

FCC Test Report

FCC ID : RF41539C
Equipment : Handheld Terminal
Model No. : DX-A400
Brand Name : KEYENCE
Applicant : KEYENCE CORPORATION
Address : 1-3-14 HIGASHI-NAKAJIMA,
HIGASHI-YODOGAWA-KU, OSAKA, JAPAN
Standard : 47 CFR FCC Part 15.407
Received Date : Jun. 21, 2021
Tested Date : Aug. 03 ~ Aug. 12, 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:

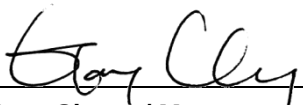

Gary Chang / Manager



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Release Record

Report No.	Version	Description	Issued Date
FR162103AN	Rev. 01	Initial issue	Nov. 16, 2021

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.564MHz 28.39 (Margin -17.61dB) - AV	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 5350.00MHz 52.97 (Margin -1.03dB) - 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: 14.47 5250~5350MHz: 14.55	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 5250-5350	a	5180-5240 5260-5320	36-48 [4] 52-64 [4]	1	6-54 Mbps
5150-5250 5250-5350	n (HT20)	5180-5240 5260-5320	36-48 [4] 52-64 [4]	1	MCS 0-7
5150-5250 5250-5350	n (HT40)	5190-5230 5270-5310	38-46 [2] 54-62 [2]	1	MCS 0-7
5150-5250 5250-5350	ac (VHT20)	5180-5240 5260-5320	36-48 [4] 52-64 [4]	1	MCS 0-9
5150-5250 5250-5350	ac (VHT40)	5190-5230 5270-5310	38-46 [2] 54-62 [2]	1	MCS 0-9
5150-5250 5250-5350	ac (VHT80)	5210 5290	42 [1] 58 [1]	1	MCS 0-9

Note 1: RF output power specifies that Maximum Conducted Output Power.
 Note 2: 802.11a/n/ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.

1.1.2 Antenna Details

Ant. No.	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)		
			2400~2483.5	5150~5250	5250~5350
1	PIFA	No	-0.23	4.81	4.81

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	3.8Vdc
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1.1.4 Accessories

Accessories		
No.	Equipment	Description
1	Battery	Brand: KEYENCE Model: DX-BQ3 Rating: 3.8Vdc (11.51Wh) 3030mAh

1.1.5 Channel List

802.11 a / HT20 / VHT20		HT40 / VHT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	38	5190
40	5200	46	5230
44	5220	54	5270
48	5240	62	5310
52	5260	VHT80	
56	5280	42	5210
60	5300	58	5290
64	5320	---	---

1.1.6 Test Tool and Duty Cycle

Test Tool	Function Test, V10		
Duty Cycle and Duty Factor	Mode	Duty Cycle (%)	Duty Factor (dB)
	11a	97.99%	0.09
	VHT20	97.86%	0.09
	VHT40	95.03%	0.22
	VHT80	89.06%	0.50

1.1.7 Power Index of Test Tool

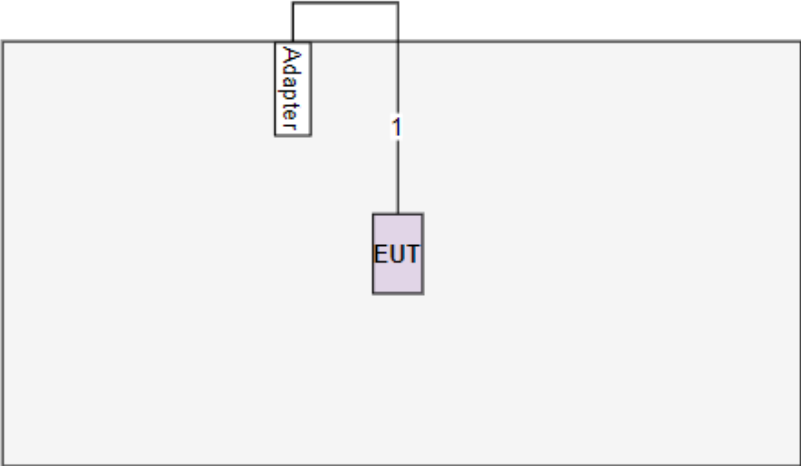
Modulation Mode	Test Frequency (MHz)	Power Index
11a	5180	16
11a	5200	16
11a	5240	16
11a	5260	16
11a	5300	16
11a	5320	16
VHT20	5180	16
VHT20	5200	16
VHT20	5240	16
VHT20	5260	16
VHT20	5300	16
VHT20	5320	16
VHT40	5190	16
VHT40	5230	16
VHT40	5270	16
VHT40	5310	16
VHT80	5210	15
VHT80	5290	14.5

1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Adapter	PHIHONG	PSA10F-050Q	---	Provided by applicant. Input: 100-240V~ 50/60Hz, 0.35A Output: 5.0V=2.0A, 10.0W

Note: Adapter is used for charging only.

1.3 Test Setup Chart

Test Setup Diagram	
	
No.	Signal cable / Length (m)
1	USB, 1m shielded. (Provided by applicant.)

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Aug. 12, 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)				
Tested Date	Aug. 03 ~ Aug. 05, 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. 14, 2021	Jul. 13, 2022
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)				
Tested Date	Aug. 10, 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
DC POWER SOURCE	GW INSTEK	GPC-6030D	GES855395	Nov. 09, 2020	Nov. 08, 2021
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GTH-150-40-CP-AR-T	MAA1407-012	Sep. 10, 2020	Sep. 09, 2021
Measurement Software	Sporton	SENSE-15407_NII	V5.10	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 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
- ISED#: 10807A
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate (Mbps) / MCS	Test Configuration
Conducted Emissions	VHT40	5310	MCS 0	---
Radiated Emissions ≤1GHz	VHT40	5310	MCS 0	---
RF Output Power	11a	5180 / 5200 / 5240 5260 / 5300 / 5320	6 Mbps	---
	VHT20	5180 / 5200 / 5240 5260 / 5300 / 5320	MCS 0	
	VHT40	5190 / 5230 5270 / 5310	MCS 0	
	VHT80	5210 / 5290	MCS 0	
Radiated Emissions >1GHz Emission Bandwidth Peak Power Spectral Density	11a	5180 / 5200 / 5240 5260 / 5300 / 5320	6 Mbps	---
	VHT20	5180 / 5200 / 5240 5260 / 5300 / 5320	MCS 0	
	VHT40	5190 / 5230 5270 / 5310	MCS 0	
	VHT80	5210 / 5290	MCS 0	
Frequency Stability	Un-modulation	5260	---	---

NOTE:

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

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

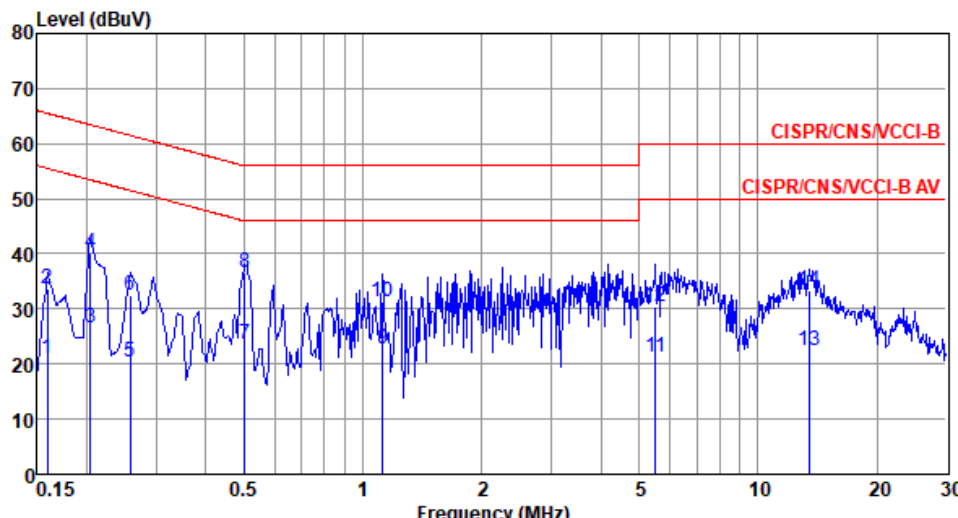
3.1.3 Test Setup



- 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	VHT40	Test Freq. (MHz)	5310																																																																																																																																							
Power Phase	Line																																																																																																																																									
Test by : Joe Liao Temperature: 22°C Humidity: 68%																																																																																																																																										
Level (dBuV) <table><thead><tr><th></th><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>Factor</th><th>Cable</th><th></th></tr><tr><th></th><th>MHz</th><th>dBuA</th><th>Line</th><th>Limit</th><th>Level</th><th></th><th>loss</th><th>Remark</th></tr><tr><th></th><th></th><th></th><th>dBuA</th><th>dB</th><th>dBuA</th><th>dB</th><th>dB</th><th></th></tr></thead><tbody><tr><td>1</td><td>0.150</td><td>30.10</td><td>56.00</td><td>-25.90</td><td>20.22</td><td>9.83</td><td>0.05</td><td>Average</td></tr><tr><td>2</td><td>0.150</td><td>43.91</td><td>66.00</td><td>-22.09</td><td>34.03</td><td>9.83</td><td>0.05</td><td>QP</td></tr><tr><td>3</td><td>0.186</td><td>17.41</td><td>54.20</td><td>-36.79</td><td>7.51</td><td>9.84</td><td>0.06</td><td>Average</td></tr><tr><td>4</td><td>0.186</td><td>30.59</td><td>64.20</td><td>-33.61</td><td>20.69</td><td>9.84</td><td>0.06</td><td>QP</td></tr><tr><td>5</td><td>0.358</td><td>23.09</td><td>48.78</td><td>-25.69</td><td>13.13</td><td>9.88</td><td>0.08</td><td>Average</td></tr><tr><td>6</td><td>0.358</td><td>30.63</td><td>58.78</td><td>-28.15</td><td>20.67</td><td>9.88</td><td>0.08</td><td>QP</td></tr><tr><td>7*</td><td>0.564</td><td>28.39</td><td>46.00</td><td>-17.61</td><td>18.36</td><td>9.93</td><td>0.10</td><td>Average</td></tr><tr><td>8</td><td>0.564</td><td>37.31</td><td>56.00</td><td>-18.69</td><td>27.28</td><td>9.93</td><td>0.10</td><td>QP</td></tr><tr><td>9</td><td>2.765</td><td>19.86</td><td>46.00</td><td>-26.14</td><td>9.61</td><td>10.02</td><td>0.23</td><td>Average</td></tr><tr><td>10</td><td>2.765</td><td>29.65</td><td>56.00</td><td>-26.35</td><td>19.40</td><td>10.02</td><td>0.23</td><td>QP</td></tr><tr><td>11</td><td>19.021</td><td>15.78</td><td>50.00</td><td>-34.22</td><td>4.87</td><td>10.25</td><td>0.66</td><td>Average</td></tr><tr><td>12</td><td>19.021</td><td>24.27</td><td>60.00</td><td>-35.73</td><td>13.36</td><td>10.25</td><td>0.66</td><td>QP</td></tr></tbody></table>					Freq	Level	Limit	Over	Read	Factor	Cable			MHz	dBuA	Line	Limit	Level		loss	Remark				dBuA	dB	dBuA	dB	dB		1	0.150	30.10	56.00	-25.90	20.22	9.83	0.05	Average	2	0.150	43.91	66.00	-22.09	34.03	9.83	0.05	QP	3	0.186	17.41	54.20	-36.79	7.51	9.84	0.06	Average	4	0.186	30.59	64.20	-33.61	20.69	9.84	0.06	QP	5	0.358	23.09	48.78	-25.69	13.13	9.88	0.08	Average	6	0.358	30.63	58.78	-28.15	20.67	9.88	0.08	QP	7*	0.564	28.39	46.00	-17.61	18.36	9.93	0.10	Average	8	0.564	37.31	56.00	-18.69	27.28	9.93	0.10	QP	9	2.765	19.86	46.00	-26.14	9.61	10.02	0.23	Average	10	2.765	29.65	56.00	-26.35	19.40	10.02	0.23	QP	11	19.021	15.78	50.00	-34.22	4.87	10.25	0.66	Average	12	19.021	24.27	60.00	-35.73	13.36	10.25	0.66	QP
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Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB). 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).																																																																																																																																										

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Power Phase	Neutral																																																																																																																																																											
Test by : Joe Liao Temperature: 22°C Humidity: 68%																																																																																																																																																												
Level (dBuV)  <table><tr><th></th><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>Factor</th><th>Cable</th><th></th></tr><tr><th></th><th>MHz</th><th>dBuA</th><th>Line</th><th>Limit</th><th>Level</th><th></th><th>loss</th><th>Remark</th></tr><tr><th></th><th></th><th></th><th>dBuA</th><th>dB</th><th>dBuA</th><th>dB</th><th>dB</th><th></th></tr><tr><td>1</td><td>0.159</td><td>20.90</td><td>55.52</td><td>-34.62</td><td>11.03</td><td>9.82</td><td>0.05</td><td>Average</td></tr><tr><td>2</td><td>0.159</td><td>33.70</td><td>65.52</td><td>-31.82</td><td>23.83</td><td>9.82</td><td>0.05</td><td>QP</td></tr><tr><td>3</td><td>0.204</td><td>26.71</td><td>53.45</td><td>-26.74</td><td>16.82</td><td>9.83</td><td>0.06</td><td>Average</td></tr><tr><td>4</td><td>0.204</td><td>40.08</td><td>63.45</td><td>-23.37</td><td>30.19</td><td>9.83</td><td>0.06</td><td>QP</td></tr><tr><td>5</td><td>0.258</td><td>20.38</td><td>51.51</td><td>-31.13</td><td>10.47</td><td>9.84</td><td>0.07</td><td>Average</td></tr><tr><td>6</td><td>0.258</td><td>32.60</td><td>61.51</td><td>-28.91</td><td>22.69</td><td>9.84</td><td>0.07</td><td>QP</td></tr><tr><td>7</td><td>0.502</td><td>23.62</td><td>46.00</td><td>-22.38</td><td>13.67</td><td>9.86</td><td>0.09</td><td>Average</td></tr><tr><td>8*</td><td>0.502</td><td>36.69</td><td>56.00</td><td>-19.31</td><td>26.74</td><td>9.86</td><td>0.09</td><td>QP</td></tr><tr><td>9</td><td>1.123</td><td>22.67</td><td>46.00</td><td>-23.33</td><td>12.65</td><td>9.89</td><td>0.13</td><td>Average</td></tr><tr><td>10</td><td>1.123</td><td>31.16</td><td>56.00</td><td>-24.84</td><td>21.14</td><td>9.89</td><td>0.13</td><td>QP</td></tr><tr><td>11</td><td>5.505</td><td>21.15</td><td>50.00</td><td>-28.85</td><td>10.81</td><td>10.01</td><td>0.33</td><td>Average</td></tr><tr><td>12</td><td>5.505</td><td>30.29</td><td>60.00</td><td>-29.71</td><td>19.95</td><td>10.01</td><td>0.33</td><td>QP</td></tr><tr><td>13</td><td>13.551</td><td>22.55</td><td>50.00</td><td>-27.45</td><td>11.81</td><td>10.19</td><td>0.55</td><td>Average</td></tr><tr><td>14</td><td>13.551</td><td>33.32</td><td>60.00</td><td>-26.68</td><td>22.58</td><td>10.19</td><td>0.55</td><td>QP</td></tr></table>					Freq	Level	Limit	Over	Read	Factor	Cable			MHz	dBuA	Line	Limit	Level		loss	Remark				dBuA	dB	dBuA	dB	dB		1	0.159	20.90	55.52	-34.62	11.03	9.82	0.05	Average	2	0.159	33.70	65.52	-31.82	23.83	9.82	0.05	QP	3	0.204	26.71	53.45	-26.74	16.82	9.83	0.06	Average	4	0.204	40.08	63.45	-23.37	30.19	9.83	0.06	QP	5	0.258	20.38	51.51	-31.13	10.47	9.84	0.07	Average	6	0.258	32.60	61.51	-28.91	22.69	9.84	0.07	QP	7	0.502	23.62	46.00	-22.38	13.67	9.86	0.09	Average	8*	0.502	36.69	56.00	-19.31	26.74	9.86	0.09	QP	9	1.123	22.67	46.00	-23.33	12.65	9.89	0.13	Average	10	1.123	31.16	56.00	-24.84	21.14	9.89	0.13	QP	11	5.505	21.15	50.00	-28.85	10.81	10.01	0.33	Average	12	5.505	30.29	60.00	-29.71	19.95	10.01	0.33	QP	13	13.551	22.55	50.00	-27.45	11.81	10.19	0.55	Average	14	13.551	33.32	60.00	-26.68	22.58	10.19	0.55	QP
	Freq	Level	Limit	Over	Read	Factor	Cable																																																																																																																																																					
	MHz	dBuA	Line	Limit	Level		loss	Remark																																																																																																																																																				
			dBuA	dB	dBuA	dB	dB																																																																																																																																																					
1	0.159	20.90	55.52	-34.62	11.03	9.82	0.05	Average																																																																																																																																																				
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3	0.204	26.71	53.45	-26.74	16.82	9.83	0.06	Average																																																																																																																																																				
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12	5.505	30.29	60.00	-29.71	19.95	10.01	0.33	QP																																																																																																																																																				
13	13.551	22.55	50.00	-27.45	11.81	10.19	0.55	Average																																																																																																																																																				
14	13.551	33.32	60.00	-26.68	22.58	10.19	0.55	QP																																																																																																																																																				
Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB). 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).																																																																																																																																																												

3.2 Emission Bandwidth

3.2.1 Test Procedures

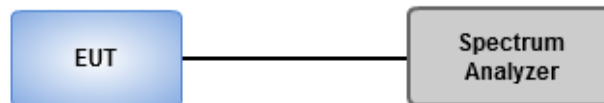
26dB Bandwidth

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.

3.2.2 Test Setup



3.2.3 Test Result of Emission Bandwidth

Ambient Condition	22°C / 64%	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)_1TX	19.783M	16.498M	16M5D1D	19.493M	16.425M
802.11ac VHT20_Nss1,(MCS0)_1TX	20.507M	17.583M	17M6D1D	20.362M	17.511M
802.11ac VHT40_Nss1,(MCS0)_1TX	40.725M	36.035M	36M0D1D	40.58M	35.89M
802.11ac VHT80_Nss1,(MCS0)_1TX	81.159M	75.253M	75M3D1D	81.159M	75.253M
5.25-5.35GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	19.783M	16.425M	16M4D1D	19.565M	16.353M
802.11ac VHT20_Nss1,(MCS0)_1TX	20.362M	17.583M	17M6D1D	20.072M	17.511M
802.11ac VHT40_Nss1,(MCS0)_1TX	40.725M	36.035M	36M0D1D	40M	36.035M
802.11ac VHT80_Nss1,(MCS0)_1TX	81.159M	75.253M	75M3D1D	81.159M	75.253M

Max-N dB = Maximum 26dB down bandwidth

Max-OBW = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 26dB down bandwidth

Min-OBW = Minimum 99% occupied bandwidth;

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-
5180MHz	Pass	Inf	19.783M	16.425M
5200MHz	Pass	Inf	19.493M	16.498M
5240MHz	Pass	Inf	19.565M	16.425M
5260MHz	Pass	Inf	19.71M	16.425M
5300MHz	Pass	Inf	19.565M	16.353M
5320MHz	Pass	Inf	19.783M	16.353M
802.11ac VHT20_Nss1,(MCS0)_1TX	-	-	-	-
5180MHz	Pass	Inf	20.362M	17.583M
5200MHz	Pass	Inf	20.362M	17.511M
5240MHz	Pass	Inf	20.507M	17.583M
5260MHz	Pass	Inf	20.29M	17.511M
5300MHz	Pass	Inf	20.072M	17.583M
5320MHz	Pass	Inf	20.362M	17.583M
802.11ac VHT40_Nss1,(MCS0)_1TX	-	-	-	-
5190MHz	Pass	Inf	40.725M	35.89M
5230MHz	Pass	Inf	40.58M	36.035M
5270MHz	Pass	Inf	40M	36.035M
5310MHz	Pass	Inf	40.725M	36.035M
802.11ac VHT80_Nss1,(MCS0)_1TX	-	-	-	-
5210MHz	Pass	Inf	81.159M	75.253M
5290MHz	Pass	Inf	81.159M	75.253M

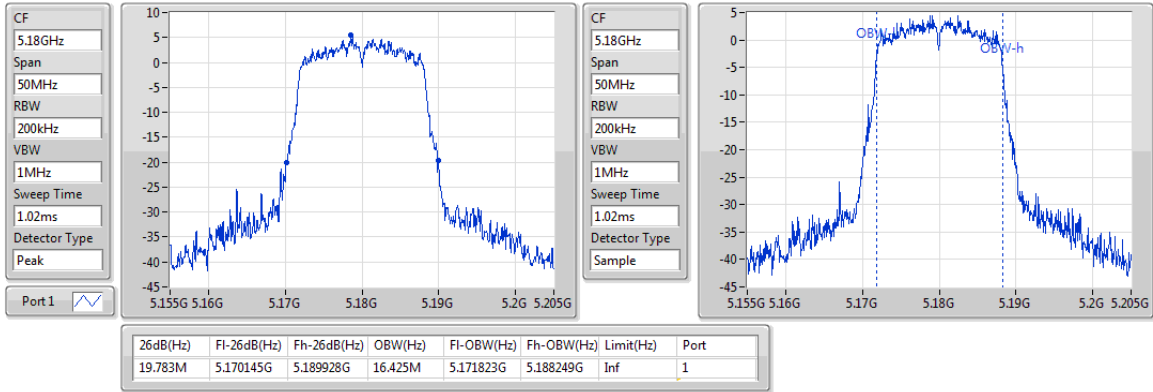
Port X-N dB = 26dB down bandwidth

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

802.11a_Nss1,(6Mbps)_1TX

EBW

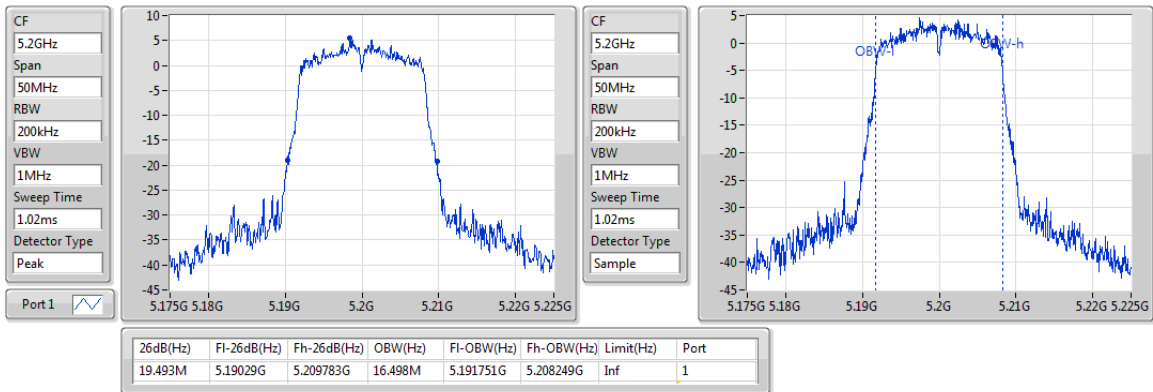
5180MHz



802.11a_Nss1,(6Mbps)_1TX

EBW

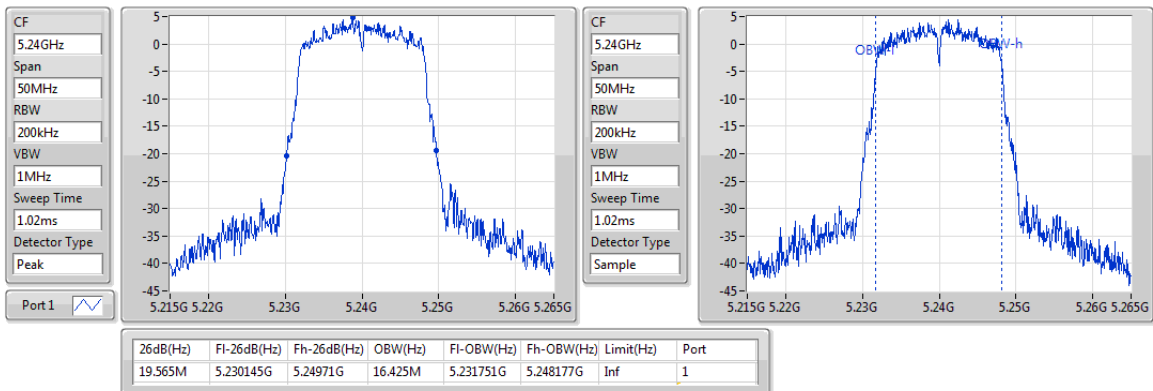
5200MHz



802.11a_Nss1,(6Mbps)_1TX

EBW

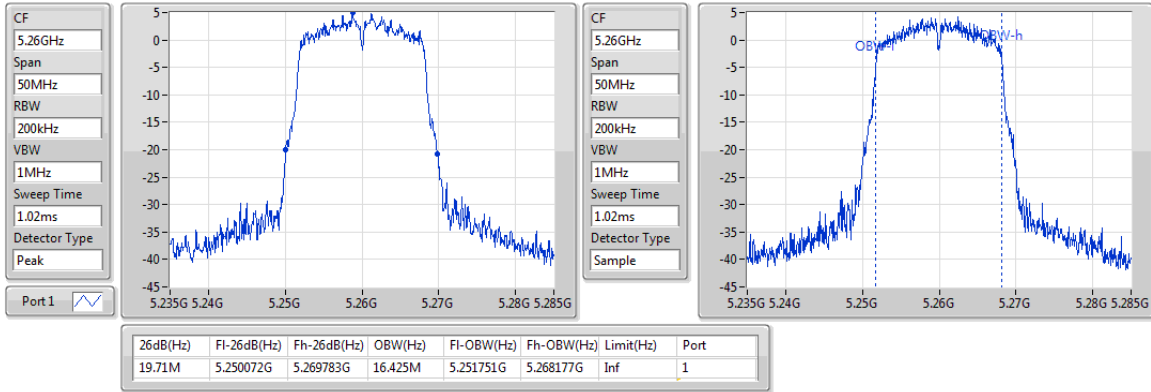
5240MHz



802.11a_Nss1,(6Mbps)_1TX

EBW

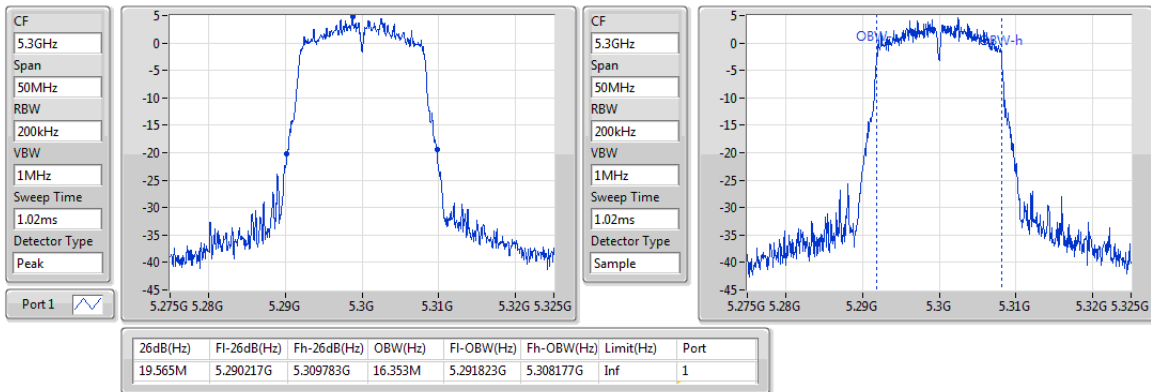
5260MHz



802.11a_Nss1,(6Mbps)_1TX

EBW

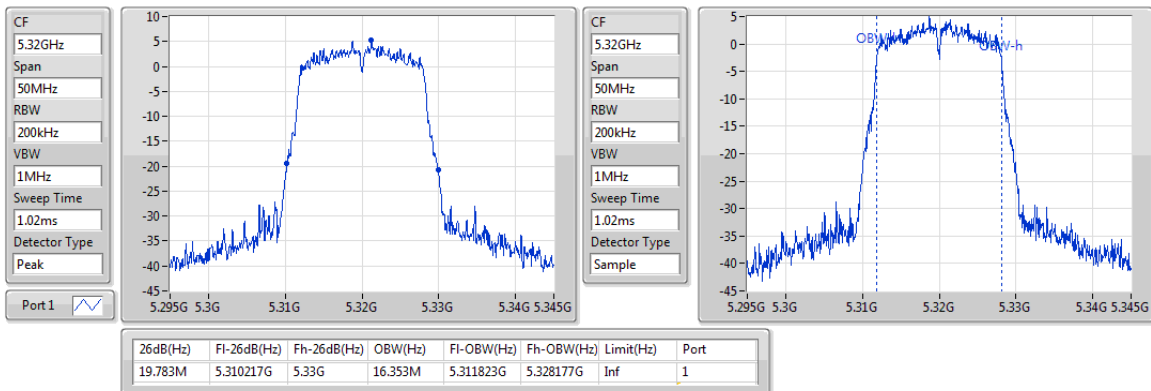
5300MHz



802.11a_Nss1,(6Mbps)_1TX

EBW

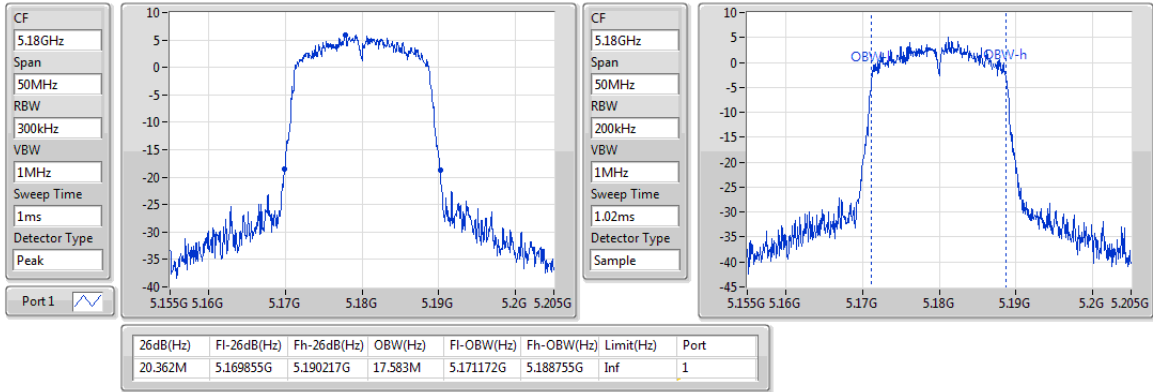
5320MHz



802.11ac VHT20_Nss1,(MCS0)_1TX

EBW

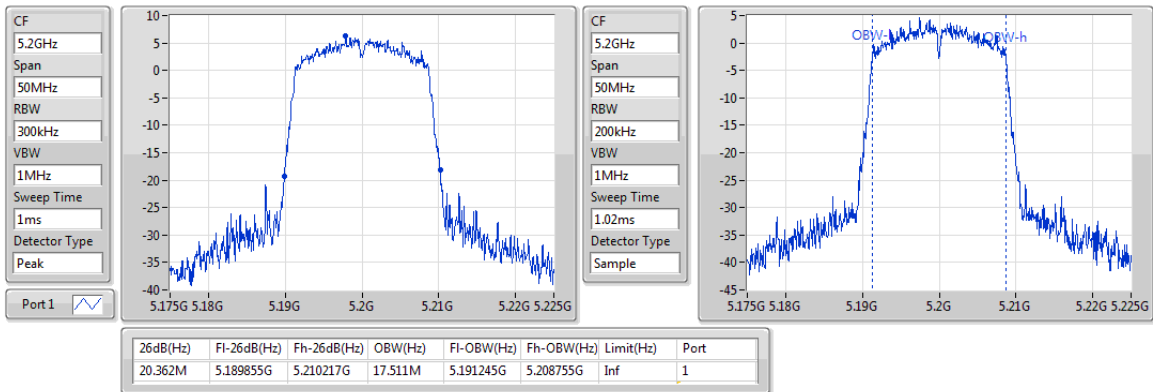
5180MHz



802.11ac VHT20_Nss1,(MCS0)_1TX

EBW

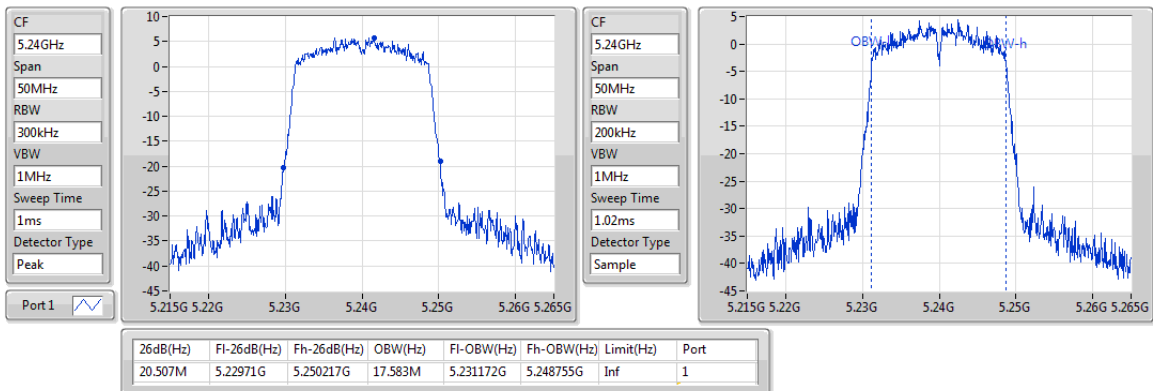
5200MHz



802.11ac VHT20_Nss1,(MCS0)_1TX

EBW

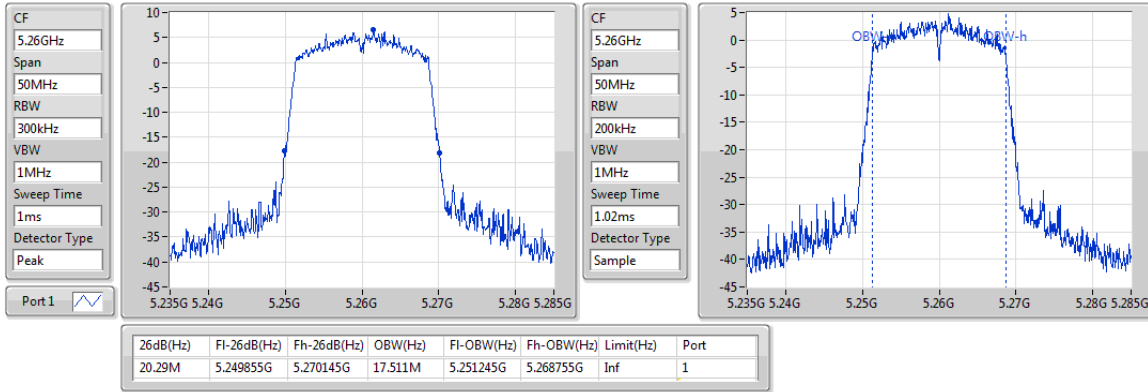
5240MHz



802.11ac VHT20_Nss1,(MCS0)_1TX

EBW

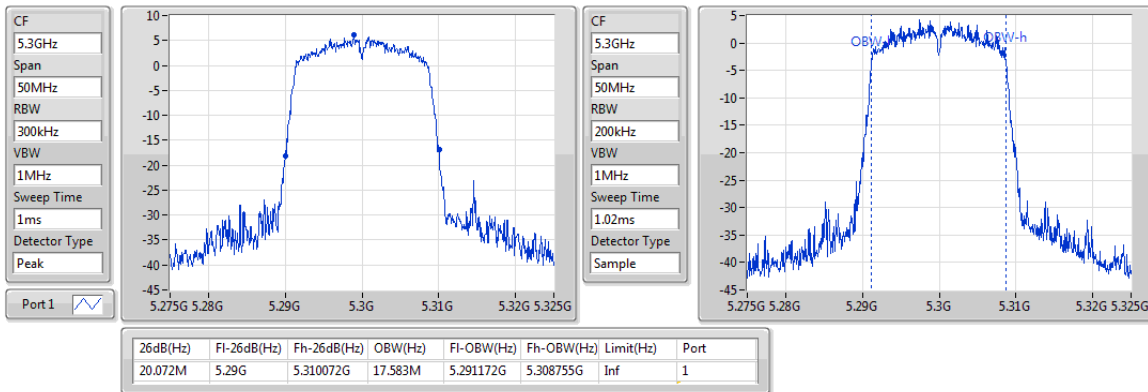
5260MHz



802.11ac VHT20_Nss1,(MCS0)_1TX

EBW

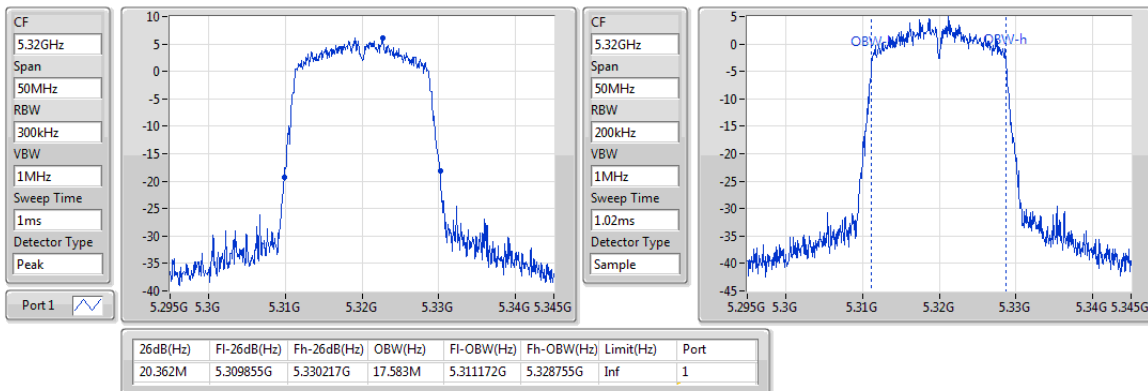
5300MHz



802.11ac VHT20_Nss1,(MCS0)_1TX

EBW

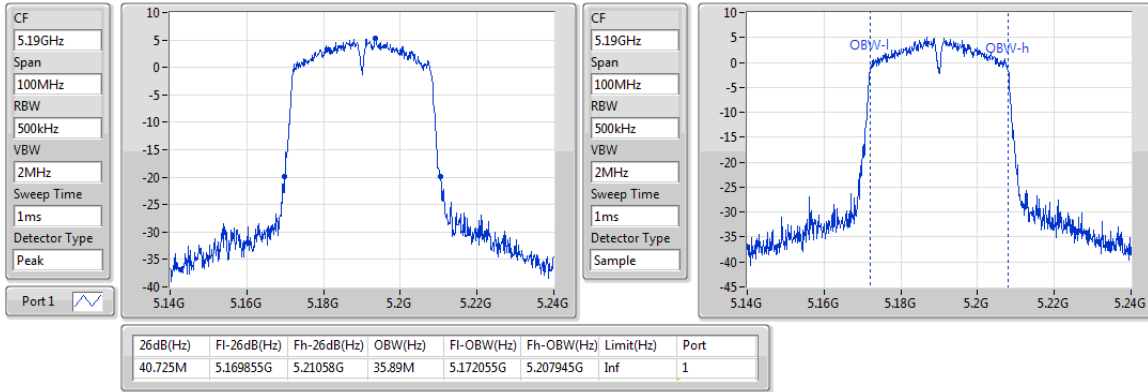
5320MHz



802.11ac VHT40_Nss1,(MCS0)_1TX

EBW

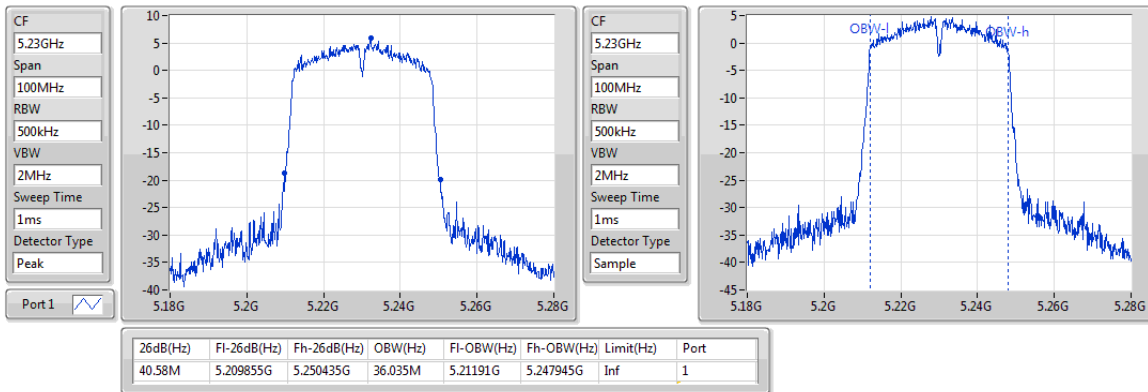
5190MHz



802.11ac VHT40_Nss1,(MCS0)_1TX

EBW

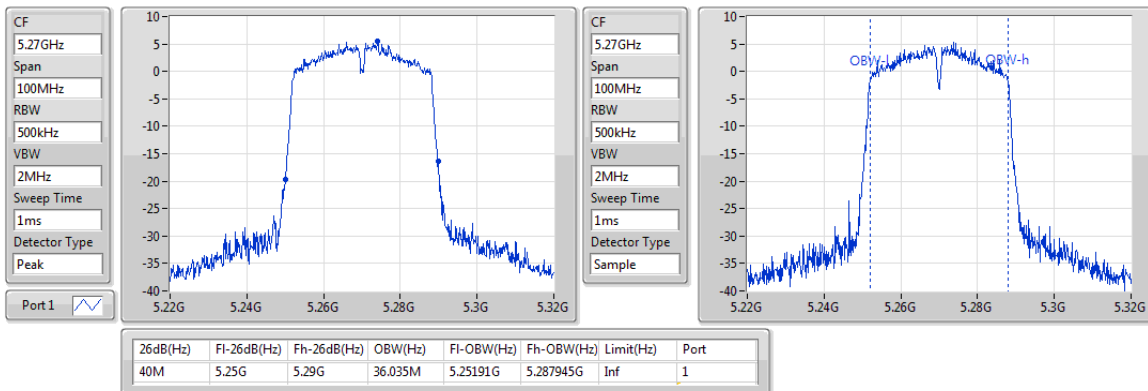
5230MHz



802.11ac VHT40_Nss1,(MCS0)_1TX

EBW

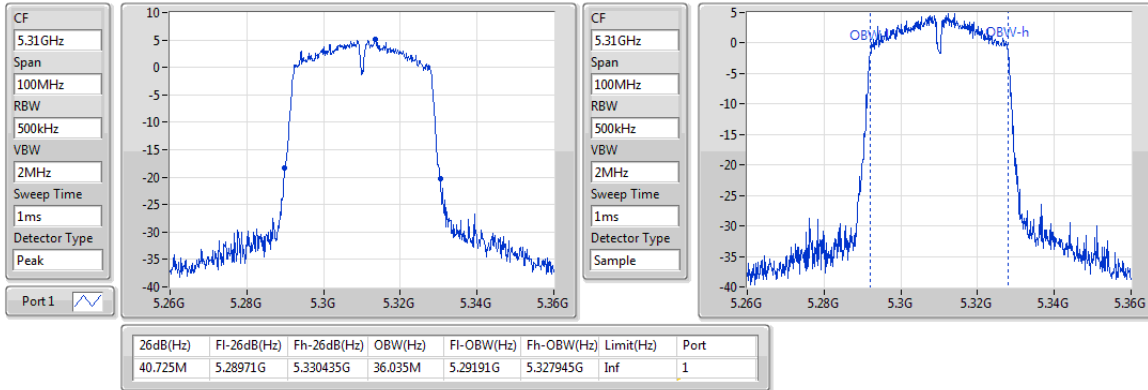
5270MHz



802.11ac VHT40_Nss1,(MCS0)_1TX

EBW

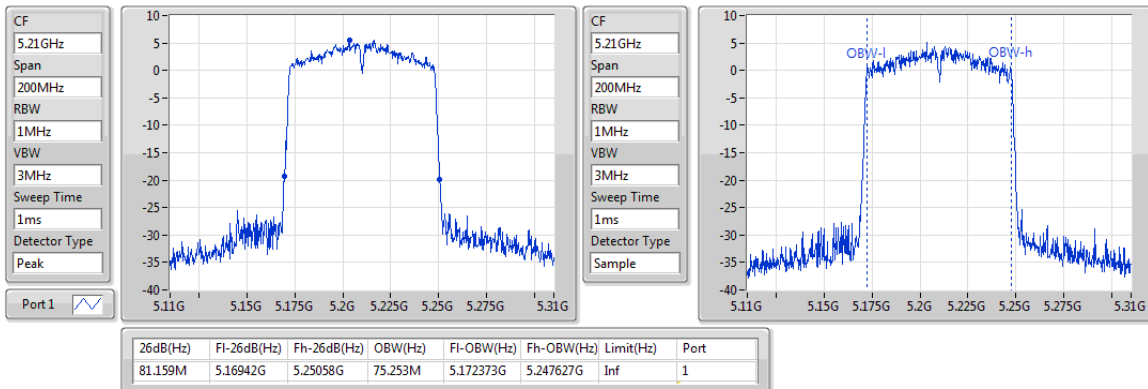
5310MHz



802.11ac VHT80_Nss1,(MCS0)_1TX

EBW

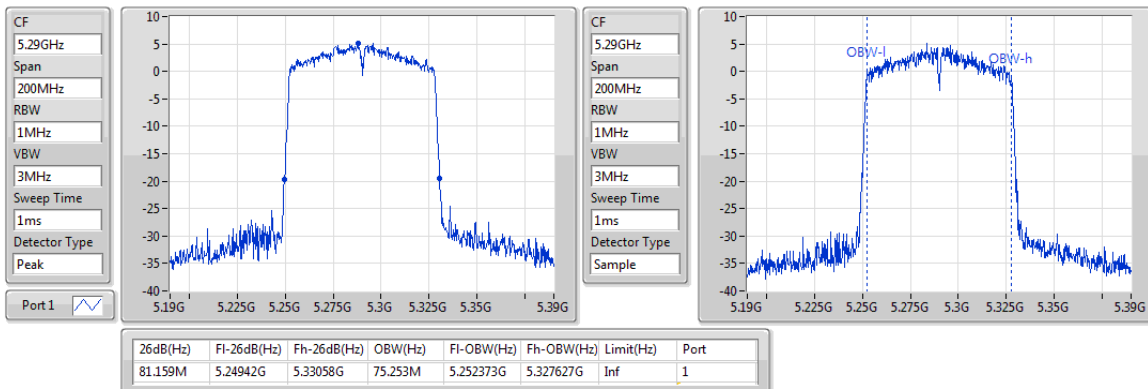
5210MHz



802.11ac VHT80_Nss1,(MCS0)_1TX

EBW

5290MHz



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

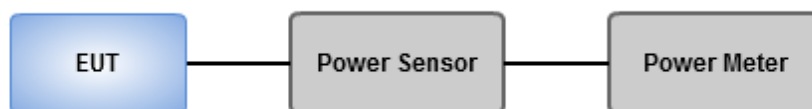
Frequency Band (MHz)		Limit
☒	5250 ~ 5350	Conducted Power: 250mW or 11dBm+10 log B
☐	5470 ~ 5725	Conducted Power: 250mW or 11dBm+10 log B
Note: "B" is the 26dB emission bandwidth in MHz.		

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	22°C / 64%	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)_1TX	14.47	0.02799	19.28	0.08472
802.11ac VHT20_Nss1,(MCS0)_1TX	14.27	0.02673	19.08	0.08091
802.11ac VHT40_Nss1,(MCS0)_1TX	14.25	0.02661	19.06	0.08054
802.11ac VHT80_Nss1,(MCS0)_1TX	13.30	0.02138	18.11	0.06471
5.25-5.35GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	14.46	0.02793	19.27	0.08453
802.11ac VHT20_Nss1,(MCS0)_1TX	14.35	0.02723	19.16	0.08241
802.11ac VHT40_Nss1,(MCS0)_1TX	14.55	0.02851	19.36	0.08630
802.11ac VHT80_Nss1,(MCS0)_1TX	12.77	0.01892	17.58	0.05728

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-	-	-	-
5180MHz	Pass	4.81	14.47	14.47	24.00	19.28	30.00
5200MHz	Pass	4.81	14.43	14.43	24.00	19.24	30.00
5240MHz	Pass	4.81	14.37	14.37	24.00	19.18	30.00
5260MHz	Pass	4.81	14.39	14.39	23.95	19.20	29.95
5300MHz	Pass	4.81	14.46	14.46	23.91	19.27	29.91
5320MHz	Pass	4.81	14.43	14.43	23.96	19.24	29.96
802.11ac VHT20_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-
5180MHz	Pass	4.81	14.27	14.27	24.00	19.08	30.00
5200MHz	Pass	4.81	14.22	14.22	24.00	19.03	30.00
5240MHz	Pass	4.81	14.2	14.20	24.00	19.01	30.00
5260MHz	Pass	4.81	14.32	14.32	24.00	19.13	30.00
5300MHz	Pass	4.81	14.33	14.33	24.00	19.14	30.00
5320MHz	Pass	4.81	14.35	14.35	24.00	19.16	30.00
802.11ac VHT40_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-
5190MHz	Pass	4.81	14.25	14.25	24.00	19.06	30.00
5230MHz	Pass	4.81	14.22	14.22	24.00	19.03	30.00
5270MHz	Pass	4.81	14.21	14.21	24.00	19.02	30.00
5310MHz	Pass	4.81	14.55	14.55	24.00	19.36	30.00
802.11ac VHT80_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-
5210MHz	Pass	4.81	13.3	13.30	24.00	18.11	30.00
5290MHz	Pass	4.81	12.77	12.77	24.00	17.58	30.00

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
☒	5250 ~ 5350	11 dBm / MHz

3.4.2 Test Procedures

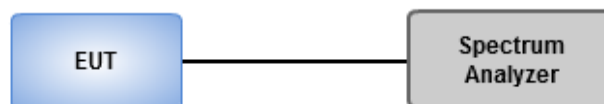
Duty cycle $\geq 98\%$

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.

3.4.3 Test Setup



3.4.4 Test Result of Peak Power Spectral Density

Ambient Condition	22°C / 64%	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)_1TX	2.87	7.68
802.11ac VHT20_Nss1,(MCS0)_1TX	2.67	7.48
802.11ac VHT40_Nss1,(MCS0)_1TX	-0.61	4.20
802.11ac VHT80_Nss1,(MCS0)_1TX	-4.59	0.22
5.25-5.35GHz	-	-
802.11a_Nss1,(6Mbps)_1TX	2.82	7.63
802.11ac VHT20_Nss1,(MCS0)_1TX	2.43	7.24
802.11ac VHT40_Nss1,(MCS0)_1TX	-0.56	4.25
802.11ac VHT80_Nss1,(MCS0)_1TX	-4.64	0.17

RBW = 1MHz

Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)	EIRP PD (dBm/RBW)	EIRP PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-	-	-	-
5180MHz	Pass	4.81	2.87	2.87	11.00	7.68	17.00
5200MHz	Pass	4.81	2.76	2.76	11.00	7.57	17.00
5240MHz	Pass	4.81	2.5	2.50	11.00	7.31	17.00
5260MHz	Pass	4.81	2.57	2.57	11.00	7.38	17.00
5300MHz	Pass	4.81	2.67	2.67	11.00	7.48	17.00
5320MHz	Pass	4.81	2.82	2.82	11.00	7.63	17.00
802.11ac VHT20_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-
5180MHz	Pass	4.81	2.67	2.67	11.00	7.48	17.00
5200MHz	Pass	4.81	2.54	2.54	11.00	7.35	17.00
5240MHz	Pass	4.81	2.33	2.33	11.00	7.14	17.00
5260MHz	Pass	4.81	2.43	2.43	11.00	7.24	17.00
5300MHz	Pass	4.81	2.27	2.27	11.00	7.08	17.00
5320MHz	Pass	4.81	2.3	2.30	11.00	7.11	17.00
802.11ac VHT40_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-
5190MHz	Pass	4.81	-0.61	-0.61	11.00	4.20	17.00
5230MHz	Pass	4.81	-0.61	-0.61	11.00	4.20	17.00
5270MHz	Pass	4.81	-0.56	-0.56	11.00	4.25	17.00
5310MHz	Pass	4.81	-0.62	-0.62	11.00	4.19	17.00
802.11ac VHT80_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-
5210MHz	Pass	4.81	-4.59	-4.59	11.00	0.22	17.00
5290MHz	Pass	4.81	-4.64	-4.64	11.00	0.17	17.00

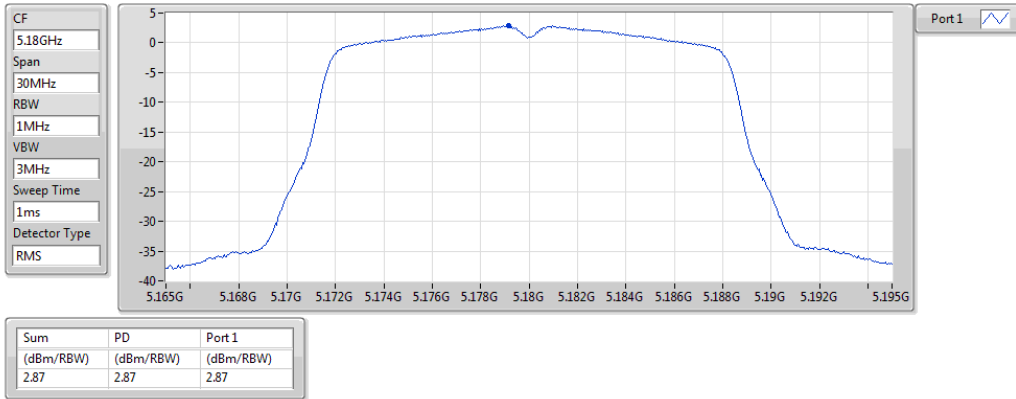
DG = Directional Gain; **RBW** = 1MHz

PD = Maximum power density; **Port X** = Port X power density;

802.11a_Nss1,(6Mbps)_1TX

PSD

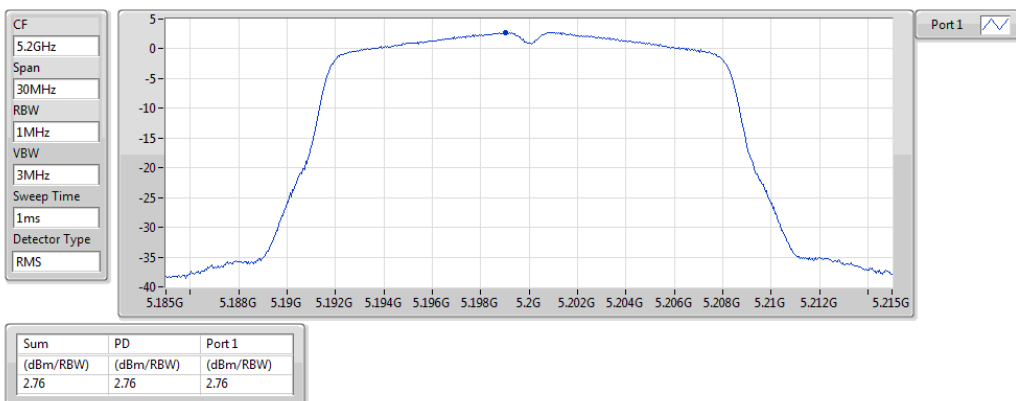
5180MHz



802.11a_Nss1,(6Mbps)_1TX

PSD

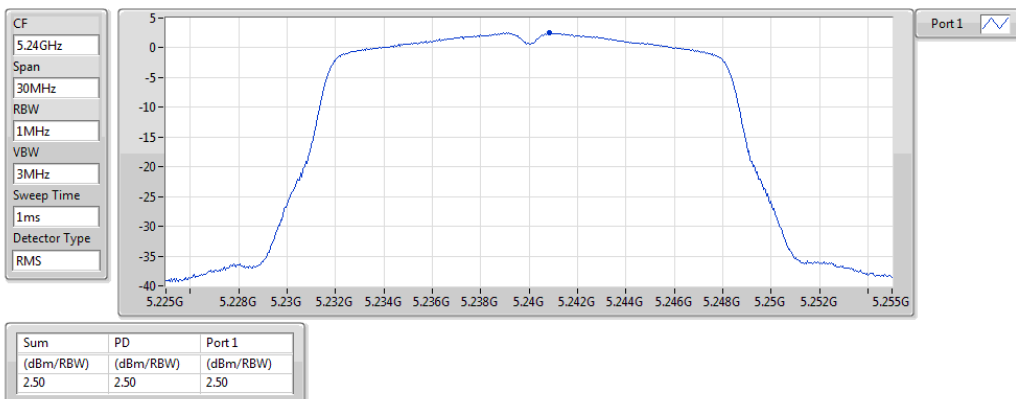
5200MHz



802.11a_Nss1,(6Mbps)_1TX

PSD

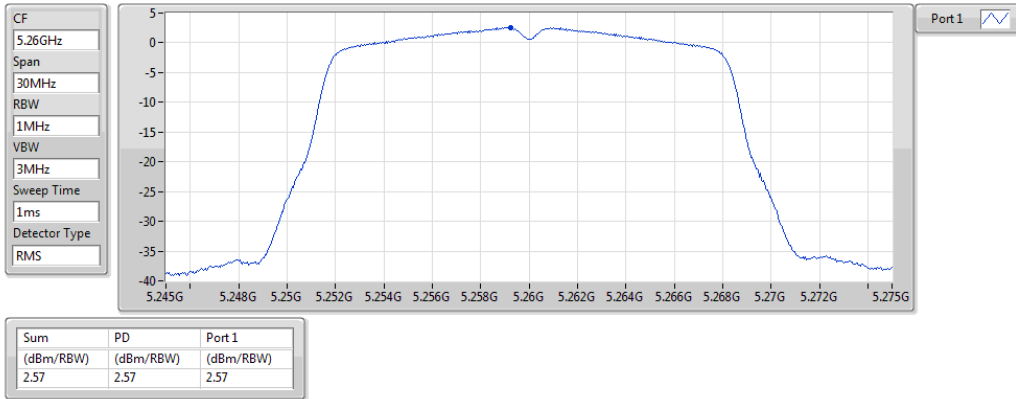
5240MHz



802.11a_Nss1,(6Mbps)_1TX

PSD

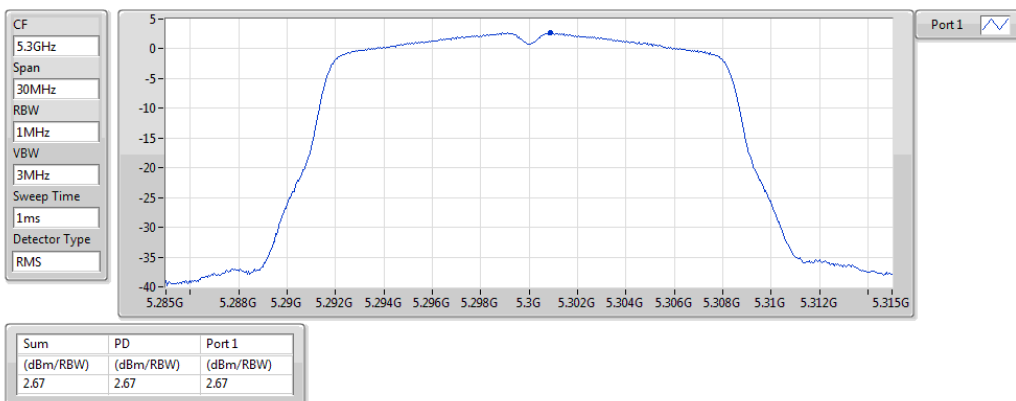
5260MHz



802.11a_Nss1,(6Mbps)_1TX

PSD

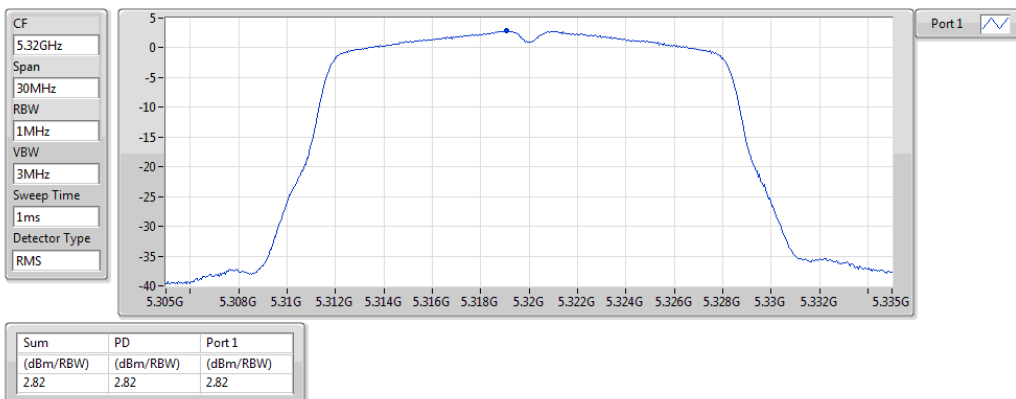
5300MHz



802.11a_Nss1,(6Mbps)_1TX

PSD

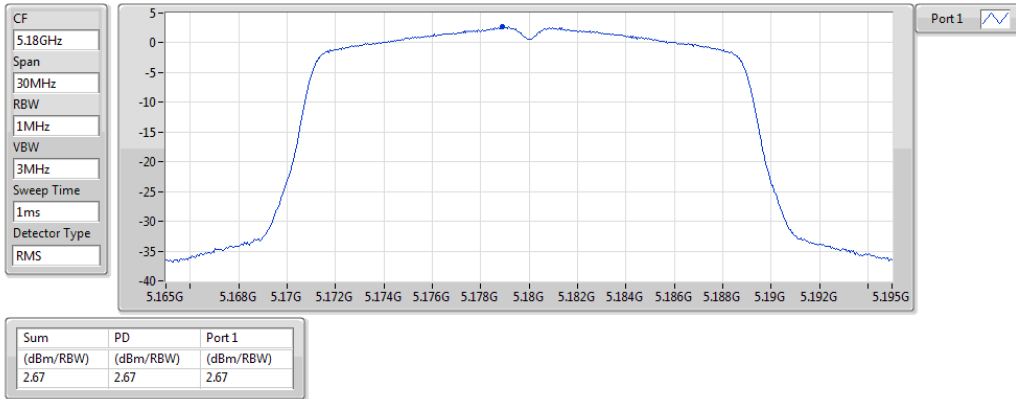
5320MHz



802.11ac VHT20_Nss1,(MCS0)_1TX

PSD

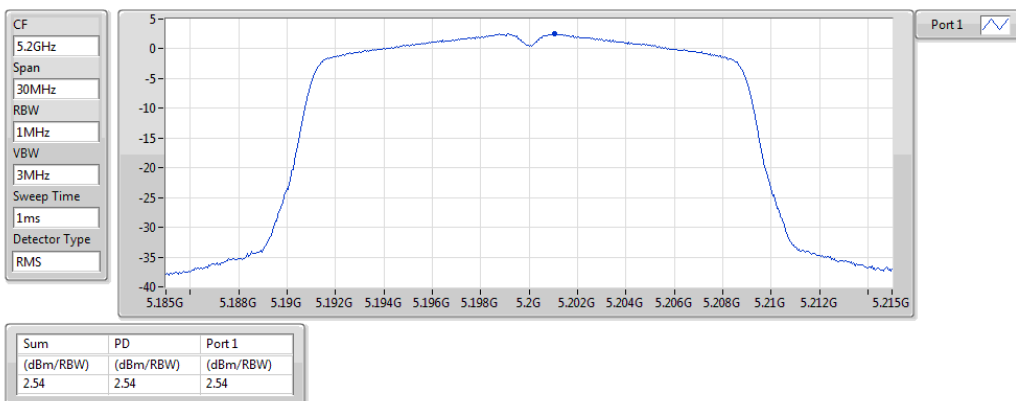
5180MHz



802.11ac VHT20_Nss1,(MCS0)_1TX

PSD

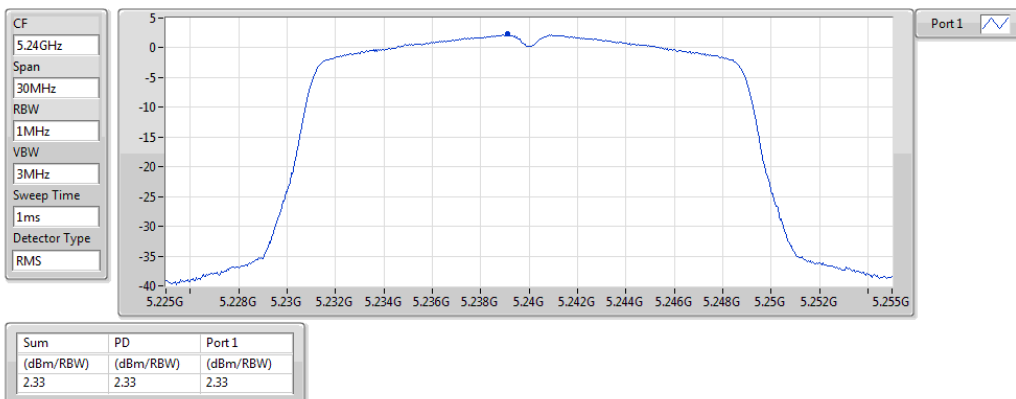
5200MHz



802.11ac VHT20_Nss1,(MCS0)_1TX

PSD

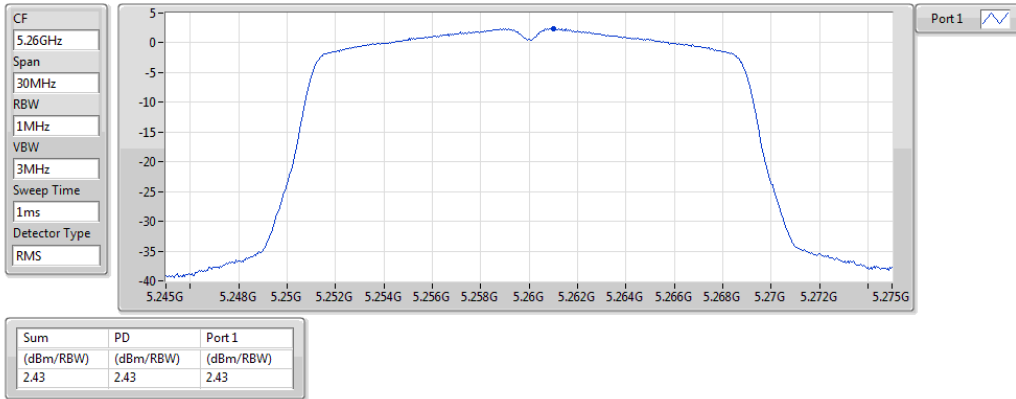
5240MHz



802.11ac VHT20_Nss1,(MCS0)_1TX

PSD

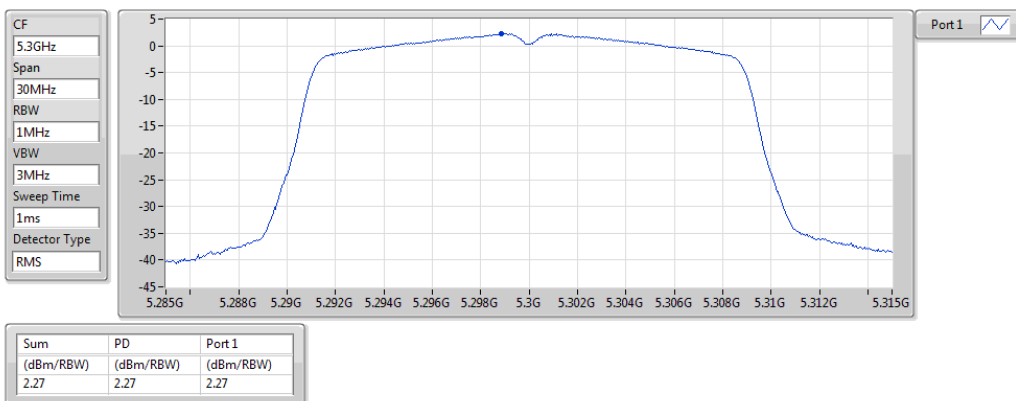
5260MHz



802.11ac VHT20_Nss1,(MCS0)_1TX

PSD

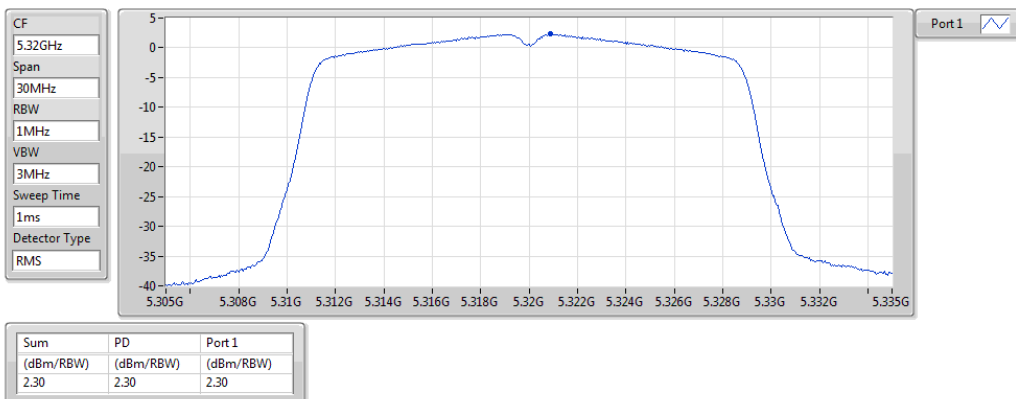
5300MHz



802.11ac VHT20_Nss1,(MCS0)_1TX

PSD

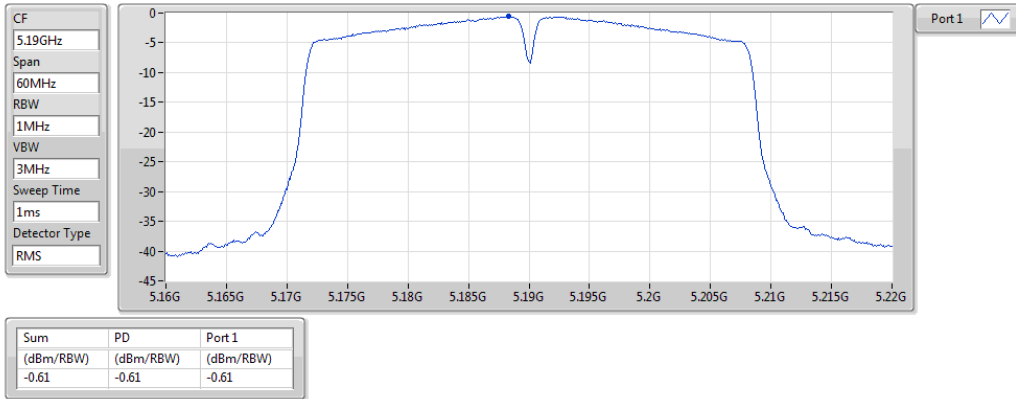
5320MHz



802.11ac VHT40_Nss1,(MCS0)_1TX

PSD

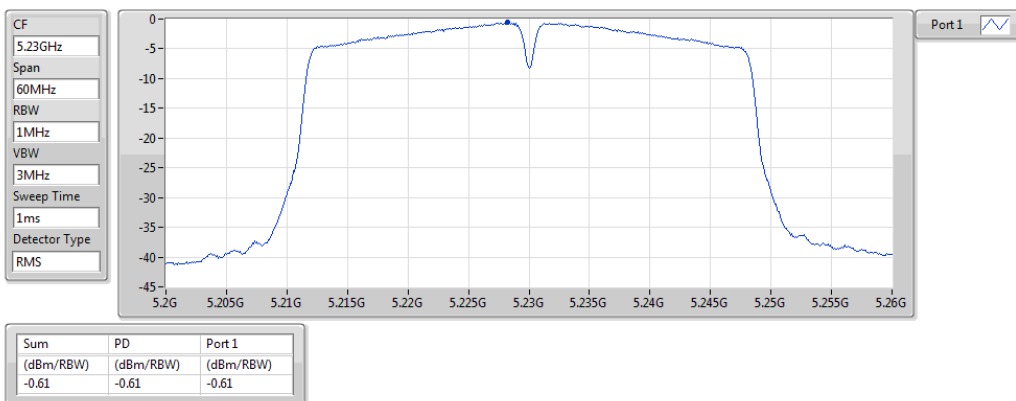
5190MHz



802.11ac VHT40_Nss1,(MCS0)_1TX

PSD

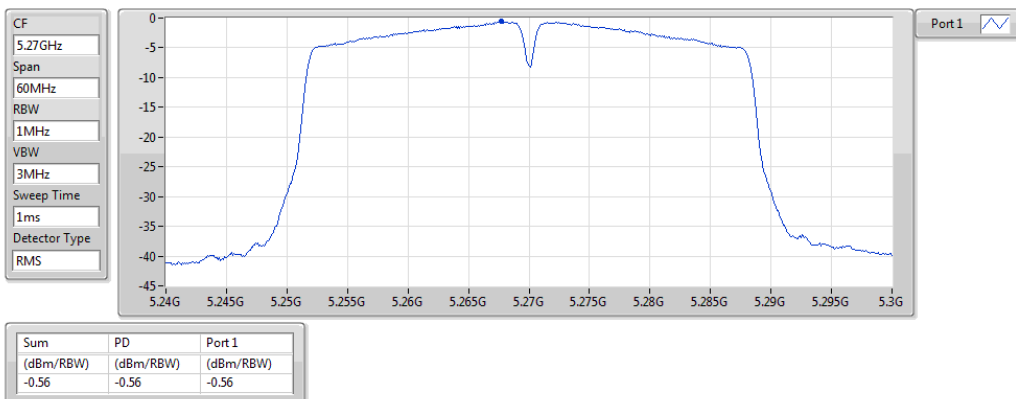
5230MHz



802.11ac VHT40_Nss1,(MCS0)_1TX

PSD

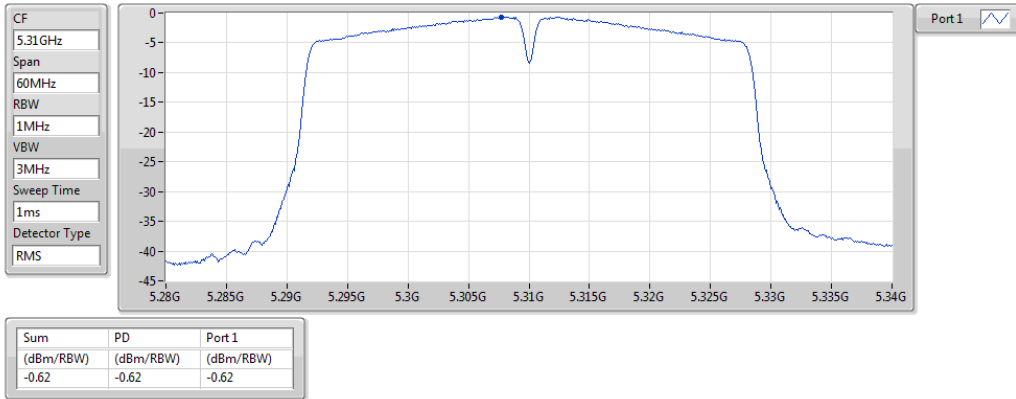
5270MHz



802.11ac VHT40_Nss1,(MCS0)_1TX

PSD

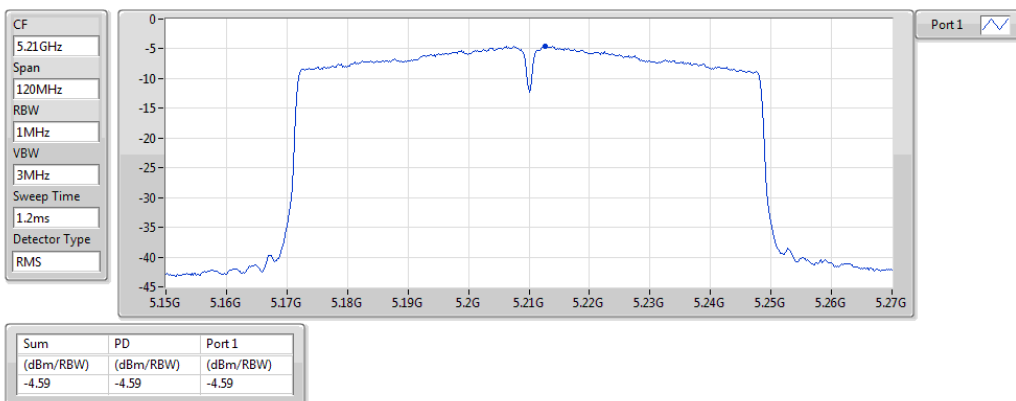
5310MHz



802.11ac VHT80_Nss1,(MCS0)_1TX

PSD

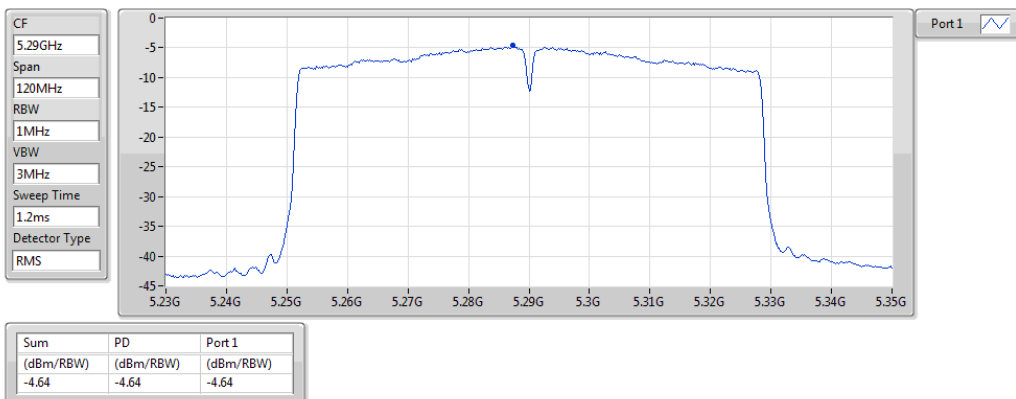
5210MHz



802.11ac VHT80_Nss1,(MCS0)_1TX

PSD

5290MHz



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

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

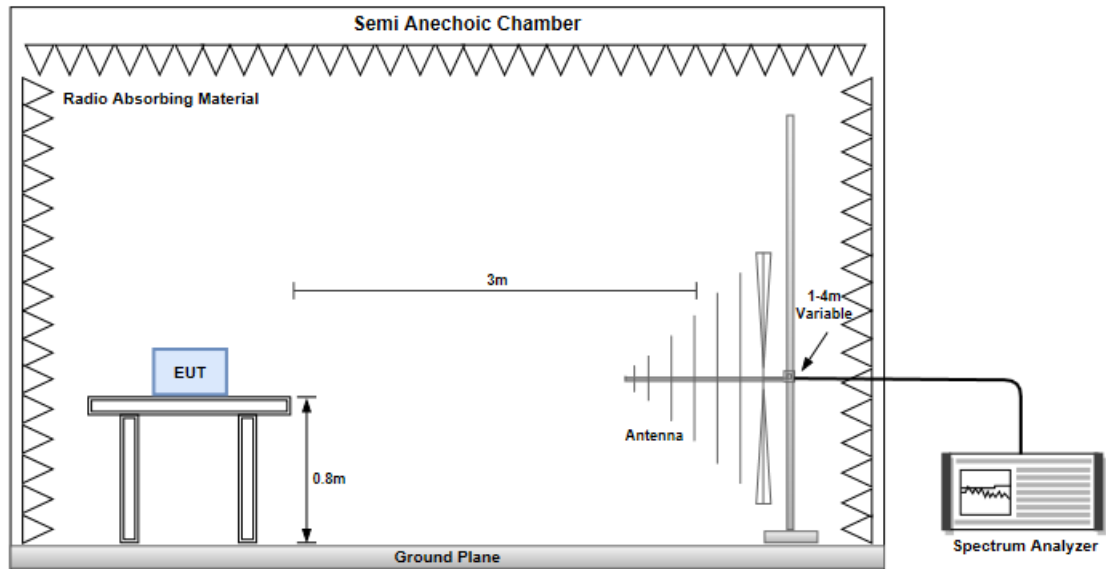
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360° . A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

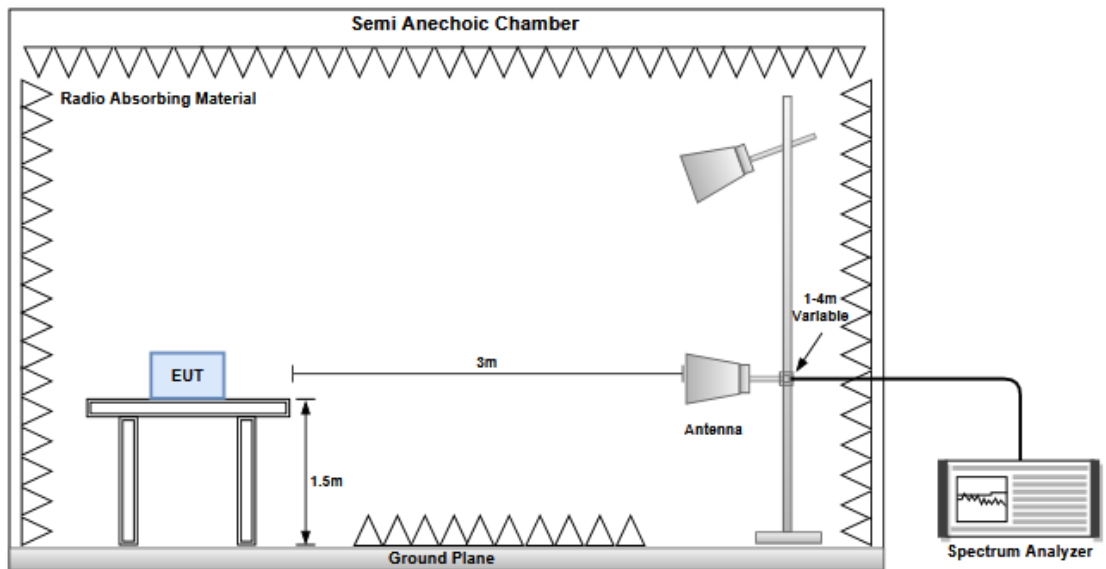
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz

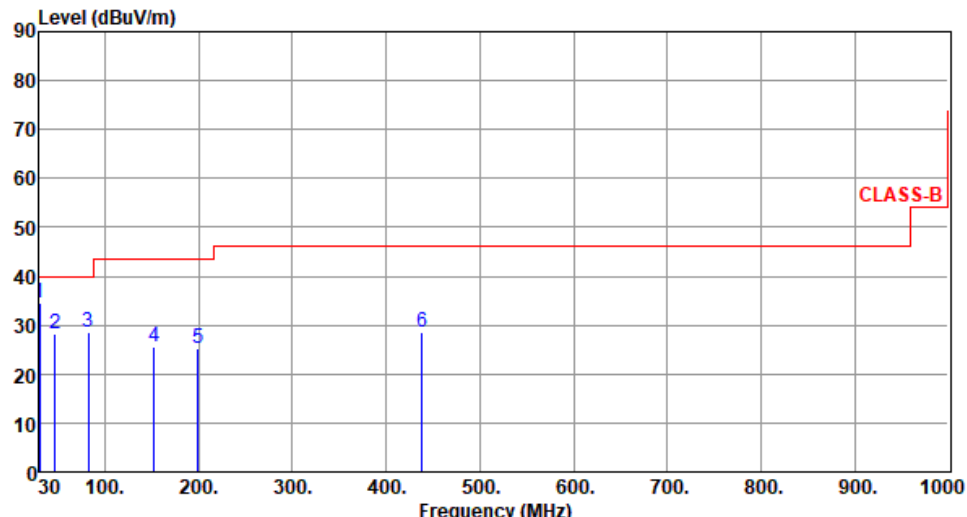


Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	VHT40	Test Freq. (MHz)	5310
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):25 Humidity(%):64			
Level (dBuV/m)			

Modulation	VHT40	Test Freq. (MHz)	5310																																																																						
Polarization	Vertical																																																																								
Test By :Akun Chung Temperature(°C):25 Humidity(%):64																																																																									
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>30.25</td><td>34.58</td><td>40.00</td><td>-5.42</td><td>44.59</td><td>-10.01</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>46.59</td><td>28.12</td><td>40.00</td><td>-11.88</td><td>36.61</td><td>-8.49</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>82.65</td><td>28.64</td><td>40.00</td><td>-11.36</td><td>42.64</td><td>-14.00</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>152.65</td><td>25.63</td><td>43.50</td><td>-17.87</td><td>34.50</td><td>-8.87</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>199.46</td><td>25.18</td><td>43.50</td><td>-18.32</td><td>37.06</td><td>-11.88</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>438.56</td><td>28.47</td><td>46.00</td><td>-17.53</td><td>33.13</td><td>-4.66</td><td>Peak</td><td>---</td><td>---</td></tr></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). Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.					Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg	1	30.25	34.58	40.00	-5.42	44.59	-10.01	Peak	---	---	2	46.59	28.12	40.00	-11.88	36.61	-8.49	Peak	---	---	3	82.65	28.64	40.00	-11.36	42.64	-14.00	Peak	---	---	4	152.65	25.63	43.50	-17.87	34.50	-8.87	Peak	---	---	5	199.46	25.18	43.50	-18.32	37.06	-11.88	Peak	---	---	6	438.56	28.47	46.00	-17.53	33.13	-4.66	Peak	---	---
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																
1	30.25	34.58	40.00	-5.42	44.59	-10.01	Peak	---	---																																																																
2	46.59	28.12	40.00	-11.88	36.61	-8.49	Peak	---	---																																																																
3	82.65	28.64	40.00	-11.36	42.64	-14.00	Peak	---	---																																																																
4	152.65	25.63	43.50	-17.87	34.50	-8.87	Peak	---	---																																																																
5	199.46	25.18	43.50	-18.32	37.06	-11.88	Peak	---	---																																																																
6	438.56	28.47	46.00	-17.53	33.13	-4.66	Peak	---	---																																																																

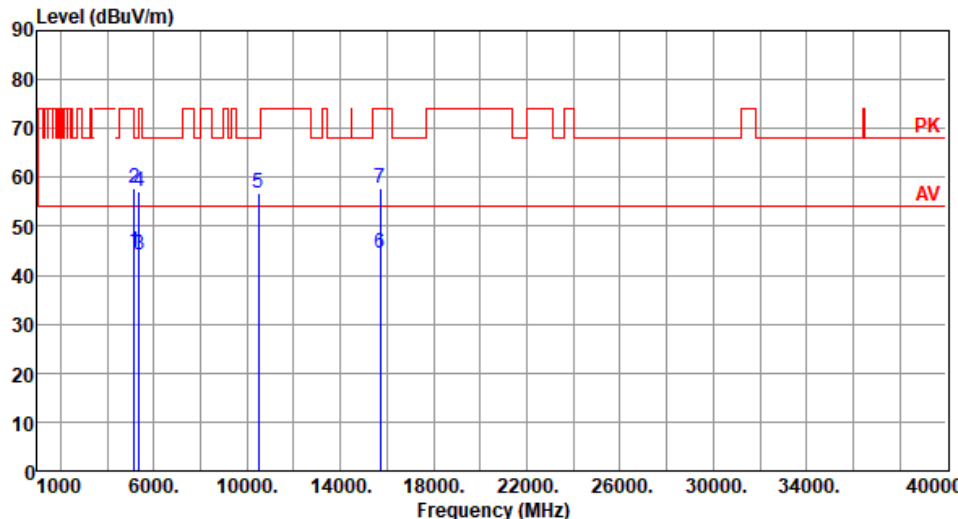
3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11a

Modulation	11a	Test Freq. (MHz)	5180
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68			
Level (dBuV/m) <			

Modulation	11a	Test Freq. (MHz)	5180
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68			
Level (dBUV/m) <			

Modulation	11a	Test Freq. (MHz)	5200
Polarization	Horizontal		
Test By :Roger Lu Temperature(°C):25 Humidity(%):68			
Level (dBUV/m) <			

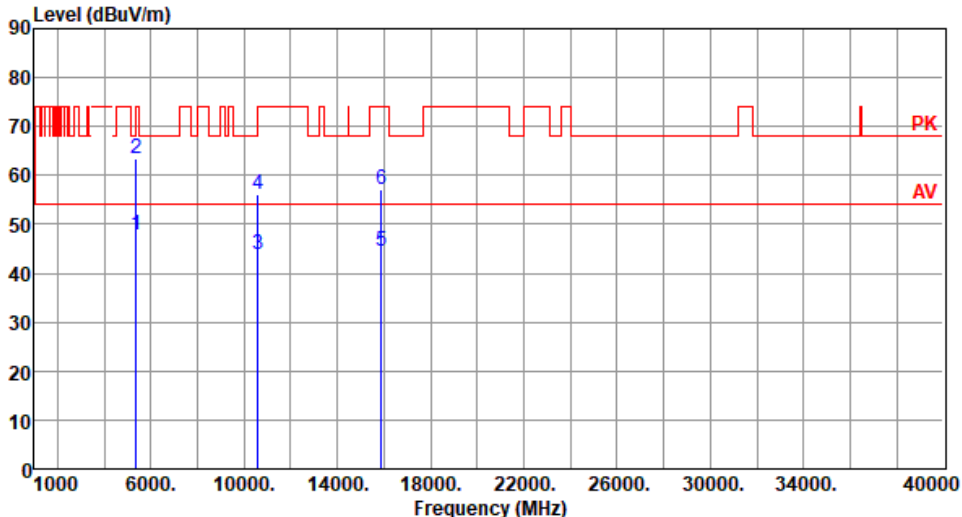
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):68			
Level (dBUV/m)			

Modulation	11a	Test Freq. (MHz)	5240																																																																																
Polarization	Horizontal																																																																																		
Test By :Roger Lu Temperature(°C):25 Humidity(%):68																																																																																			
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>44.96</td><td>54.00</td><td>-9.04</td><td>40.58</td><td>4.38</td><td>Average</td><td>100</td><td>276</td></tr><tr><td>2</td><td>5150.00</td><td>57.84</td><td>74.00</td><td>-16.16</td><td>53.46</td><td>4.38</td><td>Peak</td><td>100</td><td>276</td></tr><tr><td>3</td><td>5350.00</td><td>44.23</td><td>54.00</td><td>-9.77</td><td>40.26</td><td>3.97</td><td>Average</td><td>100</td><td>276</td></tr><tr><td>4</td><td>5350.00</td><td>57.18</td><td>74.00</td><td>-16.82</td><td>53.21</td><td>3.97</td><td>Peak</td><td>100</td><td>276</td></tr><tr><td>5</td><td>10480.00</td><td>56.81</td><td>68.20</td><td>-11.39</td><td>42.26</td><td>14.55</td><td>Peak</td><td>100</td><td>295</td></tr><tr><td>6</td><td>15720.00</td><td>44.62</td><td>54.00</td><td>-9.38</td><td>30.26</td><td>14.36</td><td>Average</td><td>100</td><td>35</td></tr><tr><td>7</td><td>15720.00</td><td>57.73</td><td>74.00</td><td>-16.27</td><td>43.37</td><td>14.36</td><td>Peak</td><td>100</td><td>35</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	44.96	54.00	-9.04	40.58	4.38	Average	100	276	2	5150.00	57.84	74.00	-16.16	53.46	4.38	Peak	100	276	3	5350.00	44.23	54.00	-9.77	40.26	3.97	Average	100	276	4	5350.00	57.18	74.00	-16.82	53.21	3.97	Peak	100	276	5	10480.00	56.81	68.20	-11.39	42.26	14.55	Peak	100	295	6	15720.00	44.62	54.00	-9.38	30.26	14.36	Average	100	35	7	15720.00	57.73	74.00	-16.27	43.37	14.36	Peak	100	35
	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	44.96	54.00	-9.04	40.58	4.38	Average	100	276																																																																										
2	5150.00	57.84	74.00	-16.16	53.46	4.38	Peak	100	276																																																																										
3	5350.00	44.23	54.00	-9.77	40.26	3.97	Average	100	276																																																																										
4	5350.00	57.18	74.00	-16.82	53.21	3.97	Peak	100	276																																																																										
5	10480.00	56.81	68.20	-11.39	42.26	14.55	Peak	100	295																																																																										
6	15720.00	44.62	54.00	-9.38	30.26	14.36	Average	100	35																																																																										
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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	11a	Test Freq. (MHz)	5240
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):68			
Level (dBuV/m) <			

Modulation	11a	Test Freq. (MHz)	5260
Polarization	Horizontal		
Test By :Roger Lu Temperature(°C):25 Humidity(%):68			
Level (dBUV/m) </			

Modulation	11a	Test Freq. (MHz)	5260
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):68			
Level (dBUV/m)			

Modulation	11a	Test Freq. (MHz)	5300																																																																						
Polarization	Horizontal																																																																								
Test By :Roger Lu Temperature(°C):25 Humidity(%):68																																																																									
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>5350.00</td><td>47.97</td><td>54.00</td><td>-6.03</td><td>44.00</td><td>3.97</td><td>Average</td><td>100</td><td>281</td></tr><tr><td>2</td><td>5350.00</td><td>63.56</td><td>74.00</td><td>-10.44</td><td>59.59</td><td>3.97</td><td>Peak</td><td>100</td><td>281</td></tr><tr><td>3</td><td>10600.00</td><td>43.73</td><td>54.00</td><td>-10.27</td><td>29.16</td><td>14.57</td><td>Average</td><td>100</td><td>291</td></tr><tr><td>4</td><td>10600.00</td><td>56.20</td><td>74.00</td><td>-17.80</td><td>41.63</td><td>14.57</td><td>Peak</td><td>100</td><td>291</td></tr><tr><td>5</td><td>15900.00</td><td>44.61</td><td>54.00</td><td>-9.39</td><td>30.38</td><td>14.23</td><td>Average</td><td>100</td><td>39</td></tr><tr><td>6</td><td>15900.00</td><td>57.17</td><td>74.00</td><td>-16.83</td><td>42.94</td><td>14.23</td><td>Peak</td><td>100</td><td>39</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	5350.00	47.97	54.00	-6.03	44.00	3.97	Average	100	281	2	5350.00	63.56	74.00	-10.44	59.59	3.97	Peak	100	281	3	10600.00	43.73	54.00	-10.27	29.16	14.57	Average	100	291	4	10600.00	56.20	74.00	-17.80	41.63	14.57	Peak	100	291	5	15900.00	44.61	54.00	-9.39	30.38	14.23	Average	100	39	6	15900.00	57.17	74.00	-16.83	42.94	14.23	Peak	100	39
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																
1	5350.00	47.97	54.00	-6.03	44.00	3.97	Average	100	281																																																																
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Modulation	11a	Test Freq. (MHz)	5300																																																																																							
Polarization	Vertical																																																																																									
Test By :Roger Lu Temperature(°C):25 Humidity(%):68																																																																																										
Level (dBuV/m) <table><tr><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>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>dBuV</th><th></th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>5350.00</td><td>45.23</td><td>54.00</td><td>-8.77</td><td>41.26</td><td>3.97</td><td>Average</td><td>244</td><td>46</td></tr><tr><td>2</td><td>5350.00</td><td>59.12</td><td>74.00</td><td>-14.88</td><td>55.15</td><td>3.97</td><td>Peak</td><td>244</td><td>46</td></tr><tr><td>3</td><td>10600.00</td><td>47.48</td><td>54.00</td><td>-6.52</td><td>32.91</td><td>14.57</td><td>Average</td><td>100</td><td>302</td></tr><tr><td>4</td><td>10600.00</td><td>60.77</td><td>74.00</td><td>-13.23</td><td>46.20</td><td>14.57</td><td>Peak</td><td>100</td><td>302</td></tr><tr><td>5</td><td>15900.00</td><td>46.74</td><td>54.00</td><td>-7.26</td><td>32.51</td><td>14.23</td><td>Average</td><td>100</td><td>288</td></tr><tr><td>6</td><td>15900.00</td><td>59.87</td><td>74.00</td><td>-14.13</td><td>45.64</td><td>14.23</td><td>Peak</td><td>100</td><td>288</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	5350.00	45.23	54.00	-8.77	41.26	3.97	Average	244	46	2	5350.00	59.12	74.00	-14.88	55.15	3.97	Peak	244	46	3	10600.00	47.48	54.00	-6.52	32.91	14.57	Average	100	302	4	10600.00	60.77	74.00	-13.23	46.20	14.57	Peak	100	302	5	15900.00	46.74	54.00	-7.26	32.51	14.23	Average	100	288	6	15900.00	59.87	74.00	-14.13	45.64	14.23	Peak	100	288
Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn																																																																																		
MHz	level	dBuV/m	dB	reading	dB/m		High	Table																																																																																		
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2	5350.00	59.12	74.00	-14.88	55.15	3.97	Peak	244	46																																																																																	
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Modulation	11a	Test Freq. (MHz)	5320
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68			
Level (dBuV/m) <			

Modulation	11a	Test Freq. (MHz)	5320
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68			
Level (dBuV/m)			

3.5.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT20

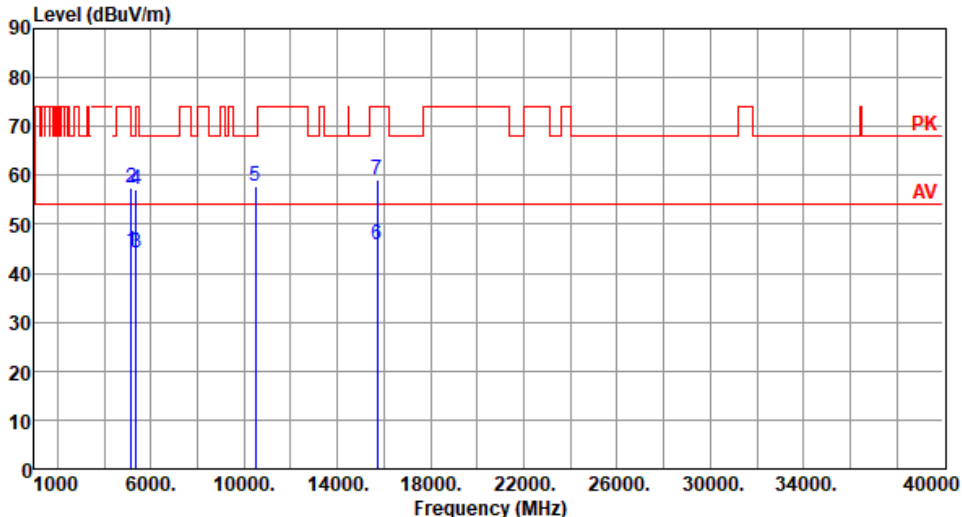
Modulation	VHT20	Test Freq. (MHz)	5180
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68			
Level (dBuV/m) <			

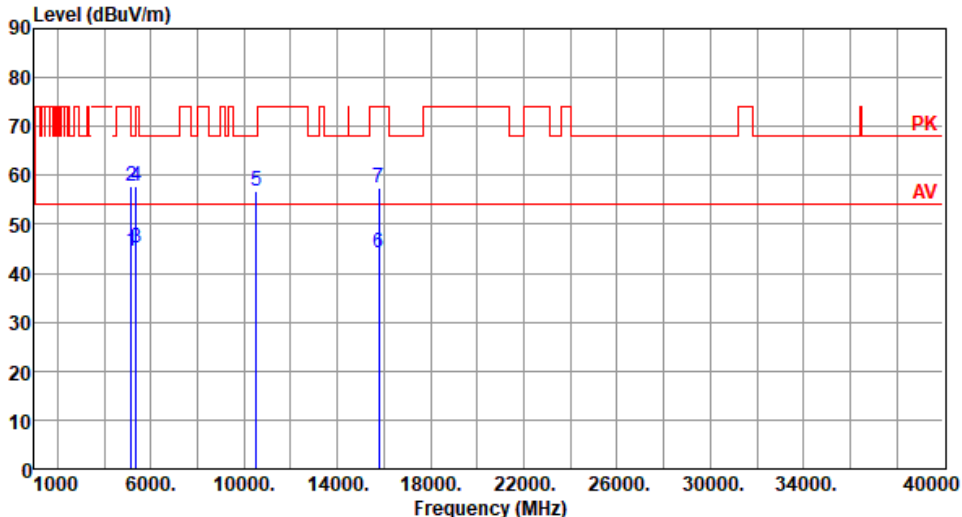
Modulation	VHT20	Test Freq. (MHz)	5180
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68			
Level (dBUV/m) <			

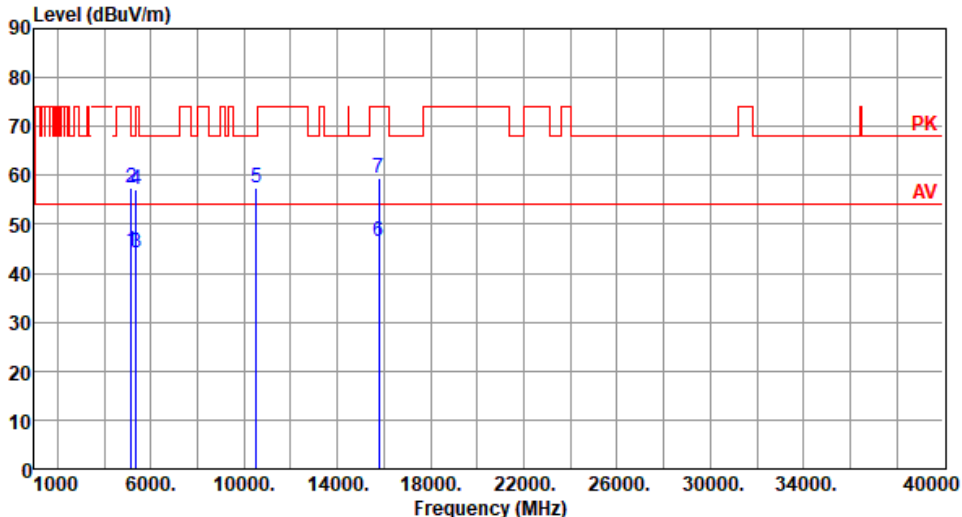
Modulation	VHT20	Test Freq. (MHz)	5200
Polarization	Horizontal		
Test By :Roger Lu Temperature(°C):25 Humidity(%):68			
Level (dBUV/m) </			

Modulation	VHT20	Test Freq. (MHz)	5200
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):68			
Level (dBUV/m)			

Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Horizontal		
Test By :Roger Lu Temperature(°C):25 Humidity(%):68			
Level (dBuV/m) <			

Modulation	VHT20	Test Freq. (MHz)	5240																																																																																
Polarization	Vertical																																																																																		
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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>5150.00</td><td>44.56</td><td>54.00</td><td>-9.44</td><td>40.18</td><td>4.38</td><td>Average</td><td>252</td><td>43</td></tr><tr><td>2</td><td>5150.00</td><td>57.54</td><td>74.00</td><td>-16.46</td><td>53.16</td><td>4.38</td><td>Peak</td><td>252</td><td>43</td></tr><tr><td>3</td><td>5350.00</td><td>44.22</td><td>54.00</td><td>-9.78</td><td>40.25</td><td>3.97</td><td>Average</td><td>252</td><td>43</td></tr><tr><td>4</td><td>5350.00</td><td>57.16</td><td>74.00</td><td>-16.84</td><td>53.19</td><td>3.97</td><td>Peak</td><td>252</td><td>43</td></tr><tr><td>5</td><td>10480.00</td><td>57.67</td><td>68.20</td><td>-10.53</td><td>43.12</td><td>14.55</td><td>Peak</td><td>100</td><td>295</td></tr><tr><td>6</td><td>15720.00</td><td>45.79</td><td>54.00</td><td>-8.21</td><td>31.43</td><td>14.36</td><td>Average</td><td>100</td><td>283</td></tr><tr><td>7</td><td>15720.00</td><td>59.23</td><td>74.00</td><td>-14.77</td><td>44.87</td><td>14.36</td><td>Peak</td><td>100</td><td>283</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	5150.00	44.56	54.00	-9.44	40.18	4.38	Average	252	43	2	5150.00	57.54	74.00	-16.46	53.16	4.38	Peak	252	43	3	5350.00	44.22	54.00	-9.78	40.25	3.97	Average	252	43	4	5350.00	57.16	74.00	-16.84	53.19	3.97	Peak	252	43	5	10480.00	57.67	68.20	-10.53	43.12	14.55	Peak	100	295	6	15720.00	45.79	54.00	-8.21	31.43	14.36	Average	100	283	7	15720.00	59.23	74.00	-14.77	44.87	14.36	Peak	100	283
	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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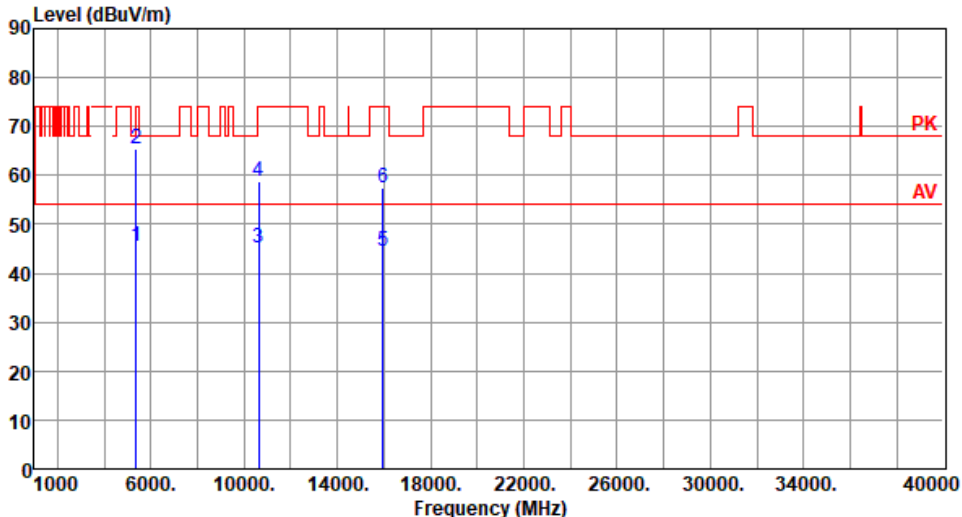
Modulation	VHT20	Test Freq. (MHz)	5260																																																																																										
Polarization	Horizontal																																																																																												
Test By :Roger Lu Temperature(°C):25 Humidity(%):68																																																																																													
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>5150.00</td><td>44.64</td><td>54.00</td><td>-9.36</td><td>40.26</td><td>4.38</td><td>Average</td><td>100</td><td>285</td></tr><tr><td>2</td><td>5150.00</td><td>57.73</td><td>74.00</td><td>-16.27</td><td>53.35</td><td>4.38</td><td>Peak</td><td>100</td><td>285</td></tr><tr><td>3</td><td>5350.00</td><td>45.09</td><td>54.00</td><td>-8.91</td><td>41.12</td><td>3.97</td><td>Average</td><td>100</td><td>285</td></tr><tr><td>4</td><td>5350.00</td><td>57.62</td><td>74.00</td><td>-16.38</td><td>53.65</td><td>3.97</td><td>Peak</td><td>100</td><td>285</td></tr><tr><td>5</td><td>10520.00</td><td>56.91</td><td>68.20</td><td>-11.29</td><td>42.34</td><td>14.57</td><td>Peak</td><td>100</td><td>293</td></tr><tr><td>6</td><td>15780.00</td><td>44.33</td><td>54.00</td><td>-9.67</td><td>30.14</td><td>14.19</td><td>Average</td><td>100</td><td>34</td></tr><tr><td>7</td><td>15780.00</td><td>57.44</td><td>74.00</td><td>-16.56</td><td>43.25</td><td>14.19</td><td>Peak</td><td>100</td><td>34</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	5150.00	44.64	54.00	-9.36	40.26	4.38	Average	100	285	2	5150.00	57.73	74.00	-16.27	53.35	4.38	Peak	100	285	3	5350.00	45.09	54.00	-8.91	41.12	3.97	Average	100	285	4	5350.00	57.62	74.00	-16.38	53.65	3.97	Peak	100	285	5	10520.00	56.91	68.20	-11.29	42.34	14.57	Peak	100	293	6	15780.00	44.33	54.00	-9.67	30.14	14.19	Average	100	34	7	15780.00	57.44	74.00	-16.56	43.25	14.19	Peak	100	34
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table																																																																																				
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Modulation	VHT20	Test Freq. (MHz)	5260																																																																																										
Polarization	Vertical																																																																																												
Test By :Roger Lu Temperature(°C):25 Humidity(%):68																																																																																													
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	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table																																																																																				
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Modulation	VHT20	Test Freq. (MHz)	5300																																																																																										
Polarization	Horizontal																																																																																												
Test By :Roger Lu Temperature(°C):25 Humidity(%):68																																																																																													
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></th><th></th><th>reading</th><th></th><th></th><th>High</th><th>Table</th></tr><tr><th></th><th></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>5350.00</td><td>47.73</td><td>54.00</td><td>-6.27</td><td>43.76</td><td>3.97</td><td>Average</td><td>100</td><td>279</td></tr><tr><td>2</td><td>5350.00</td><td>62.58</td><td>74.00</td><td>-11.42</td><td>58.61</td><td>3.97</td><td>Peak</td><td>100</td><td>279</td></tr><tr><td>3</td><td>10600.00</td><td>43.33</td><td>54.00</td><td>-10.67</td><td>28.76</td><td>14.57</td><td>Average</td><td>100</td><td>292</td></tr><tr><td>4</td><td>10600.00</td><td>55.70</td><td>74.00</td><td>-18.30</td><td>41.13</td><td>14.57</td><td>Peak</td><td>100</td><td>292</td></tr><tr><td>5</td><td>15900.00</td><td>44.37</td><td>54.00</td><td>-9.63</td><td>30.14</td><td>14.23</td><td>Average</td><td>100</td><td>20</td></tr><tr><td>6</td><td>15900.00</td><td>56.65</td><td>74.00</td><td>-17.35</td><td>42.42</td><td>14.23</td><td>Peak</td><td>100</td><td>20</td></tr></table>					Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		MHz	level			reading			High	Table			dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg	1	5350.00	47.73	54.00	-6.27	43.76	3.97	Average	100	279	2	5350.00	62.58	74.00	-11.42	58.61	3.97	Peak	100	279	3	10600.00	43.33	54.00	-10.67	28.76	14.57	Average	100	292	4	10600.00	55.70	74.00	-18.30	41.13	14.57	Peak	100	292	5	15900.00	44.37	54.00	-9.63	30.14	14.23	Average	100	20	6	15900.00	56.65	74.00	-17.35	42.42	14.23	Peak	100	20
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn																																																																																				
	MHz	level			reading			High	Table																																																																																				
		dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg																																																																																				
1	5350.00	47.73	54.00	-6.27	43.76	3.97	Average	100	279																																																																																				
2	5350.00	62.58	74.00	-11.42	58.61	3.97	Peak	100	279																																																																																				
3	10600.00	43.33	54.00	-10.67	28.76	14.57	Average	100	292																																																																																				
4	10600.00	55.70	74.00	-18.30	41.13	14.57	Peak	100	292																																																																																				
5	15900.00	44.37	54.00	-9.63	30.14	14.23	Average	100	20																																																																																				
6	15900.00	56.65	74.00	-17.35	42.42	14.23	Peak	100	20																																																																																				
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	VHT20	Test Freq. (MHz)	5300
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):68			
Level (dBuV/m) </			

Modulation	VHT20	Test Freq. (MHz)	5320
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68			
Level (dBuV/m) <			

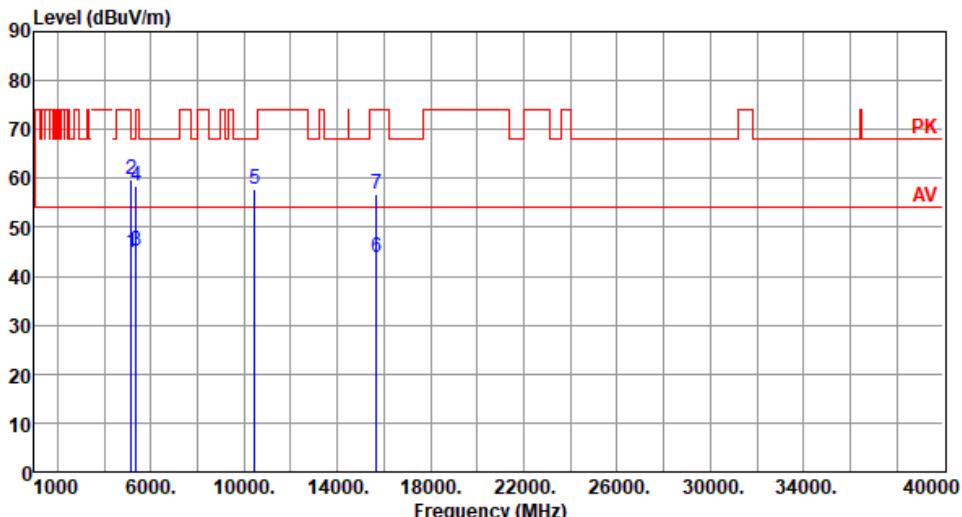
Modulation	VHT20	Test Freq. (MHz)	5320																																																																																
Polarization	Vertical																																																																																		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68																																																																																			
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>5350.00</td><td>45.53</td><td>54.00</td><td>-8.47</td><td>41.56</td><td>3.97</td><td>Average</td><td>242</td><td>45</td></tr><tr><td>2</td><td>5350.00</td><td>65.46</td><td>74.00</td><td>-8.54</td><td>61.49</td><td>3.97</td><td>Peak</td><td>242</td><td>45</td></tr><tr><td>3</td><td>10640.00</td><td>45.16</td><td>54.00</td><td>-8.84</td><td>30.60</td><td>14.56</td><td>Average</td><td>100</td><td>304</td></tr><tr><td>4</td><td>10640.00</td><td>58.89</td><td>74.00</td><td>-15.11</td><td>44.33</td><td>14.56</td><td>Peak</td><td>100</td><td>304</td></tr><tr><td>5</td><td>15960.00</td><td>44.46</td><td>54.00</td><td>-9.54</td><td>30.18</td><td>14.28</td><td>Average</td><td>100</td><td>287</td></tr><tr><td>6</td><td>15960.00</td><td>57.44</td><td>74.00</td><td>-16.56</td><td>43.16</td><td>14.28</td><td>Peak</td><td>100</td><td>287</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	5350.00	45.53	54.00	-8.47	41.56	3.97	Average	242	45	2	5350.00	65.46	74.00	-8.54	61.49	3.97	Peak	242	45	3	10640.00	45.16	54.00	-8.84	30.60	14.56	Average	100	304	4	10640.00	58.89	74.00	-15.11	44.33	14.56	Peak	100	304	5	15960.00	44.46	54.00	-9.54	30.18	14.28	Average	100	287	6	15960.00	57.44	74.00	-16.56	43.16	14.28	Peak	100	287
	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	5350.00	45.53	54.00	-8.47	41.56	3.97	Average	242	45																																																																										
2	5350.00	65.46	74.00	-8.54	61.49	3.97	Peak	242	45																																																																										
3	10640.00	45.16	54.00	-8.84	30.60	14.56	Average	100	304																																																																										
4	10640.00	58.89	74.00	-15.11	44.33	14.56	Peak	100	304																																																																										
5	15960.00	44.46	54.00	-9.54	30.18	14.28	Average	100	287																																																																										
6	15960.00	57.44	74.00	-16.56	43.16	14.28	Peak	100	287																																																																										
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).																																																																																			

3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT40

Modulation	VHT40	Test Freq. (MHz)	5190
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68			
Level (dBuV/m)			

Modulation	VHT40	Test Freq. (MHz)	5190
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68			
Level (dBuV/m)			

Modulation	VHT40	Test Freq. (MHz)	5230
Polarization	Horizontal		
Test By :Roger Lu Temperature(°C):25 Humidity(%):68			
Level (dBuV/m) <			

Modulation	VHT40	Test Freq. (MHz)	5230																																																																																
Polarization	Vertical																																																																																		
Test By :Roger Lu Temperature(°C):25 Humidity(%):68																																																																																			
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>44.87</td><td>54.00</td><td>-9.13</td><td>40.49</td><td>4.38</td><td>Average</td><td>251</td><td>46</td></tr><tr><td>2</td><td>5150.00</td><td>59.63</td><td>74.00</td><td>-14.37</td><td>55.25</td><td>4.38</td><td>Peak</td><td>251</td><td>46</td></tr><tr><td>3</td><td>5350.00</td><td>45.12</td><td>54.00</td><td>-8.88</td><td>41.15</td><td>3.97</td><td>Average</td><td>251</td><td>46</td></tr><tr><td>4</td><td>5350.00</td><td>58.61</td><td>74.00</td><td>-15.39</td><td>54.64</td><td>3.97</td><td>Peak</td><td>251</td><td>46</td></tr><tr><td>5</td><td>10460.00</td><td>57.79</td><td>68.20</td><td>-10.41</td><td>43.25</td><td>14.54</td><td>Peak</td><td>100</td><td>285</td></tr><tr><td>6</td><td>15690.00</td><td>43.89</td><td>54.00</td><td>-10.11</td><td>29.45</td><td>14.44</td><td>Average</td><td>100</td><td>275</td></tr><tr><td>7</td><td>15690.00</td><td>56.90</td><td>74.00</td><td>-17.10</td><td>42.46</td><td>14.44</td><td>Peak</td><td>100</td><td>275</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	44.87	54.00	-9.13	40.49	4.38	Average	251	46	2	5150.00	59.63	74.00	-14.37	55.25	4.38	Peak	251	46	3	5350.00	45.12	54.00	-8.88	41.15	3.97	Average	251	46	4	5350.00	58.61	74.00	-15.39	54.64	3.97	Peak	251	46	5	10460.00	57.79	68.20	-10.41	43.25	14.54	Peak	100	285	6	15690.00	43.89	54.00	-10.11	29.45	14.44	Average	100	275	7	15690.00	56.90	74.00	-17.10	42.46	14.44	Peak	100	275
	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	44.87	54.00	-9.13	40.49	4.38	Average	251	46																																																																										
2	5150.00	59.63	74.00	-14.37	55.25	4.38	Peak	251	46																																																																										
3	5350.00	45.12	54.00	-8.88	41.15	3.97	Average	251	46																																																																										
4	5350.00	58.61	74.00	-15.39	54.64	3.97	Peak	251	46																																																																										
5	10460.00	57.79	68.20	-10.41	43.25	14.54	Peak	100	285																																																																										
6	15690.00	43.89	54.00	-10.11	29.45	14.44	Average	100	275																																																																										
7	15690.00	56.90	74.00	-17.10	42.46	14.44	Peak	100	275																																																																										
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	VHT40	Test Freq. (MHz)	5270
Polarization	Horizontal		
Test By :Roger Lu Temperature(°C):25 Humidity(%):68			
Level (dBuV/m)			

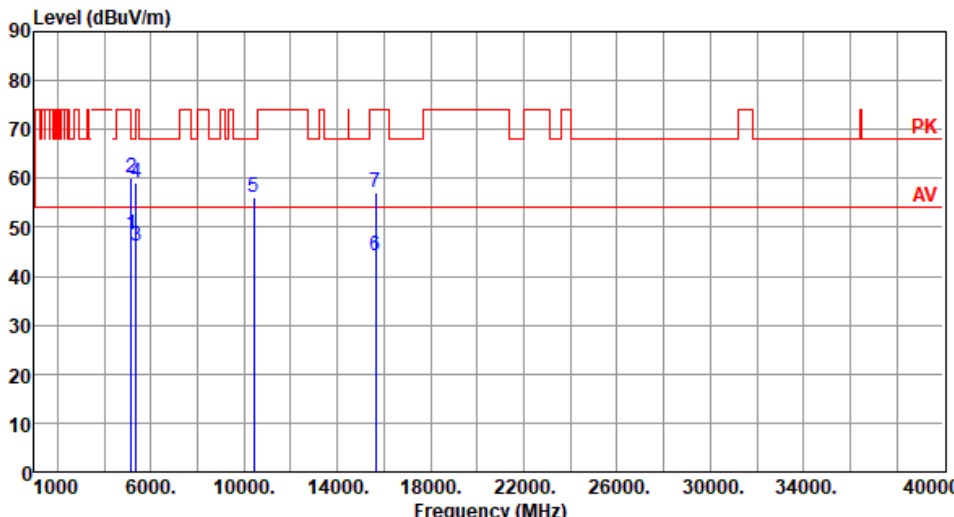
Modulation	VHT40	Test Freq. (MHz)	5270
Polarization	Vertical		
Test By :Roger Lu Temperature(°C):25 Humidity(%):68			
Level (dBuV/m) <			

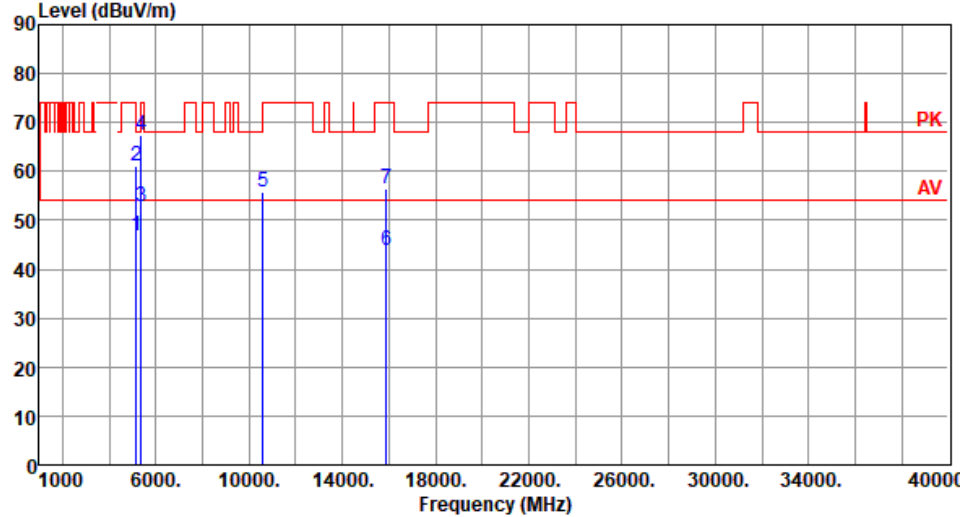
Modulation	VHT40	Test Freq. (MHz)	5310
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68			
Level (dBuV/m) </			

Modulation	VHT40	Test Freq. (MHz)	5310
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68			
Level (dBUV/m) <			

3.5.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT80

Modulation	VHT80	Test Freq. (MHz)	5210
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68			
Level (dBUV/m) <			

Modulation	VHT80	Test Freq. (MHz)	5210																																																																																
Polarization	Vertical																																																																																		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68																																																																																			
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>48.36</td><td>54.00</td><td>-5.64</td><td>43.98</td><td>4.38</td><td>Average</td><td>253</td><td>48</td></tr><tr><td>2</td><td>5150.00</td><td>60.17</td><td>74.00</td><td>-13.83</td><td>55.79</td><td>4.38</td><td>Peak</td><td>253</td><td>48</td></tr><tr><td>3</td><td>5350.00</td><td>46.24</td><td>54.00</td><td>-7.76</td><td>42.27</td><td>3.97</td><td>Average</td><td>253</td><td>48</td></tr><tr><td>4</td><td>5350.00</td><td>59.02</td><td>74.00</td><td>-14.98</td><td>55.05</td><td>3.97</td><td>Peak</td><td>253</td><td>48</td></tr><tr><td>5</td><td>10420.00</td><td>56.15</td><td>68.20</td><td>-12.05</td><td>41.65</td><td>14.50</td><td>Peak</td><td>100</td><td>90</td></tr><tr><td>6</td><td>15630.00</td><td>44.31</td><td>54.00</td><td>-9.69</td><td>29.81</td><td>14.50</td><td>Average</td><td>100</td><td>80</td></tr><tr><td>7</td><td>15630.00</td><td>57.14</td><td>74.00</td><td>-16.86</td><td>42.64</td><td>14.50</td><td>Peak</td><td>100</td><td>80</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	48.36	54.00	-5.64	43.98	4.38	Average	253	48	2	5150.00	60.17	74.00	-13.83	55.79	4.38	Peak	253	48	3	5350.00	46.24	54.00	-7.76	42.27	3.97	Average	253	48	4	5350.00	59.02	74.00	-14.98	55.05	3.97	Peak	253	48	5	10420.00	56.15	68.20	-12.05	41.65	14.50	Peak	100	90	6	15630.00	44.31	54.00	-9.69	29.81	14.50	Average	100	80	7	15630.00	57.14	74.00	-16.86	42.64	14.50	Peak	100	80
	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	48.36	54.00	-5.64	43.98	4.38	Average	253	48																																																																										
2	5150.00	60.17	74.00	-13.83	55.79	4.38	Peak	253	48																																																																										
3	5350.00	46.24	54.00	-7.76	42.27	3.97	Average	253	48																																																																										
4	5350.00	59.02	74.00	-14.98	55.05	3.97	Peak	253	48																																																																										
5	10420.00	56.15	68.20	-12.05	41.65	14.50	Peak	100	90																																																																										
6	15630.00	44.31	54.00	-9.69	29.81	14.50	Average	100	80																																																																										
7	15630.00	57.14	74.00	-16.86	42.64	14.50	Peak	100	80																																																																										
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	VHT80	Test Freq. (MHz)	5290																																																																																
Polarization	Horizontal																																																																																		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68																																																																																			
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>46.91</td><td>54.00</td><td>-7.09</td><td>42.53</td><td>4.38</td><td>Average</td><td>100</td><td>287</td></tr><tr><td>2</td><td>5150.00</td><td>60.98</td><td>74.00</td><td>-13.02</td><td>56.60</td><td>4.38</td><td>Peak</td><td>100</td><td>287</td></tr><tr><td>3</td><td>5350.00</td><td>52.97</td><td>54.00</td><td>-1.03</td><td>49.00</td><td>3.97</td><td>Average</td><td>100</td><td>287</td></tr><tr><td>4</td><td>5350.00</td><td>67.28</td><td>74.00</td><td>-6.72</td><td>63.31</td><td>3.97</td><td>Peak</td><td>100</td><td>287</td></tr><tr><td>5</td><td>10580.00</td><td>55.83</td><td>68.20</td><td>-12.37</td><td>41.26</td><td>14.57</td><td>Peak</td><td>100</td><td>55</td></tr><tr><td>6</td><td>15870.00</td><td>43.95</td><td>54.00</td><td>-10.05</td><td>29.76</td><td>14.19</td><td>Average</td><td>100</td><td>20</td></tr><tr><td>7</td><td>15870.00</td><td>56.48</td><td>74.00</td><td>-17.52</td><td>42.29</td><td>14.19</td><td>Peak</td><td>100</td><td>20</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	46.91	54.00	-7.09	42.53	4.38	Average	100	287	2	5150.00	60.98	74.00	-13.02	56.60	4.38	Peak	100	287	3	5350.00	52.97	54.00	-1.03	49.00	3.97	Average	100	287	4	5350.00	67.28	74.00	-6.72	63.31	3.97	Peak	100	287	5	10580.00	55.83	68.20	-12.37	41.26	14.57	Peak	100	55	6	15870.00	43.95	54.00	-10.05	29.76	14.19	Average	100	20	7	15870.00	56.48	74.00	-17.52	42.29	14.19	Peak	100	20
	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	46.91	54.00	-7.09	42.53	4.38	Average	100	287																																																																										
2	5150.00	60.98	74.00	-13.02	56.60	4.38	Peak	100	287																																																																										
3	5350.00	52.97	54.00	-1.03	49.00	3.97	Average	100	287																																																																										
4	5350.00	67.28	74.00	-6.72	63.31	3.97	Peak	100	287																																																																										
5	10580.00	55.83	68.20	-12.37	41.26	14.57	Peak	100	55																																																																										
6	15870.00	43.95	54.00	-10.05	29.76	14.19	Average	100	20																																																																										
7	15870.00	56.48	74.00	-17.52	42.29	14.19	Peak	100	20																																																																										
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	VHT80	Test Freq. (MHz)	5290
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):25 Humidity(%):68			
Level (dBuV/m) </			

3.6 Frequency Stability

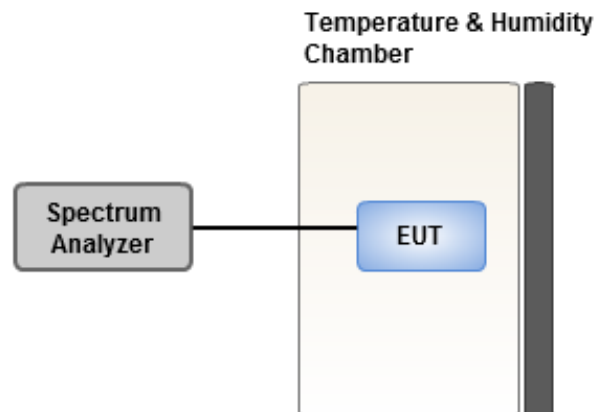
3.6.1 Limit of Frequency Stability

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	22°C / 64%	Tested By	Aska Huang
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Frequency: 5260 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°C _{Vmax}	5.68	5.54	5.71	5.69
T20°C _{Vmin}	4.09	4.14	4.08	3.83
T50°C _{Vnom}	3.42	3.78	4.22	3.24
T40°C _{Vnom}	4.75	5.07	4.91	5.55
T30°C _{Vnom}	3.64	4.24	3.63	3.71
T20°C _{Vnom}	3.55	3.57	4.00	3.76
T10°C _{Vnom}	3.43	3.86	3.29	3.61
T0°C _{Vnom}	4.81	4.37	4.60	4.95
T-10°C _{Vnom}	2.52	3.06	2.51	3.21
T-20°C _{Vnom}	1.54	1.96	1.57	1.64
T-30°C _{Vnom}	0.08	0.11	0.30	0.27
Vnom [V]: 3.8		Vmax [V]: 3.99		Vmin [V]: 3.61
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
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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
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If you have any suggestion, please feel free to contact us as below information.

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