

TEST REPORT

CERTIFICATE OF CONFORMITY

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

Report No.: RFBEDV-WTW-P25090197-2

FCC ID: M72-EDV650

Product: Poly Edge V650

Brand: HP

Model No.: PVAN-EDGE-V650

Received Date: 2025/9/4

Test Date: 2025/9/12 ~ 2025/10/22

Issued Date: 2025/11/20

Applicant: HP Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration / 788550 / TW0003 for Test Location(1)

Designation Number: 281270 / TW0032 for Test Location(2)

Approved by:

Jeremy Lin

Date:

2025/11/20

Jeremy Lin / Project Engineer

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Prepared by : Pettie Chen / Senior Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBEDV-WTW-P25090197-2	Original release.	2025/11/20

1 Certificate

Product: Poly Edge V650

Brand: HP

Test Model: PVAN-EDGE-V650

Sample Status: Engineering sample

Applicant: HP Inc.

Test Date: 2025/9/12 ~ 2025/10/22

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

Measurement procedure: ANSI C63.10-2020

KDB 558074 D01 15.247 Meas Guidance v05r02

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 -14.37 dB at 0.15000 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -1.4 dB at 499.48 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.3 dB at 2483.50 MHz and 7311.00 MHz
15.203	Antenna Requirement	Pass	Antenna connector is ipex(MHF) not a standard connector.

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

2.1 Measurement Uncertainty

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

Measurement	Specification	Expanded Uncertainty (k=2) (±)
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	2.88 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	Poly Edge V650
Brand	HP
Test Model	PVAN-EDGE-V650
Status of EUT	Engineering sample
Power Supply Rating	5Vdc from adapter 48Vdc from PoE
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM for OFDMA in 802.11ax mode
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	Up to 143.4 Mbps
Operating Frequency	2.412 GHz ~ 2.462 GHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20), 802.11ax (HE20): 11
Output Power	213.304 mW (23.29 dBm)

Note:

1. The EUT uses following accessories.

Item	Brand	Model	Specification
RJ-45 Cable	EXCELTEK	PO02008	1.5m
Coil Cable	EXCELTEK	PE0003	570mm

2. The EUT uses following support unit.

Item	Brand	Model	Specification
USB Adapter	HP	TPN-DA20	AC Input power: 100-240Vac; 50-60Hz; 1.7A DC Output power: 5.0Vdc; 3.0A or 9.0Vdc; 3.0A or 12.0Vdc; 5.0A or 15.0Vdc; 4.33A or 20.0Vdc; 3.25A DC Output Cable: 1.73m without core
Adapter	Mass Power	S018-1A050300VU	AC Input power: 100-240Vac; 50/60Hz; 0.6A DC Output power: 5Vdc; 3A DC Output Cable: 1.5m non-shielded cable without core
PoE Injector	CERIO	POE-S48G2	48Vdc
Adapter for POE	L.T.E	LTE36ES-S5-1	AC Input power: 100-240Vac; 50/60Hz; 0.75A DC Output power: 48Vdc; 0.75A DC Output Cable: 1.85m non-shielded cable without core
Console Board	PEGATRON	REVLON_CONSOLE_BOARD Rev : 1.00	-
Console Cable	XINYA	H2530-04SVB-060/030	0.2m

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.	Brand	Model	Antenna Net Gain(dBi)	Frequency range	Antenna Type	Connector Type
1	PEGATRON	NA	2.89	2.4 GHz ~ 2.4835 GHz	PCB	ipex(MHF)
			2.7	5.15 GHz ~ 5.25 GHz	PCB	ipex(MHF)
			2.91	5.25 GHz ~ 5.35 GHz	PCB	ipex(MHF)
			2.75	5.47 GHz ~ 5.725 GHz	PCB	ipex(MHF)
			2.72	5.725 GHz ~ 5.85 GHz	PCB	ipex(MHF)

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

2. The EUT incorporates a SISO function:

2.4 GHz Band		
Modulation Mode	TX & RX Configuration	
802.11b	1TX	1RX
802.11g	1TX	1RX
802.11n (HT20)	1TX	1RX
802.11ax (HE20)	1TX	1RX

Note: The modulation and bandwidth are similar for 802.11n mode for 20 MHz, 802.11ax mode for 20 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), 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		

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. The AC Adapter has the following models: AC adapter (S018-1A050300VU) / USB Adapter (TPN-DA20) / POE (POE-S48G2). Pre-scan these ways and find the worst case as a representative test condition.
Worst Case:	1. Worst Condition: X-axis+AC adapter (S018-1A050300VU)

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

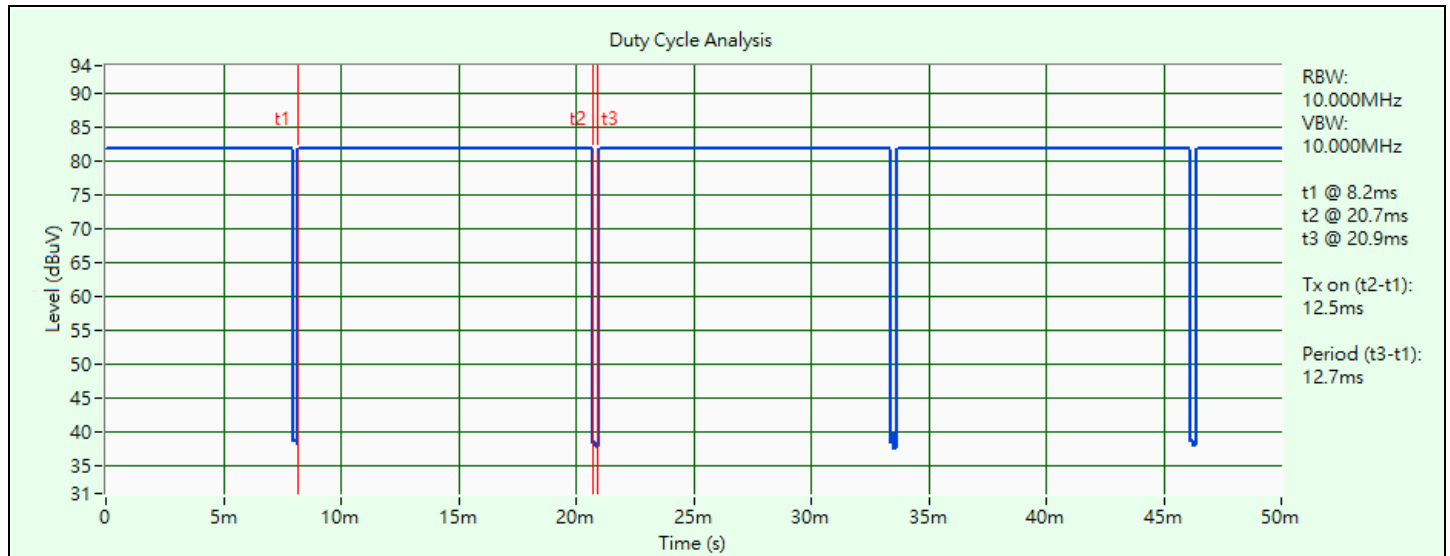
Test Item	Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	802.11b	1, 6, 11	DBPSK	1Mb/s
	802.11g	1, 6, 11	BPSK	6Mb/s
	802.11ax (HE20)	1, 6, 11	BPSK	MCS0
Power Spectral Density	802.11b	1, 6, 11	DBPSK	1Mb/s
	802.11g	1, 6, 11	BPSK	6Mb/s
	802.11ax (HE20)	1, 6, 11	BPSK	MCS0
6 dB Bandwidth / Conducted Out of Band Emissions	802.11b	1, 6, 11	DBPSK	1Mb/s
	802.11g	1, 6, 11	BPSK	6Mb/s
	802.11ax (HE20)	1, 6, 11	BPSK	MCS0
AC Power Conducted Emissions	802.11ax (HE20)	6	BPSK	MCS0
Unwanted Emissions below 1 GHz	802.11ax (HE20)	6	BPSK	MCS0
Unwanted Emissions above 1 GHz	802.11b	1, 6, 11	DBPSK	1Mb/s
	802.11g	1, 6, 11	BPSK	6Mb/s
	802.11ax (HE20)	1, 6, 11	BPSK	MCS0

3.5 Duty Cycle of Test Signal

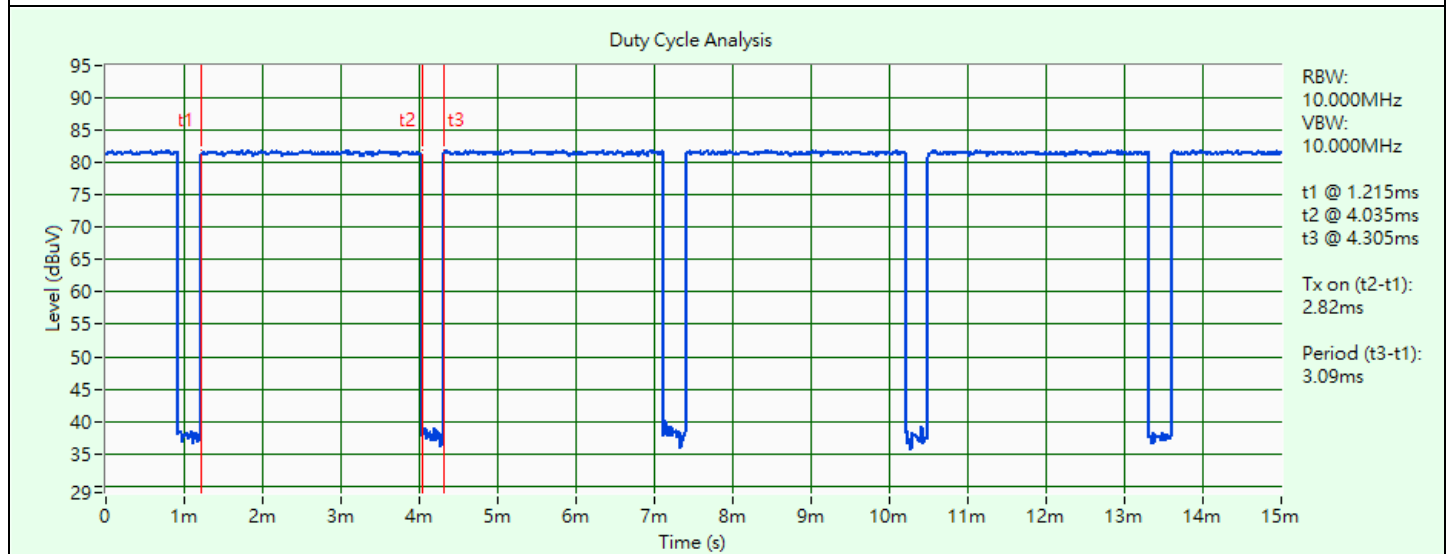
802.11b: Duty cycle = 12.5 ms / 12.7 ms x 100% = 98.4%

802.11g: Duty cycle = 2.82 ms / 3.09 ms x 100% = 91.3%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.40 \text{ dB}$

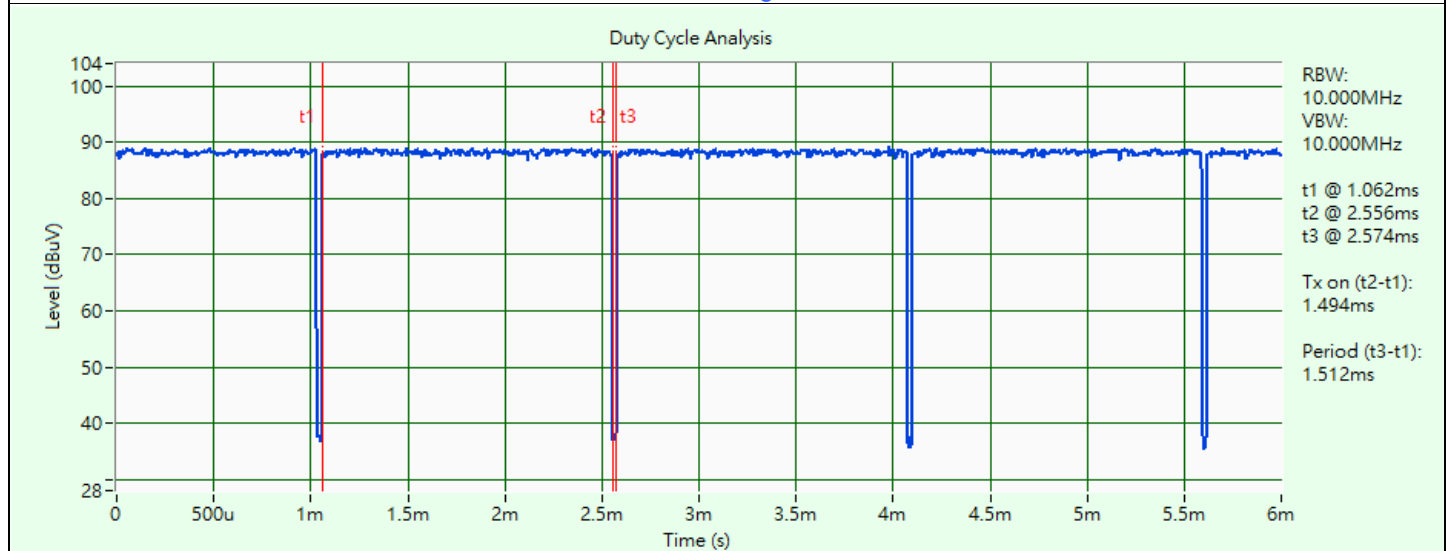
802.11ax (HE20): Duty cycle = 1.494 ms / 1.512 ms x 100% = 98.8%



802.11b



802.11g

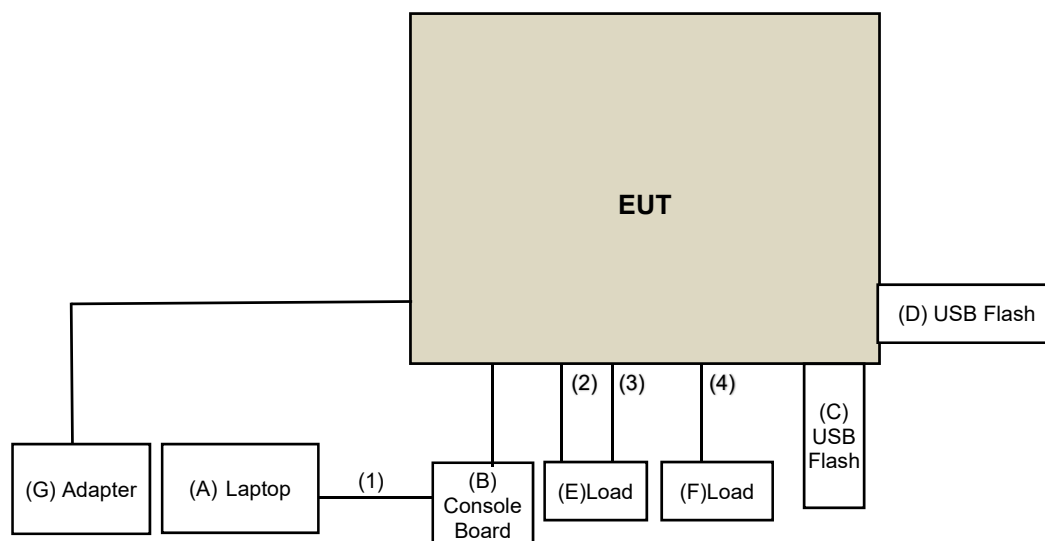


802.11ax (HE20)

3.6 Test Program Used and Operation Descriptions

Controlling software Tera Term V4.106 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	14" Laptop	Lenovo	L440	R9-0GFJKK	N/A	Provided by Lab
B	Console Board	PEGATRON	REVLON_CONSOLE_BOARD Rev : 1.00	N/A	N/A	Supplied by applicant
C	USB Flash	SanDisk	SDDDC3-032G	N/A	N/A	Provided by Lab
D	USB Flash	SanDisk	SDDDC3-032G	N/A	N/A	Provided by Lab
E	Load	BV	LP-4	N/A	N/A	Provided by Lab
F	Load	BV	LP-4	N/A	N/A	Provided by Lab
G	Adapter	HP	S018-1A050300VU	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	USB Cable	1	1	No	0	Provided by Lab
2	RJ45 Cable	1	1.5	No	0	Provided by Lab
3	RJ45 Cable	1	1.5	No	0	Supplied by applicant
4	Coil Cable	1	0.57	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
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2025/5/23	2026/5/22
Peak Power Analyzer Keysight	8990B	MY51000485	2025/1/20	2026/1/19
Wideband Power Sensor Keysight	N1923A	MY58020002	2025/1/21	2026/1/20
		MY58140009	2025/1/21	2026/1/20

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/9/25

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2025/5/23	2026/5/22
Signal & Spectrum Analyzer R&S	FSV3044	101504	2025/6/18	2026/6/17
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: 2025/9/25

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
Diode Pulse Limiter Schwarzbeck	VTSD 9561 F-N	01445	2025/4/27	2026/4/26
EMI Test Receiver R&S	ESCI	100613	2024/11/25	2025/11/24
LISN R&S	ENV216	101826	2025/3/24	2026/3/23
	ESH3-Z5	100311	2025/8/28	2026/8/27
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	2025/8/27	2026/8/26

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2025/10/22

4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	MFA-515BSN	N/A	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-1214	2025/9/18	2026/9/17
EXA Signal Analyzer Agilent	N9010A	MY52220207	2024/12/30	2025/12/29
Loop Antenna TESEQ	HLA 6121	45745	2025/9/1	2026/8/31
MXE EMI Receiver Keysight	N9038B	MY60180019	2025/1/15	2026/1/14
Preamplifier EMCI	EMC330N	980798	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMCCFD400-NM-NM-500	201248	2025/1/14	2026/1/13
	EMCCFD400-NM-NM-3000	201249	2025/1/14	2026/1/13
	EMCCFD400-NM-NM-9000	201251(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	MFT-201SS	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208676	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 9.
2. Tested Date: 2025/10/22

4.7 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	MFA-515BSN	N/A	N/A	N/A
EXA Signal Analyzer Agilent	N9010A	MY52220207	2024/12/30	2025/12/29
Horn Antenna RFSPIN	DRH18-E	210104A18E	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 Agilent	83017A	MY39501357	2025/6/11	2026/6/10
Preamplifier EMCI	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	210103	2025/1/14	2026/1/13
	EMC104-SM-SM-3000	201241	2025/1/14	2026/1/13
	EMC104-SM-SM-9000	201244	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	MFT-201SS	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208676	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 9.
2. Tested Date: 2025/9/12

5 Limits of Test Items

5.1 RF Output Power

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

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

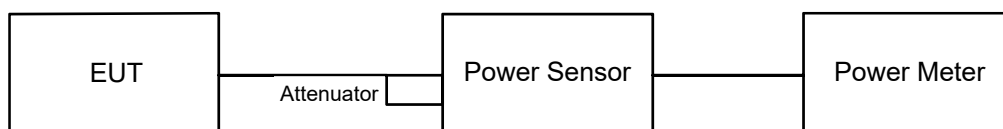
Notes:

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



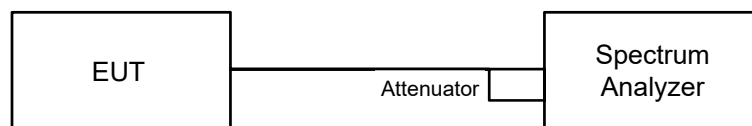
6.1.2 Test Procedure

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



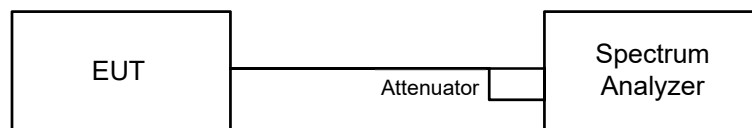
6.2.2 Test Procedure

- Measure the duty cycle (x).
- Set instrument center frequency to DTS channel center frequency.
- Set span to > 1.5 times the OBW.
- Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq 3 \times \text{RBW}$.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span}/\text{RBW}$.
- 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

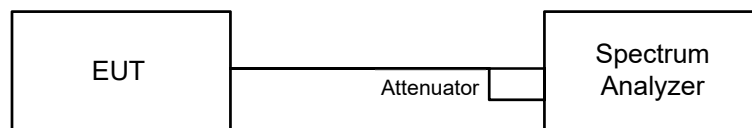


6.3.2 Test Procedure

- a. Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz.
- b. Set the VBW $\geq [3 \times \text{RBW}]$.
- c. Detector = peak.
- d. Trace mode = max-hold.
- e. Sweep = No faster than coupled (auto) time.
- f. Allow the trace to stabilize.
- g. Measure the maximum width of the emission by placing two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-6 dB down amplitude”. If a marker is below this “-6 dB down amplitude” value, then it shall be as close as possible to this value.

6.4 Conducted Out of Band Emissions

6.4.1 Test Setup



6.4.2 Test Procedure

MEASUREMENT PROCEDURE REF

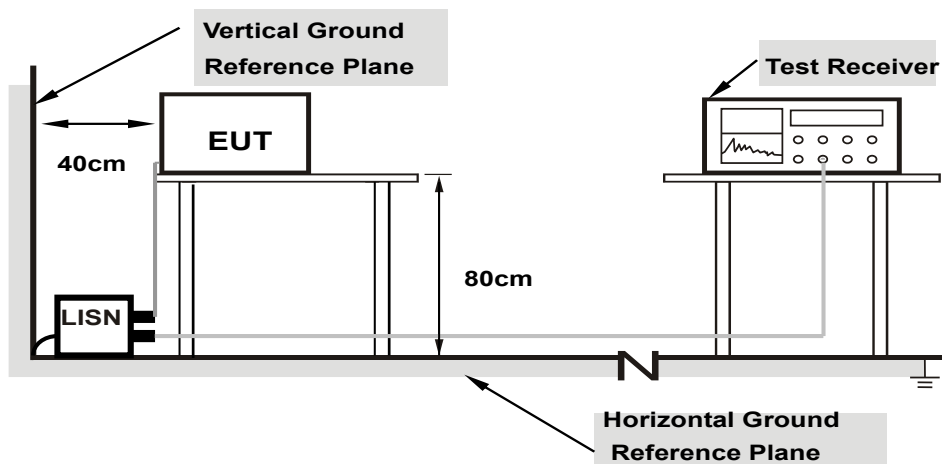
- Set instrument center frequency to DTS channel center frequency.
- Set the span to ≥ 1.5 times the DTS bandwidth.
- Set the RBW = 100 kHz.
- Set the VBW ≥ 300 kHz.
- Detector = peak.
- Sweep time = No faster than coupled (auto) time.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum PSD level.

MEASUREMENT PROCEDURE OOB

- Set the center frequency and span to encompass frequency range to be measured. Note that the frequency range might need to be divided into multiple frequency ranges to retain frequency resolution.
- Set RBW = 100 kHz.
- Set VBW ≥ 300 kHz.
- Detector = peak.
- Sweep = No faster than coupled (auto) time.
- 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

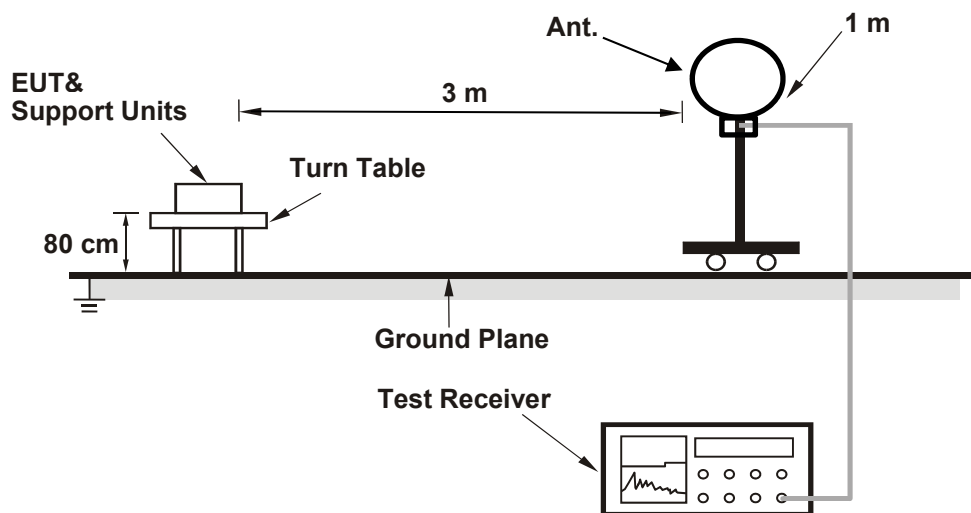
- Exploratory ac power-line conducted emission measurements: The EUT shall be operated on the mid channel and in the mode with highest output power unless the fundamental operates in the AC power-line emission test range then the EUT shall be operated in the range of typical modes of operation.
- The 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.

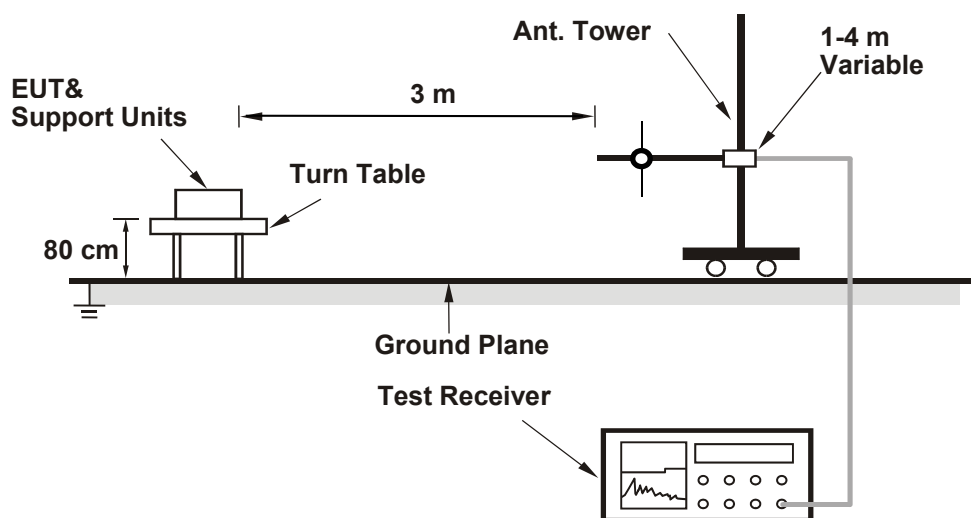
6.6 Unwanted Emissions below 1 GHz

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

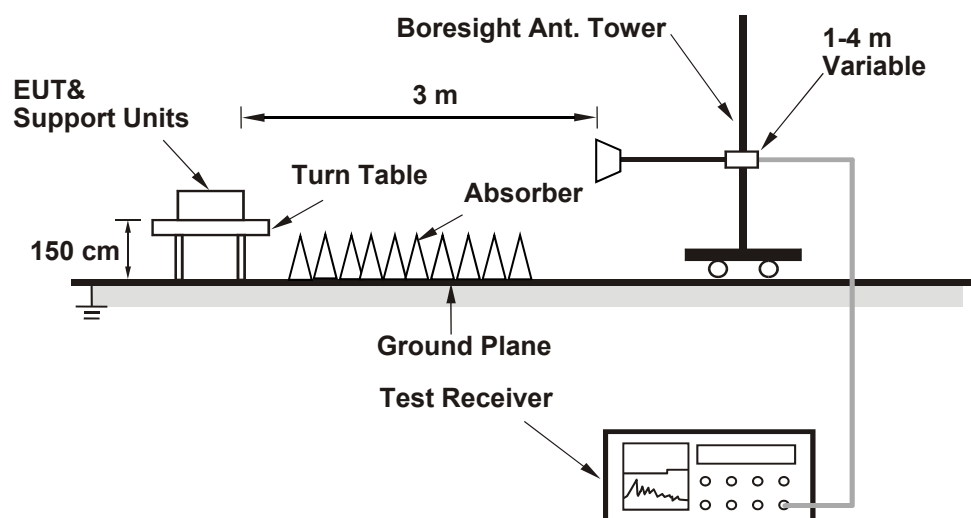
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the 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(QP) detect function, Average(AV) detect function, Peak(PK) detect function and specified bandwidth with maximum hold mode when the test frequencies less than or equal to 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

Environmental Conditions:	25°C, 60% RH	Tested By:	Ian Chang
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802.11b

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
1	2412	198.609	22.98	30	Pass
6	2437	95.94	19.82	30	Pass
11	2462	78.524	18.95	30	Pass

Note: The antenna gain is 2.89 dBi $\leq$ 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	110.408	20.43	30	Pass
6	2437	133.66	21.26	30	Pass
11	2462	85.901	19.34	30	Pass

Note: The antenna gain is 2.89 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
1	2412	80.538	19.06	30	Pass
6	2437	213.304	23.29	30	Pass
11	2462	95.94	19.82	30	Pass

Note: The antenna gain is 2.89 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

7.2 Power Spectral Density

Environmental Conditions:	25°C, 60% RH	Tested By:	Ian Chang
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802.11b

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
1	2412	-7.03	8	Pass
6	2437	-10.36	8	Pass
11	2462	-11.14	8	Pass

Note: The antenna gain is 2.89 dBi $\leq$ 6 dBi, so the power density limit shall not be reduced.

802.11g

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)	Duty Factor (dB)	Conducted PSD (dBm/3kHz)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
1	2412	-11.24	0.40	-11.24	-10.84	8	Pass
6	2437	-11.08	0.40	-11.08	-10.68	8	Pass
11	2462	-11.27	0.40	-11.27	-10.87	8	Pass

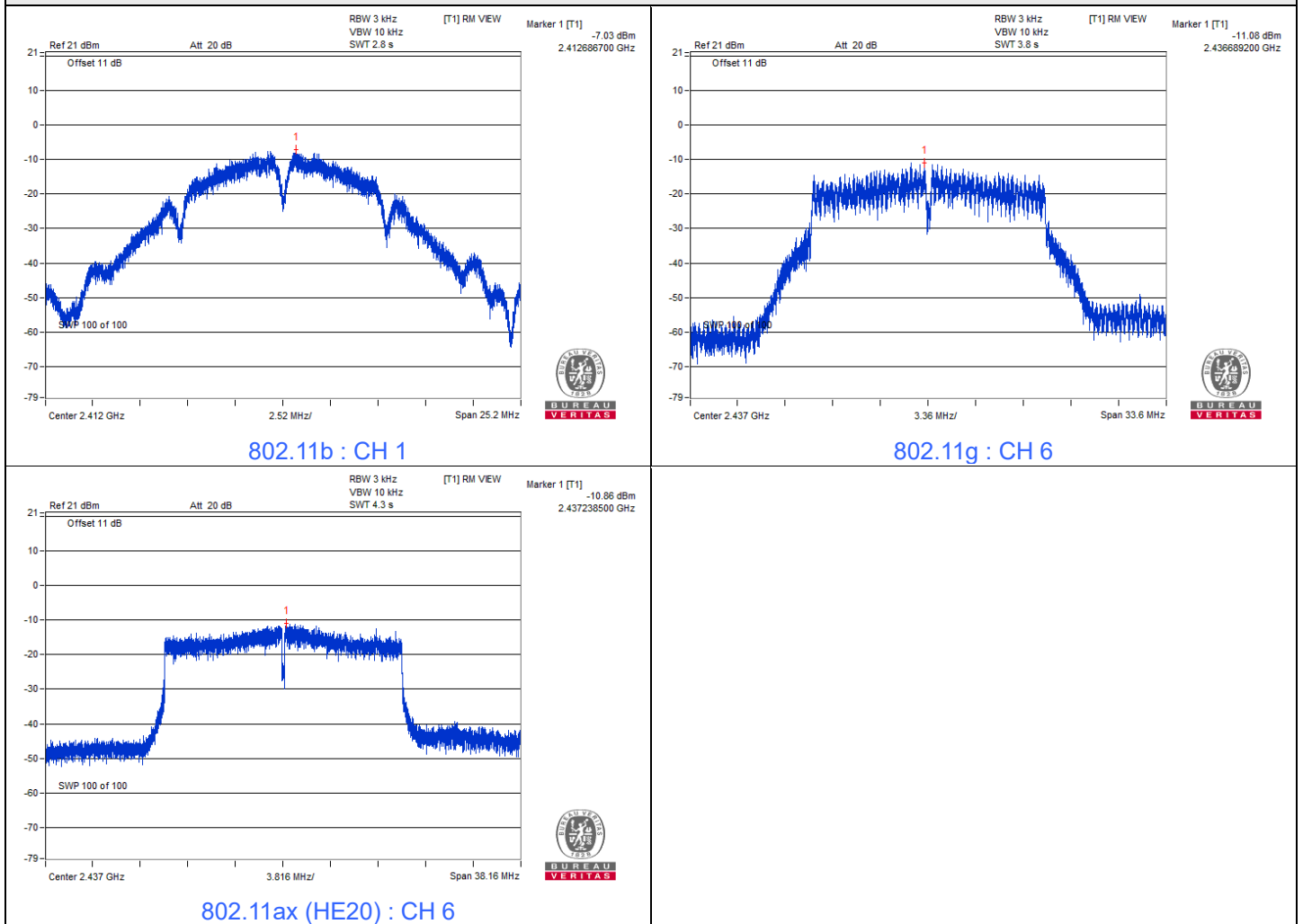
Note: The antenna gain is 2.89 dBi $\leq$ 6 dBi, so the power density limit shall not be reduced.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
1	2412	-13.83	8	Pass
6	2437	-10.86	8	Pass
11	2462	-14.50	8	Pass

Note: The antenna gain is 2.89 dBi $\leq$ 6 dBi, so the power density limit shall not be reduced.

Spectrum Plot of Maximum Value



7.3 6 dB Bandwidth

Environmental Conditions:	25°C, 60% RH	Tested By:	Ian Chang
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802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
1	2412	8.21	0.5	Pass
6	2437	7.33	0.5	Pass
11	2462	7.65	0.5	Pass

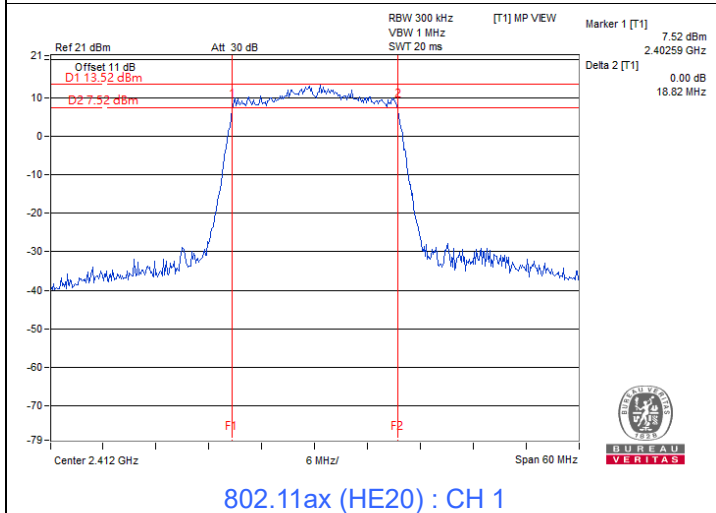
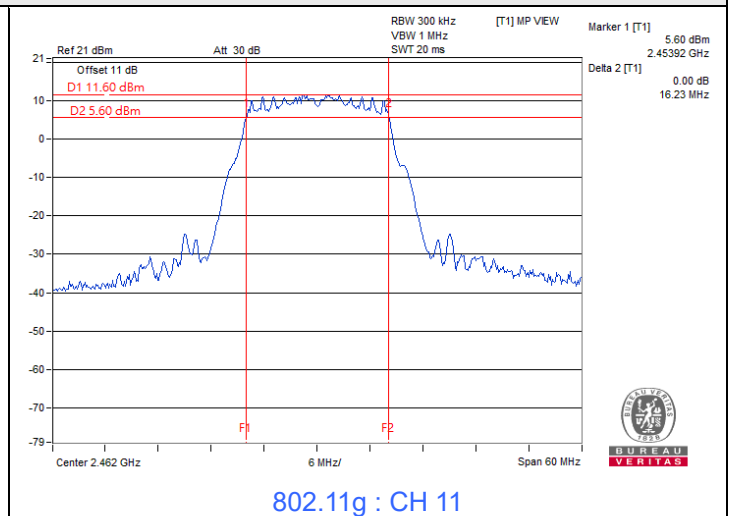
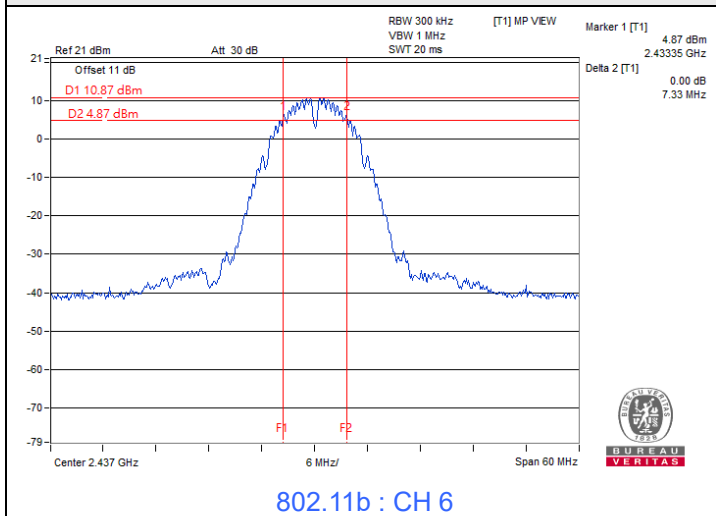
802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
1	2412	16.27	0.5	Pass
6	2437	16.26	0.5	Pass
11	2462	16.23	0.5	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
1	2412	18.82	0.5	Pass
6	2437	18.83	0.5	Pass
11	2462	18.84	0.5	Pass

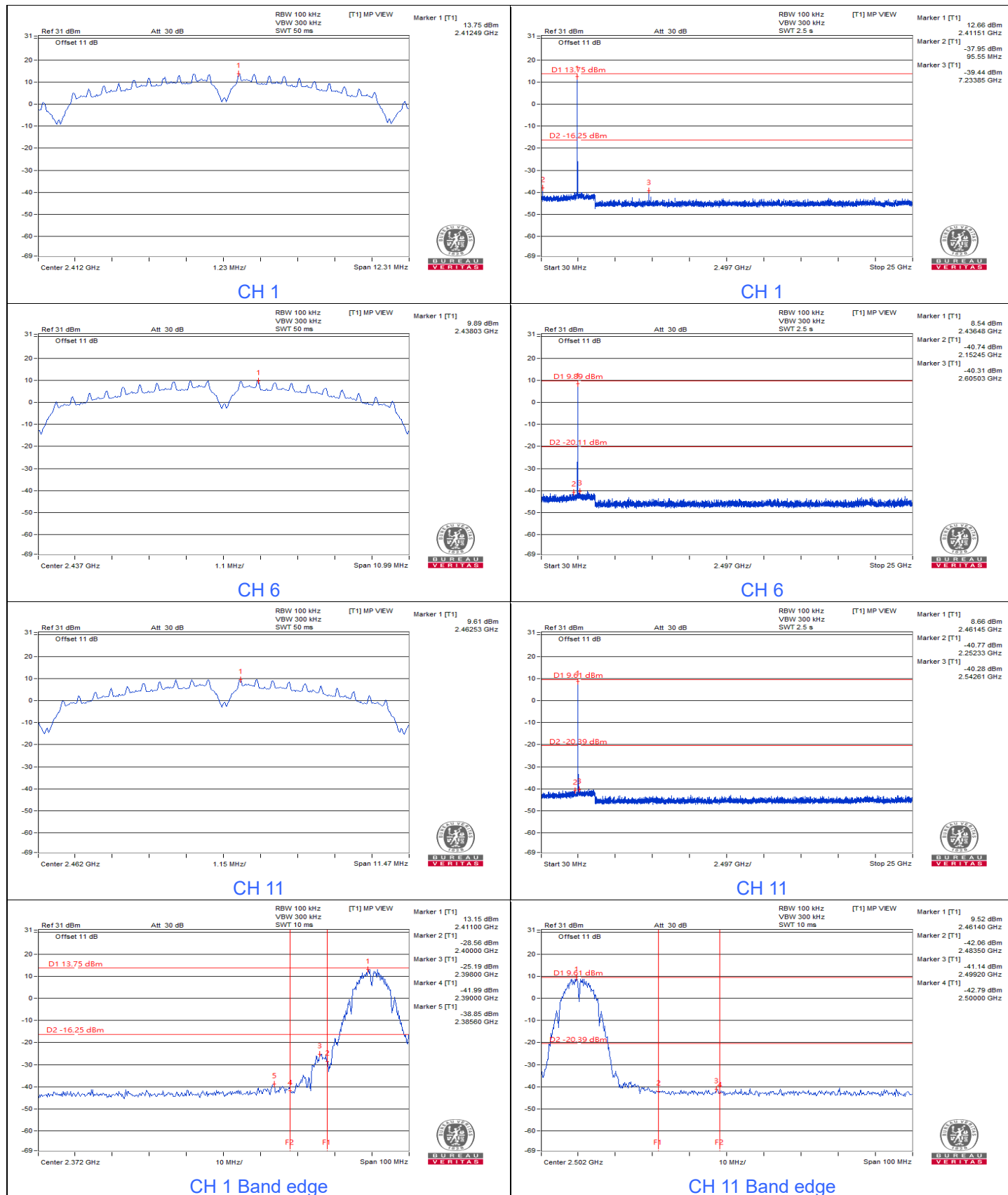
Spectrum Plot of Minimum Value



7.4 Conducted Out of Band Emissions

Environmental Conditions:	25°C, 60% RH	Tested By:	Ian Chang
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802.11b



802.11g



802.11ax (HE20)



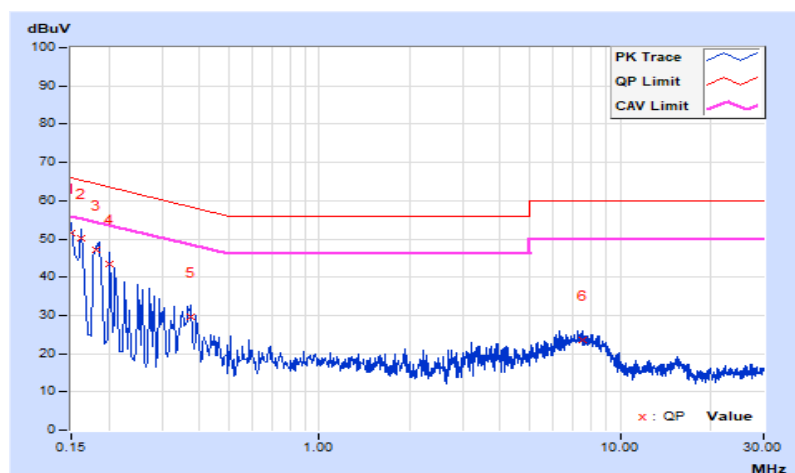
7.5 AC Power Conducted Emissions

RF Mode	802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75% RH
Tested By	Greg Lin		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.75	41.88	22.52	51.63	32.27	66.00	56.00	-14.37	-23.73
2	0.16105	9.76	40.31	19.77	50.07	29.53	65.41	55.41	-15.34	-25.88
3	0.18180	9.78	37.28	18.10	47.06	27.88	64.40	54.40	-17.34	-26.52
4	0.20200	9.79	33.63	14.18	43.42	23.97	63.53	53.53	-20.11	-29.56
5	0.37400	9.87	19.68	7.61	29.55	17.48	58.41	48.41	-28.86	-30.93
6	7.47400	10.30	13.19	5.12	23.49	15.42	60.00	50.00	-36.51	-34.58

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

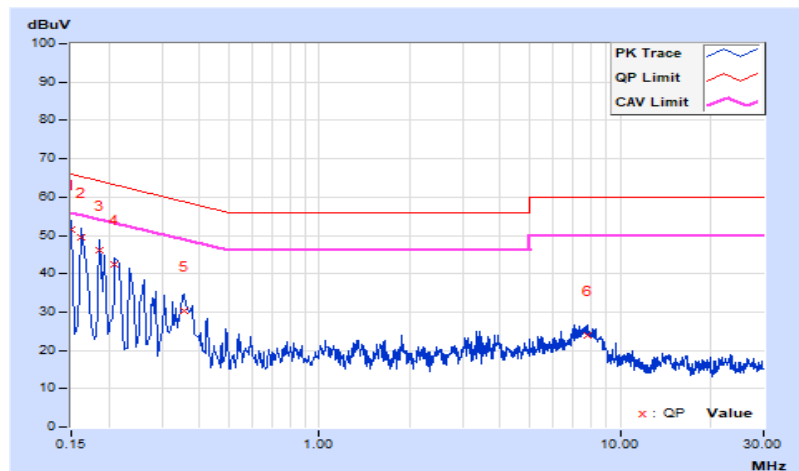


RF Mode	802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75% RH
Tested By	Greg Lin		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.71	41.83	22.31	51.54	32.02	66.00	56.00	-14.46	-23.98
2	0.16190	9.71	39.81	18.78	49.52	28.49	65.37	55.37	-15.85	-26.88
3	0.18600	9.72	36.48	17.51	46.20	27.23	64.21	54.21	-18.01	-26.98
4	0.21000	9.73	32.53	14.43	42.26	24.16	63.21	53.21	-20.95	-29.05
5	0.35400	9.87	20.59	13.88	30.46	23.75	58.87	48.87	-28.41	-25.12
6	7.81800	10.37	13.61	5.19	23.98	15.56	60.00	50.00	-36.02	-34.44

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



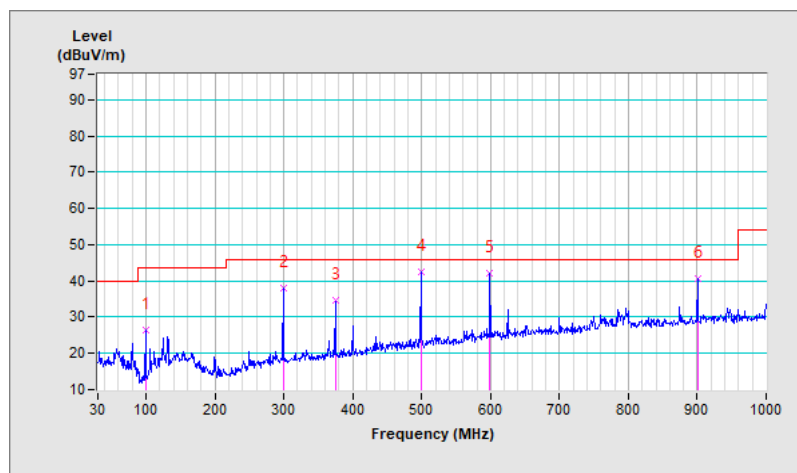
7.6 Unwanted Emissions below 1 GHz

RF Mode	802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120 kHz, DET=Quasi-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	98.87	26.6 QP	43.5	-16.9	1.25 H	3	44.1	-17.5
2	299.66	38.1 QP	46.0	-7.9	1.00 H	161	50.3	-12.2
3	374.35	34.5 QP	46.0	-11.5	1.25 H	133	44.8	-10.3
4	499.48	42.5 QP	46.0	-3.5	1.50 H	137	50.2	-7.7
5	599.39	42.2 QP	46.0	-3.8	1.00 H	354	47.1	-4.9
6	900.09	40.6 QP	46.0	-5.4	1.50 H	13	41.2	-0.6

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.

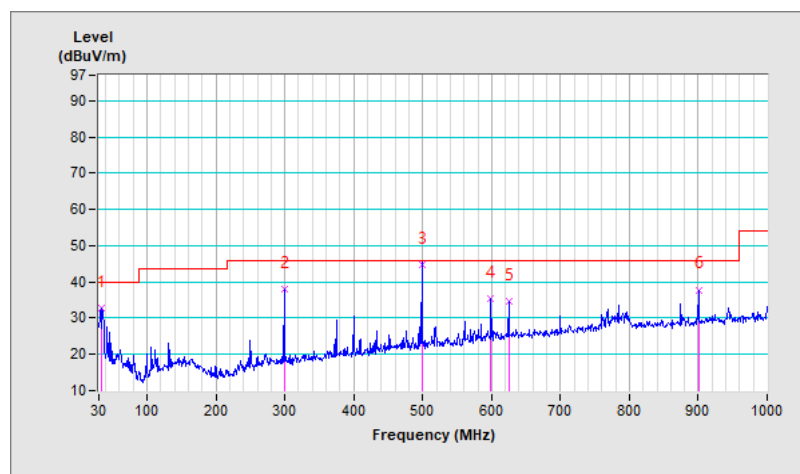


RF Mode	802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120 kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67% RH
Tested By	Greg Lin		

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	33.88	32.7 QP	40.0	-7.3	1.25 V	20	46.7	-14.0
2	299.66	37.9 QP	46.0	-8.1	1.00 V	8	50.1	-12.2
3	499.48	44.6 QP	46.0	-1.4	1.50 V	56	52.3	-7.7
4	599.39	35.3 QP	46.0	-10.7	1.25 V	135	40.2	-4.9
5	624.61	34.5 QP	46.0	-11.5	1.00 V	141	39.2	-4.7
6	900.09	37.9 QP	46.0	-8.1	1.50 V	294	38.5	-0.6

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	23 °C, 66% 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	63.7 PK	74.0	-10.3	3.21 H	103	31.1	32.6
2	2390.00	51.6 AV	54.0	-2.4	3.21 H	103	19.0	32.6
3	*2412.00	111.8 PK			3.21 H	103	79.2	32.6
4	*2412.00	108.3 AV			3.21 H	103	75.7	32.6
5	4824.00	53.8 PK	74.0	-20.2	1.94 H	234	49.3	4.5
6	4824.00	44.3 AV	54.0	-9.7	1.94 H	234	39.8	4.5
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	64.3 PK	74.0	-9.7	2.64 V	107	31.7	32.6
2	2390.00	53.1 AV	54.0	-0.9	2.64 V	107	20.5	32.6
3	*2412.00	112.3 PK			2.64 V	107	79.7	32.6
4	*2412.00	108.8 AV			2.64 V	107	76.2	32.6
5	4824.00	54.1 PK	74.0	-19.9	1.97 V	145	49.6	4.5
6	4824.00	45.4 AV	54.0	-8.6	1.97 V	145	40.9	4.5

Remarks:

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

RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% 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	109.4 PK			3.22 H	104	76.8	32.6
2	*2437.00	105.9 AV			3.22 H	104	73.3	32.6
3	4874.00	53.4 PK	74.0	-20.6	1.94 H	234	48.9	4.5
4	4874.00	42.5 AV	54.0	-11.5	1.94 H	234	38.0	4.5
5	7311.00	61.9 PK	74.0	-12.1	2.02 H	358	51.2	10.7
6	7311.00	53.7 AV	54.0	-0.3	2.02 H	358	43.0	10.7
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	*2437.00	109.9 PK			2.37 V	112	77.3	32.6
2	*2437.00	106.4 AV			2.37 V	112	73.8	32.6
3	4874.00	54.2 PK	74.0	-19.8	2.03 V	254	49.7	4.5
4	4874.00	43.5 AV	54.0	-10.5	2.03 V	254	39.0	4.5
5	7311.00	61.0 PK	74.0	-13.0	1.64 V	135	50.3	10.7
6	7311.00	52.5 AV	54.0	-1.5	1.64 V	135	41.8	10.7

Remarks:

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

RF Mode	802.11b	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% 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	107.8 PK			3.23 H	107	75.1	32.7
2	*2462.00	104.3 AV			3.23 H	107	71.6	32.7
3	2483.50	64.5 PK	74.0	-9.5	3.23 H	107	31.7	32.8
4	2483.50	51.0 AV	54.0	-3.0	3.23 H	107	18.2	32.8
5	4924.00	54.2 PK	74.0	-19.8	1.92 H	237	49.5	4.7
6	4924.00	43.8 AV	54.0	-10.2	1.92 H	237	39.1	4.7
7	7386.00	61.7 PK	74.0	-12.3	1.95 H	357	51.1	10.6
8	7386.00	53.2 AV	54.0	-0.8	1.95 H	357	42.6	10.6
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	*2462.00	108.4 PK			2.60 V	104	75.7	32.7
2	*2462.00	104.9 AV			2.60 V	104	72.2	32.7
3	2483.50	65.2 PK	74.0	-8.8	2.60 V	104	32.4	32.8
4	2483.50	51.4 AV	54.0	-2.6	2.60 V	104	18.6	32.8
5	4924.00	55.1 PK	74.0	-18.9	2.04 V	253	50.4	4.7
6	4924.00	45.0 AV	54.0	-9.0	2.04 V	253	40.3	4.7
7	7386.00	60.8 PK	74.0	-13.2	1.67 V	128	50.2	10.6
8	7386.00	52.1 AV	54.0	-1.9	1.67 V	128	41.5	10.6

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 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% 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	67.2 PK	74.0	-6.8	3.28 H	103	34.6	32.6
2	2390.00	52.8 AV	54.0	-1.2	3.28 H	103	20.2	32.6
3	*2412.00	112.5 PK			3.28 H	103	79.9	32.6
4	*2412.00	102.1 AV			3.28 H	103	69.5	32.6
5	4824.00	51.4 PK	74.0	-22.6	1.93 H	228	46.9	4.5
6	4824.00	38.2 AV	54.0	-15.8	1.93 H	228	33.7	4.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.7 PK	74.0	-6.3	2.68 V	109	35.1	32.6
2	2390.00	53.3 AV	54.0	-0.7	2.68 V	109	20.7	32.6
3	*2412.00	113.2 PK			2.68 V	109	80.6	32.6
4	*2412.00	102.7 AV			2.68 V	109	70.1	32.6
5	4824.00	52.1 PK	74.0	-21.9	2.08 V	239	47.6	4.5
6	4824.00	38.9 AV	54.0	-15.1	2.08 V	239	34.4	4.5

Remarks:

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

RF Mode	802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% 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	113.2 PK			3.22 H	105	80.6	32.6
2	*2437.00	102.8 AV			3.22 H	105	70.2	32.6
3	4874.00	51.7 PK	74.0	-22.3	1.87 H	231	47.2	4.5
4	4874.00	38.3 AV	54.0	-15.7	1.87 H	231	33.8	4.5
5	7311.00	68.2 PK	74.0	-5.8	2.05 H	1	57.5	10.7
6	7311.00	53.3 AV	54.0	-0.7	2.05 H	1	42.6	10.7
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	*2437.00	113.8 PK			2.70 V	112	81.2	32.6
2	*2437.00	103.4 AV			2.70 V	112	70.8	32.6
3	4874.00	52.2 PK	74.0	-21.8	2.03 V	256	47.7	4.5
4	4874.00	39.2 AV	54.0	-14.8	2.03 V	256	34.7	4.5
5	7311.00	66.9 PK	74.0	-7.1	1.59 V	137	56.2	10.7
6	7311.00	52.1 AV	54.0	-1.9	1.59 V	137	41.4	10.7

Remarks:

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

RF Mode	802.11g	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% 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	111.8 PK			3.18 H	102	79.1	32.7
2	*2462.00	101.5 AV			3.18 H	102	68.8	32.7
3	2483.50	66.6 PK	74.0	-7.4	3.18 H	102	33.8	32.8
4	2483.50	53.0 AV	54.0	-1.0	3.18 H	102	20.2	32.8
5	4924.00	51.3 PK	74.0	-22.7	1.87 H	226	46.6	4.7
6	4924.00	38.1 AV	54.0	-15.9	1.87 H	226	33.4	4.7
7	7386.00	65.2 PK	74.0	-8.8	1.60 H	18	54.6	10.6
8	7386.00	50.9 AV	54.0	-3.1	1.60 H	18	40.3	10.6
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	*2462.00	112.6 PK			2.58 V	111	79.9	32.7
2	*2462.00	102.2 AV			2.58 V	111	69.5	32.7
3	2483.50	67.6 PK	74.0	-6.4	2.58 V	111	34.8	32.8
4	2483.50	53.4 AV	54.0	-0.6	2.58 V	111	20.6	32.8
5	4924.00	52.1 PK	74.0	-21.9	2.04 V	258	47.4	4.7
6	4924.00	39.0 AV	54.0	-15.0	2.04 V	258	34.3	4.7
7	7386.00	62.9 PK	74.0	-11.1	1.66 V	139	52.3	10.6
8	7386.00	49.9 AV	54.0	-4.1	1.66 V	139	39.3	10.6

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 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, 66% 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	69.9 PK	74.0	-4.1	3.08 H	99	37.3	32.6
2	2390.00	52.9 AV	54.0	-1.1	3.08 H	99	20.3	32.6
3	*2412.00	113.1 PK			3.08 H	99	80.5	32.6
4	*2412.00	101.4 AV			3.08 H	99	68.8	32.6
5	4824.00	52.2 PK	74.0	-21.8	1.93 H	225	47.7	4.5
6	4824.00	38.0 AV	54.0	-16.0	1.93 H	225	33.5	4.5
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	70.4 PK	74.0	-3.6	1.06 V	145	37.8	32.6
2	2390.00	53.5 AV	54.0	-0.5	1.06 V	145	20.9	32.6
3	*2412.00	113.9 PK			1.06 V	145	81.3	32.6
4	*2412.00	101.9 AV			1.06 V	145	69.3	32.6
5	4824.00	52.8 PK	74.0	-21.2	2.08 V	237	48.3	4.5
6	4824.00	38.7 AV	54.0	-15.3	2.08 V	237	34.2	4.5

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	802.11ax (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, 66% 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	114.9 PK			3.04 H	87	82.3	32.6
2	*2437.00	103.2 AV			3.04 H	87	70.6	32.6
3	4874.00	52.2 PK	74.0	-21.8	2.01 H	212	47.7	4.5
4	4874.00	38.0 AV	54.0	-16.0	2.01 H	212	33.5	4.5
5	7311.00	67.4 PK	74.0	-6.6	1.72 H	17	56.7	10.7
6	7311.00	53.3 AV	54.0	-0.7	1.72 H	17	42.6	10.7
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	*2437.00	115.7 PK			1.46 V	119	83.1	32.6
2	*2437.00	103.8 AV			1.46 V	119	71.2	32.6
3	4874.00	52.9 PK	74.0	-21.1	2.01 V	252	48.4	4.5
4	4874.00	38.8 AV	54.0	-15.2	2.01 V	252	34.3	4.5
5	7311.00	67.1 PK	74.0	-6.9	1.62 V	143	56.4	10.7
6	7311.00	52.2 AV	54.0	-1.8	1.62 V	143	41.5	10.7

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 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, 66% RH
Tested By	Greg Lin		

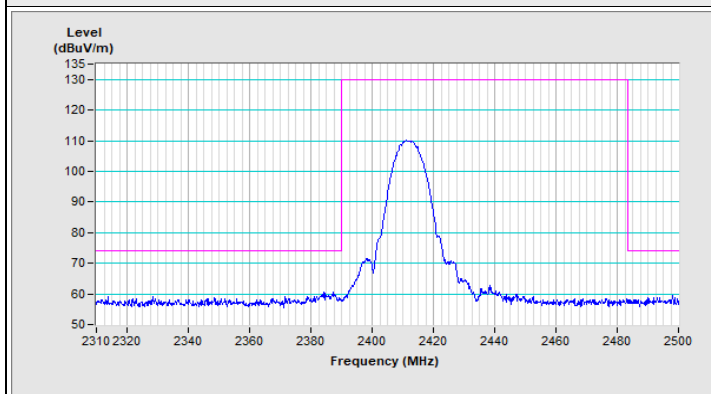
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	113.7 PK			3.12 H	90	81.0	32.7
2	*2462.00	101.2 AV			3.12 H	90	68.5	32.7
3	2483.50	71.4 PK	74.0	-2.6	3.12 H	90	38.6	32.8
4	2483.50	53.2 AV	54.0	-0.8	3.12 H	90	20.4	32.8
5	4924.00	52.0 PK	74.0	-22.0	1.87 H	204	47.3	4.7
6	4924.00	38.0 AV	54.0	-16.0	1.87 H	204	33.3	4.7
7	7386.00	59.8 PK	74.0	-14.2	1.71 H	21	49.2	10.6
8	7386.00	45.7 AV	54.0	-8.3	1.71 H	21	35.1	10.6
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	*2462.00	114.4 PK			1.18 V	351	81.7	32.7
2	*2462.00	101.8 AV			1.18 V	351	69.1	32.7
3	2483.50	72.2 PK	74.0	-1.8	1.18 V	351	39.4	32.8
4	2483.50	53.7 AV	54.0	-0.3	1.18 V	351	20.9	32.8
5	4924.00	52.6 PK	74.0	-21.4	2.12 V	267	47.9	4.7
6	4924.00	38.5 AV	54.0	-15.5	2.12 V	267	33.8	4.7
7	7386.00	58.9 PK	74.0	-15.1	2.01 V	229	48.3	10.6
8	7386.00	44.4 AV	54.0	-9.6	2.01 V	229	33.8	10.6

Remarks:

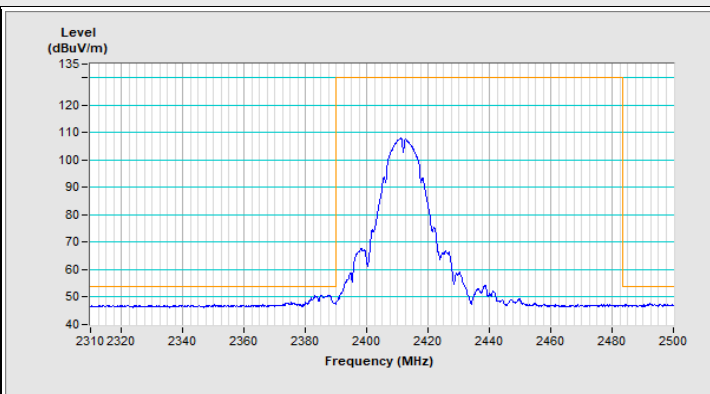
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2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit 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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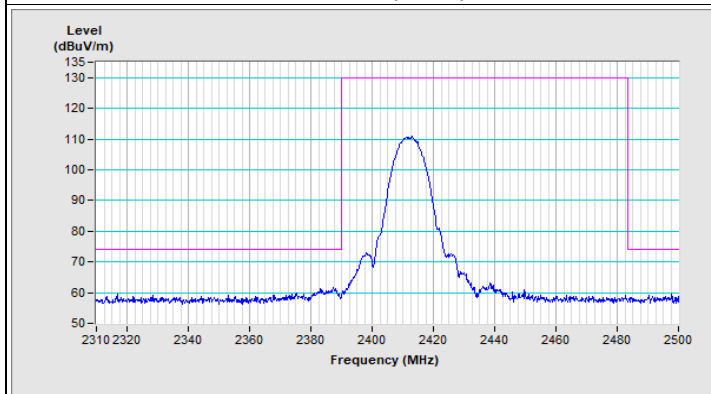
802.11b Channel 1



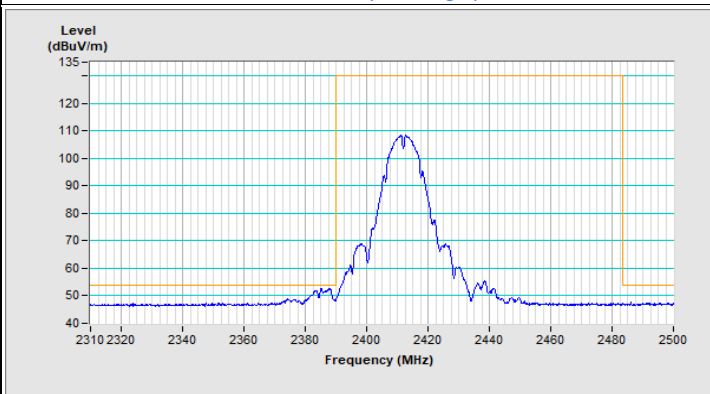
Horizontal (Peak)



Horizontal (Average)

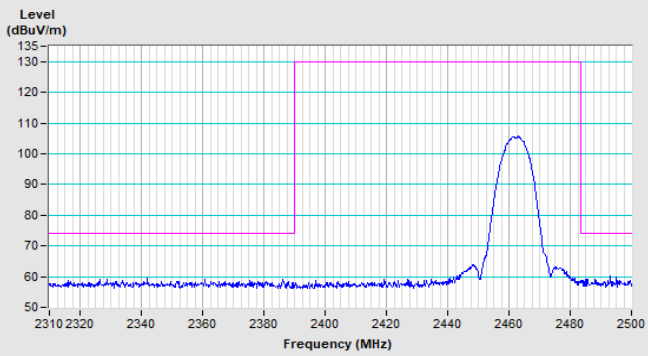


Vertical (Peak)

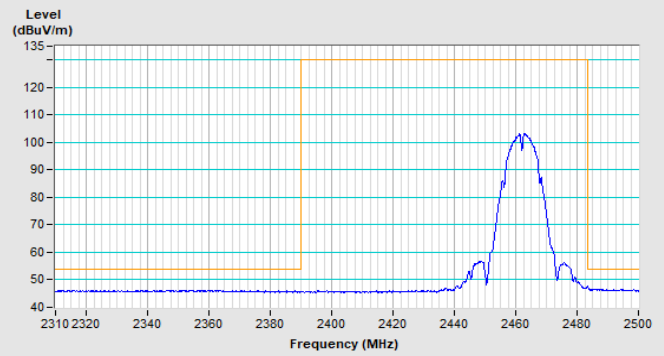


Vertical (Average)

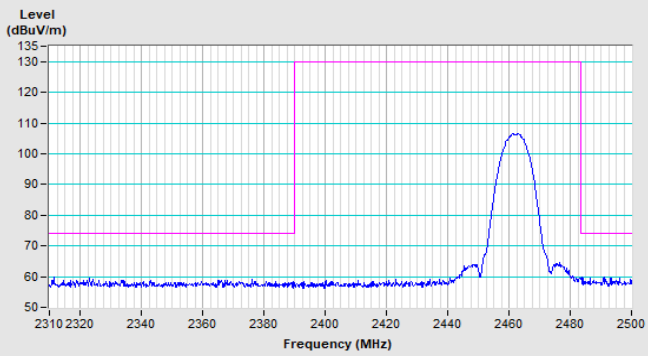
802.11b Channel 11



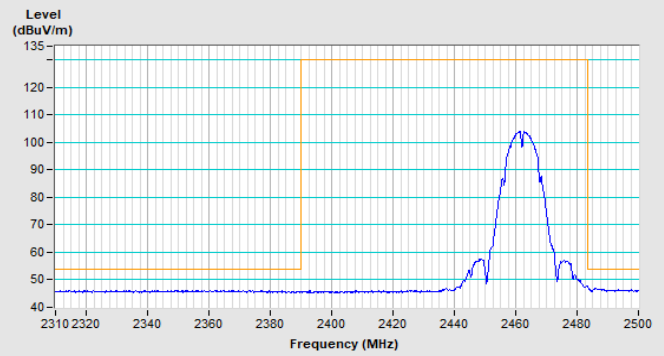
Horizontal (Peak)



Horizontal (Average)



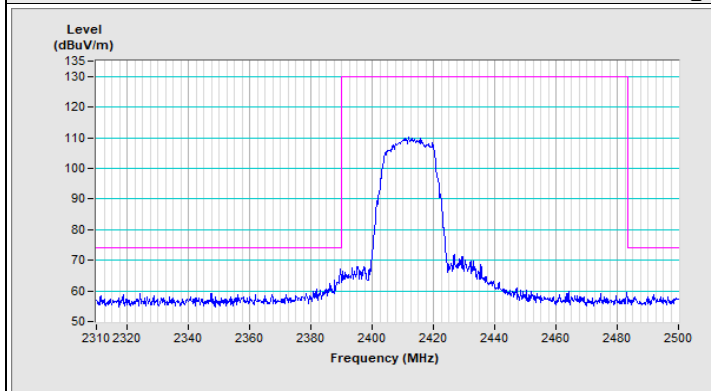
Vertical (Peak)



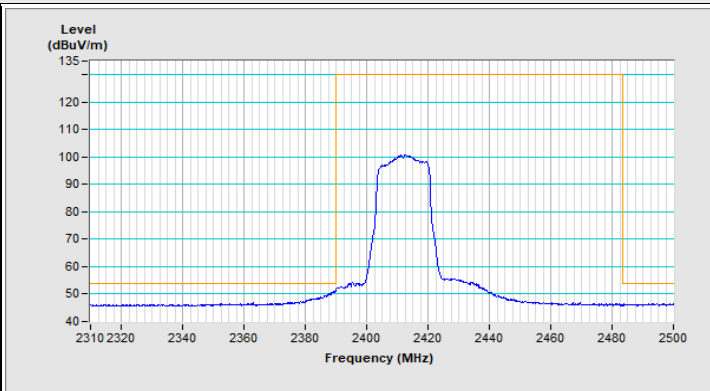
Vertical (Average)

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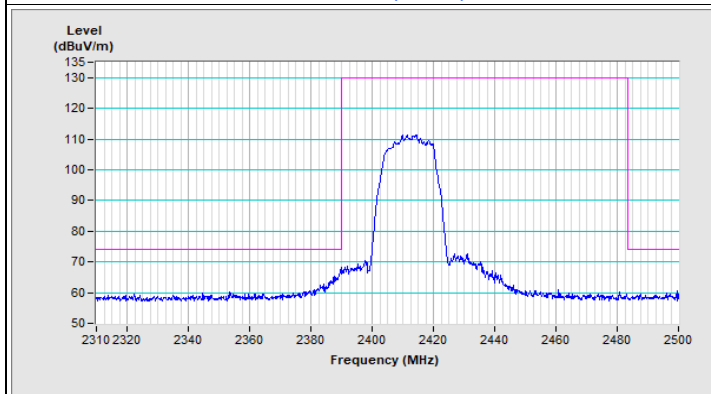
802.11g Channel 1



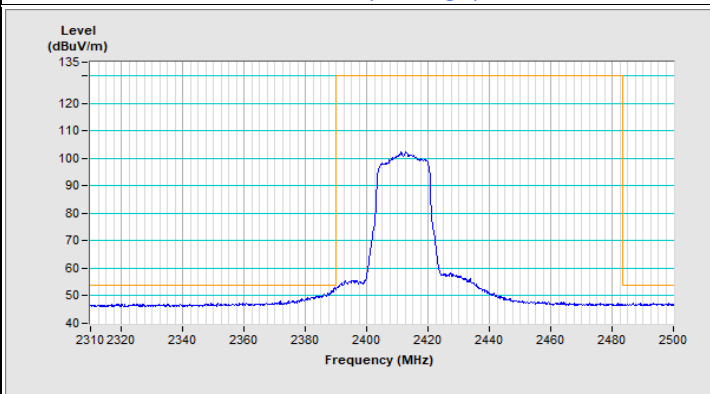
Horizontal (Peak)



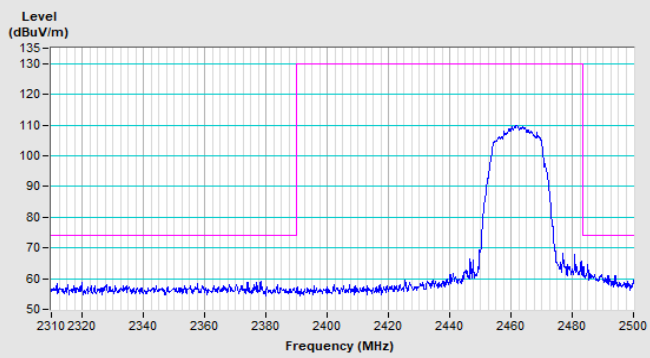
Horizontal (Average)



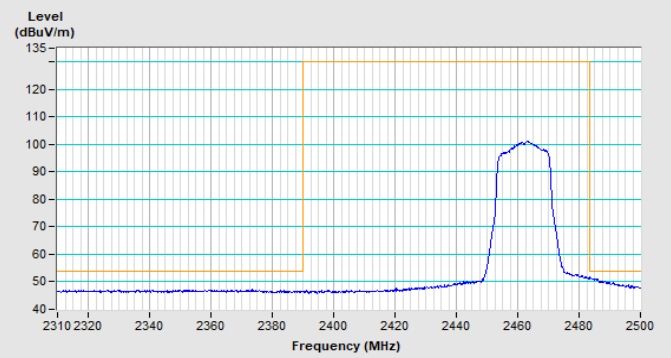
Vertical (Peak)



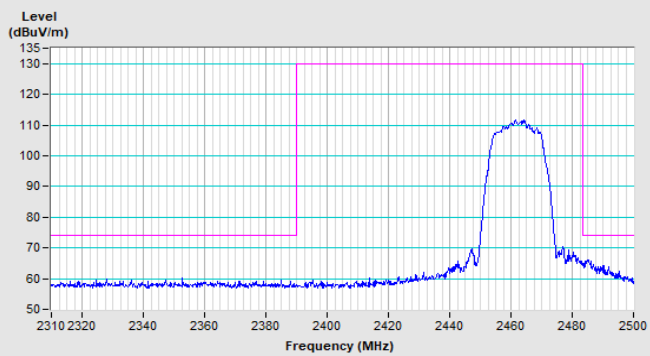
Vertical (Average)

802.11g Channel 11

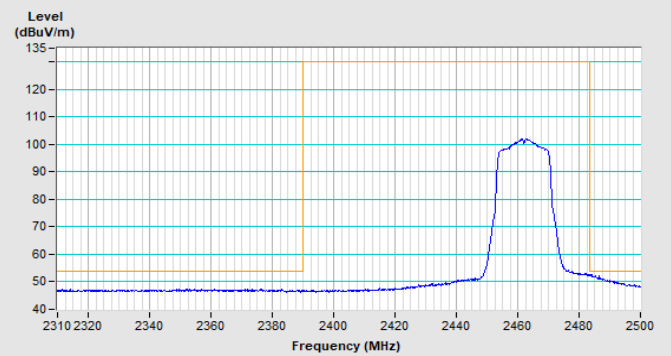
Horizontal (Peak)



Horizontal (Average)



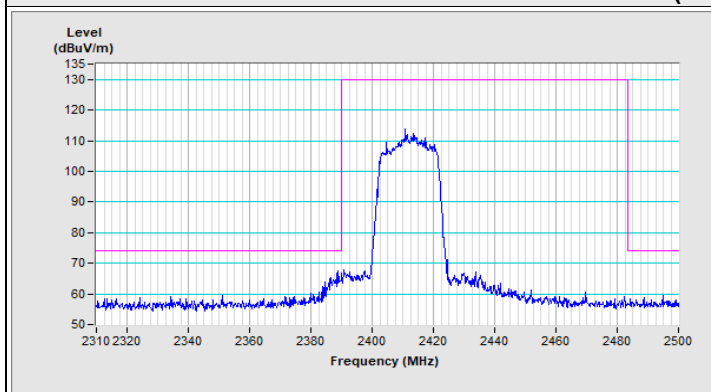
Vertical (Peak)



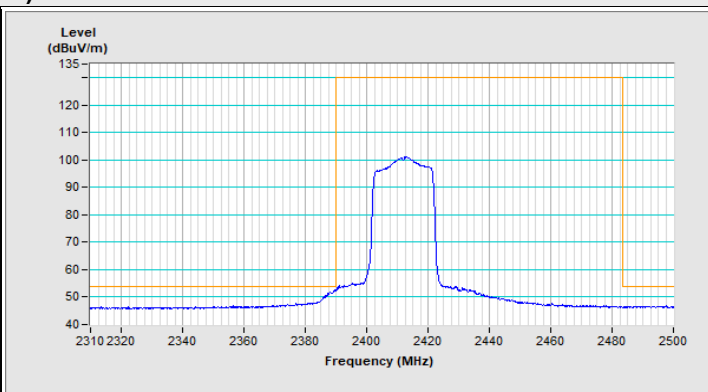
Vertical (Average)

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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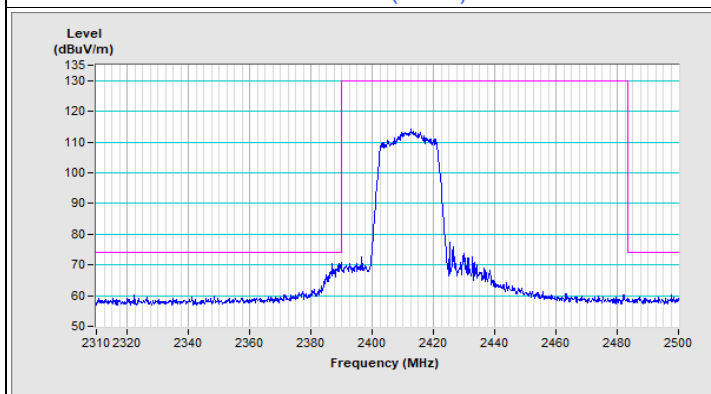
802.11ax (HE20) Channel 1



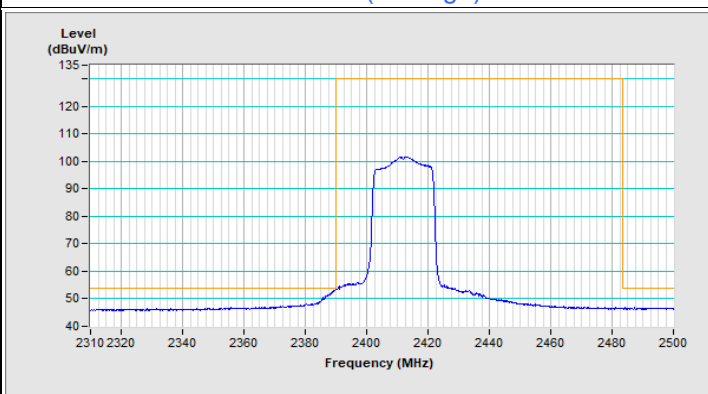
Horizontal (Peak)



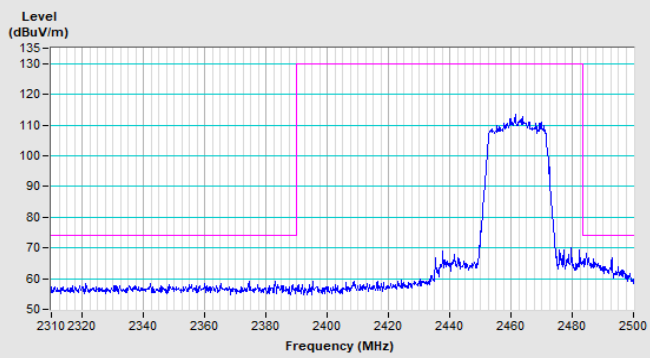
Horizontal (Average)



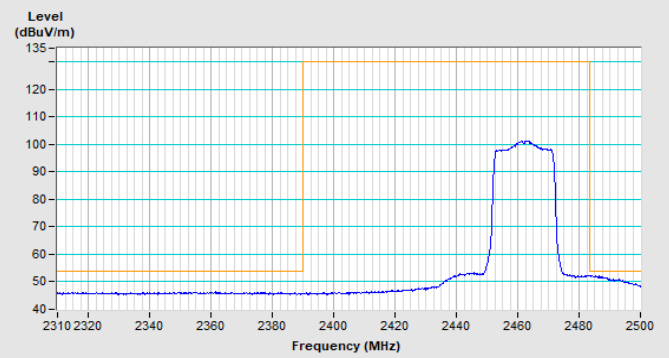
Vertical (Peak)



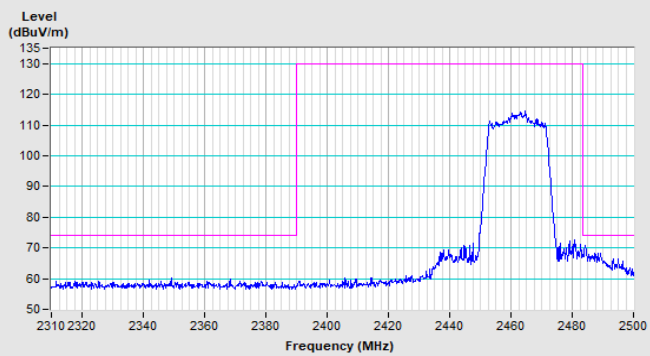
Vertical (Average)

802.11ax (HE20) Channel 11

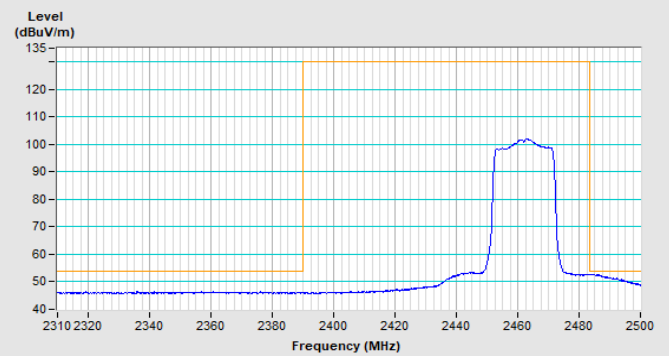
Horizontal (Peak)



Horizontal (Average)



Vertical (Peak)

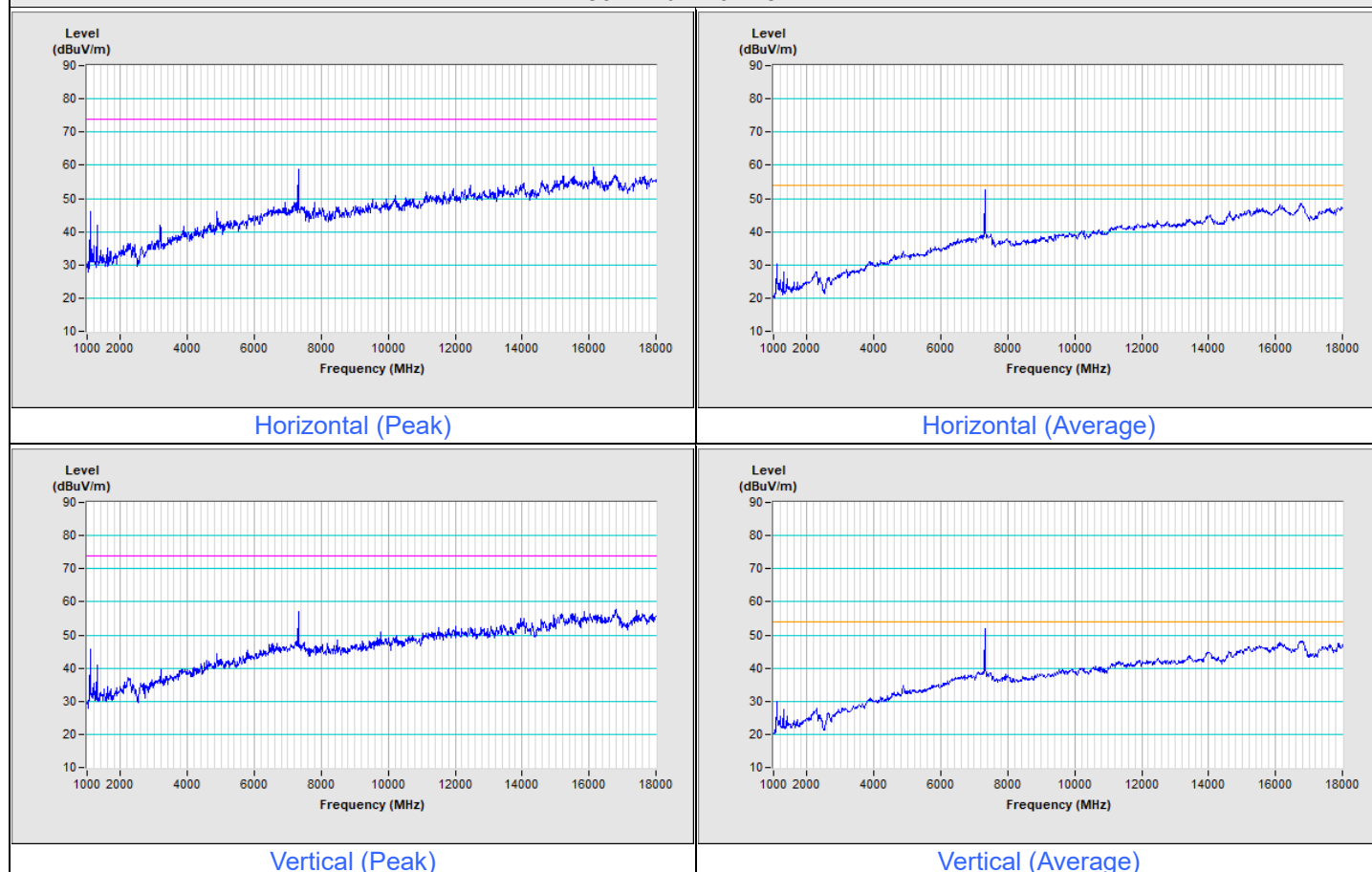


Vertical (Average)

Plot of Other emissions

Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 kHz, DET=Peak
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802.11b Channel 1

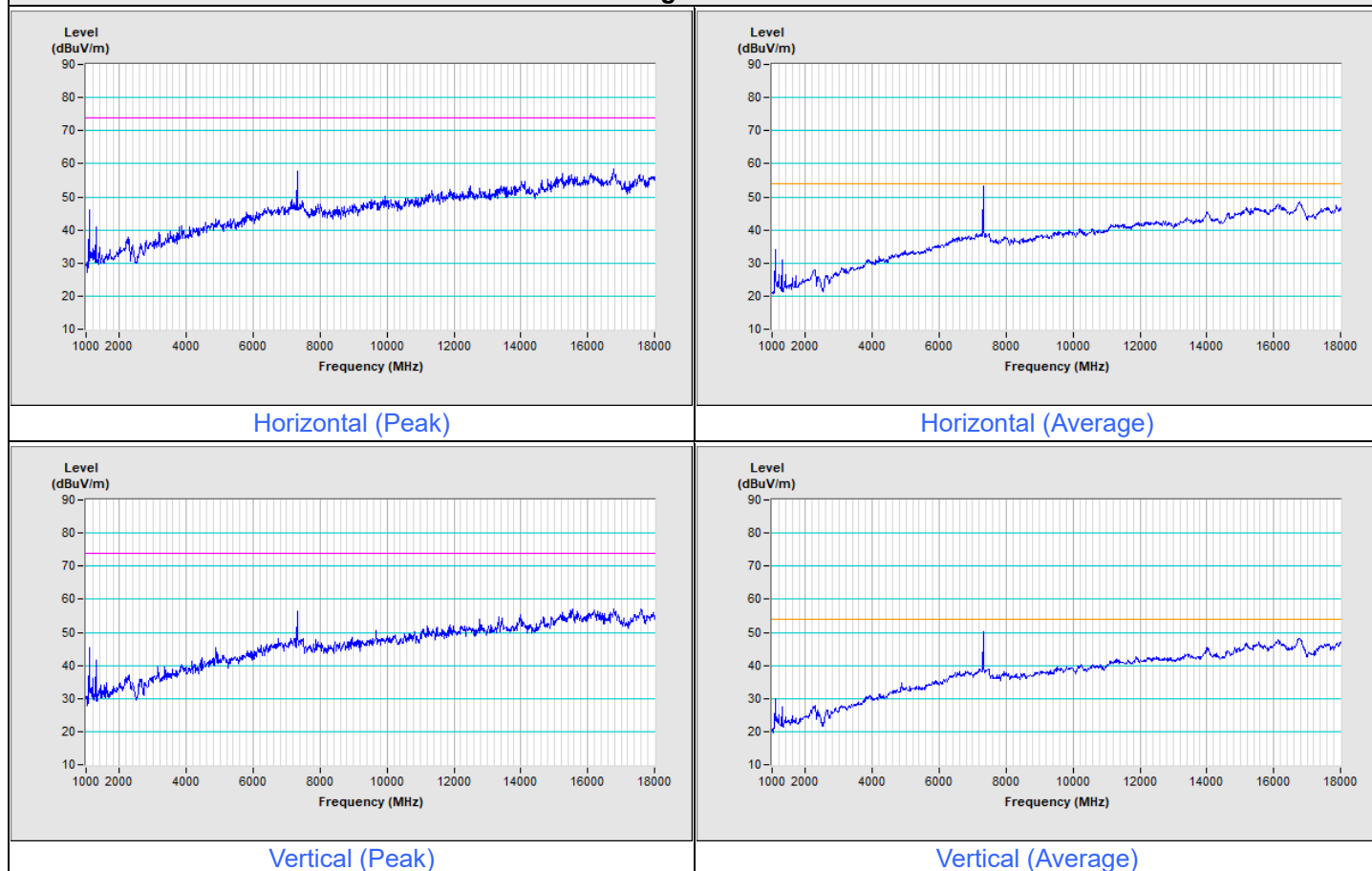


Note :

1. For radiated emission test data, complete spectral plots shall be presented in the report only for the worst-case scenarios of each mode within each operating frequency band.
2. The frequency range 18 GHz ~ 25 GHz: After investigation, no any emissions were found to exist, therefore they are not recorded in this report.

Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 kHz, DET=Peak
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802.11g Channel 6

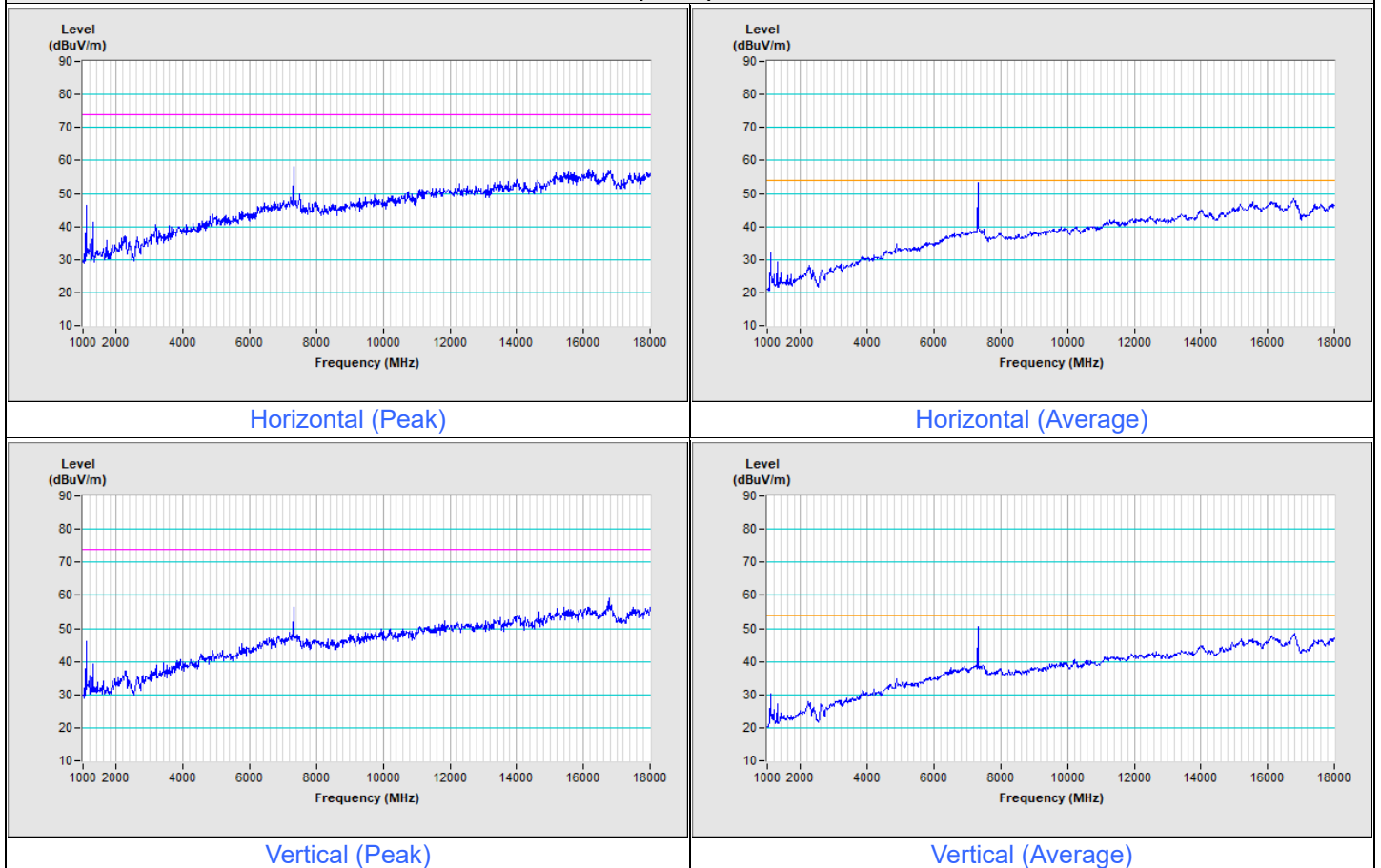


Note :

1. For radiated emission test data, complete spectral plots shall be presented in the report only for the worst-case scenarios of each mode within each operating frequency band.
2. The frequency range 18 GHz ~ 25 GHz: After investigation, no any emissions were found to exist, therefore they are not recorded in this report.

Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 kHz, DET=Peak
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802.11n (HT20) Channel 6

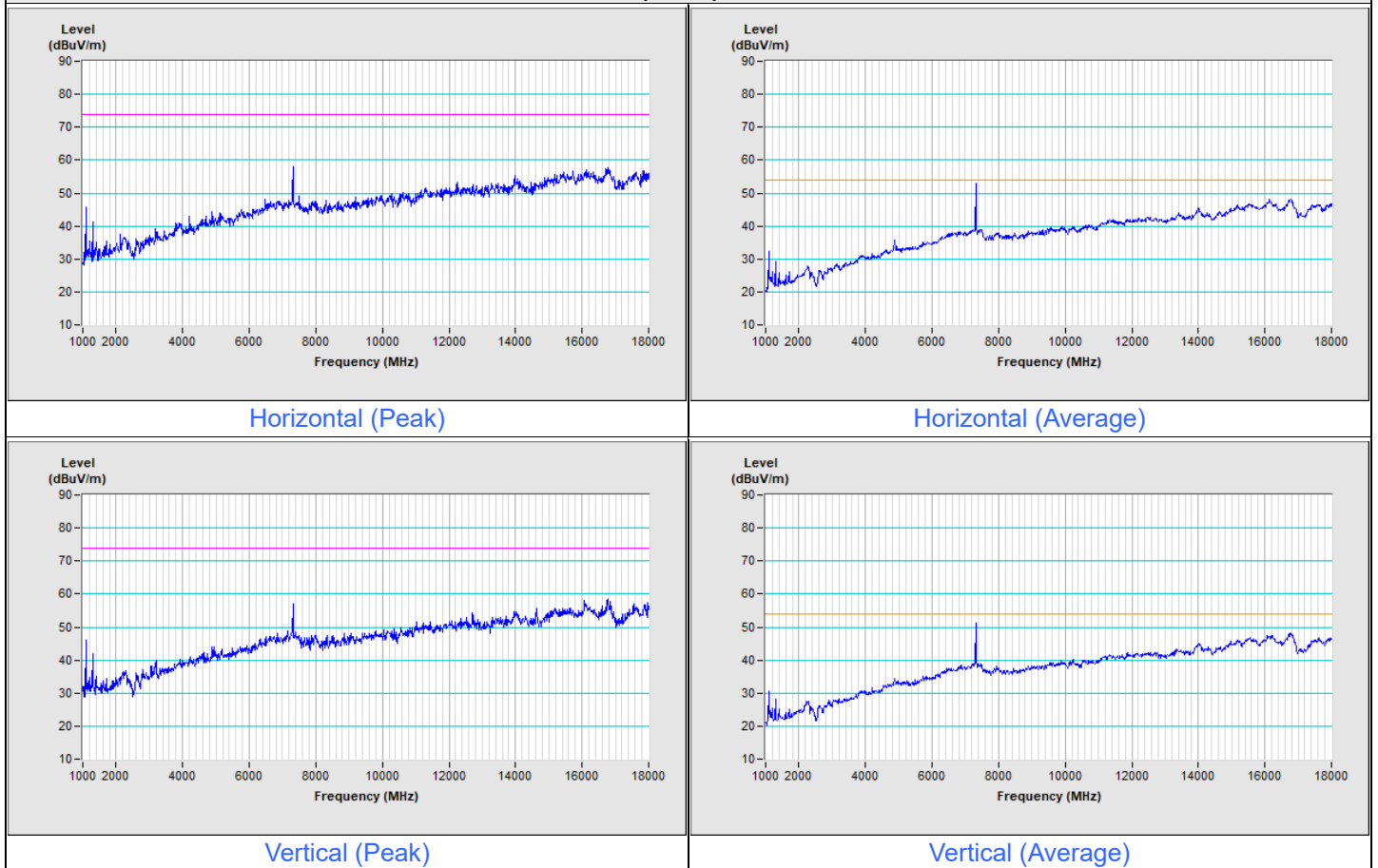


Note :

1. For radiated emission test data, complete spectral plots shall be presented in the report only for the worst-case scenarios of each mode within each operating frequency band.
2. The frequency range 18 GHz ~ 25 GHz: After investigation, no any emissions were found to exist, therefore they are not recorded in this report.

Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 kHz, DET=Peak
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802.11ax (HE20) Channel 6



Note :

1. For radiated emission test data, complete spectral plots shall be presented in the report only for the worst-case scenarios of each mode within each operating frequency band.
2. The frequency range 18 GHz ~ 25 GHz: After investigation, no any emissions were found to exist, therefore they are not recorded in this report.

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

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