

Partial FCC Test Report

Report No.: RF200605C03-2

FCC ID: O57AX200NGW

Test Model: AX200NGW

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Issued Date: Aug. 07, 2020

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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
RF200605C03-2	Original Release	Aug. 07, 2020

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 -17.83 dB at 0.39323 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -6.1 dB at 2483.50 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	N/A	No antenna connector is used.

Note:

1. This report is a partial report, only test item of 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. 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
Power Supply Rating	3.3Vdc form host equipment
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM 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	255.270 mW
Antenna Type	Refer to Note
Antenna Connector	N/A
Accessory Device	N/A
Data Cable Supplied	N/A

Note:

1. 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)	2TX
802.11n (HT40)	2TX
802.11ax (HE20)	2TX
802.11ax (HE40)	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)

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

Product	Brand	Model
Notebook Computer	Lenovo	ThinkBook 15 G2 ARE*****(*=0~9, A~Z, a~z, "-" or blank, for marketing use only, with no impact on RF compliance of the product)

3. The following accessories were for the End-product.

Product	Brand	Model	Description
Adapter	Lenovo	ADLX65YCC3A	I/P: 100-240 Vac, 50-60 Hz, 1.8 A O/P: 20 Vdc, 3.25 A
Battery	Lenovo	L19C3PDA	11.52 Vdc, 3907 mAh, 45 Wh

4. The antenna information is listed as below. Only the antenna which has the maximum gain was chosen as a representative for the final test.

WLAN Antenna								
Ant. Type	Manufacturer	Parts Number		Antenna Gain (dBi)				
				BT/WLAN 2.4 GHz	WLAN 5.15~5.35 GHz	WLAN 5.47~5.725 GHz	WLAN 5.725~5.85 GHz	
PIFA	High-Tek Electronics Co., Ltd	Main	0ACCN020001N / DC33002G300		-2.47	1.75	-2.57	-4.41
		Aux.	0ACCN020002N / DC33002G310		-2.19	-4.51	-2.84	-2.86
PIFA	MAG.LAYERS Scientific-technics co, LTD	Main	PCA-3010-25GC7-A1 / DC33002G600		-0.02	2.02	1.04	1.99
		Aux.	PCA-5010-25GC7-A1 / DC33002G610		1.12	-1.44	-2.19	-2.19

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

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, 7, 11, 12, 13	DSSS	DBPSK	1.0
-	802.11g	1 to 13	1, 7, 11, 12, 13	OFDM	BPSK	6.0
-	802.11ax (HE20)	1 to 13	1, 7, 11, 12, 13	OFDMA	BPSK	MCS0
-	802.11ax (HE40)	3 to 11	3, 7, 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 (HE20)	1 to 13	7	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 (HE20)	1 to 13	7	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, 7, 11, 12, 13	DSSS	DBPSK	1.0
	802.11g	1 to 13	1, 7, 11, 12, 13	OFDM	BPSK	6.0
	802.11n (HT20)	1 to 13	1, 7, 11, 12, 13	OFDM	BPSK	6.5
	802.11n (HT40)	3 to 11	3, 7, 9, 10, 11	OFDM	BPSK	13.5
	802.11ax (HE20)	1 to 13	1, 7, 11, 12, 13	OFDMA	BPSK	MCS0
	802.11ax (HE40)	3 to 11	3, 7, 9, 10, 11	OFDMA	BPSK	MCS0

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	23 deg. C, 66 % RH	120 Vac, 60 Hz	Titan Hsu
RE<1G	23 deg. C, 66 % RH	120 Vac, 60 Hz	Titan Hsu
PLC	23 deg. C, 67 % RH	120 Vac, 60 Hz	Adair Peng
Power	25 deg. C, 65 % RH	120 Vac, 60 Hz	Titan Hsu

3.3 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.

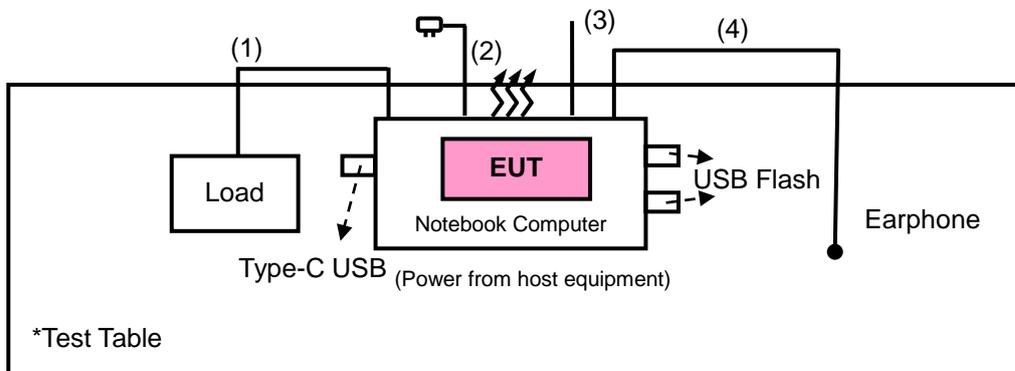
No.	Product	Brand	Model No.	Serial No.	FCC ID
A	Type-C USB	SanDisk	N/A	N/A	N/A
B	USB Flash	HP	v250W	03	N/A
C	USB Flash	HP	v250W	05	N/A
D	Earphone	Apple	N/A	N/A	N/A
E	Notebook	Lenovo	ThinkBook 15 G2 ARE*****(*=0~9, A~Z, a~z, "-" or blank, for marketing use only, with no impact on RF compliance of the product)	N/A	N/A
F	Adapter	Lenovo	ADLX65YCC3A	N/A	N/A

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as communication partner to transfer data.

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Load Cable	1	1.5	N	0	--
2.	Adapter Cable	1	2.5	Y	0	Accessory of End-product
3.	HDMI Cable	1	1.5	Y	0	--
4.	Earphone Cable	1	1.2	N	0	--

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards and References

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. 11, 2019	Nov. 10, 2020
HORN Antenna SCHWARZBECK	9120D	209	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
Loop Antenna EMCI	EM-6879	269	Sep. 16, 2019	Sep. 15, 2020
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 20, 2019	Aug. 19, 2020
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. 20, 2019	Aug. 19, 2020
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 20, 2019	Aug. 19, 2020
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM- SM-8000	Cable-CH3-03 (309224+170907)	Aug. 20, 2019	Aug. 19, 2020
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:

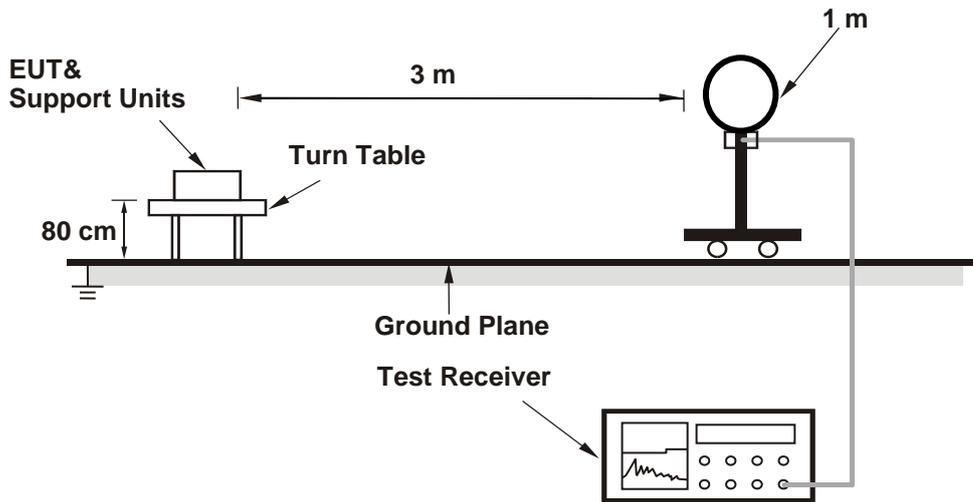
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) 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 \geq 98 %) for Average detection (AV) at frequency above 1 GHz.
(11b: RBW = 1 MHz, VBW = 10 Hz ; 11g: RBW = 1 MHz, VBW = 10 Hz ;
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

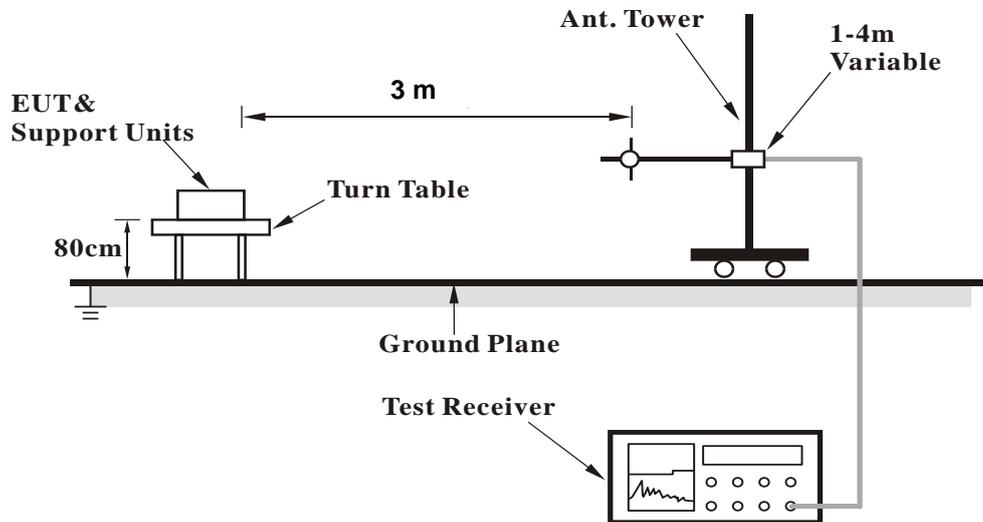
No deviation.

4.1.5 Test Set Up

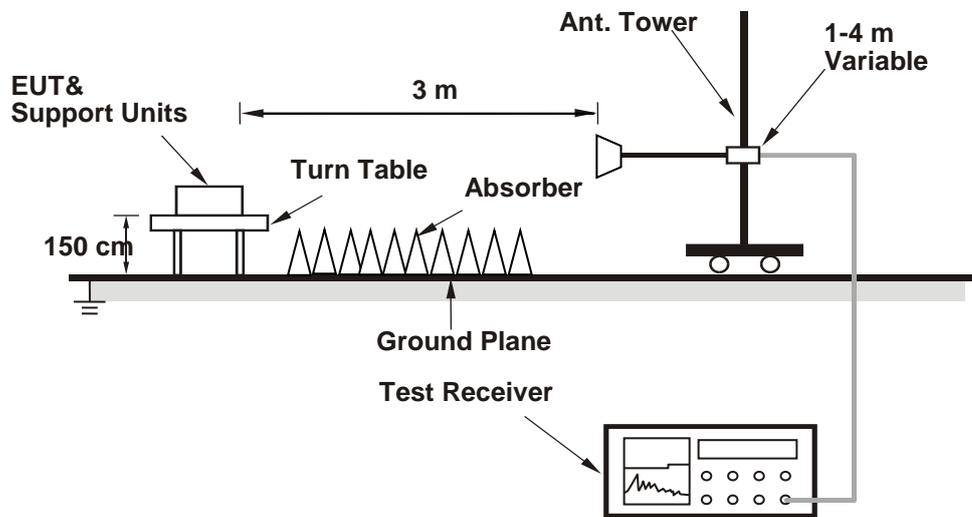
<Radiated Emission below 30 MHz>



<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 1 GHz Data :

802.11b

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (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	58.6 PK	74.0	-15.4	1.50 H	270	26.3	32.3
2	2390.00	46.5 AV	54.0	-7.5	1.50 H	270	14.2	32.3
3	*2412.00	102.9 PK			1.50 H	270	70.6	32.3
4	*2412.00	98.5 AV			1.50 H	270	66.2	32.3
5	4824.00	46.5 PK	74.0	-27.5	1.66 H	173	43.3	3.2
6	4824.00	39.1 AV	54.0	-14.9	1.66 H	173	35.9	3.2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	58.6 PK	74.0	-15.4	3.77 V	334	26.3	32.3
2	2390.00	46.5 AV	54.0	-7.5	3.77 V	334	14.2	32.3
3	*2412.00	107.8 PK			3.77 V	334	75.5	32.3
4	*2412.00	103.3 AV			3.77 V	334	71.0	32.3
5	4824.00	49.3 PK	74.0	-24.7	2.49 V	308	46.1	3.2
6	4824.00	44.4 AV	54.0	-9.6	2.49 V	308	41.2	3.2

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.

CHANNEL	TX Channel 7	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2442.00	102.8 PK			1.51 H	272	70.5	32.3
2	*2442.00	98.7 AV			1.51 H	272	66.4	32.3
3	4884.00	47.9 PK	74.0	-26.1	2.29 H	236	45.0	2.9
4	4884.00	39.1 AV	54.0	-14.9	2.29 H	236	36.2	2.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2442.00	108.3 PK			3.78 V	360	76.0	32.3
2	*2442.00	103.9 AV			3.78 V	360	71.6	32.3
3	4884.00	49.1 PK	74.0	-24.9	1.00 V	247	46.2	2.9
4	4884.00	43.2 AV	54.0	-10.8	1.00 V	247	40.3	2.9

REMARKS:

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

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (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	105.4 PK			1.51 H	269	73.0	32.4
2	*2462.00	101.0 AV			1.51 H	269	68.6	32.4
3	2483.50	59.4 PK	74.0	-14.6	1.51 H	269	27.0	32.4
4	2483.50	47.0 AV	54.0	-7.0	1.51 H	269	14.6	32.4
5	4924.00	46.7 PK	74.0	-27.3	2.26 H	242	43.6	3.1
6	4924.00	34.1 AV	54.0	-19.9	2.26 H	242	31.0	3.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	107.9 PK			3.75 V	342	75.5	32.4
2	*2462.00	102.9 AV			3.75 V	342	70.5	32.4
3	2483.50	59.0 PK	74.0	-15.0	3.75 V	342	26.6	32.4
4	2483.50	46.7 AV	54.0	-7.3	3.75 V	342	14.3	32.4
5	4924.00	46.3 PK	74.0	-27.7	2.00 V	262	43.2	3.1
6	4924.00	35.7 AV	54.0	-18.3	2.00 V	262	32.6	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.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (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	100.8 PK			1.98 H	232	68.4	32.4
2	*2467.00	96.6 AV			1.98 H	232	64.2	32.4
3	2483.50	59.5 PK	74.0	-14.5	1.98 H	232	27.1	32.4
4	2483.50	47.3 AV	54.0	-6.7	1.98 H	232	14.9	32.4
5	4934.00	46.3 PK	74.0	-27.7	2.33 H	242	43.1	3.2
6	4934.00	32.8 AV	54.0	-21.2	2.33 H	242	29.6	3.2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	105.2 PK			3.26 V	333	72.8	32.4
2	*2467.00	100.8 AV			3.26 V	333	68.4	32.4
3	2483.50	59.0 PK	74.0	-15.0	3.26 V	333	26.6	32.4
4	2483.50	47.2 AV	54.0	-6.8	3.26 V	333	14.8	32.4
5	4934.00	47.8 PK	74.0	-26.2	2.36 V	267	44.6	3.2
6	4934.00	34.5 AV	54.0	-19.5	2.36 V	267	31.3	3.2

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.

CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (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	100.7 PK			1.94 H	100	68.3	32.4
2	*2472.00	96.3 AV			1.94 H	100	63.9	32.4
3	2483.50	60.2 PK	74.0	-13.8	1.94 H	100	27.8	32.4
4	2483.50	47.2 AV	54.0	-6.8	1.94 H	100	14.8	32.4
5	4944.00	46.3 PK	74.0	-27.7	2.44 H	251	43.1	3.2
6	4944.00	32.6 AV	54.0	-21.4	2.44 H	251	29.4	3.2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	102.4 PK			3.26 V	358	70.0	32.4
2	*2472.00	97.8 AV			3.26 V	358	65.4	32.4
3	2483.50	60.1 PK	74.0	-13.9	3.26 V	358	27.7	32.4
4	2483.50	47.7 AV	54.0	-6.3	3.26 V	358	15.3	32.4
5	4944.00	47.0 PK	74.0	-27.0	3.28 V	10	43.8	3.2
6	4944.00	33.8 AV	54.0	-20.2	3.28 V	10	30.6	3.2

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.

802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	58.3 PK	74.0	-15.7	2.66 H	223	26.0	32.3
2	2390.00	46.5 AV	54.0	-7.5	2.66 H	223	14.2	32.3
3	*2412.00	101.4 PK			2.66 H	223	69.1	32.3
4	*2412.00	91.6 AV			2.66 H	223	59.3	32.3
5	4824.00	45.7 PK	74.0	-28.3	2.15 H	177	42.5	3.2
6	4824.00	32.5 AV	54.0	-21.5	2.15 H	177	29.3	3.2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	58.5 PK	74.0	-15.5	3.60 V	334	26.2	32.3
2	2390.00	46.9 AV	54.0	-7.1	3.60 V	334	14.6	32.3
3	*2412.00	106.8 PK			3.60 V	334	74.5	32.3
4	*2412.00	96.6 AV			3.60 V	334	64.3	32.3
5	4824.00	46.2 PK	74.0	-27.8	1.87 V	303	43.0	3.2
6	4824.00	33.1 AV	54.0	-20.9	1.87 V	303	29.9	3.2

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.

CHANNEL	TX Channel 7	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2442.00	104.7 PK			2.77 H	222	72.4	32.3
2	*2442.00	94.5 AV			2.77 H	222	62.2	32.3
3	4884.00	45.8 PK	74.0	-28.2	2.20 H	179	42.9	2.9
4	4884.00	32.5 AV	54.0	-21.5	2.20 H	179	29.6	2.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2442.00	109.5 PK			3.67 V	1	77.2	32.3
2	*2442.00	99.3 AV			3.67 V	1	67.0	32.3
3	4884.00	46.2 PK	74.0	-27.8	1.93 V	293	43.3	2.9
4	4884.00	33.0 AV	54.0	-21.0	1.93 V	293	30.1	2.9

REMARKS:

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

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (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	102.6 PK			2.52 H	221	70.2	32.4
2	*2462.00	92.8 AV			2.52 H	221	60.4	32.4
3	2483.50	58.1 PK	74.0	-15.9	2.52 H	221	25.7	32.4
4	2483.50	46.6 AV	54.0	-7.4	2.52 H	221	14.2	32.4
5	4924.00	45.4 PK	74.0	-28.6	2.11 H	179	42.3	3.1
6	4924.00	32.4 AV	54.0	-21.6	2.11 H	179	29.3	3.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	106.4 PK			3.64 V	359	74.0	32.4
2	*2462.00	96.4 AV			3.64 V	359	64.0	32.4
3	2483.50	59.1 PK	74.0	-14.9	3.64 V	359	26.7	32.4
4	2483.50	47.1 AV	54.0	-6.9	3.64 V	359	14.7	32.4
5	4924.00	46.0 PK	74.0	-28.0	1.95 V	286	42.9	3.1
6	4924.00	32.7 AV	54.0	-21.3	1.95 V	286	29.6	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.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (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	100.0 PK			2.52 H	221	67.6	32.4
2	*2467.00	86.9 AV			2.52 H	221	54.5	32.4
3	2483.50	59.3 PK	74.0	-14.7	2.52 H	221	26.9	32.4
4	2483.50	46.8 AV	54.0	-7.2	2.52 H	221	14.4	32.4
5	4934.00	45.5 PK	74.0	-28.5	2.05 H	182	42.3	3.2
6	4934.00	32.2 AV	54.0	-21.8	2.05 H	182	29.0	3.2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	104.4 PK			3.30 V	0	72.0	32.4
2	*2467.00	93.9 AV			3.30 V	0	61.5	32.4
3	2483.50	59.6 PK	74.0	-14.4	3.30 V	0	27.2	32.4
4	2483.50	46.9 AV	54.0	-7.1	3.30 V	0	14.5	32.4
5	4934.00	45.9 PK	74.0	-28.1	2.15 V	311	42.7	3.2
6	4934.00	32.6 AV	54.0	-21.4	2.15 V	311	29.4	3.2

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.

CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (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	97.7 PK			2.53 H	220	65.3	32.4
2	*2472.00	87.4 AV			2.53 H	220	55.0	32.4
3	2483.50	62.6 PK	74.0	-11.4	2.53 H	220	30.2	32.4
4	2483.50	47.7 AV	54.0	-6.3	2.53 H	220	15.3	32.4
5	4944.00	45.5 PK	74.0	-28.5	2.05 H	190	42.3	3.2
6	4944.00	32.4 AV	54.0	-21.6	2.05 H	190	29.2	3.2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	101.4 PK			3.26 V	0	69.0	32.4
2	*2472.00	91.4 AV			3.26 V	0	59.0	32.4
3	2483.50	66.0 PK	74.0	-8.0	3.26 V	0	33.6	32.4
4	2483.50	47.9 AV	54.0	-6.1	3.26 V	0	15.5	32.4
5	4944.00	46.0 PK	74.0	-28.0	1.91 V	294	42.8	3.2
6	4944.00	32.8 AV	54.0	-21.2	1.91 V	294	29.6	3.2

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.

802.11ax (HE20)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.1 PK	74.0	-13.9	1.61 H	275	27.8	32.3
2	2390.00	47.6 AV	54.0	-6.4	1.61 H	275	15.3	32.3
3	*2412.00	106.8 PK			1.61 H	275	74.5	32.3
4	*2412.00	93.7 AV			1.61 H	275	61.4	32.3
5	4824.00	45.9 PK	74.0	-28.1	1.77 H	209	42.7	3.2
6	4824.00	32.4 AV	54.0	-21.6	1.77 H	209	29.2	3.2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	3.35 V	357	27.9	32.3
2	2390.00	47.7 AV	54.0	-6.3	3.35 V	357	15.4	32.3
3	*2412.00	109.2 PK			3.35 V	357	76.9	32.3
4	*2412.00	96.5 AV			3.35 V	357	64.2	32.3
5	4824.00	46.2 PK	74.0	-27.8	2.23 V	315	43.0	3.2
6	4824.00	32.8 AV	54.0	-21.2	2.23 V	315	29.6	3.2

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.

CHANNEL	TX Channel 7	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2442.00	109.3 PK			1.69 H	280	77.0	32.3
2	*2442.00	96.6 AV			1.69 H	280	64.3	32.3
3	4884.00	45.9 PK	74.0	-28.1	1.81 H	211	43.0	2.9
4	4884.00	32.3 AV	54.0	-21.7	1.81 H	211	29.4	2.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2442.00	111.6 PK			3.31 V	358	79.3	32.3
2	*2442.00	98.9 AV			3.31 V	358	66.6	32.3
3	4884.00	46.2 PK	74.0	-27.8	2.30 V	309	43.3	2.9
4	4884.00	32.8 AV	54.0	-21.2	2.30 V	309	29.9	2.9

REMARKS:

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

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (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	105.7 PK			1.56 H	283	73.3	32.4
2	*2462.00	93.1 AV			1.56 H	283	60.7	32.4
3	2483.50	59.1 PK	74.0	-14.9	1.56 H	283	26.7	32.4
4	2483.50	46.7 AV	54.0	-7.3	1.56 H	283	14.3	32.4
5	4924.00	45.4 PK	74.0	-28.6	1.75 H	217	42.3	3.1
6	4924.00	32.1 AV	54.0	-21.9	1.75 H	217	29.0	3.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	108.2 PK			3.29 V	351	75.8	32.4
2	*2462.00	95.4 AV			3.29 V	351	63.0	32.4
3	2483.50	59.7 PK	74.0	-14.3	3.29 V	351	27.3	32.4
4	2483.50	47.0 AV	54.0	-7.0	3.29 V	351	14.6	32.4
5	4924.00	45.8 PK	74.0	-28.2	2.05 V	293	42.7	3.1
6	4924.00	32.4 AV	54.0	-21.6	2.05 V	293	29.3	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.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (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	102.5 PK			1.57 H	270	70.1	32.4
2	*2467.00	90.0 AV			1.57 H	270	57.6	32.4
3	2483.50	59.1 PK	74.0	-14.9	1.57 H	270	26.7	32.4
4	2483.50	46.7 AV	54.0	-7.3	1.57 H	270	14.3	32.4
5	4934.00	45.4 PK	74.0	-28.6	1.85 H	222	42.2	3.2
6	4934.00	32.2 AV	54.0	-21.8	1.85 H	222	29.0	3.2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	104.8 PK			3.29 V	352	72.4	32.4
2	*2467.00	92.3 AV			3.29 V	352	59.9	32.4
3	2483.50	59.6 PK	74.0	-14.4	3.29 V	352	27.2	32.4
4	2483.50	47.3 AV	54.0	-6.7	3.29 V	352	14.9	32.4
5	4934.00	45.8 PK	74.0	-28.2	2.27 V	305	42.6	3.2
6	4934.00	32.4 AV	54.0	-21.6	2.27 V	305	29.2	3.2

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.

CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (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	99.7 PK			1.55 H	269	67.3	32.4
2	*2472.00	87.0 AV			1.55 H	269	54.6	32.4
3	2483.50	61.1 PK	74.0	-12.9	1.55 H	269	28.7	32.4
4	2483.50	47.3 AV	54.0	-6.7	1.55 H	269	14.9	32.4
5	4944.00	45.3 PK	74.0	-28.7	1.70 H	201	42.1	3.2
6	4944.00	32.0 AV	54.0	-22.0	1.70 H	201	28.8	3.2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	102.1 PK			3.30 V	353	69.7	32.4
2	*2472.00	89.4 AV			3.30 V	353	57.0	32.4
3	2483.50	62.3 PK	74.0	-11.7	3.30 V	353	29.9	32.4
4	2483.50	47.6 AV	54.0	-6.4	3.30 V	353	15.2	32.4
5	4944.00	45.7 PK	74.0	-28.3	2.31 V	317	42.5	3.2
6	4944.00	32.3 AV	54.0	-21.7	2.31 V	317	29.1	3.2

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.

802.11ax (HE40)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	59.0 PK	74.0	-15.0	1.71 H	271	26.7	32.3
2	2390.00	46.8 AV	54.0	-7.2	1.71 H	271	14.5	32.3
3	#2422.00	102.4 PK	74.0	28.4	1.71 H	271	70.1	32.3
4	#2422.00	90.0 AV	54.0	36.0	1.71 H	271	57.7	32.3
5	4844.00	45.1 PK	74.0	-28.9	1.80 H	212	42.0	3.1
6	4844.00	32.1 AV	54.0	-21.9	1.80 H	212	29.0	3.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	3.38 V	354	27.2	32.3
2	2390.00	47.2 AV	54.0	-6.8	3.38 V	354	14.9	32.3
3	#2422.00	104.7 PK	74.0	30.7	3.38 V	354	72.4	32.3
4	#2422.00	92.3 AV	54.0	38.3	3.38 V	354	60.0	32.3
5	4844.00	45.6 PK	74.0	-28.4	2.15 V	303	42.5	3.1
6	4844.00	32.4 AV	54.0	-21.6	2.15 V	303	29.3	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.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 7	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2442.00	103.5 PK			1.66 H	277	71.2	32.3
2	*2442.00	90.9 AV			1.66 H	277	58.6	32.3
3	4844.00	45.2 PK	74.0	-28.8	1.73 H	223	42.1	3.1
4	4844.00	32.1 AV	54.0	-21.9	1.73 H	223	29.0	3.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2442.00	105.8 PK			3.38 V	352	73.5	32.3
2	*2442.00	93.2 AV			3.38 V	352	60.9	32.3
3	4884.00	45.5 PK	74.0	-28.5	2.03 V	293	42.6	2.9
4	4884.00	32.4 AV	54.0	-21.6	2.03 V	293	29.5	2.9

REMARKS:

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

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (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	102.4 PK	74.0	28.4	1.59 H	269	70.0	32.4
2	#2452.00	90.1 AV	54.0	36.1	1.59 H	269	57.7	32.4
3	2483.50	59.4 PK	74.0	-14.6	1.59 H	269	27.0	32.4
4	2483.50	47.3 AV	54.0	-6.7	1.59 H	269	14.9	32.4
5	4904.00	44.8 PK	74.0	-29.2	1.69 H	201	41.8	3.0
6	4904.00	31.8 AV	54.0	-22.2	1.69 H	201	28.8	3.0

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	104.6 PK	74.0	30.6	3.33 V	354	72.2	32.4
2	#2452.00	92.4 AV	54.0	38.4	3.33 V	354	60.0	32.4
3	2483.50	60.1 PK	74.0	-13.9	3.33 V	354	27.7	32.4
4	2483.50	47.6 AV	54.0	-6.4	3.33 V	354	15.2	32.4
5	4904.00	45.3 PK	74.0	-28.7	1.99 V	293	42.3	3.0
6	4904.00	32.4 AV	54.0	-21.6	1.99 V	293	29.4	3.0

REMARKS:

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

CHANNEL	TX Channel 10	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (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	99.0 PK	74.0	25.0	1.69 H	280	66.6	32.4
2	#2457.00	86.3 AV	54.0	32.3	1.69 H	280	53.9	32.4
3	2483.50	59.1 PK	74.0	-14.9	1.69 H	280	26.7	32.4
4	2483.50	46.7 AV	54.0	-7.3	1.69 H	280	14.3	32.4
5	4914.00	44.8 PK	74.0	-29.2	1.85 H	220	41.7	3.1
6	4914.00	31.7 AV	54.0	-22.3	1.85 H	220	28.6	3.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	101.4 PK	74.0	27.4	3.34 V	351	69.0	32.4
2	#2457.00	88.6 AV	54.0	34.6	3.34 V	351	56.2	32.4
3	2483.50	59.8 PK	74.0	-14.2	3.34 V	351	27.4	32.4
4	2483.50	47.3 AV	54.0	-6.7	3.34 V	351	14.9	32.4
5	4914.00	45.2 PK	74.0	-28.8	2.25 V	301	42.1	3.1
6	4914.00	32.1 AV	54.0	-21.9	2.25 V	301	29.0	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.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (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	97.5 PK	74.0	23.5	1.70 H	270	65.1	32.4
2	#2462.00	85.4 AV	54.0	31.4	1.70 H	270	53.0	32.4
3	2483.50	60.1 PK	74.0	-13.9	1.70 H	270	27.7	32.4
4	2483.50	47.2 AV	54.0	-6.8	1.70 H	270	14.8	32.4
5	4924.00	44.8 PK	74.0	-29.2	1.75 H	202	41.7	3.1
6	4924.00	31.4 AV	54.0	-22.6	1.75 H	202	28.3	3.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	99.8 PK	74.0	25.8	3.35 V	353	67.4	32.4
2	#2462.00	87.8 AV	54.0	33.8	3.35 V	353	55.4	32.4
3	2483.50	63.7 PK	74.0	-10.3	3.35 V	353	31.3	32.4
4	2483.50	47.6 AV	54.0	-6.4	3.35 V	353	15.2	32.4
5	4924.00	45.2 PK	74.0	-28.8	2.00 V	300	42.1	3.1
6	4924.00	31.9 AV	54.0	-22.1	2.00 V	300	28.8	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.
5. " # ": The radiated frequency is out of the restricted band.

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:

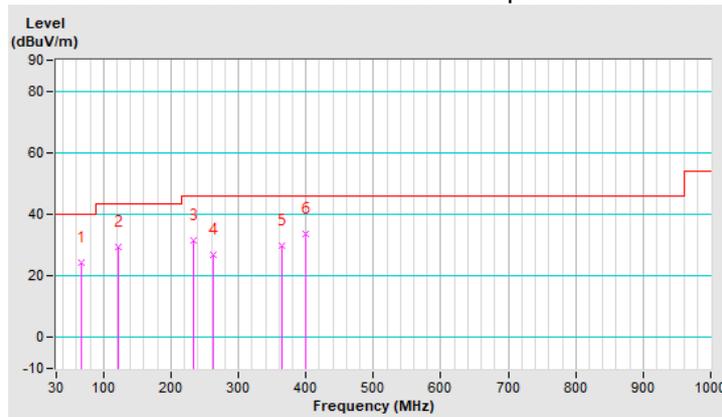
802.11ax (HE20)

CHANNEL	TX Channel 7	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	66.55	24.4 QP	40.0	-15.6	1.01 H	288	34.4	-10.0
2	122.78	29.4 QP	43.5	-14.1	1.51 H	97	40.1	-10.7
3	232.43	31.4 QP	46.0	-14.6	2.00 H	244	42.2	-10.8
4	261.96	26.8 QP	46.0	-19.2	1.01 H	117	35.8	-9.0
5	364.58	29.9 QP	46.0	-16.1	1.01 H	117	35.4	-5.5
6	399.72	33.6 QP	46.0	-12.4	1.01 H	287	38.1	-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 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.



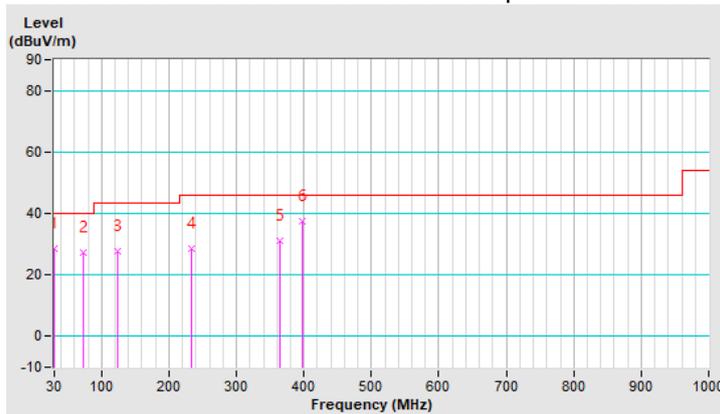
CHANNEL	TX Channel 7	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (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	28.5 QP	40.0	-11.5	1.50 V	323	38.9	-10.4
2	72.17	27.5 QP	40.0	-12.5	2.00 V	278	38.8	-11.3
3	124.19	27.8 QP	43.5	-15.7	1.00 V	277	38.4	-10.6
4	232.43	28.4 QP	46.0	-17.6	2.00 V	320	39.2	-10.8
5	364.58	31.1 QP	46.0	-14.9	1.50 V	349	36.6	-5.5
6	398.32	37.6 QP	46.0	-8.4	2.00 V	3	42.1	-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 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. 11, 2019	Dec. 10, 2020
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2019	Sep. 04, 2020
LISN/AMN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 20, 2020	Feb. 19, 2021
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 22, 2019	Aug. 21, 2020
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

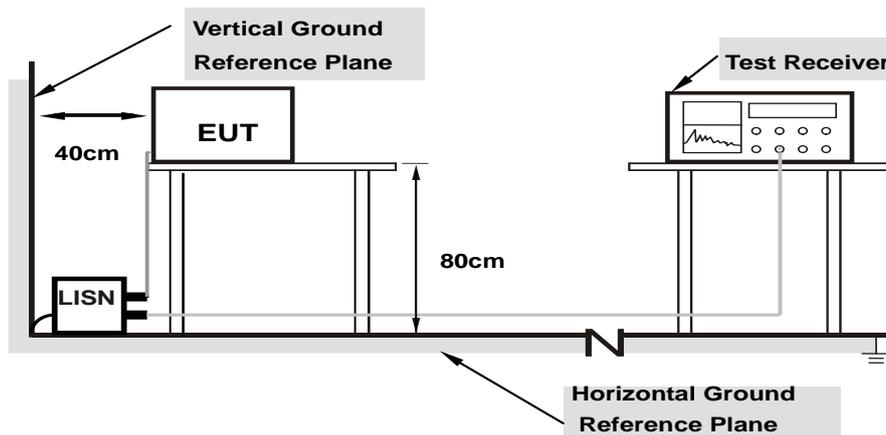
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling 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

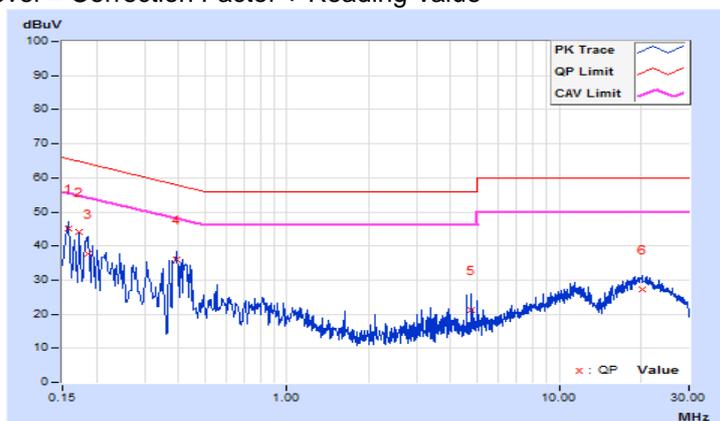
CONDUCTED WORST-CASE DATA: 802.11ax (HE20)

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	23°C, 67%RH
Tested by	Adair Peng	Test Date	2020/7/21

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	0.15782	9.63	35.36	19.48	44.99	29.11	65.58	55.58	-20.59	-26.47
2	0.17346	9.63	34.39	20.17	44.02	29.80	64.79	54.79	-20.77	-24.99
3	0.18508	9.62	28.08	13.47	37.70	23.09	64.25	54.25	-26.55	-31.16
4	0.39633	9.65	26.50	17.59	36.15	27.24	57.93	47.93	-21.78	-20.69
5	4.77553	9.80	11.48	1.62	21.28	11.42	56.00	46.00	-34.72	-34.58
6	20.10664	9.91	17.44	12.60	27.35	22.51	60.00	50.00	-32.65	-27.49

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

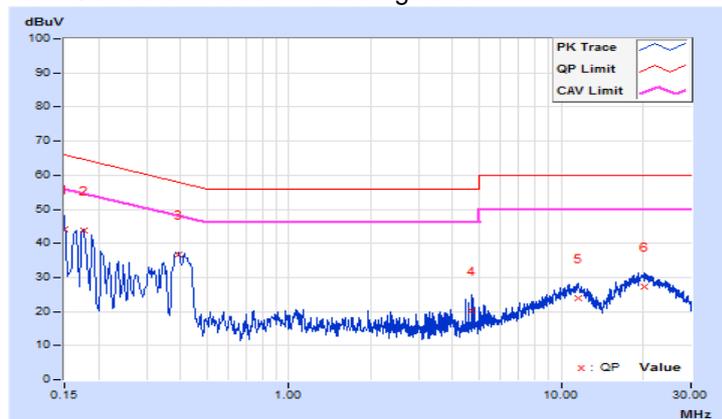


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	23°C, 67%RH
Tested by	Adair Peng	Test Date	2020/7/21

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	9.66	34.41	18.70	44.07	28.36	66.00	56.00	-21.93	-27.64
2	0.17605	9.65	34.06	18.76	43.71	28.41	64.67	54.67	-20.96	-26.26
3	0.39323	9.67	27.04	20.50	36.71	30.17	58.00	48.00	-21.29	-17.83
4	4.67778	9.83	10.38	1.38	20.21	11.21	56.00	46.00	-35.79	-34.79
5	11.51246	9.93	14.08	9.08	24.01	19.01	60.00	50.00	-35.99	-30.99
6	20.13010	10.03	17.17	12.29	27.20	22.32	60.00	50.00	-32.80	-27.68

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,

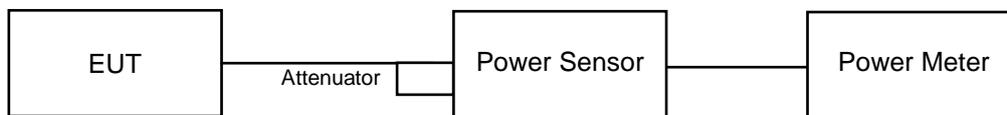
Array Gain = 0 dB (i.e., no array gain) for NANT \leq 4;

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

802.11b (SISO)

Channel	Frequency (MHz)	Peak Power (mW)		Peak Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 0	Chain 1		
1	2412	116.950	123.880	20.68	20.93	30	Pass
7	2442	157.036	158.125	21.96	21.99	30	Pass
11	2462	120.226	121.339	20.80	20.84	30	Pass
12	2467	69.502	78.524	18.42	18.95	30	Pass
13	2472	39.719	48.306	15.99	16.84	30	Pass

Channel	Frequency (MHz)	Average Power (mW)		Average Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 0	Chain 1		
1	2412	72.111	76.736	18.58	18.85	30	Pass
7	2442	95.940	96.383	19.82	19.84	30	Pass
11	2462	72.611	73.790	18.61	18.68	30	Pass
12	2467	41.783	48.195	16.21	16.83	30	Pass
13	2472	24.099	29.376	13.82	14.68	30	Pass

802.11g (SISO)

Channel	Frequency (MHz)	Peak Power (mW)		Peak Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 0	Chain 1		
1	2412	121.339	121.899	20.84	20.86	30	Pass
7	2442	216.770	211.349	23.36	23.25	30	Pass
11	2462	103.514	103.992	20.15	20.17	30	Pass
12	2467	54.325	55.081	17.35	17.41	30	Pass
13	2472	88.512	89.125	19.47	19.50	30	Pass

Channel	Frequency (MHz)	Average Power (mW)		Average Power (dBm)		Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 0	Chain 1		
1	2412	42.756	43.152	16.31	16.35	30	Pass
7	2442	85.704	87.096	19.33	19.40	30	Pass
11	2462	33.574	33.806	15.26	15.29	30	Pass
12	2467	19.055	19.143	12.80	12.82	30	Pass
13	2472	12.162	12.274	10.85	10.89	30	Pass

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	17.69	18.04	122.462	20.88	30	Pass
7	2442	20.99	21.01	251.768	24.01	30	Pass
11	2462	17.13	17.49	107.647	20.32	30	Pass
12	2467	14.11	14.43	53.456	17.28	30	Pass
13	2472	16.41	16.74	90.991	19.59	30	Pass

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	13.26	13.38	42.954	16.33	30	Pass
7	2442	16.29	16.37	85.901	19.34	30	Pass
11	2462	12.26	12.49	34.594	15.39	30	Pass
12	2467	9.72	9.83	19.011	12.79	30	Pass
13	2472	7.70	7.82	11.940	10.77	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	17.83	18.03	124.165	20.94	30	Pass
7	2442	18.48	18.52	141.579	21.51	30	Pass
9	2452	17.01	17.22	103.039	20.13	30	Pass
10	2457	15.46	15.73	72.611	18.61	30	Pass
11	2462	15.77	15.92	76.913	18.86	30	Pass

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	12.85	12.93	38.905	15.90	30	Pass
7	2442	13.26	13.39	43.053	16.34	30	Pass
9	2452	11.53	11.63	28.774	14.59	30	Pass
10	2457	8.73	8.80	15.066	11.78	30	Pass
11	2462	7.69	7.85	11.967	10.78	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	17.72	18.16	124.738	20.96	30	Pass
7	2442	21.02	21.09	255.270	24.07	30	Pass
11	2462	17.15	17.51	108.143	20.34	30	Pass
12	2467	14.15	14.51	54.200	17.34	30	Pass
13	2472	16.49	16.79	92.257	19.65	30	Pass

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	13.25	13.41	43.053	16.34	30	Pass
7	2442	16.17	16.24	83.560	19.22	30	Pass
11	2462	12.21	12.24	33.420	15.24	30	Pass
12	2467	9.79	9.89	19.275	12.85	30	Pass
13	2472	7.81	7.89	12.190	10.86	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	18.49	18.53	141.906	21.52	30	Pass
7	2442	19.42	19.49	176.604	22.47	30	Pass
9	2452	17.11	17.25	104.472	20.19	30	Pass
10	2457	15.52	15.82	73.790	18.68	30	Pass
11	2462	15.82	15.99	77.983	18.92	30	Pass

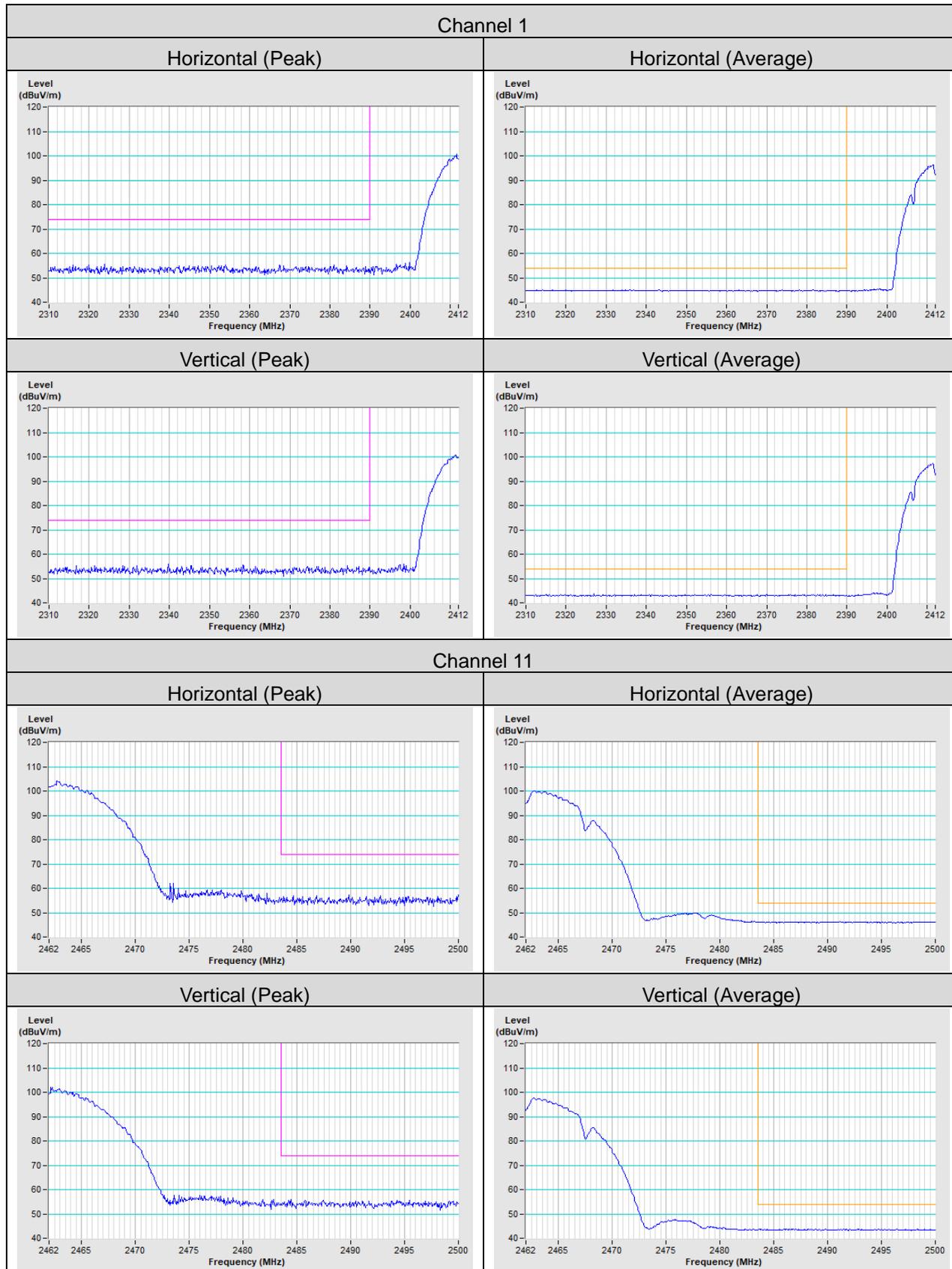
Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	12.80	12.91	38.637	15.87	30	Pass
7	2442	13.16	13.21	41.687	16.20	30	Pass
9	2452	11.56	11.69	29.107	14.64	30	Pass
10	2457	8.81	8.91	15.382	11.87	30	Pass
11	2462	7.72	7.93	12.134	10.84	30	Pass

5 Pictures of Test Arrangements

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

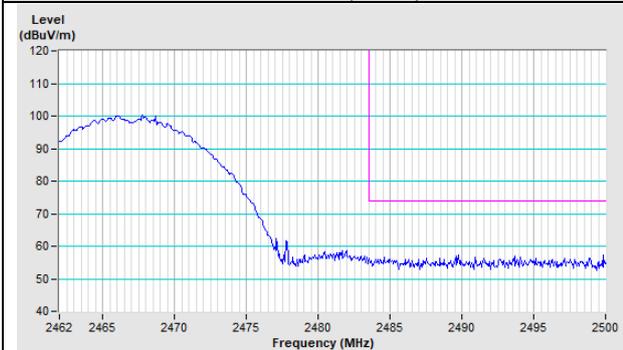
Annex A- Band Edge Measurement

802.11b

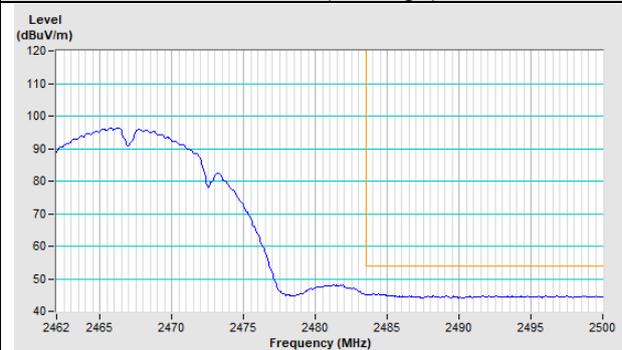


Channel 12

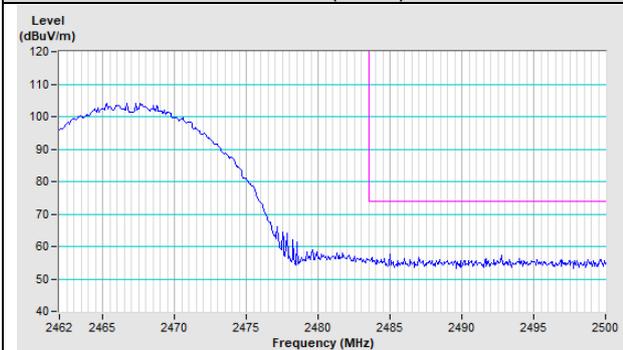
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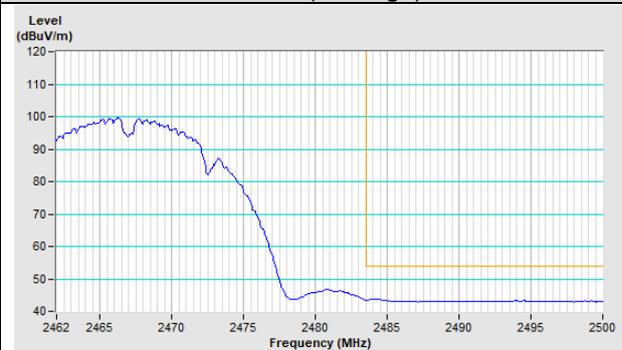
Horizontal (Average)



Vertical (Peak)

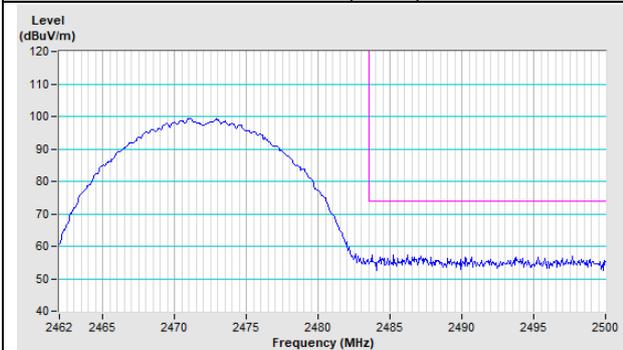


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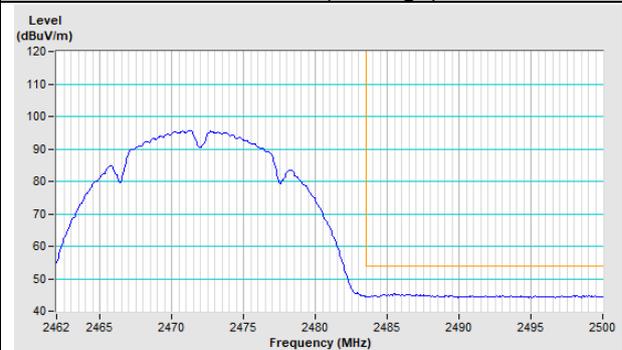


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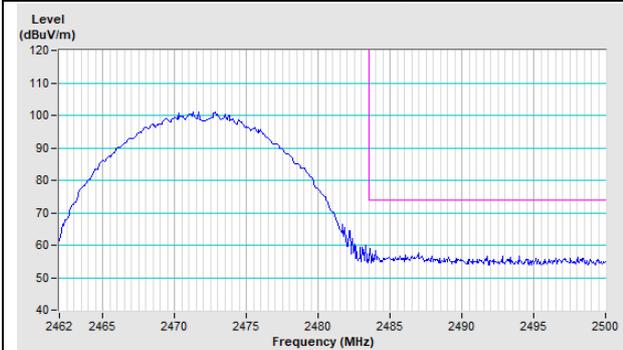
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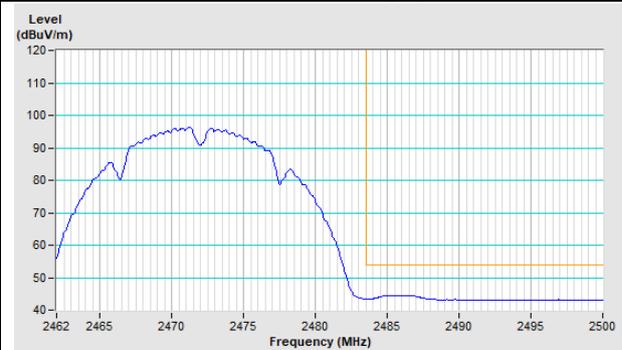
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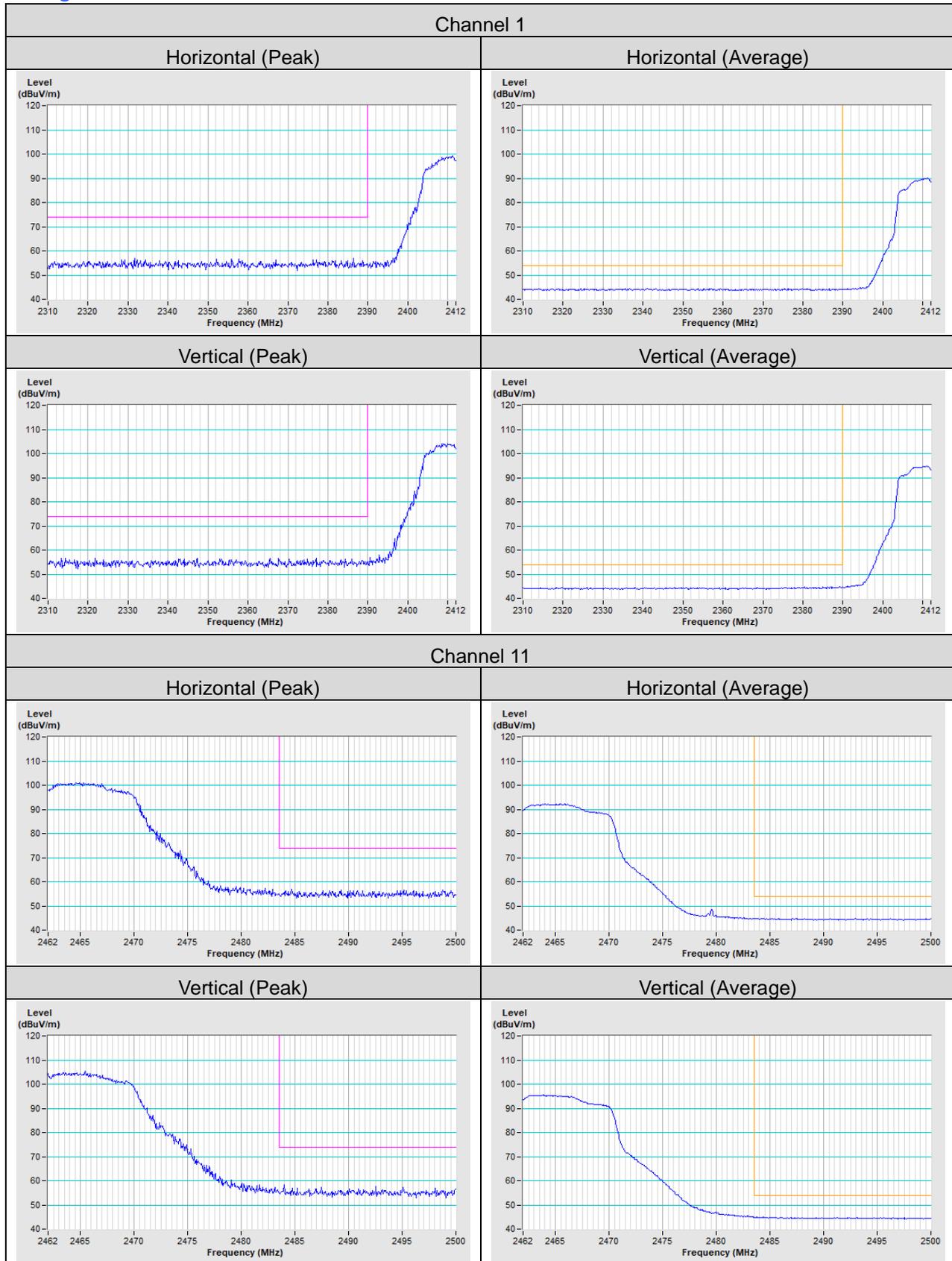
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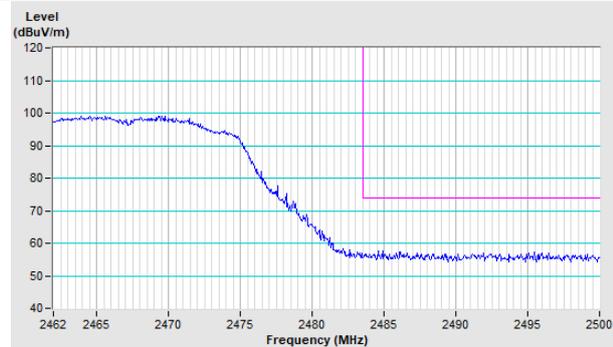


802.11g

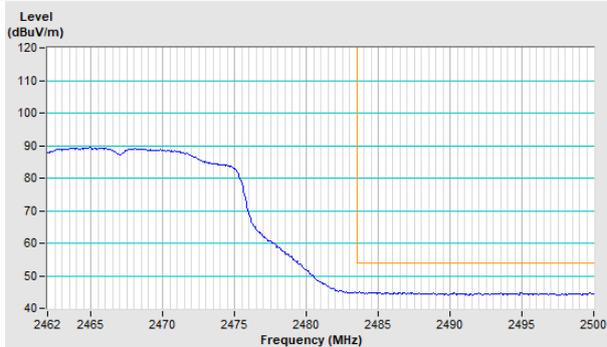


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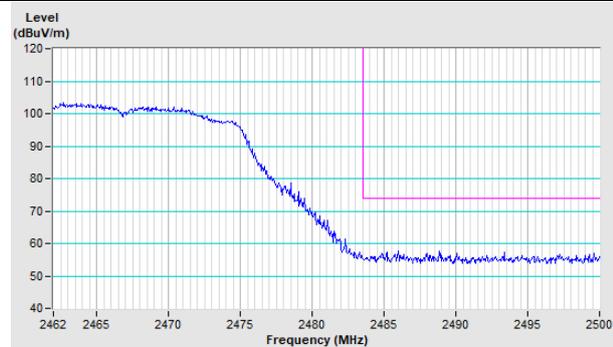
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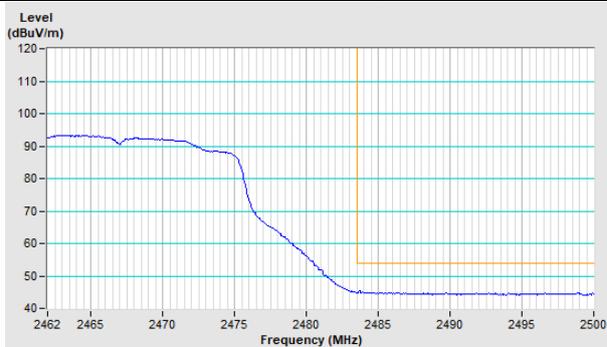
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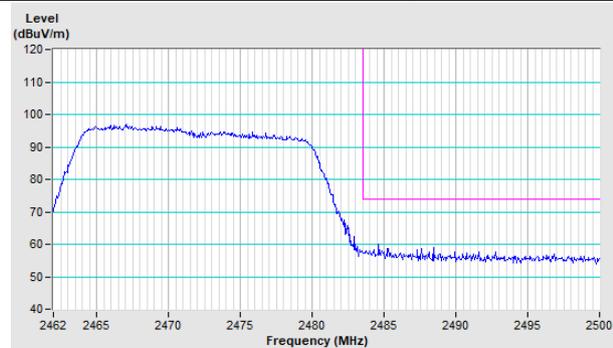


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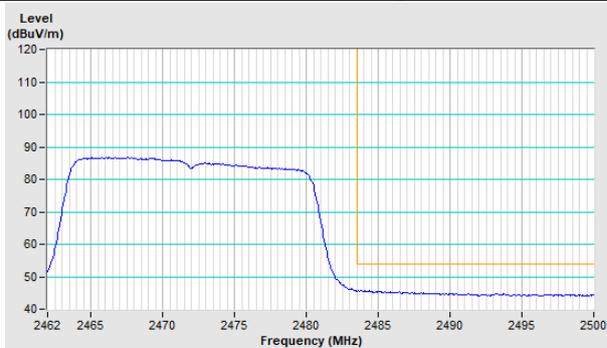


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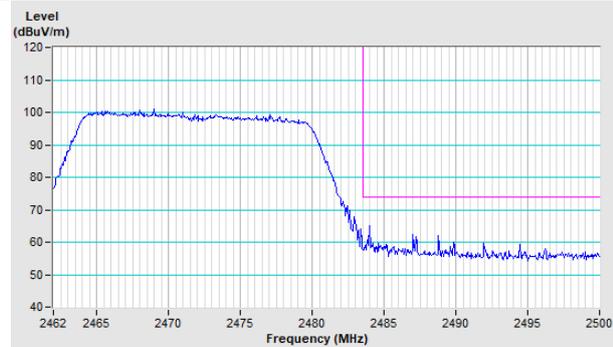
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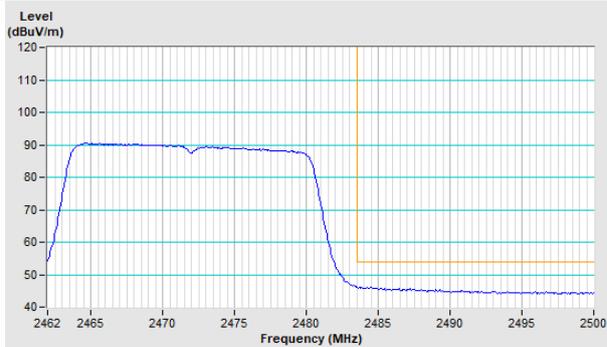
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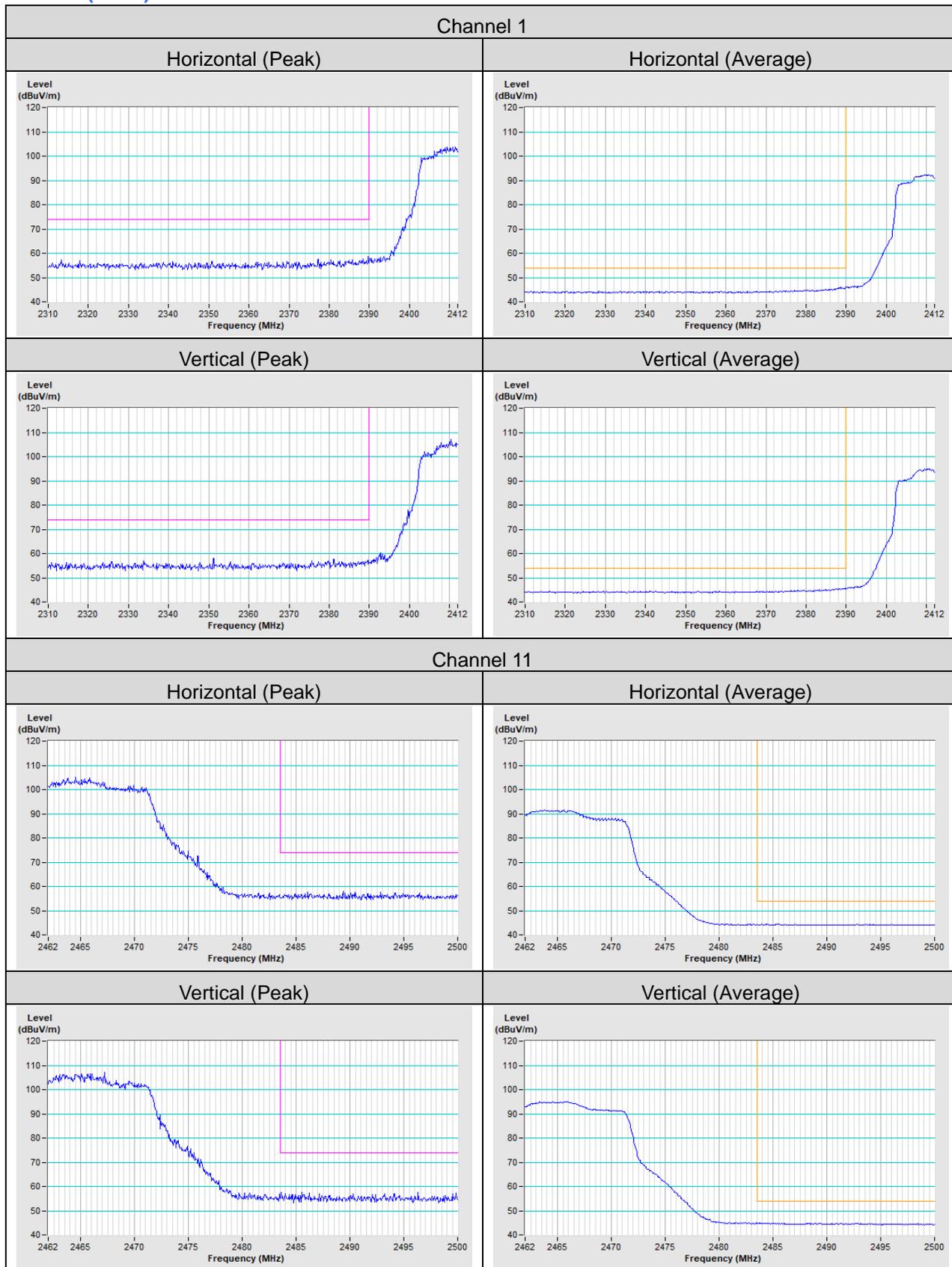
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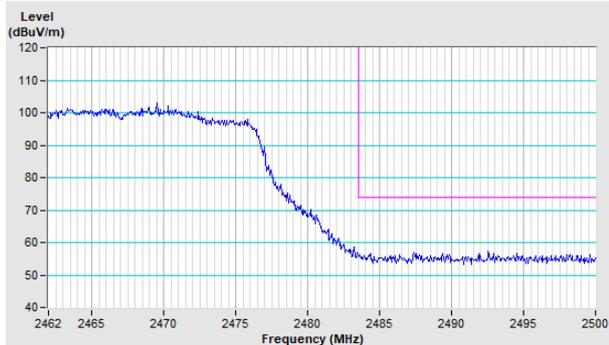


802.11ax (HE20)

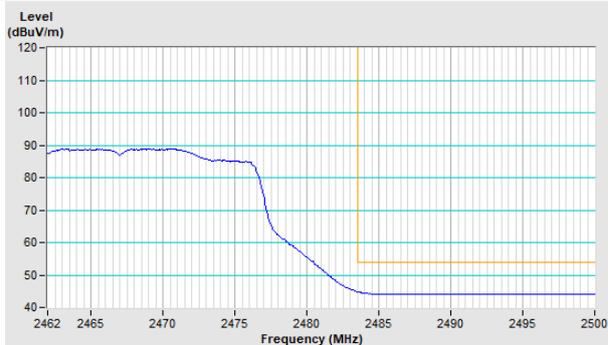


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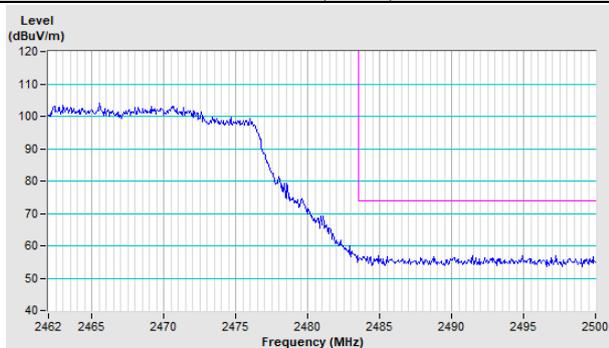
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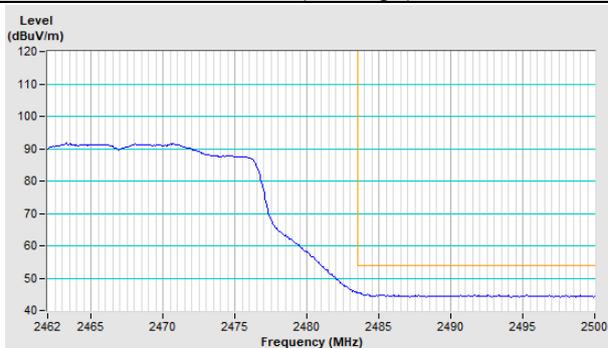
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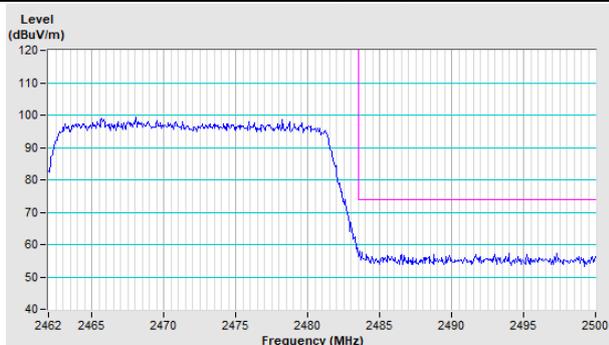


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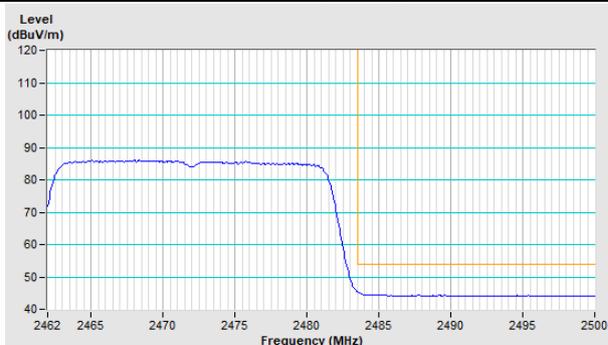


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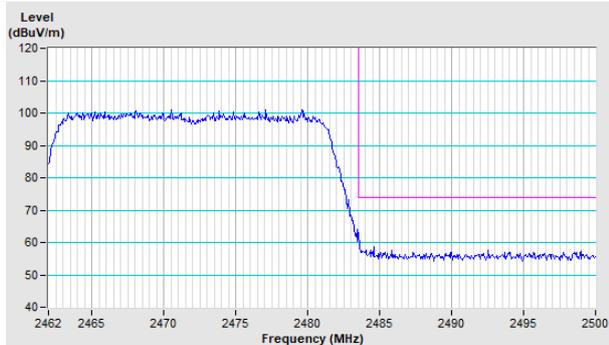
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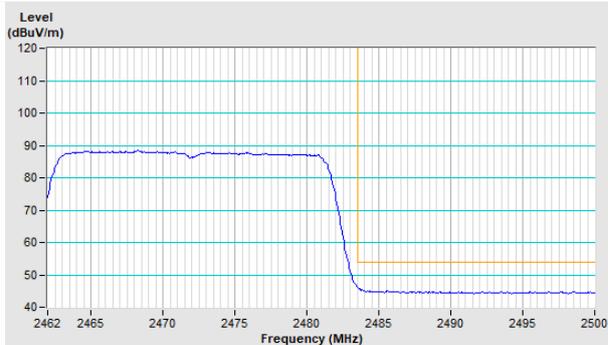
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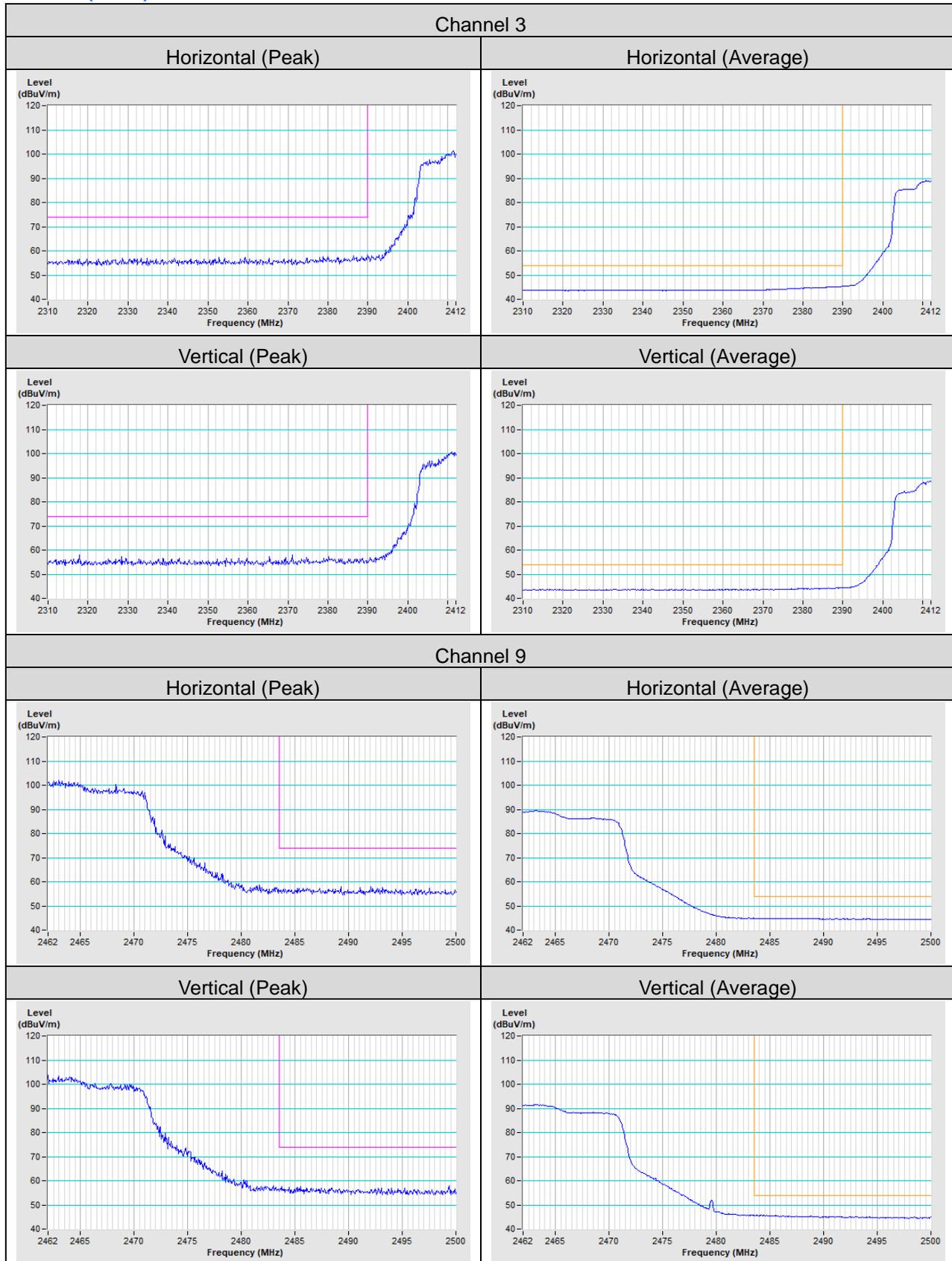
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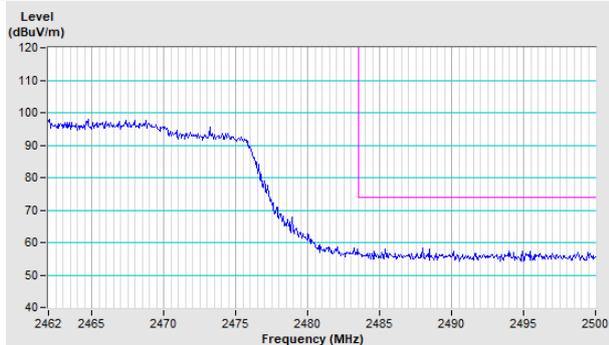


802.11ax (HE40)

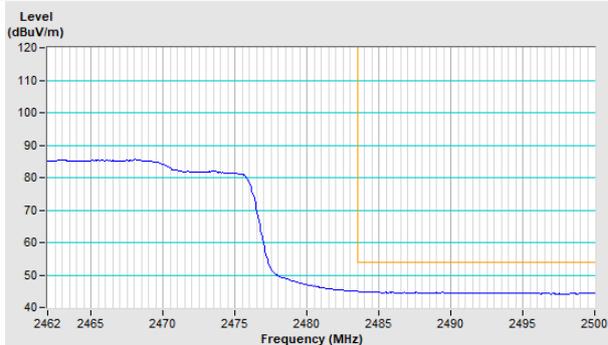


Channel 10

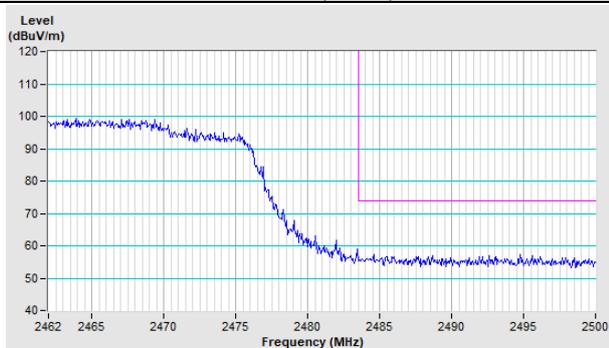
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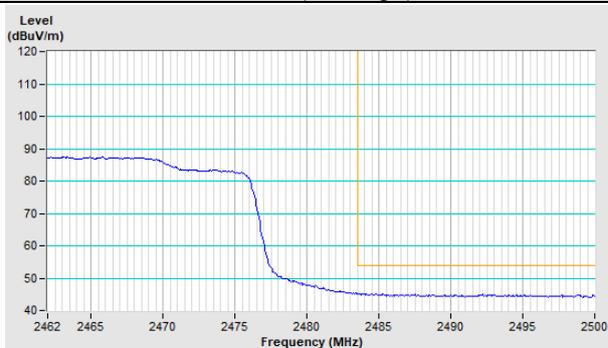
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Vertical (Peak)

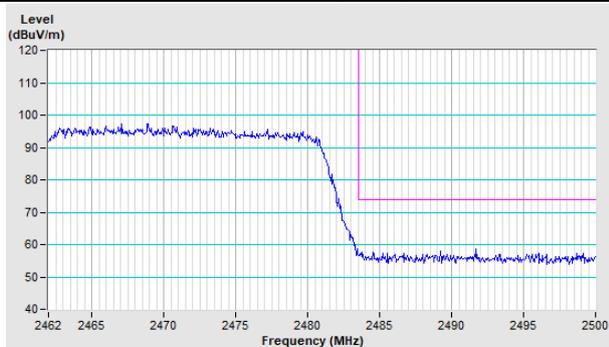


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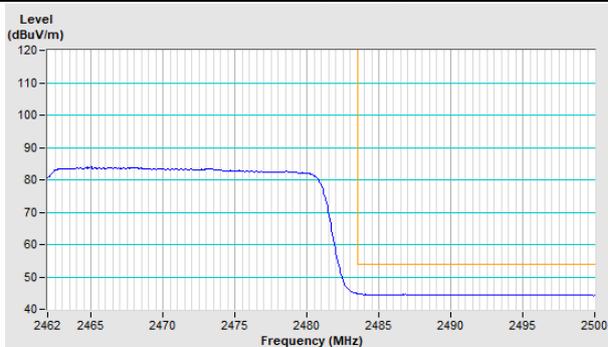


Channel 11

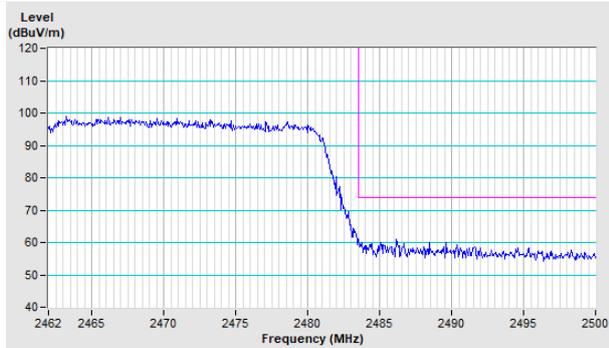
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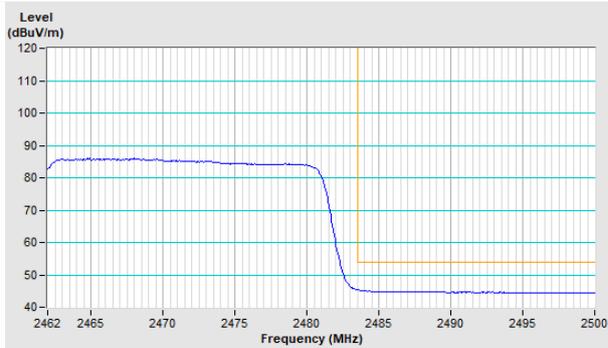
Horizontal (Average)



Vertical (Peak)



Vertical (Average)



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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Hsin Chu EMC/RF/Telecom Lab

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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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