

FCC Test Report

Report No.: RF200511E13-2

FCC ID: 2AHBN-AP12

Test Model: AP12

Received Date: May 11, 2020

Test Date: Jul. 04 ~ Aug. 04, 2020

Issued Date: Aug. 04, 2020

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FCC Registration / 788550 / TW0003

Designation Number: 427177 / TW0011



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Release Control Record

Issue No.	Description	Date Issued
RF200511E13-2	Original Release	Aug. 04, 2020

1 Certificate of Conformity

Product: 802.11ax Wallplate AP

Brand: Mist

Test Model: AP12

Sample Status: Engineering Sample

Applicant: Juniper Networks, Inc.

Test Date: Jul. 04 ~ Aug. 04, 2020

Standards: 47 CFR FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10:2013

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

Prepared by : Lena Wang, **Date:** Aug. 04, 2020

Lena Wang / Specialist

Approved by : Dylan Chiou, **Date:** Aug. 04, 2020

Dylan Chiou / Senior Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -12.66 dB at 0.58563 MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.06 dB at 5150 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6 dB Bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is i-pex(MHF).

Note:

- For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.
- For U-NII-1, U-NII-2A, U-NII-2C band compliance with rule 15.407(b) of the band-edge items, the test plots were recorded in Annex B. Test Procedures refer to report 4.1.3.
- 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	2.0153 dB
	200 MHz ~ 1000 MHz	2.0224 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	1.0121 dB
	18 GHz ~ 40 GHz	1.1508 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	802.11ax Wallplate AP
Brand	Mist
Test Model	AP12
Status of EUT	Engineering Sample
Power Supply Rating	55.0 Vdc
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK 1024QAM for OFDMA
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0 Mbps 802.11n: up to 300.0 Mbps 802.11ac: up to 866.7 Mbps 802.11ax: up to 2402.0 Mbps
Operating Frequency	5180 ~ 5240 MHz, 5745 ~ 5825 MHz
Number of Channel	5180 ~ 5240 MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20) 2 for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40) 1 for 802.11ac (VHT80), 802.11ax (HE80) 5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20) 2 for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40) 1 for 802.11ac (VHT80), 802.11ax (HE80)
Output Power	CDD Mode Mode A (2TX) 514.081 mW for 5180 ~ 5240 MHz 713.781 mW for 5745 ~ 5825 MHz Mode B (1TX) 64.121 mW for 5180 ~ 5240 MHz 92.257 mW for 5745 ~ 5825 MHz Beamforming Mode Mode A (2TX) 514.081 mW for 5180 ~ 5240 MHz 516.296 mW for 5745 ~ 5825 MHz
Antenna Type	Refer to Note as below
Antenna Connector	Refer to Note as below
Accessory Device	N/A
Data Cable Supplied	N/A

Note:

1. There are three radios for the EUT.

Radio	Brand	Model	Function
Radio 1(WL0)	WLAN 2.4G	TX/RX	Radio 1(WL0)
Radio 2(WL1) Scanning	WLAN 2.4G & 5G	TX/RX	Radio 2(WL1) Scanning
Radio 3(WL2)	WLAN 5G	TX/RX	Radio 3(WL2)
Radio 4	BT5.0	TX/RX	Radio 4

2. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	TX Function	Beamforming
Radio 1		
802.11b	2TX	Not Support
802.11g	2TX	Not Support
802.11n (HT20)	2TX	Support
802.11n (HT40)	2TX	Support
802.11ac (VHT20)	2TX	Support
802.11ac (VHT40)	2TX	Support
802.11ax (HE20)	2TX	Support
802.11ax (HE40)	2TX	Support
Radio 2		
802.11b	1TX	Not Support
802.11g	1TX	Not Support
802.11n (HT20)	1TX	Not Support
802.11n (HT40)	1TX	Not Support
802.11ac (VHT20)	1TX	Not Support
802.11ac (VHT40)	1TX	Not Support
802.11ax (HE20)	1TX	Not Support
802.11ax (HE40)	1TX	Not Support
802.11a	1TX	Not Support
802.11n (HT20)	1TX	Not Support
802.11n (HT40)	1TX	Not Support
802.11ac (VHT20)	1TX	Not Support
802.11ac (VHT40)	1TX	Not Support
802.11ac (VHT80)	1TX	Not Support
802.11ax (HE20)	1TX	Not Support
802.11ax (HE40)	1TX	Not Support
802.11ax (HE80)	1TX	Not Support
Radio 3		
802.11a	2TX	Not Support
802.11n (HT20)	2TX	Support
802.11n (HT40)	2TX	Support
802.11ac (VHT20)	2TX	Support
802.11ac (VHT40)	2TX	Support
802.11ac (VHT80)	2TX	Support
802.11ax (HE20)	2TX	Support
802.11ax (HE40)	2TX	Support
802.11ax (HE80)	2TX	Support
Radio 4		
BT5.0	1TX	Not Support

*The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 ,802.11ac mode for VHT20 / VHT40 / VHT80 and 802.11ax HE20 / HE40 / HE80, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

*The worst case of Radio 3 is beamforming on mode for the final tests.

*The worst configuration is as below.

Mode	Chain
Radio 1 / 2TX	Chain 0 + 1
Radio 2 / 1TX	Chain 0
Radio 3 / 2TX	Chain 0 + 1
Radio 4 / 1TX	Chain 0

*After estimating, 2TX is the worst case for the final tests.

3. The EUT contains following accessory devices. (Support unit only)

Product	Brand	Model	Description
POE	Microsemi	PD-9001GR/AC	I/P: 100-240 Vac, 50/60 Hz, 0.67 A O/P: 55 Vdc, 0.6 A

4. The following antennas were provided to the EUT.

Antenna Type	PIFA	
Antenna Connector	IPEX	
Gain (dBi)	Frequency	
	2.4~2.4835GHz	5.15~5.85GHz
Int. WIFI Ant. 1	2.7	5.5
Int. WIFI Ant. 2	2.9	5.7
Scanning Radio Ant.	2.1	5

*Int. WIFI Ant. 1~2 (2.4G) were for Radio 1 and Int. WIFI Ant. 1~2 (5G) were for Radio 3.

*Scanning Radio Ant. was for Radio 2

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

For 5180 ~ 5240 MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
40	5200	48	5240

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230

1 channel is provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency (MHz)
42	5210

For 5745 ~ 5825 MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	161	5805
153	5765	165	5825
157	5785		

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795

1 channel is provided for 802.11ac (VHT80) , 802.11ax (HE80):

Channel	Frequency (MHz)
155	5775

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Radio 3 (WL2)
B	√	√	√	√	Radio 2(WL1) Scanning

Where **RE≥1G**: Radiated Emission above 1 GHz **RE<1G**: Radiated Emission below 1 GHz
PLC: Power Line Conducted Emission **APCM**: Antenna Port Conducted Measurement

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
2. “-” means no effect.

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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B	5180-5240	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
		802.11ax (HE20)	36 to 48	36, 40, 48	OFDMA	BPSK	MCS0
		802.11ax (HE40)	38 to 46	38, 46	OFDMA	BPSK	MCS0
		802.11ax (HE80)	42	42	OFDMA	BPSK	MCS0
	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
		802.11ax (HE20)	149 to 165	149, 157, 165	OFDMA	BPSK	MCS0
		802.11ax (HE40)	151 to 159	151, 159	OFDMA	BPSK	MCS0
		802.11ax (HE80)	155	155	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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	5180-5240	802.11a	36 to 48	40	OFDM	BPSK	6.0
B	5180-5240	802.11ax (HE40)	38 to 46	38	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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B	5180-5240	802.11a	36 to 48	40	OFDM	BPSK	6.0

Antenna Port Conducted 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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B	5180-5240	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
		802.11ax (HE20)	36 to 48	36, 40, 48	OFDMA	BPSK	MCS0
		802.11ax (HE40)	38 to 46	38, 46	OFDMA	BPSK	MCS0
		802.11ax (HE80)	42	42	OFDMA	BPSK	MCS0
	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
		802.11ax (HE20)	149 to 165	149, 157, 165	OFDMA	BPSK	MCS0
		802.11ax (HE40)	151 to 159	151, 159	OFDMA	BPSK	MCS0
		802.11ax (HE80)	155	155	OFDMA	BPSK	MCS0

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee, Charles Hsiao
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Jisyong Wang
APCM	25 deg. C, 65 % RH	120 Vac, 60 Hz	Gavin Wu

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is < 98 %, duty factor is required.

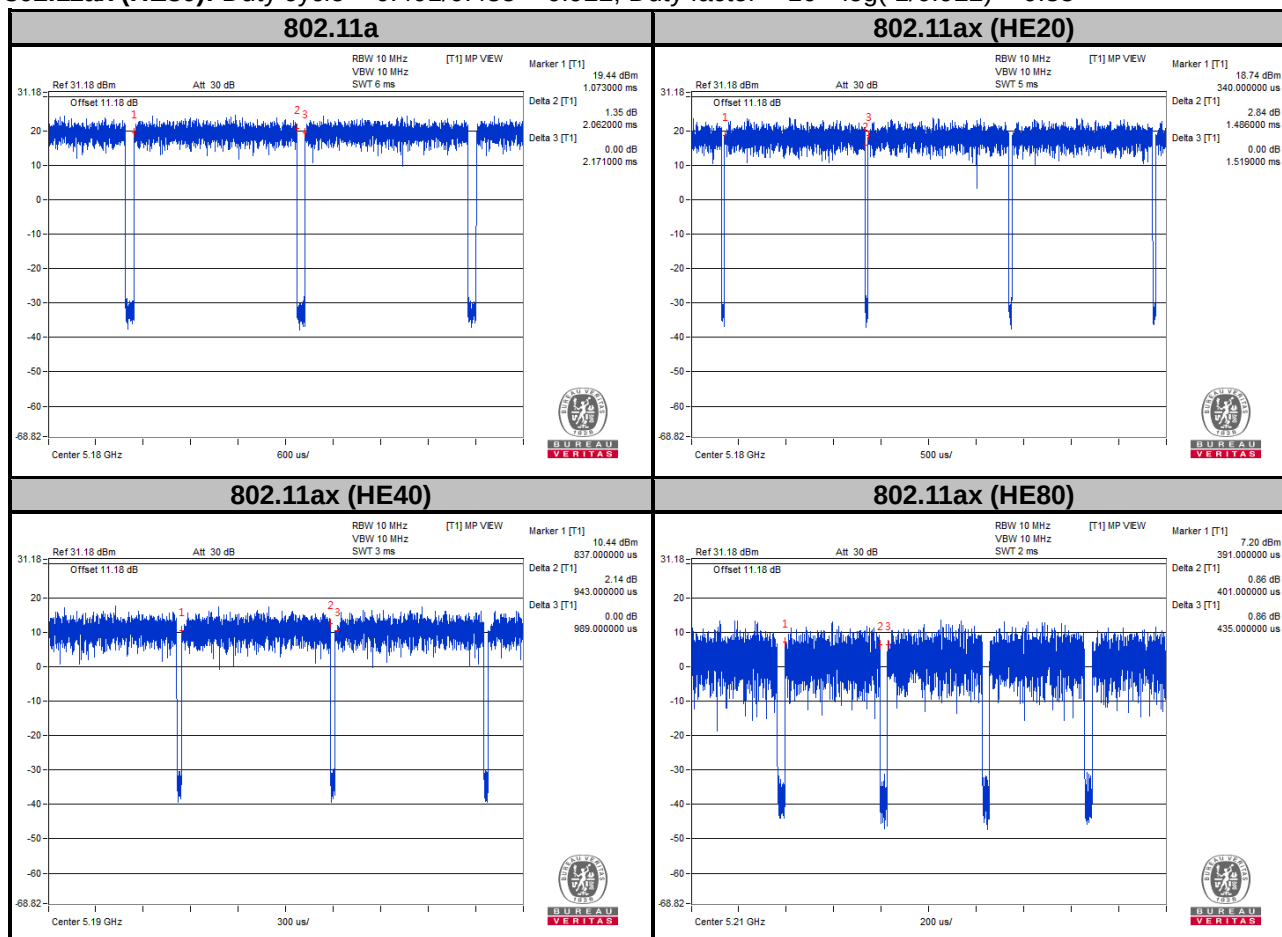
Mode A

802.11a: Duty cycle = $2.062/2.171 = 0.95$, Duty factor = $10 * \log(1/0.95) = 0.22$

802.11ax (HE20): Duty cycle = $1.486/1.519 = 0.978$, Duty factor = $10 * \log(1/0.978) = 0.10$

802.11ax (HE40): Duty cycle = $0.943/0.989 = 0.953$, Duty factor = $10 * \log(1/0.953) = 0.21$

802.11ax (HE80): Duty cycle = $0.401/0.435 = 0.922$, Duty factor = $10 * \log(1/0.922) = 0.35$



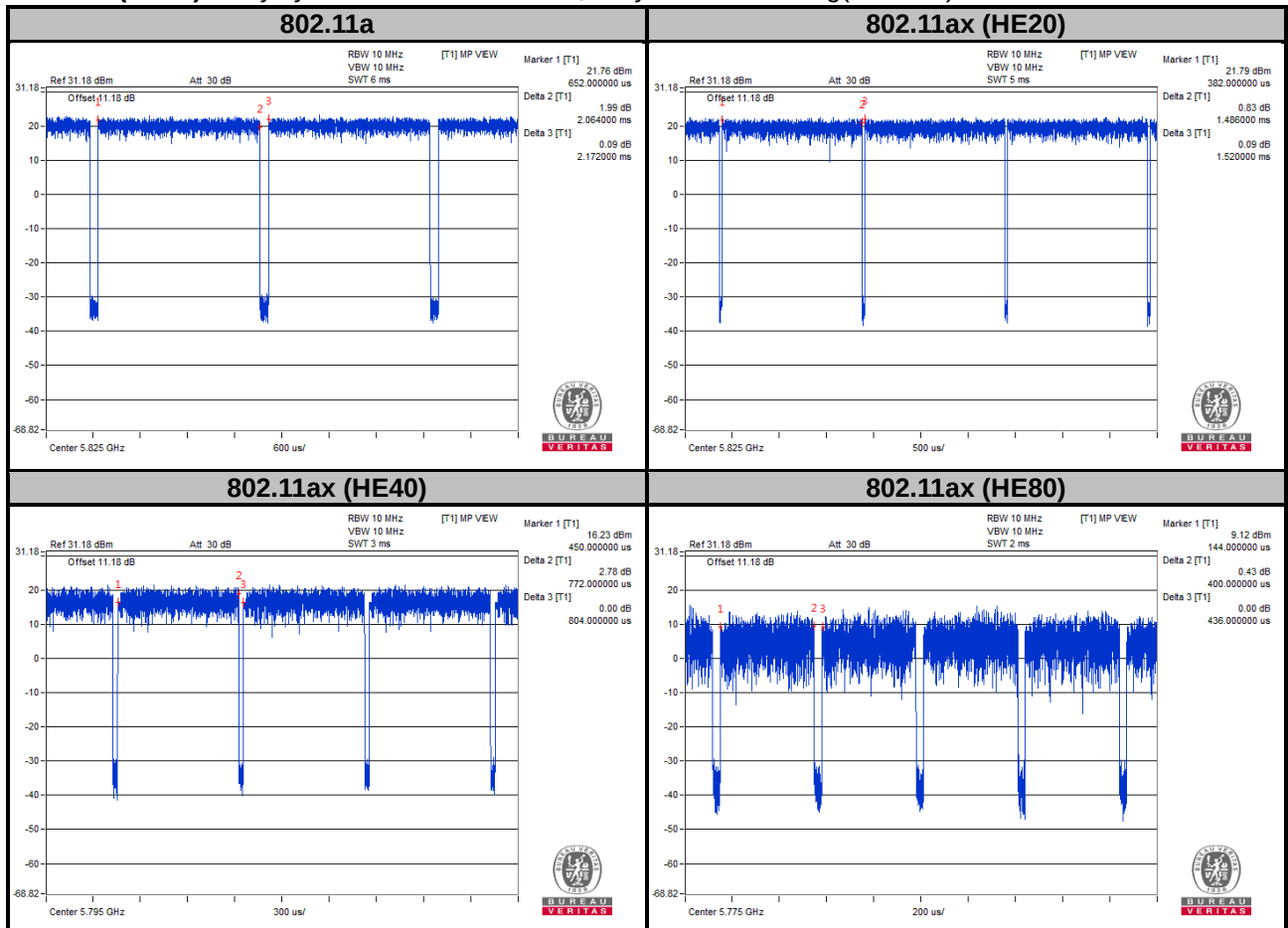
Mode B

802.11a: Duty cycle = $2.064/2.172 = 0.95$, Duty factor = $10 * \log(1/0.95) = 0.22$

802.11ax (HE20): Duty cycle = $1.486/1.52 = 0.978$, Duty factor = $10 * \log(1/0.978) = 0.10$

802.11ax (HE40): Duty cycle = $0.772/0.804 = 0.96$, Duty factor = $10 * \log(1/0.96) = 0.18$

802.11ax (HE80): Duty cycle = $0.4/0.436 = 0.917$, Duty factor = $10 * \log(1/0.917) = 0.37$



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.

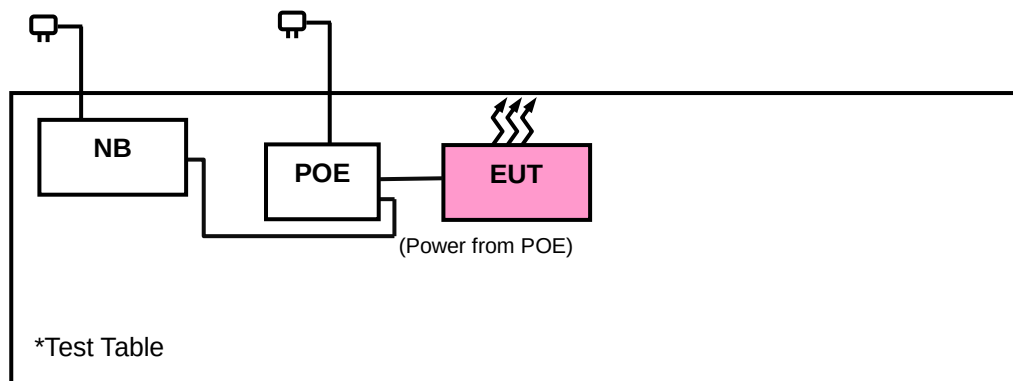
No.	Product	Brand	Model No.	Serial No.	FCC ID
A	Notebook	DELL	E6420	D3T96R1	FCC DoC Approved

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45 Cable	1	1	N	0	Cat5e
2.	RJ45 Cable	1	1	N	0	Cat5e

Note:

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

3.4.1 Configuration of System under Test



3.5 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 E (15.407)

ANSI C63.10-2013

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

References Test Guidance:

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

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.

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.

Limits of Unwanted Emission Out of the Restricted Bands

Applicable To		Limit	
789033 D02 General UNII Test Procedures New Rules v02r01		Field Strength at 3 m	
		PK: 74 (dBμV/m)	AV: 54 (dBμV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	☒ 15.407(b)(4)(i)	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2 (dBμV/m) ^{*1} PK:105.2 (dBμV/m) ^{*2} PK: 110.8 (dBμV/m) ^{*3} PK:122.2 (dBμV/m) ^{*4}
	☐ 15.407(b)(4)(ii)	Emission limits in section 15.247(d)	

^{*1} beyond 75 MHz or more above of the band edge.

^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Note:

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where } P \text{ is the eirp (Watts).}$$

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9038A	MY52260177	Aug. 26, 2019	Aug. 25, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Apr. 16, 2020	Apr. 15, 2021
BILOG Antenna SCHWARZBECK	VULB 9168	9168-616	Nov. 12, 2019	Nov. 11, 2020
HORN Antenna ETS-Lindgren	3117	00143293	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Nov. 24, 2019	Nov. 23, 2020
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 14, 2020	Apr. 13, 2021
Loop Antenna	HLA 6121	45745	Jul. 06, 2020	Jul. 05, 2021
Preamplifier Agilent	310N	187226	Jun. 17, 2020	Jun. 16, 2021
Preamplifier Agilent	83017A	MY39501357	Jun. 17, 2020	Jun. 16, 2021
Power Meter Anritsu	ML2495A	1012010	Sep. 04, 2019	Sep. 03, 2020
Power Sensor Anritsu	MA2411B	1315050	Sep. 04, 2019	Sep. 03, 2020
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 17, 2020	Jun. 16, 2021
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC-SMS-100-SMS-24)	Jun. 17, 2020	Jun. 17, 2021
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HsinTien Chamber 1.

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:

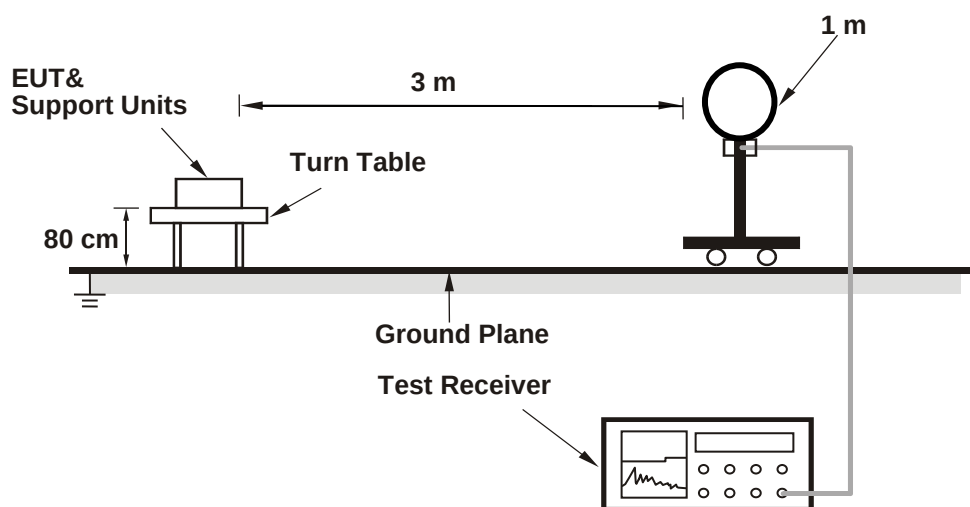
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) 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.
(11a: RBW = 1 MHz, VBW = 510 Hz ; 11ax (HE20): RBW = 1 MHz, VBW = 1 kHz ;
11ax (HE40): RBW = 1 MHz, VBW = 2 kHz ; 11ax (HE80): RBW = 1 MHz, VBW = 3 kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

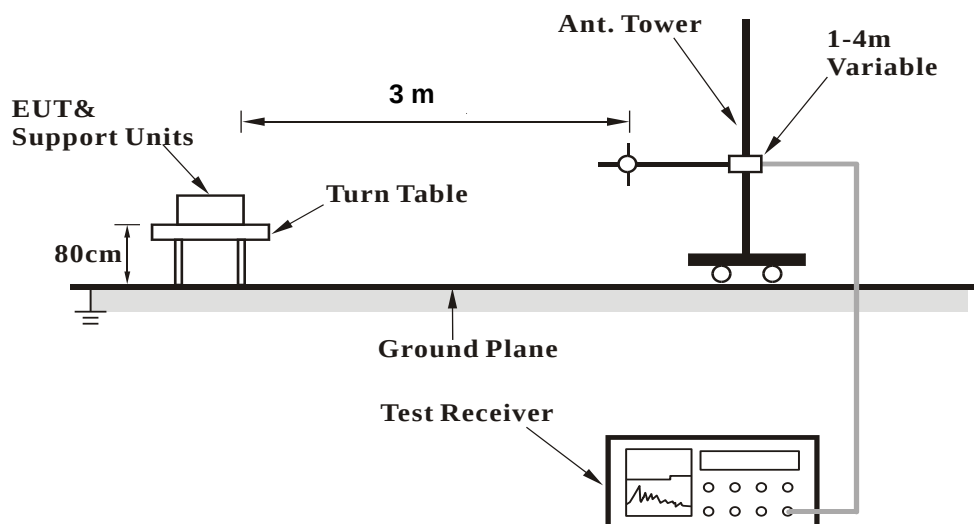
No deviation.

4.1.5 Test Setup

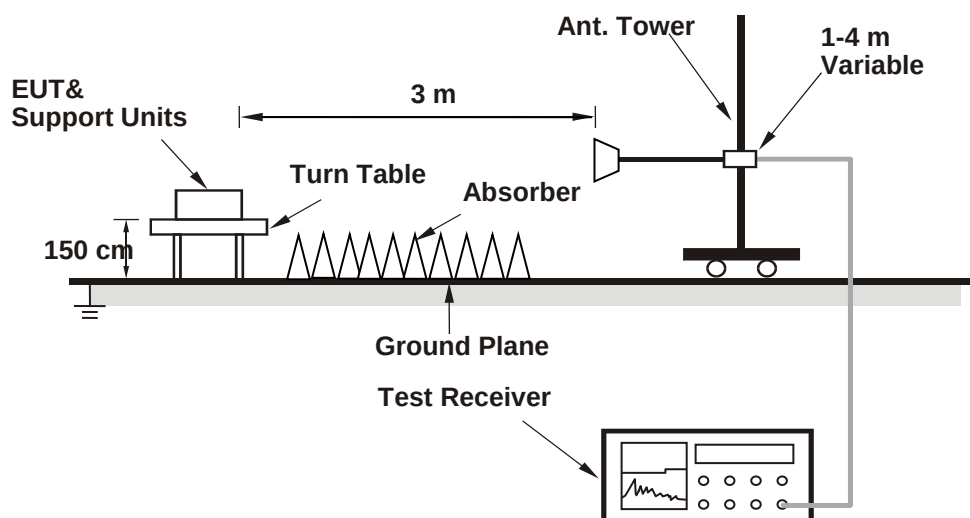
<Radiated Emission below 30 MHz>



<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

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

4.1.7 Test Results

Above 1 GHz Data :

Mode A

802.11a

EUT Test Condition		Measurement Detail	
Channel	Channel 36	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.22	43.17	10.05	54	-0.78	200	317	Average
5150	70.91	60.86	10.05	74	-3.09	200	317	Peak
5180	104.88	94.76	10.12			206	324	Average
5180	112.15	102.03	10.12			206	324	Peak
*10360	55.7	39.68	16.02	68.2	-12.5	118	78	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	48.71	38.66	10.05	54	-5.29	216	52	Average
5150	65.74	55.69	10.05	74	-8.26	216	52	Peak
5180	98.53	88.41	10.12			233	52	Average
5180	106.53	96.41	10.12			233	52	Peak
*10360	56.02	40	16.02	68.2	-12.18	186	6	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5180 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 40	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.92	43.87	10.05	54	-0.08	224	24	Average
5150	70.51	60.46	10.05	74	-3.49	224	24	Peak
5200	109.65	99.49	10.16			200	360	Average
5200	116.95	106.79	10.16			200	360	Peak
5350	46.32	36.09	10.23	54	-7.68	200	360	Average
5350	56.35	46.12	10.23	74	-17.65	200	360	Peak
*10400	55.92	39.74	16.18	68.2	-12.28	105	204	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	47.72	37.67	10.05	54	-6.28	216	52	Average
5150	63.01	52.96	10.05	74	-10.99	216	52	Peak
5200	103.66	93.5	10.16			216	52	Average
5200	110.71	100.55	10.16			216	52	Peak
5350	43.16	32.93	10.23	54	-10.84	216	52	Average
5350	53.81	43.58	10.23	74	-20.19	216	52	Peak
*10400	56.69	40.51	16.18	68.2	-11.51	185	199	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5200 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 48	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.76	43.71	10.05	54	-0.24	220	19	Average
5150	65.12	55.07	10.05	74	-8.88	220	19	Peak
5240	110.24	100.1	10.14			200	360	Average
5240	117.94	107.8	10.14			200	360	Peak
5350	49.7	39.47	10.23	54	-4.3	200	360	Average
5350	60.07	49.84	10.23	74	-13.93	200	360	Peak
*10480	56.72	40.82	15.9	68.2	-11.48	161	42	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	46.97	36.92	10.05	54	-7.03	216	52	Average
5150	59.07	49.02	10.05	74	-14.93	216	52	Peak
5240	105.44	95.3	10.14			216	52	Average
5240	112.01	101.87	10.14			216	52	Peak
5350	44.04	33.81	10.23	54	-9.96	216	52	Average
5350	54.24	44.01	10.23	74	-19.76	216	52	Peak
*10480	56.56	40.66	15.9	68.2	-11.64	168	121	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5240 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	113.32	102.44	10.88			200	15	Average
5745	120.13	109.25	10.88			200	15	Peak
11490	47.35	30.88	16.47	54	-6.65	106	129	Average
11490	56.93	40.46	16.47	74	-17.07	106	129	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	109.58	98.7	10.88			200	90	Average
5745	116.73	105.85	10.88			200	90	Peak
11490	47.62	31.15	16.47	54	-6.38	138	136	Average
11490	57.28	40.81	16.47	74	-16.72	138	136	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5641.75	67.45	56.62	10.83	68.2	-0.75	200	15	Peak
5651.725	68.42	57.55	10.87	69.48	-1.06	200	15	Peak
5918.425	57.03	45.94	11.09	73.07	-16.04	200	15	Peak
*5945.2	56.94	45.76	11.18	68.2	-11.26	200	15	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5650.15	61.29	50.42	10.87	68.31	-7.02	200	90	Peak
5654.35	62.46	51.59	10.87	71.42	-8.96	200	90	Peak
5922.625	54.23	43.12	11.11	69.96	-15.73	200	90	Peak
*5979.85	55.38	44.12	11.26	68.2	-12.82	200	90	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5745 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 157	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	116.57	105.76	10.81			206	297	Average
5785	124.64	113.83	10.81			206	297	Peak
11570	47.69	31.2	16.49	54	-6.31	137	164	Average
11570	57.24	40.75	16.49	74	-16.76	137	164	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	110.4	99.59	10.81			241	358	Average
5785	116.59	105.78	10.81			241	358	Peak
11570	46.85	30.36	16.49	54	-7.15	145	107	Average
11570	56.48	39.99	16.49	74	-17.52	145	107	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5647	65.98	55.13	10.85	68.2	-2.22	206	297	Peak
5656.45	66.31	55.44	10.87	72.97	-6.66	206	297	Peak
5917.375	65.27	54.18	11.09	73.84	-8.57	206	297	Peak
*5926.3	63.79	52.68	11.11	68.2	-4.41	206	297	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5646.475	58.36	15.75	42.61	68.2	-9.84	241	358	Peak
5656.975	58.58	15.95	42.63	73.36	-14.78	241	358	Peak
5916.85	59.68	16.66	43.02	74.23	-14.55	241	358	Peak
*5926.3	58.42	15.38	43.04	68.2	-9.78	241	358	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5785 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	112.47	101.59	10.88			200	15	Average
5825	119.16	108.28	10.88			200	15	Peak
11650	47.85	31.07	16.78	54	-6.15	106	49	Average
11650	57.46	40.68	16.78	74	-16.54	106	49	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	108.54	97.66	10.88			200	90	Average
5825	115.2	104.32	10.88			200	90	Peak
11650	48.61	31.83	16.78	54	-5.39	187	113	Average
11650	58.08	41.3	16.78	74	-15.92	187	113	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5619.7	58.31	47.52	10.79	68.2	-9.89	200	15	Peak
5651.2	57.96	47.09	10.87	69.09	-11.13	200	15	Peak
5920.525	67.11	56.02	11.09	71.51	-4.4	200	15	Peak
*5925.775	66.23	55.12	11.11	68.2	-1.97	200	15	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5637.025	54.29	43.46	10.83	68.2	-13.91	200	90	Peak
5656.975	54.03	43.16	10.87	73.36	-19.33	200	90	Peak
5921.05	61.92	50.83	11.09	71.12	-9.2	200	90	Peak
*5929.45	59.34	48.23	11.11	68.2	-8.86	200	90	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

802.11ax (HE20)

EUT Test Condition		Measurement Detail	
Channel	Channel 36	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.69	43.64	10.05	54	-0.31	200	317	Average
5150	68.66	58.61	10.05	74	-5.34	200	317	Peak
5180	103.93	93.81	10.12			206	324	Average
5180	112.36	102.24	10.12			206	324	Peak
*10360	55.67	39.65	16.02	68.2	-12.53	112	174	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	49.41	39.36	10.05	54	-4.59	219	52	Average
5150	61.33	51.28	10.05	74	-12.67	219	52	Peak
5180	98.42	88.3	10.12			233	52	Average
5180	107.53	97.41	10.12			233	52	Peak
*10360	54.59	38.57	16.02	68.2	-13.61	185	330	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5180 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 40	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.4	43.35	10.05	54	-0.6	200	1	Average
5150	66.47	56.42	10.05	74	-7.53	200	1	Peak
5200	108.54	98.38	10.16			200	360	Average
5200	115.5	105.34	10.16			200	360	Peak
5350	44.58	34.35	10.23	54	-9.42	200	360	Average
5350	54.58	44.35	10.23	74	-19.42	200	360	Peak
*10400	55.61	39.43	16.18	68.2	-12.59	164	4	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	48.85	38.8	10.05	54	-5.15	216	52	Average
5150	60.31	50.26	10.05	74	-13.69	216	52	Peak
5200	103.22	93.06	10.16			216	52	Average
5200	110.05	99.89	10.16			216	52	Peak
5350	43.02	32.79	10.23	54	-10.98	216	52	Average
5350	53.77	43.54	10.23	74	-20.23	216	52	Peak
*10400	55.84	39.66	16.18	68.2	-12.36	195	55	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5200 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 48	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.73	43.68	10.05	54	-0.27	200	2	Average
5150	67.25	57.2	10.05	74	-6.75	200	2	Peak
5240	110.25	100.11	10.14			200	0	Average
5240	117.97	107.83	10.14			200	0	Peak
5350	47.02	36.79	10.23	54	-6.98	200	0	Average
5350	58.3	48.07	10.23	74	-15.7	200	0	Peak
*10480	55.83	39.93	15.9	68.2	-12.37	186	119	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	48.09	38.04	10.05	54	-5.91	216	52	Average
5150	61.56	51.51	10.05	74	-12.44	216	52	Peak
5240	105.56	95.42	10.14			216	52	Average
5240	112.1	101.96	10.14			216	52	Peak
5350	44.36	34.13	10.23	54	-9.64	216	52	Average
5350	56.13	45.9	10.23	74	-17.87	216	52	Peak
*10480	55.13	39.23	15.9	68.2	-13.07	127	44	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5240 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	113.13	102.25	10.88			200	22	Average
5745	121.46	110.58	10.88			200	22	Peak
11490	47.19	30.72	16.47	54	-6.81	153	220	Average
11490	56.78	40.31	16.47	74	-17.22	153	220	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	107.08	96.2	10.88			200	90	Average
5745	116.65	105.77	10.88			200	90	Peak
11490	47.69	31.22	16.47	54	-6.31	141	128	Average
11490	57.31	40.84	16.47	74	-16.69	141	128	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5648.575	68.12	57.27	10.85	68.2	-0.08	200	22	Peak
5653.3	68.9	58.03	10.87	70.64	-1.74	200	22	Peak
5905.3	57.71	46.66	11.05	82.78	-25.07	200	22	Peak
*5941.525	57.02	45.84	11.18	68.2	-11.18	200	22	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5644.9	59.6	48.77	10.83	68.2	-8.6	200	90	Peak
5654.875	63.82	52.95	10.87	71.81	-7.99	200	90	Peak
5923.15	55.99	44.88	11.11	69.57	-13.58	200	90	Peak
*5936.275	56.44	45.28	11.16	68.2	-11.76	200	90	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5745 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 157	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	115.69	104.88	10.81			206	297	Average
5785	124.01	113.2	10.81			206	297	Peak
11570	47.65	31.16	16.49	54	-6.35	127	64	Average
11570	57.18	40.69	16.49	74	-16.82	127	64	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	109.46	98.65	10.81			241	358	Average
5785	117.42	106.61	10.81			241	358	Peak
11570	47.47	30.98	16.49	54	-6.53	160	294	Average
11570	57.19	40.7	16.49	74	-16.81	160	294	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5638.075	65.44	54.61	10.83	68.2	-2.76	206	297	Peak
5653.3	66.27	55.4	10.87	70.64	-4.37	206	297	Peak
5921.05	65.95	54.86	11.09	71.12	-5.17	206	297	Peak
*5928.4	65.39	54.28	11.11	68.2	-2.81	206	297	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5647	57.01	46.16	10.85	68.2	-11.19	241	358	Peak
5656.975	59.73	48.86	10.87	73.36	-13.63	241	358	Peak
5909.5	64.37	53.3	11.07	79.67	-15.3	241	358	Peak
*5928.4	58.67	47.56	11.11	68.2	-9.53	241	358	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5785 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	114.82	103.94	10.88			201	2	Average
5825	123.1	112.22	10.88			201	2	Peak
11650	47.81	31.03	16.78	54	-6.19	110	175	Average
11650	57.26	40.48	16.78	74	-16.74	110	175	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	109.03	98.15	10.88			216	90	Average
5825	116.63	105.75	10.88			216	90	Peak
11650	46.7	29.92	16.78	54	-7.3	152	107	Average
11650	56.27	39.49	16.78	74	-17.73	152	107	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5647	60.18	49.33	10.85	68.2	-8.02	201	2	Peak
5651.725	59.81	48.94	10.87	69.48	-9.67	201	2	Peak
5922.1	69.51	58.4	11.11	70.35	-0.84	201	2	Peak
*5934.175	68.06	56.93	11.13	68.2	-0.14	201	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5647	54.98	44.13	10.85	68.2	-13.22	216	90	Peak
5654.35	55.87	45	10.87	71.42	-15.55	216	90	Peak
5920.525	66.44	55.35	11.09	71.51	-5.07	216	90	Peak
*5928.925	66.77	55.66	11.11	68.2	-1.43	216	90	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

802.11ax (HE40)

EUT Test Condition		Measurement Detail	
Channel	Channel 38	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.44	43.39	10.05	54	-0.56	200	2	Average
5150	62.75	52.7	10.05	74	-11.25	200	2	Peak
5190	100.58	90.46	10.12			200	360	Average
5190	107.46	97.34	10.12			200	360	Peak
5350	42.36	32.13	10.23	54	-11.64	200	360	Average
5350	53.13	42.9	10.23	74	-20.87	200	360	Peak
*10380	54.63	38.53	16.1	68.2	-13.57	168	8	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	48.23	38.18	10.05	54	-5.77	216	52	Average
5150	58.21	48.16	10.05	74	-15.79	216	52	Peak
5190	95.43	85.31	10.12			216	52	Average
5190	102.74	92.62	10.12			216	52	Peak
5350	42.61	32.38	10.23	54	-11.39	216	52	Average
5350	53.59	43.36	10.23	74	-20.41	216	52	Peak
*10380	54.92	38.82	16.1	68.2	-13.28	157	117	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5190 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 46	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.71	43.66	10.05	54	-0.29	200	3	Average
5150	65.72	55.67	10.05	74	-8.28	200	3	Peak
5230	105.57	95.43	10.14			200	360	Average
5230	112.61	102.47	10.14			200	360	Peak
5350	42.48	32.25	10.23	54	-11.52	200	360	Average
5350	55.95	45.72	10.23	74	-18.05	200	360	Peak
*10460	55.99	39.99	16	68.2	-12.21	116	6	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	48.25	38.2	10.05	54	-5.75	216	52	Average
5150	60.99	50.94	10.05	74	-13.01	216	52	Peak
5230	100.64	90.5	10.14			216	52	Average
5230	107.72	97.58	10.14			216	52	Peak
5350	43.57	33.34	10.23	54	-10.43	216	52	Average
5350	54.34	44.11	10.23	74	-19.66	216	52	Peak
*10460	54.98	38.98	16	68.2	-13.22	118	247	Peak

Remarks:

1. Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
2. 5230 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 151	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5755	108.7	97.8	10.9			202	2	Average
5755	117.35	106.45	10.9			202	2	Peak
11510	46.91	30.4	16.51	54	-7.09	135	268	Average
11510	56.55	40.04	16.51	74	-17.45	135	268	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5755	102	91.1	10.9			200	90	Average
5755	110.79	99.89	10.9			200	90	Peak
11510	47.66	31.15	16.51	54	-6.34	184	124	Average
11510	57.23	40.72	16.51	74	-16.77	184	124	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5645.95	68.1	57.25	10.85	68.2	-0.1	202	2	Peak
5652.775	67.54	56.67	10.87	70.25	-2.71	202	2	Peak
5924.725	57.99	46.88	11.11	68.4	-10.41	202	2	Peak
5925.25	57.01	45.9	11.11	68.2	-11.19	202	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5637.025	60.01	49.18	10.83	68.2	-8.19	200	90	Peak
5652.25	60.76	49.89	10.87	69.86	-9.1	200	90	Peak
5896.9	58.67	47.64	11.03	88.99	-30.32	200	90	Peak
5932.075	55.18	44.07	11.11	68.2	-13.02	200	90	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5755 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 159	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	109.94	99.12	10.82			182	33	Average
5795	118.85	108.03	10.82			182	33	Peak
11590	46.73	30.22	16.51	54	-7.27	159	131	Average
11590	56.36	39.85	16.51	74	-17.64	159	131	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	104.22	93.4	10.82			216	90	Average
5795	112.73	101.91	10.82			216	90	Peak
11590	46.68	30.17	16.51	54	-7.32	187	131	Average
11590	56.25	39.74	16.51	74	-17.75	187	131	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5649.625	65.23	54.36	10.87	68.2	-2.97	182	33	Peak
5652.775	65.16	54.29	10.87	70.25	-5.09	182	33	Peak
5924.2	68.11	57	11.11	68.79	-0.68	182	33	Peak
5926.825	67.32	56.21	11.11	68.2	-0.88	182	33	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5649.1	58.27	47.42	10.85	68.2	-9.93	216	90	Peak
5655.925	59.33	48.46	10.87	72.58	-13.25	216	90	Peak
5923.675	64.89	53.78	11.11	69.18	-4.29	216	90	Peak
5926.3	64.93	53.82	11.11	68.2	-3.27	216	90	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5795 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

802.11ax (HE80)

EUT Test Condition		Measurement Detail	
Channel	Channel 42	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.76	43.71	10.05	54	-0.24	200	4	Average
5150	62.88	52.83	10.05	74	-11.12	200	4	Peak
5210	96.67	86.5	10.17			200	360	Average
5210	103.61	93.44	10.17			200	360	Peak
5350	43.99	33.76	10.23	54	-10.01	200	360	Average
5350	52.84	42.61	10.23	74	-21.16	200	360	Peak
*10420	55.5	39.34	16.16	68.2	-12.7	134	21	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	48.88	38.83	10.05	54	-5.12	216	52	Average
5150	59	48.95	10.05	74	-15	216	52	Peak
5210	91.36	81.19	10.17			216	52	Average
5210	98.13	87.96	10.17			216	52	Peak
5350	43.15	32.92	10.23	54	-10.85	216	52	Average
5350	52.99	42.76	10.23	74	-21.01	216	52	Peak
*10420	55.05	38.89	16.16	68.2	-13.15	154	44	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5210 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 155	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5775	103.25	92.38	10.87			206	297	Average
5775	111.16	100.29	10.87			206	297	Peak
11550	47.02	30.52	16.5	54	-6.98	120	73	Average
11550	56.66	40.16	16.5	74	-17.34	120	73	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5775	96.82	85.95	10.87			206	352	Average
5775	102.13	91.26	10.87			206	352	Peak
11550	46.23	29.73	16.5	54	-7.77	172	182	Average
11550	55.88	39.38	16.5	74	-18.12	172	182	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5631.25	66.08	55.27	10.81	68.2	-2.12	206	297	Peak
5650.15	67.62	56.75	10.87	68.31	-0.69	206	297	Peak
5923.15	62.44	51.33	11.11	69.57	-7.13	206	297	Peak
*5932.075	62.23	51.12	11.11	68.2	-5.97	206	297	Peak
5631.25								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5648.05	55.84	44.99	10.85	68.2	-12.36	206	352	Peak
5650.675	57.63	46.76	10.87	68.7	-11.07	206	352	Peak
5922.1	55.06	43.95	11.11	70.35	-15.29	206	352	Peak
*5931.025	54.39	43.28	11.11	68.2	-13.81	206	352	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5775 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

Mode B
802.11a

EUT Test Condition		Measurement Detail	
Channel	Channel 36	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.63	43.58	10.05	54	-0.37	197	346	Average
5150	69.95	59.9	10.05	74	-4.05	197	346	Peak
5180	100.11	89.99	10.12			197	346	Average
5180	106.4	96.28	10.12			197	346	Peak
*10360	53.19	37.17	16.02	68.2	-15.01	165	163	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.08	43.03	10.05	54	-0.92	134	0	Average
5150	69.96	59.91	10.05	74	-4.04	134	0	Peak
5180	99.92	89.8	10.12			134	0	Average
5180	106.09	95.97	10.12			134	0	Peak
*10360	52.47	36.45	16.02	68.2	-15.73	112	24	Peak

Remarks:

1. Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
2. 5180 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 40	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.65	43.6	10.05	54	-0.35	194	346	Average
5150	65.83	55.78	10.05	74	-8.17	194	346	Peak
5200	101.9	91.74	10.16			194	346	Average
5200	108.12	97.96	10.16			194	346	Peak
5350	43.14	32.91	10.23	54	-10.86	194	346	Average
5350	53.28	43.05	10.23	74	-20.72	194	346	Peak
*10400	53.44	37.26	16.18	68.2	-14.76	105	119	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	51.82	41.77	10.05	54	-2.18	144	12	Average
5150	64.25	54.2	10.05	74	-9.75	144	12	Peak
5200	101.38	91.22	10.16			144	12	Average
5200	107.54	97.38	10.16			144	12	Peak
5350	43.51	33.28	10.23	54	-10.49	144	12	Average
5350	53.48	43.25	10.23	74	-20.52	144	12	Peak
*10400	52.69	36.51	16.18	68.2	-15.51	114	274	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5200 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 48	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	51.14	41.09	10.05	54	-2.86	186	346	Average
5150	62.28	52.23	10.05	74	-11.72	186	346	Peak
5240	102	91.86	10.14			186	346	Average
5240	108.91	98.77	10.14			186	346	Peak
5350	47.18	36.95	10.23	54	-6.82	186	346	Average
5350	56.98	46.75	10.23	74	-17.02	186	346	Peak
*10480	52.64	36.74	15.9	68.2	-15.56	175	314	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	49.57	39.52	10.05	54	-4.43	144	12	Average
5150	59.75	49.7	10.05	74	-14.25	144	12	Peak
5240	102	91.86	10.14			144	12	Average
5240	108.99	98.85	10.14			144	12	Peak
5350	47.73	37.5	10.23	54	-6.27	144	12	Average
5350	58.44	48.21	10.23	74	-15.56	144	12	Peak
*10480	52.97	37.07	15.9	68.2	-15.23	117	314	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5240 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	103.58	92.7	10.88			200	48	Average
5745	110.85	99.97	10.88			200	48	Peak
11490	47.89	31.42	16.47	54	-6.11	189	147	Average
11490	57.52	41.05	16.47	74	-16.48	189	147	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	98.57	87.69	10.88			165	360	Average
5745	105.2	94.32	10.88			165	360	Peak
11490	47.71	31.24	16.47	54	-6.29	146	244	Average
11490	55.88	39.41	16.47	74	-18.12	146	244	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5635.975	61.74	50.91	10.83	68.2	-6.46	200	48	Peak
5655.4	61	50.13	10.87	72.2	-11.2	200	48	Peak
5921.05	53.45	42.36	11.09	71.12	-17.67	200	48	Peak
*5929.975	53.48	42.37	11.11	68.2	-14.72	200	48	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5648.05	58.06	47.21	10.85	68.2	-10.14	165	360	Peak
5655.925	57.34	46.47	10.87	72.58	-15.24	165	360	Peak
5922.1	50.87	39.76	11.11	70.35	-19.48	165	360	Peak
*5960.95	54.3	43.07	11.23	68.2	-13.9	165	360	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5745 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 157	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	102.37	91.56	10.81			200	48	Average
5785	109.41	98.6	10.81			200	48	Peak
11570	48.06	31.57	16.49	54	-5.94	165	56	Average
11570	55.75	39.26	16.49	74	-18.25	165	56	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	97.67	86.86	10.81			165	360	Average
5785	104.74	93.93	10.81			165	360	Peak
11570	47.75	31.26	16.49	54	-6.25	185	114	Average
11570	55.88	39.39	16.49	74	-18.12	185	114	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5650.15	58.36	47.49	10.87	68.31	-9.95	200	48	Peak
5657.5	58.8	47.93	10.87	73.75	-14.95	200	48	Peak
5919.475	56.26	45.17	11.09	72.29	-16.03	200	48	Peak
*5925.775	56.25	45.14	11.11	68.2	-11.95	200	48	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5644.375	55.81	44.98	10.83	68.2	-12.39	165	360	Peak
5653.825	54.53	43.66	10.87	71.03	-16.5	165	360	Peak
5915.8	52.69	41.6	11.09	75.01	-22.32	165	360	Peak
*5937.85	53.12	41.96	11.16	68.2	-15.08	165	360	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5785 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	102.57	91.69	10.88			200	48	Average
5825	109.84	98.96	10.88			200	48	Peak
11650	48.24	31.46	16.78	54	-5.76	174	4	Average
11650	55.32	38.54	16.78	74	-18.68	174	4	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	97.74	86.86	10.88			165	360	Average
5825	104.45	93.57	10.88			165	360	Peak
11650	48.11	31.33	16.78	54	-5.89	138	322	Average
11650	56.36	39.58	16.78	74	-17.64	138	322	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5586.625	55.51	44.78	10.73	68.2	-12.69	200	48	Peak
5655.4	57.29	46.42	10.87	72.2	-14.91	200	48	Peak
5921.575	59.03	47.92	11.11	70.73	-11.7	200	48	Peak
*5932.6	57.27	46.16	11.11	68.2	-10.93	200	48	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5607.625	53.63	42.88	10.75	68.2	-14.57	165	360	Peak
5655.4	52.71	41.84	10.87	72.2	-19.49	165	360	Peak
5917.9	54.79	43.7	11.09	73.45	-18.66	165	360	Peak
*5931.025	53.99	42.88	11.11	68.2	-14.21	165	360	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

802.11ax (HE20)

EUT Test Condition		Measurement Detail	
Channel	Channel 36	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.49	43.44	10.05	54	-0.51	197	346	Average
5150	66.41	56.36	10.05	74	-7.59	197	346	Peak
5180	98.69	88.57	10.12			197	346	Average
5180	107.53	97.41	10.12			197	346	Peak
*10360	52.66	36.64	16.02	68.2	-15.54	112	174	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	50.41	40.36	10.05	54	-3.59	134	0	Average
5150	65.56	55.51	10.05	74	-8.44	134	0	Peak
5180	98.47	88.35	10.12			134	0	Average
5180	108.19	98.07	10.12			134	0	Peak
*10360	52.69	36.67	16.02	68.2	-15.51	135	5	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5180 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 40	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.57	43.52	10.05	54	-0.43	194	346	Average
5150	65.85	55.8	10.05	74	-8.15	194	346	Peak
5200	100.86	90.7	10.16			194	346	Average
5200	107.22	97.06	10.16			194	346	Peak
5350	43.08	32.85	10.23	54	-10.92	194	346	Average
5350	52.98	42.75	10.23	74	-21.02	194	346	Peak
*10400	52.54	36.36	16.18	68.2	-15.66	152	341	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	51.54	41.49	10.05	54	-2.46	144	12	Average
5150	64.08	54.03	10.05	74	-9.92	144	12	Peak
5200	100.07	89.91	10.16			144	12	Average
5200	108.83	98.67	10.16			144	12	Peak
5350	43.34	33.11	10.23	54	-10.66	144	12	Average
5350	54.31	44.08	10.23	74	-19.69	144	12	Peak
*10400	52.54	36.36	16.18	68.2	-15.66	111	96	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5200 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 48	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.38	43.33	10.05	54	-0.62	186	346	Average
5150	64.05	54	10.05	74	-9.95	186	346	Peak
5240	101.49	91.35	10.14			186	346	Average
5240	109.82	99.68	10.14			186	346	Peak
5350	47.85	37.62	10.23	54	-6.15	186	346	Average
5350	58.54	48.31	10.23	74	-15.46	186	346	Peak
*10480	52.34	36.44	15.9	68.2	-15.86	135	263	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	51.62	41.57	10.05	54	-2.38	144	12	Average
5150	62.08	52.03	10.05	74	-11.92	144	12	Peak
5240	101.36	91.22	10.14			144	12	Average
5240	109.76	99.62	10.14			144	12	Peak
5350	48.71	38.48	10.23	54	-5.29	144	12	Average
5350	59.28	49.05	10.23	74	-14.72	144	12	Peak
*10480	52.76	36.86	15.9	68.2	-15.44	158	342	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5240 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	103.6	92.72	10.88			200	48	Average
5745	110.68	99.8	10.88			200	48	Peak
11490	47.73	31.26	16.47	54	-6.27	164	325	Average
11490	56.17	39.7	16.47	74	-17.83	164	325	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	98.59	87.71	10.88			165	360	Average
5745	105.87	94.99	10.88			165	360	Peak
11490	47.75	31.28	16.47	54	-6.25	116	141	Average
11490	54.82	38.35	16.47	74	-19.18	116	141	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5644.9	62.76	51.93	10.83	68.2	-5.44	200	48	Peak
5653.825	63.49	52.62	10.87	71.03	-7.54	200	48	Peak
5920.525	54.31	43.22	11.09	71.51	-17.2	200	48	Peak
*5944.675	53.29	42.11	11.18	68.2	-14.91	200	48	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5642.8	58.32	47.49	10.83	68.2	-9.88	165	360	Peak
5655.925	59.56	48.69	10.87	72.58	-13.02	165	360	Peak
5916.325	51.45	40.36	11.09	74.62	-23.17	165	360	Peak
*5976.175	52.21	40.95	11.26	68.2	-15.99	165	360	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5745 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 157	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	102.22	91.41	10.81			200	48	Average
5785	109.9	99.09	10.81			200	48	Peak
11570	47.74	31.25	16.49	54	-6.26	180	2	Average
11570	55.27	38.78	16.49	74	-18.73	180	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	97.6	86.79	10.81			165	360	Average
5785	104.68	93.87	10.81			165	360	Peak
11570	47.81	31.32	16.49	54	-6.19	125	222	Average
11570	56.61	40.12	16.49	74	-17.39	125	222	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5640.175	60.16	49.33	10.83	68.2	-8.04	200	48	Peak
5656.975	61.2	50.33	10.87	73.36	-12.16	200	48	Peak
5921.575	57.43	46.32	11.11	70.73	-13.3	200	48	Peak
*5938.9	56.49	45.31	11.18	68.2	-11.71	200	48	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5648.575	55.17	44.32	10.85	68.2	-13.03	165	360	Peak
5655.4	57.6	46.73	10.87	72.2	-14.6	165	360	Peak
5919.475	52.06	40.97	11.09	72.29	-20.23	165	360	Peak
*5928.4	52.92	41.81	11.11	68.2	-15.28	165	360	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5785 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	102.4	91.52	10.88			200	48	Average
5825	109.49	98.61	10.88			200	48	Peak
11650	47.99	31.21	16.78	54	-6.01	126	6	Average
11650	55.76	38.98	16.78	74	-18.24	126	6	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	97.55	86.67	10.88			165	360	Average
5825	104.28	93.4	10.88			165	360	Peak
11650	48.19	31.41	16.78	54	-5.81	127	117	Average
11650	54.91	38.13	16.78	74	-19.09	127	117	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5626.525	55.81	45.02	10.79	68.2	-12.39	200	48	Peak
5654.35	56.18	45.31	10.87	71.42	-15.24	200	48	Peak
5920.525	58.9	47.81	11.09	71.51	-12.61	200	48	Peak
*5925.775	59.11	48	11.11	68.2	-9.09	200	48	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5634.4	53.88	43.05	10.83	68.2	-14.32	165	360	Peak
5651.725	53.13	42.26	10.87	69.48	-16.35	165	360	Peak
5924.725	52.87	41.76	11.11	68.4	-15.53	165	360	Peak
*5943.625	53.71	42.53	11.18	68.2	-14.49	165	360	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

802.11ax (HE40)

EUT Test Condition		Measurement Detail	
Channel	Channel 38	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.94	43.89	10.05	54	-0.06	194	346	Average
5150	70.95	60.9	10.05	74	-3.05	194	346	Peak
5190	93.82	83.7	10.12			194	346	Average
5190	102.52	92.4	10.12			194	346	Peak
5350	43	32.77	10.23	54	-11	194	346	Average
5350	52.15	41.92	10.23	74	-21.85	194	346	Peak
*10380	53.09	36.99	16.1	68.2	-15.11	180	8	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.16	43.11	10.05	54	-0.84	134	0	Average
5150	68.9	58.85	10.05	74	-5.1	134	0	Peak
5190	93.95	83.83	10.12			134	0	Average
5190	102.9	92.78	10.12			134	0	Peak
5350	43.03	32.8	10.23	54	-10.97	134	0	Average
5350	52.87	42.64	10.23	74	-21.13	134	0	Peak
*10380	53.74	37.64	16.1	68.2	-14.46	113	34	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5190 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 46	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.19	43.14	10.05	54	-0.81	192	346	Average
5150	64.07	54.02	10.05	74	-9.93	192	346	Peak
5230	96.91	86.77	10.14			192	346	Average
5230	105.66	95.52	10.14			192	346	Peak
5350	45.48	35.25	10.23	54	-8.52	192	346	Average
5350	54.87	44.64	10.23	74	-19.13	192	346	Peak
*10460	53.35	37.35	16	68.2	-14.85	118	24	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	52.39	42.34	10.05	54	-1.61	144	12	Average
5150	62.42	52.37	10.05	74	-11.58	144	12	Peak
5230	95.9	85.76	10.14			144	12	Average
5230	104.92	94.78	10.14			144	12	Peak
5350	45.8	35.57	10.23	54	-8.2	144	12	Average
5350	56.45	46.22	10.23	74	-17.55	144	12	Peak
*10460	53.18	37.18	16	68.2	-15.02	148	88	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5230 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 151	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5755	101.74	90.84	10.9			200	48	Average
5755	108.33	97.43	10.9			200	48	Peak
11510	47.66	31.15	16.51	54	-6.34	125	58	Average
11510	55.98	39.47	16.51	74	-18.02	125	58	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5755	96.33	85.43	10.9			165	360	Average
5755	103.55	92.65	10.9			165	360	Peak
11510	47.87	31.36	16.51	54	-6.13	126	35	Average
11510	56.17	39.66	16.51	74	-17.83	126	35	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5649.625	67.48	56.61	10.87	68.2	-0.72	200	48	Peak
5655.925	69.2	58.33	10.87	72.58	-3.38	200	48	Peak
5920	59.56	48.47	11.09	71.9	-12.34	200	48	Peak
*5936.275	60.89	49.73	11.16	68.2	-7.31	200	48	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5646.475	62.95	52.1	10.85	68.2	-5.25	165	360	Peak
5656.975	63.41	52.54	10.87	73.36	-9.95	165	360	Peak
5916.85	54.5	43.41	11.09	74.23	-19.73	165	360	Peak
*5936.275	54.23	43.07	11.16	68.2	-13.97	165	360	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5755 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 159	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	102.57	91.75	10.82			200	48	Average
5795	109.08	98.26	10.82			200	48	Peak
11590	47.91	31.4	16.51	54	-6.09	180	57	Average
11590	54.75	38.24	16.51	74	-19.25	180	57	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	97.74	86.92	10.82			165	360	Average
5795	104.27	93.45	10.82			165	360	Peak
11590	47.51	31	16.51	54	-6.49	126	305	Average
11590	55.99	39.48	16.51	74	-18.01	126	305	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5647.525	63.63	52.78	10.85	68.2	-4.57	200	48	Peak
5651.725	63.36	52.49	10.87	69.48	-6.12	200	48	Peak
5918.425	61.54	50.45	11.09	73.07	-11.53	200	48	Peak
*5926.825	61.84	50.73	11.11	68.2	-6.36	200	48	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5648.575	59.3	48.45	10.85	68.2	-8.9	165	360	Peak
5654.35	59.01	48.14	10.87	71.42	-12.41	165	360	Peak
5919.475	57.87	46.78	11.09	72.29	-14.42	165	360	Peak
*5939.425	56.45	45.27	11.18	68.2	-11.75	165	360	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5795 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

802.11ax (HE80)

EUT Test Condition		Measurement Detail	
Channel	Channel 42	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.6	43.55	10.05	54	-0.4	197	346	Average
5150	66.92	56.87	10.05	74	-7.08	197	346	Peak
5210	89.58	79.41	10.17			197	346	Average
5210	98.16	87.99	10.17			197	346	Peak
5350	43.83	33.6	10.23	54	-10.17	197	346	Average
5350	52.68	42.45	10.23	74	-21.32	197	346	Peak
*10420	53.28	37.12	16.16	68.2	-14.92	168	8	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	53.05	43	10.05	54	-0.95	134	0	Average
5150	65.82	55.77	10.05	74	-8.18	134	0	Peak
5210	90.24	80.07	10.17			134	0	Average
5210	98.93	88.76	10.17			134	0	Peak
5350	44.36	34.13	10.23	54	-9.64	134	0	Average
5350	54.26	44.03	10.23	74	-19.74	134	0	Peak
*10420	53.35	37.19	16.16	68.2	-14.85	112	241	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5210 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 155	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5775	96.57	85.7	10.87			200	48	Average
5775	103.06	92.19	10.87			200	48	Peak
11550	47.7	31.2	16.5	54	-6.3	180	2	Average
11550	55.24	38.74	16.5	74	-18.76	180	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5775	91.67	80.8	10.87			165	360	Average
5775	98.33	87.46	10.87			165	360	Peak
11550	47.63	31.13	16.5	54	-6.37	145	57	Average
11550	54.56	38.06	16.5	74	-19.44	145	57	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5645.95	66.93	56.08	10.85	68.2	-1.27	200	48	Peak
5651.2	68.99	58.12	10.87	69.09	-0.1	200	48	Peak
5911.075	64.01	52.94	11.07	78.5	-14.49	200	48	Peak
*5956.225	60.62	49.41	11.21	68.2	-7.58	200	48	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5631.775	60	49.19	10.81	68.2	-8.2	165	360	Peak
5650.675	64	53.13	10.87	68.7	-4.7	165	360	Peak
5911.6	57.8	46.73	11.07	78.12	-20.32	165	360	Peak
*5947.825	54.59	43.41	11.18	68.2	-13.61	165	360	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5775 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

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.

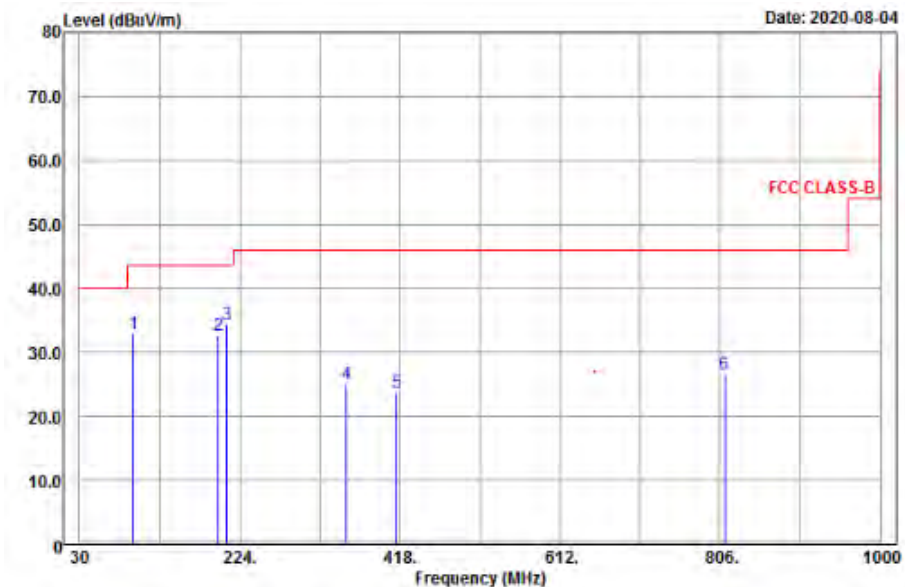
30 MHz ~ 1 GHz Worst-Case Data:

Mode A

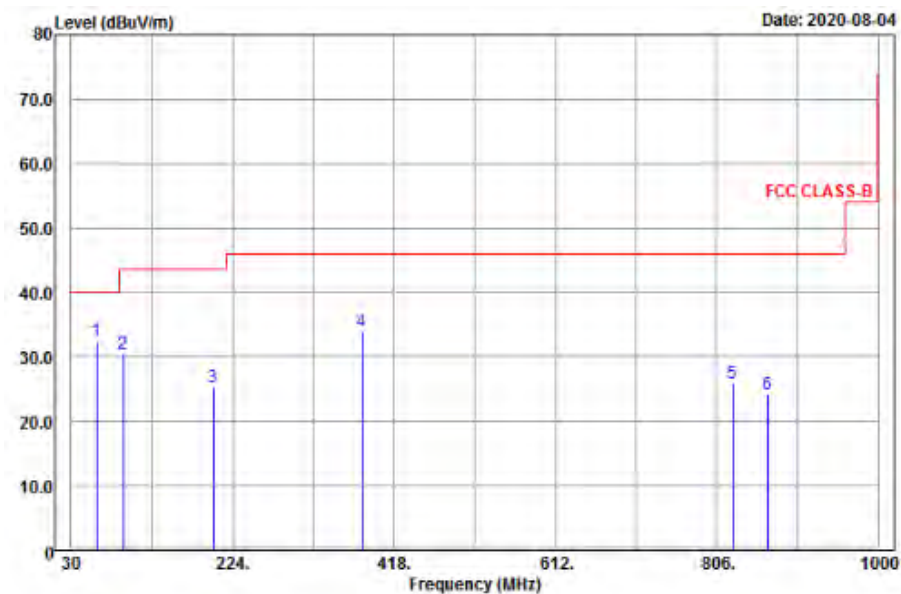
802.11a

EUT Test Condition		Measurement Detail	
Channel	Channel 40	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
95.07	33.01	50.86	43.5	-10.49	-17.85	154	19	Peak
198.21	32.67	50.98	43.5	-10.83	-18.31	150	274	Peak
208.74	34.42	52.57	43.5	-9.08	-18.15	112	235	Peak
353.2	25.08	39.76	46	-20.92	-14.68	152	256	Peak
414.1	23.85	37.54	46	-22.15	-13.69	141	176	Peak
811.7	26.54	34.02	46	-19.46	-7.48	105	206	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
60.78	32.58	49	40	-7.42	-16.42	160	285	Peak
93.18	30.49	48.8	43.5	-13.01	-18.31	111	326	Peak
200.64	25.24	43.48	43.5	-18.26	-18.24	124	200	Peak
379.8	34.1	48.36	46	-11.9	-14.26	188	285	Peak
825	26.02	33.25	46	-19.98	-7.23	124	220	Peak
867	24.12	30.51	46	-21.88	-6.39	160	256	Peak

Remarks:

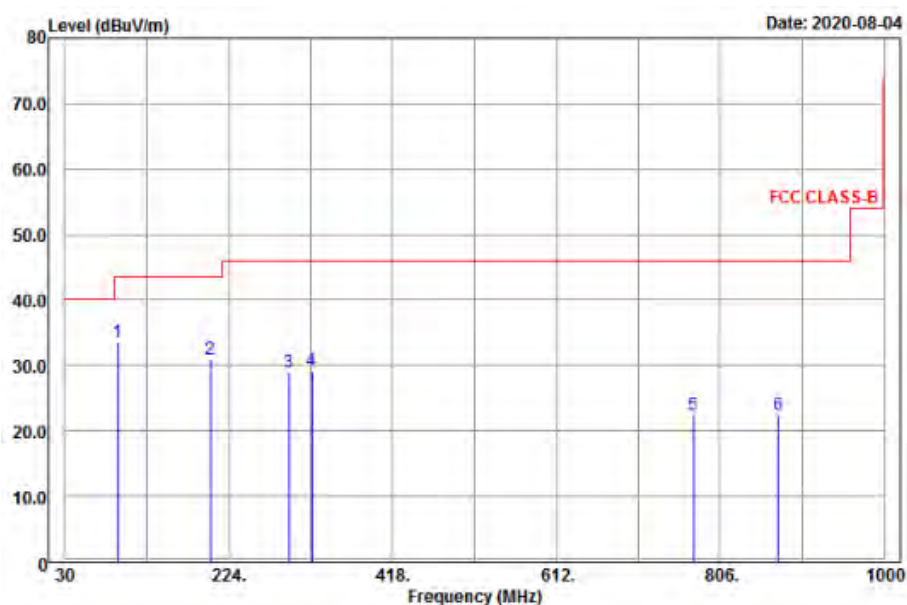
1. Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
2. The emission levels of other frequencies were very low against the limit

Mode B

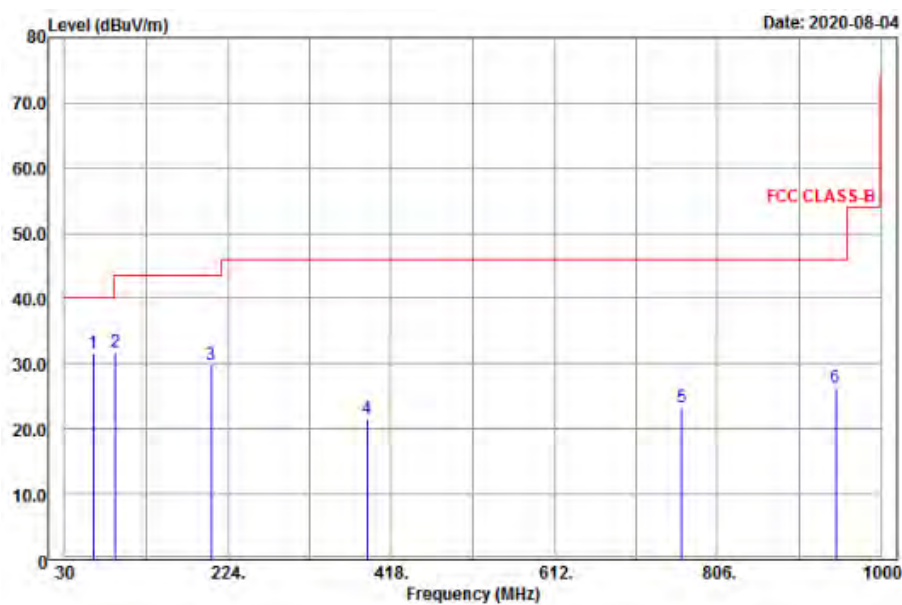
802.11ax (HE40)

EUT Test Condition		Measurement Detail	
Channel	Channel 38	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
92.64	33.54	51.88	43.5	-9.96	-18.34	124	196	Peak
202.53	30.89	49.09	43.5	-12.61	-18.2	111	12	Peak
295.68	28.9	44.9	46	-17.1	-16	105	256	Peak
322.4	29.17	44.69	46	-16.83	-15.52	158	8	Peak
774.6	22.52	30.71	46	-23.48	-8.19	124	200	Peak
874.7	22.41	28.69	46	-23.59	-6.28	124	224	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
64.02	31.58	48.82	40	-8.42	-17.24	123	322	Peak
89.94	31.78	50.81	43.5	-11.72	-19.03	187	174	Peak
204.42	29.8	47.98	43.5	-13.7	-18.18	105	165	Peak
389.6	21.57	35.67	46	-24.43	-14.1	165	285	Peak
763.4	23.36	31.61	46	-22.64	-8.25	105	151	Peak
946.1	26.35	31.75	46	-19.65	-5.4	145	255	Peak

Remarks:

1. Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
2. The emission levels of other frequencies were very low against the limit

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	ESR3	102412	Feb. 17, 2020	Feb. 16, 2021
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Sep. 05, 2019	Sep. 04, 2020
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 20, 2020	Jan. 19, 2021
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Aug. 13, 2019	Aug. 12, 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 2 (Conduction 2).
 3. The VCCI Site Registration No. is C-12047.

4.2.3 Test Procedures

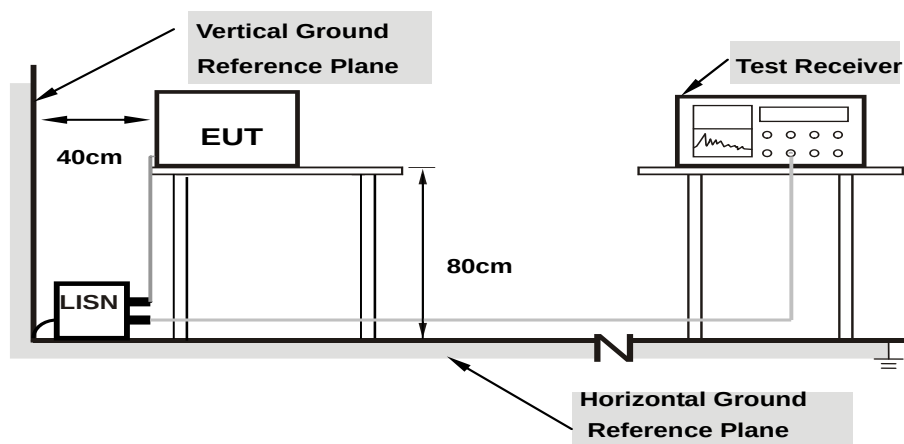
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

Note: All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



- Note:**
- 1.Support units were connected to second LISN.
 - 2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.2.6 EUT Operating Conditions

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

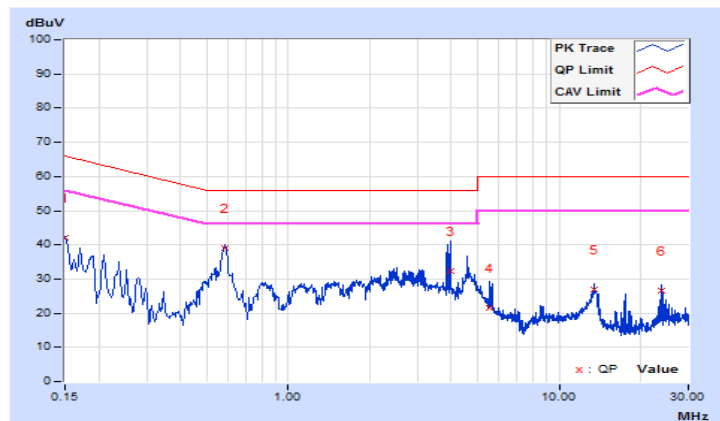
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	23°C, 69%RH
Tested by	Tim Chen	Test Date	2020/8/3
Test Mode	Mode A		

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	0.15001	9.63	32.54	22.44	42.17	32.07	66.00	56.00	-23.83	-23.93
2	0.58563	9.66	29.41	23.67	39.07	33.33	56.00	46.00	-16.93	-12.67
3	3.98600	9.79	22.56	10.66	32.35	20.45	56.00	46.00	-23.65	-25.55
4	5.53000	9.81	11.67	5.85	21.48	15.66	60.00	50.00	-38.52	-34.34
5	13.45800	9.89	17.03	13.06	26.92	22.95	60.00	50.00	-33.08	-27.05
6	23.92600	9.91	16.72	15.86	26.63	25.77	60.00	50.00	-33.37	-24.23

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, 70%RH
Tested by	Tim Chen	Test Date	2020/8/3
Test Mode	Mode A		

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	0.15800	9.66	31.50	20.70	41.16	30.36	65.57	55.57	-24.41	-25.21
2	0.58200	9.68	29.40	23.55	39.08	33.23	56.00	46.00	-16.92	-12.77
3	4.48200	9.83	26.61	14.46	36.44	24.29	56.00	46.00	-19.56	-21.71
4	7.48600	9.87	12.29	4.13	22.16	14.00	60.00	50.00	-37.84	-36.00
5	13.45800	9.96	16.00	13.16	25.96	23.12	60.00	50.00	-34.04	-26.88
6	23.93000	10.05	17.59	16.57	27.64	26.62	60.00	50.00	-32.36	-23.38

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

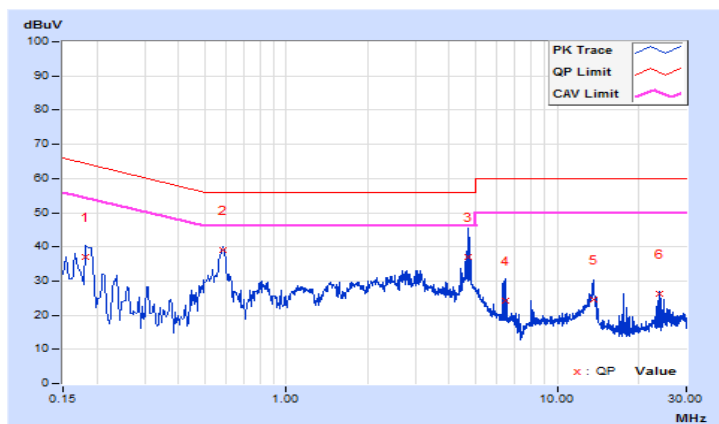


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	23°C, 70%RH
Tested by	Tim Chen	Test Date	2020/8/3
Test Mode	Mode B		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18200	9.62	27.37	15.53	36.99	25.15	64.39	54.39	-27.40	-29.24
2	0.58563	9.66	29.42	23.68	39.08	33.34	56.00	46.00	-16.92	-12.66
3	4.67400	9.80	27.25	15.01	37.05	24.81	56.00	46.00	-18.95	-21.19
4	6.48600	9.82	14.43	1.99	24.25	11.81	60.00	50.00	-35.75	-38.19
5	13.61000	9.89	14.77	8.18	24.66	18.07	60.00	50.00	-35.34	-31.93
6	23.92600	9.91	16.51	15.57	26.42	25.48	60.00	50.00	-33.58	-24.52

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, 70%RH
Tested by	Tim Chen	Test Date	2020/8/3
Test Mode	Mode B		

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	0.15001	9.66	33.02	22.69	42.68	32.35	66.00	56.00	-23.32	-23.65
2	0.57949	9.68	29.28	22.99	38.96	32.67	56.00	46.00	-17.04	-13.33
3	4.40200	9.83	25.54	12.60	35.37	22.43	56.00	46.00	-20.63	-23.57
4	6.07800	9.85	13.13	2.87	22.98	12.72	60.00	50.00	-37.02	-37.28
5	13.45400	9.96	13.03	9.05	22.99	19.01	60.00	50.00	-37.01	-30.99
6	23.92600	10.05	17.44	16.45	27.49	26.50	60.00	50.00	-32.51	-23.50

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 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125 mW (21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
	√	Indoor Access Point	1 Watt (30 dBm)
		Mobile and Portable client device	250 mW (24 dBm)
U-NII-2A			250 mW (24 dBm) or 11 dBm + 10 log B*
U-NII-2C			250 mW (24 dBm) or 11 dBm + 10 log B*
U-NII-3	√		1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

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

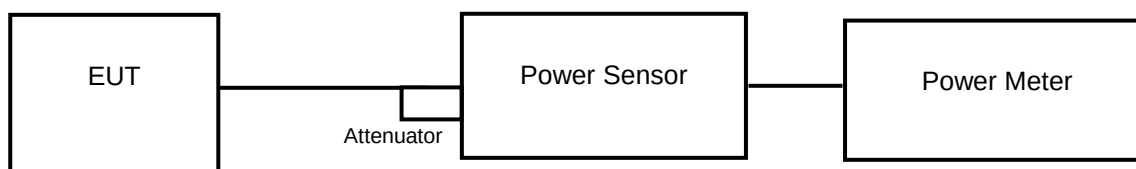
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

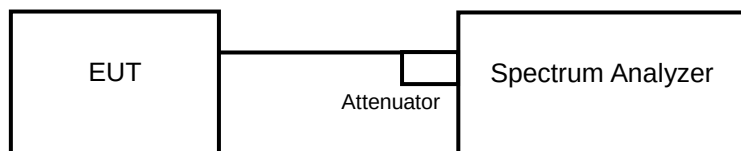
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup

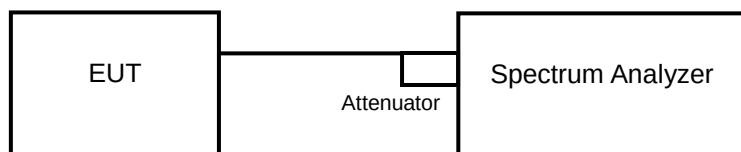
<Power Output Measurement>



or



<26 dB Bandwidth>



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

Average Power Measurement

<802.11a, 802.11ax (HE20), 802.11ax (HE40)>

Method PM is 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.

<802.11ax (HE80)>

- a. Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99 % occupied bandwidth) of the signal.
- b. Set sweep trigger to “free run”.
- c. Set RBW = 1 MHz.
- d. Set VBW $\geq$ 3 MHz
- e. Number of points in sweep $\geq$ 2 Span / RBW.
- f. Sweep time $\leq$ (number of points in sweep) * T
- g. Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
- h. Detector = RMS.
- i. Trace mode = max hold.
- j. Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.
- k. Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum

26 dB Bandwidth

- a. Set RBW = approximately 1 % of the emission bandwidth.
- b. Set the VBW $\geq$ 3 x RBW.
- c. Detector = Peak.
- d. Trace mode = max hold.
- e. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1 %.

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

Power Output:

CDD Mode

Mode A

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	18.46	18.10	134.711	21.29	30	Pass
40	5200	21.54	21.42	281.236	24.49	30	Pass
48	5240	24.04	24.11	511.145	27.09	30	Pass
149	5745	25.58	25.47	713.781	28.54	30	Pass
157	5785	25.57	25.43	709.719	28.51	30	Pass
165	5825	25.64	25.34	708.417	28.50	30	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	17.72	17.63	117.099	20.69	30	Pass
40	5200	21.21	21.17	263.048	24.20	30	Pass
48	5240	24.09	24.11	514.081	27.11	30	Pass
149	5745	25.77	25.15	704.913	28.48	30	Pass
157	5785	25.54	25.34	700.076	28.45	30	Pass
165	5825	25.58	25.44	711.355	28.52	30	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	14.97	14.89	62.237	17.94	30	Pass
46	5230	20.76	20.56	232.887	23.67	30	Pass
151	5755	23.76	23.32	452.467	26.56	30	Pass
159	5795	25.25	24.56	620.724	27.93	30	Pass

802.11ax (HE80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	14.24	13.90	51.093	17.08	30	Pass
155	5775	19.24	18.96	162.651	22.11	30	Pass

Mode B

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	38.459	15.85	30	Pass
40	5200	64.121	18.07	30	Pass
48	5240	49.545	16.95	30	Pass
149	5745	86.497	19.37	30	Pass
157	5785	83.753	19.23	30	Pass
165	5825	88.105	19.45	30	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	32.434	15.11	30	Pass
40	5200	55.59	17.45	30	Pass
48	5240	43.053	16.34	30	Pass
149	5745	90.365	19.56	30	Pass
157	5785	89.125	19.50	30	Pass
165	5825	92.257	19.65	30	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	19.679	12.94	30	Pass
46	5230	44.055	16.44	30	Pass
151	5755	79.616	19.01	30	Pass
159	5795	89.743	19.53	30	Pass

802.11ax (HE80)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
42	5210	16.672	12.22	30	Pass
155	5775	40.272	16.05	30	Pass

Beamforming Mode

802.11ax (HE20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	17.72	17.63	117.099	20.69	27.39	Pass
40	5200	21.21	21.17	263.048	24.20	27.39	Pass
48	5240	24.09	24.11	514.081	27.11	27.39	Pass
149	5745	24.37	23.75	510.664	27.08	27.39	Pass
157	5785	24.14	23.94	507.16	27.05	27.39	Pass
165	5825	24.18	24.04	515.331	27.12	27.39	Pass

Note:

1. For U-NII-1 Band:

Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.61 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (8.61 - 6) = 27.39 \text{ dBm}$.

2. For U-NII-3 Band

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.61 > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (8.61 - 6) = 27.39 \text{ dBm}$.

802.11ax (HE40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	14.97	14.89	62.237	17.94	27.39	Pass
46	5230	20.76	20.56	232.887	23.67	27.39	Pass
151	5755	23.76	23.32	452.467	26.56	27.39	Pass
159	5795	24.45	23.76	516.296	27.13	27.39	Pass

Note:

1. For U-NII-1 Band:

Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.61 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (8.61 - 6) = 27.39 \text{ dBm}$.

2. For U-NII-3 Band

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.61 > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (8.61 - 6) = 27.39 \text{ dBm}$.

802.11ax (HE80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	14.24	13.90	51.093	17.08	27.39	Pass
155	5775	19.24	18.96	162.651	22.11	27.39	Pass

Note:

1. For U-NII-1 Band:

Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.61 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (8.61 - 6) = 27.39 \text{ dBm}$.

2. For U-NII-3 Band

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.61 > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (8.61 - 6) = 27.39 \text{ dBm}$.

26 dB Bandwidth:

Mode A

802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	21.64	21.74
40	5200	27.70	26.99
48	5240	21.58	22.00

802.11ax (HE20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	21.83	21.73
40	5200	29.79	23.27
48	5240	21.71	21.68

802.11ax (HE40)

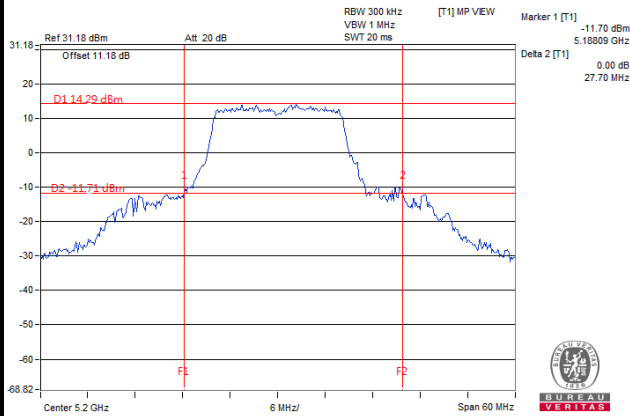
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	41.56	41.44
46	5230	44.22	42.40

802.11aX (HE80)

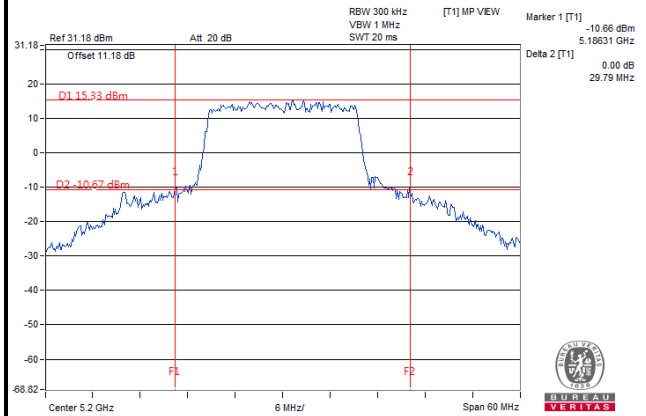
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	83.30	82.60

Spectrum Plot of Worst Value

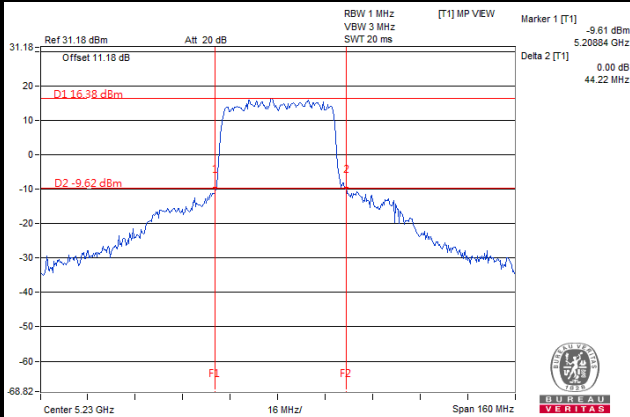
802.11a



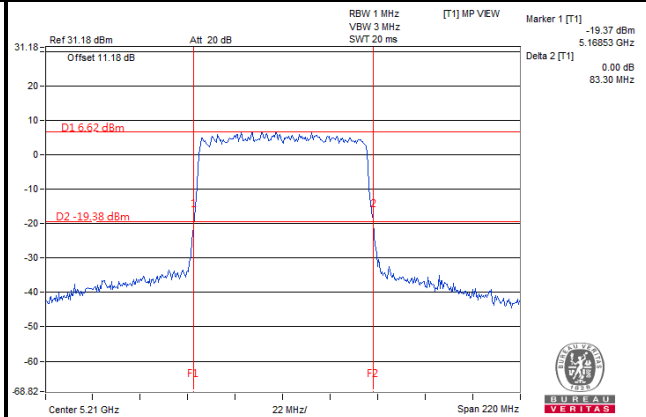
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



Mode B

802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	38.01
40	5200	43.49
48	5240	38.27

802.11ax (HE20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	29.84
40	5200	47.29
48	5240	39.65

802.11ax (HE40)

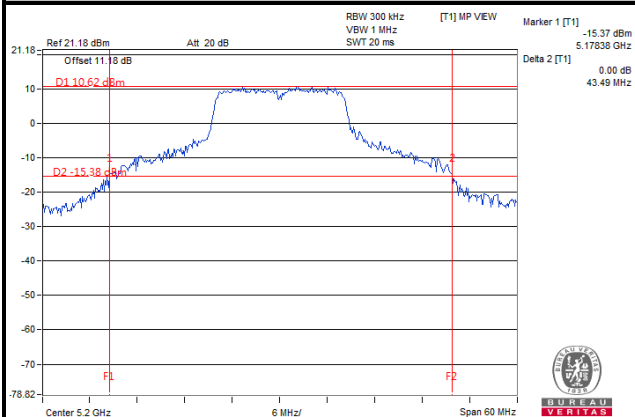
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
38	5190	45.48
46	5230	79.87

802.11aX (HE80)

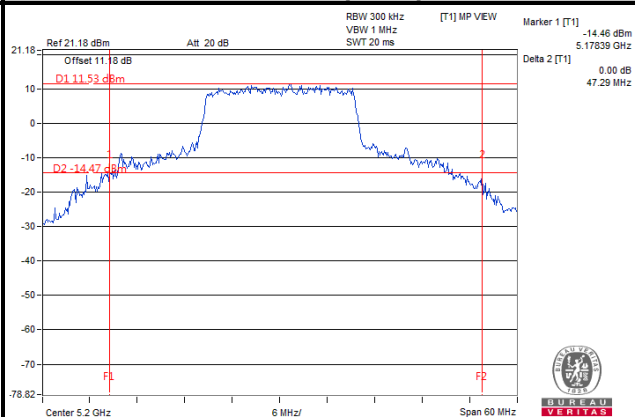
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
42	5210	83.48

Spectrum Plot of Worst Value

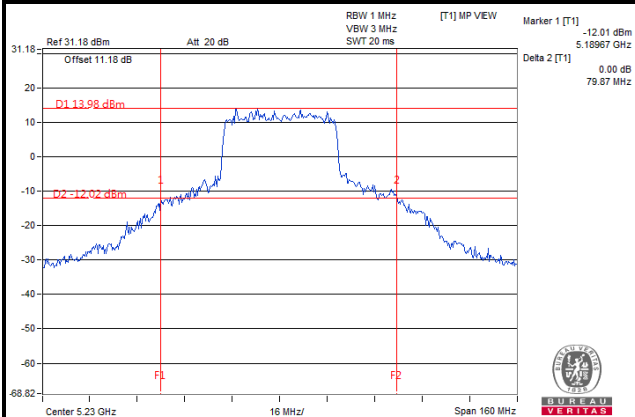
802.11a



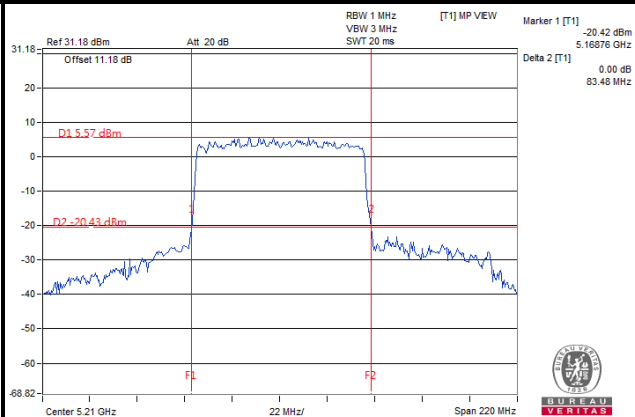
802.11ax (HE20)



802.11ax (HE40)

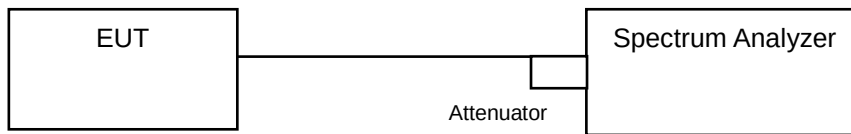


802.11ax (HE80)



4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1 % to 5 % of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to SAMPLE. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

4.4.4 Test Results

Mode A

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	16.92	16.92
40	5200	17.28	17.16
48	5240	18.96	18.84
149	5745	32.40	30.48
157	5785	32.28	30.84
165	5825	31.92	31.32

802.11ax (HE20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	19.08	19.08
40	5200	19.08	19.08
48	5240	19.20	19.20
149	5745	34.32	33.72
157	5785	36.72	31.44
165	5825	34.20	34.80

802.11ax (HE40)

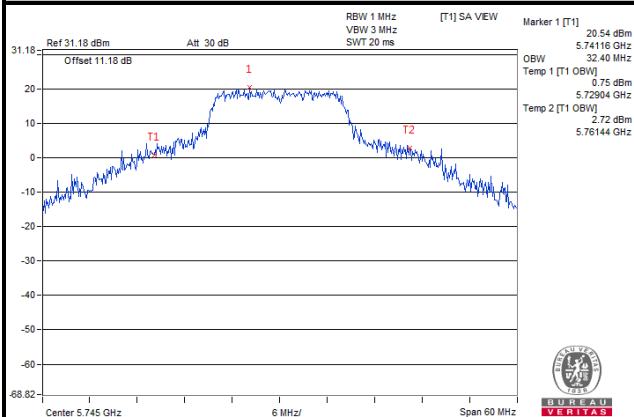
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.72	37.68
46	5230	37.92	38.16
151	5755	41.28	38.88
159	5795	63.12	54.96

802.11ax (HE80)

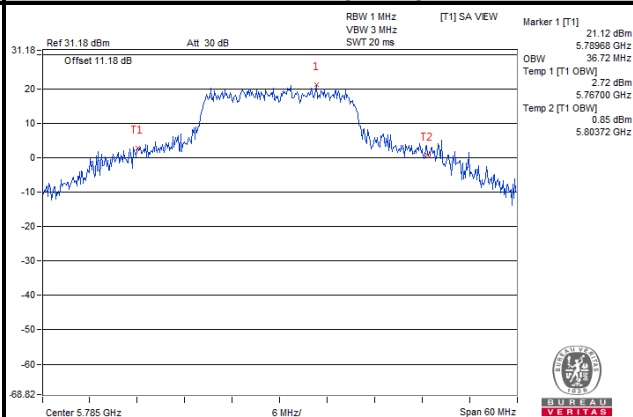
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	77.28	77.28
155	5775	77.28	77.28

Spectrum Plot of Worst Value

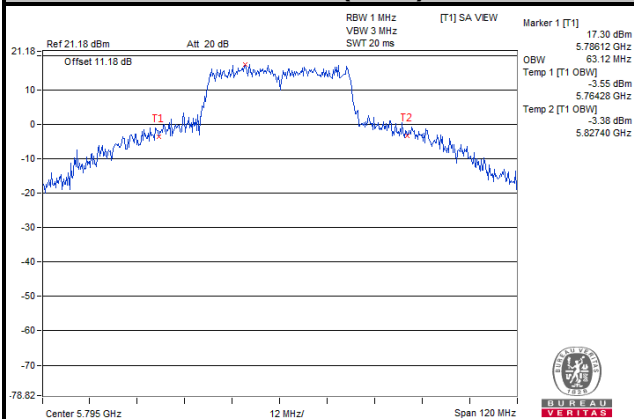
802.11a



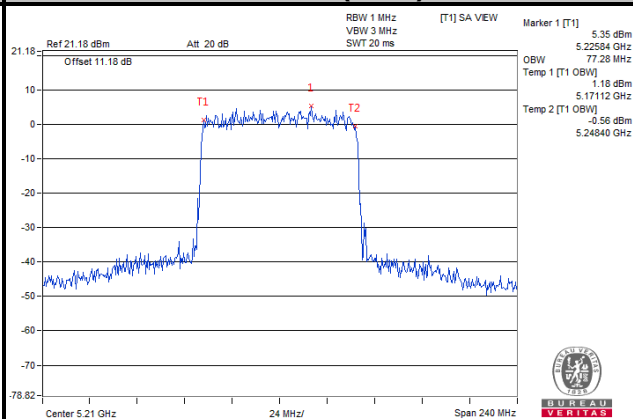
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)

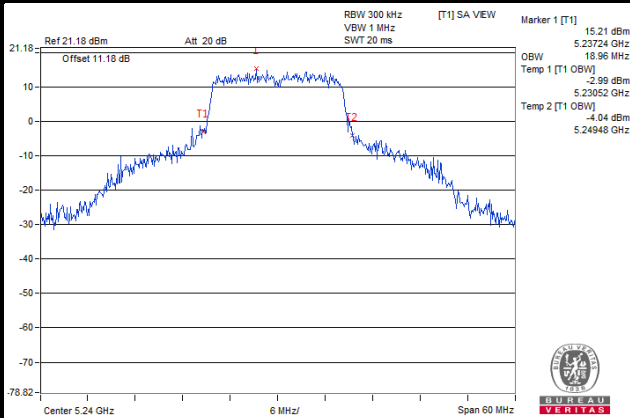


Chain 0

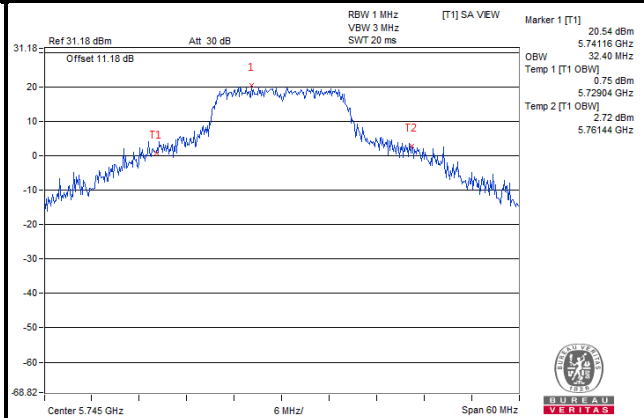
Spectrum Plot for Nearby DFS Band

802.11a

Ch 48 (5240 MHz)

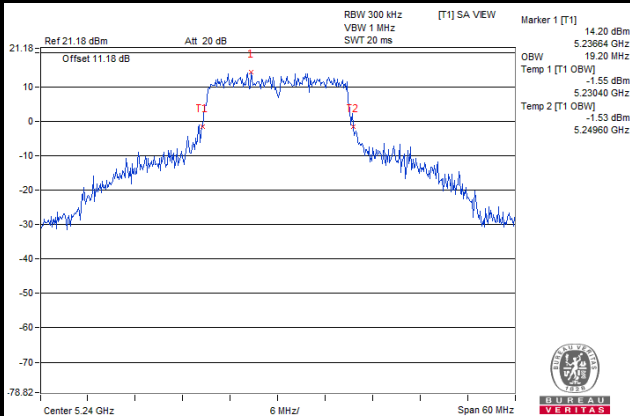


Ch 149 (5745 MHz)

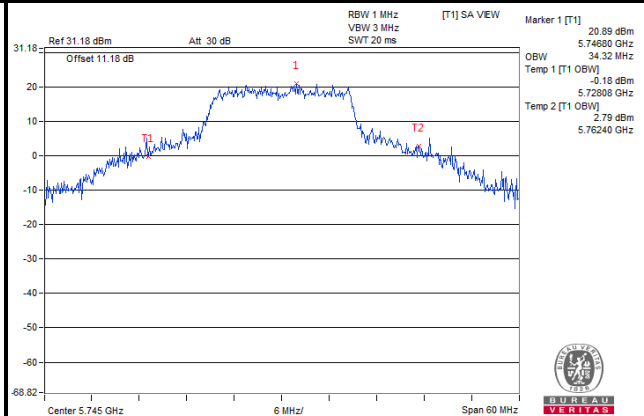


802.11ax (HE20)

Ch 48 (5240 MHz)

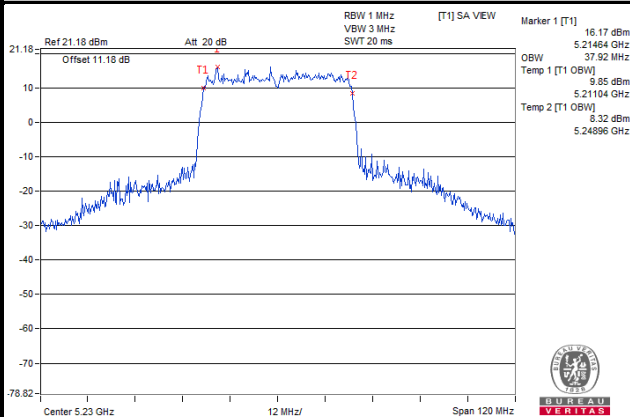


Ch 149 (5745 MHz)

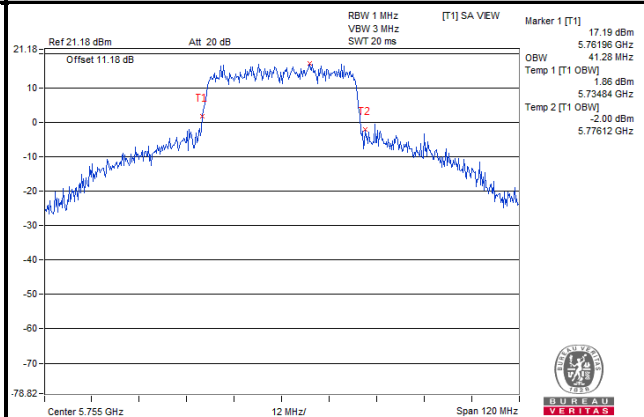


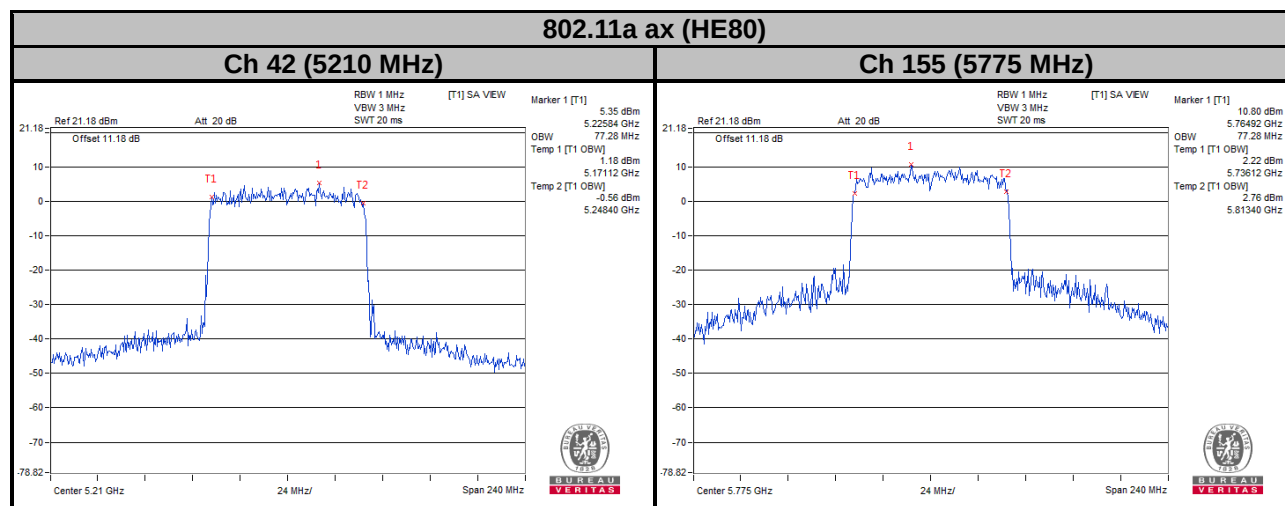
802.11 ax (HE40)

Ch 46 (5230 MHz)

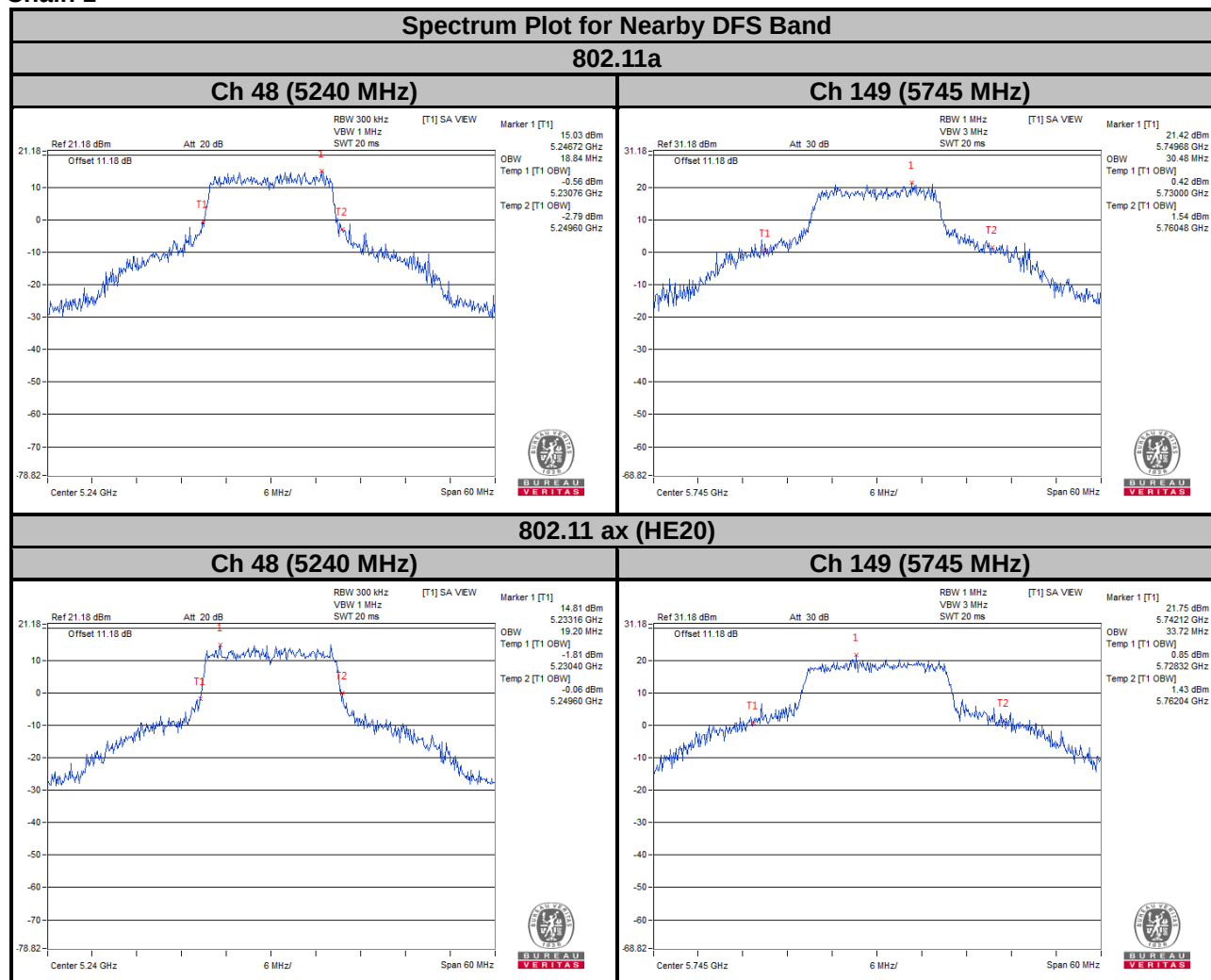


Ch 151 (5755 MHz)



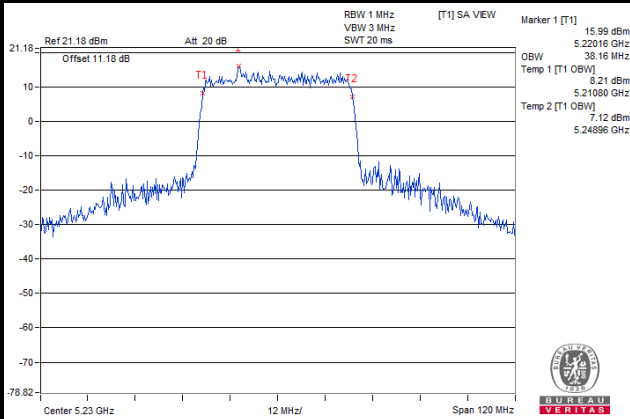


Chain 1

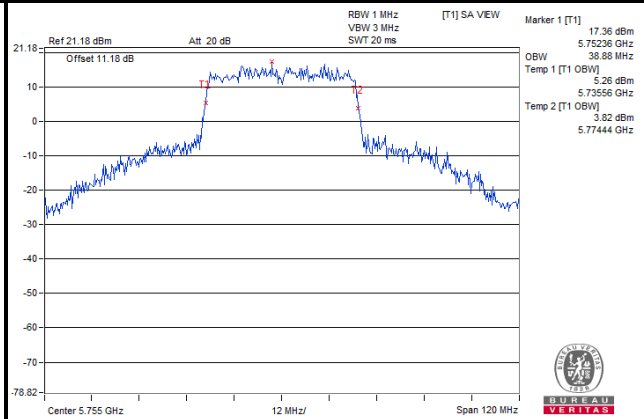


802.11 ax (HE40)

Ch 46 (5230 MHz)

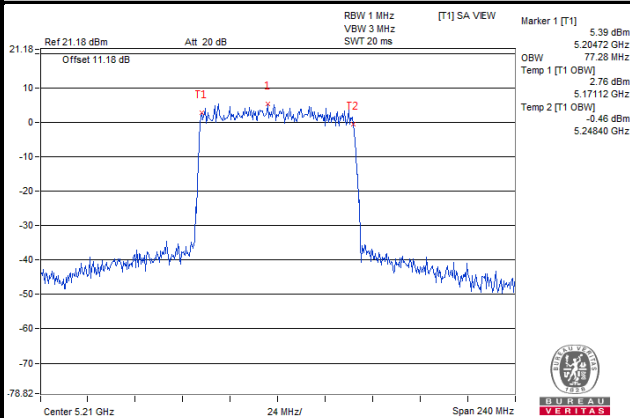


Ch 151 (5755 MHz)

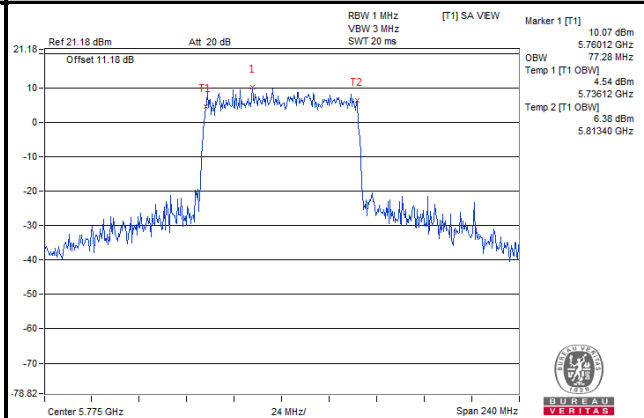


802.11 ax (HE80)

Ch 42 (5210 MHz)



Ch 155 (5775 MHz)



Mode B

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	17.76
40	5200	25.20
48	5240	18.00
149	5745	27.84
157	5785	27.84
165	5825	28.08

802.11ax (HE20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	18.24
40	5200	22.92
48	5240	19.44
149	5745	28.92
157	5785	29.16
165	5825	30.96

802.11ax (HE40)

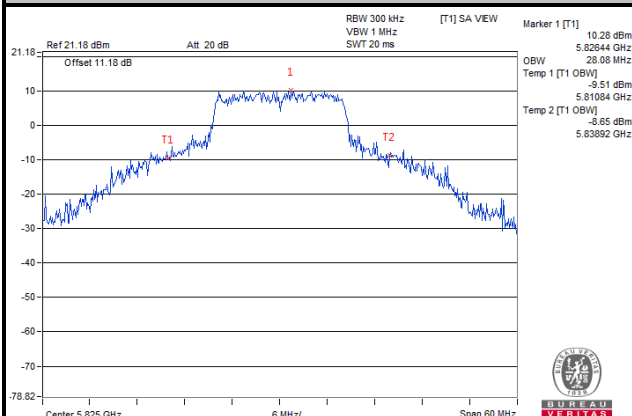
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	37.92
46	5230	38.88
151	5755	54.96
159	5795	71.04

802.11ax (HE80)

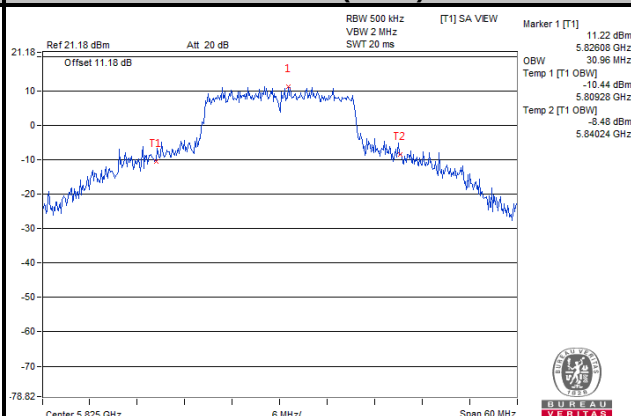
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
42	5210	77.28
155	5775	77.76

Spectrum Plot of Worst Value

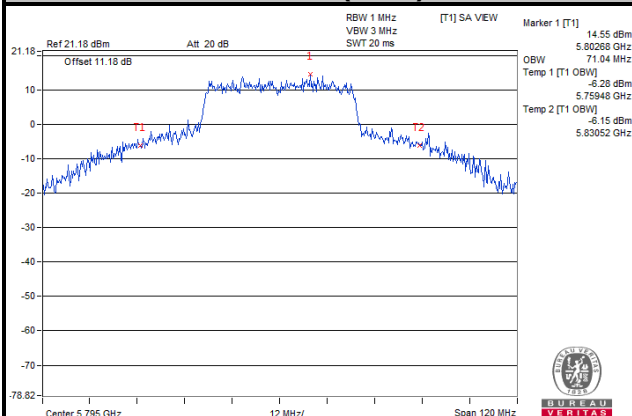
802.11a



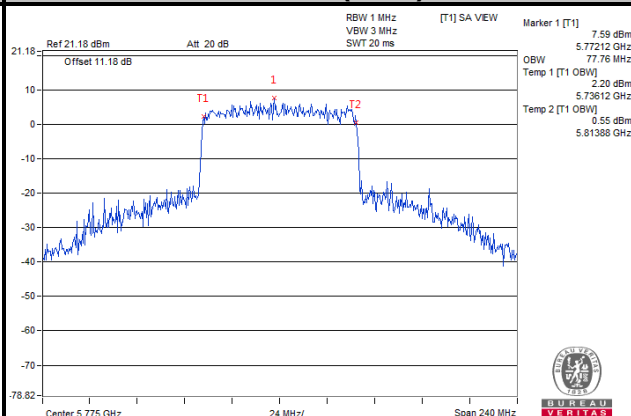
802.11ax (HE20)



802.11ax (HE40)



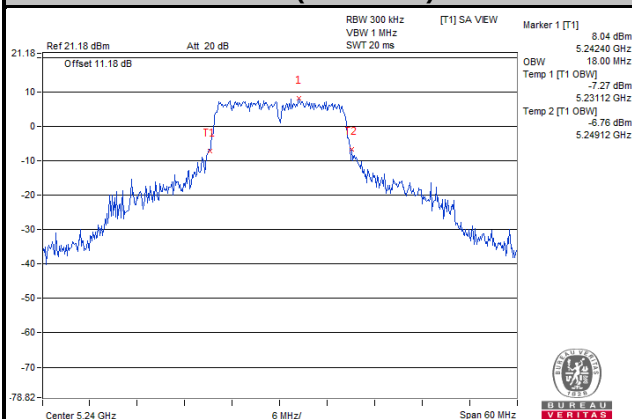
802.11ax (HE80)



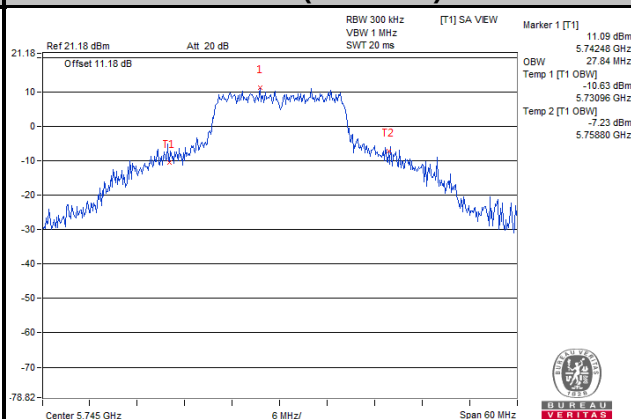
Spectrum Plot for Nearby DFS Band

802.11a

Ch 48 (5240 MHz)

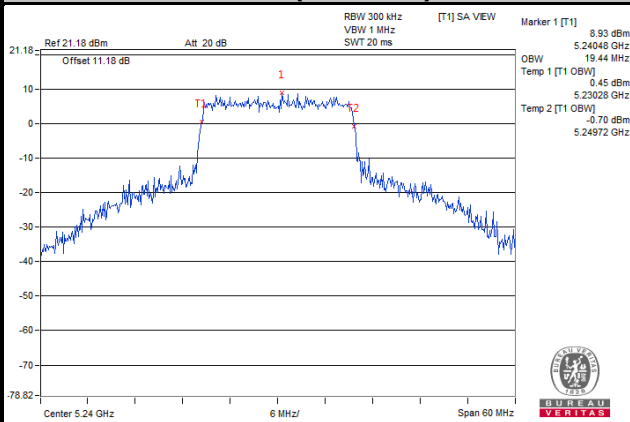


Ch 149 (5745 MHz)

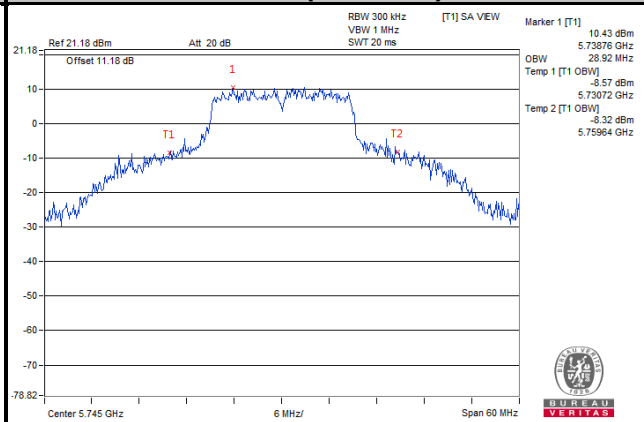


Spectrum Plot for Nearby DFS Band 802.11ax (HE20)

Ch 48 (5240 MHz)

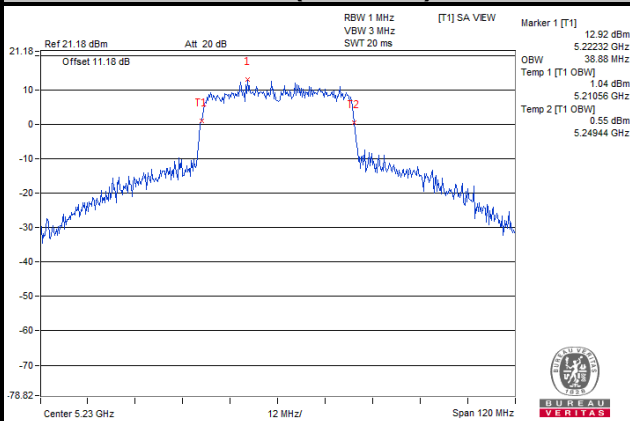


Ch 149 (5745 MHz)

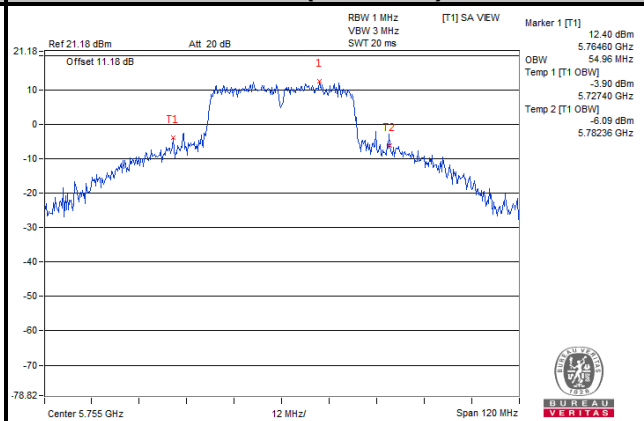


802.11 ax (HE40)

Ch 46 (5230 MHz)

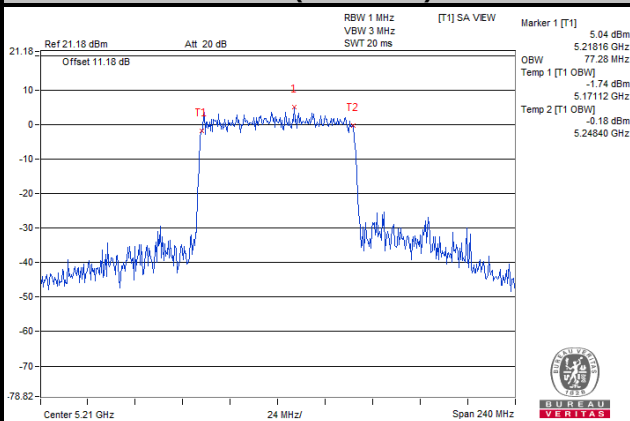


Ch 151 (5755 MHz)

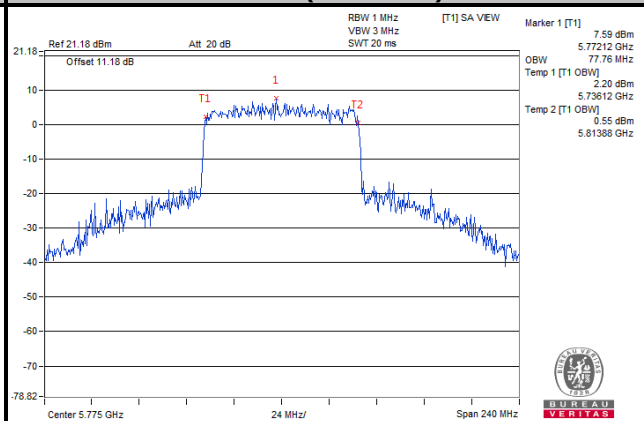


802.11a ax (HE80)

Ch 42 (5210 MHz)



Ch 155 (5775 MHz)

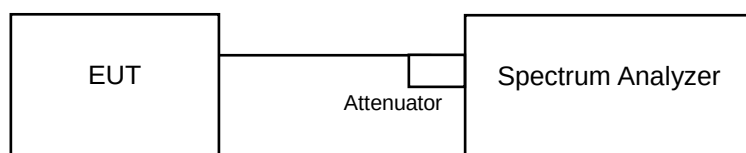


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	17 dBm/MHz
		Fixed point-to-point Access Point	
	√	Indoor Access Point	
		Mobile and Portable client device	11 dBm/MHz
U-NII-2A			11 dBm/MHz
U-NII-2C			11 dBm/MHz
U-NII-3	√		30 dBm/500 kHz

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

For U-NII-1 band:

Using method SA-2

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 3 RBW, Detector = RMS
3. Sweep time = auto, trigger set to "free run".
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value and add 10 log (1/duty cycle)

※ For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW ≥ 1 RBW, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz} / 300 \text{ kHz})$.
5. Sweep time = auto, trigger set to "free run".
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

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

4.5.7 Test Results

Mode A

For U-NII-1 Band

802.11a

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	4.33	3.96	0.22	7.38	14.39	Pass
40	5200	8.44	7.72	0.22	11.33	14.39	Pass
48	5240	10.55	10.06	0.22	13.54	14.39	Pass

Note:

- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.61 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $17 - (8.61 - 6) = 14.39 \text{ dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	3.47	2.77	0.10	6.24	14.39	Pass
40	5200	8.08	7.28	0.10	10.81	14.39	Pass
48	5240	10.35	9.97	0.10	13.27	14.39	Pass

Note:

- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.61 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $17 - (8.61 - 6) = 14.39 \text{ dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
38	5190	-2.58	-2.27	0.21	0.80	14.39	Pass
46	5230	3.64	3.70	0.21	6.89	14.39	Pass

Note:

- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.61 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $17 - (8.61 - 6) = 14.39 \text{ dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

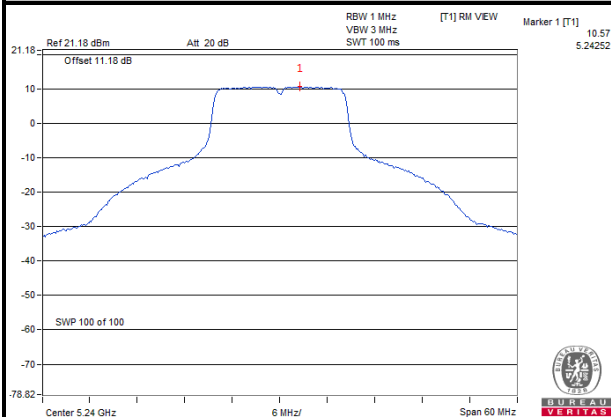
Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-5.63	-5.29	0.35	-2.10	14.39	Pass

Note:

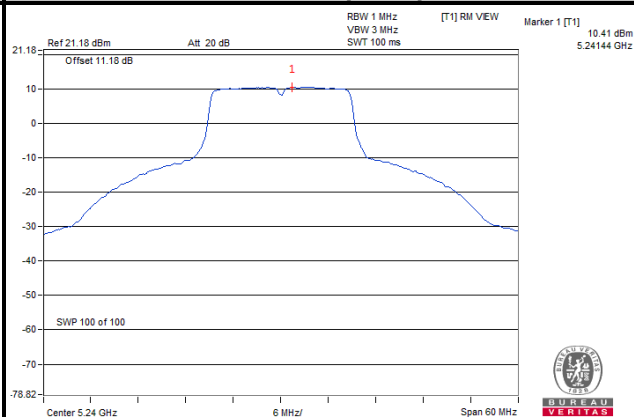
- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.61 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $17 - (8.61 - 6) = 14.39 \text{ dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

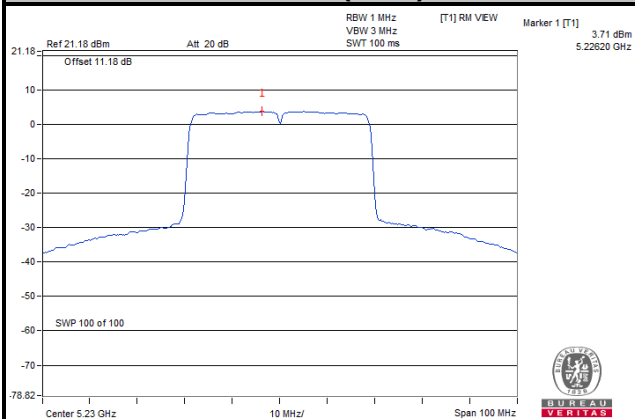
802.11a



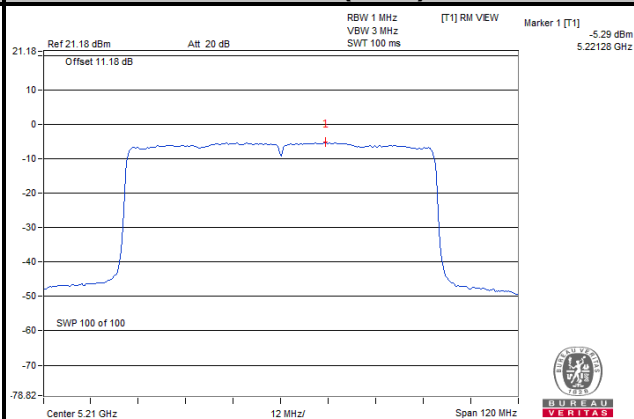
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



For U-NII-3 Band

802.11a

TX Chain	Channel	Frequency (MHz)	PSD w/o Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300 kHz)	(dBm/500 kHz)					
0	149	5745	2.5	4.72	3.01	0.22	7.95	27.39	Pass
	157	5785	2.5	4.72	3.01	0.22	7.95	27.39	Pass
	165	5825	2.05	4.27	3.01	0.22	7.5	27.39	Pass
1	149	5745	2.45	4.67	3.01	0.22	7.9	27.39	Pass
	157	5785	2.48	4.7	3.01	0.22	7.93	27.39	Pass
	165	5825	2.24	4.46	3.01	0.22	7.69	27.39	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.61 > 6 \text{ dBi}$, so the power density limit shall be reduced to $30 - (8.61 - 6) = 27.39 \text{ dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

TX Chain	Channel	Frequency (MHz)	PSD		10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300 kHz)	(dBm/500 kHz)					
0	149	5745	3	5.22	3.01	0.1	8.33	27.39	Pass
	157	5785	1.8	4.02	3.01	0.1	7.13	27.39	Pass
	165	5825	2.75	4.97	3.01	0.1	8.08	27.39	Pass
1	149	5745	1.53	3.75	3.01	0.1	6.86	27.39	Pass
	157	5785	2.55	4.77	3.01	0.1	7.88	27.39	Pass
	165	5825	1.47	3.69	3.01	0.1	6.8	27.39	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.61 > 6 \text{ dBi}$, so the power density limit shall be reduced to $30 - (8.61 - 6) = 27.39 \text{ dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

TX Chain	Channel	Frequency (MHz)	PSD		10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300 kHz)	(dBm/500 kHz)					
0	151	5755	-3.1	-0.88	3.01	0.21	2.34	27.39	Pass
	159	5795	-0.94	1.28	3.01	0.21	4.5	27.39	Pass
1	151	5755	-3.36	-1.14	3.01	0.21	2.08	27.39	Pass
	159	5795	-2.04	0.18	3.01	0.21	3.4	27.39	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.61 > 6 \text{ dBi}$, so the power density limit shall be reduced to $30 - (8.61 - 6) = 27.39 \text{ dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

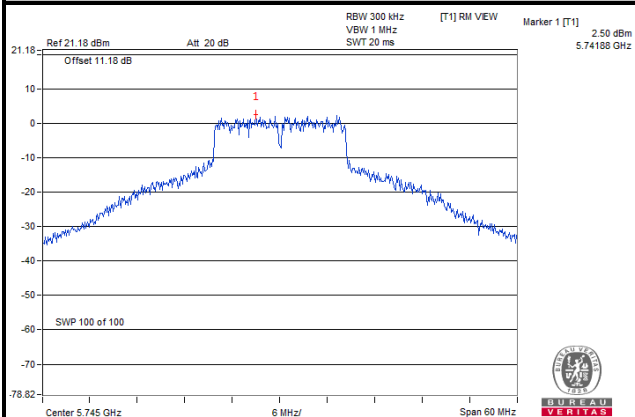
TX Chain	Channel	Frequency (MHz)	PSD		10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300 kHz)	(dBm/500 kHz)					
0	155	5775	-9.45	-7.23	3.01	0.35	-3.87	27.39	Pass
1	155	5775	-9.93	-7.71	3.01	0.35	-4.35	27.39	Pass

Note:

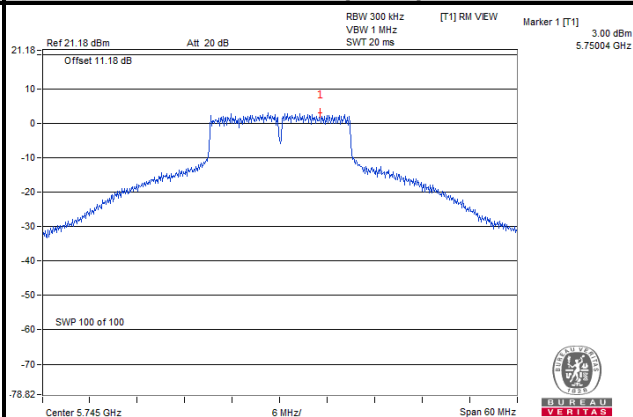
- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.61 > 6 \text{ dBi}$, so the power density limit shall be reduced to $30 - (8.61 - 6) = 27.39 \text{ dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

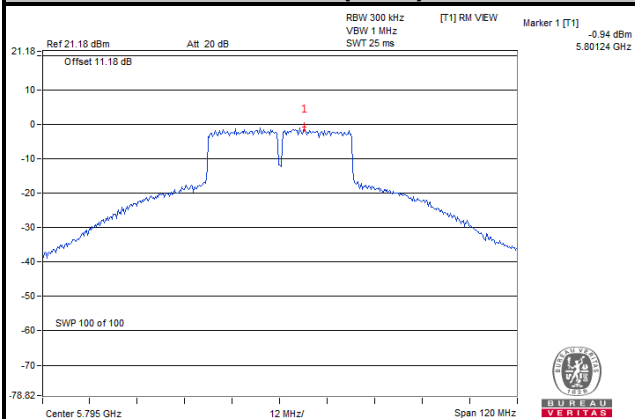
802.11a



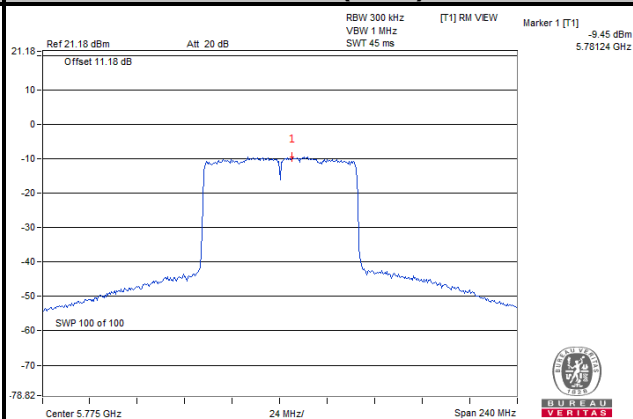
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



Mode B
For U-NII-1 Band
802.11a

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	2.61	0.22	2.83	17	Pass
40	5200	5.02	0.22	5.24	17	Pass
48	5240	3.73	0.22	3.95	17	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	1.61	0.10	1.71	17	Pass
40	5200	4.12	0.10	4.22	17	Pass
48	5240	2.94	0.10	3.04	17	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
38	5190	-2.99	0.18	-2.81	17	Pass
46	5230	0.48	0.18	0.66	17	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

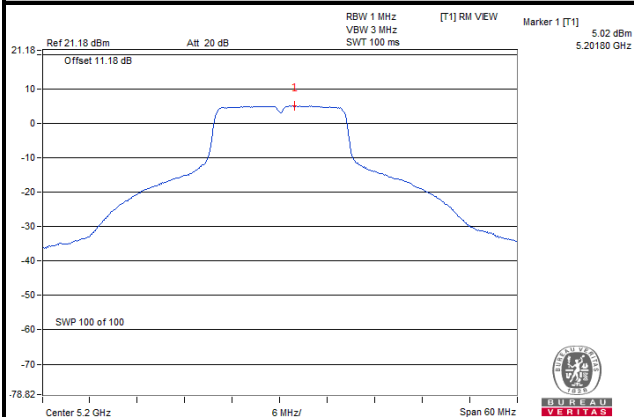
802.11ax (HE80)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
42	5210	-6.61	0.37	-6.24	17	Pass

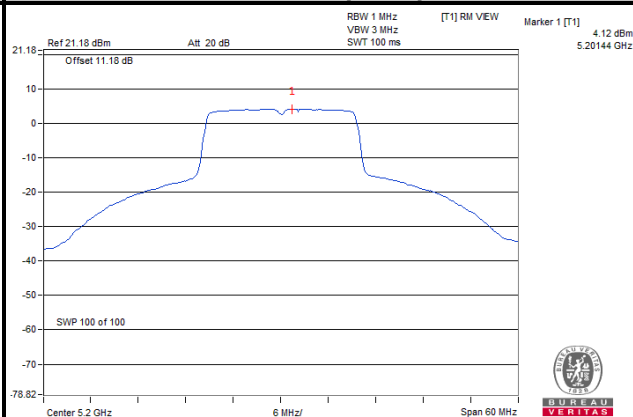
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

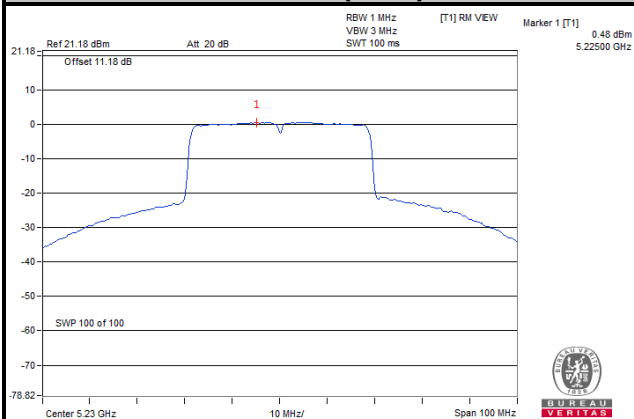
802.11a



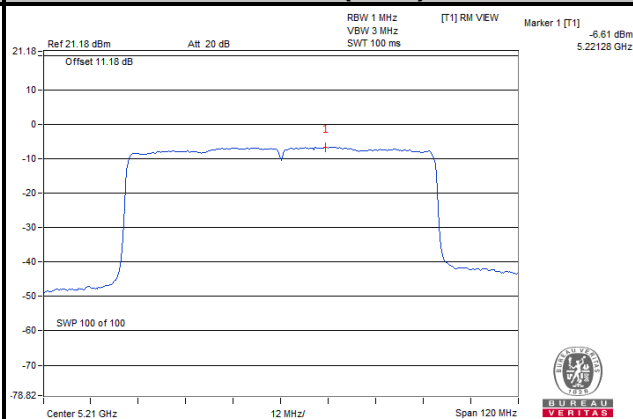
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



For U-NII-3 Band

802.11a

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/300 kHz)	(dBm/500 kHz)				
149	5745	-2.16	0.06	0.22	0.28	30	Pass
157	5785	-2.7	-0.48	0.22	-0.26	30	Pass
165	5825	-3.09	-0.87	0.22	-0.65	30	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/300 kHz)	(dBm/500 kHz)				
149	5745	-2.33	-0.11	0.1	-0.01	30	Pass
157	5785	-2.23	-0.01	0.1	0.09	30	Pass
165	5825	-3.27	-1.05	0.1	-0.95	30	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/300 kHz)	(dBm/500 kHz)				
151	5755	-6.34	-4.12	0.18	-3.94	30	Pass
159	5795	-5.7	-3.48	0.18	-3.3	30	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

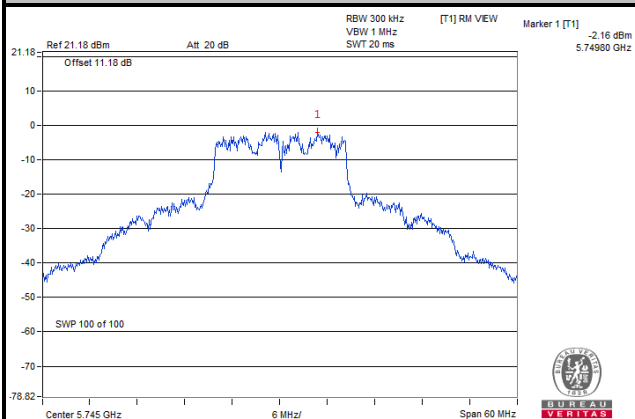
802.11ax (HE80)

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/300 kHz)	(dBm/500 kHz)				
155	5775	-12.66	-10.44	0.37	-10.07	30	Pass

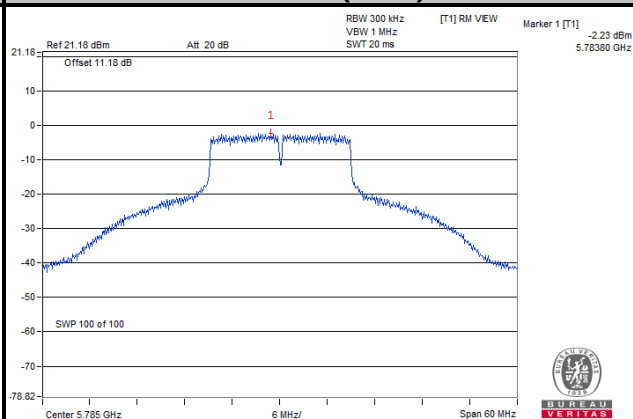
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

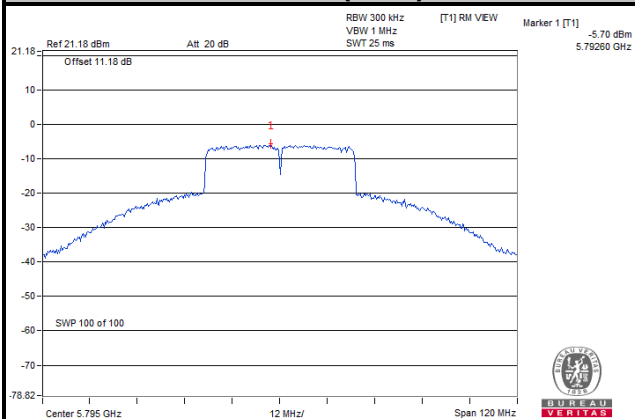
802.11a



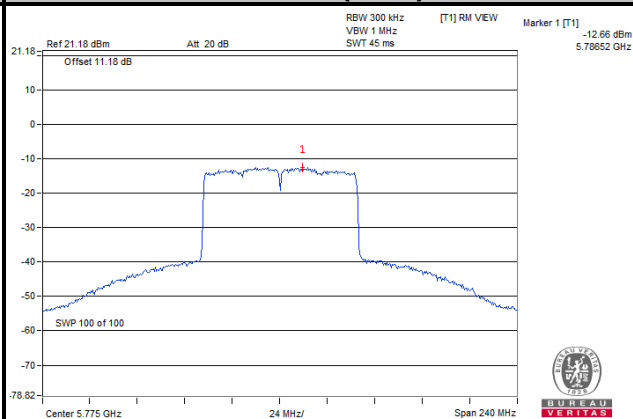
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)

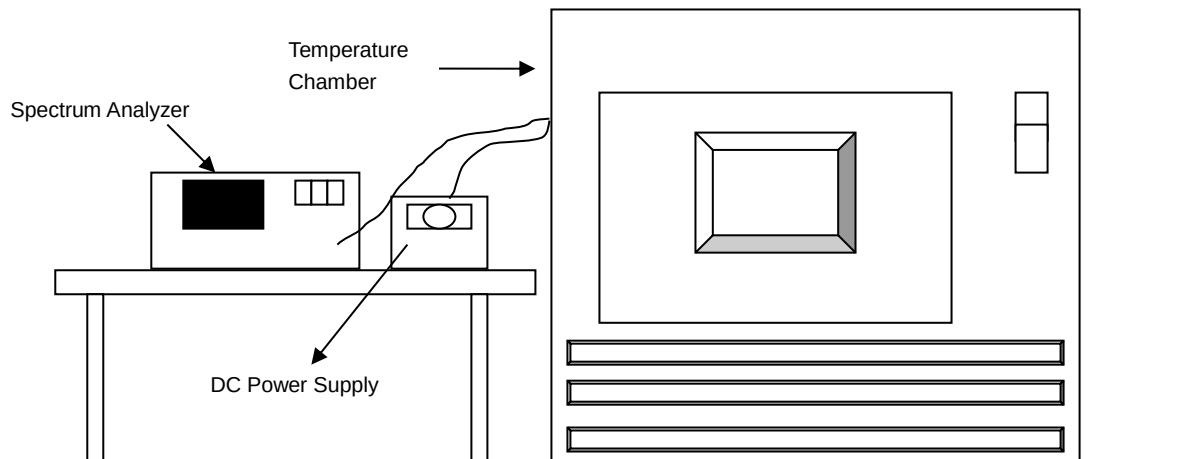


4.6 Frequency Stability

4.6.1 Limit of Frequency Stability Measurement

The frequency of the carrier signal shall be maintained within band of operation.

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.
- Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.
- The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

Set the EUT transmit at un-modulation mode to test frequency stability.

4.6.7 Test Results

Mode A

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
40	55	5180.0112	PASS	5180.0129	PASS	5180.0121	PASS	5180.0152	PASS
30	55	5180.0065	PASS	5180.0077	PASS	5180.011	PASS	5180.0065	PASS
20	55	5180.0095	PASS	5180.0111	PASS	5180.013	PASS	5180.0093	PASS
10	55	5180.0047	PASS	5180.005	PASS	5180.0011	PASS	5180.003	PASS
0	55	5180.0172	PASS	5180.0147	PASS	5180.0189	PASS	5180.0139	PASS
-5	55	5179.9922	PASS	5179.9968	PASS	5179.9918	PASS	5179.9957	PASS

Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	63.25	5180.0087	PASS	5180.0111	PASS	5180.0128	PASS	5180.0096	PASS
	55	5180.0095	PASS	5180.0111	PASS	5180.013	PASS	5180.0093	PASS
	46.75	5180.0101	PASS	5180.0102	PASS	5180.013	PASS	5180.01	PASS

Mode B

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
40	55	5189.9764	PASS	5189.9752	PASS	5189.9737	PASS	5189.976	PASS
30	55	5190.0126	PASS	5190.013	PASS	5190.0103	PASS	5190.0119	PASS
20	55	5189.9963	PASS	5189.9985	PASS	5189.9969	PASS	5189.9982	PASS
10	55	5189.9838	PASS	5189.9806	PASS	5189.9817	PASS	5189.9799	PASS
0	55	5189.9769	PASS	5189.9752	PASS	5189.9728	PASS	5189.9744	PASS
-5	55	5190.0035	PASS	5190.0049	PASS	5190.0012	PASS	5190.0049	PASS

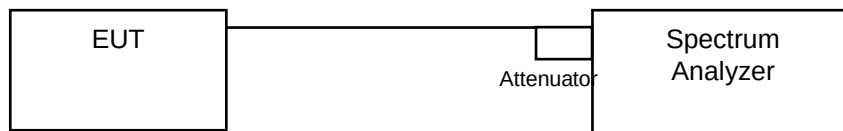
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	63.25	5189.9956	PASS	5189.9993	PASS	5189.9978	PASS	5189.9987	PASS
	55	5189.9963	PASS	5189.9985	PASS	5189.9969	PASS	5189.9982	PASS
	46.75	5189.9972	PASS	5189.9982	PASS	5189.9969	PASS	5189.9979	PASS

4.7 6 dB Bandwidth Measurement

4.7.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

- Set resolution bandwidth (RBW) = 100 kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

Mode A

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	16.39	16.39	0.5	Pass
157	5785	16.39	16.39	0.5	Pass
165	5825	16.38	16.41	0.5	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	17.65	18.42	0.5	Pass
157	5785	18.56	17.64	0.5	Pass
165	5825	17.65	18.46	0.5	Pass

802.11ax (HE40)

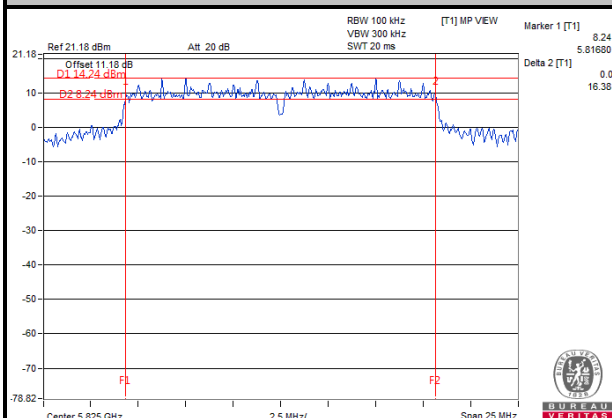
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	37.48	37.75	0.5	Pass
159	5795	36.10	37.76	0.5	Pass

802.11ax (HE80)

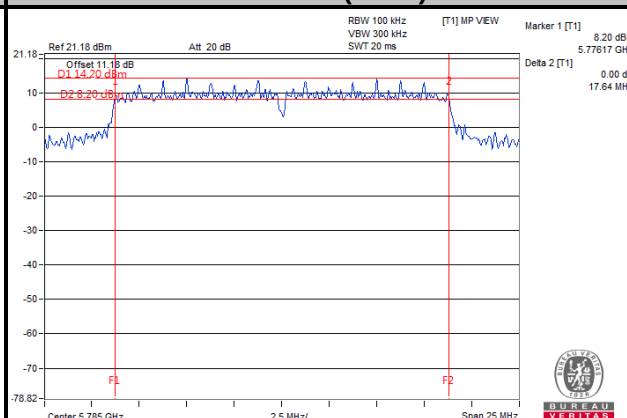
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	77.26	77.05	0.5	Pass

Spectrum Plot of Worst Value

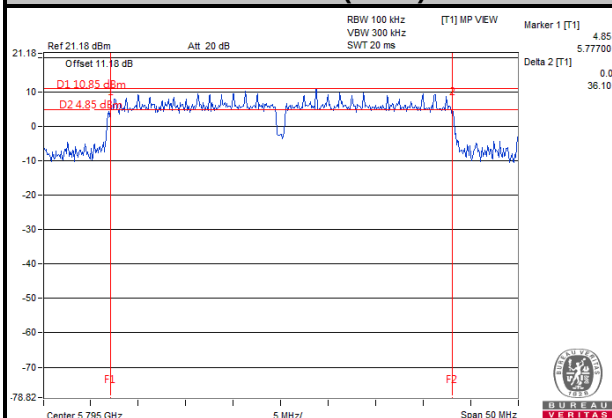
802.11a



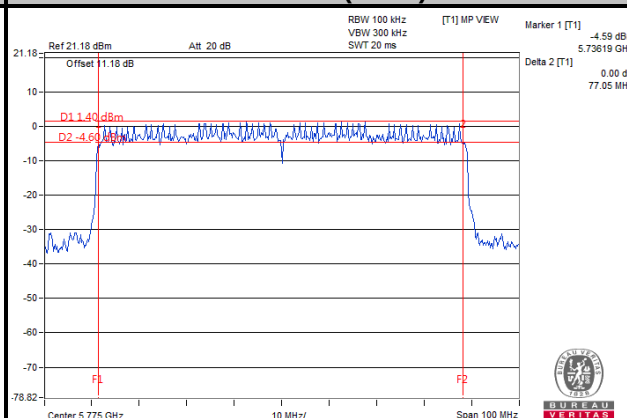
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



Mode B

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.42	0.5	Pass
157	5785	16.38	0.5	Pass
165	5825	16.35	0.5	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	17.63	0.5	Pass
157	5785	17.62	0.5	Pass
165	5825	18.76	0.5	Pass

802.11ax (HE40)

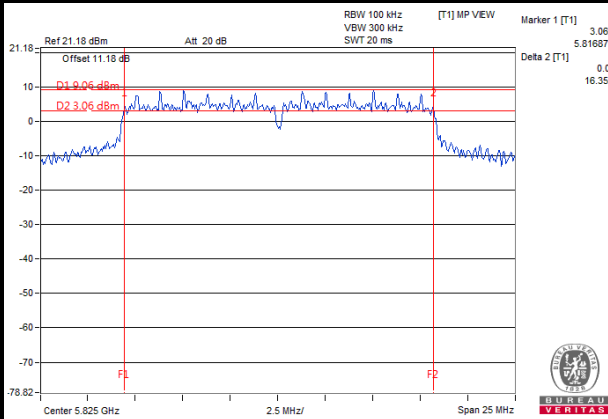
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	36.28	0.5	Pass
159	5795	37.39	0.5	Pass

802.11ax (HE80)

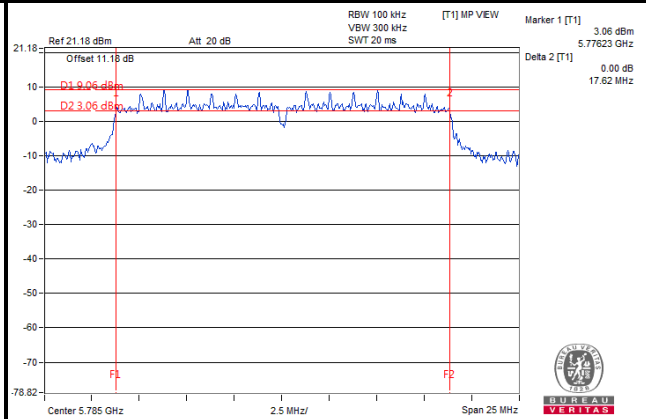
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
155	5775	76.52	0.5	Pass

Spectrum Plot of Worst Value

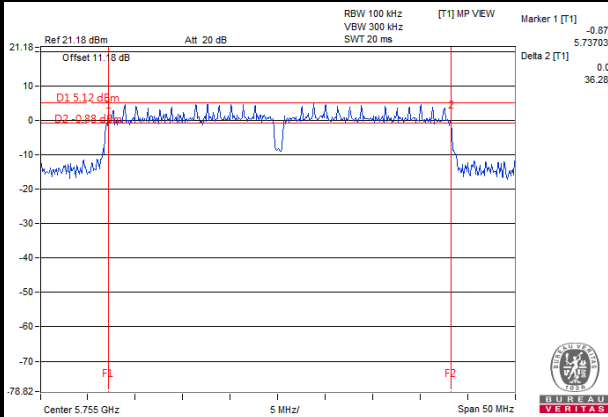
802.11a



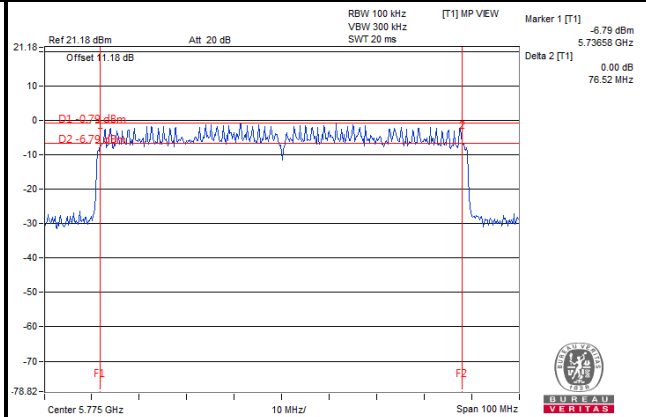
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)

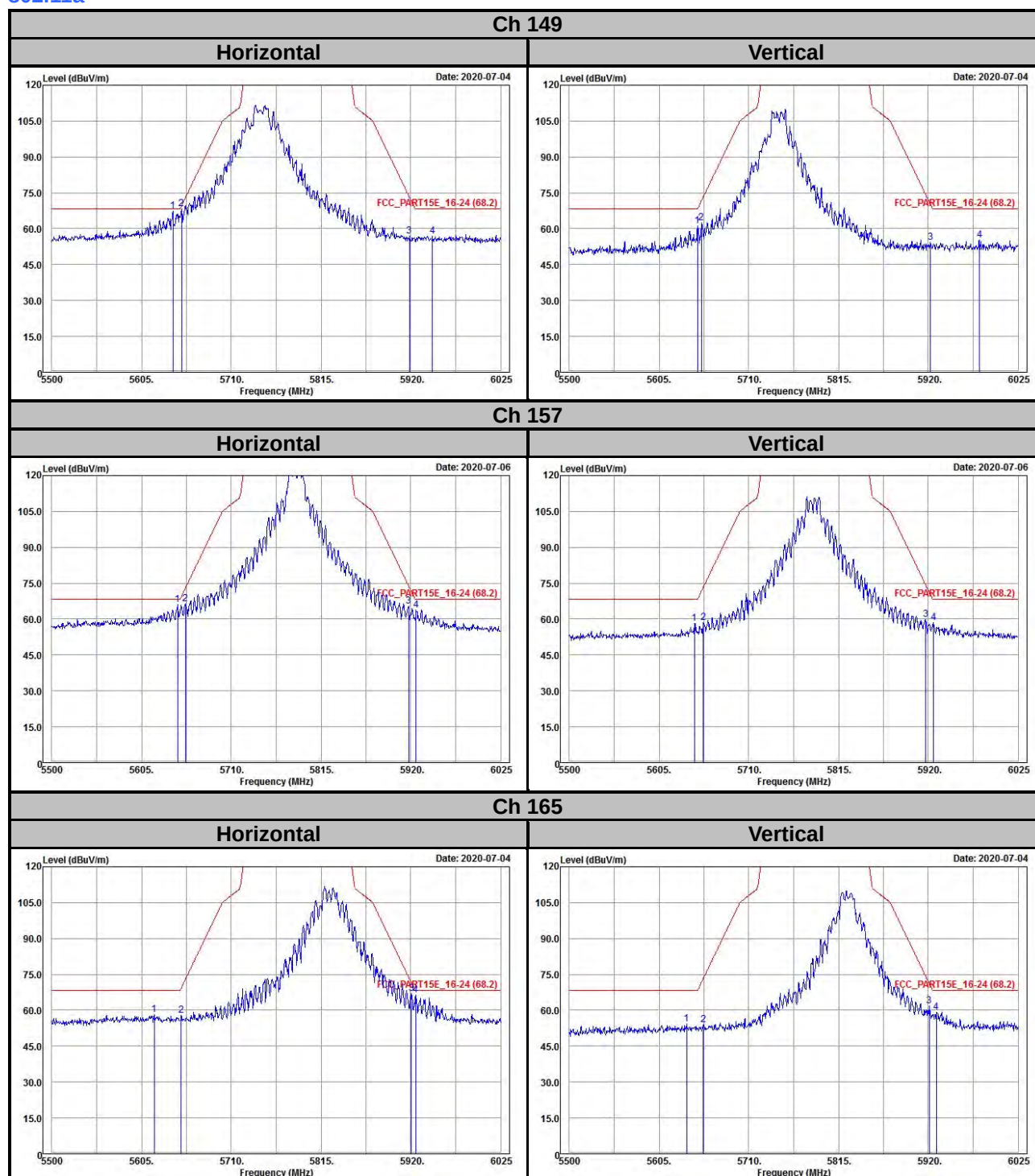


5 Pictures of Test Arrangements

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

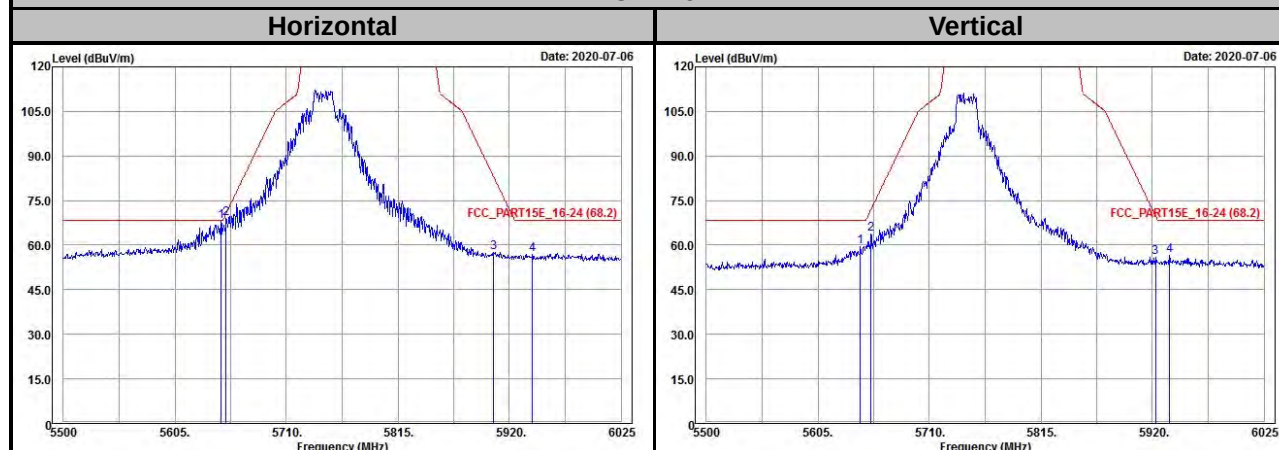
Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

Mode A
802.11a

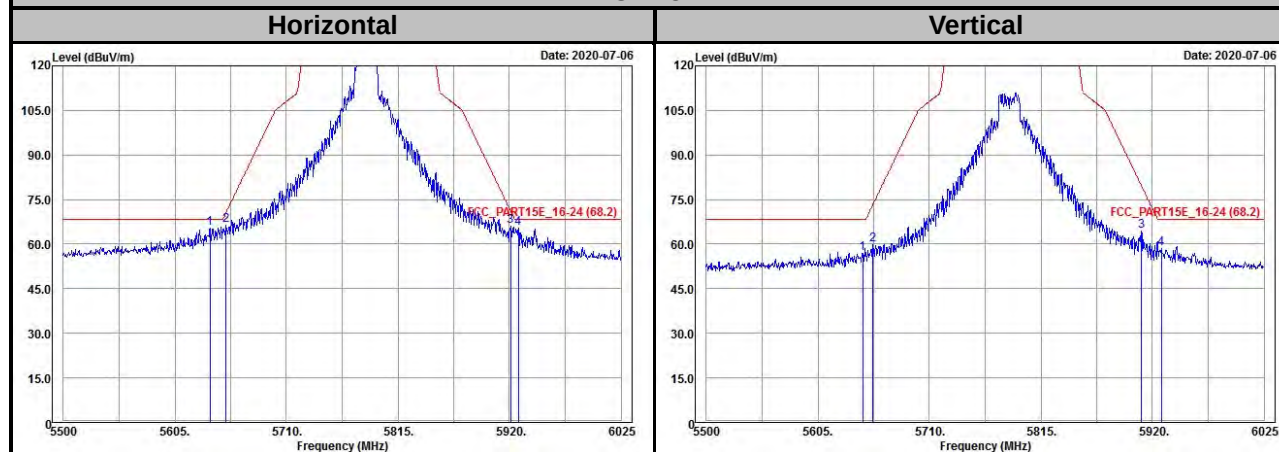


802.11ax (HE20)

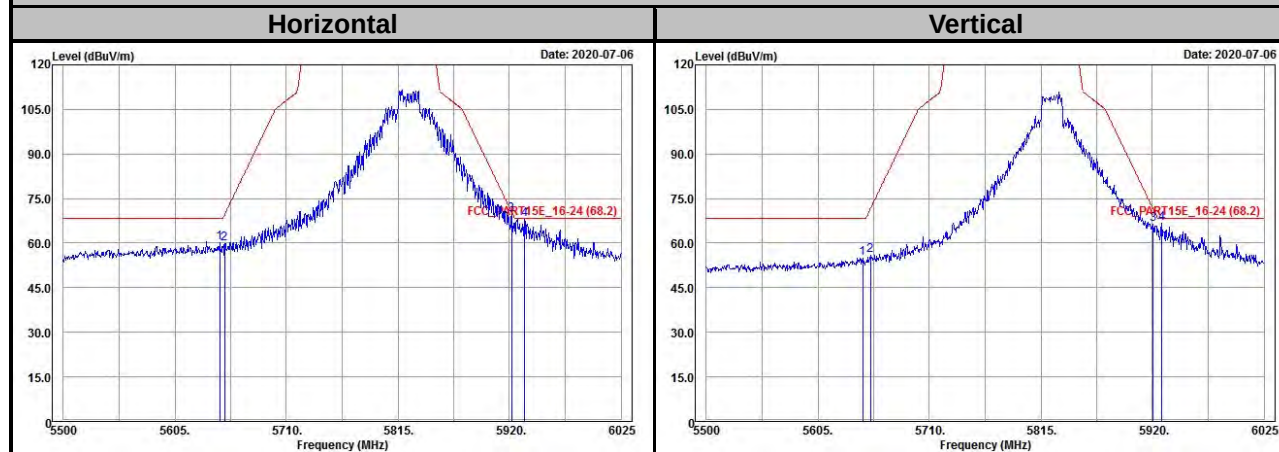
Ch 149



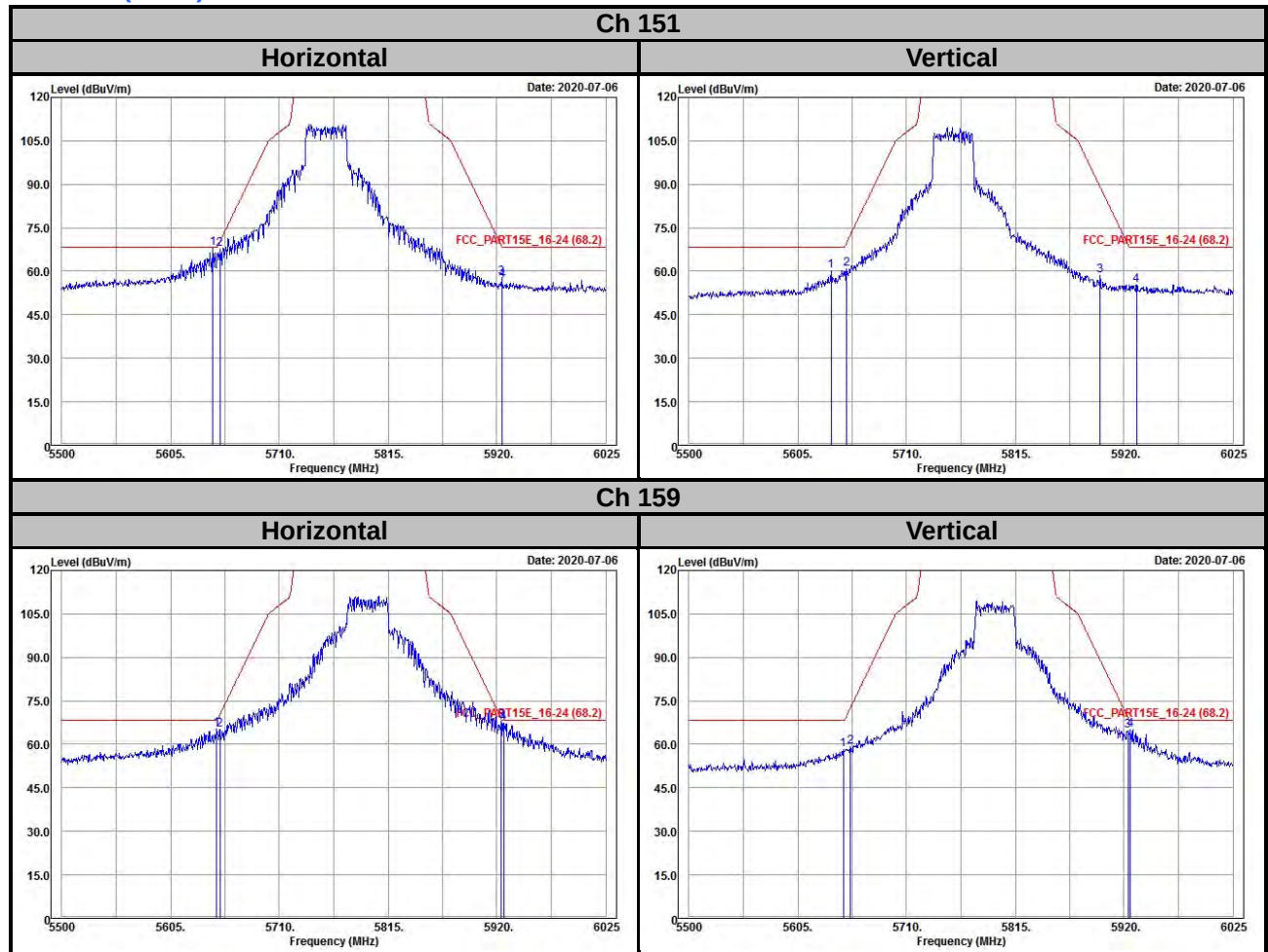
Ch 157



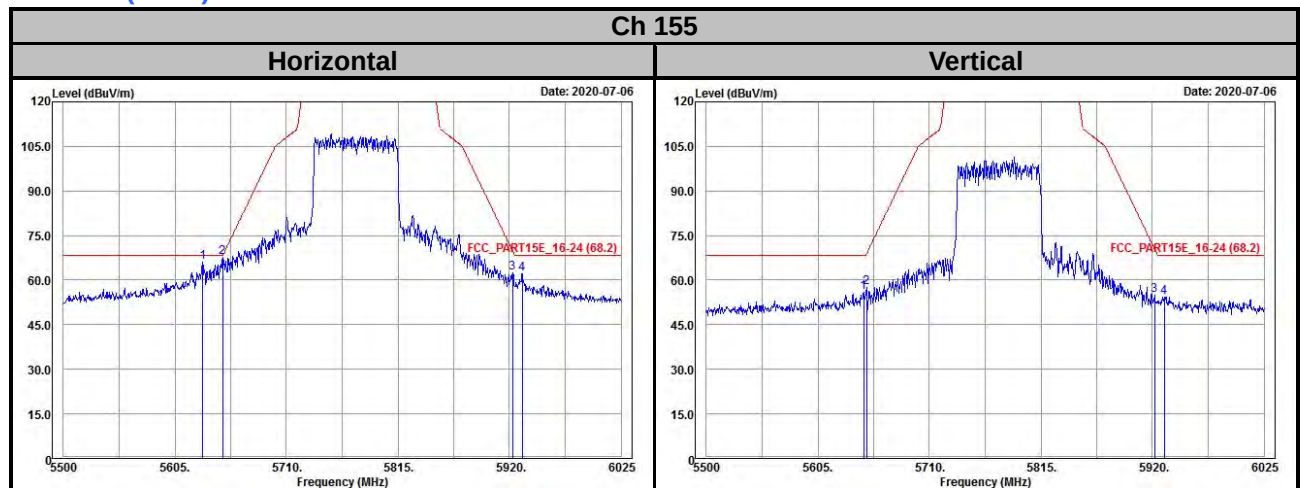
Ch 165



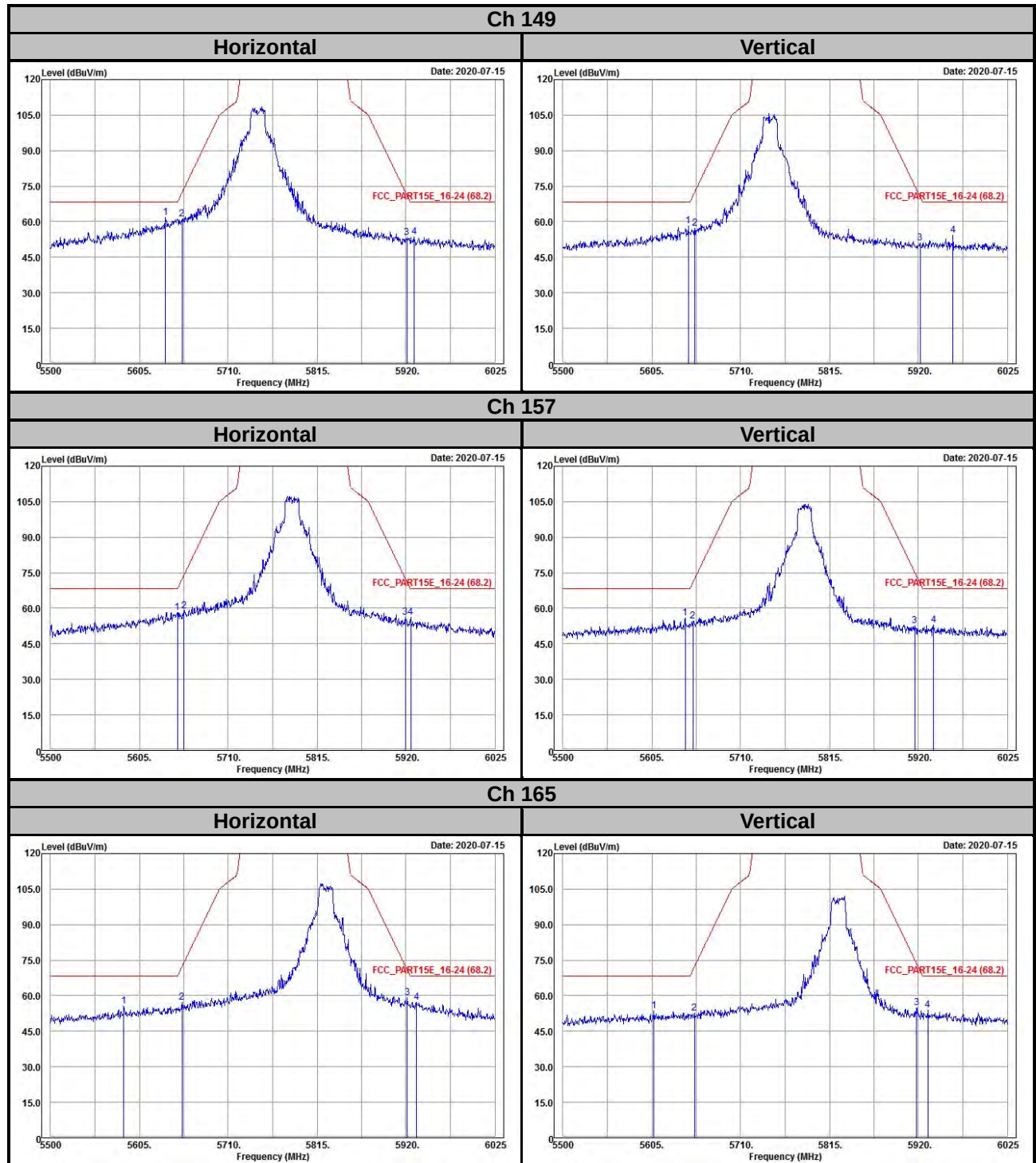
802.11ax (HE40)



802.11ax (HE80)

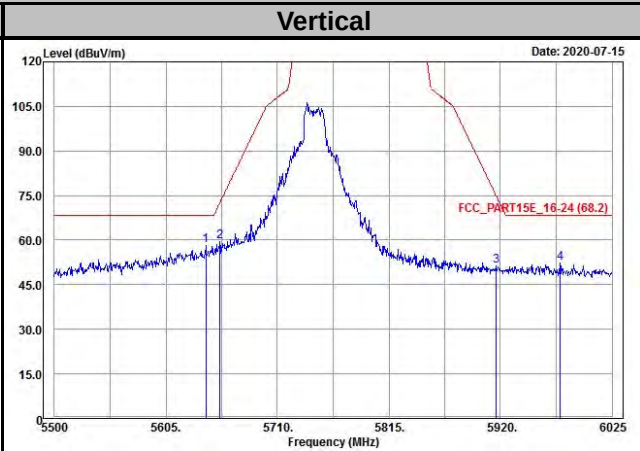
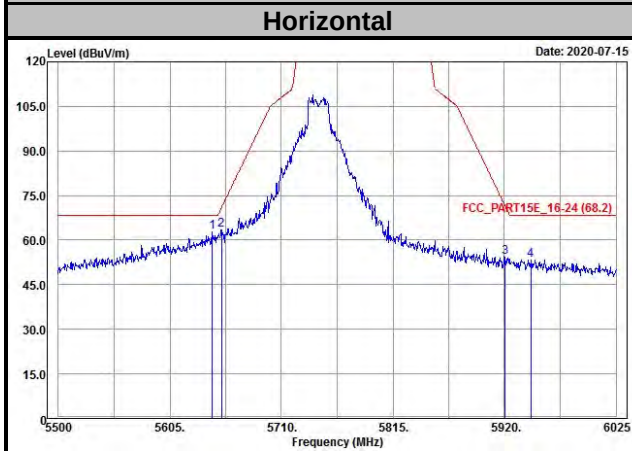


Mode B
802.11a

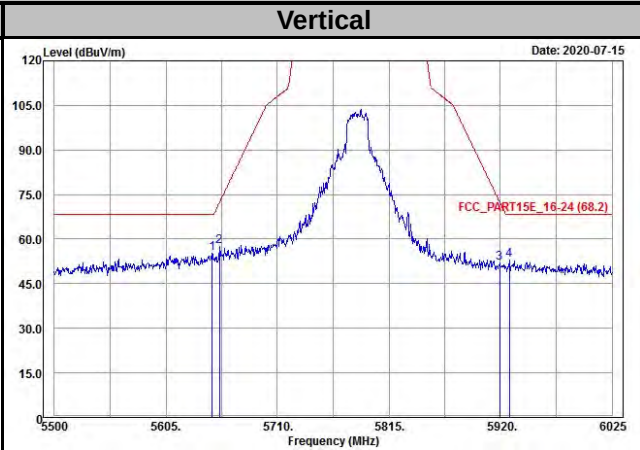
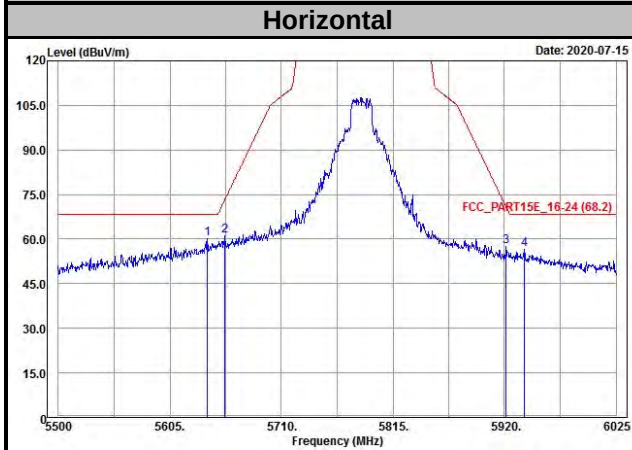


802.11ax (HE20)

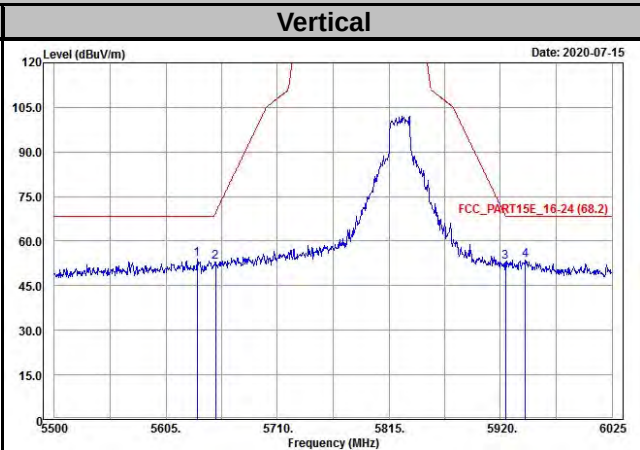
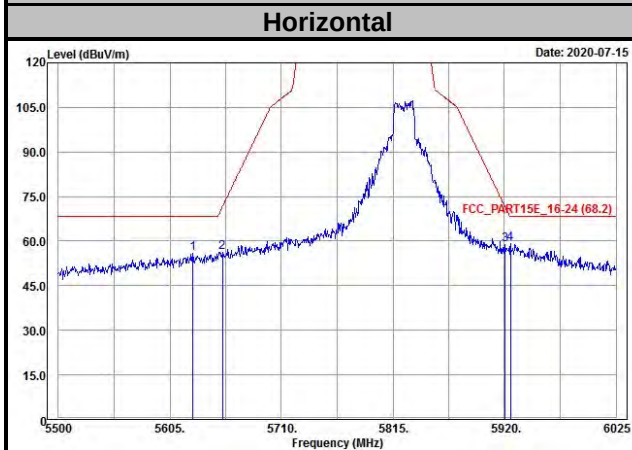
Ch 149



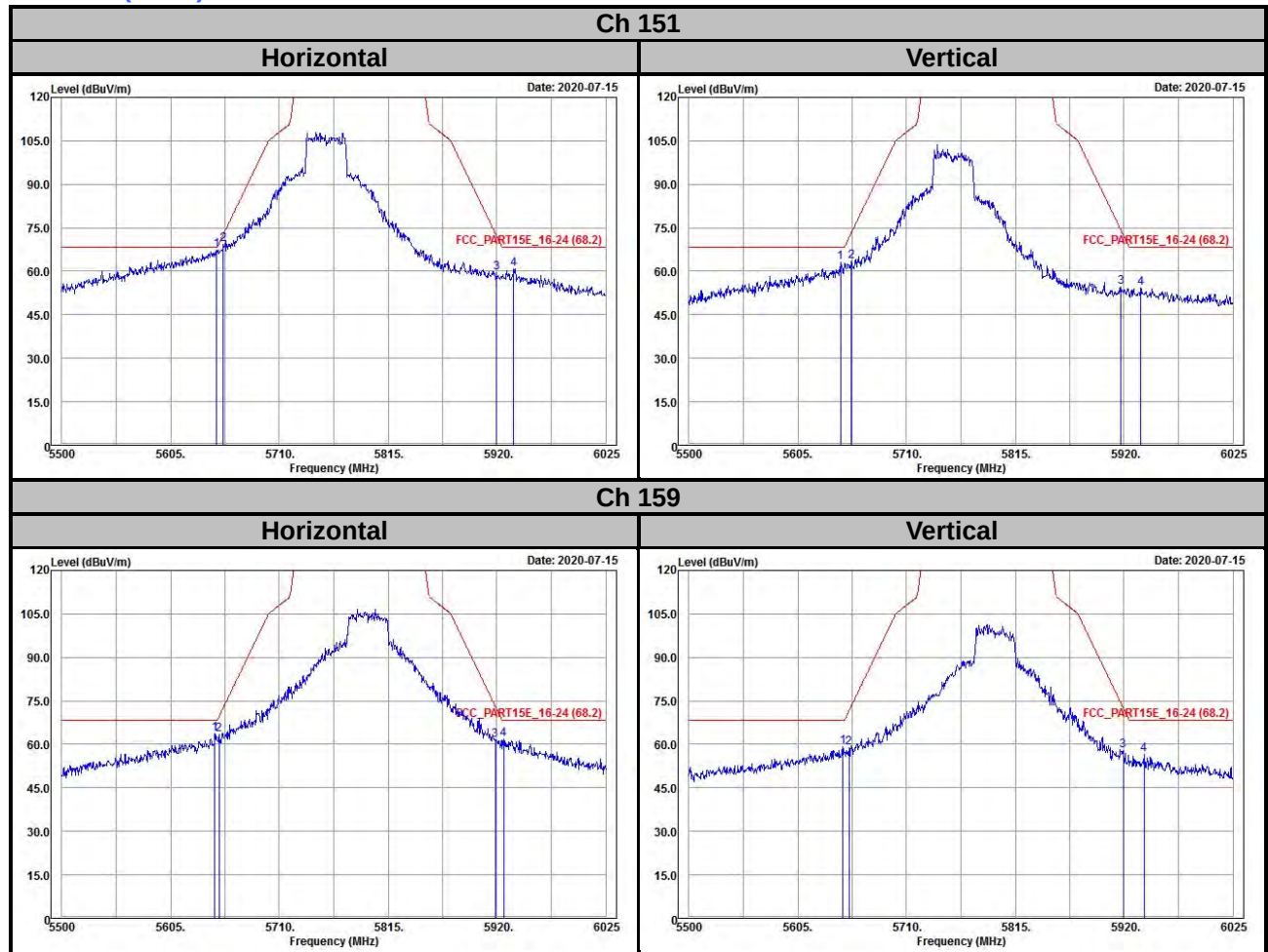
Ch 157



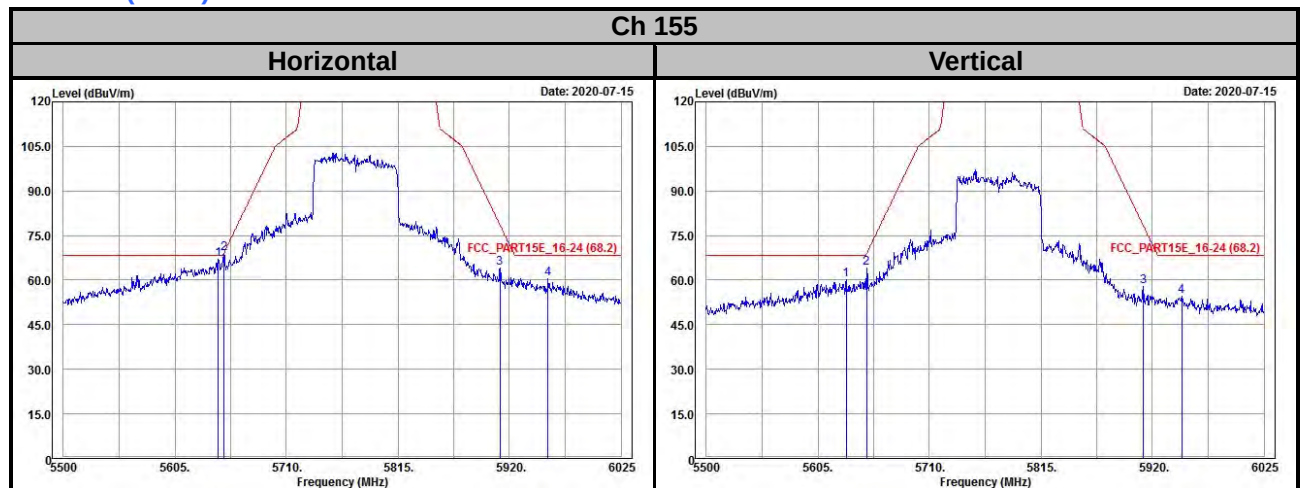
Ch 165



802.11ax (HE40)



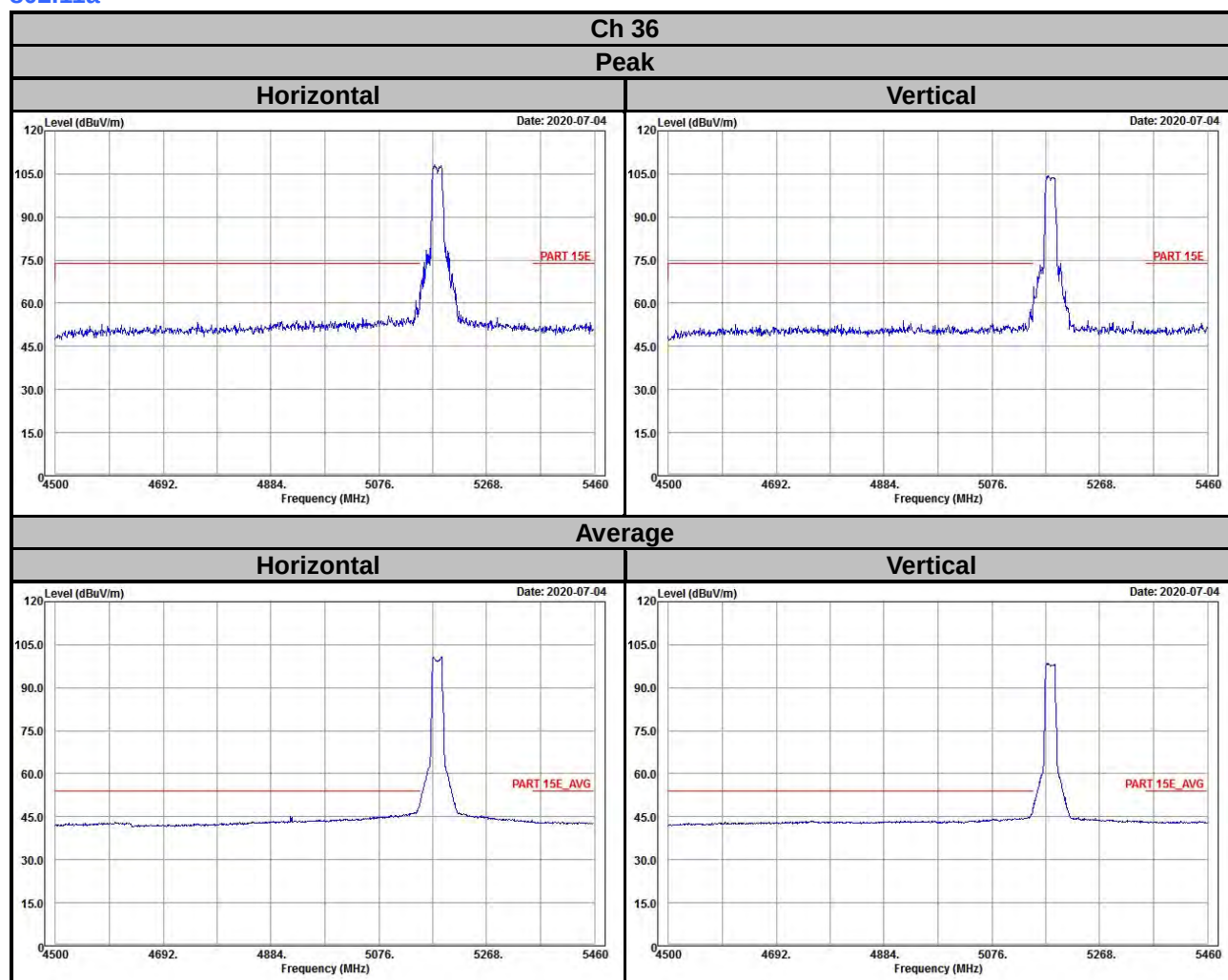
802.11ax (HE80)



Annex B- Band-edge measurement (For U-NII-1 band)

Mode A

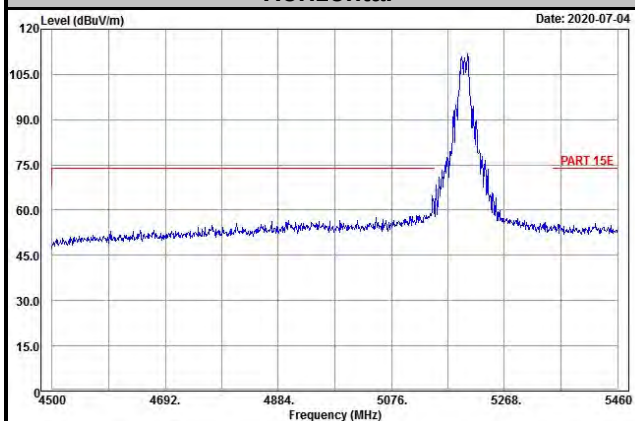
802.11a



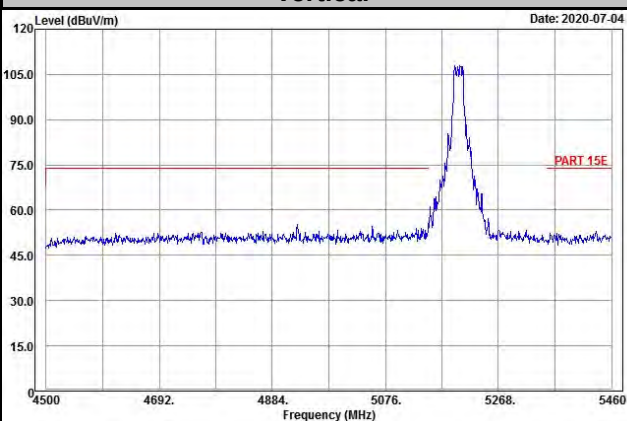
Ch 40

Peak

Horizontal

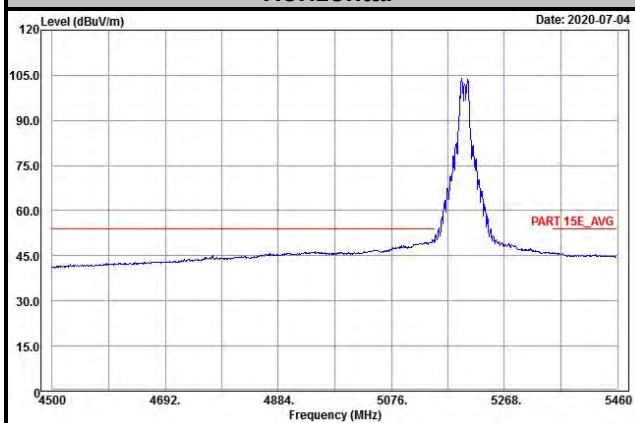


Vertical

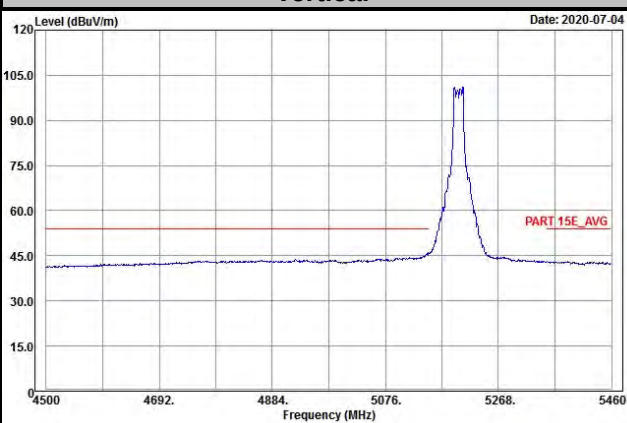


Average

Horizontal



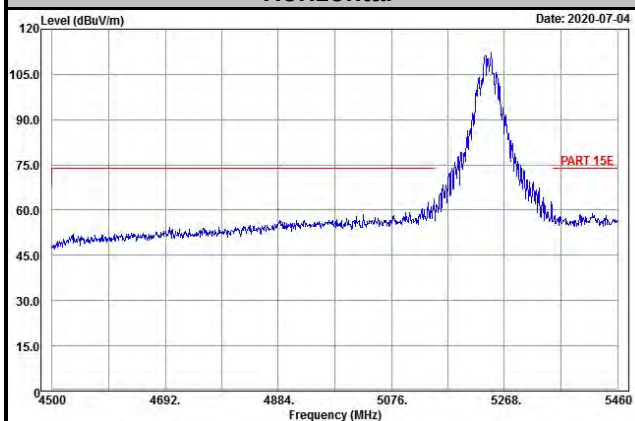
Vertical



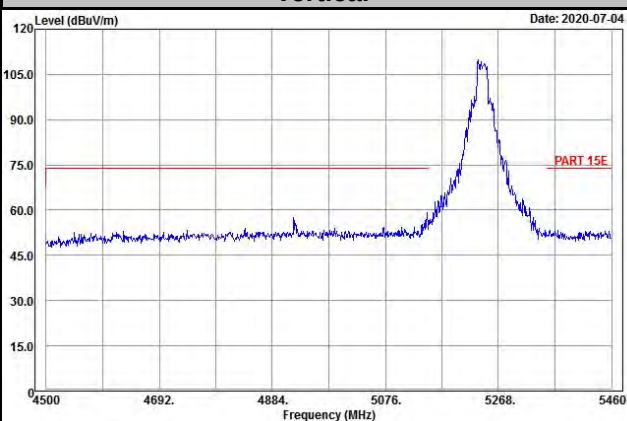
Ch 48

Peak

Horizontal

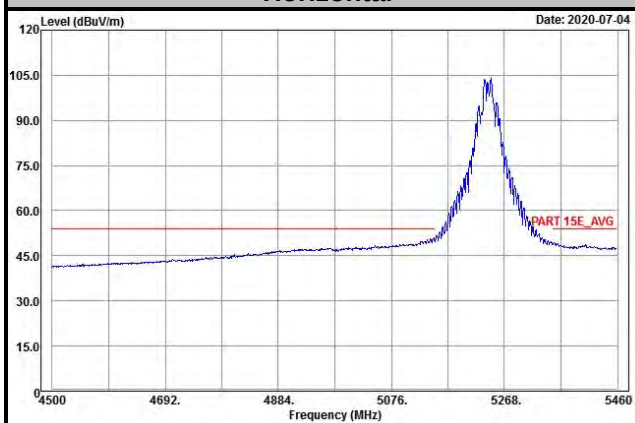


Vertical

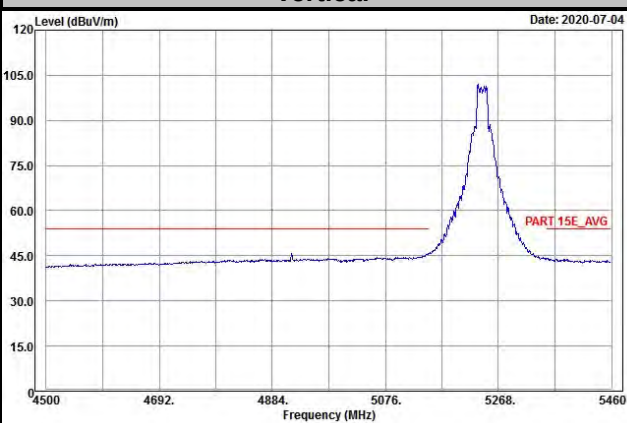


Average

Horizontal



Vertical

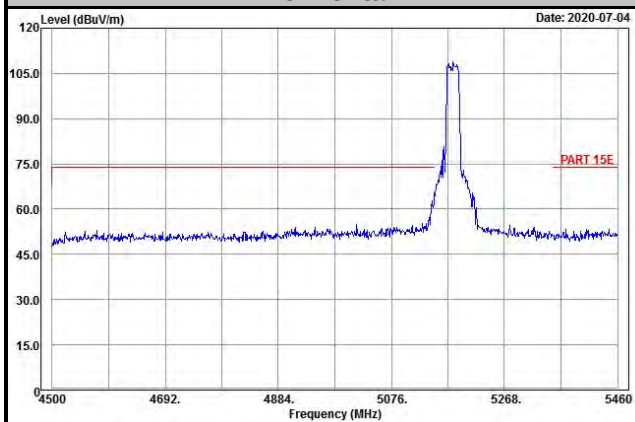


802.11ax (HE20)

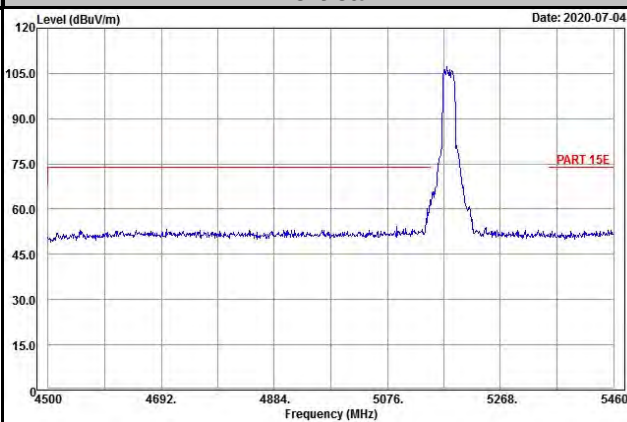
Ch 36

Peak

Horizontal

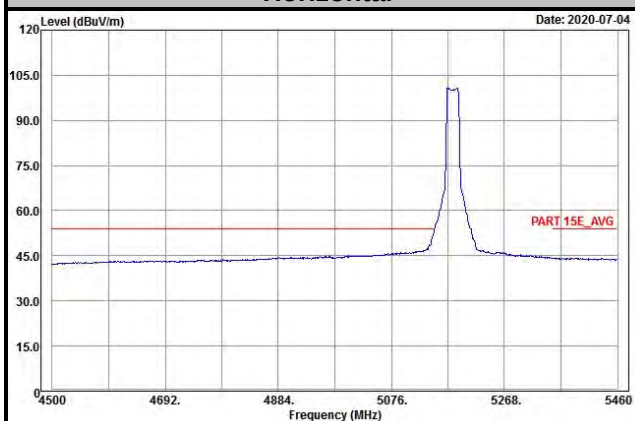


Vertical

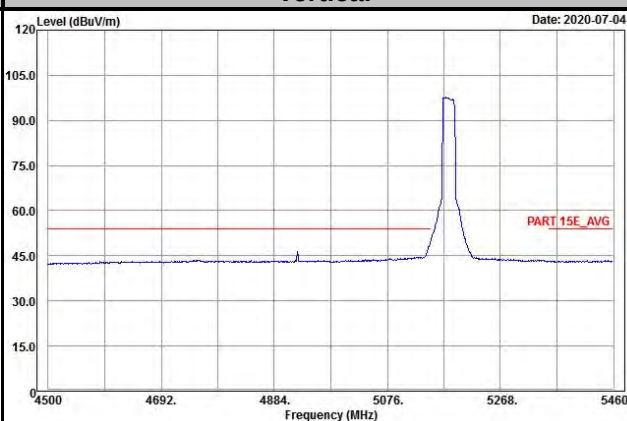


Average

Horizontal



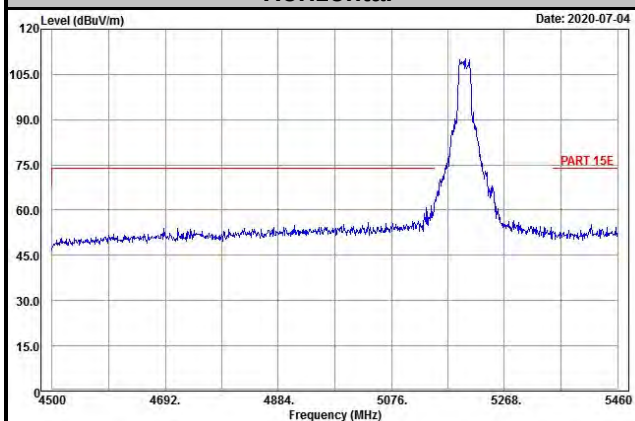
Vertical



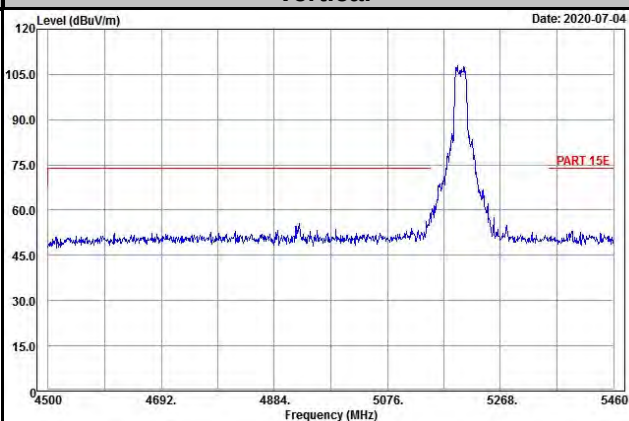
Ch 40

Peak

Horizontal

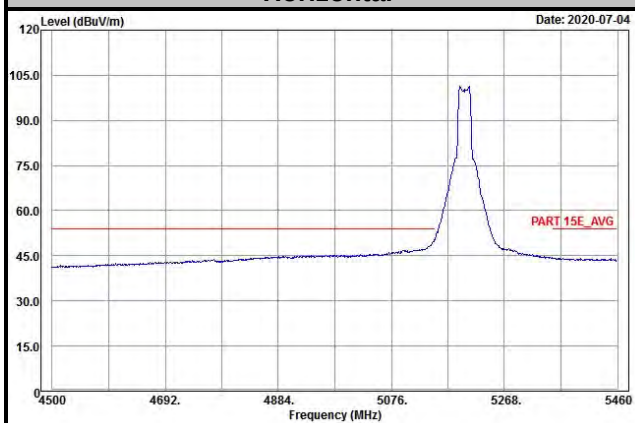


Vertical

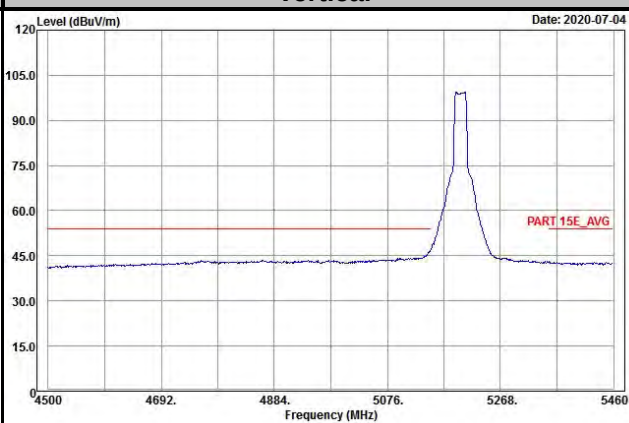


Average

Horizontal



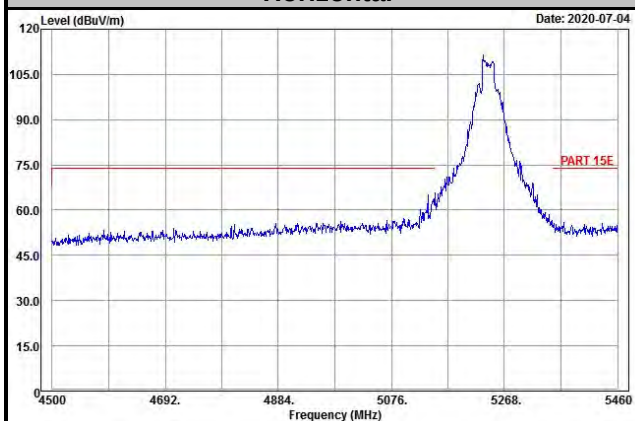
Vertical



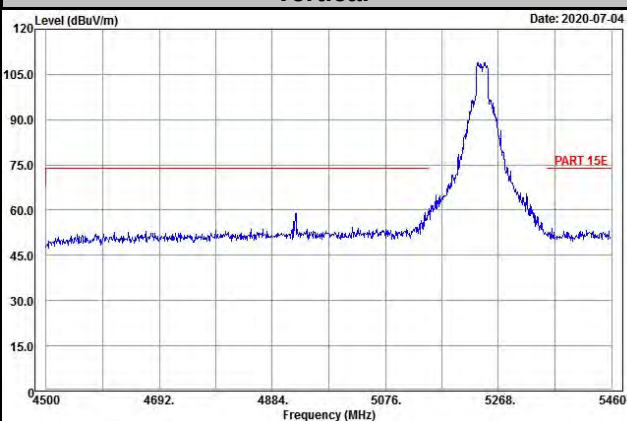
Ch 48

Peak

Horizontal

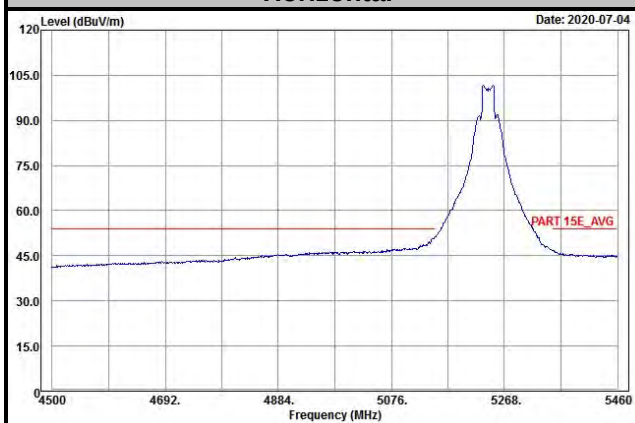


Vertical

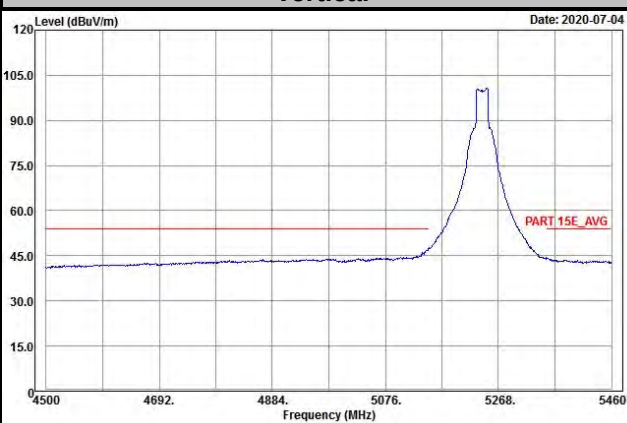


Average

Horizontal



Vertical

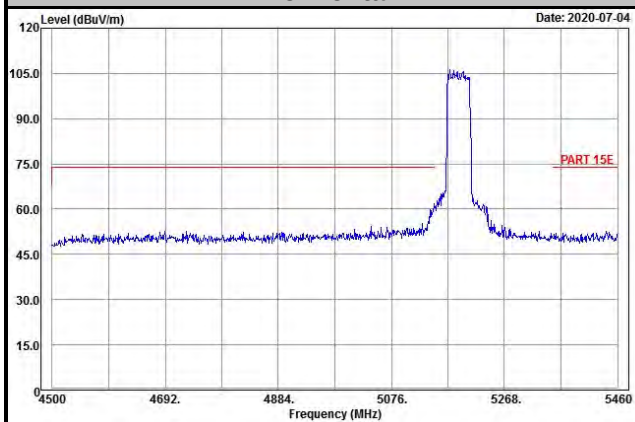


802.11ax (HE40)

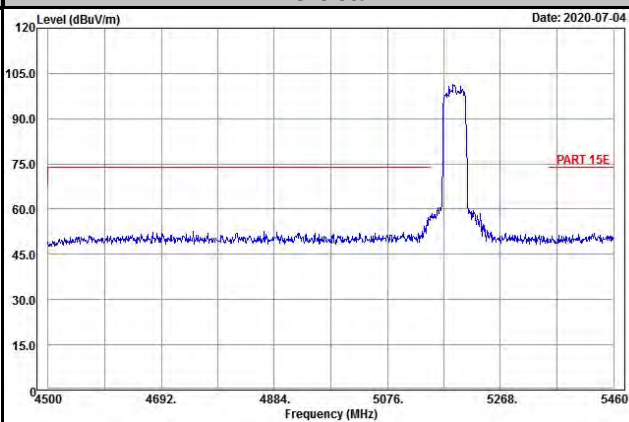
Ch 38

Peak

Horizontal

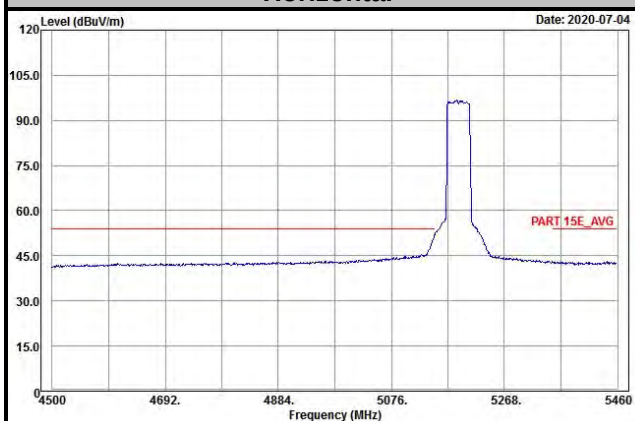


Vertical

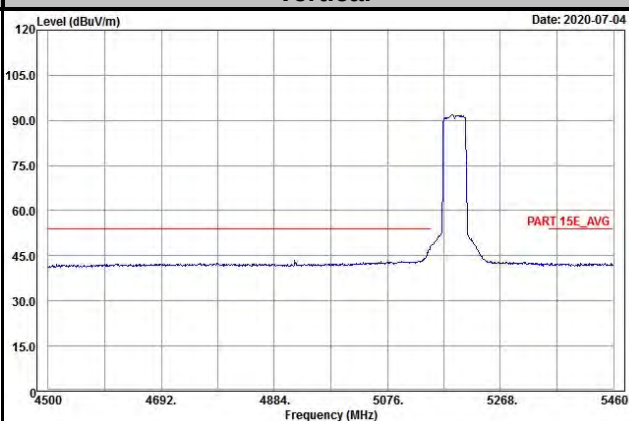


Average

Horizontal



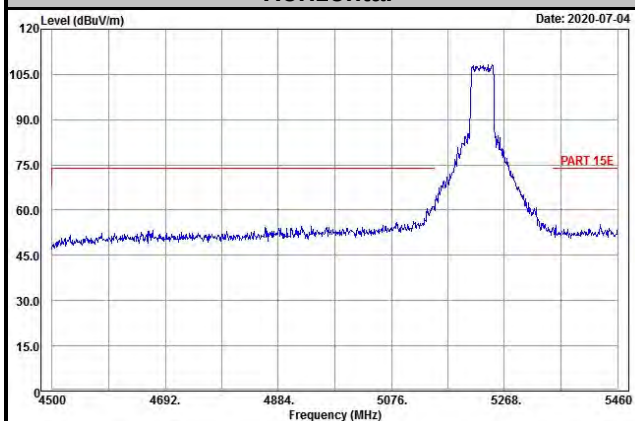
Vertical



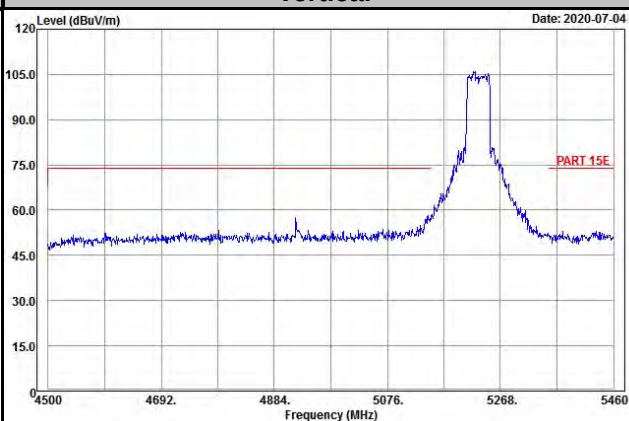
Ch 46

Peak

Horizontal

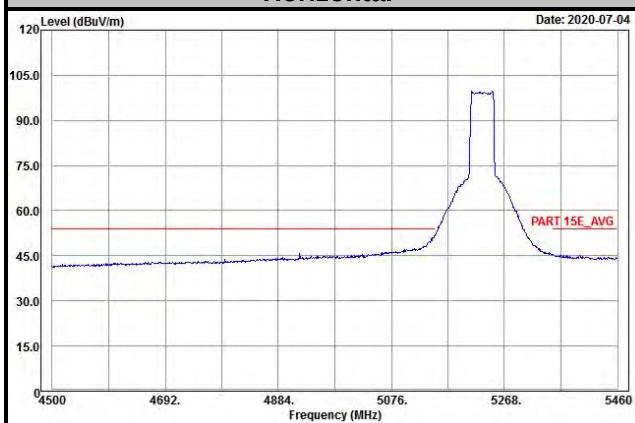


Vertical

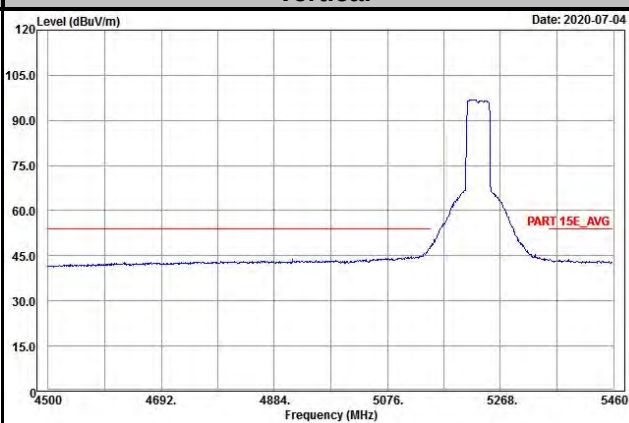


Average

Horizontal



Vertical

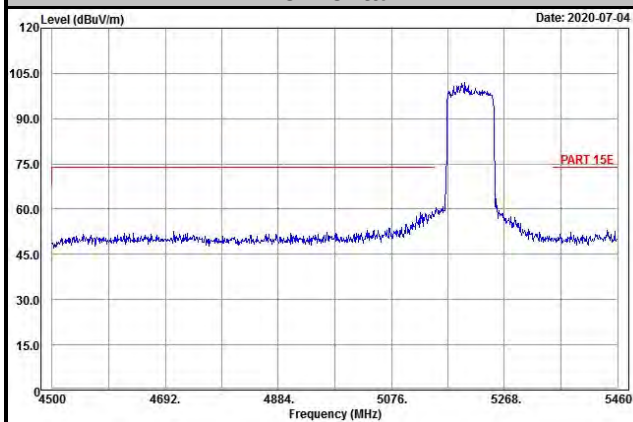


802.11ax (HE80)

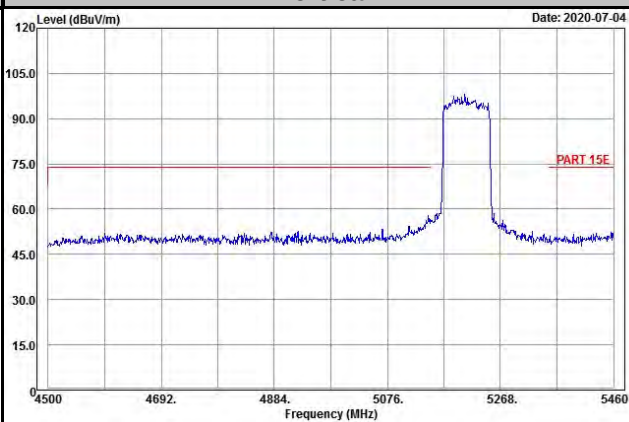
Ch 42

Peak

Horizontal

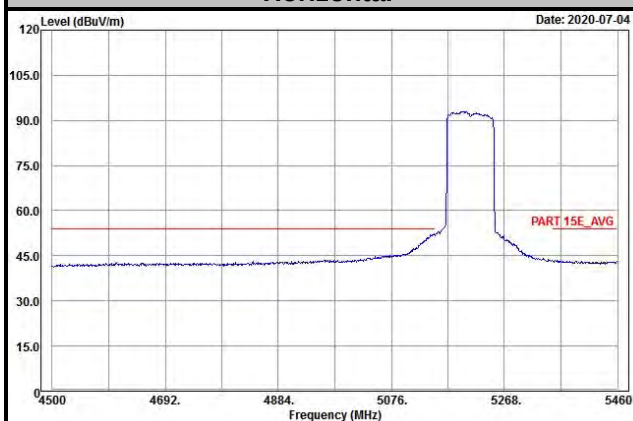


Vertical

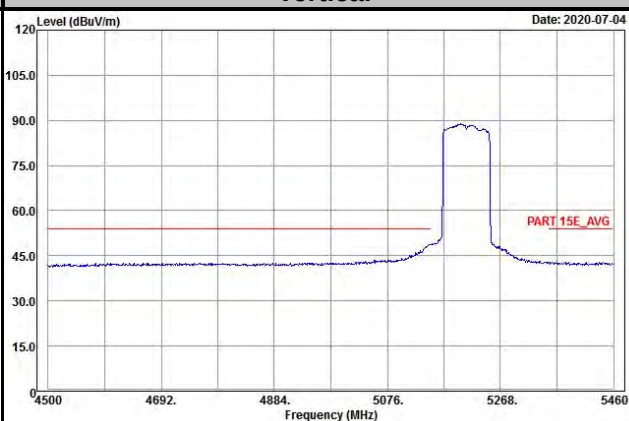


Average

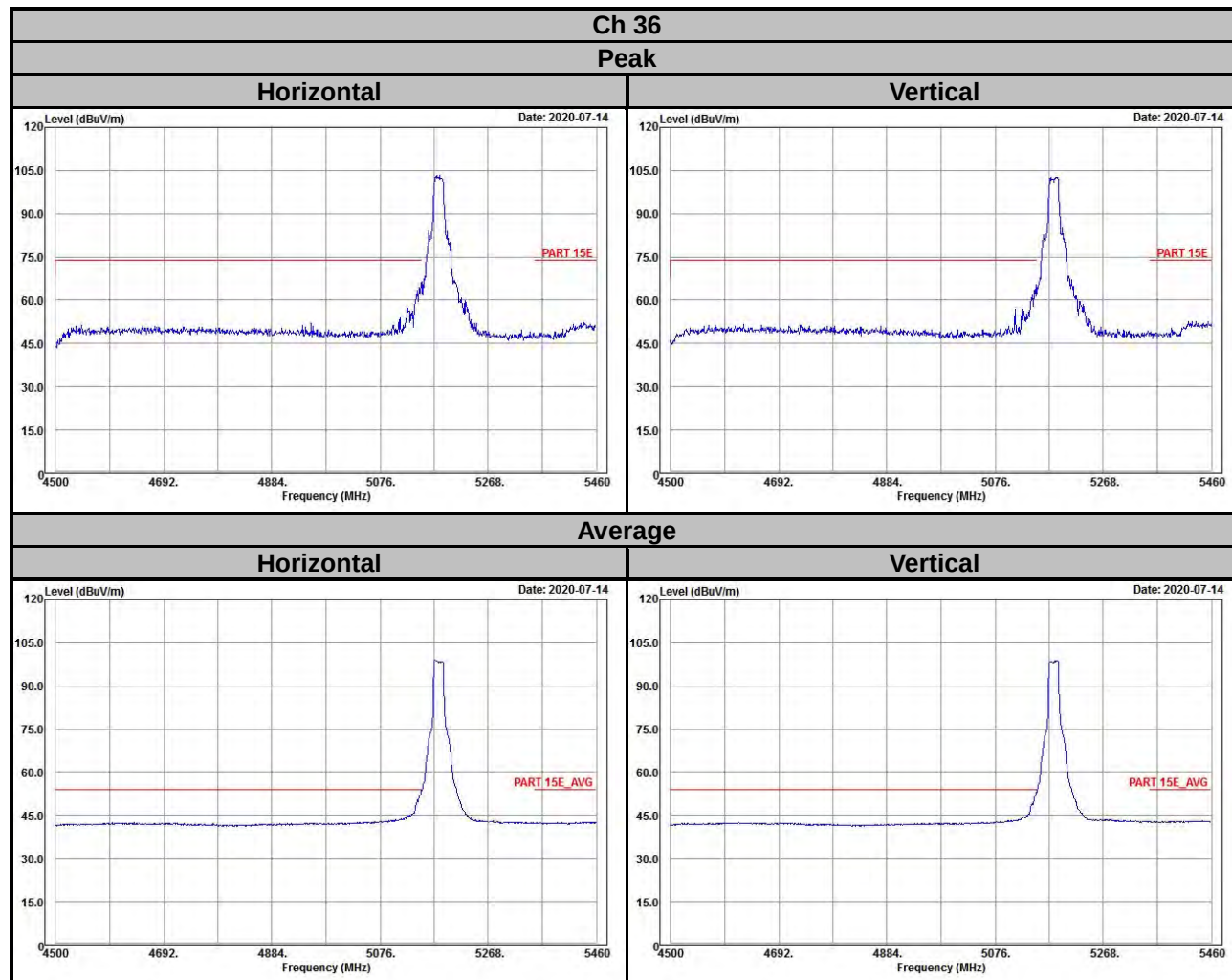
Horizontal



Vertical



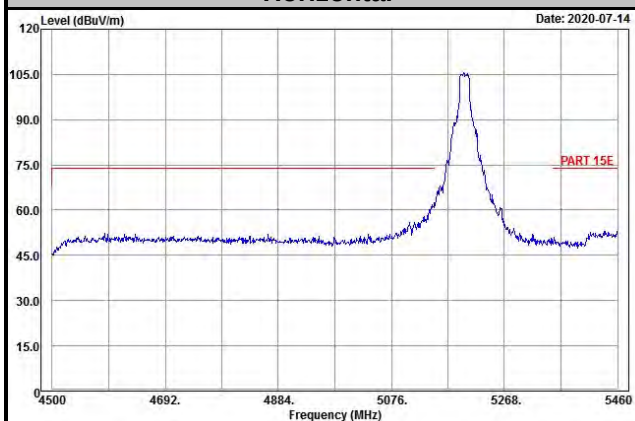
Mode B
802.11a



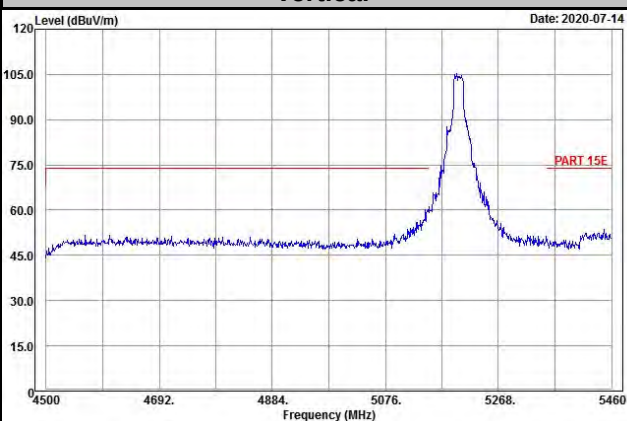
Ch 40

Peak

Horizontal

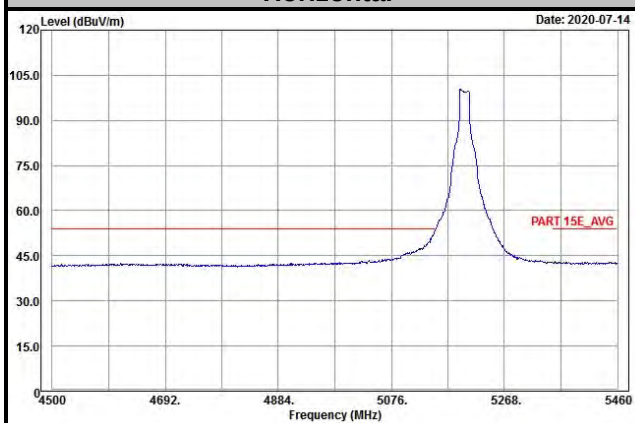


Vertical

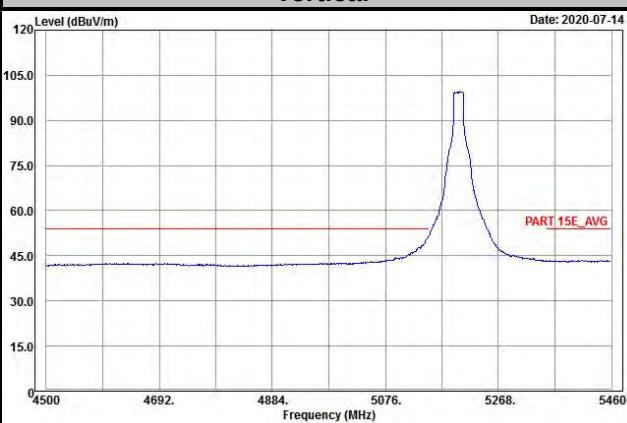


Average

Horizontal



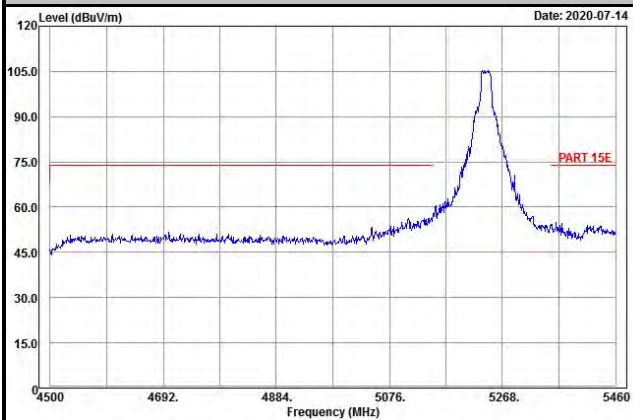
Vertical



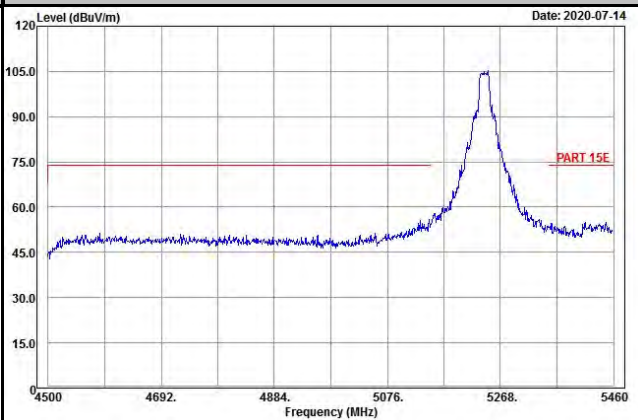
Ch 48

Peak

Horizontal

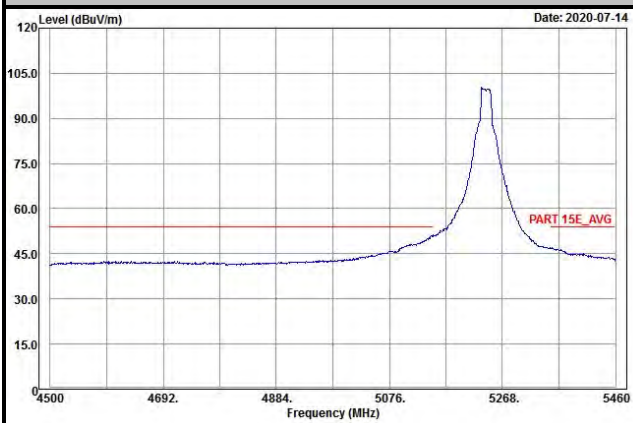


Vertical

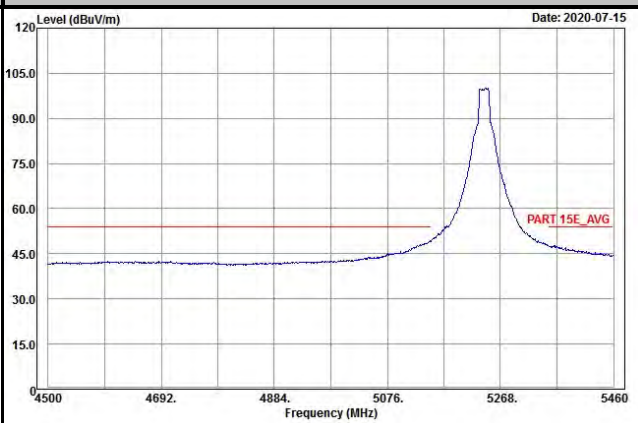


Average

Horizontal



Vertical

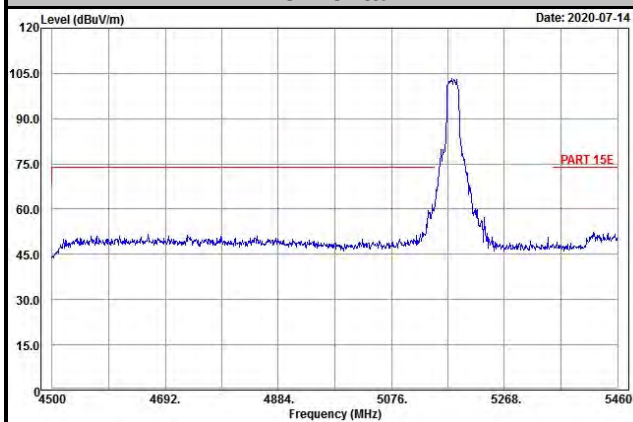


802.11ax (HE20)

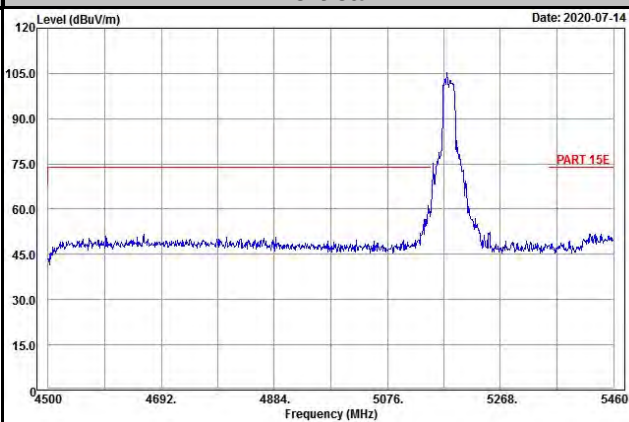
Ch 36

Peak

Horizontal

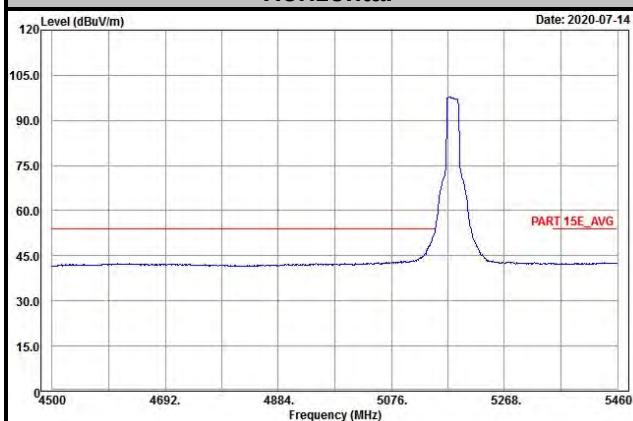


Vertical

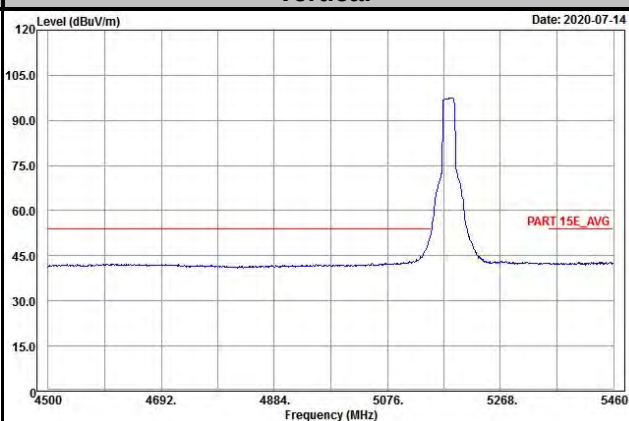


Average

Horizontal



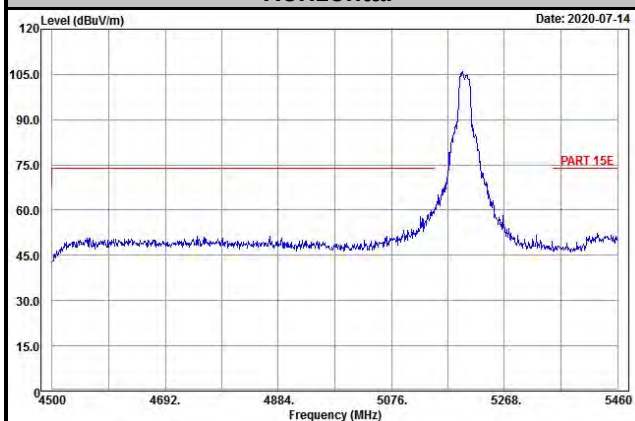
Vertical



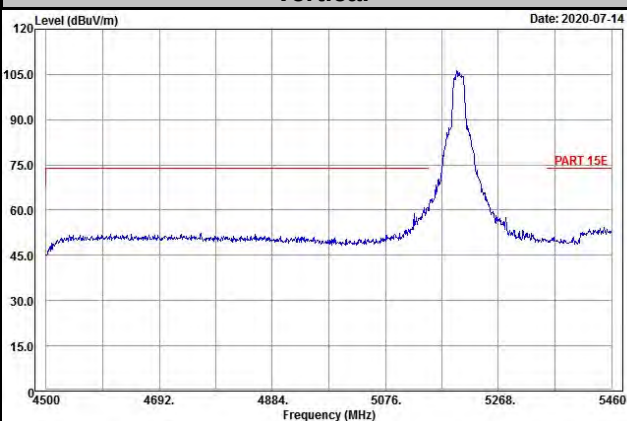
Ch 40

Peak

Horizontal

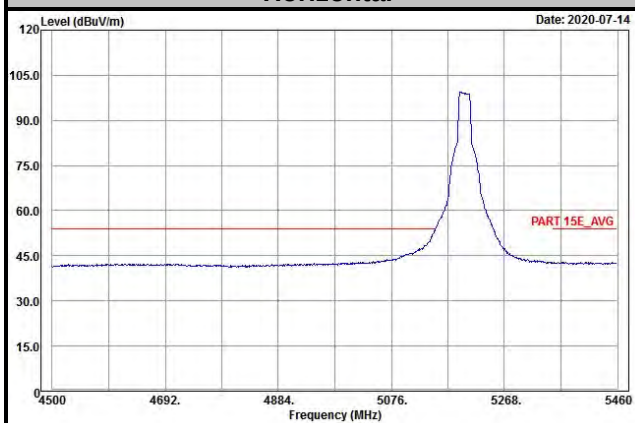


Vertical

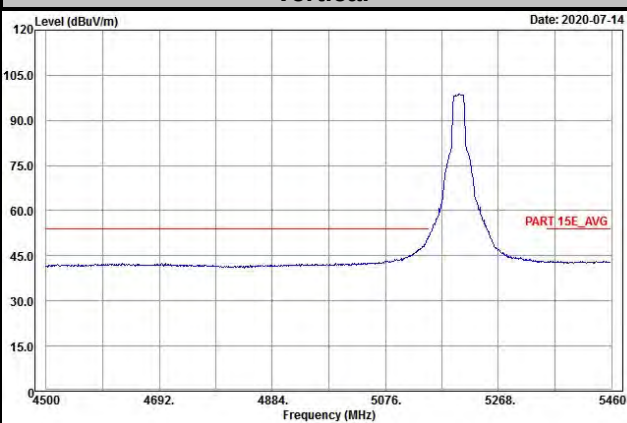


Average

Horizontal



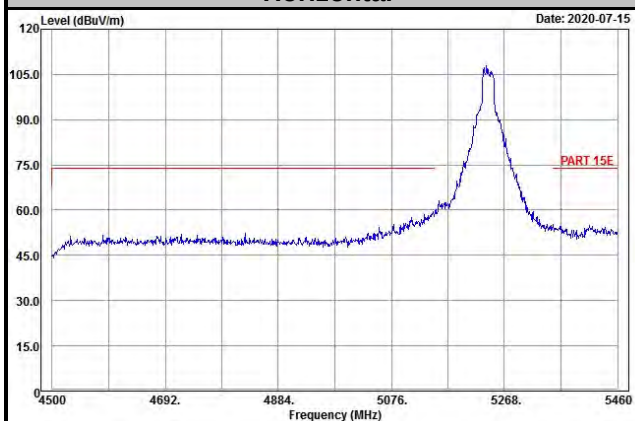
Vertical



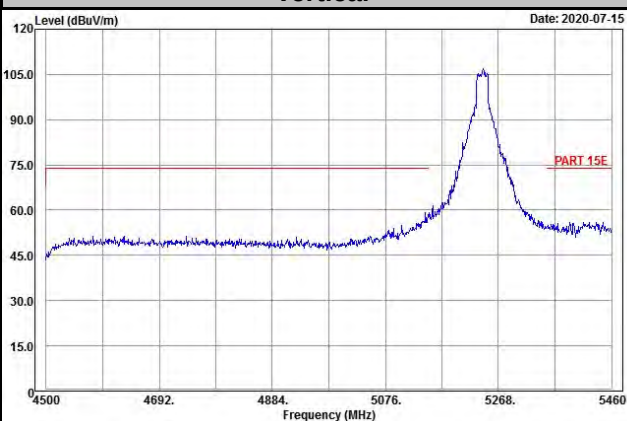
Ch 48

Peak

Horizontal

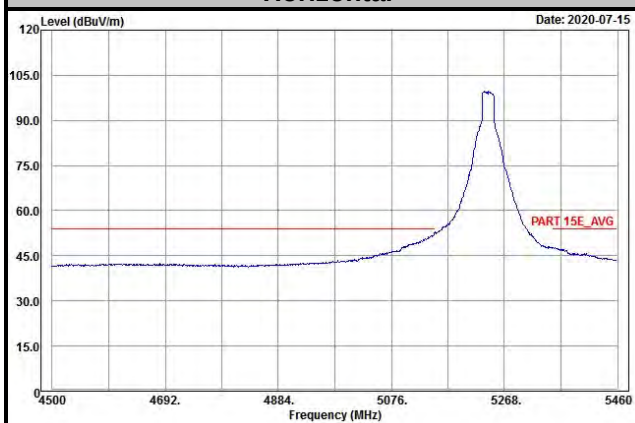


Vertical

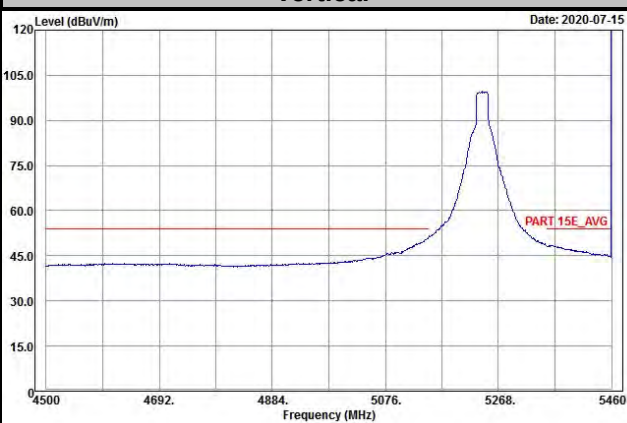


Average

Horizontal



Vertical

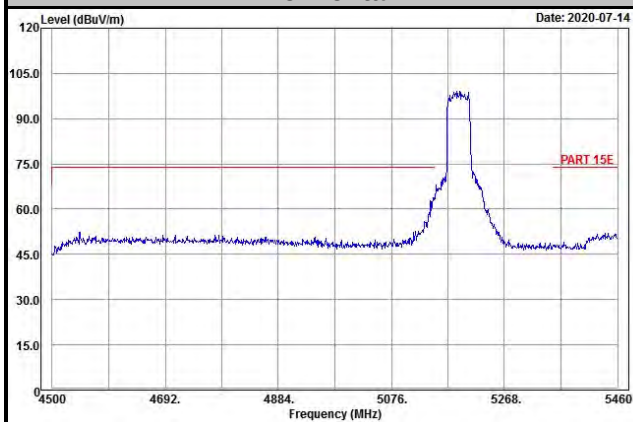


802.11ax (HE40)

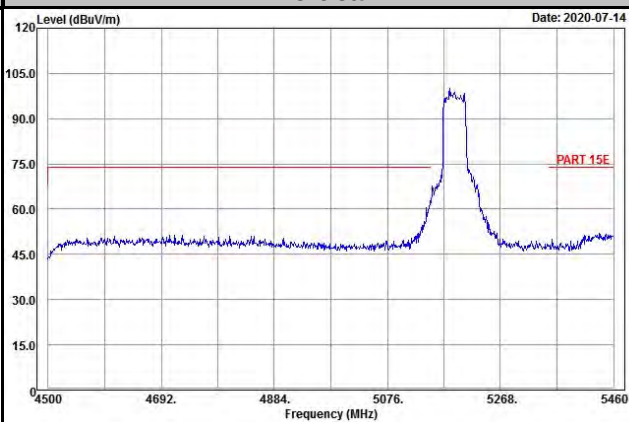
Ch 38

Peak

Horizontal

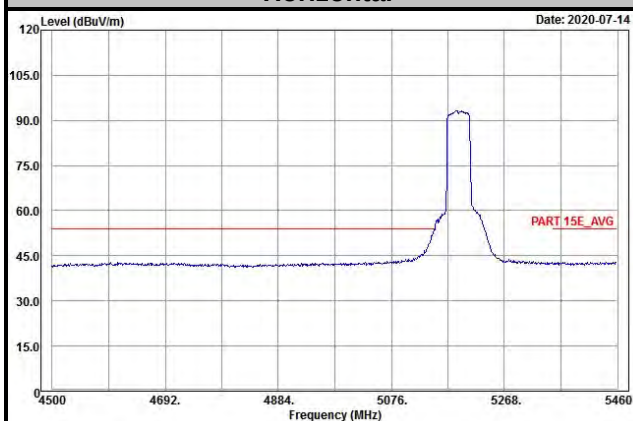


Vertical

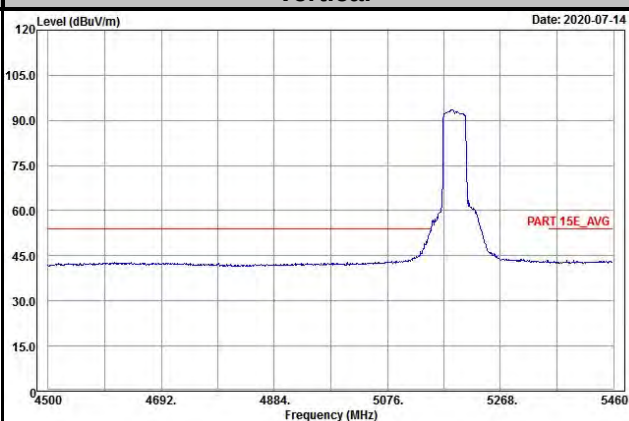


Average

Horizontal



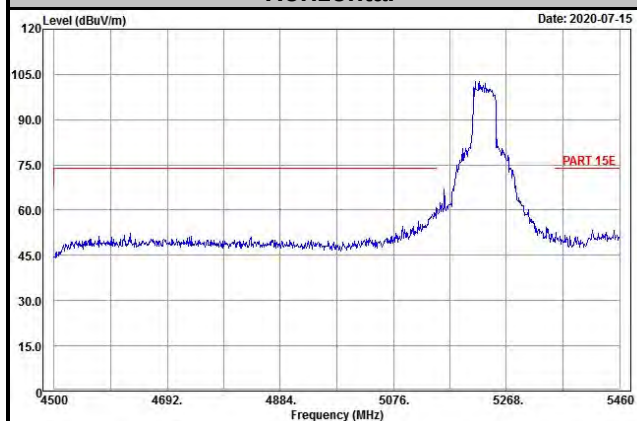
Vertical



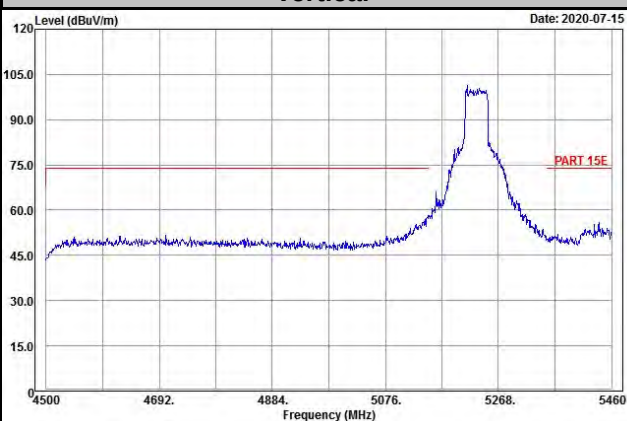
Ch 46

Peak

Horizontal

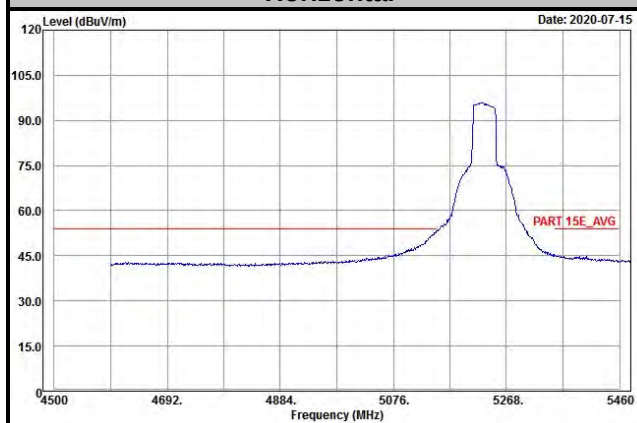


Vertical

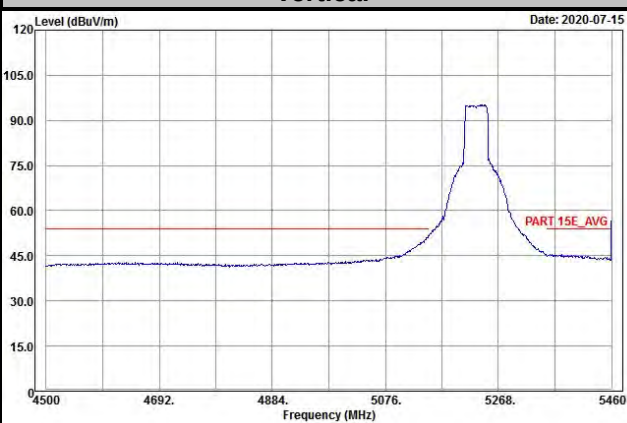


Average

Horizontal



Vertical

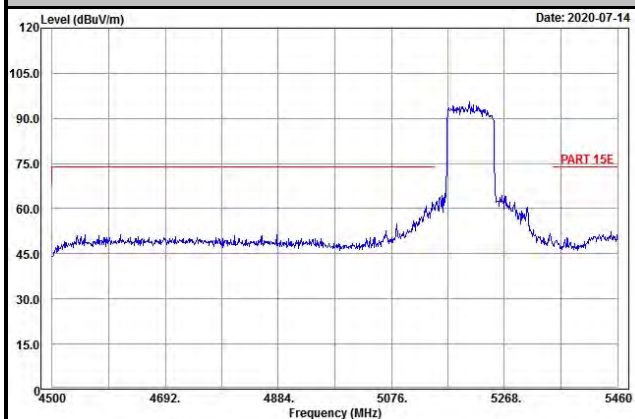


802.11ax (HE80)

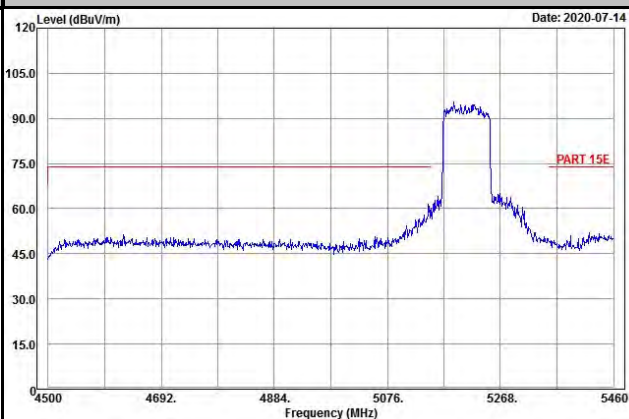
Ch 42

Peak

Horizontal

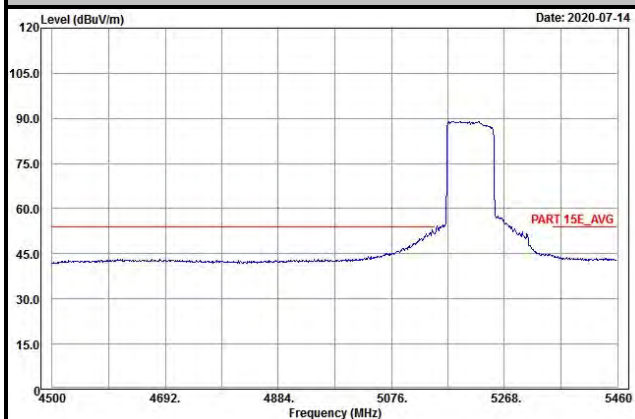


Vertical

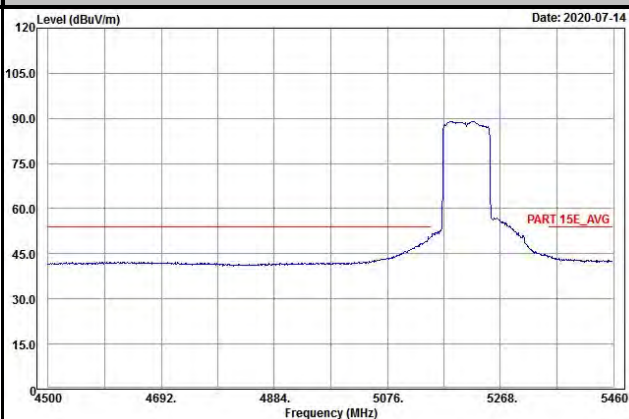


Average

Horizontal



Vertical



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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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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