

TEST REPORT (SPOT CHECK)

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)

Report No.: RFBCKS-WTW-P21030823A

FCC ID: UDX-60094011

Original FCC ID: UDX-60094010

Model No.: MR86-HW

Received Date: 2022/8/3

Test Date: 2022/8/12 ~ 2022/8/26

Issued Date: 2022/11/3

Applicant: Cisco Systems, Inc.

Address: 170 West Tasman Drive, San Jose, CA 95134 USA

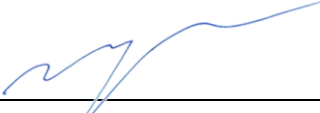
Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Hsin Chu Laboratory

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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:** 2022/11/3
May Chen / Manager

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Prepared by : Vivian Huang / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBCKS-WTW-P21030823A	Original release.	2022/11/3

1 Certificate

Product: 4x4 WiFi6 Outdoor Access Point

Brand: Cisco

Test Model: MR86-HW

Sample Status: Engineering sample

Applicant: Cisco Systems, Inc.

Test Date: 2022/8/12 ~ 2022/8/26

Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)

Measurement ANSI C63.10-2013

procedure: 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	NA	Refer to Note 1 below
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -4.7 dB at 46.60, 47.41 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.5 dB at 2390.00 MHz
15.203	Antenna Requirement	Pass	Antenna connector is R-N type(F) not a standard connector.

Notes:

1. RF Output Power & 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:

Parameter	Specification	Expanded Uncertainty (k=2) (±)
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	4x4 WiFi6 Outdoor Access Point
Brand	Cisco
Test Model	MR86-HW
Status of EUT	Engineering sample
Power Supply Rating	55Vdc or 56Vdc from PoE adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM for OFDMA in 11ax mode
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n: up to 600Mbps 802.11ax: up to 1147.1Mbps
Operating Frequency	2.412 ~ 2.462GHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20), 802.11ax (HE20): 11 802.11n (HT40), 802.11ax (HE40): 7
Output Power	549.816 mW (27.4 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: UDX-60094010, Report No.: RF191023E01 R1)
2. There are WLAN, Bluetooth technology used for the EUT.
3. The EUT power needs to be supplied from a PoE adapter, the information is as below table:

POE (Only for test not for sale)			
No.	Brand	Model No.	Spec.
1	PHIHONG	POEA30U-1ATE	Input: 100-240Vac, 50/60Hz, 0.8A Output: 56V, 0.536A DC Output Cable: shielded, 1.5 m
2	CISCO	MA-INJ-5	Input: 100-240Vac, 50/60Hz, 1.5A Output: 55V, 0.63A DC Output Cable: shielded, 1.5 m
3	CISCO	MA-INJ-4	Input: 100-240Vac, 50/60Hz, 0.67A Output: 55V, 0.6A DC Output Cable: shielded, 1.5 m

4. Simultaneously transmission condition

Condition	Technology		
1	WLAN 2.4GHz		WLAN 5GHz
2	WLAN 2.4GHz	WLAN 5GHz	Bluetooth

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

5. There are WLAN, Bluetooth technology used for the EUT. The EUT has below radios as following table:

Radio 1	Radio 2	Radio 3	Radio 4
WLAN2.4G	WLAN 5G	2.4G/5G 1x1 scanning radio	Bluetooth

The EUT could be supplied with components and following different brand names could be chosen:

PART DES	Main source		2nd source	
	Vendor	Vendor PN	Vendor	Vendor PN
DDR	MICRON	MT40A512M16LY-062E IT:E	SAMSUNG	K4A8G165WC-BITD
NAND	WINBOND	W29N02GZBJBF	CYPRESS	S34MS02G200BHV000
M-SMART CONN	GTT	1020G00000340	UDE	R65-MK-0002
In the original report, from the above sources, the Emissions worse case was found in Main source . Therefore only the test data of the mode was recorded in this report.				

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

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

WLAN 2.4GHz + WLAN 5GHz							
Antenna set	Chain No.	Brand	Model	Antenna Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type
1	Chain 0/1 Chain 2/3	Cisco	AIR-ANT2513P4M-N	13	2.4~2.4835	Dual-Band Polarization Diverse Patch Array	N type(F)
				13	5.15~5.85		
2	Chain 0/1 Chain 2/3	Cisco	MA-ANT-20	4	2.4~2.4835	omni-directional	
				7	5.15~5.85		
3	Chain 0/1 Chain 2/3	Cisco	MA-ANT-25	8	2.4~2.4835	Patch Array	
				6.5	5.15~5.85		
4	Chain 0/1 Chain 2/3	Cisco	MA-ANT-27	9	2.4~2.4835	Sector	
				12	5.15~5.85		
Scanning Radio							
-	-	Brand	Model	Antenna Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type
-	-	WNC	MR86-HW	4	2.4~2.4835	PIFA	I-PEX
				6.63	5.15~5.85		
Bluetooth							
-	-	Brand	Model	Antenna Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type
-	-	WNC	MR86-HW	4.13	2.4~2.4835	PIFA	I-PEX

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

2. The EUT incorporates a MIMO function:

Radio 1 - 2.4GHz Band		
MODULATION MODE	TX & RX CONFIGURATION	
802.11b	4TX	4RX
802.11g	4TX	4RX
802.11n (HT20)	4TX	4RX
802.11n (HT40)	4TX	4RX
802.11ax (HE20)	4TX	4RX
802.11ax (HE40)	4TX	4RX

- Note:
- All of modulation mode support beamforming function except 802.11b/g modulation mode.
 - The EUT support Beamforming and non-beamforming mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.

Radio 3 - Scanning (only RX)	
2.4GHz	
MODULATION MODE	RX CONFIGURATION
802.11b	1RX
802.11g	1RX
802.11n (HT20)	1RX
802.11n (HT40)	1RX
802.11ax (HE20)	1RX
802.11ax (HE40)	1RX

3.3 Channel List

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20) 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) 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

Worst Case:	In the original report: POE Worst Condition: POEA30U-1ATE
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Following channel(s) was (were) selected for the final test as listed below:

Test Item	EUT Configure Mode	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	A	802.11ax (HE20)	CDD	6	BPSK	MCS0
	B	802.11g	CDD	6	BPSK	6Mb/s
	C	802.11g	CDD	6	BPSK	6Mb/s
	D	802.11ax (HE20)	CDD	6	BPSK	MCS0
Unwanted Emissions below 1 GHz	A	802.11ax (HE20)	CDD	6	BPSK	MCS0
	B	802.11g	CDD	6	BPSK	6Mb/s
	C	802.11g	CDD	6	BPSK	6Mb/s
	D	802.11ax (HE20)	CDD	6	BPSK	MCS0
Unwanted Emissions above 1 GHz	A	802.11ax (HE20)	CDD	6	BPSK	MCS0
	B	802.11g	CDD	6	BPSK	6Mb/s
	C	802.11g	CDD	6	BPSK	6Mb/s
	D	802.11ax (HE20)	CDD	6	BPSK	MCS0

Note: The worse case power condition is 4Tx for all test item in this report.

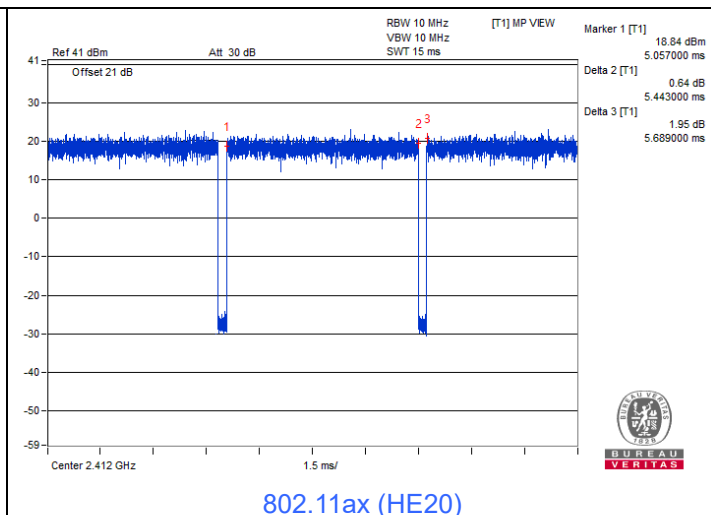
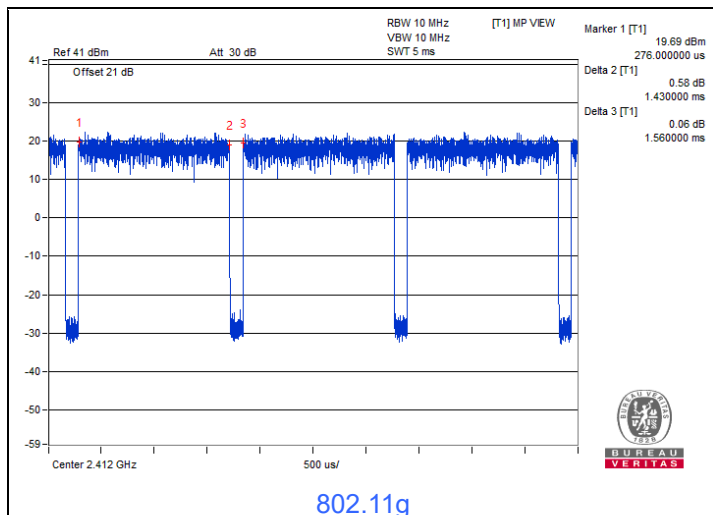
EUT Configure Mode:	A	AIR-ANT2513P4M-N Antenna
	B	MA-ANT-20 Antenna
	C	MA-ANT-25 Antenna
	D	MA-ANT-27 Antenna

3.5 Duty Cycle of Test Signal

Duty cycle of test signal is $\geq 98\%$, duty factor is not required.
 Duty cycle of test signal is $< 98\%$, duty factor shall be considered.

802.11g: Duty cycle = $1.43 \text{ ms} / 1.56 \text{ ms} \times 100\% = 91.7\%$, duty factor = $10 * \log (1/\text{Duty cycle}) = 0.38 \text{ dB}$

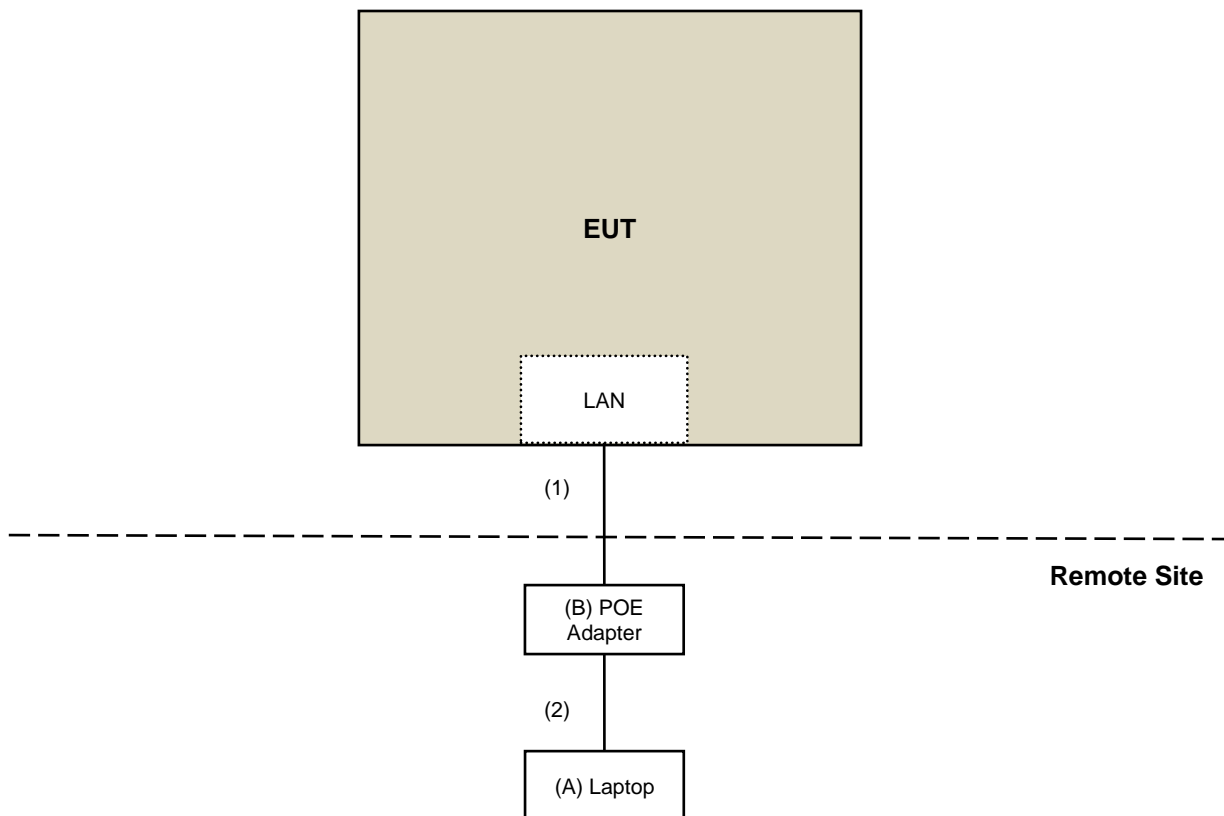
802.11ax (HE20): Duty cycle = $5.443 \text{ ms} / 5.689 \text{ ms} \times 100\% = 95.7\%$, duty factor = $10 * \log (1/\text{Duty cycle}) = 0.19 \text{ dB}$



3.6 Test Program Used and Operation Descriptions

Controlling software (QSPR (00059_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	DELL	E6420	B92T3R1	QDS-BRCM1005-D	Provided by Lab
B	POE Adapter	PHIHONG	POEA30U-1ATE	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	RJ-45 Cable	1	10	No	0	Provided by Lab
2	RJ-45 Cable	1	1.4	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
Power Meter Anritsu	ML2495A	1529002	2022/6/22	2023/6/21
Pulse Power Sensor Anritsu	MA2411B	1726434	2022/6/22	2023/6/21
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2022/4/5	2023/4/4
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: 2022/8/26

4.2 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 Electro-Metrics	EM-6879	264	2022/3/18	2023/3/17
Pre_Amplifier Agilent	8447D	2944A10636	2022/3/19	2023/3/18
Pre_Amplifier EMCI	EMC330N	980701	2022/3/8	2023/3/7
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
RF Coaxial Cable JYEBO	5D-FB	LOOPCAB-001	2022/1/6	2023/1/5
		LOOPCAB-002	2022/1/6	2023/1/5
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: 2022/8/12

4.3 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	2022/4/5	2023/4/4
	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	EMC-KM-KM-4000	200214	2022/3/8	2023/3/7
	EMC104-SM-SM-2000	180502	2022/4/25	2023/4/24
	EMC104-SM-SM-6000	210704	2021/11/9	2022/11/8
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: 2022/8/15

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 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).

5.3 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

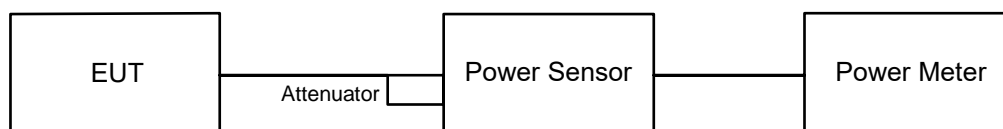
Notes:

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

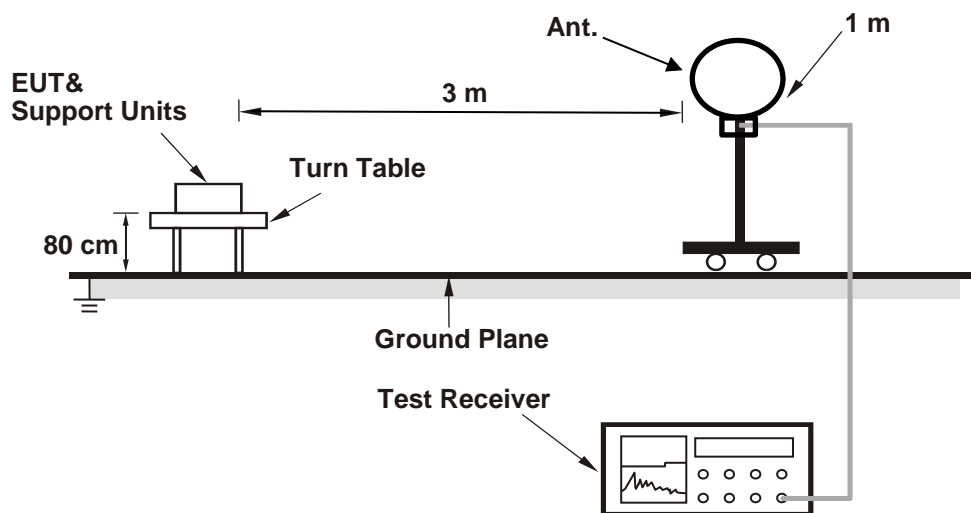
Average Power:

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.

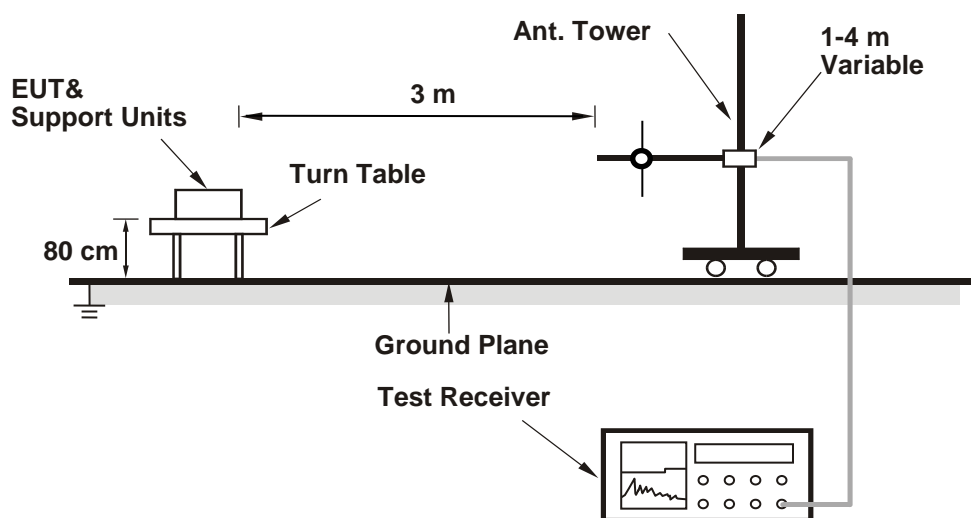
6.2 Unwanted Emissions below 1 GHz

6.2.1 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).

6.2.2 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

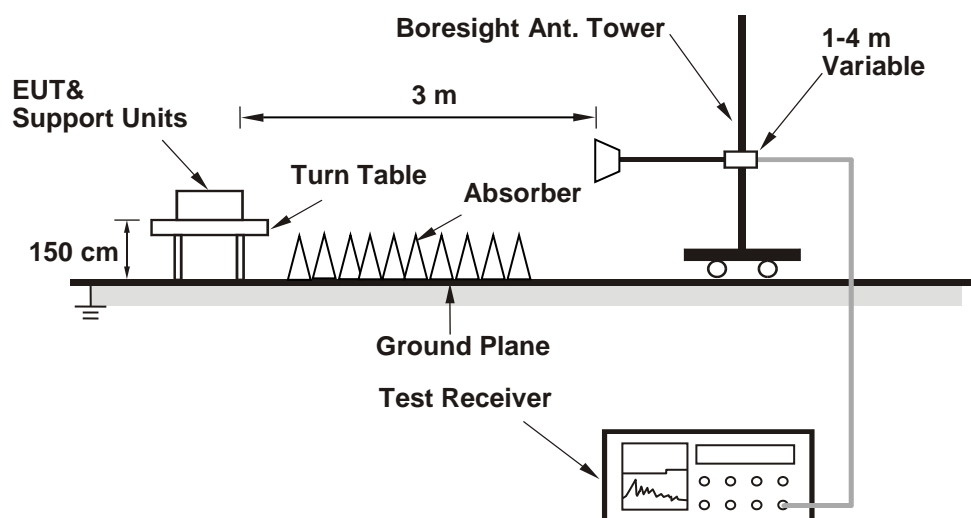
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the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

6.3 Unwanted Emissions above 1 GHz

6.3.1 Test Setup



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

6.3.2 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

Mode A

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Eric Peng
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802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
6	2437	16.84	16.84	16.59	16.53	187.193	22.72	23	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 13 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (13 - 6) = 23$ dBm.

Mode B

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Eric Peng
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802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
6	2437	21.33	21.32	21.58	21.29	549.816	27.40	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4 dBi < 6 dBi, so the output power limit shall not be reduced.

Mode C

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Eric Peng
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802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
6	2437	20.43	20.44	20.69	20.32	445.936	26.49	28	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 8 dBi > 6 dBi, so the output power limit shall be reduced to $30-(8-6) = 28$ dBm.

Mode D

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Eric Peng
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802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
6	2437	20.74	20.84	20.60	20.46	465.904	26.68	27	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 9 dBi > 6 dBi, so the output power limit shall be reduced to $30-(9-6) = 27$ dBm.

7.2 Unwanted Emissions below 1 GHz

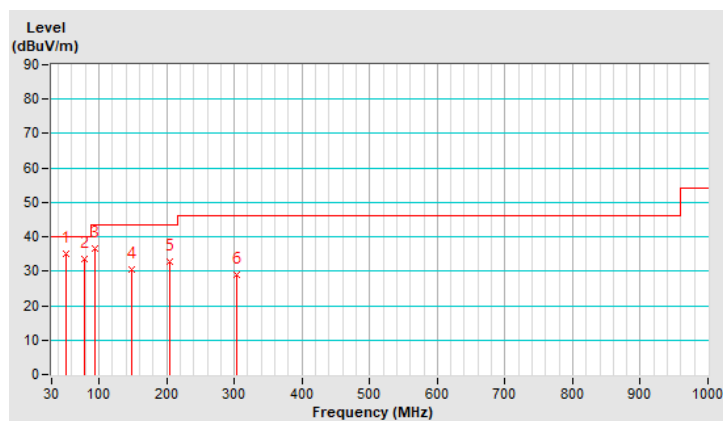
Mode A

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 (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 75% 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	51.53	35.0 QP	40.0	-5.0	1.50 H	170	47.3	-12.3
2	78.31	33.6 QP	40.0	-6.4	2.00 H	324	50.1	-16.5
3	94.43	36.5 QP	43.5	-7.0	1.00 H	126	53.8	-17.3
4	148.81	30.4 QP	43.5	-13.1	1.50 H	98	42.1	-11.7
5	203.85	32.7 QP	43.5	-10.8	1.00 H	102	47.4	-14.7
6	302.67	28.8 QP	46.0	-17.2	2.00 H	188	39.1	-10.3

Remarks:

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

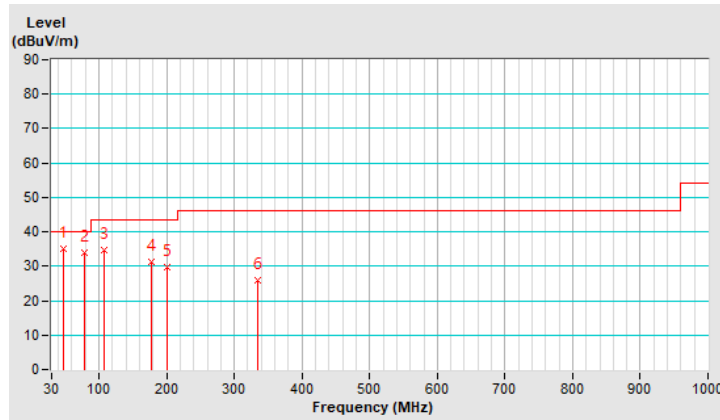


RF Mode	TX 802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 75% RH
Tested By	Sampson Chen		

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	48.12	35.0 QP	40.0	-5.0	2.00 V	86	47.2	-12.2
2	78.88	33.8 QP	40.0	-6.2	1.50 V	143	50.5	-16.7
3	108.23	34.7 QP	43.5	-8.8	2.00 V	184	49.6	-14.9
4	177.56	31.1 QP	43.5	-12.4	1.00 V	99	44.0	-12.9
5	199.95	29.6 QP	43.5	-13.9	1.50 V	140	44.3	-14.7
6	334.96	25.9 QP	46.0	-20.1	2.00 V	196	35.3	-9.4

Remarks:

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



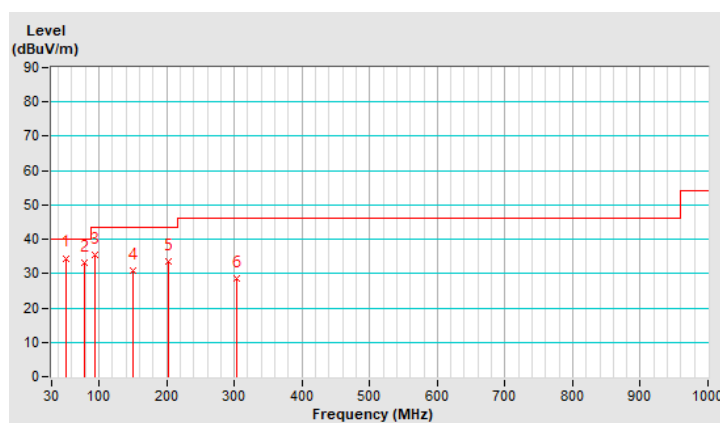
Mode B

RF Mode	TX 802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 75% 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	51.53	34.5 QP	40.0	-5.5	1.50 H	183	46.8	-12.3
2	78.83	33.3 QP	40.0	-6.7	2.00 H	336	50.0	-16.7
3	93.60	35.4 QP	43.5	-8.1	1.00 H	112	52.8	-17.4
4	149.40	30.9 QP	43.5	-12.6	1.50 H	93	42.5	-11.6
5	201.93	33.5 QP	43.5	-10.0	1.00 H	109	48.2	-14.7
6	302.59	28.6 QP	46.0	-17.4	2.00 H	196	38.9	-10.3

Remarks:

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

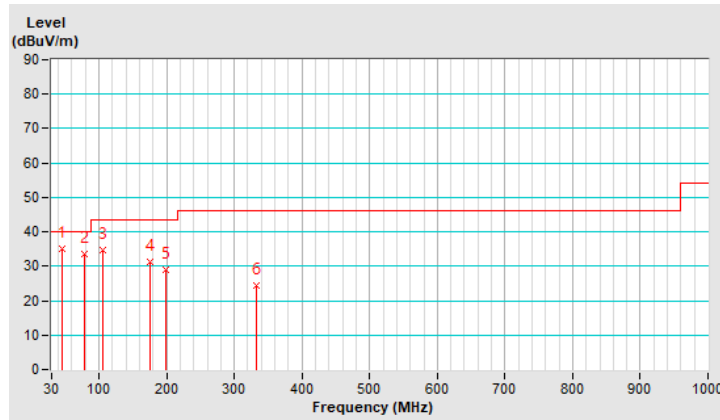


RF Mode	TX 802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 75% RH
Tested By	Sampson Chen		

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	45.49	34.9 QP	40.0	-5.1	2.00 V	81	47.1	-12.2
2	77.78	33.7 QP	40.0	-6.3	1.50 V	128	50.1	-16.4
3	105.89	34.6 QP	43.5	-8.9	2.00 V	190	49.9	-15.3
4	176.39	31.1 QP	43.5	-12.4	1.00 V	116	43.9	-12.8
5	199.10	28.8 QP	43.5	-14.7	1.50 V	113	43.5	-14.7
6	333.45	24.5 QP	46.0	-21.5	2.00 V	195	33.9	-9.4

Remarks:

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



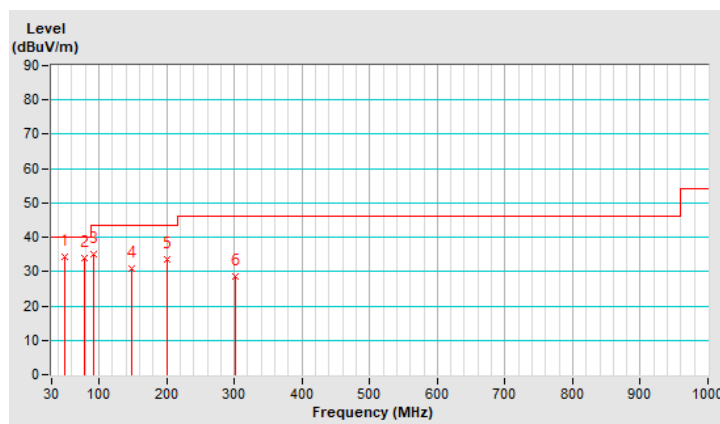
Mode C

RF Mode	TX 802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 75% 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	49.79	34.3 QP	40.0	-5.7	1.50 H	187	46.5	-12.2
2	77.75	33.8 QP	40.0	-6.2	2.00 H	336	50.2	-16.4
3	92.36	35.2 QP	43.5	-8.3	1.00 H	103	52.7	-17.5
4	147.69	30.8 QP	43.5	-12.7	1.50 H	61	42.5	-11.7
5	200.39	33.6 QP	43.5	-9.9	1.00 H	131	48.3	-14.7
6	301.52	28.6 QP	46.0	-17.4	2.00 H	208	39.0	-10.4

Remarks:

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

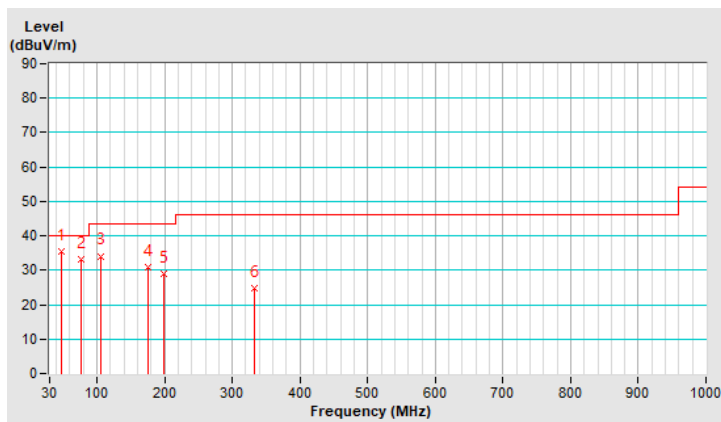


RF Mode	TX 802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 75% RH
Tested By	Sampson Chen		

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	46.60	35.3 QP	40.0	-4.7	2.00 V	59	47.5	-12.2
2	77.03	33.3 QP	40.0	-6.7	1.50 V	122	49.6	-16.3
3	106.61	34.1 QP	43.5	-9.4	2.00 V	190	49.3	-15.2
4	176.34	30.7 QP	43.5	-12.8	1.00 V	133	43.4	-12.7
5	198.15	29.0 QP	43.5	-14.5	1.50 V	120	43.7	-14.7
6	333.54	24.6 QP	46.0	-21.4	2.00 V	193	34.0	-9.4

Remarks:

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



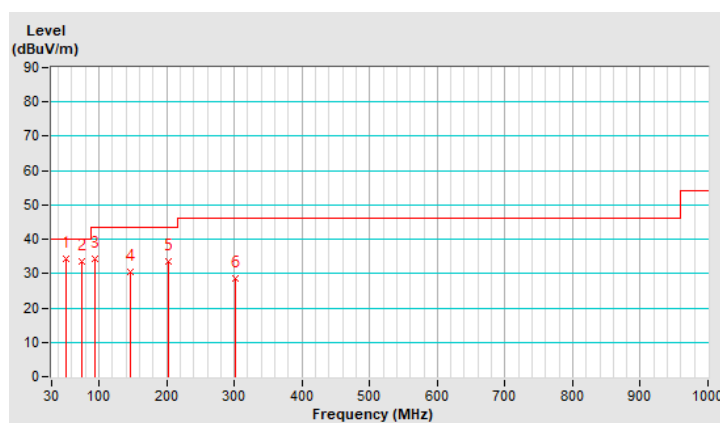
Mode D

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 (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 75% 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	50.72	34.4 QP	40.0	-5.6	1.50 H	174	46.6	-12.2
2	75.50	33.7 QP	40.0	-6.3	2.00 H	326	49.6	-15.9
3	93.34	34.4 QP	43.5	-9.1	1.00 H	124	51.9	-17.5
4	146.56	30.5 QP	43.5	-13.0	1.50 H	75	42.1	-11.6
5	203.24	33.5 QP	43.5	-10.0	1.00 H	146	48.2	-14.7
6	300.73	28.6 QP	46.0	-17.4	2.00 H	204	39.0	-10.4

Remarks:

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

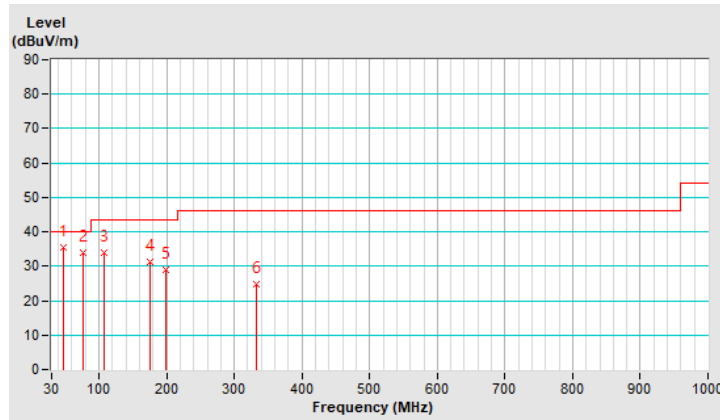


RF Mode	TX 802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 75% RH
Tested By	Sampson Chen		

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	47.41	35.3 QP	40.0	-4.7	2.00 V	39	47.5	-12.2
2	76.33	33.8 QP	40.0	-6.2	1.50 V	116	50.0	-16.2
3	106.74	33.8 QP	43.5	-9.7	2.00 V	204	48.9	-15.1
4	176.14	31.3 QP	43.5	-12.2	1.00 V	129	44.0	-12.7
5	198.49	29.0 QP	43.5	-14.5	1.50 V	108	43.7	-14.7
6	332.80	24.8 QP	46.0	-21.2	2.00 V	199	34.2	-9.4

Remarks:

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



7.3 Unwanted Emissions above 1 GHz

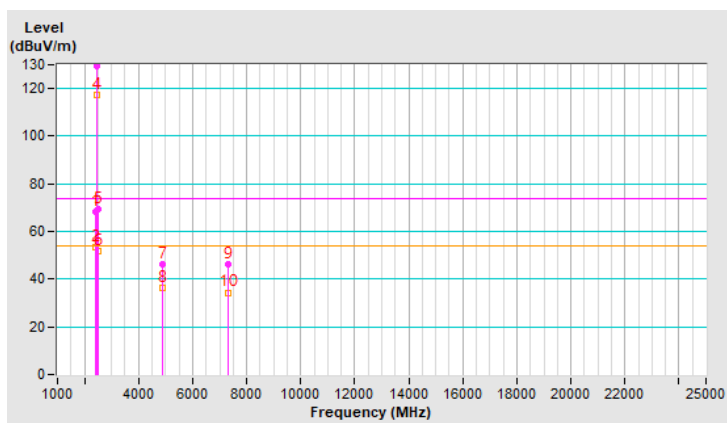
Mode A

RF Mode	TX 802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 70% 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	2390.00	68.2 PK	74.0	-5.8	1.99 H	357	72.7	-4.5
2	2390.00	53.5 AV	54.0	-0.5	1.99 H	357	58.0	-4.5
3	*2437.00	129.4 PK			1.99 H	357	133.9	-4.5
4	*2437.00	117.3 AV			1.99 H	357	121.8	-4.5
5	2483.50	69.1 PK	74.0	-4.9	1.99 H	357	73.6	-4.5
6	2483.50	51.9 AV	54.0	-2.1	1.99 H	357	56.4	-4.5
7	4874.00	46.3 PK	74.0	-27.7	1.72 H	202	46.5	-0.2
8	4874.00	36.3 AV	54.0	-17.7	1.72 H	202	36.5	-0.2
9	7311.00	46.4 PK	74.0	-27.6	1.34 H	217	40.3	6.1
10	7311.00	34.4 AV	54.0	-19.6	1.34 H	217	28.3	6.1

Remarks:

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

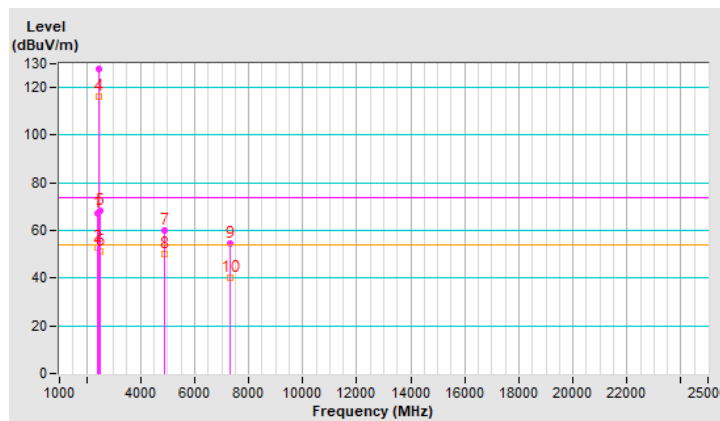


RF Mode	TX 802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 70% RH
Tested By	Sampson Chen		

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	2390.00	67.2 PK	74.0	-6.8	1.84 V	215	71.7	-4.5
2	2390.00	52.7 AV	54.0	-1.3	1.84 V	215	57.2	-4.5
3	*2437.00	127.9 PK			1.84 V	215	132.4	-4.5
4	*2437.00	116.0 AV			1.84 V	215	120.5	-4.5
5	2483.50	68.2 PK	74.0	-5.8	1.84 V	215	72.7	-4.5
6	2483.50	51.0 AV	54.0	-3.0	1.84 V	215	55.5	-4.5
7	4874.00	60.2 PK	74.0	-13.8	1.70 V	164	60.4	-0.2
8	4874.00	50.0 AV	54.0	-4.0	1.70 V	164	50.2	-0.2
9	7311.00	54.5 PK	74.0	-19.5	1.32 V	226	48.4	6.1
10	7311.00	40.4 AV	54.0	-13.6	1.32 V	226	34.3	6.1

Remarks:

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



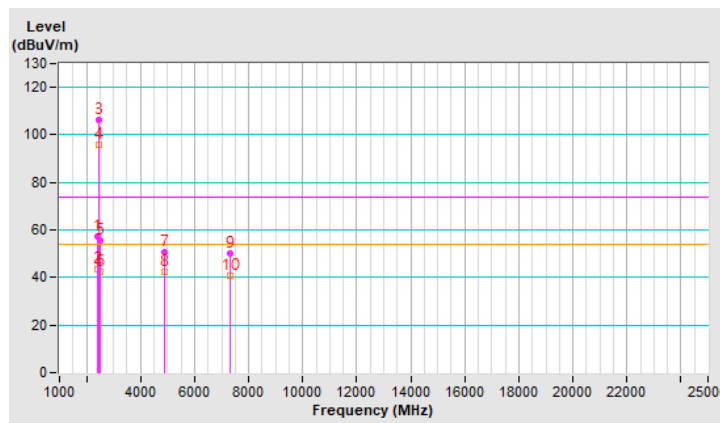
Mode B

RF Mode	TX 802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 70% 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	2390.00	57.1 PK	74.0	-16.9	1.62 H	294	61.6	-4.5
2	2390.00	43.5 AV	54.0	-10.5	1.62 H	294	48.0	-4.5
3	*2437.00	106.5 PK			1.62 H	294	111.0	-4.5
4	*2437.00	96.0 AV			1.62 H	294	100.5	-4.5
5	2483.50	55.4 PK	74.0	-18.6	1.62 H	294	59.9	-4.5
6	2483.50	42.2 AV	54.0	-11.8	1.62 H	294	46.7	-4.5
7	4874.00	50.7 PK	74.0	-23.3	1.36 H	189	50.9	-0.2
8	4874.00	42.4 AV	54.0	-11.6	1.36 H	189	42.6	-0.2
9	7311.00	50.2 PK	74.0	-23.8	1.68 H	313	44.1	6.1
10	7311.00	40.6 AV	54.0	-13.4	1.68 H	313	34.5	6.1

Remarks:

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

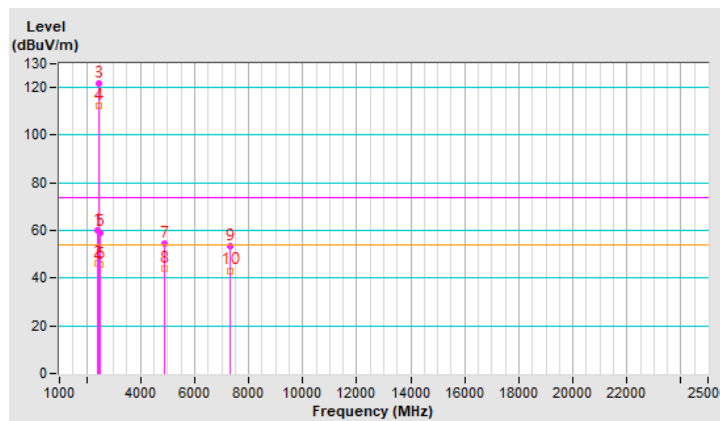


RF Mode	TX 802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 70% RH
Tested By	Sampson Chen		

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	2390.00	60.0 PK	74.0	-14.0	1.58 V	165	64.5	-4.5
2	2390.00	46.5 AV	54.0	-7.5	1.58 V	165	51.0	-4.5
3	*2437.00	121.8 PK			1.58 V	165	126.3	-4.5
4	*2437.00	112.3 AV			1.58 V	165	116.8	-4.5
5	2483.50	59.2 PK	74.0	-14.8	1.58 V	165	63.7	-4.5
6	2483.50	45.7 AV	54.0	-8.3	1.58 V	165	50.2	-4.5
7	4874.00	54.4 PK	74.0	-19.6	1.82 V	125	54.6	-0.2
8	4874.00	44.1 AV	54.0	-9.9	1.82 V	125	44.3	-0.2
9	7311.00	53.3 PK	74.0	-20.7	1.74 V	284	47.2	6.1
10	7311.00	43.2 AV	54.0	-10.8	1.74 V	284	37.1	6.1

Remarks:

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



Mode C

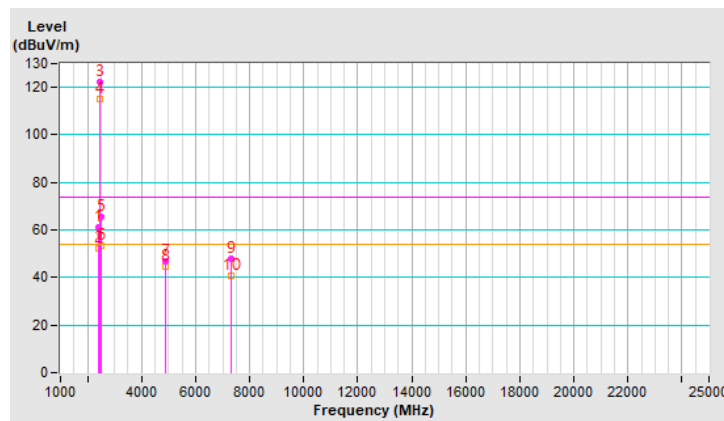
RF Mode	TX 802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 70% RH
Tested By	Sampson Chen		

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	2390.00	61.2 PK	74.0	-12.8	2.22 H	205	65.7	-4.5
2	2390.00	52.2 AV	54.0	-1.8	2.22 H	205	56.7	-4.5
3	*2437.00	122.1 PK			2.22 H	205	126.6	-4.5
4	*2437.00	114.9 AV			2.22 H	205	119.4	-4.5
5	2483.50	65.3 PK	74.0	-8.7	2.22 H	205	69.8	-4.5
6	2483.50	53.2 AV	54.0	-0.8	2.22 H	205	57.7	-4.5
7	4874.00	47.0 PK	74.0	-27.0	1.55 H	307	47.2	-0.2
8	4874.00	44.8 AV	54.0	-9.2	1.55 H	307	45.0	-0.2
9	7311.00	48.0 PK	74.0	-26.0	1.40 H	339	41.9	6.1
10	7311.00	40.5 AV	54.0	-13.5	1.40 H	339	34.4	6.1

Remarks:

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

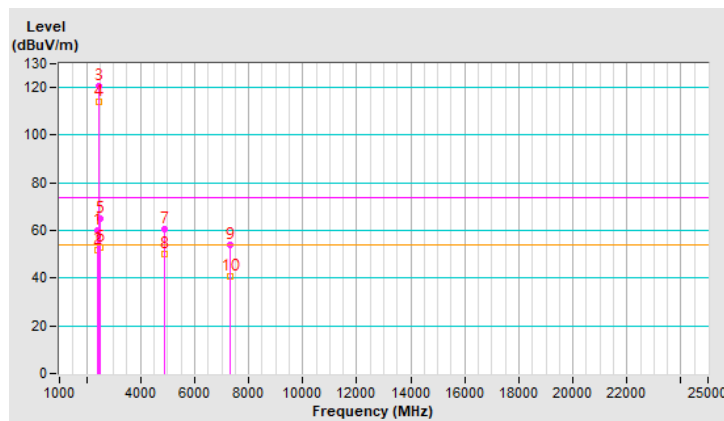


RF Mode	TX 802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 70% RH
Tested By	Sampson Chen		

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	2390.00	59.9 PK	74.0	-14.1	3.00 V	233	64.4	-4.5
2	2390.00	52.0 AV	54.0	-2.0	3.00 V	233	56.5	-4.5
3	*2437.00	120.8 PK			3.00 V	233	125.3	-4.5
4	*2437.00	114.1 AV			3.00 V	233	118.6	-4.5
5	2483.50	64.8 PK	74.0	-9.2	3.00 V	233	69.3	-4.5
6	2483.50	52.9 AV	54.0	-1.1	3.00 V	233	57.4	-4.5
7	4874.00	60.5 PK	74.0	-13.5	1.11 V	290	60.7	-0.2
8	4874.00	49.9 AV	54.0	-4.1	1.11 V	290	50.1	-0.2
9	7311.00	54.1 PK	74.0	-19.9	1.21 V	285	48.0	6.1
10	7311.00	40.8 AV	54.0	-13.2	1.21 V	285	34.7	6.1

Remarks:

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



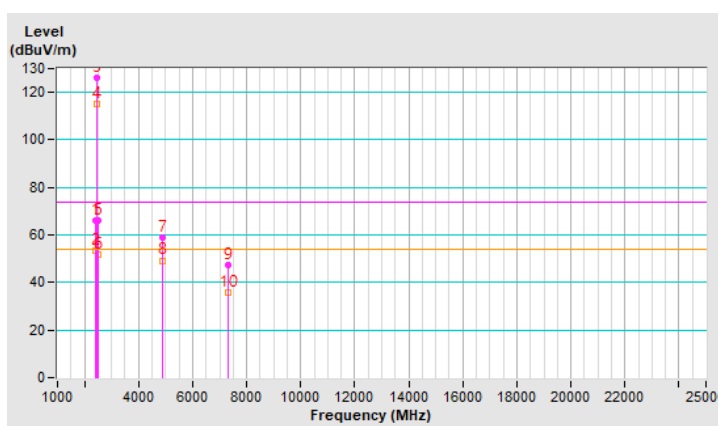
Mode D

RF Mode	TX 802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 70% 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	2390.00	66.2 PK	74.0	-7.8	2.06 H	184	70.7	-4.5
2	2390.00	53.3 AV	54.0	-0.7	2.06 H	184	57.8	-4.5
3	*2437.00	126.0 PK			2.06 H	184	130.5	-4.5
4	*2437.00	115.0 AV			2.06 H	184	119.5	-4.5
5	2483.50	66.1 PK	74.0	-7.9	2.06 H	184	70.6	-4.5
6	2483.50	51.8 AV	54.0	-2.2	2.06 H	184	56.3	-4.5
7	4874.00	59.1 PK	74.0	-14.9	1.60 H	181	59.3	-0.2
8	4874.00	49.3 AV	54.0	-4.7	1.60 H	181	49.5	-0.2
9	7311.00	47.3 PK	74.0	-26.7	1.35 H	177	41.2	6.1
10	7311.00	36.0 AV	54.0	-18.0	1.35 H	177	29.9	6.1

Remarks:

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

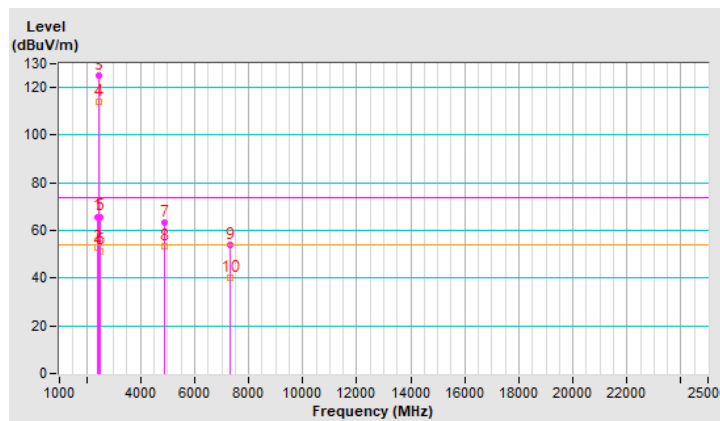


RF Mode	TX 802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25°C, 70% RH
Tested By	Sampson Chen		

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	2390.00	65.8 PK	74.0	-8.2	2.22 V	255	70.3	-4.5
2	2390.00	53.0 AV	54.0	-1.0	2.22 V	255	57.5	-4.5
3	*2437.00	125.1 PK			2.22 V	255	129.6	-4.5
4	*2437.00	114.2 AV			2.22 V	255	118.7	-4.5
5	2483.50	65.8 PK	74.0	-8.2	2.22 V	255	70.3	-4.5
6	2483.50	51.5 AV	54.0	-2.5	2.22 V	255	56.0	-4.5
7	4874.00	63.2 PK	74.0	-10.8	3.85 V	92	63.4	-0.2
8	4874.00	53.3 AV	54.0	-0.7	3.85 V	92	53.5	-0.2
9	7311.00	54.0 PK	74.0	-20.0	1.92 V	157	47.9	6.1
10	7311.00	40.2 AV	54.0	-13.8	1.92 V	157	34.1	6.1

Remarks:

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



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.

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

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

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