TEST REPORT

CERTIFICATE OF CONFORMITY

Standard:	**47 CFR FCC Part 15, Subpart E (Section 15.407)**
Report No.:	RFBDYS-WTW-P22050651
FCC ID:	Q6G-AP332CR
Model No.:	AP332CR
Received Date:	2022/5/20
Test Date:	2022/6/3 ~ 2022/6/20
Issued Date:	2022/9/2
Applicant:	WatchGuard Technologies, Inc.
Address:	505 Fifth Avenue South, Suite 500 Seattle WA United States 98104
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location (1):	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kewi Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number (1):	788550 / TW0003
Test Location (2):	No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
FCC Registration / Designation Number (2):	281270 / TW0032

Approved by: Jeremy Lin , **Date:** **2022/9/2**

Jeremy Lin / Project Engineer

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Prepared by : Pettie Chen / Senior Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBDYS-WTW-P22050651	Original release.	2022/9/2

1 Certificate

Product:	Wireless Access Point
Brand:	WatchGuard
Test Model:	AP332CR
Sample Status:	Engineering sample
Applicant:	WatchGuard Technologies, Inc.
Test Date:	2022/6/3 ~ 2022/6/20
Standard:	47 CFR FCC Part 15, Subpart E (Section 15.407)
Measurement procedure:	ANSI C63.10-2013 KDB 789033 D02 General UNII Test Procedure New Rules v02r01 KDB 662911 D01 Multiple Transmitter Output v02r01

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
Clause	Test Item	Result	Remark
15.407(a)(2)	26 dB Bandwidth	Pass	For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.
15.407(a)(1/2)	RF Output Power	Pass	Meet the requirement of limit.
15.407(a)(1/2)	Power Spectral Density	Pass	Meet the requirement of limit.
---	Occupied Bandwidth	Pass	Reference only.
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.407(b)(9)	AC Power Conducted Emissions	Pass	Minimum passing margin is -4.84 dB at 0.54542 MHz
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -0.8 dB at 78.50 MHz
15.407(b) (1/2/3/10)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.5 dB at 5725.00 MHz
15.203	Antenna Requirement	Pass	Antenna connector is R-SMA not a standard connector.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Specification	Expanded Uncertainty (k=2) (±)
Power Spectral Density	-	±1.371 dB
Occupied Bandwidth	-	±491.896 Hz
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.79 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3 dB
	30 MHz ~ 1 GHz	2.93 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	1.76 dB
	18 GHz ~ 40 GHz	1.77 dB

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Wireless Access Point
Brand	WatchGuard
Test Model	AP332CR
Status of EUT	Engineering sample
Power Supply Rating	54Vdc (POE)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps 802.11ac: up to 867Mbps 802.11ax: up to 1200Mbps
Operating Frequency	5260 ~ 5320MHz, 5500 ~ 5720MHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 16 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 8 802.11ac (VHT80), 802.11ax (HE80): 4
Output Power	CDD Mode: 5260 ~ 5320MHz: 234.497mW (23.7 dBm) 5500 ~ 5720MHz: 234.546mW (23.7 dBm) Beamforming Mode: 5260 ~ 5320MHz: 147.476mW (21.69 dBm) 5500 ~ 5720MHz: 147.254mW (21.68 dBm)
Accessory Device	NA
Cable Supplied	1.75m non-shielded ground cable without core

Note:

1. This report is issued as a supplementary report to the original BV CPS report no.: RFBDYS-WTW-P22090601-1. The differences compared with the original report are changing product name and adding 5.26GHz to 5.32GHz and 5.50GHz to 5.720GHz by software.
2. The EUT consumes power from the following PoE (support unit only).

Brand	EnGenius
Model	EPA5006GP
Input Power	100-240Vac, 0.8A, 50-60Hz
Output Power	54Vdc, 0.6A PIN 4,5: 54Vdc
Power Line	0.5m non-shielded AC power cable without core

3. There are 2 radios for the EUT.

Radio	Function	TX/RX Function
1	WLAN 2.4G	2TX / 2RX
2	WLAN 5G	2TX / 2RX

4. 2.4GHz (Radio 1) & 5GHz (Radio 2) technology can transmit at same time.
5. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Antenna Description of EUT

1. The EUT with follow antennas gain is listed as table below.

Ant. Type	Dipole			
Connector	RP-SMA			
Gain (dBi)				
Frequency (MHz)	2400 ~ 2483.5MHz	5150~5350MHz	5470~5725MHz	5715~5850MHz
Ant. 1	5.17	-	-	-
Ant. 2	5.17	-	-	-
Ant. 3	-	5.12	5.17	5.17
Ant. 4	-	5.12	5.17	5.17

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

2. The EUT incorporates a MIMO function:

5 GHz Band		
Modulation Mode	TX & RX Configuration	
802.11a	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
802.11ac (VHT20)	2TX	2RX
802.11ac (VHT40)	2TX	2RX
802.11ac (VHT80)	2TX	2RX
802.11ax (HE20)	2TX	2RX
802.11ax (HE40)	2TX	2RX
802.11ax (HE80)	2TX	2RX

Note:
1. All of modulation mode support beamforming function except 802.11a/b/g modulation mode.
2. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
3. The modulation and bandwidth are similar for 802.11n mode for 20 MHz (40 MHz), 802.11ac mode for 20 MHz (40 MHz, 80 MHz) and 802.11ax mode for 20 MHz (40MH, 80 MHz), therefore the manufacturer will control the power for 802.11n/ac mode is the same as the 802.11ax or more lower than it and investigated worst case to representative mode in test report.
4. The EUT device modulation technique OFDMA does not support partial RUs (resource units).

3.3 Channel List

FOR 5260 ~ 5320 MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20) and 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40) and 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80) and 802.11ax (HE80):

Channel	Frequency
58	5290 MHz

FOR 5500 ~ 5720 MHz

12 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20) and 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz	144	5720 MHz

6 channels are provided for 802.11n (HT40), 802.11ac (VHT40) and 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz	142	5710 MHz

3 channels are provided for 802.11ac (VHT80) and 802.11ax (HE80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	138	5690 MHz
122	5610 MHz		

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan in these ways and find the worst case as a representative test condition.
Worst Case:	1. Z-axis Worst Condition. 2. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

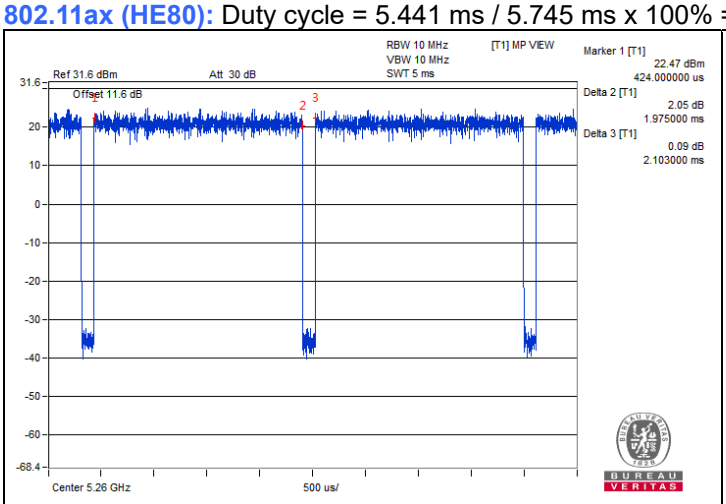
Following channel(s) was (were) selected for the final test as listed below:

Test Item	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter
AC Power Conducted Emissions	802.11ax (HE40)	CDD	62	BPSK	MCS0
Unwanted Emissions below 1 GHz	802.11ax (HE40)	CDD	62	BPSK	MCS0
Unwanted Emissions above 1 GHz	802.11a	CDD	52, 60, 64, 100, 116, 140, 144	BPSK	6Mb/s
	802.11ax (HE20)	CDD	52, 60, 64, 100, 116, 140, 144	BPSK	MCS0
	802.11ax (HE40)	CDD	54, 62, 102, 110, 134, 142	BPSK	MCS0
	802.11ax (HE80)	CDD	58, 106, 122, 138	BPSK	MCS0
RF Output Power	802.11a	CDD	52, 60, 64, 100, 116, 140, 144	BPSK	6Mb/s
	802.11n (HT20)	CDD & Beamforming	52, 60, 64, 100, 116, 140, 144	BPSK	MCS0
	802.11n (HT40)	CDD & Beamforming	54, 62, 102, 110, 134, 142	BPSK	MCS0
	802.11ax (HE20)	CDD & Beamforming	52, 60, 64, 100, 116, 140, 144	BPSK	MCS0
	802.11ax (HE40)	CDD & Beamforming	54, 62, 102, 110, 134, 142	BPSK	MCS0
	802.11ax (HE80)	CDD & Beamforming	58, 106, 122, 138	BPSK	MCS0
Power Spectral Density / Occupied Bandwidth / 26 dB Bandwidth	802.11a	CDD	52, 60, 64, 100, 116, 140, 144	BPSK	6Mb/s
	802.11ax (HE20)	CDD	52, 60, 64, 100, 116, 140, 144	BPSK	MCS0
	802.11ax (HE40)	CDD	54, 62, 102, 110, 134, 142	BPSK	MCS0
	802.11ax (HE80)	CDD	58, 106, 122, 138	BPSK	MCS0
Frequency Stability	802.11a	CDD	52	un-modulation	-
EUT Configure Mode:	POE mode				

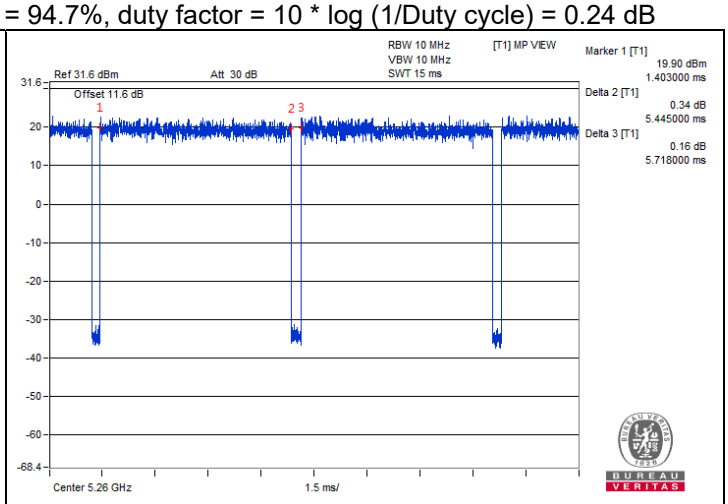
3.5 Duty Cycle of Test Signal

Duty cycle of test signal is >= 98 %, duty factor is not required.
Duty cycle of test signal is < 98 %, duty factor shall be considered.

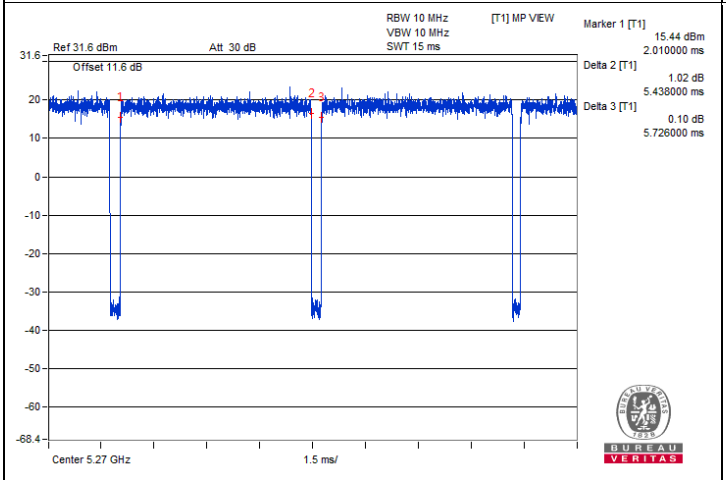
802.11a: Duty cycle = 1.975 ms / 2.103 ms x 100% = 93.9%, duty factor = 10 * log (1/Duty cycle) = 0.27 dB
802.11ax (HE20): Duty cycle = 5.445 ms / 5.718 ms x 100% = 95.2%, duty factor = 10 * log (1/Duty cycle) = 0.21 dB
802.11ax (HE40): Duty cycle = 5.438 ms / 5.726 ms x 100% = 95.0%, duty factor = 10 * log (1/Duty cycle) = 0.22 dB
802.11ax (HE80): Duty cycle = 5.441 ms / 5.745 ms x 100% = 94.7%, duty factor = 10 * log (1/Duty cycle) = 0.24 dB



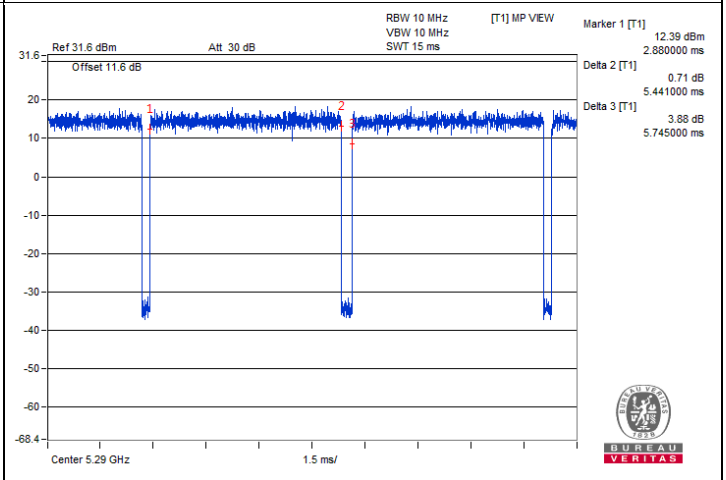
802.11a



802.11ax (HE20)



802.11ax (HE40)

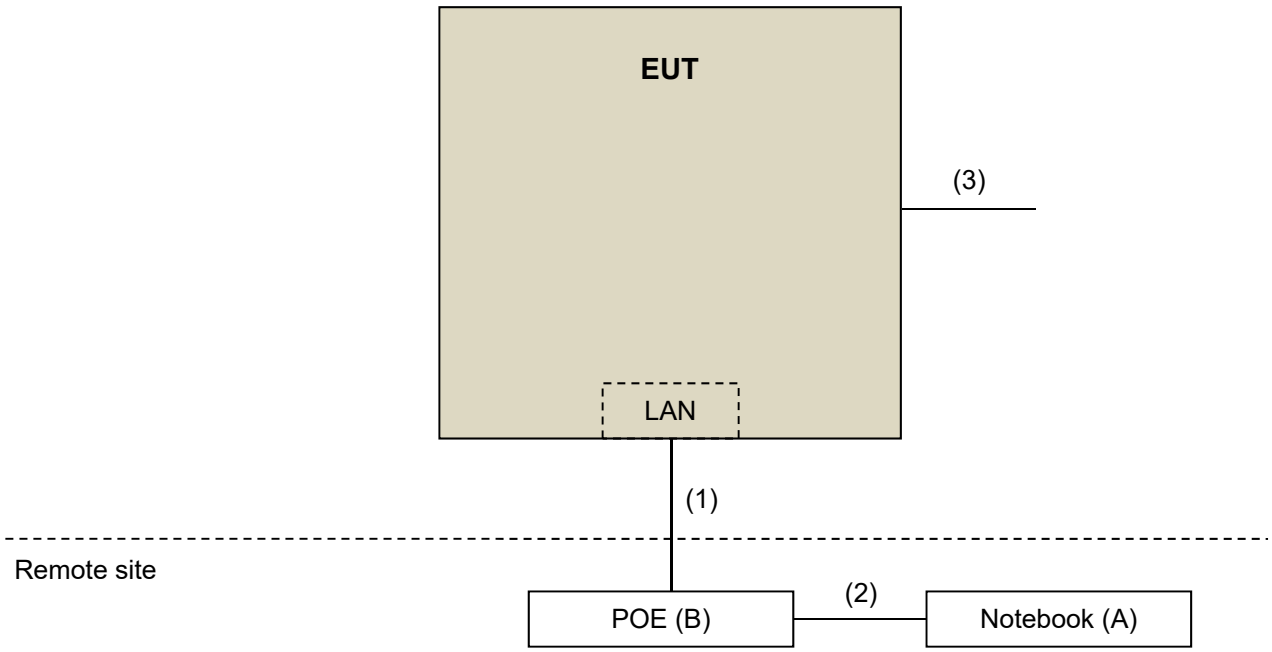


802.11ax (HE80)

3.6 Test Program Used and Operation Descriptions

Controlling software (QSPR Version 5.0-00197) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	PoE	EnGenius	EPA5006GP	NA	NA	Provided by client

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN cable	1	1.5	N	0	RJ45, Cat5e
2.	LAN cable	1	7	N	0	RJ45, Cat5e
3.	Ground cable	1	1.75	N	0	Accessory of EUT

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 26 dB Bandwidth

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	100979	2022/3/25	2023/3/24

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2022/6/16

4.2 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Peak Power Analyzer KEYSIGHT	8990B	MY51000485	2022/1/18	2023/1/17
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	100979	2022/3/25	2023/3/24
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/ MY55190007/MY55210005	2021/7/12	2022/7/11
Wideband Power Sensor(N1923A) KEYSIGHT	N1923A	MY58020002	2022/1/17	2023/1/16

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2022/6/16 ~ 2022/6/20

4.3 Power Spectral Density

Refer to section 4.1 to get information of the instruments.

4.4 Occupied Bandwidth

Refer to section 4.1 to get information of the instruments.

4.5 Frequency Stability

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
3-channel DC power supply JIN YIH Technology	ODP3033	ODP30332128138	N/A	N/A
AC Power Source ExTech	CFW-105	E000603	N/A	N/A
Digital Multimeter Fluke	87-III	70360755	2021/7/8	2022/7/7
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	100979	2022/3/25	2023/3/24
Temperature & Humidity Chamber TERCHY	HRM-120RF	931022	2022/1/3	2023/1/2

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2022/6/16

4.6 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
DC LISN R&S	ESH3-Z6	100219	2021/7/25	2022/7/24
		844950/018	2021/7/25	2022/7/24
DC-LISN SCHWARZBECK MESS-ELETRONIK	NNBM 8126G	8126G-069	2021/11/10	2022/11/9
LISN ROHDE & SCHWARZ	ENV216	101826	2022/3/14	2023/3/13
LISN R&S	ESH3-Z5	100311	2021/9/7	2022/9/6
RF Coaxial Cable WOKEN	5D-FB	Cable-cond1-01	2022/1/15	2023/1/14
Software BVADT	BVADT_Cond_ V7.3.7.4	N/A	N/A	N/A
Test Receiver Rohde&Schwarz	ESCI	100613	2021/12/3	2022/12/2
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2021/8/20	2022/8/19

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2022/6/8

4.7 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
Bi-log Broadband Antenna Schwarzbeck	VULB9168	9168-1213	2021/10/27	2022/10/26
Loop Antenna TESEQ	HLA 6121	45745	2021/7/21	2022/7/20
Loop Antenna EMCI	EM-6879	269	2021/9/16	2022/9/15
Pre_Amplifier EMCI	EMC330N	980782	2022/1/17	2023/1/16
Pre-amplifier EMCI	EMC001340	980201	2021/9/15	2022/9/14
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	2022/1/15	2023/1/14
	EMCCFD400-NM-NM-500	201233	2022/1/17	2023/1/16
	EMCCFD400-NM-NM-3000	201235	2022/1/17	2023/1/16
	EMCCFD400-NM-NM-9000	201236	2022/1/17	2023/1/16
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Spectrum Analyzer R&S	FSW43	101866	2022/1/14	2023/1/13
Test Receiver R&S	ESR3+	102782	2021/12/10	2022/12/9
Turn Table Max-Full	MF-7802BS	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208674	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2022/6/8

4.8 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
Horn Antenna RFSPIN	DRH18-E	210103A18E	2021/11/14	2022/11/13
Horn Antenna Schwarzbeck	BBHA 9170	9170-1049	2021/11/14	2022/11/13
Pre_Amplifier EMCI	EMC118A45SE	980808	2021/12/30	2022/12/29
	EMC184045SE	980788	2022/1/17	2023/1/16
RF Coaxial Cable EMCI	EMC104-SM-SM-1000	210102	2022/1/17	2023/1/16
	EMC104-SM-SM-3000	201231	2022/1/17	2023/1/16
	EMC104-SM-SM-9000	201243	2022/1/17	2023/1/16
	EMC101G-KM-KM-5000	201260	2022/1/17	2023/1/16
	EMC101G-KM-KM-3000	201257	2022/1/17	2023/1/16
	EMC101G-KM-KM-2000	201254	2022/1/17	2023/1/16
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Spectrum Analyzer R&S	FSW43	101866	2022/1/14	2023/1/13
Test Receiver R&S	ESR3+	102782	2021/12/10	2022/12/9
Turn Table Max-Full	MF-7802BS	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208674	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2022/6/3 ~ 2022/6/13

5 Limits of Test Items

5.1 26 dB Bandwidth

The results are for reference only.

5.2 RF Output Power

Operation Band	Limit
U-NII-2A	250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	250mW (24 dBm) or 11 dBm+10 log B*

*B is the 26 dB emission bandwidth in megahertz

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

5.3 Power Spectral Density

Operation Band	Limit
U-NII-2A	11 dBm/ MHz
U-NII-2C	11 dBm/ MHz

5.4 Occupied Bandwidth

The results are for reference only.

5.5 Frequency Stability

The frequency of the carrier signal shall be maintained within band of operation.

5.6 AC Power Conducted Emissions

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Notes:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

5.7 Unwanted Emissions below 1 GHz

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

5.8 Unwanted Emissions above 1 GHz

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
Above 960	500	3

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

<table>
<tr><th colspan="2">Applicable To</th><th colspan="2">Limit</th></tr>
<tr><td colspan="2" rowspan="2">789033 D02 General UNII Test Procedure New Rules v02r01</td><td colspan="2">Field Strength at 3 m</td></tr>
<tr><td>PK: 74 (dBµV/m)</td><td>AV: 54 (dBµV/m)</td></tr>
<tr><td>Frequency Band</td><td>Applicable To</td><td>EIRP Limit</td><td>Equivalent Field Strength at 3 m</td></tr>
<tr><td>5150~5250 MHz</td><td>15.407(b)(1)</td><td rowspan="3">PK: -27 (dBm/MHz)</td><td rowspan="3">PK: 68.2 (dBµV/m)</td></tr>
<tr><td>5250~5350 MHz</td><td>15.407(b)(2)</td></tr>
<tr><td>5470~5725 MHz</td><td>15.407(b)(3)</td></tr>
<tr><td>5725~5850 MHz</td><td>15.407(b)(4)(i)</td><td>PK: -27 (dBm/MHz) *1
PK: 10 (dBm/MHz) *2
PK: 15.6 (dBm/MHz) *3
PK: 27 (dBm/MHz) *4</td><td>PK: 68.2 (dBµV/m) *1
PK: 105.2 (dBµV/m) *2
PK: 110.8 (dBµV/m) *3
PK: 122.2 (dBµV/m) *4</td></tr>
<tr><td colspan="4">*1 beyond 75 MHz or more above of the band edge.
*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.
*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.
*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.</td></tr>
</table>

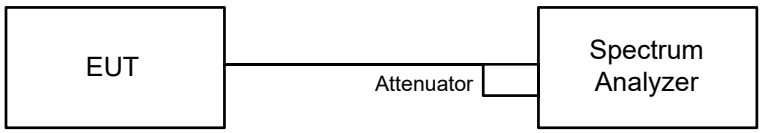
Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3}$$ µV/m, where P is the eirp (Watts).

6 Test Arrangements

6.1 26 dB Bandwidth

6.1.1 Test Setup



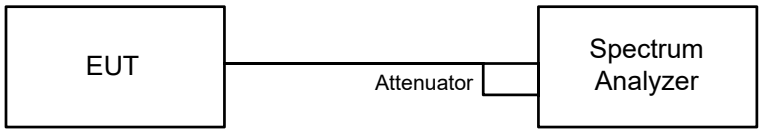
6.1.2 Test Procedure

a. Set RBW = approximately 1% of the emission bandwidth.
b. Set the VBW > RBW.
c. Detector = Peak.
d. Trace mode = max hold.
e. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

6.2 RF Output Power

6.2.1 Test Setup

For channel straddling:



6.2.2 Test Procedure

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to average. Duty factor is not added to measured value.

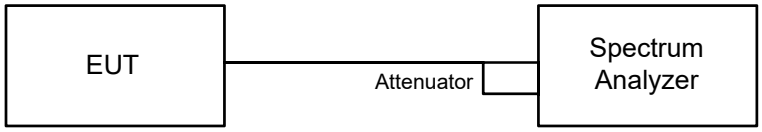
Method SA-2A

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
c. Sweep points ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)
d. Manually set sweep time ≥ 10 × (number of points in sweep) × (total on/off period of the transmitted signal).
e. Perform a single sweep.
f. Record the max value and add 10 log (1/duty cycle).

Note: When measuring straddle channel power, use compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument's band power measurement function, with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW or 99% OBW of the spectrum.

6.3 Power Spectral Density

6.3.1 Test Setup



6.3.2 Test Procedure

For specified measurement bandwidth 1 MHz:
Method SA-2A

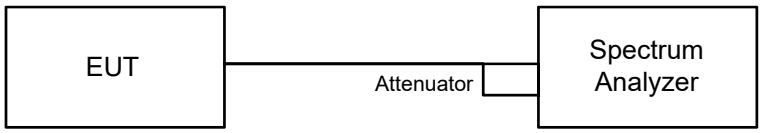
a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
c. Sweep points ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)
d. Manually set sweep time ≥ 10 × (number of points in sweep) × (total on/off period of the transmitted signal).
e. Perform a single sweep.
f. Record the max value and add 10 log (1/duty cycle).

For specified measurement bandwidth 500 kHz:
Method SA-2A

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
b. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
c. Scale the observed power level to an equivalent value in 500 kHz by adjusting (increasing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz/300 kHz)
d. Sweep points ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)
e. Manually set sweep time ≥ 10 × (number of points in sweep) × (total on/off period of the transmitted signal).
f. Perform a single sweep.
g. Record the max value and add 10 log (1/duty cycle).

6.4 Occupied Bandwidth

6.4.1 Test Setup

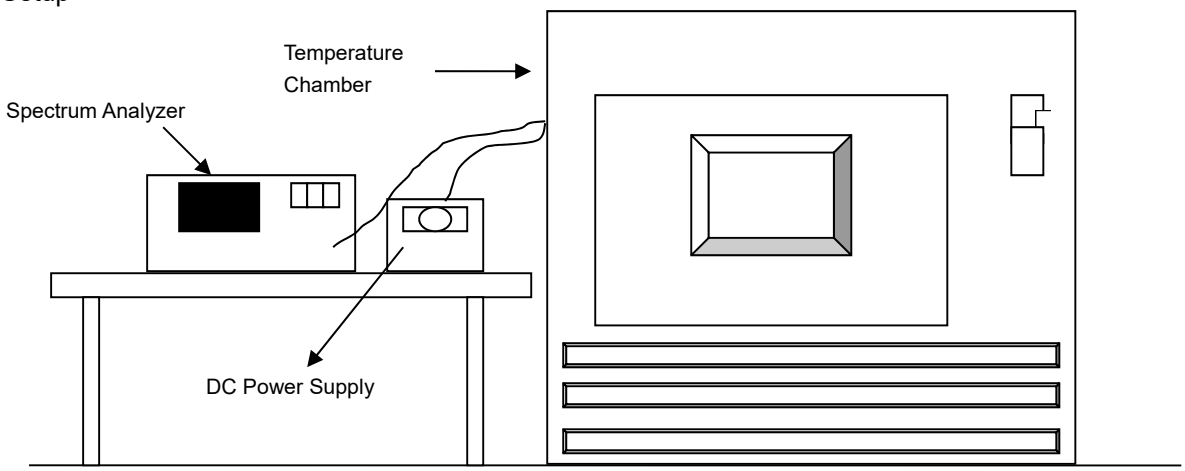


6.4.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to Sampling. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean power of a given emission.

6.5 Frequency Stability

6.5.1 Test Setup

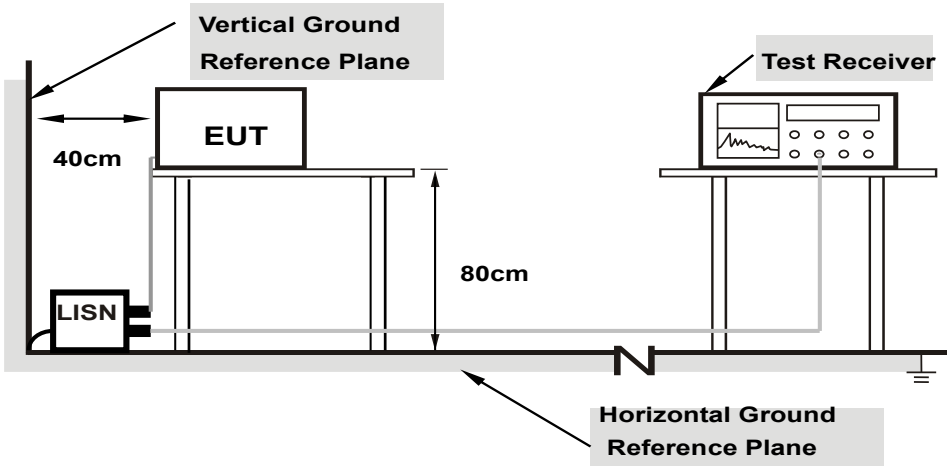


6.5.2 Test Procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
b. Turn the EUT on and couple its output to a spectrum analyzer.
c. Turn the EUT off and set the chamber to the highest temperature specified.
d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.
e. Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.
f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

6.6 AC Power Conducted Emissions

6.6.1 Test Setup



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

For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.6.2 Test Procedure

a. The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

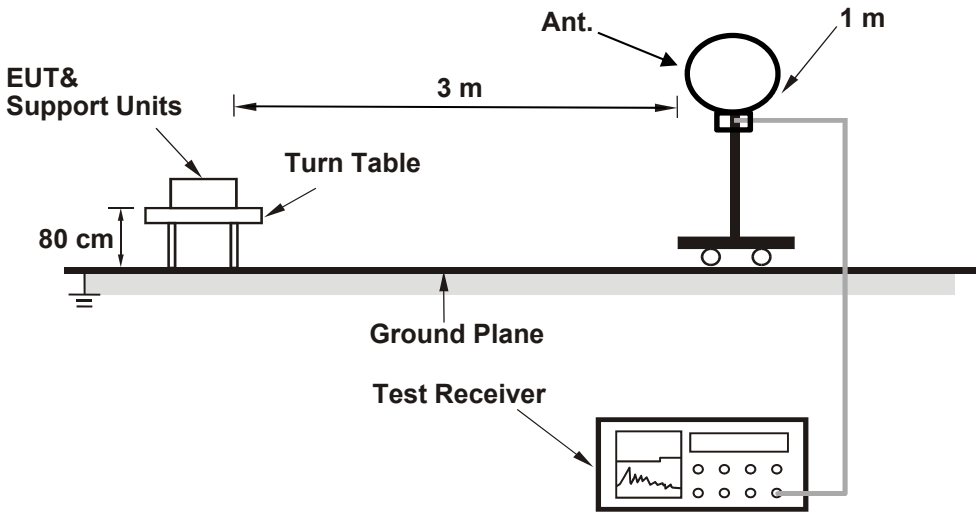
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz-30 MHz.

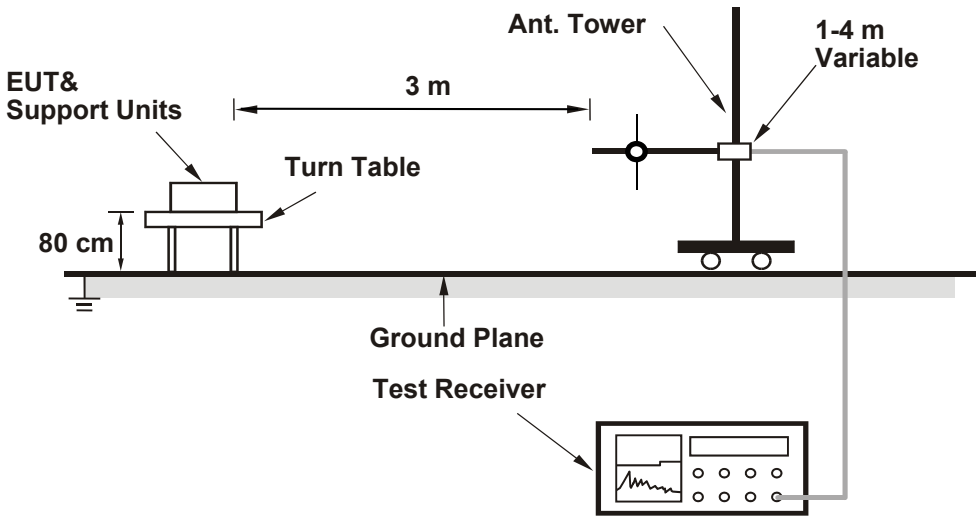
6.7 Unwanted Emissions below 1 GHz

6.7.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



6.7.2 Test Procedure

For Radiated emission below 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode, except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency below 150 kHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency (150 kHz to 30 MHz).
3. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated emission above 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

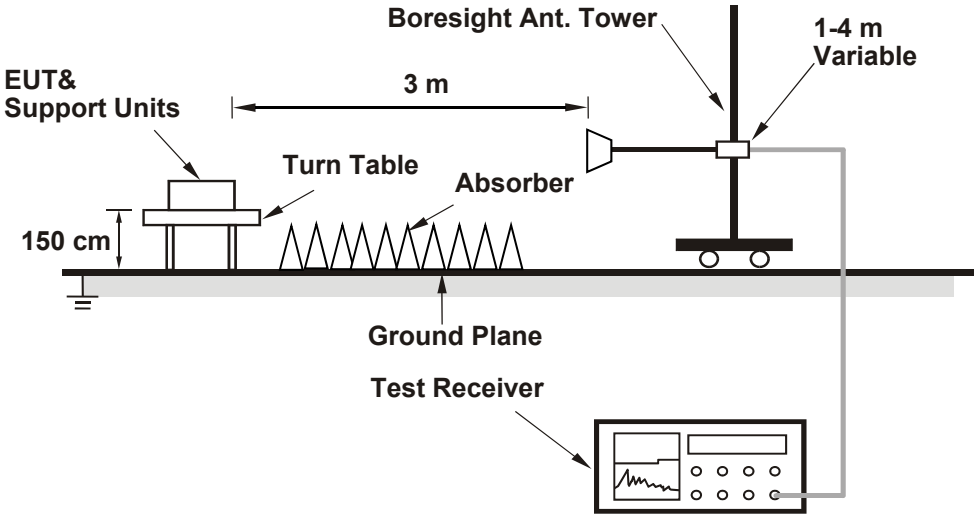
Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

6.8 Unwanted Emissions above 1 GHz

6.8.1 Test Setup

For Radiated emission above 1 GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.8.2 Test Procedure

a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Notes:

1. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection (AV) at frequency above 1 GHz.
2. For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10 Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1 GHz.
3. All modes of operation were investigated and the worst-case emissions are reported.

7 Test Results of Test Item

7.1 26 dB Bandwidth

Input Power:	54 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin

802.11a

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.84	20.70
60	5300	20.73	20.65
64	5320	20.68	20.81
100	5500	20.84	20.93
116	5580	20.84	20.76
140	5700	20.68	20.76
144 (U-NII-2C)	5720	15.39	15.50

Determined Output Power Limit					
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)		
52	5260	20.70	24.15	>	24
60	5300	20.65	24.14	>	24
64	5320	20.68	24.15	>	24
100	5500	20.84	24.18	>	24
116	5580	20.76	24.17	>	24
140	5700	20.68	24.15	>	24
144 (U-NII-2C)	5720	15.39	22.87	<	24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11ax (HE20)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	21.85	21.34
60	5300	21.64	21.97
64	5320	21.84	21.57
100	5500	21.67	21.61
116	5580	21.64	21.81
140	5700	21.52	21.56
144 (U-NII-2C)	5720	16.04	15.86

Determined Output Power Limit					
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)		
52	5260	21.34	24.29	>	24
60	5300	21.64	24.35	>	24
64	5320	21.57	24.33	>	24
100	5500	21.61	24.34	>	24
116	5580	21.64	24.35	>	24
140	5700	21.52	24.32	>	24
144 (U-NII-2C)	5720	15.86	23	<	24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11ax (HE40)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	42.00	42.34
62	5310	42.20	42.32
102	5510	42.06	42.01
110	5550	42.34	42.38
134	5670	42.04	42.72
142 (U-NII-2C)	5710	36.08	35.81

Determined Output Power Limit					
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)		
54	5270	42.00	27.23	>	24
62	5310	42.20	27.25	>	24
102	5510	42.01	27.23	>	24
110	5550	42.34	27.26	>	24
134	5670	42.04	27.23	>	24
142 (U-NII-2C)	5710	35.81	26.54	>	24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

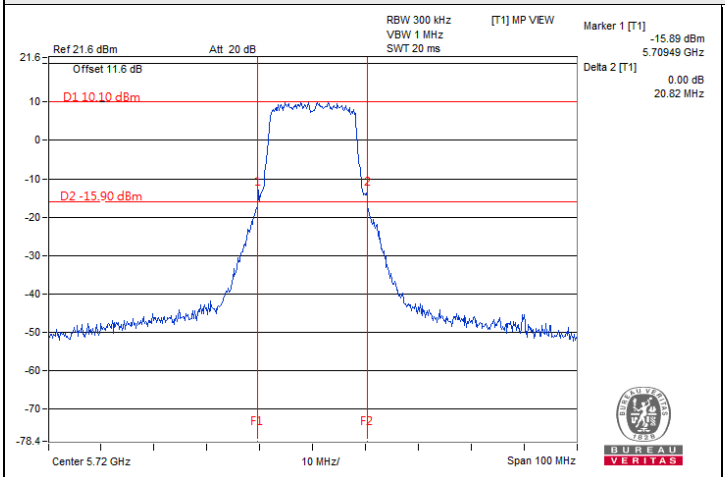
802.11ax (HE80)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	82.94	82.79
106	5530	82.66	82.68
122	5610	82.86	83.53
138 (U-NII-2C)	5690	76.18	76.32

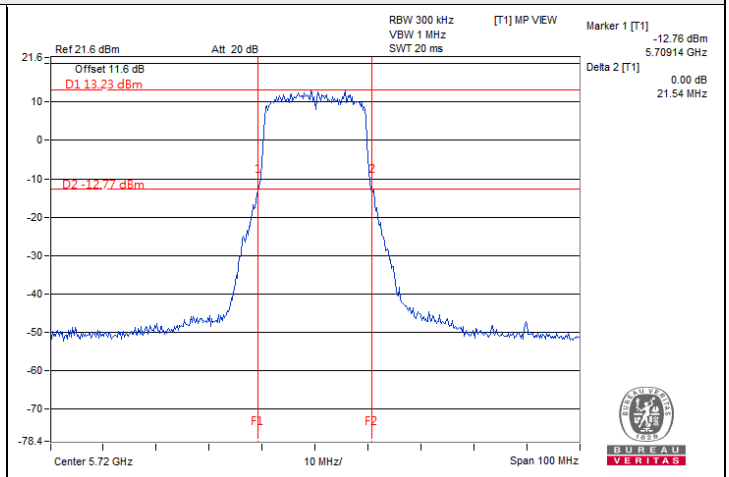
Determined Output Power Limit					
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)		
58	5290	82.79	30.17	>	24
106	5530	82.66	30.17	>	24
122	5610	82.86	30.18	>	24
138 (U-NII-2C)	5690	76.18	29.81	>	24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

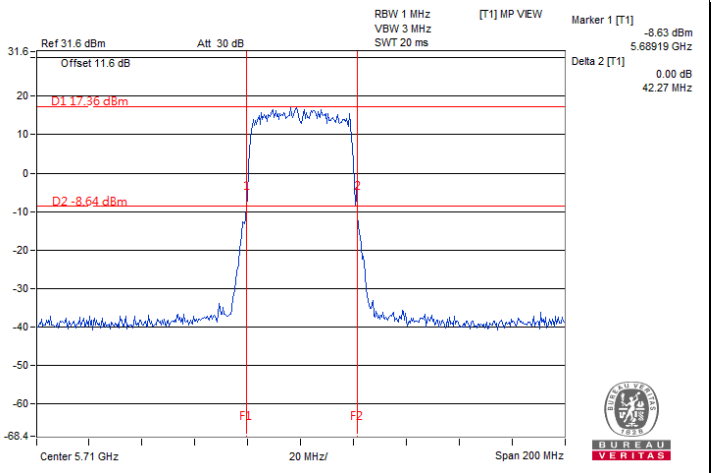
Spectrum Plot of Minimum Value



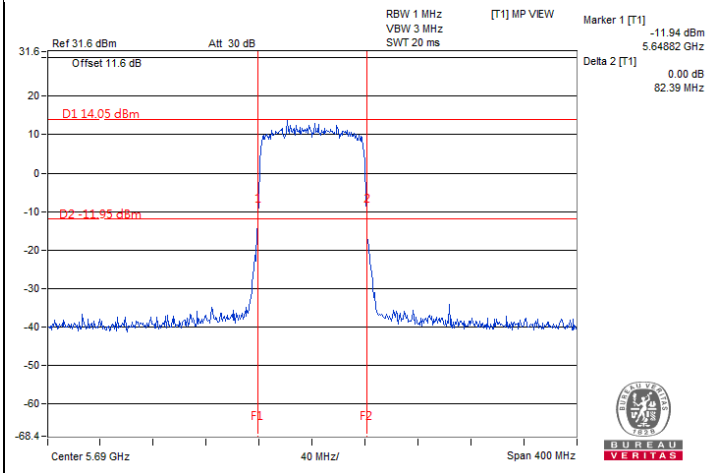
802.11a / Chain0 : CH 144 (U-NII-2C)



802.11ax (HE20) / Chain1 : CH 144 (U-NII-2C)



802.11ax (HE40) / Chain1 : CH 142 (U-NII-2C)



802.11ax (HE80) / Chain0 : CH 138 (U-NII-2C)

Notes:

1. For U-NII-2C straddle channel = 5725 MHz - Marker 1

7.2 RF Output Power

Input Power:	54 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
52	5260	17.63	19.02	137.742	21.39	24	Pass
60	5300	17.50	19.30	141.348	21.50	24	Pass
64	5320	17.47	18.91	133.651	21.26	24	Pass
100	5500	17.42	18.85	131.944	21.20	24	Pass
116	5580	17.52	19.17	139.097	21.43	24	Pass
140	5700	17.41	18.85	131.817	21.20	24	Pass
*144 (U-NII-2C)	5720	16.87	18.07	120.070	20.79	22.87	Pass
*144 (U-NII-3)	5720	9.05	10.05	19.327	12.86	30	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2A and use spectrum analyzer test , the duty factor was included in the total power.
2. Directional gain is the maximum gain of antennas.
3. For U-NII-2A, the maximum gain is 5.12 dBi < 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 5.17 dBi < 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the maximum gain is 5.17 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
52	5260	17.45	19.01	135.206	21.31	21.87	Pass
60	5300	17.38	18.95	133.225	21.25	21.87	Pass
64	5320	17.33	18.80	129.933	21.14	21.87	Pass
100	5500	17.62	19.02	137.609	21.39	21.82	Pass
116	5580	17.56	18.84	133.576	21.26	21.82	Pass
140	5700	17.73	19.06	139.830	21.46	21.82	Pass
*144 (U-NII-2C)	5720	16.50	17.74	109.317	20.39	20.82	Pass
*144 (U-NII-3)	5720	9.95	11.21	24.257	13.85	27.82	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2A and use spectrum analyzer test , the duty factor was included in the total power.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-2A, the directional gain is 8.13 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(8.13-6)].
4. For U-NII-2C, the directional gain is 8.18 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(8.18-6)].
5. For U-NII-3, the directional gain is 8.18 dBi > 6 dBi, so the output power limit shall be reduced to 30-(8.18-6) = 27.82 dBm.

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
52	5260	17.45	19.01	135.206	21.31	24	Pass
60	5300	17.38	18.95	133.225	21.25	24	Pass
64	5320	17.33	18.80	129.933	21.14	24	Pass
100	5500	17.62	19.02	137.609	21.39	24	Pass
116	5580	17.56	18.84	133.576	21.26	24	Pass
140	5700	17.73	19.06	139.830	21.46	24	Pass
*144 (U-NII-2C)	5720	16.50	17.74	109.317	20.39	23	Pass
*144 (U-NII-3)	5720	9.95	11.21	24.257	13.85	30	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2A and use spectrum analyzer test , the duty factor was included in the total power.
2. Directional gain is the maximum gain of antennas.
3. For U-NII-2A, the maximum gain is 5.12 dBi < 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 5.17 dBi < 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the maximum gain is 5.17 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
54	5270	17.73	19.13	141.139	21.50	21.87	Pass
62	5310	17.74	19.21	142.797	21.55	21.87	Pass
102	5510	17.68	19.20	141.790	21.52	21.82	Pass
110	5550	17.72	19.11	140.627	21.48	21.82	Pass
134	5670	17.70	19.18	141.679	21.51	21.82	Pass
*142 (U-NII-2C)	5710	16.93	18.41	124.944	20.97	21.82	Pass
*142 (U-NII-3)	5710	6.62	8.30	11.954	10.78	27.82	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2A and use spectrum analyzer test , the duty factor was included in the total power.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-2A, the directional gain is 8.13 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(8.13-6)].
4. For U-NII-2C, the directional gain is 8.18 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(8.18-6)].
5. For U-NII-3, the directional gain is 8.18 dBi > 6 dBi, so the output power limit shall be reduced to 30-(8.18-6) = 27.82 dBm.

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
54	5270	19.75	21.13	224.124	23.50	24	Pass
62	5310	19.71	21.24	226.586	23.55	24	Pass
102	5510	19.68	21.19	224.419	23.51	24	Pass
110	5550	19.70	21.09	221.854	23.46	24	Pass
134	5670	19.67	21.20	224.509	23.51	24	Pass
*142 (U-NII-2C)	5710	18.91	20.40	197.379	22.95	24	Pass
*142 (U-NII-3)	5710	8.57	10.31	18.884	12.76	30	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2A and use spectrum analyzer test , the duty factor was included in the total power.
2. Directional gain is the maximum gain of antennas.
3. For U-NII-2A, the maximum gain is 5.12 dBi < 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 5.17 dBi < 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the maximum gain is 5.17 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
52	5260	17.55	19.11	138.356	21.41	21.87	Pass
60	5300	17.49	19.03	136.088	21.34	21.87	Pass
64	5320	17.41	18.93	133.244	21.25	21.87	Pass
100	5500	17.71	19.14	141.055	21.49	21.82	Pass
116	5580	17.67	18.99	137.729	21.39	21.82	Pass
140	5700	17.85	19.16	143.368	21.56	21.82	Pass
*144 (U-NII-2C)	5720	16.60	17.89	112.603	20.52	20.82	Pass
*144 (U-NII-3)	5720	10.08	11.42	25.259	14.02	27.82	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2A and use spectrum analyzer test , the duty factor was included in the total power.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-2A, the directional gain is 8.13 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(8.13-6)].
4. For U-NII-2C, the directional gain is 8.18 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(8.18-6)].
5. For U-NII-3, the directional gain is 8.18 dBi > 6 dBi, so the output power limit shall be reduced to 30-(8.18-6) = 27.82 dBm.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
52	5260	17.55	19.11	138.356	21.41	24	Pass
60	5300	17.49	19.03	136.088	21.34	24	Pass
64	5320	17.41	18.93	133.244	21.25	24	Pass
100	5500	17.71	19.14	141.055	21.49	24	Pass
116	5580	17.67	18.99	137.729	21.39	24	Pass
140	5700	17.85	19.16	143.368	21.56	24	Pass
*144 (U-NII-2C)	5720	16.60	17.89	112.603	20.52	23	Pass
*144 (U-NII-3)	5720	10.08	11.42	25.259	14.02	30	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2A and use spectrum analyzer test , the duty factor was included in the total power.
2. Directional gain is the maximum gain of antennas.
3. For U-NII-2A, the maximum gain is 5.12 dBi < 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 5.17 dBi < 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the maximum gain is 5.17 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
54	5270	17.86	19.27	145.622	21.63	21.87	Pass
62	5310	17.88	19.35	147.476	21.69	21.87	Pass
102	5510	17.80	19.30	145.370	21.62	21.82	Pass
110	5550	17.84	19.25	144.953	21.61	21.82	Pass
134	5670	17.82	19.31	145.844	21.64	21.82	Pass
*142 (U-NII-2C)	5710	17.03	18.50	127.683	21.06	21.82	Pass
*142 (U-NII-3)	5710	6.70	8.38	12.176	10.86	27.82	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2A and use spectrum analyzer test , the duty factor was included in the total power.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-2A, the directional gain is 8.13 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(8.13-6)].
4. For U-NII-2C, the directional gain is 8.18 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(8.18-6)].
5. For U-NII-3, the directional gain is 8.18 dBi > 6 dBi, so the output power limit shall be reduced to 30-(8.18-6) = 27.82 dBm.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
54	5270	19.89	21.28	231.775	23.65	24	Pass
62	5310	19.90	21.36	**234.497**	**23.70**	24	Pass
102	5510	19.82	21.32	231.459	23.64	24	Pass
110	5550	19.85	21.26	230.265	23.62	24	Pass
134	5670	19.84	21.33	232.214	23.66	24	Pass
*142 (U-NII-2C)	5710	19.05	20.51	203.025	23.08	24	Pass
*142 (U-NII-3)	5710	8.71	10.40	19.369	12.87	30	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2A and use spectrum analyzer test , the duty factor was included in the total power.
2. Directional gain is the maximum gain of antennas.
3. For U-NII-2A, the maximum gain is 5.12 dBi < 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 5.17 dBi < 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the maximum gain is 5.17 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE80) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
58	5290	17.55	19.14	138.920	21.43	21.87	Pass
106	5530	17.87	19.29	146.153	21.65	21.82	Pass
122	5610	17.92	19.31	147.254	21.68	21.82	Pass
*138 (U-NII-2C)	5690	17.46	18.83	139.483	21.45	21.82	Pass
*138 (U-NII-3)	5690	3.24	4.75	5.379	7.31	27.82	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2A and use spectrum analyzer test , the duty factor was included in the total power.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-2A, the directional gain is 8.13 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(8.13-6)].
4. For U-NII-2C, the directional gain is 8.18 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(8.18-6)].
5. For U-NII-3, the directional gain is 8.18 dBi > 6 dBi, so the output power limit shall be reduced to 30-(8.18-6) = 27.82 dBm.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
58	5290	18.53	20.10	173.615	22.40	24	Pass
106	5530	19.89	21.30	232.395	23.66	24	Pass
122	5610	19.93	21.34	**234.546**	**23.70**	24	Pass
*138 (U-NII-2C)	5690	19.37	20.80	218.273	23.39	24	Pass
*138 (U-NII-3)	5690	5.22	6.72	8.474	9.28	30	Pass

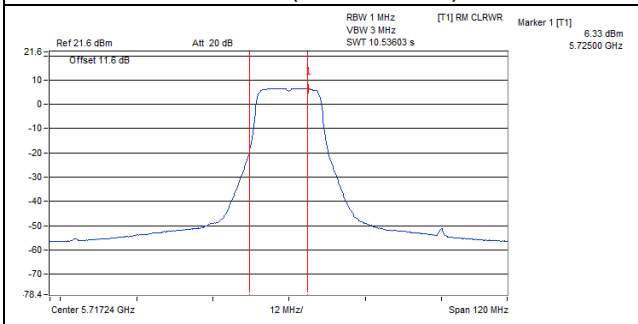
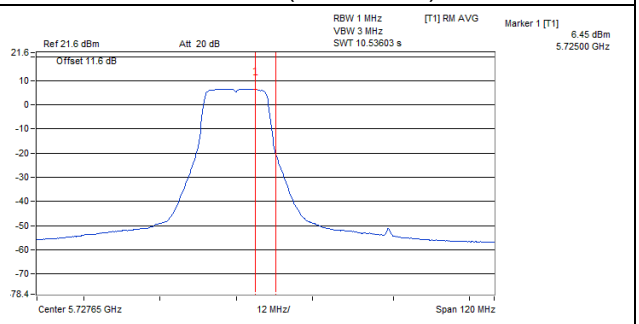
Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2A and use spectrum analyzer test , the duty factor was included in the total power.
2. Directional gain is the maximum gain of antennas.
3. For U-NII-2A, the maximum gain is 5.12 dBi < 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 5.17 dBi < 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the maximum gain is 5.17 dBi < 6 dBi, so the output power limit shall not be reduced.

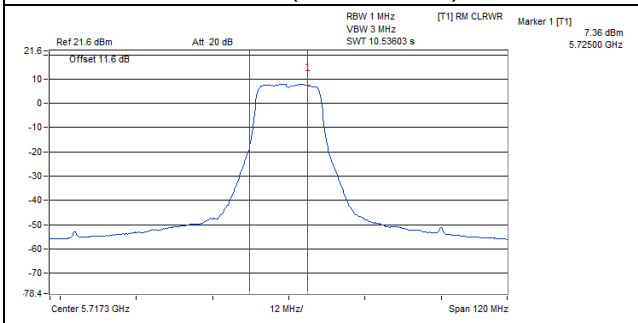
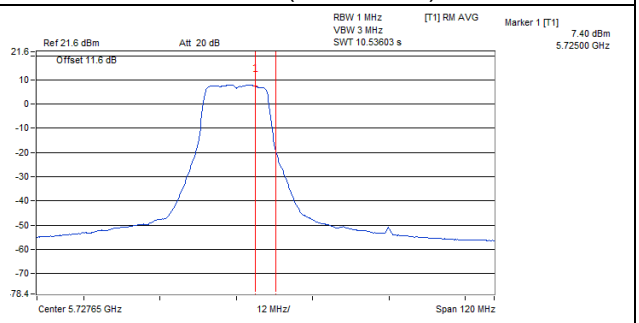
Straddle channel power plots:

802.11a

Chain 0

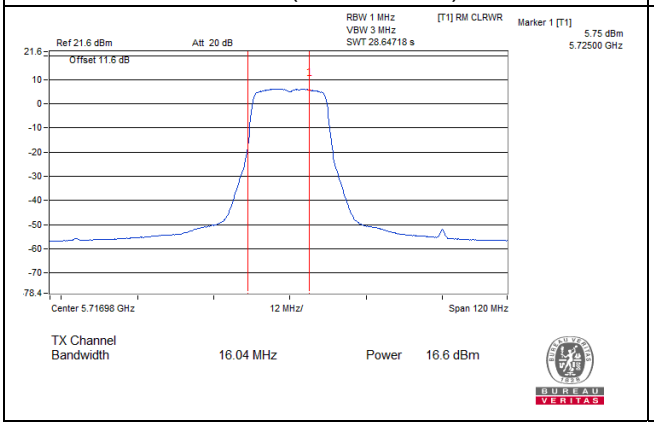
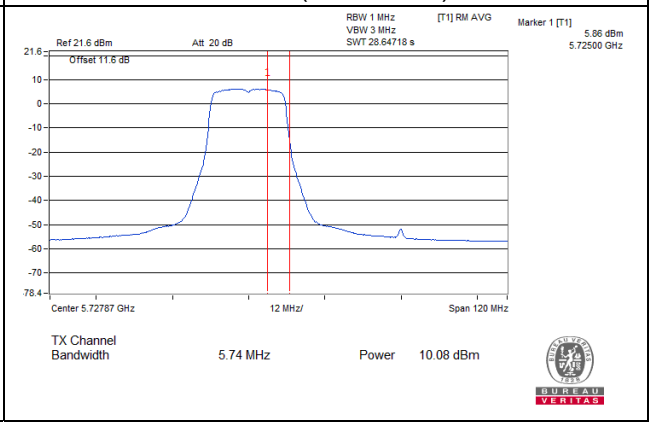
CH 144 (For U-NII-2C)	CH 144 (For U-NII-3)
 TX Channel Bandwidth 15.51 MHz Power 16.87 dBm	 TX Channel Bandwidth 5.31 MHz Power 9.05 dBm

Chain 1

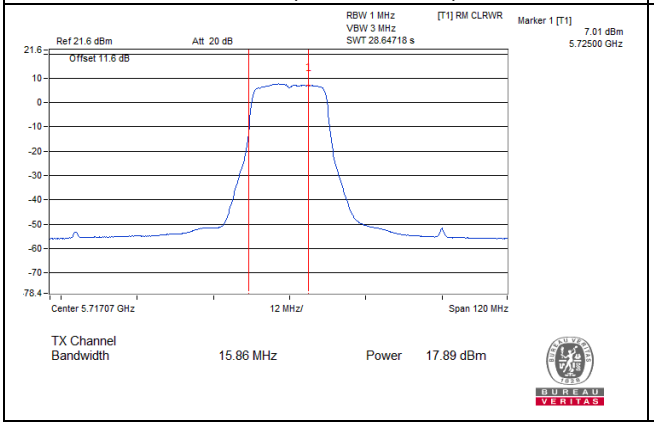
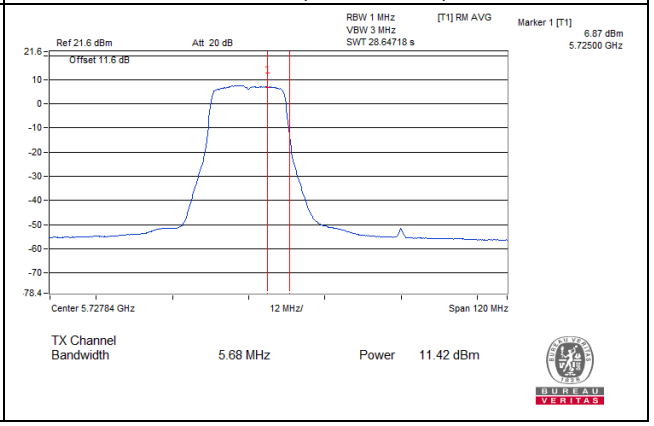
CH 144 (For U-NII-2C)	CH 144 (For U-NII-3)
 TX Channel Bandwidth 15.39 MHz Power 18.07 dBm	 TX Channel Bandwidth 5.31 MHz Power 10.05 dBm

802.11ax (HE20)

Chain 0

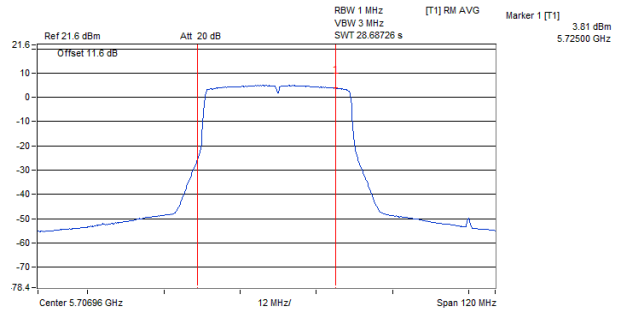
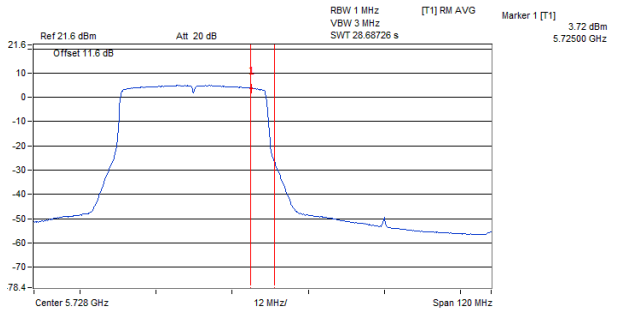
CH 144 (For U-NII-2C)	CH 144 (For U-NII-3)
	

Chain 1

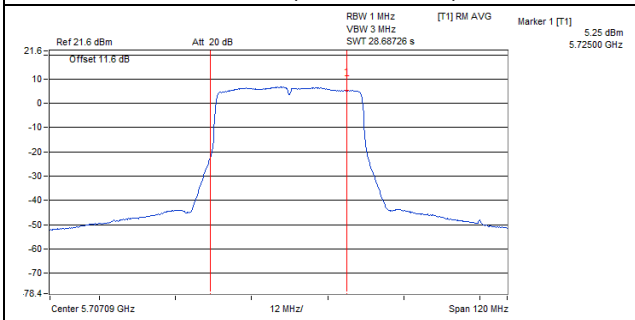
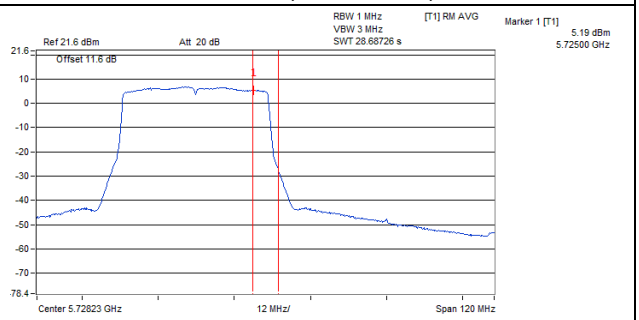
CH 144 (For U-NII-2C)	CH 144 (For U-NII-3)
	

802.11ax (HE40)

Chain 0

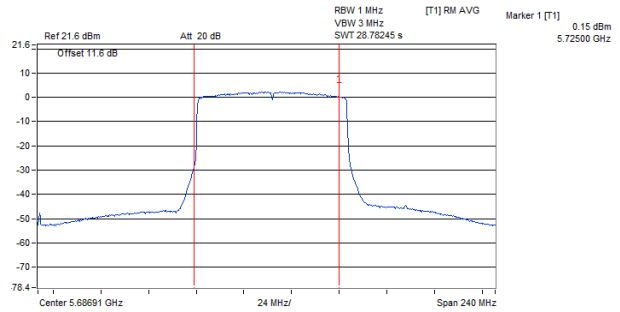
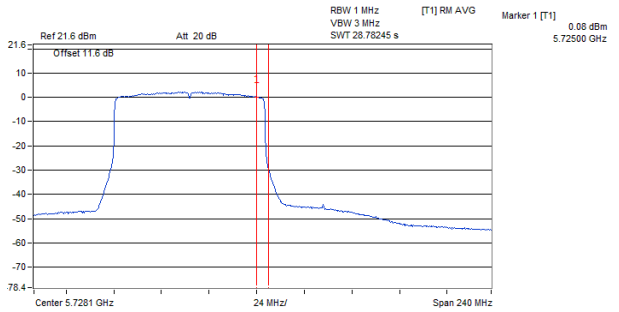
CH 142 (For U-NII-2C)	CH 142 (For U-NII-3)
 TX Channel Bandwidth 36.08 MHz Power 19.05 dBm	 TX Channel Bandwidth 6.01 MHz Power 8.71 dBm

Chain 1

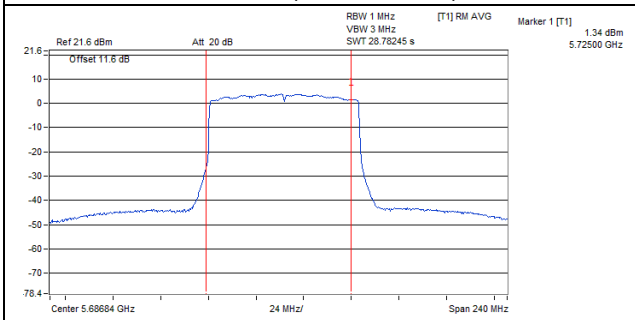
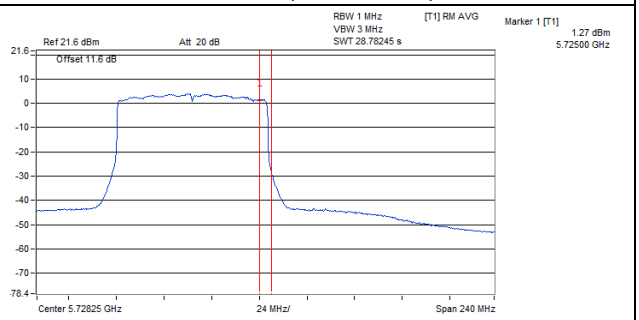
CH 142 (For U-NII-2C)	CH 142 (For U-NII-3)
 TX Channel Bandwidth 35.81 MHz Power 20.51 dBm	 TX Channel Bandwidth 6.46 MHz Power 10.4 dBm

802.11ax (HE80)

Chain 0

CH 138 (For U-NII-2C)	CH 138 (For U-NII-3)
 TX Channel Bandwidth 76.18 MHz Power 19.37 dBm	 TX Channel Bandwidth 6.21 MHz Power 5.22 dBm

Chain 1

CH 138 (For U-NII-2C)	CH 138 (For U-NII-3)
 TX Channel Bandwidth 76.32 MHz Power 20.8 dBm	 TX Channel Bandwidth 6.51 MHz Power 6.72 dBm

7.3 Power Spectral Density

Input Power:	54 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin

802.11a

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1				
52	5260	4.59	6.03	0.27	8.65	8.87	Pass
60	5300	4.40	6.31	0.27	8.74	8.87	Pass
64	5320	4.43	5.84	0.27	8.47	8.87	Pass
100	5500	4.39	5.79	0.27	8.43	8.82	Pass
116	5580	4.45	6.14	0.27	8.66	8.82	Pass
140	5700	4.36	5.82	0.27	8.43	8.82	Pass
144 (U-NII-2C)	5720	4.61	5.76	0.27	8.50	8.82	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-2A, the directional gain is 8.13 dBi > 6 dBi, so the power density limit shall be reduced to 11-(8.13-6) = 8.87 dBm/MHz.
4. For U-NII-2C, the directional gain is 8.18 dBi > 6 dBi, so the power density limit shall be reduced to 11-(8.18-6) = 8.82 dBm/MHz.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1				
52	5260	4.34	6.03	0.21	8.49	8.87	Pass
60	5300	4.13	6.04	0.21	8.41	8.87	Pass
64	5320	4.34	5.85	0.21	8.38	8.87	Pass
100	5500	4.65	6.09	0.21	8.65	8.82	Pass
116	5580	4.59	5.83	0.21	8.47	8.82	Pass
140	5700	4.78	5.95	0.21	8.62	8.82	Pass
144 (U-NII-2C)	5720	4.50	5.88	0.21	8.46	8.82	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-2A, the directional gain is 8.13 dBi > 6 dBi, so the power density limit shall be reduced to 11-(8.13-6) = 8.87 dBm/MHz.
4. For U-NII-2C, the directional gain is 8.18 dBi > 6 dBi, so the power density limit shall be reduced to 11-(8.18-6) = 8.82 dBm/MHz.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1				
54	5270	3.81	5.21	0.22	7.80	8.87	Pass
62	5310	3.90	5.29	0.22	7.88	8.87	Pass
102	5510	3.54	5.18	0.22	7.67	8.82	Pass
110	5550	3.53	5.24	0.22	7.70	8.82	Pass
134	5670	3.64	5.19	0.22	7.71	8.82	Pass
142 (U-NII-2C)	5710	3.79	5.34	0.22	7.86	8.82	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-2A, the directional gain is 8.13 dBi > 6 dBi, so the power density limit shall be reduced to 11-(8.13-6) = 8.87 dBm/MHz.
4. For U-NII-2C, the directional gain is 8.18 dBi > 6 dBi, so the power density limit shall be reduced to 11-(8.18-6) = 8.82 dBm/MHz.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1				
58	5290	-0.65	0.90	0.24	3.44	8.87	Pass
106	5530	0.40	2.08	0.24	4.57	8.82	Pass
122	5610	0.14	2.13	0.24	4.50	8.82	Pass
138 (U-NII-2C)	5690	0.82	2.23	0.24	4.83	8.82	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-2A, the directional gain is 8.13 dBi > 6 dBi, so the power density limit shall be reduced to 11-(8.13-6) = 8.87 dBm/MHz.
4. For U-NII-2C, the directional gain is 8.18 dBi > 6 dBi, so the power density limit shall be reduced to 11-(8.18-6) = 8.82 dBm/MHz.

802.11a

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Total PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
		Chain 0	Chain 1					
144 (U-NII-3)	5720	-3.86	-2.85	-0.32	0.27	2.17	27.82	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Total PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
		Chain 0	Chain 1					
144 (U-NII-3)	5720	-5.07	-3.86	-1.41	0.21	1.02	27.82	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Total PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
		Chain 0	Chain 1					
142 (U-NII-3)	5710	-7.02	-5.73	-3.32	0.22	-0.88	27.82	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)

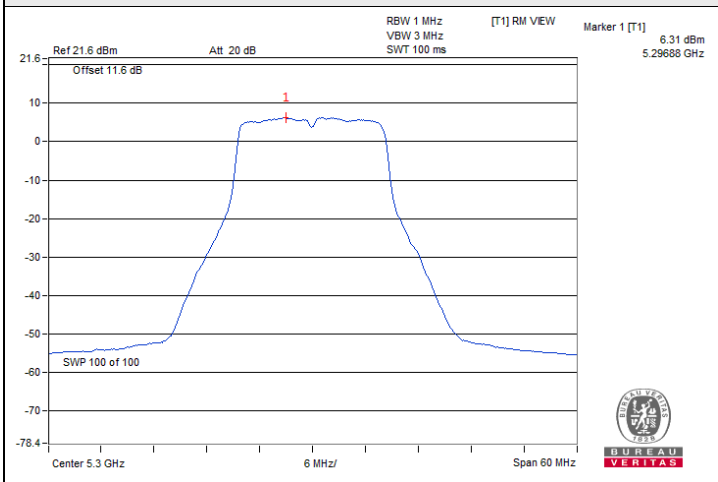
802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Total PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
		Chain 0	Chain 1					
138 (U-NII-3)	5690	-10.21	-8.78	-6.43	0.24	-3.97	27.82	Pass

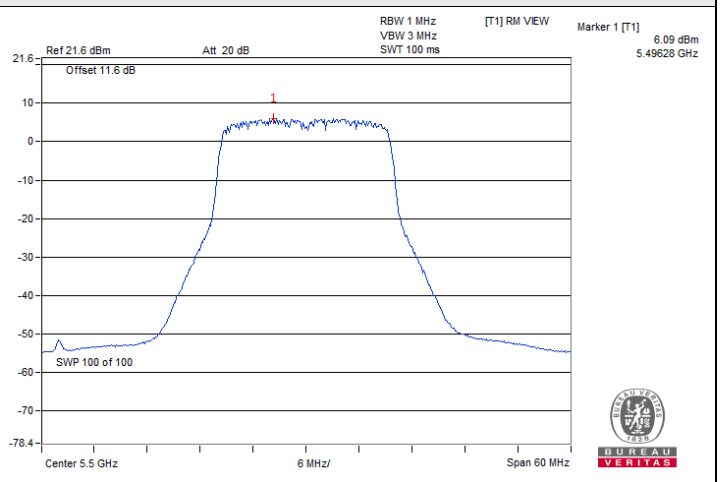
Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)

Spectrum Plot of Maximum Value

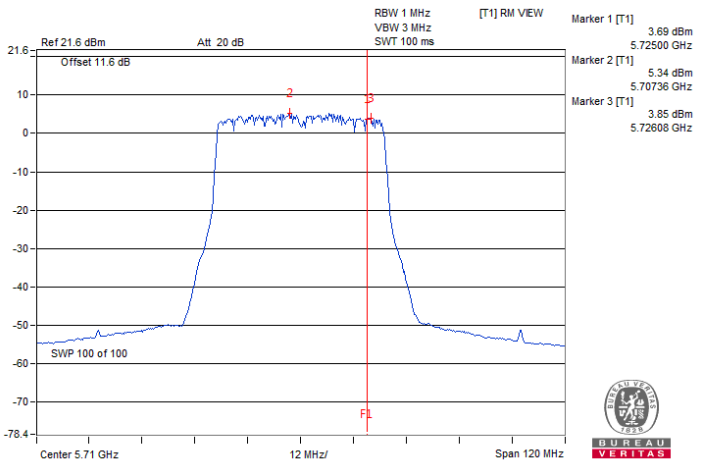


802.11a / Chain1 : CH 60

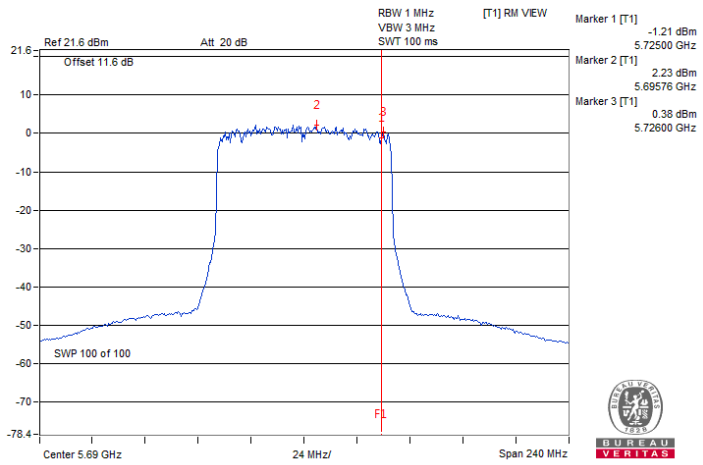


802.11ax (HE20) / Chain1 : CH 100

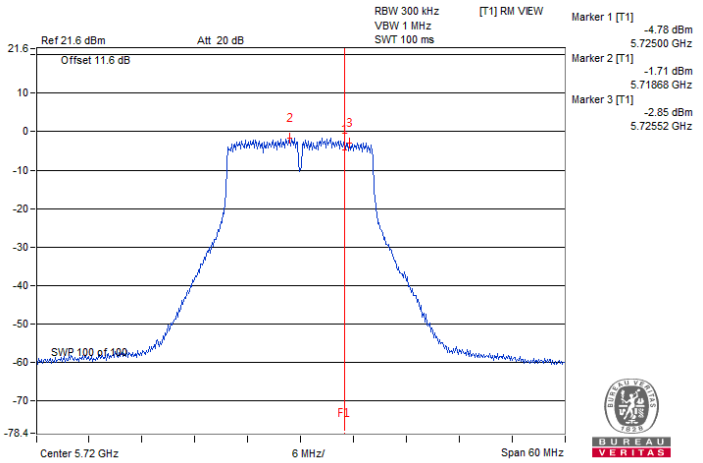
Spectrum Plot of Maximum Value



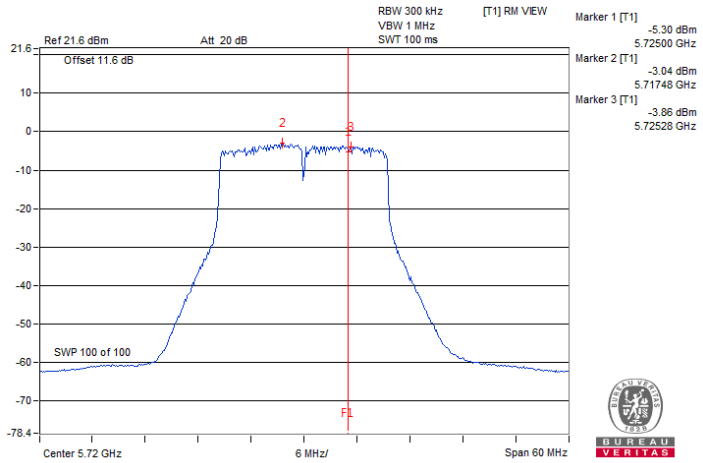
802.11ax (HE40) / Chain1 : CH 142 (U-NII-2C)



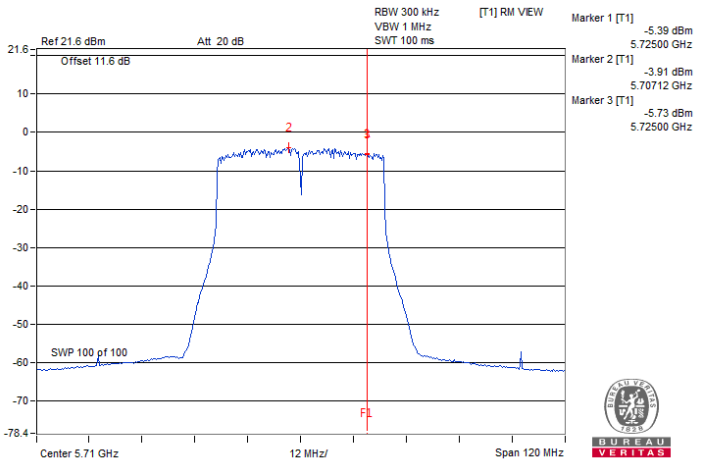
802.11ax (HE80) / Chain1 : CH 138 (U-NII-2C)



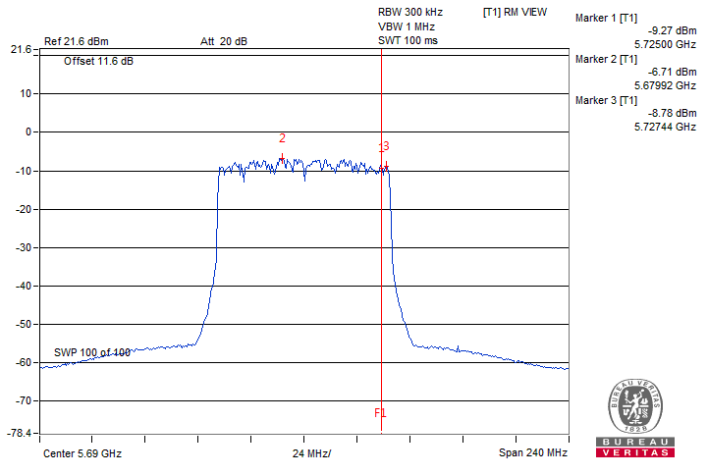
802.11a / Chain1 : CH 144 (U-NII-3)



802.11ax (HE20) / Chain1 : CH 144 (U-NII-3)



802.11ax (HE40) / Chain1 : CH 142 (U-NII-3)



802.11ax (HE80) / Chain1 : CH 138 (U-NII-3)

7.4 Occupied Bandwidth

Input Power:	54 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	16.44	16.44
60	5300	16.44	16.44
64	5320	16.56	16.44
100	5500	16.44	16.44
116	5580	16.44	16.44
140	5700	16.56	16.44
144 (U-NII-2C)	5720	13.40	13.37
144 (U-NII-3)	5720	3.16	3.08

802.11ax (HE20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	19.08	18.96
60	5300	18.96	18.96
64	5320	18.96	18.96
100	5500	18.96	18.96
116	5580	18.96	18.96
140	5700	18.96	18.84
144 (U-NII-2C)	5720	14.60	14.60
144 (U-NII-3)	5720	4.36	4.36

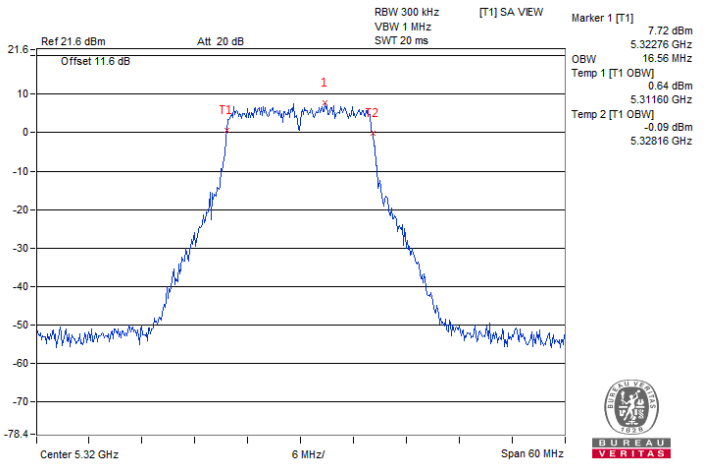
802.11ax (HE40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	38.04	37.92
62	5310	37.92	37.92
102	5510	37.92	37.92
110	5550	37.89	37.89
134	5670	37.89	38.16
142 (U-NII-2C)	5710	34.23	34.20
142 (U-NII-3)	5710	3.85	3.96

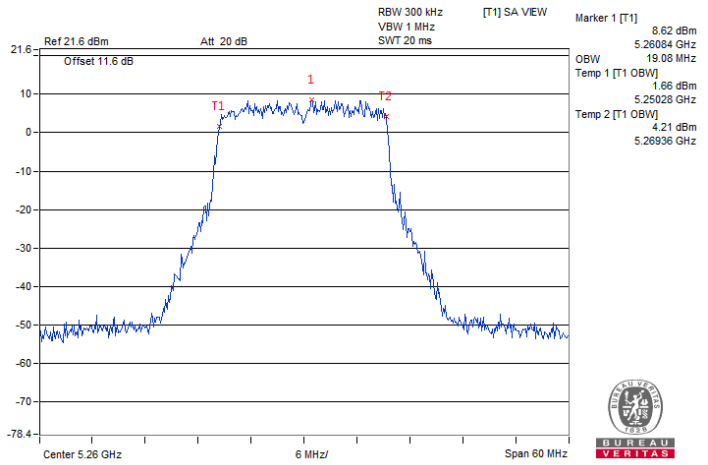
802.11ax (HE80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	77.04	77.04
106	5530	77.31	77.31
122	5610	77.28	76.80
138 (U-NII-2C)	5690	73.88	73.88
138 (U-NII-3)	5690	3.40	3.40

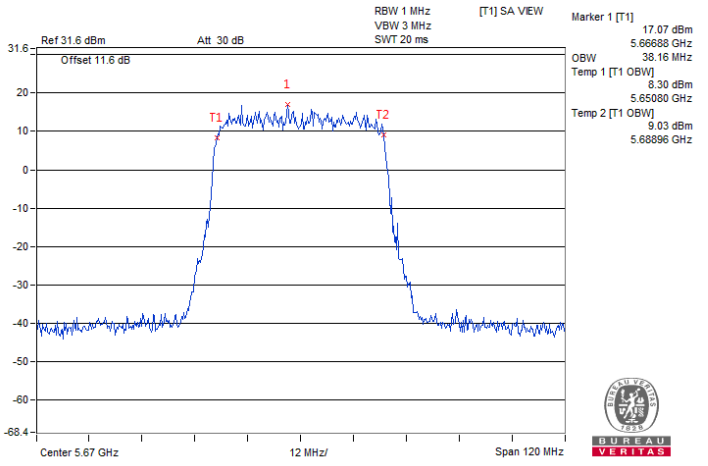
Spectrum Plot of Maximum Value



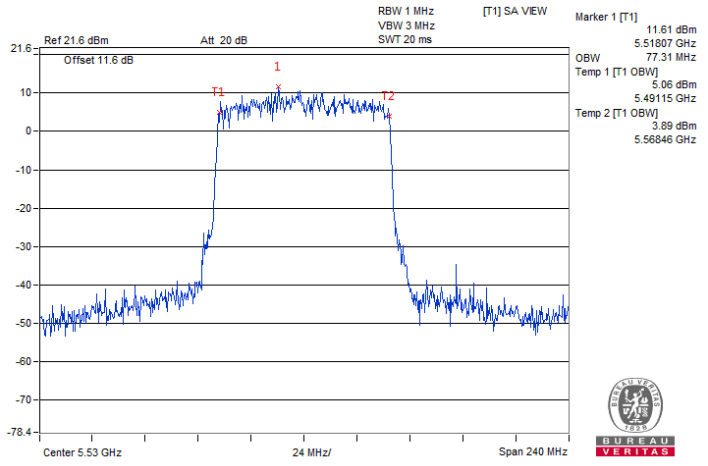
802.11a / Chain0 : CH 64



802.11ax (HE20) / Chain0 : CH 52



802.11ax (HE40) / Chain1 : CH 134



802.11ax (HE80) / Chain0 : CH 106

7.5 Frequency Stability

Input Power:	54 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin

802.11a

Frequency Stability Versus Temp.									
Operating Frequency: 5260 MHz									
TEMP. (℃)	Power Supply (Vdc)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result
60	54	5259.9878	Pass	5259.9895	Pass	5259.9872	Pass	5259.9894	Pass
50	54	5259.9824	Pass	5259.9859	Pass	5259.9870	Pass	5259.9851	Pass
40	54	5259.9783	Pass	5259.9783	Pass	5259.9755	Pass	5259.9777	Pass
30	54	5259.9859	Pass	5259.9871	Pass	5259.9880	Pass	5259.9842	Pass
20	54	5260.0098	Pass	5260.0128	Pass	5260.0097	Pass	5260.0106	Pass
10	54	5259.9880	Pass	5259.9883	Pass	5259.9909	Pass	5259.9885	Pass
0	54	5260.0119	Pass	5260.0102	Pass	5260.0095	Pass	5260.0092	Pass
-10	54	5259.9815	Pass	5259.9825	Pass	5259.9824	Pass	5259.9817	Pass
-20	54	5260.0022	Pass	5259.9988	Pass	5259.9988	Pass	5260.0016	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5260 MHz									
TEMP. (℃)	Power Supply (Vdc)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result
20	62.1	5260.0117	Pass	5260.0132	Pass	5260.0115	Pass	5260.0136	Pass
	54	5260.0098	Pass	5260.0128	Pass	5260.0097	Pass	5260.0106	Pass
	45.9	5260.0098	Pass	5260.0070	Pass	5260.0079	Pass	5260.0075	Pass

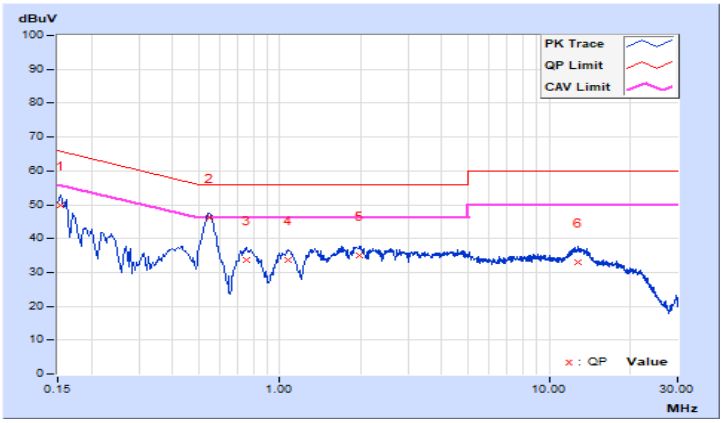
7.6 AC Power Conducted Emissions

RF Mode	TX 802.11ax (HE40)	**Channel**	CH 62：5310 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Randy Wu		

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15400	9.62	40.05	25.63	49.67	35.25	65.78	55.78	-16.11	-20.53
2	**0.54542**	**9.69**	**36.50**	**31.47**	**46.19**	**41.16**	**56.00**	**46.00**	**-9.81**	**-4.84**
3	0.75000	9.70	24.11	20.75	33.81	30.45	56.00	46.00	-22.19	-15.55
4	1.07000	9.70	24.06	20.77	33.76	30.47	56.00	46.00	-22.24	-15.53
5	1.98200	9.72	25.24	21.33	34.96	31.05	56.00	46.00	-21.04	-14.95
6	12.76200	9.83	23.23	18.12	33.06	27.95	60.00	50.00	-26.94	-22.05

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

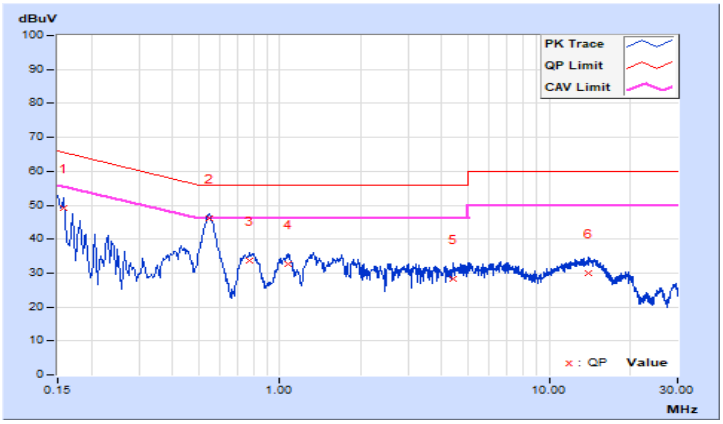


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 62：5310 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Randy Wu		

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15800	9.62	39.44	25.08	49.06	34.70	65.57	55.57	-16.51	-20.87
2	0.54975	9.69	36.28	31.16	45.97	40.85	56.00	46.00	-10.03	-5.15
3	0.77400	9.70	23.89	19.38	33.59	29.08	56.00	46.00	-22.41	-16.92
4	1.07000	9.70	23.11	19.84	32.81	29.54	56.00	46.00	-23.19	-16.46
5	4.42200	9.75	18.51	11.95	28.26	21.70	56.00	46.00	-27.74	-24.30
6	14.02200	9.85	20.22	14.96	30.07	24.81	60.00	50.00	-29.93	-25.19

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



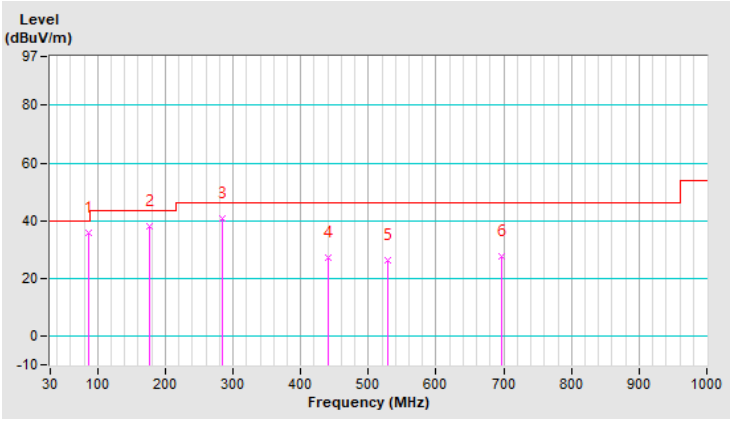
7.7 Unwanted Emissions below 1 GHz

RF Mode	TX 802.11ax (HE40)	**Channel**	CH 62：5310 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	24°C, 72% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	87.23	35.7 QP	40.0	-4.3	2.00 H	244	54.6	-18.9
2	176.47	38.0 QP	43.5	-5.5	2.00 H	168	52.1	-14.1
3	284.14	40.9 QP	46.0	-5.1	1.01 H	193	53.6	-12.7
4	441.28	27.0 QP	46.0	-19.0	2.00 H	226	35.8	-8.8
5	529.55	26.4 QP	46.0	-19.6	2.00 H	101	33.7	-7.3
6	697.36	27.8 QP	46.0	-18.2	1.50 H	308	31.7	-3.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

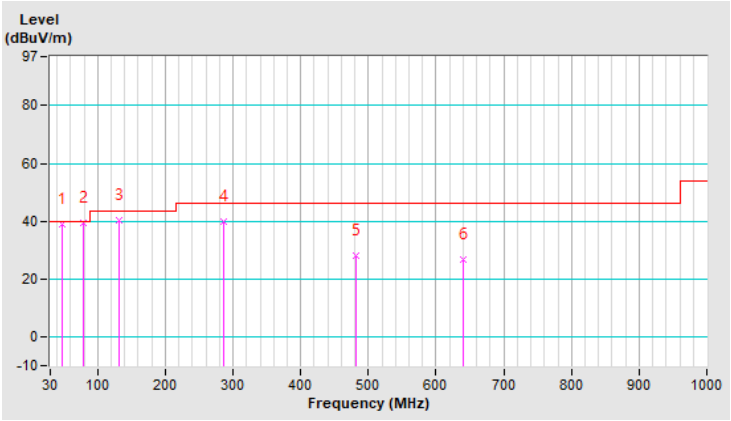


RF Mode	TX 802.11ax (HE40)	Channel	CH 62：5310 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	24°C, 72% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	48.43	38.9 QP	40.0	-1.1	1.00 V	178	51.9	-13.0
2	**78.50**	**39.2 QP**	**40.0**	**-0.8**	**1.00 V**	**189**	**56.8**	**-17.6**
3	131.85	40.3 QP	43.5	-3.2	1.00 V	170	54.5	-14.2
4	286.08	39.7 QP	46.0	-6.3	1.49 V	110	52.4	-12.7
5	482.02	28.3 QP	46.0	-17.7	1.00 V	131	36.4	-8.1
6	640.13	26.7 QP	46.0	-19.3	1.49 V	340	31.4	-4.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



7.8 Unwanted Emissions above 1 GHz

RF Mode	TX 802.11a	Channel	CH 52：5260 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	24°C, 72% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	57.6 PK	74.0	-16.4	1.91 H	298	54.7	2.9
2	5150.00	48.4 AV	54.0	-5.6	1.91 H	298	45.5	2.9
3	*5260.00	113.4 PK			1.88 H	310	73.3	40.1
4	*5260.00	105.2 AV			1.88 H	310	65.1	40.1
5	#10520.00	56.3 PK	68.2	-11.9	1.81 H	293	48.4	7.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.6 PK	74.0	-15.4	2.03 V	98	55.7	2.9
2	5150.00	48.7 AV	54.0	-5.3	2.03 V	98	45.8	2.9
3	*5260.00	123.3 PK			1.89 V	11	83.2	40.1
4	*5260.00	115.0 AV			1.89 V	11	74.9	40.1
5	#10520.00	55.1 PK	68.2	-13.1	1.65 V	247	47.2	7.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 60：5300 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	112.7 PK			1.96 H	316	72.8	39.9
2	*5300.00	104.0 AV			1.96 H	316	64.1	39.9
3	10600.00	54.3 PK	74.0	-19.7	1.78 H	204	46.2	8.1
4	10600.00	44.5 AV	54.0	-9.5	1.78 H	204	36.4	8.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	122.1 PK			1.83 V	69	82.2	39.9
2	*5300.00	114.3 AV			1.83 V	69	74.4	39.9
3	10600.00	55.7 PK	74.0	-18.3	1.24 V	168	47.6	8.1
4	10600.00	45.1 AV	54.0	-8.9	1.24 V	168	37.0	8.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	TX 802.11a	Channel	CH 64：5320 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	112.0 PK			2.95 H	311	72.1	39.9
2	*5320.00	103.4 AV			2.95 H	311	63.5	39.9
3	5350.00	56.2 PK	74.0	-17.8	2.10 H	50	53.8	2.4
4	5350.00	47.1 AV	54.0	-6.9	2.10 H	50	44.7	2.4
5	10640.00	55.1 PK	74.0	-18.9	1.45 H	211	47.2	7.9
6	10640.00	45.2 AV	54.0	-8.8	1.45 H	211	37.3	7.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	122.0 PK			1.78 V	9	82.1	39.9
2	*5320.00	114.1 AV			1.78 V	9	74.2	39.9
3	5350.00	58.7 PK	74.0	-15.3	1.84 V	22	56.3	2.4
4	5350.00	50.9 AV	54.0	-3.1	1.84 V	22	48.5	2.4
5	5376.00	60.6 PK	74.0	-13.4	1.84 V	22	58.4	2.2
6	5376.00	52.3 AV	54.0	-1.7	1.84 V	22	50.1	2.2
7	10640.00	56.5 PK	74.0	-17.5	1.05 V	21	48.6	7.9
8	10640.00	45.4 AV	54.0	-8.6	1.05 V	21	37.5	7.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	TX 802.11a	Channel	CH 100：5500 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	56.8 PK	74.0	-17.2	1.38 H	302	54.5	2.3
2	5460.00	49.8 AV	54.0	-4.2	1.38 H	302	47.5	2.3
3	#5470.00	58.0 PK	68.2	-10.2	1.38 H	302	55.5	2.5
4	*5500.00	111.2 PK			1.41 H	318	71.1	40.1
5	*5500.00	104.2 AV			1.41 H	318	64.1	40.1
6	11000.00	54.1 PK	74.0	-19.9	1.55 H	197	46.2	7.9
7	11000.00	45.4 AV	54.0	-8.6	1.55 H	197	37.5	7.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5376.07	58.4 PK	74.0	-15.6	1.53 V	83	56.2	2.2
2	5376.07	53.0 AV	54.0	-1.0	1.53 V	83	50.8	2.2
3	5460.00	58.2 PK	74.0	-15.8	1.53 V	83	55.9	2.3
4	5460.00	49.7 AV	54.0	-4.3	1.53 V	83	47.4	2.3
5	#5470.00	62.5 PK	68.2	-5.7	1.53 V	83	60.0	2.5
6	*5500.00	121.4 PK			1.42 V	324	81.3	40.1
7	*5500.00	114.1 AV			1.42 V	324	74.0	40.1
8	11000.00	54.7 PK	74.0	-19.3	1.45 V	213	46.8	7.9
9	11000.00	45.8 AV	54.0	-8.2	1.45 V	213	37.9	7.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 116：5580 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	56.7 PK	74.0	-17.3	1.62 H	100	54.4	2.3
2	5460.00	48.7 AV	54.0	-5.3	1.62 H	100	46.4	2.3
3	#5470.00	57.4 PK	68.2	-10.8	1.62 H	100	54.9	2.5
4	*5580.00	111.9 PK			1.50 H	317	71.3	40.6
5	*5580.00	104.2 AV			1.50 H	317	63.6	40.6
6	11160.00	55.1 PK	74.0	-18.9	1.01 H	203	46.5	8.6
7	11160.00	45.7 AV	54.0	-8.3	1.01 H	203	37.1	8.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5375.90	58.5 PK	74.0	-15.5	1.53 V	115	56.3	2.2
2	5375.90	52.6 AV	54.0	-1.4	1.53 V	115	50.4	2.2
3	5460.00	58.0 PK	74.0	-16.0	1.53 V	115	55.7	2.3
4	5460.00	49.5 AV	54.0	-4.5	1.53 V	115	47.2	2.3
5	*5580.00	122.3 PK			1.49 V	325	81.7	40.6
6	*5580.00	115.2 AV			1.49 V	325	74.6	40.6
7	11160.00	56.3 PK	74.0	-17.7	1.03 V	39	47.7	8.6
8	11160.00	45.8 AV	54.0	-8.2	1.03 V	39	37.2	8.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 140：5700 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	111.5 PK			1.48 H	345	70.2	41.3
2	*5700.00	104.8 AV			1.48 H	345	63.5	41.3
3	#5725.00	60.0 PK	68.2	-8.2	1.32 H	168	56.2	3.8
4	11400.00	55.2 PK	74.0	-18.8	1.26 H	137	46.3	8.9
5	11400.00	45.3 AV	54.0	-8.7	1.26 H	137	36.4	8.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	122.4 PK			1.54 V	335	81.1	41.3
2	*5700.00	115.1 AV			1.54 V	335	73.8	41.3
3	**#5725.00**	**67.7 PK**	**68.2**	**-0.5**	**1.68 V**	**102**	**63.9**	**3.8**
4	11400.00	55.6 PK	74.0	-18.4	1.73 V	23	46.7	8.9
5	11400.00	46.1 AV	54.0	-7.9	1.73 V	23	37.2	8.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 144：5720 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5720.00	114.6 PK			2.06 H	117	73.2	41.4
2	*5720.00	104.0 AV			2.06 H	117	62.6	41.4
3	#5850.00	59.6 PK	68.2	-8.6	2.10 H	120	55.7	3.9
4	11440.00	56.6 PK	74.0	-17.4	1.02 H	158	47.6	9.0
5	11440.00	46.1 AV	54.0	-7.9	1.02 H	158	37.1	9.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5720.00	126.0 PK			1.91 V	8	84.6	41.4
2	*5720.00	115.0 AV			1.91 V	8	73.6	41.4
3	#5850.00	60.1 PK	68.2	-8.1	2.00 V	13	56.2	3.9
4	11440.00	57.6 PK	74.0	-16.4	1.21 V	154	48.6	9.0
5	11440.00	46.4 AV	54.0	-7.6	1.21 V	154	37.4	9.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE20)	Channel	CH 52：5260 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	57.4 PK	74.0	-16.6	1.32 H	167	54.5	2.9
2	5150.00	48.1 AV	54.0	-5.9	1.32 H	167	45.2	2.9
3	*5260.00	115.5 PK			1.88 H	311	75.4	40.1
4	*5260.00	104.6 AV			1.88 H	311	64.5	40.1
5	#10520.00	55.5 PK	68.2	-12.7	1.01 H	199	47.6	7.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	57.3 PK	74.0	-16.7	1.24 V	168	54.4	2.9
2	5150.00	48.1 AV	54.0	-5.9	1.24 V	168	45.2	2.9
3	*5260.00	124.9 PK			1.90 V	360	84.8	40.1
4	*5260.00	113.9 AV			1.90 V	360	73.8	40.1
5	#10520.00	55.6 PK	68.2	-12.6	2.06 V	311	47.7	7.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE20)	Channel	CH 60：5300 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	112.2 PK			2.02 H	305	72.3	39.9
2	*5300.00	103.1 AV			2.02 H	305	63.2	39.9
3	10600.00	53.7 PK	74.0	-20.3	1.48 H	211	45.6	8.1
4	10600.00	43.6 AV	54.0	-10.4	1.48 H	211	35.5	8.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	122.5 PK			1.85 V	73	82.6	39.9
2	*5300.00	113.8 AV			1.85 V	73	73.9	39.9
3	10600.00	55.9 PK	74.0	-18.1	1.53 V	233	47.8	8.1
4	10600.00	45.5 AV	54.0	-8.5	1.53 V	233	37.4	8.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	TX 802.11ax (HE20)	Channel	CH 64：5320 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	112.1 PK			2.07 H	62	72.2	39.9
2	*5320.00	102.6 AV			2.07 H	62	62.7	39.9
3	5350.00	54.5 PK	74.0	-19.5	2.00 H	81	52.1	2.4
4	5350.00	46.7 AV	54.0	-7.3	2.00 H	81	44.3	2.4
5	10640.00	54.7 PK	74.0	-19.3	1.66 H	217	46.8	7.9
6	10640.00	45.4 AV	54.0	-8.6	1.66 H	217	37.5	7.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	124.7 PK			1.56 V	65	84.8	39.9
2	*5320.00	113.5 AV			1.56 V	65	73.6	39.9
3	5350.00	61.5 PK	74.0	-12.5	1.56 V	65	59.1	2.4
4	5350.00	52.0 AV	54.0	-2.0	1.56 V	65	49.6	2.4
5	10640.00	56.3 PK	74.0	-17.7	1.54 V	234	48.4	7.9
6	10640.00	45.6 AV	54.0	-8.4	1.54 V	234	37.7	7.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	TX 802.11ax (HE20)	Channel	CH 100：5500 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	24°C, 72% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	56.9 PK	74.0	-17.1	1.46 H	320	54.6	2.3
2	5460.00	45.9 AV	54.0	-8.1	1.46 H	320	43.6	2.3
3	#5470.00	59.5 PK	68.2	-8.7	1.56 H	333	57.0	2.5
4	*5500.00	112.7 PK			1.44 H	318	72.6	40.1
5	*5500.00	101.5 AV			1.44 H	318	61.4	40.1
6	11000.00	56.3 PK	74.0	-17.7	1.42 H	311	48.2	8.1
7	11000.00	43.6 AV	54.0	-10.4	1.42 H	311	35.5	8.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	58.5 PK	74.0	-15.5	1.65 V	315	56.2	2.3
2	5460.00	47.7 AV	54.0	-6.3	1.65 V	315	45.4	2.3
3	#5470.00	62.1 PK	68.2	-6.1	1.60 V	318	59.6	2.5
4	*5500.00	121.1 PK			1.55 V	321	81.0	40.1
5	*5500.00	110.2 AV			1.55 V	321	70.1	40.1
6	11000.00	56.7 PK	74.0	-17.3	1.64 V	333	48.6	8.1
7	11000.00	43.6 AV	54.0	-10.4	1.64 V	333	35.5	8.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE20)	Channel	CH 116：5580 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	24°C, 72% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	112.2 PK			1.49 H	316	71.6	40.6
2	*5580.00	101.1 AV			1.49 H	316	60.5	40.6
3	11160.00	57.0 PK	74.0	-17.0	1.52 H	314	48.4	8.6
4	11160.00	43.8 AV	54.0	-10.2	1.52 H	314	35.2	8.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	123.3 PK			1.51 V	328	82.7	40.6
2	*5580.00	111.5 AV			1.51 V	328	70.9	40.6
3	11160.00	57.0 PK	74.0	-17.0	1.64 V	319	48.4	8.6
4	11160.00	43.8 AV	54.0	-10.2	1.64 V	319	35.2	8.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	TX 802.11ax (HE20)	Channel	CH 140：5700 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	24°C, 72% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	111.2 PK			1.51 H	347	69.9	41.3
2	*5700.00	100.5 AV			1.51 H	347	59.2	41.3
3	#5725.00	63.0 PK	68.2	-5.2	1.56 H	352	59.2	3.8
4	11400.00	57.2 PK	74.0	-16.8	1.65 H	315	48.3	8.9
5	11400.00	44.2 AV	54.0	-9.8	1.65 H	315	35.3	8.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	123.3 PK			1.51 V	316	82.0	41.3
2	*5700.00	111.6 AV			1.51 V	316	70.3	41.3
3	#5725.00	65.0 PK	68.2	-3.2	1.55 V	320	61.2	3.8
4	11400.00	57.1 PK	74.0	-16.9	1.65 V	315	48.2	8.9
5	11400.00	44.2 AV	54.0	-9.8	1.65 V	315	35.3	8.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE20)	Channel	CH 144：5720 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5720.00	115.9 PK			1.96 H	108	74.5	41.4
2	*5720.00	105.2 AV			1.96 H	108	63.8	41.4
3	#5850.00	59.2 PK	68.2	-9.0	1.90 H	122	55.3	3.9
4	11440.00	56.4 PK	74.0	-17.6	1.21 H	50	47.4	9.0
5	11440.00	46.2 AV	54.0	-7.8	1.21 H	50	37.2	9.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5720.00	125.5 PK			1.90 V	10	84.1	41.4
2	*5720.00	114.6 AV			1.90 V	10	73.2	41.4
3	#5850.00	60.5 PK	68.2	-7.7	1.99 V	18	56.6	3.9
4	11440.00	57.2 PK	74.0	-16.8	1.30 V	210	48.2	9.0
5	11440.00	45.6 AV	54.0	-8.4	1.30 V	210	36.6	9.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE40)	Channel	CH 54：5270 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	59.6 PK	74.0	-14.4	1.51 H	254	56.7	2.9
2	5150.00	48.4 AV	54.0	-5.6	1.51 H	254	45.5	2.9
3	*5270.00	112.5 PK			1.88 H	310	72.4	40.1
4	*5270.00	101.9 AV			1.88 H	310	61.8	40.1
5	5350.00	59.2 PK	74.0	-14.8	1.55 H	257	56.8	2.4
6	5350.00	48.5 AV	54.0	-5.5	1.55 H	257	46.1	2.4
7	#10540.00	55.2 PK	68.2	-13.0	1.10 H	94	47.3	7.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	60.4 PK	74.0	-13.6	1.52 V	94	57.5	2.9
2	5150.00	49.0 AV	54.0	-5.0	1.52 V	94	46.1	2.9
3	*5270.00	122.0 PK			1.73 V	65	81.9	40.1
4	*5270.00	111.9 AV			1.73 V	65	71.8	40.1
5	5350.00	62.6 PK	74.0	-11.4	1.58 V	95	60.2	2.4
6	5350.00	52.6 AV	54.0	-1.4	1.58 V	95	50.2	2.4
7	#10540.00	55.6 PK	68.2	-12.6	1.51 V	134	47.7	7.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE40)	Channel	CH 62：5310 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5310.00	109.8 PK			1.59 H	310	69.9	39.9
2	*5310.00	99.5 AV			1.59 H	310	59.6	39.9
3	5350.00	58.0 PK	74.0	-16.0	1.63 H	294	55.6	2.4
4	5350.00	48.0 AV	54.0	-6.0	1.63 H	294	45.6	2.4
5	10620.00	55.4 PK	74.0	-18.6	1.02 H	144	47.4	8.0
6	10620.00	44.5 AV	54.0	-9.5	1.02 H	144	36.5	8.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5310.00	120.2 PK			1.79 V	70	80.3	39.9
2	*5310.00	110.0 AV			1.79 V	70	70.1	39.9
3	5350.00	63.3 PK	74.0	-10.7	1.91 V	53	60.9	2.4
4	5350.00	52.7 AV	54.0	-1.3	1.91 V	53	50.3	2.4
5	10620.00	55.6 PK	74.0	-18.4	1.21 V	197	47.6	8.0
6	10620.00	45.4 AV	54.0	-8.6	1.21 V	197	37.4	8.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	TX 802.11ax (HE40)	Channel	CH 102：5510 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	24°C, 72% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5375.00	56.2 PK	74.0	-17.8	2.00 H	35	54.0	2.2
2	5375.00	45.5 AV	54.0	-8.5	2.00 H	35	43.3	2.2
3	5460.00	58.7 PK	74.0	-15.3	2.10 H	54	56.4	2.3
4	5460.00	45.5 AV	54.0	-8.5	2.10 H	54	43.2	2.3
5	#5470.00	58.2 PK	68.2	-10.0	2.01 H	62	55.7	2.5
6	*5510.00	107.7 PK			2.01 H	56	67.5	40.2
7	*5510.00	96.8 AV			2.01 H	56	56.6	40.2
8	11020.00	56.3 PK	74.0	-17.7	2.10 H	55	48.4	7.9
9	11020.00	43.2 AV	54.0	-10.8	2.10 H	55	35.3	7.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5375.00	63.0 PK	74.0	-11.0	1.99 V	312	60.8	2.2
2	5375.00	52.0 AV	54.0	-2.0	1.99 V	312	49.8	2.2
3	5460.00	61.9 PK	74.0	-12.1	1.96 V	333	59.6	2.3
4	5460.00	51.5 AV	54.0	-2.5	1.96 V	333	49.2	2.3
5	#5470.00	65.4 PK	68.2	-2.8	1.99 V	330	62.9	2.5
6	*5510.00	119.3 PK			1.95 V	324	79.1	40.2
7	*5510.00	108.3 AV			1.95 V	324	68.1	40.2
8	11020.00	56.3 PK	74.0	-17.7	2.01 V	360	48.4	7.9
9	11020.00	43.2 AV	54.0	-10.8	2.01 V	360	35.3	7.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE40)	Channel	CH 110：5550 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	24°C, 72% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5550.00	109.2 PK			1.41 H	324	68.7	40.5
2	*5550.00	98.0 AV			1.41 H	324	57.5	40.5
3	11100.00	56.6 PK	74.0	-17.4	1.56 H	331	48.2	8.4
4	11100.00	43.7 AV	54.0	-10.3	1.56 H	331	35.3	8.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5550.00	119.0 PK			2.05 V	320	78.5	40.5
2	*5550.00	109.0 AV			2.05 V	320	68.5	40.5
3	11100.00	56.9 PK	74.0	-17.1	2.01 V	315	48.5	8.4
4	11100.00	43.8 AV	54.0	-10.2	2.01 V	315	35.4	8.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	TX 802.11ax (HE40)	Channel	CH 134：5670 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	24°C, 72% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5670.00	109.5 PK			1.42 H	345	68.2	41.3
2	*5670.00	98.8 AV			1.42 H	345	57.5	41.3
3	#5725.00	59.0 PK	68.2	-9.2	1.52 H	346	55.2	3.8
4	11340.00	57.2 PK	74.0	-16.8	1.46 H	341	48.3	8.9
5	11340.00	44.2 AV	54.0	-9.8	1.46 H	341	35.3	8.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5670.00	119.6 PK			1.55 V	331	78.3	41.3
2	*5670.00	109.7 AV			1.55 V	331	68.4	41.3
3	#5725.00	63.2 PK	68.2	-5.0	1.64 V	328	59.4	3.8
4	11340.00	57.2 PK	74.0	-16.8	1.64 V	315	48.3	8.9
5	11340.00	44.5 AV	54.0	-9.5	1.64 V	315	35.6	8.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE40)	Channel	CH 142：5710 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5710.00	111.4 PK			2.07 H	116	70.1	41.3
2	*5710.00	100.4 AV			2.07 H	116	59.1	41.3
3	#5850.00	59.6 PK	68.2	-8.6	2.16 H	100	55.7	3.9
4	11420.00	56.3 PK	74.0	-17.7	1.08 H	42	47.3	9.0
5	11420.00	46.1 AV	54.0	-7.9	1.08 H	42	37.1	9.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5710.00	123.8 PK			1.91 V	5	82.5	41.3
2	*5710.00	113.7 AV			1.91 V	5	72.4	41.3
3	#5850.00	62.2 PK	68.2	-6.0	2.03 V	14	58.3	3.9
4	11420.00	57.2 PK	74.0	-16.8	1.75 V	23	48.2	9.0
5	11420.00	47.6 AV	54.0	-6.4	1.75 V	23	38.6	9.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE80)	Channel	CH 58：5290 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.3 PK	74.0	-15.7	1.68 H	301	55.4	2.9
2	5150.00	48.1 AV	54.0	-5.9	1.68 H	301	45.2	2.9
3	*5290.00	105.9 PK			1.78 H	322	66.0	39.9
4	*5290.00	95.8 AV			1.78 H	322	55.9	39.9
5	5350.00	58.5 PK	74.0	-15.5	1.68 H	301	56.1	2.4
6	5350.00	48.2 AV	54.0	-5.8	1.68 H	301	45.8	2.4
7	#10580.00	55.0 PK	68.2	-13.2	1.25 H	334	47.1	7.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	57.8 PK	74.0	-16.2	1.95 V	14	54.9	2.9
2	5150.00	48.3 AV	54.0	-5.7	1.95 V	14	45.4	2.9
3	*5290.00	115.8 PK			2.00 V	7	75.9	39.9
4	*5290.00	105.5 AV			2.00 V	7	65.6	39.9
5	5350.00	62.6 PK	74.0	-11.4	1.95 V	14	60.2	2.4
6	5350.00	52.5 AV	54.0	-1.5	1.95 V	14	50.1	2.4
7	#10580.00	55.3 PK	68.2	-12.9	1.65 V	211	47.4	7.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE80)	Channel	CH 106：5530 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	24°C, 72% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	57.2 PK	74.0	-16.8	1.52 H	316	54.9	2.3
2	5460.00	49.5 AV	54.0	-4.5	1.52 H	316	47.2	2.3
3	#5470.00	67.0 PK	68.2	-1.2	1.46 H	320	64.5	2.5
4	*5530.00	104.9 PK			1.44 H	312	64.6	40.3
5	*5530.00	93.5 AV			1.44 H	312	53.2	40.3
6	11060.00	56.5 PK	74.0	-17.5	1.65 H	333	48.4	8.1
7	11060.00	43.4 AV	54.0	-10.6	1.65 H	333	35.3	8.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	64.9 PK	74.0	-9.1	1.92 V	322	62.6	2.3
2	5460.00	51.1 AV	54.0	-2.9	1.92 V	322	48.8	2.3
3	#5470.00	66.6 PK	68.2	-1.6	1.94 V	311	64.1	2.5
4	*5530.00	115.0 PK			1.92 V	322	74.7	40.3
5	*5530.00	105.6 AV			1.92 V	322	65.3	40.3
6	11060.00	56.7 PK	74.0	-17.3	1.64 V	311	48.6	8.1
7	11060.00	44.1 AV	54.0	-9.9	1.64 V	311	36.0	8.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE80)	Channel	CH 122：5610 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	24°C, 72% RH
Tested By	Randy Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5375.00	56.6 PK	74.0	-17.4	1.48 H	336	54.4	2.2
2	5375.00	45.2 AV	54.0	-8.8	1.48 H	336	43.0	2.2
3	*5610.00	106.9 PK			1.48 H	346	66.0	40.9
4	*5610.00	95.1 AV			1.48 H	346	54.2	40.9
5	#5725.00	58.4 PK	68.2	-9.8	1.54 H	340	54.6	3.8
6	11220.00	57.0 PK	74.0	-17.0	1.56 H	341	48.4	8.6
7	11220.00	44.0 AV	54.0	-10.0	1.56 H	341	35.4	8.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5375.00	59.7 PK	74.0	-14.3	1.58 V	15	57.5	2.2
2	5375.00	52.9 AV	54.0	-1.1	1.58 V	15	50.7	2.2
3	*5610.00	117.0 PK			1.66 V	12	76.1	40.9
4	*5610.00	106.5 AV			1.66 V	12	65.6	40.9
5	#5725.00	63.6 PK	68.2	-4.6	1.65 V	25	59.8	3.8
6	11220.00	57.3 PK	74.0	-16.7	1.65 V	31	48.7	8.6
7	11220.00	44.1 AV	54.0	-9.9	1.65 V	31	35.5	8.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE80)	Channel	CH 138：5690 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	26°C, 64% RH
Tested By	Randy Wu		

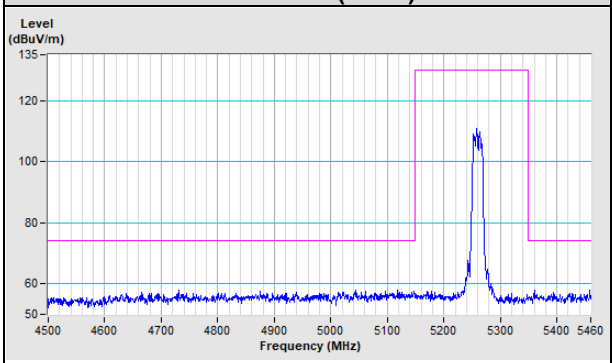
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5690.00	108.6 PK			1.99 H	116	67.3	41.3
2	*5690.00	97.0 AV			1.99 H	116	55.7	41.3
3	#5850.00	56.4 PK	68.2	-11.8	2.16 H	123	52.5	3.9
4	11380.00	56.1 PK	74.0	-17.9	1.66 H	24	47.1	9.0
5	11380.00	46.4 AV	54.0	-7.6	1.66 H	24	37.4	9.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5690.00	119.5 PK			1.86 V	6	78.2	41.3
2	*5690.00	108.8 AV			1.86 V	6	67.5	41.3
3	#5850.00	64.5 PK	68.2	-3.7	1.95 V	13	60.6	3.9
4	11380.00	56.6 PK	74.0	-17.4	1.45 V	217	47.6	9.0
5	11380.00	46.2 AV	54.0	-7.8	1.45 V	217	37.2	9.0

Remarks:

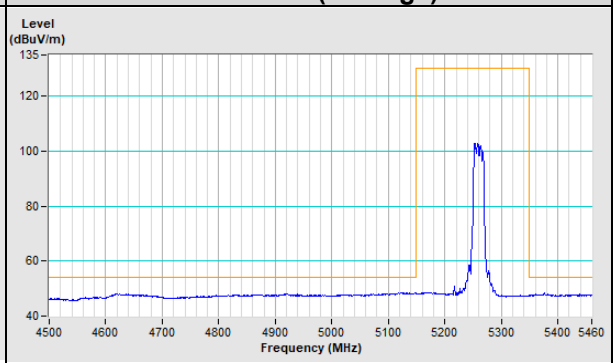
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

802.11a Channel 52

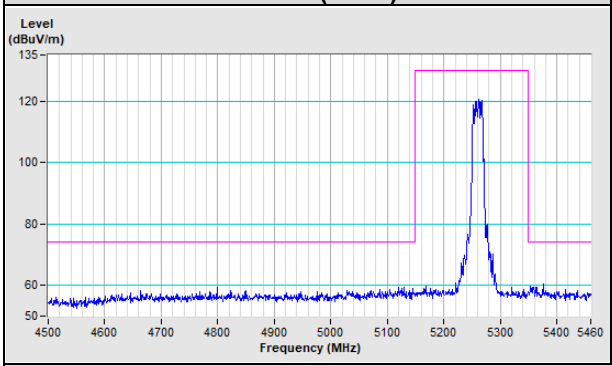
Horizontal (Peak)



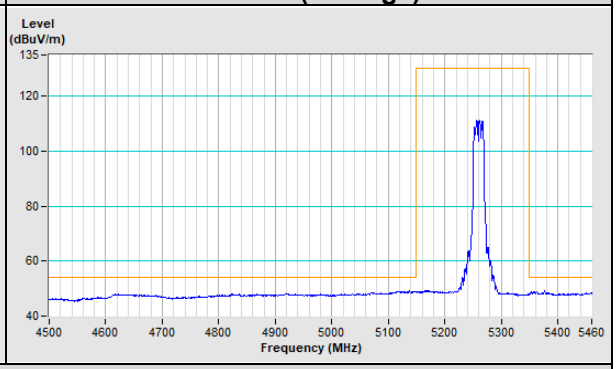
Horizontal (Average)



Vertical (Peak)

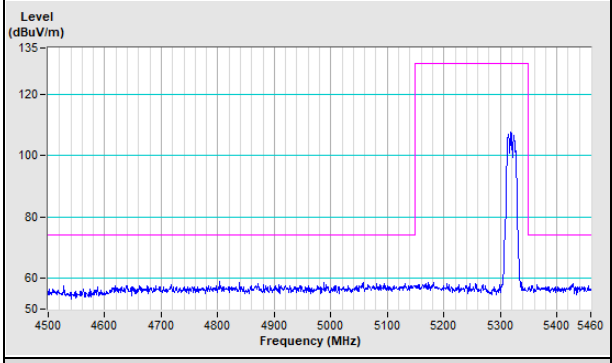


Vertical (Average)

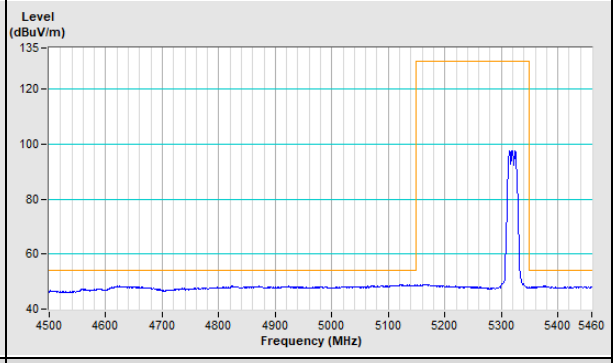


802.11a Channel 64

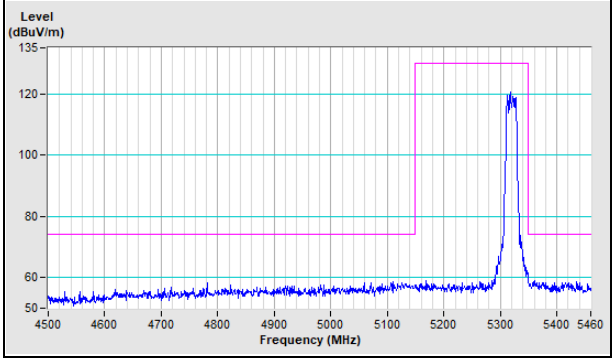
Horizontal (Peak)



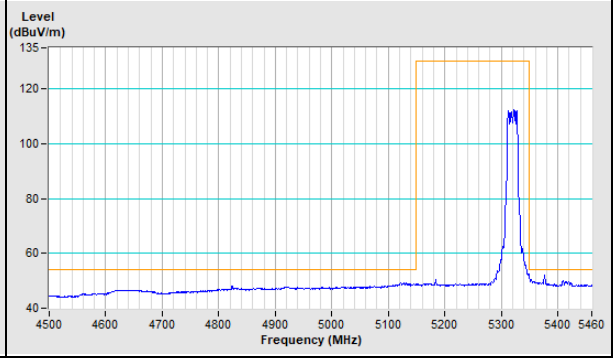
Horizontal (Average)



Vertical (Peak)

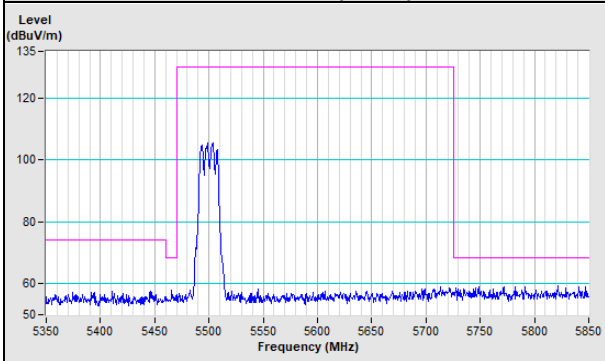


Vertical (Average)

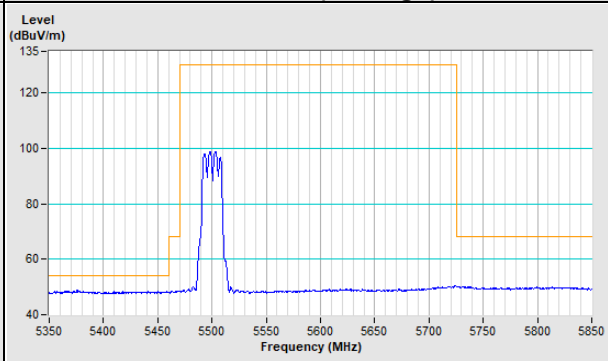


802.11a Channel 100

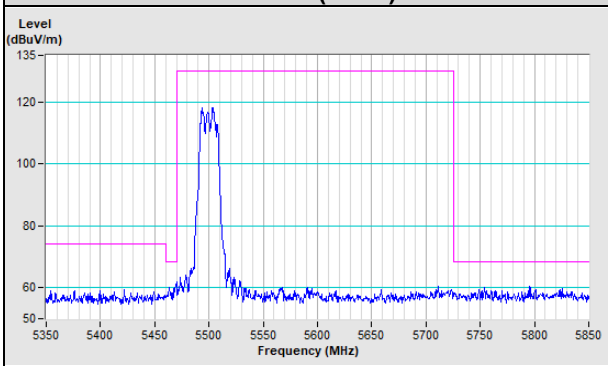
Horizontal (Peak)



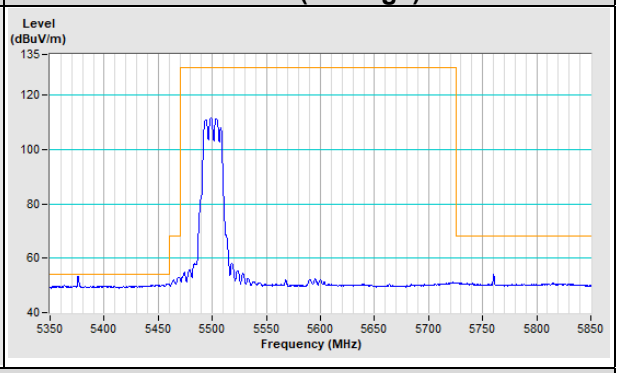
Horizontal (Average)



Vertical (Peak)

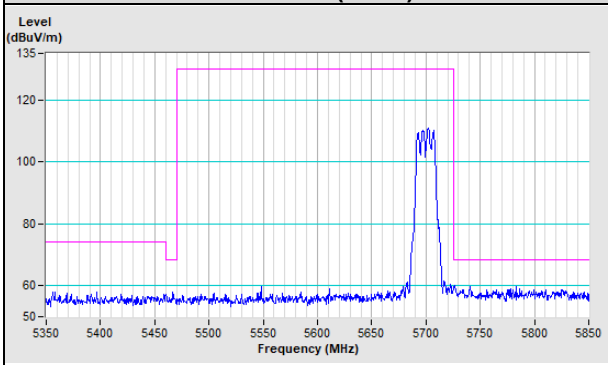


Vertical (Average)

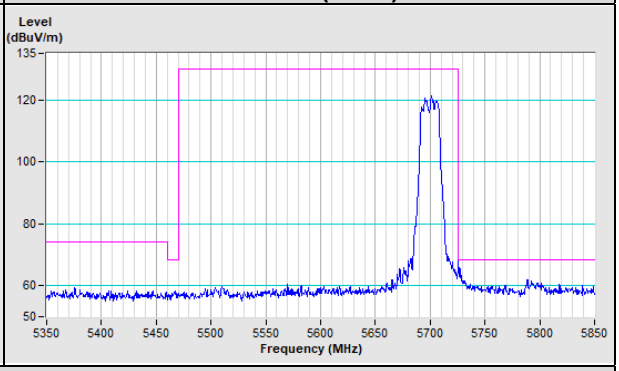


802.11a Channel 140

Horizontal (Peak)

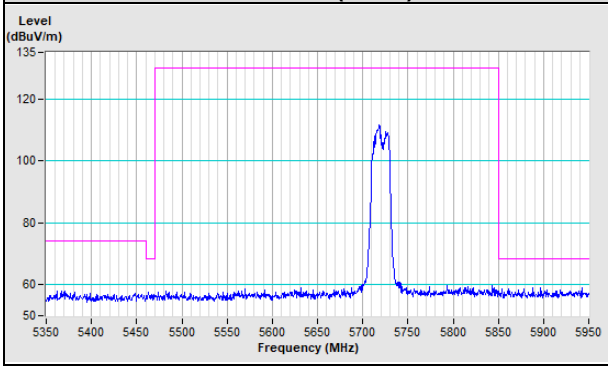


Vertical (Peak)

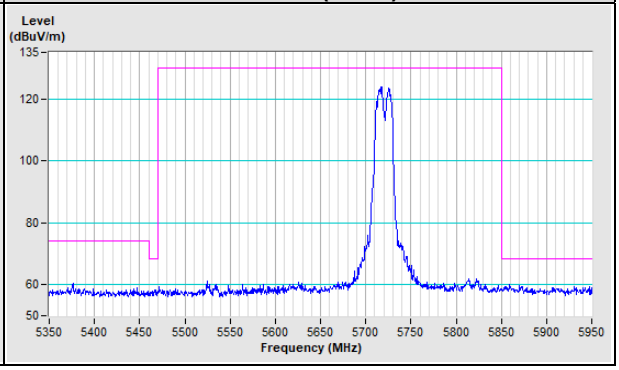


802.11a Channel 144

Horizontal (Peak)

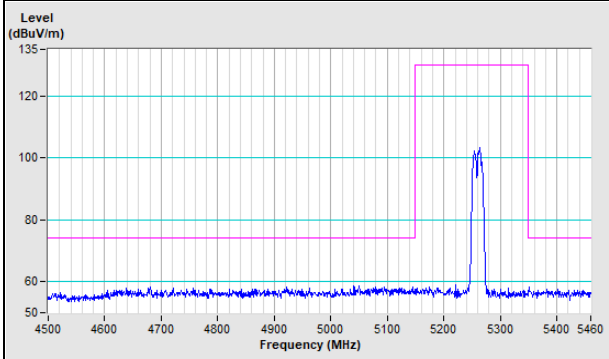


Vertical (Peak)

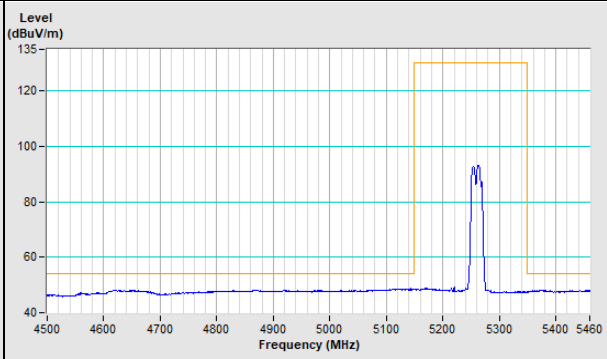


802.11ax (HE20) Channel 52

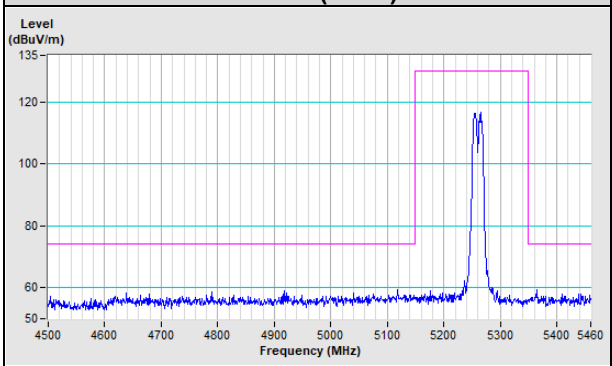
Horizontal (Peak)



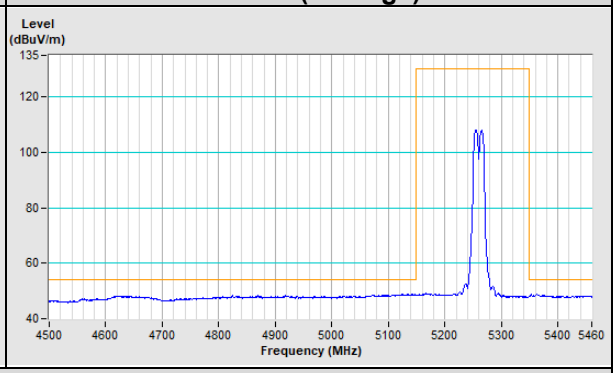
Horizontal (Average)



Vertical (Peak)

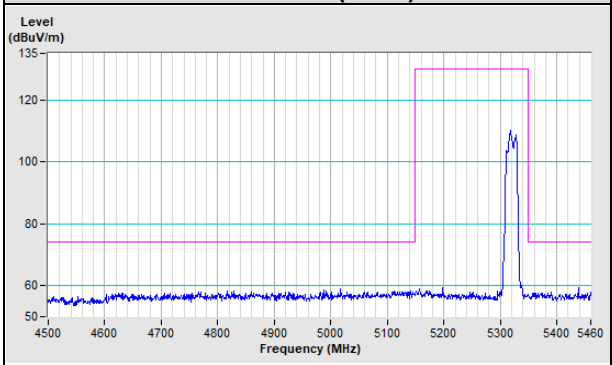


Vertical (Average)

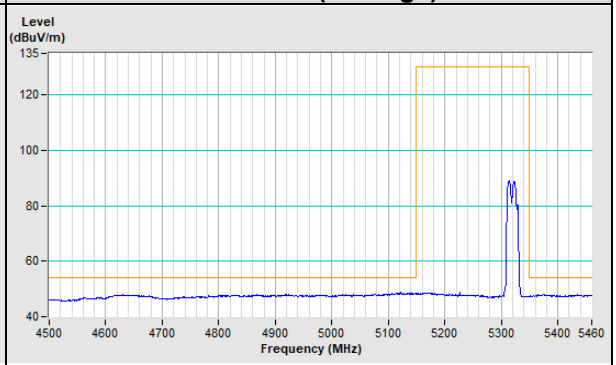


802.11ax (HE20) Channel 64

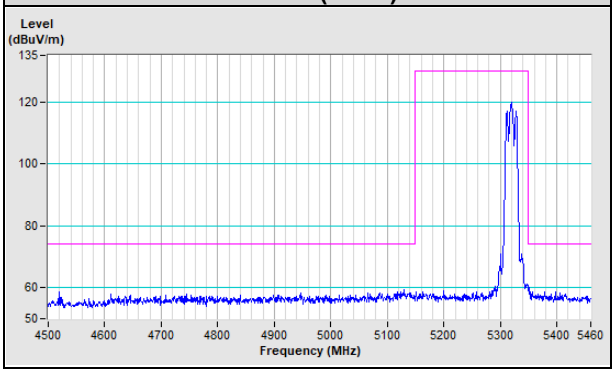
Horizontal (Peak)



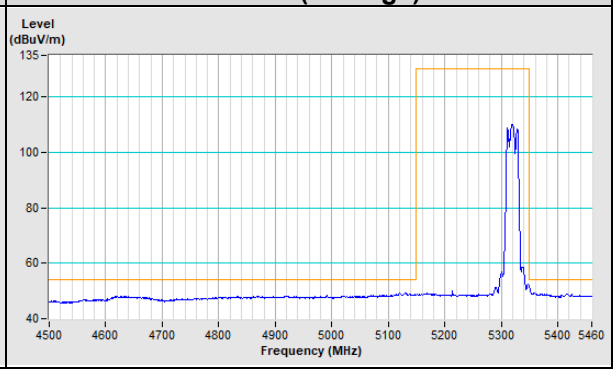
Horizontal (Average)

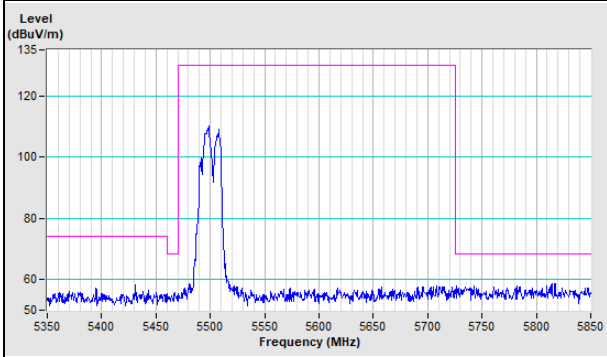
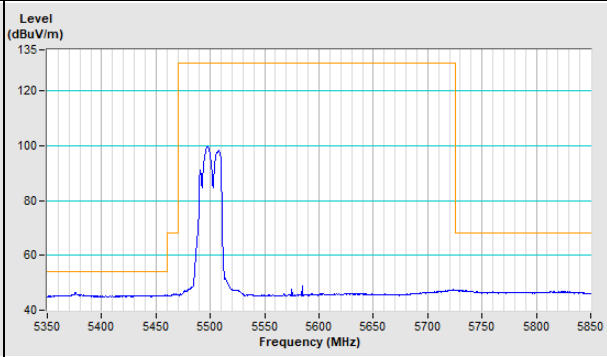
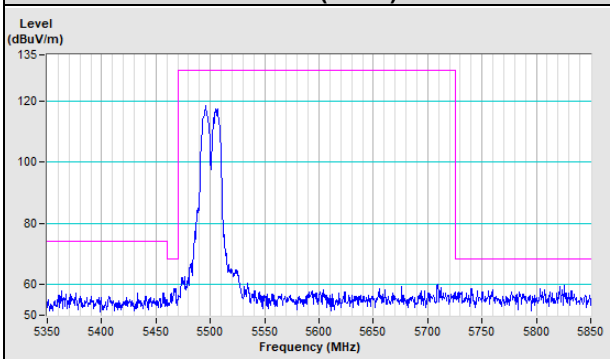
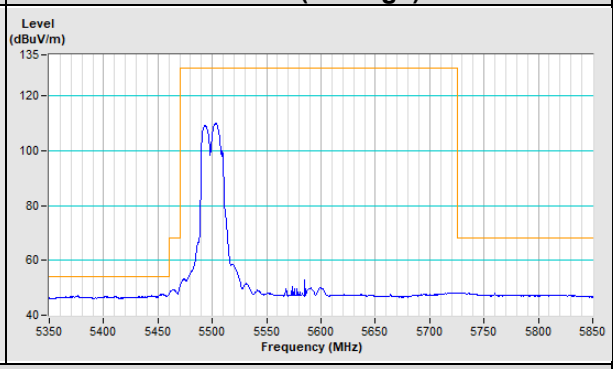
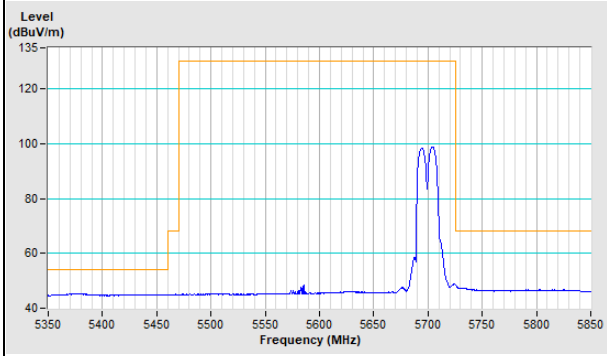
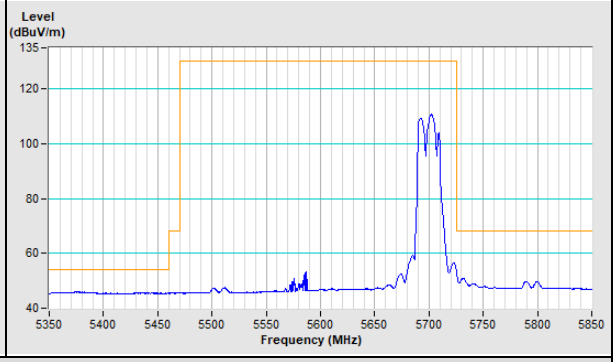
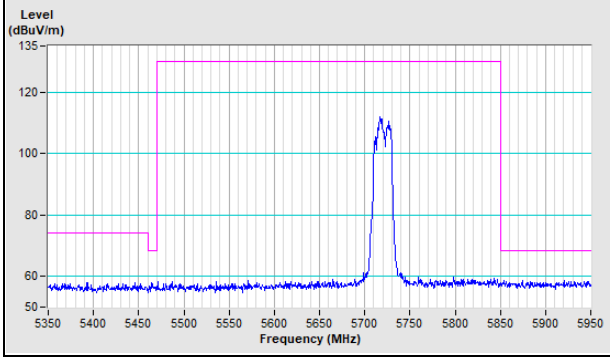
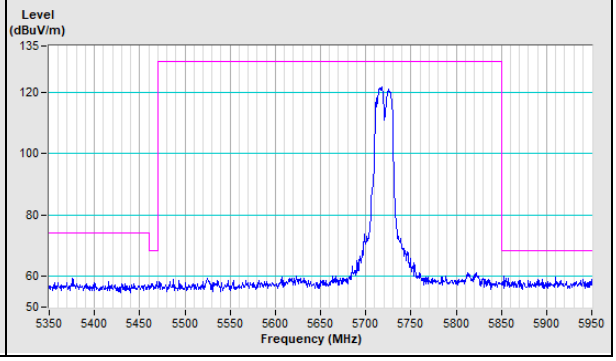


Vertical (Peak)



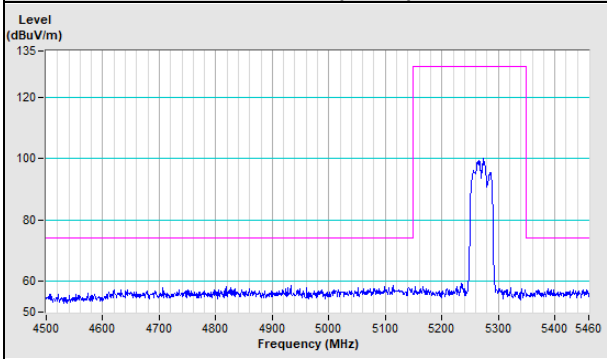
Vertical (Average)



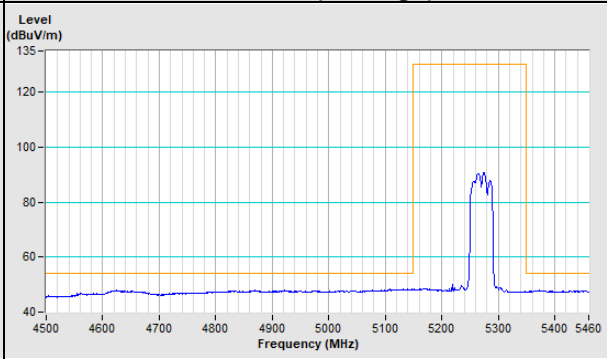
802.11ax (HE20) Channel 100	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
802.11ax (HE20) Channel 140	
Horizontal (Average)	Vertical (Average)
	
802.11ax (HE20) Channel 144	
Horizontal (Peak)	Vertical (Peak)
	

802.11ax (HE40) Channel 54

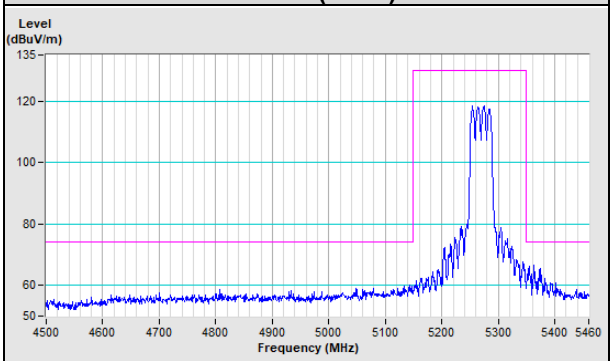
Horizontal (Peak)



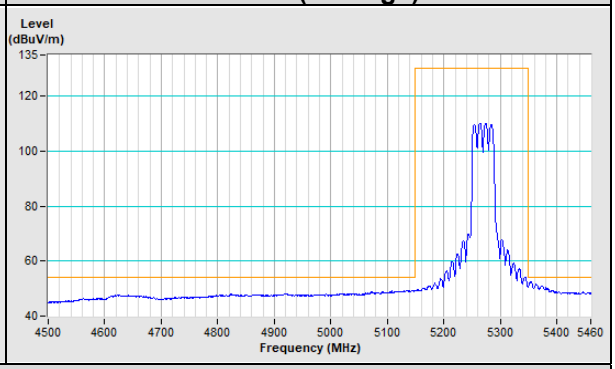
Horizontal (Average)



Vertical (Peak)

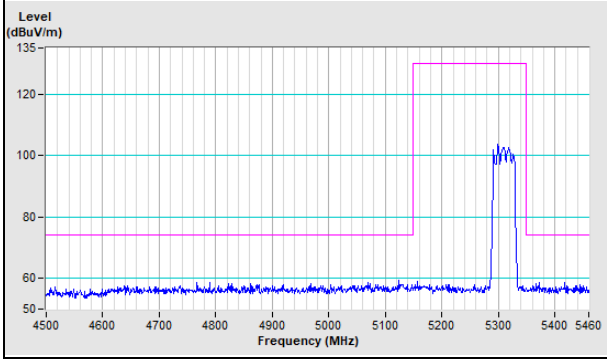


Vertical (Average)

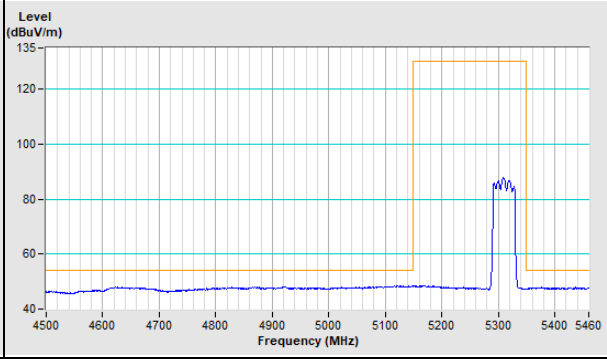


802.11ax (HE40) Channel 62

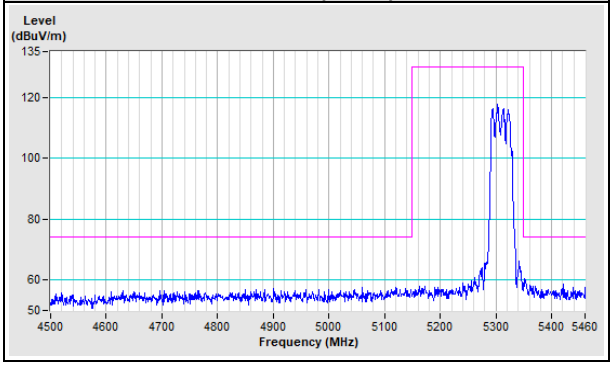
Horizontal (Peak)



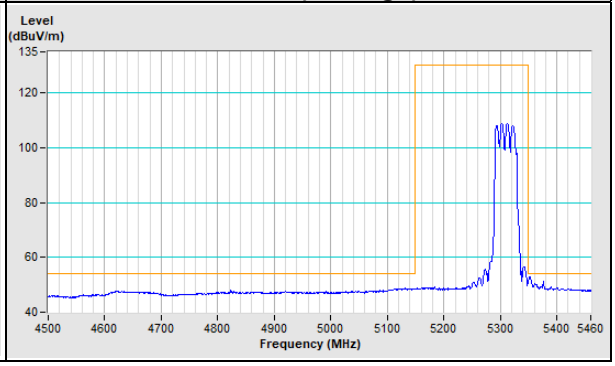
Horizontal (Average)

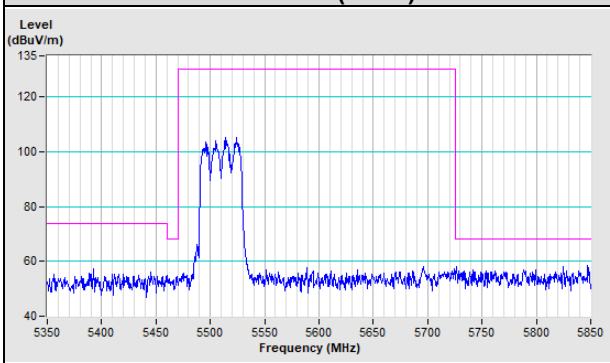
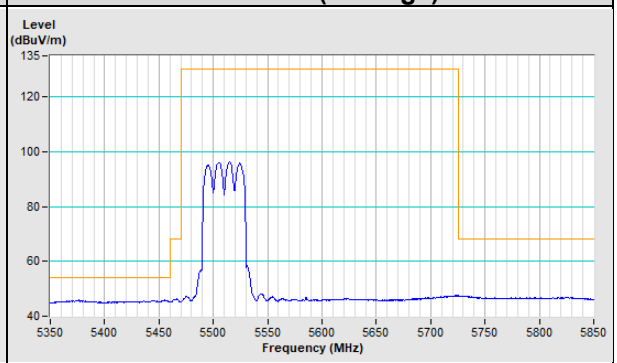
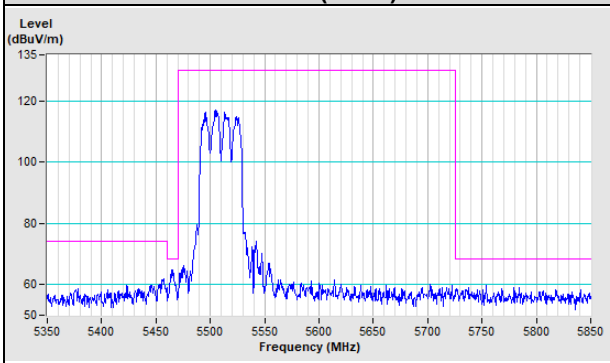
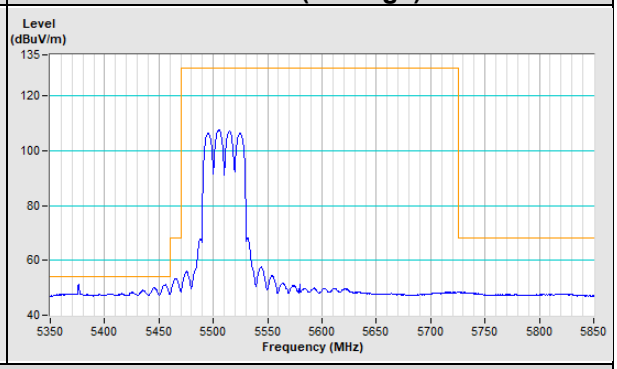
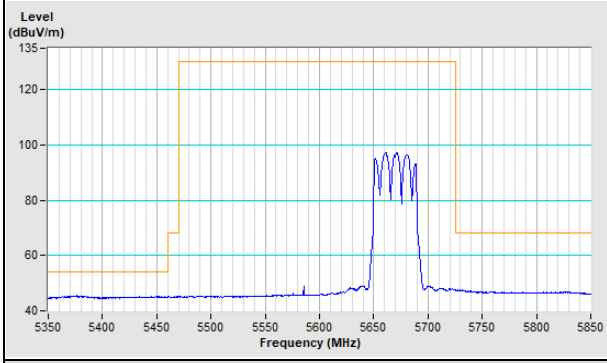
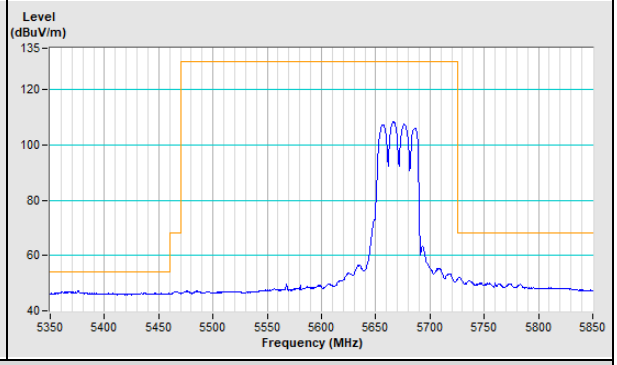
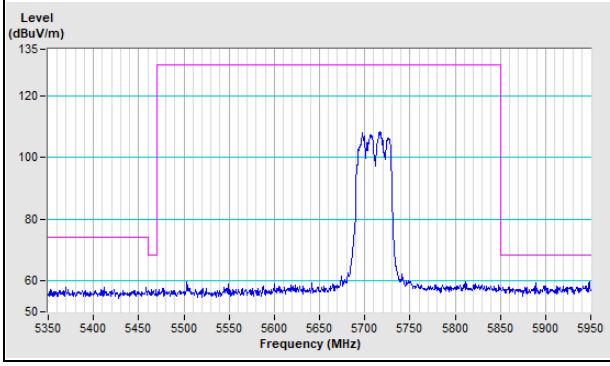
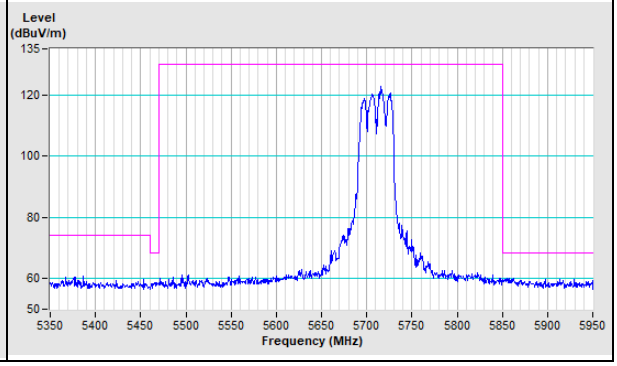


Vertical (Peak)



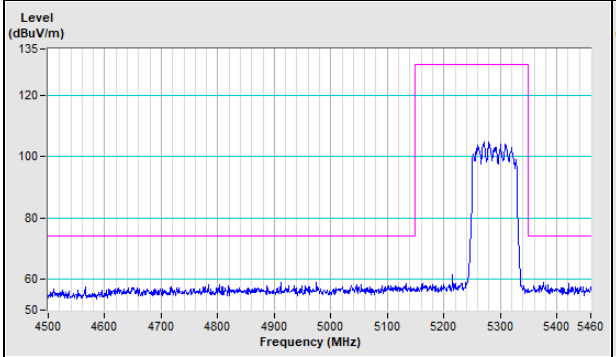
Vertical (Average)



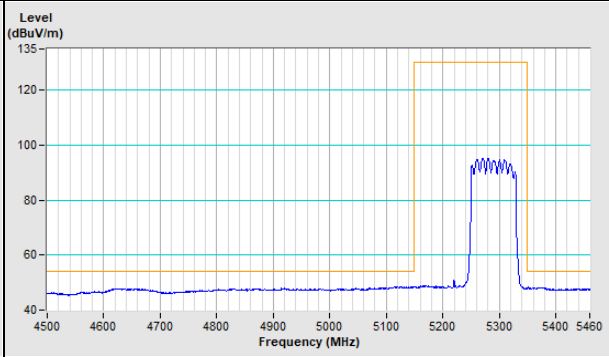
802.11ax (HE40) Channel 102	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
802.11ax (HE40) Channel 134	
Horizontal (Average)	Vertical (Average)
	
802.11ax (HE40) Channel 142	
Horizontal (Peak)	Vertical (Peak)
	

802.11ax (HE80) Channel 58

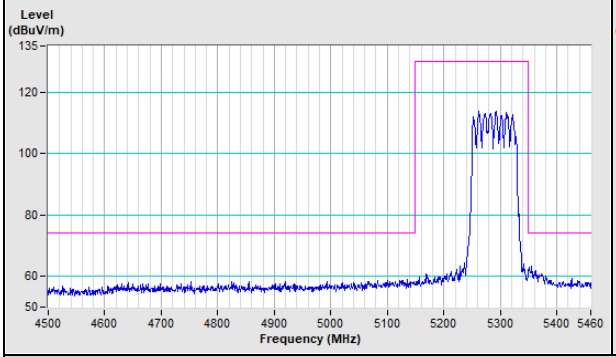
Horizontal (Peak)



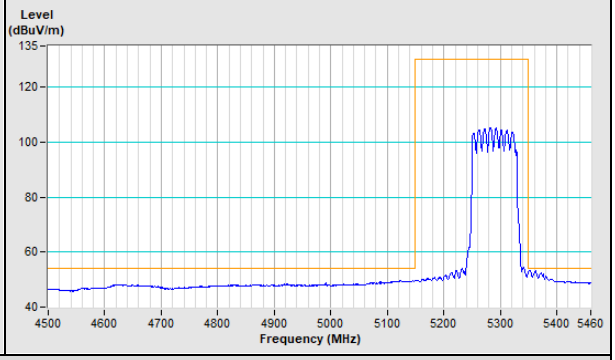
Horizontal (Average)



Vertical (Peak)

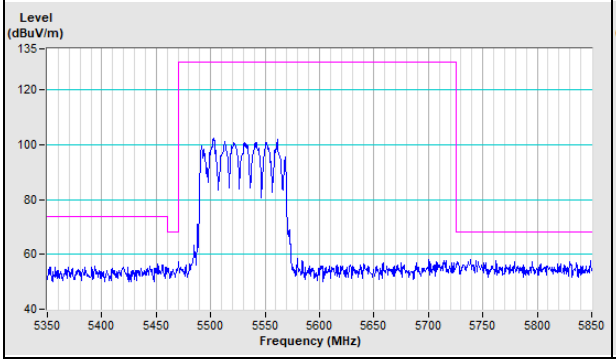


Vertical (Average)

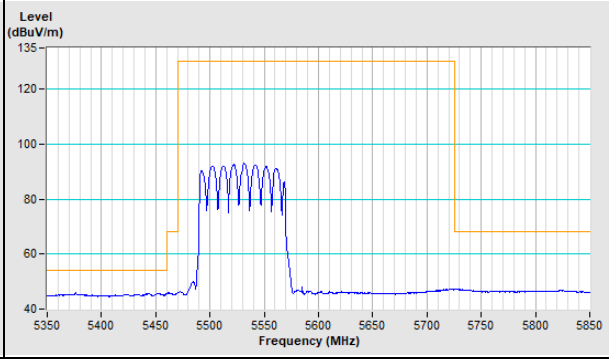


802.11ax (HE80) Channel 106

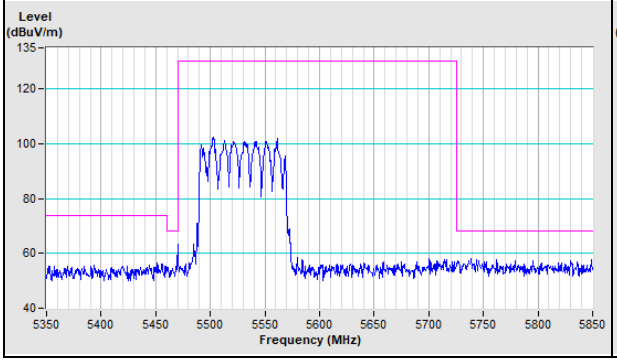
Horizontal (Peak)



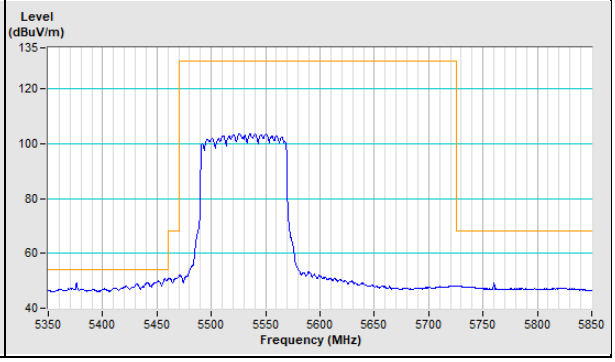
Horizontal (Average)

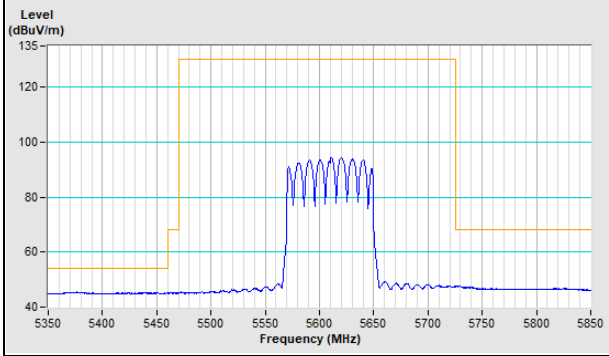
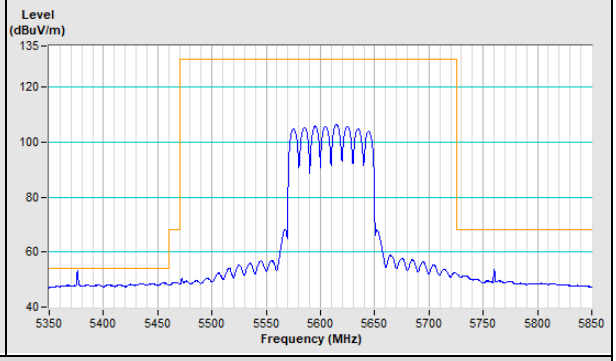
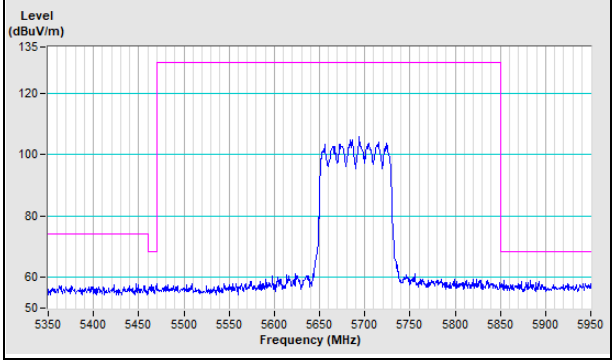
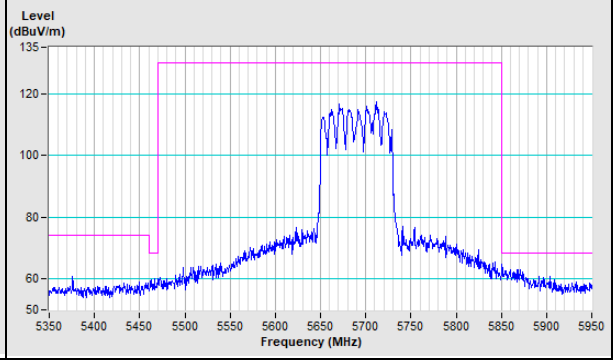


Vertical (Peak)



Vertical (Average)



802.11ax (HE80) Channel 122	
Horizontal (Average)	Vertical (Average)
	
802.11ax (HE80) Channel 138	
Horizontal (Peak)	**Vertical (Peak)**
	

8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

9 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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