TEST REPORT (SPOT CHECK)

CERTIFICATE OF CONFORMITY

Standard:	**47 CFR FCC Part 15, Subpart C (Section 15.247)**
Report No.:	RFBBQZ-WTW-P22010396
FCC ID:	PY322100555
Original FCC ID:	PY319400466
Model No.:	RAX50v2, RAX43v2, XR1000v2
Series Model:	RAX42v2, RAX41v2
Received Date:	2022/1/7
Test Date:	2022/3/10 ~ 2022/4/28
Issued Date:	2022/5/13
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 Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

Approved by: _____ , **Date:** 2022/5/13

May Chen / Manager

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Prepared by : Vivian Huang / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBBQZ-WTW-P22010396	Original release.	2022/5/13

1 Certificate

Product:	NIGHTHAWK AX6 AX5400 6-Stream WiFi Router, NIGHTHAWK AX5 AX4200 5-Stream WiFi Router, NIGHTHAWK AX5 AX3600 5-Stream WiFi Router, NIGHTHAWK Pro Gaming Router
Brand:	NETGEAR
Test Model:	RAX50v2, RAX43v2, XR1000v2
Series Model:	RAX42v2, RAX41v2
Sample Status:	Engineering sample
Applicant and Manufacturer:	NETGEAR, Inc.
Test Date:	2022/3/10 ~ 2022/4/28
Standard:	47 CFR FCC Part 15, Subpart C (Section 15.247)
Measurement procedure:	ANSI C63.10-2013 KDB 558074 D01 15.247 Meas Guidance v05r02 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 C (Section 15.247)			
Standard / Clause	Test Item	Result	Remark
15.247(b)	RF Output Power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	NA	Refer to Note 1 below
15.247(a)(2)	6 dB Bandwidth	NA	Refer to Note 1 below
15.247(d)	Conducted Out of Band Emissions	NA	Refer to Note 1 below
15.207	AC Power Conducted Emissions	Pass	Minimum passing margin is -14.95 dB at 0.15391 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -5.5 dB at 440.04, 440.21 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -3.5 dB at 2390.00 MHz
15.203	Antenna Requirement	Pass	Antenna connector is R-SMA not a standard connector.

Notes:

1. RF Output Power & AC Power Conducted Emissions & Unwanted Emissions Measurement were performed for this addendum. The others testing data refer to original test report.
2. 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	150 kHz ~ 30 MHz	1.9 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.1 dB
	30 MHz ~ 1 GHz	5.5 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

Product	NIGHTHAWK AX6 AX5400 6-Stream WiFi Router, NIGHTHAWK AX5 AX4200 5-Stream WiFi Router, NIGHTHAWK AX5 AX3600 5-Stream WiFi Router, NIGHTHAWK Pro Gaming Router
Brand	NETGEAR
Test Model	RAX50v2, RAX43v2, XR1000v2
Series Model	RAX42v2, RAX41v2
FW Version	V1.1.0.5_2.15.1
Status of EUT	Engineering sample
Power Supply Rating	12Vdc from adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in VHT20/40 mode 1024QAM for OFDMA in 11ax mode
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	802.11b: up to 11 Mbps 802.11g: up to 54 Mbps 802.11n: up to 300 Mbps VHT: up to 400 Mbps 802.11ax: up to 573.5 Mbps
Operating Frequency	2412 ~ 2462 MHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20), VHT20, 802.11ax (HE20): 11 802.11n (HT40), VHT40, 802.11ax (HE40): 7
Output Power	**CDD Mode** 890.493 mW (29.5 dBm) **Beamforming Mode** 844.37 mW (29.27 dBm)

Note:

1. Exhibit prepared for Spot Check Verification report, the format, test items and amount of spot–check test data are decided by applicant's engineering judgment, for more details please refer to the declaration letter exhibit. (Original FCC ID: PY319400466, Report No.: RF191118E09 R2)
2. The EUT has below model names which are identical to each other in all aspects except for the following table:

Product Name	Model Name	Description
NIGHTHAWK AX6 AX5400 6-Stream WiFi Router	RAX50v2	2.4GHz 2x2, 5G 4x4
NIGHTHAWK AX5 AX4200 5-Stream WiFi Router	RAX43v2	2.4GHz 2x2, 5G 3X3, (de-pop 1 RF chain from RAX50v2)
NIGHTHAWK AX5 AX4200 5-Stream WiFi Router	RAX42v2	2.4GHz 2x2, 5G 3X3, (de-pop 1 RF chain from RAX50v2)
NIGHTHAWK AX5 AX3600 5-Stream WiFi Router	RAX41v2	2.4GHz 2x2, 5G 3X3, (de-pop 1 RF chain from RAX50v2)
NIGHTHAWK Pro Gaming Router	XR1000v2	XR1000v2 has a different housing with a different antenna and new functions like Geo-filter, new QoS, and network monitor. Note: RF function and MIMO spec is same as RAX50v2
Note: From the above models, model: **RAX50v2, RAX43v2, XR1000v2** were selected as representative model for the test and its data was recorded in this report.		

3. The EUT has below radios as following table:

Radio 1	Radio 2
WLAN 2.4GHz	WLAN 5GHz

4. Simultaneously transmission condition.

Condition	Technology	
1	WLAN 2.4GHz	WLAN 5GHz
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.		

5. The EUT uses following accessories.

AC Adapter 1			
Brand	Model	Part Number	Specification
NETGEAR	ADS-40FPA-12	332-11525-02	AC Input : 100-120 50/60 1.0A DC Output : 12V 2.5A DC Output Cable : 1.8m non-shielded and without core Plug : FCC/Canada/Taiwan
AC Adapter 2			
Brand	Model	Part Number	Specification
NETGEAR	2ABL030F 1 NA	332-10758-02	AC Input : 100-120V 50/60Hz 1.0A DC Output : 12V 2.5A DC Output Cable : 1.8m non-shielded and without core Plug : FCC/Canada/Taiwan

RJ45 Cable		
Brand	Model	Specification
NETGEAR	N/A	Signal Line : 1.8 m

6. 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 directional antenna gain, please refer to the following table:

Model: RAX50v2, XR1000v2			
Frequency Range (GHz)	Directional Antenna Gain (dBi)	Antenna Type	Antenna Connector
2.4~2.4835	3.73	Dipole	R-SMA
5.15 ~ 5.25	6.65		
5.25 ~ 5.35	6.69		
5.47 ~ 5.725	6.27		
5.725 ~ 5.85	6.57		
Model: RAX43v2			
Frequency Range (GHz)	Directional Antenna Gain (dBi)	Antenna Type	Antenna Connector
2.4~2.4835	3.73	Dipole	R-SMA
5.15 ~ 5.25	5.87		
5.25 ~ 5.35	6.4		
5.47 ~ 5.725	6.16		
5.725 ~ 5.85	6.18		
Note: More detailed information, please refer to antenna specification.			

2. The EUT incorporates a MIMO function:

2.4 GHz Band		
Modulation Mode	**TX & RX Configuration**	
802.11b	2TX	2RX
802.11g	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
VHT20	2TX	2RX
VHT40	2TX	2RX
802.11ax (HE20)	2TX	2RX
802.11ax (HE40)	2TX	2RX

Note:
1. All of modulation mode support beamforming function except 802.11b/g 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 20MHz (40MHz), VHT mode for 20MHz (40MHz) and 802.11ax mode for 20MHz (40MHz), therefore the manufacturer will control the power for 802.11n / VHT mode is the 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

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20), VHT20 and 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

7 channels are provided for 802.11n (HT40), VHT40 and 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
3	2422 MHz	7	2442 MHz
4	2427 MHz	8	2447 MHz
5	2432 MHz	9	2452 MHz
6	2437 MHz		

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. The AC Adapter has the following models: ADS-40FPA-12/2ABL030F 1 NA. Pre-scan these models of AC Adapters and find the worst case as a representative test condition. 2. EUT can be used in the following ways: Lying/ Wall Mount. Pre-scan in these ways and find the worst case as a representative test condition.
Worst Case:	1. AC Adapter Worst Condition: ADS-40FPA-12 2. Lying/ Wall Mount Worst Condition: Lying 3. 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).

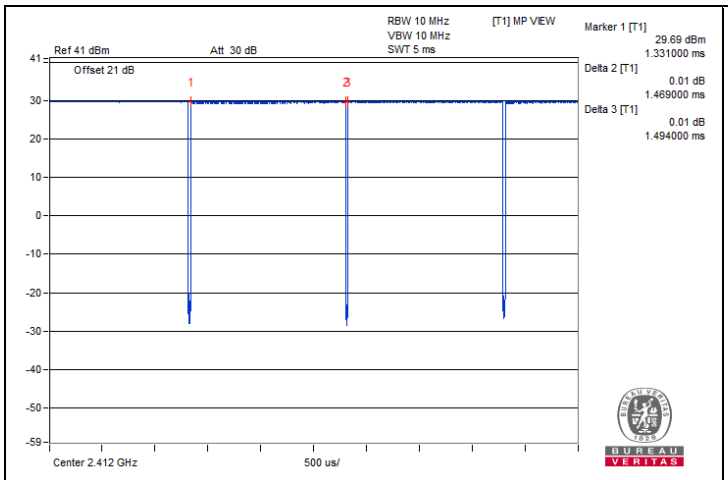
Following channel(s) was (were) selected for the final test as listed below:

Test Item	EUT Configure Mode	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter
AC Power Conducted Emissions	A,B,C	802.11ax (HE20)	CDD	6	BPSK	MCS0
Unwanted Emissions below 1 GHz	A,B,C	802.11ax (HE20)	CDD	6	BPSK	MCS0
Unwanted Emissions above 1 GHz	A	802.11b	CDD	1	DBPSK	1Mb/s
RF Output Power	A	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		802.11ax (HE20)	CDD & Beamforming	1, 6, 11	BPSK	MCS0
		802.11ax (HE40)	CDD & Beamforming	3, 6, 9	BPSK	MCS0
EUT Configure Mode:	A	RAX50v2				
	B	RAX43v2				
	C	XR1000v2				

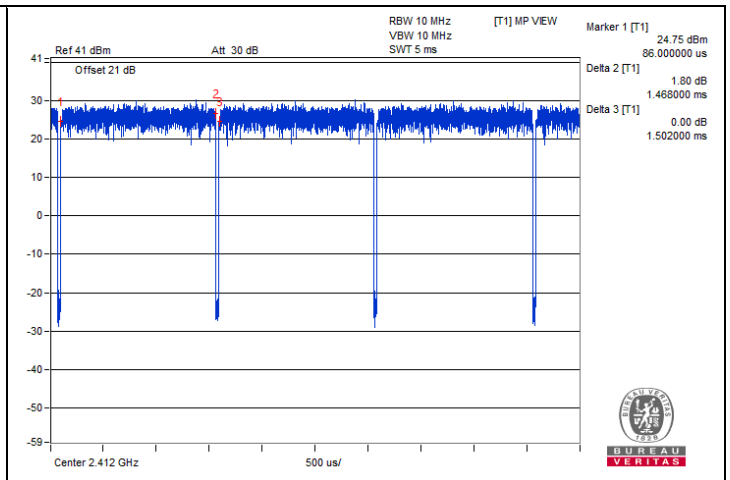
3.5 Duty Cycle of Test Signal

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

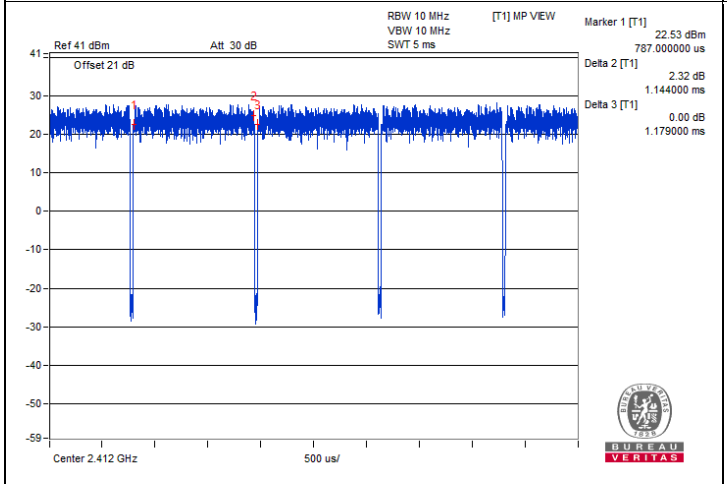
802.11b: Duty cycle = 1.469 ms / 1.494 ms x 100% = 98.3%
802.11g: Duty cycle = 1.468 ms / 1.502 ms x 100% = 97.7%, duty factor = 10 * log (1/Duty cycle) = 0.10 dB
802.11ax (HE20): Duty cycle = 1.144 ms / 1.179 ms x 100% = 97.0%, duty factor = 10 * log (1/Duty cycle) = 0.13 dB
802.11ax (HE40): Duty cycle = 1.186 ms / 1.223 ms x 100% = 97.0%, duty factor = 10 * log (1/Duty cycle) = 0.13 dB



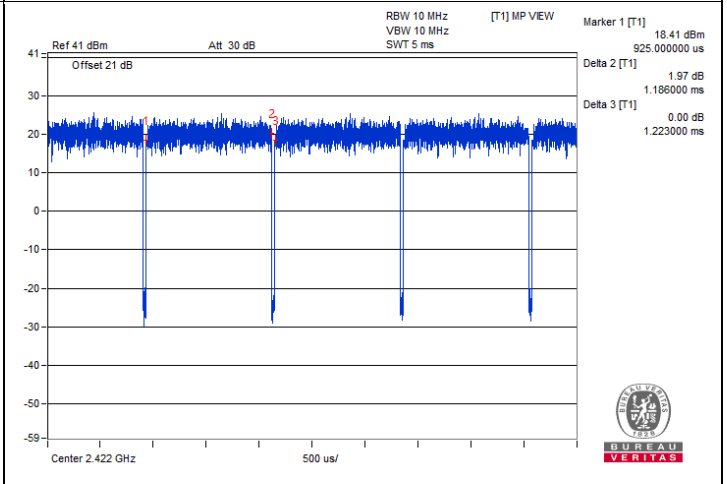
802.11b



802.11g



802.11ax (HE20)

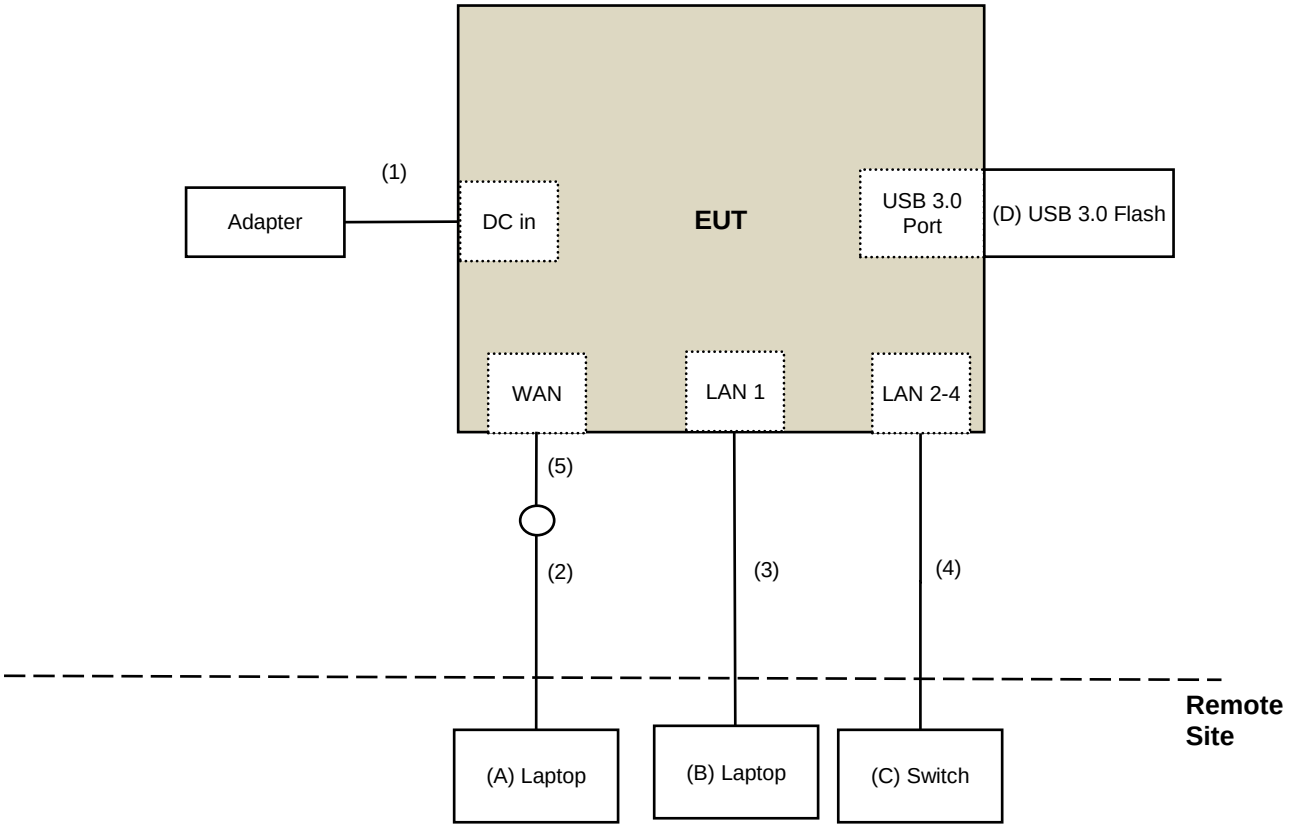


802.11ax (HE40)

3.6 Test Program Used and Operation Descriptions

Controlling software (accessMTool_REL_3_1_0_1) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Laptop	Lenovo	20U5S01X00 L14	PF-28LKK7	N/A	Provided by Lab
B	Laptop	Lenovo	20U5S01X00 L14	PF-1ANPYA	N/A	Provided by Lab
C	Switch	D-Link	DGS-1005D	DR8WC92000523	N/A	Provided by Lab
D	USB 3.0 Flash	Transcend	JetFlash 700	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	0	Supplied by applicant
2	RJ-45 Cable	1	10	No	0	Provided by Lab
3	RJ-45 Cable	1	10	No	0	Provided by Lab
4	RJ-45 Cable	3	10	No	0	Provided by Lab
5	RJ-45 Cable	1	1.8	No	0	Supplied by applicant

4 Test Instruments

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

4.1 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2021/4/13	2022/4/12
Power Meter Anritsu	ML2495A	1529002	2021/6/21	2022/6/20
Pulse Power Sensor Anritsu	MA2411B	1339443	2021/5/31	2022/5/30
Software	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2022/3/24

4.2 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohms Terminator	50	3	2021/10/27	2022/10/26
Fixed attenuator STI	STI02-2200-10	005	2021/8/27	2022/8/26
LISN R&S	ESH3-Z5	848773/004	2021/10/29	2022/10/28
RF Coaxial Cable JYEBO	5D-FB	COCCAB-001	2021/9/25	2022/9/24
Software BVADT	BVADT_Cond_V7.3.7.4	N/A	N/A	N/A
TEST RECEIVER R&S	ESCS 30	847124/029	2021/10/13	2022/10/12

Notes:

1. The test was performed in Conduction 1
2. Tested Date: 2022/3/31 ~ 2022/4/28

4.3 Unwanted Emissions below 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
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-03	2022/1/10	2023/1/9
Loop Antenna TESEQ	HLA 6121	45745	2021/7/21	2022/7/20
LOOP ANTENNA Electro-Metrics	EM-6879	264	2022/3/18	2023/3/17
Pre_Amplifier EMCI	EMC001340	980142	2021/5/24	2022/5/23
	EMC330N	980701	2022/3/8	2023/3/7
RF Coaxial Cable JYEBO	5D-FB	LOOPCAB-001	2022/1/6	2023/1/5
		LOOPCAB-002	2022/1/6	2023/1/5
RF Coaxial Cable COMMATE/PEWC	8D	966-4-1	2022/3/8	2023/3/7
		966-4-2	2022/3/8	2023/3/7
		966-4-3	2022/3/8	2023/3/7
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Test Receiver Agilent	N9038A	MY51210202	2021/11/19	2022/11/18
Trilog Broadband Antenna Schwarzbeck	VULB 9168	9168-406	2021/10/27	2022/10/26

Notes:

1. The test was performed in 966 Chamber No. 4.
2. Tested Date: 2022/3/31 ~ 2022/4/28

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
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-783	2021/11/14	2022/11/13
	BBHA 9170	9170-739	2021/11/14	2022/11/13
Pre_Amplifier EMCI	EMC 12630 SE	980638	2021/4/7	2022/4/6
	EMC184045SE	980387	2022/1/10	2023/1/9
RF Cable-Frequency Range : 1-26.5GHz EMCI	EMC104-SM-SM-1200	160922	2021/12/24	2022/12/23
RF Cable-Frequency range: 1-40GHz EMCI	EMC102-KM-KM-1200	160924	2022/1/10	2023/1/9
RF Coaxial Cable EMCI	EMC104-SM-SM-2000	180502	2021/4/26	2022/4/25
	EMC104-SM-SM-6000	210704	2021/11/9	2022/11/8
	EMC-KM-KM-4000	200214	2022/3/8	2023/3/7
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Test Receiver Agilent	N9038A	MY51210202	2021/11/19	2022/11/18

Notes:

1. The test was performed in 966 Chamber No. 4.
2. Tested Date: 2022/3/10

5 Limits of Test Items

5.1 RF Output Power

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30 dBm)

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

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

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

5.2 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 up to 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30 dB below the highest level of the desired power:

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).

5.4 Unwanted Emissions above 1 GHz

Radiated emissions above 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30 dB below the highest level of the desired power:

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

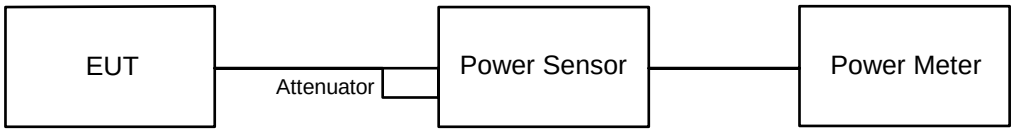
Notes:

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

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup

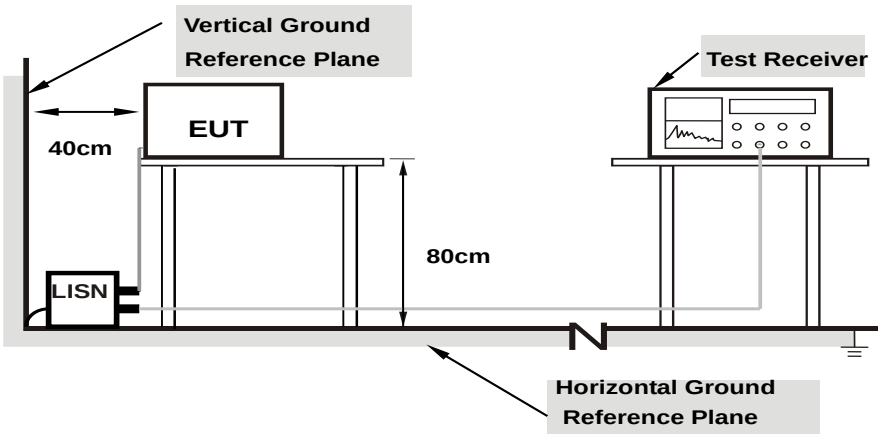


6.1.2 Test Procedure

Average power sensor was 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. 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

a. The EUT was 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.

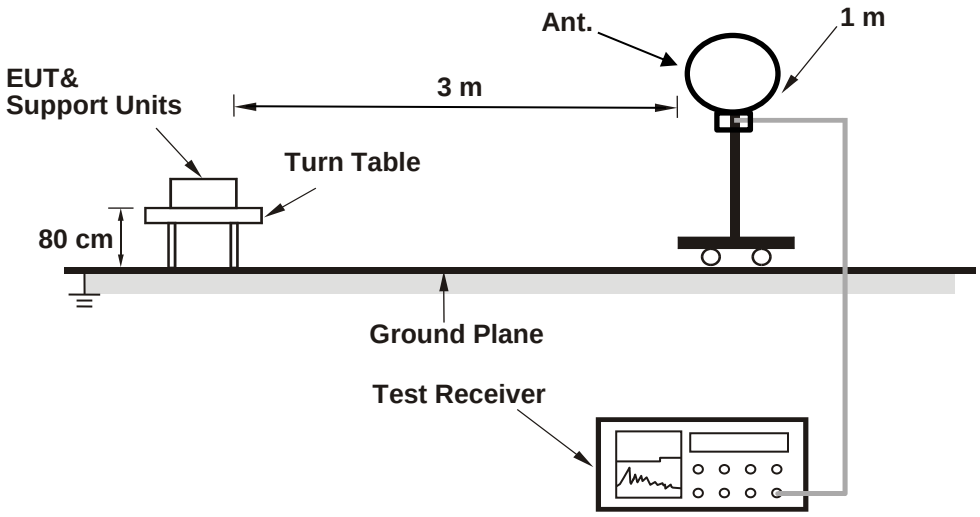
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

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.

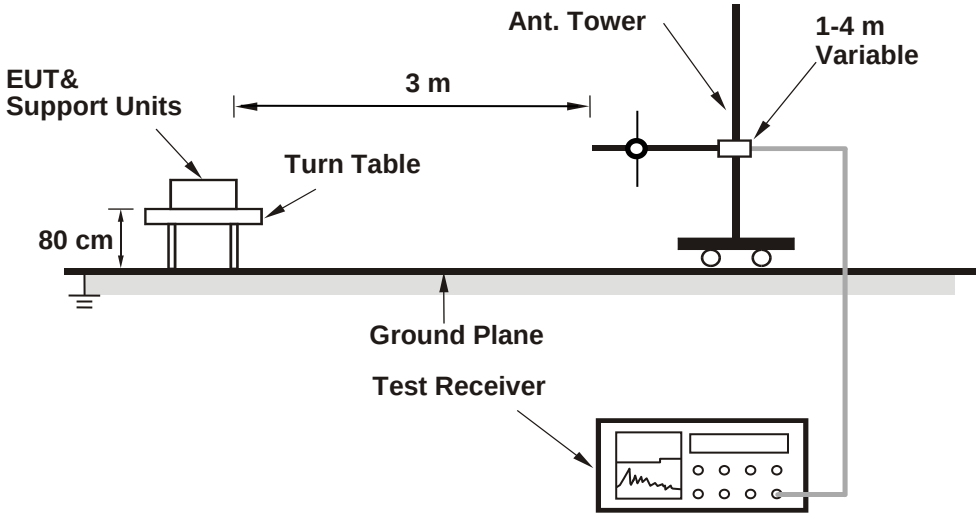
6.3 Unwanted Emissions below 1 GHz

6.3.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



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.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.
2. 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.

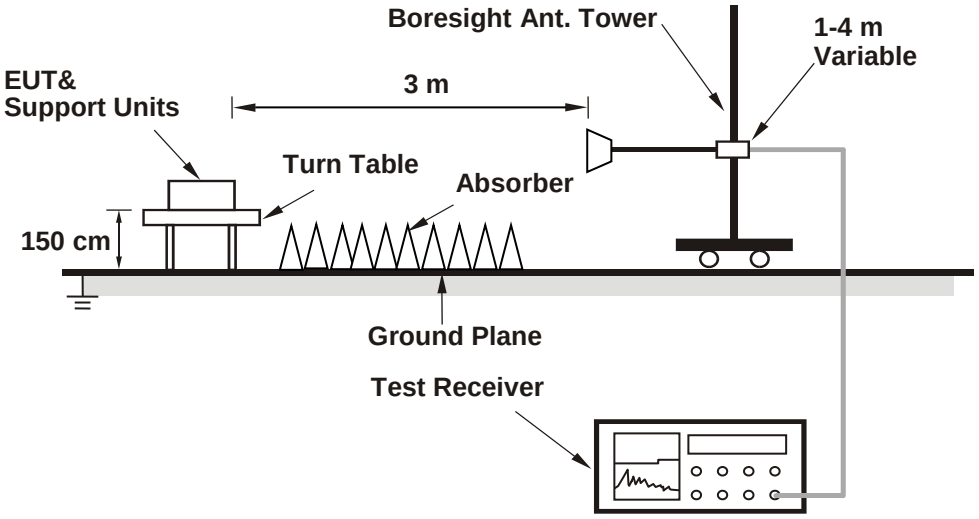
Notes:

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 Radiated emission above 1 GHz



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

6.4.2 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) at frequency above 1 GHz.
2. 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. 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:	23°C, 66% RH	Tested By:	Eric Peng

802.11b CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	25.89	27.01	890.493	29.50	30	Pass
6	2437	25.93	26.72	861.636	29.35	30	Pass
11	2462	25.92	26.39	826.353	29.17	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 1.87 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11g CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	21.83	21.35	288.864	24.61	30	Pass
6	2437	26.11	25.91	798.261	29.02	30	Pass
11	2462	21.82	21.46	292.013	24.65	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 1.87 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE20) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	20.23	19.98	204.979	23.12	30	Pass
6	2437	26.33	26.21	847.367	29.28	30	Pass
11	2462	20.16	19.97	203.064	23.08	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 1.87 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE40) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	19.47	19.28	173.234	22.39	30	Pass
6	2437	21.53	21.43	281.228	24.49	30	Pass
9	2452	19.32	19.07	166.23	22.21	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 1.87 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	20.24	19.98	205.222	23.12	30	Pass
6	2437	26.27	26.24	844.37	29.27	30	Pass
11	2462	20.23	19.98	204.979	23.12	30	Pass

Notes:

1. Directional Gain By Client.
2. The directional gain is 3.73 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	19.46	19.25	172.448	22.37	30	Pass
6	2437	21.48	21.41	278.961	24.46	30	Pass
9	2452	19.27	19.10	165.811	22.20	30	Pass

Notes:

1. Directional Gain By Client.
2. The directional gain is 3.73 dBi < 6 dBi, so the output power limit shall not be reduced.

7.2 AC Power Conducted Emissions

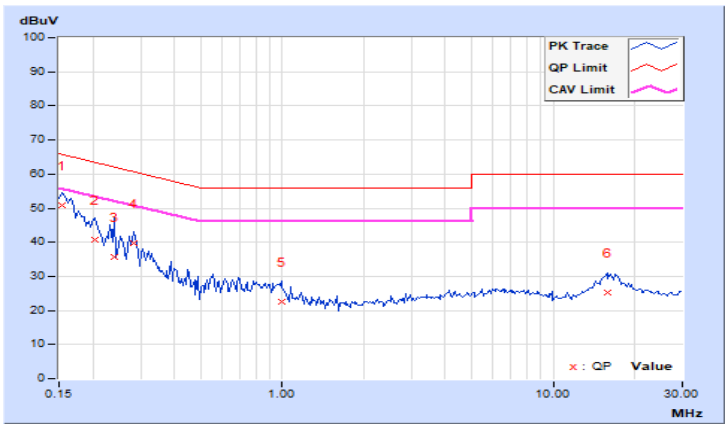
Mode A

RF Mode	TX 802.11ax (HE20)	**Channel**	CH 6：2437 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**	25°C, 75% RH
Tested By	Ryan Du		

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	**0.15391**	**10.07**	**40.77**	**23.98**	**50.84**	**34.05**	**65.79**	**55.79**	**-14.95**	**-21.74**
2	0.20469	10.08	30.64	17.55	40.72	27.63	63.42	53.42	-22.70	-25.79
3	0.23984	10.09	25.66	9.07	35.75	19.16	62.10	52.10	-26.35	-32.94
4	0.28281	10.09	29.51	20.54	39.60	30.63	60.73	50.73	-21.13	-20.10
5	0.98984	10.15	12.29	2.29	22.44	12.44	56.00	46.00	-33.56	-33.56
6	15.87109	11.25	14.08	8.26	25.33	19.51	60.00	50.00	-34.67	-30.49

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

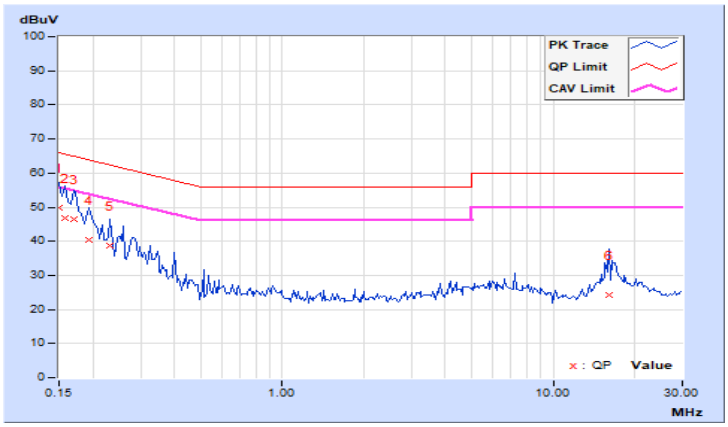


RF Mode	TX 802.11ax (HE20)	**Channel**	CH 6：2437 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Ryan Du		

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	10.05	39.89	23.50	49.94	33.55	66.00	56.00	-16.06	-22.45
2	0.15781	10.05	36.84	22.41	46.89	32.46	65.58	55.58	-18.69	-23.12
3	0.16953	10.06	36.40	18.88	46.46	28.94	64.98	54.98	-18.52	-26.04
4	0.19297	10.08	30.39	12.60	40.47	22.68	63.91	53.91	-23.44	-31.23
5	0.23203	10.08	28.58	15.42	38.66	25.50	62.38	52.38	-23.72	-26.88
6	16.17188	11.05	13.13	7.29	24.18	18.34	60.00	50.00	-35.82	-31.66

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



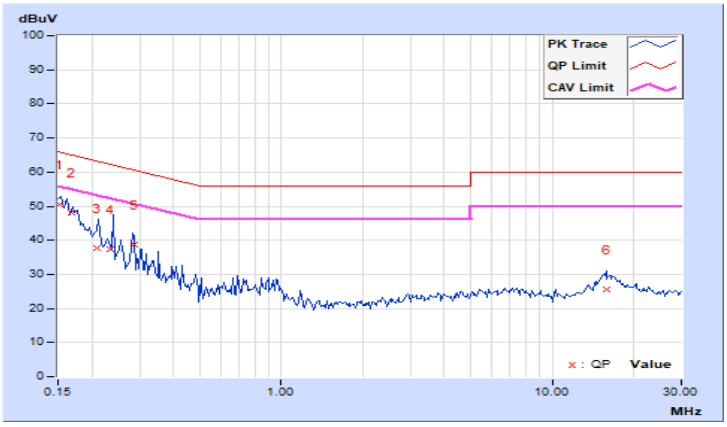
Mode B

RF Mode	TX 802.11ax (HE20)	**Channel**	CH 6：2437 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**	25°C, 66% RH
Tested By	Tom Yang		

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	0.15143	10.07	40.52	22.83	50.59	32.90	65.92	55.92	-15.33	-23.02
2	0.16715	10.07	37.94	21.11	48.01	31.18	65.10	55.10	-17.09	-23.92
3	0.20767	10.08	27.73	13.26	37.81	23.34	63.30	53.30	-25.49	-29.96
4	0.23531	10.09	27.37	6.64	37.46	16.73	62.26	52.26	-24.80	-35.53
5	0.28546	10.09	28.66	17.53	38.75	27.62	60.66	50.66	-21.91	-23.04
6	15.86071	11.25	14.19	8.41	25.44	19.66	60.00	50.00	-34.56	-30.34

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

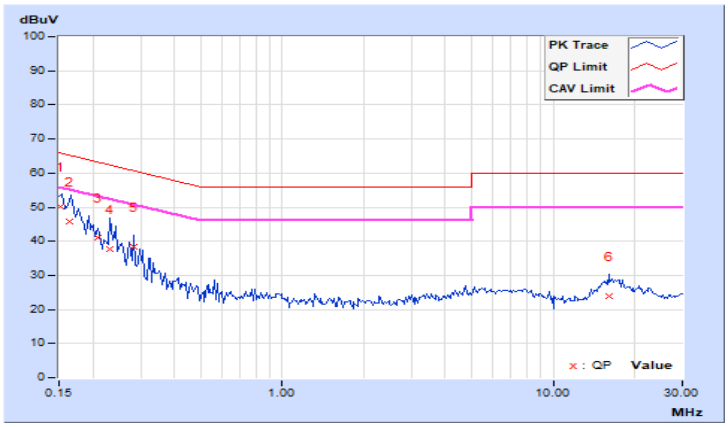


RF Mode	TX 802.11ax (HE20)	**Channel**	CH 6：2437 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Tom Yang		

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	0.15171	10.02	40.21	22.76	50.23	32.78	65.91	55.91	-15.68	-23.13
2	0.16294	10.02	35.67	20.71	45.69	30.73	65.31	55.31	-19.62	-24.58
3	0.20831	10.03	30.94	12.62	40.97	22.65	63.27	53.27	-22.30	-30.62
4	0.22979	10.03	27.76	15.37	37.79	25.40	62.46	52.46	-24.67	-27.06
5	0.28193	10.03	28.46	16.50	38.49	26.53	60.76	50.76	-22.27	-24.23
6	16.09083	10.77	13.17	7.46	23.94	18.23	60.00	50.00	-36.06	-31.77

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



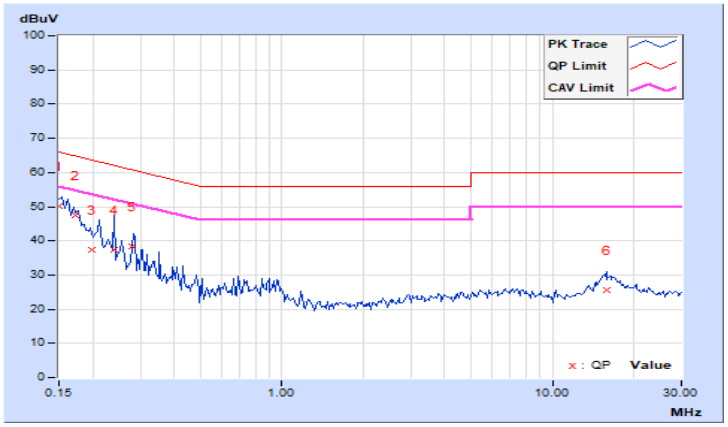
Mode C

RF Mode	TX 802.11ax (HE20)	**Channel**	CH 6：2437 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**	25°C, 66% RH
Tested By	Tom Yang		

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	0.15091	10.07	39.94	22.33	50.01	32.40	65.95	55.95	-15.94	-23.55
2	0.17264	10.07	37.24	20.73	47.31	30.80	64.83	54.83	-17.52	-24.03
3	0.19904	10.08	27.43	12.91	37.51	22.99	63.65	53.65	-26.14	-30.66
4	0.23891	10.09	27.15	6.53	37.24	16.62	62.13	52.13	-24.89	-35.51
5	0.28084	10.09	28.15	17.32	38.24	27.41	60.79	50.79	-22.55	-23.38
6	15.90151	11.25	14.33	8.52	25.58	19.77	60.00	50.00	-34.42	-30.23

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

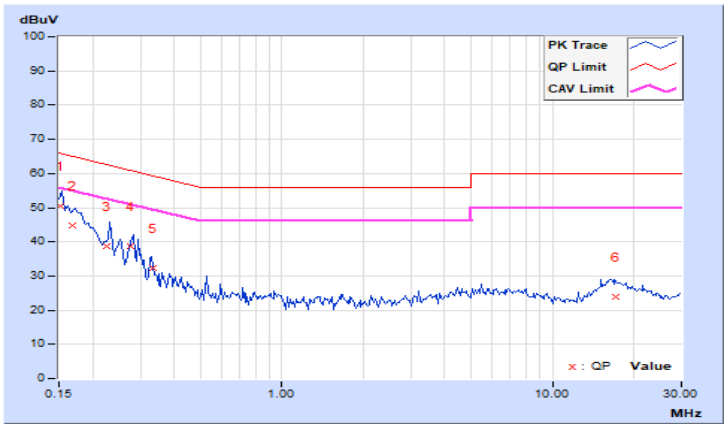


RF Mode	TX 802.11ax (HE20)	**Channel**	CH 6：2437 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	25°C, 66% RH
Tested By	Tom Yang		

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	0.15157	10.05	40.46	23.20	50.51	33.25	65.91	55.91	-15.40	-22.66
2	0.16898	10.06	34.86	18.93	44.92	28.99	65.01	55.01	-20.09	-26.02
3	0.22541	10.08	28.52	15.63	38.60	25.71	62.62	52.62	-24.02	-26.91
4	0.27623	10.09	28.73	16.66	38.82	26.75	60.93	50.93	-22.11	-24.18
5	0.33547	10.09	22.26	8.74	32.35	18.83	59.31	49.31	-26.96	-30.48
6	17.05171	11.11	12.86	6.79	23.97	17.90	60.00	50.00	-36.03	-32.10

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

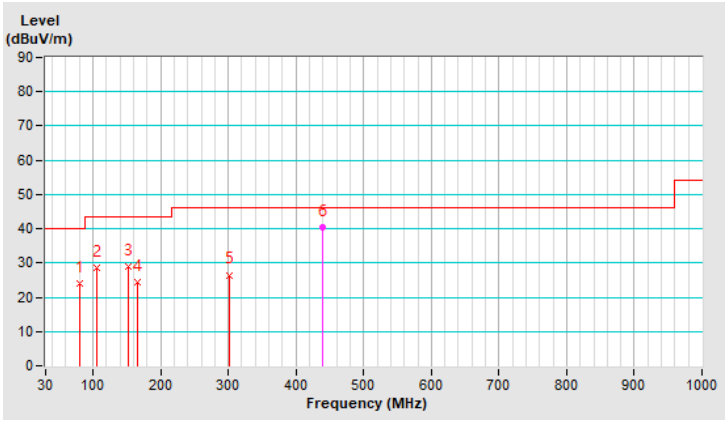
Mode A

RF Mode	TX 802.11ax (HE20)	**Channel**	CH 6：2437 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

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	80.10	23.9 QP	40.0	-16.1	2.00 H	300	40.9	-17.0
2	105.13	28.4 QP	43.5	-15.1	2.00 H	177	43.7	-15.3
3	152.46	29.1 QP	43.5	-14.4	1.00 H	40	40.7	-11.6
4	166.75	24.5 QP	43.5	-19.0	1.00 H	167	36.5	-12.0
5	300.73	26.5 QP	46.0	-19.5	2.00 H	119	36.9	-10.4
6	**440.04**	**40.5 QP**	**46.0**	**-5.5**	**2.00 H**	**151**	**46.4**	**-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.

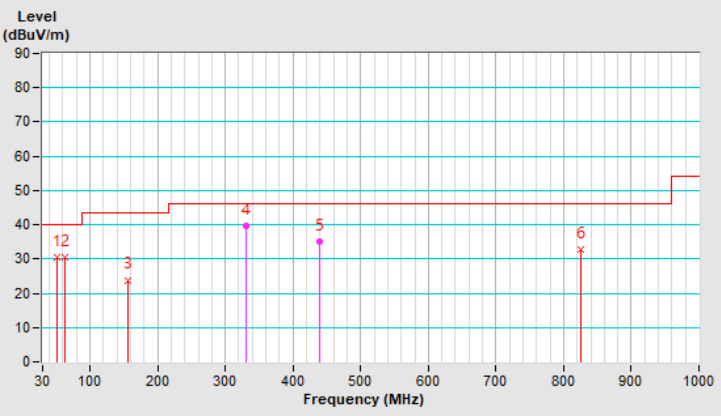


RF Mode	TX 802.11ax (HE20)	Channel	CH 6：2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	51.17	30.5 QP	40.0	-9.5	1.00 V	0	42.7	-12.2
2	63.25	30.4 QP	40.0	-9.6	2.00 V	0	43.7	-13.3
3	156.42	23.8 QP	43.5	-19.7	2.00 V	0	35.4	-11.6
4	330.02	39.6 QP	46.0	-6.4	1.50 V	35	49.0	-9.4
5	440.04	35.0 QP	46.0	-11.0	1.50 V	0	40.9	-5.9
6	825.06	32.6 QP	46.0	-13.4	2.00 V	283	30.4	2.2

Remarks:

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



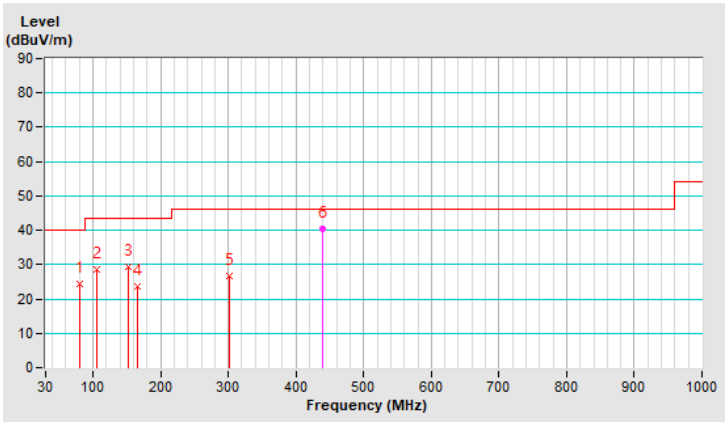
Mode B

RF Mode	TX 802.11ax (HE20)	Channel	CH 6：2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Tom Yang		

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	79.98	24.5 QP	40.0	-15.5	1.50 H	221	41.4	-16.9
2	105.37	28.6 QP	43.5	-14.9	2.00 H	236	43.9	-15.3
3	152.58	29.5 QP	43.5	-14.0	1.00 H	88	41.1	-11.6
4	166.36	23.7 QP	43.5	-19.8	1.00 H	136	35.7	-12.0
5	300.81	26.8 QP	46.0	-19.2	1.50 H	200	37.2	-10.4
6	**440.21**	**40.5 QP**	**46.0**	**-5.5**	**1.50 H**	**119**	**46.4**	**-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.

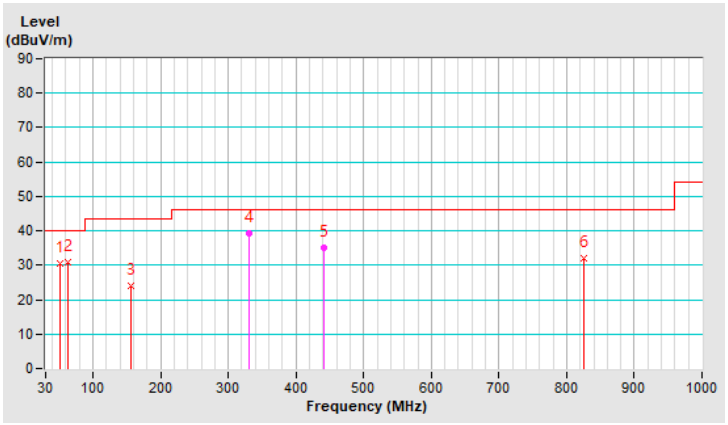


RF Mode	TX 802.11ax (HE20)	**Channel**	CH 6：2437 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Tom Yang		

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	50.77	30.5 QP	40.0	-9.5	1.00 V	71	42.7	-12.2
2	62.79	30.8 QP	40.0	-9.2	1.50 V	86	44.1	-13.3
3	156.06	24.0 QP	43.5	-19.5	2.00 V	57	35.6	-11.6
4	330.45	39.1 QP	46.0	-6.9	2.00 V	117	48.5	-9.4
5	440.37	35.2 QP	46.0	-10.8	1.50 V	105	41.1	-5.9
6	824.67	32.0 QP	46.0	-14.0	1.00 V	338	29.8	2.2

Remarks:

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



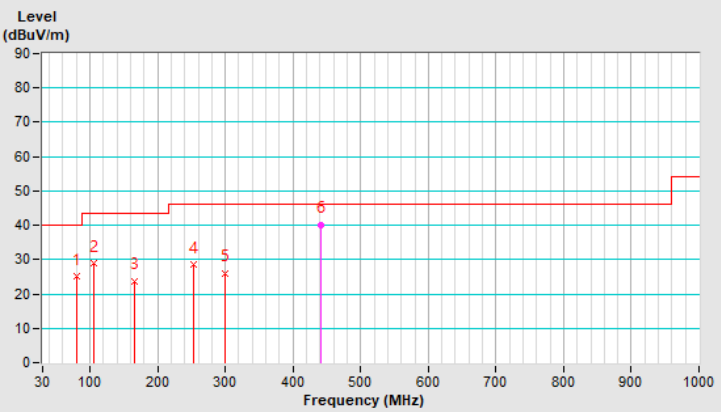
Mode C

RF Mode	TX 802.11ax (HE20)	Channel	CH 6：2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Tom Yang		

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	80.03	25.2 QP	40.0	-14.8	2.00 H	308	42.2	-17.0
2	105.08	29.1 QP	43.5	-14.4	2.00 H	173	44.4	-15.3
3	166.39	23.8 QP	43.5	-19.7	1.50 H	186	35.8	-12.0
4	252.79	28.6 QP	46.0	-17.4	1.50 H	187	40.9	-12.3
5	300.41	26.1 QP	46.0	-19.9	2.00 H	131	36.5	-10.4
6	440.33	40.2 QP	46.0	-5.8	1.50 H	79	46.1	-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.

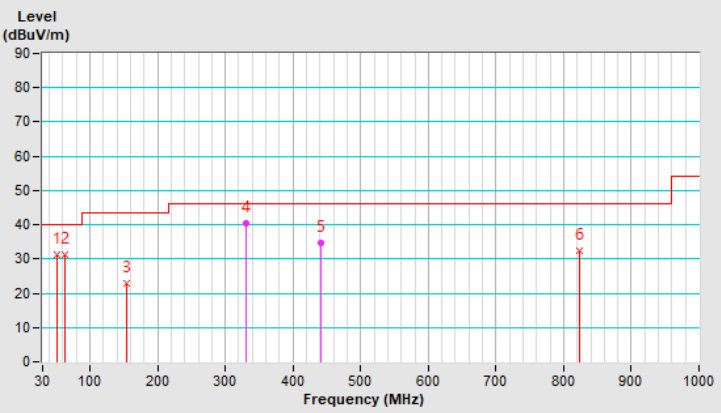


RF Mode	TX 802.11ax (HE20)	Channel	CH 6：2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Tom Yang		

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	50.94	31.1 QP	40.0	-8.9	1.00 V	5	43.3	-12.2
2	63.85	31.2 QP	40.0	-8.8	2.00 V	186	44.4	-13.2
3	154.71	22.8 QP	43.5	-20.7	1.50 V	0	34.3	-11.5
4	330.11	40.3 QP	46.0	-5.7	2.00 V	155	49.7	-9.4
5	440.50	34.8 QP	46.0	-11.2	2.00 V	58	40.7	-5.9
6	824.39	32.5 QP	46.0	-13.5	1.50 V	203	30.3	2.2

Remarks:

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



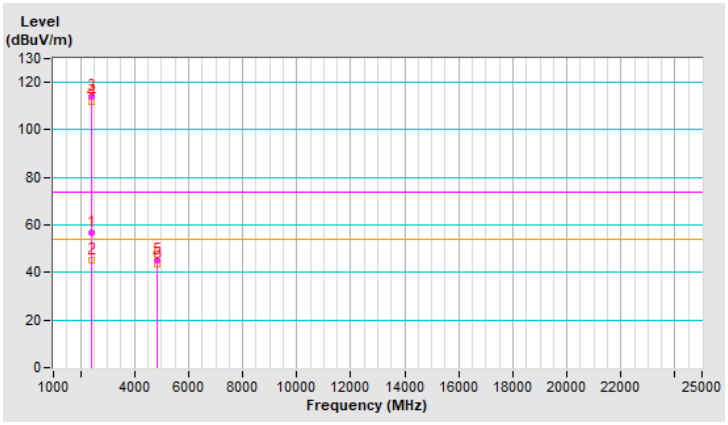
7.4 Unwanted Emissions above 1 GHz

RF Mode	TX 802.11b	**Channel**	CH 1：2412 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 100 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Vic Huang		

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	2390.00	56.8 PK	74.0	-17.2	2.63 H	262	61.3	-4.5
2	2390.00	45.3 AV	54.0	-8.7	2.63 H	262	49.8	-4.5
3	*2412.00	114.1 PK			2.63 H	262	118.6	-4.5
4	*2412.00	111.9 AV			2.63 H	262	116.4	-4.5
5	4824.00	45.1 PK	74.0	-28.9	2.18 H	153	45.1	0.0
6	4824.00	43.3 AV	54.0	-10.7	2.18 H	153	43.3	0.0

Remarks:

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

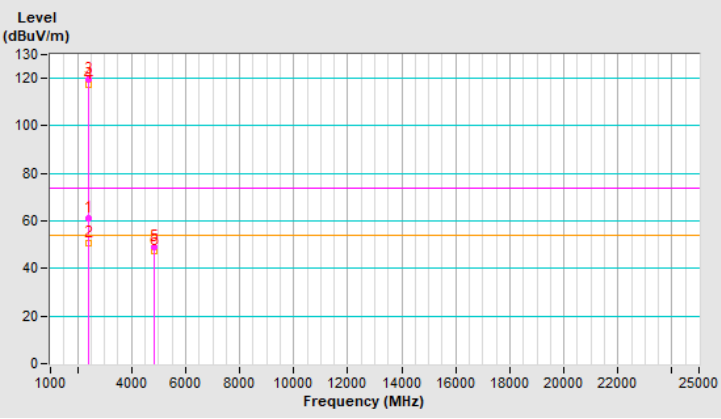


RF Mode	TX 802.11b	**Channel**	CH 1：2412 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 100 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Vic Huang		

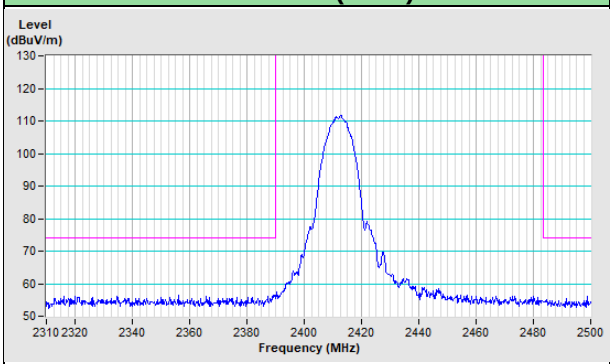
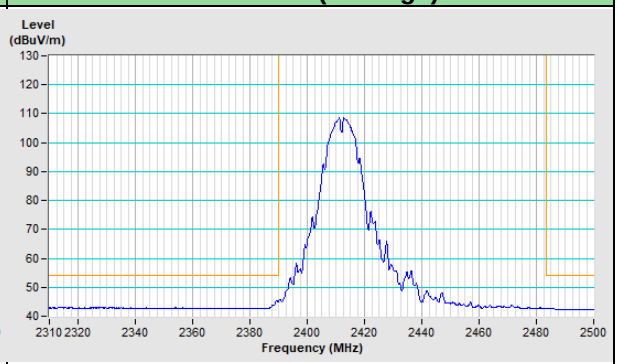
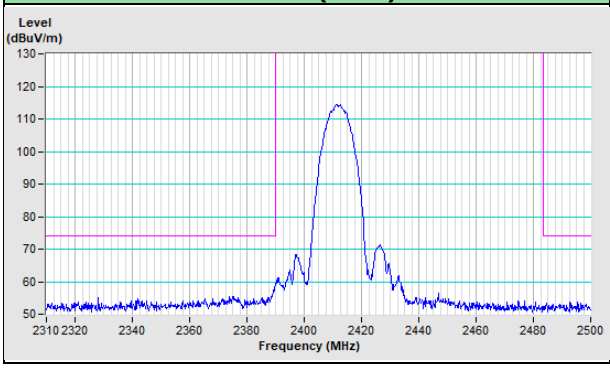
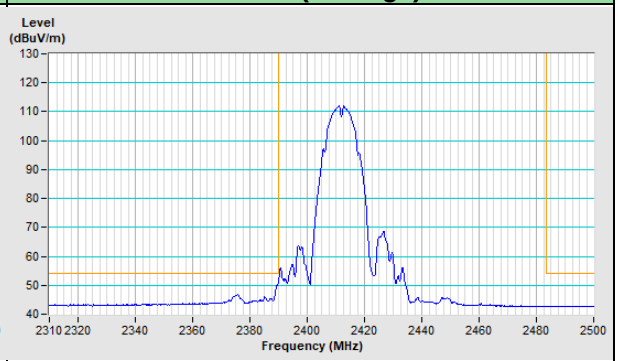
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	61.1 PK	74.0	-12.9	1.99 V	156	65.6	-4.5
2	**2390.00**	**50.5 AV**	**54.0**	**-3.5**	**1.99 V**	**156**	**55.0**	**-4.5**
3	*2412.00	119.6 PK			1.99 V	156	124.1	-4.5
4	*2412.00	117.4 AV			1.99 V	156	121.9	-4.5
5	4824.00	49.1 PK	74.0	-24.9	2.36 V	21	49.1	0.0
6	4824.00	47.2 AV	54.0	-6.8	2.36 V	21	47.2	0.0

Remarks:

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



Plot of Band Edge

802.11b Channel 1	
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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The address and road map of all our labs can be found in our web site also.

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