

TEST REPORT

CERTIFICATE OF CONFORMITY

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

Report No.: RFBHPY-WTW-P23100691-3

FCC ID: LY5-PCITP2

Product: Telematics Platform 2

Brand: PCI

Model No.: PCI-TP2

Received Date: 2023/10/31

Test Date: 2023/11/29 ~ 2023/12/11

Issued Date: 2024/3/27

Applicant: PCI Private Limited

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FCC Registration /
Designation Number: 788550 / TW0003

Approved by: Jeremy Lin, **Date:** 2024/3/27
Jeremy Lin / Project Engineer

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Prepared by : Pettie Chen / Senior Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBHPY-WTW-P23100691-3	Original release.	2024/3/27

1 Certificate

Product: Telematics Platform 2

Brand: PCI

Test Model: PCI-TP2

Sample Status: Engineering sample

Applicant: PCI Private Limited

Test Date: 2023/11/29 ~ 2023/12/11

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

Measurement procedure: ANSI C63.10-2013

KDB 789033 D02 General UNII Test Procedure New Rules v02r01

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

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
Clause	Test Item	Result	Remark
15.407(a)(2)	26 dB Bandwidth	Pass	For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.
15.407(a)(1) 15.407(a)(2) 15.407(a)(3)	RF Output Power	Pass	Meet the requirement of limit.
15.407(a)(1) 15.407(a)(2) 15.407(a)(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	NA	EUT is powered from DC power supply
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -5.2 dB at 745.86 MHz
15.407(b) (1/10) 15.407(b) (2/10) 15.407(b) (3/10) 15.407(b) (4(i)/10)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.2 dB at 5350.00, 5725.00, 11570.00 and 11650.00 MHz
15.203	Antenna Requirement	Pass	Antenna connector is MMCX not a standard connector.

Notes:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. The "Dynamic Frequency Selection measurement" was recorded in DFS test report.

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) (±)
26 dB Bandwidth	-	206.5 Hz
RF Output Power	-	1.371 dB
Power Spectral Density	-	1.017 dB
6 dB Bandwidth	-	206.5 Hz
Occupied Bandwidth	-	72 Hz
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	2.44 dB
	30 MHz ~ 1 GHz	2.95 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 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	Telematics Platform 2
Brand	PCI
Test Model	PCI-TP2
Status of EUT	Engineering sample
Power Supply Rating	3.7Vdc from battery 12Vdc or 24Vdc from power supply
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in VHT mode
Modulation Technology	OFDM, OFDMA
Transfer Rate	Up to 433.3 Mbps
Operating Frequency	5.18 GHz ~ 5.24 GHz 5.26 GHz ~ 5.32 GHz 5.5 GHz ~ 5.72 GHz 5.745 GHz ~ 5.825 GHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20): 25 802.11n (HT40), 802.11ac (VHT40): 12 802.11ac (VHT80): 6
Output Power	5.18 GHz ~ 5.24 GHz : 52.602 mW (17.21 dBm) 5.26 GHz ~ 5.32 GHz : 52.24 mW (17.18 dBm) 5.5 GHz ~ 5.72 GHz : 99.083 mW (19.96 dBm) 5.745 GHz ~ 5.825 GHz : 110.662 mW (20.44 dBm)
EUT Category	Client device

Note:

1. This EUT contains FCC ID: LY5-PCITP200.
2. 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.	Gain (dBi)				Antenna Type	Connector Type
	5150 ~ 5250 MHz	5250 ~ 5350 MHz	5470 ~ 5725 MHz	5725 ~ 5825 MHz		
1	3.07	2.85	4.67	4.53	FPC	MMCX

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

2. The EUT provides 1 completed transmitter and 1 receiver.

5 GHz Band		
Modulation Mode	TX & RX Configuration	
802.11a	1TX	1RX
802.11n (HT20)	1TX	1RX
802.11n (HT40)	1TX	1RX
802.11ac (VHT20)	1TX	1RX
802.11ac (VHT40)	1TX	1RX
802.11ac (VHT80)	1TX	1RX

Note:
 The modulation and bandwidth are similar for 802.11n mode for 20 MHz (40 MHz), VHT mode for 20 MHz (40 MHz, 80MHz), therefore the manufacturer will control the power for 802.11n mode is same as the VHT mode or lower than it and investigated worst case to representative mode in test report.

3.3 Channel List

FOR 5180 ~ 5320 MHz

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

Channel	Frequency	Channel	Frequency
36	5180 MHz	52	5260 MHz
40	5200 MHz	56	5280 MHz
44	5220 MHz	60	5300 MHz
48	5240 MHz	64	5320 MHz

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	54	5270 MHz
46	5230 MHz	62	5310 MHz

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
42	5210 MHz	58	5290 MHz

FOR 5500 ~ 5720 MHz

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

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

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

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

3 channels are provided for 802.11ac (VHT80):

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

FOR 5745 ~ 5825 MHz:

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

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

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

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775 MHz

3.4 Test Mode Applicability and Tested Channel Detail

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

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

Test Item	Mode	Tested Channel	Modulation	Data Rate Parameter
26 dB Bandwidth	802.11a	52, 60, 64, 100, 116, 140, 144	BPSK	6Mb/s
	802.11ac (VHT20)	52, 60, 64, 100, 116, 140, 144	BPSK	MCS0
	802.11ac (VHT40)	54, 62, 102, 110, 134, 142	BPSK	MCS0
	802.11ac (VHT80)	58, 106, 122, 138	BPSK	MCS0
RF Output Power / Power Spectral Density	802.11a	36, 40, 48, 52, 60, 64, 100, 116, 140, 144, 149, 157, 165	BPSK	6Mb/s
	802.11n (HT20)	36, 40, 48, 52, 60, 64, 100, 116, 140, 144, 149, 157, 165	BPSK	MCS0
	802.11n (HT40)	38, 46, 54, 62, 102, 110, 134, 142, 151, 159	BPSK	MCS0
	802.11ac (VHT20)	36, 40, 48, 52, 60, 64, 100, 116, 140, 144, 149, 157, 165	BPSK	MCS0
	802.11ac (VHT40)	38, 46, 54, 62, 102, 110, 134, 142, 151, 159	BPSK	MCS0
	802.11ac (VHT80)	42, 58, 106, 122, 138, 155	BPSK	MCS0
6 dB Bandwidth	802.11a	144, 149, 157, 165	BPSK	6Mb/s
	802.11ac (VHT20)	144, 149, 157, 165	BPSK	MCS0
	802.11ac (VHT40)	142, 151, 159	BPSK	MCS0
	802.11ac (VHT80)	138, 155	BPSK	MCS0
Occupied Bandwidth	802.11a	36, 40, 48, 52, 60, 64, 100, 116, 140, 144, 149, 157, 165	BPSK	6Mb/s
	802.11ac (VHT20)	36, 40, 48, 52, 60, 64, 100, 116, 140, 144, 149, 157, 165	BPSK	MCS0
	802.11ac (VHT40)	38, 46, 54, 62, 102, 110, 134, 142, 151, 159	BPSK	MCS0
	802.11ac (VHT80)	42, 58, 106, 122, 138, 155	BPSK	MCS0
Frequency Stability	802.11a	36	unmodulated	-
Unwanted Emissions below 1 GHz	802.11ac (VHT40)	151	BPSK	MCS0
Unwanted Emissions above 1 GHz	802.11a	36, 40, 48, 52, 60, 64, 100, 116, 140, 144, 149, 157, 165	BPSK	6Mb/s
	802.11ac (VHT20)	36, 40, 48, 52, 60, 64, 100, 116, 140, 144, 149, 157, 165	BPSK	MCS0
	802.11ac (VHT40)	38, 46, 54, 62, 102, 110, 134, 142, 151, 159	BPSK	MCS0
	802.11ac (VHT80)	42, 58, 106, 122, 138, 155	BPSK	MCS0

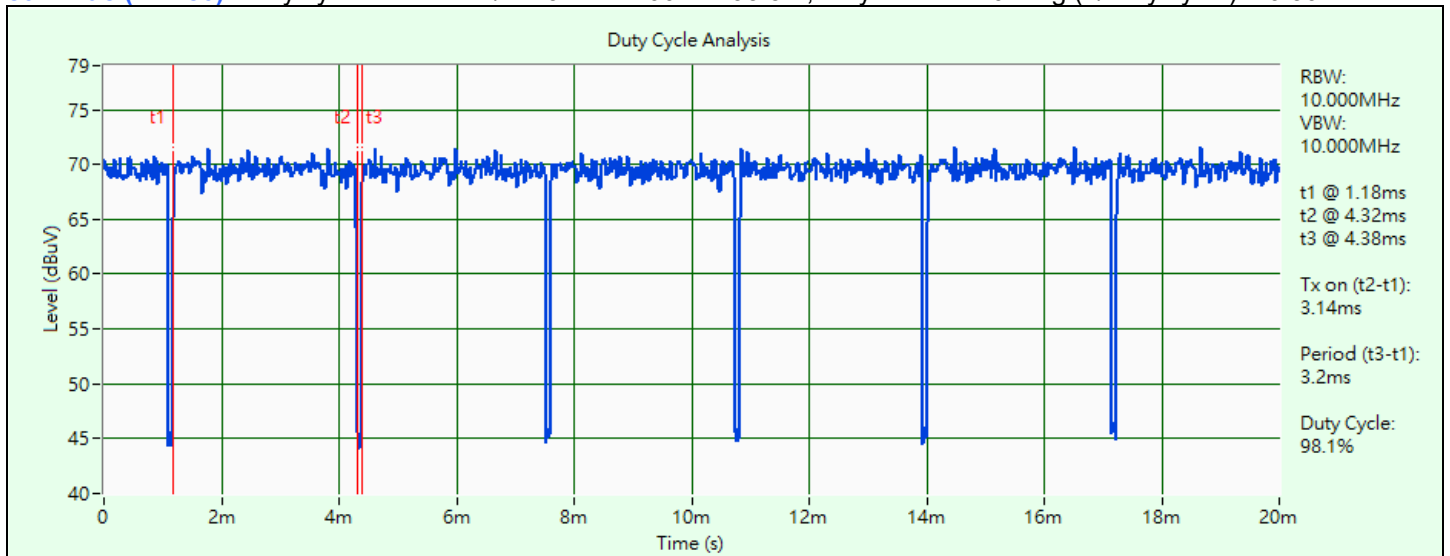
3.5 Duty Cycle of Test Signal

802.11a: Duty cycle = 3.14 ms / 3.2 ms x 100% = 98.1%

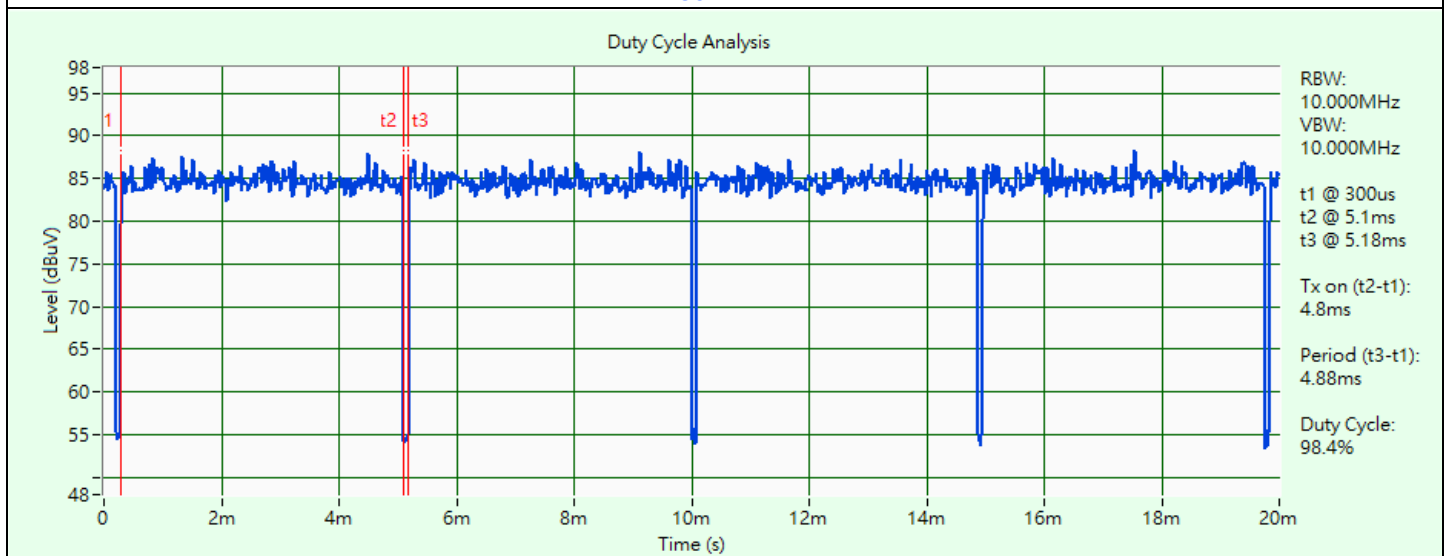
802.11ac (VHT20): Duty cycle = 4.8 ms / 4.88 ms x 100% = 98.4%

802.11ac (VHT40): Duty cycle = 2.34 ms / 2.4 ms x 100% = 97.5%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.11 \text{ dB}$

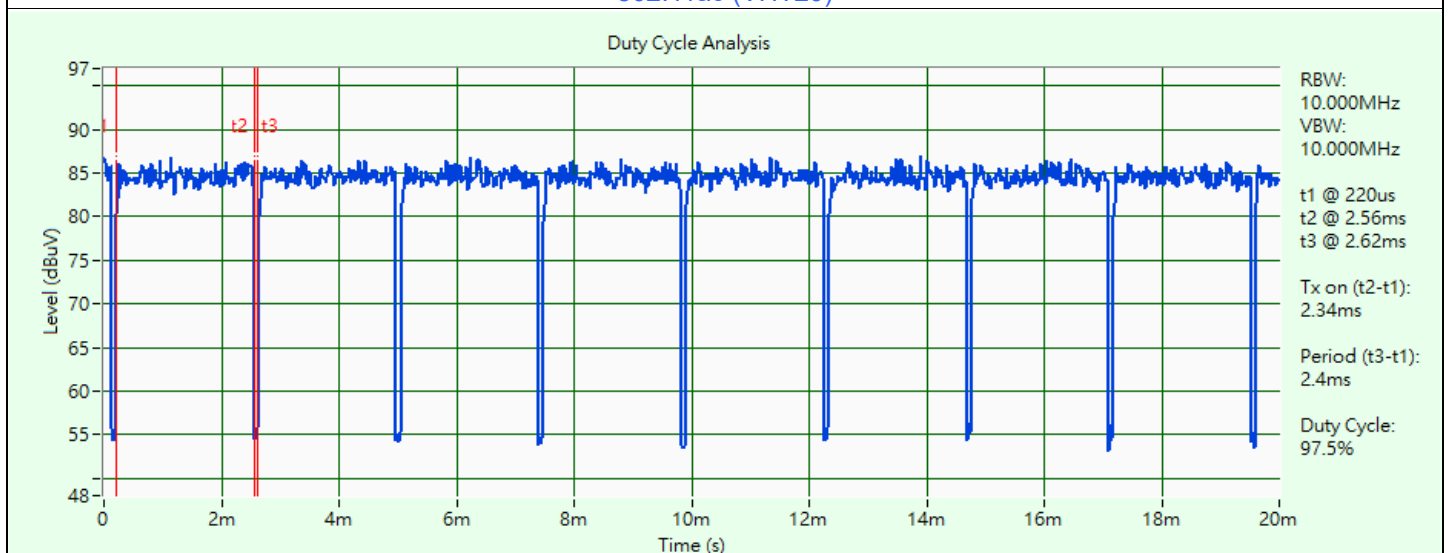
802.11ac (VHT80): Duty cycle = 1.11 ms / 1.19 ms x 100% = 93.3%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.30 \text{ dB}$



802.11a

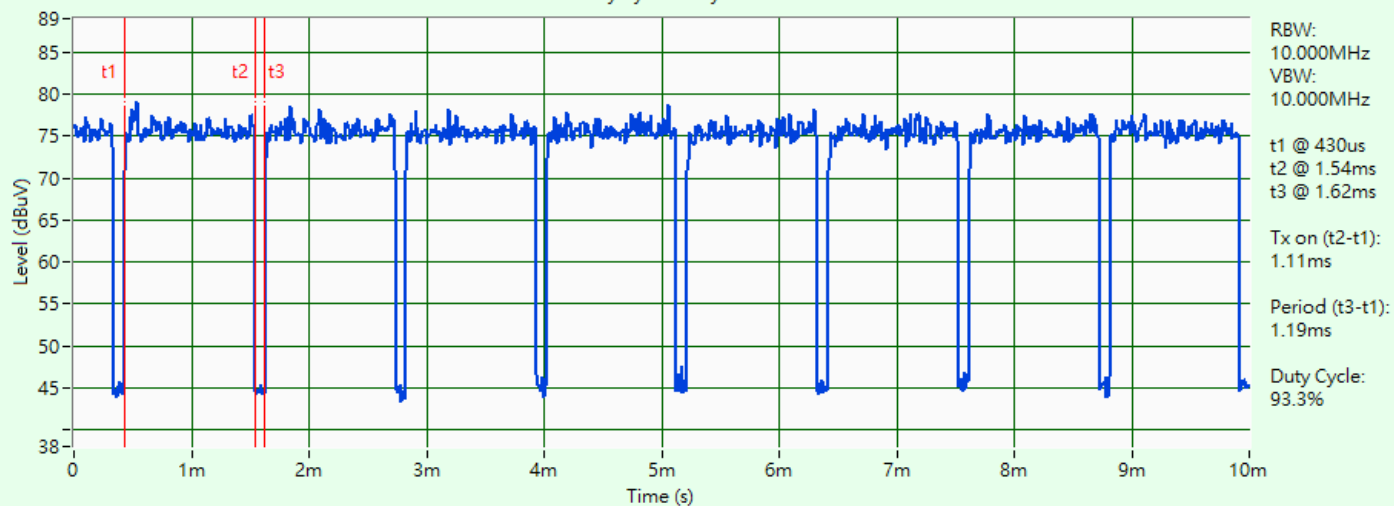


802.11ac (VHT20)



802.11ac (VHT40)

Duty Cycle Analysis

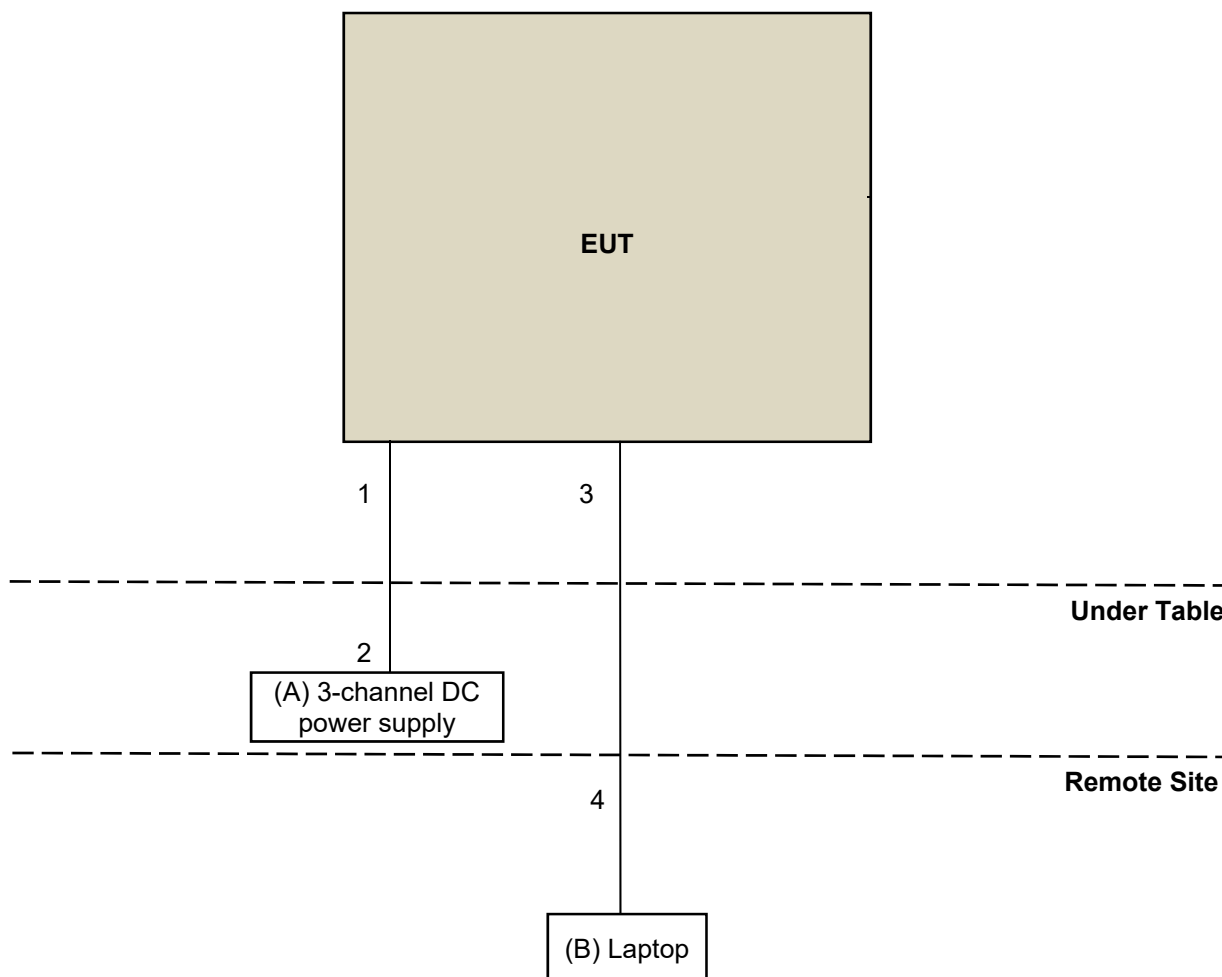


802.11ac (VHT80)

3.6 Test Program Used and Operation Descriptions

Controlling software (labtool) 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	3-channel DC power supply	JIN YIH Technology	ODP3033	ODP30332128133	NA	NA
B	Laptop	DELL	Inspiron 14R	8LRKKW1	NA	NA

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	DC Cable	1	1.8	No	0	Supplied by applicant
2	DC Cable	1	3	No	0	Provided by Lab
3	LAN Cable	1	1.5	No	0	Supplied by applicant
4	LAN Cable	1	10	No	0	Provided by Lab

4 Test Instruments

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

4.1 26 dB Bandwidth

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSU43	100115	2023/1/17	2024/1/16

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/12/9 ~ 2023/12/11

4.2 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Peak Power Analyzer Keysight	8990B	MY51000485	2023/1/19	2024/1/18
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSU43	100115	2023/1/17	2024/1/16
Wideband Power Sensor Keysight	N1923A	MY58020002	2023/1/18	2024/1/17
		MY58140009	2023/1/18	2024/1/17

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/12/9 ~ 2023/12/11

4.3 Power Spectral Density

Refer to section 4.1 to get information of the instruments.

4.4 6 dB Bandwidth

Refer to section 4.1 to get information of the instruments.

4.5 Occupied Bandwidth

Refer to section 4.1 to get information of the instruments.

4.6 Frequency Stability

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
3-channel DC power supply JIN YIH Technology	ODP3033	ODP30332128138	N/A	N/A
Digital Multimeter Fluke	87-III	70360742	2023/7/6	2024/7/5
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSU43	100115	2023/1/17	2024/1/16
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: 2023/12/9 ~ 2023/12/11

4.7 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Max-Full	MFA-440H	AT93021705	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-472	2023/10/16	2024/10/15
EXA Signal Analyzer Agilent	N9010A	MY52220207	2023/1/3	2024/1/2
Loop Antenna Electro-Metrics	EM-6879	269	2023/9/23	2024/9/22
Loop Antenna TESEQ	HLA 6121	45745	2023/8/8	2024/8/7
MXE EMI Receiver Keysight	N9038A	MY55420137	2023/5/3	2024/5/2
Preamplifier EMCI	EMC 330H	980112	2023/9/27	2024/9/26
	EMC001340	980201	2023/9/27	2024/9/26
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	2023/1/7	2024/1/6
RF Coaxial Cable Woken	8D-FB	Cable-Ch10-01	2023/9/27	2024/9/26
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MFT-201SS	N/A	N/A	N/A
Turn Table Controller Max-Full	MG-7802	N/A	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 5.
2. Tested Date: 2023/12/1

4.8 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Max-Full	MFA-440H	AT93021705	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	7	N/A	N/A
EXA Signal Analyzer Agilent	N9010A	MY52220207	2023/1/3	2024/1/2
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-969	2023/11/12	2024/11/11
	BBHA 9170	148	2023/11/12	2024/11/11
MXE EMI Receiver Keysight	N9038A	MY55420137	2023/5/3	2024/5/2
Notch Filter Micro-Tronics	BRM17690	004	2023/1/11	2024/1/10
	BRM50716	060	2023/1/11	2024/1/10
Preamplifier EMCI	EMC 012645	980115	2023/9/27	2024/9/26
	EMC 184045	980116	2023/9/27	2024/9/26
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2023/7/8	2024/7/7
	EMC102-KM-KM-3000	150929	2023/7/8	2024/7/7
	EMC104-SM-SM- 8000+3000	171005	2023/9/27	2024/9/26
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	EMC104-SM-SM- 1000(140807)	2023/9/27	2024/9/26
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MFT-201SS	N/A	N/A	N/A
Turn Table Controller Max-Full	MG-7802	N/A	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 5.
2. Tested Date: 2023/11/29 ~ 2023/12/8

5 Limits of Test Items

5.1 26 dB Bandwidth

The results are for reference only.

5.2 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-2A	250 mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	250 mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

5.3 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-2A	11 dBm/MHz
U-NII-2C	11 dBm/MHz
U-NII-3	30 dBm/500 kHz

5.4 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.

5.5 Occupied Bandwidth

The results are for reference only.

5.6 Frequency Stability

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

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)

For transmitters operating in the 5.25-5.35 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(2)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)

For transmitters operating in the 5.47-5.725 GHz band:

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

For transmitters operating in the 5.725-5.850 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(4)(i)	PK: -27 (dBm/MHz) ^{*1} PK: 10 (dBm/MHz) ^{*2} PK: 15.6 (dBm/MHz) ^{*3} PK: 27 (dBm/MHz) ^{*4}	PK: 68.2 (dBμV/m) ^{*1} PK: 105.2 (dBμV/m) ^{*2} PK: 110.8 (dBμV/m) ^{*3} PK: 122.2 (dBμV/m) ^{*4}
^{*1} beyond 75 MHz or more above of the band edge. ^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. ^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. ^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

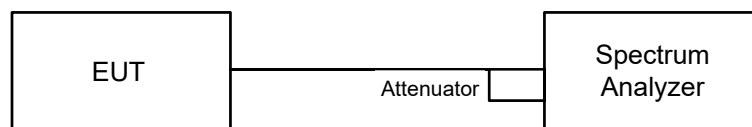
Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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

6 Test Arrangements

6.1 26 dB Bandwidth

6.1.1 Test Setup

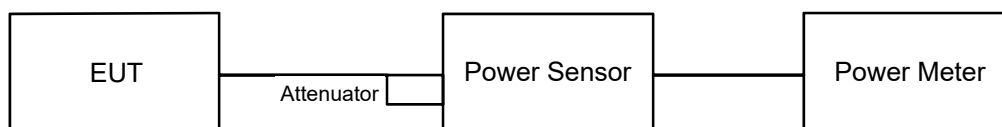


6.1.2 Test Procedure

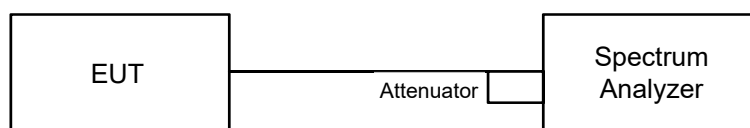
- a. Set RBW = approximately 1% of the emission bandwidth.
- b. Set the VBW > RBW.
- c. Detector = Peak.
- d. Trace mode = max hold.
- e. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat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

6.2 RF Output Power

6.2.1 Test Setup



For channel straddling:



6.2.2 Test Procedure

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

For channel straddling:

Method SA-1

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. Set RBW = 1 MHz, Set VBW \geq 3 MHz, Detector = RMS
- c. 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.)
- d. Sweep time = auto, trigger set to "free run".
- e. Trace average at least 100 traces in power averaging mode.
- f. Record the max value

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

For channel straddling:

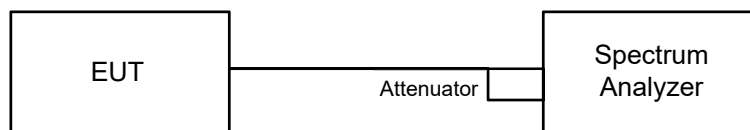
Method SA-2A

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. Set RBW = 1 MHz, Set VBW \geq 3 MHz, Detector = RMS
- c. 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.)
- d. Manually set sweep time \geq $10 \times (\text{number of points in sweep}) \times (\text{total on/off period of the transmitted signal})$.
- e. Perform a single sweep.
- f. Record the max value and add $10 \log (1/\text{duty cycle})$.

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

6.3 Power Spectral Density

6.3.1 Test Setup



6.3.2 Test Procedure

For specified measurement bandwidth 1 MHz:

Method SA-1

- 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.
- Record the max value

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/duty cycle).

For specified measurement bandwidth 500 kHz:

Method SA-1

- 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.
- Record the max value

For specified measurement bandwidth 500 kHz:

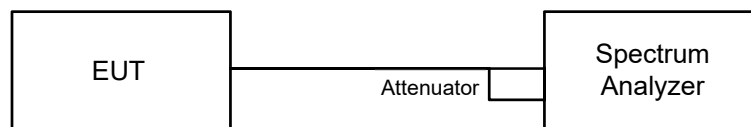
Method SA-2

- 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”.

- f. Trace average at least 100 traces in power averaging mode.
- g. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
- h. Record the max value and add $10 \log (1/\text{duty cycle})$.

6.4 6 dB Bandwidth

6.4.1 Test Setup

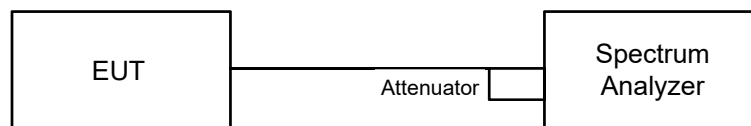


6.4.2 Test Procedure

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

6.5 Occupied Bandwidth

6.5.1 Test Setup

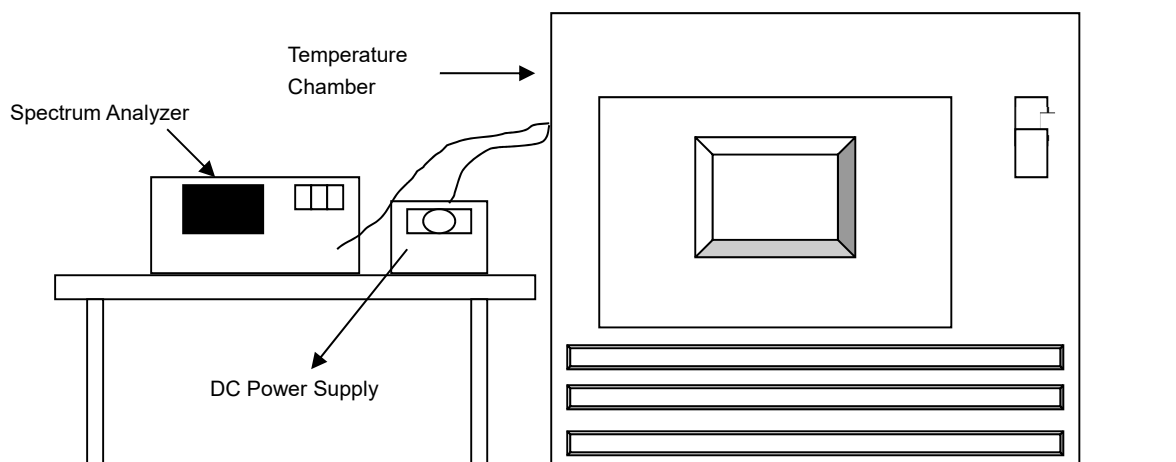


6.5.2 Test Procedure

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.

6.6 Frequency Stability

6.6.1 Test Setup



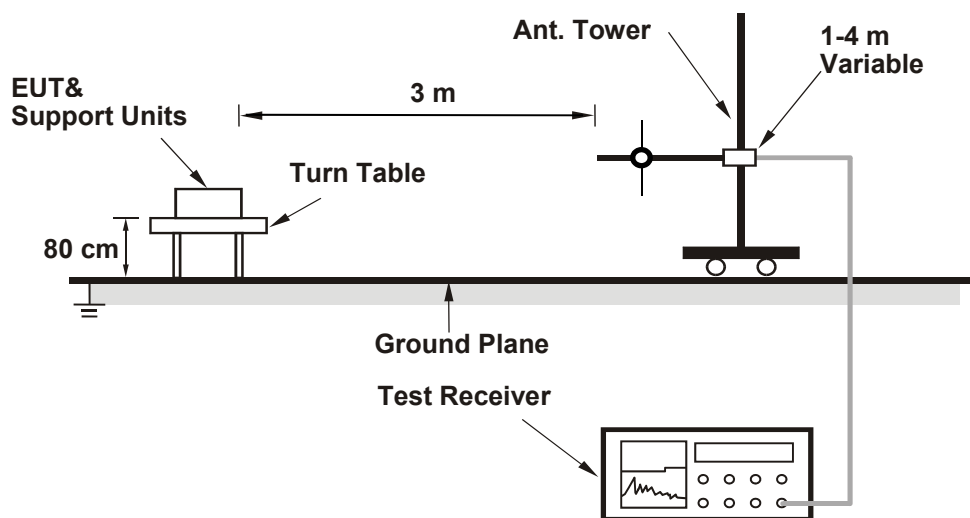
6.6.2 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal DC 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.

6.7 Unwanted Emissions below 1 GHz

6.7.1 Test Setup

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 above 30 MHz

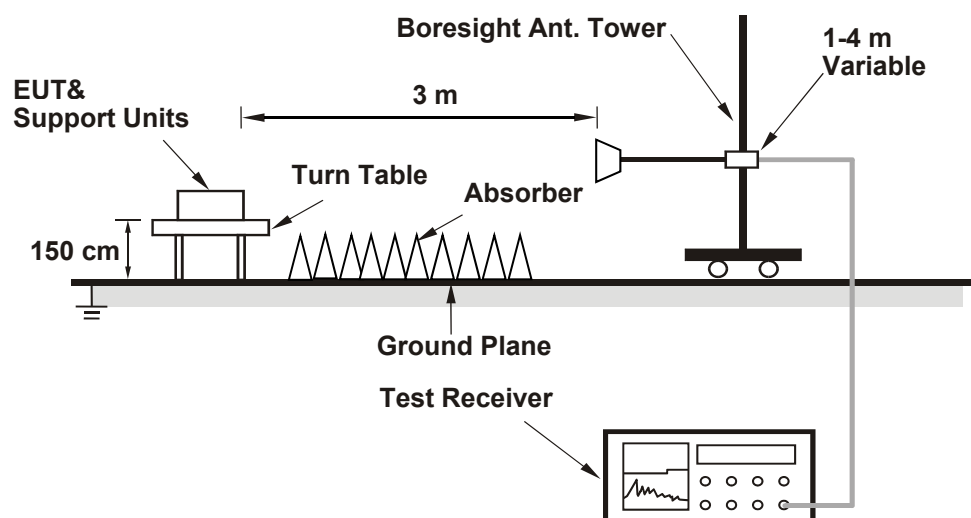
- The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top 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 quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Notes:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
- 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 26 dB Bandwidth

Input Power:	12 Vdc	Environmental Conditions:	24°C, 63% RH	Tested By:	Henry Hsu
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802.11a

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
52	5260	22.53
60	5300	21.4
64	5320	21.15
100	5500	22.08
116	5580	36.75
140	5700	27.34
144 (U-NII-2C)	5720	24.52
144 (U-NII-3)	5720	16.63

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	22.53	24.52 > 24
60	5300	21.40	24.3 > 24
64	5320	21.15	24.25 > 24
100	5500	22.08	24.43 > 24
116	5580	36.75	26.65 > 24
140	5700	27.34	25.36 > 24
144 (U-NII-2C)	5720	24.52	24.89 > 24

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

802.11ac (VHT20)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
52	5260	21.55
60	5300	22.48
64	5320	21.75
100	5500	47.46
116	5580	61.81
140	5700	21.22
144 (U-NII-2C)	5720	15.32
144 (U-NII-3)	5720	8.46

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	21.55	24.33 > 24
60	5300	22.48	24.51 > 24
64	5320	21.75	24.37 > 24
100	5500	47.46	27.76 > 24
116	5580	61.81	28.91 > 24
140	5700	21.22	24.26 > 24
144 (U-NII-2C)	5720	15.32	22.85 < 24

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

802.11ac (VHT40)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
54	5270	41.76
62	5310	42.08
102	5510	63.04
110	5550	96.73
134	5670	44.07
142 (U-NII-2C)	5710	58.58
142 (U-NII-3)	5710	33.58

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
54	5270	41.76	27.2 > 24
62	5310	42.08	27.24 > 24
102	5510	63.04	28.99 > 24
110	5550	96.73	30.85 > 24
134	5670	44.07	27.44 > 24
142 (U-NII-2C)	5710	58.58	28.67 > 24

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

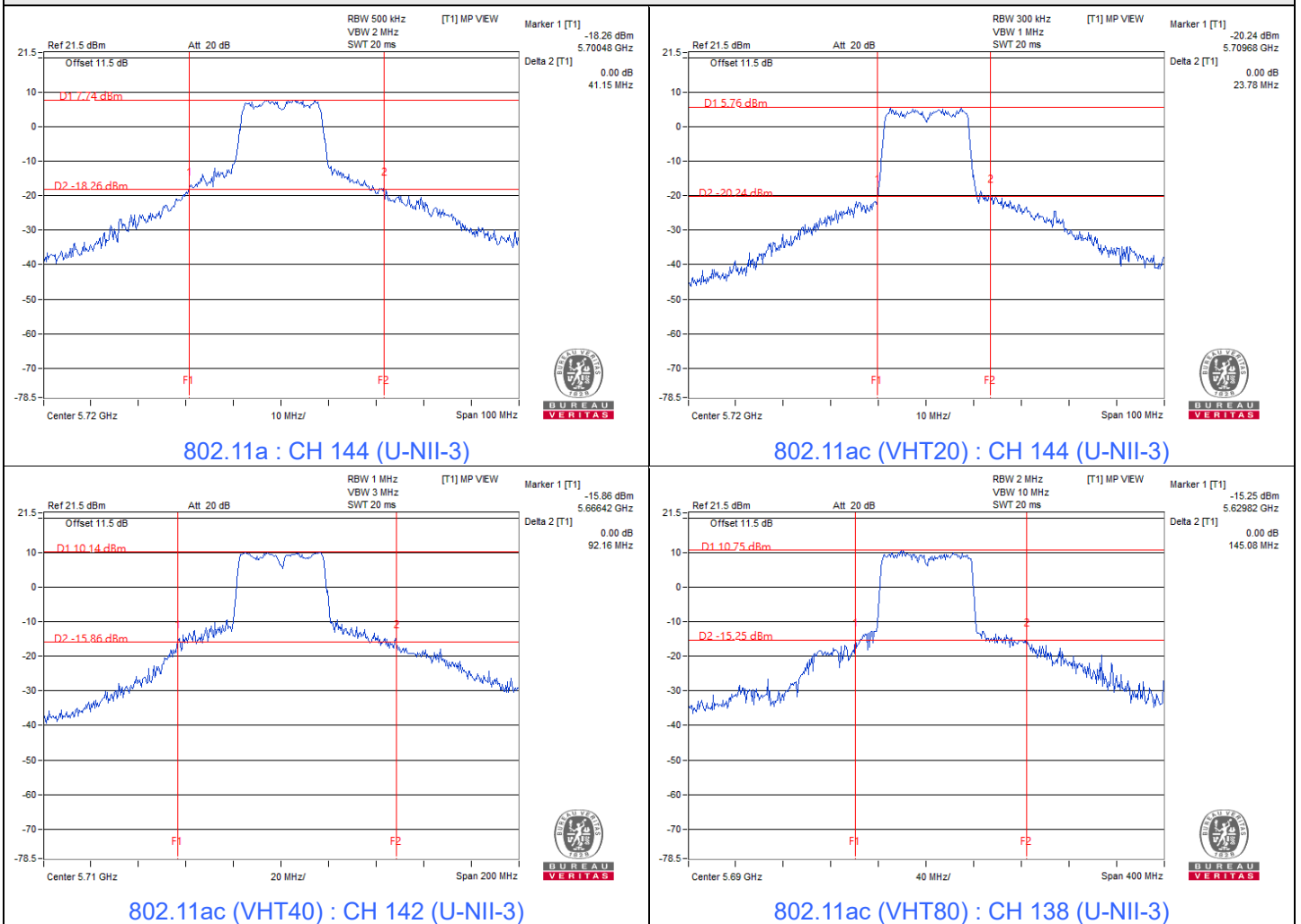
802.11ac (VHT80)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
58	5290	84.2
106	5530	109.82
122	5610	171.74
138 (U-NII-2C)	5690	95.18
138 (U-NII-3)	5690	49.9

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
58	5290	84.20	30.25 > 24
106	5530	109.82	31.4 > 24
122	5610	171.74	33.34 > 24
138 (U-NII-2C)	5690	95.18	30.78 > 24

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

Spectrum Plot of Minimum Value



Notes:

1. For U-NII-2C straddle channel = 5725 MHz - Marker 1
2. For U-NII-3 straddle channel = Marker 1 + Delta 2 - 5725 MHz

7.2 RF Output Power

Input Power:	12 Vdc	Environmental Conditions:	24°C, 63% RH	Tested By:	Henry Hsu
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802.11a

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
36	5180	31.405	14.97	24	Pass
40	5200	31.333	14.96	24	Pass
48	5240	32.359	15.10	24	Pass
52	5260	31.477	14.98	24	Pass
60	5300	32.211	15.08	24	Pass
64	5320	32.434	15.11	24	Pass
100	5500	32.211	15.08	24	Pass
116	5580	64.269	18.08	24	Pass
140	5700	37.931	15.79	24	Pass
*144 (U-NII-2C)	5720	30.2	14.80	24	Pass
*144 (U-NII-3)	5720	7.709	8.87	30	Pass
149	5745	92.47	19.66	30	Pass
157	5785	58.345	17.66	30	Pass
165	5825	43.853	16.42	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- For U-NII-1, the antenna gain is 3.07 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the antenna gain is 2.85 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the antenna gain is 4.67 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the antenna gain is 4.53 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
36	5180	30.832	14.89	24	Pass
40	5200	31.189	14.94	24	Pass
48	5240	31.769	15.02	24	Pass
52	5260	31.333	14.96	24	Pass
60	5300	31.989	15.05	24	Pass
64	5320	32.359	15.10	24	Pass
100	5500	32.81	15.16	24	Pass
116	5580	63.826	18.05	24	Pass
140	5700	39.084	15.92	24	Pass
*144 (U-NII-2C)	5720	36.475	15.62	22.85	Pass
*144 (U-NII-3)	5720	10.162	10.07	30	Pass
149	5745	90.782	19.58	30	Pass
157	5785	58.479	17.67	30	Pass
165	5825	44.978	16.53	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- For U-NII-1, the antenna gain is 3.07 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the antenna gain is 2.85 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the antenna gain is 4.67 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the antenna gain is 4.53 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
38	5190	31.046	14.92	24	Pass
46	5230	51.642	17.13	24	Pass
54	5270	51.168	17.09	24	Pass
62	5310	32.81	15.16	24	Pass
102	5510	26.002	14.15	24	Pass
110	5550	97.275	19.88	24	Pass
134	5670	39.264	15.94	24	Pass
*142 (U-NII-2C)	5710	50.699	17.05	24	Pass
*142 (U-NII-3)	5710	6.427	8.08	30	Pass
151	5755	108.143	20.34	30	Pass
159	5795	104.954	20.21	30	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2A and use spectrum analyzer test , the duty factor was included in the total power.
2. For U-NII-1, the antenna gain is 3.07 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2A, the antenna gain is 2.85 dBi < 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the antenna gain is 4.67 dBi < 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the antenna gain is 4.53 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
36	5180	31.696	15.01	24	Pass
40	5200	32.211	15.08	24	Pass
48	5240	32.81	15.16	24	Pass
52	5260	32.211	15.08	24	Pass
60	5300	32.961	15.18	24	Pass
64	5320	33.343	15.23	24	Pass
100	5500	33.806	15.29	24	Pass
116	5580	65.464	18.16	24	Pass
140	5700	40.365	16.06	24	Pass
*144 (U-NII-2C)	5720	37.757	15.77	22.85	Pass
*144 (U-NII-3)	5720	10.544	10.23	30	Pass
149	5745	93.541	19.71	30	Pass
157	5785	60.117	17.79	30	Pass
165	5825	46.559	16.68	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- For U-NII-1, the antenna gain is 3.07 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the antenna gain is 2.85 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the antenna gain is 4.67 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the antenna gain is 4.53 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
38	5190	31.623	15.00	24	Pass
46	5230	52.602	17.21	24	Pass
54	5270	52.24	17.18	24	Pass
62	5310	33.651	15.27	24	Pass
102	5510	26.546	14.24	24	Pass
110	5550	99.083	19.96	24	Pass
134	5670	40.087	16.03	24	Pass
*142 (U-NII-2C)	5710	51.76	17.14	24	Pass
*142 (U-NII-3)	5710	6.546	8.16	30	Pass
151	5755	110.662	20.44	30	Pass
159	5795	106.905	20.29	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2A and use spectrum analyzer test , the duty factor was included in the total power.
- For U-NII-1, the antenna gain is 3.07 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the antenna gain is 2.85 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the antenna gain is 4.67 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the antenna gain is 4.53 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT80)

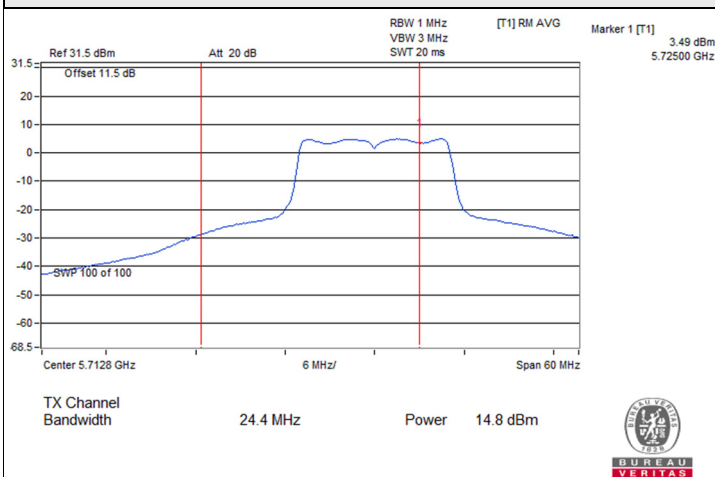
Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
42	5210	30.479	14.84	24	Pass
58	5290	25.942	14.14	24	Pass
106	5530	25.823	14.12	24	Pass
122	5610	50.119	17.00	24	Pass
*138 (U-NII-2C)	5690	43.977	16.43	24	Pass
*138 (U-NII-3)	5690	2.519	4.01	30	Pass
155	5775	46.452	16.67	30	Pass

Notes:

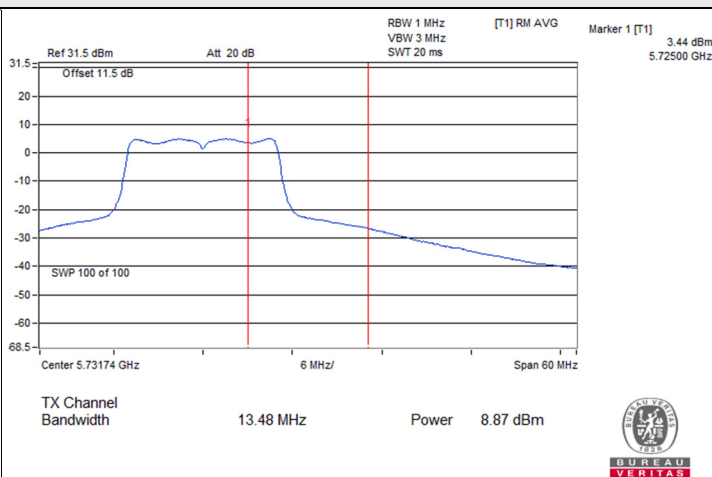
- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2A and use spectrum analyzer test , the duty factor was included in the total power.
- For U-NII-1, the antenna gain is 3.07 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the antenna gain is 2.85 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the antenna gain is 4.67 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the antenna gain is 4.53 dBi < 6 dBi, so the output power limit shall not be reduced.



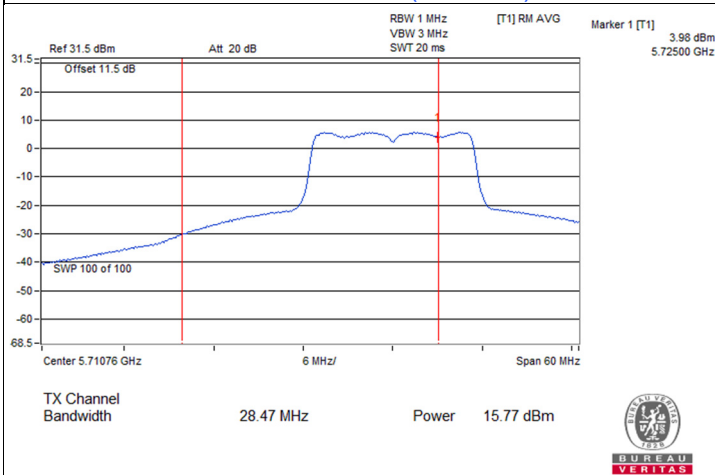
Spectrum Plot for channel straddling



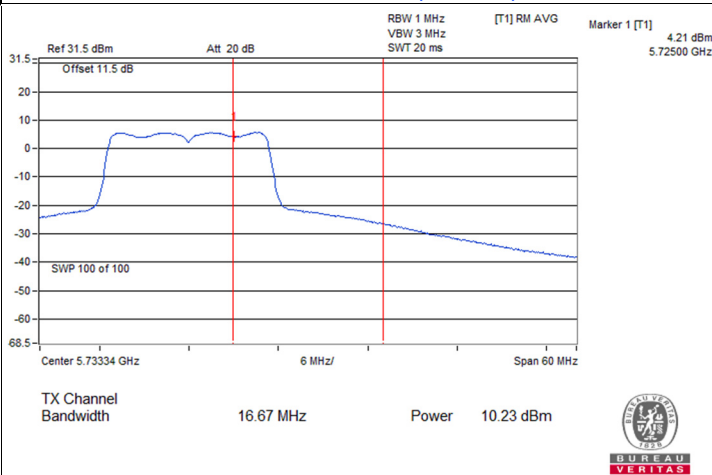
802.11a : CH 144 (U-NII-2C)



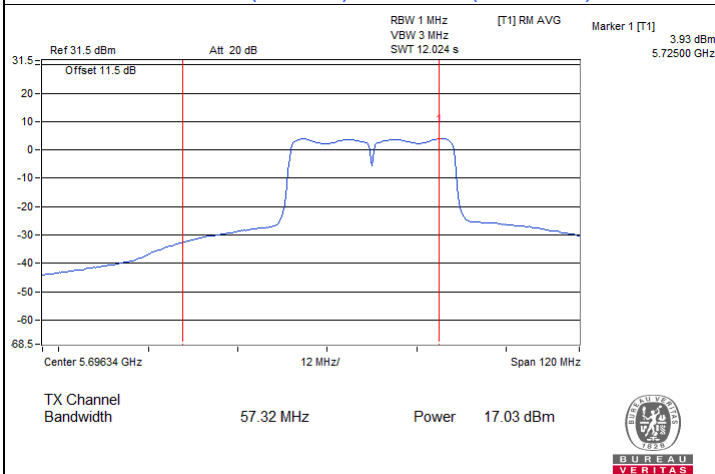
802.11a : CH 144 (U-NII-3)



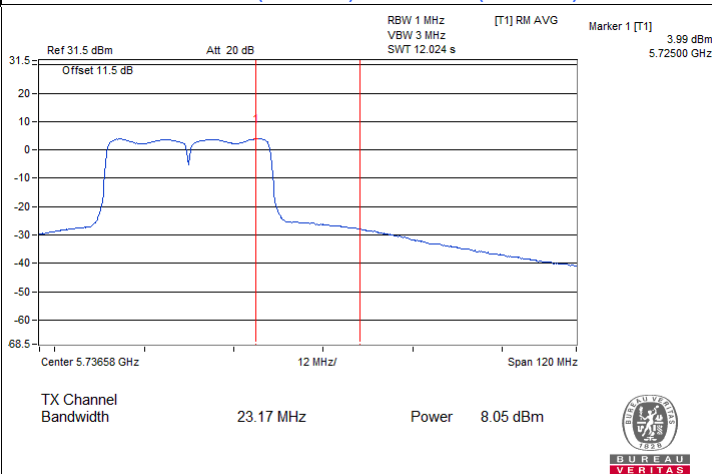
802.11ac (VHT20) : CH 144 (U-NII-2C)



802.11ac (VHT20) : CH 144 (U-NII-3)



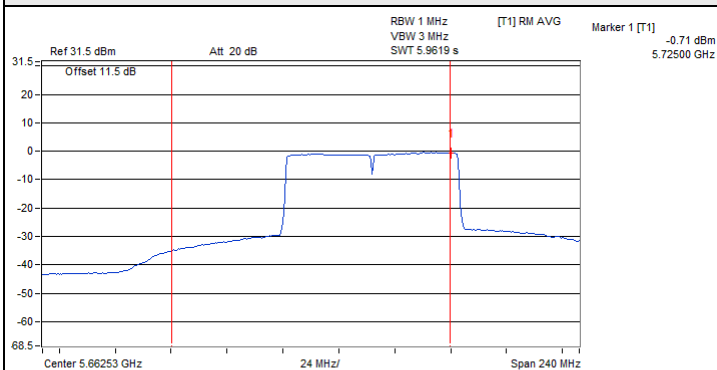
802.11ac (VHT40) : CH 142 (U-NII-2C)



802.11ac (VHT40) : CH 142 (U-NII-3)



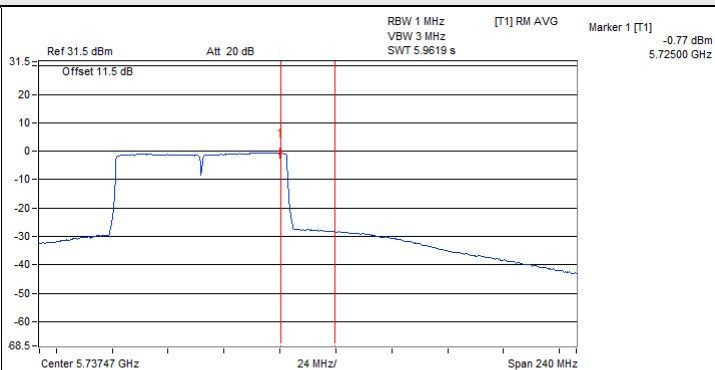
Spectrum Plot for channel straddling



TX Channel Bandwidth 124.94 MHz Power 16.13 dBm



802.11ac (VHT80) : CH 138 (U-NII-2C)



TX Channel Bandwidth 24.93 MHz Power 3.71 dBm



802.11ac (VHT80) : CH 138 (U-NII-3)

7.3 Power Spectral Density

Input Power:	12 Vdc	Environmental Conditions:	24°C, 63% RH	Tested By:	Henry Hsu
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802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
36	5180	1.97	11	Pass
40	5200	1.96	11	Pass
48	5240	2.10	11	Pass
52	5260	1.98	11	Pass
60	5300	2.06	11	Pass
64	5320	2.11	11	Pass
100	5500	2.04	11	Pass
116	5580	5.09	11	Pass
140	5700	2.80	11	Pass
144 (U-NII-2C)	5720	3.64	11	Pass

Notes:

1. For U-NII-1, the antenna gain is 3.07 dBi < 6 dBi, so the power density limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 2.85 dBi < 6 dBi, so the power density limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 4.67 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
36	5180	2.03	11	Pass
40	5200	2.08	11	Pass
48	5240	2.16	11	Pass
52	5260	2.09	11	Pass
60	5300	2.17	11	Pass
64	5320	2.23	11	Pass
100	5500	2.27	11	Pass
116	5580	5.19	11	Pass
140	5700	3.08	11	Pass
144 (U-NII-2C)	5720	4.59	11	Pass

Notes:

1. For U-NII-1, the antenna gain is 3.07 dBi < 6 dBi, so the power density limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 2.85 dBi < 6 dBi, so the power density limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 4.67 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
38	5190	-1.05	0.11	-0.94	11	Pass
46	5230	1.21	0.11	1.32	11	Pass
54	5270	1.13	0.11	1.24	11	Pass
62	5310	-0.76	0.11	-0.65	11	Pass
102	5510	-1.78	0.11	-1.67	11	Pass
110	5550	4.00	0.11	4.11	11	Pass
134	5670	0.04	0.11	0.15	11	Pass
142 (U-NII-2C)	5710	3.66	0.11	3.77	11	Pass

Notes:

1. For U-NII-1, the antenna gain is 3.07 dBi < 6 dBi, so the power density limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 2.85 dBi < 6 dBi, so the power density limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 4.67 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
42	5210	-4.12	0.30	-3.82	11	Pass
58	5290	-4.84	0.30	-4.54	11	Pass
106	5530	-4.87	0.30	-4.57	11	Pass
122	5610	-2.03	0.30	-1.73	11	Pass
138 (U-NII-2C)	5690	-1.41	0.30	-1.11	11	Pass

Notes:

1. For U-NII-1, the antenna gain is 3.07 dBi < 6 dBi, so the power density limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 2.85 dBi < 6 dBi, so the power density limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 4.67 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
144 (U-NII-3)	5720	-7.6	-5.38	30	Pass
149	5745	0.9	3.12	30	Pass
157	5785	-1.91	0.31	30	Pass
165	5825	-4.69	-2.47	30	Pass

Note: For U-NII-3, the antenna gain is 4.53 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
144 (U-NII-3)	5720	-3.23	-1.01	30	Pass
149	5745	-2.15	0.07	30	Pass
157	5785	-3.79	-1.57	30	Pass
165	5825	-4.88	-2.66	30	Pass

Note: For U-NII-3, the antenna gain is 4.53 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11ac (VHT40)

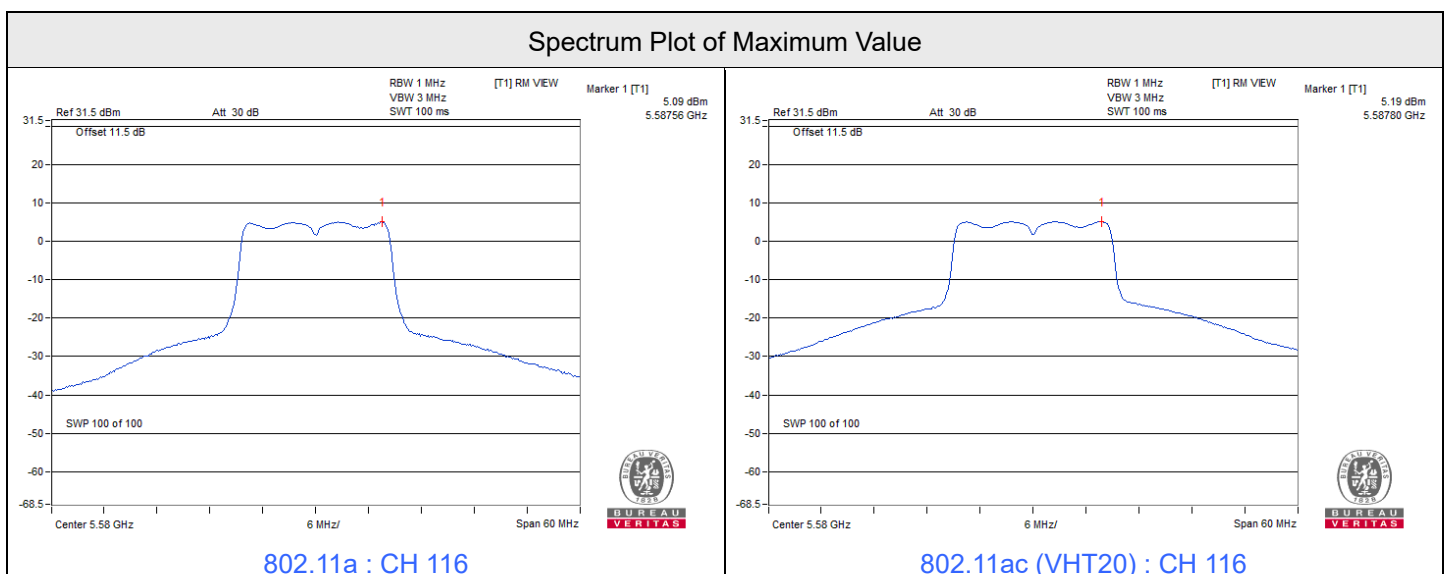
Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
142 (U-NII-3)	5710	-4.51	0.11	-2.18	30	Pass
151	5755	-4.63	0.11	-2.30	30	Pass
159	5795	-5.08	0.11	-2.75	30	Pass

Note: For U-NII-3, the antenna gain is 4.53 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11ac (VHT80)

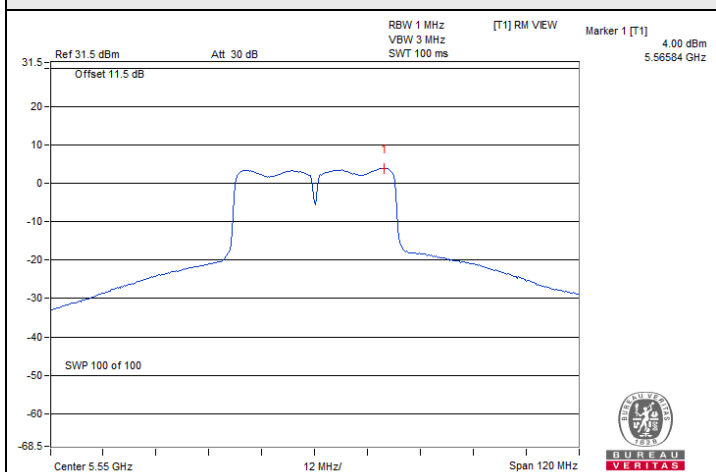
Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
138 (U-NII-3)	5690	-10.9	0.3	-8.38	30	Pass
155	5775	-11.78	0.3	-9.26	30	Pass

Note: For U-NII-3, the antenna gain is 4.53 dBi < 6 dBi, so the power density limit shall not be reduced.

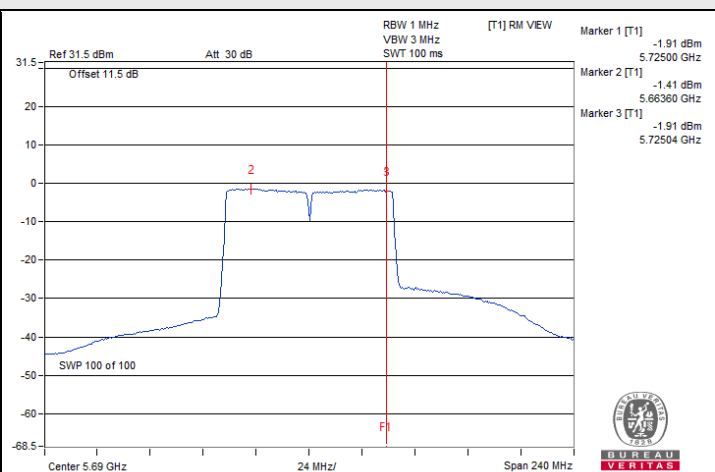




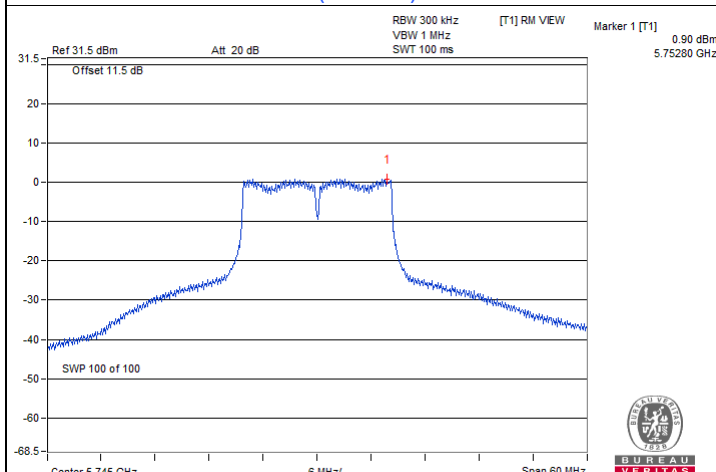
Spectrum Plot of Maximum Value



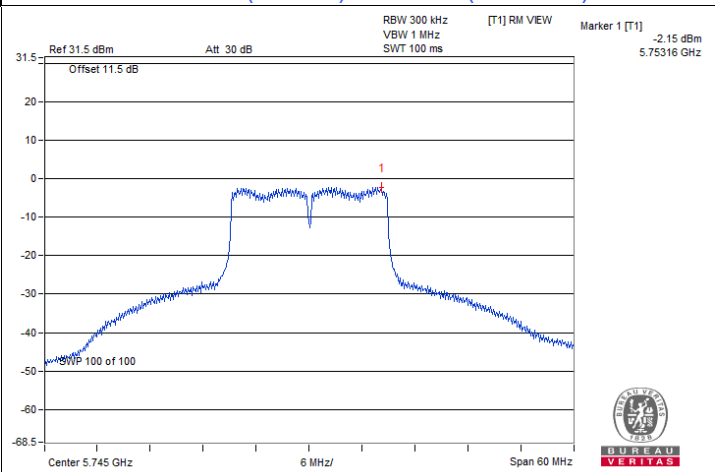
802.11ac (VHT40) : CH 110



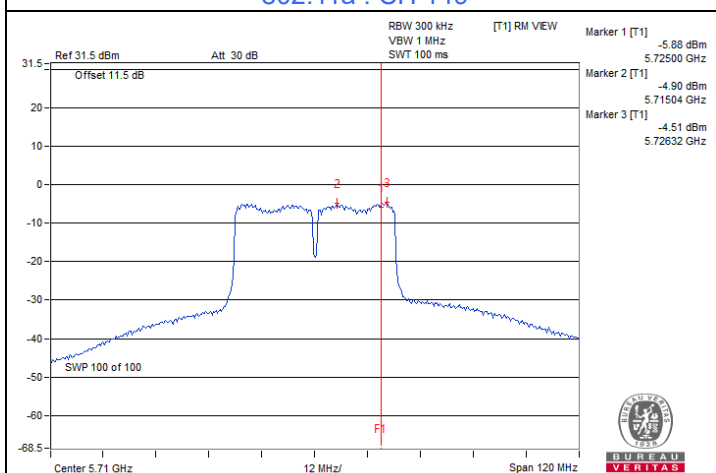
802.11ac (VHT80) : CH 138 (U-NII-2C)



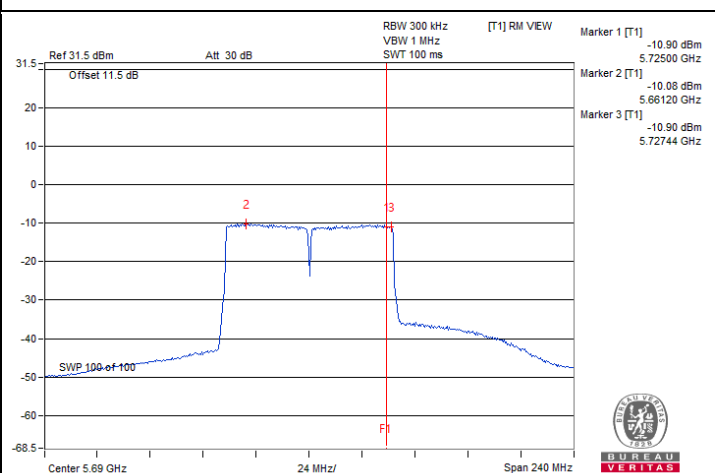
802.11a : CH 149



802.11ac (VHT20) : CH 149



802.11ac (VHT40) : CH 142 (U-NII-3)



802.11ac (VHT80) : CH 138 (U-NII-3)

7.4 6 dB Bandwidth

Input Power:	12 Vdc	Environmental Conditions:	24°C, 63% RH	Tested By:	Henry Hsu
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802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
144 (U-NII-3)	5720	3.22	0.5	Pass
149	5745	16.42	0.5	Pass
157	5785	16.39	0.5	Pass
165	5825	16.44	0.5	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
144 (U-NII-3)	5720	3.82	0.5	Pass
149	5745	17.62	0.5	Pass
157	5785	17.62	0.5	Pass
165	5825	17.63	0.5	Pass

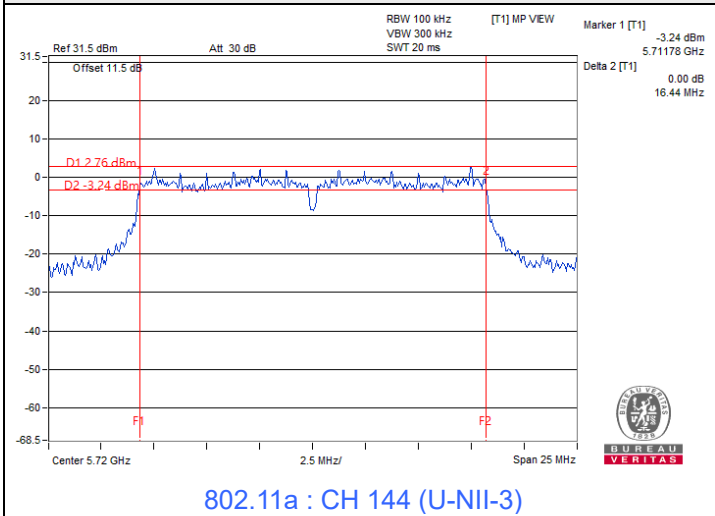
802.11ac (VHT40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
142 (U-NII-3)	5710	2.99	0.5	Pass
151	5755	35.81	0.5	Pass
159	5795	36.16	0.5	Pass

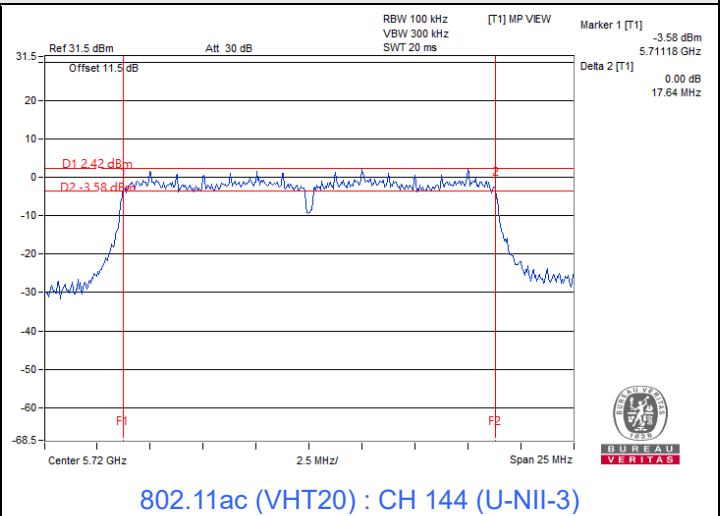
802.11ac (VHT80)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
138 (U-NII-3)	5690	3.27	0.5	Pass
155	5775	76.46	0.5	Pass

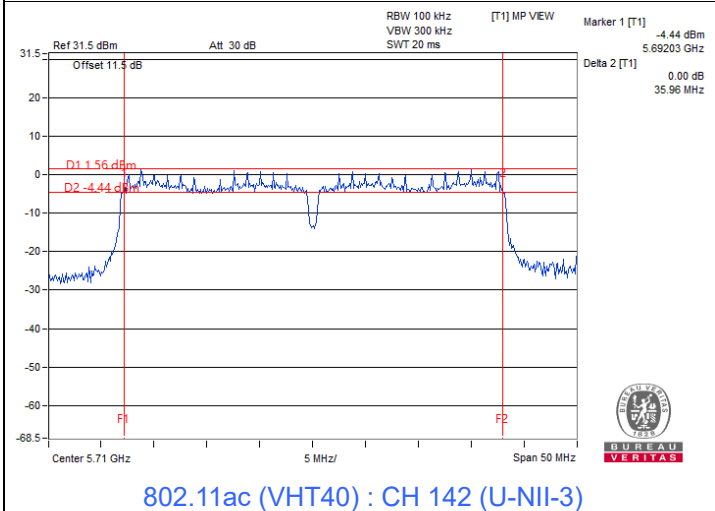
Spectrum Plot of Minimum Value



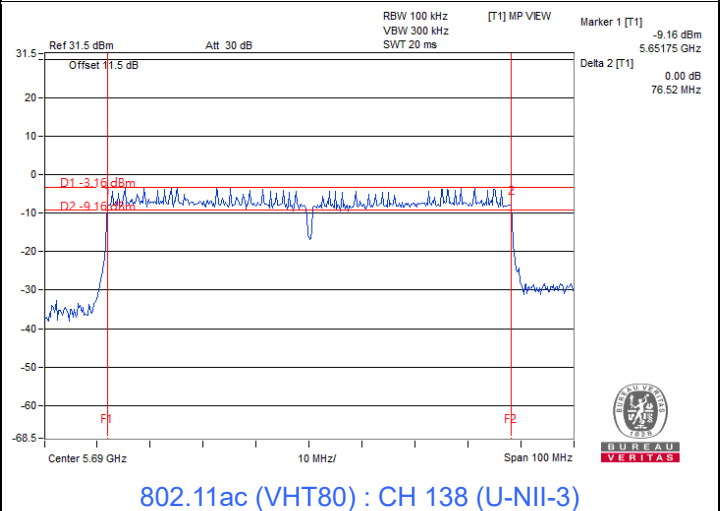
802.11a : CH 144 (U-NII-3)



802.11ac (VHT20) : CH 144 (U-NII-3)



802.11ac (VHT40) : CH 142 (U-NII-3)



802.11ac (VHT80) : CH 138 (U-NII-3)

Note: For U-NII-3 straddle channel = Marker 1 + Delta 2 - 5725 MHz

7.5 Occupied Bandwidth

Input Power:	12 Vdc	Environmental Conditions:	24°C, 63% RH	Tested By:	Henry Hsu
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802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	16.92
40	5200	16.92
48	5240	17.04
52	5260	16.92
60	5300	16.92
64	5320	16.92
100	5500	16.92
116	5580	17.04
140	5700	17.04
144 (U-NII-2C)	5720	13.76
144 (U-NII-3)	5720	3.64
149	5745	17.3
157	5785	17.11
165	5825	17.11

802.11ac (VHT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	17.88
40	5200	17.88
48	5240	17.88
52	5260	17.88
60	5300	17.88
64	5320	17.88
100	5500	18.24
116	5580	22.44
140	5700	17.88
144 (U-NII-2C)	5720	13.88
144 (U-NII-3)	5720	3.88
149	5745	18.36
157	5785	17.98
165	5825	17.98

802.11ac (VHT40)

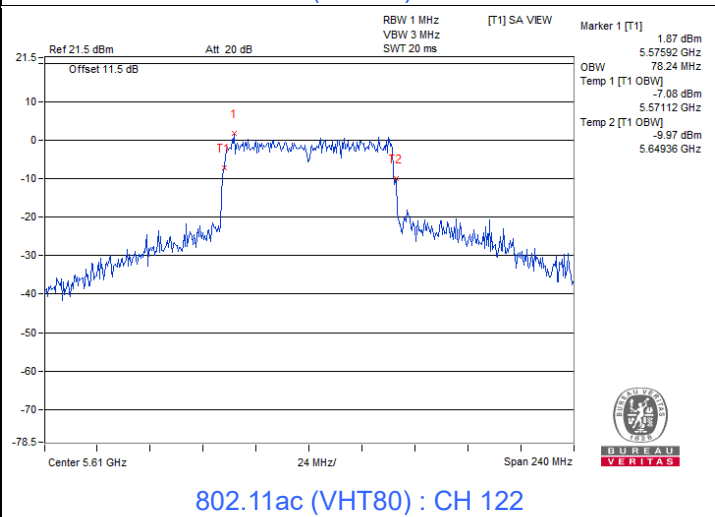
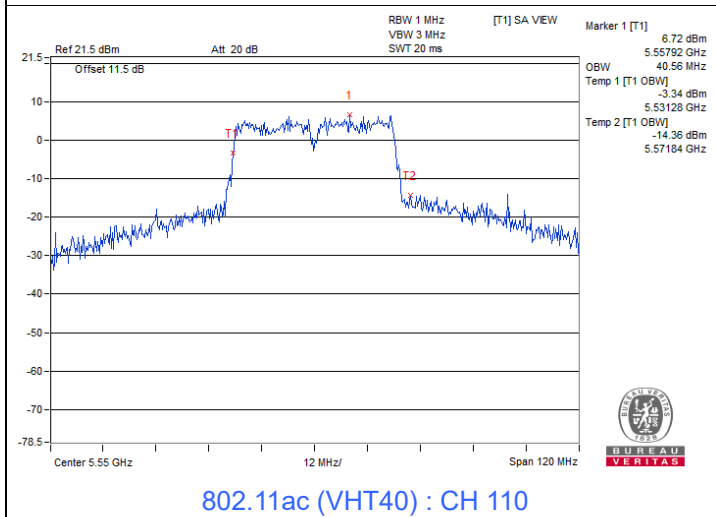
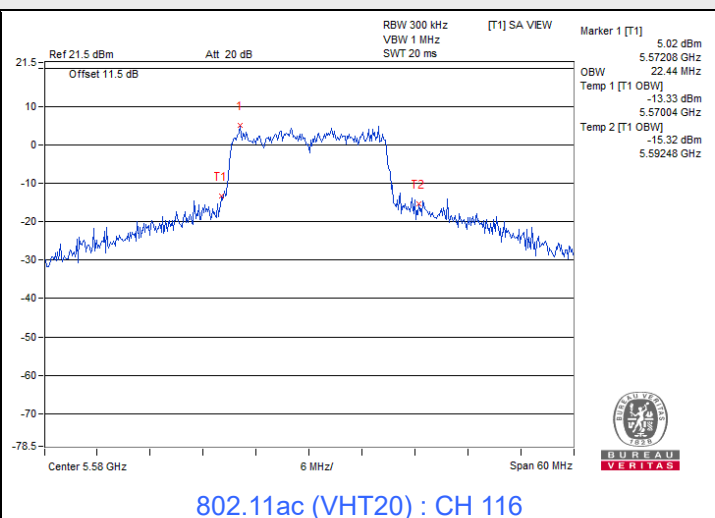
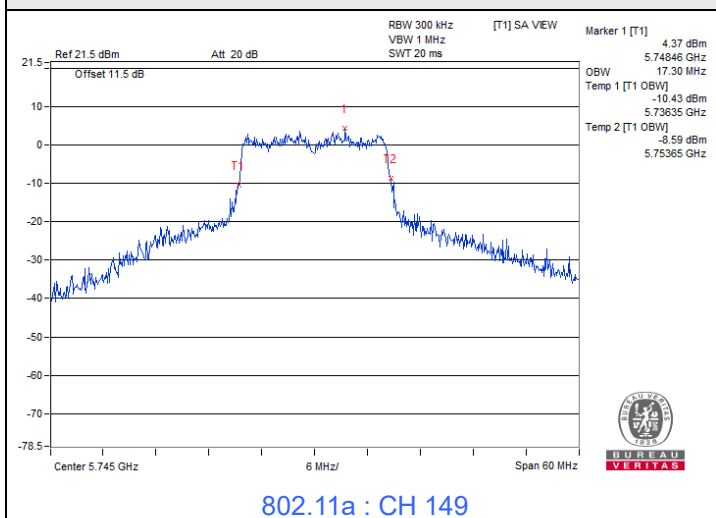
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	36.72
46	5230	36.48
54	5270	36.72
62	5310	36.72
102	5510	36.96
110	5550	40.56
134	5670	36.72
142 (U-NII-2C)	5710	33.48
142 (U-NII-3)	5710	3.48
151	5755	37.44
159	5795	37.2

802.11ac (VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
42	5210	0
58	5290	76.32
106	5530	76.32
122	5610	78.24
138 (U-NII-2C)	5690	73.4
138 (U-NII-3)	5690	2.92
155	5775	76.32

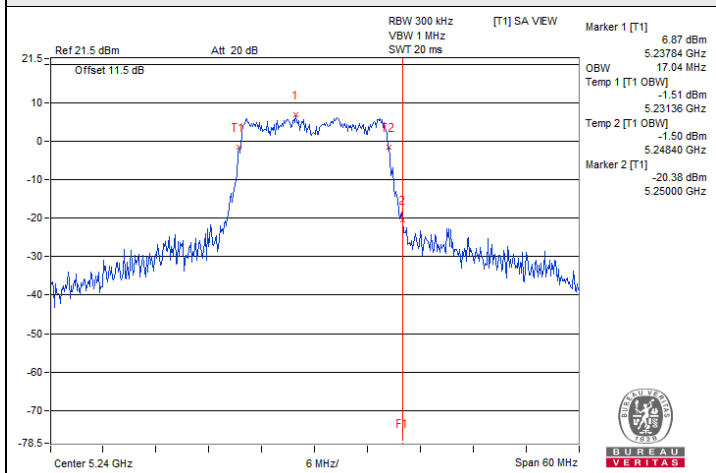


Spectrum Plot of Maximum Value

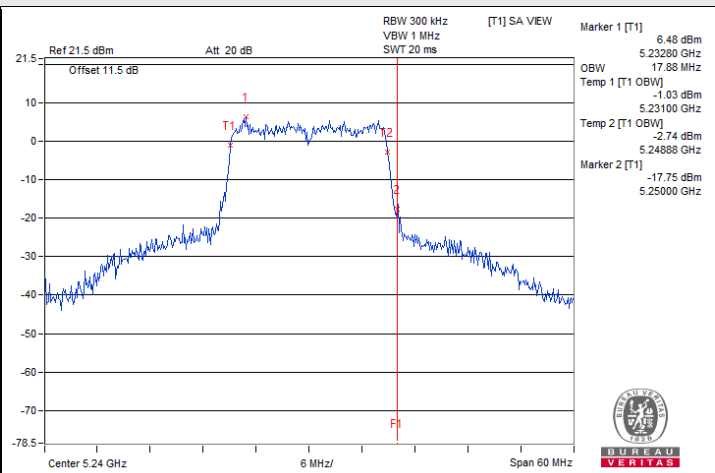




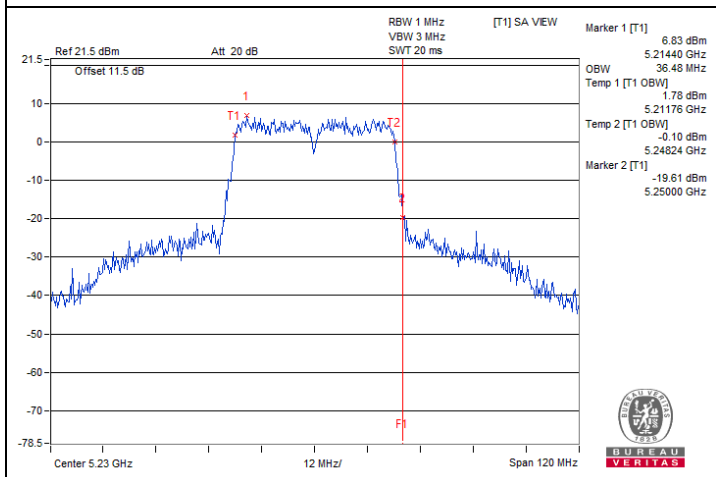
Spectrum Plot for nearby DFS band (DFS is required, if 99% OCP straddle into U-NII-2A)



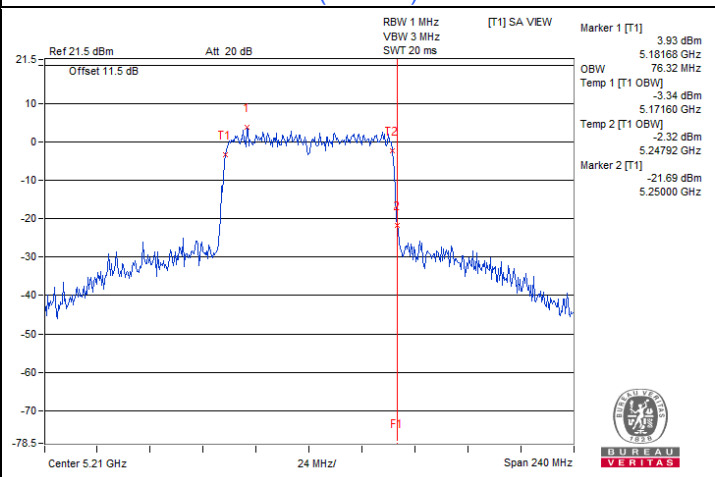
802.11a : CH 48



802.11ac (VHT20) : CH 48



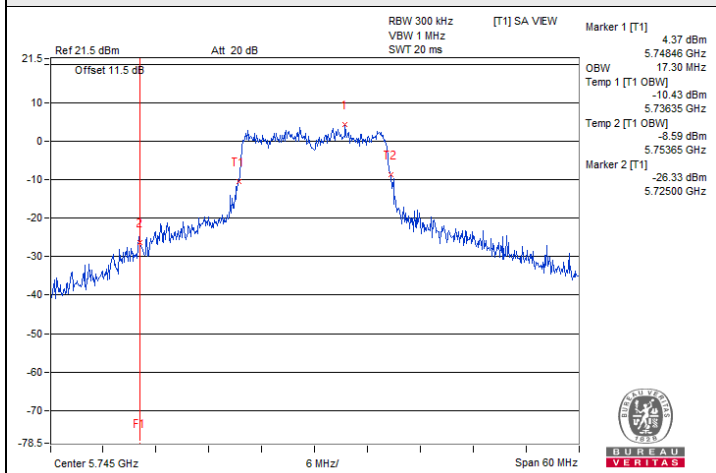
802.11ac (VHT40) : CH 46



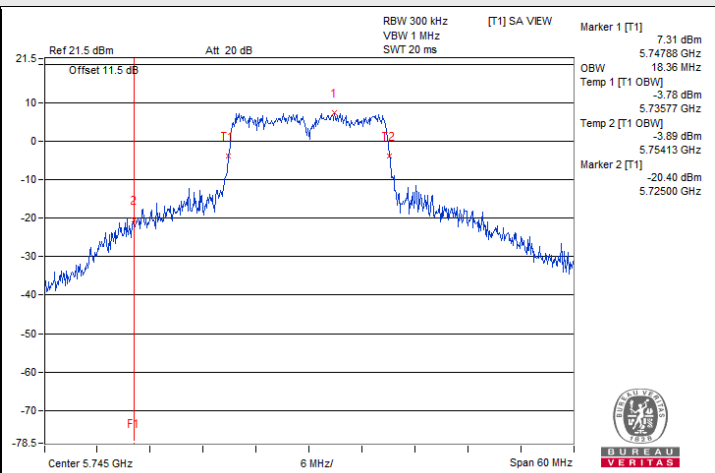
802.11ac (VHT80) : CH 42



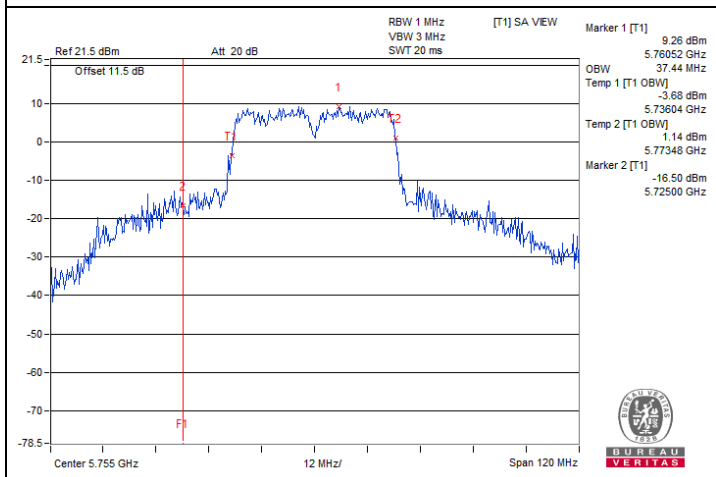
Spectrum Plot for nearby DFS band (DFS is required, if 99% OCP straddle into U-NII-2C)



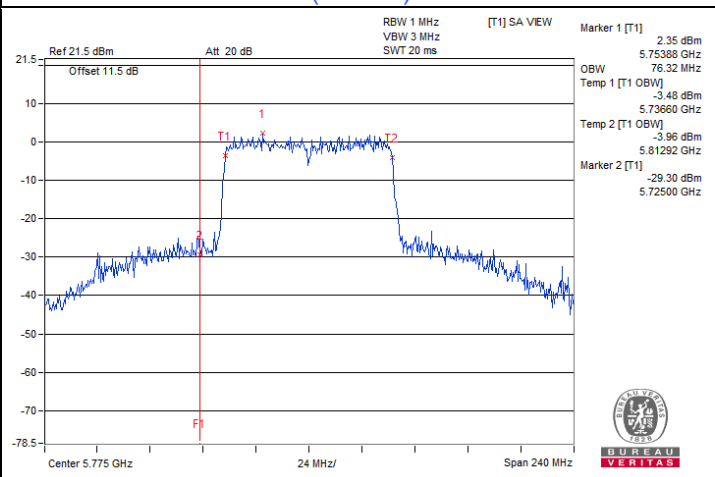
802.11a : CH 149



802.11ac (VHT20) : CH 149



802.11ac (VHT40) : CH 151



802.11ac (VHT80) : CH 155

7.6 Frequency Stability

Input Power:	12 Vdc	Environmental Conditions:	24°C, 63% RH	Tested By:	Henry Hsu
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Frequency Stability Versus Temperature									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result
75	12	5179.9787	Pass	5179.9827	Pass	5179.9796	Pass	5179.9786	Pass
70	12	5180.0169	Pass	5180.0179	Pass	5180.0214	Pass	5180.0213	Pass
60	12	5180.0126	Pass	5180.0101	Pass	5180.0124	Pass	5180.0136	Pass
50	12	5180.0239	Pass	5180.0256	Pass	5180.0242	Pass	5180.0246	Pass
40	12	5179.9839	Pass	5179.9888	Pass	5179.9882	Pass	5179.9848	Pass
30	12	5179.9816	Pass	5179.9838	Pass	5179.981	Pass	5179.9816	Pass
20	12	5180.0015	Pass	5180.0018	Pass	5179.9981	Pass	5180.0002	Pass
10	12	5180.0019	Pass	5180.0029	Pass	5180.0024	Pass	5180.0001	Pass
0	12	5180.0056	Pass	5180.0076	Pass	5180.0095	Pass	5180.0089	Pass
-10	12	5179.9958	Pass	5179.9967	Pass	5179.9967	Pass	5179.9966	Pass
-20	12	5179.9882	Pass	5179.9926	Pass	5179.9882	Pass	5179.9912	Pass
-30	12	5180.0208	Pass	5180.0172	Pass	5180.0176	Pass	5180.0179	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result
20	13.8	5179.9943	Pass	5179.9958	Pass	5179.995	Pass	5179.9934	Pass
	12	5180.0015	Pass	5180.0018	Pass	5179.9981	Pass	5180.0002	Pass
	10.2	5179.9914	Pass	5179.9934	Pass	5179.9911	Pass	5179.9915	Pass

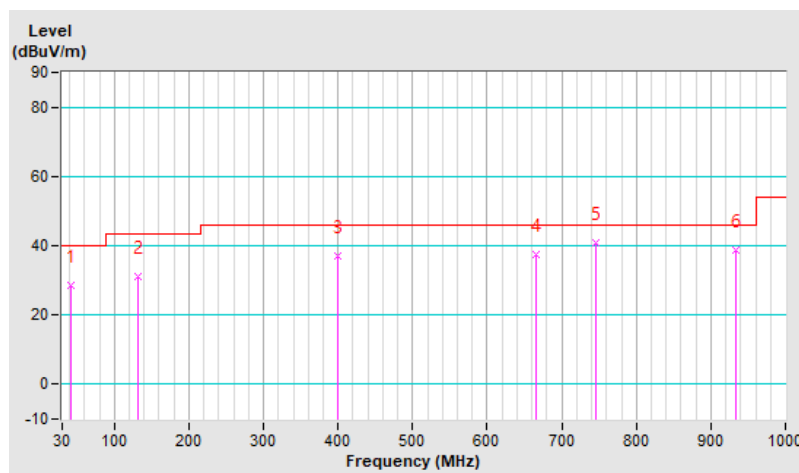
7.7 Unwanted Emissions below 1 GHz

RF Mode	802.11ac (VHT40)	Channel	CH 151 : 5755 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	42.61	28.4 QP	40.0	-11.6	2.00 H	91	41.0	-12.6
2	130.88	31.2 QP	43.5	-12.3	1.00 H	103	44.8	-13.6
3	399.57	36.9 QP	46.0	-9.1	1.50 H	153	46.5	-9.6
4	666.32	37.6 QP	46.0	-8.4	1.00 H	195	41.4	-3.8
5	745.86	40.8 QP	46.0	-5.2	1.50 H	150	42.2	-1.4
6	933.07	38.8 QP	46.0	-7.2	2.00 H	175	39.3	-0.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

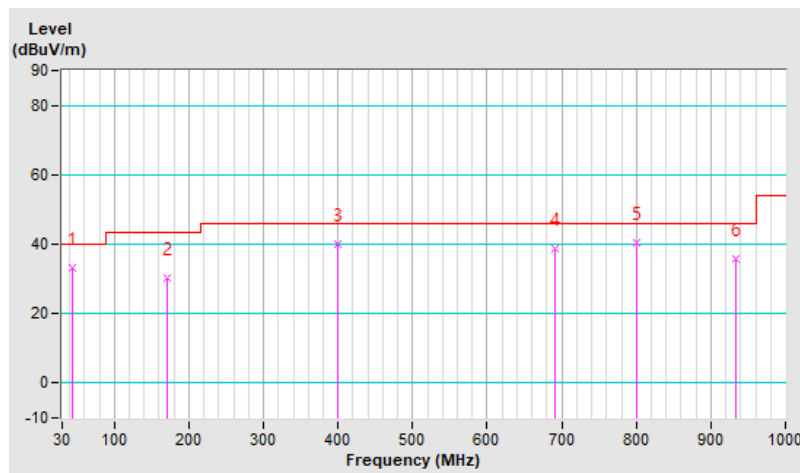


RF Mode	802.11ac (VHT40)	Channel	CH 151 : 5755 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	44.55	33.1 QP	40.0	-6.9	1.50 V	13	45.6	-12.5
2	171.62	30.3 QP	43.5	-13.2	1.00 V	145	43.5	-13.2
3	399.57	40.0 QP	46.0	-6.0	1.00 V	24	49.6	-9.6
4	690.57	38.6 QP	46.0	-7.4	2.00 V	160	42.0	-3.4
5	800.18	40.5 QP	46.0	-5.5	1.00 V	2	41.7	-1.2
6	933.07	35.7 QP	46.0	-10.3	2.00 V	175	36.2	-0.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this 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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	66.7 PK	74.0	-7.3	1.88 H	127	63.0	3.7
2	5150.00	47.3 AV	54.0	-6.7	1.88 H	127	43.6	3.7
3	*5180.00	105.1 PK			1.88 H	127	64.0	41.1
4	*5180.00	95.1 AV			1.88 H	127	54.0	41.1
5	#10360.00	65.6 PK	68.2	-2.6	1.78 H	82	53.5	12.1

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	68.2 PK	74.0	-5.8	1.93 V	305	64.5	3.7
2	5150.00	49.2 AV	54.0	-4.8	1.93 V	305	45.5	3.7
3	*5180.00	108.8 PK			1.93 V	305	67.7	41.1
4	*5180.00	98.3 AV			1.93 V	305	57.2	41.1
5	#10360.00	67.3 PK	68.2	-0.9	1.56 V	2	55.2	12.1

Remarks:

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

RF Mode	802.11a	Channel	CH 40 : 5200 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	*5200.00	106.1 PK			1.86 H	127	65.1	41.0
2	*5200.00	95.5 AV			1.86 H	127	54.5	41.0
3	#10400.00	64.6 PK	68.2	-3.6	1.77 H	77	52.6	12.0
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	*5200.00	109.0 PK			1.90 V	299	68.0	41.0
2	*5200.00	98.5 AV			1.90 V	299	57.5	41.0
3	#10400.00	67.3 PK	68.2	-0.9	1.66 V	3	55.3	12.0

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	802.11a	Channel	CH 48 : 5240 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	*5240.00	106.2 PK			1.84 H	127	65.4	40.8
2	*5240.00	95.7 AV			1.84 H	127	54.9	40.8
3	5350.00	58.2 PK	74.0	-15.8	1.84 H	127	55.3	2.9
4	5350.00	44.6 AV	54.0	-9.4	1.84 H	127	41.7	2.9
5	#10480.00	65.7 PK	68.2	-2.5	1.82 H	86	53.4	12.3

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	*5240.00	108.9 PK			2.03 V	298	68.1	40.8
2	*5240.00	98.8 AV			2.03 V	298	58.0	40.8
3	5350.00	57.8 PK	74.0	-16.2	2.03 V	298	54.9	2.9
4	5350.00	45.3 AV	54.0	-8.7	2.03 V	298	42.4	2.9
5	#10480.00	67.7 PK	68.2	-0.5	1.59 V	3	55.4	12.3

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 52 : 5260 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.5 PK	74.0	-15.5	1.99 H	128	54.8	3.7
2	5150.00	45.6 AV	54.0	-8.4	1.99 H	128	41.9	3.7
3	*5260.00	105.5 PK			1.99 H	128	64.8	40.7
4	*5260.00	94.9 AV			1.99 H	128	54.2	40.7
5	#10520.00	66.0 PK	68.2	-2.2	1.69 H	78	53.6	12.4
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	5150.00	58.9 PK	74.0	-15.1	1.89 V	335	55.2	3.7
2	5150.00	45.8 AV	54.0	-8.2	1.89 V	335	42.1	3.7
3	*5260.00	109.7 PK			1.89 V	335	69.0	40.7
4	*5260.00	99.2 AV			1.89 V	335	58.5	40.7
5	#10520.00	67.8 PK	68.2	-0.4	1.51 V	4	55.4	12.4

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 60 : 5300 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	106.5 PK			1.91 H	122	65.9	40.6
2	*5300.00	94.9 AV			1.91 H	122	54.3	40.6
3	10600.00	66.1 PK	74.0	-7.9	1.69 H	77	53.7	12.4
4	10600.00	52.7 AV	54.0	-1.3	1.69 H	77	40.3	12.4
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	*5300.00	109.6 PK			1.82 V	333	69.0	40.6
2	*5300.00	99.0 AV			1.82 V	333	58.4	40.6
3	10600.00	67.6 PK	74.0	-6.4	1.45 V	5	55.2	12.4
4	10600.00	53.1 AV	54.0	-0.9	1.45 V	5	40.7	12.4

Remarks:

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



RF Mode	802.11a	Channel	CH 64 : 5320 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	105.5 PK			1.92 H	121	64.9	40.6
2	*5320.00	94.9 AV			1.92 H	121	54.3	40.6
3	5350.00	61.5 PK	74.0	-12.5	1.92 H	121	58.6	2.9
4	5350.00	45.9 AV	54.0	-8.1	1.92 H	121	43.0	2.9
5	10640.00	65.9 PK	74.0	-8.1	1.63 H	74	53.5	12.4
6	10640.00	52.6 AV	54.0	-1.4	1.63 H	74	40.2	12.4

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	*5320.00	109.4 PK			1.81 V	336	68.8	40.6
2	*5320.00	99.0 AV			1.81 V	336	58.4	40.6
3	5350.00	65.7 PK	74.0	-8.3	1.81 V	336	62.8	2.9
4	5350.00	47.9 AV	54.0	-6.1	1.81 V	336	45.0	2.9
5	10640.00	67.5 PK	74.0	-6.5	1.46 V	5	55.1	12.4
6	10640.00	53.1 AV	54.0	-0.9	1.46 V	5	40.7	12.4

Remarks:

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



RF Mode	802.11a	Channel	CH 100 : 5500 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	61.3 PK	74.0	-12.7	1.93 H	114	58.0	3.3
2	5460.00	45.6 AV	54.0	-8.4	1.93 H	114	42.3	3.3
3	#5470.00	64.7 PK	68.2	-3.5	1.93 H	114	61.4	3.3
4	*5500.00	105.4 PK			1.93 H	114	64.3	41.1
5	*5500.00	94.9 AV			1.93 H	114	53.8	41.1
6	11000.00	63.5 PK	74.0	-10.5	1.62 H	76	52.0	11.5
7	11000.00	49.9 AV	54.0	-4.1	1.62 H	76	38.4	11.5

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	66.6 PK	74.0	-7.4	1.77 V	336	63.3	3.3
2	5460.00	46.2 AV	54.0	-7.8	1.77 V	336	42.9	3.3
3	#5470.00	67.8 PK	68.2	-0.4	1.77 V	336	64.5	3.3
4	*5500.00	109.3 PK			1.77 V	336	68.2	41.1
5	*5500.00	98.9 AV			1.77 V	336	57.8	41.1
6	11000.00	64.1 PK	74.0	-9.9	1.46 V	6	52.6	11.5
7	11000.00	50.1 AV	54.0	-3.9	1.46 V	6	38.6	11.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, 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 116 : 5580 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	109.1 PK			2.00 H	118	67.7	41.4
2	*5580.00	98.6 AV			2.00 H	118	57.2	41.4
3	11160.00	65.7 PK	74.0	-8.3	1.61 H	72	54.0	11.7
4	11160.00	53.0 AV	54.0	-1.0	1.61 H	72	41.3	11.7

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	111.9 PK			1.74 V	334	70.5	41.4
2	*5580.00	101.3 AV			1.74 V	334	59.9	41.4
3	11160.00	66.0 PK	74.0	-8.0	1.46 V	8	54.3	11.7
4	11160.00	53.2 AV	54.0	-0.8	1.46 V	8	41.5	11.7

Remarks:

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

RF Mode	802.11a	Channel	CH 140 : 5700 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	105.0 PK			1.85 H	116	63.6	41.4
2	*5700.00	94.9 AV			1.85 H	116	53.5	41.4
3	#5725.00	66.7 PK	68.2	-1.5	1.85 H	116	62.9	3.8
4	11400.00	62.3 PK	74.0	-11.7	1.67 H	71	50.1	12.2
5	11400.00	50.1 AV	54.0	-3.9	1.67 H	71	37.9	12.2

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	*5700.00	108.2 PK			1.55 V	337	66.8	41.4
2	*5700.00	97.8 AV			1.55 V	337	56.4	41.4
3	#5725.00	67.7 PK	68.2	-0.5	1.55 V	337	63.9	3.8
4	11400.00	63.0 PK	74.0	-11.0	1.51 V	8	50.8	12.2
5	11400.00	50.5 AV	54.0	-3.5	1.51 V	8	38.3	12.2

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 144 : 5720 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 72% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5720.00	107.1 PK			1.44 H	153	65.6	41.5
2	*5720.00	96.5 AV			1.44 H	153	55.0	41.5
3	#5850.00	59.2 PK	68.2	-9.0	1.44 H	153	54.6	4.6
4	11440.00	63.3 PK	74.0	-10.7	2.31 H	164	51.3	12.0
5	11440.00	50.6 AV	54.0	-3.4	2.31 H	164	38.6	12.0

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5720.00	112.3 PK			1.94 V	170	70.8	41.5
2	*5720.00	101.6 AV			1.94 V	170	60.1	41.5
3	#5850.00	59.5 PK	68.2	-8.7	1.94 V	170	54.9	4.6
4	11440.00	66.6 PK	74.0	-7.4	1.56 V	16	54.6	12.0
5	11440.00	53.2 AV	54.0	-0.8	1.56 V	16	41.2	12.0

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	802.11a	Channel	CH 149 : 5745 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	#5626.40	58.9 PK	68.2	-9.3	1.98 H	117	55.2	3.7
2	*5745.00	110.2 PK			1.98 H	117	68.6	41.6
3	*5745.00	99.7 AV			1.98 H	117	58.1	41.6
4	#5988.40	59.7 PK	68.2	-8.5	1.98 H	117	55.1	4.6
5	11490.00	65.8 PK	74.0	-8.2	1.74 H	77	54.1	11.7
6	11490.00	53.0 AV	54.0	-1.0	1.74 H	77	41.3	11.7

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	#5609.20	59.1 PK	68.2	-9.1	1.47 V	336	55.5	3.6
2	*5745.00	112.1 PK			1.47 V	336	70.5	41.6
3	*5745.00	101.6 AV			1.47 V	336	60.0	41.6
4	#5982.00	59.4 PK	68.2	-8.8	1.47 V	336	54.8	4.6
5	11490.00	65.9 PK	74.0	-8.1	1.55 V	10	54.2	11.7
6	11490.00	53.1 AV	54.0	-0.9	1.55 V	10	41.4	11.7

Remarks:

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

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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	#5612.40	58.0 PK	68.2	-10.2	1.44 H	161	54.3	3.7
2	*5785.00	106.9 PK			1.44 H	161	65.2	41.7
3	*5785.00	96.5 AV			1.44 H	161	54.8	41.7
4	#5944.00	59.6 PK	68.2	-8.6	1.44 H	161	55.0	4.6
5	11570.00	65.8 PK	74.0	-8.2	1.70 H	74	54.2	11.6
6	11570.00	52.7 AV	54.0	-1.3	1.70 H	74	41.1	11.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5634.40	59.4 PK	68.2	-8.8	1.44 V	337	55.7	3.7
2	*5785.00	109.5 PK			1.44 V	337	67.8	41.7
3	*5785.00	99.1 AV			1.44 V	337	57.4	41.7
4	#5930.40	59.4 PK	68.2	-8.8	1.44 V	337	54.9	4.5
5	11570.00	66.0 PK	74.0	-8.0	1.52 V	10	54.4	11.6
6	11570.00	53.1 AV	54.0	-0.9	1.52 V	10	41.5	11.6

Remarks:

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

RF Mode	802.11a	Channel	CH 165 : 5825 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	#5607.60	58.7 PK	68.2	-9.5	1.41 H	161	55.1	3.6
2	*5825.00	107.8 PK			1.41 H	161	65.9	41.9
3	*5825.00	97.2 AV			1.41 H	161	55.3	41.9
4	#5967.60	65.2 PK	68.2	-3.0	1.41 H	161	60.6	4.6
5	11650.00	65.9 PK	74.0	-8.1	1.70 H	72	54.6	11.3
6	11650.00	52.7 AV	54.0	-1.3	1.70 H	72	41.4	11.3
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	#5628.00	61.0 PK	68.2	-7.2	1.39 V	337	57.3	3.7
2	*5825.00	108.7 PK			1.39 V	337	66.8	41.9
3	*5825.00	98.1 AV			1.39 V	337	56.2	41.9
4	#5965.20	61.4 PK	68.2	-6.8	1.39 V	337	56.8	4.6
5	11650.00	68.3 PK	74.0	-5.7	1.56 V	10	57.0	11.3
6	11650.00	53.8 AV	54.0	-0.2	1.56 V	10	42.5	11.3

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	802.11ac (VHT20)	Channel	CH 36 : 5180 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	64.7 PK	74.0	-9.3	2.22 H	127	61.0	3.7
2	5150.00	47.2 AV	54.0	-6.8	2.22 H	127	43.5	3.7
3	*5180.00	103.8 PK			2.22 H	127	62.7	41.1
4	*5180.00	94.0 AV			2.22 H	127	52.9	41.1
5	#10360.00	65.8 PK	68.2	-2.4	1.76 H	84	53.7	12.1

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	68.2 PK	74.0	-5.8	1.80 V	329	64.5	3.7
2	5150.00	49.5 AV	54.0	-4.5	1.80 V	329	45.8	3.7
3	*5180.00	109.6 PK			1.80 V	329	68.5	41.1
4	*5180.00	99.2 AV			1.80 V	329	58.1	41.1
5	#10360.00	67.5 PK	68.2	-0.7	1.60 V	3	55.4	12.1

Remarks:

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

RF Mode	802.11ac (VHT20)	Channel	CH 40 : 5200 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	*5200.00	106.3 PK			1.87 H	127	65.3	41.0
2	*5200.00	96.1 AV			1.87 H	127	55.1	41.0
3	#10400.00	64.7 PK	68.2	-3.5	1.76 H	72	52.7	12.0
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	*5200.00	109.5 PK			2.00 V	298	68.5	41.0
2	*5200.00	99.1 AV			2.00 V	298	58.1	41.0
3	#10400.00	67.4 PK	68.2	-0.8	1.37 V	3	55.4	12.0

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	802.11ac (VHT20)	Channel	CH 48 : 5240 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	*5240.00	106.8 PK			1.85 H	127	66.0	40.8
2	*5240.00	96.2 AV			1.85 H	127	55.4	40.8
3	5350.00	58.2 PK	74.0	-15.8	1.85 H	127	55.3	2.9
4	5350.00	44.6 AV	54.0	-9.4	1.85 H	127	41.7	2.9
5	#10480.00	66.0 PK	68.2	-2.2	1.78 H	83	53.7	12.3

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	*5240.00	110.1 PK			1.75 V	334	69.3	40.8
2	*5240.00	99.7 AV			1.75 V	334	58.9	40.8
3	5350.00	59.9 PK	74.0	-14.1	1.75 V	334	57.0	2.9
4	5350.00	45.3 AV	54.0	-8.7	1.75 V	334	42.4	2.9
5	#10480.00	67.6 PK	68.2	-0.6	1.48 V	5	55.3	12.3

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	802.11ac (VHT20)	Channel	CH 52 : 5260 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.8 PK	74.0	-15.2	2.01 H	129	55.1	3.7
2	5150.00	45.5 AV	54.0	-8.5	2.01 H	129	41.8	3.7
3	*5260.00	106.0 PK			2.01 H	129	65.3	40.7
4	*5260.00	95.6 AV			2.01 H	129	54.9	40.7
5	#10520.00	66.1 PK	68.2	-2.1	1.63 H	72	53.7	12.4

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	5150.00	58.9 PK	74.0	-15.1	1.83 V	338	55.2	3.7
2	5150.00	45.7 AV	54.0	-8.3	1.83 V	338	42.0	3.7
3	*5260.00	110.1 PK			1.83 V	338	69.4	40.7
4	*5260.00	99.5 AV			1.83 V	338	58.8	40.7
5	#10520.00	67.5 PK	68.2	-0.7	1.41 V	4	55.1	12.4

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	802.11ac (VHT20)	Channel	CH 60 : 5300 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	106.7 PK			2.01 H	118	66.1	40.6
2	*5300.00	95.1 AV			2.01 H	118	54.5	40.6
3	10600.00	66.3 PK	74.0	-7.7	1.63 H	73	53.9	12.4
4	10600.00	52.9 AV	54.0	-1.1	1.63 H	73	40.5	12.4

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	*5300.00	109.8 PK			1.78 V	337	69.2	40.6
2	*5300.00	99.4 AV			1.78 V	337	58.8	40.6
3	10600.00	67.8 PK	74.0	-6.2	1.49 V	4	55.4	12.4
4	10600.00	53.2 AV	54.0	-0.8	1.49 V	4	40.8	12.4

Remarks:

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



RF Mode	802.11ac (VHT20)	Channel	CH 64 : 5320 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	104.9 PK			1.78 H	126	64.3	40.6
2	*5320.00	94.6 AV			1.78 H	126	54.0	40.6
3	5350.00	62.3 PK	74.0	-11.7	1.78 H	126	59.4	2.9
4	5350.00	46.0 AV	54.0	-8.0	1.78 H	126	43.1	2.9
5	10640.00	66.1 PK	74.0	-7.9	1.61 H	71	53.7	12.4
6	10640.00	52.7 AV	54.0	-1.3	1.61 H	71	40.3	12.4

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	*5320.00	109.9 PK			1.82 V	337	69.3	40.6
2	*5320.00	99.6 AV			1.82 V	337	59.0	40.6
3	5350.00	68.6 PK	74.0	-5.4	1.82 V	337	65.7	2.9
4	5350.00	48.7 AV	54.0	-5.3	1.82 V	337	45.8	2.9
5	10640.00	67.2 PK	74.0	-6.8	1.43 V	4	54.8	12.4
6	10640.00	53.4 AV	54.0	-0.6	1.43 V	4	41.0	12.4

Remarks:

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

RF Mode	802.11ac (VHT20)	Channel	CH 100 : 5500 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	63.2 PK	74.0	-10.8	1.90 H	166	59.9	3.3
2	5460.00	46.4 AV	54.0	-7.6	1.90 H	166	43.1	3.3
3	#5470.00	66.0 PK	68.2	-2.2	1.90 H	166	62.7	3.3
4	*5500.00	106.4 PK			1.90 H	166	65.3	41.1
5	*5500.00	96.2 AV			1.90 H	166	55.1	41.1
6	11000.00	63.7 PK	74.0	-10.3	1.67 H	75	52.2	11.5
7	11000.00	50.1 AV	54.0	-3.9	1.67 H	75	38.6	11.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	66.8 PK	74.0	-7.2	1.77 V	336	63.5	3.3
2	5460.00	46.9 AV	54.0	-7.1	1.77 V	336	43.6	3.3
3	#5470.00	67.9 PK	68.2	-0.3	1.77 V	336	64.6	3.3
4	*5500.00	109.4 PK			1.77 V	336	68.3	41.1
5	*5500.00	98.9 AV			1.77 V	336	57.8	41.1
6	11000.00	63.8 PK	74.0	-10.2	1.38 V	6	52.3	11.5
7	11000.00	50.6 AV	54.0	-3.4	1.38 V	6	39.1	11.5

Remarks:

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

RF Mode	802.11ac (VHT20)	Channel	CH 116 : 5580 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	109.0 PK			1.97 H	118	67.6	41.4
2	*5580.00	98.5 AV			1.97 H	118	57.1	41.4
3	11160.00	65.9 PK	74.0	-8.1	1.64 H	105	54.2	11.7
4	11160.00	53.2 AV	54.0	-0.8	1.64 H	105	41.5	11.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	111.9 PK			1.73 V	336	70.5	41.4
2	*5580.00	101.6 AV			1.73 V	336	60.2	41.4
3	11160.00	66.3 PK	74.0	-7.7	1.41 V	9	54.6	11.7
4	11160.00	53.4 AV	54.0	-0.6	1.41 V	9	41.7	11.7

Remarks:

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



RF Mode	802.11ac (VHT20)	Channel	CH 140 : 5700 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	105.3 PK			1.85 H	116	63.9	41.4
2	*5700.00	94.9 AV			1.85 H	116	53.5	41.4
3	#5725.00	67.7 PK	68.2	-0.5	1.85 H	116	63.9	3.8
4	11400.00	62.5 PK	74.0	-11.5	1.62 H	75	50.3	12.2
5	11400.00	50.3 AV	54.0	-3.7	1.62 H	75	38.1	12.2

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	*5700.00	108.4 PK			1.53 V	337	67.0	41.4
2	*5700.00	98.2 AV			1.53 V	337	56.8	41.4
3	#5725.00	68.0 PK	68.2	-0.2	1.53 V	337	64.2	3.8
4	11400.00	63.4 PK	74.0	-10.6	1.49 V	9	51.2	12.2
5	11400.00	50.9 AV	54.0	-3.1	1.49 V	9	38.7	12.2

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	802.11ac (VHT20)	Channel	CH 144 : 5720 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 72% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5720.00	106.6 PK			1.45 H	154	65.1	41.5
2	*5720.00	96.5 AV			1.45 H	154	55.0	41.5
3	#5850.00	59.3 PK	68.2	-8.9	1.45 H	154	54.7	4.6
4	11440.00	64.4 PK	74.0	-9.6	2.32 H	265	52.4	12.0
5	11440.00	51.6 AV	54.0	-2.4	2.32 H	265	39.6	12.0

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5720.00	112.3 PK			1.71 V	170	70.8	41.5
2	*5720.00	102.0 AV			1.71 V	170	60.5	41.5
3	#5850.00	60.3 PK	68.2	-7.9	1.71 V	170	55.7	4.6
4	11440.00	65.7 PK	74.0	-8.3	2.35 V	204	53.7	12.0
5	11440.00	53.1 AV	54.0	-0.9	2.35 V	204	41.1	12.0

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	802.11ac (VHT20)	Channel	CH 149 : 5745 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	#5600.80	58.1 PK	68.2	-10.1	1.95 H	117	54.5	3.6
2	*5745.00	110.4 PK			1.95 H	117	68.8	41.6
3	*5745.00	99.9 AV			1.95 H	117	58.3	41.6
4	#5967.60	58.8 PK	68.2	-9.4	1.95 H	117	54.2	4.6
5	11490.00	66.0 PK	74.0	-8.0	1.71 H	69	54.3	11.7
6	11490.00	53.2 AV	54.0	-0.8	1.71 H	69	41.5	11.7
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	#5628.40	59.9 PK	68.2	-8.3	1.49 V	337	56.2	3.7
2	*5745.00	112.2 PK			1.49 V	337	70.6	41.6
3	*5745.00	101.9 AV			1.49 V	337	60.3	41.6
4	#5943.60	59.2 PK	68.2	-9.0	1.49 V	337	54.6	4.6
5	11490.00	66.7 PK	74.0	-7.3	1.66 V	11	55.0	11.7
6	11490.00	53.3 AV	54.0	-0.7	1.66 V	11	41.6	11.7

Remarks:

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

RF Mode	802.11ac (VHT20)	Channel	CH 157 : 5785 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	#5643.60	57.7 PK	68.2	-10.5	1.55 H	160	53.9	3.8
2	*5785.00	107.1 PK			1.55 H	160	65.4	41.7
3	*5785.00	96.6 AV			1.55 H	160	54.9	41.7
4	#5974.80	60.1 PK	68.2	-8.1	1.55 H	160	55.5	4.6
5	11570.00	65.9 PK	74.0	-8.1	1.73 H	71	54.3	11.6
6	11570.00	52.9 AV	54.0	-1.1	1.73 H	71	41.3	11.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5617.20	59.2 PK	68.2	-9.0	1.42 V	337	55.5	3.7
2	*5785.00	109.7 PK			1.42 V	337	68.0	41.7
3	*5785.00	99.4 AV			1.42 V	337	57.7	41.7
4	#5974.00	60.5 PK	68.2	-7.7	1.42 V	337	55.9	4.6
5	11570.00	67.7 PK	74.0	-6.3	1.61 V	9	56.1	11.6
6	11570.00	53.8 AV	54.0	-0.2	1.61 V	9	42.2	11.6

Remarks:

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



RF Mode	802.11ac (VHT20)	Channel	CH 165 : 5825 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	#5621.20	59.5 PK	68.2	-8.7	1.42 H	161	55.8	3.7
2	*5825.00	107.7 PK			1.42 H	161	65.8	41.9
3	*5825.00	97.2 AV			1.42 H	161	55.3	41.9
4	#5943.60	59.1 PK	68.2	-9.1	1.42 H	161	54.5	4.6
5	11650.00	66.1 PK	74.0	-7.9	1.73 H	69	54.8	11.3
6	11650.00	53.0 AV	54.0	-1.0	1.73 H	69	41.7	11.3

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	#5632.00	60.4 PK	68.2	-7.8	1.38 V	337	56.7	3.7
2	*5825.00	108.6 PK			1.38 V	337	66.7	41.9
3	*5825.00	98.1 AV			1.38 V	337	56.2	41.9
4	#5974.80	61.1 PK	68.2	-7.1	1.38 V	337	56.5	4.6
5	11650.00	66.9 PK	74.0	-7.1	1.57 V	10	55.6	11.3
6	11650.00	53.2 AV	54.0	-0.8	1.57 V	10	41.9	11.3

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	802.11ac (VHT40)	Channel	CH 38 : 5190 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	68.9 PK	74.0	-5.1	1.99 H	126	65.2	3.7
2	5150.00	49.8 AV	54.0	-4.2	1.99 H	126	46.1	3.7
3	*5190.00	102.9 PK			1.99 H	126	61.9	41.0
4	*5190.00	92.4 AV			1.99 H	126	51.4	41.0
5	#10380.00	62.3 PK	68.2	-5.9	2.28 H	120	50.3	12.0

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	5150.00	73.5 PK	74.0	-0.5	1.62 V	332	69.8	3.7
2	5150.00	53.2 AV	54.0	-0.8	1.62 V	332	49.5	3.7
3	*5190.00	107.1 PK			1.62 V	332	66.1	41.0
4	*5190.00	96.4 AV			1.62 V	332	55.4	41.0
5	#10380.00	64.7 PK	68.2	-3.5	1.53 V	3	52.7	12.0

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	802.11ac (VHT40)	Channel	CH 46 : 5230 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	59.6 PK	74.0	-14.4	1.83 H	127	55.9	3.7
2	5150.00	46.7 AV	54.0	-7.3	1.83 H	127	43.0	3.7
3	*5230.00	105.7 PK			1.83 H	127	64.9	40.8
4	*5230.00	95.1 AV			1.83 H	127	54.3	40.8
5	5350.00	59.1 PK	74.0	-14.9	1.83 H	127	56.2	2.9
6	5350.00	45.0 AV	54.0	-9.0	1.83 H	127	42.1	2.9
7	#10460.00	65.4 PK	68.2	-2.8	1.70 H	77	53.2	12.2
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	5150.00	61.3 PK	74.0	-12.7	1.77 V	334	57.6	3.7
2	5150.00	48.2 AV	54.0	-5.8	1.77 V	334	44.5	3.7
3	*5230.00	109.4 PK			1.77 V	334	68.6	40.8
4	*5230.00	99.0 AV			1.77 V	334	58.2	40.8
5	5350.00	62.6 PK	74.0	-11.4	1.77 V	334	59.7	2.9
6	5350.00	46.2 AV	54.0	-7.8	1.77 V	334	43.3	2.9
7	#10460.00	67.4 PK	68.2	-0.8	1.58 V	4	55.2	12.2

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	802.11ac (VHT40)	Channel	CH 54 : 5270 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	59.4 PK	74.0	-14.6	1.81 H	127	55.7	3.7
2	5150.00	46.0 AV	54.0	-8.0	1.81 H	127	42.3	3.7
3	*5270.00	105.2 PK			1.81 H	127	64.5	40.7
4	*5270.00	94.7 AV			1.81 H	127	54.0	40.7
5	#10540.00	66.1 PK	68.2	-2.1	1.73 H	80	53.7	12.4

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	5150.00	60.2 PK	74.0	-13.8	1.68 V	332	56.5	3.7
2	5150.00	47.1 AV	54.0	-6.9	1.68 V	332	43.4	3.7
3	*5270.00	109.2 PK			1.68 V	332	68.5	40.7
4	*5270.00	98.7 AV			1.68 V	332	58.0	40.7
5	#10540.00	67.8 PK	68.2	-0.4	1.46 V	3	55.4	12.4

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	802.11ac (VHT40)	Channel	CH 62 : 5310 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5310.00	101.7 PK			1.74 H	127	61.1	40.6
2	*5310.00	91.5 AV			1.74 H	127	50.9	40.6
3	5350.00	66.3 PK	74.0	-7.7	1.74 H	127	63.4	2.9
4	5350.00	48.9 AV	54.0	-5.1	1.74 H	127	46.0	2.9
5	10620.00	62.9 PK	74.0	-11.1	1.75 H	75	50.6	12.3
6	10620.00	49.4 AV	54.0	-4.6	1.75 H	75	37.1	12.3

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	*5310.00	107.1 PK			1.65 V	331	66.5	40.6
2	*5310.00	96.5 AV			1.65 V	331	55.9	40.6
3	5350.00	71.8 PK	74.0	-2.2	1.65 V	331	68.9	2.9
4	5350.00	53.8 AV	54.0	-0.2	1.65 V	331	50.9	2.9
5	10620.00	64.5 PK	74.0	-9.5	1.43 V	4	52.2	12.3
6	10620.00	51.2 AV	54.0	-2.8	1.43 V	4	38.9	12.3

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.



RF Mode	802.11ac (VHT40)	Channel	CH 102 : 5510 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	59.7 PK	74.0	-14.3	1.72 H	169	56.4	3.3
2	5460.00	46.4 AV	54.0	-7.6	1.72 H	169	43.1	3.3
3	#5470.00	61.5 PK	68.2	-6.7	1.72 H	169	58.2	3.3
4	*5510.00	97.7 PK			1.72 H	169	56.6	41.1
5	*5510.00	87.5 AV			1.72 H	169	46.4	41.1
6	11020.00	60.2 PK	74.0	-13.8	2.32 H	224	48.6	11.6
7	11020.00	47.0 AV	54.0	-7.0	2.32 H	224	35.4	11.6

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	64.6 PK	74.0	-9.4	1.83 V	332	61.3	3.3
2	5460.00	48.4 AV	54.0	-5.6	1.83 V	332	45.1	3.3
3	#5470.00	67.7 PK	68.2	-0.5	1.83 V	332	64.4	3.3
4	*5510.00	104.4 PK			1.83 V	332	63.3	41.1
5	*5510.00	93.7 AV			1.83 V	332	52.6	41.1
6	11020.00	61.0 PK	74.0	-13.0	1.51 V	10	49.4	11.6
7	11020.00	48.2 AV	54.0	-5.8	1.51 V	10	36.6	11.6

Remarks:

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



RF Mode	802.11ac (VHT40)	Channel	CH 110 : 5550 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5550.00	105.0 PK			1.74 H	157	63.7	41.3
2	*5550.00	94.5 AV			1.74 H	157	53.2	41.3
3	11100.00	65.8 PK	74.0	-8.2	1.47 H	71	54.0	11.8
4	11100.00	53.1 AV	54.0	-0.9	1.47 H	71	41.3	11.8

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	*5550.00	111.3 PK			1.77 V	332	70.0	41.3
2	*5550.00	100.7 AV			1.77 V	332	59.4	41.3
3	11100.00	66.3 PK	74.0	-7.7	1.71 V	272	54.5	11.8
4	11100.00	53.6 AV	54.0	-0.4	1.71 V	272	41.8	11.8

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.



RF Mode	802.11ac (VHT40)	Channel	CH 134 : 5670 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5670.00	101.3 PK			1.70 H	155	59.9	41.4
2	*5670.00	91.0 AV			1.70 H	155	49.6	41.4
3	#5725.00	62.9 PK	68.2	-5.3	1.70 H	155	59.1	3.8
4	11340.00	60.8 PK	74.0	-13.2	2.46 H	125	48.6	12.2
5	11340.00	47.6 AV	54.0	-6.4	2.46 H	125	35.4	12.2

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	*5670.00	104.7 PK			1.78 V	340	63.3	41.4
2	*5670.00	94.5 AV			1.78 V	340	53.1	41.4
3	#5725.00	67.5 PK	68.2	-0.7	1.78 V	340	63.7	3.8
4	11340.00	61.2 PK	74.0	-12.8	2.46 V	53	49.0	12.2
5	11340.00	49.0 AV	54.0	-5.0	2.46 V	53	36.8	12.2

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	802.11ac (VHT40)	Channel	CH 142 : 5710 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 72% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5710.00	105.3 PK			1.46 H	155	63.9	41.4
2	*5710.00	95.1 AV			1.46 H	155	53.7	41.4
3	#5850.00	61.7 PK	68.2	-6.5	1.46 H	155	57.1	4.6
4	11420.00	65.5 PK	74.0	-8.5	2.34 H	278	53.4	12.1
5	11420.00	52.7 AV	54.0	-1.3	2.34 H	278	40.6	12.1

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5710.00	111.6 PK			1.84 V	171	70.2	41.4
2	*5710.00	100.7 AV			1.84 V	171	59.3	41.4
3	#5850.00	65.5 PK	68.2	-2.7	1.84 V	171	60.9	4.6
4	11420.00	66.5 PK	74.0	-7.5	2.32 V	287	54.4	12.1
5	11420.00	53.3 AV	54.0	-0.7	2.32 V	287	41.2	12.1

Remarks:

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

RF Mode	802.11ac (VHT40)	Channel	CH 151 : 5755 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	#5641.60	59.8 PK	68.2	-8.4	1.65 H	156	56.0	3.8
2	*5755.00	106.1 PK			1.65 H	156	64.5	41.6
3	*5755.00	95.8 AV			1.65 H	156	54.2	41.6
4	#5931.20	61.2 PK	68.2	-7.0	1.65 H	156	56.7	4.5
5	11510.00	65.0 PK	74.0	-9.0	2.34 H	152	53.4	11.6
6	11510.00	52.9 AV	54.0	-1.1	2.34 H	152	41.3	11.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5600.40	62.4 PK	68.2	-5.8	1.87 V	340	58.8	3.6
2	*5755.00	109.0 PK			1.87 V	340	67.4	41.6
3	*5755.00	98.9 AV			1.87 V	340	57.3	41.6
4	#5928.00	61.1 PK	68.2	-7.1	1.87 V	340	56.6	4.5
5	11510.00	66.1 PK	74.0	-7.9	1.72 V	9	54.5	11.6
6	11510.00	53.3 AV	54.0	-0.7	1.72 V	9	41.7	11.6

Remarks:

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

RF Mode	802.11ac (VHT40)	Channel	CH 159 : 5795 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	#5637.60	60.0 PK	68.2	-8.2	1.65 H	157	56.2	3.8
2	*5795.00	107.9 PK			1.65 H	157	66.1	41.8
3	*5795.00	97.7 AV			1.65 H	157	55.9	41.8
4	#5930.00	64.0 PK	68.2	-4.2	1.65 H	157	59.5	4.5
5	11590.00	65.6 PK	74.0	-8.4	2.41 H	178	54.1	11.5
6	11590.00	52.8 AV	54.0	-1.2	2.41 H	178	41.3	11.5
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	#5620.40	63.0 PK	68.2	-5.2	1.78 V	337	59.3	3.7
2	*5795.00	108.5 PK			1.78 V	337	66.7	41.8
3	*5795.00	98.0 AV			1.78 V	337	56.2	41.8
4	#5928.80	65.5 PK	68.2	-2.7	1.78 V	337	61.0	4.5
5	11590.00	65.9 PK	74.0	-8.1	1.65 V	10	54.4	11.5
6	11590.00	53.1 AV	54.0	-0.9	1.65 V	10	41.6	11.5

Remarks:

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



RF Mode	802.11ac (VHT80)	Channel	CH 42 : 5210 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	65.0 PK	74.0	-9.0	1.51 H	134	61.3	3.7
2	5150.00	50.3 AV	54.0	-3.7	1.51 H	134	46.6	3.7
3	*5210.00	97.1 PK			1.51 H	134	56.2	40.9
4	*5210.00	86.2 AV			1.51 H	134	45.3	40.9
5	#10420.00	60.6 PK	68.2	-7.6	2.26 H	178	48.6	12.0

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	5150.00	69.2 PK	74.0	-4.8	1.35 V	295	65.5	3.7
2	5150.00	53.7 AV	54.0	-0.3	1.35 V	295	50.0	3.7
3	*5210.00	102.5 PK			1.35 V	295	61.6	40.9
4	*5210.00	91.8 AV			1.35 V	295	50.9	40.9
5	#10420.00	61.2 PK	68.2	-7.0	2.34 V	164	49.2	12.0

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	802.11ac (VHT80)	Channel	CH 58 : 5290 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	*5290.00	94.4 PK			1.36 H	135	53.8	40.6
2	*5290.00	83.9 AV			1.36 H	135	43.3	40.6
3	5350.00	62.5 PK	74.0	-11.5	1.36 H	135	59.6	2.9
4	5350.00	48.2 AV	54.0	-5.8	1.36 H	135	45.3	2.9
5	#10580.00	59.9 PK	68.2	-8.3	2.31 H	229	47.5	12.4

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	*5290.00	101.5 PK			1.46 V	304	60.9	40.6
2	*5290.00	90.3 AV			1.46 V	304	49.7	40.6
3	5350.00	69.0 PK	74.0	-5.0	1.46 V	304	66.1	2.9
4	5350.00	53.5 AV	54.0	-0.5	1.46 V	304	50.6	2.9
5	#10580.00	61.1 PK	68.2	-7.1	2.12 V	167	48.7	12.4

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	802.11ac (VHT80)	Channel	CH 106 : 5530 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	63.0 PK	74.0	-11.0	1.09 H	118	59.7	3.3
2	5460.00	47.9 AV	54.0	-6.1	1.09 H	118	44.6	3.3
3	#5470.00	62.4 PK	68.2	-5.8	1.09 H	118	59.1	3.3
4	*5530.00	95.4 PK			1.09 H	118	54.2	41.2
5	*5530.00	84.7 AV			1.09 H	118	43.5	41.2
6	11060.00	59.3 PK	74.0	-14.7	2.35 H	178	47.6	11.7
7	11060.00	45.2 AV	54.0	-8.8	2.35 H	178	33.5	11.7

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	67.6 PK	74.0	-6.4	1.87 V	332	64.3	3.3
2	5460.00	52.3 AV	54.0	-1.7	1.87 V	332	49.0	3.3
3	#5470.00	67.5 PK	68.2	-0.7	1.87 V	332	64.2	3.3
4	*5530.00	101.9 PK			1.87 V	332	60.7	41.2
5	*5530.00	90.9 AV			1.87 V	332	49.7	41.2
6	11060.00	60.0 PK	74.0	-14.0	2.32 V	165	48.3	11.7
7	11060.00	46.3 AV	54.0	-7.7	2.32 V	165	34.6	11.7

Remarks:

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



RF Mode	802.11ac (VHT80)	Channel	CH 122 : 5610 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	*5610.00	100.5 PK			1.05 H	118	59.0	41.5
2	*5610.00	89.2 AV			1.05 H	118	47.7	41.5
3	#5725.00	67.4 PK	68.2	-0.8	1.05 H	118	63.6	3.8
4	11220.00	62.1 PK	74.0	-11.9	1.78 H	265	50.3	11.8
5	11220.00	48.5 AV	54.0	-5.5	1.78 H	265	36.7	11.8

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	*5610.00	103.8 PK			1.67 V	331	62.3	41.5
2	*5610.00	93.1 AV			1.67 V	331	51.6	41.5
3	#5725.00	67.7 PK	68.2	-0.5	1.67 V	331	63.9	3.8
4	11220.00	63.2 PK	74.0	-10.8	2.32 V	145	51.4	11.8
5	11220.00	49.4 AV	54.0	-4.6	2.32 V	145	37.6	11.8

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	802.11ac (VHT80)	Channel	CH 138 : 5690 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 72% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5690.00	100.9 PK			1.44 H	155	59.5	41.4
2	*5690.00	89.6 AV			1.44 H	155	48.2	41.4
3	#5850.00	63.8 PK	68.2	-4.4	1.44 H	155	59.2	4.6
4	11380.00	63.0 PK	74.0	-11.0	2.04 H	139	50.7	12.3
5	11380.00	48.8 AV	54.0	-5.2	2.04 H	139	36.5	12.3

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	*5690.00	106.8 PK			1.78 V	170	65.4	41.4
2	*5690.00	95.8 AV			1.78 V	170	54.4	41.4
3	#5850.00	67.6 PK	68.2	-0.6	1.78 V	170	63.0	4.6
4	11380.00	64.7 PK	74.0	-9.3	2.34 V	156	52.4	12.3
5	11380.00	50.7 AV	54.0	-3.3	2.34 V	156	38.4	12.3

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	802.11ac (VHT80)	Channel	CH 155 : 5775 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	12Vdc	Environmental Conditions	24°C, 78% RH
Tested By	Vincent Chen		

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	#5626.40	62.4 PK	68.2	-5.8	1.00 H	117	58.7	3.7
2	*5775.00	101.1 PK			1.00 H	117	59.4	41.7
3	*5775.00	90.3 AV			1.00 H	117	48.6	41.7
4	#5938.40	65.9 PK	68.2	-2.3	1.00 H	117	61.4	4.5
5	11550.00	61.8 PK	74.0	-12.2	2.32 H	278	50.3	11.5
6	11550.00	48.0 AV	54.0	-6.0	2.32 H	278	36.5	11.5

Antenna Polarity & Test Distance : Vertical at 3 m

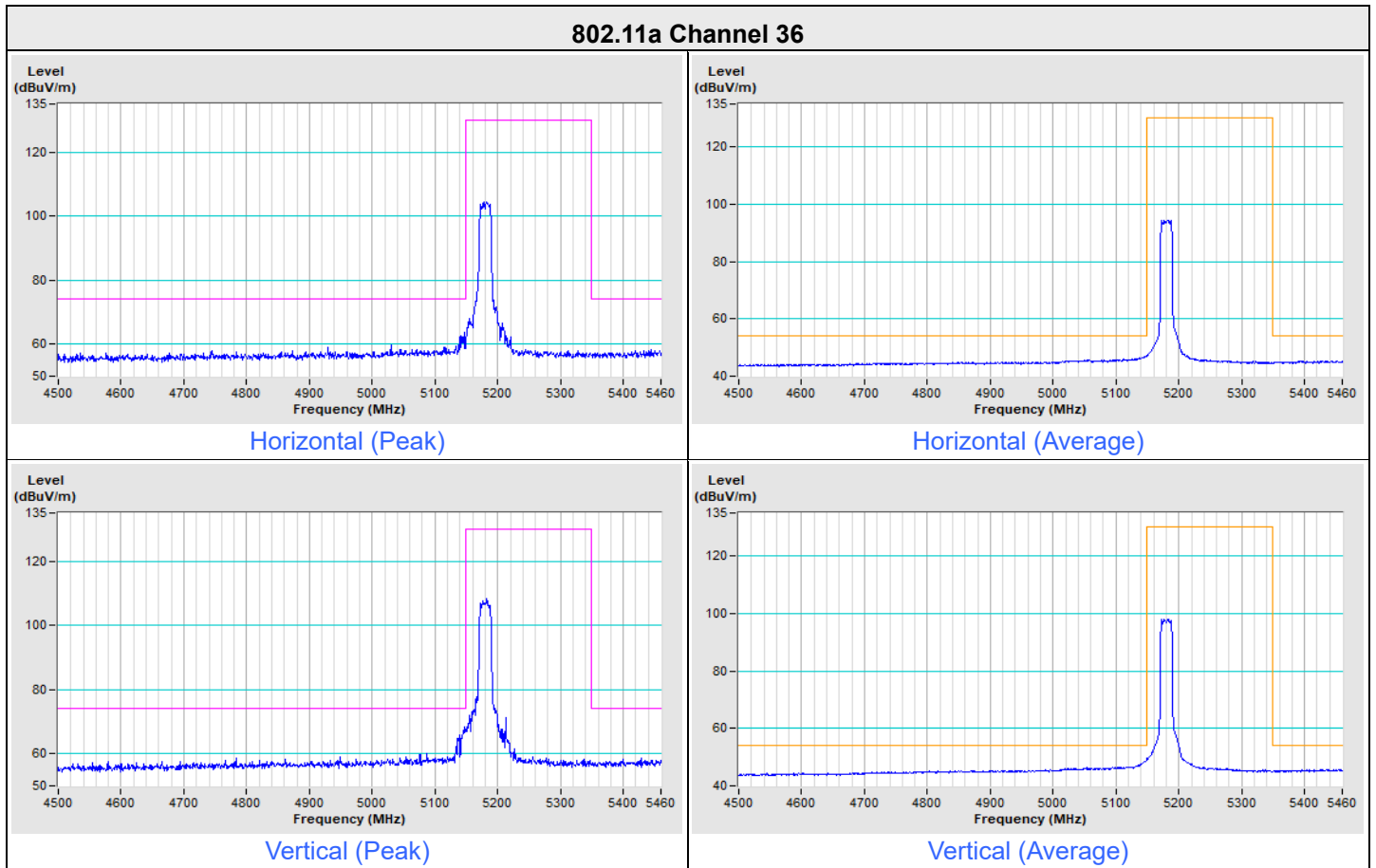
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5642.80	66.6 PK	68.2	-1.6	1.74 V	173	62.8	3.8
2	*5775.00	104.3 PK			1.74 V	173	62.6	41.7
3	*5775.00	93.0 AV			1.74 V	173	51.3	41.7
4	#5973.60	61.4 PK	68.2	-6.8	1.74 V	173	56.8	4.6
5	11550.00	62.8 PK	74.0	-11.2	2.34 V	206	51.3	11.5
6	11550.00	48.9 AV	54.0	-5.1	2.34 V	206	37.4	11.5

Remarks:

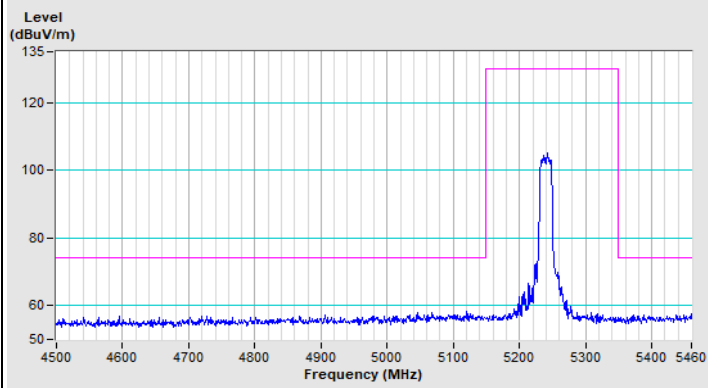
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency,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

Plot of Band Edge

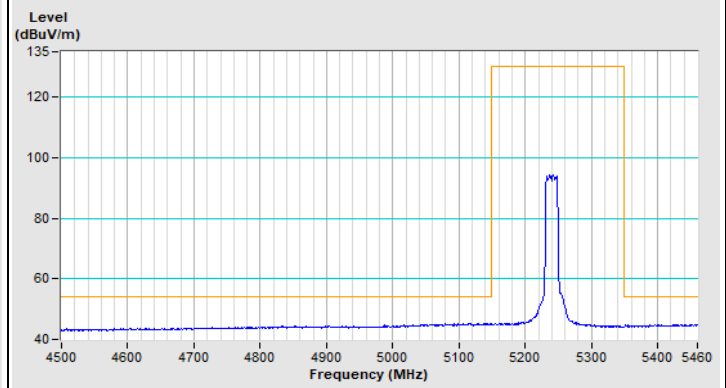
Frequency Range	4.5 GHz ~ 5.46 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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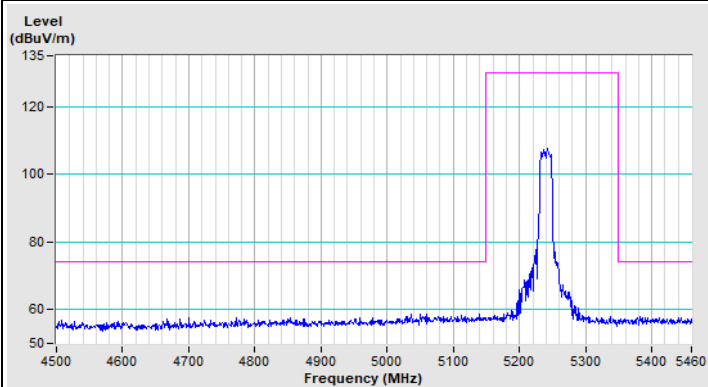
802.11a Channel 48



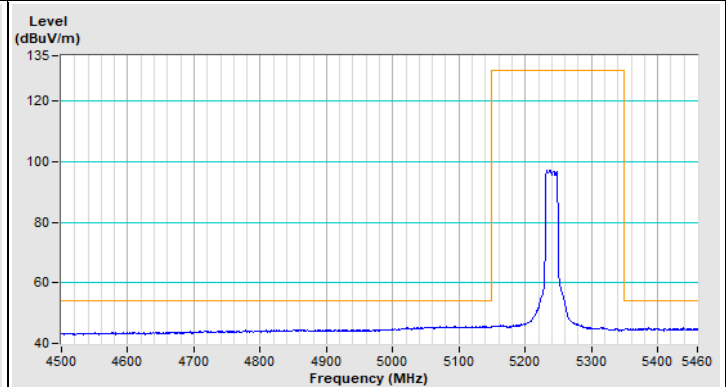
Horizontal (Peak)



Horizontal (Average)

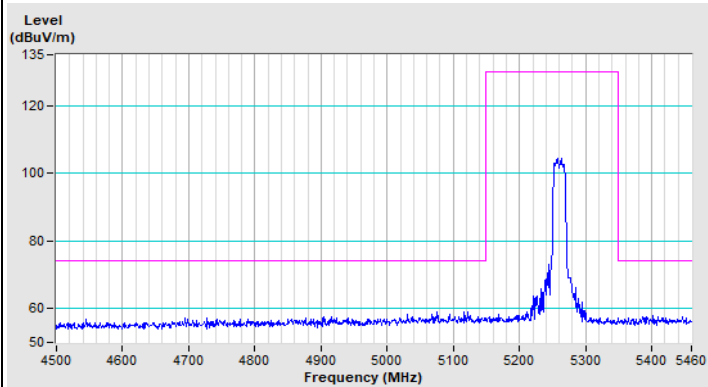


Vertical (Peak)

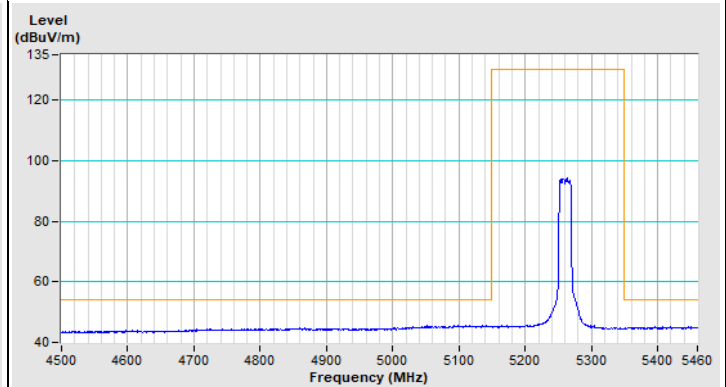


Vertical (Average)

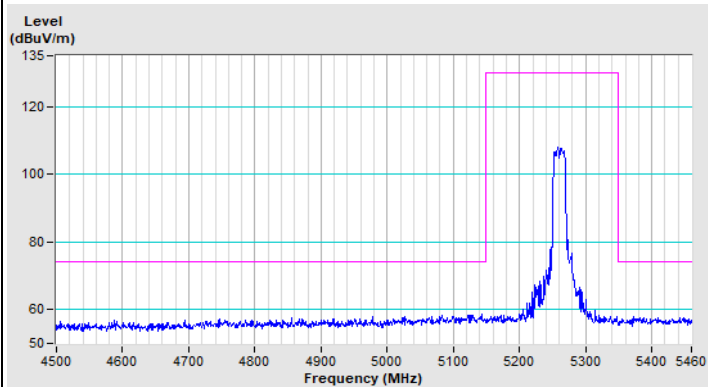
802.11a Channel 52



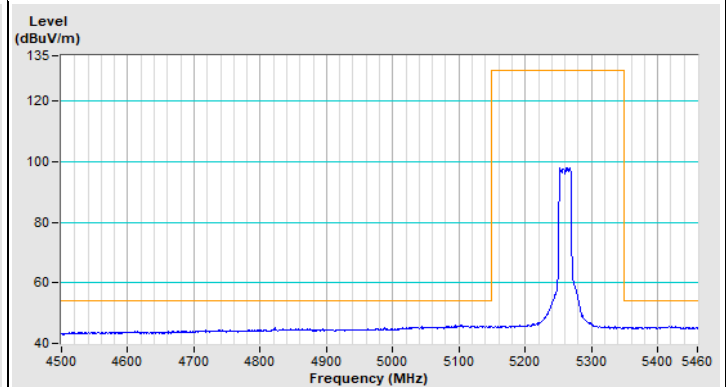
Horizontal (Peak)



Horizontal (Average)

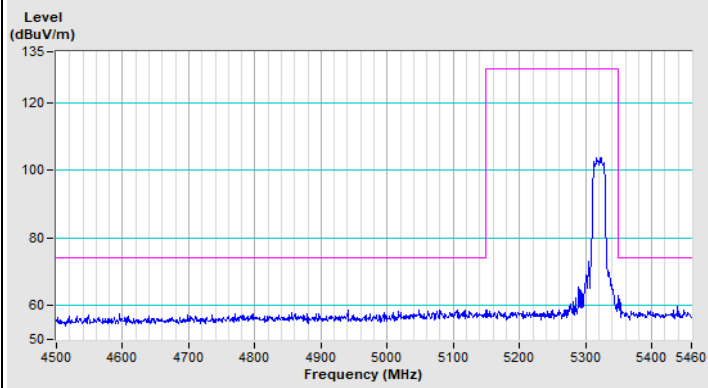


Vertical (Peak)

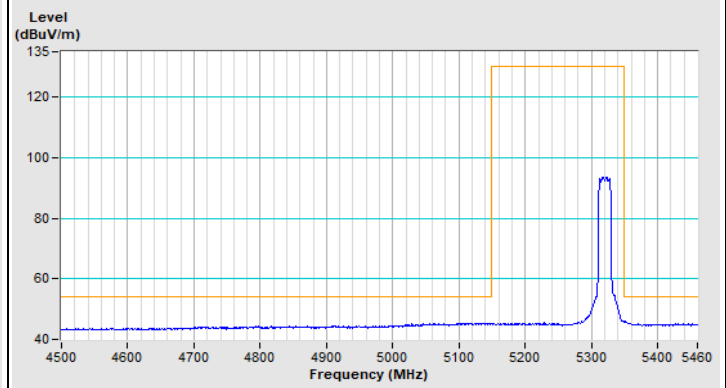


Vertical (Average)

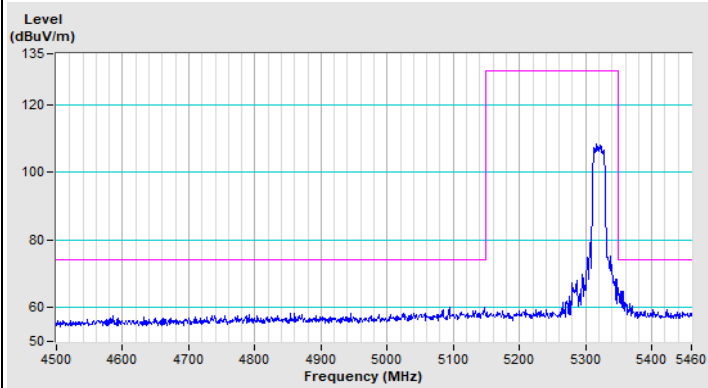
802.11a Channel 64



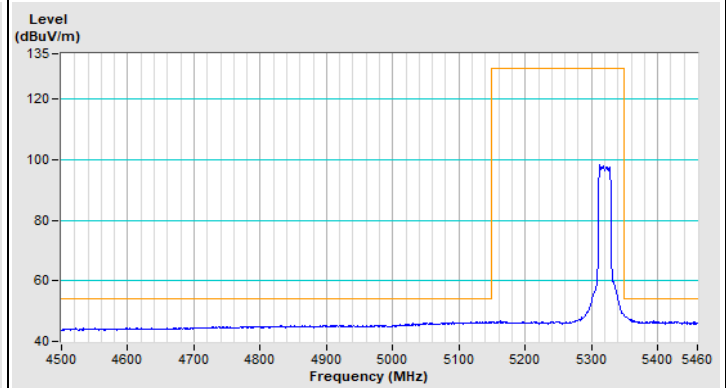
Horizontal (Peak)



Horizontal (Average)



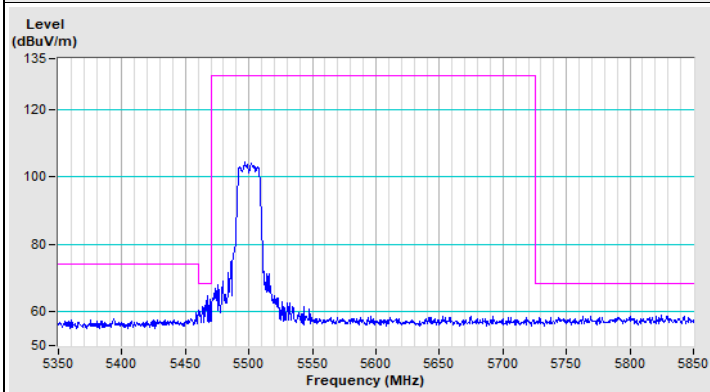
Vertical (Peak)



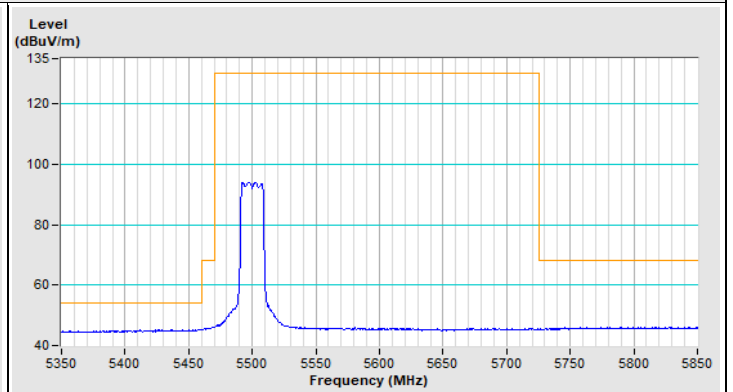
Vertical (Average)

Frequency Range	5.35 GHz ~ 5.85 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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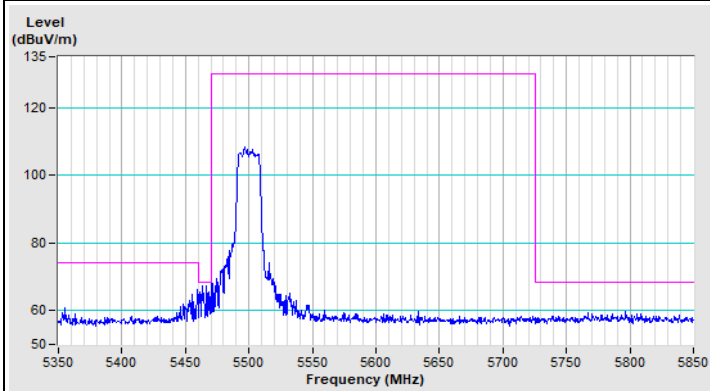
802.11a Channel 100



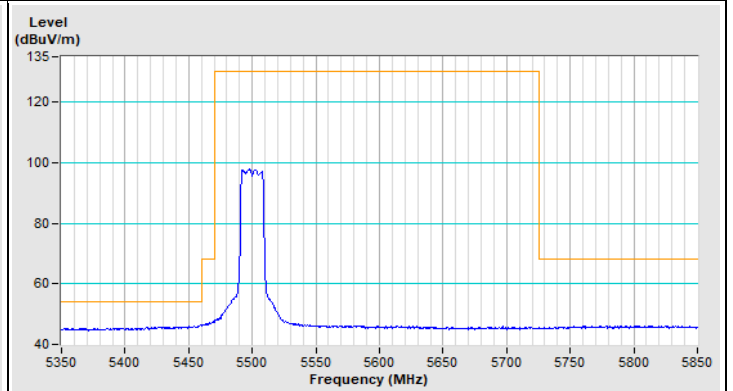
Horizontal (Peak)



Horizontal (Average)

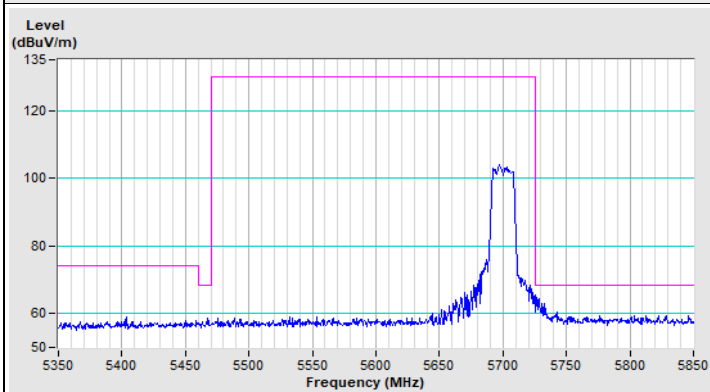


Vertical (Peak)

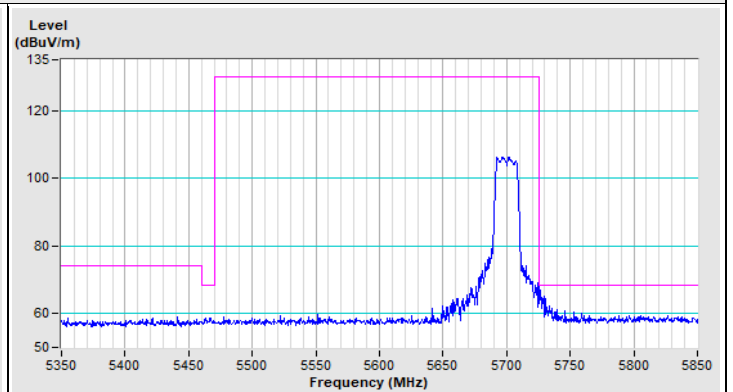


Vertical (Average)

802.11a Channel 140



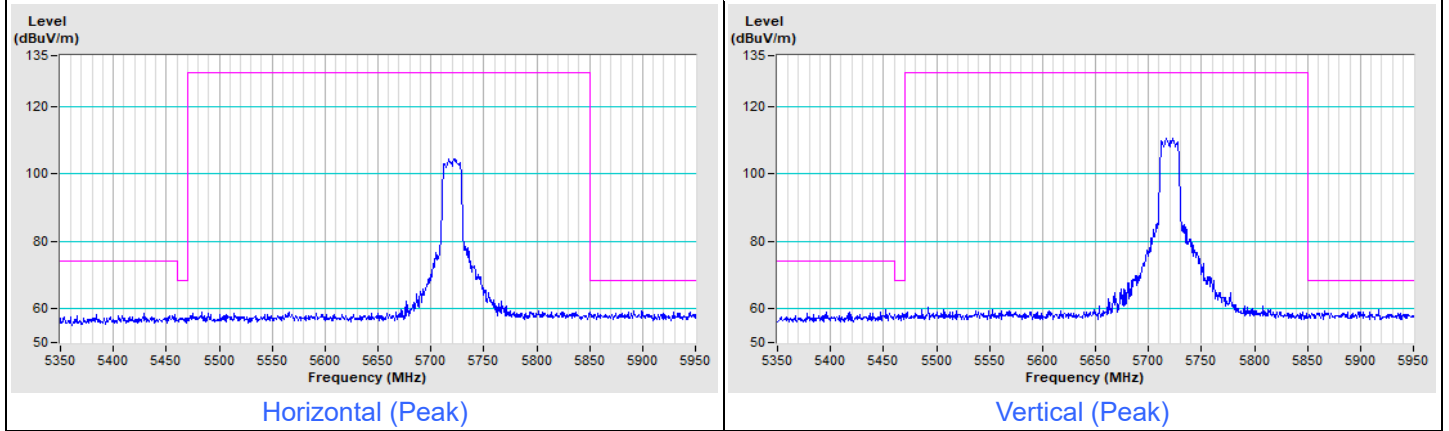
Horizontal (Peak)



Vertical (Peak)

Frequency Range	5.35 GHz ~ 5.95 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak
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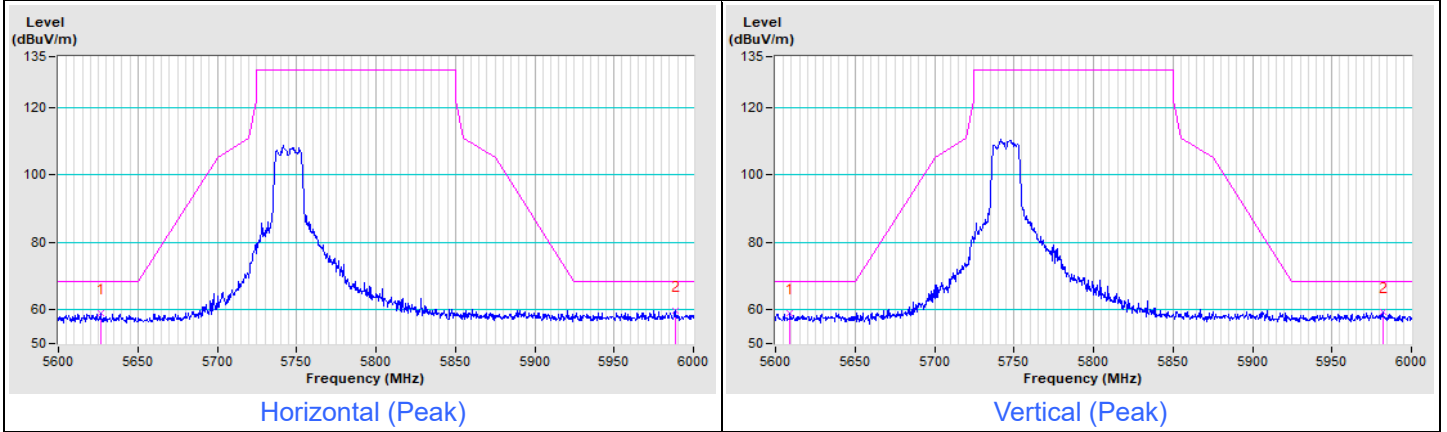
802.11a Channel 144



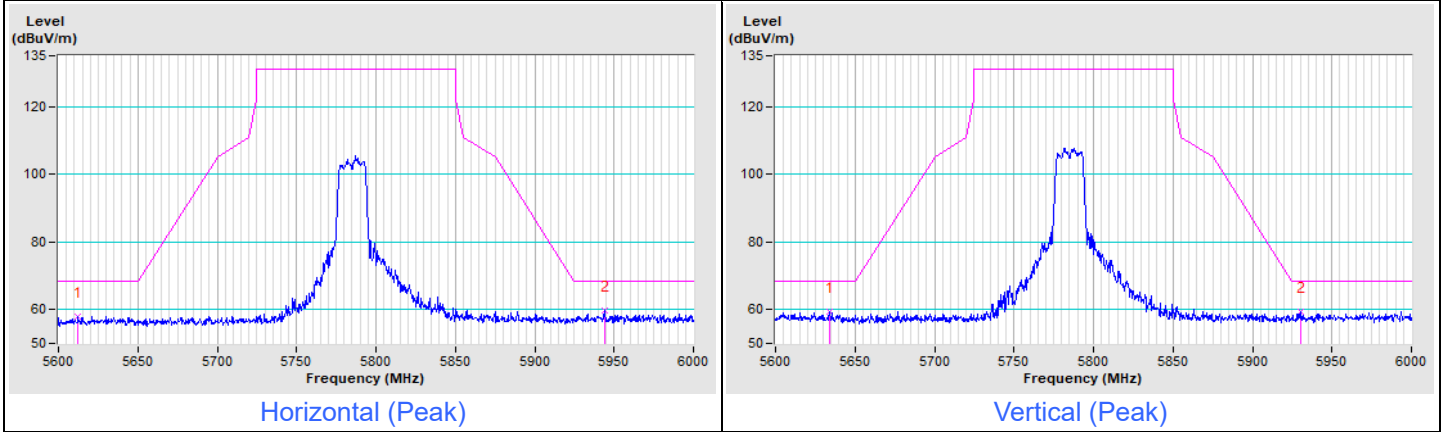


Frequency Range	5.6 GHz ~ 6 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak
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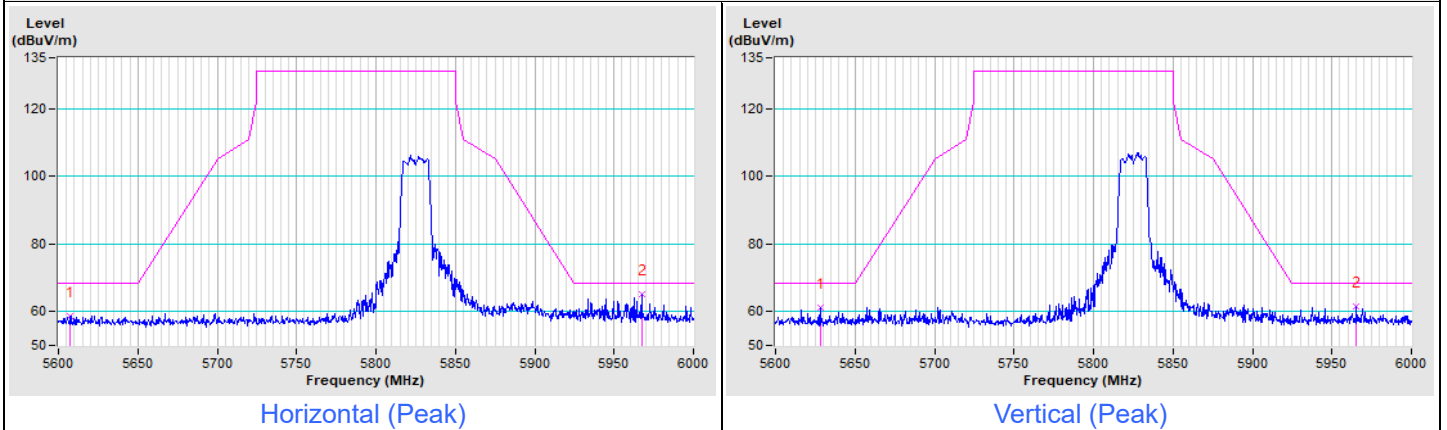
802.11a Channel 149



802.11a Channel 157

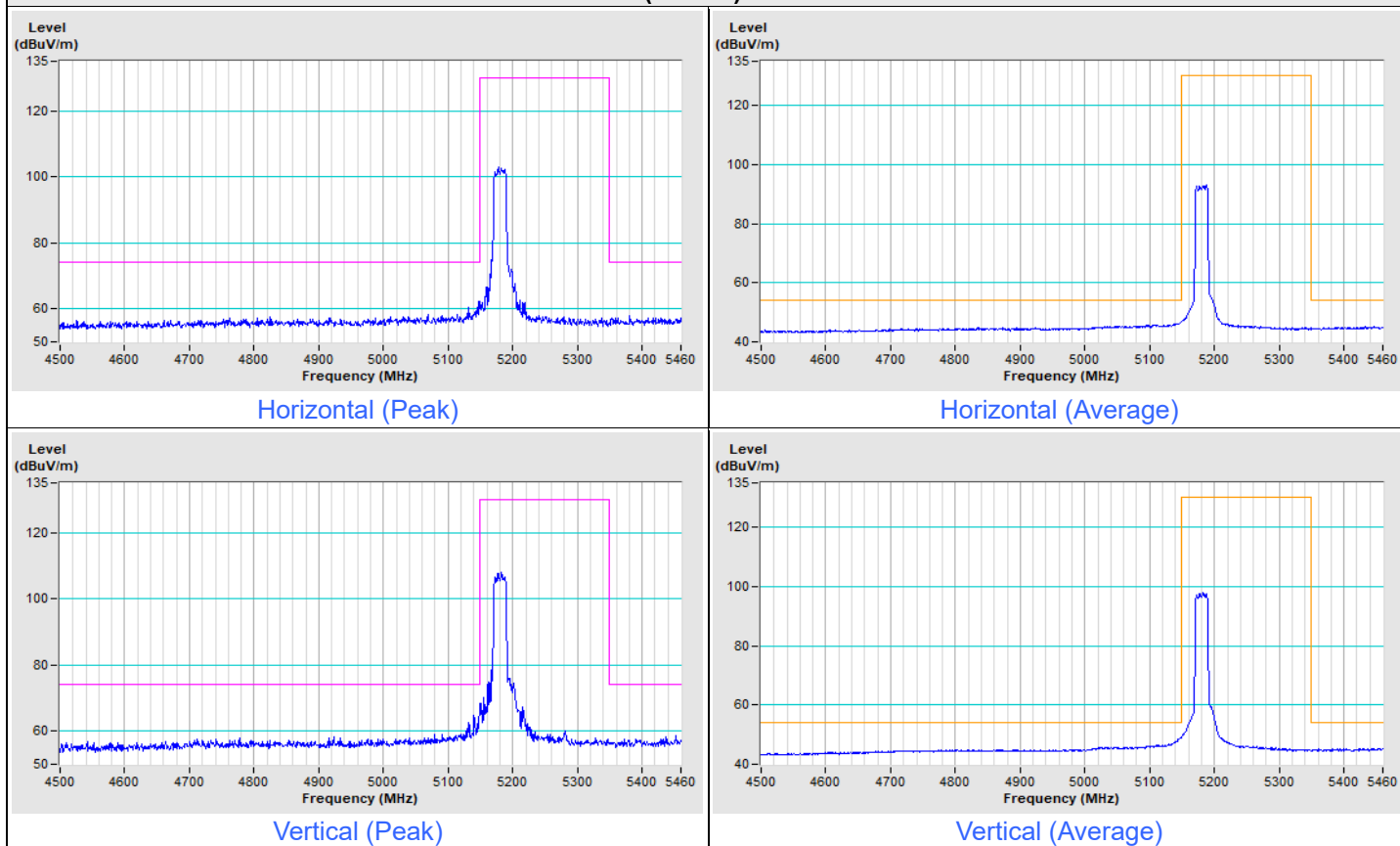


802.11a Channel 165



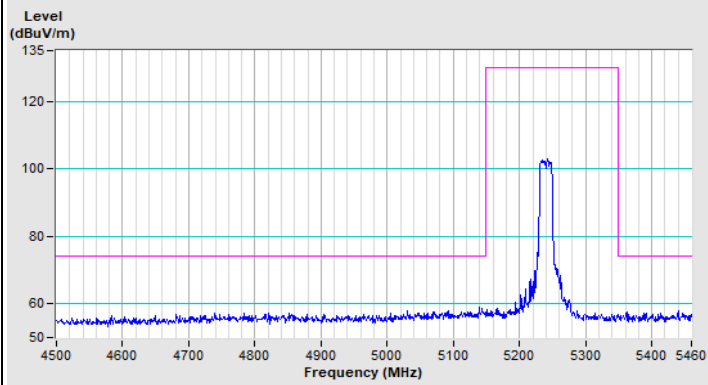
Frequency Range	4.5 GHz ~ 5.46 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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802.11ac (VHT20) Channel 36

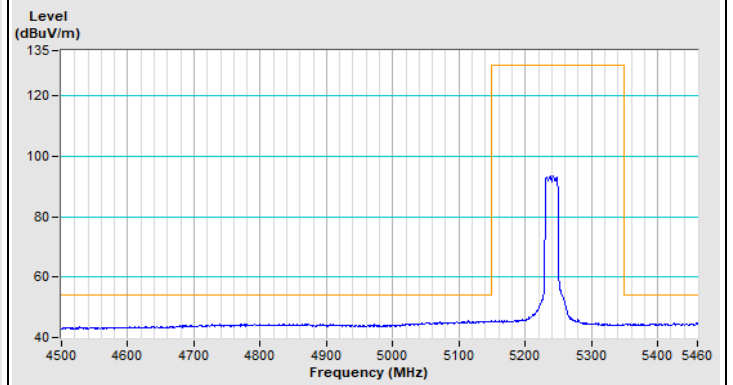




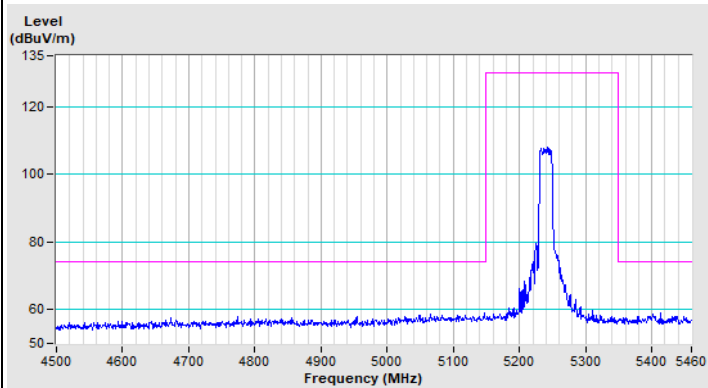
802.11ac (VHT20) Channel 48



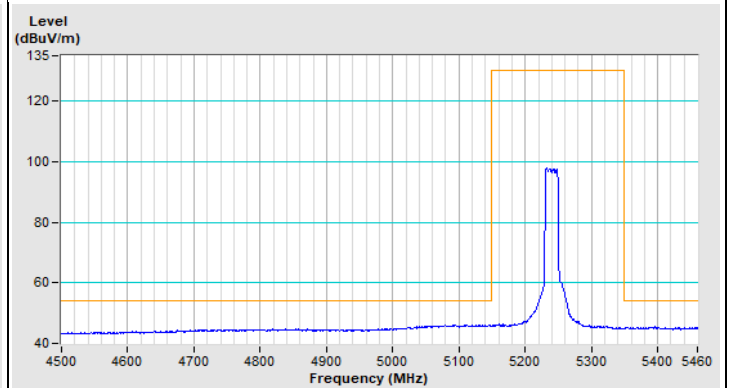
Horizontal (Peak)



Horizontal (Average)

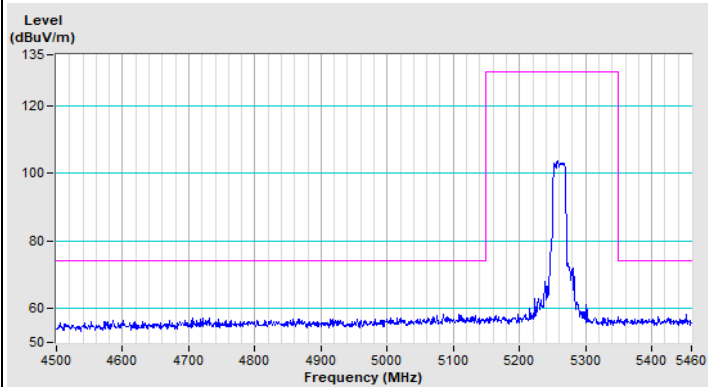


Vertical (Peak)

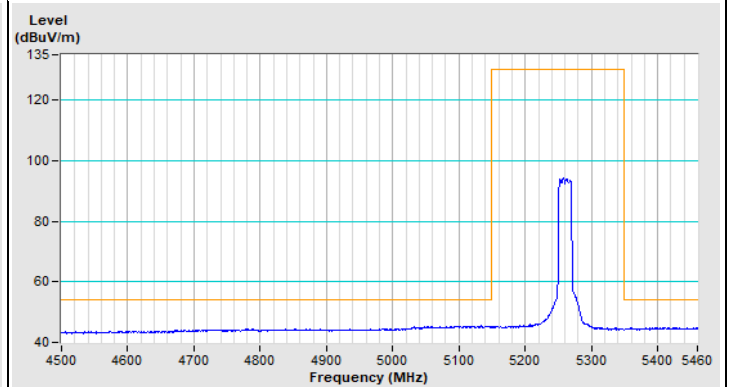


Vertical (Average)

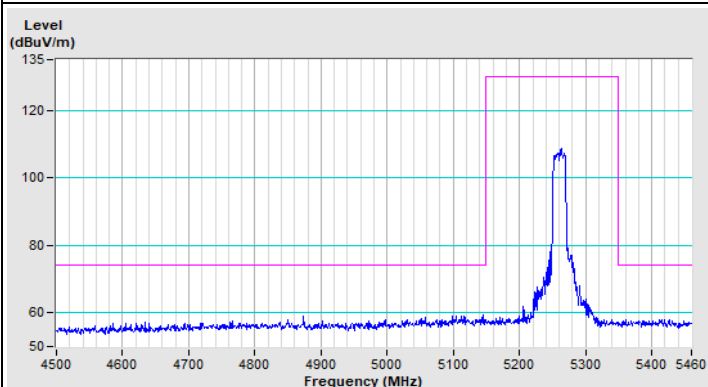
802.11ac (VHT20) Channel 52



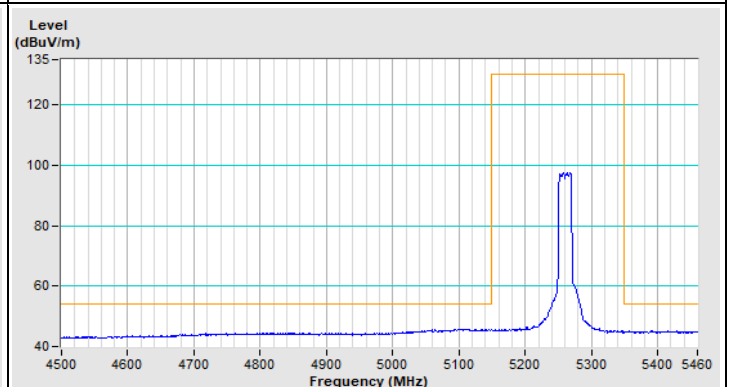
Horizontal (Peak)



Horizontal (Average)

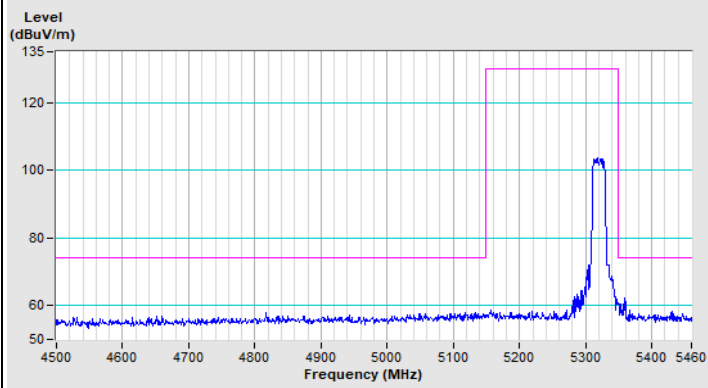


Vertical (Peak)

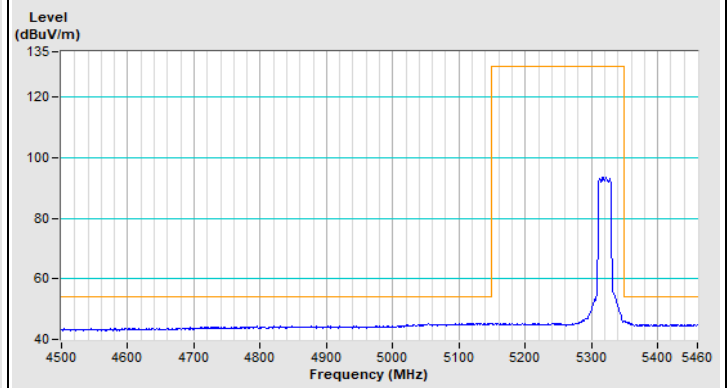


Vertical (Average)

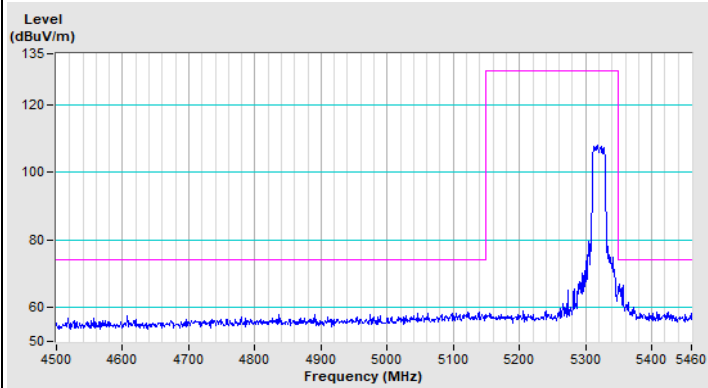
802.11ac (VHT20) Channel 64



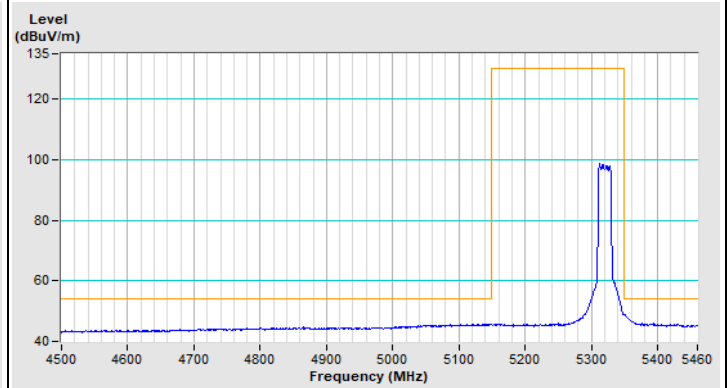
Horizontal (Peak)



Horizontal (Average)



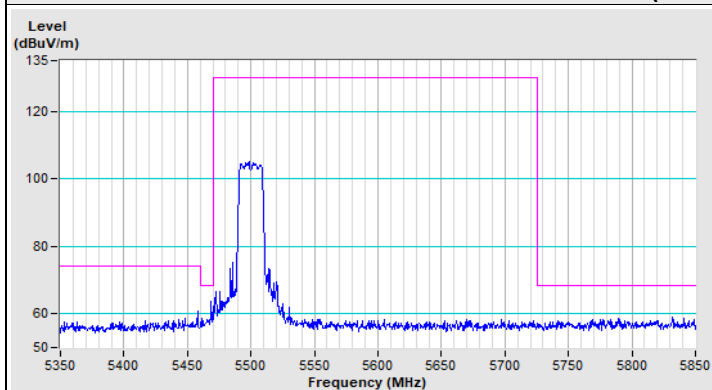
Vertical (Peak)



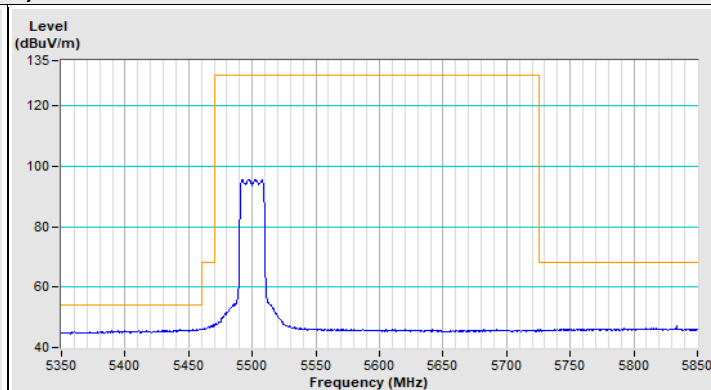
Vertical (Average)

Frequency Range	5.35 GHz ~ 5.85 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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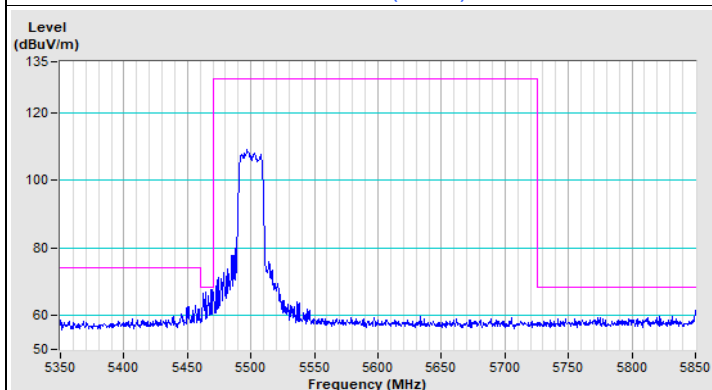
802.11ac (VHT20) Channel 100



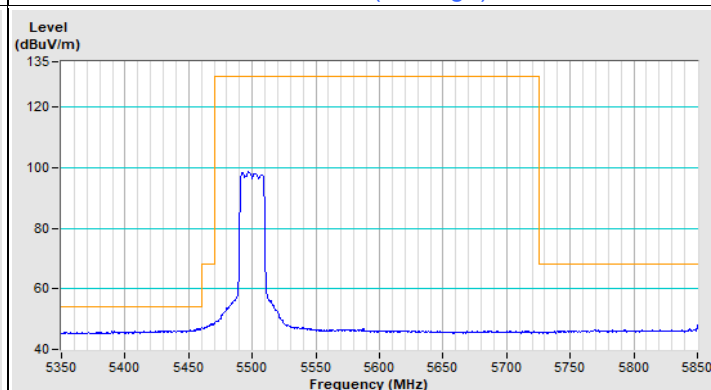
Horizontal (Peak)



Horizontal (Average)

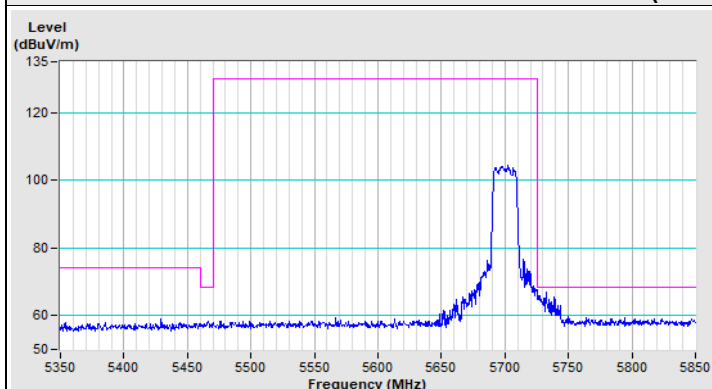


Vertical (Peak)

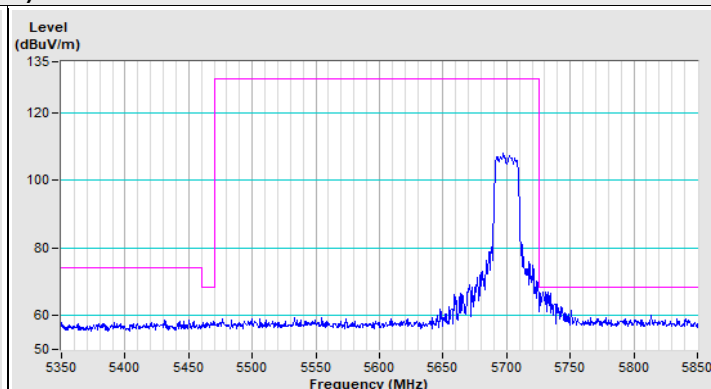


Vertical (Average)

802.11ac (VHT20) Channel 140



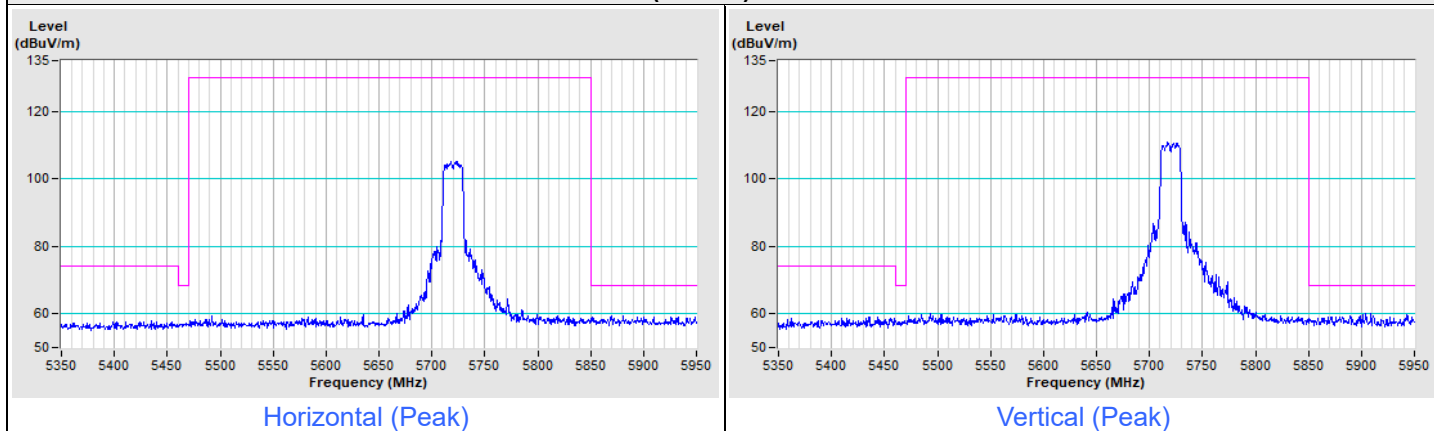
Horizontal (Peak)



Vertical (Peak)

Frequency Range	5.35 GHz ~ 5.95 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak
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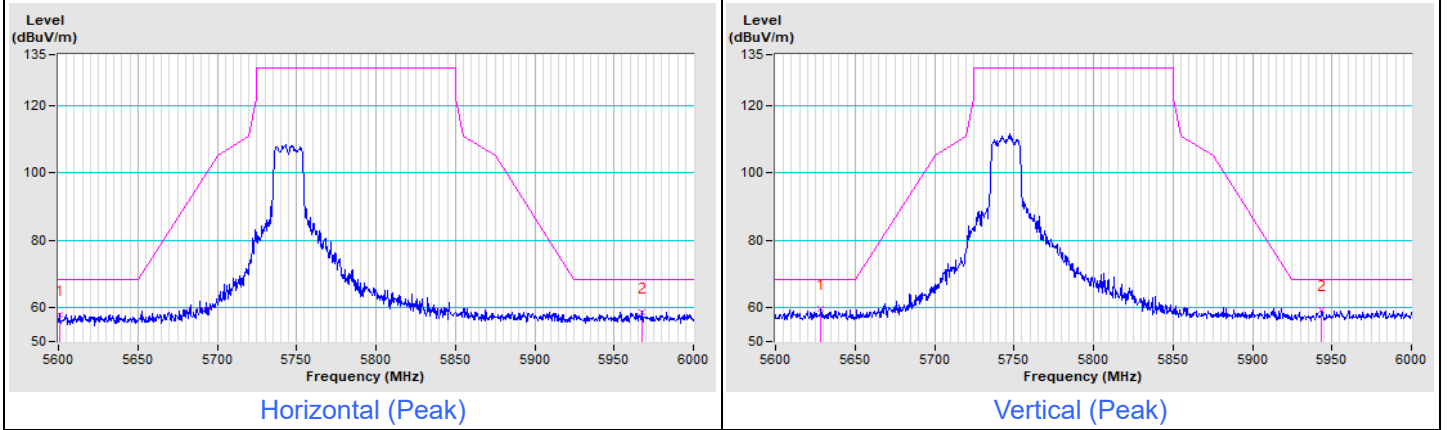
802.11ac (VHT20) Channel 144



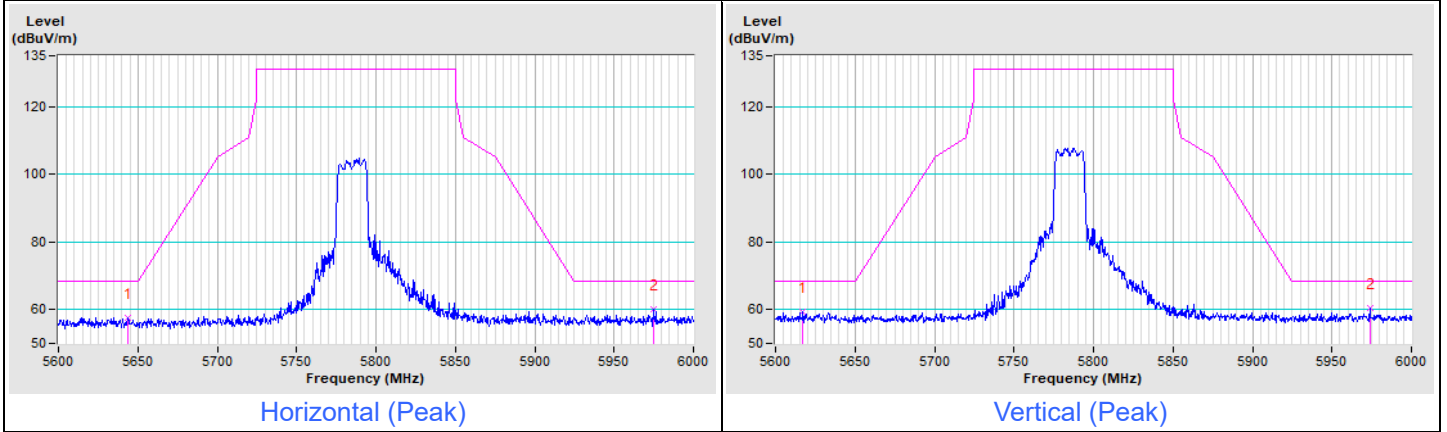


Frequency Range	5.6 GHz ~ 6 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak
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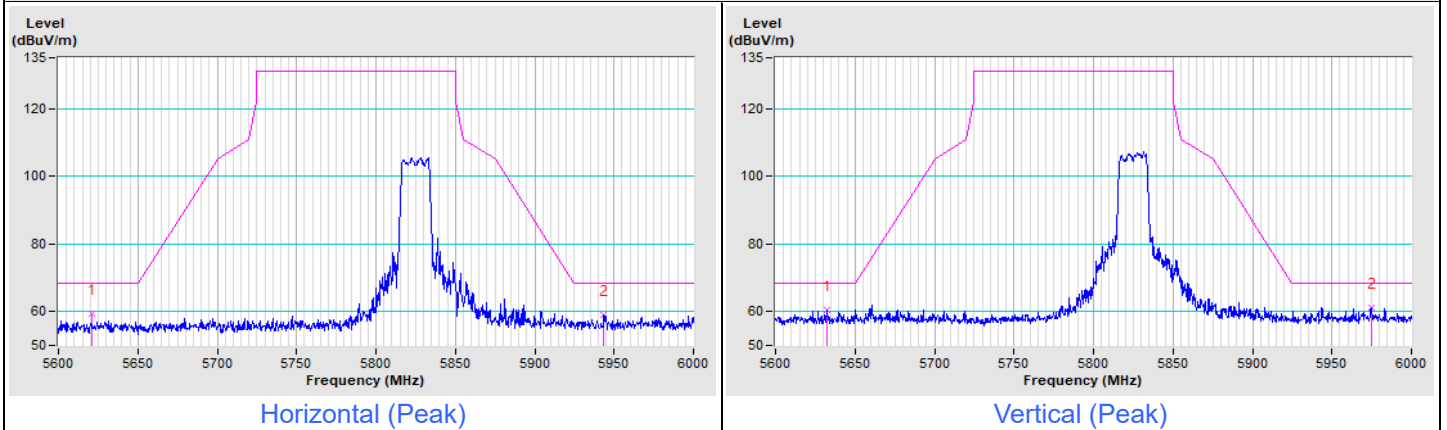
802.11ac (VHT20) Channel 149



802.11ac (VHT20) Channel 157

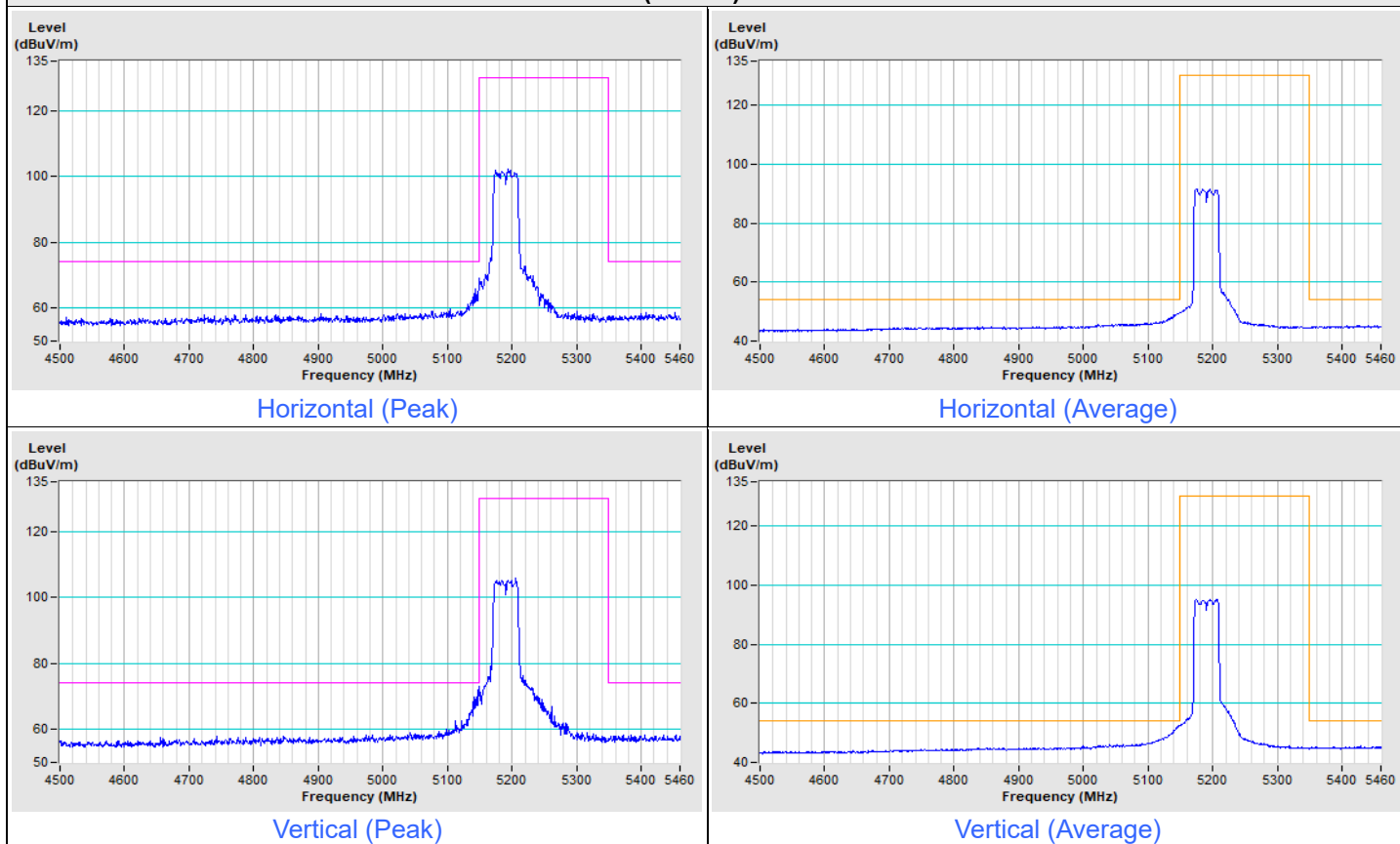


802.11ac (VHT20) Channel 165

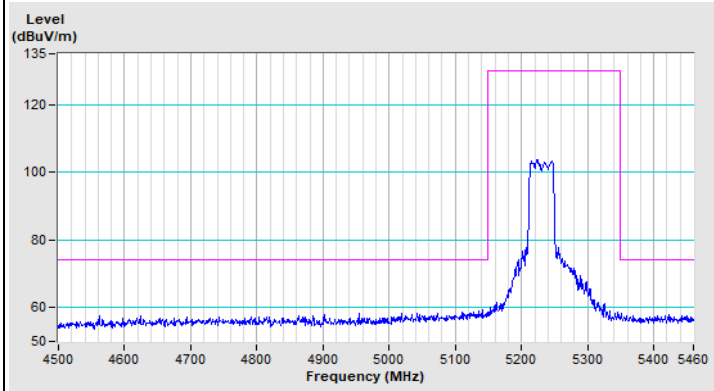


Frequency Range	4.5 GHz ~ 5.46 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
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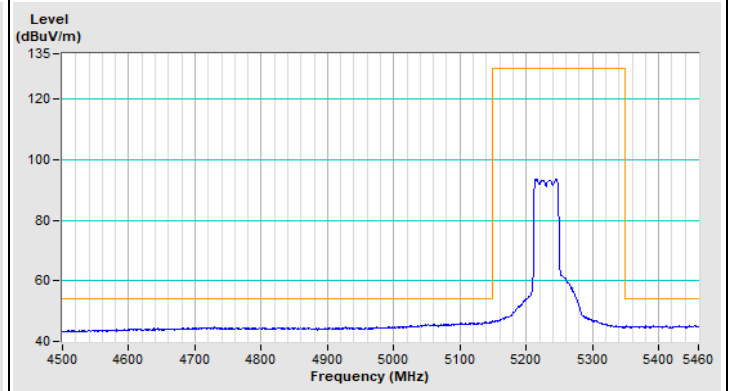
802.11ac (VHT40) Channel 38



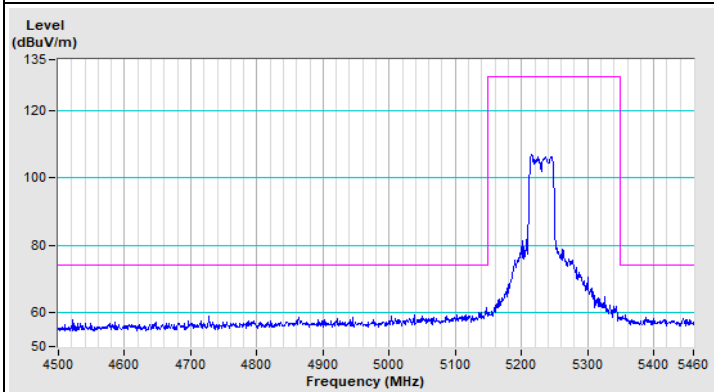
802.11ac (VHT40) Channel 46



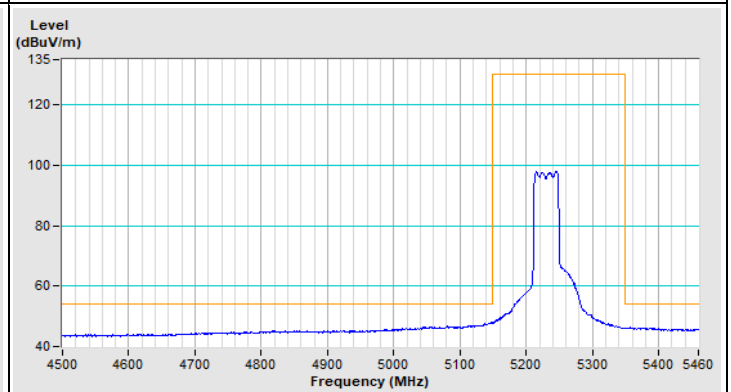
Horizontal (Peak)



Horizontal (Average)



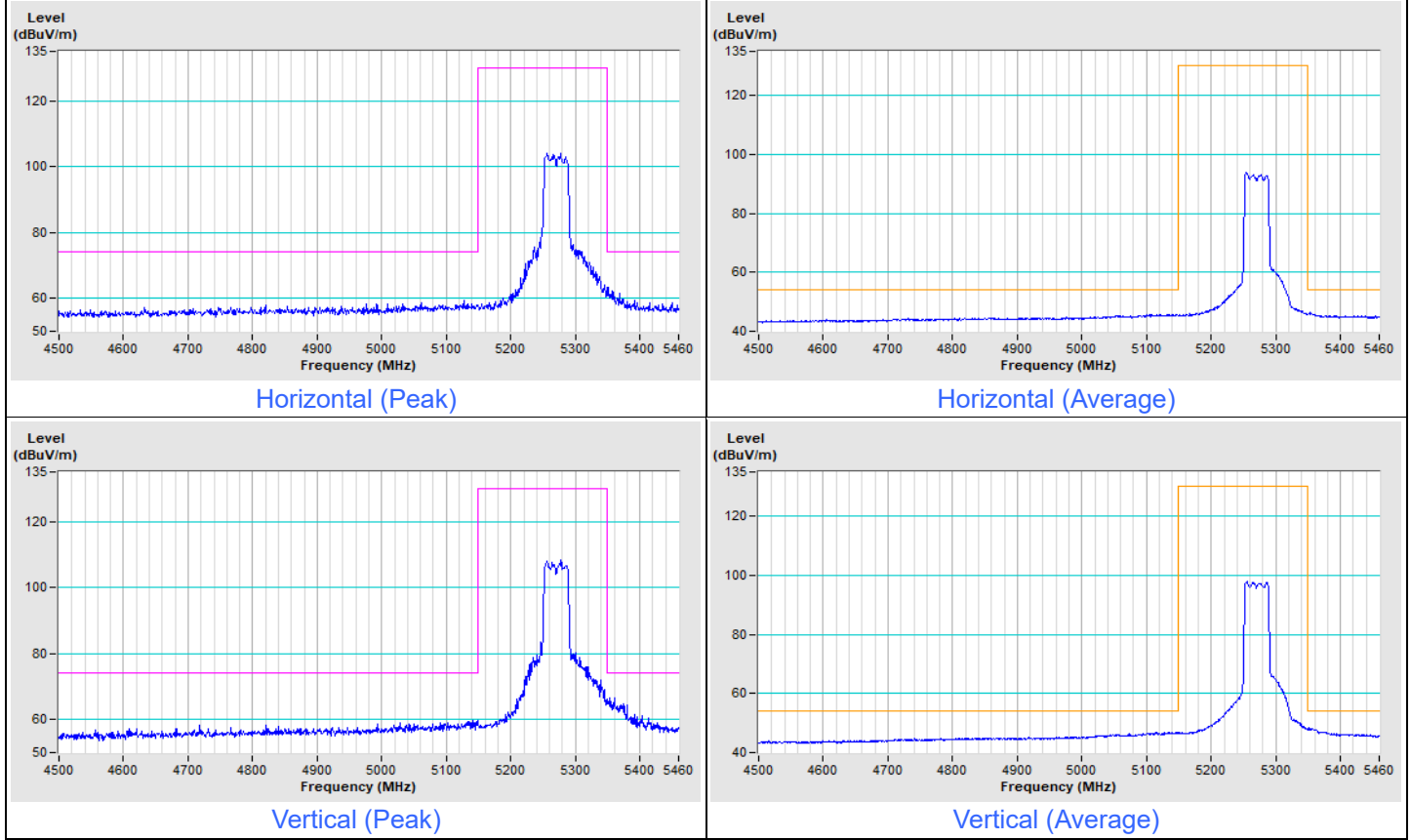
Vertical (Peak)



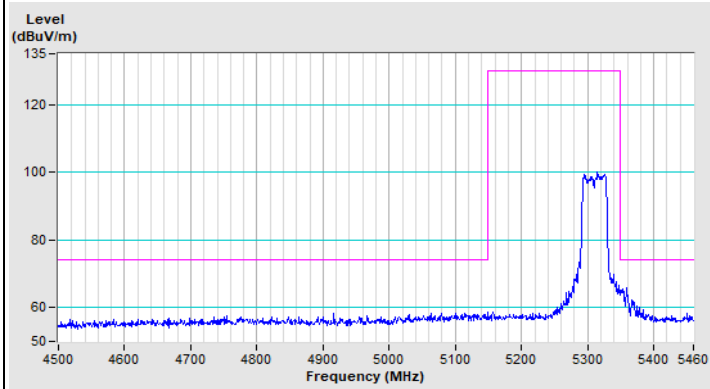
Vertical (Average)

Frequency Range	4.5 GHz ~ 5.46 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
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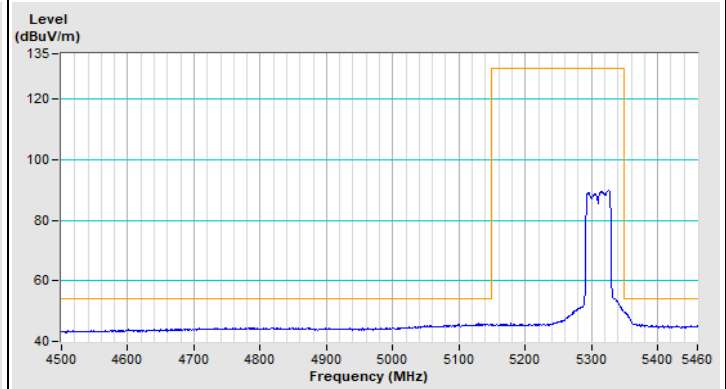
802.11ac (VHT40) Channel 54



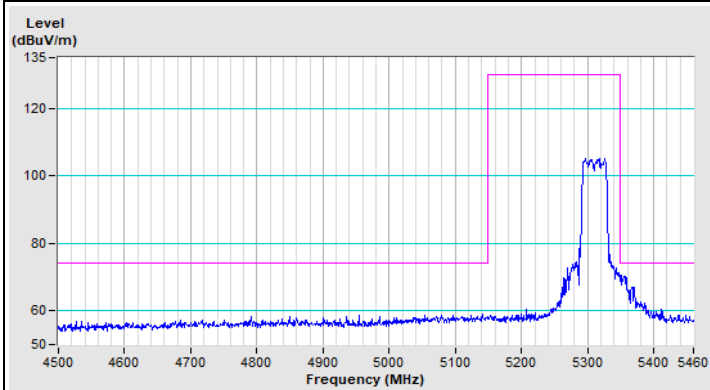
802.11ac (VHT40) Channel 62



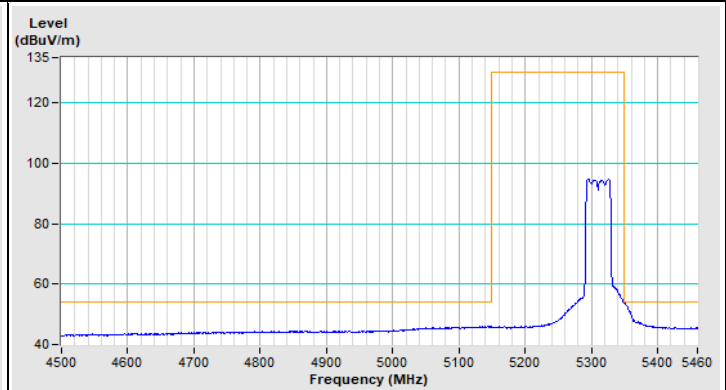
Horizontal (Peak)



Horizontal (Average)



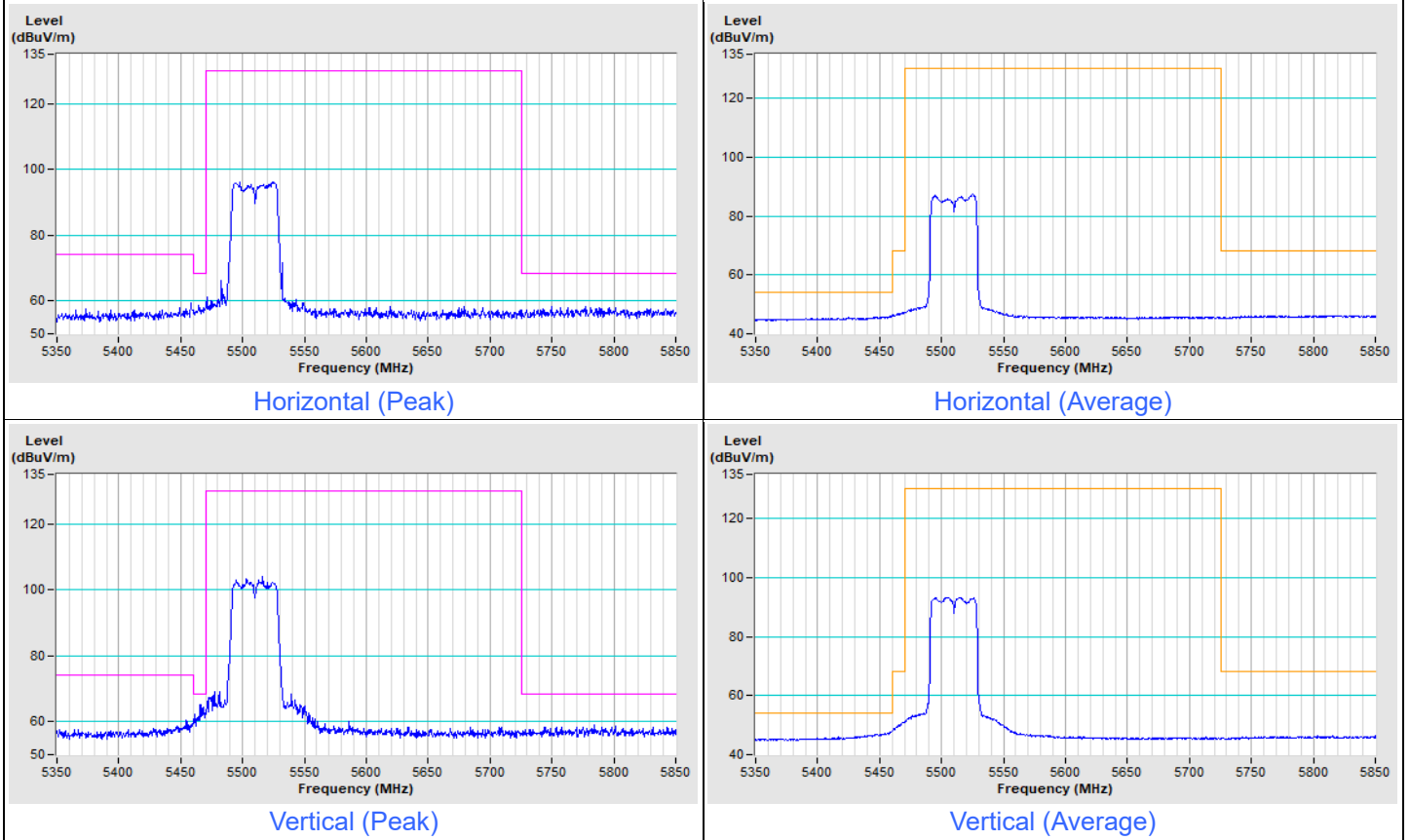
Vertical (Peak)



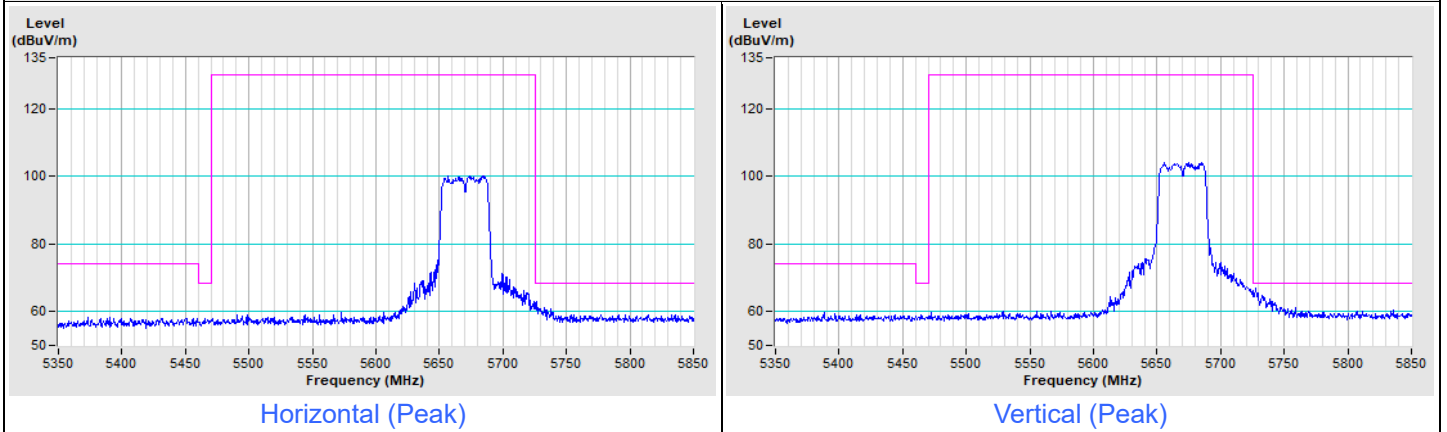
Vertical (Average)

Frequency Range	5.35 GHz ~ 5.85 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
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802.11ac (VHT40) Channel 102

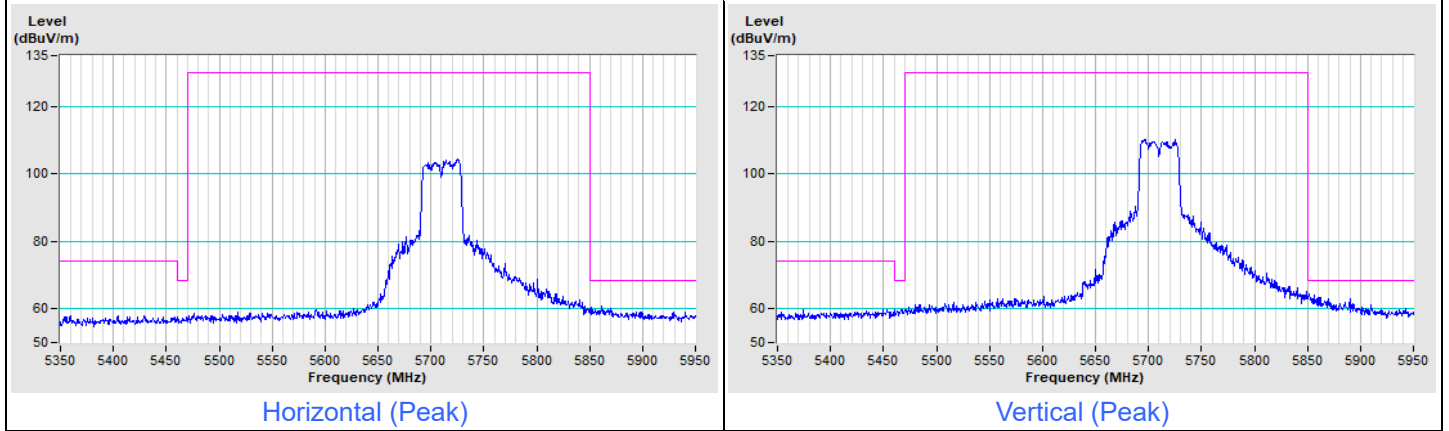


802.11ac (VHT40) Channel 134



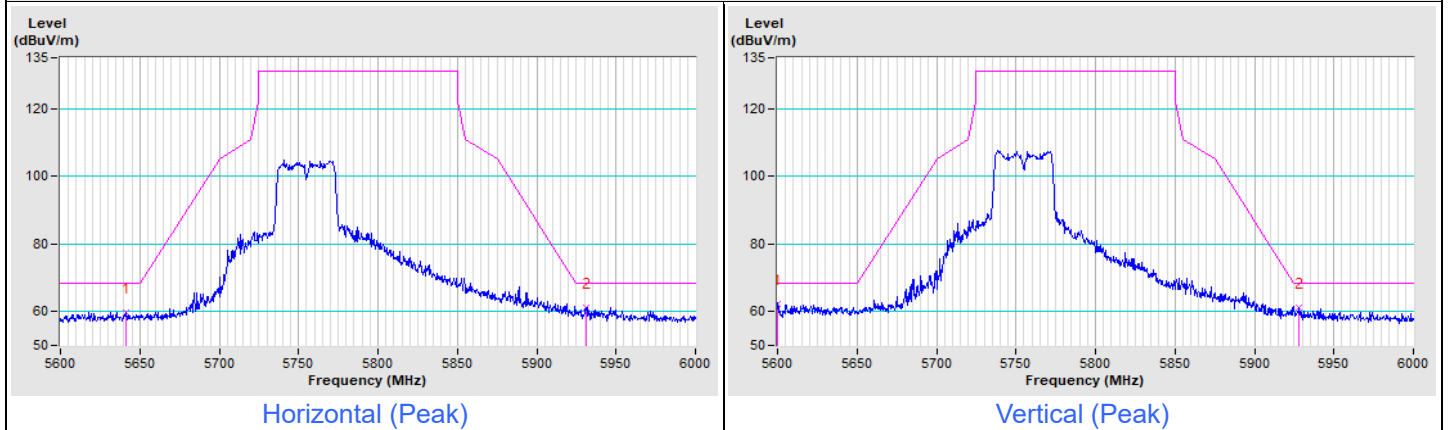
Frequency Range	5.35 GHz ~ 5.95 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak
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802.11ac (VHT40) Channel 142

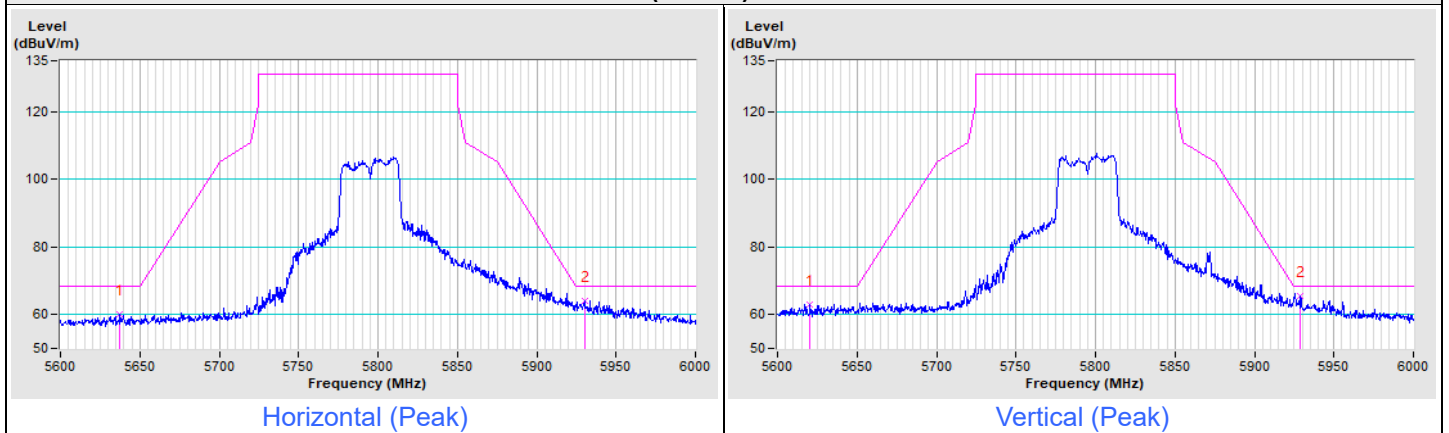


Frequency Range	5.6 GHz ~ 6 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak
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802.11ac (VHT40) Channel 151

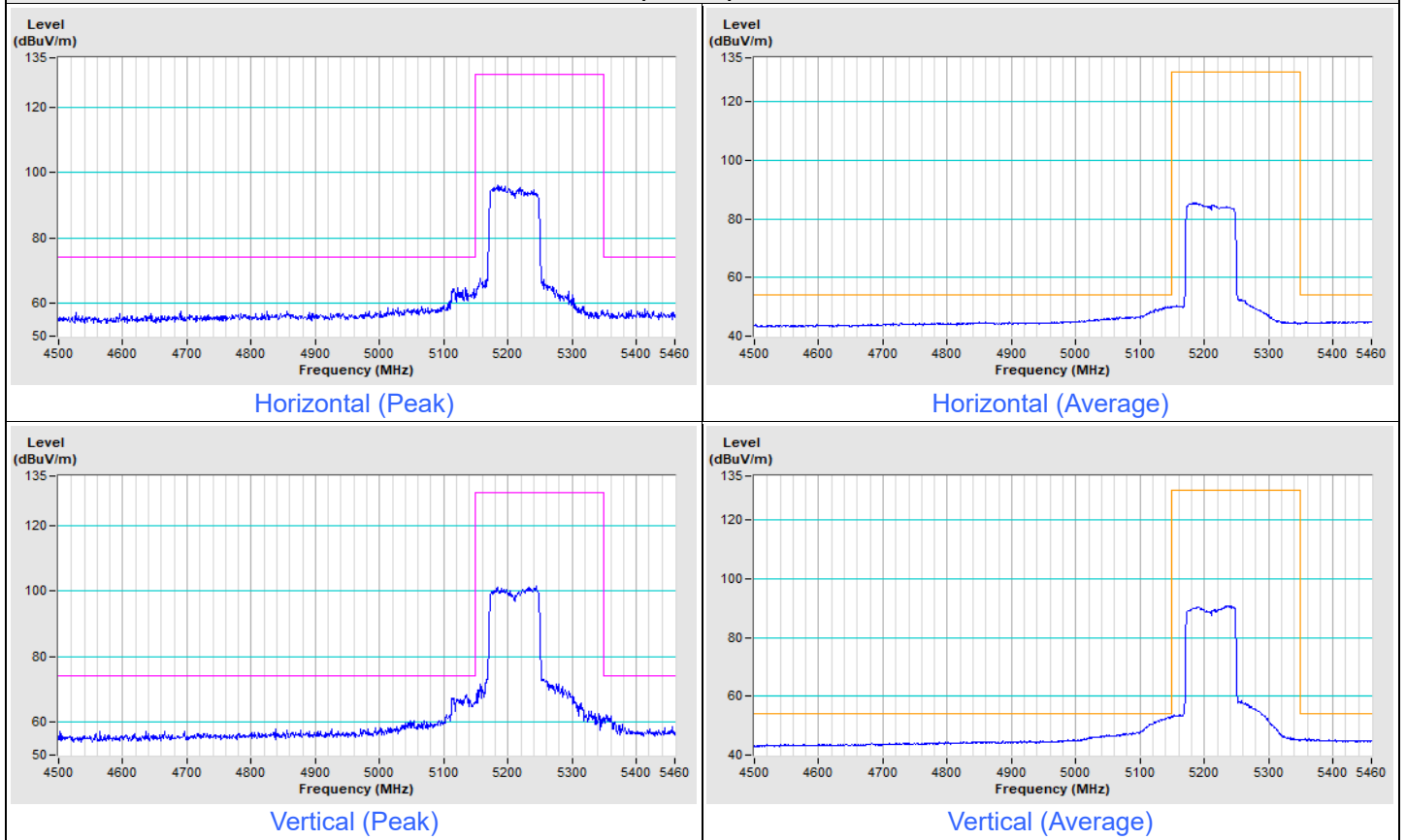


802.11ac (VHT40) Channel 159

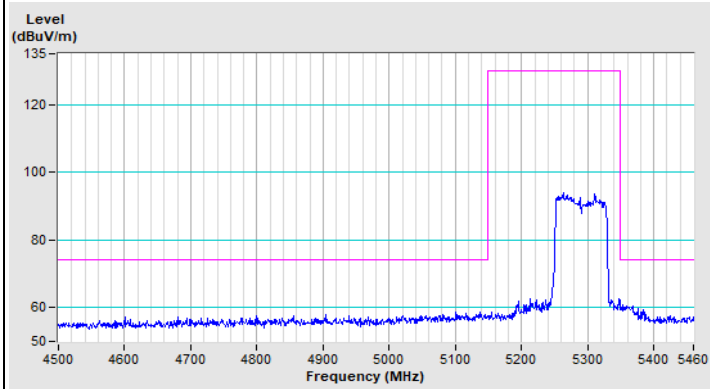


Frequency Range	4.5 GHz ~ 5.46 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
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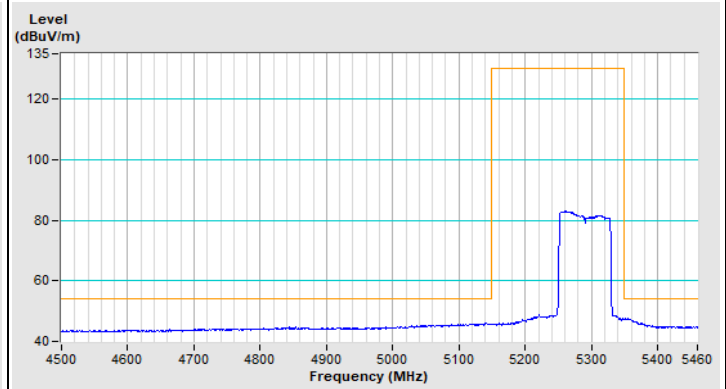
802.11ac (VHT80) Channel 42



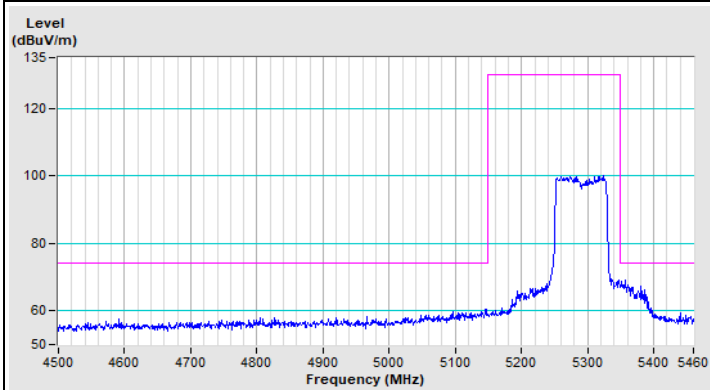
802.11ac (VHT80) Channel 58



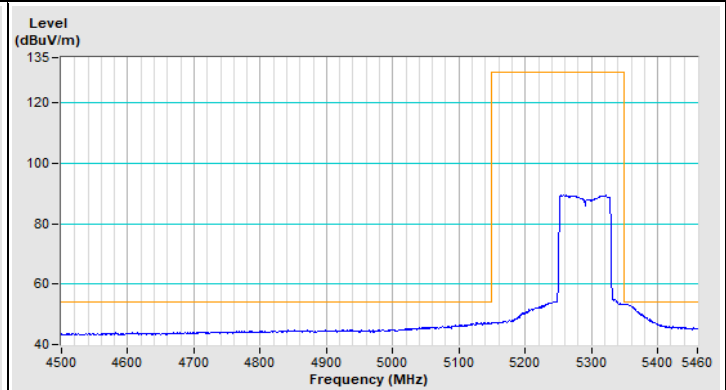
Horizontal (Peak)



Horizontal (Average)



Vertical (Peak)

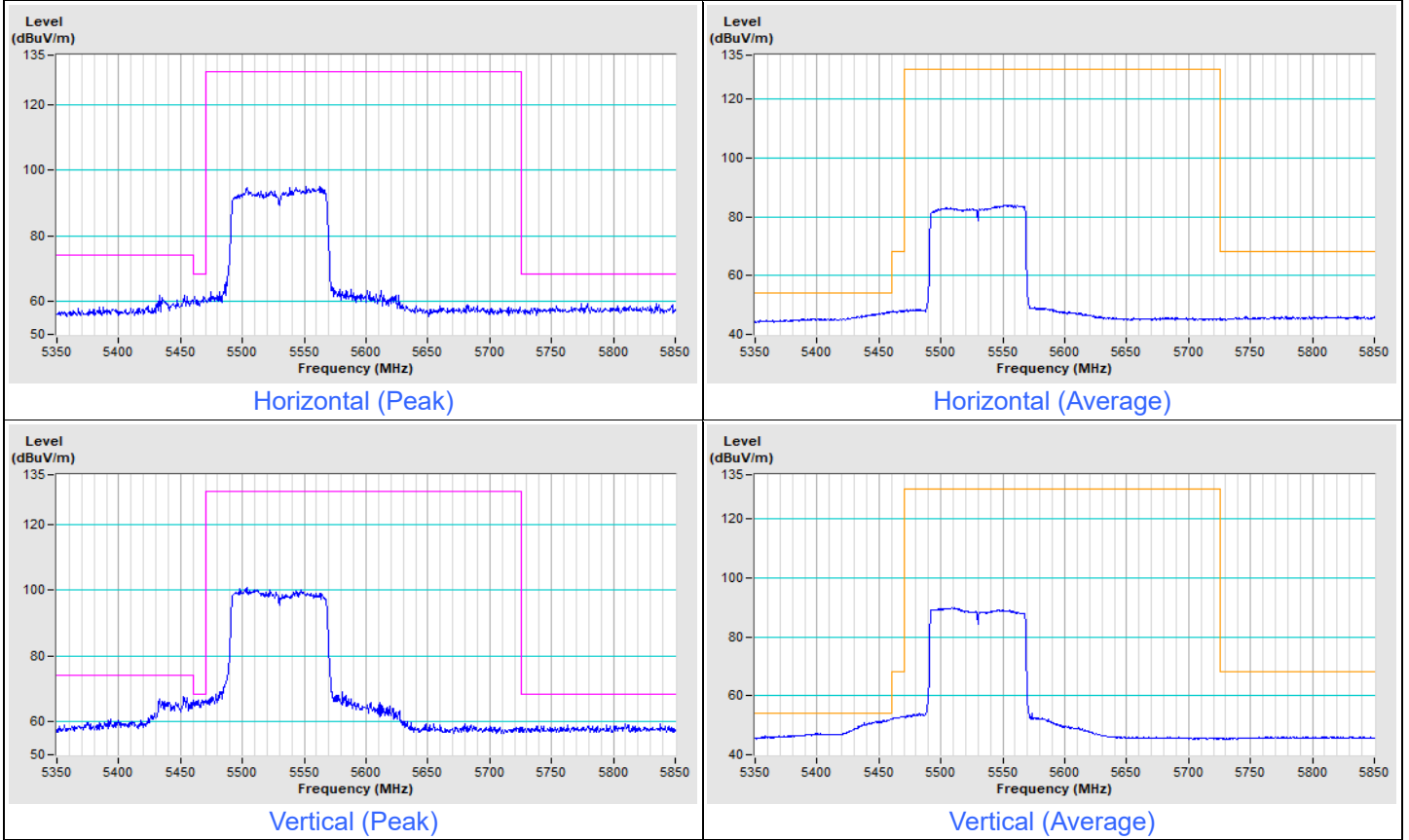


Vertical (Average)

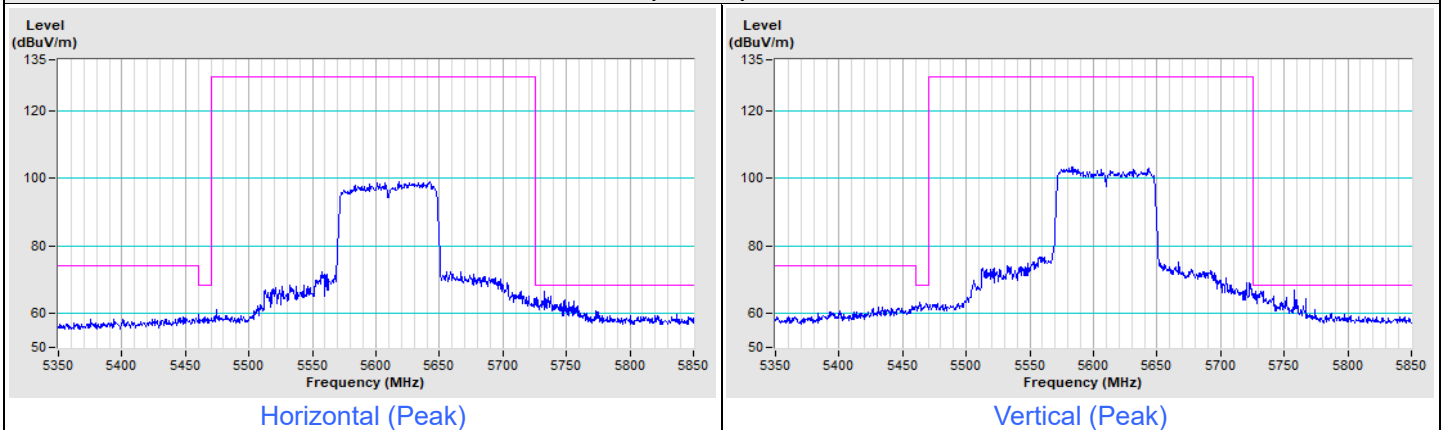


Frequency Range	5.35 GHz ~ 5.85 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
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802.11ac (VHT80) Channel 106

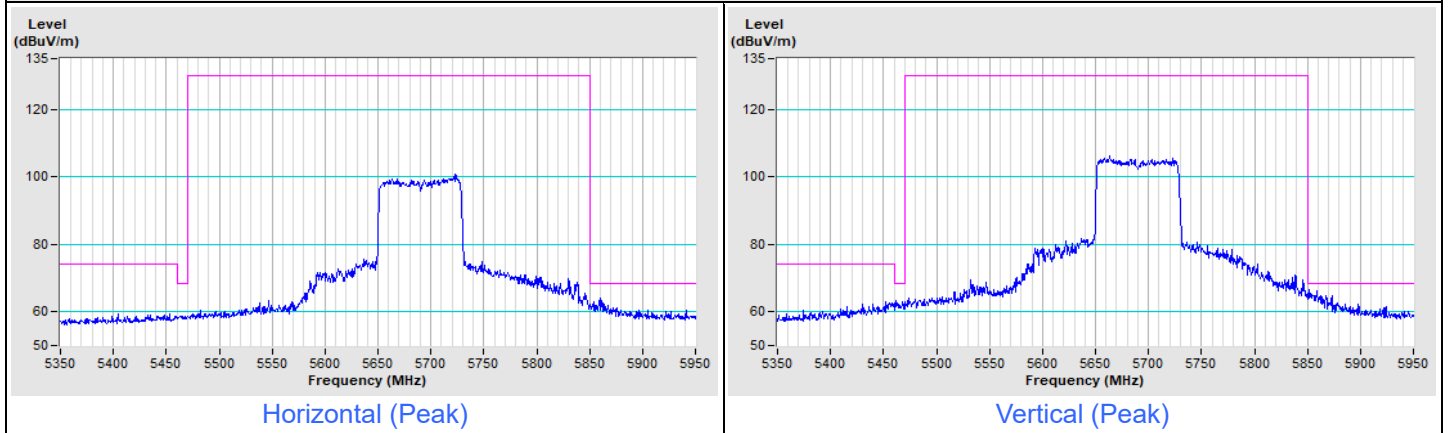


802.11ac (VHT80) Channel 122



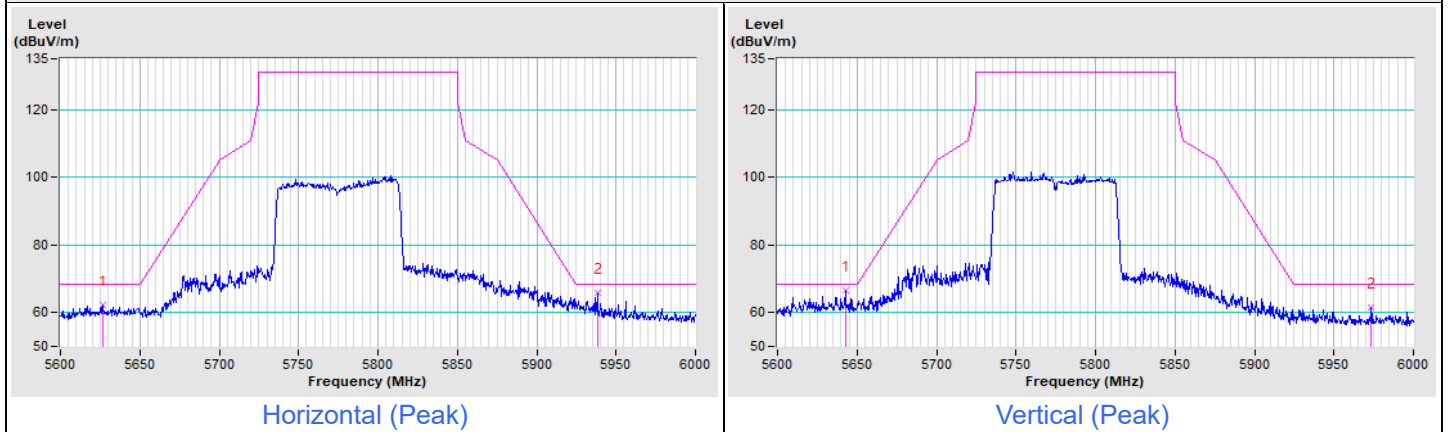
Frequency Range	5.35 GHz ~ 5.95 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak
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802.11ac (VHT80) Channel 138



Frequency Range	5.6 GHz ~ 6 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak
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802.11ac (VHT80) Channel 155



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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