

TEST REPORT

CERTIFICATE OF CONFORMITY

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

Report No.: RFBDKG-WTW-P24030380

FCC ID: JNZVR0038

Product: Camera and Speakerphone

Brand: Logitech, logi

Model No.: VR0038

Received Date: 2024/2/2

Test Date: 2024/3/3 ~ 2024/4/16

Issued Date: 2024/5/16

Applicant: Logitech Far East Ltd.

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

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FCC Registration / 723255 / TW2022

Designation Number:

Approved by: _____



May Chen / Manager

, Date: _____

2024/5/16

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Prepared by : Vito Lung / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBDKG-WTW-P24030380	Original release.	2024/5/16

1 Certificate

Product: Camera and Speakerphone

Brand: Logitech, logi

Test Model: VR0038

Sample Status: Engineering sample

Applicant: Logitech Far East Ltd.

Test Date: 2024/3/3 ~ 2024/4/16

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

Measurement ANSI C63.10-2013

procedure: KDB 558074 D01 15.247 Meas Guidance v05r02

KDB 662911 D01 Multiple Transmitter Output v02r01

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

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
Standard / Clause	Test Item	Result	Remark
15.247(b)	RF Output Power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	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 -12.64 dB at 0.49766 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -4.5 dB at 34.75 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -4.1 dB at 2390.00 and 2483.50 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) (±)
RF Output Power	-	1.1 dB
Power Spectral Density	-	1.3 dB
6 dB Bandwidth	-	1050.00 Hz
Conducted Out of Band Emissions	9 kHz ~ 40 GHz	2.6 dB
AC Power Conducted Emissions	150 kHz ~ 30 MHz	1.9 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.1 dB
	30 MHz ~ 1 GHz	5.1 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	5.0 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	Camera and Speakerphone
Brand	Logitech, logi
Test Model	VR0038
Status of EUT	Engineering sample
Power Supply Rating	100-240 Vac
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in VHT mode
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11 Mbps 802.11g: up to 54 Mbps 802.11n: up to 300 Mbps VHT: up to 400 Mbps
Operating Frequency	2.412 GHz ~ 2.462 GHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20), VHT20: 11 802.11n (HT40), VHT40: 7
Output Power	621.333 mW (27.93 dBm)

Note:

1. The EUT uses following accessories.

AC Adapter		
Brand	Model	Specification
LOGI	AM40R-190A	AC Input: 100-240V, 1.4A Max, 50/60Hz DC Output: 19V, 2.11A, 40.09W DC Output Cable: 3m with one core Manufacturer: PHIHONG TECHNOLOGY CO. LTD.
Plug		
Brand	Model	
logi	534-000969	
USB-C to USB-C Cable		
Brand	Model	Specification
logi	502-001533	Specification: shielded, 3m
USB-C to USB-C Cable (optional)		
Brand	Model	Specification
logi	Z00038	Specification: shielded, 5m
C8 Connector		
Brand	Model	
logi	534-00978	

2. There are Bluetooth and WLAN (2.4 GHz & 5 GHz) technology used for the EUT.

3. Simultaneously transmission condition.

Condition	Technology	
1	WLAN (2.4 GHz)	WLAN (5 GHz)
2	WLAN (2.4 GHz)	Bluetooth
3	WLAN (5 GHz)	Bluetooth

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

4. 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.	RF Chain No.	Brand	Model	Antenna Gain (dBi)	Frequency range (GHz)	Antenna Type	Connector Type
WIFI 0	WF0	FIH Co., Ltd.	VR0038-0	3.6	2.4~2.4835	PIFA	None
				3.24	5.15~5.85		
WIFI 1	WF1	FIH Co., Ltd.	VR0038-1	3.27	2.4~2.4835	PIFA	None
				3.09	5.15~5.85		
Bluetooth	-	FIH Co., Ltd.	F146D8713910001	3.51	2.4~2.4835	PIFA	ipex(MHF)

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

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

Note:

- The modulation and bandwidth are similar for 802.11n mode for 20 MHz (40 MHz), VHT mode for 20 MHz (40 MHz), therefore the manufacturer will control the power for 802.11n mode is same as the 802.11VHT mode or more lower than it and investigated worst case to representative mode in test report.

3.3 Channel List

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

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:

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

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
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Following channel(s) was (were) selected for the final test as listed below:

Test Item	Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	802.11b	1, 6, 11	DBPSK	1Mb/s
	802.11g	1, 6, 11	BPSK	6Mb/s
	VHT20	1, 6, 11	BPSK	MCS0
	VHT40	3, 6, 9	BPSK	MCS0
Power Spectral Density	802.11b	1, 6, 11	DBPSK	1Mb/s
	802.11g	1, 6, 11	BPSK	6Mb/s
	VHT20	1, 6, 11	BPSK	MCS0
	VHT40	3, 6, 9	BPSK	MCS0
6 dB Bandwidth / Conducted Out of Band Emissions	802.11b	1, 6, 11	DBPSK	1Mb/s
	802.11g	1, 6, 11	BPSK	6Mb/s
	VHT20	1, 6, 11	BPSK	MCS0
	VHT40	3, 6, 9	BPSK	MCS0
AC Power Conducted Emissions	802.11g	6	BPSK	6Mb/s
Unwanted Emissions below 1 GHz	802.11g	6	BPSK	6Mb/s
Unwanted Emissions above 1 GHz	802.11b	1, 6, 11	DBPSK	1Mb/s
	802.11g	1, 6, 11	BPSK	6Mb/s
	VHT20	1, 6, 11	BPSK	MCS0
	VHT40	3, 6, 9	BPSK	MCS0

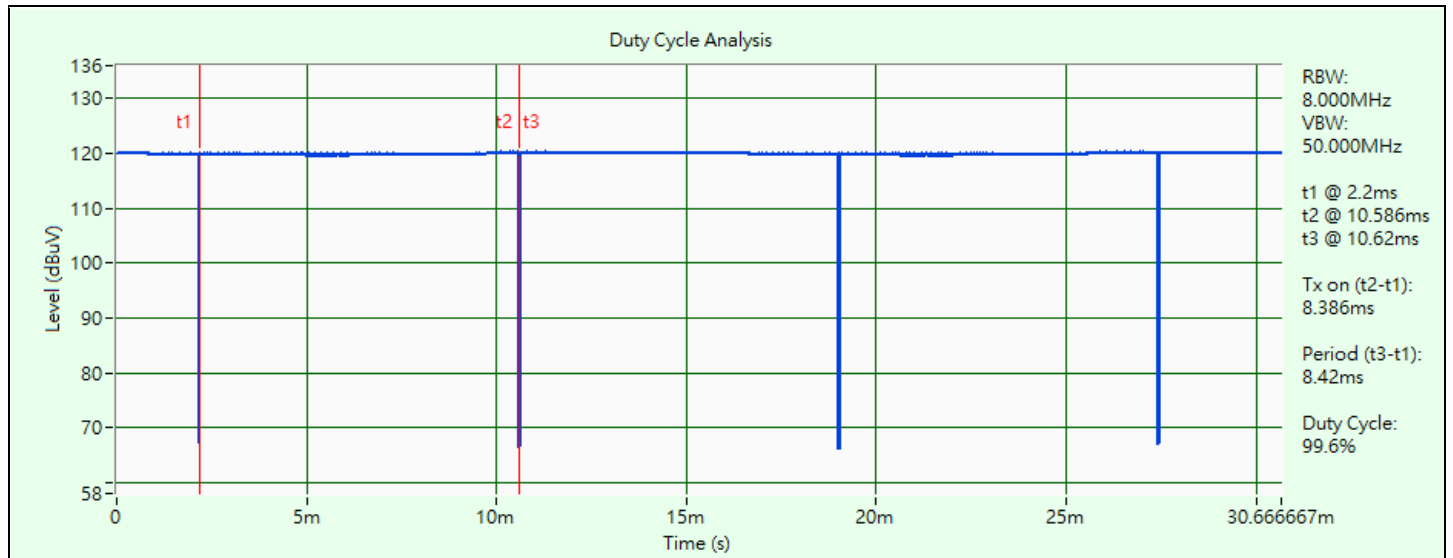
3.5 Duty Cycle of Test Signal

802.11b: Duty cycle = 8.386 ms / 8.42 ms x 100% = 99.6%

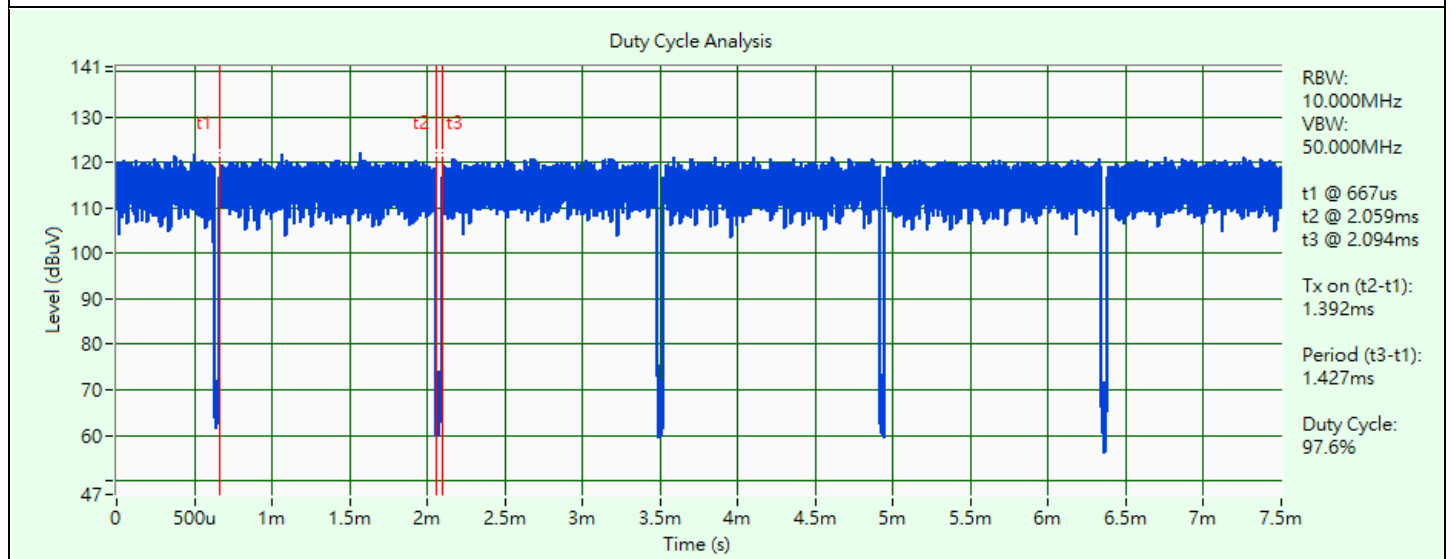
802.11g: Duty cycle = 1.392 ms / 1.427 ms x 100% = 97.5%, duty factor = 10 * log (1/Duty cycle) = 0.11 dB

VHT20: Duty cycle = 1.313 ms / 1.348 ms x 100% = 97.4%, duty factor = 10 * log (1/Duty cycle) = 0.11 dB

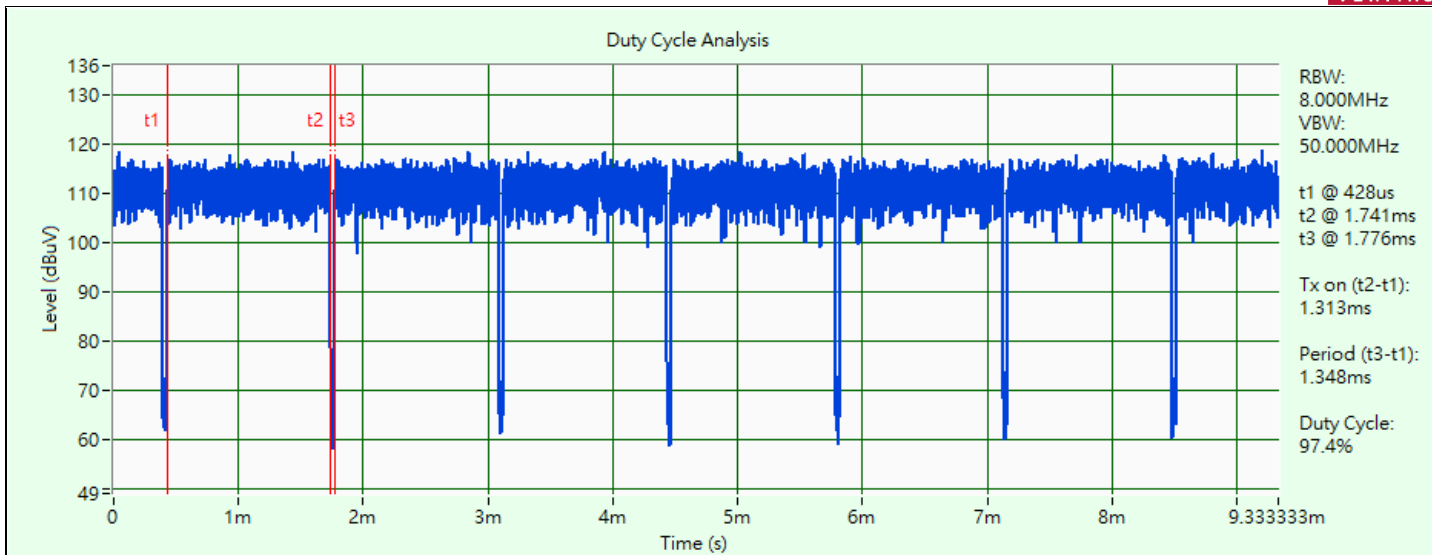
VHT40: Duty cycle = 0.653 ms / 0.687 ms x 100% = 95.1%, duty factor = 10 * log (1/Duty cycle) = 0.22 dB



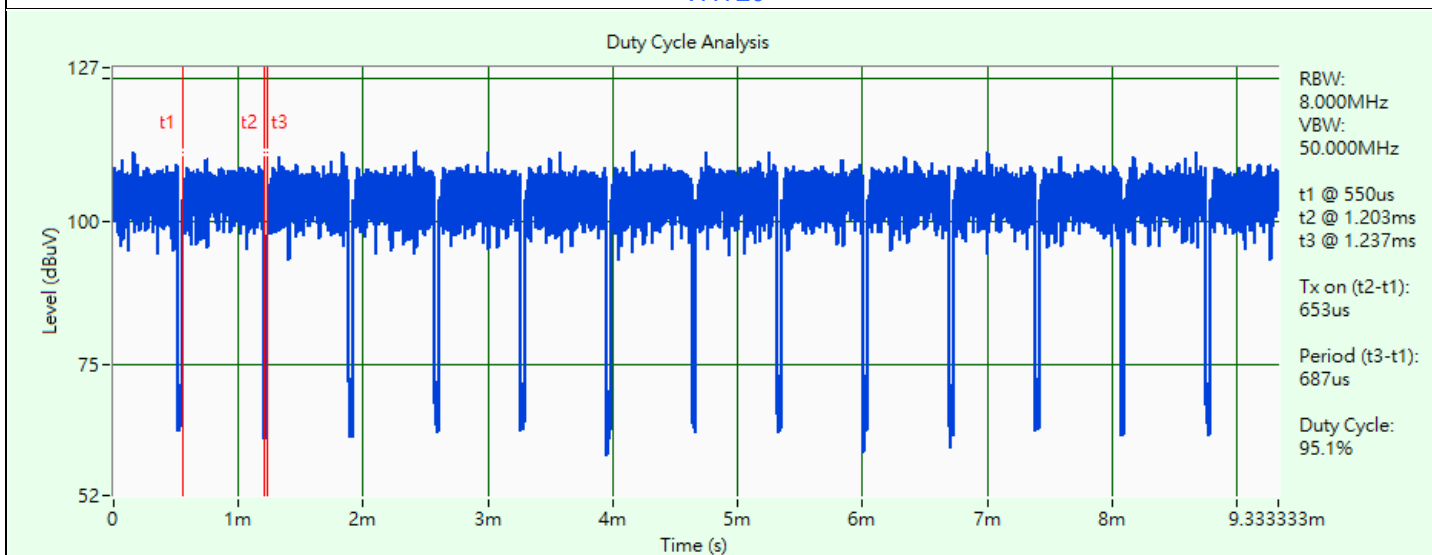
802.11b



802.11g



VHT20

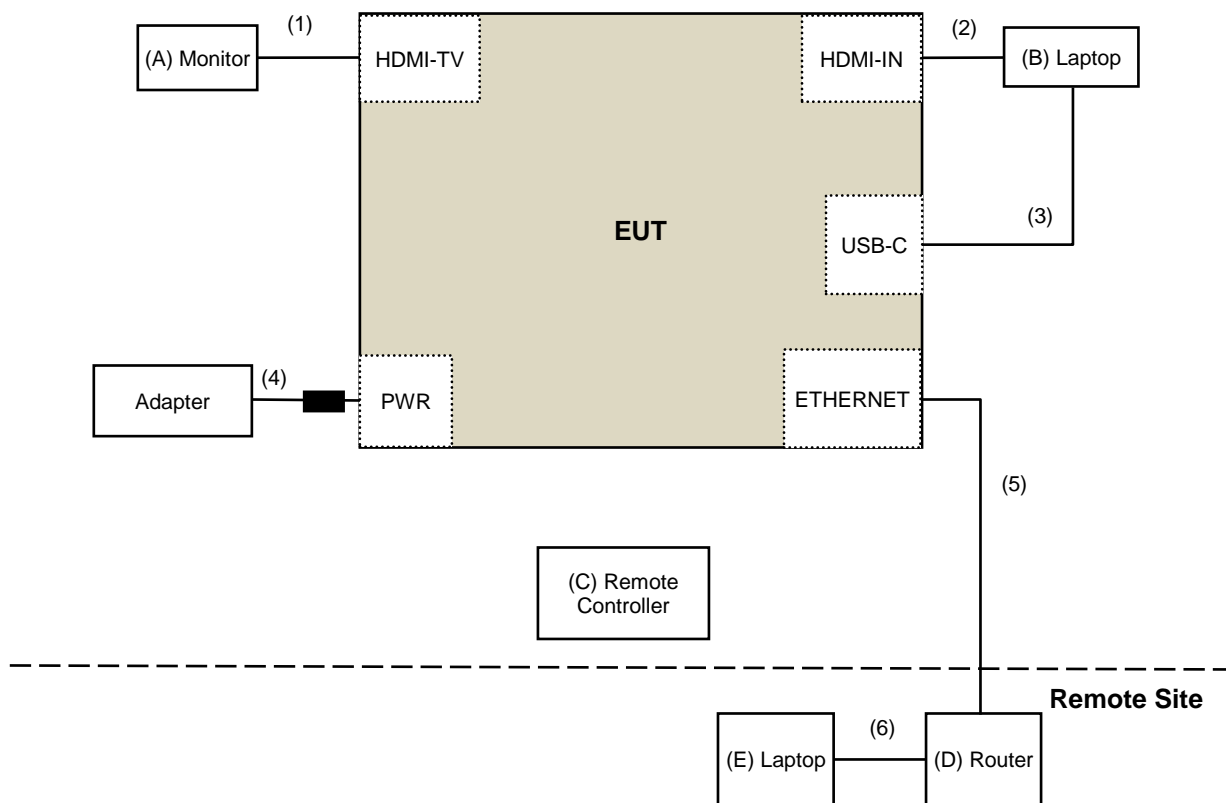


VHT40

3.6 Test Program Used and Operation Descriptions

Controlling software (adb paste WIFI 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



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Monitor	DELL	P2415Q	CN-0J1P7F- QDC00-85L- 13GB-A09	DoC	Provided by Lab
B	Laptop	Lenovo	20U5S01X00 L14	PF-1ANPYA	N/A	Provided by Lab
C	Remote controller	Logitech	RR0016	N/A	N/A	Supplied by applicant
D	Router	NETGEAR	RAX40	N/A	N/A	Provided by Lab
E	Laptop	Lenovo	20U5S01X00 L14	PF-28LKK7	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	HDMI Cable	1	2	Yes	0	Supplied by applicant
2	HDMI Cable	1	2	Yes	0	Provided by Lab
3	USB-C Cable	1	3	Yes	0	Supplied by applicant
4	DC Cable	1	3	No	1	Supplied by applicant
5	RJ-45 Cable	1	10	No	0	Provided by Lab
6	RJ-45 Cable	1	3	No	0	Provided by Lab

4 Test Instruments

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

4.1 RF Output Power

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

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2024/4/16

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
MXA Signal Analyzer Keysight	N9020B	MY60112409	2024/2/20	2025/2/19
Software	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2024/4/16

4.3 6 dB Bandwidth

Refer to section 4.2 to get information of the instruments.

4.4 Conducted Out of Band Emissions

Refer to section 4.2 to get information of the instruments.

4.5 AC Power Conducted Emissions

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

Notes:

1. The test was performed in Conduction 1
2. Tested Date: 2024/4/16

4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-0942	2023/10/12	2024/10/11
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	N/A	N/A
Fixed Attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-01	2023/12/12	2024/12/11
Loop Antenna Electro-Metrics	EM-6879	264	2024/2/23	2025/2/22
MXA Signal Analyzer Keysight	N9020B	MY60112410	2024/3/13	2025/3/12
MXE EMI Receiver Keysight	N9038A	MY59050100	2023/6/13	2024/6/12
Preamplifier EMCI	EMC330N	980852	2024/2/17	2025/2/16
	EMC001340	980142	2024/2/19	2025/2/18
RF Coaxial Cable JYEBAO	5D-FB	LOOPCAB-001	2024/2/19	2025/2/18
		LOOPCAB-002	2024/2/19	2025/2/18
RF Coaxial Cable PEWC	8D	966-6-1	2024/2/19	2025/2/18
		966-6-2	2024/2/19	2025/2/18
		966-6-3	2024/2/19	2025/2/18
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A

Notes:

1. The test was performed in 966 Chamber No. 6.
2. Tested Date: 2024/4/15

4.7 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-2035	2023/11/12	2024/11/11
	BBHA 9170	BBHA9170519	2023/11/12	2024/11/11
MXA Signal Analyzer Keysight	N9020B	MY60112410	2023/3/6 2024/3/13	2024/3/5 2025/3/12
MXE EMI Receiver Keysight	N9038A	MY59050100	2023/6/13	2024/6/12
Preamplifier EMCI	EMC12630SE	980385	2023/8/10	2024/8/9
	EMC184045SE	980387	2023/8/9	2024/8/8
RF Coaxial Cable EMCI	EMC101G-KM-KM-10000	210708	2023/11/2	2024/11/1
	EMC102-KM-KM-1200	160924	2024/1/29	2025/1/28
	EMC102-KM-KM-4000	200214	2024/1/29	2025/1/28
	EMC104-SM-SM-1300	210205	2023/5/8	2024/5/7
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A

Notes:

1. The test was performed in 966 Chamber No. 6.
2. Tested Date: 2024/3/3 ~ 2024/4/12

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 20 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 20 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 20 dB below the highest level of the desired power:

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

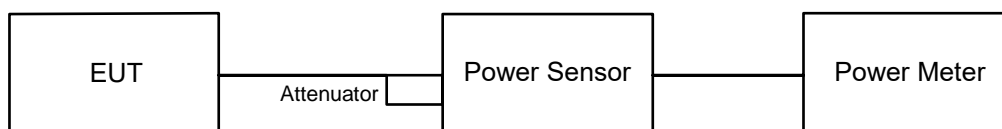
Notes:

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

Peak Power:

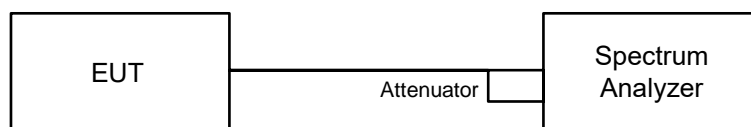
A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Average Power:

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

6.2 Power Spectral Density

6.2.1 Test Setup

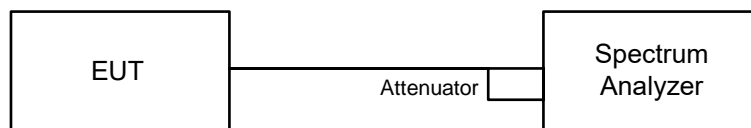


6.2.2 Test Procedure

- a. Set analyzer center frequency to DTS channel center frequency.
- b. Set the span to 1.5 times the DTS bandwidth.
- c. Set the RBW to: 3 kHz.
- d. Set the VBW $\geq 3 \times$ RBW.
- e. Detector = peak.
- f. Sweep time = auto couple.
- g. Trace mode = max hold.
- h. Allow trace to fully stabilize.
- i. Use the peak marker function to determine the maximum amplitude level within the RBW.

6.3 6 dB Bandwidth

6.3.1 Test Setup

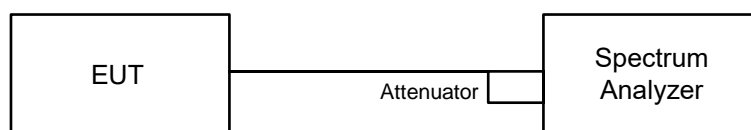


6.3.2 Test Procedure

- Set resolution bandwidth (RBW) = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- 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

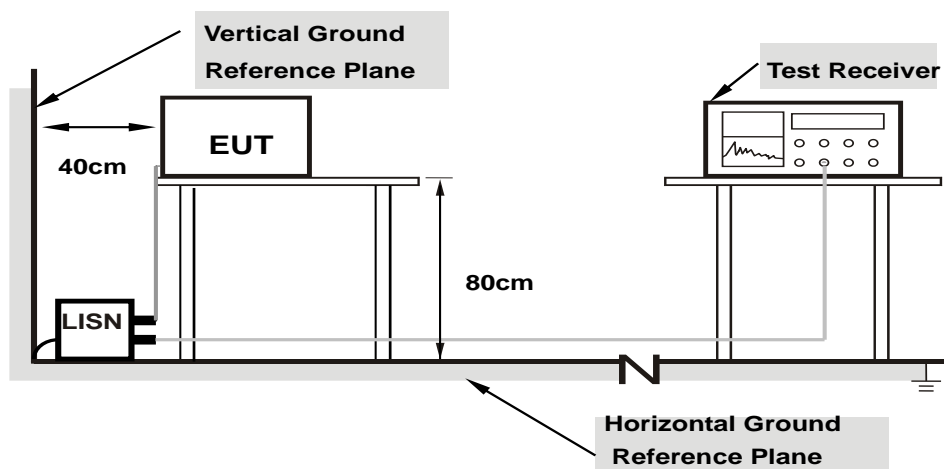
- Set the RBW = 100 kHz.
- Set the VBW ≥ 300 kHz.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOB

- Set RBW = 100 kHz.
- Set VBW ≥ 300 kHz.
- Detector = peak.
- Sweep = auto couple.
- Trace Mode = max hold.
- Allow trace to fully stabilize.
- 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

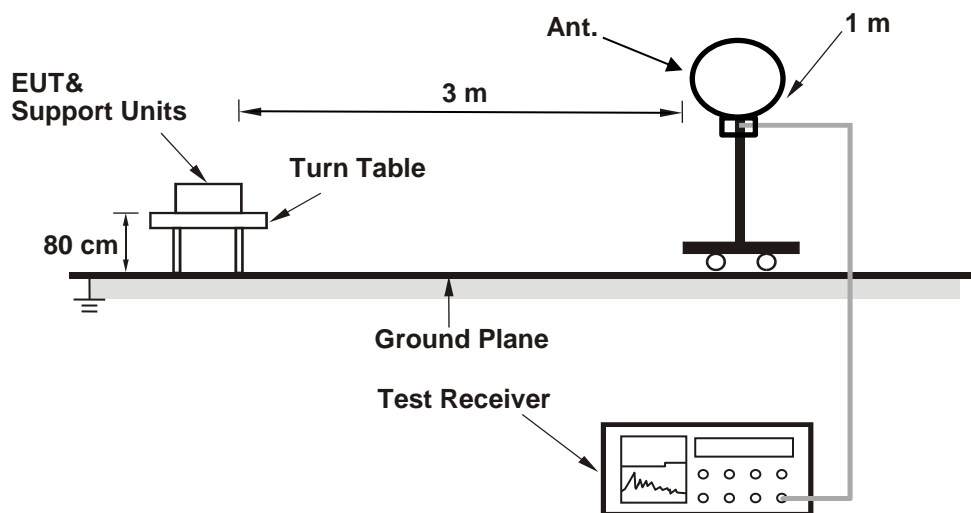
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

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

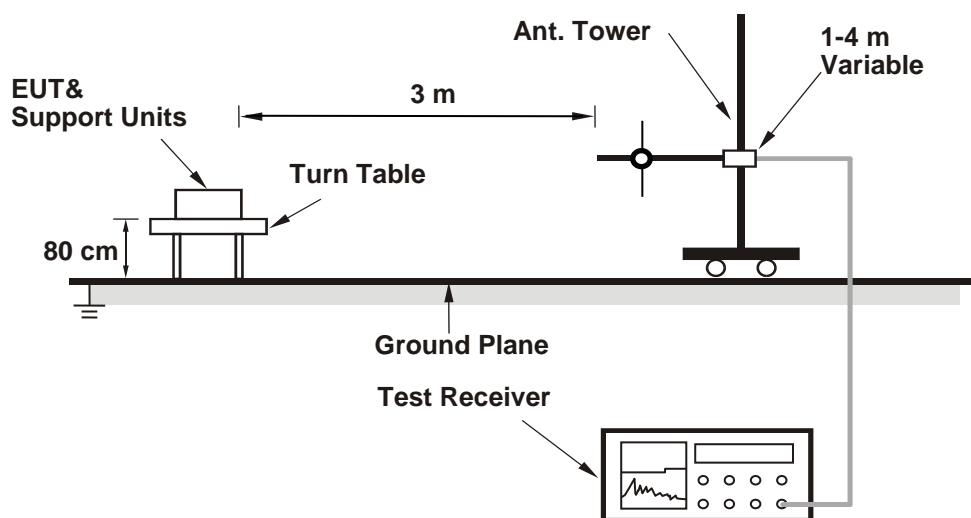
6.6 Unwanted Emissions below 1 GHz

6.6.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



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

6.6.2 Test Procedure

For Radiated emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode, except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency below 150 kHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency (150 kHz to 30 MHz).
3. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated emission above 30 MHz

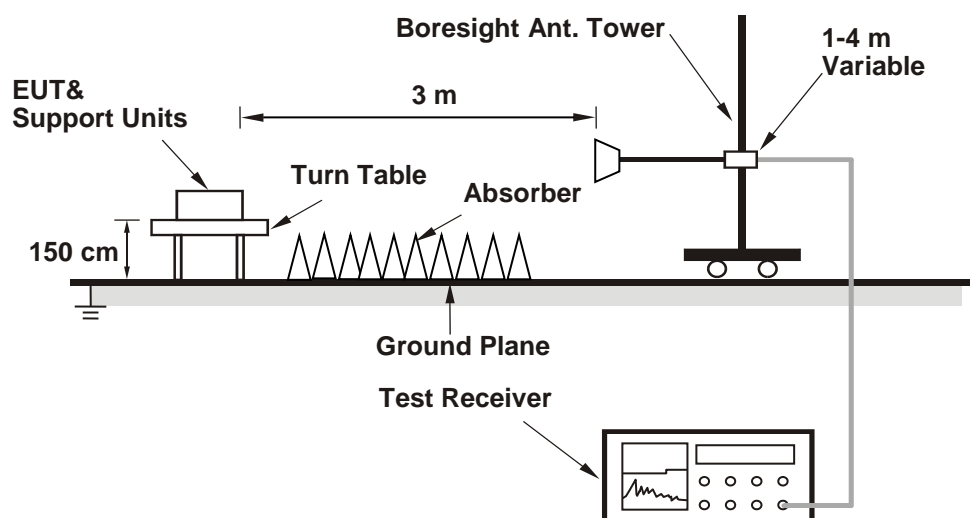
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

6.7 Unwanted Emissions above 1 GHz

6.7.1 Test Setup



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

6.7.2 Test Procedure

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

Notes:

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

7 Test Results of Test Item

7.1 RF Output Power

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	24°C, 62% RH	Tested By:	John Peng
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For Peak Power

802.11b

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	19.23	19.35	169.852	22.30	30	Pass
6	2437	19.28	19.35	170.822	22.33	30	Pass
11	2462	19.23	19.33	169.457	22.29	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.6 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11g

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	22.59	22.63	364.783	25.62	30	Pass
6	2437	24.76	25.08	621.333	27.93	30	Pass
11	2462	22.18	22.26	333.464	25.23	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.6 dBi < 6 dBi, so the output power limit shall not be reduced.

VHT20

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	20.13	20.43	213.446	23.29	30	Pass
6	2437	22.92	23.11	400.529	26.03	30	Pass
11	2462	20.89	20.96	247.482	23.94	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.6 dBi < 6 dBi, so the output power limit shall not be reduced.

VHT40

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	16.71	16.84	95.187	19.79	30	Pass
6	2437	16.79	16.82	95.837	19.82	30	Pass
9	2452	16.86	16.94	97.96	19.91	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.6 dBi < 6 dBi, so the output power limit shall not be reduced.

For Average Power
802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Average Power (mW)	Total Average Power (dBm)
		Chain 0	Chain 1		
1	2412	16.88	16.93	98.07	19.92
6	2437	16.91	16.96	98.75	19.95
11	2462	16.77	16.85	95.951	19.82

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Average Power (mW)	Total Average Power (dBm)
		Chain 0	Chain 1		
1	2412	14.88	14.93	61.878	17.92
6	2437	17.28	17.36	107.907	20.33
11	2462	15.01	15.05	63.685	18.04

VHT20

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Average Power (mW)	Total Average Power (dBm)
		Chain 0	Chain 1		
1	2412	13.32	13.41	43.406	16.38
6	2437	15.58	15.80	74.16	18.70
11	2462	13.37	13.48	44.011	16.44

VHT40

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Average Power (mW)	Total Average Power (dBm)
		Chain 0	Chain 1		
3	2422	9.13	9.24	16.579	12.20
6	2437	9.02	9.14	16.183	12.09
9	2452	9.21	9.33	16.907	12.28

7.2 Power Spectral Density

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	24°C, 62% RH	Tested By:	John Peng
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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	-1.24	-1.37	1.71	7.55	Pass
6	2437	-1.22	-1.77	1.52	7.55	Pass
11	2462	-1.10	-1.52	1.71	7.55	Pass

Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- The directional gain is 6.45 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.45 - 6) = 7.55$ dBm/3kHz.

802.11g

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
1	2412	-8.08	-8.56	-5.30	7.55	Pass
6	2437	-5.87	-6.33	-3.08	7.55	Pass
11	2462	-8.39	-9.05	-5.70	7.55	Pass

Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- The directional gain is 6.45 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.45 - 6) = 7.55$ dBm/3kHz.

VHT20

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
1	2412	-9.24	-8.58	-5.89	7.55	Pass
6	2437	-7.63	-4.84	-3.00	7.55	Pass
11	2462	-9.55	-7.83	-5.60	7.55	Pass

Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- The directional gain is 6.45 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.45 - 6) = 7.55$ dBm/3kHz.

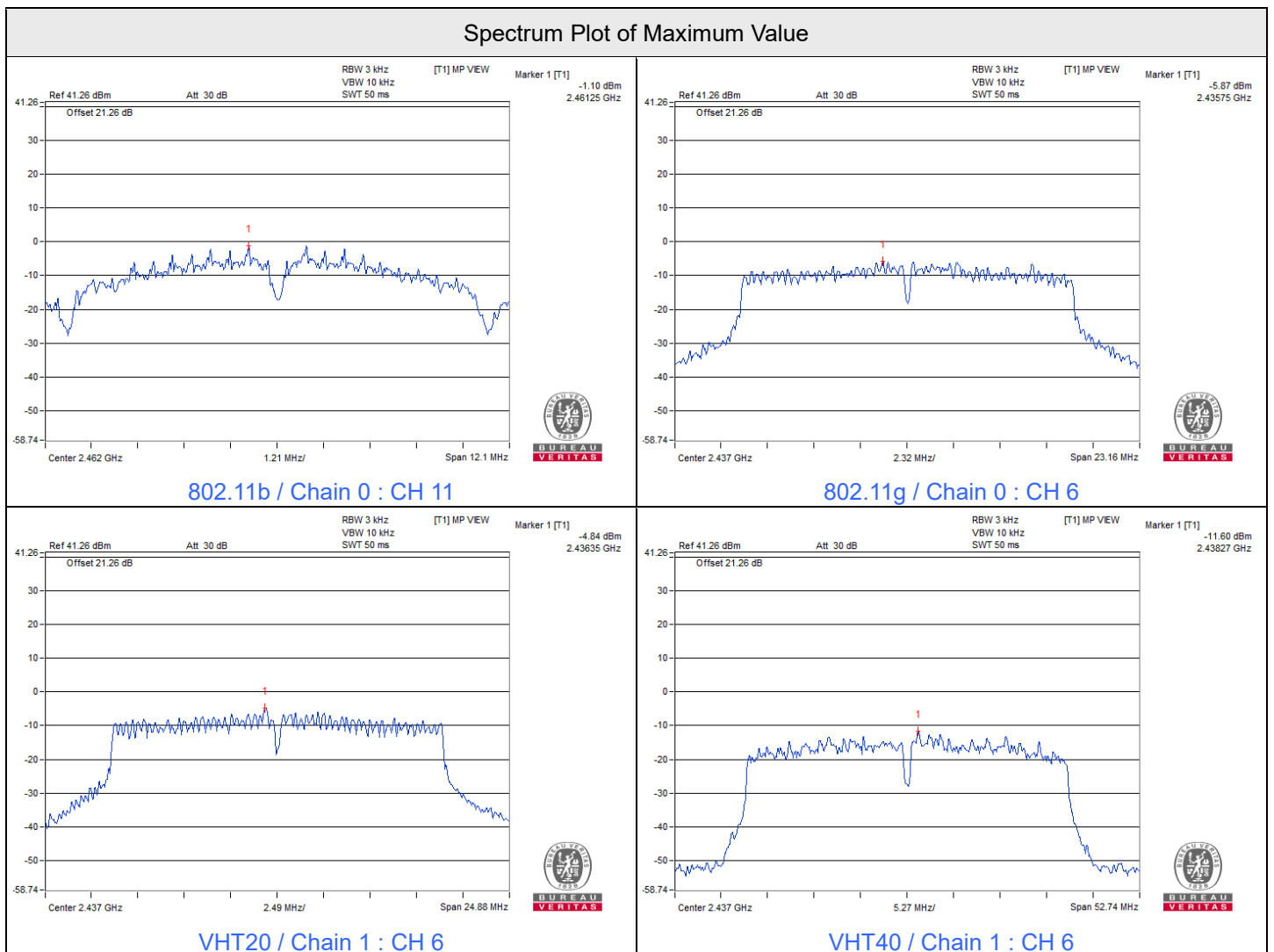


VHT40

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
3	2422	-15.91	-15.48	-12.68	7.55	Pass
6	2437	-14.07	-11.60	-9.65	7.55	Pass
9	2452	-15.61	-14.44	-11.98	7.55	Pass

Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- The directional gain is 6.45 dBi > 6 dBi, so the power density limit shall be reduced to $8-(6.45-6) = 7.55$ dBm/3kHz.



7.3 6 dB Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	24°C, 62% RH	Tested By:	John Peng
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802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	8.12	8.11	0.5	Pass
6	2437	8.11	8.56	0.5	Pass
11	2462	8.07	8.08	0.5	Pass

802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	15.14	15.15	0.5	Pass
6	2437	15.44	15.93	0.5	Pass
11	2462	15.47	16.31	0.5	Pass

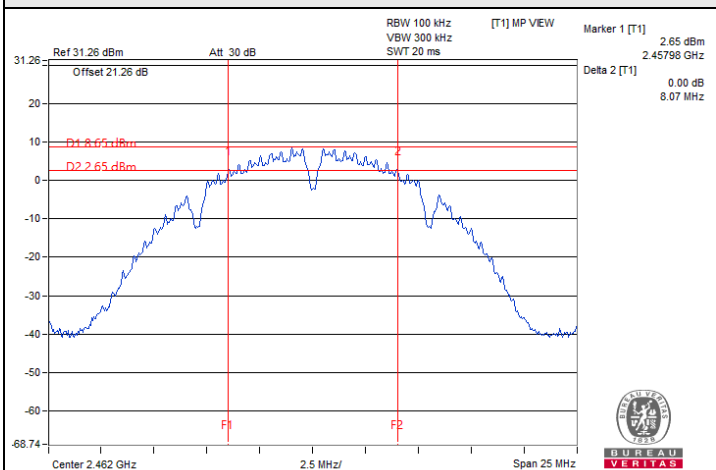
VHT20

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	15.16	16.30	0.5	Pass
6	2437	15.49	16.59	0.5	Pass
11	2462	15.45	17.17	0.5	Pass

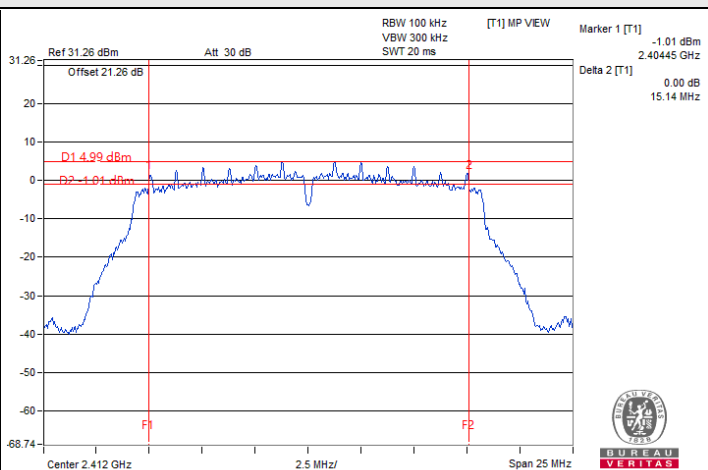
VHT40

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
3	2422	35.18	35.17	0.5	Pass
6	2437	35.19	35.16	0.5	Pass
9	2452	35.19	35.17	0.5	Pass

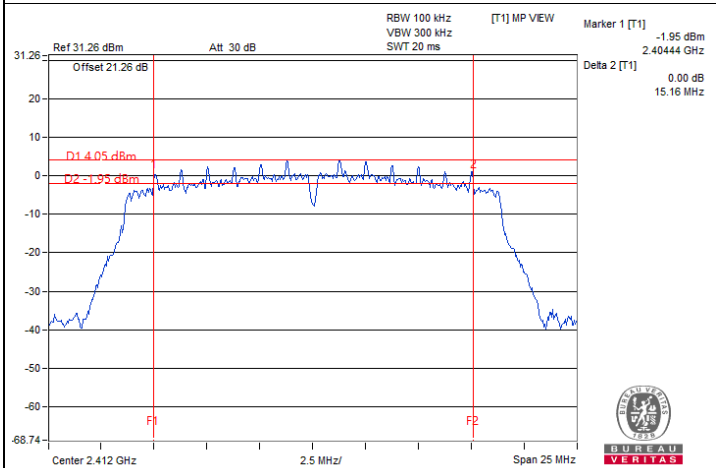
Spectrum Plot of Minimum Value



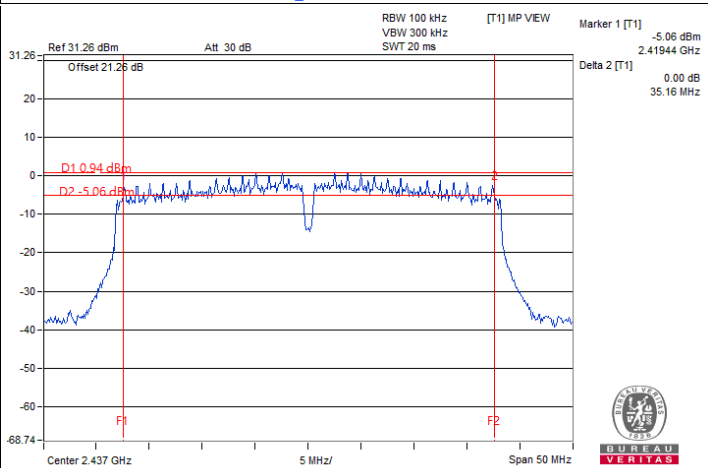
802.11b / Chain 0 : CH 11



802.11g / Chain 0 : CH 1



VHT20 / Chain 0 : CH 1



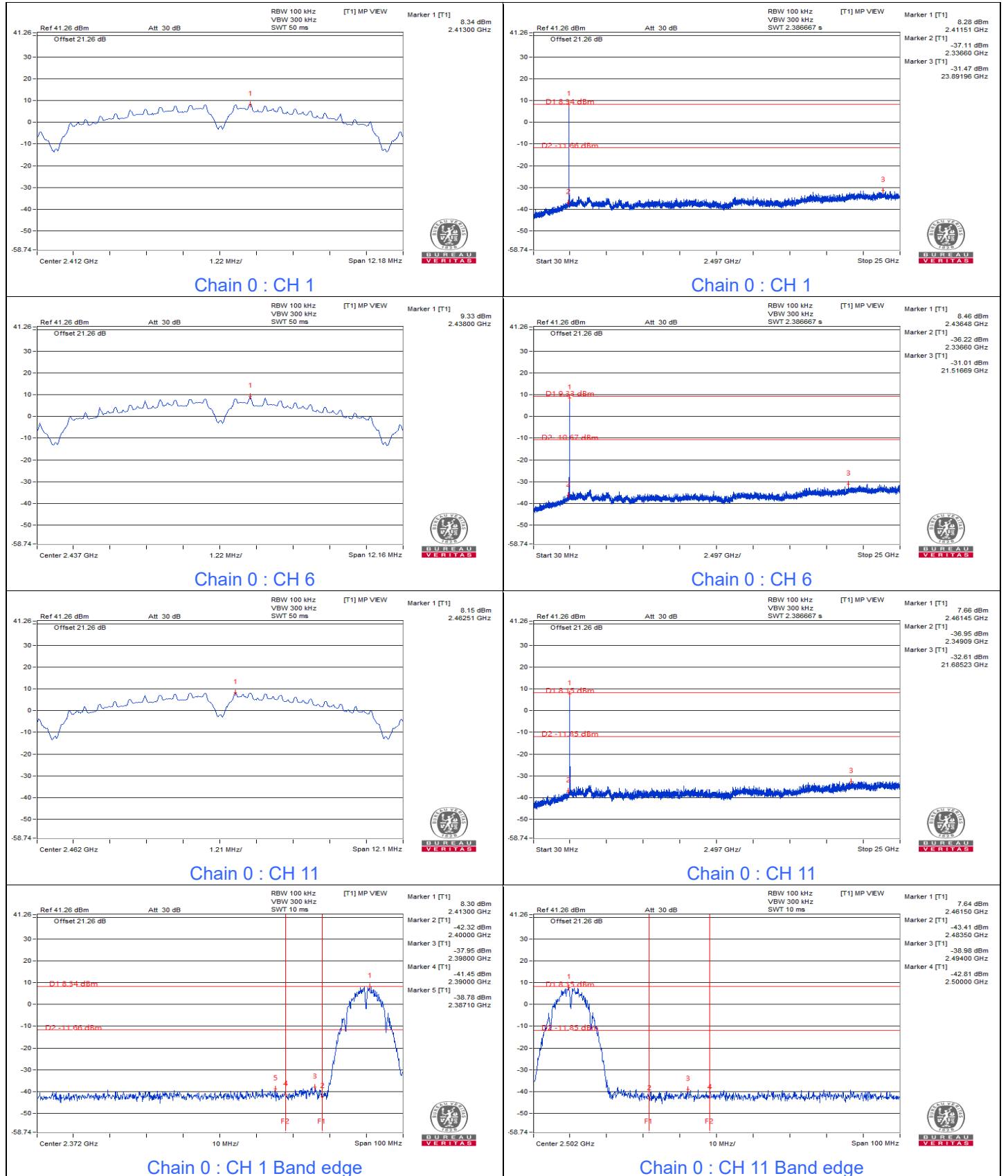
VHT40 / Chain 1 : CH 6

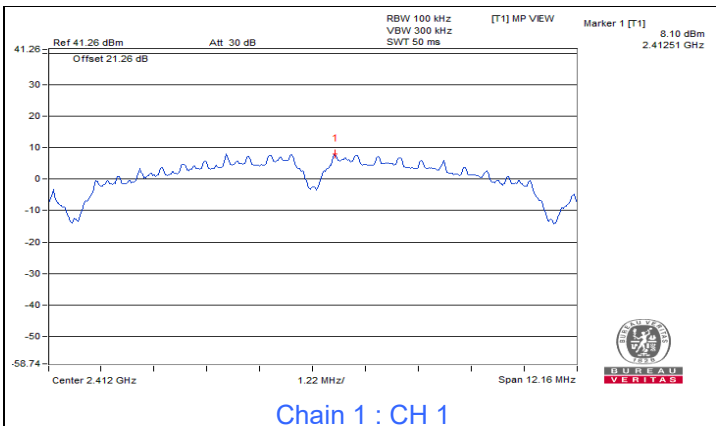


7.4 Conducted Out of Band Emissions

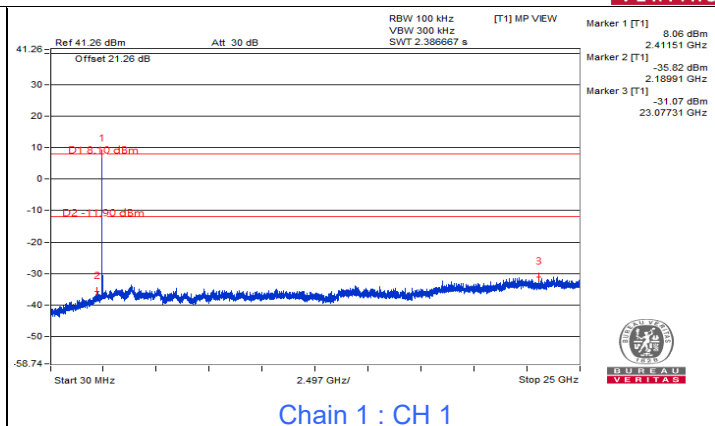
Input Power:	120 Vac, 60 Hz	Environmental Conditions:	24°C, 62% RH	Tested By:	John Peng
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802.11b

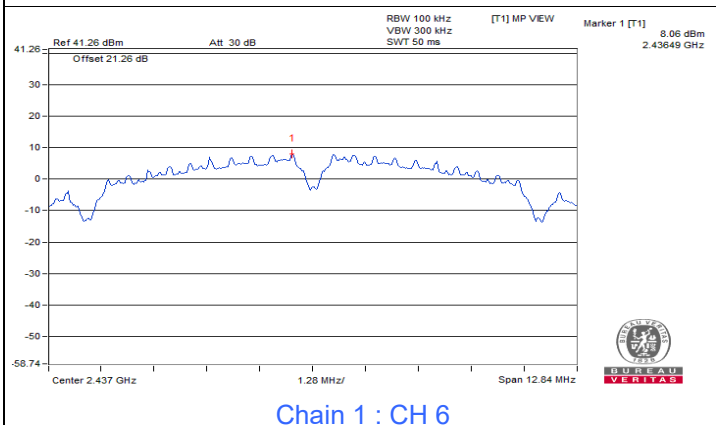




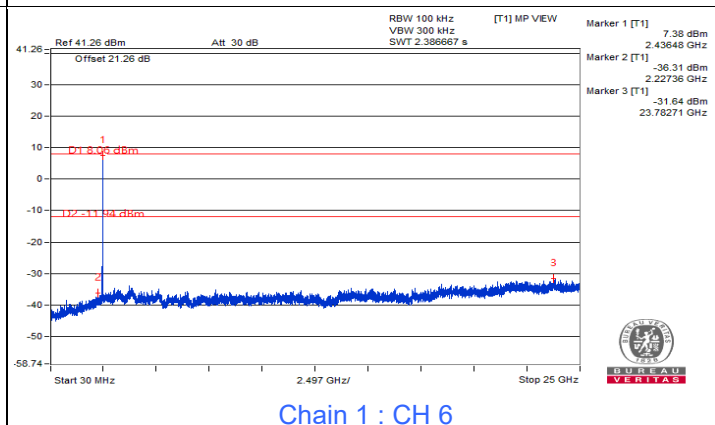
Chain 1 : CH 1



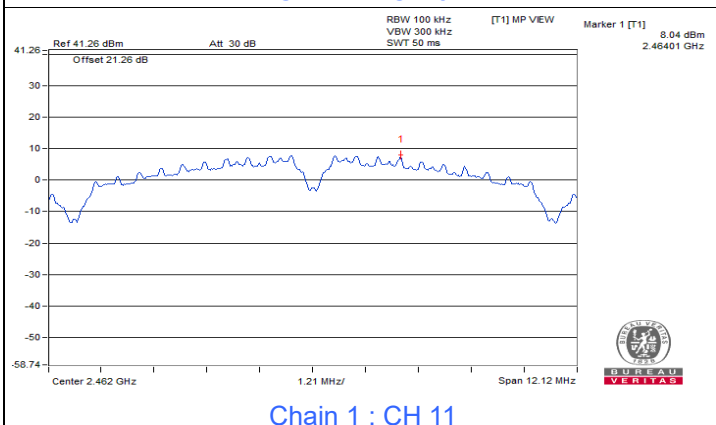
Chain 1 : CH 1



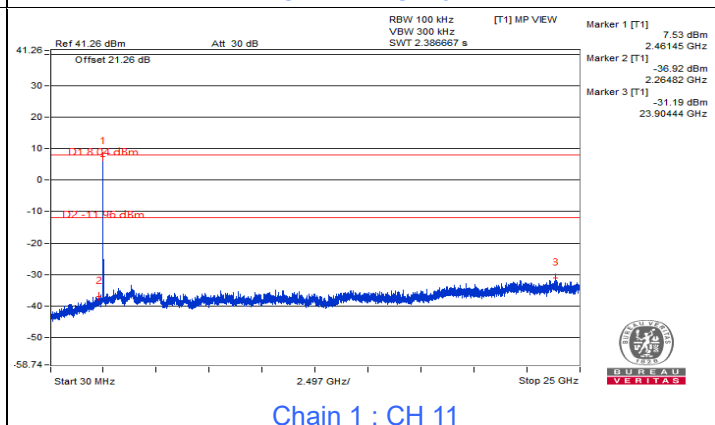
Chain 1 : CH 6



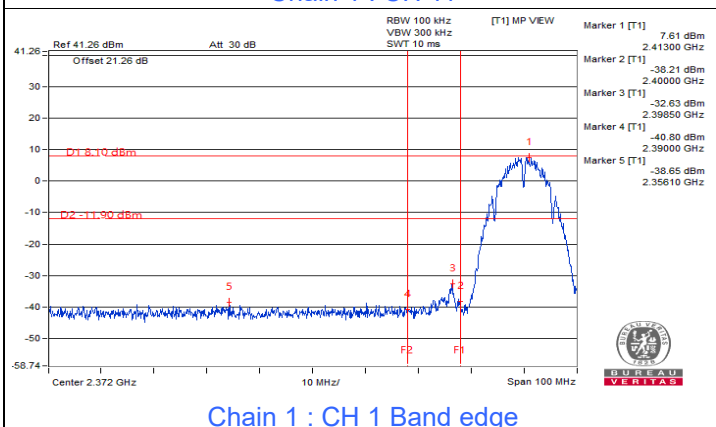
Chain 1 : CH 6



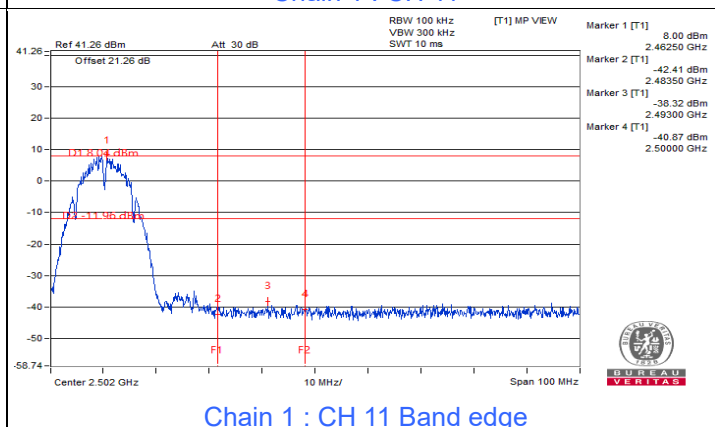
Chain 1 : CH 11



Chain 1 : CH 11



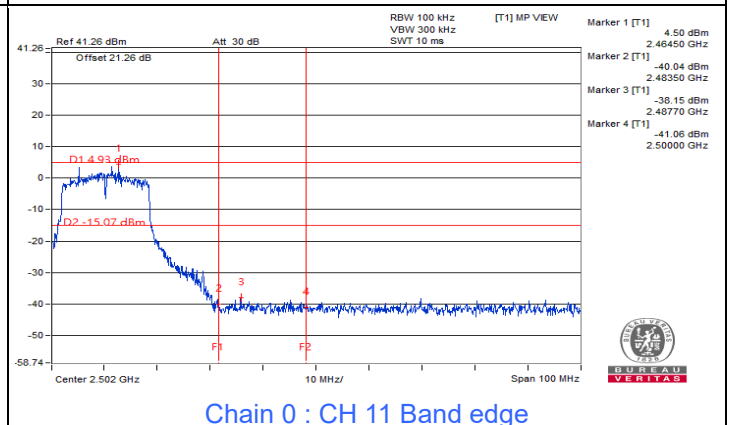
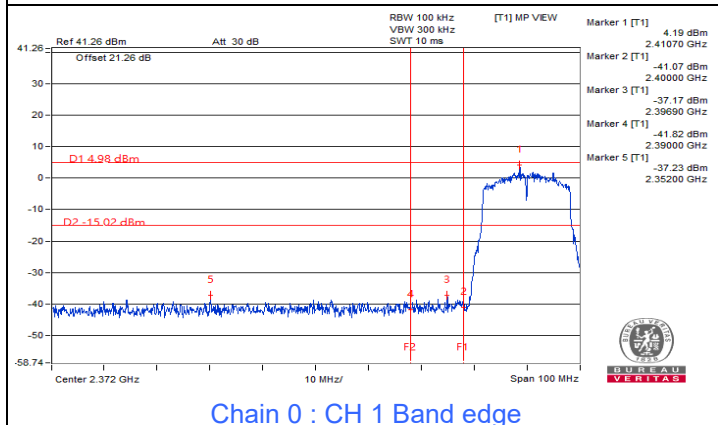
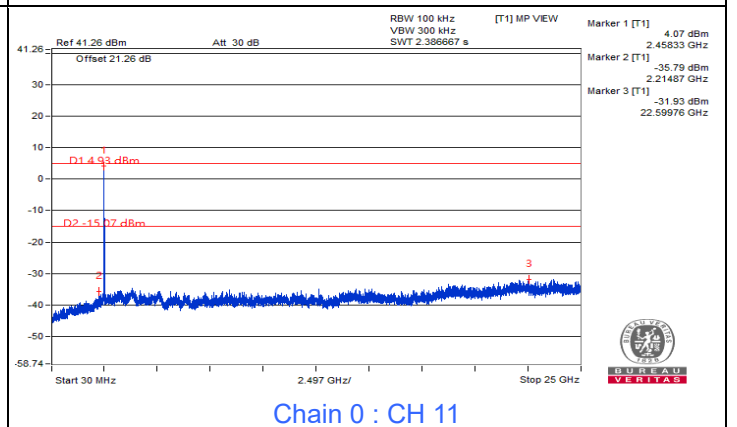
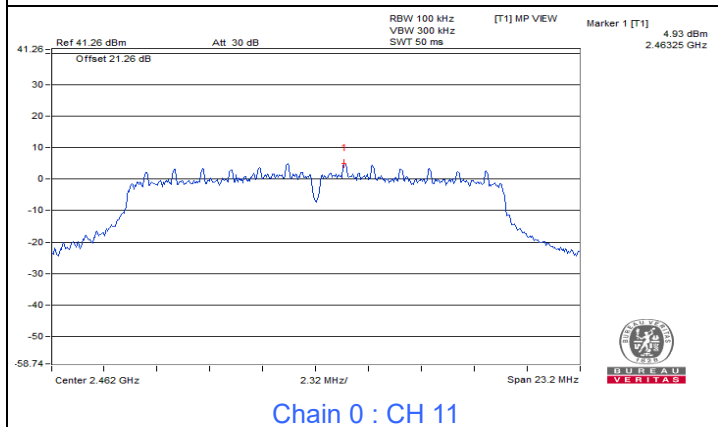
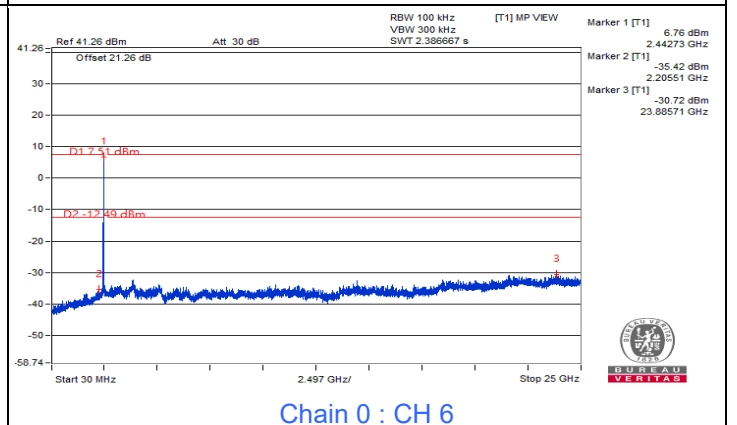
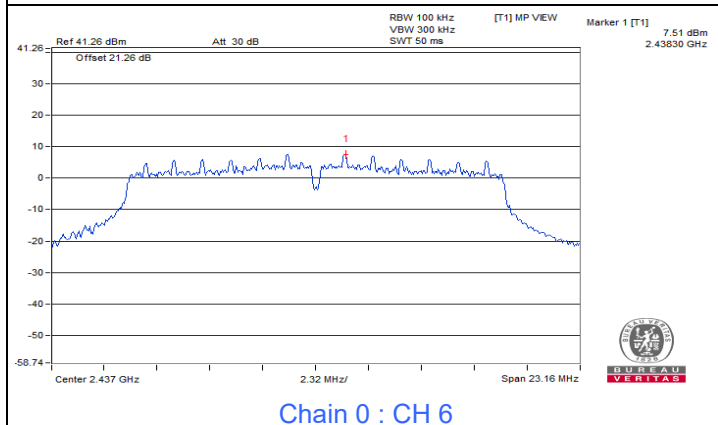
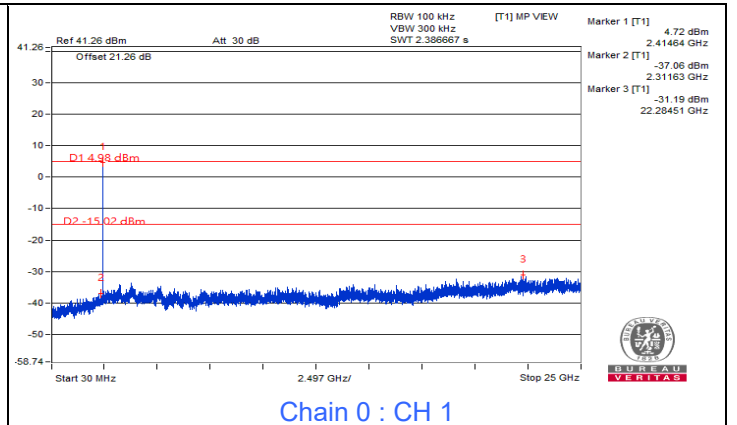
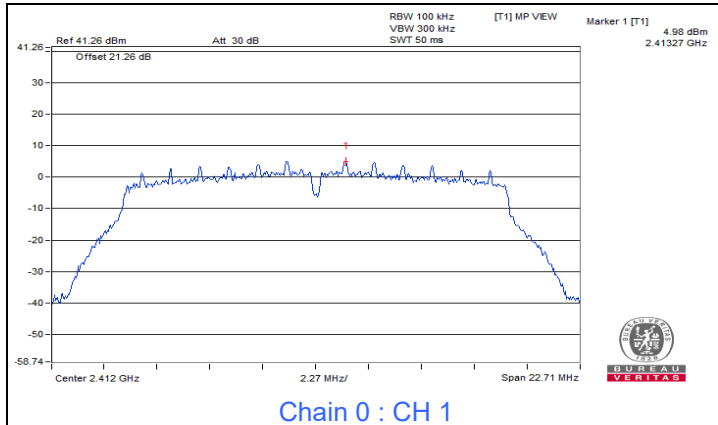
Chain 1 : CH 1 Band edge

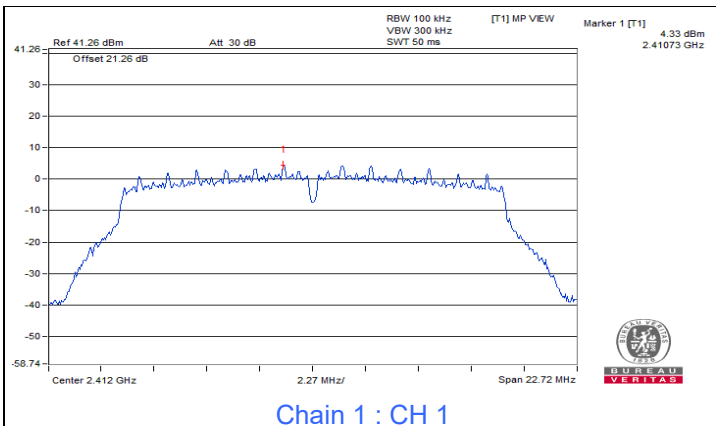


Chain 1 : CH 11 Band edge

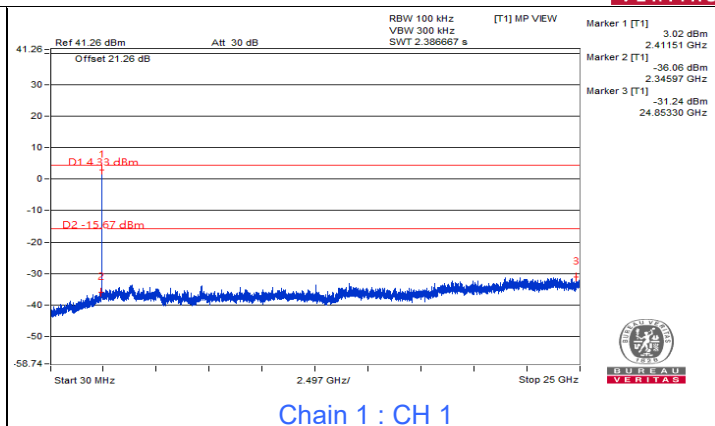


802.11g

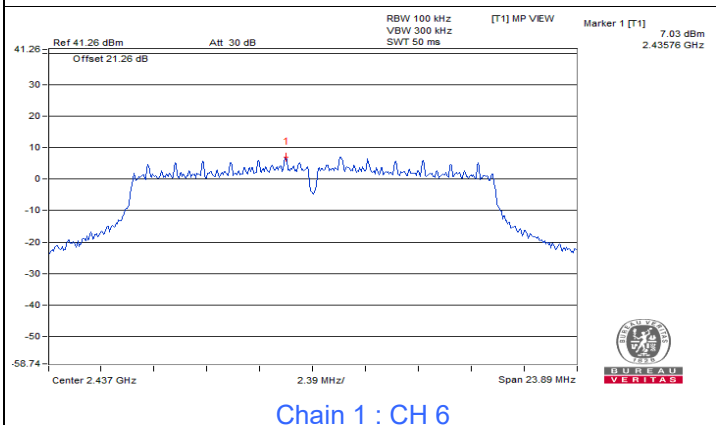




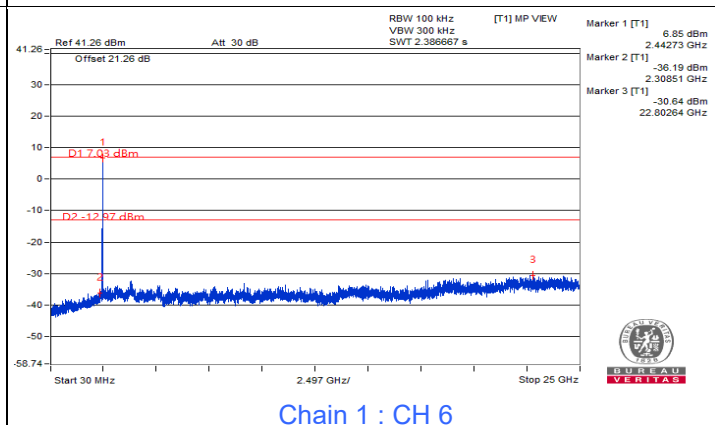
Chain 1 : CH 1



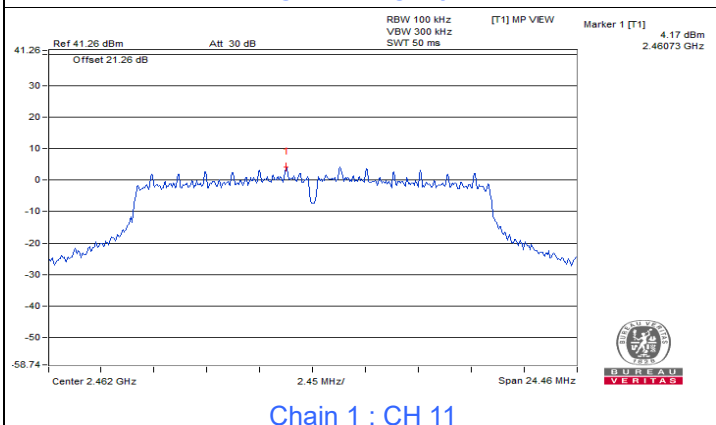
Chain 1 : CH 1



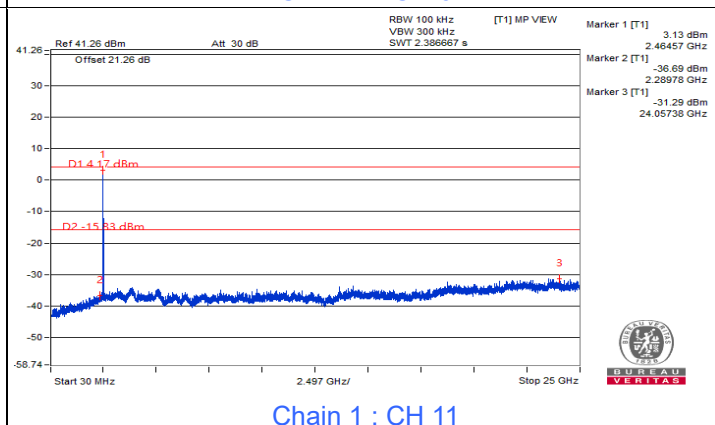
Chain 1 : CH 6



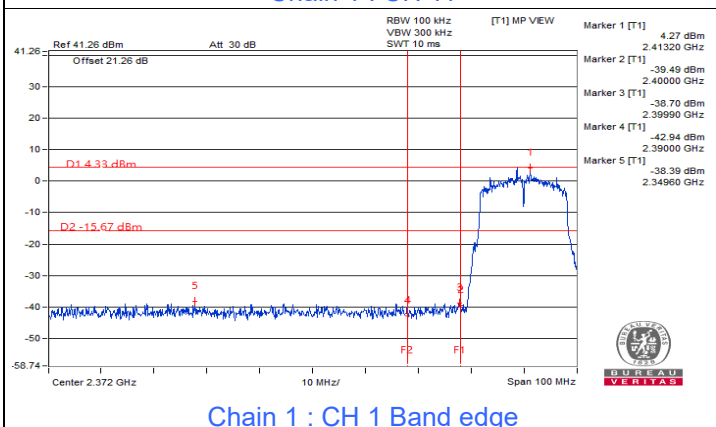
Chain 1 : CH 6



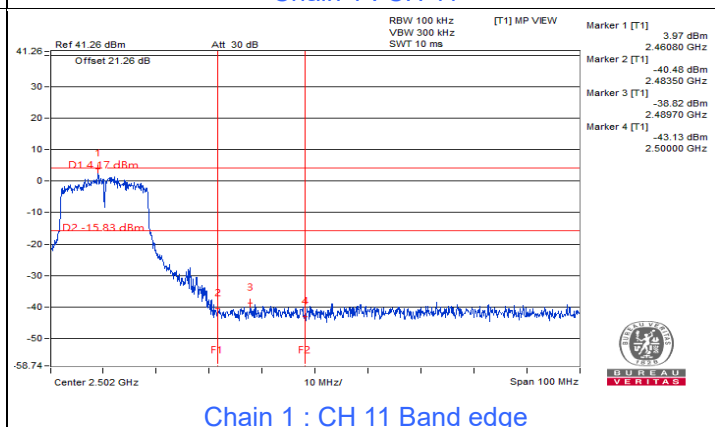
Chain 1 : CH 11



Chain 1 : CH 11



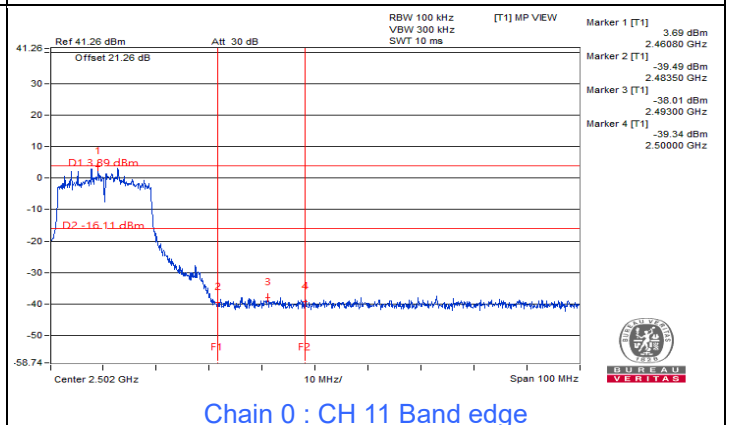
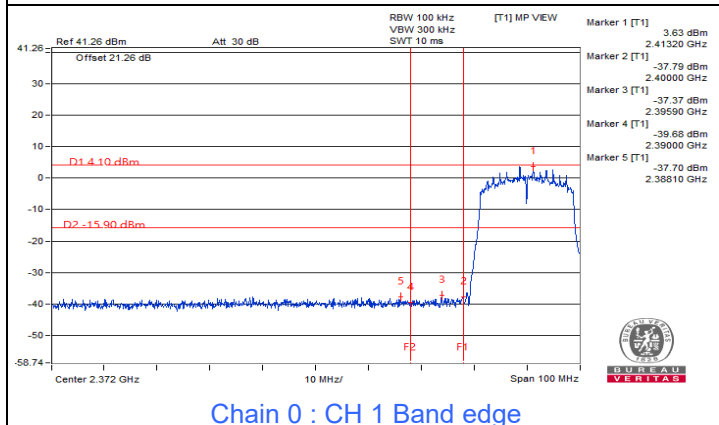
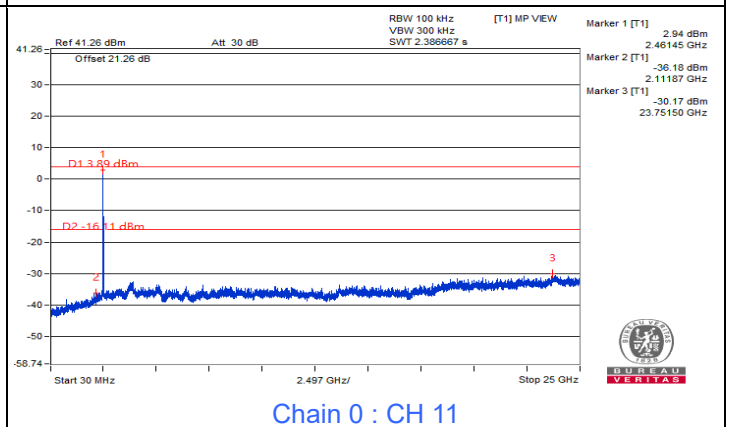
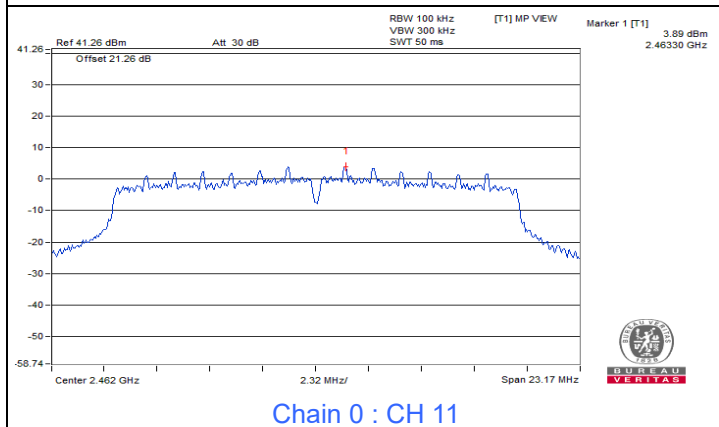
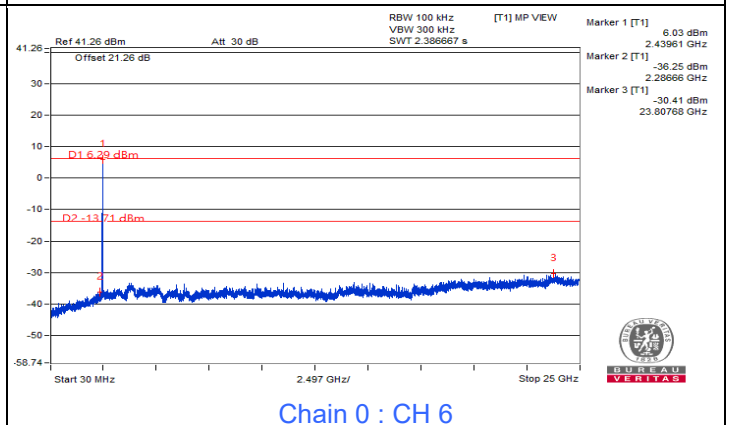
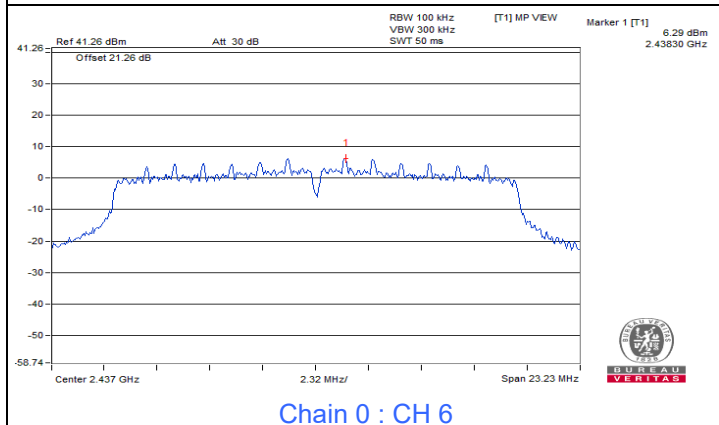
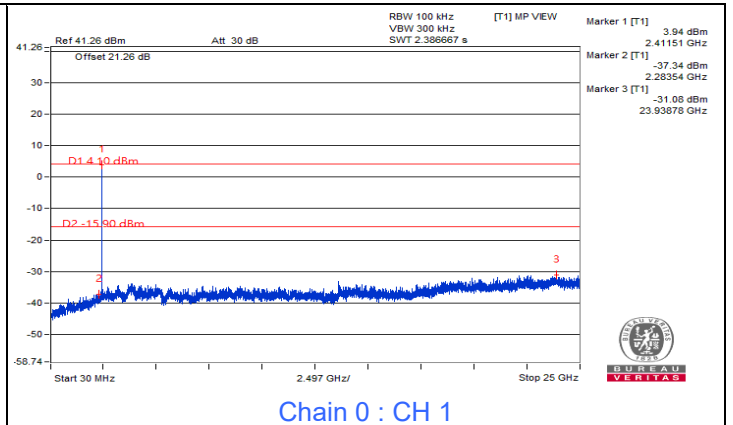
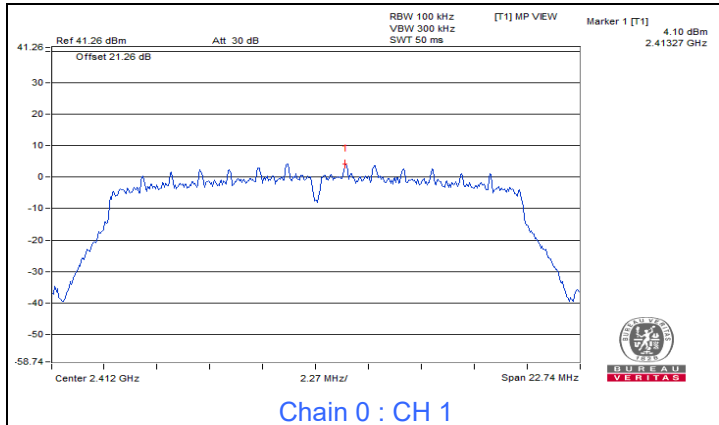
Chain 1 : CH 1 Band edge

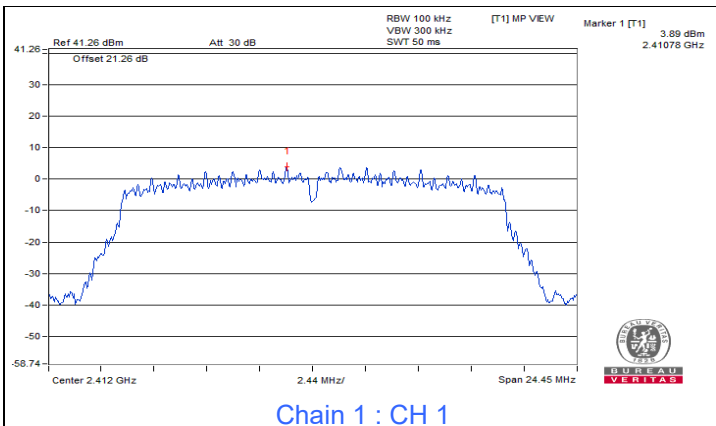


Chain 1 : CH 11 Band edge

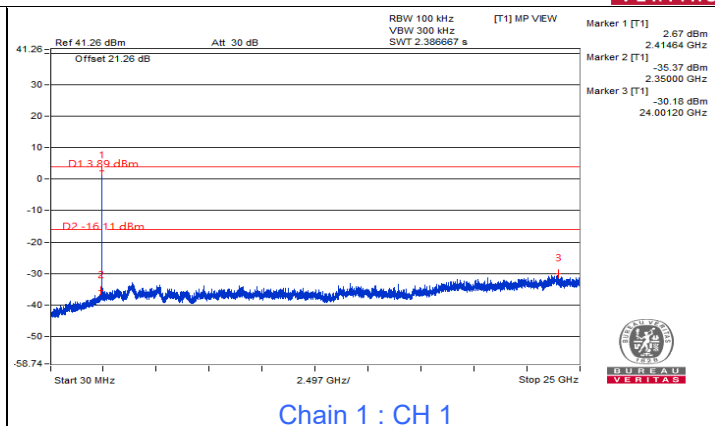


VHT20

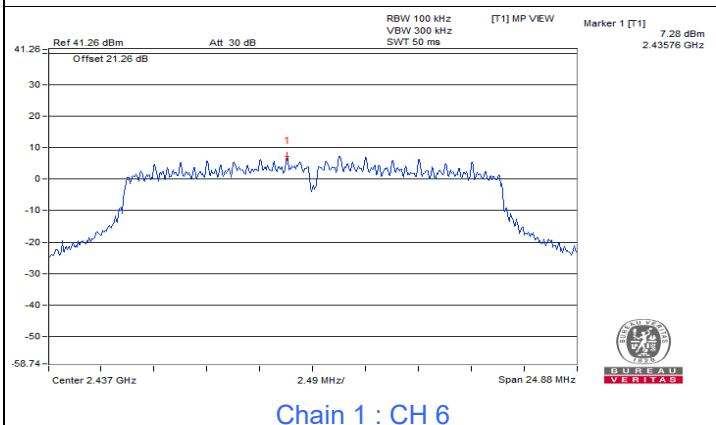




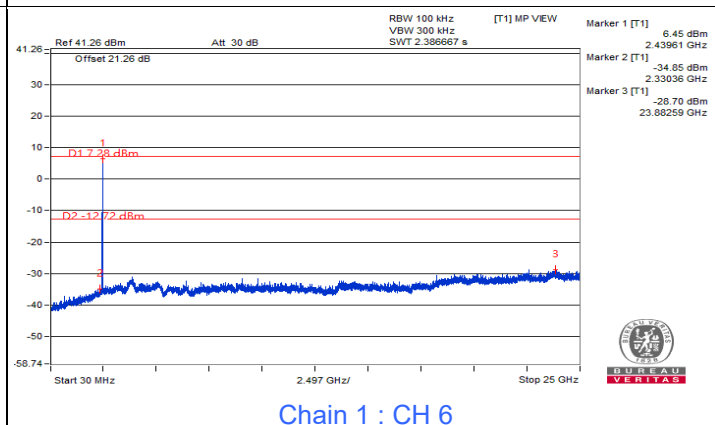
Chain 1 : CH 1



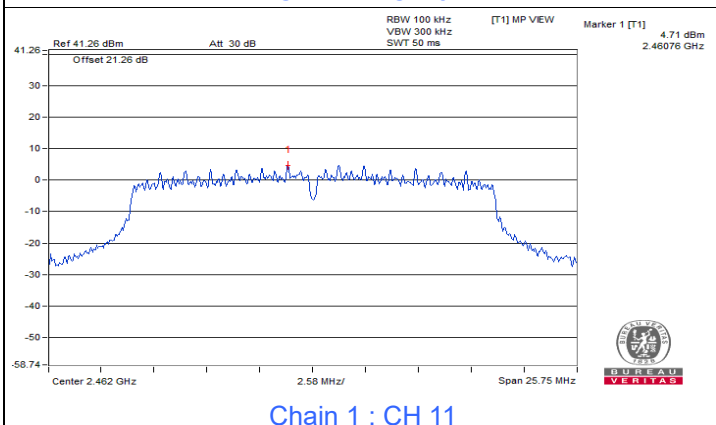
Chain 1 : CH 1



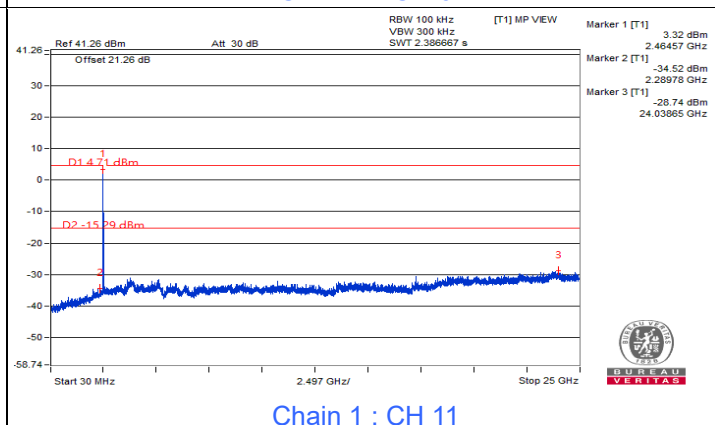
Chain 1 : CH 6



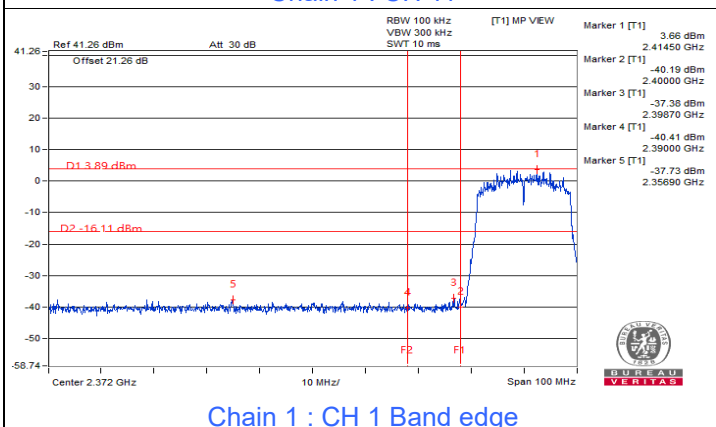
Chain 1 : CH 6



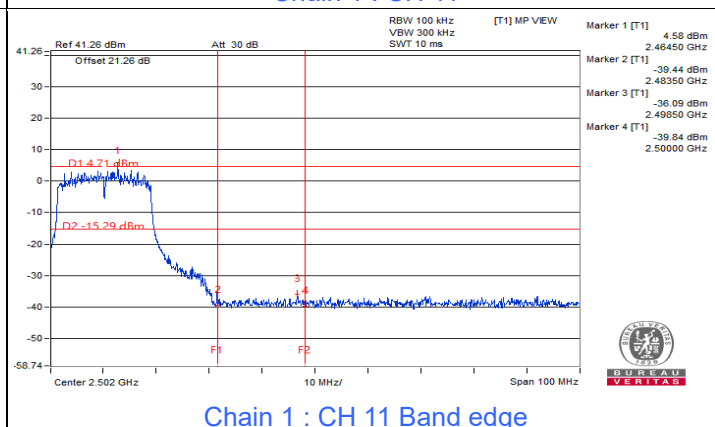
Chain 1 : CH 11



Chain 1 : CH 11



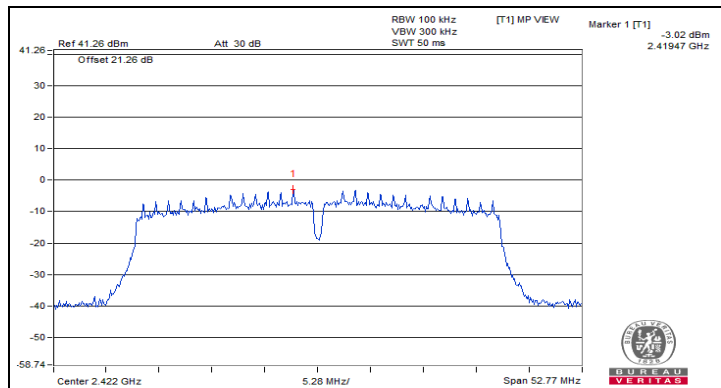
Chain 1 : CH 1 Band edge



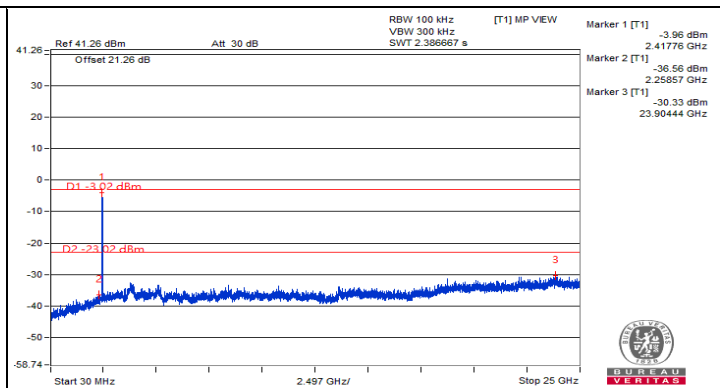
Chain 1 : CH 11 Band edge



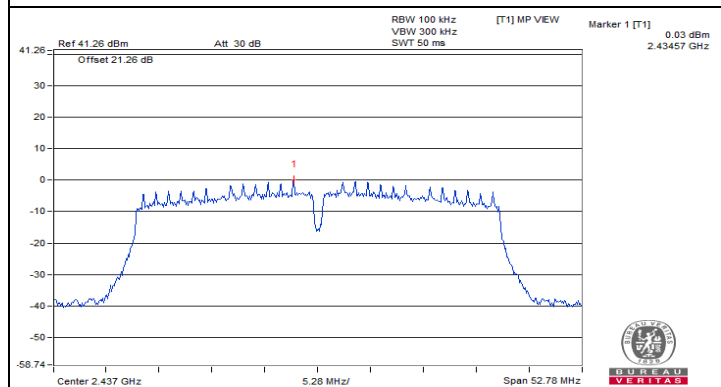
VHT40



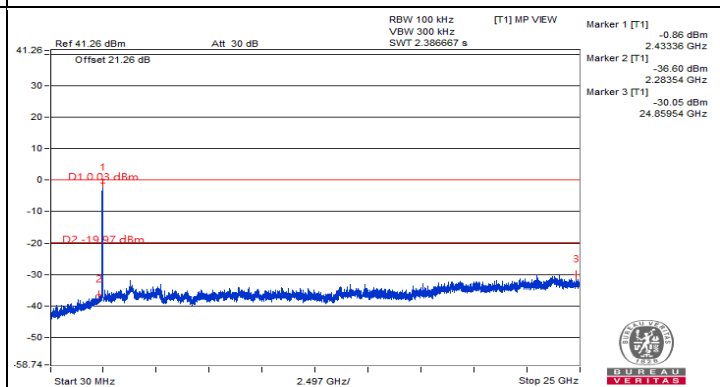
Chain 0 : CH 3



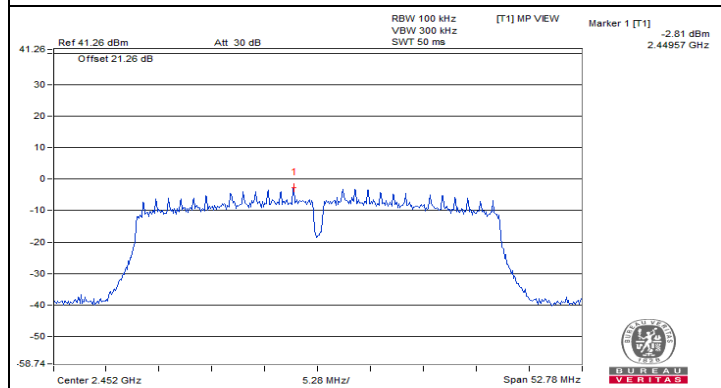
Chain 0 : CH 3



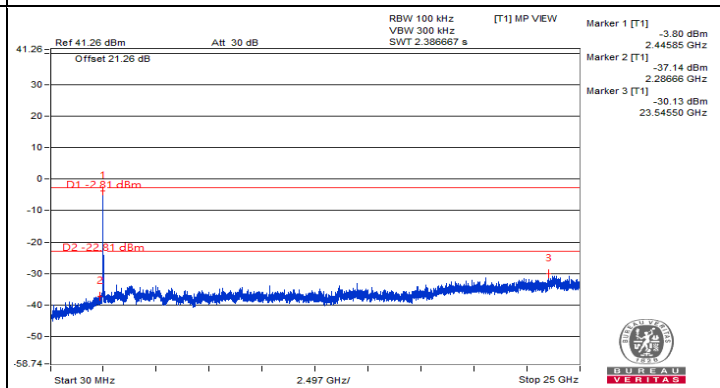
Chain 0 : CH 6



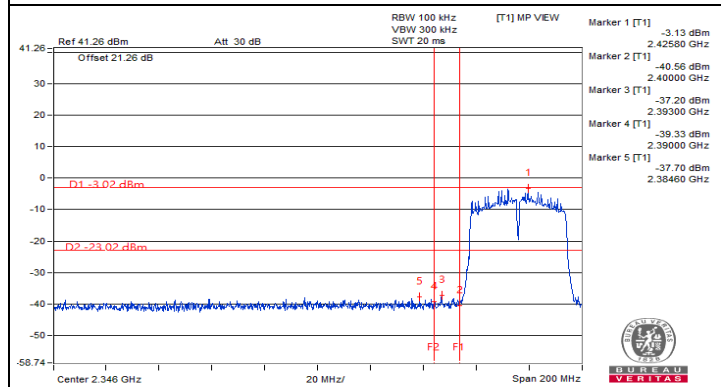
Chain 0 : CH 6



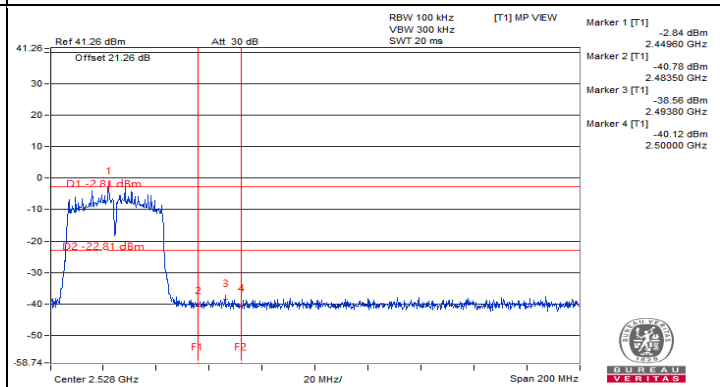
Chain 0 : CH 9



Chain 0 : CH 9



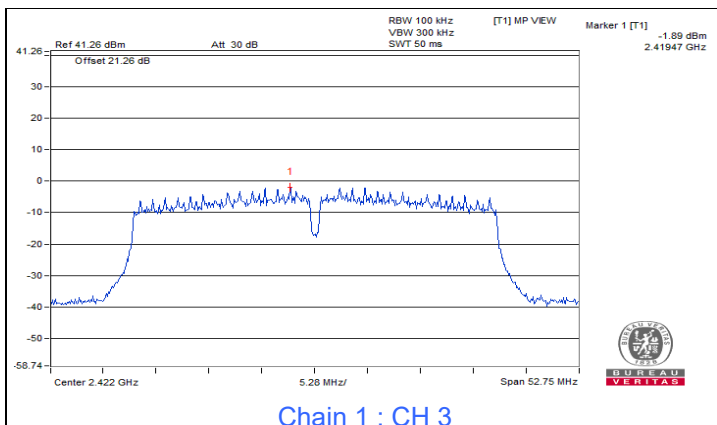
Chain 0 : CH 3 Band edge



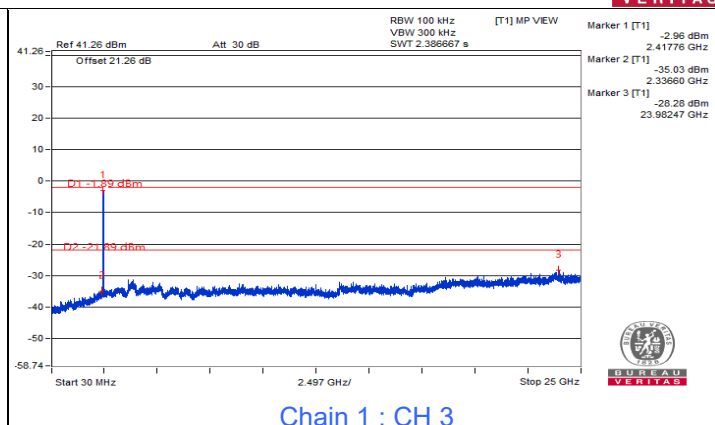
Chain 0 : CH 9 Band edge



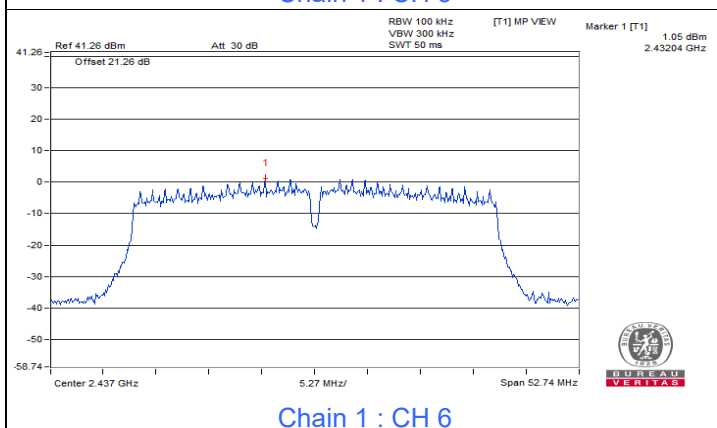
BUREAU VERITAS



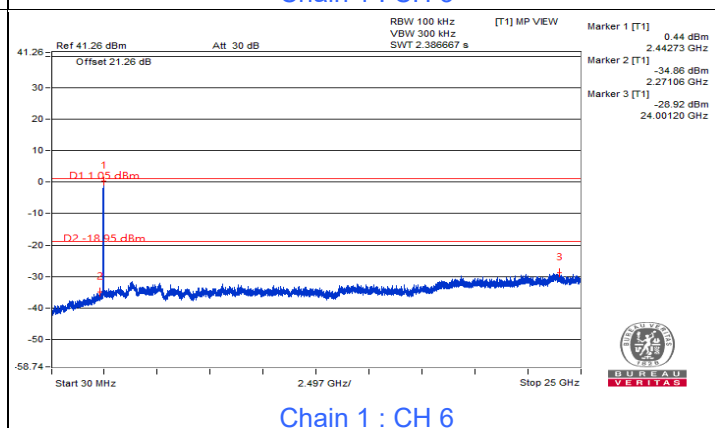
Chain 1 : CH 3



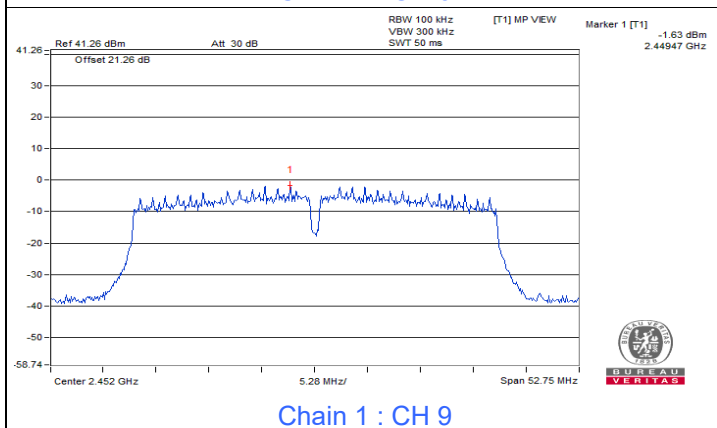
Chain 1 : CH 3



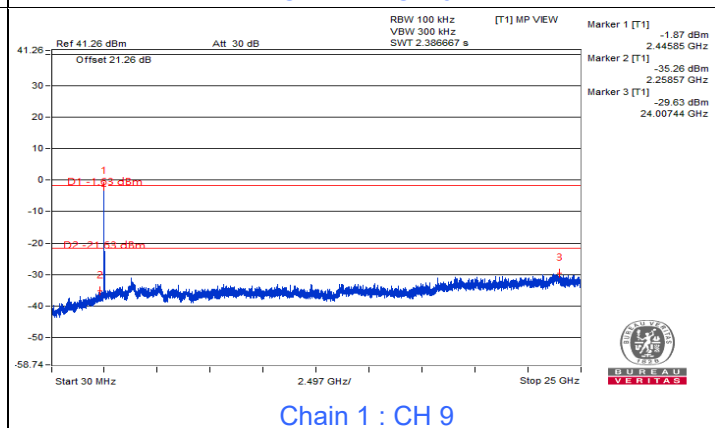
Chain 1 : CH 6



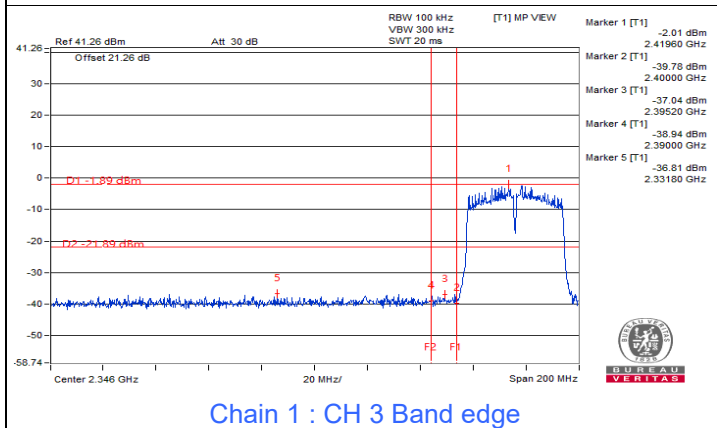
Chain 1 : CH 6



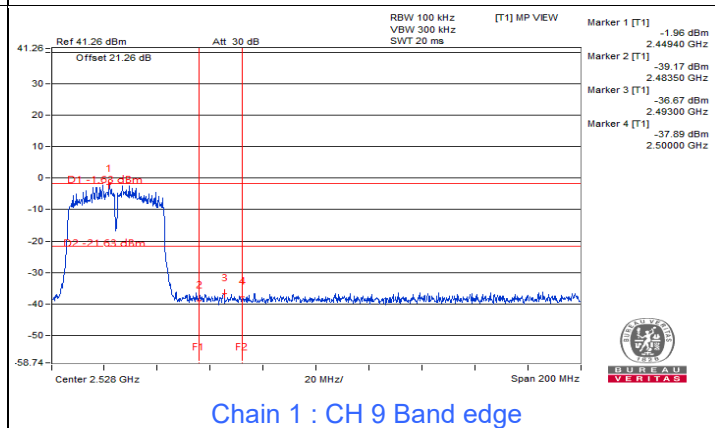
Chain 1 : CH 9



Chain 1 : CH 9



Chain 1 : CH 3 Band edge



Chain 1 : CH 9 Band edge

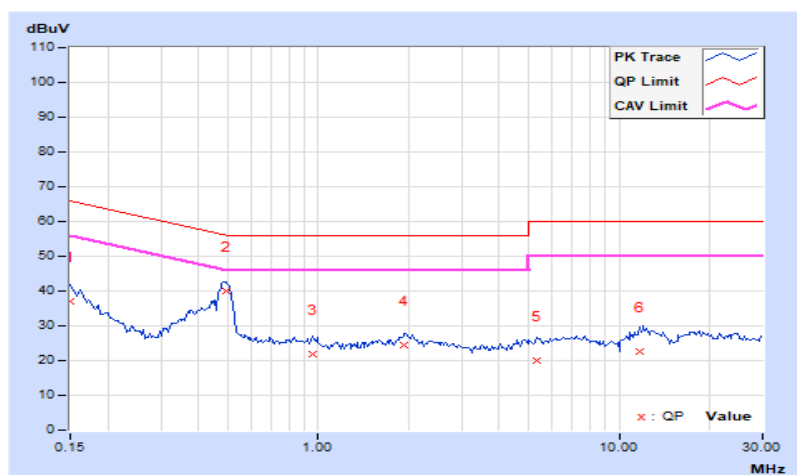
7.5 AC Power Conducted Emissions

RF Mode	802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 66% RH
Tested By	Willy Lin		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.93	27.22	18.69	37.15	28.62	66.00	56.00	-28.85	-27.38
2	0.49766	9.96	29.99	23.44	39.95	33.40	56.04	46.04	-16.09	-12.64
3	0.95469	9.99	11.79	3.07	21.78	13.06	56.00	46.00	-34.22	-32.94
4	1.93750	10.05	14.55	7.16	24.60	17.21	56.00	46.00	-31.40	-28.79
5	5.35938	10.29	9.84	4.01	20.13	14.30	60.00	50.00	-39.87	-35.70
6	11.64453	10.77	11.96	7.27	22.73	18.04	60.00	50.00	-37.27	-31.96

Remarks:

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

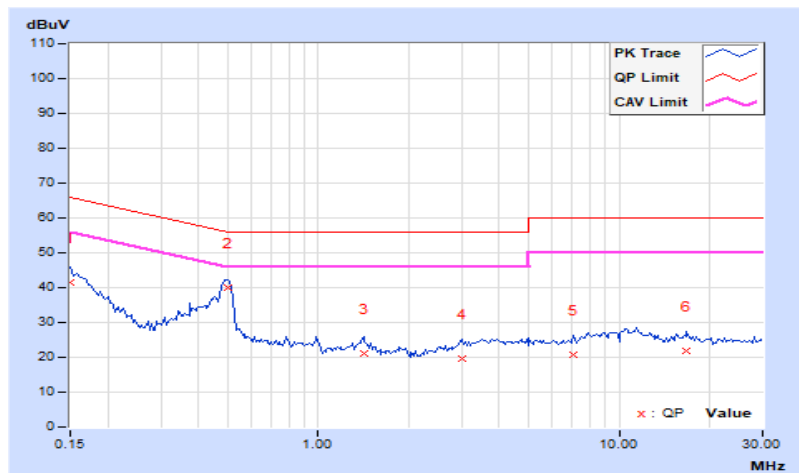


RF Mode	802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 66% RH
Tested By	Willy Lin		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.00	31.49	21.34	41.49	31.34	66.00	56.00	-24.51	-24.66
2	0.50156	10.02	29.87	22.81	39.89	32.83	56.00	46.00	-16.11	-13.17
3	1.42188	10.06	10.92	0.76	20.98	10.82	56.00	46.00	-35.02	-35.18
4	3.01563	10.15	9.42	1.81	19.57	11.96	56.00	46.00	-36.43	-34.04
5	7.00781	10.41	10.28	2.61	20.69	13.02	60.00	50.00	-39.31	-36.98
6	16.82031	10.94	10.99	2.82	21.93	13.76	60.00	50.00	-38.07	-36.24

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



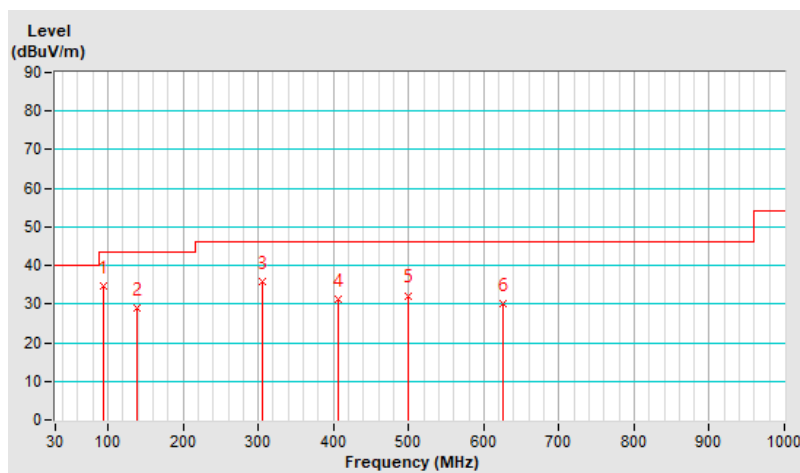
7.6 Unwanted Emissions below 1 GHz

RF Mode	802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 75% RH
Tested By	Weiwei Lo		

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	94.04	34.6 QP	43.5	-8.9	2.00 H	133	53.0	-18.4
2	138.02	29.1 QP	43.5	-14.4	1.50 H	257	42.5	-13.4
3	305.90	35.9 QP	46.0	-10.1	1.50 H	159	48.0	-12.1
4	405.42	31.3 QP	46.0	-14.7	2.00 H	110	41.0	-9.7
5	499.77	32.2 QP	46.0	-13.8	2.00 H	313	39.8	-7.6
6	624.85	30.0 QP	46.0	-16.0	3.00 H	27	34.7	-4.7

Remarks:

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

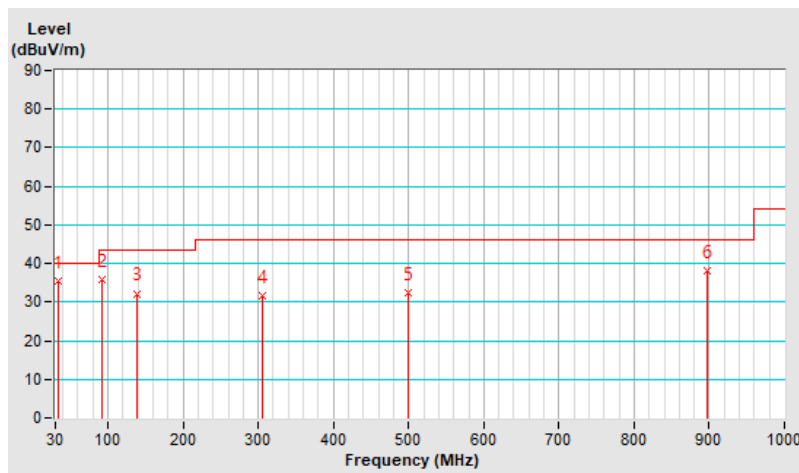


RF Mode	802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 75% RH
Tested By	Weiwei Lo		

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	34.75	35.5 QP	40.0	-4.5	1.50 V	222	49.2	-13.7
2	91.17	35.8 QP	43.5	-7.7	2.00 V	350	54.5	-18.7
3	139.11	32.2 QP	43.5	-11.3	1.00 V	205	45.6	-13.4
4	304.57	31.5 QP	46.0	-14.5	1.50 V	70	43.6	-12.1
5	499.84	32.4 QP	46.0	-13.6	1.50 V	179	40.0	-7.6
6	896.53	38.1 QP	46.0	-7.9	1.00 V	322	38.8	-0.7

Remarks:

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



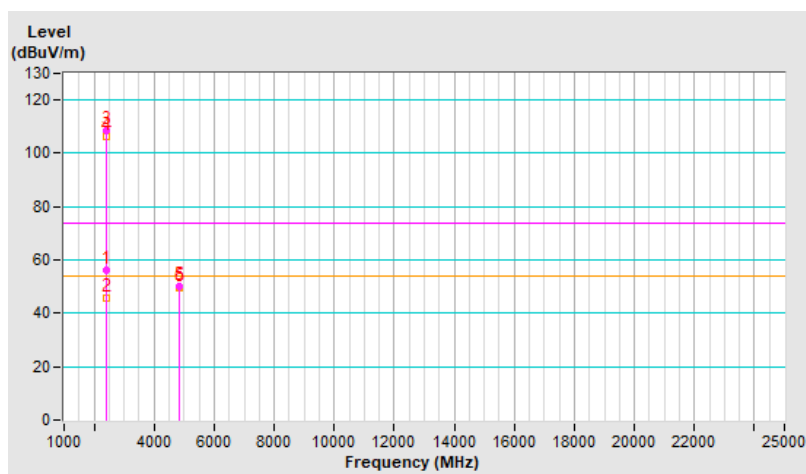
7.7 Unwanted Emissions above 1 GHz

RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	2385.00	56.3 PK	74.0	-17.7	1.34 H	177	58.2	-1.9
2	2385.00	45.8 AV	54.0	-8.2	1.34 H	177	47.7	-1.9
3	*2412.00	108.5 PK			1.34 H	177	110.5	-2.0
4	*2412.00	106.2 AV			1.34 H	177	108.2	-2.0
5	4824.00	50.3 PK	74.0	-23.7	2.32 H	154	47.8	2.5
6	4824.00	49.5 AV	54.0	-4.5	2.32 H	154	47.0	2.5

Remarks:

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

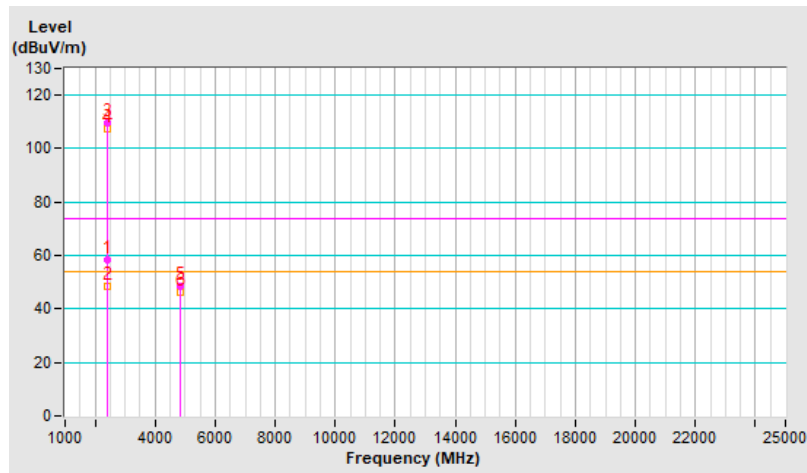


RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	2387.00	58.6 PK	74.0	-15.4	1.51 V	269	60.5	-1.9
2	2387.00	48.5 AV	54.0	-5.5	1.51 V	269	50.4	-1.9
3	*2412.00	109.6 PK			1.51 V	269	111.6	-2.0
4	*2412.00	107.3 AV			1.51 V	269	109.3	-2.0
5	4824.00	48.2 PK	74.0	-25.8	2.95 V	192	45.7	2.5
6	4824.00	46.3 AV	54.0	-7.7	2.95 V	192	43.8	2.5

Remarks:

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

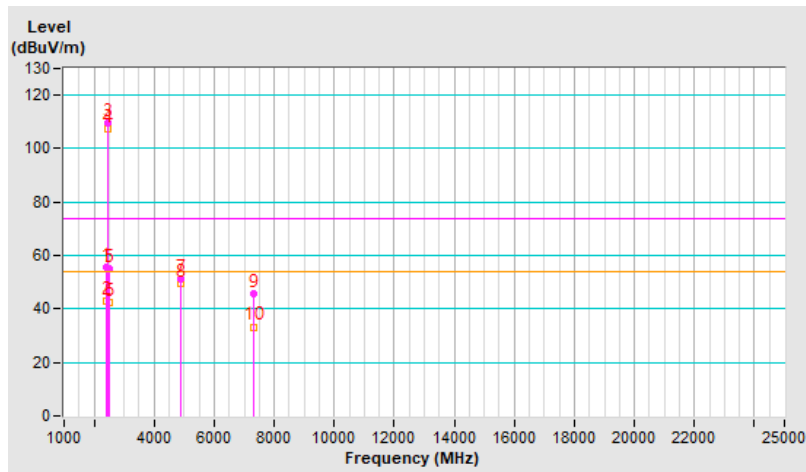


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	55.6 PK	74.0	-18.4	1.18 H	161	57.5	-1.9
2	2390.00	42.9 AV	54.0	-11.1	1.18 H	161	44.8	-1.9
3	*2437.00	109.5 PK			1.18 H	161	111.4	-1.9
4	*2437.00	107.5 AV			1.18 H	161	109.4	-1.9
5	2483.50	55.2 PK	74.0	-18.8	1.18 H	161	57.1	-1.9
6	2483.50	42.6 AV	54.0	-11.4	1.18 H	161	44.5	-1.9
7	4874.00	51.2 PK	74.0	-22.8	2.32 H	166	48.7	2.5
8	4874.00	49.8 AV	54.0	-4.2	2.32 H	166	47.3	2.5
9	7311.00	45.8 PK	74.0	-28.2	2.14 H	222	37.1	8.7
10	7311.00	33.3 AV	54.0	-20.7	2.14 H	222	24.6	8.7

Remarks:

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

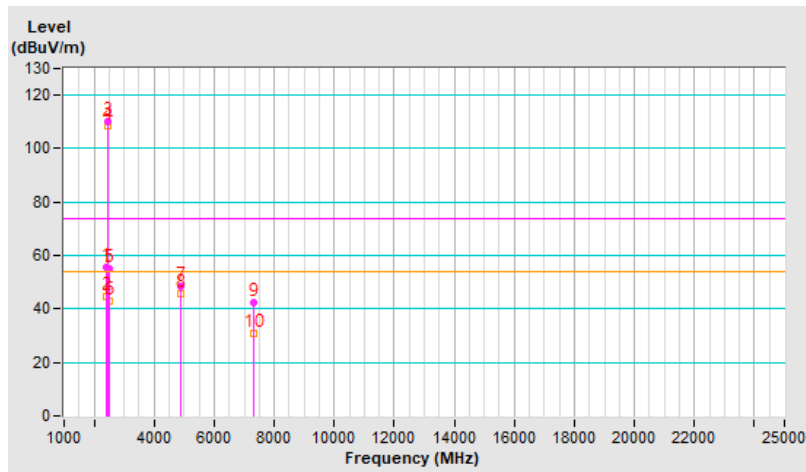


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	55.8 PK	74.0	-18.2	1.03 V	136	57.7	-1.9
2	2390.00	44.5 AV	54.0	-9.5	1.03 V	136	46.4	-1.9
3	*2437.00	110.2 PK			1.03 V	136	112.1	-1.9
4	*2437.00	108.5 AV			1.03 V	136	110.4	-1.9
5	2483.50	55.3 PK	74.0	-18.7	1.03 V	136	57.2	-1.9
6	2483.50	42.7 AV	54.0	-11.3	1.03 V	136	44.6	-1.9
7	4874.00	48.2 PK	74.0	-25.8	2.94 V	194	45.7	2.5
8	4874.00	45.8 AV	54.0	-8.2	2.94 V	194	43.3	2.5
9	7311.00	42.4 PK	74.0	-31.6	1.51 V	85	33.7	8.7
10	7311.00	30.9 AV	54.0	-23.1	1.51 V	85	22.2	8.7

Remarks:

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

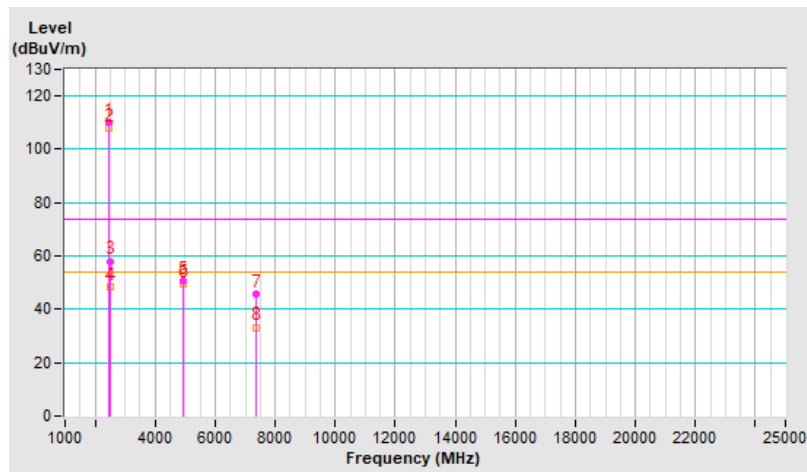


RF Mode	802.11b	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	110.1 PK			1.15 H	174	112.0	-1.9
2	*2462.00	107.8 AV			1.15 H	174	109.7	-1.9
3	2488.70	58.1 PK	74.0	-15.9	1.15 H	174	60.0	-1.9
4	2488.70	48.6 AV	54.0	-5.4	1.15 H	174	50.5	-1.9
5	4924.00	50.8 PK	74.0	-23.2	2.31 H	150	48.2	2.6
6	4924.00	49.7 AV	54.0	-4.3	2.31 H	150	47.1	2.6
7	7386.00	45.6 PK	74.0	-28.4	2.14 H	214	36.3	9.3
8	7386.00	33.3 AV	54.0	-20.7	2.14 H	214	24.0	9.3

Remarks:

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

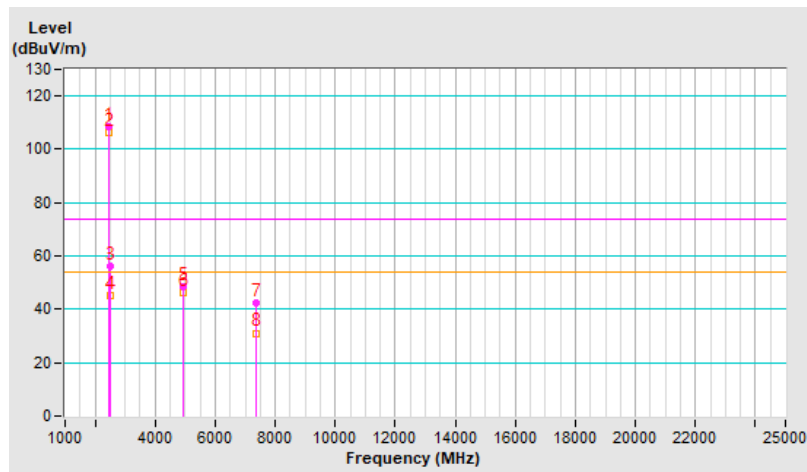


RF Mode	802.11b	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	108.7 PK			1.29 V	269	110.6	-1.9
2	*2462.00	106.3 AV			1.29 V	269	108.2	-1.9
3	2483.50	56.2 PK	74.0	-17.8	1.29 V	269	58.1	-1.9
4	2483.50	44.9 AV	54.0	-9.1	1.29 V	269	46.8	-1.9
5	4924.00	48.3 PK	74.0	-25.7	2.91 V	190	45.7	2.6
6	4924.00	46.2 AV	54.0	-7.8	2.91 V	190	43.6	2.6
7	7386.00	42.6 PK	74.0	-31.4	1.47 V	97	33.3	9.3
8	7386.00	31.1 AV	54.0	-22.9	1.47 V	97	21.8	9.3

Remarks:

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

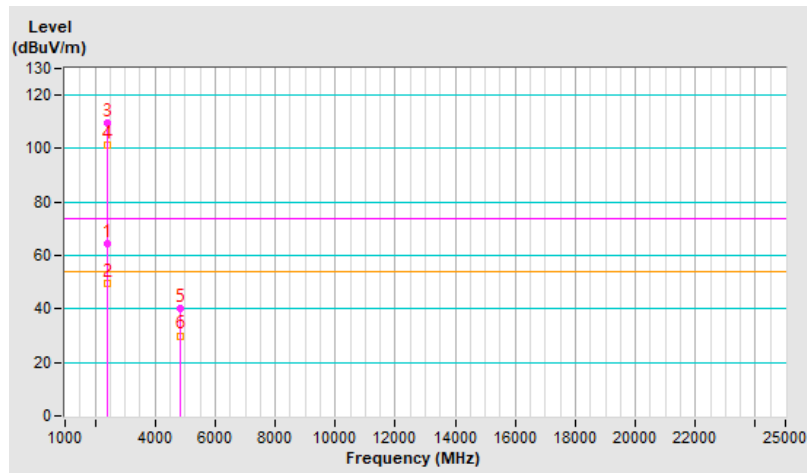


RF Mode	802.11g	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	64.5 PK	74.0	-9.5	1.41 H	181	66.4	-1.9
2	2390.00	49.6 AV	54.0	-4.4	1.41 H	181	51.5	-1.9
3	*2412.00	109.8 PK			1.41 H	181	111.8	-2.0
4	*2412.00	101.2 AV			1.41 H	181	103.2	-2.0
5	4824.00	40.0 PK	74.0	-34.0	1.04 H	12	37.5	2.5
6	4824.00	30.0 AV	54.0	-24.0	1.04 H	12	27.5	2.5

Remarks:

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

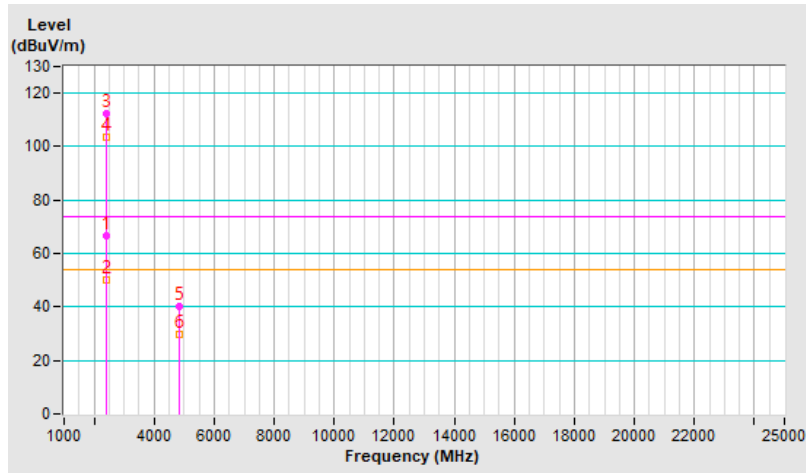


RF Mode	802.11g	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	66.7 PK	74.0	-7.3	1.00 V	137	68.6	-1.9
2	2390.00	49.9 AV	54.0	-4.1	1.00 V	137	51.8	-1.9
3	*2412.00	112.1 PK			1.00 V	137	114.1	-2.0
4	*2412.00	103.5 AV			1.00 V	137	105.5	-2.0
5	4824.00	40.3 PK	74.0	-33.7	2.47 V	160	37.8	2.5
6	4824.00	29.9 AV	54.0	-24.1	2.47 V	160	27.4	2.5

Remarks:

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

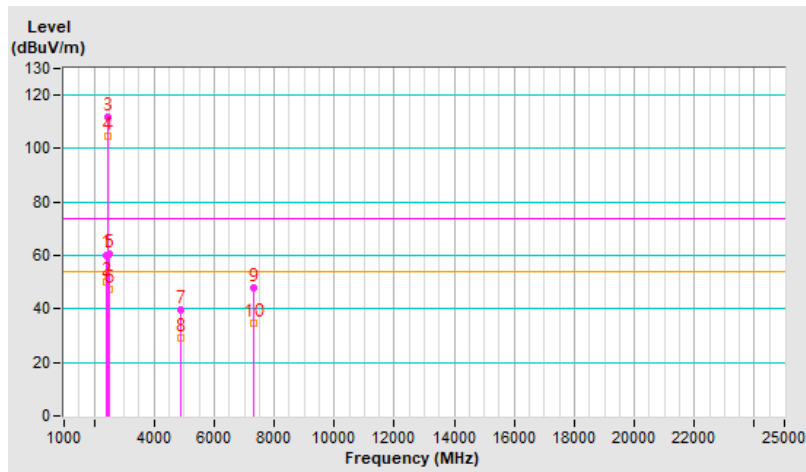


RF Mode	802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	60.3 PK	74.0	-13.7	1.36 H	180	62.2	-1.9
2	2390.00	49.9 AV	54.0	-4.1	1.36 H	180	51.8	-1.9
3	*2437.00	111.6 PK			1.36 H	180	113.5	-1.9
4	*2437.00	104.8 AV			1.36 H	180	106.7	-1.9
5	2483.50	60.6 PK	74.0	-13.4	1.36 H	180	62.5	-1.9
6	2483.50	47.5 AV	54.0	-6.5	1.36 H	180	49.4	-1.9
7	4874.00	39.5 PK	74.0	-34.5	1.02 H	8	37.0	2.5
8	4874.00	29.4 AV	54.0	-24.6	1.02 H	8	26.9	2.5
9	7311.00	47.7 PK	74.0	-26.3	1.93 H	164	39.0	8.7
10	7311.00	34.6 AV	54.0	-19.4	1.93 H	164	25.9	8.7

Remarks:

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

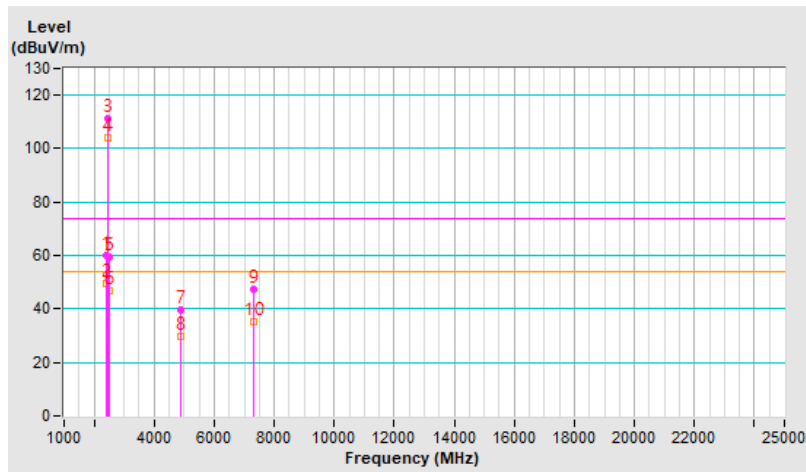


RF Mode	802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.1 PK	74.0	-13.9	1.01 V	137	62.0	-1.9
2	2390.00	49.8 AV	54.0	-4.2	1.01 V	137	51.7	-1.9
3	*2437.00	111.1 PK			1.01 V	137	113.0	-1.9
4	*2437.00	104.2 AV			1.01 V	137	106.1	-1.9
5	2483.50	59.5 PK	74.0	-14.5	1.01 V	137	61.4	-1.9
6	2483.50	46.9 AV	54.0	-7.1	1.01 V	137	48.8	-1.9
7	4874.00	39.8 PK	74.0	-34.2	2.46 V	159	37.3	2.5
8	4874.00	29.5 AV	54.0	-24.5	2.46 V	159	27.0	2.5
9	7311.00	47.6 PK	74.0	-26.4	2.18 V	218	38.9	8.7
10	7311.00	35.1 AV	54.0	-18.9	2.18 V	218	26.4	8.7

Remarks:

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

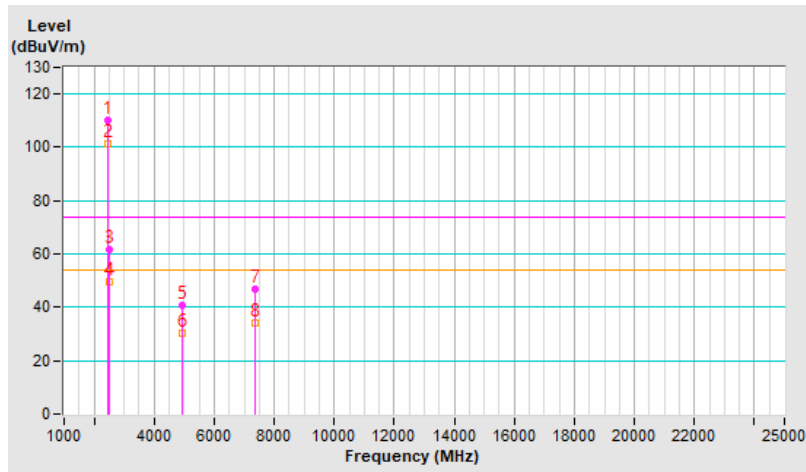


RF Mode	802.11g	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	110.3 PK			1.36 H	180	112.2	-1.9
2	*2462.00	101.5 AV			1.36 H	180	103.4	-1.9
3	2483.50	61.8 PK	74.0	-12.2	1.36 H	180	63.7	-1.9
4	2483.50	49.7 AV	54.0	-4.3	1.36 H	180	51.6	-1.9
5	4924.00	40.6 PK	74.0	-33.4	1.00 H	7	38.0	2.6
6	4924.00	30.3 AV	54.0	-23.7	1.00 H	7	27.7	2.6
7	7386.00	46.9 PK	74.0	-27.1	2.00 H	182	37.6	9.3
8	7386.00	33.9 AV	54.0	-20.1	2.00 H	182	24.6	9.3

Remarks:

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

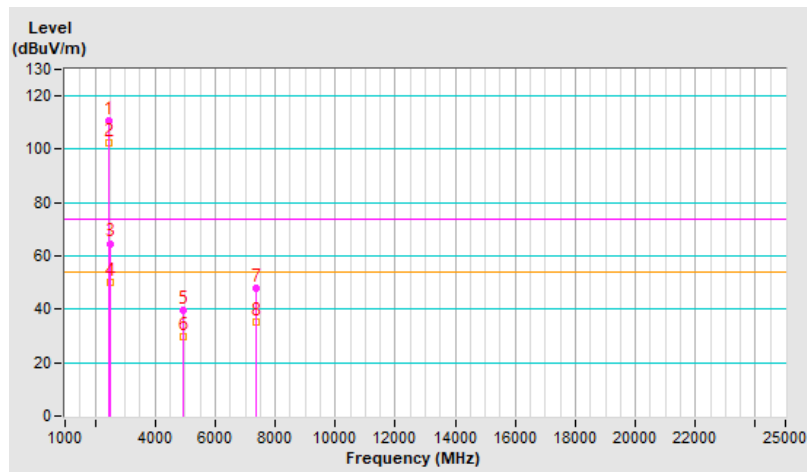


RF Mode	802.11g	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	110.5 PK			1.01 V	136	112.4	-1.9
2	*2462.00	102.3 AV			1.01 V	136	104.2	-1.9
3	2483.50	64.7 PK	74.0	-9.3	1.01 V	136	66.6	-1.9
4	2483.50	49.9 AV	54.0	-4.1	1.01 V	136	51.8	-1.9
5	4924.00	39.8 PK	74.0	-34.2	2.48 V	167	37.2	2.6
6	4924.00	29.6 AV	54.0	-24.4	2.48 V	167	27.0	2.6
7	7386.00	48.0 PK	74.0	-26.0	2.13 V	207	38.7	9.3
8	7386.00	35.2 AV	54.0	-18.8	2.13 V	207	25.9	9.3

Remarks:

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

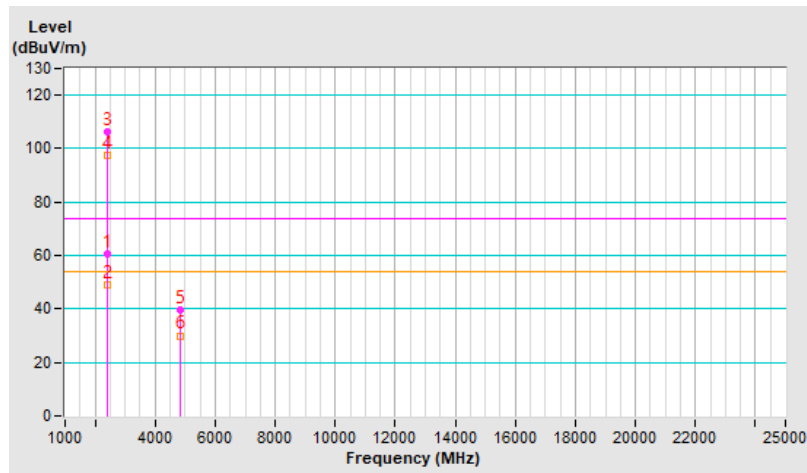


RF Mode	VHT20	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	60.8 PK	74.0	-13.2	1.14 H	181	62.7	-1.9
2	2390.00	48.8 AV	54.0	-5.2	1.14 H	181	50.7	-1.9
3	*2412.00	106.3 PK			1.14 H	181	108.3	-2.0
4	*2412.00	97.4 AV			1.14 H	181	99.4	-2.0
5	4824.00	39.8 PK	74.0	-34.2	1.00 H	20	37.3	2.5
6	4824.00	30.0 AV	54.0	-24.0	1.00 H	20	27.5	2.5

Remarks:

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

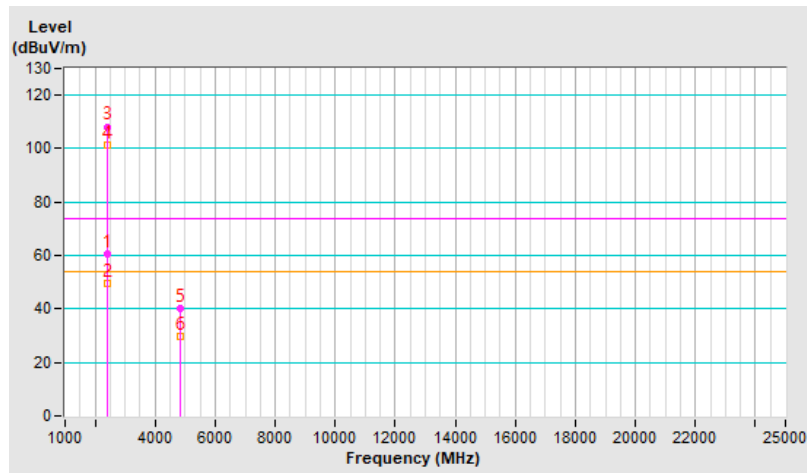


RF Mode	VHT20	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.6 PK	74.0	-13.4	1.46 V	135	62.5	-1.9
2	2390.00	49.7 AV	54.0	-4.3	1.46 V	135	51.6	-1.9
3	*2412.00	108.2 PK			1.46 V	135	110.2	-2.0
4	*2412.00	101.3 AV			1.46 V	135	103.3	-2.0
5	4824.00	40.2 PK	74.0	-33.8	2.37 V	164	37.7	2.5
6	4824.00	29.7 AV	54.0	-24.3	2.37 V	164	27.2	2.5

Remarks:

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



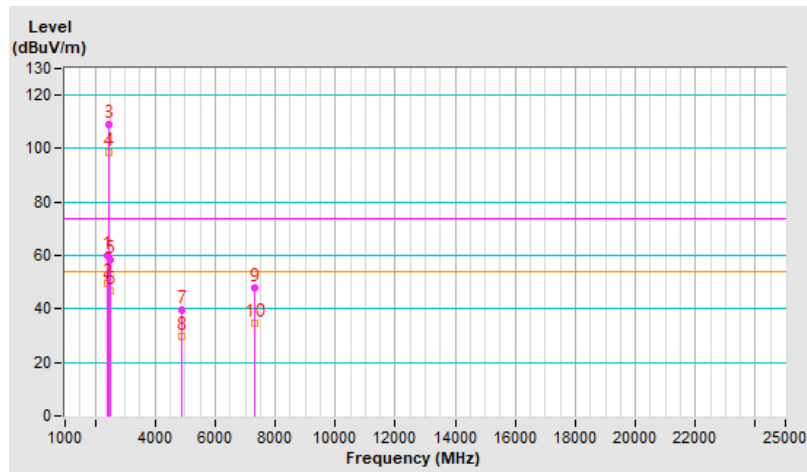
RF Mode	VHT20	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	59.8 PK	74.0	-14.2	1.24 H	161	61.7	-1.9
2	2390.00	49.4 AV	54.0	-4.6	1.24 H	161	51.3	-1.9
3	*2437.00	109.1 PK			1.24 H	161	111.0	-1.9
4	*2437.00	98.5 AV			1.24 H	161	100.4	-1.9
5	2483.50	58.3 PK	74.0	-15.7	1.24 H	161	60.2	-1.9
6	2483.50	46.9 AV	54.0	-7.1	1.24 H	161	48.8	-1.9
7	4874.00	39.8 PK	74.0	-34.2	1.00 H	42	37.3	2.5
8	4874.00	29.5 AV	54.0	-24.5	1.00 H	42	27.0	2.5
9	7311.00	47.7 PK	74.0	-26.3	1.99 H	188	39.0	8.7
10	7311.00	34.7 AV	54.0	-19.3	1.99 H	188	26.0	8.7

Remarks:

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

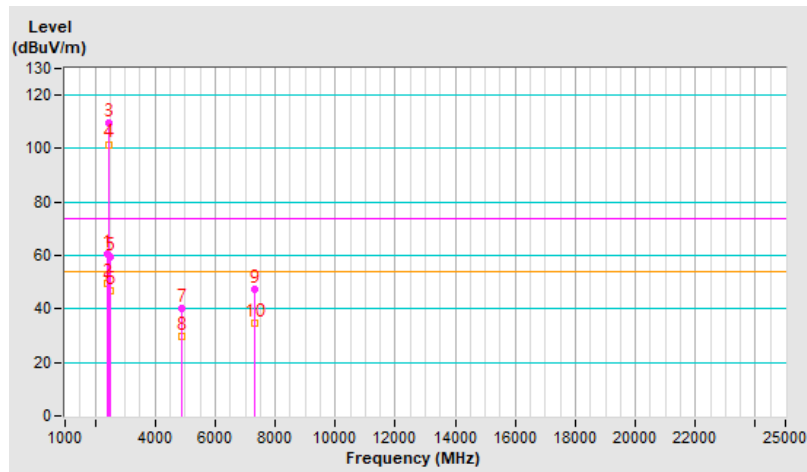


RF Mode	VHT20	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.4 PK	74.0	-13.6	1.43 V	141	62.3	-1.9
2	2390.00	49.8 AV	54.0	-4.2	1.43 V	141	51.7	-1.9
3	*2437.00	109.5 PK			1.43 V	141	111.4	-1.9
4	*2437.00	101.6 AV			1.43 V	141	103.5	-1.9
5	2483.50	59.3 PK	74.0	-14.7	1.43 V	141	61.2	-1.9
6	2483.50	47.0 AV	54.0	-7.0	1.43 V	141	48.9	-1.9
7	4874.00	40.4 PK	74.0	-33.6	2.53 V	172	37.9	2.5
8	4874.00	29.7 AV	54.0	-24.3	2.53 V	172	27.2	2.5
9	7311.00	47.1 PK	74.0	-26.9	2.16 V	219	38.4	8.7
10	7311.00	34.6 AV	54.0	-19.4	2.16 V	219	25.9	8.7

Remarks:

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



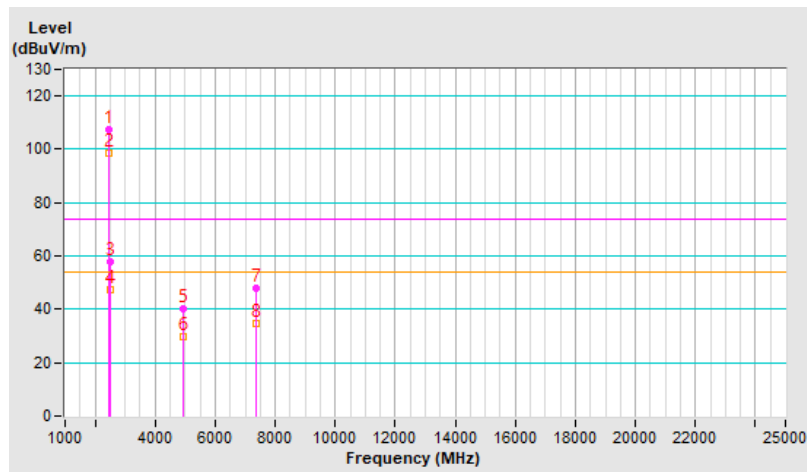
RF Mode	VHT20	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	107.4 PK			1.34 H	176	109.3	-1.9
2	*2462.00	98.8 AV			1.34 H	176	100.7	-1.9
3	2483.50	58.0 PK	74.0	-16.0	1.34 H	176	59.9	-1.9
4	2483.50	47.5 AV	54.0	-6.5	1.34 H	176	49.4	-1.9
5	4924.00	40.0 PK	74.0	-34.0	1.00 H	39	37.4	2.6
6	4924.00	29.5 AV	54.0	-24.5	1.00 H	39	26.9	2.6
7	7386.00	47.9 PK	74.0	-26.1	1.99 H	188	38.6	9.3
8	7386.00	34.9 AV	54.0	-19.1	1.99 H	188	25.6	9.3

Remarks:

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

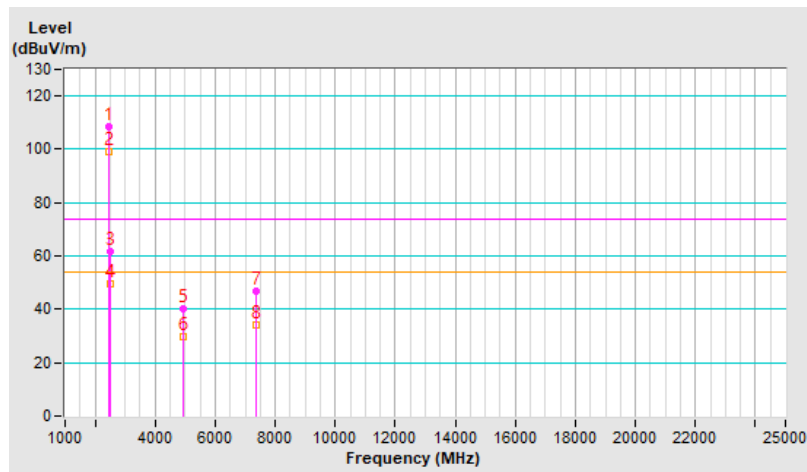


RF Mode	VHT20	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	108.6 PK			1.17 V	137	110.5	-1.9
2	*2462.00	99.1 AV			1.17 V	137	101.0	-1.9
3	2483.50	61.6 PK	74.0	-12.4	1.17 V	137	63.5	-1.9
4	2483.50	49.8 AV	54.0	-4.2	1.17 V	137	51.7	-1.9
5	4924.00	40.4 PK	74.0	-33.6	2.46 V	184	37.8	2.6
6	4924.00	29.6 AV	54.0	-24.4	2.46 V	184	27.0	2.6
7	7386.00	46.6 PK	74.0	-27.4	2.19 V	202	37.3	9.3
8	7386.00	34.2 AV	54.0	-19.8	2.19 V	202	24.9	9.3

Remarks:

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

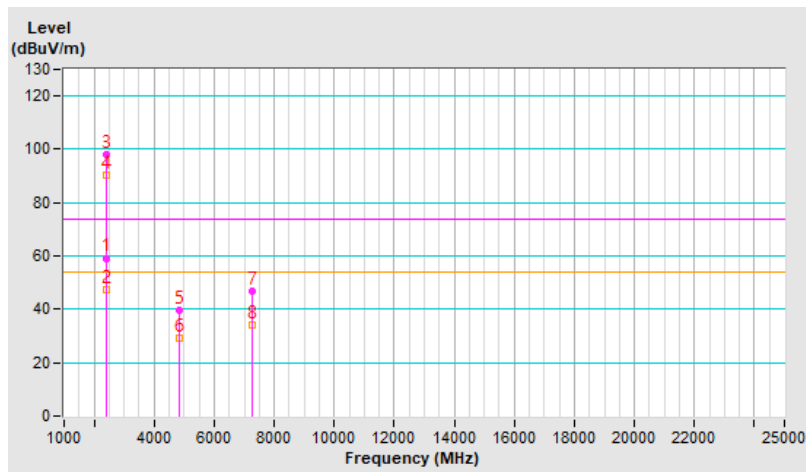


RF Mode	VHT40	Channel	CH 3 : 2422 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=2 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	59.2 PK	74.0	-14.8	1.20 H	175	61.1	-1.9
2	2390.00	47.3 AV	54.0	-6.7	1.20 H	175	49.2	-1.9
3	*2422.00	97.9 PK			1.20 H	175	99.9	-2.0
4	*2422.00	90.5 AV			1.20 H	175	92.5	-2.0
5	4844.00	39.4 PK	74.0	-34.6	1.00 H	28	36.9	2.5
6	4844.00	29.0 AV	54.0	-25.0	1.00 H	28	26.5	2.5
7	7266.00	46.8 PK	74.0	-27.2	1.96 H	177	38.4	8.4
8	7266.00	33.9 AV	54.0	-20.1	1.96 H	177	25.5	8.4

Remarks:

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

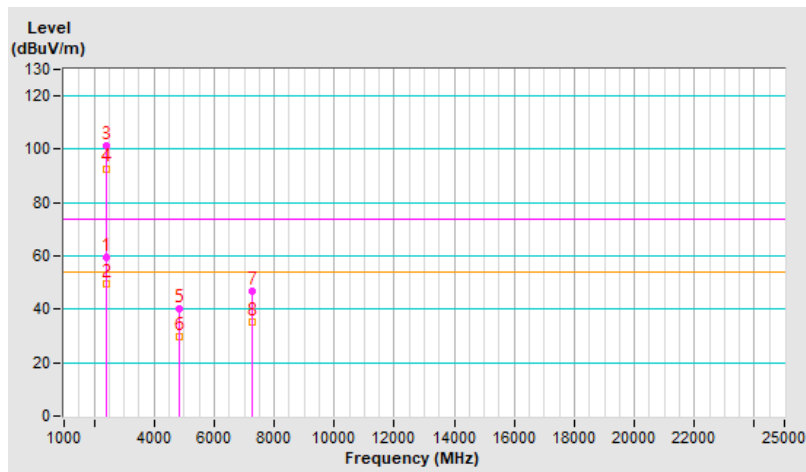


RF Mode	VHT40	Channel	CH 3 : 2422 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=2 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.6 PK	74.0	-14.4	1.17 V	135	61.5	-1.9
2	2390.00	49.7 AV	54.0	-4.3	1.17 V	135	51.6	-1.9
3	*2422.00	101.2 PK			1.17 V	135	103.2	-2.0
4	*2422.00	92.8 AV			1.17 V	135	94.8	-2.0
5	4844.00	40.3 PK	74.0	-33.7	2.41 V	169	37.8	2.5
6	4844.00	29.7 AV	54.0	-24.3	2.41 V	169	27.2	2.5
7	7266.00	47.0 PK	74.0	-27.0	2.18 V	196	38.6	8.4
8	7266.00	35.0 AV	54.0	-19.0	2.18 V	196	26.6	8.4

Remarks:

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

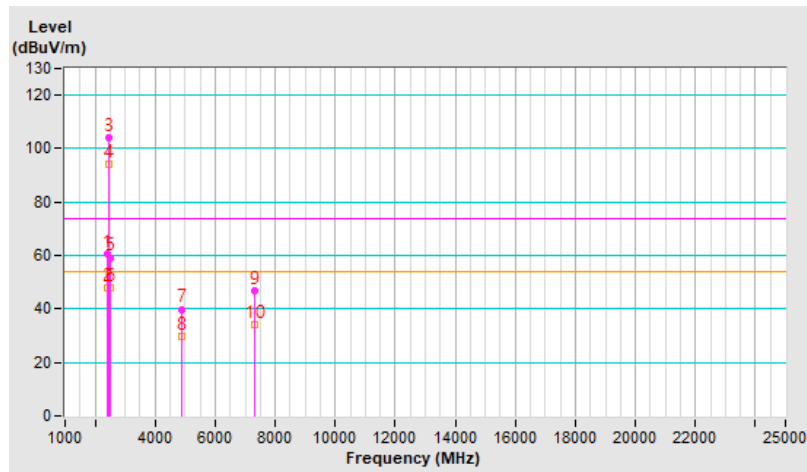


RF Mode	VHT40	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=2 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	60.4 PK	74.0	-13.6	1.40 H	187	62.3	-1.9
2	2390.00	48.1 AV	54.0	-5.9	1.40 H	187	50.0	-1.9
3	*2437.00	104.1 PK			1.40 H	187	106.0	-1.9
4	*2437.00	94.1 AV			1.40 H	187	96.0	-1.9
5	2483.50	59.2 PK	74.0	-14.8	1.40 H	187	61.1	-1.9
6	2483.50	48.0 AV	54.0	-6.0	1.40 H	187	49.9	-1.9
7	4874.00	39.9 PK	74.0	-34.1	1.00 H	17	37.4	2.5
8	4874.00	29.6 AV	54.0	-24.4	1.00 H	17	27.1	2.5
9	7311.00	46.9 PK	74.0	-27.1	1.90 H	171	38.2	8.7
10	7311.00	33.9 AV	54.0	-20.1	1.90 H	171	25.2	8.7

Remarks:

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

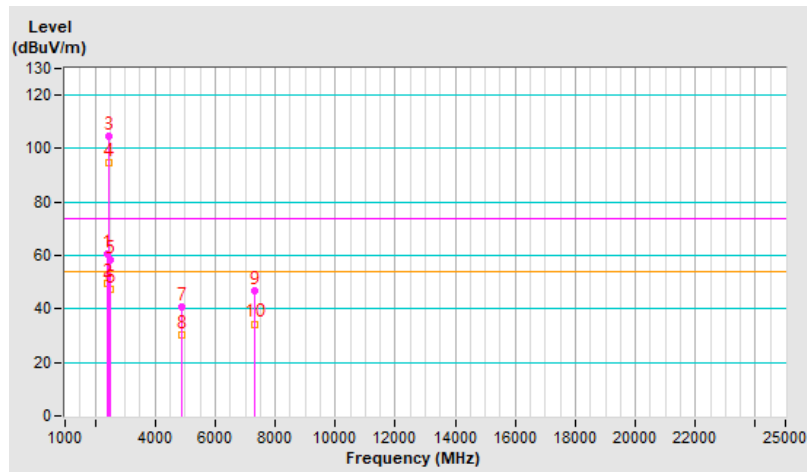


RF Mode	VHT40	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=2 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.7 PK	74.0	-13.3	1.00 V	145	62.6	-1.9
2	2390.00	49.5 AV	54.0	-4.5	1.00 V	145	51.4	-1.9
3	*2437.00	104.6 PK			1.00 V	145	106.5	-1.9
4	*2437.00	94.6 AV			1.00 V	145	96.5	-1.9
5	2483.50	58.5 PK	74.0	-15.5	1.00 V	145	60.4	-1.9
6	2483.50	47.2 AV	54.0	-6.8	1.00 V	145	49.1	-1.9
7	4874.00	40.8 PK	74.0	-33.2	2.39 V	145	38.3	2.5
8	4874.00	30.2 AV	54.0	-23.8	2.39 V	145	27.7	2.5
9	7311.00	46.8 PK	74.0	-27.2	2.09 V	214	38.1	8.7
10	7311.00	34.4 AV	54.0	-19.6	2.09 V	214	25.7	8.7

Remarks:

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

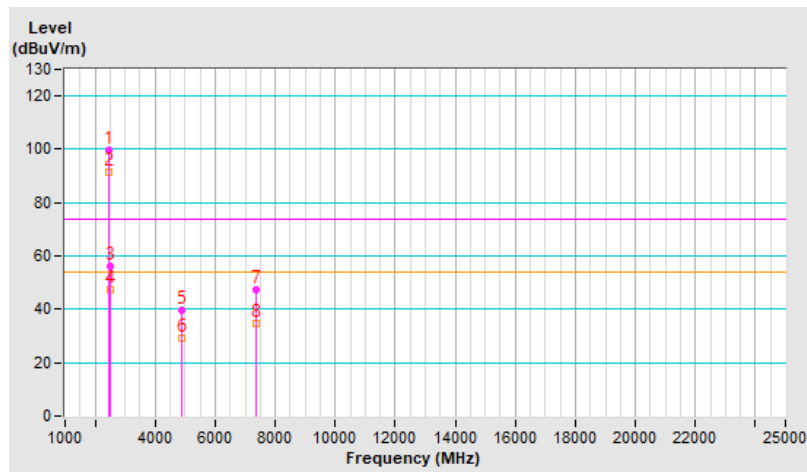


RF Mode	VHT40	Channel	CH 9 : 2452 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=2 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	99.7 PK			1.37 H	172	101.7	-2.0
2	*2452.00	91.2 AV			1.37 H	172	93.2	-2.0
3	2483.50	56.1 PK	74.0	-17.9	1.37 H	172	58.0	-1.9
4	2483.50	47.6 AV	54.0	-6.4	1.37 H	172	49.5	-1.9
5	4904.00	39.5 PK	74.0	-34.5	1.04 H	24	37.0	2.5
6	4904.00	29.4 AV	54.0	-24.6	1.04 H	24	26.9	2.5
7	7356.00	47.4 PK	74.0	-26.6	1.91 H	178	38.2	9.2
8	7356.00	34.5 AV	54.0	-19.5	1.91 H	178	25.3	9.2

Remarks:

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

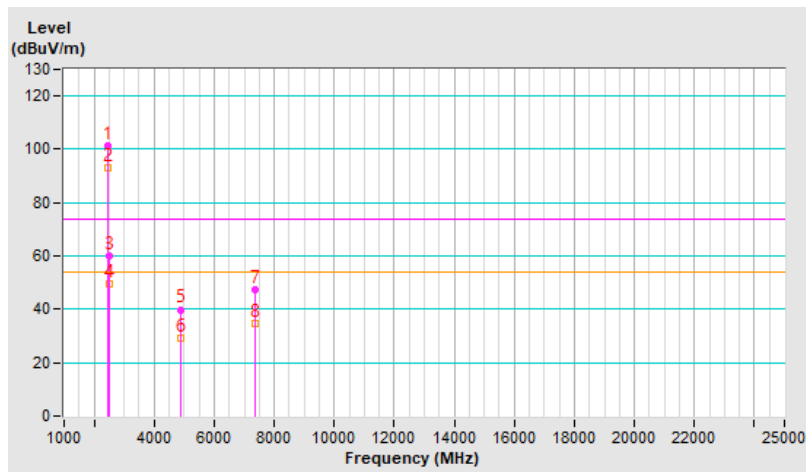


RF Mode	VHT40	Channel	CH 9 : 2452 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=2 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 67% RH
Tested By	Weiwei Lo		

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	101.3 PK			1.17 V	137	103.3	-2.0
2	*2452.00	93.1 AV			1.17 V	137	95.1	-2.0
3	2483.50	59.8 PK	74.0	-14.2	1.17 V	137	61.7	-1.9
4	2483.50	49.6 AV	54.0	-4.4	1.17 V	137	51.5	-1.9
5	4904.00	39.9 PK	74.0	-34.1	2.43 V	162	37.4	2.5
6	4904.00	29.4 AV	54.0	-24.6	2.43 V	162	26.9	2.5
7	7356.00	47.4 PK	74.0	-26.6	2.08 V	203	38.2	9.2
8	7356.00	34.9 AV	54.0	-19.1	2.08 V	203	25.7	9.2

Remarks:

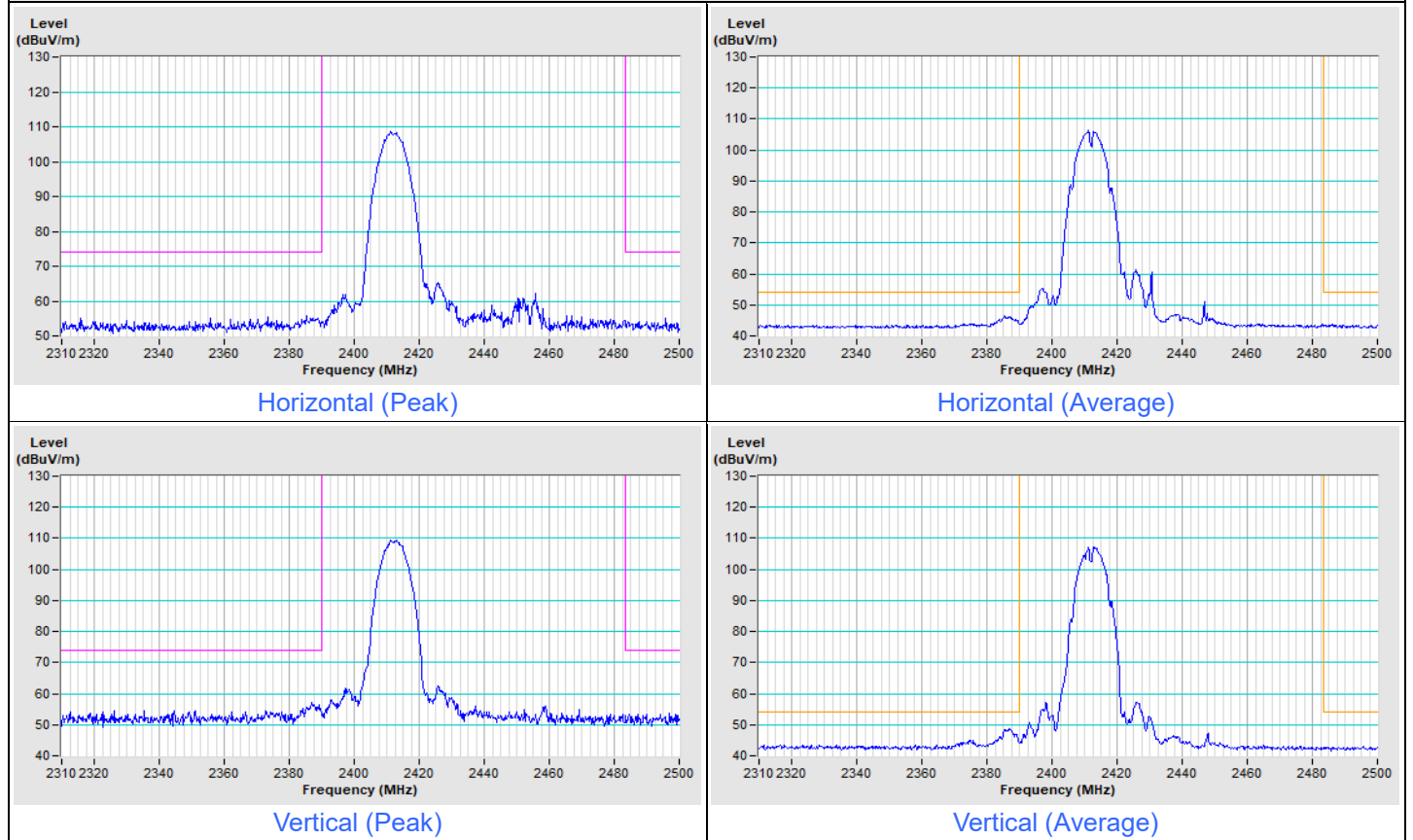
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency,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



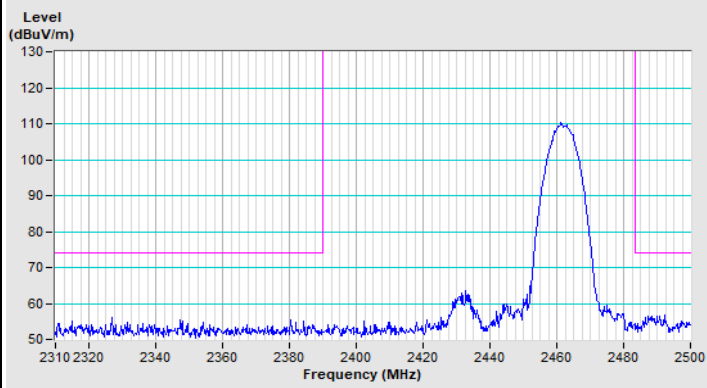
Plot of Band Edge

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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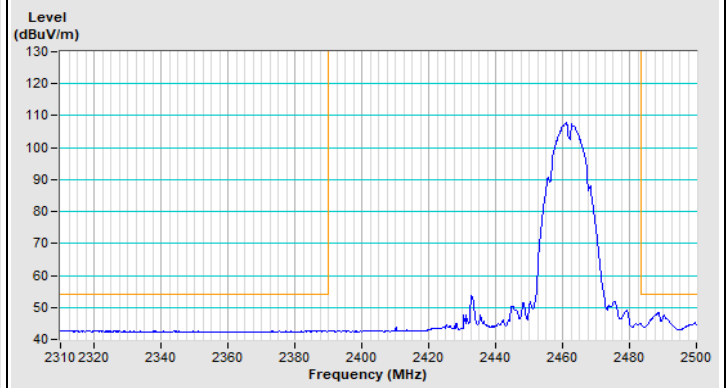
802.11b Channel 1



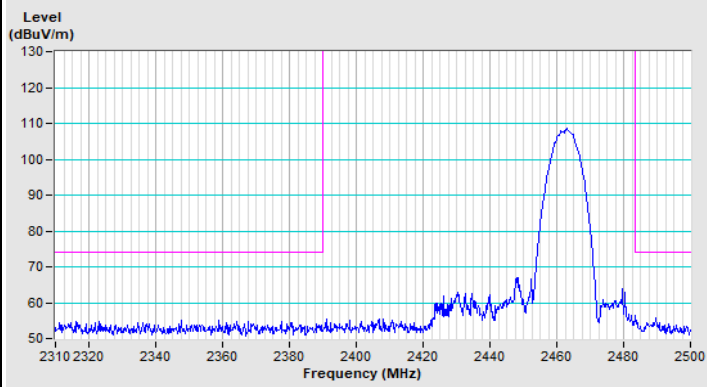
802.11b Channel 11



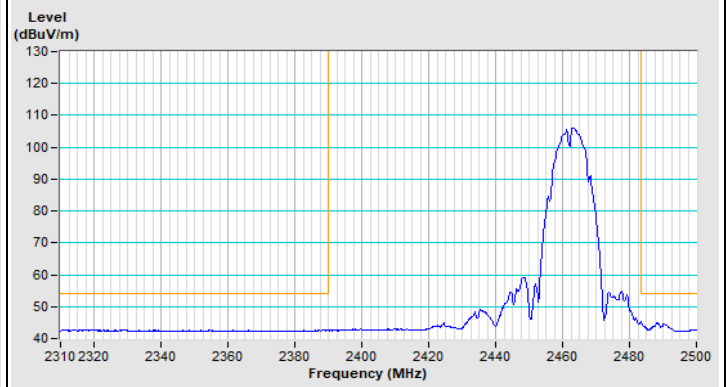
Horizontal (Peak)



Horizontal (Average)



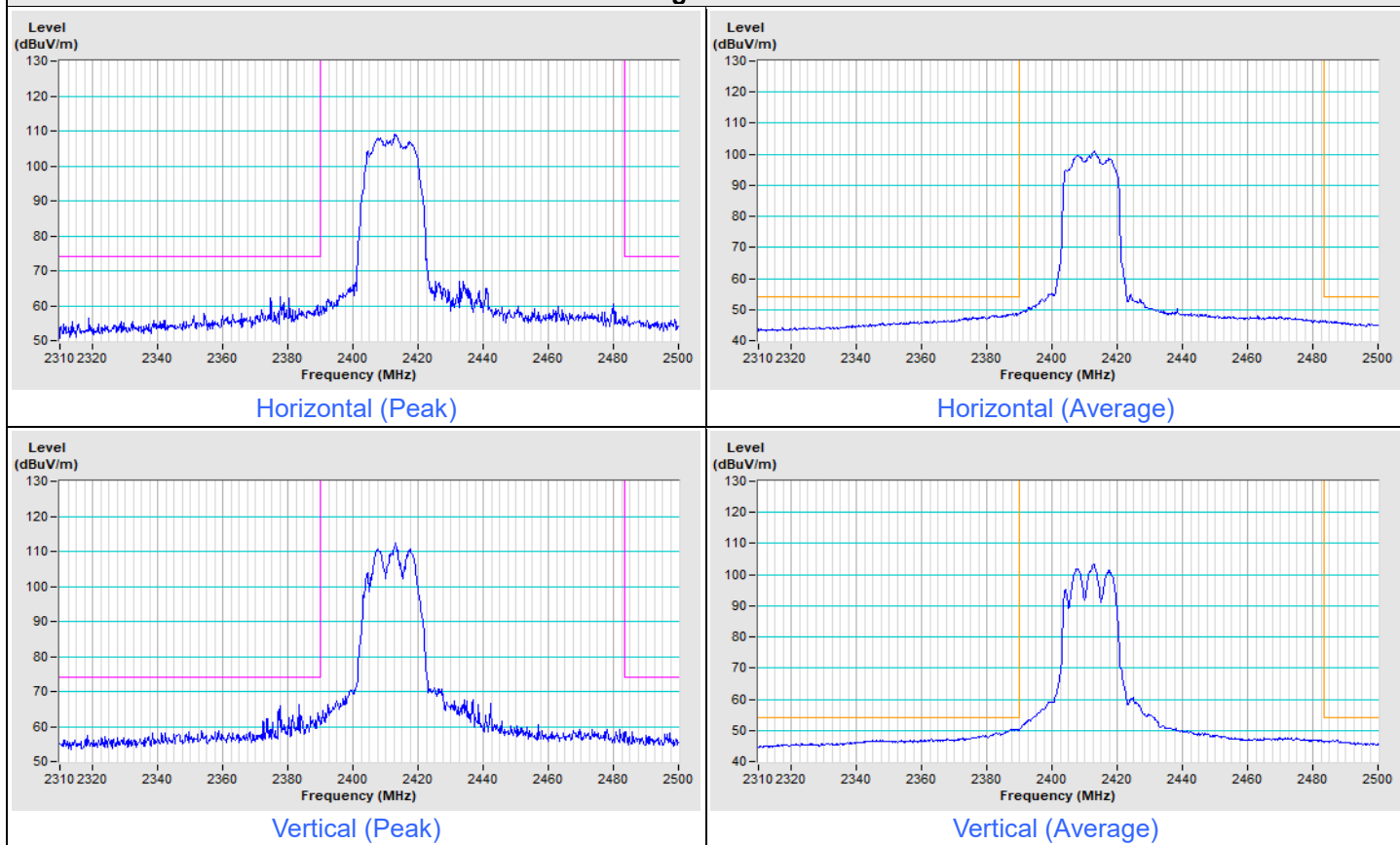
Vertical (Peak)



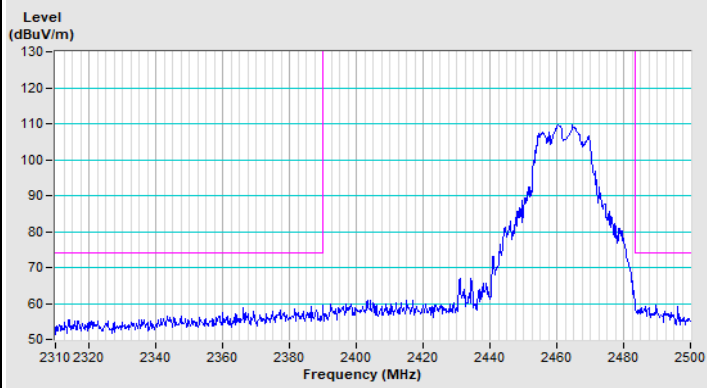
Vertical (Average)

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
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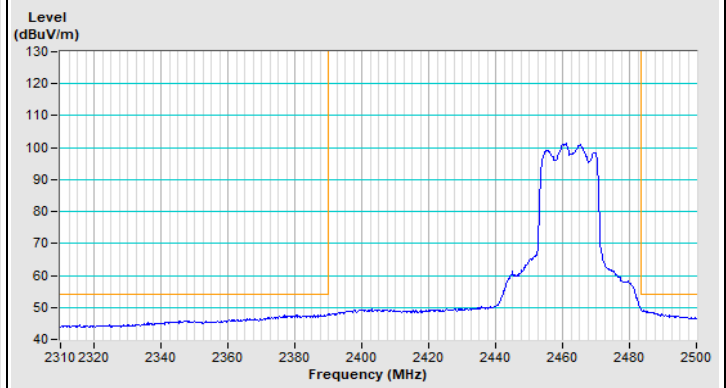
802.11g Channel 1



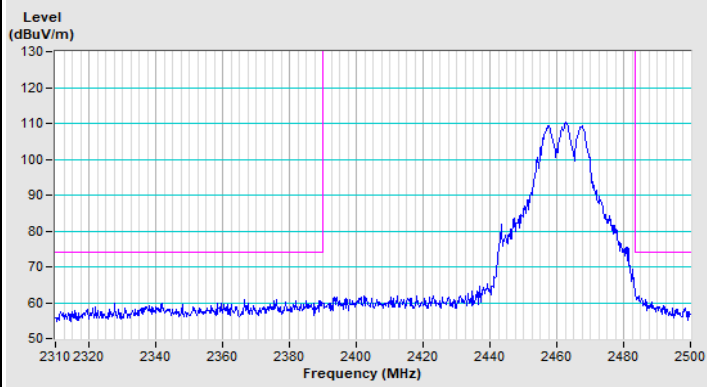
802.11g Channel 11



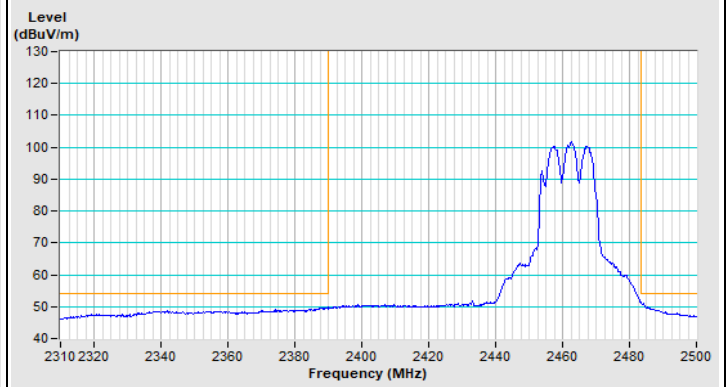
Horizontal (Peak)



Horizontal (Average)



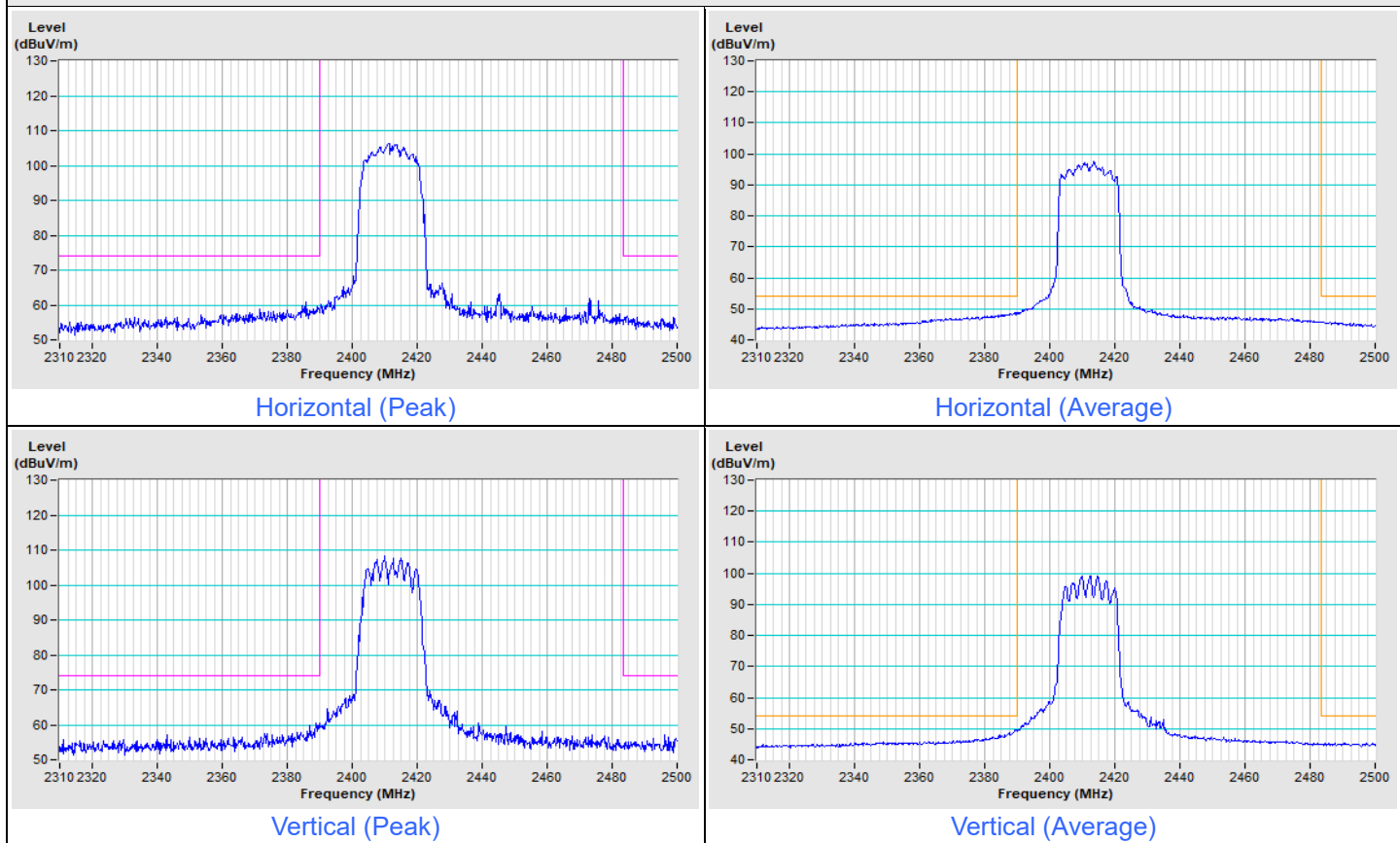
Vertical (Peak)



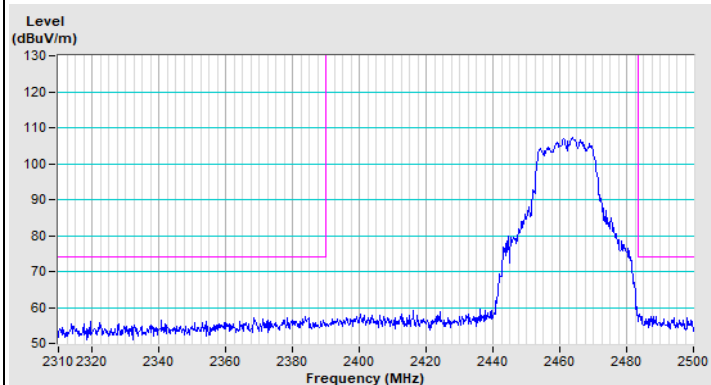
Vertical (Average)

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
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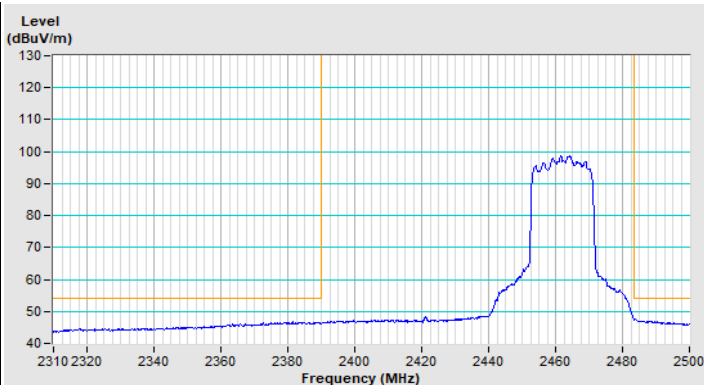
VHT20 Channel 1



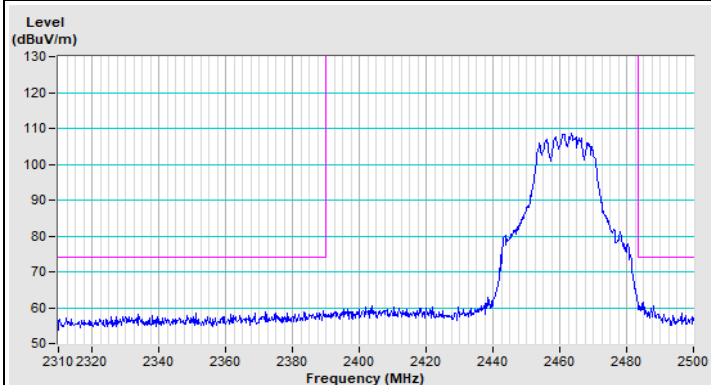
VHT20 Channel 11



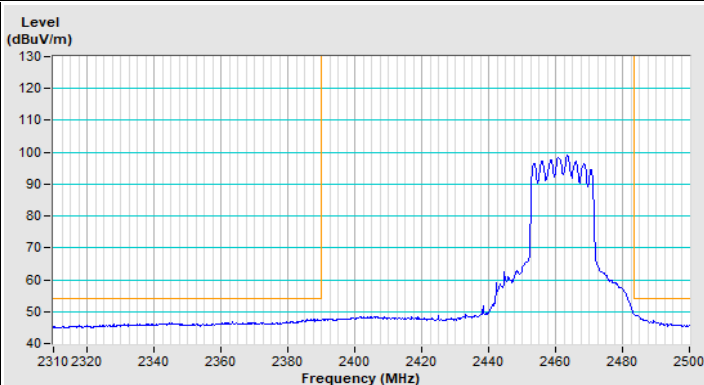
Horizontal (Peak)



Horizontal (Average)



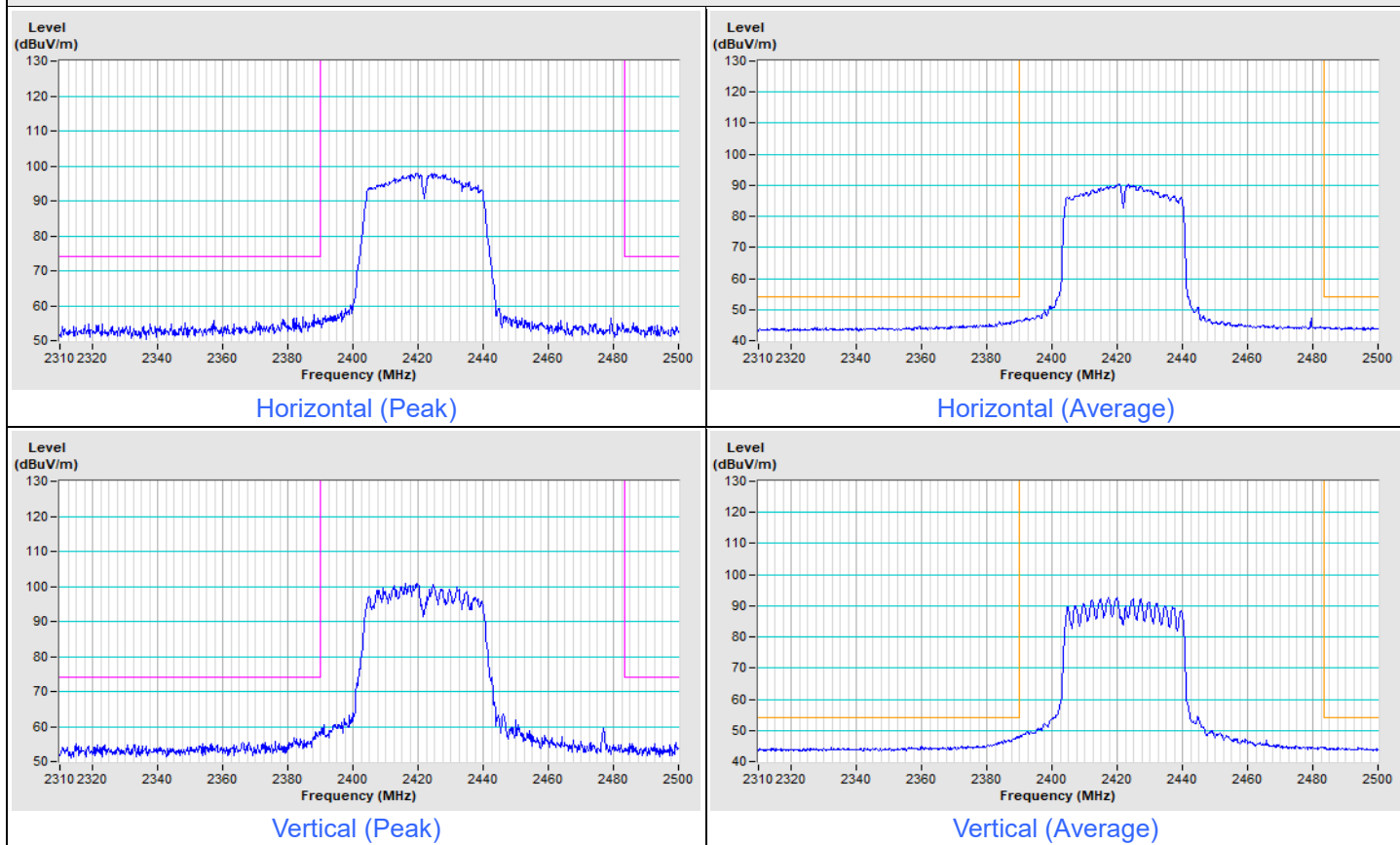
Vertical (Peak)



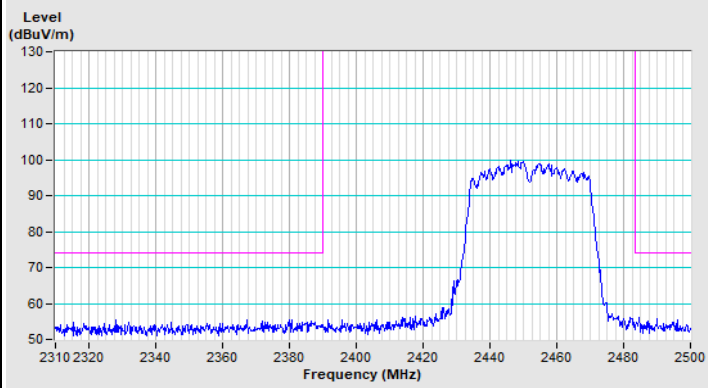
Vertical (Average)

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=2 kHz, DET=Peak
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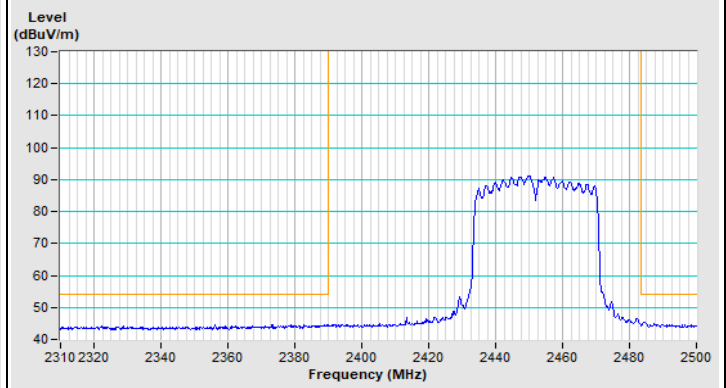
VHT40 Channel 3



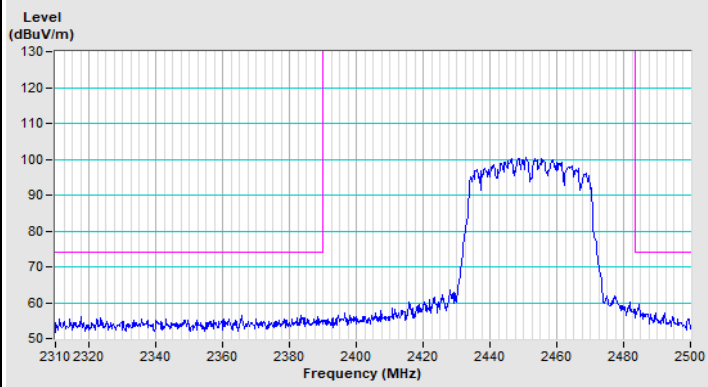
VHT40 Channel 9



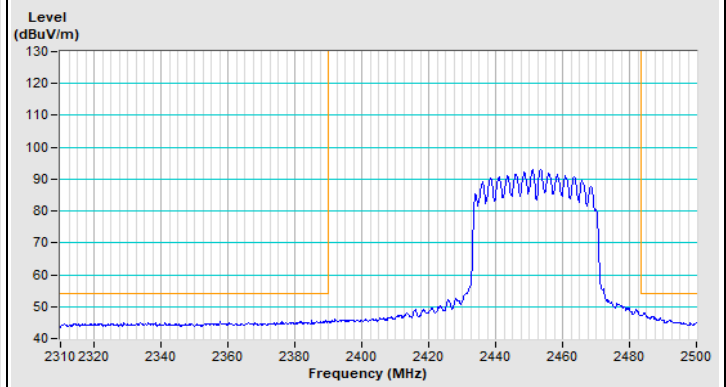
Horizontal (Peak)



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:

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Email: service.adt@bureauveritas.com

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

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

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