FCC Test Report (DFS Band)

Report No.: RFBCKS-WTW-P21020435-3

FCC ID: 2AZFR-AR1

Test Model: AR1

Received Date: Feb. 20, 2021

Test Date: Feb. 23 to Mar. 25, 2021

Issued Date: July 21, 2021

Applicant: Palo Alto Networks Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

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FCC Registration / Designation Number: 723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
RFBCKS-WTW-P21020435-3	Original release.	July 21, 2021

1 Certificate of Conformity

Product: Okyo Garde

Brand: OKYO

Test Model: AR1

Sample Status: Engineering sample

Applicant: Palo Alto Networks Inc.

Test Date: Feb. 23 to Mar. 25, 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 : _____ , **Date:** July 21, 2021
Phoenix Huang / Specialist

Approved by : _____ , **Date:** July 21, 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)(8)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -18.31 dB at 0.15000 MHz.
15.407(b) (1/2/3/4(i/ii)/8)	Radiated Emissions & Band Edge Measurement*	Pass	Meet the requirement of limit. Minimum passing margin is -0.1 dB at 5356.30 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is i-pex(MHF) not a standard connector.

Note:
1. For U-NII-2A, U-NII-2C band compliance with rule 15.407(b) of the band-edge items, the test plots were recorded in Annex A. Test Procedures refer to report 4.1.3.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.9 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.1 dB
	30MHz ~ 1GHz	5.5 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.1 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 (DFS Band)

Product	Okyo Garde
Brand	OKYO
Test Model	AR1
Status of EUT	Engineering sample
Power Supply Rating	12Vdc from adapter
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only 1024QAM for OFDMA in 11ax HE mode
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: 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 ~ 5.72 GHz
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 ~ 5.32 GHz:** 247.522 mW **5.5 ~ 5.72 GHz:** 242.505 mW **Beamforming Mode:** **5.26 ~ 5.32 GHz:** 83.005 mW **5.5 ~ 5.72 GHz:** 86.533 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1, AC Power cord x 1 (Unshielded, 1 m)
Data Cable Supplied	Ethernet cable x 1 (Unshielded, 1 m)

Note:

1. The EUT has below radios as following table:

Radio 1	Radio 2	Radio 3
WLAN 2.4GHz	WLAN 5GHz (Low Band)	WLAN 5GHz (High Band)

2. 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.			

3. The EUT power needs to be supplied from a power adapter, the information is as below table:

Brand	Model No.	Spec.
LITEON	HA-1600-12	Input: 100-240 Vac, 1.7 A, 50-60 Hz Output: 12 Vdc, 5.0 A, 60.0 W DC output cable (Unshielded, 1 m with one core)

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

Antenna No.	RF Chain No.	Antenna Net Gain (dBi)	Frequency Range	Antenna Type	Connector Type	Cable Length
1	2.4G Chain3	3.6	2.4~2.4835 GHz	PCB	i-pex(MHF)	105 mm
	5G (Low Band) Chain3	5.2	5.15~5.35 GHz			
2	2.4G Chain2	2.9	2.4~2.4835 GHz	PCB	i-pex(MHF)	146 mm
	5G (Low Band) Chain2	4.6	5.15~5.35 GHz			
3	2.4G Chain1	3.6	2.4~2.4835 GHz	PCB	i-pex(MHF)	53 mm
	5G (Low Band) Chain1	4.7	5.15~5.35 GHz			
4	2.4G Chain0	3.5	2.4~2.4835 GHz	PCB	i-pex(MHF)	122 mm
	5G (Low Band) Chain0	4.5	5.15~5.35 GHz			
5	5G (High Band) Chain3	4.5	5.47~5.85 GHz	PCB	i-pex(MHF)	71 mm
6	5G (High Band) Chain2	4.6	5.47~5.85 GHz	PCB	i-pex(MHF)	119 mm
7	5G (High Band) Chain1	4.8	5.47~5.85 GHz	PCB	i-pex(MHF)	75 mm
8	5G (High Band) Chain0	4.4	5.47~5.85 GHz	PCB	i-pex(MHF)	54 mm

5. The EUT incorporates a MIMO function.

2.4GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11b	4TX	4RX
802.11g	4TX	4RX
802.11n (HT20)	4TX	4RX
802.11n (HT40)	4TX	4RX
VHT20	4TX	4RX
VHT40	4TX	4RX
802.11ax (HE20)	4TX	4RX
802.11ax (HE40)	4TX	4RX
5GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11a	4TX	4RX
802.11n (HT20)	4TX	4RX
802.11n (HT40)	4TX	4RX
802.11ac (VHT20)	4TX	4RX
802.11ac (VHT40)	4TX	4RX
802.11ac (VHT80)	4TX	4RX
802.11ax (HE20)	4TX	4RX
802.11ax (HE40)	4TX	4RX
802.11ax (HE80)	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 (40MHz, 80MHz), therefore the manufacturer will control the power for 802.11n/ac mode is the same as the 802.11ax mode or more lower than it and investigated worst case to representative mode in test report. (Final test mode refer to section 3.2.1)

6. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.
7. 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), 802.11ax (HE20):

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), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

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

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
802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6Mb/s
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
802.11ax (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

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							
Test Radio	Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate Parameter
Radio 2	802.11ax (HE80)	5260-5320	58,	58	OFDMA	BPSK	MCS0
Radio 3	802.11ax (HE80)	5500-5720	106 to 138	122	OFDMA	BPSK	MCS0

Power Line Conducted Emission Test:

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

CDD Mode							
Test Radio	Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate Parameter
Radio 2	802.11ax (HE80)	5260-5320	58,	58	OFDMA	BPSK	MCS0
Radio 3	802.11ax (HE80)	5500-5720	106 to 138	122	OFDMA	BPSK	MCS0

Antenna Port Conducted Measurement:

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

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) (output power only)		52 to 64	52, 60, 64	OFDM	BPSK	MCS0
802.11ac (VHT40) (output power only)		54 to 62	54, 62	OFDM	BPSK	MCS0
802.11ac (VHT80) (output power only)		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) (output power only)		100 to 144	100, 116, 140, 144	OFDM	BPSK	MCS0
802.11ac (VHT40) (output power only)		102 to 142	102, 110, 134, 142	OFDM	BPSK	MCS0
802.11ac (VHT80) (output power only)		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	25deg. C, 67%RH, 22deg. C, 68%RH	120Vac, 60Hz	Sampson Chen, Sampson Chen
RE<1G	23deg. C, 64%RH	120Vac, 60Hz	Sampson Chen
PLC	25deg. C, 66%RH	120Vac, 60Hz	Sampson Chen
APCM	25deg. C, 60%RH	120Vac, 60Hz	Kevin Ko

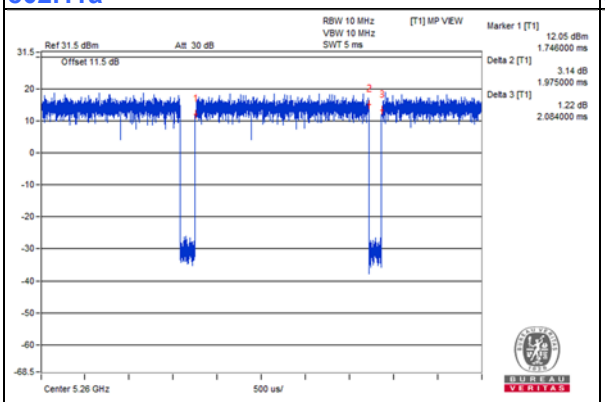
3.3 Duty Cycle of Test Signal

For U-NII-2A band:

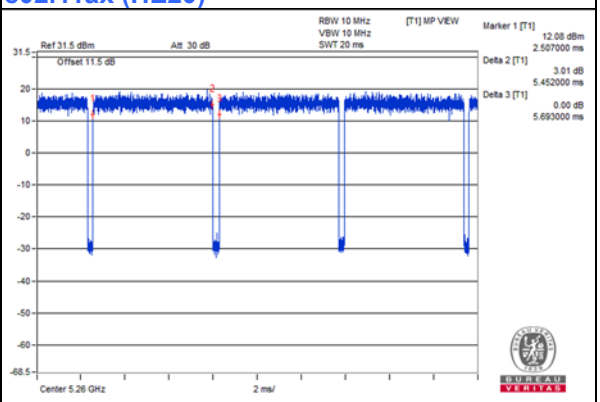
Duty cycle of test signal is < 98%, duty factor shall be considered.

802.11a: Duty cycle = 1.975 ms/2.084 ms = 0.948, Duty factor = 10 * log (1/Duty cycle) = 0.23 dB
802.11ax (HE20): Duty cycle = 5.452 ms/5.693 ms = 0.958, Duty factor = 10 * log (1/Duty cycle) = 0.19 dB
802.11ax (HE40): Duty cycle = 5.445 ms/5.72 ms = 0.952, Duty factor = 10 * log (1/Duty cycle) = 0.21 dB
802.11ax (HE80): Duty cycle = 5.443 ms/5.788 ms = 0.94, Duty factor = 10 * log (1/Duty cycle) = 0.27 dB

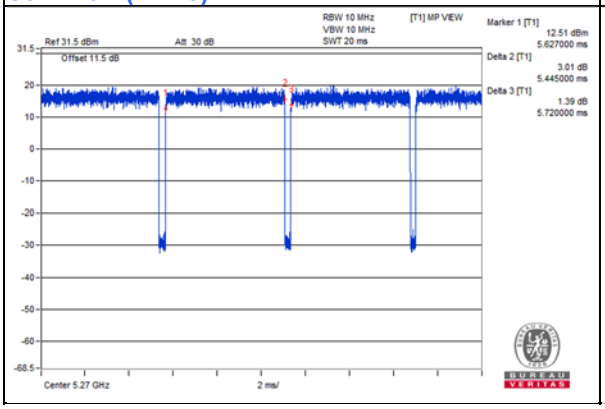
802.11a



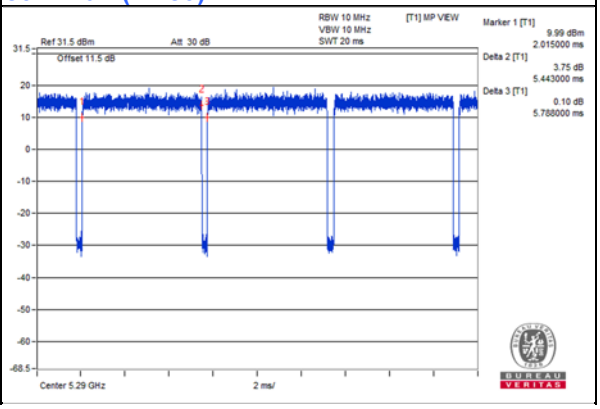
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)

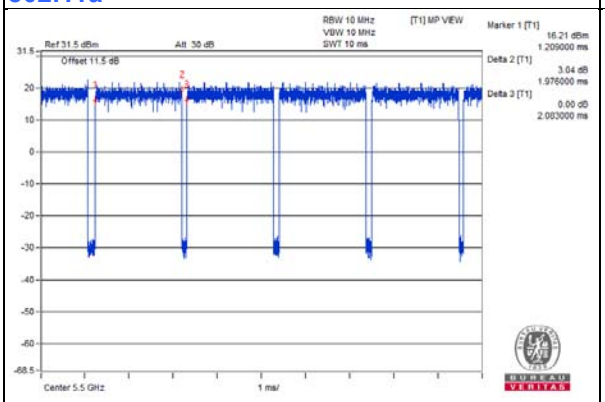


For U-NII-2C band:

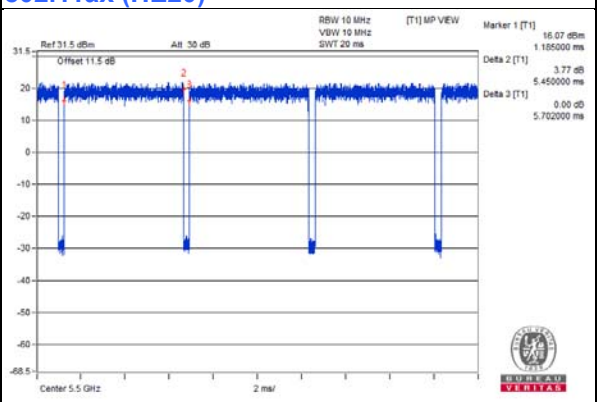
Duty cycle of test signal is < 98%, duty factor shall be considered.

802.11a: Duty cycle = 1.976 ms/2.083 ms = 0.949, Duty factor = 10 * log (1/Duty cycle) = 0.23 dB
802.11ax (HE20): Duty cycle = 5.45 ms/5.702 ms = 0.956, Duty factor = 10 * log (1/Duty cycle) = 0.2 dB
802.11ax (HE40): Duty cycle = 5.451 ms/5.703 ms = 0.956, Duty factor = 10 * log (1/Duty cycle) = 0.2 dB
802.11ax (HE80): Duty cycle = 5.448 ms/5.715 ms = 0.953, Duty factor = 10 * log (1/Duty cycle) = 0.21 dB

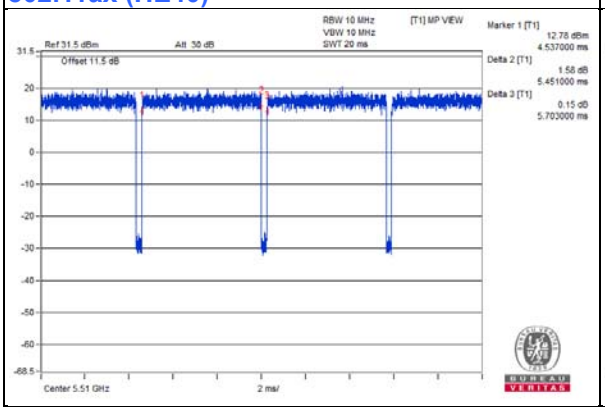
802.11a



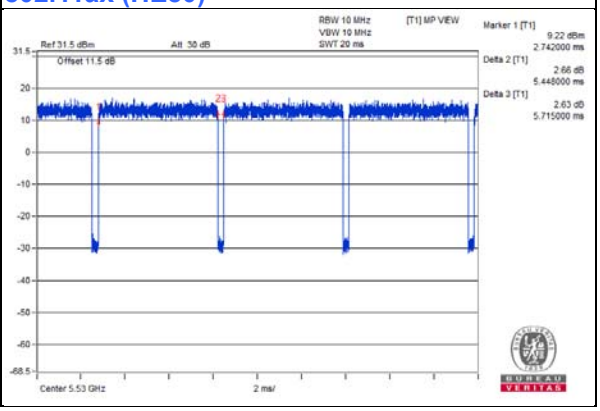
802.11ax (HE20)



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

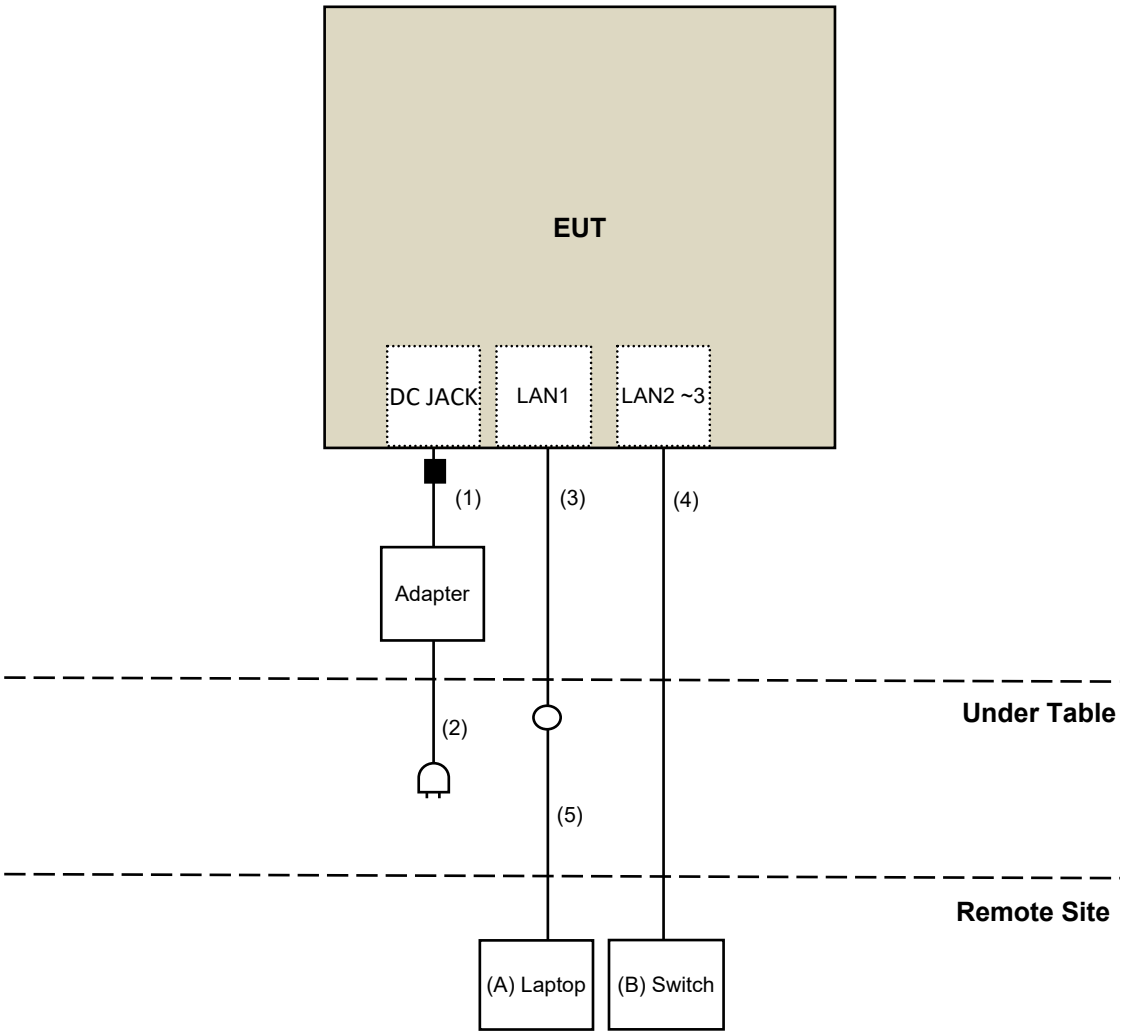
Note:

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	No	1	Supplied by client
2.	AC Cable	1	1	No	0	Supplied by client
3.	RJ-45 Cable	1	1	No	0	Provided by Lab
4.	RJ-45 Cable	2	10	No	0	Provided by Lab
5.	RJ-45 Cable	1	10	No	0	Provided by Lab

Note: The core(s) is(are) originally attached to the cable(s).

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
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 Agilent	N9038A	MY51210202	Dec. 01, 2020	Nov. 30, 2021
Pre-Amplifier EMCI	EMC001340	980201	Oct. 21, 2020	Oct. 20, 2021
Loop Antenna Electro-Metrics	EM-6879	269	Sep. 17, 2020	Sep. 16, 2021
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 EMCI	EMC330N	980701	Mar. 11, 2020	Mar. 10, 2021
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Nov. 06, 2020	Nov. 05, 2021
RF Cable	8D	966-6-1	Apr. 04, 2020	Apr. 03, 2021
RF Cable	8D	966-4-2	Mar. 18, 2020	Mar. 17, 2021
RF Cable	8D	966-4-3	Mar. 18, 2020	Mar. 17, 2021
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-03	Jan. 11, 2021	Jan. 10, 2022
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Nov. 22, 2020	Nov. 21, 2021
Pre-Amplifier EMCI	EMC 12630 SE	980638	Apr. 08, 2020	Apr. 07, 2021
RF Cable	EMC104-SM-SM-1200	160922	Dec. 25, 2020	Dec. 24, 2021
RF Cable	EMC104-SM-SM-2000	180502	Apr. 29, 2020	Apr. 28, 2021
RF Cable	EMC104-SM-SM-6000	180418	Apr. 29, 2020	Apr. 28, 2021
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. 11, 2020	Mar. 10, 2021
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	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. 4.
3. Tested Date: Feb. 23 to 26, 2021

For other test items:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	May 29, 2020	May 28, 2021
Power meter Anritsu	ML2495A	1529002	July 22, 2020	July 21, 2021
Power sensor Anritsu	MA2411B	1339443	July 22, 2020	July 21, 2021
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 14, 2020	Apr. 13, 2021
AC Power Source Extech Electronics	6905S	1991551	NA	NA
Temperature & Humidity Chamber Giant Force	GTH-150-40-SP-AR	MAA0812-008	Jan. 14, 2021	Jan. 13, 2022
True RMS Clamp Meter FLUKE	325	31130711WS	June 06, 2020	June 05, 2021
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: Mar. 16, 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:

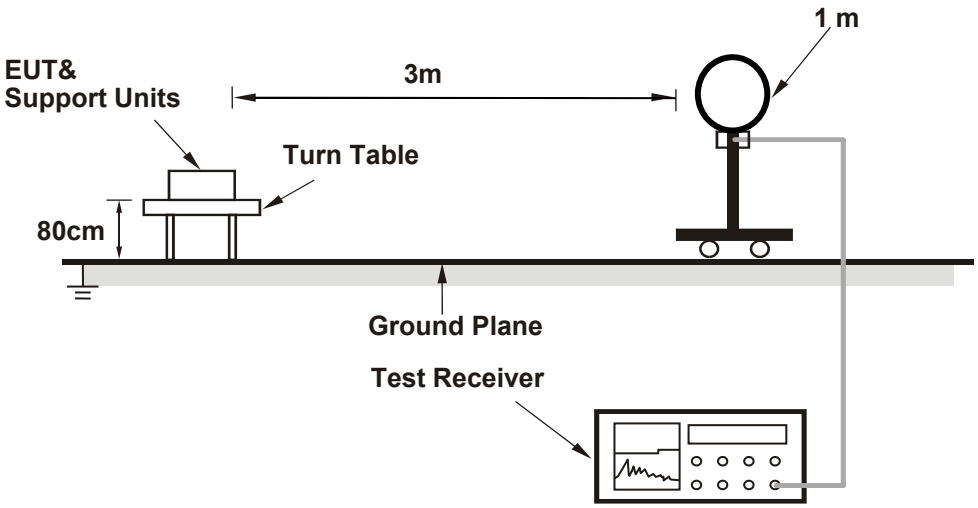
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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

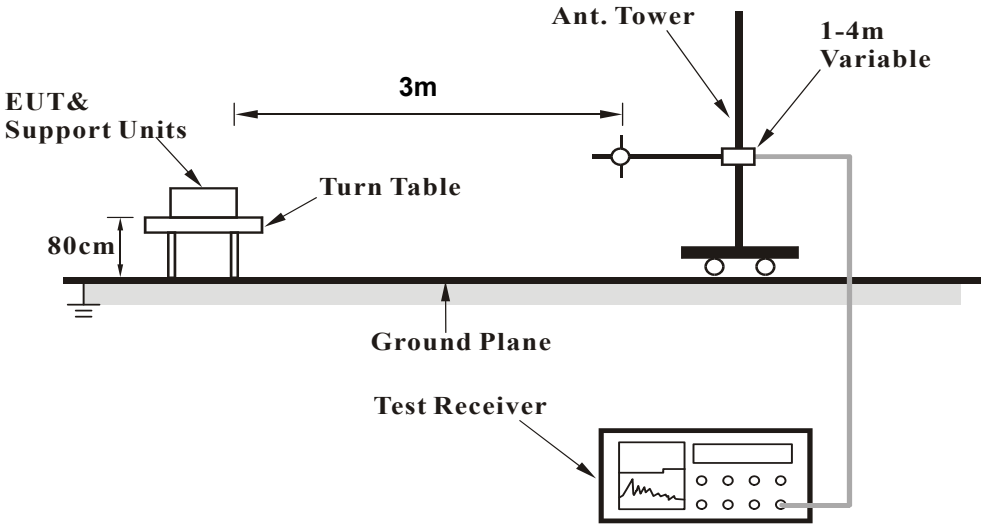
No deviation.

4.1.5 Test Setup

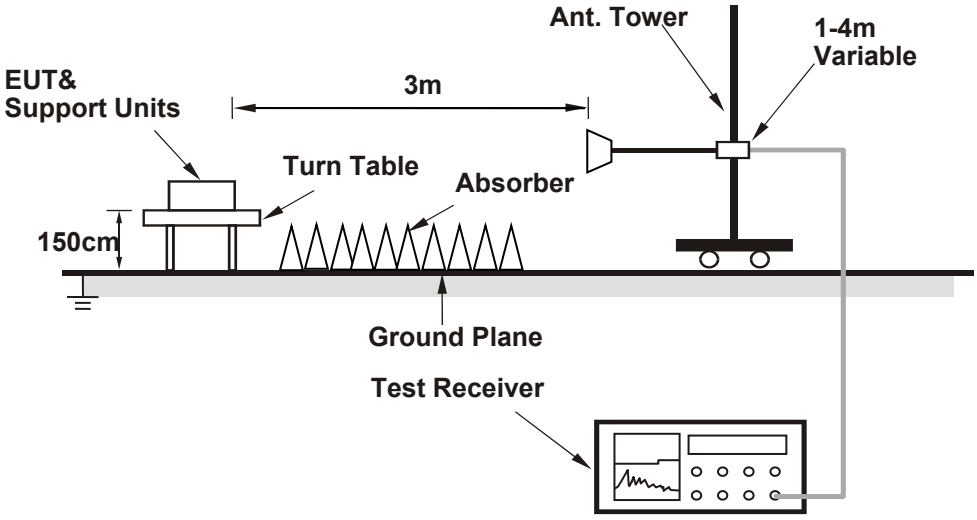
For Radiated emission below 30MHz



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_conn.win.1.0_installer_00079.1_CS.zip) 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 802.11a	**Channel**	CH 52：5260 MHz
Frequency Range	1GHz ~ 40GHz	**Detector Function**	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	5074.40	48.5 PK	74.0	-25.5	1.67 H	348	47.4	1.1
2	5074.40	39.1 AV	54.0	-14.9	1.67 H	348	38.0	1.1
3	*5260.00	118.6 PK			1.67 H	348	117.9	0.7
4	*5260.00	107.9 AV			1.67 H	348	107.2	0.7
5	5361.60	49.5 PK	74.0	-24.5	1.67 H	348	48.6	0.9
6	5361.60	39.1 AV	54.0	-14.9	1.67 H	348	38.2	0.9
7	#10520.00	50.8 PK	68.2	-17.4	1.71 H	49	40.4	10.4
8	15780.00	55.6 PK	74.0	-18.4	1.55 H	71	44.5	11.1
9	15780.00	41.8 AV	54.0	-12.2	1.55 H	71	30.7	11.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	5073.80	49.1 PK	74.0	-24.9	1.49 V	188	48.0	1.1
2	5073.80	39.5 AV	54.0	-14.5	1.49 V	188	38.4	1.1
3	*5260.00	117.3 PK			1.49 V	188	116.6	0.7
4	*5260.00	106.8 AV			1.49 V	188	106.1	0.7
5	5362.30	48.8 PK	74.0	-25.2	1.49 V	188	47.9	0.9
6	5362.30	38.7 AV	54.0	-15.3	1.49 V	188	37.8	0.9
7	#10520.00	47.7 PK	68.2	-20.5	1.55 V	214	37.3	10.4
8	15780.00	52.5 PK	74.0	-21.5	1.35 V	181	41.4	11.1
9	15780.00	40.3 AV	54.0	-13.7	1.35 V	181	29.2	11.1

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 60：5300 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	118.3 PK			1.72 H	357	117.6	0.7
2	*5300.00	107.8 AV			1.72 H	357	107.1	0.7
3	5350.00	54.3 PK	74.0	-19.7	1.72 H	357	53.5	0.8
4	5350.00	41.1 AV	54.0	-12.9	1.72 H	357	40.3	0.8
5	10600.00	50.6 PK	74.0	-23.4	1.67 H	35	40.1	10.5
6	10600.00	38.8 AV	54.0	-15.2	1.67 H	35	28.3	10.5
7	15900.00	55.5 PK	74.0	-18.5	1.56 H	83	43.7	11.8
8	15900.00	41.7 AV	54.0	-12.3	1.56 H	83	29.9	11.8
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	*5300.00	117.6 PK			1.45 V	196	116.9	0.7
2	*5300.00	107.0 AV			1.45 V	196	106.3	0.7
3	5350.00	49.0 PK	74.0	-25.0	1.45 V	196	48.2	0.8
4	5350.00	38.9 AV	54.0	-15.1	1.45 V	196	38.1	0.8
5	10600.00	47.9 PK	74.0	-26.1	1.58 V	208	37.4	10.5
6	10600.00	35.7 AV	54.0	-18.3	1.58 V	208	25.2	10.5
7	15900.00	52.5 PK	74.0	-21.5	1.40 V	194	40.7	11.8
8	15900.00	40.4 AV	54.0	-13.6	1.40 V	194	28.6	11.8

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.
5. " * ": Fundamental frequency.

RF Mode	TX 802.11a	Channel	CH 64：5320 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	118.7 PK			1.31 H	18	118.0	0.7
2	*5320.00	107.7 AV			1.31 H	18	107.0	0.7
3	5350.00	56.4 PK	74.0	-17.6	1.31 H	18	55.6	0.8
4	5350.00	43.9 AV	54.0	-10.1	1.31 H	18	43.1	0.8
5	10640.00	50.9 PK	74.0	-23.1	1.70 H	40	40.5	10.4
6	10640.00	39.0 AV	54.0	-15.0	1.70 H	40	28.6	10.4
7	15960.00	55.8 PK	74.0	-18.2	1.52 H	64	43.7	12.1
8	15960.00	41.9 AV	54.0	-12.1	1.52 H	64	29.8	12.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	116.9 PK			1.54 V	184	116.2	0.7
2	*5320.00	106.5 AV			1.54 V	184	105.8	0.7
3	5350.00	58.3 PK	74.0	-15.7	1.54 V	184	57.5	0.8
4	5350.00	45.6 AV	54.0	-8.4	1.54 V	184	44.8	0.8
5	10640.00	47.7 PK	74.0	-26.3	1.59 V	202	37.3	10.4
6	10640.00	35.9 AV	54.0	-18.1	1.59 V	202	25.5	10.4
7	15960.00	52.3 PK	74.0	-21.7	1.31 V	177	40.2	12.1
8	15960.00	40.0 AV	54.0	-14.0	1.31 V	177	27.9	12.1

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 100：5500 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	54.8 PK	74.0	-19.2	2.18 H	299	53.7	1.1
2	5460.00	42.7 AV	54.0	-11.3	2.18 H	299	41.6	1.1
3	#5470.00	61.8 PK	68.2	-6.4	2.18 H	299	60.7	1.1
4	*5500.00	118.3 PK			2.18 H	299	117.2	1.1
5	*5500.00	107.4 AV			2.18 H	299	106.3	1.1
6	11000.00	50.9 PK	74.0	-23.1	1.68 H	38	39.5	11.4
7	11000.00	39.2 AV	54.0	-14.8	1.68 H	38	27.8	11.4
8	#16500.00	56.0 PK	68.2	-12.2	1.51 H	61	41.8	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	5455.70	51.9 PK	74.0	-22.1	1.65 V	215	50.8	1.1
2	5455.70	41.3 AV	54.0	-12.7	1.65 V	215	40.2	1.1
3	#5470.00	64.4 PK	68.2	-3.8	1.65 V	215	63.3	1.1
4	*5500.00	117.1 PK			1.65 V	215	116.0	1.1
5	*5500.00	106.9 AV			1.65 V	215	105.8	1.1
6	11000.00	47.8 PK	74.0	-26.2	1.50 V	205	36.4	11.4
7	11000.00	35.7 AV	54.0	-18.3	1.50 V	205	24.3	11.4
8	#16500.00	52.8 PK	68.2	-15.4	1.32 V	173	38.6	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 802.11a	Channel	CH 116：5580 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	118.9 PK			2.23 H	291	117.6	1.3
2	*5580.00	107.9 AV			2.23 H	291	106.6	1.3
3	11160.00	50.2 PK	74.0	-23.8	1.76 H	34	39.0	11.2
4	11160.00	38.4 AV	54.0	-15.6	1.76 H	34	27.2	11.2
5	#16740.00	55.5 PK	68.2	-12.7	1.57 H	62	40.2	15.3
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	*5580.00	117.9 PK			1.45 V	184	116.6	1.3
2	*5580.00	107.3 AV			1.45 V	184	106.0	1.3
3	11160.00	48.1 PK	74.0	-25.9	1.59 V	213	36.9	11.2
4	11160.00	36.0 AV	54.0	-18.0	1.59 V	213	24.8	11.2
5	#16740.00	51.9 PK	68.2	-16.3	1.37 V	166	36.6	15.3

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.

RF Mode	TX 802.11a	Channel	CH 140：5700 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	116.1 PK			1.53 H	94	114.6	1.5
2	*5700.00	107.5 AV			1.53 H	94	106.0	1.5
3	#5725.00	64.2 PK	68.2	-4.0	1.53 H	94	62.6	1.6
4	11400.00	50.7 PK	74.0	-23.3	1.74 H	35	38.5	12.2
5	11400.00	38.9 AV	54.0	-15.1	1.74 H	35	26.7	12.2
6	#17100.00	55.8 PK	68.2	-12.4	1.50 H	69	39.0	16.8
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	*5700.00	117.5 PK			1.39 V	208	116.0	1.5
2	*5700.00	107.1 AV			1.39 V	208	105.6	1.5
3	#5725.00	63.8 PK	68.2	-4.4	1.39 V	208	62.2	1.6
4	11400.00	48.1 PK	74.0	-25.9	1.52 V	220	35.9	12.2
5	11400.00	35.9 AV	54.0	-18.1	1.52 V	220	23.7	12.2
6	#17100.00	52.3 PK	68.2	-15.9	1.37 V	177	35.5	16.8

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.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 144：5720 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	48.0 PK	74.0	-26.0	2.22 H	314	46.9	1.1
2	5460.00	37.6 AV	54.0	-16.4	2.22 H	314	36.5	1.1
3	#5470.00	50.0 PK	68.2	-18.2	2.22 H	314	48.9	1.1
4	*5720.00	118.2 PK			2.22 H	314	116.6	1.6
5	*5720.00	107.2 AV			2.22 H	314	105.6	1.6
6	#5850.00	51.0 PK	68.2	-17.2	2.22 H	314	49.1	1.9
7	11440.00	50.5 PK	74.0	-23.5	1.71 H	42	38.3	12.2
8	11440.00	38.5 AV	54.0	-15.5	1.71 H	42	26.3	12.2
9	#17160.00	55.4 PK	68.2	-12.8	1.53 H	57	39.0	16.4
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	5460.00	46.2 PK	74.0	-27.8	1.42 V	203	45.1	1.1
2	5460.00	35.2 AV	54.0	-18.8	1.42 V	203	34.1	1.1
3	#5470.00	48.5 PK	68.2	-19.7	1.42 V	203	47.4	1.1
4	*5720.00	117.3 PK			1.42 V	203	115.7	1.6
5	*5720.00	106.7 AV			1.42 V	203	105.1	1.6
6	#5850.00	49.6 PK	68.2	-18.6	1.42 V	203	47.7	1.9
7	11440.00	47.3 PK	74.0	-26.7	1.57 V	218	35.1	12.2
8	11440.00	35.3 AV	54.0	-18.7	1.57 V	218	23.1	12.2
9	#17160.00	51.7 PK	68.2	-16.5	1.33 V	188	35.3	16.4

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 (HE20)	Channel	CH 52：5260 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5069.50	47.7 PK	74.0	-26.3	1.64 H	336	46.6	1.1
2	5069.50	39.7 AV	54.0	-14.3	1.64 H	336	38.6	1.1
3	*5260.00	118.4 PK			1.64 H	336	117.7	0.7
4	*5260.00	107.0 AV			1.64 H	336	106.3	0.7
5	5355.00	50.4 PK	74.0	-23.6	1.64 H	336	49.6	0.8
6	5355.00	40.0 AV	54.0	-14.0	1.64 H	336	39.2	0.8
7	#10520.00	51.2 PK	68.2	-17.0	1.70 H	43	40.8	10.4
8	15780.00	56.2 PK	74.0	-17.8	1.51 H	70	45.1	11.1
9	15780.00	42.2 AV	54.0	-11.8	1.51 H	70	31.1	11.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5059.00	49.1 PK	74.0	-24.9	1.50 V	191	48.1	1.0
2	5059.00	38.6 AV	54.0	-15.4	1.50 V	191	37.6	1.0
3	*5260.00	117.3 PK			1.50 V	191	116.6	0.7
4	*5260.00	105.8 AV			1.50 V	191	105.1	0.7
5	5350.00	49.2 PK	74.0	-24.8	1.50 V	191	48.4	0.8
6	5350.00	39.1 AV	54.0	-14.9	1.50 V	191	38.3	0.8
7	#10520.00	48.1 PK	68.2	-20.1	1.60 V	201	37.7	10.4
8	15780.00	52.9 PK	74.0	-21.1	1.40 V	194	41.8	11.1
9	15780.00	40.6 AV	54.0	-13.4	1.40 V	194	29.5	11.1

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 60：5300 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	118.1 PK			1.67 H	340	117.4	0.7
2	*5300.00	106.5 AV			1.67 H	340	105.8	0.7
3	5350.00	51.3 PK	74.0	-22.7	1.67 H	340	50.5	0.8
4	5350.00	41.1 AV	54.0	-12.9	1.67 H	340	40.3	0.8
5	10600.00	51.2 PK	74.0	-22.8	1.66 H	56	40.7	10.5
6	10600.00	39.0 AV	54.0	-15.0	1.66 H	56	28.5	10.5
7	15900.00	55.3 PK	74.0	-18.7	1.53 H	57	43.5	11.8
8	15900.00	41.3 AV	54.0	-12.7	1.53 H	57	29.5	11.8
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	*5300.00	117.0 PK			1.50 V	206	116.3	0.7
2	*5300.00	105.7 AV			1.50 V	206	105.0	0.7
3	5350.00	49.5 PK	74.0	-24.5	1.50 V	206	48.7	0.8
4	5350.00	39.1 AV	54.0	-14.9	1.50 V	206	38.3	0.8
5	10600.00	47.7 PK	74.0	-26.3	1.54 V	205	37.2	10.5
6	10600.00	35.7 AV	54.0	-18.3	1.54 V	205	25.2	10.5
7	15900.00	52.3 PK	74.0	-21.7	1.36 V	167	40.5	11.8
8	15900.00	40.1 AV	54.0	-13.9	1.36 V	167	28.3	11.8

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.
5. " * ": Fundamental frequency.

RF Mode	TX 802.11ax (HE20)	Channel	CH 64：5320 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	118.2 PK			1.70 H	323	117.5	0.7
2	*5320.00	106.8 AV			1.70 H	323	106.1	0.7
3	5350.00	65.7 PK	74.0	-8.3	1.70 H	323	64.9	0.8
4	5350.00	52.6 AV	54.0	-1.4	1.70 H	323	51.8	0.8
5	10640.00	50.5 PK	74.0	-23.5	1.67 H	45	40.1	10.4
6	10640.00	38.4 AV	54.0	-15.6	1.67 H	45	28.0	10.4
7	15960.00	55.6 PK	74.0	-18.4	1.60 H	75	43.5	12.1
8	15960.00	41.8 AV	54.0	-12.2	1.60 H	75	29.7	12.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	116.7 PK			1.53 V	194	116.0	0.7
2	*5320.00	105.5 AV			1.53 V	194	104.8	0.7
3	5350.00	63.0 PK	74.0	-11.0	1.53 V	194	62.2	0.8
4	5350.00	51.3 AV	54.0	-2.7	1.53 V	194	50.5	0.8
5	10640.00	48.0 PK	74.0	-26.0	1.59 V	219	37.6	10.4
6	10640.00	36.0 AV	54.0	-18.0	1.59 V	219	25.6	10.4
7	15960.00	52.7 PK	74.0	-21.3	1.36 V	170	40.6	12.1
8	15960.00	40.2 AV	54.0	-13.8	1.36 V	170	28.1	12.1

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 100：5500 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	56.2 PK	74.0	-17.8	2.23 H	305	55.1	1.1
2	5460.00	42.8 AV	54.0	-11.2	2.23 H	305	41.7	1.1
3	#5470.00	66.2 PK	68.2	-2.0	2.23 H	305	65.1	1.1
4	*5500.00	118.1 PK			2.23 H	305	117.0	1.1
5	*5500.00	106.7 AV			2.23 H	305	105.6	1.1
6	11000.00	50.9 PK	74.0	-23.1	1.66 H	61	39.5	11.4
7	11000.00	39.0 AV	54.0	-15.0	1.66 H	61	27.6	11.4
8	#16500.00	55.3 PK	68.2	-12.9	1.50 H	85	41.1	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	5460.00	57.3 PK	74.0	-16.7	1.56 V	205	56.2	1.1
2	5460.00	44.6 AV	54.0	-9.4	1.56 V	205	43.5	1.1
3	#5470.00	66.6 PK	68.2	-1.6	1.56 V	205	65.5	1.1
4	*5500.00	117.1 PK			1.56 V	205	116.0	1.1
5	*5500.00	105.6 AV			1.56 V	205	104.5	1.1
6	11000.00	47.4 PK	74.0	-26.6	1.60 V	227	36.0	11.4
7	11000.00	35.4 AV	54.0	-18.6	1.60 V	227	24.0	11.4
8	#16500.00	53.1 PK	68.2	-15.1	1.33 V	166	38.9	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 (HE20)	Channel	CH 116：5580 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	118.0 PK			2.23 H	310	116.7	1.3
2	*5580.00	106.9 AV			2.23 H	310	105.6	1.3
3	11160.00	50.5 PK	74.0	-23.5	1.69 H	64	39.3	11.2
4	11160.00	38.3 AV	54.0	-15.7	1.69 H	64	27.1	11.2
5	#16740.00	55.1 PK	68.2	-13.1	1.50 H	73	39.8	15.3
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	*5580.00	117.0 PK			1.55 V	197	115.7	1.3
2	*5580.00	105.4 AV			1.55 V	197	104.1	1.3
3	11160.00	47.4 PK	74.0	-26.6	1.60 V	228	36.2	11.2
4	11160.00	35.5 AV	54.0	-18.5	1.60 V	228	24.3	11.2
5	#16740.00	53.1 PK	68.2	-15.1	1.41 V	170	37.8	15.3

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.

RF Mode	TX 802.11ax (HE20)	Channel	CH 140：5700 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	117.2 PK			2.39 H	318	115.7	1.5
2	*5700.00	106.7 AV			2.39 H	318	105.2	1.5
3	#5725.00	67.9 PK	68.2	-0.3	2.39 H	318	66.3	1.6
4	11400.00	49.9 PK	74.0	-24.1	1.77 H	59	37.7	12.2
5	11400.00	37.2 AV	54.0	-16.8	1.77 H	59	25.0	12.2
6	#17100.00	55.6 PK	68.2	-12.6	1.69 H	69	38.8	16.8
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	*5700.00	117.2 PK			1.58 V	205	115.7	1.5
2	*5700.00	105.5 AV			1.58 V	205	104.0	1.5
3	#5725.00	66.8 PK	68.2	-1.4	1.58 V	205	65.2	1.6
4	11400.00	46.2 PK	74.0	-27.8	1.54 V	237	34.0	12.2
5	11400.00	34.2 AV	54.0	-19.8	1.54 V	237	22.0	12.2
6	#17100.00	53.3 PK	68.2	-14.9	1.43 V	176	36.5	16.8

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.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE20)	Channel	CH 144：5720 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	48.9 PK	74.0	-25.1	2.19 H	303	47.8	1.1
2	5460.00	38.3 AV	54.0	-15.7	2.19 H	303	37.2	1.1
3	#5470.00	50.4 PK	68.2	-17.8	2.19 H	303	49.3	1.1
4	*5720.00	117.7 PK			2.19 H	303	116.1	1.6
5	*5720.00	106.3 AV			2.19 H	303	104.7	1.6
6	#5850.00	50.9 PK	68.2	-17.3	2.19 H	303	49.0	1.9
7	11440.00	50.9 PK	74.0	-23.1	1.66 H	49	38.7	12.2
8	11440.00	38.8 AV	54.0	-15.2	1.66 H	49	26.6	12.2
9	#17160.00	55.5 PK	68.2	-12.7	1.58 H	63	39.1	16.4
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	5460.00	47.5 PK	74.0	-26.5	1.56 V	195	46.4	1.1
2	5460.00	37.5 AV	54.0	-16.5	1.56 V	195	36.4	1.1
3	#5470.00	49.5 PK	68.2	-18.7	1.56 V	195	48.4	1.1
4	*5720.00	117.6 PK			1.56 V	195	116.0	1.6
5	*5720.00	105.8 AV			1.56 V	195	104.2	1.6
6	#5850.00	49.2 PK	68.2	-19.0	1.56 V	195	47.3	1.9
7	11440.00	47.9 PK	74.0	-26.1	1.58 V	199	35.7	12.2
8	11440.00	36.0 AV	54.0	-18.0	1.58 V	199	23.8	12.2
9	#17160.00	52.4 PK	68.2	-15.8	1.34 V	185	36.0	16.4

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 (HE40)	Channel	CH 54：5270 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5088.00	50.0 PK	74.0	-24.0	1.47 H	18	48.9	1.1
2	5088.00	40.0 AV	54.0	-14.0	1.47 H	18	38.9	1.1
3	*5270.00	113.9 PK			1.47 H	18	113.2	0.7
4	*5270.00	104.2 AV			1.47 H	18	103.5	0.7
5	5357.80	51.0 PK	74.0	-23.0	1.47 H	18	50.1	0.9
6	5357.80	39.8 AV	54.0	-14.2	1.47 H	18	38.9	0.9
7	#10540.00	51.1 PK	68.2	-17.1	1.68 H	49	40.7	10.4
8	15810.00	56.3 PK	74.0	-17.7	1.57 H	58	45.1	11.2
9	15810.00	42.2 AV	54.0	-11.8	1.57 H	58	31.0	11.2
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	5087.00	49.6 PK	74.0	-24.4	2.18 V	234	48.5	1.1
2	5087.00	39.2 AV	54.0	-14.8	2.18 V	234	38.1	1.1
3	*5270.00	114.5 PK			2.18 V	234	113.8	0.7
4	*5270.00	103.9 AV			2.18 V	234	103.2	0.7
5	5359.00	51.8 PK	74.0	-22.2	2.18 V	234	50.9	0.9
6	5359.00	40.7 AV	54.0	-13.3	2.18 V	234	39.8	0.9
7	#10540.00	48.0 PK	68.2	-20.2	1.49 V	213	37.6	10.4
8	15810.00	52.8 PK	74.0	-21.2	1.35 V	195	41.6	11.2
9	15810.00	40.6 AV	54.0	-13.4	1.35 V	195	29.4	11.2

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 (HE40)	Channel	CH 62：5310 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5310.00	115.4 PK			1.84 H	323	114.7	0.7
2	*5310.00	103.4 AV			1.84 H	323	102.7	0.7
3	5356.00	67.4 PK	74.0	-6.6	1.84 H	323	66.5	0.9
4	5356.00	53.7 AV	54.0	-0.3	1.84 H	323	52.8	0.9
5	10620.00	50.5 PK	74.0	-23.5	1.79 H	78	40.0	10.5
6	10620.00	37.5 AV	54.0	-16.5	1.79 H	78	27.0	10.5
7	15930.00	55.4 PK	74.0	-18.6	1.60 H	65	43.4	12.0
8	15930.00	41.2 AV	54.0	-12.8	1.60 H	65	29.2	12.0
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	*5310.00	113.4 PK			2.20 V	238	112.7	0.7
2	*5310.00	102.8 AV			2.20 V	238	102.1	0.7
3	5360.70	64.0 PK	74.0	-10.0	2.20 V	238	63.1	0.9
4	5360.70	51.1 AV	54.0	-2.9	2.20 V	238	50.2	0.9
5	10620.00	46.0 PK	74.0	-28.0	1.57 V	238	35.5	10.5
6	10620.00	33.7 AV	54.0	-20.3	1.57 V	238	23.2	10.5
7	15930.00	53.2 PK	74.0	-20.8	1.37 V	180	41.2	12.0
8	15930.00	40.4 AV	54.0	-13.6	1.37 V	180	28.4	12.0

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 102：5510 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	62.4 PK	74.0	-11.6	1.80 H	270	61.3	1.1
2	5460.00	48.0 AV	54.0	-6.0	1.80 H	270	46.9	1.1
3	#5468.00	66.7 PK	68.2	-1.5	1.80 H	270	65.6	1.1
4	*5510.00	114.2 PK			1.80 H	270	113.1	1.1
5	*5510.00	103.3 AV			1.80 H	270	102.2	1.1
6	11020.00	50.8 PK	74.0	-23.2	1.68 H	71	39.4	11.4
7	11020.00	37.9 AV	54.0	-16.1	1.68 H	71	26.5	11.4
8	#16530.00	55.2 PK	68.2	-13.0	1.63 H	62	40.7	14.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	58.7 PK	74.0	-15.3	2.00 V	168	57.6	1.1
2	5460.00	46.4 AV	54.0	-7.6	2.00 V	168	45.3	1.1
3	#5470.00	64.8 PK	68.2	-3.4	2.00 V	168	63.7	1.1
4	*5510.00	115.8 PK			2.00 V	168	114.7	1.1
5	*5510.00	106.3 AV			2.00 V	168	105.2	1.1
6	11020.00	46.5 PK	74.0	-27.5	1.58 V	248	35.1	11.4
7	11020.00	34.4 AV	54.0	-19.6	1.58 V	248	23.0	11.4
8	#16530.00	53.2 PK	68.2	-15.0	1.46 V	187	38.7	14.5

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 110：5550 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5550.00	113.6 PK			1.75 H	263	112.4	1.2
2	*5550.00	104.1 AV			1.75 H	263	102.9	1.2
3	11100.00	51.2 PK	74.0	-22.8	1.75 H	36	39.9	11.3
4	11100.00	39.1 AV	54.0	-14.9	1.75 H	36	27.8	11.3
5	#16650.00	55.9 PK	68.2	-12.3	1.60 H	85	40.5	15.4
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	*5550.00	113.2 PK			2.14 V	235	112.0	1.2
2	*5550.00	103.8 AV			2.14 V	235	102.6	1.2
3	11100.00	46.8 PK	74.0	-27.2	1.59 V	207	35.5	11.3
4	11100.00	34.7 AV	54.0	-19.3	1.59 V	207	23.4	11.3
5	#16650.00	51.6 PK	68.2	-16.6	1.35 V	192	36.2	15.4

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 (HE40)	Channel	CH 134：5670 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5670.00	113.7 PK			1.79 H	258	112.3	1.4
2	*5670.00	103.8 AV			1.79 H	258	102.4	1.4
3	#5725.00	64.1 PK	68.2	-4.1	1.79 H	258	62.5	1.6
4	11340.00	50.6 PK	74.0	-23.4	1.77 H	62	38.9	11.7
5	11340.00	38.5 AV	54.0	-15.5	1.77 H	62	26.8	11.7
6	#17010.00	55.5 PK	68.2	-12.7	1.58 H	75	38.2	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	*5670.00	112.9 PK			2.05 V	241	111.5	1.4
2	*5670.00	103.5 AV			2.05 V	241	102.1	1.4
3	#5725.00	66.2 PK	68.2	-2.0	2.05 V	241	64.6	1.6
4	11340.00	47.4 PK	74.0	-26.6	1.59 V	222	35.7	11.7
5	11340.00	35.2 AV	54.0	-18.8	1.59 V	222	23.5	11.7
6	#17010.00	52.2 PK	68.2	-16.0	1.31 V	188	34.9	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.

RF Mode	TX 802.11ax (HE40)	Channel	CH 142：5710 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	48.2 PK	74.0	-25.8	1.78 H	260	47.1	1.1
2	5460.00	37.8 AV	54.0	-16.2	1.78 H	260	36.7	1.1
3	#5470.00	49.6 PK	68.2	-18.6	1.78 H	260	48.5	1.1
4	*5710.00	114.4 PK			1.78 H	260	112.8	1.6
5	*5710.00	104.5 AV			1.78 H	260	102.9	1.6
6	#5850.00	50.4 PK	68.2	-17.8	1.78 H	260	48.5	1.9
7	11420.00	51.4 PK	74.0	-22.6	1.68 H	59	39.2	12.2
8	11420.00	39.1 AV	54.0	-14.9	1.68 H	59	26.9	12.2
9	#17130.00	55.5 PK	68.2	-12.7	1.60 H	80	38.9	16.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	47.2 PK	74.0	-26.8	2.00 V	231	46.1	1.1
2	5460.00	36.2 AV	54.0	-17.8	2.00 V	231	35.1	1.1
3	#5470.00	48.2 PK	68.2	-20.0	2.00 V	231	47.1	1.1
4	*5710.00	113.2 PK			2.00 V	231	111.6	1.6
5	*5710.00	103.2 AV			2.00 V	231	101.6	1.6
6	#5850.00	47.8 PK	68.2	-20.4	2.00 V	231	45.9	1.9
7	11420.00	47.8 PK	74.0	-26.2	1.52 V	203	35.6	12.2
8	11420.00	35.8 AV	54.0	-18.2	1.52 V	203	23.6	12.2
9	#17130.00	52.0 PK	68.2	-16.2	1.40 V	177	35.4	16.6

Remarks:

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

RF Mode	TX 802.11ax (HE80)	Channel	CH 58：5290 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5137.60	50.7 PK	74.0	-23.3	1.75 H	327	49.6	1.1
2	5137.60	41.1 AV	54.0	-12.9	1.75 H	327	40.0	1.1
3	*5290.00	109.4 PK			1.75 H	327	108.7	0.7
4	*5290.00	99.3 AV			1.75 H	327	98.6	0.7
5	5356.30	69.4 PK	74.0	-4.6	1.75 H	327	68.5	0.9
6	**5356.30**	**53.9 AV**	**54.0**	**-0.1**	**1.75 H**	**327**	**53.0**	**0.9**
7	#10580.00	50.8 PK	68.2	-17.4	1.71 H	80	40.4	10.4
8	15870.00	55.1 PK	74.0	-18.9	1.62 H	68	43.5	11.6
9	15870.00	41.0 AV	54.0	-13.0	1.62 H	68	29.4	11.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	51.4 PK	74.0	-22.6	1.38 V	17	50.3	1.1
2	5150.00	41.3 AV	54.0	-12.7	1.38 V	17	40.2	1.1
3	*5290.00	108.3 PK			1.38 V	17	107.6	0.7
4	*5290.00	98.8 AV			1.38 V	17	98.1	0.7
5	5350.00	67.8 PK	74.0	-6.2	1.38 V	17	67.0	0.8
6	5350.00	51.9 AV	54.0	-2.1	1.38 V	17	51.1	0.8
7	#10580.00	46.4 PK	68.2	-21.8	1.50 V	231	36.0	10.4
8	15870.00	53.2 PK	74.0	-20.8	1.48 V	181	41.6	11.6
9	15870.00	40.3 AV	54.0	-13.7	1.48 V	181	28.7	11.6

Remarks:

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

RF Mode	TX 802.11ax (HE80)	Channel	CH 106：5530 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	62.6 PK	74.0	-11.4	1.71 H	265	61.5	1.1
2	5460.00	48.6 AV	54.0	-5.4	1.71 H	265	47.5	1.1
3	#5469.00	67.2 PK	68.2	-1.0	1.71 H	265	66.1	1.1
4	*5530.00	110.6 PK			1.71 H	265	109.5	1.1
5	*5530.00	99.6 AV			1.71 H	265	98.5	1.1
6	#5746.64	51.6 PK	68.2	-16.6	1.71 H	265	49.9	1.7
7	11060.00	50.3 PK	74.0	-23.7	1.73 H	72	38.9	11.4
8	11060.00	37.5 AV	54.0	-16.5	1.73 H	72	26.1	11.4
9	#16590.00	55.2 PK	68.2	-13.0	1.63 H	77	39.9	15.3
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	5455.00	65.3 PK	74.0	-8.7	2.14 V	206	64.2	1.1
2	5455.00	53.1 AV	54.0	-0.9	2.14 V	206	52.0	1.1
3	#5469.00	65.4 PK	68.2	-2.8	2.14 V	206	64.3	1.1
4	*5530.00	108.1 PK			2.14 V	206	107.0	1.1
5	*5530.00	98.2 AV			2.14 V	206	97.1	1.1
6	#5758.44	51.4 PK	68.2	-16.8	2.14 V	206	49.7	1.7
7	11060.00	46.3 PK	74.0	-27.7	1.59 V	246	34.9	11.4
8	11060.00	34.5 AV	54.0	-19.5	1.59 V	246	23.1	11.4
9	#16590.00	53.8 PK	68.2	-14.4	1.40 V	163	38.5	15.3

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.

RF Mode	TX 802.11ax (HE80)	Channel	CH 122：5610 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5610.00	113.3 PK			1.69 H	258	111.9	1.4
2	*5610.00	101.2 AV			1.69 H	258	99.8	1.4
3	#5725.00	62.2 PK	68.2	-6.0	1.69 H	258	60.6	1.6
4	11220.00	50.7 PK	74.0	-23.3	1.66 H	34	39.4	11.3
5	11220.00	38.5 AV	54.0	-15.5	1.66 H	34	27.2	11.3
6	#16830.00	55.9 PK	68.2	-12.3	1.56 H	63	40.3	15.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5610.00	111.1 PK			2.15 V	208	109.7	1.4
2	*5610.00	100.9 AV			2.15 V	208	99.5	1.4
3	#5725.00	66.8 PK	68.2	-1.4	2.15 V	208	65.2	1.6
4	11220.00	47.4 PK	74.0	-26.6	1.60 V	207	36.1	11.3
5	11220.00	35.4 AV	54.0	-18.6	1.60 V	207	24.1	11.3
6	#16830.00	52.6 PK	68.2	-15.6	1.36 V	188	37.0	15.6

Remarks:

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

RF Mode	TX 802.11ax (HE80)	Channel	CH 138：5690 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	48.4 PK	74.0	-25.6	1.70 H	243	47.3	1.1
2	5460.00	37.9 AV	54.0	-16.1	1.70 H	243	36.8	1.1
3	#5470.00	49.9 PK	68.2	-18.3	1.70 H	243	48.8	1.1
4	*5690.00	112.4 PK			1.70 H	243	111.0	1.4
5	*5690.00	101.3 AV			1.70 H	243	99.9	1.4
6	#5850.00	50.3 PK	68.2	-17.9	1.70 H	243	48.4	1.9
7	11380.00	50.5 PK	74.0	-23.5	1.68 H	60	38.5	12.0
8	11380.00	38.5 AV	54.0	-15.5	1.68 H	60	26.5	12.0
9	#17070.00	55.4 PK	68.2	-12.8	1.52 H	74	38.5	16.9
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	5460.00	47.2 PK	74.0	-26.8	2.09 V	221	46.1	1.1
2	5460.00	36.8 AV	54.0	-17.2	2.09 V	221	35.7	1.1
3	#5470.00	48.5 PK	68.2	-19.7	2.09 V	221	47.4	1.1
4	*5690.00	112.2 PK			2.09 V	221	110.8	1.4
5	*5690.00	101.1 AV			2.09 V	221	99.7	1.4
6	#5850.00	49.2 PK	68.2	-19.0	2.09 V	221	47.3	1.9
7	11380.00	48.0 PK	74.0	-26.0	1.55 V	227	36.0	12.0
8	11380.00	35.7 AV	54.0	-18.3	1.55 V	227	23.7	12.0
9	#17070.00	52.6 PK	68.2	-15.6	1.36 V	173	35.7	16.9

Remarks:

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

Below 1GHz Data:

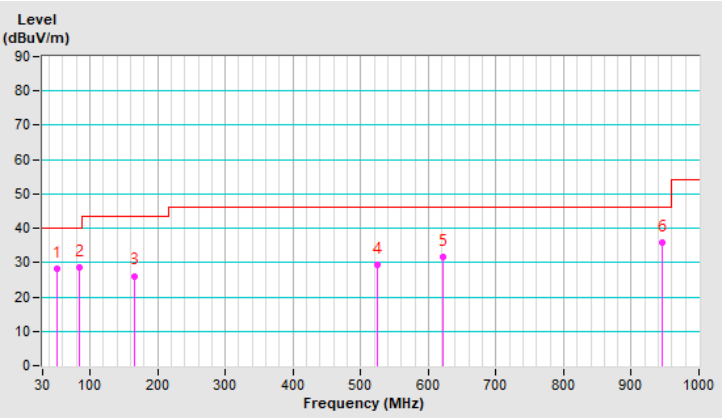
For Radio 2:

RF Mode	TX 802.11ax (HE80)	Channel	CH 58：5290 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	50.44	28.1 QP	40.0	-11.9	2.00 H	237	36.9	-8.8
2	84.05	28.5 QP	40.0	-11.5	2.50 H	113	42.9	-14.4
3	166.09	26.1 QP	43.5	-17.4	2.50 H	360	35.0	-8.9
4	525.30	29.2 QP	46.0	-16.8	1.50 H	360	32.0	-2.8
5	622.50	31.8 QP	46.0	-14.2	1.50 H	49	32.4	-0.6
6	944.98	35.8 QP	46.0	-10.2	2.50 H	149	31.3	4.5

Remarks:

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

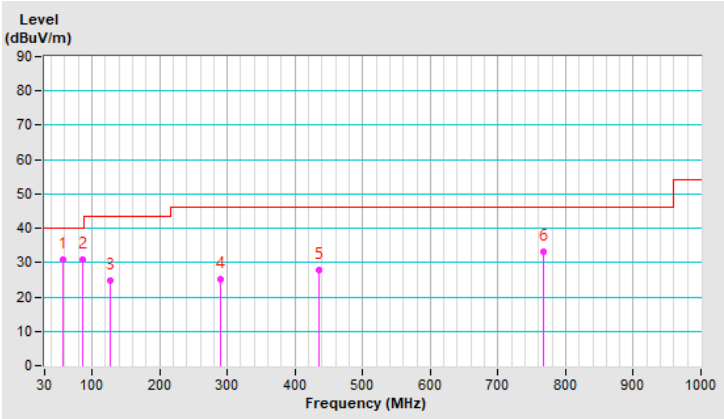


RF Mode	TX 802.11ax (HE80)	Channel	CH 58：5290 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	56.70	30.9 QP	40.0	-9.1	1.50 V	291	40.2	-9.3
2	85.64	30.8 QP	40.0	-9.2	1.00 V	10	45.4	-14.6
3	127.34	24.9 QP	43.5	-18.6	2.00 V	208	35.0	-10.1
4	289.34	25.2 QP	46.0	-20.8	1.00 V	350	33.6	-8.4
5	435.30	27.9 QP	46.0	-18.1	1.00 V	38	32.3	-4.4
6	768.00	33.3 QP	46.0	-12.7	2.00 V	60	31.5	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.



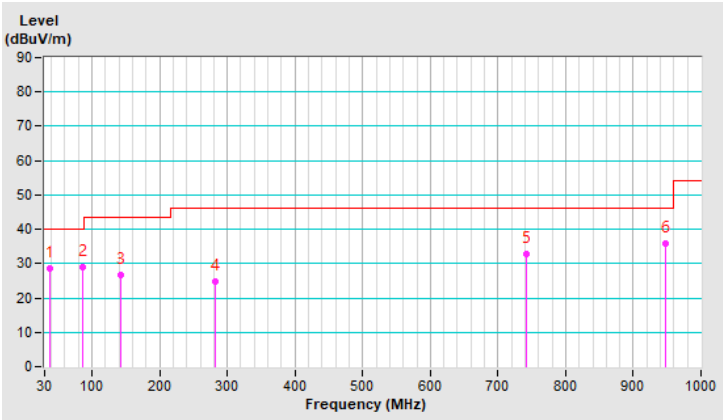
For Radio 3:

RF Mode	TX 802.11ax (HE80)	Channel	CH 122：5610 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	37.64	28.5 QP	40.0	-11.5	1.50 H	220	37.9	-9.4
2	86.41	28.8 QP	40.0	-11.2	2.50 H	115	43.5	-14.7
3	143.20	26.7 QP	43.5	-16.8	2.00 H	277	35.4	-8.7
4	283.07	24.7 QP	46.0	-21.3	1.50 H	300	33.2	-8.5
5	742.20	32.9 QP	46.0	-13.1	2.50 H	137	31.4	1.5
6	948.30	35.9 QP	46.0	-10.1	2.50 H	151	31.3	4.6

Remarks:

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

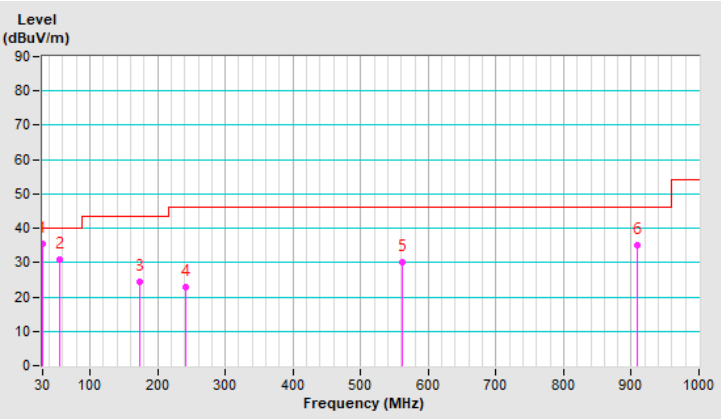


RF Mode	TX 802.11ax (HE80)	Channel	CH 122：5610 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	30.84	35.5 QP	40.0	-4.5	1.00 V	70	45.8	-10.3
2	55.30	30.8 QP	40.0	-9.2	1.50 V	289	39.8	-9.0
3	174.04	24.4 QP	43.5	-19.1	1.50 V	240	33.9	-9.5
4	241.65	23.0 QP	46.0	-23.0	2.00 V	347	33.2	-10.2
5	561.83	30.1 QP	46.0	-15.9	1.50 V	154	32.3	-2.2
6	909.09	35.1 QP	46.0	-10.9	2.50 V	221	31.1	4.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit 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. 19, 2020	Mar. 18, 2021
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: Feb. 25, 2021

4.2.3 Test Procedure

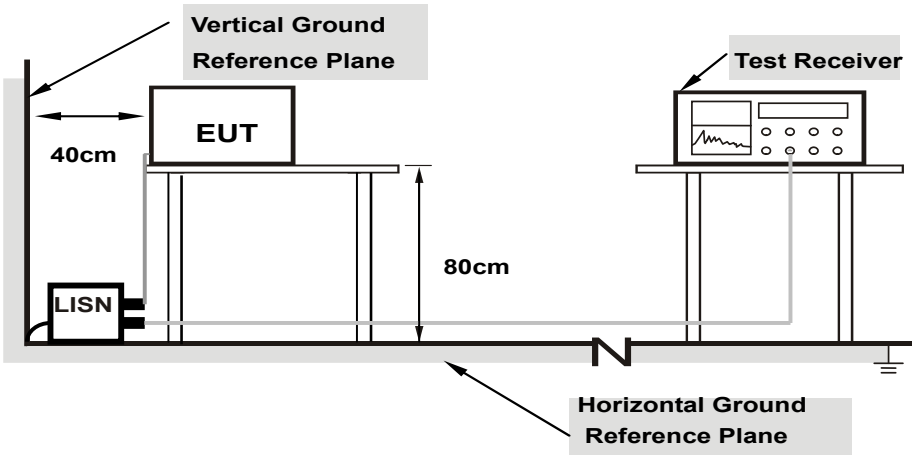
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

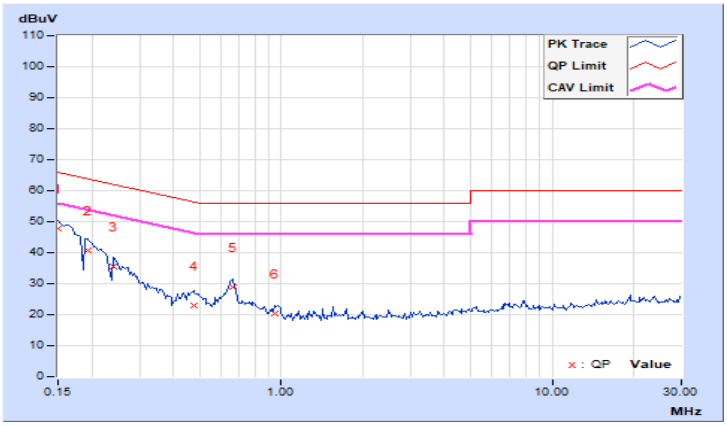
For Radio 2:

RF Mode	TX 802.11ax (HE80)	**Channel**	CH 58：5290 MHz
Frequency Range	150kHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	**0.15000**	**9.95**	**37.74**	**23.65**	**47.69**	**33.60**	**66.00**	**56.00**	**-18.31**	**-22.40**
2	0.19297	9.97	30.73	16.57	40.70	26.54	63.91	53.91	-23.21	-27.37
3	0.23984	9.97	25.59	13.11	35.56	23.08	62.10	52.10	-26.54	-29.02
4	0.47422	9.99	13.00	6.87	22.99	16.86	56.44	46.44	-33.45	-29.58
5	0.66172	10.01	18.77	11.92	28.78	21.93	56.00	46.00	-27.22	-24.07
6	0.95078	10.03	10.32	5.16	20.35	15.19	56.00	46.00	-35.65	-30.81

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

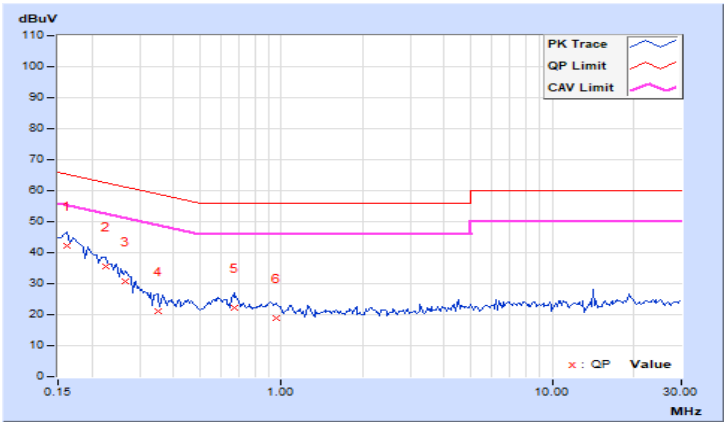


RF Mode	TX 802.11ax (HE80)	Channel	CH 58：5290 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

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	0.16172	9.93	32.14	12.37	42.07	22.30	65.38	55.38	-23.31	-33.08
2	0.22422	9.95	25.56	12.80	35.51	22.75	62.66	52.66	-27.15	-29.91
3	0.26719	9.95	20.80	9.92	30.75	19.87	61.20	51.20	-30.45	-31.33
4	0.34922	9.96	11.22	-1.16	21.18	8.80	58.98	48.98	-37.80	-40.18
5	0.66953	9.98	12.41	6.46	22.39	16.44	56.00	46.00	-33.61	-29.56
6	0.95469	10.00	8.77	4.43	18.77	14.43	56.00	46.00	-37.23	-31.57

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



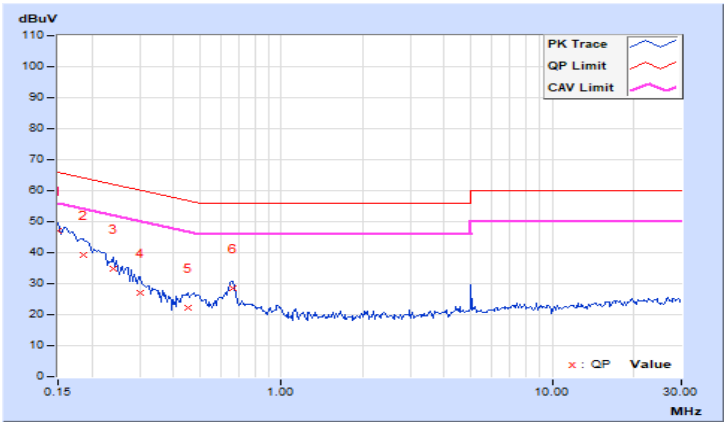
For Radio 3:

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

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.95	37.17	23.11	47.12	33.06	66.00	56.00	-18.88	-22.94
2	0.18516	9.96	29.48	10.43	39.44	20.39	64.25	54.25	-24.81	-33.86
3	0.23984	9.97	25.03	12.67	35.00	22.64	62.10	52.10	-27.10	-29.46
4	0.30234	9.98	17.07	5.20	27.05	15.18	60.18	50.18	-33.13	-35.00
5	0.45469	9.99	12.07	4.93	22.06	14.92	56.79	46.79	-34.73	-31.87
6	0.66172	10.01	18.43	11.50	28.44	21.51	56.00	46.00	-27.56	-24.49

Remarks:

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

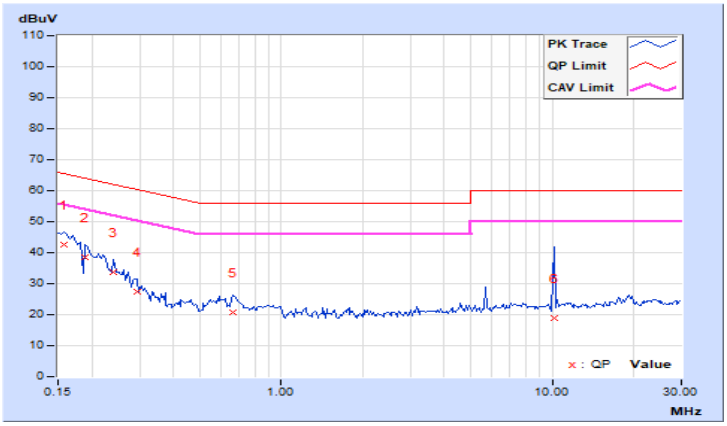


RF Mode	TX 802.11ax (HE80)	Channel	CH 122：5610 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

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	0.15781	9.92	32.70	14.24	42.62	24.16	65.58	55.58	-22.96	-31.42
2	0.18906	9.94	28.44	11.67	38.38	21.61	64.08	54.08	-25.70	-32.47
3	0.23984	9.95	23.73	12.63	33.68	22.58	62.10	52.10	-28.42	-29.52
4	0.29453	9.95	17.50	5.58	27.45	15.53	60.40	50.40	-32.95	-34.87
5	0.66172	9.98	10.85	4.59	20.83	14.57	56.00	46.00	-35.17	-31.43
6	10.22266	10.42	8.39	3.95	18.81	14.37	60.00	50.00	-41.19	-35.63

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

Note: This device can support different category application which switched by access point mode and client mode by software.

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

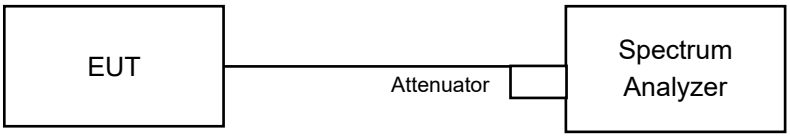
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

4.3.2 Test Setup

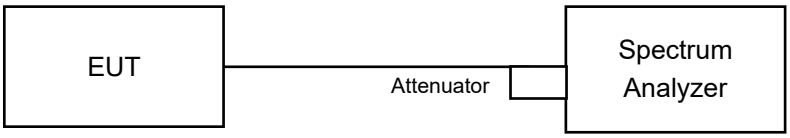
FOR POWER OUTPUT MEASUREMENT

For channel straddling 5725MHz:



For other channels:

FOR 26dB OCCUPIED BANDWIDTH



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.

FOR 26dB OCCUPIED BANDWIDTH

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating 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

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				
52	5260	13.02	13.26	13.28	13.15	83.164	19.20	23.87	Pass
60	5300	13.23	13.18	12.94	12.91	81.057	19.09	23.87	Pass
64	5320	13.12	13.01	12.95	13.03	80.325	19.05	23.83	Pass
100	5500	13.65	13.31	13.55	12.90	86.748	19.38	23.88	Pass
116	5580	13.51	13.28	13.57	13.11	86.936	19.39	23.77	Pass
140	5700	13.53	13.48	13.59	12.84	86.914	19.39	23.9	Pass
*144 (U-NII-2C Band)	5720	8.94	9.07	9.15	9.13	34.064	15.32	22.63	Pass
*144 (U-NII-3 Band)	5720	2.02	3.51	2.65	2.81	7.998	9.03	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.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	19.39	23.87 < 24
60	5300	19.39	23.87 < 24
64	5320	19.22	23.83 < 24
100	5500	19.45	23.88 < 24
116	5580	18.96	23.77 < 24
140	5700	19.5	23.9 < 24
144 (U-NII-2C Band)	5720	14.57	22.63 < 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

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				
52	5260	12.68	13.06	13.09	13.03	79.227	18.99	24	Pass
60	5300	13.07	12.89	12.66	12.84	77.411	18.89	24	Pass
64	5320	13.17	12.76	12.68	12.78	77.131	18.87	24	Pass
100	5500	13.48	13.05	13.16	12.68	81.705	19.12	24	Pass
116	5580	13.38	13.32	13.39	13.01	85.081	19.30	24	Pass
140	5700	13.30	13.19	13.11	12.61	80.928	19.08	24	Pass
*144 (U-NII-2C Band)	5720	8.39	8.21	8.02	8.83	28.773	14.59	22.9	Pass
*144 (U-NII-3 Band)	5720	2.88	3.56	4.87	2.94	9.675	9.86	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.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	21.27	24.27 > 24
60	5300	21.21	24.26 > 24
64	5320	21.16	24.25 > 24
100	5500	21.02	24.22 > 24
116	5580	21.22	24.26 > 24
140	5700	21.15	24.25 > 24
144 (U-NII-2C Band)	5720	15.51	22.9 < 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

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				
54	5270	16.15	16.26	16.12	16.17	165.803	22.20	24	Pass
62	5310	16.38	16.11	15.85	15.95	162.097	22.10	24	Pass
102	5510	16.83	16.29	15.75	15.88	167.064	22.23	24	Pass
110	5550	16.72	16.27	15.75	15.85	165.397	22.19	24	Pass
134	5670	16.33	16.62	16.22	15.83	169.035	22.28	24	Pass
*142 (U-NII-2C Band)	5710	12.02	12.18	12.24	12.16	68.669	18.37	24	Pass
*142 (U-NII-3 Band)	5710	1.47	3.29	3.57	2.05	7.757	8.90	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.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
54	5270	42.2	27.25 > 24
62	5310	42.06	27.23 > 24
102	5510	41.91	27.22 > 24
110	5550	41.96	27.22 > 24
134	5670	42.07	27.23 > 24
142 (U-NII-2C Band)	5710	35.73	26.53 > 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

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				
58	5290	17.63	17.64	17.60	17.80	233.819	23.69	24	Pass
106	5530	17.98	17.59	17.11	17.28	225.078	23.52	24	Pass
122	5610	17.58	17.85	17.39	17.44	228.524	23.59	24	Pass
*138 (U-NII-2C Band)	5690	13.82	13.79	13.97	13.97	102.723	20.12	24	Pass
*138 (U-NII-3 Band)	5690	-0.98	1.91	0.86	0.13	4.8252	6.84	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.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
58	5290	82.7	30.17 > 24
106	5530	82.87	30.18 > 24
122	5610	82.97	30.18 > 24
138 (U-NII-2C Band)	5690	76.1	29.81 > 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

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				
52	5260	12.86	13.27	13.29	13.23	82.92	19.19	24	Pass
60	5300	13.33	13.10	12.94	13.13	82.183	19.15	24	Pass
64	5320	13.40	13.05	12.96	13.04	81.968	19.14	24	Pass
100	5500	13.70	13.32	13.42	12.93	86.533	19.37	24	Pass
116	5580	13.42	13.37	13.51	13.06	86.375	19.36	24	Pass
140	5700	13.57	13.47	13.38	12.89	86.215	19.36	24	Pass
*144 (U-NII-2C Band)	5720	9.06	9.52	9.28	8.88	34.742	15.41	22.9	Pass
*144 (U-NII-3 Band)	5720	3.32	2.37	2.58	3.89	8.51	9.30	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.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	21.27	24.27 > 24
60	5300	21.21	24.26 > 24
64	5320	21.16	24.25 > 24
100	5500	21.02	24.22 > 24
116	5580	21.22	24.26 > 24
140	5700	21.15	24.25 > 24
144 (U-NII-2C Band)	5720	15.51	22.9 < 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

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				
54	5270	16.40	16.49	16.33	16.37	174.522	22.42	24	Pass
62	5310	16.60	16.35	16.07	16.23	171.294	22.34	24	Pass
102	5510	17.05	16.57	16.03	16.17	177.58	22.49	24	Pass
110	5550	17.01	16.51	15.98	16.12	175.559	22.44	24	Pass
134	5670	16.61	16.83	16.47	16.09	179.014	22.53	24	Pass
*142 (U-NII-2C Band)	5710	12.46	12.73	12.67	12.73	77.015	18.87	24	Pass
*142 (U-NII-3 Band)	5710	2.99	4.48	4.68	3.03	10.193	10.08	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.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
54	5270	42.2	27.25 > 24
62	5310	42.06	27.23 > 24
102	5510	41.91	27.22 > 24
110	5550	41.96	27.22 > 24
134	5670	42.07	27.23 > 24
142 (U-NII-2C Band)	5710	35.73	26.53 > 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

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				
58	5290	17.85	17.93	17.86	18.02	247.522	23.94	24	Pass
106	5530	18.21	17.87	17.64	17.49	241.638	23.83	24	Pass
122	5610	17.82	18.13	17.68	17.66	242.505	23.85	24	Pass
*138 (U-NII-2C Band)	5690	14.28	14.14	14.52	14.75	116.336	20.66	24	Pass
*138 (U-NII-3 Band)	5690	0.22	1.15	2.55	0.54	5.545	7.44	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.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
58	5290	82.7	30.17 > 24
106	5530	82.87	30.18 > 24
122	5610	82.97	30.18 > 24
138 (U-NII-2C Band)	5690	76.1	29.81 > 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

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				
52	5260	12.68	13.06	13.09	13.03	79.227	18.99	19.23	Pass
60	5300	13.07	12.89	12.66	12.84	77.411	18.89	19.23	Pass
64	5320	13.17	12.76	12.68	12.78	77.131	18.87	19.23	Pass
100	5500	13.48	13.05	13.16	12.68	81.705	19.12	19.4	Pass
116	5580	13.38	13.32	13.39	13.01	85.081	19.30	19.4	Pass
140	5700	13.30	13.19	13.11	12.61	80.928	19.08	19.4	Pass
*144 (U-NII-2C Band)	5720	8.39	8.21	8.02	8.83	28.773	14.59	18.3	Pass
*144 (U-NII-3 Band)	5720	2.88	3.56	4.87	2.94	9.675	9.86	25.4	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-2A: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.77 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.77-6)”.
2. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.6-6)”.
3. For U-NII-3: The directional gain = = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6 dBi, so the power limit shall be reduced to 30-(10.6-6) = 25.4 dBm.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	21.27	24.27 > 24
60	5300	21.21	24.26 > 24
64	5320	21.16	24.25 > 24
100	5500	21.02	24.22 > 24
116	5580	21.22	24.26 > 24
140	5700	21.15	24.25 > 24
144 (U-NII-2C Band)	5720	15.51	22.9 < 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

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				
54	5270	13.08	13.25	13.05	13.11	82.107	19.14	19.23	Pass
62	5310	13.36	13.09	12.82	12.91	80.733	19.07	19.23	Pass
102	5510	13.83	13.29	12.75	12.88	83.73	19.23	19.4	Pass
110	5550	13.72	13.27	12.73	12.85	82.808	19.18	19.4	Pass
134	5670	13.33	13.62	13.22	12.83	84.718	19.28	19.4	Pass
*142 (U-NII-2C Band)	5710	9.28	9.53	9.50	9.49	36.881	15.67	19.4	Pass
*142 (U-NII-3 Band)	5710	-0.72	0.61	1.17	0.03	4.5136	6.55	25.4	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-2A: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.77 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.77-6)”.
2. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.6-6)”.
3. For U-NII-3: The directional gain = = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6 dBi, so the power limit shall be reduced to 30-(10.6-6) = 25.4 dBm.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
54	5270	42.2	27.25 > 24
62	5310	42.06	27.23 > 24
102	5510	41.91	27.22 > 24
110	5550	41.96	27.22 > 24
134	5670	42.07	27.23 > 24
142 (U-NII-2C Band)	5710	35.73	26.53 > 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

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				
58	5290	12.77	12.81	12.88	12.96	77.201	18.88	19.23	Pass
106	5530	13.52	13.18	12.75	12.88	81.533	19.11	19.4	Pass
122	5610	13.09	13.31	12.96	13.02	81.614	19.12	19.4	Pass
*138 (U-NII-2C Band)	5690	9.47	9.72	9.99	9.72	39.421	15.96	19.4	Pass
*138 (U-NII-3 Band)	5690	-4.39	-3.21	-1.72	-4.21	1.9865	2.98	25.4	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-2A: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$+ $10^{G2/20}$+ $10^{G3/20}$)^2 / 4] = 10.77 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.77-6)”.
2. For U-NII-2C: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$+ $10^{G2/20}$+ $10^{G3/20}$)^2 / 4] = 10.6 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.6-6)”.
3. For U-NII-3: The directional gain = = 10 log[($10^{G0/20}$ + $10^{G1/20}$+ $10^{G2/20}$+ $10^{G3/20}$)^2 / 4] = 10.6 dBi > 6 dBi, so the power limit shall be reduced to 30-(10.6-6) = 25.4 dBm.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
58	5290	82.7	30.17 > 24
106	5530	82.87	30.18 > 24
122	5610	82.97	30.18 > 24
138 (U-NII-2C Band)	5690	76.1	29.81 > 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

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				
52	5260	12.86	13.27	13.29	13.23	82.92	19.19	19.23	Pass
60	5300	13.33	13.10	12.94	13.13	82.183	19.15	19.23	Pass
64	5320	13.40	13.05	12.96	13.04	81.968	19.14	19.23	Pass
100	5500	13.70	13.32	13.42	12.93	86.533	19.37	19.4	Pass
116	5580	13.42	13.37	13.51	13.06	86.375	19.36	19.4	Pass
140	5700	13.57	13.47	13.38	12.89	86.215	19.36	19.4	Pass
*144 (U-NII-2C Band)	5720	9.06	9.52	9.28	8.88	34.742	15.41	18.3	Pass
*144 (U-NII-3 Band)	5720	3.32	2.37	2.58	3.89	8.51	9.30	25.4	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-2A: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.77 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.77-6)”.
2. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.6-6)”.
3. For U-NII-3: The directional gain = = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6 dBi, so the power limit shall be reduced to 30-(10.6-6) = 25.4 dBm.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	21.27	24.27 > 24
60	5300	21.21	24.26 > 24
64	5320	21.16	24.25 > 24
100	5500	21.02	24.22 > 24
116	5580	21.22	24.26 > 24
140	5700	21.15	24.25 > 24
144 (U-NII-2C Band)	5720	15.51	22.9 < 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

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				
54	5270	13.16	13.27	13.11	13.14	83.005	19.19	19.23	Pass
62	5310	13.41	13.20	12.95	13.05	82.729	19.18	19.23	Pass
102	5510	13.85	13.41	12.92	13.02	85.827	19.34	19.4	Pass
110	5550	13.81	13.44	12.94	13.06	86.033	19.35	19.4	Pass
134	5670	13.48	13.59	13.21	12.96	85.851	19.34	19.4	Pass
*142 (U-NII-2C Band)	5710	9.76	10.02	10.04	9.92	41.241	16.15	19.4	Pass
*142 (U-NII-3 Band)	5710	-0.05	0.68	2.69	-0.34	5.169	7.13	25.4	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-2A: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.77 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.77-6)”.
2. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.6-6)”.
3. For U-NII-3: The directional gain = = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6 dBi, so the power limit shall be reduced to 30-(10.6-6) = 25.4 dBm.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
54	5270	42.2	27.25 > 24
62	5310	42.06	27.23 > 24
102	5510	41.91	27.22 > 24
110	5550	41.96	27.22 > 24
134	5670	42.07	27.23 > 24
142 (U-NII-2C Band)	5710	35.73	26.53 > 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

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				
58	5290	12.92	12.98	12.88	13.11	79.323	18.99	19.23	Pass
106	5530	13.68	13.39	13.17	13.01	85.91	19.34	19.4	Pass
122	5610	13.35	13.61	13.22	13.18	86.375	19.36	19.4	Pass
*138 (U-NII-2C Band)	5690	10.01	10.25	10.42	10.44	44.79	16.51	19.4	Pass
*138 (U-NII-3 Band)	5690	-2.87	-2.05	-2.01	-4.35	2.2417	3.51	25.4	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.

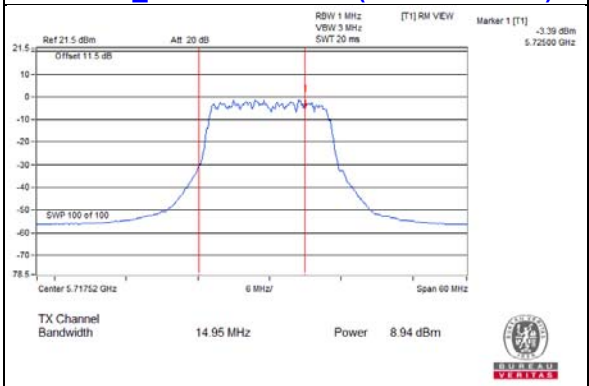
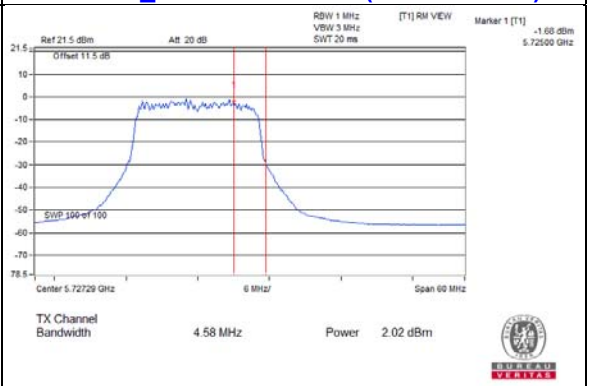
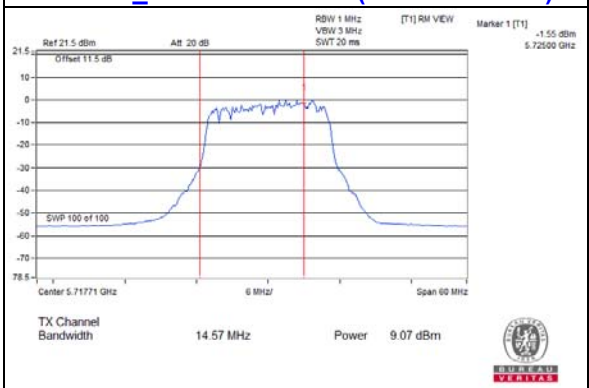
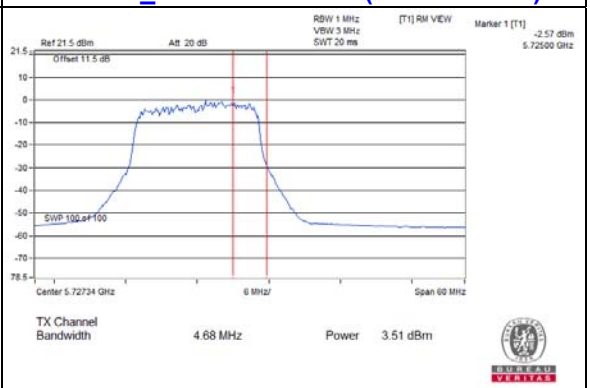
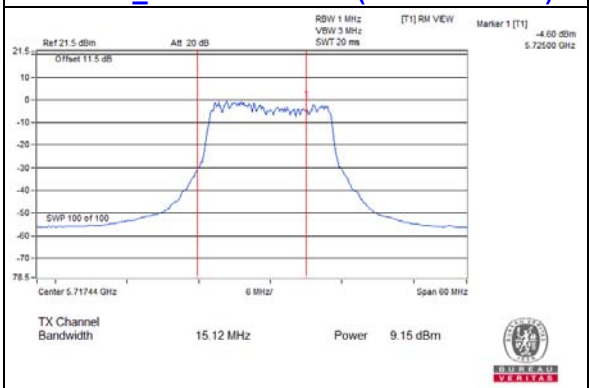
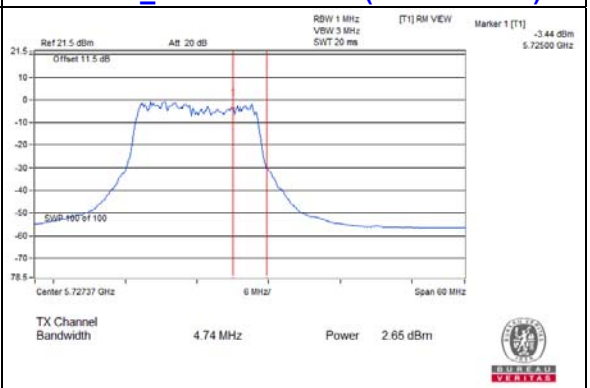
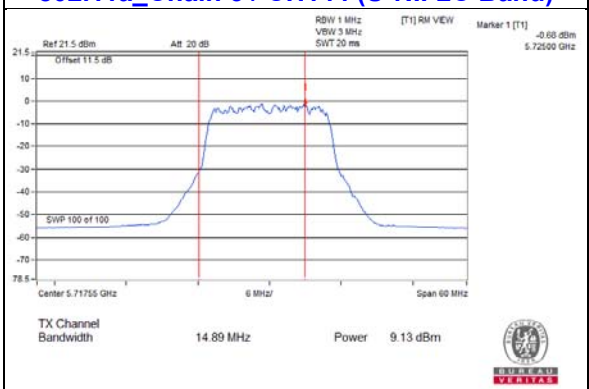
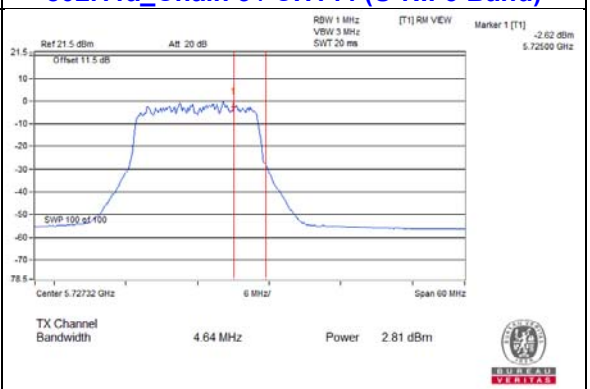
1. For U-NII-2A: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.77 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.77-6)”.
2. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6 dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.6-6)”.
3. For U-NII-3: The directional gain = = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6 dBi, so the power limit shall be reduced to 30-(10.6-6) = 25.4 dBm.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
58	5290	82.7	30.17 > 24
106	5530	82.87	30.18 > 24
122	5610	82.97	30.18 > 24
138 (U-NII-2C Band)	5690	76.1	29.81 > 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

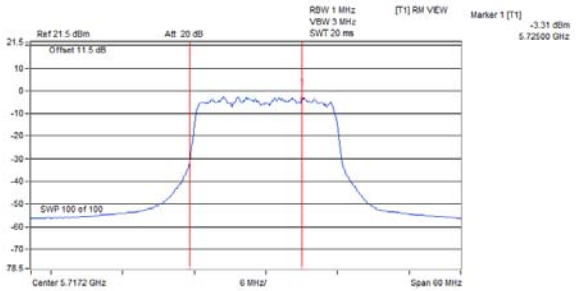
For channel straddling 5725MHz of Power

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)**
	
802.11a_Chain 1 / CH144 (U-NII-2C Band)	**802.11a_Chain 1 / CH144 (U-NII-3 Band)**
	
802.11a_Chain 2 / CH144 (U-NII-2C Band)	**802.11a_Chain 2 / CH144 (U-NII-3 Band)**
	
802.11a_Chain 3 / CH144 (U-NII-2C Band)	**802.11a_Chain 3 / CH144 (U-NII-3 Band)**
	

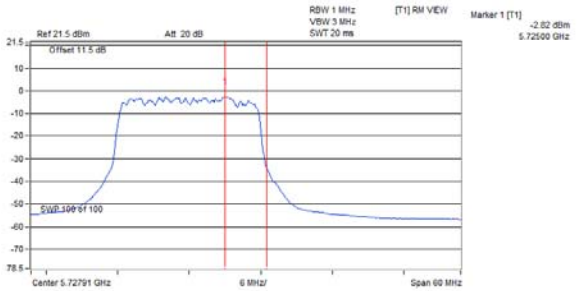
Spectrum Plot Value of Power

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



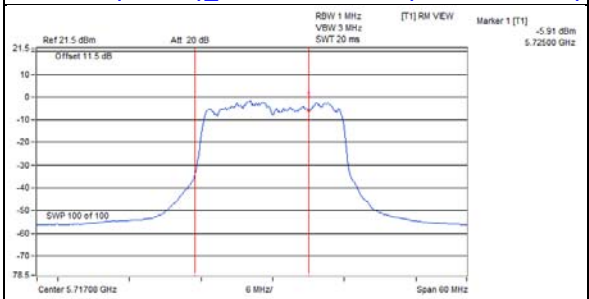
TX Channel Bandwidth 15.6 MHz Power 8.39 dBm

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



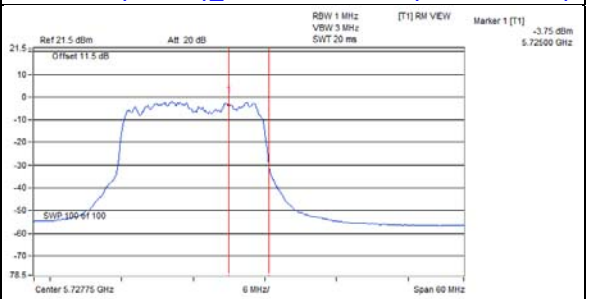
TX Channel Bandwidth 5.82 MHz Power 2.88 dBm

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



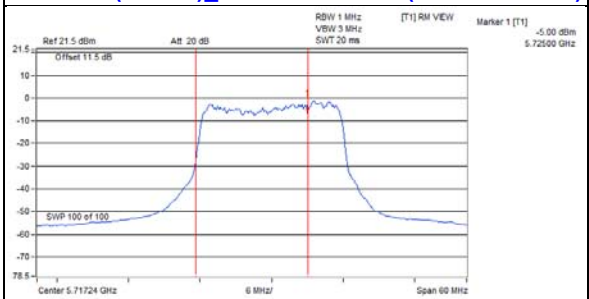
TX Channel Bandwidth 15.84 MHz Power 8.21 dBm

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



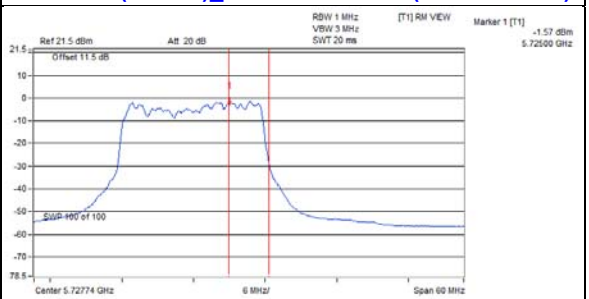
TX Channel Bandwidth 5.51 MHz Power 3.56 dBm

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



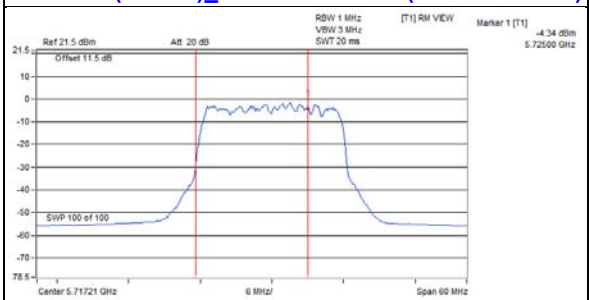
TX Channel Bandwidth 15.51 MHz Power 8.02 dBm

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



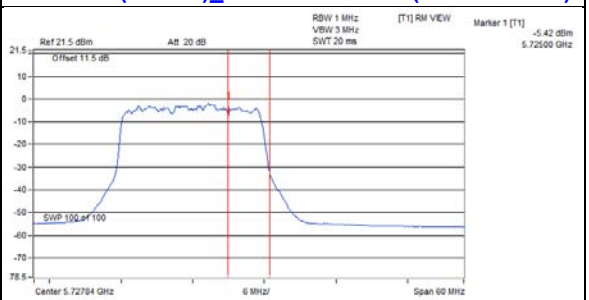
TX Channel Bandwidth 5.48 MHz Power 4.87 dBm

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

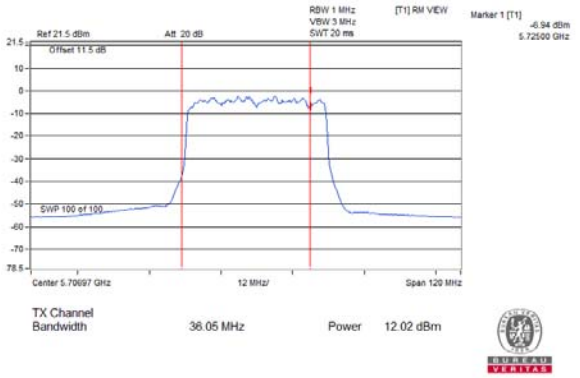
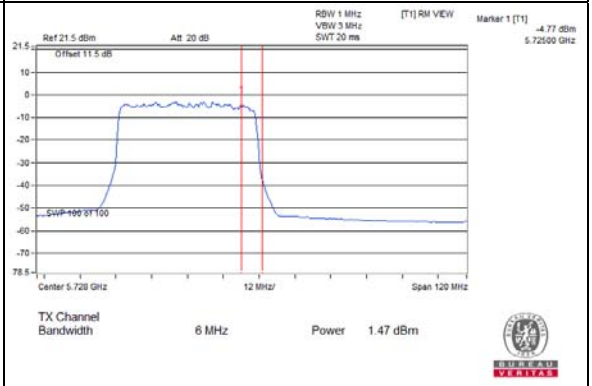
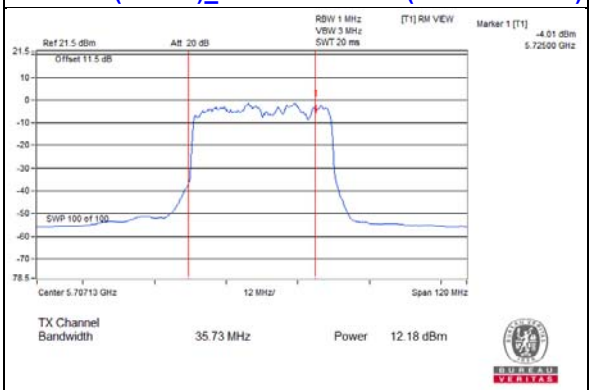
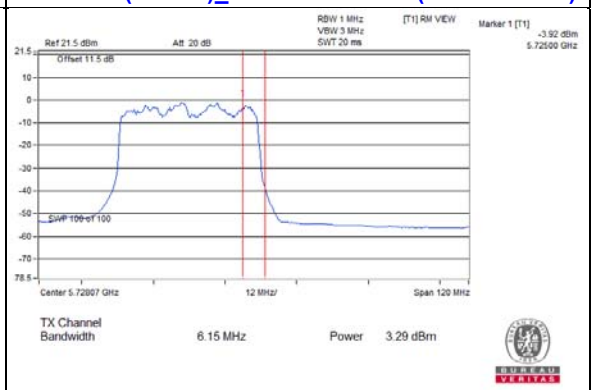
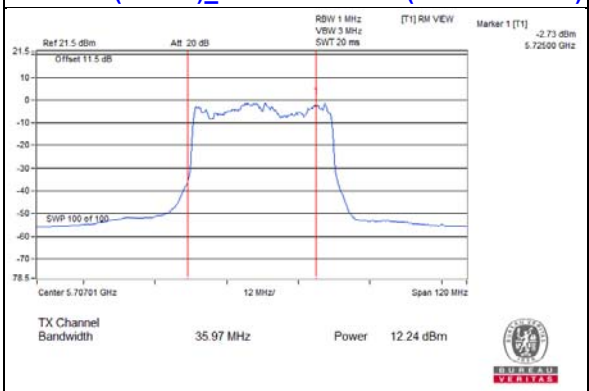
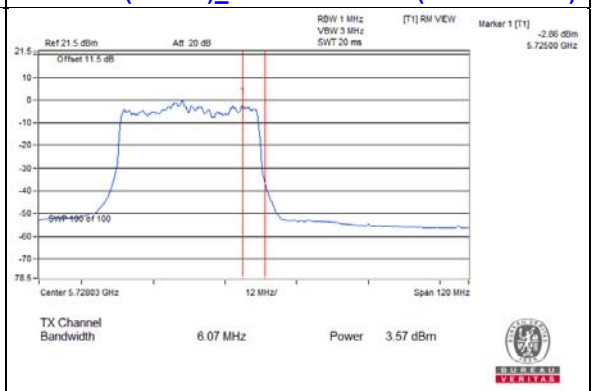
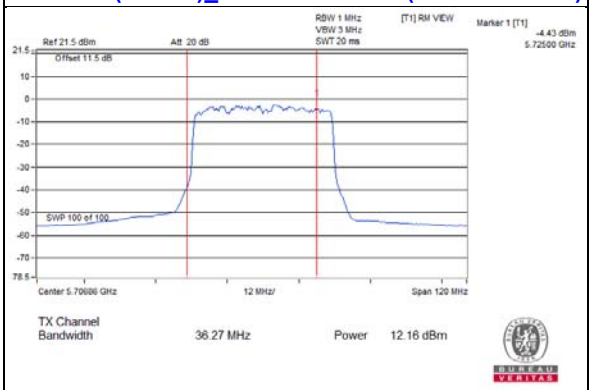
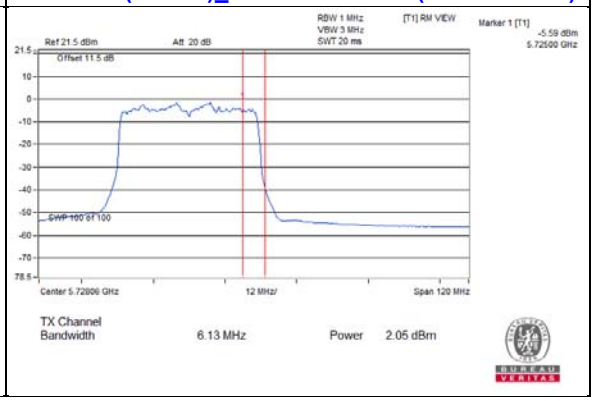


TX Channel Bandwidth 15.57 MHz Power 8.83 dBm

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

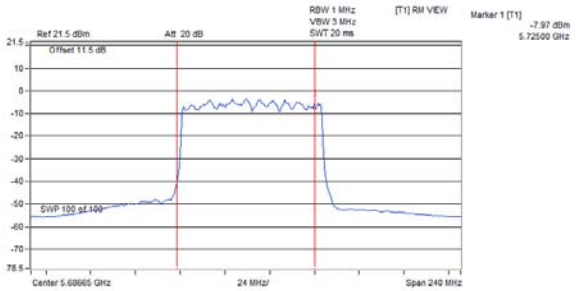


TX Channel Bandwidth 5.68 MHz Power 2.94 dBm

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)**
	
802.11ac (VHT40)_Chain 1 / CH142 (U-NII-2C Band)	**802.11ac (VHT40)_Chain 1 / CH142 (U-NII-3 Band)**
	
802.11ac (VHT40)_Chain 2 / CH142 (U-NII-2C Band)	**802.11ac (VHT40)_Chain 2 / CH142 (U-NII-3 Band)**
	
802.11ac (VHT40)_Chain 3 / CH142 (U-NII-2C Band)	**802.11ac (VHT40)_Chain 3 / CH142 (U-NII-3 Band)**
	

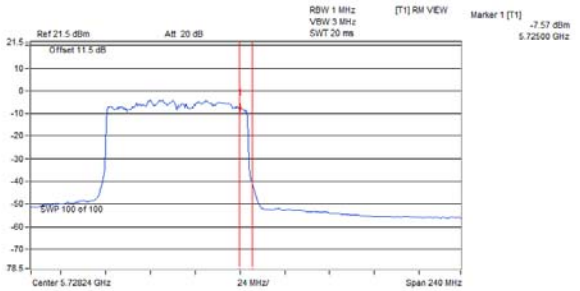
Spectrum Plot Value of Power

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



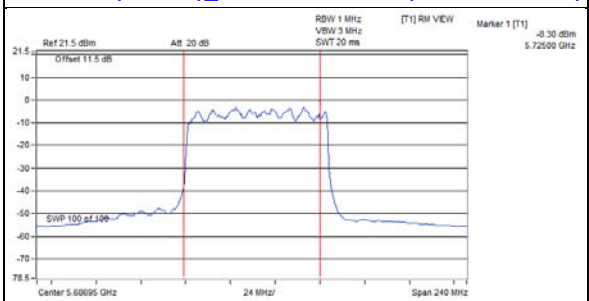
TX Channel Bandwidth 76.69 MHz Power 13.82 dBm

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



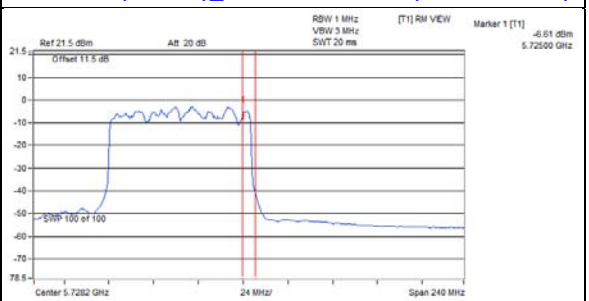
TX Channel Bandwidth 6.48 MHz Power -0.98 dBm

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



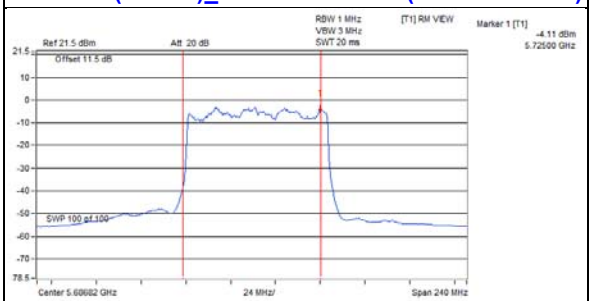
TX Channel Bandwidth 76.1 MHz Power 13.79 dBm

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



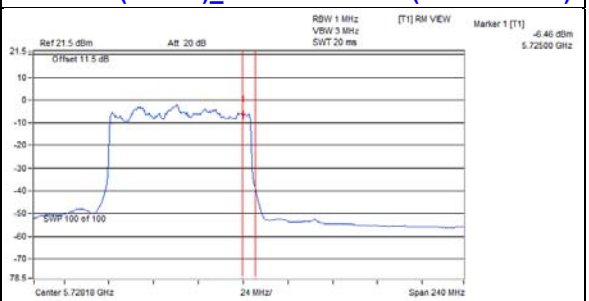
TX Channel Bandwidth 6.41 MHz Power 1.91 dBm

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



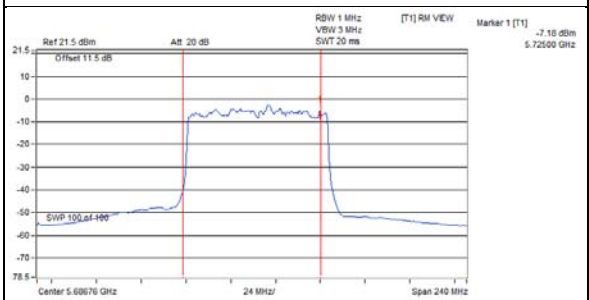
TX Channel Bandwidth 76.35 MHz Power 13.97 dBm

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



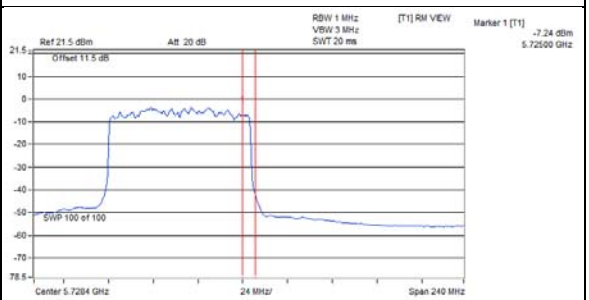
TX Channel Bandwidth 6.36 MHz Power 0.86 dBm

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



TX Channel Bandwidth 76.48 MHz Power 13.97 dBm

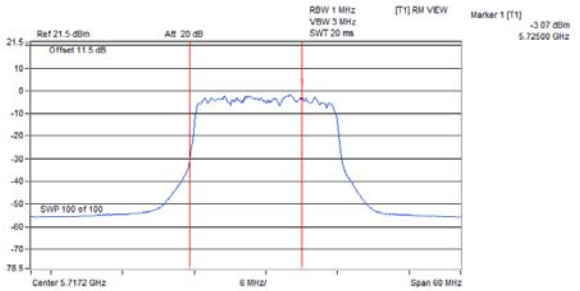
802.11ac (VHT80)_Chain 3 / CH138 (U-NII-3 Band)



TX Channel Bandwidth 6.81 MHz Power 0.13 dBm

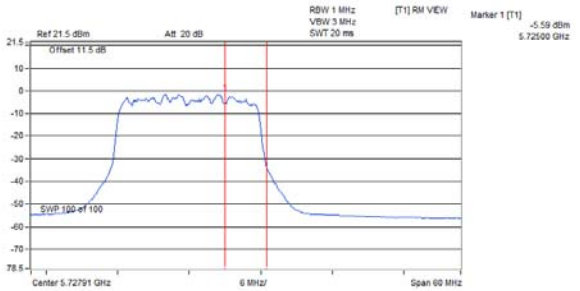
Spectrum Plot Value of Power

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



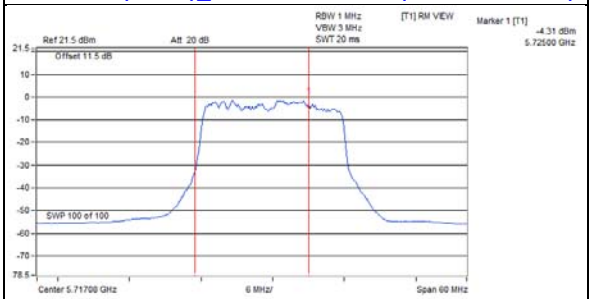
TX Channel Bandwidth 15.6 MHz Power 9.06 dBm

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



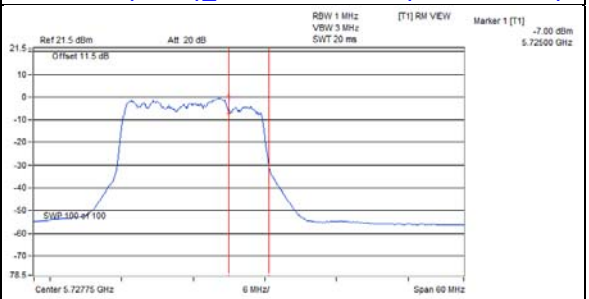
TX Channel Bandwidth 5.82 MHz Power 3.32 dBm

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



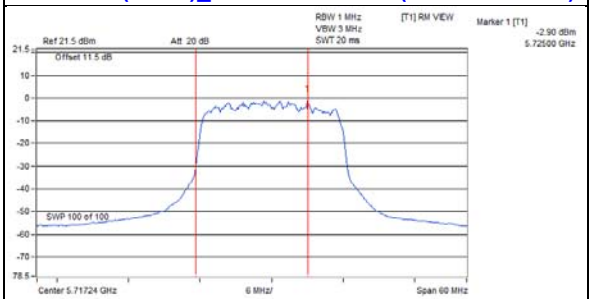
TX Channel Bandwidth 15.84 MHz Power 9.52 dBm

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



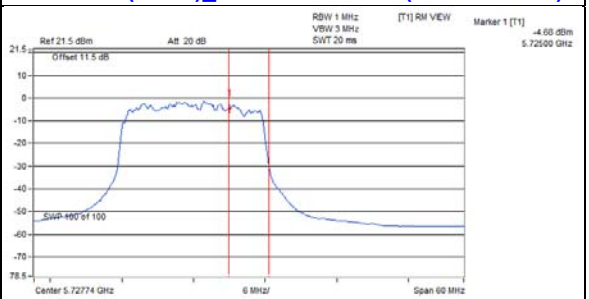
TX Channel Bandwidth 5.51 MHz Power 2.37 dBm

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



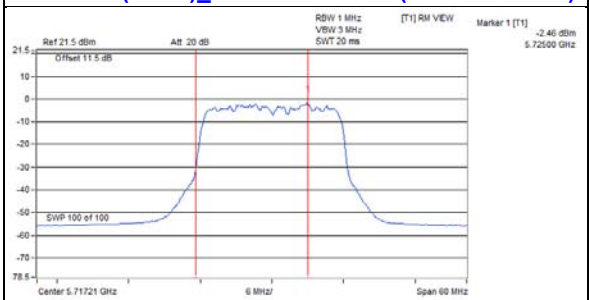
TX Channel Bandwidth 15.51 MHz Power 9.28 dBm

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



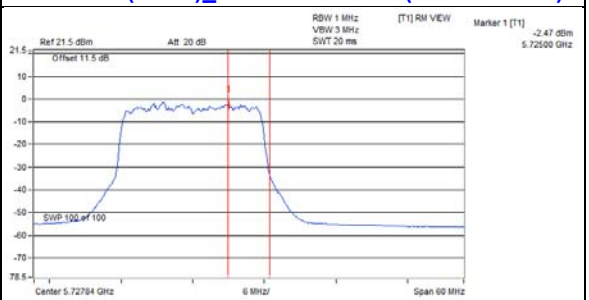
TX Channel Bandwidth 5.48 MHz Power 2.58 dBm

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



TX Channel Bandwidth 15.57 MHz Power 8.88 dBm

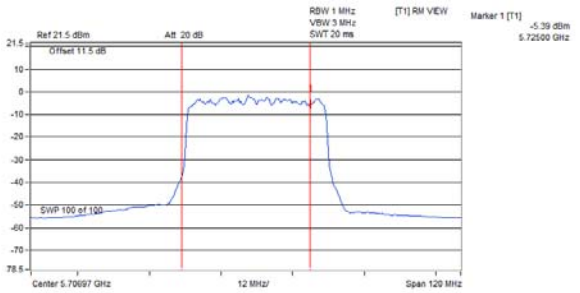
802.11ax (HE20)_Chain 3 / CH144 (U-NII-3 Band)



TX Channel Bandwidth 5.68 MHz Power 3.89 dBm

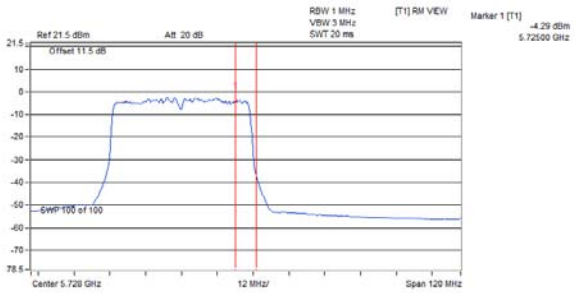
Spectrum Plot Value of Power

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



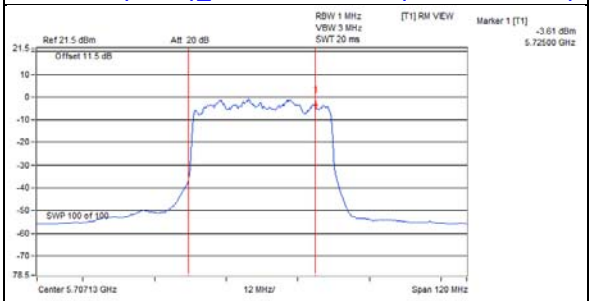
TX Channel Bandwidth 36.05 MHz Power 12.46 dBm

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



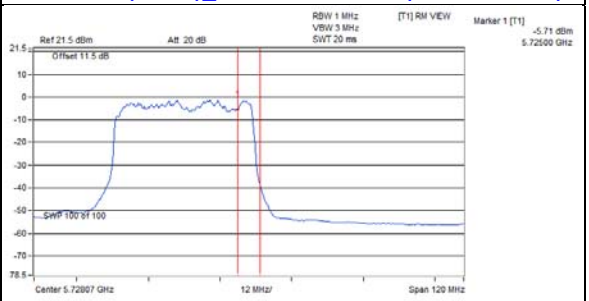
TX Channel Bandwidth 6 MHz Power 2.99 dBm

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



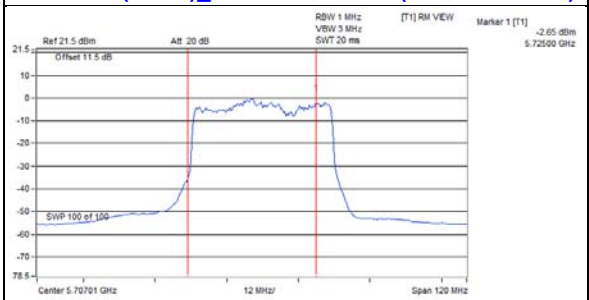
TX Channel Bandwidth 35.73 MHz Power 12.73 dBm

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



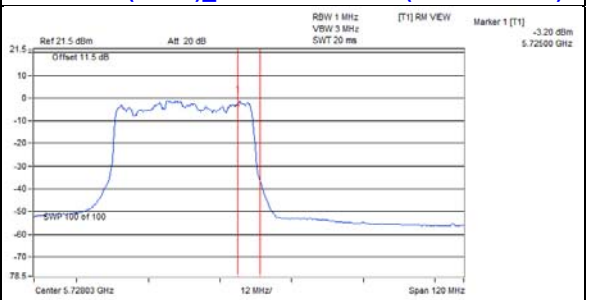
TX Channel Bandwidth 6.15 MHz Power 4.48 dBm

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



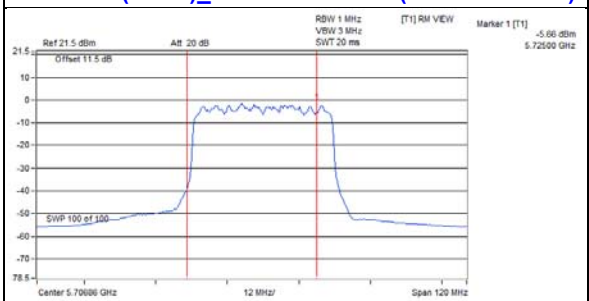
TX Channel Bandwidth 35.97 MHz Power 12.67 dBm

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



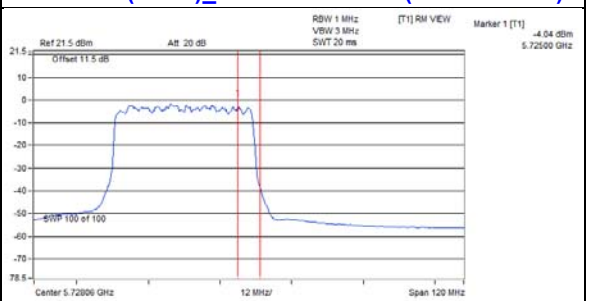
TX Channel Bandwidth 6.07 MHz Power 4.68 dBm

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



TX Channel Bandwidth 36.27 MHz Power 12.73 dBm

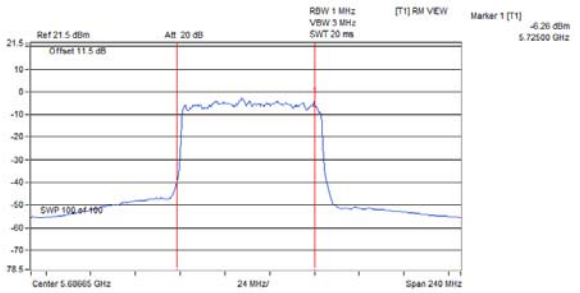
802.11ax (HE40)_Chain 3 / CH142 (U-NII-3 Band)



TX Channel Bandwidth 6.13 MHz Power 3.03 dBm

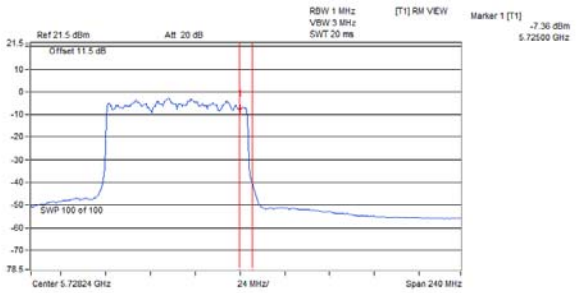
Spectrum Plot Value of Power

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



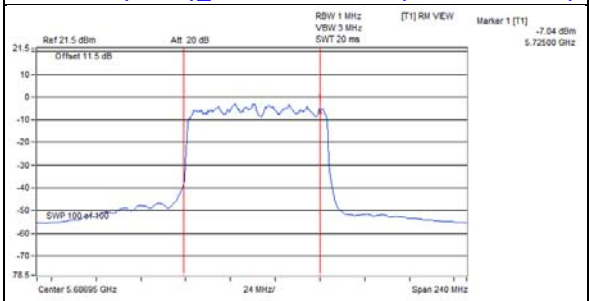
TX Channel Bandwidth 76.69 MHz Power 14.28 dBm

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



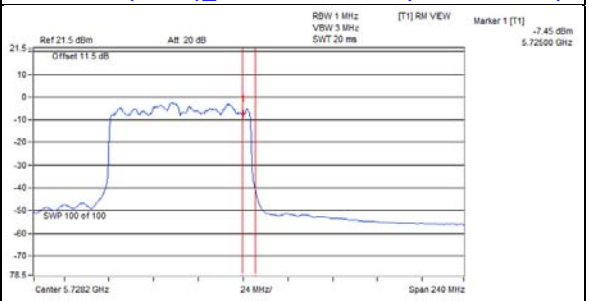
TX Channel Bandwidth 6.48 MHz Power 0.22 dBm

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



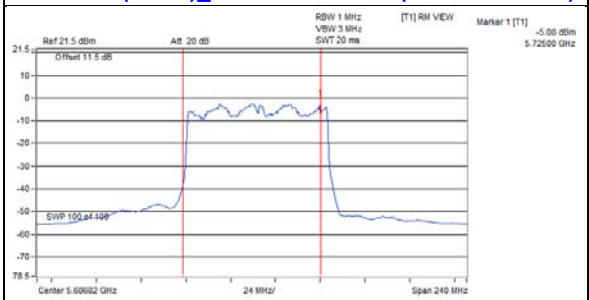
TX Channel Bandwidth 76.1 MHz Power 14.14 dBm

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



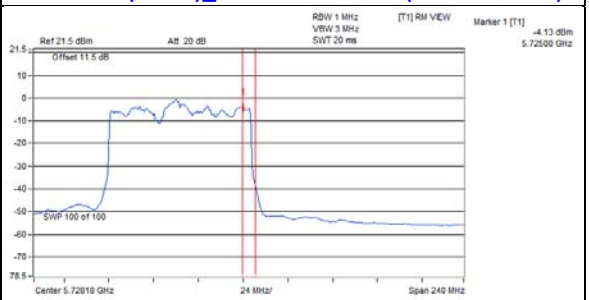
TX Channel Bandwidth 6.41 MHz Power 1.15 dBm

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



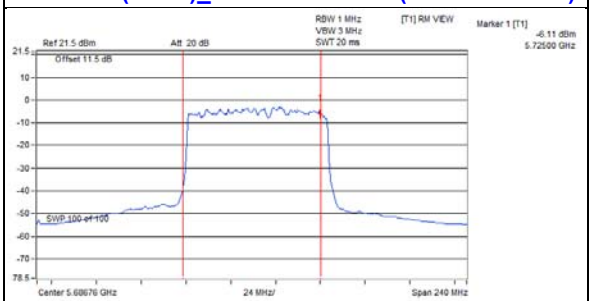
TX Channel Bandwidth 76.35 MHz Power 14.52 dBm

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



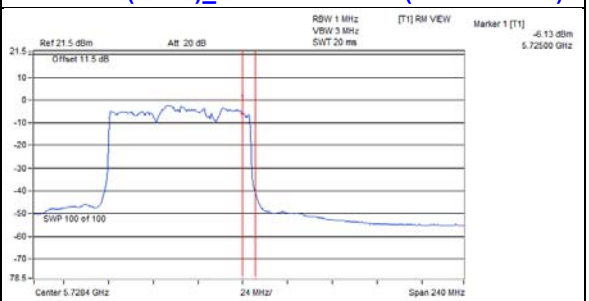
TX Channel Bandwidth 6.36 MHz Power 2.55 dBm

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



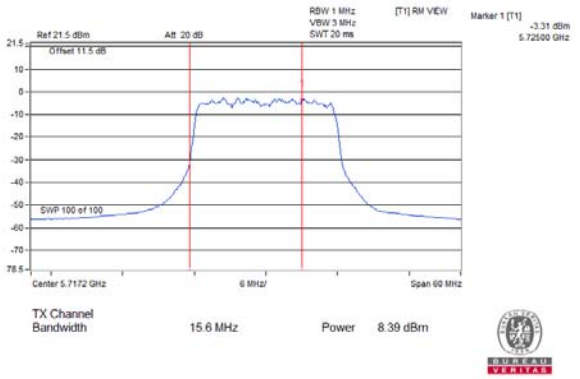
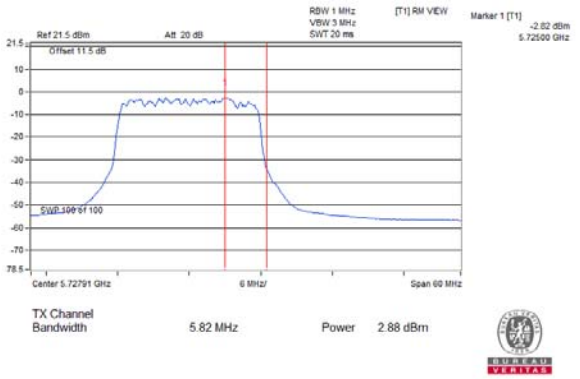
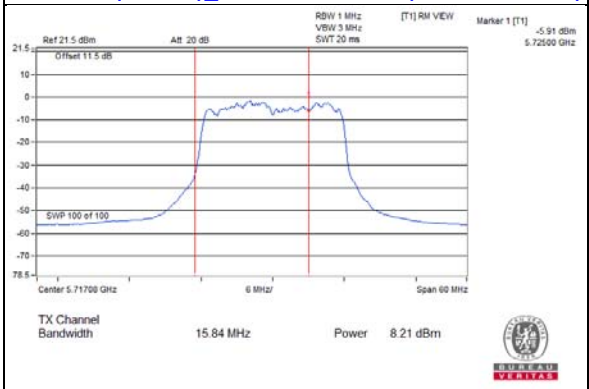
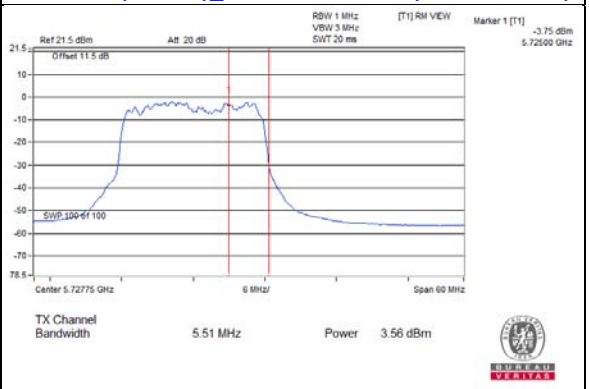
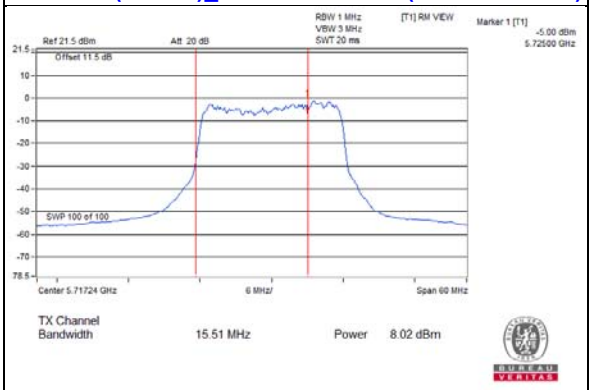
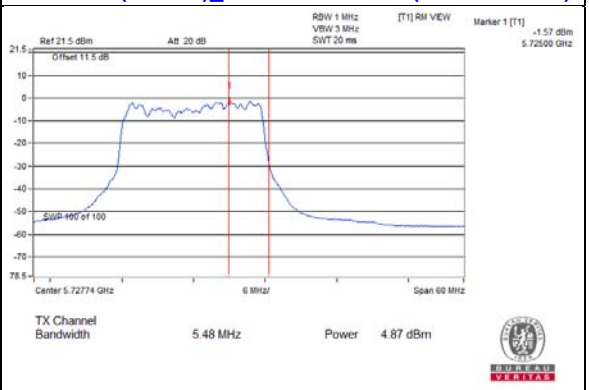
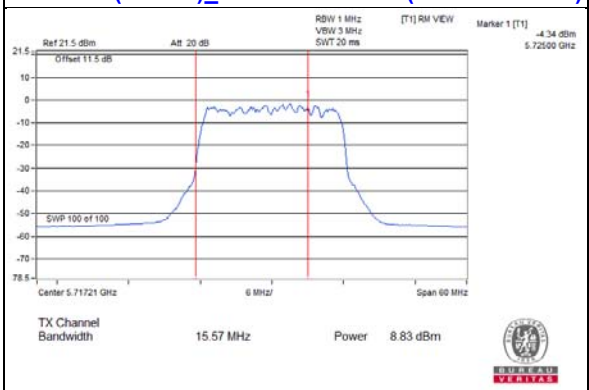
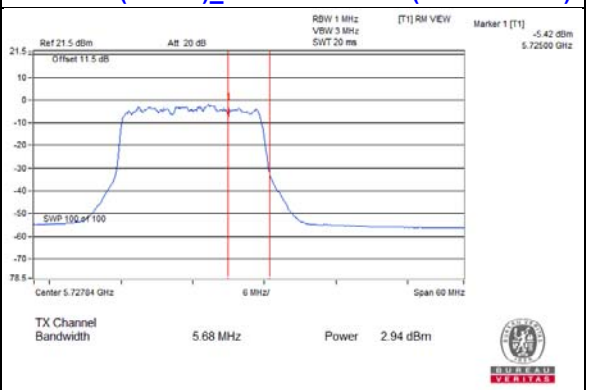
TX Channel Bandwidth 76.48 MHz Power 14.75 dBm

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



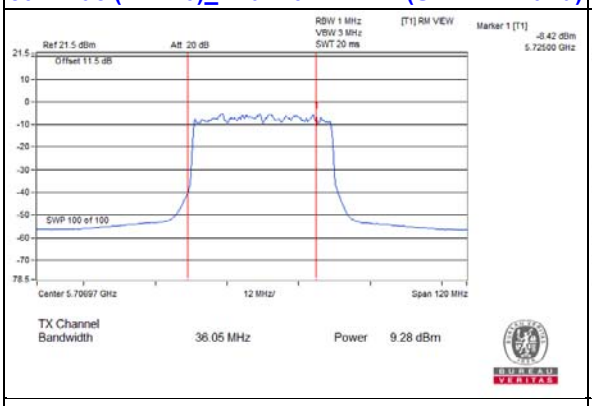
TX Channel Bandwidth 6.81 MHz Power 0.54 dBm

Beamforming Mode

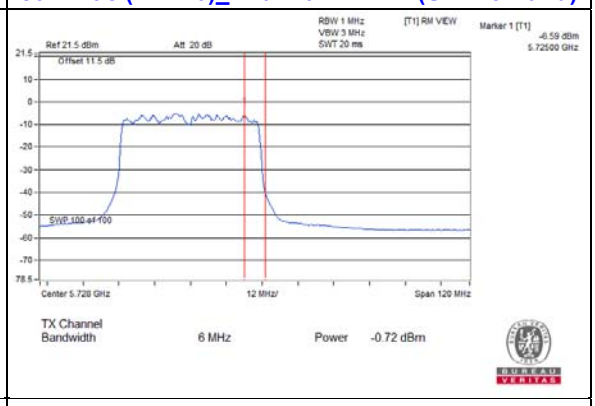
Spectrum Plot Value of Power	
802.11ac (VHT20)_Chain 0 / CH144 (U-NII-2C Band)	**802.11ac (VHT20)_Chain 0 / CH144 (U-NII-3 Band)**
	
802.11ac (VHT20)_Chain 1 / CH144 (U-NII-2C Band)	**802.11ac (VHT20)_Chain 1 / CH144 (U-NII-3 Band)**
	
802.11ac (VHT20)_Chain 2 / CH144 (U-NII-2C Band)	**802.11ac (VHT20)_Chain 2 / CH144 (U-NII-3 Band)**
	
802.11ac (VHT20)_Chain 3 / CH144 (U-NII-2C Band)	**802.11ac (VHT20)_Chain 3 / CH144 (U-NII-3 Band)**
	

Spectrum Plot Value of Power

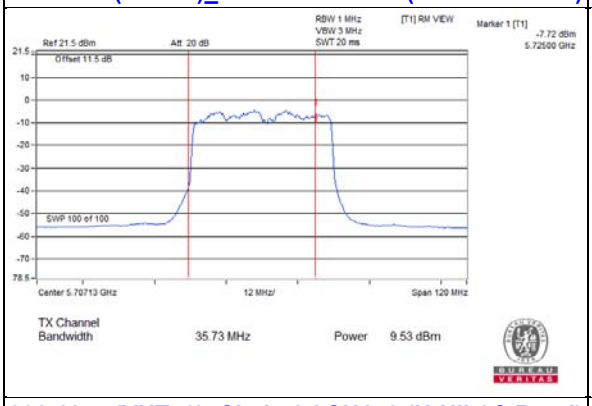
802.11ac (VHT40)_Chain 0 / CH142 (U-NII-2C Band)



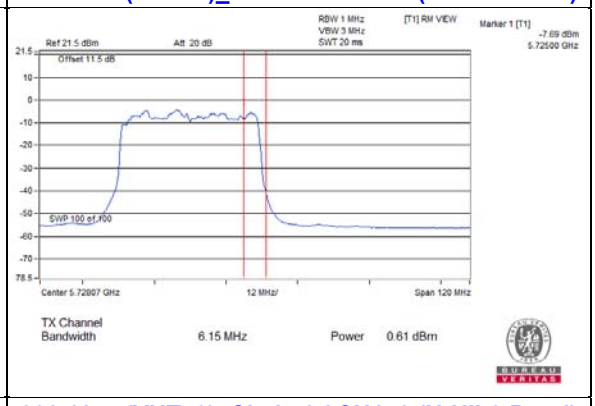
802.11ac (VHT40)_Chain 0 / CH142 (U-NII-3 Band)



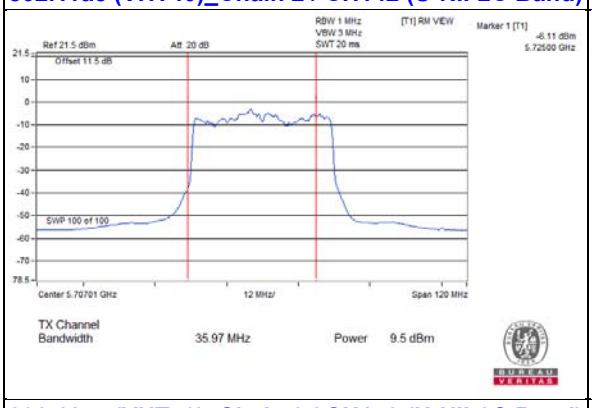
802.11ac (VHT40)_Chain 1 / CH142 (U-NII-2C Band)



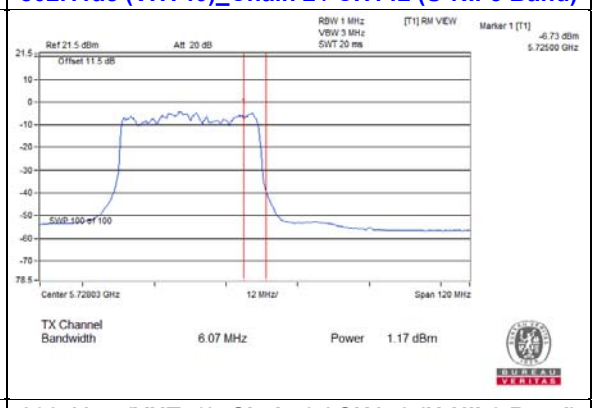
802.11ac (VHT40)_Chain 1 / CH142 (U-NII-3 Band)



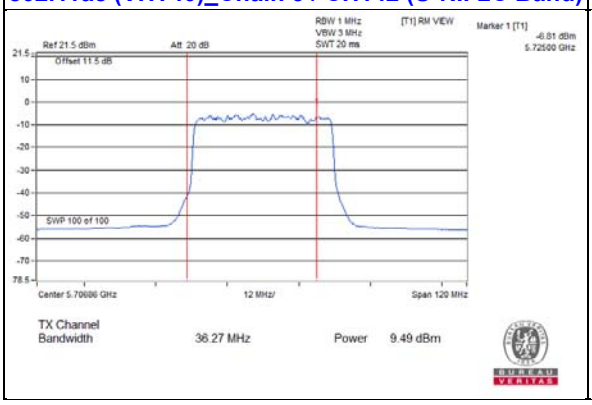
802.11ac (VHT40)_Chain 2 / CH142 (U-NII-2C Band)



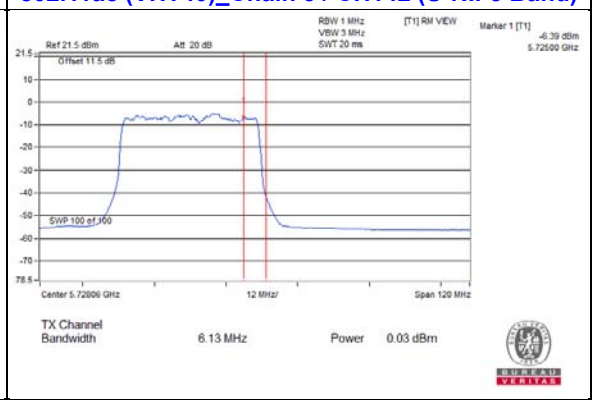
802.11ac (VHT40)_Chain 2 / CH142 (U-NII-3 Band)



802.11ac (VHT40)_Chain 3 / CH142 (U-NII-2C Band)

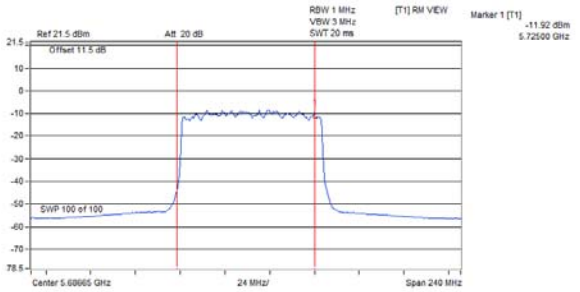


802.11ac (VHT40)_Chain 3 / CH142 (U-NII-3 Band)



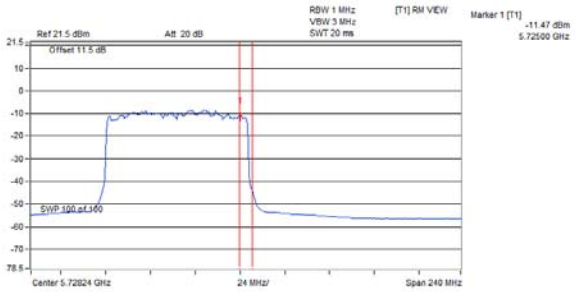
Spectrum Plot Value of Power

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



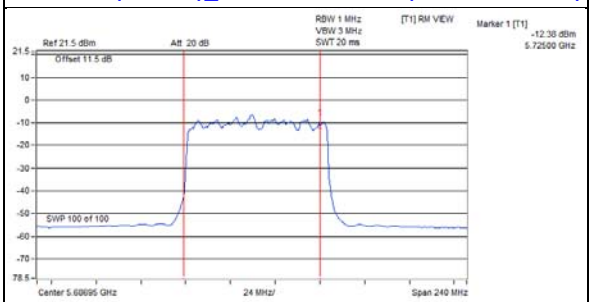
TX Channel Bandwidth 76.69 MHz Power 9.47 dBm

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



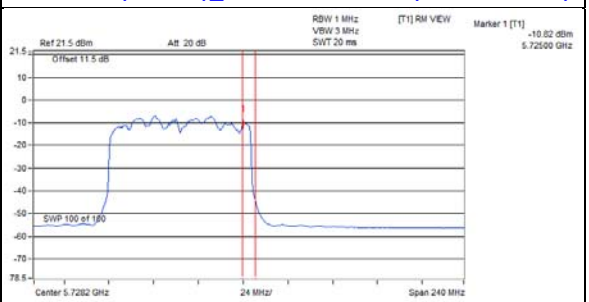
TX Channel Bandwidth 6.48 MHz Power -4.39 dBm

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



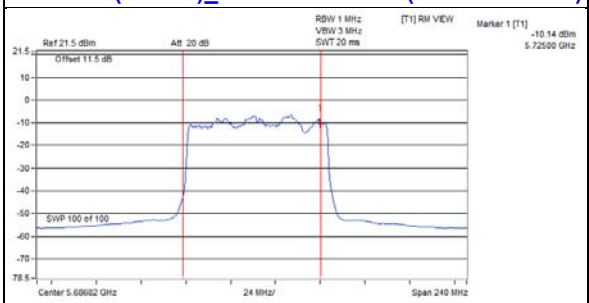
TX Channel Bandwidth 76.1 MHz Power 9.72 dBm

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



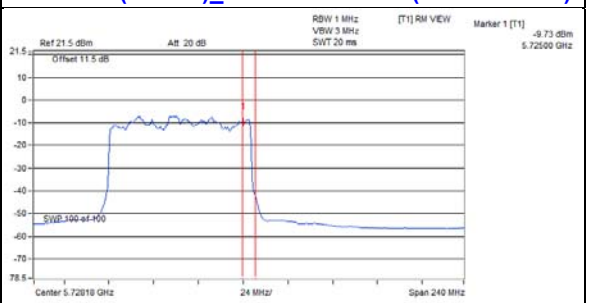
TX Channel Bandwidth 6.41 MHz Power -3.21 dBm

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



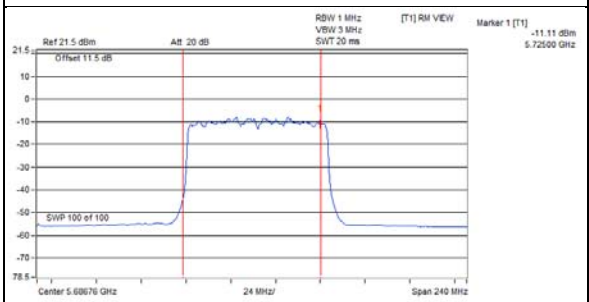
TX Channel Bandwidth 76.35 MHz Power 9.99 dBm

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



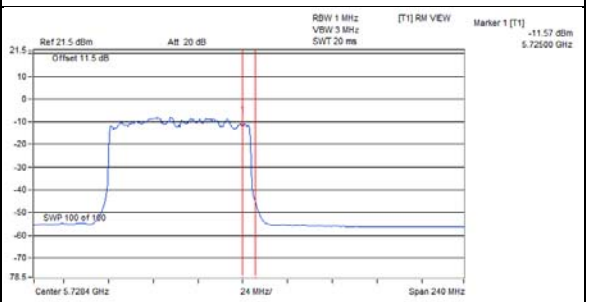
TX Channel Bandwidth 6.36 MHz Power -1.72 dBm

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

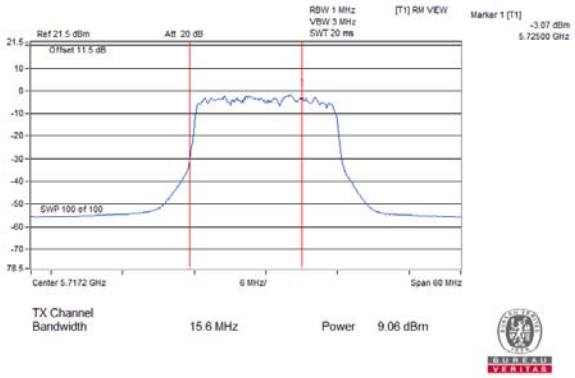
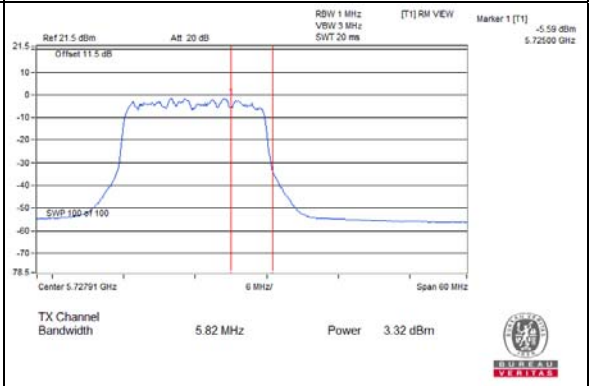
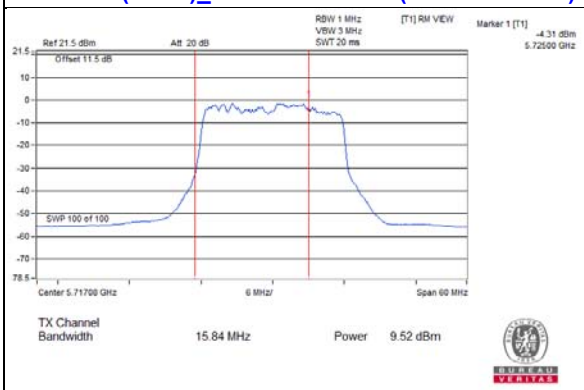
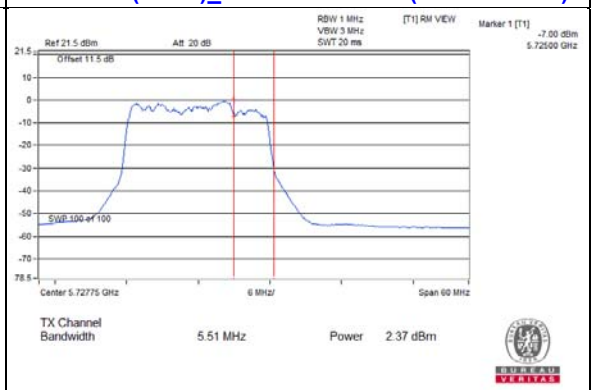
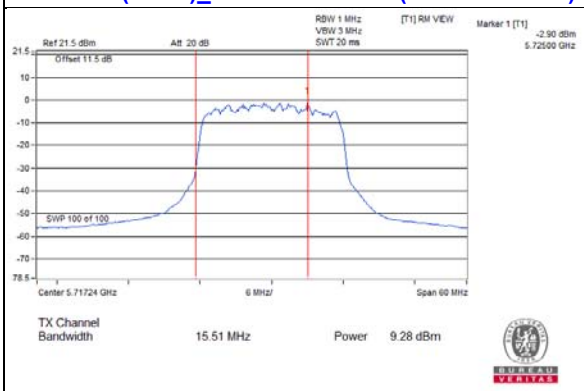
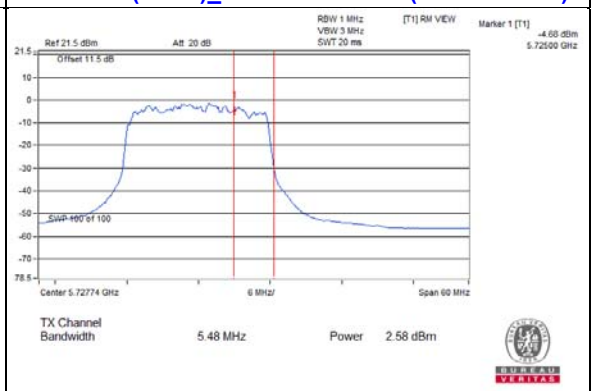
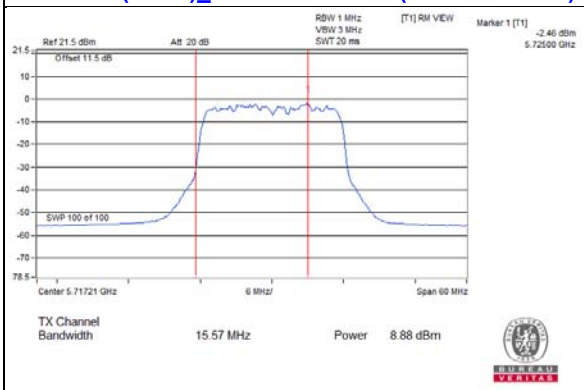
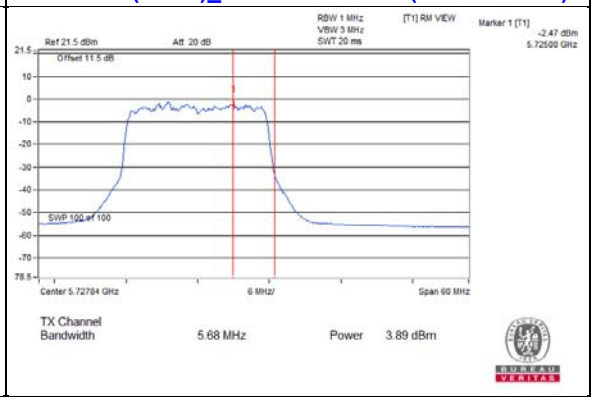


TX Channel Bandwidth 76.48 MHz Power 9.72 dBm

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

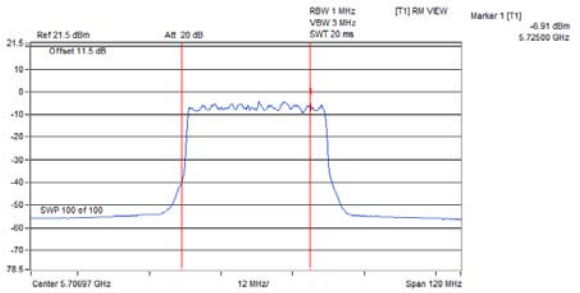


TX Channel Bandwidth 6.81 MHz Power -4.21 dBm

Spectrum Plot Value of Power	
802.11ax (HE20)_Chain 0 / CH144 (U-NII-2C Band)	**802.11ax (HE20)_Chain 0 / CH144 (U-NII-3 Band)**
	
802.11ax (HE20)_Chain 1 / CH144 (U-NII-2C Band)	**802.11ax (HE20)_Chain 1 / CH144 (U-NII-3 Band)**
	
802.11ax (HE20)_Chain 2 / CH144 (U-NII-2C Band)	**802.11ax (HE20)_Chain 2 / CH144 (U-NII-3 Band)**
	
802.11ax (HE20)_Chain 3 / CH144 (U-NII-2C Band)	**802.11ax (HE20)_Chain 3 / CH144 (U-NII-3 Band)**
	

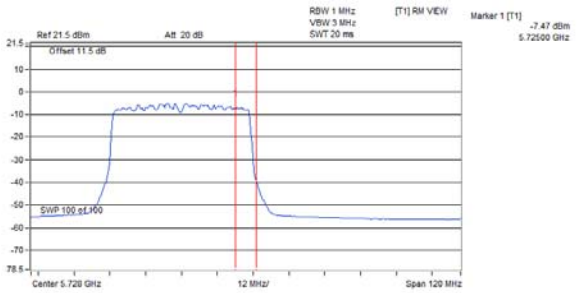
Spectrum Plot Value of Power

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



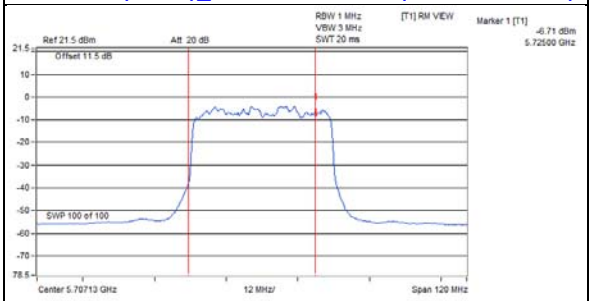
TX Channel Bandwidth 36.05 MHz Power 9.76 dBm

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



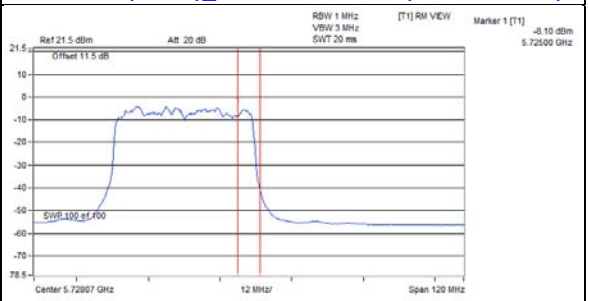
TX Channel Bandwidth 6 MHz Power -0.05 dBm

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



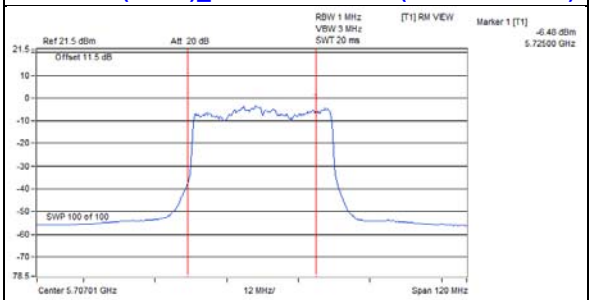
TX Channel Bandwidth 35.73 MHz Power 10.02 dBm

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



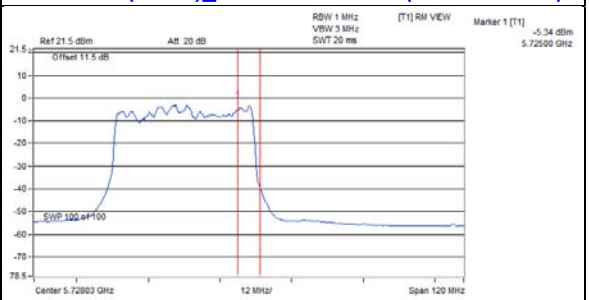
TX Channel Bandwidth 6.15 MHz Power 0.68 dBm

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



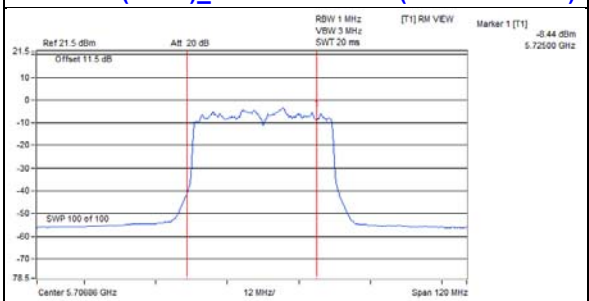
TX Channel Bandwidth 35.97 MHz Power 10.04 dBm

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



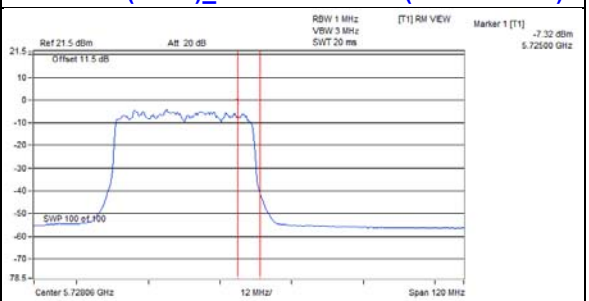
TX Channel Bandwidth 6.07 MHz Power 2.69 dBm

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



TX Channel Bandwidth 36.27 MHz Power 9.92 dBm

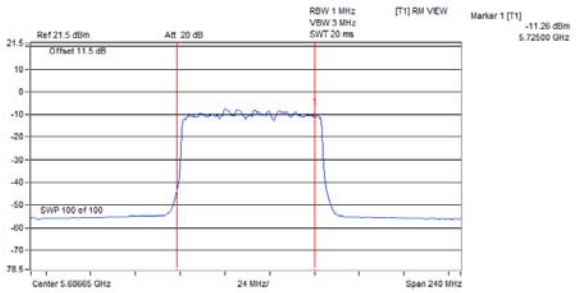
802.11ax (HE40)_Chain 3 / CH142 (U-NII-3 Band)



TX Channel Bandwidth 6.13 MHz Power -0.34 dBm

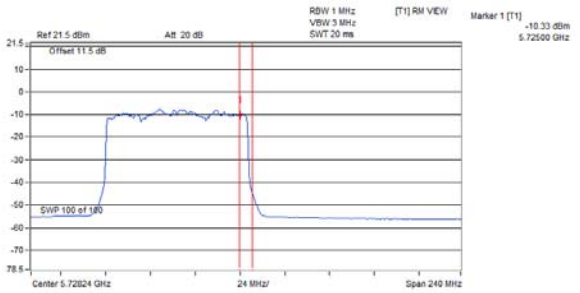
Spectrum Plot Value of Power

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



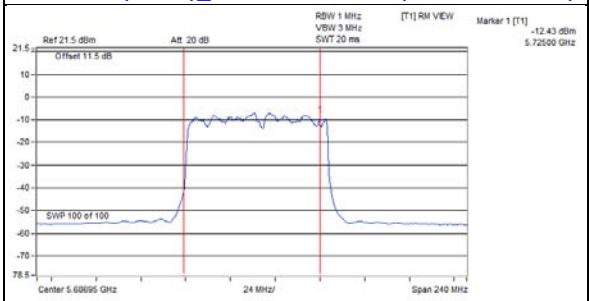
TX Channel Bandwidth 76.69 MHz Power 10.01 dBm

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



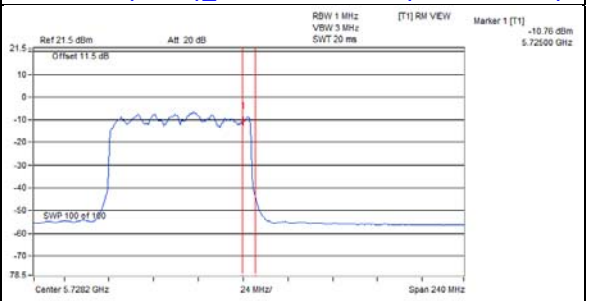
TX Channel Bandwidth 6.48 MHz Power -2.87 dBm

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



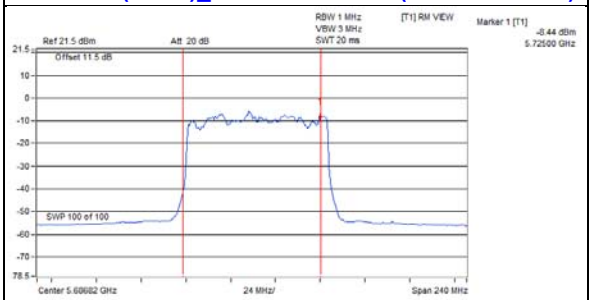
TX Channel Bandwidth 76.1 MHz Power 10.25 dBm

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



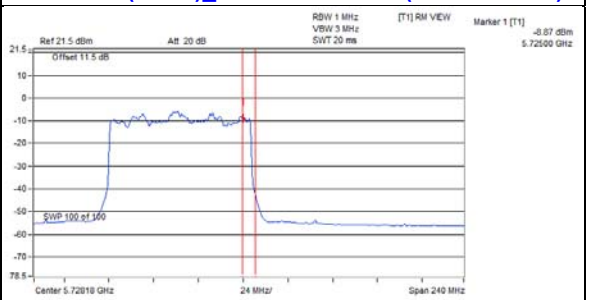
TX Channel Bandwidth 6.41 MHz Power -2.05 dBm

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



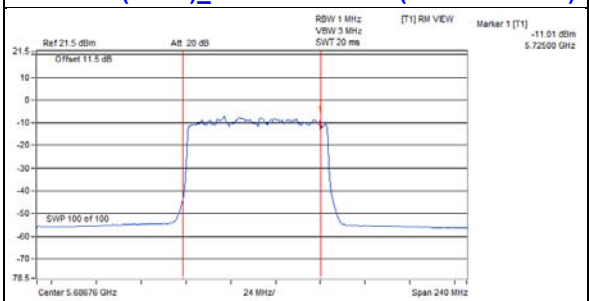
TX Channel Bandwidth 76.35 MHz Power 10.42 dBm

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



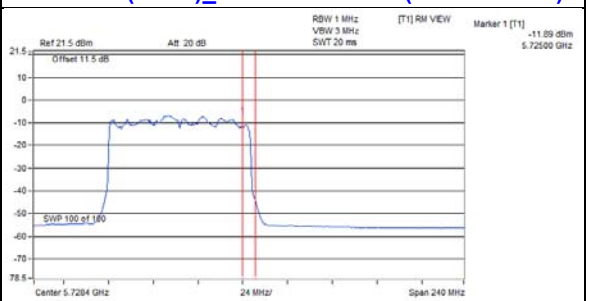
TX Channel Bandwidth 6.36 MHz Power -2.01 dBm

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



TX Channel Bandwidth 76.48 MHz Power 10.44 dBm

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



TX Channel Bandwidth 6.81 MHz Power -4.35 dBm

26dB OCCUPIED BANDWIDTH

802.11a

Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	19.54	19.39	19.64	19.79
60	5300	19.7	19.7	19.62	19.39
64	5320	19.22	19.68	19.53	20.19
100	5500	19.63	20.02	19.45	19.63
116	5580	19.68	19.01	18.96	19.91
140	5700	19.78	19.71	19.81	19.5
144 (U-NII-2C Band)	5720	14.95	14.57	15.12	14.89

802.11ax (HE20)

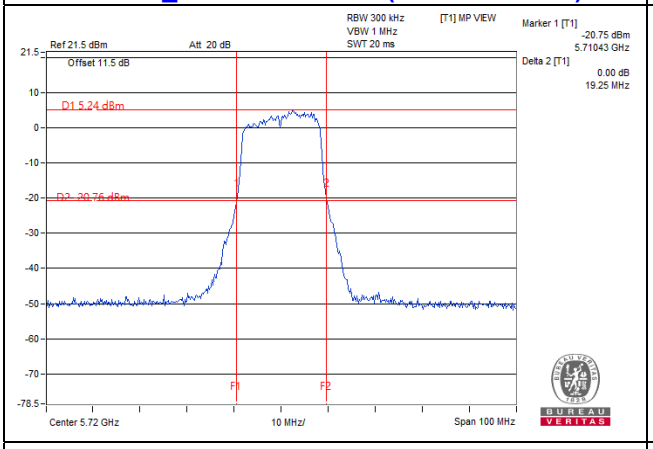
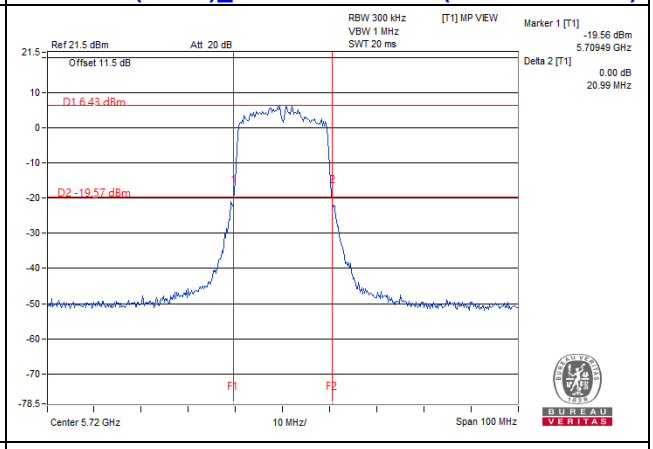
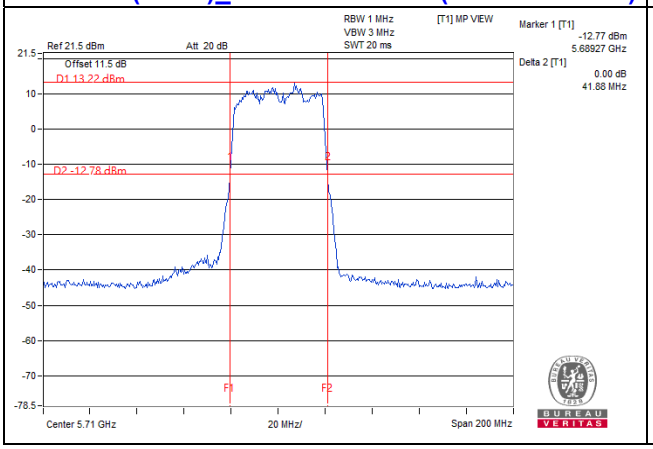
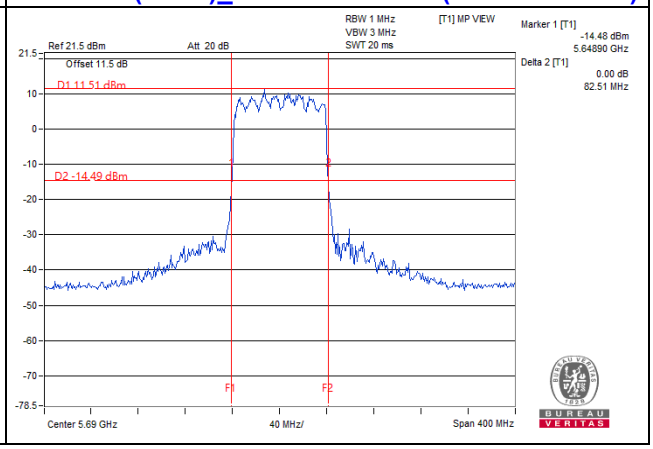
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	21.36	21.29	21.34	21.27
60	5300	21.21	21.59	21.27	21.37
64	5320	21.36	21.26	21.44	21.16
100	5500	21.29	21.77	21.02	21.38
116	5580	21.28	21.52	21.92	21.22
140	5700	21.15	21.58	21.88	21.28
144 (U-NII-2C Band)	5720	15.6	15.84	15.51	15.57

802.11ax (HE40)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	42.25	42.2	42.29	42.25
62	5310	42.36	42.33	42.06	42.42
102	5510	42.53	41.91	42.44	42.38
110	5550	42.26	41.96	42.4	42
134	5670	42.35	42.07	42.28	42.38
142 (U-NII-2C Band)	5710	36.05	35.73	35.97	36.27

802.11ax (HE80)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	82.95	83.02	83.74	82.7
106	5530	83.41	82.87	83.1	82.93
122	5610	82.97	83.03	83.67	83.06
138 (U-NII-2C Band)	5690	76.69	76.1	76.35	76.48

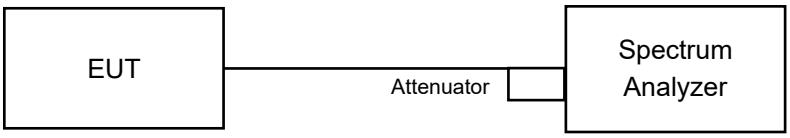
Spectrum Plot of Worst Value	
802.11a_Chain 1 / CH144 (U-NII-2C Band)	**802.11ax (HE20)_Chain 2 / CH144 (U-NII-2C Band)**
	
802.11ax (HE40)_Chain 1 / CH142 (U-NII-2C Band)	**802.11ax (HE80)_Chain 1 / CH138 (U-NII-2C Band)**
	

Note:

For CH144 (U-NII-2C) = 5725MHz - Marker 1
For CH142 (U-NII-2C) = 5725MHz - Marker 1
For CH138 (U-NII-2C) = 5725MHz - Marker 1

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Results

CDD Mode

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	16.44	16.44	16.44	16.44
60	5300	16.44	16.44	16.44	16.32
64	5320	16.32	16.44	16.44	16.56
100	5500	16.44	16.56	16.56	16.44
116	5580	16.44	16.32	16.2	16.44
140	5700	16.44	16.56	16.56	16.44
144 (U-NII-2C Band)	5720	13.28	13.16	13.4	13.28
144 (U-NII-3 Band)	5720	3.16	3.16	3.16	3.16

802.11ax (HE20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	18.84	18.96	19.08	19.08
60	5300	19.08	18.84	18.96	18.84
64	5320	19.08	18.84	18.84	18.84
100	5500	18.96	19.08	18.96	18.84
116	5580	18.96	19.08	19.08	18.84
140	5700	18.84	18.84	19.08	18.84
144 (U-NII-2C Band)	5720	14.48	14.6	14.48	14.48
144 (U-NII-3 Band)	5720	4.48	4.36	4.36	4.48

802.11ax (HE40)

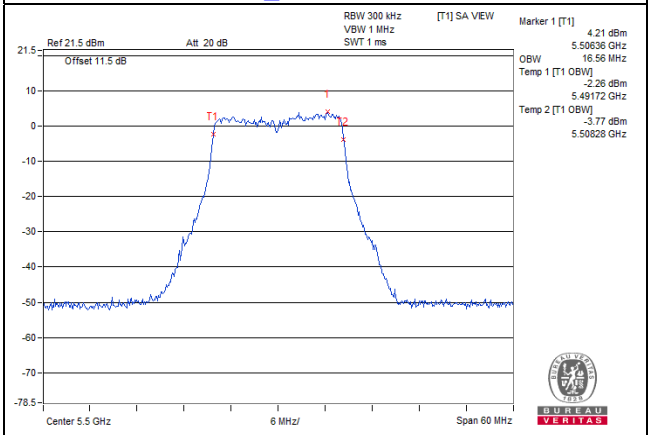
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	38.4	38.16	37.92	38.16
62	5310	38.16	37.92	38.16	38.16
102	5510	37.92	37.68	37.92	37.92
110	5550	38.16	37.92	38.16	38.16
134	5670	37.92	37.68	38.4	37.92
142 (U-NII-2C Band)	5710	33.96	33.96	34.2	33.96
142 (U-NII-3 Band)	5710	3.96	3.96	4.2	3.96

802.11ax (HE80)

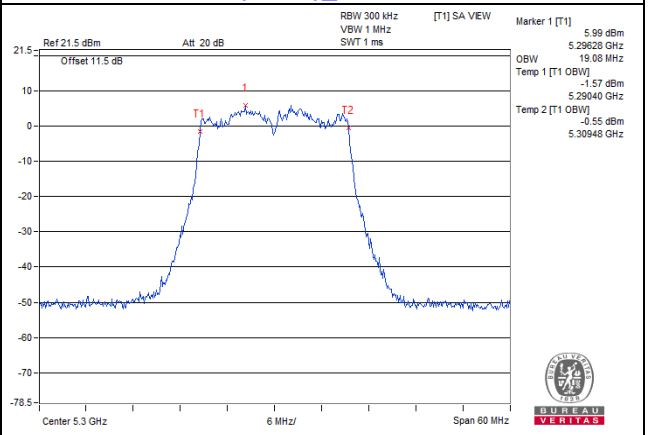
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	77.28	77.28	77.28	77.28
106	5530	77.28	76.8	77.76	77.76
122	5610	77.28	77.28	77.76	77.28
138 (U-NII-2C Band)	5690	73.88	73.4	73.88	73.88
138 (U-NII-3 Band)	5690	3.4	3.88	3.4	3.4

Spectrum Plot of Max. Value

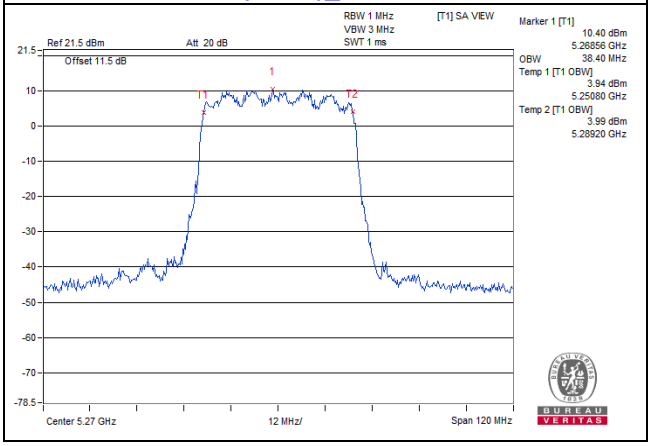
802.11a_Chain 1 / CH100



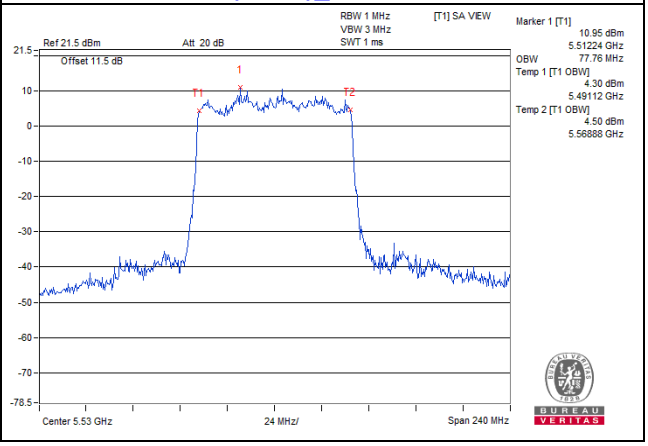
802.11ax (HE20)_Chain 0 / CH60



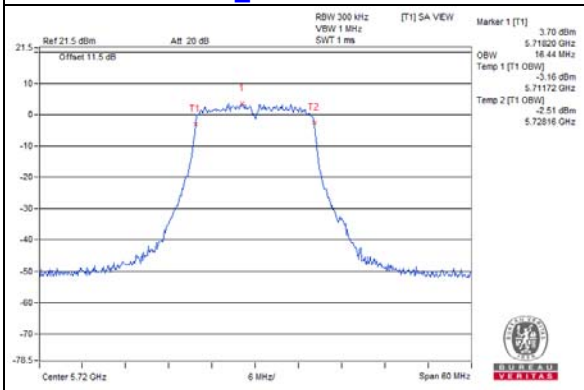
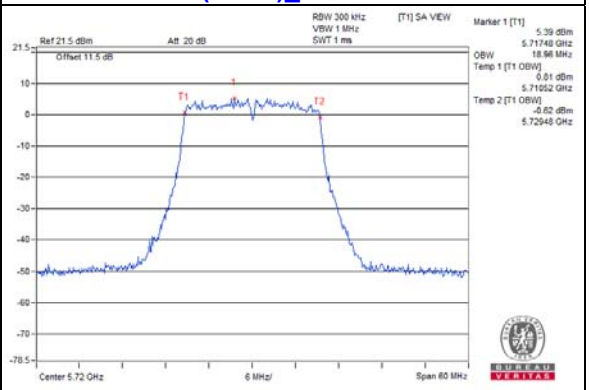
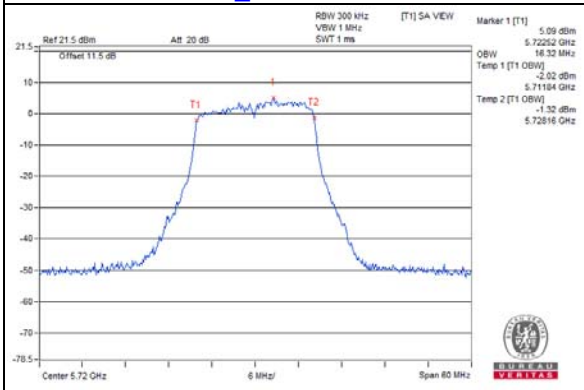
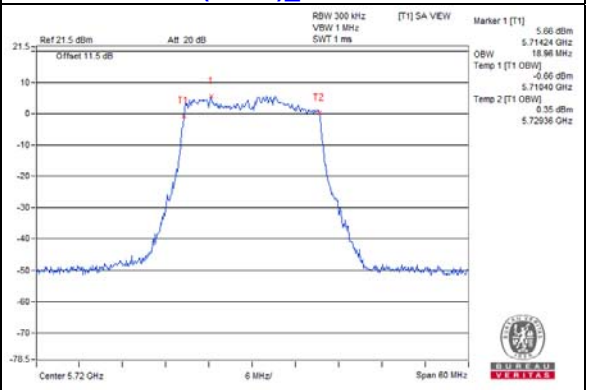
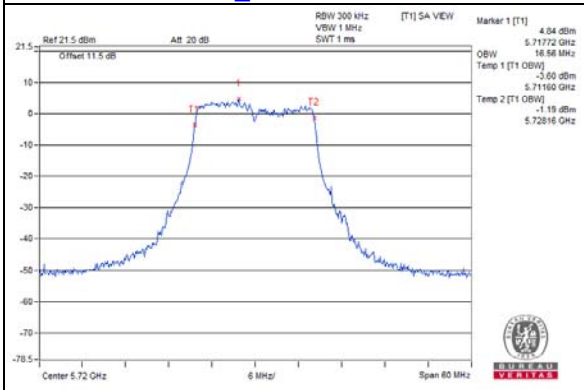
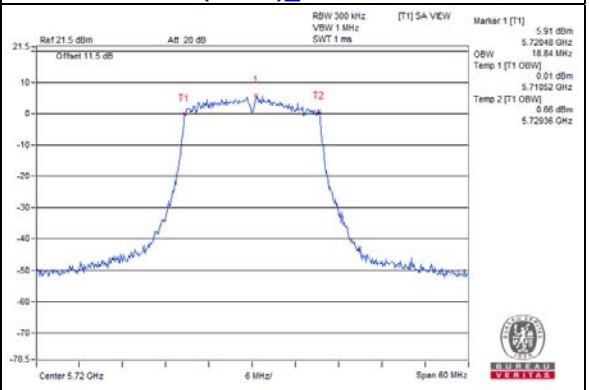
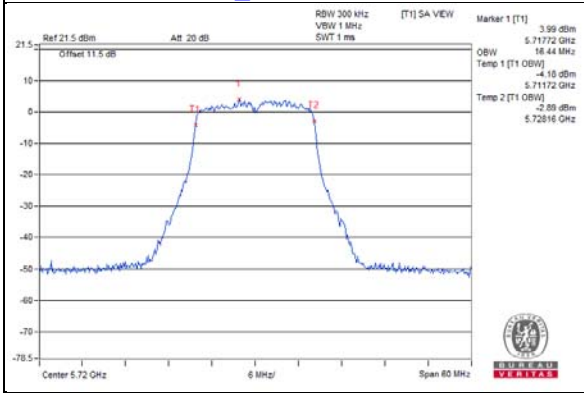
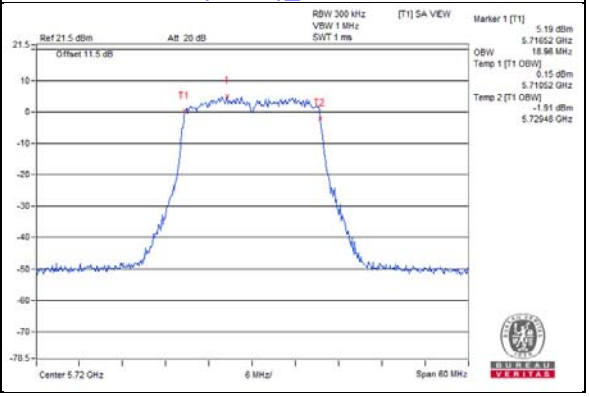
802.11ax (HE40)_Chain 0 / CH54



802.11ax (HE80)_Chain 2 / CH106



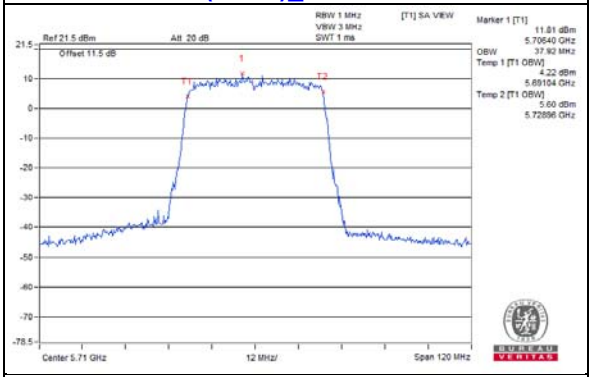
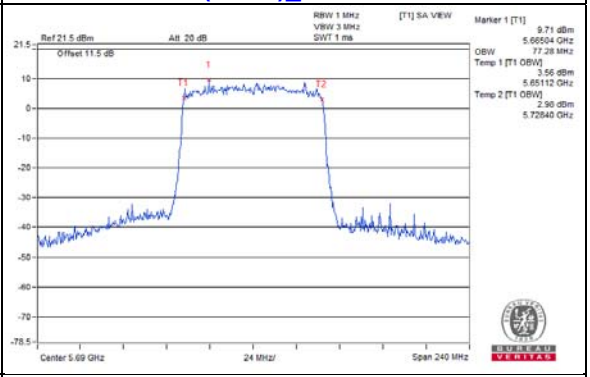
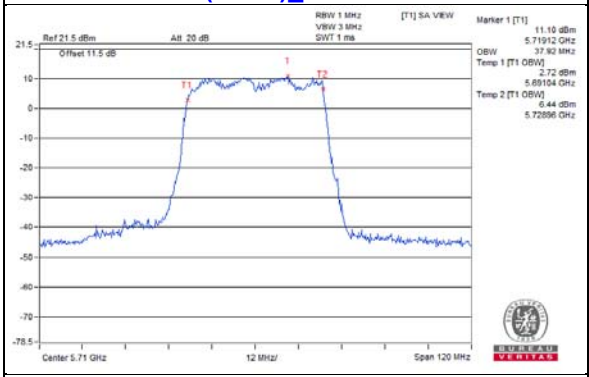
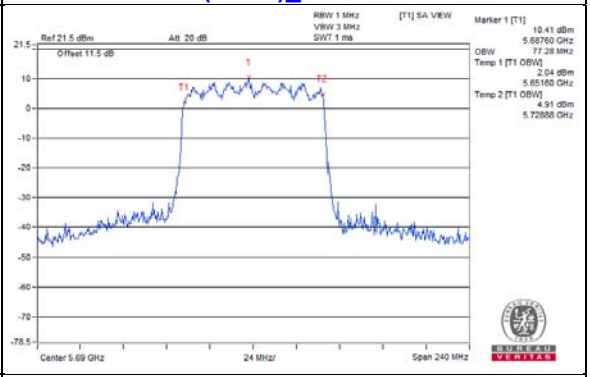
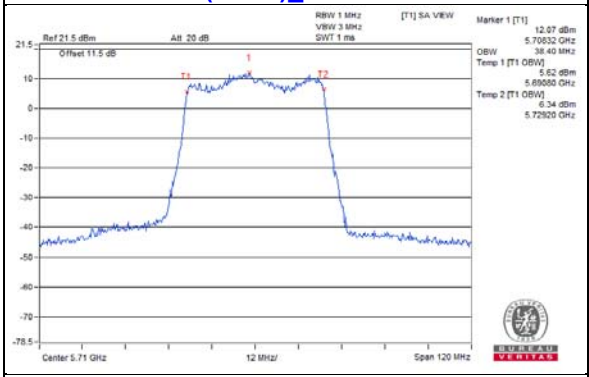
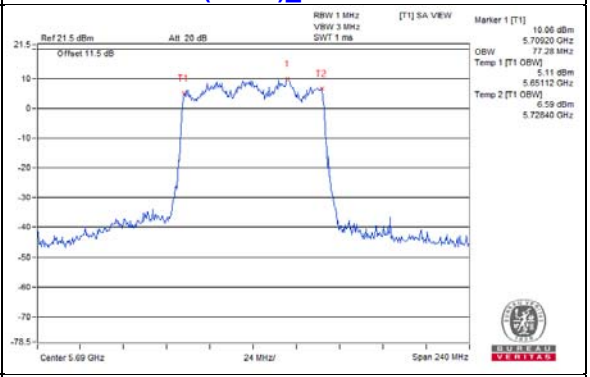
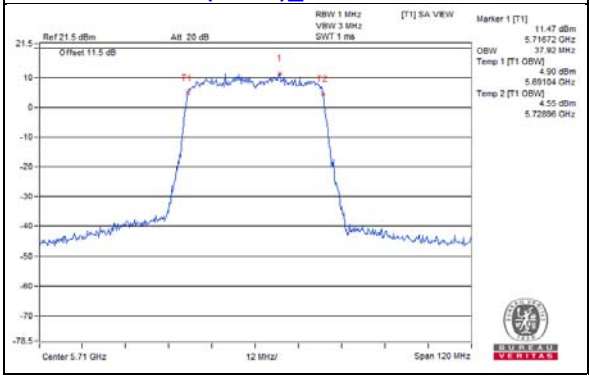
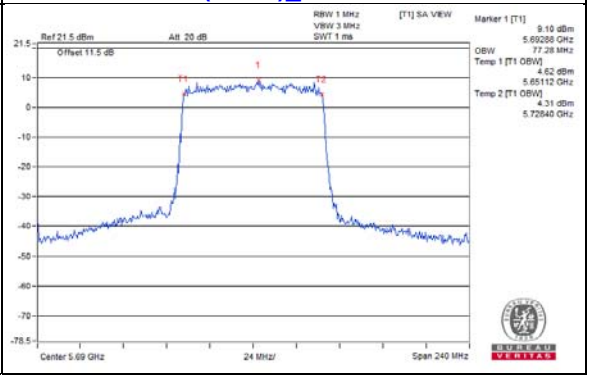
For channel straddling 5725MHz of OCP99% BW

Spectrum Plot Value of OCP99% BW	
802.11a_Chain 0 / CH144	**802.11ax (HE20)_Chain 0 / CH144**
	
802.11a_Chain 1 / CH144	**802.11ax (HE20)_Chain 1 / CH144**
	
802.11a_Chain 2 / CH144	**802.11ax (HE20)_Chain 2 / CH144**
	
802.11a_Chain 3 / CH144	**802.11ax (HE20)_Chain 3 / CH144**
	

Note:

For CH144 (U-NII-2C) = 5725MHz - Temp 1

For CH144 (U-NII-3) = Temp 2 - 5725MHz

Spectrum Plot Value of OCP99% BW	
802.11ax (HE40)_Chain 0 / CH142	**802.11ax (HE80)_Chain 0 / CH138**
	
802.11ax (HE40)_Chain 1 / CH142	**802.11ax (HE80)_Chain 1 / CH138**
	
802.11ax (HE40)_Chain 2 / CH142	**802.11ax (HE80)_Chain 2 / CH138**
	
802.11ax (HE40)_Chain 3 / CH142	**802.11ax (HE80)_Chain 3 / CH138**
	

Note:

For CH142 (U-NII-2C) = 5725MHz - Temp 1
For CH138 (U-NII-2C) = 5725MHz - Temp 1
For CH142 (U-NII-3) = Temp 2 - 5725MHz
For CH138 (U-NII-3) = Temp 2 - 5725MHz

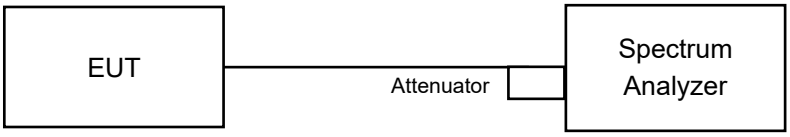
4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

Note: This device can support different category application which switched by access point mode and client mode by software.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

For U-NII-2A, U-NII-2C band:

Using method SA-2

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

For U-NII-3 band:

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6.

4.5.7 Test Results

For U-NII-2A, U-NII-2C band:

CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	-0.96	-3.03	-2.68	-3.58	0.23	3.81	6.23	Pass
60	5300	-2.18	-2.57	-3.33	-2.17	0.23	3.72	6.23	Pass
64	5320	-2.08	-2.87	-1.97	-3.56	0.23	3.68	6.23	Pass
100	5500	-1.84	-1.76	-1.22	-3.20	0.23	4.30	6.40	Pass
116	5580	-3.93	-2.26	-0.81	-1.14	0.23	4.38	6.40	Pass
140	5700	-3.21	-0.68	-0.08	-2.80	0.23	4.76	6.40	Pass
144 (U-NII-2C Band)	5720	-4.64	-0.42	-4.23	-0.89	0.23	4.11	6.40	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. For U-NII-2A: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.77 dBi > 6dBi, so the power density limit shall be reduced to 11-(10.77-6) = 6.23 dBm.
3. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6dBi, so the power density limit shall be reduced to 11-(10.6-6) = 6.40 dBm.
4. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	-3.31	-2.54	-4.91	-1.53	0.19	3.30	6.23	Pass
60	5300	-3.61	-4.94	-2.70	-1.95	0.19	3.05	6.23	Pass
64	5320	-1.35	-3.92	-3.99	-2.75	0.19	3.34	6.23	Pass
100	5500	-2.01	-0.64	-2.44	-1.69	0.20	4.57	6.40	Pass
116	5580	-4.07	-1.06	-5.38	-1.46	0.20	3.58	6.40	Pass
140	5700	-3.47	-1.81	-2.49	-2.54	0.20	3.68	6.40	Pass
144 (U-NII-2C Band)	5720	-2.21	-2.26	-2.36	-2.98	0.20	3.78	6.40	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. For U-NII-2A: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.77 dBi > 6dBi, so the power density limit shall be reduced to 11-(10.77-6) = 6.23 dBm.
3. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6dBi, so the power density limit shall be reduced to 11-(10.6-6) = 6.40 dBm.
4. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

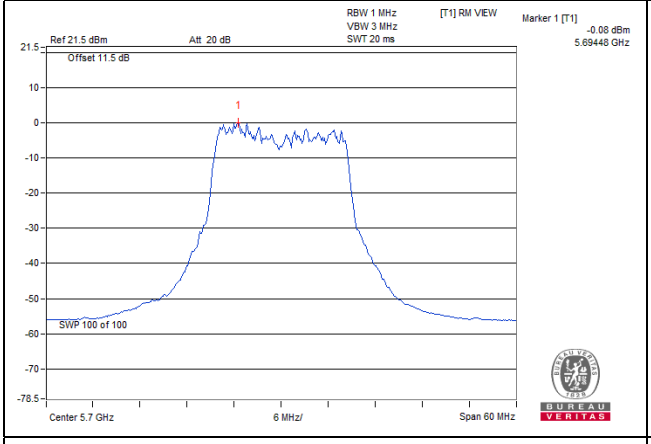
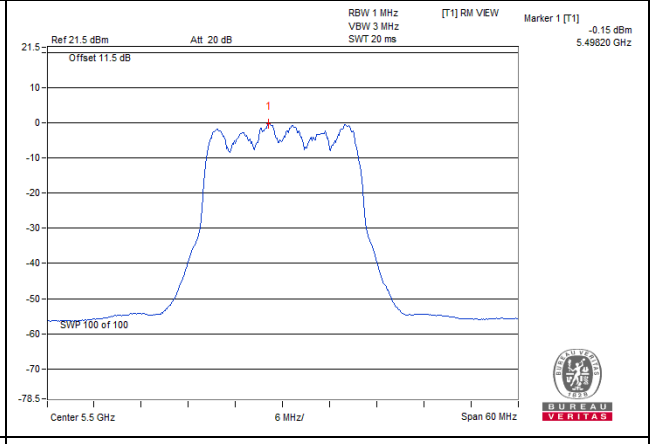
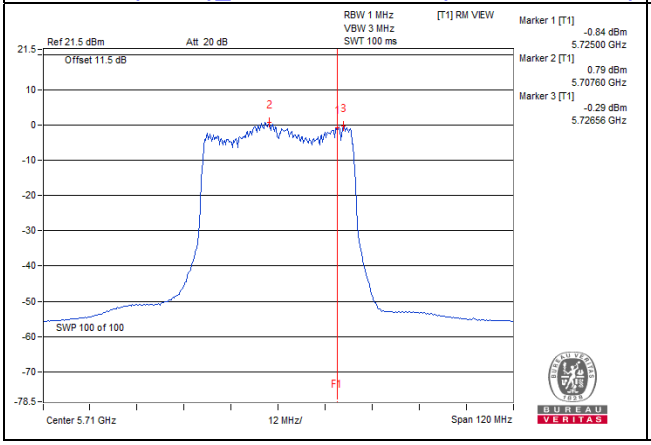
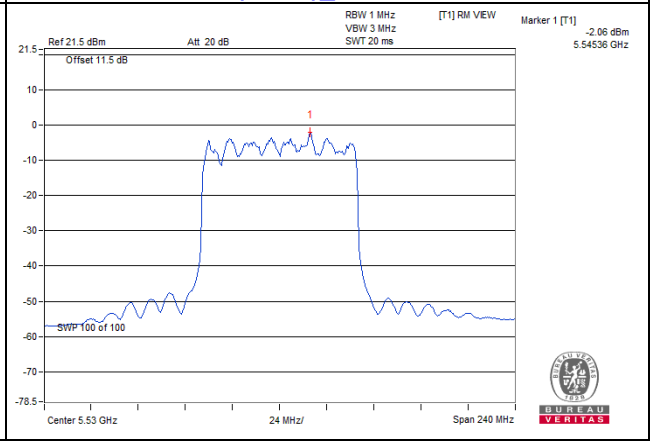
Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	-1.66	-2.18	-2.22	-3.14	0.21	3.97	6.23	Pass
62	5310	-4.30	-3.59	-2.67	-1.88	0.21	3.22	6.23	Pass
102	5510	-2.91	-1.89	-1.83	-2.94	0.20	3.86	6.40	Pass
110	5550	-4.65	-3.84	-0.98	-0.93	0.20	3.93	6.40	Pass
134	5670	-4.55	-1.73	-0.49	-3.31	0.20	3.97	6.40	Pass
142 (U-NII-2C Band)	5710	-1.87	-0.28	0.71	-1.86	0.20	5.53	6.40	Pass

Note:
1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. For U-NII-2A: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.77 dBi > 6dBi, so the power density limit shall be reduced to 11-(10.77-6) = 6.23 dBm.
3. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6dBi, so the power density limit shall be reduced to 11-(10.6-6) = 6.40 dBm.
4. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	-3.07	-4.66	-4.23	-3.75	0.27	2.40	6.23	Pass
106	5530	-6.41	-2.06	-4.71	-2.89	0.21	2.52	6.40	Pass
122	5610	-3.49	-2.24	-2.24	-3.41	0.21	3.43	6.40	Pass
138 (U-NII-2C Band)	5690	-4.98	-3.06	-2.87	-5.83	0.21	2.22	6.40	Pass

Note:
1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. For U-NII-2A: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.77 dBi > 6dBi, so the power density limit shall be reduced to 11-(10.77-6) = 6.23 dBm.
3. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6dBi, so the power density limit shall be reduced to 11-(10.6-6) = 6.40 dBm.
4. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a_Chain 2 / CH140	**802.11ax (HE20)_Chain 1 / CH100**
	
802.11ax (HE40)_Chain 2 / CH142 (U-NII-2C Band)	**802.11ax (HE80)_Chain 1 / CH106**
	

For U-NII-3 band:

CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)				Duty Factor (dB)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3					
144 (U-NII-3 Band)	5720	-11.10	-8.87	-11.30	-11.31	0.23	-4.26	-2.04	25.40	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6dBi, so the power density limit shall be reduced to 30-(10.6-6) = 25.4 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)				Duty Factor (dB)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3					
144 (U-NII-3 Band)	5720	-10.81	-12.29	-13.36	-11.00	0.20	-5.53	-3.31	25.40	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6dBi, so the power density limit shall be reduced to 30-(10.6-6) = 25.4 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)				Duty Factor (dB)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3					
142 (U-NII-3 Band)	5710	-11.60	-10.61	-9.90	-11.02	0.20	-4.52	-2.30	25.40	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.6 dBi > 6dBi, so the power density limit shall be reduced to 30-(10.6-6) = 25.4 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)				Duty Factor (dB)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3					
138 (U-NII-3 Band)	5690	-14.82	-13.36	-12.19	-15.87	0.21	-7.61	-5.39	25.40	Pass

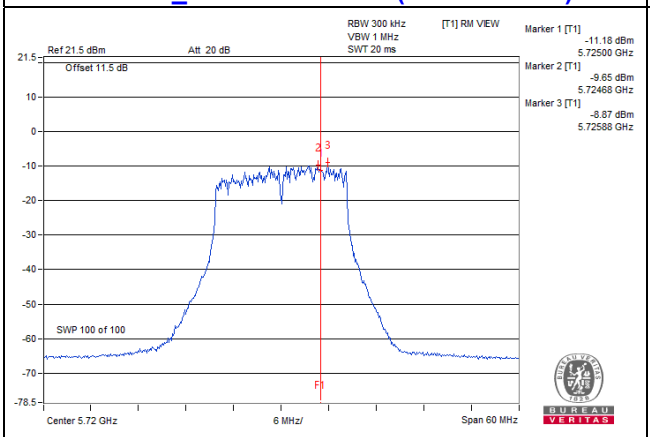
Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.

2. The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$+ $10^{G2/20}$+ $10^{G3/20}$)^2 / 4] = 10.6 dBi > 6dBi, so the power density limit shall be reduced to 30-(10.6-6) = 25.4 dBm.

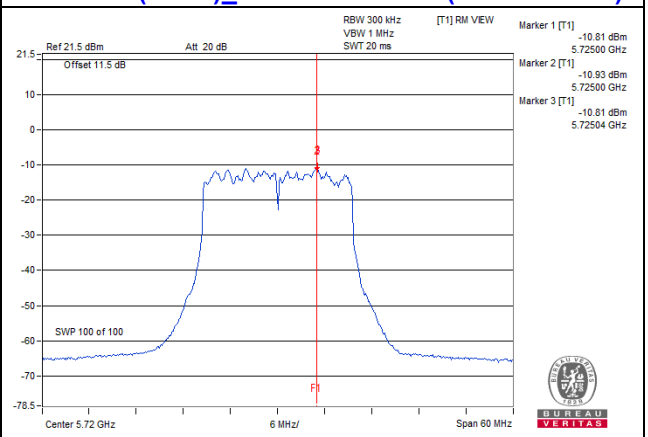
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

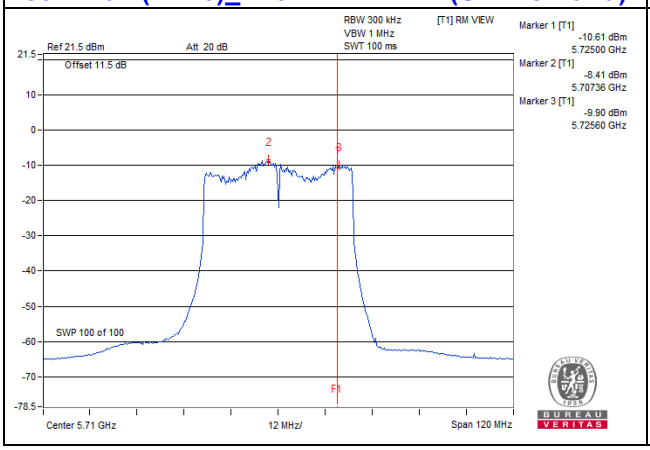
802.11a_Chain 1 / CH144 (U-NII-3 Band)



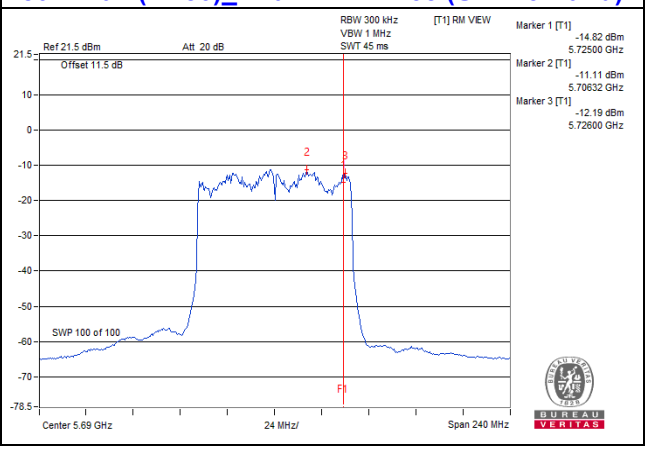
802.11ax (HE20)_Chain 0 / CH144 (U-NII-3 Band)



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



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

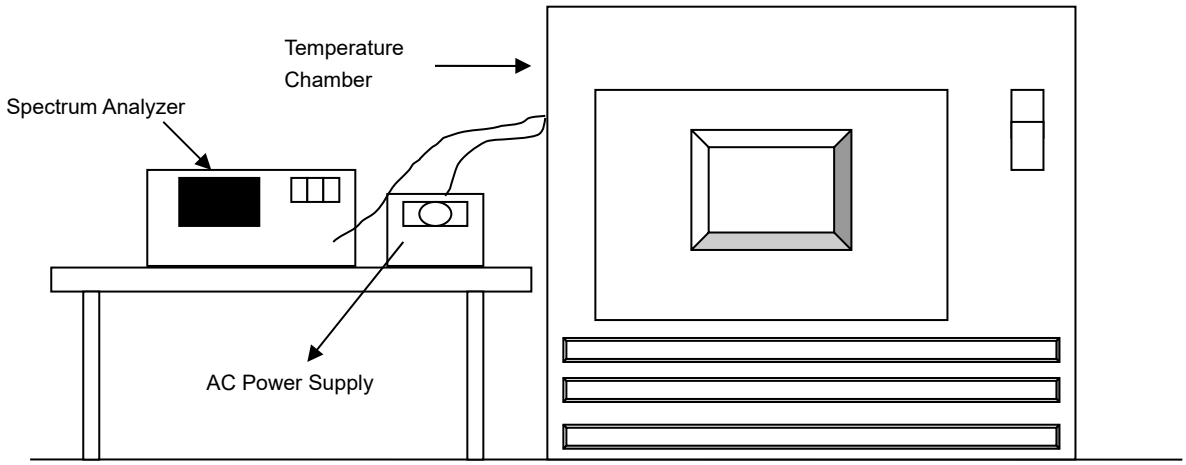


4.6 Frequency Stability Measurement

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5260 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
45	120	5259.9845	Pass	5259.9829	Pass	5259.9824	Pass	5259.9828	Pass
40	120	5260.0149	Pass	5260.0122	Pass	5260.0147	Pass	5260.0135	Pass
30	120	5260.0169	Pass	5260.0196	Pass	5260.0191	Pass	5260.0152	Pass
20	120	5260.009	Pass	5260.0086	Pass	5260.0103	Pass	5260.0115	Pass
10	120	5260.0218	Pass	5260.0218	Pass	5260.0193	Pass	5260.0221	Pass
0	120	5260.0167	Pass	5260.0172	Pass	5260.0173	Pass	5260.017	Pass

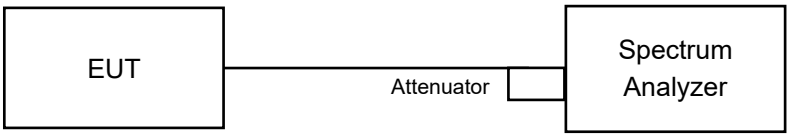
Frequency Stability Versus Voltage									
Operating Frequency: 5260 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5260.0093	Pass	5260.0095	Pass	5260.0098	Pass	5260.012	Pass
	120	5260.009	Pass	5260.0086	Pass	5260.0103	Pass	5260.0115	Pass
	102	5260.0084	Pass	5260.0088	Pass	5260.0104	Pass	5260.0123	Pass

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
144 (U-NII-3 Band)	5720	2.88	3.15	3.16	2.9	0.5	Pass

802.11ax (HE20)

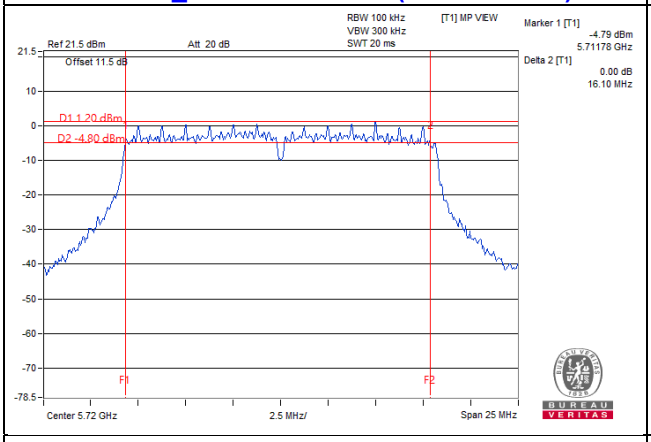
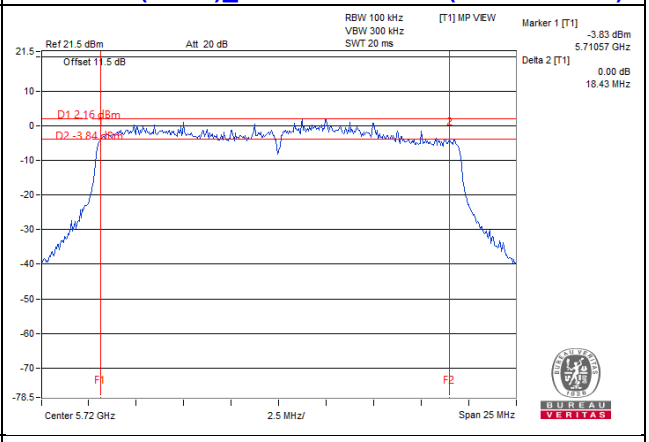
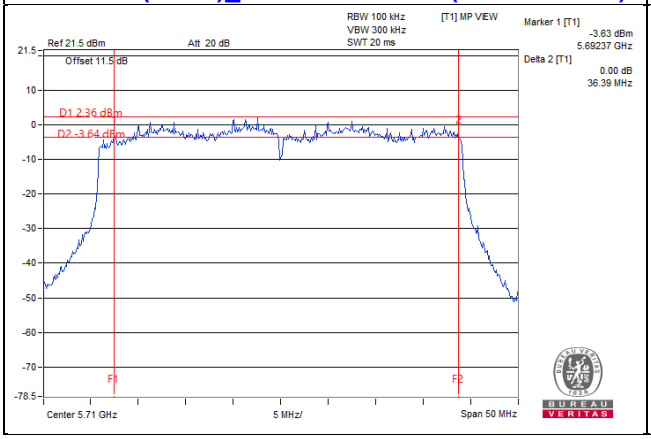
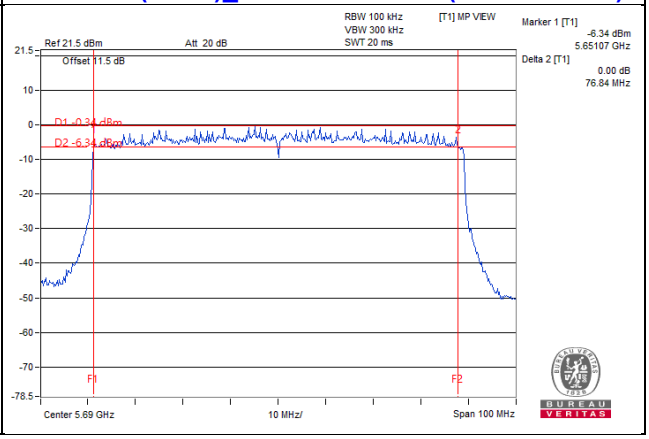
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
144 (U-NII-3 Band)	5720	4.32	4	4.11	4.4	0.5	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
142 (U-NII-3 Band)	5710	4.01	3.76	3.95	3.97	0.5	Pass

802.11ax (HE80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
138 (U-NII-3 Band)	5690	2.91	3.63	4.01	3.5	0.5	Pass

Spectrum Plot of Worst Value	
802.11a_Chain 0 / CH144 (U-NII-3 Band)	**802.11ax (HE20)_Chain 1 / CH144 (U-NII-3 Band)**
	
802.11ax (HE40)_Chain 1 / CH142 (U-NII-3 Band)	**802.11ax (HE80)_Chain 0 / CH138 (U-NII-3 Band)**
	

Note: The 6dB bandwidth above 5725MHz = Marker 1 + Delta 2 - 5725MHz

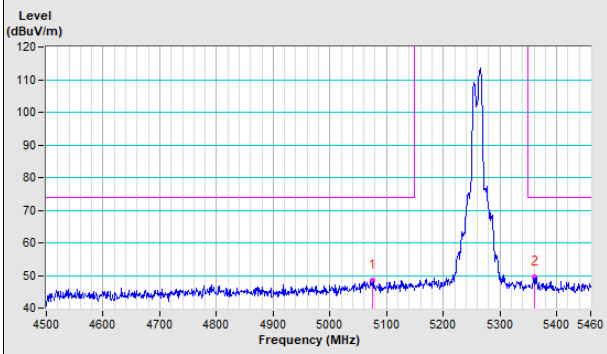
5 Pictures of Test Arrangements

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

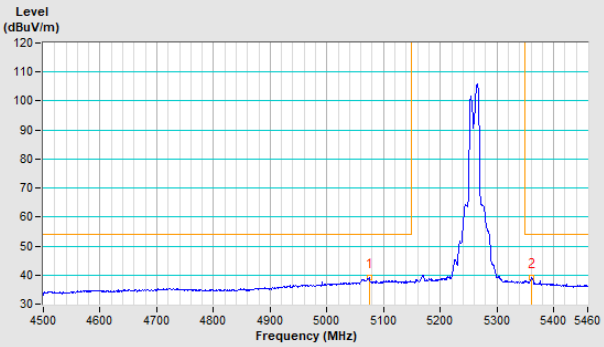
Annex A - Band-Edge Measurement (For U-NII-2A, U-NII-2C band)

802.11a Channel 52

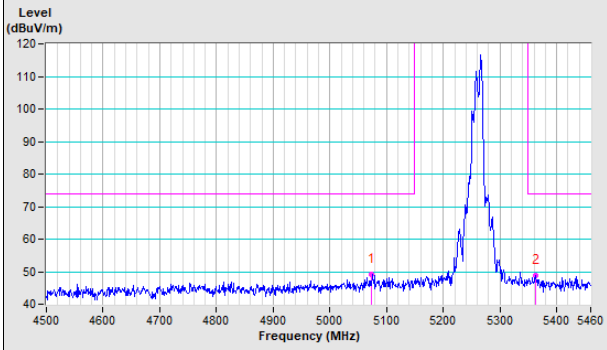
Horizontal (Peak)



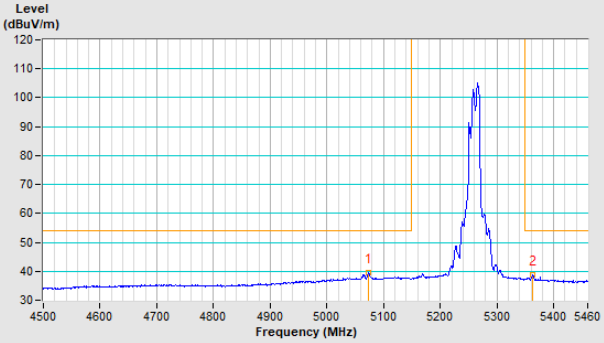
Horizontal (Average)



Vertical (Peak)

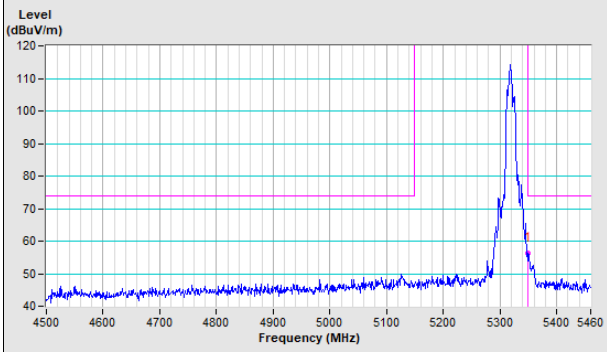


Vertical (Average)

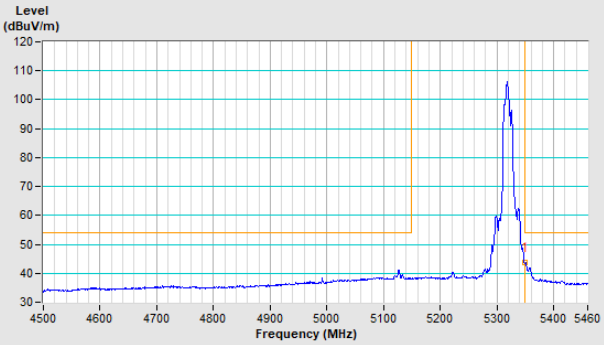


802.11a Channel 64

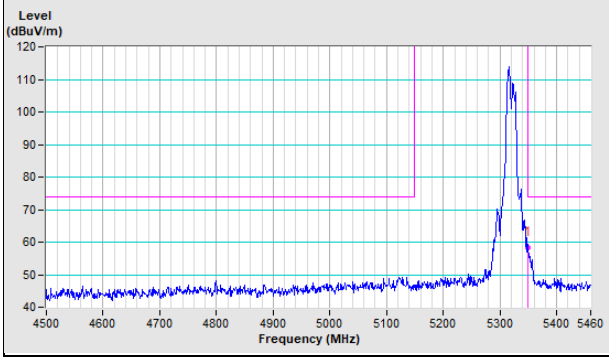
Horizontal (Peak)



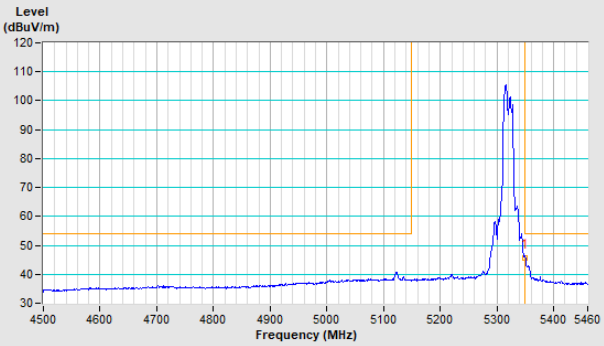
Horizontal (Average)

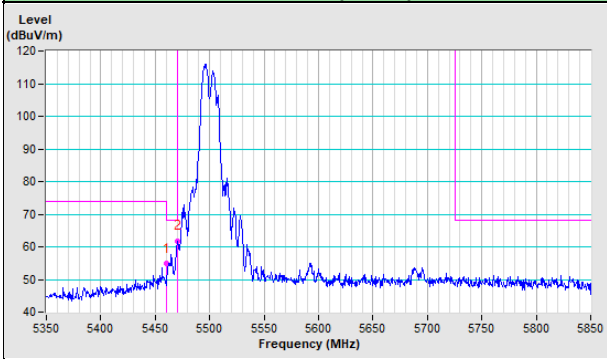
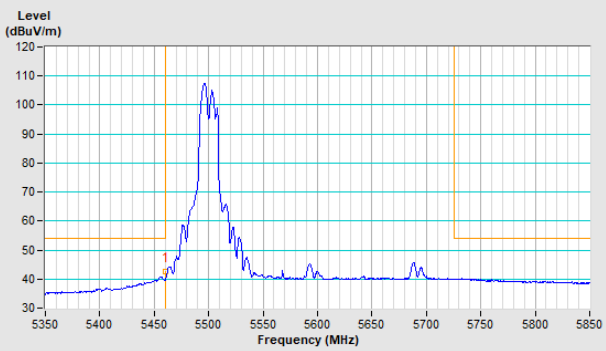
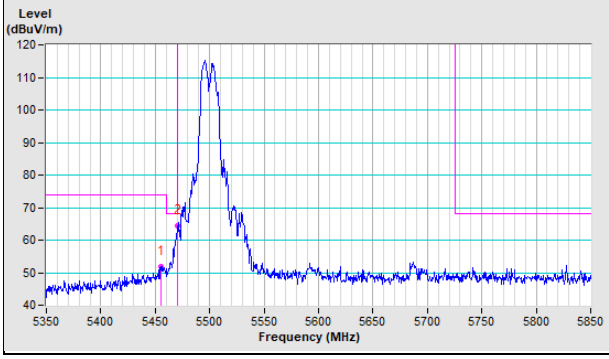
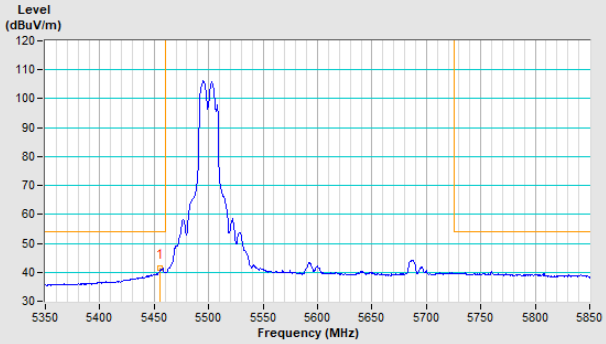


Vertical (Peak)



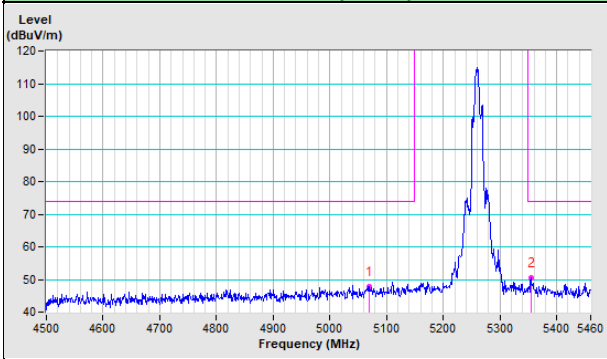
Vertical (Average)



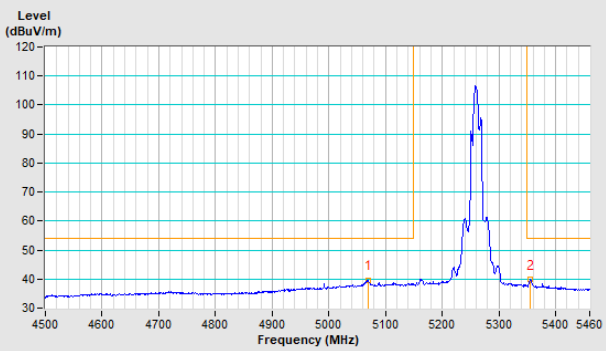
802.11a Channel 100	
Horizontal (Peak)	**Horizontal (Average)**
	
Vertical (Peak)	**Vertical (Average)**
	

802.11ax (HE20) Channel 52

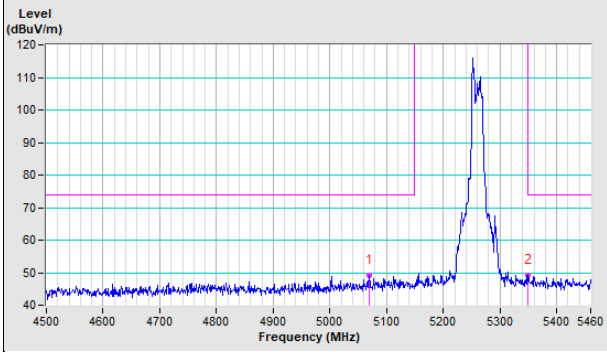
Horizontal (Peak)



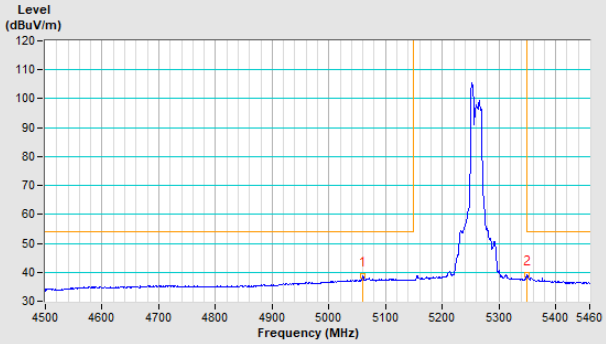
Horizontal (Average)



Vertical (Peak)

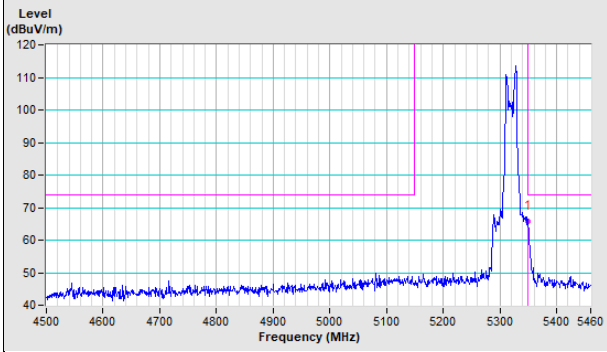


Vertical (Average)

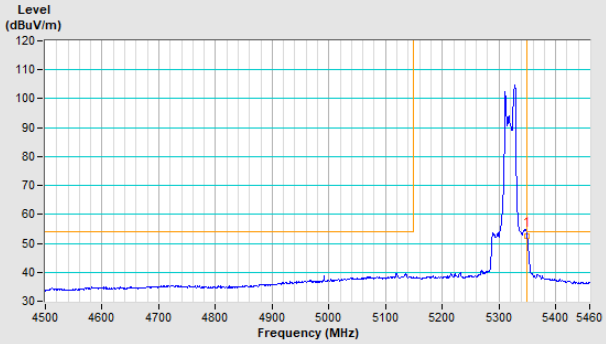


802.11ax (HE20) Channel 64

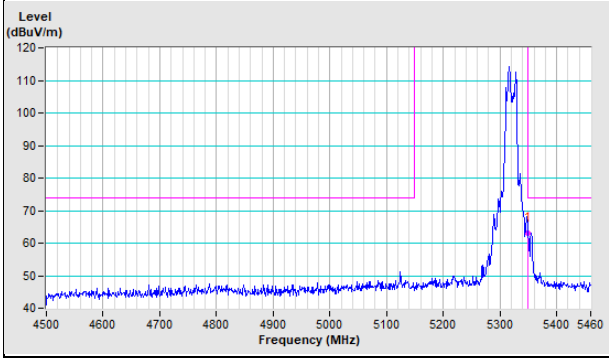
Horizontal (Peak)



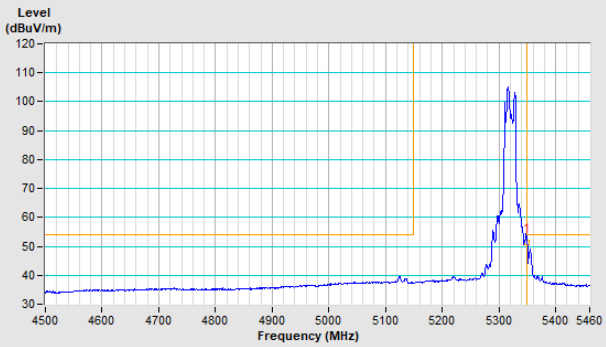
Horizontal (Average)

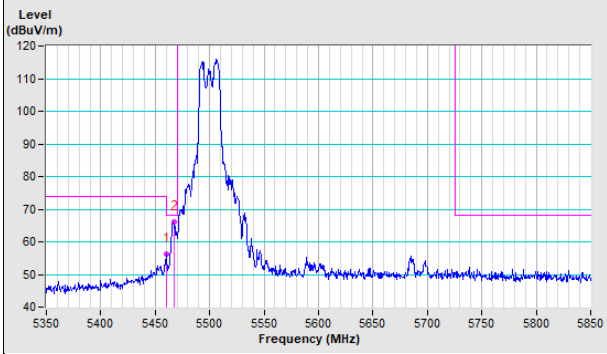
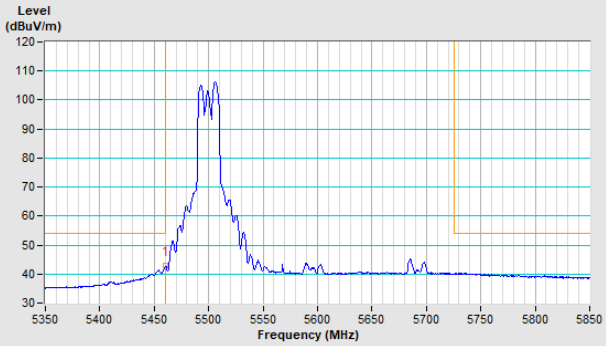
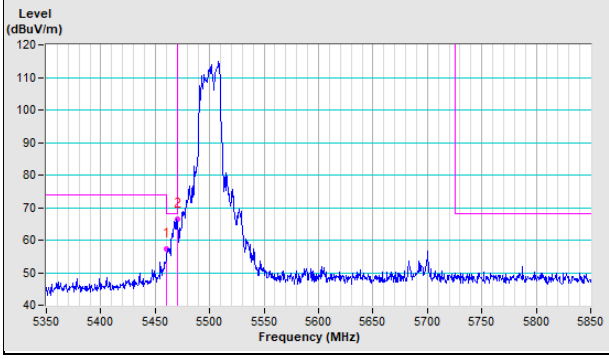
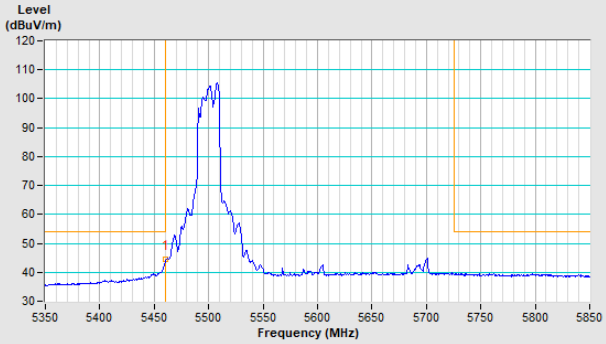


Vertical (Peak)



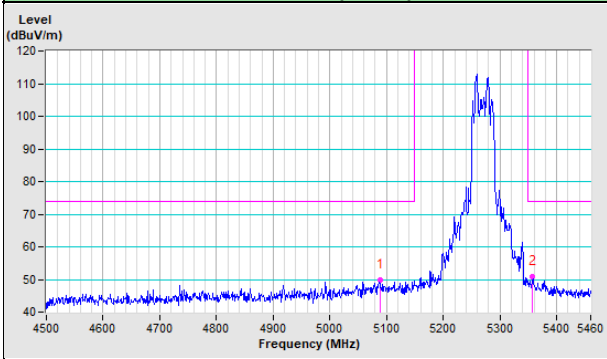
Vertical (Average)



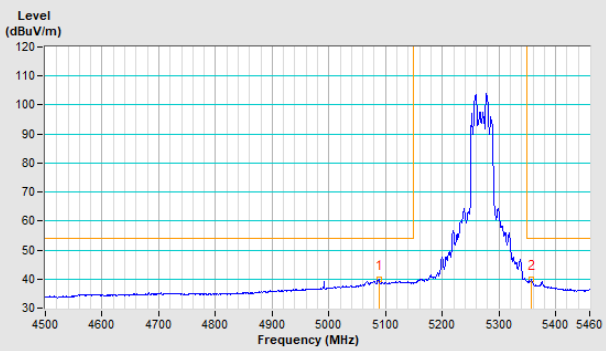
802.11ax (HE20) Channel 100	
Horizontal (Peak)	**Horizontal (Average)**
	
Vertical (Peak)	**Vertical (Average)**
	

802.11ax (HE40) Channel 54

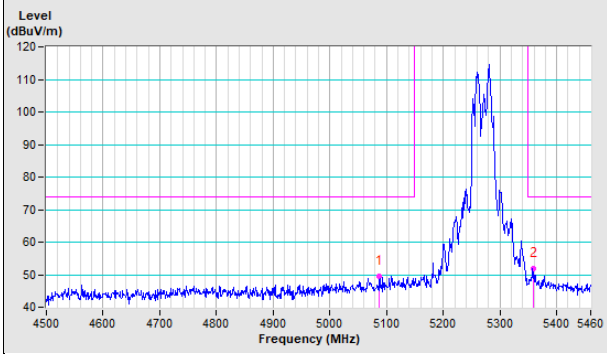
Horizontal (Peak)



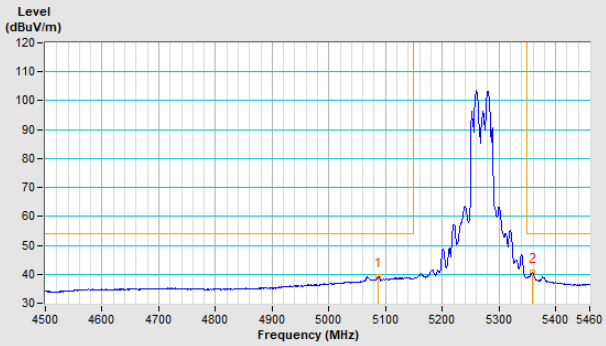
Horizontal (Average)



Vertical (Peak)

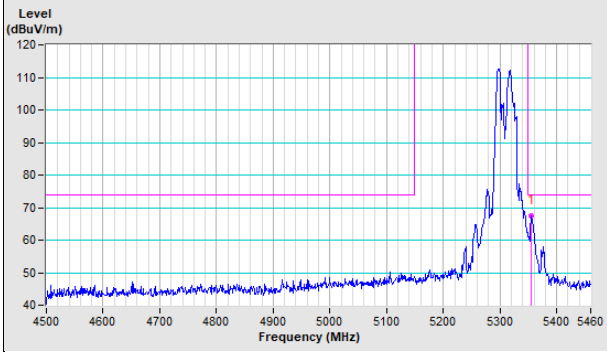


Vertical (Average)

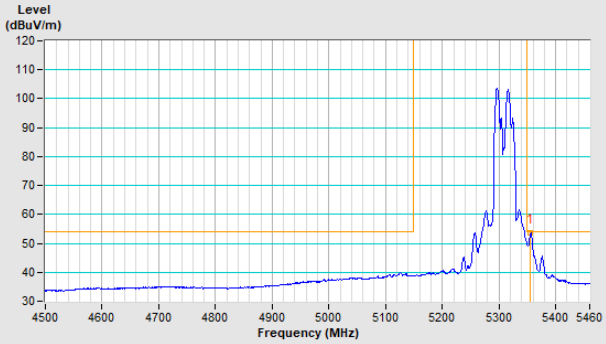


802.11ax (HE40) Channel 62

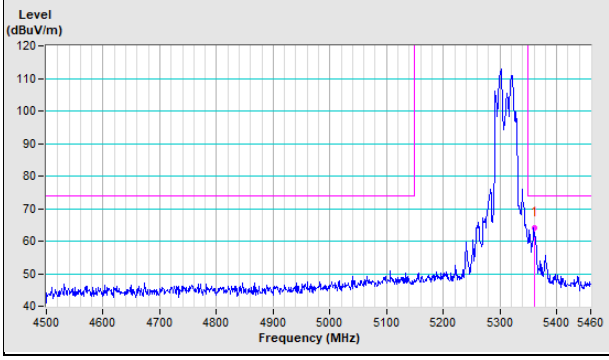
Horizontal (Peak)



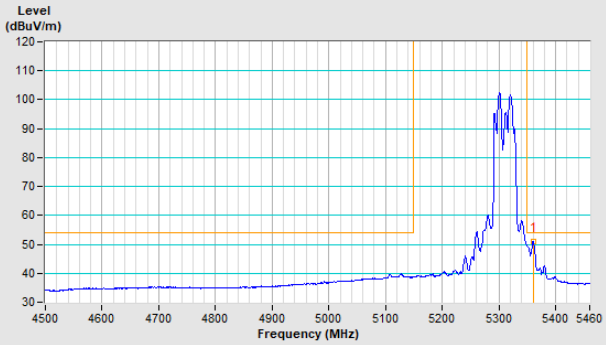
Horizontal (Average)

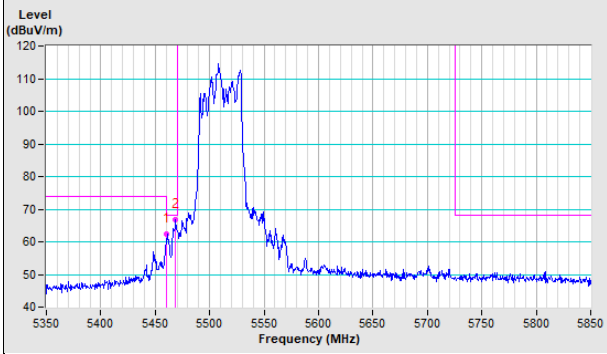
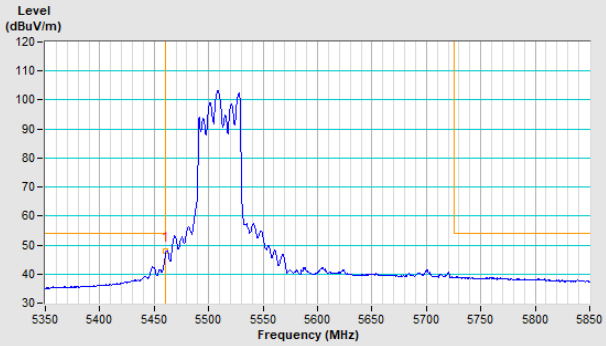
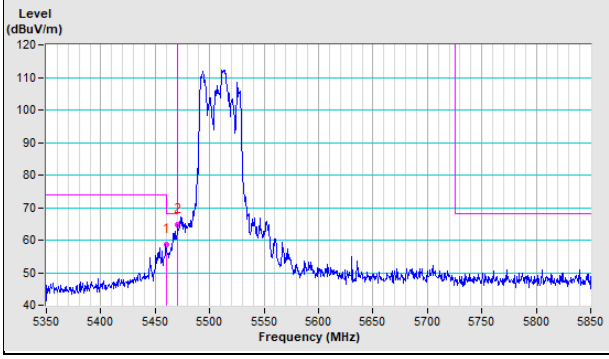
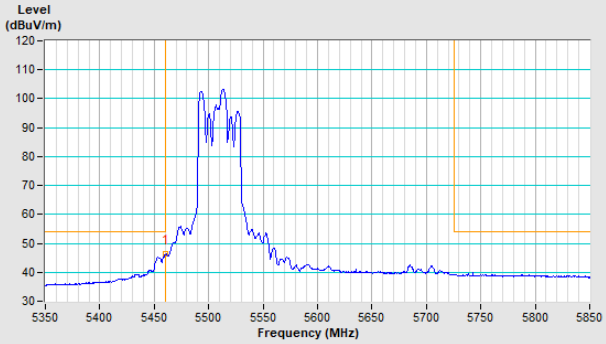


Vertical (Peak)



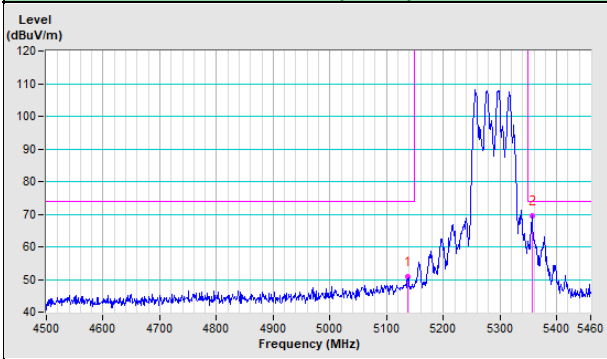
Vertical (Average)



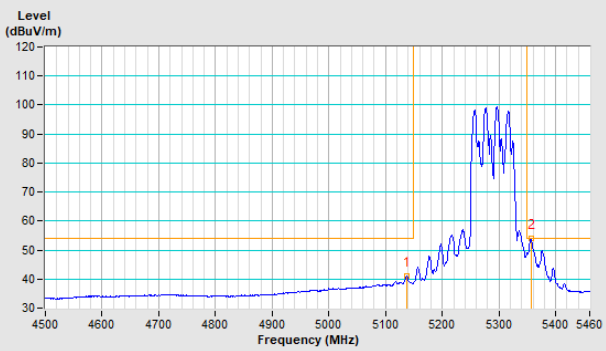
802.11ax (HE40) Channel 102	
Horizontal (Peak)	**Horizontal (Average)**
	
Vertical (Peak)	**Vertical (Average)**
	

802.11ax (HE80) Channel 58

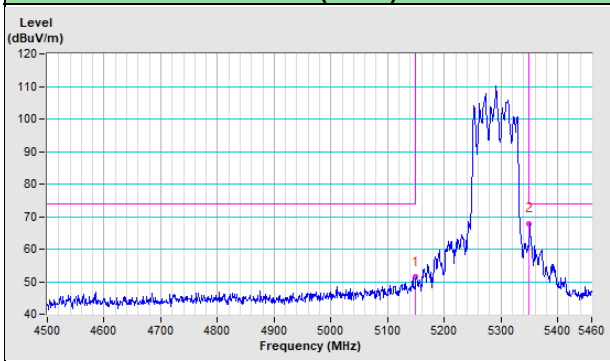
Horizontal (Peak)



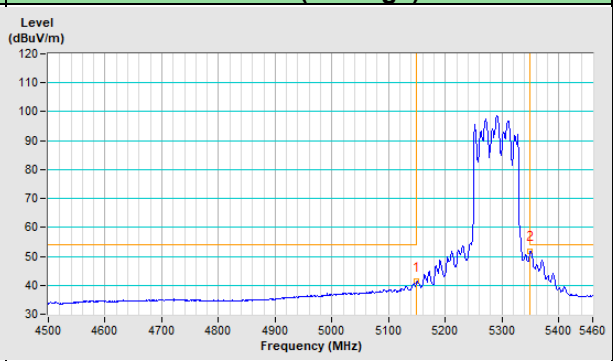
Horizontal (Average)



Vertical (Peak)

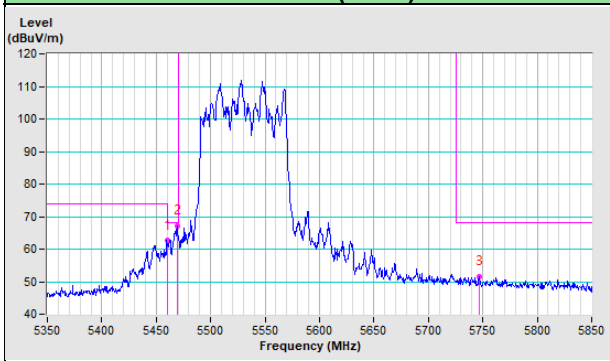


Vertical (Average)

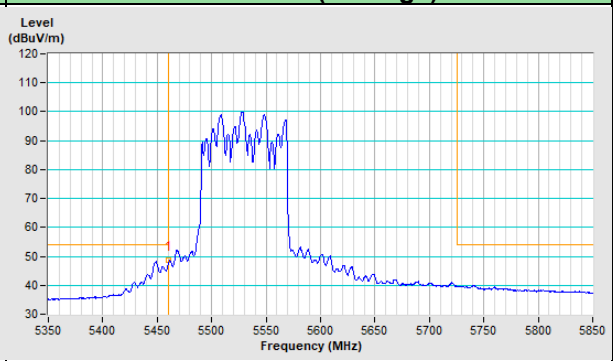


802.11ax (HE80) Channel 106

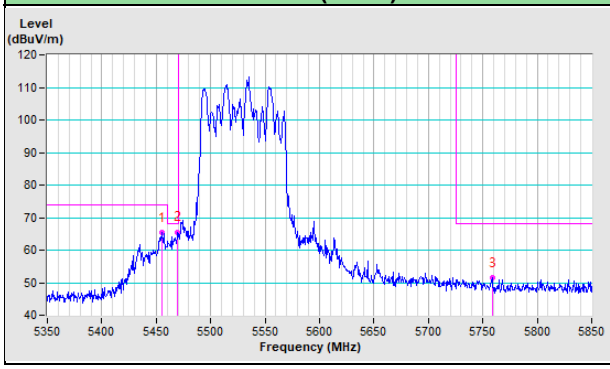
Horizontal (Peak)



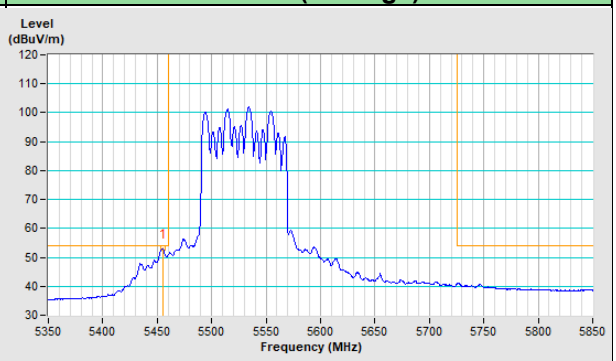
Horizontal (Average)



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

Hwa Ya EMC/RF/Safety Lab
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.

--- END ---