

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart E (Section 15.407)
Report No.: RFBCKS-WTW-P25020487-1
FCC ID: NKR-LS04B
Product: ADT Base
Brand: ADT
Model No.: ADTBASE502R0
Received Date: 2025/3/20
Test Date: 2025/4/15 ~ 2025/4/28
Issued Date: 2025/6/6
Applicant: Wistron NeWeb Corporation
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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration / 788550 / TW0003 for Test Location(1)
Designation Number: 198487 / TW2021 for Test Location(2)
281270 / TW0032 for Test Location(3)

Approved by:

Jeremy Lin

Jeremy Lin / Project Engineer

, Date:

2025/6/6

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Prepared by : Celine Chou / Senior Specialist



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Release Control Record

Issue No.	Description	Date Issued
RFBCKS-WTW-P25020487-1	Original release.	2025/6/6

1 Certificate

Product: ADT Base

Brand: ADT

Test Model: ADTBASE502R0

Sample Status: Engineering sample

Applicant: Wistron NeWeb Corporation

Test Date: 2025/4/15 ~ 2025/4/28

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

Measurement ANSI C63.10-2013

procedure: KDB 789033 D02 General UNII Test Procedure New Rules v02r01

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	-	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(b)(9)	AC Power Conducted Emissions	Pass	Minimum passing margin is -27.07 dB at 0.35407 MHz
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -9.9 dB at 783.22 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 MHz
15.203	Antenna Requirement	Pass	Antenna connector is ipex(MHF) 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	-	960 Hz
RF Output Power	-	1.1 dB
Power Spectral Density	-	1.3 dB
6 dB Bandwidth	-	960 Hz
Occupied Bandwidth	-	960 Hz
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.90 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.00 dB
	30 MHz ~ 1 GHz	2.93 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	1.76 dB
	18 GHz ~ 40 GHz	1.77 dB

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

2.2 Supplementary Information

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

3 General Information

3.1 General Description of EUT

Product	ADT Base
Brand	ADT
Test Model	ADTBASE502R0
Status of EUT	Engineering sample
Power Supply Rating	12 Vdc from adapter 3.6 or 3.65 Vdc from battery
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode
Modulation Technology	OFDM
Transfer Rate	Up to 86.7 Mbps
Operating Frequency	5.18 GHz ~ 5.24 GHz 5.26 GHz ~ 5.32 GHz 5.50 GHz ~ 5.72 GHz 5.745 GHz ~ 5.825 GHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20): 25
Output Power	5.18 GHz ~ 5.24 GHz: 142.561 mW (21.54 dBm) 5.26 GHz ~ 5.32 GHz: 157.398 mW (21.97 dBm) 5.50 GHz ~ 5.72 GHz: 180.302 mW (22.56 dBm) 5.745 GHz ~ 5.825 GHz: 158.489 mW (22.00 dBm)
EUT Category	Client device

Note:

1. The EUT uses following accessories.

Item	Brand	Model	Specification
Battery 1	EVE	A0751	3.6 Vdc, 3000 mAh, 10.8 Wh
Battery 2	TENERGY	34435	3.65 Vdc, 2400 mAh, 8.76 Wh
AC Adapter	HOIOTO	ADS-26FSG-12	AC Input: 100-240 Vac, 50/60 Hz, 0.7 A DC Output: 12 Vdc, 1.5 A, 18 W Power Line: 1.5 m

2. Simultaneously transmission combination.

Combination	Technology				
1	WLAN (2.4 GHz)	BT LE	Z-wave	DECT	WWAN
2	WLAN (5 GHz)	BT LE	Z-wave	DECT	WWAN

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

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

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Ant. No.	RF Chain No.	Brand	Model	AntennaGain (dBi)	Frequency Range	Antenna Type	Connector Type
WIFI1	0	WNC	LS04B	3.90	2.4 GHz ~ 2.4835 GHz	Dipole	ipex(MHF)
				3.14	5.15 GHz ~ 5.25 GHz	Dipole	ipex(MHF)
				5.55	5.25 GHz ~ 5.35 GHz	Dipole	ipex(MHF)
				5.85	5.47 GHz ~ 5.725 GHz	Dipole	ipex(MHF)
				5.95	5.725 GHz ~ 5.85 GHz	Dipole	ipex(MHF)
WIFI2	1	WNC	LS04B	5.06	2.4 GHz ~ 2.4835 GHz	Dipole	ipex(MHF)
				5.58	5.15 GHz ~ 5.25 GHz	Dipole	ipex(MHF)
				5.20	5.25 GHz ~ 5.35 GHz	Dipole	ipex(MHF)
				5.48	5.47 GHz ~ 5.725 GHz	Dipole	ipex(MHF)
				5.92	5.725 GHz ~ 5.85 GHz	Dipole	ipex(MHF)

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

* The maximum gain was chosen for final test and presented in the test report.

2. The EUT incorporates a SISO function:

5 GHz Band		
Modulation Mode	Tx & Rx Configuration	
802.11a	1TX Diversity	1RX Diversity
802.11n (HT20)	1TX Diversity	1RX Diversity
802.11ac (VHT20)	1TX Diversity	1RX Diversity

Note: The modulation and bandwidth are similar for 802.11n mode for 20 MHz and 802.11ac mode for 20 MHz. Therefore the investigated worst case is the 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

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

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		

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. The Battery has the following models: Battery 1/ Battery 2. Pre-scan these models of batteries and find the worst case as a representative test condition. 2. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
Worst Case:	1. Battery1/ Battery2 Worst Condition: Battery 1 2. The EUT is designed to be positioned on the Standing Mode only. 3. 5.18 GHz ~ 5.24 GHz: RF chain 1 (WIFI2 Ant.) was deemed worst-case and chosen for final test. 5.26 GHz ~ 5.32 GHz: RF chain 0 (WIFI1 Ant.) was deemed worst-case and chosen for final test. 5.50 GHz ~ 5.72 GHz: RF chain 0 (WIFI1 Ant.) was deemed worst-case and chosen for final test. 5.745 GHz ~ 5.825 GHz: RF chain 0 (WIFI1 Ant.) was deemed worst-case and chosen for final test.

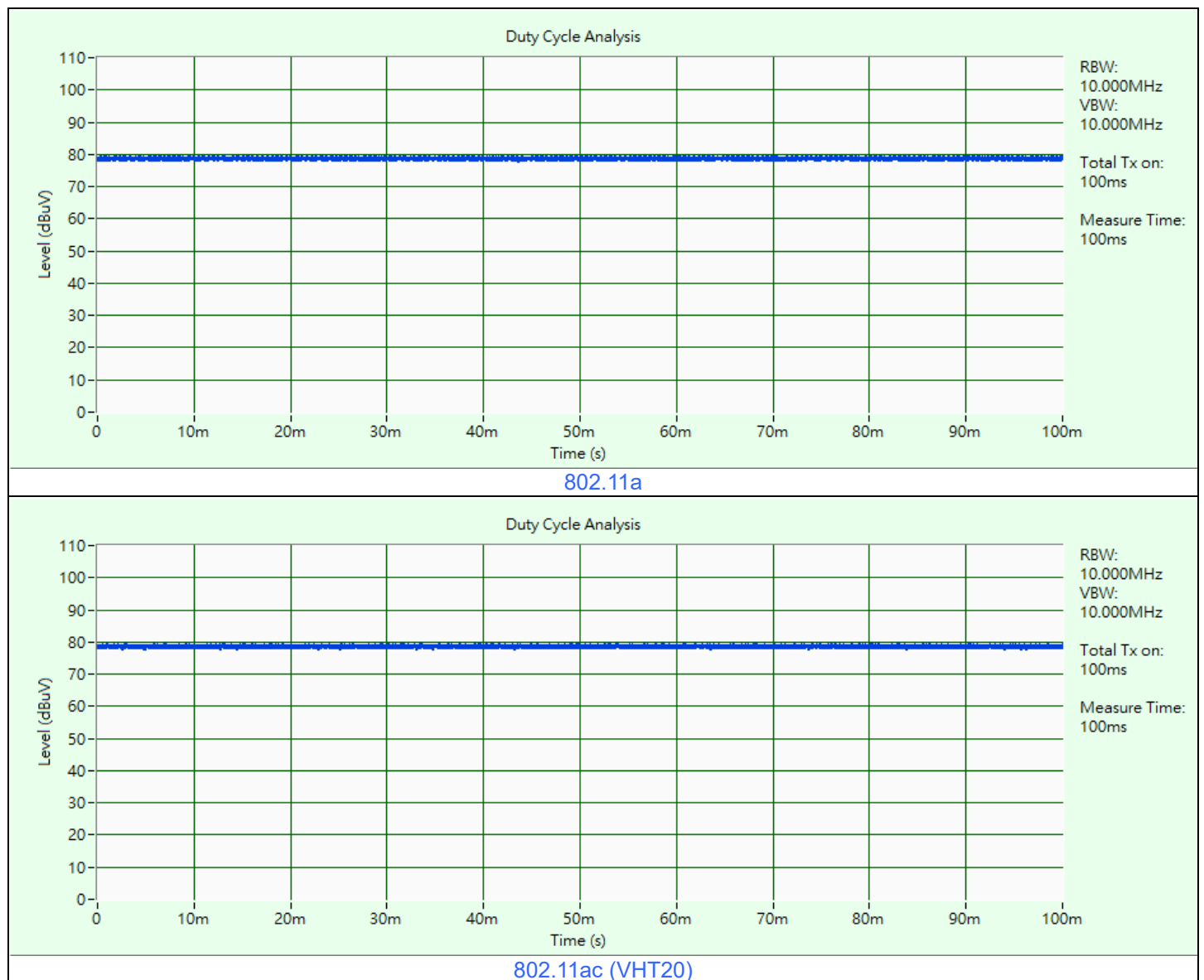
Following channel(s) was (were) selected for the final test as listed below:

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
RF Output Power	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
Power Spectral Density	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
6 dB Bandwidth	802.11a	144, 149, 157, 165	BPSK	6Mb/s
	802.11ac (VHT20)	144, 149, 157, 165	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
AC Power Conducted Emissions	802.11a	116	BPSK	6Mb/s
Unwanted Emissions below 1 GHz	802.11a	116	BPSK	6Mb/s
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

3.5 Duty Cycle of Test Signal

802.11a: Duty cycle = 100 ms / 100 ms x 100% = 100.0%

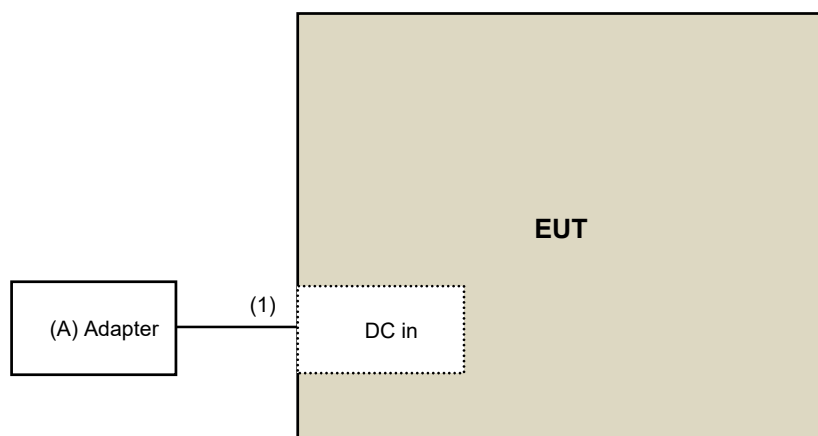
802.11ac (VHT20): Duty cycle = 100 ms / 100 ms x 100% = 100.0%



3.6 Test Program Used and Operation Descriptions

Controlling software (Tera Term v4.8) 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	Adapter	HOIOTO	ADS-26FSG-12	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	DC Cable	1	1.5	N	0	Supplied by applicant

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
PXA Signal Analyzer Keysight	N9030A	MY54490260	2024/7/17	2025/7/16
Signal Analyzer R&S	FSV40	101042	2024/9/12	2025/9/11
Software	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in LK - Oven
2. Tested Date: 2025/4/18

4.2 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Pulse Power Sensor Anritsu	MA2411B	0738404	2024/5/13	2025/5/12
PXA Signal Analyzer Keysight	N9030A	MY54490260	2024/7/17	2025/7/16
RF Power Meter Anritsu	ML2495A	0842014	2024/5/13	2025/5/12
Signal Analyzer R&S	FSV40	101042	2024/9/12	2025/9/11
Software	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
USB Wideband Power Sensor Keysight	U2021XA	U2021XA_001	2024/6/7	2025/6/6

Notes:

1. The test was performed in LK - Oven
2. Tested Date: 2025/4/18

4.3 Power Spectral Density

Refer to section 4.1 to get the tested date and information of the instruments.

4.4 6 dB Bandwidth

Refer to section 4.1 to get the tested date and information of the instruments.

4.5 Occupied Bandwidth

Refer to section 4.1 to get the tested date and information of the instruments.

4.6 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohm terminal resistance	E1-011279	04	2024/11/28	2025/11/27
	E1-011280	05	2024/11/28	2025/11/27
	E1-011311	09	2024/11/28	2025/11/27
DC-LISN Schwarzbeck	NNBM 8126G	8126G-069	2024/11/5	2025/11/4
EMI Test Receiver R&S	ESCI	100613	2024/11/25	2025/11/24
Fixed Attenuator Mini-Circuits	HAT-10+	PAD-COND1-01	2025/1/5	2026/1/4
LISN R&S	ENV216	101826	2025/3/24	2026/3/23
	ESH3-Z5	100311	2024/9/5	2025/9/4
RF Coaxial Cable Woken	5D-FB	Cable-cond1-01	2025/1/5	2026/1/4
Software BVADT	BVADT_Cond_ V7.4.1.0	N/A	N/A	N/A
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2024/8/28	2025/8/27

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2025/4/28

4.7 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-1213	2024/10/14	2025/10/13
EXA Signal Analyzer Agilent	N9010A	MY52220207	2024/12/30	2025/12/29
Loop Antenna TESEQ	HLA 6121	45745	2024/8/21	2025/8/20
MXE EMI Receiver Keysight	N9038B	MY60180019	2025/1/15	2026/1/14
Preamplifier EMCI	EMC330N	980782	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMCCFD400-NM-NM-500	201233	2025/1/14	2026/1/13
	EMCCFD400-NM-NM-3000	201235	2025/1/14	2026/1/13
	EMCCFD400-NM-NM-9000	201236(with PAD)	2025/1/14	2026/1/13
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MF-7802BS	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208674	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2025/4/17

4.8 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
EXA Signal Analyzer Agilent	N9010A	MY52220207	2024/12/30	2025/12/29
Horn Antenna RFSPIN	DRH18-E	210103A18E	2024/11/10	2025/11/9
Horn Antenna Schwarzbeck	BBHA 9170	9170-1049	2024/11/10	2025/11/9
MXE EMI Receiver Keysight	N9038B	MY60180019	2025/1/15	2026/1/14
Preamplifier EMCI	EMC118A45SE	980808	2024/12/26	2025/12/25
	EMC184045SE	980788	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMC101G-KM-KM-2000	201254	2025/1/14	2026/1/13
	EMC101G-KM-KM-3000	201258	2025/1/14	2026/1/13
	EMC101G-KM-KM-5000	201261	2025/1/14	2026/1/13
	EMC104-SM-SM-1000	210102	2025/1/14	2026/1/13
	EMC104-SM-SM-3000	201231	2025/1/14	2026/1/13
	EMC104-SM-SM-9000	201243	2025/1/14	2026/1/13
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MF-7802BS	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208674	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2025/4/15 ~ 2025/4/21

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 AC Power Conducted Emissions

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

Notes:

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

5.7 Unwanted Emissions below 1 GHz

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

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

Notes:

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

5.8 Unwanted Emissions above 1 GHz

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

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

Notes:

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

Limits of unwanted emission out of the restricted bands

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

For transmitters operating in the 5.15-5.25 GHz band:

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

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: 68.2 (dBμV/m) ^{*1}
	PK: 10 (dBm/MHz) ^{*2}	PK: 105.2 (dBμV/m) ^{*2}
	PK: 15.6 (dBm/MHz) ^{*3}	PK: 110.8 (dBμV/m) ^{*3}
	PK: 27 (dBm/MHz) ^{*4}	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.

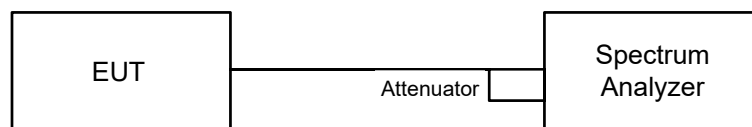
Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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

6 Test Arrangements

6.1 26 dB Bandwidth

6.1.1 Test Setup

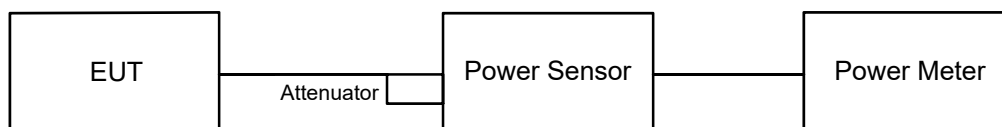


6.1.2 Test Procedure

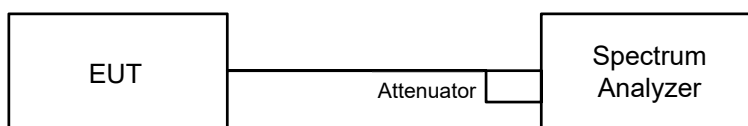
- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement 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:

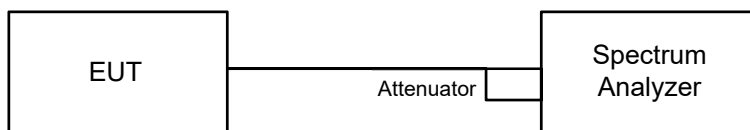
Method SA-1

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
- Sweep points ≥ $[2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing ≤ 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

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 $\leq \text{RBW} / 2$, 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

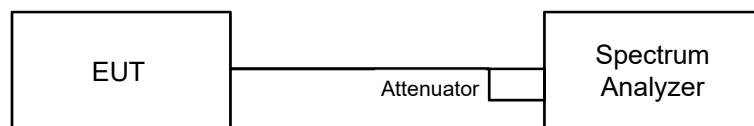
For specified measurement bandwidth 500 kHz:

Method SA-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 $\leq \text{RBW} / 2$, 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

6.4 6 dB Bandwidth

6.4.1 Test Setup

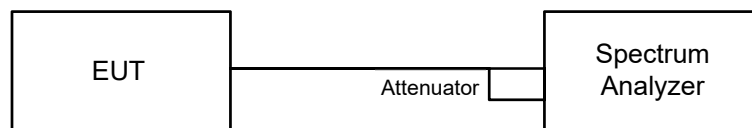


6.4.2 Test Procedure

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

6.5 Occupied Bandwidth

6.5.1 Test Setup

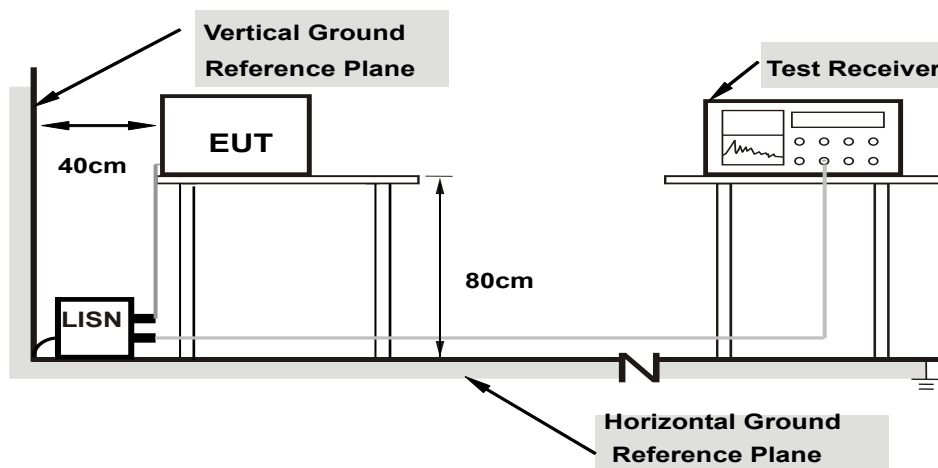


6.5.2 Test Procedure

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 AC Power Conducted Emissions

6.6.1 Test Setup



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

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

6.6.2 Test Procedure

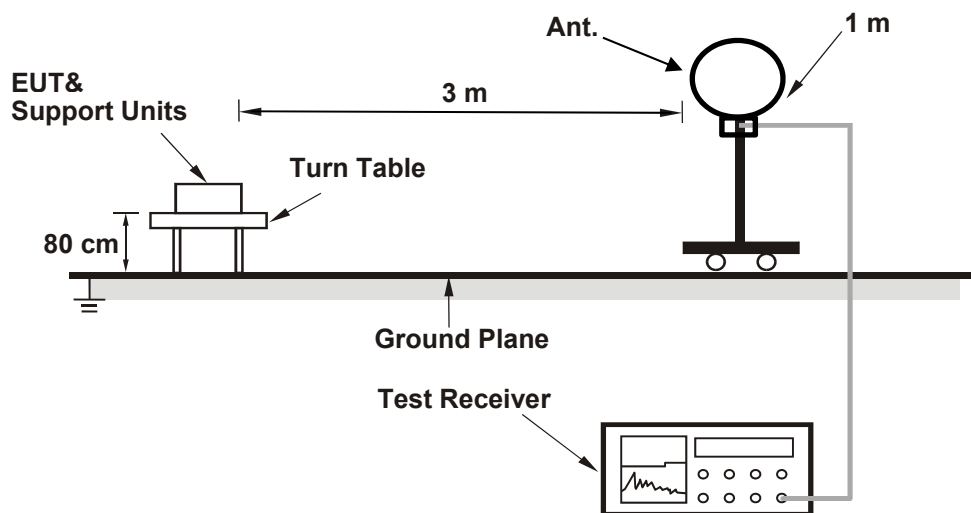
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

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

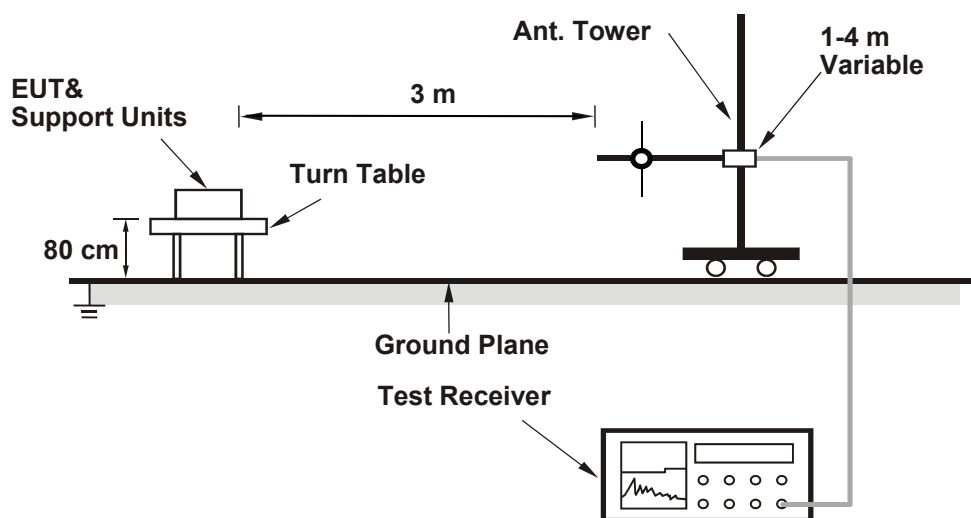
6.7 Unwanted Emissions below 1 GHz

6.7.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



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

6.7.2 Test Procedure

For Radiated emission below 30 MHz

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

Notes:

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

For Radiated emission above 30 MHz

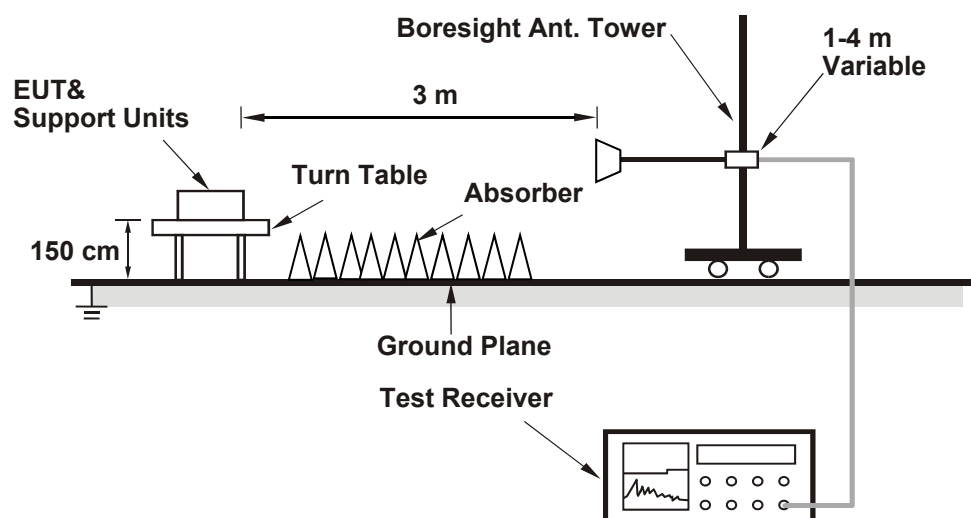
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the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

Notes:

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

6.8 Unwanted Emissions above 1 GHz

6.8.1 Test Setup



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

6.8.2 Test Procedure

- The EUT was placed on the top of a rotating table 1.5 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Notes:

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

7 Test Results of Test Item

7.1 26 dB Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 76% RH	Tested By:	Waydi Tuan
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802.11a

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
52	5260	52.38
60	5300	50.13
64	5320	38.45
100	5500	36.81
116	5580	48.22
140	5700	30.47
144 (U-NII-2C)	5720	28.26
144 (U-NII-3)	5720	18.27

Determined Output Power Limit					
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)		
52	5260	52.38	28.19	>	24
60	5300	50.13	28	>	24
64	5320	38.45	26.84	>	24
100	5500	36.81	26.65	>	24
116	5580	48.22	27.83	>	24
140	5700	30.47	25.83	>	24
144 (U-NII-2C)	5720	28.26	25.51	>	24

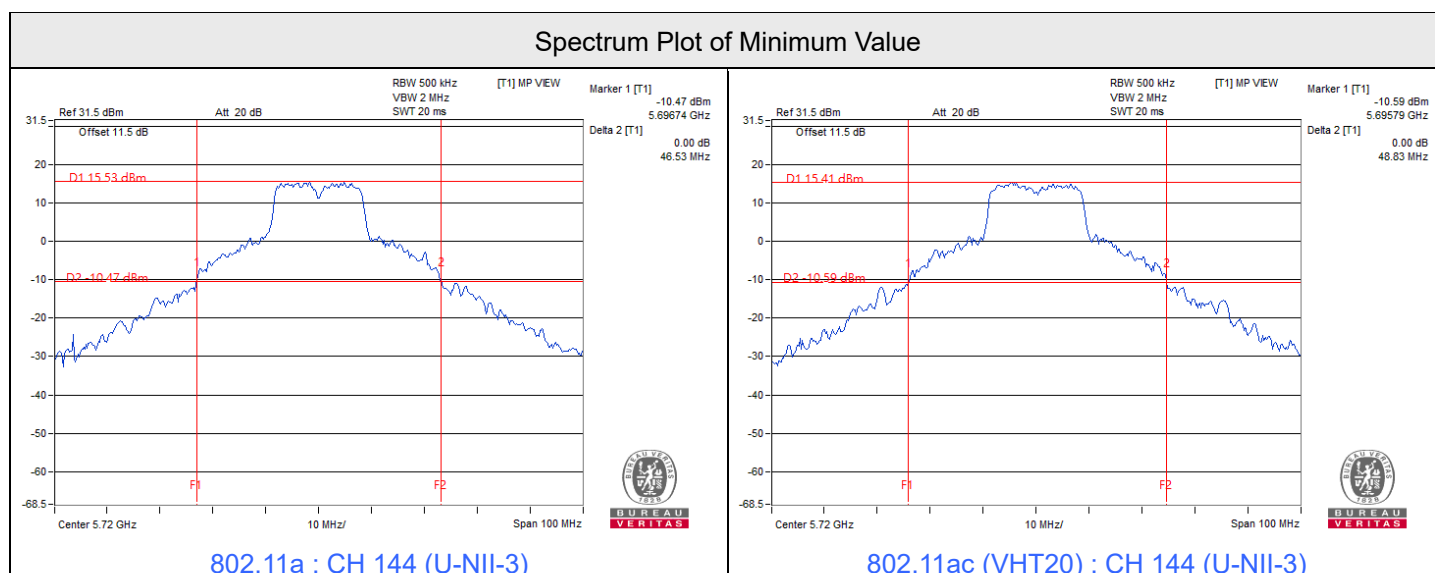
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11ac (VHT20)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
52	5260	55.33
60	5300	49.16
64	5320	41.11
100	5500	38.7
116	5580	51.64
140	5700	29.99
144 (U-NII-2C)	5720	29.21
144 (U-NII-3)	5720	19.62

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	55.33	28.42 > 24
60	5300	49.16	27.91 > 24
64	5320	41.11	27.13 > 24
100	5500	38.70	26.87 > 24
116	5580	51.64	28.12 > 24
140	5700	29.99	25.76 > 24
144 (U-NII-2C)	5720	29.21	25.65 > 24

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



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:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 76% RH	Tested By:	Waydi Tuan
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802.11a

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
36	5180	77.804	18.91	24	Pass
40	5200	142.561	21.54	24	Pass
48	5240	47.534	16.77	24	Pass
52	5260	151.356	21.80	24	Pass
60	5300	115.878	20.64	24	Pass
64	5320	63.68	18.04	24	Pass
100	5500	71.121	18.52	24	Pass
116	5580	180.302	22.56	24	Pass
140	5700	66.681	18.24	24	Pass
*144 (U-NII-2C)	5720	78.886	18.97	24	Pass
*144 (U-NII-3)	5720	18.707	12.72	30	Pass
149	5745	158.489	22.00	30	Pass
157	5785	155.239	21.91	30	Pass
165	5825	154.882	21.90	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 5.58 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the antenna gain is 5.55 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the antenna gain is 5.85 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the antenna gain is 5.95 dBi < 6 dBi, so the output power limit shall not be reduced.

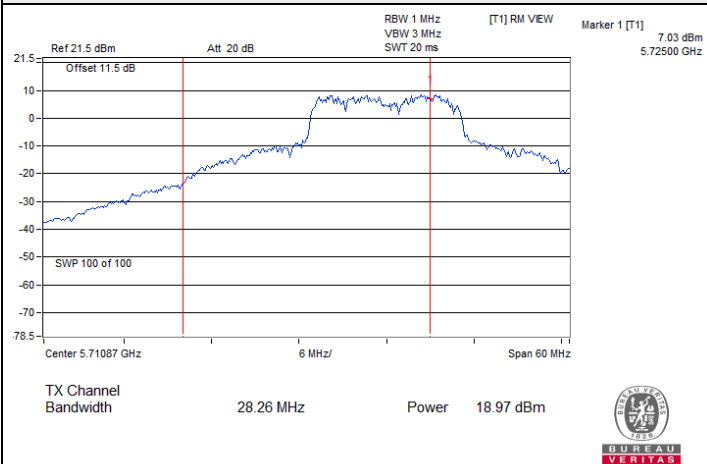
802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
36	5180	66.988	18.26	24	Pass
40	5200	138.038	21.40	24	Pass
48	5240	44.978	16.53	24	Pass
52	5260	157.398	21.97	24	Pass
60	5300	136.144	21.34	24	Pass
64	5320	59.429	17.74	24	Pass
100	5500	68.707	18.37	24	Pass
116	5580	172.982	22.38	24	Pass
140	5700	57.943	17.63	24	Pass
*144 (U-NII-2C)	5720	72.611	18.61	24	Pass
*144 (U-NII-3)	5720	22.491	13.52	30	Pass
149	5745	155.239	21.91	30	Pass
157	5785	152.055	21.82	30	Pass
165	5825	152.405	21.83	30	Pass

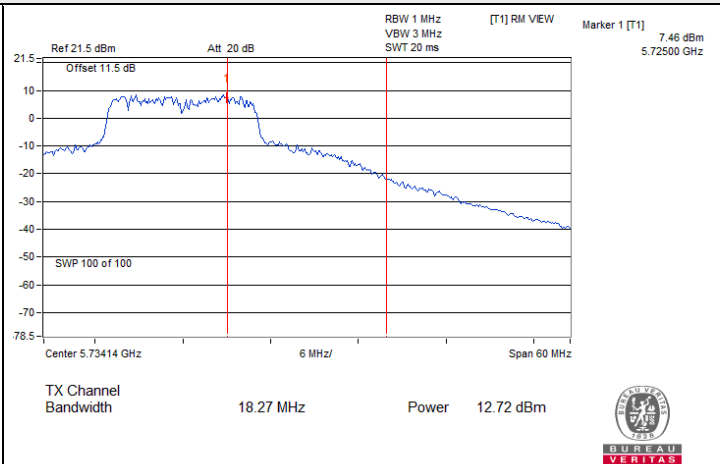
Notes:

- * : 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 5.58 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the antenna gain is 5.55 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the antenna gain is 5.85 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the antenna gain is 5.95 dBi < 6 dBi, so the output power limit shall not be reduced.

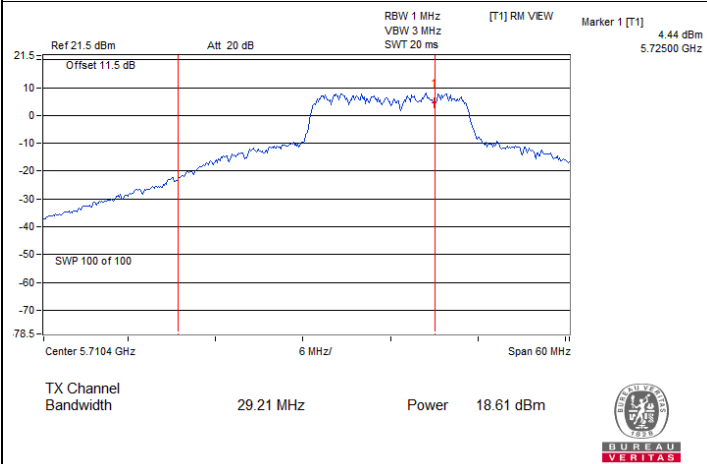
Spectrum Plot for channel straddling



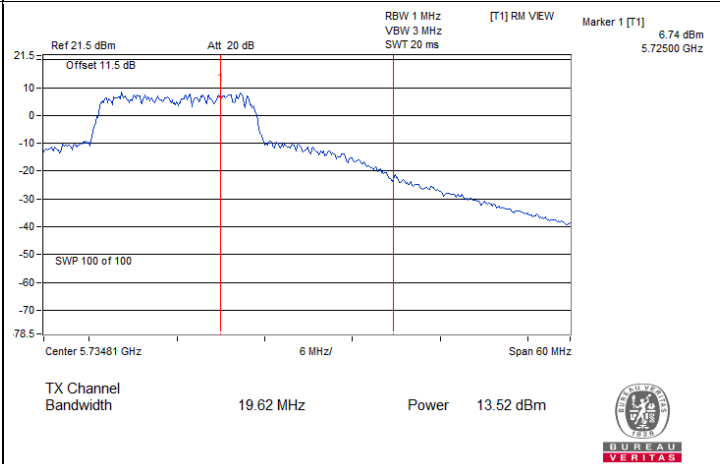
802.11a : CH 144 (U-NII-2C)



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



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



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

7.3 Power Spectral Density

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 76% RH	Tested By:	Waydi Tuan
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802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
36	5180	5.18	11	Pass
40	5200	8.07	11	Pass
48	5240	3.13	11	Pass
52	5260	9.22	11	Pass
60	5300	7.84	11	Pass
64	5320	4.16	11	Pass
100	5500	5.18	11	Pass
116	5580	9.21	11	Pass
140	5700	4.21	11	Pass
144 (U-NII-2C)	5720	8.69	11	Pass

Notes:

1. For U-NII-1, the antenna gain is 5.58 dBi < 6dBi, so the power density limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 5.55 dBi < 6 dBi, so the power density limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 5.85 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	4.70	11	Pass
40	5200	7.79	11	Pass
48	5240	2.40	11	Pass
52	5260	8.92	11	Pass
60	5300	7.41	11	Pass
64	5320	3.70	11	Pass
100	5500	4.77	11	Pass
116	5580	8.83	11	Pass
140	5700	3.96	11	Pass
144 (U-NII-2C)	5720	8.39	11	Pass

Notes:

1. For U-NII-1, the antenna gain is 5.58 dBi < 6dBi, so the power density limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 5.55 dBi < 6 dBi, so the power density limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 5.85 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11a

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
Chain 0	144 (U-NII-3)	5720	0	2.22	30	Pass
	149	5745	-0.05	2.17	30	Pass
	157	5785	-0.05	2.17	30	Pass
	165	5825	-0.1	2.12	30	Pass

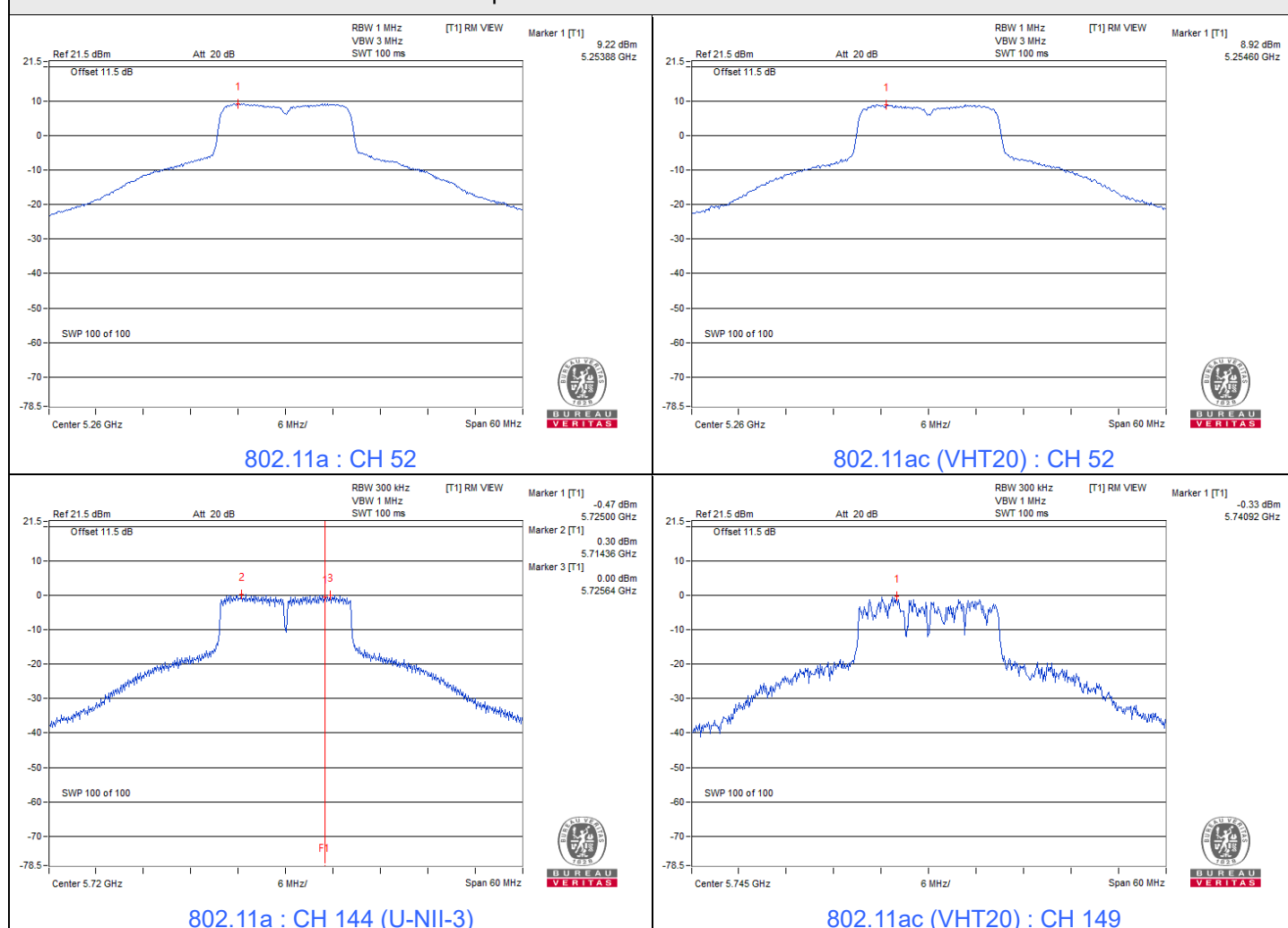
Note: For U-NII-3, the antenna gain is 5.95 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11ac (VHT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
Chain 0	144 (U-NII-3)	5720	-0.71	1.51	30	Pass
	149	5745	-0.33	1.89	30	Pass
	157	5785	-0.6	1.62	30	Pass
	165	5825	-0.57	1.65	30	Pass

Note: For U-NII-3, the antenna gain is 5.95 dBi < 6 dBi, so the power density limit shall not be reduced.

Spectrum Plot of Maximum Value



7.4 6 dB Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 76% RH	Tested By:	Waydi Tuan
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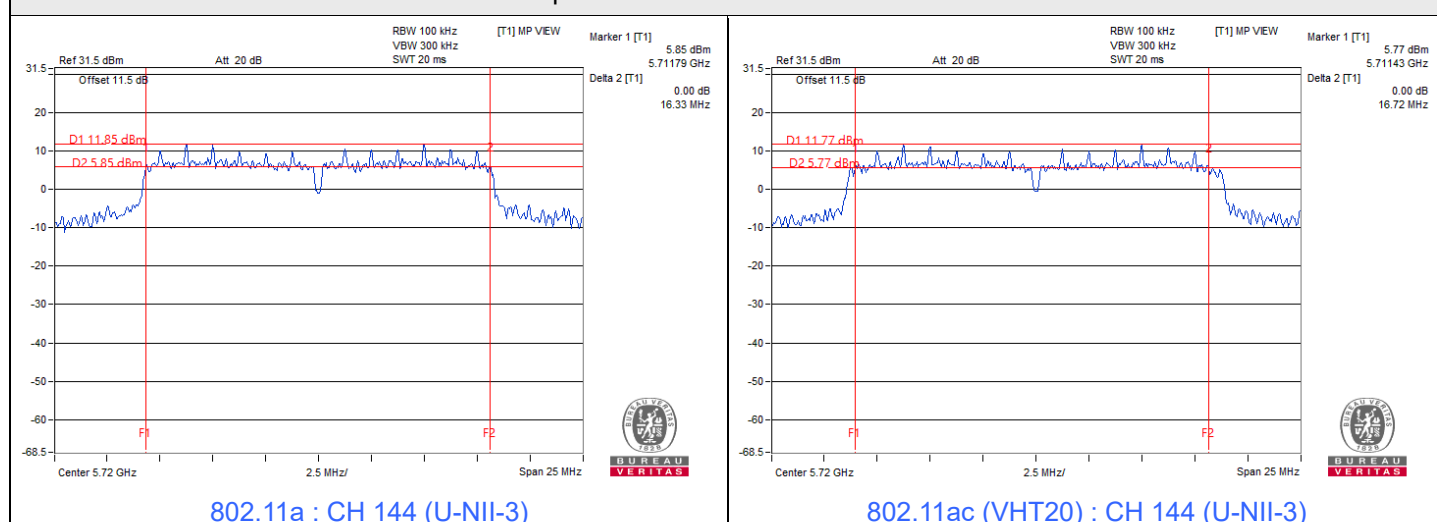
802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
144 (U-NII-3)	5720	3.12	0.5	Pass
149	5745	16.09	0.5	Pass
157	5785	16.34	0.5	Pass
165	5825	16.38	0.5	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
144 (U-NII-3)	5720	3.15	0.5	Pass
149	5745	16.54	0.5	Pass
157	5785	16.37	0.5	Pass
165	5825	17.22	0.5	Pass

Spectrum Plot of Minimum Value



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

7.5 Occupied Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 76% RH	Tested By:	Waydi Tuan
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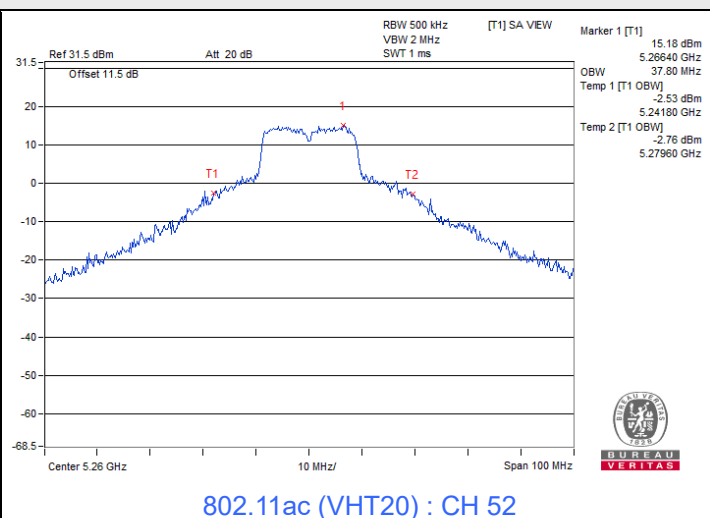
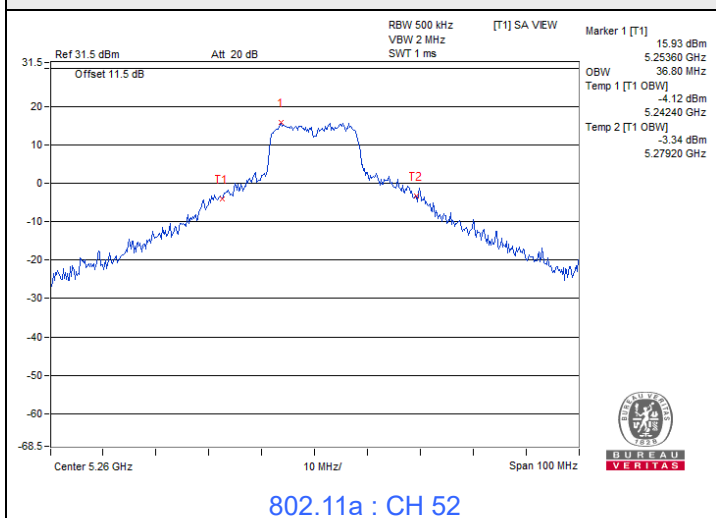
802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	25.68
40	5200	35.6
48	5240	17.64
52	5260	36.8
60	5300	32.4
64	5320	18.36
100	5500	18
116	5580	33.8
140	5700	17.16
144 (U-NII-2C)	5720	20.24
144 (U-NII-3)	5720	10.6
149	5745	30
157	5785	32.2
165	5825	32

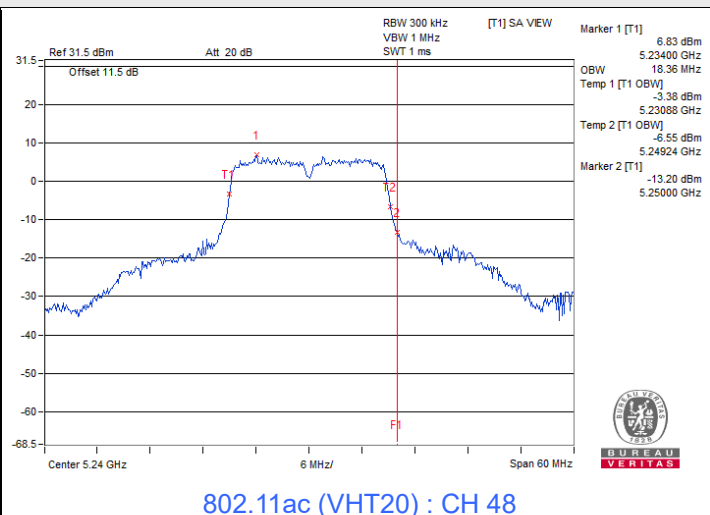
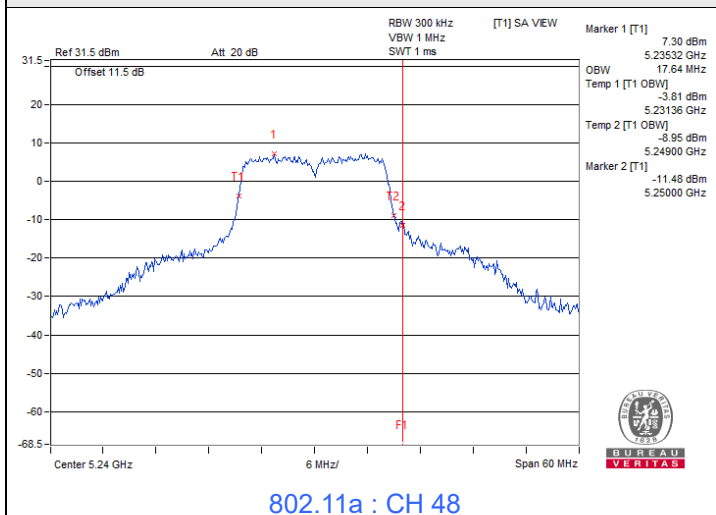
802.11ac (VHT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	23.4
40	5200	36.4
48	5240	18.36
52	5260	37.8
60	5300	33.8
64	5320	19.08
100	5500	18.84
116	5580	35
140	5700	18.12
144 (U-NII-2C)	5720	20.96
144 (U-NII-3)	5720	11.2
149	5745	33.2
157	5785	33.8
165	5825	33.8

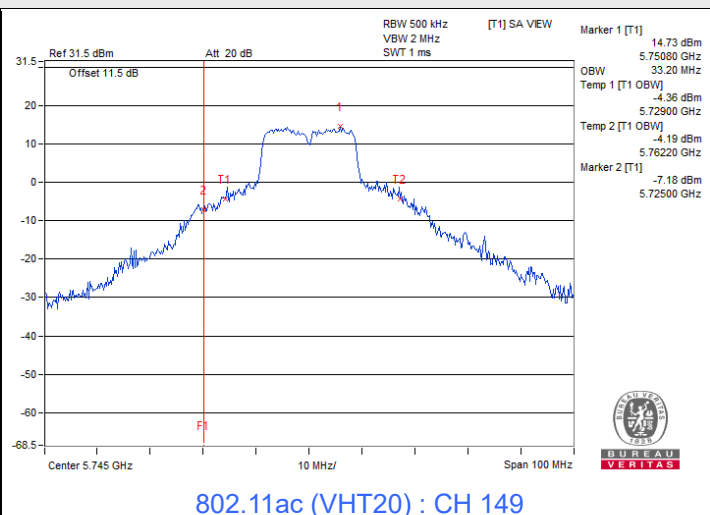
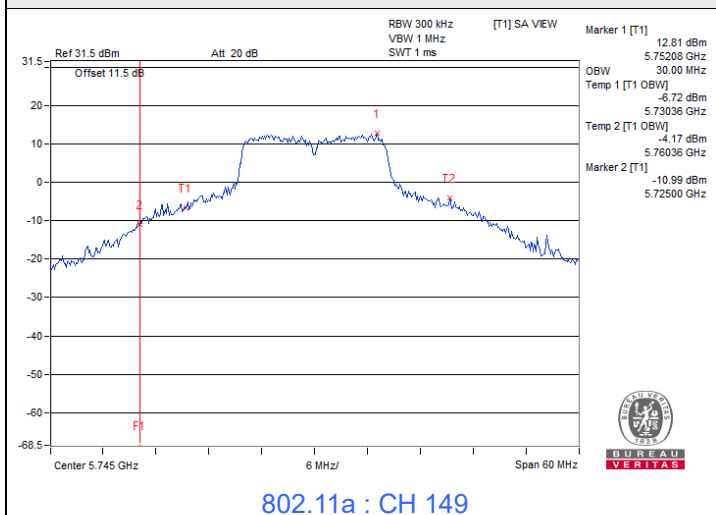
Spectrum Plot of Maximum Value



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



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



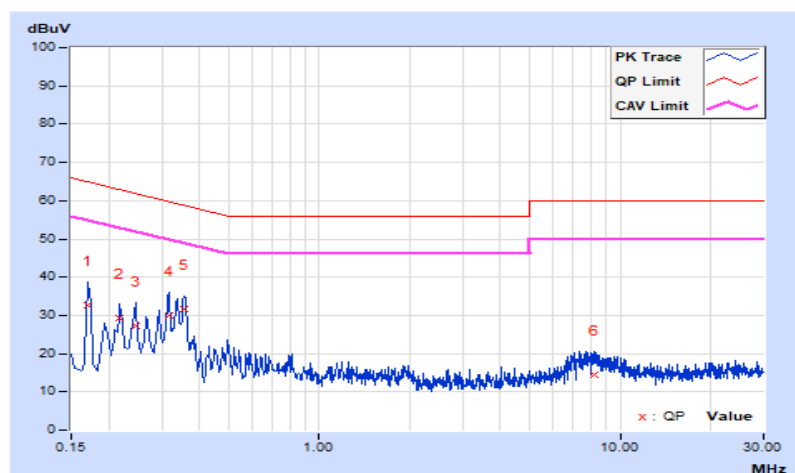
7.6 AC Power Conducted Emissions

RF Mode	802.11a	Channel	CH 116 : 5580 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67 % RH
Tested By	Adair Peng		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17000	9.77	22.91	3.61	32.68	13.38	64.96	54.96	-32.28	-41.58
2	0.21800	9.80	19.33	5.04	29.13	14.84	62.89	52.89	-33.76	-38.05
3	0.24600	9.81	17.30	6.06	27.11	15.87	61.89	51.89	-34.78	-36.02
4	0.31782	9.84	20.16	9.52	30.00	19.36	59.76	49.76	-29.76	-30.40
5	0.35407	9.86	21.94	10.87	31.80	20.73	58.87	48.87	-27.07	-28.14
6	8.15800	10.33	4.16	1.95	14.49	12.28	60.00	50.00	-45.51	-37.72

Remarks:

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

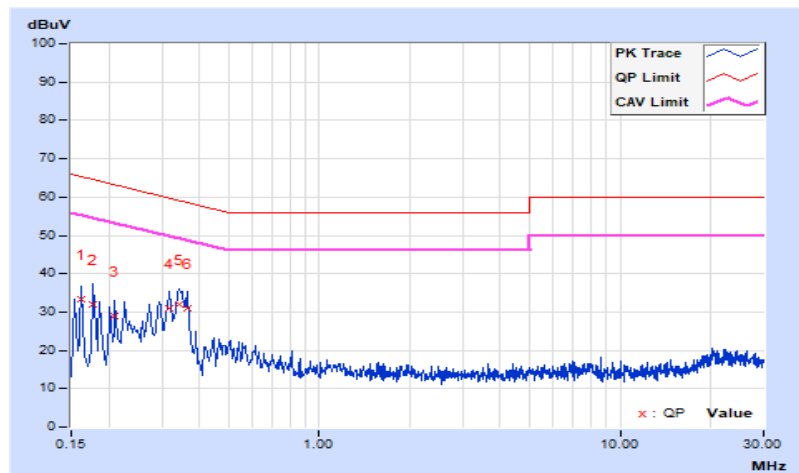


RF Mode	802.11a	Channel	CH 116 : 5580 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67 % RH
Tested By	Adair Peng		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16200	9.71	23.73	3.58	33.44	13.29	65.36	55.36	-31.92	-42.07
2	0.17800	9.72	22.26	3.21	31.98	12.93	64.58	54.58	-32.60	-41.65
3	0.21000	9.73	19.16	3.34	28.89	13.07	63.21	53.21	-34.32	-40.14
4	0.31782	9.83	20.99	10.25	30.82	20.08	59.76	49.76	-28.94	-29.68
5	0.34200	9.85	22.02	11.12	31.87	20.97	59.15	49.15	-27.28	-28.18
6	0.36600	9.88	20.98	11.08	30.86	20.96	58.59	48.59	-27.73	-27.63

Remarks:

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



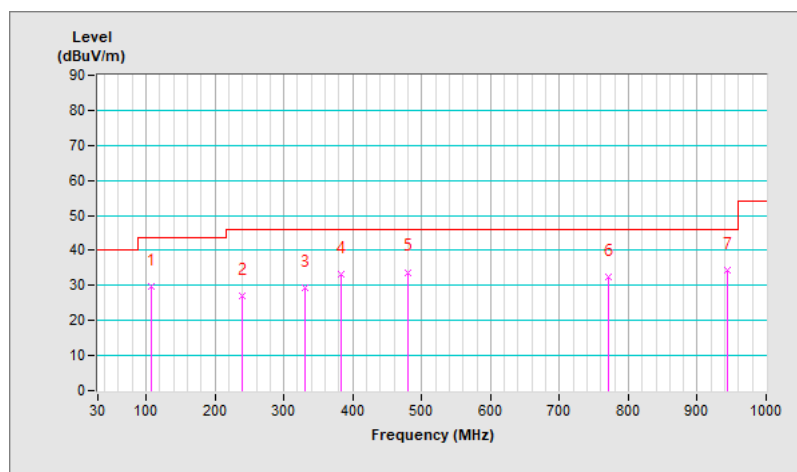
7.7 Unwanted Emissions below 1 GHz

RF Mode	802.11a	Channel	CH 116 : 5580 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23.4 °C, 71.3 % RH
Tested By	Ian Chang		

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	107.13	29.9 QP	43.5	-13.6	1.69 H	305	46.0	-16.1
2	240.02	27.0 QP	46.0	-19.0	1.92 H	276	41.1	-14.1
3	331.20	29.5 QP	46.0	-16.5	2.18 H	245	40.4	-10.9
4	382.61	33.4 QP	46.0	-12.6	2.35 H	225	43.2	-9.8
5	479.61	33.8 QP	46.0	-12.2	2.55 H	202	41.2	-7.4
6	771.58	32.6 QP	46.0	-13.4	2.95 H	156	34.2	-1.6
7	943.27	34.3 QP	46.0	-11.7	3.18 H	130	33.9	0.4

Remarks:

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

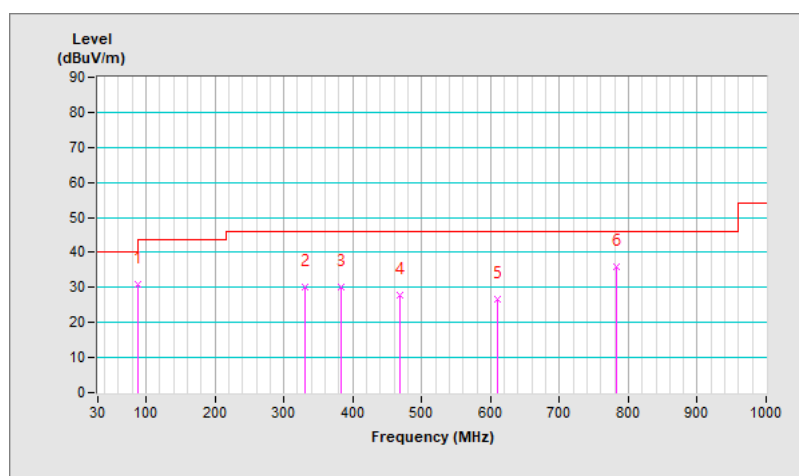


RF Mode	802.11a	Channel	CH 116 : 5580 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23.4 °C, 71.3 % RH
Tested By	Ian Chang		

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	88.70	31.0 QP	43.5	-12.5	1.32 V	252	49.8	-18.8
2	331.20	30.3 QP	46.0	-15.7	1.77 V	196	41.2	-10.9
3	382.61	30.3 QP	46.0	-15.7	2.45 V	116	40.1	-9.8
4	467.97	27.8 QP	46.0	-18.2	2.16 V	150	35.3	-7.5
5	609.59	26.5 QP	46.0	-19.5	1.00 V	313	30.7	-4.2
6	783.22	36.1 QP	46.0	-9.9	2.83 V	71	37.4	-1.3

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 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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	68.8 PK	74.0	-5.2	1.54 H	9	66.2	2.6
2	5150.00	50.8 AV	54.0	-3.2	1.54 H	9	48.2	2.6
3	*5180.00	107.9 PK			1.54 H	9	67.6	40.3
4	*5180.00	98.7 AV			1.54 H	9	58.4	40.3
5	#10360.00	56.7 PK	68.2	-11.5	1.52 H	134	47.6	9.1
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	71.8 PK	74.0	-2.2	2.55 V	0	69.2	2.6
2	5150.00	53.6 AV	54.0	-0.4	2.55 V	0	51.0	2.6
3	*5180.00	111.1 PK			2.55 V	0	70.8	40.3
4	*5180.00	101.8 AV			2.55 V	0	61.5	40.3
5	#10360.00	57.6 PK	68.2	-10.6	1.52 V	299	48.5	9.1

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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	109.0 PK			1.51 H	13	68.7	40.3
2	*5200.00	99.5 AV			1.51 H	13	59.2	40.3
3	#10400.00	58.8 PK	68.2	-9.4	1.63 H	215	49.7	9.1
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	*5200.00	112.2 PK			2.38 V	15	71.9	40.3
2	*5200.00	102.3 AV			2.38 V	15	62.0	40.3
3	#10400.00	61.3 PK	68.2	-6.9	1.63 V	251	52.2	9.1

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 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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	113.4 PK			1.52 H	12	73.1	40.3
2	*5240.00	102.4 AV			1.52 H	12	62.1	40.3
3	5350.00	56.4 PK	74.0	-17.6	1.52 H	12	53.9	2.5
4	5350.00	41.3 AV	54.0	-12.7	1.52 H	12	38.8	2.5
5	#10480.00	56.4 PK	68.2	-11.8	1.62 H	134	47.1	9.3
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	116.0 PK			2.91 V	0	75.7	40.3
2	*5240.00	105.6 AV			2.91 V	0	65.3	40.3
3	5350.00	59.0 PK	74.0	-15.0	2.91 V	0	56.5	2.5
4	5350.00	44.5 AV	54.0	-9.5	2.91 V	0	42.0	2.5
5	#10480.00	59.6 PK	68.2	-8.6	1.58 V	20	50.3	9.3

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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	53.6 PK	74.0	-20.4	1.56 H	9	51.0	2.6
2	5150.00	41.5 AV	54.0	-12.5	1.56 H	9	38.9	2.6
3	*5260.00	111.3 PK			1.56 H	9	71.1	40.2
4	*5260.00	101.5 AV			1.56 H	9	61.3	40.2
5	#10520.00	59.5 PK	68.2	-8.7	1.64 H	238	50.2	9.3
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	5150.00	59.6 PK	74.0	-14.4	2.48 V	4	57.0	2.6
2	5150.00	44.3 AV	54.0	-9.7	2.48 V	4	41.7	2.6
3	*5260.00	114.3 PK			2.48 V	4	74.1	40.2
4	*5260.00	104.2 AV			2.48 V	4	64.0	40.2
5	#10520.00	60.5 PK	68.2	-7.7	1.58 V	316	51.2	9.3

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 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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	109.6 PK			1.48 H	6	69.4	40.2
2	*5300.00	99.4 AV			1.48 H	6	59.2	40.2
3	5350.00	68.1 PK	74.0	-5.9	1.48 H	6	65.6	2.5
4	5350.00	50.4 AV	54.0	-3.6	1.48 H	6	47.9	2.5
5	10600.00	57.4 PK	74.0	-16.6	1.84 H	157	48.0	9.4
6	10600.00	41.3 AV	54.0	-12.7	1.84 H	157	31.9	9.4
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	112.9 PK			2.70 V	7	72.7	40.2
2	*5300.00	102.4 AV			2.70 V	7	62.2	40.2
3	5350.00	71.1 PK	74.0	-2.9	2.70 V	7	68.6	2.5
4	5350.00	53.5 AV	54.0	-0.5	2.70 V	7	51.0	2.5
5	10600.00	58.7 PK	74.0	-15.3	1.75 V	299	49.3	9.4
6	10600.00	42.8 AV	54.0	-11.2	1.75 V	299	33.4	9.4

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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	105.6 PK			1.56 H	11	65.4	40.2
2	*5320.00	96.4 AV			1.56 H	11	56.2	40.2
3	5350.00	67.5 PK	74.0	-6.5	1.56 H	11	65.0	2.5
4	5350.00	50.5 AV	54.0	-3.5	1.56 H	11	48.0	2.5
5	10640.00	55.4 PK	74.0	-18.6	1.94 H	287	46.2	9.2
6	10640.00	41.2 AV	54.0	-12.8	1.94 H	287	32.0	9.2
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	*5320.00	108.9 PK			2.54 V	0	68.7	40.2
2	*5320.00	99.4 AV			2.54 V	0	59.2	40.2
3	5350.00	70.4 PK	74.0	-3.6	2.54 V	0	67.9	2.5
4	5350.00	53.4 AV	54.0	-0.6	2.54 V	0	50.9	2.5
5	10640.00	56.7 PK	74.0	-17.3	1.96 V	289	47.5	9.2
6	10640.00	42.7 AV	54.0	-11.3	1.96 V	289	33.5	9.2

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.

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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	1.46 H	8	58.7	2.6
2	5460.00	42.6 AV	54.0	-11.4	1.46 H	8	40.0	2.6
3	#5470.00	64.2 PK	68.2	-4.0	1.46 H	8	61.5	2.7
4	*5500.00	109.0 PK			1.46 H	8	68.6	40.4
5	*5500.00	99.3 AV			1.46 H	8	58.9	40.4
6	11000.00	57.5 PK	74.0	-16.5	1.34 H	258	48.1	9.4
7	11000.00	43.6 AV	54.0	-10.4	1.34 H	258	34.2	9.4
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	5460.00	64.2 PK	74.0	-9.8	2.51 V	3	61.6	2.6
2	5460.00	45.5 AV	54.0	-8.5	2.51 V	3	42.9	2.6
3	#5470.00	67.8 PK	68.2	-0.4	2.51 V	3	65.1	2.7
4	*5500.00	112.0 PK			2.51 V	3	71.6	40.4
5	*5500.00	102.2 AV			2.51 V	3	61.8	40.4
6	11000.00	58.8 PK	74.0	-15.2	1.69 V	331	49.4	9.4
7	11000.00	44.9 AV	54.0	-9.1	1.69 V	331	35.5	9.4

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 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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	114.6 PK			1.58 H	12	73.6	41.0
2	*5580.00	104.7 AV			1.58 H	12	63.7	41.0
3	11160.00	57.5 PK	74.0	-16.5	2.14 H	156	47.4	10.1
4	11160.00	44.4 AV	54.0	-9.6	2.14 H	156	34.3	10.1
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	*5580.00	117.8 PK			2.48 V	6	76.8	41.0
2	*5580.00	107.6 AV			2.48 V	6	66.6	41.0
3	11160.00	58.4 PK	74.0	-15.6	1.74 V	306	48.3	10.1
4	11160.00	45.8 AV	54.0	-8.2	1.74 V	306	35.7	10.1

Remarks:

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

RF Mode	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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	108.4 PK			1.51 H	11	66.8	41.6
2	*5700.00	98.4 AV			1.51 H	11	56.8	41.6
3	#5725.00	64.5 PK	68.2	-3.7	1.51 H	11	60.4	4.1
4	11400.00	57.5 PK	74.0	-16.5	1.84 H	123	47.2	10.3
5	11400.00	43.1 AV	54.0	-10.9	1.84 H	123	32.8	10.3
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	*5700.00	111.6 PK			2.50 V	14	70.0	41.6
2	*5700.00	101.3 AV			2.50 V	14	59.7	41.6
3	#5725.00	67.8 PK	68.2	-0.4	2.50 V	14	63.7	4.1
4	11400.00	58.8 PK	74.0	-15.2	1.66 V	331	48.5	10.3
5	11400.00	44.0 AV	54.0	-10.0	1.66 V	331	33.7	10.3

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 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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	#5470.00	55.6 PK	68.2	-12.6	1.62 H	13	52.9	2.7
2	*5720.00	113.6 PK			1.62 H	13	71.9	41.7
3	*5720.00	103.4 AV			1.62 H	13	61.7	41.7
4	11440.00	57.8 PK	74.0	-16.2	1.34 H	251	47.5	10.3
5	11440.00	42.6 AV	54.0	-11.4	1.34 H	251	32.3	10.3
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	#5470.00	58.9 PK	68.2	-9.3	2.45 V	12	56.2	2.7
2	*5720.00	116.6 PK			2.45 V	12	74.9	41.7
3	*5720.00	106.4 AV			2.45 V	12	64.7	41.7
4	11440.00	58.8 PK	74.0	-15.2	1.58 V	299	48.5	10.3
5	11440.00	43.2 AV	54.0	-10.8	1.58 V	299	32.9	10.3

Remarks:

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

RF Mode	802.11a	Channel	CH 149 : 5745 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	#5644.00	59.5 PK	68.2	-8.7	1.63 H	12	55.8	3.7
2	*5745.00	112.3 PK			1.63 H	12	70.5	41.8
3	*5745.00	102.4 AV			1.63 H	12	60.6	41.8
4	#5938.80	60.4 PK	68.2	-7.8	1.63 H	12	56.2	4.2
5	11490.00	59.4 PK	74.0	-14.6	2.01 H	154	48.9	10.5
6	11490.00	45.3 AV	54.0	-8.7	2.01 H	154	34.8	10.5
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	#5642.00	61.1 PK	68.2	-7.1	2.34 V	1	57.5	3.6
2	*5745.00	115.5 PK			2.34 V	1	73.7	41.8
3	*5745.00	105.5 AV			2.34 V	1	63.7	41.8
4	#5932.40	60.2 PK	68.2	-8.0	2.34 V	1	56.0	4.2
5	11490.00	60.2 PK	74.0	-13.8	1.64 V	22	49.7	10.5
6	11490.00	46.2 AV	54.0	-7.8	1.64 V	22	35.7	10.5

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.

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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	#5643.20	60.1 PK	68.2	-8.1	1.57 H	10	56.5	3.6
2	*5785.00	112.6 PK			1.57 H	10	70.6	42.0
3	*5785.00	102.4 AV			1.57 H	10	60.4	42.0
4	#5994.40	59.8 PK	68.2	-8.4	1.57 H	10	55.3	4.5
5	11570.00	58.4 PK	74.0	-15.6	1.64 H	128	48.2	10.2
6	11570.00	44.5 AV	54.0	-9.5	1.64 H	128	34.3	10.2
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	#5633.60	59.5 PK	68.2	-8.7	2.30 V	7	55.9	3.6
2	*5785.00	115.5 PK			2.30 V	7	73.5	42.0
3	*5785.00	105.5 AV			2.30 V	7	63.5	42.0
4	#5944.80	59.7 PK	68.2	-8.5	2.30 V	7	55.4	4.3
5	11570.00	59.9 PK	74.0	-14.1	1.69 V	336	49.7	10.2
6	11570.00	45.5 AV	54.0	-8.5	1.69 V	336	35.3	10.2

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 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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5627.60	58.8 PK	68.2	-9.4	2.31 H	42	55.2	3.6
2	*5825.00	111.4 PK			2.31 H	42	69.5	41.9
3	*5825.00	101.3 AV			2.31 H	42	59.4	41.9
4	#5973.20	60.0 PK	68.2	-8.2	2.31 H	42	55.6	4.4
5	11650.00	58.6 PK	74.0	-15.4	1.88 H	254	48.5	10.1
6	11650.00	44.4 AV	54.0	-9.6	1.88 H	254	34.3	10.1
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	#5619.60	59.2 PK	68.2	-9.0	2.31 V	16	55.6	3.6
2	*5825.00	114.2 PK			2.31 V	16	72.3	41.9
3	*5825.00	104.5 AV			2.31 V	16	62.6	41.9
4	#5963.60	60.4 PK	68.2	-7.8	2.31 V	16	56.0	4.4
5	11650.00	59.8 PK	74.0	-14.2	1.72 V	303	49.7	10.1
6	11650.00	45.8 AV	54.0	-8.2	1.72 V	303	35.7	10.1

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 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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	69.4 PK	74.0	-4.6	1.48 H	14	66.8	2.6
2	5150.00	50.5 AV	54.0	-3.5	1.48 H	14	47.9	2.6
3	*5180.00	107.4 PK			1.48 H	14	67.1	40.3
4	*5180.00	98.4 AV			1.48 H	14	58.1	40.3
5	#10360.00	56.4 PK	68.2	-11.8	1.84 H	255	47.3	9.1
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	72.1 PK	74.0	-1.9	2.55 V	3	69.5	2.6
2	5150.00	53.5 AV	54.0	-0.5	2.55 V	3	50.9	2.6
3	*5180.00	110.5 PK			2.55 V	3	70.2	40.3
4	*5180.00	101.1 AV			2.55 V	3	60.8	40.3
5	#10360.00	57.3 PK	68.2	-10.9	1.69 V	302	48.2	9.1

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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	69.4 PK	74.0	-4.6	1.56 H	13	66.8	2.6
2	5150.00	50.5 AV	54.0	-3.5	1.56 H	13	47.9	2.6
3	*5200.00	110.0 PK			1.56 H	13	69.7	40.3
4	*5200.00	101.5 AV			1.56 H	13	61.2	40.3
5	#10400.00	59.4 PK	68.2	-8.8	1.91 H	55	50.3	9.1
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	72.1 PK	74.0	-1.9	2.68 V	4	69.5	2.6
2	5150.00	53.3 AV	54.0	-0.7	2.68 V	4	50.7	2.6
3	*5200.00	113.7 PK			2.68 V	4	73.4	40.3
4	*5200.00	104.0 AV			2.68 V	4	63.7	40.3
5	#10400.00	60.3 PK	68.2	-7.9	1.67 V	312	51.2	9.1

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 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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	111.5 PK			1.55 H	15	71.2	40.3
2	*5240.00	101.5 AV			1.55 H	15	61.2	40.3
3	5350.00	57.6 PK	74.0	-16.4	1.55 H	15	55.1	2.5
4	5350.00	41.3 AV	54.0	-12.7	1.55 H	15	38.8	2.5
5	#10480.00	58.7 PK	68.2	-9.5	1.47 H	44	49.4	9.3
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	114.5 PK			2.74 V	1	74.2	40.3
2	*5240.00	104.7 AV			2.74 V	1	64.4	40.3
3	5350.00	60.4 PK	74.0	-13.6	2.76 V	1	57.9	2.5
4	5350.00	44.3 AV	54.0	-9.7	2.76 V	1	41.8	2.5
5	#10480.00	59.6 PK	68.2	-8.6	1.59 V	300	50.3	9.3

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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	56.4 PK	74.0	-17.6	1.47 H	11	53.8	2.6
2	5150.00	41.3 AV	54.0	-12.7	1.47 H	11	38.7	2.6
3	*5260.00	110.3 PK			1.47 H	11	70.1	40.2
4	*5260.00	101.3 AV			1.47 H	11	61.1	40.2
5	#10520.00	59.4 PK	68.2	-8.8	1.69 H	66	50.1	9.3
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	5150.00	59.2 PK	74.0	-14.8	2.73 V	5	56.6	2.6
2	5150.00	44.2 AV	54.0	-9.8	2.73 V	5	41.6	2.6
3	*5260.00	113.9 PK			2.73 V	5	73.7	40.2
4	*5260.00	104.1 AV			2.73 V	5	63.9	40.2
5	#10520.00	60.5 PK	68.2	-7.7	1.68 V	303	51.2	9.3

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 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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	110.6 PK			1.50 H	23	70.4	40.2
2	*5300.00	100.1 AV			1.50 H	23	59.9	40.2
3	5350.00	70.2 PK	74.0	-3.8	1.50 H	23	67.7	2.5
4	5350.00	50.5 AV	54.0	-3.5	1.50 H	23	48.0	2.5
5	10600.00	56.4 PK	74.0	-17.6	1.57 H	144	47.0	9.4
6	10600.00	42.6 AV	54.0	-11.4	1.57 H	144	33.2	9.4
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	113.0 PK			2.71 V	2	72.8	40.2
2	*5300.00	103.1 AV			2.71 V	2	62.9	40.2
3	5350.00	73.0 PK	74.0	-1.0	2.71 V	2	70.5	2.5
4	5350.00	53.8 AV	54.0	-0.2	2.71 V	2	51.3	2.5
5	10600.00	57.6 PK	74.0	-16.4	1.78 V	310	48.2	9.4
6	10600.00	43.6 AV	54.0	-10.4	1.78 V	310	34.2	9.4

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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	106.3 PK			1.55 H	10	66.1	40.2
2	*5320.00	96.5 AV			1.55 H	10	56.3	40.2
3	5350.00	69.5 PK	74.0	-4.5	1.55 H	10	67.0	2.5
4	5350.00	50.1 AV	54.0	-3.9	1.55 H	10	47.6	2.5
5	10640.00	55.4 PK	74.0	-18.6	1.54 H	178	46.2	9.2
6	10640.00	41.4 AV	54.0	-12.6	1.54 H	178	32.2	9.2
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	*5320.00	109.2 PK			2.67 V	2	69.0	40.2
2	*5320.00	99.4 AV			2.67 V	2	59.2	40.2
3	5350.00	72.4 PK	74.0	-1.6	2.67 V	2	69.9	2.5
4	5350.00	53.7 AV	54.0	-0.3	2.67 V	2	51.2	2.5
5	10640.00	56.6 PK	74.0	-17.4	1.66 V	314	47.4	9.2
6	10640.00	42.3 AV	54.0	-11.7	1.66 V	314	33.1	9.2

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.

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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	64.3 PK	74.0	-9.7	1.56 H	23	61.7	2.6
2	5460.00	44.5 AV	54.0	-9.5	1.56 H	23	41.9	2.6
3	#5470.00	64.2 PK	68.2	-4.0	1.56 H	23	61.5	2.7
4	*5500.00	108.4 PK			1.56 H	23	68.0	40.4
5	*5500.00	98.4 AV			1.56 H	23	58.0	40.4
6	11000.00	56.4 PK	74.0	-17.6	1.78 H	44	47.0	9.4
7	11000.00	41.7 AV	54.0	-12.3	1.78 H	44	32.3	9.4
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	5460.00	67.0 PK	74.0	-7.0	2.66 V	0	64.4	2.6
2	5460.00	47.7 AV	54.0	-6.3	2.66 V	0	45.1	2.6
3	#5470.00	67.5 PK	68.2	-0.7	2.66 V	0	64.8	2.7
4	*5500.00	111.3 PK			2.66 V	0	70.9	40.4
5	*5500.00	101.7 AV			2.66 V	0	61.3	40.4
6	11000.00	57.9 PK	74.0	-16.1	1.68 V	305	48.5	9.4
7	11000.00	42.9 AV	54.0	-11.1	1.68 V	305	33.5	9.4

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 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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	114.2 PK			1.44 H	9	73.2	41.0
2	*5580.00	104.5 AV			1.44 H	9	63.5	41.0
3	11160.00	58.5 PK	74.0	-15.5	1.88 H	119	48.4	10.1
4	11160.00	43.6 AV	54.0	-10.4	1.88 H	119	33.5	10.1
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	*5580.00	117.7 PK			2.36 V	3	76.7	41.0
2	*5580.00	107.5 AV			2.36 V	3	66.5	41.0
3	11160.00	59.2 PK	74.0	-14.8	1.69 V	205	49.1	10.1
4	11160.00	44.0 AV	54.0	-10.0	1.69 V	205	33.9	10.1

Remarks:

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

RF Mode	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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	108.4 PK			1.51 H	13	66.8	41.6
2	*5700.00	98.6 AV			1.51 H	13	57.0	41.6
3	#5725.00	64.2 PK	68.2	-4.0	1.51 H	13	60.1	4.1
4	11400.00	57.5 PK	74.0	-16.5	1.23 H	155	47.2	10.3
5	11400.00	42.4 AV	54.0	-11.6	1.23 H	155	32.1	10.3
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	*5700.00	111.1 PK			2.35 V	1	69.5	41.6
2	*5700.00	101.0 AV			2.35 V	1	59.4	41.6
3	#5725.00	67.7 PK	68.2	-0.5	2.35 V	1	63.6	4.1
4	11400.00	58.9 PK	74.0	-15.1	1.69 V	332	48.6	10.3
5	11400.00	43.3 AV	54.0	-10.7	1.69 V	332	33.0	10.3

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 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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	#5470.00	55.4 PK	68.2	-12.8	1.50 H	7	52.7	2.7
2	*5720.00	113.4 PK			1.50 H	7	71.7	41.7
3	*5720.00	103.4 AV			1.50 H	7	61.7	41.7
4	11440.00	57.6 PK	74.0	-16.4	2.18 H	54	47.3	10.3
5	11440.00	42.4 AV	54.0	-11.6	2.18 H	54	32.1	10.3
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	#5470.00	58.9 PK	68.2	-9.3	2.27 V	0	56.2	2.7
2	*5720.00	116.6 PK			2.27 V	0	74.9	41.7
3	*5720.00	106.6 AV			2.27 V	0	64.9	41.7
4	11440.00	58.8 PK	74.0	-15.2	1.78 V	315	48.5	10.3
5	11440.00	43.5 AV	54.0	-10.5	1.78 V	315	33.2	10.3

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 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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	#5645.20	60.0 PK	68.2	-8.2	1.61 H	8	56.3	3.7
2	*5745.00	112.2 PK			1.61 H	8	70.4	41.8
3	*5745.00	102.5 AV			1.61 H	8	60.7	41.8
4	#5958.40	59.5 PK	68.2	-8.7	1.61 H	8	55.2	4.3
5	11490.00	59.4 PK	74.0	-14.6	1.66 H	333	48.9	10.5
6	11490.00	45.4 AV	54.0	-8.6	1.66 H	333	34.9	10.5
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	#5628.80	59.5 PK	68.2	-8.7	2.32 V	4	55.9	3.6
2	*5745.00	115.2 PK			2.32 V	4	73.4	41.8
3	*5745.00	105.3 AV			2.32 V	4	63.5	41.8
4	#5925.20	59.8 PK	68.2	-8.4	2.32 V	4	55.6	4.2
5	11490.00	60.6 PK	74.0	-13.4	1.75 V	304	50.1	10.5
6	11490.00	46.0 AV	54.0	-8.0	1.75 V	304	35.5	10.5

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.

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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	#5616.40	58.6 PK	68.2	-9.6	1.72 H	15	55.0	3.6
2	*5785.00	113.3 PK			1.72 H	15	71.3	42.0
3	*5785.00	103.4 AV			1.72 H	15	61.4	42.0
4	#5973.60	59.5 PK	68.2	-8.7	1.72 H	15	55.1	4.4
5	11570.00	58.4 PK	74.0	-15.6	1.36 H	254	48.2	10.2
6	11570.00	44.6 AV	54.0	-9.4	1.36 H	254	34.4	10.2
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	#5634.00	59.0 PK	68.2	-9.2	2.34 V	7	55.4	3.6
2	*5785.00	115.0 PK			2.34 V	7	73.0	42.0
3	*5785.00	105.1 AV			2.34 V	7	63.1	42.0
4	#5968.80	59.0 PK	68.2	-9.2	2.34 V	7	54.6	4.4
5	11570.00	59.1 PK	74.0	-14.9	1.64 V	10	48.9	10.2
6	11570.00	45.0 AV	54.0	-9.0	1.64 V	10	34.8	10.2

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 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	120 Vac, 60 Hz	Environmental Conditions	23.7 °C, 72.8 % RH
Tested By	Ian Chang		

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	#5613.20	59.5 PK	68.2	-8.7	1.76 H	15	55.9	3.6
2	*5825.00	111.3 PK			1.76 H	15	69.4	41.9
3	*5825.00	101.4 AV			1.76 H	15	59.5	41.9
4	#5965.60	59.1 PK	68.2	-9.1	1.76 H	15	54.7	4.4
5	11650.00	59.4 PK	74.0	-14.6	2.14 H	158	49.3	10.1
6	11650.00	44.2 AV	54.0	-9.8	2.14 H	158	34.1	10.1
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	#5646.40	59.5 PK	68.2	-8.7	2.35 V	11	55.8	3.7
2	*5825.00	114.0 PK			2.35 V	11	72.1	41.9
3	*5825.00	104.1 AV			2.35 V	11	62.2	41.9
4	#5983.60	60.2 PK	68.2	-8.0	2.35 V	11	55.8	4.4
5	11650.00	60.0 PK	74.0	-14.0	1.69 V	319	49.9	10.1
6	11650.00	45.4 AV	54.0	-8.6	1.69 V	319	35.3	10.1

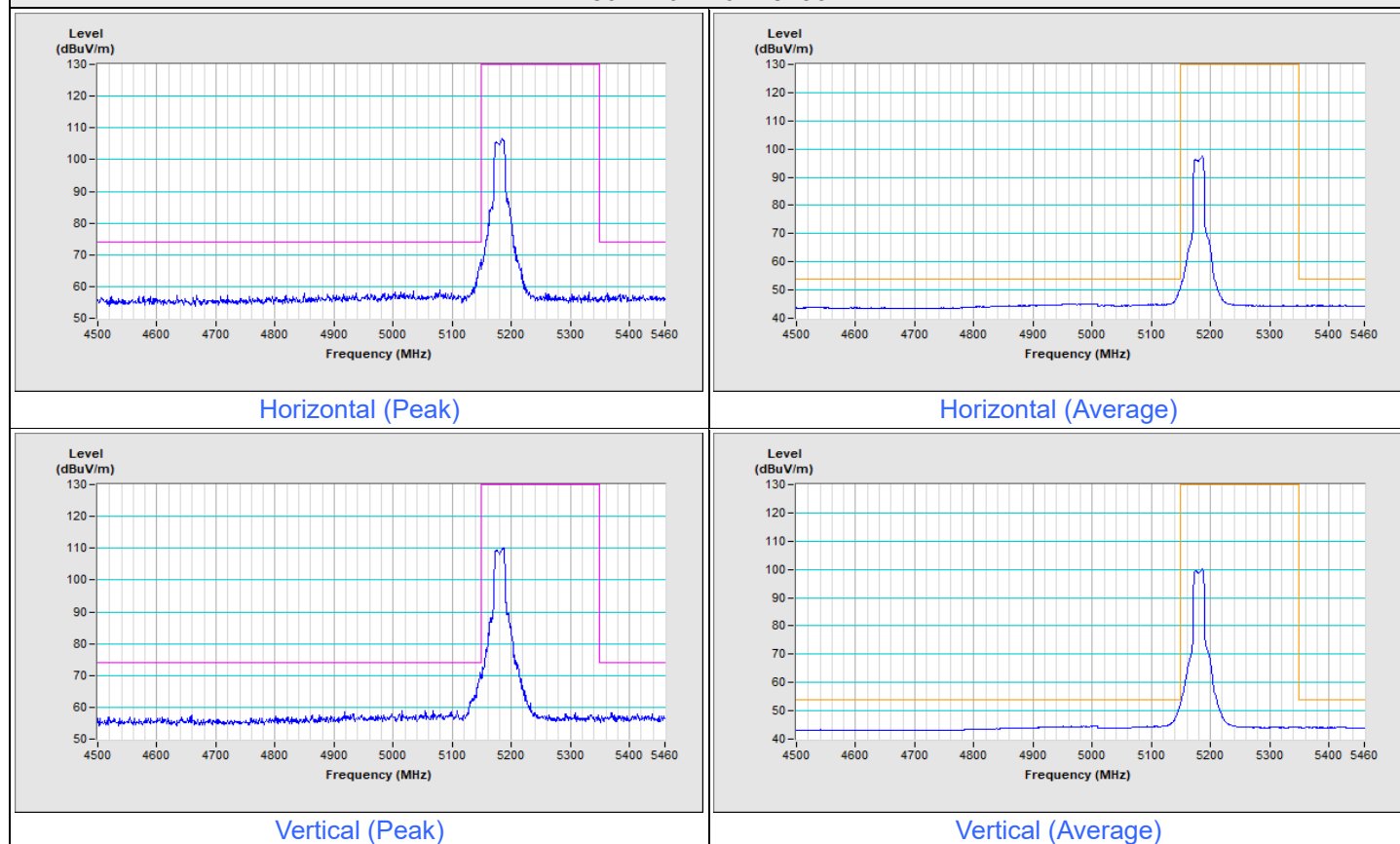
Remarks:

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.

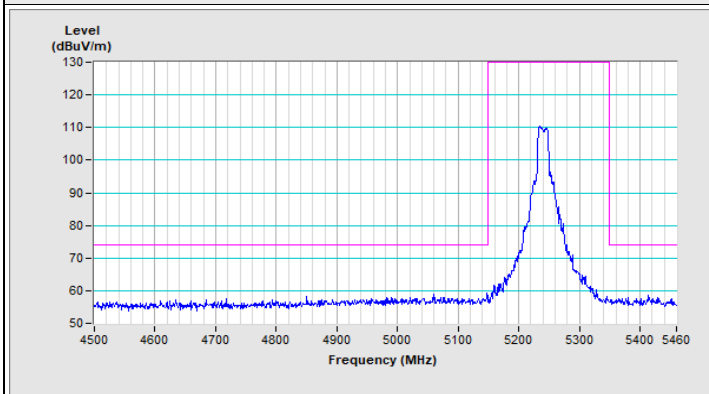
Plot of Band Edge

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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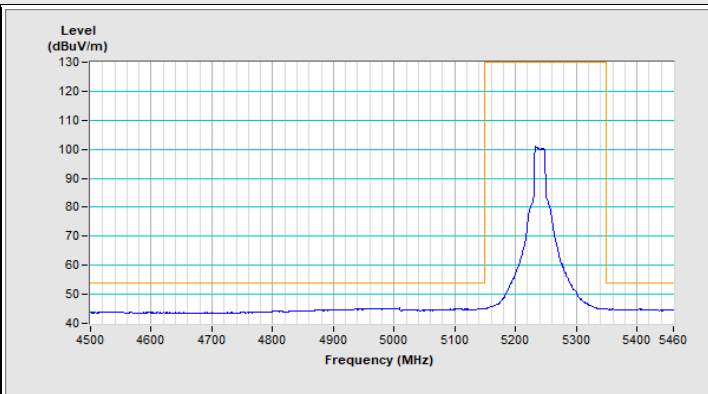
802.11a Channel 36



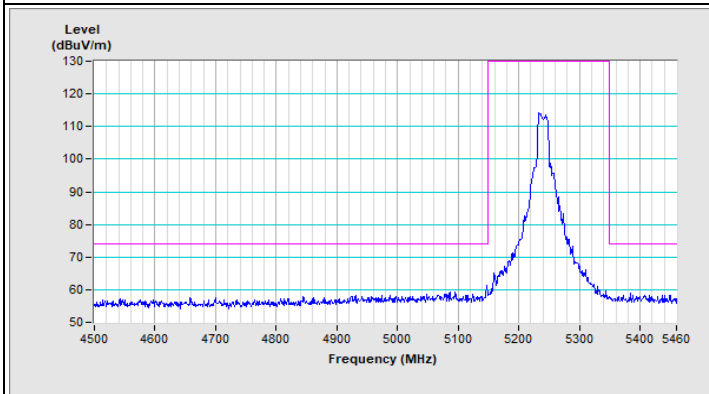
802.11a Channel 48



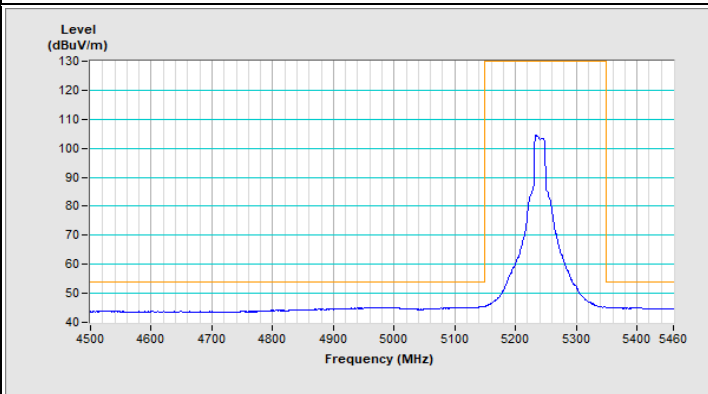
Horizontal (Peak)



Horizontal (Average)

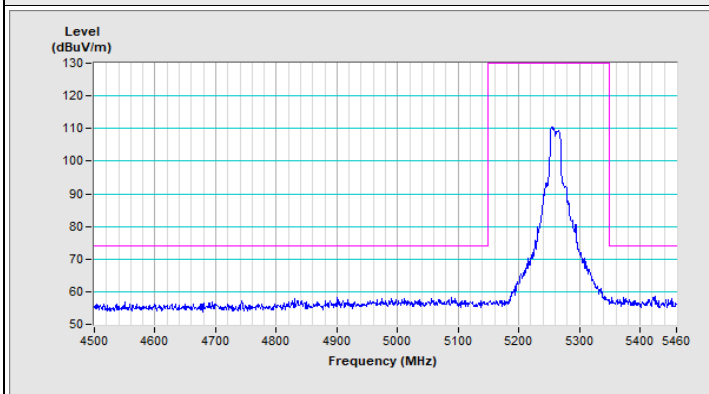


Vertical (Peak)

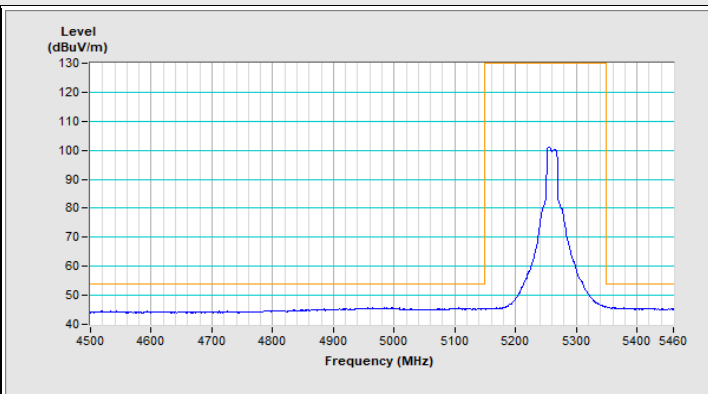


Vertical (Average)

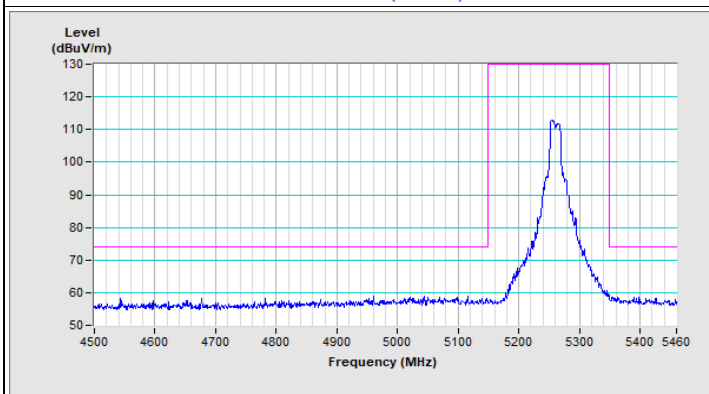
802.11a Channel 52



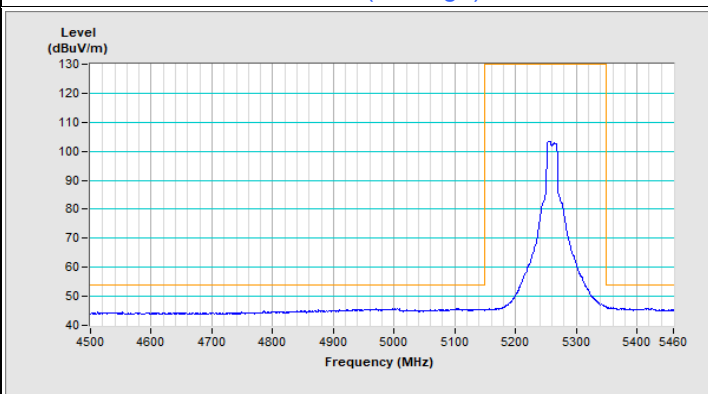
Horizontal (Peak)



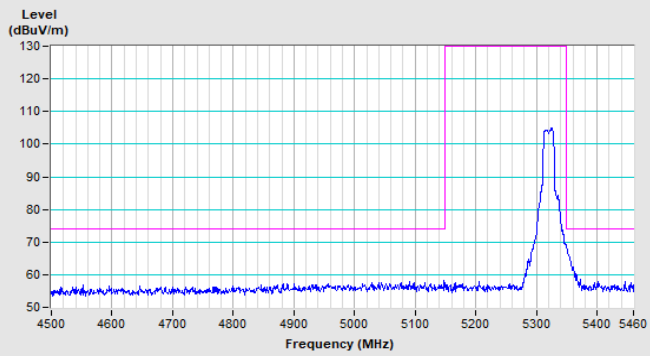
Horizontal (Average)



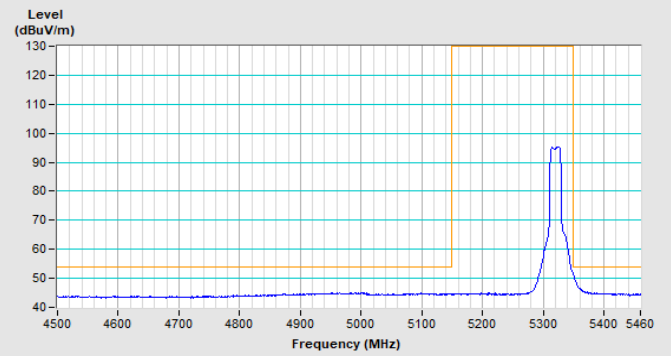
Vertical (Peak)



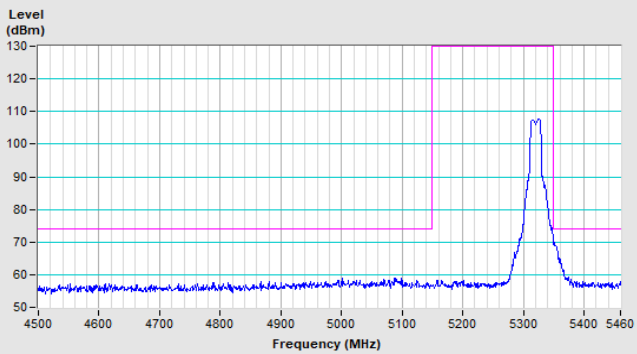
Vertical (Average)

802.11a Channel 64

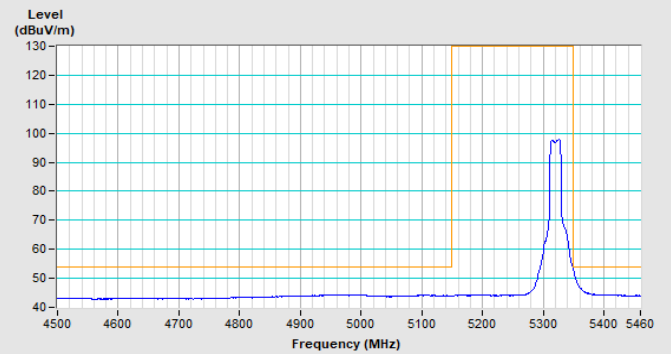
Horizontal (Peak)



Horizontal (Average)



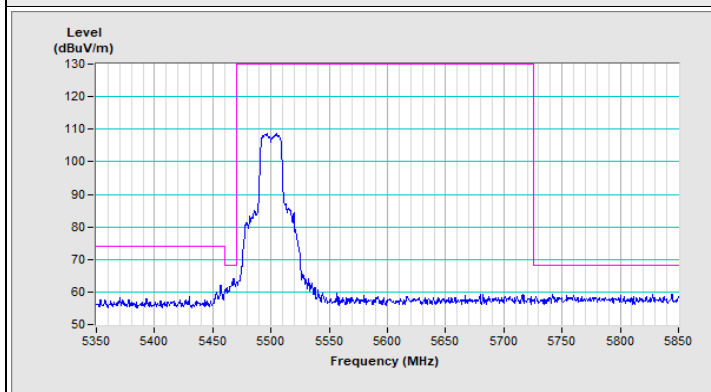
Vertical (Peak)



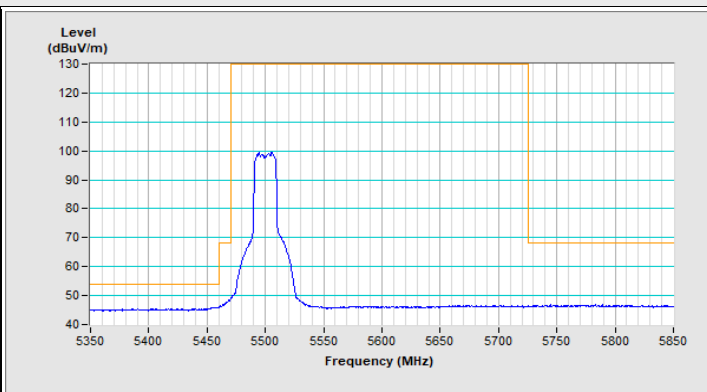
Vertical (Average)

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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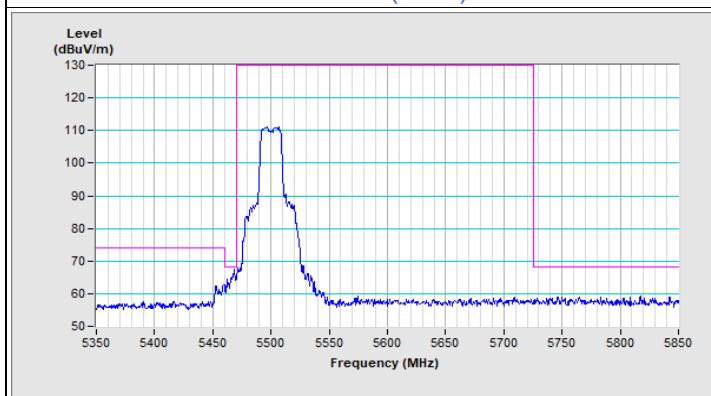
802.11a Channel 100



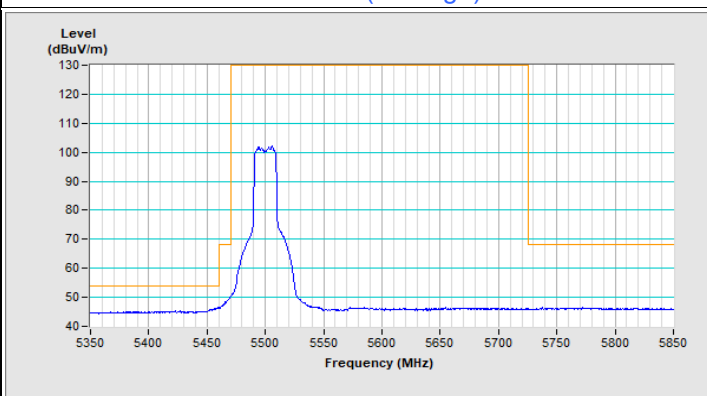
Horizontal (Peak)



Horizontal (Average)

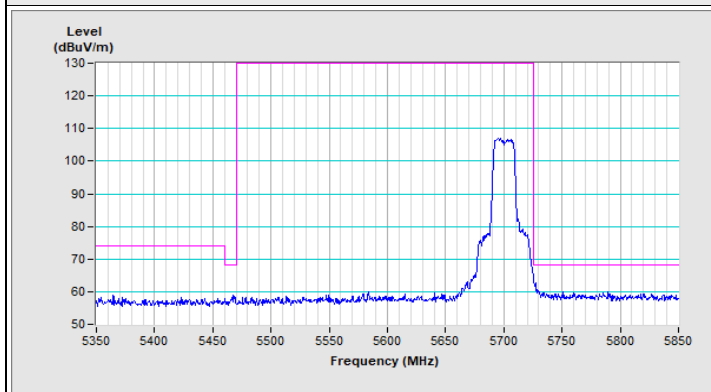


Vertical (Peak)

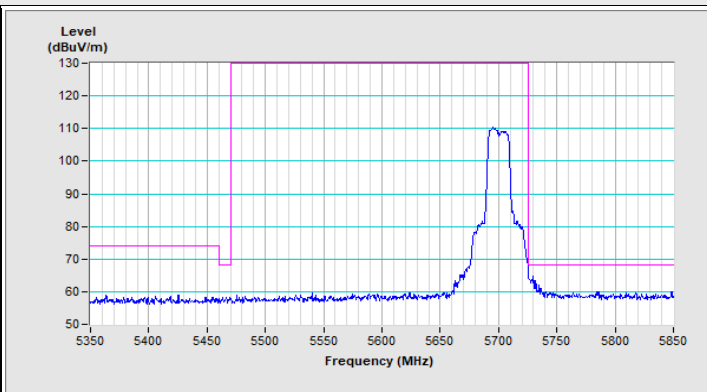


Vertical (Average)

802.11a Channel 140



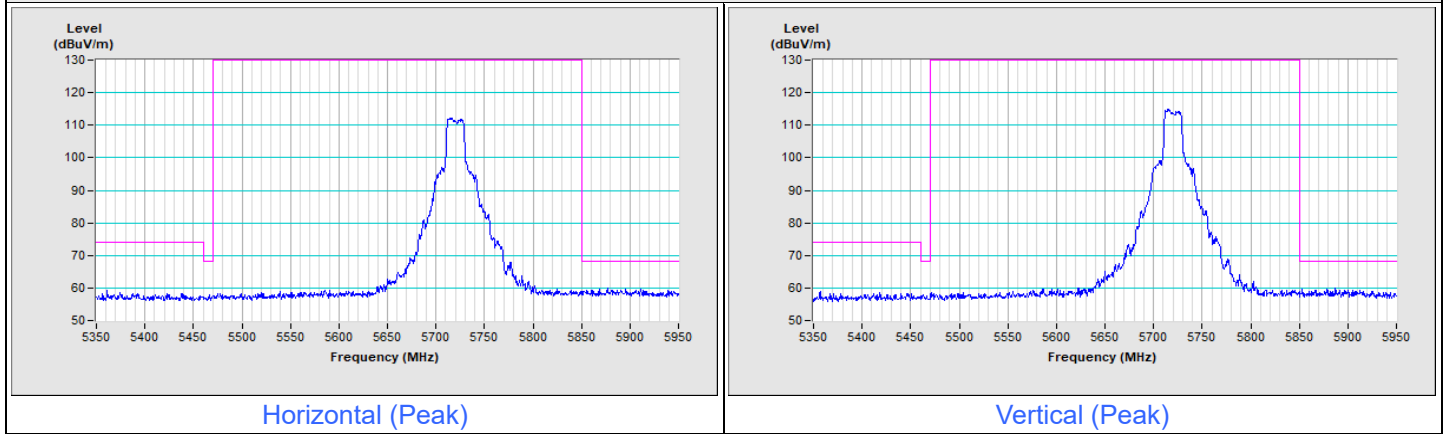
Horizontal (Peak)



Vertical (Peak)

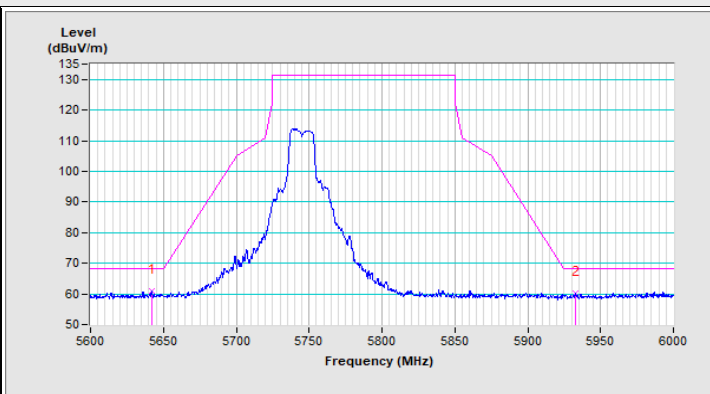
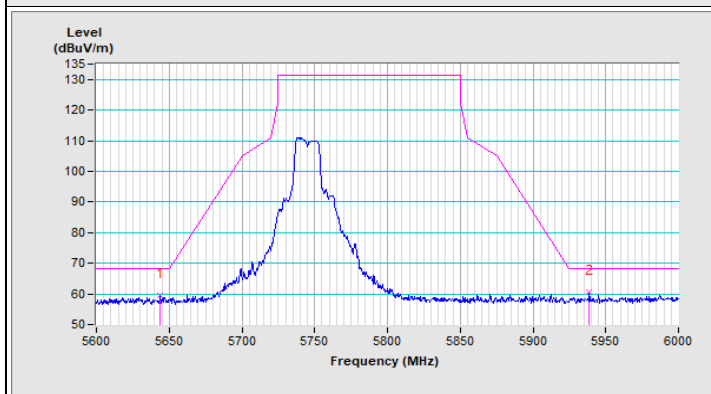
Frequency Range	5.35 GHz ~ 5.95 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak
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802.11a Channel 144

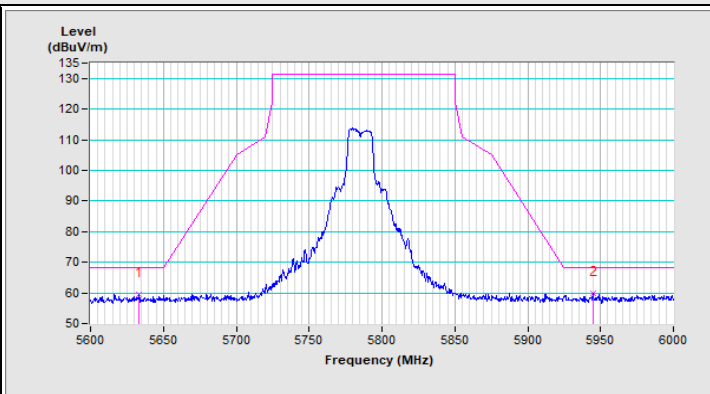
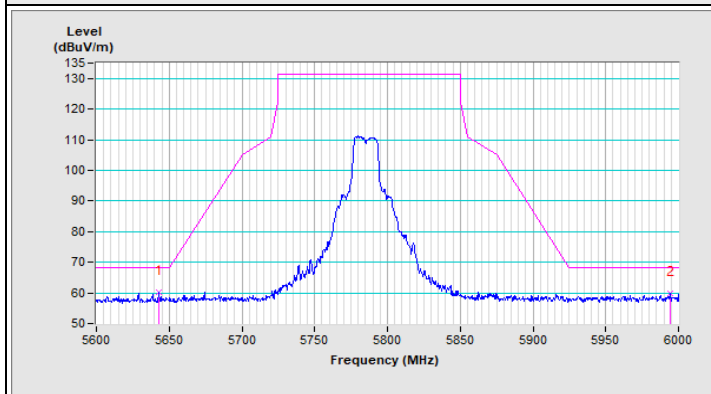


Frequency Range	5.6 GHz ~ 6 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak
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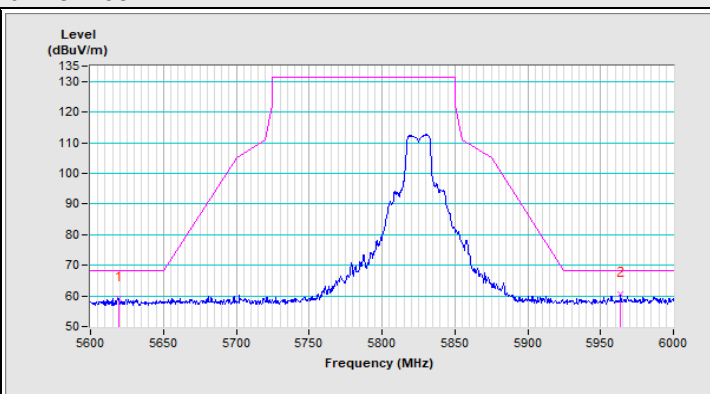
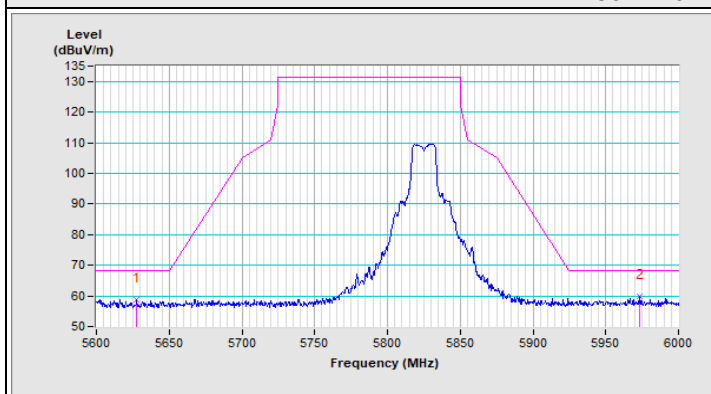
802.11a Channel 149



802.11a Channel 157

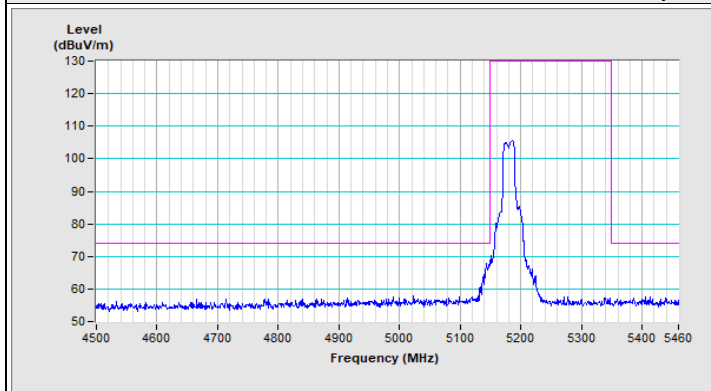


802.11a Channel 165

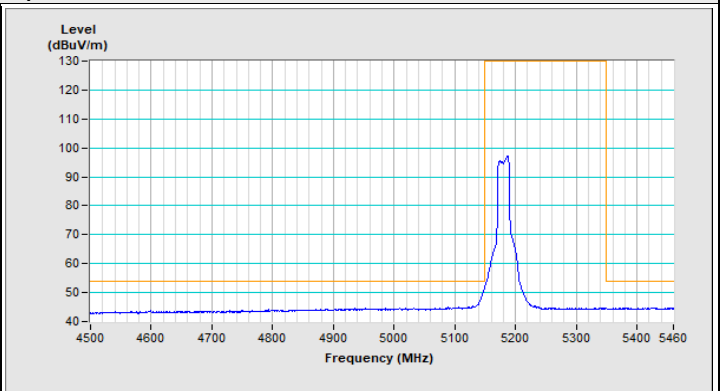


Frequency Range	4.5 GHz ~ 5.46 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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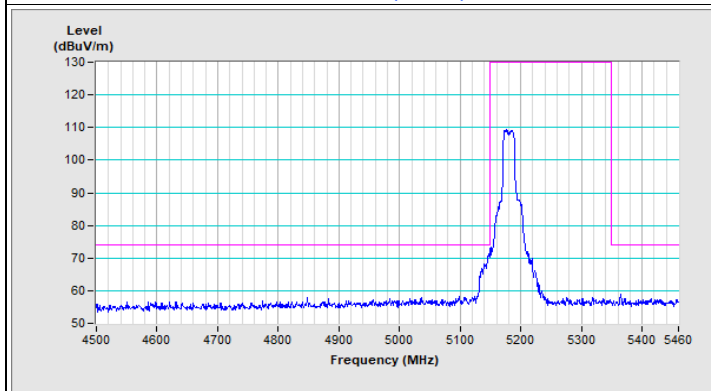
802.11ac (VHT20) Channel 36



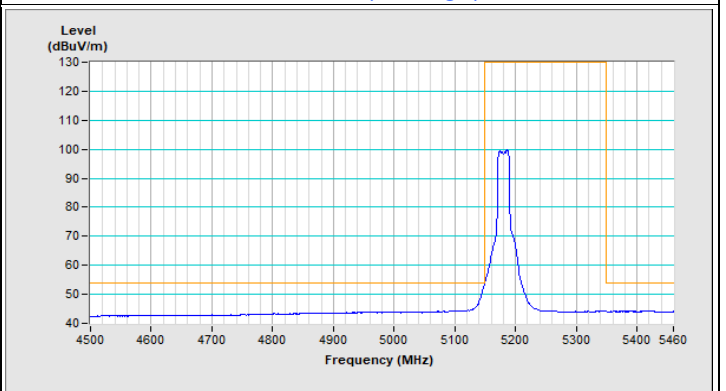
Horizontal (Peak)



Horizontal (Average)

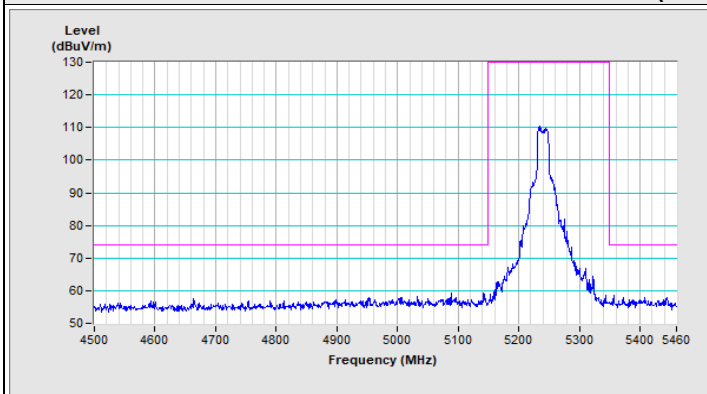


Vertical (Peak)

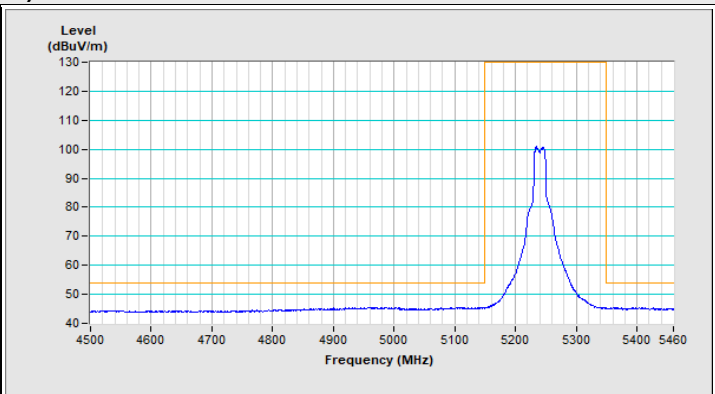


Vertical (Average)

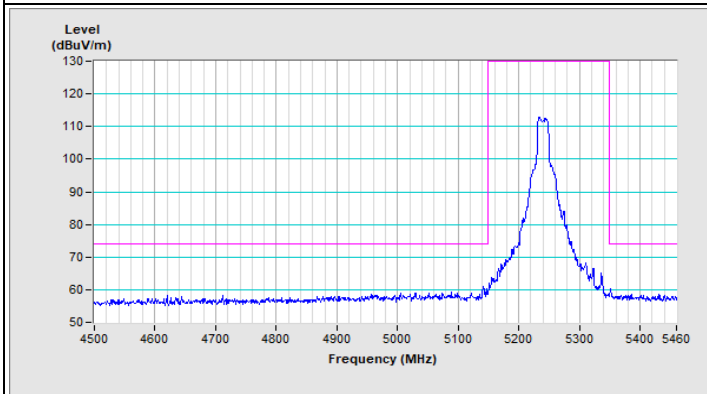
802.11ac (VHT20) Channel 48



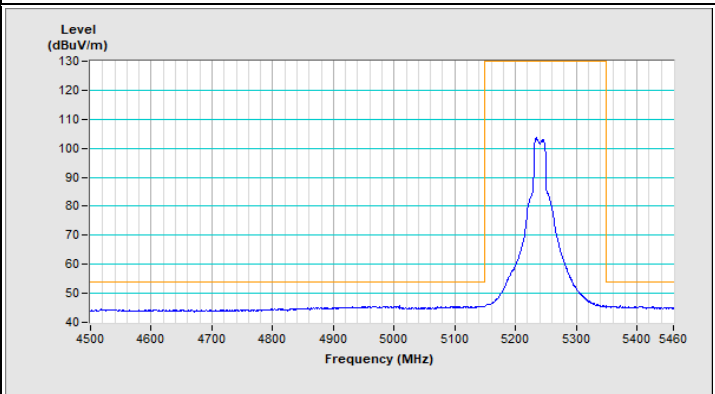
Horizontal (Peak)



Horizontal (Average)

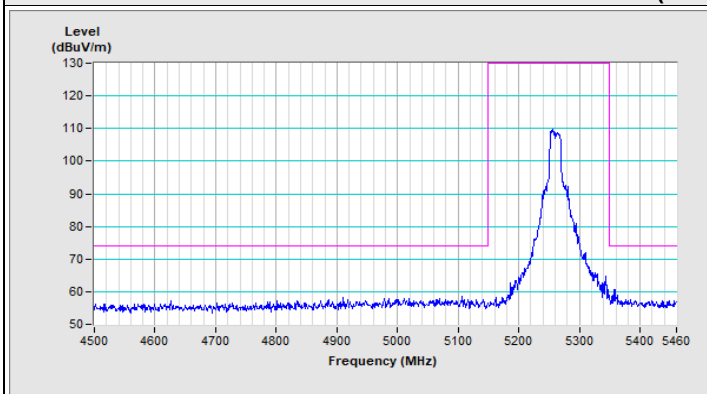


Vertical (Peak)

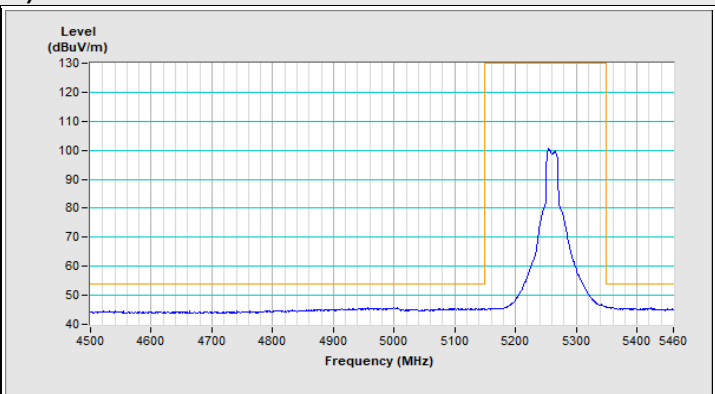


Vertical (Average)

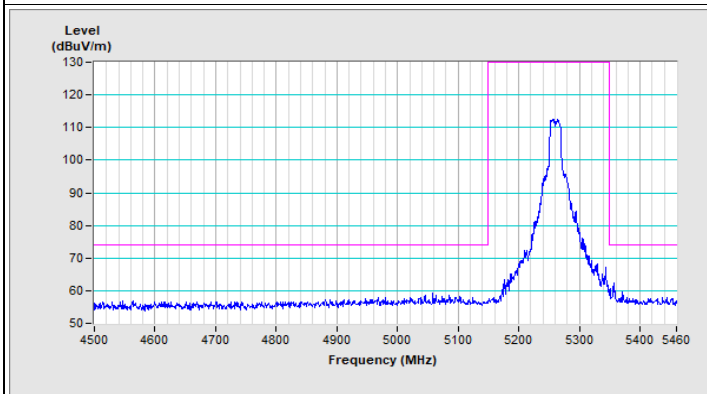
802.11ac (VHT20) Channel 52



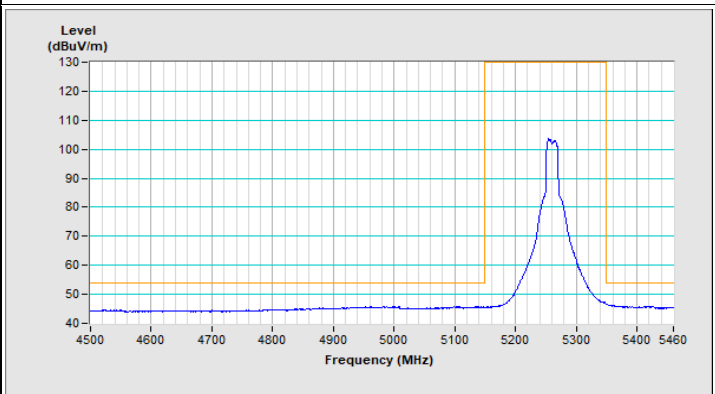
Horizontal (Peak)



Horizontal (Average)

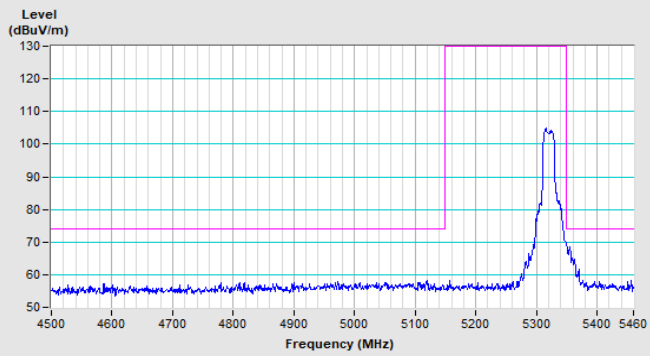


Vertical (Peak)

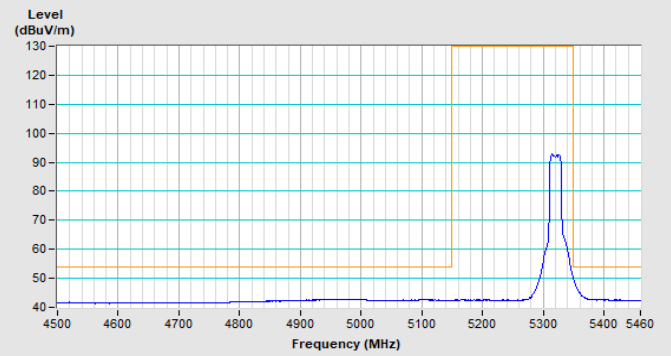


Vertical (Average)

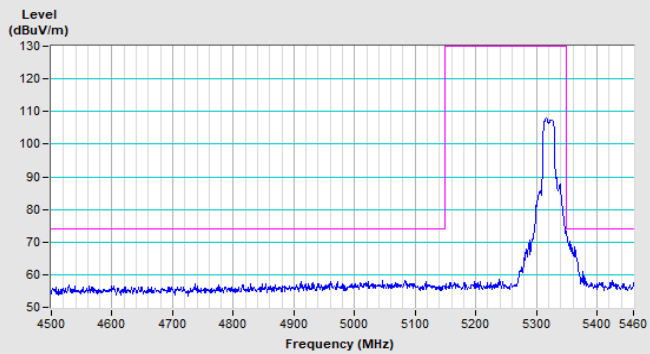
802.11ac (VHT20) Channel 64



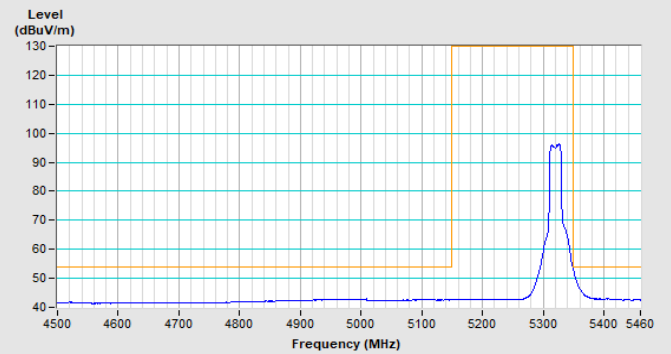
Horizontal (Peak)



Horizontal (Average)



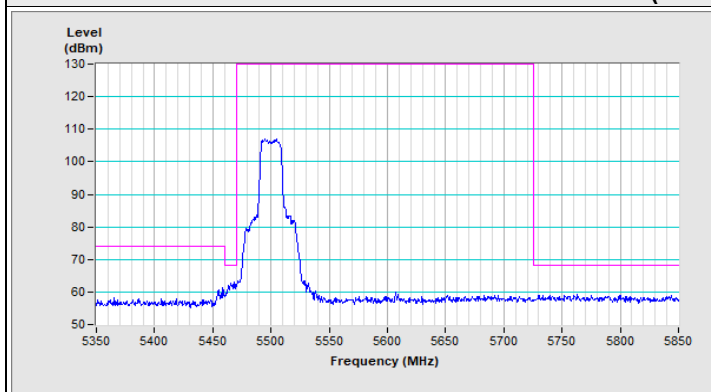
Vertical (Peak)



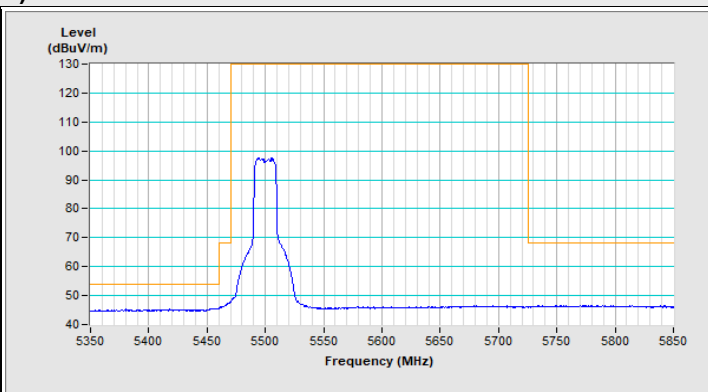
Vertical (Average)

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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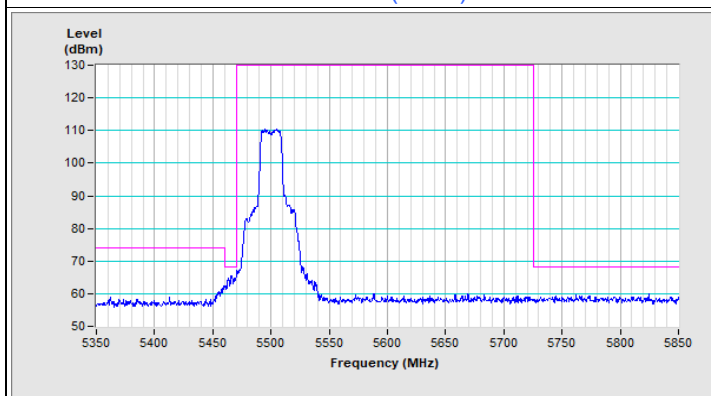
802.11ac (VHT20) Channel 100



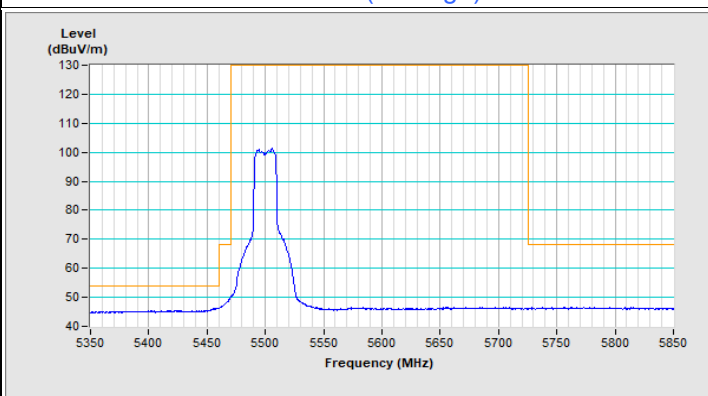
Horizontal (Peak)



Horizontal (Average)

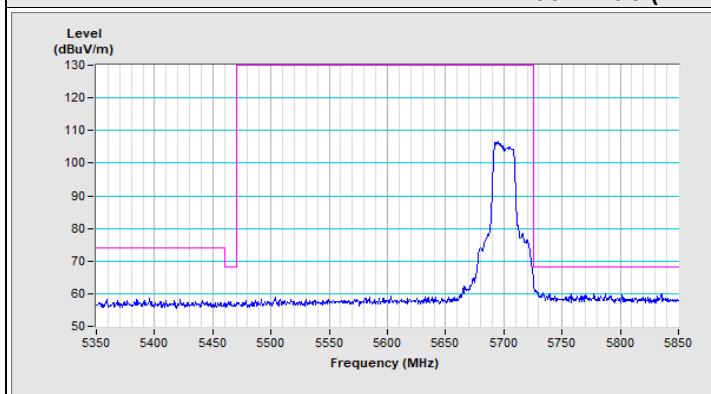


Vertical (Peak)

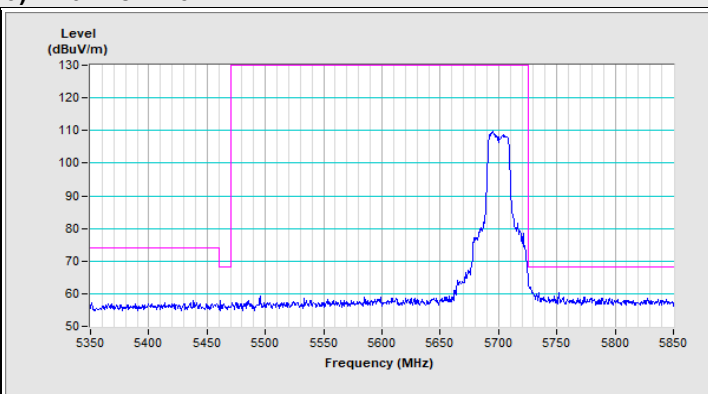


Vertical (Average)

802.11ac (VHT20) Channel 140



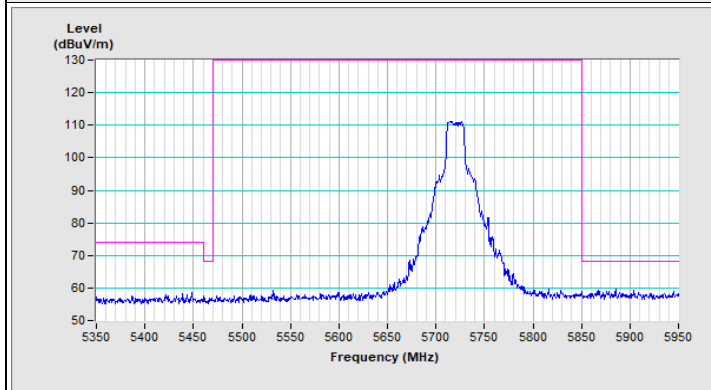
Horizontal (Peak)



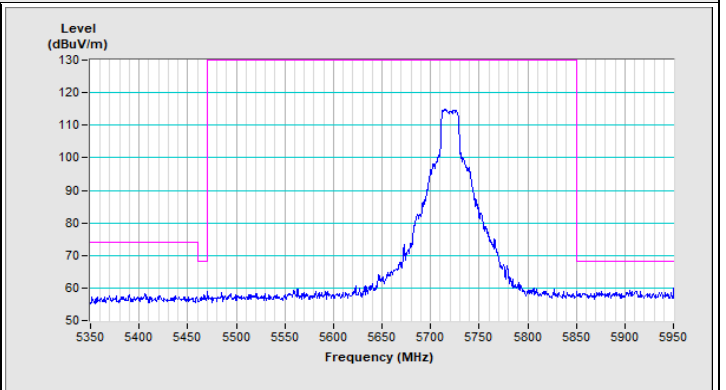
Vertical (Peak)

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



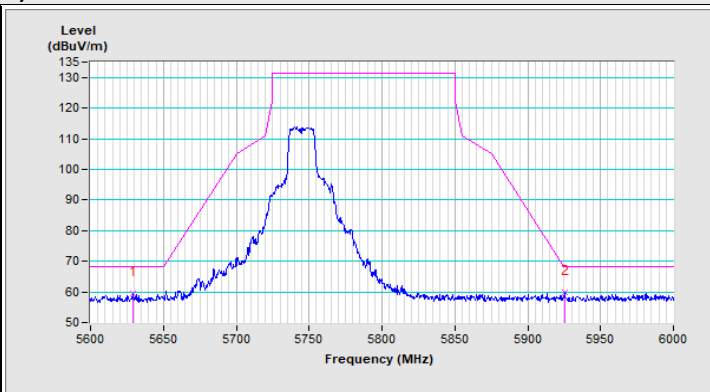
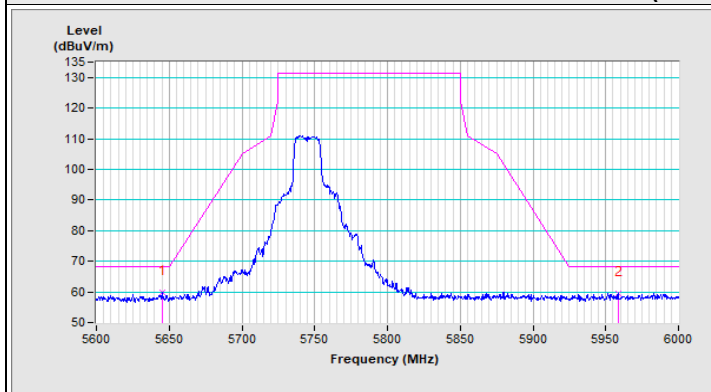
Horizontal (Peak)



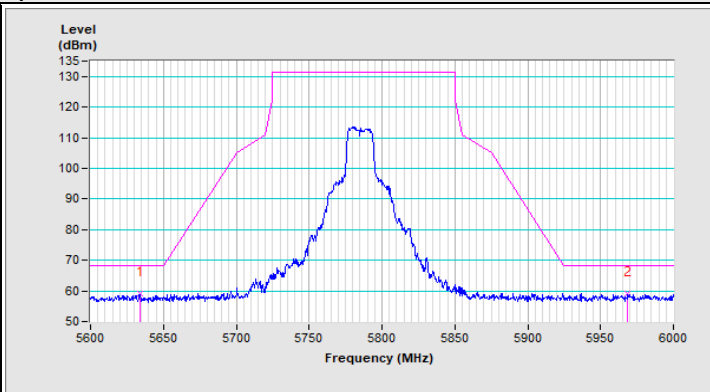
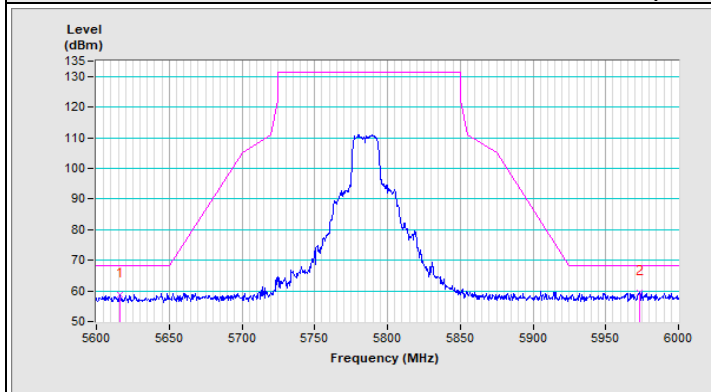
Vertical (Peak)

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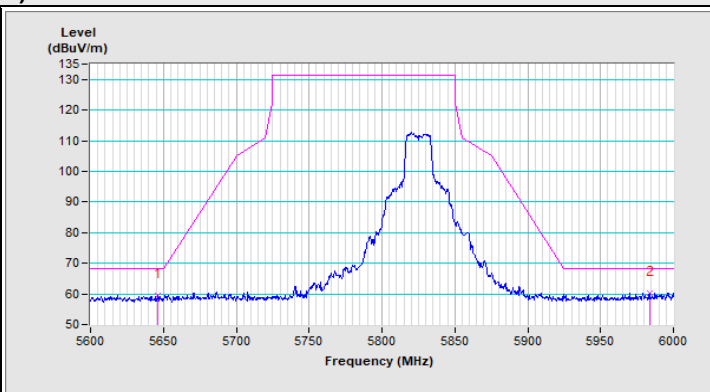
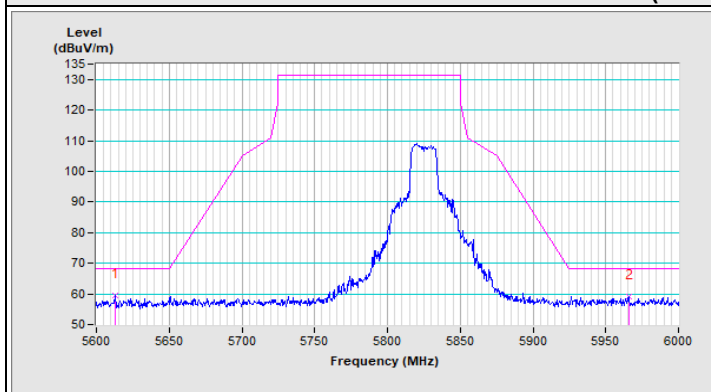
802.11ac (VHT20) Channel 149



802.11ac (VHT20) Channel 157



802.11ac (VHT20) Channel 165



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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Web Site: <http://ee.bureauveritas.com.tw>

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

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