TEST REPORT

CERTIFICATE OF CONFORMITY

Standard:	**47 CFR FCC Part 15, Subpart C (Section 15.247)**
Report No.:	RFBBQZ-WTW-P21120286
FCC ID:	PY322100553
Model No.:	MM32X
Received Date:	2022/1/20
Test Date:	2022/2/23 ~ 2022/3/11
Issued Date:	2022/4/1
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:** 2022/4/1

Clark Lin / Technical Manager

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Prepared by : Cherry Chuo / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBBQZ-WTW-P21120286	Original release.	2022/4/1

1 Certificate

Product:	Wireless Module
Brand:	NETGEAR
Test Model:	MM32X
Sample Status:	Engineering sample
Applicant and Manufacturer:	NETGEAR, Inc.
Test Date:	2022/2/23 ~ 2022/3/11
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	Pass	Meet the requirement of limit.
15.247(a)(2)	6 dB Bandwidth	Pass	Meet the requirement of limit.
15.247(d)	Conducted Out of Band Emissions	Pass	Meet the requirement of limit.
15.207	AC Power Conducted Emissions	Pass	Minimum passing margin is -6.60 dB at 0.36094 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -3.1 dB at 46.13 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.1 dB at 2388.25 MHz, 2390.00 MHz
15.203	Antenna Requirement	Pass	Antenna connector is ipex(MHF) not a standard connector.

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

2.1 Measurement Uncertainty

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

Measurement	Specification	Expanded Uncertainty (k=2) (±)
Conducted Out of Band Emissions	9 kHz ~ 40 GHz	2.5 dB
AC Power Conducted Emissions	150 kHz ~ 30 MHz	1.9 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.1 dB
	30 MHz ~ 1 GHz	5.4 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	5.0 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	Wireless Module
Brand	NETGEAR
Test Model	MM32X
FW Version	4.4.154-2.0.1
Status of EUT	Engineering sample
Power Supply Rating	12 Vdc
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in VHT (20/40) mode 1024QAM for OFDMA in 11ax HE mode
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	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	400.911 mW (26.03 dBm)

Note:

1. 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.		

2. 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.

Antenna NO.	Model	Antenna Net Gain(dBi)	Frequency range (GHz)	Antenna Type	Connector Type
MC321-Ant0	907X00747X22(580)	1.03	2.4~2.4835	Dipole	ipex(MHF)
		1.36	5.15~5.25		
		1.78	5.725~5.85		
MC321-Ant1	907X00747X11(580)	1.33	2.4~2.4835	Dipole	ipex(MHF)
		2.22	5.15~5.25		
		2.24	5.725~5.85		
MC327-Ant0	907X00747X88	0.64	2.4~2.4835	Dipole	ipex(MHF)
		1.24	5.15~5.25		
		1.51	5.725~5.85		
MC327-Ant1	907X00747X35	1.61	2.4~2.4835	Dipole	ipex(MHF)
		2.03	5.15~5.25		
		2.33	5.725~5.85		

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

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. The modulation and bandwidth are similar for 802.11n mode for 20 MHz (40 MHz) and VHT mode for 20 MHz (40 MHz) 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 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

Worst Case:	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).

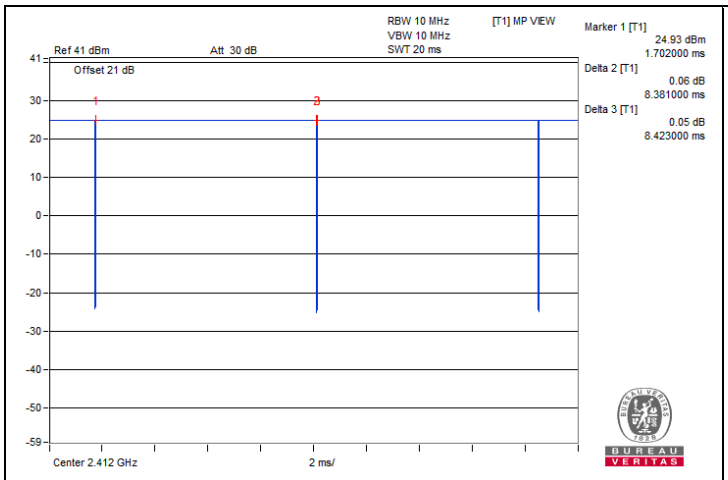
Following channel(s) was (were) selected for the final test as listed below:

Test Item	Mode	Tested Channel	Modulation	Data Rate Parameter
AC Power Conducted Emissions	802.11b	6	DBPSK	1Mb/s
Unwanted Emissions below 1 GHz	802.11b	6	DBPSK	1Mb/s
Unwanted Emissions above 1 GHz	802.11b	1, 6, 11	DBPSK	1Mb/s
	802.11g	1, 6, 11	BPSK	6Mb/s
	802.11ax (HE20)	1, 6, 11	BPSK	MCS0
	802.11ax (HE40)	3, 6, 9	BPSK	MCS0
RF Output Power / 6 dB Bandwidth / Power Spectral Density / Conducted Out of Band Emissions	802.11b	1, 6, 11	DBPSK	1Mb/s
	802.11g	1, 6, 11	BPSK	6Mb/s
	802.11ax (HE20)	1, 6, 11	BPSK	MCS0
	802.11ax (HE40)	3, 6, 9	BPSK	MCS0
EUT Configure Mode:	Use Antenna NO.: MC321-Ant1			

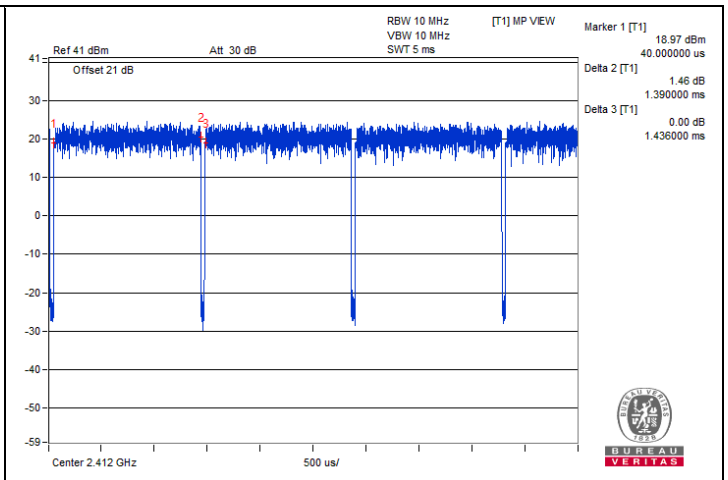
3.5 Duty Cycle of Test Signal

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

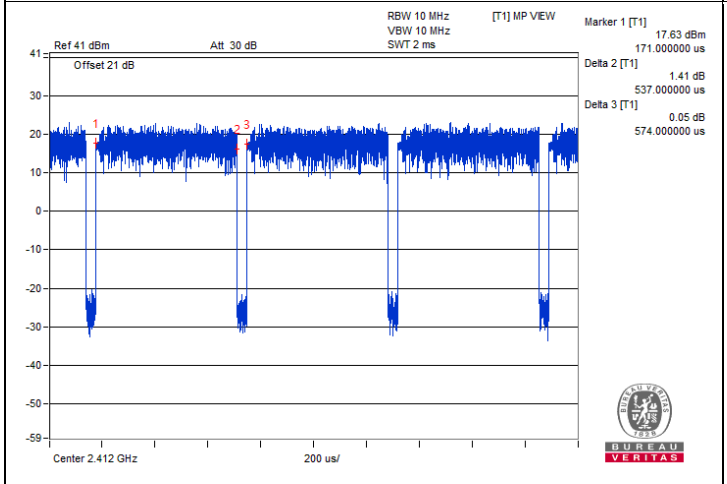
802.11b: Duty cycle = 8.381 ms / 8.423 ms = 99.5 %
802.11g: Duty cycle = 1.39 ms / 1.436 ms = 96.8 %, duty factor = 10 * log (1/Duty cycle) = 0.14 dB
802.11ax (HE20): Duty cycle = 0.537 ms / 0.574 ms = 93.6 %, duty factor = 10 * log (1/Duty cycle) = 0.29 dB
802.11ax (HE40): Duty cycle = 0.07 ms / 0.09 ms = 77.8 %, duty factor = 10 * log (1/Duty cycle) = 1.09 dB



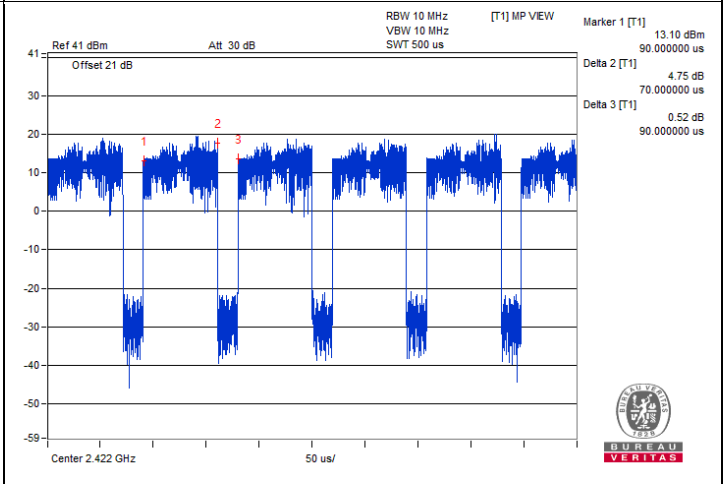
802.11b



802.11g



802.11ax (HE20)



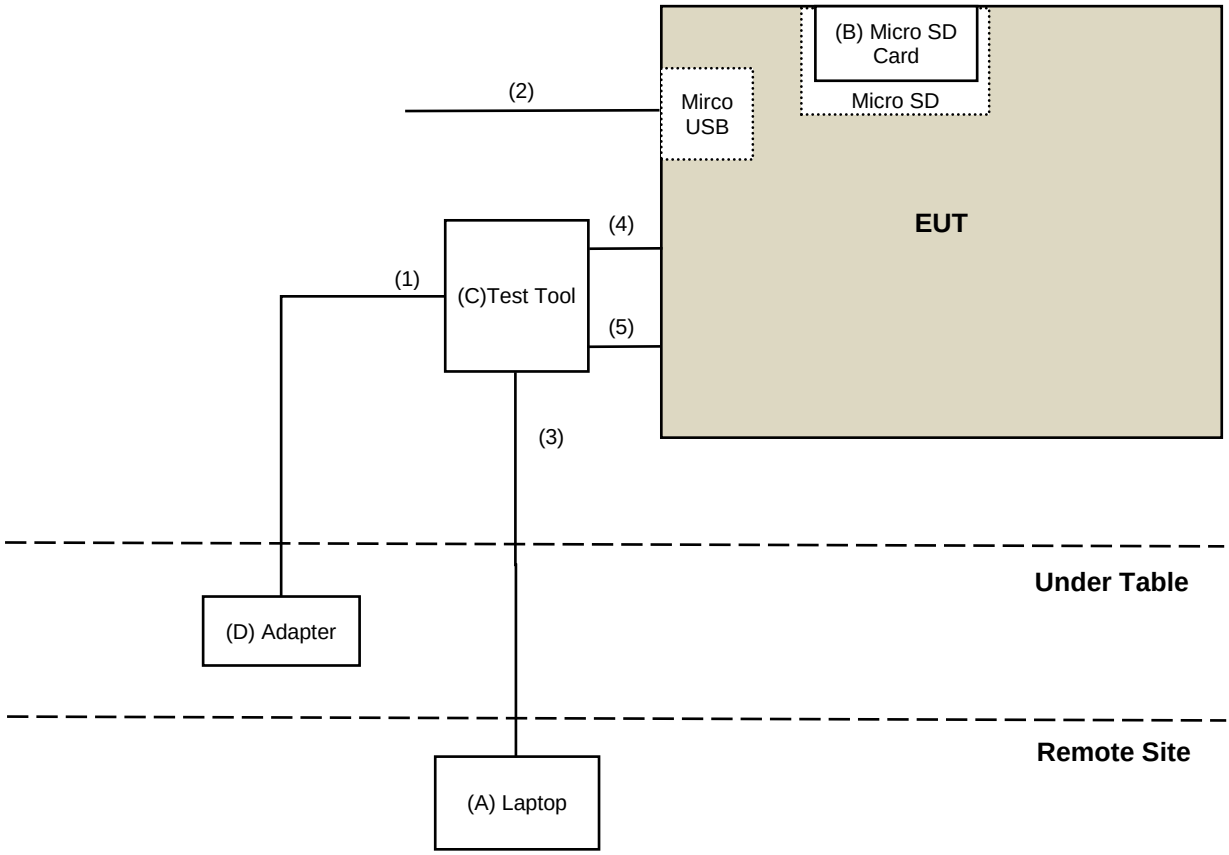
802.11ax (HE40)

3.6 Test Program Used and Operation Descriptions

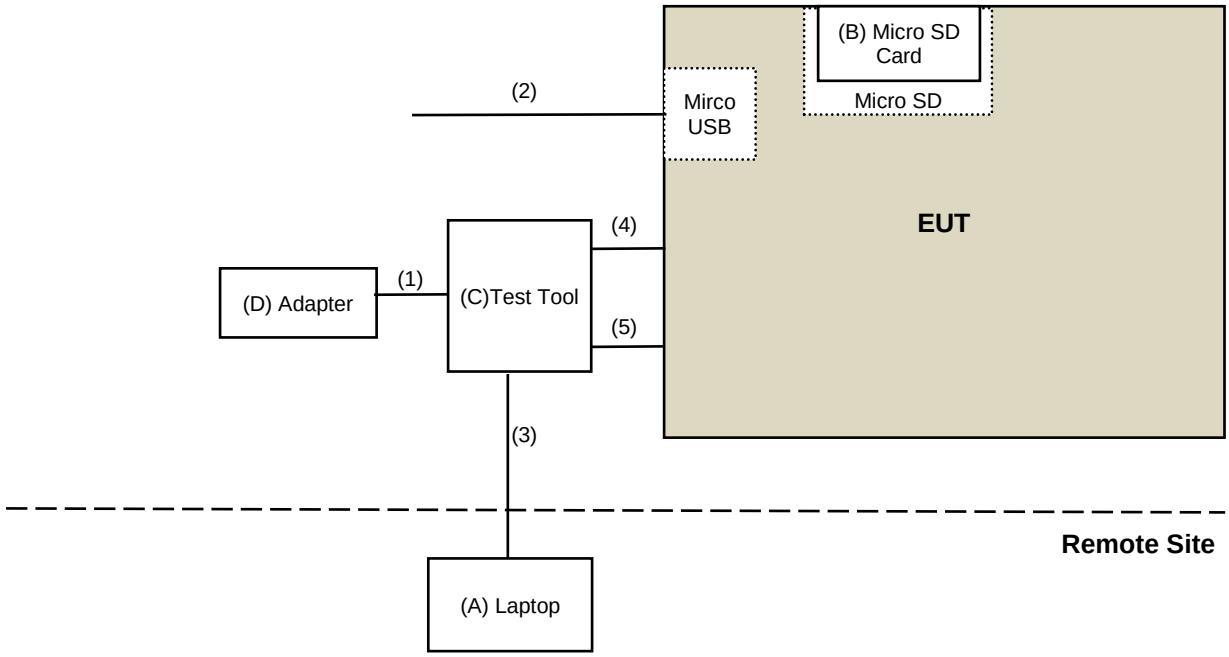
Controlling software (TeraTerm paste cmd.txt command) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices

For Radiated Emission test



For AC Power Conducted Emission test



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	Micro SD Card	ADATA	N/A	N/A	N/A	Provided by Lab
C	Test Tool	Netgear	N/A	N/A	N/A	Supplied by applicant
D	Adapter	Netgear	ADS-40FPC-12 12030E	N/A	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	DC Cable	1	2.5	No	0	Supplied by applicant
2	Micro USB Cable	1	1	No	0	Provided by Lab
3	LAN Cable	1	10	No	0	Provided by Lab
4	Console Cable	1	0.5	No	0	Supplied by applicant
5	Console Cable	1	0.5	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
Spectrum Analyzer R&S	FSV40	100964	2021/5/31	2022/5/30

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2022/3/11

4.2 Power Spectral Density

Refer to section 4.1 to get information of the instruments.

4.3 6 dB Bandwidth

Refer to section 4.1 to get information of the instruments.

4.4 Conducted Out of Band Emissions

Refer to section 4.1 to get information of the instruments.

4.5 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
LISN R & S	ESH3-Z5	835239/001	2021/3/26	2022/3/25
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: 2022/3/1

4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	N/A	N/A
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	2021/9/23	2022/9/22
Loop Antenna TESEQ	HLA 6121	45745	2021/7/21	2022/7/20
Pre_Amplifier EMCI	EMC001340	980142	2021/5/24	2022/5/23
Pre_Amplifier Mini-Circuits	ZFL-1000VH2	QA0838008	2021/10/19	2022/10/18
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	001	2022/2/26	2023/2/25
		966-3-2	2021/3/16	2022/3/15
		966-3-3	2022/2/26	2023/2/25
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Spectrum Analyzer KEYSIGHT	N9030B	MY57142938	2021/4/26	2022/4/25
Test Receiver KEYSIGHT	N9038A	MY59050100	2021/5/3	2022/5/2
Trilog Broadband Antenna Schwarzbeck	VULB 9168	9168-361	2021/10/26	2022/10/25

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2022/3/7

4.7 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	N/A	N/A
Fix tool for Boresight antenna tower BV	FBA-01	FBA_SIP01	N/A	N/A
Horn Antenna Schwarzbeck	BBHA9120-D	9120D-406	2021/11/14	2022/11/13
	BBHA 9170	BBHA9170519	2021/11/14	2022/11/13
Pre_Amplifier EMCI	EMC12630SE	980384	2022/1/10	2023/1/9
	EMC184045SE	980387	2022/1/10	2023/1/9
RF Cable EMCI	EMC104-SM-SM-6000	210201	2021/5/13	2022/5/12
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-1500	180504	2021/4/26	2022/4/25
	EMC104-SM-SM-2000	180601	2021/6/8	2022/6/7
	EMC-KM-KM-4000	200214	2021/3/10	2022/3/9
	EMC-KM-KM-4000	200214	2022/3/8	2023/3/7
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Spectrum Analyzer KEYSIGHT	N9030B	MY57142938	2021/4/26	2022/4/25
Spectrum Analyzer Keysight	N9030A	MY54490679	2021/7/9	2022/7/8
Test Receiver KEYSIGHT	N9038A	MY59050100	2021/5/3	2022/5/2

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2022/2/23 ~ 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 Power Spectral Density

The Maximum of Power Spectral Density Measurement is 8 dBm in any 3 kHz.

5.3 6 dB Bandwidth

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

5.4 Conducted Out of Band Emissions

Below 30 dB of the highest emission level of operating band (in 100 kHz Resolution Bandwidth).

5.5 AC Power Conducted Emissions

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

Notes:

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

5.6 Unwanted Emissions below 1 GHz

Radiated emissions 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).

5.7 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

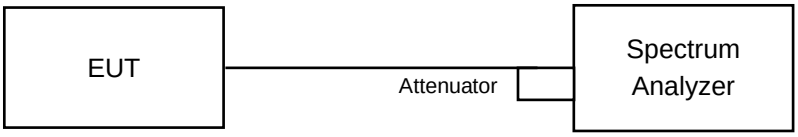
6.1.1 Test Setup

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 Power Spectral Density

6.2.1 Test Setup



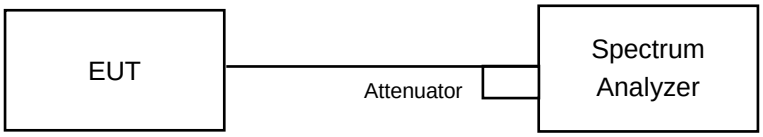
6.2.2 Test Procedure

a. Measure the duty cycle (x).
b. Set instrument center frequency to DTS channel center frequency.
c. Set span to at least 1.5 times the OBW.
d. Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
e. Set VBW ≥3 x RBW.
f. Detector = power averaging (RMS) or sample detector (when RMS not available).
g. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
h. Sweep time = auto couple.
i. Do not use sweep triggering. Allow sweep to “free run”.
j. Employ trace averaging (RMS) mode over a minimum of 100 traces.
k. Use the peak marker function to determine the maximum amplitude level.

Note: If Duty cycle < 98%, Add 10 log (1/x), where x is the duty cycle measured in step (a, to the measured PSD to compute the average PSD during the actual transmission time.

6.3 6 dB Bandwidth

6.3.1 Test Setup

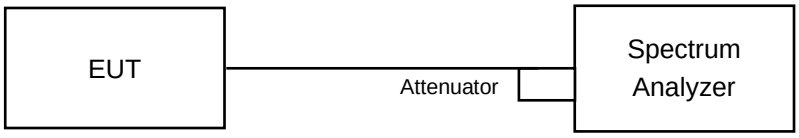


6.3.2 Test Procedure

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

6.4 Conducted Out of Band Emissions

6.4.1 Test Setup



6.4.2 Test Procedure

MEASUREMENT PROCEDURE REF

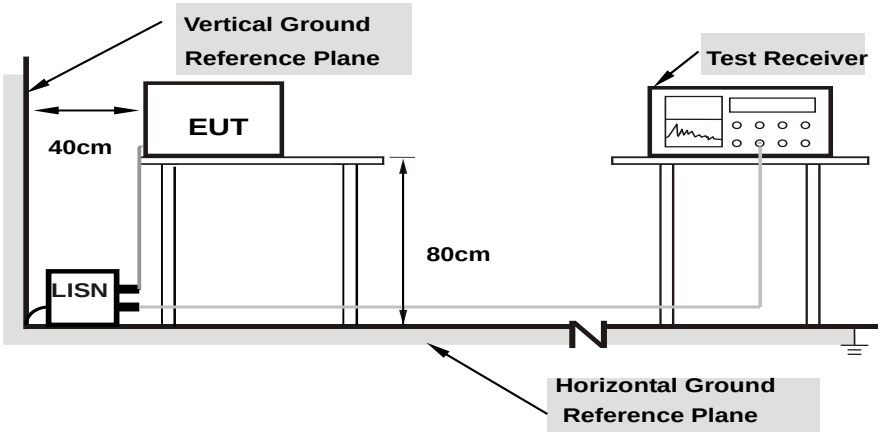
a. Set the RBW = 100 kHz.
b. Set the VBW ≥ 300 kHz.
c. Detector = peak.
d. Sweep time = auto couple.
e. Trace mode = max hold.
f. Allow trace to fully stabilize.
g. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

a. Set RBW = 100 kHz.
b. Set VBW ≥ 300 kHz.
c. Detector = peak.
d. Sweep = auto couple.
e. Trace Mode = max hold.
f. Allow trace to fully stabilize.
g. Use the peak marker function to determine the maximum amplitude level.

6.5 AC Power Conducted Emissions

6.5.1 Test Setup



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

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

6.5.2 Test Procedure

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

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

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

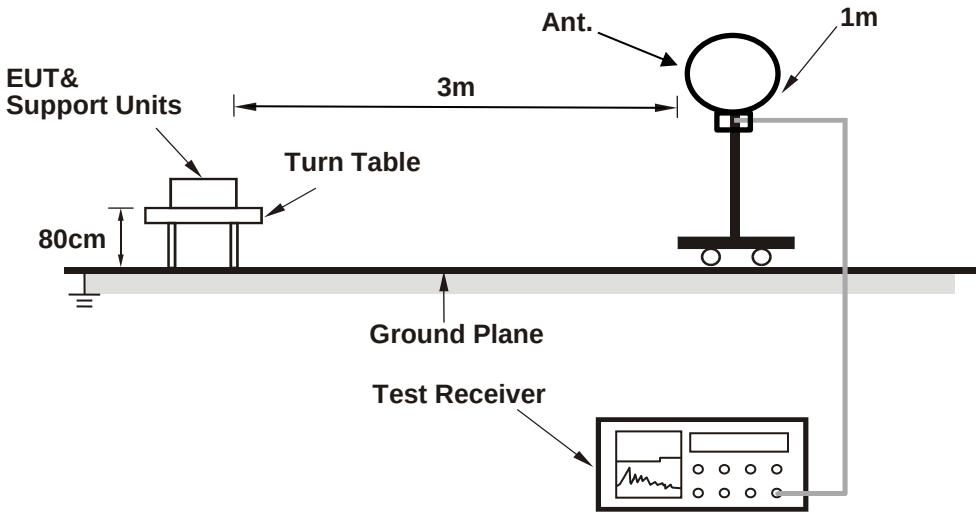
Note:

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

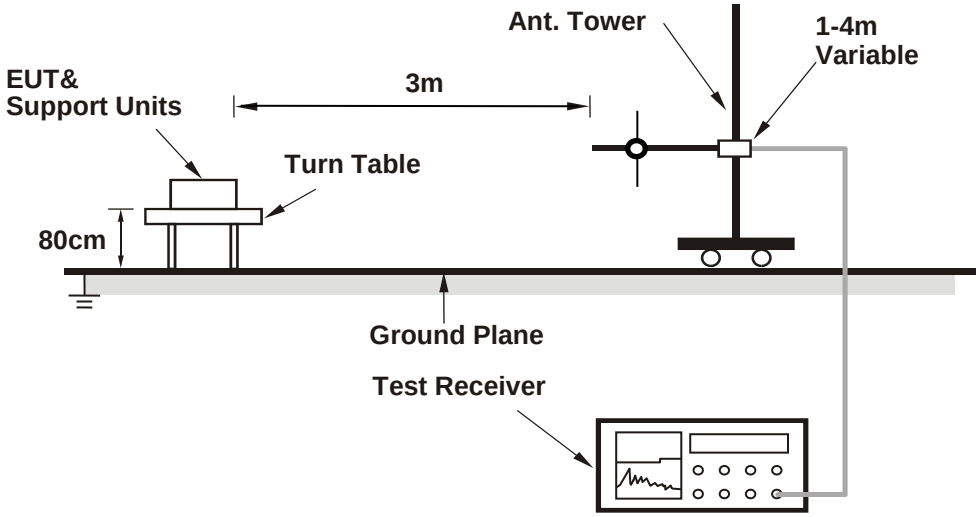
6.6 Unwanted Emissions below 1 GHz

6.6.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



6.6.2 Test Procedure

For Radiated emission below 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

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

c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

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.

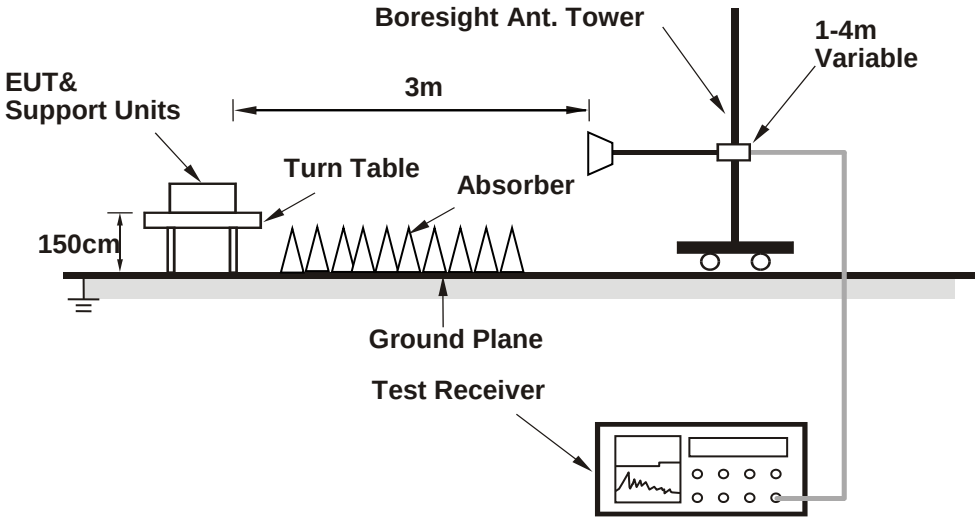
Notes:

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.

6.7 Unwanted Emissions above 1 GHz

6.7.1 Test Setup

For Radiated emission above 1 GHz



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

6.7.2 Test Procedure

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

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

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

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

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

Notes:

1. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) 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.

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:	12 Vdc	Environmental Conditions:	24 °C, 60 % RH	Tested By:	Eric Peng

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	22.86	23.01	393.183	25.95	30	Pass
6	2437	22.98	23.06	400.911	26.03	30	Pass
11	2462	22.51	22.03	337.826	25.29	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 1.33 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	18.03	17.62	121.343	20.84	30	Pass
6	2437	21.04	20.92	250.652	23.99	30	Pass
11	2462	18.22	18.05	130.201	21.15	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 1.33 dBi < 6 dBi, so the output power limit shall not be reduced.

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				
1	2412	17.11	16.75	98.719	19.94	30	Pass
6	2437	20.84	21.17	252.257	24.02	30	Pass
11	2462	18.19	18.11	130.632	21.16	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 1.33 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	15.50	15.69	72.549	18.61	30	Pass
6	2437	18.28	18.18	133.063	21.24	30	Pass
9	2452	17.30	17.16	105.703	20.24	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 1.33 dBi < 6 dBi, so the output power limit shall not be reduced.

7.2 Power Spectral Density

Input Power:	12 Vdc	Environmental Conditions:	24 °C, 60 % RH	Tested By:	Eric Peng

802.11b

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
1	2412	-8.82	-9.20	-6.00	8.00	Pass
6	2437	-8.64	-8.99	-5.80	8.00	Pass
11	2462	-9.28	-9.49	-6.37	8.00	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
3. The directional gain is 4.19 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11g

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)		Duty Factor (dB)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1				
1	2412	-14.38	-14.18	0.14	-11.13	8.00	Pass
6	2437	-10.85	-11.24	0.14	-7.89	8.00	Pass
11	2462	-14.56	-14.51	0.14	-11.38	8.00	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
3. The directional gain is 4.19 dBi < 6 dBi, so the power density limit shall not be reduced.
4. Refer to section 3.x for duty cycle spectrum plot.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)		Duty Factor (dB)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1				
1	2412	-17.48	-17.80	0.29	-14.34	8.00	Pass
6	2437	-13.03	-12.79	0.29	-9.61	8.00	Pass
11	2462	-16.23	-15.92	0.29	-12.77	8.00	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
3. The directional gain is 4.19 dBi < 6 dBi, so the power density limit shall not be reduced.

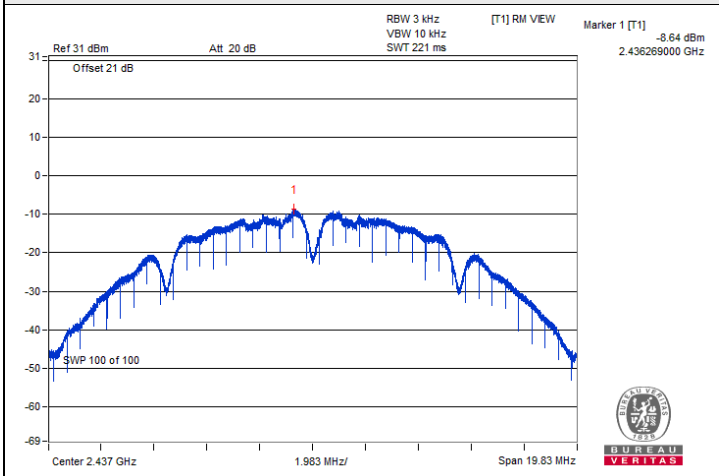
802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)		Duty Factor (dB)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1				
3	2422	-13.67	-11.34	1.09	-8.25	8.00	Pass
6	2437	-10.80	-10.49	1.09	-6.54	8.00	Pass
9	2452	-12.68	-10.65	1.09	-7.45	8.00	Pass

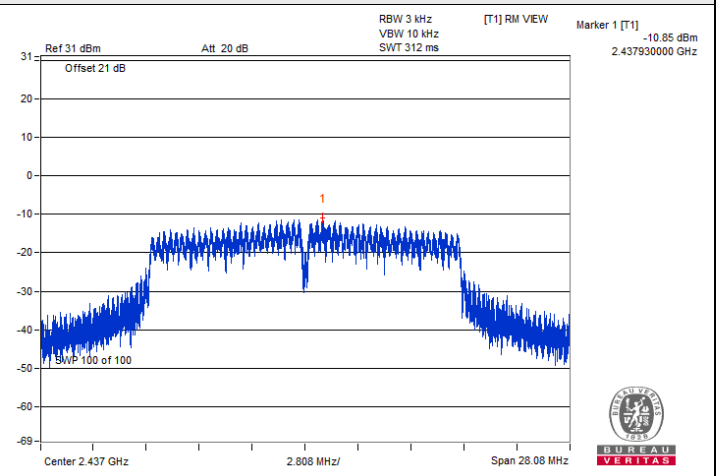
Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2]
3. The directional gain is 4.19 dBi < 6 dBi, so the power density limit shall not be reduced.

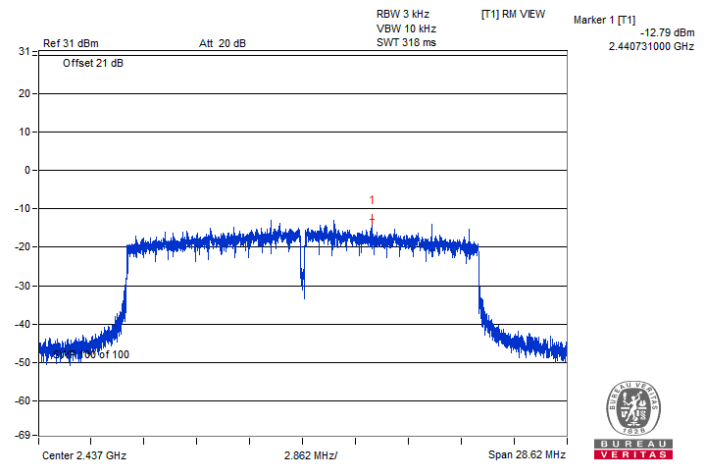
Spectrum Plot of Maximum Value



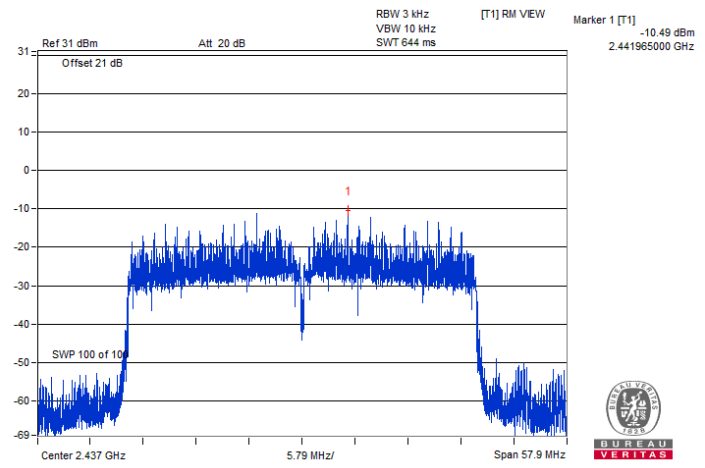
802.11b \ Chain0 : CH 6



802.11g \ Chain0 : CH 6



802.11ax (HE20) \ Chain1 : CH 6



802.11ax (HE40) \ Chain1 : CH 6

7.3 6 dB Bandwidth

Input Power:	12 Vdc	Environmental Conditions:	24 °C, 60 % RH	Tested By:	Eric Peng

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	8.1	8.08	0.5	Pass
6	2437	8.15	8.15	0.5	Pass
11	2462	8.12	8.1	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	15.19	15.18	0.5	Pass
6	2437	15.18	16.34	0.5	Pass
11	2462	15.85	15.99	0.5	Pass

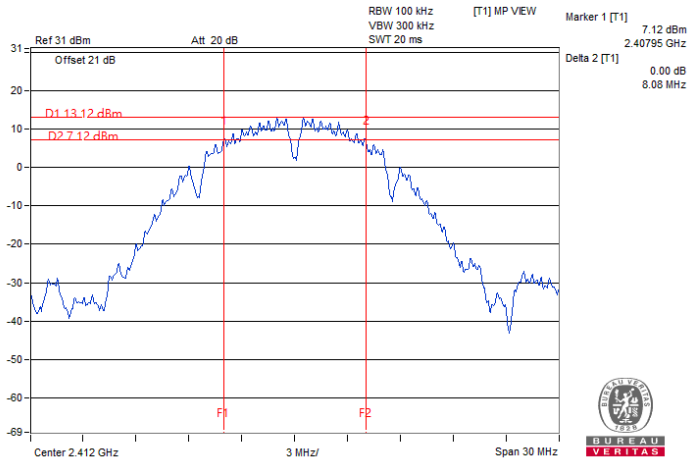
802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	18.12	17.24	0.5	Pass
6	2437	18.68	18.26	0.5	Pass
11	2462	17.99	18.63	0.5	Pass

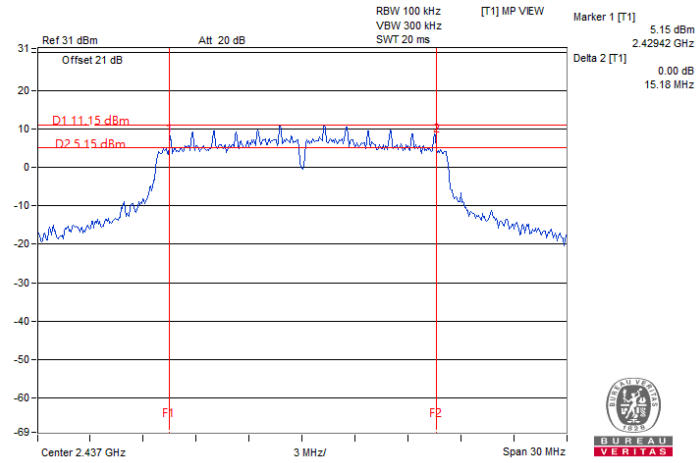
802.11ax (HE40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
3	2422	36.51	35.39	0.5	Pass
6	2437	35.82	36.38	0.5	Pass
9	2452	37.02	36.43	0.5	Pass

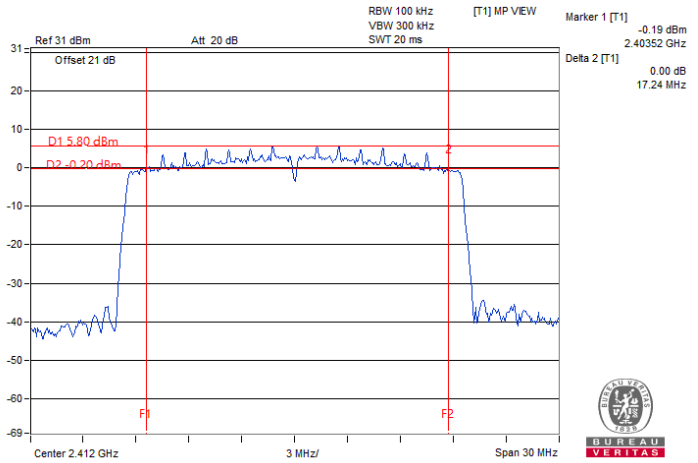
Spectrum Plot of Minimum Value



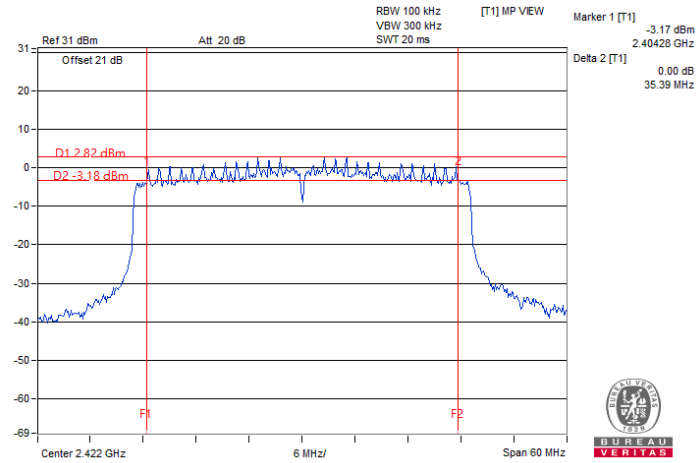
802.11b \ Chain1 : CH 1



802.11g \ Chain0 : CH 6



802.11ax (HE20) \ Chain1 : CH 1

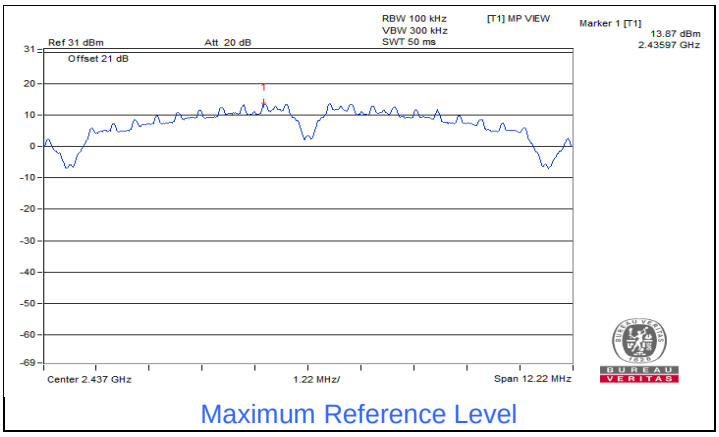


802.11ax (HE40) \ Chain1 : CH 3

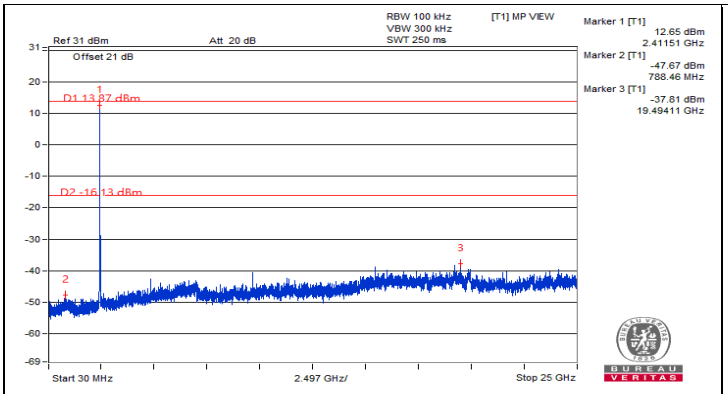
7.4 Conducted Out of Band Emissions

Input Power:	12 Vdc	Environmental Conditions:	24 °C, 60 % RH	Tested By:	Eric Peng

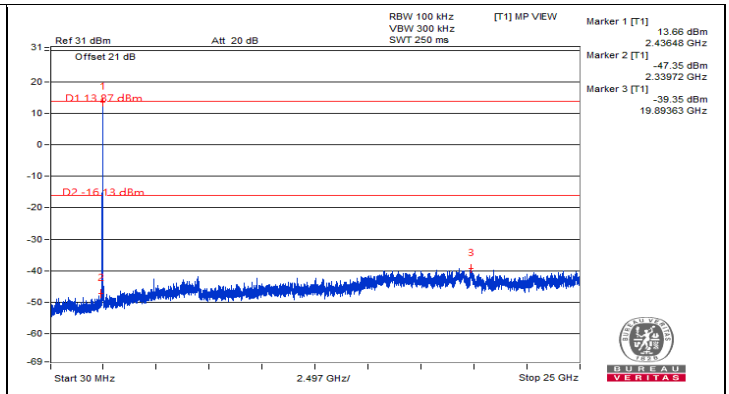
802.11b



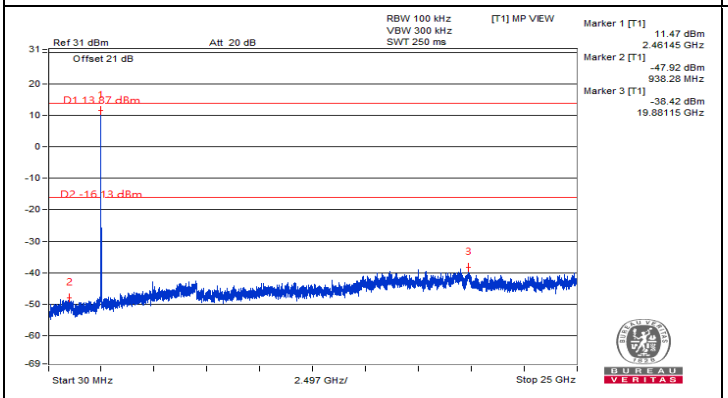
Maximum Reference Level



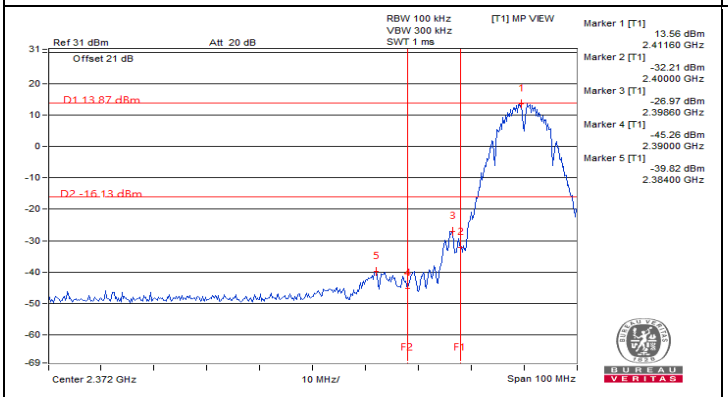
Chain 0 : CH 1



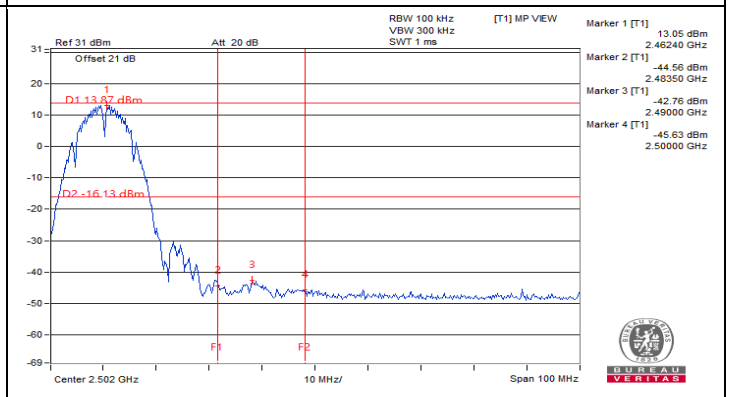
Chain 0 : CH 6



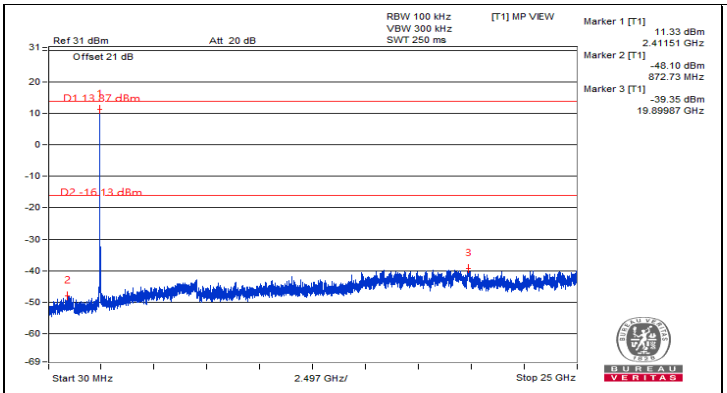
Chain 0 : CH 11



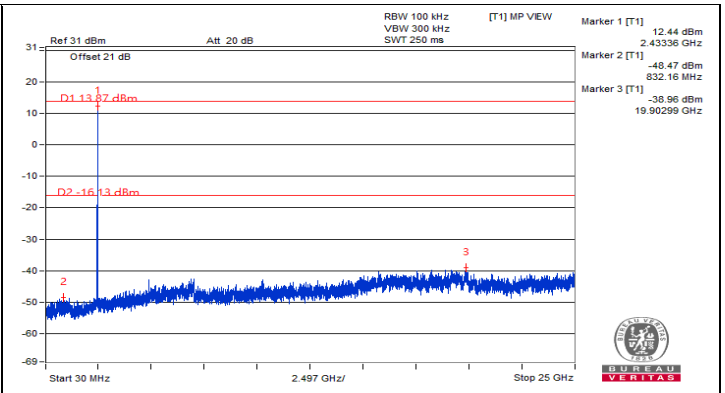
Chain 0 : CH 1 Band edge



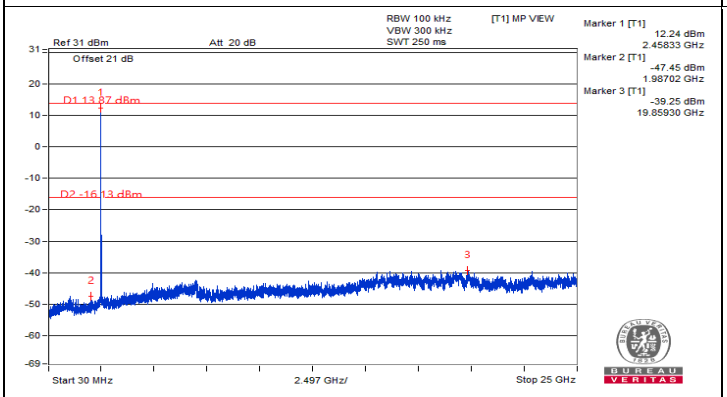
Chain 0 : CH 11 Band edge



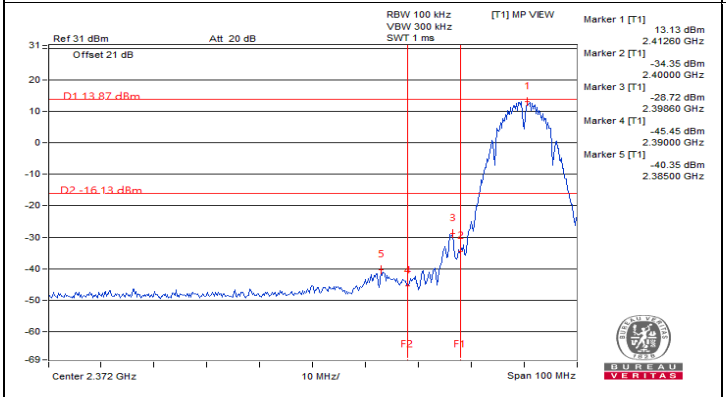
Chain 1 : CH 1



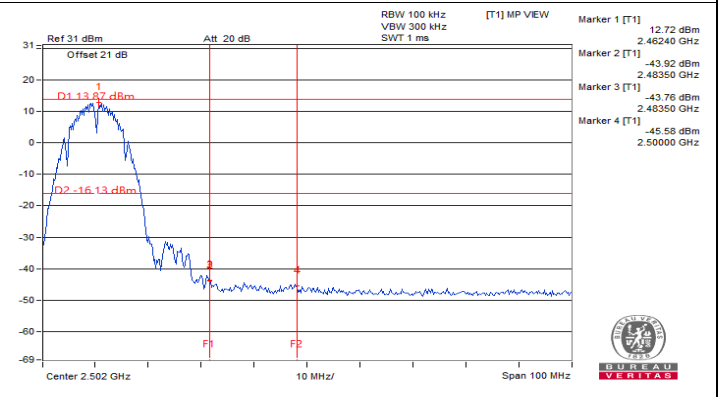
Chain 1 : CH 6



Chain 1 : CH 11

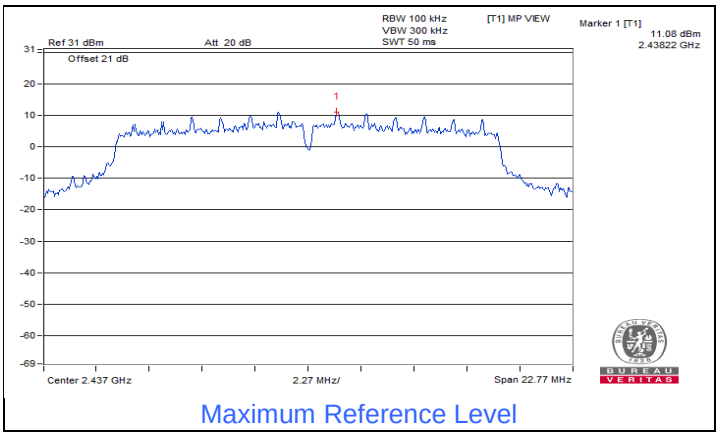


Chain 1 : CH 1 Band edge

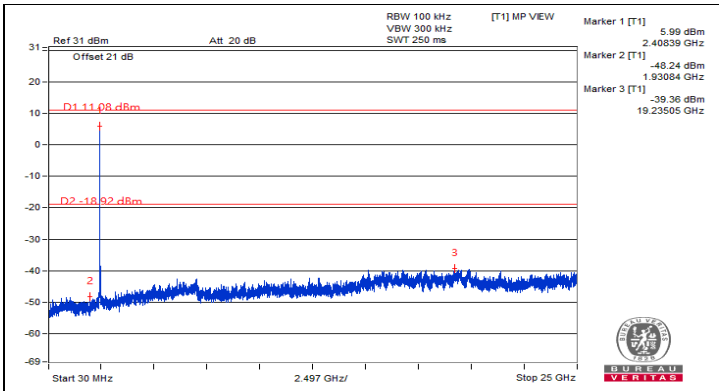


Chain 1 : CH 11 Band edge

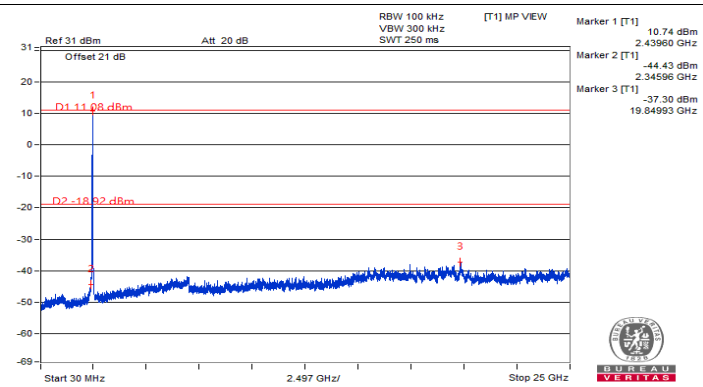
802.11g



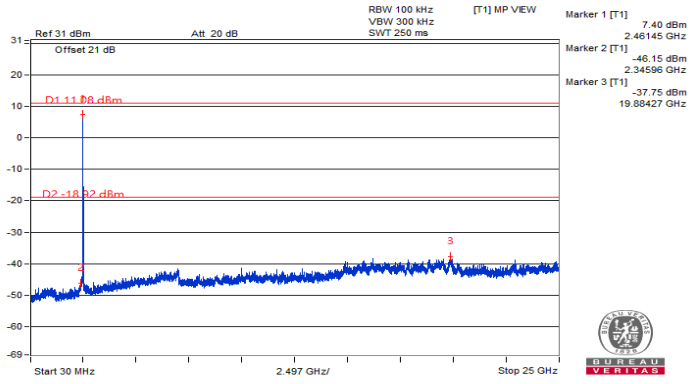
Maximum Reference Level



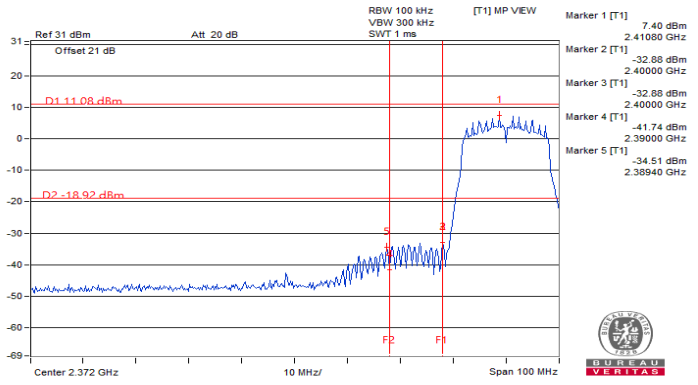
Chain 0 : CH 1



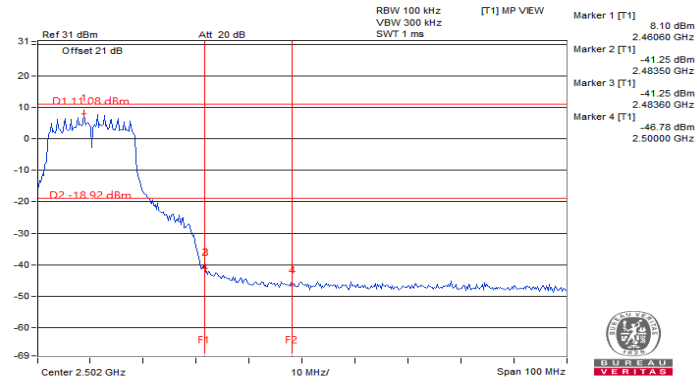
Chain 0 : CH 6



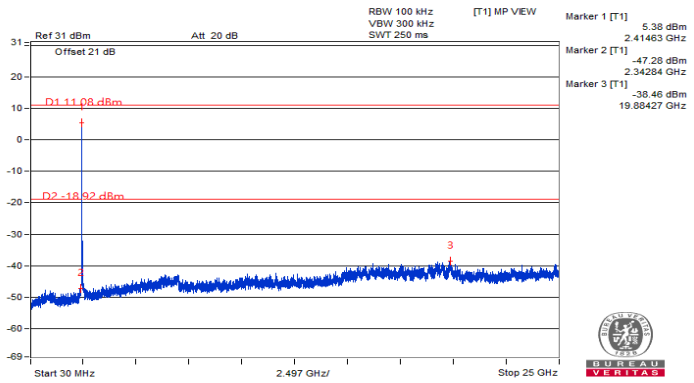
Chain 0 : CH 11



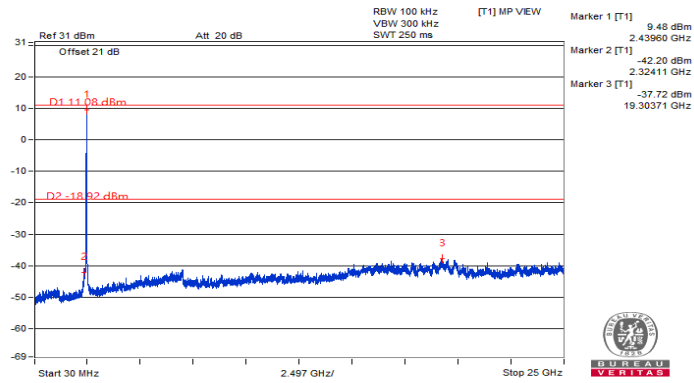
Chain 0 : CH 1 Band edge



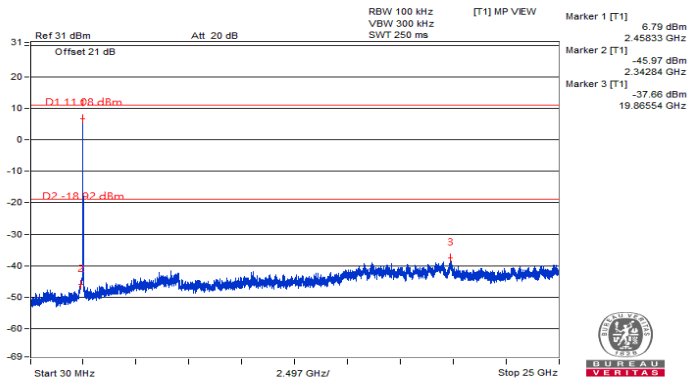
Chain 0 : CH 11 Band edge



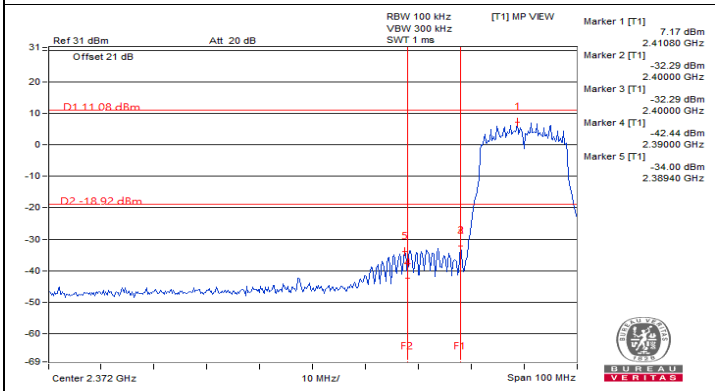
Chain 1 : CH 1



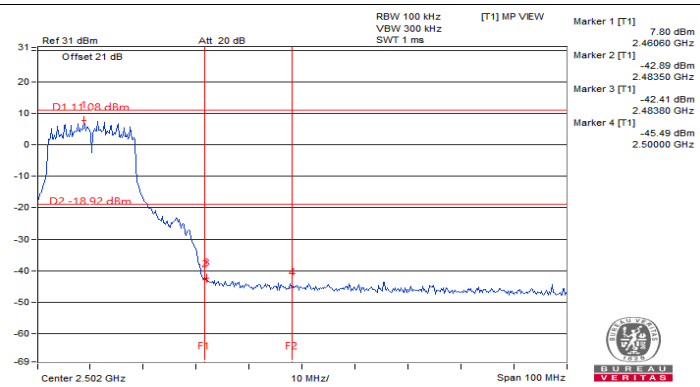
Chain 1 : CH 6



Chain 1 : CH 11

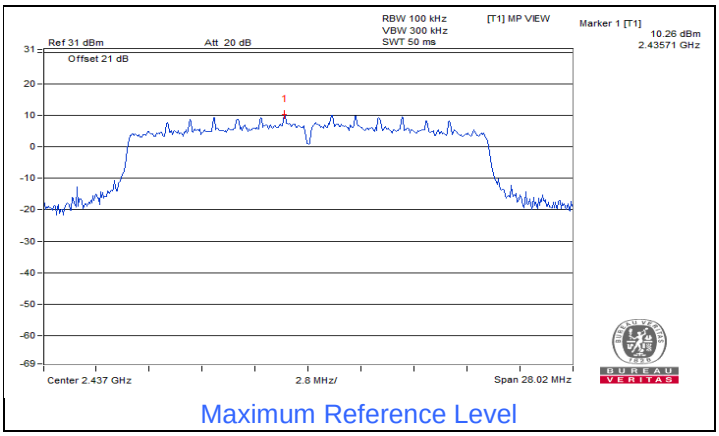


Chain 1 : CH 1 Band edge

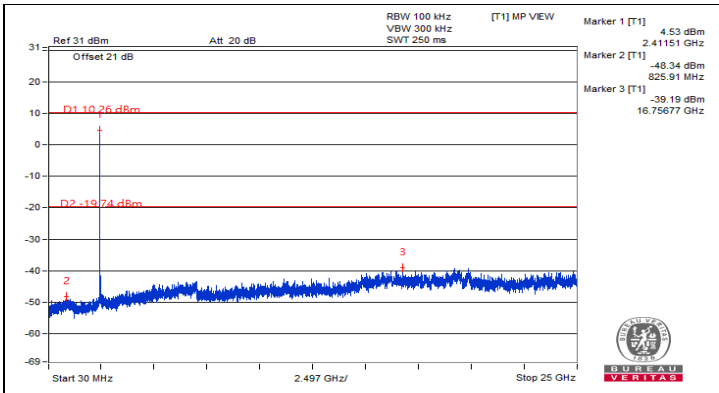


Chain 1 : CH 11 Band edge

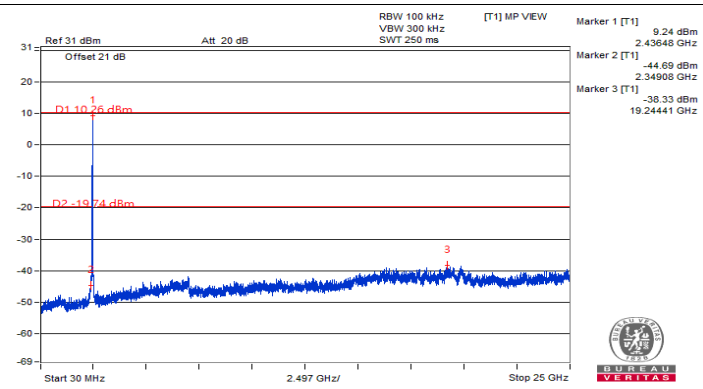
802.11ax (HE20)



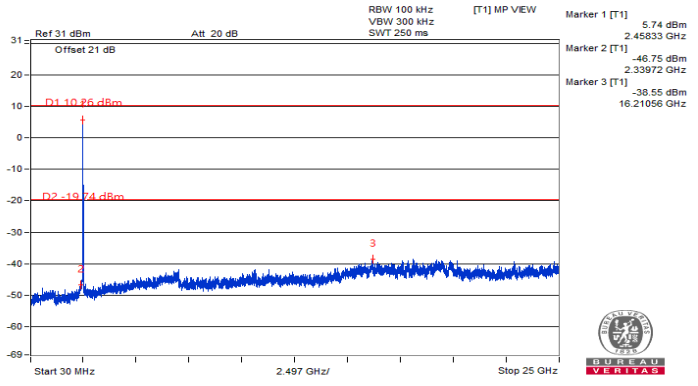
Maximum Reference Level



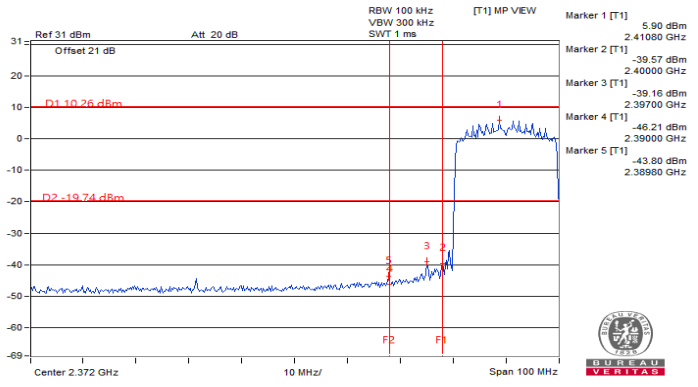
Chain 0 : CH 1



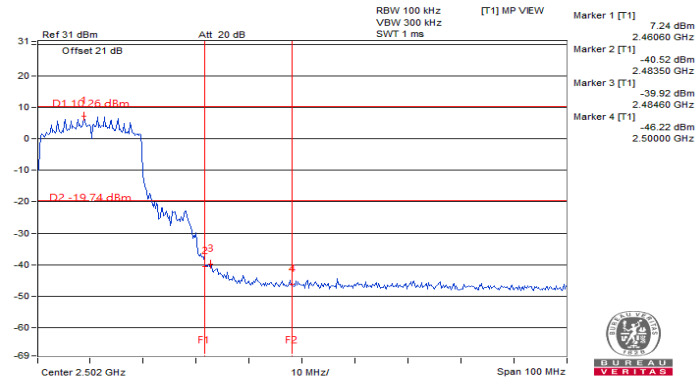
Chain 0 : CH 6



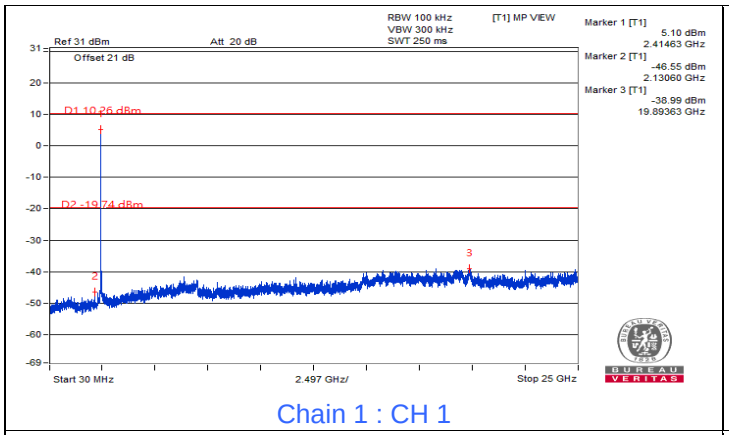
Chain 0 : CH 11



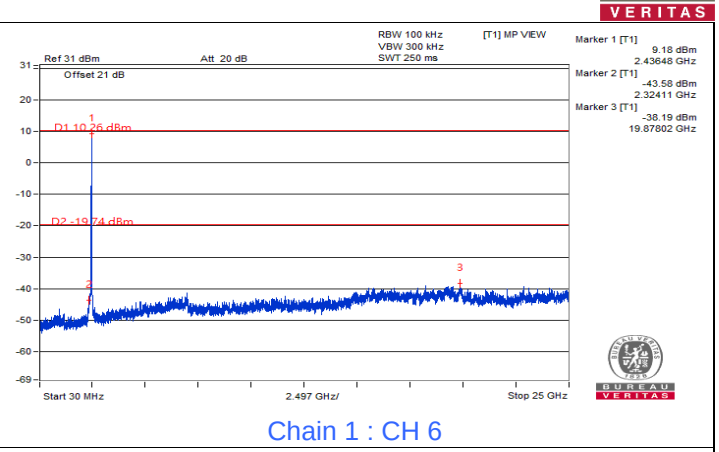
Chain 0 : CH 1 Band edge



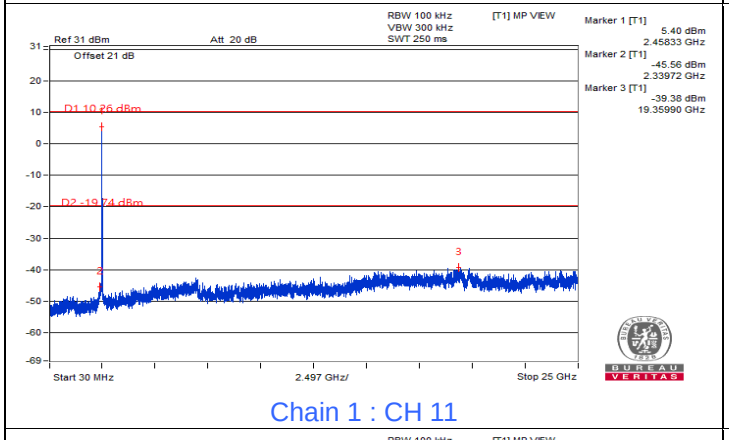
Chain 0 : CH 11 Band edge



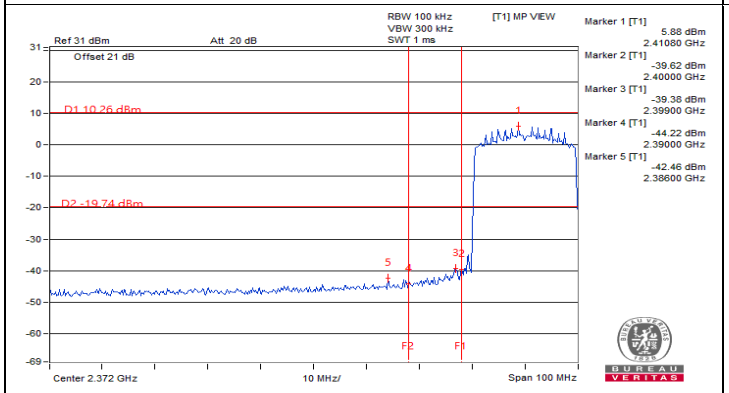
Chain 1 : CH 1



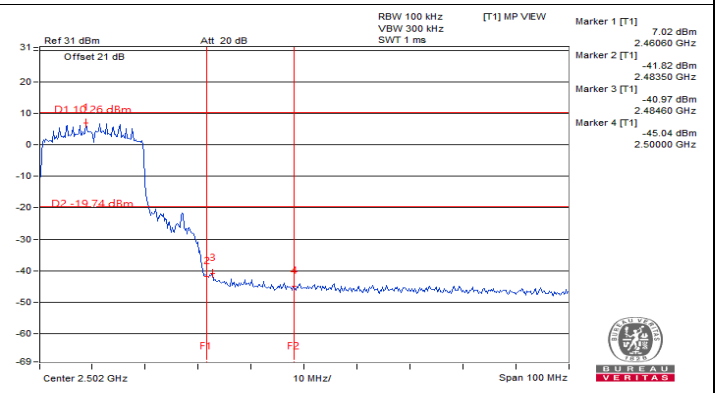
Chain 1 : CH 6



Chain 1 : CH 11

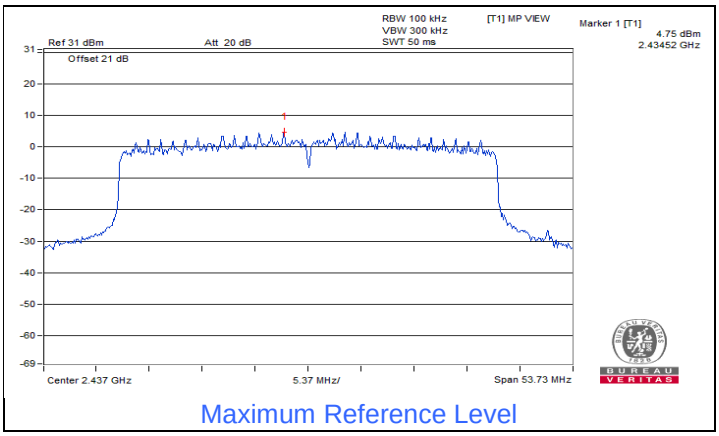


Chain 1 : CH 1 Band edge

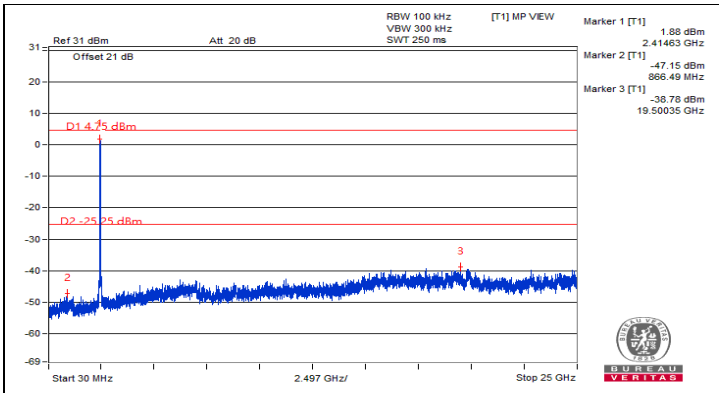


Chain 1 : CH 11 Band edge

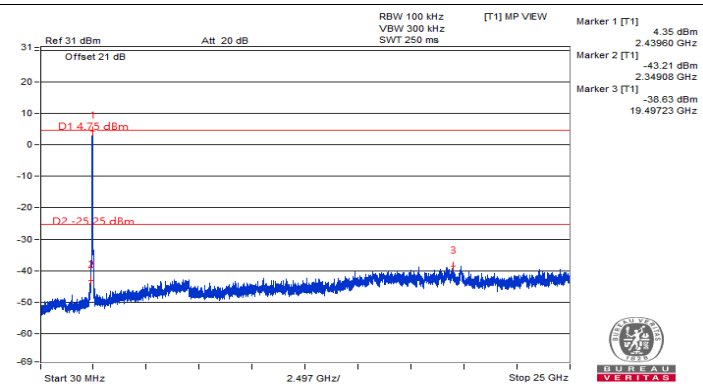
802.11ax (HE40)



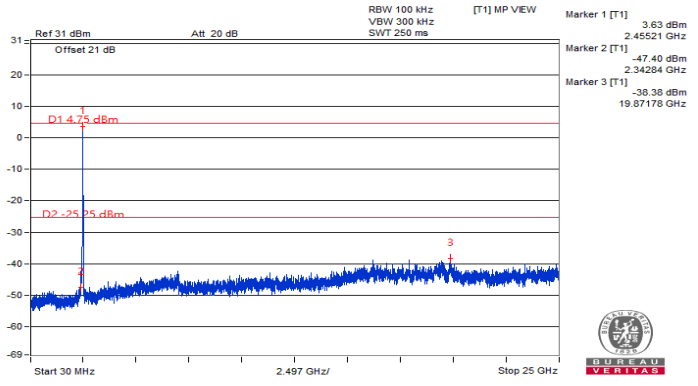
Maximum Reference Level



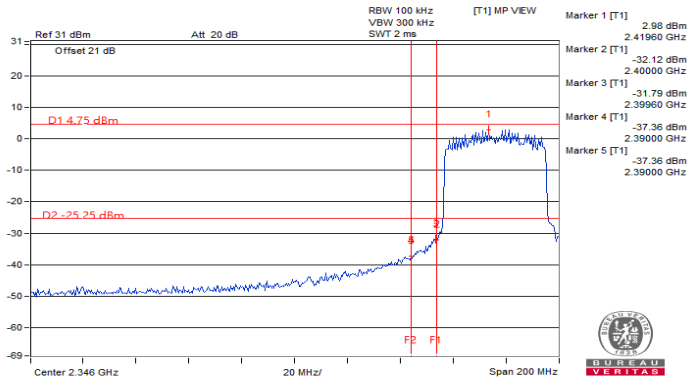
Chain 0 : CH 3



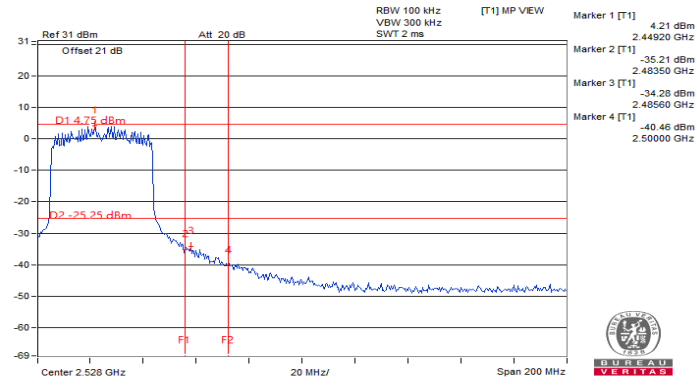
Chain 0 : CH 6



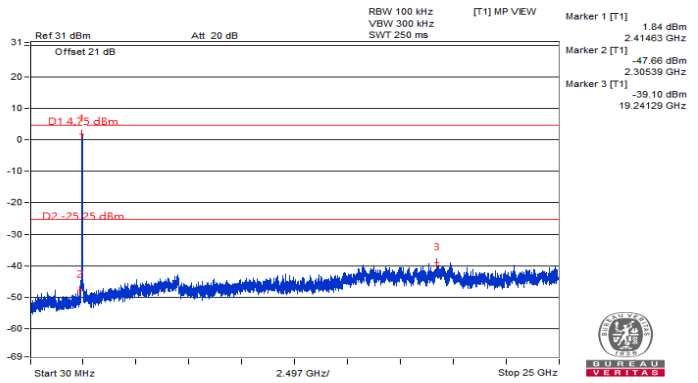
Chain 0 : CH 9



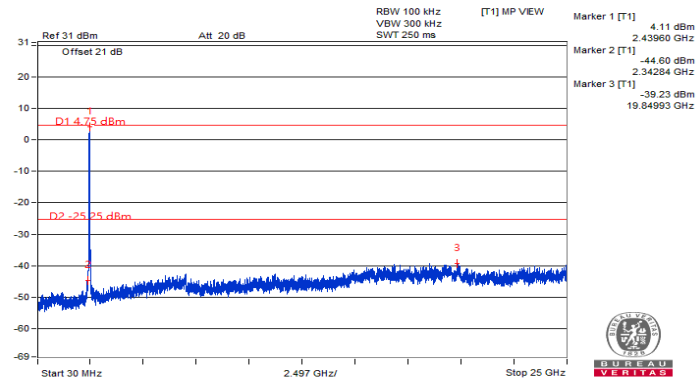
Chain 0 : CH 3 Band edge



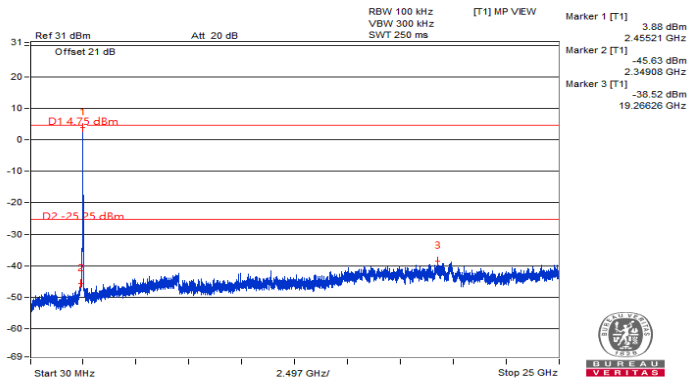
Chain 0 : CH 9 Band edge



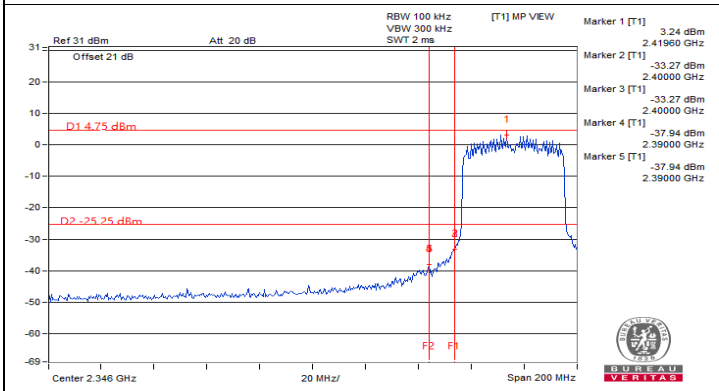
Chain 1 : CH 3



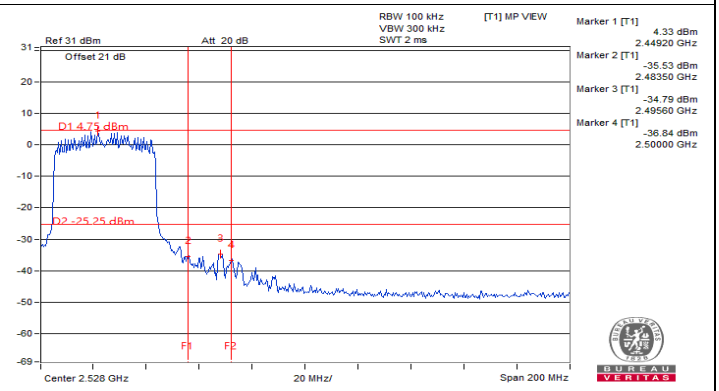
Chain 1 : CH 6



Chain 1 : CH 9



Chain 1 : CH 3 Band edge



Chain 1 : CH 9 Band edge

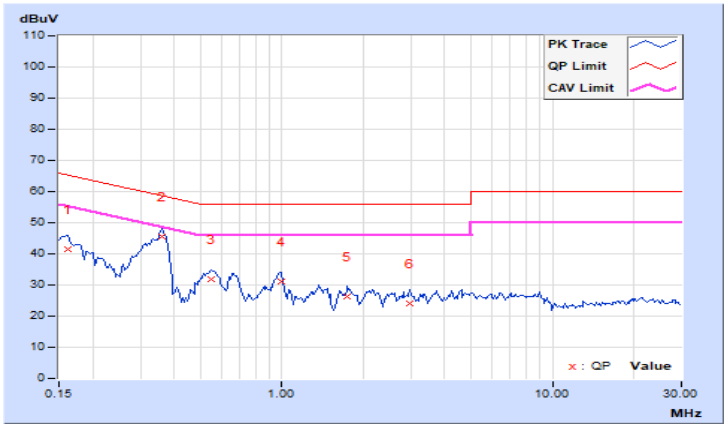
7.5 AC Power Conducted Emissions

RF Mode	TX 802.11b	**Channel**	CH 6：2437 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 68 % RH
Tested By	Sampson Chen		

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	0.16172	10.07	31.40	16.34	41.47	26.41	65.38	55.38	-23.91	-28.97
2	**0.36094**	**10.10**	**35.60**	**32.01**	**45.70**	**42.11**	**58.71**	**48.71**	**-13.01**	**-6.60**
3	0.54844	10.12	21.84	17.62	31.96	27.74	56.00	46.00	-24.04	-18.26
4	0.98984	10.15	21.02	16.67	31.17	26.82	56.00	46.00	-24.83	-19.18
5	1.74219	10.19	16.24	12.88	26.43	23.07	56.00	46.00	-29.57	-22.93
6	2.97656	10.28	13.66	9.69	23.94	19.97	56.00	46.00	-32.06	-26.03

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

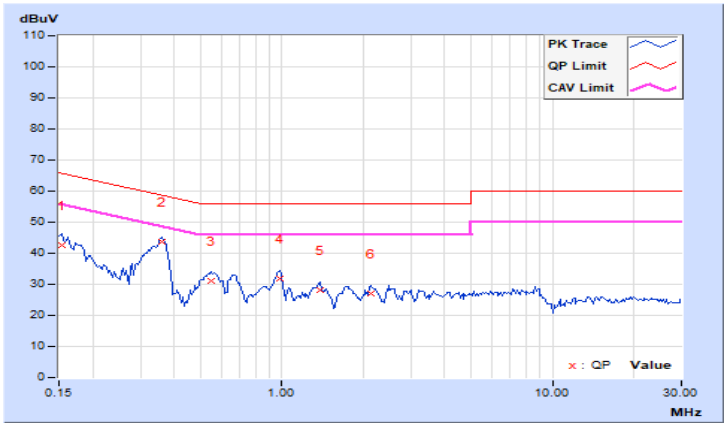


RF Mode	TX 802.11b	Channel	CH 6：2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 68 % RH
Tested By	Sampson Chen		

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	0.15391	10.05	32.68	18.04	42.73	28.09	65.79	55.79	-23.06	-27.70
2	0.36094	10.10	33.44	29.97	43.54	40.07	58.71	48.71	-15.17	-8.64
3	0.54844	10.11	21.06	16.75	31.17	26.86	56.00	46.00	-24.83	-19.14
4	0.97813	10.14	21.74	18.99	31.88	29.13	56.00	46.00	-24.12	-16.87
5	1.37891	10.17	18.02	15.15	28.19	25.32	56.00	46.00	-27.81	-20.68
6	2.14453	10.23	16.84	13.66	27.07	23.89	56.00	46.00	-28.93	-22.11

Remarks:

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



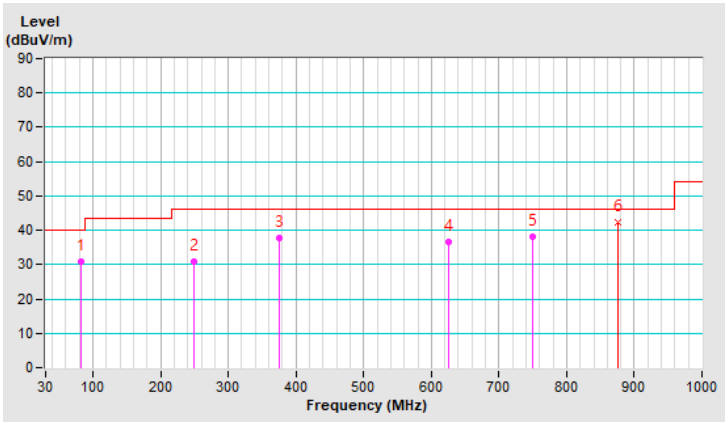
7.6 Unwanted Emissions below 1 GHz

RF Mode	TX 802.11b	**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, 66 % 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	83.23	30.9 QP	40.0	-9.1	4.00 H	148	44.6	-13.7
2	250.02	30.7 QP	46.0	-15.3	1.00 H	183	40.3	-9.6
3	375.00	37.8 QP	46.0	-8.2	1.00 H	138	43.7	-5.9
4	625.02	36.4 QP	46.0	-9.6	1.50 H	45	36.4	0.0
5	750.01	38.1 QP	46.0	-7.9	1.00 H	161	35.7	2.4
6	875.02	42.2 QP	46.0	-3.8	1.00 H	164	38.5	3.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The 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.

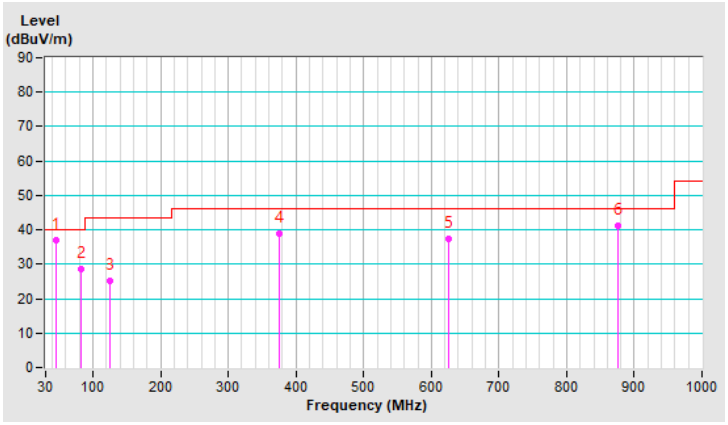


RF Mode	TX 802.11b	**Channel**	CH 6：2437 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 66 % RH
Tested By	Sampson Chen		

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	**46.13**	**36.9 QP**	**40.0**	**-3.1**	**1.00 V**	**167**	**45.2**	**-8.3**
2	83.28	28.5 QP	40.0	-11.5	2.00 V	254	42.2	-13.7
3	125.01	25.3 QP	43.5	-18.2	1.00 V	250	34.9	-9.6
4	375.00	38.8 QP	46.0	-7.2	1.50 V	163	44.7	-5.9
5	625.02	37.4 QP	46.0	-8.6	1.00 V	360	37.4	0.0
6	874.99	41.0 QP	46.0	-5.0	1.00 V	302	37.3	3.7

Remarks:

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



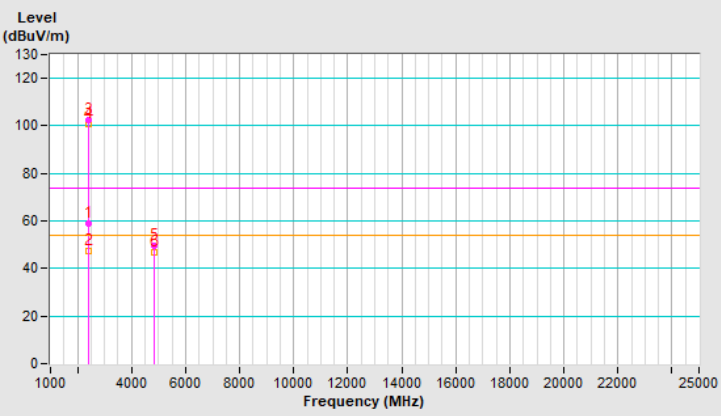
7.7 Unwanted Emissions above 1 GHz

RF Mode	TX 802.11b	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 = 10 Hz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Nelson Teng		

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	2385.30	58.8 PK	74.0	-15.2	1.46 H	176	59.8	-1.0
2	2385.30	47.6 AV	54.0	-6.4	1.46 H	176	48.6	-1.0
3	*2412.00	102.6 PK			1.46 H	176	103.7	-1.1
4	*2412.00	100.7 AV			1.46 H	176	101.8	-1.1
5	4824.00	49.4 PK	74.0	-24.6	1.92 H	175	45.7	3.7
6	4824.00	46.6 AV	54.0	-7.4	1.92 H	175	42.9	3.7

Remarks:

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

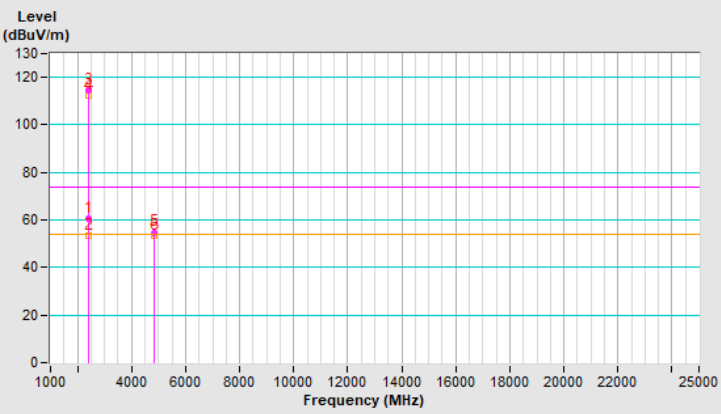


RF Mode	TX 802.11b	**Channel**	CH 1：2412 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Nelson Teng		

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	2385.30	60.4 PK	74.0	-13.6	1.18 V	163	61.4	-1.0
2	2385.30	53.3 AV	54.0	-0.7	1.18 V	163	54.3	-1.0
3	*2412.00	114.8 PK			1.18 V	163	115.9	-1.1
4	*2412.00	112.2 AV			1.18 V	163	113.3	-1.1
5	4824.00	54.8 PK	74.0	-19.2	3.72 V	123	51.1	3.7
6	4824.00	53.4 AV	54.0	-0.6	3.72 V	123	49.7	3.7

Remarks:

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

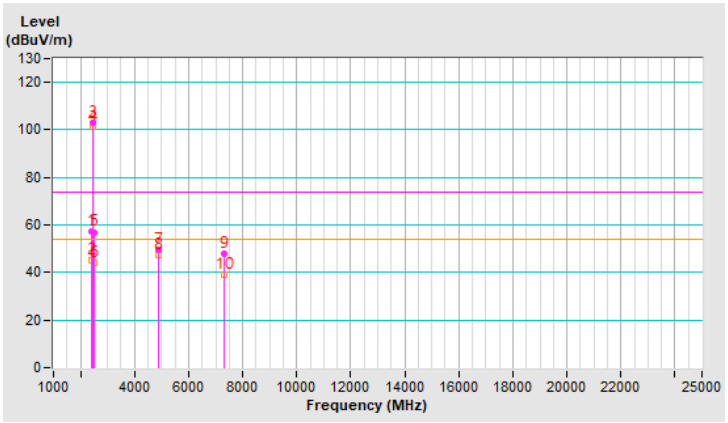


RF Mode	TX 802.11b	**Channel**	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Nelson Teng		

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	57.2 PK	74.0	-16.8	1.17 H	6	58.2	-1.0
2	2390.00	45.3 AV	54.0	-8.7	1.17 H	6	46.3	-1.0
3	*2437.00	103.1 PK			1.17 H	6	104.2	-1.1
4	*2437.00	101.2 AV			1.17 H	6	102.3	-1.1
5	2483.50	57.0 PK	74.0	-17.0	1.17 H	6	58.3	-1.3
6	2483.50	44.1 AV	54.0	-9.9	1.17 H	6	45.4	-1.3
7	4874.00	49.7 PK	74.0	-24.3	1.91 H	198	46.0	3.7
8	4874.00	47.1 AV	54.0	-6.9	1.91 H	198	43.4	3.7
9	7311.00	48.1 PK	74.0	-25.9	1.79 H	38	38.4	9.7
10	7311.00	39.0 AV	54.0	-15.0	1.79 H	38	29.3	9.7

Remarks:

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

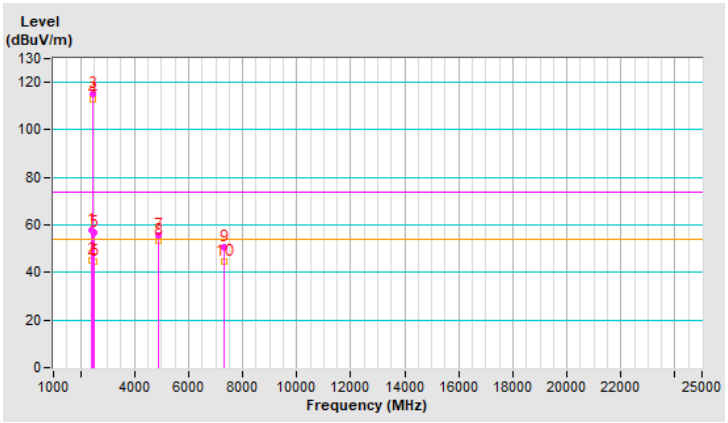


RF Mode	TX 802.11b	**Channel**	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Nelson Teng		

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	57.9 PK	74.0	-16.1	1.72 V	193	58.9	-1.0
2	2390.00	45.0 AV	54.0	-9.0	1.72 V	193	46.0	-1.0
3	*2437.00	115.1 PK			1.72 V	193	116.2	-1.1
4	*2437.00	112.9 AV			1.72 V	193	114.0	-1.1
5	2483.50	56.8 PK	74.0	-17.2	1.72 V	193	58.1	-1.3
6	2483.50	44.4 AV	54.0	-9.6	1.72 V	193	45.7	-1.3
7	4874.00	55.4 PK	74.0	-18.6	3.96 V	110	51.7	3.7
8	4874.00	53.6 AV	54.0	-0.4	3.96 V	110	49.9	3.7
9	7311.00	50.9 PK	74.0	-23.1	2.64 V	360	41.2	9.7
10	7311.00	44.6 AV	54.0	-9.4	2.64 V	360	34.9	9.7

Remarks:

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

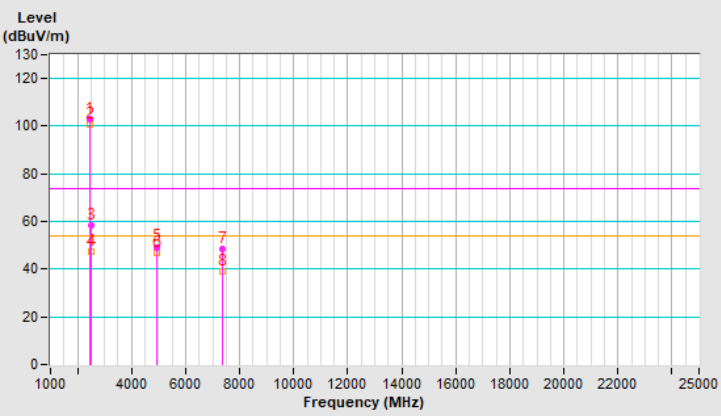


RF Mode	TX 802.11b	**Channel**	CH 11：2462 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Nelson Teng		

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	*2462.00	103.0 PK			1.18 H	4	104.2	-1.2
2	*2462.00	100.8 AV			1.18 H	4	102.0	-1.2
3	2483.50	58.5 PK	74.0	-15.5	1.18 H	4	59.8	-1.3
4	2483.50	47.4 AV	54.0	-6.6	1.18 H	4	48.7	-1.3
5	4924.00	49.3 PK	74.0	-24.7	1.88 H	185	45.5	3.8
6	4924.00	46.7 AV	54.0	-7.3	1.88 H	185	42.9	3.8
7	7386.00	48.7 PK	74.0	-25.3	1.81 H	38	38.8	9.9
8	7386.00	39.2 AV	54.0	-14.8	1.81 H	38	29.3	9.9

Remarks:

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

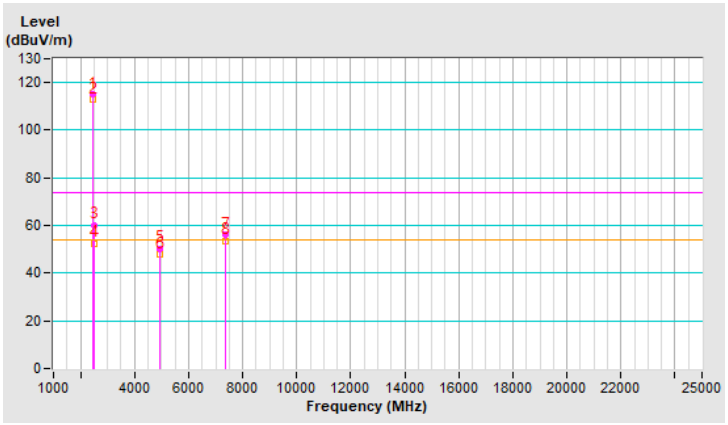


RF Mode	TX 802.11b	Channel	CH 11：2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Nelson Teng		

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	*2462.00	115.2 PK			1.43 V	338	116.4	-1.2
2	*2462.00	112.8 AV			1.43 V	338	114.0	-1.2
3	2483.50	60.3 PK	74.0	-13.7	1.43 V	338	61.6	-1.3
4	2483.50	52.6 AV	54.0	-1.4	1.43 V	338	53.9	-1.3
5	4924.00	50.4 PK	74.0	-23.6	3.80 V	99	46.6	3.8
6	4924.00	48.1 AV	54.0	-5.9	3.80 V	99	44.3	3.8
7	7386.00	56.4 PK	74.0	-17.6	3.53 V	109	46.5	9.9
8	7386.00	53.7 AV	54.0	-0.3	3.53 V	109	43.8	9.9

Remarks:

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

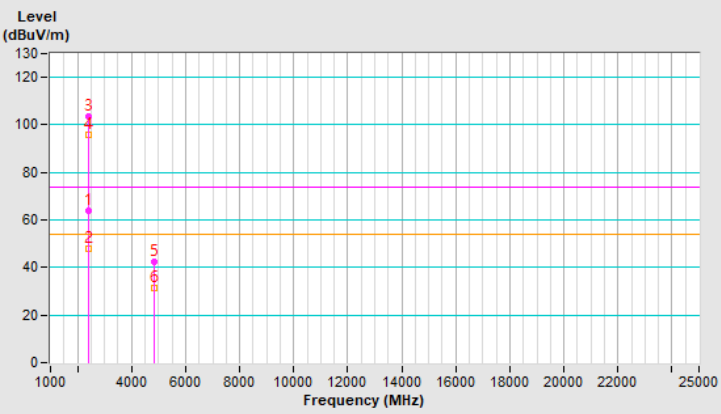


RF Mode	TX 802.11g	**Channel**	CH 1：2412 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Nelson Teng		

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	2388.24	64.0 PK	74.0	-10.0	2.07 H	2	65.0	-1.0
2	2388.24	48.1 AV	54.0	-5.9	2.07 H	2	49.1	-1.0
3	*2412.00	103.3 PK			2.07 H	2	104.4	-1.1
4	*2412.00	95.9 AV			2.07 H	2	97.0	-1.1
5	4824.00	42.3 PK	74.0	-31.7	1.95 H	168	38.6	3.7
6	4824.00	31.6 AV	54.0	-22.4	1.95 H	168	27.9	3.7

Remarks:

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

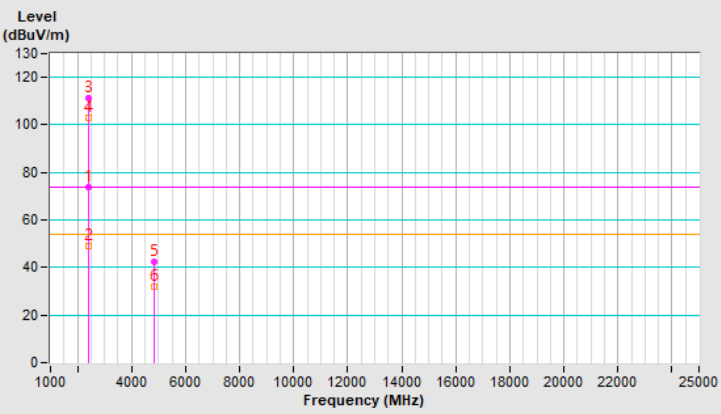


RF Mode	TX 802.11g	**Channel**	CH 1：2412 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Nelson Teng		

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	2388.24	73.8 PK	74.0	-0.2	1.79 V	132	74.8	-1.0
2	2388.24	49.0 AV	54.0	-5.0	1.79 V	132	50.0	-1.0
3	*2412.00	111.5 PK			1.79 V	132	112.6	-1.1
4	*2412.00	102.9 AV			1.79 V	132	104.0	-1.1
5	4824.00	42.4 PK	74.0	-31.6	3.73 V	114	38.7	3.7
6	4824.00	31.8 AV	54.0	-22.2	3.73 V	114	28.1	3.7

Remarks:

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

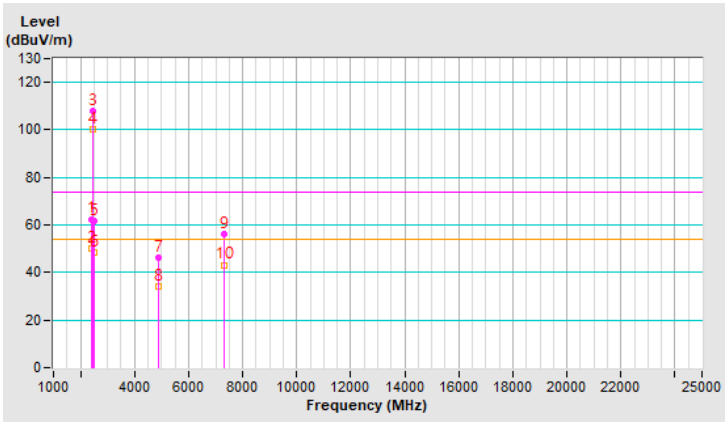


RF Mode	TX 802.11g	Channel	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Nelson Teng		

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	62.5 PK	74.0	-11.5	2.02 H	4	63.5	-1.0
2	2390.00	50.3 AV	54.0	-3.7	2.02 H	4	51.3	-1.0
3	*2437.00	107.8 PK			2.02 H	4	108.9	-1.1
4	*2437.00	100.2 AV			2.02 H	4	101.3	-1.1
5	2483.50	61.9 PK	74.0	-12.1	2.02 H	4	63.2	-1.3
6	2483.50	48.6 AV	54.0	-5.4	2.02 H	4	49.9	-1.3
7	4874.00	46.3 PK	74.0	-27.7	1.89 H	210	42.6	3.7
8	4874.00	34.1 AV	54.0	-19.9	1.89 H	210	30.4	3.7
9	7311.00	56.4 PK	74.0	-17.6	1.75 H	52	46.7	9.7
10	7311.00	43.2 AV	54.0	-10.8	1.75 H	52	33.5	9.7

Remarks:

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

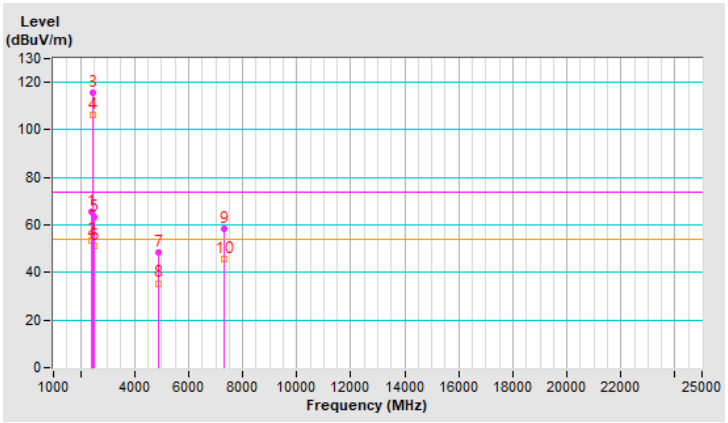


RF Mode	TX 802.11g	Channel	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Nelson Teng		

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	65.6 PK	74.0	-8.4	1.78 V	129	66.6	-1.0
2	2390.00	53.6 AV	54.0	-0.4	1.78 V	129	54.6	-1.0
3	*2437.00	115.6 PK			1.78 V	129	116.7	-1.1
4	*2437.00	106.5 AV			1.78 V	129	107.6	-1.1
5	2483.50	63.5 PK	74.0	-10.5	1.78 V	129	64.8	-1.3
6	2483.50	51.0 AV	54.0	-3.0	1.78 V	129	52.3	-1.3
7	4874.00	48.7 PK	74.0	-25.3	3.99 V	12	45.0	3.7
8	4874.00	35.5 AV	54.0	-18.5	3.99 V	12	31.8	3.7
9	7311.00	58.5 PK	74.0	-15.5	3.48 V	101	48.8	9.7
10	7311.00	45.8 AV	54.0	-8.2	3.48 V	101	36.1	9.7

Remarks:

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

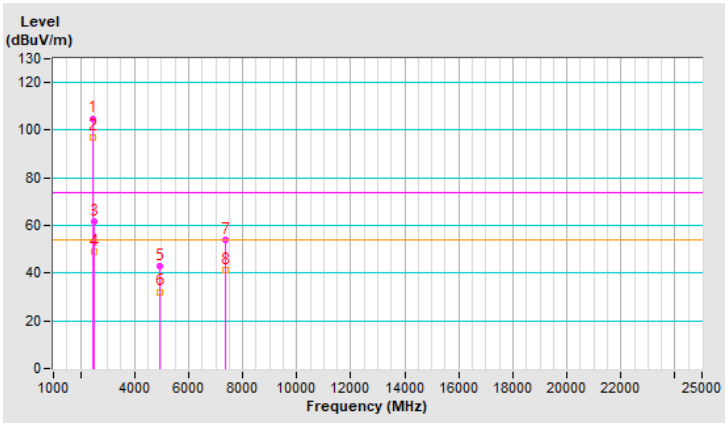


RF Mode	TX 802.11g	Channel	CH 11：2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Nelson Teng		

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	*2462.00	104.9 PK			1.15 H	3	106.1	-1.2
2	*2462.00	97.2 AV			1.15 H	3	98.4	-1.2
3	2485.24	61.5 PK	74.0	-12.5	1.15 H	3	62.8	-1.3
4	2485.24	48.9 AV	54.0	-5.1	1.15 H	3	50.2	-1.3
5	4924.00	42.8 PK	74.0	-31.2	2.00 H	166	39.0	3.8
6	4924.00	32.2 AV	54.0	-21.8	2.00 H	166	28.4	3.8
7	7386.00	53.9 PK	74.0	-20.1	1.84 H	33	44.0	9.9
8	7386.00	41.3 AV	54.0	-12.7	1.84 H	33	31.4	9.9

Remarks:

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

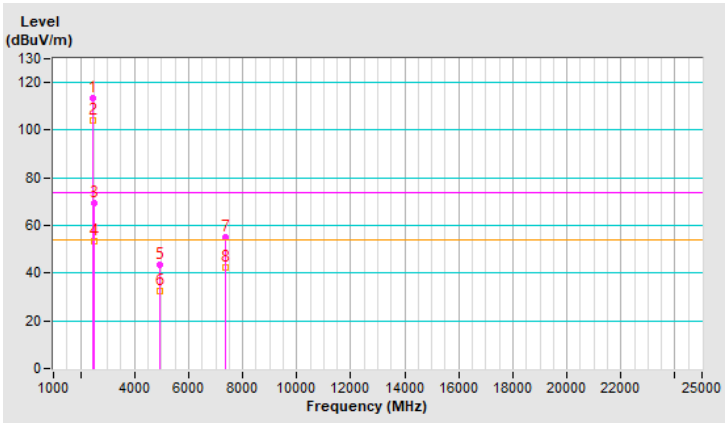


RF Mode	TX 802.11g	Channel	CH 11：2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Nelson Teng		

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	*2462.00	113.3 PK			1.82 V	330	114.5	-1.2
2	*2462.00	103.9 AV			1.82 V	330	105.1	-1.2
3	2485.24	69.5 PK	74.0	-4.5	1.82 V	330	70.8	-1.3
4	2485.24	53.5 AV	54.0	-0.5	1.82 V	330	54.8	-1.3
5	4924.00	43.5 PK	74.0	-30.5	3.76 V	118	39.7	3.8
6	4924.00	32.4 AV	54.0	-21.6	3.76 V	118	28.6	3.8
7	7386.00	55.1 PK	74.0	-18.9	3.46 V	110	45.2	9.9
8	7386.00	42.5 AV	54.0	-11.5	3.46 V	110	32.6	9.9

Remarks:

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

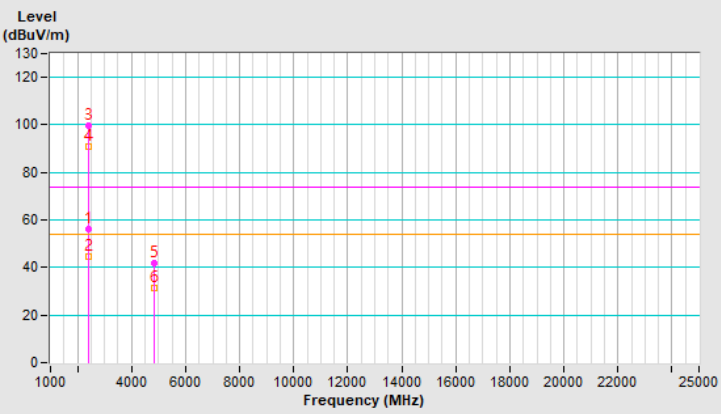


RF Mode	TX 802.11ax (HE20)	**Channel**	CH 1：2412 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 2 kHz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Nelson Teng		

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	56.1 PK	74.0	-17.9	1.46 H	47	57.1	-1.0
2	2390.00	44.5 AV	54.0	-9.5	1.46 H	47	45.5	-1.0
3	*2412.00	99.7 PK			1.46 H	47	100.8	-1.1
4	*2412.00	90.7 AV			1.46 H	47	91.8	-1.1
5	4824.00	41.8 PK	74.0	-32.2	2.01 H	166	38.1	3.7
6	4824.00	31.2 AV	54.0	-22.8	2.01 H	166	27.5	3.7

Remarks:

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

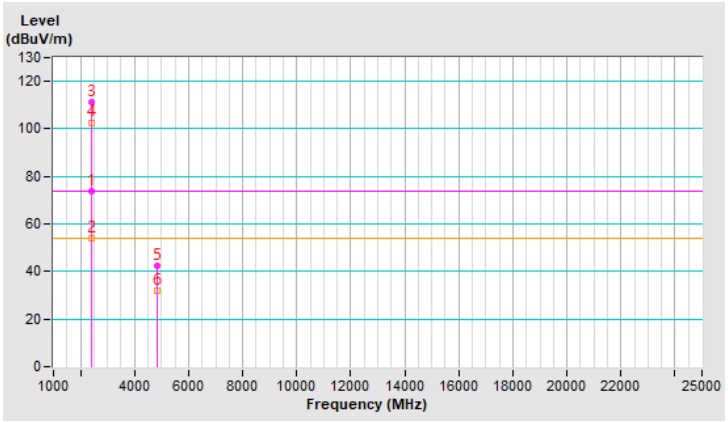


RF Mode	TX 802.11ax (HE20)	**Channel**	CH 1：2412 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 2 kHz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Nelson Teng		

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**	**73.9 PK**	**74.0**	**-0.1**	**1.46 V**	**296**	**74.9**	**-1.0**
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**1.46 V**	**296**	**54.9**	**-1.0**
3	*2412.00	111.3 PK			1.46 V	296	112.4	-1.1
4	*2412.00	102.7 AV			1.46 V	296	103.8	-1.1
5	4824.00	42.3 PK	74.0	-31.7	3.72 V	108	38.6	3.7
6	4824.00	31.9 AV	54.0	-22.1	3.72 V	108	28.2	3.7

Remarks:

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

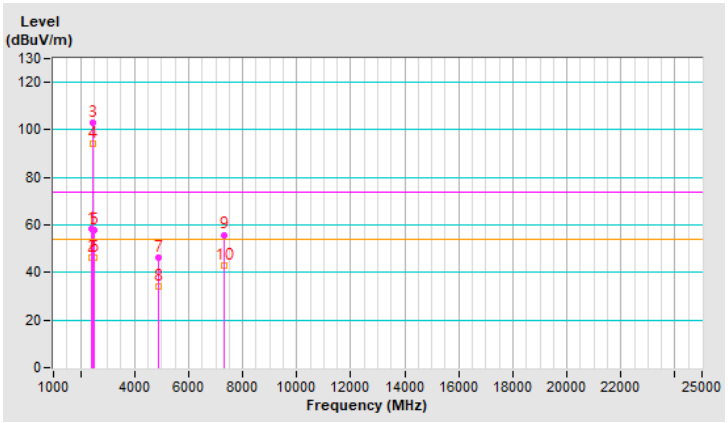


RF Mode	TX 802.11ax (HE20)	Channel	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 2 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Nelson Teng		

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	58.5 PK	74.0	-15.5	1.49 H	60	59.5	-1.0
2	2390.00	46.3 AV	54.0	-7.7	1.49 H	60	47.3	-1.0
3	*2437.00	102.9 PK			1.49 H	60	104.0	-1.1
4	*2437.00	94.3 AV			1.49 H	60	95.4	-1.1
5	2483.50	57.9 PK	74.0	-16.1	1.49 H	60	59.2	-1.3
6	2483.50	46.1 AV	54.0	-7.9	1.49 H	60	47.4	-1.3
7	4874.00	46.0 PK	74.0	-28.0	1.93 H	224	42.3	3.7
8	4874.00	34.0 AV	54.0	-20.0	1.93 H	224	30.3	3.7
9	7311.00	55.9 PK	74.0	-18.1	1.73 H	56	46.2	9.7
10	7311.00	42.7 AV	54.0	-11.3	1.73 H	56	33.0	9.7

Remarks:

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

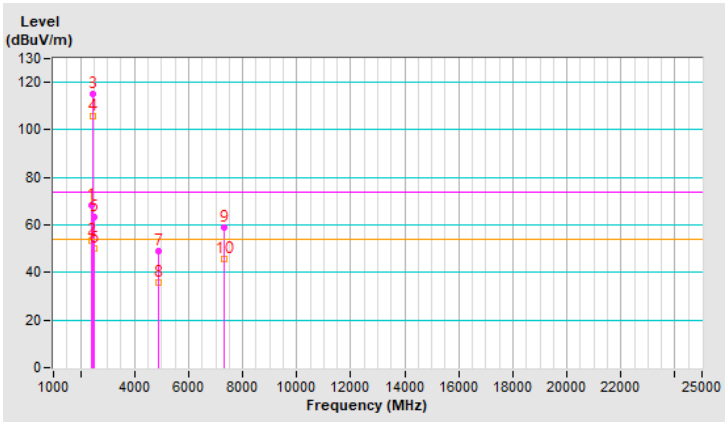


RF Mode	TX 802.11ax (HE20)	Channel	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 2 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Nelson Teng		

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	68.1 PK	74.0	-5.9	1.88 V	133	69.1	-1.0
2	2390.00	53.3 AV	54.0	-0.7	1.88 V	133	54.3	-1.0
3	*2437.00	114.9 PK			1.83 V	147	116.0	-1.1
4	*2437.00	105.7 AV			1.83 V	147	106.8	-1.1
5	2483.50	63.1 PK	74.0	-10.9	1.88 V	133	64.4	-1.3
6	2483.50	50.1 AV	54.0	-3.9	1.88 V	133	51.4	-1.3
7	4874.00	49.1 PK	74.0	-24.9	3.96 V	13	45.4	3.7
8	4874.00	35.9 AV	54.0	-18.1	3.96 V	13	32.2	3.7
9	7311.00	58.8 PK	74.0	-15.2	3.50 V	110	49.1	9.7
10	7311.00	45.9 AV	54.0	-8.1	3.50 V	110	36.2	9.7

Remarks:

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

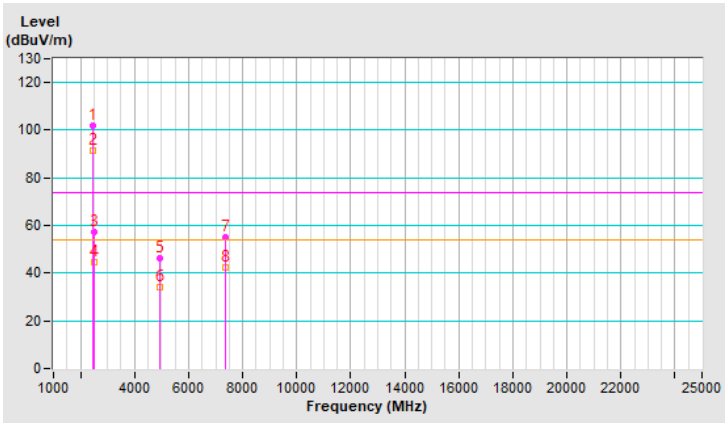


RF Mode	TX 802.11ax (HE20)	Channel	CH 11：2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 2 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Nelson Teng		

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	*2462.00	102.1 PK			1.45 H	6	103.3	-1.2
2	*2462.00	91.4 AV			1.45 H	6	92.6	-1.2
3	2486.25	57.2 PK	74.0	-16.8	1.45 H	6	58.5	-1.3
4	2486.25	44.7 AV	54.0	-9.3	1.45 H	6	46.0	-1.3
5	4924.00	46.3 PK	74.0	-27.7	1.91 H	211	42.5	3.8
6	4924.00	34.3 AV	54.0	-19.7	1.91 H	211	30.5	3.8
7	7386.00	55.2 PK	74.0	-18.8	1.71 H	63	45.3	9.9
8	7386.00	42.3 AV	54.0	-11.7	1.71 H	63	32.4	9.9

Remarks:

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

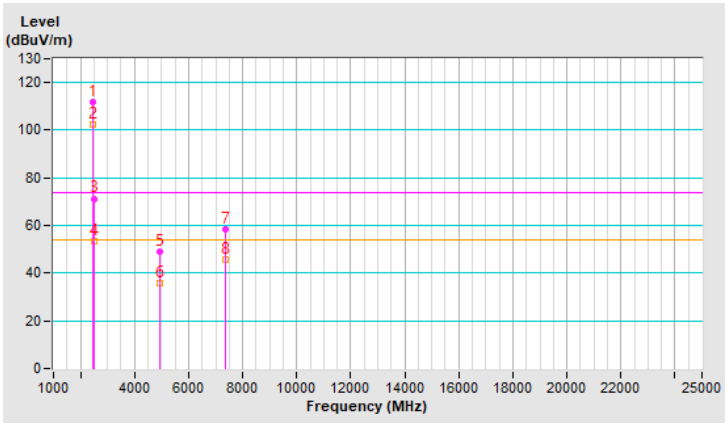


RF Mode	TX 802.11ax (HE20)	**Channel**	CH 11：2462 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 2 kHz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Nelson Teng		

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	*2462.00	111.8 PK			1.51 V	331	113.0	-1.2
2	*2462.00	102.2 AV			1.51 V	331	103.4	-1.2
3	2489.84	71.3 PK	74.0	-2.7	1.51 V	331	72.6	-1.3
4	2489.84	53.3 AV	54.0	-0.7	1.51 V	331	54.6	-1.3
5	4924.00	48.9 PK	74.0	-25.1	3.98 V	28	45.1	3.8
6	4924.00	36.0 AV	54.0	-18.0	3.98 V	28	32.2	3.8
7	7386.00	58.5 PK	74.0	-15.5	3.45 V	118	48.6	9.9
8	7386.00	45.7 AV	54.0	-8.3	3.45 V	118	35.8	9.9

Remarks:

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

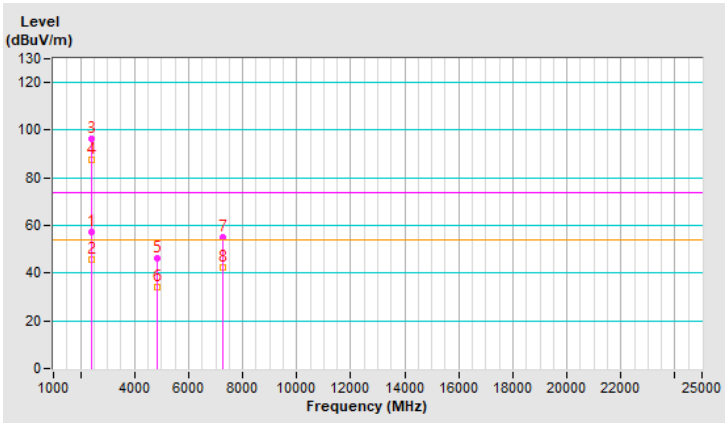


RF Mode	TX 802.11ax (HE40)	Channel	CH 3：2422 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 20 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Nelson Teng		

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	57.5 PK	74.0	-16.5	1.44 H	48	58.5	-1.0
2	2390.00	45.5 AV	54.0	-8.5	1.44 H	48	46.5	-1.0
3	*2422.00	96.2 PK			1.44 H	48	97.3	-1.1
4	*2422.00	87.7 AV			1.44 H	48	88.8	-1.1
5	4844.00	46.0 PK	74.0	-28.0	1.90 H	210	42.3	3.7
6	4844.00	33.9 AV	54.0	-20.1	1.90 H	210	30.2	3.7
7	7266.00	55.3 PK	74.0	-18.7	1.73 H	70	45.7	9.6
8	7266.00	42.6 AV	54.0	-11.4	1.73 H	70	33.0	9.6

Remarks:

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

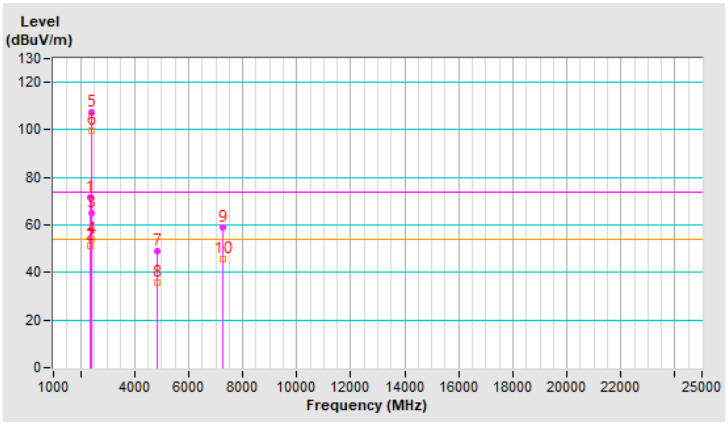


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 3：2422 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 20 kHz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Nelson Teng		

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	2384.46	71.4 PK	74.0	-2.6	2.05 V	118	72.4	-1.0
2	2384.46	51.3 AV	54.0	-2.7	2.05 V	118	52.3	-1.0
3	2388.25	65.0 PK	74.0	-9.0	2.05 V	118	66.0	-1.0
4	**2388.25**	**53.9 AV**	**54.0**	**-0.1**	**2.05 V**	**118**	**54.9**	**-1.0**
5	*2422.00	107.3 PK			2.05 V	118	108.4	-1.1
6	*2422.00	99.8 AV			2.05 V	118	100.9	-1.1
7	4844.00	48.8 PK	74.0	-25.2	4.00 V	41	45.1	3.7
8	4844.00	36.0 AV	54.0	-18.0	4.00 V	41	32.3	3.7
9	7266.00	58.7 PK	74.0	-15.3	3.44 V	113	49.1	9.6
10	7266.00	45.8 AV	54.0	-8.2	3.44 V	113	36.2	9.6

Remarks:

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

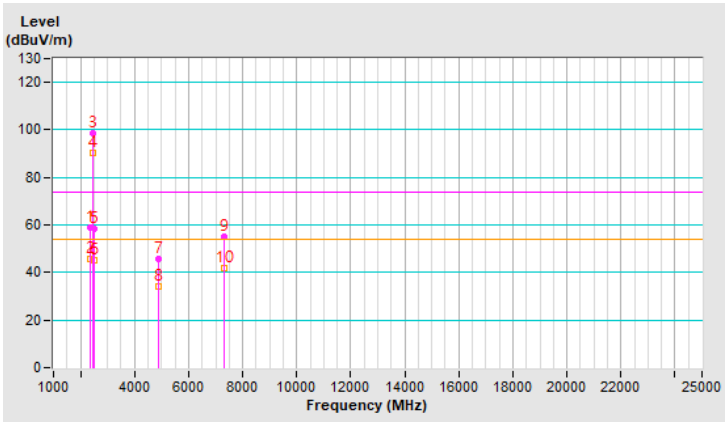


RF Mode	TX 802.11ax (HE40)	Channel	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 20 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Nelson Teng		

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	2380.77	59.1 PK	74.0	-14.9	1.52 H	7	60.1	-1.0
2	2380.77	45.5 AV	54.0	-8.5	1.52 H	7	46.5	-1.0
3	*2437.00	98.7 PK			1.52 H	7	99.8	-1.1
4	*2437.00	90.1 AV			1.52 H	7	91.2	-1.1
5	2485.55	58.3 PK	74.0	-15.7	1.52 H	7	59.6	-1.3
6	2485.55	44.9 AV	54.0	-9.1	1.52 H	7	46.2	-1.3
7	4874.00	45.9 PK	74.0	-28.1	1.87 H	221	42.2	3.7
8	4874.00	34.0 AV	54.0	-20.0	1.87 H	221	30.3	3.7
9	7311.00	55.0 PK	74.0	-19.0	1.69 H	78	45.3	9.7
10	7311.00	41.9 AV	54.0	-12.1	1.69 H	78	32.2	9.7

Remarks:

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

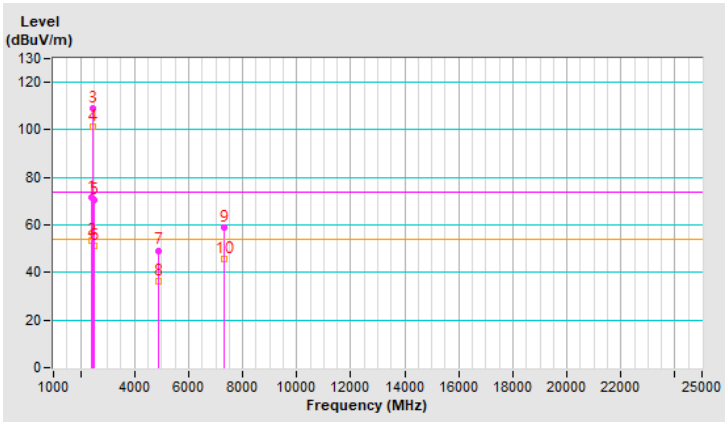


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 20 kHz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Nelson Teng		

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	2388.63	71.4 PK	74.0	-2.6	1.73 V	132	72.4	-1.0
2	2388.63	53.3 AV	54.0	-0.7	1.73 V	132	54.3	-1.0
3	*2437.00	109.3 PK			1.73 V	132	110.4	-1.1
4	*2437.00	101.5 AV			1.73 V	132	102.6	-1.1
5	2485.55	70.7 PK	74.0	-3.3	1.73 V	132	72.0	-1.3
6	2485.55	51.1 AV	54.0	-2.9	1.73 V	132	52.4	-1.3
7	4874.00	49.3 PK	74.0	-24.7	3.94 V	40	45.6	3.7
8	4874.00	36.1 AV	54.0	-17.9	3.94 V	40	32.4	3.7
9	7311.00	58.9 PK	74.0	-15.1	3.42 V	106	49.2	9.7
10	7311.00	45.9 AV	54.0	-8.1	3.42 V	106	36.2	9.7

Remarks:

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

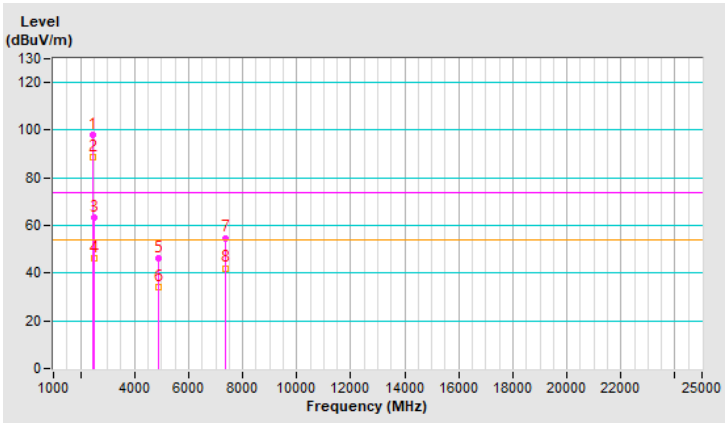


RF Mode	TX 802.11ax (HE40)	Channel	CH 9：2452 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 20 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Nelson Teng		

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	*2452.00	97.8 PK			1.50 H	2	99.0	-1.2
2	*2452.00	88.9 AV			1.50 H	2	90.1	-1.2
3	2486.29	63.5 PK	74.0	-10.5	1.50 H	2	64.8	-1.3
4	2486.29	46.2 AV	54.0	-7.8	1.50 H	2	47.5	-1.3
5	4904.00	46.4 PK	74.0	-27.6	1.88 H	197	42.7	3.7
6	4904.00	34.1 AV	54.0	-19.9	1.88 H	197	30.4	3.7
7	7356.00	54.8 PK	74.0	-19.2	1.75 H	73	45.0	9.8
8	7356.00	42.1 AV	54.0	-11.9	1.75 H	73	32.3	9.8

Remarks:

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

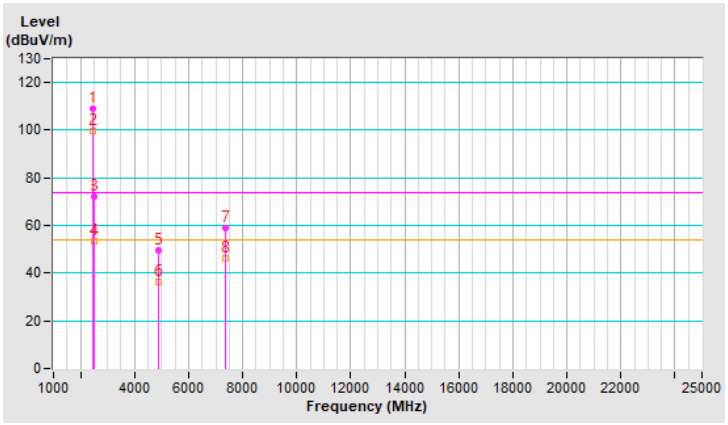


RF Mode	TX 802.11ax (HE40)	Channel	CH 9：2452 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 20 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Nelson Teng		

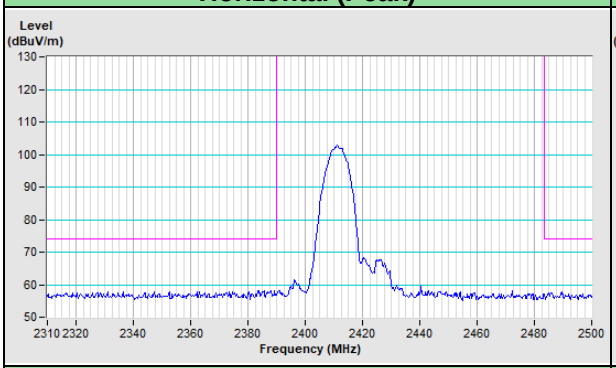
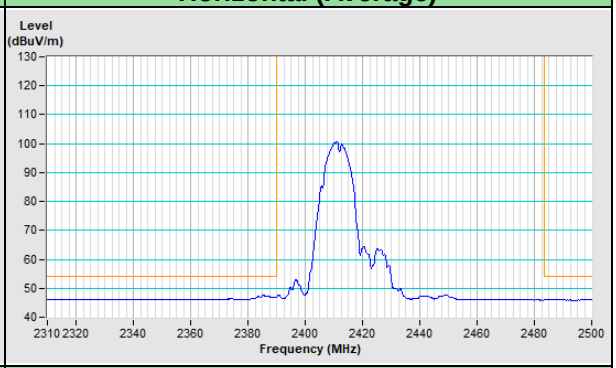
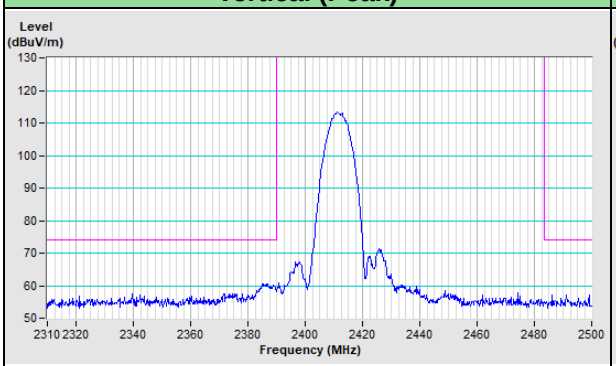
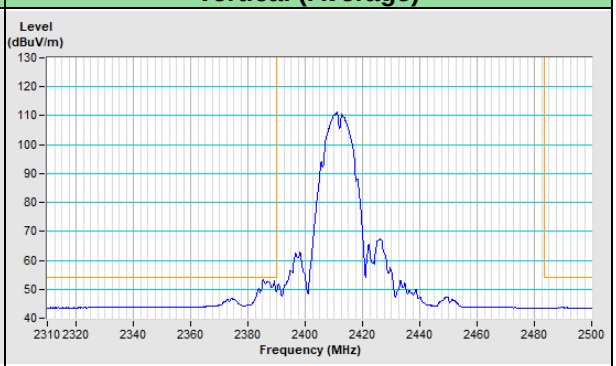
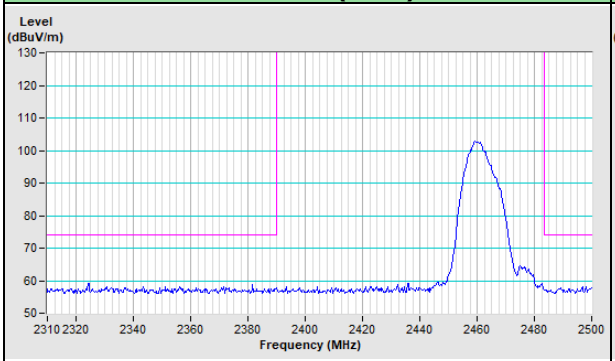
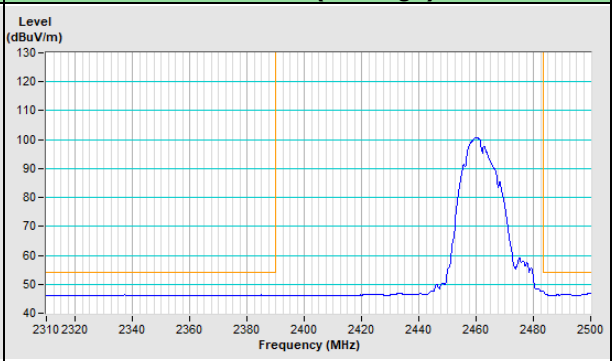
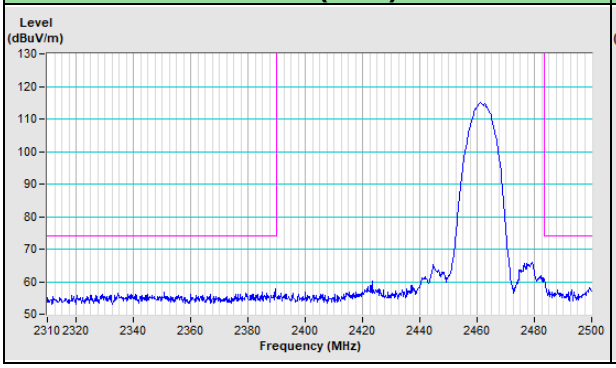
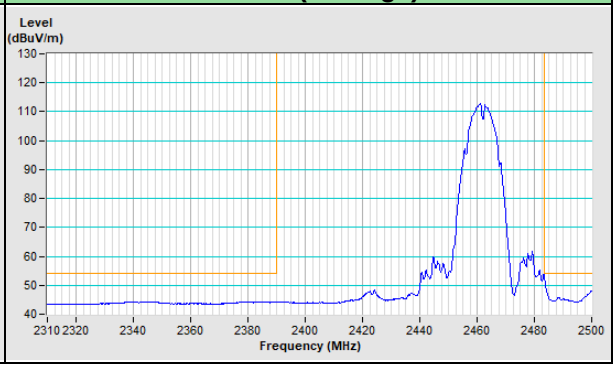
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	108.8 PK			1.88 V	333	110.0	-1.2
2	*2452.00	99.5 AV			1.88 V	333	100.7	-1.2
3	2484.84	72.2 PK	74.0	-1.8	1.88 V	333	73.5	-1.3
4	2484.84	53.2 AV	54.0	-0.8	1.88 V	333	54.5	-1.3
5	4904.00	49.4 PK	74.0	-24.6	3.95 V	31	45.7	3.7
6	4904.00	36.4 AV	54.0	-17.6	3.95 V	31	32.7	3.7
7	7356.00	59.1 PK	74.0	-14.9	3.42 V	131	49.3	9.8
8	7356.00	46.1 AV	54.0	-7.9	3.42 V	131	36.3	9.8

Remarks:

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

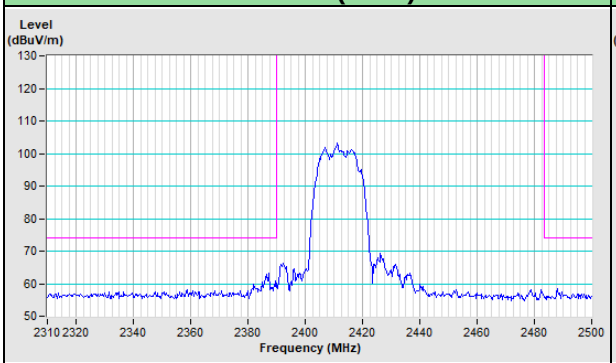


Plot of Band Edge

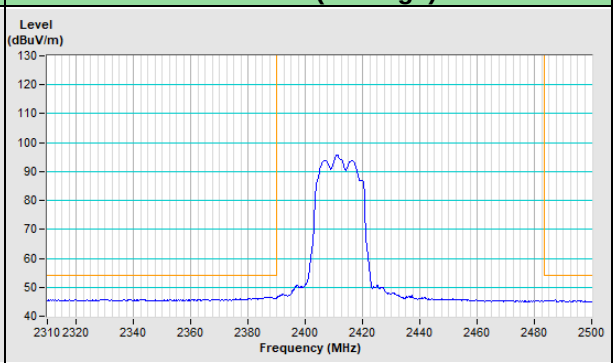
802.11b Channel 1	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
802.11b Channel 11	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

802.11g Channel 1

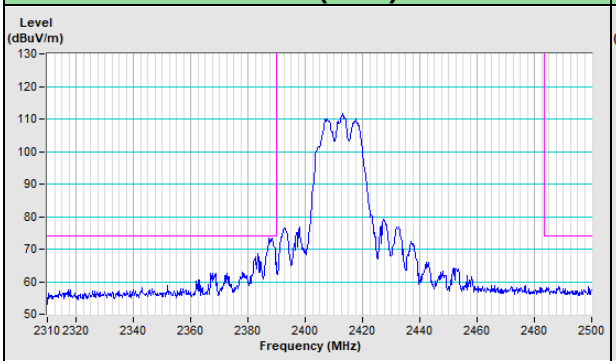
Horizontal (Peak)



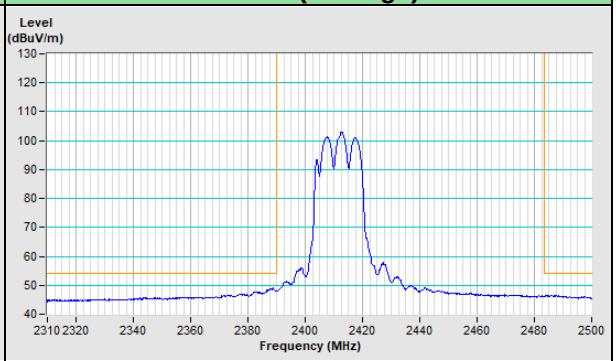
Horizontal (Average)



Vertical (Peak)

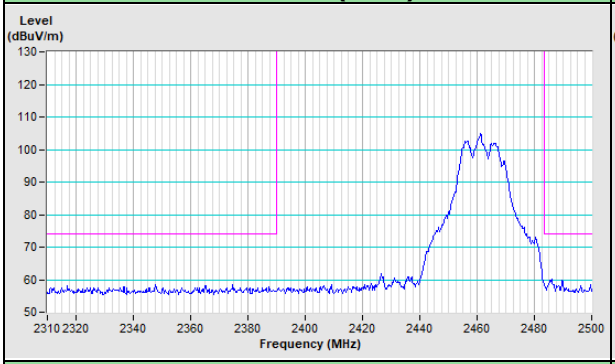


Vertical (Average)

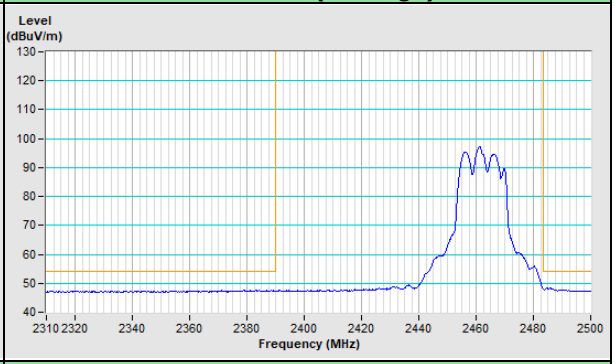


802.11g Channel 11

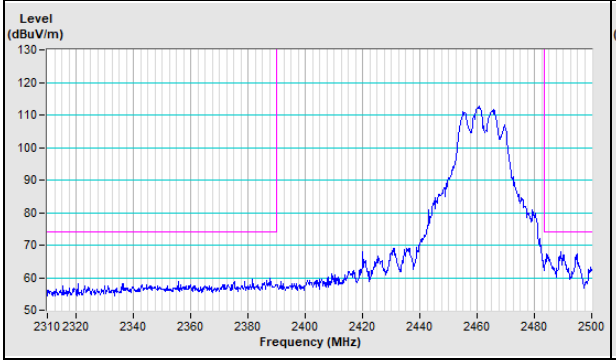
Horizontal (Peak)



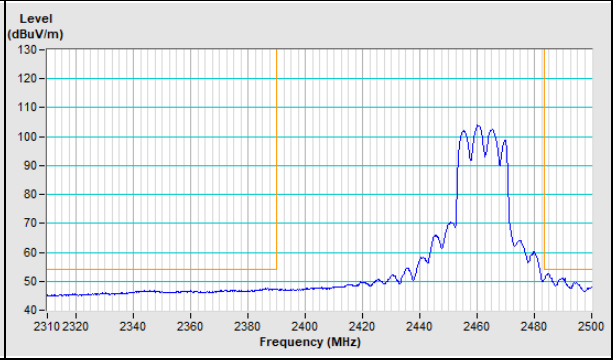
Horizontal (Average)



Vertical (Peak)

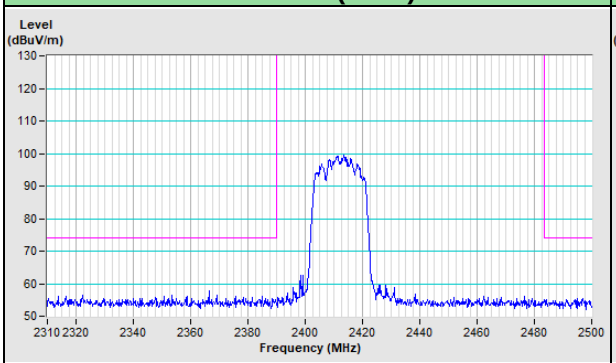


Vertical (Average)

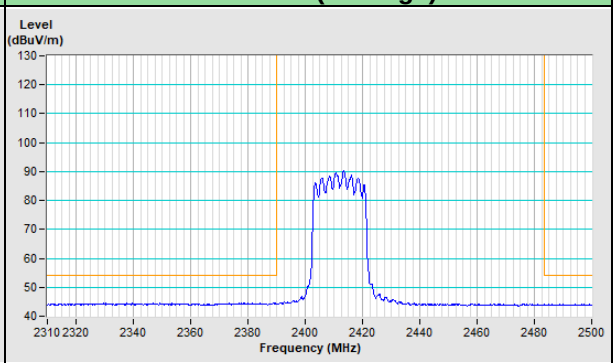


802.11ax (HE20) Channel 1

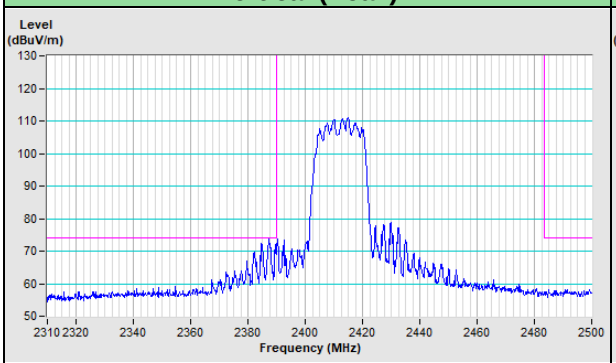
Horizontal (Peak)



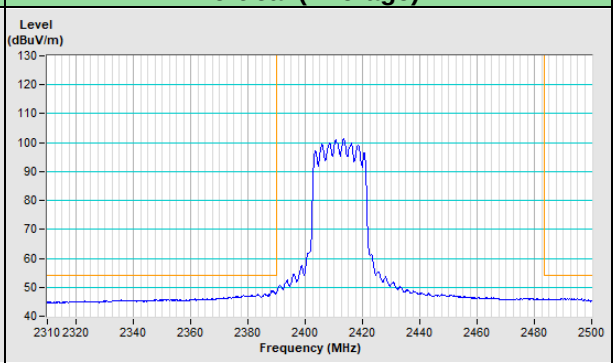
Horizontal (Average)



Vertical (Peak)

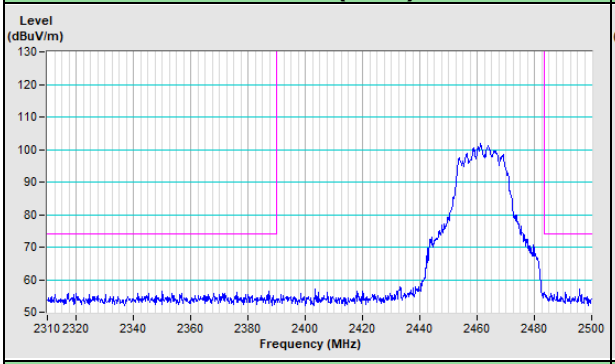


Vertical (Average)

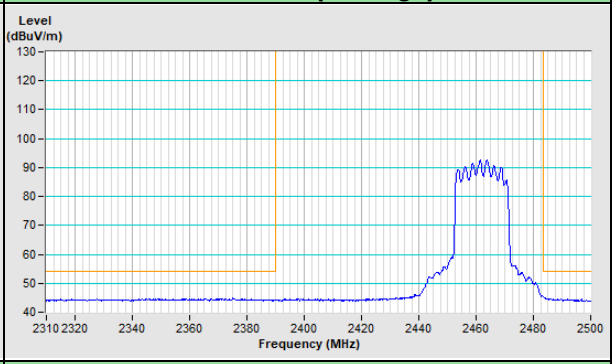


802.11ax (HE20) Channel 11

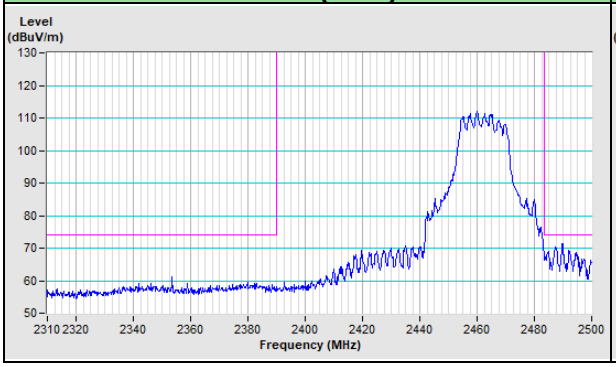
Horizontal (Peak)



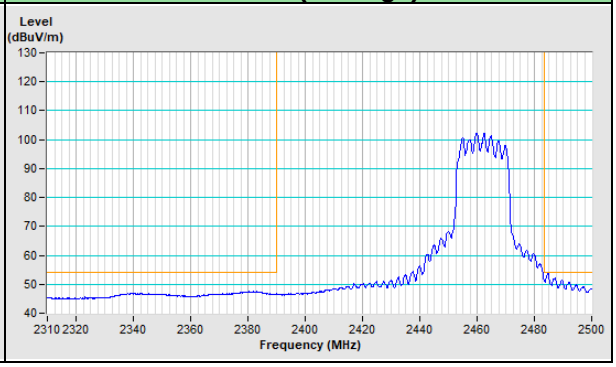
Horizontal (Average)



Vertical (Peak)

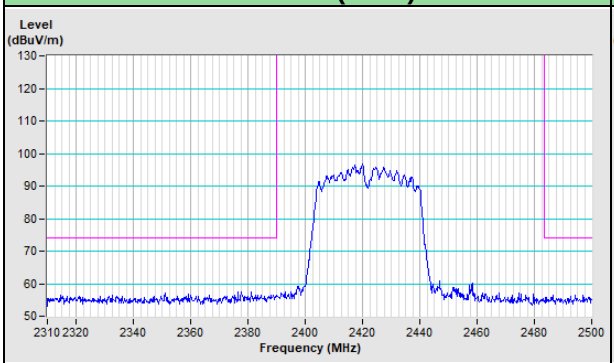


Vertical (Average)

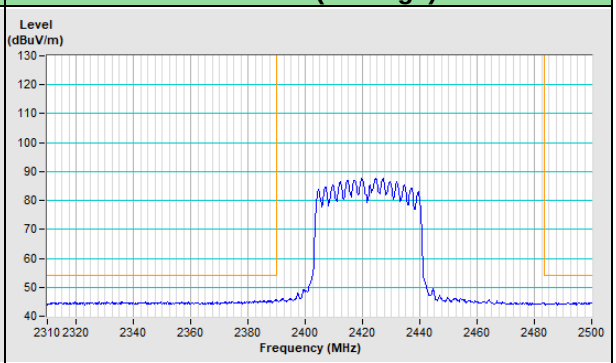


802.11ax (HE40) Channel 3

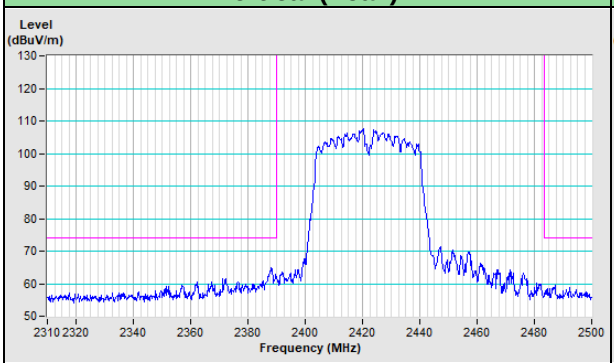
Horizontal (Peak)



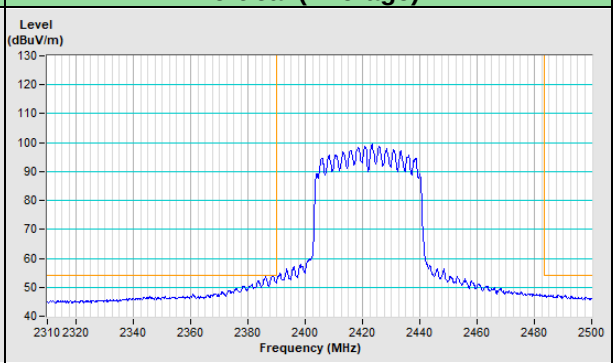
Horizontal (Average)



Vertical (Peak)

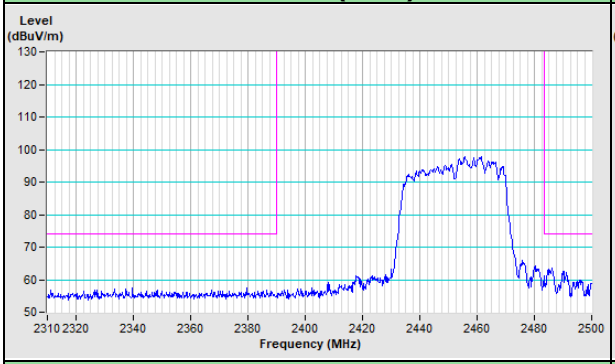


Vertical (Average)

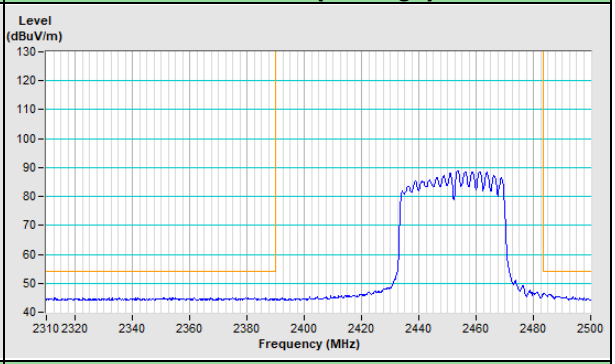


802.11ax (HE40) Channel 9

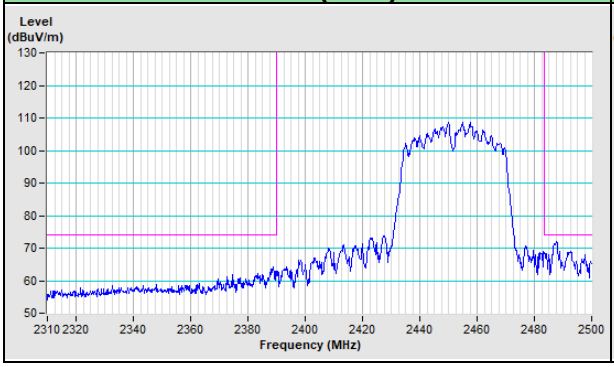
Horizontal (Peak)



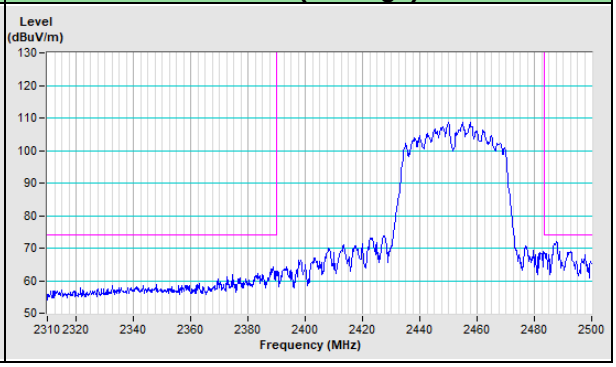
Horizontal (Average)



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:

Lin Kou EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@bureauveritas.com
Web Site: http://ee.bureauveritas.com.tw

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

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