

TEST REPORT

CERTIFICATE OF CONFORMITY

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

Report No.: RFBCKS-WTW-P25030148

FCC ID: 2AWHPR251

Product: Starlink Router

Brand: SPACEX, *SPACEX*, *X*, STARLINK

Model No.: UTR-251

Received Date: 2025/2/13

Test Date: 2025/2/25 ~ 2025/3/28

Issued Date: 2025/4/2

Applicant: Space Exploration Technologies Corp. (SPACEX)

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

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FCC Registration / 788550 / TW0003

Designation Number: 281270 / TW0032

Approved by:

Jeremy Lin

Date:

2025/4/2

Jeremy Lin / Project Engineer

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Prepared by : Lena Wang / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBCKS-WTW-P25030148	Original release.	2025/4/2

1 Certificate

Product: Starlink Router

Brand: SPACEX, *SPACEX*, *X*, STARLINK

Test Model: UTR-251

Sample Status: Engineering sample

Applicant: Space Exploration Technologies Corp. (SPACEX)

Test Date: 2025/2/25 ~ 2025/3/28

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

Measurement procedure: ANSI C63.10-2013
KDB 558074 D01 15.247 Meas Guidance v05r02
KDB 662911 D01 Multiple Transmitter Output v02r01

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

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
Standard / Clause	Test Item	Result	Remark
15.247(b)	RF Output Power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	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 -9.74 dB at 0.65400 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -1.7 dB at 50.37 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.2 dB at 2483.50 MHz and 2485.70 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	-	1.371 dB
Power Spectral Density	-	1.017 dB
6 dB Bandwidth	-	206.5 Hz
Conducted Out of Band Emissions	9 kHz ~ 40 GHz	2.79 dB
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.90 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3 dB
	30 MHz ~ 1 GHz	2.93 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	1.76 dB
	18 GHz ~ 40 GHz	1.77 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	Starlink Router
Brand	SPACEX, <i>SPACEX</i> , <i>X</i> , STARLINK
Test Model	UTR-251
Status of EUT	Engineering sample
Power Supply Rating	Refer to note
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in VHT mode 1024QAM for OFDMA in 11ax mode
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps VHT: up to 400Mbps 802.11ax: up to 573.5Mbps
Operating Frequency	2.412 GHz ~ 2.462 GHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20), VHT20, 802.11ax (HE20): 11 802.11n (HT40), VHT40, 802.11ax (HE40): 7
Output Power	577.609 mW (27.62 dBm)

Note:

1. The EUT uses following accessories.

Item	Brand	Model	Part Number	Specification
AC Adapter	Starlink	UTP-251L	39005000-501/A	AC Input : 100-240V, 0.6A, 50/60Hz DC Output : 9.0V, 1.6A DC Output Cable : 1.55M

2. There are WLAN (2.4 GHz & 5 GHz & 5.9 GHz) technology used for the EUT.

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 NO.	RF Chain NO.	Antenna Net Gain(dBi)	Frequency range	Antenna Type	Connector Type
0	0	2.07	2.4 GHz ~ 2.4835 GHz	PCB	ipex(MHF)
1	1	2.02	2.4 GHz ~ 2.4835 GHz	PCB	ipex(MHF)
0	0	3.13	5.15 GHz ~ 5.25 GHz	PCB	ipex(MHF)
		3.25	5.725 GHz ~ 5.85 GHz	PCB	ipex(MHF)
		2.7	5.85 GHz ~ 5.895 GHz	PCB	ipex(MHF)
1	1	3.66	5.15 GHz ~ 5.25 GHz	PCB	ipex(MHF)
		3.54	5.725 GHz ~ 5.85 GHz	PCB	ipex(MHF)
		3.08	5.85 GHz ~ 5.895 GHz	PCB	ipex(MHF)
2	2	1.08	5.15 GHz ~ 5.25 GHz	PCB	ipex(MHF)
		2.23	5.725 GHz ~ 5.85 GHz	PCB	ipex(MHF)
		2.86	5.85 GHz ~ 5.895 GHz	PCB	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
802.11ax (HE20)	2TX	2RX
802.11ax (HE40)	2TX	2RX

Note:

1. All of modulation mode support beamforming function except 802.11b and 802.11g modulation mode.
2. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
3. The modulation and bandwidth are similar for 802.11n mode for 20 MHz (40 MHz), VHT mode for 20 MHz (40 MHz), and 802.11ax mode for 20 MHz (40 MHz). Therefore the investigated worst case is the representative mode in test report.

3.3 Channel List

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

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

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

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

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. 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:	The EUT is designed to be positioned on the z-plane only.

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	CDD	1, 6, 11	DBPSK	1Mb/s
	802.11g	CDD	1, 6, 11	BPSK	6Mb/s
	802.11ax (HE20)	CDD & Beamforming	1, 6, 11	BPSK	MCS0
	802.11ax (HE40)	CDD & Beamforming	3, 6, 9	BPSK	MCS0
Power Spectral Density	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
	802.11g	CDD	1, 6, 11	BPSK	6Mb/s
	802.11ax (HE20)	CDD	1, 6, 11	BPSK	MCS0
	802.11ax (HE40)	CDD	3, 6, 9	BPSK	MCS0
6 dB Bandwidth / Conducted Out of Band Emissions	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
	802.11g	CDD	1, 6, 11	BPSK	6Mb/s
	802.11ax (HE20)	CDD	1, 6, 11	BPSK	MCS0
	802.11ax (HE40)	CDD	3, 6, 9	BPSK	MCS0
AC Power Conducted Emissions	802.11b	CDD	1	DBPSK	1Mb/s
Unwanted Emissions below 1 GHz	802.11b	CDD	1	DBPSK	1Mb/s
Unwanted Emissions above 1 GHz	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
	802.11g	CDD	1, 6, 11	BPSK	6Mb/s
	802.11ax (HE20)	CDD	1, 6, 11	BPSK	MCS0
	802.11ax (HE40)	CDD	3, 6, 9	BPSK	MCS0

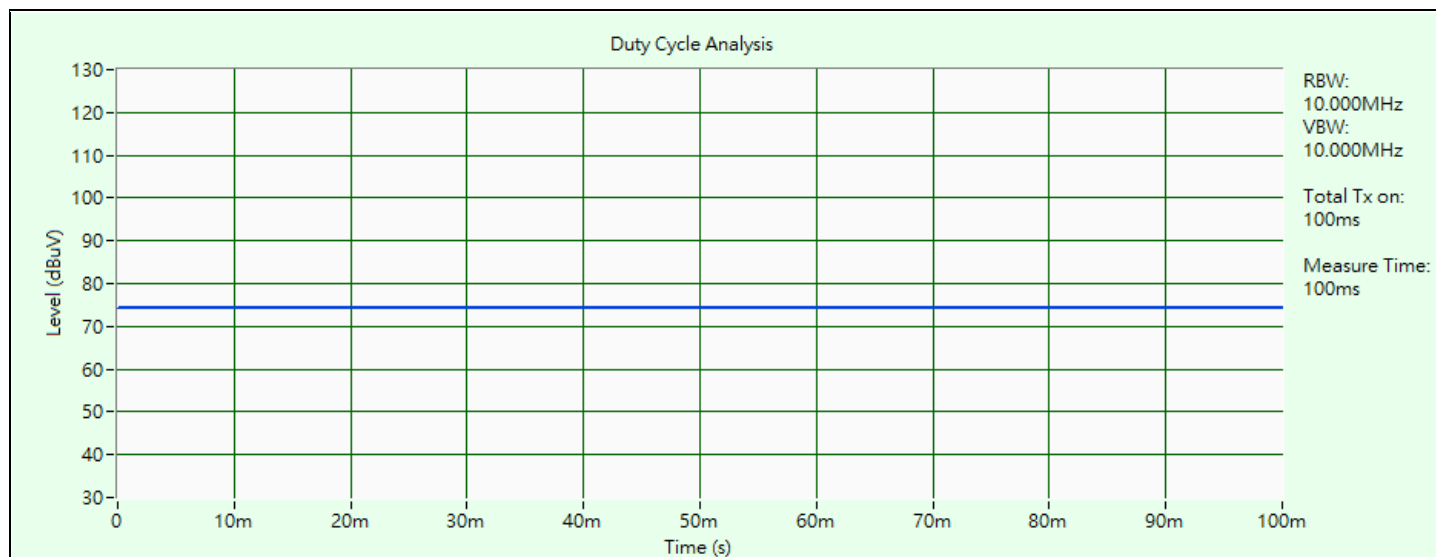
3.5 Duty Cycle of Test Signal

802.11b: Duty cycle = 100 ms / 100 ms x 100% = 100.0%

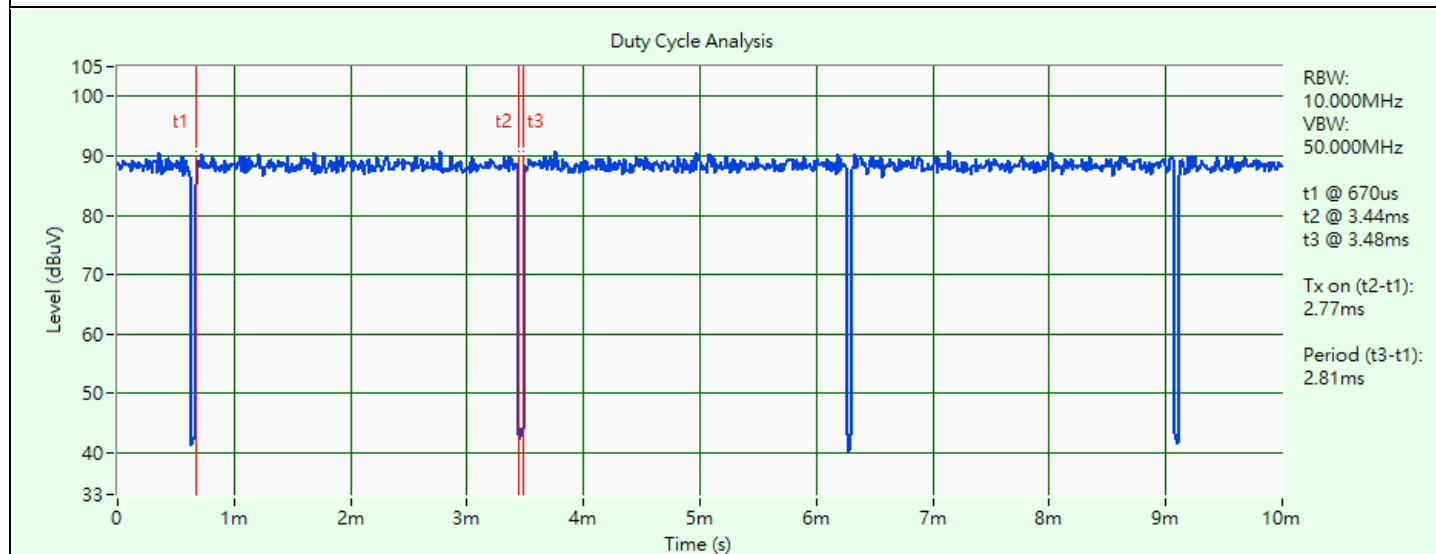
802.11g: Duty cycle = 2.77 ms / 2.81 ms x 100% = 98.6%

802.11ax (HE20): Duty cycle = 3.915 ms / 3.93 ms x 100% = 99.6%

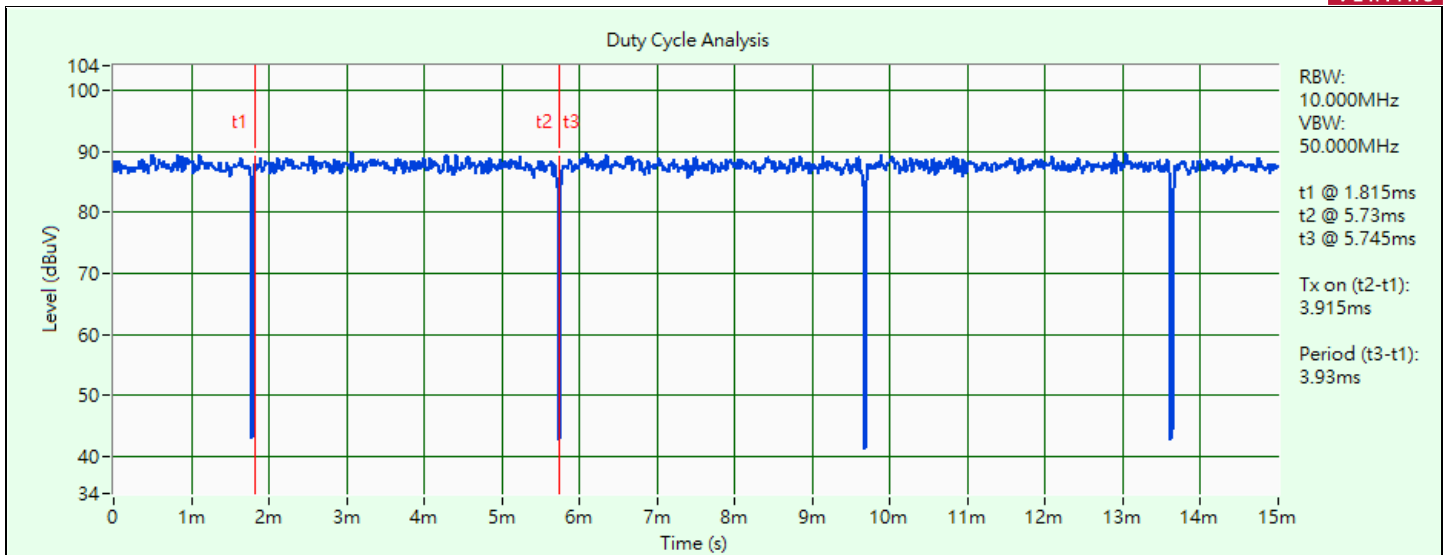
802.11ax (HE40): Duty cycle = 3.885 ms / 3.915 ms x 100% = 99.2%



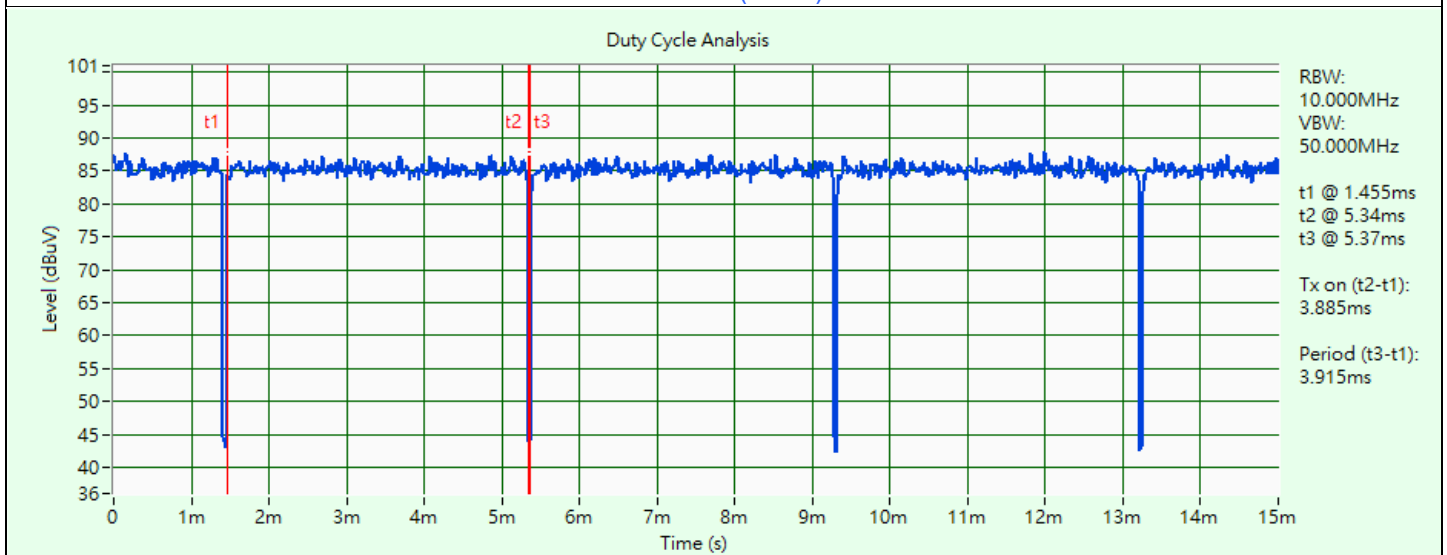
802.11b



802.11g



802.11ax (HE20)

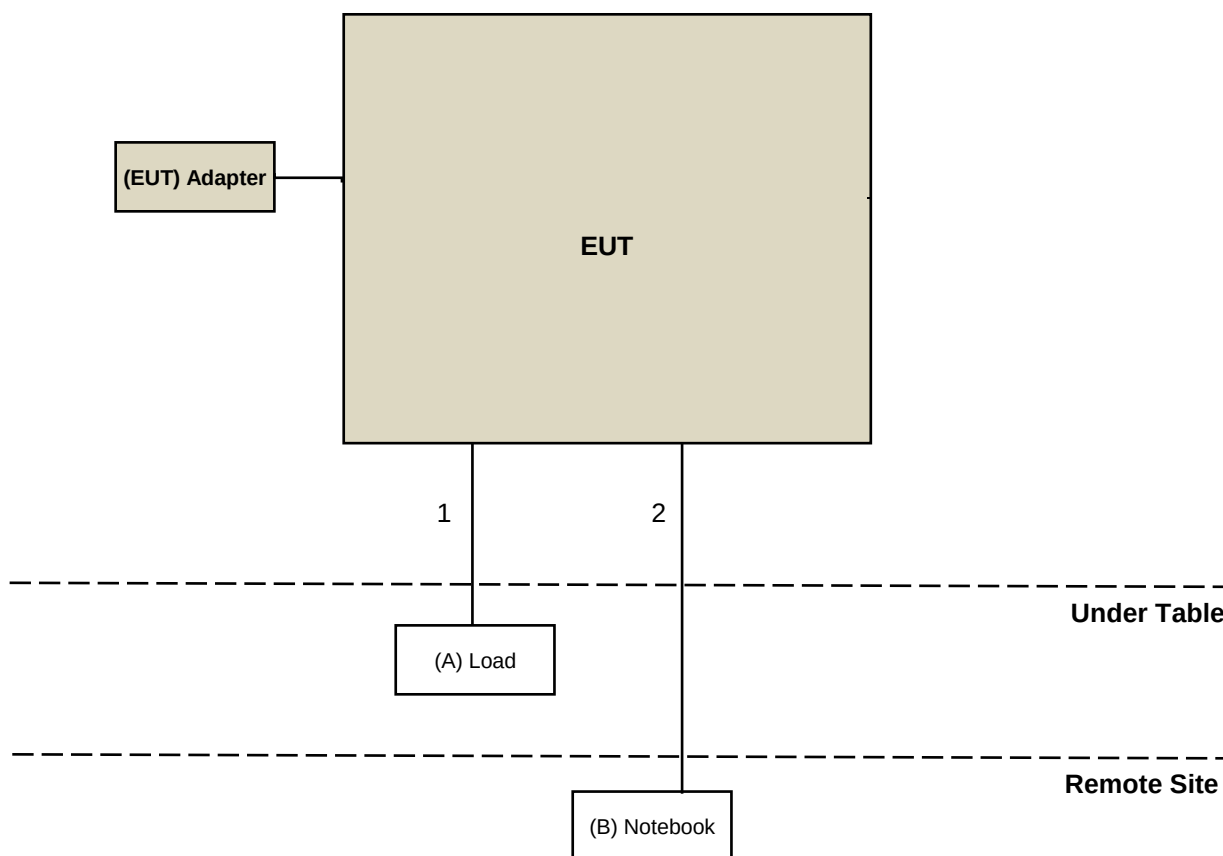


802.11ax (HE40)

3.6 Test Program Used and Operation Descriptions

Controlling software MT7981 QA Tool V0.0.2.78 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	Load	N/A	N/A	N/A	N/A	Provided by Lab
B	Notebook	Lenovo	L440	R9-0GFJJK	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	RJ-45 Cable	1	1.5	N0	0	Provided by Lab
2	RJ-45 Cable	1	10	N0	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
Peak Power Analyzer Keysight	8990B	MY51000538	2024/4/29	2025/4/28
Wideband Power Sensor Keysight	N1923A	MY58200003	2024/6/17	2025/6/16

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/3/20 ~ 2025/3/21

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Signal & Spectrum Analyzer R&S	FSV3044	101105	2025/2/25	2026/2/24
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/3/20 ~ 2025/3/21

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	E1-011279	04	2024/11/28	2025/11/27
	E1-011280	05	2024/11/28	2025/11/27
	E1-011311	09	2024/11/28	2025/11/27
DC-LISN Schwarzbeck	NNBM 8126G	8126G-069	2024/11/5	2025/11/4
EMI Test Receiver R&S	ESCI	100613	2024/11/25	2025/11/24
Fixed Attenuator Mini-Circuits	HAT-10+	PAD-COND1-01	2025/1/5	2026/1/4
LISN R&S	ENV216	101826	2024/3/25	2025/3/24
	ESH3-Z5	100311	2024/9/5	2025/9/4
RF Coaxial Cable Woken	5D-FB	Cable-cond1-01	2025/1/5	2026/1/4
Software BVADT	BVADT_Cond_ V7.4.1.0	N/A	N/A	N/A
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2024/8/28	2025/8/27

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2025/3/18

4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-1213	2024/10/14	2025/10/13
EXA Signal Analyzer Agilent	N9010A	MY52220207	2024/12/30	2025/12/29
Loop Antenna TESEQ	HLA 6121	45745	2024/8/21	2025/8/20
MXE EMI Receiver Keysight	N9038B	MY60180019	2025/1/15	2026/1/14
Preamplifier EMCI	EMC330N	980782	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMCCFD400-NM-NM-500	201233	2025/1/14	2026/1/13
	EMCCFD400-NM-NM-3000	201235	2025/1/14	2026/1/13
	EMCCFD400-NM-NM-9000	201236(with PAD)	2025/1/14	2026/1/13
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MF-7802BS	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208674	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2025/3/13

4.7 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
EXA Signal Analyzer Agilent	N9010A	MY52220207	2024/12/30	2025/12/29
Horn Antenna RFSPIN	DRH18-E	210103A18E	2024/11/10	2025/11/9
Horn Antenna Schwarzbeck	BBHA 9170	9170-1049	2024/11/10	2025/11/9
MXE EMI Receiver Keysight	N9038B	MY60180019	2025/1/15	2026/1/14
Preamplifier EMCI	EMC118A45SE	980808	2024/12/26	2025/12/25
	EMC184045SE	980788	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMC101G-KM-KM-2000	201254	2025/1/14	2026/1/13
	EMC101G-KM-KM-3000	201258	2025/1/14	2026/1/13
	EMC101G-KM-KM-5000	201261	2025/1/14	2026/1/13
	EMC104-SM-SM-1000	210102	2025/1/14	2026/1/13
	EMC104-SM-SM-3000	201231	2025/1/14	2026/1/13
	EMC104-SM-SM-9000	201243	2025/1/14	2026/1/13
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MF-7802BS	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208674	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2025/2/25 ~ 2025/3/28

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

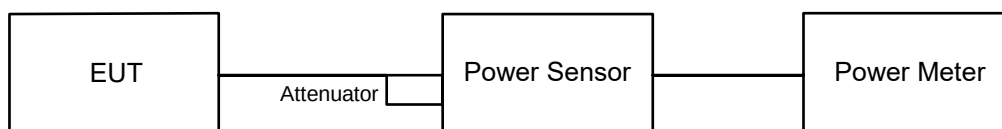
Notes:

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



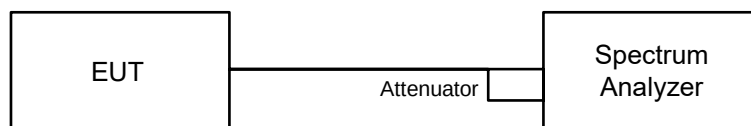
6.1.2 Test Procedure

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



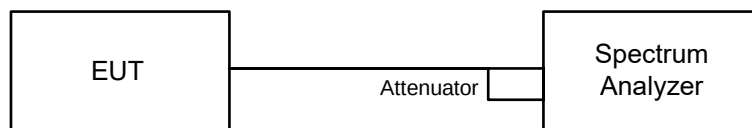
6.2.2 Test Procedure

- 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

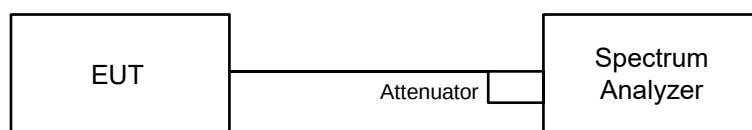


6.3.2 Test Procedure

- 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

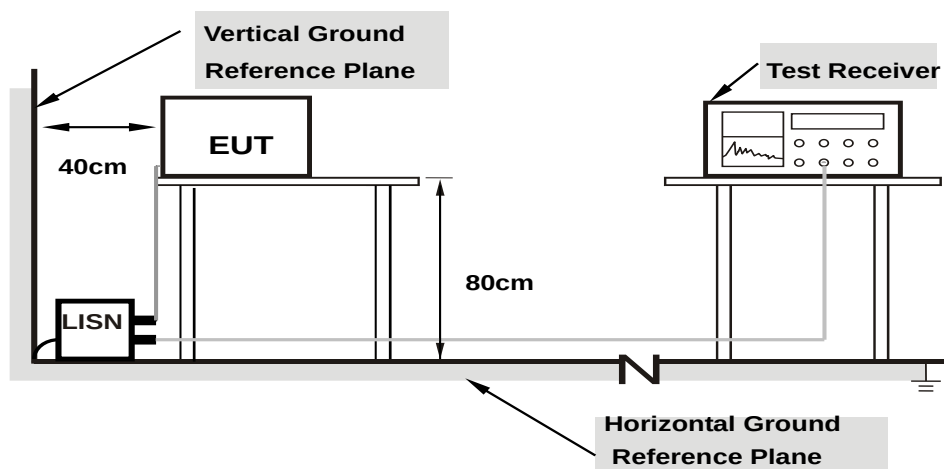
- Set the RBW = 100 kHz.
- Set the VBW ≥ 300 kHz.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

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

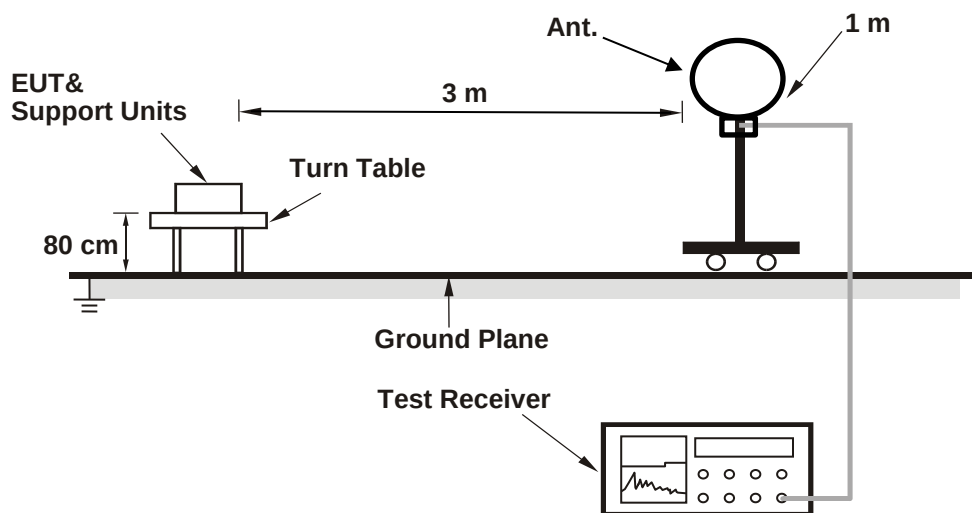
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The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

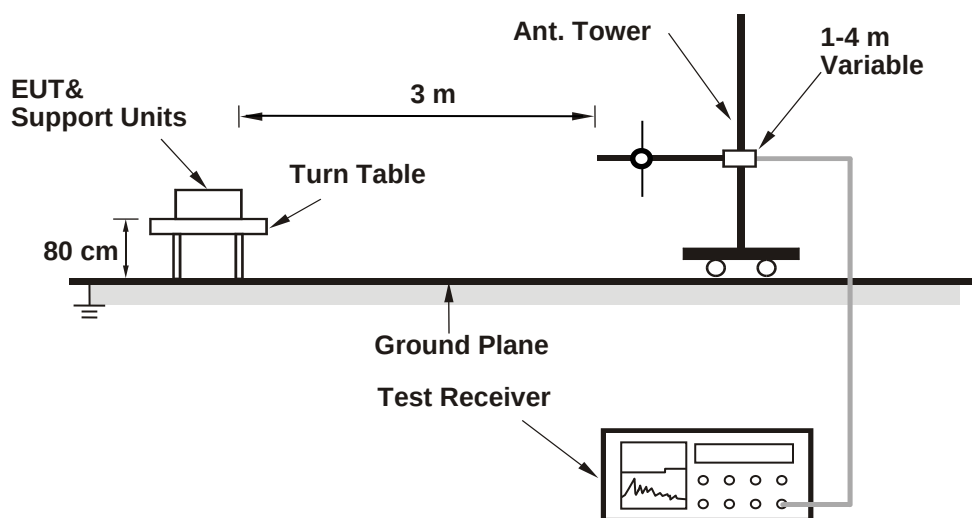
6.6 Unwanted Emissions below 1 GHz

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

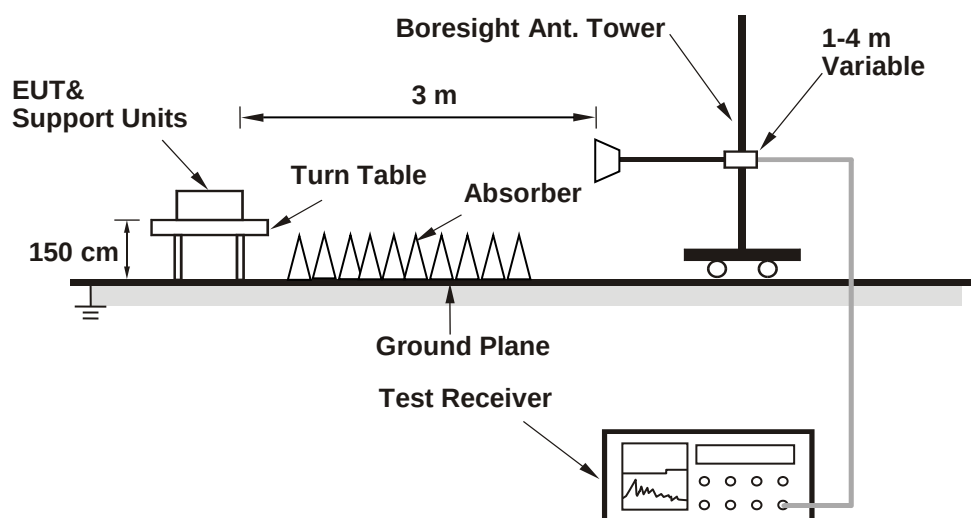
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the 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.
3. 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:	25°C, 60% RH	Tested By:	Wayne Lin
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802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	24.51	24.70	577.609	27.62	30	Pass
6	2437	24.18	24.44	539.79	27.32	30	Pass
11	2462	23.38	23.66	450.045	26.53	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 2.07 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	20.25	20.52	218.645	23.40	30	Pass
6	2437	22.01	22.26	327.122	25.15	30	Pass
11	2462	20.72	21.04	245.089	23.89	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 2.07 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	19.68	19.96	191.98	22.83	30	Pass
6	2437	21.71	22.02	307.473	24.88	30	Pass
11	2462	19.94	20.22	203.824	23.09	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 2.07 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	19.21	19.52	172.905	22.38	30	Pass
6	2437	20.50	20.82	232.983	23.67	30	Pass
9	2452	19.26	19.58	175.116	22.43	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 2.07 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	19.68	19.96	191.98	22.83	30	Pass
6	2437	21.71	22.02	307.473	24.88	30	Pass
11	2462	19.94	20.22	203.824	23.09	30	Pass

Notes:

1. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
2. The directional gain is 3.56 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	19.21	19.52	172.905	22.38	30	Pass
6	2437	20.50	20.82	232.983	23.67	30	Pass
9	2452	19.26	19.58	175.116	22.43	30	Pass

Notes:

1. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
2. The directional gain is 3.56 dBi < 6 dBi, so the output power limit shall not be reduced.

7.2 Power Spectral Density

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin
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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	-5.88	-5.70	-2.78	8	Pass
6	2437	-6.22	-5.93	-3.06	8	Pass
11	2462	-6.99	-6.73	-3.85	8	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 is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. The directional gain is 3.56 dBi < 6 dBi, so the power density limit shall not be reduced.

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	-12.28	-11.99	-9.12	8	Pass
6	2437	-10.74	-10.52	-7.62	8	Pass
11	2462	-11.75	-11.46	-8.59	8	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 is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. The directional gain is 3.56 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
1	2412	-12.85	-12.55	-9.69	8	Pass
6	2437	-10.85	-10.46	-7.64	8	Pass
11	2462	-12.56	-12.32	-9.43	8	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 is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. The directional gain is 3.56 dBi < 6 dBi, so the power density limit shall not be reduced.

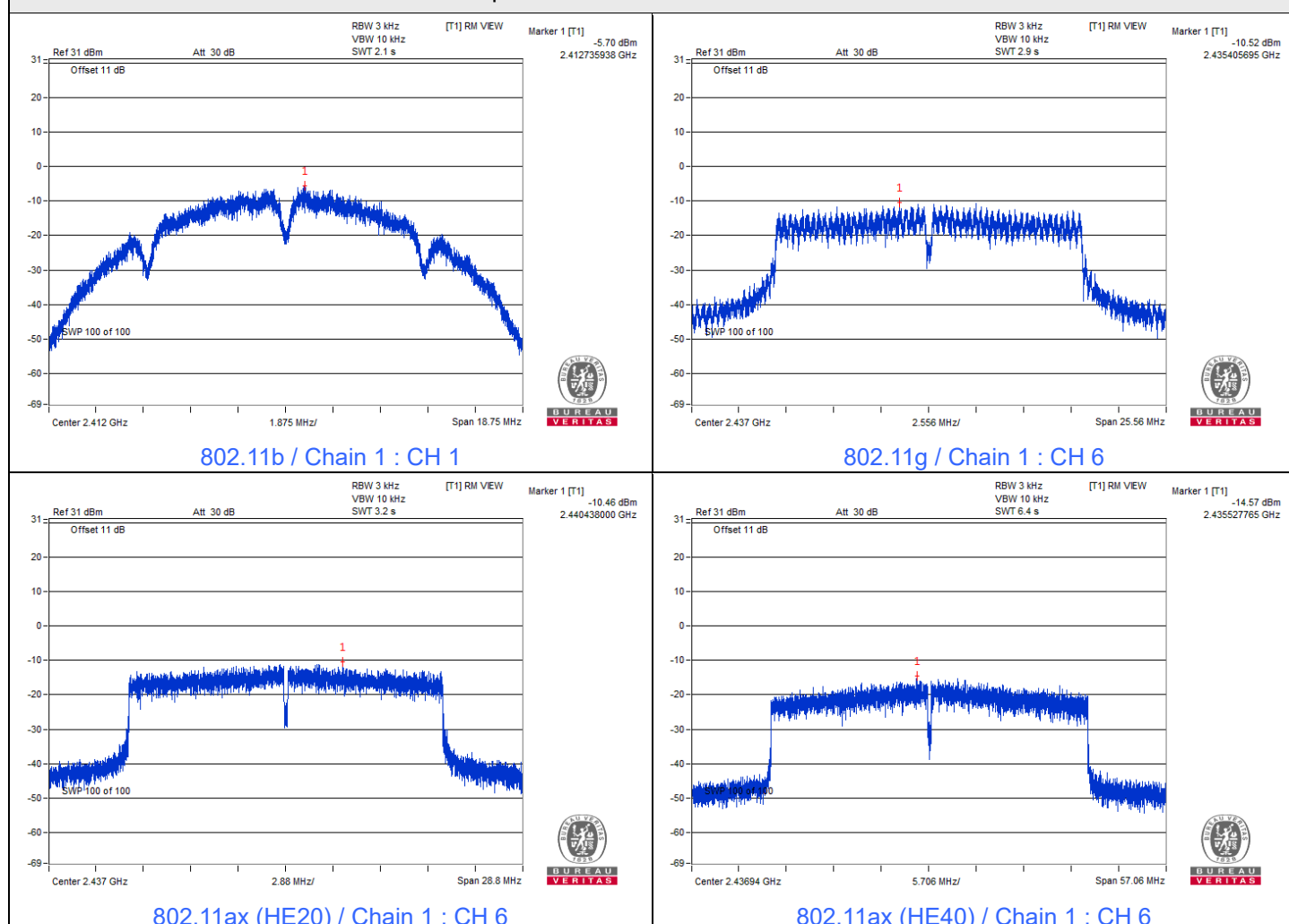
802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
3	2422	-16.25	-15.90	-13.06	8	Pass
6	2437	-14.94	-14.57	-11.74	8	Pass
9	2452	-16.20	-15.88	-13.03	8	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 is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. The directional gain is 3.56 dBi < 6 dBi, so the power density limit shall not be reduced.

Spectrum Plot of Maximum Value



7.3 6 dB Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin
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802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	8.09	8.08	0.5	Pass
6	2437	8.08	8.10	0.5	Pass
11	2462	8.08	8.07	0.5	Pass

802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	16.09	16.37	0.5	Pass
6	2437	16.30	16.35	0.5	Pass
11	2462	15.77	16.35	0.5	Pass

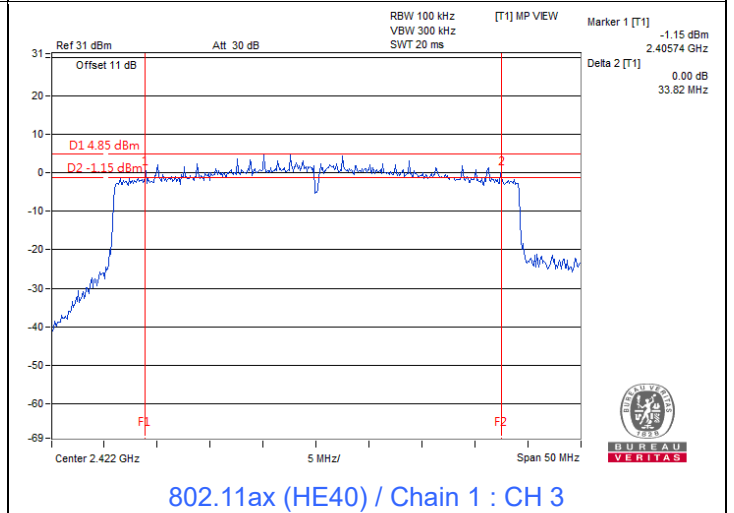
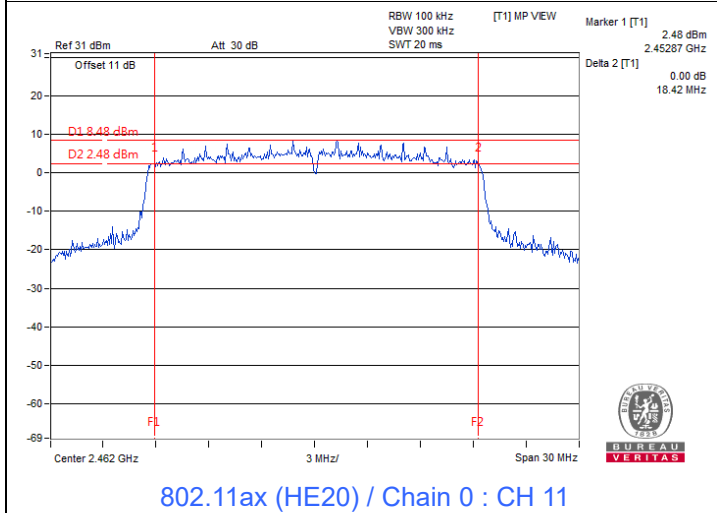
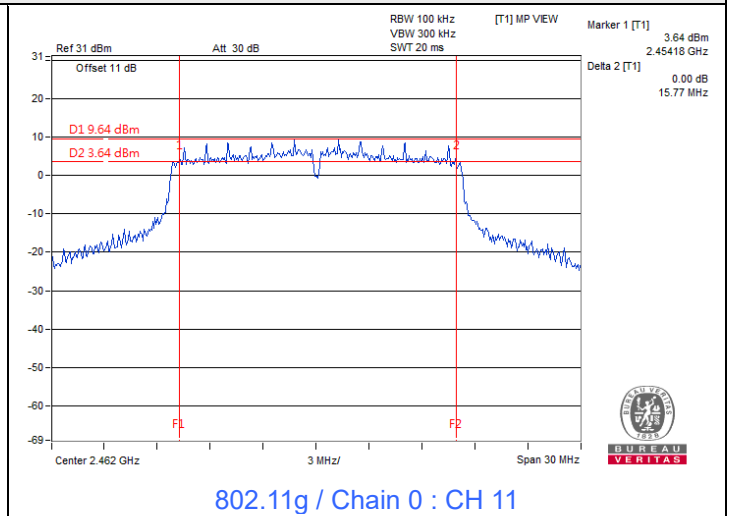
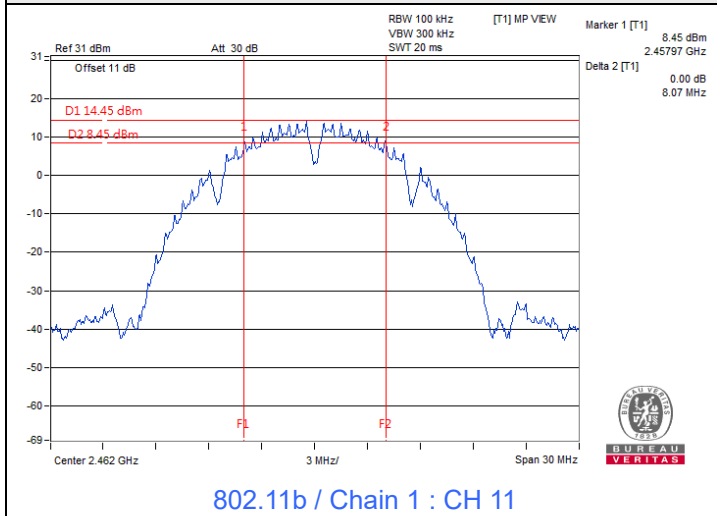
802.11ax (HE20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	18.75	18.94	0.5	Pass
6	2437	18.61	18.71	0.5	Pass
11	2462	18.42	18.49	0.5	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
3	2422	35.92	33.82	0.5	Pass
6	2437	35.55	35.23	0.5	Pass
9	2452	35.87	36.40	0.5	Pass

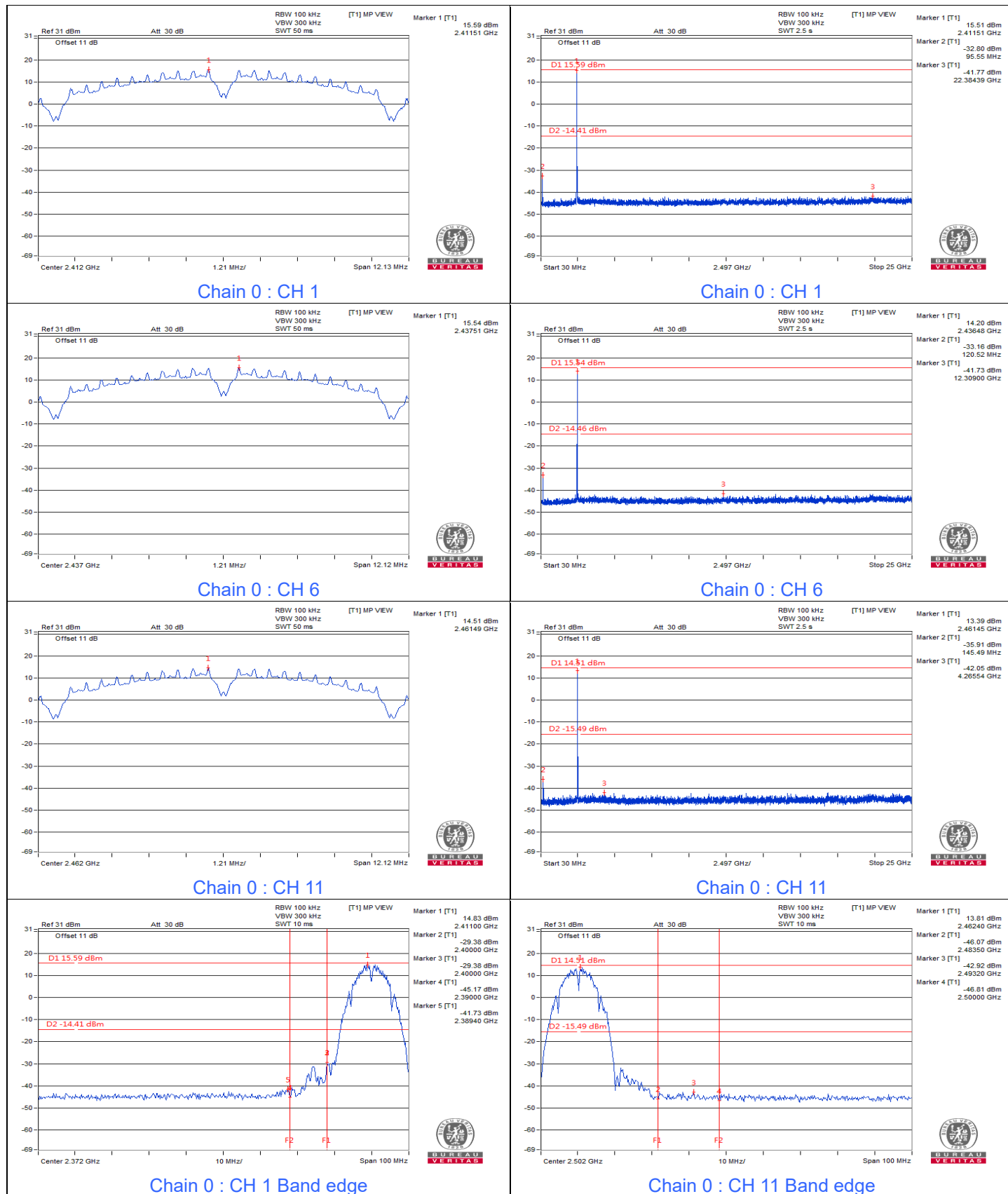
Spectrum Plot of Minimum Value

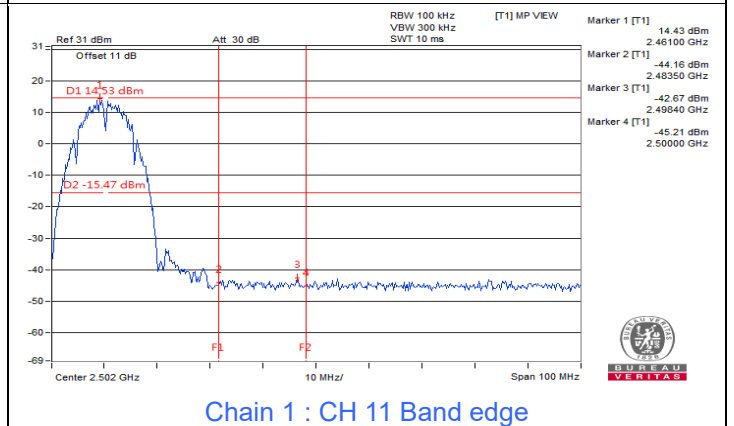
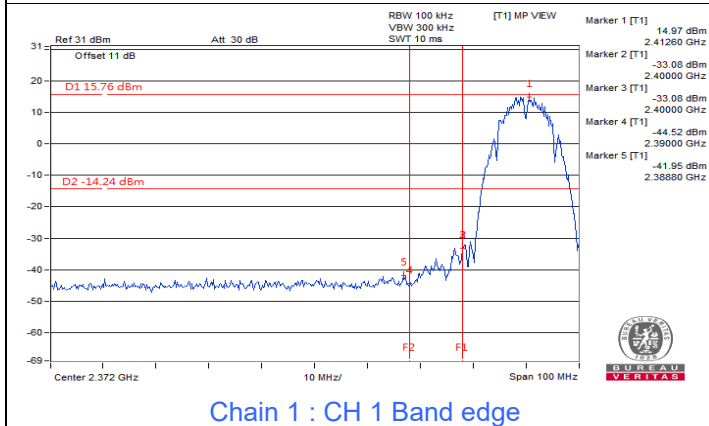
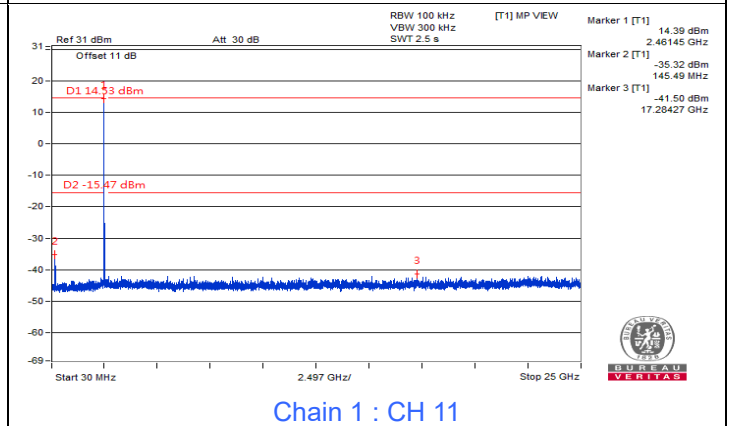
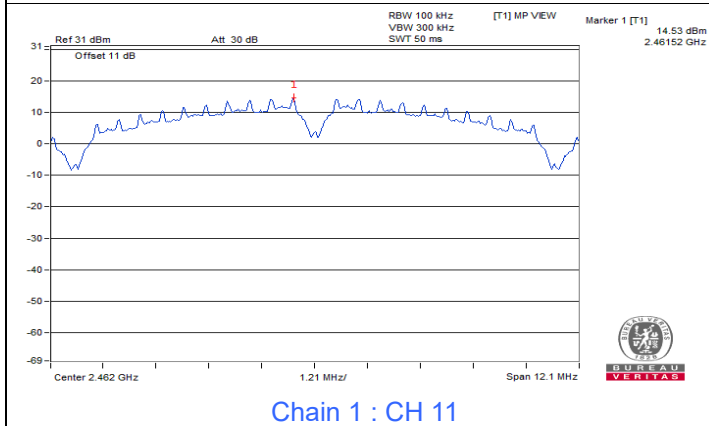
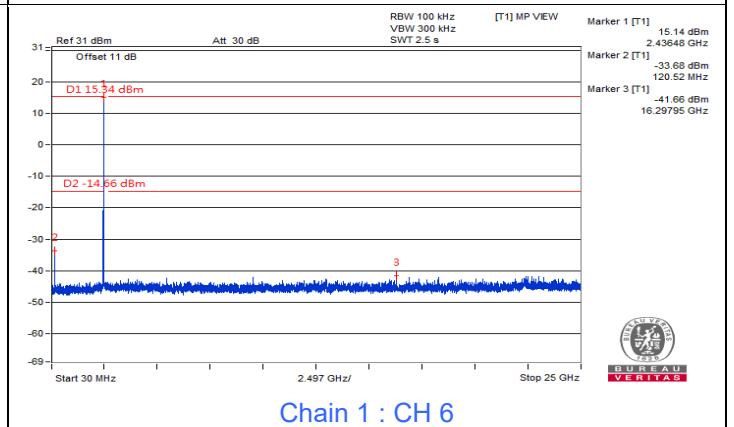
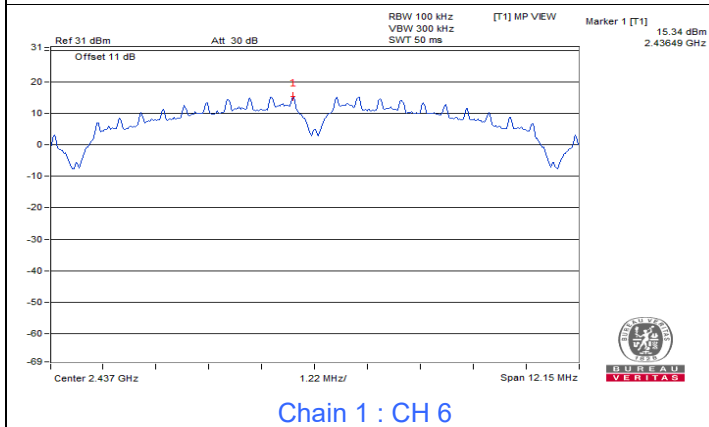
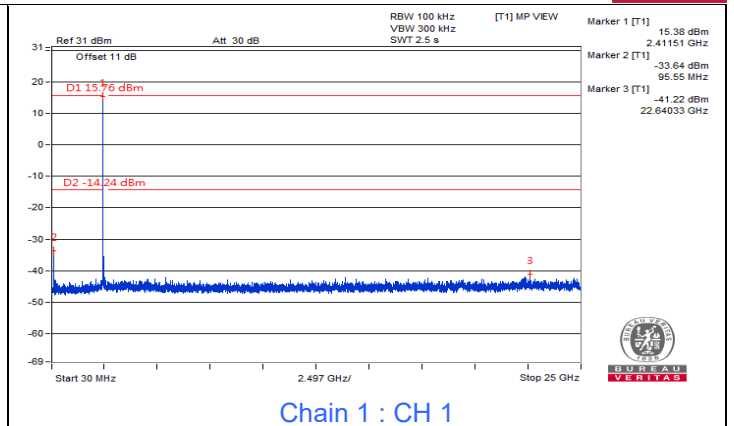
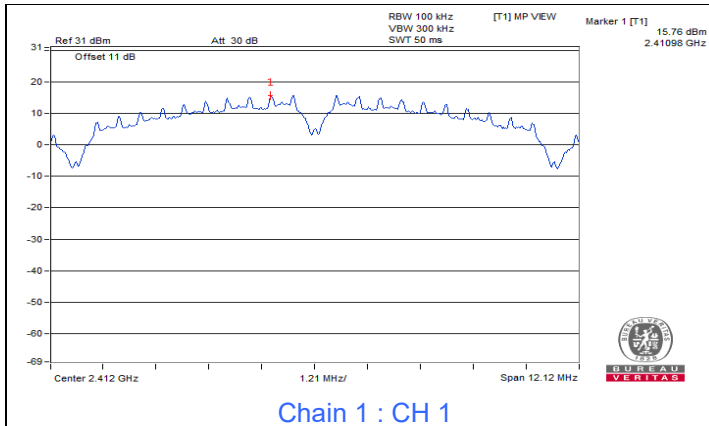


7.4 Conducted Out of Band Emissions

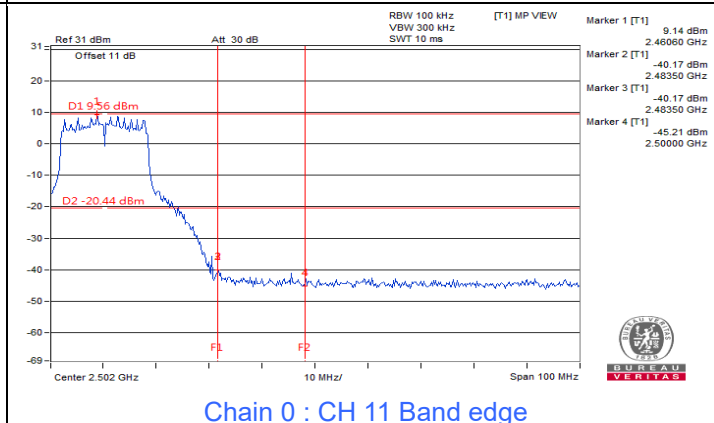
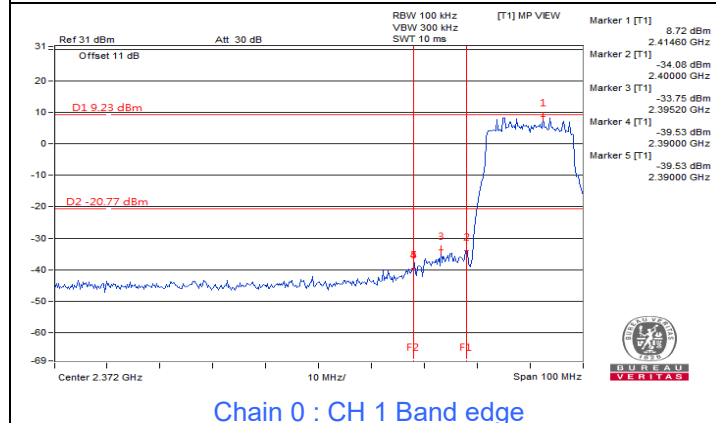
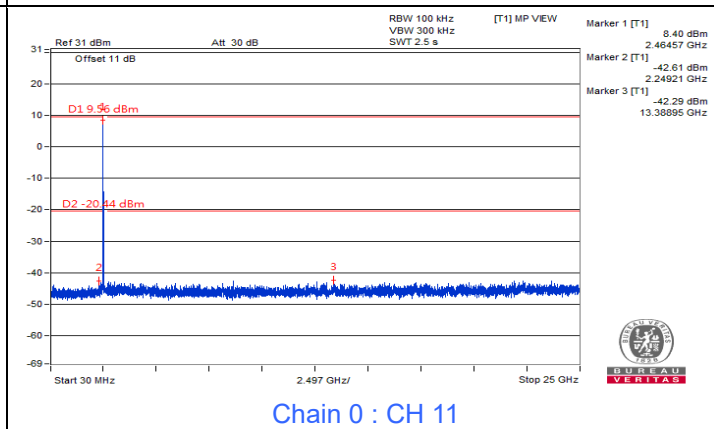
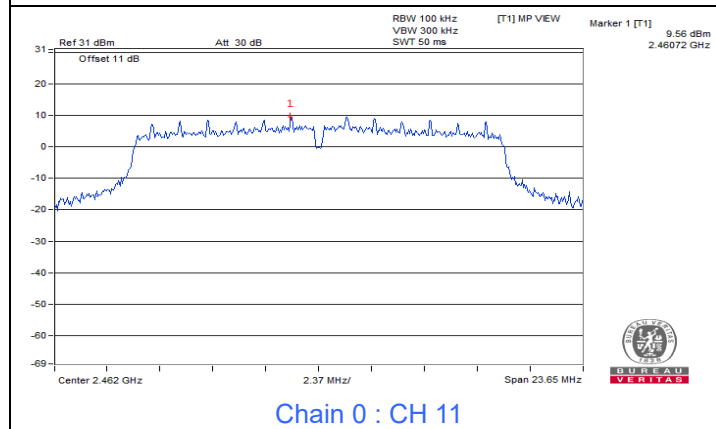
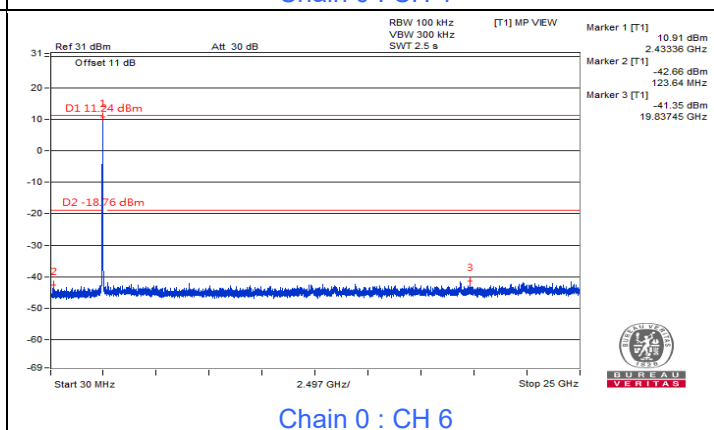
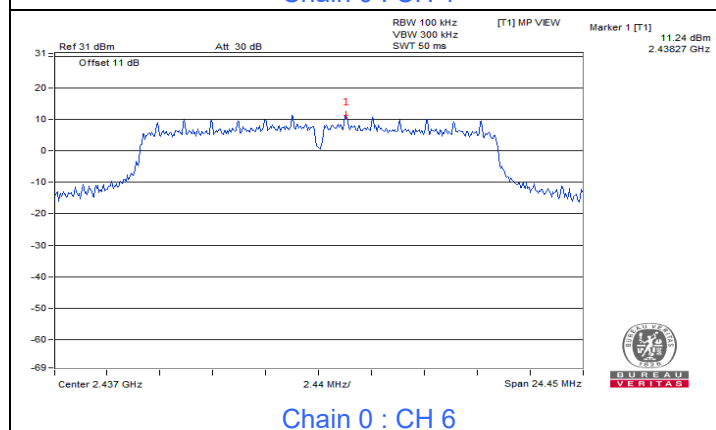
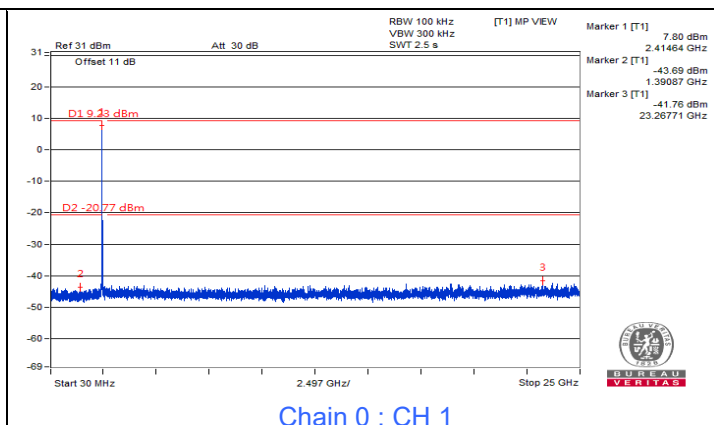
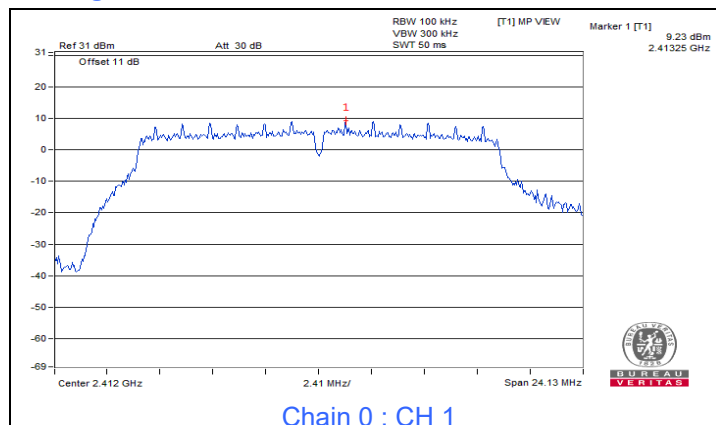
Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin
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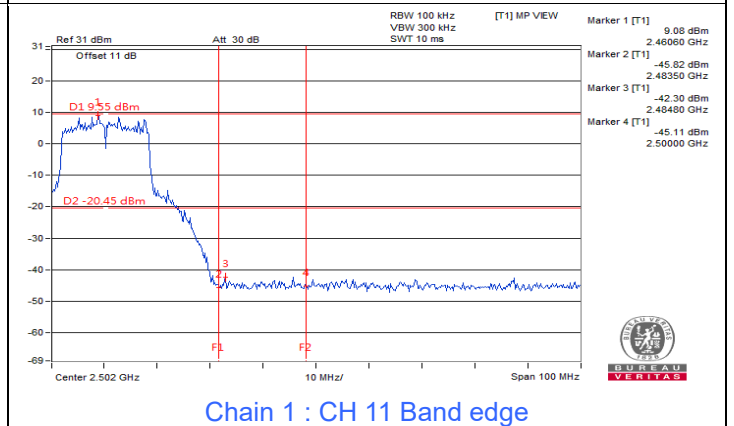
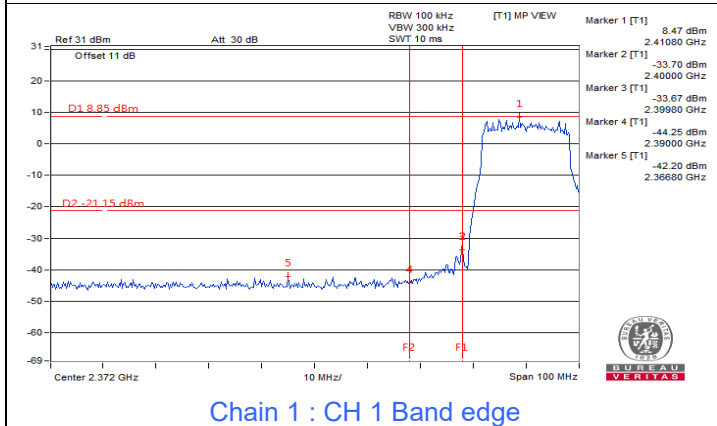
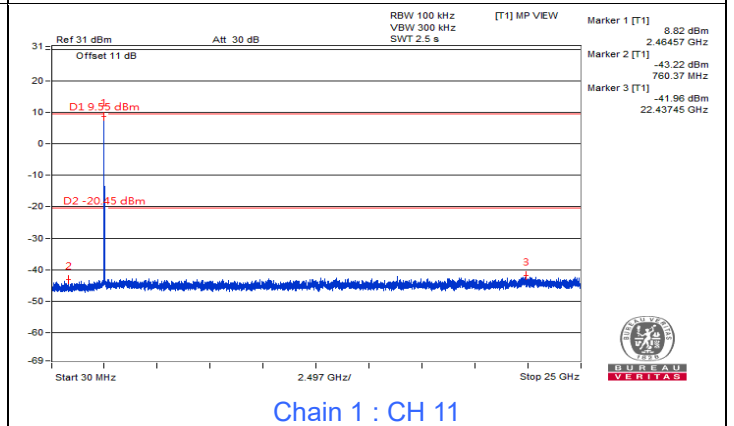
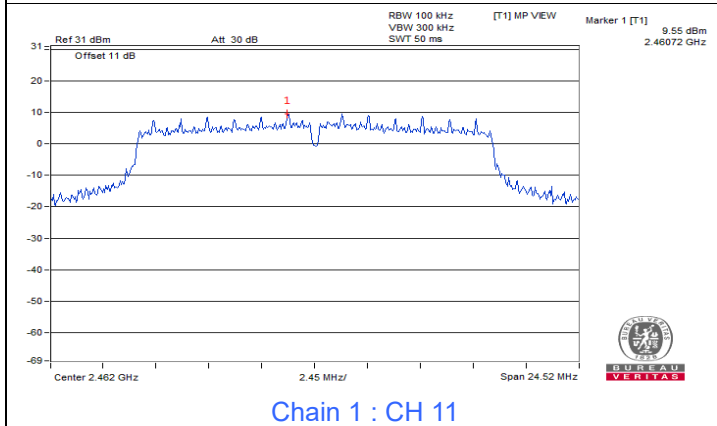
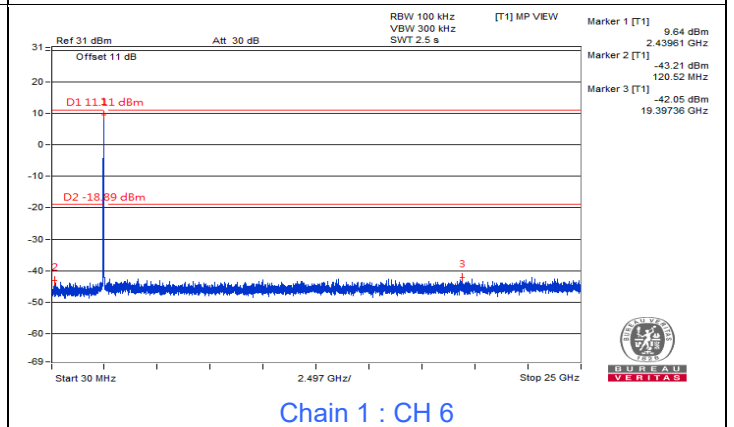
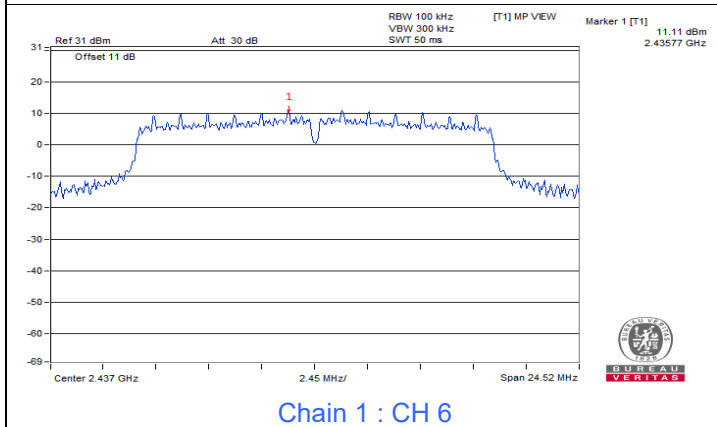
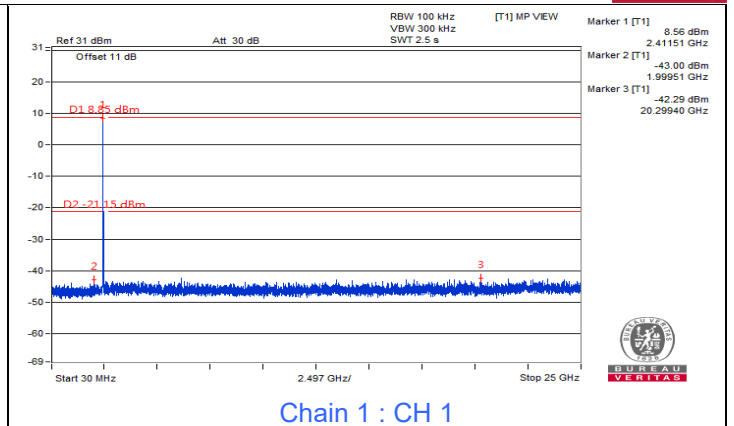
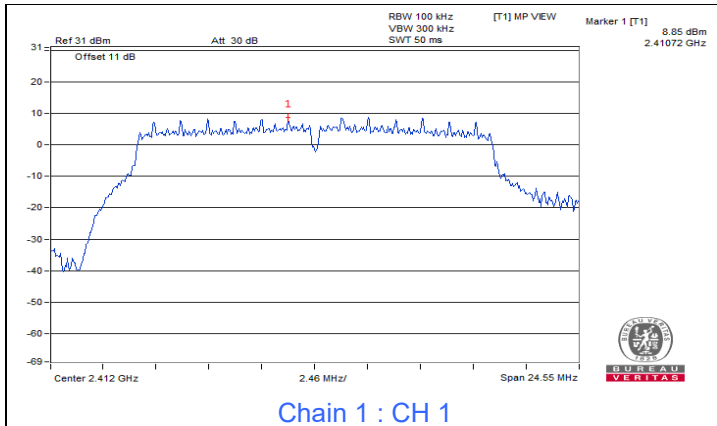
802.11b





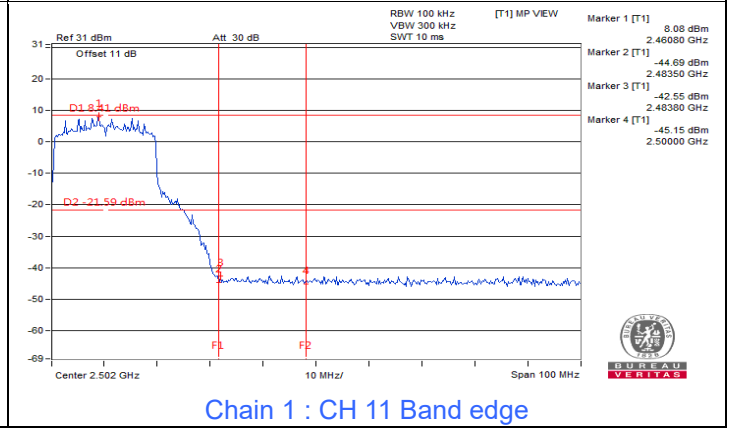
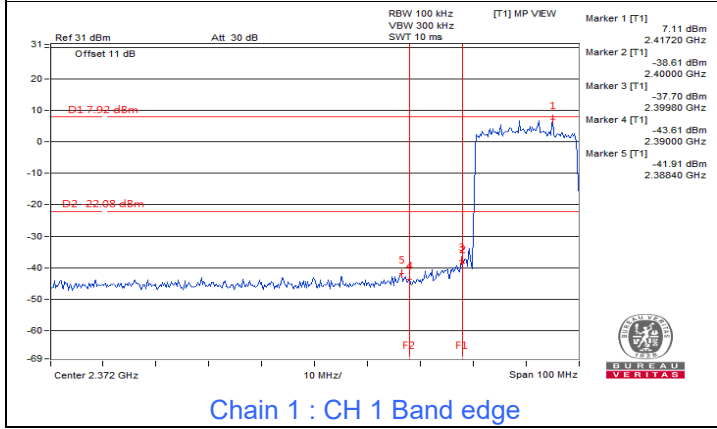
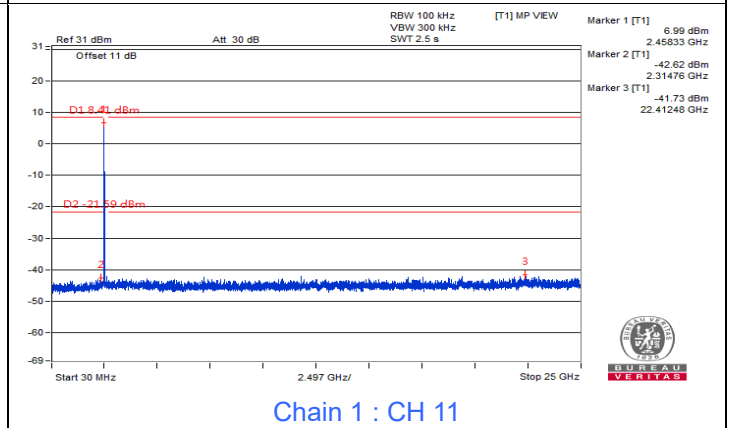
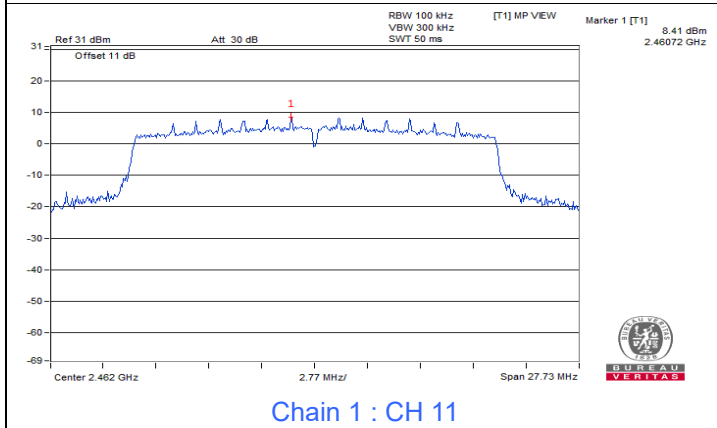
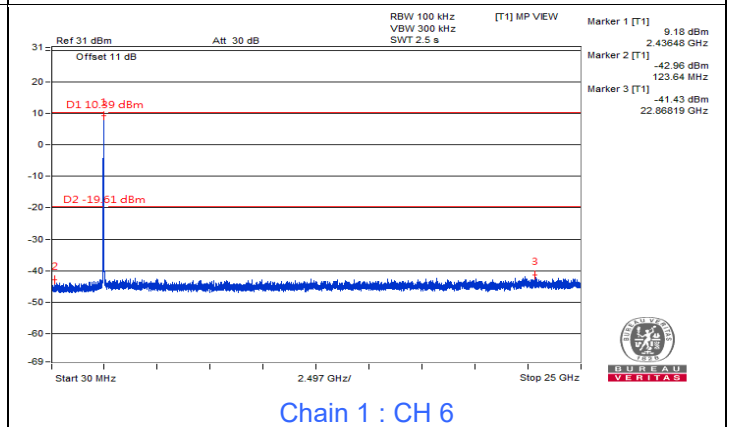
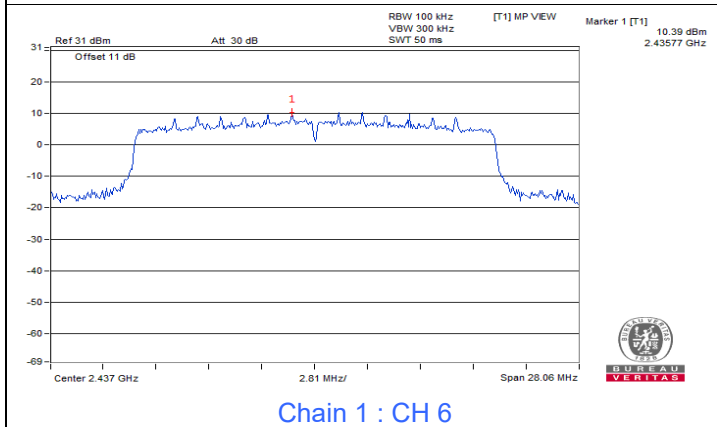
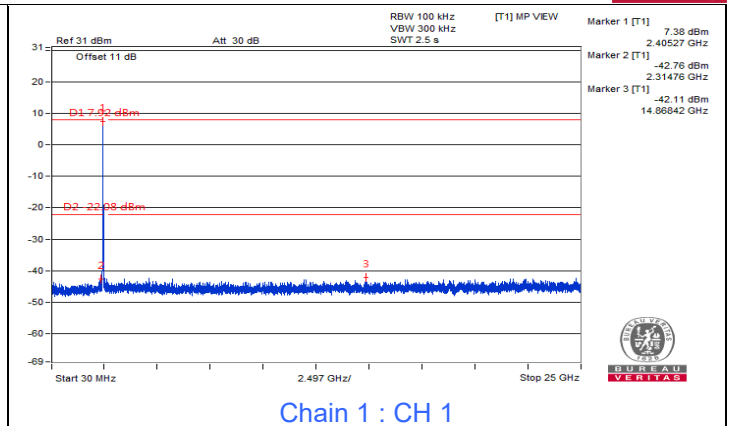
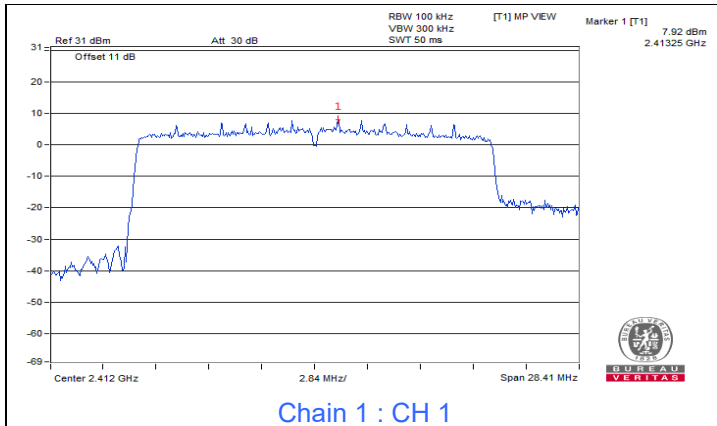
802.11g





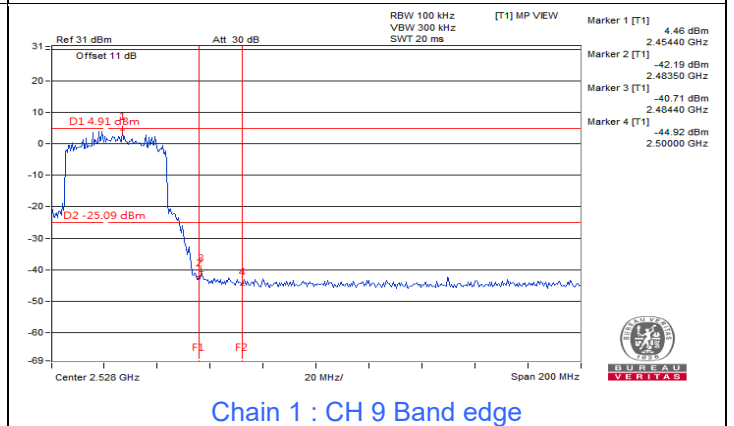
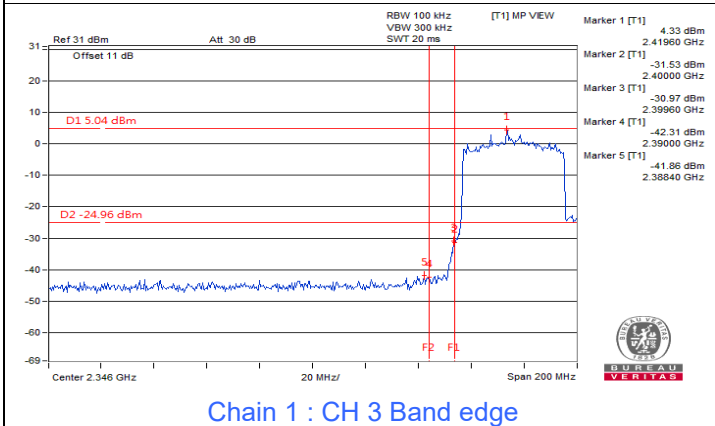
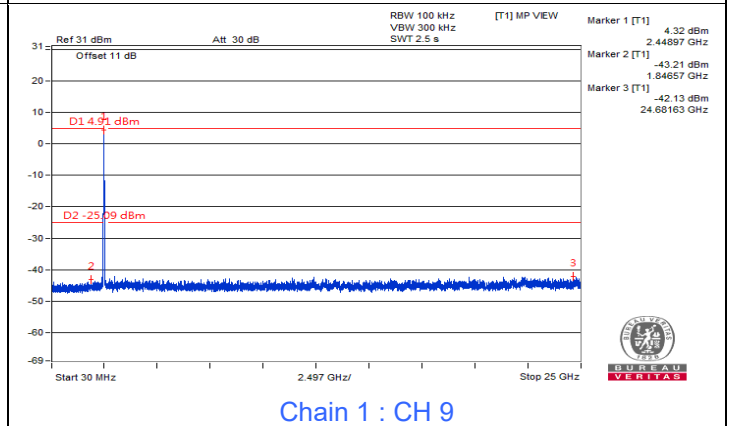
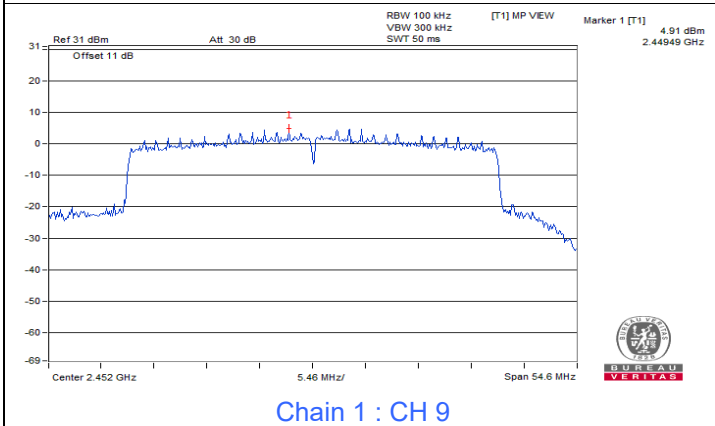
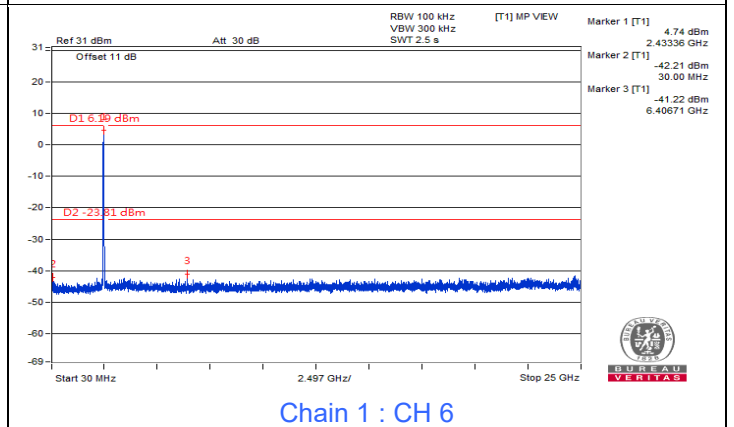
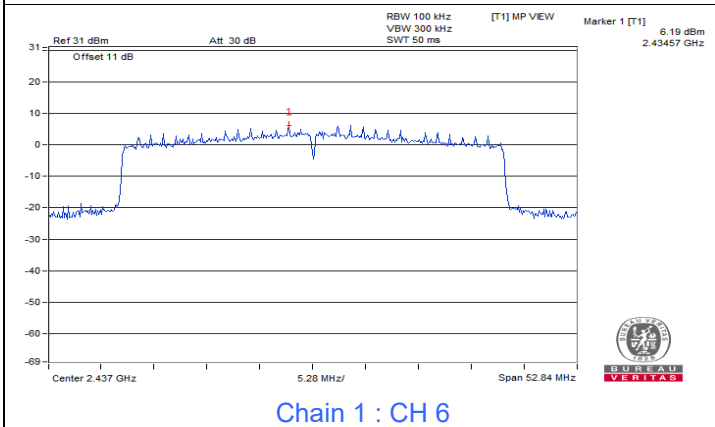
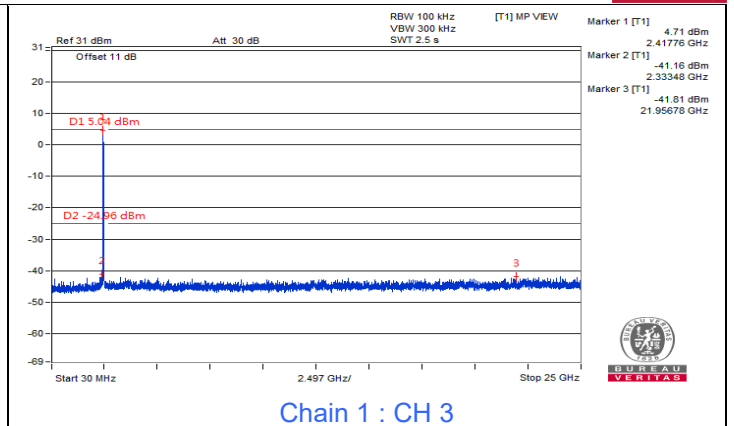
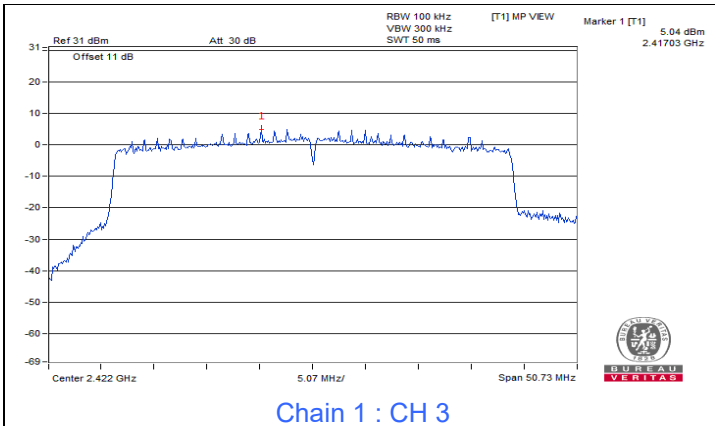
802.11ax (HE20)





802.11ax (HE40)





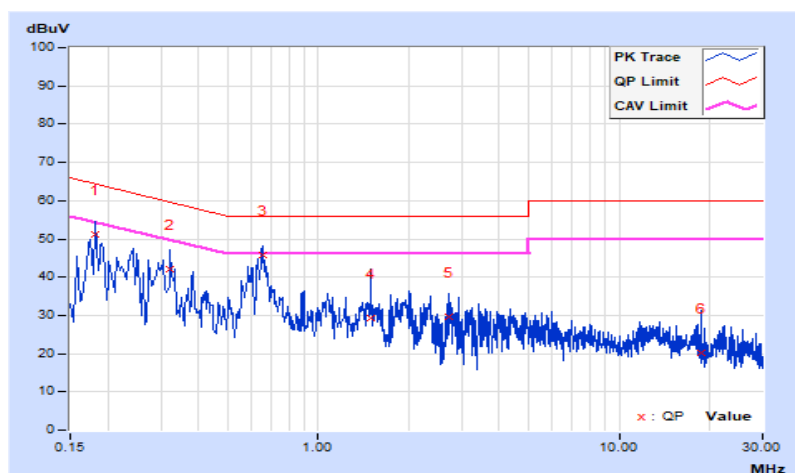
7.5 AC Power Conducted Emissions

RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Charles Hsiao		

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	0.18200	9.76	41.33	31.65	51.09	41.41	64.39	54.39	-13.30	-12.98
2	0.32200	9.83	32.15	19.86	41.98	29.69	59.66	49.66	-17.68	-19.97
3	0.65400	9.93	35.80	26.33	45.73	36.26	56.00	46.00	-10.27	-9.74
4	1.49400	10.02	19.20	12.49	29.22	22.51	56.00	46.00	-26.78	-23.49
5	2.71400	10.09	19.46	11.12	29.55	21.21	56.00	46.00	-26.45	-24.79
6	18.63800	10.68	9.57	4.70	20.25	15.38	60.00	50.00	-39.75	-34.62

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

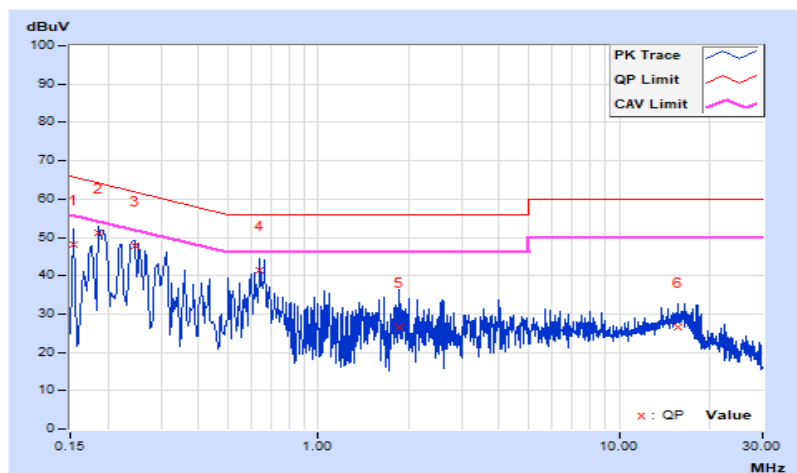


RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Charles Hsiao		

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	0.15400	9.71	38.55	22.54	48.26	32.25	65.78	55.78	-17.52	-23.53
2	0.18600	9.72	41.32	31.78	51.04	41.50	64.21	54.21	-13.17	-12.71
3	0.24485	9.77	37.99	28.05	47.76	37.82	61.93	51.93	-14.17	-14.11
4	0.63800	9.96	31.59	22.84	41.55	32.80	56.00	46.00	-14.45	-13.20
5	1.86186	10.14	16.50	10.31	26.64	20.45	56.00	46.00	-29.36	-25.55
6	15.71400	10.79	15.80	10.45	26.59	21.24	60.00	50.00	-33.41	-28.76

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



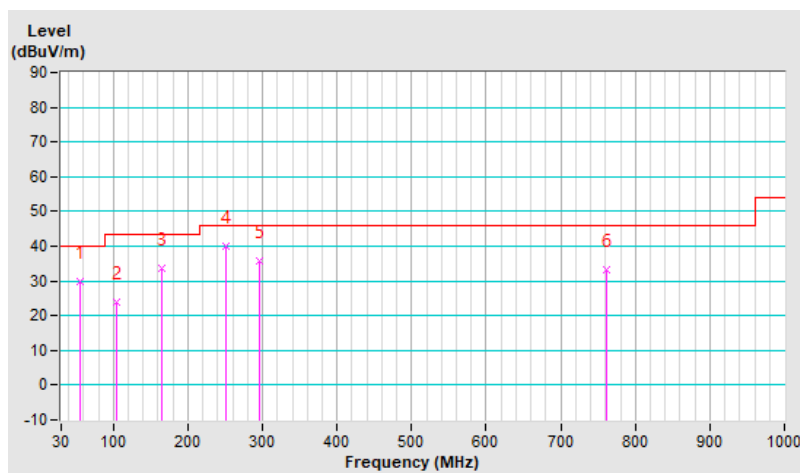
7.6 Unwanted Emissions below 1 GHz

RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67 % RH
Tested By	Karl Lee		

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	56.19	29.7 QP	40.0	-10.3	1.99 H	88	43.1	-13.4
2	103.72	24.1 QP	43.5	-19.4	1.99 H	317	40.9	-16.8
3	164.83	33.7 QP	43.5	-9.8	1.49 H	282	46.5	-12.8
4	250.19	40.1 QP	46.0	-5.9	1.49 H	31	54.0	-13.9
5	296.75	35.6 QP	46.0	-10.4	1.00 H	56	47.9	-12.3
6	762.35	33.1 QP	46.0	-12.9	1.49 H	18	34.8	-1.7

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.

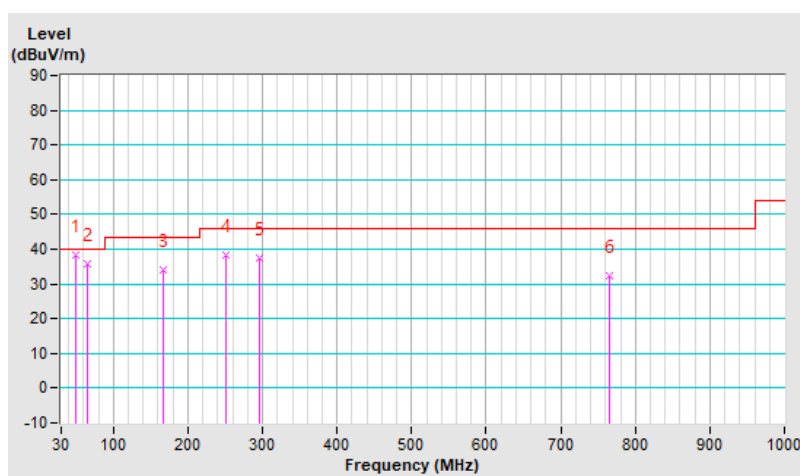


RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67 % RH
Tested By	Karl Lee		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	50.37	38.3 QP	40.0	-1.7	1.00 V	208	51.3	-13.0
2	64.92	35.9 QP	40.0	-4.1	1.00 V	35	50.6	-14.7
3	166.77	33.9 QP	43.5	-9.6	1.00 V	161	46.8	-12.9
4	250.19	38.2 QP	46.0	-7.8	1.00 V	278	52.1	-13.9
5	296.75	37.3 QP	46.0	-8.7	1.99 V	49	49.6	-12.3
6	765.26	32.2 QP	46.0	-13.8	1.49 V	18	33.8	-1.6

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.



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	21 °C, 69 % RH
Tested By	Greg Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	61.4 PK	74.0	-12.6	1.37 H	356	29.6	31.8
2	2390.00	53.4 AV	54.0	-0.6	1.37 H	356	21.6	31.8
3	*2412.00	118.7 PK			1.37 H	356	86.9	31.8
4	*2412.00	116.2 AV			1.37 H	356	84.4	31.8
5	4824.00	51.7 PK	74.0	-22.3	1.04 H	303	48.7	3.0
6	4824.00	43.9 AV	54.0	-10.1	1.04 H	303	40.9	3.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.0 PK	74.0	-14.0	1.54 V	315	28.2	31.8
2	2390.00	51.3 AV	54.0	-2.7	1.54 V	315	19.5	31.8
3	*2412.00	114.1 PK			1.54 V	315	82.3	31.8
4	*2412.00	112.2 AV			1.54 V	315	80.4	31.8
5	4824.00	51.0 PK	74.0	-23.0	1.53 V	3	48.0	3.0
6	4824.00	43.3 AV	54.0	-10.7	1.53 V	3	40.3	3.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, 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	21 °C, 69 % RH
Tested By	Greg Lin		

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	*2437.00	118.6 PK			1.10 H	344	86.8	31.8
2	*2437.00	116.2 AV			1.10 H	344	84.4	31.8
3	4874.00	51.3 PK	74.0	-22.7	1.14 H	301	48.3	3.0
4	4874.00	44.3 AV	54.0	-9.7	1.14 H	301	41.3	3.0
5	7311.00	60.3 PK	74.0	-13.7	1.04 H	190	51.7	8.6
6	7311.00	53.5 AV	54.0	-0.5	1.04 H	190	44.9	8.6
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	*2437.00	114.5 PK			1.50 V	314	82.7	31.8
2	*2437.00	112.1 AV			1.50 V	314	80.3	31.8
3	4874.00	51.0 PK	74.0	-23.0	1.05 V	159	48.0	3.0
4	4874.00	44.1 AV	54.0	-9.9	1.05 V	159	41.1	3.0
5	7311.00	58.4 PK	74.0	-15.6	1.33 V	145	49.8	8.6
6	7311.00	50.7 AV	54.0	-3.3	1.33 V	145	42.1	8.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, 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	21 °C, 69 % RH
Tested By	Greg Lin		

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	116.8 PK			3.69 H	341	84.9	31.9
2	*2462.00	114.2 AV			3.69 H	341	82.3	31.9
3	2486.20	62.3 PK	74.0	-11.7	3.69 H	341	30.4	31.9
4	2486.20	53.7 AV	54.0	-0.3	3.69 H	341	21.8	31.9
5	4924.00	51.3 PK	74.0	-22.7	1.02 H	302	48.3	3.0
6	4924.00	44.5 AV	54.0	-9.5	1.02 H	302	41.5	3.0
7	7386.00	56.8 PK	74.0	-17.2	1.06 H	207	48.1	8.7
8	7386.00	47.1 AV	54.0	-6.9	1.06 H	207	38.4	8.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	111.0 PK			1.00 V	295	79.1	31.9
2	*2462.00	109.2 AV			1.00 V	295	77.3	31.9
3	2483.50	57.2 PK	74.0	-16.8	1.00 V	295	25.3	31.9
4	2483.50	48.6 AV	54.0	-5.4	1.00 V	295	16.7	31.9
5	4924.00	51.0 PK	74.0	-23.0	1.57 V	228	48.0	3.0
6	4924.00	44.1 AV	54.0	-9.9	1.57 V	228	41.1	3.0
7	7386.00	56.5 PK	74.0	-17.5	1.37 V	140	47.8	8.7
8	7386.00	46.7 AV	54.0	-7.3	1.37 V	140	38.0	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	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	120 Vac, 60 Hz	Environmental Conditions	21 °C, 69 % RH
Tested By	Karl Lee		

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	73.2 PK	74.0	-0.8	1.56 H	183	41.4	31.8
2	2390.00	51.6 AV	54.0	-2.4	1.56 H	183	19.8	31.8
3	*2412.00	116.4 PK			1.56 H	183	84.6	31.8
4	*2412.00	105.5 AV			1.56 H	183	73.7	31.8
5	4824.00	49.7 PK	74.0	-24.3	1.64 H	159	46.7	3.0
6	4824.00	36.8 AV	54.0	-17.2	1.64 H	159	33.8	3.0
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	70.9 PK	74.0	-3.1	1.50 V	315	39.1	31.8
2	2390.00	51.2 AV	54.0	-2.8	1.50 V	315	19.4	31.8
3	*2412.00	112.2 PK			1.50 V	315	80.4	31.8
4	*2412.00	102.6 AV			1.50 V	315	70.8	31.8
5	4824.00	49.9 PK	74.0	-24.1	1.57 V	111	46.9	3.0
6	4824.00	37.0 AV	54.0	-17.0	1.57 V	111	34.0	3.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, 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	120 Vac, 60 Hz	Environmental Conditions	21 °C, 69 % RH
Tested By	Greg Lin		

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	*2437.00	119.7 PK			1.12 H	340	87.9	31.8
2	*2437.00	109.5 AV			1.12 H	340	77.7	31.8
3	2483.50	73.8 PK	74.0	-0.2	1.12 H	340	41.9	31.9
4	2483.50	52.3 AV	54.0	-1.7	1.12 H	340	20.4	31.9
5	4874.00	48.6 PK	74.0	-25.4	1.00 H	304	45.6	3.0
6	4874.00	35.6 AV	54.0	-18.4	1.00 H	304	32.6	3.0
7	7311.00	57.8 PK	74.0	-16.2	1.02 H	158	49.2	8.6
8	7311.00	44.7 AV	54.0	-9.3	1.02 H	158	36.1	8.6
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	*2437.00	114.4 PK			1.50 V	315	82.6	31.8
2	*2437.00	104.2 AV			1.50 V	315	72.4	31.8
3	2483.50	68.1 PK	74.0	-5.9	1.50 V	315	36.2	31.9
4	2483.50	48.3 AV	54.0	-5.7	1.50 V	315	16.4	31.9
5	4874.00	48.1 PK	74.0	-25.9	1.34 V	111	45.1	3.0
6	4874.00	35.5 AV	54.0	-18.5	1.34 V	111	32.5	3.0
7	7311.00	55.6 PK	74.0	-18.4	1.36 V	133	47.0	8.6
8	7311.00	44.1 AV	54.0	-9.9	1.36 V	133	35.5	8.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, 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	120 Vac, 60 Hz	Environmental Conditions	21 °C, 69 % RH
Tested By	Greg Lin		

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	118.3 PK			2.05 H	337	86.4	31.9
2	*2462.00	108.2 AV			2.05 H	337	76.3	31.9
3	2483.50	73.6 PK	74.0	-0.4	2.05 H	337	41.7	31.9
4	2483.50	53.2 AV	54.0	-0.8	2.05 H	337	21.3	31.9
5	4924.00	48.4 PK	74.0	-25.6	1.03 H	197	45.4	3.0
6	4924.00	35.0 AV	54.0	-19.0	1.03 H	197	32.0	3.0
7	7386.00	56.1 PK	74.0	-17.9	1.56 H	150	47.4	8.7
8	7386.00	43.3 AV	54.0	-10.7	1.56 H	150	34.6	8.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	113.3 PK			1.31 V	308	81.4	31.9
2	*2462.00	103.4 AV			1.31 V	308	71.5	31.9
3	2483.50	67.4 PK	74.0	-6.6	1.31 V	308	35.5	31.9
4	2483.50	48.5 AV	54.0	-5.5	1.31 V	308	16.6	31.9
5	4924.00	48.0 PK	74.0	-26.0	1.59 V	9	45.0	3.0
6	4924.00	34.4 AV	54.0	-19.6	1.59 V	9	31.4	3.0
7	7386.00	54.3 PK	74.0	-19.7	1.45 V	155	45.6	8.7
8	7386.00	42.4 AV	54.0	-11.6	1.45 V	155	33.7	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	802.11ax (HE20)	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	23 °C, 67 % RH
Tested By	Greg Lin		

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	72.2 PK	74.0	-1.8	1.42 H	26	40.4	31.8
2	2390.00	53.4 AV	54.0	-0.6	1.42 H	26	21.6	31.8
3	*2412.00	117.8 PK			1.42 H	26	86.0	31.8
4	*2412.00	102.4 AV			1.42 H	26	70.6	31.8
5	4824.00	50.3 PK	74.0	-23.7	1.51 H	170	47.3	3.0
6	4824.00	37.0 AV	54.0	-17.0	1.51 H	170	34.0	3.0
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	70.1 PK	74.0	-3.9	1.31 V	308	38.3	31.8
2	2390.00	50.5 AV	54.0	-3.5	1.31 V	308	18.7	31.8
3	*2412.00	112.2 PK			1.31 V	308	80.4	31.8
4	*2412.00	102.4 AV			1.31 V	308	70.6	31.8
5	4824.00	49.3 PK	74.0	-24.7	1.57 V	8	46.3	3.0
6	4824.00	36.4 AV	54.0	-17.6	1.57 V	8	33.4	3.0

Remarks:

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

RF Mode	802.11ax (HE20)	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	23 °C, 67 % RH
Tested By	Greg Lin		

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	68.0 PK	74.0	-6.0	1.12 H	340	36.2	31.8
2	2390.00	46.9 AV	54.0	-7.1	1.12 H	340	15.1	31.8
3	*2437.00	119.4 PK			1.12 H	340	87.6	31.8
4	*2437.00	105.0 AV			1.12 H	340	73.2	31.8
5	2483.50	72.8 PK	74.0	-1.2	1.12 H	340	40.9	31.9
6	2483.50	49.8 AV	54.0	-4.2	1.12 H	340	17.9	31.9
7	4874.00	48.9 PK	74.0	-25.1	1.01 H	299	45.9	3.0
8	4874.00	35.3 AV	54.0	-18.7	1.01 H	299	32.3	3.0
9	7311.00	58.0 PK	74.0	-16.0	1.00 H	118	49.4	8.6
10	7311.00	43.9 AV	54.0	-10.1	1.00 H	118	35.3	8.6
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	1.31 V	308	34.3	31.8
2	2390.00	46.3 AV	54.0	-7.7	1.31 V	308	14.5	31.8
3	*2437.00	114.5 PK			1.31 V	308	82.7	31.8
4	*2437.00	104.7 AV			1.31 V	308	72.9	31.8
5	2483.50	68.0 PK	74.0	-6.0	1.31 V	308	36.1	31.9
6	2483.50	47.8 AV	54.0	-6.2	1.31 V	308	15.9	31.9
7	4874.00	47.6 PK	74.0	-26.4	1.15 V	105	44.6	3.0
8	4874.00	34.7 AV	54.0	-19.3	1.15 V	105	31.7	3.0
9	7311.00	57.8 PK	74.0	-16.2	1.56 V	9	49.2	8.6
10	7311.00	43.6 AV	54.0	-10.4	1.56 V	9	35.0	8.6

Remarks:

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

RF Mode	802.11ax (HE20)	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	23 °C, 67 % RH
Tested By	Greg Lin		

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	116.3 PK			1.52 H	346	84.4	31.9
2	*2462.00	106.4 AV			1.52 H	346	74.5	31.9
3	2483.50	72.0 PK	74.0	-2.0	1.52 H	346	40.1	31.9
4	2483.50	53.6 AV	54.0	-0.4	1.52 H	346	21.7	31.9
5	4924.00	48.3 PK	74.0	-25.7	1.05 H	211	45.3	3.0
6	4924.00	35.2 AV	54.0	-18.8	1.05 H	211	32.2	3.0
7	7386.00	57.9 PK	74.0	-16.1	1.57 H	209	49.2	8.7
8	7386.00	43.8 AV	54.0	-10.2	1.57 H	209	35.1	8.7
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			1.31 V	308	80.6	31.9
2	*2462.00	102.7 AV			1.31 V	308	70.8	31.9
3	2483.50	63.3 PK	74.0	-10.7	1.31 V	308	31.4	31.9
4	2483.50	48.4 AV	54.0	-5.6	1.31 V	308	16.5	31.9
5	4924.00	48.2 PK	74.0	-25.8	1.15 V	14	45.2	3.0
6	4924.00	35.0 AV	54.0	-19.0	1.15 V	14	32.0	3.0
7	7386.00	57.4 PK	74.0	-16.6	1.67 V	199	48.7	8.7
8	7386.00	43.6 AV	54.0	-10.4	1.67 V	199	34.9	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	802.11ax (HE40)	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	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67 % RH
Tested By	Greg Lin		

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	69.3 PK	74.0	-4.7	1.00 H	26	37.5	31.8
2	2390.00	53.5 AV	54.0	-0.5	1.00 H	26	21.7	31.8
3	*2422.00	115.5 PK			1.00 H	26	83.7	31.8
4	*2422.00	101.6 AV			1.00 H	26	69.8	31.8
5	4844.00	50.0 PK	74.0	-24.0	1.57 H	136	47.1	2.9
6	4844.00	36.6 AV	54.0	-17.4	1.57 H	136	33.7	2.9
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	64.6 PK	74.0	-9.4	1.31 V	308	32.8	31.8
2	2390.00	51.4 AV	54.0	-2.6	1.31 V	308	19.6	31.8
3	*2422.00	111.5 PK			1.31 V	308	79.7	31.8
4	*2422.00	98.7 AV			1.31 V	308	66.9	31.8
5	4844.00	48.8 PK	74.0	-25.2	1.59 V	333	45.9	2.9
6	4844.00	35.7 AV	54.0	-18.3	1.59 V	333	32.8	2.9

Remarks:

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

RF Mode	802.11ax (HE40)	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	23 °C, 67 % RH
Tested By	Greg Lin		

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	71.1 PK	74.0	-2.9	1.12 H	340	39.3	31.8
2	2390.00	51.5 AV	54.0	-2.5	1.12 H	340	19.7	31.8
3	*2437.00	115.8 PK			1.12 H	340	84.0	31.8
4	*2437.00	101.5 AV			1.12 H	340	69.7	31.8
5	2483.50	70.1 PK	74.0	-3.9	1.12 H	340	38.2	31.9
6	2483.50	52.4 AV	54.0	-1.6	1.12 H	340	20.5	31.9
7	4874.00	48.7 PK	74.0	-25.3	1.75 H	155	45.7	3.0
8	4874.00	35.0 AV	54.0	-19.0	1.75 H	155	32.0	3.0
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	63.7 PK	74.0	-10.3	1.30 V	311	31.9	31.8
2	2390.00	48.4 AV	54.0	-5.6	1.30 V	311	16.6	31.8
3	*2437.00	112.0 PK			1.30 V	311	80.2	31.8
4	*2437.00	99.4 AV			1.30 V	311	67.6	31.8
5	2483.50	61.1 PK	74.0	-12.9	1.30 V	311	29.2	31.9
6	2483.50	48.2 AV	54.0	-5.8	1.30 V	311	16.3	31.9
7	4874.00	48.3 PK	74.0	-25.7	1.67 V	1	45.3	3.0
8	4874.00	34.7 AV	54.0	-19.3	1.67 V	1	31.7	3.0

Remarks:

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

RF Mode	802.11ax (HE40)	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	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67 % RH
Tested By	Greg Lin		

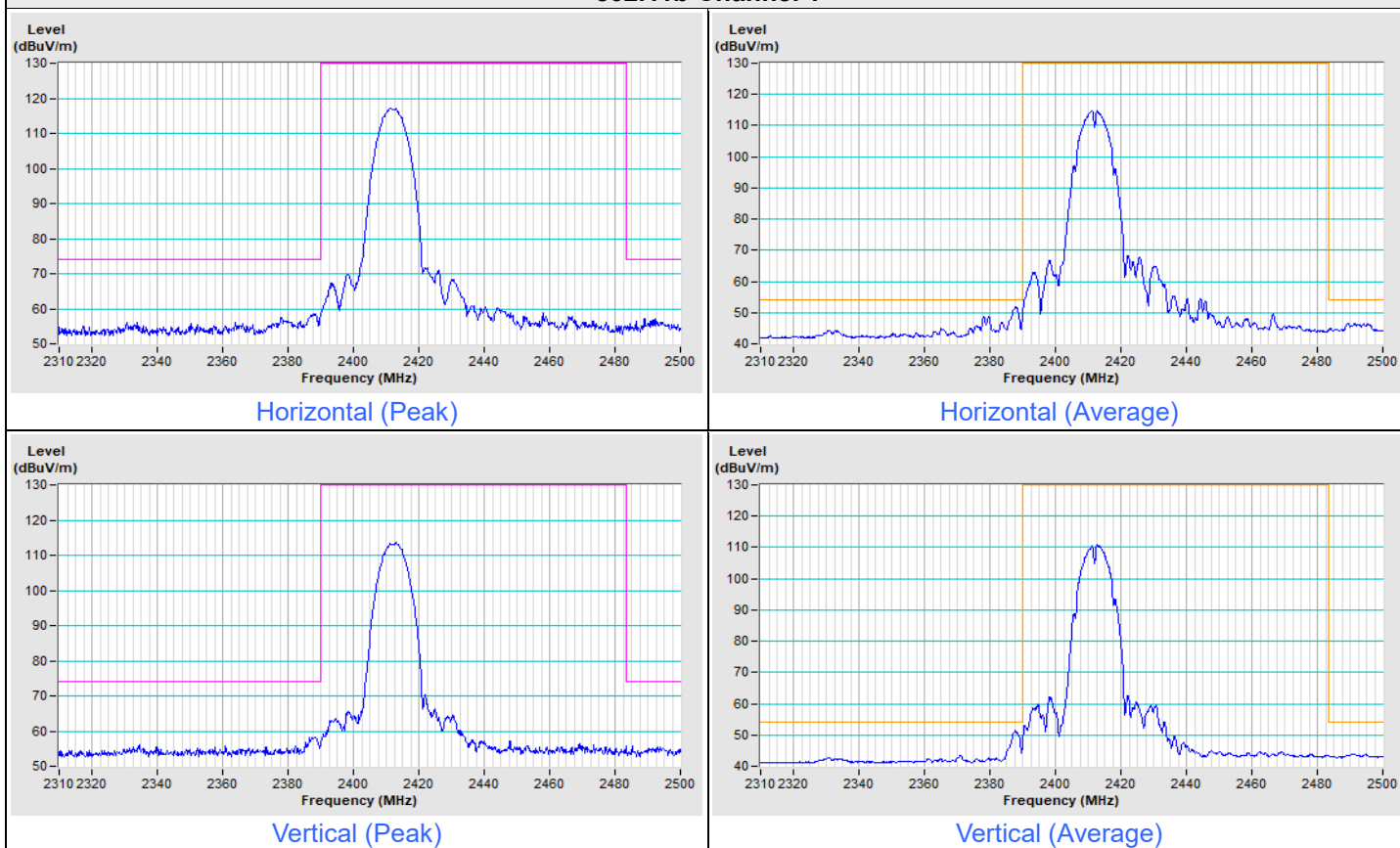
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	116.1 PK			1.27 H	346	84.2	31.9
2	*2452.00	103.3 AV			1.27 H	346	71.4	31.9
3	2485.70	67.4 PK	74.0	-6.6	1.27 H	346	35.5	31.9
4	2485.70	53.8 AV	54.0	-0.2	1.27 H	346	21.9	31.9
5	4904.00	48.6 PK	74.0	-25.4	1.57 H	222	45.6	3.0
6	4904.00	34.7 AV	54.0	-19.3	1.57 H	222	31.7	3.0
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	111.0 PK			1.30 V	306	79.1	31.9
2	*2452.00	98.0 AV			1.30 V	306	66.1	31.9
3	2483.50	62.5 PK	74.0	-11.5	1.30 V	306	30.6	31.9
4	2483.50	49.0 AV	54.0	-5.0	1.30 V	306	17.1	31.9
5	4904.00	48.4 PK	74.0	-25.6	1.11 V	154	45.4	3.0
6	4904.00	34.5 AV	54.0	-19.5	1.11 V	154	31.5	3.0

Remarks:

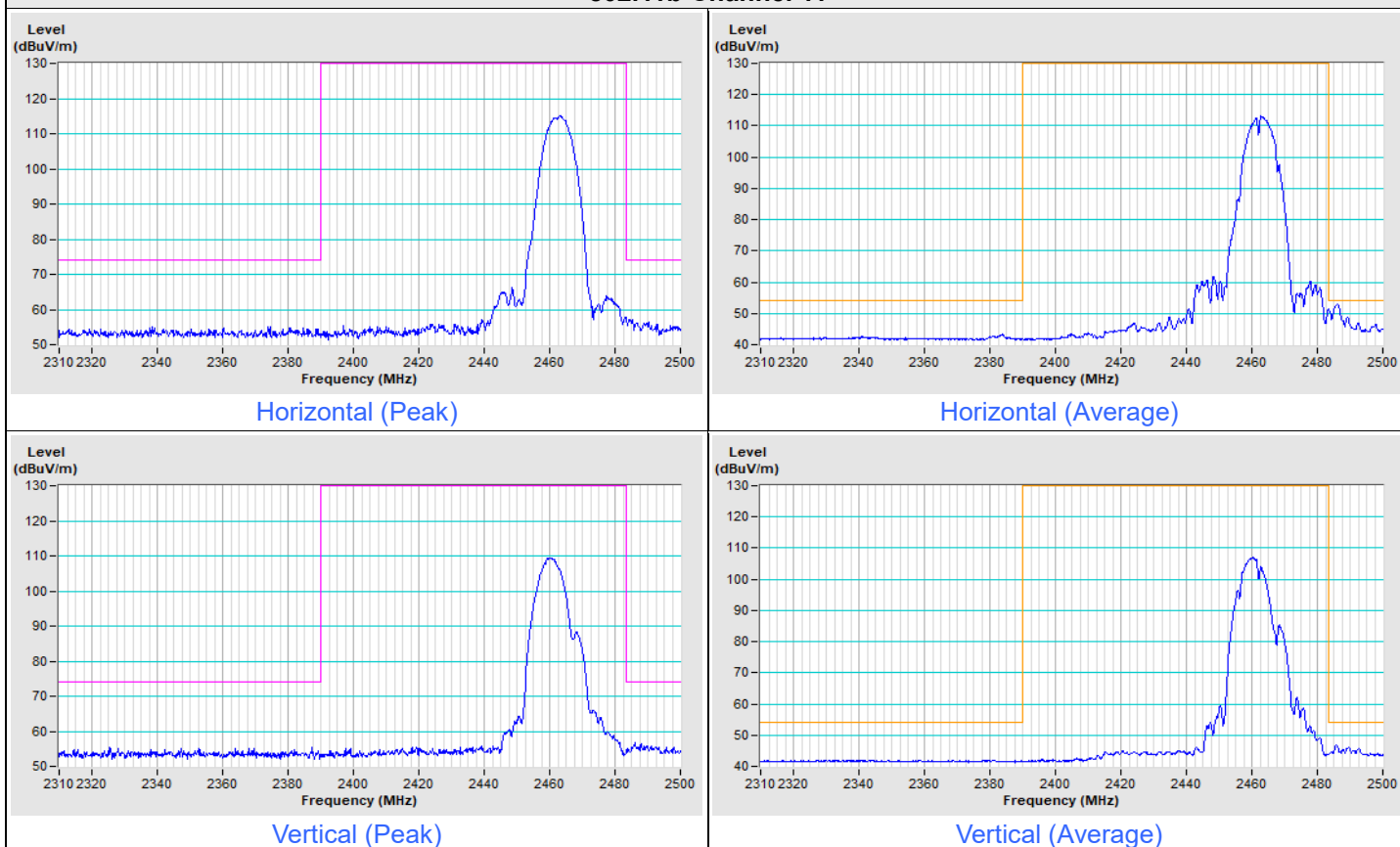
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency,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

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

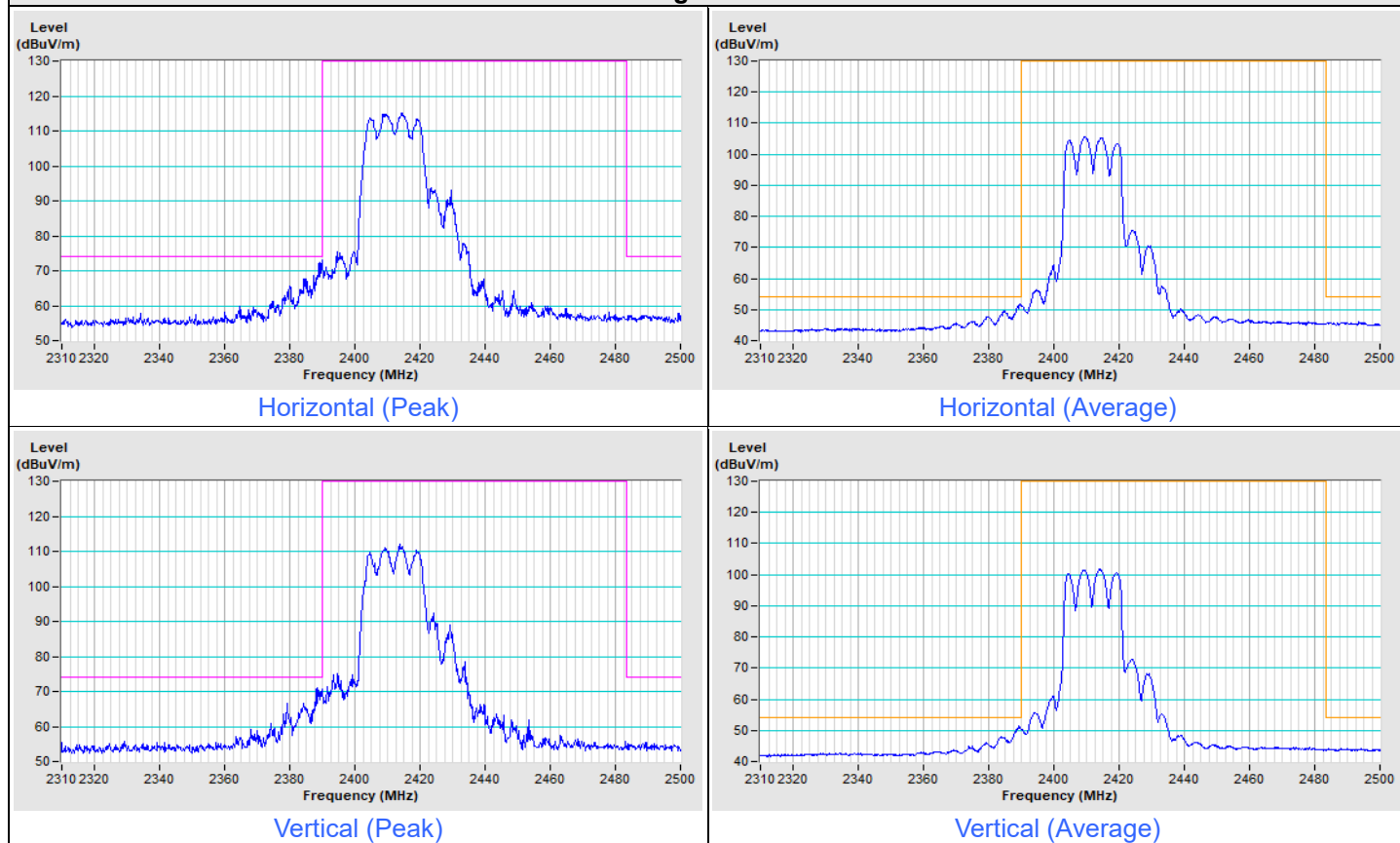


802.11b Channel 11

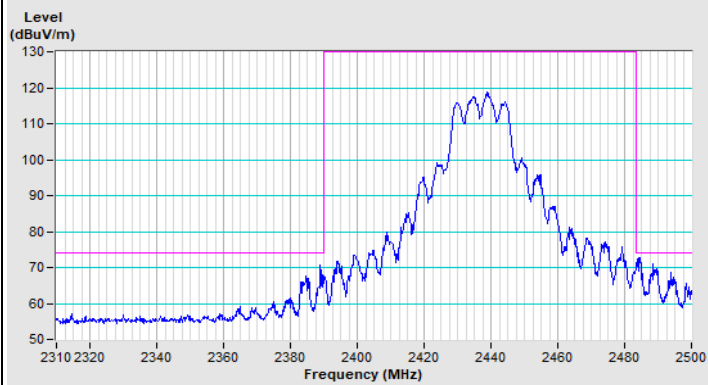


Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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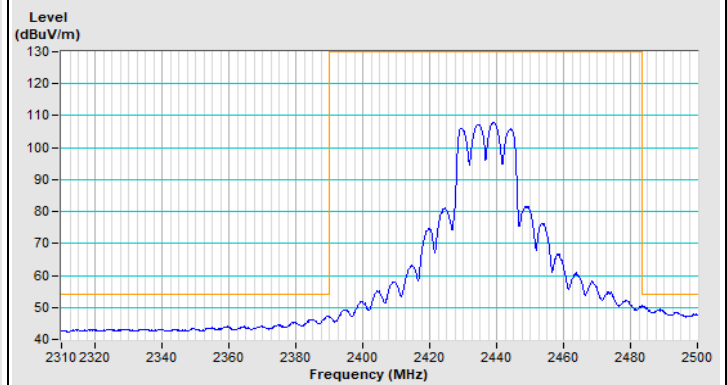
802.11g Channel 1



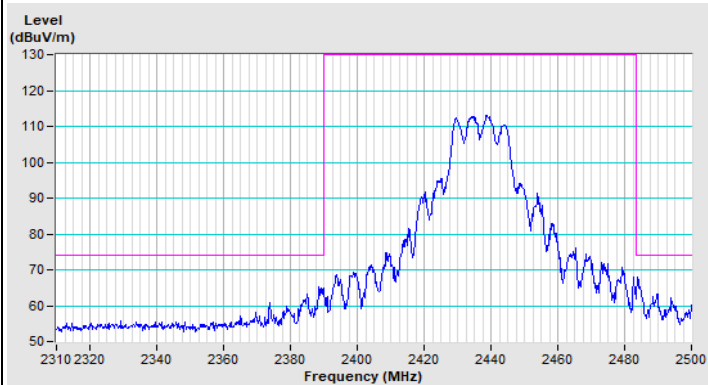
802.11g Channel 6



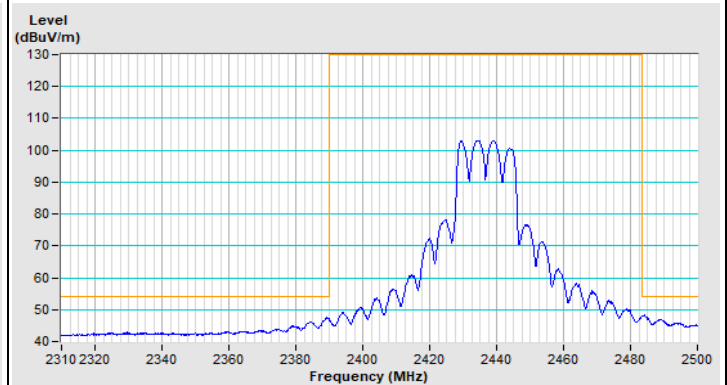
Horizontal (Peak)



Horizontal (Average)

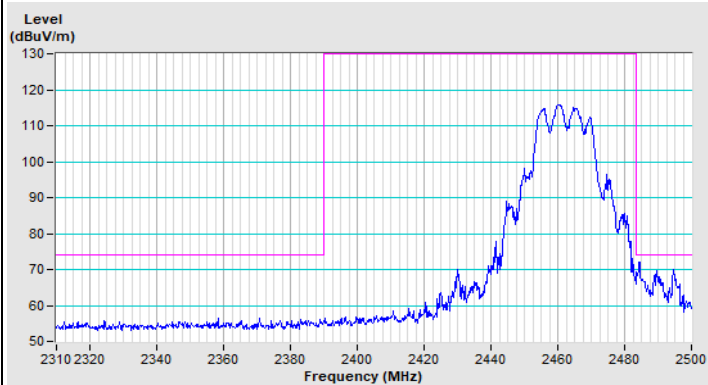


Vertical (Peak)

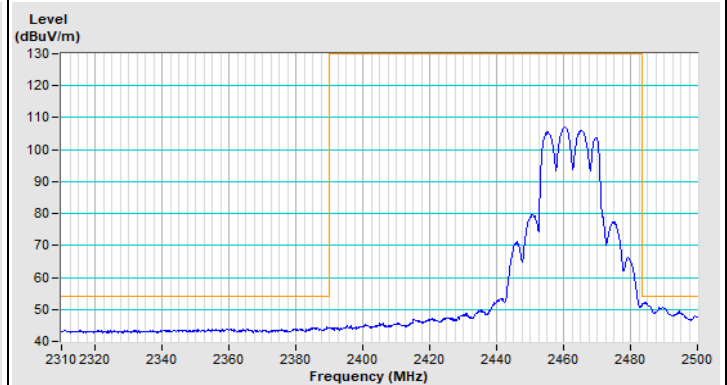


Vertical (Average)

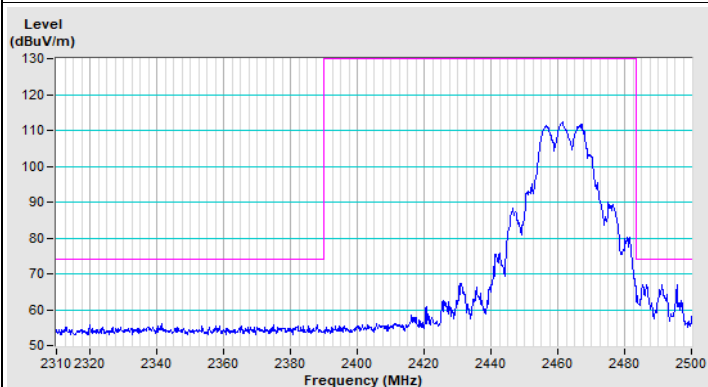
802.11g Channel 11



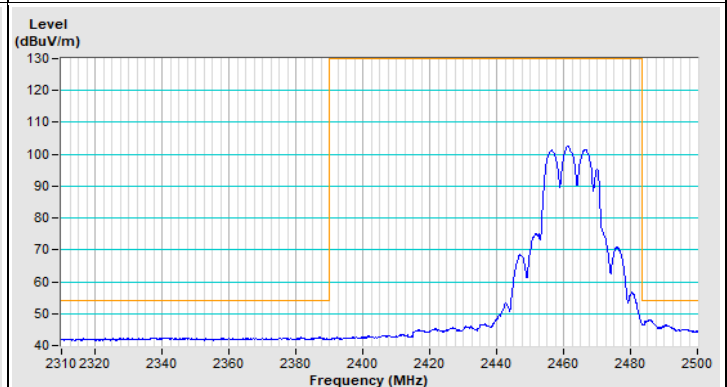
Horizontal (Peak)



Horizontal (Average)



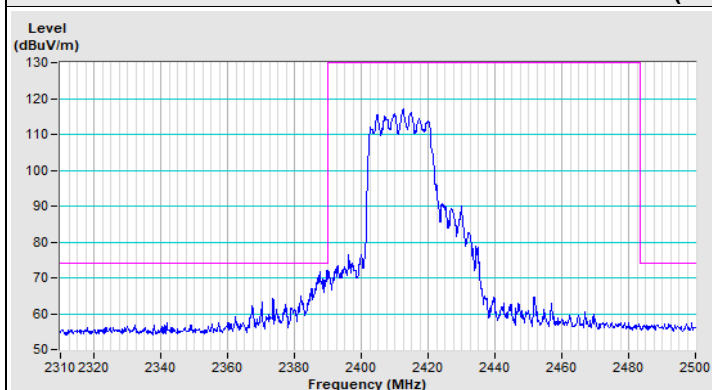
Vertical (Peak)



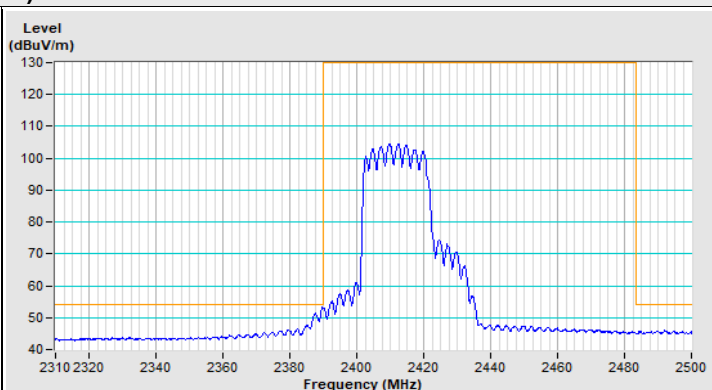
Vertical (Average)

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=10 Hz, DET=Peak
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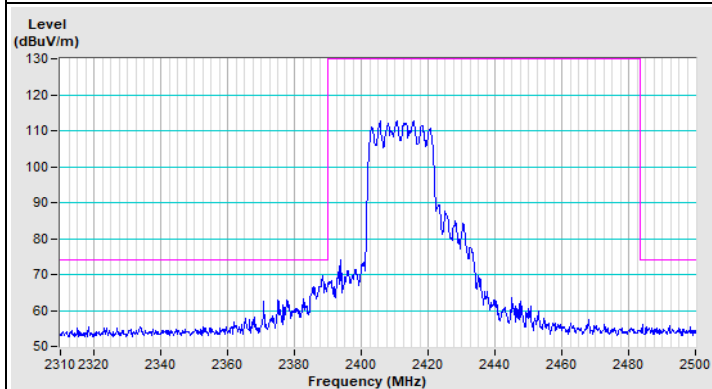
802.11ax (HE20) Channel 1



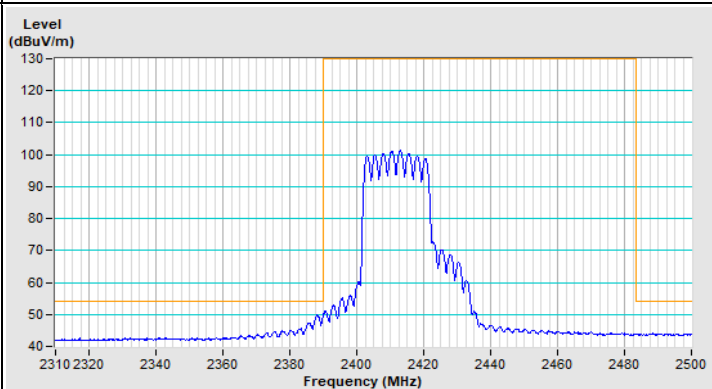
Horizontal (Peak)



Horizontal (Average)

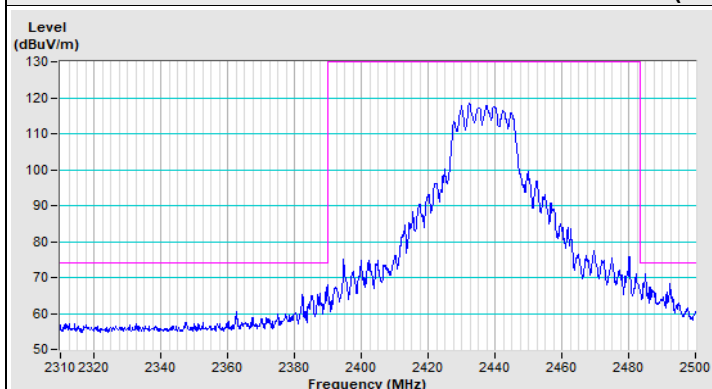


Vertical (Peak)

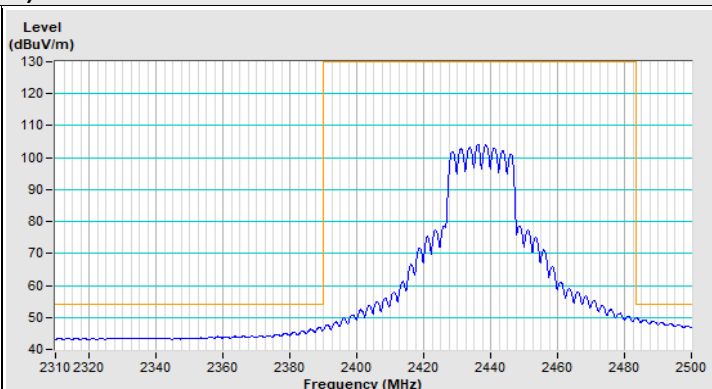


Vertical (Average)

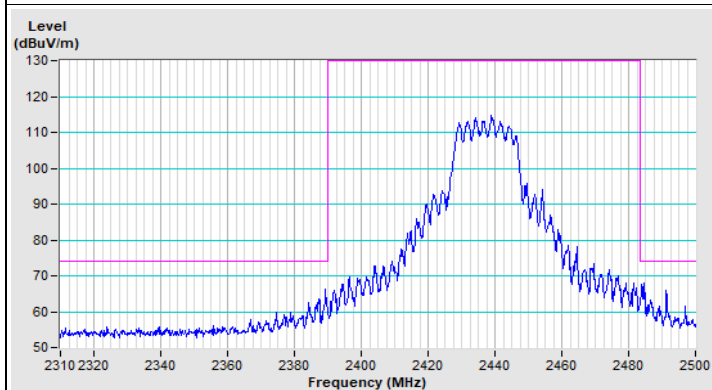
802.11ax (HE20) Channel 6



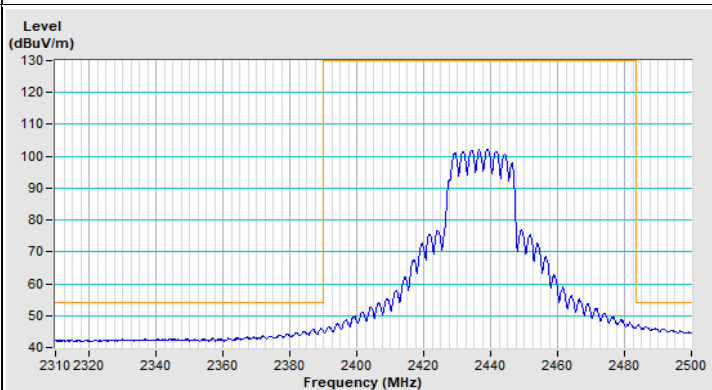
Horizontal (Peak)



Horizontal (Average)

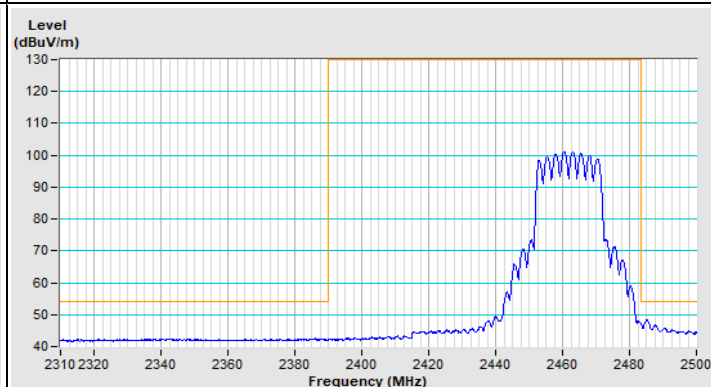
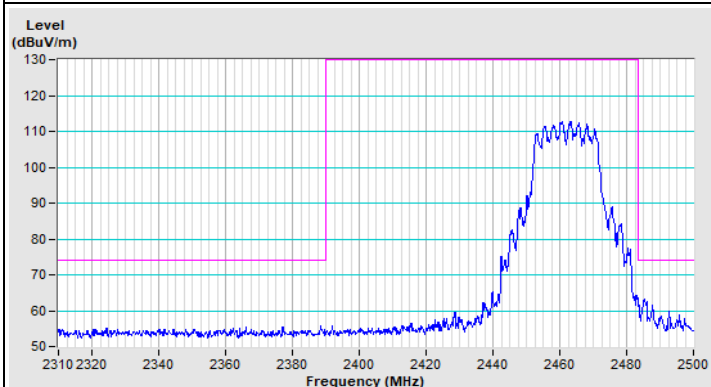
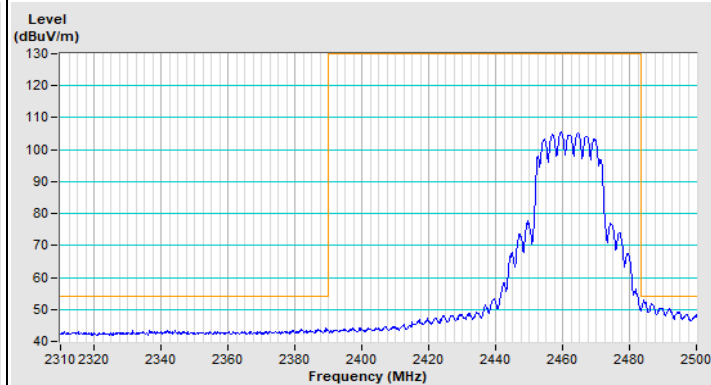
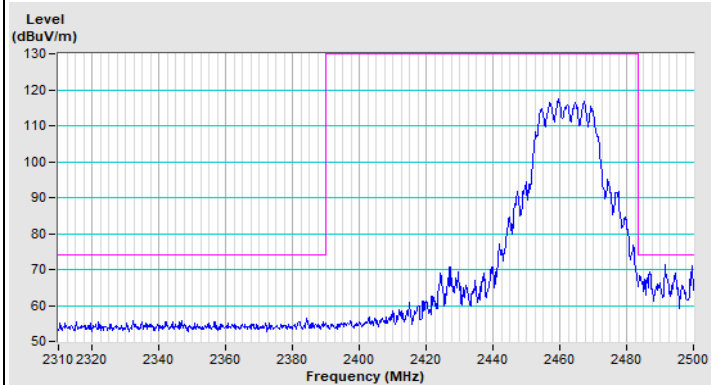


Vertical (Peak)



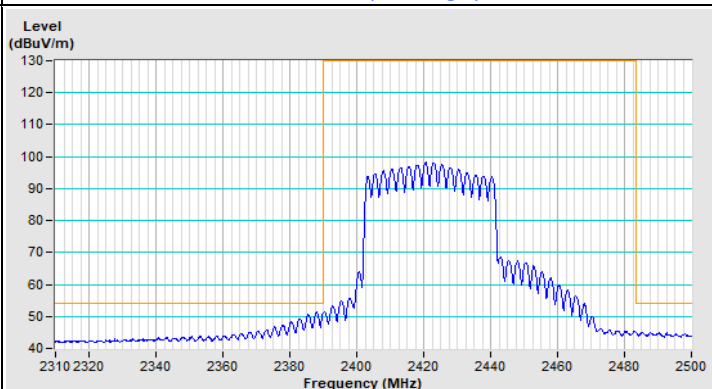
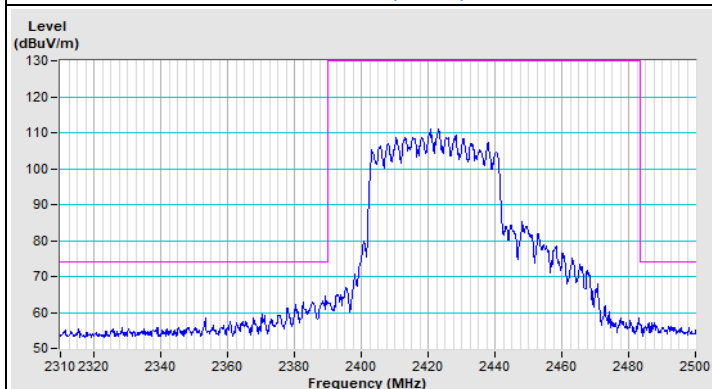
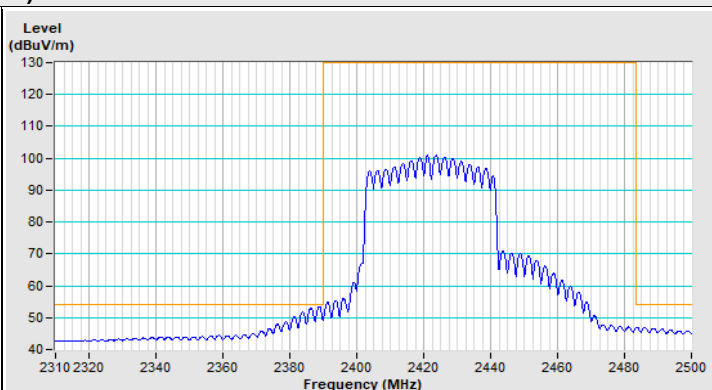
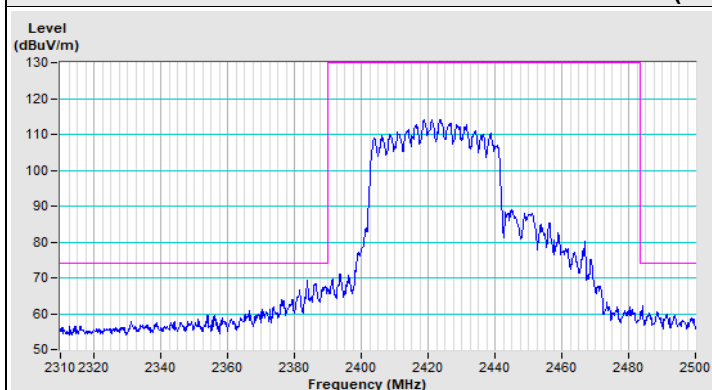
Vertical (Average)

802.11ax (HE20) Channel 11

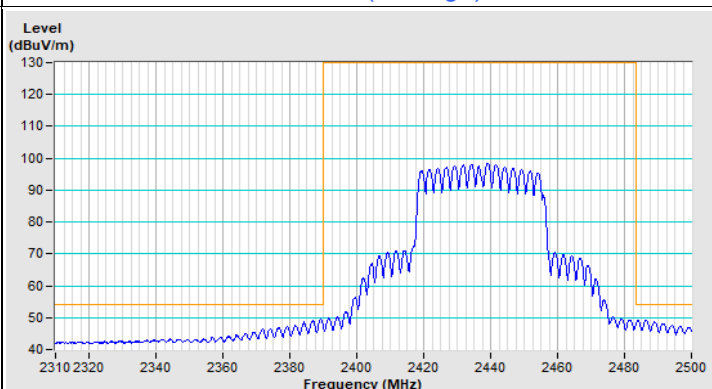
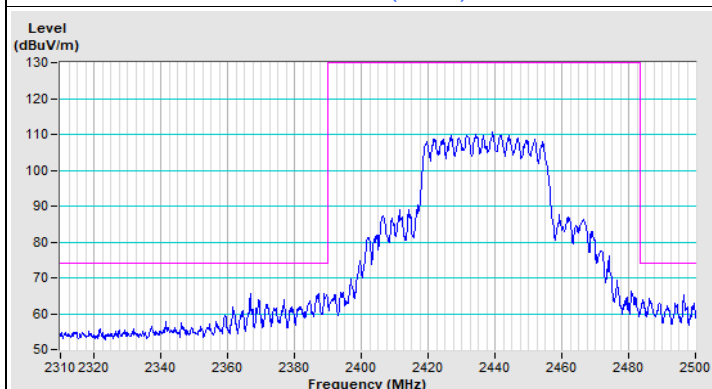
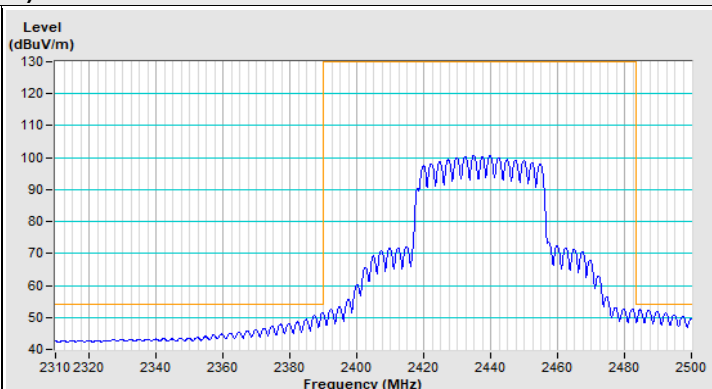
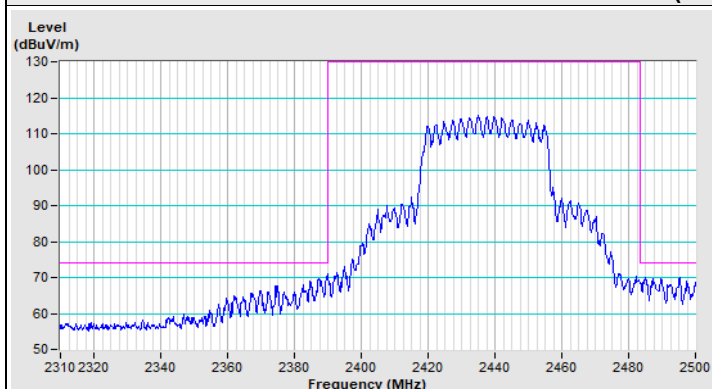


Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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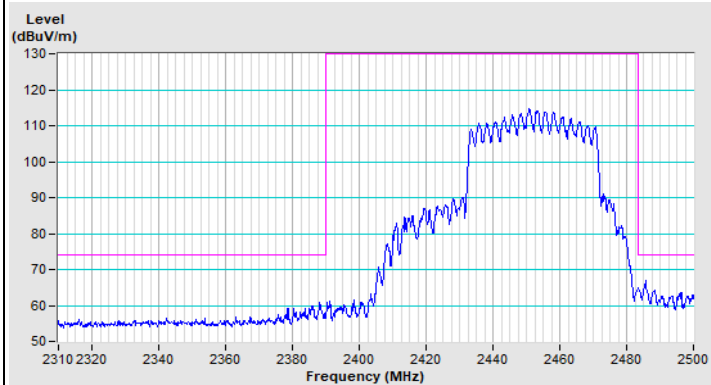
802.11ax (HE40) Channel 3



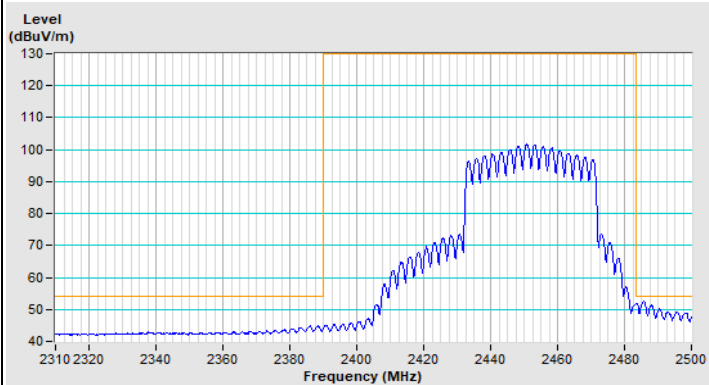
802.11ax (HE40) Channel 6



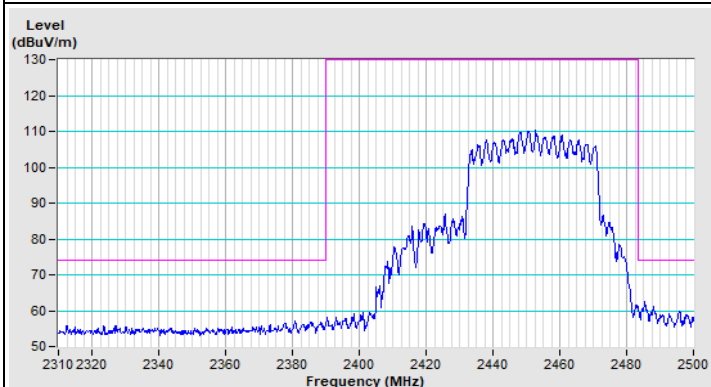
802.11ax (HE40) Channel 9



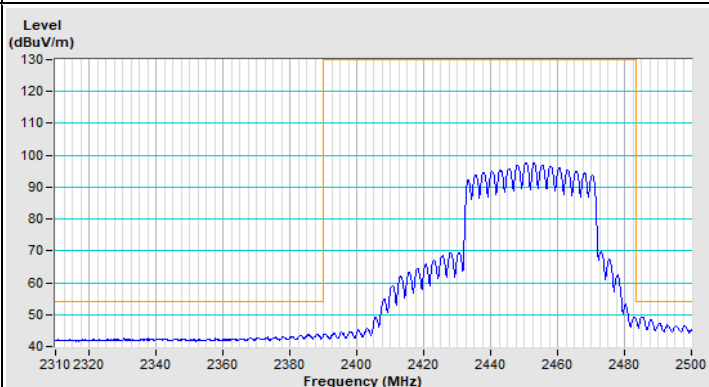
Horizontal (Peak)



Horizontal (Average)



Vertical (Peak)



Vertical (Average)

8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

9 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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

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

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