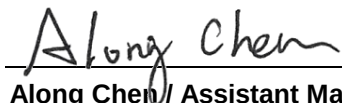


FCC Test Report

FCC ID : SWX-UDR
Equipment : UniFi Dream Router
Model No. : UDR
Brand Name : UBIQUITI
Applicant : Ubiquiti Inc.
Address : 685 Third Avenue, (27th Floor) New York, New York 10017 USA
Standard : 47 CFR FCC Part 15.407
Received Date : Jun. 08, 2021
Tested Date : Jul. 09 ~ Jul. 19, 2021

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 may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:



Along Chen / Assistant Manager

Approved by:



Gary Chang / Manager



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Release Record

Report No.	Version	Description	Issued Date
FR160801AN	Rev. 01	Initial issue	Aug. 05, 2021

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.546MHz 42.47 (Margin -3.53dB) - AV	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 11490.00MHz 53.81 (Margin -0.19dB) - 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)	RF Output Power	Max Power [dBm]: 5150~5250MHz: 25.89 5725~5850MHz: 26.85	Pass
15.407(a)	Peak 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 _{TX})	Data Rate / MCS
5150-5250 5725-5850	a	5180-5240 5745-5825	36-48 [4] 149-165 [5]	4	6-54 Mbps
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
5150-5250 5725-5850	ax (HE20)	5180-5240 5745-5825	36-48 [4] 149-165 [5]	4	MCS 0-11
5150-5250 5725-5850	ax (HE40)	5190-5230 5755-5795	38-46 [2] 151-159 [2]	4	MCS 0-11
5150-5250 5725-5850	ax (HE80)	5210 5775	42 [1] 155 [1]	4	MCS 0-11

Note: The device supports BPSK, QPSK, 16QAM, 64QAM, 256QAM and 1024QAM modulation.

1.1.2 Antenna Details

Ant. No.	Type	Connector	Gain (dBi) / MHz	
			5180 MHz ~ 5240 MHz	5745 MHz ~ 5825 MHz
1	PIFA	NA	3.4	3.4

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	100-240V, 50/60Hz, 1.1A
--------------------------	-------------------------

1.1.4 Accessories

Accessories		
No.	Equipment	Description
1	Power cord	2m, non-shielded without core

1.1.5 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	151	5755
48	5240	159	5795
149	5745	802.11ac VHT80 / ax HE80	
153	5765	42	5210
157	5785	155	5775
161	5805	-	-
165	5825	-	-

1.1.6 Test Tool and Duty Cycle

Test Tool	MT7915, Version: QA0.0.2.16		
Duty Cycle and Duty Factor	Mode	Duty Cycle (%)	Duty Factor (dB)
	11a	98.97%	0.04
	ax (HE20)	98.29%	0.07
	ax (HE40)	95.72%	0.19
	ax (HE80)	91.33%	0.39

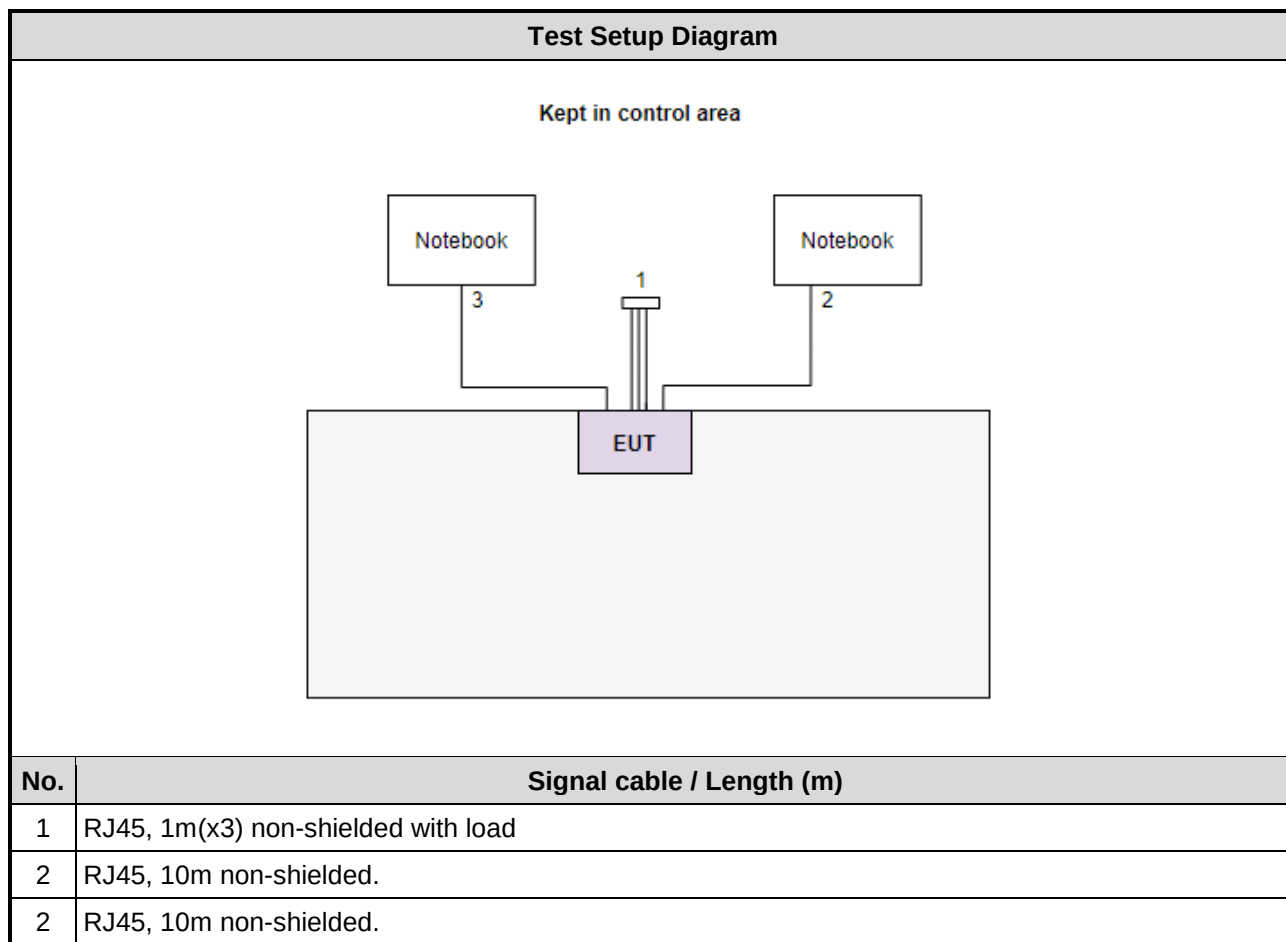
1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index
11a	5180	13
11a	5200	16
11a	5240	16
11a	5745	14
11a	5785	15
11a	5825	17
ax (HE20)	5180	13.5
ax (HE20)	5200	15.5
ax (HE20)	5240	17
ax (HE20)	5745	16
ax (HE20)	5785	17
ax (HE20)	5825	18
ax (HE40)	5190	12
ax (HE40)	5230	16.5
ax (HE40)	5755	18
ax (HE40)	5795	18
ax (HE80)	5210	11
ax (HE80)	5775	17

1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	RJ45	ICC	RJ45-10m	---	---
2	RJ45	ICC	RJ45-10m	---	---
3	RJ45	ICC	RJ45-1m	---	---
4	RJ45	ICC	RJ45-1m	---	---
5	RJ45	ICC	RJ45-1m	---	---
6	RJ45 Load	ICC	--	---	---
7	Notebook	DELL	Latitude 5400	DoC	---
8	Notebook	DELL	Latitude E5470	DoC	---

1.3 Test Setup Chart



1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Test Date	Jul. 19, 2021				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101658	Feb. 08, 2021	Feb. 07, 2022
LISN	R&S	ENV216	101579	Mar. 17, 2021	Mar. 16, 2022
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127-666	Dec. 29, 2020	Dec. 28, 2021
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 21, 2020	Oct. 20, 2021
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)				
Test Date	Jul. 09 ~ Jul. 14, 2021				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101657	Mar. 12, 2021	Mar. 11, 2022
Spectrum Analyzer	R&S	FSV40	101498	Dec. 04, 2020	Dec. 03, 2021
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 17, 2020	Nov. 16, 2021
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. 11, 2020	Dec. 10, 2021
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 06, 2020	Nov. 05, 2021
Preamplifier	EMC	EMC02325	980225	Jun. 29, 2021	Jun. 28, 2022
Preamplifier	Agilent	83017A	MY39501308	Sep. 26, 2020	Sep. 25, 2021
Preamplifier	EMC	EMC184045B	980192	Jul. 21, 2020	Jul. 20, 2021
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 06, 2020	Oct. 05, 2021
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 06, 2020	Oct. 05, 2021
LF cable 11M	EMC	EMCCFD400-NW-N W-11000	200801	Oct. 06, 2020	Oct. 05, 2021
LF cable 1M	EMC	EMCCFD400-NM-N M-1000	160502	Oct. 06, 2020	Oct. 05, 2021
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 06, 2020	Oct. 05, 2021
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Oct. 06, 2020	Oct. 05, 2021
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Test Date	Jul. 14 ~ Jul. 16, 2021				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101063	Apr. 19, 2021	Apr. 18, 2022
Power Meter	Anritsu	ML2495A	1241002	Nov. 04, 2020	Nov. 03, 2021
Power Sensor	Anritsu	MA2411B	1207366	Nov. 04, 2020	Nov. 03, 2021
Measurement Software	-	SENSE-15247_FS	V5.10.7.11	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	± 34.130 Hz
Conducted power	± 0.808 dB
Frequency error	$\pm 1 \times 10^{-9}$
Power density	± 0.583 dB
Conducted emission	± 2.715 dB
AC conducted emission	± 2.92 dB
Radiated emission ≤ 1 GHz	± 3.41 dB
Radiated emission > 1 GHz	± 4.59 dB
Time	$\pm 0.1\%$
Temperature	± 0.4 °C

2 Test Configuration

2.1 Testing Facility

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

- FCC Designation No.: TW2732
- FCC site registration No.: 181692
- ISSED#: 10807A
- 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
Conducted Emissions	ax (HE20)	5240	MCS 0	---
Radiated Emissions ≤1GHz	ax (HE20)	5240	MCS 0	---
RF Output Power	11a	5180 / 5200 / 5240	6 Mbps	---
Radiated Emissions >1GHz	ax (HE20)	5180 / 5200 / 5240	MCS 0	
Emission Bandwidth	ax (HE40)	5190 / 5230	MCS 0	
Peak Power Spectral Density	ax (HE80)	5210	MCS 0	
Frequency Stability	Un-modulation	5200	---	---
For Frequency band 5725-5850 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
Conducted Emissions	ax (HE20)	5825	MCS 0	---
Radiated Emissions ≤1GHz	ax (HE20)	5825	MCS 0	---
Radiated Emissions >1GHz	11a	5745 / 5785 / 5825	6 Mbps	---
Emission Bandwidth	ax (HE20)	5745 / 5785 / 5825	MCS 0	
6dB bandwidth	ax (HE40)	5755 / 5795	MCS 0	
Peak Power Spectral Density	ax (HE80)	5775	MCS 0	
Frequency Stability	Un-modulation	5785	---	---

3 Transmitter Test Results

3.1 Conducted Emissions

3.1.1 Limit of Conducted Emissions

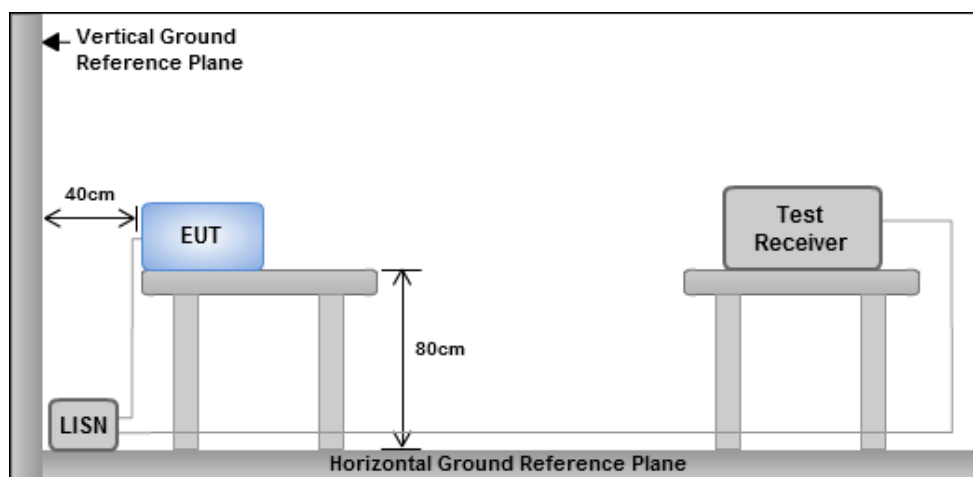
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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

3.1.2 Test Procedures

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

3.1.3 Test Setup

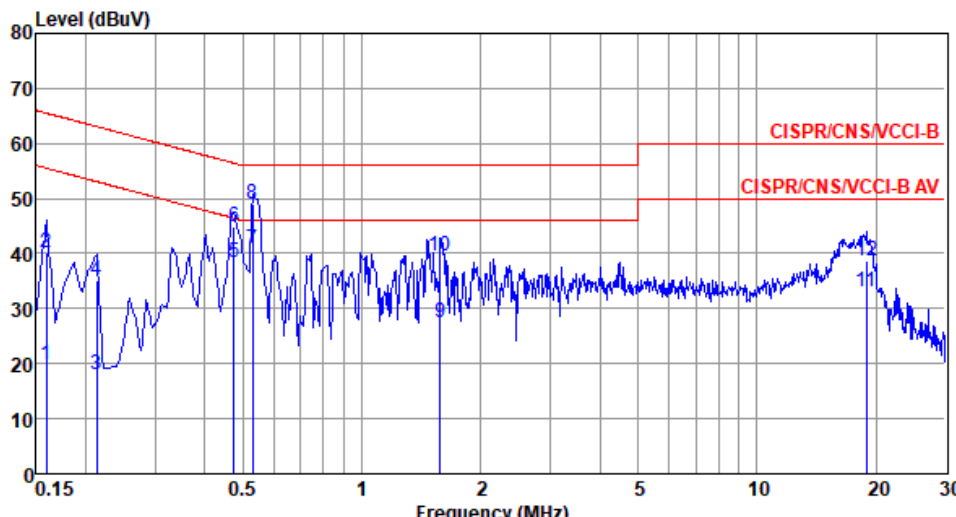


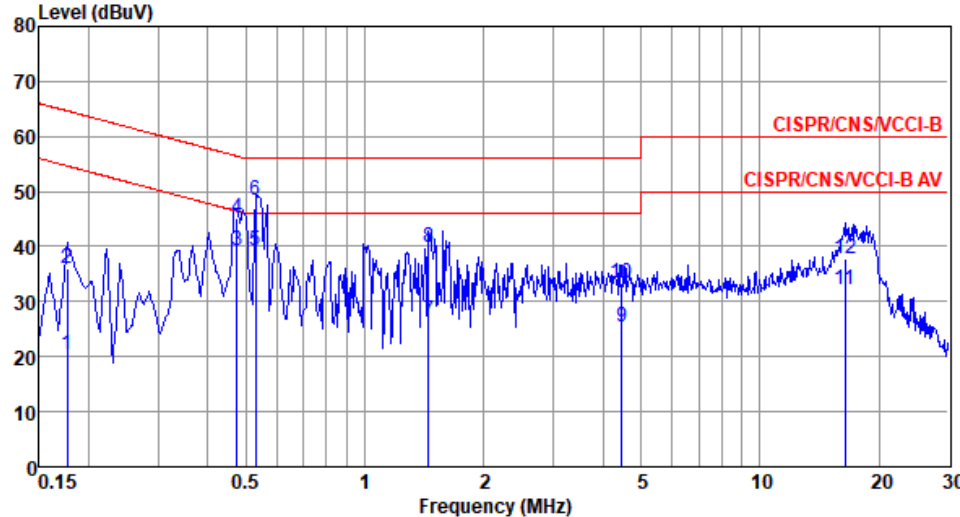
- Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.4 Test Result of Conducted Emissions

Modulation	ax (HE20)	Test Freq. (MHz)	5240																																																																																																																					
Power Phase	Line																																																																																																																							
Test by : Joe Liao Temperature: 22°C Humidity: 68%																																																																																																																								
Level (dBuV) Frequency (MHz) <table><thead><tr><th></th><th>Freq MHz</th><th>Level dBuV</th><th>Limit Line dBuV</th><th>Over Limit dB</th><th>Read Level dBuV</th><th>Factor dB</th><th>Cable loss dB</th><th>Remark</th></tr></thead><tbody><tr><td>1</td><td>0.168</td><td>21.93</td><td>55.08</td><td>-33.15</td><td>12.22</td><td>9.66</td><td>0.05</td><td>Average</td></tr><tr><td>2</td><td>0.168</td><td>37.98</td><td>65.08</td><td>-27.10</td><td>28.27</td><td>9.66</td><td>0.05</td><td>QP</td></tr><tr><td>3</td><td>0.491</td><td>33.46</td><td>46.14</td><td>-12.68</td><td>23.73</td><td>9.64</td><td>0.09</td><td>Average</td></tr><tr><td>4</td><td>0.491</td><td>42.79</td><td>56.14</td><td>-13.35</td><td>33.06</td><td>9.64</td><td>0.09</td><td>QP</td></tr><tr><td>5*</td><td>0.546</td><td>42.47</td><td>46.00</td><td>-3.53</td><td>32.74</td><td>9.64</td><td>0.09</td><td>Average</td></tr><tr><td>6</td><td>0.546</td><td>47.32</td><td>56.00</td><td>-8.68</td><td>37.59</td><td>9.64</td><td>0.09</td><td>QP</td></tr><tr><td>7</td><td>1.480</td><td>29.71</td><td>46.00</td><td>-16.29</td><td>19.90</td><td>9.66</td><td>0.15</td><td>Average</td></tr><tr><td>8</td><td>1.480</td><td>38.43</td><td>56.00</td><td>-17.57</td><td>28.62</td><td>9.66</td><td>0.15</td><td>QP</td></tr><tr><td>9</td><td>4.407</td><td>23.87</td><td>46.00</td><td>-22.13</td><td>13.90</td><td>9.67</td><td>0.30</td><td>Average</td></tr><tr><td>10</td><td>4.407</td><td>30.07</td><td>56.00</td><td>-25.93</td><td>20.10</td><td>9.67</td><td>0.30</td><td>QP</td></tr><tr><td>11</td><td>17.661</td><td>31.86</td><td>50.00</td><td>-18.14</td><td>21.53</td><td>9.69</td><td>0.64</td><td>Average</td></tr><tr><td>12</td><td>17.661</td><td>37.39</td><td>60.00</td><td>-22.61</td><td>27.06</td><td>9.69</td><td>0.64</td><td>QP</td></tr></tbody></table> Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB). 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).					Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Remark	1	0.168	21.93	55.08	-33.15	12.22	9.66	0.05	Average	2	0.168	37.98	65.08	-27.10	28.27	9.66	0.05	QP	3	0.491	33.46	46.14	-12.68	23.73	9.64	0.09	Average	4	0.491	42.79	56.14	-13.35	33.06	9.64	0.09	QP	5*	0.546	42.47	46.00	-3.53	32.74	9.64	0.09	Average	6	0.546	47.32	56.00	-8.68	37.59	9.64	0.09	QP	7	1.480	29.71	46.00	-16.29	19.90	9.66	0.15	Average	8	1.480	38.43	56.00	-17.57	28.62	9.66	0.15	QP	9	4.407	23.87	46.00	-22.13	13.90	9.67	0.30	Average	10	4.407	30.07	56.00	-25.93	20.10	9.67	0.30	QP	11	17.661	31.86	50.00	-18.14	21.53	9.69	0.64	Average	12	17.661	37.39	60.00	-22.61	27.06	9.69	0.64	QP
	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Remark																																																																																																																
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3.2 Emission Bandwidth

3.2.1 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.

3.2.2 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.

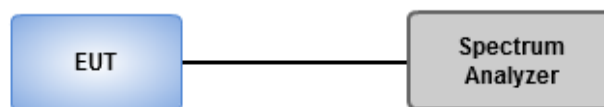
Occupied Bandwidth

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.

3.2.3 Test Setup



3.2.4 Test Result of Emission Bandwidth

Ambient Condition	24~25°C / 65~67%	Tested By	Aska Huang
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Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	33.841M	16.787M	16M8D1D	19.638M	16.425M
802.11ax HEW20_Nss1,(MCS0)_4TX	36.159M	19.175M	19M2D1D	21.812M	18.958M
802.11ax HEW40_Nss1,(MCS0)_4TX	52.754M	37.627M	37M6D1D	39.42M	37.337M
802.11ax HEW80_Nss1,(MCS0)_4TX	80.29M	76.99M	77M0D1D	80M	76.411M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	16.377M	16.86M	16M9D1D	14.203M	16.425M
802.11ax HEW20_Nss1,(MCS0)_4TX	18.913M	19.247M	19M2D1D	17.536M	18.958M
802.11ax HEW40_Nss1,(MCS0)_4TX	36.377M	37.916M	37M9D1D	33.043M	37.627M
802.11ax HEW80_Nss1,(MCS0)_4TX	73.913M	76.99M	77M0D1D	73.913M	76.7M

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 / Maximum 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)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	19.855M	16.498M	19.71M	16.425M	19.783M	16.498M	19.855M	16.425M
5200MHz	Pass	Inf	19.638M	16.57M	20M	16.425M	21.159M	16.498M	33.841M	16.787M
5240MHz	Pass	Inf	23.841M	16.643M	19.638M	16.425M	19.928M	16.425M	30.145M	16.715M
5745MHz	Pass	500k	15.942M	16.643M	14.203M	16.425M	15M	16.498M	16.304M	16.425M
5785MHz	Pass	500k	15.87M	16.498M	16.014M	16.498M	15.29M	16.498M	16.304M	16.498M
5825MHz	Pass	500k	16.377M	16.86M	15.652M	16.57M	16.304M	16.643M	16.232M	16.715M
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	22.101M	19.03M	21.812M	19.03M	23.116M	19.03M	25.072M	19.03M
5200MHz	Pass	Inf	23.551M	18.958M	23.333M	19.03M	29.493M	18.958M	32.246M	19.103M
5240MHz	Pass	Inf	34.855M	19.03M	30.725M	19.03M	30.29M	19.03M	36.159M	19.175M
5745MHz	Pass	500k	18.913M	18.958M	17.681M	19.03M	17.536M	19.03M	18.623M	19.03M
5785MHz	Pass	500k	18.478M	19.03M	18.696M	19.03M	18.551M	19.03M	18.478M	19.103M
5825MHz	Pass	500k	18.768M	19.247M	18.623M	19.03M	17.899M	19.103M	18.696M	19.175M
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	39.565M	37.627M	39.565M	37.482M	39.565M	37.337M	39.71M	37.482M
5230MHz	Pass	Inf	43.768M	37.627M	39.565M	37.627M	39.42M	37.627M	52.754M	37.627M
5755MHz	Pass	500k	33.043M	37.771M	33.768M	37.771M	33.768M	37.916M	33.768M	37.627M
5795MHz	Pass	500k	34.493M	37.771M	36.377M	37.771M	35.362M	37.771M	33.913M	37.771M
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	80.29M	76.411M	80M	76.7M	80.29M	76.411M	80.29M	76.99M
5775MHz	Pass	500k	73.913M	76.7M	73.913M	76.99M	73.913M	76.99M	73.913M	76.99M

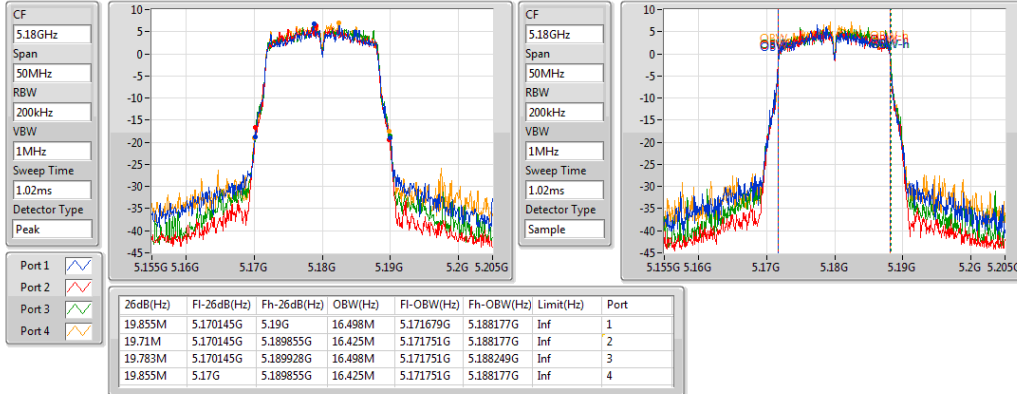
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

Port X-OBW = Port X 99% occupied bandwidth;

802.11a_Nss1,(6Mbps)_4TX

EBW

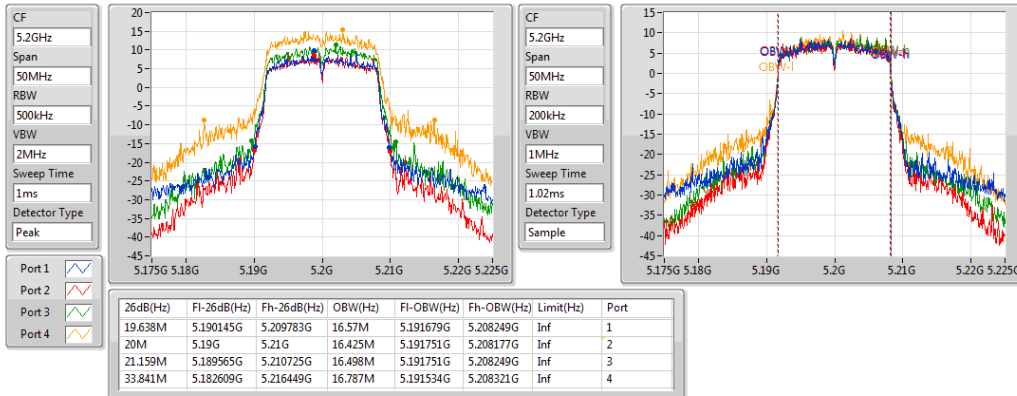
5180MHz



802.11a_Nss1,(6Mbps)_4TX

EBW

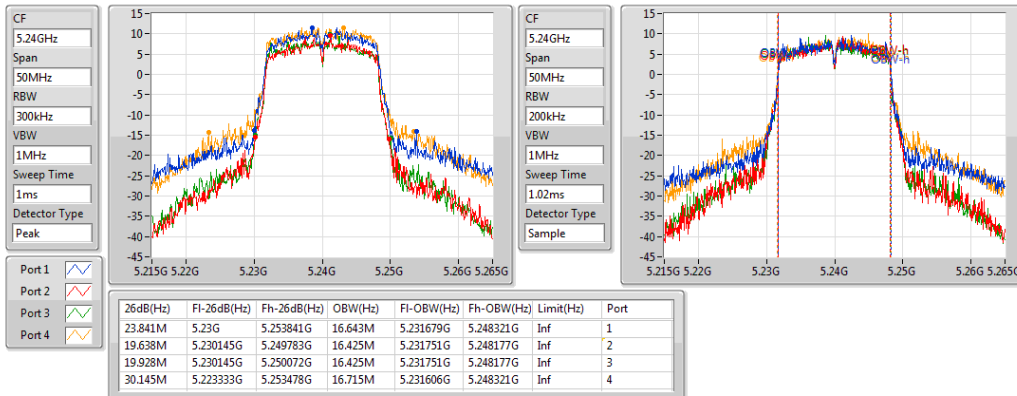
5200MHz



802.11a_Nss1,(6Mbps)_4TX

EBW

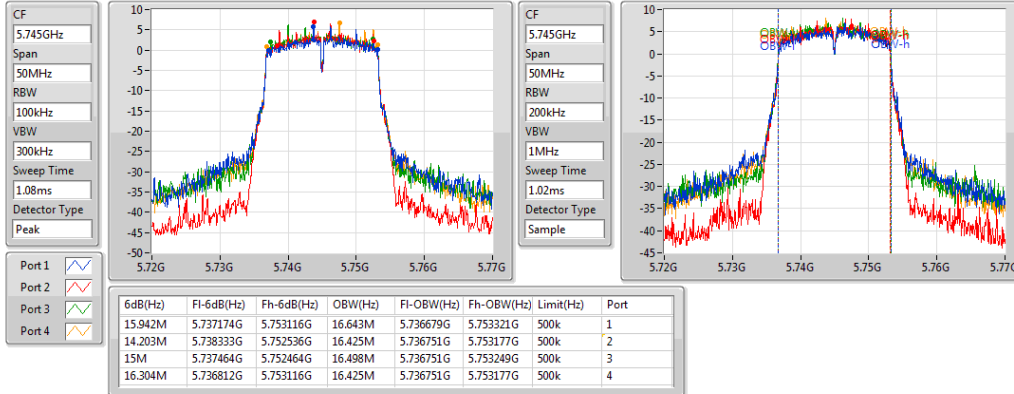
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802.11a_Nss1,(6Mbps)_4TX

EBW

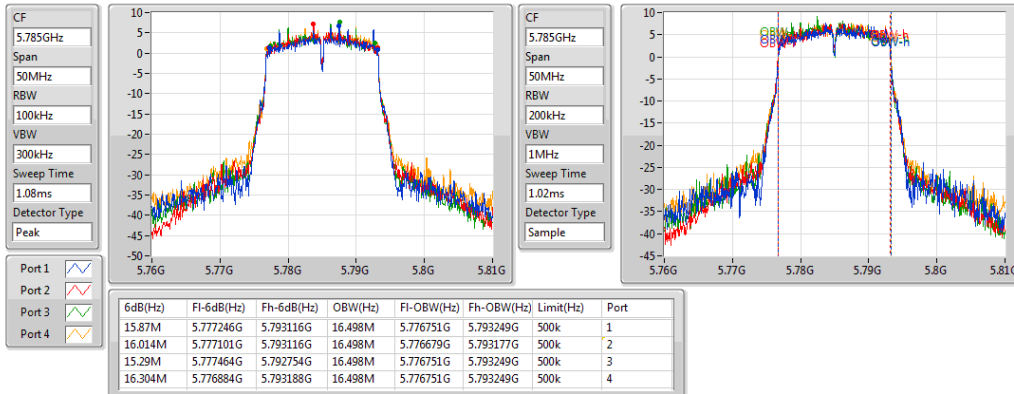
5745MHz



802.11a_Nss1,(6Mbps)_4TX

EBW

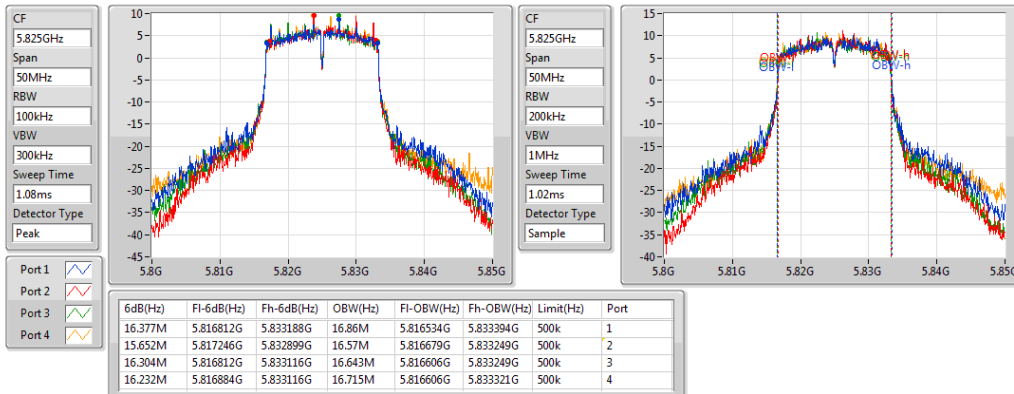
5785MHz



802.11a_Nss1,(6Mbps)_4TX

EBW

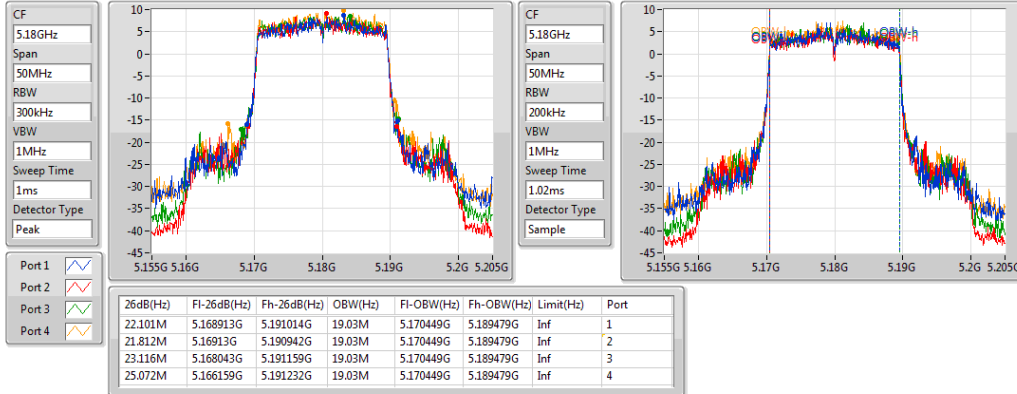
5825MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

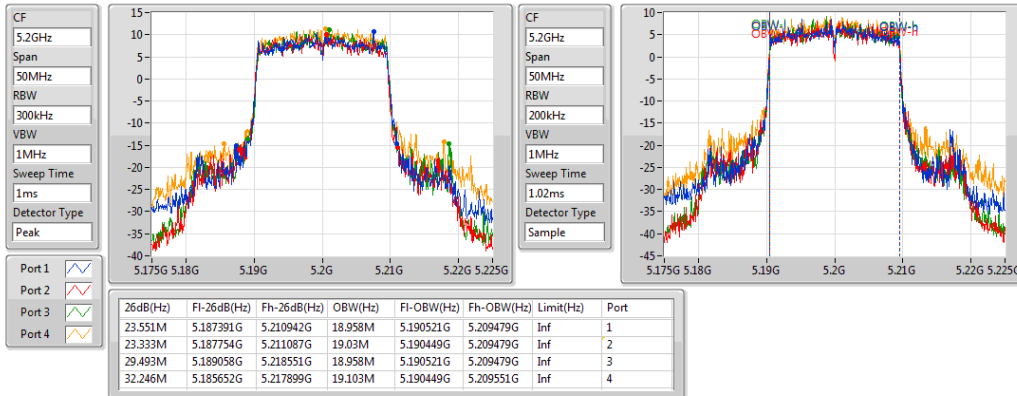
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802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

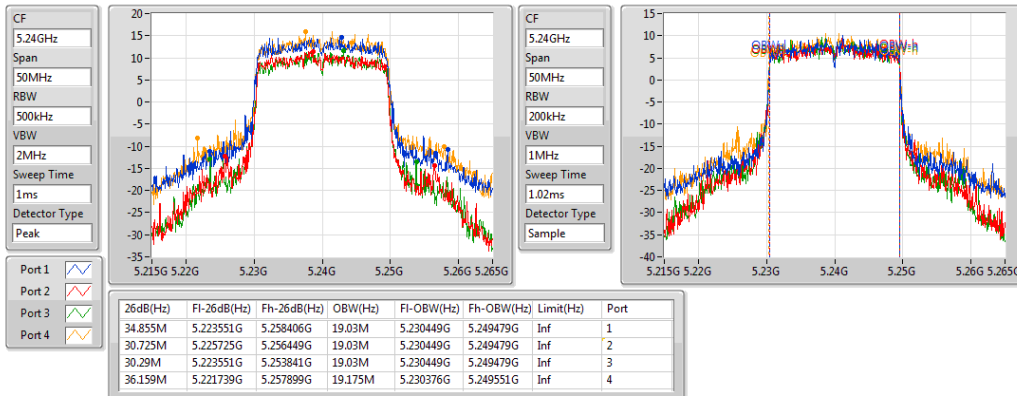
5200MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

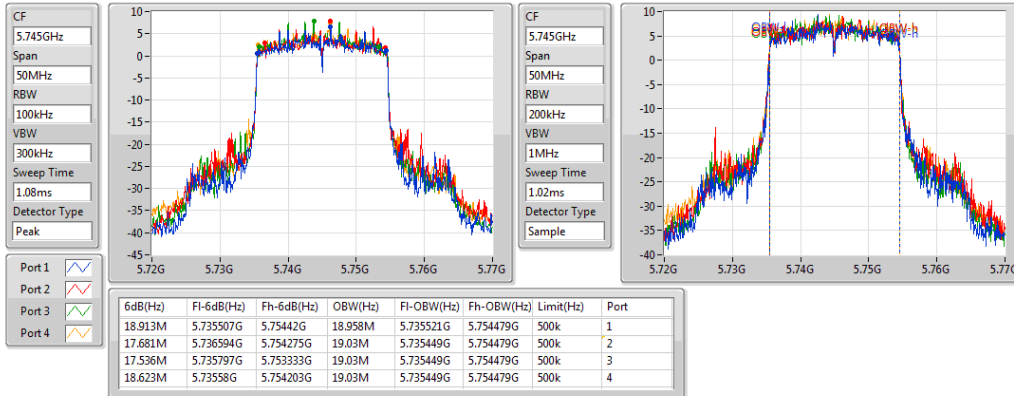
5240MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

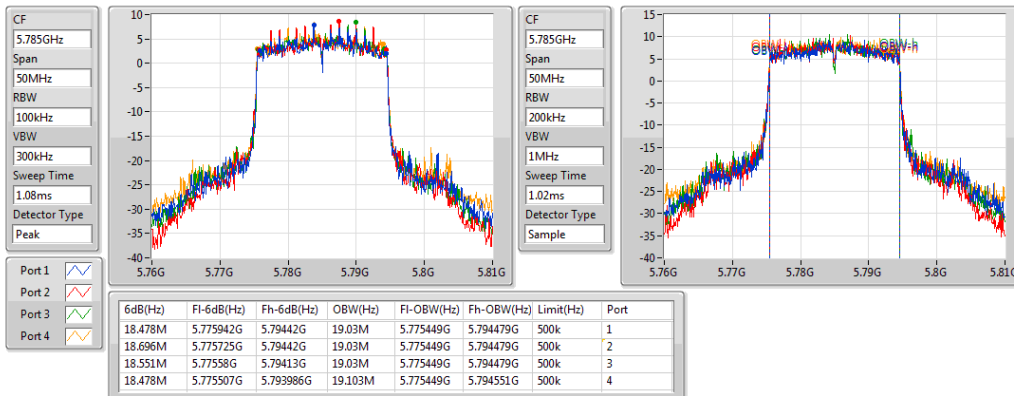
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802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

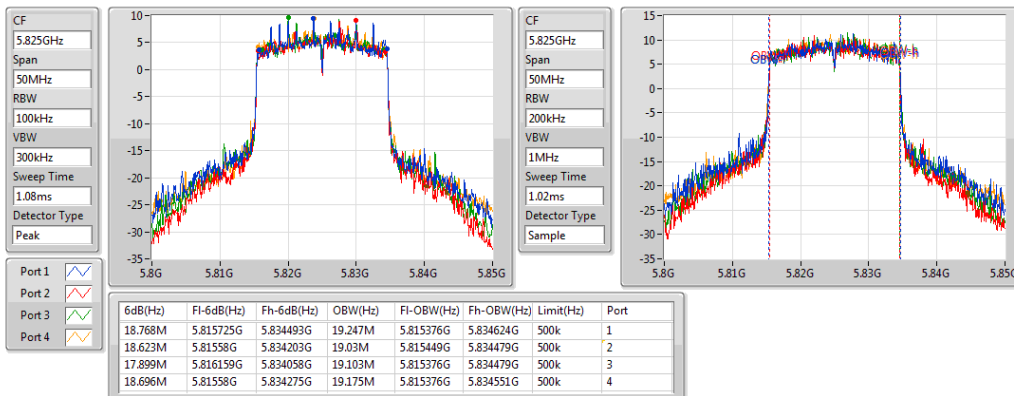
5785MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

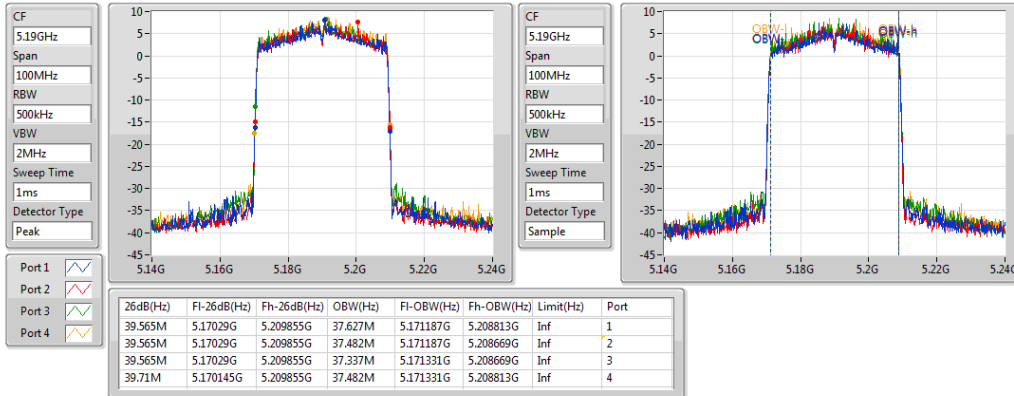
5825MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

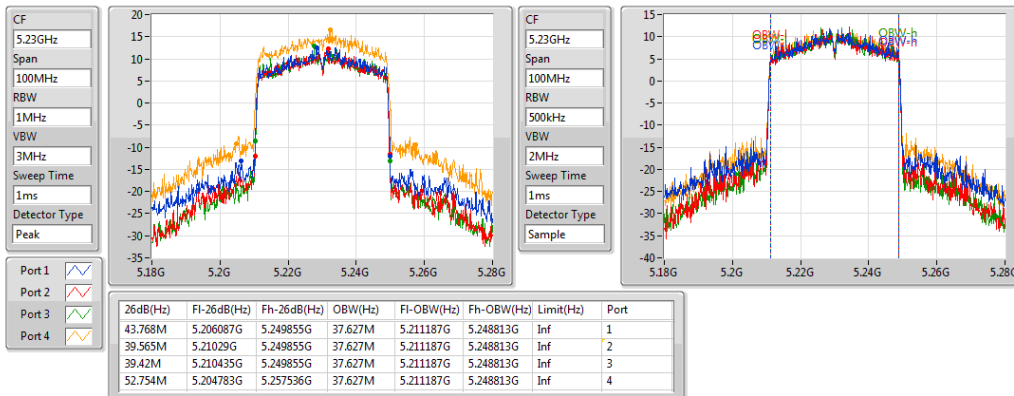
5190MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

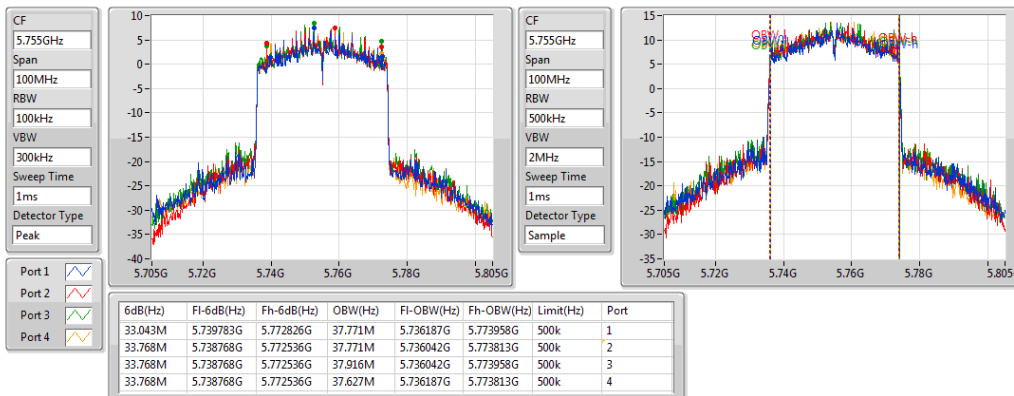
5230MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

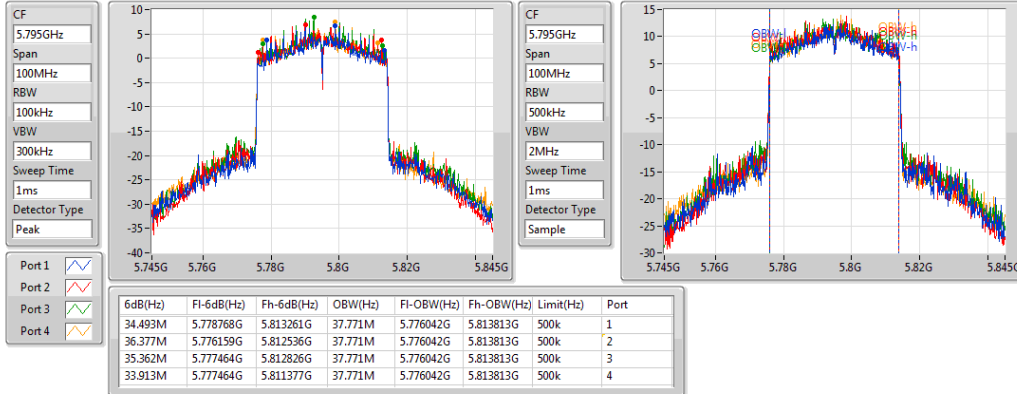
5755MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

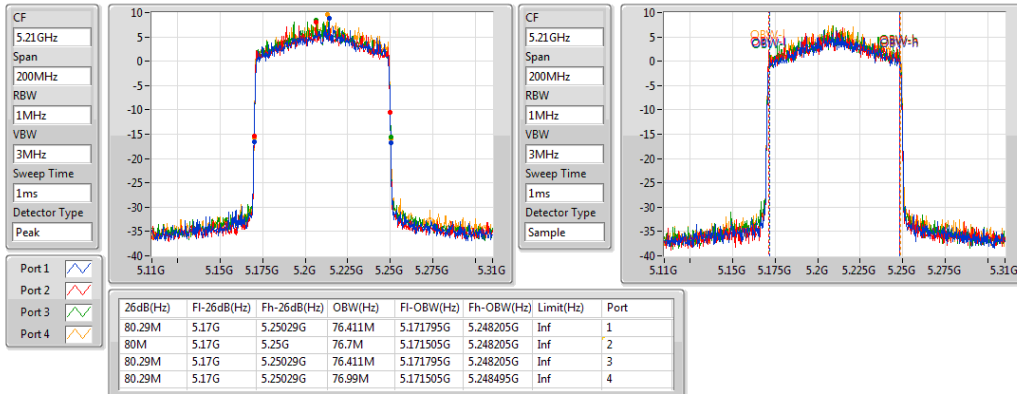
5795MHz



802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

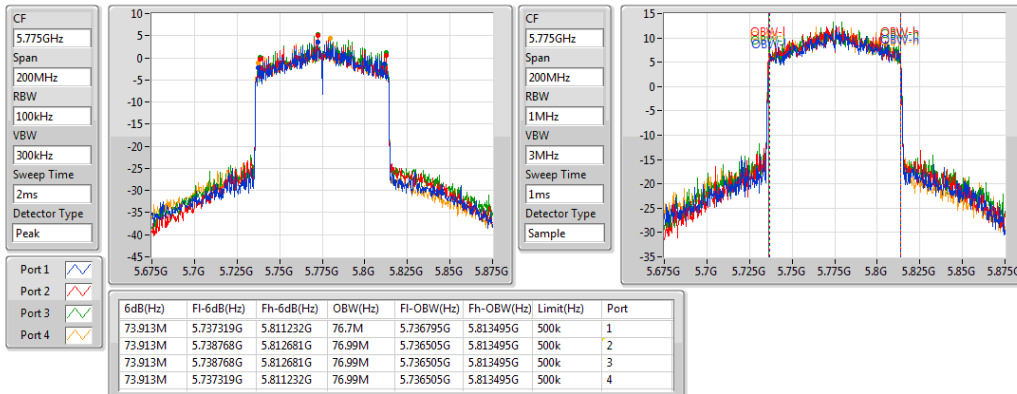
5210MHz



802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5775MHz



3.3 RF Output Power

3.3.1 Limit of RF Output Power

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

Frequency Band (MHz)	Limit
☒ 5725 ~ 5850	Conducted Power: 1 W

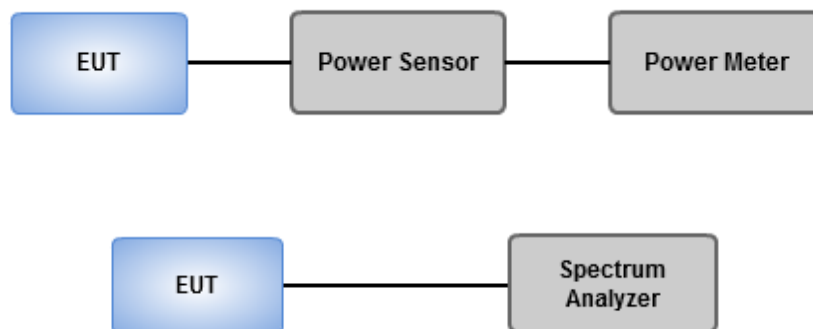
Note: "B" is the 26dB emission bandwidth in MHz.

3.3.2 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.

3.3.3 Test Setup



3.3.4 Test Result of Maximum Conducted Output Power

Ambient Condition	24~25°C / 65~67%	Tested By	Aska Huang
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Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	25.50	0.35481	28.90	0.77625
802.11ax HEW20_Nss1,(MCS0)_4TX	25.89	0.38815	29.29	0.84918
802.11ax HEW40_Nss1,(MCS0)_4TX	25.28	0.33729	28.68	0.73790
802.11ax HEW80_Nss1,(MCS0)_4TX	19.96	0.09908	23.36	0.21677
5.725-5.85GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	26.60	0.45709	30.00	1.00000
802.11ax HEW20_Nss1,(MCS0)_4TX	26.85	0.48417	30.25	1.05925
802.11ax HEW40_Nss1,(MCS0)_4TX	26.65	0.46238	30.05	1.01158
802.11ax HEW80_Nss1,(MCS0)_4TX	25.76	0.37670	29.16	0.82414

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)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	3.40	16.45	16.32	16.71	17.12	22.68	30.00	26.08	36.00
5200MHz	Pass	3.40	19.35	18.94	19.39	19.91	25.43	30.00	28.83	36.00
5240MHz	Pass	3.40	19.66	19.13	19.22	19.85	25.50	30.00	28.90	36.00
5745MHz	Pass	3.40	17.42	17.72	18.05	17.86	23.79	30.00	27.19	36.00
5785MHz	Pass	3.40	18.34	18.74	18.65	18.73	24.64	30.00	28.04	36.00
5825MHz	Pass	3.40	20.54	20.52	20.57	20.67	26.60	30.00	30.00	36.00
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	3.40	16.21	15.92	16.65	16.82	22.44	30.00	25.84	36.00
5200MHz	Pass	3.40	18.26	18.02	18.43	18.03	24.21	30.00	27.61	36.00
5240MHz	Pass	3.40	20.16	19.56	19.43	20.26	25.89	30.00	29.29	36.00
5745MHz	Pass	3.40	18.74	19.01	19.37	19.11	25.08	30.00	28.48	36.00
5785MHz	Pass	3.40	19.67	20.02	19.86	20.01	25.91	30.00	29.31	36.00
5825MHz	Pass	3.40	20.61	20.89	20.76	21.06	26.85	30.00	30.25	36.00
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	3.40	14.72	14.53	15.05	15.33	20.94	30.00	24.34	36.00
5230MHz	Pass	3.40	19.41	19.01	19.08	19.53	25.28	30.00	28.68	36.00
5755MHz	Pass	3.40	20.23	20.82	20.91	20.51	26.65	30.00	30.05	36.00
5795MHz	Pass	3.40	20.02	20.45	20.48	20.34	26.35	30.00	29.75	36.00
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	3.40	13.61	13.57	14.1	14.43	19.96	30.00	23.36	36.00
5775MHz	Pass	3.40	19.51	19.83	19.93	19.66	25.76	30.00	29.16	36.00

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

3.4 Peak Power Spectral Density

3.4.1 Limit of Peak Power Spectral Density

Frequency band 5150-5250 MHz		
Operating Mode		Limit
☐	Outdoor access point	17 dBm / MHz
☒	Indoor access point	17 dBm / MHz
☐	Fixed point-to-point access points	17 dBm / MHz
☐	Client devices	11 dBm / MHz

Frequency Band (MHz)		Limit
☒	5725 ~ 5850	30 dBm /500 kHz

3.4.2 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 $\geq 10 \times (\text{number of points in sweep}) \times (\text{total on/off period of the transmitted signal})$.
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

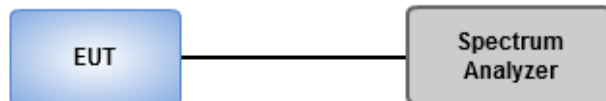
Duty cycle $\geq 98\%$

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 $\geq 10 \times (\text{number of points in sweep}) \times (\text{total on/off period of the transmitted signal})$.
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.

3.4.3 Test Setup



3.4.4 Test Result of Peak Power Spectral Density

Ambient Condition	24~25°C / 65~67%	Tested By	Aska Huang
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Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	12.93	22.35
802.11ax HEW20_Nss1,(MCS0)_4TX	12.91	22.33
802.11ax HEW40_Nss1,(MCS0)_4TX	10.32	19.74
802.11ax HEW80_Nss1,(MCS0)_4TX	2.01	11.43
5.725-5.85GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	12.27	21.69
802.11ax HEW20_Nss1,(MCS0)_4TX	12.26	21.68
802.11ax HEW40_Nss1,(MCS0)_4TX	10.12	19.54
802.11ax HEW80_Nss1,(MCS0)_4TX	6.51	15.93

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

Result

Mode	Result	DG (dBi)	Port 1 (dBm/R BW)	Port 2 (dBm/R BW)	Port 3 (dBm/R BW)	Port 4 (dBm/R BW)	PD (dBm/R BW)	PD Limit (dBm/R BW)	EIRP PD (dBm/R BW)	EIRP PD Limit (dBm/R BW)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	9.42	3.47	3.43	3.95	4.58	9.81	13.58	19.23	23.00
5200MHz	Pass	9.42	6.89	6.44	6.95	7.62	12.93	13.58	22.35	23.00
5240MHz	Pass	9.42	7.12	6.41	6.59	7.25	12.75	13.58	22.17	23.00
5745MHz	Pass	9.42	2.86	3.56	3.67	3.58	9.38	26.58	18.80	36.00
5785MHz	Pass	9.42	3.67	4.62	4.30	4.64	10.27	26.58	19.69	36.00
5825MHz	Pass	9.42	6.05	6.31	6.28	6.65	12.27	26.58	21.69	36.00
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	9.42	3.27	3.22	3.86	4.33	9.53	13.58	18.95	23.00
5200MHz	Pass	9.42	4.99	4.95	5.60	6.31	11.36	13.58	20.78	23.00
5240MHz	Pass	9.42	7.34	6.85	6.48	7.48	12.91	13.58	22.33	23.00
5745MHz	Pass	9.42	4.07	4.42	4.56	4.94	10.34	26.58	19.76	36.00
5785MHz	Pass	9.42	5.16	5.38	5.70	5.89	11.30	26.58	20.72	36.00
5825MHz	Pass	9.42	6.37	6.30	6.33	6.76	12.26	26.58	21.68	36.00
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	9.42	-0.63	-0.29	0.08	0.47	5.80	13.58	15.22	23.00
5230MHz	Pass	9.42	4.47	4.37	4.14	5.03	10.32	13.58	19.74	23.00
5755MHz	Pass	9.42	3.78	4.55	4.45	4.42	10.12	26.58	19.54	36.00
5795MHz	Pass	9.42	3.72	4.54	4.53	4.30	10.09	26.58	19.51	36.00
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	9.42	-4.45	-4.17	-3.93	-3.21	2.01	13.58	11.43	23.00
5775MHz	Pass	9.42	0.28	0.78	0.90	0.85	6.51	26.58	15.93	36.00

For 5.15 ~ 5.25 GHz

DG = Directional Gain= $3.4 \text{ dBi} + 10 \cdot \log(4/1) = 9.42 \text{ dBi} > 6 \text{ dBi}$, Limit shall be reduced to 17 dBm – (9.42 dBi – 6dBi) = 13.58 dBm

For 5.725 ~ 5.85 GHz

DG = Directional Gain= $3.4 \text{ dBi} + 10 \cdot \log(4/1) = 9.42 \text{ dBi} > 6 \text{ dBi}$, Limit shall be reduced to 30 dBm – (9.42 dBi – 6dBi) = 26.58 dBm

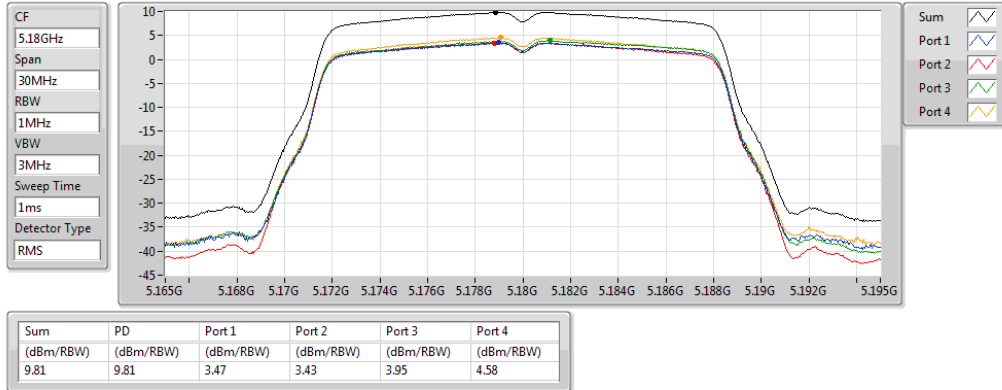
RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

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

802.11a_Nss1,(6Mbps)_4TX

PSD

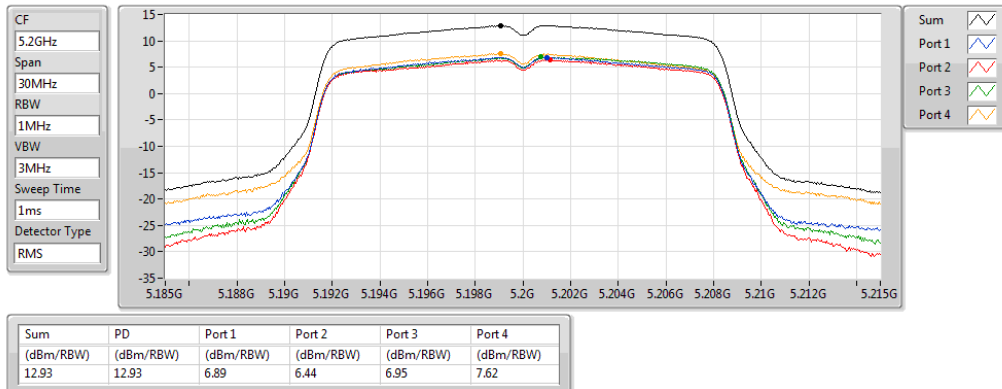
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802.11a_Nss1,(6Mbps)_4TX

PSD

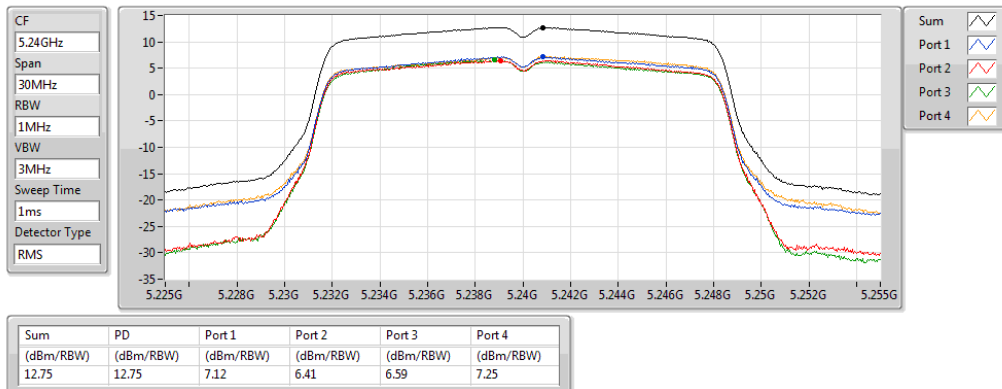
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802.11a_Nss1,(6Mbps)_4TX

PSD

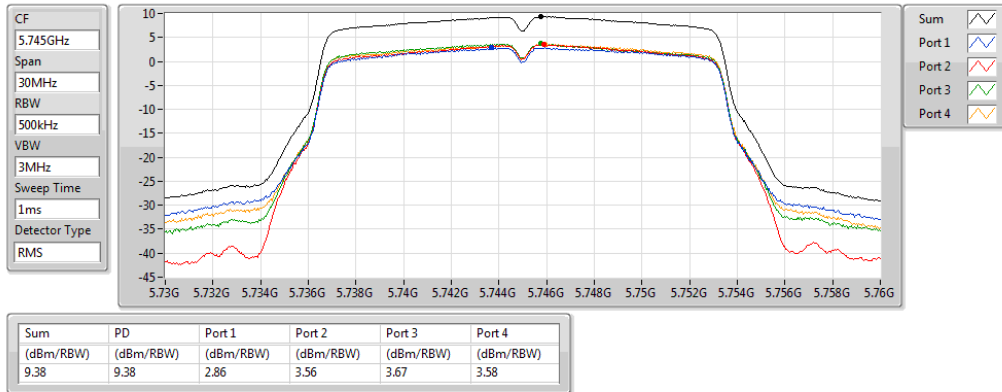
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802.11a_Nss1,(6Mbps)_4TX

PSD

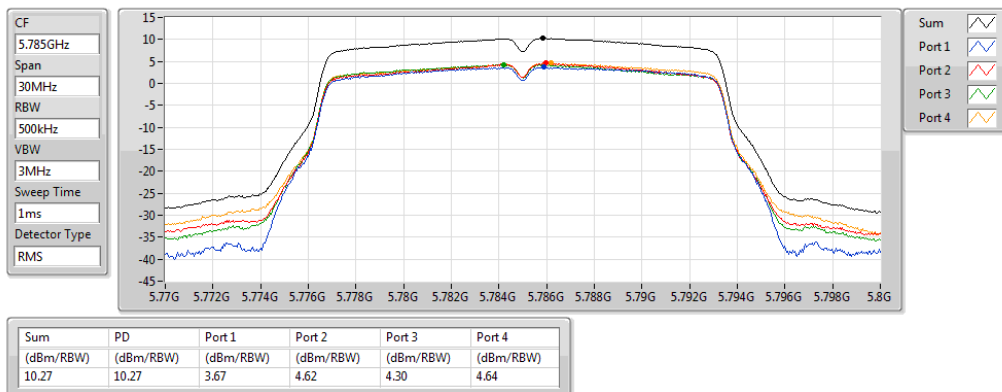
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802.11a_Nss1,(6Mbps)_4TX

PSD

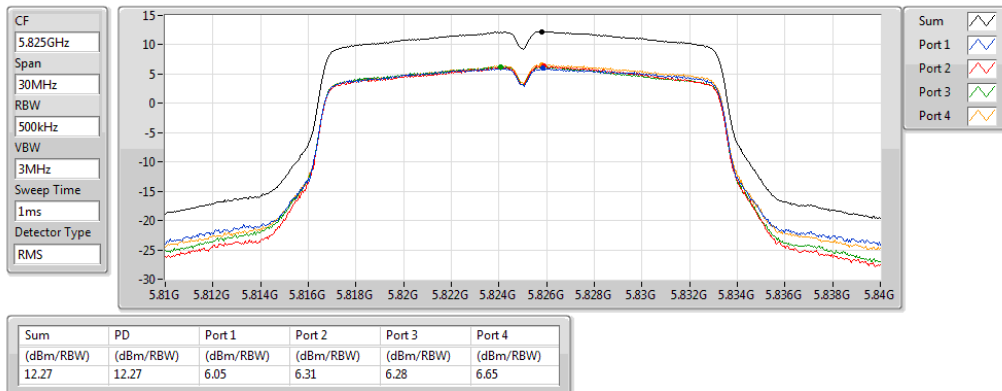
5785MHz



802.11a_Nss1,(6Mbps)_4TX

PSD

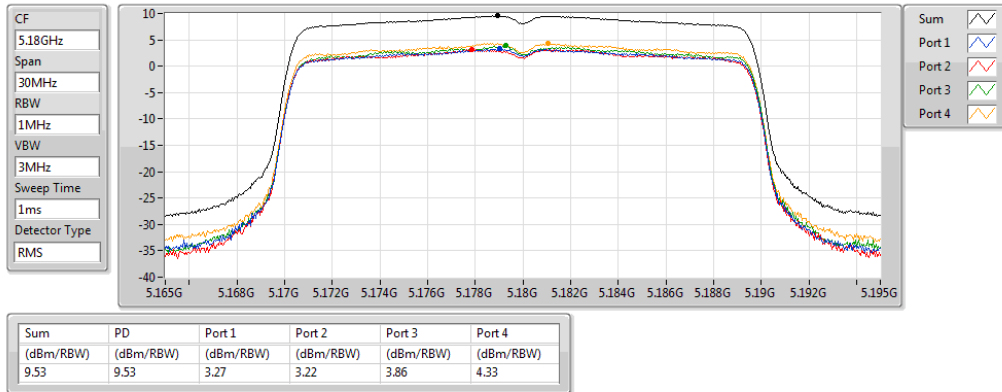
5825MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

PSD

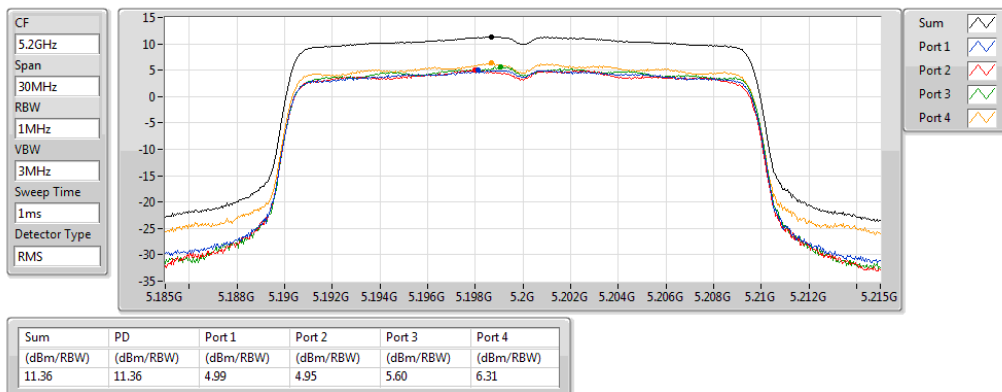
5180MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

PSD

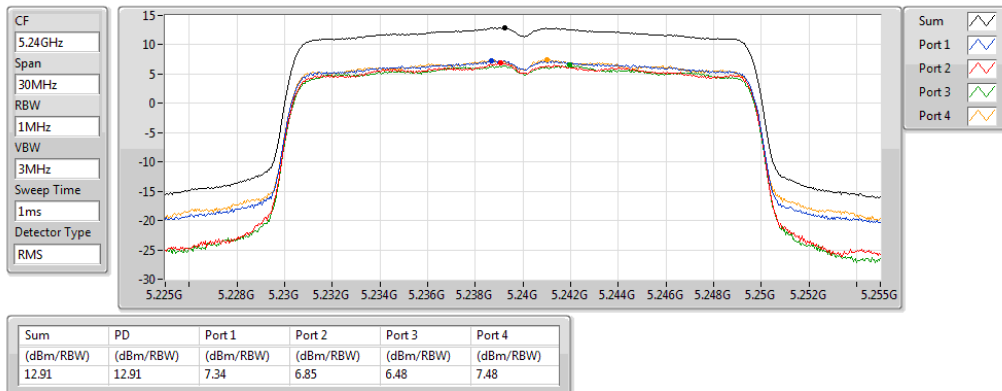
5200MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

PSD

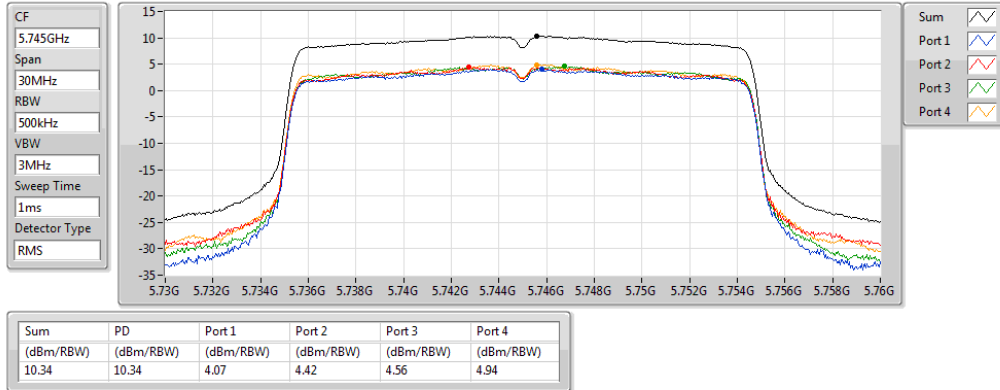
5240MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

PSD

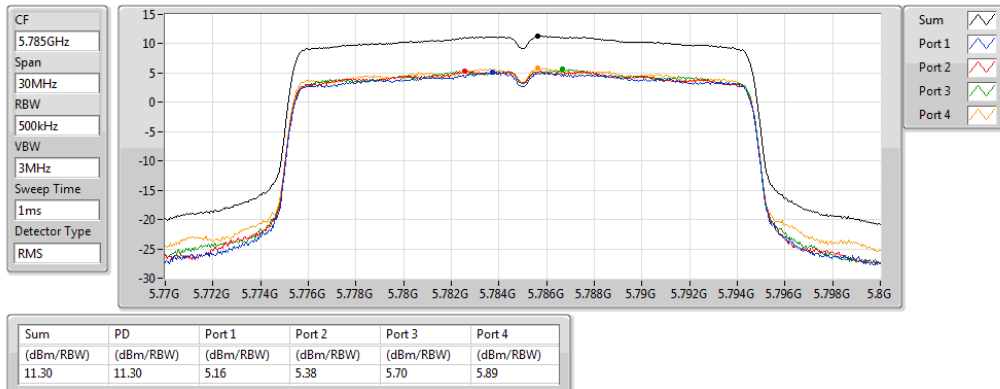
5745MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

PSD

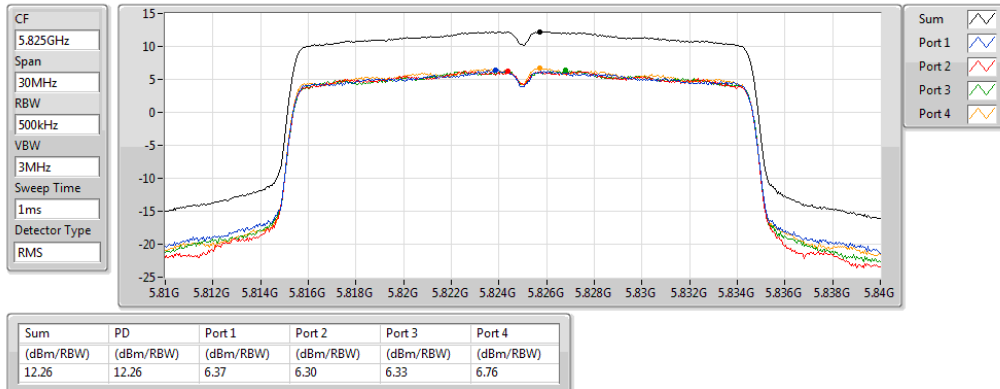
5785MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

PSD

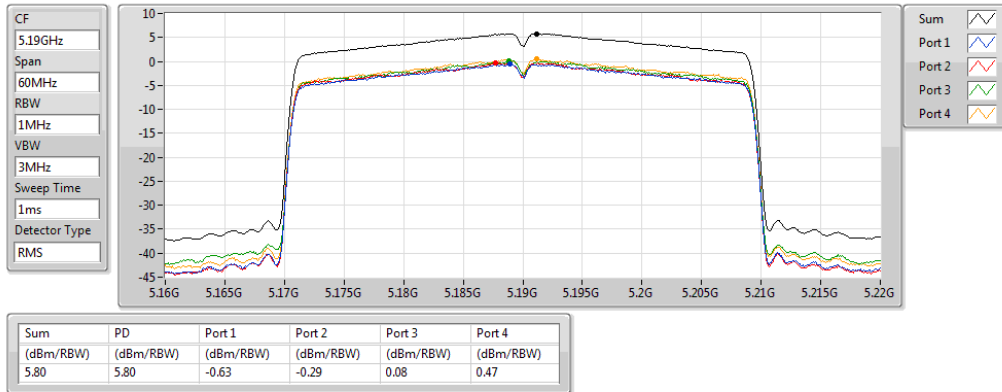
5825MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

PSD

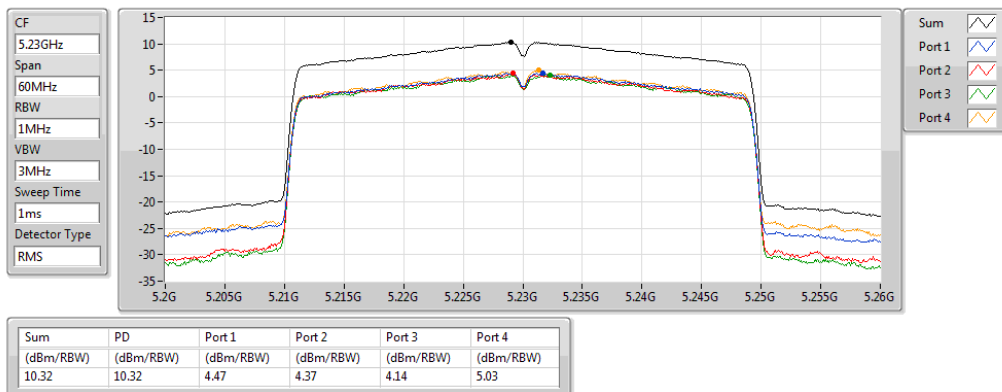
5190MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

PSD

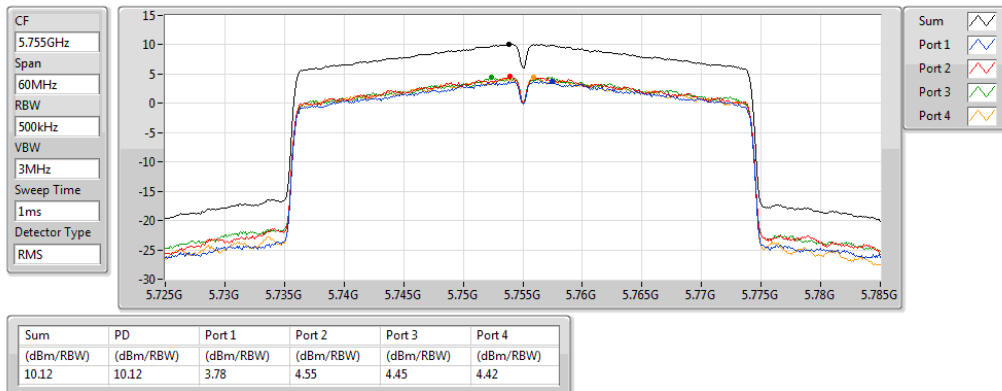
5230MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

PSD

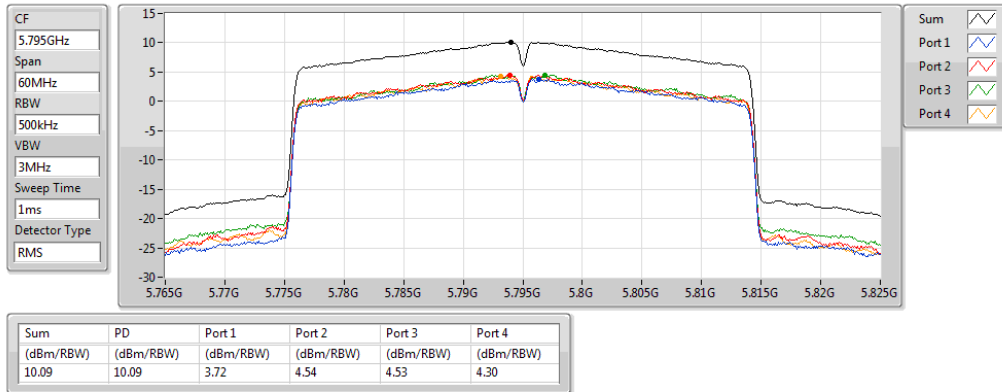
5755MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

PSD

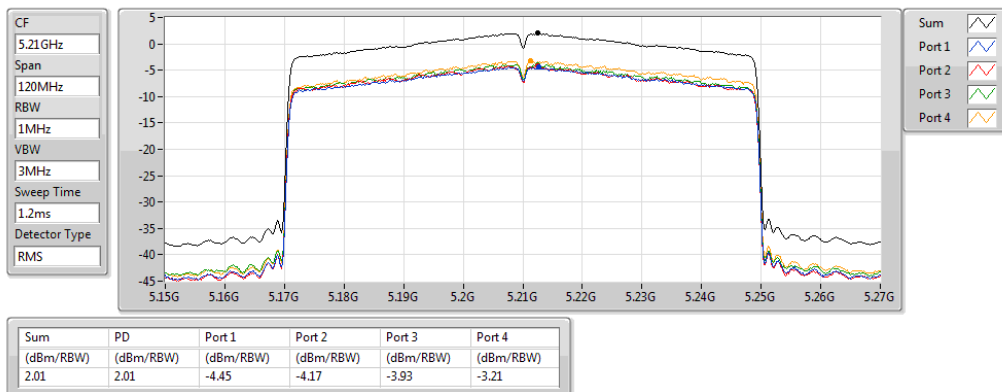
5795MHz



802.11ax HEW80_Nss1,(MCS0)_4TX

PSD

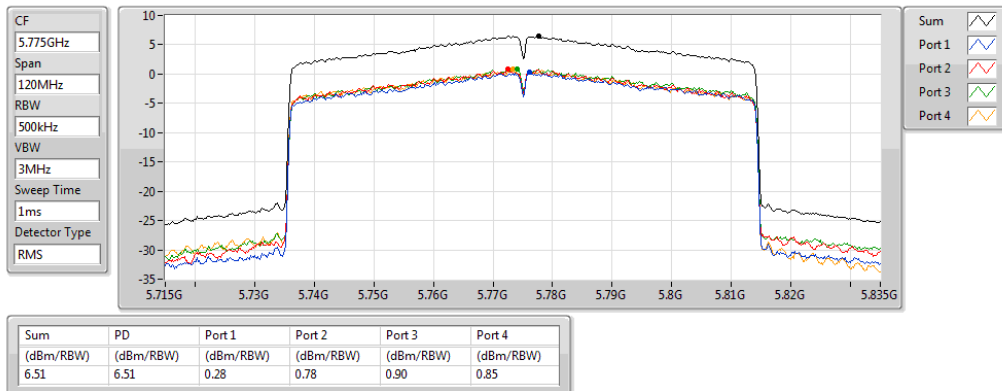
5210MHz



802.11ax HEW80_Nss1,(MCS0)_4TX

PSD

5775MHz



3.5 Transmitter Radiated and Band Edge Emissions

3.5.1 Limit of Transmitter Radiated and Band Edge 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).

3.5.2 Test Procedures

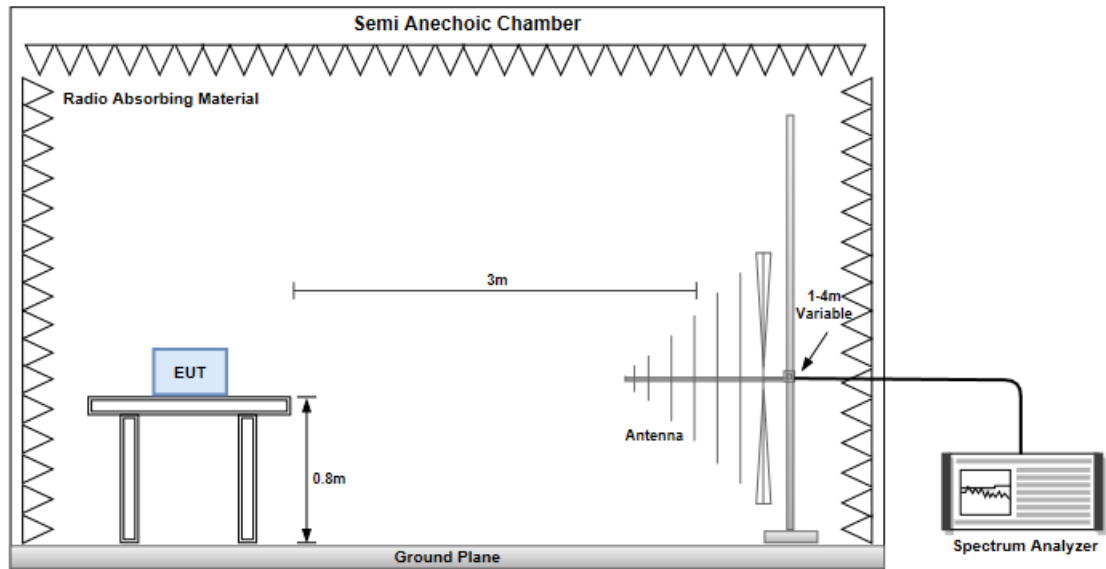
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360° . A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

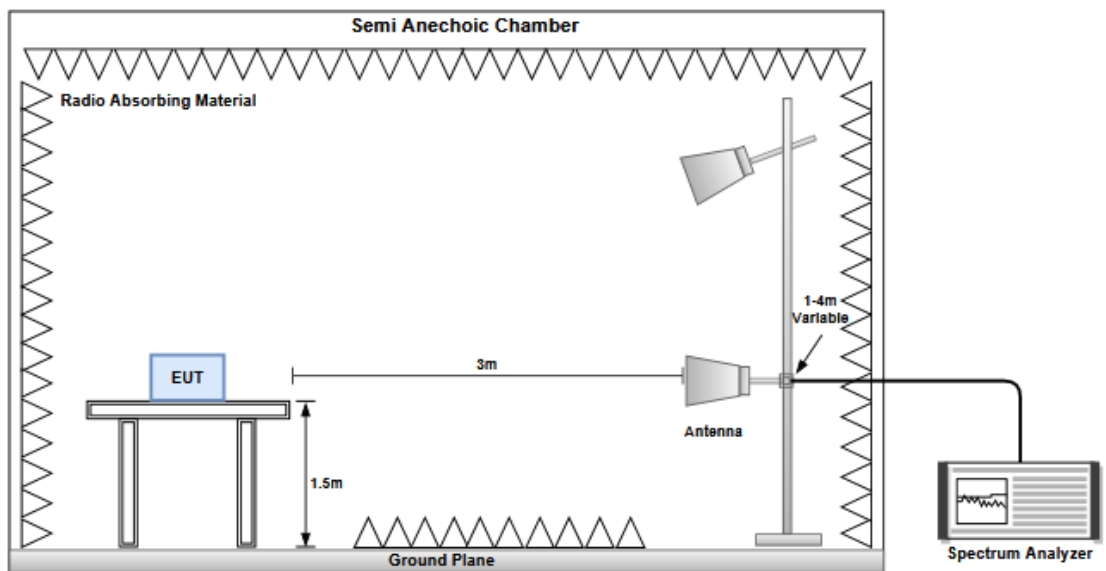
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

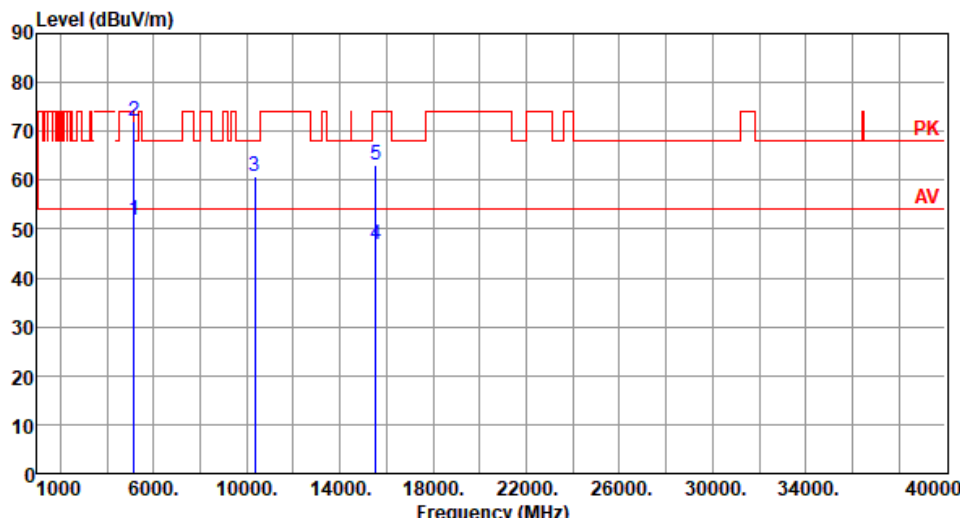
Modulation	ax HE20	Test Freq. (MHz)	5240
Polarization	Horizontal		
Test By :Roger Lu Temperature(°C):25 Humidity(%):63			
Level (dBUV/m) </			

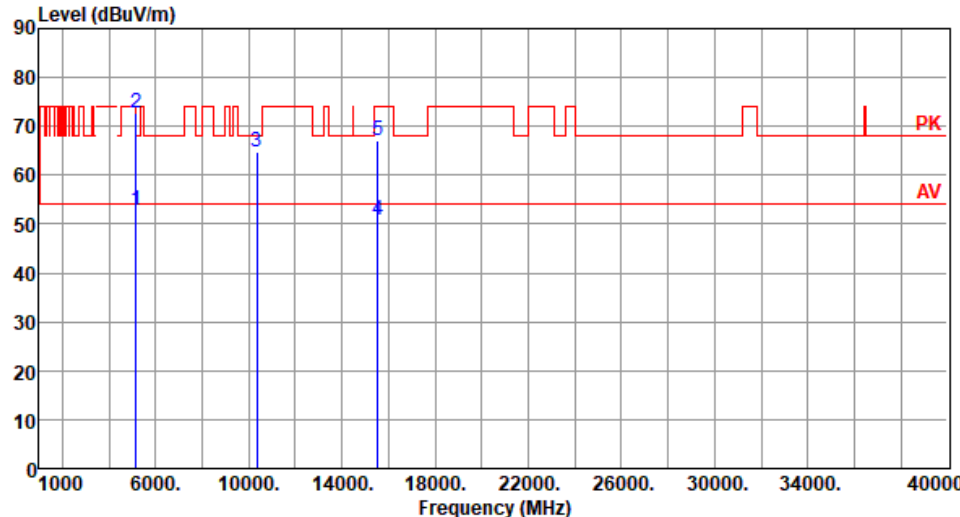
Modulation	ax HE20	Test Freq. (MHz)	5240
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):63			
Level (dBUV/m) </			

Modulation	ax HE20	Test Freq. (MHz)	5825
Polarization	Horizontal		
Test By :Roger Lu Temperature(°c):25 Humidity(%):63			
Level (dBuV/m)			

Modulation	ax HE20	Test Freq. (MHz)	5825
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):63			
Level (dBUV/m) <			

3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11a

Modulation	11a	Test Freq. (MHz)	5180																																																												
Polarization	Horizontal																																																														
Test By :Roger Lu Temperature(°C):25 Humidity(%):61																																																															
Level (dBuV/m)  <table><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>5150.00</td><td>51.71</td><td>54.00</td><td>-2.29</td><td>47.33</td><td>4.38</td><td>Average</td><td>349</td><td>215</td></tr><tr><td>2</td><td>5150.00</td><td>72.15</td><td>74.00</td><td>-1.85</td><td>67.77</td><td>4.38</td><td>Peak</td><td>349</td><td>215</td></tr><tr><td>3</td><td>10360.00</td><td>60.73</td><td>68.20</td><td>-7.47</td><td>46.31</td><td>14.42</td><td>Peak</td><td>102</td><td>6</td></tr><tr><td>4</td><td>15540.00</td><td>46.94</td><td>54.00</td><td>-7.06</td><td>32.29</td><td>14.65</td><td>Average</td><td>226</td><td>3</td></tr><tr><td>5</td><td>15540.00</td><td>63.24</td><td>74.00</td><td>-10.76</td><td>48.59</td><td>14.65</td><td>Peak</td><td>226</td><td>3</td></tr></table>					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	51.71	54.00	-2.29	47.33	4.38	Average	349	215	2	5150.00	72.15	74.00	-1.85	67.77	4.38	Peak	349	215	3	10360.00	60.73	68.20	-7.47	46.31	14.42	Peak	102	6	4	15540.00	46.94	54.00	-7.06	32.29	14.65	Average	226	3	5	15540.00	63.24	74.00	-10.76	48.59	14.65	Peak	226	3
	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	51.71	54.00	-2.29	47.33	4.38	Average	349	215																																																						
2	5150.00	72.15	74.00	-1.85	67.77	4.38	Peak	349	215																																																						
3	10360.00	60.73	68.20	-7.47	46.31	14.42	Peak	102	6																																																						
4	15540.00	46.94	54.00	-7.06	32.29	14.65	Average	226	3																																																						
5	15540.00	63.24	74.00	-10.76	48.59	14.65	Peak	226	3																																																						
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).																																																															

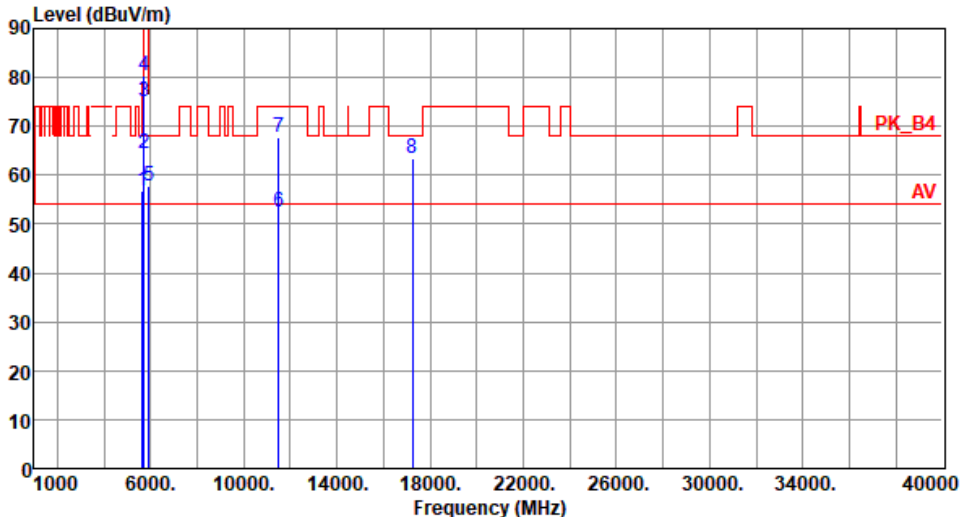
Modulation	11a	Test Freq. (MHz)	5180																																																												
Polarization	Vertical																																																														
Test By :Roger Lu Temperature(°C):25 Humidity(%):61																																																															
Level (dBUV/m)  Frequency (MHz) <table><tr><th></th><th>Freq. MHz</th><th>Emission level dBUV/m</th><th>Limit dBUV/m</th><th>Margin dB</th><th>SA reading dBUV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>5150.00</td><td>52.65</td><td>54.00</td><td>-1.35</td><td>48.27</td><td>4.38</td><td>Average</td><td>245</td><td>284</td></tr><tr><td>2</td><td>5150.00</td><td>72.81</td><td>74.00</td><td>-1.19</td><td>68.43</td><td>4.38</td><td>Peak</td><td>245</td><td>284</td></tr><tr><td>3</td><td>10360.00</td><td>64.67</td><td>68.20</td><td>-3.53</td><td>50.25</td><td>14.42</td><td>Peak</td><td>156</td><td>285</td></tr><tr><td>4</td><td>15540.00</td><td>50.76</td><td>54.00</td><td>-3.24</td><td>36.11</td><td>14.65</td><td>Average</td><td>165</td><td>243</td></tr><tr><td>5</td><td>15540.00</td><td>67.04</td><td>74.00</td><td>-6.96</td><td>52.39</td><td>14.65</td><td>Peak</td><td>165</td><td>243</td></tr></table>					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	52.65	54.00	-1.35	48.27	4.38	Average	245	284	2	5150.00	72.81	74.00	-1.19	68.43	4.38	Peak	245	284	3	10360.00	64.67	68.20	-3.53	50.25	14.42	Peak	156	285	4	15540.00	50.76	54.00	-3.24	36.11	14.65	Average	165	243	5	15540.00	67.04	74.00	-6.96	52.39	14.65	Peak	165	243
	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	52.65	54.00	-1.35	48.27	4.38	Average	245	284																																																						
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3	10360.00	64.67	68.20	-3.53	50.25	14.42	Peak	156	285																																																						
4	15540.00	50.76	54.00	-3.24	36.11	14.65	Average	165	243																																																						
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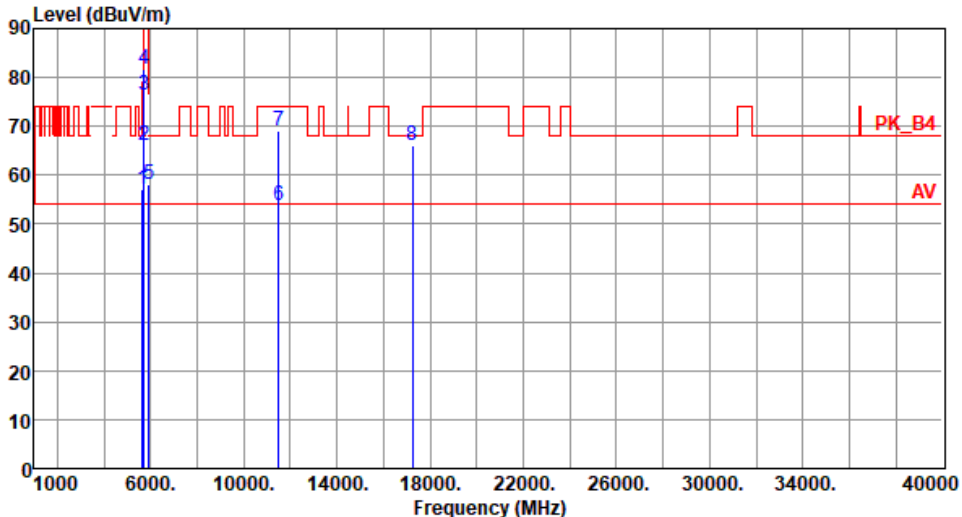
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Horizontal		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBUV/m)			

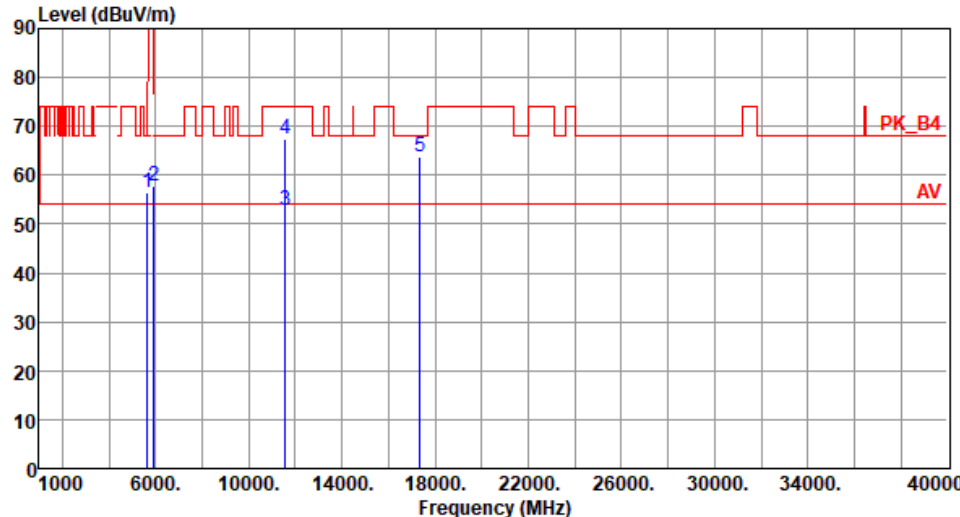
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBUV/m)			

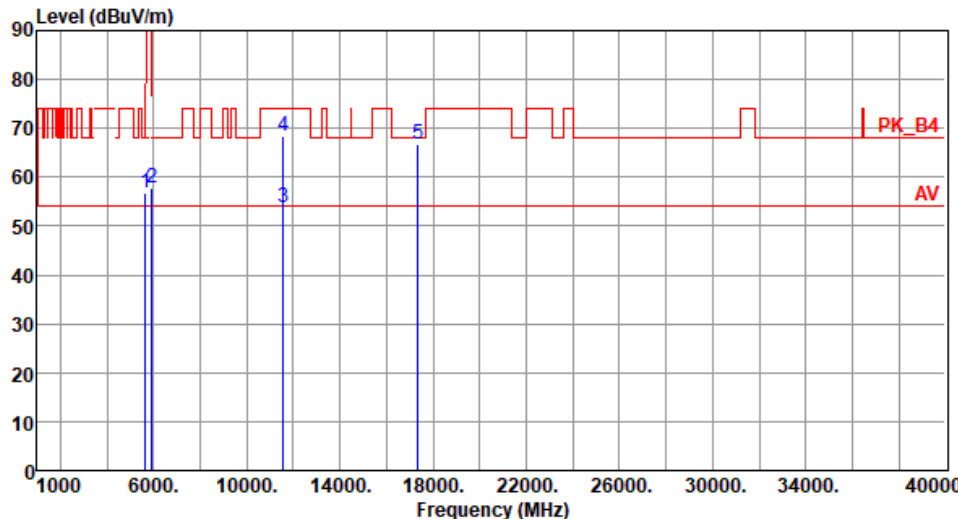
Modulation	11a	Test Freq. (MHz)	5240
Polarization	Horizontal		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBUV/m) </			

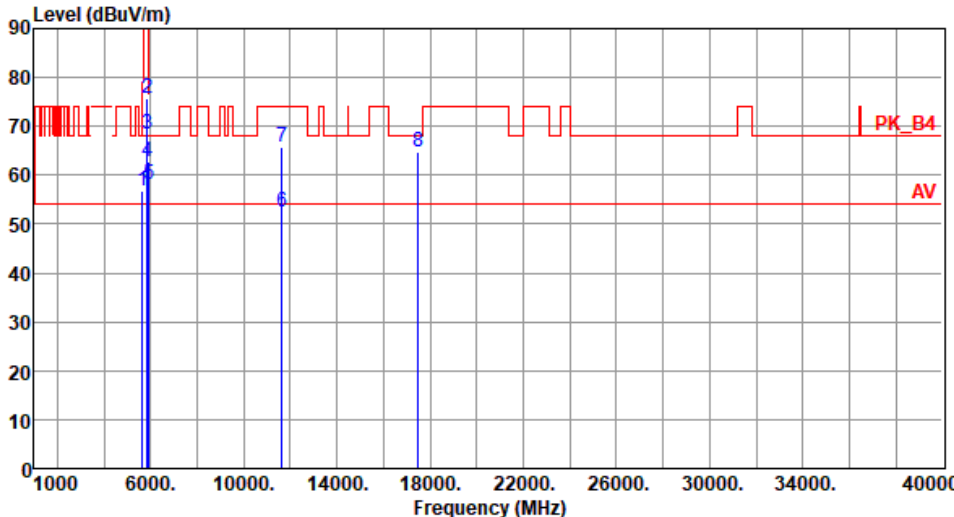
Modulation	11a	Test Freq. (MHz)	5240
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBUV/m)			

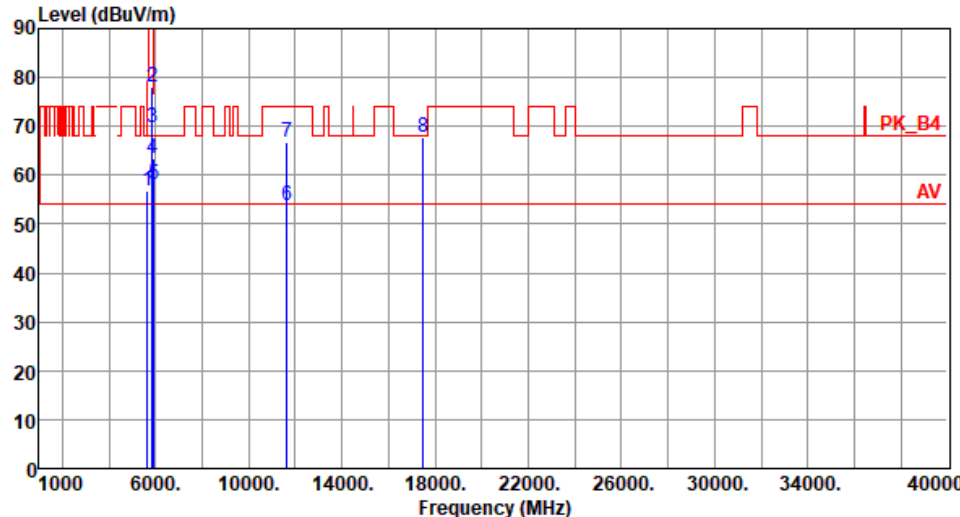
Modulation	11a	Test Freq. (MHz)	5745																																																																																																				
Polarization	Horizontal																																																																																																						
Test By :Roger Lu Temperature(°C):25 Humidity(%):61																																																																																																							
Level (dBUV/m)  Frequency (MHz) <table><tr><th></th><th>Freq.</th><th>Emission level</th><th>Limit</th><th>Margin</th><th>SA reading</th><th>Factor</th><th>Remark</th><th>ANT High</th><th>Turn Table</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>5650.00</td><td>56.92</td><td>68.20</td><td>-11.28</td><td>52.47</td><td>4.45</td><td>Peak</td><td>365</td><td>148</td></tr><tr><td>2</td><td>5700.00</td><td>64.50</td><td>105.20</td><td>-40.70</td><td>59.81</td><td>4.69</td><td>Peak</td><td>365</td><td>148</td></tr><tr><td>3</td><td>5720.00</td><td>75.05</td><td>110.80</td><td>-35.75</td><td>70.26</td><td>4.79</td><td>Peak</td><td>365</td><td>148</td></tr><tr><td>4</td><td>5725.00</td><td>80.45</td><td>122.20</td><td>-41.75</td><td>75.64</td><td>4.81</td><td>Peak</td><td>365</td><td>148</td></tr><tr><td>5</td><td>5925.00</td><td>57.84</td><td>68.20</td><td>-10.36</td><td>52.46</td><td>5.38</td><td>Peak</td><td>365</td><td>148</td></tr><tr><td>6</td><td>11490.00</td><td>52.34</td><td>54.00</td><td>-1.66</td><td>37.58</td><td>14.76</td><td>Average</td><td>135</td><td>289</td></tr><tr><td>7</td><td>11490.00</td><td>67.89</td><td>74.00</td><td>-6.11</td><td>53.13</td><td>14.76</td><td>Peak</td><td>135</td><td>289</td></tr><tr><td>8</td><td>17235.00</td><td>63.41</td><td>68.20</td><td>-4.79</td><td>45.86</td><td>17.55</td><td>Peak</td><td>100</td><td>17</td></tr></table>					Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg	1	5650.00	56.92	68.20	-11.28	52.47	4.45	Peak	365	148	2	5700.00	64.50	105.20	-40.70	59.81	4.69	Peak	365	148	3	5720.00	75.05	110.80	-35.75	70.26	4.79	Peak	365	148	4	5725.00	80.45	122.20	-41.75	75.64	4.81	Peak	365	148	5	5925.00	57.84	68.20	-10.36	52.46	5.38	Peak	365	148	6	11490.00	52.34	54.00	-1.66	37.58	14.76	Average	135	289	7	11490.00	67.89	74.00	-6.11	53.13	14.76	Peak	135	289	8	17235.00	63.41	68.20	-4.79	45.86	17.55	Peak	100	17
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table																																																																																														
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg																																																																																														
1	5650.00	56.92	68.20	-11.28	52.47	4.45	Peak	365	148																																																																																														
2	5700.00	64.50	105.20	-40.70	59.81	4.69	Peak	365	148																																																																																														
3	5720.00	75.05	110.80	-35.75	70.26	4.79	Peak	365	148																																																																																														
4	5725.00	80.45	122.20	-41.75	75.64	4.81	Peak	365	148																																																																																														
5	5925.00	57.84	68.20	-10.36	52.46	5.38	Peak	365	148																																																																																														
6	11490.00	52.34	54.00	-1.66	37.58	14.76	Average	135	289																																																																																														
7	11490.00	67.89	74.00	-6.11	53.13	14.76	Peak	135	289																																																																																														
8	17235.00	63.41	68.20	-4.79	45.86	17.55	Peak	100	17																																																																																														
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	11a	Test Freq. (MHz)	5745																																																																																																				
Polarization	Vertical																																																																																																						
Test By :Roger Lu Temperature(°C):25 Humidity(%):61																																																																																																							
Level (dBUV/m)  Frequency (MHz) <table><tr><th></th><th>Freq.</th><th>Emission level</th><th>Limit</th><th>Margin</th><th>SA reading</th><th>Factor</th><th>Remark</th><th>ANT High</th><th>Turn Table</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>5650.00</td><td>57.05</td><td>68.20</td><td>-11.15</td><td>52.60</td><td>4.45</td><td>Peak</td><td>244</td><td>0</td></tr><tr><td>2</td><td>5700.00</td><td>66.00</td><td>105.20</td><td>-39.20</td><td>61.31</td><td>4.69</td><td>Peak</td><td>244</td><td>0</td></tr><tr><td>3</td><td>5720.00</td><td>76.27</td><td>110.80</td><td>-34.53</td><td>71.48</td><td>4.79</td><td>Peak</td><td>244</td><td>0</td></tr><tr><td>4</td><td>5725.00</td><td>81.85</td><td>122.20</td><td>-40.35</td><td>77.04</td><td>4.81</td><td>Peak</td><td>244</td><td>0</td></tr><tr><td>5</td><td>5925.00</td><td>58.02</td><td>68.20</td><td>-10.18</td><td>52.64</td><td>5.38</td><td>Peak</td><td>244</td><td>0</td></tr><tr><td>6</td><td>11490.00</td><td>53.74</td><td>54.00</td><td>-0.26</td><td>38.98</td><td>14.76</td><td>Average</td><td>100</td><td>290</td></tr><tr><td>7</td><td>11490.00</td><td>68.96</td><td>74.00</td><td>-5.04</td><td>54.20</td><td>14.76</td><td>Peak</td><td>100</td><td>290</td></tr><tr><td>8</td><td>17235.00</td><td>66.20</td><td>68.20</td><td>-2.00</td><td>48.65</td><td>17.55</td><td>Peak</td><td>334</td><td>264</td></tr></table>					Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg	1	5650.00	57.05	68.20	-11.15	52.60	4.45	Peak	244	0	2	5700.00	66.00	105.20	-39.20	61.31	4.69	Peak	244	0	3	5720.00	76.27	110.80	-34.53	71.48	4.79	Peak	244	0	4	5725.00	81.85	122.20	-40.35	77.04	4.81	Peak	244	0	5	5925.00	58.02	68.20	-10.18	52.64	5.38	Peak	244	0	6	11490.00	53.74	54.00	-0.26	38.98	14.76	Average	100	290	7	11490.00	68.96	74.00	-5.04	54.20	14.76	Peak	100	290	8	17235.00	66.20	68.20	-2.00	48.65	17.55	Peak	334	264
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table																																																																																														
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg																																																																																														
1	5650.00	57.05	68.20	-11.15	52.60	4.45	Peak	244	0																																																																																														
2	5700.00	66.00	105.20	-39.20	61.31	4.69	Peak	244	0																																																																																														
3	5720.00	76.27	110.80	-34.53	71.48	4.79	Peak	244	0																																																																																														
4	5725.00	81.85	122.20	-40.35	77.04	4.81	Peak	244	0																																																																																														
5	5925.00	58.02	68.20	-10.18	52.64	5.38	Peak	244	0																																																																																														
6	11490.00	53.74	54.00	-0.26	38.98	14.76	Average	100	290																																																																																														
7	11490.00	68.96	74.00	-5.04	54.20	14.76	Peak	100	290																																																																																														
8	17235.00	66.20	68.20	-2.00	48.65	17.55	Peak	334	264																																																																																														
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	11a	Test Freq. (MHz)	5785																																																												
Polarization	Horizontal																																																														
Test By :Roger Lu Temperature(°C):25 Humidity(%):61																																																															
Level (dBUV/m)  Frequency (MHz) <table><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>5650.00</td><td>56.58</td><td>68.20</td><td>-11.62</td><td>52.13</td><td>4.45</td><td>Peak</td><td>361</td><td>142</td></tr><tr><td>2</td><td>5925.00</td><td>57.69</td><td>68.20</td><td>-10.51</td><td>52.31</td><td>5.38</td><td>Peak</td><td>361</td><td>142</td></tr><tr><td>3</td><td>11570.00</td><td>52.71</td><td>54.00</td><td>-1.29</td><td>38.03</td><td>14.68</td><td>Average</td><td>141</td><td>282</td></tr><tr><td>4</td><td>11570.00</td><td>67.27</td><td>74.00</td><td>-6.73</td><td>52.59</td><td>14.68</td><td>Peak</td><td>141</td><td>282</td></tr><tr><td>5</td><td>17355.00</td><td>63.80</td><td>68.20</td><td>-4.40</td><td>45.69</td><td>18.11</td><td>Peak</td><td>105</td><td>16</td></tr></table>					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	56.58	68.20	-11.62	52.13	4.45	Peak	361	142	2	5925.00	57.69	68.20	-10.51	52.31	5.38	Peak	361	142	3	11570.00	52.71	54.00	-1.29	38.03	14.68	Average	141	282	4	11570.00	67.27	74.00	-6.73	52.59	14.68	Peak	141	282	5	17355.00	63.80	68.20	-4.40	45.69	18.11	Peak	105	16
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																						
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	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	56.92	68.20	-11.28	52.47	4.45	Peak	246	356																																																						
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3	11570.00	53.76	54.00	-0.24	39.08	14.68	Average	100	289																																																						
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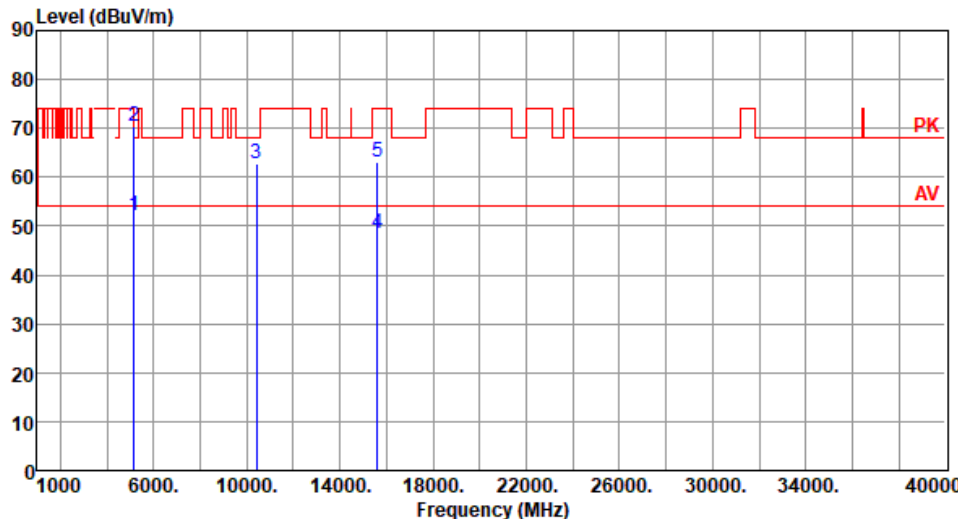
Modulation	11a	Test Freq. (MHz)	5825																																																																																																				
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	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table																																																																																														
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg																																																																																														
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2	5850.00	75.75	122.20	-46.45	70.57	5.18	Peak	362	148																																																																																														
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4	5875.00	62.83	105.20	-42.37	57.55	5.28	Peak	362	148																																																																																														
5	5925.00	58.02	68.20	-10.18	52.64	5.38	Peak	362	148																																																																																														
6	11650.00	52.61	54.00	-1.39	38.16	14.45	Average	141	288																																																																																														
7	11650.00	65.78	74.00	-8.22	51.33	14.45	Peak	141	288																																																																																														
8	17475.00	64.81	68.20	-3.39	45.97	18.84	Peak	100	17																																																																																														
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Modulation	11a	Test Freq. (MHz)	5825																																																																																																														
Polarization	Vertical																																																																																																																
Test By :Roger Lu Temperature(°C):25 Humidity(%):61																																																																																																																	
Level (dBUV/m)  <table><tr><th></th><th>Freq.</th><th>Emission</th><th>Limit</th><th>Margin</th><th>SA</th><th>Factor</th><th>Remark</th><th>ANT</th><th>Turn</th></tr><tr><th></th><th>MHz</th><th>level</th><th>dBuV/m</th><th>dB</th><th>reading</th><th>dB/m</th><th></th><th>High</th><th>Table</th></tr><tr><th></th><th></th><th></th><th></th><th></th><th>dBuV</th><th></th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>5650.00</td><td>56.77</td><td>68.20</td><td>-11.43</td><td>52.32</td><td>4.45</td><td>Peak</td><td>245</td><td>359</td></tr><tr><td>2</td><td>5850.00</td><td>77.99</td><td>122.20</td><td>-44.21</td><td>72.81</td><td>5.18</td><td>Peak</td><td>245</td><td>359</td></tr><tr><td>3</td><td>5855.00</td><td>69.79</td><td>110.80</td><td>-41.01</td><td>64.60</td><td>5.19</td><td>Peak</td><td>245</td><td>359</td></tr><tr><td>4</td><td>5875.00</td><td>63.30</td><td>105.20</td><td>-41.90</td><td>58.02</td><td>5.28</td><td>Peak</td><td>245</td><td>359</td></tr><tr><td>5</td><td>5925.00</td><td>58.22</td><td>68.20</td><td>-9.98</td><td>52.84</td><td>5.38</td><td>Peak</td><td>245</td><td>359</td></tr><tr><td>6</td><td>11650.00</td><td>53.71</td><td>54.00</td><td>-0.29</td><td>39.26</td><td>14.45</td><td>Average</td><td>100</td><td>290</td></tr><tr><td>7</td><td>11650.00</td><td>66.71</td><td>74.00</td><td>-7.29</td><td>52.26</td><td>14.45</td><td>Peak</td><td>100</td><td>290</td></tr><tr><td>8</td><td>17475.00</td><td>67.70</td><td>68.20</td><td>-0.50</td><td>48.86</td><td>18.84</td><td>Peak</td><td>325</td><td>265</td></tr></table>					Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		MHz	level	dBuV/m	dB	reading	dB/m		High	Table						dBuV			cm	deg	1	5650.00	56.77	68.20	-11.43	52.32	4.45	Peak	245	359	2	5850.00	77.99	122.20	-44.21	72.81	5.18	Peak	245	359	3	5855.00	69.79	110.80	-41.01	64.60	5.19	Peak	245	359	4	5875.00	63.30	105.20	-41.90	58.02	5.28	Peak	245	359	5	5925.00	58.22	68.20	-9.98	52.84	5.38	Peak	245	359	6	11650.00	53.71	54.00	-0.29	39.26	14.45	Average	100	290	7	11650.00	66.71	74.00	-7.29	52.26	14.45	Peak	100	290	8	17475.00	67.70	68.20	-0.50	48.86	18.84	Peak	325	265
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn																																																																																																								
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table																																																																																																								
					dBuV			cm	deg																																																																																																								
1	5650.00	56.77	68.20	-11.43	52.32	4.45	Peak	245	359																																																																																																								
2	5850.00	77.99	122.20	-44.21	72.81	5.18	Peak	245	359																																																																																																								
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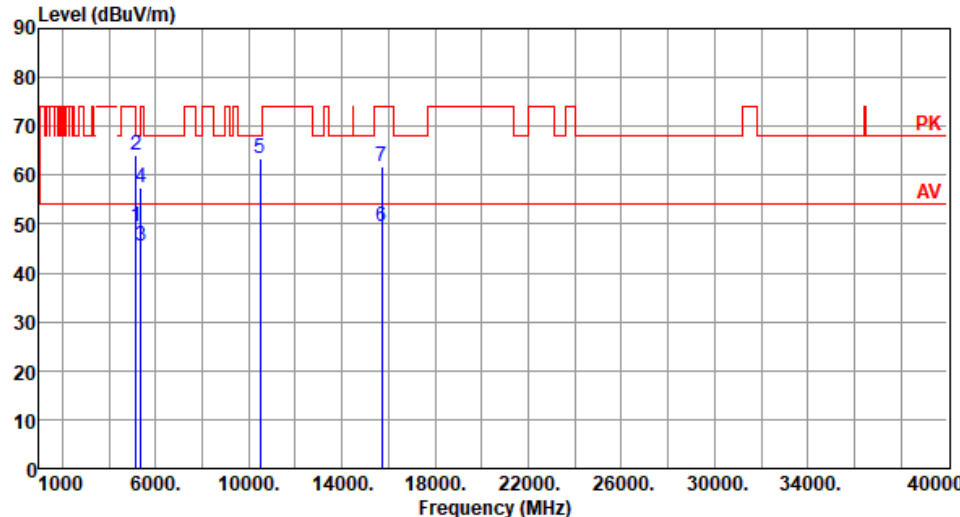
3.5.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax HE20

Modulation	ax HE20	Test Freq. (MHz)	5180
Polarization	Horizontal		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBUV/m)			

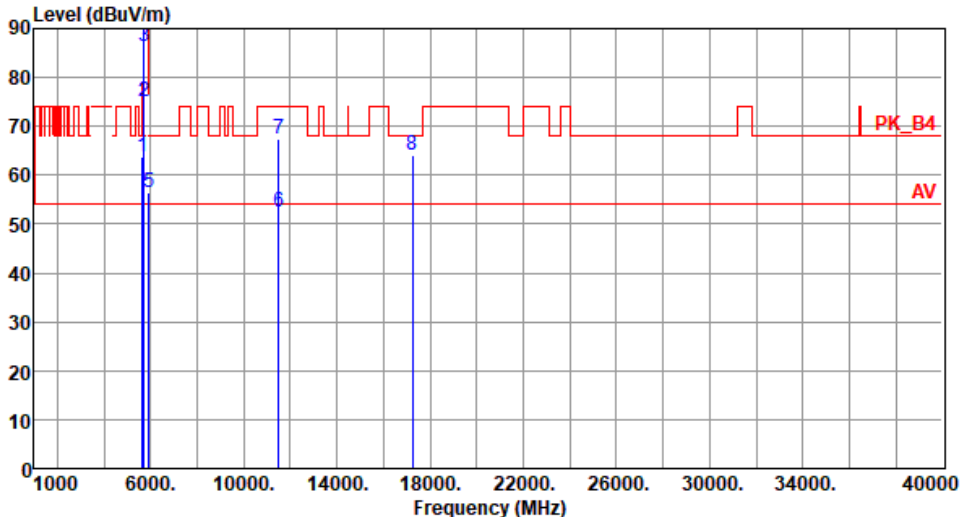
Modulation	ax HE20	Test Freq. (MHz)	5180
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBUV/m) <			

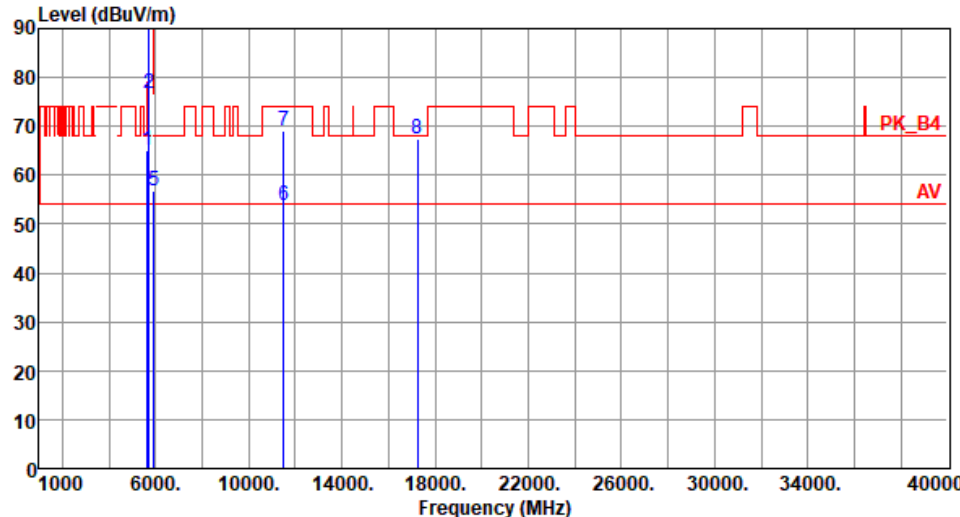
Modulation	ax HE20		Test Freq. (MHz)		5200																																																													
Polarization	Horizontal																																																																	
Test By :Roger Lu Temperature(°C):25 Humidity(%):61																																																																		
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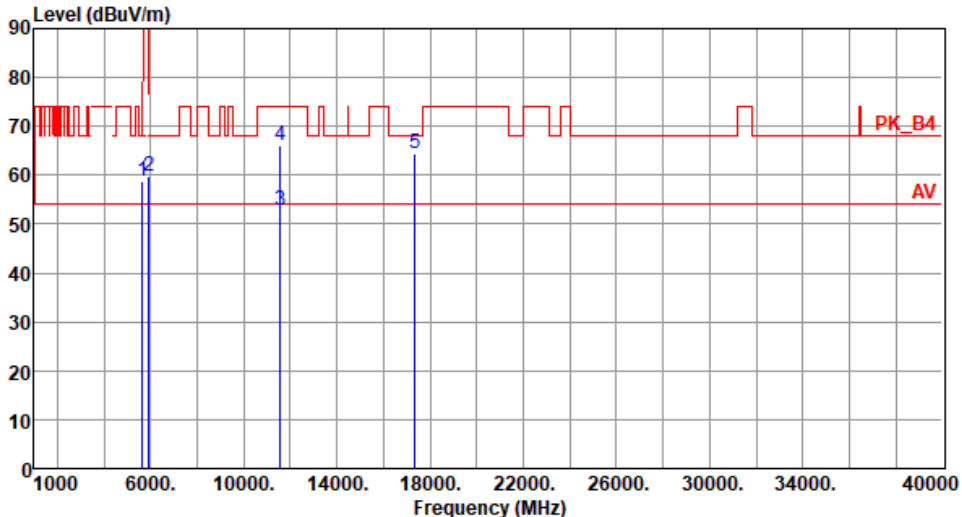
Modulation	ax HE20	Test Freq. (MHz)	5200
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBUV/m) </			

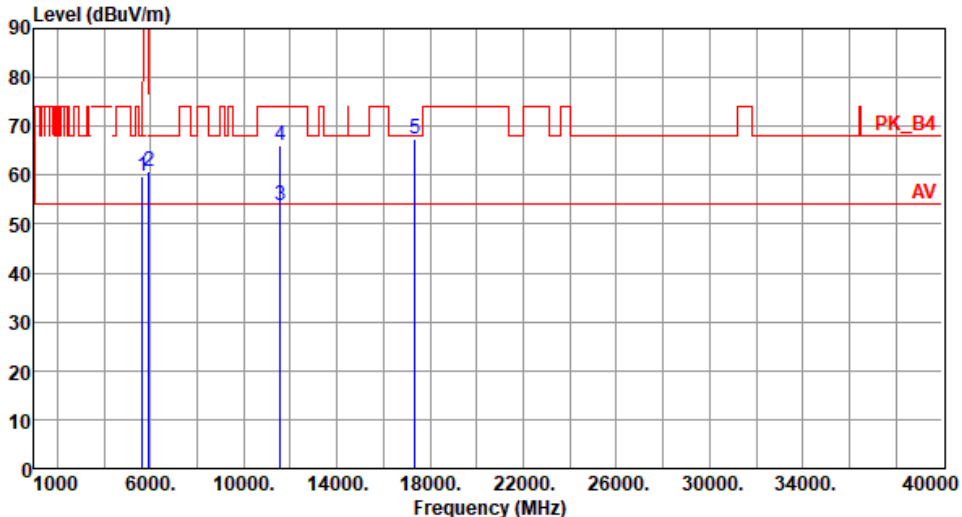
Modulation	ax HE20	Test Freq. (MHz)	5240																																																																																										
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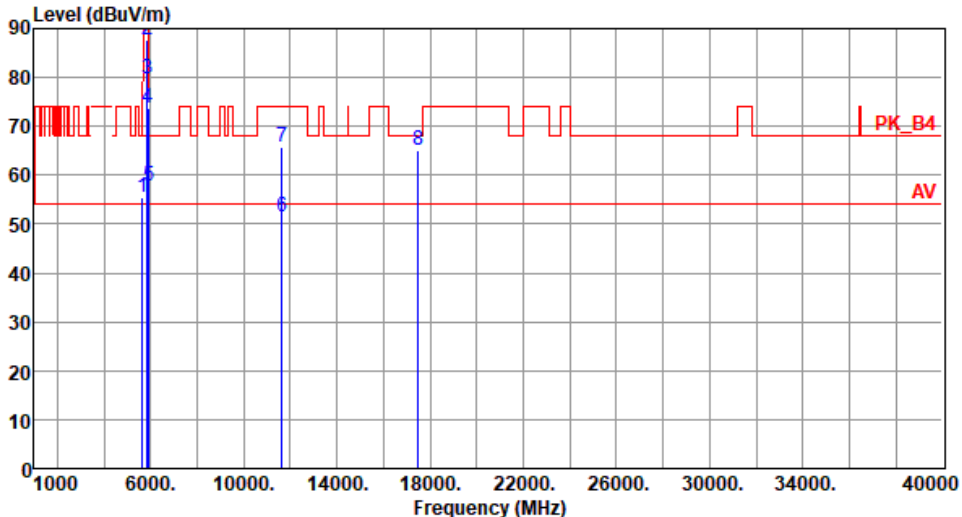
Modulation	ax HE20	Test Freq. (MHz)	5240
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBuV/m)			

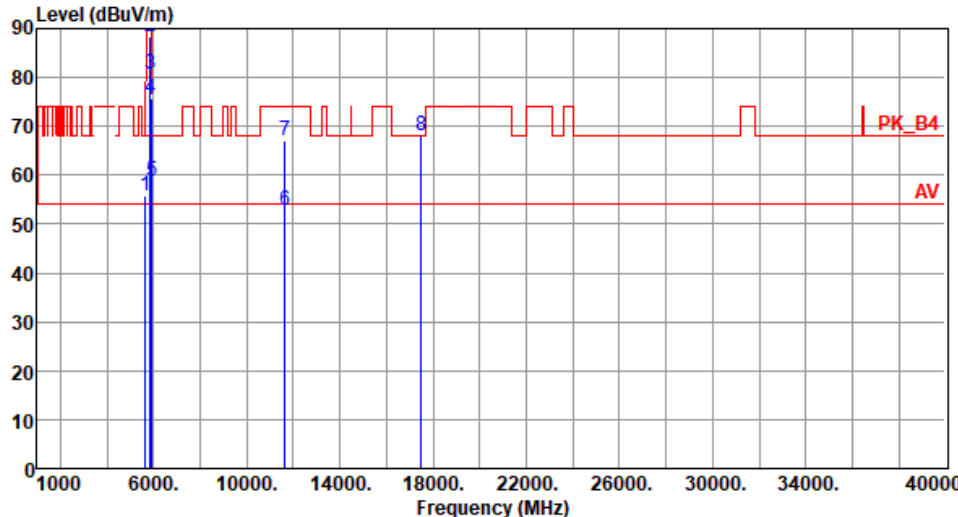
Modulation	ax HE20	Test Freq. (MHz)	5745																																																																																										
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Modulation	ax HE20	Test Freq. (MHz)	5745																																																																																																														
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Modulation	ax HE20	Test Freq. (MHz)	5785																																																												
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Test By :Roger Lu Temperature(°C):25 Humidity(%):61																																																															
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Polarization	Vertical																																																														
Test By :Roger Lu Temperature(°C):25 Humidity(%):61																																																															
Level (dBUV/m)  Frequency (MHz) <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>5650.00</td><td>59.79</td><td>68.20</td><td>-8.41</td><td>55.34</td><td>4.45</td><td>Peak</td><td>246</td><td>357</td></tr><tr><td>2</td><td>5925.00</td><td>60.68</td><td>68.20</td><td>-7.52</td><td>55.30</td><td>5.38</td><td>Peak</td><td>246</td><td>357</td></tr><tr><td>3</td><td>11570.00</td><td>53.73</td><td>54.00</td><td>-0.27</td><td>39.05</td><td>14.68</td><td>Average</td><td>100</td><td>288</td></tr><tr><td>4</td><td>11570.00</td><td>65.97</td><td>74.00</td><td>-8.03</td><td>51.29</td><td>14.68</td><td>Peak</td><td>100</td><td>288</td></tr><tr><td>5</td><td>17355.00</td><td>67.44</td><td>68.20</td><td>-0.76</td><td>49.33</td><td>18.11</td><td>Peak</td><td>331</td><td>262</td></tr></tbody></table> 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).					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	59.79	68.20	-8.41	55.34	4.45	Peak	246	357	2	5925.00	60.68	68.20	-7.52	55.30	5.38	Peak	246	357	3	11570.00	53.73	54.00	-0.27	39.05	14.68	Average	100	288	4	11570.00	65.97	74.00	-8.03	51.29	14.68	Peak	100	288	5	17355.00	67.44	68.20	-0.76	49.33	18.11	Peak	331	262
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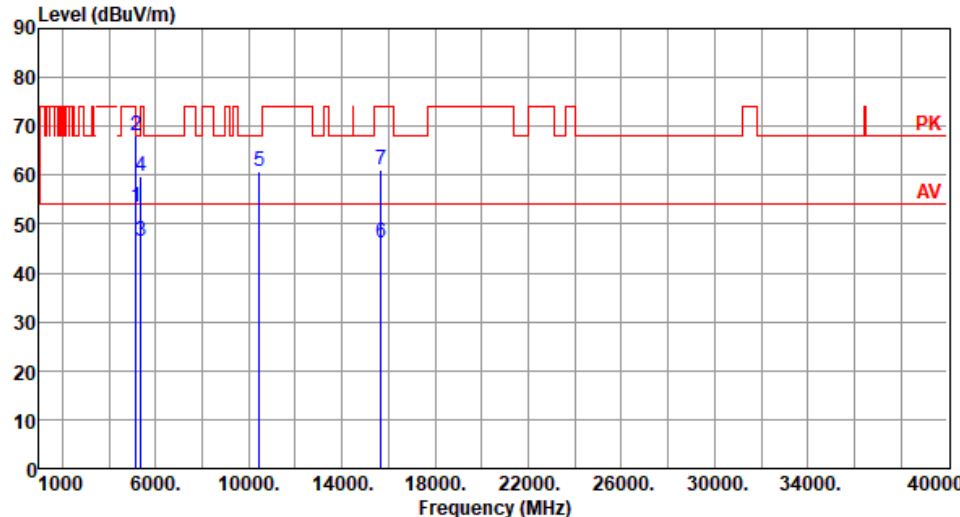
Modulation	ax HE20	Test Freq. (MHz)	5825																																																																																										
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	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																																				
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3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax (HE40)

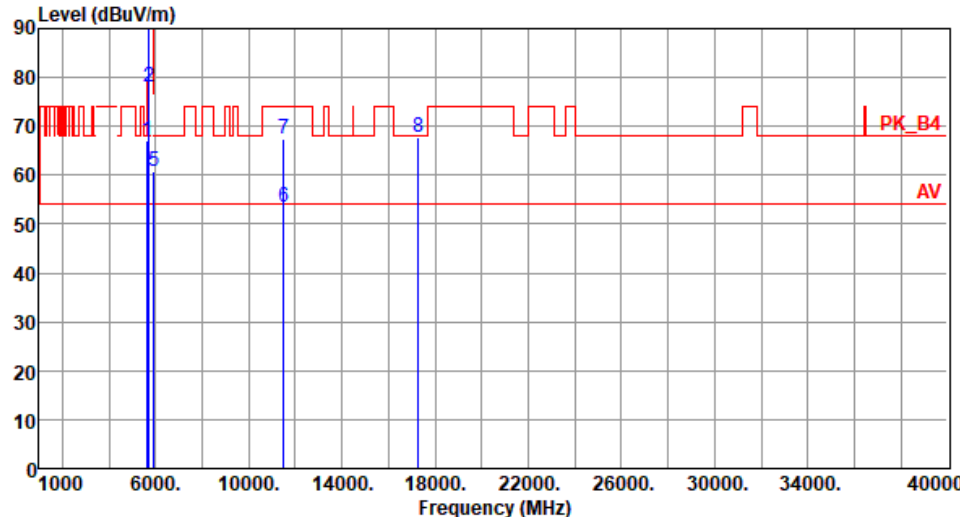
Modulation	ax HE40	Test Freq. (MHz)	5190
Polarization	Horizontal		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBuV/m)			

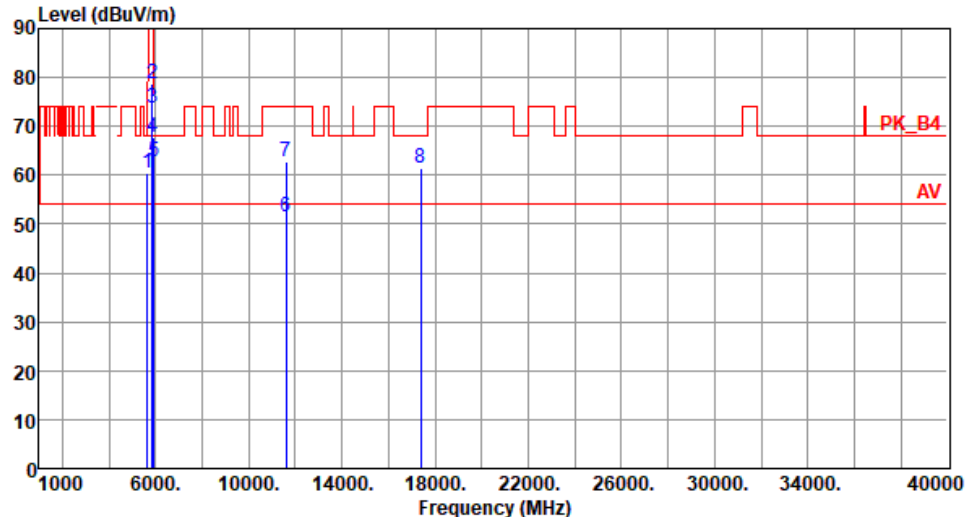
Modulation	ax HE40	Test Freq. (MHz)	5190
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBUV/m)			

Modulation	ax HE40	Test Freq. (MHz)	5230																																																																																										
Polarization	Horizontal																																																																																												
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Modulation	ax HE40	Test Freq. (MHz)	5230
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBuV/m)			

Modulation	ax HE40	Test Freq. (MHz)	5755
Polarization	Horizontal		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBUV/m) <			

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3	5720.00	89.35	110.80	-21.45	84.56	4.79	Peak	256	359																																																																																				
4	5725.00	90.87	122.20	-31.33	86.06	4.81	Peak	256	359																																																																																				
5	5925.00	60.72	68.20	-7.48	55.34	5.38	Peak	256	359																																																																																				
6	11510.00	53.59	54.00	-0.41	38.85	14.74	Average	100	290																																																																																				
7	11510.00	67.36	74.00	-6.64	52.62	14.74	Peak	100	290																																																																																				
8	17265.00	67.81	68.20	-0.39	50.17	17.64	Peak	298	265																																																																																				

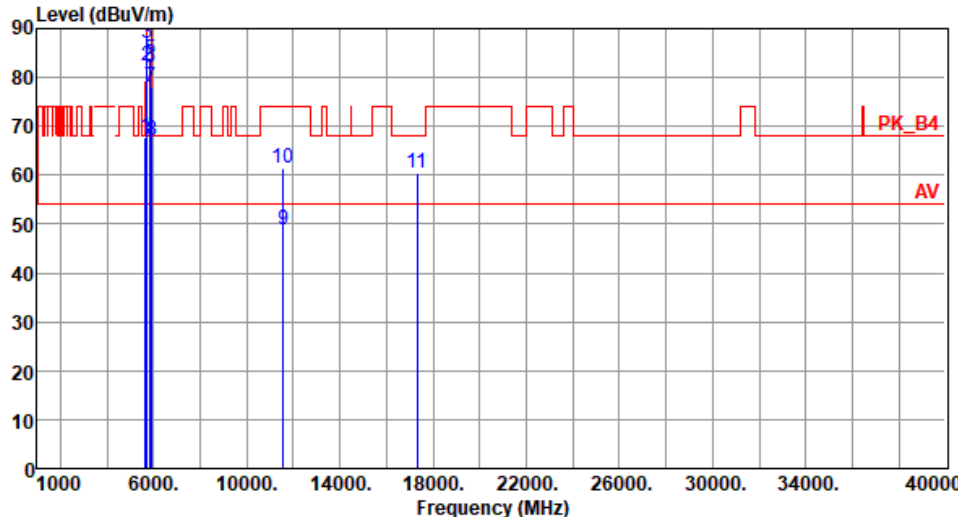
Modulation	ax HE40	Test Freq. (MHz)	5795																																																																																										
Polarization	Horizontal																																																																																												
Test By :Roger Lu Temperature(°C):25 Humidity(%):61																																																																																													
Level (dBUV/m)  Frequency (MHz) <table><tr><th></th><th>Freq. MHz</th><th>Emission level dBUV/m</th><th>Limit dBUV/m</th><th>Margin dB</th><th>SA reading dBUV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>5650.00</td><td>60.41</td><td>68.20</td><td>-7.79</td><td>55.96</td><td>4.45</td><td>Peak</td><td>362</td><td>147</td></tr><tr><td>2</td><td>5850.00</td><td>78.75</td><td>122.20</td><td>-43.45</td><td>73.57</td><td>5.18</td><td>Peak</td><td>362</td><td>147</td></tr><tr><td>3</td><td>5855.00</td><td>73.79</td><td>110.80</td><td>-37.01</td><td>68.60</td><td>5.19</td><td>Peak</td><td>362</td><td>147</td></tr><tr><td>4</td><td>5875.00</td><td>67.74</td><td>105.20</td><td>-37.46</td><td>62.46</td><td>5.28</td><td>Peak</td><td>362</td><td>147</td></tr><tr><td>5</td><td>5925.00</td><td>62.69</td><td>68.20</td><td>-5.51</td><td>57.31</td><td>5.38</td><td>Peak</td><td>362</td><td>147</td></tr><tr><td>6</td><td>11590.00</td><td>51.61</td><td>54.00</td><td>-2.39</td><td>36.95</td><td>14.66</td><td>Average</td><td>135</td><td>282</td></tr><tr><td>7</td><td>11590.00</td><td>62.92</td><td>74.00</td><td>-11.08</td><td>48.26</td><td>14.66</td><td>Peak</td><td>135</td><td>282</td></tr><tr><td>8</td><td>17385.00</td><td>61.46</td><td>68.20</td><td>-6.74</td><td>43.15</td><td>18.31</td><td>Peak</td><td>100</td><td>12</td></tr></table>					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	60.41	68.20	-7.79	55.96	4.45	Peak	362	147	2	5850.00	78.75	122.20	-43.45	73.57	5.18	Peak	362	147	3	5855.00	73.79	110.80	-37.01	68.60	5.19	Peak	362	147	4	5875.00	67.74	105.20	-37.46	62.46	5.28	Peak	362	147	5	5925.00	62.69	68.20	-5.51	57.31	5.38	Peak	362	147	6	11590.00	51.61	54.00	-2.39	36.95	14.66	Average	135	282	7	11590.00	62.92	74.00	-11.08	48.26	14.66	Peak	135	282	8	17385.00	61.46	68.20	-6.74	43.15	18.31	Peak	100	12
	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	60.41	68.20	-7.79	55.96	4.45	Peak	362	147																																																																																				
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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).																																																																																													

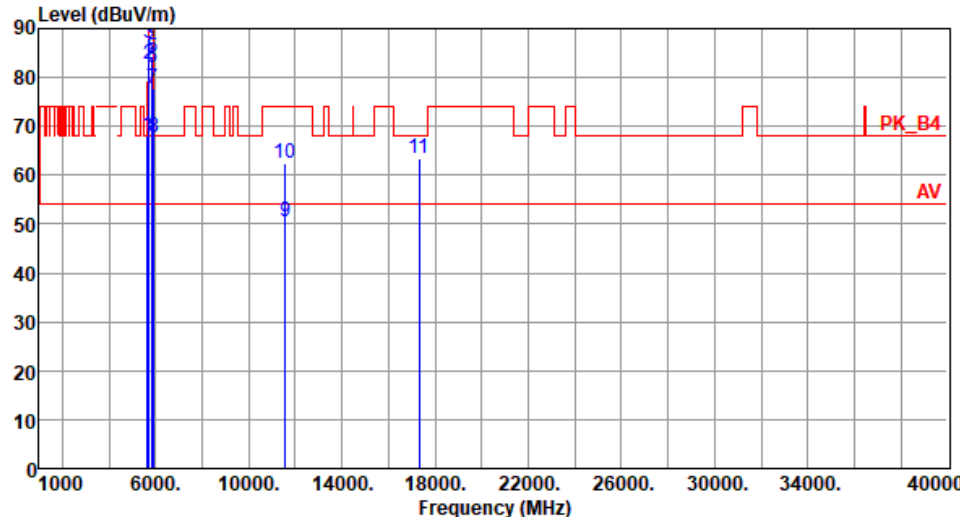
Modulation	ax HE40	Test Freq. (MHz)	5795
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBUV/m) </			

3.5.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax HE80

Modulation	ax HE80	Test Freq. (MHz)	5210
Polarization	Horizontal		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBuV/m) <			

Modulation	ax HE80	Test Freq. (MHz)	5210
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):61			
Level (dBuV/m)			

Modulation	ax HE80	Test Freq. (MHz)	5775																																																																																																																																		
Polarization	Horizontal																																																																																																																																				
Test By :Roger Lu Temperature(°C):25 Humidity(%):61																																																																																																																																					
Level (dBUV/m)  <table><tr><th></th><th>Freq.</th><th>Emission level</th><th>Limit</th><th>Margin</th><th>SA reading</th><th>Factor</th><th>Remark</th><th>ANT High</th><th>Turn Table</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>5650.00</td><td>67.72</td><td>68.20</td><td>-0.48</td><td>63.27</td><td>4.45</td><td>Peak</td><td>364</td><td>145</td></tr><tr><td>2</td><td>5700.00</td><td>82.39</td><td>105.20</td><td>-22.81</td><td>77.70</td><td>4.69</td><td>Peak</td><td>364</td><td>145</td></tr><tr><td>3</td><td>5720.00</td><td>86.86</td><td>110.80</td><td>-23.94</td><td>82.07</td><td>4.79</td><td>Peak</td><td>364</td><td>145</td></tr><tr><td>4</td><td>5725.00</td><td>88.50</td><td>122.20</td><td>-33.70</td><td>83.69</td><td>4.81</td><td>Peak</td><td>364</td><td>145</td></tr><tr><td>5</td><td>5850.00</td><td>83.58</td><td>122.20</td><td>-38.62</td><td>78.40</td><td>5.18</td><td>Peak</td><td>364</td><td>145</td></tr><tr><td>6</td><td>5855.00</td><td>82.08</td><td>110.80</td><td>-28.72</td><td>76.89</td><td>5.19</td><td>Peak</td><td>364</td><td>145</td></tr><tr><td>7</td><td>5875.00</td><td>77.90</td><td>105.20</td><td>-27.30</td><td>72.62</td><td>5.28</td><td>Peak</td><td>364</td><td>145</td></tr><tr><td>8</td><td>5925.00</td><td>66.94</td><td>68.20</td><td>-1.26</td><td>61.56</td><td>5.38</td><td>Peak</td><td>364</td><td>145</td></tr><tr><td>9</td><td>11550.00</td><td>48.96</td><td>54.00</td><td>-5.04</td><td>34.26</td><td>14.70</td><td>Average</td><td>135</td><td>288</td></tr><tr><td>10</td><td>11550.00</td><td>61.29</td><td>74.00</td><td>-12.71</td><td>46.59</td><td>14.70</td><td>Peak</td><td>135</td><td>288</td></tr><tr><td>11</td><td>17325.00</td><td>60.29</td><td>68.20</td><td>-7.91</td><td>42.39</td><td>17.90</td><td>Peak</td><td>100</td><td>14</td></tr></table>					Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg	1	5650.00	67.72	68.20	-0.48	63.27	4.45	Peak	364	145	2	5700.00	82.39	105.20	-22.81	77.70	4.69	Peak	364	145	3	5720.00	86.86	110.80	-23.94	82.07	4.79	Peak	364	145	4	5725.00	88.50	122.20	-33.70	83.69	4.81	Peak	364	145	5	5850.00	83.58	122.20	-38.62	78.40	5.18	Peak	364	145	6	5855.00	82.08	110.80	-28.72	76.89	5.19	Peak	364	145	7	5875.00	77.90	105.20	-27.30	72.62	5.28	Peak	364	145	8	5925.00	66.94	68.20	-1.26	61.56	5.38	Peak	364	145	9	11550.00	48.96	54.00	-5.04	34.26	14.70	Average	135	288	10	11550.00	61.29	74.00	-12.71	46.59	14.70	Peak	135	288	11	17325.00	60.29	68.20	-7.91	42.39	17.90	Peak	100	14
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table																																																																																																																												
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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 HE80	Test Freq. (MHz)	5775																																																																																																																																		
Polarization	Vertical																																																																																																																																				
Test By :Roger Lu Temperature(°C):25 Humidity(%):61																																																																																																																																					
Level (dBUV/m)  Frequency (MHz) <table><tr><th></th><th>Freq.</th><th>Emission level</th><th>Limit</th><th>Margin</th><th>SA reading</th><th>Factor</th><th>Remark</th><th>ANT High</th><th>Turn Table</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>5650.00</td><td>67.95</td><td>68.20</td><td>-0.25</td><td>63.50</td><td>4.45</td><td>Peak</td><td>258</td><td>1</td></tr><tr><td>2</td><td>5700.00</td><td>82.79</td><td>105.20</td><td>-22.41</td><td>78.10</td><td>4.69</td><td>Peak</td><td>258</td><td>1</td></tr><tr><td>3</td><td>5720.00</td><td>86.99</td><td>110.80</td><td>-23.81</td><td>82.20</td><td>4.79</td><td>Peak</td><td>258</td><td>1</td></tr><tr><td>4</td><td>5725.00</td><td>87.88</td><td>122.20</td><td>-34.32</td><td>83.07</td><td>4.81</td><td>Peak</td><td>258</td><td>1</td></tr><tr><td>5</td><td>5850.00</td><td>84.18</td><td>122.20</td><td>-38.02</td><td>79.00</td><td>5.18</td><td>Peak</td><td>258</td><td>1</td></tr><tr><td>6</td><td>5855.00</td><td>81.95</td><td>110.80</td><td>-28.85</td><td>76.76</td><td>5.19</td><td>Peak</td><td>258</td><td>1</td></tr><tr><td>7</td><td>5875.00</td><td>77.84</td><td>105.20</td><td>-27.36</td><td>72.56</td><td>5.28</td><td>Peak</td><td>258</td><td>1</td></tr><tr><td>8</td><td>5925.00</td><td>67.69</td><td>68.20</td><td>-0.51</td><td>62.31</td><td>5.38</td><td>Peak</td><td>258</td><td>1</td></tr><tr><td>9</td><td>11550.00</td><td>50.56</td><td>54.00</td><td>-3.44</td><td>35.86</td><td>14.70</td><td>Average</td><td>100</td><td>289</td></tr><tr><td>10</td><td>11550.00</td><td>62.38</td><td>74.00</td><td>-11.62</td><td>47.68</td><td>14.70</td><td>Peak</td><td>100</td><td>289</td></tr><tr><td>11</td><td>17325.00</td><td>63.49</td><td>68.20</td><td>-4.71</td><td>45.59</td><td>17.90</td><td>Peak</td><td>333</td><td>265</td></tr></table>					Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg	1	5650.00	67.95	68.20	-0.25	63.50	4.45	Peak	258	1	2	5700.00	82.79	105.20	-22.41	78.10	4.69	Peak	258	1	3	5720.00	86.99	110.80	-23.81	82.20	4.79	Peak	258	1	4	5725.00	87.88	122.20	-34.32	83.07	4.81	Peak	258	1	5	5850.00	84.18	122.20	-38.02	79.00	5.18	Peak	258	1	6	5855.00	81.95	110.80	-28.85	76.76	5.19	Peak	258	1	7	5875.00	77.84	105.20	-27.36	72.56	5.28	Peak	258	1	8	5925.00	67.69	68.20	-0.51	62.31	5.38	Peak	258	1	9	11550.00	50.56	54.00	-3.44	35.86	14.70	Average	100	289	10	11550.00	62.38	74.00	-11.62	47.68	14.70	Peak	100	289	11	17325.00	63.49	68.20	-4.71	45.59	17.90	Peak	333	265
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table																																																																																																																												
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3.6 Frequency Stability

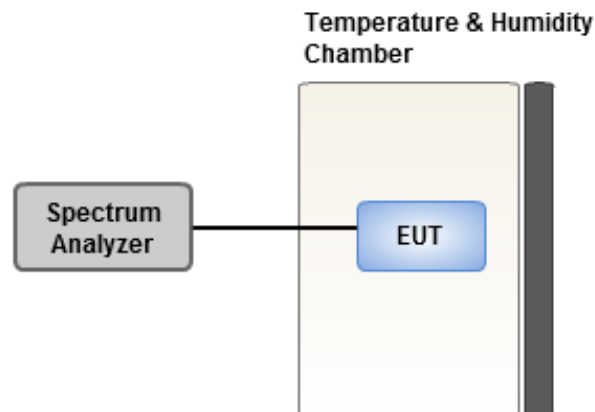
3.6.1 Limit of Frequency Stability

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.

3.6.2 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.

3.6.3 Test Setup



3.6.4 Test Result of Frequency Stability

Ambient Condition	24~25°C / 65~67%	Tested By	Aska Huang
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Frequency: 5200 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°C Vmax	5.17	4.80	5.09	4.59
T20°C Vmin	4.00	3.69	3.99	4.24
T50°C Vnom	-5.01	-4.59	-5.12	-4.88
T40°C Vnom	-9.70	-9.13	-9.75	-9.18
T30°C Vnom	-8.21	-7.90	-7.59	-7.28
T20°C Vnom	4.41	4.35	3.99	4.24
T10°C Vnom	1.56	1.29	1.42	1.50
T0°C Vnom	4.57	4.26	4.21	5.05
T-10°C Vnom	6.45	6.64	6.67	6.63
T-20°C Vnom	11.98	11.77	12.01	11.42
T-30°C Vnom	18.11	17.68	18.49	17.30
Vnom [V]: 120	Vmax [V]: 138			Vmin [V]: 102
Tnom [°C]: 20	Tmax [°C]: 50			Tmin [°C]: -30

Frequency: 5785 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°C Vmax	4.76	4.87	5.63	5.04
T20°C Vmin	4.19	4.43	4.42	4.10
T50°C Vnom	-4.54	-4.21	-4.29	-3.99
T40°C Vnom	-8.09	-8.79	-7.95	-9.11
T30°C Vnom	-7.25	-7.08	-6.52	-6.47
T20°C Vnom	5.09	4.17	4.81	4.71
T10°C Vnom	1.43	1.48	1.62	1.37
T0°C Vnom	4.13	4.11	4.67	3.60
T-10°C Vnom	6.10	5.78	5.78	6.28
T-20°C Vnom	11.66	10.62	10.87	11.15
T-30°C Vnom	16.87	16.34	16.51	16.67
Vnom [V]: 120	Vmax [V]: 138			Vmin [V]: 102
Tnom [°C]: 20	Tmax [°C]: 50			Tmin [°C]: -30

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

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

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