

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)
Report No.: RFBDMW-WTW-P23120203A
FCC ID: PQRFXA3020-US
Product: IEEE802.11n/a/b/g Wireless LAN Access Point
Brand: CONTEC
Model No.: FXA3020-US
Received Date: 2024/11/1
Test Date: 2024/11/21 ~ 2024/12/9
Issued Date: 2025/1/9
Applicant: CONTEC CO., LTD.
Address: 3-9-31, HIMESATO, NISHIYODOGAWA-KU, OSAKA 555-0025, JAPAN
Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Hsin Chu Laboratory
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Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / 723255 / TW2022
Designation Number:

Approved by: _____, **Date:** 2025/1/9
May Chen / Manager

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Prepared by : Phoenix Huang / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBDMW-WTW-P23120203A	Original release.	2025/1/9

1 Certificate

Product: IEEE802.11n/a/b/g Wireless LAN Access Point
Brand: CONTEC
Test Model: FXA3020-US
Sample Status: Engineering sample
Applicant: CONTEC CO., LTD.
Test Date: 2024/11/21 ~ 2024/12/9
Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)
Measurement procedure: ANSI C63.10-2013
KDB 558074 D01 15.247 Meas Guidance v05r02
KDB 662911 D01 Multiple Transmitter Output v02r01

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

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
Standard / Clause	Test Item	Result	Remark
15.247(b)	RF Output Power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.247(a)(2)	6 dB Bandwidth	Pass	Meet the requirement of limit.
15.247(d)	Conducted Out of Band Emissions	Pass	Meet the requirement of limit.
15.207	AC Power Conducted Emissions	Pass	Minimum passing margin is -6.22 dB at 0.54453 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -4.0 dB at 300.02 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.1 dB at 2390.00 MHz
15.203	Antenna Requirement	Pass	Antenna connector is RP-SMA 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	IEEE802.11n/a/b/g Wireless LAN Access Point
Brand	CONTEC
Test Model	FXA3020-US
Status of EUT	Engineering sample
Power Supply Rating	5 ~ 30 Vdc from adapter or 36 ~ 57 Vdc from PoE
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11 Mbps 802.11g: up to 54 Mbps 802.11n: up to 300 Mbps
Operating Frequency	2.412 GHz ~ 2.462 GHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7
Output Power	378.054 mW (25.78 dBm)

Note:

1. There are WLAN (2.4 GHz) and WLAN (5 GHz) technology used for the EUT.
2. Simultaneously transmission combination.

Combination	Technology	
1	WLAN (2.4 GHz)	WLAN (5 GHz)

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

3. 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 Set	RF Chain NO.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type
1	Chain 0	Molex	2128600011	5.3	2.4 ~ 2.4835	Dipole	RP-SMA
				4.5	5.15 ~ 5.85		
	Chain 1			5.3	2.4 ~ 2.4835	Dipole	RP-SMA
				4.5	5.15 ~ 5.85		
2	Chain 0	TE	2108936-2	2.2	2.4 ~ 2.4835	Dipole	RP-SMA
				3.7	5.15 ~ 5.85		
	Chain 1			2.2	2.4 ~ 2.4835	Dipole	RP-SMA
				3.7	5.15 ~ 5.85		

Note: Above antennas, Antenna Set 1 was selected for the final test.

* 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	1TX Fixed Chain 0	1RX
802.11g	1TX Fixed Chain 0	1RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX

3.3 Channel List

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

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):

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. EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan these ways and find the worst case as a representative test condition. 2. For Unwanted Emission and AC Power Conducted Emissions items have multiple power sources: Power connector with Adapter 1(Model: 6A-151DA12A)/ DC In with Adapter 2(Model: ATS018T-A050)/ POE Adapter. Pre-scan these modes and find the worst case as a representative test condition. 3. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
Worst Case:	1. EUT pre-scan X-axis/ Y-axis/ Z-axis worst condition: X-axis 2. For Unwanted Emission and AC Power Conducted Emissions items worst power sources condition: ➤ Unwanted Emission item worst: AC Adapter 1 ➤ AC Power Conducted Emissions item worst: AC Adapter 2

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

Test Item	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	802.11b	SISO	1, 6, 11	DBPSK	1Mb/s
	802.11g		1, 6, 11	BPSK	6Mb/s
	802.11n (HT20)	CDD	1, 6, 11	BPSK	MCS0
	802.11n (HT40)		3, 6, 9	BPSK	MCS0
Power Spectral Density	802.11b	SISO	1, 6, 11	DBPSK	1Mb/s
	802.11g		1, 6, 11	BPSK	6Mb/s
	802.11n (HT20)	CDD	1, 6, 11	BPSK	MCS0
	802.11n (HT40)		3, 6, 9	BPSK	MCS0
6 dB Bandwidth / Conducted Out of Band Emissions	802.11b	SISO	1, 6, 11	DBPSK	1Mb/s
	802.11g		1, 6, 11	BPSK	6Mb/s
	802.11n (HT20)	CDD	1, 6, 11	BPSK	MCS0
	802.11n (HT40)		3, 6, 9	BPSK	MCS0
AC Power Conducted Emissions	802.11n (HT20)	CDD	6	BPSK	MCS0
Unwanted Emissions below 1 GHz	802.11n (HT20)	CDD	6	BPSK	MCS0
Unwanted Emissions above 1 GHz	802.11b	SISO	1, 6, 11	DBPSK	1Mb/s
	802.11g		1, 6, 11	BPSK	6Mb/s
	802.11n (HT20)	CDD	1, 6, 11	BPSK	MCS0
	802.11n (HT40)		3, 6, 9	BPSK	MCS0

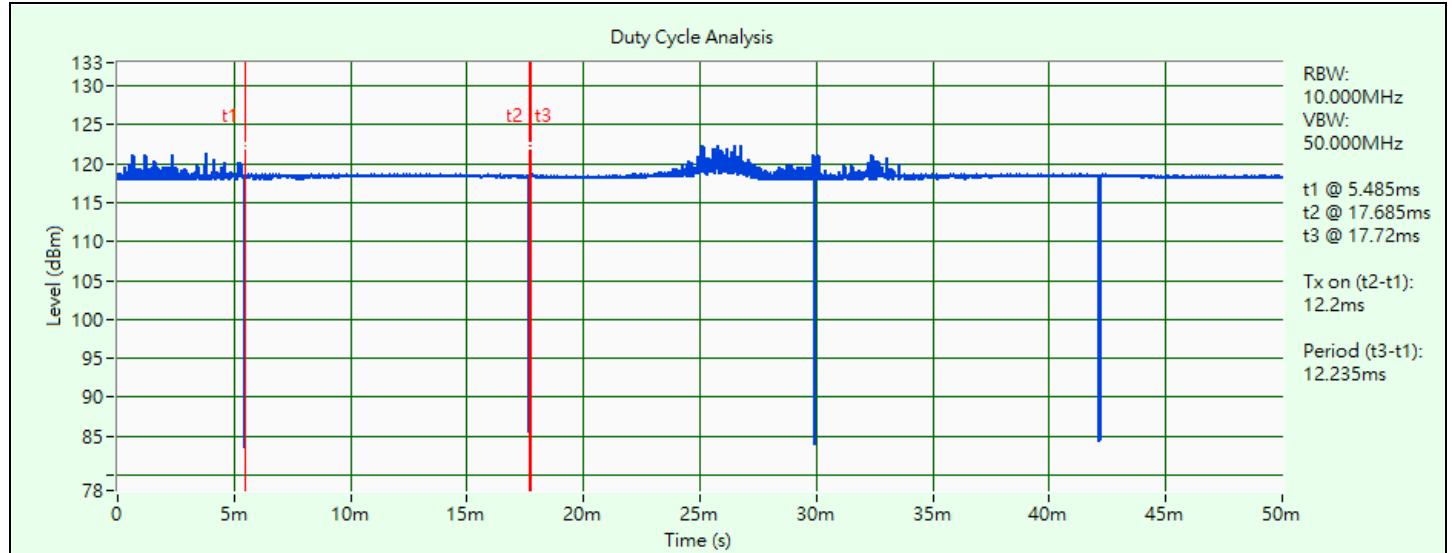
3.5 Duty Cycle of Test Signal

802.11b: Duty cycle = 12.2 ms / 12.235 ms x 100% = 99.7%

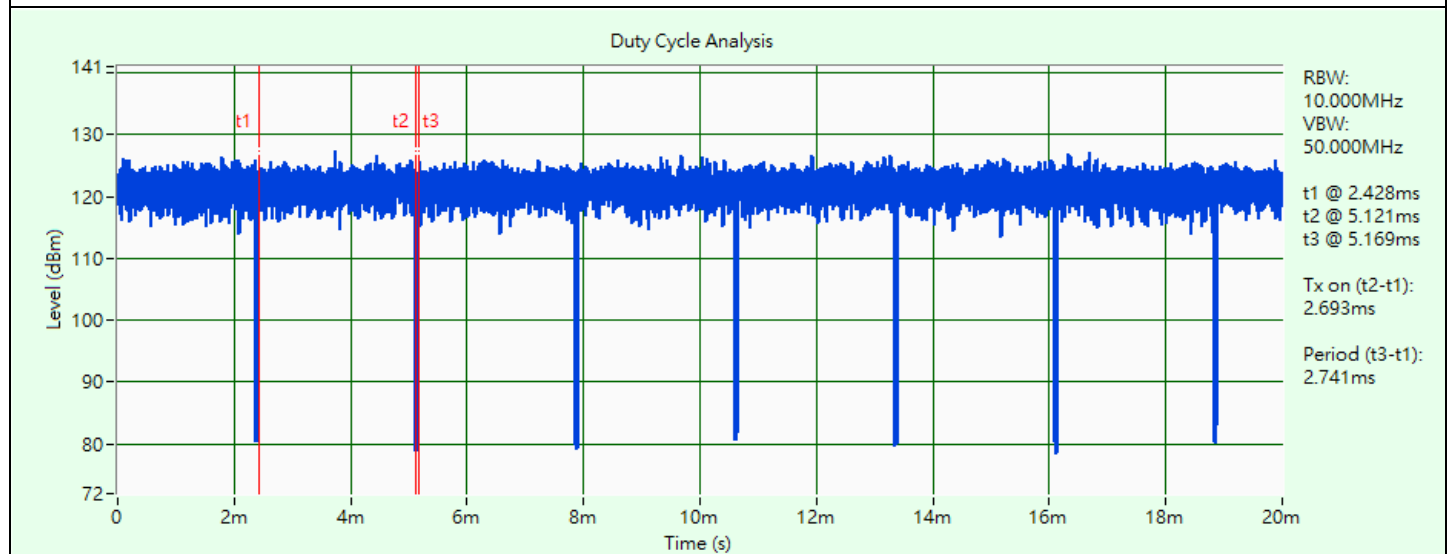
802.11g: Duty cycle = 2.693 ms / 2.741 ms x 100% = 98.2%

802.11n (HT20): Duty cycle = 2.506 ms / 2.554 ms x 100% = 98.1%

802.11n (HT40): Duty cycle = 2.408 ms / 2.444 ms x 100% = 98.5%

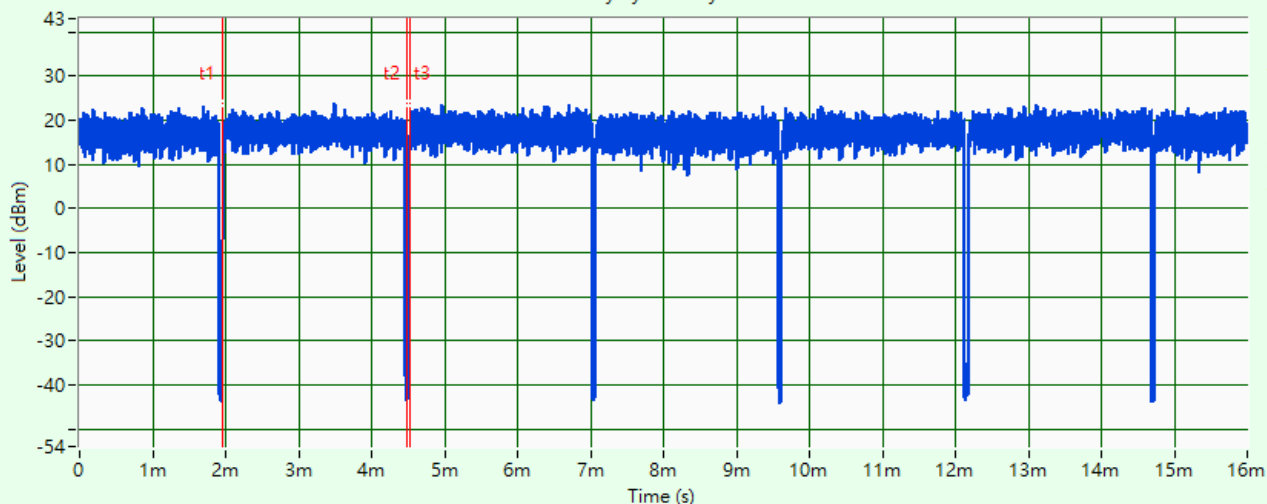


802.11b



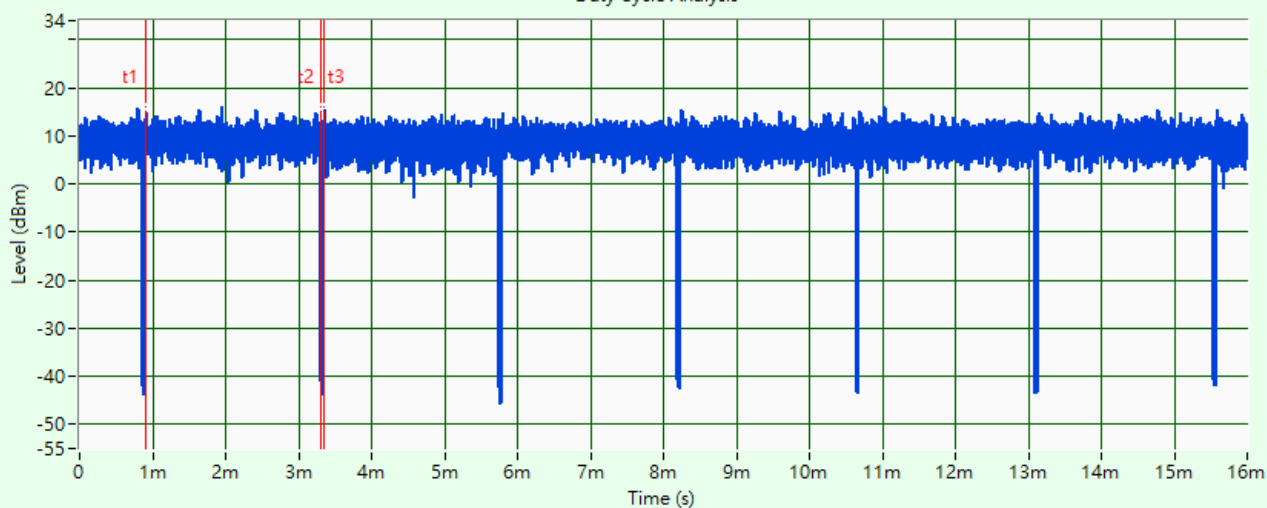
802.11g

Duty Cycle Analysis



802.11n (HT20)

Duty Cycle Analysis



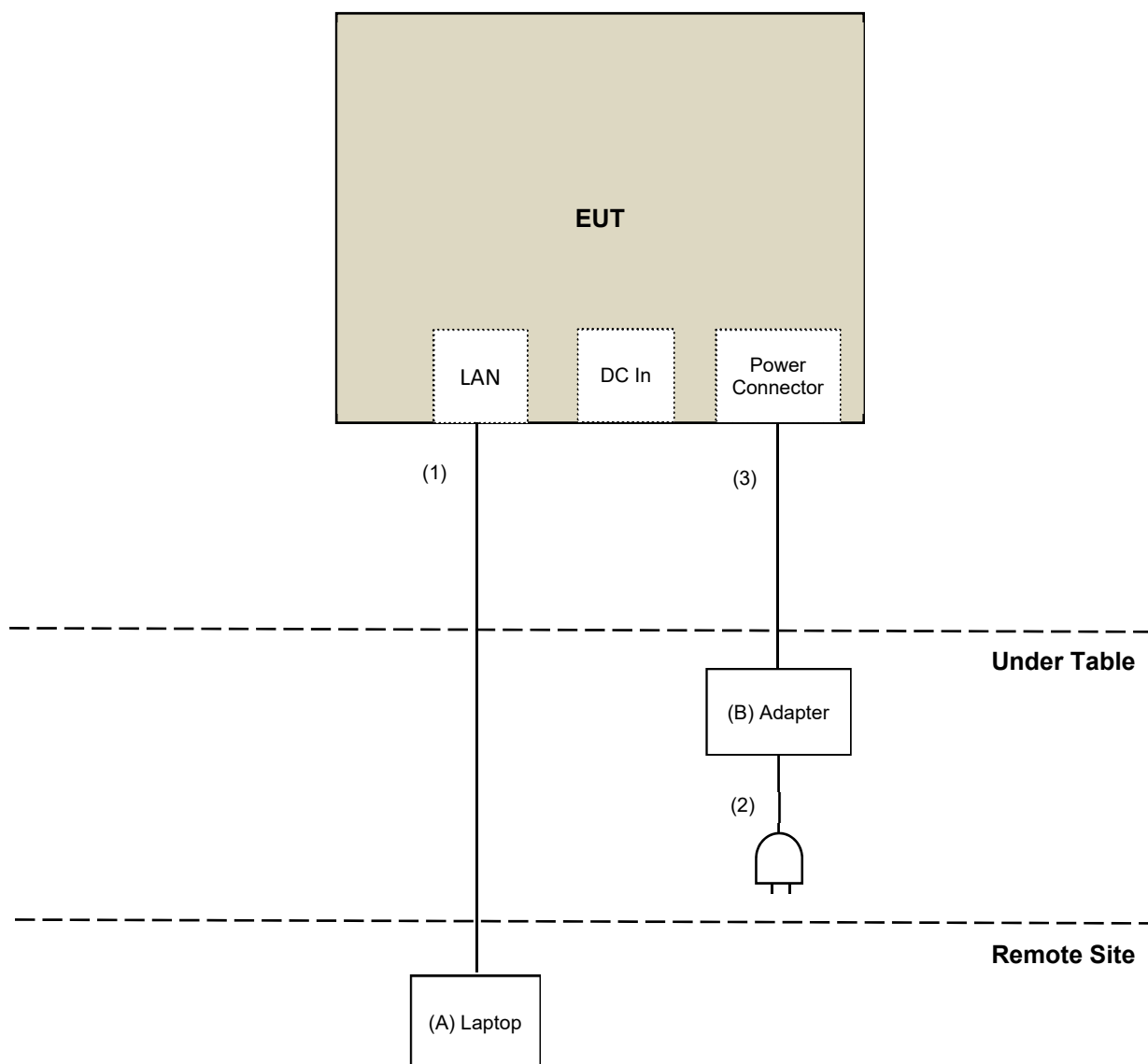
802.11n (HT40)

3.6 Test Program Used and Operation Descriptions

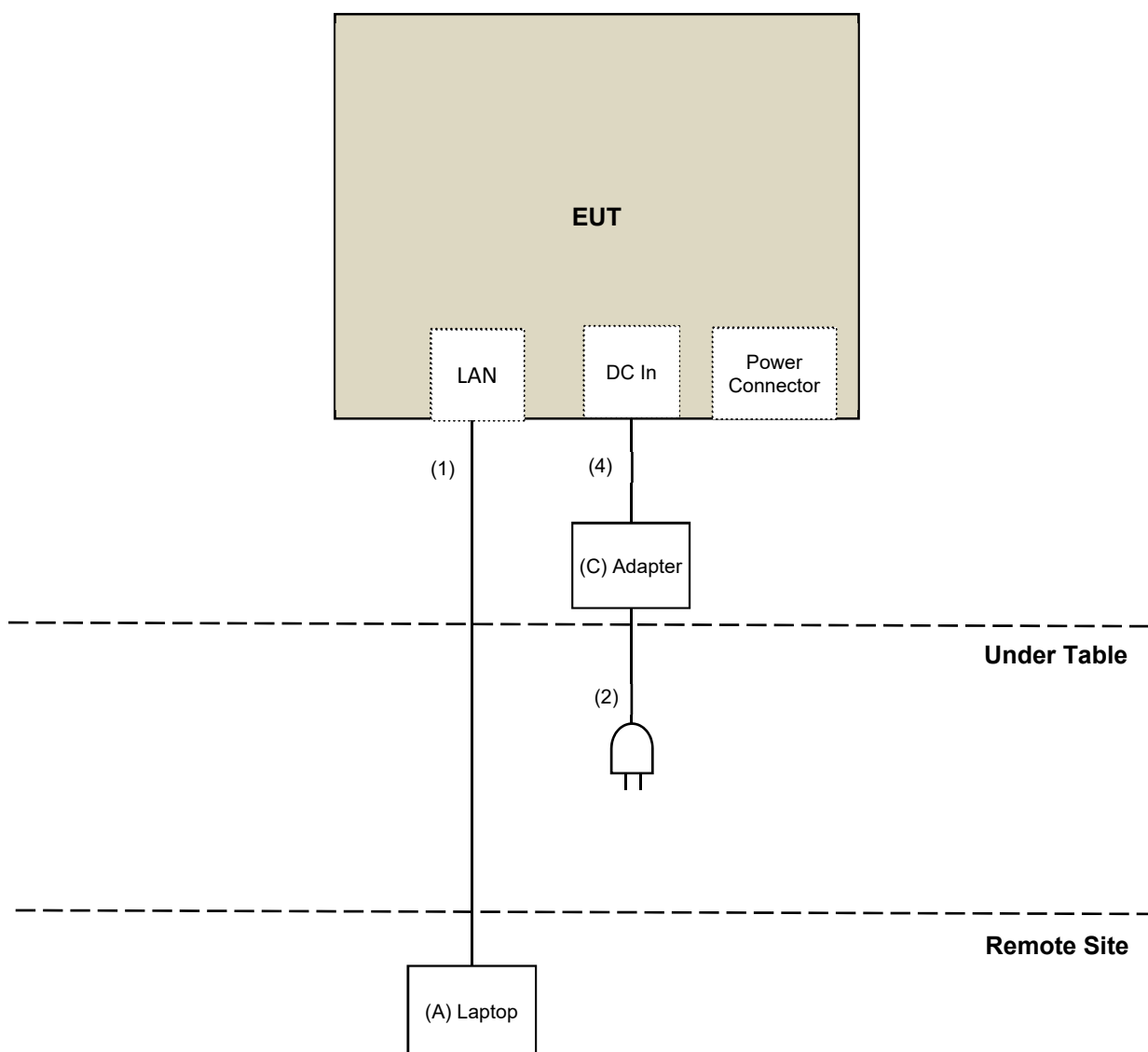
Controlling software (ART2-GUI V2.3.exe) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices

For Unwanted Emissions test:



For AC Power Conducted Emission test:



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Laptop	DELL	E5430	7YV4VY1	DoC	Provided by Lab
B	Adapter	ENG ELECTRIC CO.,LTD.	6A-151DA12A	N/A	N/A	Supplied by applicant
C	Adapter	ADAPTER TECH.	ATS018T-A050	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	RJ45 Cable	1	10	No	0	Provided by Lab
2	AC Cable	1	1.8	No	0	Supplied by applicant
3	DC Cable	1	1.55	No	0	Supplied by applicant
4	DC Cable	1	1.45	No	0	Supplied by applicant

4 Test Instruments

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

4.1 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Pulse Power Sensor Anritsu	MA2411B	1726434	2024/6/7	2025/6/6
RF Power Meter Anritsu	ML2495A	1529002	2024/6/7	2025/6/6

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2024/12/6 ~ 2024/12/9

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
MXA Signal Analyzer Keysight	N9020B	MY60112408	2024/3/7	2025/3/6
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: 2024/12/6 ~ 2024/12/9

4.3 6 dB Bandwidth

Refer to section 4.2 to get the tested date and information of the instruments.

4.4 Conducted Out of Band Emissions

Refer to section 4.2 to get the tested date and 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	2024/11/1	2025/10/31
EMI Test Receiver R&S	ESCS 30	100375	2024/5/20	2025/5/19
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	2024/10/7	2025/10/6
RF Coaxial Cable JYEBAO	5D-FB	COCCAB-001	2024/2/19	2025/2/18
Software BVADT	BVADT_Cond_V7.3.7.4	N/A	N/A	N/A

Notes:

1. The test was performed in Conduction 1
2. Tested Date: 2024/12/4

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	2024/10/14	2025/10/13
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	N/A	N/A
Fixed Attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-01	2024/5/16	2025/5/15
Loop Antenna TESEQ	HLA 6121	63620	2024/10/17	2025/10/16
MXA Signal Analyzer Keysight	N9020B	MY60112410	2024/3/13	2025/3/12
MXE EMI Receiver Keysight	N9038A	MY59050100	2024/6/19	2025/6/18
Preamplifier EMCI	EMC330N	980852	2024/2/17	2025/2/16
	EMC001340	980142	2024/2/19	2025/2/18
RF Coaxial Cable JYBAO	5D-FB	LOOPCAB-001	2024/2/19	2025/2/18
		LOOPCAB-002	2024/2/19	2025/2/18
RF Coaxial Cable PEWC	8D	966-6-1	2024/5/16	2025/5/15
		966-6-2	2024/5/16	2025/5/15
		966-6-3	2024/5/16	2025/5/15
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: 2024/12/2

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	2024/11/10	2025/11/9
	BBHA 9170	BBHA9170519	2024/11/10	2025/11/9
MXA Signal Analyzer Keysight	N9020B	MY60112410	2024/3/13	2025/3/12
MXE EMI Receiver Keysight	N9038A	MY59050100	2024/6/19	2025/6/18
Preamplifier EMCI	EMC12630SE	980385	2024/6/1	2025/5/31
	EMC184045SE	980387	2024/8/8	2025/8/7
RF Coaxial Cable EMCI	EMC104-SM-SM-1300	210205	2024/6/1	2025/5/31
	EMC104-SM-SM-2000	210203	2024/6/1	2025/5/31
	EMC104-SM-SM-8000	221015	2024/6/1	2025/5/31
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: 2024/11/21 ~ 2024/12/9

5 Limits of Test Items

5.1 RF Output Power

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

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

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

5.2 Power Spectral Density

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

5.3 6 dB Bandwidth

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

5.4 Conducted Out of Band Emissions

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

5.5 AC Power Conducted Emissions

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

Notes:

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

5.6 Unwanted Emissions below 1 GHz

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

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

5.7 Unwanted Emissions above 1 GHz

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

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

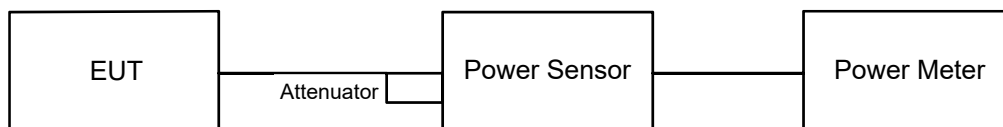
Notes:

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

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup



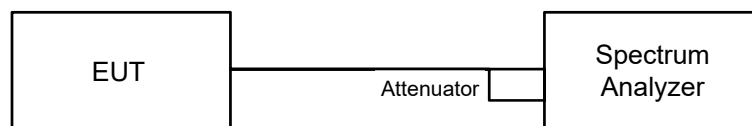
6.1.2 Test Procedure

Average Power:

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



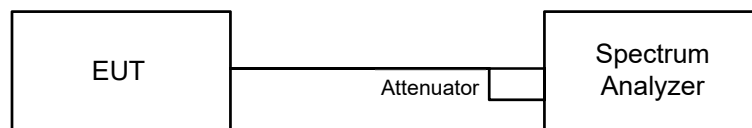
6.2.2 Test Procedure

- Measure the duty cycle (x).
- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to: 3 kHz.
- Set VBW $\geq 3 \times$ RBW.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \times$ span/RBW.
- Sweep time = auto couple.
- Do not use sweep triggering. Allow sweep to "free run".
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.

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

6.3 6 dB Bandwidth

6.3.1 Test Setup

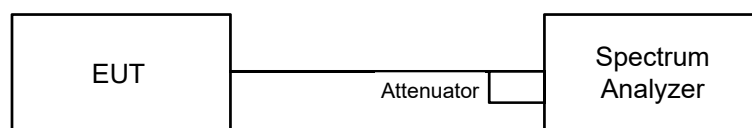


6.3.2 Test Procedure

- 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

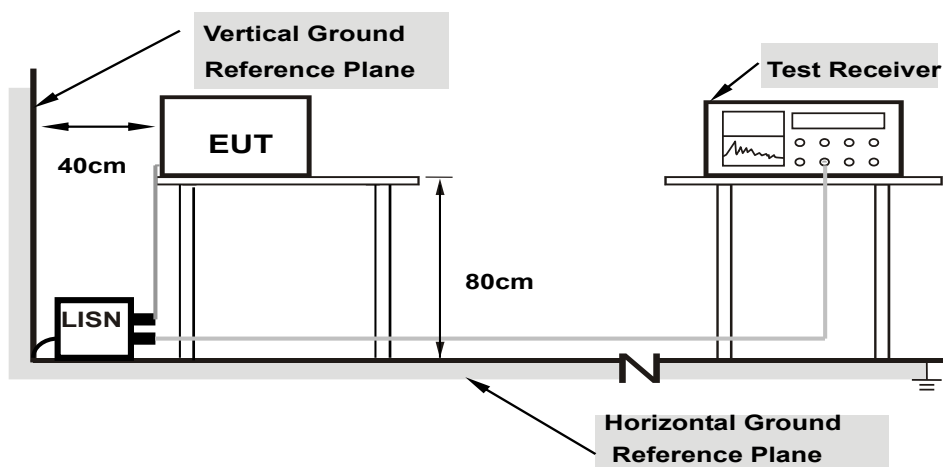
- Set the RBW = 100 kHz.
- Set the VBW ≥ 300 kHz.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

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

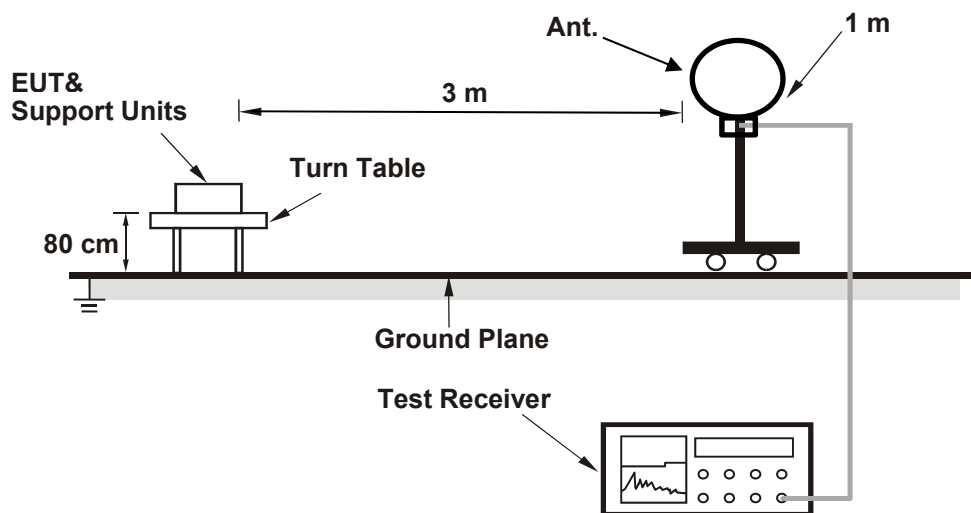
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The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

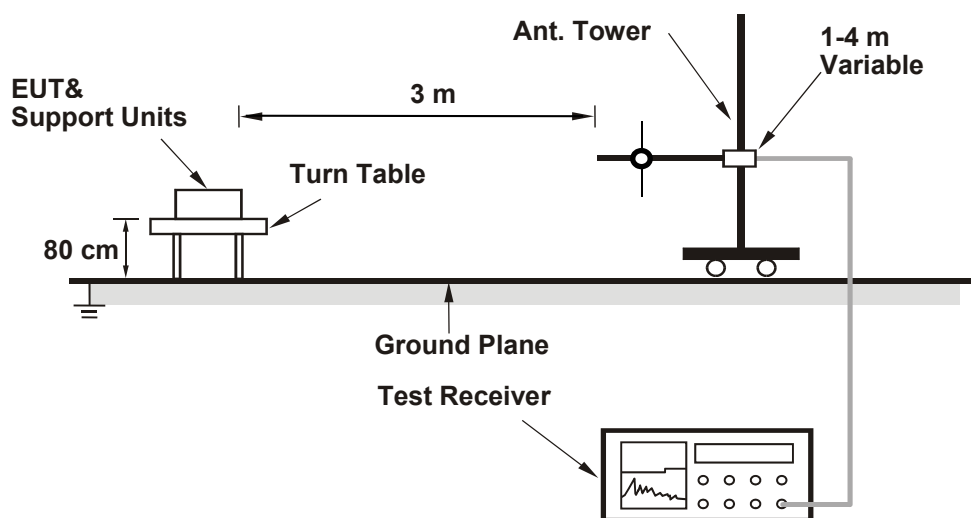
6.6 Unwanted Emissions below 1 GHz

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

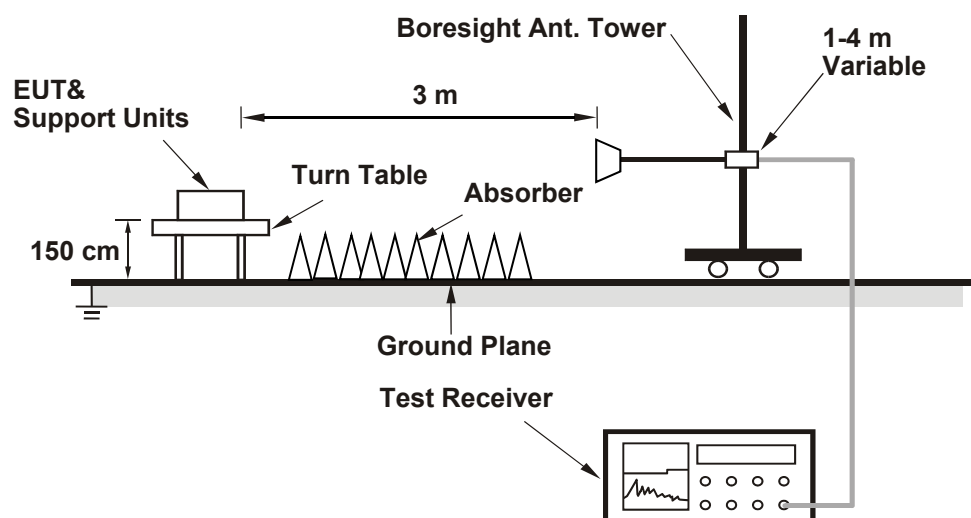
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the 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 (System)	Environmental Conditions:	25°C, 60% RH	Tested By:	Henry
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SISO

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
1	2412	225.944	23.54	30	Pass
6	2437	261.818	24.18	30	Pass
11	2462	202.768	23.07	30	Pass

Note: The antenna gain is 5.3 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
1	2412	68.707	18.37	30	Pass
6	2437	250.035	23.98	30	Pass
11	2462	70.632	18.49	30	Pass

Note: The antenna gain is 5.3 dBi < 6 dBi, so the output power limit shall not be reduced.

CDD

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	17.18	16.94	101.671	20.07	30	Pass
6	2437	22.72	22.81	378.054	25.78	30	Pass
11	2462	16.81	16.17	89.373	19.51	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 5.3 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	13.22	13.21	41.931	16.23	30	Pass
6	2437	16.66	16.55	91.53	19.62	30	Pass
9	2452	15.41	15.04	66.669	18.24	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 5.3 dBi < 6 dBi, so the output power limit shall not be reduced.

7.2 Power Spectral Density

Input Power:	120 Vac, 60 Hz (System)	Environmental Conditions:	25°C, 60% RH	Tested By:	Henry
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SISO

802.11b

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
1	2412	-10.35	8	Pass
6	2437	-8.30	8	Pass
11	2462	-9.87	8	Pass

Note: The antenna gain is 5.3 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11g

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
1	2412	-19.35	8	Pass
6	2437	-12.14	8	Pass
11	2462	-18.20	8	Pass

Note: The antenna gain is 5.3 dBi < 6 dBi, so the power density limit shall not be reduced.

CDD

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
1	2412	-18.24	-18.74	-15.47	5.69	Pass
6	2437	-13.52	-13.27	-10.38	5.69	Pass
11	2462	-18.66	-19.05	-15.84	5.69	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. The directional gain is 8.31 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (8.31 - 6) = 5.69$ dBm/3kHz.

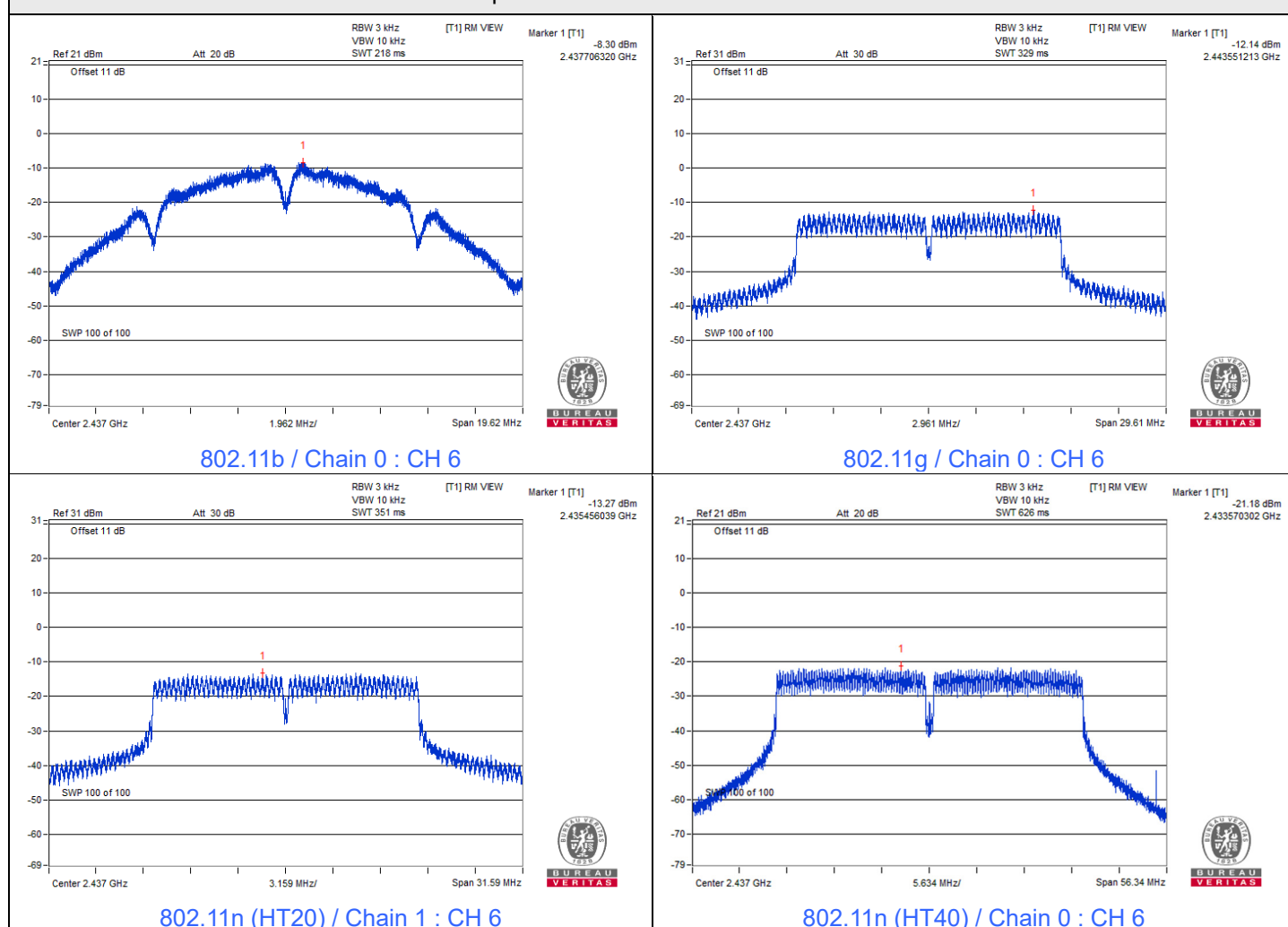
802.11n (HT40)

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
3	2422	-23.25	-23.39	-20.31	5.69	Pass
6	2437	-21.18	-21.38	-18.27	5.69	Pass
9	2452	-21.64	-21.89	-18.75	5.69	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. The directional gain is 8.31 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (8.31 - 6) = 5.69$ dBm/3kHz.

Spectrum Plot of Maximum Value



7.3 6 dB Bandwidth

Input Power:	120 Vac, 60 Hz (System)	Environmental Conditions:	25°C, 60% RH	Tested By:	Henry
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SISO

802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
1	2412	7.11	0.5	Pass
6	2437	7.13	0.5	Pass
11	2462	7.13	0.5	Pass

802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
1	2412	16.4	0.5	Pass
6	2437	16.4	0.5	Pass
11	2462	16.42	0.5	Pass

CDD

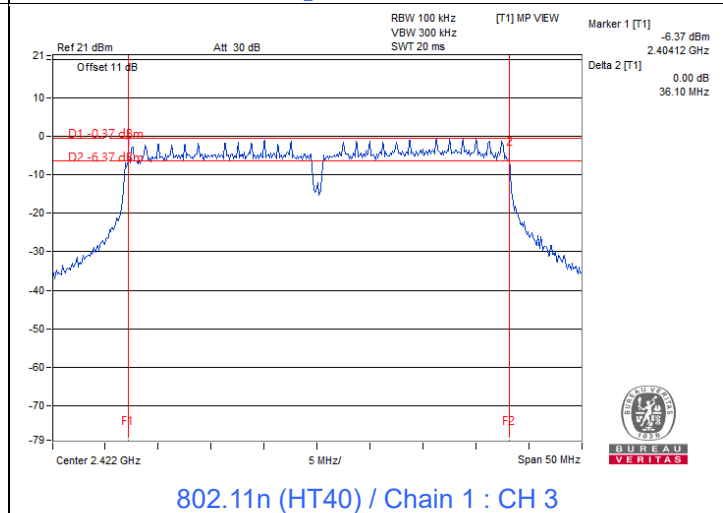
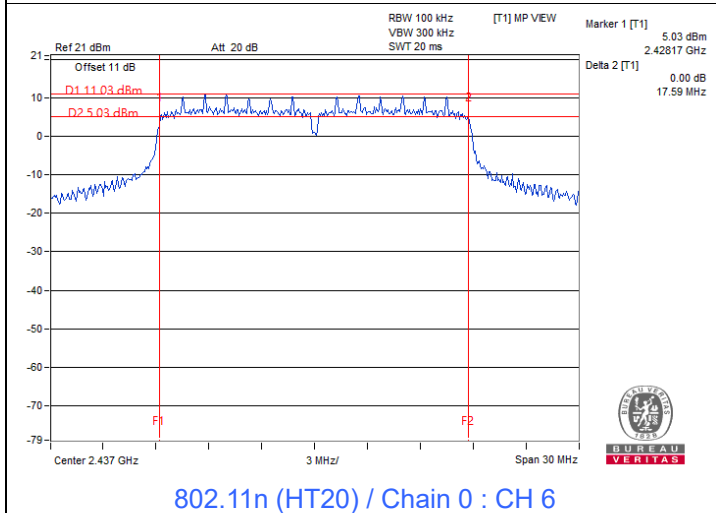
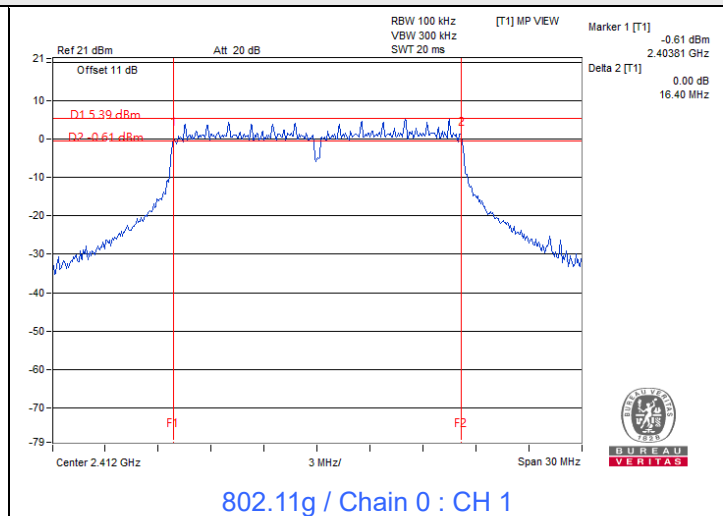
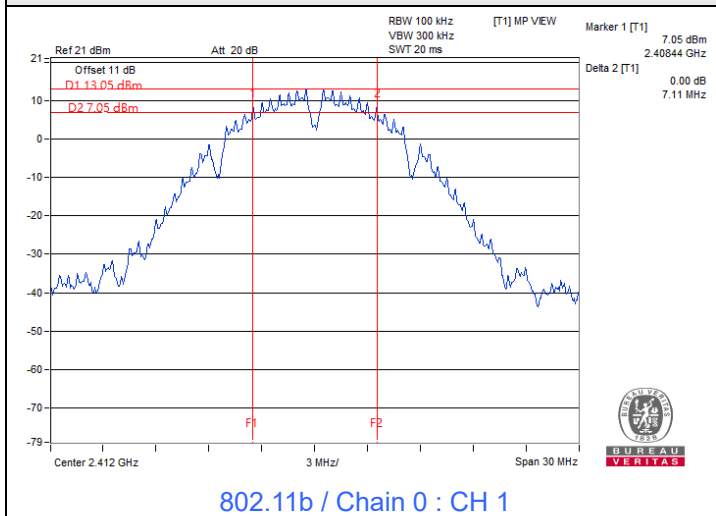
802.11n (HT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	17.65	17.65	0.5	Pass
6	2437	17.59	17.61	0.5	Pass
11	2462	17.66	17.64	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
3	2422	36.44	36.10	0.5	Pass
6	2437	36.44	36.42	0.5	Pass
9	2452	36.44	36.42	0.5	Pass

Spectrum Plot of Minimum Value

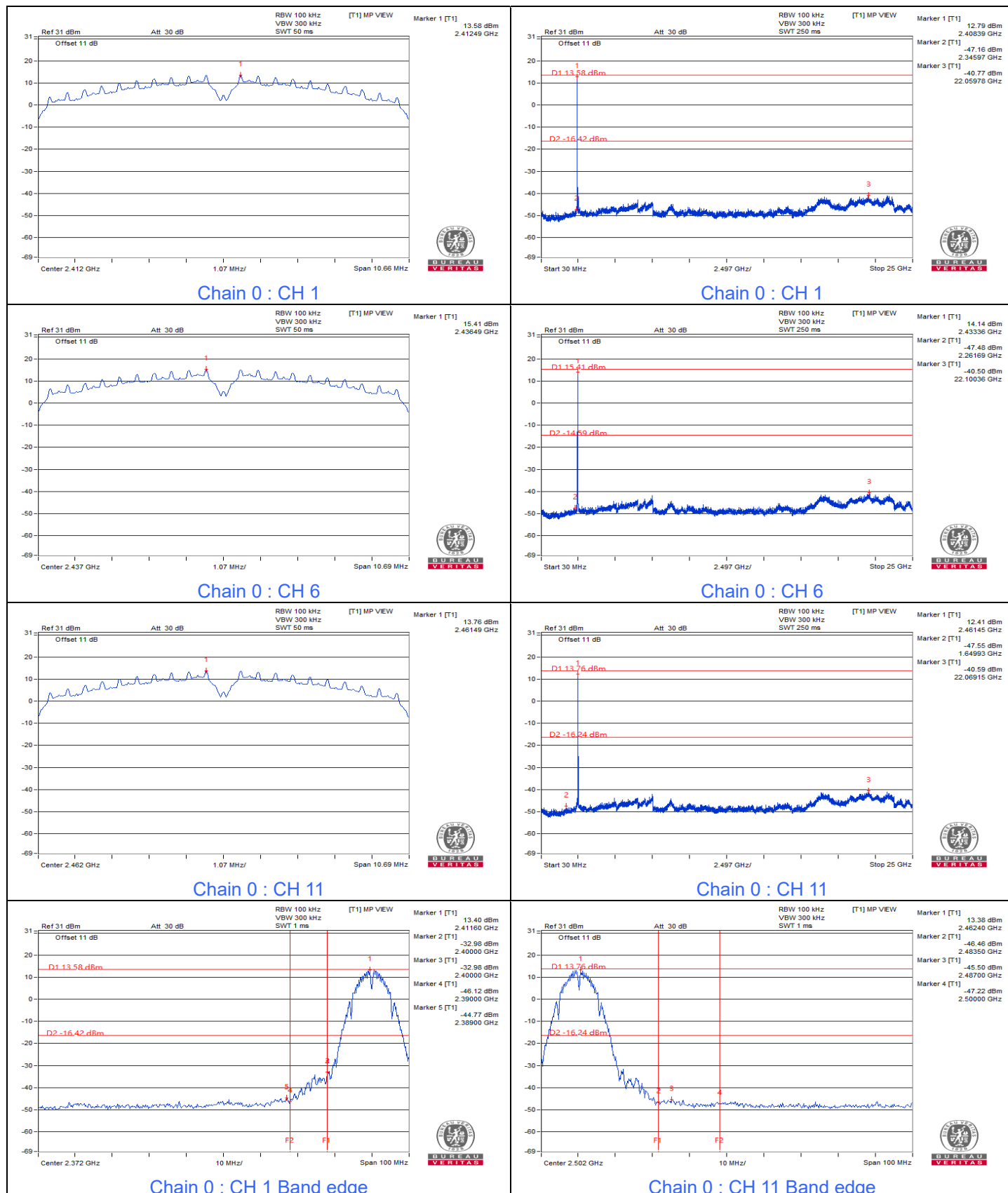


7.4 Conducted Out of Band Emissions

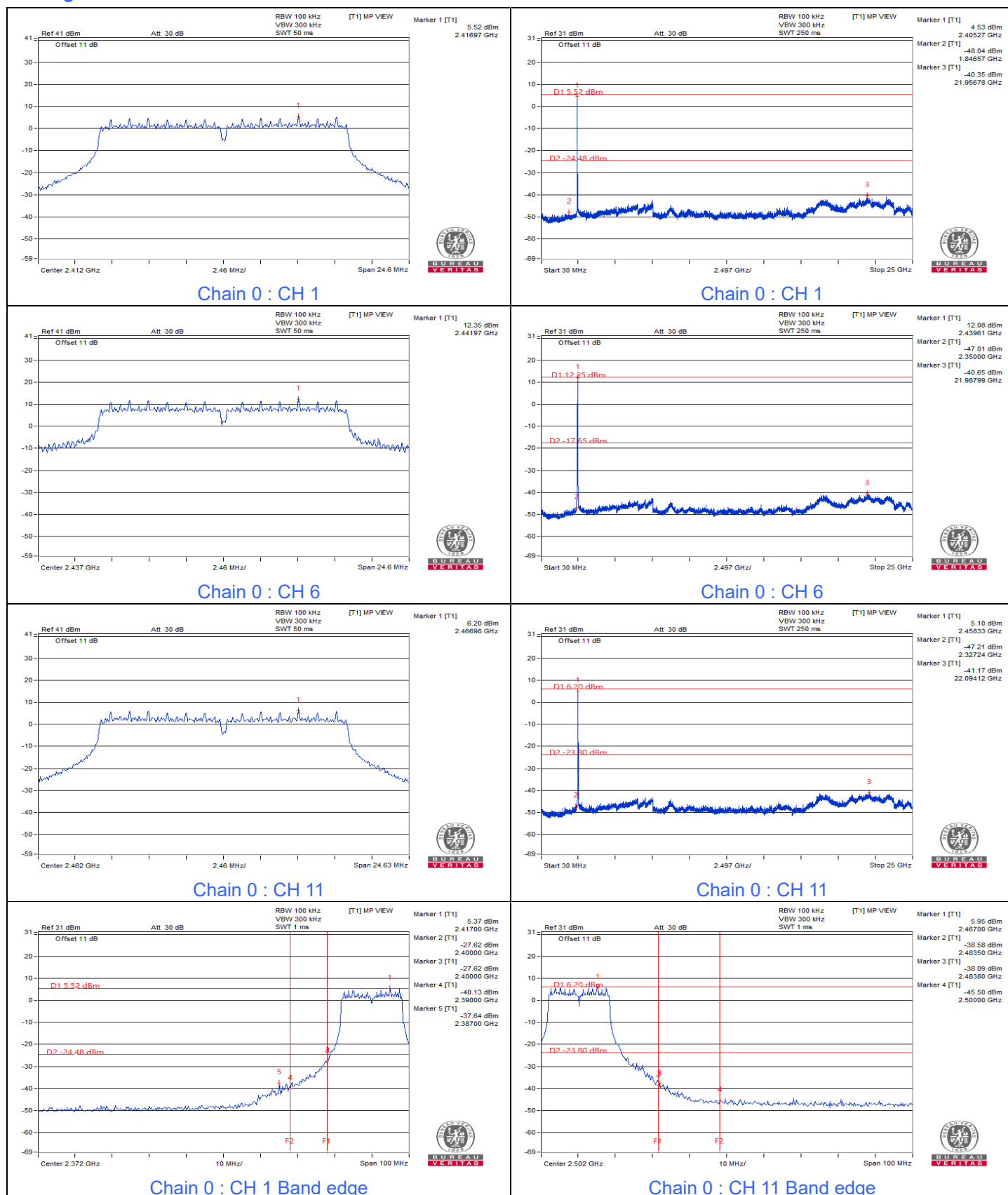
Input Power:	120 Vac, 60 Hz (System)	Environmental Conditions:	25°C, 60% RH	Tested By:	Henry
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SISO

802.11b

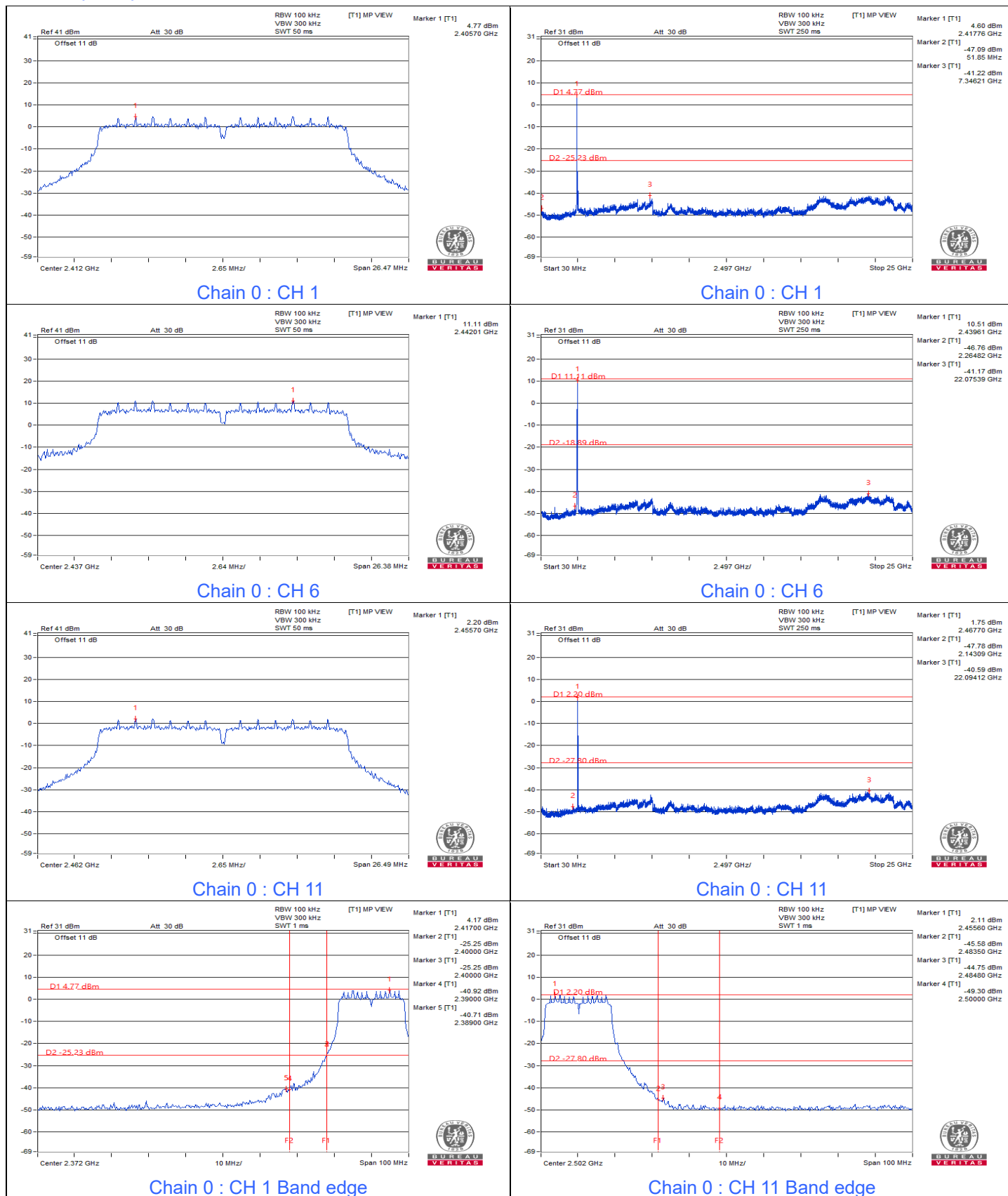


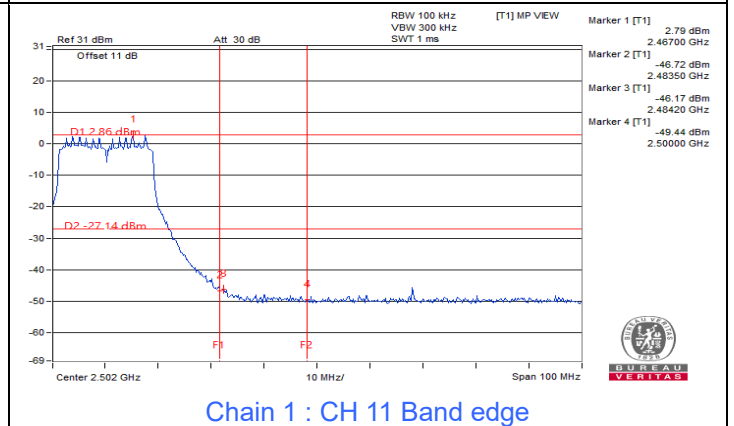
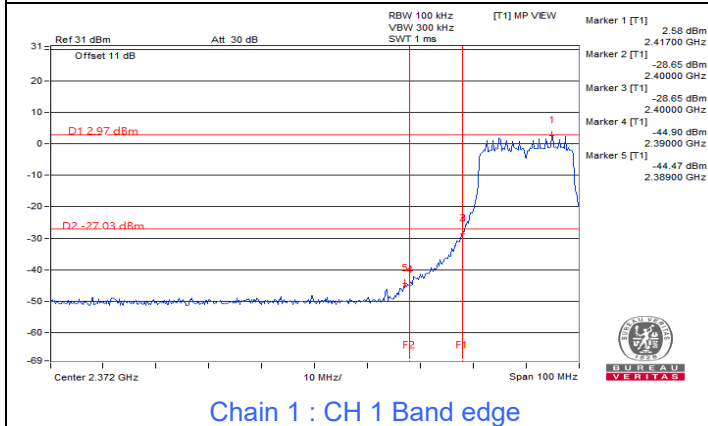
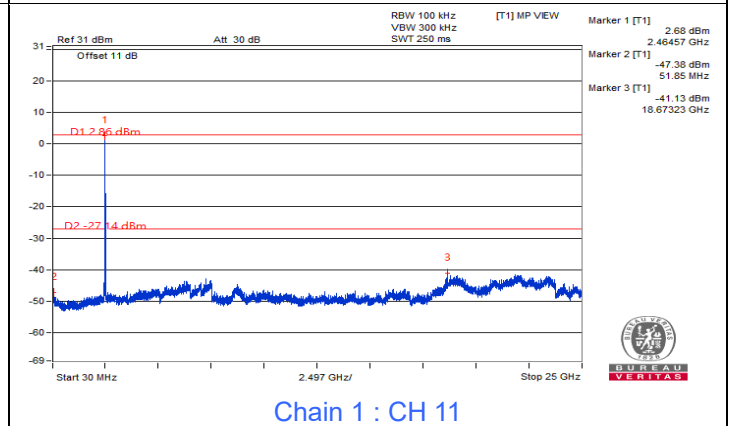
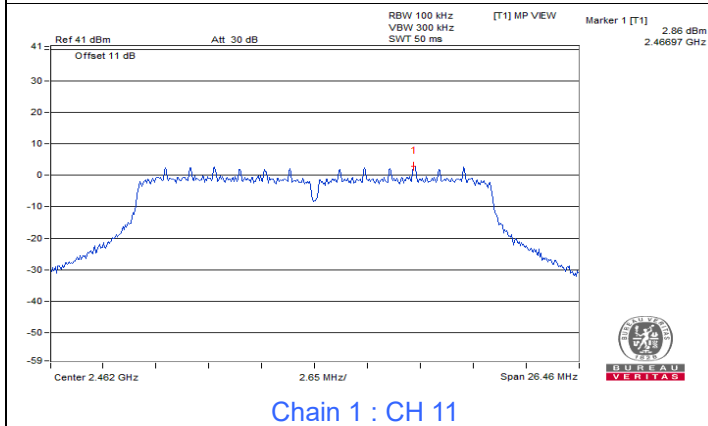
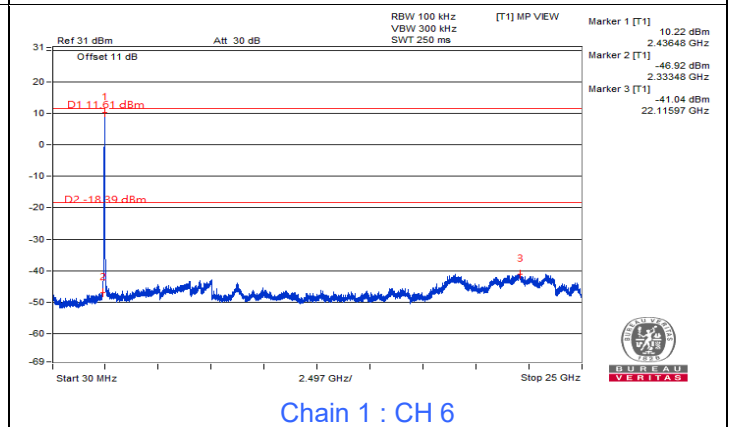
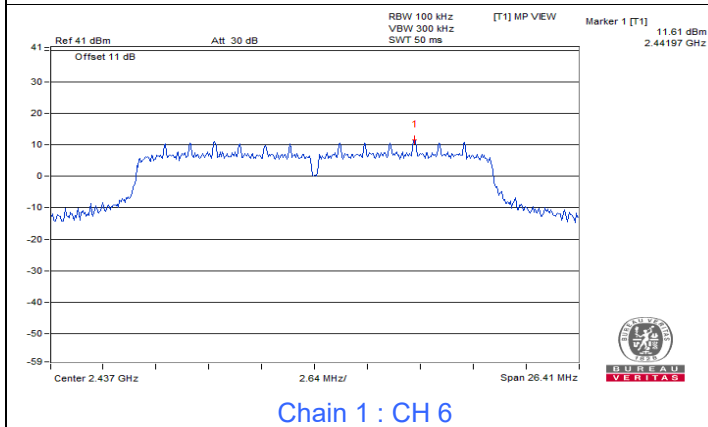
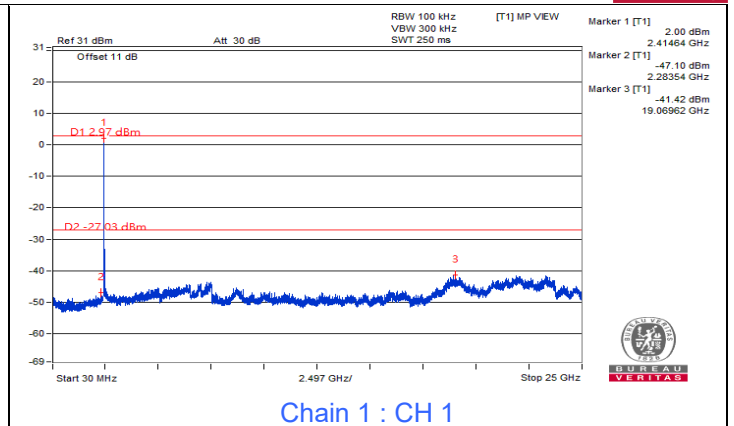
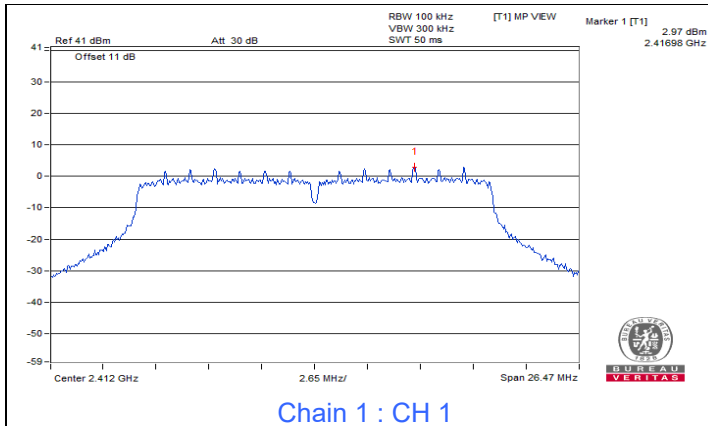
802.11g



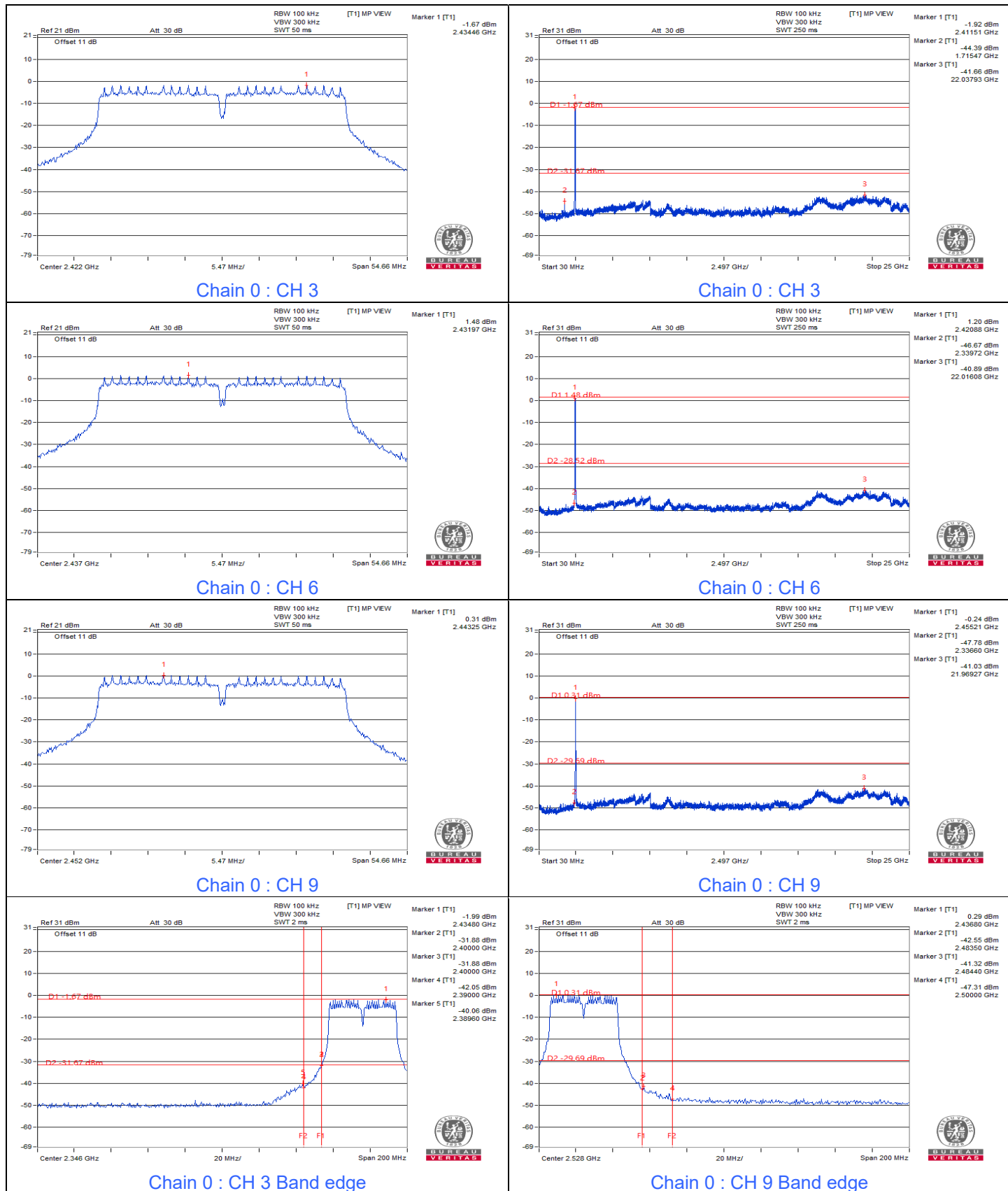
CDD

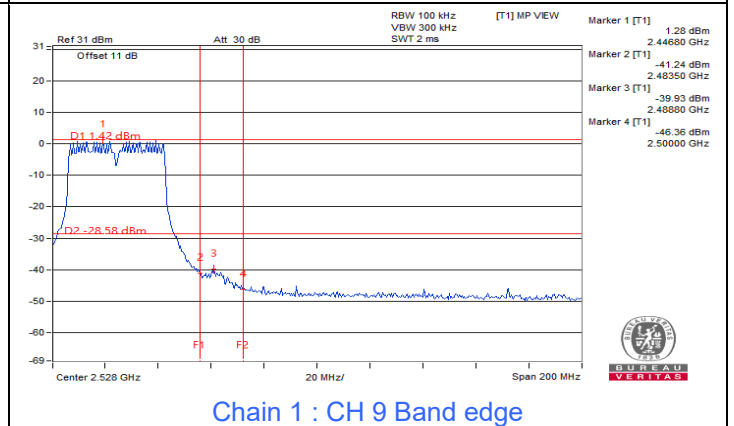
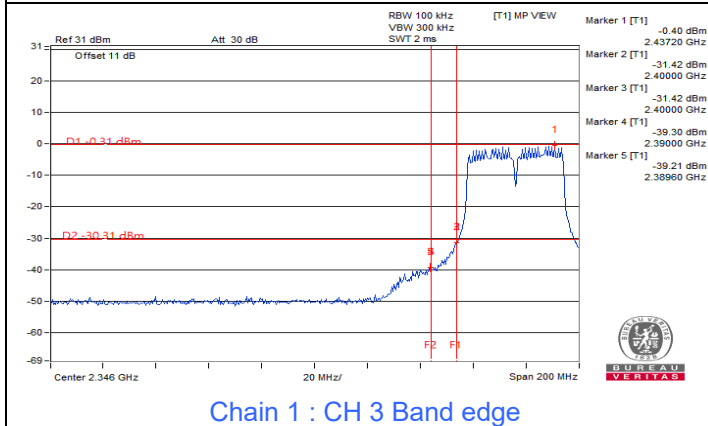
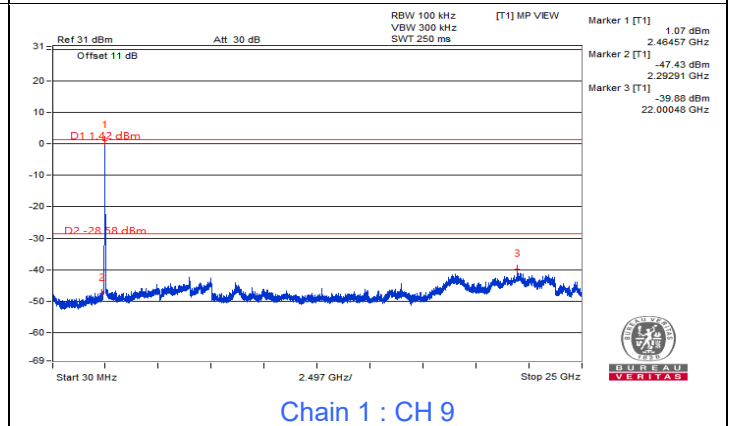
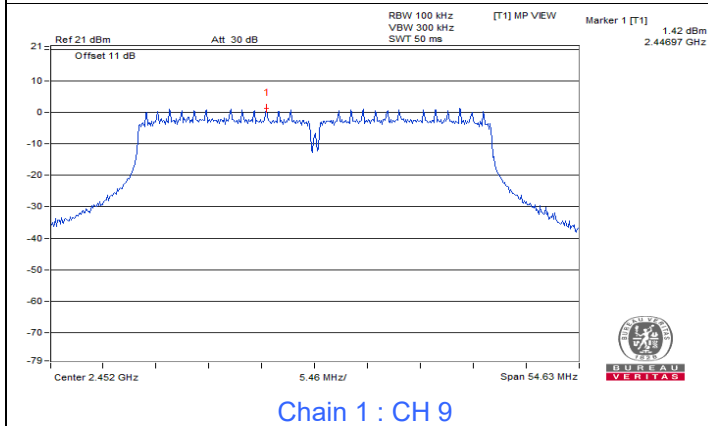
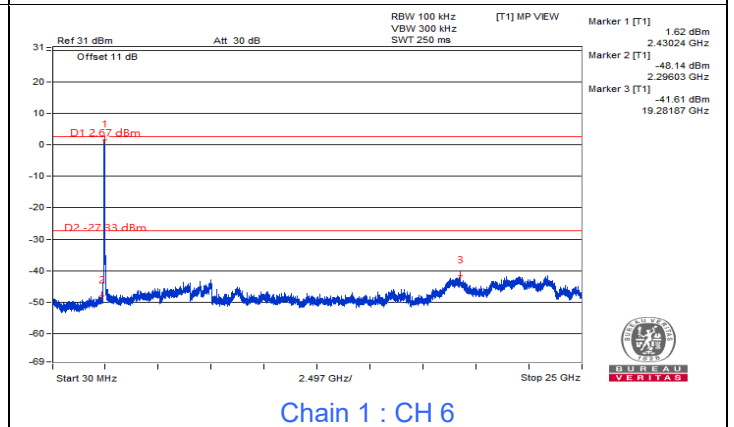
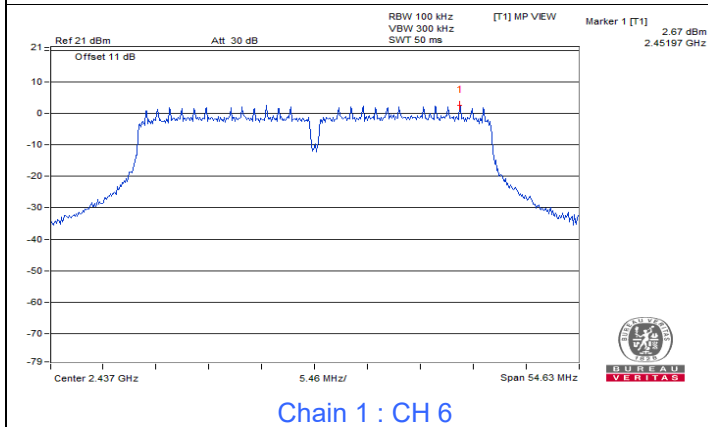
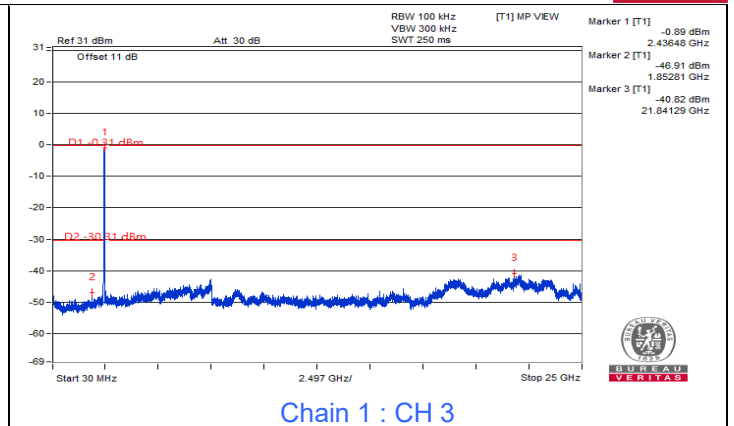
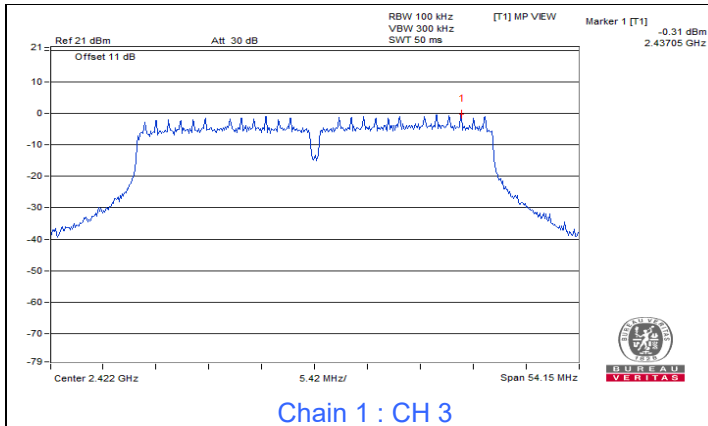
802.11n (HT20)





802.11n (HT40)





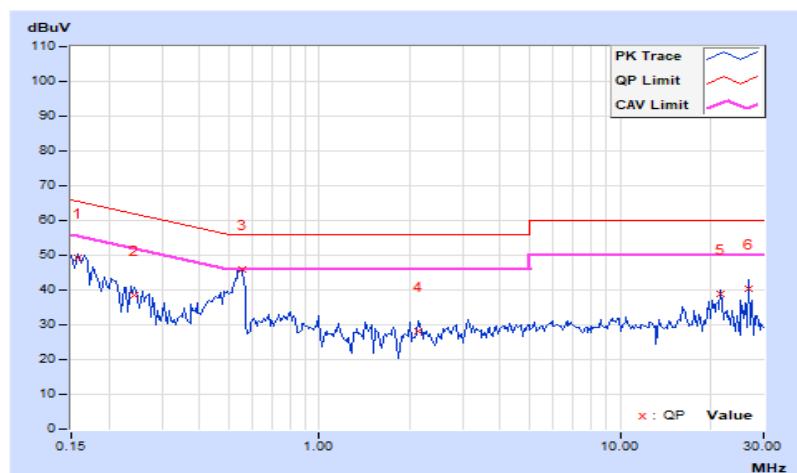
7.5 AC Power Conducted Emissions

RF Mode	802.11n (HT20)	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 68 % RH
Tested By	Louis Yang		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	9.95	39.36	25.11	49.31	35.06	65.58	55.58	-16.27	-20.52
2	0.24375	9.98	28.72	17.48	38.70	27.46	61.97	51.97	-23.27	-24.51
3	0.55234	9.99	36.06	29.40	46.05	39.39	56.00	46.00	-9.95	-6.61
4	2.14844	10.07	18.06	8.52	28.13	18.59	56.00	46.00	-27.87	-27.41
5	21.66406	10.93	28.13	24.26	39.06	35.19	60.00	50.00	-20.94	-14.81
6	26.71484	11.04	29.18	26.41	40.22	37.45	60.00	50.00	-19.78	-12.55

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

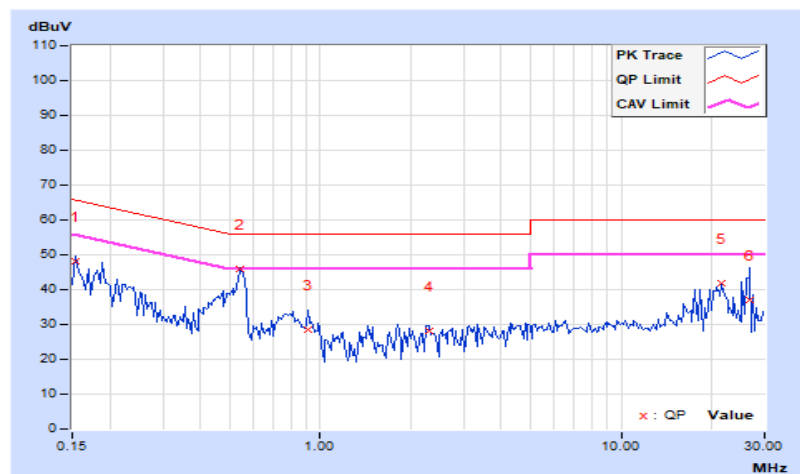


RF Mode	802.11n (HT20)	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 68 % RH
Tested By	Louis Yang		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.00	38.19	24.23	48.19	34.23	65.79	55.79	-17.60	-21.56
2	0.54453	10.00	36.02	29.78	46.02	39.78	56.00	46.00	-9.98	-6.22
3	0.90781	10.03	18.32	11.28	28.35	21.31	56.00	46.00	-27.65	-24.69
4	2.29297	10.09	18.18	10.56	28.27	20.65	56.00	46.00	-27.73	-25.35
5	21.66406	10.78	30.97	27.19	41.75	37.97	60.00	50.00	-18.25	-12.03
6	26.67578	10.84	26.29	8.82	37.13	19.66	60.00	50.00	-22.87	-30.34

Remarks:

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



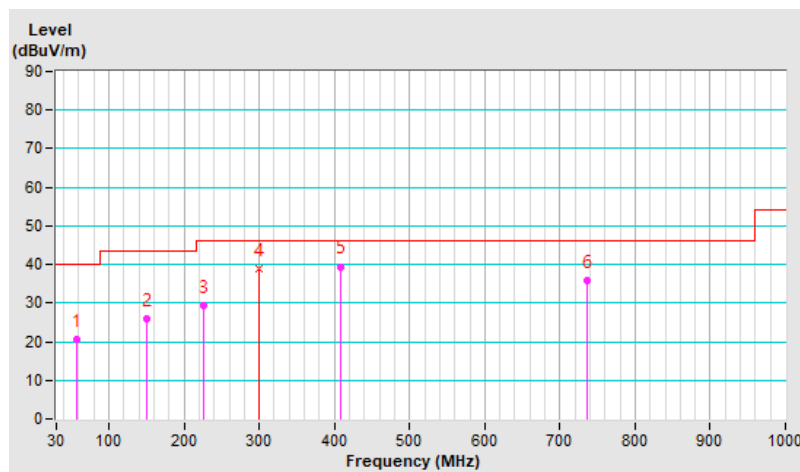
7.6 Unwanted Emissions below 1 GHz

RF Mode	802.11n (HT20)	Channel	CH 6 : 2437 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	23 °C, 68 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	57.52	20.4 QP	40.0	-19.6	3.50 H	93	33.9	-13.5
2	149.46	25.8 QP	43.5	-17.7	3.00 H	116	38.8	-13.0
3	225.02	29.3 QP	46.0	-16.7	2.00 H	288	45.7	-16.4
4	300.03	38.9 QP	46.0	-7.1	1.00 H	2	51.6	-12.7
5	408.95	39.5 QP	46.0	-6.5	1.00 H	44	49.8	-10.3
6	736.40	35.9 QP	46.0	-10.1	1.00 H	168	39.5	-3.6

Remarks:

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

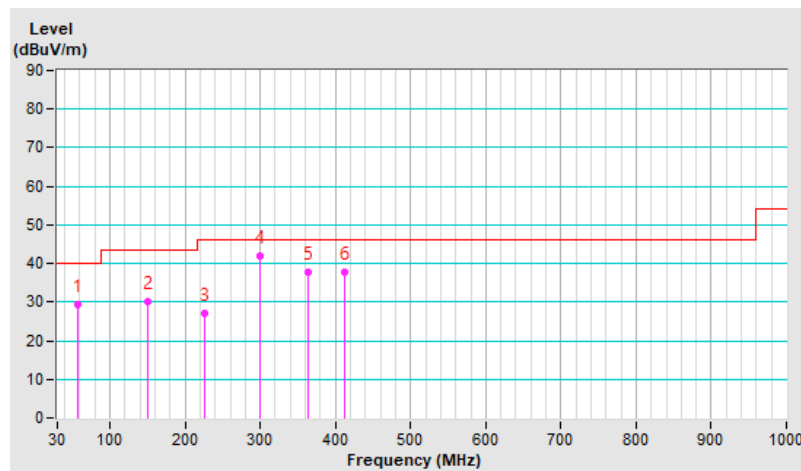


RF Mode	802.11n (HT20)	Channel	CH 6 : 2437 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	23 °C, 68 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	57.60	29.5 QP	40.0	-10.5	1.00 V	340	43.0	-13.5
2	149.87	30.2 QP	43.5	-13.3	2.50 V	240	43.2	-13.0
3	225.02	27.2 QP	46.0	-18.8	2.00 V	15	43.6	-16.4
4	300.02	42.0 QP	46.0	-4.0	2.00 V	221	54.7	-12.7
5	363.70	37.8 QP	46.0	-8.2	1.00 V	16	49.0	-11.2
6	412.23	37.8 QP	46.0	-8.2	1.50 V	37	48.0	-10.2

Remarks:

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

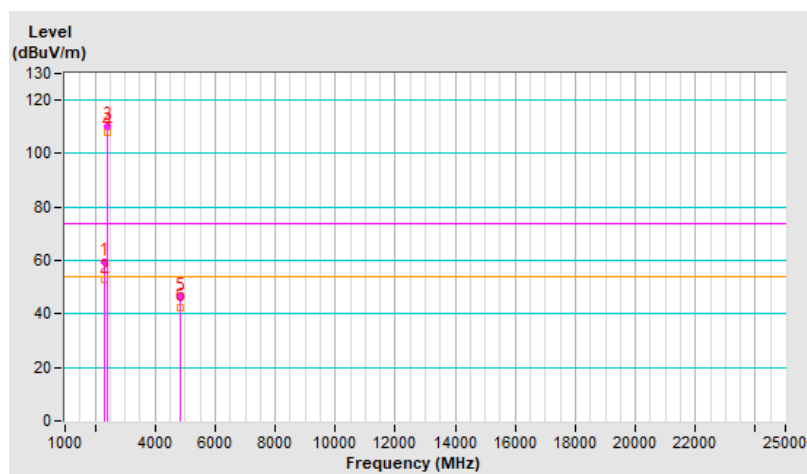
SISO

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 (System)	120 Vac, 60 Hz	Environmental Conditions	23 °C, 74 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2332.68	59.4 PK	74.0	-14.6	1.46 H	168	60.5	-1.1
2	2332.68	53.0 AV	54.0	-1.0	1.46 H	168	54.1	-1.1
3	*2412.00	110.2 PK			1.46 H	168	111.7	-1.5
4	*2412.00	108.0 AV			1.46 H	168	109.5	-1.5
5	4824.00	46.2 PK	74.0	-27.8	1.00 H	174	43.5	2.7
6	4824.00	42.3 AV	54.0	-11.7	1.00 H	174	39.6	2.7

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.

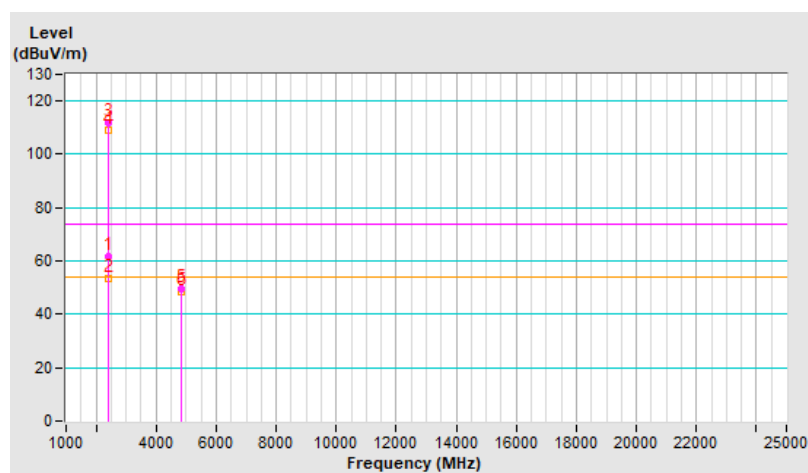


RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	23 °C, 74 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	61.7 PK	74.0	-12.3	1.23 V	221	63.1	-1.4
2	2390.00	53.6 AV	54.0	-0.4	1.23 V	221	55.0	-1.4
3	*2412.00	111.9 PK			1.23 V	221	113.4	-1.5
4	*2412.00	109.3 AV			1.23 V	221	110.8	-1.5
5	4824.00	49.7 PK	74.0	-24.3	1.60 V	70	47.0	2.7
6	4824.00	48.2 AV	54.0	-5.8	1.60 V	70	45.5	2.7

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.

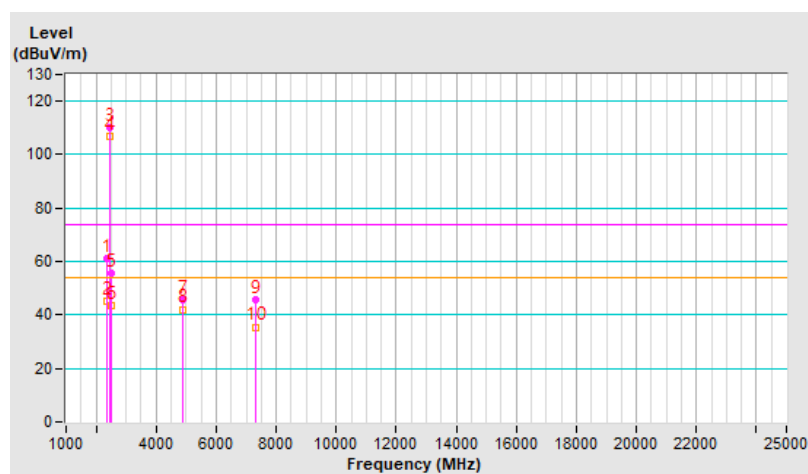


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	23 °C, 74 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2357.08	60.9 PK	74.0	-13.1	1.22 H	156	62.0	-1.1
2	2357.08	45.3 AV	54.0	-8.7	1.22 H	156	46.4	-1.1
3	*2437.00	109.9 PK			1.22 H	156	111.4	-1.5
4	*2437.00	106.7 AV			1.22 H	156	108.2	-1.5
5	2483.50	55.8 PK	74.0	-18.2	1.22 H	156	57.4	-1.6
6	2483.50	43.6 AV	54.0	-10.4	1.22 H	156	45.2	-1.6
7	4874.00	45.8 PK	74.0	-28.2	1.00 H	164	42.9	2.9
8	4874.00	42.1 AV	54.0	-11.9	1.00 H	164	39.2	2.9
9	7311.00	45.5 PK	74.0	-28.5	1.50 H	128	36.1	9.4
10	7311.00	35.5 AV	54.0	-18.5	1.50 H	128	26.1	9.4

Remarks:

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

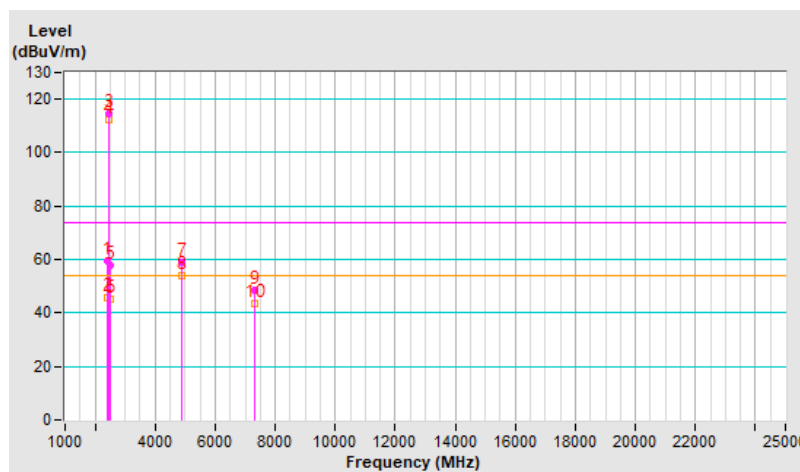


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	23 °C, 74 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.7 PK	74.0	-14.3	2.74 V	208	61.1	-1.4
2	2390.00	45.6 AV	54.0	-8.4	2.74 V	208	47.0	-1.4
3	*2437.00	114.6 PK			2.74 V	208	116.1	-1.5
4	*2437.00	112.3 AV			2.74 V	208	113.8	-1.5
5	2483.50	58.0 PK	74.0	-16.0	2.74 V	208	59.6	-1.6
6	2483.50	45.0 AV	54.0	-9.0	2.74 V	208	46.6	-1.6
7	4874.00	58.7 PK	74.0	-15.3	1.56 V	76	55.8	2.9
8	4874.00	53.8 AV	54.0	-0.2	1.56 V	76	50.9	2.9
9	7311.00	48.5 PK	74.0	-25.5	1.98 V	360	39.1	9.4
10	7311.00	43.5 AV	54.0	-10.5	1.98 V	360	34.1	9.4

Remarks:

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

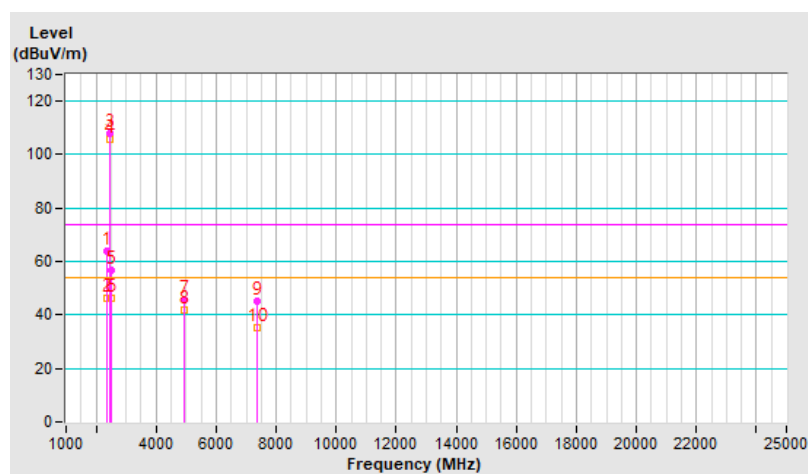


RF Mode	802.11b	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	23 °C, 74 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2381.67	63.9 PK	74.0	-10.1	1.25 H	162	65.1	-1.2
2	2381.67	46.1 AV	54.0	-7.9	1.25 H	162	47.3	-1.2
3	*2462.00	107.8 PK			1.25 H	162	109.2	-1.4
4	*2462.00	105.5 AV			1.25 H	162	106.9	-1.4
5	2483.50	56.9 PK	74.0	-17.1	1.25 H	162	58.5	-1.6
6	2483.50	46.1 AV	54.0	-7.9	1.25 H	162	47.7	-1.6
7	4924.00	45.7 PK	74.0	-28.3	1.06 H	161	42.6	3.1
8	4924.00	41.7 AV	54.0	-12.3	1.06 H	161	38.6	3.1
9	7386.00	45.0 PK	74.0	-29.0	1.46 H	130	35.5	9.5
10	7386.00	35.1 AV	54.0	-18.9	1.46 H	130	25.6	9.5

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.

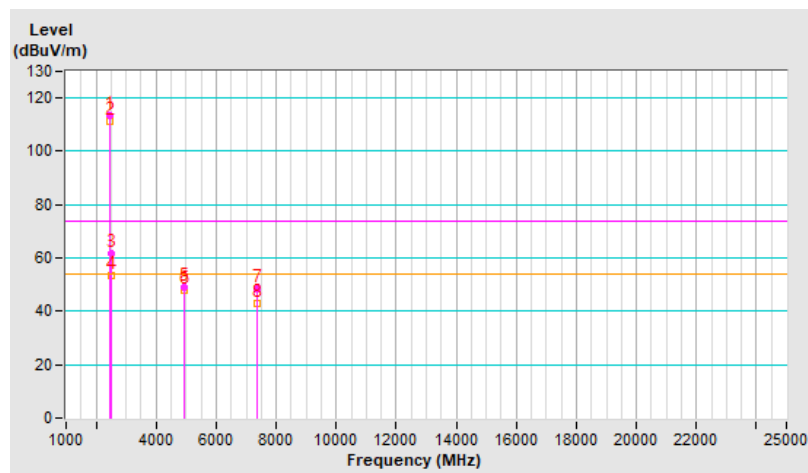


RF Mode	802.11b	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	23 °C, 74 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	113.2 PK			2.40 V	201	114.6	-1.4
2	*2462.00	111.0 AV			2.40 V	201	112.4	-1.4
3	2483.50	61.7 PK	74.0	-12.3	2.40 V	201	63.3	-1.6
4	2483.50	53.3 AV	54.0	-0.7	2.40 V	201	54.9	-1.6
5	4924.00	49.2 PK	74.0	-24.8	1.63 V	68	46.1	3.1
6	4924.00	48.1 AV	54.0	-5.9	1.63 V	68	45.0	3.1
7	7386.00	48.2 PK	74.0	-25.8	2.02 V	360	38.7	9.5
8	7386.00	43.1 AV	54.0	-10.9	2.02 V	360	33.6	9.5

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.

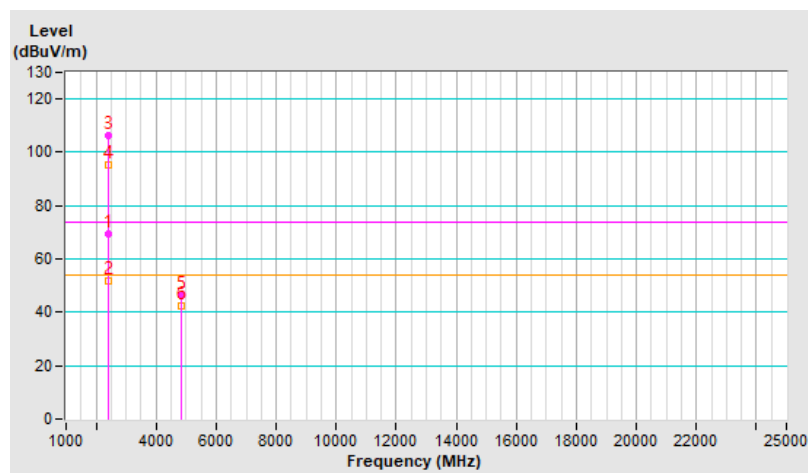


RF Mode	802.11g	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	23 °C, 74 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	69.4 PK	74.0	-4.6	1.21 H	166	70.8	-1.4
2	2390.00	51.8 AV	54.0	-2.2	1.21 H	166	53.2	-1.4
3	*2412.00	106.5 PK			1.21 H	166	108.0	-1.5
4	*2412.00	95.5 AV			1.21 H	166	97.0	-1.5
5	4824.00	46.0 PK	74.0	-28.0	1.00 H	151	43.3	2.7
6	4824.00	42.3 AV	54.0	-11.7	1.00 H	151	39.6	2.7

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.

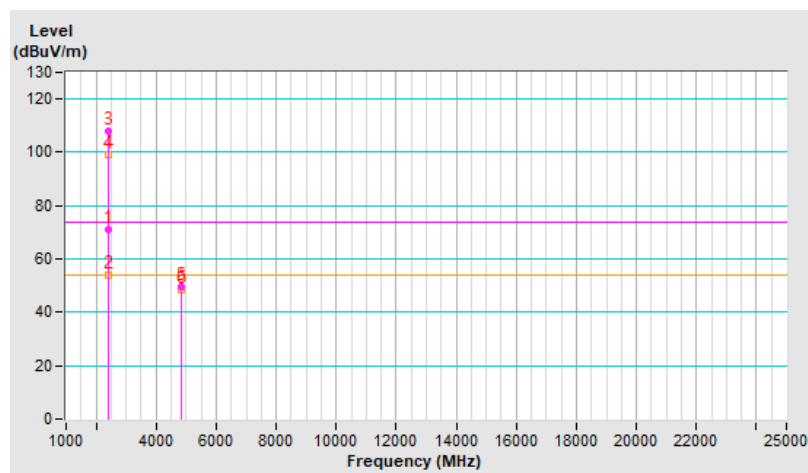


RF Mode	802.11g	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	23 °C, 74 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	71.0 PK	74.0	-3.0	2.34 V	221	72.4	-1.4
2	2390.00	53.8 AV	54.0	-0.2	2.34 V	221	55.2	-1.4
3	*2412.00	107.8 PK			2.34 V	221	109.3	-1.5
4	*2412.00	99.1 AV			2.34 V	221	100.6	-1.5
5	4824.00	49.5 PK	74.0	-24.5	1.57 V	53	46.8	2.7
6	4824.00	48.4 AV	54.0	-5.6	1.57 V	53	45.7	2.7

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.

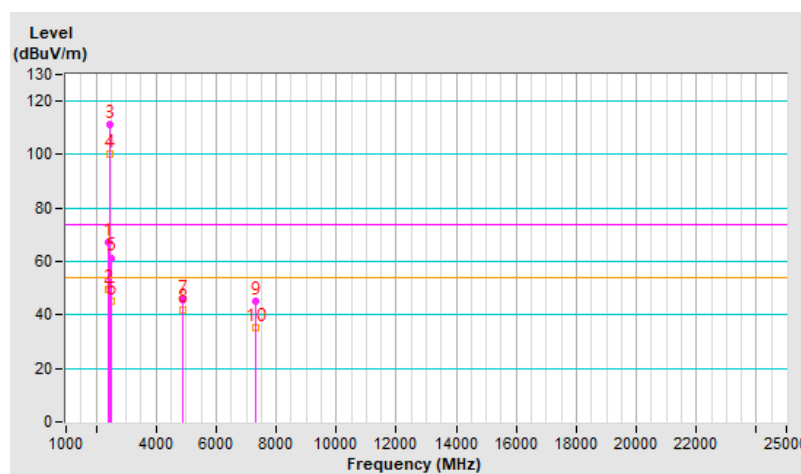


RF Mode	802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	23 °C, 74 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.0 PK	74.0	-7.0	1.22 H	164	68.4	-1.4
2	2390.00	49.8 AV	54.0	-4.2	1.22 H	164	51.2	-1.4
3	*2437.00	111.2 PK			1.22 H	164	112.7	-1.5
4	*2437.00	100.0 AV			1.22 H	164	101.5	-1.5
5	2483.50	61.4 PK	74.0	-12.6	1.22 H	164	63.0	-1.6
6	2483.50	45.4 AV	54.0	-8.6	1.22 H	164	47.0	-1.6
7	4874.00	45.8 PK	74.0	-28.2	1.06 H	157	42.9	2.9
8	4874.00	42.1 AV	54.0	-11.9	1.06 H	157	39.2	2.9
9	7311.00	45.0 PK	74.0	-29.0	1.46 H	119	35.6	9.4
10	7311.00	35.3 AV	54.0	-18.7	1.46 H	119	25.9	9.4

Remarks:

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

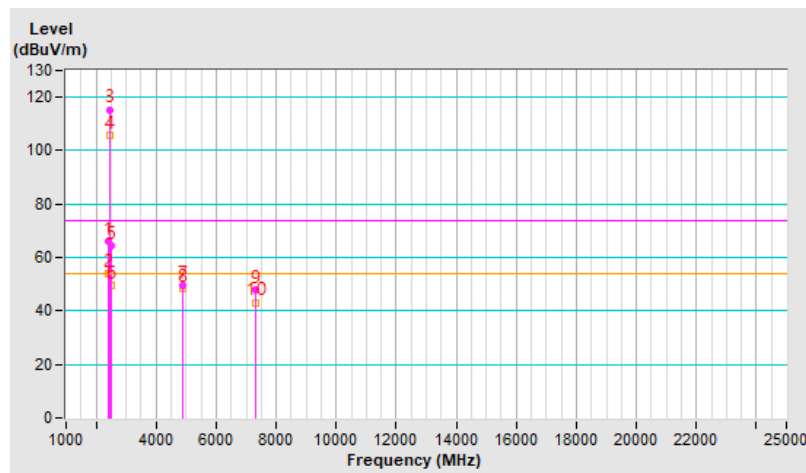


RF Mode	802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	23 °C, 74 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	66.1 PK	74.0	-7.9	2.75 V	211	67.5	-1.4
2	2390.00	53.9 AV	54.0	-0.1	2.75 V	211	55.3	-1.4
3	*2437.00	115.4 PK			2.75 V	211	116.9	-1.5
4	*2437.00	105.6 AV			2.75 V	211	107.1	-1.5
5	2483.50	64.6 PK	74.0	-9.4	2.75 V	211	66.2	-1.6
6	2483.50	49.6 AV	54.0	-4.4	2.75 V	211	51.2	-1.6
7	4874.00	49.4 PK	74.0	-24.6	1.59 V	62	46.5	2.9
8	4874.00	48.2 AV	54.0	-5.8	1.59 V	62	45.3	2.9
9	7311.00	48.1 PK	74.0	-25.9	1.97 V	360	38.7	9.4
10	7311.00	43.2 AV	54.0	-10.8	1.97 V	360	33.8	9.4

Remarks:

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

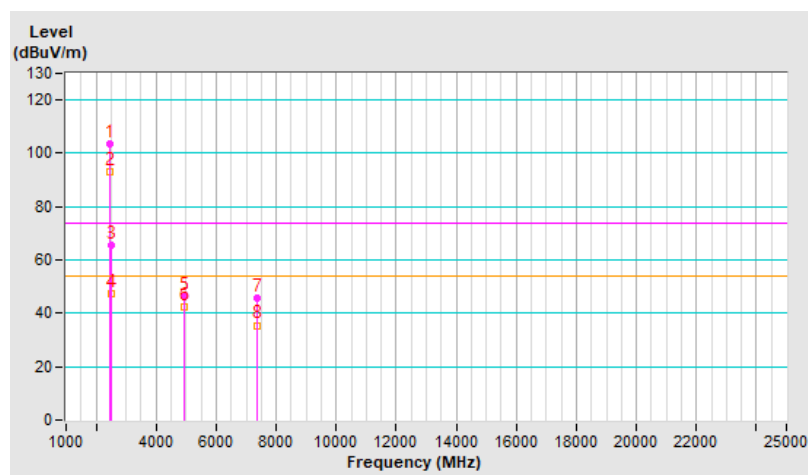


RF Mode	802.11g	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	23 °C, 74 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	103.6 PK			1.47 H	162	105.0	-1.4
2	*2462.00	93.1 AV			1.47 H	162	94.5	-1.4
3	2483.50	65.6 PK	74.0	-8.4	1.47 H	162	67.2	-1.6
4	2483.50	47.4 AV	54.0	-6.6	1.47 H	162	49.0	-1.6
5	4924.00	46.0 PK	74.0	-28.0	1.02 H	163	42.9	3.1
6	4924.00	42.4 AV	54.0	-11.6	1.02 H	163	39.3	3.1
7	7386.00	45.8 PK	74.0	-28.2	1.47 H	138	36.3	9.5
8	7386.00	35.5 AV	54.0	-18.5	1.47 H	138	26.0	9.5

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.

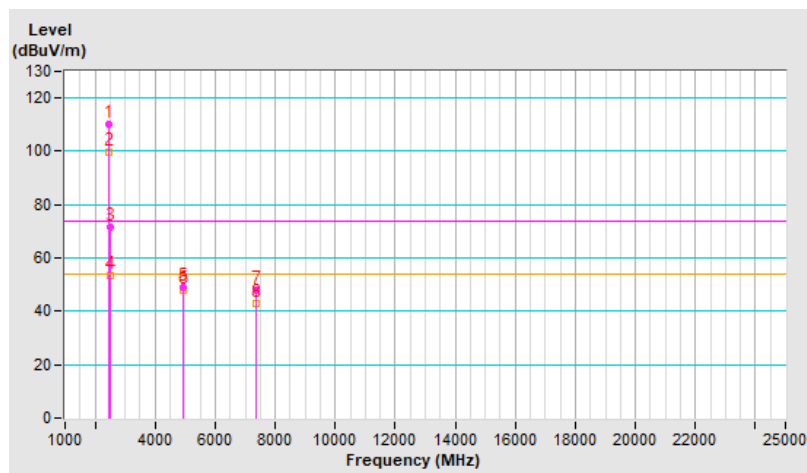


RF Mode	802.11g	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	23 °C, 74 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	109.9 PK			2.47 V	207	111.3	-1.4
2	*2462.00	99.6 AV			2.47 V	207	101.0	-1.4
3	2483.50	71.4 PK	74.0	-2.6	2.47 V	207	73.0	-1.6
4	2483.50	53.5 AV	54.0	-0.5	2.47 V	207	55.1	-1.6
5	4924.00	49.1 PK	74.0	-24.9	1.55 V	61	46.0	3.1
6	4924.00	48.1 AV	54.0	-5.9	1.55 V	61	45.0	3.1
7	7386.00	48.1 PK	74.0	-25.9	1.93 V	360	38.6	9.5
8	7386.00	43.1 AV	54.0	-10.9	1.93 V	360	33.6	9.5

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.



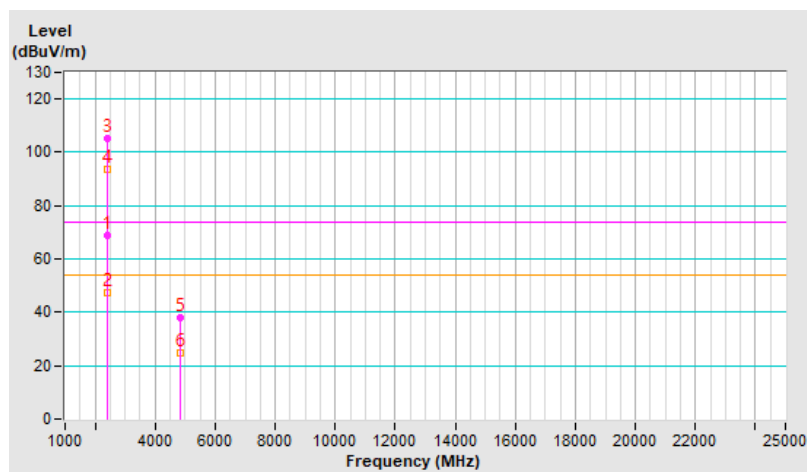
CDD

RF Mode	802.11n (HT20)	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 (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 72 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	68.7 PK	74.0	-5.3	1.41 H	230	70.1	-1.4
2	2390.00	47.2 AV	54.0	-6.8	1.41 H	230	48.6	-1.4
3	*2412.00	105.1 PK			1.41 H	230	106.6	-1.5
4	*2412.00	93.4 AV			1.41 H	230	94.9	-1.5
5	4824.00	38.0 PK	74.0	-36.0	3.20 H	222	35.3	2.7
6	4824.00	24.8 AV	54.0	-29.2	3.20 H	222	22.1	2.7

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.

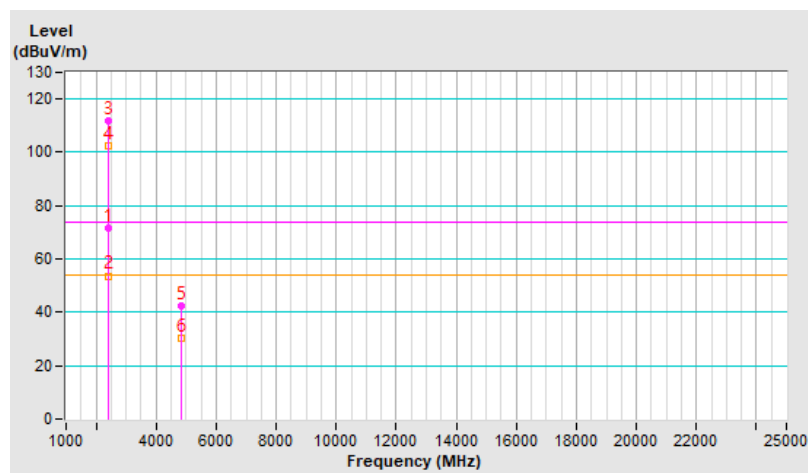


RF Mode	802.11n (HT20)	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 72 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	71.7 PK	74.0	-2.3	1.96 V	48	73.1	-1.4
2	2390.00	53.7 AV	54.0	-0.3	1.96 V	48	55.1	-1.4
3	*2412.00	111.9 PK			1.96 V	48	113.4	-1.5
4	*2412.00	102.4 AV			1.96 V	48	103.9	-1.5
5	4824.00	42.4 PK	74.0	-31.6	2.36 V	183	39.7	2.7
6	4824.00	30.5 AV	54.0	-23.5	2.36 V	183	27.8	2.7

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.

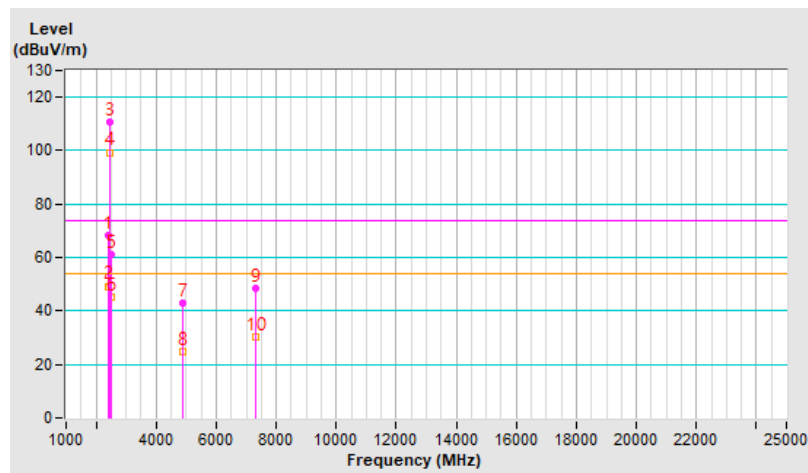


RF Mode	802.11n (HT20)	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 72 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	68.1 PK	74.0	-5.9	1.28 H	94	69.5	-1.4
2	2390.00	49.3 AV	54.0	-4.7	1.28 H	94	50.7	-1.4
3	*2437.00	110.7 PK			1.28 H	94	112.2	-1.5
4	*2437.00	99.4 AV			1.28 H	94	100.9	-1.5
5	2483.50	61.0 PK	74.0	-13.0	1.28 H	94	62.6	-1.6
6	2483.50	45.3 AV	54.0	-8.7	1.28 H	94	46.9	-1.6
7	4874.00	43.0 PK	74.0	-31.0	2.57 H	338	40.1	2.9
8	4874.00	24.9 AV	54.0	-29.1	2.57 H	338	22.0	2.9
9	7311.00	48.5 PK	74.0	-25.5	2.99 H	215	39.1	9.4
10	7311.00	30.1 AV	54.0	-23.9	2.99 H	215	20.7	9.4

Remarks:

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

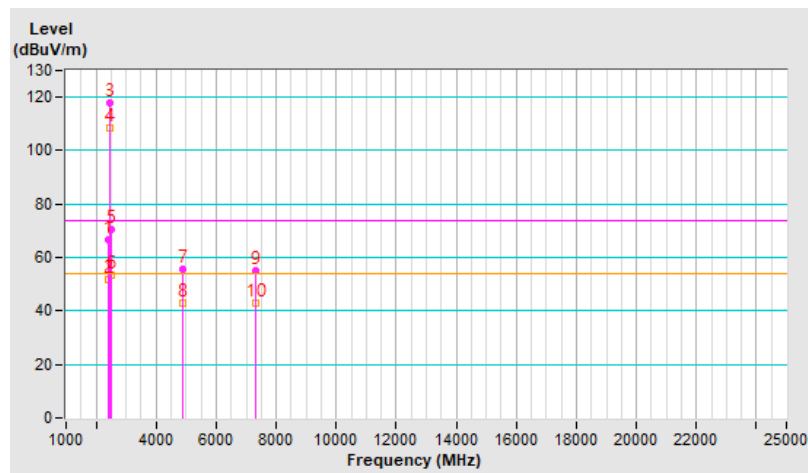


RF Mode	802.11n (HT20)	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 72 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	66.8 PK	74.0	-7.2	1.97 V	340	68.2	-1.4
2	2390.00	52.0 AV	54.0	-2.0	1.97 V	340	53.4	-1.4
3	*2437.00	117.8 PK			1.97 V	340	119.3	-1.5
4	*2437.00	108.3 AV			1.97 V	340	109.8	-1.5
5	2483.50	70.3 PK	74.0	-3.7	1.97 V	340	71.9	-1.6
6	2483.50	53.6 AV	54.0	-0.4	1.97 V	340	55.2	-1.6
7	4874.00	55.4 PK	74.0	-18.6	1.55 V	18	52.5	2.9
8	4874.00	43.0 AV	54.0	-11.0	1.55 V	18	40.1	2.9
9	7311.00	55.1 PK	74.0	-18.9	2.08 V	43	45.7	9.4
10	7311.00	43.1 AV	54.0	-10.9	2.08 V	43	33.7	9.4

Remarks:

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

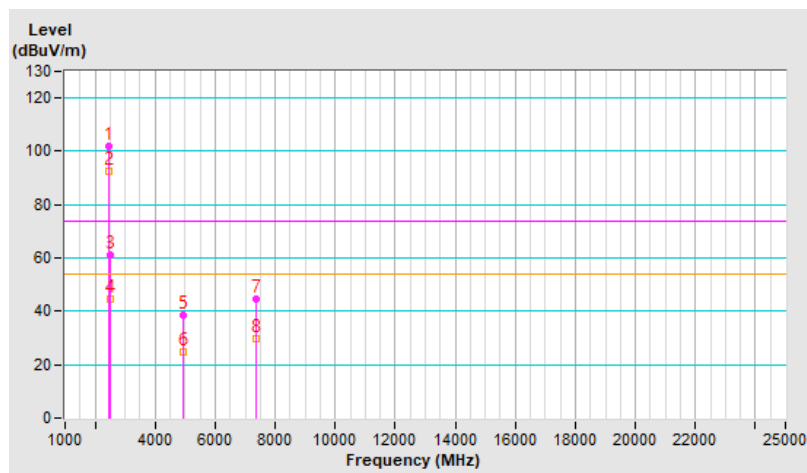


RF Mode	802.11n (HT20)	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 72 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	101.9 PK			1.46 H	168	103.3	-1.4
2	*2462.00	92.4 AV			1.46 H	168	93.8	-1.4
3	2483.50	61.2 PK	74.0	-12.8	1.46 H	168	62.8	-1.6
4	2483.50	44.5 AV	54.0	-9.5	1.46 H	168	46.1	-1.6
5	4924.00	38.5 PK	74.0	-35.5	3.33 H	146	35.4	3.1
6	4924.00	24.8 AV	54.0	-29.2	3.33 H	146	21.7	3.1
7	7386.00	44.5 PK	74.0	-29.5	3.59 H	114	35.0	9.5
8	7386.00	29.8 AV	54.0	-24.2	3.59 H	114	20.3	9.5

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.

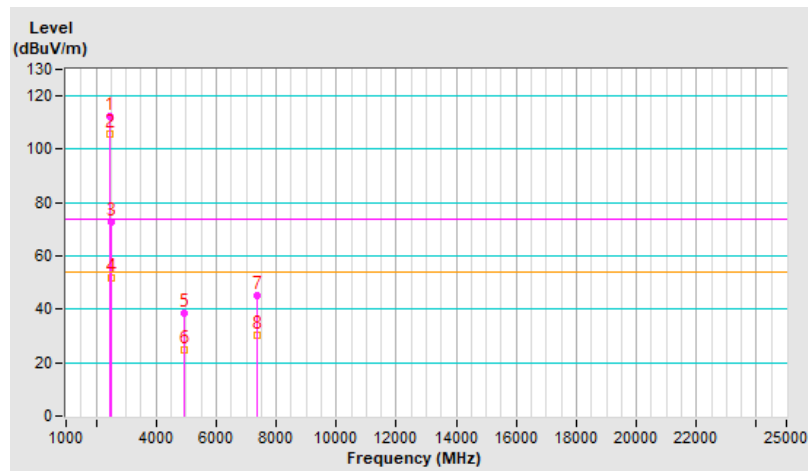


RF Mode	802.11n (HT20)	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 72 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	112.5 PK			2.22 V	342	113.9	-1.4
2	*2462.00	105.6 AV			2.22 V	342	107.0	-1.4
3	2483.50	72.8 PK	74.0	-1.2	2.22 V	342	74.4	-1.6
4	2483.50	51.6 AV	54.0	-2.4	2.22 V	342	53.2	-1.6
5	4924.00	38.5 PK	74.0	-35.5	3.31 V	133	35.4	3.1
6	4924.00	24.7 AV	54.0	-29.3	3.31 V	133	21.6	3.1
7	7386.00	45.0 PK	74.0	-29.0	3.54 V	101	35.5	9.5
8	7386.00	30.3 AV	54.0	-23.7	3.54 V	101	20.8	9.5

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.

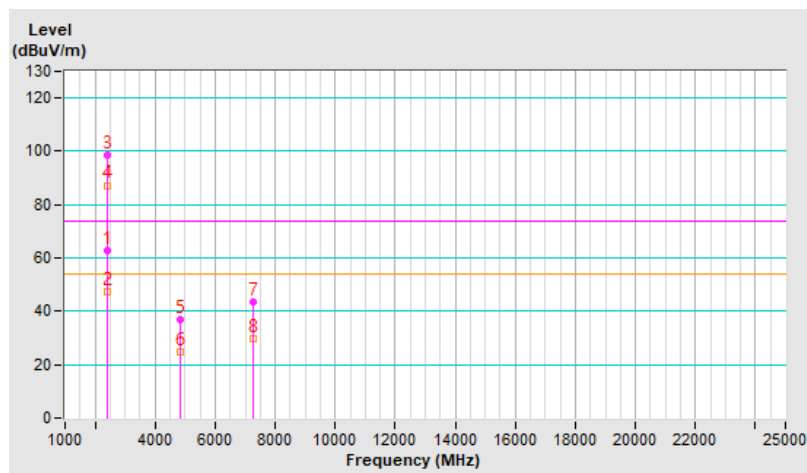


RF Mode	802.11n (HT40)	Channel	CH 3 : 2422 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 72 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	62.6 PK	74.0	-11.4	1.44 H	218	64.0	-1.4
2	2390.00	47.4 AV	54.0	-6.6	1.44 H	218	48.8	-1.4
3	*2422.00	98.7 PK			1.44 H	218	100.2	-1.5
4	*2422.00	87.3 AV			1.44 H	218	88.8	-1.5
5	4844.00	37.1 PK	74.0	-36.9	3.42 H	125	34.4	2.7
6	4844.00	24.7 AV	54.0	-29.3	3.42 H	125	22.0	2.7
7	7266.00	43.4 PK	74.0	-30.6	3.25 H	132	33.9	9.5
8	7266.00	29.9 AV	54.0	-24.1	3.25 H	132	20.4	9.5

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.

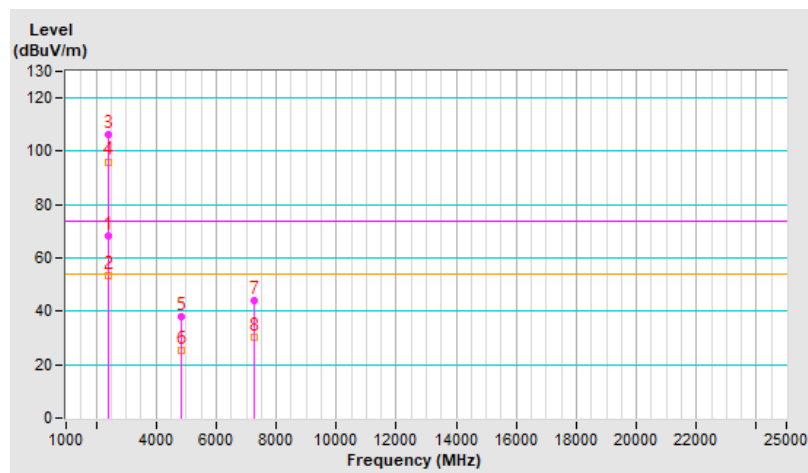


RF Mode	802.11n (HT40)	Channel	CH 3 : 2422 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 72 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	68.3 PK	74.0	-5.7	1.66 V	342	69.7	-1.4
2	2390.00	53.4 AV	54.0	-0.6	1.66 V	342	54.8	-1.4
3	*2422.00	106.1 PK			1.66 V	342	107.6	-1.5
4	*2422.00	96.1 AV			1.66 V	342	97.6	-1.5
5	4844.00	37.8 PK	74.0	-36.2	3.43 V	122	35.1	2.7
6	4844.00	25.2 AV	54.0	-28.8	3.43 V	122	22.5	2.7
7	7266.00	43.8 PK	74.0	-30.2	3.20 V	134	34.3	9.5
8	7266.00	30.3 AV	54.0	-23.7	3.20 V	134	20.8	9.5

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.

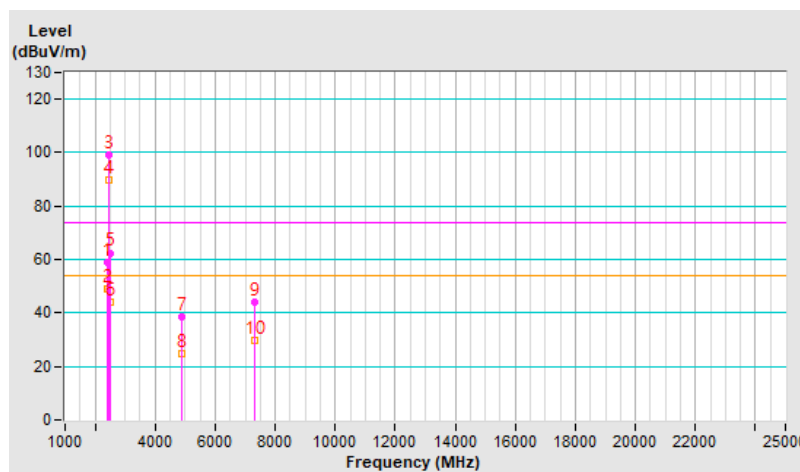


RF Mode	802.11n (HT40)	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 72 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	58.8 PK	74.0	-15.2	1.51 H	167	60.2	-1.4
2	2390.00	49.0 AV	54.0	-5.0	1.51 H	167	50.4	-1.4
3	*2437.00	99.0 PK			1.51 H	167	100.5	-1.5
4	*2437.00	89.8 AV			1.51 H	167	91.3	-1.5
5	2483.50	62.5 PK	74.0	-11.5	1.51 H	167	64.1	-1.6
6	2483.50	43.9 AV	54.0	-10.1	1.51 H	167	45.5	-1.6
7	4874.00	38.7 PK	74.0	-35.3	2.14 H	146	35.8	2.9
8	4874.00	24.7 AV	54.0	-29.3	2.14 H	146	21.8	2.9
9	7311.00	44.2 PK	74.0	-29.8	2.22 H	145	34.8	9.4
10	7311.00	29.9 AV	54.0	-24.1	2.22 H	145	20.5	9.4

Remarks:

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

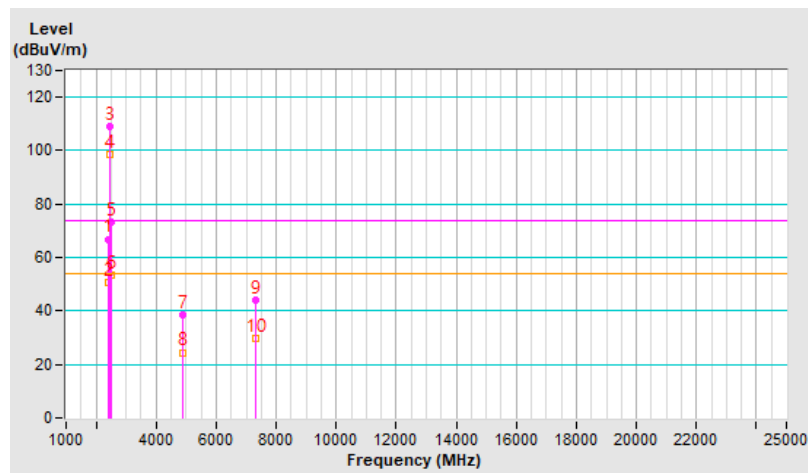


RF Mode	802.11n (HT40)	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 72 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	66.9 PK	74.0	-7.1	1.60 V	344	68.3	-1.4
2	2390.00	50.5 AV	54.0	-3.5	1.60 V	344	51.9	-1.4
3	*2437.00	109.1 PK			1.60 V	344	110.6	-1.5
4	*2437.00	98.8 AV			1.60 V	344	100.3	-1.5
5	2483.50	73.4 PK	74.0	-0.6	1.60 V	344	75.0	-1.6
6	2483.50	53.4 AV	54.0	-0.6	1.60 V	344	55.0	-1.6
7	4874.00	38.6 PK	74.0	-35.4	2.18 V	149	35.7	2.9
8	4874.00	24.5 AV	54.0	-29.5	2.18 V	149	21.6	2.9
9	7311.00	43.8 PK	74.0	-30.2	2.21 V	159	34.4	9.4
10	7311.00	29.5 AV	54.0	-24.5	2.21 V	159	20.1	9.4

Remarks:

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

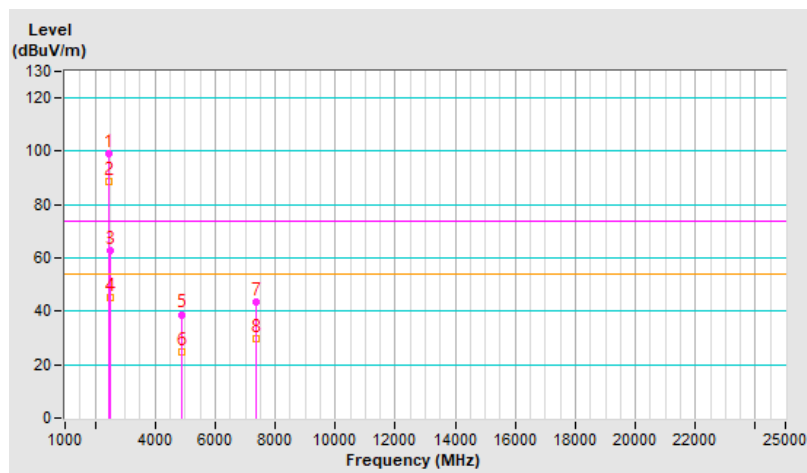


RF Mode	802.11n (HT40)	Channel	CH 9 : 2452 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 72 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	98.9 PK			1.85 H	95	100.3	-1.4
2	*2452.00	88.8 AV			1.85 H	95	90.2	-1.4
3	2483.50	62.7 PK	74.0	-11.3	1.85 H	95	64.3	-1.6
4	2483.50	45.4 AV	54.0	-8.6	1.85 H	95	47.0	-1.6
5	4904.00	38.8 PK	74.0	-35.2	3.46 H	160	35.9	2.9
6	4904.00	24.8 AV	54.0	-29.2	3.46 H	160	21.9	2.9
7	7356.00	43.2 PK	74.0	-30.8	3.42 H	162	33.8	9.4
8	7356.00	29.9 AV	54.0	-24.1	3.42 H	162	20.5	9.4

Remarks:

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

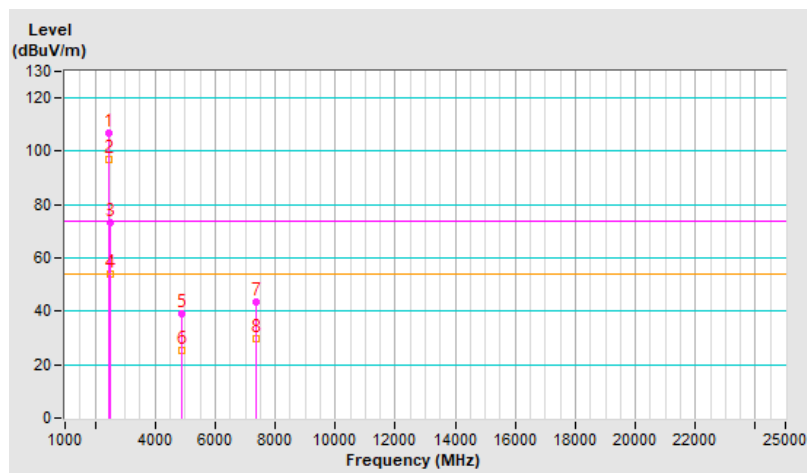


RF Mode	802.11n (HT40)	Channel	CH 9 : 2452 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	26 °C, 72 % RH
Tested By	Louis Yang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	106.7 PK			1.13 V	343	108.1	-1.4
2	*2452.00	97.1 AV			1.13 V	343	98.5	-1.4
3	2483.50	73.2 PK	74.0	-0.8	1.13 V	343	74.8	-1.6
4	2483.50	53.8 AV	54.0	-0.2	1.13 V	343	55.4	-1.6
5	4904.00	39.1 PK	74.0	-34.9	3.41 V	176	36.2	2.9
6	4904.00	25.2 AV	54.0	-28.8	3.41 V	176	22.3	2.9
7	7356.00	43.4 PK	74.0	-30.6	3.40 V	164	34.0	9.4
8	7356.00	29.9 AV	54.0	-24.1	3.40 V	164	20.5	9.4

Remarks:

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

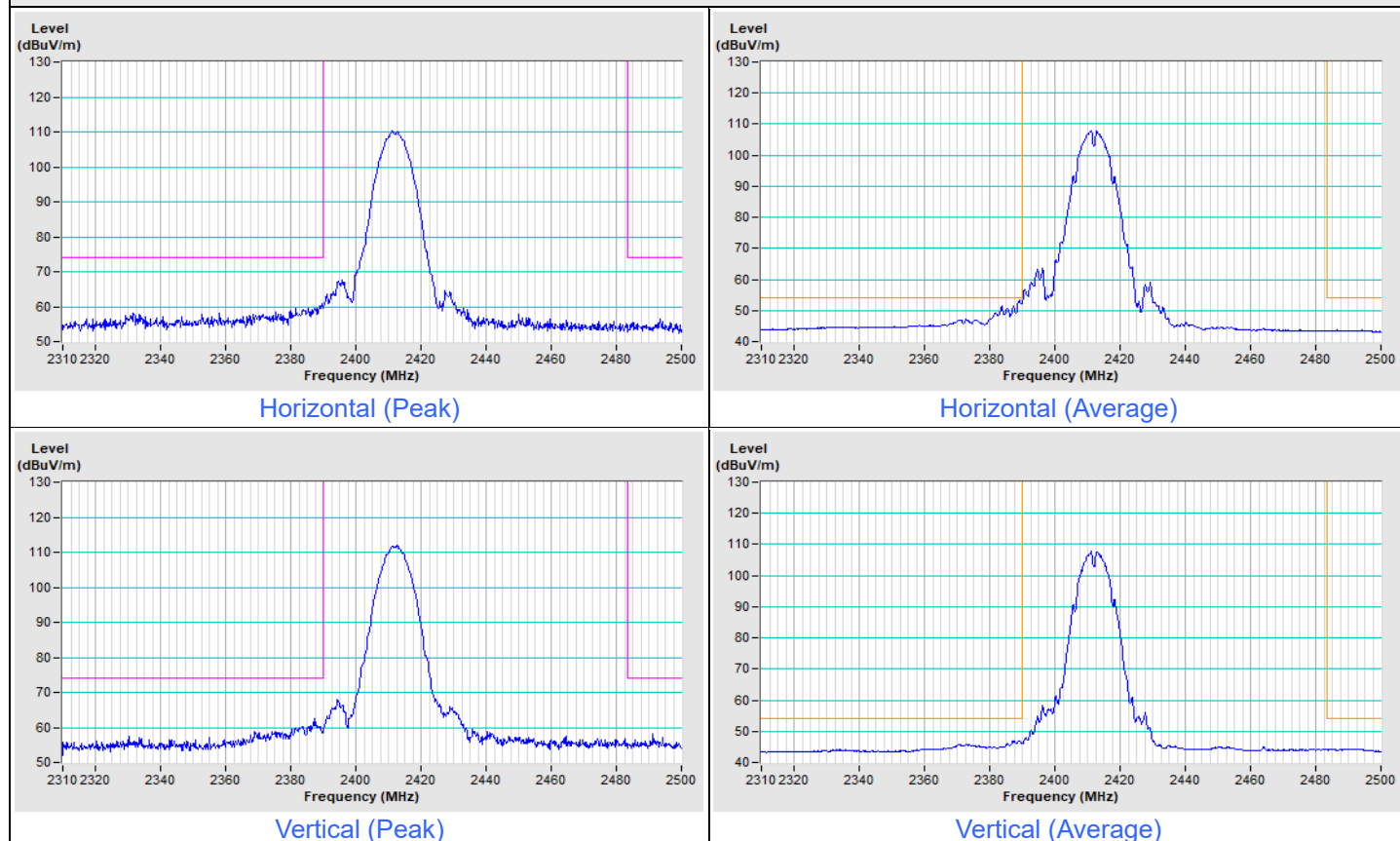


Plot of Band Edge

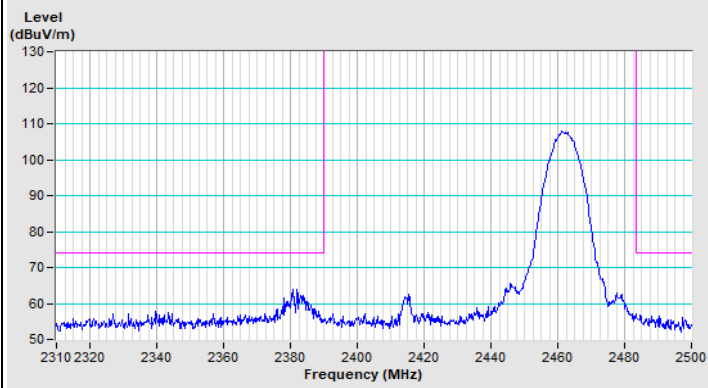
SISO

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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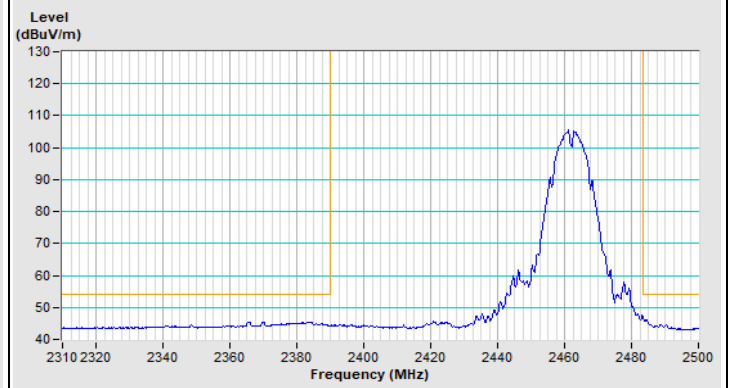
802.11b Channel 1



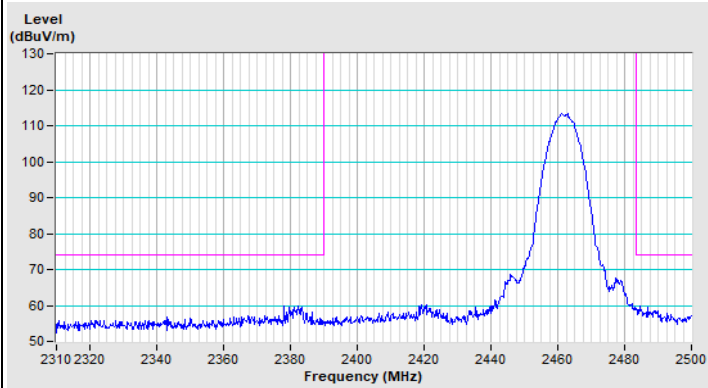
802.11b Channel 11



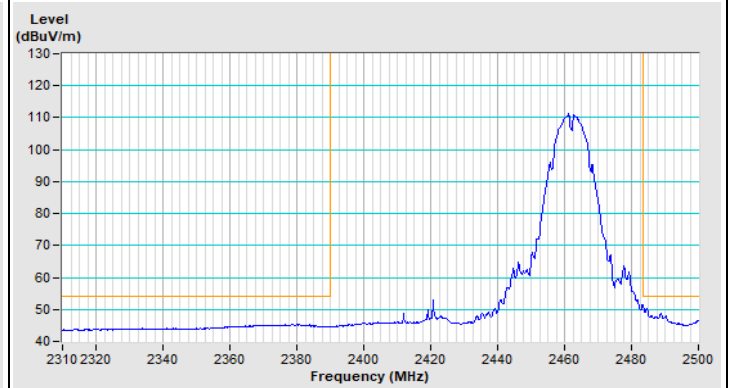
Horizontal (Peak)



Horizontal (Average)



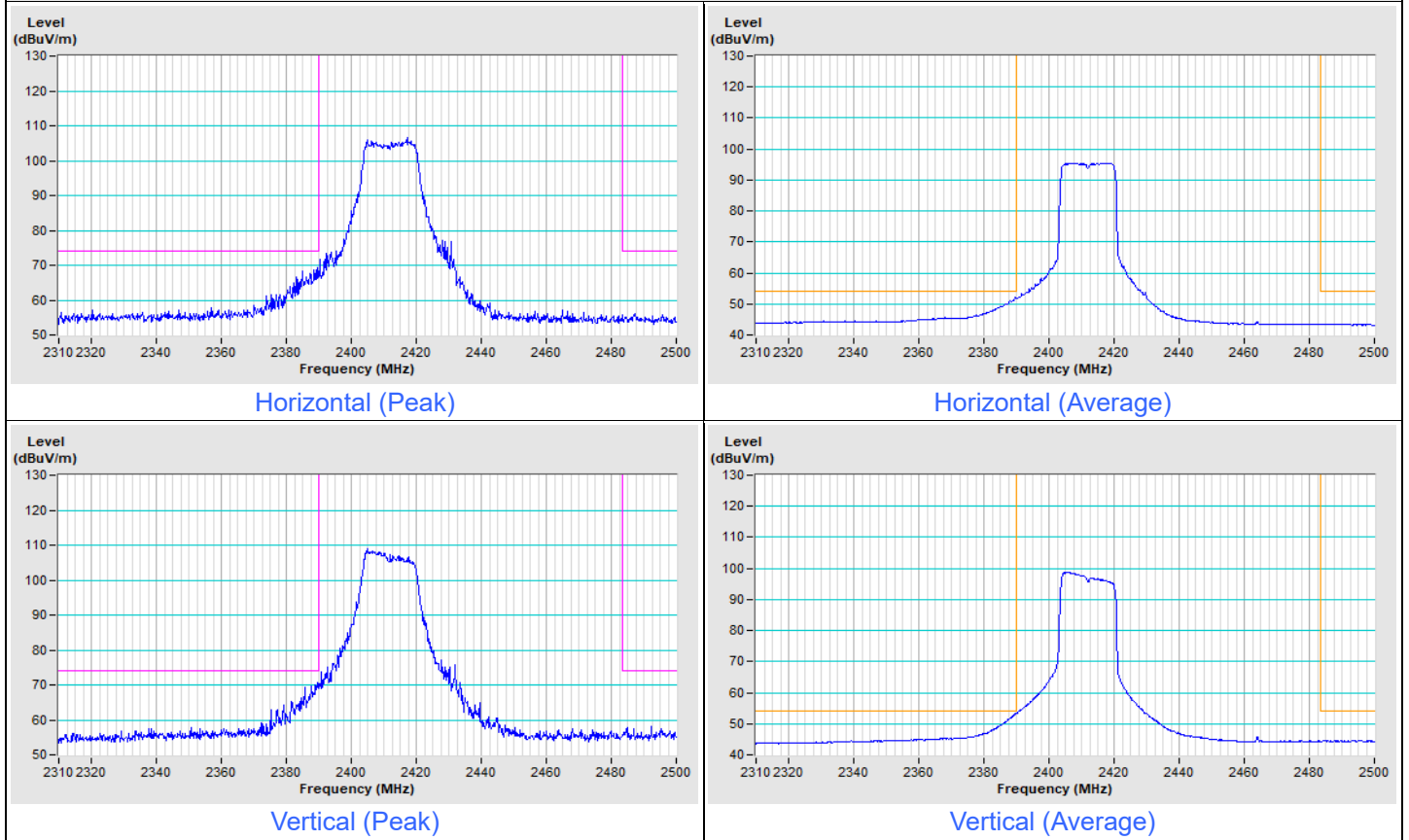
Vertical (Peak)



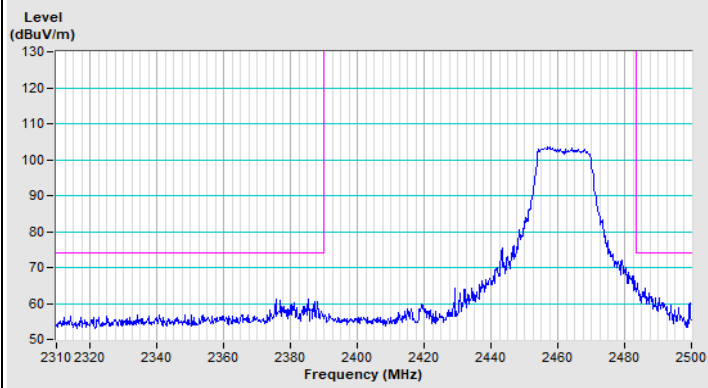
Vertical (Average)

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=10 Hz, DET=Peak
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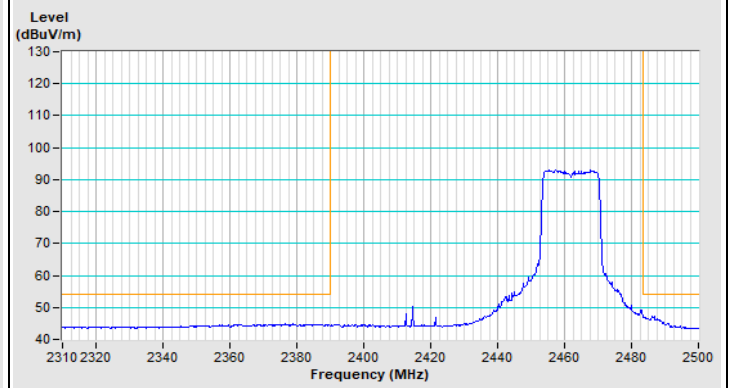
802.11g Channel 1



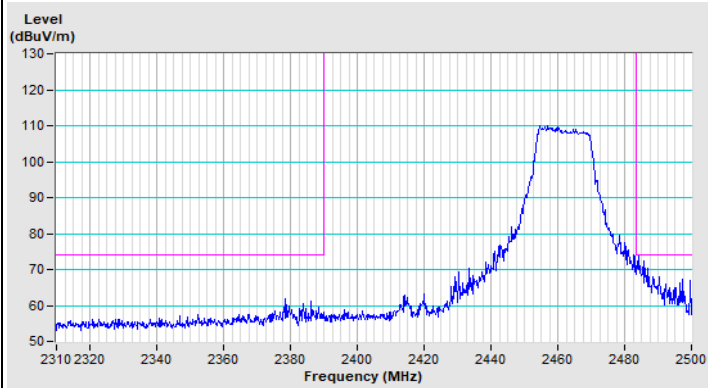
802.11g Channel 11



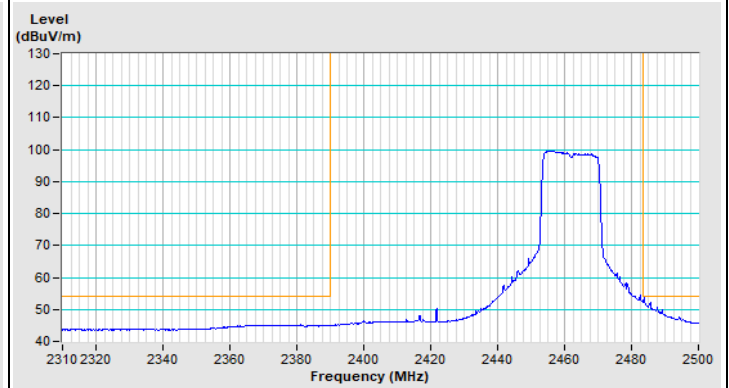
Horizontal (Peak)



Horizontal (Average)



Vertical (Peak)

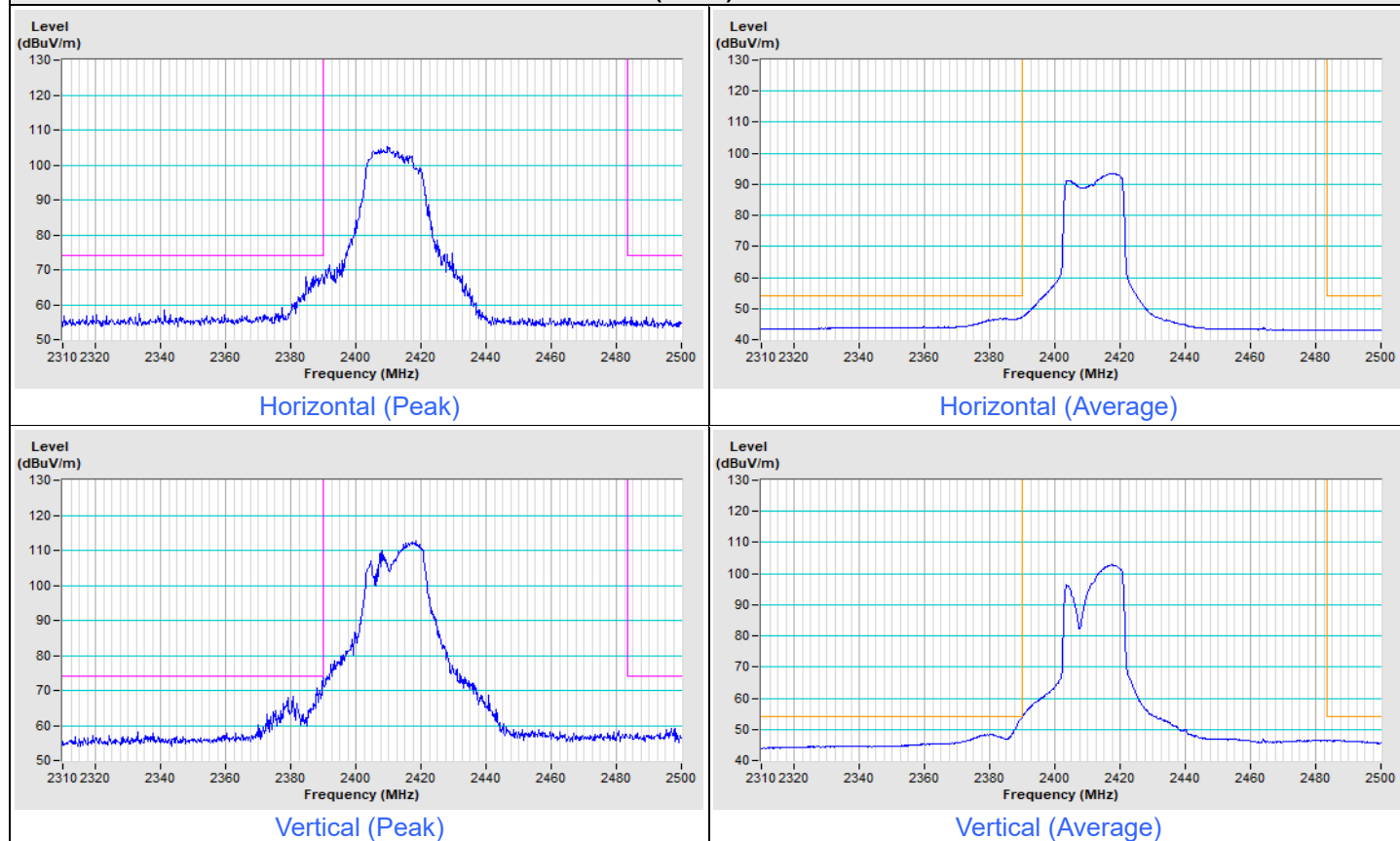


Vertical (Average)

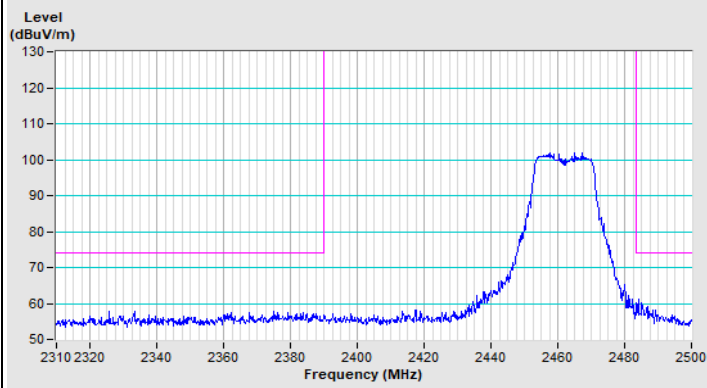
CDD

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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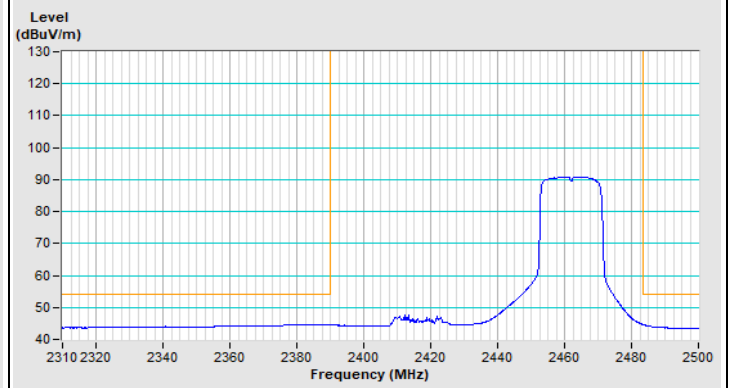
802.11n (HT20) Channel 1



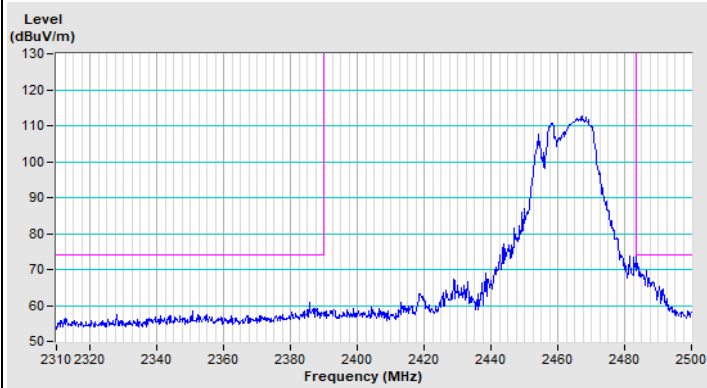
802.11n (HT20) Channel 11



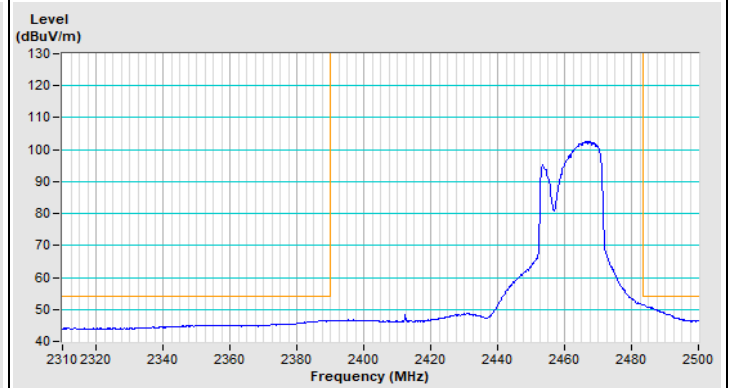
Horizontal (Peak)



Horizontal (Average)



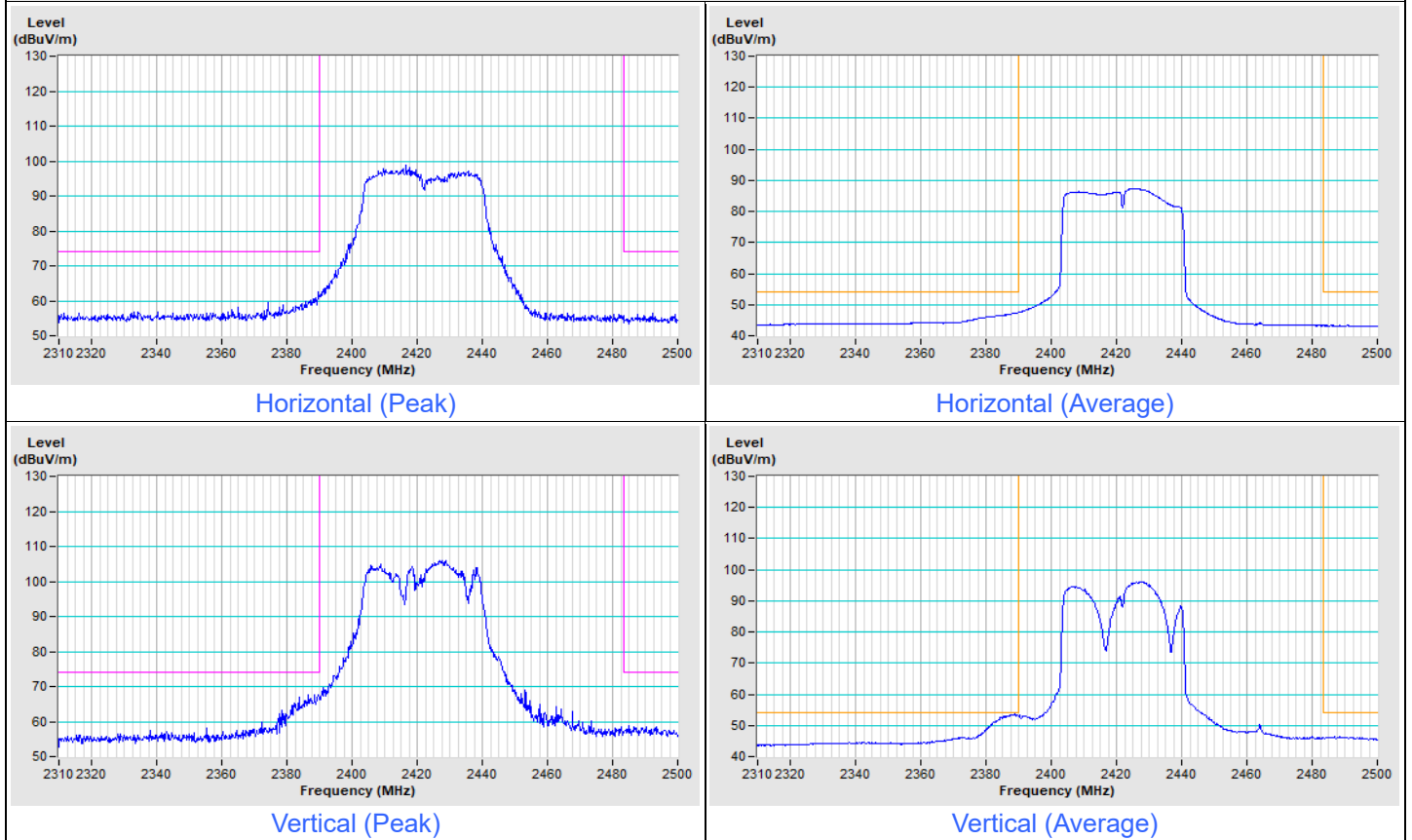
Vertical (Peak)



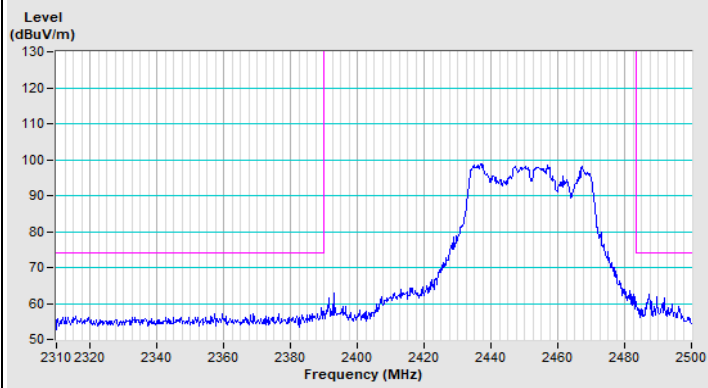
Vertical (Average)

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=10 Hz, DET=Peak
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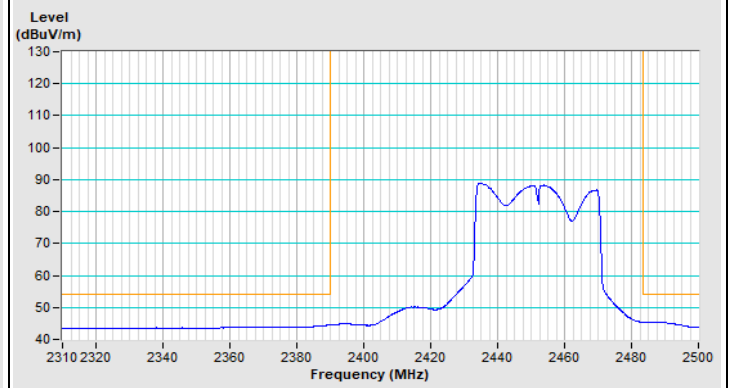
802.11n (HT40) Channel 3



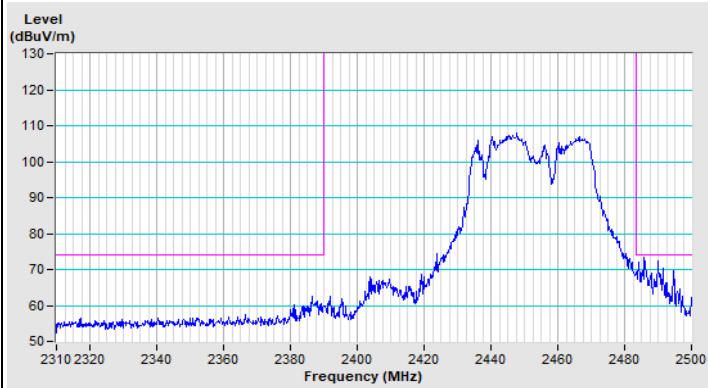
802.11n (HT40) Channel 9



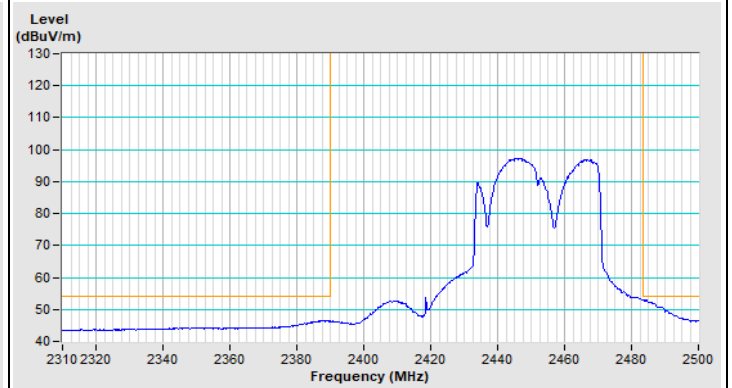
Horizontal (Peak)



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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