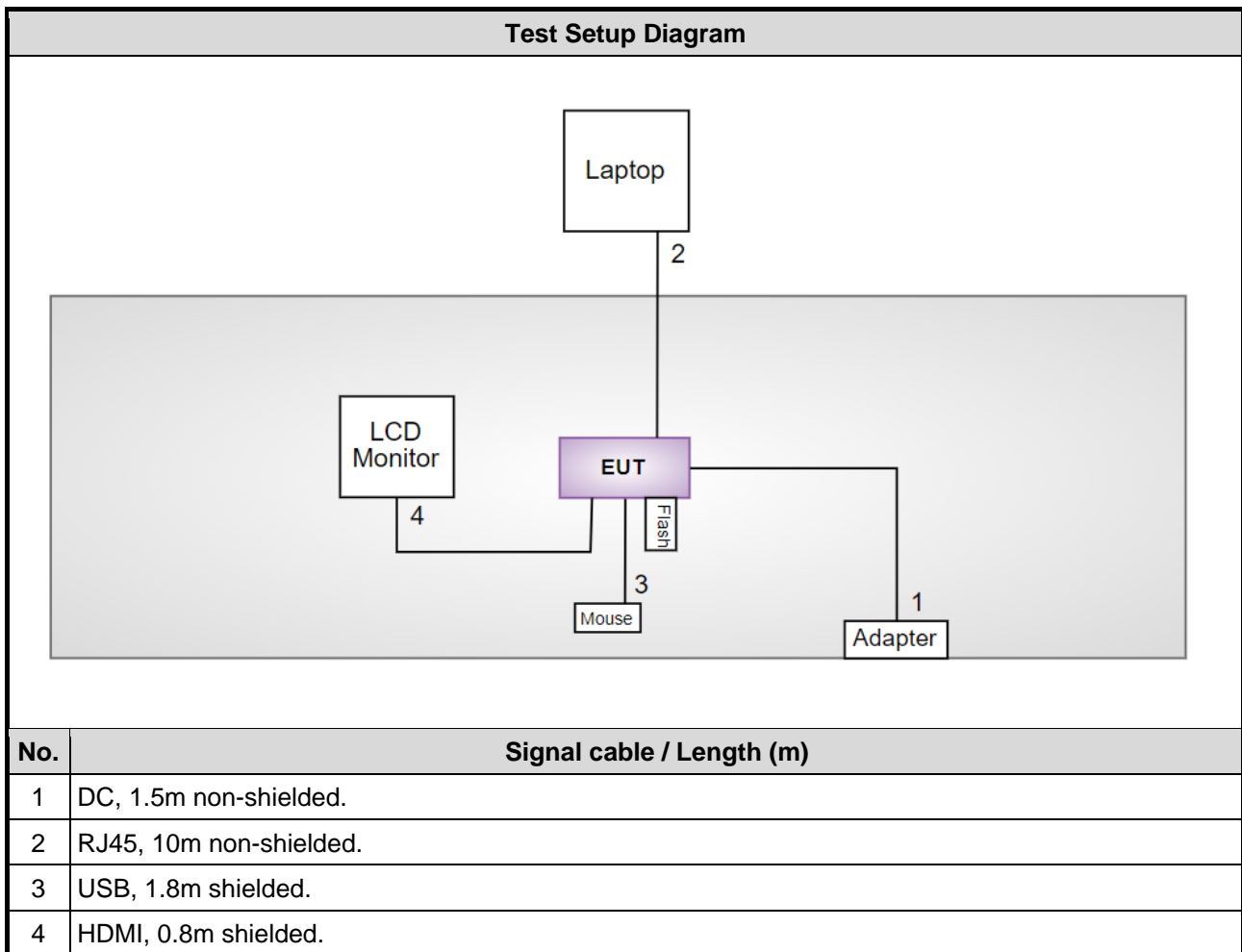


## 1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Laptop	DELL	Latitude E5470	DoC	---
2	Mouse	DELL	MS111-L	---	---
3	LCD Monitor	ASUS	MX27UCS	---	---
4	USB 3.0 Flash	Transcend	JetFlash 700	---	---
5	USB Fixture	---	---	---	---

Note: The fixture is disconnected from EUT and removed from test table when EUT is set to transmit continuously.

## 1.3 Test Setup Chart



## 1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Nov. 14, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101658	Feb. 17, 2023	Feb. 16, 2024
LISN	R&S	ENV216	101579	May 09, 2023	May 08, 2024
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 11, 2023	Oct. 10, 2024
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127667	Jan. 03, 2023	Jan. 02, 2024
50 ohm terminal (Support Unit)	NA	50	01	Jun. 14, 2023	Jun. 13, 2024
Measurement Software	Sporton	SENSE-EMI	V5.11.6	NA	NA

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

Test Item	Radiated Emission				
Test Site	966 chamber3 / (03CH03-WS)				
Tested Date	Nov. 03 ~ Nov. 09, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101657	Mar. 03, 2023	Mar. 02, 2024
Spectrum Analyzer	R&S	FSV40	101499	Mar. 16, 2023	Mar. 15, 2024
Loop Antenna	R&S	HFH2-Z2	100330	Oct. 31, 2023	Oct. 30, 2024
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Jul. 04, 2023	Jul. 03, 2024
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Dec. 15, 2022	Dec. 14, 2023
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170508	Dec. 30, 2022	Dec. 29, 2023
Preamplifier	EMC	EMC02325	980187	Jul. 10, 2023	Jul. 09, 2024
Preamplifier	EMC	EMC118A45SE	980897	Aug. 01, 2023	Jul. 31, 2024
Preamplifier	EMC	EMC184045SE	980903	Jul. 17, 2023	Jul. 16, 2024
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 03, 2023	Oct. 02, 2024
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Sep. 22, 2023	Sep. 21, 2024
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Sep. 22, 2023	Sep. 21, 2024
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Sep. 22, 2023	Sep. 21, 2024
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Sep. 22, 2023	Sep. 21, 2024
RF cable-8M	EMC	EMC104-SM-SM-8000	181107	Sep. 22, 2023	Sep. 21, 2024
HIGHPASS FILTER	K&L	11SH10-7000/T18000-O/OP	21	Sep. 27, 2023	Sep. 26, 2024
Attenuator	Pasternack	PE7005-10	10-3	Sep. 27, 2023	Sep. 26, 2024
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>	Nov. 10, 2023 ~ Nov. 14, 2023				
<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. 14, 2023	Apr. 13, 2024
Power Meter	Anritsu	ML2495A	1241002	Nov. 23, 2022	Nov. 22, 2023
Power Sensor	Anritsu	MA2411B	1207366	Nov. 23, 2022	Nov. 22, 2023
Attenuator	Pasternack	PE7005-10	10-2	Oct. 05, 2023	Oct. 04, 2024
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Jun. 21, 2023	Jun. 20, 2024
AC POWER SOURCE	APC	AFC-500W	F312060012	Dec. 09, 2022	Dec. 08, 2023
Measurement Software	Sporton	SENSE-15407_NII	V5.11	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	$\pm 34.130$ Hz
Conducted power	$\pm 0.808$ dB
Frequency error	$\pm 1 \times 10^{-9}$
Power density	$\pm 0.583$ dB
Conducted emission	$\pm 2.715$ dB
AC conducted emission	$\pm 2.92$ dB
Unwanted Emission $\leq 1$ GHz	$\pm 3.96$ dB
Unwanted Emission $> 1$ GHz	$\pm 4.51$ dB
Time	$\pm 0.1\%$
Temperature	$\pm 0.4$ °C

## 2 Test Configuration

### 2.1 Testing Facility

<b>Test Laboratory</b>	International Certification Corporation
<b>Test Site</b>	CO01-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.)
<b>Test Site</b>	03CH03-WS
<b>Address of Test Site</b>	No.14-1, Lane 19, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

- FCC Designation No.: TW0009
- FCC site registration No.: 207696
- ISED#: 10807C
- CAB identifier: TW2732

## 2.2 The Worst Test Modes and Channel Details

For Frequency band 5150-5250 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
AC Power Line Conducted Emission	ac VHT20	5240	MCS 0	---
Unwanted Emissions ≤1GHz	ac VHT20	5240	MCS 0	---
Unwanted Emissions >1GHz Conducted Output Power Emission Bandwidth Power Spectral Density	ac VHT20 ac VHT40 ac VHT80	5180 / 5200 / 5240 5190 / 5230 5210	MCS 0 MCS 0 MCS 0	---
Frequency Stability	Un-modulation	5200	---	---
For Frequency band 5725-5850 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
AC Power Line Conducted Emission	ac VHT20	5745	MCS 0	---
Unwanted Emissions ≤1GHz	ac VHT20	5745	MCS 0	---
Unwanted Emissions >1GHz Conducted Output Power Emission Bandwidth Power Spectral Density	ac VHT20 ac VHT40 ac VHT80	5745 / 5785 / 5825 5755 / 5795 5775	MCS 0 MCS 0 MCS 0	---
Frequency Stability	Un-modulation	5785	---	---
<b>NOTE:</b>				
1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The <b>Z-plane</b> results were found as the worst case and were shown in this report.				
2. EUT is tested with antenna configuration 1 since antenna configuration 1 has higher antenna gain.				

### 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.

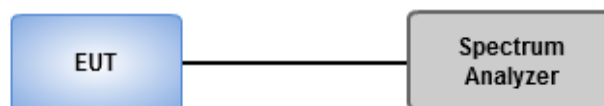
###### Occupied Bandwidth

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

<b>Ambient Condition</b>	22~23°C / 66~68%	<b>Tested By</b>	Brad Wu
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Refer to Appendix A.

## 3.2 Conducted Output Power

### 3.2.1 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"/> 5725 ~ 5850	Conducted Power: 1 W

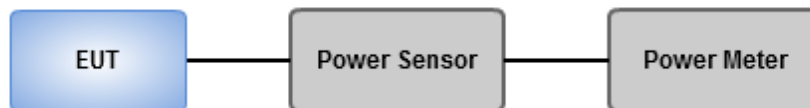
Note: "B" is the 26dB emission bandwidth in MHz.

### 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.

### 3.2.3 Test Setup



### 3.2.4 Test Results

Ambient Condition	22~23°C / 66~68%	Tested By	Brad Wu
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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		
Operating Mode		Limit
<input type="checkbox"/>	Outdoor access point	17 dBm / MHz
<input checked="" type="checkbox"/>	Indoor access point	17 dBm / MHz
<input type="checkbox"/>	Fixed point-to-point access points	17 dBm / MHz
<input type="checkbox"/>	Client devices	11 dBm / MHz

Frequency Band (MHz)	Limit
<input checked="" type="checkbox"/> 5725 ~ 5850	30 dBm /500 kHz

### 3.3.2 Test Procedures

#### For 5150 ~ 5250 MHz

Duty cycle  $\geq$  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

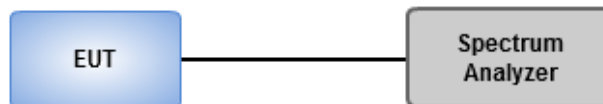
Duty cycle  $\geq$  98 %

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	22~23°C / 66~68%	Tested By	Brad Wu
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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.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).

### 3.4.2 Test Procedures

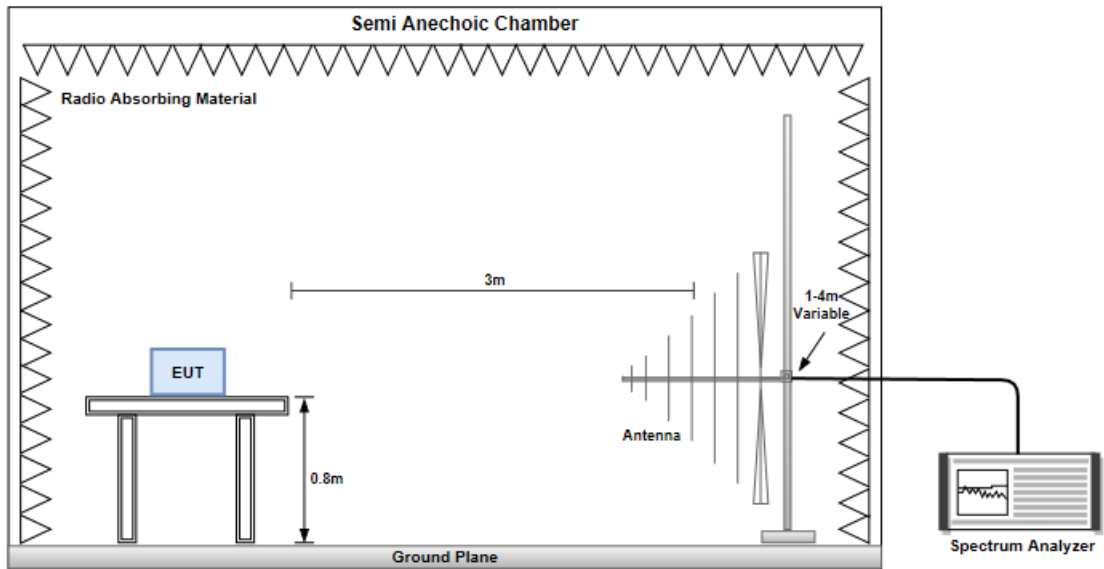
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission 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:

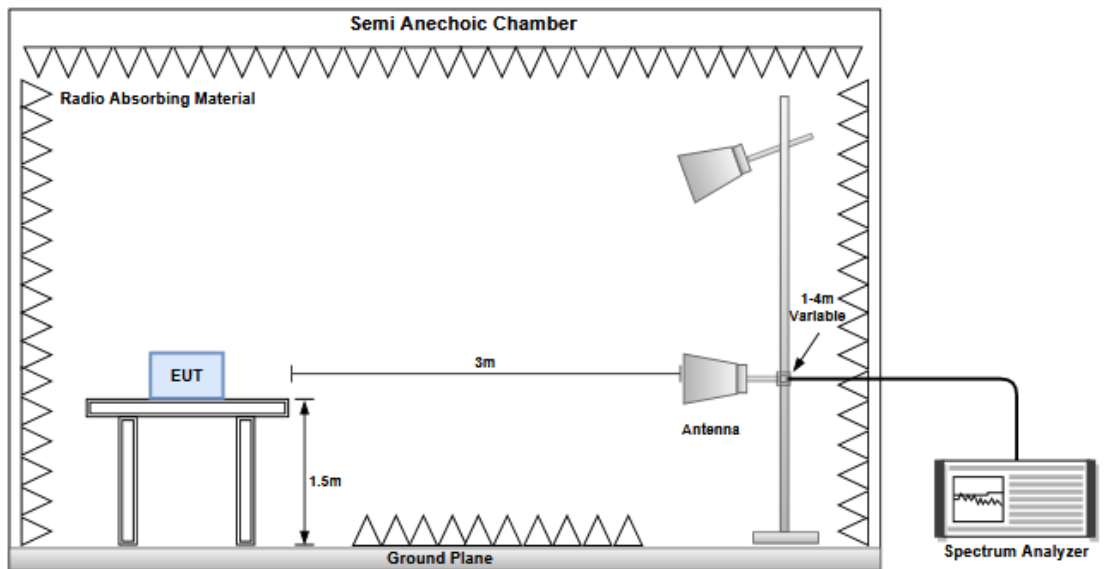
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

### 3.4.3 Test Setup

#### Radiated Emissions below 1 GHz



#### Radiated Emissions above 1 GHz



### 3.4.4 Test Results

Refer to Appendix D.

### 3.5 Frequency Stability

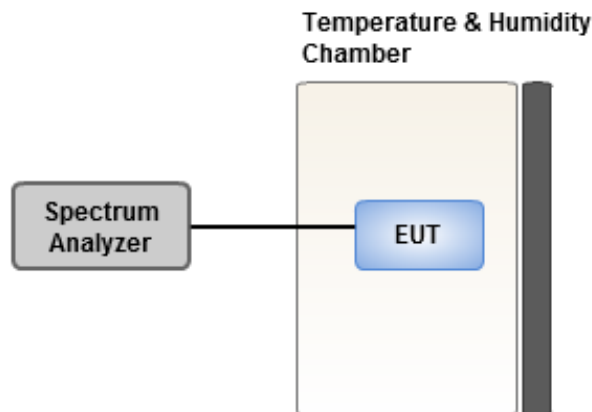
#### 3.5.1 Limit of Frequency Stability

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

<b>Ambient Condition</b>	22~23°C / 66~68%	<b>Tested By</b>	Brad Wu
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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

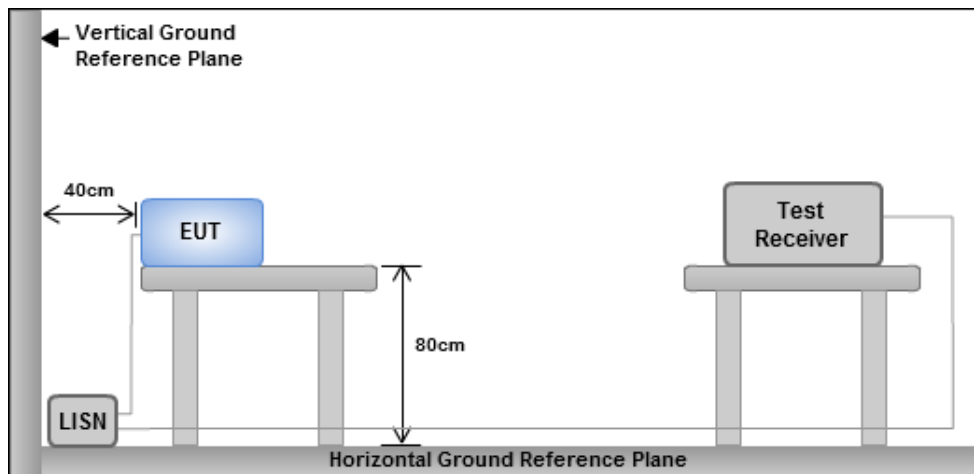
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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  $\Omega$  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

### 3.6.3 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 <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 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

==END==





Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ac VHT20_Nss4,(MCS0)_4TX	35.772M	18.321M	18M3D1D	19.866M	17.481M
802.11ac VHT40_Nss4,(MCS0)_4TX	52.14M	36.282M	36M3D1D	39.468M	35.982M
802.11ac VHT80_Nss4,(MCS0)_4TX	80.52M	74.963M	75M0D1D	79.992M	74.963M
5.725-5.85GHz	-	-	-	-	-
802.11ac VHT20_Nss4,(MCS0)_4TX	15.18M	26.507M	26M5D1D	13.794M	19.28M
802.11ac VHT40_Nss4,(MCS0)_4TX	35.112M	36.522M	36M5D1D	35.112M	36.282M
802.11ac VHT80_Nss4,(MCS0)_4TX	74.976M	74.963M	75M0D1D	64.944M	74.843M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

Max-OBW = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Minimum 26dB down bandwidth for other band;

Min-OBW = Minimum 99% occupied bandwidth

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11ac VHT20_Nss4,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	20.196M	17.661M	19.932M	17.571M	19.866M	17.481M	19.932M	17.571M
5200MHz	Pass	Inf	20.724M	17.751M	19.932M	17.571M	20.13M	17.541M	19.932M	17.571M
5240MHz	Pass	Inf	35.64M	18.321M	25.806M	17.661M	35.772M	17.991M	26.598M	17.751M
5745MHz	Pass	500k	15.18M	20.9M	15.18M	26.357M	15.114M	24.438M	15.048M	19.28M
5785MHz	Pass	500k	15.114M	20.75M	13.794M	26.507M	15.18M	24.648M	15.18M	19.31M
5825MHz	Pass	500k	15.048M	22.489M	15.114M	25.427M	15.048M	25.397M	15.048M	19.61M
802.11ac VHT40_Nss4,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	39.996M	36.042M	39.468M	36.102M	39.864M	35.982M	39.6M	36.042M
5230MHz	Pass	Inf	48.972M	36.282M	39.6M	36.102M	52.14M	36.162M	40.128M	36.102M
5755MHz	Pass	500k	35.112M	36.342M	35.112M	36.522M	35.112M	36.342M	35.112M	36.342M
5795MHz	Pass	500k	35.112M	36.342M	35.112M	36.462M	35.112M	36.282M	35.112M	36.342M
802.11ac VHT80_Nss4,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	80.52M	74.963M	79.992M	74.963M	80.256M	74.963M	79.992M	74.963M
5775MHz	Pass	500k	71.28M	74.963M	73.656M	74.963M	74.976M	74.963M	64.944M	74.843M

Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

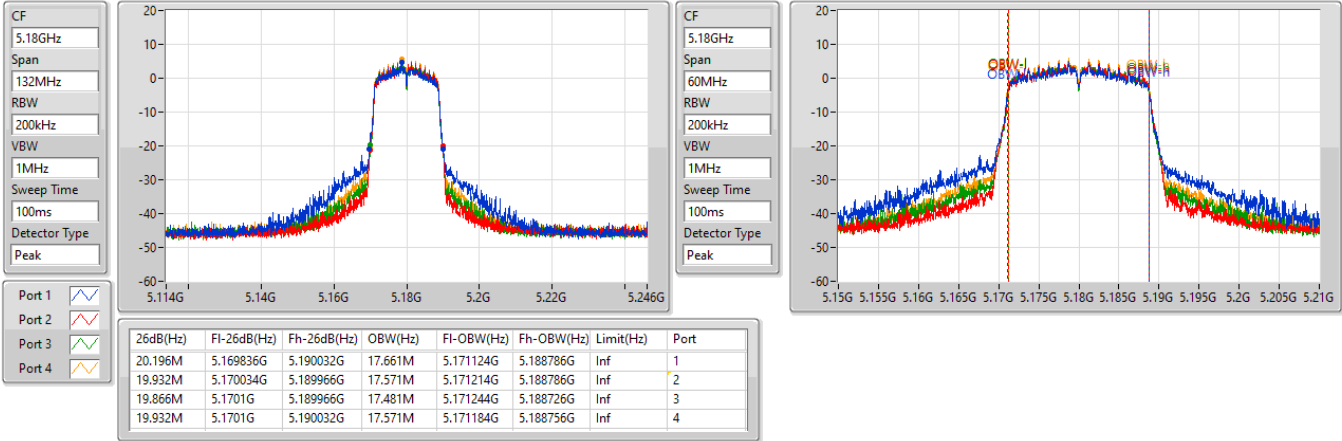
Port X-OBW = Port X 99% occupied bandwidth



5.15-5.25GHz\_802.11ac\_VHT20\_Nss4,(MCS0)\_4TX

EBW

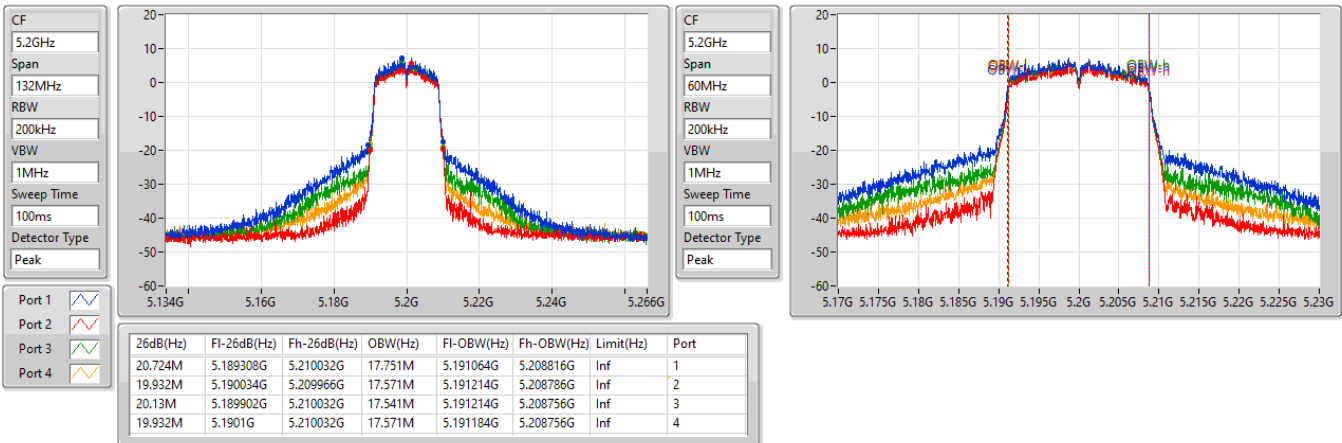
5180MHz



5.15-5.25GHz\_802.11ac\_VHT20\_Nss4,(MCS0)\_4TX

EBW

5200MHz

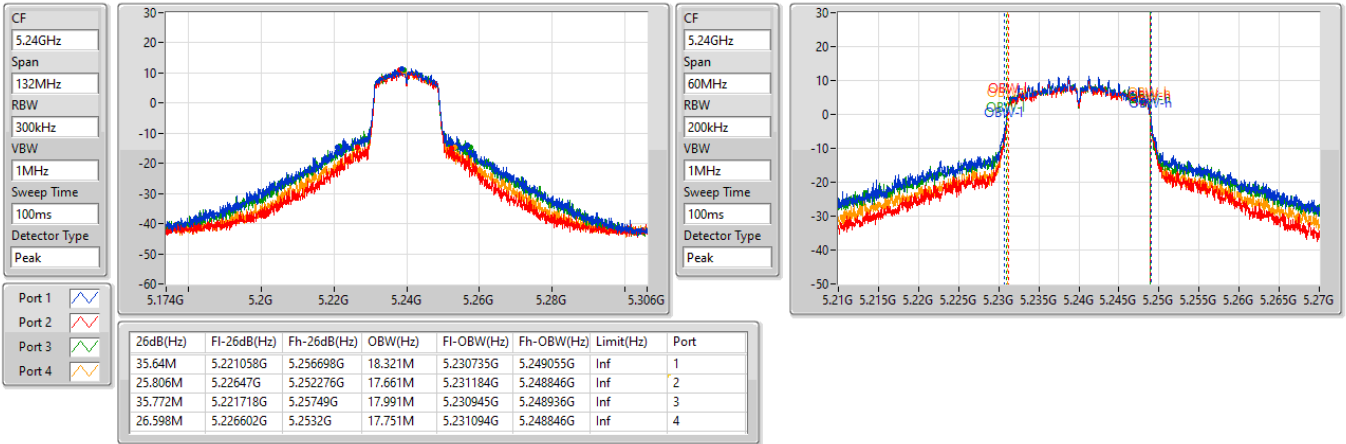




5.15-5.25GHz\_802.11ac VHT20\_Nss4,(MCS0)\_4TX

EBW

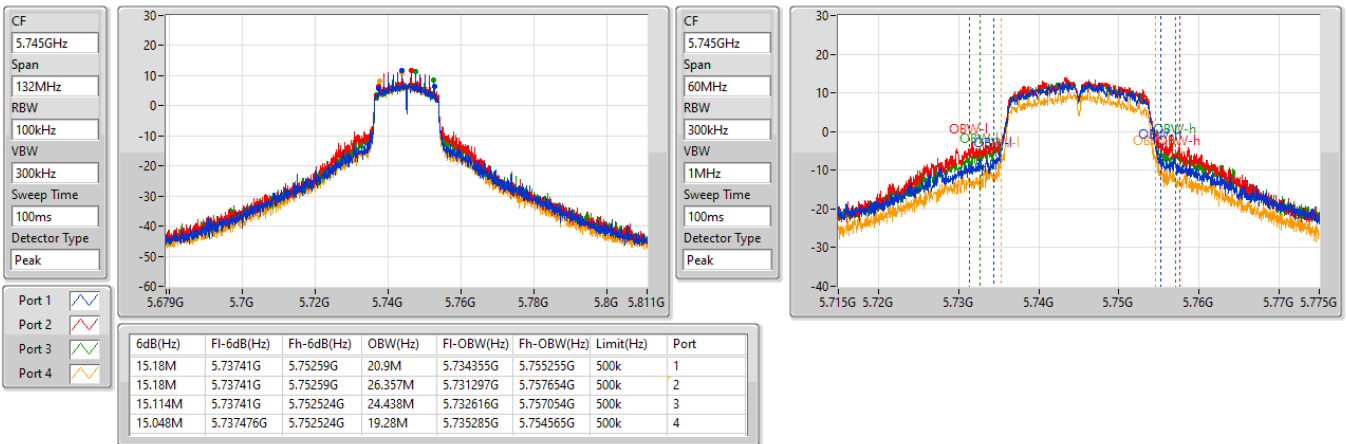
5240MHz

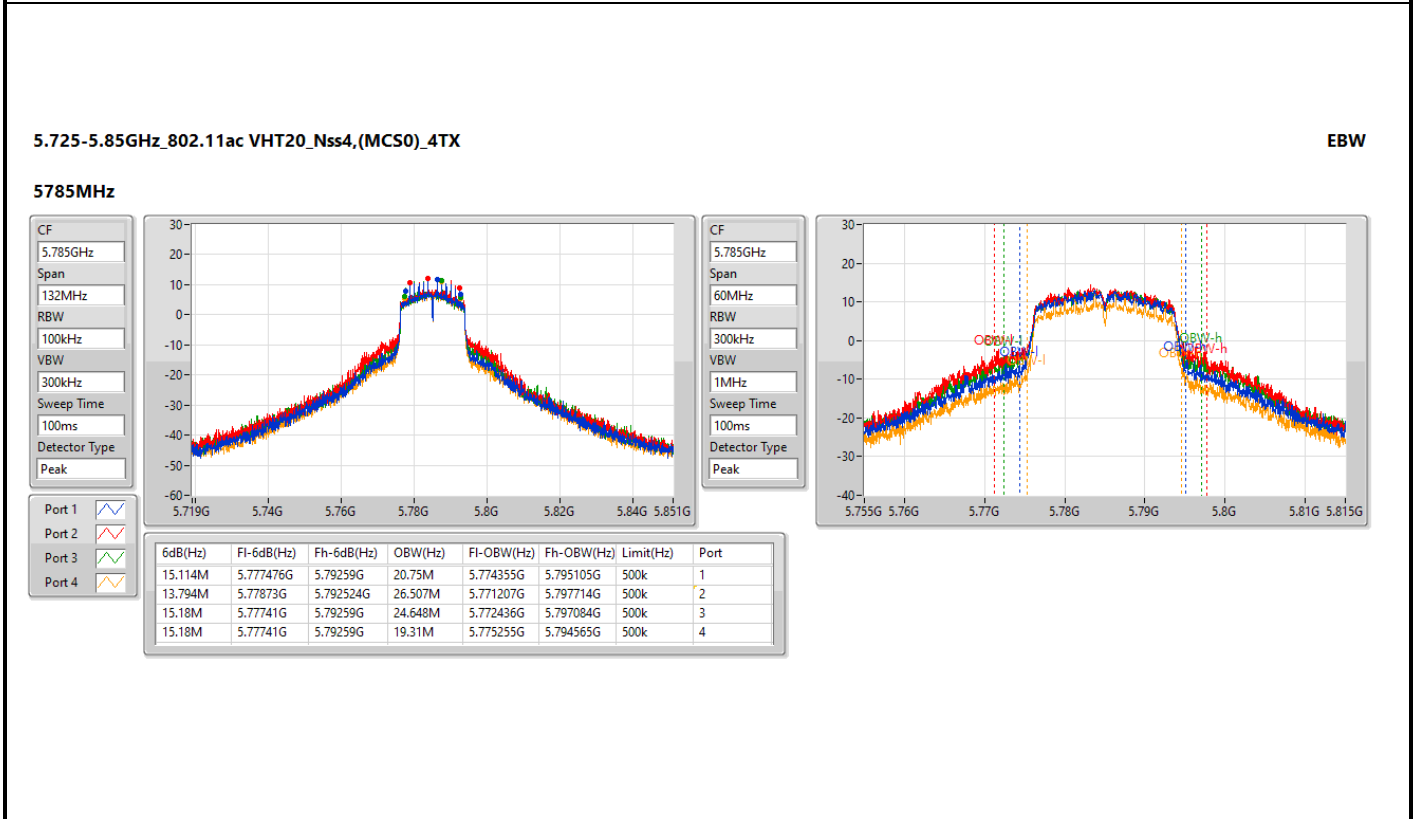
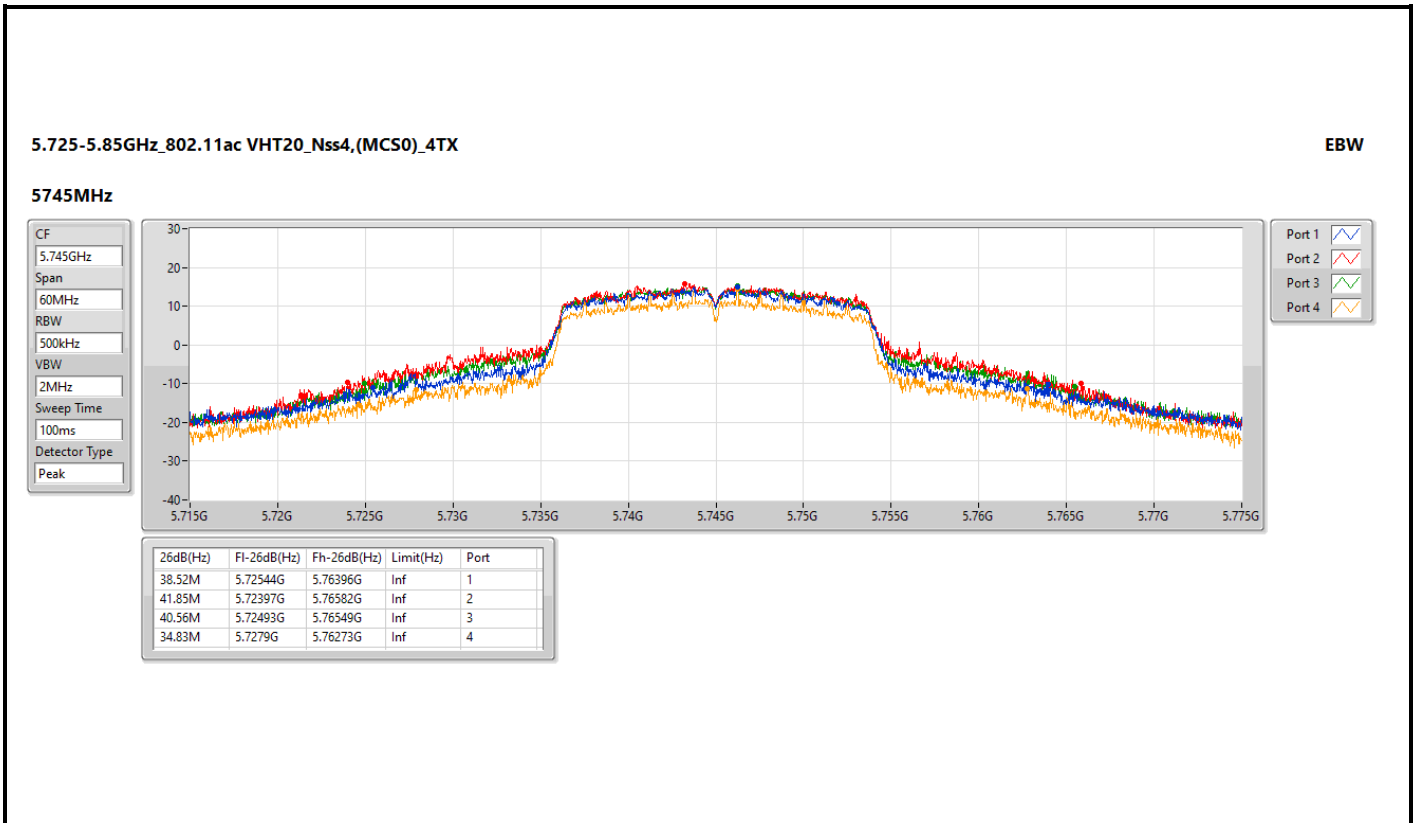


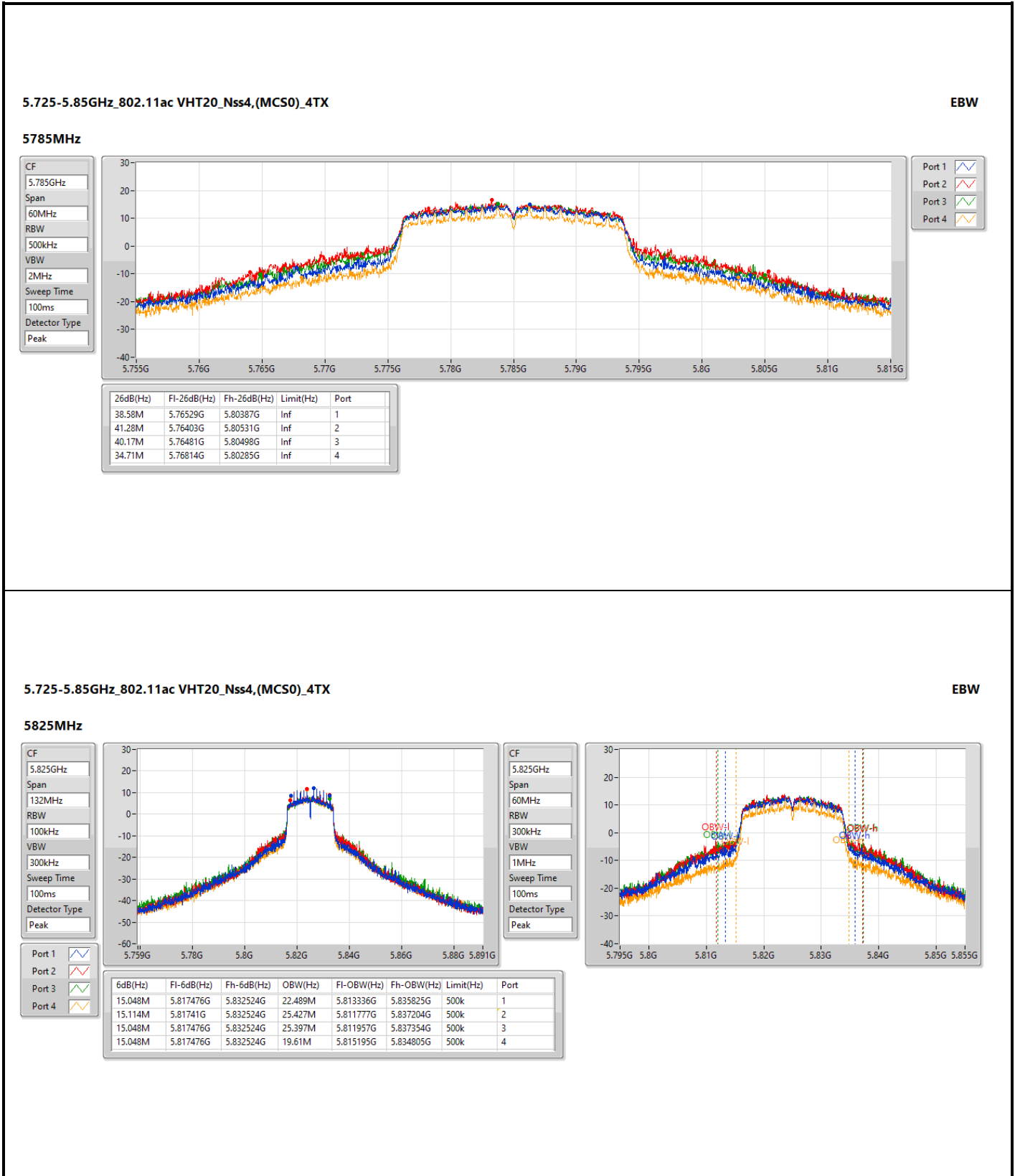
5.725-5.85GHz\_802.11ac VHT20\_Nss4,(MCS0)\_4TX

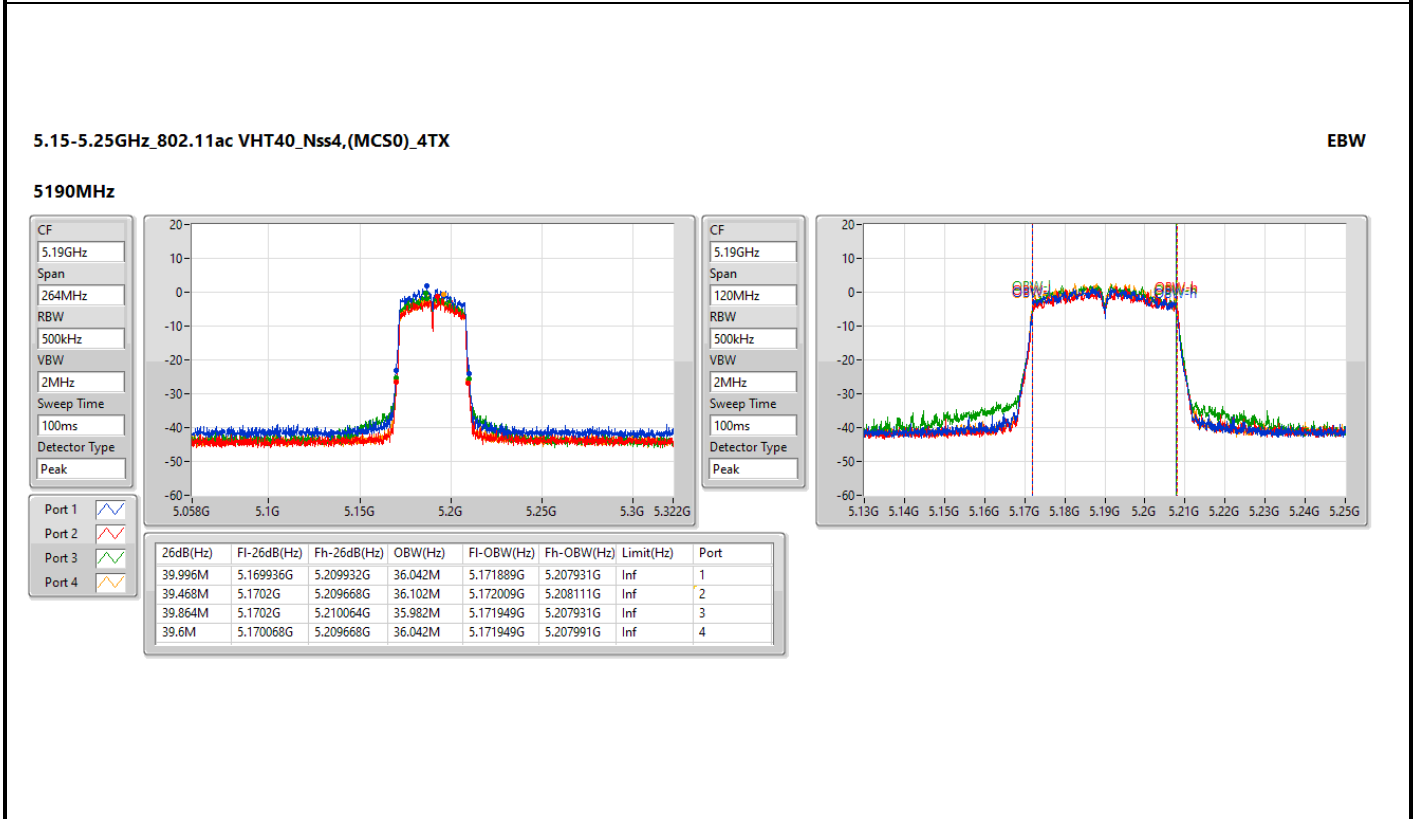
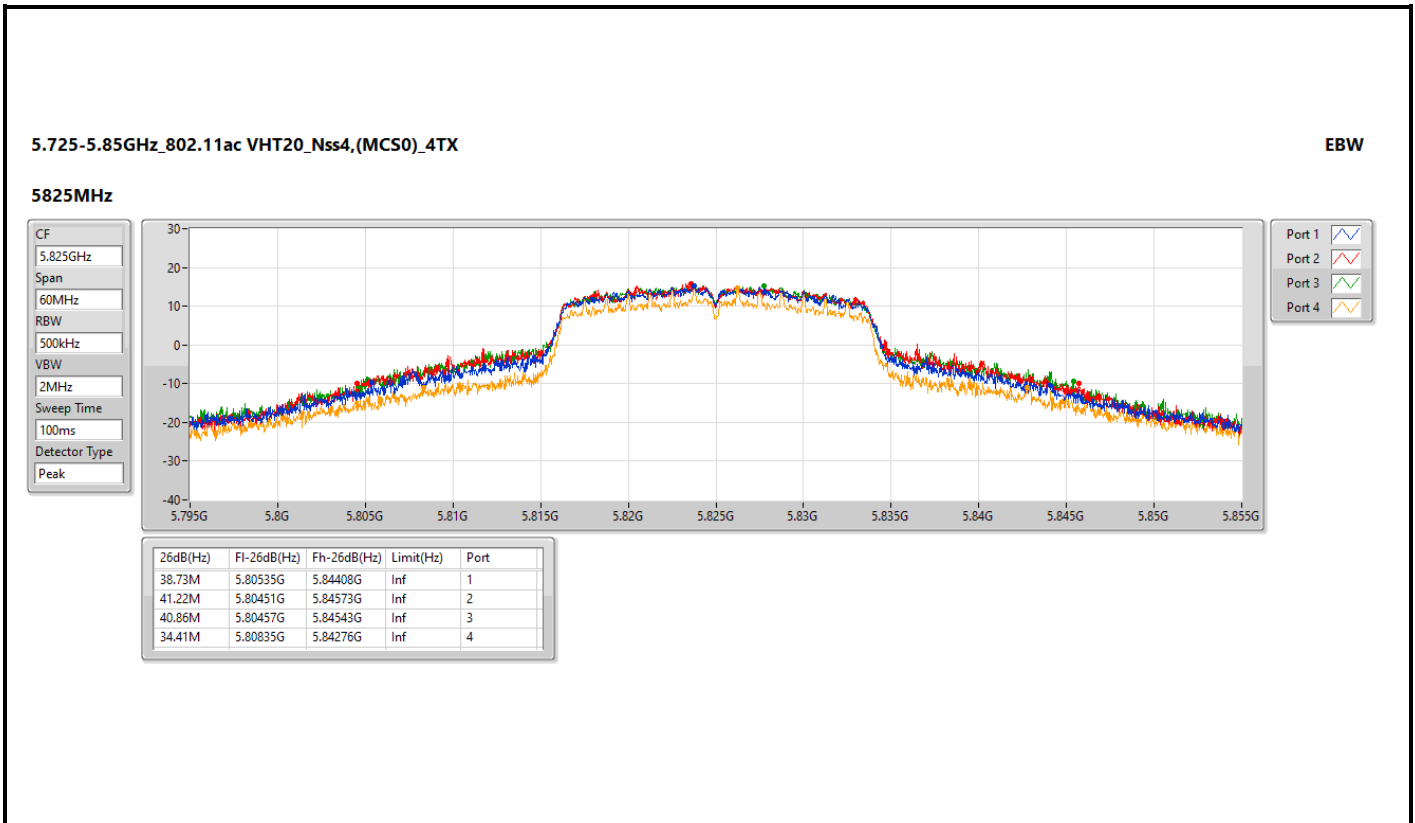
EBW

5745MHz









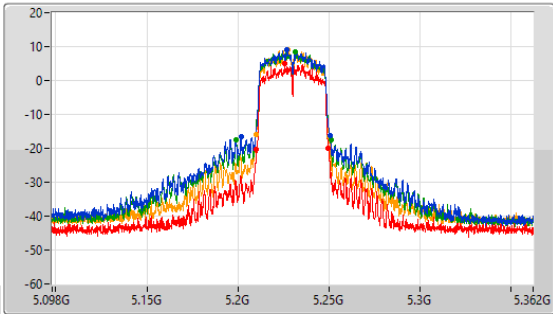


5.15-5.25GHz\_802.11ac VHT40\_Nss4,(MCS0)\_4TX

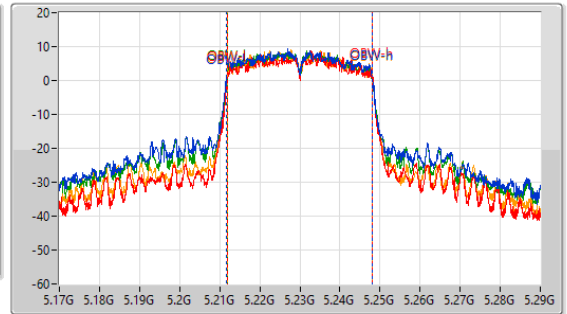
EBW

5230MHz

CF  
5.23GHz  
Span  
264MHz  
RBW  
500kHz  
VBW  
2MHz  
Sweep Time  
100ms  
Detector Type  
Peak



CF  
5.23GHz  
Span  
120MHz  
RBW  
500kHz  
VBW  
2MHz  
Sweep Time  
100ms  
Detector Type  
Peak



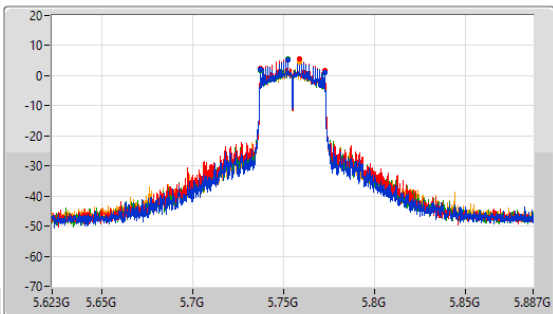
26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
48.972M	5.20162G	5.250592G	36.282M	5.211709G	5.247991G	Inf	1
39.6M	5.210068G	5.249668G	36.102M	5.212009G	5.248111G	Inf	2
52.14M	5.198848G	5.250988G	36.162M	5.211829G	5.247991G	Inf	3
40.128M	5.209804G	5.249932G	36.102M	5.211889G	5.247991G	Inf	4

5.725-5.85GHz\_802.11ac VHT40\_Nss4,(MCS0)\_4TX

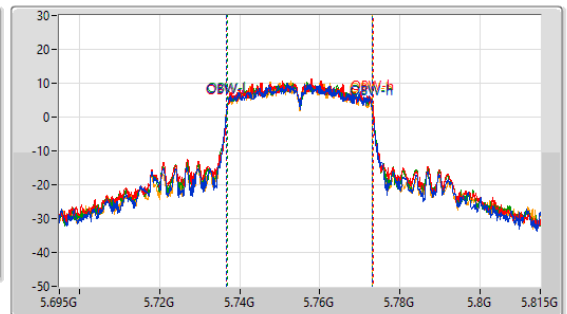
EBW

5755MHz

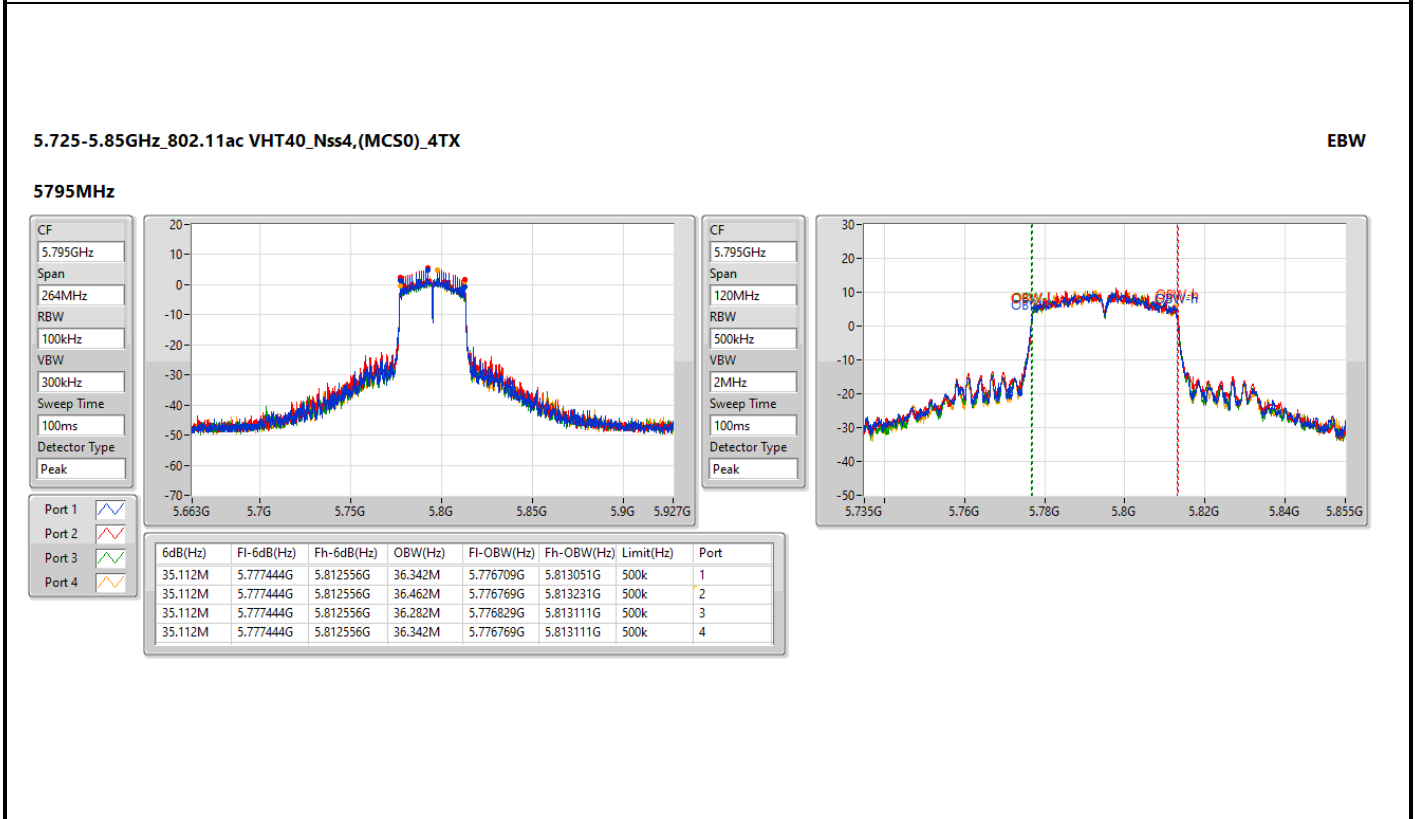
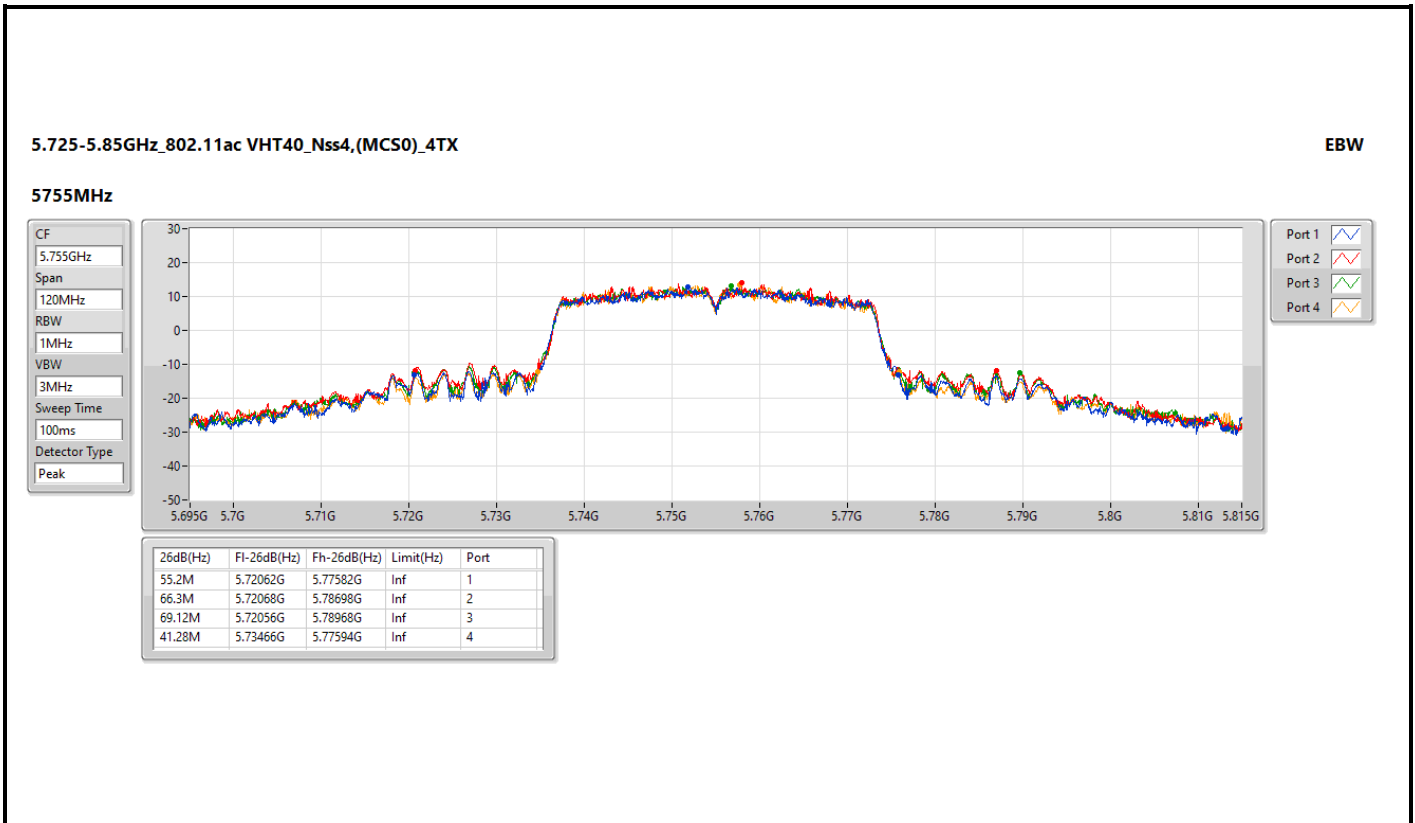
CF  
5.755GHz  
Span  
264MHz  
RBW  
100kHz  
VBW  
300kHz  
Sweep Time  
100ms  
Detector Type  
Peak



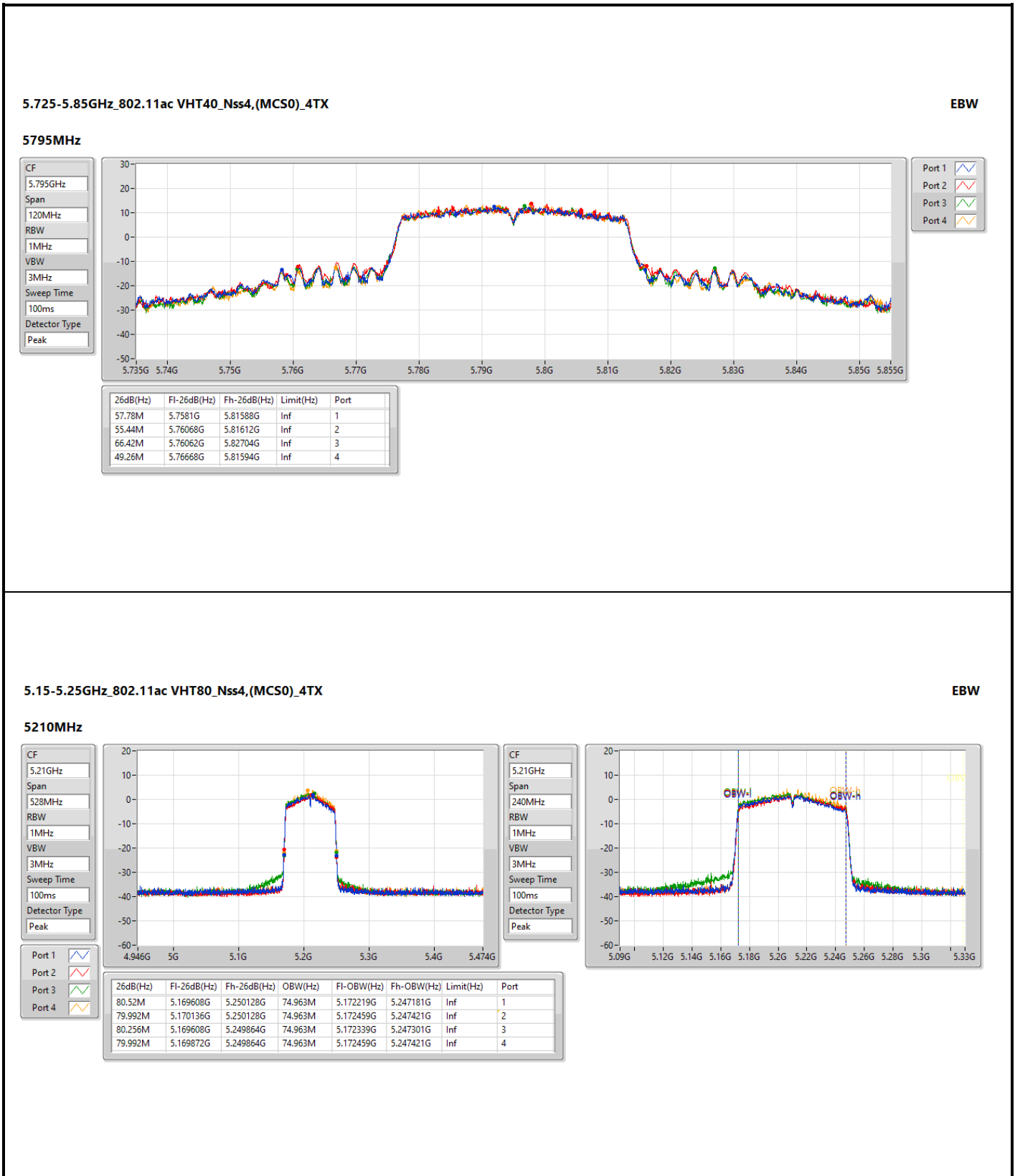
CF  
5.755GHz  
Span  
120MHz  
RBW  
500kHz  
VBW  
2MHz  
Sweep Time  
100ms  
Detector Type  
Peak



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
35.112M	5.737444G	5.772556G	36.342M	5.736769G	5.773111G	500k	1
35.112M	5.737444G	5.772556G	36.522M	5.736709G	5.773231G	500k	2
35.112M	5.737444G	5.772556G	36.342M	5.736829G	5.773171G	500k	3
35.112M	5.737444G	5.772556G	36.342M	5.736769G	5.773111G	500k	4











Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11ac VHT20_Nss4,(MCS0)_4TX	25.33	0.34119	27.84	0.60814
802.11ac VHT40_Nss4,(MCS0)_4TX	22.33	0.17100	24.84	0.30479
802.11ac VHT80_Nss4,(MCS0)_4TX	15.70	0.03715	18.21	0.06622
5.725-5.85GHz	-	-	-	-
802.11ac VHT20_Nss4,(MCS0)_4TX	26.92	0.49204	29.73	0.93972
802.11ac VHT40_Nss4,(MCS0)_4TX	24.82	0.30339	27.63	0.57943
802.11ac VHT80_Nss4,(MCS0)_4TX	18.91	0.07780	21.72	0.14859

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ac VHT20_Nss4,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	2.51	14.05	13.36	13.75	14.05	19.83	30.00	22.34	36.00
5200MHz	Pass	2.51	16.36	15.02	15.63	15.76	21.74	30.00	24.25	36.00
5240MHz	Pass	2.51	19.85	18.86	19.15	19.33	25.33	30.00	27.84	36.00
5745MHz	Pass	2.81	20.78	21.32	20.61	20.85	26.92	30.00	29.73	36.00
5785MHz	Pass	2.81	20.73	21.33	20.62	20.56	26.84	30.00	29.65	36.00
5825MHz	Pass	2.81	20.56	21.32	20.61	20.73	26.84	30.00	29.65	36.00
802.11ac VHT40_Nss4,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	2.51	9.53	9.06	9.66	9.78	15.54	30.00	18.05	36.00
5230MHz	Pass	2.51	17.13	15.73	16.02	16.22	22.33	30.00	24.84	36.00
5755MHz	Pass	2.81	17.73	18.11	17.79	18.02	23.94	30.00	26.75	36.00
5795MHz	Pass	2.81	18.64	19.12	18.36	19.02	24.82	30.00	27.63	36.00
802.11ac VHT80_Nss4,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	2.51	9.35	9.42	9.78	10.13	15.70	30.00	18.21	36.00
5775MHz	Pass	2.81	11.97	13.31	12.76	13.36	18.91	30.00	21.72	36.00

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

Directional Gain for 5150 ~ 5250 MHz =  $10 \log[(10^{2.2/10} + 10^{2.9/10} + 10^{2.46/10} + 10^{2.46/10})/4] = 2.51$  dBi

Directional Gain for 5725 ~ 5850 MHz =  $10 \log[(10^{2.9/10} + 10^{2.3/10} + 10^{3.01/10} + 10^{3.01/10})/4] = 2.81$  dBi



Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
5.15-5.25GHz	-	-
802.11ac VHT20_Nss4,(MCS0)_4TX	13.48	15.99
802.11ac VHT40_Nss4,(MCS0)_4TX	7.72	10.23
802.11ac VHT80_Nss4,(MCS0)_4TX	-1.87	0.64
5.725-5.85GHz	-	-
802.11ac VHT20_Nss4,(MCS0)_4TX	13.91	16.72
802.11ac VHT40_Nss4,(MCS0)_4TX	8.90	11.71
802.11ac VHT80_Nss4,(MCS0)_4TX	-0.04	2.77

RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

Result

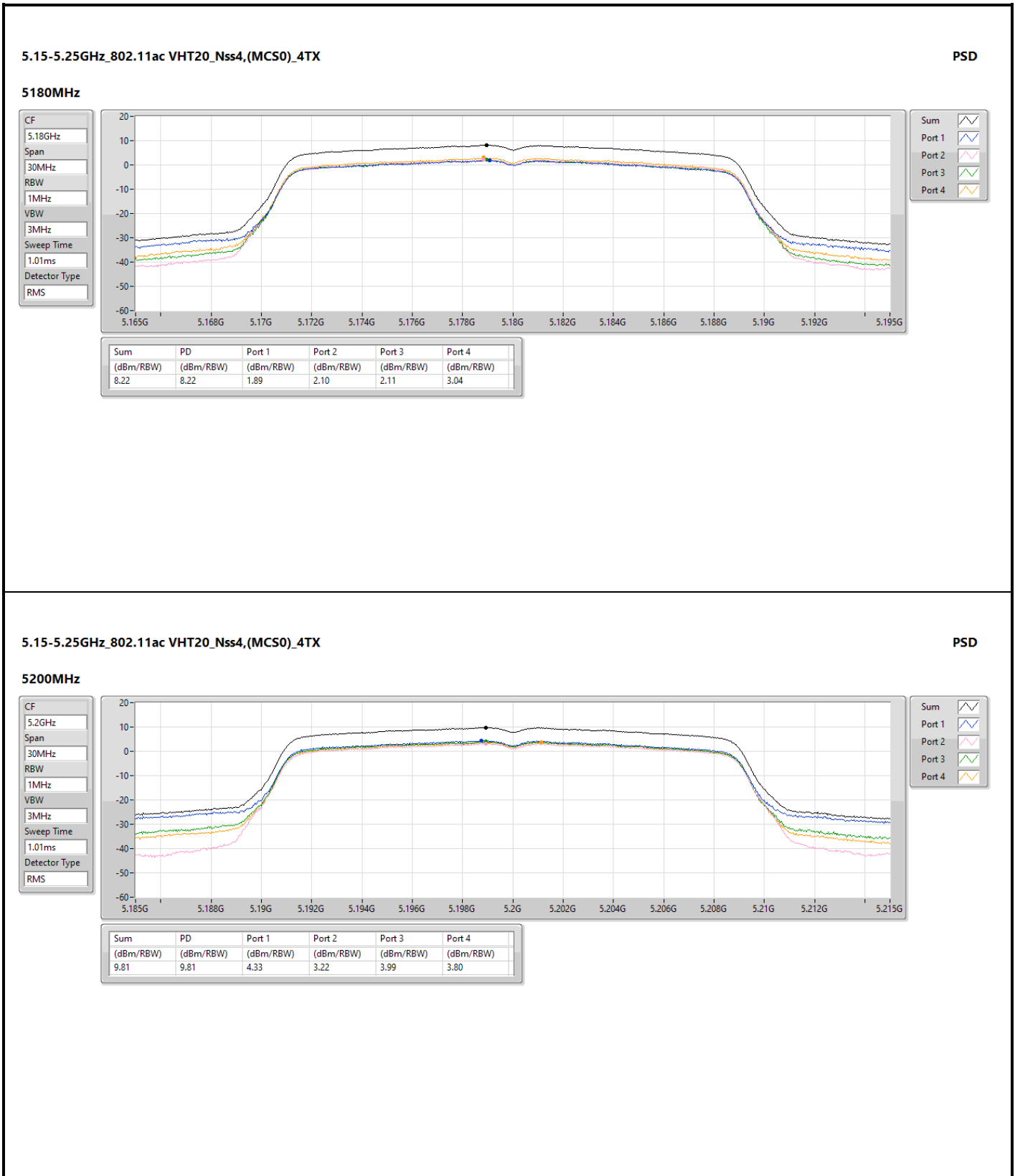
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)	EIRP PD (dBm/RBW)	EIRP PD Limit (dBm/RBW)
802.11ac VHT20_Nss4,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	2.51	1.89	2.10	2.11	3.04	8.22	17.00	10.73	23.00
5200MHz	Pass	2.51	4.33	3.22	3.99	3.80	9.81	17.00	12.32	23.00
5240MHz	Pass	2.51	7.85	7.20	7.50	7.71	13.48	17.00	15.99	23.00
5745MHz	Pass	2.81	7.61	8.22	7.77	7.59	13.70	30.00	16.51	36.00
5785MHz	Pass	2.81	7.81	8.37	8.17	7.55	13.91	30.00	16.72	36.00
5825MHz	Pass	2.81	7.95	8.14	8.08	7.55	13.84	30.00	16.65	36.00
802.11ac VHT40_Nss4,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	2.51	-5.30	-5.82	-4.14	-4.59	0.94	17.00	3.45	23.00
5230MHz	Pass	2.51	2.43	0.99	2.21	1.53	7.72	17.00	10.23	23.00
5755MHz	Pass	2.81	1.76	2.15	2.21	1.81	7.83	30.00	10.64	36.00
5795MHz	Pass	2.81	2.84	3.33	3.09	2.49	8.90	30.00	11.71	36.00
802.11ac VHT80_Nss4,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	2.51	-8.11	-8.31	-7.13	-7.25	-1.87	17.00	0.64	23.00
5775MHz	Pass	2.81	-6.81	-5.70	-5.48	-5.93	-0.04	30.00	2.77	36.00

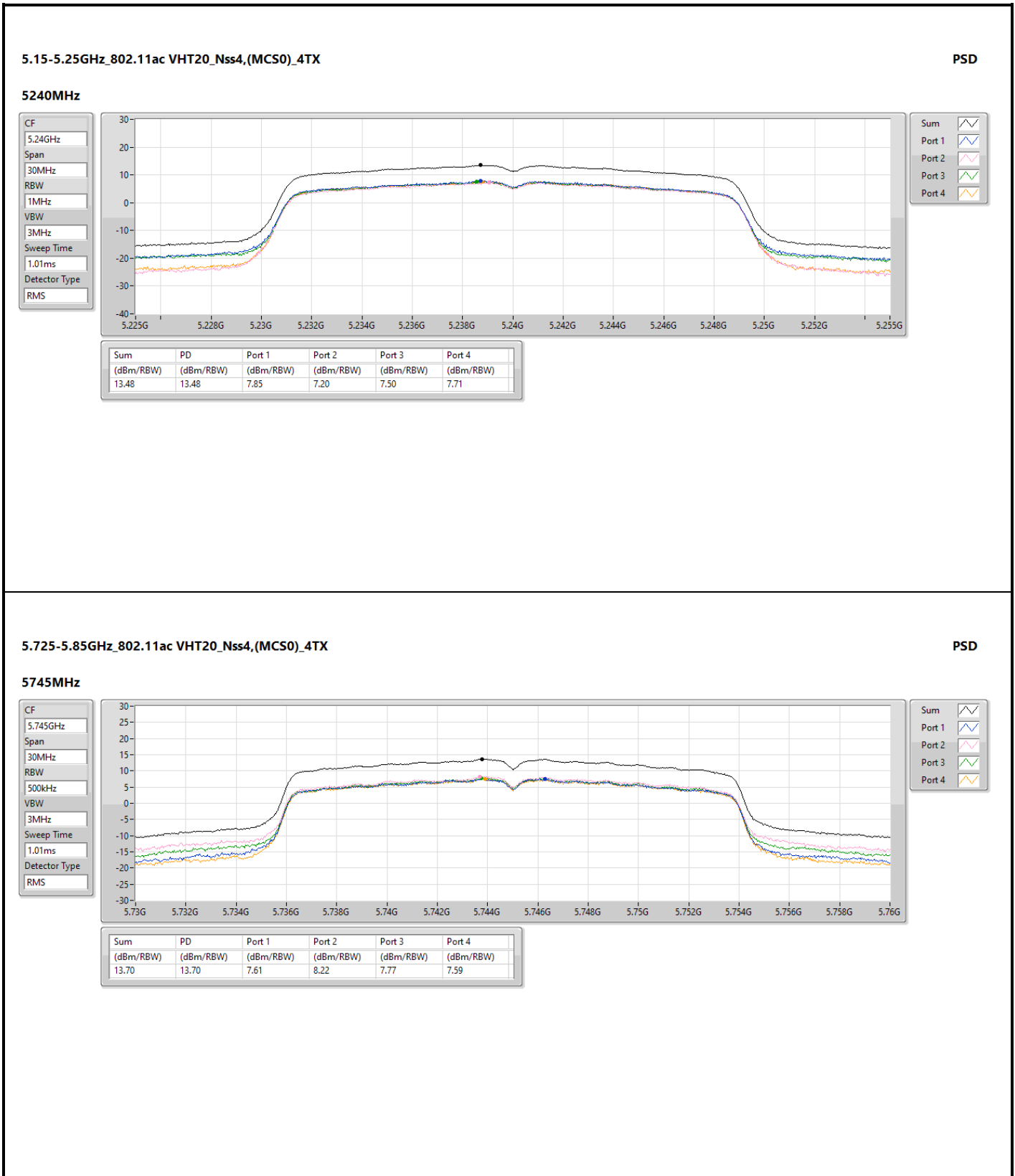
DG = Directional Gain; RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

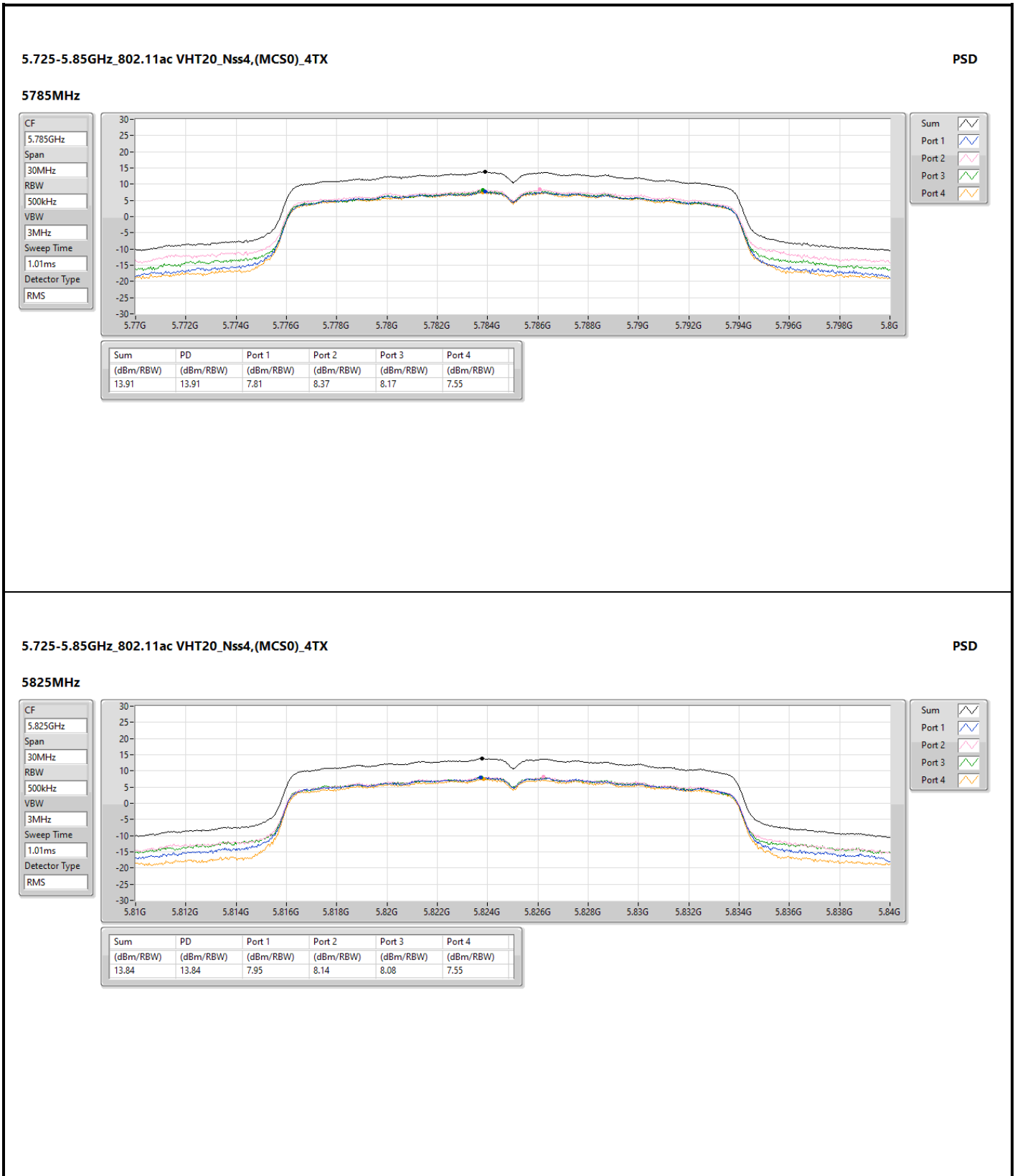
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;

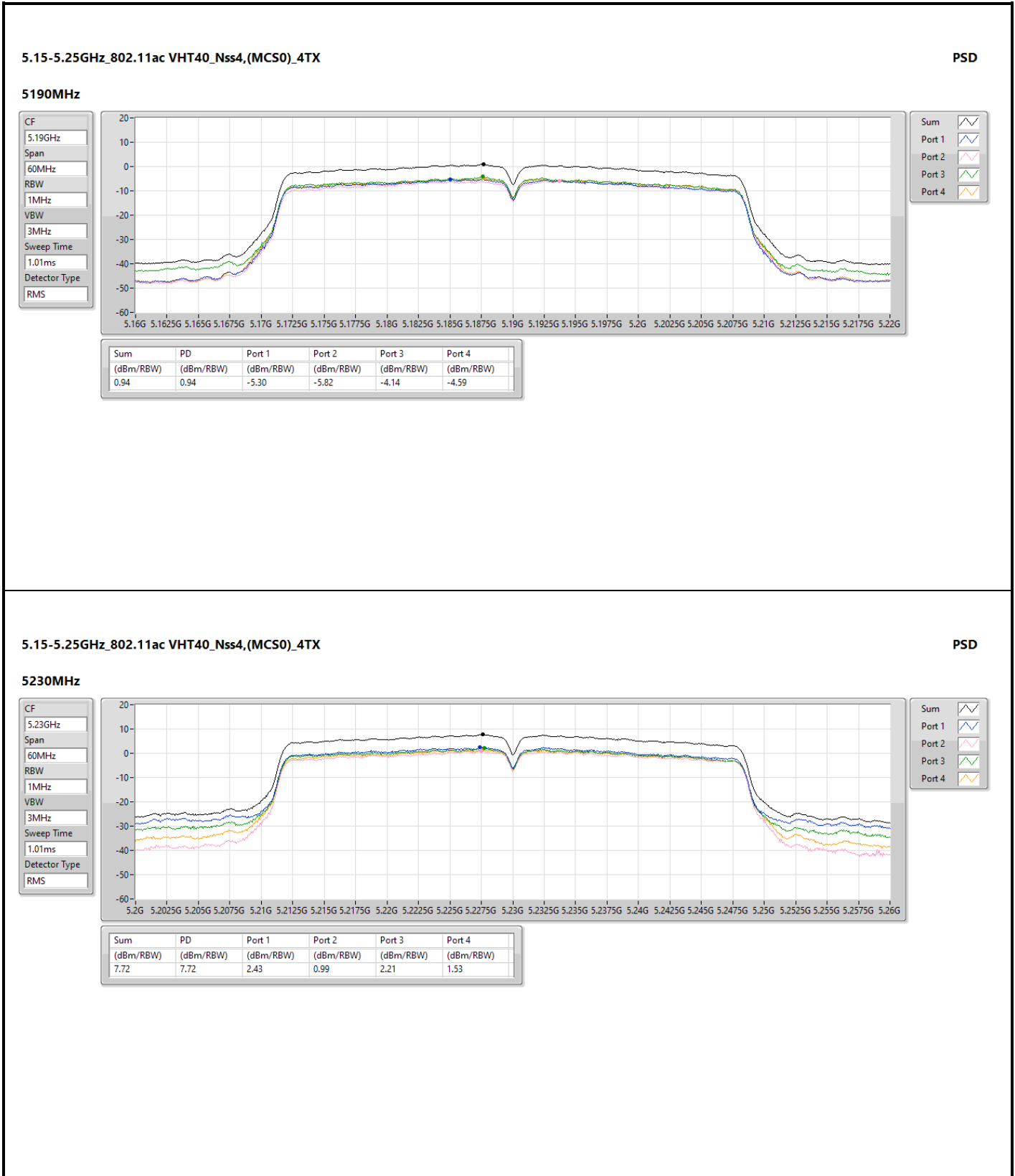
Directional Gain for 5150 ~ 5250 MHz =  $10 \log[(10^{2.2/10}+10^{2.9/10}+10^{2.46/10}+10^{2.46/10})/4] = 2.51$  dBi

Directional Gain for 5725 ~ 5850 MHz =  $10 \log[(10^{2.9/10}+10^{2.3/10}+10^{3.01/10}+10^{3.01/10})/4] = 2.81$  dBi

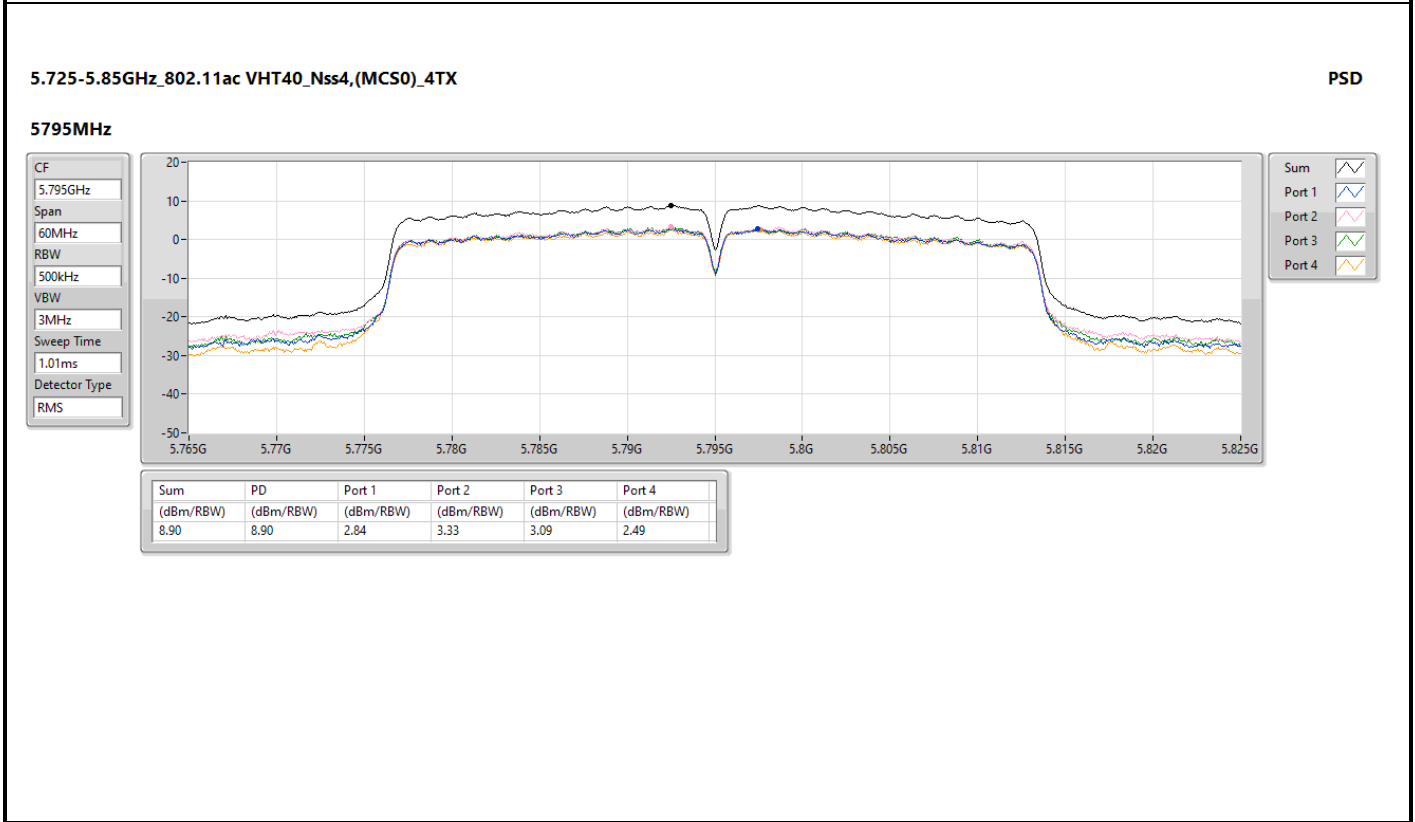
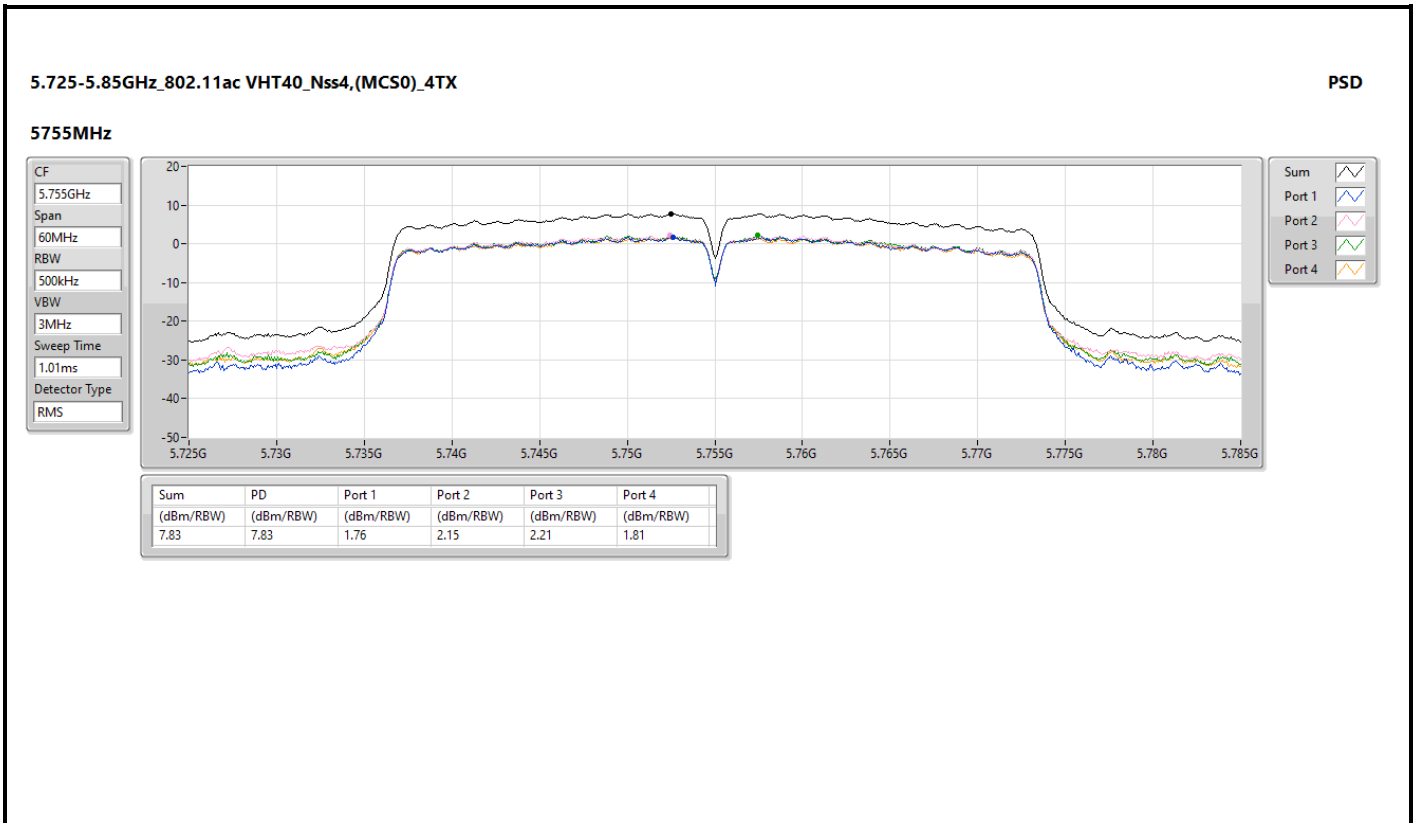


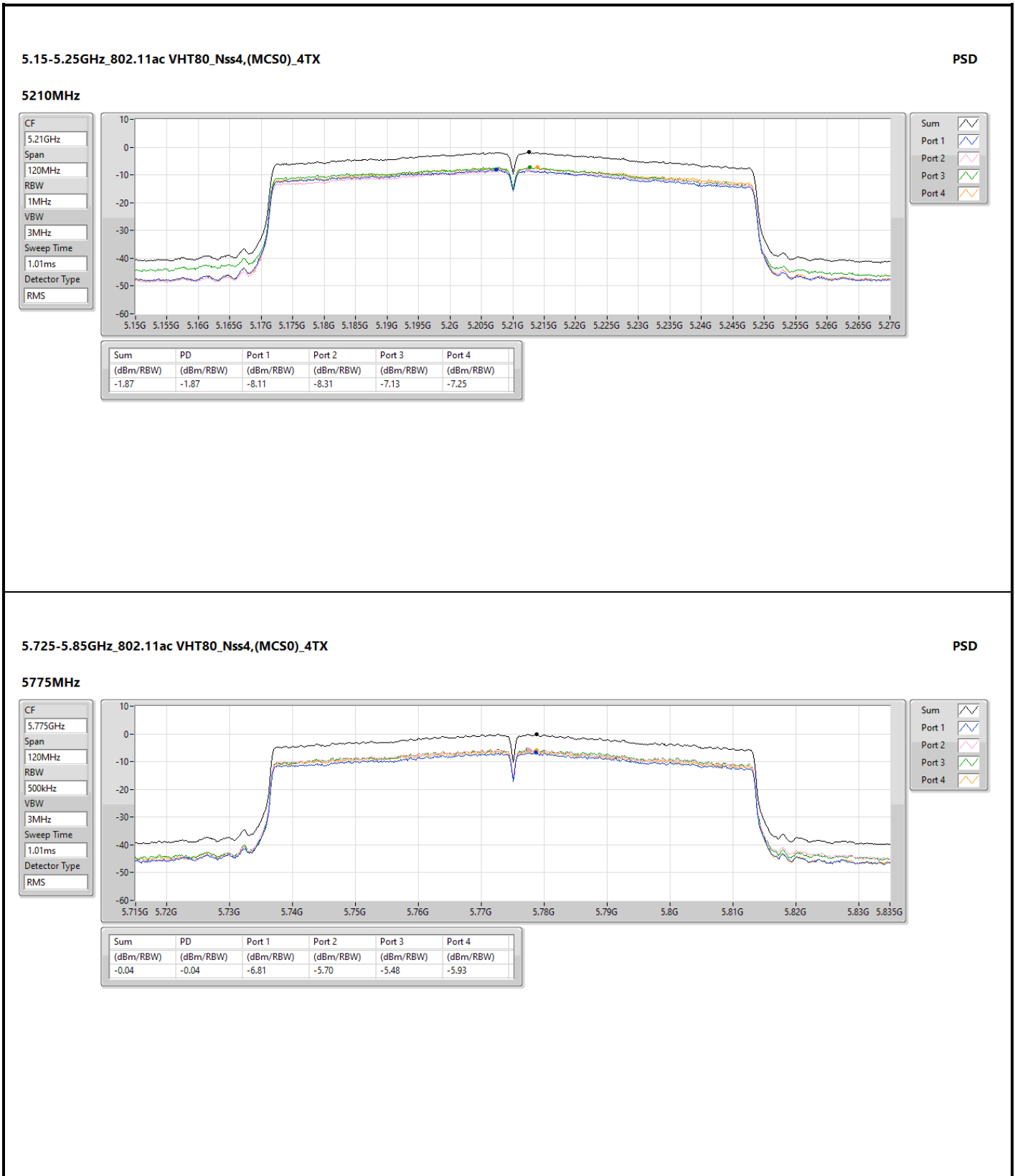










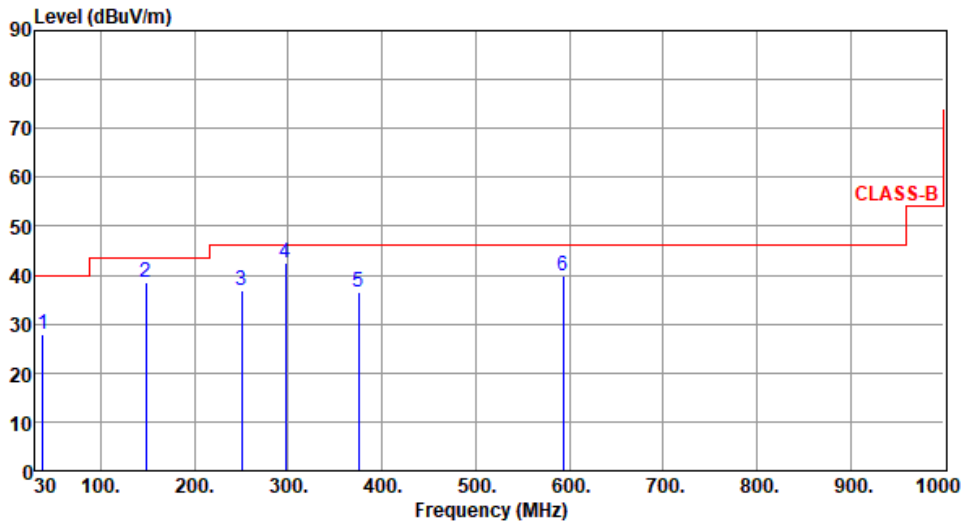




Unwanted Emissions (Below 1GHz)

Modulation	ac VHT20	Test Freq. (MHz)	5240
Polarization	Horizontal		

Test By :Paul Lin      Temperature(°C):24      Humidity(%):65



	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	37.76	27.79	40.00	-12.21	36.82	-9.03	Peak	---	---
2	148.34	38.68	43.50	-4.82	47.29	-8.61	Peak	---	---
3	250.19	36.99	46.00	-9.01	46.70	-9.71	Peak	---	---
4	296.75	42.61	46.00	-3.39	50.57	-7.96	QP	100	186
5	375.32	36.42	46.00	-9.58	42.07	-5.65	Peak	---	---
6	593.57	39.83	46.00	-6.17	40.03	-0.20	Peak	---	---

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

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

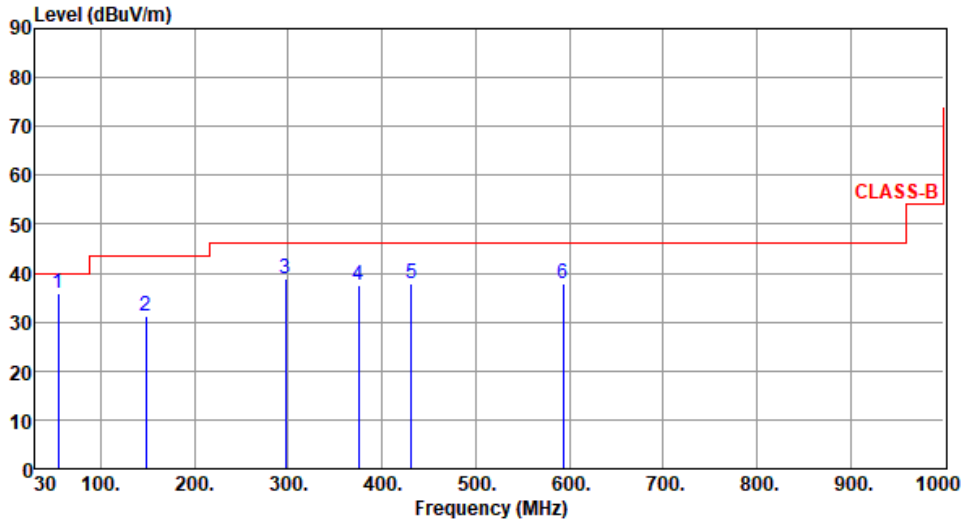
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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



Modulation	ac VHT20	Test Freq. (MHz)	5240
Polarization	Vertical		

Test By :Paul Lin      Temperature(°C):24      Humidity(%):65



	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	54.25	36.01	40.00	-3.99	44.06	-8.05	Peak	---	---
2	148.34	31.23	43.50	-12.27	39.84	-8.61	Peak	---	---
3	296.75	38.92	46.00	-7.08	46.88	-7.96	Peak	---	---
4	375.32	37.48	46.00	-8.52	43.13	-5.65	Peak	---	---
5	431.58	37.72	46.00	-8.28	41.78	-4.06	Peak	---	---
6	593.57	37.92	46.00	-8.08	38.12	-0.20	Peak	---	---

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

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

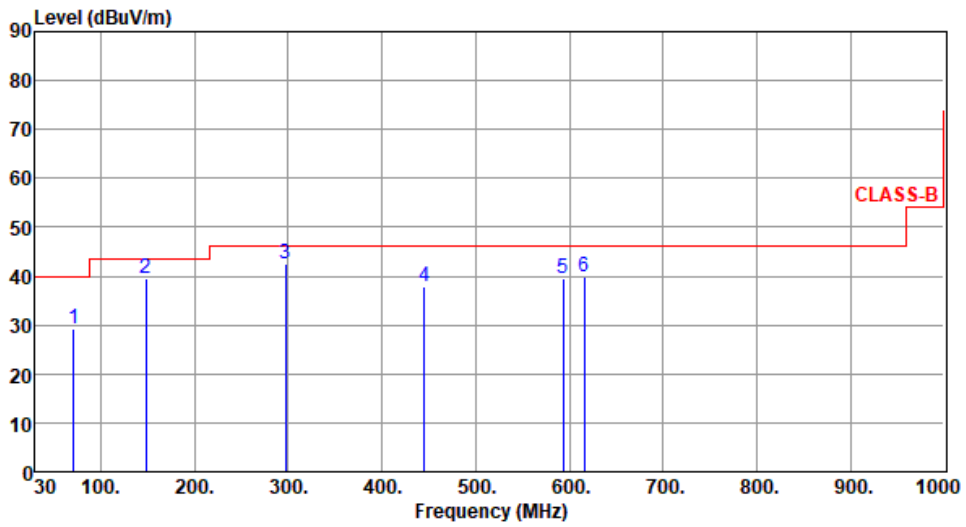
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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



Modulation	ac VHT20	Test Freq. (MHz)	5745
Polarization	Horizontal		

Test By : Paul Lin      Temperature(°C): 24      Humidity(%): 65



	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	70.74	29.20	40.00	-10.80	40.05	-10.85	Peak	---	---
2	148.34	39.48	43.50	-4.02	48.09	-8.61	Peak	---	---
3	296.75	42.64	46.00	-3.36	50.60	-7.96	QP	100	185
4	445.16	37.86	46.00	-8.14	41.49	-3.63	Peak	---	---
5	593.57	39.57	46.00	-6.43	39.77	-0.20	Peak	---	---
6	615.88	39.71	46.00	-6.29	39.22	0.49	Peak	---	---

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

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

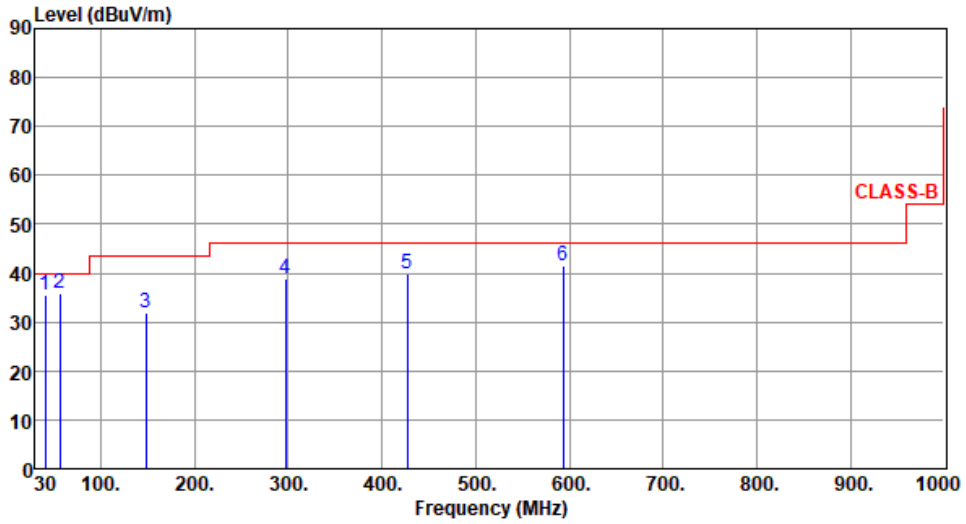
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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



Modulation	ac VHT20	Test Freq. (MHz)	5745
Polarization	Vertical		

Test By :Paul Lin      Temperature(°C):24      Humidity(%):65



	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	40.67	35.70	40.00	-4.30	44.40	-8.70	Peak	---	---
2	56.19	35.84	40.00	-4.16	44.16	-8.32	Peak	---	---
3	148.34	31.88	43.50	-11.62	40.49	-8.61	Peak	---	---
4	296.75	38.93	46.00	-7.07	46.89	-7.96	Peak	---	---
5	426.73	39.90	46.00	-6.10	44.14	-4.24	Peak	---	---
6	593.57	41.36	46.00	-4.64	41.56	-0.20	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).

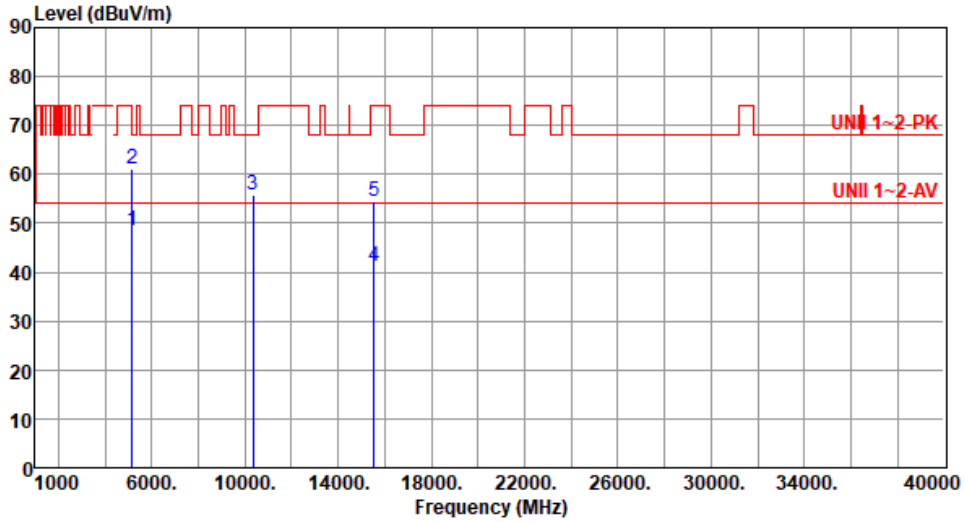
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.



Unwanted Emissions (Above 1GHz) for ac VHT20

Modulation	ac VHT20	Test Freq. (MHz)	5180
Polarization	Horizontal		

Test By :Paul Lin      Temperature(°C):24      Humidity(%):63



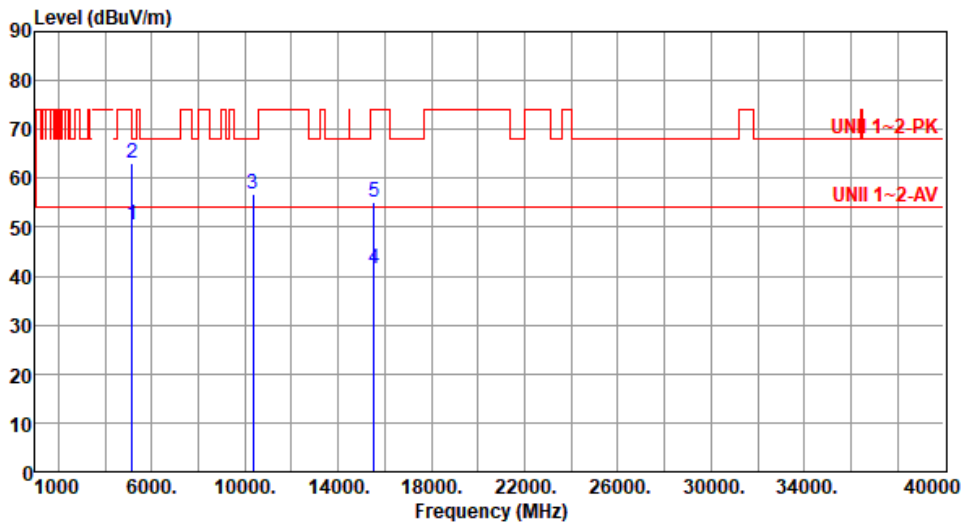
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	5150.00	48.53	54.00	-5.47	47.68	0.85	Average	100	344
2	5150.00	61.23	74.00	-12.77	60.38	0.85	Peak	100	344
3	10360.00	55.68	68.20	-12.52	47.30	8.38	Peak	344	5
4	15540.00	41.18	54.00	-12.82	35.40	5.78	Average	100	52
5	15540.00	54.39	74.00	-19.61	48.61	5.78	Peak	100	52

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	ac VHT20	Test Freq. (MHz)	5180
Polarization	Vertical		

Test By :Paul Lin      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	50.44	54.00	-3.56	49.59	0.85	Average	199	43
2	5150.00	63.02	74.00	-10.98	62.17	0.85	Peak	199	43
3	10360.00	56.75	68.20	-11.45	48.37	8.38	Peak	225	7
4	15540.00	41.36	54.00	-12.64	35.58	5.78	Average	100	156
5	15540.00	55.29	74.00	-18.71	49.51	5.78	Peak	100	156

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

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

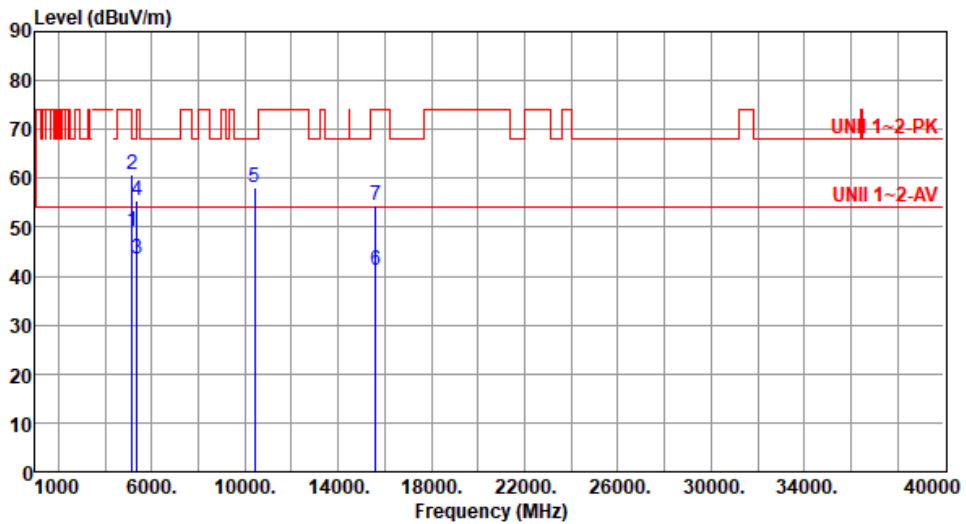
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).





Modulation	ac VHT20	Test Freq. (MHz)	5200
Polarization	Horizontal		

Test By :Paul Lin      Temperature(°C):25      Humidity(%):65



	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	49.19	54.00	-4.81	48.34	0.85	Average	100	335
2	5150.00	60.90	74.00	-13.10	60.05	0.85	Peak	100	335
3	5350.00	43.61	54.00	-10.39	43.37	0.24	Average	100	335
4	5350.00	55.42	74.00	-18.58	55.18	0.24	Peak	100	335
5	10400.00	58.01	68.20	-10.19	49.45	8.56	Peak	348	2
6	15600.00	41.29	54.00	-12.71	35.72	5.57	Average	100	37
7	15600.00	54.30	74.00	-19.70	48.73	5.57	Peak	100	37

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

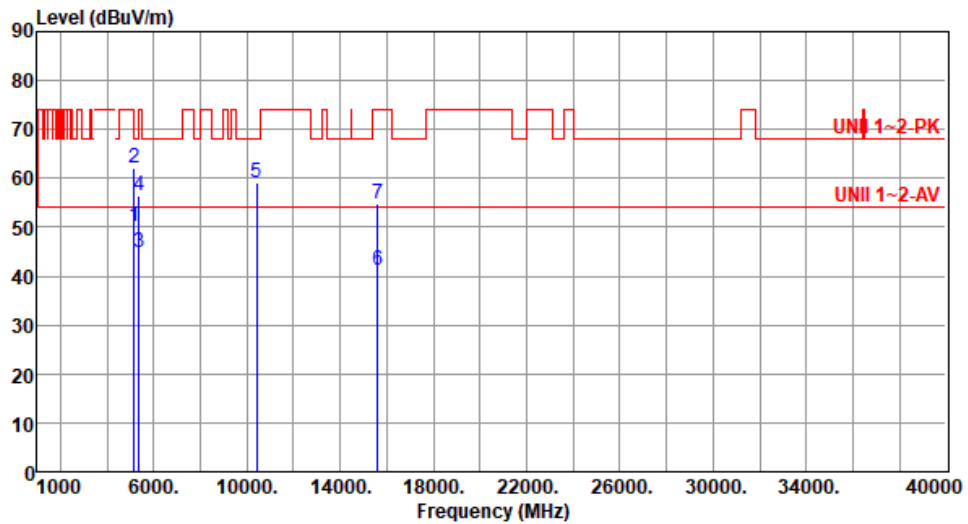
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT20	Test Freq. (MHz)	5200
Polarization	Vertical		

Test By :Paul Lin      Temperature(°C):25      Humidity(%):65



	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	50.12	54.00	-3.88	49.27	0.85	Average	199	41
2	5150.00	62.12	74.00	-11.88	61.27	0.85	Peak	199	41
3	5350.00	44.81	54.00	-9.19	44.57	0.24	Average	199	41
4	5350.00	56.43	74.00	-17.57	56.19	0.24	Peak	199	41
5	10400.00	58.98	68.20	-9.22	50.42	8.56	Peak	220	10
6	15600.00	41.02	54.00	-12.98	35.45	5.57	Average	100	142
7	15600.00	54.73	74.00	-19.27	49.16	5.57	Peak	100	142

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

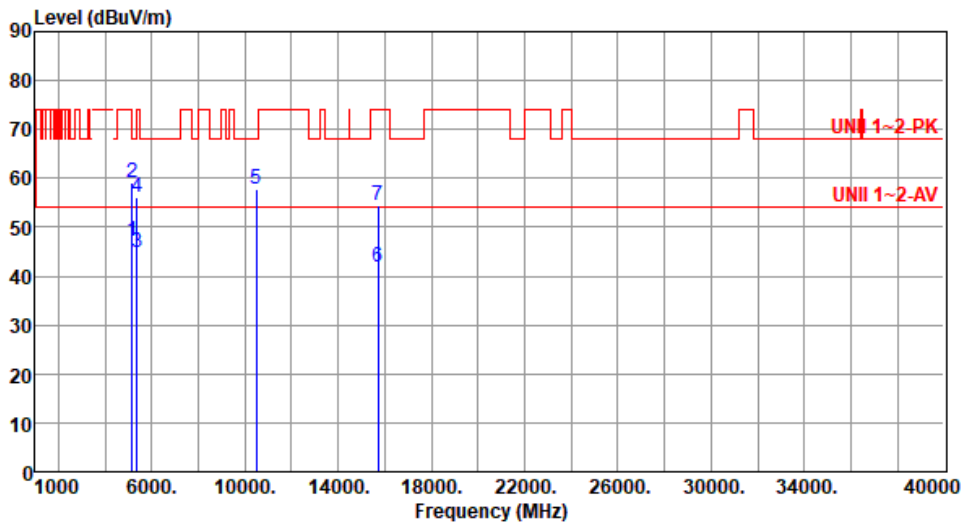
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT20	Test Freq. (MHz)	5240
Polarization	Horizontal		

Test By :Paul Lin      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	47.26	54.00	-6.74	46.41	0.85	Average	103	344
2	5150.00	59.21	74.00	-14.79	58.36	0.85	Peak	103	344
3	5350.00	44.71	54.00	-9.29	44.47	0.24	Average	103	344
4	5350.00	56.11	74.00	-17.89	55.87	0.24	Peak	103	344
5	10480.00	57.94	68.20	-10.26	49.30	8.64	Peak	100	296
6	15720.00	41.73	54.00	-12.27	36.12	5.61	Average	100	38
7	15720.00	54.47	74.00	-19.53	48.86	5.61	Peak	100	38

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

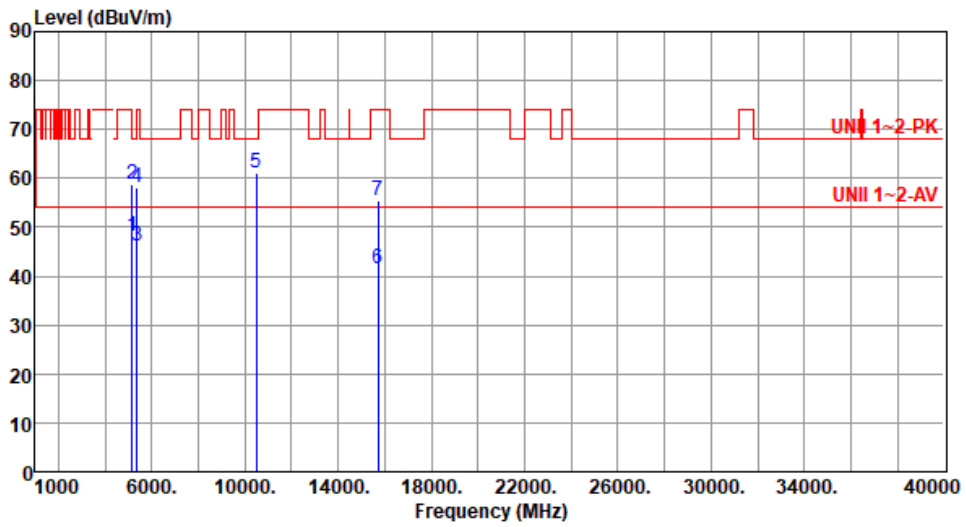
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT20	Test Freq. (MHz)	5240
Polarization	Vertical		

Test By :Paul Lin      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	48.08	54.00	-5.92	47.23	0.85	Average	201	43
2	5150.00	58.70	74.00	-15.30	57.85	0.85	Peak	201	43
3	5350.00	46.08	54.00	-7.92	45.84	0.24	Average	201	43
4	5350.00	58.10	74.00	-15.90	57.86	0.24	Peak	201	43
5	10480.00	61.03	68.20	-7.17	52.39	8.64	Peak	224	9
6	15720.00	41.67	54.00	-12.33	36.06	5.61	Average	100	72
7	15720.00	55.43	74.00	-18.57	49.82	5.61	Peak	100	72

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

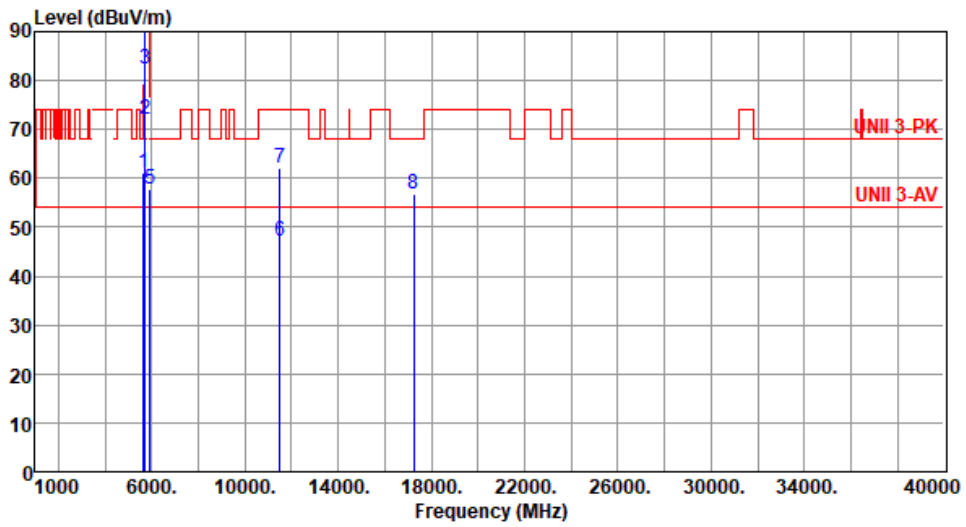
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT20	Test Freq. (MHz)	5745
Polarization	Horizontal		

Test By :Paul Lin      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	60.95	68.20	-7.25	60.29	0.66	Peak	100	323
2	5700.00	72.01	105.20	-33.19	71.01	1.00	Peak	100	323
3	5720.00	82.20	110.80	-28.60	81.16	1.04	Peak	100	323
4	5725.00	90.14	122.20	-32.06	89.09	1.05	Peak	100	323
5	5925.00	57.67	68.20	-10.53	56.03	1.64	Peak	100	323
6	11490.00	47.23	54.00	-6.77	38.60	8.63	Average	100	300
7	11490.00	62.26	74.00	-11.74	53.63	8.63	Peak	100	300
8	17235.00	56.91	68.20	-11.29	50.53	6.38	Peak	100	47

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

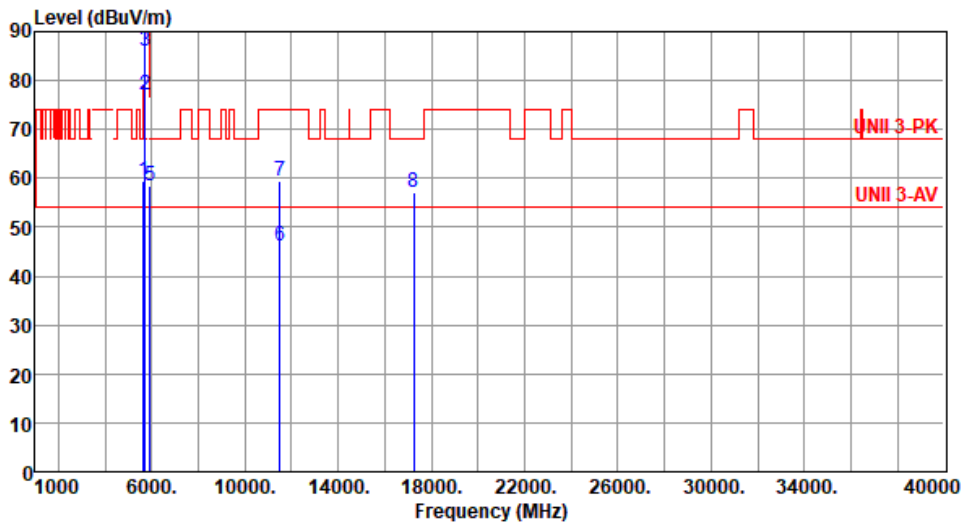
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT20	Test Freq. (MHz)	5745
Polarization	Vertical		

Test By :Paul Lin      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	59.54	68.20	-8.66	58.88	0.66	Peak	220	34
2	5700.00	77.07	105.20	-28.13	76.07	1.00	Peak	220	34
3	5720.00	85.99	110.80	-24.81	84.95	1.04	Peak	220	34
4	5725.00	91.80	122.20	-30.40	90.75	1.05	Peak	220	34
5	5925.00	58.44	68.20	-9.76	56.80	1.64	Peak	220	34
6	11490.00	46.17	54.00	-7.83	37.54	8.63	Average	108	7
7	11490.00	59.29	74.00	-14.71	50.66	8.63	Peak	108	7
8	17235.00	57.08	68.20	-11.12	50.70	6.38	Peak	100	58

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

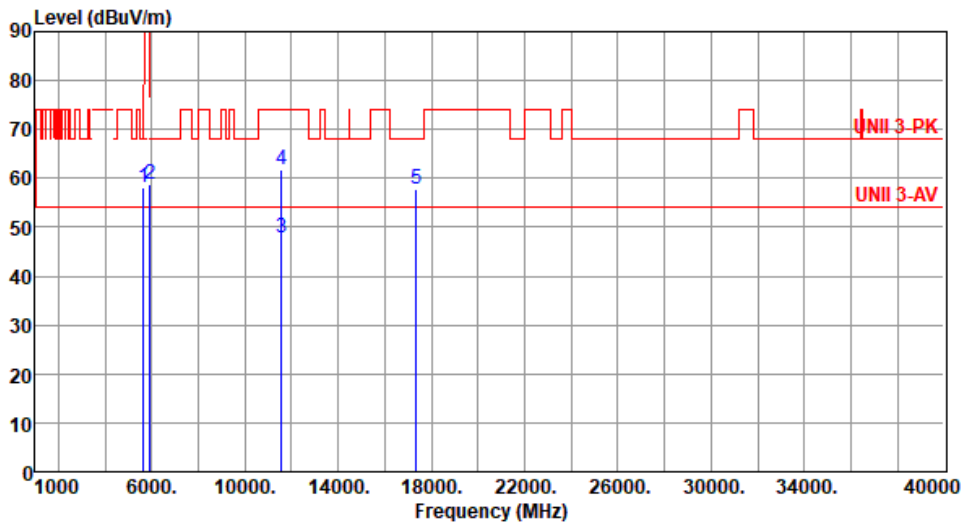
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT20	Test Freq. (MHz)	5785
Polarization	Horizontal		

Test By :Paul Lin      Temperature(°C):25      Humidity(%):65



	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	58.04	68.20	-10.16	57.38	0.66	Peak	103	317
2	5925.00	58.67	68.20	-9.53	57.03	1.64	Peak	103	317
3	11570.00	47.80	54.00	-6.20	39.25	8.55	Average	100	299
4	11570.00	61.64	74.00	-12.36	53.09	8.55	Peak	100	299
5	17355.00	57.76	68.20	-10.44	51.07	6.69	Peak	100	34

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

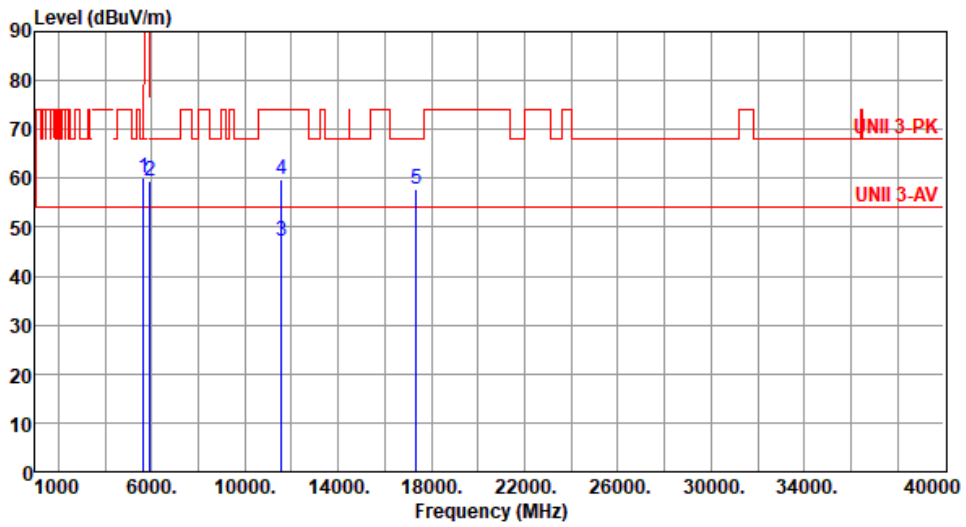
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT20	Test Freq. (MHz)	5785
Polarization	Vertical		

Test By :Paul Lin      Temperature(°C):25      Humidity(%):65



	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	59.99	68.20	-8.21	59.33	0.66	Peak	215	38
2	5925.00	59.52	68.20	-8.68	57.88	1.64	Peak	215	38
3	11570.00	47.21	54.00	-6.79	38.66	8.55	Average	106	11
4	11570.00	59.81	74.00	-14.19	51.26	8.55	Peak	106	11
5	17355.00	57.65	68.20	-10.55	50.96	6.69	Peak	100	54

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

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

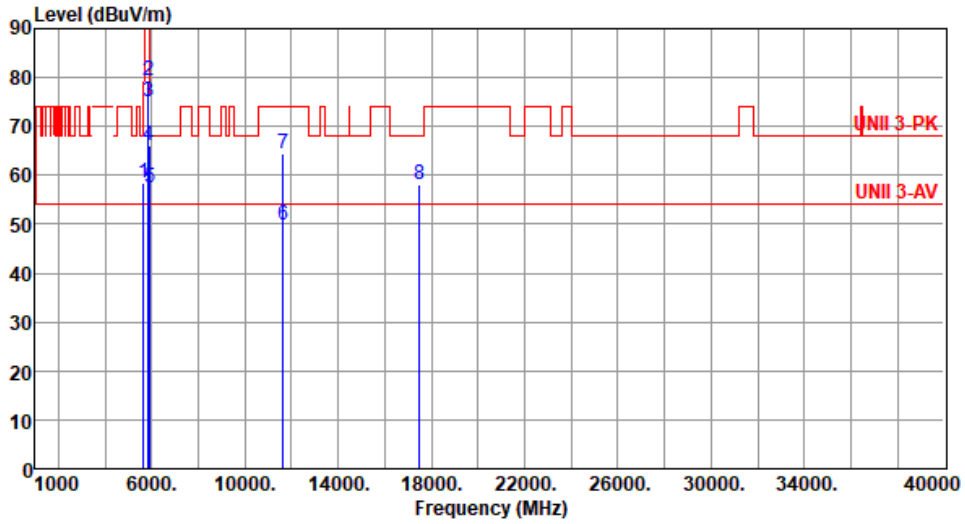
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).





Modulation	ac VHT20	Test Freq. (MHz)	5825
Polarization	Horizontal		

Test By :Paul Lin      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	58.49	68.20	-9.71	57.83	0.66	Peak	100	330
2	5850.00	79.25	122.20	-42.95	77.87	1.38	Peak	100	330
3	5855.00	75.11	110.80	-35.69	73.70	1.41	Peak	100	330
4	5875.00	66.00	105.20	-39.20	64.50	1.50	Peak	100	330
5	5925.00	57.53	68.20	-10.67	55.89	1.64	Peak	100	330
6	11650.00	49.80	54.00	-4.20	41.58	8.22	Average	100	300
7	11650.00	64.35	74.00	-9.65	56.13	8.22	Peak	100	300
8	17475.00	58.05	68.20	-10.15	50.88	7.17	Peak	100	64

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

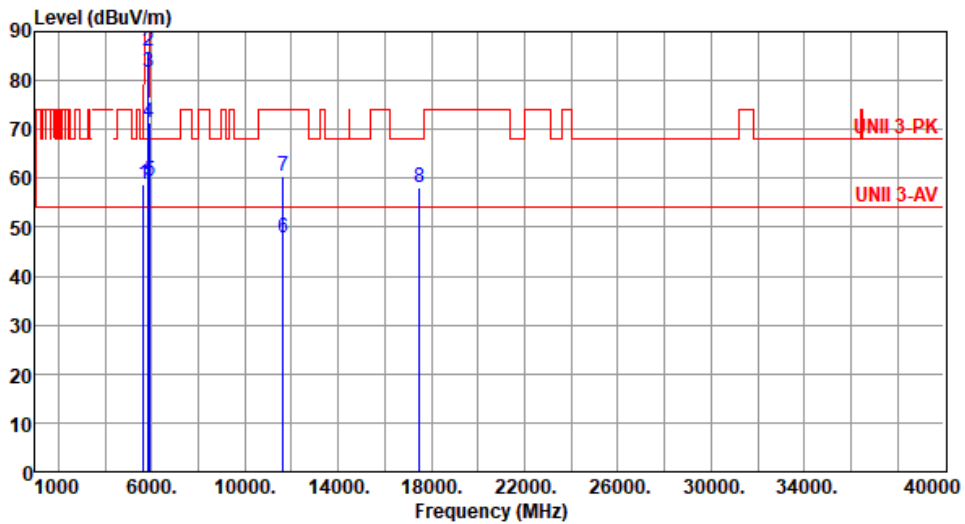
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT20	Test Freq. (MHz)	5825
Polarization	Vertical		

Test By :Paul Lin      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	58.67	68.20	-9.53	58.01	0.66	Peak	224	38
2	5850.00	86.18	122.20	-36.02	84.80	1.38	Peak	224	38
3	5855.00	81.53	110.80	-29.27	80.12	1.41	Peak	224	38
4	5875.00	71.27	105.20	-33.93	69.77	1.50	Peak	224	38
5	5925.00	59.36	68.20	-8.84	57.72	1.64	Peak	224	38
6	11650.00	47.95	54.00	-6.05	39.73	8.22	Average	105	8
7	11650.00	60.39	74.00	-13.61	52.17	8.22	Peak	105	8
8	17475.00	58.26	68.20	-9.94	51.09	7.17	Peak	100	72

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

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

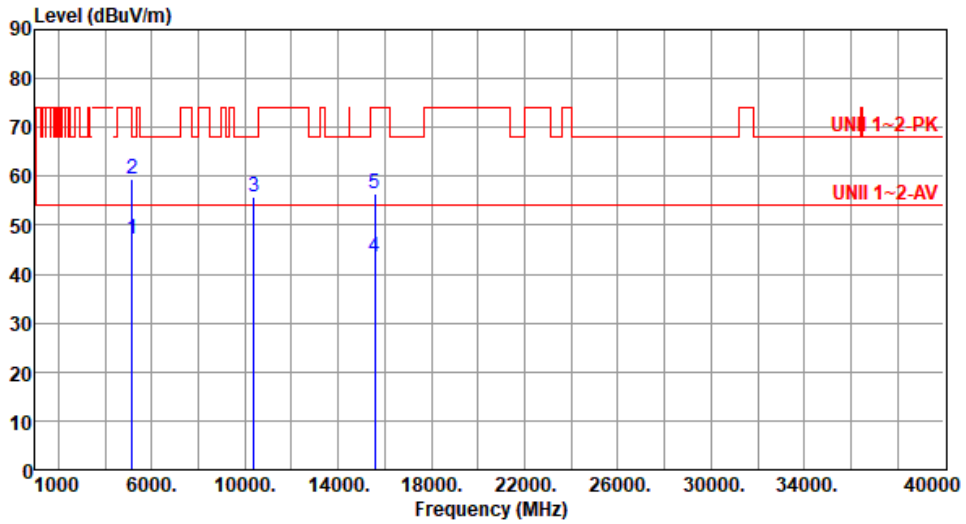
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



Unwanted Emissions (Above 1GHz) for ac VHT40

Modulation	ac VHT40	Test Freq. (MHz)	5190
Polarization	Horizontal		

Test By :Paul Lin      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	47.31	54.00	-6.69	46.46	0.85	Average	100	339
2	5150.00	59.54	74.00	-14.46	58.69	0.85	Peak	100	339
3	10380.00	55.65	68.20	-12.55	47.17	8.48	Peak	100	62
4	15570.00	43.35	54.00	-10.65	37.68	5.67	Average	100	65
5	15570.00	56.38	74.00	-17.62	50.71	5.67	Peak	100	65

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

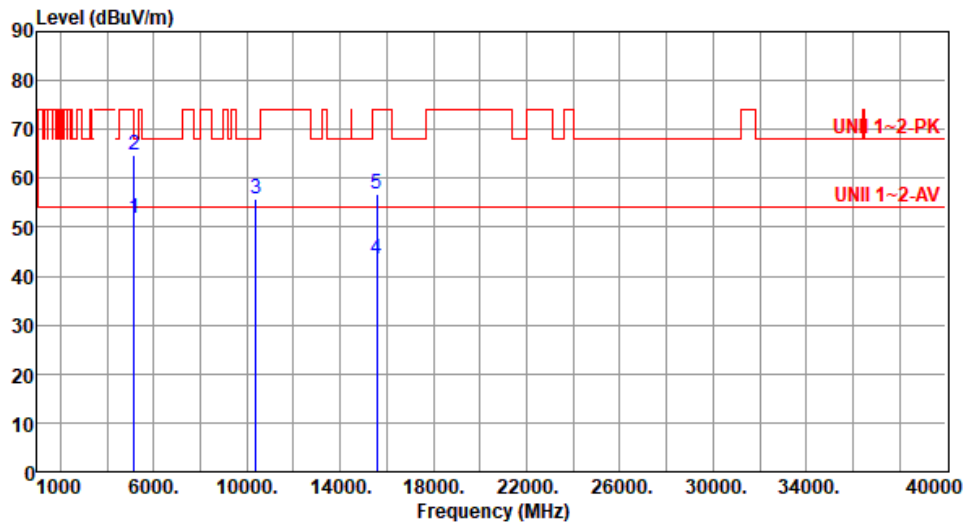
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT40	Test Freq. (MHz)	5190
Polarization	Vertical		

Test By :Paul Lin      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	51.89	54.00	-2.11	51.04	0.85	Average	201	47
2	5150.00	64.76	74.00	-9.24	63.91	0.85	Peak	201	47
3	10380.00	55.85	68.20	-12.35	47.37	8.48	Peak	100	39
4	15570.00	43.45	54.00	-10.55	37.78	5.67	Average	100	82
5	15570.00	56.67	74.00	-17.33	51.00	5.67	Peak	100	82

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

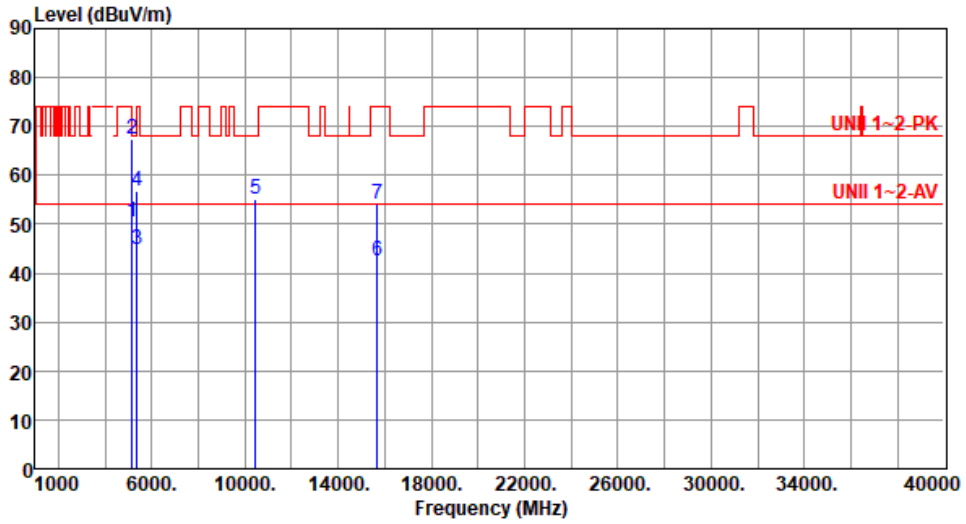
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT40	Test Freq. (MHz)	5230
Polarization	Horizontal		

Test By :Paul Lin      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	50.37	54.00	-3.63	49.52	0.85	Average	100	344
2	5150.00	67.56	74.00	-6.44	66.71	0.85	Peak	100	344
3	5350.00	44.92	54.00	-9.08	44.68	0.24	Average	100	344
4	5350.00	56.86	74.00	-17.14	56.62	0.24	Peak	100	344
5	10460.00	55.14	68.20	-13.06	46.52	8.62	Peak	100	2
6	15690.00	42.66	54.00	-11.34	37.05	5.61	Average	100	63
7	15690.00	54.08	74.00	-19.92	48.47	5.61	Peak	100	63

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

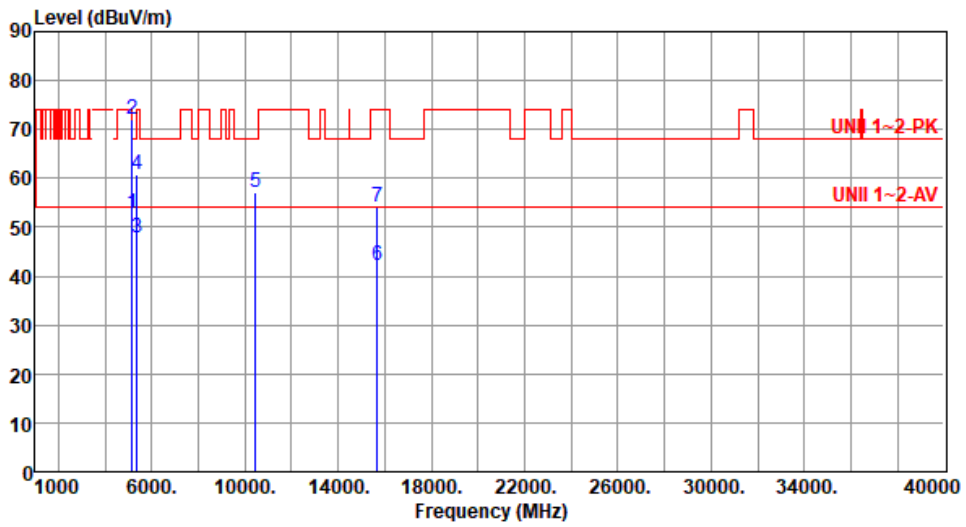
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT40	Test Freq. (MHz)	5230
Polarization	Vertical		

Test By :Paul Lin      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	52.94	54.00	-1.06	52.09	0.85	Average	202	45
2	5150.00	72.04	74.00	-1.96	71.19	0.85	Peak	202	45
3	5350.00	47.66	54.00	-6.34	47.42	0.24	Average	202	45
4	5350.00	60.80	74.00	-13.20	60.56	0.24	Peak	202	45
5	10460.00	57.22	68.20	-10.98	48.60	8.62	Peak	228	7
6	15690.00	42.15	54.00	-11.85	36.54	5.61	Average	100	57
7	15690.00	54.02	74.00	-19.98	48.41	5.61	Peak	100	57

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

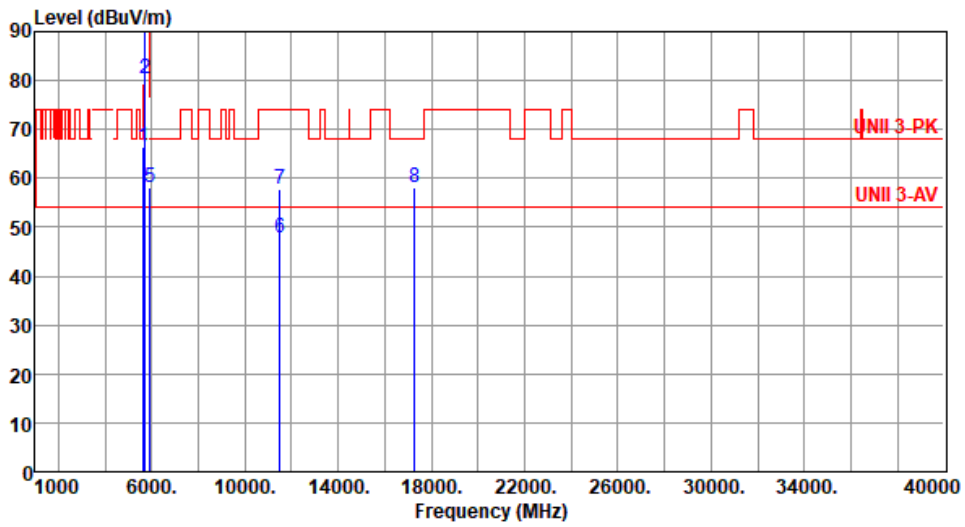
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT40	Test Freq. (MHz)	5755
Polarization	Horizontal		

Test By :Paul Lin      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	66.39	68.20	-1.81	65.73	0.66	Peak	100	327
2	5700.00	80.40	105.20	-24.80	79.40	1.00	Peak	100	327
3	5720.00	89.63	110.80	-21.17	88.59	1.04	Peak	100	327
4	5725.00	92.52	122.20	-29.68	91.47	1.05	Peak	100	327
5	5925.00	58.16	68.20	-10.04	56.52	1.64	Peak	100	327
6	11510.00	47.78	54.00	-6.22	39.14	8.64	Average	100	334
7	11510.00	57.94	74.00	-16.06	49.30	8.64	Peak	100	334
8	17265.00	58.17	68.20	-10.03	51.77	6.40	Peak	100	66

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

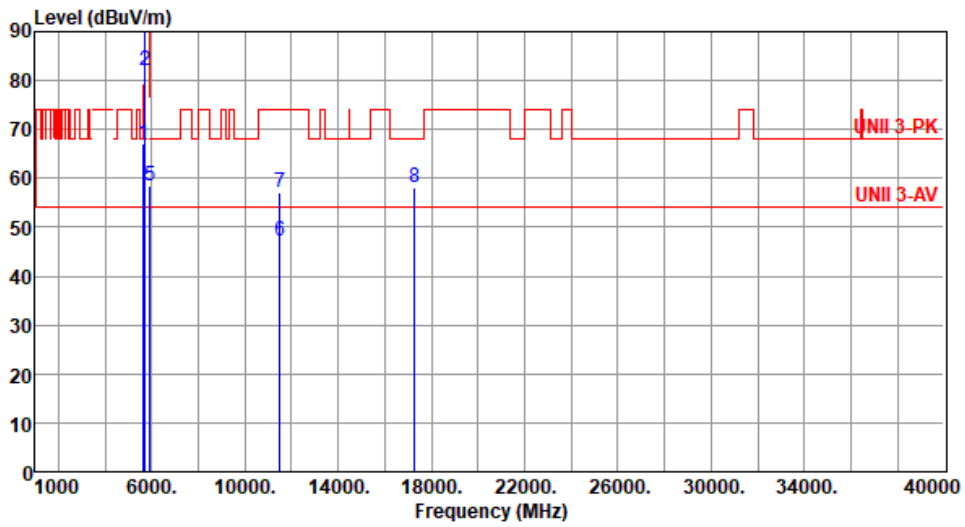
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT40	Test Freq. (MHz)	5755
Polarization	Vertical		

Test By :Paul Lin      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	67.04	68.20	-1.16	66.38	0.66	Peak	199	33
2	5700.00	82.19	105.20	-23.01	81.19	1.00	Peak	199	33
3	5720.00	93.33	110.80	-17.47	92.29	1.04	Peak	199	33
4	5725.00	95.75	122.20	-26.45	94.70	1.05	Peak	199	33
5	5925.00	58.60	68.20	-9.60	56.96	1.64	Peak	199	33
6	11510.00	47.24	54.00	-6.76	38.60	8.64	Average	100	9
7	11510.00	57.04	74.00	-16.96	48.40	8.64	Peak	100	9
8	17265.00	58.25	68.20	-9.95	51.85	6.40	Peak	100	91

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

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

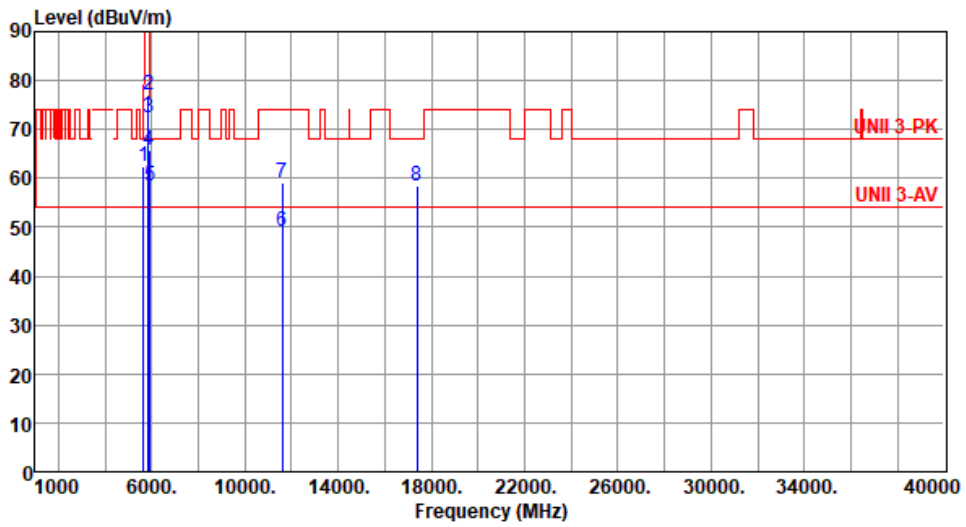
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).





Modulation	ac VHT40	Test Freq. (MHz)	5795
Polarization	Horizontal		

Test By : Paul Lin      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	62.45	68.20	-5.75	61.79	0.66	Peak	100	330
2	5850.00	76.96	122.20	-45.24	75.58	1.38	Peak	100	330
3	5855.00	72.25	110.80	-38.55	70.84	1.41	Peak	100	330
4	5875.00	65.86	105.20	-39.34	64.36	1.50	Peak	100	330
5	5925.00	58.62	68.20	-9.58	56.98	1.64	Peak	100	330
6	11590.00	49.28	54.00	-4.72	40.77	8.51	Average	100	331
7	11590.00	59.13	74.00	-14.87	50.62	8.51	Peak	100	331
8	17385.00	58.30	68.20	-9.90	51.47	6.83	Peak	100	36

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

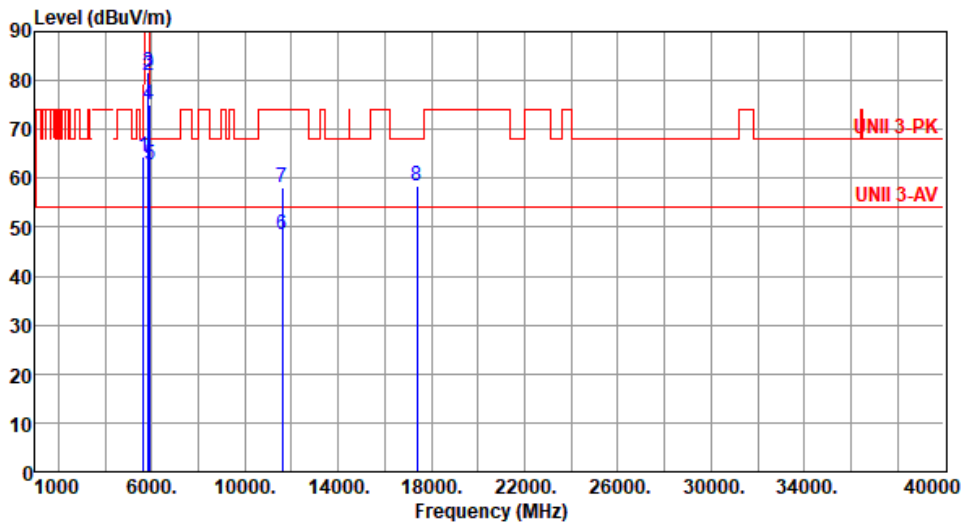
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT40	Test Freq. (MHz)	5795
Polarization	Vertical		

Test By :Paul Lin      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	64.35	68.20	-3.85	63.69	0.66	Peak	208	33
2	5850.00	80.97	122.20	-41.23	79.59	1.38	Peak	208	33
3	5855.00	81.58	110.80	-29.22	80.17	1.41	Peak	208	33
4	5875.00	75.13	105.20	-30.07	73.63	1.50	Peak	208	33
5	5925.00	62.82	68.20	-5.38	61.18	1.64	Peak	208	33
6	11590.00	48.38	54.00	-5.62	39.87	8.51	Average	100	5
7	11590.00	58.14	74.00	-15.86	49.63	8.51	Peak	100	5
8	17385.00	58.36	68.20	-9.84	51.53	6.83	Peak	100	74

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

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

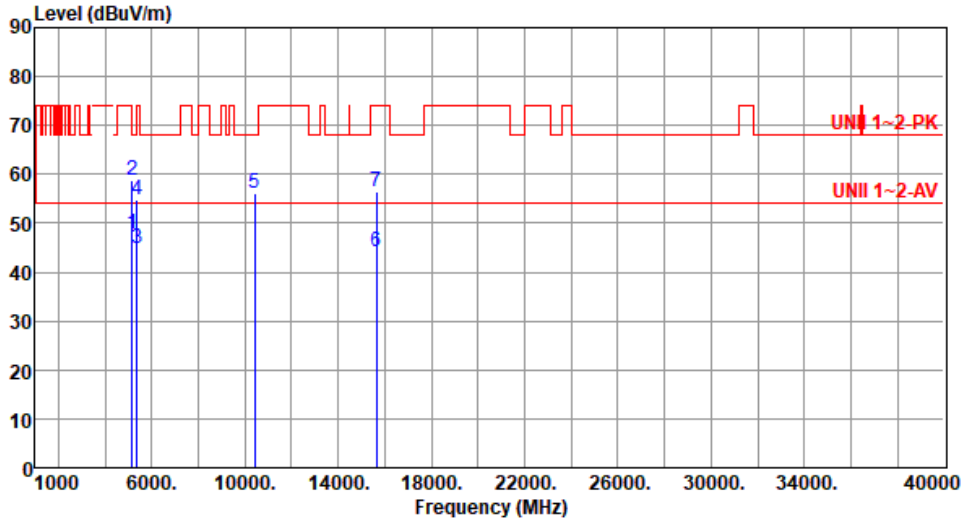
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



Unwanted Emissions (Above 1GHz) for ac VHT80

Modulation	ac VHT80	Test Freq. (MHz)	5210
Polarization	Horizontal		

Test By :Paul Lin      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	47.96	54.00	-6.04	47.11	0.85	Average	100	336
2	5150.00	58.75	74.00	-15.25	57.90	0.85	Peak	100	336
3	5350.00	44.71	54.00	-9.29	44.47	0.24	Average	100	336
4	5350.00	54.81	74.00	-19.19	54.57	0.24	Peak	100	336
5	10420.00	56.13	68.20	-12.07	47.55	8.58	Peak	100	73
6	15630.00	44.12	54.00	-9.88	38.53	5.59	Average	100	46
7	15630.00	56.45	74.00	-17.55	50.86	5.59	Peak	100	46

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

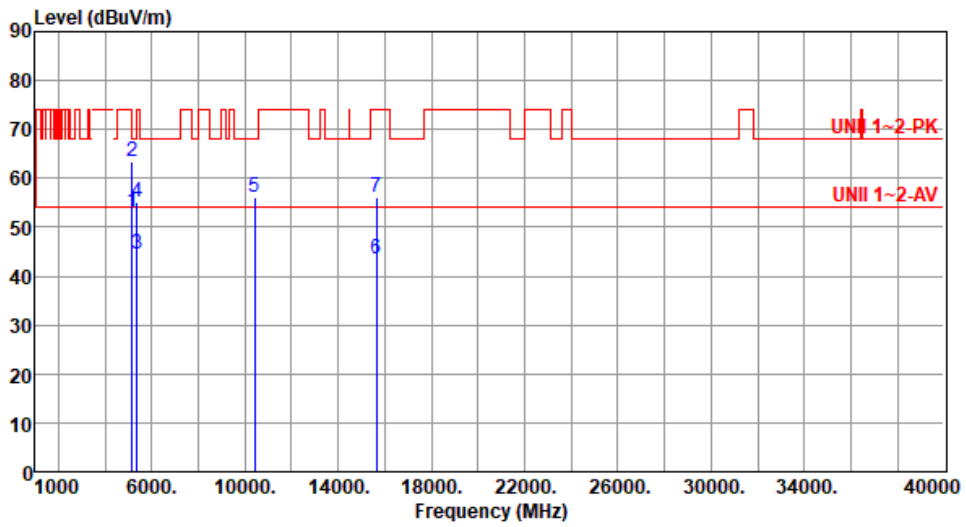
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT80	Test Freq. (MHz)	5210
Polarization	Vertical		

Test By :Paul Lin      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	52.99	54.00	-1.01	52.14	0.85	Average	198	45
2	5150.00	63.58	74.00	-10.42	62.73	0.85	Peak	198	45
3	5350.00	44.53	54.00	-9.47	44.29	0.24	Average	198	45
4	5350.00	55.10	74.00	-18.90	54.86	0.24	Peak	198	45
5	10420.00	56.15	68.20	-12.05	47.57	8.58	Peak	100	141
6	15630.00	43.48	54.00	-10.52	37.89	5.59	Average	100	114
7	15630.00	56.19	74.00	-17.81	50.60	5.59	Peak	100	114

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

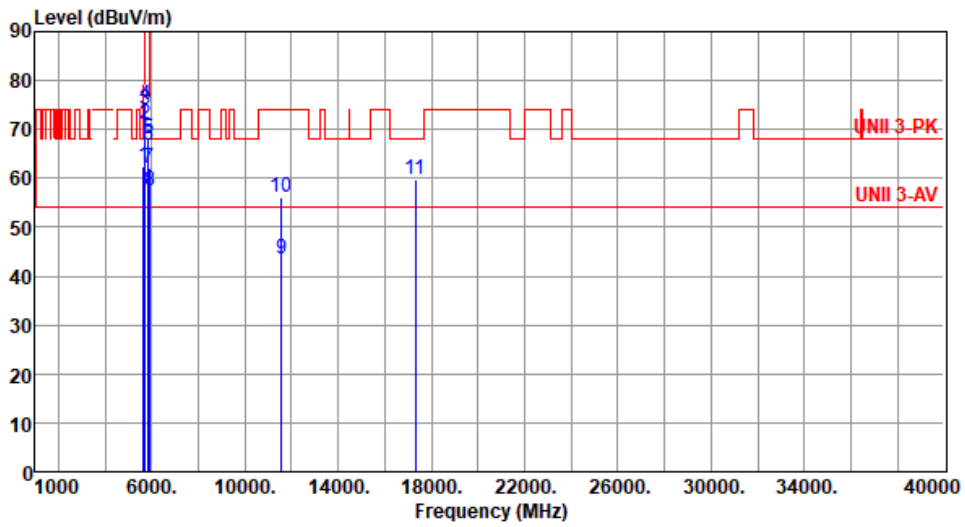
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT80	Test Freq. (MHz)	5775
Polarization	Horizontal		

Test By :Paul Lin      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	62.36	68.20	-5.84	61.70	0.66	Peak	100	327
2	5700.00	71.17	105.20	-34.03	70.17	1.00	Peak	100	327
3	5720.00	73.92	110.80	-36.88	72.88	1.04	Peak	100	327
4	5725.00	74.99	122.20	-47.21	73.94	1.05	Peak	100	327
5	5850.00	68.11	122.20	-54.09	66.73	1.38	Peak	100	327
6	5855.00	66.87	110.80	-43.93	65.46	1.41	Peak	100	327
7	5875.00	61.97	105.20	-43.23	60.47	1.50	Peak	100	327
8	5925.00	57.39	68.20	-10.81	55.75	1.64	Peak	100	327
9	11550.00	43.41	54.00	-10.59	34.83	8.58	Average	100	208
10	11550.00	56.07	74.00	-17.93	47.49	8.58	Peak	100	208
11	17325.00	59.72	68.20	-8.48	53.17	6.55	Peak	100	118

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

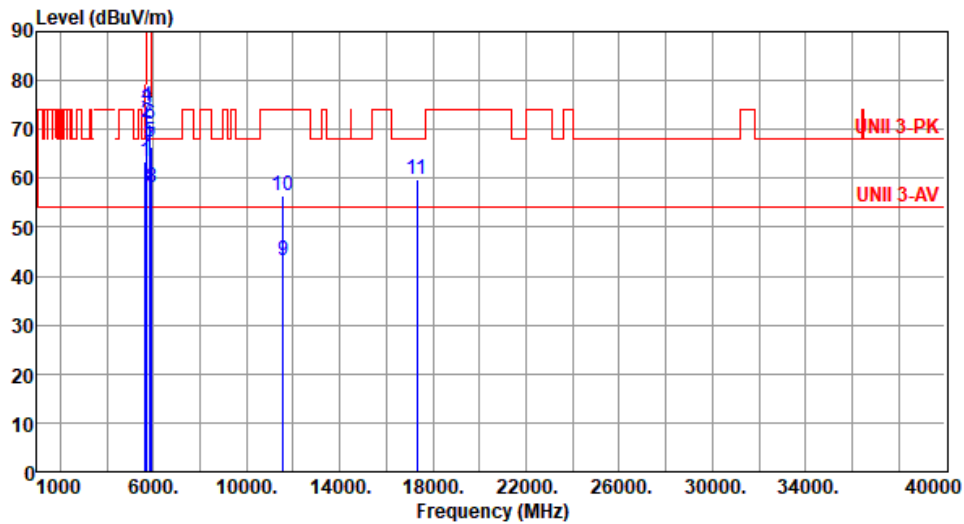
\*Factor includes antenna factor , cable loss and amplifier gain

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



Modulation	ac VHT80	Test Freq. (MHz)	5775
Polarization	Vertical		

Test By :Paul Lin      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	63.36	68.20	-4.84	62.70	0.66	Peak	205	40
2	5700.00	71.56	105.20	-33.64	70.56	1.00	Peak	205	40
3	5720.00	73.93	110.80	-36.87	72.89	1.04	Peak	205	40
4	5725.00	74.58	122.20	-47.62	73.53	1.05	Peak	205	40
5	5850.00	67.26	122.20	-54.94	65.88	1.38	Peak	205	40
6	5855.00	71.00	110.80	-39.80	69.59	1.41	Peak	205	40
7	5875.00	66.58	105.20	-38.62	65.08	1.50	Peak	205	40
8	5925.00	58.19	68.20	-10.01	56.55	1.64	Peak	205	40
9	11550.00	43.18	54.00	-10.82	34.60	8.58	Average	100	126
10	11550.00	56.37	74.00	-17.63	47.79	8.58	Peak	100	126
11	17325.00	59.88	68.20	-8.32	53.33	6.55	Peak	100	68

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).



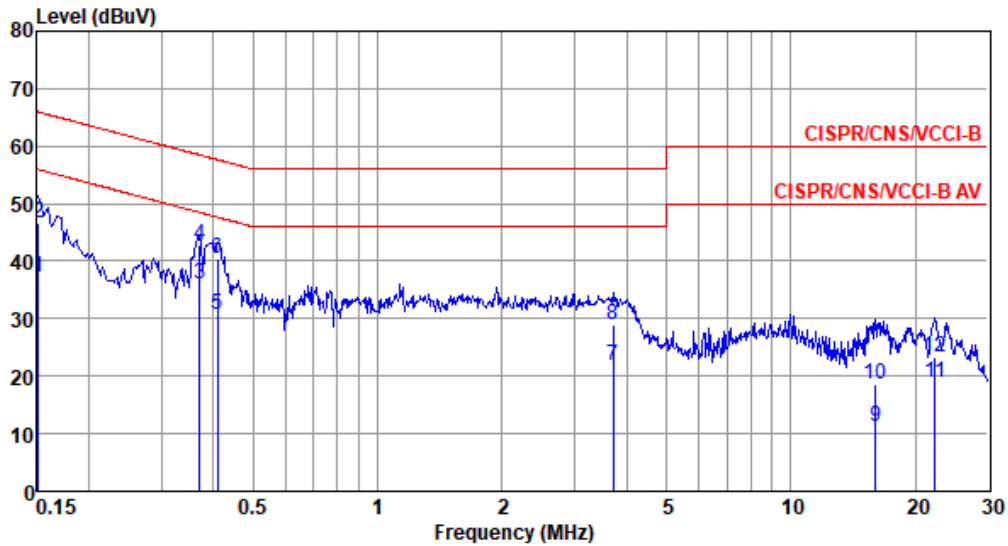
Frequency: 5200 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°CVmax	3.84	3.54	4.27	3.44
T20°CVmin	3.17	3.34	4.05	3.47
T40°CVnom	4.38	5.03	4.78	4.27
T30°CVnom	3.72	4.13	3.54	3.41
T20°CVnom	3.24	3.17	3.46	3.37
T10°CVnom	3.49	3.76	4.02	3.31
T0°CVnom	4.45	4.56	4.58	4.26
Vnom [V]: 120	Vmax [V]: 138		Vmin [V]: 102	
Tnom [°C]: 20	Tmax [°C]: 40		Tmin [°C]: 0	

Frequency: 5785 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°CVmax	3.61	3.32	3.60	3.48
T20°CVmin	3.06	3.09	3.16	3.21
T40°CVnom	3.77	4.10	4.41	4.16
T30°CVnom	2.93	2.42	3.36	3.00
T20°CVnom	2.90	3.22	2.89	2.74
T10°CVnom	3.29	3.22	3.41	3.71
T0°CVnom	3.83	4.50	3.79	4.21
Vnom [V]: 120	Vmax [V]: 138		Vmin [V]: 102	
Tnom [°C]: 20	Tmax [°C]: 40		Tmin [°C]: 0	



Modulation Mode	ac VHT20	Test Freq. (MHz)	5240
Power Phase	Line		

Test by : Joe Liao      Temperature: 23°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	0.151	37.10	55.96	-18.86	27.19	9.63	0.08	0.20	Average
2	0.151	46.79	65.96	-19.17	36.88	9.63	0.08	0.20	QP
3*	0.371	35.89	48.47	-12.58	25.87	9.62	0.08	0.32	Average
4	0.371	42.92	58.47	-15.55	32.90	9.62	0.08	0.32	QP
5	0.410	30.78	47.64	-16.86	20.75	9.62	0.08	0.33	Average
6	0.410	40.57	57.64	-17.07	30.54	9.62	0.08	0.33	QP
7	3.720	21.95	46.00	-24.05	11.72	9.65	0.17	0.41	Average
8	3.720	28.84	56.00	-27.16	18.61	9.65	0.17	0.41	QP
9	16.055	11.09	50.00	-38.91	0.43	9.68	0.46	0.52	Average
10	16.055	18.69	60.00	-41.31	8.03	9.68	0.46	0.52	QP
11	22.298	18.99	50.00	-31.01	8.17	9.66	0.52	0.64	Average
12	22.298	23.41	60.00	-36.59	12.59	9.66	0.52	0.64	QP

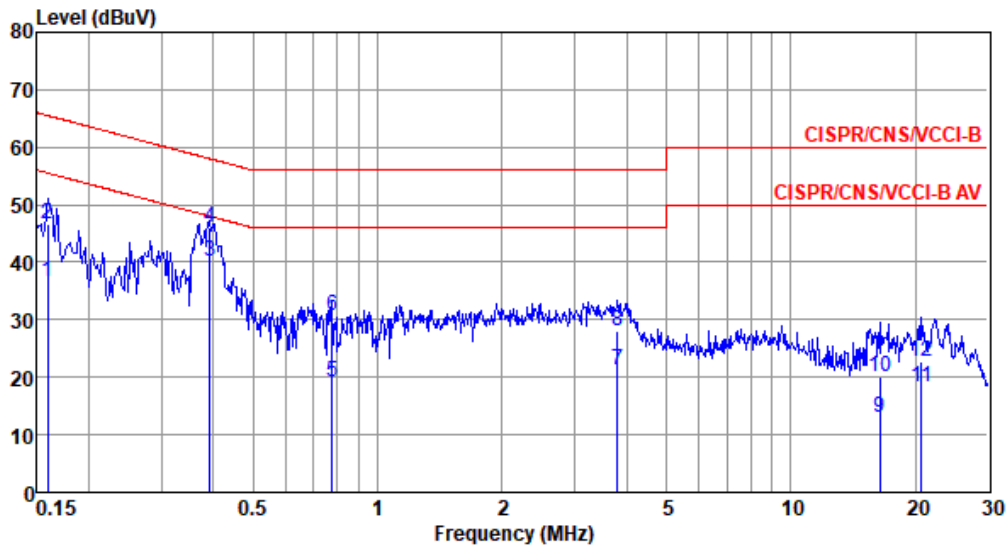
Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).  
 Note 2: Over Limit (dB) = Level (dBuV) - Limit Line (dBuV).





Modulation Mode	ac VHT20	Test Freq. (MHz)	5240
Power Phase	Neutral		

Test by : Joe Liao      Temperature: 23°C      Humidity: 63%



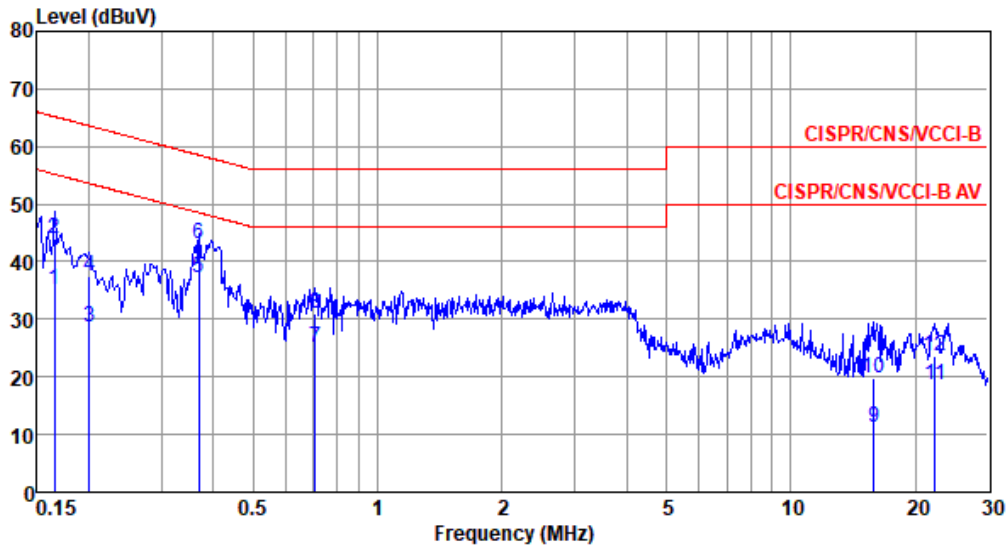
	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.159	36.53	55.52	-18.99	26.69	9.63	0.08	0.13	Average
2	0.159	46.71	65.52	-18.81	36.87	9.63	0.08	0.13	QP
3*	0.393	40.14	47.99	-7.85	30.19	9.62	0.08	0.25	Average
4	0.393	46.14	57.99	-11.85	36.19	9.62	0.08	0.25	QP
5	0.775	19.25	46.00	-26.75	9.24	9.63	0.09	0.29	Average
6	0.775	30.67	56.00	-25.33	20.66	9.63	0.09	0.29	QP
7	3.799	21.29	46.00	-24.71	11.07	9.65	0.17	0.40	Average
8	3.799	27.98	56.00	-28.02	17.76	9.65	0.17	0.40	QP
9	16.398	12.93	50.00	-37.07	2.18	9.77	0.46	0.52	Average
10	16.398	20.00	60.00	-40.00	9.25	9.77	0.46	0.52	QP
11	20.704	18.27	50.00	-31.73	7.37	9.80	0.51	0.59	Average
12	20.704	22.65	60.00	-37.35	11.75	9.80	0.51	0.59	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	ac VHT20	Test Freq. (MHz)	5745
Power Phase	Line		

Test by : Joe Liao      Temperature: 23°C      Humidity: 63%



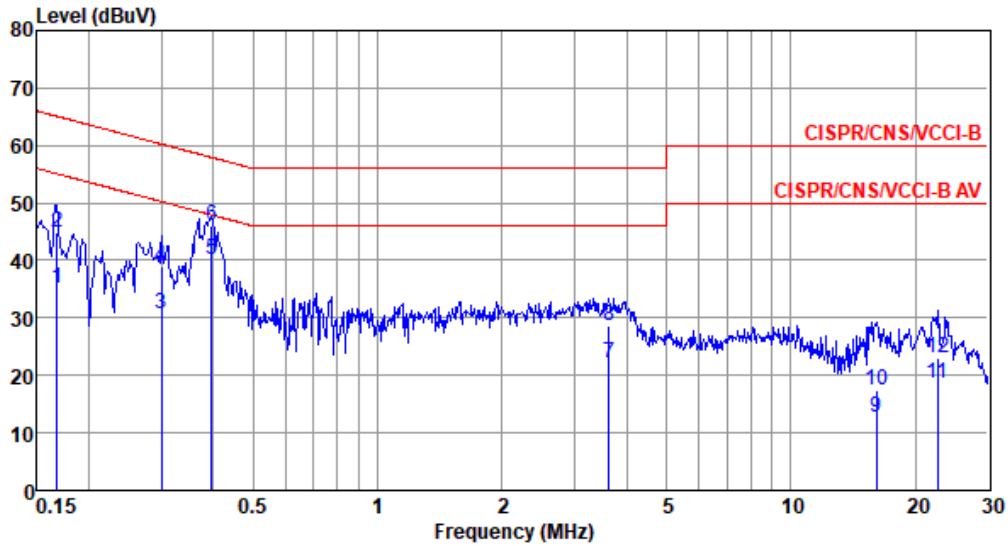
	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.165	35.04	55.21	-20.17	25.12	9.63	0.07	0.22	Average
2	0.165	44.03	65.21	-21.18	34.11	9.63	0.07	0.22	QP
3	0.201	28.63	53.58	-24.95	18.70	9.62	0.06	0.25	Average
4	0.201	37.49	63.58	-26.09	27.56	9.62	0.06	0.25	QP
5*	0.369	37.14	48.52	-11.38	27.12	9.62	0.08	0.32	Average
6	0.369	43.04	58.52	-15.48	33.02	9.62	0.08	0.32	QP
7	0.705	25.11	46.00	-20.89	15.04	9.63	0.09	0.35	Average
8	0.705	31.09	56.00	-24.91	21.02	9.63	0.09	0.35	QP
9	15.885	11.33	50.00	-38.67	0.69	9.68	0.45	0.51	Average
10	15.885	19.82	60.00	-40.18	9.18	9.68	0.45	0.51	QP
11	22.298	18.70	50.00	-31.30	7.88	9.66	0.52	0.64	Average
12	22.298	23.51	60.00	-36.49	12.69	9.66	0.52	0.64	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	ac VHT20	Test Freq. (MHz)	5745
Power Phase	Neutral		

Test by : Joe Liao      Temperature: 23°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	35.23	55.08	-19.85	25.39	9.63	0.07	0.14	Average
2	0.168	44.99	65.08	-20.09	35.15	9.63	0.07	0.14	QP
3	0.300	30.56	50.24	-19.68	20.65	9.62	0.07	0.22	Average
4	0.300	38.83	60.24	-21.41	28.92	9.62	0.07	0.22	QP
<b>5*</b>	<b>0.396</b>	<b>40.15</b>	<b>47.95</b>	<b>-7.80</b>	<b>30.20</b>	<b>9.62</b>	<b>0.08</b>	<b>0.25</b>	<b>Average</b>
6	0.396	46.19	57.95	-11.76	36.24	9.62	0.08	0.25	QP
7	3.623	22.00	46.00	-24.00	11.79	9.65	0.17	0.39	Average
8	3.623	28.58	56.00	-27.42	18.37	9.65	0.17	0.39	QP
9	16.140	12.83	50.00	-37.17	2.08	9.77	0.46	0.52	Average
10	16.140	17.49	60.00	-42.51	6.74	9.77	0.46	0.52	QP
11	22.655	18.56	50.00	-31.44	7.63	9.79	0.53	0.61	Average
12	22.655	22.93	60.00	-37.07	12.00	9.79	0.53	0.61	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).