TEST REPORT

CERTIFICATE OF CONFORMITY

Standard:	**47 CFR FCC Part 15, Subpart E (Section 15.407)**
Report No.:	RFBBQZ-WTW-P22060198-2
FCC ID:	PY322200567
Product:	WiFi 6 AX4200 Dual Band Multi-Gig Access Point
Brand:	NETGEAR
Model No.:	WAX220
Received Date:	2022/6/14
Test Date:	2022/9/1 ~ 2022/9/28
Issued Date:	2022/10/14
Applicant and Manufacturer:	NETGEAR, INC.
Address:	350 East Plumeria Drive San Jose CA 95134
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kewi Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

Approved by: Jeremy Lin , **Date:** **2022/10/14**

Jeremy Lin / Project Engineer

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Prepared by : Pettie Chen / Senior Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBBQZ-WTW-P22060198-2	Original release.	2022/10/14

1 Certificate

Product:	WiFi 6 AX4200 Dual Band Multi-Gig Access Point
Brand:	NETGEAR
Test Model:	WAX220
Sample Status:	Engineering sample
Applicant and Manufacturer:	NETGEAR, INC.
Test Date:	2022/9/1 ~ 2022/9/28
Standard:	47 CFR FCC Part 15, Subpart E (Section 15.407)
Measurement procedure:	ANSI C63.10-2013 KDB 291074 D02 EMC Measurement v01 KDB 789033 D02 General UNII Test Procedure New Rules v02r01 KDB 662911 D01 Multiple Transmitter Output v02r01

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

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
Clause	Test Item	Result	Remark
15.407(a)(3)	RF Output Power	Pass	Meet the requirement of limit.
15.407(a)(3)	Power Spectral Density	Pass	Meet the requirement of limit.
15.407(b)(9)	AC Power Conducted Emissions	Pass	Minimum passing margin is -15.89 dB at 0.15400 MHz
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -2.1 dB at 74.62 MHz
15.407(b) (5) 15.407(b) (10)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.3 dB at 5645.48 MHz
15.407(e)	6 dB Bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.403	Operational restrictions U-NII 4 devices	-	Declaration by applicant.
15.203	Antenna Requirement	Pass	Antenna connector is IPEX not a standard connector.

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

2.1 Measurement Uncertainty

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

Measurement	Specification	Expanded Uncertainty (k=2) (±)
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.99 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.59 dB
	30 MHz ~ 1 GHz	3.64 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	2.29 dB
	18 GHz ~ 40 GHz	2.29 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	WiFi 6 AX4200 Dual Band Multi-Gig Access Point
Brand	NETGEAR
Test Model	WAX220
Status of EUT	Engineering sample
Power Supply Rating	12 Vdc (adapter) 55.5 Vdc (POE)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6 Mbps 802.11n: up to 450 Mbps 802.11ac: up to 2340 Mbps 802.11ax: up to 3602.9 Mbps
Operating Frequency	5845 ~ 5885 MHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 3 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 2 802.11ac (VHT80), 802.11ax (HE80): 1 802.11ac (VHT160), 802.11ax (HE160): 1
EIRP	CDD Mode: 32.25dBm (1678.804mW) Beamforming Mode: 35.44dBm (3499.452mW)
EUT Category	Indoor access point

Note:

1. The EUT uses following accessories.

Adapter 1	
Brand	NETGEAR
Model	ADS-40FPA-12 12030EPCU-L /EPC-L
Part Number	332-11525-02
Input Power	100~120Vac ~60Mhz Max.1.0A
Output Power	12Vdc/2.5A
DC cable	1.8m DC cable without core

Adapter 2	
Brand	NETGEAR
Model	AD2067F10
Part Number	332-10797-02
Input Power	100~120Vac ~50/60Mhz Max.1.0A
Output Power	12Vdc/2.5A
DC cable	1.8m DC cable without core

POE (for support unit only)	
Brand	BUFFALO
Model	BIJ-POE-1P2GH
Input Power	100-240 Vac, 1.1 A, 50/60 Hz
Output Power	55.5 Vdc, 0.54 A

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

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna Type	PIFA		
Connector Type	IPEX		
Antenna Gain(dBi)	Chain 0	Chain 1	Chain 2
5845 ~ 5885MHz	4.40	4.30	4.49

* Detail antenna specification please refer to antenna datasheet or an antenna gain measurement report.

2. The EUT incorporates a MIMO function:

5 GHz Band		
Modulation Mode	TX & RX Configuration	
802.11a	3TX	3RX
802.11n (HT20)	3TX	3RX
802.11n (HT40)	3TX	3RX
802.11ac (VHT20)	3TX	3RX
802.11ac (VHT40)	3TX	3RX
802.11ac (VHT80)	3TX	3RX
802.11ac (VHT160)	3TX	3RX
802.11ax (HE20)	3TX	3RX
802.11ax (HE40)	3TX	3RX
802.11ax (HE80)	3TX	3RX
802.11ax (HE160)	3TX	3RX

Note:
1. All of modulation mode support beamforming function except 802.11a modulation mode.
2. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
3. The modulation and bandwidth are similar for 802.11n mode for 20 MHz (40 MHz), 802.11ac mode for 20 MHz (40 MHz, 80 MHz, 160MHz) and 802.11ax mode for 20 MHz (40 MHz, 80 MHz, 160MHz), therefore the manufacturer will control the power for 802.11n/ac mode is the same as the 802.11ax or more lower than it and investigated worst case to representative mode in test report.
4. The EUT device modulation technique OFDMA does not support partial RUs (resource units).

3.3 Channel List

FOR 5845 ~ 5885 MHz

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

Channel	Frequency	Channel	Frequency	Channel	Frequency
*169	5845 MHz	173	5865 MHz	177	5885 MHz

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

Channel	Frequency	Channel	Frequency
*167	5835 MHz	175	5875 MHz

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

Channel	Frequency
*171	5855 MHz

1 channel is provided for 802.11ac (VHT160), 802.11ax (HE160):

Channel	Frequency
*163	5815 MHz

Note: * U-NII-3 & -4 span channels.

3.4 Test Mode Applicability and Tested Channel Detail

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

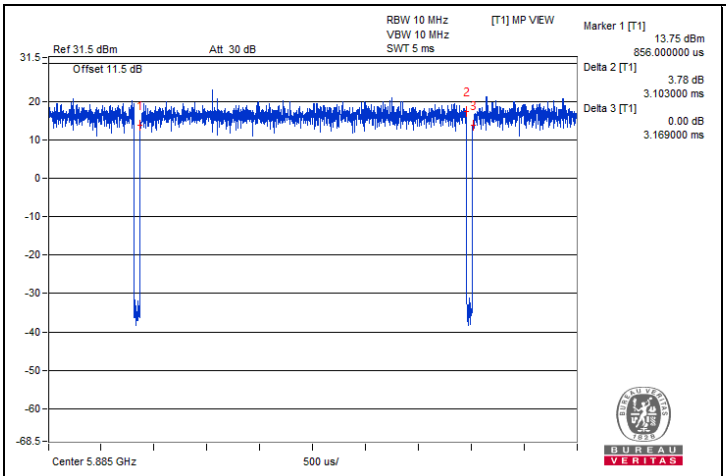
Following channel(s) was (were) selected for the final test as listed below:

Test Item	EUT Configure Mode	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power / Power Spectral Density	A	802.11a	CDD	169, 173, 177	BPSK	6Mb/s
		802.11ax (HE20)	CDD & Beamforming	169, 173, 177	BPSK	MCS0
		802.11ax (HE40)	CDD & Beamforming	167, 175	BPSK	MCS0
		802.11ax (HE80)	CDD & Beamforming	171	BPSK	MCS0
		802.11ax (HE160)	CDD & Beamforming	163	BPSK	MCS0
6 dB Bandwidth	A	802.11a	CDD	169, 173, 177	BPSK	6Mb/s
		802.11ax (HE20)	CDD	169, 173, 177	BPSK	MCS0
		802.11ax (HE40)	CDD	167, 175	BPSK	MCS0
		802.11ax (HE80)	CDD	171	BPSK	MCS0
		802.11ax (HE160)	CDD	163	BPSK	MCS0
Frequency Stability	A	802.11a	CDD	169	un-modulation	-
AC Power Conducted Emissions	A, B, C	802.11ax (HE40)	CDD	175	BPSK	MCS0
Unwanted Emissions below 1 GHz	A, B, C	802.11ax (HE40)	CDD	175	BPSK	MCS0
Unwanted Emissions above 1 GHz	A	802.11a	CDD	169, 173, 177	BPSK	6Mb/s
		802.11ax (HE20)	CDD	169, 173, 177	BPSK	MCS0
		802.11ax (HE40)	CDD	167, 175	BPSK	MCS0
		802.11ax (HE80)	CDD	171	BPSK	MCS0
		802.11ax (HE160)	CDD	163	BPSK	MCS0
EUT Configure Mode:	A	Powered by adapter 1				
	B	Powered by adapter 2				
	C	Powered by POE				

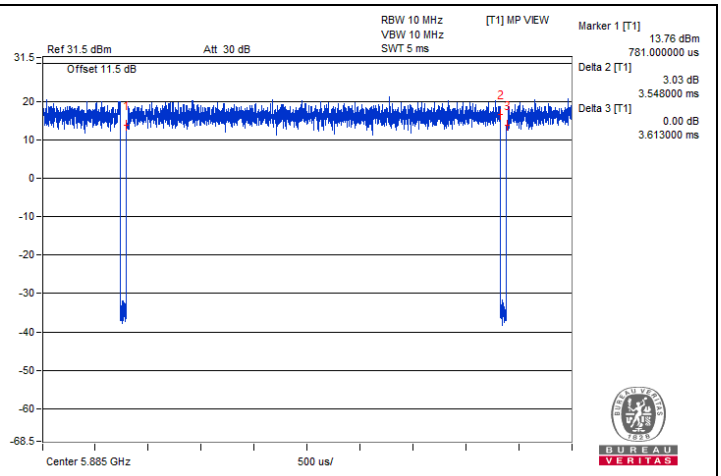
3.5 Duty Cycle of Test Signal

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

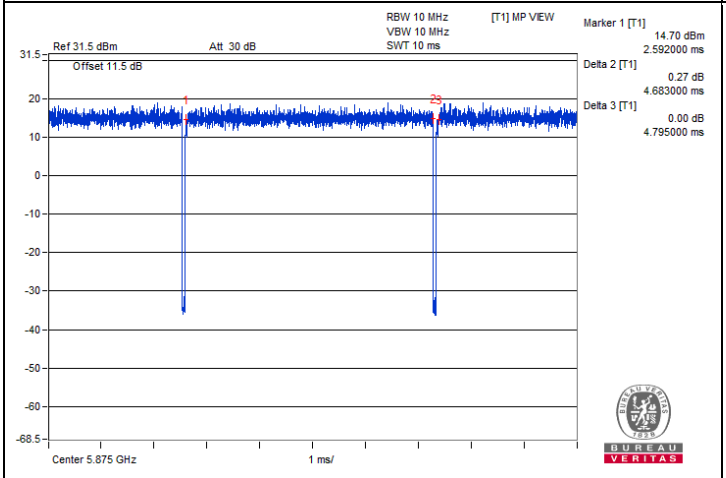
802.11a: Duty cycle = 3.103 ms / 3.169 ms x 100% = 97.9%, duty factor = 10 * log (1/Duty cycle) = 0.09 dB
802.11ax (HE20): Duty cycle = 3.548 ms / 3.613 ms x 100% = 98.2%
802.11ax (HE40): Duty cycle = 4.683 ms / 4.795 ms x 100% = 97.7%, duty factor = 10 * log (1/Duty cycle) = 0.10 dB
802.11ax (HE80): Duty cycle = 4.7 ms / 4.77 ms x 100% = 98.5%
802.11ax (HE160): Duty cycle = 5.135 ms / 5.198 ms x 100% = 98.8%



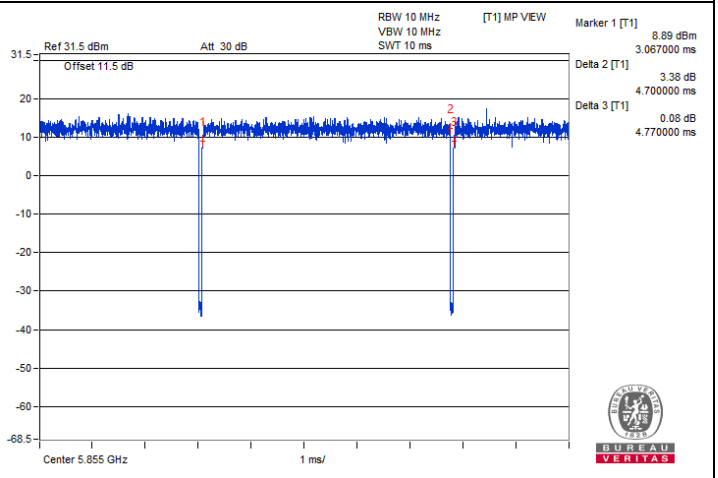
802.11a



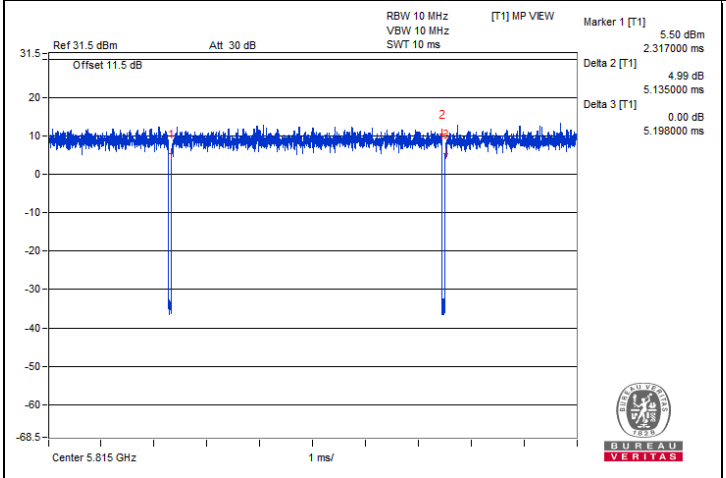
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



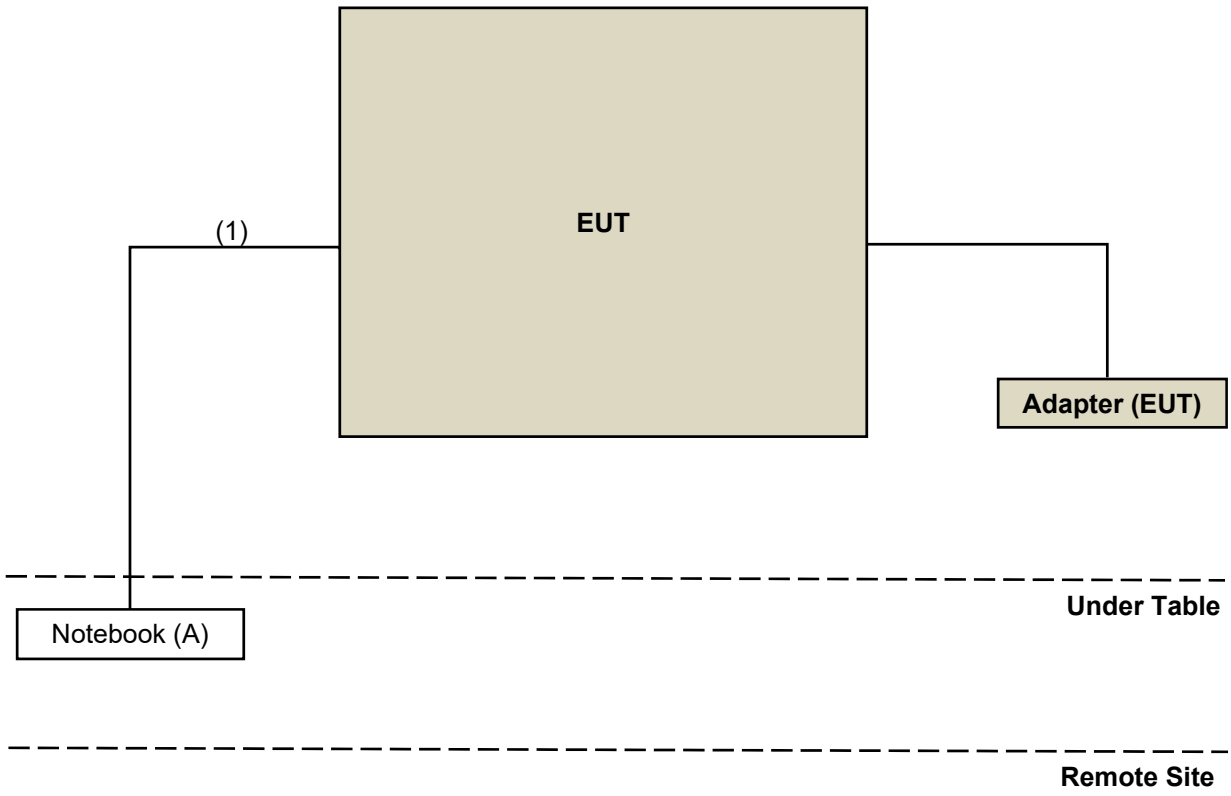
802.11ax (HE160)

3.6 Test Program Used and Operation Descriptions

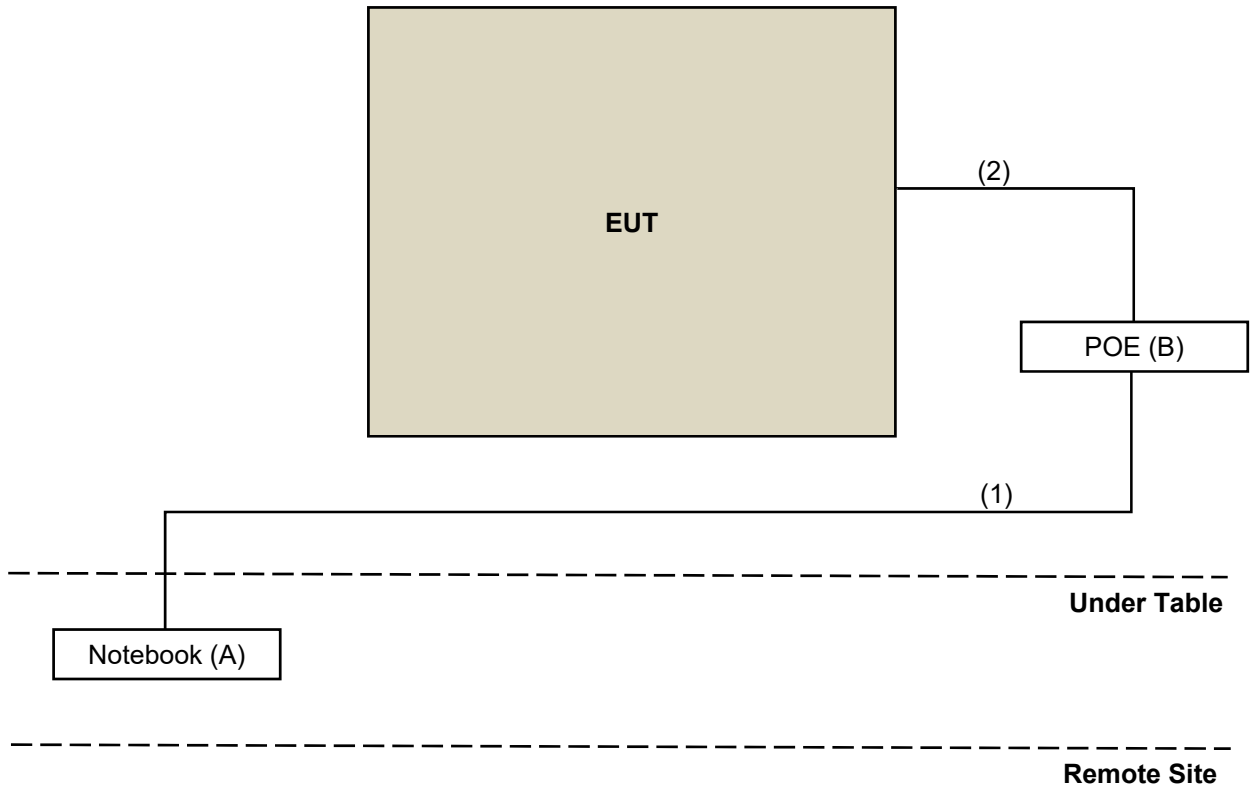
Controlling software (MT7986_0007 QA 0.0.2.87) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices

Test Mode A, B



Test Mode C



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Notebook	DELL	E5430	2RL3YW1	N/A	Provided by Lab
B	POE	Buffalo	BIJ-POE-1P2GH	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	RJ-45 Cable	1	10	N/A	N/A	N/A
2	RJ-45 Cable	1	1.5	N/A	N/A	N/A

4 Test Instruments

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

4.1 RF Output Power

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

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2022/9/27

4.2 Power Spectral Density

Refer to section 4.1 to get information of the instruments.

4.3 6 dB Bandwidth

Refer to section 4.1 to get information of the instruments.

4.4 Frequency Stability

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
AC Power Source ExTech	CFW-105	E000603	N/A	N/A
Digital Multimeter Fluke	87-III	70360742	2022/6/23	2023/6/22
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	100979	2022/3/25	2023/3/24
Temperature & Humidity Chamber TERCHY	HRM-120RF	931022	2022/1/3	2023/1/2

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2022/9/27

4.5 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
DC-LISN SCHWARZBECK MESS-ELETRONIK	NNBM 8126G	8126G-069	2021/11/10	2022/11/9
LISN R&S	ESH3-Z5	100220	2021/11/25	2022/11/24
LISN ROHDE & SCHWARZ	ENV216	101826	2022/3/14	2023/3/13
RF Coaxial Cable WOKEN	5D-FB	Cable-cond1-01	2022/1/15	2023/1/14
Software BVADT	BVADT_Cond_ V7.3.7.4	N/A	N/A	N/A
Test Receiver Rohde&Schwarz	ESCI	100613	2021/12/3	2022/12/2
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2022/8/31	2023/8/30

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2022/9/22

4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower inn-co GmbH	MA 4000	010303	N/A	N/A
Bi_Log Antenna Schwarbeck	VULB9168	9168-155	2021/11/1	2022/10/31
Loop Antenna EMCI	EM-6879	269	2022/9/19	2023/9/18
Loop Antenna TESEQ	HLA 6121	45745	2022/7/27	2023/7/26
Pre_Amplifier Agilent	8447D	2944A10631	2022/5/14	2023/5/13
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	2022/1/15	2023/1/14
RF Coaxial Cable WOKEN	8D-FB	Cable-CH4-01	2022/7/9	2023/7/8
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Spectrum Analyzer R&S	FSW43	101582	2022/4/13	2023/4/12
Test Receiver R&S	ESCI	100424	2021/12/30	2022/12/29
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 3.
2. Tested Date: 2022/9/22

4.7 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower inn-co GmbH	MA 4000	010303	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	5	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9170	BBHA9170241	2021/10/26	2022/10/25
Horn Antenna Schwarzbeck	9120D	9120D-1170	2021/11/14	2022/11/13
Pre-Ammlifier EMCI	EMC 184045	980116	2021/10/5	2022/10/4
Pre_Amplifier KEYSIGHT	83017A	MY53270295	2022/5/14	2023/5/13
RF cable HUBER+SUHNER	Sucoflex 104	MY 13380+295012/04	2022/5/14	2023/5/13
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03(250724)	2022/5/14	2023/5/13
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2022/7/9	2023/7/8
	EMC102-KM-KM-3000	150929	2022/7/9	2023/7/8
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Spectrum Analyzer R&S	FSW43	101582	2022/4/13	2023/4/12
Test Receiver R&S	ESCI	100424	2021/12/30	2022/12/29
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 3.
2. Tested Date: 2022/9/1

5 Limits of Test Items

5.1 RF Output Power

Device Category	Limit (Max Average Power)
Indoor access point	EIRP 36 dBm
Subordinate device	EIRP 36 dBm
Client device	EIRP 30 dBm
Note: For all U-NII-4 and U-NII-3 & -4 span channels shall met above EIRP values.	

Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

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

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

5.2 Power Spectral Density

Device Category	Limit
Indoor access point	EIRP 20 dBm/MHz
Subordinate device	EIRP 20 dBm/MHz
Client device	EIRP 14 dBm/MHz
Note: For all U-NII-4 and U-NII-3 & -4 span channels shall met above EIRP values.	

5.3 6 dB Bandwidth

Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

5.4 Frequency Stability

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

5.5 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.

5.6 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).

5.7 Unwanted Emissions above 1 GHz

(i) For an indoor access point or subordinate device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of 15 dBm/MHz and shall decrease linearly to an e.i.r.p. of −7 dBm/MHz at or above 5.925 GHz.

(ii) For a client device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of −5 dBm/MHz and shall decrease linearly to an e.i.r.p. of −27 dBm/MHz at or above 5.925 GHz.

(iii) For a client device or indoor access point or subordinate device, all emissions below 5.725 GHz shall not exceed an e.i.r.p. of −27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz.

Note:

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

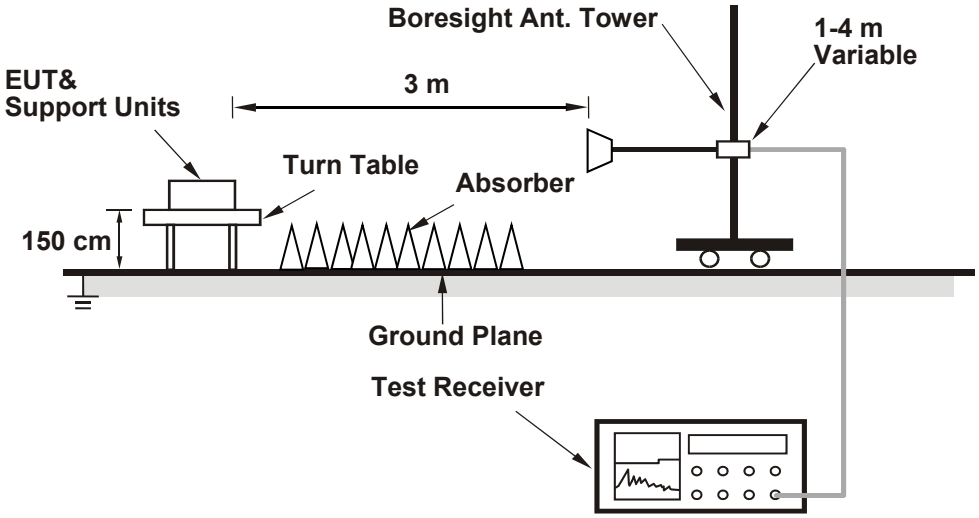
$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts).

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup

Radiated Measurement Method



6.1.2 Test Procedure

Radiated Measurement Method

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

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

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

d. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP level.

e. Follow ANSI C63.10 section 12.7.3, EIRP Value (dBm) = Field Strength Value (dBuV / m) + Correction Factor @ 3 m.

f. Correction Factor (dB) @ 3 m = 20log(D) – 104.77; where D is the measurement distance @3 m = -95.23 dB

Spectrum analyzer setting as below:
Method SA-1

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.

b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS

c. Sweep points ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)

d. Sweep time = auto, trigger set to “free run”.

e. Trace average at least 100 traces in power averaging mode.

f. Record the max value

Radiated Measurement Method

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

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

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

d. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP level.

e. Follow ANSI C63.10 section 12.7.3, EIRP Value (dBm) = Field Strength Value (dBuV / m) + Correction Factor @ 3 m.

f. Correction Factor (dB) @ 3 m = 20log(D) – 104.77; where D is the measurement distance @3 m = -95.23 dB

Spectrum analyzer setting as below:

Method SA-2

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.

b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS

c. Sweep time = auto, trigger set to “free run”.

d. Sweep points ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)

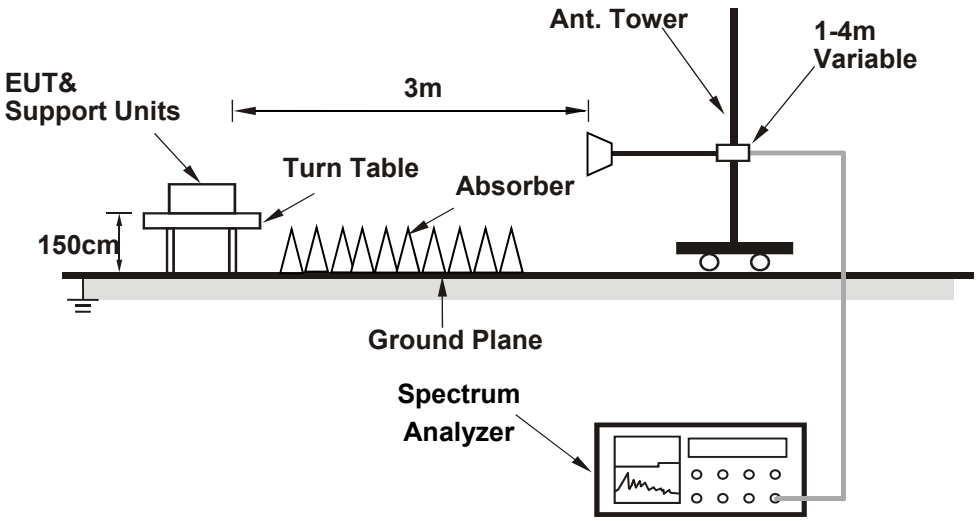
e. Trace average at least 100 traces in power averaging mode.

f. Use the peak search function on the instrument to find the peak of the spectrum and record its value.

g. Record the max value and add 10 log (1/duty cycle).

6.2 Power Spectral Density

6.2.1 Test Setup



6.2.2 Test Procedure

Radiated Measurement Method

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

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

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

d. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP level.

e. Follow ANSI C63.10 section 12.7.3, EIRP Value (dBm) = Field Strength Value (dBuV / m) + Correction Factor @ 3 m.

f. Correction Factor (dB) @ 3 m = 20log(D) – 104.77; where D is the measurement distance @3 m = -95.23 dB

Spectrum analyzer setting as below:
Method SA-1

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.

b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS

c. Sweep points ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)

d. Sweep time = auto, trigger set to “free run”.

e. Trace average at least 100 traces in power averaging mode.

f. Record the max value.

Radiated Measurement Method

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

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

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

d. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP level.

e. Follow ANSI 63.10 section 12.7.3, EIRP Value (dBm) = Field Strength Value (dBμV/m) + Correction Factor @ 3m.

f. Correction Factor (dB) @ 3m = 20log(D) − 104.7; where D is the measurement distance @3m=-95.23dB

Spectrum analyzer setting as below:
Method SA-2

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.

b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS

c. Sweep time = auto, trigger set to “free run” (duty cycle ≥ 98 percent); Set video trigger (duty cycle < 98 percent).

d. Sweep points ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)

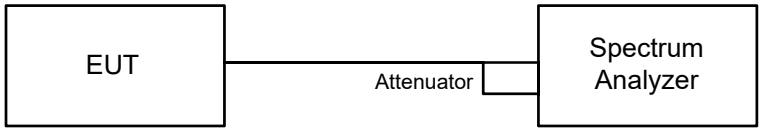
e. Trace average at least 100 traces in power averaging mode.

f. Use the peak search function on the instrument to find the peak of the spectrum and record its value.

g. Record the max value and add 10 log (1/duty cycle).

6.3 6 dB Bandwidth

6.3.1 Test Setup

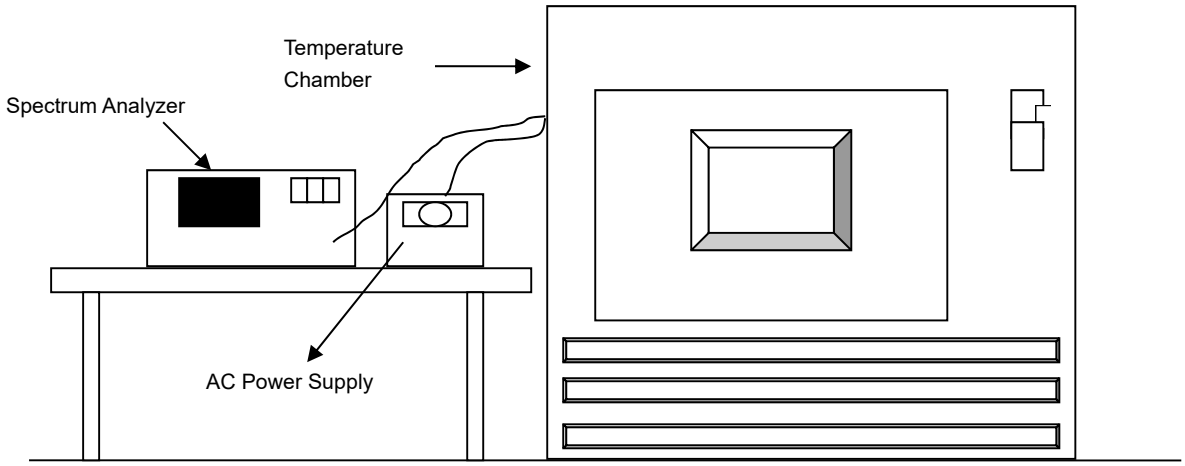


6.3.2 Test Procedure

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

6.4 Frequency Stability

6.4.1 Test Setup

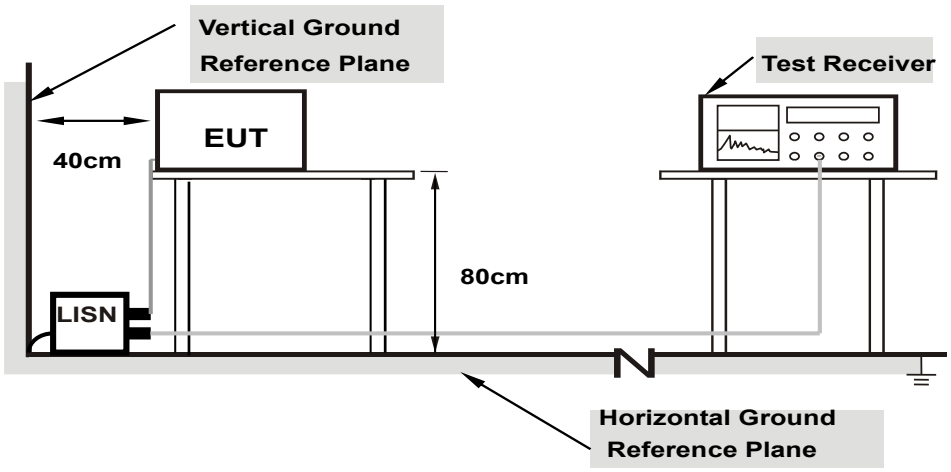


6.4.2 Test Procedure

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

6.5 AC Power Conducted Emissions

6.5.1 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).

6.5.2 Test Procedure

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

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

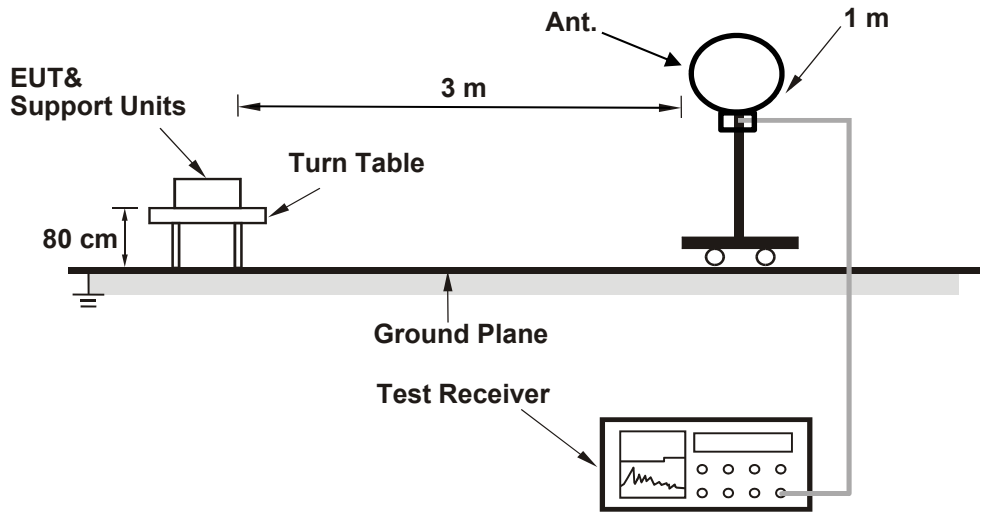
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

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

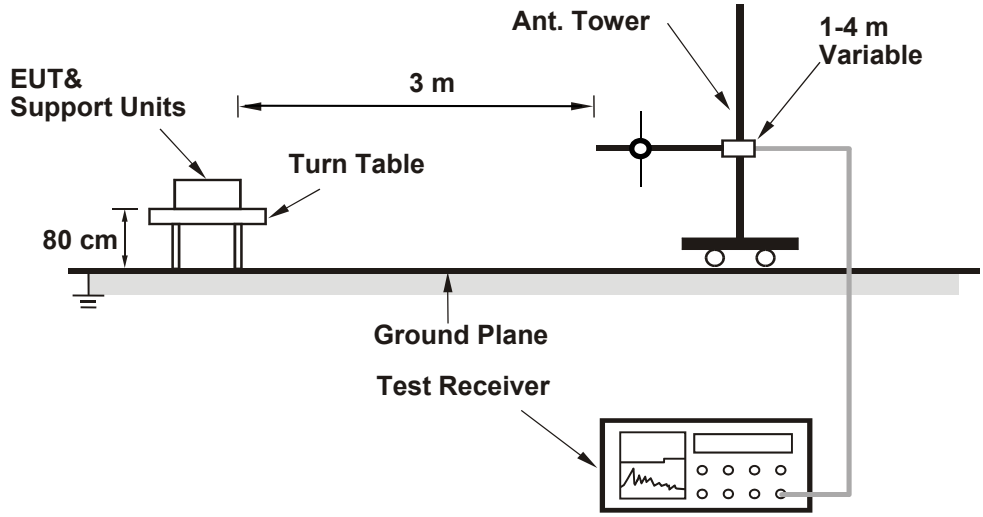
6.6 Unwanted Emissions below 1 GHz

6.6.1 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).

6.6.2 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.

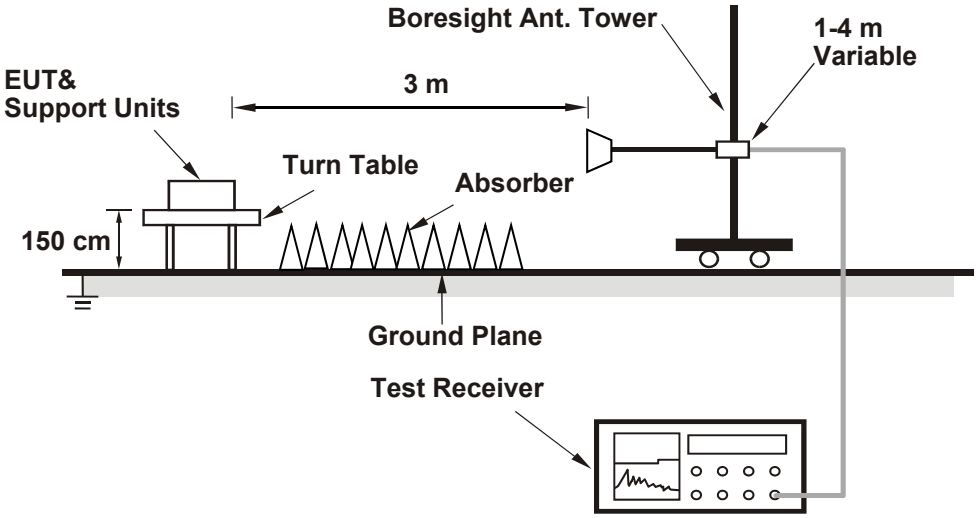
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

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.

6.7 Unwanted Emissions above 1 GHz

6.7.1 Test Setup



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

6.7.2 Test Procedure

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

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

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

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

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

Notes:

1. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection (AV) at frequency above 1 GHz.
2. For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10 Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1 GHz.
3. For OOBE and spurious emission measurements, the emission level -27 dBm EIRP limit can be met using a peak detector without retesting with an RMS detector.
4. All modes of operation were investigated and the worst-case emissions are reported.

7 Test Results of Test Item

7.1 RF Output Power

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Ivan Tseng

802.11a CDD

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
169	5845	126.46	-95.23	1327.394	31.23	36	Pass
173	5865	126.02	-95.23	1199.499	30.79	36	Pass
177	5885	125.75	-95.23	1127.197	30.52	36	Pass

*The duty factor is included in the field strength.

802.11ax (HE20) CDD

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
169	5845	125.64	-95.23	1099.006	30.41	36	Pass
173	5865	125.44	-95.23	1049.542	30.21	36	Pass
177	5885	125.52	-95.23	1069.055	30.29	36	Pass

802.11ax (HE40) CDD

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
167	5835	127.39	-95.23	1644.372	32.16	36	Pass
175	5875	127.48	-95.23	1678.804	32.25	36	Pass

*The duty factor is included in the field strength.

802.11ax (HE80) CDD

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
171	5855	125.27	-95.23	1009.253	30.04	36	Pass

802.11ax (HE160) CDD

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
163	5815	119.66	-95.23	277.332	24.43	36	Pass

802.11ax (HE20) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
169	5845	128.95	-95.23	2355.049	33.72	36	Pass
173	5865	128.75	-95.23	2249.055	33.52	36	Pass
177	5885	128.73	-95.23	2238.721	33.50	36	Pass

802.11ax (HE40) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
167	5835	130.67	-95.23	3499.452	35.44	36	Pass
175	5875	130.63	-95.23	3467.369	35.40	36	Pass

*The duty factor is included in the field strength.

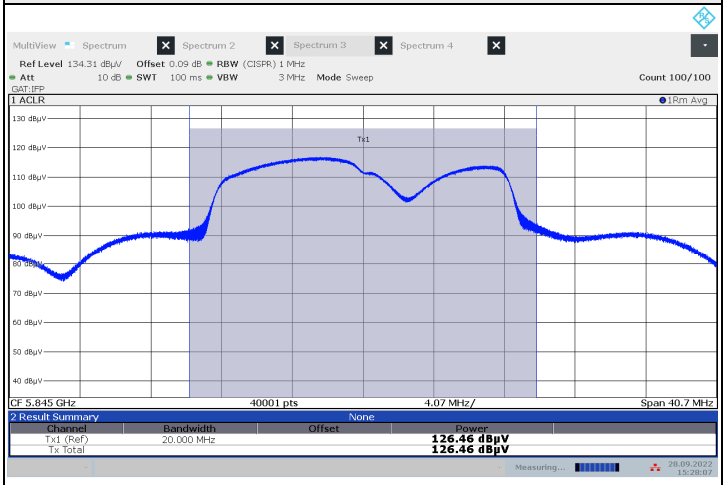
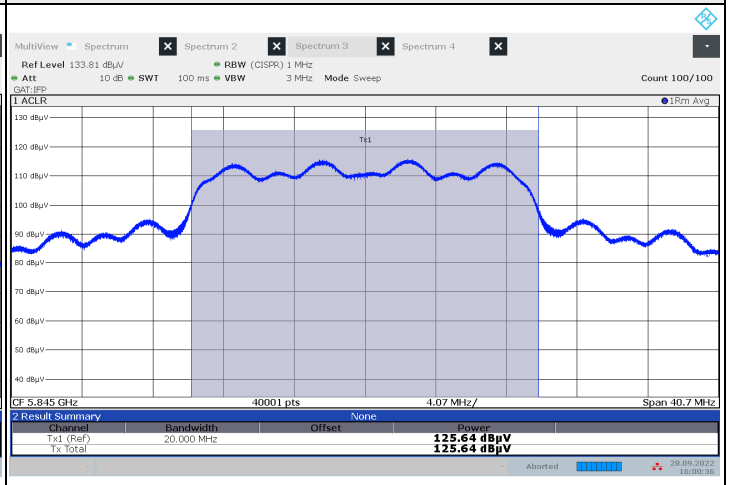
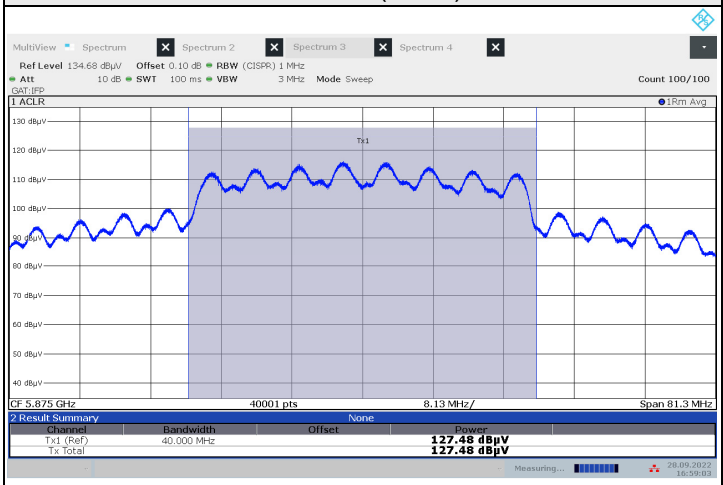
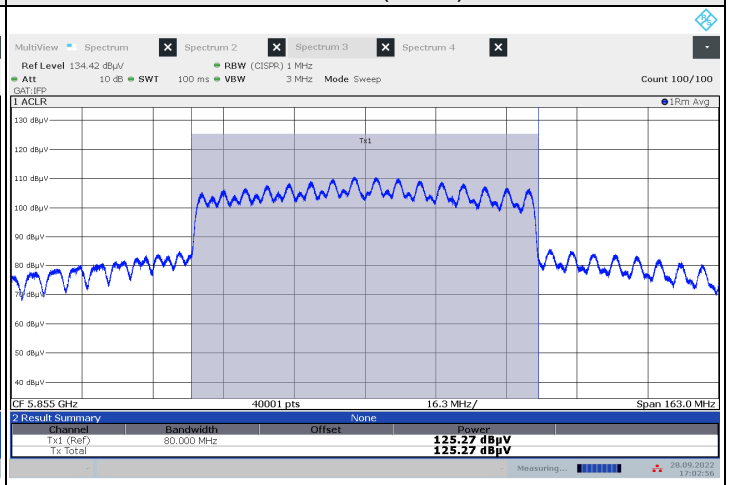
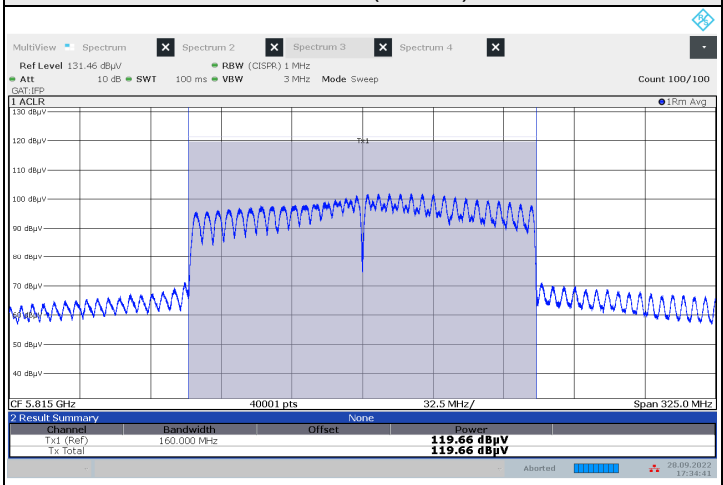
802.11ax (HE80) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
171	5855	128.25	-95.23	2004.472	33.02	36	Pass

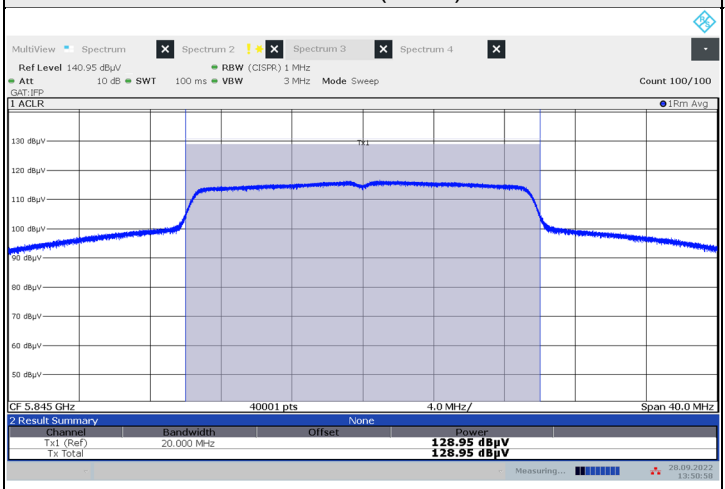
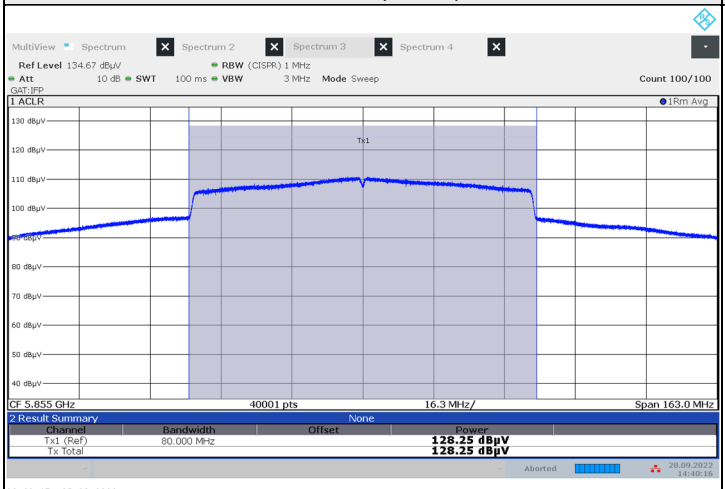
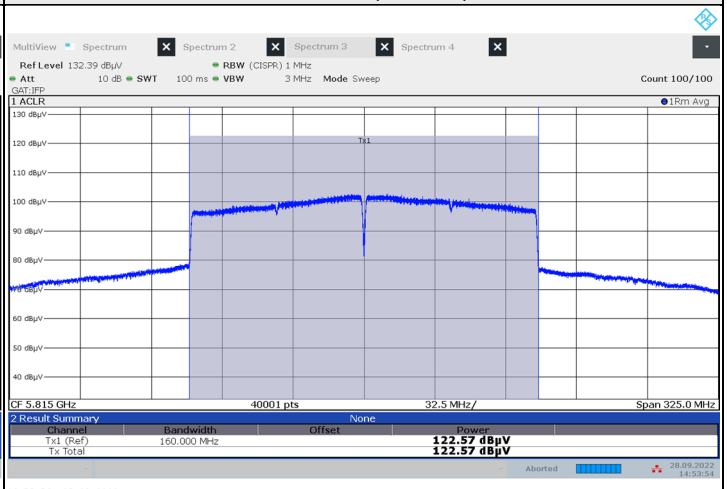
802.11ax (HE160) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
163	5815	122.57	-95.23	542.001	27.34	36	Pass

CDD

Spectrum Plot of Worst Value	
802.11a	802.11ax (HE20)
	
802.11ax (HE40)	802.11ax (HE80)
	
802.11ax (HE160)	
	

Beamforming

Spectrum Plot of Worst Value	
802.11ax (HE20)	802.11ax (HE40)
	
802.11ax (HE80)	802.11ax (HE160)
	

7.2 Power Spectral Density

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Ivan Tseng

802.11a CDD

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
169	5845	115.03	-95.23	19.80	20	Pass
173	5865	115.22	-95.23	19.99	20	Pass
177	5885	115.19	-95.23	19.96	20	Pass

*The duty factor is included in the field strength.

802.11ax (HE20) CDD

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
169	5845	115.03	-95.23	19.80	20	Pass
173	5865	115.05	-95.23	19.82	20	Pass
177	5885	115.14	-95.23	19.91	20	Pass

802.11ax (HE40) CDD

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
167	5835	115.01	-95.23	19.78	20	Pass
175	5875	115.04	-95.23	19.81	20	Pass

*The duty factor is included in the field strength.

802.11ax (HE80) CDD

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
171	5855	110.07	-95.23	14.84	20	Pass

802.11ax (HE160) CDD

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
163	5815	100.96	-95.23	5.73	20	Pass

802.11ax (HE20) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
169	5845	115.03	-95.23	19.80	20	Pass
173	5865	115.12	-95.23	19.89	20	Pass
177	5885	115.02	-95.23	19.79	20	Pass

802.11ax (HE40) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
167	5835	114.85	-95.23	19.62	20	Pass
175	5875	114.82	-95.23	19.59	20	Pass

*The duty factor is included in the field strength.

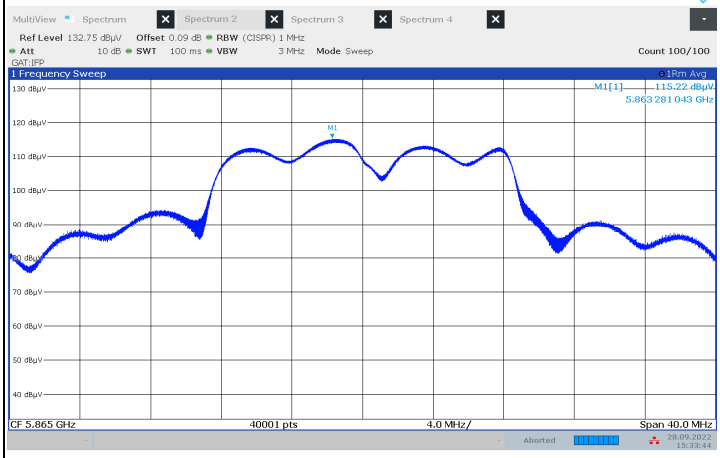
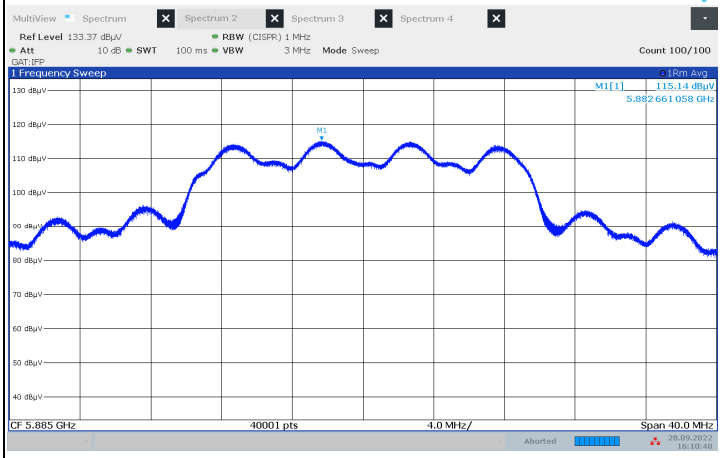
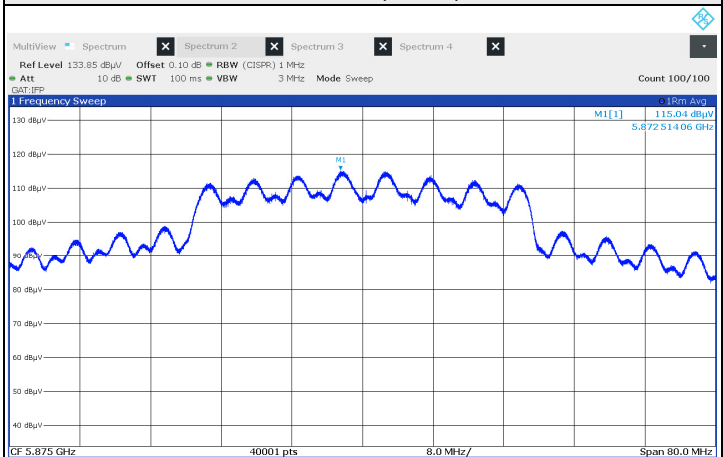
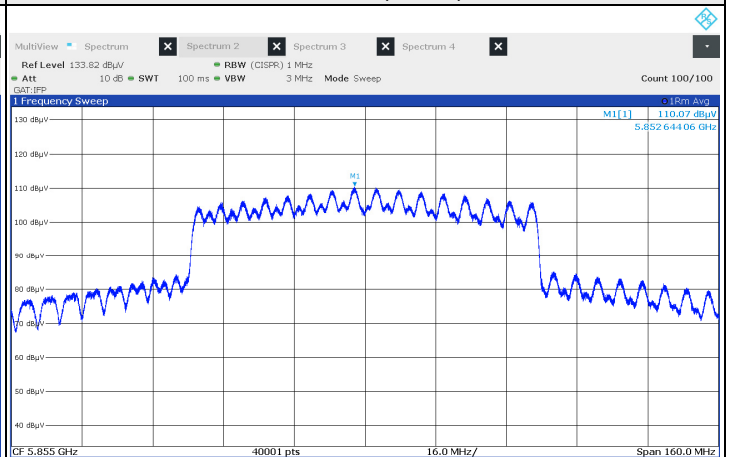
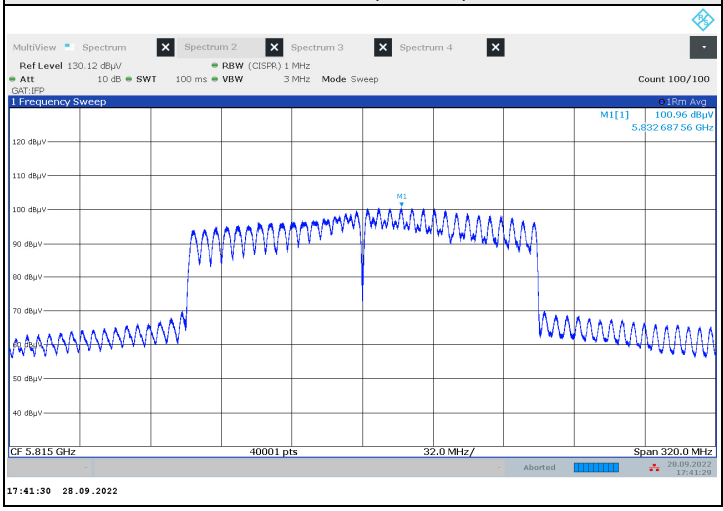
802.11ax (HE80) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
171	5855	109.35	-95.23	14.12	20	Pass

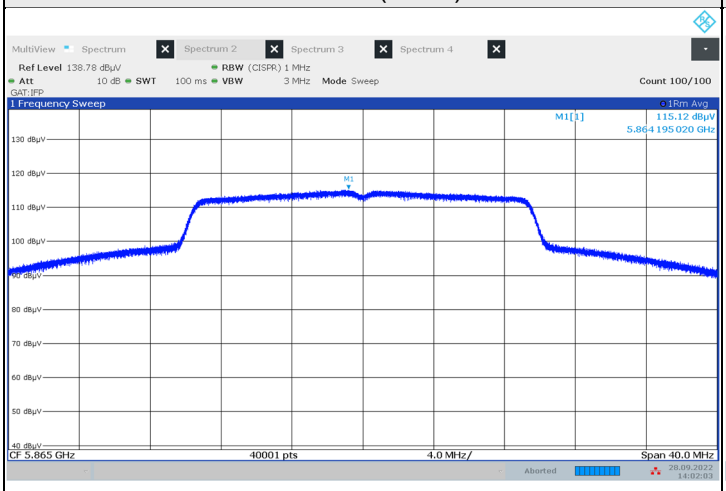
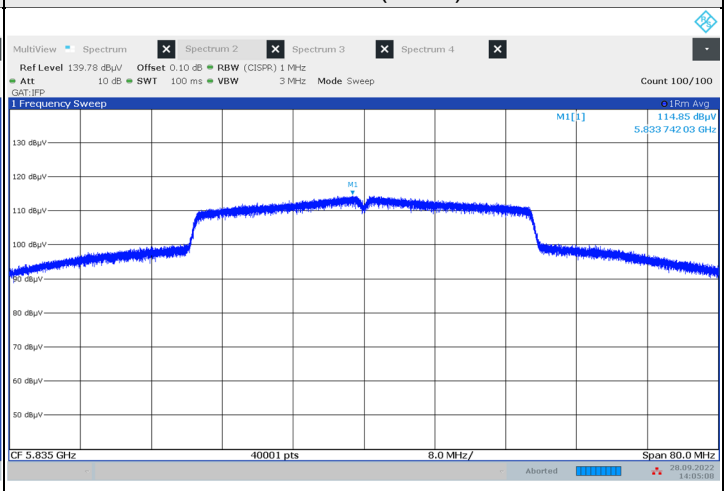
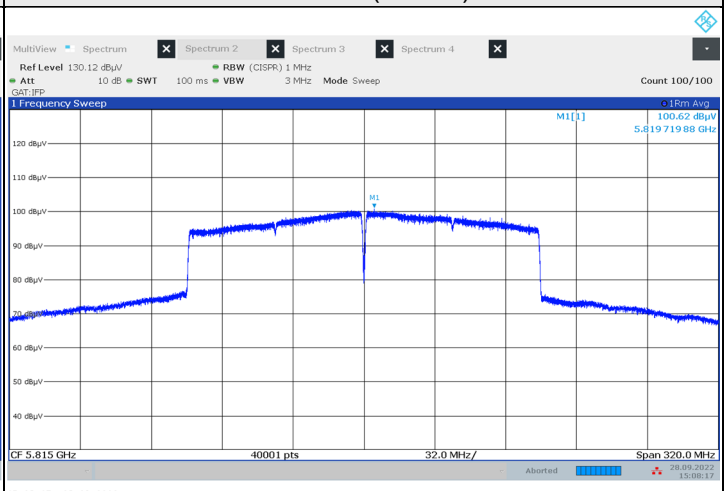
802.11ax (HE160) Beamforming

Chan.	Chan. Freq. (MHz)	Field Strength (dBuV/m)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
163	5815	100.62	-95.23	5.39	20	Pass

CDD

Spectrum Plot of Worst Value	
802.11a	802.11ax (HE20)
	
802.11ax (HE40)	802.11ax (HE80)
	
802.11ax (HE160)	
	

Beamforming

Spectrum Plot of Worst Value	
802.11ax (HE20)	802.11ax (HE40)
	
802.11ax (HE80)	802.11ax (HE160)
	

7.3 6 dB Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Ivan Tseng

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2		
169	5845	16.36	16.33	16.32	0.5	Pass
173	5865	16.38	16.34	16.33	0.5	Pass
177	5885	16.39	16.33	16.33	0.5	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2		
169	5845	18.75	18.86	18.79	0.5	Pass
173	5865	18.84	18.76	18.79	0.5	Pass
177	5885	18.85	18.78	18.83	0.5	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2		
167	5835	35.81	36.02	37.27	0.5	Pass
175	5875	36.32	36.08	36.28	0.5	Pass

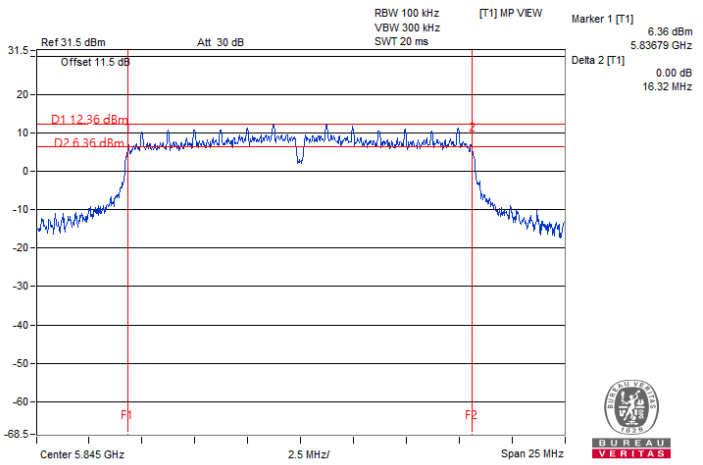
802.11ax (HE80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2		
171	5855	74.16	75.29	76.33	0.5	Pass

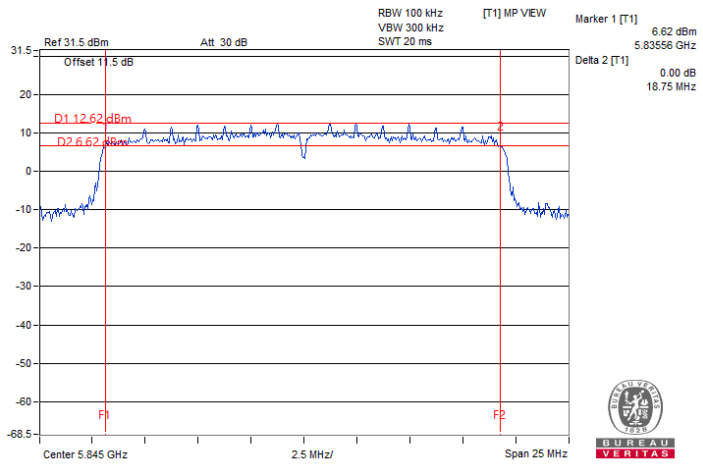
802.11ax (HE160)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2		
163	5815	155.08	152.68	155.20	0.5	Pass

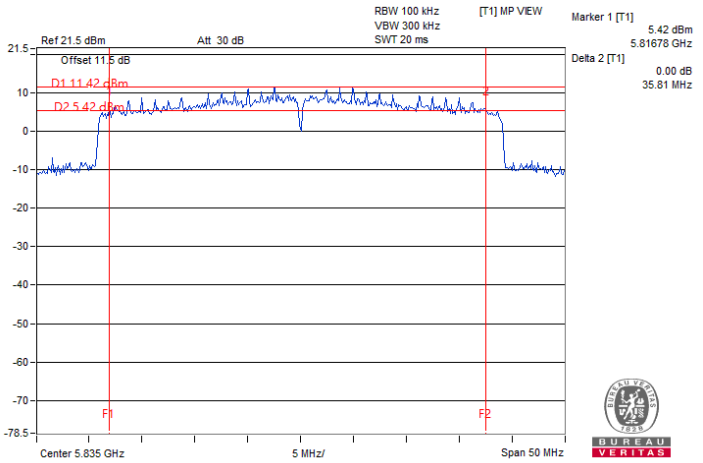
Spectrum Plot of Minimum Value



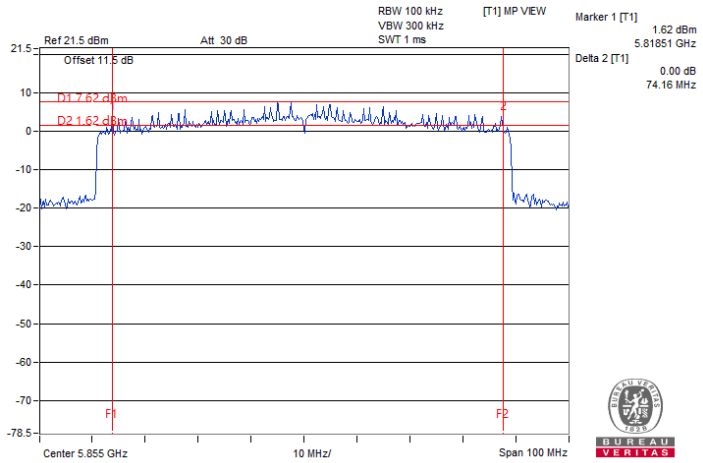
802.11a / Chain2 : CH 169



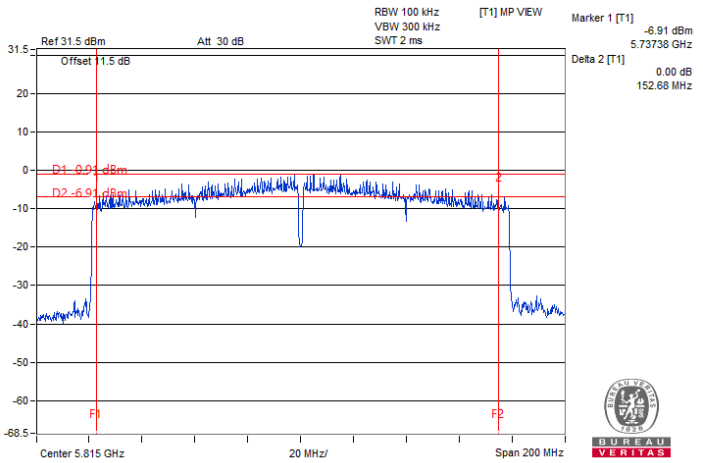
802.11ax (HE20) / Chain0 : CH 169



802.11ax (HE40) / Chain0 : CH 167



802.11ax (HE80) / Chain0 : CH 171



802.11ax (HE160) / Chain1 : CH 163

7.4 Frequency Stability

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Ivan Tseng

802.11a

Frequency Stability Versus Temp.									
Operating Frequency: 5885 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result
40	120	5885.0118	Pass	5885.0119	Pass	5885.0117	Pass	5885.0122	Pass
30	120	5884.9917	Pass	5884.9926	Pass	5884.9901	Pass	5884.9916	Pass
20	120	5884.9984	Pass	5884.9988	Pass	5884.9991	Pass	5884.9982	Pass
10	120	5884.9825	Pass	5884.9816	Pass	5884.9798	Pass	5884.9837	Pass
0	120	5885.0122	Pass	5885.0154	Pass	5885.0159	Pass	5885.0116	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5885 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result
20	138	5885.0105	Pass	5885.012	Pass	5885.009	Pass	5885.009	Pass
	120	5884.9984	Pass	5884.9988	Pass	5884.9991	Pass	5884.9982	Pass
	102	5885.0057	Pass	5885.0072	Pass	5885.0103	Pass	5885.0067	Pass

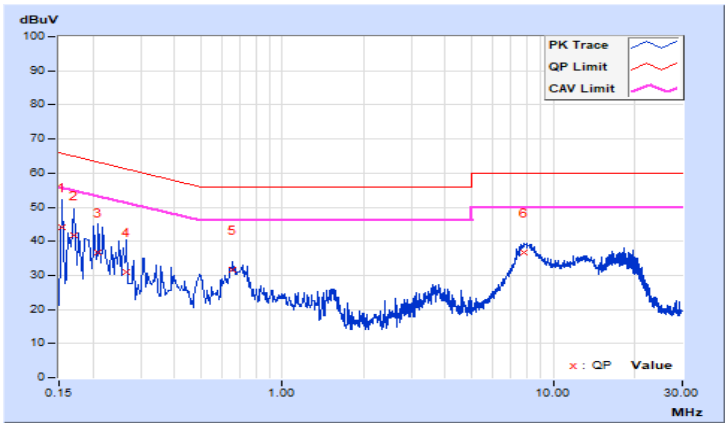
7.5 AC Power Conducted Emissions

RF Mode	TX 802.11ax (HE40)	**Channel**	CH 175：5875 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, 66% RH
Tested By	Titan Hsu	**Test Mode**	A

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15400	9.68	34.35	16.67	44.03	26.35	65.78	55.78	-21.75	-29.43
2	0.17000	9.70	32.04	12.43	41.74	22.13	64.96	54.96	-23.22	-32.83
3	0.21000	9.72	26.86	12.44	36.58	22.16	63.21	53.21	-26.63	-31.05
4	0.26600	9.75	21.30	11.11	31.05	20.86	61.24	51.24	-30.19	-30.38
5	0.65800	9.82	21.81	16.11	31.63	25.93	56.00	46.00	-24.37	-20.07
6	7.81400	10.02	26.60	21.09	36.62	31.11	60.00	50.00	-23.38	-18.89

Remarks:

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

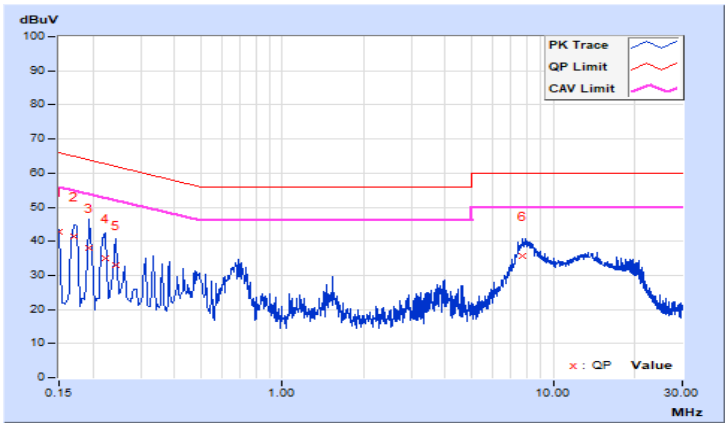


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 175：5875 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	23°C, 66% RH
Tested By	Titan Hsu	**Test Mode**	A

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15000	9.68	33.15	13.34	42.83	23.02	66.00	56.00	-23.17	-32.98
2	0.17000	9.70	31.66	11.46	41.36	21.16	64.96	54.96	-23.60	-33.80
3	0.19400	9.72	28.48	10.69	38.20	20.41	63.86	53.86	-25.66	-33.45
4	0.22152	9.73	25.39	10.25	35.12	19.98	62.76	52.76	-27.64	-32.78
5	0.24200	9.74	23.27	10.61	33.01	20.35	62.03	52.03	-29.02	-31.68
6	7.68600	10.03	25.80	19.30	35.83	29.33	60.00	50.00	-24.17	-20.67

Remarks:

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

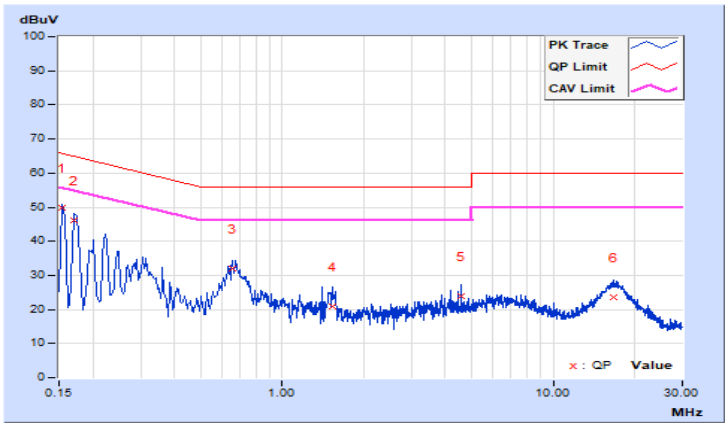


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 175：5875 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	23°C, 66% RH
Tested By	Titan Hsu	**Test Mode**	B

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	**0.15400**	**9.68**	**40.21**	**21.39**	**49.89**	**31.07**	**65.78**	**55.78**	**-15.89**	**-24.71**
2	0.17000	9.70	36.52	19.25	46.22	28.95	64.96	54.96	-18.74	-26.01
3	0.65800	9.82	22.12	16.49	31.94	26.31	56.00	46.00	-24.06	-19.69
4	1.53400	9.87	11.16	3.43	21.03	13.30	56.00	46.00	-34.97	-32.70
5	4.57000	9.96	13.89	3.76	23.85	13.72	56.00	46.00	-32.15	-32.28
6	16.63000	10.13	13.54	8.69	23.67	18.82	60.00	50.00	-36.33	-31.18

Remarks:

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

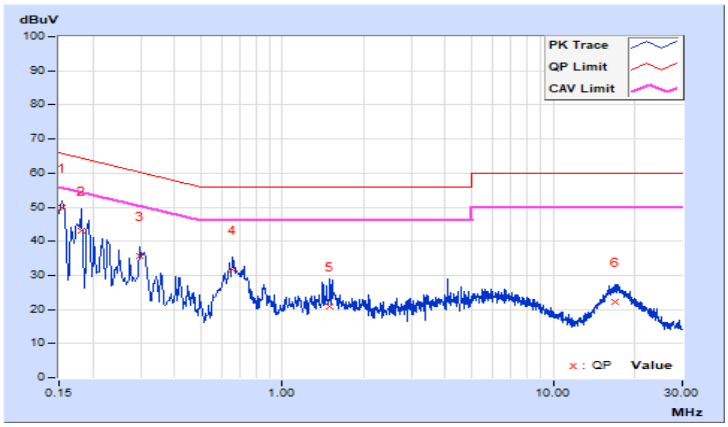


RF Mode	TX 802.11ax (HE40)	Channel	CH 175：5875 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu	Test Mode	B

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	0.15400	9.68	40.15	21.51	49.83	31.19	65.78	55.78	-15.95	-24.59
2	0.18200	9.71	33.24	15.64	42.95	25.35	64.39	54.39	-21.44	-29.04
3	0.29800	9.76	25.88	14.05	35.64	23.81	60.30	50.30	-24.66	-26.49
4	0.65400	9.83	21.72	15.13	31.55	24.96	56.00	46.00	-24.45	-21.04
5	1.49800	9.89	10.87	3.64	20.76	13.53	56.00	46.00	-35.24	-32.47
6	16.87000	10.16	12.22	7.18	22.38	17.34	60.00	50.00	-37.62	-32.66

Remarks:

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

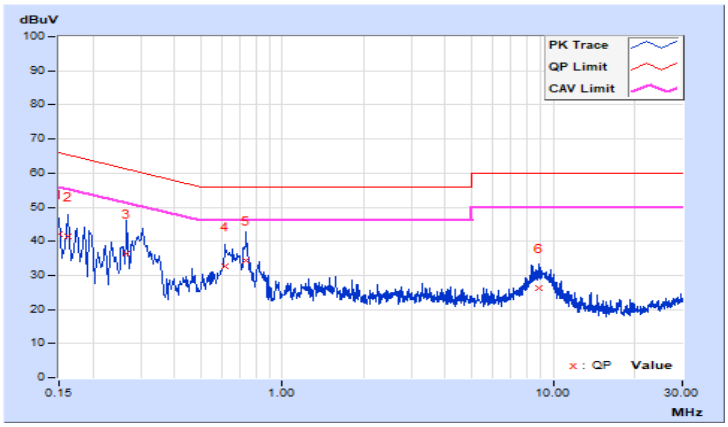


RF Mode	TX 802.11ax (HE40)	Channel	CH 175：5875 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	55.5Vdc	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu	Test Mode	C

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.62	32.33	17.45	41.95	27.07	66.00	56.00	-24.05	-28.93
2	0.16200	9.62	31.90	17.75	41.52	27.37	65.36	55.36	-23.84	-27.99
3	0.26600	9.66	26.84	16.15	36.50	25.81	61.24	51.24	-24.74	-25.43
4	0.61400	9.69	23.04	15.60	32.73	25.29	56.00	46.00	-23.27	-20.71
5	0.73800	9.70	24.59	15.86	34.29	25.56	56.00	46.00	-21.71	-20.44
6	8.89400	9.80	16.60	10.69	26.40	20.49	60.00	50.00	-33.60	-29.51

Remarks:

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

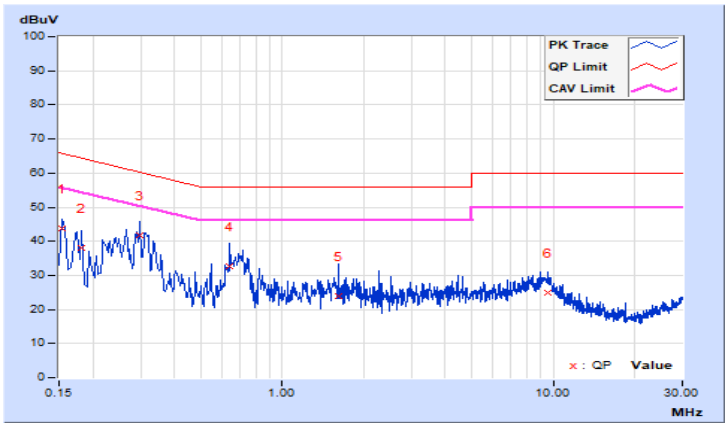


RF Mode	TX 802.11ax (HE40)	Channel	CH 175：5875 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	55.5Vdc	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu	Test Mode	C

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	0.15400	9.62	34.13	16.39	43.75	26.01	65.78	55.78	-22.03	-29.77
2	0.18200	9.63	28.39	13.66	38.02	23.29	64.39	54.39	-26.37	-31.10
3	0.29800	9.66	31.99	20.77	41.65	30.43	60.30	50.30	-18.65	-19.87
4	0.64200	9.69	22.95	14.25	32.64	23.94	56.00	46.00	-23.36	-22.06
5	1.61400	9.72	14.32	7.45	24.04	17.17	56.00	46.00	-31.96	-28.83
6	9.55800	9.81	15.20	9.49	25.01	19.30	60.00	50.00	-34.99	-30.70

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



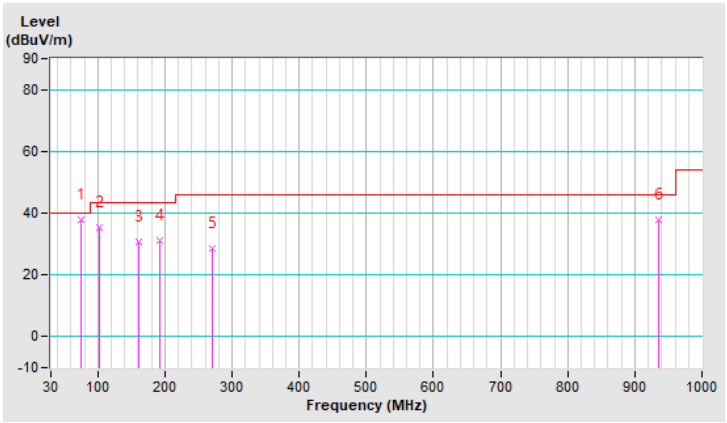
7.6 Unwanted Emissions below 1 GHz

RF Mode	TX 802.11ax (HE40)	**Channel**	CH 175：5875 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	23°C, 66% RH
Tested By	Titan Hsu	**Test Mode**	A

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	**74.62**	**37.9 QP**	**40.0**	**-2.1**	**1.01 H**	**191**	**49.4**	**-11.5**
2	101.78	35.3 QP	43.5	-8.2	1.01 H	259	48.3	-13.0
3	161.92	30.6 QP	43.5	-12.9	1.50 H	112	39.1	-8.5
4	192.96	31.2 QP	43.5	-12.3	1.01 H	337	42.6	-11.4
5	270.56	28.7 QP	46.0	-17.3	1.01 H	135	37.0	-8.3
6	935.98	37.8 QP	46.0	-8.2	1.50 H	165	31.9	5.9

Remarks:

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

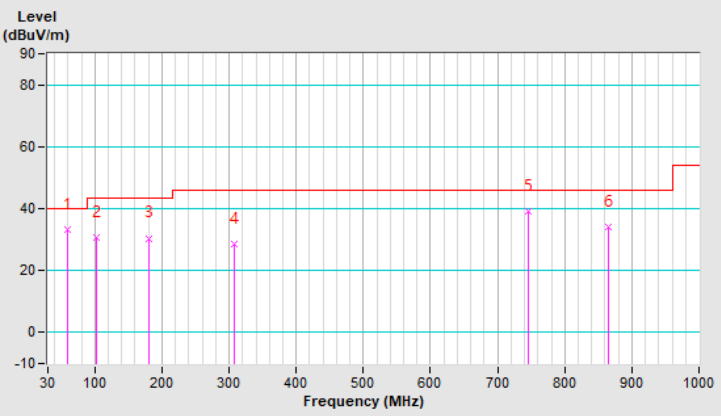


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 175：5875 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	23°C, 66% RH
Tested By	Titan Hsu	**Test Mode**	A

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	59.10	33.2 QP	40.0	-6.8	1.01 V	346	42.2	-9.0
2	101.78	30.7 QP	43.5	-12.8	1.50 V	119	43.7	-13.0
3	181.32	30.5 QP	43.5	-13.0	1.01 V	73	40.6	-10.1
4	307.42	28.4 QP	46.0	-17.6	1.50 V	204	35.6	-7.2
5	745.86	39.3 QP	46.0	-6.7	1.50 V	14	37.7	1.6
6	864.20	34.2 QP	46.0	-11.8	1.01 V	142	30.1	4.1

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 of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

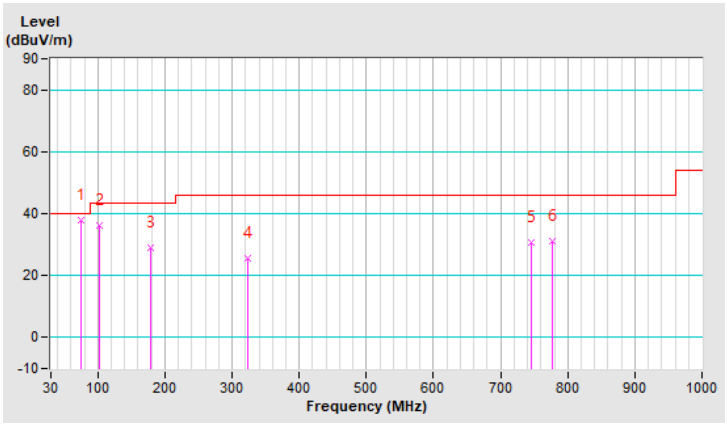


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 175：5875 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	23°C, 66% RH
Tested By	Titan Hsu	**Test Mode**	B

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	74.62	37.7 QP	40.0	-2.3	1.01 H	16	49.2	-11.5
2	101.78	36.0 QP	43.5	-7.5	1.01 H	136	49.0	-13.0
3	179.38	28.8 QP	43.5	-14.7	1.50 H	136	38.7	-9.9
4	322.94	25.4 QP	46.0	-20.6	1.01 H	5	32.3	-6.9
5	745.86	30.5 QP	46.0	-15.5	1.01 H	39	28.9	1.6
6	776.90	31.2 QP	46.0	-14.8	1.50 H	48	28.8	2.4

Remarks:

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

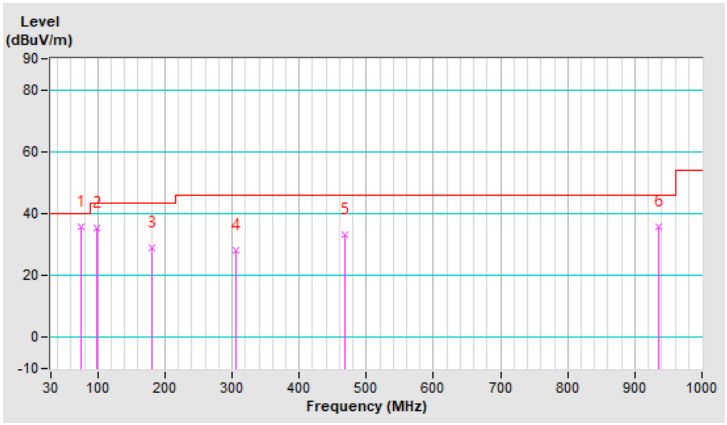


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 175：5875 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	23°C, 66% RH
Tested By	Titan Hsu	**Test Mode**	B

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	74.62	35.7 QP	40.0	-4.3	1.01 V	357	47.2	-11.5
2	97.90	35.4 QP	43.5	-8.1	1.01 V	357	49.0	-13.6
3	181.32	29.1 QP	43.5	-14.4	1.01 V	294	39.2	-10.1
4	305.48	28.3 QP	46.0	-17.7	1.50 V	41	35.5	-7.2
5	468.44	33.4 QP	46.0	-12.6	1.50 V	159	38.0	-4.6
6	935.98	35.9 QP	46.0	-10.1	1.01 V	178	30.0	5.9

Remarks:

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

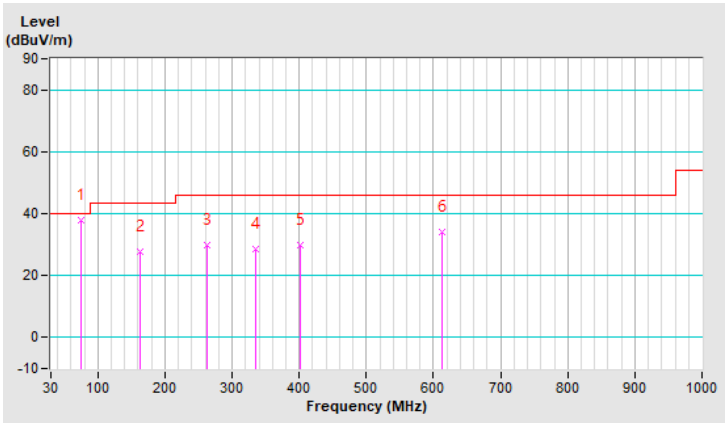


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 175：5875 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	55.5Vdc	**Environmental Conditions**	23°C, 66% RH
Tested By	Titan Hsu	**Test Mode**	C

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	74.62	37.7 QP	40.0	-2.3	1.01 H	112	49.2	-11.5
2	163.86	27.7 QP	43.5	-15.8	1.50 H	326	36.4	-8.7
3	262.80	30.0 QP	46.0	-16.0	1.01 H	123	38.7	-8.7
4	334.58	28.6 QP	46.0	-17.4	1.01 H	124	35.3	-6.7
5	402.48	29.8 QP	46.0	-16.2	1.01 H	124	35.7	-5.9
6	612.00	34.2 QP	46.0	-11.8	1.50 H	152	35.5	-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 emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

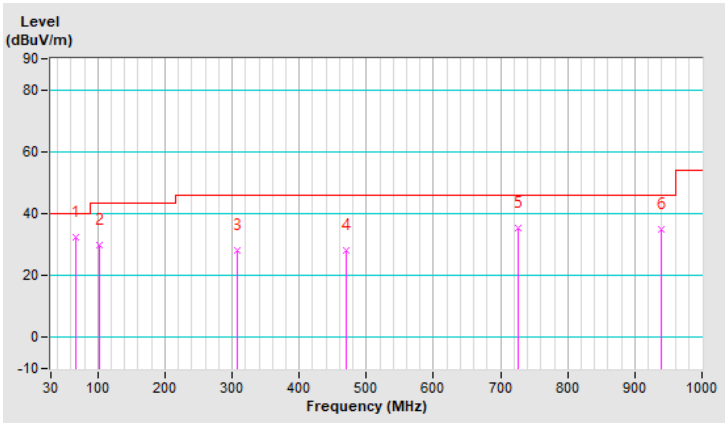


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 175：5875 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	55.5Vdc	**Environmental Conditions**	23°C, 66% RH
Tested By	Titan Hsu	**Test Mode**	C

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	66.86	32.2 QP	40.0	-7.8	1.00 V	66	42.3	-10.1
2	101.78	29.9 QP	43.5	-13.6	1.49 V	24	42.9	-13.0
3	307.42	28.3 QP	46.0	-17.7	1.49 V	5	35.5	-7.2
4	470.38	28.3 QP	46.0	-17.7	1.49 V	125	32.8	-4.5
5	726.46	35.3 QP	46.0	-10.7	1.00 V	94	34.4	0.9
6	939.86	35.0 QP	46.0	-11.0	1.49 V	5	29.0	6.0

Remarks:

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



7.7 Unwanted Emissions above 1 GHz

RF Mode	TX 802.11a	Channel	CH 169：5845 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu		

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	*5845.00	122.6 PK			1.42 H	350	78.6	44.0
2	*5845.00	112.7 AV			1.42 H	350	68.7	44.0
3	#5899.60	75.4 PK	106.8	-31.4	1.42 H	350	61.7	13.7
4	#5930.00	66.4 PK	88.2	-21.8	1.42 H	350	52.6	13.8
5	11690.00	64.1 PK	74.0	-9.9	2.08 H	195	41.0	23.1
6	11690.00	51.3 AV	54.0	-2.7	2.08 H	195	28.2	23.1
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	*5845.00	123.2 PK			2.04 V	358	79.2	44.0
2	*5845.00	113.0 AV			2.04 V	358	69.0	44.0
3	#5910.05	74.1 PK	99.1	-25.0	2.04 V	358	60.4	13.7
4	#5929.52	66.5 PK	88.2	-21.7	2.04 V	358	52.7	13.8
5	11690.00	65.8 PK	74.0	-8.2	1.72 V	324	42.7	23.1
6	11690.00	52.2 AV	54.0	-1.8	1.72 V	324	29.1	23.1

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 173：5865 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu		

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	*5865.00	122.4 PK			1.41 H	356	78.4	44.0
2	*5865.00	112.6 AV			1.41 H	356	68.6	44.0
3	#5901.02	84.7 PK	105.8	-21.1	1.41 H	356	71.0	13.7
4	#5939.98	71.4 PK	88.2	-16.8	1.41 H	356	57.6	13.8
5	11730.00	64.4 PK	74.0	-9.6	2.05 H	192	41.5	22.9
6	11730.00	51.2 AV	54.0	-2.8	2.05 H	192	28.3	22.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5865.00	123.3 PK			2.29 V	353	79.3	44.0
2	*5865.00	113.2 AV			2.29 V	353	69.2	44.0
3	#5916.70	74.4 PK	94.3	-19.9	2.29 V	353	60.7	13.7
4	#5929.05	70.6 PK	88.2	-17.6	2.29 V	353	56.8	13.8
5	11730.00	65.7 PK	74.0	-8.3	1.73 V	336	42.8	22.9
6	11730.00	52.2 AV	54.0	-1.8	1.73 V	336	29.3	22.9

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 177：5885 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu		

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	*5885.00	122.6 PK			1.46 H	357	78.5	44.1
2	*5885.00	112.9 AV			1.46 H	357	68.8	44.1
3	#5895.32	104.6 PK	110.0	-5.4	1.46 H	357	90.9	13.7
4	#5925.25	83.8 PK	88.2	-4.4	1.46 H	357	70.0	13.8
5	11770.00	63.7 PK	74.0	-10.3	2.05 H	189	41.1	22.6
6	11770.00	50.9 AV	54.0	-3.1	2.05 H	189	28.3	22.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5885.00	123.1 PK			2.24 V	354	79.0	44.1
2	*5885.00	113.2 AV			2.24 V	354	69.1	44.1
3	#5922.87	81.3 PK	89.8	-8.5	2.24 V	354	67.5	13.8
4	#5933.80	77.7 PK	88.2	-10.5	2.24 V	354	63.9	13.8
5	11770.00	65.6 PK	74.0	-8.4	1.68 V	331	43.0	22.6
6	11770.00	52.0 AV	54.0	-2.0	1.68 V	331	29.4	22.6

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 169：5845 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu		

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	*5845.00	125.2 PK			1.50 H	349	81.2	44.0
2	*5845.00	112.6 AV			1.50 H	349	68.6	44.0
3	#5901.50	76.5 PK	105.4	-28.9	1.50 H	349	62.8	13.7
4	#5926.68	67.1 PK	88.2	-21.1	1.50 H	349	53.3	13.8
5	11690.00	64.6 PK	74.0	-9.4	2.11 H	185	41.5	23.1
6	11690.00	51.3 AV	54.0	-2.7	2.11 H	185	28.2	23.1
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	*5845.00	125.9 PK			2.02 V	4	81.9	44.0
2	*5845.00	113.2 AV			2.02 V	4	69.2	44.0
3	#5915.27	74.5 PK	95.3	-20.8	2.02 V	4	60.8	13.7
4	#5925.73	66.6 PK	88.2	-21.6	2.02 V	4	52.8	13.8
5	11690.00	66.1 PK	74.0	-7.9	1.65 V	338	43.0	23.1
6	11690.00	51.9 AV	54.0	-2.1	1.65 V	338	28.8	23.1

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 173：5865 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu		

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	*5865.00	124.0 PK			1.43 H	356	80.0	44.0
2	*5865.00	111.8 AV			1.43 H	356	67.8	44.0
3	#5895.80	86.8 PK	109.6	-22.8	1.43 H	356	73.1	13.7
4	#5925.73	76.3 PK	88.2	-11.9	1.43 H	356	62.5	13.8
5	11730.00	64.5 PK	74.0	-9.5	2.11 H	193	41.6	22.9
6	11730.00	51.0 AV	54.0	-3.0	2.11 H	193	28.1	22.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5865.00	124.2 PK			2.08 V	355	80.2	44.0
2	*5865.00	112.0 AV			2.08 V	355	68.0	44.0
3	#5905.77	81.4 PK	102.3	-20.9	2.08 V	355	67.7	13.7
4	#5925.73	75.3 PK	88.2	-12.9	2.08 V	355	61.5	13.8
5	11730.00	66.0 PK	74.0	-8.0	1.68 V	332	43.1	22.9
6	11730.00	51.6 AV	54.0	-2.4	1.68 V	332	28.7	22.9

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 177：5885 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu		

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	*5885.00	124.7 PK			1.37 H	352	80.6	44.1
2	*5885.00	112.6 AV			1.37 H	352	68.5	44.1
3	#5895.32	104.6 PK	110.0	-5.4	1.37 H	352	90.9	13.7
4	#5928.57	80.5 PK	88.2	-7.7	1.37 H	352	66.7	13.8
5	11770.00	64.1 PK	74.0	-9.9	2.15 H	193	41.5	22.6
6	11770.00	50.9 AV	54.0	-3.1	2.15 H	193	28.3	22.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5885.00	125.2 PK			2.02 V	359	81.1	44.1
2	*5885.00	113.1 AV			2.02 V	359	69.0	44.1
3	#5897.70	104.6 PK	108.2	-3.6	2.02 V	359	90.9	13.7
4	#5927.62	80.2 PK	88.2	-8.0	2.02 V	359	66.4	13.8
5	11770.00	65.8 PK	74.0	-8.2	1.77 V	338	43.2	22.6
6	11770.00	51.9 AV	54.0	-2.1	1.77 V	338	29.3	22.6

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 167：5835 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu		

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	*5835.00	124.7 PK			1.34 H	351	80.7	44.0
2	*5835.00	112.0 AV			1.34 H	351	68.0	44.0
3	#5905.77	87.8 PK	102.3	-14.5	1.34 H	351	74.1	13.7
4	#5931.43	83.1 PK	88.2	-5.1	1.34 H	351	69.3	13.8
5	11670.00	65.4 PK	74.0	-8.6	2.13 H	195	42.2	23.2
6	11670.00	51.4 AV	54.0	-2.6	2.13 H	195	28.2	23.2
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	*5835.00	125.5 PK			2.28 V	356	81.5	44.0
2	*5835.00	112.4 AV			2.28 V	356	68.4	44.0
3	#5923.35	85.4 PK	89.4	-4.0	2.28 V	356	71.6	13.8
4	#5928.57	83.1 PK	88.2	-5.1	2.28 V	356	69.3	13.8
5	11670.00	66.1 PK	74.0	-7.9	1.64 V	332	42.9	23.2
6	11670.00	51.9 AV	54.0	-2.1	1.64 V	332	28.7	23.2

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	TX 802.11ax (HE40)	Channel	CH 175：5875 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu		

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	#5620.77	62.8 PK	68.2	-5.4	1.24 H	354	50.2	12.6
2	*5875.00	125.0 PK			1.24 H	354	81.0	44.0
3	*5875.00	112.6 AV			1.24 H	354	68.6	44.0
4	#5906.73	106.1 PK	121.6	-15.5	1.24 H	354	92.4	13.7
5	#5917.18	89.1 PK	93.9	-4.8	1.24 H	354	75.4	13.7
6	#5926.68	83.0 PK	88.2	-5.2	1.24 H	354	69.2	13.8
7	#5927.15	96.8 PK	108.2	-11.4	1.24 H	354	83.0	13.8
8	11750.00	64.9 PK	74.0	-9.1	2.11 H	199	42.2	22.7
9	11750.00	51.0 AV	54.0	-3.0	2.11 H	199	28.3	22.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5648.80	67.0 PK	68.2	-1.2	2.25 V	355	54.3	12.7
2	*5875.00	125.6 PK			2.25 V	355	81.6	44.0
3	*5875.00	113.2 AV			2.25 V	355	69.2	44.0
4	#5920.98	101.4 PK	111.1	-9.7	2.25 V	355	87.6	13.8
5	#5921.45	85.3 PK	90.8	-5.5	2.25 V	355	71.5	13.8
6	#5926.20	98.2 PK	108.2	-10.0	2.25 V	355	84.4	13.8
7	#5926.20	83.4 PK	88.2	-4.8	2.25 V	355	69.6	13.8
8	11750.00	65.7 PK	74.0	-8.3	1.66 V	328	43.0	22.7
9	11750.00	51.6 AV	54.0	-2.4	1.66 V	328	28.9	22.7

Remarks:

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

RF Mode	TX 802.11ax (HE80)	Channel	CH 171：5855 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5648.80	65.9 PK	68.2	-2.3	1.29 H	355	53.2	12.7
2	*5855.00	120.0 PK			1.29 H	355	76.0	44.0
3	*5855.00	107.2 AV			1.29 H	355	63.2	44.0
4	#5899.60	99.5 PK	126.8	-27.3	1.29 H	355	85.8	13.7
5	#5904.82	87.9 PK	103.0	-15.1	1.29 H	355	74.2	13.7
6	#5924.77	94.2 PK	108.4	-14.2	1.29 H	355	80.4	13.8
7	#5929.52	79.7 PK	88.2	-8.5	1.29 H	355	65.9	13.8
8	11710.00	64.7 PK	74.0	-9.3	2.05 H	192	41.8	22.9
9	11710.00	51.3 AV	54.0	-2.7	2.05 H	192	28.4	22.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	**#5645.48**	**67.9 PK**	**68.2**	**-0.3**	**2.31 V**	**353**	**55.2**	**12.7**
2	*5855.00	120.4 PK			2.31 V	353	76.4	44.0
3	*5855.00	107.7 AV			2.31 V	353	63.7	44.0
4	#5920.98	96.1 PK	111.1	-15.0	2.31 V	353	82.3	13.8
5	#5920.98	82.6 PK	91.1	-8.5	2.31 V	353	68.8	13.8
6	#5925.73	82.1 PK	88.2	-6.1	2.31 V	353	68.3	13.8
7	#5930.95	95.2 PK	108.2	-13.0	2.31 V	353	81.4	13.8
8	11710.00	65.5 PK	74.0	-8.5	1.76 V	324	42.6	22.9
9	11710.00	51.4 AV	54.0	-2.6	1.76 V	324	28.5	22.9

Remarks:

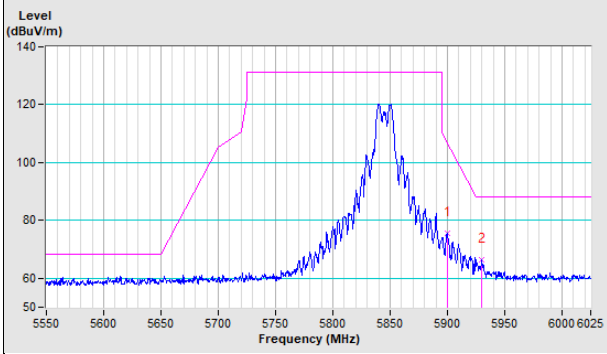
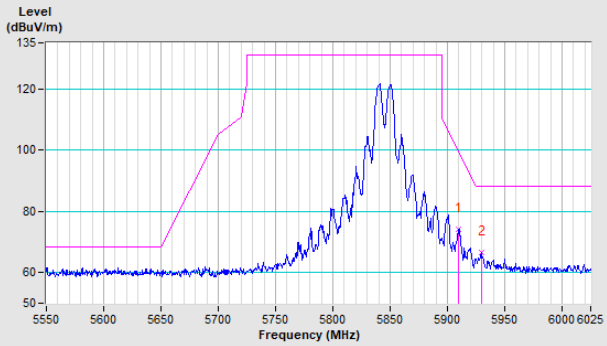
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency,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

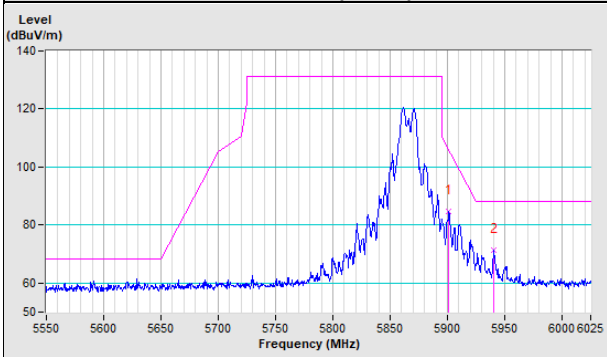
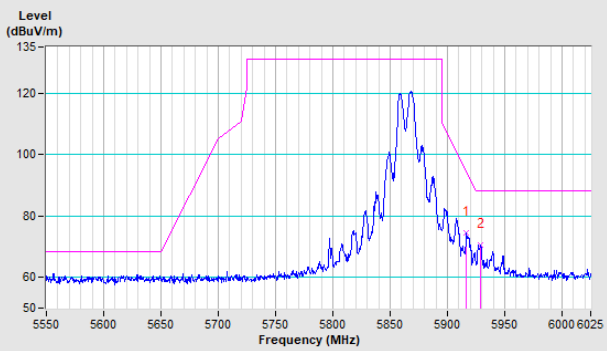
RF Mode	TX 802.11ax (HE160)	Channel	CH 163：5815 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu		

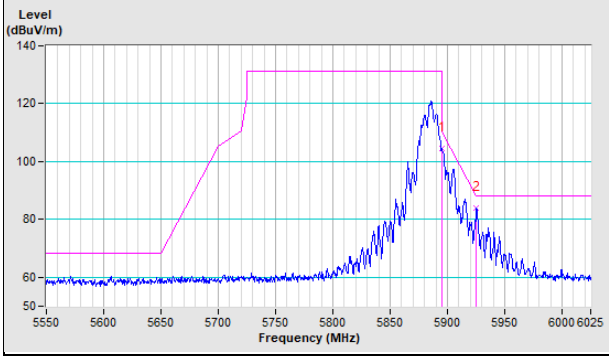
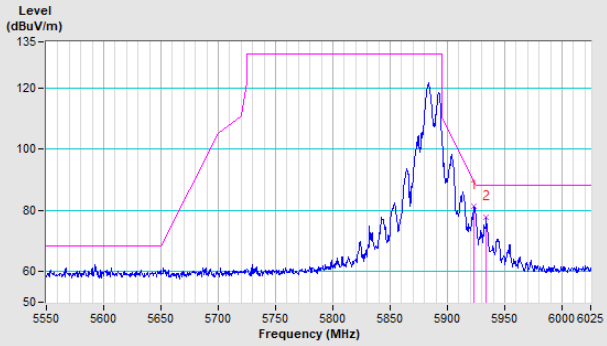
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5648.32	66.1 PK	68.2	-2.1	1.28 H	353	53.4	12.7
2	*5815.00	110.8 PK			1.28 H	353	66.9	43.9
3	*5815.00	98.4 AV			1.28 H	353	54.5	43.9
4	#5895.32	64.7 PK	110.0	-45.3	1.28 H	353	51.0	13.7
5	#5895.80	71.3 PK	129.6	-58.3	1.28 H	353	57.6	13.7
6	#5928.10	59.8 PK	88.2	-28.4	1.28 H	353	46.0	13.8
7	#5943.30	69.5 PK	108.2	-38.7	1.28 H	353	55.7	13.8
8	11630.00	65.2 PK	74.0	-8.8	2.15 H	189	41.6	23.6
9	11630.00	51.2 AV	54.0	-2.8	2.15 H	189	27.6	23.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5645.48	67.8 PK	68.2	-0.4	2.21 V	357	55.1	12.7
2	*5815.00	111.3 PK			2.21 V	357	67.4	43.9
3	*5815.00	98.7 AV			2.21 V	357	54.8	43.9
4	#5894.85	85.6 PK	131.2	-45.6	2.21 V	357	71.9	13.7
5	#5894.85	73.8 PK	131.2	-57.4	2.21 V	357	60.1	13.7
6	#5936.65	57.9 PK	88.2	-30.3	2.21 V	357	44.1	13.8
7	#5951.37	73.2 PK	108.2	-35.0	2.21 V	357	59.4	13.8
8	11630.00	66.1 PK	74.0	-7.9	1.75 V	326	42.5	23.6
9	11630.00	51.7 AV	54.0	-2.3	1.75 V	326	28.1	23.6

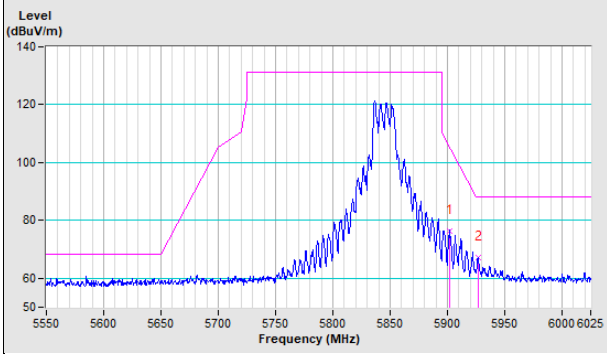
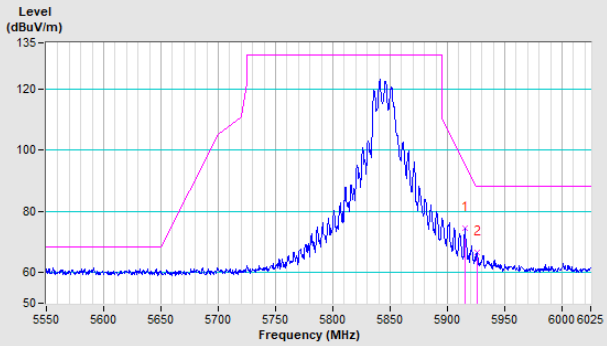
Remarks:

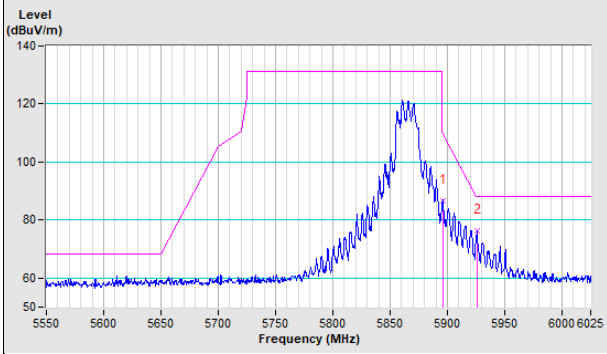
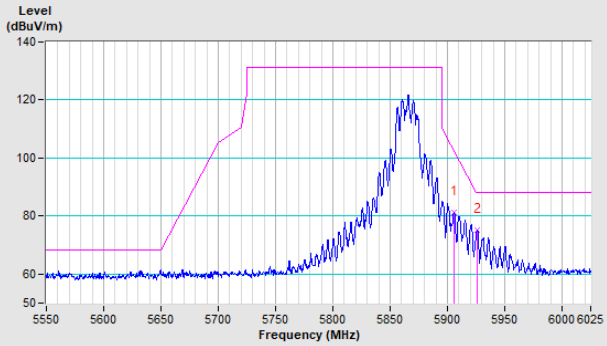
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency,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

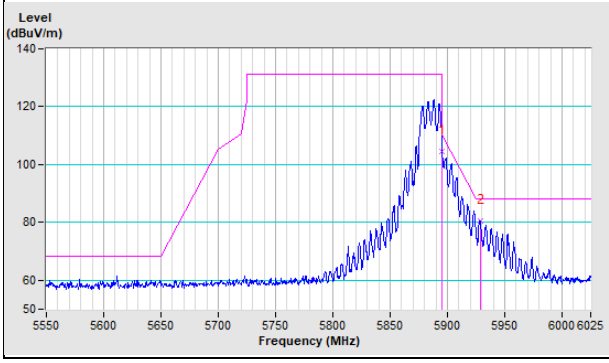
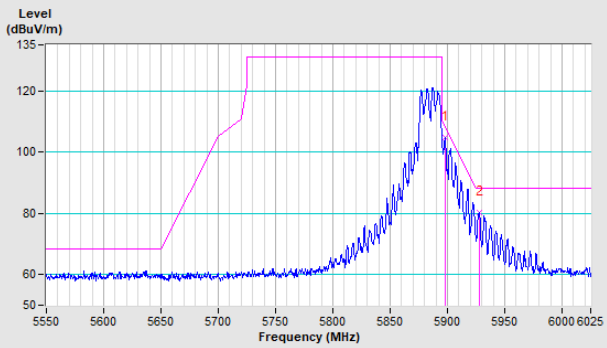
802.11a Channel 169	
Horizontal (Peak)	Vertical (Peak)
	

802.11a Channel 173	
Horizontal (Peak)	Vertical (Peak)
	

802.11a Channel 177	
Horizontal (Peak)	Vertical (Peak)
	

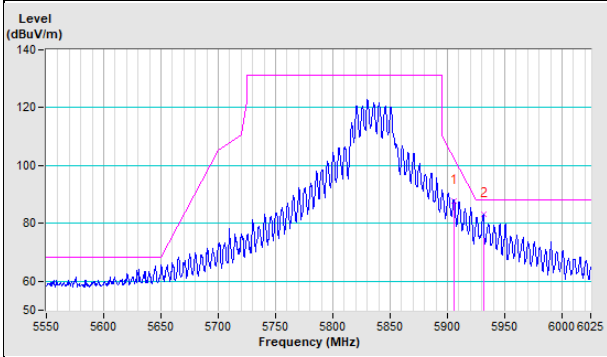
802.11ax (HE20) Channel 169	
Horizontal (Peak)	Vertical (Peak)
	

802.11ax (HE20) Channel 173	
Horizontal (Peak)	Vertical (Peak)
	

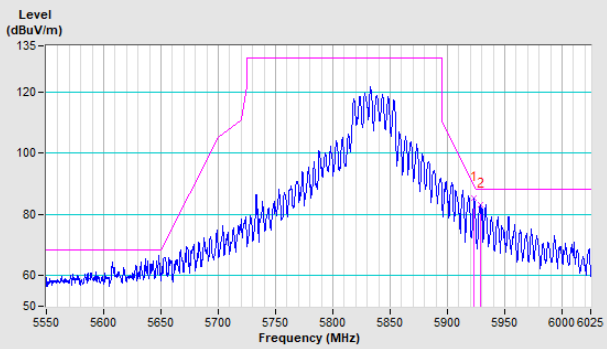
802.11ax (HE20) Channel 177	
Horizontal (Peak)	Vertical (Peak)
	

802.11ax (HE40) Channel 167

Horizontal (Peak)

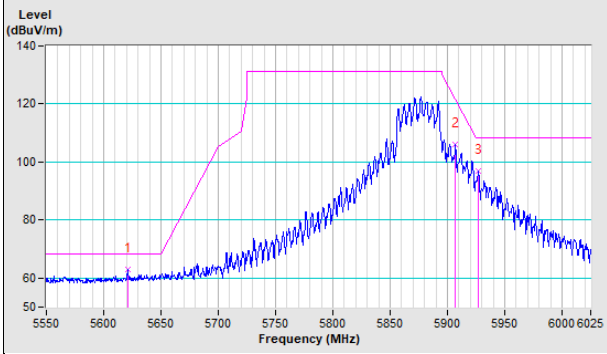


Vertical (Peak)

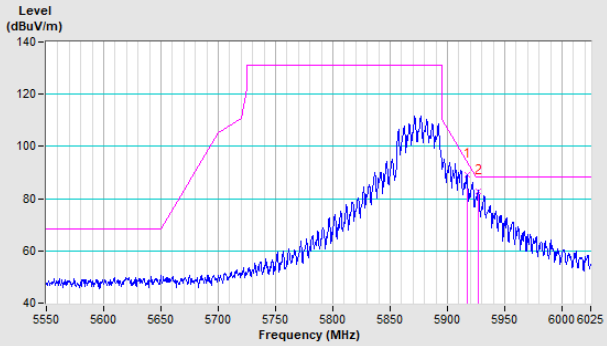


802.11ax (HE40) Channel 175

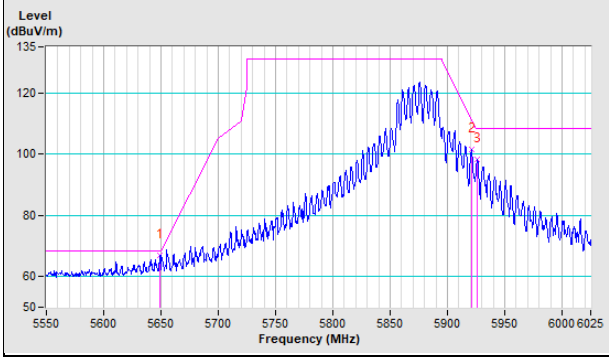
Horizontal (Peak)



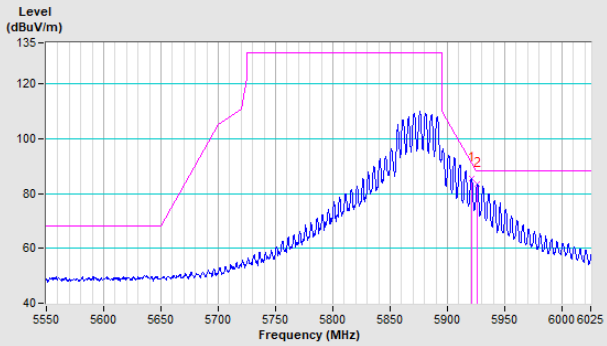
Horizontal (Average)

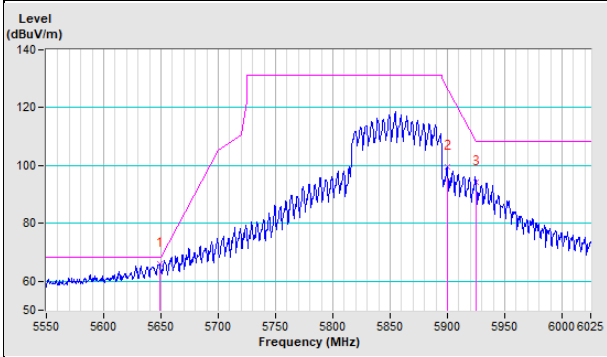
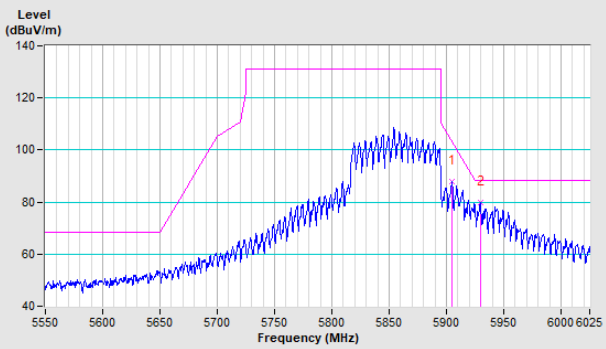
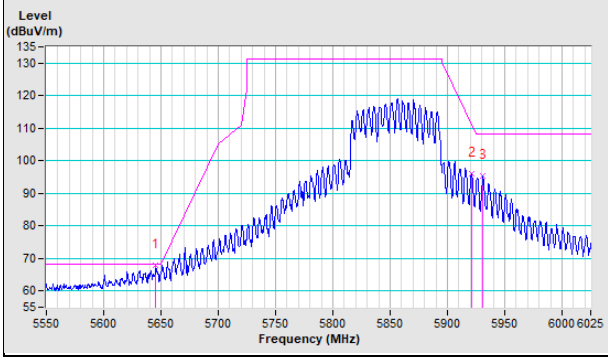
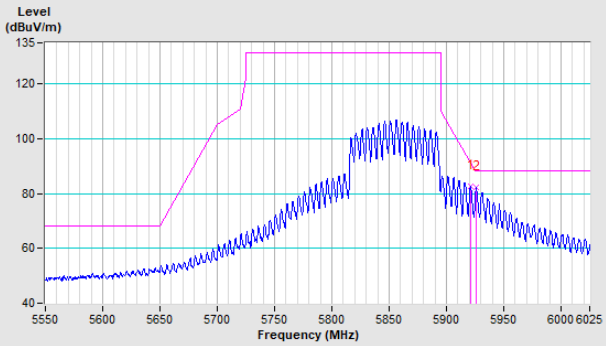


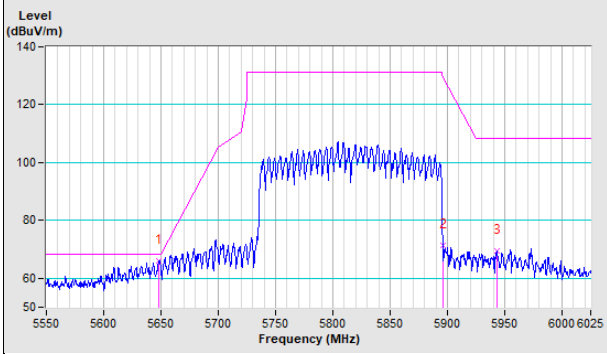
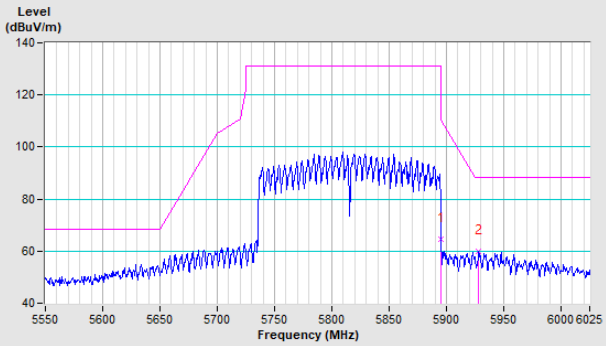
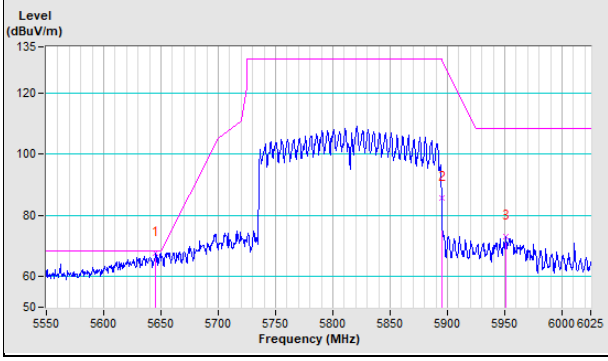
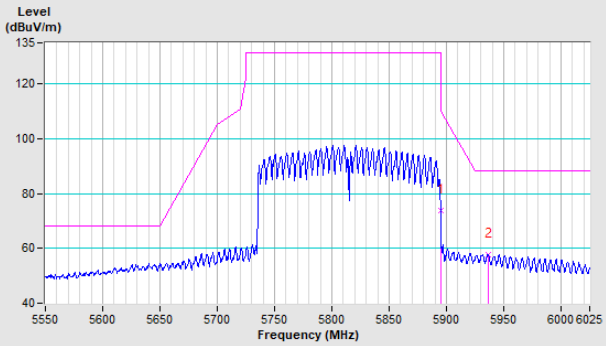
Vertical (Peak)



Vertical (Average)



802.11ax (HE80) Channel 171	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

802.11ax (HE160) Channel 163	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

8 Operational Restrictions for 5.85-5.895GHz U-NII Devices

For Indoor Access Point operates in the 5.850-5.895 GHz band, is supplied power from a wired connection, has an integrated antenna, is not battery powered, and does not have a weatherized enclosure. Indoor access point devices must bear the following statement in a conspicuous location on the device and in the user's manual: FCC regulations restrict operation of this device to indoor use only.

Device is an Indoor access point, all restrictions are meet the §15.403 requirements. Please refer to the Attestation letter exhibit supplied within this application.

9 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

10 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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Fax: 886-2-26051924

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Fax: 886-3-6668323

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Email: service.adt@bureauveritas.com
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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