FCC Test Report (Spot Check)

Report No.:	RFBCKS-WTW-P21070349-3
FCC ID:	2AYRA-08315
Original FCC ID:	2AYRA-03580
Test Model:	MX4300
Series Model:	MX4300S
Received Date:	July 12, 2021
Test Date:	Aug. 01 to 04, 2021
Issued Date:	Oct. 15, 2021
Applicant:	Linksys USA, Inc.
Address:	12045 E. Waterfront Drive, Playa Vista, CA 90094
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwa.
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan.
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
RFBCKS-WTW-P21070349-3	Original release.	Oct. 15, 2021

1 Certificate of Conformity

Product:	Linksys HomeWRK for Business
Brand:	Linksys
Test Model:	MX4300
Series Model:	MX4300S
Sample Status:	Engineering sample
Applicant:	Linksys USA, Inc.
Test Date:	Aug. 01 to 04, 2021
Standard:	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 EMC characteristics under the conditions specified in this report.

Prepared by : Vivian Huang , **Date:** Oct. 15, 2021

Vivian Huang / Specialist

Approved by : , **Date:** Oct. 15, 2021

Clark Lin / Technical Manager

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 -20.87dB at 0.38828MHz.
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 -1.8dB at 5350.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	NA	Refer to Note 1 below
15.407(e)	6dB bandwidth	NA	Refer to Note 1 below
15.407(g)	Frequency Stability	NA	Refer to Note 1 below
15.203	Antenna Requirement	Pass	Antenna connector is i-pex(MHF) not a standard connector.

Note:
1. AC Power Conducted Emission & Radiated Emissions & Band Edge Measurement & Max Average Transmit Power were performed for this addendum. The others testing data refer to original test report.
2. For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOBE test plots were recorded in Annex A.
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	150kHz ~ 30MHz	1.9 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.1 dB
	30MHz ~ 1GHz	5.4 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.3 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Linksys HomeWRK for Business
Brand	Linksys
Test Model	MX4300
Series Model	MX4300S
Status of EUT	Engineering sample
Power Supply Rating	12Vdc from power adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode 1024QAM for OFDMA in 11ax HE mode
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	802.11b: up to 11 Mbps 802.11a/g: up to 54 Mbps 802.11n: up to 600 Mbps 802.11ac: up to 1733.3 Mbps 802.11ax: up to 2401.9 Mbps
Operating Frequency	5.26 ~ 5.32 GHz, 5.50~5.72GHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 16 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 8 802.11ac (VHT80), 802.11ax (HE80): 4
Output Power	**CDD Mode:** **5.26 ~ 5.32GHz:** 213.732 mW **5.5 ~ 5.72GHz:** 225.783 mW **Beamforming Mode:** **5.26 ~ 5.32GHz:** 151.128 mW **5.5 ~ 5.72GHz:** 105.668 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	NA

Note:

1. FCC ID: 2AYRA-03580 and FCC ID: 2AYRA-08315 use identical hardware and PCB layouts; the only difference is the removal of BT-LE components for FCC ID: 2AYRA-08315.
2. The changes described above do not affect the WiFi_2.4G, WiFi_5G RF test items of the equipment. Consequently, the WiFi_2.4G, 5G test data retrieved from the initial application (FCC ID: 2AYRA-03580) can be re-used for FCC ID: 2AYRA-08315.
3. Spot-checks for worst-case have been performed; please see test reports for more details on test items selected.
4. The EUT has below model names which are identical to each other in all aspects except for the following table:

Brand	Model Name	Difference
Linksys	MX4300	1. NAND flash 2. DDR
	MX4300S	
Note: From the above models, model: **MX4300** was selected as representative model for the test and its data was recorded in this report.		

5. The EUT must be supplied power adapter and following different models could be chosen as following table:

No	Brand	Model No.	Spec.	Plug
1.	APD	WA-36N12FU	Input: 100-240Vac, 0.9A MAX, 50-60Hz Output: 12V, 3A DC output cable (Unshielded, 1.5 m)	US
2.	Ktec	KSA-36W-120300HU	Input: 100-240Vac, 1A, 50/60Hz Output: 12V, 3A DC output cable (Unshielded, 1.5 m)	US
3.	LEI	MU36B1120300-A1	Input: 100-240Vac, 1A, 50/60Hz Output: 12V, 3A DC output cable (Unshielded, 1.5 m)	US
4	APD	WA-36N12R	Input: 100-240Vac, 0.9A, 50-60Hz Output: 12V, 3A DC output cable (Unshielded, 1.5 m)	Interchangeable
Note: From the above adapters, the worst radiated emission & conducted emission test were found in **Adapter 2**. Therefore only the test data of the modes were recorded in this report.				

6. The EUT has three radios as following table:

Radio 1	Radio 2	Radio 3
WLAN 2.4GHz	WLAN 5GHz (low band)	WLAN 5GHz (high band)

7. Simultaneously transmission condition.

Condition	Technology		
1	WLAN 2.4GHz	WLAN 5GHz (low band)	WLAN 5GHz (high band)
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.			

8. The antennas provided to the EUT, please refer to the following table:

Ant. No.	Transmitter Circuit	Ant.Net Gain (dBi)	Freq. Range (GHz)	Ant. Type	Connector Type
WIFi LB_1	Dual A	3.1	2.4~2.4835	PCB	i-pex(MHF)
		3.5	5.15~5.25		
		5	5.25~5.35		
		3.7	5.47~5.725		
		4.6	5.725~5.85		
WIFi LB_2	Dual B	2.8	2.4~2.4835	PCB	i-pex(MHF)
		4.8	5.15~5.25		
		5.1	5.25~5.35		
		5	5.47~5.725		
		4.7	5.725~5.85		
WIFi HB_1	5/6G A	3	5.15~5.25	PCB	i-pex(MHF)
		3.8	5.25~5.35		
		3.7	5.47~5.725		
		3.7	5.725~5.85		
WIFi HB_2	5/6G B	3.3	5.15~5.25	PCB	i-pex(MHF)
		4.1	5.25~5.35		
		3.3	5.47~5.725		
		3.3	5.725~5.85		
WIFi HB_3	5/6G C	2.6	5.15~5.25	PCB	i-pex(MHF)
		3.6	5.25~5.35		
		4.1	5.47~5.725		
		3.9	5.725~5.85		
WIFi HB_4	5/6G D	2.4	5.15~5.25	PCB	i-pex(MHF)
		2.9	5.25~5.35		
		2.6	5.47~5.725		
		3.8	5.725~5.85		

9. The EUT incorporates a MIMO function.

MODULATION MODE	Radio 1 - 2.4GHz Band	
	TX & RX CONFIGURATION	
802.11b	2TX	2RX
802.11g	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
VHT20	2TX	2RX
VHT40	2TX	2RX
802.11ax (HE20)	2TX	2RX
802.11ax (HE40)	2TX	2RX

MODULATION MODE	Radio 2 - 5GHz Band (low band)		Radio 3 - 5GHz Band (high band)	
	TX & RX CONFIGURATION		TX & RX CONFIGURATION	
802.11a	2TX	2RX	4TX	4RX
802.11n (HT20)	2TX	2RX	4TX	4RX
802.11n (HT40)	2TX	2RX	4TX	4RX
802.11ac (VHT20)	2TX	2RX	4TX	4RX
802.11ac (VHT40)	2TX	2RX	4TX	4RX
802.11ac (VHT80)	2TX	2RX	4TX	4RX
802.11ax (HE20)	2TX	2RX	4TX	4RX
802.11ax (HE40)	2TX	2RX	4TX	4RX
802.11ax (HE80)	2TX	2RX	4TX	4RX

Note:
1. All of modulation mode support beamforming function except 802.11a/b/g modulation mode.
2. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
3. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz), 802.11ac mode for 20MHz (40MHz, 80MHz) and 802.11ax mode for 20MHz (40MH, 80MHz), therefore the manufacturer will control the power for 802.11n/ac mode is the same as the 802.11ax or more lower than it and investigated worst case to representative mode in test report. (Final test mode refer to section 3.2.1)

10. 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.

11. 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.

3.2 Description of Test Modes

FOR 5260 ~ 5320MHz

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

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290 MHz

FOR 5500 ~ 5720MHz

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

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz	144	5720 MHz

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

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz	142	5710 MHz

3 channels are provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	138	5690 MHz
122	5610 MHz		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

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

Radiated Emission Test (Above 1GHz):

☒ 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.

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate Parameter
802.11ax (HE40)	5260-5320	54 to 62	54	OFDMA	BPSK	6Mb/s
802.11ax (HE80)	5500-5720	106 to 138	122	OFDMA	BPSK	6Mb/s

Radiated Emission Test (Below 1GHz):

☒ 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.

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate Parameter
802.11ax (HE40)	5260-5320	54 to 62	54	OFDMA	BPSK	6Mb/s
802.11ax (HE80)	5500-5720	106 to 138	122	OFDMA	BPSK	6Mb/s

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.

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate Parameter
802.11ax (HE40)	5260-5320	54 to 62	54	OFDMA	BPSK	6Mb/s
802.11ax (HE80)	5500-5720	106 to 138	122	OFDMA	BPSK	6Mb/s

Antenna Port Conducted Measurement:

☒ 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.

CDD Mode						
Mode	**FREQ. Band (MHz)**	**Available Channel**	**Tested Channel**	**Modulation Technology**	**Modulation Type**	**Data Rate Parameter**
802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6Mb/s
802.11ac (VHT20) (for output power)		52 to 64	52, 60, 64	OFDM	BPSK	MCS0
802.11ac (VHT40) (for output power)		54 to 62	54, 62	OFDM	BPSK	MCS0
802.11ac (VHT80) (for output power)		58	58	OFDM	BPSK	MCS0
802.11ax (HE20)		52 to 64	52, 60, 64	OFDMA	BPSK	MCS0
802.11ax (HE40)		54 to 62	54, 62	OFDMA	BPSK	MCS0
802.11ax (HE80)		58	58	OFDMA	BPSK	MCS0
802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	BPSK	6Mb/s
802.11ac (VHT20) (for output power)		100 to 144	100, 116, 140, 144	OFDM	BPSK	MCS0
802.11ac (VHT40) (for output power)		102 to 142	102, 110, 134, 142	OFDM	BPSK	MCS0
802.11ac (VHT80) (for output power)		106 to 138	106, 122, 138	OFDM	BPSK	MCS0
802.11ax (HE20)		100 to 144	100, 116, 140, 144	OFDMA	BPSK	MCS0
802.11ax (HE40)		102 to 142	102, 110, 134, 142	OFDMA	BPSK	MCS0
802.11ax (HE80)		106 to 138	106, 122, 138	OFDMA	BPSK	MCS0
Beamforming Mode (output power only)						
Mode	**FREQ. Band (MHz)**	**Available Channel**	**Tested Channel**	**Modulation Technology**	**Modulation Type**	**Data Rate Parameter**
802.11ac (VHT20)	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	MCS0
802.11ac (VHT40)		54 to 62	54, 62	OFDM	BPSK	MCS0
802.11ac (VHT80)		58	58	OFDM	BPSK	MCS0
802.11ax (HE20)		52 to 64	52, 60, 64	OFDMA	BPSK	MCS0
802.11ax (HE40)		54 to 62	54, 62	OFDMA	BPSK	MCS0
802.11ax (HE80)		58	58	OFDMA	BPSK	MCS0
802.11ac (VHT20)	5500-5720	100 to 144	100, 116, 140, 144	OFDM	BPSK	MCS0
802.11ac (VHT40)		102 to 142	102, 110, 134, 142	OFDM	BPSK	MCS0
802.11ac (VHT80)		106 to 138	106, 122, 138	OFDM	BPSK	MCS0
802.11ax (HE20)		100 to 144	100, 116, 140, 144	OFDMA	BPSK	MCS0
802.11ax (HE40)		102 to 142	102, 110, 134, 142	OFDMA	BPSK	MCS0
802.11ax (HE80)		106 to 138	106, 122, 138	OFDMA	BPSK	MCS0

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE≥1G	20deg. C, 70%RH	120Vac, 60Hz	Ryan Du
RE<1G	25deg. C, 66%RH	120Vac, 60Hz	Tom Yang
PLC	25deg. C, 66%RH	120Vac, 60Hz	Tom Yang
APCM	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin

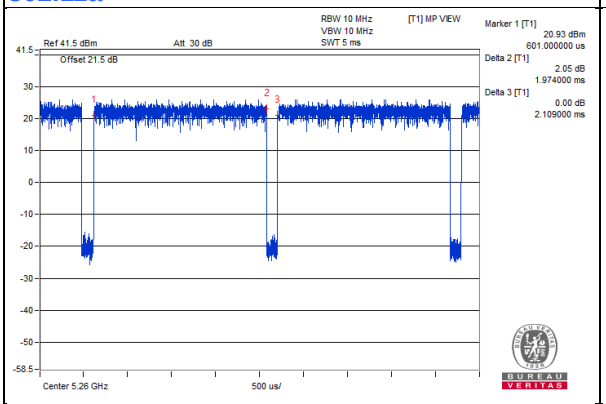
3.3 Duty Cycle of Test Signal

For Radio 2

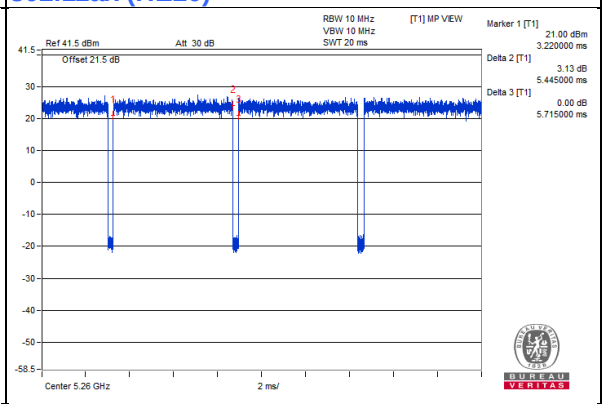
Duty cycle of test signal is < 98%, duty factor shall be considered.

802.11a: Duty cycle = 1.974 ms/2.109 ms = 0.936, Duty factor = 10 * log (1/Duty cycle) = 0.29 dB
802.11ax (HE20): Duty cycle = 5.445 ms/5.715 ms = 0.953, Duty factor = 10 * log (1/Duty cycle) = 0.21 dB
802.11ax (HE40): Duty cycle = 5.438 ms/5.71 ms = 0.952, Duty factor = 10 * log (1/Duty cycle) = 0.21 dB
802.11ax (HE80): Duty cycle = 5.44 ms/5.695 ms = 0.955, Duty factor = 10 * log (1/Duty cycle) = 0.2 dB

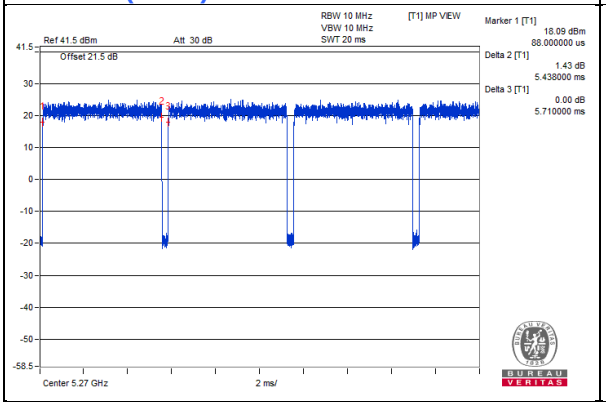
802.11a



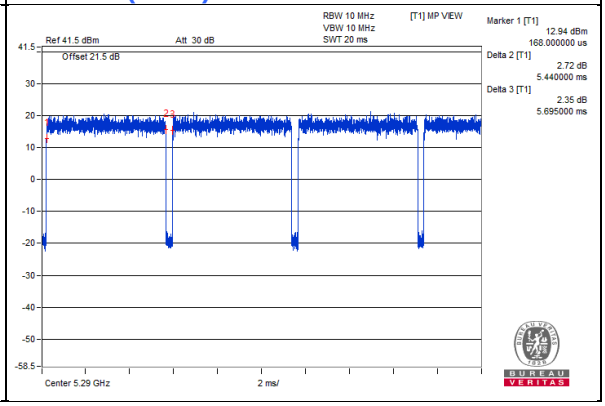
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)

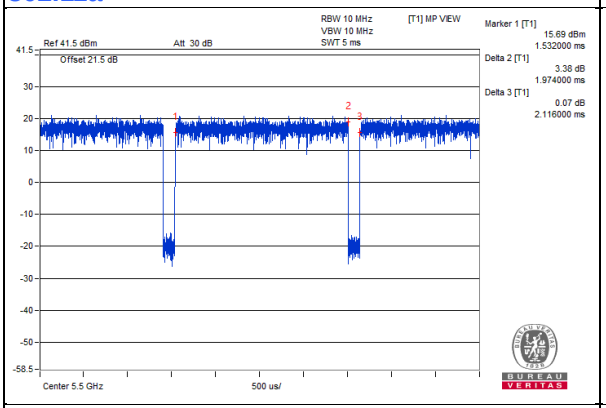


For Radio 3

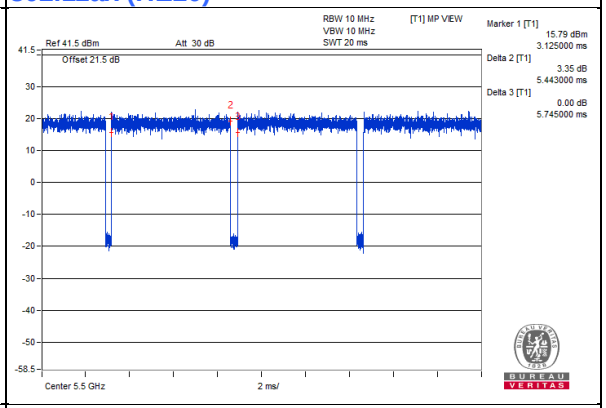
Duty cycle of test signal is < 98%, duty factor shall be considered.

802.11a: Duty cycle = 1.974 ms/2.116 ms = 0.933, Duty factor = 10 * log (1/Duty cycle) = 0.3 dB
802.11ax (HE20): Duty cycle = 5.443 ms/5.745 ms = 0.947, Duty factor = 10 * log (1/Duty cycle) = 0.23 dB
802.11ax (HE40): Duty cycle = 5.437 ms/5.702 ms = 0.954, Duty factor = 10 * log (1/Duty cycle) = 0.21 dB
802.11ax (HE80): Duty cycle = 5.441 ms/5.698 ms = 0.955, Duty factor = 10 * log (1/Duty cycle) = 0.2 dB

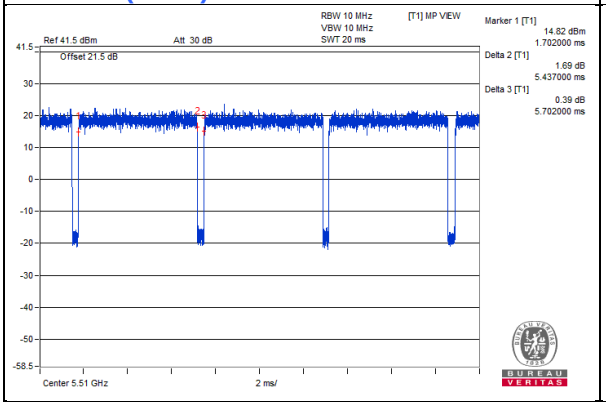
802.11a



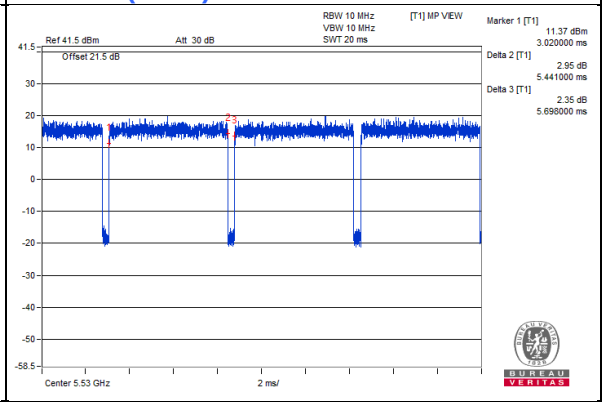
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



3.4 Description of Support Units

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

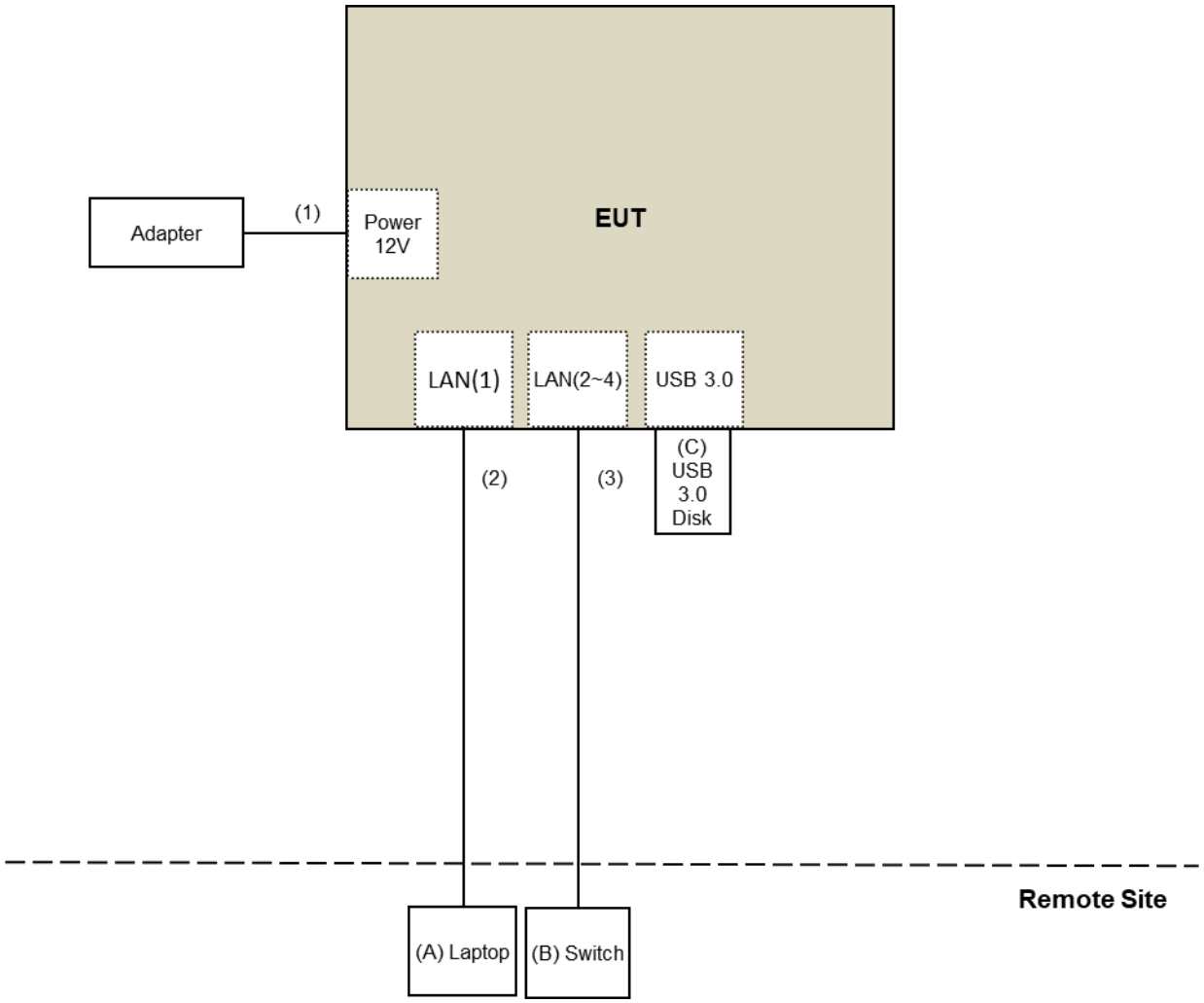
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	Lenovo	20U5S01X00 L14	PF-1ANPYA	NA	Provided by Lab
B.	Switch	D-Link	DGS-1005D	DR8WC92000523	NA	Provided by Lab
C.	USB 3.0 Disk	SanDisk	Ultra Flalr USB 3.0	NA	NA	Provided by Lab

Note:

1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Cable	1	1.5	No	0	Supplied by client
2.	RJ-45 Cable	1	10	No	0	Provided by Lab
3.	RJ-45 Cable	3	10	No	0	Provided by Lab

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standard 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 Procedure 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 1000MHz, 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 20dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

Applicable To		Limit	
789033 D02 General UNII Test Procedure New Rules v02r01		Field Strength at 3m	
		PK:74 (dBμV/m)	AV:54 (dBμV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
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

*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:

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

4.1.2 Test Instruments

For Radiated Emission & Bandedge test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 06, 2021	July 05, 2022
Pre-Amplifier EMCI	EMC001340	980142	May 24, 2021	May 23, 2022
Loop Antenna Electro-Metrics	EM-6879	264	Mar. 05, 2021	Mar. 04, 2022
RF Cable	5D-FB	LOOPCAB-001	Jan. 07, 2021	Jan. 06, 2022
RF Cable	5D-FB	LOOPCAB-002	Jan. 07, 2021	Jan. 06, 2022
Pre-Amplifier Mini-Circuits	ZFL-1000VH2	QA0838008	Oct. 20, 2020	Oct. 19, 2021
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 05, 2020	Nov. 04, 2021
RF Cable	8D	966-3-1	Mar. 16, 2021	Mar. 15, 2022
RF Cable	8D	966-3-2	Mar. 16, 2021	Mar. 15, 2022
RF Cable	8D	966-3-3	Mar. 16, 2021	Mar. 15, 2022
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Sep. 24, 2020	Sep. 23, 2021
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Nov. 22, 2020	Nov. 21, 2021
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 11, 2021	Jan. 10, 2022
RF Cable	EMC104-SM-SM-1500	180504	Apr. 26, 2021	Apr. 25, 2022
RF Cable	EMC104-SM-SM-2000	180601	June 08, 2021	June 07, 2022
RF Cable	EMC104-SM-SM-6000	210201	May 13, 2021	May 12, 2022
Spectrum Analyzer Keysight	N9030A	MY54490679	July 09, 2021	July 08, 2022
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 11, 2021	Jan. 10, 2022
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 22, 2020	Nov. 21, 2021
RF Cable	EMC102-KM-KM-1200	160924	Jan. 11, 2021	Jan. 10, 2022
RF Cable	EMC-KM-KM-4000	200214	Mar. 10, 2021	Mar. 09, 2022
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	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 966 Chamber No. 3.
3. Tested Date: Aug. 01 to 03, 2021

For other test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	Mar. 08, 2021	Mar. 07, 2022
Power meter Anritsu	ML2495A	1529002	June 21, 2021	June 20, 2022
Power sensor Anritsu	MA2411B	1339443	May 31, 2021	May 30, 2022
10dB Attenuator Woken	MDCS18N-10	MDCS18N-10-01	Apr. 13, 2021	Apr. 12, 2022
Software	ADT_RF Test Software V6.6.5.4	NA	NA	NA

NOTE: 1. The test was performed in Oven room 2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: Aug. 04, 2021

4.1.3 Test Procedure

For Radiated emission below 30MHz

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 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) 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 detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

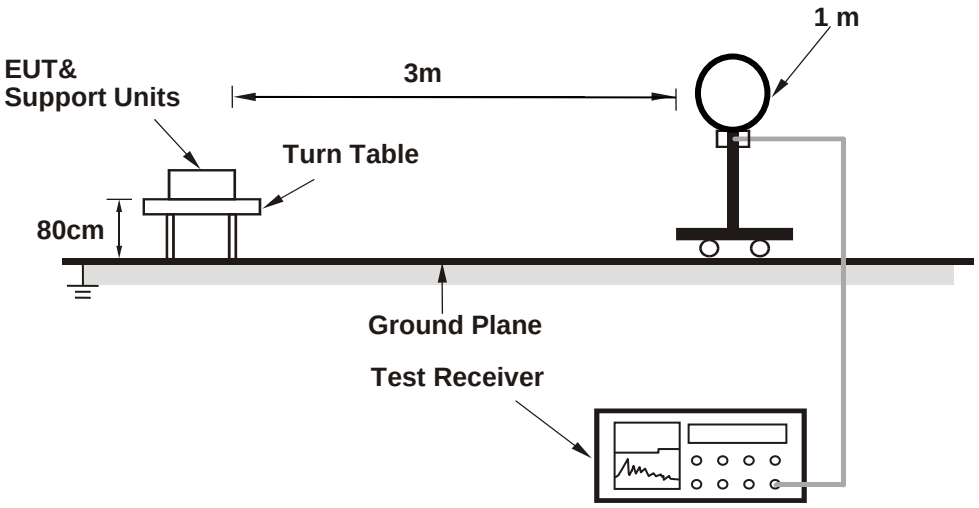
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

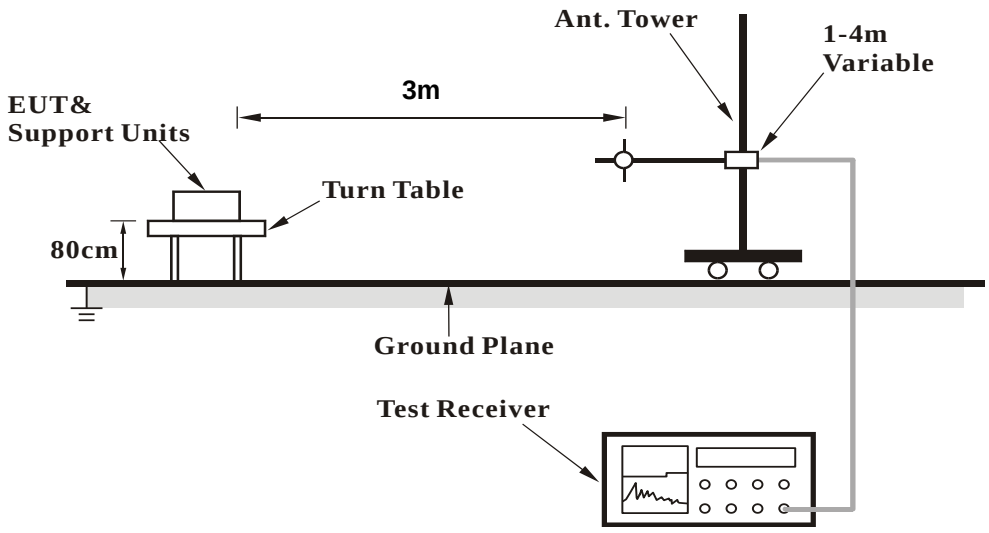
No deviation.

4.1.5 Test Setup

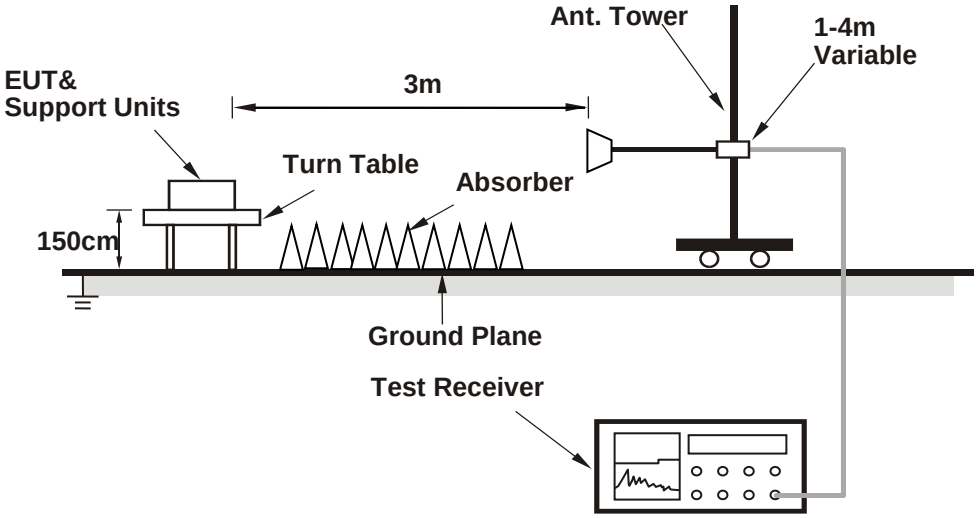
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Condition

a. Connected the EUT with the Laptop which is placed on remote site.
b. Controlling software (QDART-Connectivity1.0-00074.1) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz Data:

RF Mode	TX 802.11ax (HE40)	Channel	CH 54：5270 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)
Input Power	120Vac, 60Hz	Environmental Conditions	20 °C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5270.00	113.6 PK			1.53 H	78	109.3	4.3
2	*5270.00	102.6 AV			1.53 H	78	98.3	4.3
3	5353.53	61.5 PK	74.0	-12.5	1.53 H	78	57.2	4.3
4	5353.53	49.2 AV	54.0	-4.8	1.53 H	78	44.9	4.3
5	#10540.00	48.7 PK	68.2	-19.5	1.73 H	321	35.0	13.7
6	#10540.00	39.3 AV	54.0	-14.7	1.73 H	321	25.6	13.7
7	15810.00	59.5 PK	74.0	-14.5	1.89 H	360	45.3	14.2
8	15810.00	48.1 AV	54.0	-5.9	1.89 H	360	33.9	14.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5270.00	114.9 PK			1.46 V	148	110.6	4.3
2	*5270.00	104.5 AV			1.46 V	148	100.2	4.3
3	5350.00	63.0 PK	74.0	-11.0	1.46 V	148	58.7	4.3
4	**5350.00**	**52.2 AV**	**54.0**	**-1.8**	**1.46 V**	**148**	**47.9**	**4.3**
5	#10540.00	49.7 PK	68.2	-18.5	1.60 V	14	36.0	13.7
6	#10540.00	40.4 AV	54.0	-13.6	1.60 V	14	26.7	13.7
7	15810.00	49.0 PK	74.0	-25.0	1.92 V	233	34.8	14.2
8	15810.00	39.9 AV	54.0	-14.1	1.92 V	233	25.7	14.2

Remarks:

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

RF Mode	TX 802.11ax (HE80)	Channel	CH 122：5610 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)
Input Power	120Vac, 60Hz	Environmental Conditions	20 °C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5610.00	109.5 PK			1.44 H	285	105.0	4.5
2	*5610.00	101.0 AV			1.44 H	285	96.5	4.5
3	#5725.00	52.2 PK	68.2	-16.0	1.44 H	285	47.5	4.7
4	11220.00	48.9 PK	74.0	-25.1	1.73 H	329	34.5	14.4
5	11220.00	39.4 AV	54.0	-14.6	1.73 H	329	25.0	14.4
6	#16830.00	58.0 PK	68.2	-10.2	1.89 H	360	40.7	17.3
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5610.00	108.9 PK			1.94 V	328	104.4	4.5
2	*5610.00	100.1 AV			1.94 V	328	95.6	4.5
3	#5725.00	53.3 PK	68.2	-14.9	1.94 V	328	48.6	4.7
4	11220.00	49.5 PK	74.0	-24.5	1.59 V	32	35.1	14.4
5	11220.00	40.0 AV	54.0	-14.0	1.59 V	32	25.6	14.4
6	#16830.00	49.3 PK	68.2	-18.9	1.96 V	256	32.0	17.3

Remarks:

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

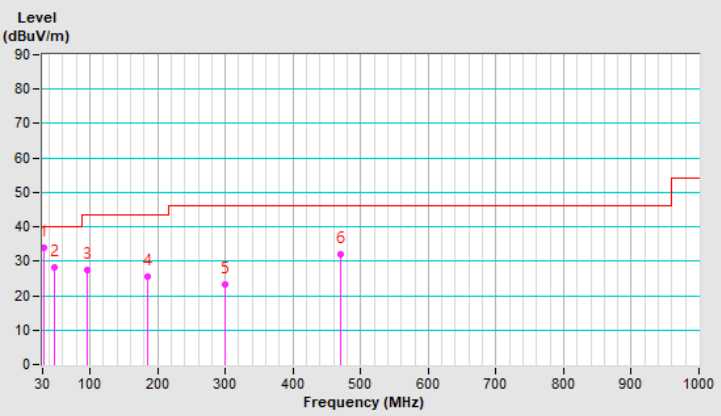
Below 1GHz Data:

RF Mode	TX 802.11ax (HE40)	Channel	CH 54：5270 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Input Power	120Vac, 60Hz	Environmental Conditions	25 °C, 66% RH
Tested By	Carter Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	31.08	33.9 QP	40.0	-6.1	1.50 H	360	43.4	-9.5
2	46.89	28.1 QP	40.0	-11.9	2.00 H	0	36.3	-8.2
3	96.17	27.5 QP	43.5	-16.0	1.50 H	100	40.5	-13.0
4	184.96	25.6 QP	43.5	-17.9	1.00 H	180	35.3	-9.7
5	298.96	23.1 QP	46.0	-22.9	1.50 H	300	29.8	-6.7
6	471.12	32.1 QP	46.0	-13.9	1.00 H	290	33.9	-1.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

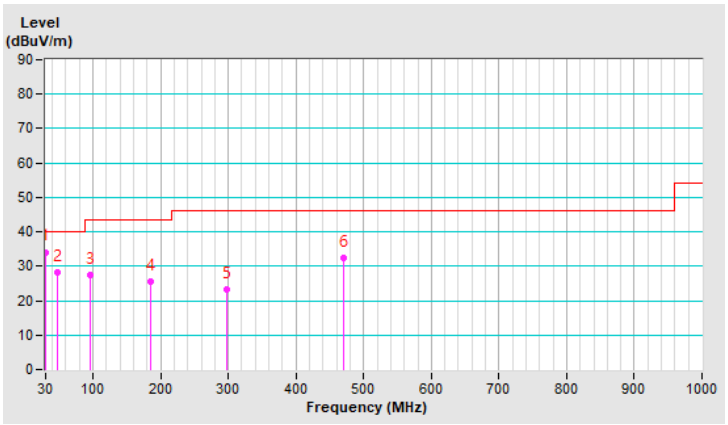


RF Mode	TX 802.11ax (HE40)	Channel	CH 54：5270 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Input Power	120Vac, 60Hz	Environmental Conditions	25 °C, 66% RH
Tested By	Carter Lin		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	**30.68**	**34.1 QP**	**40.0**	**-5.9**	**1.50 V**	**100**	**43.6**	**-9.5**
2	46.57	28.2 QP	40.0	-11.8	1.50 V	100	36.4	-8.2
3	96.37	27.5 QP	43.5	-16.0	1.50 V	360	40.5	-13.0
4	185.26	25.4 QP	43.5	-18.1	1.50 V	180	35.2	-9.8
5	298.64	23.1 QP	46.0	-22.9	1.00 V	300	29.8	-6.7
6	471.12	32.4 QP	46.0	-13.6	1.50 V	200	34.2	-1.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

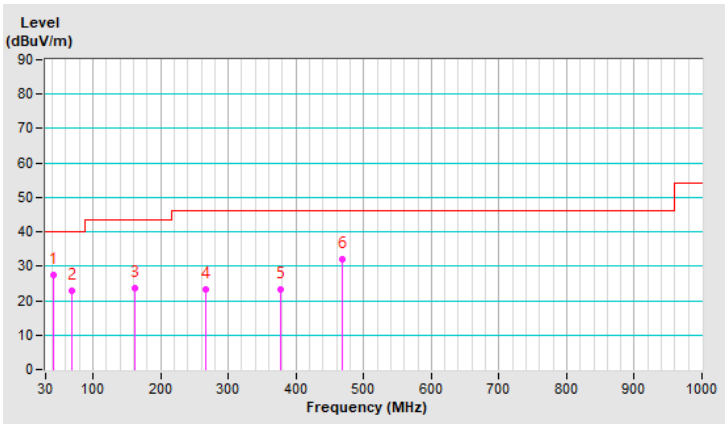


RF Mode	TX 802.11ax (HE80)	Channel	CH 122：5610 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Input Power	120Vac, 60Hz	Environmental Conditions	25 °C, 66% RH
Tested By	Carter Lin		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	41.89	27.3 QP	40.0	-12.7	3.00 H	360	35.6	-8.3
2	69.75	22.8 QP	40.0	-17.2	2.50 H	0	33.4	-10.6
3	161.37	23.5 QP	43.5	-20.0	1.50 H	183	31.3	-7.8
4	266.31	23.4 QP	46.0	-22.6	1.50 H	171	31.3	-7.9
5	377.97	23.2 QP	46.0	-22.8	1.50 H	0	27.6	-4.4
6	469.21	32.0 QP	46.0	-14.0	1.00 H	250	33.7	-1.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

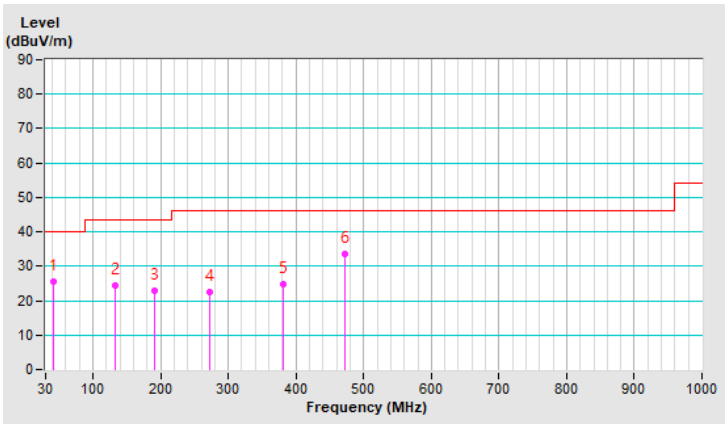


RF Mode	TX 802.11ax (HE80)	**Channel**	CH 122：5610 MHz
Frequency Range	9kHz ~ 1GHz	**Detector Function**	Quasi-Peak (QP)
Input Power	120Vac, 60Hz	**Environmental Conditions**	25 °C, 66% RH
Tested By	Carter Lin		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	41.89	25.6 QP	40.0	-14.4	1.00 V	360	33.9	-8.3
2	133.46	24.5 QP	43.5	-19.0	1.00 V	0	33.0	-8.5
3	190.27	22.7 QP	43.5	-20.8	1.50 V	360	32.9	-10.2
4	273.18	22.6 QP	46.0	-23.4	1.00 V	350	30.1	-7.5
5	380.95	24.6 QP	46.0	-21.4	1.50 V	31	28.9	-4.3
6	472.07	33.6 QP	46.0	-12.4	1.50 V	100	35.4	-1.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 20, 2020	Oct. 19, 2021
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 27, 2020	Oct. 26, 2021
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 26, 2021	Mar. 25, 2022
50 ohms Terminator	50	3	Oct. 26, 2020	Oct. 25, 2021
RF Cable	5D-FB	COCCAB-001	Sep. 26, 2020	Sep. 25, 2021
Fixed attenuator EMCI	STI02-2200-10	005	Aug. 29, 2020	Aug. 28, 2021
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:
1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Conduction 1.
3 Tested Date: Aug. 01, 2021

4.2.3 Test Procedure

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

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

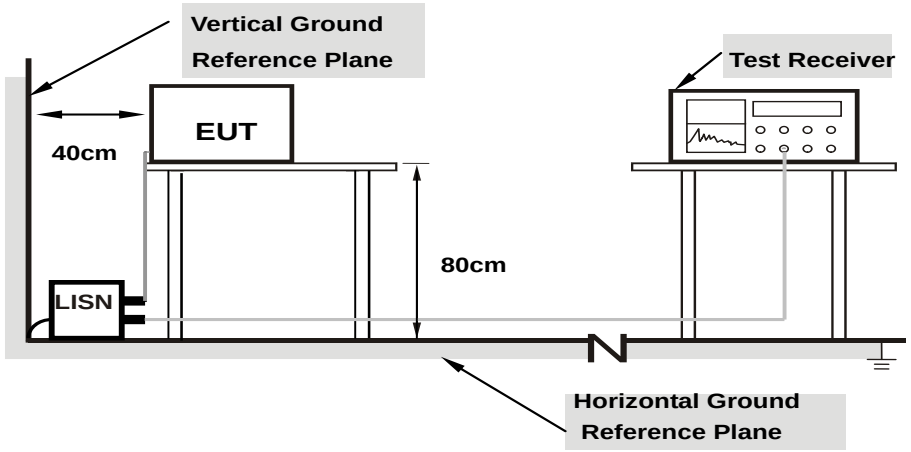
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

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

4.2.6 EUT Operating Condition

Same as 4.1.6.

4.2.7 Test Results

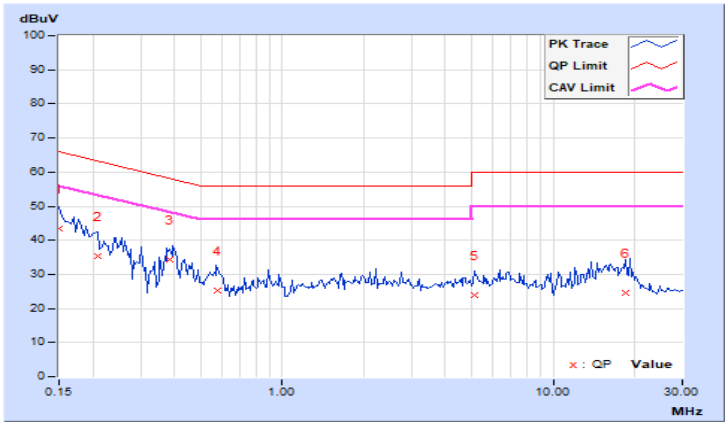
For Radio 2

RF Mode	TX 802.11ax (HE40)	**Channel**	CH 54：5270 MHz
Frequency Range	150kHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	25 °C, 75% RH
Tested By	Carter Lin		

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15000	10.07	33.42	17.35	43.49	27.42	66.00	56.00	-22.51	-28.58
2	0.20859	10.08	25.19	11.04	35.27	21.12	63.26	53.26	-27.99	-32.14
3	0.38438	10.11	24.12	16.74	34.23	26.85	58.18	48.18	-23.95	-21.33
4	0.57969	10.12	15.13	6.85	25.25	16.97	56.00	46.00	-30.75	-29.03
5	5.14453	10.43	13.43	7.36	23.86	17.79	60.00	50.00	-36.14	-32.21
6	18.51172	11.45	13.21	4.18	24.66	15.63	60.00	50.00	-35.34	-34.37

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

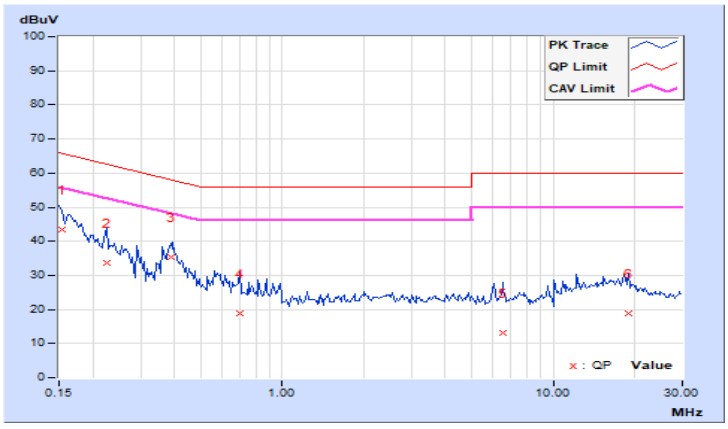


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 54：5270 MHz
Frequency Range	150kHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	25 °C, 75% RH
Tested By	Carter Lin		

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15391	10.05	33.35	16.54	43.40	26.59	65.79	55.79	-22.39	-29.20
2	0.22422	10.08	23.46	10.12	33.54	20.20	62.66	52.66	-29.12	-32.46
3	**0.38828**	**10.10**	**25.36**	**17.13**	**35.46**	**27.23**	**58.10**	**48.10**	**-22.64**	**-20.87**
4	0.69688	10.12	8.63	0.04	18.75	10.16	56.00	46.00	-37.25	-35.84
5	6.52344	10.48	2.54	-6.68	13.02	3.80	60.00	50.00	-46.98	-46.20
6	18.99219	11.22	7.57	-2.91	18.79	8.31	60.00	50.00	-41.21	-41.69

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



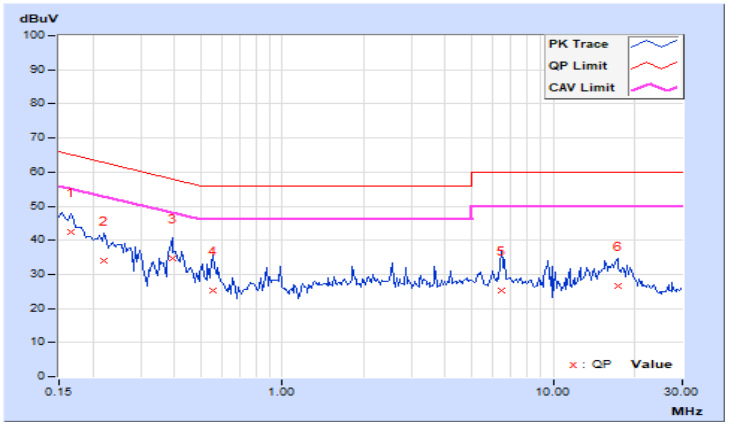
For Radio 3

RF Mode	TX 802.11ax (HE80)	**Channel**	CH 122：5610 MHz
Frequency Range	150kHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	25 °C, 75% RH
Tested By	Carter Lin		

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.16562	10.07	32.27	16.31	42.34	26.38	65.18	55.18	-22.84	-28.80
2	0.22031	10.08	24.08	10.11	34.16	20.19	62.81	52.81	-28.65	-32.62
3	0.39219	10.11	24.54	16.27	34.65	26.38	58.02	48.02	-23.37	-21.64
4	0.55234	10.12	15.16	7.76	25.28	17.88	56.00	46.00	-30.72	-28.12
5	6.44922	10.52	14.63	7.17	25.15	17.69	60.00	50.00	-34.85	-32.31
6	17.31250	11.36	15.08	7.42	26.44	18.78	60.00	50.00	-33.56	-31.22

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

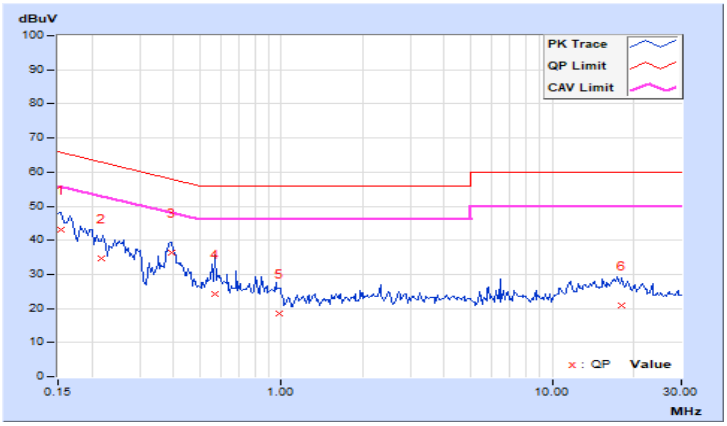


RF Mode	TX 802.11ax (HE80)	Channel	CH 122：5610 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25 °C, 75% RH
Tested By	Carter Lin		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.05	33.11	16.37	43.16	26.42	65.79	55.79	-22.63	-29.37
2	0.21641	10.08	24.44	9.65	34.52	19.73	62.96	52.96	-28.44	-33.23
3	0.39219	10.10	26.37	17.04	36.47	27.14	58.02	48.02	-21.55	-20.88
4	0.56797	10.11	13.97	6.81	24.08	16.92	56.00	46.00	-31.92	-29.08
5	0.97813	10.14	8.34	1.24	18.48	11.38	56.00	46.00	-37.52	-34.62
6	17.96875	11.16	9.76	-0.97	20.92	10.19	60.00	50.00	-39.08	-39.81

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 ≦ 125mW(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)
		Client device	250mW (24 dBm)
U-NII-2A	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	√		250mW (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,

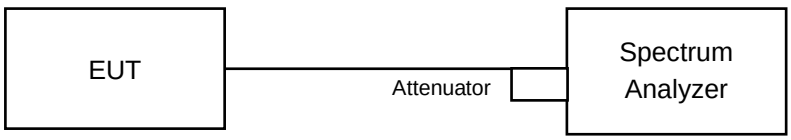
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

4.3.2 Test Setup

FOR POWER OUTPUT MEASUREMENT

For channel straddling 5725MHz:



For other channels:

4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

FOR POWER OUTPUT MEASUREMENT

For channel straddling 5725MHz:

Follow FCC KDB 789033 UNII test procedure:

Method SA-2

1. Set span to encompass the emission bandwidth (EBW) of the signal.
2. Set RBW =1MHz.
3. Set the VBW ≥ 3 x RBW.
4. Number of points in sweep ≥ 2 Span / RBW.
5. Sweep time = auto.
6. Detector = RMS.
7. Trace average at least 100 traces in power averaging mode
8. Compute power by integrating the spectrum across the 26 dB EBW of the signal.
9. Duty factor need added to measured value (duty cycle < 98 percent).

For other channels:

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.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Condition

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

4.3.7 Test Results

For Radio 2 (U-NII-2A Band)

CDD Mode

POWER OUTPUT

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	17.91	18.86	138.715	21.42	23.91	Pass
60	5300	18.23	19.01	146.143	21.65	23.94	Pass
64	5320	18.00	19.04	143.264	21.56	23.95	Pass

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	19.56	23.91 < 24
60	5300	19.68	23.94 < 24
64	5320	19.74	23.95 < 24

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	17.94	18.91	140.034	21.46	24	Pass
60	5300	18.14	18.91	142.966	21.55	24	Pass
64	5320	17.87	18.90	138.86	21.43	24	Pass

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	21.49	24.32 > 24
60	5300	21.5	24.32 > 24
64	5320	21.8	24.38 > 24

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	19.41	20.61	202.377	23.06	24	Pass
62	5310	18.04	19.03	143.663	21.57	24	Pass

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
54	5270	42.69	27.3 > 24
62	5310	42.68	27.3 > 24

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	17.93	19.00	141.52	21.51	24	Pass

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
58	5290	83.09	30.19 > 24

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	18.10	19.07	145.289	21.62	24	Pass
60	5300	18.34	19.13	150.08	21.76	24	Pass
64	5320	18.14	19.17	147.767	21.70	24	Pass

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	21.49	24.32 > 24
60	5300	21.5	24.32 > 24
64	5320	21.8	24.38 > 24

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	19.63	20.86	213.732	23.30	24	Pass
62	5310	18.26	19.25	151.128	21.79	24	Pass

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
54	5270	42.69	27.3 > 24
62	5310	42.68	27.3 > 24

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	18.20	19.24	150.015	21.76	24	Pass

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
58	5290	83.09	30.19 > 24

Beamforming Mode

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	17.84	18.81	136.846	21.36	21.94	Pass
60	5300	18.14	18.91	142.966	21.55	21.94	Pass
64	5320	17.87	18.90	138.86	21.43	21.94	Pass

Note: The directional gain = 10 log[(10$^{G0/20}$ + 10$^{G1/20}$)^2 / 2] = 8.06 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(8.06-6)”.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	21.49	24.32 > 24
60	5300	21.5	24.32 > 24
64	5320	21.8	24.38 > 24

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	17.95	18.93	140.536	21.48	21.94	Pass
62	5310	18.04	19.03	143.663	21.57	21.94	Pass

Note: The directional gain = 10 log[(10$^{G0/20}$ + 10$^{G1/20}$)^2 / 2] = 8.06 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(8.06-6)”.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
54	5270	42.69	27.3 > 24
62	5310	42.68	27.3 > 24

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	17.93	19.00	141.52	21.51	21.94	Pass

Note: The directional gain = 10 log[(10$^{G0/20}$ + 10$^{G1/20}$)^2 / 2] = 8.06 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(8.06-6)”.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
58	5290	83.09	30.19 > 24

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	18.10	19.07	145.289	21.62	21.94	Pass
60	5300	18.34	19.13	150.08	21.76	21.94	Pass
64	5320	18.14	19.17	147.767	21.70	21.94	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 8.06 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(8.06-6)”.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	21.49	24.32 > 24
60	5300	21.5	24.32 > 24
64	5320	21.8	24.38 > 24

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	18.19	19.21	149.286	21.74	21.94	Pass
62	5310	18.26	19.25	151.128	21.79	21.94	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 8.06 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(8.06-6)”.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
54	5270	42.69	27.3 > 24
62	5310	42.68	27.3 > 24

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	18.20	19.24	150.015	21.76	21.94	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 8.06 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(8.06-6)”.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
58	5290	83.09	30.19 > 24

For Radio 3 (U-NII-2C, U-NII-3 Band)

CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
100	5500	14.13	14.35	14.25	13.92	104.377	20.19	23.9	Pass
116	5580	14.16	14.28	14.29	13.89	104.197	20.18	23.94	Pass
140	5700	14.23	14.38	14.21	13.85	104.53	20.19	23.95	Pass
*144 (U-NII-2C Band)	5720	13.14	13.42	13.30	12.98	89.855	19.54	22.72	Pass
*144 (U-NII-3 Band)	5720	4.28	5.12	5.04	2.83	11.834	10.73	30	Pass

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test. The duty factor was included in the total power.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
100	5500	19.53	23.9 < 24
116	5580	19.68	23.94 < 24
140	5700	19.73	23.95 < 24
144 (U-NII-2C Band)	5720	14.89	22.72 < 24

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
100	5500	14.02	13.96	14.35	14.08	102.936	20.13	24	Pass
116	5580	14.05	13.93	14.41	14.12	103.555	20.15	24	Pass
140	5700	13.98	14.02	14.34	14.01	102.579	20.11	24	Pass
*144 (U-NII-2C Band)	5720	13.02	13.14	13.39	13.03	87.151	19.40	22.96	Pass
*144 (U-NII-3 Band)	5720	5.99	4.49	5.60	6.38	15.579	11.93	30	Pass

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test. The duty factor was included in the total power.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
100	5500	21.19	24.26 > 24
116	5580	21.35	24.29 > 24
140	5700	21.44	24.31 > 24
144 (U-NII-2C Band)	5720	15.71	22.96 < 24

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
102	5510	17.01	16.89	17.35	16.93	202.742	23.07	24	Pass
110	5550	16.96	16.82	17.44	16.82	201.29	23.04	24	Pass
134	5670	17.12	16.93	17.38	17.09	206.71	23.15	24	Pass
*142 (U-NII-2C Band)	5710	16.61	16.39	16.69	16.50	189.507	22.78	24	Pass
*142 (U-NII-3 Band)	5710	3.91	4.88	5.72	2.69	11.669	10.67	30	Pass

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test. The duty factor was included in the total power.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
102	5510	42.21	27.25 > 24
110	5550	42.39	27.27 > 24
134	5670	42.28	27.26 > 24
142 (U-NII-2C Band)	5710	36.05	26.56 > 24

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
106	5530	17.03	17.14	17.01	16.54	197.543	22.96	24	Pass
122	5610	17.44	17.57	17.43	16.97	217.719	23.38	24	Pass
*138 (U-NII-2C Band)	5690	16.91	16.98	16.90	16.60	202.814	23.07	24	Pass
*138 (U-NII-3 Band)	5690	0.16	-0.16	-0.27	0.47	4.2469	6.28	30	Pass

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test. The duty factor was included in the total power.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
106	5530	82.89	30.18 > 24
122	5610	82.86	30.18 > 24
138 (U-NII-2C Band)	5690	76.65	29.84 > 24

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
100	5500	14.18	14.16	14.57	14.22	107.309	20.31	24	Pass
116	5580	14.22	14.13	14.62	14.28	108.071	20.34	24	Pass
140	5700	14.13	14.19	14.52	14.17	106.56	20.28	24	Pass
*144 (U-NII-2C Band)	5720	13.47	13.52	13.71	13.29	94.519	19.76	22.96	Pass
*144 (U-NII-3 Band)	5720	6.21	4.54	5.92	6.78	16.566	12.19	30	Pass

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test. The duty factor was included in the total power.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
100	5500	21.19	24.26 > 24
116	5580	21.35	24.29 > 24
140	5700	21.44	24.31 > 24
144 (U-NII-2C Band)	5720	15.71	22.96 < 24

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
102	5510	17.18	17.02	17.57	17.03	210.204	23.23	24	Pass
110	5550	17.15	16.99	17.66	16.97	210.002	23.22	24	Pass
134	5670	17.26	17.08	17.61	17.24	214.904	23.32	24	Pass
*142 (U-NII-2C Band)	5710	16.86	16.68	16.75	16.71	198.51	22.98	24	Pass
*142 (U-NII-3 Band)	5710	4.10	5.14	5.88	2.83	12.194	10.86	30	Pass

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test. The duty factor was included in the total power.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
102	5510	42.21	27.25 > 24
110	5550	42.39	27.27 > 24
134	5670	42.28	27.26 > 24
142 (U-NII-2C Band)	5710	36.05	26.56 > 24

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
106	5530	17.21	17.29	17.15	16.72	205.051	23.12	24	Pass
122	5610	17.63	17.72	17.58	17.11	225.783	23.54	24	Pass
*138 (U-NII-2C Band)	5690	17.25	17.31	16.98	16.82	214.565	23.32	24	Pass
*138 (U-NII-3 Band)	5690	0.46	-0.08	-0.18	0.55	4.3857	6.42	30	Pass

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test. The duty factor was included in the total power.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
106	5530	82.89	30.18 > 24
122	5610	82.86	30.18 > 24
138 (U-NII-2C Band)	5690	76.65	29.84 > 24

Beamforming Mode

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
100	5500	13.62	13.58	14.01	13.71	94.491	19.75	20.54	Pass
116	5580	13.54	13.57	13.97	13.74	93.95	19.73	20.54	Pass
140	5700	13.48	13.54	13.95	13.65	92.884	19.68	20.54	Pass
*144 (U-NII-2C Band)	5720	13.22	13.01	13.32	12.79	85.998	19.34	19.5	Pass
*144 (U-NII-3 Band)	5720	5.64	3.87	5.69	6.17	14.723	11.68	26.3	Pass

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test. The duty factor was included in the total power.

1. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 9.46 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(9.46-6)”.
2. For U-NII-3: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 9.7 dBi > 6 dBi, so the power limit shall be reduced to 30-(9.7-6) = 26.3 dBm.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
100	5500	21.19	24.26 > 24
116	5580	21.35	24.29 > 24
140	5700	21.44	24.31 > 24
144 (U-NII-2C Band)	5720	15.71	22.96 < 24

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
102	5510	13.93	14.06	14.18	13.75	100.081	20.00	20.54	Pass
110	5550	13.95	13.93	14.21	13.72	99.462	19.98	20.54	Pass
134	5670	14.03	13.98	14.17	13.68	99.753	19.99	20.54	Pass
*142 (U-NII-2C Band)	5710	13.70	13.44	13.59	13.04	92.83	19.68	20.54	Pass
*142 (U-NII-3 Band)	5710	-0.30	1.30	1.43	-0.37	4.8142	6.83	26.3	Pass

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test. The duty factor was included in the total power.

1. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 9.46 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(9.46-6)”.
2. For U-NII-3: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 9.7 dBi > 6 dBi, so the power limit shall be reduced to 30-(9.7-6) = 26.3 dBm.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
102	5510	42.21	27.25 > 24
110	5550	42.39	27.27 > 24
134	5670	42.28	27.26 > 24
142 (U-NII-2C Band)	5710	36.05	26.56 > 24

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
106	5530	13.97	13.71	14.08	13.75	97.742	19.90	20.54	Pass
122	5610	13.74	13.65	14.06	13.67	95.582	19.80	20.54	Pass
*138 (U-NII-2C Band)	5690	13.74	13.26	13.82	13.45	95.375	19.79	20.54	Pass
*138 (U-NII-3 Band)	5690	-3.58	-3.62	-3.62	-2.83	1.9151	2.82	26.3	Pass

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test. The duty factor was included in the total power.

1. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 9.46 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(9.46-6)”.
2. For U-NII-3: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 9.7 dBi > 6 dBi, so the power limit shall be reduced to 30-(9.7-6) = 26.3 dBm.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
106	5530	82.89	30.18 > 24
122	5610	82.86	30.18 > 24
138 (U-NII-2C Band)	5690	76.65	29.84 > 24

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
100	5500	13.78	13.73	14.16	13.83	97.699	19.90	20.54	Pass
116	5580	13.72	13.68	14.23	13.86	97.692	19.90	20.54	Pass
140	5700	13.75	13.76	14.07	13.69	96.398	19.84	20.54	Pass
*144 (U-NII-2C Band)	5720	13.30	13.18	13.37	13.07	88.851	19.49	19.5	Pass
*144 (U-NII-3 Band)	5720	5.84	3.97	5.81	6.37	15.281	11.84	26.3	Pass

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test. The duty factor was included in the total power.

1. For U-NII-2C: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$+ $10^{G2/20}$+ $10^{G3/20}$)^2 / 4] = 9.46 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(9.46-6)”.
2. For U-NII-3: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$+ $10^{G2/20}$+ $10^{G3/20}$)^2 / 4] = 9.7 dBi > 6 dBi, so the power limit shall be reduced to 30-(9.7-6) = 26.3 dBm.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
100	5500	21.19	24.26 > 24
116	5580	21.35	24.29 > 24
140	5700	21.44	24.31 > 24
144 (U-NII-2C Band)	5720	15.71	22.96 < 24

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
102	5510	14.15	14.23	14.39	14.01	105.142	20.22	20.54	Pass
110	5550	14.19	14.18	14.47	13.97	105.36	20.23	20.54	Pass
134	5670	14.31	14.22	14.41	13.92	105.668	20.24	20.54	Pass
*142 (U-NII-2C Band)	5710	13.88	13.72	13.67	13.15	96.4	19.84	20.54	Pass
*142 (U-NII-3 Band)	5710	-0.18	1.49	1.60	-0.06	5.0344	7.02	26.3	Pass

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test. The duty factor was included in the total power.

1. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 9.46 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(9.46-6)”.
2. For U-NII-3: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 9.7 dBi > 6 dBi, so the power limit shall be reduced to 30-(9.7-6) = 26.3 dBm.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
102	5510	42.21	27.25 > 24
110	5550	42.39	27.27 > 24
134	5670	42.28	27.26 > 24
142 (U-NII-2C Band)	5710	36.05	26.56 > 24

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
106	5530	14.24	13.95	14.32	13.98	103.42	20.15	20.54	Pass
122	5610	13.96	13.82	14.28	13.89	100.27	20.01	20.54	Pass
*138 (U-NII-2C Band)	5690	13.88	13.53	13.94	13.50	98.585	19.94	20.54	Pass
*138 (U-NII-3 Band)	5690	-3.40	-3.44	-3.50	-2.80	1.9703	2.95	26.3	Pass

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test. The duty factor was included in the total power.

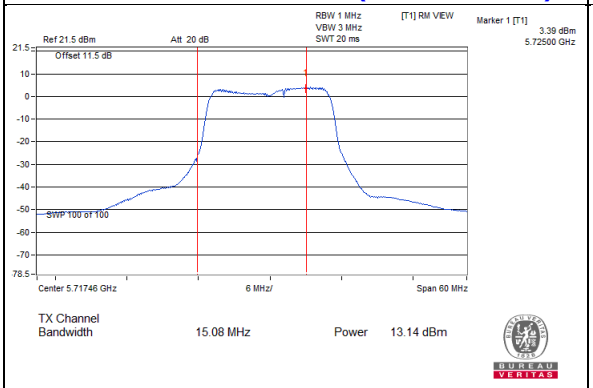
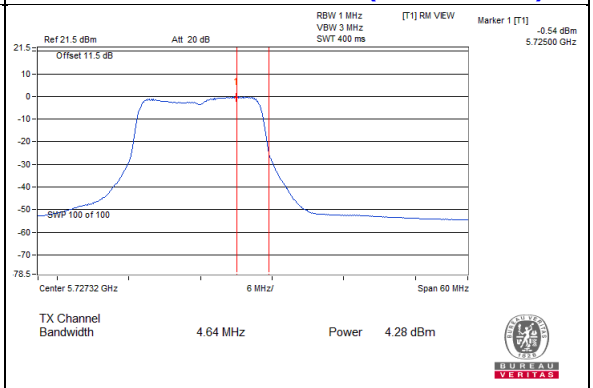
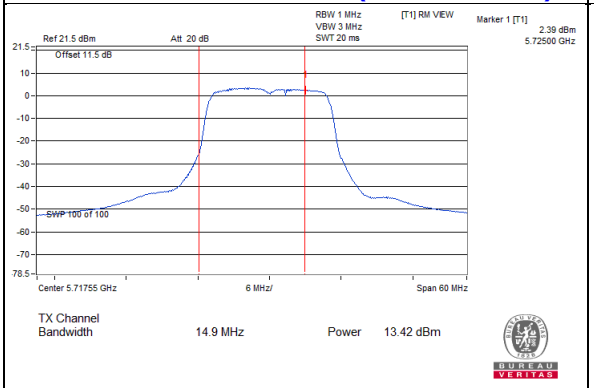
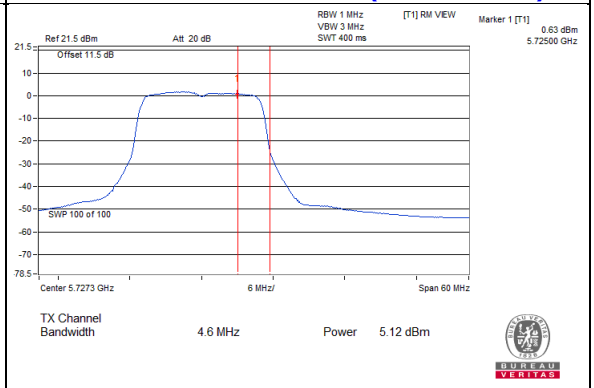
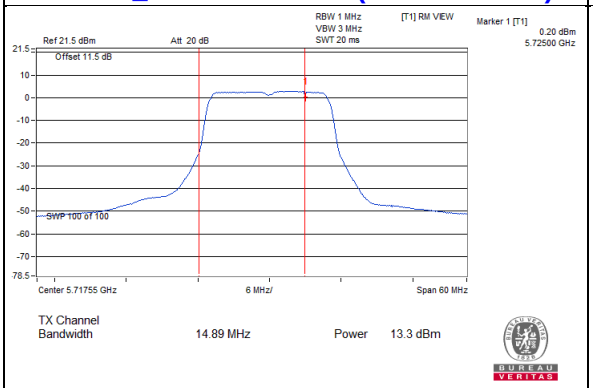
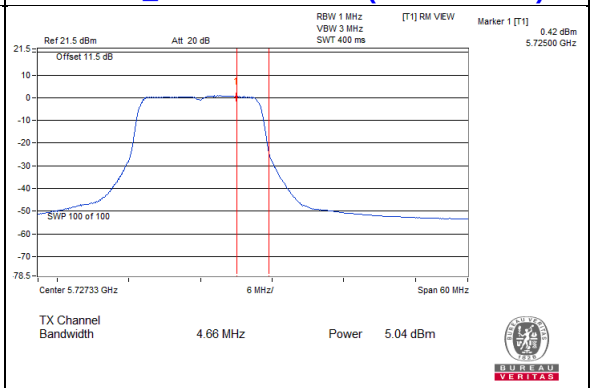
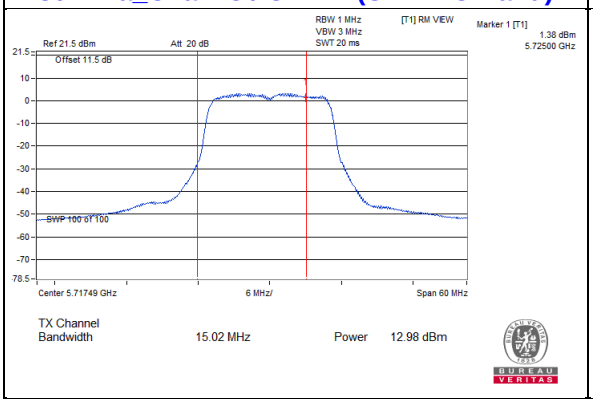
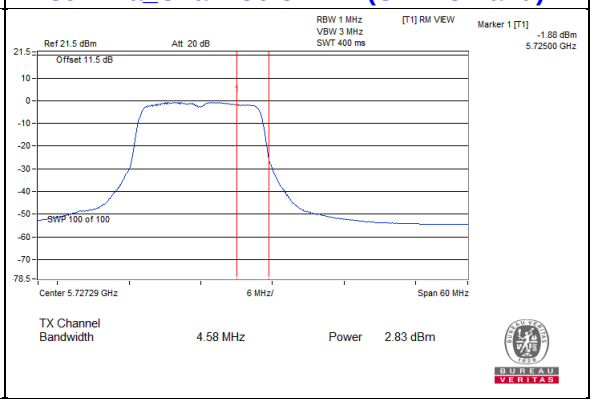
1. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 9.46 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(9.46-6)”.
2. For U-NII-3: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 9.7 dBi > 6 dBi, so the power limit shall be reduced to 30-(9.7-6) = 26.3 dBm.

Note: For Output power limitation is determined based on 26dBc bandwidth.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
106	5530	82.89	30.18 > 24
122	5610	82.86	30.18 > 24
138 (U-NII-2C Band)	5690	76.65	29.84 > 24

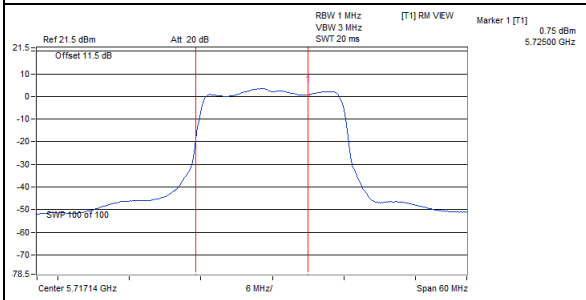
For channel straddling 5725MHz of Power

CDD Mode

Spectrum Plot Value of Power	
802.11a_Chain 0 / CH144 (U-NII-2C Band)	**802.11a_Chain 0 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 15.08 MHz Power 13.14 dBm	 TX Channel Bandwidth 4.64 MHz Power 4.28 dBm
802.11a_Chain 1 / CH144 (U-NII-2C Band)	**802.11a_Chain 1 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 14.9 MHz Power 13.42 dBm	 TX Channel Bandwidth 4.6 MHz Power 5.12 dBm
802.11a_Chain 2 / CH144 (U-NII-2C Band)	**802.11a_Chain 2 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 14.89 MHz Power 13.3 dBm	 TX Channel Bandwidth 4.66 MHz Power 5.04 dBm
802.11a_Chain 3 / CH144 (U-NII-2C Band)	**802.11a_Chain 3 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 15.02 MHz Power 12.98 dBm	 TX Channel Bandwidth 4.58 MHz Power 2.83 dBm

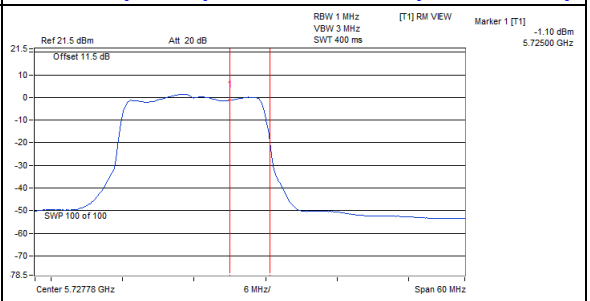
Spectrum Plot Value of Power

802.11ac (VHT20)_Chain 0 / CH144 (U-NII-2C Band)



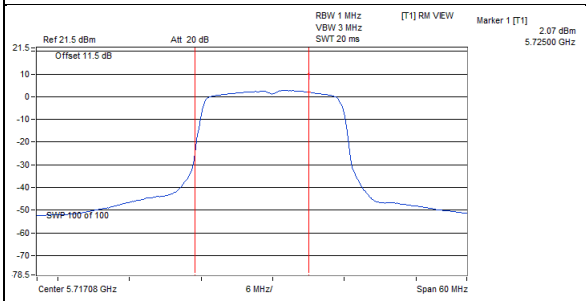
TX Channel Bandwidth 15.71 MHz Power 13.02 dBm

802.11ac (VHT20)_Chain 0 / CH144 (U-NII-3 Band)



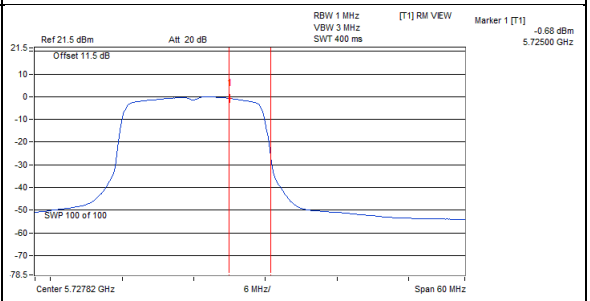
TX Channel Bandwidth 5.56 MHz Power 5.99 dBm

802.11ac (VHT20)_Chain 1 / CH144 (U-NII-2C Band)



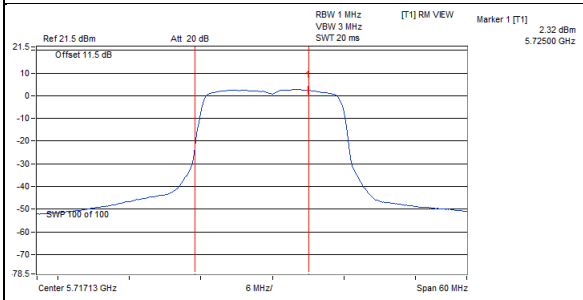
TX Channel Bandwidth 15.84 MHz Power 13.14 dBm

802.11ac (VHT20)_Chain 1 / CH144 (U-NII-3 Band)



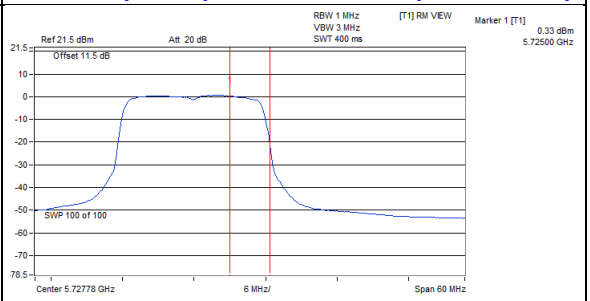
TX Channel Bandwidth 5.65 MHz Power 4.49 dBm

802.11ac (VHT20)_Chain 2 / CH144 (U-NII-2C Band)



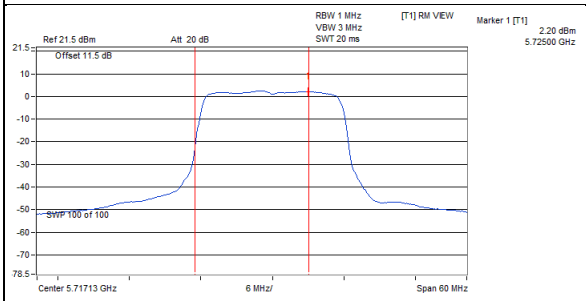
TX Channel Bandwidth 15.74 MHz Power 13.39 dBm

802.11ac (VHT20)_Chain 2 / CH144 (U-NII-3 Band)



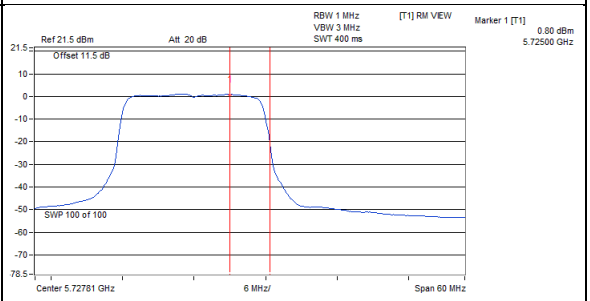
TX Channel Bandwidth 5.57 MHz Power 5.6 dBm

802.11ac (VHT20)_Chain 3 / CH144 (U-NII-2C Band)

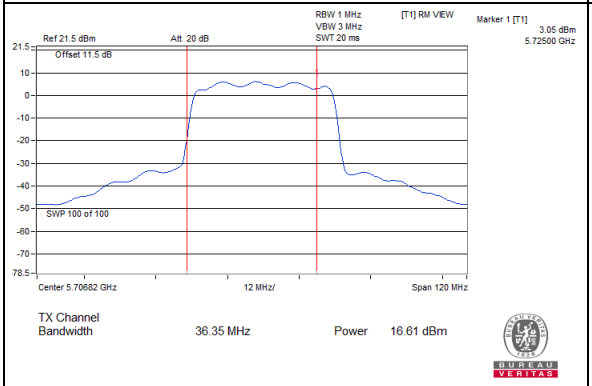
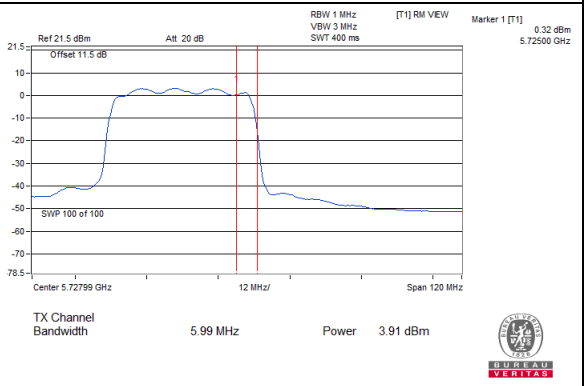
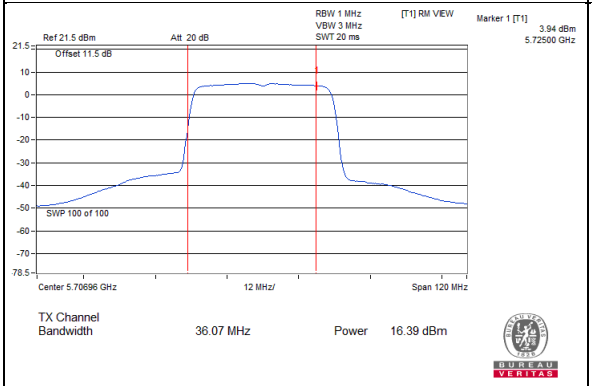
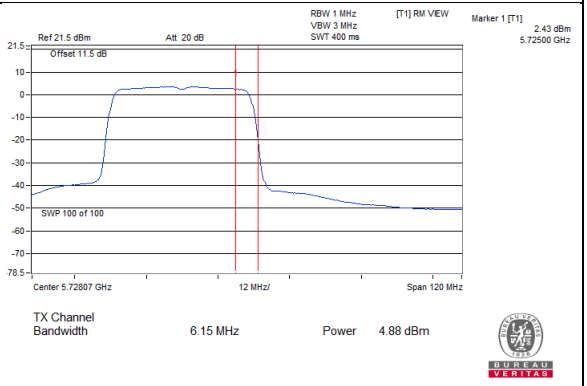
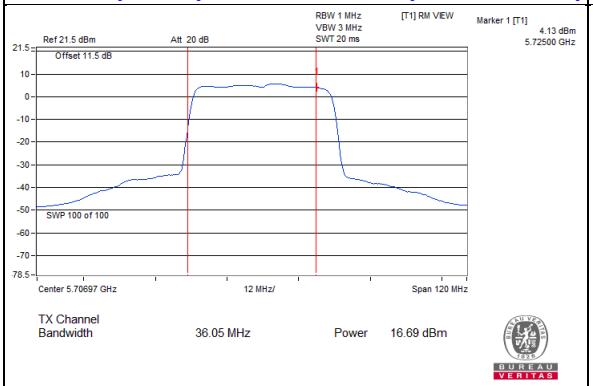
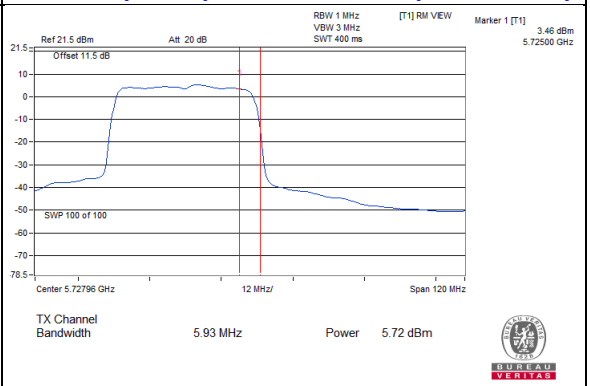
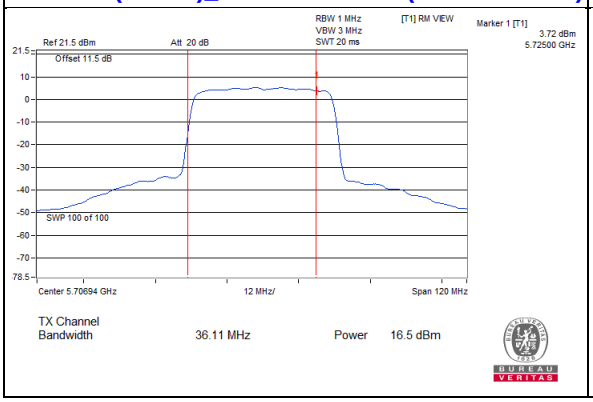
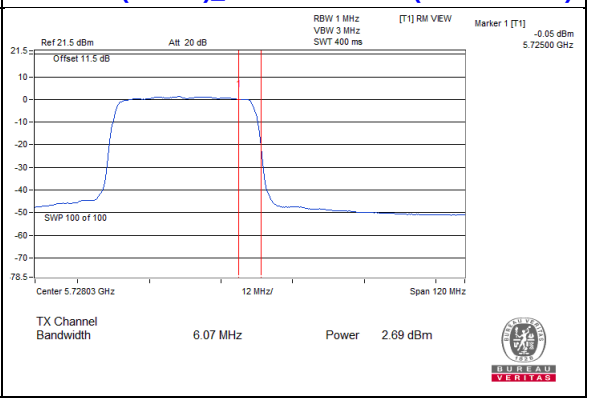


TX Channel Bandwidth 15.73 MHz Power 13.03 dBm

802.11ac (VHT20)_Chain 3 / CH144 (U-NII-3 Band)

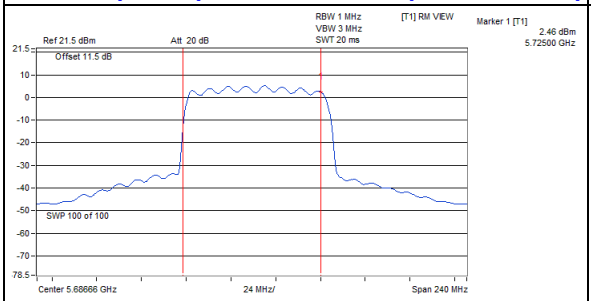


TX Channel Bandwidth 5.62 MHz Power 6.38 dBm

Spectrum Plot Value of Power	
802.11ac (VHT40)_Chain 0 / CH142 (U-NII-2C Band)	**802.11ac (VHT40)_Chain 0 / CH142 (U-NII-3 Band)**
 TX Channel Bandwidth 36.35 MHz Power 16.61 dBm	 TX Channel Bandwidth 5.99 MHz Power 3.91 dBm
802.11ac (VHT40)_Chain 1 / CH142 (U-NII-2C Band)	**802.11ac (VHT40)_Chain 1 / CH142 (U-NII-3 Band)**
 TX Channel Bandwidth 36.07 MHz Power 16.39 dBm	 TX Channel Bandwidth 6.15 MHz Power 4.88 dBm
802.11ac (VHT40)_Chain 2 / CH142 (U-NII-2C Band)	**802.11ac (VHT40)_Chain 2 / CH142 (U-NII-3 Band)**
 TX Channel Bandwidth 36.05 MHz Power 16.69 dBm	 TX Channel Bandwidth 5.93 MHz Power 5.72 dBm
802.11ac (VHT40)_Chain 3 / CH142 (U-NII-2C Band)	**802.11ac (VHT40)_Chain 3 / CH142 (U-NII-3 Band)**
 TX Channel Bandwidth 36.11 MHz Power 16.5 dBm	 TX Channel Bandwidth 6.07 MHz Power 2.69 dBm

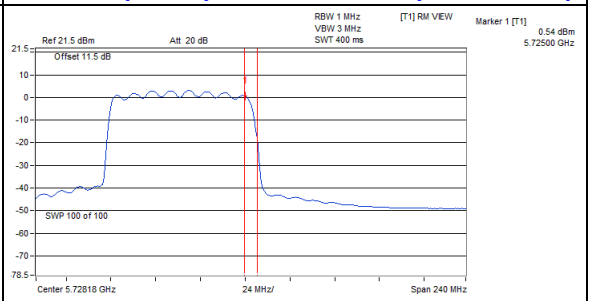
Spectrum Plot Value of Power

802.11ac (VHT80)_Chain 0 / CH138 (U-NII-2C Band)



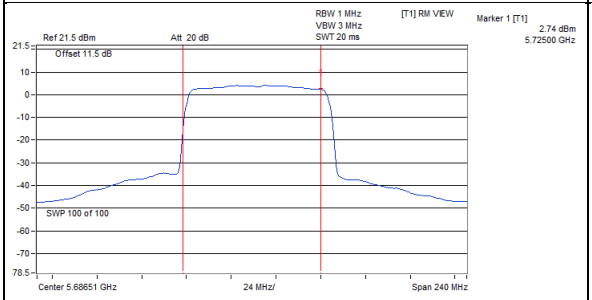
TX Channel Bandwidth 76.68 MHz Power 16.91 dBm

802.11ac (VHT80)_Chain 0 / CH138 (U-NII-3 Band)



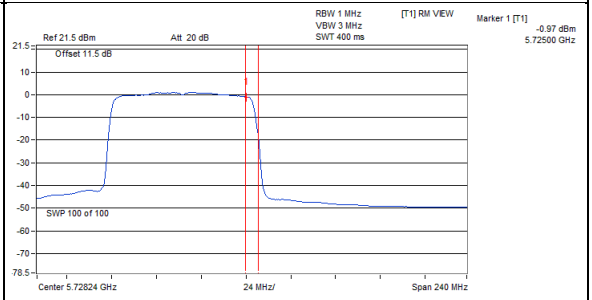
TX Channel Bandwidth 6.37 MHz Power 0.16 dBm

802.11ac (VHT80)_Chain 1 / CH138 (U-NII-2C Band)



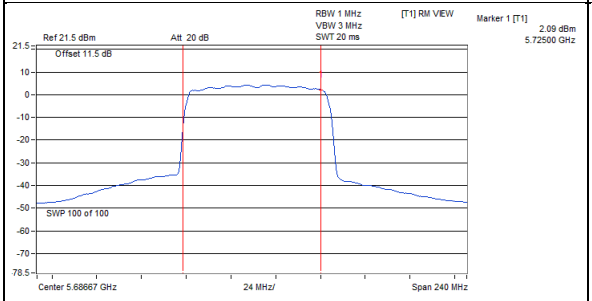
TX Channel Bandwidth 76.98 MHz Power 16.98 dBm

802.11ac (VHT80)_Chain 1 / CH138 (U-NII-3 Band)



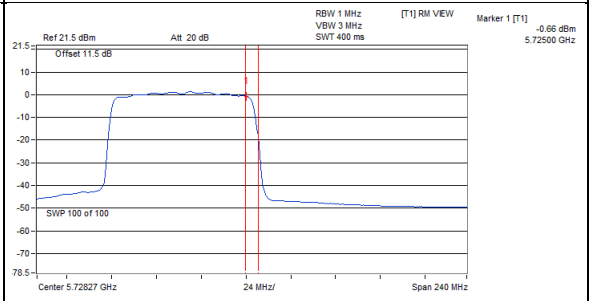
TX Channel Bandwidth 6.49 MHz Power -0.16 dBm

802.11ac (VHT80)_Chain 2 / CH138 (U-NII-2C Band)



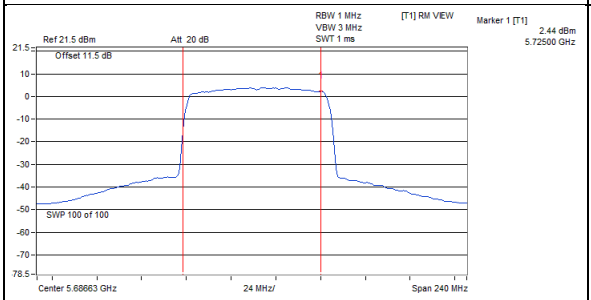
TX Channel Bandwidth 76.65 MHz Power 16.9 dBm

802.11ac (VHT80)_Chain 2 / CH138 (U-NII-3 Band)



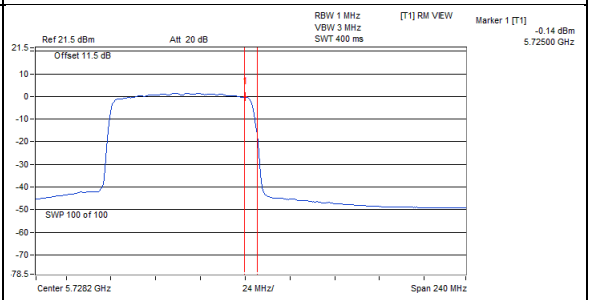
TX Channel Bandwidth 6.54 MHz Power -0.27 dBm

802.11ac (VHT80)_Chain 3 / CH138 (U-NII-2C Band)



TX Channel Bandwidth 76.73 MHz Power 16.6 dBm

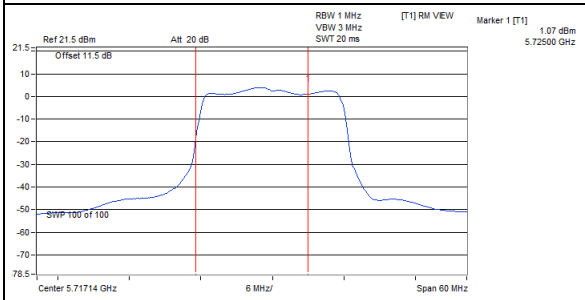
802.11ac (VHT80)_Chain 3 / CH138 (U-NII-3 Band)



TX Channel Bandwidth 6.41 MHz Power 0.47 dBm

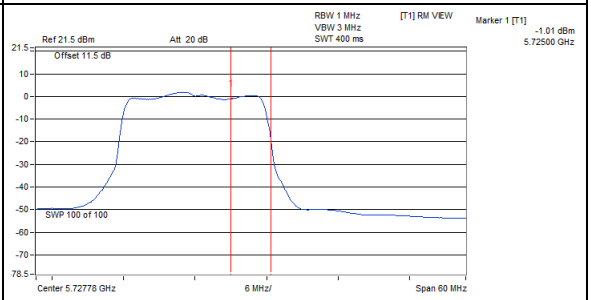
Spectrum Plot Value of Power

802.11ax (HE20)_Chain 0 / CH144 (U-NII-2C Band)



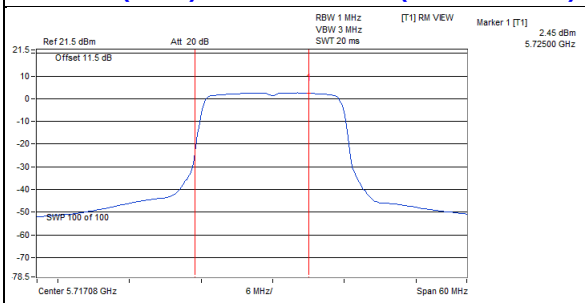
TX Channel Bandwidth 15.71 MHz Power 13.47 dBm

802.11ax (HE20)_Chain 0 / CH144 (U-NII-3 Band)



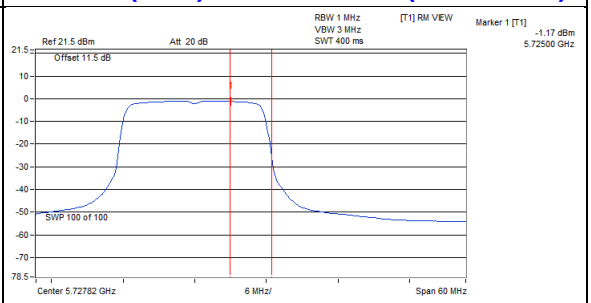
TX Channel Bandwidth 5.56 MHz Power 6.21 dBm

802.11ax (HE20)_Chain 1 / CH144 (U-NII-2C Band)



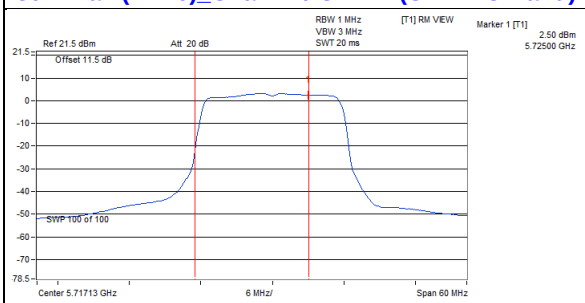
TX Channel Bandwidth 15.84 MHz Power 13.52 dBm

802.11ax (HE20)_Chain 1 / CH144 (U-NII-3 Band)



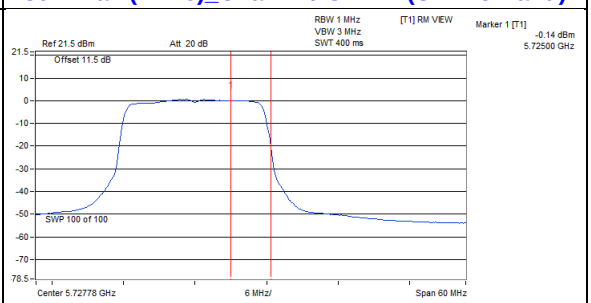
TX Channel Bandwidth 5.65 MHz Power 4.54 dBm

802.11ax (HE20)_Chain 2 / CH144 (U-NII-2C Band)



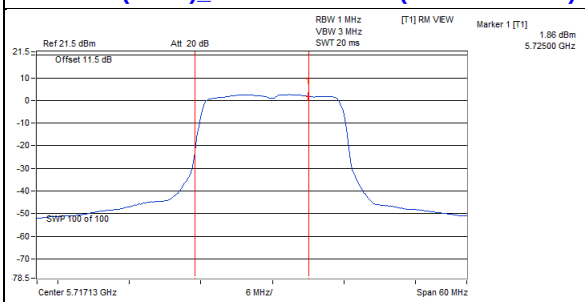
TX Channel Bandwidth 15.74 MHz Power 13.71 dBm

802.11ax (HE20)_Chain 2 / CH144 (U-NII-3 Band)



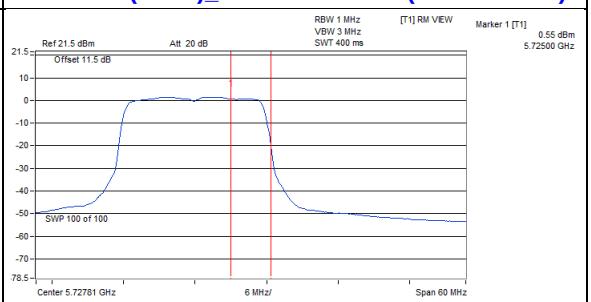
TX Channel Bandwidth 5.57 MHz Power 5.92 dBm

802.11ax (HE20)_Chain 3 / CH144 (U-NII-2C Band)

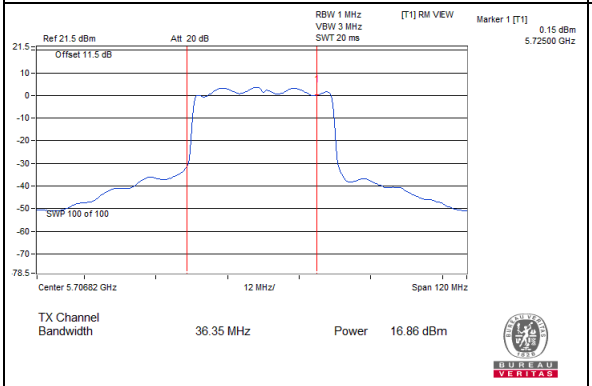
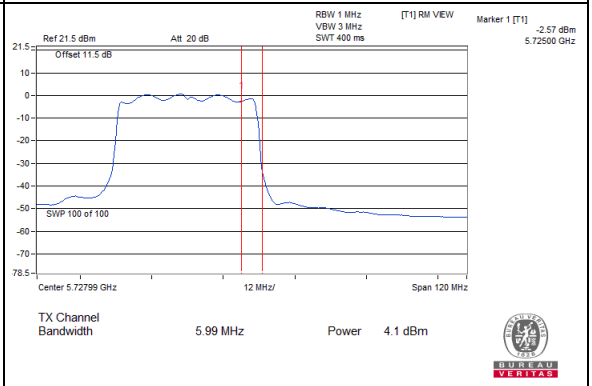
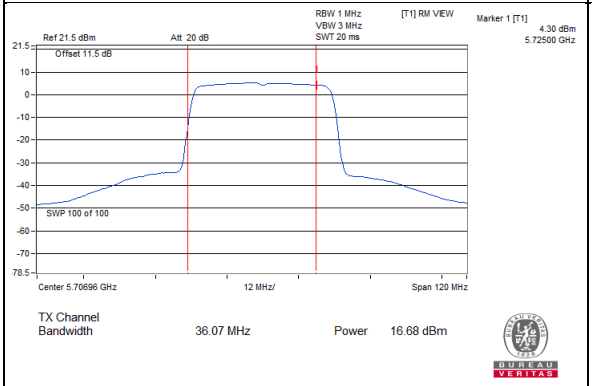
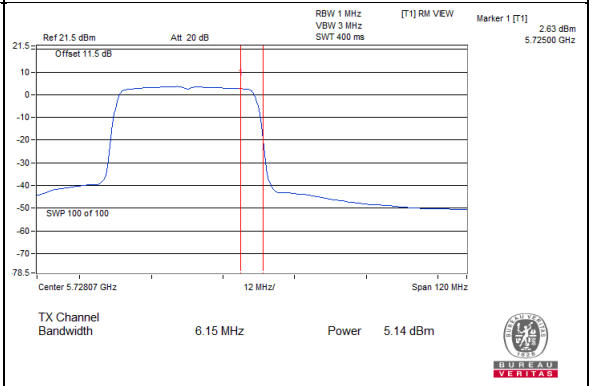
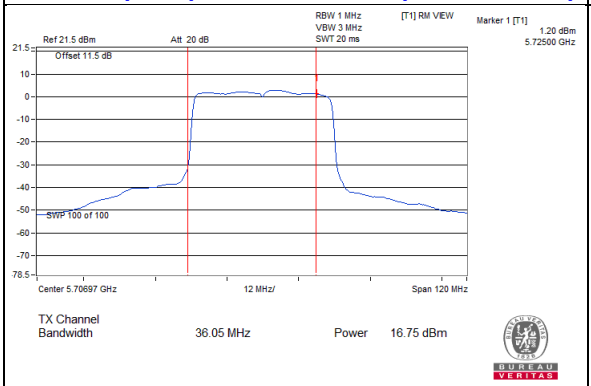
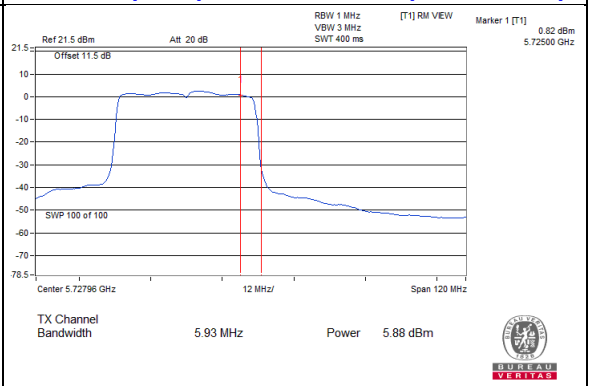
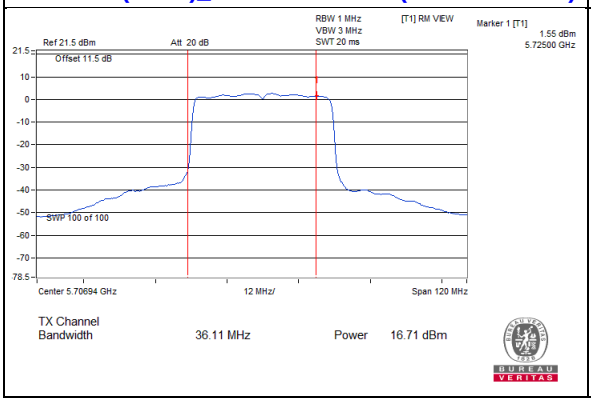
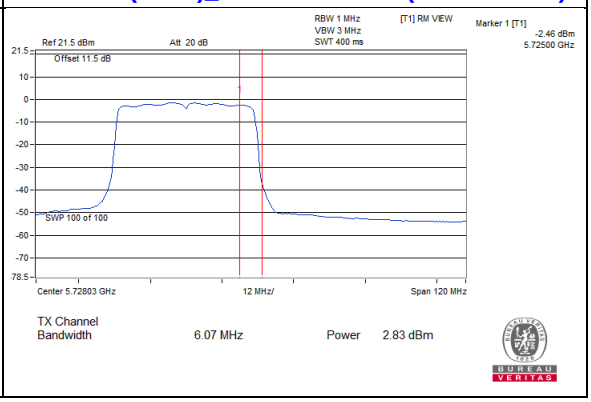


TX Channel Bandwidth 15.73 MHz Power 13.29 dBm

802.11ax (HE20)_Chain 3 / CH144 (U-NII-3 Band)

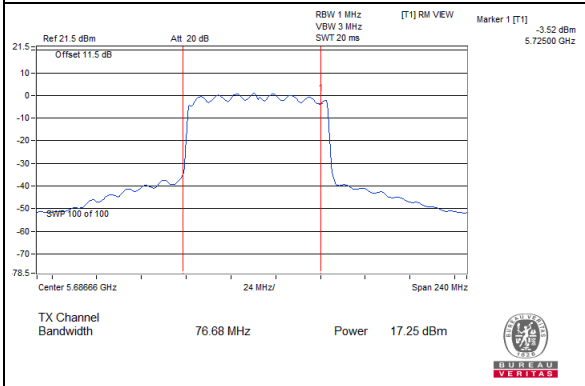


TX Channel Bandwidth 5.62 MHz Power 6.78 dBm

Spectrum Plot Value of Power	
802.11ax (HE40)_Chain 0 / CH142 (U-NII-2C Band)	**802.11ax (HE40)_Chain 0 / CH142 (U-NII-3 Band)**
 TX Channel Bandwidth 36.35 MHz Power 16.86 dBm	 TX Channel Bandwidth 5.99 MHz Power 4.1 dBm
802.11ax (HE40)_Chain 1 / CH142 (U-NII-2C Band)	**802.11ax (HE40)_Chain 1 / CH142 (U-NII-3 Band)**
 TX Channel Bandwidth 36.07 MHz Power 16.68 dBm	 TX Channel Bandwidth 6.15 MHz Power 5.14 dBm
802.11ax (HE40)_Chain 2 / CH142 (U-NII-2C Band)	**802.11ax (HE40)_Chain 2 / CH142 (U-NII-3 Band)**
 TX Channel Bandwidth 36.05 MHz Power 16.75 dBm	 TX Channel Bandwidth 5.93 MHz Power 5.88 dBm
802.11ax (HE40)_Chain 3 / CH142 (U-NII-2C Band)	**802.11ax (HE40)_Chain 3 / CH142 (U-NII-3 Band)**
 TX Channel Bandwidth 36.11 MHz Power 16.71 dBm	 TX Channel Bandwidth 6.07 MHz Power 2.83 dBm

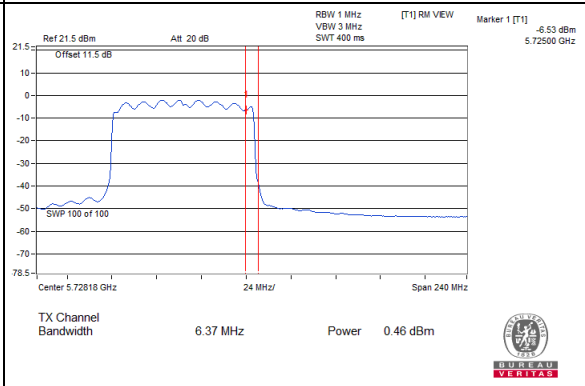
Spectrum Plot Value of Power

802.11ax (HE80)_Chain 0 / CH138 (U-NII-2C Band)



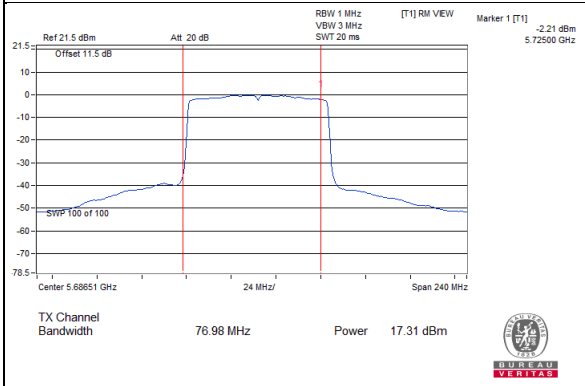
TX Channel Bandwidth 76.68 MHz Power 17.25 dBm

802.11ax (HE80)_Chain 0 / CH138 (U-NII-3 Band)



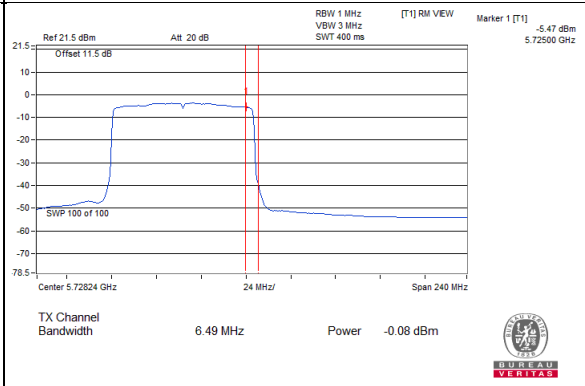
TX Channel Bandwidth 6.37 MHz Power 0.46 dBm

802.11ax (HE80)_Chain 1 / CH138 (U-NII-2C Band)



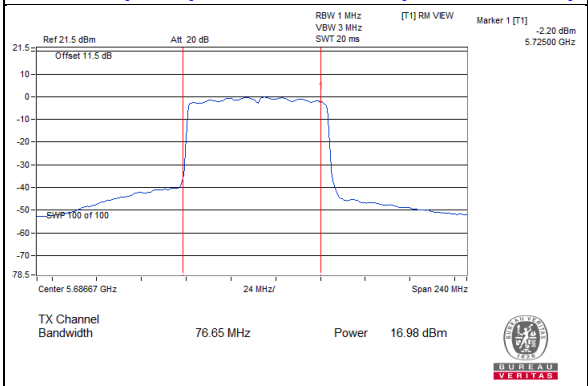
TX Channel Bandwidth 76.98 MHz Power 17.31 dBm

802.11ax (HE80)_Chain 1 / CH138 (U-NII-3 Band)



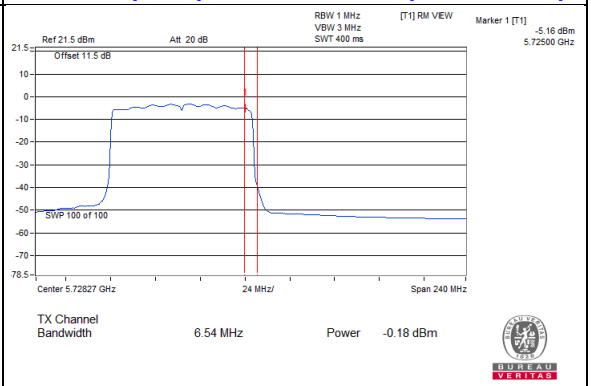
TX Channel Bandwidth 6.49 MHz Power -0.08 dBm

802.11ax (HE80)_Chain 2 / CH138 (U-NII-2C Band)



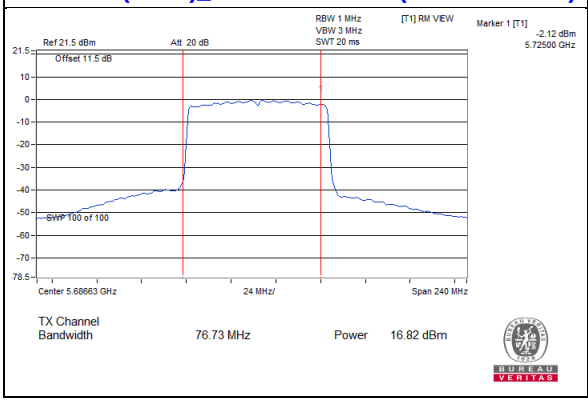
TX Channel Bandwidth 76.65 MHz Power 16.98 dBm

802.11ax (HE80)_Chain 2 / CH138 (U-NII-3 Band)



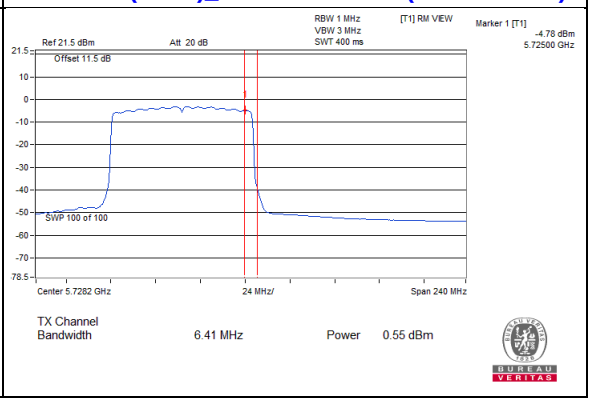
TX Channel Bandwidth 6.54 MHz Power -0.18 dBm

802.11ax (HE80)_Chain 3 / CH138 (U-NII-2C Band)



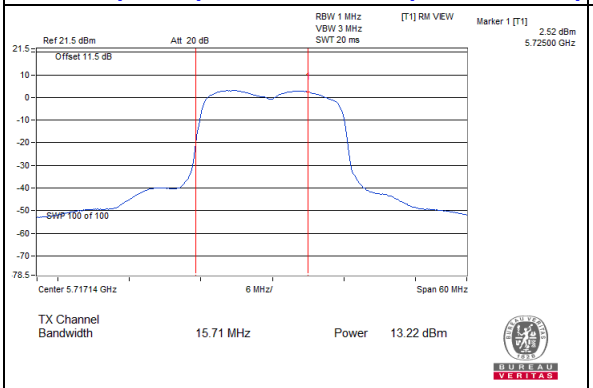
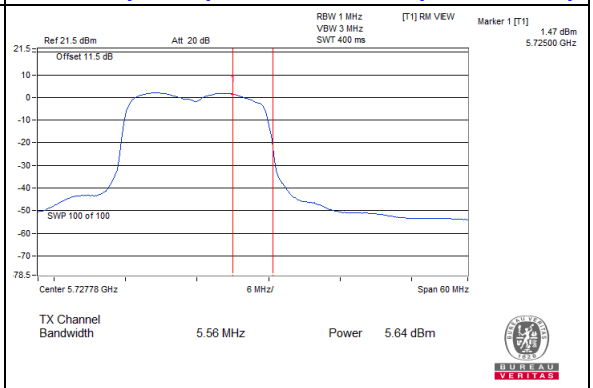
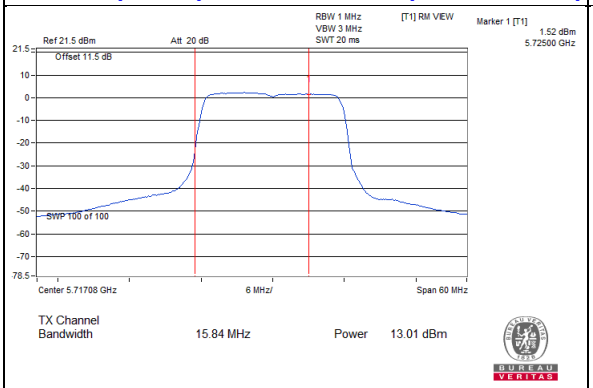
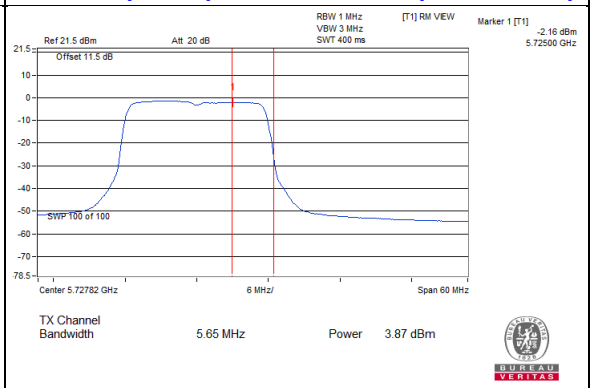
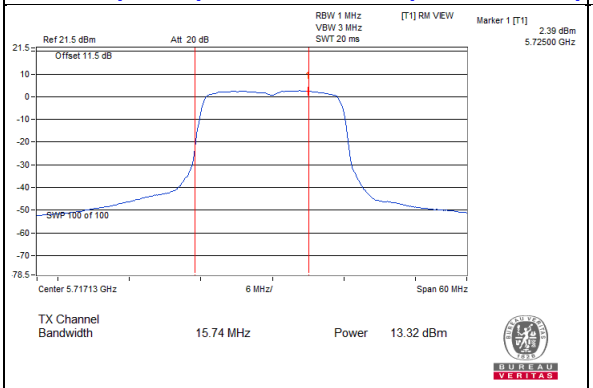
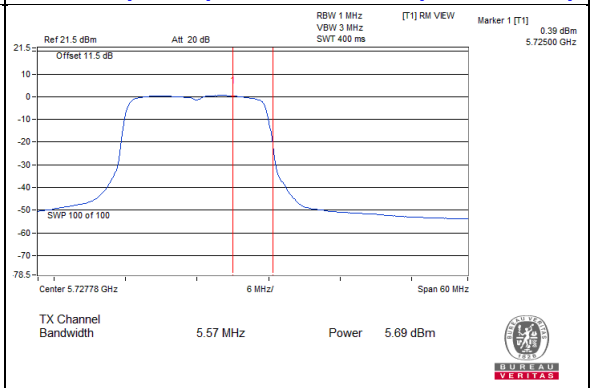
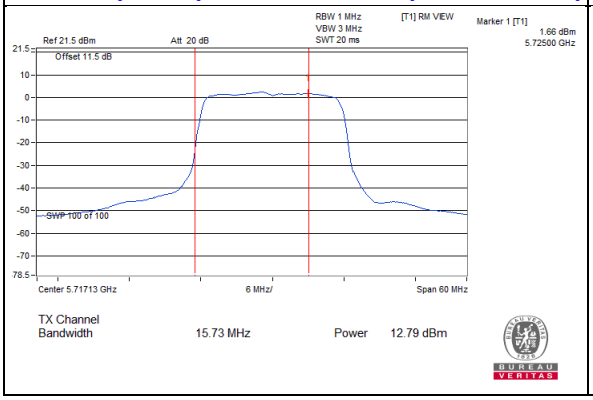
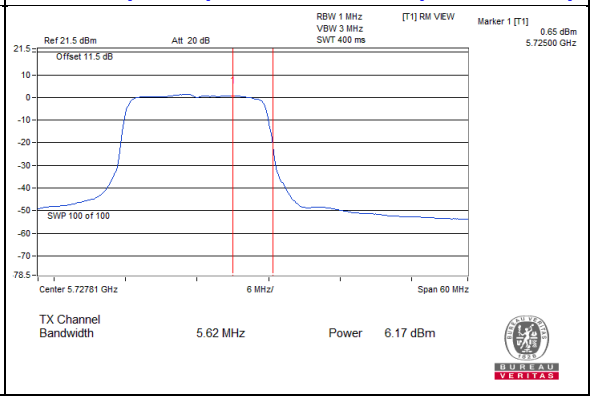
TX Channel Bandwidth 76.73 MHz Power 16.82 dBm

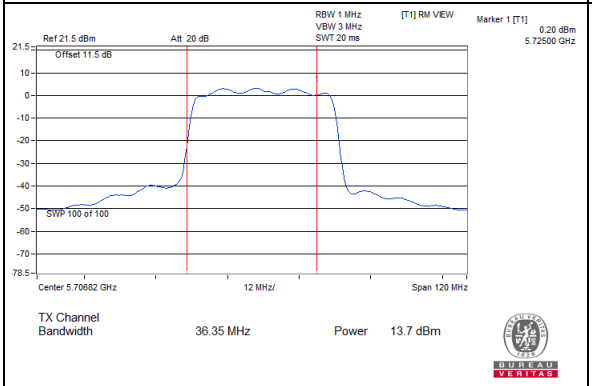
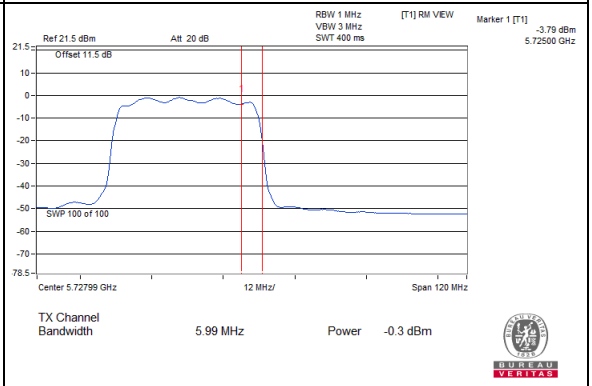
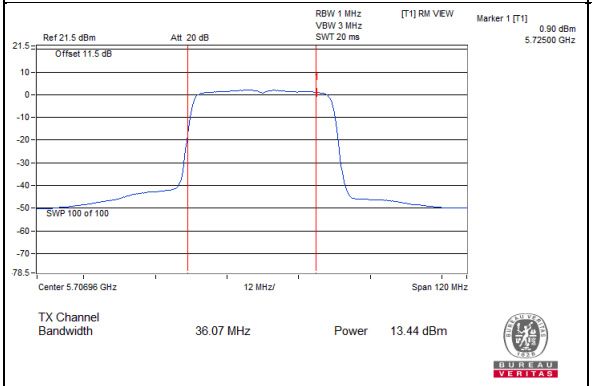
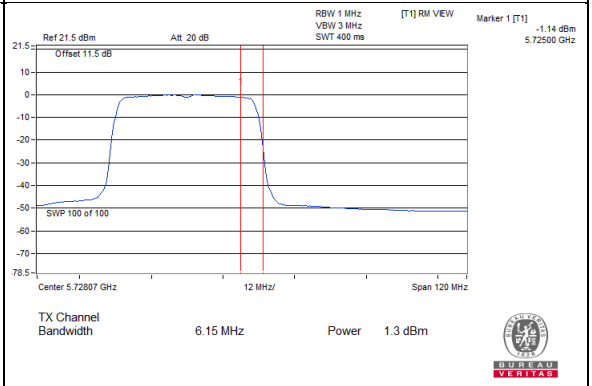
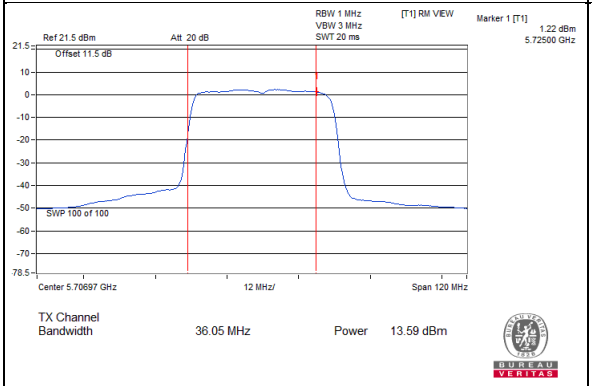
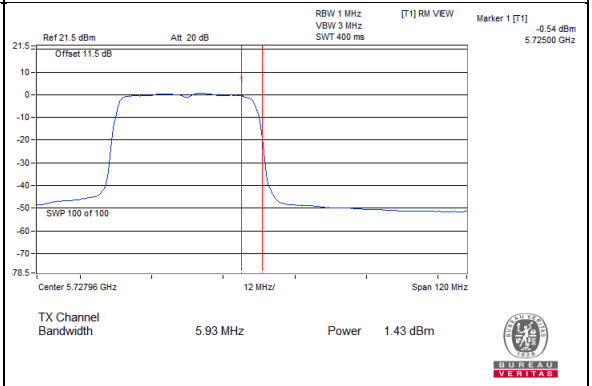
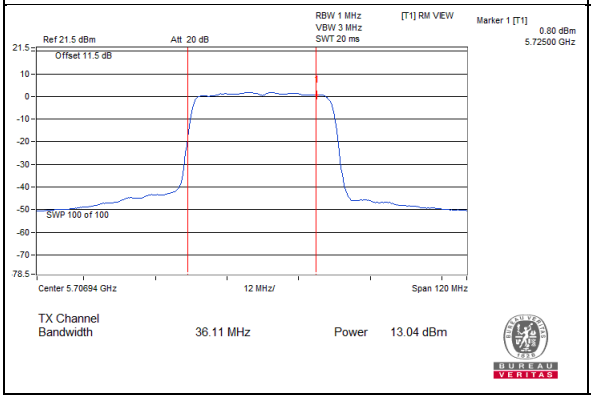
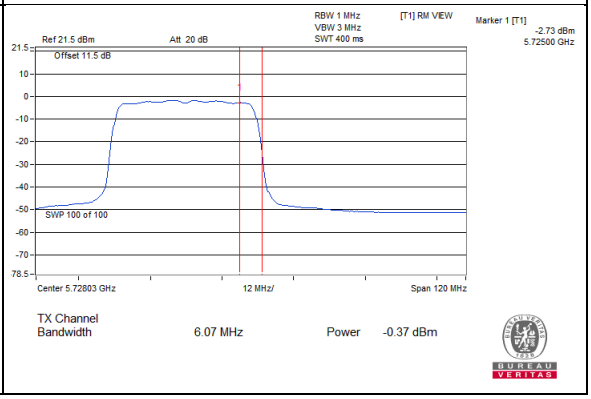
802.11ax (HE80)_Chain 3 / CH138 (U-NII-3 Band)

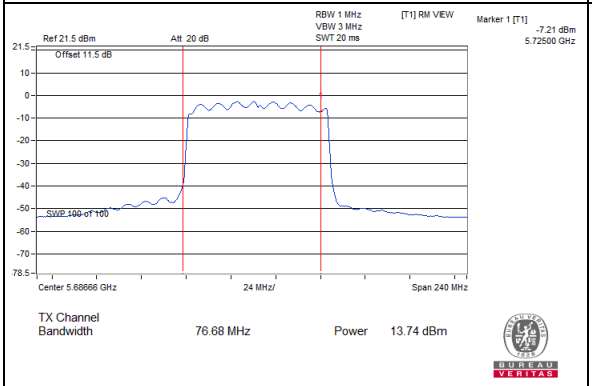
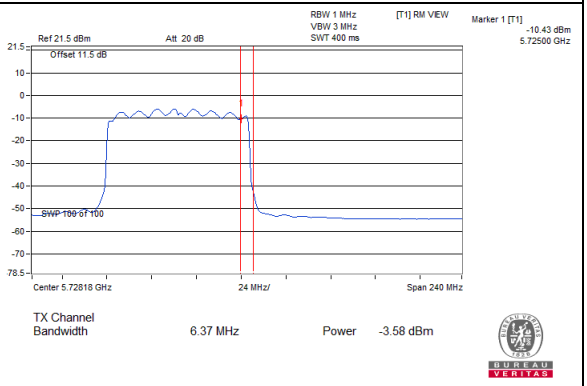
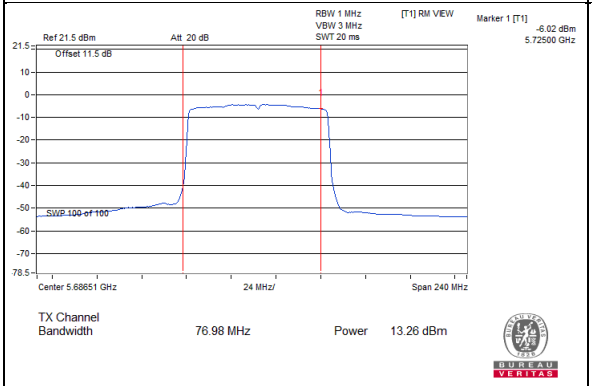
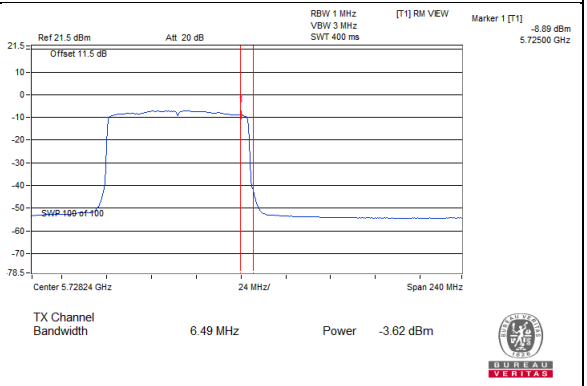
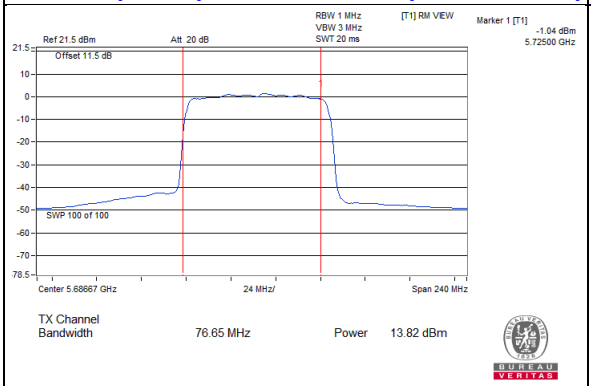
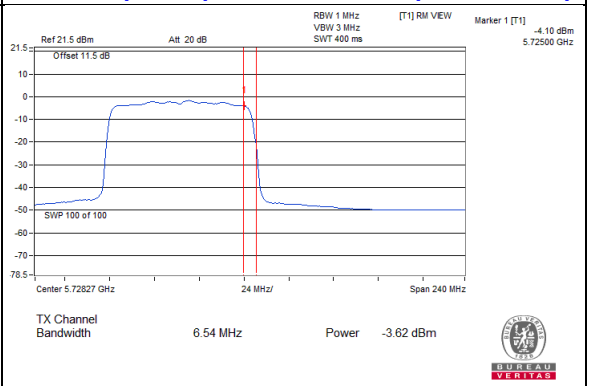
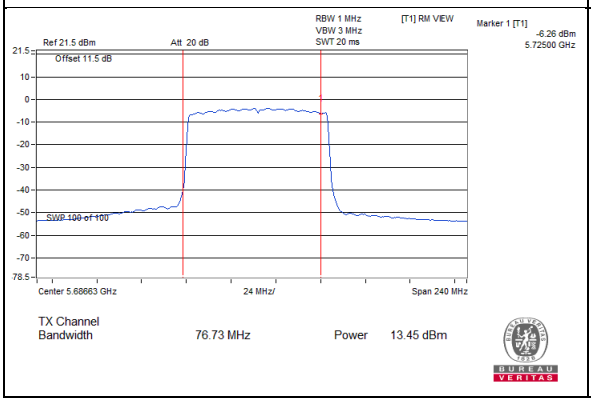
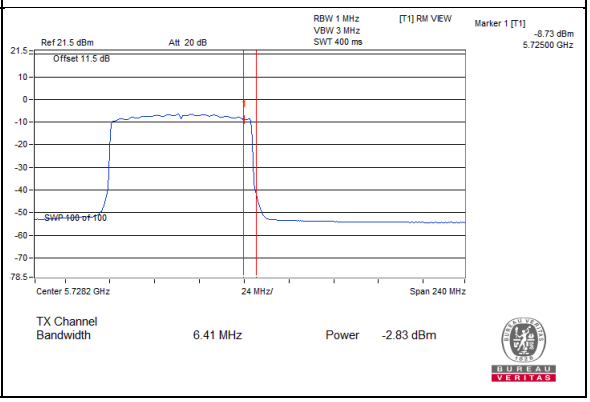


TX Channel Bandwidth 6.41 MHz Power 0.55 dBm

Beamforming Mode

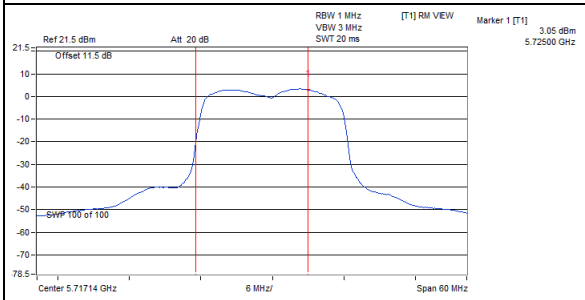
Spectrum Plot Value of Power	
802.11ac (VHT20)_Chain 0 / CH144 (U-NII-2C Band)	**802.11ac (VHT20)_Chain 0 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 15.71 MHz Power 13.22 dBm	 TX Channel Bandwidth 5.56 MHz Power 5.64 dBm
802.11ac (VHT20)_Chain 1 / CH144 (U-NII-2C Band)	**802.11ac (VHT20)_Chain 1 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 15.84 MHz Power 13.01 dBm	 TX Channel Bandwidth 5.65 MHz Power 3.87 dBm
802.11ac (VHT20)_Chain 2 / CH144 (U-NII-2C Band)	**802.11ac (VHT20)_Chain 2 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 15.74 MHz Power 13.32 dBm	 TX Channel Bandwidth 5.57 MHz Power 5.69 dBm
802.11ac (VHT20)_Chain 3 / CH144 (U-NII-2C Band)	**802.11ac (VHT20)_Chain 3 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 15.73 MHz Power 12.79 dBm	 TX Channel Bandwidth 5.62 MHz Power 6.17 dBm

Spectrum Plot Value of Power	
802.11ac (VHT40)_Chain 0 / CH142 (U-NII-2C Band)	**802.11ac (VHT40)_Chain 0 / CH142 (U-NII-3 Band)**
 TX Channel Bandwidth 36.35 MHz Power 13.7 dBm	 TX Channel Bandwidth 5.99 MHz Power -0.3 dBm
802.11ac (VHT40)_Chain 1 / CH142 (U-NII-2C Band)	**802.11ac (VHT40)_Chain 1 / CH142 (U-NII-3 Band)**
 TX Channel Bandwidth 36.07 MHz Power 13.44 dBm	 TX Channel Bandwidth 6.15 MHz Power 1.3 dBm
802.11ac (VHT40)_Chain 2 / CH142 (U-NII-2C Band)	**802.11ac (VHT40)_Chain 2 / CH142 (U-NII-3 Band)**
 TX Channel Bandwidth 36.05 MHz Power 13.59 dBm	 TX Channel Bandwidth 5.93 MHz Power 1.43 dBm
802.11ac (VHT40)_Chain 3 / CH142 (U-NII-2C Band)	**802.11ac (VHT40)_Chain 3 / CH142 (U-NII-3 Band)**
 TX Channel Bandwidth 36.11 MHz Power 13.04 dBm	 TX Channel Bandwidth 6.07 MHz Power -0.37 dBm

Spectrum Plot Value of Power	
802.11ac (VHT80)_Chain 0 / CH138 (U-NII-2C Band)	**802.11ac (VHT80)_Chain 0 / CH138 (U-NII-3 Band)**
 TX Channel Bandwidth 76.68 MHz Power 13.74 dBm	 TX Channel Bandwidth 6.37 MHz Power -3.58 dBm
802.11ac (VHT80)_Chain 1 / CH138 (U-NII-2C Band)	**802.11ac (VHT80)_Chain 1 / CH138 (U-NII-3 Band)**
 TX Channel Bandwidth 76.98 MHz Power 13.26 dBm	 TX Channel Bandwidth 6.49 MHz Power -3.62 dBm
802.11ac (VHT80)_Chain 2 / CH138 (U-NII-2C Band)	**802.11ac (VHT80)_Chain 2 / CH138 (U-NII-3 Band)**
 TX Channel Bandwidth 76.65 MHz Power 13.82 dBm	 TX Channel Bandwidth 6.54 MHz Power -3.62 dBm
802.11ac (VHT80)_Chain 3 / CH138 (U-NII-2C Band)	**802.11ac (VHT80)_Chain 3 / CH138 (U-NII-3 Band)**
 TX Channel Bandwidth 76.73 MHz Power 13.45 dBm	 TX Channel Bandwidth 6.41 MHz Power -2.83 dBm

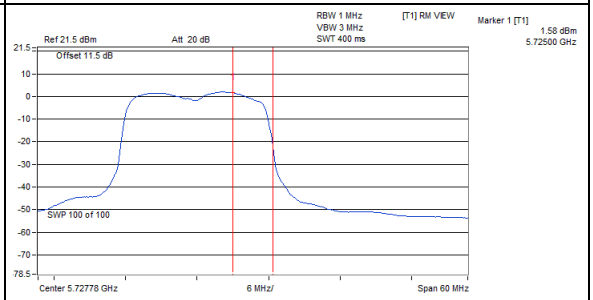
Spectrum Plot Value of Power

802.11ax (HE20)_Chain 0 / CH144 (U-NII-2C Band)



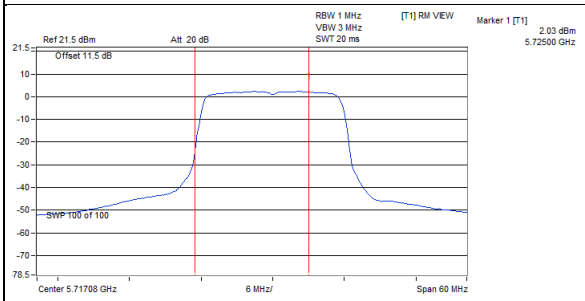
TX Channel Bandwidth 15.71 MHz Power 13.3 dBm

802.11ax (HE20)_Chain 0 / CH144 (U-NII-3 Band)



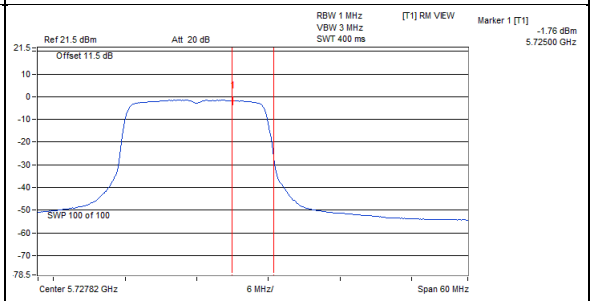
TX Channel Bandwidth 5.56 MHz Power 5.84 dBm

802.11ax (HE20)_Chain 1 / CH144 (U-NII-2C Band)



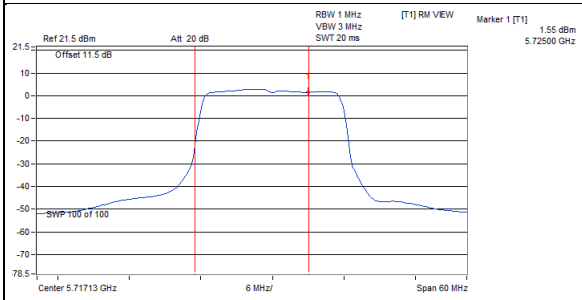
TX Channel Bandwidth 15.84 MHz Power 13.18 dBm

802.11ax (HE20)_Chain 1 / CH144 (U-NII-3 Band)



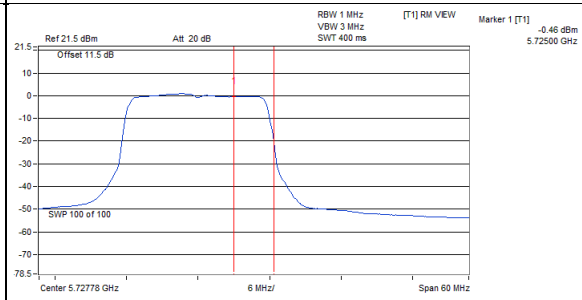
TX Channel Bandwidth 5.65 MHz Power 3.97 dBm

802.11ax (HE20)_Chain 2 / CH144 (U-NII-2C Band)



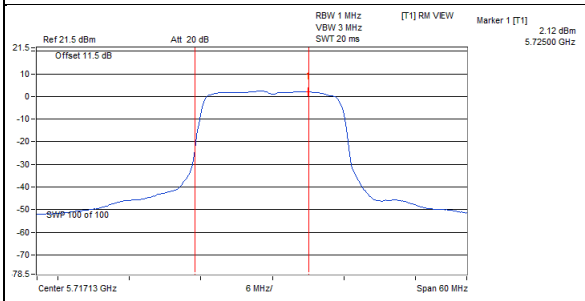
TX Channel Bandwidth 15.74 MHz Power 13.37 dBm

802.11ax (HE20)_Chain 2 / CH144 (U-NII-3 Band)



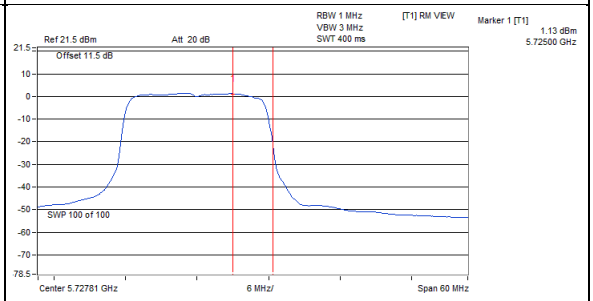
TX Channel Bandwidth 5.57 MHz Power 5.81 dBm

802.11ax (HE20)_Chain 3 / CH144 (U-NII-2C Band)



TX Channel Bandwidth 15.73 MHz Power 13.07 dBm

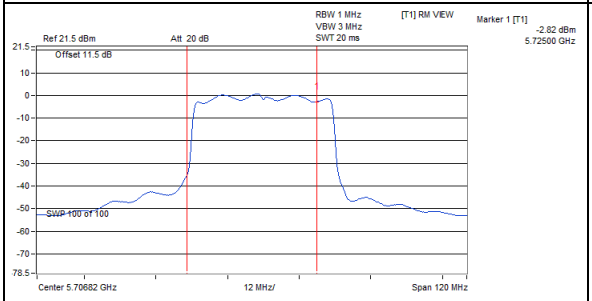
802.11ax (HE20)_Chain 3 / CH144 (U-NII-3 Band)



TX Channel Bandwidth 5.62 MHz Power 6.37 dBm

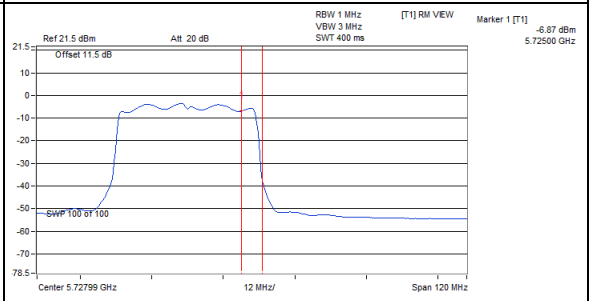
Spectrum Plot Value of Power

802.11ax (HE40)_Chain 0 / CH142 (U-NII-2C Band)



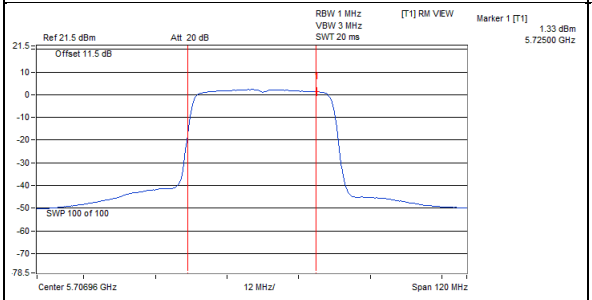
TX Channel Bandwidth 36.35 MHz Power 13.88 dBm

802.11ax (HE40)_Chain 0 / CH142 (U-NII-3 Band)



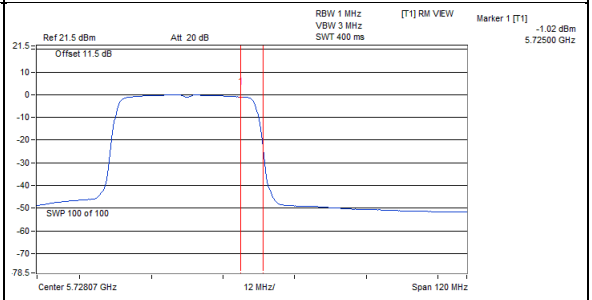
TX Channel Bandwidth 5.99 MHz Power -0.18 dBm

802.11ax (HE40)_Chain 1 / CH142 (U-NII-2C Band)



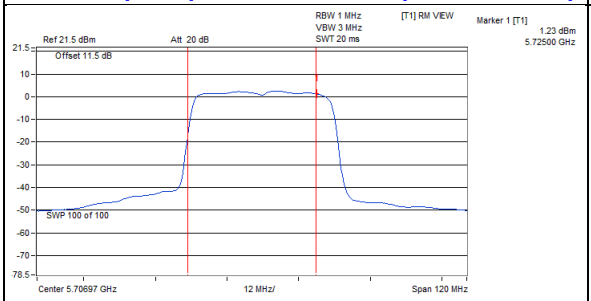
TX Channel Bandwidth 36.07 MHz Power 13.72 dBm

802.11ax (HE40)_Chain 1 / CH142 (U-NII-3 Band)



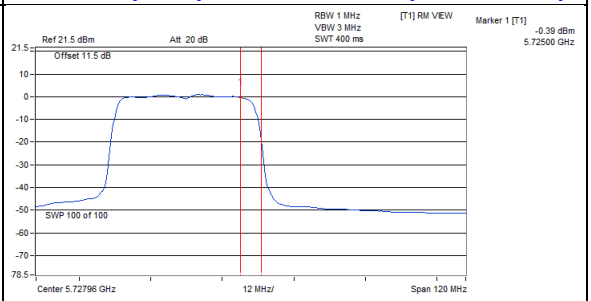
TX Channel Bandwidth 6.15 MHz Power 1.49 dBm

802.11ax (HE40)_Chain 2 / CH142 (U-NII-2C Band)



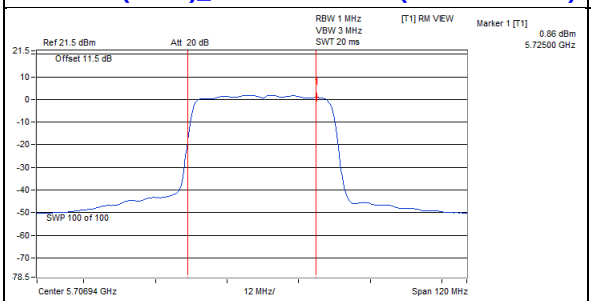
TX Channel Bandwidth 36.05 MHz Power 13.67 dBm

802.11ax (HE40)_Chain 2 / CH142 (U-NII-3 Band)



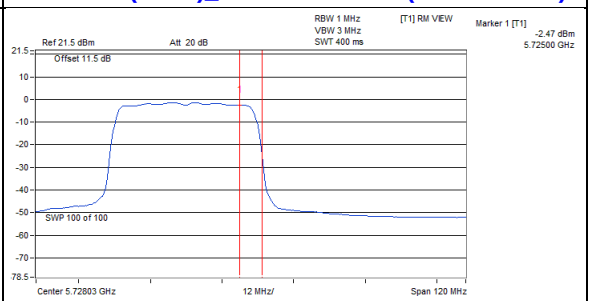
TX Channel Bandwidth 5.93 MHz Power 1.6 dBm

802.11ax (HE40)_Chain 3 / CH142 (U-NII-2C Band)

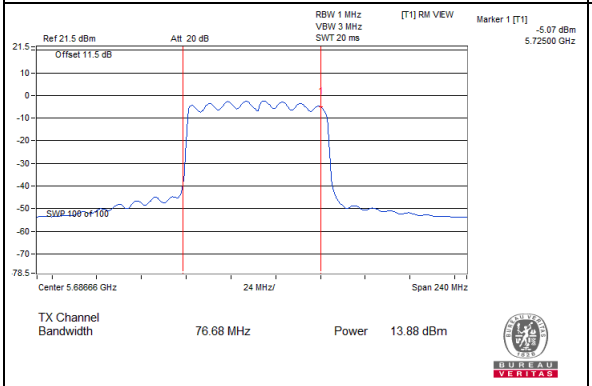
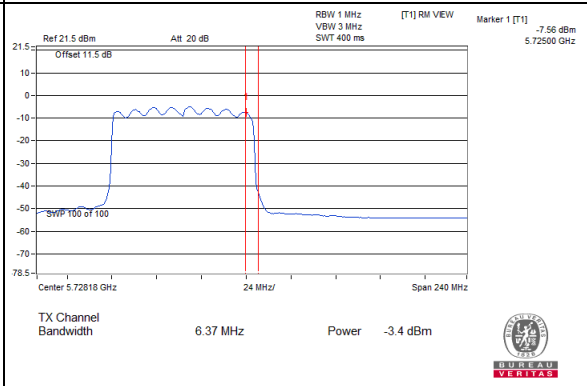
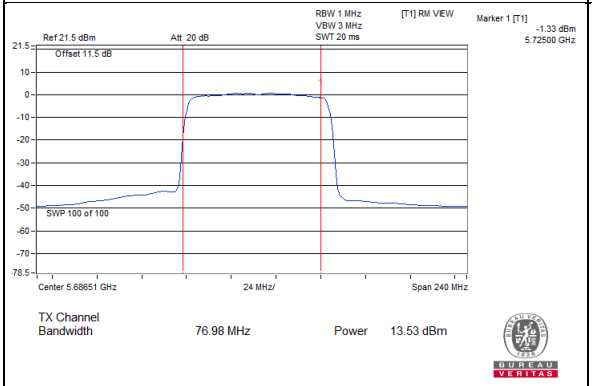
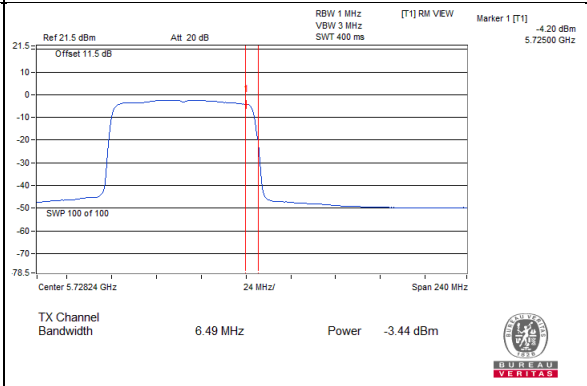
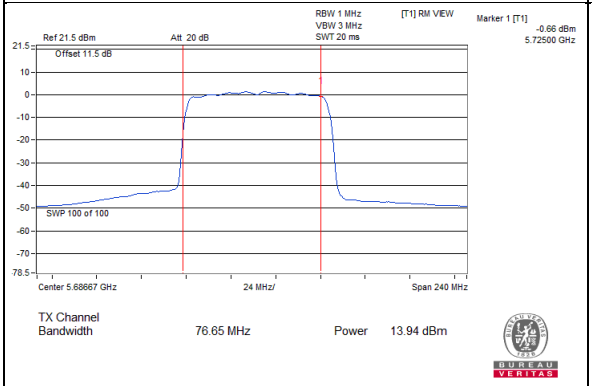
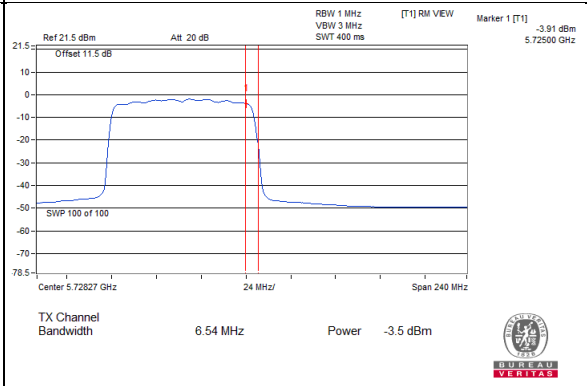
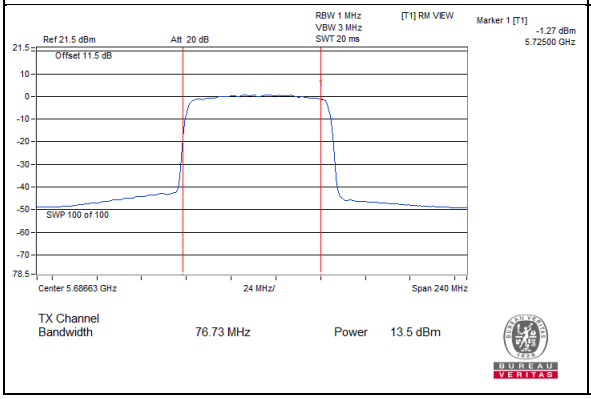
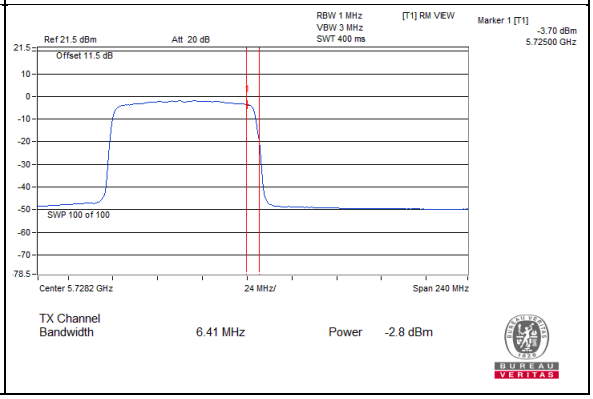


TX Channel Bandwidth 36.11 MHz Power 13.15 dBm

802.11ax (HE40)_Chain 3 / CH142 (U-NII-3 Band)



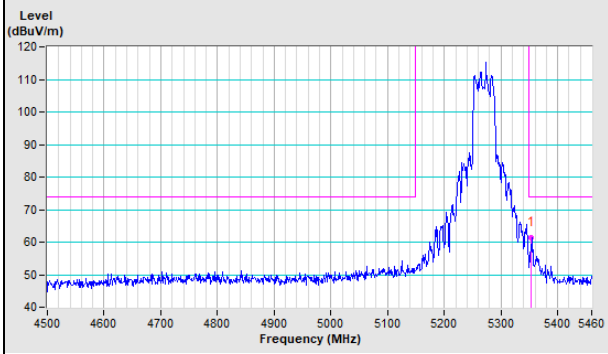
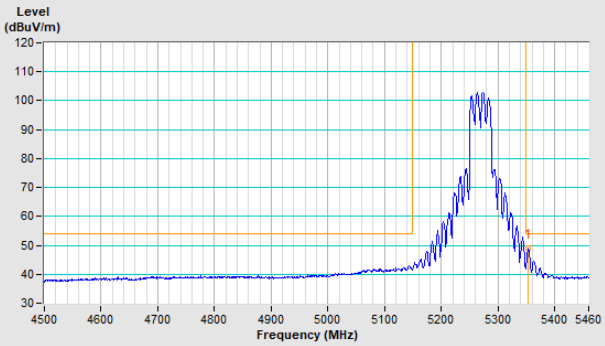
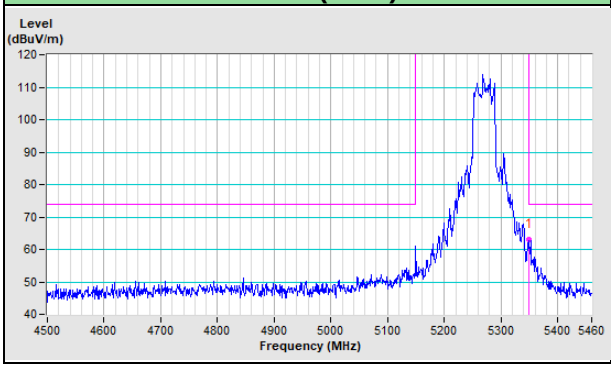
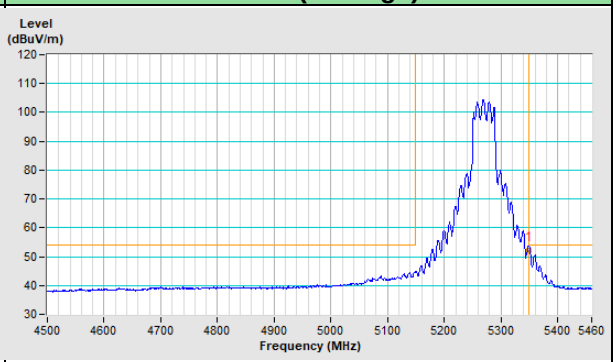
TX Channel Bandwidth 6.07 MHz Power -0.06 dBm

Spectrum Plot Value of Power	
802.11ax (HE80)_Chain 0 / CH138 (U-NII-2C Band)	**802.11ax (HE80)_Chain 0 / CH138 (U-NII-3 Band)**
 TX Channel Bandwidth 76.68 MHz Power 13.88 dBm	 TX Channel Bandwidth 6.37 MHz Power -3.4 dBm
802.11ax (HE80)_Chain 1 / CH138 (U-NII-2C Band)	**802.11ax (HE80)_Chain 1 / CH138 (U-NII-3 Band)**
 TX Channel Bandwidth 76.98 MHz Power 13.53 dBm	 TX Channel Bandwidth 6.49 MHz Power -3.44 dBm
802.11ax (HE80)_Chain 2 / CH138 (U-NII-2C Band)	**802.11ax (HE80)_Chain 2 / CH138 (U-NII-3 Band)**
 TX Channel Bandwidth 76.65 MHz Power 13.94 dBm	 TX Channel Bandwidth 6.54 MHz Power -3.5 dBm
802.11ax (HE80)_Chain 3 / CH138 (U-NII-2C Band)	**802.11ax (HE80)_Chain 3 / CH138 (U-NII-3 Band)**
 TX Channel Bandwidth 76.73 MHz Power 13.5 dBm	 TX Channel Bandwidth 6.41 MHz Power -2.8 dBm

5 Pictures of Test Arrangements

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

Annex A- Band-Edge Measurement (For U-NII-2A band)

802.11ax (HE40) Channel 54	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

Appendix – Information of the Testing Laboratories

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

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

Lin Kou EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

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Tel: 886-3-3183232
Fax: 886-3-3270892

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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