TEST REPORT

CERTIFICATE OF CONFORMITY

Standard:	**47 CFR FCC Part 15, Subpart E (Section 15.407)**
Report No.:	RFBAOZ-WTW-P22030776-1
FCC ID:	W59AP3020
Model No.:	AP-3020
Received Date:	2022/3/15
Test Date:	2022/4/18 ~ 2022/4/26
Issued Date:	2022/6/2
Applicant:	Legrand AV Inc.
Address:	6436 City West Pkwy, Eden Prairie, MN 55344 USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

Approved by: _____ , **Date:** 2022/6/2

May Chen / Manager

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Prepared by : Vivian Huang / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBAOZ-WTW-P22030776-1	Original release.	2022/6/2

1 Certificate

Product:	Wireless AC1300 Dual-Band AP
Brand:	LUXUL
Test Model:	AP-3020
Sample Status:	Engineering sample
Applicant:	Legrand AV Inc.
Test Date:	2022/4/18 ~ 2022/4/26
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)(1/2/3)	RF Output Power	Pass	Meet the requirement of limit.
15.407(a)(1/2/3)	Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6 dB Bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
---	Occupied Bandwidth	-	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 -11.54 dB at 0.38828 MHz
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -4.3 dB at 37.39 MHz
15.407(b) (1/2/3/4(i)/10)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.1 dB at 11490.00 MHz
15.203	Antenna Requirement	Pass	Antenna connector is ipex(MHF) 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) (±)
AC Power Conducted Emissions	150 kHz ~ 30 MHz	1.9 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.1 dB
	30 MHz ~ 1 GHz	5.4 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	5.0 dB
	18 GHz ~ 40 GHz	5.3 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 AC1300 Dual-Band AP
Brand	LUXUL
Test Model	AP-3020
FW Version	Linux OpenWrt 4.4.60
Status of EUT	Engineering sample
Power Supply Rating	56Vdc from PoE
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode
Modulation Technology	OFDM
Transfer Rate	802.11a: up to 54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	5180 ~ 5240 MHz 5745 ~ 5825 MHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	**CDD mode:** 5180 ~ 5240 MHz : 467.008 mW (26.69 dBm) 5745 ~ 5825 MHz : 568.753 mW (27.55 dBm) **Beamforming mode:** 5180 ~ 5240 MHz : 467.008 mW (26.69 dBm) 5745 ~ 5825 MHz : 568.753 mW (27.55 dBm)
EUT Category	Indoor Access Point

Note:

1. The EUT has below radios as following table:

Radio 1	Radio 2
WLAN 2.4GHz	WLAN 5GHz

2. Simultaneously transmission condition.

Condition	Technology	
1	WLAN 2.4GHz	WLAN 5GHz
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.		

3. The EUT uses following accessories.

Ethernet Cable		
Brand	Model	Specification
Nienyi NYS1389	585171389172G	Signal Line : 1 m

4. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna No.	RF Chain No.	Brand	Model	Antenna Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	Cable Length (cm)
1	0	HONGBO	290-20492	4.7	5.15~5.85	PIFA	ipex(MHF)	15
2	0	HONGBO	290-20493	4.6	2.4~2.5	PIFA	ipex(MHF)	9.4
3	1	HONGBO	290-20494	4.8	5.15~5.85	PIFA	ipex(MHF)	16.2
4	1	HONGBO	290-20495	2.8	2.4~2.5	PIFA	ipex(MHF)	8.8

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

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

Note:
1. All of modulation mode support beamforming function except 802.11a 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), therefore the manufacturer will control the power for 802.11n mode is the same as the 802.11ac or more lower than it and investigated worst case to representative mode in test report.

3.3 Channel List

FOR 5180 ~ 5240 MHz

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

Channel	Frequency
36	5180 MHz
40	5200 MHz
44	5220 MHz
48	5240 MHz

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

Channel	Frequency
38	5190 MHz
46	5230 MHz

1 channels are provided for 802.11ac (VHT80):

Channel	Frequency
42	5210 MHz

FOR 5745 ~ 5825 MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

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

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775 MHz

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. EUT can be used in the following ways: Ceiling & Wall Mount. Pre-scan in these ways and find the worst case as a representative test condition.
Worst Case:	1. Ceiling & Wall mount Worst Condition: Wall mount. 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).

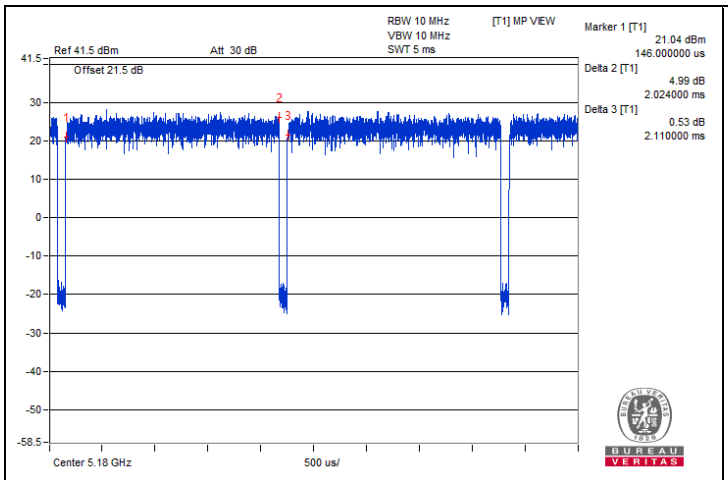
Following channel(s) was (were) selected for the final test as listed below:

Test Item	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter
AC Power Conducted Emissions	802.11ac (VHT40)	CDD	151	BPSK	MCS0
Unwanted Emissions below 1 GHz	802.11ac (VHT40)	CDD	151	BPSK	MCS0
Unwanted Emissions above 1 GHz	802.11a	CDD	36, 40, 48, 149, 157, 165	BPSK	6Mb/s
	802.11ac (VHT20)	CDD	36, 40, 48, 149, 157, 165	BPSK	MCS0
	802.11ac (VHT40)	CDD	38, 46, 151, 159	BPSK	MCS0
	802.11ac (VHT80)	CDD	42, 155	BPSK	MCS0
RF Output Power	802.11a	CDD	36, 40, 48, 149, 157, 165	BPSK	6Mb/s
	802.11ac (VHT20)	CDD Beamforming	36, 40, 48, 149, 157, 165	BPSK	MCS0
	802.11ac (VHT40)	CDD Beamforming	38, 46, 151, 159	BPSK	MCS0
	802.11ac (VHT80)	CDD Beamforming	42, 155	BPSK	MCS0
Power Spectral Density / Occupied Bandwidth	802.11a	CDD	36, 40, 48, 149, 157, 165	BPSK	6Mb/s
	802.11ac (VHT20)	CDD	36, 40, 48, 149, 157, 165	BPSK	MCS0
	802.11ac (VHT40)	CDD	38, 46, 151, 159	BPSK	MCS0
	802.11ac (VHT80)	CDD	42, 155	BPSK	MCS0
6 dB Bandwidth	802.11a	CDD	149, 157, 165	BPSK	6Mb/s
	802.11ac (VHT20)	CDD	149, 157, 165	BPSK	MCS0
	802.11ac (VHT40)	CDD	151, 159	BPSK	MCS0
	802.11ac (VHT80)	CDD	155	BPSK	MCS0
Frequency Stability	802.11a	CDD	36	Unmodulated	-

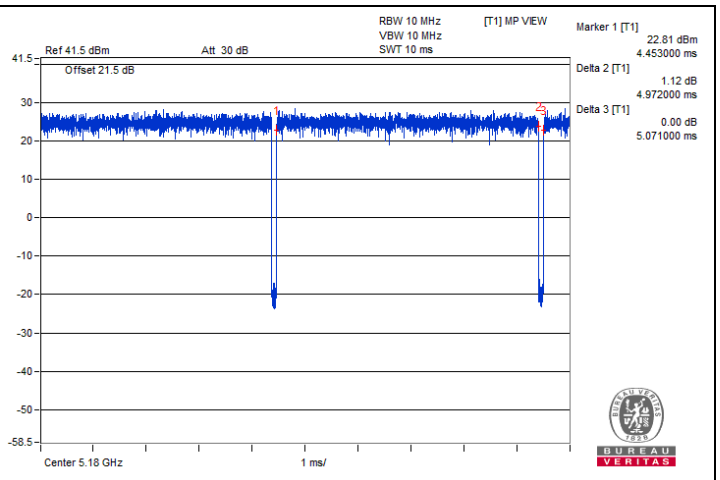
3.5 Duty Cycle of Test Signal

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

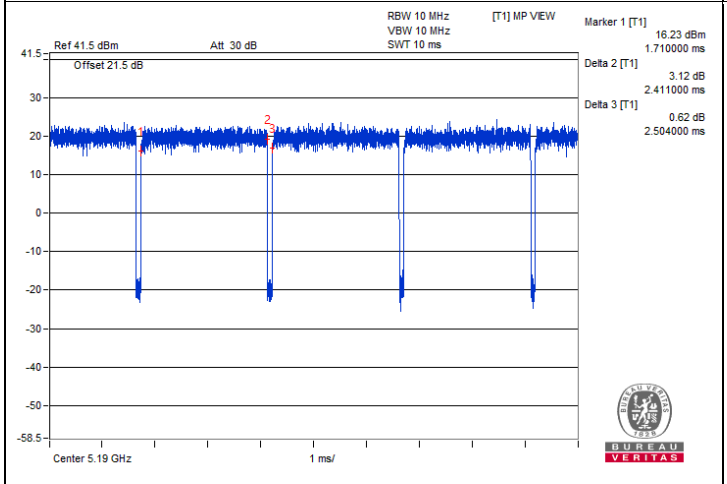
802.11a: Duty cycle = 2.024 ms / 2.11 ms x 100% = 95.9%, duty factor = 10 * log (1/Duty cycle) = 0.18 dB
802.11ac (VHT20): Duty cycle = 4.972 ms / 5.071 ms x 100% = 98.0%
802.11ac (VHT40): Duty cycle = 2.411 ms / 2.504 ms x 100% = 96.3%, duty factor = 10 * log (1/Duty cycle) = 0.16 dB
802.11ac (VHT80): Duty cycle = 1.132 ms / 1.216 ms x 100% = 93.1%, duty factor = 10 * log (1/Duty cycle) = 0.31 dB



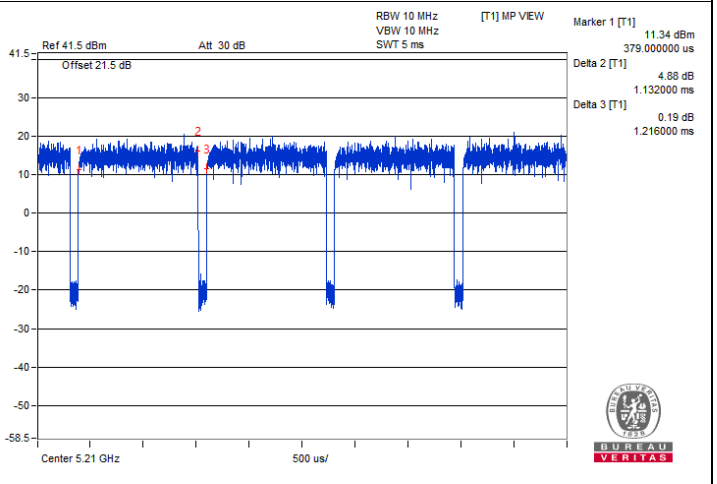
802.11a



802.11ac (VHT20)



802.11ac (VHT40)



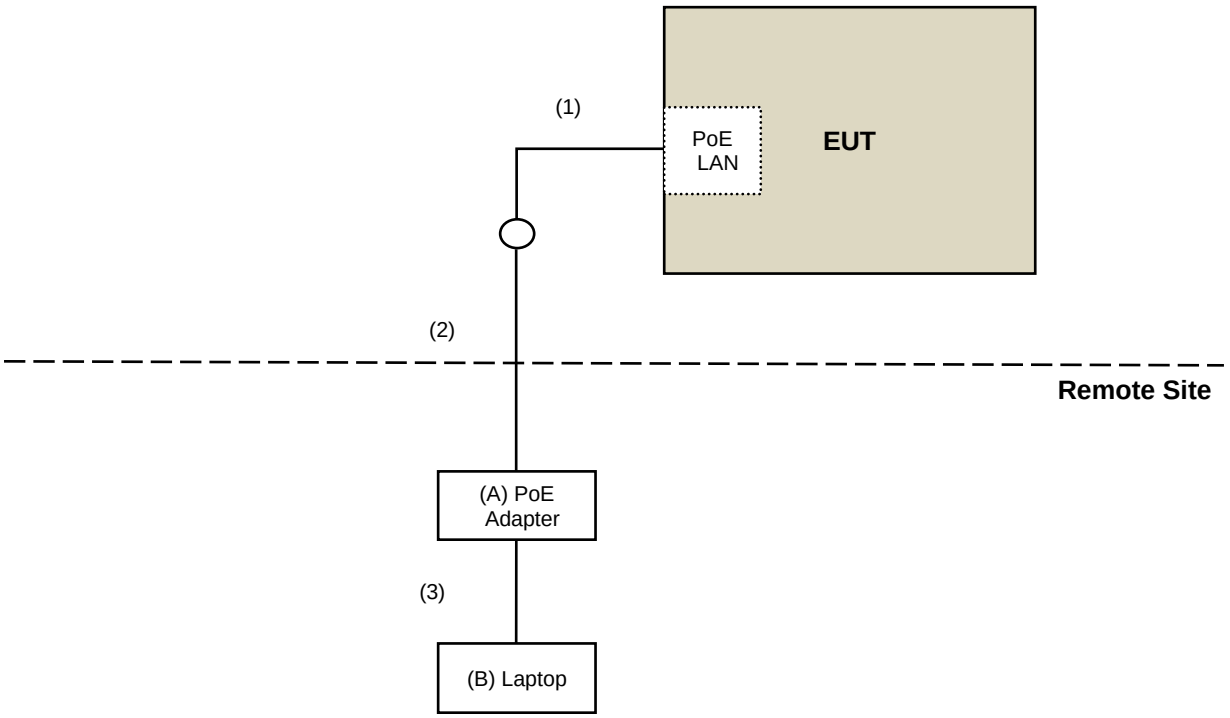
802.11ac (VHT80)

3.6 Test Program Used and Operation Descriptions

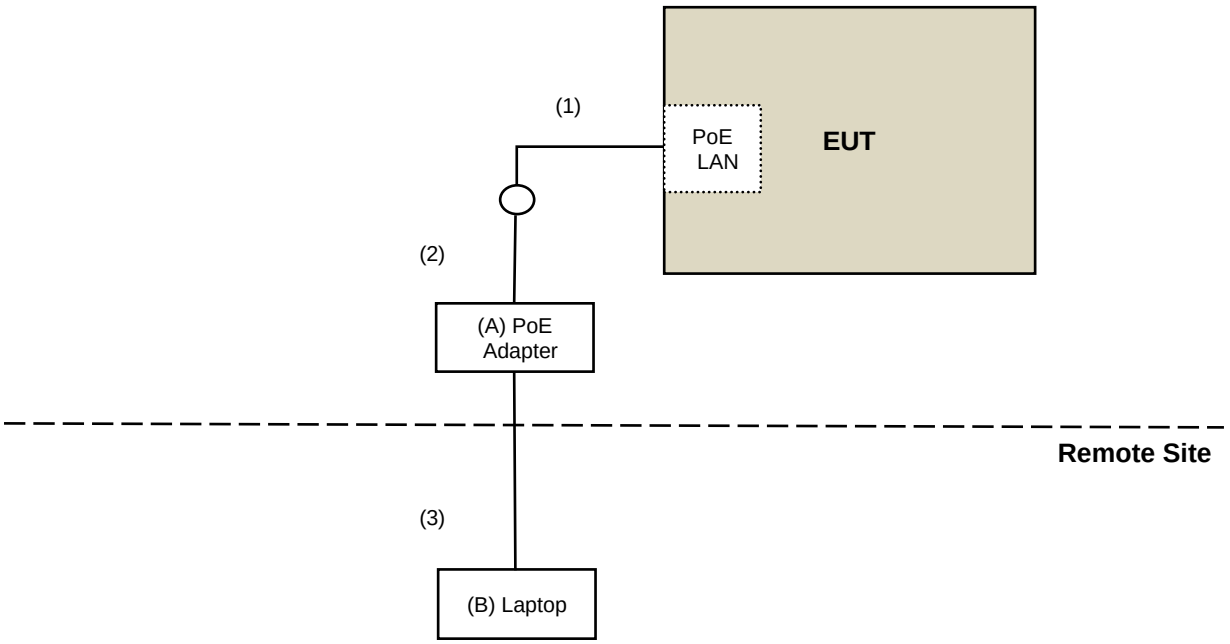
Controlling software (qdart_conn.win.1.0_installer_00084.1.zip) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices

For Radiated Emission test



For AC Power Conducted Emission test



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	PoE Adapter	PHIHONG	POE29U-560	N/A	N/A	Supplied by applicant
B	Laptop	Lenovo	20U5S01X00 L14	PF-1ANPYA	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	LAN Cable	1	1	No	0	Supplied by applicant
2	LAN Cable	1	10	No	0	Provided by Lab
3	LAN Cable	1	10	No	0	Provided by Lab

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 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2022/4/5	2023/4/4
Power Meter Anritsu	ML2495A	1529002	2021/6/21	2022/6/20
Pulse Power Sensor Anritsu	MA2411B	1339443	2021/5/31	2022/5/30
Software	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2022/4/26

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2022/4/5	2023/4/4
Software	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	100964	2021/5/31	2022/5/30

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2022/4/26

4.3 6 dB Bandwidth

Refer to section 4.2 to get information of the instruments.

4.4 Occupied Bandwidth

Refer to section 4.2 to get information of the instruments.

4.5 Frequency Stability

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
AC Power Source GOOD WILL	6905S	1991551	N/A	N/A
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2022/4/5	2023/4/4
DC POWER SUPPLY Topward	6603D	795558	N/A	N/A
Software	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	100964	2021/5/31	2022/5/30
Temperature & Humidity Chamber Giant Force	GTH-150-40-SP-AR	MAA0812-008	2022/1/14	2023/1/13
True RMS Clamp Meter Fluke	325	31130711WS	2021/6/2	2022/6/1

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2022/4/26

4.6 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohms Terminator	50	3	2021/10/27	2022/10/26
Fixed attenuator STI	STI02-2200-10	005	2021/8/27	2022/8/26
LISN R&S	ESH3-Z5	848773/004	2021/10/29	2022/10/28
RF Coaxial Cable JYEBO	5D-FB	COCCAB-001	2021/9/25	2022/9/24
Software BVADT	BVADT_Cond_V7.3.7.4	N/A	N/A	N/A
TEST RECEIVER R&S	ESCS 30	847124/029	2021/10/13	2022/10/12

Notes:

1. The test was performed in Conduction 1
2. Tested Date: 2022/4/19

4.7 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	N/A	N/A
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	2021/9/23	2022/9/22
Loop Antenna TESEQ	HLA 6121	45745	2021/7/21	2022/7/20
MXE EMI Receiver(20 Hz to 44 GHz) Keysight	N9038A	MY54450088	2021/7/6	2022/7/5
Pre_Amplifier EMCI	EMC001340	980142	2021/5/24	2022/5/23
Pre_Amplifier Mini-Circuits	ZFL-1000VH2	QA0838008	2021/10/19	2022/10/18
RF Coaxial Cable JYEBO	5D-FB	LOOPCAB-001	2022/1/6	2023/1/5
		LOOPCAB-002	2022/1/6	2023/1/5
RF Coaxial Cable COMMATE/PEWC	8D	001	2022/2/26	2023/2/25
		966-3-2	2022/2/26	2023/2/25
		966-3-3	2022/2/26	2023/2/25
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Spectrum Analyzer KEYSIGHT	N9030B	MY57142938	2021/4/26	2022/4/25
Trilog Broadband Antenna Schwarzbeck	VULB 9168	9168-361	2021/10/26	2022/10/25

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2022/4/19

4.8 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	N/A	N/A
Fix tool for Boresight antenna tower BV	FBA-01	FBA_SIP01	N/A	N/A
Horn Antenna Schwarzbeck	BBHA9120-D	9120D-406	2021/11/14	2022/11/13
	BBHA 9170	9170-739	2021/11/14	2022/11/13
MXE EMI Receiver(20 Hz to 44 GHz) Keysight	N9038A	MY54450088	2021/7/6	2022/7/5
Pre_Amplifier EMCI	EMC12630SE	980384	2022/1/10	2023/1/9
	EMC184045SE	980387	2022/1/10	2023/1/9
RF Cable EMCI	EMC104-SM-SM-6000	210201	2021/5/13	2022/5/12
RF Cable-Frequency range: 1-40GHz EMCI	EMC102-KM-KM-1200	160924	2022/1/10	2023/1/9
RF Coaxial Cable EMCI	EMC104-SM-SM-1500	180504	2021/4/26	2022/4/25
	EMC104-SM-SM-2000	180601	2021/6/8	2022/6/7
	EMC-KM-KM-4000	200214	2022/3/8	2023/3/7
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Spectrum Analyzer KEYSIGHT	N9030B	MY57142938	2021/4/26	2022/4/25
Spectrum Analyzer Keysight	N9030A	MY54490679	2021/7/9	2022/7/8

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2022/4/18 ~ 2022/4/19

5 Limits of Test Items

5.1 RF Output Power

Operation Band	EUT Category	Limit
U-NII-1	Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
	Fixed point-to-point Access Point	1 Watt (30 dBm)
	Indoor Access Point	1 Watt (30 dBm)
	Mobile and Portable client device	250 mW (24 dBm)

Operation Band	Limit
U-NII-3	1 Watt (30 dBm)

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.

5.2 Power Spectral Density

Operation Band	EUT Category	Limit
U-NII-1	Outdoor Access Point	17 dBm/ MHz
	Fixed point-to-point Access Point	
	Indoor Access Point	
	Mobile and Portable client device	11 dBm/ MHz

Operation Band	Limit
U-NII-3	30 dBm/ 500 kHz

5.3 6 dB Bandwidth

Within the 5.725-5.850 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

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>

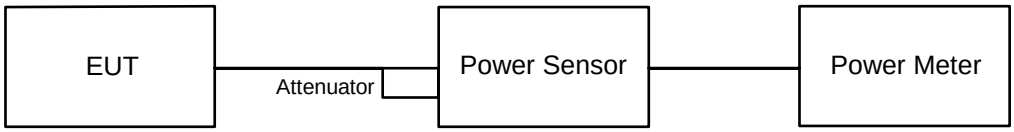
Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup

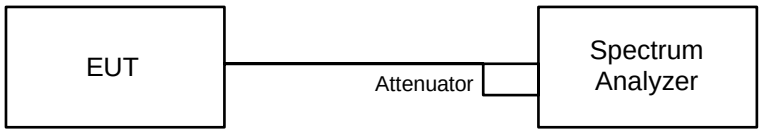


6.1.2 Test Procedure

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.

6.2 Power Spectral Density

6.2.1 Test Setup



6.2.2 Test Procedure

For specified measurement bandwidth 1 MHz:
Method SA-1

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. Sweep time = auto, trigger set to “free run”.
e. Trace average at least 100 traces in power averaging mode.
f. Record the max value

For specified measurement bandwidth 1 MHz:
Method SA-2

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. Sweep time = auto, trigger set to “free run”.
e. Trace average at least 100 traces in power averaging mode.
f. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
g. Record the max value and add 10 log (1/duty cycle).

For specified measurement bandwidth 500 kHz:
Method SA-1

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)

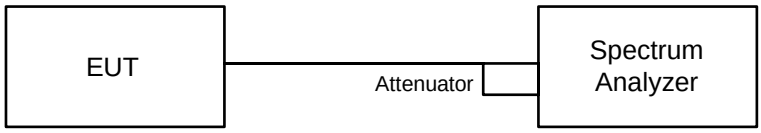
d. Sweep points ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)
e. Sweep time = auto, trigger set to “free run”.
f. Trace average at least 100 traces in power averaging mode.
g. Record the max value

For specified measurement bandwidth 500 kHz:
Method SA-2

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. Sweep time = auto, trigger set to “free run”.
f. Trace average at least 100 traces in power averaging mode.
g. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
h. Record the max value and add 10 log (1/duty cycle).

6.3 6 dB Bandwidth

6.3.1 Test Setup

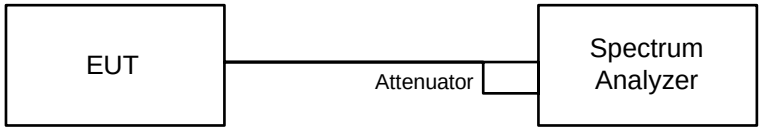


6.3.2 Test Procedure

a. Set resolution bandwidth (RBW) = 100 kHz.
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.4 Occupied Bandwidth

6.4.1 Test Setup

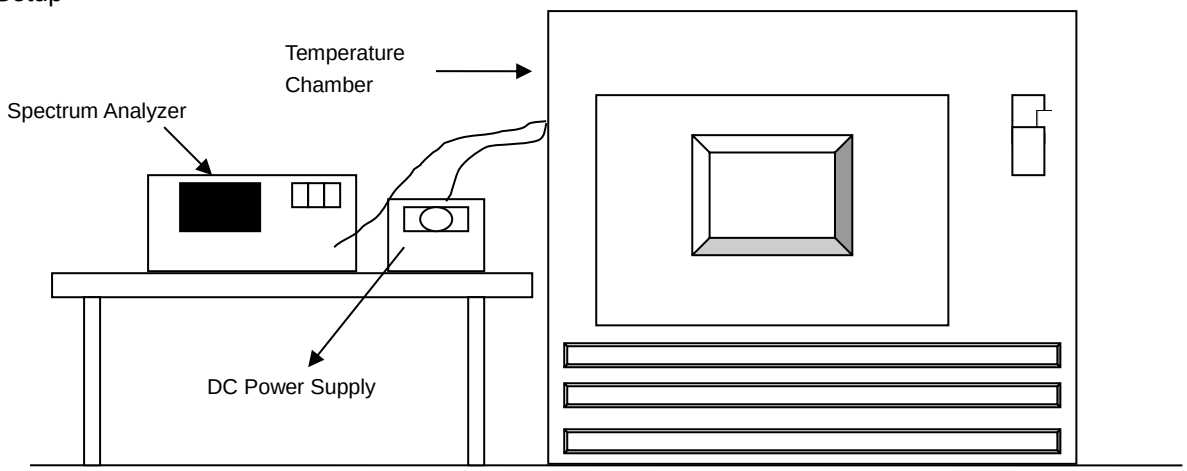


6.4.2 Test Procedure

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

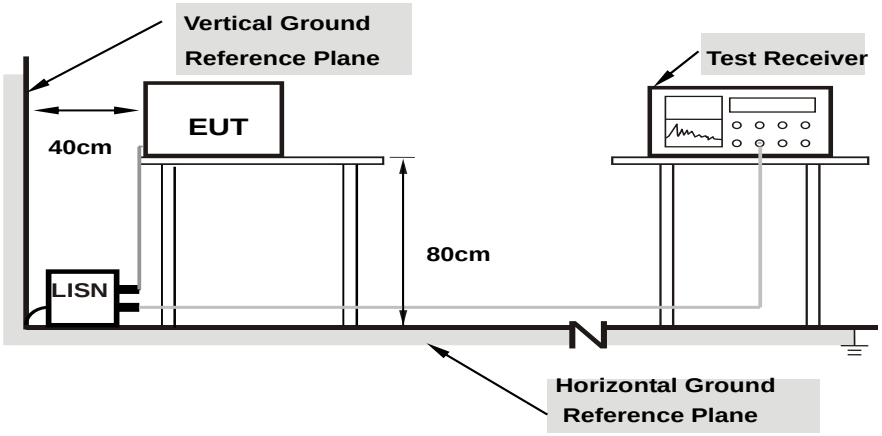


6.5.2 Test Procedure

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 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.

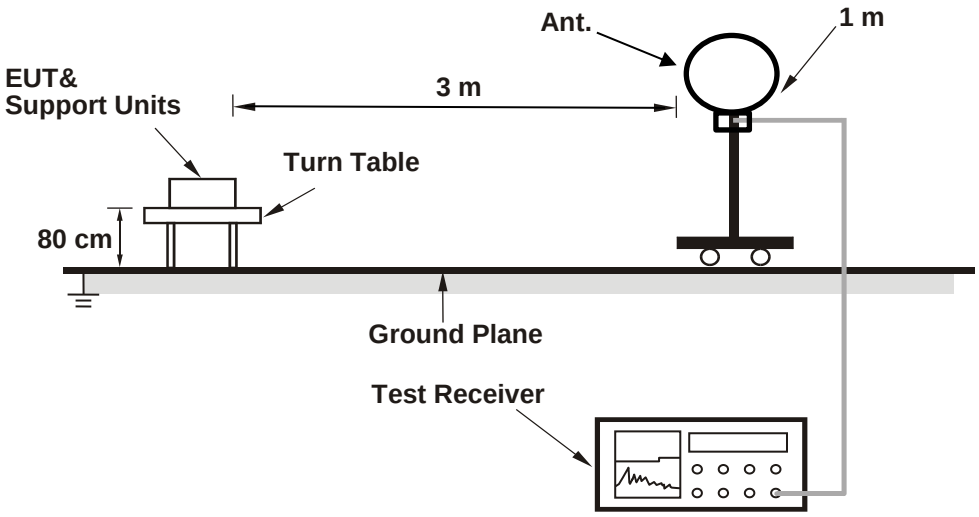
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

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.

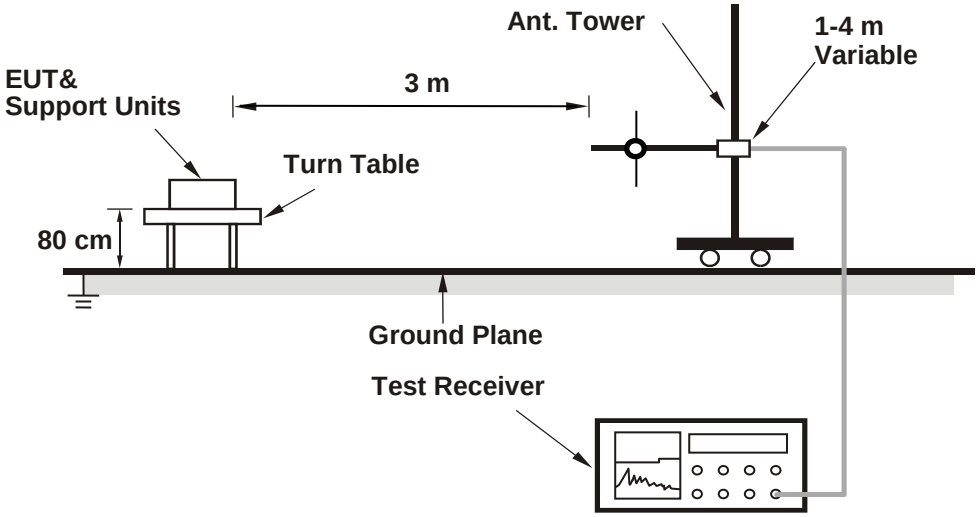
6.7 Unwanted Emissions below 1 GHz

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.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.
2. 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.

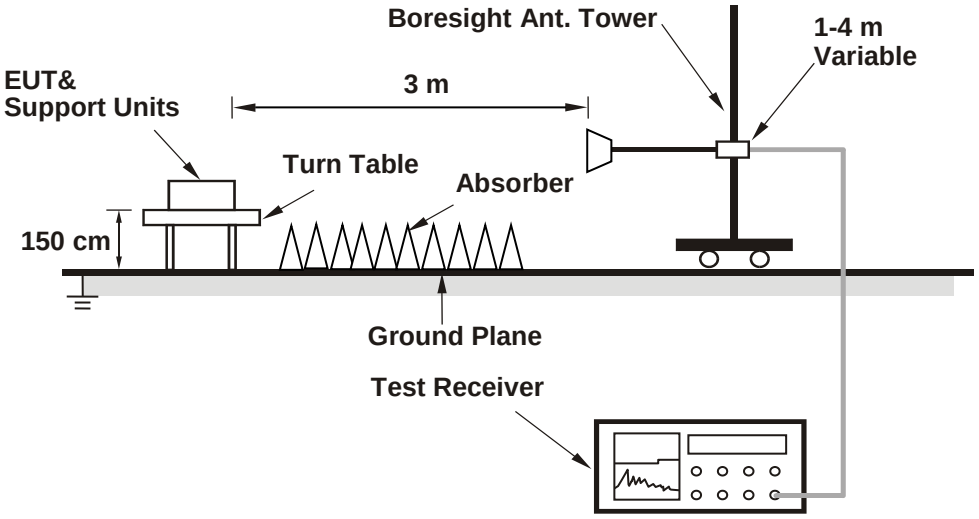
Notes:

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) at frequency above 1 GHz.
2. 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 RF Output Power

Input Power:	56 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	John Peng

802.11a CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
36	5180	21.35	21.92	292.055	24.65	30	Pass
40	5200	23.33	23.67	448.087	26.51	30	Pass
48	5240	23.46	23.67	454.629	26.58	30	Pass
149	5745	21.28	21.57	277.825	24.44	30	Pass
157	5785	20.74	20.88	241.038	23.82	30	Pass
165	5825	20.83	20.94	245.225	23.90	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 4.8 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 4.8 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT20) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
36	5180	22.48	22.87	370.653	25.69	30	Pass
40	5200	23.24	23.68	444.209	26.48	30	Pass
48	5240	23.38	23.56	444.757	26.48	30	Pass
149	5745	22.24	22.64	351.148	25.45	30	Pass
157	5785	21.55	21.77	293.204	24.67	30	Pass
165	5825	22.31	22.18	335.412	25.26	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 4.8 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 4.8 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT40) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
38	5190	19.74	20.06	195.58	22.91	30	Pass
46	5230	23.52	23.84	467.008	26.69	30	Pass
151	5755	24.35	24.72	568.753	27.55	30	Pass
159	5795	24.02	24.31	522.122	27.18	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 4.8 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 4.8 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT80) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
42	5210	18.74	18.96	153.522	21.86	30	Pass
155	5775	21.93	22.44	331.343	25.20	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 4.8 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 4.8 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
36	5180	22.48	22.87	370.653	25.69	28.24	Pass
40	5200	23.24	23.68	444.209	26.48	28.24	Pass
48	5240	23.38	23.56	444.757	26.48	28.24	Pass
149	5745	22.24	22.64	351.148	25.45	28.24	Pass
157	5785	21.55	21.77	293.204	24.67	28.24	Pass
165	5825	22.31	22.18	335.412	25.26	28.24	Pass

Notes:

1. Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
2. For U-NII-1, the directional gain is 7.76 dBi > 6 dBi, so the output power limit shall be reduced to 30-(7.76-6) = 28.24 dBm.
3. For U-NII-3, the directional gain is 7.76 dBi > 6 dBi, so the output power limit shall be reduced to 30-(7.76-6) = 28.24 dBm.

802.11ac (VHT40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
38	5190	19.74	20.06	195.58	22.91	28.24	Pass
46	5230	23.52	23.84	467.008	26.69	28.24	Pass
151	5755	24.35	24.72	568.753	27.55	28.24	Pass
159	5795	24.02	24.31	522.122	27.18	28.24	Pass

Notes:

1. Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2]
2. For U-NII-1, the directional gain is 7.76 dBi > 6 dBi, so the output power limit shall be reduced to 30-(7.76-6) = 28.24 dBm.
3. For U-NII-3, the directional gain is 7.76 dBi > 6 dBi, so the output power limit shall be reduced to 30-(7.76-6) = 28.24 dBm.

802.11ac (VHT80) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
42	5210	18.74	18.96	153.522	21.86	28.24	Pass
155	5775	21.93	22.44	331.343	25.20	28.24	Pass

Notes:

1. Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2]
2. For U-NII-1, the directional gain is 7.76 dBi > 6 dBi, so the output power limit shall be reduced to 30-(7.76-6) = 28.24 dBm.
3. For U-NII-3, the directional gain is 7.76 dBi > 6 dBi, so the output power limit shall be reduced to 30-(7.76-6) = 28.24 dBm.

7.2 Power Spectral Density

Input Power:	56 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	John Peng

For U-NII-1

802.11a CDD

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				
36	5180	7.79	8.68	0.18	11.45	15.24	Pass
40	5200	9.15	8.77	0.18	12.15	15.24	Pass
48	5240	8.96	9.51	0.18	12.43	15.24	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 = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
3. For U-NII-1, the directional gain is 7.76 dBi > 6dBi, so the power density limit shall be reduced to 17-(7.76-6) = 15.24 dBm/MHz.

802.11ac (VHT20) CDD

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1			
36	5180	8.65	8.98	11.83	15.24	Pass
40	5200	8.69	9.11	11.92	15.24	Pass
48	5240	8.77	9.49	12.16	15.24	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 = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
3. For U-NII-1, the directional gain is 7.76 dBi > 6dBi, so the power density limit shall be reduced to 17-(7.76-6) = 15.24 dBm/MHz.

802.11ac (VHT40) CDD

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				
38	5190	3.02	3.81	0.16	6.60	15.24	Pass
46	5230	5.94	6.66	0.16	9.49	15.24	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 = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
3. For U-NII-1, the directional gain is 7.76 dBi > 6dBi, so the power density limit shall be reduced to 17-(7.76-6) = 15.24 dBm/MHz.

802.11ac (VHT80) CDD

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				
42	5210	-1.12	-0.99	0.31	2.27	15.24	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 = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
3. For U-NII-1, the directional gain is 7.76 dBi > 6dBi, so the power density limit shall be reduced to 17-(7.76-6) = 15.24 dBm/MHz.

For U-NII-3

802.11a CDD

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					
149	5745	4.44	4.59	7.53	0.18	9.93	28.24	Pass
157	5785	4.06	4.40	7.24	0.18	9.64	28.24	Pass
165	5825	3.94	4.24	7.1	0.18	9.50	28.24	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 = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
3. For U-NII-3, the directional gain is 7.76 dBi > 6 dBi, so the power density limit shall be reduced to 30-(7.76-6) = 28.24 dBm/500kHz.

802.11ac (VHT20) CDD

Chan.	Chan. Freq. (MHz)	PSD (dBm/300kHz)		Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
		Chain 0	Chain 1				
149	5745	5.44	5.81	8.64	10.86	28.24	Pass
157	5785	5.90	5.03	8.5	10.72	28.24	Pass
165	5825	5.44	5.15	8.31	10.53	28.24	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 = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
3. For U-NII-3, the directional gain is 7.76 dBi > 6 dBi, so the power density limit shall be reduced to 30-(7.76-6) = 28.24 dBm/500kHz.

802.11ac (VHT40) CDD

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					
151	5755	-2.08	-2.12	0.91	0.16	3.29	28.24	Pass
159	5795	-1.71	-2.27	1.03	0.16	3.41	28.24	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 = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2]
3. For U-NII-3, the directional gain is 7.76 dBi > 6 dBi, so the power density limit shall be reduced to 30-(7.76-6) = 28.24 dBm/500kHz.

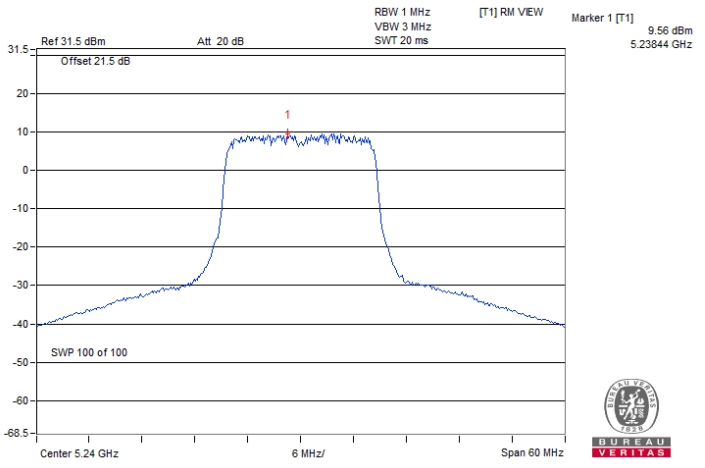
802.11ac (VHT80) CDD

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					
155	5775	-7.08	-6.53	-3.79	0.31	-1.26	28.24	Pass

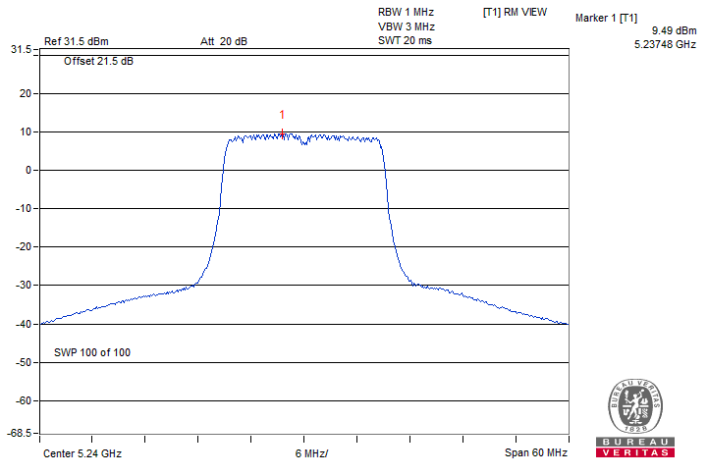
Notes:

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 = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2]
3. For U-NII-3, the directional gain is 7.76 dBi > 6 dBi, so the power density limit shall be reduced to 30-(7.76-6) = 28.24 dBm/500kHz.

Spectrum Plot of Maximum Value

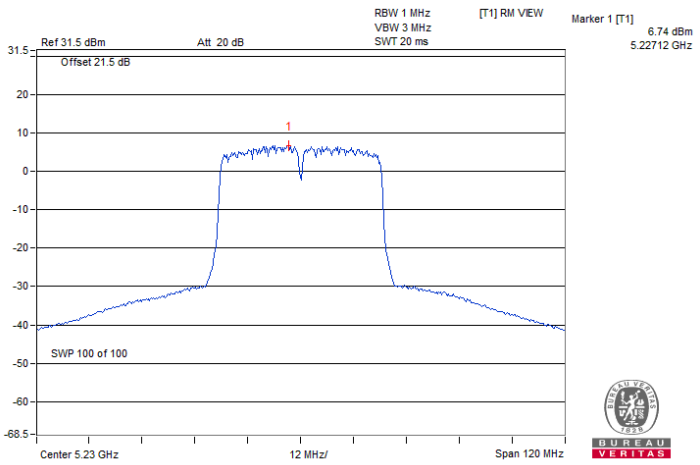


802.11a / Chain1 : CH 48

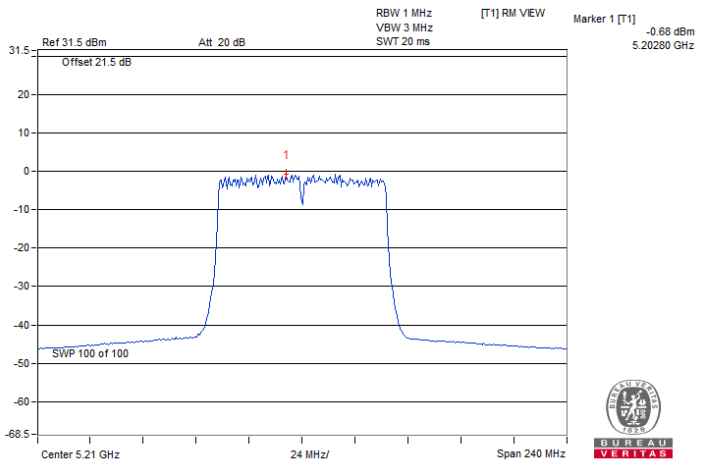


802.11ac (VHT20) / Chain1 : CH 48

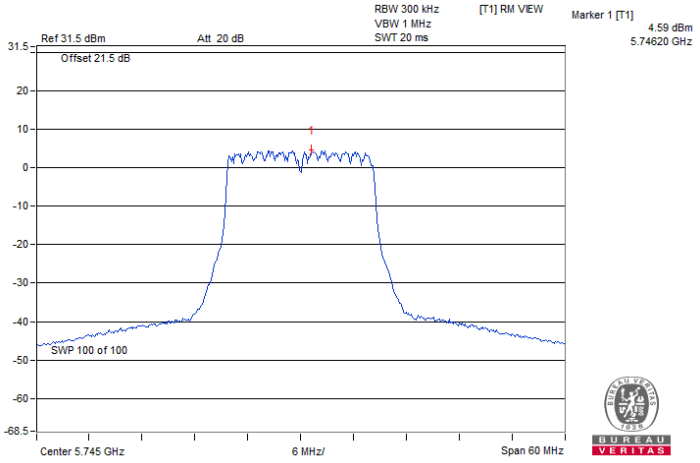
Spectrum Plot of Maximum Value



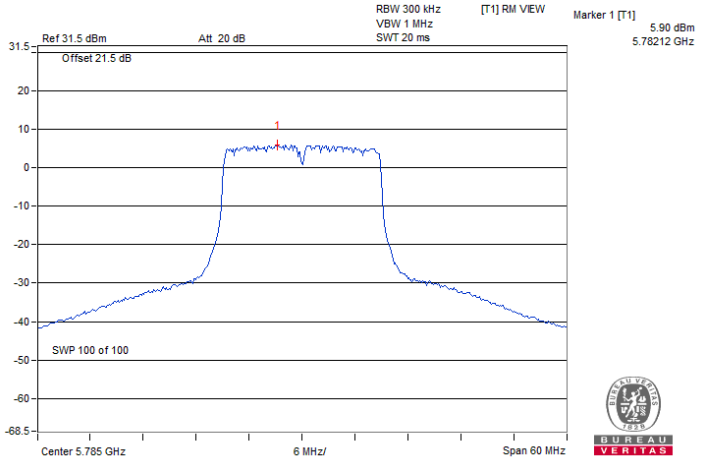
802.11ac (VHT40) / Chain1 : CH 46



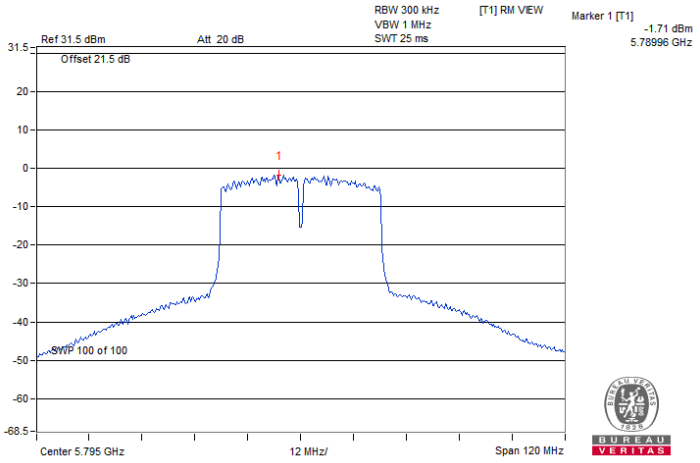
802.11ac (VHT80) / Chain1 : CH 42



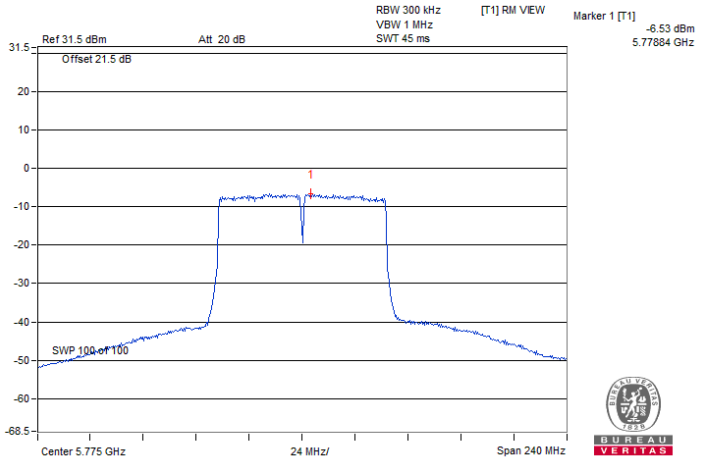
802.11a / Chain1 : CH 149



802.11ac (VHT20) / Chain0 : CH 157



802.11ac (VHT40) / Chain0 : CH 159



802.11ac (VHT80) / Chain1 : CH 155

7.3 6 dB Bandwidth

Input Power:	56 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	John Peng

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
149	5745	16.42	16.42	0.5	Pass
157	5785	16.41	16.41	0.5	Pass
165	5825	16.41	16.41	0.5	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
149	5745	17.66	17.66	0.5	Pass
157	5785	17.65	17.64	0.5	Pass
165	5825	17.65	17.63	0.5	Pass

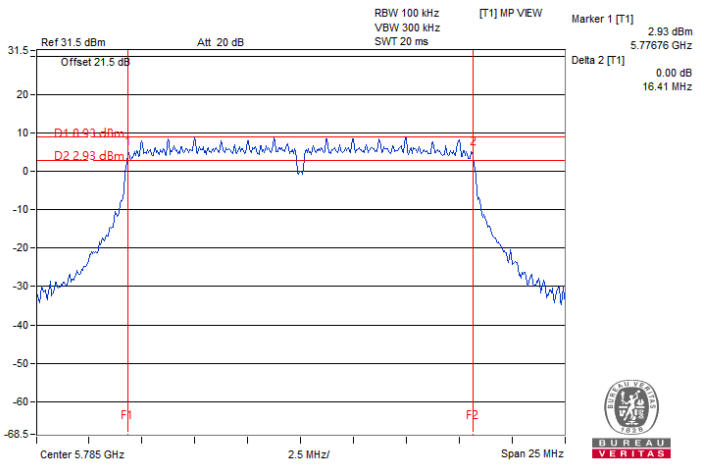
802.11ac (VHT40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
151	5755	35.40	35.22	0.5	Pass
159	5795	35.40	35.63	0.5	Pass

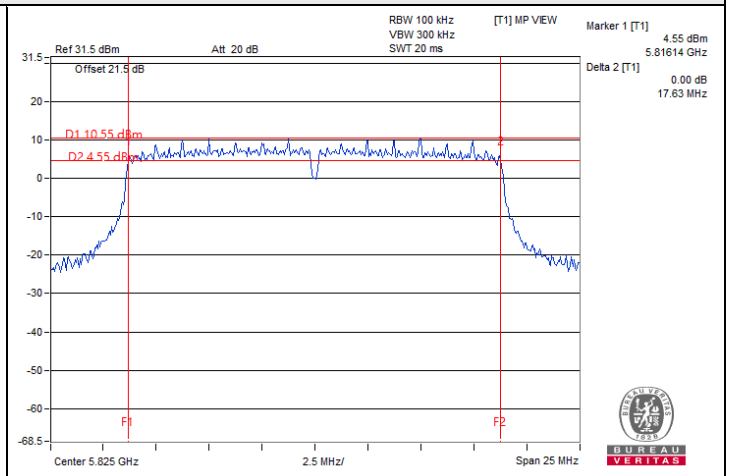
802.11ac (VHT80)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
155	5775	76.48	76.47	0.5	Pass

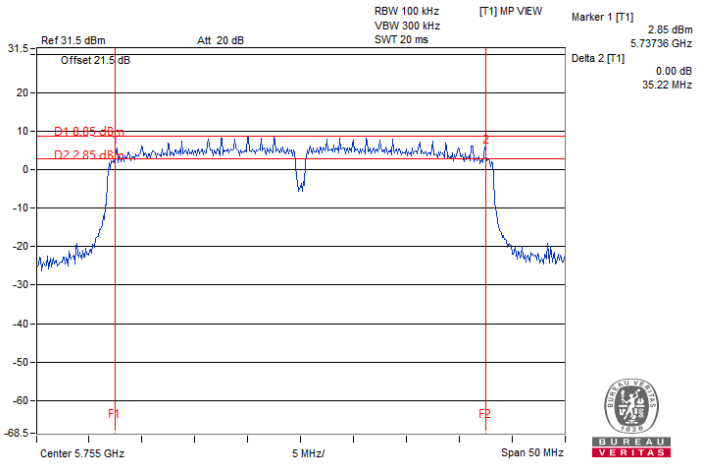
Spectrum Plot of Minimum Value



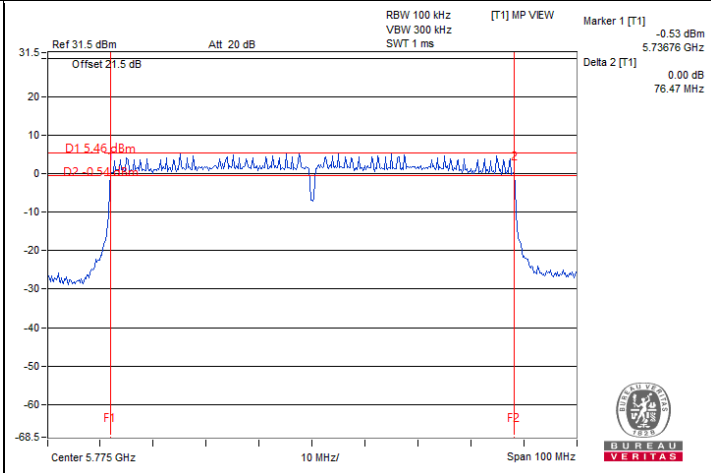
802.11a / Chain0 : CH 157



802.11ac (VHT20) / Chain1 : CH 165



802.11ac (VHT40) / Chain1 : CH 151



802.11ac (VHT80) / Chain1 : CH 155

7.4 Occupied Bandwidth

Input Power:	56 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	John Peng

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	16.44	16.44
40	5200	16.56	16.44
48	5240	16.44	16.44
149	5745	16.44	16.44
157	5785	16.56	16.56
165	5825	16.44	16.44

802.11ac (VHT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.76	17.64
40	5200	17.64	17.64
48	5240	17.64	17.64
149	5745	17.64	17.64
157	5785	17.76	17.64
165	5825	17.64	17.64

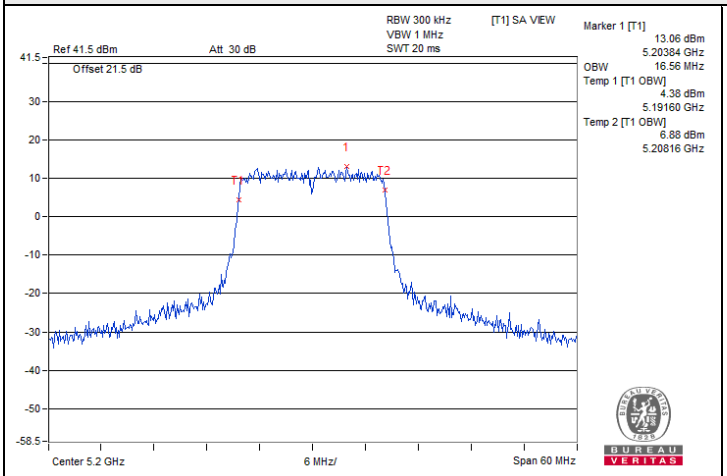
802.11ac (VHT40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.24	36.24
46	5230	36.24	36.48
151	5755	36.24	36.24
159	5795	36.24	36.24

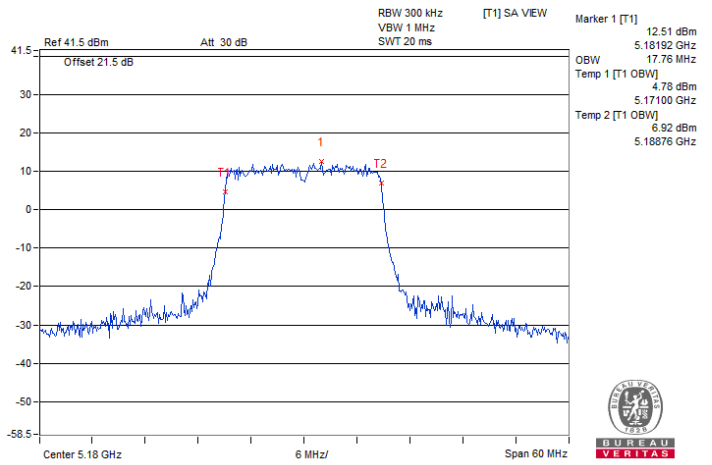
802.11ac (VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	75.84	76.32
155	5775	75.84	75.84

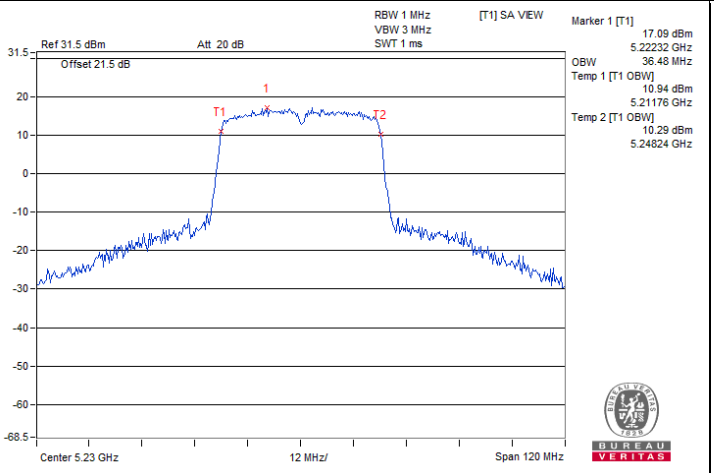
Spectrum Plot of Maximum Value



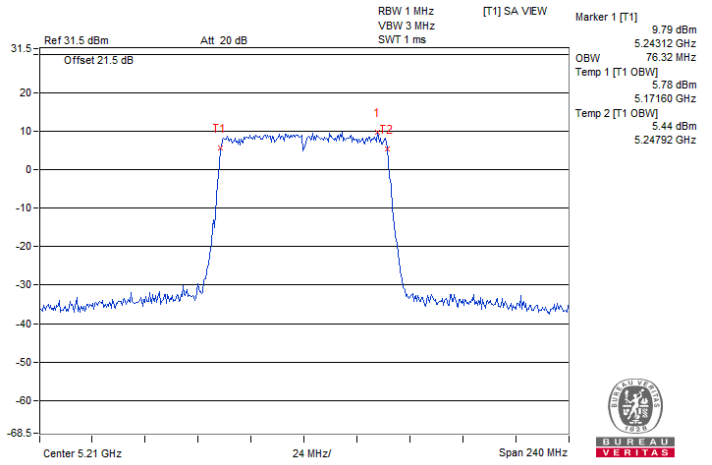
802.11a / Chain0 : CH 40



802.11ac (VHT20) / Chain0 : CH 36

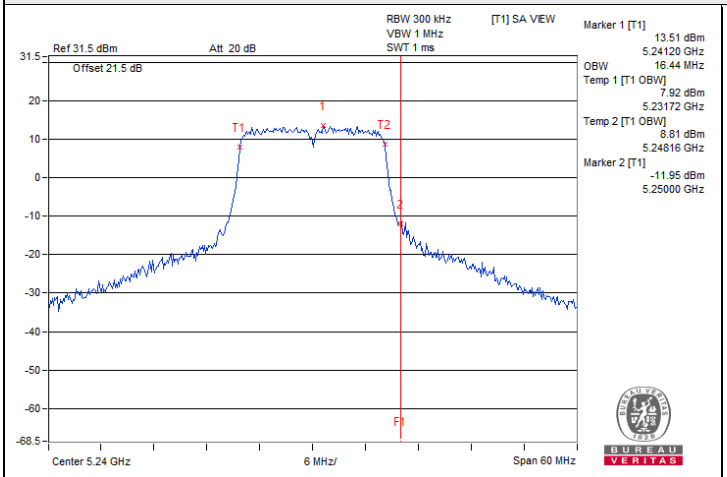


802.11ac (VHT40) / Chain1 : CH 46

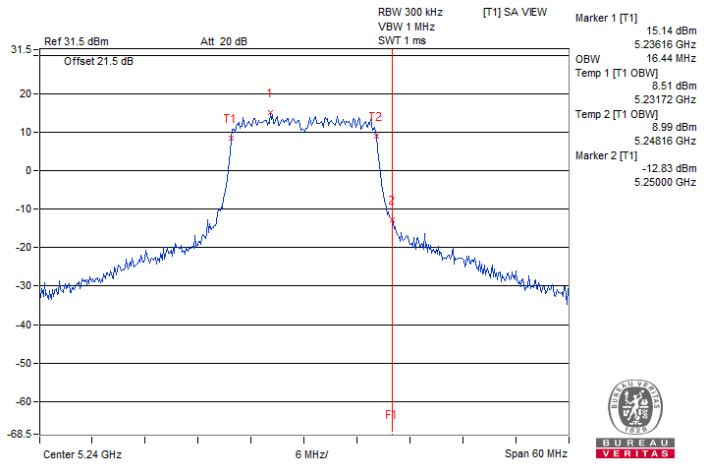


802.11ac (VHT80) / Chain1 : CH 42

Spectrum Plot for nearby DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)



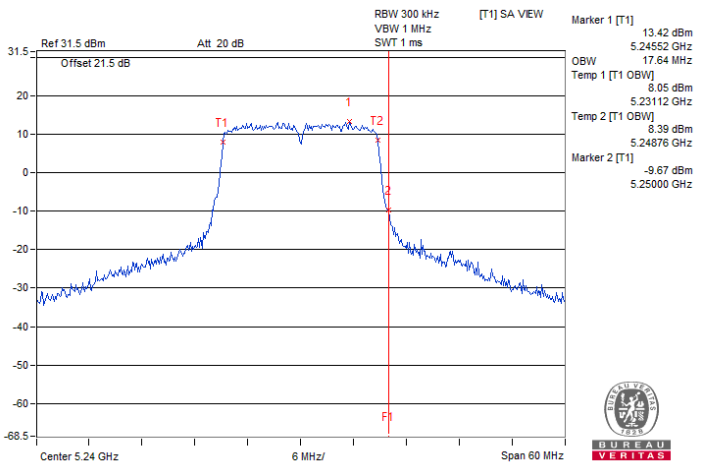
802.11a / Chain 0 : CH 48



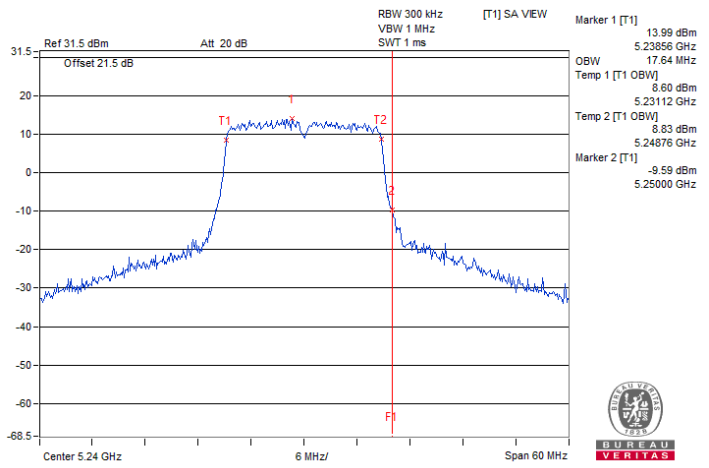
802.11a / Chain 1 : CH 48

Spectrum Plot for nearby DFS band

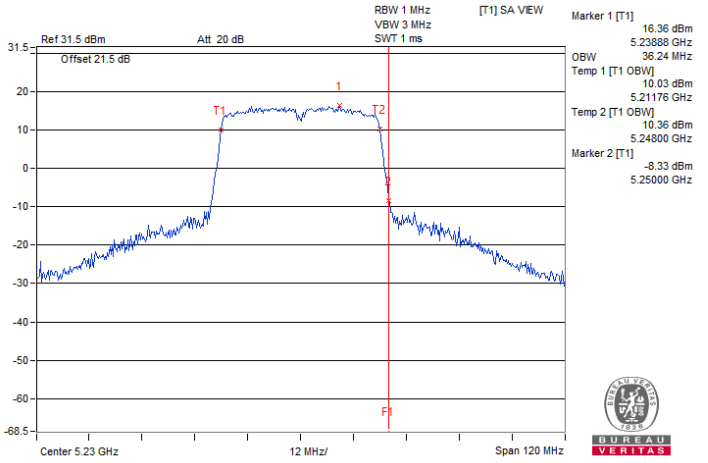
(DFS is required, if 99% OCP straddle into U-NII-2A band)



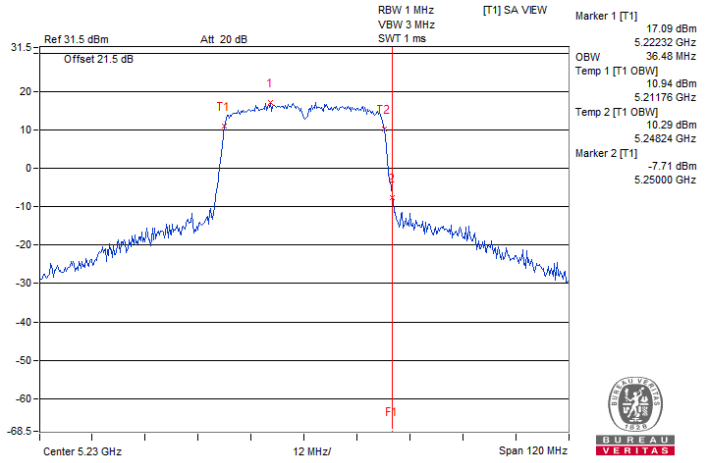
802.11ac (VHT20) / Chain 0 : CH 48



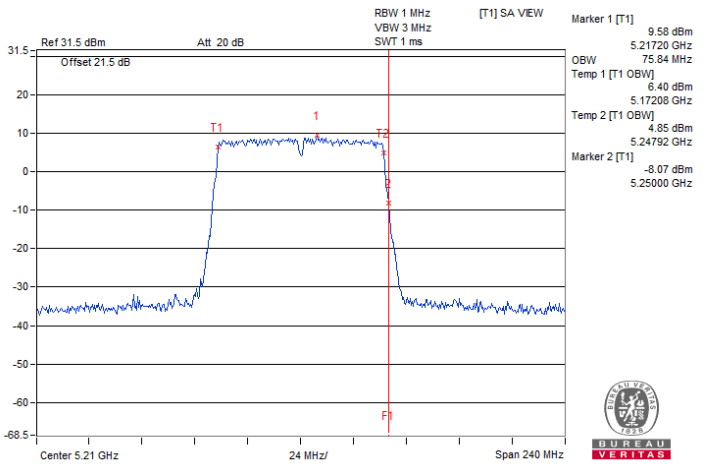
802.11ac (VHT20) / Chain 1 : CH 48



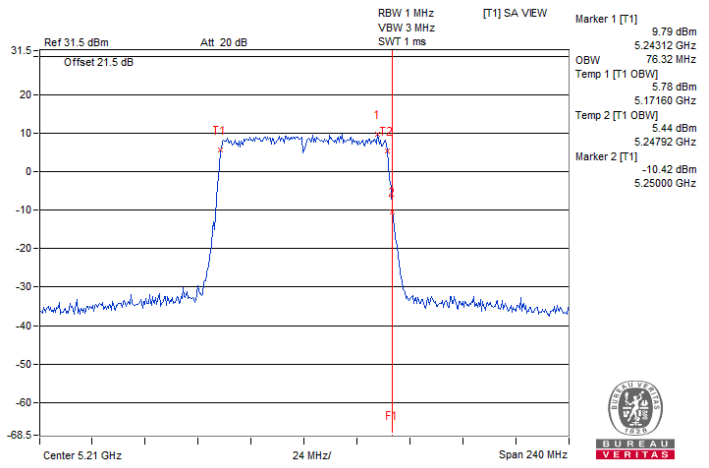
802.11ac (VHT40) / Chain 0 : CH 46



802.11ac (VHT40) / Chain 1 : CH 46



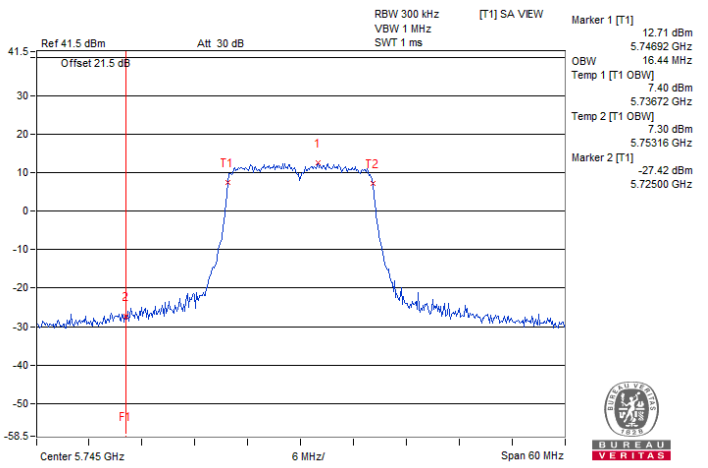
802.11ac (VHT80) / Chain 0 : CH 42



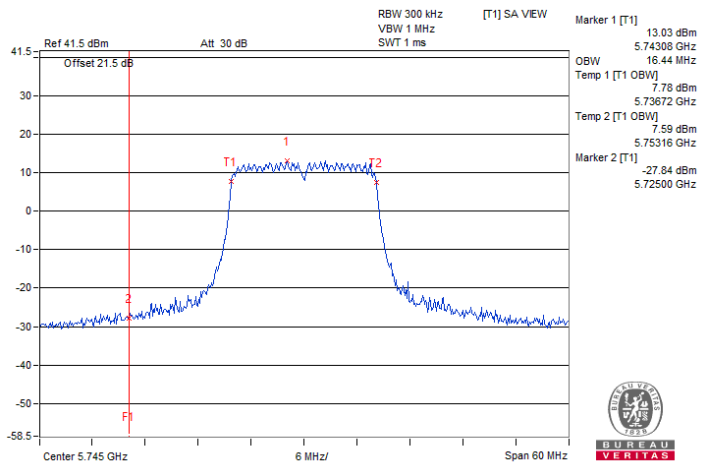
802.11ac (VHT80) / Chain 1 : CH 42

Spectrum Plot for nearby DFS band

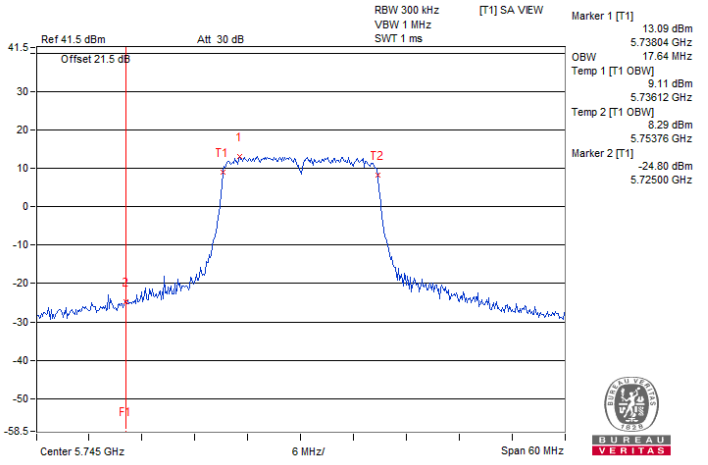
(DFS is required, if 99% OCP straddle into U-NII-2C band)



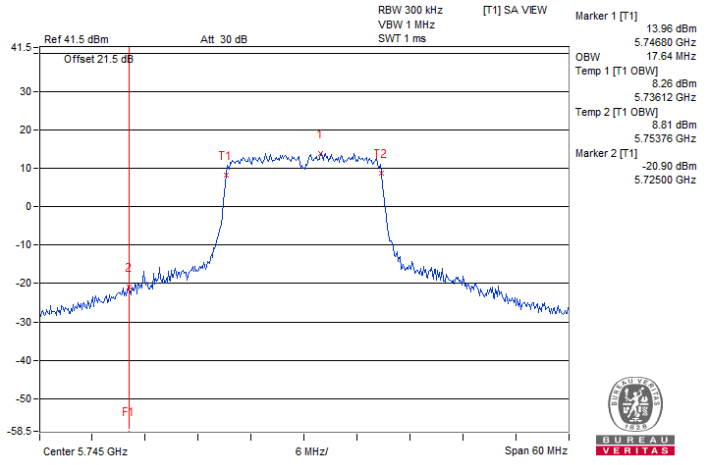
802.11a / Chain 0 : CH 149



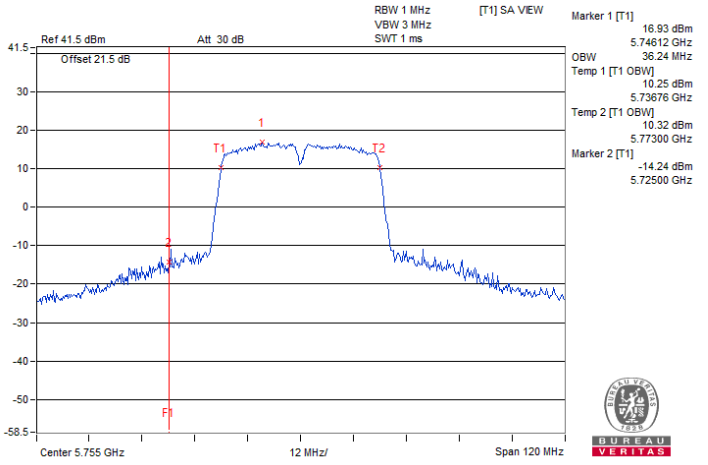
802.11a / Chain 1 : CH 149



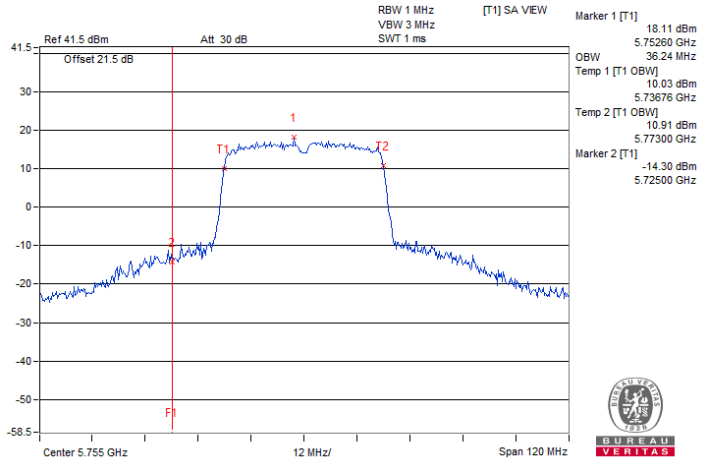
802.11ac (VHT20) / Chain 0 : CH 149



802.11ac (VHT20) / Chain 1 : CH 149



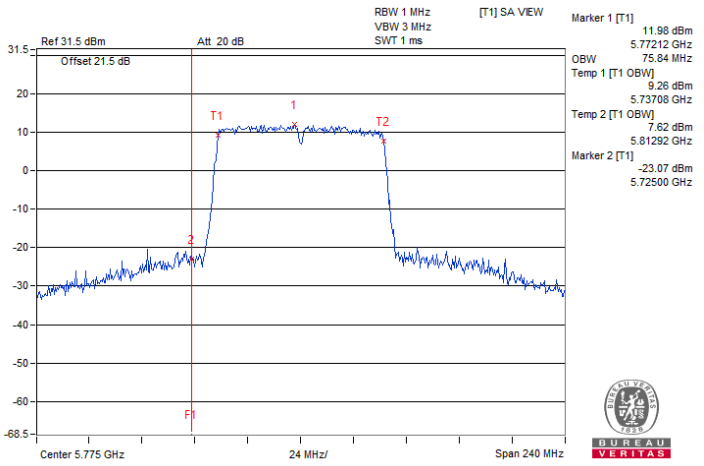
802.11ac (VHT40) / Chain 0 : CH 151



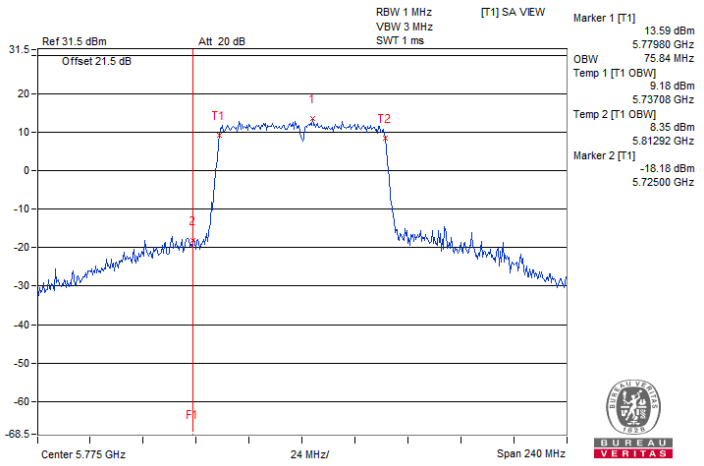
802.11ac (VHT40) / Chain 1 : CH 151

Spectrum Plot for nearby DFS band

(DFS is required, if 99% OCP straddle into U-NII-2C band)



802.11ac (VHT80) / Chain 0 : CH 155



802.11ac (VHT80) / Chain 1 : CH 155

7.5 Frequency Stability

Input Power:	56 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	John Peng

802.11a

Frequency Stability Versus Temp.									
Operating Frequency: 5180 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
50	56	5180.0146	Pass	5180.0151	Pass	5180.0173	Pass	5180.0186	Pass
40	56	5179.9996	Pass	5179.9976	Pass	5179.9966	Pass	5179.9994	Pass
30	56	5179.9958	Pass	5179.9952	Pass	5179.9976	Pass	5179.9944	Pass
20	56	5179.9847	Pass	5179.9869	Pass	5179.9845	Pass	5179.9864	Pass
10	56	5179.9772	Pass	5179.9759	Pass	5179.9761	Pass	5179.9749	Pass
0	56	5179.9822	Pass	5179.9856	Pass	5179.9809	Pass	5179.9834	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5180 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	64.4	5179.9769	Pass	5179.9745	Pass	5179.9743	Pass	5179.9724	Pass
	56	5179.9847	Pass	5179.9869	Pass	5179.9845	Pass	5179.9864	Pass
	47.6	5179.9767	Pass	5179.9729	Pass	5179.9764	Pass	5179.9759	Pass

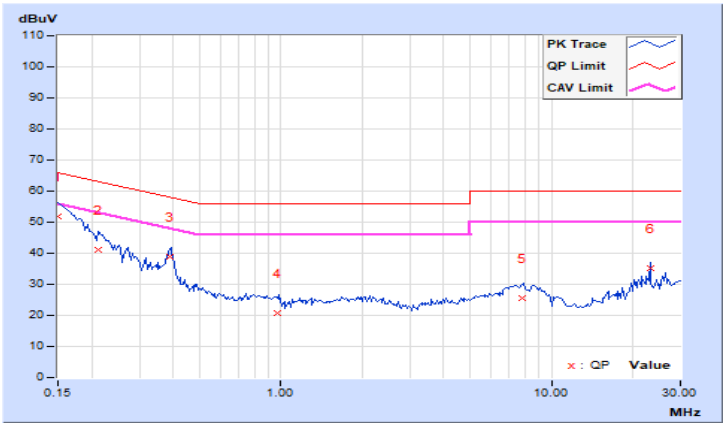
7.6 AC Power Conducted Emissions

RF Mode	TX 802.11ac (VHT40)	**Channel**	CH 151：5755 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Tom Yang		

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	0.15000	10.05	41.74	27.69	51.79	37.74	66.00	56.00	-14.21	-18.26
2	0.21250	10.05	31.10	18.03	41.15	28.08	63.11	53.11	-21.96	-25.03
3	**0.38828**	**10.07**	**28.71**	**26.49**	**38.78**	**36.56**	**58.10**	**48.10**	**-19.32**	**-11.54**
4	0.96641	10.11	10.45	5.71	20.56	15.82	56.00	46.00	-35.44	-30.18
5	7.82422	10.48	15.22	11.13	25.70	21.61	60.00	50.00	-34.30	-28.39
6	23.12891	11.27	23.90	23.40	35.17	34.67	60.00	50.00	-24.83	-15.33

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

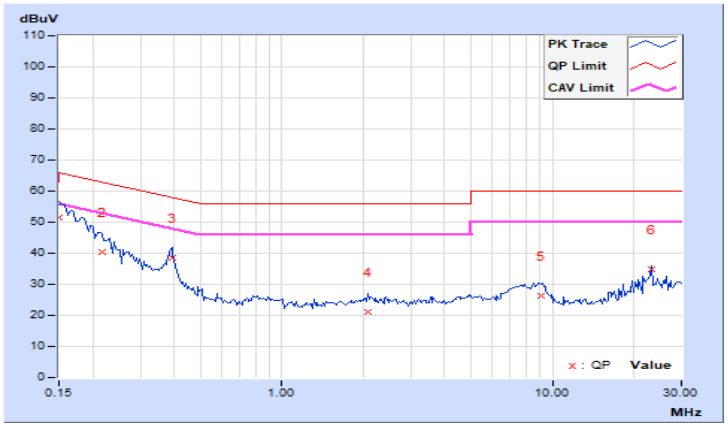


RF Mode	TX 802.11ac (VHT40)	Channel	CH 151：5755 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Tom Yang		

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	0.15000	10.02	41.62	27.49	51.64	37.51	66.00	56.00	-14.36	-18.49
2	0.21641	10.03	30.40	17.03	40.43	27.06	62.96	52.96	-22.53	-25.90
3	0.39219	10.04	28.43	26.39	38.47	36.43	58.02	48.02	-19.55	-11.59
4	2.07031	10.13	11.07	7.61	21.20	17.74	56.00	46.00	-34.80	-28.26
5	9.04688	10.45	15.92	12.20	26.37	22.65	60.00	50.00	-33.63	-27.35
6	23.12891	10.97	24.03	23.34	35.00	34.31	60.00	50.00	-25.00	-15.69

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



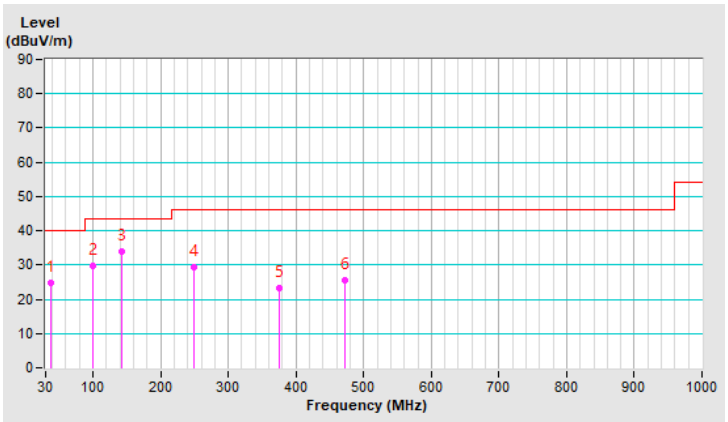
7.7 Unwanted Emissions below 1 GHz

RF Mode	TX 802.11ac (VHT40)	**Channel**	CH 151：5755 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	24°C, 66% RH
Tested By	Tom Yang		

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	37.48	24.8 QP	40.0	-15.2	2.00 H	82	33.5	-8.7
2	100.06	29.8 QP	43.5	-13.7	1.00 H	291	42.4	-12.6
3	141.74	33.8 QP	43.5	-9.7	1.50 H	168	42.1	-8.3
4	249.80	29.5 QP	46.0	-16.5	1.50 H	165	39.1	-9.6
5	375.00	23.1 QP	46.0	-22.9	3.00 H	298	29.0	-5.9
6	472.61	25.4 QP	46.0	-20.6	1.50 H	313	28.8	-3.4

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 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.

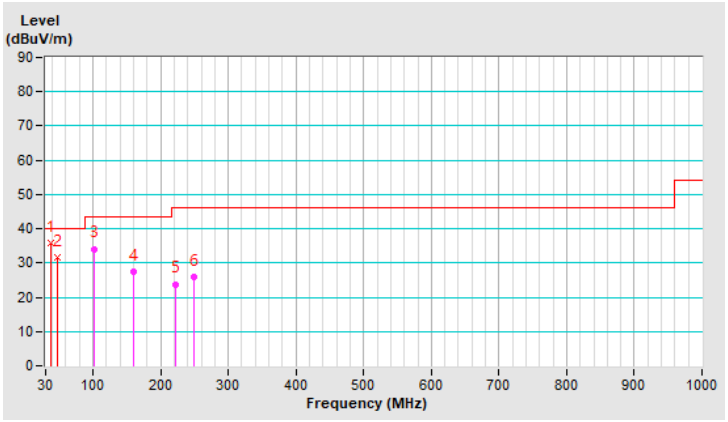


RF Mode	TX 802.11ac (VHT40)	**Channel**	CH 151：5755 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	24°C, 66% RH
Tested By	Tom Yang		

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	**37.39**	**35.7 QP**	**40.0**	**-4.3**	**1.00 V**	**109**	**44.5**	**-8.8**
2	47.06	31.6 QP	40.0	-8.4	1.00 V	83	39.9	-8.3
3	101.73	34.1 QP	43.5	-9.4	1.00 V	3	46.4	-12.3
4	160.68	27.6 QP	43.5	-15.9	1.50 V	182	35.9	-8.3
5	221.09	23.8 QP	46.0	-22.2	1.00 V	143	35.1	-11.3
6	250.00	26.0 QP	46.0	-20.0	1.50 V	176	35.6	-9.6

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 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.



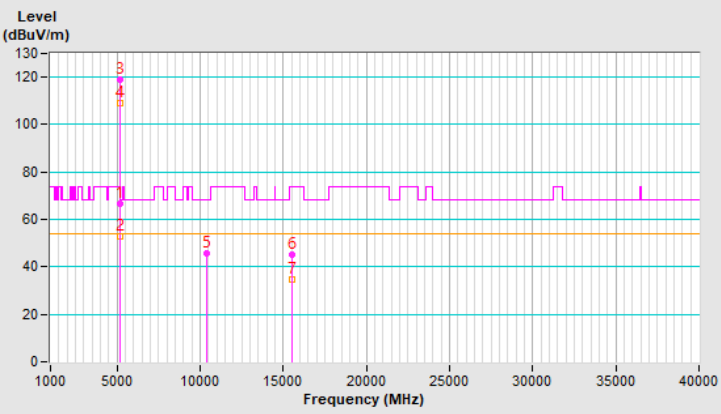
7.8 Unwanted Emissions above 1 GHz

RF Mode	TX 802.11a	**Channel**	CH 36：5180 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	66.7 PK	74.0	-7.3	1.43 H	94	62.1	4.6
2	5150.00	53.1 AV	54.0	-0.9	1.43 H	94	48.5	4.6
3	*5180.00	118.9 PK			1.43 H	94	114.4	4.5
4	*5180.00	109.3 AV			1.43 H	94	104.8	4.5
5	#10360.00	45.9 PK	68.2	-22.3	1.54 H	255	32.3	13.6
6	15540.00	45.0 PK	74.0	-29.0	1.24 H	340	30.9	14.1
7	15540.00	34.6 AV	54.0	-19.4	1.24 H	340	20.5	14.1

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.
6. " # ": The radiated frequency is out of the restricted band.

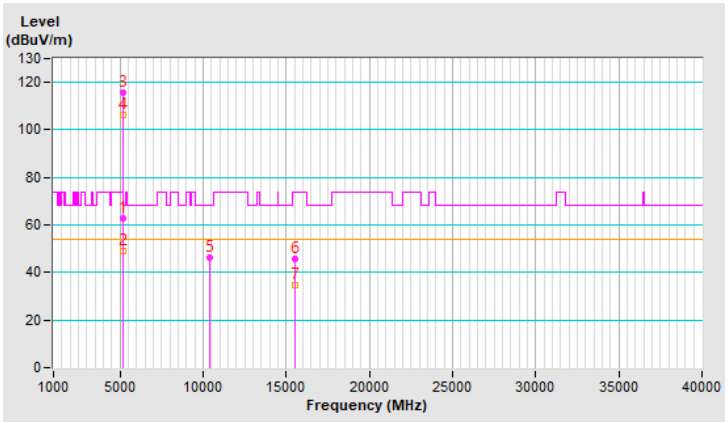


RF Mode	TX 802.11a	Channel	CH 36：5180 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	5147.30	62.9 PK	74.0	-11.1	1.01 V	348	58.3	4.6
2	5147.30	48.9 AV	54.0	-5.1	1.01 V	348	44.3	4.6
3	*5180.00	115.5 PK			1.01 V	348	111.0	4.5
4	*5180.00	106.4 AV			1.01 V	348	101.9	4.5
5	#10360.00	46.0 PK	68.2	-22.2	1.67 V	40	32.4	13.6
6	15540.00	45.7 PK	74.0	-28.3	1.54 V	335	31.6	14.1
7	15540.00	34.8 AV	54.0	-19.2	1.54 V	335	20.7	14.1

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.
6. " # ": The radiated frequency is out of the restricted band.

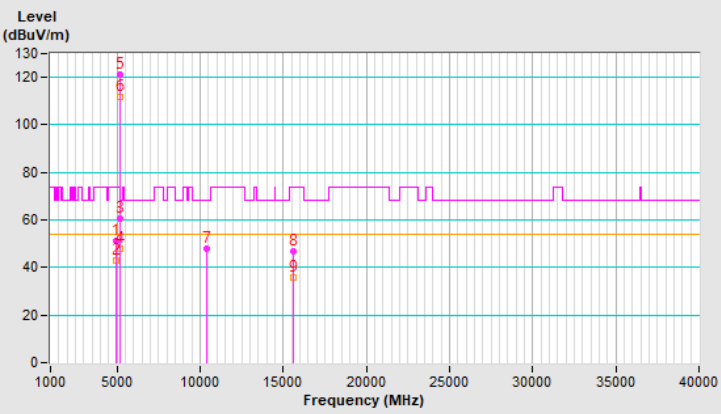


RF Mode	TX 802.11a	Channel	CH 40：5200 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	4944.00	51.0 PK	74.0	-23.0	1.65 H	263	47.2	3.8
2	4944.00	42.9 AV	54.0	-11.1	1.65 H	263	39.1	3.8
3	5150.00	60.5 PK	74.0	-13.5	1.65 H	263	55.9	4.6
4	5150.00	47.9 AV	54.0	-6.1	1.65 H	263	43.3	4.6
5	*5200.00	121.4 PK			1.65 H	263	117.0	4.4
6	*5200.00	111.7 AV			1.65 H	263	107.3	4.4
7	#10400.00	48.0 PK	68.2	-20.2	1.55 H	265	34.3	13.7
8	15600.00	46.8 PK	74.0	-27.2	1.22 H	353	32.8	14.0
9	15600.00	35.7 AV	54.0	-18.3	1.22 H	353	21.7	14.0

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.
6. " # ": The radiated frequency is out of the restricted band.

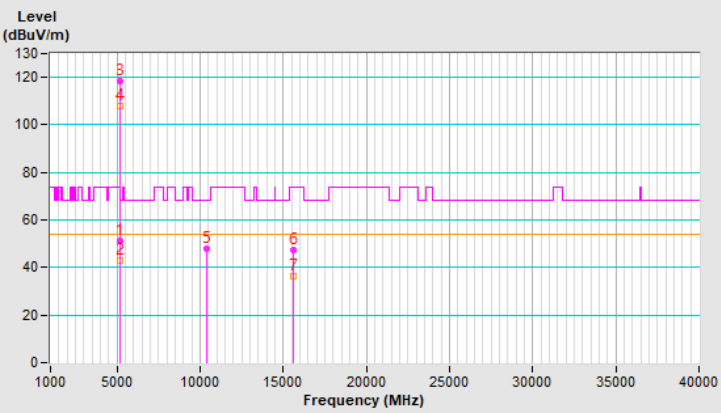


RF Mode	TX 802.11a	**Channel**	CH 40：5200 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	51.0 PK	74.0	-23.0	4.00 V	231	46.4	4.6
2	5150.00	43.0 AV	54.0	-11.0	4.00 V	231	38.4	4.6
3	*5200.00	118.2 PK			4.00 V	231	113.8	4.4
4	*5200.00	107.9 AV			4.00 V	231	103.5	4.4
5	#10400.00	47.9 PK	68.2	-20.3	1.58 V	36	34.2	13.7
6	15600.00	47.5 PK	74.0	-26.5	1.48 V	336	33.5	14.0
7	15600.00	36.5 AV	54.0	-17.5	1.48 V	336	22.5	14.0

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.
6. " # ": The radiated frequency is out of the restricted band.

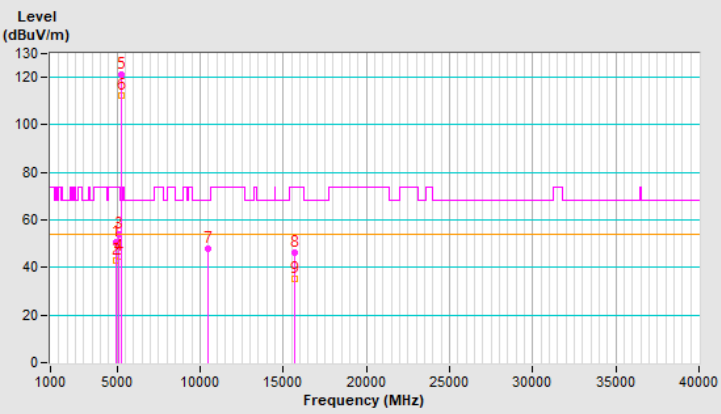


RF Mode	TX 802.11a	**Channel**	CH 48：5240 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	4944.00	50.5 PK	74.0	-23.5	1.70 H	260	46.7	3.8
2	4944.00	42.8 AV	54.0	-11.2	1.70 H	260	39.0	3.8
3	5136.00	54.0 PK	74.0	-20.0	1.70 H	260	49.4	4.6
4	5136.00	44.6 AV	54.0	-9.4	1.70 H	260	40.0	4.6
5	*5240.00	121.4 PK			1.70 H	260	117.3	4.1
6	*5240.00	112.1 AV			1.70 H	260	108.0	4.1
7	#10480.00	48.0 PK	68.2	-20.2	1.56 H	256	34.2	13.8
8	15720.00	46.3 PK	74.0	-27.7	1.20 H	338	32.6	13.7
9	15720.00	35.3 AV	54.0	-18.7	1.20 H	338	21.6	13.7

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.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

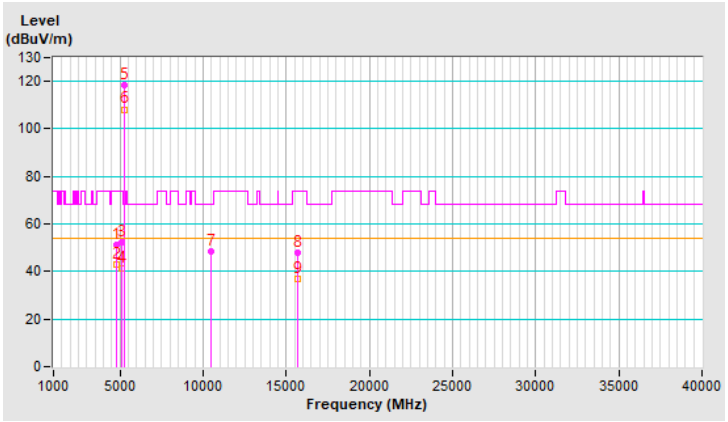


RF Mode	TX 802.11a	Channel	CH 48：5240 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	4824.00	51.4 PK	74.0	-22.6	1.10 V	349	47.7	3.7
2	4824.00	43.0 AV	54.0	-11.0	1.10 V	349	39.3	3.7
3	5091.90	52.3 PK	74.0	-21.7	1.10 V	349	47.9	4.4
4	5091.90	41.4 AV	54.0	-12.6	1.10 V	349	37.0	4.4
5	*5240.00	118.4 PK			1.10 V	349	114.3	4.1
6	*5240.00	108.2 AV			1.10 V	349	104.1	4.1
7	#10480.00	48.3 PK	68.2	-19.9	1.62 V	33	34.5	13.8
8	15720.00	47.8 PK	74.0	-26.2	1.50 V	328	34.1	13.7
9	15720.00	36.9 AV	54.0	-17.1	1.50 V	328	23.2	13.7

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.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

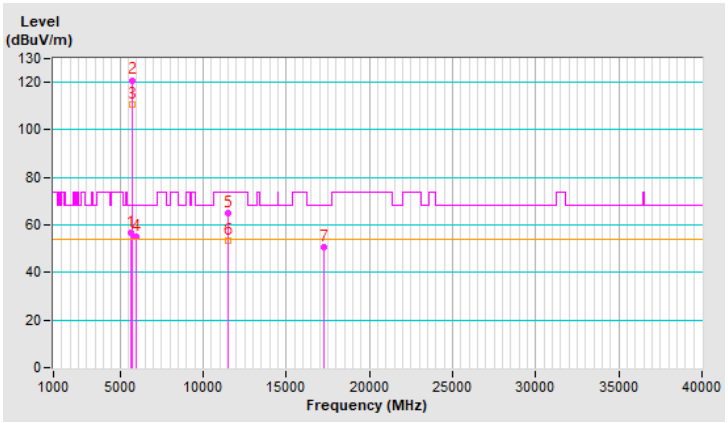


RF Mode	TX 802.11a	Channel	CH 149：5745 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	#5642.21	56.7 PK	68.2	-11.5	1.00 H	122	52.1	4.6
2	*5745.00	120.9 PK			1.00 H	122	116.0	4.9
3	*5745.00	110.7 AV			1.00 H	122	105.8	4.9
4	#5960.41	55.2 PK	68.2	-13.0	1.00 H	122	49.9	5.3
5	11490.00	65.1 PK	74.0	-8.9	1.62 H	178	50.3	14.8
6	11490.00	53.5 AV	54.0	-0.5	1.62 H	178	38.7	14.8
7	#17235.00	50.7 PK	68.2	-17.5	1.52 H	28	32.5	18.2

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.
6. " # ": The radiated frequency is out of the restricted band.

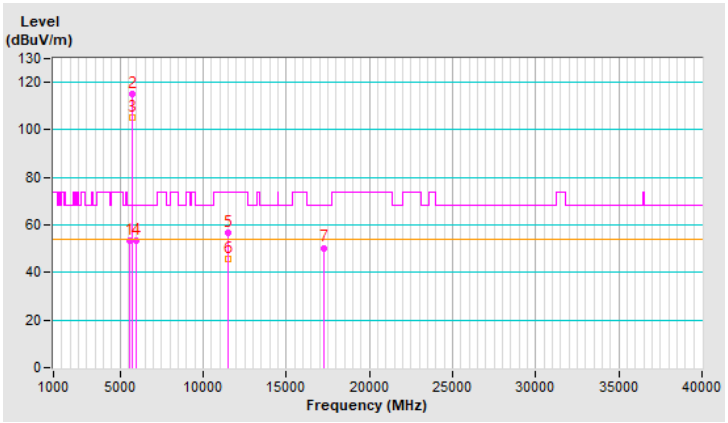


RF Mode	TX 802.11a	Channel	CH 149：5745 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	#5614.91	53.3 PK	68.2	-14.9	3.86 V	43	48.7	4.6
2	*5745.00	115.3 PK			3.86 V	43	110.4	4.9
3	*5745.00	105.4 AV			3.86 V	43	100.5	4.9
4	#5942.37	53.4 PK	68.2	-14.8	3.86 V	43	48.1	5.3
5	11490.00	56.6 PK	74.0	-17.4	1.50 V	163	41.8	14.8
6	11490.00	45.8 AV	54.0	-8.2	1.50 V	163	31.0	14.8
7	#17235.00	50.4 PK	68.2	-17.8	3.62 V	163	32.2	18.2

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.
6. " # ": The radiated frequency is out of the restricted band.

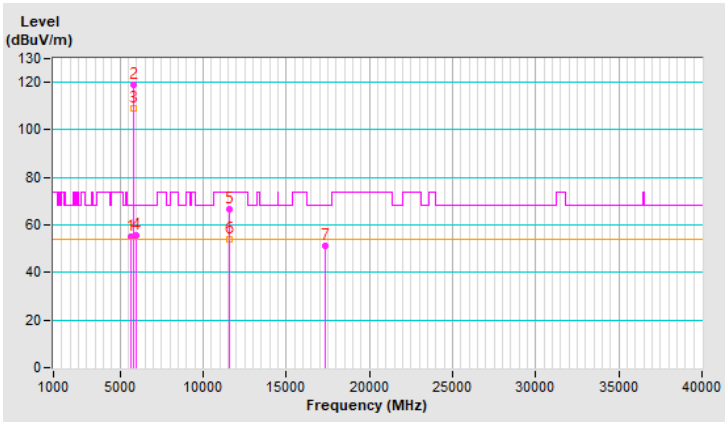


RF Mode	TX 802.11a	Channel	CH 157：5785 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	#5627.34	55.0 PK	68.2	-13.2	1.00 H	126	50.4	4.6
2	*5785.00	119.1 PK			1.00 H	126	114.1	5.0
3	*5785.00	109.2 AV			1.00 H	126	104.2	5.0
4	#5960.03	55.6 PK	68.2	-12.6	1.00 H	126	50.3	5.3
5	11570.00	66.8 PK	74.0	-7.2	1.58 H	192	51.8	15.0
6	11570.00	53.8 AV	54.0	-0.2	1.58 H	192	38.8	15.0
7	#17355.00	51.1 PK	68.2	-17.1	1.56 H	34	32.5	18.6

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.
6. " # ": The radiated frequency is out of the restricted band.

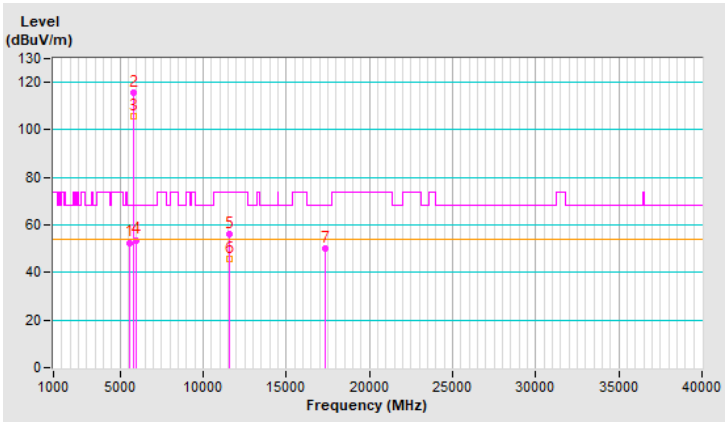


RF Mode	TX 802.11a	Channel	CH 157：5785 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	#5591.65	52.6 PK	68.2	-15.6	4.00 V	44	47.9	4.7
2	*5785.00	115.7 PK			4.00 V	44	110.7	5.0
3	*5785.00	105.5 AV			4.00 V	44	100.5	5.0
4	#5936.00	53.7 PK	68.2	-14.5	4.00 V	44	48.4	5.3
5	11570.00	56.4 PK	74.0	-17.6	1.44 V	164	41.4	15.0
6	11570.00	45.6 AV	54.0	-8.4	1.44 V	164	30.6	15.0
7	#17355.00	50.3 PK	68.2	-17.9	3.62 V	163	31.7	18.6

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.
6. " # ": The radiated frequency is out of the restricted band.

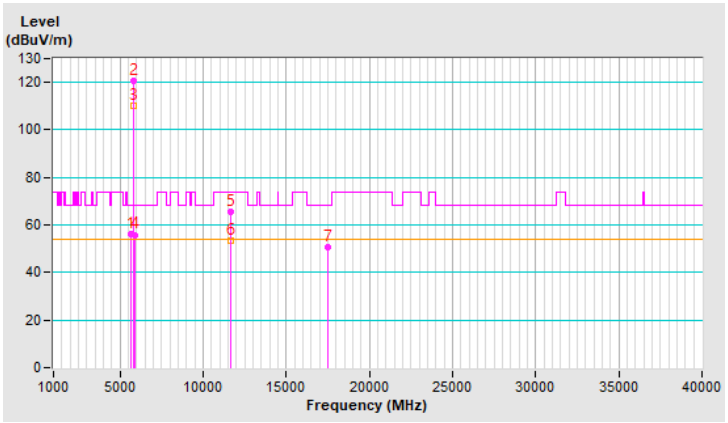


RF Mode	TX 802.11a	Channel	CH 165：5825 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	#5642.00	56.2 PK	68.2	-12.0	1.00 H	122	51.6	4.6
2	*5825.00	120.6 PK			1.00 H	122	115.5	5.1
3	*5825.00	110.2 AV			1.00 H	122	105.1	5.1
4	#5929.47	55.9 PK	68.2	-12.3	1.00 H	122	50.6	5.3
5	11650.00	65.7 PK	74.0	-8.3	1.45 H	184	50.8	14.9
6	11650.00	53.4 AV	54.0	-0.6	1.45 H	184	38.5	14.9
7	#17475.00	50.9 PK	68.2	-17.3	1.53 H	31	31.9	19.0

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.
6. " # ": The radiated frequency is out of the restricted band.

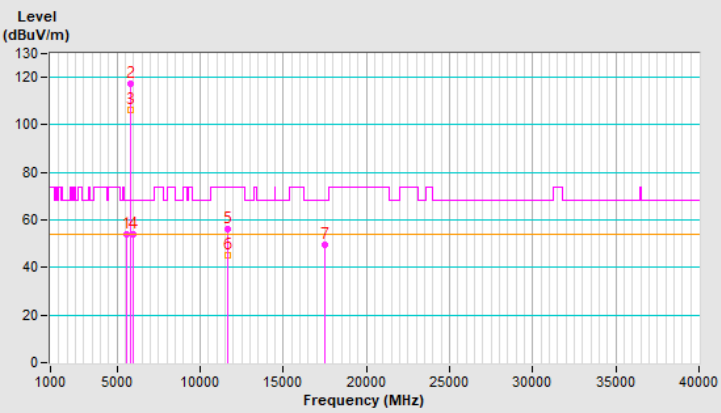


RF Mode	TX 802.11a	**Channel**	CH 165：5825 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	#5585.95	54.2 PK	68.2	-14.0	3.81 V	45	49.6	4.6
2	*5825.00	117.4 PK			3.81 V	45	112.3	5.1
3	*5825.00	106.5 AV			3.81 V	45	101.4	5.1
4	#5948.86	53.8 PK	68.2	-14.4	3.81 V	45	48.5	5.3
5	11650.00	56.0 PK	74.0	-18.0	1.49 V	167	41.1	14.9
6	11650.00	45.3 AV	54.0	-8.7	1.49 V	167	30.4	14.9
7	#17475.00	49.7 PK	68.2	-18.5	3.60 V	171	30.7	19.0

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.
6. " # ": The radiated frequency is out of the restricted band.

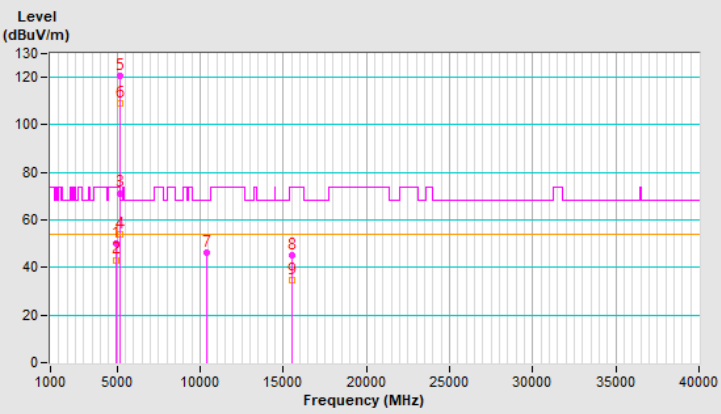


RF Mode	TX 802.11ac (VHT20)	Channel	CH 36：5180 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	4944.00	50.0 PK	74.0	-24.0	1.62 H	263	46.2	3.8
2	4944.00	43.2 AV	54.0	-10.8	1.62 H	263	39.4	3.8
3	5147.50	71.3 PK	74.0	-2.7	1.62 H	263	66.7	4.6
4	5147.50	53.8 AV	54.0	-0.2	1.62 H	263	49.2	4.6
5	*5180.00	120.5 PK			1.62 H	263	116.0	4.5
6	*5180.00	109.2 AV			1.62 H	263	104.7	4.5
7	#10360.00	46.2 PK	68.2	-22.0	1.59 H	269	32.6	13.6
8	15540.00	45.2 PK	74.0	-28.8	1.28 H	348	31.1	14.1
9	15540.00	34.6 AV	54.0	-19.4	1.28 H	348	20.5	14.1

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.
6. " # ": The radiated frequency is out of the restricted band.

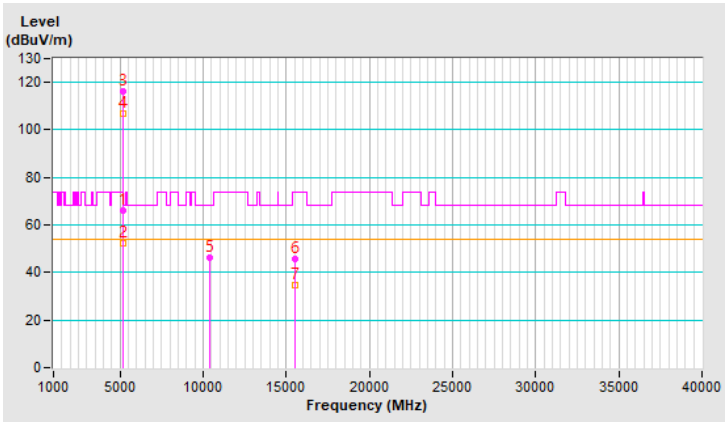


RF Mode	TX 802.11ac (VHT20)	**Channel**	CH 36：5180 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	5147.50	65.9 PK	74.0	-8.1	1.02 V	358	61.3	4.6
2	5147.50	52.2 AV	54.0	-1.8	1.02 V	358	47.6	4.6
3	*5180.00	116.2 PK			1.02 V	358	111.7	4.5
4	*5180.00	106.6 AV			1.02 V	358	102.1	4.5
5	#10360.00	46.4 PK	68.2	-21.8	1.64 V	25	32.8	13.6
6	15540.00	45.5 PK	74.0	-28.5	1.53 V	331	31.4	14.1
7	15540.00	34.9 AV	54.0	-19.1	1.53 V	331	20.8	14.1

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.
6. " # ": The radiated frequency is out of the restricted band.

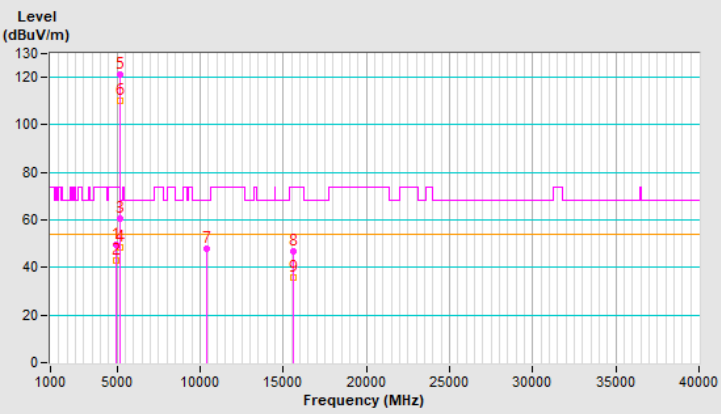


RF Mode	TX 802.11ac (VHT20)	Channel	CH 40：5200 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	4944.00	49.6 PK	74.0	-24.4	1.66 H	263	45.8	3.8
2	4944.00	43.1 AV	54.0	-10.9	1.66 H	263	39.3	3.8
3	5150.00	60.8 PK	74.0	-13.2	1.66 H	263	56.2	4.6
4	5150.00	48.3 AV	54.0	-5.7	1.66 H	263	43.7	4.6
5	*5200.00	121.3 PK			1.66 H	263	116.9	4.4
6	*5200.00	110.0 AV			1.66 H	263	105.6	4.4
7	#10400.00	48.0 PK	68.2	-20.2	1.50 H	272	34.3	13.7
8	15600.00	46.9 PK	74.0	-27.1	1.25 H	346	32.9	14.0
9	15600.00	35.7 AV	54.0	-18.3	1.25 H	346	21.7	14.0

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.
6. " # ": The radiated frequency is out of the restricted band.

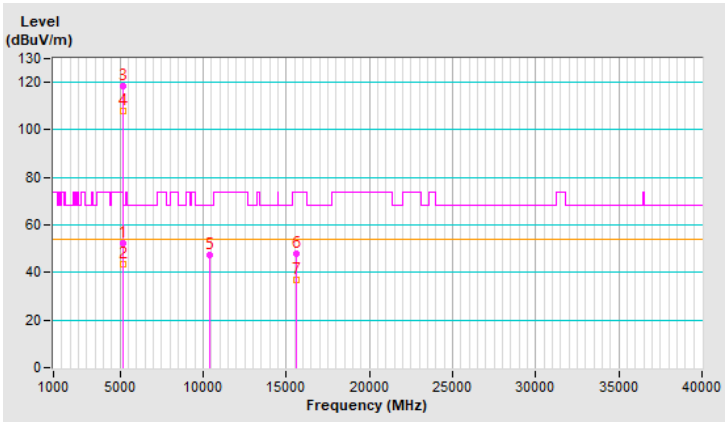


RF Mode	TX 802.11ac (VHT20)	**Channel**	CH 40：5200 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	52.2 PK	74.0	-21.8	1.04 V	357	47.6	4.6
2	5150.00	43.5 AV	54.0	-10.5	1.04 V	357	38.9	4.6
3	*5200.00	118.2 PK			1.04 V	357	113.8	4.4
4	*5200.00	108.0 AV			1.04 V	357	103.6	4.4
5	#10400.00	47.2 PK	68.2	-21.0	1.64 V	21	33.5	13.7
6	15600.00	47.7 PK	74.0	-26.3	1.46 V	335	33.7	14.0
7	15600.00	36.8 AV	54.0	-17.2	1.46 V	335	22.8	14.0

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.
6. " # ": The radiated frequency is out of the restricted band.

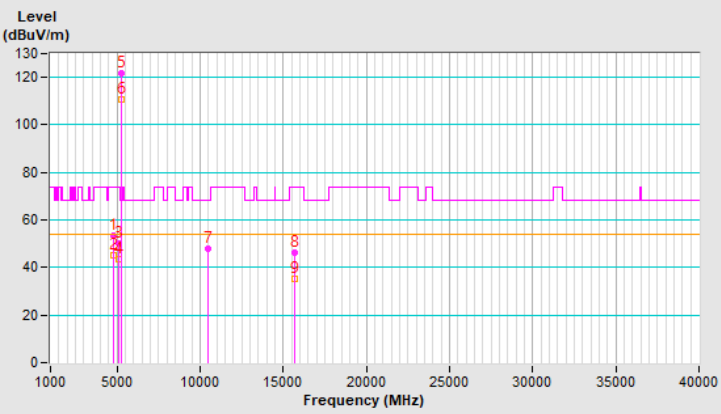


RF Mode	TX 802.11ac (VHT20)	**Channel**	CH 48：5240 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	4824.05	53.5 PK	74.0	-20.5	1.71 H	262	49.8	3.7
2	4824.05	44.9 AV	54.0	-9.1	1.71 H	262	41.2	3.7
3	5120.30	50.3 PK	74.0	-23.7	1.71 H	262	45.7	4.6
4	5120.30	43.5 AV	54.0	-10.5	1.71 H	262	38.9	4.6
5	*5240.00	121.8 PK			1.71 H	262	117.7	4.1
6	*5240.00	110.5 AV			1.71 H	262	106.4	4.1
7	#10480.00	47.7 PK	68.2	-20.5	1.62 H	259	33.9	13.8
8	15720.00	46.3 PK	74.0	-27.7	1.23 H	352	32.6	13.7
9	15720.00	35.3 AV	54.0	-18.7	1.23 H	352	21.6	13.7

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.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

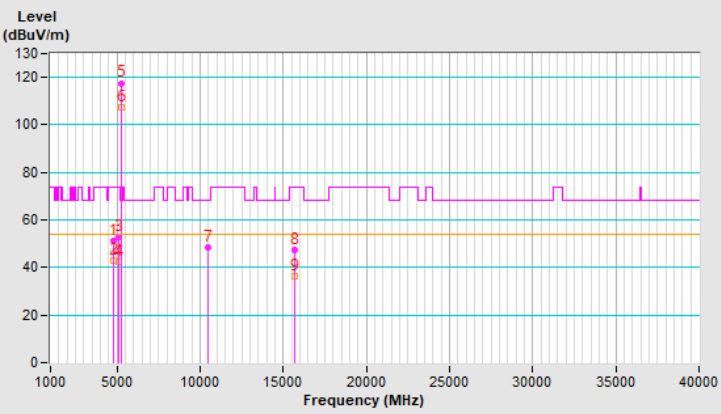


RF Mode	TX 802.11ac (VHT20)	**Channel**	CH 48：5240 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	4824.05	51.4 PK	74.0	-22.6	1.01 V	348	47.7	3.7
2	4824.05	43.1 AV	54.0	-10.9	1.01 V	348	39.4	3.7
3	5120.30	53.1 PK	74.0	-20.9	1.01 V	348	48.5	4.6
4	5120.30	42.5 AV	54.0	-11.5	1.01 V	348	37.9	4.6
5	*5240.00	117.6 PK			1.01 V	348	113.5	4.1
6	*5240.00	107.6 AV			1.01 V	348	103.5	4.1
7	#10480.00	48.4 PK	68.2	-19.8	1.59 V	35	34.6	13.8
8	15720.00	47.1 PK	74.0	-26.9	1.47 V	336	33.4	13.7
9	15720.00	36.2 AV	54.0	-17.8	1.47 V	336	22.5	13.7

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.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

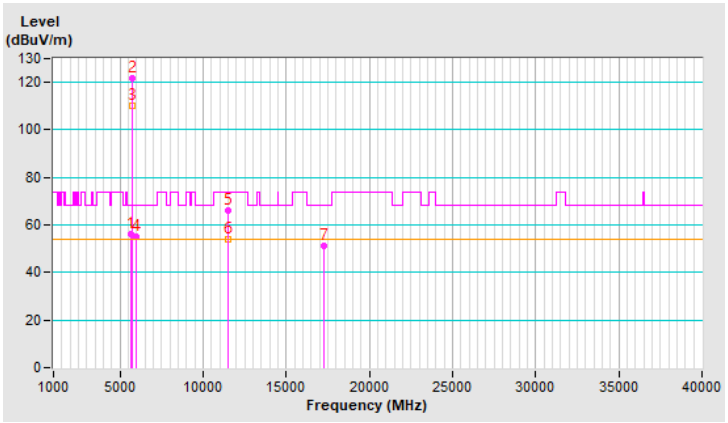


RF Mode	TX 802.11ac (VHT20)	Channel	CH 149：5745 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	#5648.41	56.0 PK	68.2	-12.2	1.00 H	122	51.4	4.6
2	*5745.00	121.8 PK			1.00 H	122	116.9	4.9
3	*5745.00	110.4 AV			1.00 H	122	105.5	4.9
4	#5943.88	55.0 PK	68.2	-13.2	1.00 H	122	49.7	5.3
5	11490.00	66.2 PK	74.0	-7.8	1.50 H	178	51.4	14.8
6	**11490.00**	**53.9 AV**	**54.0**	**-0.1**	**1.50 H**	**178**	**39.1**	**14.8**
7	#17235.00	51.1 PK	68.2	-17.1	1.52 H	44	32.9	18.2

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.
6. " # ": The radiated frequency is out of the restricted band.

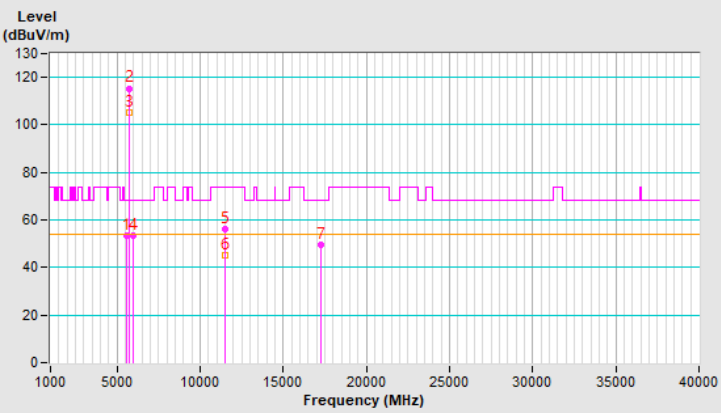


RF Mode	TX 802.11ac (VHT20)	**Channel**	CH 149：5745 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	#5561.32	53.6 PK	68.2	-14.6	3.86 V	40	49.1	4.5
2	*5745.00	115.4 PK			3.86 V	40	110.5	4.9
3	*5745.00	105.0 AV			3.86 V	40	100.1	4.9
4	#5976.88	53.6 PK	68.2	-14.6	3.86 V	40	48.3	5.3
5	11490.00	56.1 PK	74.0	-17.9	1.46 V	175	41.3	14.8
6	11490.00	45.3 AV	54.0	-8.7	1.46 V	175	30.5	14.8
7	#17235.00	49.6 PK	68.2	-18.6	3.62 V	166	31.4	18.2

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.
6. " # ": The radiated frequency is out of the restricted band.

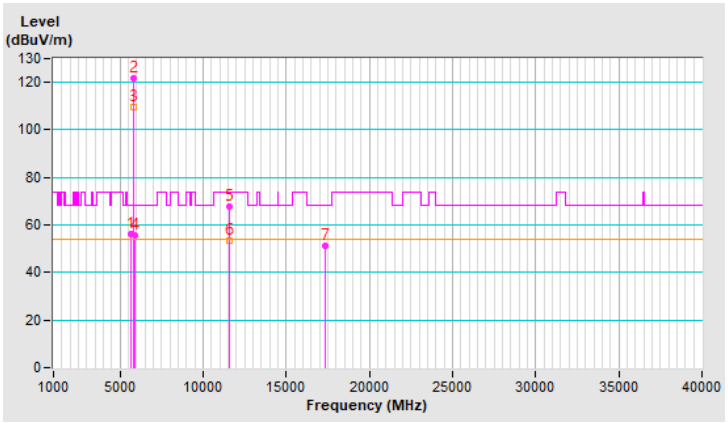


RF Mode	TX 802.11ac (VHT20)	**Channel**	CH 157：5785 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	#5634.55	56.4 PK	68.2	-11.8	1.00 H	123	51.8	4.6
2	*5785.00	121.6 PK			1.00 H	123	116.6	5.0
3	*5785.00	109.5 AV			1.00 H	123	104.5	5.0
4	#5933.97	55.5 PK	68.2	-12.7	1.00 H	123	50.2	5.3
5	11570.00	67.6 PK	74.0	-6.4	1.44 H	185	52.6	15.0
6	11570.00	53.5 AV	54.0	-0.5	1.44 H	185	38.5	15.0
7	#17355.00	51.2 PK	68.2	-17.0	1.57 H	39	32.6	18.6

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.
6. " # ": The radiated frequency is out of the restricted band.

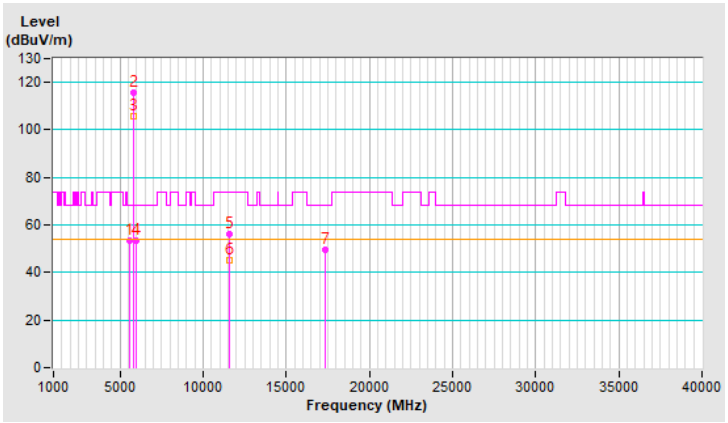


RF Mode	TX 802.11ac (VHT20)	**Channel**	CH 157：5785 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	#5607.17	53.5 PK	68.2	-14.7	3.98 V	44	48.8	4.7
2	*5785.00	115.5 PK			3.98 V	44	110.5	5.0
3	*5785.00	105.5 AV			3.98 V	44	100.5	5.0
4	#5956.59	53.3 PK	68.2	-14.9	3.98 V	44	48.0	5.3
5	11570.00	56.1 PK	74.0	-17.9	1.50 V	167	41.1	15.0
6	11570.00	45.4 AV	54.0	-8.6	1.50 V	167	30.4	15.0
7	#17355.00	49.5 PK	68.2	-18.7	3.63 V	177	30.9	18.6

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.
6. " # ": The radiated frequency is out of the restricted band.

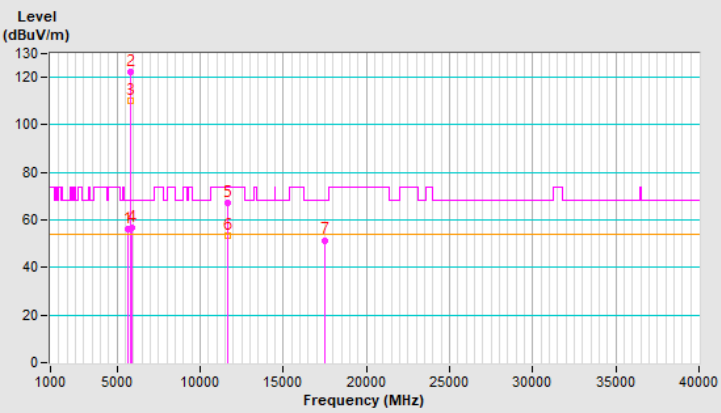


RF Mode	TX 802.11ac (VHT20)	**Channel**	CH 165：5825 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	#5632.92	56.0 PK	68.2	-12.2	1.01 H	128	51.4	4.6
2	*5825.00	122.1 PK			1.01 H	128	117.0	5.1
3	*5825.00	110.1 AV			1.01 H	128	105.0	5.1
4	#5932.36	56.5 PK	68.2	-11.7	1.01 H	128	51.2	5.3
5	11650.00	67.3 PK	74.0	-6.7	1.45 H	183	52.4	14.9
6	11650.00	53.4 AV	54.0	-0.6	1.45 H	183	38.5	14.9
7	#17475.00	51.5 PK	68.2	-16.7	1.50 H	40	32.5	19.0

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.
6. " # ": The radiated frequency is out of the restricted band.

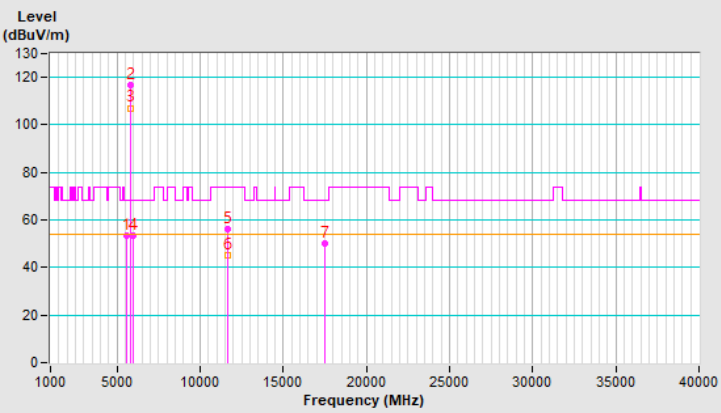


RF Mode	TX 802.11ac (VHT20)	**Channel**	CH 165：5825 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	#5593.78	53.5 PK	68.2	-14.7	3.97 V	36	48.8	4.7
2	*5825.00	116.9 PK			3.97 V	36	111.8	5.1
3	*5825.00	107.1 AV			3.97 V	36	102.0	5.1
4	#5949.65	53.4 PK	68.2	-14.8	3.97 V	36	48.1	5.3
5	11650.00	56.0 PK	74.0	-18.0	1.48 V	161	41.1	14.9
6	11650.00	45.0 AV	54.0	-9.0	1.48 V	161	30.1	14.9
7	#17475.00	50.0 PK	68.2	-18.2	3.64 V	171	31.0	19.0

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.
6. " # ": The radiated frequency is out of the restricted band.

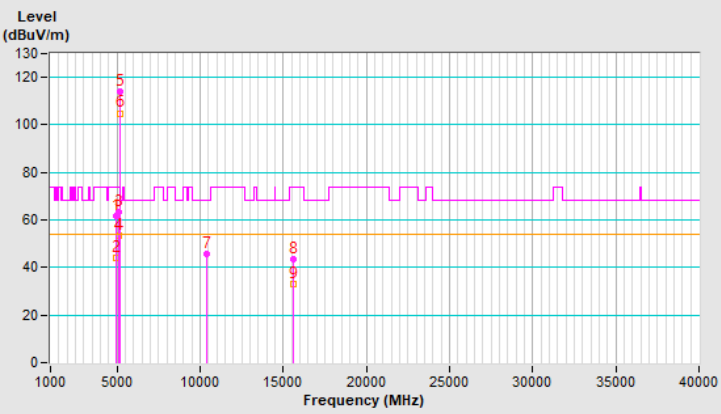


RF Mode	TX 802.11ac (VHT40)	**Channel**	CH 38：5190 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	4944.00	61.5 PK	74.0	-12.5	1.60 H	270	57.7	3.8
2	4944.00	43.8 AV	54.0	-10.2	1.60 H	270	40.0	3.8
3	5140.34	63.1 PK	74.0	-10.9	1.60 H	270	58.5	4.6
4	5140.34	53.4 AV	54.0	-0.6	1.60 H	270	48.8	4.6
5	*5190.00	113.9 PK			1.60 H	270	109.5	4.4
6	*5190.00	104.9 AV			1.60 H	270	100.5	4.4
7	#10380.00	45.5 PK	68.2	-22.7	1.55 H	268	31.9	13.6
8	15570.00	43.5 PK	74.0	-30.5	1.31 H	335	29.5	14.0
9	15570.00	33.2 AV	54.0	-20.8	1.31 H	335	19.2	14.0

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.
6. " # ": The radiated frequency is out of the restricted band.

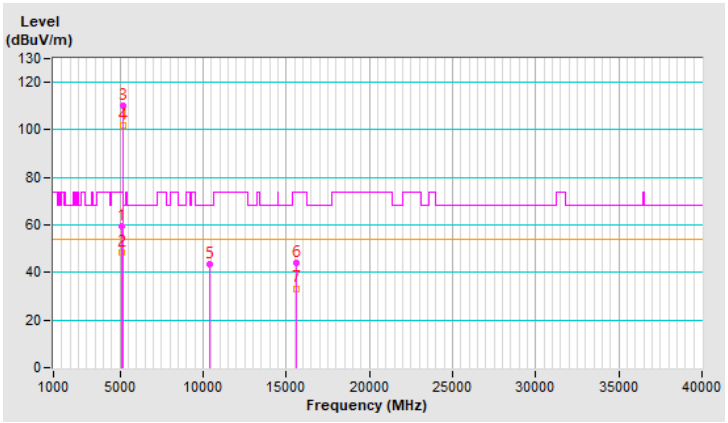


RF Mode	TX 802.11ac (VHT40)	**Channel**	CH 38：5190 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	5140.34	59.7 PK	74.0	-14.3	1.21 V	358	55.1	4.6
2	5140.34	48.6 AV	54.0	-5.4	1.21 V	358	44.0	4.6
3	*5190.00	110.4 PK			1.21 V	358	106.0	4.4
4	*5190.00	101.8 AV			1.21 V	358	97.4	4.4
5	#10380.00	43.7 PK	68.2	-24.5	1.70 V	26	30.1	13.6
6	15570.00	43.8 PK	74.0	-30.2	1.47 V	330	29.8	14.0
7	15570.00	33.3 AV	54.0	-20.7	1.47 V	330	19.3	14.0

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.
6. " # ": The radiated frequency is out of the restricted band.

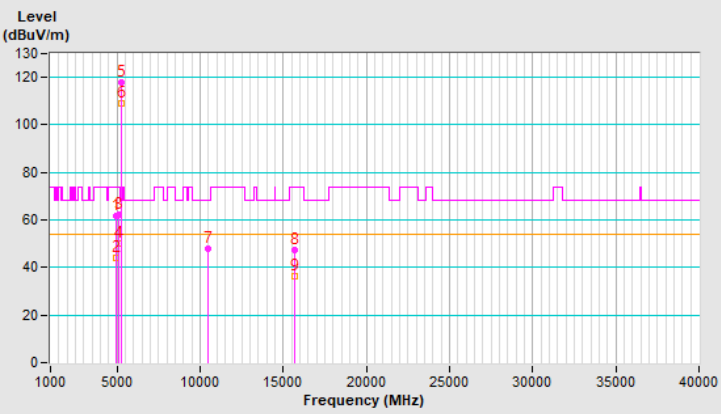


RF Mode	TX 802.11ac (VHT40)	Channel	CH 46：5230 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	4944.00	61.7 PK	74.0	-12.3	1.63 H	270	57.9	3.8
2	4944.00	43.9 AV	54.0	-10.1	1.63 H	270	40.1	3.8
3	5144.00	62.2 PK	74.0	-11.8	1.63 H	270	57.6	4.6
4	5144.00	50.0 AV	54.0	-4.0	1.63 H	270	45.4	4.6
5	*5230.00	117.9 PK			1.63 H	270	113.7	4.2
6	*5230.00	109.3 AV			1.63 H	270	105.1	4.2
7	#10460.00	47.8 PK	68.2	-20.4	1.53 H	272	34.0	13.8
8	15690.00	47.2 PK	74.0	-26.8	1.22 H	349	33.4	13.8
9	15690.00	36.2 AV	54.0	-17.8	1.22 H	349	22.4	13.8

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.
6. " # ": The radiated frequency is out of the restricted band.

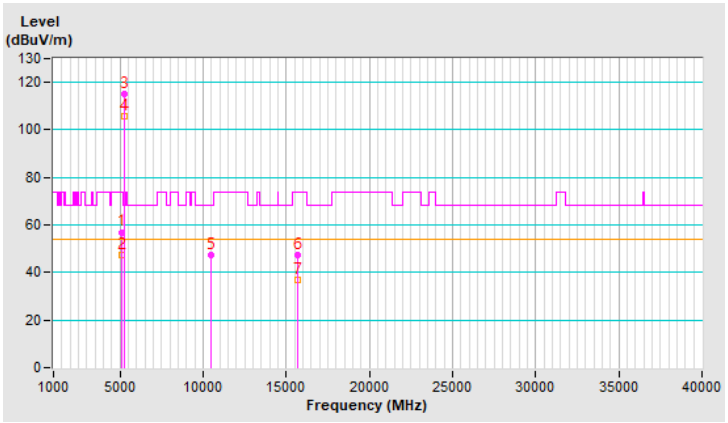


RF Mode	TX 802.11ac (VHT40)	**Channel**	CH 46：5230 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	5137.15	57.0 PK	74.0	-17.0	1.10 V	348	52.4	4.6
2	5137.15	47.2 AV	54.0	-6.8	1.10 V	348	42.6	4.6
3	*5230.00	115.3 PK			1.10 V	348	111.1	4.2
4	*5230.00	105.5 AV			1.10 V	348	101.3	4.2
5	#10460.00	47.1 PK	68.2	-21.1	1.62 V	9	33.3	13.8
6	15690.00	47.6 PK	74.0	-26.4	1.48 V	344	33.8	13.8
7	15690.00	37.0 AV	54.0	-17.0	1.48 V	344	23.2	13.8

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.
6. " # ": The radiated frequency is out of the restricted band.

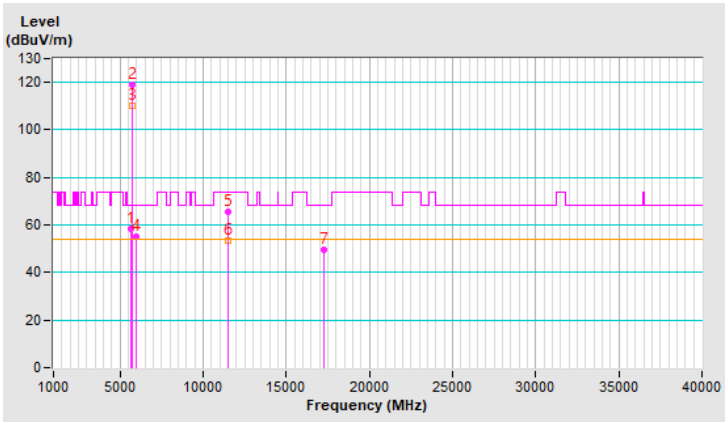


RF Mode	TX 802.11ac (VHT40)	Channel	CH 151：5755 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	#5638.24	58.6 PK	68.2	-9.6	1.12 H	133	54.0	4.6
2	*5755.00	119.1 PK			1.12 H	133	114.2	4.9
3	*5755.00	109.9 AV			1.12 H	133	105.0	4.9
4	#5953.54	55.2 PK	68.2	-13.0	1.12 H	133	49.9	5.3
5	11510.00	65.7 PK	74.0	-8.3	1.43 H	184	50.9	14.8
6	11510.00	53.5 AV	54.0	-0.5	1.43 H	184	38.7	14.8
7	#17265.00	49.6 PK	68.2	-18.6	1.49 H	52	31.4	18.2

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.
6. " # ": The radiated frequency is out of the restricted band.

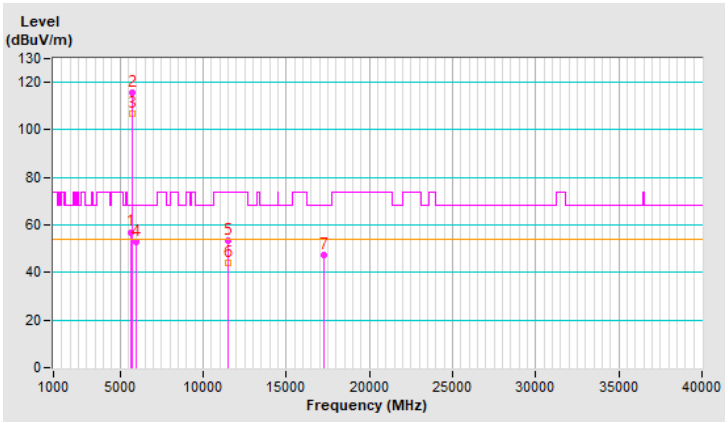


RF Mode	TX 802.11ac (VHT40)	**Channel**	CH 151：5755 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	#5644.52	57.0 PK	68.2	-11.2	3.88 V	36	52.4	4.6
2	*5755.00	115.8 PK			3.88 V	36	110.9	4.9
3	*5755.00	106.7 AV			3.88 V	36	101.8	4.9
4	#5955.50	53.0 PK	68.2	-15.2	3.88 V	36	47.7	5.3
5	11510.00	53.3 PK	74.0	-20.7	1.56 V	179	38.5	14.8
6	11510.00	43.8 AV	54.0	-10.2	1.56 V	179	29.0	14.8
7	#17265.00	47.5 PK	68.2	-20.7	3.67 V	174	29.3	18.2

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.
6. " # ": The radiated frequency is out of the restricted band.

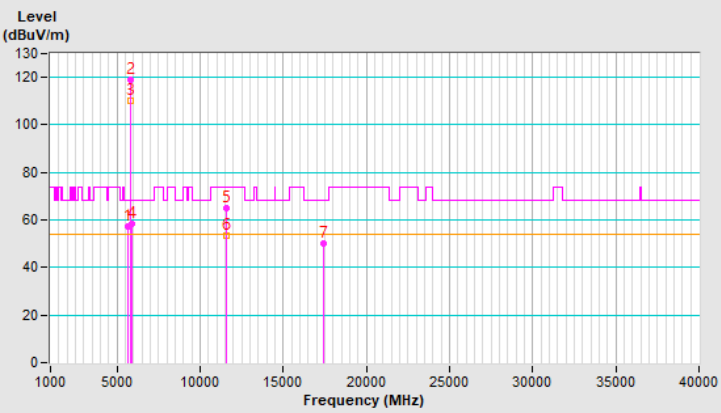


RF Mode	TX 802.11ac (VHT40)	**Channel**	CH 159：5795 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	#5636.31	57.1 PK	68.2	-11.1	1.00 H	138	52.5	4.6
2	*5795.00	118.8 PK			1.00 H	138	113.8	5.0
3	*5795.00	109.9 AV			1.00 H	138	104.9	5.0
4	#5927.96	58.3 PK	68.2	-9.9	1.00 H	138	53.0	5.3
5	11590.00	65.2 PK	74.0	-8.8	1.51 H	184	50.1	15.1
6	11590.00	53.5 AV	54.0	-0.5	1.51 H	184	38.4	15.1
7	#17385.00	50.2 PK	68.2	-18.0	1.53 H	44	31.4	18.8

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.
6. " # ": The radiated frequency is out of the restricted band.

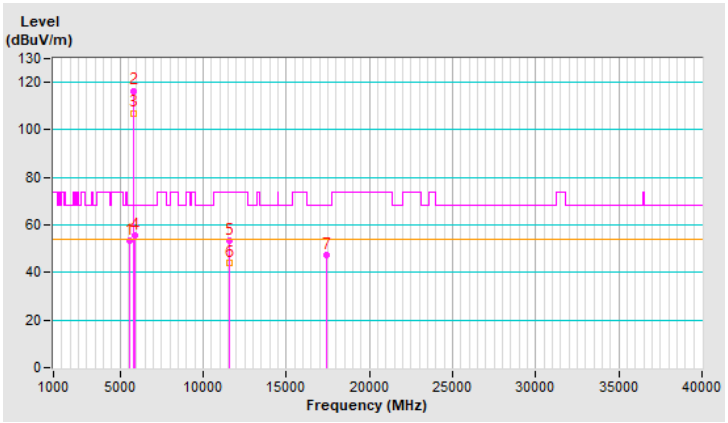


RF Mode	TX 802.11ac (VHT40)	**Channel**	CH 159：5795 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

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	#5580.86	53.6 PK	68.2	-14.6	3.78 V	46	49.0	4.6
2	*5795.00	116.5 PK			3.78 V	46	111.5	5.0
3	*5795.00	107.1 AV			3.78 V	46	102.1	5.0
4	#5925.35	55.8 PK	68.2	-12.4	3.78 V	46	50.5	5.3
5	11590.00	53.5 PK	74.0	-20.5	1.53 V	180	38.4	15.1
6	11590.00	43.8 AV	54.0	-10.2	1.53 V	180	28.7	15.1
7	#17385.00	47.3 PK	68.2	-20.9	3.71 V	190	28.5	18.8

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.
6. " # ": The radiated frequency is out of the restricted band.

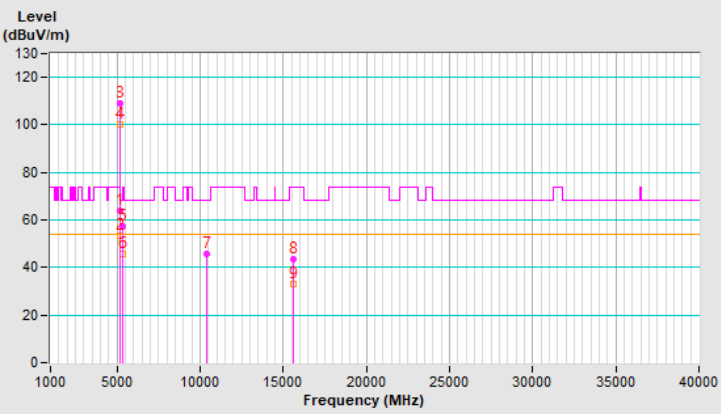


RF Mode	TX 802.11ac (VHT80)	Channel	CH 42：5210 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	63.8 PK	74.0	-10.2	1.37 H	249	59.2	4.6
2	5150.00	53.5 AV	54.0	-0.5	1.37 H	249	48.9	4.6
3	*5210.00	109.3 PK			1.37 H	249	105.0	4.3
4	*5210.00	100.0 AV			1.37 H	249	95.7	4.3
5	5350.00	57.5 PK	74.0	-16.5	1.37 H	249	53.2	4.3
6	5350.00	45.9 AV	54.0	-8.1	1.37 H	249	41.6	4.3
7	#10420.00	45.9 PK	68.2	-22.3	1.50 H	277	32.2	13.7
8	15630.00	43.5 PK	74.0	-30.5	1.27 H	335	29.6	13.9
9	15630.00	33.0 AV	54.0	-21.0	1.27 H	335	19.1	13.9

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.
6. " # ": The radiated frequency is out of the restricted band.

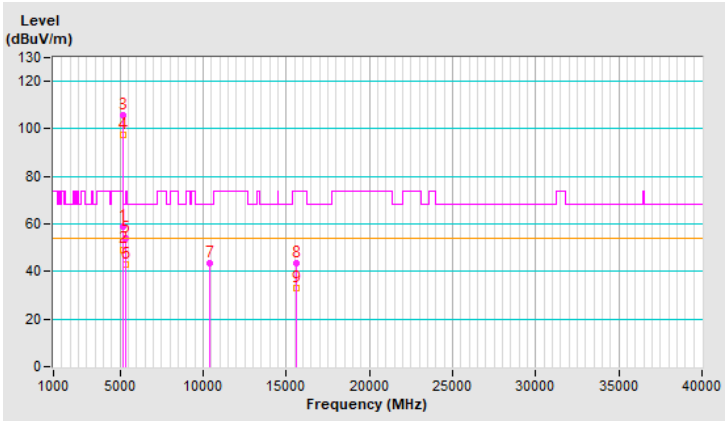


RF Mode	TX 802.11ac (VHT80)	Channel	CH 42：5210 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	59.1 PK	74.0	-14.9	1.00 V	357	54.5	4.6
2	5150.00	49.3 AV	54.0	-4.7	1.00 V	357	44.7	4.6
3	*5210.00	105.8 PK			1.00 V	357	101.5	4.3
4	*5210.00	97.6 AV			1.00 V	357	93.3	4.3
5	5352.80	54.0 PK	74.0	-20.0	1.00 V	357	49.7	4.3
6	5352.80	43.0 AV	54.0	-11.0	1.00 V	357	38.7	4.3
7	#10420.00	43.4 PK	68.2	-24.8	1.76 V	42	29.7	13.7
8	15630.00	43.7 PK	74.0	-30.3	1.53 V	339	29.8	13.9
9	15630.00	33.2 AV	54.0	-20.8	1.53 V	339	19.3	13.9

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.
6. " # ": The radiated frequency is out of the restricted band.

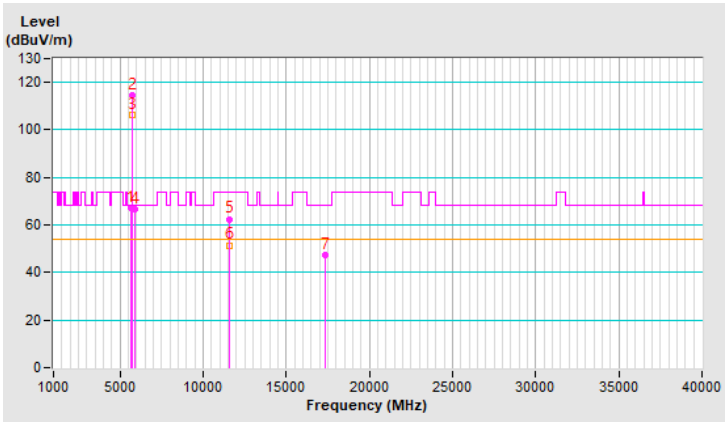


RF Mode	TX 802.11ac (VHT80)	Channel	CH 155：5775 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power (System)	120Vac, 60Hz	Environmental Conditions	25°C, 66% RH
Tested By	Vic Huang		

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	#5633.04	67.3 PK	68.2	-0.9	1.07 H	122	62.7	4.6
2	*5775.00	114.6 PK			1.07 H	122	109.6	5.0
3	*5775.00	106.1 AV			1.07 H	122	101.1	5.0
4	#5933.22	66.8 PK	68.2	-1.4	1.07 H	122	61.5	5.3
5	11550.00	62.5 PK	74.0	-11.5	1.49 H	182	47.6	14.9
6	11550.00	51.5 AV	54.0	-2.5	1.49 H	182	36.6	14.9
7	#17325.00	47.5 PK	68.2	-20.7	1.44 H	61	29.0	18.5

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.
6. " # ": The radiated frequency is out of the restricted band.

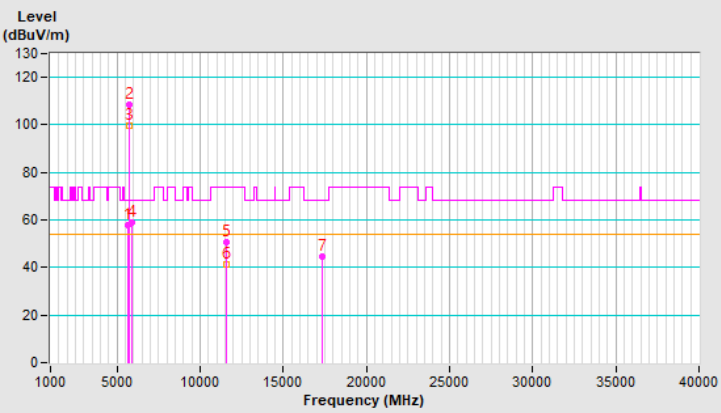


RF Mode	TX 802.11ac (VHT80)	**Channel**	CH 155：5775 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power (System)	120Vac, 60Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Vic Huang		

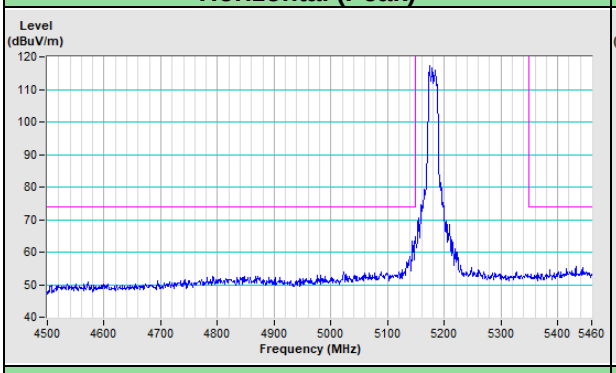
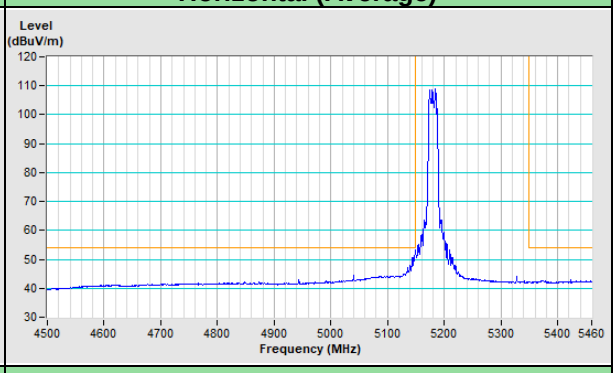
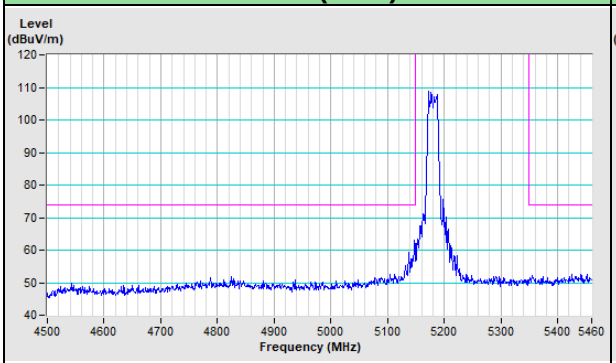
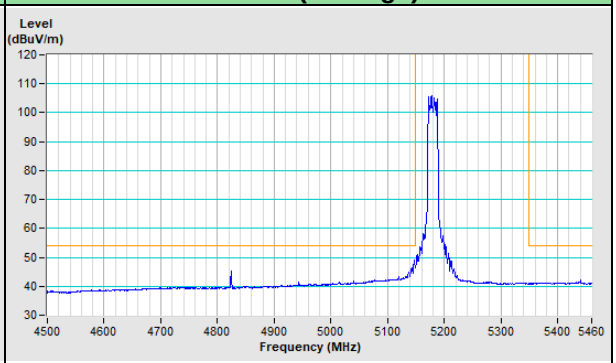
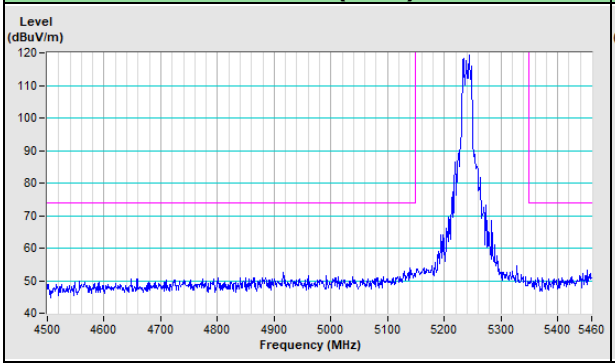
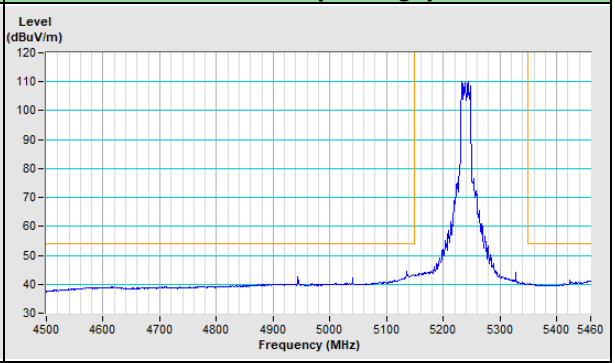
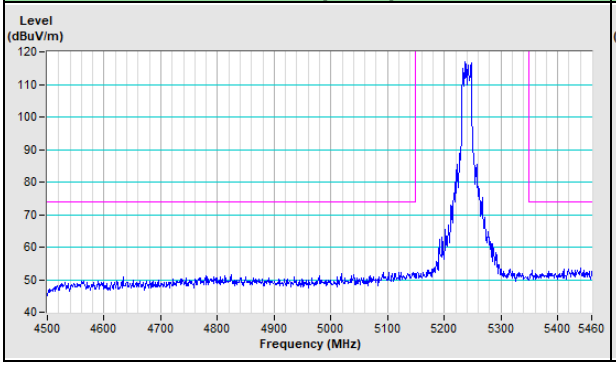
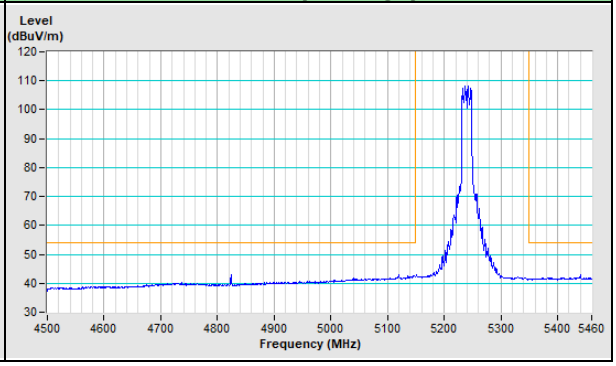
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	#5649.94	57.9 PK	68.2	-10.3	3.93 V	132	53.3	4.6
2	*5775.00	108.6 PK			3.93 V	132	103.6	5.0
3	*5775.00	99.6 AV			3.93 V	132	94.6	5.0
4	#5925.69	58.8 PK	68.2	-9.4	3.93 V	132	53.5	5.3
5	11550.00	50.8 PK	74.0	-23.2	1.54 V	181	35.9	14.9
6	11550.00	41.5 AV	54.0	-12.5	1.54 V	181	26.6	14.9
7	#17325.00	44.6 PK	68.2	-23.6	3.72 V	190	26.1	18.5

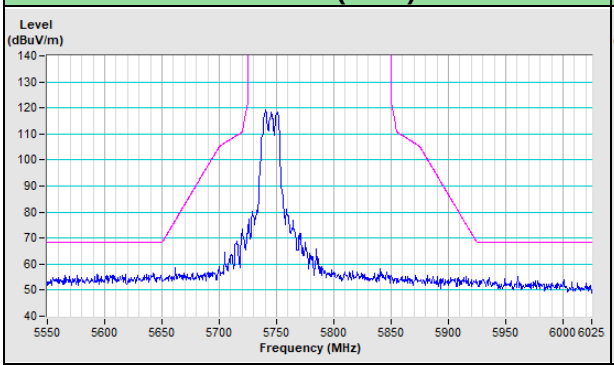
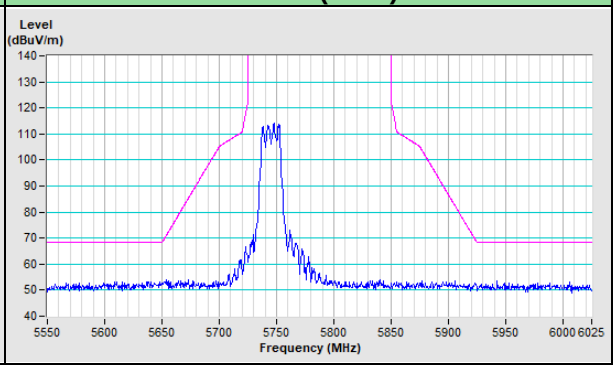
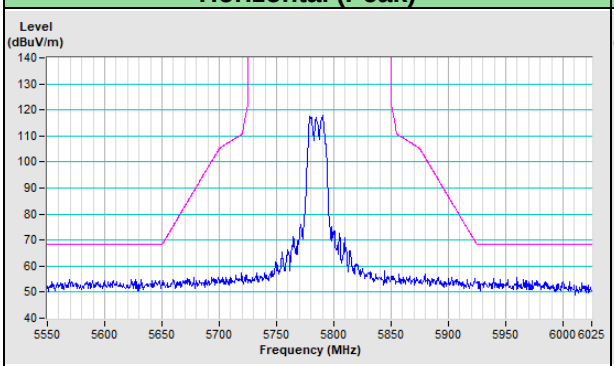
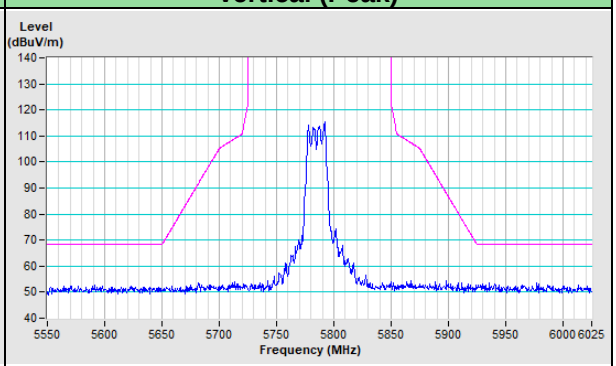
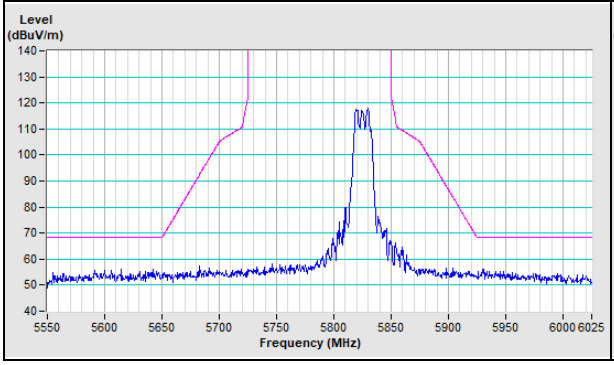
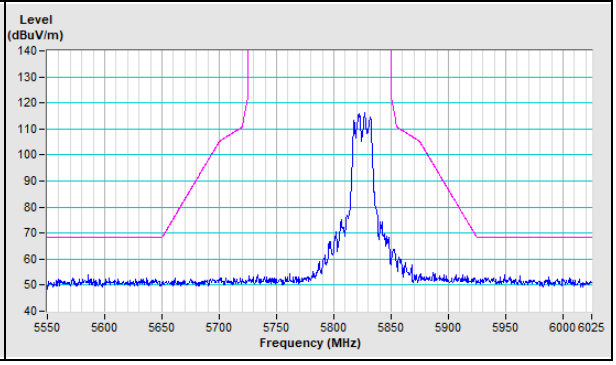
Remarks:

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.
6. " # ": The radiated frequency is out of the restricted band.



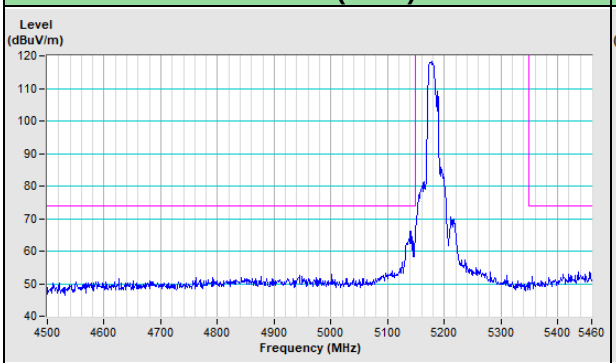
Plot of Band Edge

802.11a Channel 36	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
802.11a Channel 48	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

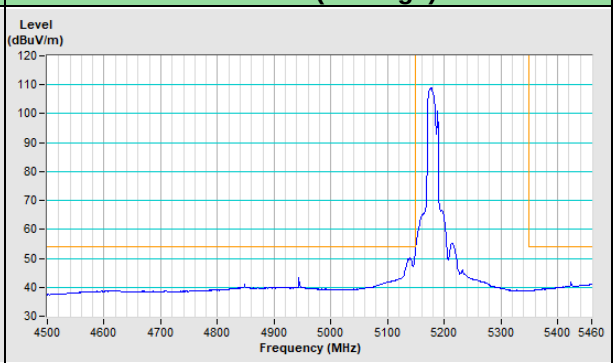
802.11a Channel 149	
Horizontal (Peak)	Vertical (Peak)
	
802.11a Channel 157	
Horizontal (Peak)	Vertical (Peak)
	
802.11a Channel 165	
Horizontal (Peak)	Vertical (Peak)
	

802.11ac (VHT20) Channel 36

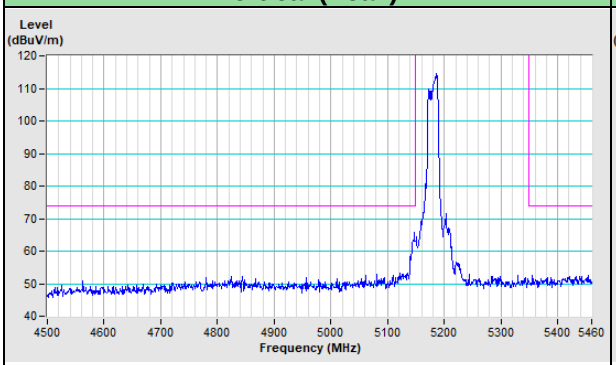
Horizontal (Peak)



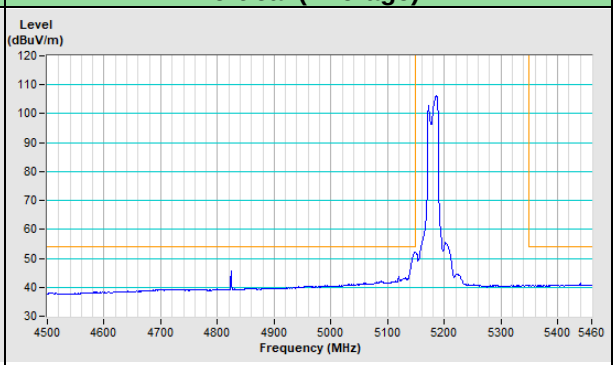
Horizontal (Average)



Vertical (Peak)

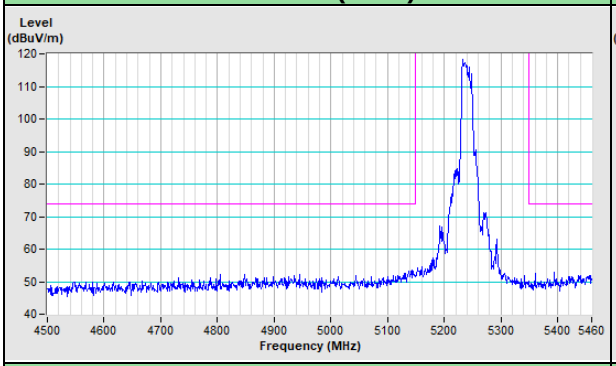


Vertical (Average)

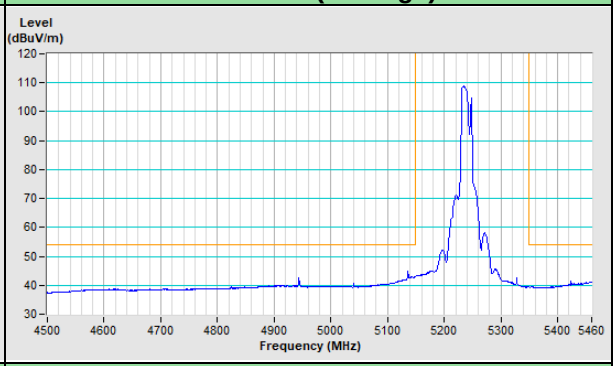


802.11ac (VHT20) Channel 48

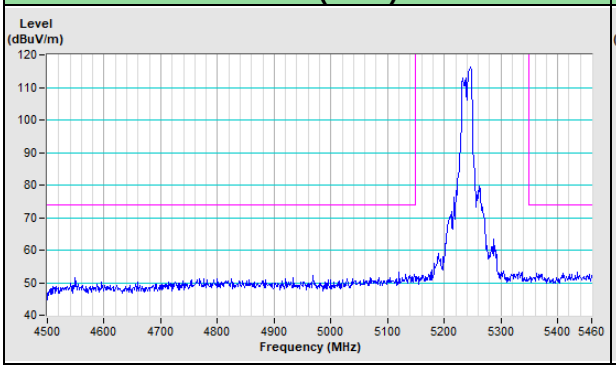
Horizontal (Peak)



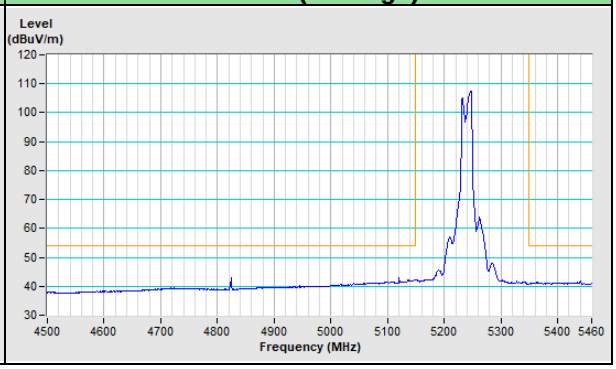
Horizontal (Average)

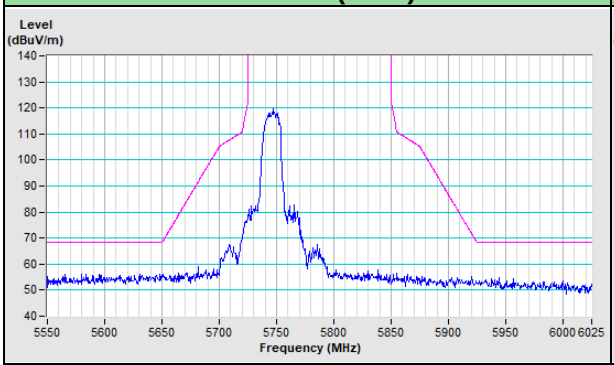
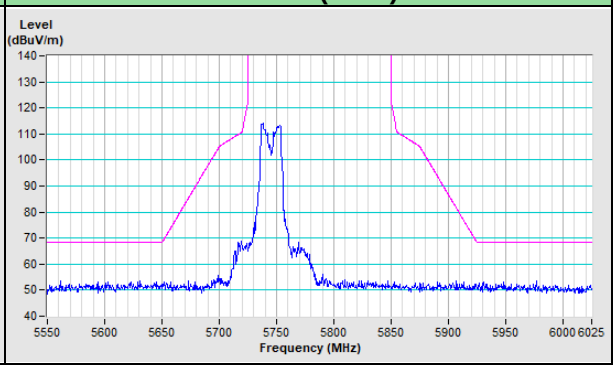
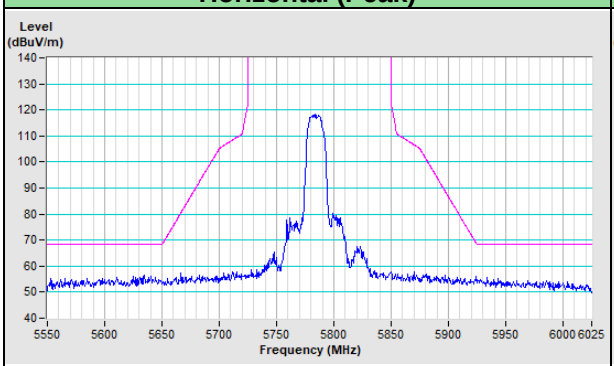
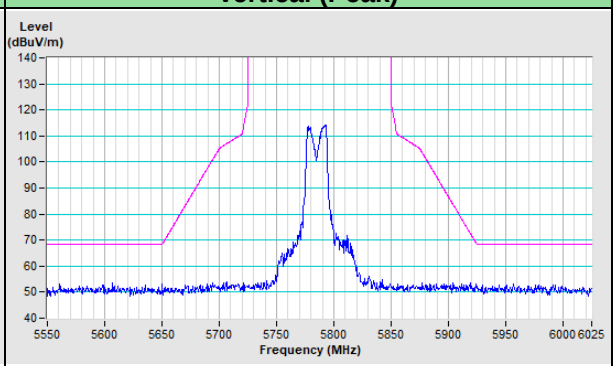
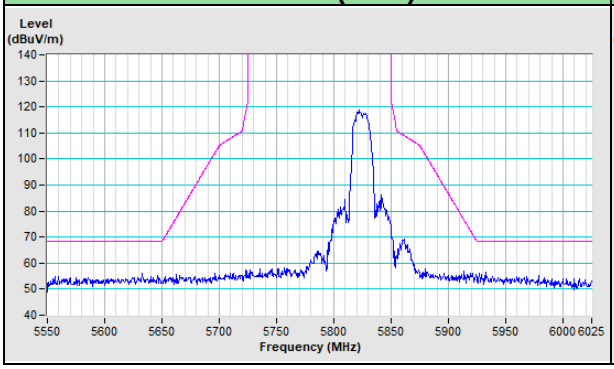
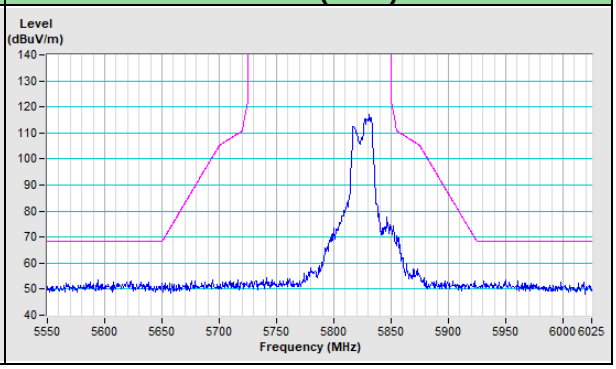


Vertical (Peak)



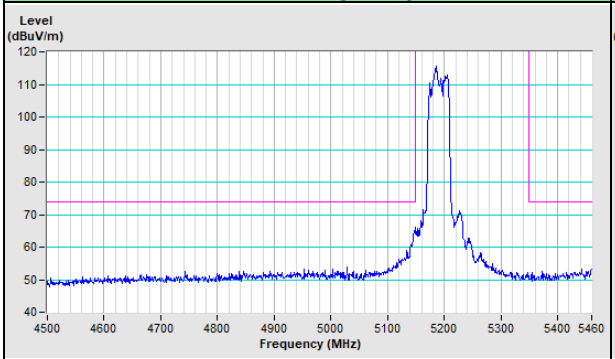
Vertical (Average)



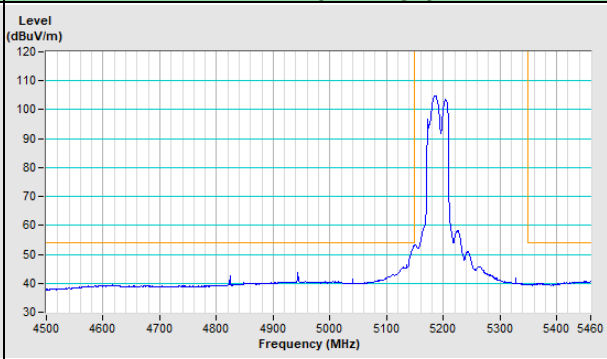
802.11ac (VHT20) Channel 149	
Horizontal (Peak)	Vertical (Peak)
	
802.11ac (VHT20) Channel 157	
Horizontal (Peak)	Vertical (Peak)
	
802.11ac (VHT20) Channel 165	
Horizontal (Peak)	Vertical (Peak)
	

802.11ac (VHT40) Channel 38

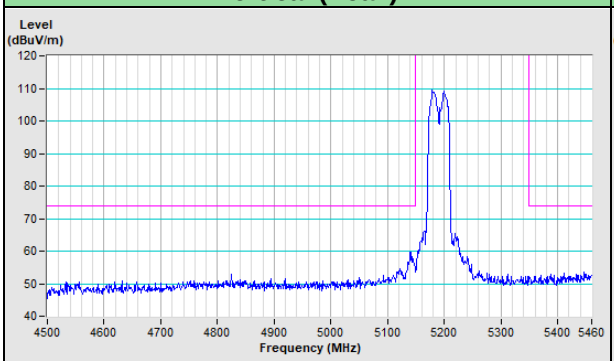
Horizontal (Peak)



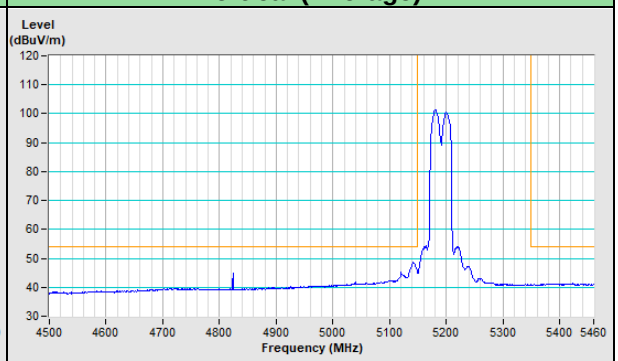
Horizontal (Average)



Vertical (Peak)

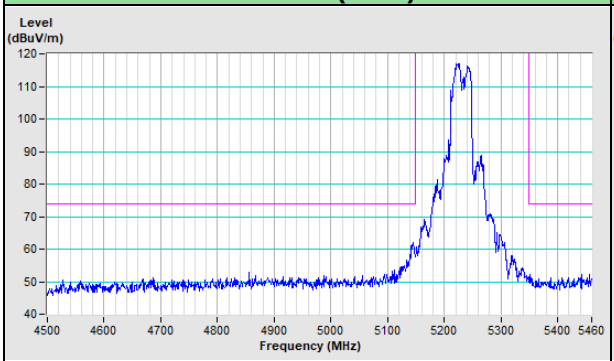


Vertical (Average)

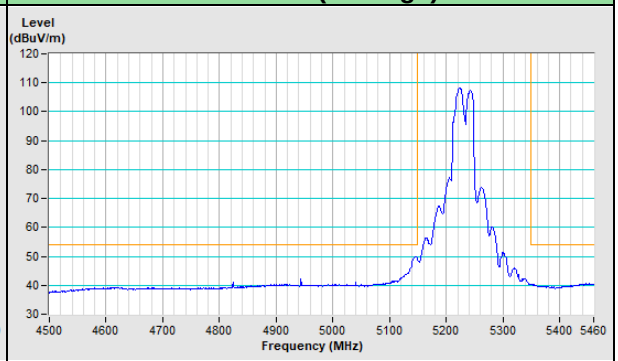


802.11ac (VHT40) Channel 46

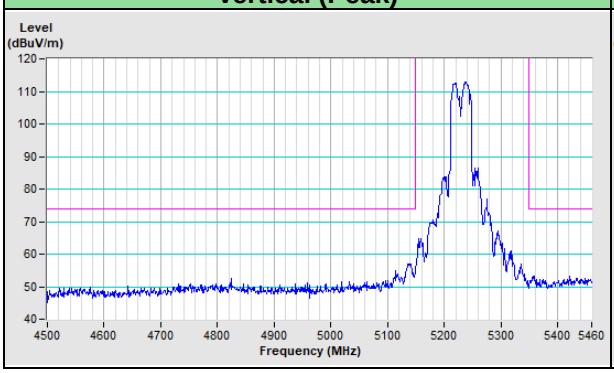
Horizontal (Peak)



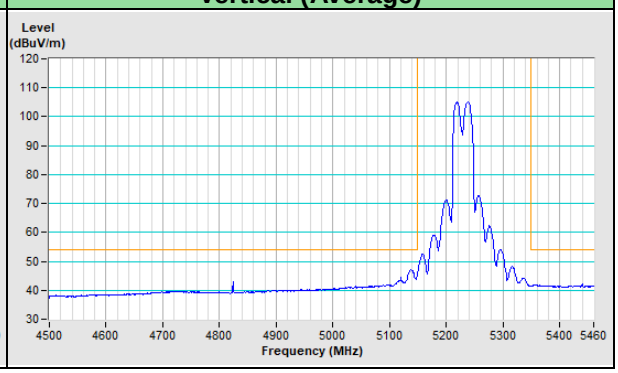
Horizontal (Average)

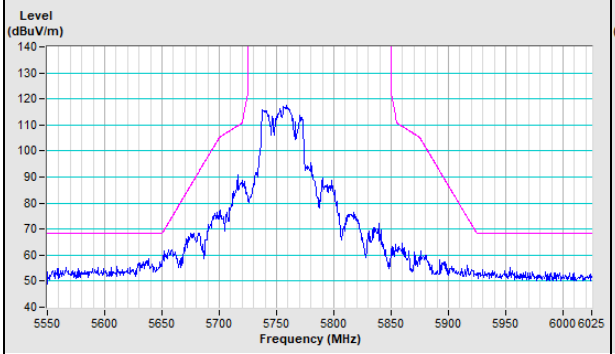
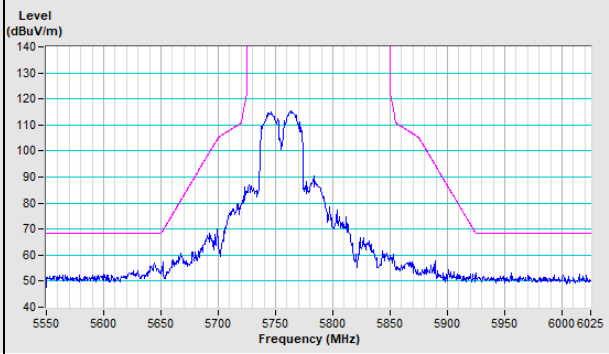
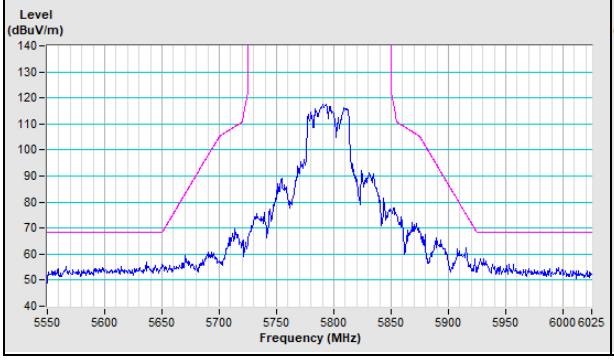
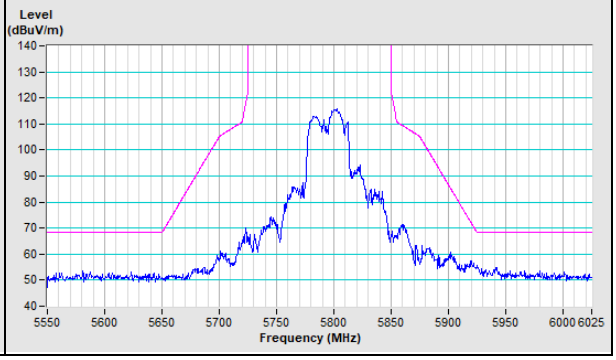


Vertical (Peak)



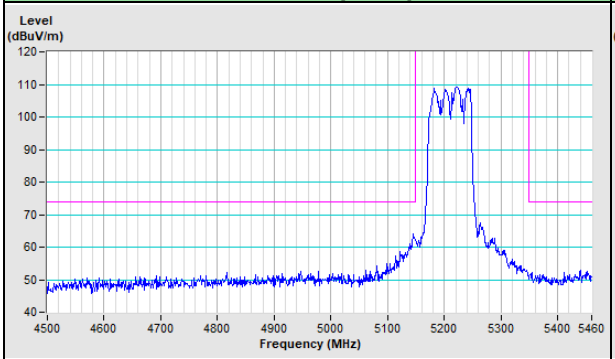
Vertical (Average)



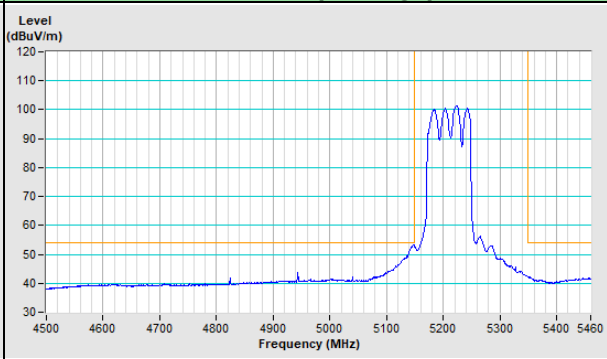
802.11ac (VHT40) Channel 151	
Horizontal (Peak)	Vertical (Peak)
	
802.11ac (VHT40) Channel 159	
Horizontal (Peak)	Vertical (Peak)
	

802.11ac (VHT80) Channel 42

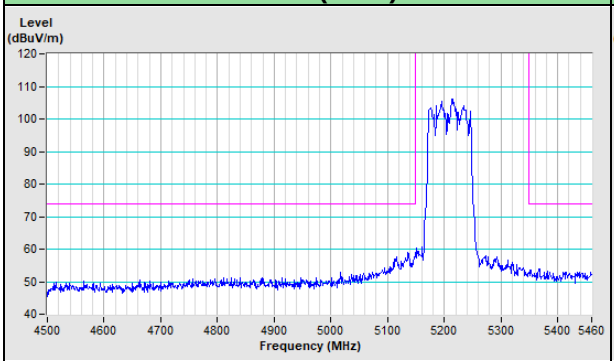
Horizontal (Peak)



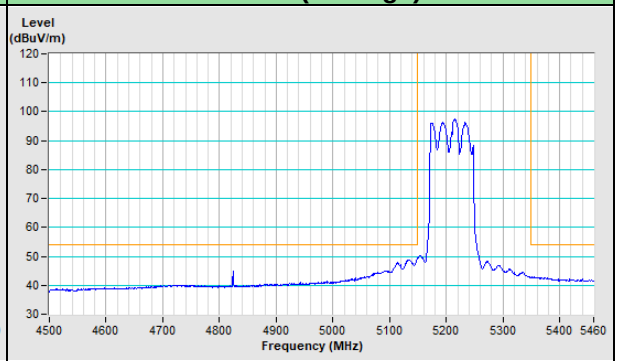
Horizontal (Average)



Vertical (Peak)

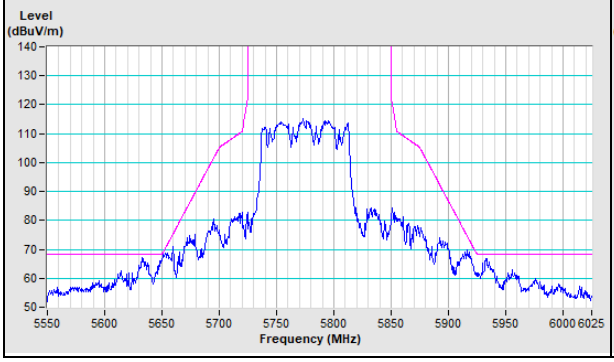


Vertical (Average)

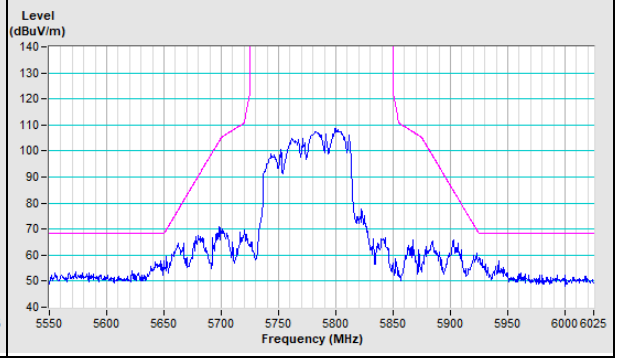


802.11ac (VHT80) Channel 155

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.

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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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