

Partial FCC Test Report

Report No.: RFBEDW-WTW-P21010530-2

FCC ID: O57AX200NGW

Test Model: AX200NGW

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Release Control Record

Issue No.	Description	Date Issued
RFBEDW-WTW-P21010530-2	Original Release	Mar. 08, 2021

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -12.02 dB at 0.55800 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.1 dB at 335.06 MHz.
15.247(d)	Antenna Port Emission	N/A	Refer to Note
15.247(a)(2)	6 dB Bandwidth	N/A	Refer to Note
---	Occupied Bandwidth Measurement	N/A	Refer to Note
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	N/A	Refer to Note
15.203	Antenna Requirement	Pass	Antenna connector is Kangshuo MHF-B13-N-01 not a standard connector.

Note:

1. This report is a partial report, only test item of AC Power Conducted Emission, Radiated Emissions and Maximum Peak Output Power were performed for this report. Other testing data please refer to Intel report no.: 181210-03.TR04 for module (Brand: Intel® Wi-Fi 6 AX200 , Model: AX200NGW).
2. For 2.4G band compliance with rule 15.247(d) of the band-edge items, the test plots were recorded in Annex A. Test Procedures refer to report 4.1.3.
3. 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	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.79 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	WLAN and BT , 2x2 Pcle M.2 2230 adapter card
Brand	Intel® Wi-Fi 6 AX200
Test Model	AX200NGW
Status of EUT	Engineering Sample
Nominal Voltage	3.3Vdc form host equipment
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to 300.0 Mbps 802.11ax: up to 573.5 Mbps
Operating Frequency	2412 ~ 2472 MHz
Number of Channel	13 for 802.11b, 802.11g, 802.11n (HT20), 802.11ax (HE20) 9 for 802.11n (HT40), 802.11ax (HE40)
Output Power	321.37 mW
Antenna Type	Refer to Note as below
Antenna Connector	Refer to Note as below
Accessory Device	N/A
Data Cable Supplied	N/A

Note:

- The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

Modulation Mode	Tx Function
802.11b	1TX
802.11g	1TX
802.11n (HT20)	1/2TX
802.11n (HT40)	1/2TX
802.11ax (HE20)	1/2TX
802.11ax (HE40)	1/2TX

* The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ax mode for HE20 / HE40, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

- The EUT is authorized for use in specific End-product. Please refer to below table for more details.

Product	Brand	Model
Notebook Computer	Lenovo	Lenovo 300e Chromebook Gen 3*****

Note: *=0~9,A-Z,a~z,"-" or blank, for marketing use only, with no impact on RF compliance of the product.

3. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter 1	Lenovo	ADLX45YLC2D	I/P: 100-240Vac, 50-60Hz, 1.8A O/P: 20.0V===2.25A, 45.0W 1.75M / 0core
Adapter 2	Lenovo	ADLX65YCC3D	I/P: 100-240Vac, 50-60Hz, 1.8A O/P: 20.0V===3.25A, 65.0W 1.77M / 0core
Adapter 3	Lenovo	ADLX65NLC3A	I/P: 100-240Vac, 50-60Hz, 1.8A O/P: 20.0V ===3.25A 1.55M / 1core
Battery	Lenovo	L20M3PG0	11.52 Vdc, 3994 mAh, 46Wh

*After pretesting, the adapter 2 was the worst case and chose for final test.

4. The antenna information is listed as below.

Ant. Type	Brand	Model	Ant.	Antenna Peak Gain (dBi)				
				BT	2400-2500MHz	5150-5350MHz	5470-5725MHz	5725-5850MHz
PIFA	High-Tek Electronics Co., Ltd	0ACCN020019N (DC33002JM00)	Main	-	-0.7	-0.81	-1.5	-1.63
		0ACCN020020N (DC33002JM10)	Aux.	-2.65	-2.65	-0.40	-1.44	-1.44
	Shenzhen South Star Technology Ltd	N12-7471-R0A (DC33002J000)	Main	-	0.90	-0.87	-0.14	-0.96
		N12-7472-R0A (DC33002J010)	Aux.	-1.87	-1.87	1.03	-0.19	-2.21

* The Max antenna gain was chosen for final test.

5. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
6. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

13 channels are provided for 802.11b, 802.11g and 802.11n (HT20), 802.11ax (HE20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432	12	2467
6	2437	13	2472
7	2442		

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	8	2447
4	2427	9	2452
5	2432	10	2457
6	2437	11	2462
7	2442		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE \geq 1G	RE<1G	PLC	Power	
-	√	√	√	√	-

Where **RE \geq 1G**: Radiated Emission above 1 GHz **RE<1G**: Radiated Emission below 1 GHz
PLC: Power Line Conducted Emission **Power**: Maximum Output Power Measurement

Note: “-” means no effect.

Note: For radiated emission (below 1GHz) and power line conducted emission test items, the worst radiated emission mode was selected.

Note: The EUT had been pre-tested on the positioned of NB Mode and each 3 axis of Tablet Mode. The worst case was found when positioned on **NB Mode**.

Radiated Emission Test (Above 1 GHz):

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	DBPSK	1.0
-	802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6.0
-	802.11ax (HE20)	1 to 13	1, 6, 11, 12, 13	OFDMA	BPSK	MCS0
-	802.11ax (HE40)	3 to 11	3, 6, 9, 10, 11	OFDMA	BPSK	MCS0

Radiated Emission Test (Below 1 GHz):

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11ax (HE40)	3 to 11	3	OFDMA	BPSK	MCS0

Power Line Conducted Emission Test:

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11ax (HE40)	3 to 11	3	OFDMA	BPSK	MCS0

Maximum Output Power Measurement:

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
	802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	DBPSK	1.0
	802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6.0
	802.11n (HT20)	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6.5
	802.11n (HT40)	3 to 11	3, 6, 9, 10, 11	OFDM	BPSK	13.5
	802.11ax (HE20)	1 to 13	1, 6, 11, 12, 13	OFDMA	BPSK	MCS0
	802.11ax (HE40)	3 to 11	3, 6, 9, 10, 11	OFDMA	BPSK	MCS0

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Titan Hsu
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Titan Hsu
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Titan Hsu
Power	25 deg. C, 65 % RH	120 Vac, 60 Hz	Tim Chen

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is $\geq 98\%$, duty factor is not required.

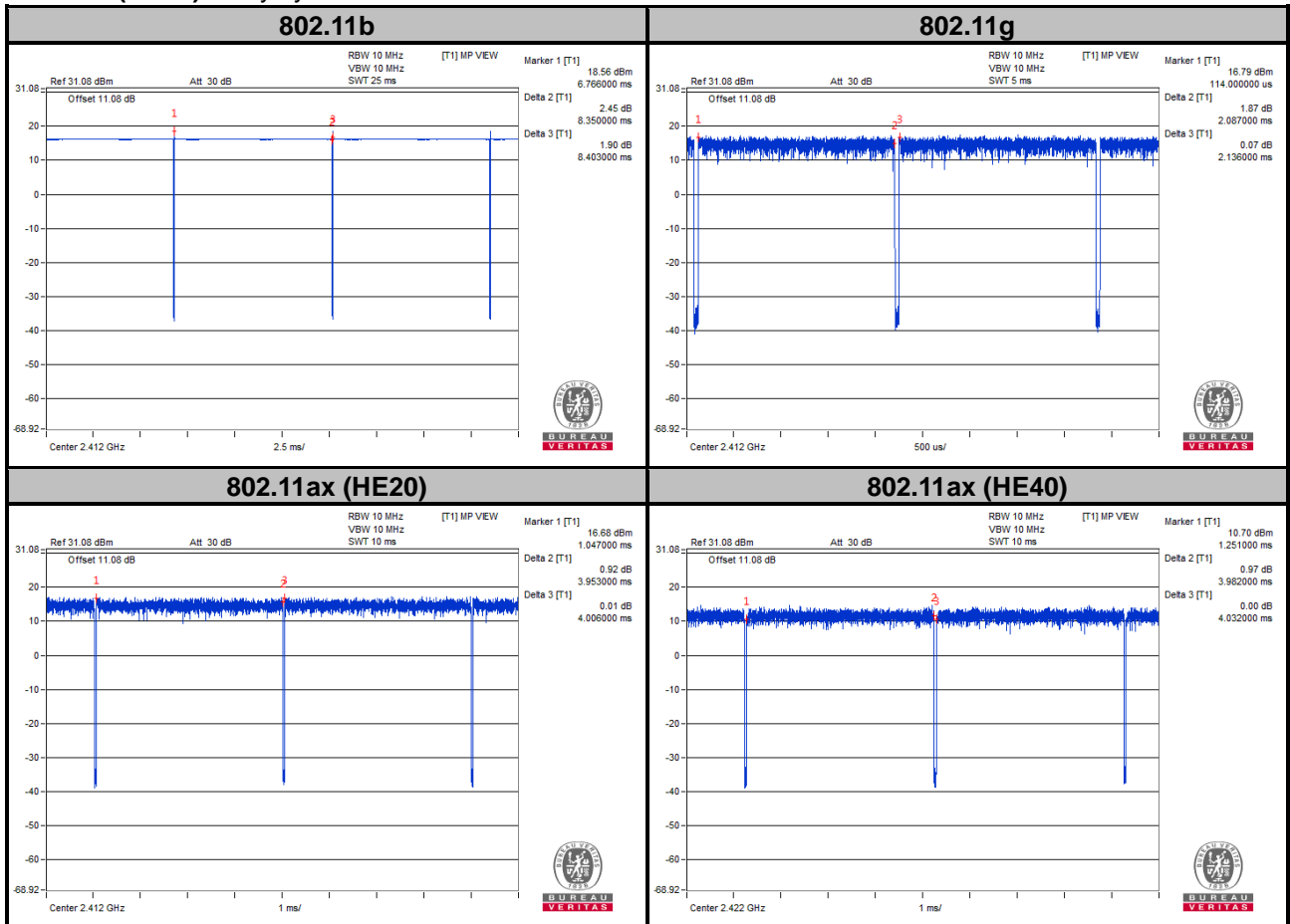
Duty cycle of test signal is $< 98\%$, duty factor shall be considered.

802.11b: Duty cycle = $8.350/8.403 = 0.994$

802.11g: Duty cycle = $2.087/2.136 = 0.977$, Duty factor = $10 * \log(1/0.977) = 0.10$

802.11ax (HE20): Duty cycle = $3.953/4.006 = 0.987$

802.11ax (HE40): Duty cycle = $3.982/4.032 = 0.988$



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

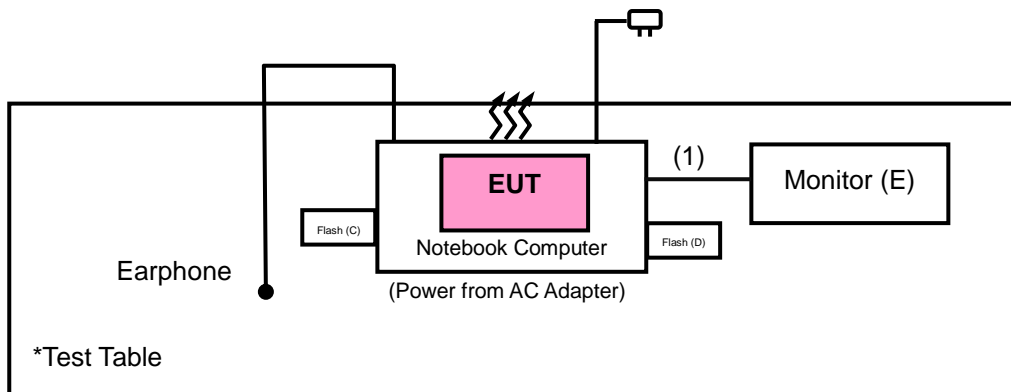
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Notebook Computer	Lenovo	Lenovo 300e Chromebook Gen3*****	NA	NA	-
B	Adapter	Lenovo	ADLX65YCC3D	NA	NA	-
C	Flash	HP	v250W	05	NA	-
D	Flash	HP	v250W	03	NA	-
E	Monitor	ViewSonic	VX2457-MHD	UG0182942333	NA	-

No.	Signal Cable Description Of The Above Support Units
1.	HDMI Cable: 1m

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Items A, C, D acted as communication partners to transfer data.

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test Standard:

FCC Part 15, Subpart C (15.247)

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 558074 D01 Meas Guidance v05r02

KDB 662911 D01 Multiple Transmitter Output v02r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

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

NOTE:

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.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESR3	102579	Jul. 07, 2020	Jul. 06, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jun. 09, 2020	Jun. 08, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 04, 2020	Nov. 03, 2021
HORN Antenna SCHWARZBECK	9120D	209	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 22, 2020	Nov. 21, 2021
Loop Antenna EMCI	EM-6879	269	Sep. 17, 2020	Sep. 16, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 16, 2020	Aug. 15, 2021
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Mar. 23, 2020	Mar. 22, 2021
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH3-01	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM- SM-8000	Cable-CH3-03 (309224+170907)	Aug. 16, 2020	Aug. 15, 2021
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55 190004/MY551900 07/MY55210005	Jul. 13, 2020	Jul. 12, 2021

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 3.

4.1.3 Test Procedures

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 a 3 meter chamber room. 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.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.

For Radiated Emission above 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) 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.
- f. The test-receiver system was set to peak and average detected 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.

Note:

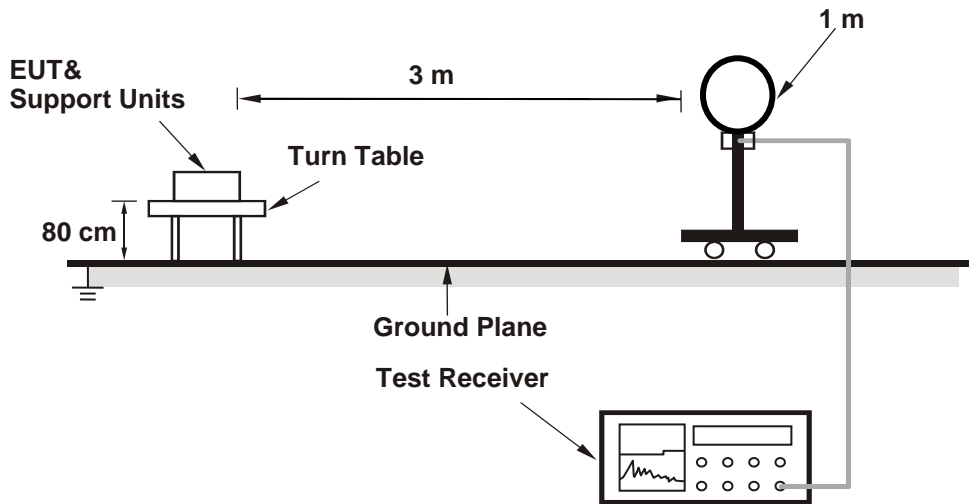
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. 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 ≥ 98 %) for Average detection (AV) at frequency above 1 GHz.
(11b: RBW = 1 MHz, VBW = 10 Hz ; 11g: RBW = 1 MHz, VBW = 1 kHz ;
11ax (HE20): RBW = 1 MHz, VBW = 10 Hz ; 11ax (HE40): RBW = 1 MHz, VBW = 10 Hz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

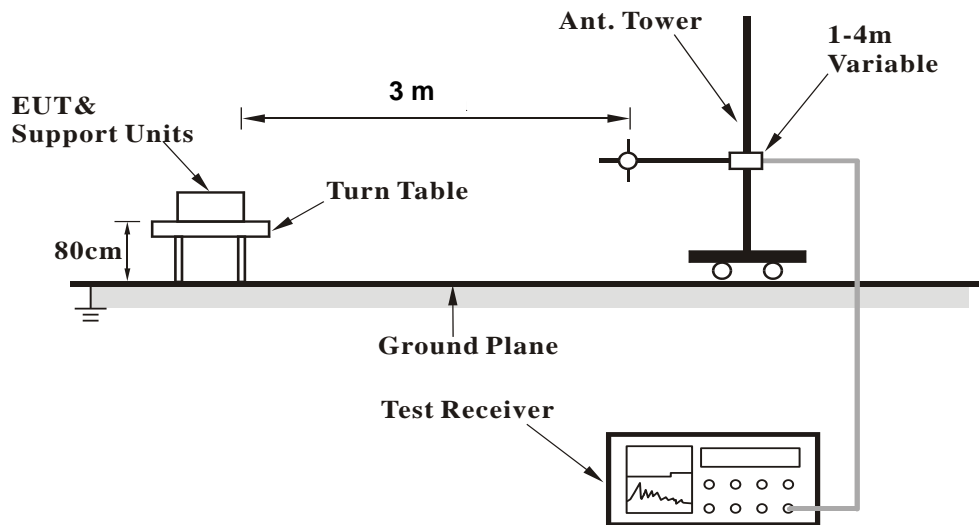
No deviation.

4.1.5 Test Set Up

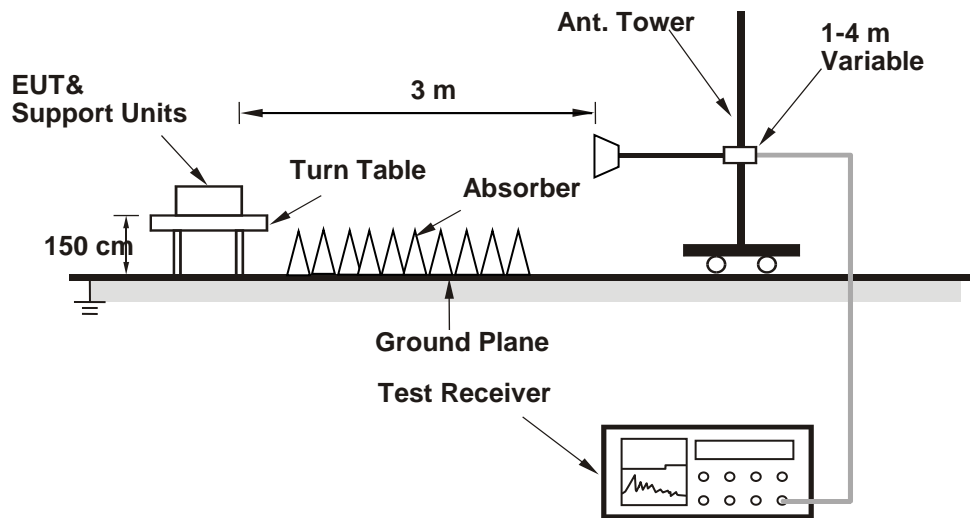
<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 1 GHz>



<Radiated Emission above 1 GHz>



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

4.1.6 EUT Operating Conditions

- a. Placed the EUT on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

ABOVE 1GHz DATA

802.11b

RF Mode	TX 802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.2 PK	74.0	-13.8	2.13 H	178	25.8	34.4
2	2390.00	47.3 AV	54.0	-6.7	2.13 H	178	12.9	34.4
3	*2412.00	106.2 PK			2.13 H	178	71.9	34.3
4	*2412.00	102.2 AV			2.13 H	178	67.9	34.3
5	4824.00	49.2 PK	74.0	-24.8	2.96 H	217	43.0	6.2
6	4824.00	42.2 AV	54.0	-11.8	2.96 H	217	36.0	6.2

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	58.8 PK	74.0	-15.2	2.85 V	316	24.4	34.4
2	2390.00	46.7 AV	54.0	-7.3	2.85 V	316	12.3	34.4
3	*2412.00	103.8 PK			2.85 V	316	69.5	34.3
4	*2412.00	100.1 AV			2.85 V	316	65.8	34.3
5	4824.00	48.8 PK	74.0	-25.2	2.57 V	20	42.6	6.2
6	4824.00	39.3 AV	54.0	-14.7	2.57 V	20	33.1	6.2

Remarks:

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

RF Mode	TX 802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	105.2 PK			2.21 H	180	70.9	34.3
2	*2437.00	101.1 AV			2.21 H	180	66.8	34.3
3	4874.00	52.2 PK	74.0	-21.8	2.98 H	217	46.1	6.1
4	4874.00	47.7 AV	54.0	-6.3	2.98 H	217	41.6	6.1

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	103.1 PK			2.88 V	318	68.8	34.3
2	*2437.00	99.2 AV			2.88 V	318	64.9	34.3
3	4874.00	45.7 PK	74.0	-28.3	2.58 V	22	39.6	6.1
4	4874.00	38.5 AV	54.0	-15.5	2.58 V	22	32.4	6.1

Remarks:

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

RF Mode	TX 802.11b	Channel	CH 11 : 2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	104.6 PK			2.13 H	176	70.2	34.4
2	*2462.00	100.4 AV			2.13 H	176	66.0	34.4
3	2483.50	58.7 PK	74.0	-15.3	2.13 H	176	24.3	34.4
4	2483.50	48.4 AV	54.0	-5.6	2.13 H	176	14.0	34.4
5	4924.00	52.1 PK	74.0	-21.9	3.06 H	218	46.0	6.1
6	4924.00	47.2 AV	54.0	-6.8	3.06 H	218	41.1	6.1

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	102.1 PK			2.86 V	318	67.7	34.4
2	*2462.00	98.3 AV			2.86 V	318	63.9	34.4
3	2483.50	58.6 PK	74.0	-15.4	2.86 V	318	24.2	34.4
4	2483.50	48.2 AV	54.0	-5.8	2.86 V	318	13.8	34.4
5	4924.00	51.8 PK	74.0	-22.2	2.59 V	23	45.7	6.1
6	4924.00	44.4 AV	54.0	-9.6	2.59 V	23	38.3	6.1

Remarks:

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

RF Mode	TX 802.11b	Channel	CH 12 : 2467 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	*2467.00	102.7 PK			2.11 H	191	68.3	34.4
2	*2467.00	98.7 AV			2.11 H	191	64.3	34.4
3	2483.50	59.0 PK	74.0	-15.0	2.11 H	191	24.6	34.4
4	2483.50	48.5 AV	54.0	-5.5	2.11 H	191	14.1	34.4
5	4934.00	49.6 PK	74.0	-24.4	3.00 H	215	43.4	6.2
6	4934.00	42.6 AV	54.0	-11.4	3.00 H	215	36.4	6.2

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	*2467.00	100.1 PK			2.89 V	317	65.7	34.4
2	*2467.00	96.0 AV			2.89 V	317	61.6	34.4
3	2483.50	58.6 PK	74.0	-15.4	2.89 V	317	24.2	34.4
4	2483.50	48.2 AV	54.0	-5.8	2.89 V	317	13.8	34.4
5	4934.00	49.2 PK	74.0	-24.8	2.61 V	22	43.0	6.2
6	4934.00	39.8 AV	54.0	-14.2	2.61 V	22	33.6	6.2

Remarks:

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

RF Mode	TX 802.11b	Channel	CH 13 : 2472 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	*2472.00	100.9 PK			2.45 H	191	66.5	34.4
2	*2472.00	96.5 AV			2.45 H	191	62.1	34.4
3	2483.50	60.9 PK	74.0	-13.1	2.45 H	191	26.5	34.4
4	2483.50	48.3 AV	54.0	-5.7	2.45 H	191	13.9	34.4
5	4944.00	48.3 PK	74.0	-25.7	3.00 H	217	42.0	6.3
6	4944.00	38.1 AV	54.0	-15.9	3.00 H	217	31.8	6.3

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	*2472.00	98.5 PK			3.02 V	319	64.1	34.4
2	*2472.00	94.9 AV			3.02 V	319	60.5	34.4
3	2483.50	60.2 PK	74.0	-13.8	3.02 V	319	25.8	34.4
4	2483.50	48.0 AV	54.0	-6.0	3.02 V	319	13.6	34.4
5	4944.00	47.9 PK	74.0	-26.1	2.60 V	25	41.6	6.3
6	4944.00	35.5 AV	54.0	-18.5	2.60 V	25	29.2	6.3

Remarks:

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

802.11g

RF Mode	TX 802.11g	Channel	CH 1 : 2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.5 PK	74.0	-14.5	1.99 H	180	25.1	34.4
2	2390.00	47.3 AV	54.0	-6.7	1.99 H	180	12.9	34.4
3	*2412.00	105.5 PK			1.99 H	180	71.2	34.3
4	*2412.00	95.7 AV			1.99 H	180	61.4	34.3
5	4824.00	48.0 PK	74.0	-26.0	2.97 H	217	41.8	6.2
6	4824.00	34.9 AV	54.0	-19.1	2.97 H	217	28.7	6.2

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	58.9 PK	74.0	-15.1	2.88 V	318	24.5	34.4
2	2390.00	46.9 AV	54.0	-7.1	2.88 V	318	12.5	34.4
3	*2412.00	103.1 PK			2.88 V	318	68.8	34.3
4	*2412.00	93.5 AV			2.88 V	318	59.2	34.3
5	4824.00	47.7 PK	74.0	-26.3	2.66 V	22	41.5	6.2
6	4824.00	34.4 AV	54.0	-19.6	2.66 V	22	28.2	6.2

Remarks:

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

RF Mode	TX 802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	106.5 PK			1.93 H	179	72.2	34.3
2	*2437.00	96.1 AV			1.93 H	179	61.8	34.3
3	4874.00	48.1 PK	74.0	-25.9	2.99 H	218	42.0	6.1
4	4874.00	35.0 AV	54.0	-19.0	2.99 H	218	28.9	6.1

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	104.2 PK			2.92 V	315	69.9	34.3
2	*2437.00	93.9 AV			2.92 V	315	59.6	34.3
3	4874.00	47.9 PK	74.0	-26.1	2.62 V	25	41.8	6.1
4	4874.00	34.8 AV	54.0	-19.2	2.62 V	25	28.7	6.1

Remarks:

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

RF Mode	TX 802.11g	Channel	CH 11 : 2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	101.8 PK			1.92 H	182	67.4	34.4
2	*2462.00	91.7 AV			1.92 H	182	57.3	34.4
3	2483.50	59.8 PK	74.0	-14.2	1.92 H	182	25.4	34.4
4	2483.50	48.3 AV	54.0	-5.7	1.92 H	182	13.9	34.4
5	4924.00	47.9 PK	74.0	-26.1	3.02 H	220	41.8	6.1
6	4924.00	34.9 AV	54.0	-19.1	3.02 H	220	28.8	6.1

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	99.5 PK			2.92 V	321	65.1	34.4
2	*2462.00	89.5 AV			2.92 V	321	55.1	34.4
3	2483.50	58.6 PK	74.0	-15.4	2.92 V	321	24.2	34.4
4	2483.50	47.8 AV	54.0	-6.2	2.92 V	321	13.4	34.4
5	4924.00	47.6 PK	74.0	-26.4	2.65 V	25	41.5	6.1
6	4924.00	34.6 AV	54.0	-19.4	2.65 V	25	28.5	6.1

Remarks:

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

RF Mode	TX 802.11g	Channel	CH 12 : 2467 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	*2467.00	100.7 PK			1.94 H	184	66.3	34.4
2	*2467.00	90.2 AV			1.94 H	184	55.8	34.4
3	2483.50	59.6 PK	74.0	-14.4	1.94 H	184	25.2	34.4
4	2483.50	48.4 AV	54.0	-5.6	1.94 H	184	14.0	34.4
5	4934.00	47.9 PK	74.0	-26.1	3.01 H	218	41.7	6.2
6	4934.00	34.8 AV	54.0	-19.2	3.01 H	218	28.6	6.2

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	*2467.00	98.2 PK			2.92 V	321	63.8	34.4
2	*2467.00	88.0 AV			2.92 V	321	53.6	34.4
3	2483.50	58.9 PK	74.0	-15.1	2.92 V	321	24.5	34.4
4	2483.50	47.9 AV	54.0	-6.1	2.92 V	321	13.5	34.4
5	4934.00	47.7 PK	74.0	-26.3	2.69 V	27	41.5	6.2
6	4934.00	34.6 AV	54.0	-19.4	2.69 V	27	28.4	6.2

Remarks:

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

RF Mode	TX 802.11g	Channel	CH 13 : 2472 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	*2472.00	98.1 PK			1.95 H	186	63.7	34.4
2	*2472.00	87.8 AV			1.95 H	186	53.4	34.4
3	2483.50	68.8 PK	74.0	-5.2	1.95 H	186	34.4	34.4
4	2483.50	48.5 AV	54.0	-5.5	1.95 H	186	14.1	34.4
5	4944.00	48.1 PK	74.0	-25.9	2.98 H	221	41.8	6.3
6	4944.00	35.0 AV	54.0	-19.0	2.98 H	221	28.7	6.3

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	*2472.00	96.1 PK			2.95 V	316	61.7	34.4
2	*2472.00	85.5 AV			2.95 V	316	51.1	34.4
3	2483.50	67.5 PK	74.0	-6.5	2.95 V	316	33.1	34.4
4	2483.50	48.1 AV	54.0	-5.9	2.95 V	316	13.7	34.4
5	4944.00	47.9 PK	74.0	-26.1	2.66 V	29	41.6	6.3
6	4944.00	34.8 AV	54.0	-19.2	2.66 V	29	28.5	6.3

Remarks:

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

802.11ax (HE20)

RF Mode	TX 802.11ax (HE20)	Channel	CH 1 : 2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	62.8 PK	74.0	-11.2	1.21 H	242	28.4	34.4
2	2390.00	49.9 AV	54.0	-4.1	1.21 H	242	15.5	34.4
3	*2412.00	110.8 PK			1.21 H	242	76.5	34.3
4	*2412.00	98.4 AV			1.21 H	242	64.1	34.3
5	4824.00	47.9 PK	74.0	-26.1	3.02 H	221	41.7	6.2
6	4824.00	34.8 AV	54.0	-19.2	3.02 H	221	28.6	6.2

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	64.2 PK	74.0	-9.8	2.65 V	284	29.8	34.4
2	2390.00	50.1 AV	54.0	-3.9	2.65 V	284	15.7	34.4
3	*2412.00	110.6 PK			2.65 V	284	76.3	34.3
4	*2412.00	98.1 AV			2.65 V	284	63.8	34.3
5	4824.00	47.9 PK	74.0	-26.1	2.69 V	28	41.7	6.2
6	4824.00	34.7 AV	54.0	-19.3	2.69 V	28	28.5	6.2

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	110.8 PK			1.18 H	241	76.5	34.3
2	*2437.00	98.5 AV			1.18 H	241	64.2	34.3
3	4874.00	47.9 PK	74.0	-26.1	3.05 H	225	41.8	6.1
4	4874.00	34.9 AV	54.0	-19.1	3.05 H	225	28.8	6.1

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	110.5 PK			2.62 V	282	76.2	34.3
2	*2437.00	98.3 AV			2.62 V	282	64.0	34.3
3	4874.00	47.7 PK	74.0	-26.3	2.72 V	24	41.6	6.1
4	4874.00	34.5 AV	54.0	-19.5	2.72 V	24	28.4	6.1

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 11 : 2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	108.6 PK			1.51 H	242	74.2	34.4
2	*2462.00	96.2 AV			1.51 H	242	61.8	34.4
3	2483.50	59.2 PK	74.0	-14.8	1.51 H	242	24.8	34.4
4	2483.50	49.9 AV	54.0	-4.1	1.51 H	242	15.5	34.4
5	4924.00	47.8 PK	74.0	-26.2	3.11 H	225	41.7	6.1
6	4924.00	34.7 AV	54.0	-19.3	3.11 H	225	28.6	6.1

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	108.9 PK			2.51 V	284	74.5	34.4
2	*2462.00	96.6 AV			2.51 V	284	62.2	34.4
3	2483.50	59.8 PK	74.0	-14.2	2.51 V	284	25.4	34.4
4	2483.50	48.5 AV	54.0	-5.5	2.51 V	284	14.1	34.4
5	4924.00	47.8 PK	74.0	-26.2	2.72 V	28	41.7	6.1
6	4924.00	34.7 AV	54.0	-19.3	2.72 V	28	28.6	6.1

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 12 : 2467 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	*2467.00	105.5 PK			1.49 H	239	71.1	34.4
2	*2467.00	93.1 AV			1.49 H	239	58.7	34.4
3	2483.50	58.7 PK	74.0	-15.3	1.49 H	239	24.3	34.4
4	2483.50	48.6 AV	54.0	-5.4	1.49 H	239	14.2	34.4
5	4934.00	47.9 PK	74.0	-26.1	3.15 H	215	41.7	6.2
6	4934.00	34.9 AV	54.0	-19.1	3.15 H	215	28.7	6.2
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	*2467.00	106.0 PK			2.33 V	287	71.6	34.4
2	*2467.00	93.8 AV			2.33 V	287	59.4	34.4
3	2483.50	59.5 PK	74.0	-14.5	2.32 V	287	25.1	34.4
4	2483.50	48.9 AV	54.0	-5.1	2.32 V	287	14.5	34.4
5	4934.00	47.9 PK	74.0	-26.1	2.77 V	39	41.7	6.2
6	4934.00	34.7 AV	54.0	-19.3	2.77 V	39	28.5	6.2

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 13 : 2472 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	*2472.00	101.9 PK			1.50 H	240	67.5	34.4
2	*2472.00	88.9 AV			1.50 H	240	54.5	34.4
3	2483.50	65.1 PK	74.0	-8.9	1.50 H	240	30.7	34.4
4	2483.50	48.4 AV	54.0	-5.6	1.50 H	240	14.0	34.4
5	4944.00	47.9 PK	74.0	-26.1	3.11 H	218	41.6	6.3
6	4944.00	34.8 AV	54.0	-19.2	3.11 H	218	28.5	6.3

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	*2472.00	101.8 PK			2.50 V	283	67.4	34.4
2	*2472.00	88.6 AV			2.50 V	283	54.2	34.4
3	2483.50	67.3 PK	74.0	-6.7	2.50 V	283	32.9	34.4
4	2483.50	48.5 AV	54.0	-5.5	2.50 V	283	14.1	34.4
5	4944.00	47.8 PK	74.0	-26.2	2.72 V	33	41.5	6.3
6	4944.00	34.7 AV	54.0	-19.3	2.72 V	33	28.4	6.3

Remarks:

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

802.11ax (HE40)

RF Mode	TX 802.11ax (HE40)	Channel	CH 3 : 2422 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	1.22 H	242	29.3	34.4
2	2390.00	50.7 AV	54.0	-3.3	1.22 H	242	16.3	34.4
3	*2422.00	108.7 PK			1.22 H	242	74.4	34.3
4	*2422.00	95.9 AV			1.22 H	242	61.6	34.3
5	4844.00	47.9 PK	74.0	-26.1	3.05 H	228	41.8	6.1
6	4844.00	34.8 AV	54.0	-19.2	3.05 H	228	28.7	6.1

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	65.5 PK	74.0	-8.5	2.70 V	285	31.1	34.4
2	2390.00	51.9 AV	54.0	-2.1	2.70 V	285	17.5	34.4
3	*2422.00	108.9 PK			2.70 V	285	74.6	34.3
4	*2422.00	96.6 AV			2.70 V	285	62.3	34.3
5	4844.00	47.9 PK	74.0	-26.1	2.79 V	36	41.8	6.1
6	4844.00	34.7 AV	54.0	-19.3	2.79 V	36	28.6	6.1

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 6 : 2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	108.4 PK			1.40 H	242	74.1	34.3
2	*2437.00	94.5 AV			1.40 H	242	60.2	34.3
3	4874.00	47.9 PK	74.0	-26.1	3.11 H	225	41.8	6.1
4	4874.00	34.8 AV	54.0	-19.2	3.11 H	225	28.7	6.1

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	108.8 PK			2.63 V	285	74.5	34.3
2	*2437.00	95.9 AV			2.63 V	285	61.6	34.3
3	4874.00	47.9 PK	74.0	-26.1	2.75 V	35	41.8	6.1
4	4874.00	34.8 AV	54.0	-19.2	2.75 V	35	28.7	6.1

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 9 : 2452 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	107.9 PK			1.41 H	243	73.6	34.3
2	*2452.00	94.5 AV			1.41 H	243	60.2	34.3
3	2483.50	60.0 PK	74.0	-14.0	1.41 H	243	25.6	34.4
4	2483.50	49.0 AV	54.0	-5.0	1.41 H	243	14.6	34.4
5	4904.00	47.9 PK	74.0	-26.1	3.19 H	214	41.8	6.1
6	4904.00	34.8 AV	54.0	-19.2	3.19 H	214	28.7	6.1

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	109.2 PK			2.30 V	288	74.9	34.3
2	*2452.00	95.8 AV			2.30 V	288	61.5	34.3
3	2483.50	59.9 PK	74.0	-14.1	2.30 V	288	25.5	34.4
4	2483.50	49.2 AV	54.0	-4.8	2.30 V	288	14.8	34.4
5	4904.00	47.9 PK	74.0	-26.1	2.81 V	34	41.8	6.1
6	4904.00	34.8 AV	54.0	-19.2	2.81 V	34	28.7	6.1

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 10 : 2457 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	*2457.00	100.7 PK			1.38 H	241	66.3	34.4
2	*2457.00	87.0 AV			1.38 H	241	52.6	34.4
3	2483.50	58.8 PK	74.0	-15.2	1.38 H	241	24.4	34.4
4	2483.50	48.4 AV	54.0	-5.6	1.38 H	241	14.0	34.4
5	4914.00	47.7 PK	74.0	-26.3	3.15 H	218	41.6	6.1
6	4914.00	34.6 AV	54.0	-19.4	3.15 H	218	28.5	6.1

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	*2457.00	101.5 PK			2.29 V	289	67.1	34.4
2	*2457.00	88.4 AV			2.29 V	289	54.0	34.4
3	2483.50	59.8 PK	74.0	-14.2	2.29 V	289	25.4	34.4
4	2483.50	48.6 AV	54.0	-5.4	2.29 V	289	14.2	34.4
5	4914.00	47.7 PK	74.0	-26.3	2.72 V	35	41.6	6.1
6	4914.00	34.6 AV	54.0	-19.4	2.72 V	35	28.5	6.1

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 11 : 2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	103.6 PK			1.50 H	243	69.2	34.4
2	*2462.00	90.8 AV			1.50 H	243	56.4	34.4
3	2483.50	70.7 PK	74.0	-3.3	1.50 H	243	36.3	34.4
4	2483.50	50.8 AV	54.0	-3.2	1.50 H	243	16.4	34.4
5	4924.00	47.9 PK	74.0	-26.1	3.15 H	220	41.8	6.1
6	4924.00	34.8 AV	54.0	-19.2	3.15 H	220	28.7	6.1

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	105.3 PK			2.30 V	288	70.9	34.4
2	*2462.00	92.3 AV			2.30 V	288	57.9	34.4
3	2483.50	70.0 PK	74.0	-4.0	2.30 V	288	35.6	34.4
4	2483.50	51.1 AV	54.0	-2.9	2.30 V	288	16.7	34.4
5	4924.00	47.7 PK	74.0	-26.3	2.82 V	33	41.6	6.1
6	4924.00	34.7 AV	54.0	-19.3	2.82 V	33	28.6	6.1

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.

9 kHz ~ 30 MHz Data:

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz Worst-Case Data:

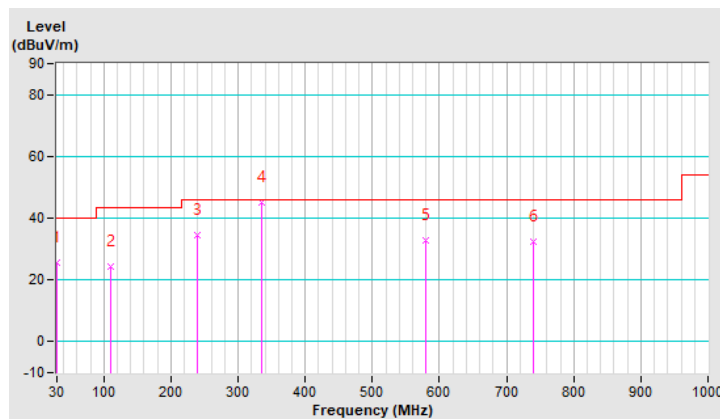
802.11ax (HE40)

RF Mode	TX 802.11ax (HE40)	Channel	CH 3 : 2422 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	30.00	25.4 QP	40.0	-14.6	1.00 H	145	36.3	-10.9
2	110.13	24.5 QP	43.5	-19.0	1.50 H	96	36.5	-12.0
3	239.46	34.5 QP	46.0	-11.5	1.00 H	175	43.7	-9.2
4	335.06	44.9 QP	46.0	-1.1	1.00 H	22	50.6	-5.7
5	579.67	32.9 QP	46.0	-13.1	1.00 H	308	33.4	-0.5
6	739.93	32.3 QP	46.0	-13.7	1.50 H	330	29.2	3.1

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

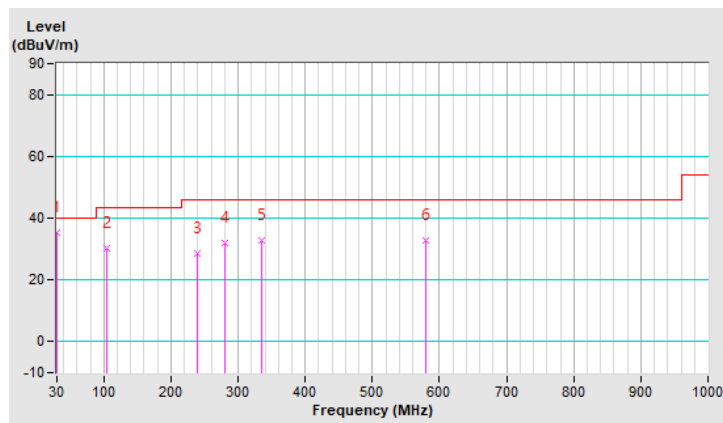


RF Mode	TX 802.11ax (HE40)	Channel	CH 3 : 2422 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	30.00	35.3 QP	40.0	-4.7	1.49 V	183	46.2	-10.9
2	104.51	30.3 QP	43.5	-13.2	1.00 V	143	42.8	-12.5
3	239.46	28.6 QP	46.0	-17.4	1.49 V	3	37.8	-9.2
4	280.23	32.1 QP	46.0	-13.9	1.00 V	14	39.0	-6.9
5	335.06	32.9 QP	46.0	-13.1	1.49 V	12	38.6	-5.7
6	579.67	33.0 QP	46.0	-13.0	1.49 V	1	33.5	-0.5

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 of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

- Note: 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.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 04, 2020	Dec. 03, 2021
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 04, 2020	Sep. 03, 2021
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 19, 2020	Mar. 18, 2021
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 28, 2020	Aug. 27, 2021
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 1 (Conduction 1).
 3. The VCCI Site Registration No. is C-12040.

4.2.3 Test Procedures

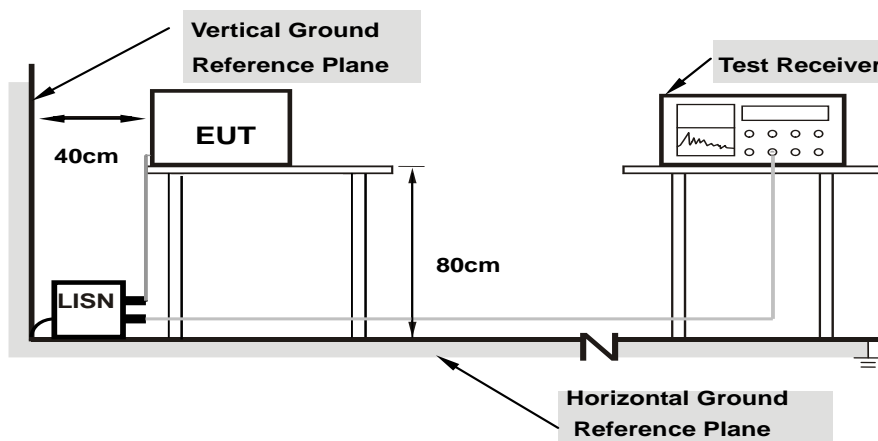
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 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).

4.2.6 EUT Operating Conditions

- a. Placed the EUT on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

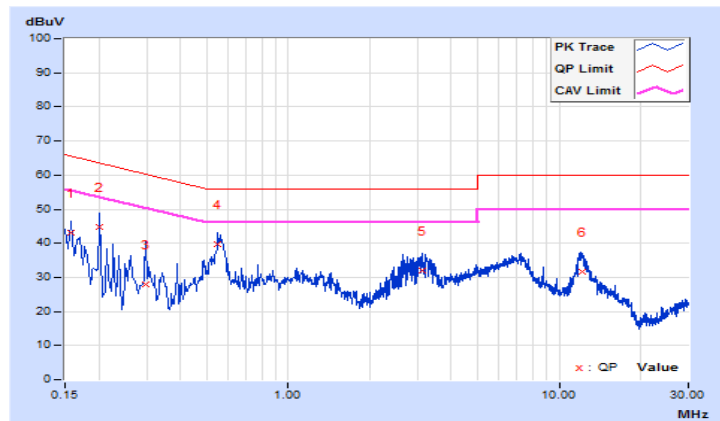
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	23°C, 66%RH
Tested by	Titan Hsu	Test Date	2021/1/30

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	0.15800	9.65	33.59	21.53	43.24	31.18	65.57	55.57	-22.33	-24.39
2	0.20200	9.65	35.27	16.36	44.92	26.01	63.53	53.53	-18.61	-27.52
3	0.29800	9.66	18.42	9.87	28.08	19.53	60.30	50.30	-32.22	-30.77
4	0.55000	9.69	30.10	23.17	39.79	32.86	56.00	46.00	-16.21	-13.14
5	3.11400	9.73	22.39	12.91	32.12	22.64	56.00	46.00	-23.88	-23.36
6	12.17400	9.79	21.98	11.31	31.77	21.10	60.00	50.00	-28.23	-28.90

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

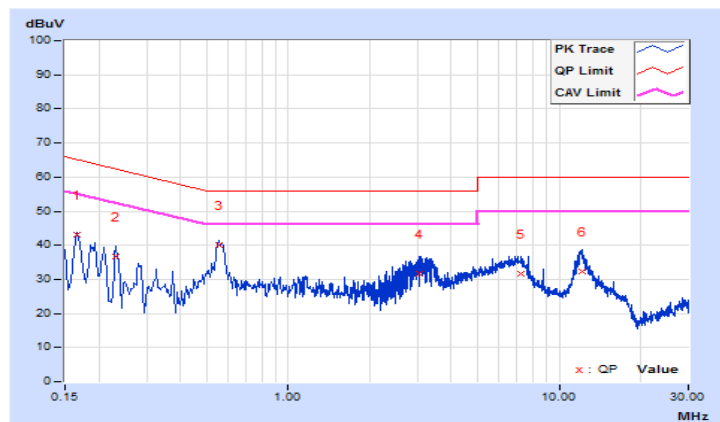


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	23°C, 66%RH
Tested by	Titan Hsu	Test Date	2021/1/30

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	0.16600	9.68	33.25	20.70	42.93	30.38	65.16	55.16	-22.23	-24.78
2	0.23000	9.67	27.08	14.73	36.75	24.40	62.45	52.45	-25.70	-28.05
3	0.55800	9.71	30.30	24.27	40.01	33.98	56.00	46.00	-15.99	-12.02
4	3.04600	9.76	22.01	13.18	31.77	22.94	56.00	46.00	-24.23	-23.06
5	7.26200	9.81	21.83	16.93	31.64	26.74	60.00	50.00	-28.36	-23.26
6	12.14600	9.85	22.61	13.27	32.46	23.12	60.00	50.00	-27.54	-26.88

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



4.3 Conducted Output Power Measurement

4.3.1 Limits of Conducted Output Power Measurement

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,

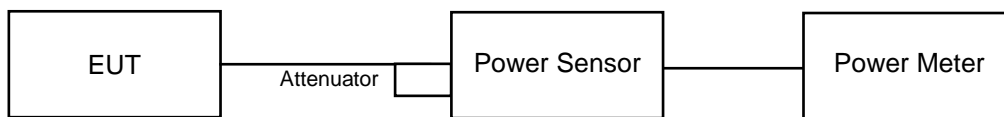
Array Gain = 0 dB (i.e., no array gain) for NANT \leq 4;

Array Gain = 0 dB (i.e., no array gain) for channel widths \geq 40 MHz for any NANT;

Array Gain = $5 \log(\text{NANT}/\text{NSS})$ dB or 3 dB, whichever is less for 20 MHz channel widths with NANT \geq 5.

For power measurements on all other devices: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedures

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

Average power 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.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Results

 (SISO)
 802.11b

Channel	Frequency (MHz)	Peak Power (mW)		Peak Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 1	Chain 0	Chain 1	Chain 0		
1	2412	173.38	141.25	22.39	21.50	30	Pass
6	2437	182.39	226.99	22.61	23.56	30	Pass
11	2462	128.82	137.09	21.10	21.37	30	Pass
12	2467	98.86	86.70	19.95	19.38	30	Pass
13	2472	53.58	50.00	17.29	16.99	30	Pass

Channel	Frequency (MHz)	Average Power (mW)		Average Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 1	Chain 0	Chain 1	Chain 0		
1	2412	74.30	75.86	18.71	18.80	30	Pass
6	2437	75.16	75.34	18.76	18.77	30	Pass
11	2462	74.99	74.47	18.75	18.72	30	Pass
12	2467	59.70	48.98	17.76	16.90	30	Pass
13	2472	31.99	28.31	15.05	14.52	30	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (mW)		Peak Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 1	Chain 0	Chain 1	Chain 0		
1	2412	133.35	155.24	21.25	21.91	30	Pass
6	2437	259.42	263.63	24.14	24.21	30	Pass
11	2462	90.36	93.54	19.56	19.71	30	Pass
12	2467	60.95	74.99	17.85	18.75	30	Pass
13	2472	101.16	141.25	20.05	21.50	30	Pass

Channel	Frequency (MHz)	Average Power (mW)		Average Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 1	Chain 0	Chain 1	Chain 0		
1	2412	49.20	48.31	16.92	16.84	30	Pass
6	2437	76.03	75.68	18.81	18.79	30	Pass
11	2462	31.33	30.27	14.96	14.81	30	Pass
12	2467	22.13	21.98	13.45	13.42	30	Pass
13	2472	14.86	14.06	11.72	11.48	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (mW)		Peak Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 1	Chain 0	Chain 1	Chain 0		
1	2412	136.14	153.46	21.34	21.86	30	Pass
6	2437	272.90	275.42	24.36	24.40	30	Pass
11	2462	139.00	149.28	21.43	21.74	30	Pass
12	2467	73.45	100.23	18.66	20.01	30	Pass
13	2472	156.68	149.62	21.95	21.75	30	Pass

Channel	Frequency (MHz)	Average Power (mW)		Average Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 1	Chain 0	Chain 1	Chain 0		
1	2412	48.87	50.93	16.89	17.07	30	Pass
6	2437	70.31	76.21	18.47	18.82	30	Pass
11	2462	43.95	47.42	16.43	16.76	30	Pass
12	2467	24.21	29.04	13.84	14.63	30	Pass
13	2472	15.74	15.21	11.97	11.82	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (mW)		Peak Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 1	Chain 0	Chain 1	Chain 0		
3	2422	141.25	199.07	21.50	22.99	30	Pass
6	2437	145.21	183.65	21.62	22.64	30	Pass
9	2452	122.46	131.22	20.88	21.18	30	Pass
10	2457	85.11	105.44	19.30	20.23	30	Pass
11	2462	110.66	152.76	20.44	21.84	30	Pass

Channel	Frequency (MHz)	Average Power (mW)		Average Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 1	Chain 0	Chain 1	Chain 0		
3	2422	44.57	52.36	16.49	17.19	30	Pass
6	2437	46.24	46.99	16.65	16.72	30	Pass
9	2452	37.15	34.51	15.70	15.38	30	Pass
10	2457	18.49	17.74	12.67	12.49	30	Pass
11	2462	15.92	15.74	12.02	11.97	30	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	Peak Power (mW)		Peak Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 1	Chain 0	Chain 1	Chain 0		
1	2412	175.79	187.50	22.45	22.73	30	Pass
6	2437	266.69	267.30	24.26	24.27	30	Pass
11	2462	154.88	164.06	21.90	22.15	30	Pass
12	2467	110.92	55.98	20.45	17.48	30	Pass
13	2472	109.65	141.58	20.40	21.51	30	Pass

Channel	Frequency (MHz)	Average Power (mW)		Average Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 1	Chain 0	Chain 1	Chain 0		
1	2412	50.35	50.23	17.02	17.01	30	Pass
6	2437	74.47	76.38	18.72	18.83	30	Pass
11	2462	42.66	44.26	16.30	16.46	30	Pass
12	2467	29.17	14.16	14.65	11.51	30	Pass
13	2472	14.32	13.80	11.56	11.40	30	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	Peak Power (mW)		Peak Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 1	Chain 0	Chain 1	Chain 0		
3	2422	145.88	202.30	21.64	23.06	30	Pass
6	2437	139.96	165.58	21.46	22.19	30	Pass
9	2452	107.15	118.58	20.30	20.74	30	Pass
10	2457	77.80	102.80	18.91	20.12	30	Pass
11	2462	115.88	157.76	20.64	21.98	30	Pass

Channel	Frequency (MHz)	Average Power (mW)		Average Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 1	Chain 0	Chain 1	Chain 0		
3	2422	44.98	59.16	16.53	17.72	30	Pass
6	2437	44.46	45.60	16.48	16.59	30	Pass
9	2452	33.73	31.33	15.28	14.96	30	Pass
10	2457	17.38	16.75	12.40	12.24	30	Pass
11	2462	15.49	14.49	11.90	11.61	30	Pass

(MIMO)
802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.81	20.62	236.05	23.73	30	Pass
6	2437	22.23	21.89	321.37	25.07	30	Pass
11	2462	19.18	19.38	169.43	22.29	30	Pass
12	2467	17.08	17.22	103.75	20.16	30	Pass
13	2472	17.73	17.89	120.78	20.82	30	Pass

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	15.46	15.30	69.02	18.39	30	Pass
6	2437	16.95	16.74	96.83	19.86	30	Pass
11	2462	14.26	14.32	53.70	17.30	30	Pass
12	2467	12.13	12.15	32.73	15.15	30	Pass
13	2472	8.05	8.04	12.76	11.06	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	20.39	20.41	219.28	23.41	30	Pass
6	2437	20.46	20.44	221.82	23.46	30	Pass
9	2452	20.50	20.63	228.03	23.58	30	Pass
10	2457	15.30	15.53	69.66	18.43	30	Pass
11	2462	20.85	20.81	242.10	23.84	30	Pass

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	14.38	14.38	54.83	17.39	30	Pass
6	2437	14.78	14.76	59.98	17.78	30	Pass
9	2452	14.71	14.78	59.70	17.76	30	Pass
10	2457	7.87	7.89	12.27	10.89	30	Pass
11	2462	10.35	10.31	21.58	13.34	30	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	21.29	21.19	266.07	24.25	30	Pass
6	2437	21.82	21.98	309.74	24.91	30	Pass
11	2462	19.08	19.25	165.20	22.18	30	Pass
12	2467	16.09	16.27	82.99	19.19	30	Pass
13	2472	19.33	19.29	170.61	22.32	30	Pass

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	15.83	15.78	76.21	18.82	30	Pass
6	2437	16.57	16.60	91.20	19.60	30	Pass
11	2462	14.06	13.94	50.23	17.01	30	Pass
12	2467	11.10	11.09	25.76	14.11	30	Pass
13	2472	7.91	7.89	12.33	10.91	30	Pass

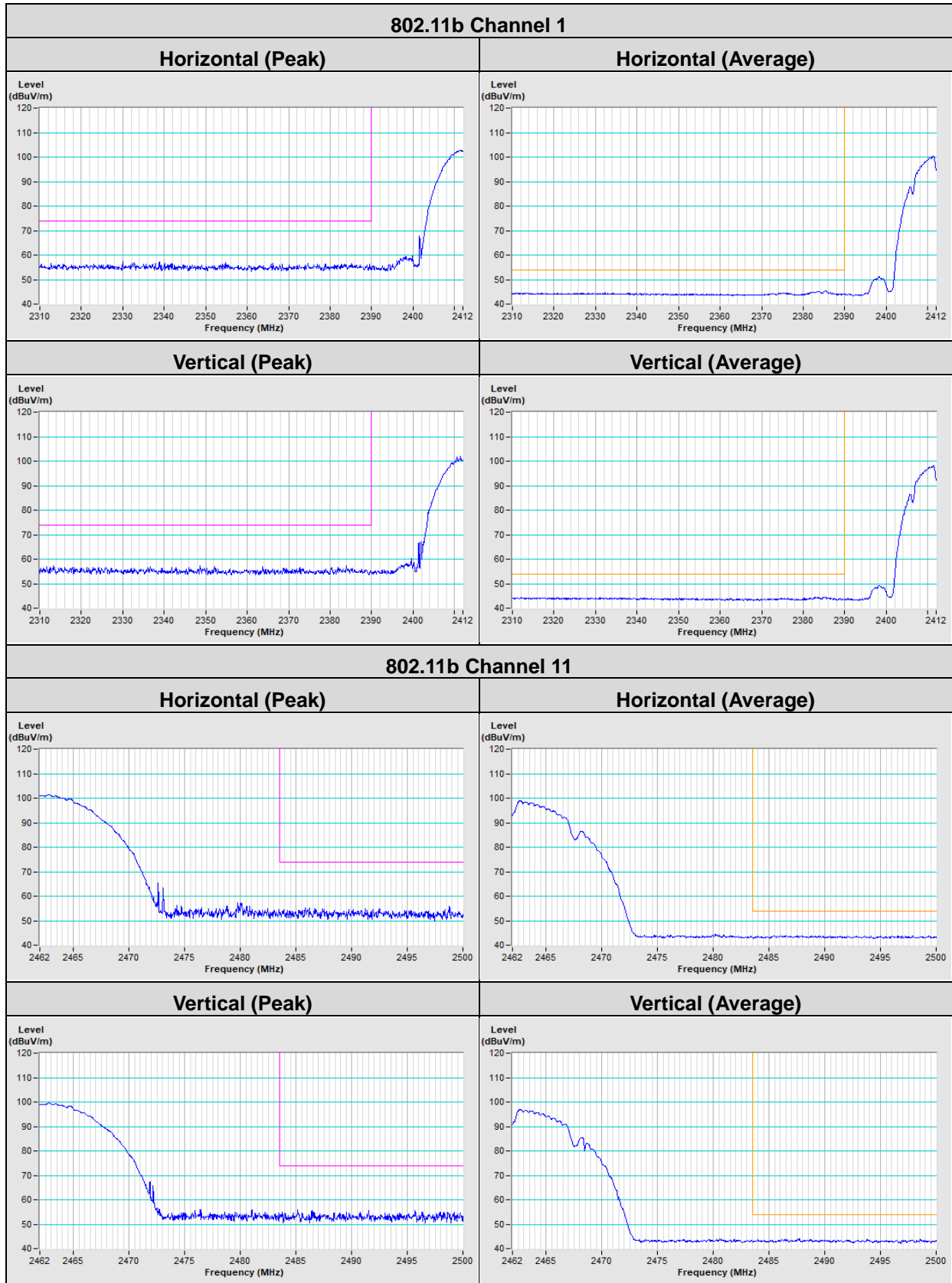
802.11ax (HE40)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	21.39	21.52	279.90	24.47	30	Pass
6	2437	21.26	21.56	276.69	24.42	30	Pass
9	2452	21.18	21.08	259.42	24.14	30	Pass
10	2457	15.39	15.54	70.47	18.48	30	Pass
11	2462	21.46	21.38	277.3	24.43	30	Pass

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	14.96	14.98	62.81	17.98	30	Pass
6	2437	14.94	14.99	62.81	17.98	30	Pass
9	2452	14.37	14.17	53.46	17.28	30	Pass
10	2457	7.39	7.40	10.99	10.41	30	Pass
11	2462	10.42	10.33	21.83	13.39	30	Pass

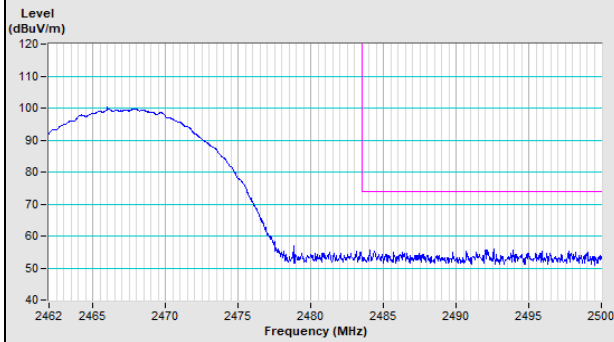
Annex A- Band Edge Measurement

802.11b

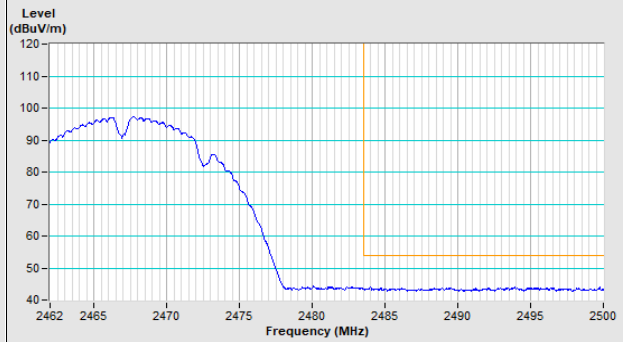


802.11b Channel 12

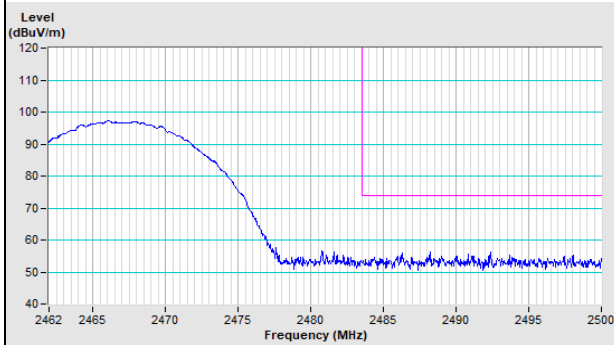
Horizontal (Peak)



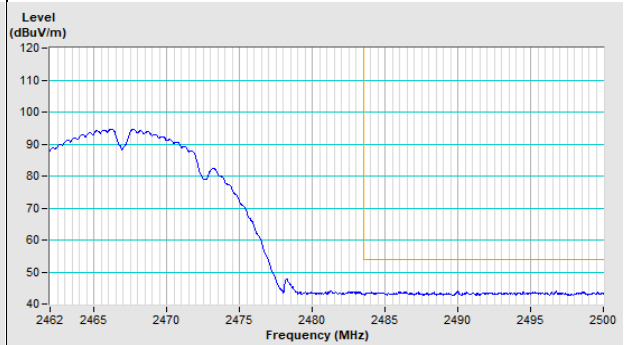
Horizontal (Average)



Vertical (Peak)

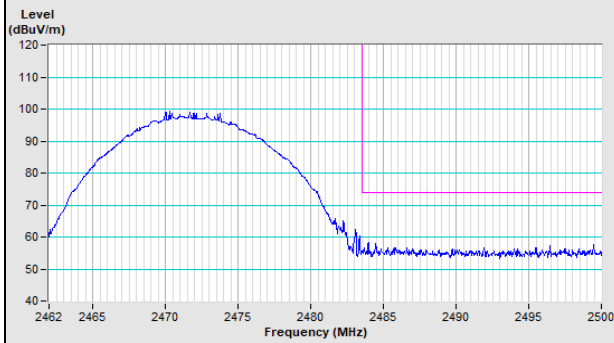


Vertical (Average)

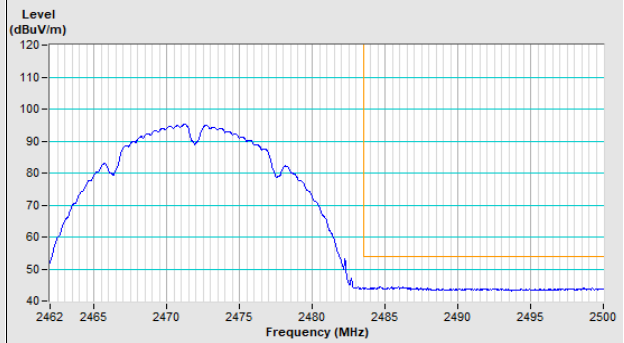


802.11b Channel 13

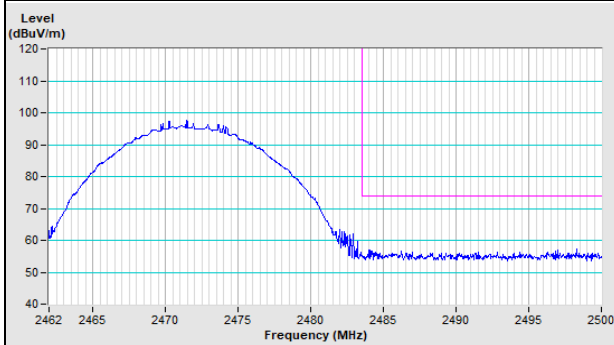
Horizontal (Peak)



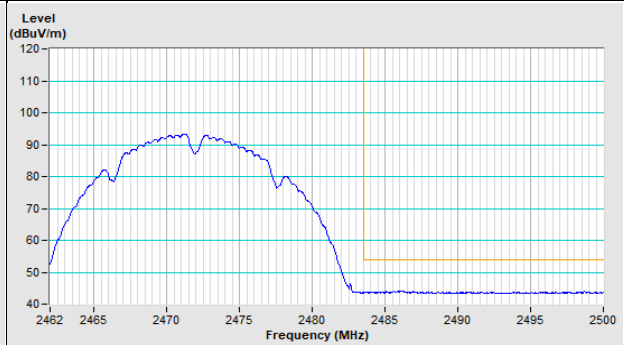
Horizontal (Average)



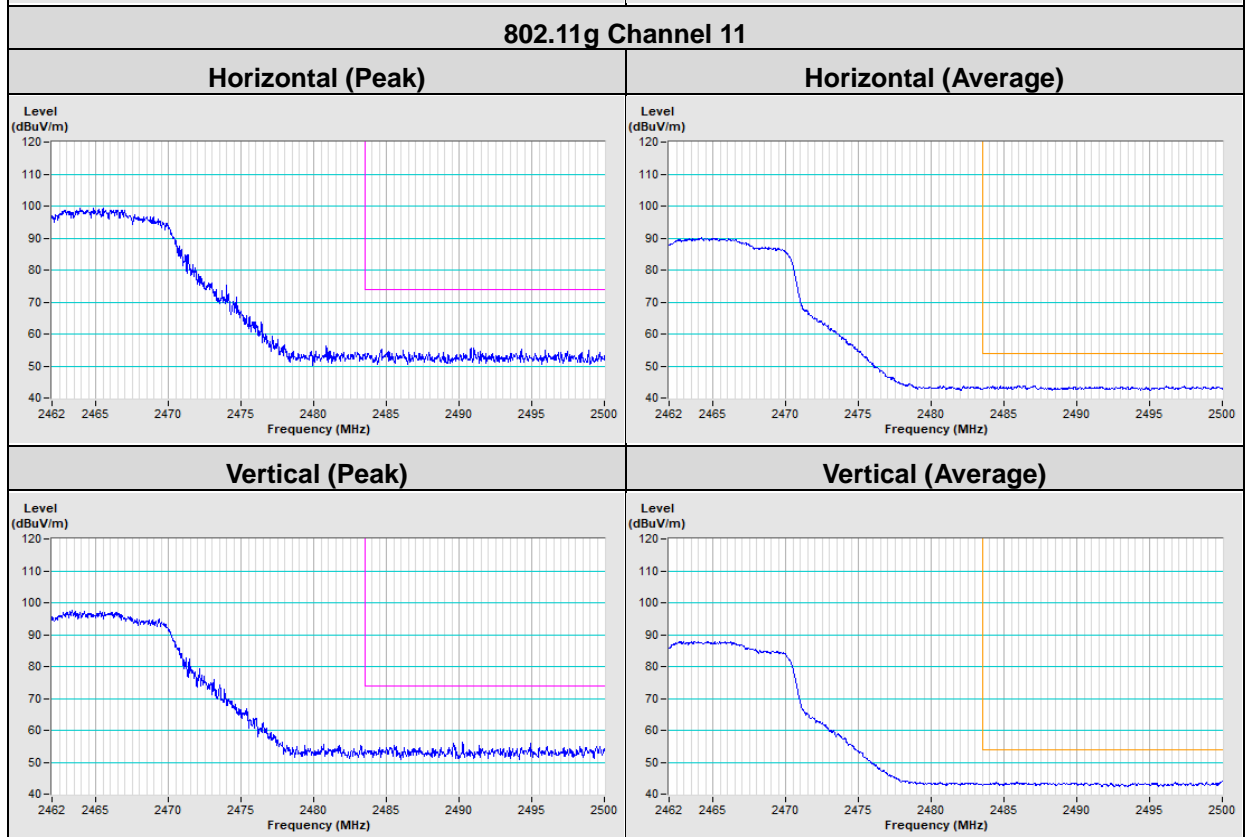
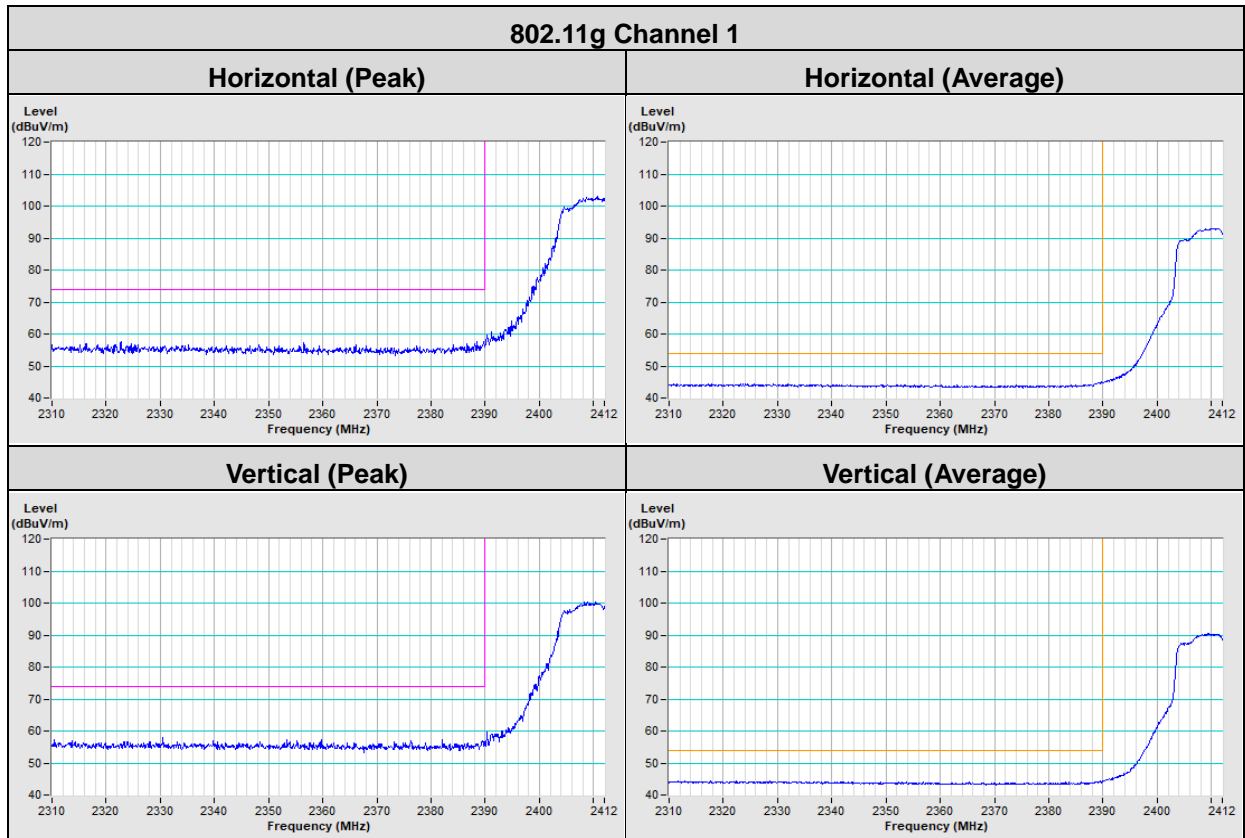
Vertical (Peak)



Vertical (Average)

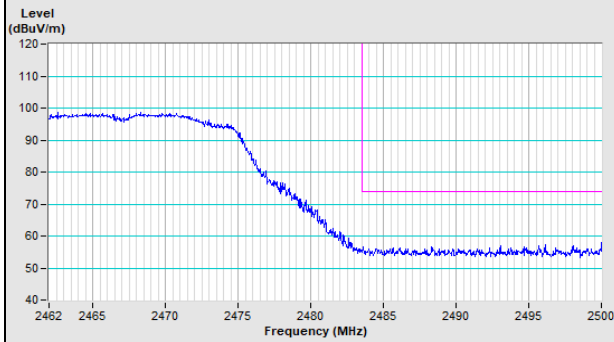


802.11g

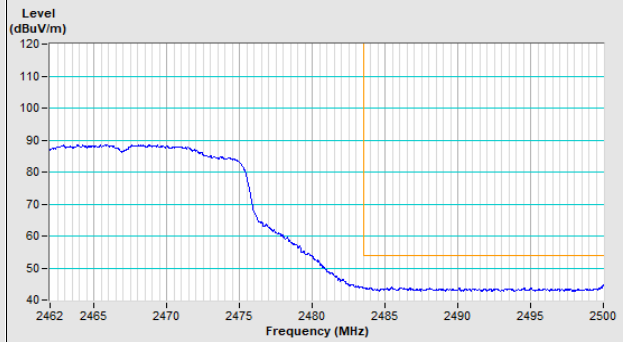


802.11g Channel 12

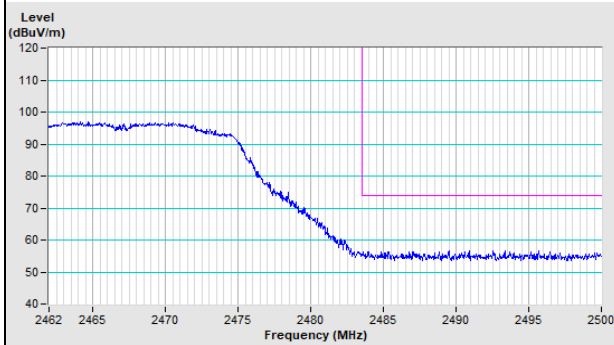
Horizontal (Peak)



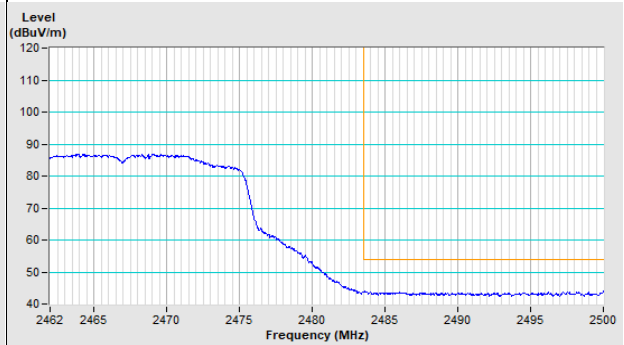
Horizontal (Average)



Vertical (Peak)

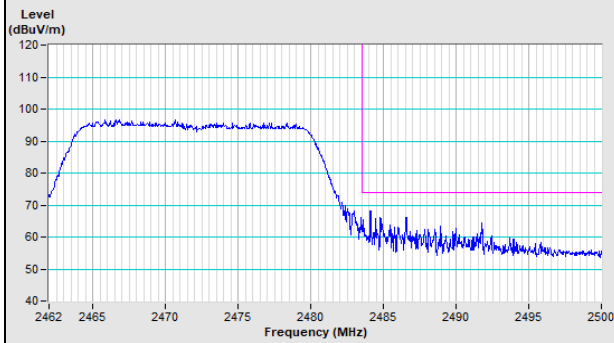


Vertical (Average)

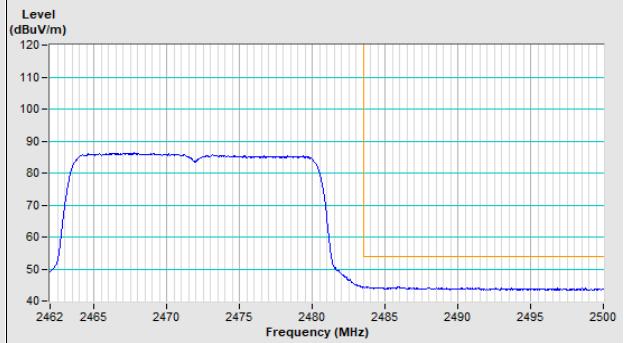


802.11g Channel 13

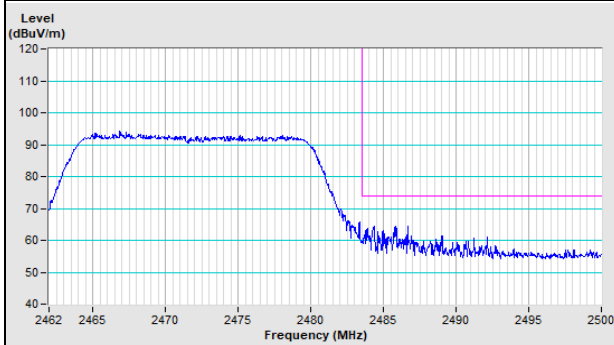
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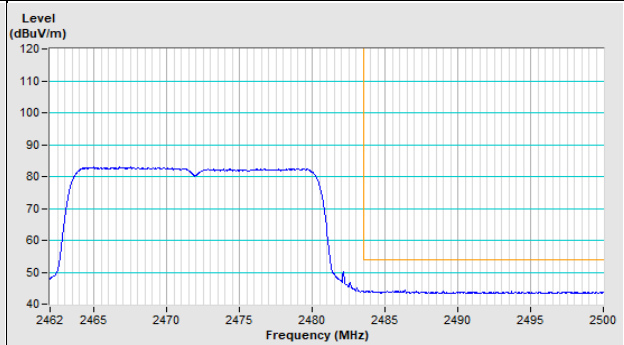
Horizontal (Average)



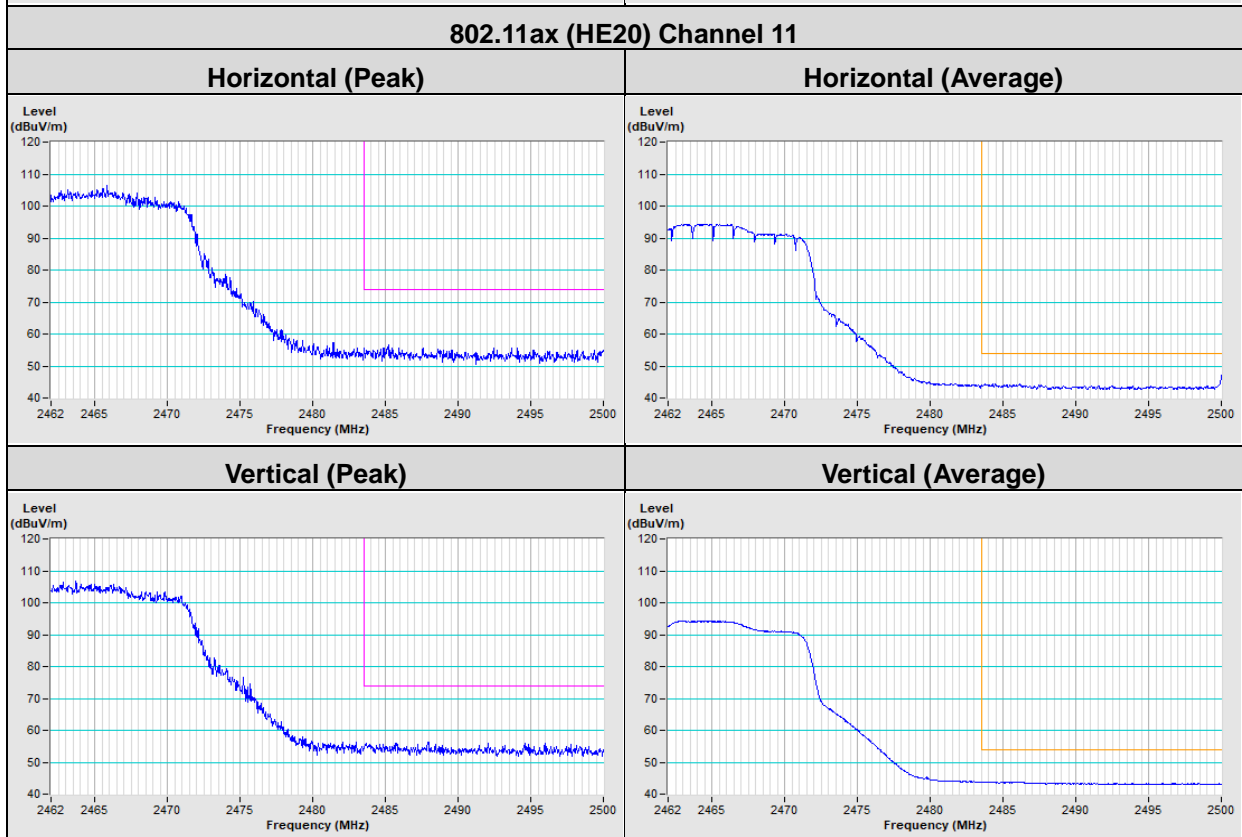
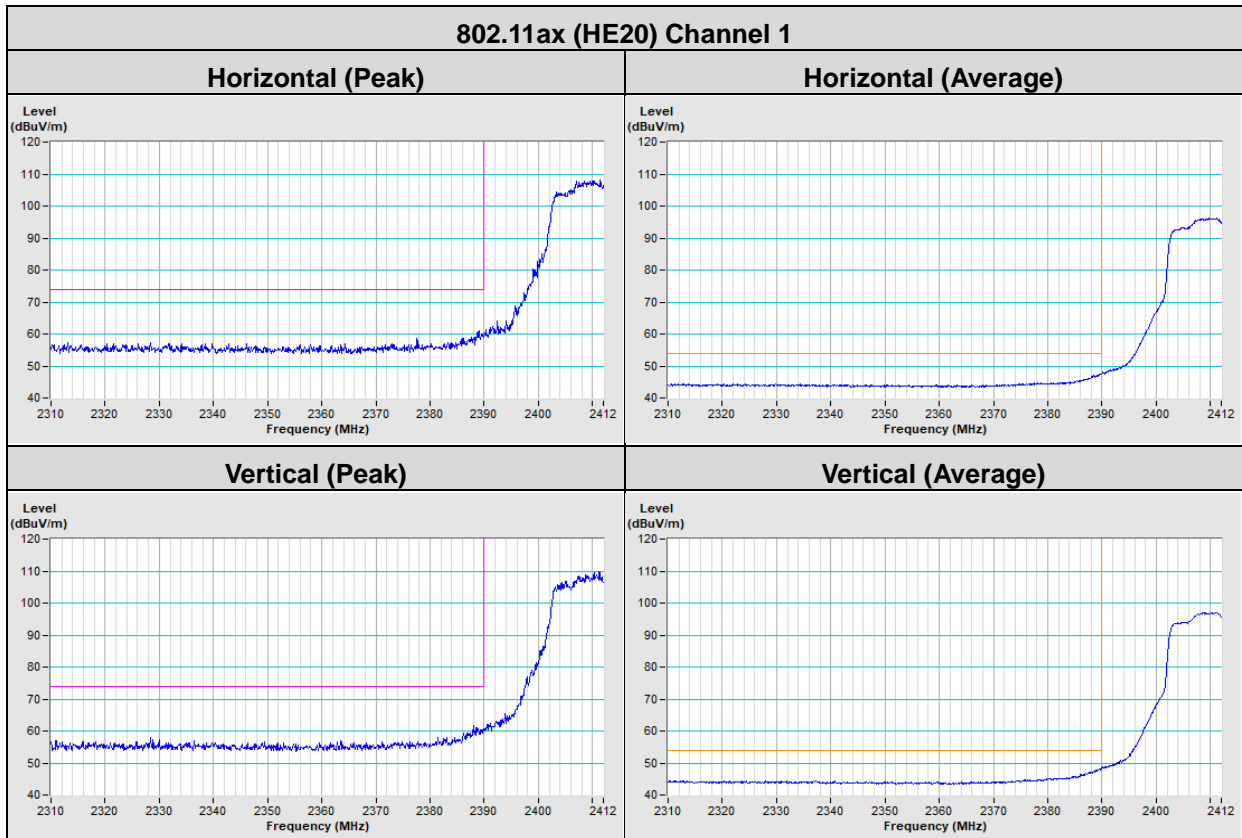
Vertical (Peak)



Vertical (Average)

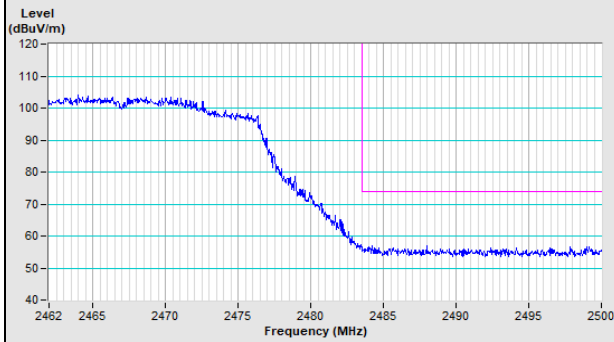


802.11ax (HE20)

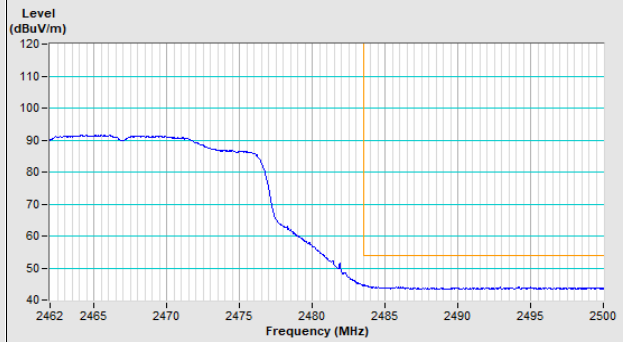


802.11ax (HE20) Channel 12

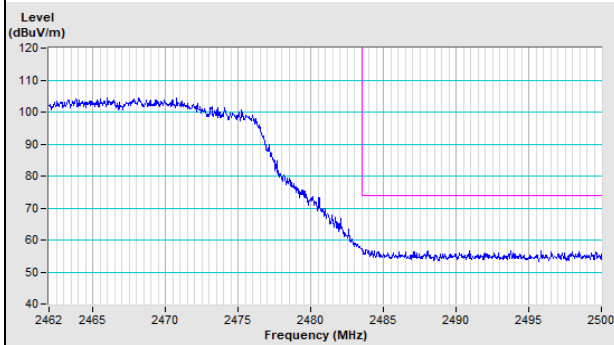
Horizontal (Peak)



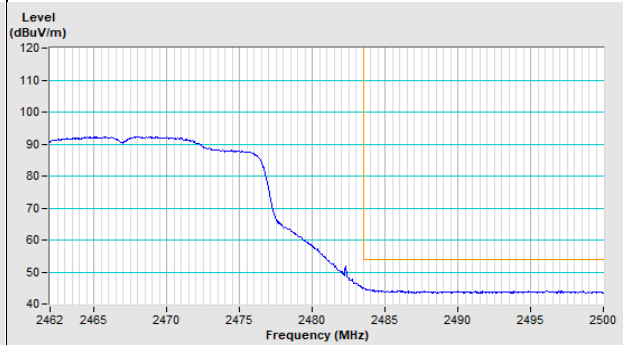
Horizontal (Average)



Vertical (Peak)

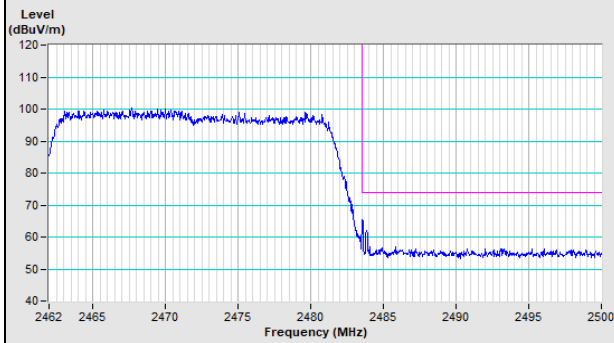


Vertical (Average)

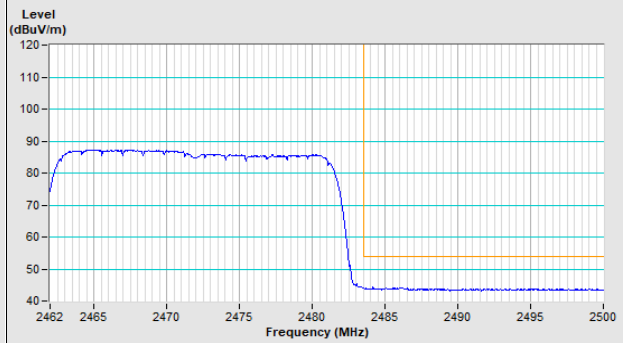


802.11ax (HE20) Channel 13

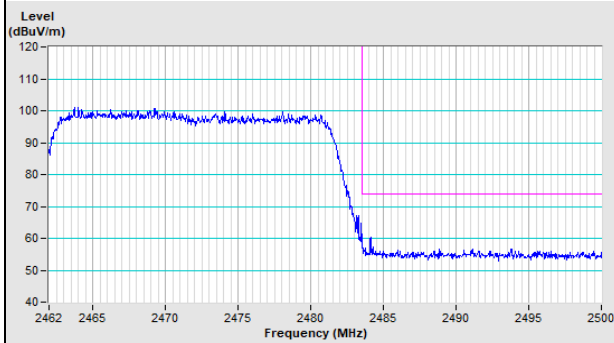
Horizontal (Peak)



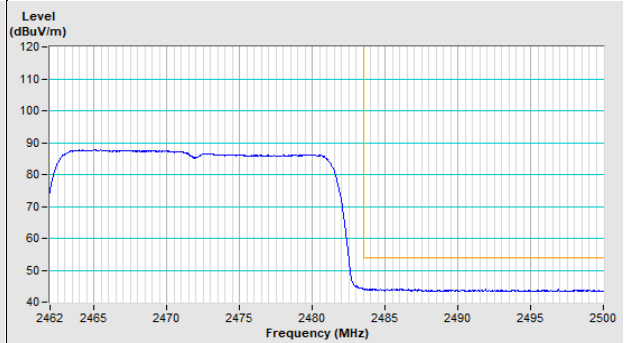
Horizontal (Average)



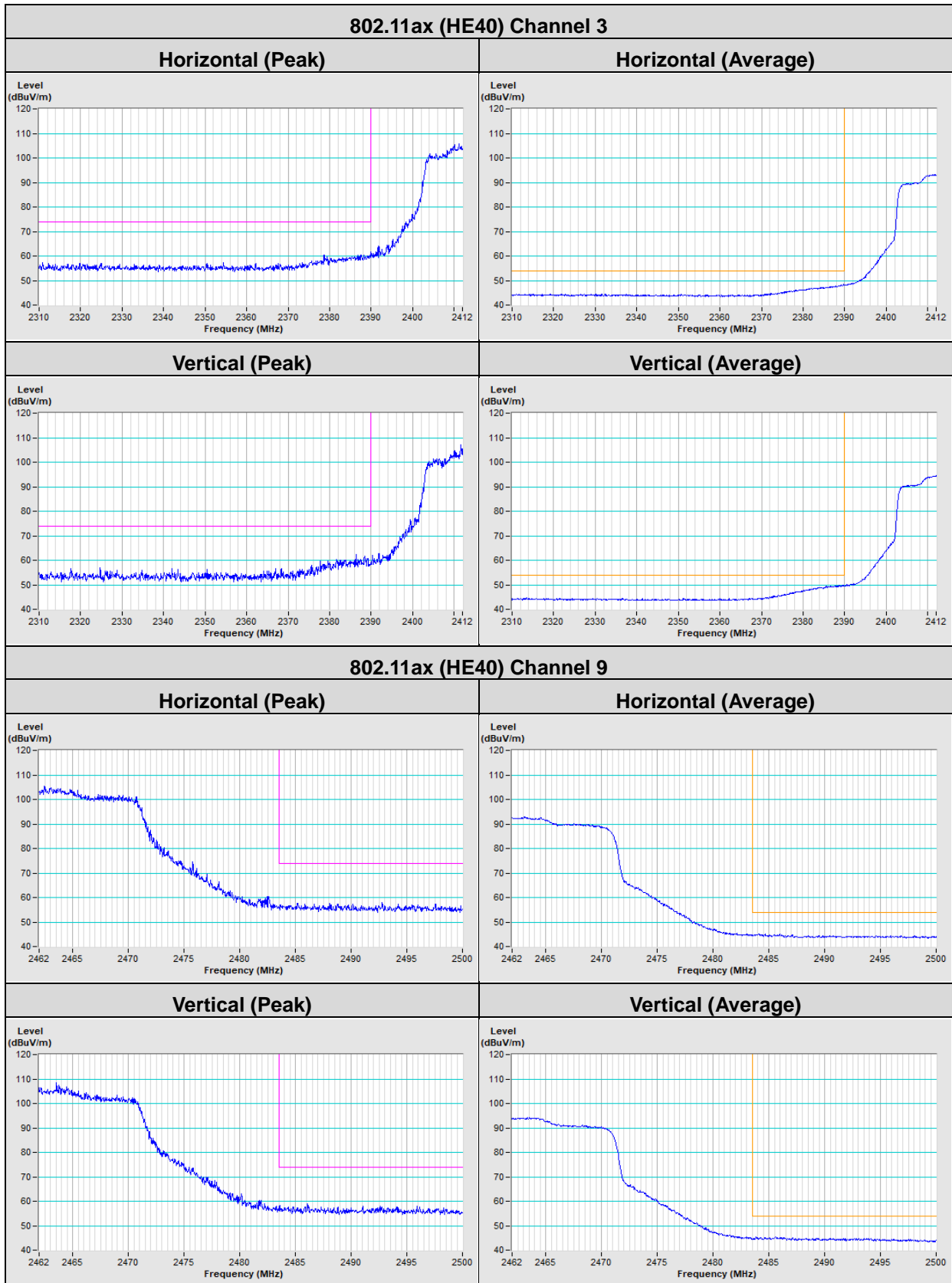
Vertical (Peak)



Vertical (Average)

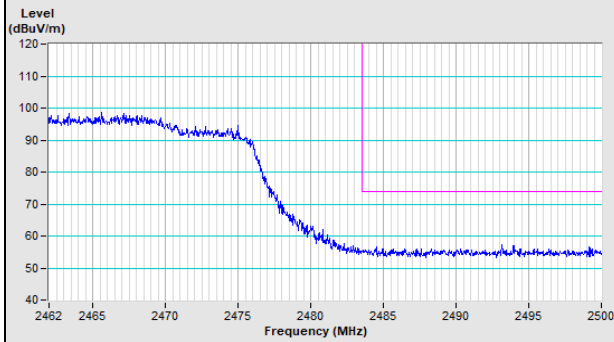


802.11ax (HE40)

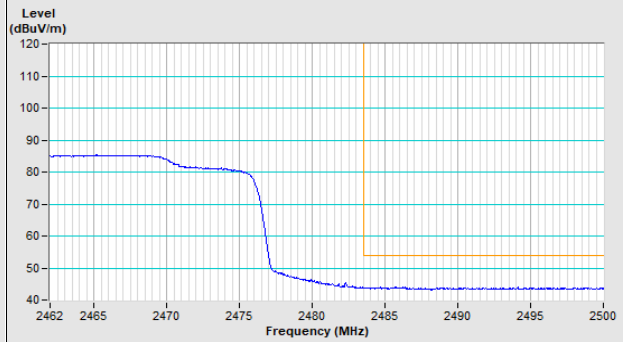


802.11ax (HE40) Channel 10

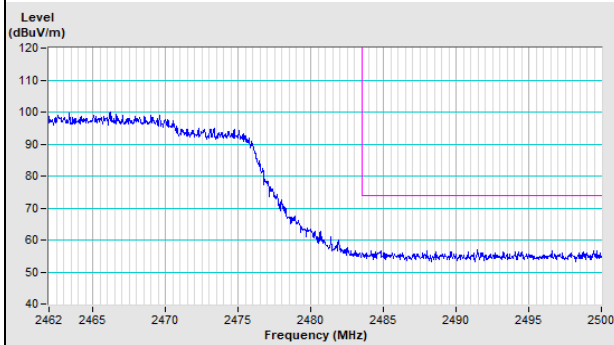
Horizontal (Peak)



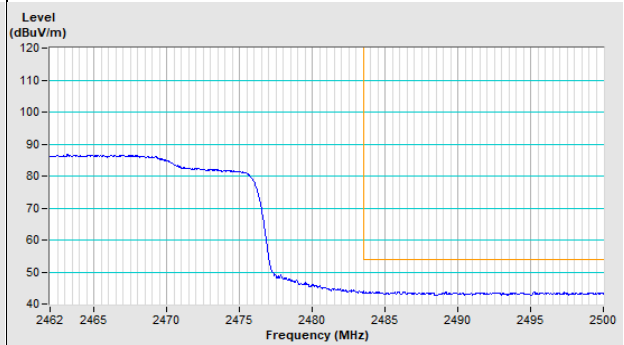
Horizontal (Average)



Vertical (Peak)

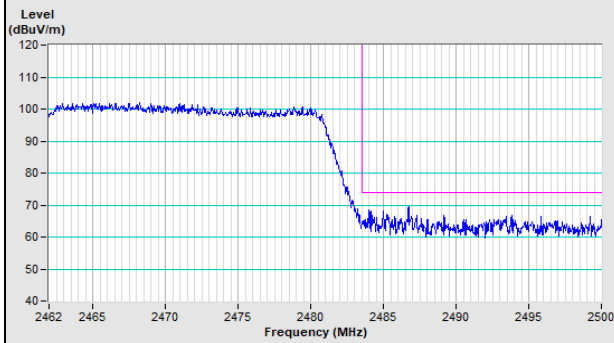


Vertical (Average)

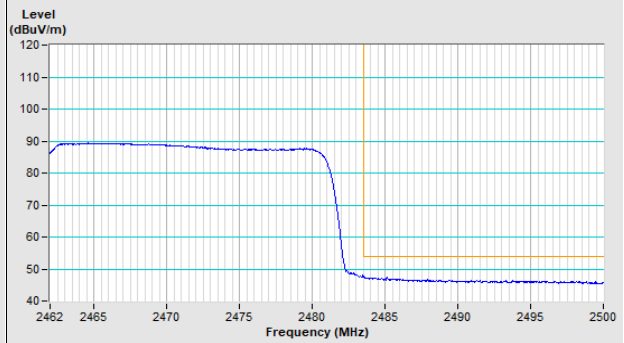


802.11ax (HE40) Channel 11

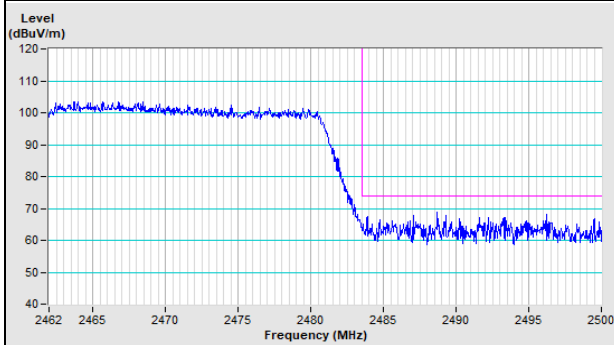
Horizontal (Peak)



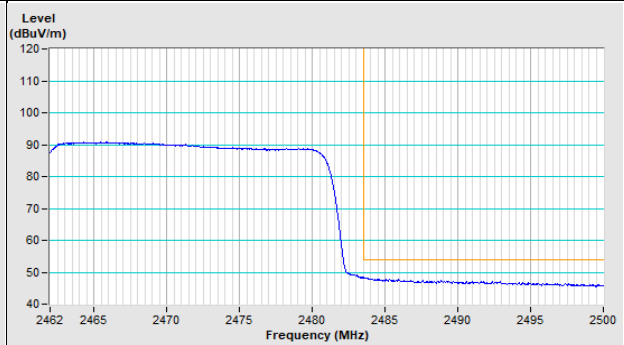
Horizontal (Average)



Vertical (Peak)



Vertical (Average)



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – 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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