

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart E (Section 15.407)
Report No.: RFBDIS-WTW-P23030040-1
FCC ID: A8J-ENSTATION6
Product: EnGenius Station Wi-Fi 6 2x2 5GHz Outdoor CPE
Brand: EnGenius
Model No.: EnStation6
Received Date: 2023/2/15
Test Date: 2023/2/17 ~ 2023/3/23
Issued Date: 2023/4/17

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FCC Registration / 788550 / TW0003
Designation Number:

Approved by: Jeremy Lin, **Date:** 2023/4/17
Jeremy Lin / Project Engineer

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Prepared by : Vera Huang / Specialist



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Release Control Record

Issue No.	Description	Date Issued
RFB DYS-WTW-P23030040-1	Original Release	2023/4/17

1 Certificate

Product: EnGenius Station Wi-Fi 6 2x2 5GHz Outdoor CPE

Brand: EnGenius

Test Model: EnStation6

Sample Status: Engineering sample

Applicant: EnGenius Technologies, Inc.

Test Date: 2023/2/17 ~ 2023/3/23

Standard: 47 CFR FCC Part 15, Subpart E (Section 15.407)

Measurement ANSI C63.10-2013

procedure: 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)(3)	RF Output Power	Pass	Meet the requirement of limit.
15.407(a)(1)(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 -17.70 dB at 0.49400 MHz
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -1.1 dB at 39.70 MHz
15.407(b) (1/4(i)/10)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.2 dB at 17235.00 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) (±)
Occupied Bandwidth	-	491.896 Hz
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.99 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3 dB
	30 MHz ~ 1 GHz	2.93 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	1.76 dB
	18 GHz ~ 40 GHz	1.77 dB

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

2.2 Supplementary Information

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

3 General Information

3.1 General Description of EUT

Product	EnGenius Station Wi-Fi 6 2x2 5GHz Outdoor CPE
Brand	EnGenius
Test Model	EnStation6
Status of EUT	Engineering sample
Power Supply Rating	54Vdc from PoE
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps 802.11ax: up to 1201Mbps
Operating Frequency	5180 ~ 5240MHz, 5745 ~ 5825MHz
Number of Channel	5180 ~ 5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 4 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 2 802.11ac (VHT80), 802.11ax (HE80): 1 5745 ~ 5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 5 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 2 802.11ac (VHT80), 802.11ax (HE80): 1
Output Power	CDD mode: 5180 ~ 5240MHz : 25.742 mW (14.11 dBm) 5745 ~ 5825MHz : 154.318 mW (21.88 dBm) Beamforming mode: 5180 ~ 5240MHz : 12.871 mW (11.10dBm) 5745 ~ 5825MHz : 76.329 mW (18.83 dBm)
EUT Category	Outdoor Access Point

Note:

1. The EUT uses following accessories.

POE		
Brand	Model	Specification
EnGenius	EPA5006GR	AC Input : 100-240VAC~0.8A, 50-60Hz DC Output : 54V/0.6A Power cord : Non-shielding AC (0.5M)

2. There is WLAN (2.4 GHz & 5 GHz) technology used for the EUT, it supported simultaneous transmission which was verified and compliance.

3. 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 Net Gain(dBi)	Frequency range	Antenna Type	Connector Type
1	Chain 0	Senao	5718A0725300	14.1	5.15~5.25GHz	Patch	Ipex (MHF)
1	Chain 0	Senao	5718A0725300	14	5.725~5.85GHz	Patch	Ipex (MHF)
2	Chain 1	Senao	5718A0725300	14.7	5.15~5.25GHz	Patch	Ipex (MHF)
2	Chain 1	Senao	5718A0725300	14.1	5.725~5.85GHz	Patch	Ipex (MHF)
3	Chain 0	Senao	5718A0726300	3.9	2.4~2.4835GHz	Patch	Ipex (MHF)

Note: The EUT will install at outdoor area, the highest antenna gain from the horizon above 30 degrees as below.

Antenna No.	Antenna gain	Antenna install degree
Patch	6.86 dBi	

Due to device can be configuration at different angle, thus consider to above 30 degrees from the horizon the highest antenna gain are chosen from antenna specification exhibits from 30 to 150 degrees for U-NII-1 band.

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

2. The EUT incorporates a MIMO function:

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

Note:

- All of modulation mode support beamforming function except 802.11a modulation mode.
- 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.
- The bandwidth and modulation are similar for HT20/HT40 on 802.11n mode and VHT20/VHT40 on 802.11ac mode and HE20/HE40 on 802.11ax mode. The bandwidth and modulation are similar for VHT80 on 802.11ac mode and HE80 on 802.11ax mode. Therefore the investigated worst case is the representative mode in test report.
- The EUT device modulation technique OFDMA does not support partial RUs (resource units).
- Partial RU (resource unit) and channel puncturing/bandwidth reduction mechanisms are not supported.

3.3 Channel List

FOR 5180 ~ 5240 MHz

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

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

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

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

Channel	Frequency
42	5210 MHz

FOR 5745 ~ 5825 MHz:

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

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), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

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

Channel	Frequency
155	5775 MHz

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	EUT can be used in the following ways: X-axis / Y-axis / Z-axis. Pre-scan these ways and find the worst case as a representative test condition.
Worst Case:	Y-axis

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

Test Item	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	802.11a	CDD	36, 40, 48, 149, 157, 165	BPSK	6Mb/s
	802.11ax (HE20)	CDD & Beamforming	36, 40, 48, 149, 157, 165	BPSK	MCS0
	802.11ax (HE40)	CDD & Beamforming	38, 46, 151, 159	BPSK	MCS0
	802.11ax (HE80)	CDD & Beamforming	42, 155	BPSK	MCS0
6 dB Bandwidth	802.11a	CDD	149, 157, 165	BPSK	6Mb/s
	802.11ax (HE20)	CDD	149, 157, 165	BPSK	MCS0
	802.11ax (HE40)	CDD	151, 159	BPSK	MCS0
	802.11ax (HE80)	CDD	155	BPSK	MCS0
Occupied Bandwidth / Power Spectral Density	802.11a	CDD	36, 40, 48, 149, 157, 165	BPSK	6Mb/s
	802.11ax (HE20)	CDD	36, 40, 48, 149, 157, 165	BPSK	MCS0
	802.11ax (HE40)	CDD	38, 46, 151, 159	BPSK	MCS0
	802.11ax (HE80)	CDD	42, 155	BPSK	MCS0
Frequency Stability	802.11a	-	36	un-modulation	-
AC Power Conducted Emissions	802.11a	CDD	165	BPSK	6Mb/s
Unwanted Emissions below 1 GHz	802.11a	CDD	165	BPSK	6Mb/s
Unwanted Emissions above 1 GHz	802.11a	CDD	36, 40, 48, 149, 157, 165	BPSK	6Mb/s
	802.11ax (HE20)	CDD	36, 40, 48, 149, 157, 165	BPSK	MCS0
	802.11ax (HE40)	CDD	38, 46, 151, 159	BPSK	MCS0
	802.11ax (HE80)	CDD	42, 155	BPSK	MCS0

*The 802.11ax mode was the worst case for final test on RF Output Power.



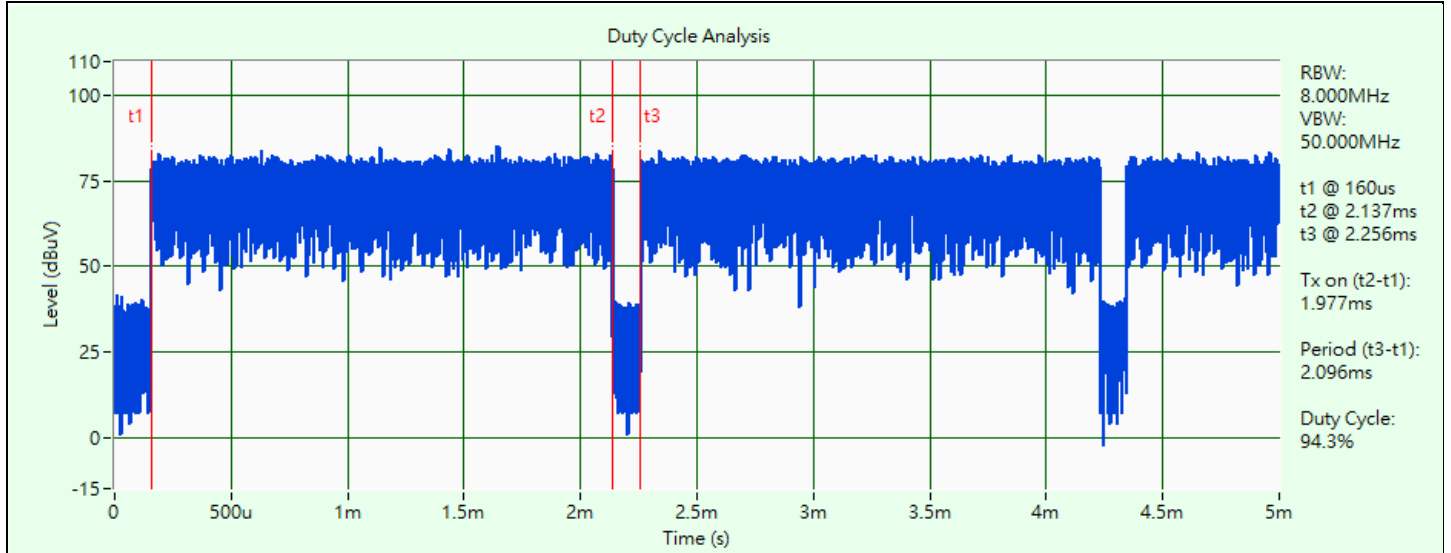
3.5 Duty Cycle of Test Signal

802.11a: Duty cycle = 1.977 ms / 2.096 ms x 100% = 94.3%, duty factor = 10 * log (1/Duty cycle) = 0.25 dB

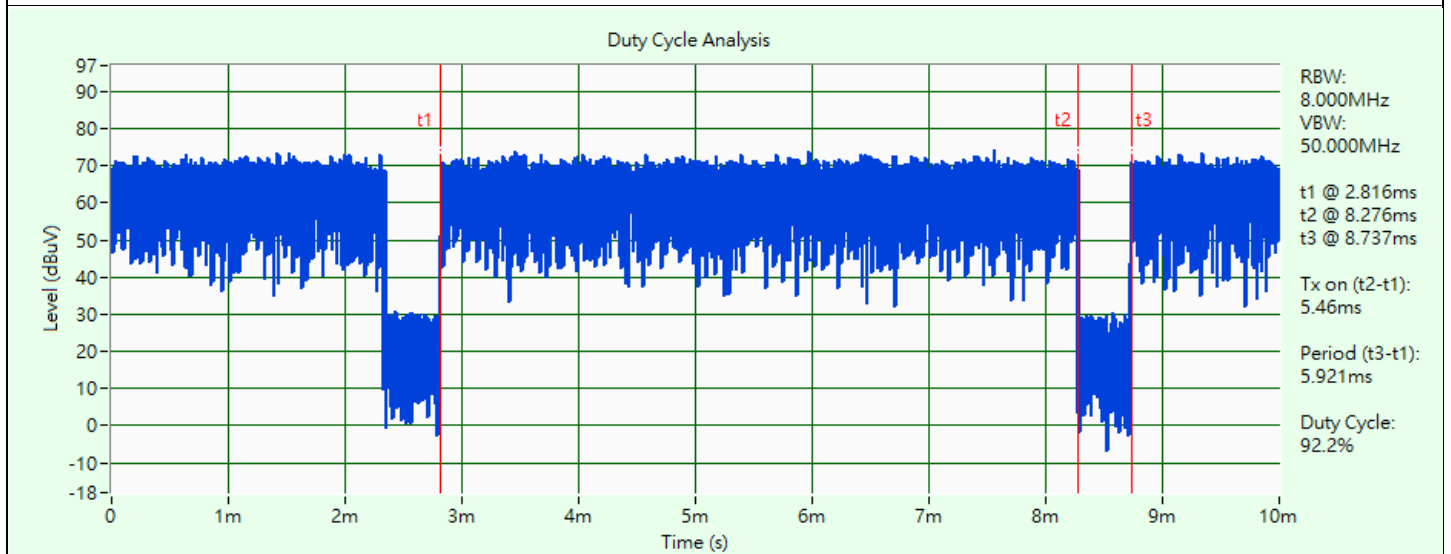
802.11ax (HE20): Duty cycle = 5.46 ms / 5.921 ms x 100% = 92.2%, duty factor = 10 * log (1/Duty cycle) = 0.35 dB

802.11ax (HE40): Duty cycle = 5.461 ms / 5.949 ms x 100% = 91.8%, duty factor = 10 * log (1/Duty cycle) = 0.37 dB

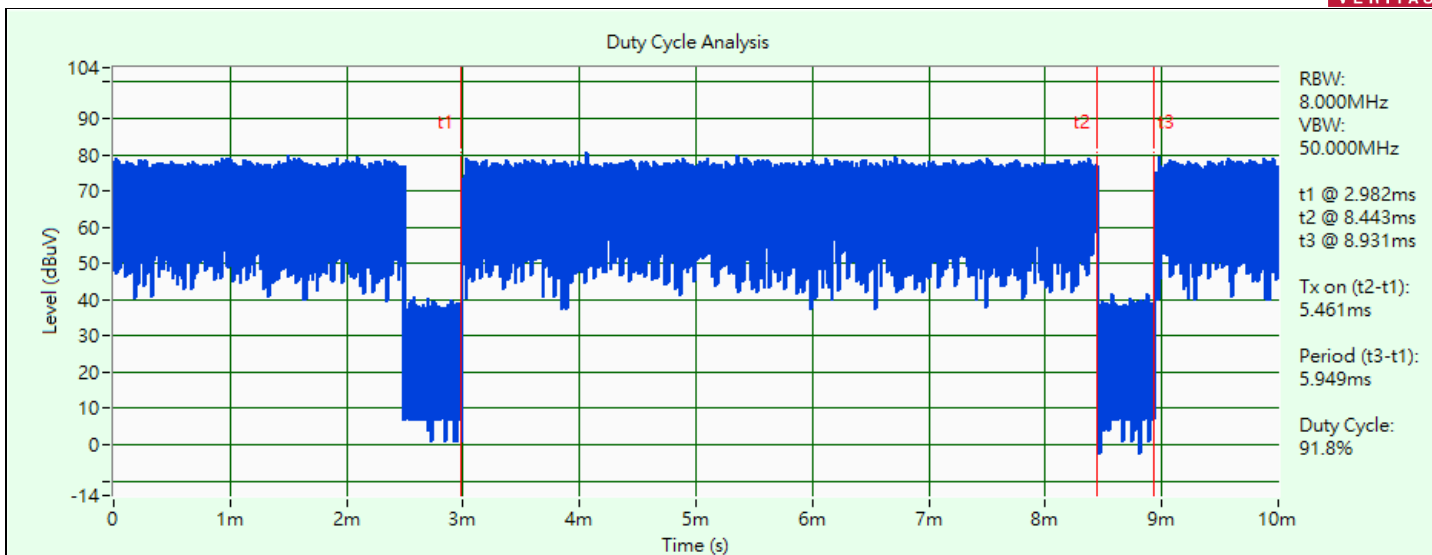
802.11ax (HE80): Duty cycle = 5.475 ms / 6.029 ms x 100% = 90.8%, duty factor = 10 * log (1/Duty cycle) = 0.42 dB



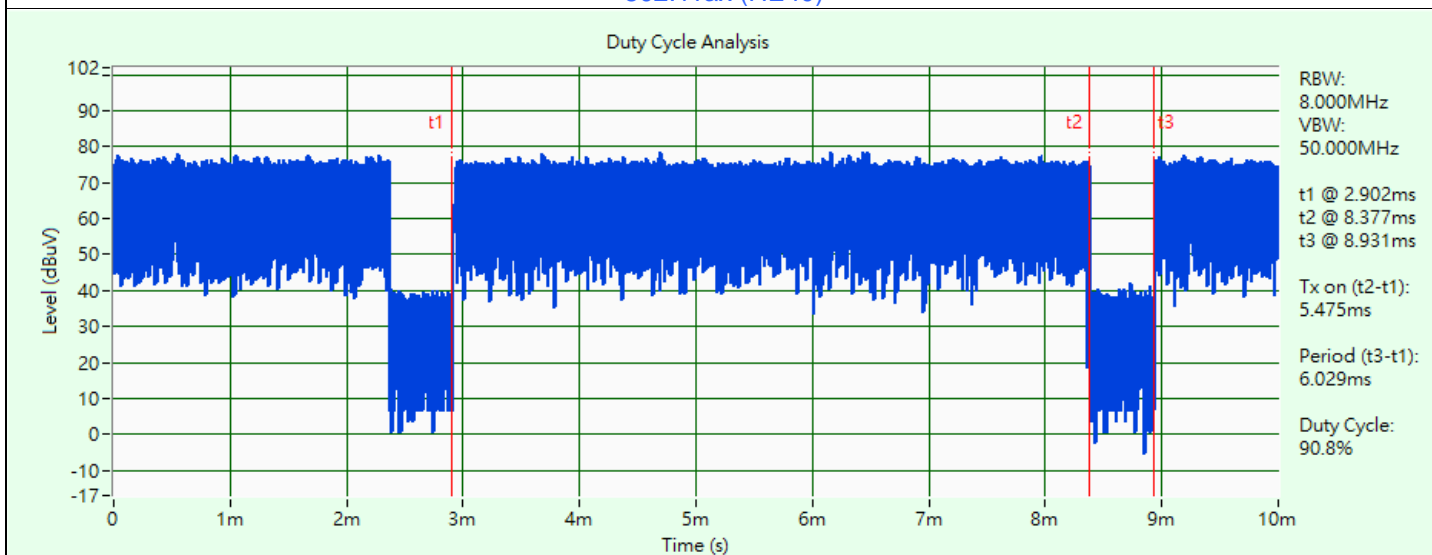
802.11a



802.11ax (HE20)



802.11ax (HE40)

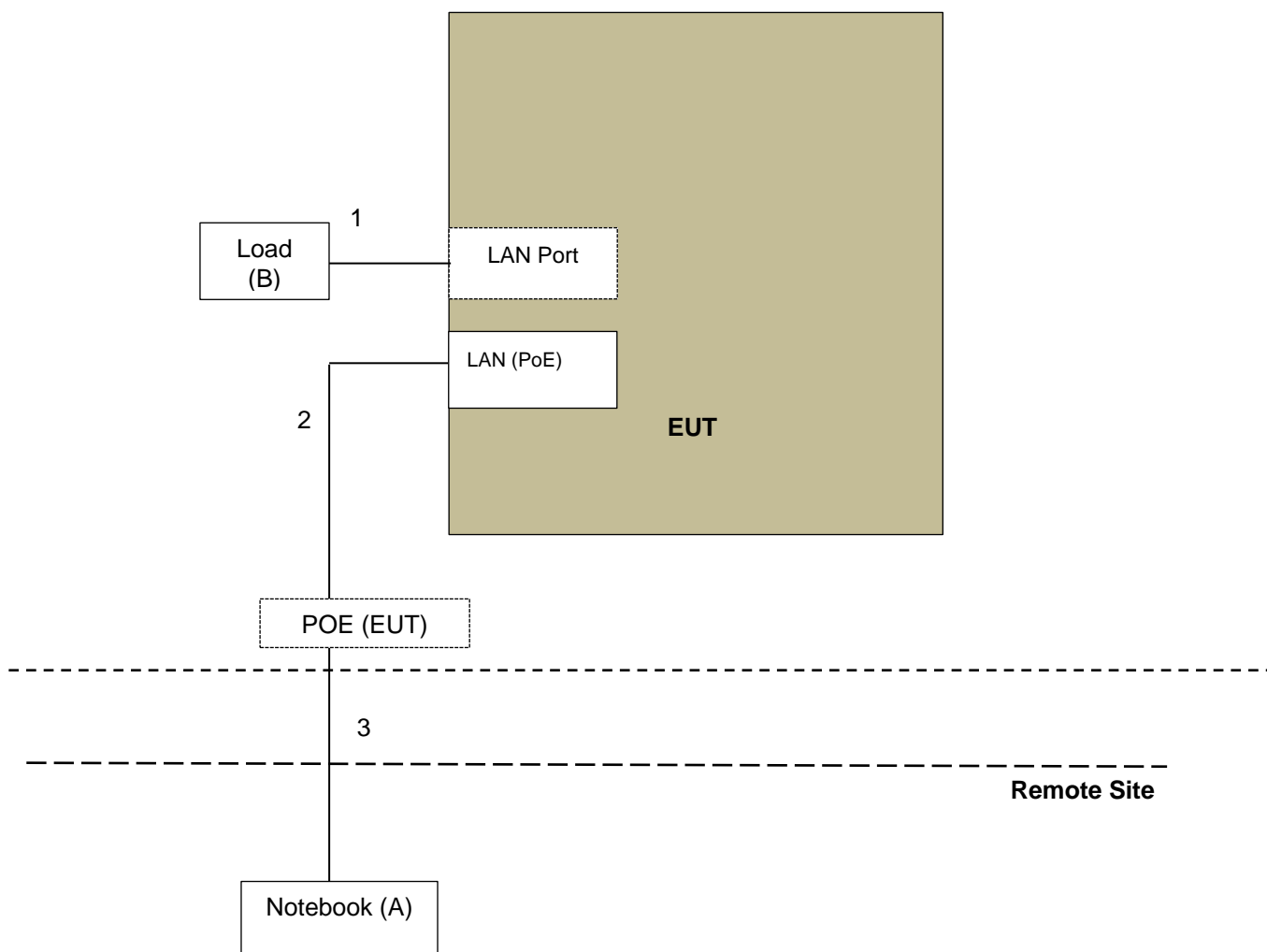


802.11ax (HE80)

3.6 Test Program Used and Operation Descriptions

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

3.7 Connection Diagram of EUT and Peripheral Devices



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Noteboot	Lenovo	L470	N/A	N/A	Provided by Lab
B	Load	N/A	N/A	N/A	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	RJ-45 Cable	1	1.5	N/A	N/A	Provided by Lab
2	RJ-45 Cable	1	1.5	N/A	N/A	Provided by Lab
3	RJ-45 Cable	1	10	N/A	N/A	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
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/MY55190007/MY55210005	2022/7/13	2023/7/12

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/3/22 ~ 2023/3/23

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	100980	2022/4/20	2023/4/19

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/3/22 ~ 2023/3/23

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 supply JIN YIH Technology	6905S	1720444	N/A	N/A
Digital Multimeter Fluke	87-III	70360742	2022/6/23	2023/6/22
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	100980	2022/4/20	2023/4/19
Temperature & Humidity Chamber TERCHY	HRM-120RF	931022	2022/12/27	2023/12/26

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/3/22 ~ 2023/3/23

4.6 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
LISN R&S	ESH3-Z5	100311	2022/9/12	2023/9/11
LISN ROHDE & SCHWARZ	ENV216	101826	2022/3/14	2023/3/13
RF Coaxial Cable WOKEN	5D-FB	Cable-cond1-01	2023/1/7	2024/1/6
Software BVADT	BVADT_Cond_ V7.3.7.4	N/A	N/A	N/A
Test Receiver Rohde&Schwarz	ESCI	100613	2022/12/5	2023/12/4
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2022/8/31	2023/8/30

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2023/2/17

4.7 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
Bi-log Broadband Antenna Schwarzbeck	VULB9168	9168-1213	2022/10/20	2023/10/19
Loop Antenna EMCI	EM-6879	269	2022/9/19	2023/9/18
Loop Antenna TESEQ	HLA 6121	45745	2022/7/27	2023/7/26
Pre-amplifier EMCI	EMC001340	980201	2022/9/23	2023/9/22
Pre_Amplifier EMCI	EMC330N	980782	2023/1/16	2024/1/15
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	2023/1/7	2024/1/6
	EMCCFD400-NM-NM- 500	201233	2023/1/16	2024/1/15
	EMCCFD400-NM-NM- 3000	201235	2023/1/16	2024/1/15
	EMCCFD400-NM-NM- 9000	201236(with PAD)	2023/1/16	2024/1/15
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Spectrum Analyzer R&S	FSW43	101866	2023/1/10	2024/1/9
Test Receiver R&S	ESR3+	102782	2022/12/12	2023/12/11
Turn Table Max-Full	MF-7802BS	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208674	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2023/2/18

4.8 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
Horn Antenna RFSPIN	DRH18-E	210103A18E	2022/11/13	2023/11/12
Horn Antenna Schwarzbeck	BBHA 9170	9170-1049	2022/11/13	2023/11/12
Pre_Amplifier EMCI	EMC118A45SE	980808	2022/12/29	2023/12/28
	EMC184045SE	980788	2023/1/16	2024/1/15
RF Coaxial Cable EMCI	EMC101G-KM-KM-2000	201254	2023/1/16	2024/1/15
	EMC101G-KM-KM-3000	201257	2023/1/16	2024/1/15
	EMC101G-KM-KM-5000	201260	2023/1/16	2024/1/15
	EMC104-SM-SM-1000	210102	2023/1/16	2024/1/15
	EMC104-SM-SM-3000	201231	2023/1/16	2024/1/15
	EMC104-SM-SM-9000	201243	2023/1/16	2024/1/15
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Spectrum Analyzer R&S	FSW43	101866	2023/1/10	2024/1/9
Test Receiver R&S	ESR3+	102782	2022/12/12	2023/12/11
Turn Table Max-Full	MF-7802BS	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208674	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2023/2/17 ~ 2023/3/20

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 \leq 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	250mW (24 dBm)

Operation Band	Limit
U-NII-3	1 Watt (30 dBm){OF:5.71 GHz ~ 5.85 GHz}

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

Applicable To	Limit	
789033 D02 General UNII Test Procedure New Rules v02r01	Field Strength at 3 m	
	PK: 74 (dBµV/m)	AV: 54 (dBµV/m)

For transmitters operating in the 5.15-5.25 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)

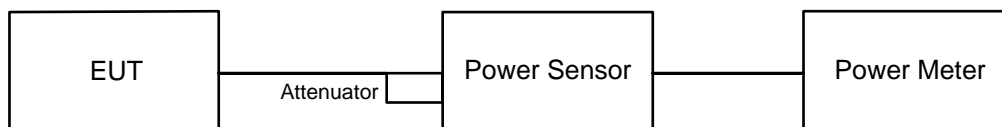
Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup

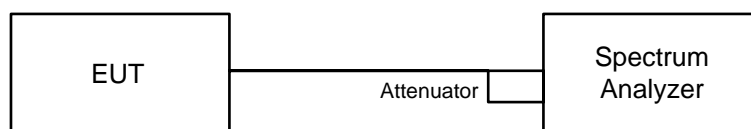


6.1.2 Test Procedure

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-2

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz, Set VBW \geq 3 MHz, Detector = RMS
- Sweep points \geq $[2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing \leq RBW / 2, so that narrowband signals are not lost between frequency bins.)
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Use the peak search function on the instrument to find the peak of the spectrum and record its value.
- Record the max value and add $10 \log (1/\text{duty cycle})$.

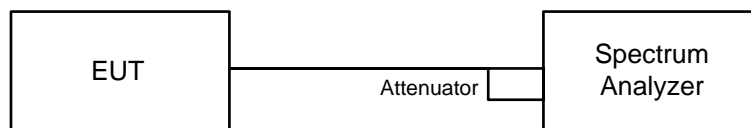
For specified measurement bandwidth 500 kHz:

Method SA-2

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300 kHz, Set VBW \geq 1 MHz, Detector = RMS
- 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 $\text{BWCF} = 10 \log(500 \text{ kHz}/300 \text{ kHz})$
- Sweep points \geq $[2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing \leq RBW / 2, so that narrowband signals are not lost between frequency bins.)
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Use the peak search function on the instrument to find the peak of the spectrum and record its value.
- Record the max value and add $10 \log (1/\text{duty cycle})$.

6.3 6 dB Bandwidth

6.3.1 Test Setup

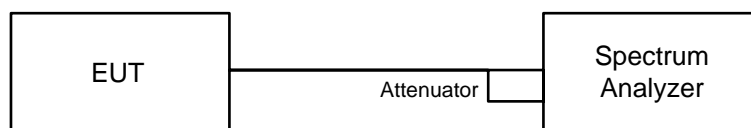


6.3.2 Test Procedure

- Set resolution bandwidth (RBW) = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- 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

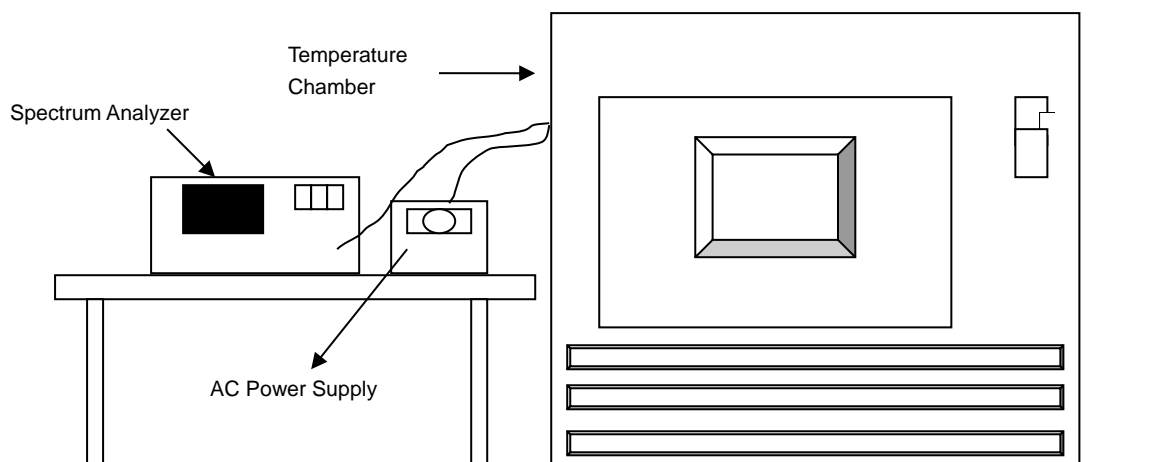


6.4.2 Test Procedure

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

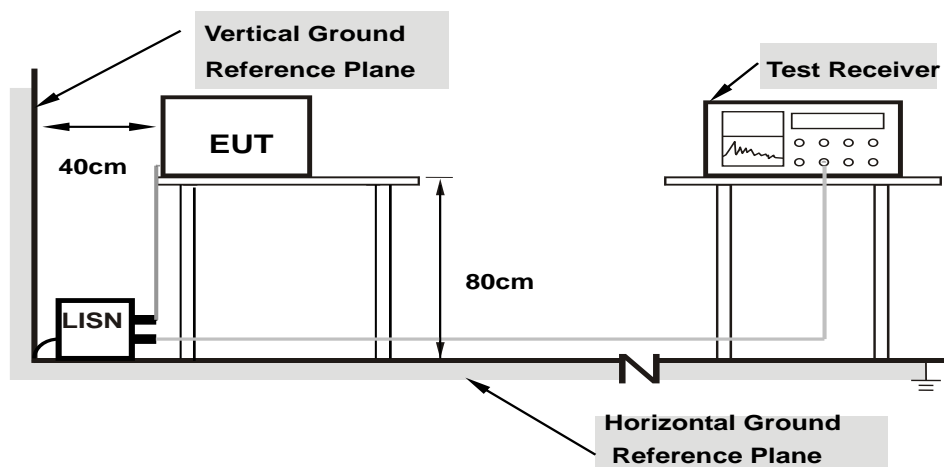


6.5.2 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- 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.
- Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.
- 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

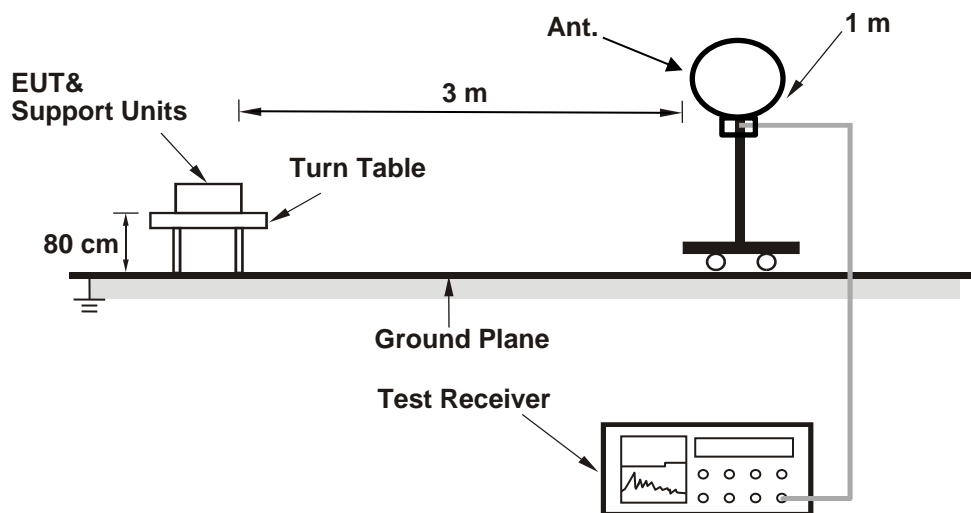
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The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

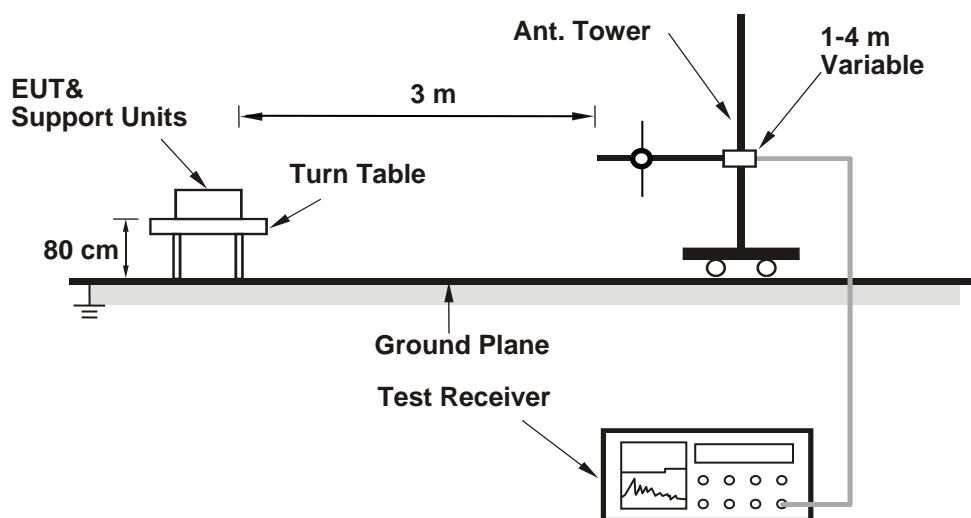
6.7 Unwanted Emissions below 1 GHz

6.7.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



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

6.7.2 Test Procedure

For Radiated emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode, except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

Notes:

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

For Radiated emission above 30 MHz

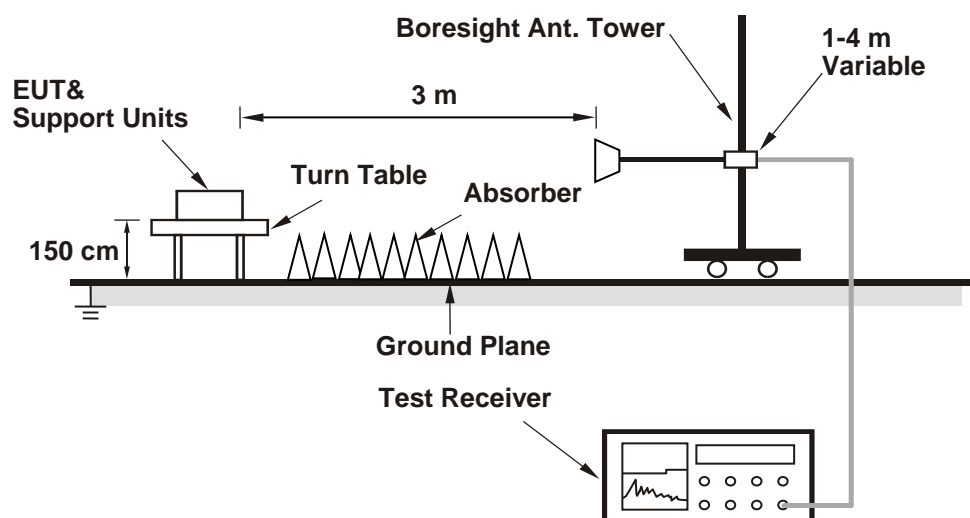
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Notes:

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

6.8 Unwanted Emissions above 1 GHz

6.8.1 Test Setup



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

6.8.2 Test Procedure

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

- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection (AV) at frequency above 1 GHz.
- For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz.
- 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:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin
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802.11a CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Above 30 Deg. Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1								
36	5180	11.14	11.01	25.62	14.09	21.3	6.86	124.331	20.95	21	Pass
40	5200	10.85	11.06	24.926	13.97	21.3	6.86	120.963	20.83	21	Pass
48	5240	11.01	11.16	25.68	14.10	21.3	6.86	124.622	20.96	21	Pass

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
149	5745	17.89	19.01	141.134	21.50	21.9	Pass
157	5785	18.17	19.22	149.175	21.74	21.9	Pass
165	5825	18.45	19.26	154.318	21.88	21.9	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 14.7 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (14.7 - 6) = 21.3$ dBm.
3. For U-NII-3, the maximum gain is 14.1 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (14.1 - 6) = 21.9$ dBm.
4. For U-NII-1, the gain of above 30 degrees from the horizon is 6.86 dBi, EIRP (dBm) = Average Power (dBm) + 6.86 dBi

802.11ax (HE20) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Above 30 Deg. Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1								
36	5180	11.19	11.00	25.742	14.11	21.3	6.86	124.923	20.97	21	Pass
40	5200	10.75	11.05	24.62	13.91	21.3	6.86	119.478	20.77	21	Pass
48	5240	11.11	11.04	25.618	14.09	21.3	6.86	124.321	20.95	21	Pass

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
149	5745	18.45	19.21	153.352	21.86	21.9	Pass
157	5785	18.32	19.21	151.288	21.80	21.9	Pass
165	5825	18.34	19.25	152.373	21.83	21.9	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 14.7 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (14.7 - 6) = 21.3$ dBm.
3. For U-NII-3, the maximum gain is 14.1 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (14.1 - 6) = 21.9$ dBm.
4. For U-NII-1, the gain of above 30 degrees from the horizon is 6.86 dBi, EIRP (dBm) = Average Power (dBm) + 6.86 dBi

802.11ax (HE40) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Above 30 Deg. Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1								
38	5190	10.98	11.15	25.563	14.08	21.3	6.86	124.054	20.94	21	Pass
46	5230	10.84	11.32	25.686	14.10	21.3	6.86	124.651	20.96	21	Pass

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
151	5755	18.15	19.12	146.971	21.67	21.9	Pass
159	5795	18.11	19.10	145.997	21.64	21.9	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 14.7 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (14.7 - 6) = 21.3$ dBm.
3. For U-NII-3, the maximum gain is 14.1 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (14.1 - 6) = 21.9$ dBm.
4. For U-NII-1, the gain of above 30 degrees from the horizon is 6.86 dBi, EIRP (dBm) = Average Power (dBm) + 6.86 dBi

802.11ax (HE80) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Above 30 Deg. Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1								
42	5210	10.93	11.25	25.723	14.10	21.3	6.86	124.831	20.96	21	Pass

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
155	5775	18.13	19.10	146.296	21.65	21.9	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 14.7 dBi > 6 dBi, so the output power limit shall be reduced to 30-(14.7-6) = 21.3 dBm.
3. For U-NII-3, the maximum gain is 14.1 dBi > 6 dBi, so the output power limit shall be reduced to 30-(14.1-6) = 21.9 dBm.
4. For U-NII-1, the gain of above 30 degrees from the horizon is 6.86 dBi, EIRP (dBm) = Average Power (dBm) + 6.86 dBi

802.11ax (HE20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Above 30 Deg. Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1								
36	5180	8.17	8.00	12.871	11.10	18.58	9.87	124.914	20.97	21	Pass
40	5200	7.73	8.02	12.268	10.89	18.58	9.87	119.062	20.76	21	Pass
48	5240	8.12	7.98	12.767	11.06	18.58	9.87	123.905	20.93	21	Pass

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
149	5745	15.42	16.18	76.329	18.83	18.94	Pass
157	5785	15.30	16.16	75.189	18.76	18.94	Pass
165	5825	15.31	16.22	75.842	18.80	18.94	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
2. For U-NII-1, the directional gain is 17.42 dBi > 6 dBi, so the output power limit shall be reduced to 30-(17.42-6) = 18.58 dBm.
3. For U-NII-3, the directional gain is 17.06 dBi > 6 dBi, so the output power limit shall be reduced to 30-(17.06-6) = 18.94 dBm.
4. For U-NII-1, the gain of above 30 degrees from the horizon is 6.86 dBi, EIRP (dBm) = Average Power (dBm) + 6.86 dBi + 10 log (2 of TX antenna elements)

802.11ax (HE40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Above 30 Deg. Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1								
38	5190	7.96	8.11	12.723	11.05	18.58	9.87	123.478	20.92	21	Pass
46	5230	7.81	8.30	12.8	11.07	18.58	9.87	124.225	20.94	21	Pass

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
151	5755	15.12	16.11	73.341	18.65	18.94	Pass
159	5795	15.10	16.08	72.91	18.63	18.94	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
2. For U-NII-1, the directional gain is 17.42 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (17.42 - 6) = 18.58$ dBm.
3. For U-NII-3, the directional gain is 17.06 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (17.06 - 6) = 18.94$ dBm.
4. For U-NII-1, the gain of above 30 degrees from the horizon is 6.86 dBi, EIRP (dBm) = Average Power (dBm) + 6.86 dBi + $10 \log(2 \text{ of TX antenna elements})$

802.11ax (HE80) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Above 30 Deg. Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1								
42	5210	7.94	8.20	12.83	11.08	18.58	9.87	124.516	20.95	21	Pass

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
155	5775	15.15	16.12	73.66	18.67	18.94	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
2. For U-NII-1, the directional gain is 17.42 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (17.42 - 6) = 18.58$ dBm.
3. For U-NII-3, the directional gain is 17.06 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (17.06 - 6) = 18.94$ dBm.
4. For U-NII-1, the gain of above 30 degrees from the horizon is 6.86 dBi, EIRP (dBm) = Average Power (dBm) + 6.86 dBi + $10 \log(2 \text{ of TX antenna elements})$

7.2 Power Spectral Density

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin
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802.11a

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1				
36	5180	-2.37	-2.23	0.25	0.96	5.58	Pass
40	5200	-2.55	-2.11	0.25	0.94	5.58	Pass
48	5240	-2.20	-2.22	0.25	1.05	5.58	Pass

Notes:

- 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.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- For U-NII-1, the directional gain is 17.42 dBi > 6dBi, so the power density limit shall be reduced to $17 - (17.42 - 6) = 5.58$ dBm/MHz.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1				
36	5180	-2.21	-2.35	0.35	1.08	5.58	Pass
40	5200	-2.76	-2.29	0.35	0.84	5.58	Pass
48	5240	-2.32	-2.43	0.35	0.99	5.58	Pass

Notes:

- 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.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- For U-NII-1, the directional gain is 17.42 dBi > 6dBi, so the power density limit shall be reduced to $17 - (17.42 - 6) = 5.58$ dBm/MHz.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1				
38	5190	-5.42	-5.26	0.37	-1.96	5.58	Pass
46	5230	-5.57	-5.05	0.37	-1.92	5.58	Pass

Notes:

- 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.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- For U-NII-1, the directional gain is 17.42 dBi > 6dBi, so the power density limit shall be reduced to $17 - (17.42 - 6) = 5.58$ dBm/MHz.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1				
42	5210	-8.36	-8.32	0.42	-4.91	5.58	Pass

Notes:

- 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.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- For U-NII-1, the directional gain is 17.42 dBi > 6dBi, so the power density limit shall be reduced to $17-(17.42-6) = 5.58$ dBm/MHz.

802.11a

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Total PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
		Chain 0	Chain 1					
149	5745	-1.79	-0.68	1.81	0.25	4.28	18.94	Pass
157	5785	-1.47	-0.49	2.06	0.25	4.53	18.94	Pass
165	5825	-1.23	-0.45	2.19	0.25	4.66	18.94	Pass

Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- For U-NII-3, the directional gain is 17.06 dBi > 6 dBi, so the power density limit shall be reduced to $30-(17.06-6) = 18.94$ dBm/500kHz.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Total PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
		Chain 0	Chain 1					
149	5745	-3.79	-3.04	-0.39	0.35	2.18	18.94	Pass
157	5785	-3.95	-3.03	-0.46	0.35	2.11	18.94	Pass
165	5825	-3.88	-2.97	-0.39	0.35	2.18	18.94	Pass

Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- For U-NII-3, the directional gain is 17.06 dBi > 6 dBi, so the power density limit shall be reduced to $30-(17.06-6) = 18.94$ dBm/500kHz.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Total PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
		Chain 0	Chain 1					
151	5755	-6.69	-5.77	-3.2	0.37	-0.61	18.94	Pass
159	5795	-6.74	-5.77	-3.22	0.37	-0.63	18.94	Pass

Notes:

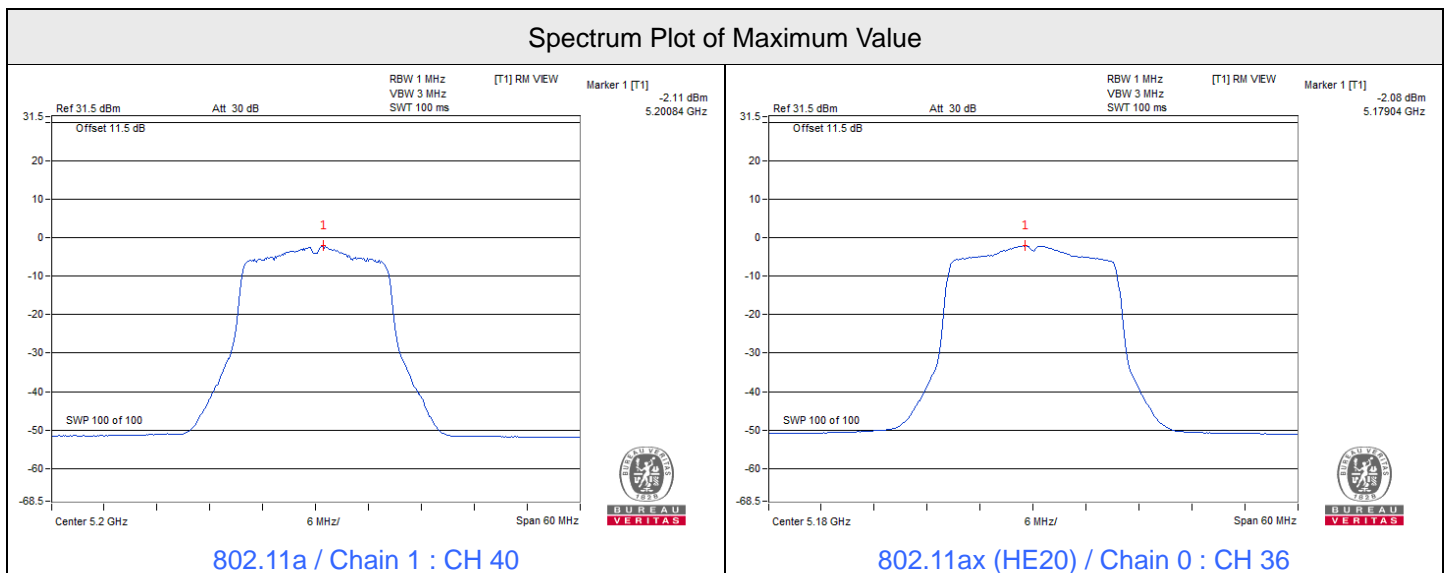
- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- For U-NII-3, the directional gain is 17.06 dBi > 6 dBi, so the power density limit shall be reduced to $30 - (17.06 - 6) = 18.94 \text{ dBm/500kHz}$.

802.11ax (HE80)

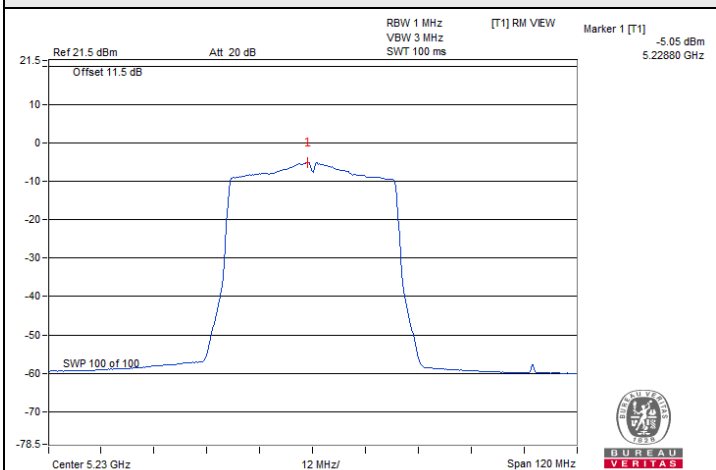
Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Total PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
		Chain 0	Chain 1					
155	5775	-8.31	-7.39	-4.82	0.42	-2.18	18.94	Pass

Notes:

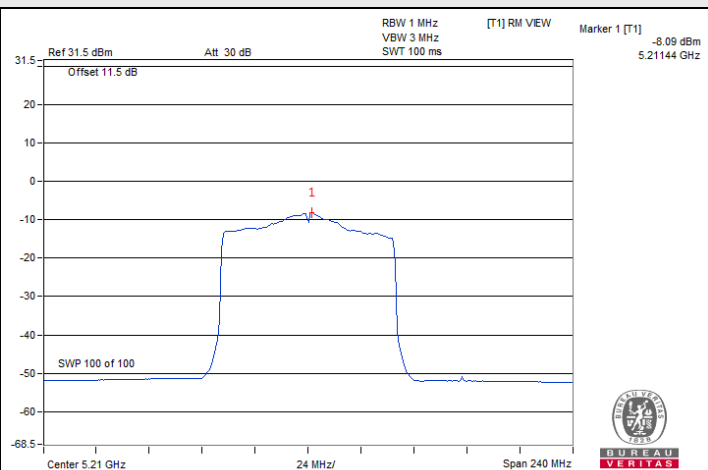
- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- For U-NII-3, the directional gain is 17.06 dBi > 6 dBi, so the power density limit shall be reduced to $30 - (17.06 - 6) = 18.94 \text{ dBm/500kHz}$.



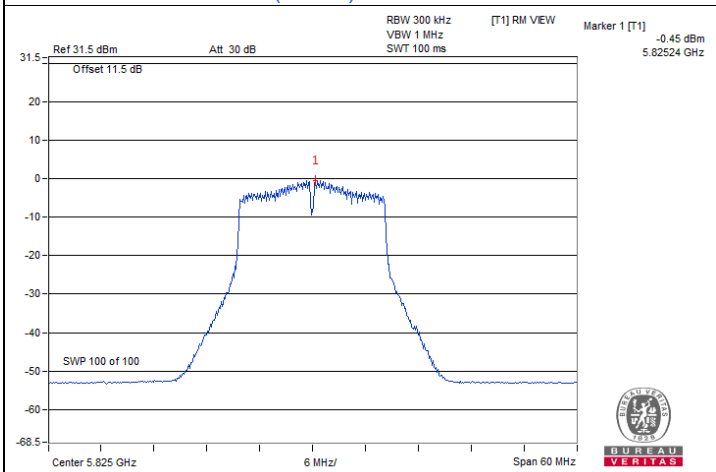
Spectrum Plot of Maximum Value



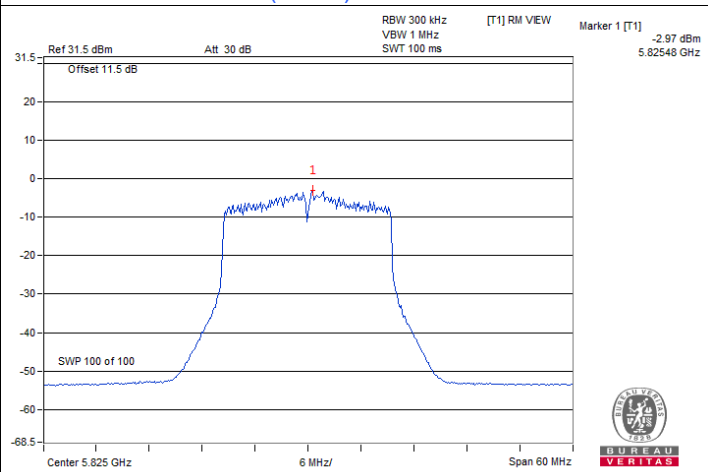
802.11ax (HE40) / Chain 1 : CH 46



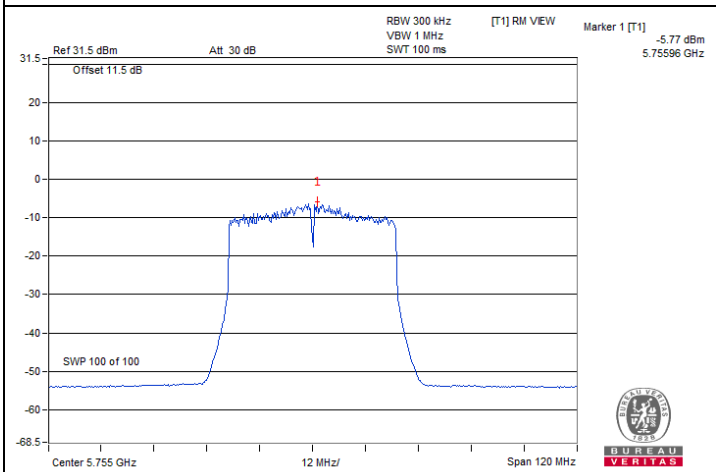
802.11ax (HE80) / Chain 1 : CH 42



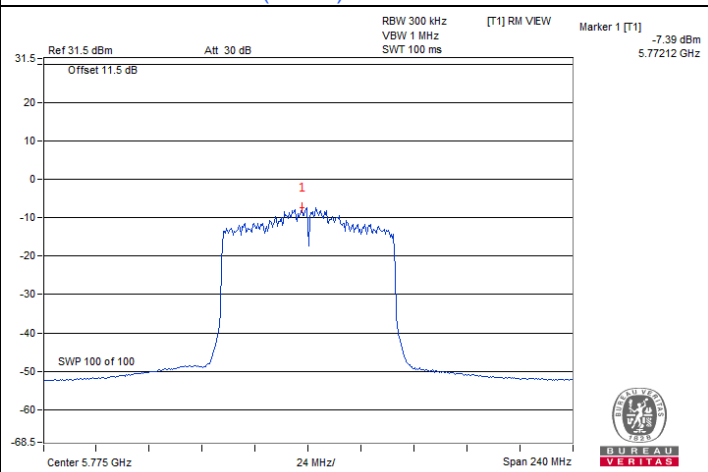
802.11a / Chain 1 : CH 165



802.11ax (HE20) / Chain 1 : CH 165



802.11ax (HE40) / Chain 1 : CH 151



802.11ax (HE80) / Chain 1 : CH 155

7.3 6 dB Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin
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802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
149	5745	15.12	15.09	0.5	Pass
157	5785	15.11	15.19	0.5	Pass
165	5825	13.93	15.12	0.5	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
149	5745	17.40	18.59	0.5	Pass
157	5785	16.36	15.02	0.5	Pass
165	5825	16.89	15.94	0.5	Pass

802.11ax (HE40)

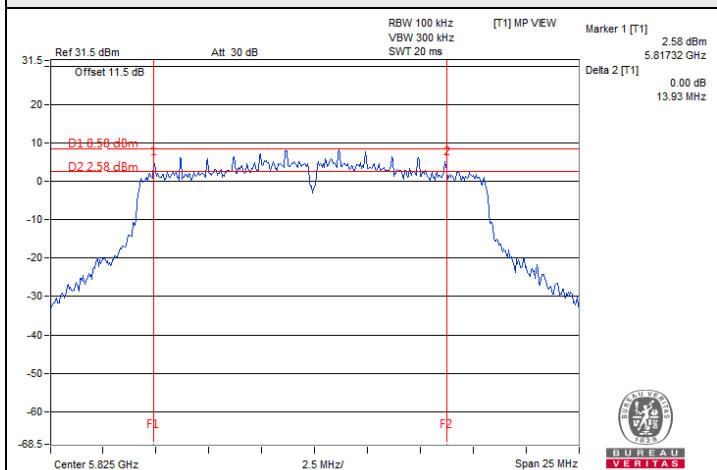
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
151	5755	35.42	34.86	0.5	Pass
159	5795	36.25	35.14	0.5	Pass

802.11ax (HE80)

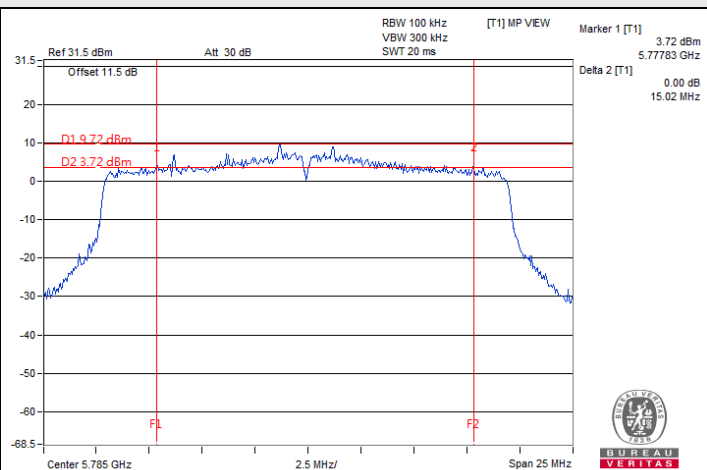
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
155	5775	74.03	71.36	0.5	Pass



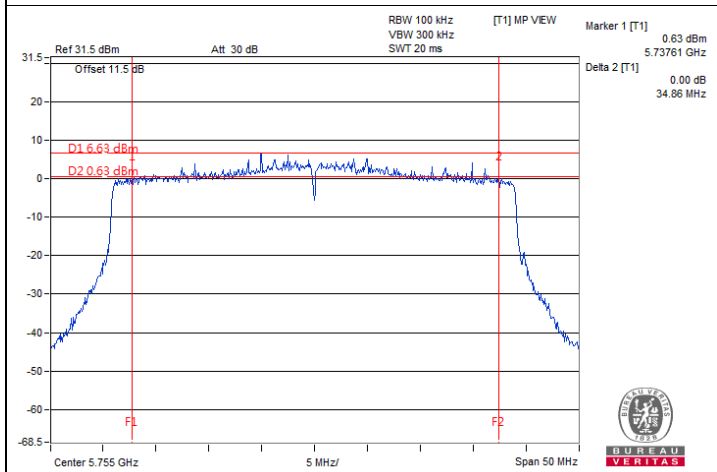
Spectrum Plot of Minimum Value



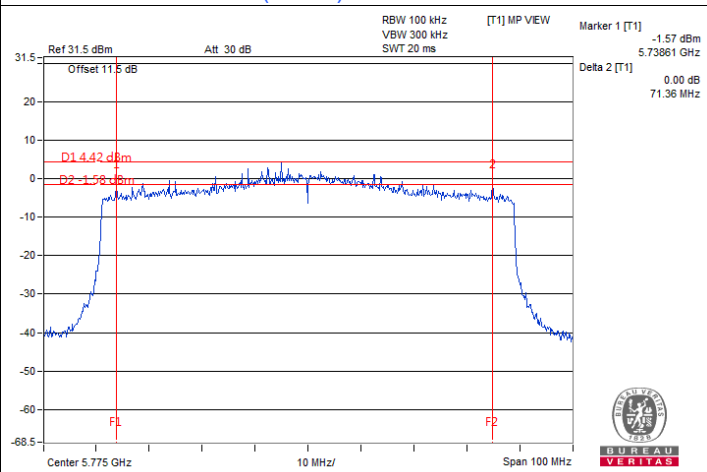
802.11a / Chain 0 : CH 165



802.11ax (HE20) / Chain 1 : CH 157



802.11ax (HE40) / Chain 1 : CH 151



802.11ax (HE80) / Chain 1 : CH 155

7.4 Occupied Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin
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802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	16.32	16.32
40	5200	16.32	16.32
48	5240	16.44	16.44
149	5745	16.45	16.35
157	5785	16.32	16.32
165	5825	16.32	16.32

802.11ax (HE20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	18.96	18.84
40	5200	18.96	18.96
48	5240	18.96	18.96
149	5745	18.95	18.95
157	5785	18.96	18.96
165	5825	18.96	18.96

802.11ax (HE40)

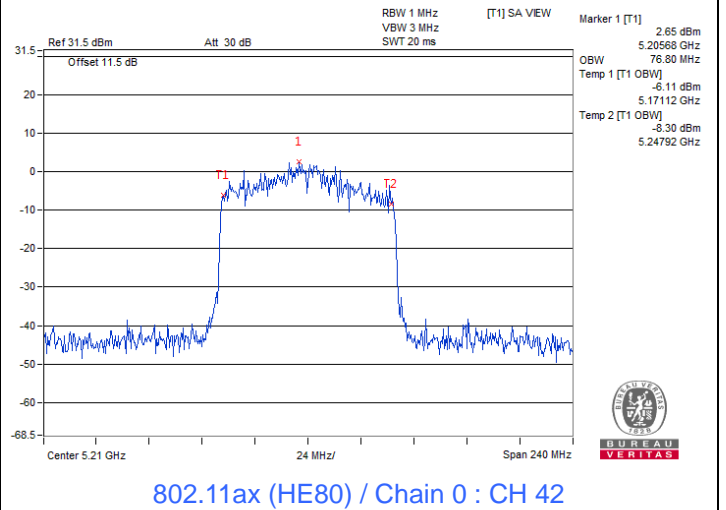
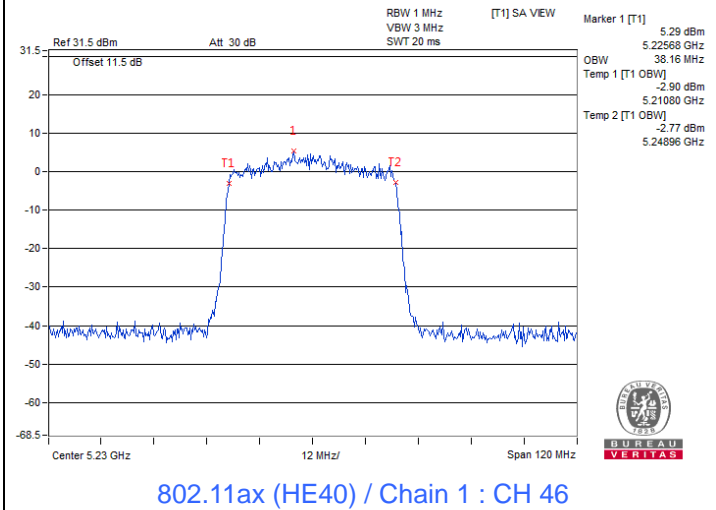
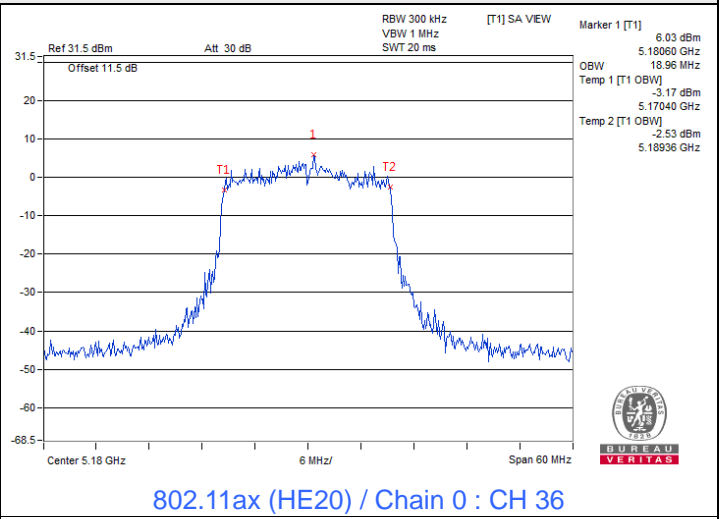
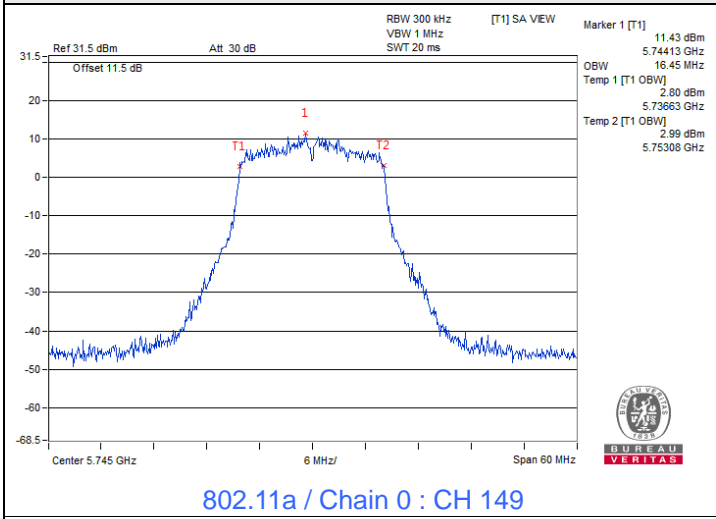
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	37.92	37.68
46	5230	37.92	38.16
151	5755	37.69	38.08
159	5795	37.68	37.44

802.11ax (HE80)

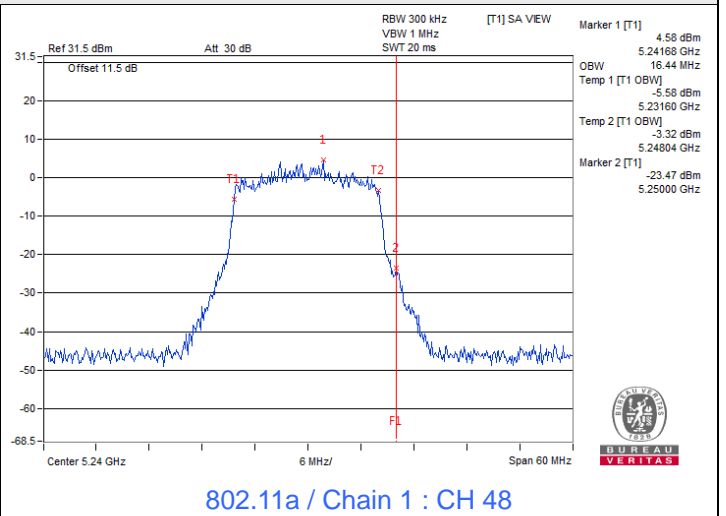
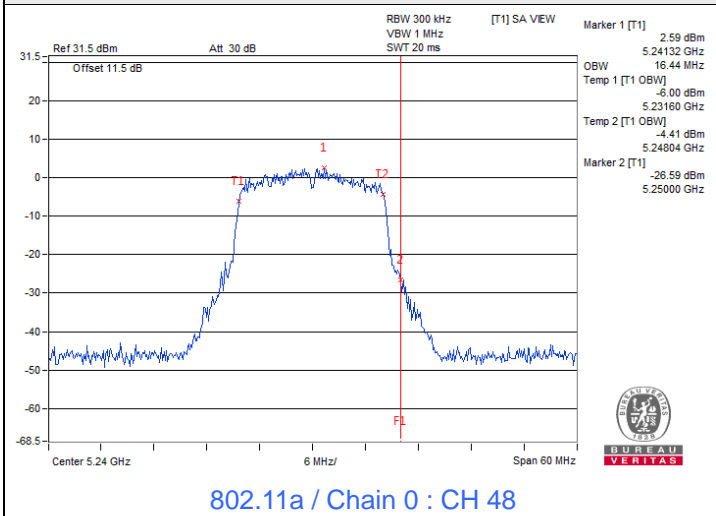
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	76.80	76.80
155	5775	76.54	76.54



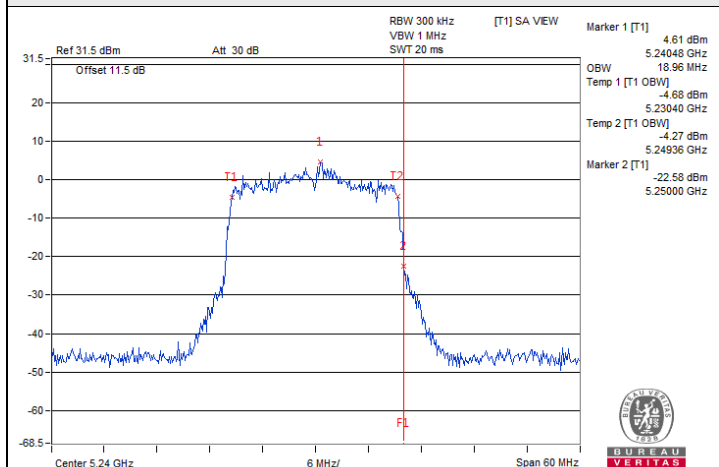
Spectrum Plot of Maximum Value



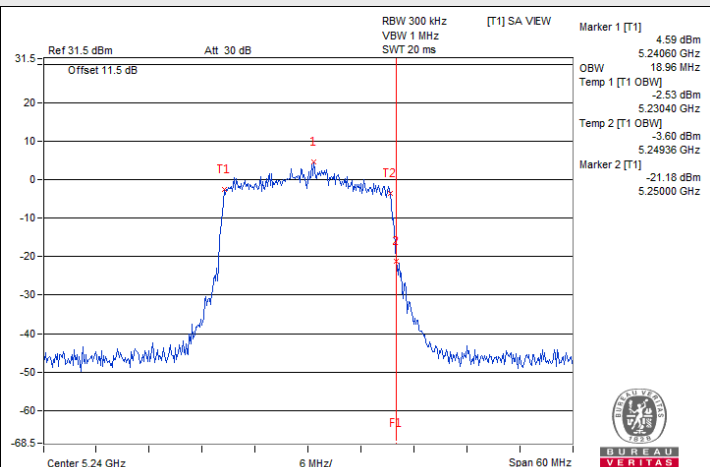
Spectrum Plot for nearby DFS band (DFS is required, if 99% OCP straddle into U-NII-2A)



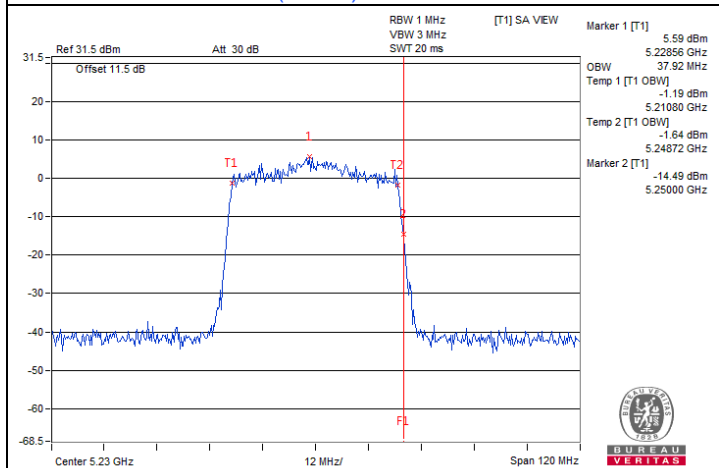
Spectrum Plot for nearby DFS band (DFS is required, if 99% OCP straddle into U-NII-2A)



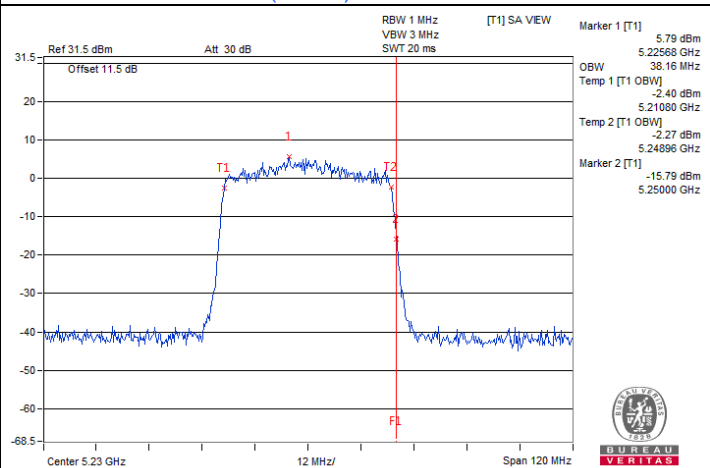
802.11ax (HE20) / Chain 0 : CH 48



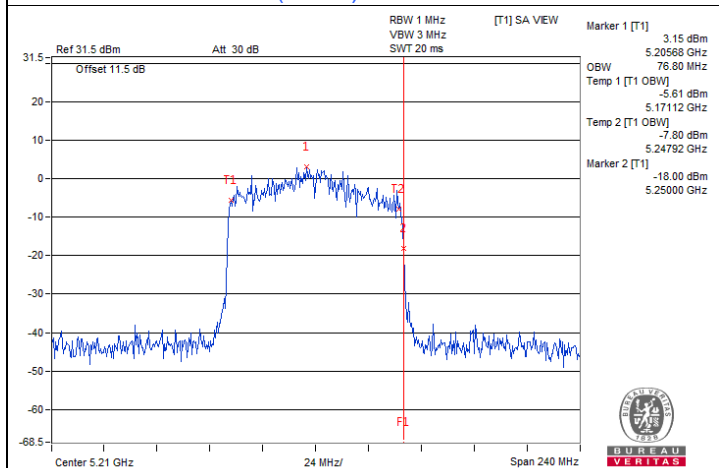
802.11ax (HE20) / Chain 1 : CH 48



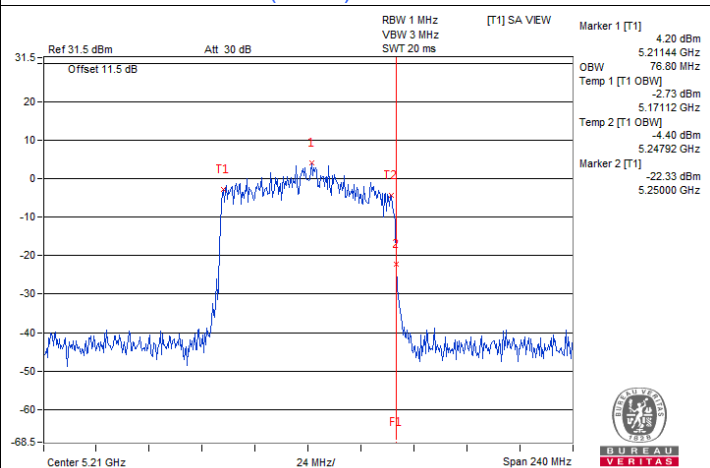
802.11ax (HE40) / Chain 0 : CH 46



802.11ax (HE40) / Chain 1 : CH 46



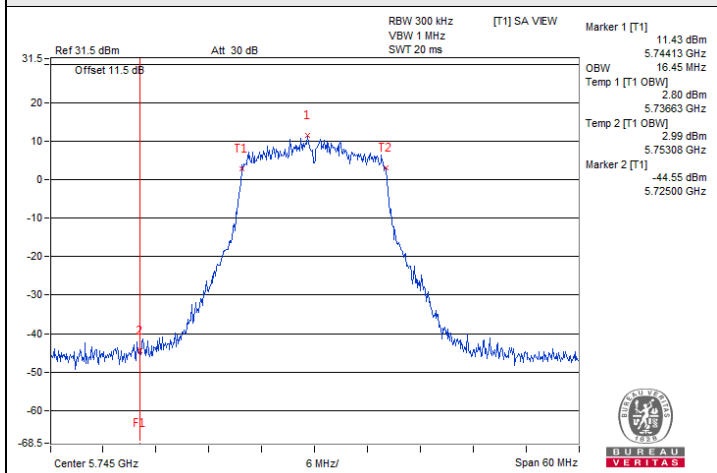
802.11ax (HE80) / Chain 0 : CH 42



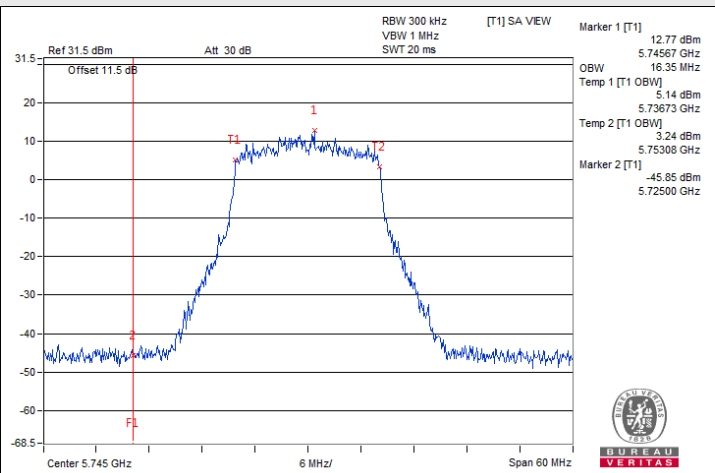
802.11ax (HE80) / Chain 1 : CH 42



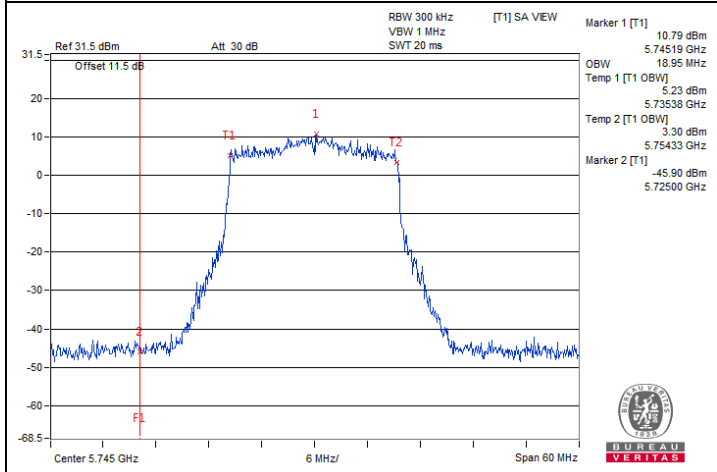
Spectrum Plot for nearby DFS band (DFS is required, if 99% OCP straddle into U-NII-2C)



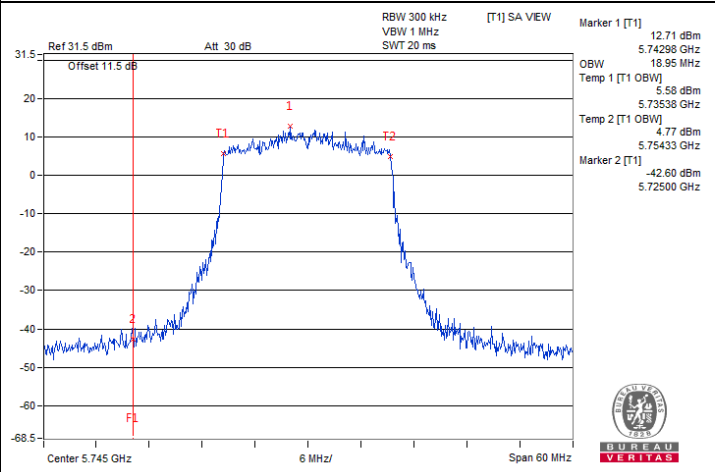
802.11a / Chain 0 : CH 149



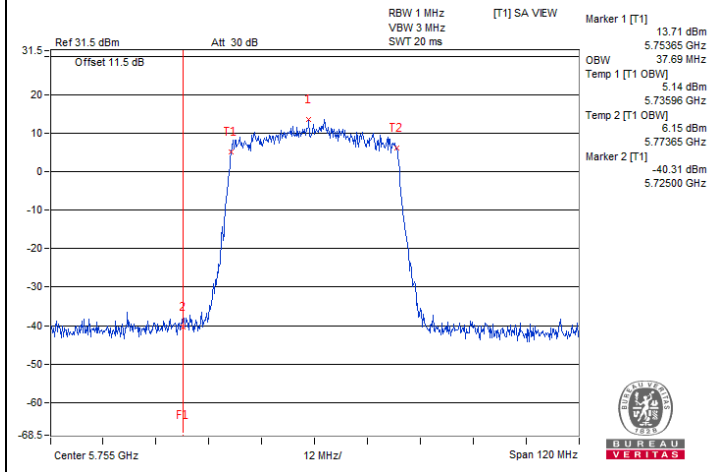
802.11a / Chain 1 : CH 149



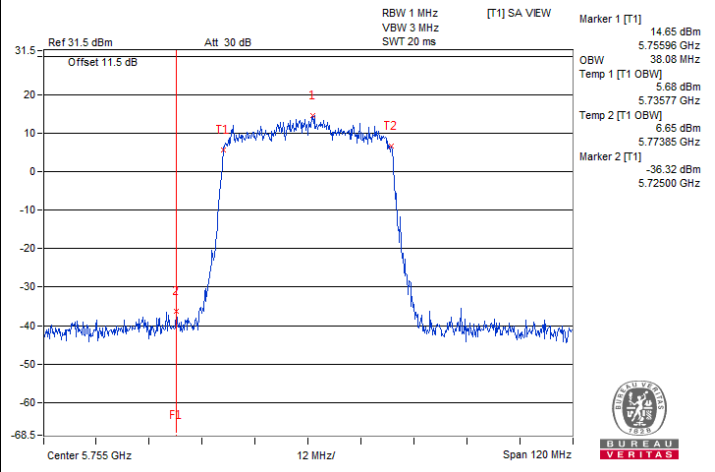
802.11ax (HE20) / Chain 0 : CH 149



802.11ax (HE20) / Chain 1 : CH 149



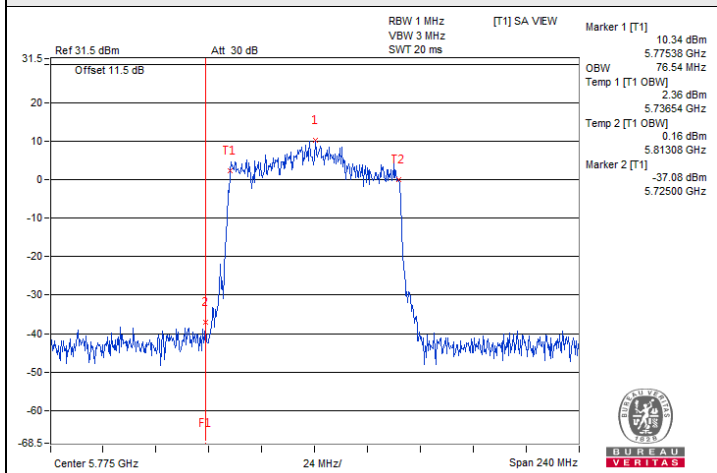
802.11ax (HE40) / Chain 0 : CH 151



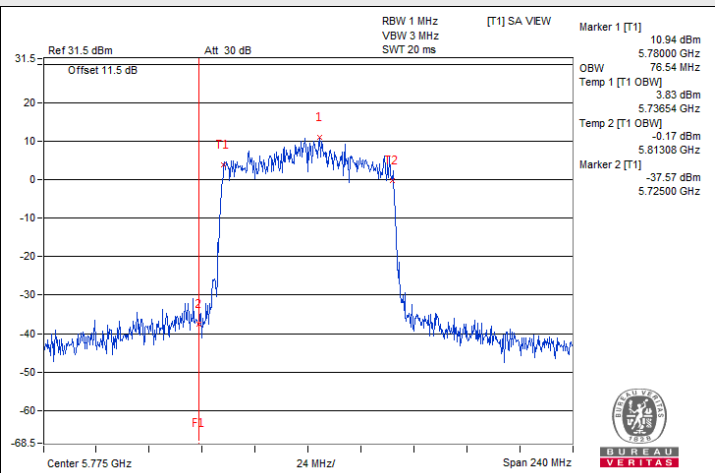
802.11ax (HE40) / Chain 1 : CH 151



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



802.11ax (HE80) / Chain 0 : CH 155



802.11ax (HE80) / Chain 1 : CH 155

7.5 Frequency Stability

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin
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802.11a

Frequency Stability Versus Temperature									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result
60	120	5179.998	Pass	5179.9968	Pass	5179.9995	Pass	5179.9998	Pass
50	120	5179.9931	Pass	5179.9942	Pass	5179.9931	Pass	5179.9931	Pass
40	120	5179.9979	Pass	5180.0006	Pass	5179.9983	Pass	5179.9995	Pass
30	120	5180.0234	Pass	5180.0252	Pass	5180.0231	Pass	5180.0235	Pass
20	120	5179.9876	Pass	5179.9828	Pass	5179.9829	Pass	5179.9854	Pass
10	120	5179.9976	Pass	5179.9946	Pass	5179.9977	Pass	5179.9983	Pass
0	120	5179.9748	Pass	5179.9757	Pass	5179.9772	Pass	5179.9748	Pass
-10	120	5179.9894	Pass	5179.991	Pass	5179.9905	Pass	5179.9875	Pass
-20	120	5180.0044	Pass	5180.0019	Pass	5180.0044	Pass	5180.0039	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vac)	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	138	5179.9913	Pass	5179.9925	Pass	5179.9942	Pass	5179.9947	Pass
	120	5179.9876	Pass	5179.9828	Pass	5179.9829	Pass	5179.9854	Pass
	102	5179.9837	Pass	5179.9822	Pass	5179.9836	Pass	5179.9821	Pass

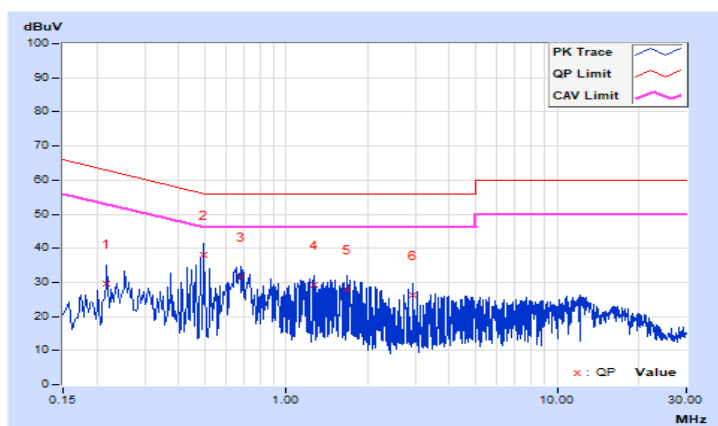
7.6 AC Power Conducted Emissions

RF Mode	802.11a	Channel	CH 165 : 5825 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 75% RH
Tested By	Greg Lin		

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	0.21800	9.66	19.90	11.86	29.56	21.52	62.89	52.89	-33.33	-31.37
2	0.49400	9.69	28.45	18.71	38.14	28.40	56.10	46.10	-17.96	-17.70
3	0.67800	9.70	22.00	15.82	31.70	25.52	56.00	46.00	-24.30	-20.48
4	1.27000	9.72	19.46	11.01	29.18	20.73	56.00	46.00	-26.82	-25.27
5	1.67400	9.72	18.26	10.76	27.98	20.48	56.00	46.00	-28.02	-25.52
6	2.93000	9.75	16.45	8.61	26.20	18.36	56.00	46.00	-29.80	-27.64

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

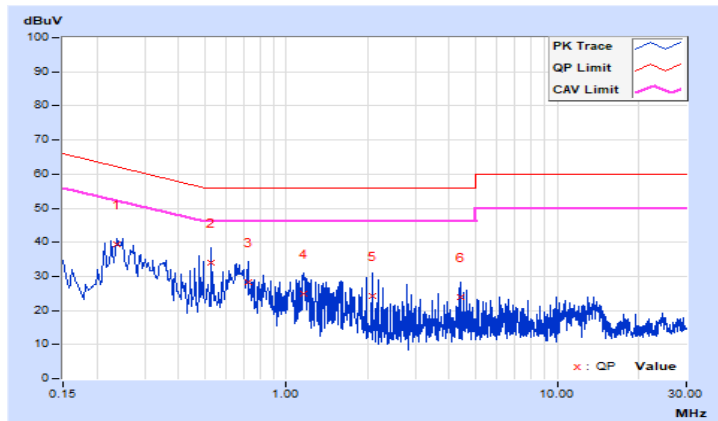


RF Mode	802.11a	Channel	CH 165 : 5825 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 75% RH
Tested By	Greg Lin		

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	0.23786	9.67	29.58	18.28	39.25	27.95	62.17	52.17	-22.92	-24.22
2	0.53000	9.69	24.16	12.29	33.85	21.98	56.00	46.00	-22.15	-24.02
3	0.72200	9.70	18.65	11.98	28.35	21.68	56.00	46.00	-27.65	-24.32
4	1.16200	9.71	15.23	10.12	24.94	19.83	56.00	46.00	-31.06	-26.17
5	2.07400	9.74	14.35	8.47	24.09	18.21	56.00	46.00	-31.91	-27.79
6	4.42200	9.77	14.11	8.94	23.88	18.71	56.00	46.00	-32.12	-27.29

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



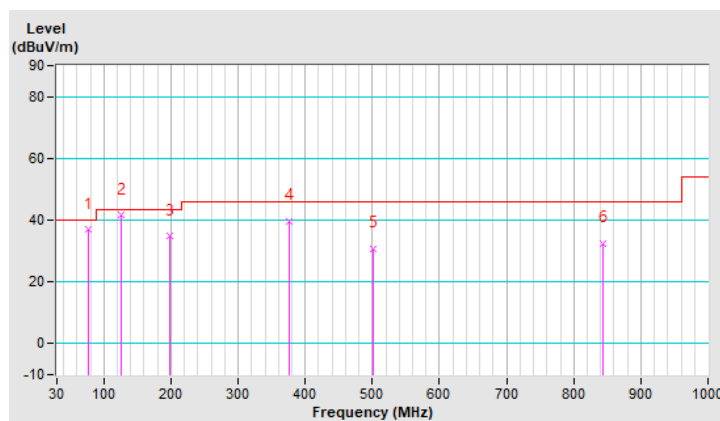
7.7 Unwanted Emissions below 1 GHz

RF Mode	802.11a	Channel	CH 165 : 5825 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 69% RH
Tested By	Greg Lin		

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	77.53	37.1 QP	40.0	-2.9	1.00 H	299	54.7	-17.6
2	125.06	41.7 QP	43.5	-1.8	1.00 H	266	56.6	-14.9
3	198.78	35.0 QP	43.5	-8.5	1.00 H	167	51.8	-16.8
4	375.32	39.8 QP	46.0	-6.2	1.00 H	290	50.7	-10.9
5	500.45	30.9 QP	46.0	-15.1	1.00 H	258	38.8	-7.9
6	843.83	32.6 QP	46.0	-13.4	1.00 H	266	34.5	-1.9

Remarks:

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

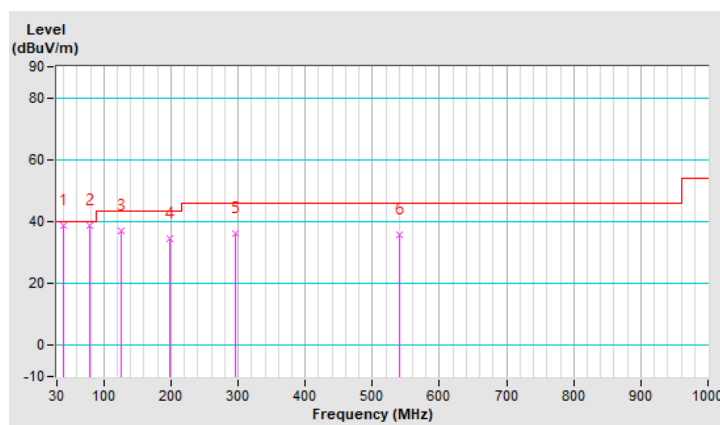


RF Mode	802.11a	Channel	CH 165 : 5825 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 69% RH
Tested By	Greg Lin		

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	39.70	38.9 QP	40.0	-1.1	1.25 V	205	52.7	-13.8
2	79.47	38.6 QP	40.0	-1.4	1.00 V	179	56.7	-18.1
3	125.06	37.2 QP	43.5	-6.3	1.25 V	276	52.1	-14.9
4	198.78	34.3 QP	43.5	-9.2	1.00 V	167	51.1	-16.8
5	296.75	36.0 QP	46.0	-10.0	1.50 V	233	48.7	-12.7
6	541.19	35.6 QP	46.0	-10.4	1.00 V	196	42.8	-7.2

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 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	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	60.7 PK	74.0	-13.3	1.80 H	27	56.3	4.4
2	4800.00	53.4 AV	54.0	-0.6	1.80 H	27	49.0	4.4
3	5040.00	59.5 PK	74.0	-14.5	1.59 H	18	54.4	5.1
4	5040.00	53.1 AV	54.0	-0.9	1.59 H	18	48.0	5.1
5	*5180.00	121.6 PK			1.79 H	15	82.0	39.6
6	*5180.00	112.2 AV			1.79 H	15	72.6	39.6
7	#10360.00	55.6 PK	68.2	-12.6	3.68 H	217	38.4	17.2
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	4800.00	57.2 PK	74.0	-16.8	3.14 V	11	52.8	4.4
2	4800.00	48.1 AV	54.0	-5.9	3.14 V	11	43.7	4.4
3	5040.00	58.5 PK	74.0	-15.5	3.11 V	16	53.4	5.1
4	5040.00	49.6 AV	54.0	-4.4	3.11 V	16	44.5	5.1
5	*5180.00	124.2 PK			1.00 V	2	84.6	39.6
6	*5180.00	114.5 AV			1.00 V	2	74.9	39.6
7	#10360.00	55.8 PK	68.2	-12.4	2.32 V	255	38.6	17.2

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, the limit was restricted at the RF Output Power.
6. " # " : The radiated frequency is out of the restricted band.



RF Mode	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	59.1 PK	74.0	-14.9	1.82 H	28	54.7	4.4
2	4800.00	52.5 AV	54.0	-1.5	1.82 H	28	48.1	4.4
3	5040.00	58.1 PK	74.0	-15.9	1.66 H	21	53.0	5.1
4	5040.00	47.8 AV	54.0	-6.2	1.66 H	21	42.7	5.1
5	*5200.00	121.6 PK			1.90 H	21	82.0	39.6
6	*5200.00	112.7 AV			1.90 H	21	73.1	39.6
7	#10400.00	55.9 PK	68.2	-12.3	3.65 H	224	38.5	17.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4800.00	56.3 PK	74.0	-17.7	3.13 V	14	51.9	4.4
2	4800.00	47.3 AV	54.0	-6.7	3.13 V	14	42.9	4.4
3	5040.00	57.9 PK	74.0	-16.1	1.00 V	3	52.8	5.1
4	5040.00	47.6 AV	54.0	-6.4	1.00 V	3	42.5	5.1
5	*5200.00	122.7 PK			1.00 V	1	83.1	39.6
6	*5200.00	113.6 AV			1.00 V	1	74.0	39.6
7	#10400.00	56.1 PK	68.2	-12.1	2.31 V	256	38.7	17.4

Remarks:

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



RF Mode	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	58.7 PK	74.0	-15.3	1.82 H	29	54.3	4.4
2	4800.00	52.2 AV	54.0	-1.8	1.82 H	29	47.8	4.4
3	5040.00	58.7 PK	74.0	-15.3	1.75 H	25	53.6	5.1
4	5040.00	48.9 AV	54.0	-5.1	1.75 H	25	43.8	5.1
5	*5240.00	121.1 PK			1.91 H	18	81.7	39.4
6	*5240.00	111.9 AV			1.91 H	18	72.5	39.4
7	#10480.00	56.4 PK	68.2	-11.8	3.71 H	216	39.1	17.3

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	4800.00	57.8 PK	74.0	-16.2	3.14 V	11	53.4	4.4
2	4800.00	48.1 AV	54.0	-5.9	3.14 V	11	43.7	4.4
3	5040.00	58.4 PK	74.0	-15.6	1.02 V	4	53.3	5.1
4	5040.00	46.8 AV	54.0	-7.2	1.02 V	4	41.7	5.1
5	*5240.00	124.1 PK			1.00 V	1	84.7	39.4
6	*5240.00	113.5 AV			1.00 V	1	74.1	39.4
7	#10480.00	56.6 PK	68.2	-11.6	2.30 V	256	39.3	17.3

Remarks:

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

RF Mode	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	58.0 PK	74.0	-16.0	1.79 H	25	53.6	4.4
2	4800.00	51.4 AV	54.0	-2.6	1.79 H	25	47.0	4.4
3	5040.00	57.4 PK	74.0	-16.6	1.67 H	23	52.3	5.1
4	5040.00	48.7 AV	54.0	-5.3	1.67 H	23	43.6	5.1
5	#5648.00	59.5 PK	68.2	-8.7	1.64 H	13	53.7	5.8
6	*5745.00	123.0 PK			1.60 H	10	82.5	40.5
7	*5745.00	113.5 AV			1.60 H	10	73.0	40.5
8	#5946.40	56.2 PK	68.2	-12.0	1.64 H	13	49.7	6.5
9	11490.00	63.3 PK	74.0	-10.7	2.58 H	237	45.2	18.1
10	11490.00	49.7 AV	54.0	-4.3	2.58 H	237	31.6	18.1
11	#17235.00	65.1 PK	68.2	-3.1	2.68 H	205	42.3	22.8

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	4800.00	56.9 PK	74.0	-17.1	3.11 V	12	52.5	4.4
2	4800.00	46.2 AV	54.0	-7.8	3.11 V	12	41.8	4.4
3	5040.00	55.9 PK	74.0	-18.1	1.11 V	2	50.8	5.1
4	5040.00	45.7 AV	54.0	-8.3	1.11 V	2	40.6	5.1
5	#5623.60	57.7 PK	68.2	-10.5	1.19 V	5	51.9	5.8
6	*5745.00	123.1 PK			1.24 V	4	82.6	40.5
7	*5745.00	113.7 AV			1.24 V	4	73.2	40.5
8	#5954.80	57.8 PK	68.2	-10.4	1.19 V	5	51.3	6.5
9	11490.00	59.4 PK	74.0	-14.6	1.92 V	333	41.3	18.1
10	11490.00	47.0 AV	54.0	-7.0	1.92 V	333	28.9	18.1
11	#17235.00	62.8 PK	68.2	-5.4	1.68 V	224	40.0	22.8

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, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.



RF Mode	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	59.5 PK	74.0	-14.5	1.79 H	24	55.1	4.4
2	4800.00	53.0 AV	54.0	-1.0	1.79 H	24	48.6	4.4
3	5040.00	60.8 PK	74.0	-13.2	1.47 H	19	55.7	5.1
4	5040.00	52.6 AV	54.0	-1.4	1.47 H	19	47.5	5.1
5	*5785.00	122.9 PK			1.44 H	7	82.3	40.6
6	*5785.00	113.9 AV			1.44 H	7	73.3	40.6
7	11570.00	63.9 PK	74.0	-10.1	2.60 H	218	46.1	17.8
8	11570.00	49.9 AV	54.0	-4.1	2.60 H	218	32.1	17.8
9	#17355.00	62.5 PK	68.2	-5.7	2.57 H	206	40.6	21.9

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4800.00	55.7 PK	74.0	-18.3	3.11 V	12	51.3	4.4
2	4800.00	47.0 AV	54.0	-7.0	3.11 V	12	42.6	4.4
3	5040.00	56.9 PK	74.0	-17.1	1.00 V	2	51.8	5.1
4	5040.00	47.7 AV	54.0	-6.3	1.00 V	2	42.6	5.1
5	*5785.00	123.3 PK			1.24 V	4	82.7	40.6
6	*5785.00	114.1 AV			1.24 V	4	73.5	40.6
7	11570.00	59.4 PK	74.0	-14.6	1.96 V	328	41.6	17.8
8	11570.00	47.3 AV	54.0	-6.7	1.96 V	328	29.5	17.8
9	#17355.00	62.4 PK	68.2	-5.8	1.69 V	227	40.5	21.9

Remarks:

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



RF Mode	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	59.5 PK	74.0	-14.5	1.77 H	24	55.1	4.4
2	4800.00	52.1 AV	54.0	-1.9	1.77 H	24	47.7	4.4
3	5040.00	59.8 PK	74.0	-14.2	1.49 H	18	54.7	5.1
4	5040.00	51.3 AV	54.0	-2.7	1.49 H	18	46.2	5.1
5	#5602.40	56.6 PK	68.2	-11.6	1.74 H	6	50.8	5.8
6	*5825.00	121.8 PK			1.73 H	8	81.0	40.8
7	*5825.00	112.6 AV			1.73 H	8	71.8	40.8
8	#5927.20	57.2 PK	68.2	-11.0	1.74 H	6	50.7	6.5
9	11650.00	63.1 PK	74.0	-10.9	2.58 H	235	45.6	17.5
10	11650.00	50.9 AV	54.0	-3.1	2.58 H	235	33.4	17.5
11	#17475.00	65.5 PK	68.2	-2.7	2.66 H	211	42.5	23.0

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4800.00	56.7 PK	74.0	-17.3	3.11 V	2	52.3	4.4
2	4800.00	46.7 AV	54.0	-7.3	3.11 V	2	42.3	4.4
3	5040.00	57.5 PK	74.0	-16.5	1.00 V	1	52.4	5.1
4	5040.00	48.0 AV	54.0	-6.0	1.00 V	1	42.9	5.1
5	#5625.60	55.9 PK	68.2	-12.3	1.25 V	0	50.1	5.8
6	*5825.00	123.6 PK			1.23 V	2	82.8	40.8
7	*5825.00	112.7 AV			1.23 V	2	71.9	40.8
8	#5929.20	57.1 PK	68.2	-11.1	1.25 V	0	50.6	6.5
9	11650.00	58.8 PK	74.0	-15.2	1.99 V	336	41.3	17.5
10	11650.00	46.1 AV	54.0	-7.9	1.99 V	336	28.6	17.5
11	#17475.00	63.6 PK	68.2	-4.6	1.64 V	217	40.6	23.0

Remarks:

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



RF Mode	802.11ax (HE20)	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	59.1 PK	74.0	-14.9	1.78 H	27	54.7	4.4
2	4800.00	52.2 AV	54.0	-1.8	1.78 H	27	47.8	4.4
3	5040.00	59.9 PK	74.0	-14.1	1.79 H	20	54.8	5.1
4	5040.00	49.6 AV	54.0	-4.4	1.79 H	20	44.5	5.1
5	*5180.00	124.2 PK			1.89 H	16	84.6	39.6
6	*5180.00	111.2 AV			1.89 H	16	71.6	39.6
7	#10360.00	55.8 PK	68.2	-12.4	3.44 H	215	38.6	17.2

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	4800.00	57.5 PK	74.0	-16.5	3.09 V	9	53.1	4.4
2	4800.00	48.2 AV	54.0	-5.8	3.09 V	9	43.8	4.4
3	5150.00	55.9 PK	74.0	-18.1	3.15 V	12	50.6	5.3
4	5150.00	44.1 AV	54.0	-9.9	3.15 V	12	38.8	5.3
5	*5180.00	126.1 PK			1.07 V	8	86.5	39.6
6	*5180.00	112.7 AV			1.07 V	8	73.1	39.6
7	#10360.00	56.0 PK	68.2	-12.2	2.35 V	267	38.8	17.2

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, the limit was restricted at the RF Output Power.
6. " # " : The radiated frequency is out of the restricted band.



RF Mode	802.11ax (HE20)	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	58.9 PK	74.0	-15.1	1.81 H	27	54.5	4.4
2	4800.00	51.9 AV	54.0	-2.1	1.81 H	27	47.5	4.4
3	5040.00	58.7 PK	74.0	-15.3	1.77 H	21	53.6	5.1
4	5040.00	48.4 AV	54.0	-5.6	1.77 H	21	43.3	5.1
5	*5200.00	124.0 PK			1.70 H	17	84.4	39.6
6	*5200.00	111.0 AV			1.70 H	17	71.4	39.6
7	#10400.00	55.9 PK	68.2	-12.3	3.70 H	219	38.5	17.4

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4800.00	57.3 PK	74.0	-16.7	3.14 V	10	52.9	4.4
2	4800.00	47.7 AV	54.0	-6.3	3.14 V	10	43.3	4.4
3	5040.00	58.0 PK	74.0	-16.0	1.01 V	359	52.9	5.1
4	5040.00	47.0 AV	54.0	-7.0	1.01 V	359	41.9	5.1
5	*5200.00	124.7 PK			1.00 V	2	85.1	39.6
6	*5200.00	112.0 AV			1.00 V	2	72.4	39.6
7	#10400.00	56.2 PK	68.2	-12.0	2.27 V	249	38.8	17.4

Remarks:

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



RF Mode	802.11ax (HE20)	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	58.7 PK	74.0	-15.3	1.84 H	27	54.3	4.4
2	4800.00	50.2 AV	54.0	-3.8	1.84 H	27	45.8	4.4
3	5040.00	57.9 PK	74.0	-16.1	1.93 H	22	52.8	5.1
4	5040.00	49.4 AV	54.0	-4.6	1.93 H	22	44.3	5.1
5	*5240.00	123.4 PK			1.76 H	15	84.0	39.4
6	*5240.00	110.8 AV			1.76 H	15	71.4	39.4
7	#10480.00	55.7 PK	68.2	-12.5	3.65 H	220	38.4	17.3

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	4800.00	57.5 PK	74.0	-16.5	3.13 V	8	53.1	4.4
2	4800.00	47.2 AV	54.0	-6.8	3.13 V	8	42.8	4.4
3	5040.00	57.7 PK	74.0	-16.3	1.00 V	0	52.6	5.1
4	5040.00	48.5 AV	54.0	-5.5	1.00 V	0	43.4	5.1
5	*5240.00	125.8 PK			1.00 V	2	86.4	39.4
6	*5240.00	112.9 AV			1.00 V	2	73.5	39.4
7	#10480.00	56.0 PK	68.2	-12.2	2.33 V	258	38.7	17.3

Remarks:

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



RF Mode	802.11ax (HE20)	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	59.7 PK	74.0	-14.3	1.81 H	27	55.3	4.4
2	4800.00	53.6 AV	54.0	-0.4	1.81 H	27	49.2	4.4
3	5040.00	59.7 PK	74.0	-14.3	1.79 H	20	54.6	5.1
4	5040.00	52.9 AV	54.0	-1.1	1.79 H	20	47.8	5.1
5	#5645.20	60.3 PK	68.2	-7.9	1.44 H	11	54.5	5.8
6	*5745.00	126.8 PK			1.42 H	10	86.3	40.5
7	*5745.00	114.0 AV			1.42 H	10	73.5	40.5
8	#5991.60	57.4 PK	68.2	-10.8	1.44 H	11	50.9	6.5
9	11490.00	64.1 PK	74.0	-9.9	2.58 H	219	46.0	18.1
10	11490.00	50.4 AV	54.0	-3.6	2.58 H	219	32.3	18.1
11	#17235.00	68.0 PK	68.2	-0.2	2.67 H	209	45.2	22.8

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	4800.00	57.4 PK	74.0	-16.6	3.10 V	10	53.0	4.4
2	4800.00	46.6 AV	54.0	-7.4	3.10 V	10	42.2	4.4
3	5040.00	56.6 PK	74.0	-17.4	1.00 V	0	51.5	5.1
4	5040.00	47.5 AV	54.0	-6.5	1.00 V	0	42.4	5.1
5	#5649.60	58.3 PK	68.2	-9.9	1.55 V	8	52.5	5.8
6	*5745.00	127.1 PK			1.36 V	7	86.6	40.5
7	*5745.00	114.5 AV			1.36 V	7	74.0	40.5
8	#5943.20	57.4 PK	68.2	-10.8	1.55 V	8	50.9	6.5
9	11490.00	59.9 PK	74.0	-14.1	1.90 V	334	41.8	18.1
10	11490.00	47.2 AV	54.0	-6.8	1.90 V	334	29.1	18.1
11	#17235.00	63.1 PK	68.2	-5.1	1.77 V	221	40.3	22.8

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, the limit was restricted at the RF Output Power.
6. " # " : The radiated frequency is out of the restricted band.



RF Mode	802.11ax (HE20)	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	59.2 PK	74.0	-14.8	1.82 H	23	54.8	4.4
2	4800.00	51.7 AV	54.0	-2.3	1.82 H	23	47.3	4.4
3	5040.00	58.8 PK	74.0	-15.2	1.49 H	17	53.7	5.1
4	5040.00	51.6 AV	54.0	-2.4	1.49 H	17	46.5	5.1
5	#5635.20	58.3 PK	68.2	-9.9	1.75 H	8	52.5	5.8
6	*5785.00	125.4 PK			1.76 H	6	84.8	40.6
7	*5785.00	112.9 AV			1.76 H	6	72.3	40.6
8	#5927.20	57.4 PK	68.2	-10.8	1.75 H	8	50.9	6.5
9	11570.00	61.6 PK	74.0	-12.4	2.58 H	241	43.8	17.8
10	11570.00	48.6 AV	54.0	-5.4	2.58 H	241	30.8	17.8
11	#17355.00	63.7 PK	68.2	-4.5	2.64 H	211	41.8	21.9

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4800.00	57.6 PK	74.0	-16.4	3.13 V	6	53.2	4.4
2	4800.00	47.2 AV	54.0	-6.8	3.13 V	6	42.8	4.4
3	5040.00	57.9 PK	74.0	-16.1	1.01 V	2	52.8	5.1
4	5040.00	48.1 AV	54.0	-5.9	1.01 V	2	43.0	5.1
5	#5647.60	56.5 PK	68.2	-11.7	1.29 V	1	50.7	5.8
6	*5785.00	126.1 PK			1.29 V	1	85.5	40.6
7	*5785.00	113.1 AV			1.29 V	1	72.5	40.6
8	#5924.80	58.2 PK	68.3	-10.1	1.29 V	1	51.7	6.5
9	11570.00	60.4 PK	74.0	-13.6	1.96 V	326	42.6	17.8
10	11570.00	45.6 AV	54.0	-8.4	1.96 V	326	27.8	17.8
11	#17355.00	62.5 PK	68.2	-5.7	1.64 V	223	40.6	21.9

Remarks:

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



RF Mode	802.11ax (HE20)	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	59.0 PK	74.0	-15.0	1.80 H	23	54.6	4.4
2	4800.00	51.8 AV	54.0	-2.2	1.80 H	23	47.4	4.4
3	5040.00	59.0 PK	74.0	-15.0	1.48 H	18	53.9	5.1
4	5040.00	51.3 AV	54.0	-2.7	1.48 H	18	46.2	5.1
5	#5647.20	56.9 PK	68.2	-11.3	1.58 H	6	51.1	5.8
6	*5825.00	125.2 PK			1.55 H	7	84.4	40.8
7	*5825.00	112.4 AV			1.55 H	7	71.6	40.8
8	#5927.20	57.9 PK	68.2	-10.3	1.58 H	6	51.4	6.5
9	11650.00	60.3 PK	74.0	-13.7	2.55 H	219	42.8	17.5
10	11650.00	48.9 AV	54.0	-5.1	2.55 H	219	31.4	17.5
11	#17475.00	65.7 PK	68.2	-2.5	2.67 H	211	42.7	23.0

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4800.00	56.3 PK	74.0	-17.7	3.12 V	11	51.9	4.4
2	4800.00	46.4 AV	54.0	-7.6	3.12 V	11	42.0	4.4
3	5040.00	57.4 PK	74.0	-16.6	1.00 V	1	52.3	5.1
4	5040.00	47.7 AV	54.0	-6.3	1.00 V	1	42.6	5.1
5	#5601.60	56.8 PK	68.2	-11.4	1.21 V	2	51.0	5.8
6	*5825.00	125.4 PK			1.23 V	1	84.6	40.8
7	*5825.00	112.6 AV			1.23 V	1	71.8	40.8
8	#5926.00	57.3 PK	68.2	-10.9	1.21 V	2	50.8	6.5
9	11650.00	59.3 PK	74.0	-14.7	1.99 V	332	41.8	17.5
10	11650.00	48.2 AV	54.0	-5.8	1.99 V	332	30.7	17.5
11	#17475.00	63.8 PK	68.2	-4.4	1.65 V	223	40.8	23.0

Remarks:

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

RF Mode	802.11ax (HE40)	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	59.1 PK	74.0	-14.9	1.79 H	26	54.7	4.4
2	4800.00	52.4 AV	54.0	-1.6	1.79 H	26	48.0	4.4
3	5040.00	59.4 PK	74.0	-14.6	1.86 H	20	54.3	5.1
4	5040.00	51.4 AV	54.0	-2.6	1.86 H	20	46.3	5.1
5	*5190.00	119.7 PK			1.93 H	17	80.1	39.6
6	*5190.00	108.3 AV			1.93 H	17	68.7	39.6
7	#10380.00	56.3 PK	68.2	-11.9	3.74 H	215	38.9	17.4

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4800.00	56.4 PK	74.0	-17.6	3.13 V	6	52.0	4.4
2	4800.00	47.4 AV	54.0	-6.6	3.13 V	6	43.0	4.4
3	5040.00	60.4 PK	74.0	-13.6	1.00 V	11	55.3	5.1
4	5040.00	51.0 AV	54.0	-3.0	1.00 V	11	45.9	5.1
5	*5190.00	121.9 PK			1.00 V	0	82.3	39.6
6	*5190.00	110.2 AV			1.00 V	0	70.6	39.6
7	#10380.00	55.9 PK	68.2	-12.3	3.64 V	200	38.5	17.4

Remarks:

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



RF Mode	802.11ax (HE40)	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	58.0 PK	74.0	-16.0	1.79 H	28	53.6	4.4
2	4800.00	50.4 AV	54.0	-3.6	1.79 H	28	46.0	4.4
3	5040.00	59.4 PK	74.0	-14.6	1.70 H	23	54.3	5.1
4	5040.00	50.3 AV	54.0	-3.7	1.70 H	23	45.2	5.1
5	*5230.00	119.9 PK			1.88 H	18	80.4	39.5
6	*5230.00	108.5 AV			1.88 H	18	69.0	39.5
7	#10460.00	55.7 PK	68.2	-12.5	3.38 H	215	38.5	17.2

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	4800.00	57.0 PK	74.0	-17.0	2.99 V	6	52.6	4.4
2	4800.00	48.2 AV	54.0	-5.8	2.99 V	6	43.8	4.4
3	5040.00	60.0 PK	74.0	-14.0	1.00 V	0	54.9	5.1
4	5040.00	52.1 AV	54.0	-1.9	1.00 V	0	47.0	5.1
5	*5230.00	122.9 PK			1.02 V	0	83.4	39.5
6	*5230.00	110.4 AV			1.02 V	0	70.9	39.5
7	#10460.00	55.8 PK	68.2	-12.4	2.33 V	256	38.6	17.2

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, the limit was restricted at the RF Output Power.
6. " # " : The radiated frequency is out of the restricted band.



RF Mode	802.11ax (HE40)	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	59.8 PK	74.0	-14.2	1.66 H	29	55.4	4.4
2	4800.00	52.9 AV	54.0	-1.1	1.66 H	29	48.5	4.4
3	5040.00	59.6 PK	74.0	-14.4	1.76 H	19	54.5	5.1
4	5040.00	53.2 AV	54.0	-0.8	1.76 H	19	48.1	5.1
5	#5605.60	59.1 PK	68.2	-9.1	1.89 H	10	53.3	5.8
6	*5755.00	123.5 PK			1.88 H	8	83.0	40.5
7	*5755.00	111.1 AV			1.88 H	8	70.6	40.5
8	#5992.40	58.2 PK	68.2	-10.0	1.89 H	10	51.7	6.5
9	11510.00	60.7 PK	74.0	-13.3	3.67 H	146	42.7	18.0
10	11510.00	48.2 AV	54.0	-5.8	3.67 H	146	30.2	18.0
11	#17265.00	61.7 PK	68.2	-6.5	3.61 H	268	39.3	22.4

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4800.00	56.2 PK	74.0	-17.8	3.14 V	2	51.8	4.4
2	4800.00	46.5 AV	54.0	-7.5	3.14 V	2	42.1	4.4
3	5040.00	57.4 PK	74.0	-16.6	1.00 V	2	52.3	5.1
4	5040.00	48.5 AV	54.0	-5.5	1.00 V	2	43.4	5.1
5	#5619.20	57.7 PK	68.2	-10.5	1.44 V	5	51.9	5.8
6	*5755.00	123.5 PK			1.41 V	3	83.0	40.5
7	*5755.00	111.5 AV			1.41 V	3	71.0	40.5
8	#5944.80	57.6 PK	68.2	-10.6	1.44 V	5	51.1	6.5
9	11510.00	58.8 PK	74.0	-15.2	1.96 V	334	40.8	18.0
10	11510.00	46.8 AV	54.0	-7.2	1.96 V	334	28.8	18.0
11	#17265.00	61.6 PK	68.2	-6.6	1.65 V	221	39.2	22.4

Remarks:

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



RF Mode	802.11ax (HE40)	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 = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	59.2 PK	74.0	-14.8	1.78 H	23	54.8	4.4
2	4800.00	51.5 AV	54.0	-2.5	1.78 H	23	47.1	4.4
3	5040.00	60.4 PK	74.0	-13.6	1.58 H	19	55.3	5.1
4	5040.00	52.6 AV	54.0	-1.4	1.58 H	19	47.5	5.1
5	#5644.40	59.2 PK	68.2	-9.0	1.68 H	10	53.4	5.8
6	*5795.00	122.9 PK			1.66 H	6	82.2	40.7
7	*5795.00	110.6 AV			1.66 H	6	69.9	40.7
8	#5940.80	58.0 PK	68.2	-10.2	1.68 H	10	51.5	6.5
9	11590.00	59.5 PK	74.0	-14.5	2.58 H	214	41.8	17.7
10	11590.00	46.3 AV	54.0	-7.7	2.58 H	214	28.6	17.7
11	#17385.00	61.3 PK	68.2	-6.9	3.66 H	264	39.5	21.8

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	4800.00	57.2 PK	74.0	-16.8	3.13 V	10	52.8	4.4
2	4800.00	46.7 AV	54.0	-7.3	3.13 V	10	42.3	4.4
3	5040.00	57.7 PK	74.0	-16.3	1.00 V	0	52.6	5.1
4	5040.00	48.4 AV	54.0	-5.6	1.00 V	0	43.3	5.1
5	#5641.60	57.8 PK	68.2	-10.4	1.12 V	0	52.0	5.8
6	*5795.00	123.3 PK			1.28 V	2	82.6	40.7
7	*5795.00	110.9 AV			1.28 V	2	70.2	40.7
8	#5994.40	58.4 PK	68.2	-9.8	1.12 V	0	51.9	6.5
9	11590.00	58.5 PK	74.0	-15.5	1.89 V	332	40.8	17.7
10	11590.00	46.1 AV	54.0	-7.9	1.89 V	332	28.4	17.7
11	#17385.00	61.1 PK	68.2	-7.1	1.74 V	227	39.3	21.8

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, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	802.11ax (HE80)	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	120 Vac, 60 Hz	Environmental Conditions	21°C, 76% RH
Tested By	Rex Wang		

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	4800.00	58.6 PK	74.0	-15.4	1.63 H	22	54.2	4.4
2	4800.00	50.0 AV	54.0	-4.0	1.63 H	22	45.6	4.4
3	5145.80	64.8 PK	74.0	-9.2	1.72 H	16	59.4	5.4
4	5145.80	50.8 AV	54.0	-3.2	1.72 H	16	45.4	5.4
5	*5210.00	118.6 PK			1.86 H	12	79.1	39.5
6	*5210.00	106.2 AV			1.86 H	12	66.7	39.5
7	#10420.00	56.6 PK	68.2	-11.6	3.84 H	221	39.2	17.4

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4800.00	56.5 PK	74.0	-17.5	1.00 V	0	52.1	4.4
2	4800.00	45.3 AV	54.0	-8.7	1.00 V	0	40.9	4.4
3	5150.00	69.8 PK	74.0	-4.2	1.00 V	359	64.5	5.3
4	5150.00	52.9 AV	54.0	-1.1	1.00 V	359	47.6	5.3
5	*5210.00	119.7 PK			1.05 V	1	80.2	39.5
6	*5210.00	107.6 AV			1.05 V	1	68.1	39.5
7	#10420.00	56.0 PK	68.2	-12.2	3.58 V	196	38.6	17.4

Remarks:

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

RF Mode	802.11ax (HE80)	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	120 Vac, 60 Hz	Environmental Conditions	21°C, 69% RH
Tested By	Rex Wang		

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	4800.00	60.9 PK	74.0	-13.1	2.01 H	17	58.3	2.6
2	4800.00	51.5 AV	54.0	-2.5	2.01 H	17	48.9	2.6
3	5040.00	60.0 PK	74.0	-14.0	1.76 H	19	56.7	3.3
4	5040.00	48.6 AV	54.0	-5.4	1.76 H	19	45.3	3.3
5	*5775.00	120.2 PK			1.84 H	4	77.8	42.4
6	*5775.00	107.2 AV			1.84 H	4	64.8	42.4
7	11550.00	61.7 PK	74.0	-12.3	1.02 H	259	52.2	9.5
8	11550.00	49.2 AV	54.0	-4.8	1.02 H	259	39.7	9.5
9	#17325.00	66.1 PK	68.2	-2.1	1.34 H	159	54.2	11.9

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4800.00	60.4 PK	74.0	-13.6	1.01 V	6	57.8	2.6
2	4800.00	51.4 AV	54.0	-2.6	1.01 V	6	48.8	2.6
3	5040.00	58.6 PK	74.0	-15.4	1.03 V	13	55.3	3.3
4	5040.00	47.6 AV	54.0	-6.4	1.03 V	13	44.3	3.3
5	*5775.00	120.5 PK			1.62 V	3	78.1	42.4
6	*5775.00	107.9 AV			1.62 V	3	65.5	42.4
7	11550.00	61.0 PK	74.0	-13.0	1.00 V	235	51.5	9.5
8	11550.00	48.6 AV	54.0	-5.4	1.00 V	235	39.1	9.5
9	#17325.00	66.4 PK	68.2	-1.8	1.73 V	212	54.5	11.9

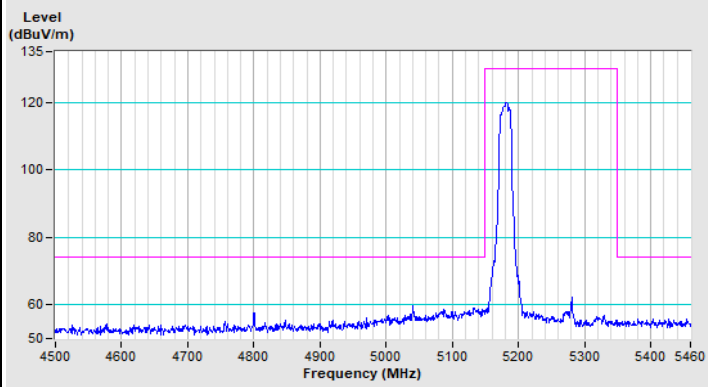
Remarks:

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

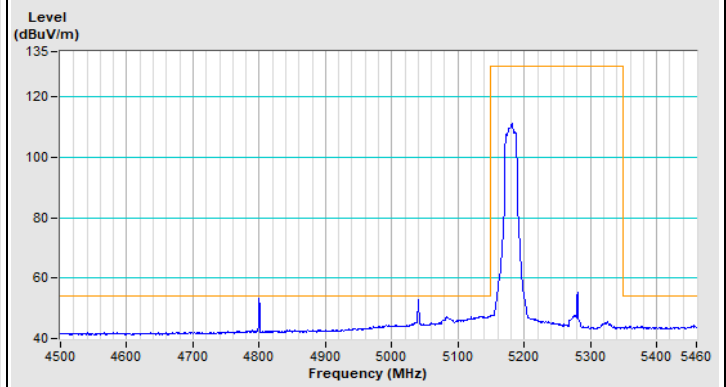


Plot of Band Edge

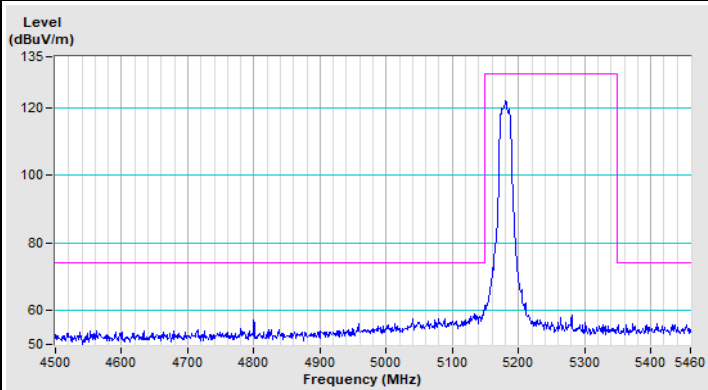
802.11a Channel 36



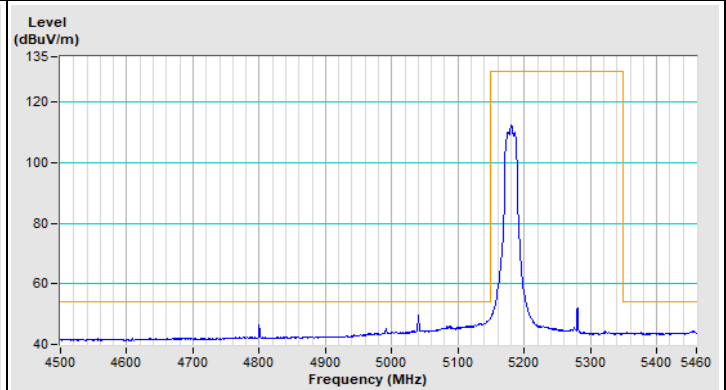
Horizontal (Peak)



Horizontal (Average)

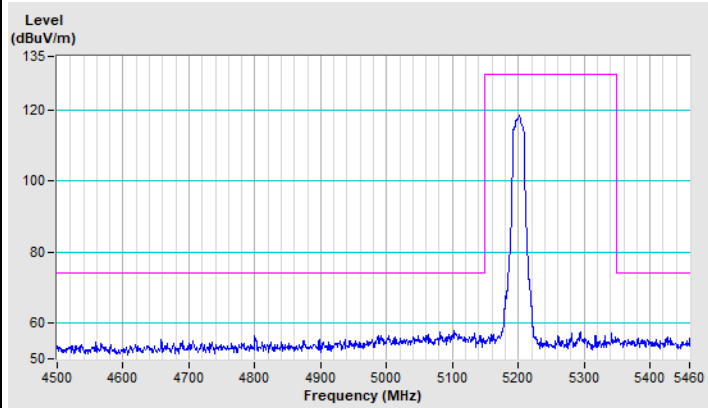


Vertical (Peak)

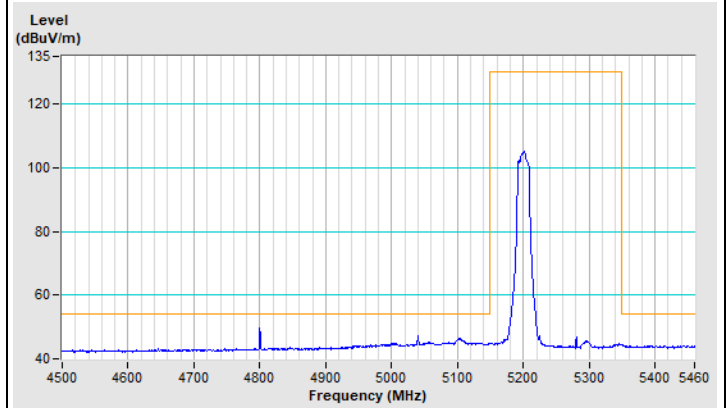


Vertical (Average)

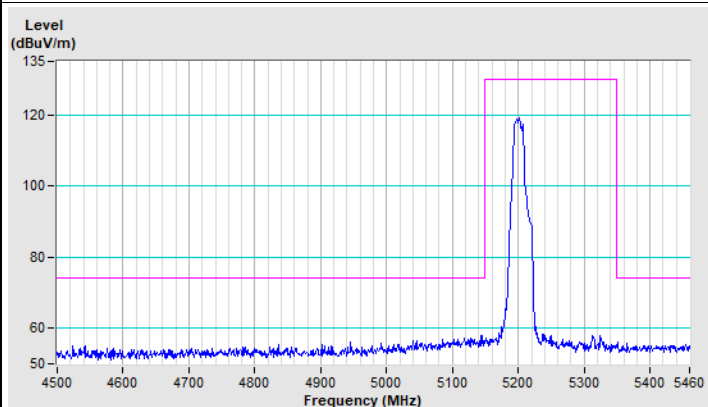
802.11a Channel 40



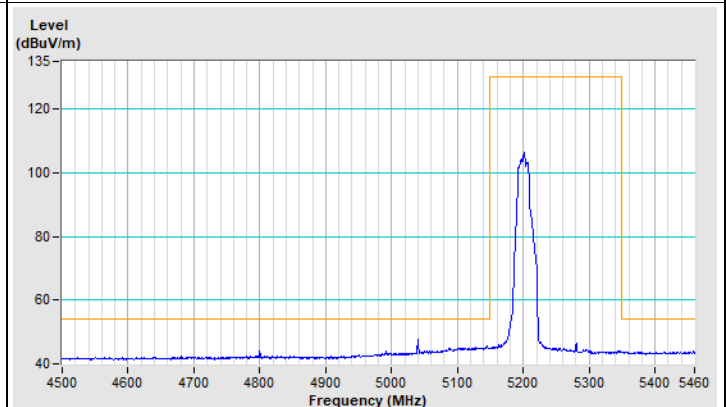
Horizontal (Peak)



Horizontal (Average)

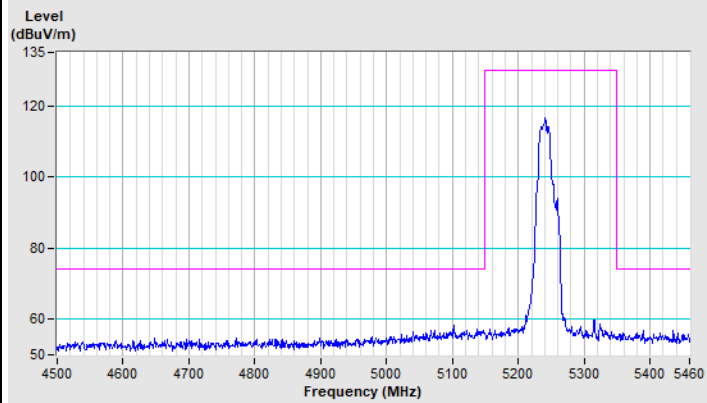


Vertical (Peak)

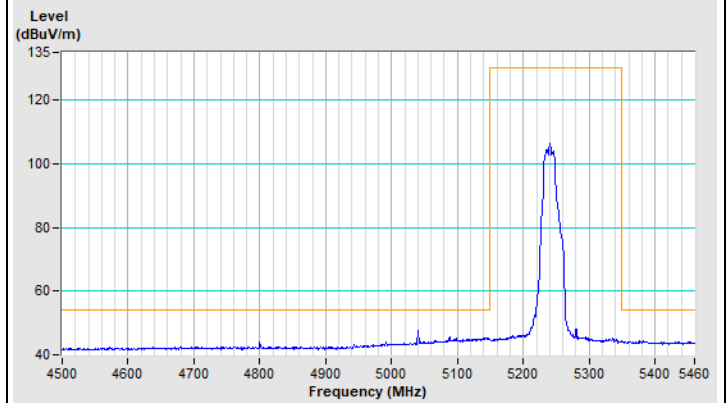


Vertical (Average)

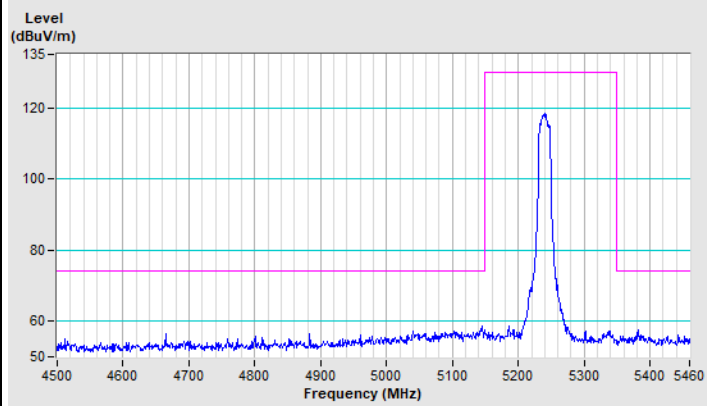
802.11a Channel 48



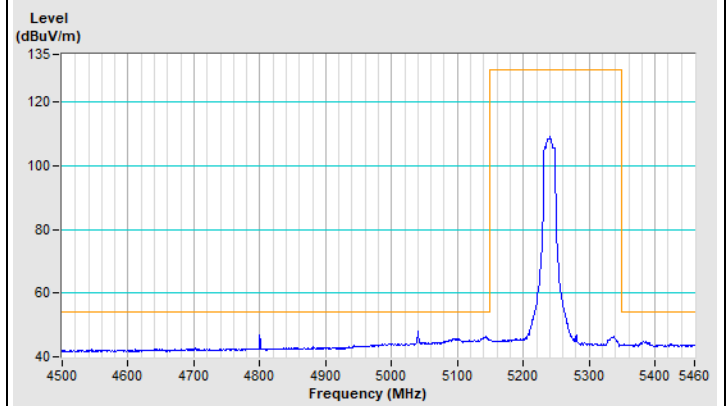
Horizontal (Peak)



Horizontal (Average)



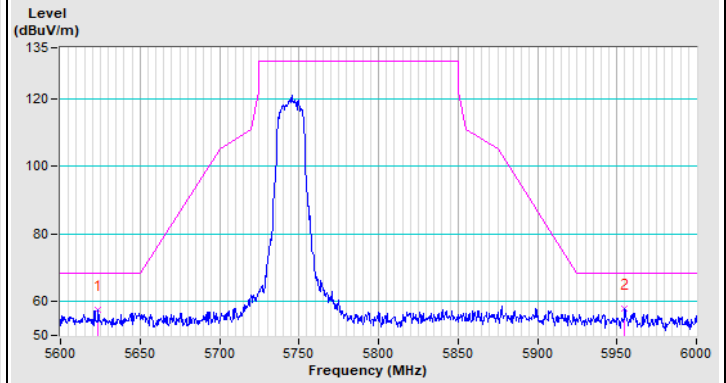
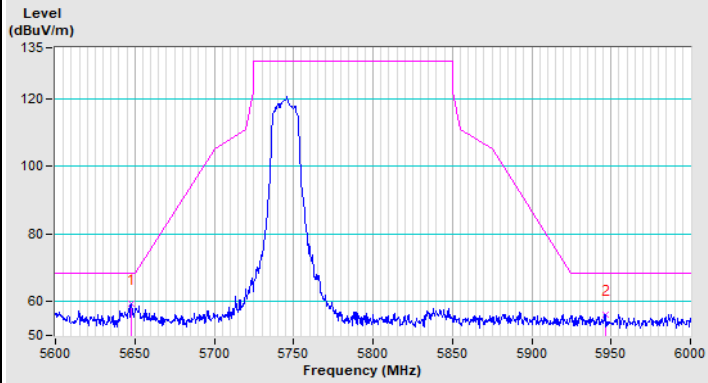
Vertical (Peak)



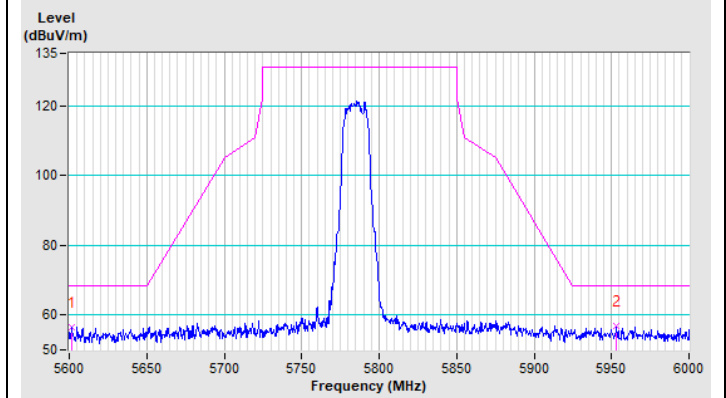
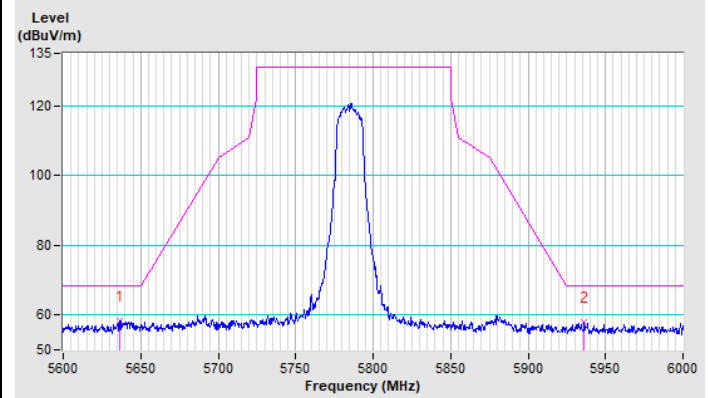
Vertical (Average)



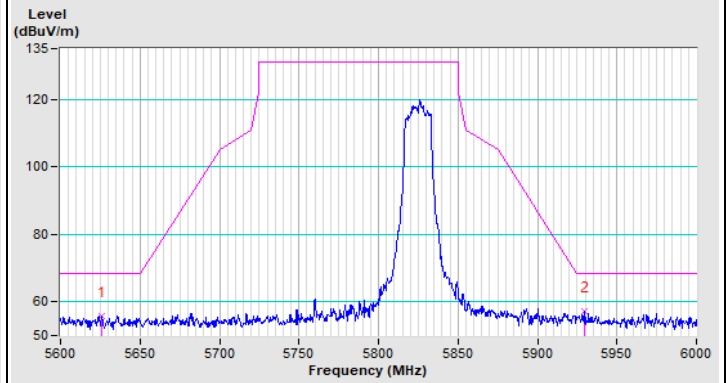
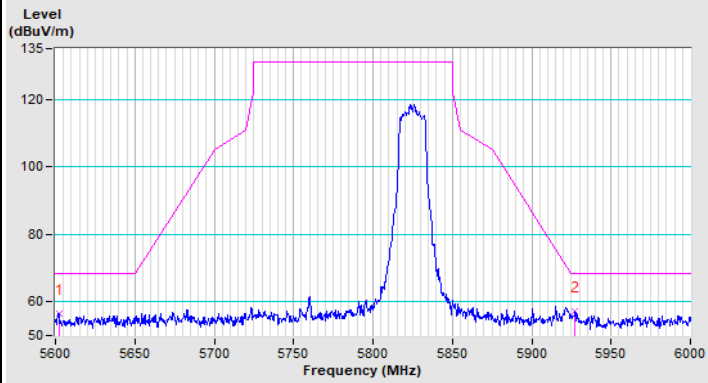
802.11a Channel 149



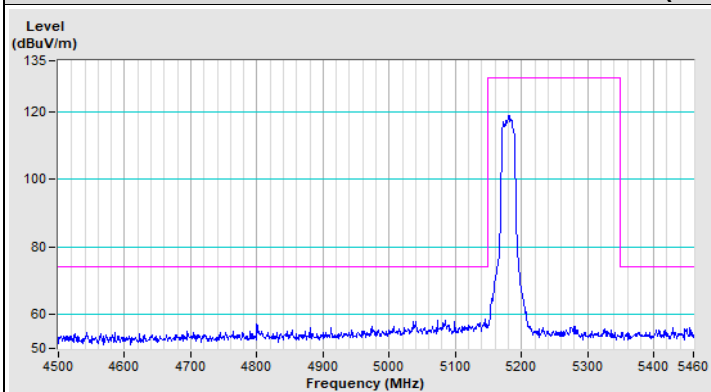
802.11a Channel 157



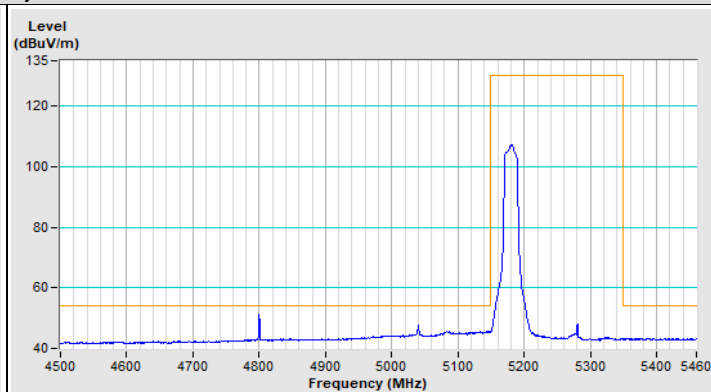
802.11a Channel 165



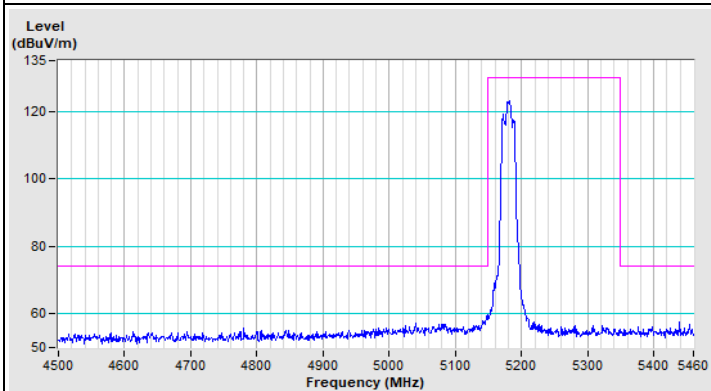
802.11ax (HE20) Channel 36



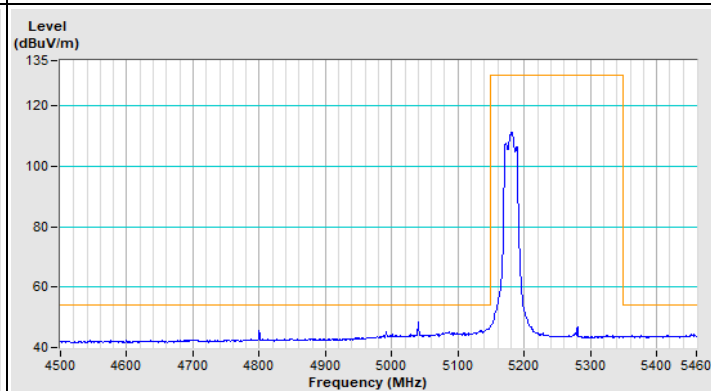
Horizontal (Peak)



Horizontal (Average)

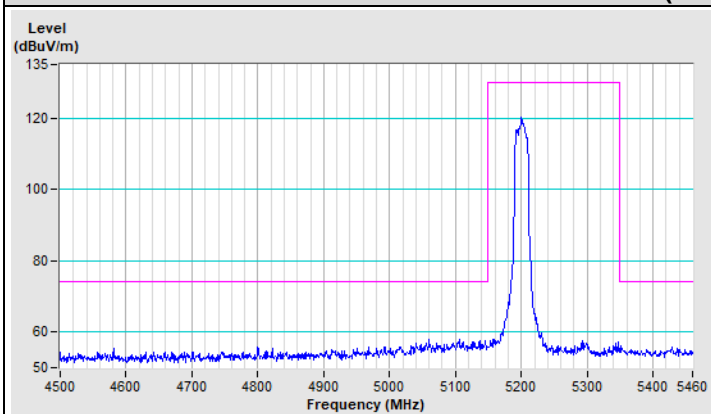


Vertical (Peak)

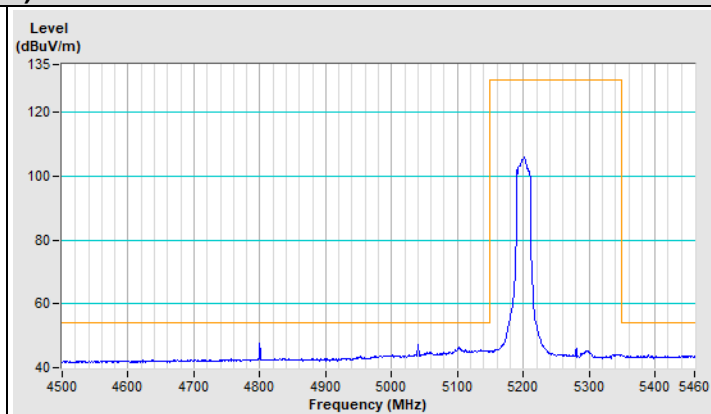


Vertical (Average)

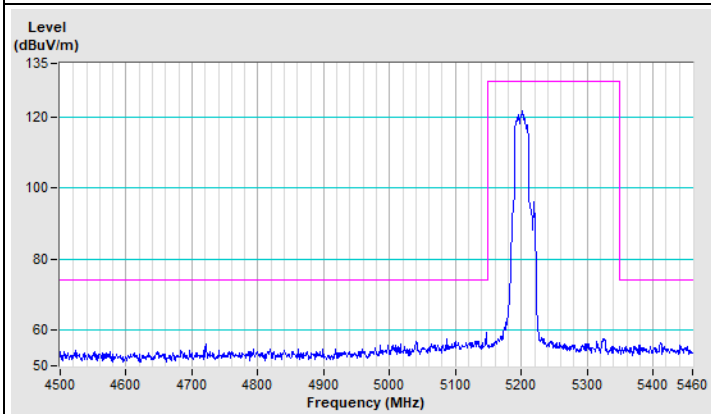
802.11ax (HE20) Channel 40



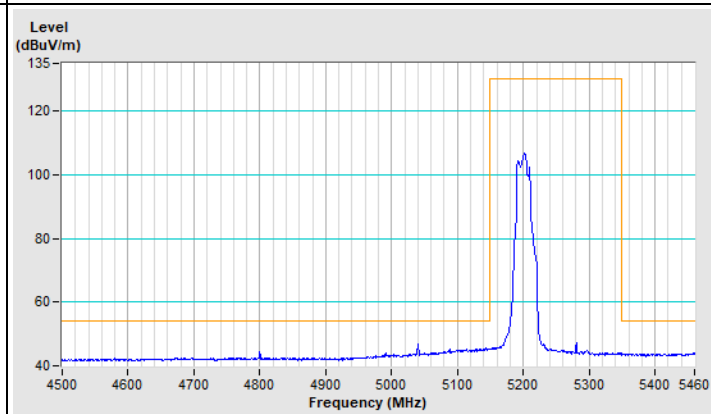
Horizontal (Peak)



Horizontal (Average)

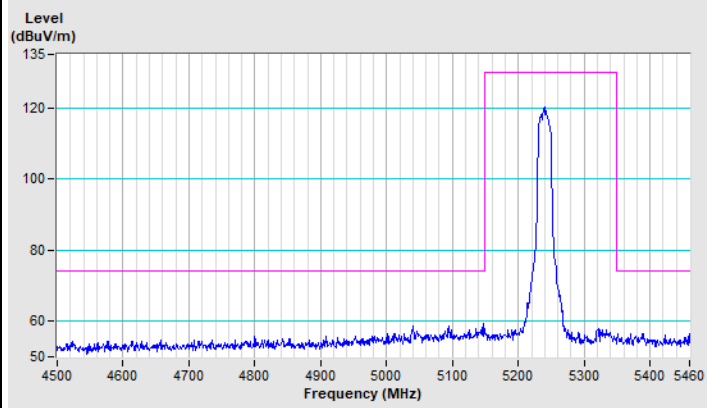


Vertical (Peak)

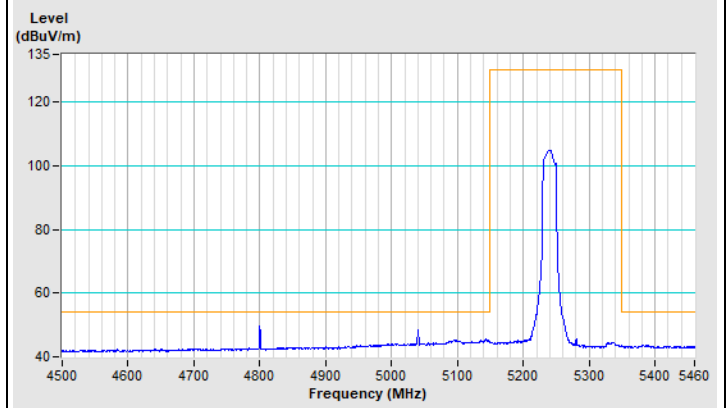


Vertical (Average)

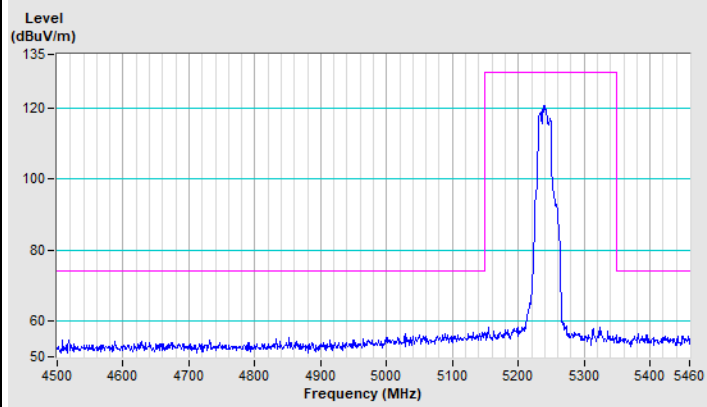
802.11ax (HE20) Channel 48



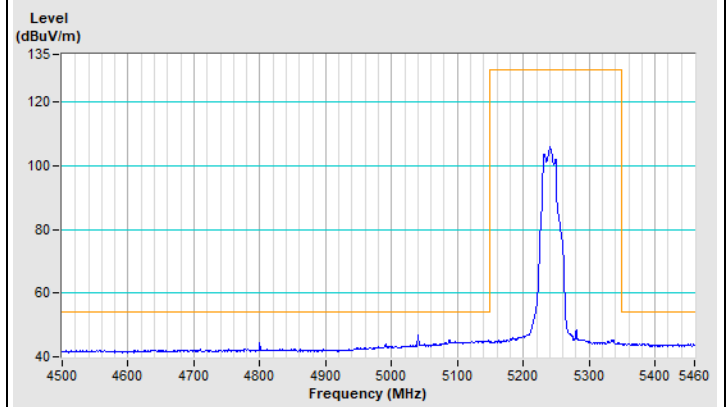
Horizontal (Peak)



Horizontal (Average)

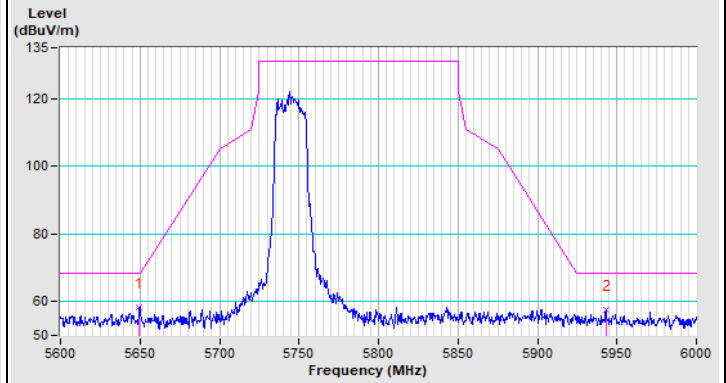
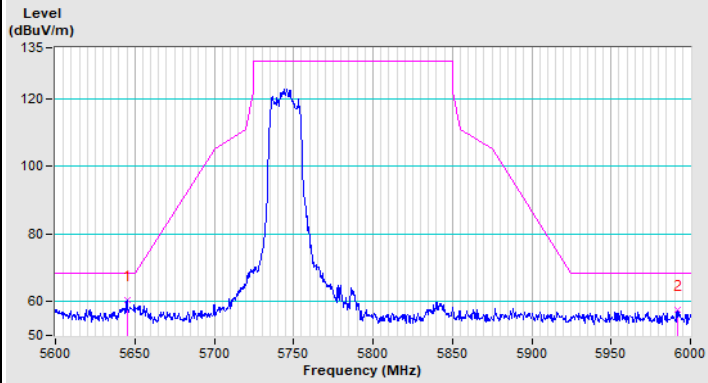


Vertical (Peak)

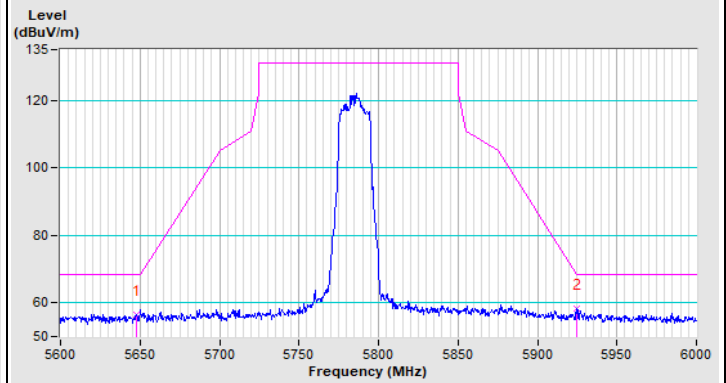
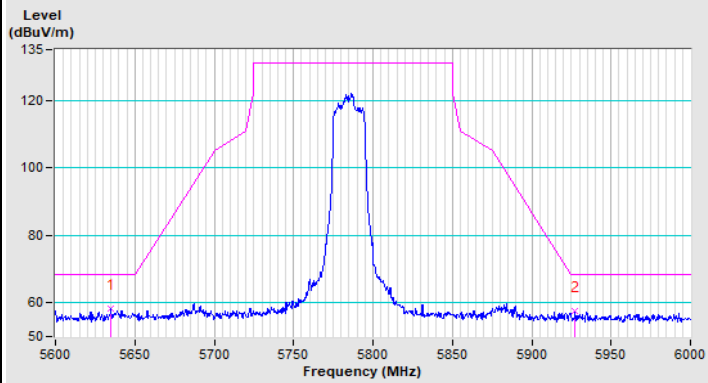


Vertical (Average)

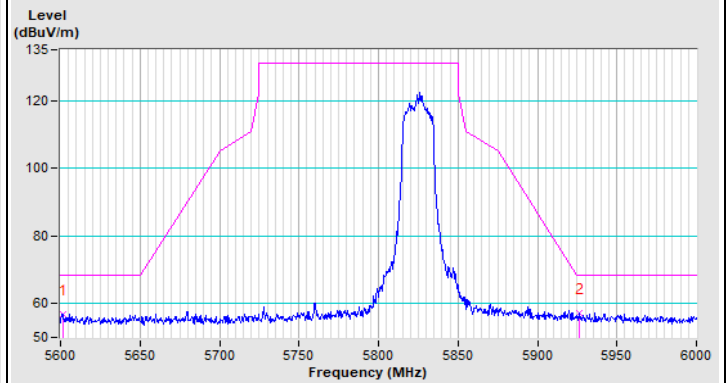
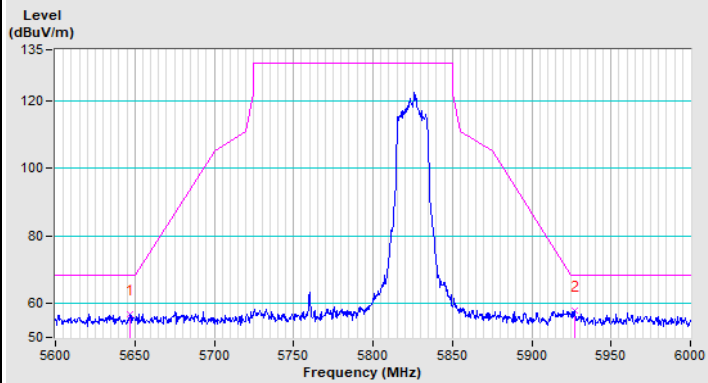
802.11ax (HE20) Channel 149



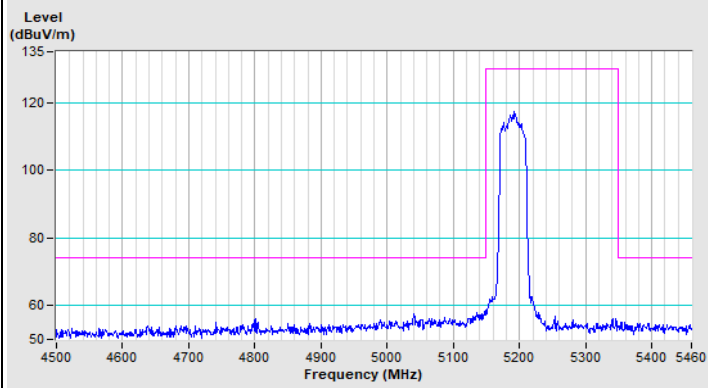
802.11ax (HE20) Channel 157



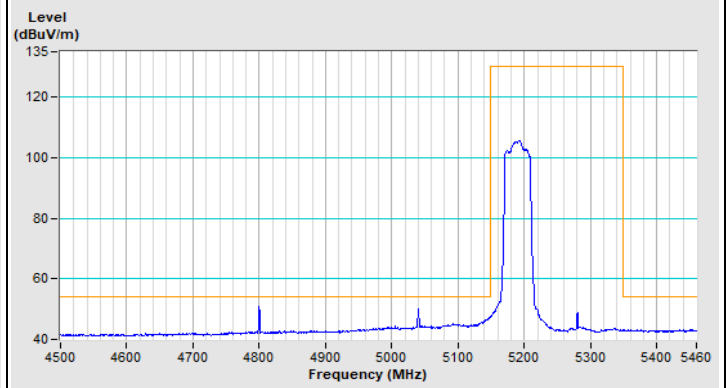
802.11ax (HE20) Channel 165



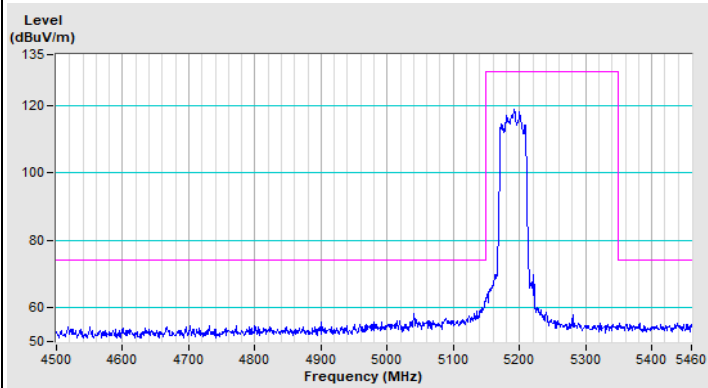
802.11ax (HE40) Channel 38



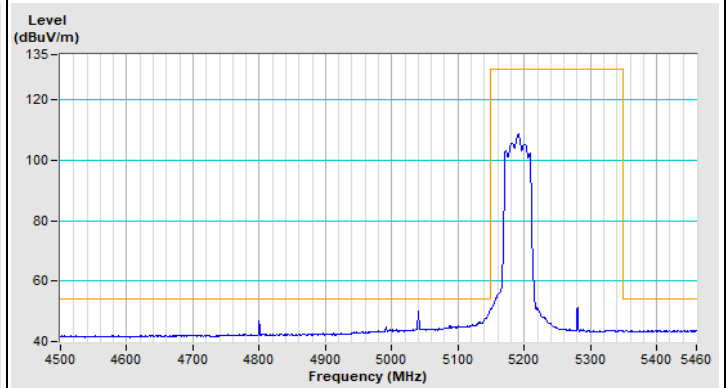
Horizontal (Peak)



Horizontal (Average)

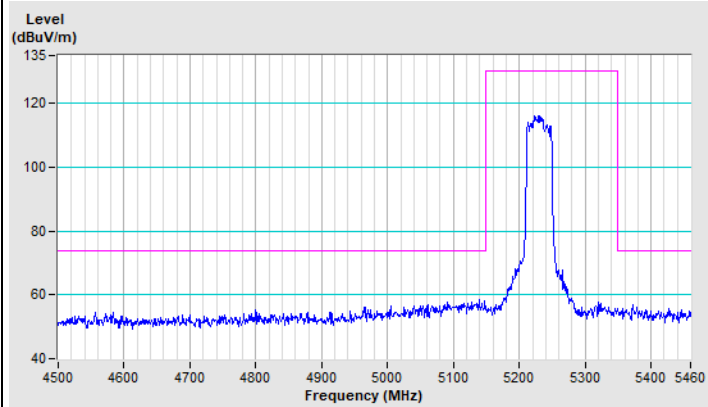


Vertical (Peak)

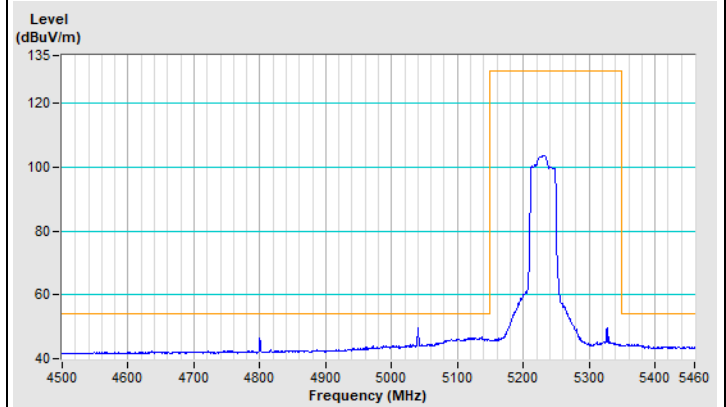


Vertical (Average)

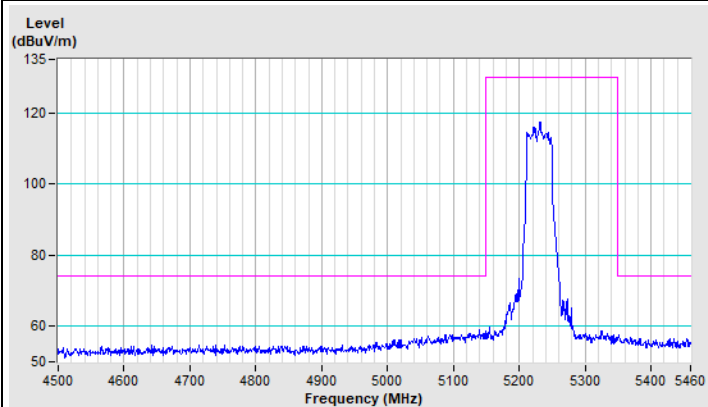
802.11ax (HE40) Channel 46



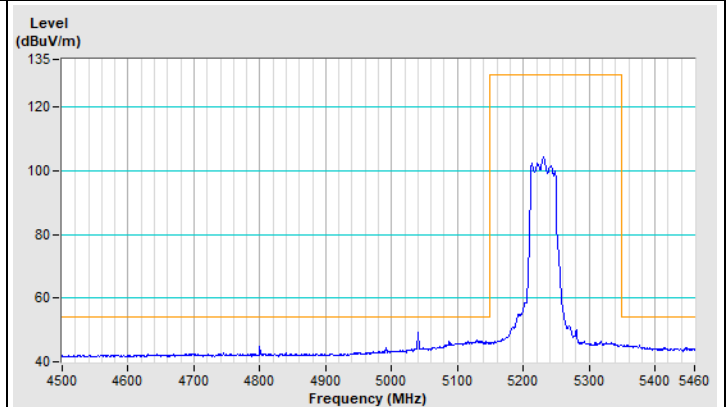
Horizontal (Peak)



Horizontal (Average)

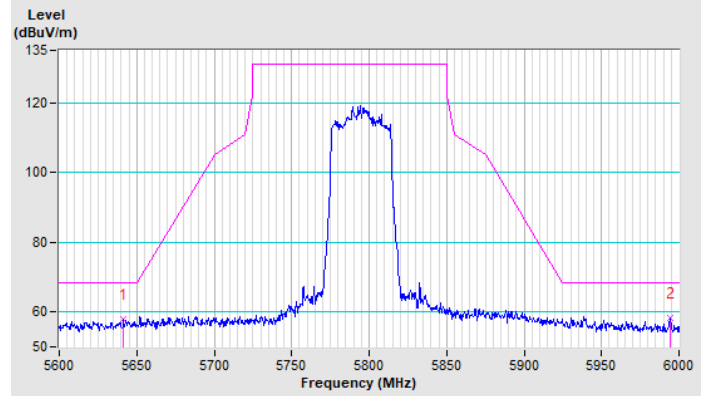
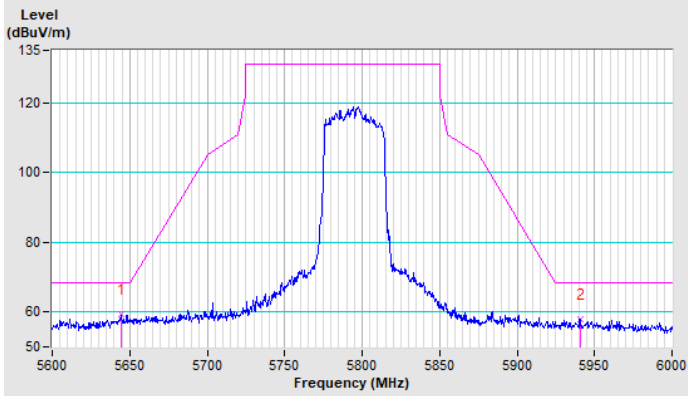


Vertical (Peak)

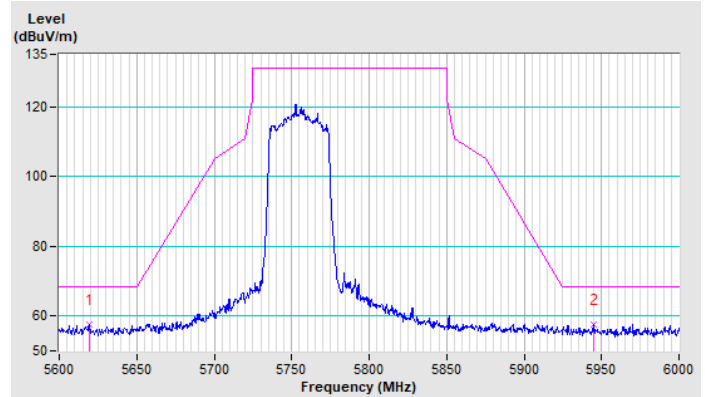
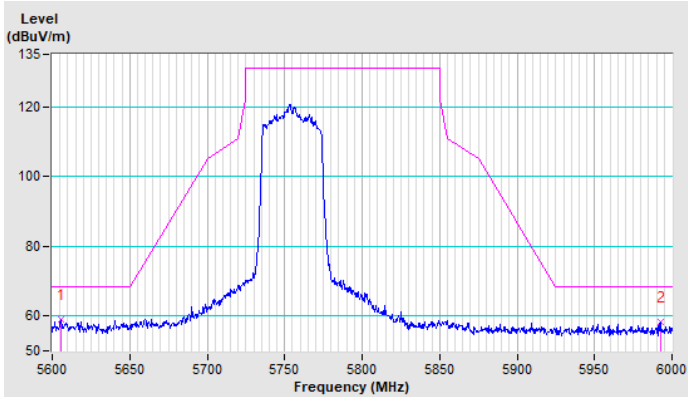


Vertical (Average)

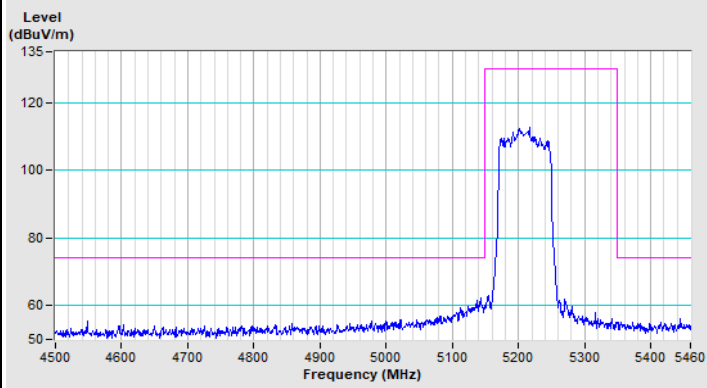
802.11ax (HE40) Channel 151



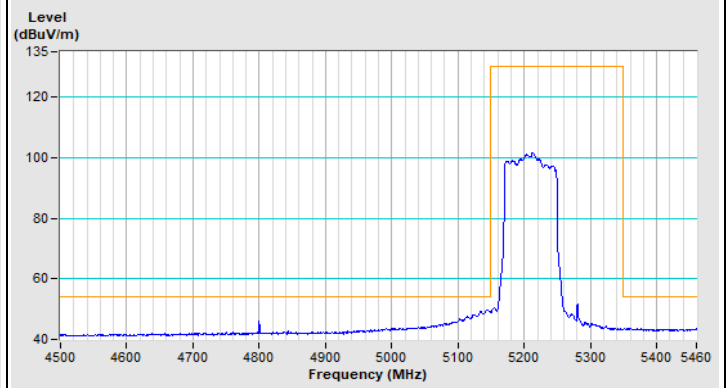
802.11ax (HE40) Channel 159



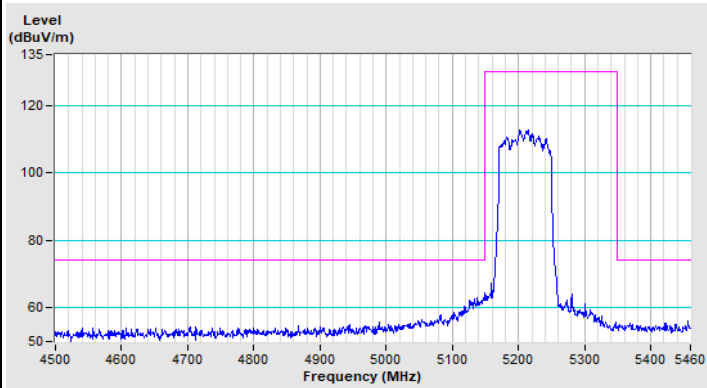
802.11ax (HE80) Channel 42



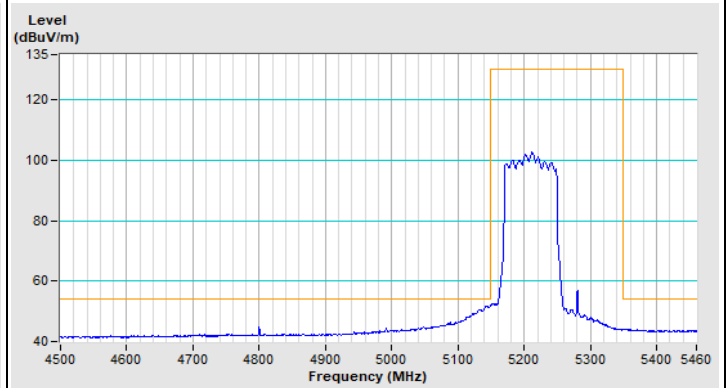
Horizontal (Peak)



Horizontal (Average)

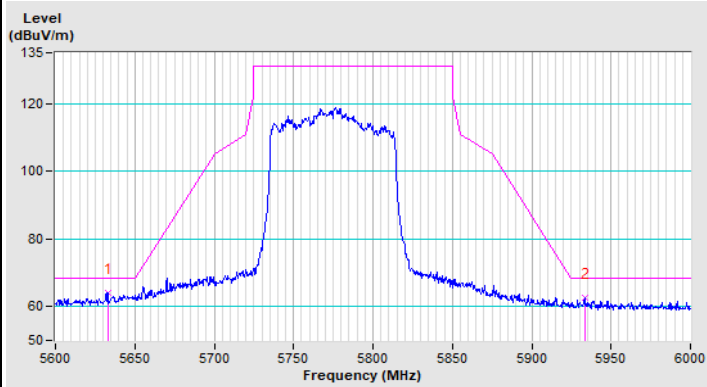


Vertical (Peak)

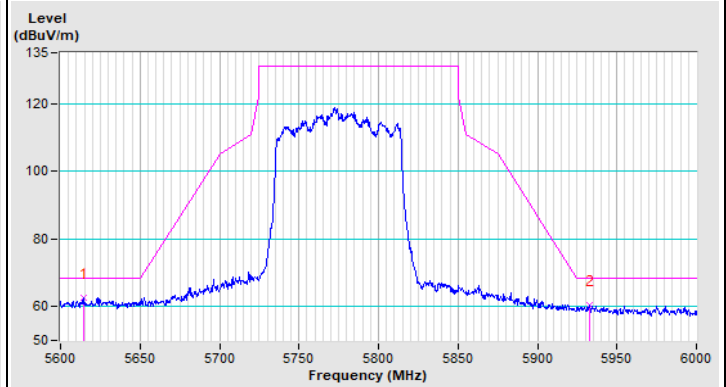


Vertical (Average)

802.11ax (HE80) 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.

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

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

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