

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart E (Section 15.407)
Report No.: RFBBUI-WTW-P21040655Z-4
FCC ID: TX2-RTL8852BE
Product: 11ax RTL8852BE Combo module
Brand: REALTEK
Model No.: RTL8852BE
Received Date: 2024/2/6
Test Date: 2024/3/22 ~ 2024/5/28
Issued Date: 2024/5/31

Applicant: Realtek Semiconductor Corp.
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Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / 723255 / TW2022
Designation Number:

Approved by: _____, **Date:** 2024/5/31
May Chen / Manager

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Prepared by : Phoenix Huang / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBBUI-WTW-P21040655Z-4	Original release.	2024/5/31

1 Certificate

Product: 11ax RTL8852BE Combo module

Brand: REALTEK

Test Model: RTL8852BE

Sample Status: Engineering sample

Applicant: Realtek Semiconductor Corp.

Test Date: 2024/3/22 ~ 2024/5/28

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

Measurement ANSI C63.10-2013

procedure: 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	N/A	Refer to Note 1 below
15.407(b)(9)	AC Power Conducted Emissions	Pass	Minimum passing margin is -12.84 dB at 0.16172 MHz
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -4.0 dB at 898.03 MHz
15.407(b)(5) 15.407(b)(10)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -7.2 dB at 5650.00 MHz
15.407(e)	6 dB Bandwidth	N/A	Refer to Note 1 below
15.407(g)	Frequency Stability	N/A	Refer to Note 1 below
15.203	Antenna Requirement	Pass	Antenna connector is i-pex(MHF) not a standard connector.

Note:

- Only RF Output Power, AC Power Conducted Emissions and Unwanted Emissions test items were performed for this addendum. The others testing data refer to original test report.
- 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:

Parameter	Specification	Uncertainty (±)
RF Output Power	-	1.1 dB
AC Power Conducted Emissions	150 kHz ~ 30 MHz	1.9 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.1 dB
	30 MHz ~ 1 GHz	5.1 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	5.1 dB
	18 GHz ~ 40 GHz	5.3 dB

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

2.2 Supplementary Information

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

3 General Information

3.1 General Description of EUT

Product	11ax RTL8852BE Combo module
Brand	REALTEK
Test Model	RTL8852BE
Status of EUT	Engineering sample
Power Supply Rating	3.3 Vdc from host equipment
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode 1024QAM for OFDMA in 11ax mode
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: up to 54 Mbps 802.11n: up to 300 Mbps 802.11ac: up to 866.7 Mbps 802.11ax: up to 1201 Mbps
Operating Frequency	5.835 GHz ~ 5.885 GHz
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
Resource Unit (RU)	Single RU: 26-tone, 52-tone, 106-tone, 242-tone, 484-tone, 996-tone
Output Power	1TX: EIRP: 411.15 mW (26.14 dBm) 2TX: CDD Mode: EIRP: 369.888 mW (25.68 dBm)
EUT Category	Client device

Note:

- This report is prepared for FCC class II permissive change. The difference compared with the Report No.: RFBBUI-WTW-P21040655-7 as the following:
 - ◆ Add PCIe+USB E-Key for dual antenna SKU.
 - ◆ Add component (R4) for identified voltage in the new interface.
 - ◆ Software change.
- According to above conditions, only RF Output Power, AC Power Conducted Emissions and Unwanted Emissions test items need to be performed and all data was tested to meet the requirements.
- There are Bluetooth and WLAN (2.4 GHz & 5 GHz) technology used for the EUT.
- Simultaneously transmission condition.

Condition	Technology	
1	WLAN (5 GHz)	Bluetooth

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

- The EUT has below HW SKU configuration, as below table:

Original		
SKU No.	Interface	Description
1	PCIe + USB (AE-Key)	Single antenna port
2	PCIe + USB (AE-Key)	Dual antenna port
3	PCIe + UART (E-Key)	Dual antenna port
Newly		
SKU No.	Interface	Description
4	PCIe + USB (E-Key)	Dual antenna port

6. The EUT support OFDMA and Partial RU mode, therefore partial RU combination were investigated and the worst case scenario was identified.
7. 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.

Ant. Set	RF Chain No.	Brand	Model	Ant. Net Gain (dBi)	Frequency Range (GHz)	Ant. Type	Connector Type	Cable Length (mm)
1	Chain 0	ARISTOTLE	RFA-27-JP326-MHF4300	3.5	2.4~2.4835	PIFA	i-pex(MHF)	300
				5	5.15~5.85			
				5	5.875~7.125			
	Chain 1	ARISTOTLE	RFA-27-JP326-MHF4300	3.5	2.4~2.4835	PIFA	i-pex(MHF)	300
				5	5.15~5.85			
				5	5.875~7.125			
2	Chain 0	ARISTOTLE	RFA-27-C38H1-MHF4300	3	2.4~2.4835	Dipole	i-pex(MHF)	300
				5	5.15~5.85			
				5	5.875~7.125			
	Chain 1	ARISTOTLE	RFA-27-C38H1-MHF4300	3	2.4~2.4835	Dipole	i-pex(MHF)	300
				5	5.15~5.85			
				5	5.875~7.125			
3	Chain 0	ARISTOTLE	RFA-27-JP378-4B-200	3.38	2.4~2.4835	Monopole	i-pex(MHF)	200
				4.81	5.15~5.85			
				4.86	5.875~7.125			
	Chain 1	ARISTOTLE	RFA-27-JP378-4B-200	3.38	2.4~2.4835	Monopole	i-pex(MHF)	200
				4.81	5.15~5.85			
				4.86	5.875~7.125			

Note: The Bluetooth technology will fix transmission on Chain 1.

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

2. The EUT incorporates a MIMO function:

5 GHz Band		
Modulation Mode	TX & RX Configuration	
802.11a	2TX/1TX Diversity	2RX
802.11n (HT20)	2TX/1TX Diversity	2RX
802.11n (HT40)	2TX/1TX Diversity	2RX
802.11ac (VHT20)	2TX/1TX Diversity	2RX
802.11ac (VHT40)	2TX/1TX Diversity	2RX
802.11ac (VHT80)	2TX/1TX Diversity	2RX
802.11ax (HE20)	2TX/1TX Diversity	2RX
802.11ax (HE40)	2TX/1TX Diversity	2RX
802.11ax (HE80)	2TX/1TX Diversity	2RX
802.11ax (RU26/52/106/242/484/996)	2TX/1TX Diversity	2RX

Note:

- All of modulation mode support beamforming function except 802.11a modulation mode.
- The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
- The modulation and bandwidth are similar for 802.11n mode for 20 MHz (40 MHz), 802.11ac mode for 20 MHz (40 MHz, 80 MHz) and 802.11ax mode for 20 MHz (40 MHz, 80 MHz) therefore the manufacturer will control the power for 802.11n/ac mode is same as the 802.11ax mode or more lower than it and investigated worst case to representative mode in test report.

3.3 Channel List

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

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

3.4 Test Mode Applicability and Tested Channel Detail

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

Test Item	EUT Configure Mode	Mode	Transmitter Configuration	Signal Mode	Tested Channel	Modulation	Data Rate Parameter	RU Index
RF Output Power	-	802.11a	1TX / 2TX	SISO / CDD	169, 173, 177	BPSK	6Mb/s	NA
		802.11ax (HE20)			169, 173, 177	BPSK	MCS0	NA
		802.11ax (HE40)			167, 175	BPSK	MCS0	NA
		802.11ax (HE80)			171	BPSK	MCS0	NA
		802.11ax (HE20) 26-tone RU			169, 173, 177	BPSK	MCS0	0, 4, 8
		802.11ax (HE20) 52-tone RU			169, 173, 177	BPSK	MCS0	37, 39, 40
		802.11ax (HE20) 106-tone RU			169, 173, 177	BPSK	MCS0	53, 54, 54
AC Power Conducted Emissions	A	802.11ax (HE80)	2TX	CDD	171	BPSK	MCS0	NA
Unwanted Emissions below 1 GHz	A, B, C	802.11ax (HE80)	1TX / 2TX	SISO / CDD	171	BPSK	MCS0	NA
Unwanted Emissions above 1 GHz	A, B, C	802.11ax (HE40)	1TX	SISO	167, 175	BPSK	MCS0	NA
EUT Configure Mode:	A	PIFA antenna with PCIe + USB E key interface + dual antenna port						
	B	Dipole antenna with PCIe + USB E key interface + dual antenna port						
	C	Monopole antenna with PCIe + USB E key interface + dual antenna port						

Note: In the original report

1. For EUT antennas, the worst case was found when positioned on (X / Y / Z axis):

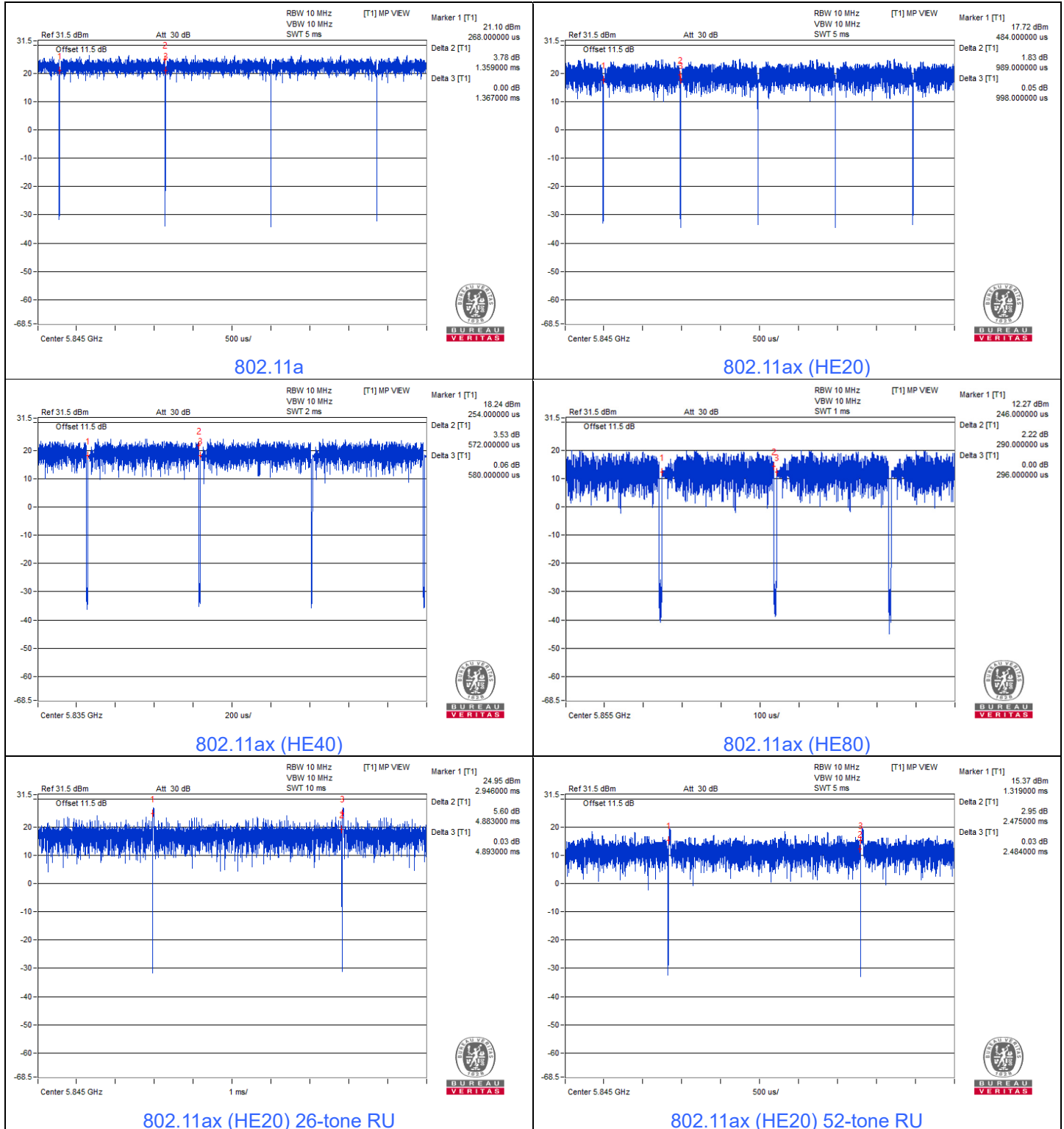
- PIFA antenna: X-axis,
- Dipole antenna: Y-axis used for typical placement,
- Monopole antenna: Y-axis

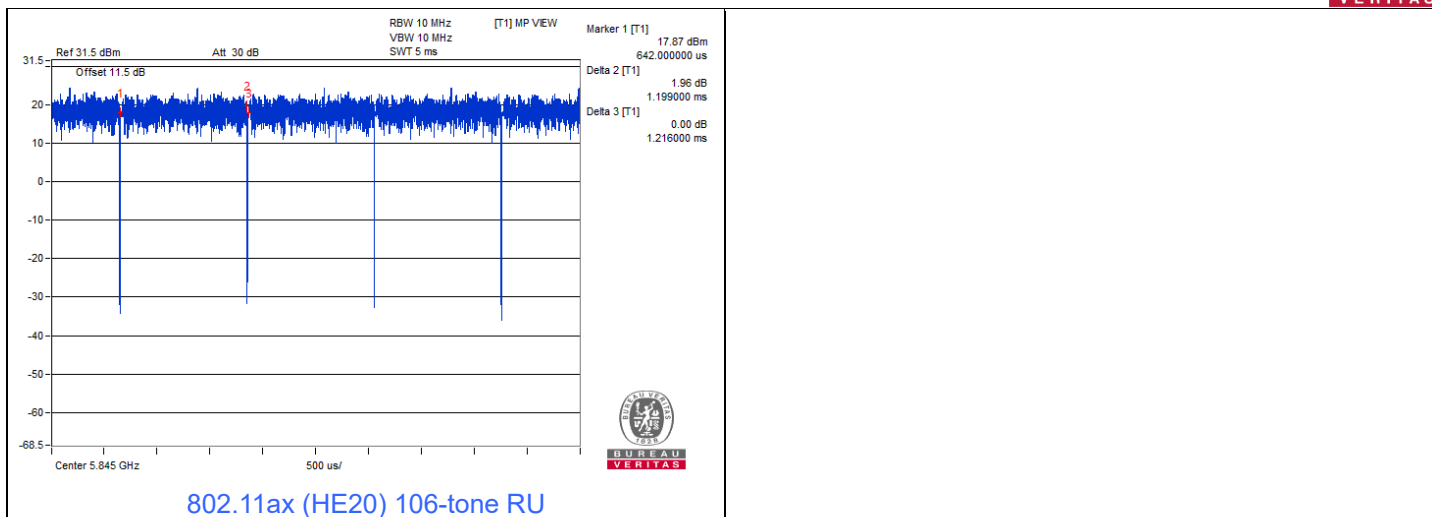
2. For EUT 1TX diversity configuration the worst chain on Chain 0.

3. For Partial RU the worst case occurs in 20MHz bandwidth(RU 26/52/106).

3.5 Duty Cycle of Test Signal

- 802.11a:** Duty cycle = 1.359 ms / 1.367 ms x 100% = 99.4%
- 802.11ax (HE20):** Duty cycle = 0.989 ms / 0.998 ms x 100% = 99.1%
- 802.11ax (HE40):** Duty cycle = 0.572 ms / 0.58 ms x 100% = 98.6%
- 802.11ax (HE80):** Duty cycle = 0.29 ms / 0.296 ms x 100% = 98.0%
- 802.11ax (HE20) 26-tone RU:** Duty cycle = 4.883 ms / 4.893 ms x 100% = 99.8%
- 802.11ax (HE20) 52-tone RU:** Duty cycle = 2.475 ms / 2.484 ms x 100% = 99.6%
- 802.11ax (HE20) 106-tone RU:** Duty cycle = 1.199 ms / 1.216 ms x 100% = 98.6%





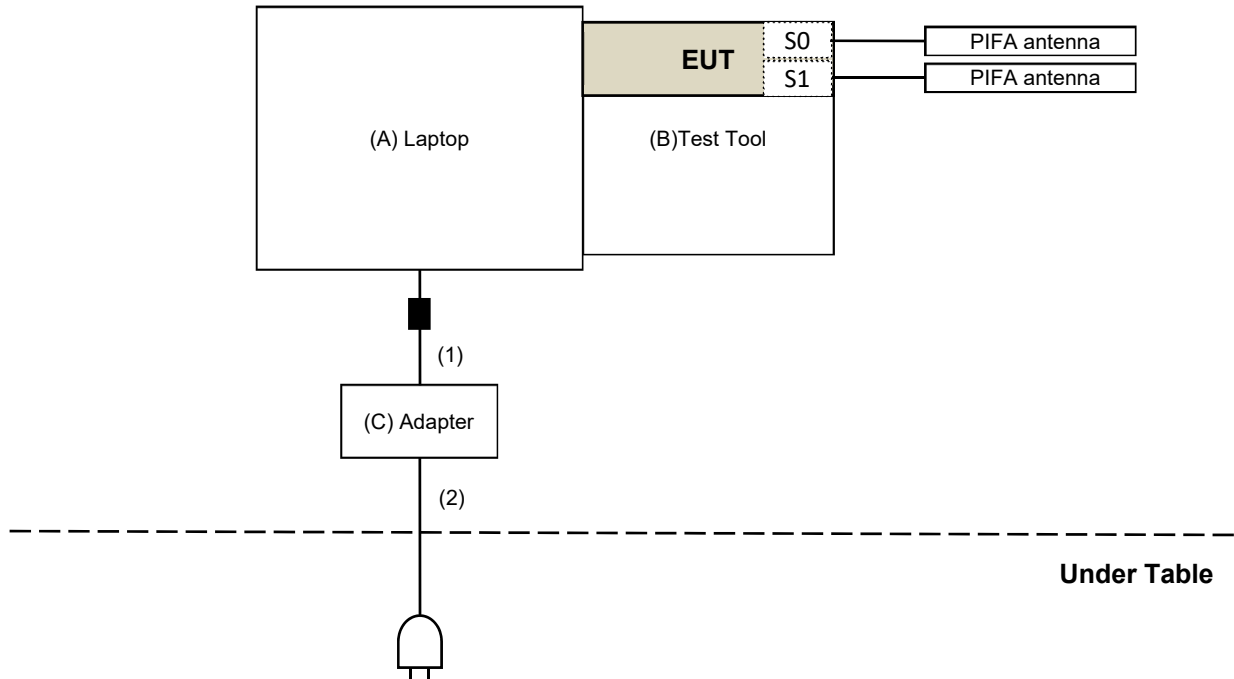
3.6 Test Program Used and Operation Descriptions

Controlling software (RTL8852B MP Toolkit V1.0.7) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

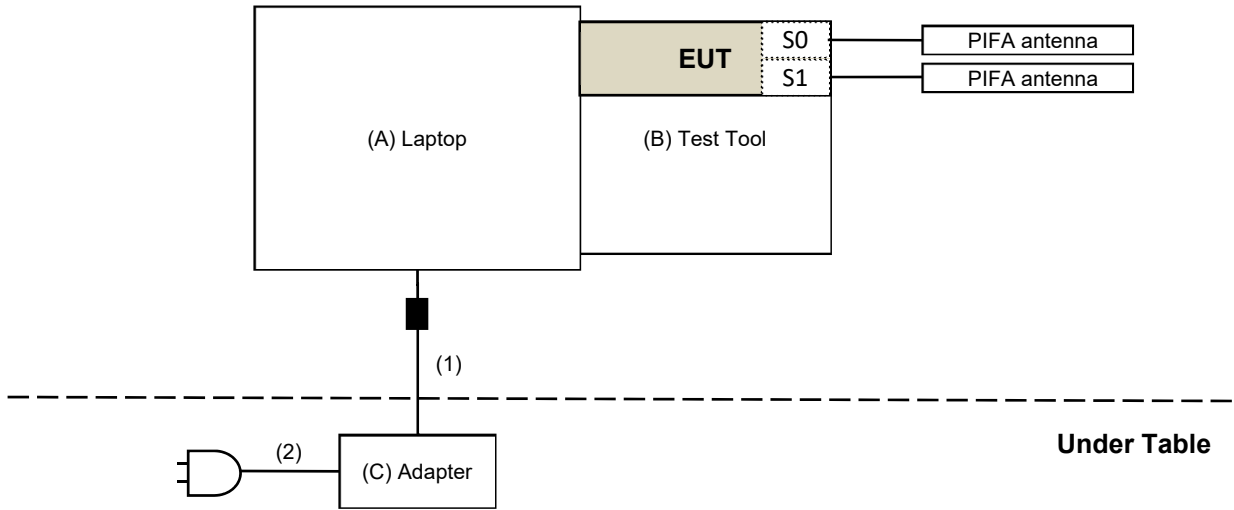
3.7 Connection Diagram of EUT and Peripheral Devices

For AC Power Conducted Emission Test

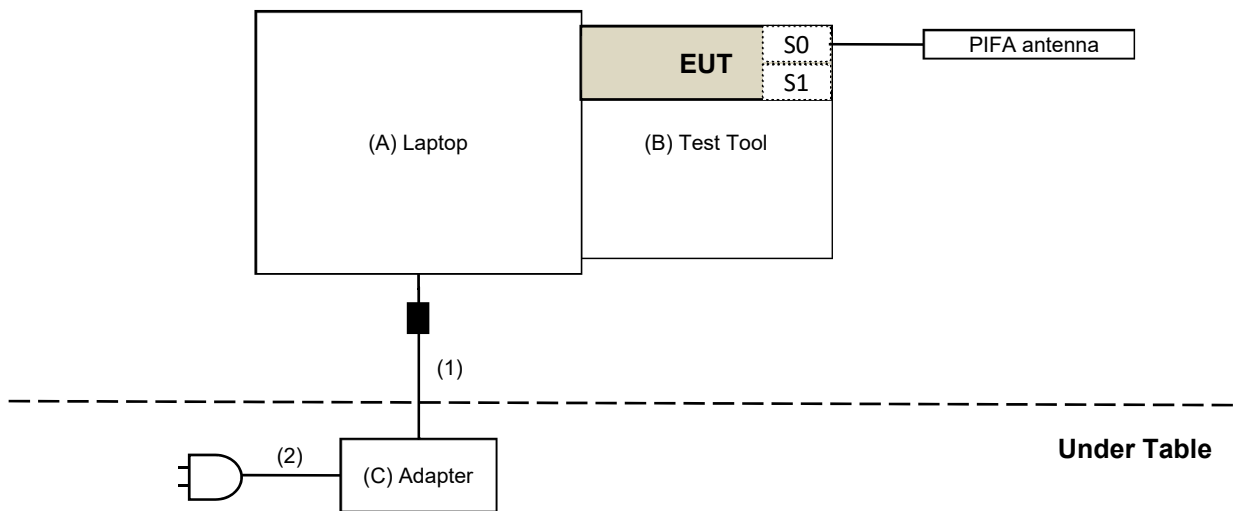
Mode A



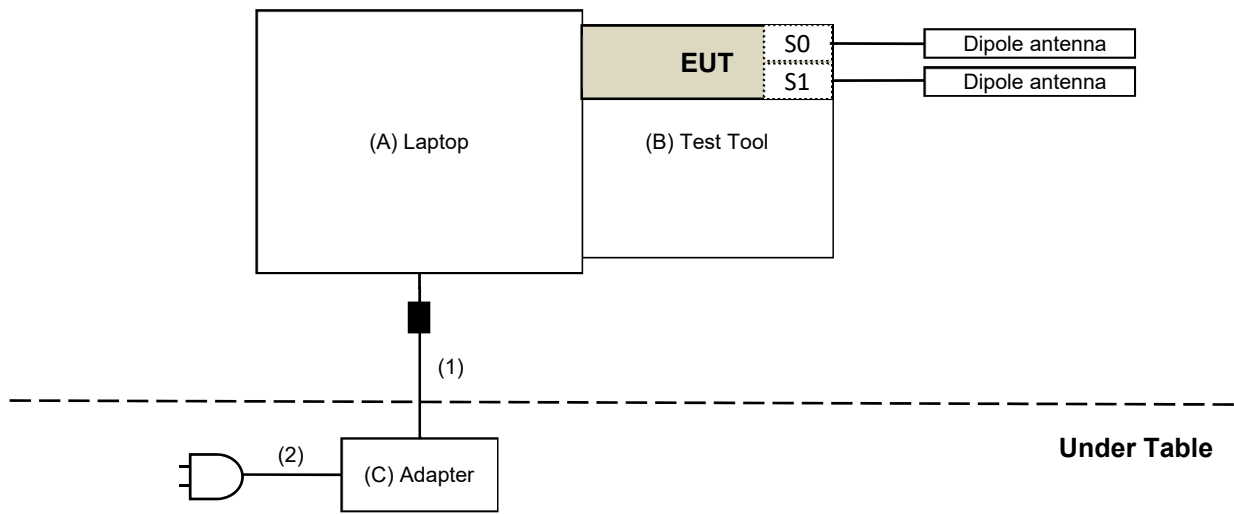
For Unwanted Emissions test
Mode A (PIFA antenna 2TX)



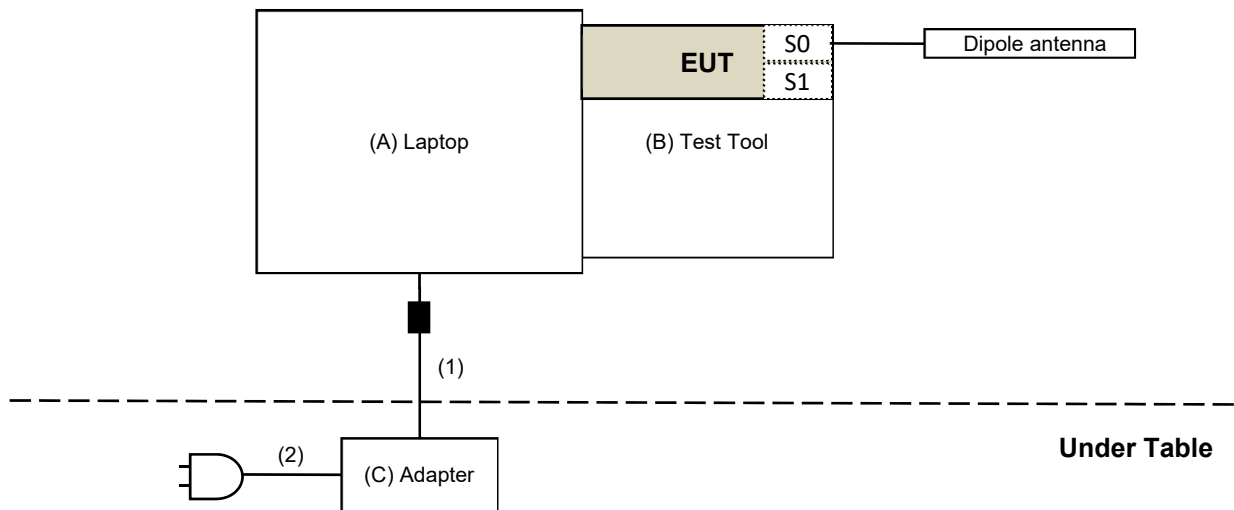
Mode A (PIFA antenna 1TX)



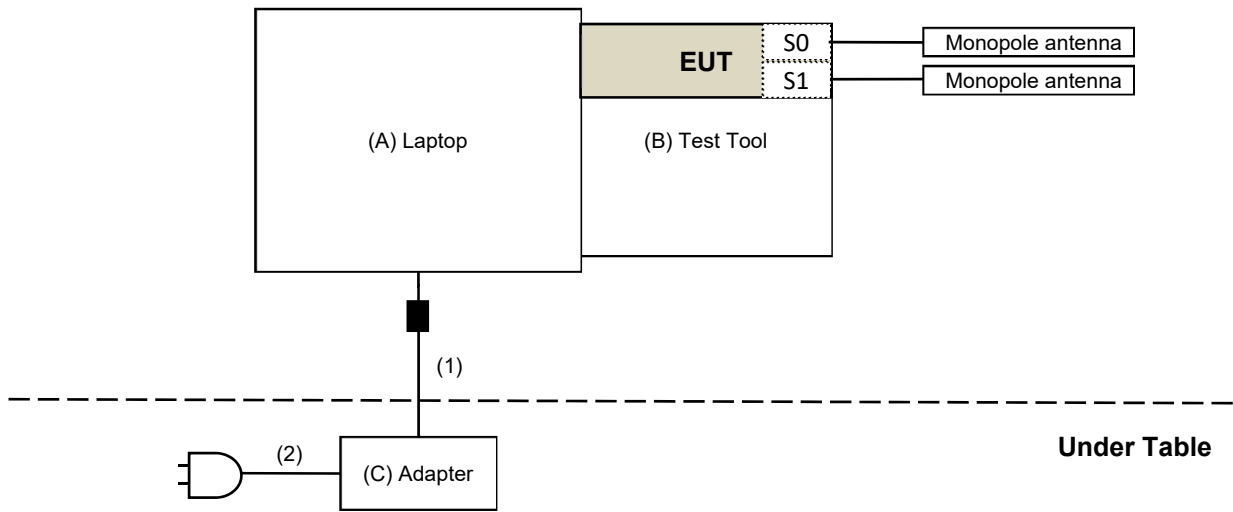
Mode B (Dipole antenna 2TX)



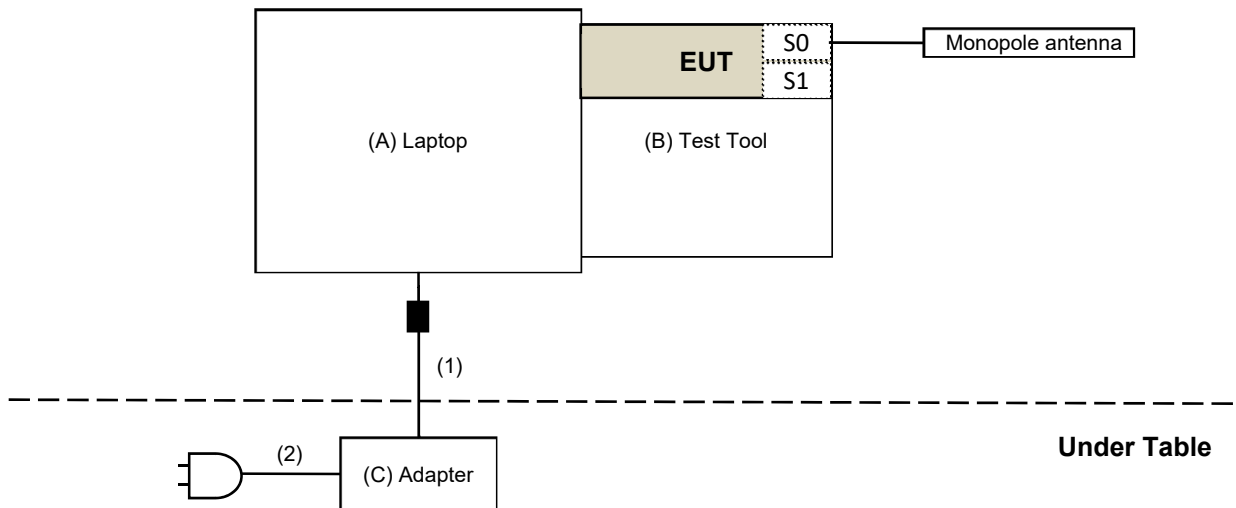
Mode B (Dipole antenna 1TX)



Mode C (Monopole antenna 2TX)



Mode C (Monopole antenna 1TX)



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Laptop	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab
B	Test Tool	Realtek	N/A	N/A	N/A	Supplied by applicant
C	Adapter	DELL	LA65NS2-01	N/A	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	DC Cable	1	1.8	No	1	Provided by Lab
2	AC Cable	1	1	No	0	Provided by Lab

4 Test Instruments

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

4.1 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Pulse Power Sensor Anritsu	MA2411B	1726434	2023/6/19	2024/6/18
RF Power Meter Anritsu	ML2495A	1529002	2023/6/17	2024/6/16

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2024/5/24

4.2 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohm terminal resistance Telegartner	50 ohm	3	2023/10/20	2024/10/19
EMI Test Receiver R&S	ESCS 30	847124/029	2023/10/18	2024/10/17
Fixed Attenuator STI	STI02-2200-10	005	2024/2/19	2025/2/18
LISN R&S	ESH3-Z5	835239/001	2023/4/6	2024/4/5
		848773/004	2023/10/13	2024/10/12
RF Coaxial Cable JYEBAO	5D-FB	COCCAB-001	2024/2/19	2025/2/18
Software BVADT	BVADT_Cond_V7.3.7.4	N/A	N/A	N/A

Notes:

1. The test was performed in Conduction 1
2. Tested Date: 2024/3/22

4.3 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-0842	2023/10/12	2024/10/11
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	N/A	N/A
EMI Test Receiver R&S	ESR7	102026	2023/4/6	2024/4/5
Fixed Attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-02	2023/12/12	2024/12/11
Loop Antenna Electro-Metrics	EM-6879	264	2024/2/23	2025/2/22
Preamplifier EMCI	EMC330N	980538	2023/4/6	2024/4/5
	EMC001340	980142	2024/2/19	2025/2/18
PXA Signal Analyzer Keysight	N9030B	MY57141948	2023/5/19	2024/5/18
RF Coaxial Cable JYBAO	5D-FB	LOOPCAB-001	2024/2/19	2025/2/18
		LOOPCAB-002	2024/2/19	2025/2/18
RF Coaxial Cable PEWC	8D	966-5-1	2023/4/6	2024/4/5
		966-5-2	2023/4/6	2024/4/5
		966-5-3	2023/4/6	2024/4/5
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A

Notes:

1. The test was performed in 966 Chamber No. 5.
2. Tested Date: 2024/3/22 ~ 2024/3/25

4.4 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	N/A	N/A
EMI Test Receiver R&S	ESR7	102026	2024/3/25	2025/3/24
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-1819	2023/11/12	2024/11/11
	BBHA 9170	9170-739	2023/11/12	2024/11/11
Preamplifier EMCI	EMC12630SE	980509	2024/1/29	2025/1/28
	EMC184045SE	980387	2023/8/9	2024/8/8
PXA Signal Analyzer Keysight	N9030B	MY57141948	2024/5/20	2025/5/19
RF Coaxial Cable EMCI	EMC102-KM-KM-1200	160924	2024/1/29	2025/1/28
	EMC102-KM-KM-4000	200214	2024/1/29	2025/1/28
	EMC104-SM-SM-1500	180503	2024/3/16	2025/3/15
	EMC104-SM-SM-2000	180501	2024/3/16	2025/3/15
	EMC104-SM-SM-6000	180506	2024/3/16	2025/3/15
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A

Notes:

1. The test was performed in 966 Chamber No. 5.
2. Tested Date: 2024/5/28

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 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.

5.3 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	$2400/F(\text{kHz})$	300
0.490 ~ 1.705	$24000/F(\text{kHz})$	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).

5.4 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:

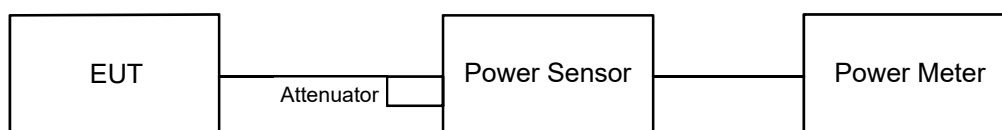
The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup

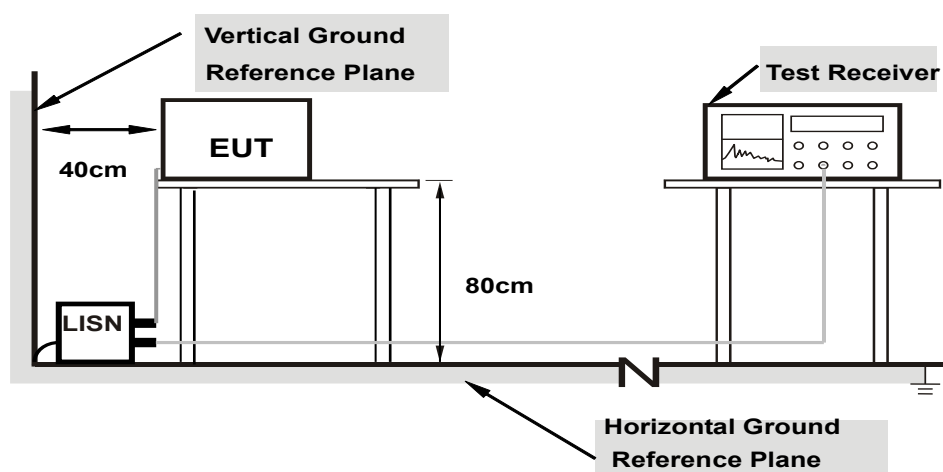


6.1.2 Test Procedure

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

6.2 AC Power Conducted Emissions

6.2.1 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).

6.2.2 Test Procedure

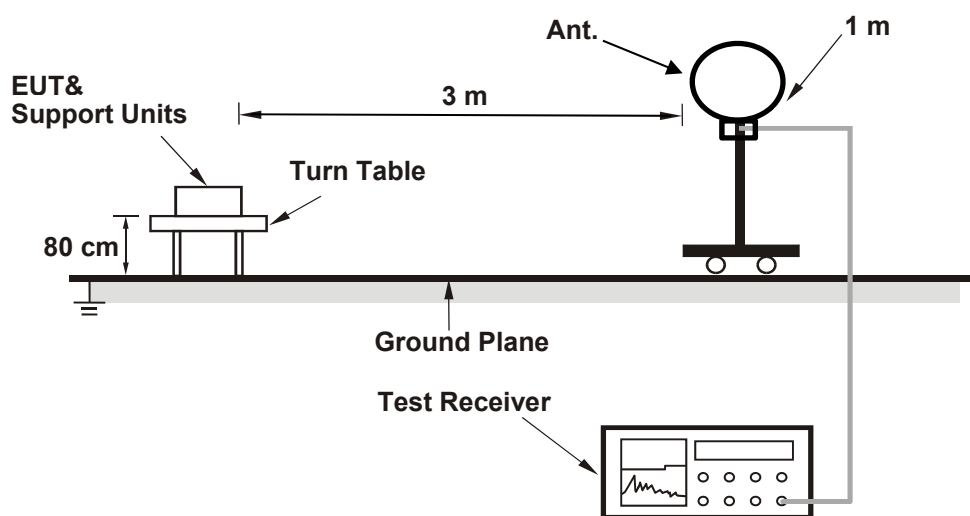
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The 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.

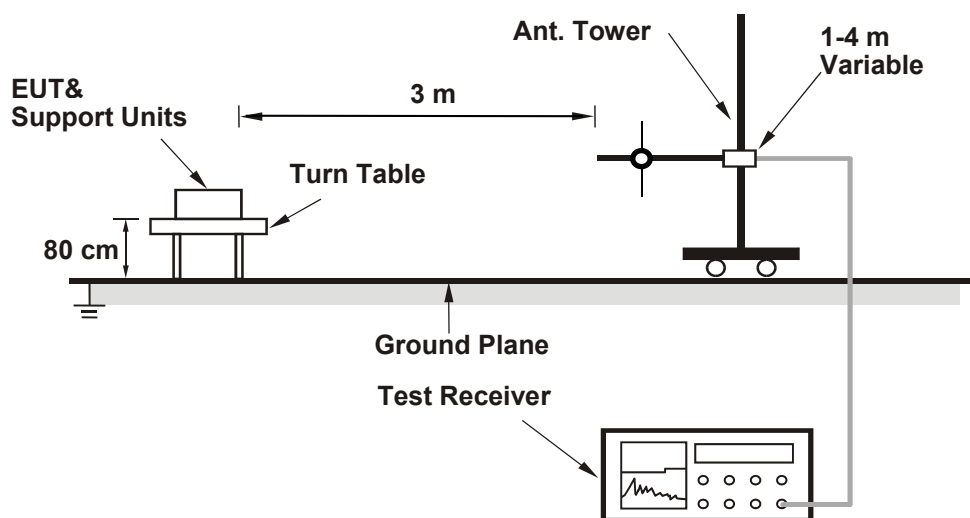
6.3 Unwanted Emissions below 1 GHz

6.3.1 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).

6.3.2 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

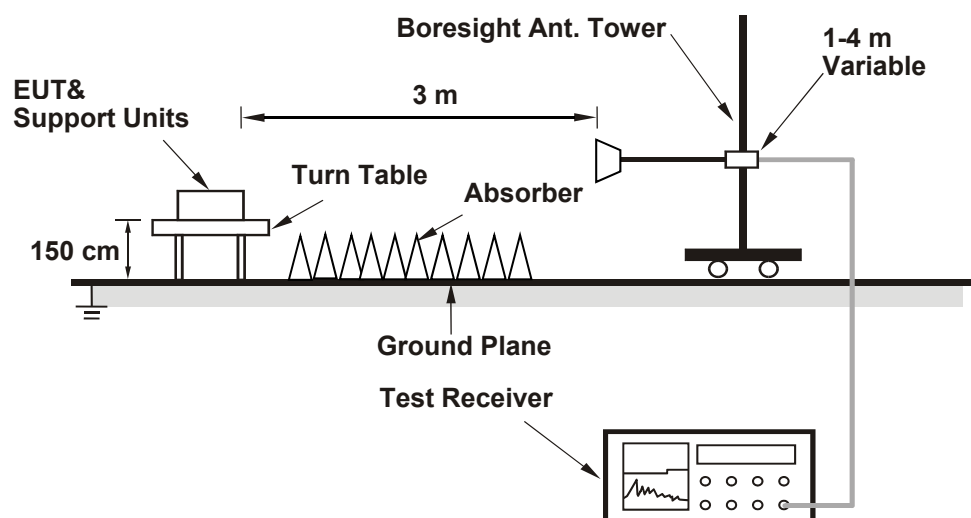
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the 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.

6.4 Unwanted Emissions above 1 GHz

6.4.1 Test Setup



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

6.4.2 Test Procedure

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

Notes:

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

7 Test Results of Test Item

7.1 RF Output Power

Input Power:	3.3 Vdc	Environmental Conditions:	26°C, 63% RH	Tested By:	Katina Lu
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1TX

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
169	5845	100.693	20.03	5.00	318.419	25.03	30	Pass
173	5865	104.232	20.18	5.00	329.611	25.18	30	Pass
177	5885	100.693	20.03	5.00	318.419	25.03	30	Pass

Note: The antenna gain is 5 dBi.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
169	5845	117.761	20.71	5.00	372.393	25.71	30	Pass
173	5865	120.504	20.81	5.00	381.067	25.81	30	Pass
177	5885	116.681	20.67	5.00	368.978	25.67	30	Pass

Note: The antenna gain is 5 dBi.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
167	5835	130.017	21.14	5.00	411.15	26.14	30	Pass
175	5875	127.644	21.06	5.00	403.646	26.06	30	Pass

Note: The antenna gain is 5 dBi.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
171	5855	110.408	20.43	5.00	349.141	25.43	30	Pass

Note: The antenna gain is 5 dBi.

802.11ax (HE20) 26-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
169	5845	13.459	11.29	5.00	42.561	16.29	30	Pass
173	5865	13.836	11.41	5.00	43.753	16.41	30	Pass
177	5885	13.366	11.26	5.00	42.267	16.26	30	Pass

Note: The antenna gain is 5 dBi.

802.11ax (HE20) 52-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
169	5845	26.669	14.26	5.00	84.335	19.26	30	Pass
173	5865	27.416	14.38	5.00	86.697	19.38	30	Pass
177	5885	26.669	14.26	5.00	84.335	19.26	30	Pass

Note: The antenna gain is 5 dBi.

802.11ax (HE20) 106-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
169	5845	54.702	17.38	5.00	172.983	22.38	30	Pass
173	5865	52.966	17.24	5.00	167.493	22.24	30	Pass
177	5885	53.703	17.30	5.00	169.824	22.3	30	Pass

Note: The antenna gain is 5 dBi.

2TX
802.11a

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
169	5845	14.04	14.06	50.82	17.06	5.00	160.707	22.06	30	Pass
173	5865	13.84	14.02	49.445	16.94	5.00	156.359	21.94	30	Pass
177	5885	13.85	13.98	49.27	16.93	5.00	155.805	21.93	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 5 dBi.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
169	5845	14.20	14.43	54.036	17.33	5.00	170.877	22.33	30	Pass
173	5865	14.30	14.39	54.394	17.36	5.00	172.009	22.36	30	Pass
177	5885	14.34	14.38	54.58	17.37	5.00	172.597	22.37	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 5 dBi.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
167	5835	17.17	17.21	104.721	20.20	5.00	331.157	25.2	30	Pass
175	5875	17.29	17.37	108.155	20.34	5.00	342.016	25.34	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 5 dBi.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
171	5855	17.61	17.73	116.969	20.68	5.00	369.888	25.68	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 5 dBi.

802.11ax (HE20) 26-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
169	5845	4.68	5.12	6.189	7.92	5.00	19.571	12.92	30	Pass
173	5865	4.53	5.95	6.773	8.31	5.00	21.418	13.31	30	Pass
177	5885	4.59	5.71	6.601	8.20	5.00	20.874	13.2	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 5 dBi.

802.11ax (HE20) 52-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
169	5845	7.54	8.59	12.903	11.11	5.00	40.803	16.11	30	Pass
173	5865	7.44	9.07	13.619	11.34	5.00	43.067	16.34	30	Pass
177	5885	7.66	9.12	14	11.46	5.00	44.272	16.46	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 5 dBi.

802.11ax (HE20) 106-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
169	5845	10.34	11.28	24.242	13.85	5.00	76.66	18.85	30	Pass
173	5865	10.27	11.49	24.734	13.93	5.00	78.216	18.93	30	Pass
177	5885	10.15	11.59	24.773	13.94	5.00	78.339	18.94	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 5 dBi.

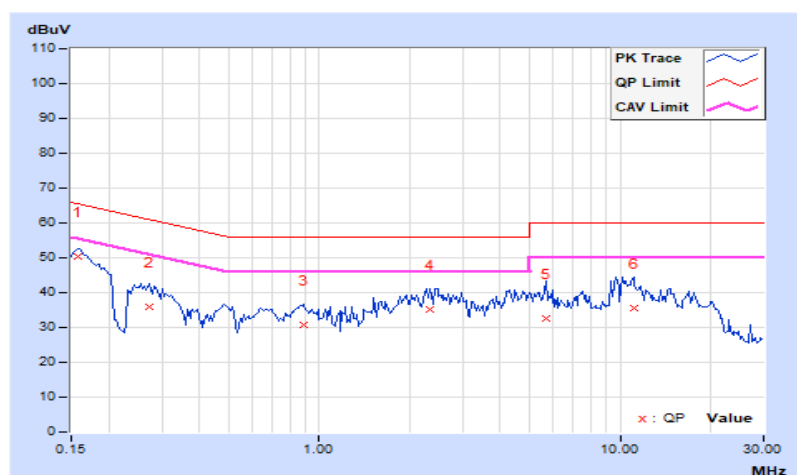
7.2 AC Power Conducted Emissions

RF Mode	802.11ax (HE80)	Channel	CH 171 : 5855 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	21°C, 71% RH
Tested By	Willy Lin		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	9.93	40.52	25.36	50.45	35.29	65.58	55.58	-15.13	-20.29
2	0.27109	9.93	26.08	4.83	36.01	14.76	61.08	51.08	-25.07	-36.32
3	0.88828	9.97	20.77	9.58	30.74	19.55	56.00	46.00	-25.26	-26.45
4	2.33203	10.04	25.07	15.31	35.11	25.35	56.00	46.00	-20.89	-20.65
5	5.69531	10.22	22.45	14.17	32.67	24.39	60.00	50.00	-27.33	-25.61
6	11.08203	10.55	25.06	18.72	35.61	29.27	60.00	50.00	-24.39	-20.73

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

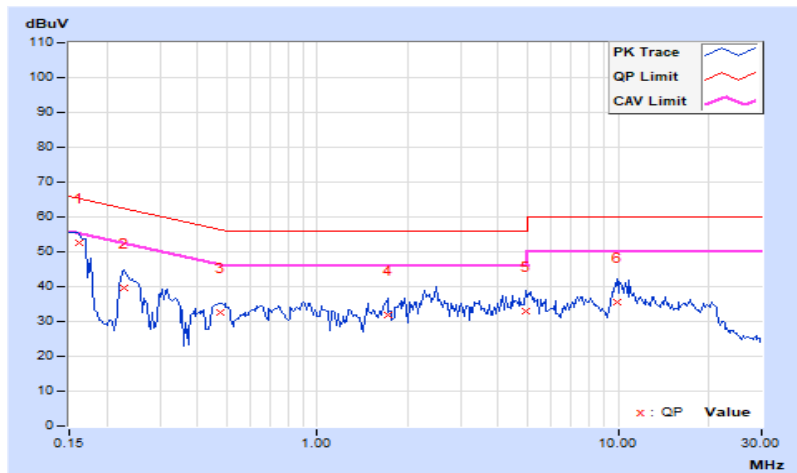


RF Mode	802.11ax (HE80)	Channel	CH 171 : 5855 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	21°C, 71% RH
Tested By	Willy Lin		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	9.99	42.55	29.81	52.54	39.80	65.38	55.38	-12.84	-15.58
2	0.22812	9.99	29.70	13.18	39.69	23.17	62.52	52.52	-22.83	-29.35
3	0.47813	10.00	22.67	12.80	32.67	22.80	56.37	46.37	-23.70	-23.57
4	1.71094	10.06	21.82	11.60	31.88	21.66	56.00	46.00	-24.12	-24.34
5	4.94141	10.20	22.94	14.84	33.14	25.04	56.00	46.00	-22.86	-20.96
6	9.92578	10.42	25.09	18.41	35.51	28.83	60.00	50.00	-24.49	-21.17

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



7.3 Unwanted Emissions below 1 GHz

Mode A

1TX

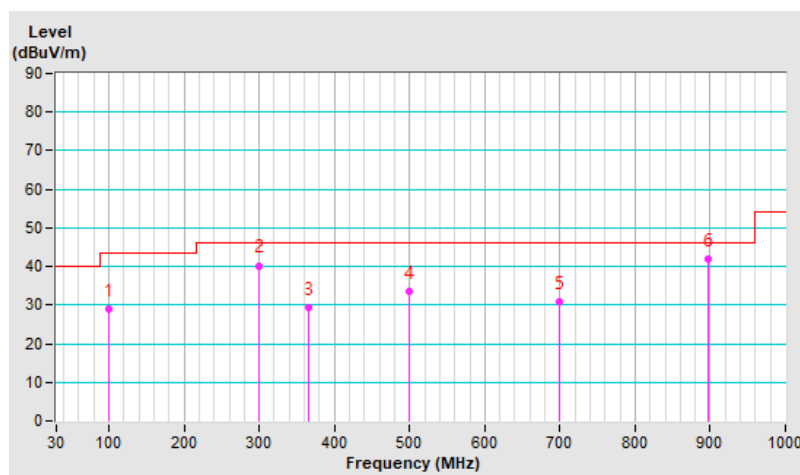
RF Mode	802.11ax (HE80)	Channel	CH 171 : 5855 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	21°C, 67% RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	99.77	29.0 QP	43.5	-14.5	2.00 H	287	51.2	-22.2
2	298.74	40.2 QP	46.0	-5.8	1.00 H	107	57.3	-17.1
3	365.11	29.5 QP	46.0	-16.5	1.00 H	209	45.0	-15.5
4	498.90	33.6 QP	46.0	-12.4	1.00 H	0	45.9	-12.3
5	698.43	31.0 QP	46.0	-15.0	1.00 H	158	39.3	-8.3
6	898.03	42.0 QP	46.0	-4.0	1.00 H	278	47.8	-5.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit 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.

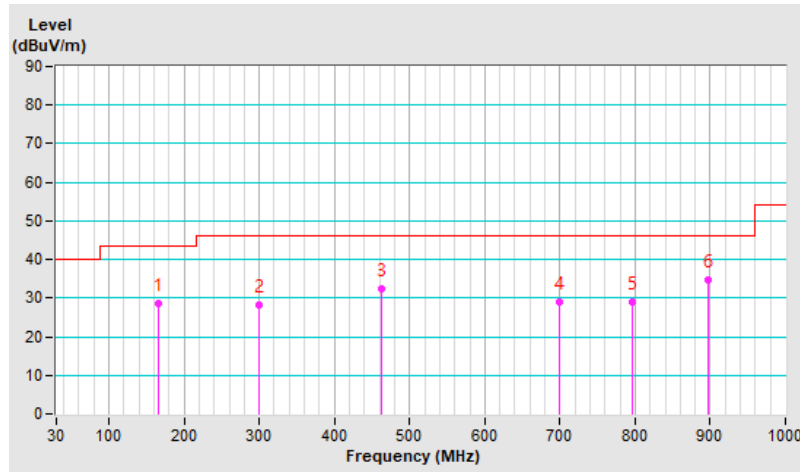


RF Mode	802.11ax (HE80)	Channel	CH 171 : 5855 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	21°C, 67% RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	166.28	28.4 QP	43.5	-15.1	1.00 V	52	46.1	-17.7
2	299.32	28.1 QP	46.0	-17.9	1.00 V	162	45.2	-17.1
3	462.64	32.4 QP	46.0	-13.6	1.00 V	201	45.3	-12.9
4	698.40	28.9 QP	46.0	-17.1	1.00 V	294	37.2	-8.3
5	796.64	28.8 QP	46.0	-17.2	3.00 V	360	35.6	-6.8
6	898.03	34.8 QP	46.0	-11.2	3.00 V	288	40.6	-5.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit 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.



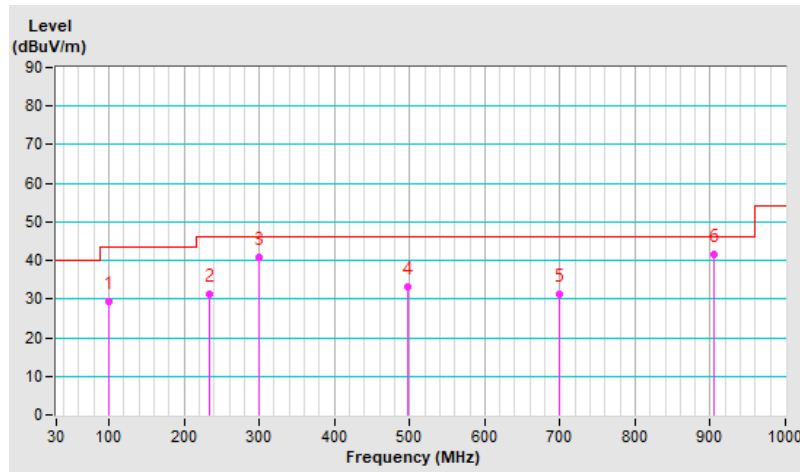
2TX

RF Mode	802.11ax (HE80)	Channel	CH 171 : 5855 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	21°C, 67% RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	99.77	29.4 QP	43.5	-14.1	2.00 H	283	51.6	-22.2
2	232.80	31.2 QP	46.0	-14.8	1.00 H	82	51.2	-20.0
3	298.76	40.6 QP	46.0	-5.4	1.00 H	99	57.7	-17.1
4	497.88	33.1 QP	46.0	-12.9	2.00 H	339	45.4	-12.3
5	698.48	31.3 QP	46.0	-14.7	3.00 H	146	39.6	-8.3
6	904.29	41.5 QP	46.0	-4.5	1.00 H	304	47.1	-5.6

Remarks:

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

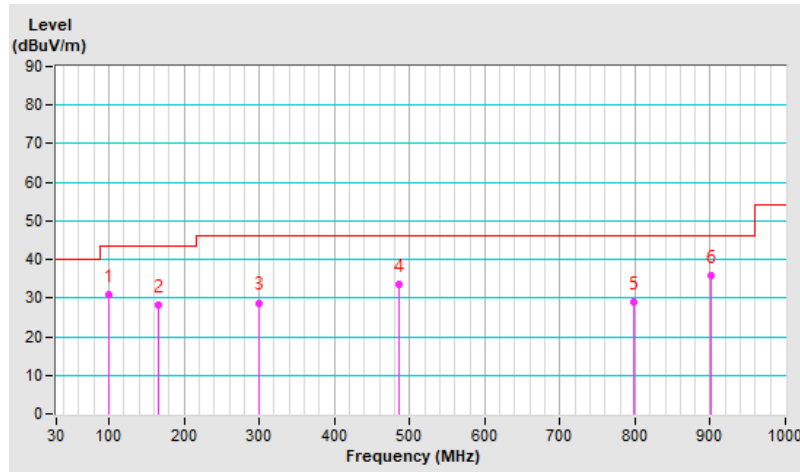


RF Mode	802.11ax (HE80)	Channel	CH 171 : 5855 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	21°C, 67% RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	99.62	31.0 QP	43.5	-12.5	1.00 V	244	53.3	-22.3
2	166.28	28.1 QP	43.5	-15.4	1.00 V	49	45.8	-17.7
3	299.32	28.8 QP	46.0	-17.2	1.00 V	175	45.9	-17.1
4	485.80	33.5 QP	46.0	-12.5	1.00 V	200	46.0	-12.5
5	798.19	29.1 QP	46.0	-16.9	2.00 V	360	35.9	-6.8
6	901.30	35.9 QP	46.0	-10.1	2.00 V	157	41.6	-5.7

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 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.



Mode B

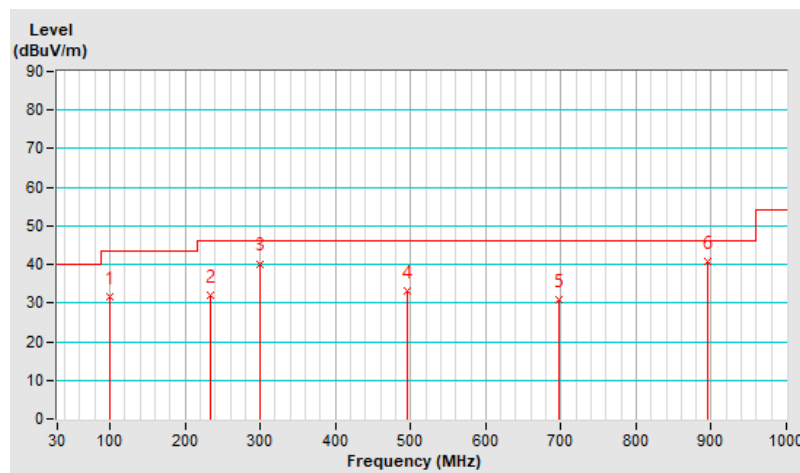
1TX

RF Mode	802.11ax (HE80)	Channel	CH 171 : 5855 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	20°C, 66% RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	99.10	31.5 QP	43.5	-12.0	1.00 H	284	53.9	-22.4
2	232.80	31.9 QP	46.0	-14.1	2.00 H	276	51.9	-20.0
3	299.30	40.2 QP	46.0	-5.8	2.00 H	360	57.3	-17.1
4	496.50	33.0 QP	46.0	-13.0	1.50 H	168	45.3	-12.3
5	698.20	31.0 QP	46.0	-15.0	1.50 H	260	39.3	-8.3
6	896.20	40.9 QP	46.0	-5.1	1.00 H	287	46.6	-5.7

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 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.

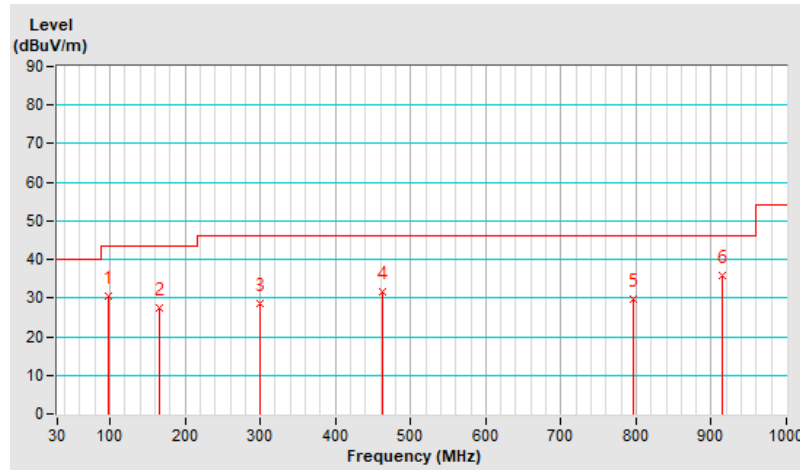


RF Mode	802.11ax (HE80)	Channel	CH 171 : 5855 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	20°C, 66% RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	98.70	30.4 QP	43.5	-13.1	1.00 V	15	52.8	-22.4
2	166.00	27.5 QP	43.5	-16.0	2.00 V	42	45.2	-17.7
3	300.10	28.6 QP	46.0	-17.4	1.50 V	164	45.6	-17.0
4	461.70	31.6 QP	46.0	-14.4	2.00 V	226	44.5	-12.9
5	795.80	29.7 QP	46.0	-16.3	1.50 V	35	36.6	-6.9
6	913.70	35.7 QP	46.0	-10.3	1.50 V	173	41.2	-5.5

Remarks:

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



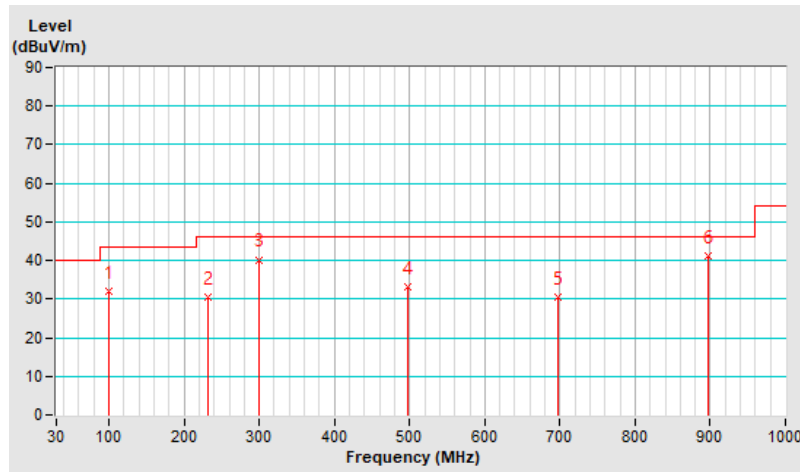
2TX

RF Mode	802.11ax (HE80)	Channel	CH 171 : 5855 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	20°C, 66% RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	99.40	31.9 QP	43.5	-11.6	1.50 H	272	54.2	-22.3
2	231.80	30.5 QP	46.0	-15.5	1.50 H	266	50.6	-20.1
3	299.30	40.2 QP	46.0	-5.8	3.00 H	360	57.3	-17.1
4	496.80	33.3 QP	46.0	-12.7	2.00 H	162	45.6	-12.3
5	698.30	30.6 QP	46.0	-15.4	1.50 H	275	38.9	-8.3
6	897.10	41.3 QP	46.0	-4.7	1.00 H	289	47.1	-5.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit 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.

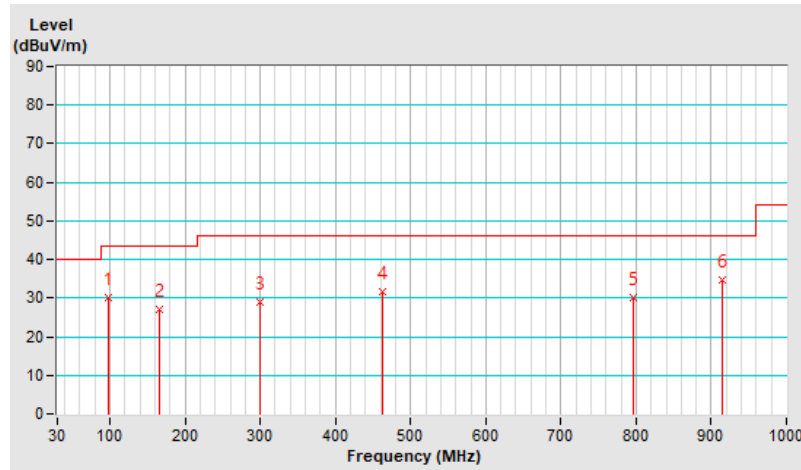


RF Mode	802.11ax (HE80)	Channel	CH 171 : 5855 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	20°C, 66% RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	98.80	30.0 QP	43.5	-13.5	1.50 V	19	52.4	-22.4
2	165.30	27.1 QP	43.5	-16.4	1.50 V	69	44.8	-17.7
3	299.90	28.9 QP	46.0	-17.1	2.00 V	163	46.0	-17.1
4	462.60	31.7 QP	46.0	-14.3	1.00 V	175	44.6	-12.9
5	797.00	30.2 QP	46.0	-15.8	2.00 V	59	37.0	-6.8
6	913.90	34.7 QP	46.0	-11.3	3.00 V	205	40.2	-5.5

Remarks:

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



Mode C

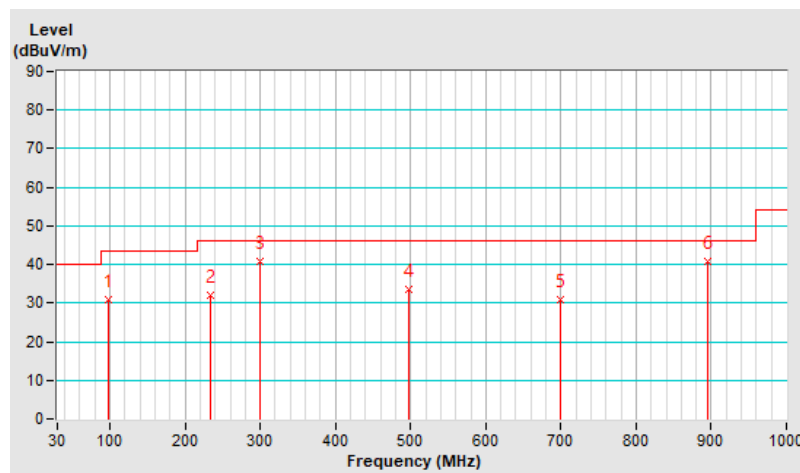
1TX

RF Mode	802.11ax (HE80)	Channel	CH 171 : 5855 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	20°C, 66% RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	98.50	30.9 QP	43.5	-12.6	1.00 H	264	53.4	-22.5
2	233.10	32.0 QP	46.0	-14.0	1.00 H	291	52.0	-20.0
3	300.00	40.7 QP	46.0	-5.3	1.50 H	360	57.8	-17.1
4	497.00	33.5 QP	46.0	-12.5	1.50 H	156	45.8	-12.3
5	698.60	31.0 QP	46.0	-15.0	2.00 H	263	39.3	-8.3
6	896.10	40.9 QP	46.0	-5.1	2.00 H	279	46.6	-5.7

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 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.

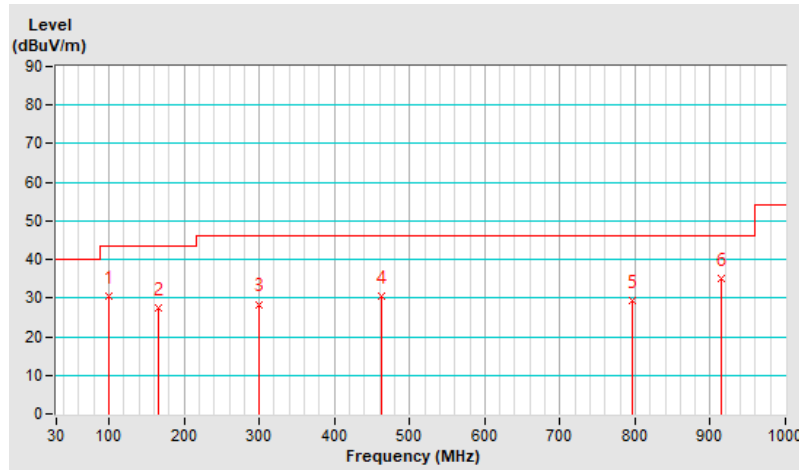


RF Mode	802.11ax (HE80)	Channel	CH 171 : 5855 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	20°C, 66% RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	99.00	30.6 QP	43.5	-12.9	1.00 V	6	53.0	-22.4
2	165.70	27.3 QP	43.5	-16.2	2.00 V	45	45.0	-17.7
3	299.90	28.4 QP	46.0	-17.6	1.00 V	163	45.5	-17.1
4	462.00	30.6 QP	46.0	-15.4	1.50 V	220	43.5	-12.9
5	795.40	29.4 QP	46.0	-16.6	1.50 V	32	36.3	-6.9
6	914.50	35.0 QP	46.0	-11.0	2.00 V	180	40.5	-5.5

Remarks:

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



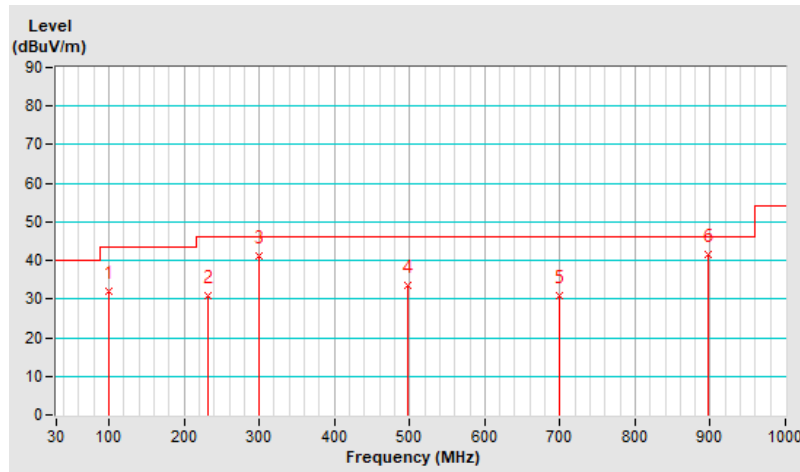
2TX

RF Mode	802.11ax (HE80)	Channel	CH 171 : 5855 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	20°C, 66% RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	99.50	31.9 QP	43.5	-11.6	1.50 H	278	54.2	-22.3
2	231.90	30.9 QP	46.0	-15.1	1.50 H	279	51.0	-20.1
3	300.20	41.0 QP	46.0	-5.0	1.00 H	360	58.0	-17.0
4	497.10	33.4 QP	46.0	-12.6	2.00 H	175	45.7	-12.3
5	698.50	30.9 QP	46.0	-15.1	3.00 H	275	39.2	-8.3
6	897.20	41.4 QP	46.0	-4.6	1.00 H	301	47.2	-5.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit 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.

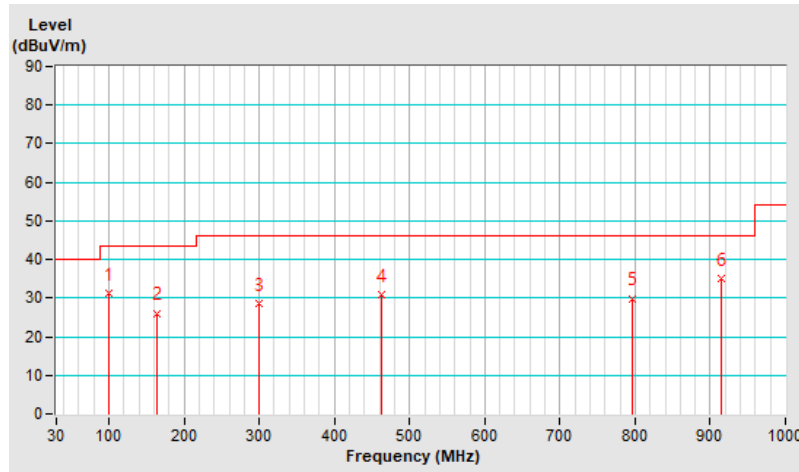


RF Mode	802.11ax (HE80)	Channel	CH 171 : 5855 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	20°C, 66% RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	99.50	31.1 QP	43.5	-12.4	2.00 V	22	53.4	-22.3
2	164.40	26.1 QP	43.5	-17.4	1.00 V	67	43.7	-17.6
3	299.20	28.5 QP	46.0	-17.5	1.50 V	143	45.6	-17.1
4	462.30	31.0 QP	46.0	-15.0	1.50 V	171	43.9	-12.9
5	796.40	29.9 QP	46.0	-16.1	3.00 V	82	36.7	-6.8
6	913.70	34.9 QP	46.0	-11.1	1.50 V	220	40.4	-5.5

Remarks:

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



7.4 Unwanted Emissions above 1 GHz

Mode A

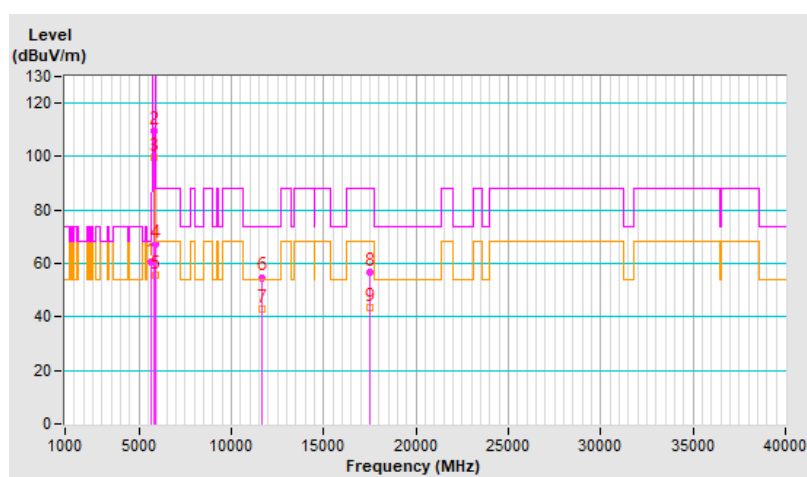
1TX

RF Mode	802.11ax (HE40)	Channel	CH 167 : 5835 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 (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 65 % RH
Tested By	Sampson Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.00	60.5 PK	68.2	-7.7	1.10 H	348	58.4	2.1
2	*5835.00	109.5 PK			1.10 H	348	106.7	2.8
3	*5835.00	99.7 AV			1.10 H	348	96.9	2.8
4	#5895.00	67.0 PK	110.2	-43.2	1.10 H	348	64.3	2.7
5	#5895.00	55.6 AV	90.2	-34.6	1.10 H	348	52.9	2.7
6	11670.00	54.8 PK	74.0	-19.2	2.19 H	59	42.1	12.7
7	11670.00	42.7 AV	54.0	-11.3	2.19 H	59	30.0	12.7
8	#17505.00	56.8 PK	88.2	-31.4	1.78 H	5	38.0	18.8
9	#17505.00	43.7 AV	68.2	-24.5	1.78 H	5	24.9	18.8

Remarks:

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

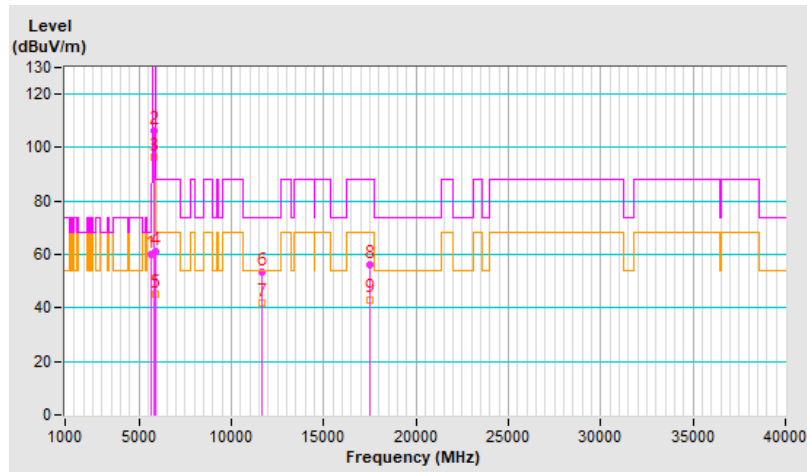


RF Mode	802.11ax (HE40)	Channel	CH 167 : 5835 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 65 % RH
Tested By	Sampson Chen		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.00	60.2 PK	68.2	-8.0	1.44 V	320	58.1	2.1
2	*5835.00	106.5 PK			1.44 V	320	103.7	2.8
3	*5835.00	96.3 AV			1.44 V	320	93.5	2.8
4	#5895.00	61.3 PK	110.2	-48.9	1.44 V	320	58.6	2.7
5	#5895.00	45.1 AV	90.2	-45.1	1.44 V	320	42.4	2.7
6	11670.00	53.5 PK	74.0	-20.5	2.16 V	31	40.8	12.7
7	11670.00	41.8 AV	54.0	-12.2	2.16 V	31	29.1	12.7
8	#17505.00	56.2 PK	88.2	-32.0	1.73 V	10	37.4	18.8
9	#17505.00	43.2 AV	68.2	-25.0	1.73 V	10	24.4	18.8

Remarks:

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

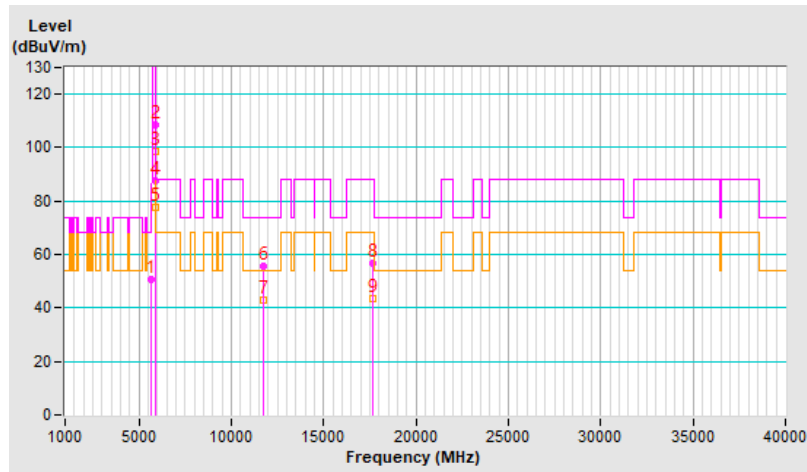


RF Mode	802.11ax (HE40)	Channel	CH 175 : 5875 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 65 % RH
Tested By	Sampson Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.00	50.5 PK	68.2	-17.7	2.60 H	355	48.4	2.1
2	*5875.00	108.5 PK			2.60 H	355	105.7	2.8
3	*5875.00	98.6 AV			2.60 H	355	95.8	2.8
4	#5895.00	87.5 PK	110.2	-22.7	2.60 H	355	84.8	2.7
5	#5895.00	77.8 AV	90.2	-12.4	2.60 H	355	75.1	2.7
6	11750.00	55.4 PK	74.0	-18.6	2.24 H	68	43.0	12.4
7	11750.00	43.1 AV	54.0	-10.9	2.24 H	68	30.7	12.4
8	#17625.00	56.7 PK	88.2	-31.5	1.78 H	15	36.5	20.2
9	#17625.00	43.5 AV	68.2	-24.7	1.78 H	15	23.3	20.2

Remarks:

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

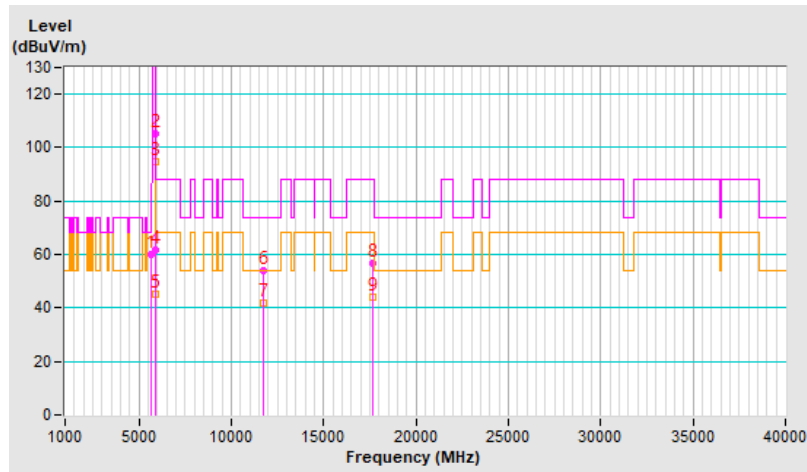


RF Mode	802.11ax (HE40)	Channel	CH 175 : 5875 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 65 % RH
Tested By	Sampson Chen		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.00	60.1 PK	68.2	-8.1	1.38 V	313	58.0	2.1
2	*5875.00	105.3 PK			1.38 V	313	102.5	2.8
3	*5875.00	94.6 AV			1.38 V	313	91.8	2.8
4	#5895.00	61.7 PK	110.2	-48.5	1.38 V	313	59.0	2.7
5	#5895.00	45.4 AV	90.2	-44.8	1.38 V	313	42.7	2.7
6	11750.00	53.9 PK	74.0	-20.1	2.18 V	40	41.5	12.4
7	11750.00	41.9 AV	54.0	-12.1	2.18 V	40	29.5	12.4
8	#17625.00	56.9 PK	88.2	-31.3	1.75 V	24	36.7	20.2
9	#17625.00	43.8 AV	68.2	-24.4	1.75 V	24	23.6	20.2

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.



Mode B

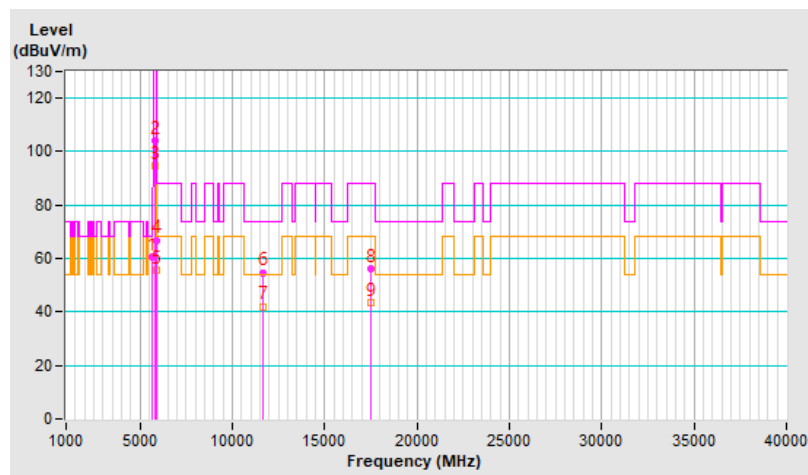
1TX

RF Mode	802.11ax (HE40)	Channel	CH 167 : 5835 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 (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 65 % RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.00	60.4 PK	68.2	-7.8	2.57 H	204	58.3	2.1
2	*5835.00	104.3 PK			2.57 H	204	101.5	2.8
3	*5835.00	94.5 AV			2.57 H	204	91.7	2.8
4	#5895.00	66.9 PK	110.2	-43.3	2.57 H	204	64.2	2.7
5	#5895.00	55.7 AV	90.2	-34.5	2.57 H	204	53.0	2.7
6	11670.00	54.8 PK	74.0	-19.2	2.05 H	276	42.1	12.7
7	11670.00	42.1 AV	54.0	-11.9	2.05 H	276	29.4	12.7
8	#17505.00	56.3 PK	88.2	-31.9	3.21 H	151	37.5	18.8
9	#17505.00	43.3 AV	68.2	-24.9	3.21 H	151	24.5	18.8

Remarks:

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

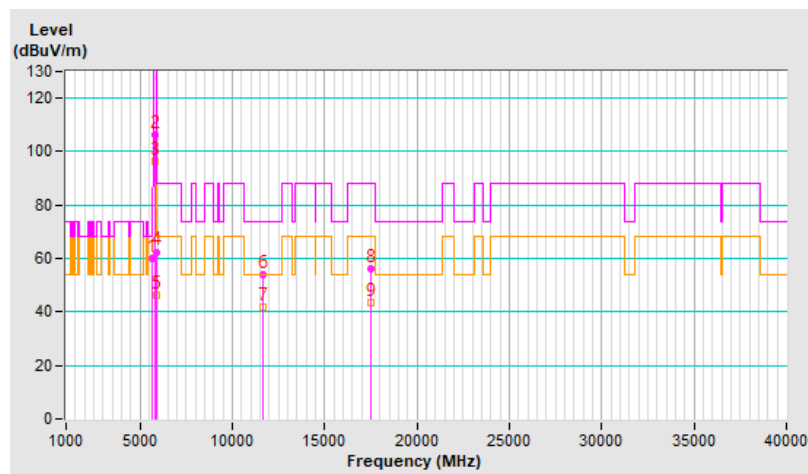


RF Mode	802.11ax (HE40)	Channel	CH 167 : 5835 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 65 % RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.00	60.1 PK	68.2	-8.1	3.11 V	98	58.0	2.1
2	*5835.00	106.1 PK			3.11 V	98	103.3	2.8
3	*5835.00	96.5 AV			3.11 V	98	93.7	2.8
4	#5895.00	62.5 PK	110.2	-47.7	3.11 V	98	59.8	2.7
5	#5895.00	46.3 AV	90.2	-43.9	3.11 V	98	43.6	2.7
6	11670.00	54.1 PK	74.0	-19.9	1.99 V	341	41.4	12.7
7	11670.00	41.6 AV	54.0	-12.4	1.99 V	341	28.9	12.7
8	#17505.00	56.3 PK	88.2	-31.9	2.97 V	325	37.5	18.8
9	#17505.00	43.7 AV	68.2	-24.5	2.97 V	325	24.9	18.8

Remarks:

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

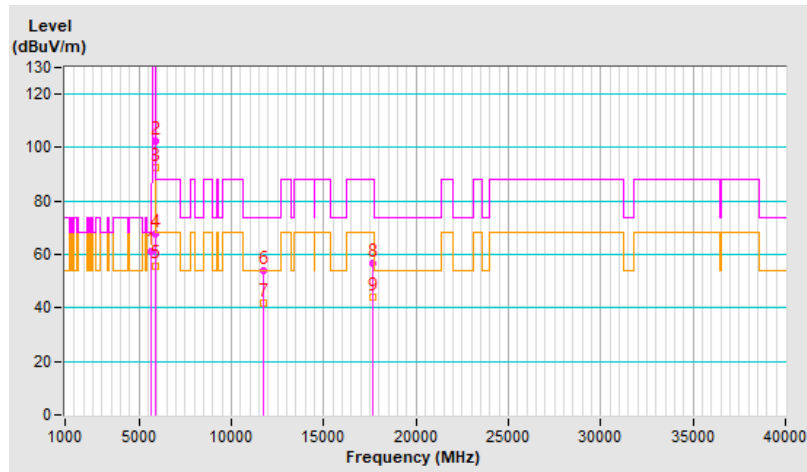


RF Mode	802.11ax (HE40)	Channel	CH 175 : 5875 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 65 % RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.00	61.0 PK	68.2	-7.2	2.50 H	190	58.9	2.1
2	*5875.00	102.3 PK			2.50 H	190	99.5	2.8
3	*5875.00	92.5 AV			2.50 H	190	89.7	2.8
4	#5895.00	67.6 PK	110.2	-42.6	2.50 H	190	64.9	2.7
5	#5895.00	55.9 AV	90.2	-34.3	2.50 H	190	53.2	2.7
6	11750.00	54.2 PK	74.0	-19.8	2.11 H	267	41.8	12.4
7	11750.00	41.7 AV	54.0	-12.3	2.11 H	267	29.3	12.4
8	#17625.00	56.6 PK	88.2	-31.6	3.22 H	151	36.4	20.2
9	#17625.00	43.8 AV	68.2	-24.4	3.22 H	151	23.6	20.2

Remarks:

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

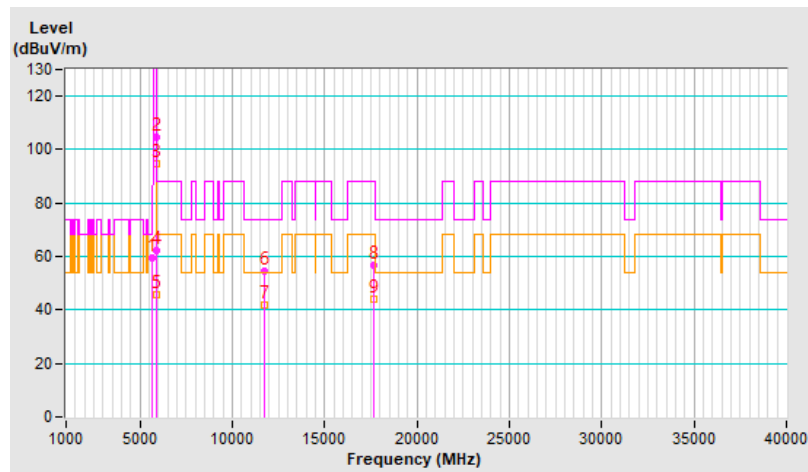


RF Mode	802.11ax (HE40)	Channel	CH 175 : 5875 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 65 % RH
Tested By	Willy Lin		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.00	59.7 PK	68.2	-8.5	3.19 V	84	57.6	2.1
2	*5875.00	104.6 PK			3.19 V	84	101.8	2.8
3	*5875.00	94.5 AV			3.19 V	84	91.7	2.8
4	#5895.00	62.2 PK	110.2	-48.0	3.19 V	84	59.5	2.7
5	#5895.00	45.9 AV	90.2	-44.3	3.19 V	84	43.2	2.7
6	11750.00	54.7 PK	74.0	-19.3	1.94 V	325	42.3	12.4
7	11750.00	41.9 AV	54.0	-12.1	1.94 V	325	29.5	12.4
8	#17625.00	56.5 PK	88.2	-31.7	2.99 V	321	36.3	20.2
9	#17625.00	43.8 AV	68.2	-24.4	2.99 V	321	23.6	20.2

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.



Mode C

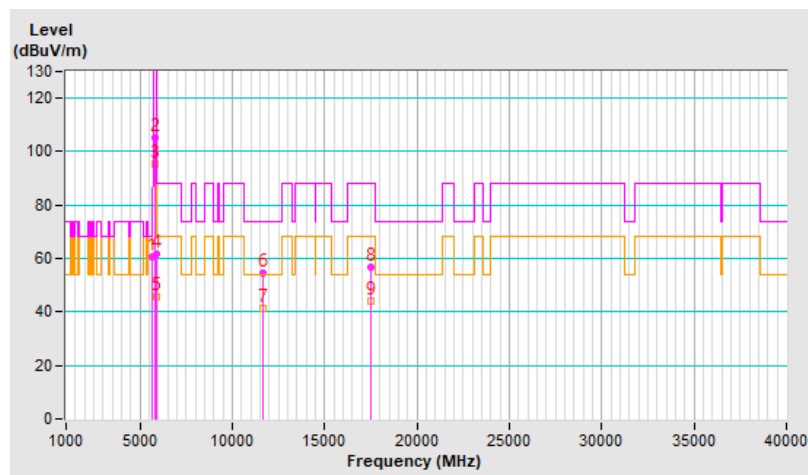
1TX

RF Mode	802.11ax (HE40)	Channel	CH 167 : 5835 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 (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 65 % RH
Tested By	Sampson Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.00	60.4 PK	68.2	-7.8	2.50 H	180	58.3	2.1
2	*5835.00	105.3 PK			2.50 H	180	102.5	2.8
3	*5835.00	95.4 AV			2.50 H	180	92.6	2.8
4	#5895.00	61.7 PK	110.2	-48.5	2.50 H	180	59.0	2.7
5	#5895.00	45.6 AV	90.2	-44.6	2.50 H	180	42.9	2.7
6	11670.00	54.3 PK	74.0	-19.7	2.11 H	315	41.6	12.7
7	11670.00	41.5 AV	54.0	-12.5	2.11 H	315	28.8	12.7
8	#17505.00	56.7 PK	88.2	-31.5	3.22 H	150	37.9	18.8
9	#17505.00	43.8 AV	68.2	-24.4	3.22 H	150	25.0	18.8

Remarks:

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

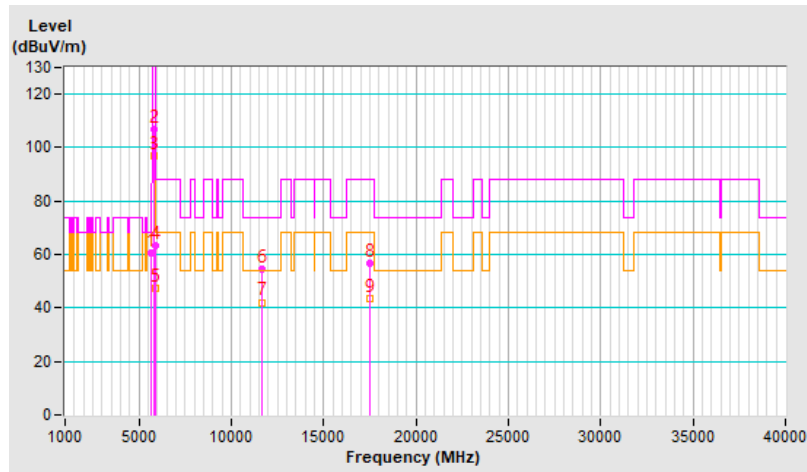


RF Mode	802.11ax (HE40)	Channel	CH 167 : 5835 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 65 % RH
Tested By	Sampson Chen		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.00	60.7 PK	68.2	-7.5	3.36 V	90	58.6	2.1
2	*5835.00	107.0 PK			3.36 V	90	104.2	2.8
3	*5835.00	97.1 AV			3.36 V	90	94.3	2.8
4	#5930.00	63.1 PK	88.2	-25.1	3.36 V	90	60.4	2.7
5	#5930.00	47.3 AV	68.2	-20.9	3.36 V	90	44.6	2.7
6	11670.00	54.6 PK	74.0	-19.4	1.75 V	311	41.9	12.7
7	11670.00	42.1 AV	54.0	-11.9	1.75 V	311	29.4	12.7
8	#17505.00	56.5 PK	88.2	-31.7	2.67 V	285	37.7	18.8
9	#17505.00	43.7 AV	68.2	-24.5	2.67 V	285	24.9	18.8

Remarks:

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

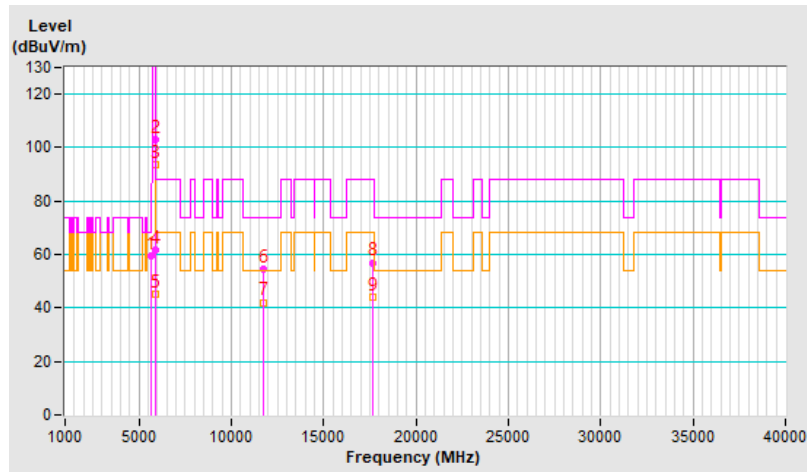


RF Mode	802.11ax (HE40)	Channel	CH 175 : 5875 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 65 % RH
Tested By	Sampson Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.00	59.5 PK	68.2	-8.7	2.71 H	176	57.4	2.1
2	*5875.00	103.2 PK			2.71 H	176	100.4	2.8
3	*5875.00	93.6 AV			2.71 H	176	90.8	2.8
4	#5895.00	61.7 PK	110.2	-48.5	2.71 H	176	59.0	2.7
5	#5895.00	45.3 AV	90.2	-44.9	2.71 H	176	42.6	2.7
6	11750.00	54.4 PK	74.0	-19.6	2.36 H	290	42.0	12.4
7	11750.00	42.1 AV	54.0	-11.9	2.36 H	290	29.7	12.4
8	#17625.00	57.0 PK	88.2	-31.2	3.10 H	160	36.8	20.2
9	#17625.00	44.2 AV	68.2	-24.0	3.10 H	160	24.0	20.2

Remarks:

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

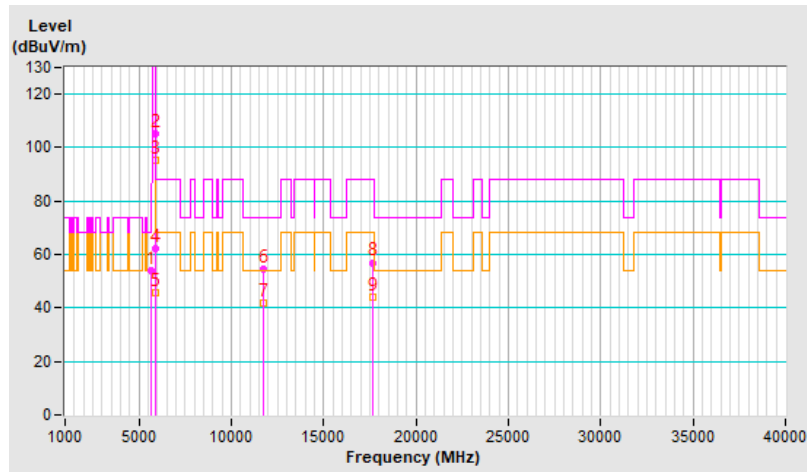


RF Mode	802.11ax (HE40)	Channel	CH 175 : 5875 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 65 % RH
Tested By	Sampson Chen		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.00	54.0 PK	68.2	-14.2	3.39 V	102	51.9	2.1
2	*5875.00	105.1 PK			3.39 V	102	102.3	2.8
3	*5875.00	95.1 AV			3.39 V	102	92.3	2.8
4	#5895.00	62.1 PK	110.2	-48.1	3.39 V	102	59.4	2.7
5	#5895.00	45.6 AV	90.2	-44.6	3.39 V	102	42.9	2.7
6	11750.00	54.6 PK	74.0	-19.4	1.65 V	309	42.2	12.4
7	11750.00	41.8 AV	54.0	-12.2	1.65 V	309	29.4	12.4
8	#17625.00	57.0 PK	88.2	-31.2	2.69 V	277	36.8	20.2
9	#17625.00	43.9 AV	68.2	-24.3	2.69 V	277	23.7	20.2

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.

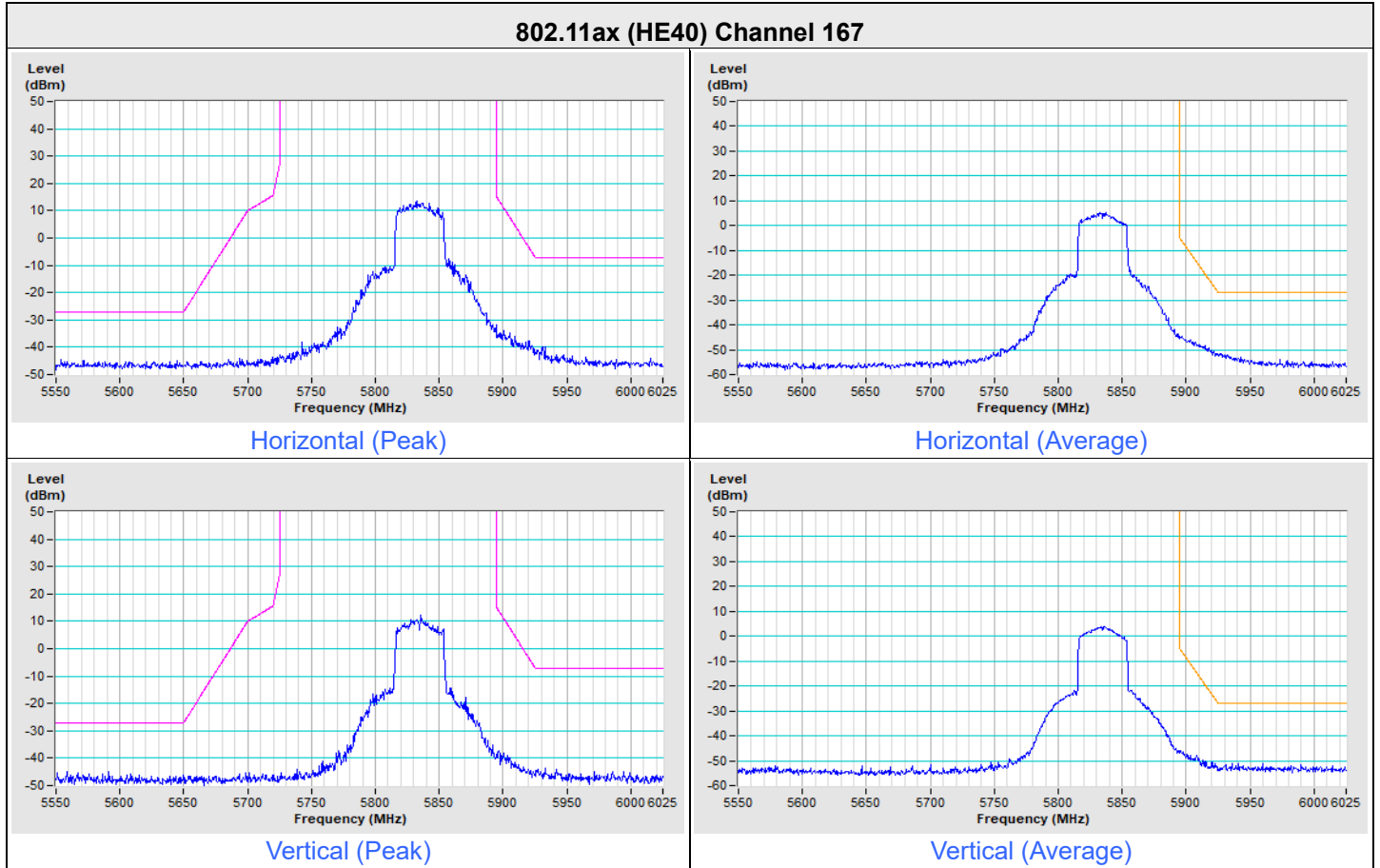


Plot of Band Edge

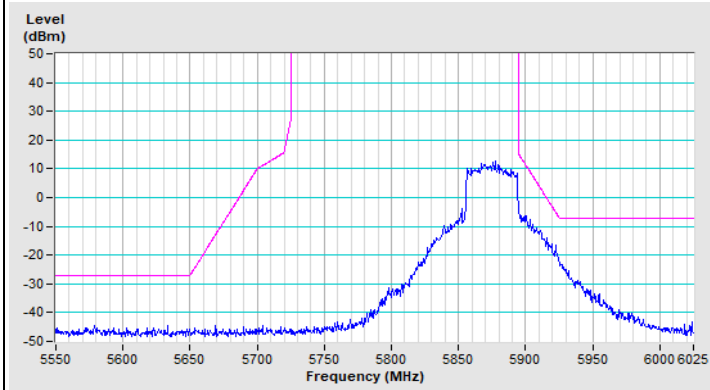
Mode A

1TX

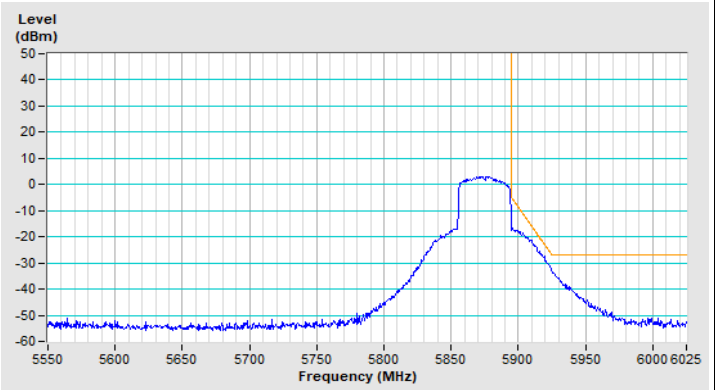
Frequency Range	5.55 GHz ~ 6.025 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=3 MHz, DET=RMS
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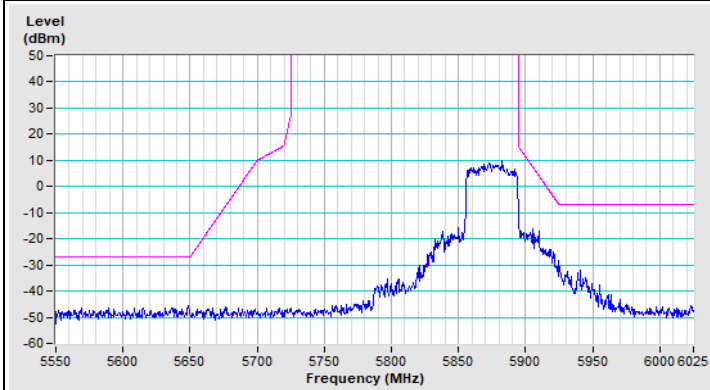
802.11ax (HE40) Channel 175



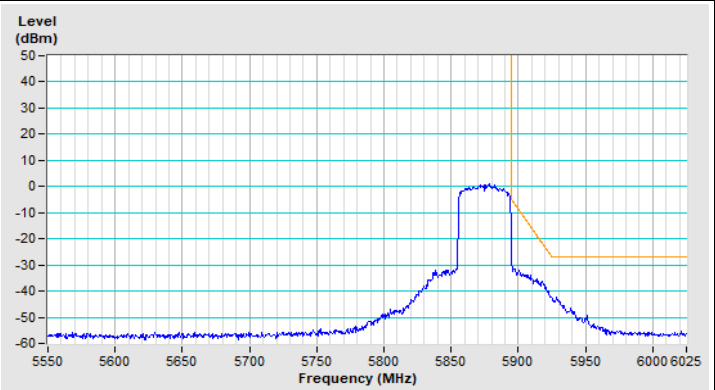
Horizontal (Peak)



Horizontal (Average)



Vertical (Peak)

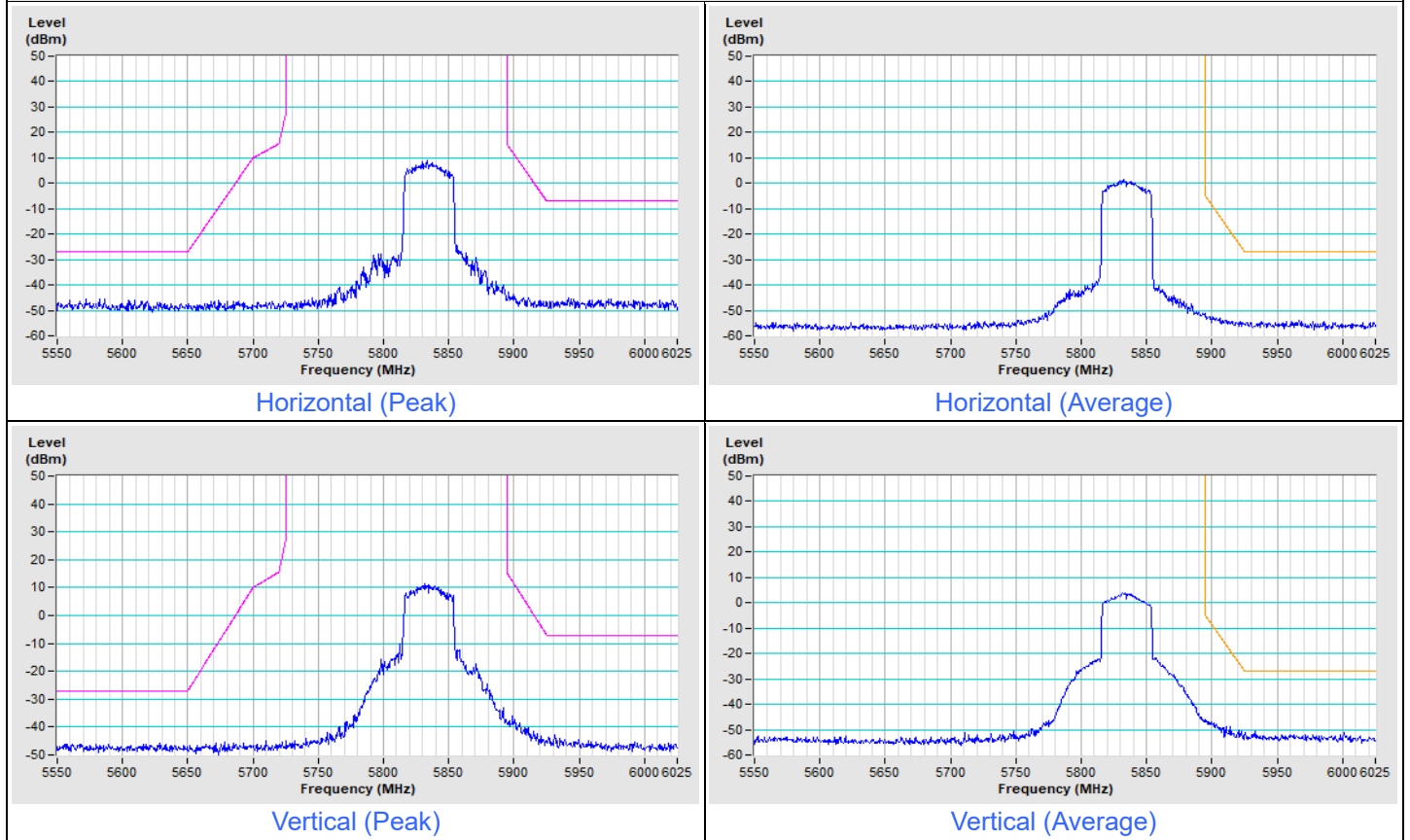


Vertical (Average)

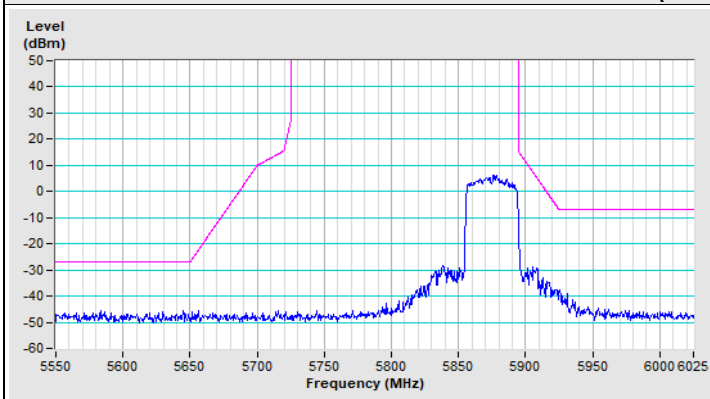
Mode B

1TX

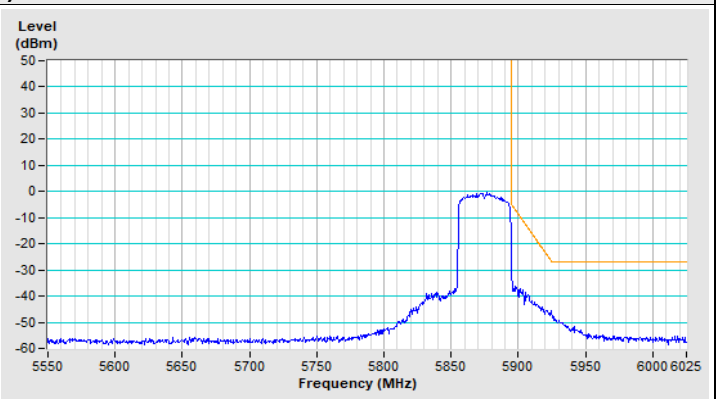
802.11ax (HE40) Channel 167



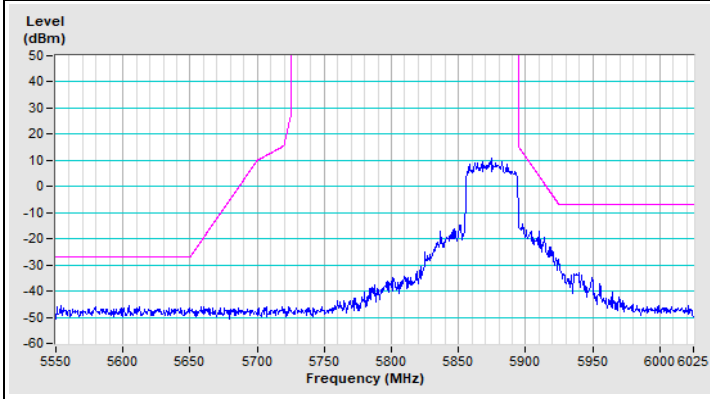
802.11ax (HE40) Channel 167



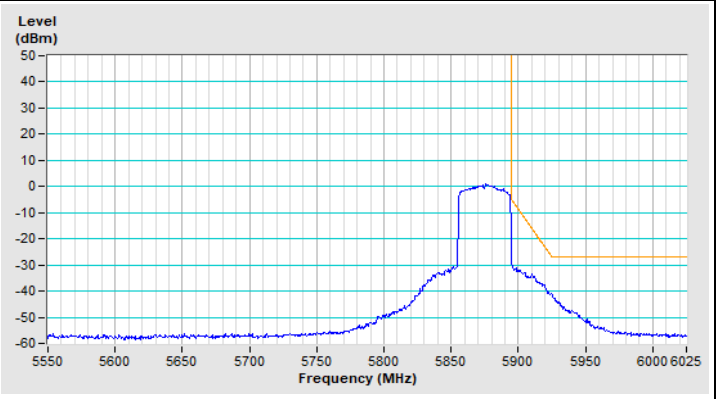
Horizontal (Peak)



Horizontal (Average)



Vertical (Peak)

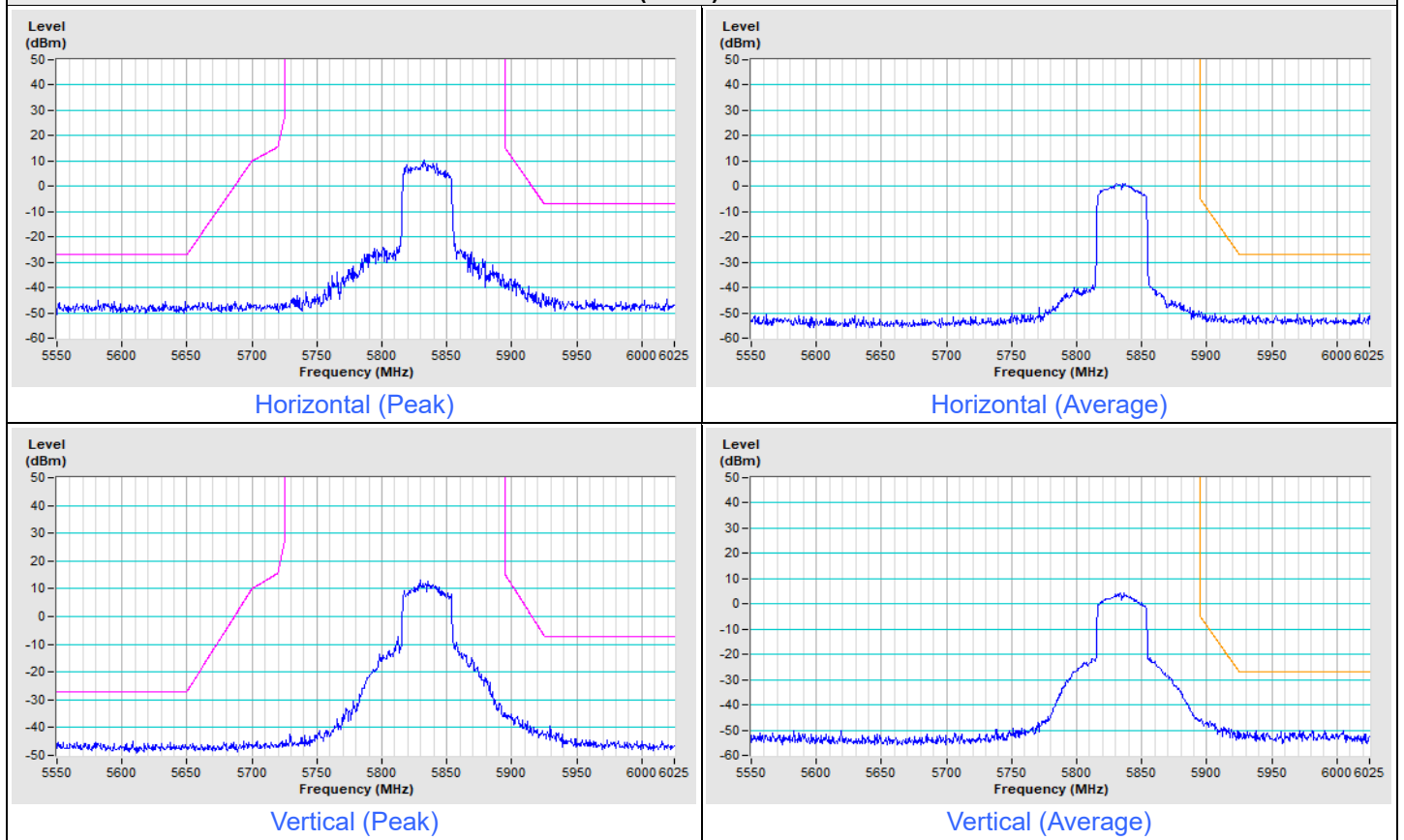


Vertical (Average)

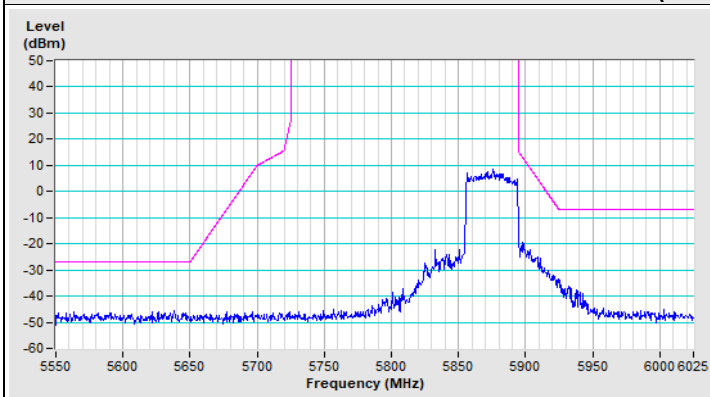
Mode C

1TX

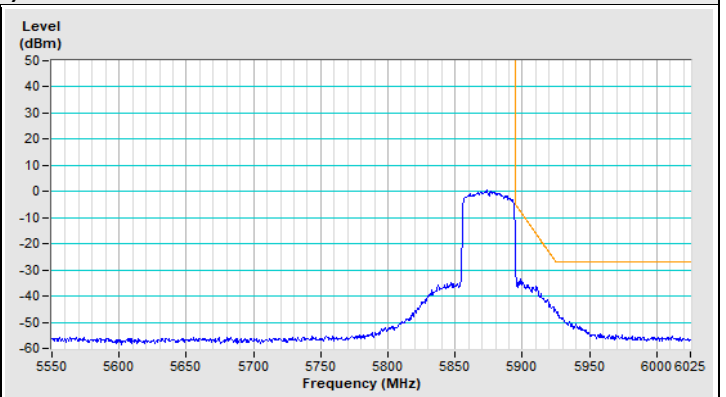
802.11ax (HE40) Channel 167



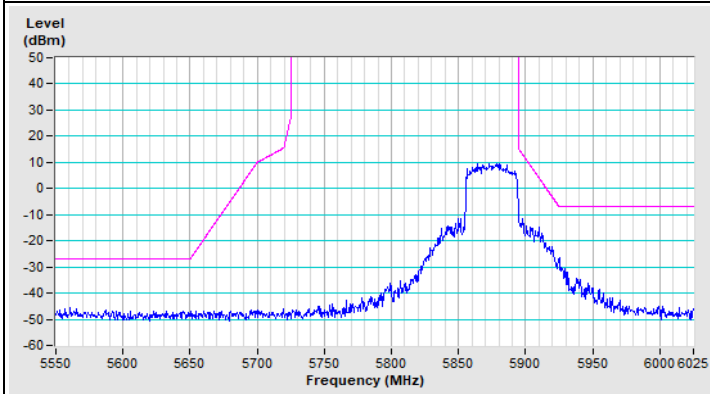
802.11ax (HE40) Channel 175



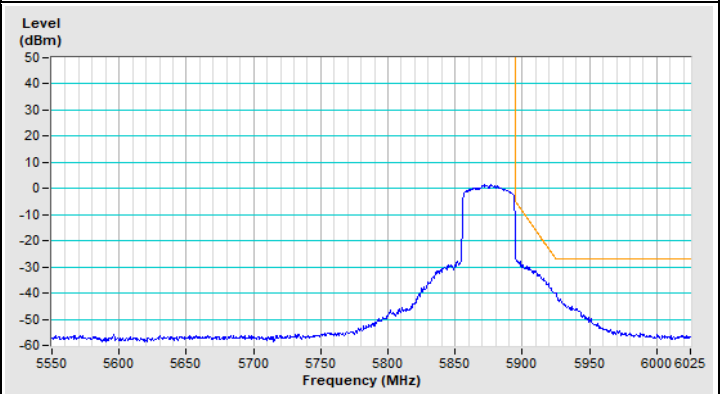
Horizontal (Peak)



Horizontal (Average)



Vertical (Peak)



Vertical (Average)

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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Fax: 886-2-26051924

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

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