FCC Test Report (DFS Band)

Report No.:	RFBAOZ-WTW-P20080586-1
FCC ID:	WT8DNWAP840
Test Model:	AP840
Received Date:	Aug. 12, 2020
Test Date:	Aug. 21 to Sep. 22, 2020
Issued Date:	Aug. 11, 2021
Applicant:	Datto, Inc.
Address:	101 Merritt 7, Norwalk, CT 06851 USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
RFBAOZ-WTW-P20080586-1	Original release.	Aug. 11, 2021

1 Certificate of Conformity

Product:	WiFi6 indoor Access Point
Brand:	datto
Test Model:	AP840
Sample Status:	Engineering Sample
Applicant:	Datto, Inc.
Test Date:	Aug. 21 to Sep. 22, 2020
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:** Aug. 11, 2021

Claire Kuan / Specialist

Approved by : _____ , **Date:** Aug. 11, 2021

Clark Lin / Technical Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -6.56 dB at 7.83754 MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement*	Pass	Meet the requirement of limit. Minimum passing margin is -0.1 dB at 5467.20MHz and 5725.00 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(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 and 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	5.4 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.3 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (DFS Band)

Product	WiFi6 indoor Access Point
Brand	datto
Test Model	AP840
Status of EUT	Engineering Sample
Power Supply Rating	48-57 Vdc / 0.5 A from POE 48Vdc / 0.625 A from adapter
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode 1024QAM for OFDMA in 11ax HE mode
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	802.11a: up to 54 Mbps 802.11n: up to 600 Mbps 802.11ac: up to 1733.3 Mbps 802.11ax: up to 2402 Mbps
Operating Frequency	5.26 ~ 5.32 GHz, 5.5 ~ 5.58 GHz & 5.66 ~ 5.72 GHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 13 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 6 802.11ac (VHT80), 802.11ax (HE80): 3
Output Power	**CDD Mode:** **5.26 ~ 5.32 GHz:** 200.584 mW **5.5 ~ 5.58 GHz & 5.66 ~ 5.72 GHz:** 203.697 mW **Beamforming Mode:** **5.26 ~ 5.32 GHz:** 72.851 mW **5.5 ~ 5.58 GHz & 5.66 ~ 5.72 GHz:** 73.642 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. This report is prepared for FCC class II change. The difference compared with the Report No.: RFBAOZ-WTW-P20080227-1 as the following:
   - ◆ Add DFS band <5250~5350 MHz & 5470~5725 MHz> by software.
2. According to above conditions, for DFS band all of test items need to be performed and all data was verified to meet the requirements.
3. The EUT has below radios as following table:

Radio 1	Radio 2	Radio 3	Radio 4
WLAN 2.4GHz	WLAN 5GHz	Bluetooth	2.4GHz /5GHz Background Scanning (RX only)

4. Simultaneously transmission condition.

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

5. The antenna provided to the EUT, please refer to the following table:

Antenna No.	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	Cable Length (mm)
1	290-20458	3.97	2.4~2.4835	PIFA	i-pex(MHF)	210
2	290-20458	3.4	2.4~2.4835	PIFA	i-pex(MHF)	45
3	290-20458	3.79	2.4~2.4835	PIFA	i-pex(MHF)	130
4	290-20458	3.01	2.4~2.4835	PIFA	i-pex(MHF)	225
5	290-20458	5.22	5.15~5.85	PIFA	i-pex(MHF)	250
6	290-20458	5.71	5.15~5.85	PIFA	i-pex(MHF)	150
7	290-20458	5.45	5.15~5.85	PIFA	i-pex(MHF)	60
8	290-20458	4.69	5.15~5.85	PIFA	i-pex(MHF)	200
9 (Background Ant._ Rx Only)	290-20458	6.45 4.5	2.4~2.4835 5.15~5.85	PIFA	i-pex(MHF)	140
10 (BT Ant.)	-	3.2	2.4~2.4835	PCB	i-pex(MHF)	None

6. The EUT was pre-tested under the following modes:

Test Mode	Description
Mode A	With adapter mode
Mode B	With POE mode
Note: From the above modes, radiated emission the worst case was found in **Mode A**. Therefore only the test data of the mode was recorded in this report.	

7. 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), VHT mode for 20MHz (40MHz) and 802.11ax mode for 20MHz (40MHz), therefore the manufacturer will control the power for 802.11n/ VHT 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)

8. 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.

9. 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 ~ 5580MHz & 5660 ~ 5720MHz

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

Channel	Frequency	Channel	Frequency
100	5500 MHz	132	5660 MHz
104	5520 MHz	136	5680 MHz
108	5540 MHz	140	5700 MHz
112	5560 MHz	144	5720 MHz
116	5580 MHz		

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

Channel	Frequency	Channel	Frequency
102	5510 MHz	134	5670 MHz
110	5550 MHz	142	5710 MHz

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

Channel	Frequency	Channel	Frequency
106	5530 MHz	138	5690 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	5500-5580 & 5660-5720	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, 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						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate Parameter
802.11ax (HE80)	5260-5320, 5500-5580 & 5660-5720	58, 106 to 138	106	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						
Mode	**FREQ. Band (MHz)**	**Available Channel**	**Tested Channel**	**Modulation Technology**	**Modulation Type**	**Data Rate Parameter**
802.11ax (HE80)	5260-5320, 5500-5580 & 5660-5720	58, 106 to 138	106	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	5500-5580 & 5660-5720	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, 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, 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)	5500-5580 & 5660-5720	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, 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, 138	OFDMA	BPSK	MCS0

Test Condition:

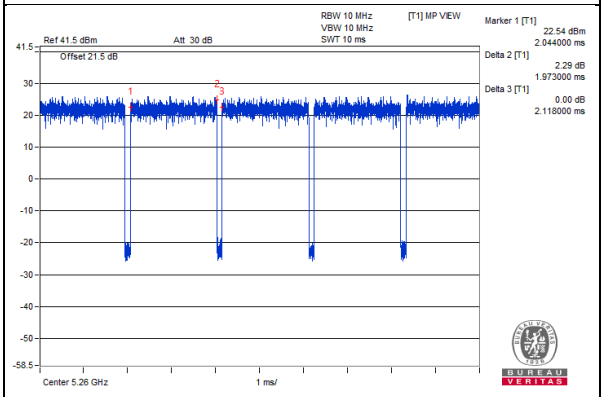
Applicable To	Environmental Conditions	Input Power	Tested By
RE≥1G	25deg. C, 74%RH	120Vac, 60Hz	Eric Peng
RE<1G	25deg. C, 64%RH	120Vac, 60Hz	Eric Peng
PLC	25deg. C, 67%RH	120Vac, 60Hz	Sampson Chen
APCM	25deg. C, 60%RH	120Vac, 60Hz	Kevin Ko

3.3 Duty Cycle of Test Signal

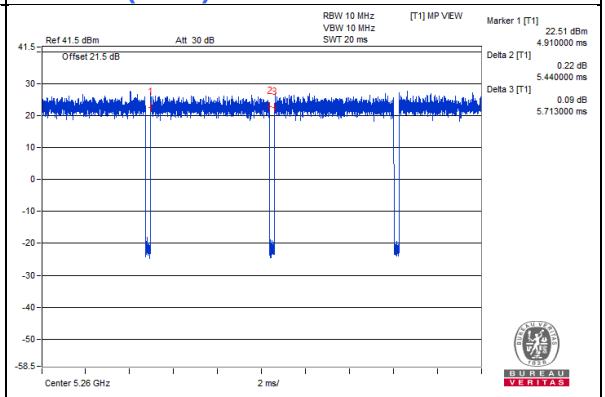
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11a: Duty cycle = 1.973 ms/2.118 ms = 0.932, Duty factor = 10 * log (1/Duty cycle) = 0.31 dB
802.11ax (HE20): Duty cycle = 5.44 ms/5.713 ms = 0.952, Duty factor = 10 * log (1/Duty cycle) = 0.21 dB
802.11ax (HE40): Duty cycle = 5.435 ms/5.735 ms = 0.948, Duty factor = 10 * log (1/Duty cycle) = 0.23 dB
802.11ax (HE80): Duty cycle = 5.442 ms/6.462 ms = 0.842, Duty factor = 10 * log (1/Duty cycle) = 0.75 dB

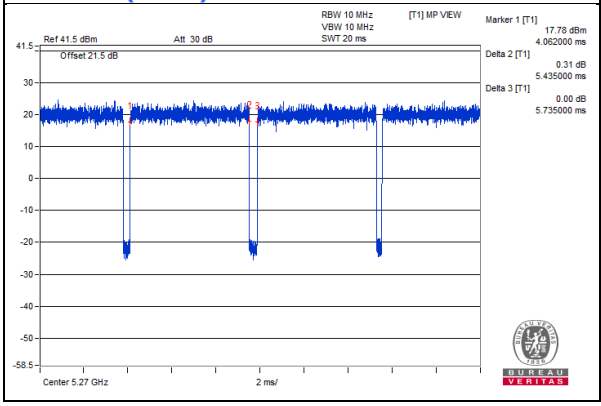
802.11a



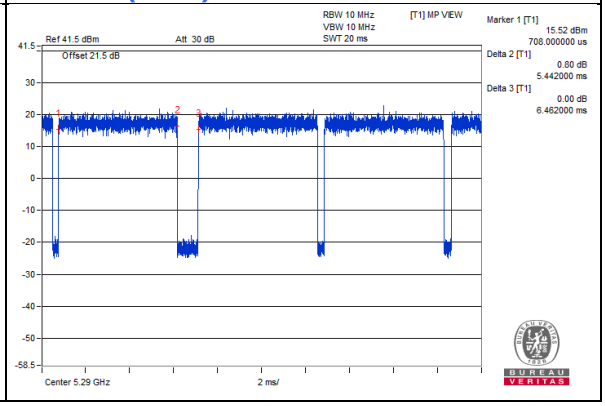
802.11ax (HE20)



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.

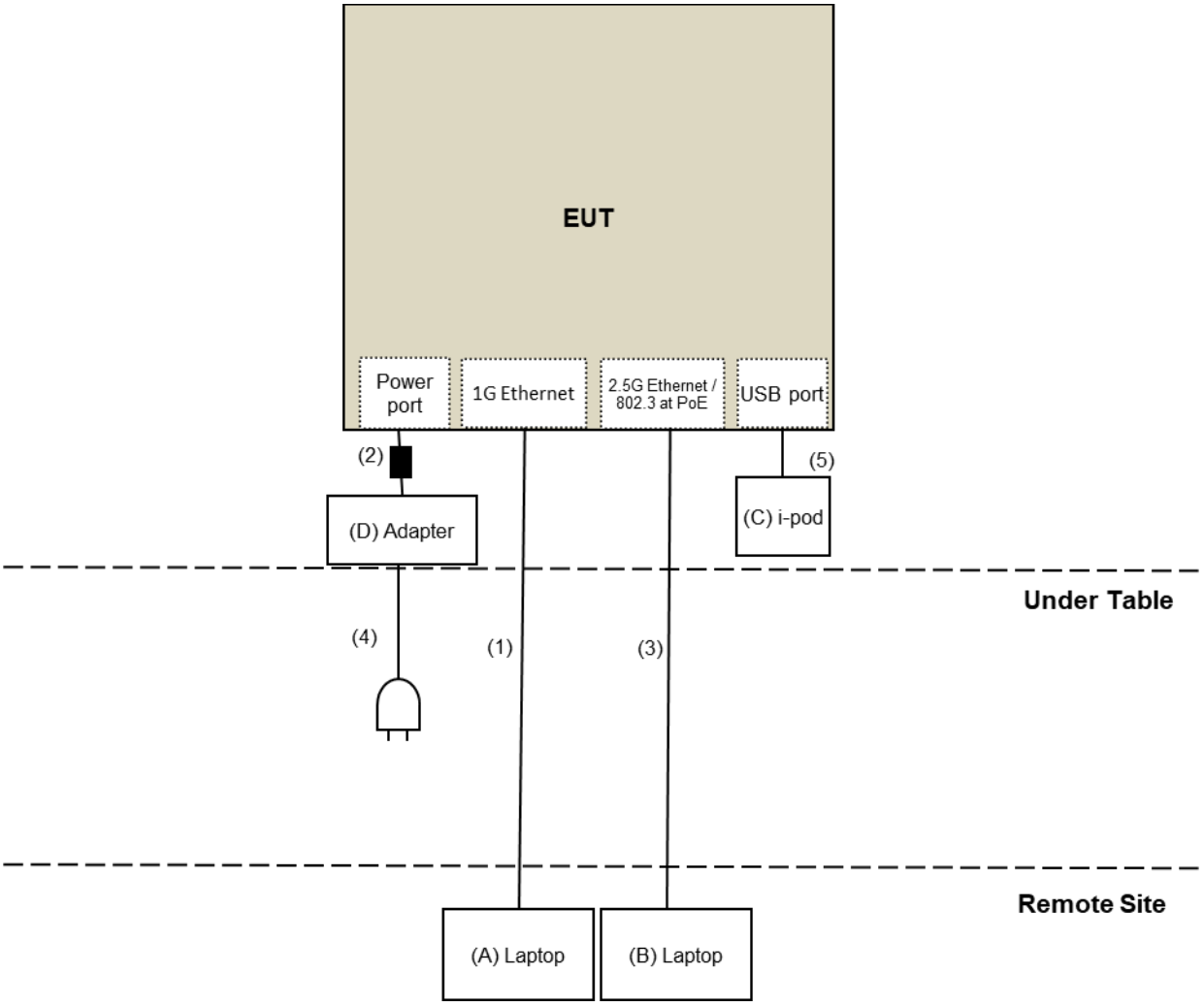
ID	Product	Brand	Model No.	Serial No	FCC ID	Remarks
A.	Laptop	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab
B.	Laptop	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab
C.	iPod	Apple	MD778TA/A	CC4JMH7LF4T1	NA	Provided by Lab
D.	Adapter	Channel well	KPS-030S-VI	NA	NA	Supplied by client

Note:

1. All power cords of the above support units are non-shielded (1.5m).

ID	Descriptions (Cables)	Qty	Length (m)	Shielding (Yes/No)	Cores (Number)	Remarks
1	RJ-45 Cable	1	10	No	0	Provided by Lab
2	DC Cable	1	1	No	1	Supplied by client
3	RJ-45 Cable	1	10	No	0	Provided by Lab
4	AC Cable	1	0.8	No	0	Supplied by client
5	USB Cable	1	0.1	Yes	0	Provided by Lab

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards and References

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

Test Standard:
FCC Part 15, Subpart E (15.407)
ANSI C63.10-2013

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

References Test Guidance:
KDB 789033 D02 General UNII Test 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 Keysight	N9038A	MY54450088	July 06, 2020	July 05, 2021
Pre-Amplifier EMCI	EMC001340	980142	May 25, 2020	May 24, 2021
Loop Antenna Electro-Metrics	EM-6879	264	Feb. 18, 2020	Feb. 17, 2021
RF Cable	NA	LOOPCAB-001	Jan. 08, 2020	Jan. 07, 2021
RF Cable	NA	LOOPCAB-002	Jan. 08, 2020	Jan. 07, 2021
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-05	Apr. 28, 2020	Apr. 27, 2021
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 11, 2019	Nov. 10, 2020
RF Cable	8D	966-3-1	Mar. 17, 2020	Mar. 16, 2021
RF Cable	8D	966-3-2	Mar. 17, 2020	Mar. 16, 2021
RF Cable	8D	966-3-3	Mar. 17, 2020	Mar. 16, 2021
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Sep. 26, 2019	Sep. 25, 2020
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Nov. 24, 2019	Nov. 23, 2020
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC104-SM-SM-1200	160922	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC104-SM-SM-2000	180601	June 09, 2020	June 08, 2021
RF Cable	EMC104-SM-SM-6000	180602	June 09, 2020	June 08, 2021
Spectrum Analyzer Keysight	N9030A	MY54490679	July 13, 2020	July 12, 2021
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 15, 2020	Jan. 14, 2021
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 24, 2019	Nov. 23, 2020
RF Cable	EMC102-KM-KM-1200	160924	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC-KM-KM-4000	200214	Mar. 11, 2020	Mar. 10, 2021
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 3.
3. Tested Date: Aug. 21 to Sep. 12, 2020

For other test:

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
DC Power Supply Topward	6603D	795558	NA	NA
Temperature & Humidity Chamber Giant Force	GTH-150-40-SP-AR	MAA0812-008	Jan. 16, 2020	Jan. 15, 2021
True RMS Clamp Meter FLUKE	325	31130711WS	June 06, 2020	June 05, 2021
Voltage Meter FLUKE	179	89610322	Sep. 25, 2019	Sep. 24, 2020
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: Sep. 16, 2020

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:

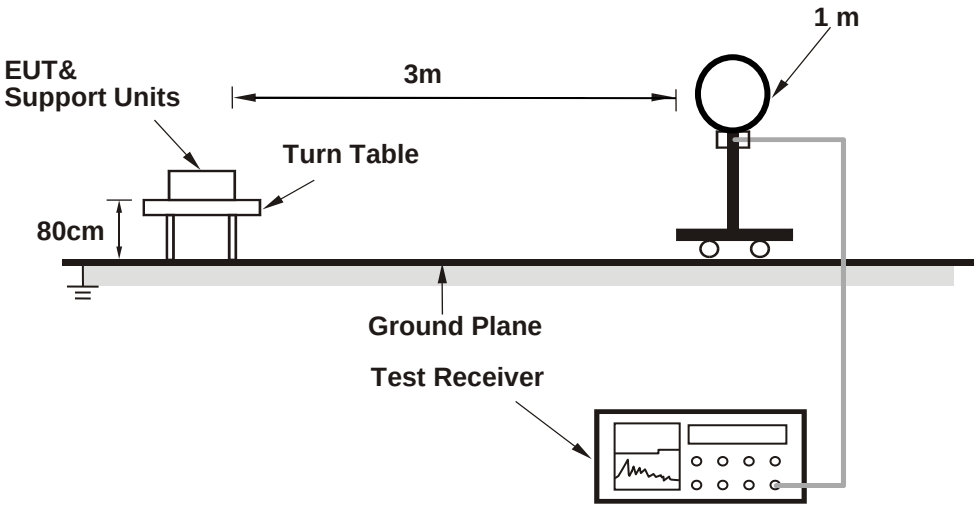
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

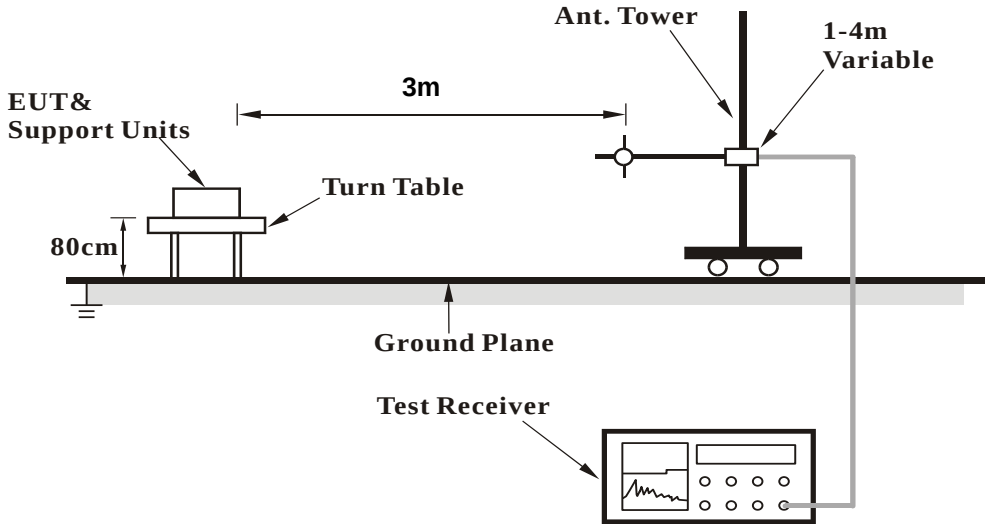
No deviation.

4.1.5 Test Setup

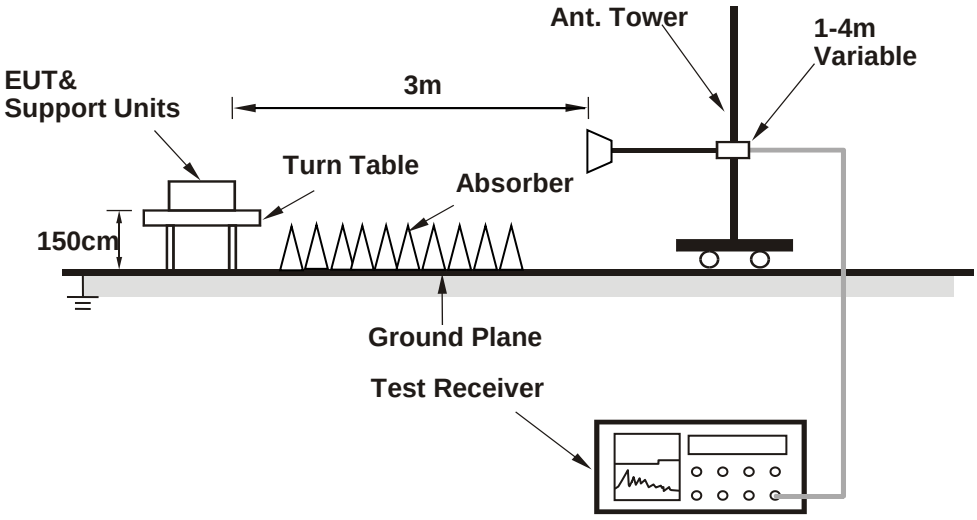
For Radiated emission below 30MHz



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_4.0.00156.0) has been activated to set the EUT under transmission condition continuously.

4.1.7 Test Results

Above 1GHz Data:

802.11a

Channel	TX Channel 52	**Detector Function**	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	5150.00	55.2 PK	74.0	-18.8	1.61 H	308	51.5	3.7
2	5150.00	44.9 AV	54.0	-9.1	1.61 H	308	41.2	3.7
3	*5260.00	118.8 PK			1.61 H	308	115.4	3.4
4	*5260.00	111.2 AV			1.61 H	308	107.8	3.4
5	#10520.00	48.3 PK	68.2	-19.9	1.59 H	89	35.2	13.1
6	15780.00	47.1 PK	74.0	-26.9	1.68 H	82	33.6	13.5
7	15780.00	36.2 AV	54.0	-17.8	1.68 H	82	22.7	13.5
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	5150.00	53.2 PK	74.0	-20.8	2.82 V	244	49.5	3.7
2	5150.00	42.9 AV	54.0	-11.1	2.82 V	244	39.2	3.7
3	*5260.00	116.8 PK			2.82 V	244	113.4	3.4
4	*5260.00	110.4 AV			2.82 V	244	107.0	3.4
5	#10520.00	47.2 PK	68.2	-21.0	1.63 V	71	34.1	13.1
6	15780.00	46.9 PK	74.0	-27.1	1.44 V	50	33.4	13.5
7	15780.00	35.8 AV	54.0	-18.2	1.44 V	50	22.3	13.5

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.

Channel	TX Channel 60	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	122.3 PK			1.61 H	309	119.0	3.3
2	*5300.00	112.4 AV			1.61 H	309	109.1	3.3
3	10600.00	49.2 PK	74.0	-24.8	1.61 H	360	36.3	12.9
4	10600.00	38.7 AV	54.0	-15.3	1.61 H	360	25.8	12.9
5	15900.00	44.9 PK	74.0	-29.1	1.55 H	360	32.1	12.8
6	15900.00	34.9 AV	54.0	-19.1	1.55 H	360	22.1	12.8
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	120.4 PK			2.82 V	191	117.1	3.3
2	*5300.00	111.5 AV			2.82 V	191	108.2	3.3
3	10600.00	49.3 PK	74.0	-24.7	2.42 V	360	36.4	12.9
4	10600.00	42.1 AV	54.0	-11.9	2.42 V	360	29.2	12.9
5	15900.00	45.0 PK	74.0	-29.0	2.32 V	360	32.2	12.8
6	15900.00	35.0 AV	54.0	-19.0	2.32 V	360	22.2	12.8

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.

Channel	TX Channel 64	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	116.8 PK			2.45 H	163	113.4	3.4
2	*5320.00	108.6 AV			2.45 H	163	105.2	3.4
3	5351.86	68.4 PK	74.0	-5.6	2.45 H	163	65.0	3.4
4	5351.86	53.7 AV	54.0	-0.3	2.45 H	163	50.3	3.4
5	10640.00	49.0 PK	74.0	-25.0	1.62 H	28	36.1	12.9
6	10640.00	38.5 AV	54.0	-15.5	1.62 H	28	25.6	12.9
7	15960.00	45.3 PK	74.0	-28.7	1.60 H	36	32.5	12.8
8	15960.00	35.1 AV	54.0	-18.9	1.60 H	36	22.3	12.8
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	*5320.00	116.1 PK			2.81 V	187	112.7	3.4
2	*5320.00	108.3 AV			2.81 V	187	104.9	3.4
3	5350.00	58.5 PK	74.0	-15.5	2.81 V	187	55.1	3.4
4	5350.00	48.4 AV	54.0	-5.6	2.81 V	187	45.0	3.4
5	10640.00	48.7 PK	74.0	-25.3	2.46 V	15	35.8	12.9
6	10640.00	41.6 AV	54.0	-12.4	2.46 V	15	28.7	12.9
7	15960.00	44.2 PK	74.0	-29.8	2.34 V	3	31.4	12.8
8	15960.00	34.1 AV	54.0	-19.9	2.34 V	3	21.3	12.8

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.

Channel	TX Channel 100	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	5400.06	59.6 PK	74.0	-14.4	2.53 H	165	56.0	3.6
2	5400.06	48.9 AV	54.0	-5.1	2.53 H	165	45.3	3.6
3	#5470.00	67.8 PK	68.2	-0.4	2.53 H	165	63.9	3.9
4	*5500.00	117.7 PK			2.53 H	165	113.8	3.9
5	*5500.00	109.3 AV			2.53 H	165	105.4	3.9
6	11000.00	49.3 PK	74.0	-24.7	1.62 H	27	36.3	13.0
7	11000.00	38.7 AV	54.0	-15.3	1.62 H	27	25.7	13.0
8	#16500.00	45.1 PK	68.2	-23.1	1.60 H	37	30.5	14.6
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	59.4 PK	74.0	-14.6	2.98 V	354	55.6	3.8
2	5460.00	47.8 AV	54.0	-6.2	2.98 V	354	44.0	3.8
3	#5470.00	60.1 PK	68.2	-8.1	2.98 V	354	56.2	3.9
4	*5500.00	113.3 PK			2.98 V	354	109.4	3.9
5	*5500.00	106.0 AV			2.98 V	354	102.1	3.9
6	11000.00	48.5 PK	74.0	-25.5	2.46 V	26	35.5	13.0
7	11000.00	41.5 AV	54.0	-12.5	2.46 V	26	28.5	13.0
8	#16500.00	44.9 PK	68.2	-23.3	2.34 V	4	30.3	14.6

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.

Channel	TX Channel 116	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	121.1 PK			1.89 H	286	117.3	3.8
2	*5580.00	113.9 AV			1.89 H	286	110.1	3.8
3	11160.00	53.3 PK	74.0	-20.7	1.50 H	25	40.2	13.1
4	11160.00	43.5 AV	54.0	-10.5	1.50 H	25	30.4	13.1
5	#16740.00	49.2 PK	68.2	-19.0	1.53 H	36	33.0	16.2
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	*5580.00	119.7 PK			2.94 V	344	115.9	3.8
2	*5580.00	111.6 AV			2.94 V	344	107.8	3.8
3	11160.00	51.7 PK	74.0	-22.3	1.00 V	215	38.6	13.1
4	11160.00	47.9 AV	54.0	-6.1	1.00 V	215	34.8	13.1
5	#16740.00	47.2 PK	68.2	-21.0	1.50 V	200	31.0	16.2

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.

Channel	TX Channel 140	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	119.2 PK			1.90 H	186	115.2	4.0
2	*5700.00	110.8 AV			1.90 H	186	106.8	4.0
3	**#5725.00**	**68.1 PK**	**68.2**	**-0.1**	**1.90 H**	**186**	**64.1**	**4.0**
4	11400.00	53.0 PK	74.0	-21.0	1.56 H	25	39.8	13.2
5	11400.00	43.1 AV	54.0	-10.9	1.56 H	25	29.9	13.2
6	#17100.00	48.1 PK	68.2	-20.1	1.60 H	36	30.9	17.2
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	*5700.00	117.8 PK			3.00 V	324	113.8	4.0
2	*5700.00	109.6 AV			3.00 V	324	105.6	4.0
3	#5725.00	64.5 PK	68.2	-3.7	1.67 V	28	60.5	4.0
4	11400.00	51.0 PK	74.0	-23.0	1.04 V	221	37.8	13.2
5	11400.00	47.2 AV	54.0	-6.8	1.04 V	221	34.0	13.2
6	#17100.00	47.3 PK	68.2	-20.9	1.51 V	206	30.1	17.2

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.

Channel	TX Channel 144	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	54.7 PK	74.0	-19.3	1.90 H	286	50.9	3.8
2	5460.00	44.9 AV	54.0	-9.1	1.90 H	286	41.1	3.8
3	#5470.00	54.4 PK	68.2	-13.8	1.90 H	286	50.5	3.9
4	*5720.00	120.0 PK			1.90 H	286	116.1	3.9
5	*5720.00	112.9 AV			1.90 H	286	109.0	3.9
6	#5850.00	54.0 PK	68.2	-14.2	1.90 H	286	49.6	4.4
7	11440.00	52.4 PK	74.0	-21.6	1.55 H	26	39.1	13.3
8	11440.00	42.5 AV	54.0	-11.5	1.55 H	26	29.2	13.3
9	#17160.00	48.2 PK	68.2	-20.0	1.66 H	38	30.8	17.4
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	52.8 PK	74.0	-21.2	2.85 V	304	49.0	3.8
2	5460.00	43.8 AV	54.0	-10.2	2.85 V	304	40.0	3.8
3	#5470.00	52.6 PK	68.2	-15.6	2.85 V	304	48.7	3.9
4	*5720.00	118.5 PK			2.85 V	304	114.6	3.9
5	*5720.00	111.4 AV			2.85 V	304	107.5	3.9
6	#5850.00	51.9 PK	68.2	-16.3	2.85 V	304	47.5	4.4
7	11440.00	50.6 PK	74.0	-23.4	1.05 V	222	37.3	13.3
8	11440.00	46.9 AV	54.0	-7.1	1.05 V	222	33.6	13.3
9	#17160.00	47.0 PK	68.2	-21.2	1.52 V	234	29.6	17.4

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.

802.11ax (HE20)

Channel	TX Channel 52	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	5150.00	51.5 PK	74.0	-22.5	1.00 H	76	47.8	3.7
2	5150.00	41.8 AV	54.0	-12.2	1.00 H	76	38.1	3.7
3	*5260.00	124.4 PK			1.00 H	76	121.0	3.4
4	*5260.00	112.8 AV			1.00 H	76	109.4	3.4
5	#10520.00	48.6 PK	68.2	-19.6	1.56 H	8	35.5	13.1
6	15780.00	47.9 PK	74.0	-26.1	1.50 H	70	34.4	13.5
7	15780.00	35.3 AV	54.0	-18.7	1.50 H	70	21.8	13.5
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	5150.00	50.9 PK	74.0	-23.1	2.45 V	189	47.2	3.7
2	5150.00	40.7 AV	54.0	-13.3	2.45 V	189	37.0	3.7
3	*5260.00	122.4 PK			2.45 V	189	119.0	3.4
4	*5260.00	116.3 AV			2.45 V	189	112.9	3.4
5	#10520.00	48.2 PK	68.2	-20.0	1.56 V	288	35.1	13.1
6	15780.00	47.1 PK	74.0	-26.9	1.70 V	300	33.6	13.5
7	15780.00	35.0 AV	54.0	-19.0	1.70 V	300	21.5	13.5

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.

Channel	TX Channel 60	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	125.4 PK			1.00 H	76	122.1	3.3
2	*5300.00	113.2 AV			1.00 H	76	109.9	3.3
3	10600.00	45.3 PK	74.0	-28.7	1.56 H	326	32.4	12.9
4	10600.00	33.9 AV	54.0	-20.1	1.56 H	326	21.0	12.9
5	15900.00	46.6 PK	74.0	-27.4	1.53 H	338	33.8	12.8
6	15900.00	33.5 AV	54.0	-20.5	1.53 H	338	20.7	12.8
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	122.7 PK			2.44 V	190	119.4	3.3
2	*5300.00	111.3 AV			2.44 V	190	108.0	3.3
3	10600.00	45.7 PK	74.0	-28.3	1.55 V	333	32.8	12.9
4	10600.00	33.7 AV	54.0	-20.3	1.55 V	333	20.8	12.9
5	15900.00	45.8 PK	74.0	-28.2	1.48 V	298	33.0	12.8
6	15900.00	33.7 AV	54.0	-20.3	1.48 V	298	20.9	12.8

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.

Channel	TX Channel 64	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	122.7 PK			2.75 H	347	119.3	3.4
2	*5320.00	111.2 AV			2.75 H	347	107.8	3.4
3	5350.00	64.1 PK	74.0	-9.9	2.75 H	347	60.7	3.4
4	5350.00	53.6 AV	54.0	-0.4	2.75 H	347	50.2	3.4
5	10640.00	47.5 PK	74.0	-26.5	1.60 H	332	34.6	12.9
6	10640.00	34.9 AV	54.0	-19.1	1.60 H	332	22.0	12.9
7	15960.00	47.1 PK	74.0	-26.9	1.55 H	286	34.3	12.8
8	15960.00	34.5 AV	54.0	-19.5	1.55 H	286	21.7	12.8
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	*5320.00	121.4 PK			3.00 V	157	118.0	3.4
2	*5320.00	110.5 AV			3.00 V	157	107.1	3.4
3	5358.44	58.9 PK	74.0	-15.1	3.00 V	157	55.4	3.5
4	5358.44	48.5 AV	54.0	-5.5	3.00 V	157	45.0	3.5
5	10640.00	46.6 PK	74.0	-27.4	1.56 V	330	33.7	12.9
6	10640.00	34.3 AV	54.0	-19.7	1.56 V	330	21.4	12.9
7	15960.00	46.2 PK	74.0	-27.8	1.49 V	298	33.4	12.8
8	15960.00	34.1 AV	54.0	-19.9	1.49 V	298	21.3	12.8

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.

Channel	TX Channel 100	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	5458.80	60.7 PK	74.0	-13.3	2.41 H	30	56.9	3.8
2	5458.80	50.7 AV	54.0	-3.3	2.41 H	30	46.9	3.8
3	#5469.80	67.8 PK	68.2	-0.4	2.41 H	30	63.9	3.9
4	*5500.00	121.6 PK			2.41 H	30	117.7	3.9
5	*5500.00	110.7 AV			2.41 H	30	106.8	3.9
6	11000.00	46.8 PK	74.0	-27.2	1.62 H	324	33.8	13.0
7	11000.00	34.4 AV	54.0	-19.6	1.62 H	324	21.4	13.0
8	#16500.00	45.3 PK	68.2	-22.9	1.56 H	288	30.7	14.6
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	57.9 PK	74.0	-16.1	1.01 V	360	54.1	3.8
2	5460.00	47.2 AV	54.0	-6.8	1.01 V	360	43.4	3.8
3	#5470.00	59.7 PK	68.2	-8.5	1.01 V	360	55.8	3.9
4	*5500.00	119.2 PK			1.01 V	360	115.3	3.9
5	*5500.00	108.1 AV			1.01 V	360	104.2	3.9
6	11000.00	45.8 PK	74.0	-28.2	1.74 V	330	32.8	13.0
7	11000.00	33.6 AV	54.0	-20.4	1.74 V	330	20.6	13.0
8	#16500.00	44.6 PK	68.2	-23.6	1.71 V	276	30.0	14.6

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.

Channel	TX Channel 116	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	123.0 PK			1.00 H	78	119.2	3.8
2	*5580.00	110.1 AV			1.00 H	78	106.3	3.8
3	11160.00	51.6 PK	74.0	-22.4	1.59 H	141	38.5	13.1
4	11160.00	40.4 AV	54.0	-13.6	1.59 H	141	27.3	13.1
5	#16740.00	55.8 PK	68.2	-12.4	1.55 H	70	39.6	16.2
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	*5580.00	121.4 PK			1.02 V	20	117.6	3.8
2	*5580.00	108.6 AV			1.02 V	20	104.8	3.8
3	11160.00	51.4 PK	74.0	-22.6	3.18 V	316	38.3	13.1
4	11160.00	46.5 AV	54.0	-7.5	3.18 V	316	33.4	13.1
5	#16740.00	47.2 PK	68.2	-21.0	1.68 V	323	31.0	16.2

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.

Channel	TX Channel 140	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	123.7 PK			1.82 H	306	119.7	4.0
2	*5700.00	112.1 AV			1.82 H	306	108.1	4.0
3	#5725.00	67.9 PK	68.2	-0.3	1.82 H	306	63.9	4.0
4	11400.00	51.4 PK	74.0	-22.6	1.61 H	143	38.2	13.2
5	11400.00	42.2 AV	54.0	-11.8	1.61 H	143	29.0	13.2
6	#17100.00	52.3 PK	68.2	-15.9	1.58 H	71	35.1	17.2
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	*5700.00	122.5 PK			1.01 V	20	118.5	4.0
2	*5700.00	110.8 AV			1.01 V	20	106.8	4.0
3	#5725.00	64.5 PK	68.2	-3.7	1.01 V	20	60.5	4.0
4	11400.00	50.8 PK	74.0	-23.2	3.21 V	311	37.6	13.2
5	11400.00	43.9 AV	54.0	-10.1	3.21 V	311	30.7	13.2
6	#17100.00	49.6 PK	68.2	-18.6	1.68 V	323	32.4	17.2

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.

Channel	TX Channel 144	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	54.5 PK	74.0	-19.5	1.00 H	77	50.7	3.8
2	5460.00	43.4 AV	54.0	-10.6	1.00 H	77	39.6	3.8
3	#5470.00	53.0 PK	68.2	-15.2	1.00 H	77	49.1	3.9
4	*5720.00	122.0 PK			1.00 H	77	118.1	3.9
5	*5720.00	110.0 AV			1.00 H	77	106.1	3.9
6	#5850.00	52.2 PK	68.2	-16.0	1.00 H	77	47.8	4.4
7	11440.00	52.1 PK	74.0	-21.9	1.66 H	159	38.8	13.3
8	11440.00	43.5 AV	54.0	-10.5	1.66 H	159	30.2	13.3
9	#17160.00	51.4 PK	68.2	-16.8	1.59 H	68	34.0	17.4
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	54.2 PK	74.0	-19.8	1.02 V	23	50.4	3.8
2	5460.00	42.1 AV	54.0	-11.9	1.02 V	23	38.3	3.8
3	#5470.00	51.8 PK	68.2	-16.4	1.02 V	23	47.9	3.9
4	*5720.00	119.7 PK			1.02 V	23	115.8	3.9
5	*5720.00	108.5 AV			1.02 V	23	104.6	3.9
6	#5850.00	51.5 PK	68.2	-16.7	1.02 V	23	47.1	4.4
7	11440.00	51.2 PK	74.0	-22.8	3.21 V	314	37.9	13.3
8	11440.00	44.1 AV	54.0	-9.9	3.21 V	314	30.8	13.3
9	#17160.00	50.6 PK	68.2	-17.6	1.71 V	324	33.2	17.4

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.

802.11ax (HE40)

Channel	TX Channel 54	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	5150.00	55.6 PK	74.0	-18.4	1.00 H	79	51.9	3.7
2	5150.00	44.3 AV	54.0	-9.7	1.00 H	79	40.6	3.7
3	*5270.00	121.2 PK			1.00 H	79	117.8	3.4
4	*5270.00	110.3 AV			1.00 H	79	106.9	3.4
5	#10540.00	50.9 PK	68.2	-17.3	2.30 H	314	37.9	13.0
6	15810.00	49.7 PK	74.0	-24.3	1.42 H	264	36.5	13.2
7	15810.00	41.8 AV	54.0	-12.2	1.42 H	264	28.6	13.2
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	5150.00	55.1 PK	74.0	-18.9	2.74 V	201	51.4	3.7
2	5150.00	43.6 AV	54.0	-10.4	2.74 V	201	39.9	3.7
3	*5270.00	118.5 PK			2.74 V	201	115.1	3.4
4	*5270.00	107.9 AV			2.74 V	201	104.5	3.4
5	#10540.00	50.3 PK	68.2	-17.9	2.11 V	222	37.3	13.0
6	15810.00	49.8 PK	74.0	-24.2	1.67 V	184	36.6	13.2
7	15810.00	41.8 AV	54.0	-12.2	1.67 V	184	28.6	13.2

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.

Channel	TX Channel 62	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	116.5 PK			2.82 H	184	113.2	3.3
2	*5310.00	107.1 AV			2.82 H	184	103.8	3.3
3	5351.63	63.5 PK	74.0	-10.5	2.82 H	184	60.1	3.4
4	5351.63	53.7 AV	54.0	-0.3	2.82 H	184	50.3	3.4
5	10620.00	50.3 PK	74.0	-23.7	2.31 H	314	37.4	12.9
6	10620.00	42.6 AV	54.0	-11.4	2.31 H	314	29.7	12.9
7	15930.00	48.5 PK	74.0	-25.5	1.42 H	263	35.7	12.8
8	15930.00	41.1 AV	54.0	-12.9	1.42 H	263	28.3	12.8
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	*5310.00	115.4 PK			2.80 V	183	112.1	3.3
2	*5310.00	105.6 AV			2.80 V	183	102.3	3.3
3	5350.00	61.2 PK	74.0	-12.8	2.80 V	183	57.8	3.4
4	5350.00	50.5 AV	54.0	-3.5	2.80 V	183	47.1	3.4
5	10620.00	49.8 PK	74.0	-24.2	2.12 V	238	36.9	12.9
6	10620.00	42.0 AV	54.0	-12.0	2.12 V	238	29.1	12.9
7	15930.00	47.6 PK	74.0	-26.4	1.65 V	188	34.8	12.8
8	15930.00	40.5 AV	54.0	-13.5	1.65 V	188	27.7	12.8

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.

Channel	TX Channel 102	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	5455.28	64.2 PK	74.0	-9.8	2.68 H	191	60.4	3.8
2	5455.28	53.5 AV	54.0	-0.5	2.68 H	191	49.7	3.8
3	**#5467.20**	**68.1 PK**	**68.2**	**-0.1**	**2.68 H**	**191**	**64.2**	**3.9**
4	*5510.00	119.2 PK			2.68 H	191	115.3	3.9
5	*5510.00	108.4 AV			2.68 H	191	104.5	3.9
6	11020.00	52.5 PK	74.0	-21.5	2.31 H	318	39.5	13.0
7	11020.00	45.6 AV	54.0	-8.4	2.31 H	318	32.6	13.0
8	#16530.00	49.5 PK	68.2	-18.7	1.42 H	266	34.8	14.7
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	5449.40	57.1 PK	74.0	-16.9	2.80 V	182	53.4	3.7
2	5449.40	45.5 AV	54.0	-8.5	2.80 V	182	41.8	3.7
3	#5470.00	66.3 PK	68.2	-1.9	2.80 V	182	62.4	3.9
4	*5510.00	116.3 PK			2.80 V	182	112.4	3.9
5	*5510.00	106.5 AV			2.80 V	182	102.6	3.9
6	11020.00	51.1 PK	74.0	-22.9	2.11 V	280	38.1	13.0
7	11020.00	44.3 AV	54.0	-9.7	2.11 V	280	31.3	13.0
8	#16530.00	48.9 PK	68.2	-19.3	1.65 V	189	34.2	14.7

Remarks:

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

Channel	TX Channel 110	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	120.6 PK			1.00 H	292	116.8	3.8
2	*5550.00	108.9 AV			1.00 H	292	105.1	3.8
3	11100.00	53.2 PK	74.0	-20.8	2.33 H	339	40.2	13.0
4	11100.00	46.3 AV	54.0	-7.7	2.33 H	339	33.3	13.0
5	#16650.00	50.6 PK	68.2	-17.6	1.44 H	267	34.9	15.7
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	117.9 PK			2.80 V	184	114.1	3.8
2	*5550.00	106.8 AV			2.80 V	184	103.0	3.8
3	11100.00	51.3 PK	74.0	-22.7	2.17 V	279	38.3	13.0
4	11100.00	44.5 AV	54.0	-9.5	2.17 V	279	31.5	13.0
5	#16650.00	49.1 PK	68.2	-19.1	1.70 V	185	33.4	15.7

Remarks:

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

Channel	TX Channel 134	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	118.3 PK			1.00 H	292	114.3	4.0
2	*5670.00	106.8 AV			1.00 H	292	102.8	4.0
3	**#5725.00**	**68.1 PK**	**68.2**	**-0.1**	**1.00 H**	**292**	**64.1**	**4.0**
4	11340.00	52.4 PK	74.0	-21.6	2.35 H	309	39.2	13.2
5	11340.00	45.6 AV	54.0	-8.4	2.35 H	309	32.4	13.2
6	#17010.00	50.0 PK	68.2	-18.2	1.48 H	265	33.0	17.0
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	*5670.00	115.9 PK			2.78 V	184	111.9	4.0
2	*5670.00	104.6 AV			2.78 V	184	100.6	4.0
3	#5725.00	66.7 PK	68.2	-1.5	2.78 V	184	62.7	4.0
4	11340.00	50.4 PK	74.0	-23.6	2.16 V	278	37.2	13.2
5	11340.00	43.2 AV	54.0	-10.8	2.16 V	278	30.0	13.2
6	#17010.00	48.3 PK	68.2	-19.9	1.68 V	188	31.3	17.0

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

Channel	TX Channel 142	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	53.2 PK	74.0	-20.8	1.00 H	294	49.4	3.8
2	5460.00	43.1 AV	54.0	-10.9	1.00 H	294	39.3	3.8
3	#5470.00	53.4 PK	68.2	-14.8	1.00 H	294	49.5	3.9
4	*5710.00	120.1 PK			1.00 H	294	116.1	4.0
5	*5710.00	109.8 AV			1.00 H	294	105.8	4.0
6	#5850.00	55.1 PK	68.2	-13.1	1.00 H	294	50.7	4.4
7	11420.00	54.1 PK	74.0	-19.9	2.34 H	306	40.9	13.2
8	11420.00	46.8 AV	54.0	-7.2	2.34 H	306	33.6	13.2
9	#17130.00	52.6 PK	68.2	-15.6	1.58 H	264	35.4	17.2
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	52.6 PK	74.0	-21.4	2.78 V	185	48.8	3.8
2	5460.00	42.5 AV	54.0	-11.5	2.78 V	185	38.7	3.8
3	#5470.00	52.7 PK	68.2	-15.5	2.78 V	185	48.8	3.9
4	*5710.00	118.4 PK			2.78 V	185	114.4	4.0
5	*5710.00	106.9 AV			2.78 V	185	102.9	4.0
6	#5850.00	54.3 PK	68.2	-13.9	2.78 V	185	49.9	4.4
7	11420.00	52.2 PK	74.0	-21.8	2.17 V	303	39.0	13.2
8	11420.00	44.8 AV	54.0	-9.2	2.17 V	303	31.6	13.2
9	#17130.00	50.3 PK	68.2	-17.9	1.66 V	190	33.1	17.2

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.

802.11ax (HE80)

Channel	TX Channel 58	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	5143.98	54.6 PK	74.0	-19.4	2.66 H	184	50.9	3.7
2	5143.98	43.5 AV	54.0	-10.5	2.66 H	184	39.8	3.7
3	*5290.00	112.5 PK			2.66 H	184	109.2	3.3
4	*5290.00	102.3 AV			2.66 H	184	99.0	3.3
5	5356.64	68.2 PK	74.0	-5.8	2.66 H	184	64.8	3.4
6	5356.64	53.7 AV	54.0	-0.3	2.66 H	184	50.3	3.4
7	#10580.00	53.7 PK	68.2	-14.5	2.37 H	266	40.8	12.9
8	15870.00	49.4 PK	74.0	-24.6	2.00 H	70	36.5	12.9
9	15870.00	41.3 AV	54.0	-12.7	2.00 H	70	28.4	12.9
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	5150.00	53.2 PK	74.0	-20.8	2.80 V	182	49.5	3.7
2	5150.00	41.8 AV	54.0	-12.2	2.80 V	182	38.1	3.7
3	*5290.00	111.9 PK			2.80 V	182	108.6	3.3
4	*5290.00	102.1 AV			2.80 V	182	98.8	3.3
5	5351.90	59.9 PK	74.0	-14.1	2.80 V	182	56.5	3.4
6	5351.90	51.1 AV	54.0	-2.9	2.80 V	182	47.7	3.4
7	#10580.00	51.2 PK	68.2	-17.0	2.52 V	312	38.3	12.9
8	15870.00	48.6 PK	74.0	-25.4	1.75 V	193	35.7	12.9
9	15870.00	40.4 AV	54.0	-13.6	1.75 V	193	27.5	12.9

Remarks:

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

Channel	TX Channel 106	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	5454.70	64.7 PK	74.0	-9.3	2.66 H	166	60.9	3.8
2	5454.70	53.7 AV	54.0	-0.3	2.66 H	166	49.9	3.8
3	#5470.00	63.1 PK	68.2	-5.1	2.66 H	166	59.2	3.9
4	*5530.00	112.3 PK			2.66 H	166	108.5	3.8
5	*5530.00	102.5 AV			2.66 H	166	98.7	3.8
6	#5810.55	51.1 PK	68.2	-17.1	2.66 H	166	46.9	4.2
7	11060.00	52.3 PK	74.0	-21.7	2.36 H	279	39.4	12.9
8	11060.00	42.6 AV	54.0	-11.4	2.36 H	279	29.7	12.9
9	#16590.00	49.6 PK	68.2	-18.6	2.00 H	71	34.7	14.9
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	5449.40	62.9 PK	74.0	-11.1	2.80 V	182	59.2	3.7
2	5449.40	52.3 AV	54.0	-1.7	2.80 V	182	48.6	3.7
3	#5468.10	65.5 PK	68.2	-2.7	2.80 V	182	61.6	3.9
4	*5530.00	111.3 PK			2.80 V	182	107.5	3.8
5	*5530.00	101.7 AV			2.80 V	182	97.9	3.8
6	#5747.82	53.9 PK	68.2	-14.3	2.80 V	182	49.9	4.0
7	11060.00	50.9 PK	74.0	-23.1	2.56 V	310	38.0	12.9
8	11060.00	41.8 AV	54.0	-12.2	2.56 V	310	28.9	12.9
9	#16590.00	47.8 PK	68.2	-20.4	1.75 V	196	32.9	14.9

Remarks:

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

Channel	TX Channel 138	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 40GHz		

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	55.3 PK	74.0	-18.7	1.00 H	295	51.5	3.8
2	5460.00	43.2 AV	54.0	-10.8	1.00 H	295	39.4	3.8
3	#5470.00	58.4 PK	68.2	-9.8	1.00 H	295	54.5	3.9
4	*5690.00	116.7 PK			1.00 H	295	112.7	4.0
5	*5690.00	105.8 AV			1.00 H	295	101.8	4.0
6	#5850.00	66.2 PK	68.2	-2.0	1.00 H	295	61.8	4.4
7	11380.00	48.1 PK	74.0	-25.9	2.56 H	291	34.9	13.2
8	11380.00	37.8 AV	54.0	-16.2	2.56 H	291	24.6	13.2
9	#17070.00	48.2 PK	68.2	-20.0	1.75 H	77	31.2	17.0
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	5460.00	54.2 PK	74.0	-19.8	2.84 V	188	50.4	3.8
2	5460.00	42.5 AV	54.0	-11.5	2.84 V	188	38.7	3.8
3	#5470.00	56.7 PK	68.2	-11.5	2.84 V	188	52.8	3.9
4	*5690.00	113.5 PK			2.84 V	188	109.5	4.0
5	*5690.00	102.9 AV			2.84 V	188	98.9	4.0
6	#5850.00	63.8 PK	68.2	-4.4	2.84 V	188	59.4	4.4
7	11380.00	45.4 PK	74.0	-28.6	2.04 V	340	32.2	13.2
8	11380.00	36.2 AV	54.0	-17.8	2.04 V	340	23.0	13.2
9	#17070.00	46.3 PK	68.2	-21.9	1.71 V	159	29.3	17.0

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

Below 1GHz Data:

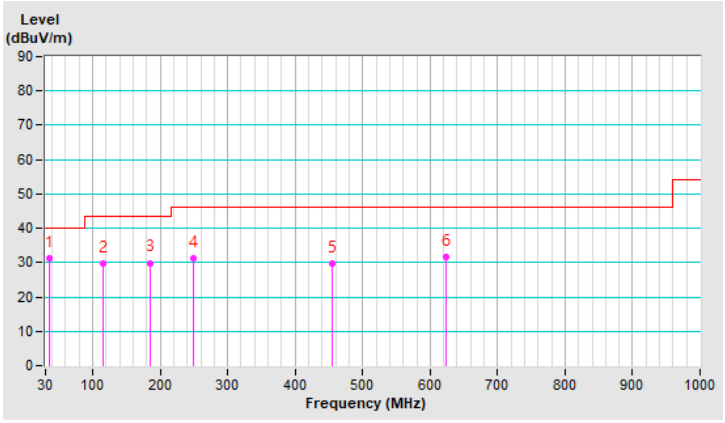
802.11ax (HE80)

Channel	TX Channel 106	**Detector Function**	Quasi-Peak (QP)
Frequency Range	9kHz ~ 1GHz		

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	34.85	31.1 QP	40.0	-8.9	2.50 H	148	39.7	-8.6
2	115.23	29.6 QP	43.5	-13.9	1.50 H	94	39.1	-9.5
3	186.07	29.9 QP	43.5	-13.6	1.50 H	285	38.9	-9.0
4	250.12	31.2 QP	46.0	-14.8	1.00 H	311	39.2	-8.0
5	454.30	29.7 QP	46.0	-16.3	2.00 H	5	31.0	-1.3
6	623.10	31.6 QP	46.0	-14.4	1.50 H	53	28.9	2.7

Remarks:

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

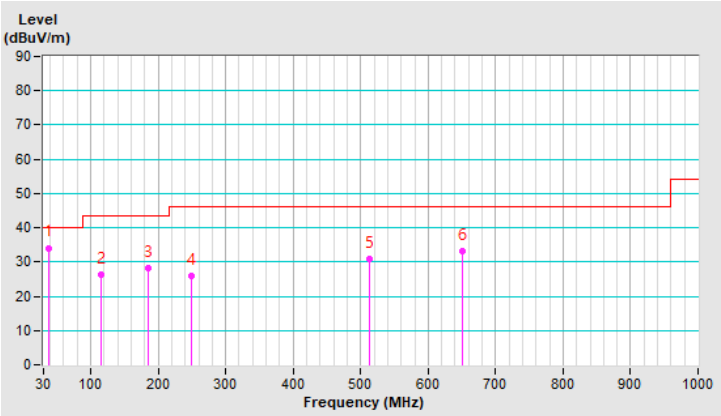


Channel	TX Channel 106	Detector Function	Quasi-Peak (QP)
Frequency Range	9kHz ~ 1GHz		

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	37.85	34.1 QP	40.0	-5.9	2.00 V	358	42.4	-8.3
2	116.31	26.2 QP	43.5	-17.3	1.50 V	5	35.6	-9.4
3	186.10	28.3 QP	43.5	-15.2	1.50 V	277	37.3	-9.0
4	250.01	25.8 QP	46.0	-20.2	2.00 V	333	33.8	-8.0
5	512.39	31.0 QP	46.0	-15.0	3.00 V	119	31.0	0.0
6	649.98	33.1 QP	46.0	-12.9	2.00 V	351	30.1	3.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit 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. 23, 2019	Oct. 22, 2020
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 23, 2019	Oct. 22, 2020
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 19, 2020	Mar. 18, 2021
50 ohms Terminator	50	3	Oct. 23, 2019	Oct. 22, 2020
RF Cable	5D-FB	COCCAB-001	Sep. 27, 2019	Sep. 26, 2020
Fixed attenuator EMCI	STI02-2200-10	003	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: Sep. 22, 2020

4.2.3 Test Procedure

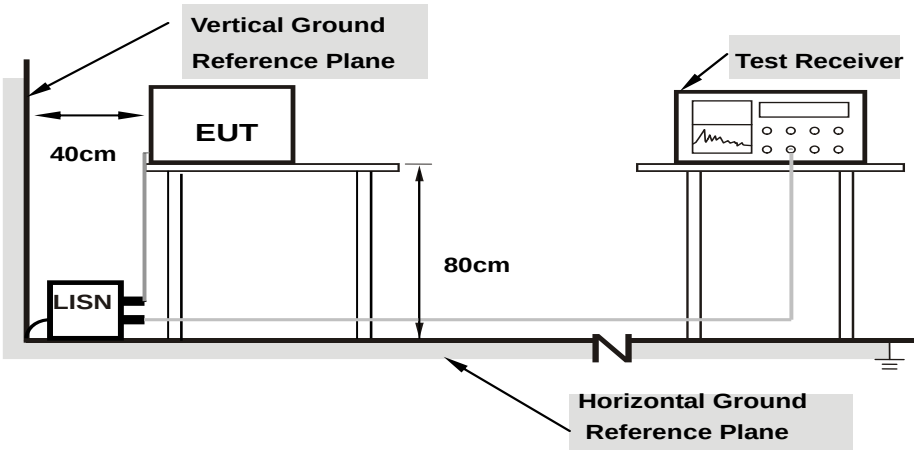
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

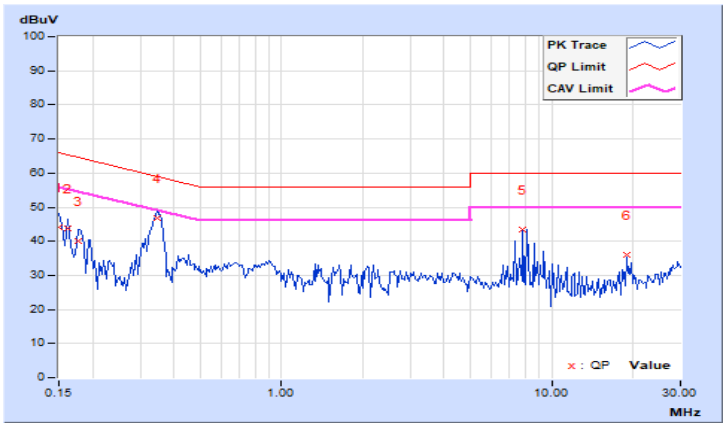
4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	0.15012	9.91	34.26	16.85	44.17	26.76	65.99	55.99	-21.82	-29.23
2	0.16101	9.91	33.70	20.35	43.61	30.26	65.41	55.41	-21.80	-25.15
3	0.17684	9.92	30.10	15.16	40.02	25.08	64.63	54.63	-24.61	-29.55
4	0.34512	9.94	36.81	30.20	46.75	40.14	59.08	49.08	-12.33	-8.94
5	**7.83754**	**10.32**	**33.17**	**33.12**	**43.49**	**43.44**	**60.00**	**50.00**	**-16.51**	**-6.56**
6	18.96805	10.95	24.92	22.80	35.87	33.75	60.00	50.00	-24.13	-16.25

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

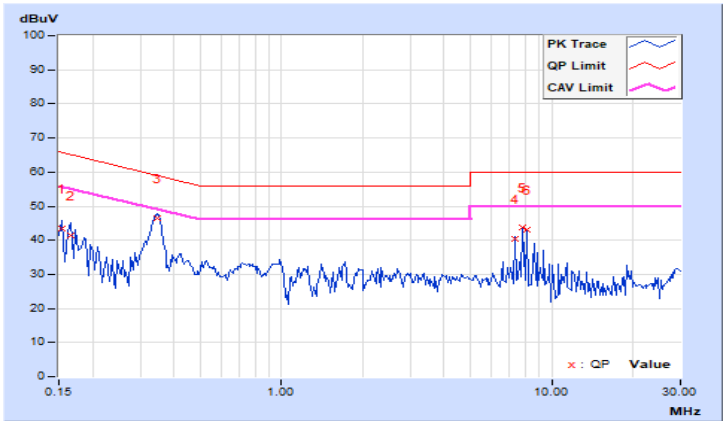


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	0.15374	9.91	33.42	19.18	43.33	29.09	65.80	55.80	-22.47	-26.71
2	0.16578	9.92	31.41	17.60	41.33	27.52	65.17	55.17	-23.84	-27.65
3	0.34541	9.94	36.52	30.41	46.46	40.35	59.07	49.07	-12.61	-8.72
4	7.33580	10.24	30.15	30.10	40.39	40.34	60.00	50.00	-19.61	-9.66
5	7.83974	10.26	33.41	32.90	43.67	43.16	60.00	50.00	-16.33	-6.84
6	8.09341	10.27	32.92	32.60	43.19	42.87	60.00	50.00	-16.81	-7.13

Remarks:

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



4.3 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

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

*B is the 26 dB emission bandwidth in megahertz

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

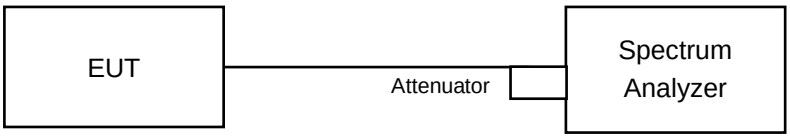
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

4.3.2 Test Setup

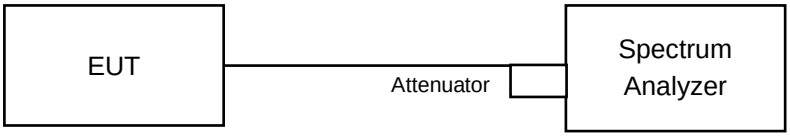
FOR POWER OUTPUT MEASUREMENT

For channel straddling 5725MHz:



For other channels:

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

POWER OUTPUT

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	12.58	12.64	12.59	12.65	73.042	18.64	23.92	PASS
60	5300	12.47	12.55	12.61	12.69	72.466	18.60	23.89	PASS
64	5320	12.41	12.31	12.75	12.64	71.642	18.55	23.92	PASS
100	5500	12.67	12.50	12.49	12.66	72.468	18.60	23.83	PASS
116	5580	12.59	12.48	12.39	12.52	71.059	18.52	23.86	PASS
140	5700	12.68	12.54	12.41	12.46	71.52	18.54	23.91	PASS
*144 (U-NII-2C Band)	5720	7.54	7.56	8.18	7.49	25.296	14.03	22.68	PASS
*144 (U-NII-3 Band)	5720	1.74	0.16	1.26	0.48	5.35	7.28	30.00	PASS

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	19.6	23.92 < 24
60	5300	19.49	23.89 < 24
64	5320	19.59	23.92 < 24
100	5500	19.22	23.83 < 24
116	5580	19.34	23.86 < 24
140	5700	19.56	23.91 < 24
144 (U-NII-2C Band)	5720	14.73	22.68 < 24

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	12.50	12.49	12.27	12.38	69.688	18.43	24.00	PASS
60	5300	12.59	12.36	12.28	12.84	71.509	18.54	24.00	PASS
64	5320	12.53	12.45	12.33	12.62	70.866	18.50	24.00	PASS
100	5500	12.42	12.36	12.39	12.83	71.202	18.52	24.00	PASS
116	5580	12.52	12.45	12.34	12.79	71.594	18.55	24.00	PASS
140	5700	12.63	12.51	12.56	12.78	73.144	18.64	24.00	PASS
*144 (U-NII-2C Band)	5720	7.33	7.36	7.23	7.18	22.433	13.51	22.86	PASS
*144 (U-NII-3 Band)	5720	2.03	1.36	1.28	1.71	6.079	7.84	30.00	PASS

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	21.24	24.27 > 24
60	5300	21.32	24.28 > 24
64	5320	21.37	24.29 > 24
100	5500	21.07	24.23 > 24
116	5580	21.29	24.28 > 24
140	5700	21.2	24.26 > 24
144 (U-NII-2C Band)	5720	15.36	22.86 < 24

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	15.01	15.18	14.76	14.88	125.34	20.98	24.00	PASS
62	5310	15.12	15.10	14.46	14.69	122.238	20.87	24.00	PASS
102	5510	15.34	15.14	14.76	14.81	127.049	21.04	24.00	PASS
110	5550	15.11	15.13	14.73	14.87	125.425	20.98	24.00	PASS
134	5670	15.04	14.97	14.58	14.72	121.677	20.85	24.00	PASS
*142 (U-NII-2C Band)	5710	9.51	9.97	8.53	9.06	35.926	15.55	24.00	PASS
*142 (U-NII-3 Band)	5710	-1.54	-1.31	-1.24	-1.74	3.0206	4.80	30.00	PASS

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	42.46	27.27 > 24
62	5310	42.27	27.26 > 24
102	5510	42.55	27.28 > 24
110	5550	41.99	27.23 > 24
134	5670	42.28	27.26 > 24
142 (U-NII-2C Band)	5710	35.97	26.55 > 24

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	17.03	16.62	16.71	16.84	191.573	22.82	24.00	PASS
106	5530	16.82	16.86	17.01	16.97	196.621	22.94	24.00	PASS
*138 (U-NII-2C Band)	5690	12.02	12.18	12.30	11.70	76.251	18.82	24.00	PASS
*138 (U-NII-3 Band)	5690	-2.58	-2.09	-2.30	-3.24	2.6517	4.24	30.00	PASS

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
58	5290	82.78	30.17 > 24
106	5530	83.02	30.19 > 24
138 (U-NII-2C Band)	5690	76.21	29.82 > 24

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	12.80	12.69	12.51	12.68	73.992	18.69	24.00	PASS
60	5300	12.89	12.63	12.57	13.04	75.986	18.81	24.00	PASS
64	5320	12.73	12.58	12.53	12.86	74.089	18.70	24.00	PASS
100	5500	12.72	12.65	12.63	13.08	75.761	18.79	24.00	PASS
116	5580	12.82	12.68	12.64	13.07	76.32	18.83	24.00	PASS
140	5700	12.93	12.79	12.76	13.04	77.662	18.90	24.00	PASS
*144 (U-NII-2C Band)	5720	7.40	7.64	7.84	7.63	24.342	13.86	22.94	PASS
*144 (U-NII-3 Band)	5720	2.15	2.27	2.25	2.17	6.988	8.44	30.00	PASS

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	21.24	24.27 > 24
60	5300	21.32	24.28 > 24
64	5320	21.37	24.29 > 24
100	5500	21.07	24.23 > 24
116	5580	21.29	24.28 > 24
140	5700	21.2	24.26 > 24
144 (U-NII-2C Band)	5720	15.36	22.86 < 24

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	15.22	15.54	14.93	15.09	132.478	21.22	24.00	PASS
62	5310	15.32	15.40	14.72	14.93	129.48	21.12	24.00	PASS
102	5510	15.52	15.44	14.86	15.01	132.955	21.24	24.00	PASS
110	5550	15.26	15.38	14.93	15.07	131.342	21.18	24.00	PASS
134	5670	15.27	15.19	14.78	15.02	128.518	21.09	24.00	PASS
*142 (U-NII-2C Band)	5710	10.59	10.23	10.21	10.49	46.1	16.64	24.00	PASS
*142 (U-NII-3 Band)	5710	0.39	-0.26	0.65	1.15	4.7489	6.77	30.00	PASS

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	42.46	27.27 > 24
62	5310	42.27	27.26 > 24
102	5510	42.55	27.28 > 24
110	5550	41.99	27.23 > 24
134	5670	42.28	27.26 > 24
142 (U-NII-2C Band)	5710	35.97	26.55 > 24

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	17.21	16.81	16.96	17.02	200.584	23.02	24.00	PASS
106	5530	16.91	16.99	17.22	17.15	203.697	23.09	24.00	PASS
*138 (U-NII-2C Band)	5690	14.06	11.64	12.10	12.33	87.127	19.40	24.00	PASS
*138 (U-NII-3 Band)	5690	0.13	-1.31	-1.54	-0.40	4.0176	6.04	30.00	PASS

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
58	5290	82.78	30.17 > 24
106	5530	83.02	30.19 > 24
138 (U-NII-2C Band)	5690	76.21	29.82 > 24

Beamforming Mode

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	12.43	12.37	12.17	12.02	67.161	18.27	18.70	PASS
60	5300	12.55	12.38	12.27	12.32	69.213	18.40	18.70	PASS
64	5320	12.20	11.63	12.25	12.42	65.397	18.16	18.70	PASS
100	5500	12.36	11.86	12.33	12.16	66.109	18.20	18.70	PASS
116	5580	12.23	11.71	12.32	12.68	67.132	18.27	18.70	PASS
140	5700	12.52	12.05	12.04	12.24	66.642	18.24	18.70	PASS
*144 (U-NII-2C Band)	5720	6.76	6.86	7.21	7.36	21.319	13.29	17.56	PASS
*144 (U-NII-3 Band)	5720	0.59	1.01	0.93	1.62	5.354	7.29	24.70	PASS

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

1. For U-NII-2A & U-NII-2C: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)2 / 4] = 11.3dBi > 6dBi, so the power limit shall be reduced to “Determined Conducted Limit- (11.3-6)”.
2. For U-NII-3: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)^2 / 4]= 11.3 dBi > 6 dBi, so the power limit shall be reduced to 30-(11.3-6) = 24.70dBm.

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	21.24	24.27 > 24
60	5300	21.32	24.28 > 24
64	5320	21.37	24.29 > 24
100	5500	21.07	24.23 > 24
116	5580	21.29	24.28 > 24
140	5700	21.2	24.26 > 24
144 (U-NII-2C Band)	5720	15.36	22.86 < 24

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	12.45	12.88	11.89	12.56	70.471	18.48	18.70	PASS
62	5310	12.89	12.67	12.12	12.06	70.309	18.47	18.70	PASS
102	5510	12.98	12.22	11.87	12.36	69.134	18.40	18.70	PASS
110	5550	12.68	12.29	11.96	12.26	68.009	18.33	18.70	PASS
134	5670	12.23	12.49	11.62	11.93	64.569	18.10	18.70	PASS
*142 (U-NII-2C Band)	5710	7.69	7.36	7.61	7.05	23.381	13.69	18.70	PASS
*142 (U-NII-3 Band)	5710	-3.99	-4.15	-3.01	-3.03	1.8797	2.74	24.70	PASS

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

1. For U-NII-2A & U-NII-2C: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)2 / 4] = 11.3dBi > 6dBi, so the power limit shall be reduced to “Determined Conducted Limit- (11.3-6)”.
2. For U-NII-3: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)^2 / 4]= 11.3 dBi > 6 dBi, so the power limit shall be reduced to 30-(11.3-6) = 24.70dBm.

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	42.46	27.27 > 24
62	5310	42.27	27.26 > 24
102	5510	42.55	27.28 > 24
110	5550	41.99	27.23 > 24
134	5670	42.28	27.26 > 24
142 (U-NII-2C Band)	5710	35.97	26.55 > 24

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	12.61	12.34	12.53	12.44	70.823	18.50	18.70	PASS
106	5530	12.18	12.10	12.02	12.97	68.475	18.36	18.70	PASS
*138 (U-NII-2C Band)	5690	8.43	8.69	8.26	8.35	33.13	15.20	18.70	PASS
*138 (U-NII-3 Band)	5690	-6.74	-5.77	-6.39	-4.75	1.2364	0.92	24.70	PASS

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

1. For U-NII-2A & U-NII-2C: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)2 / 4] = 11.3dBi > 6dBi, so the power limit shall be reduced to “Determined Conducted Limit- (11.3-6)”.
2. For U-NII-3: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)^2 / 4]= 11.3 dBi > 6 dBi, so the power limit shall be reduced to 30-(11.3-6) = 24.70dBm.

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
58	5290	82.78	30.17 > 24
106	5530	83.02	30.19 > 24
138 (U-NII-2C Band)	5690	76.21	29.82 > 24

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	12.50	12.49	12.27	12.38	69.688	18.43	18.70	PASS
60	5300	12.59	12.36	12.28	12.84	71.509	18.54	18.70	PASS
64	5320	12.53	12.45	12.33	12.62	70.866	18.50	18.70	PASS
100	5500	12.42	12.36	12.39	12.83	71.202	18.52	18.70	PASS
116	5580	12.52	12.45	12.34	12.79	71.594	18.55	18.70	PASS
140	5700	12.63	12.51	12.56	12.78	73.144	18.64	18.70	PASS
*144 (U-NII-2C Band)	5720	7.75	7.11	7.41	7.38	23.183	13.65	22.86	PASS
*144 (U-NII-3 Band)	5720	1.68	2.28	2.03	2.14	6.716	8.27	24.70	PASS

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

1. For U-NII-2A & U-NII-2C: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)2 / 4] = 11.3dBi > 6dBi, so the power limit shall be reduced to “Determined Conducted Limit- (11.3-6)”.
2. For U-NII-3: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)^2 / 4]= 11.3 dBi > 6 dBi, so the power limit shall be reduced to 30-(11.3-6) = 24.70dBm.

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	21.24	24.27 > 24
60	5300	21.32	24.28 > 24
64	5320	21.37	24.29 > 24
100	5500	21.07	24.23 > 24
116	5580	21.29	24.28 > 24
140	5700	21.2	24.26 > 24
144 (U-NII-2C Band)	5720	15.36	22.86 < 24

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	12.67	13.08	12.49	12.12	72.851	18.62	18.70	PASS
62	5310	12.74	12.88	12.13	12.46	72.152	18.58	18.70	PASS
102	5510	12.57	13.16	12.09	12.21	71.588	18.55	18.70	PASS
110	5550	12.75	12.67	12.54	12.64	73.642	18.67	18.70	PASS
134	5670	12.77	12.38	12.06	12.42	69.749	18.44	18.70	PASS
*142 (U-NII-2C Band)	5710	7.98	7.69	7.61	8.17	25.836	14.12	18.70	PASS
*142 (U-NII-3 Band)	5710	-2.20	-0.91	-3.59	-1.27	2.7409	4.38	24.70	PASS

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

1. For U-NII-2A & U-NII-2C: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)2 / 4] = 11.3dBi > 6dBi, so the power limit shall be reduced to “Determined Conducted Limit- (11.3-6)”.
2. For U-NII-3: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)^2 / 4]= 11.3 dBi > 6 dBi, so the power limit shall be reduced to 30-(11.3-6) = 24.70dBm.

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	42.46	27.27 > 24
62	5310	42.27	27.26 > 24
102	5510	42.55	27.28 > 24
110	5550	41.99	27.23 > 24
134	5670	42.28	27.26 > 24
142 (U-NII-2C Band)	5710	35.97	26.55 > 24

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	12.64	12.73	12.23	12.54	71.774	18.56	18.70	PASS
106	5530	12.52	12.40	12.42	12.31	69.723	18.43	18.70	PASS
*138 (U-NII-2C Band)	5690	8.50	8.35	8.59	8.22	32.991	15.18	18.70	PASS
*138 (U-NII-3 Band)	5690	-5.87	-4.13	-7.12	-5.90	1.3018	1.15	24.70	PASS

Note: * Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

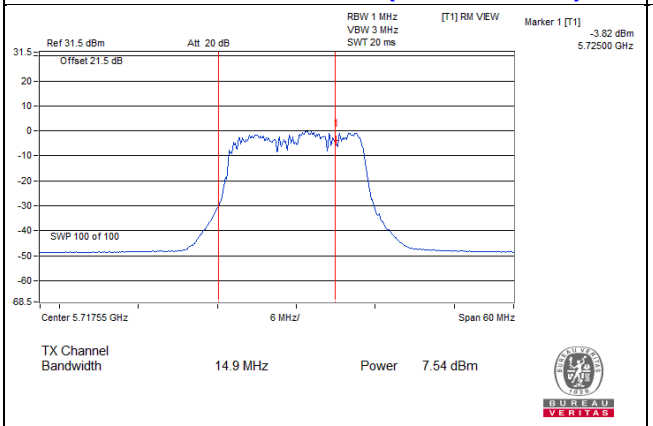
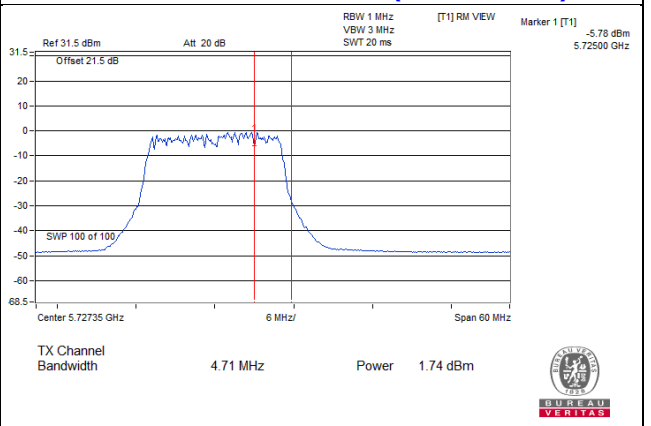
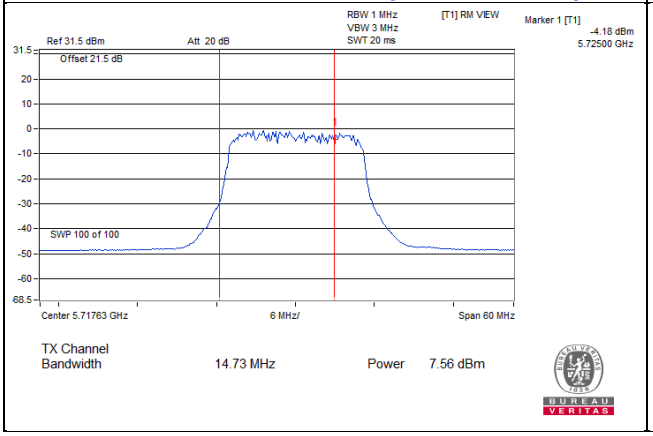
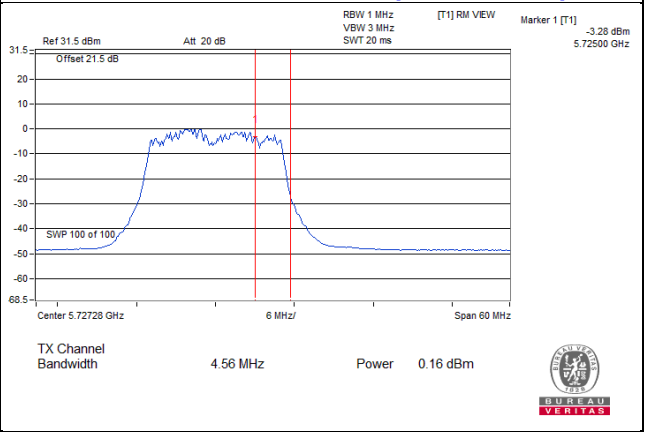
1. For U-NII-2A & U-NII-2C: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)2 / 4] = 11.3dBi > 6dBi, so the power limit shall be reduced to “Determined Conducted Limit- (11.3-6)”.
2. For U-NII-3: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)^2 / 4]= 11.3 dBi > 6 dBi, so the power limit shall be reduced to 30-(11.3-6) = 24.70dBm.

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

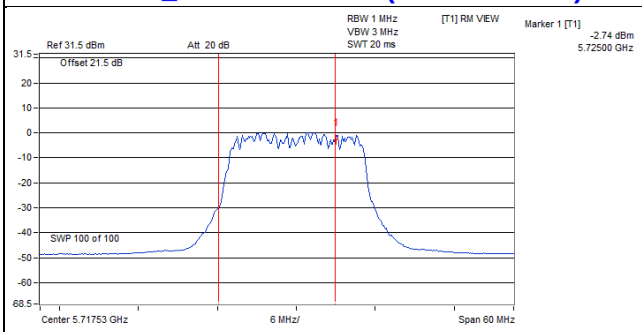
Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
58	5290	82.78	30.17 > 24
106	5530	83.02	30.19 > 24
138 (U-NII-2C Band)	5690	76.21	29.82 > 24

For channel straddling 5725MHz of Power

CDD / Beamforming Mode

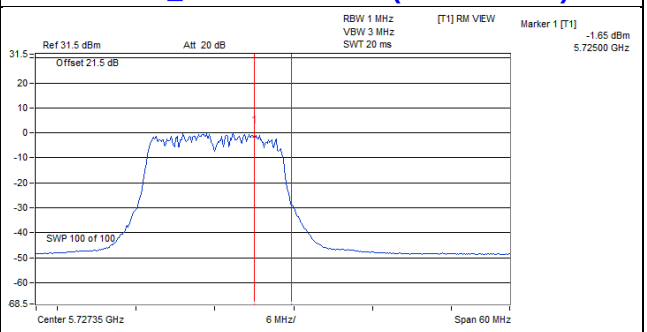
Spectrum Plot Value of Power	
802.11a_Chain 0 / CH144 (U-NII-2C Band)	**802.11a_Chain 0 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 14.9 MHz Power 7.54 dBm	 TX Channel Bandwidth 4.71 MHz Power 1.74 dBm
802.11a_Chain 1 / CH144 (U-NII-2C Band)	**802.11a_Chain 1 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 14.73 MHz Power 7.56 dBm	 TX Channel Bandwidth 4.56 MHz Power 0.16 dBm

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



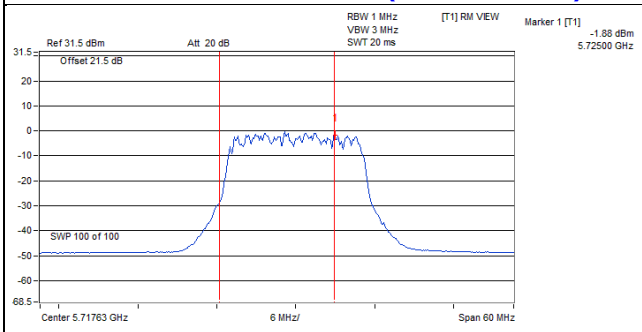
TX Channel Bandwidth 14.93 MHz Power 8.18 dBm

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



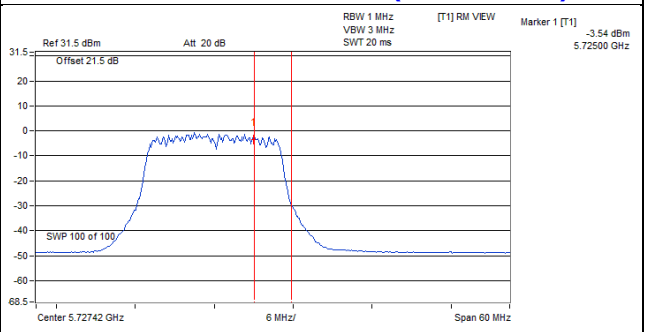
TX Channel Bandwidth 4.7 MHz Power 1.26 dBm

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

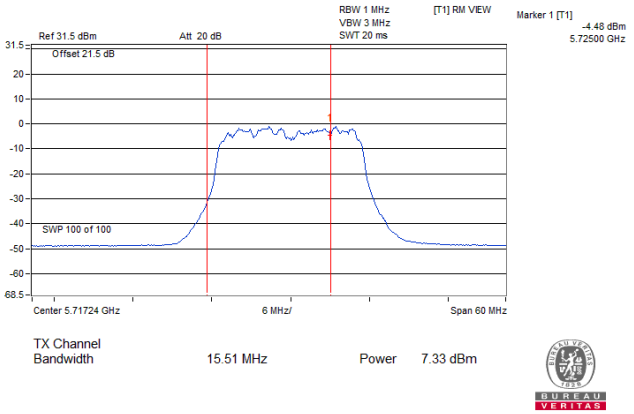
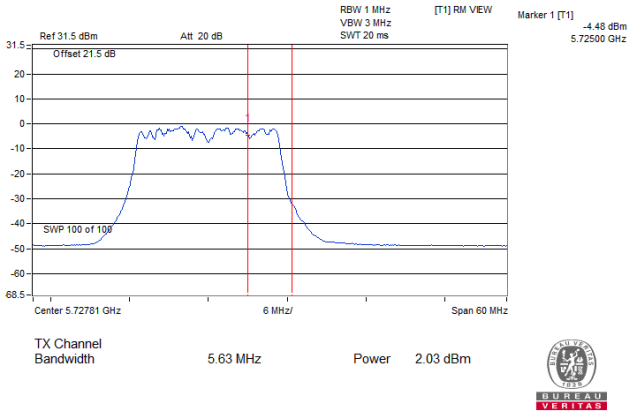
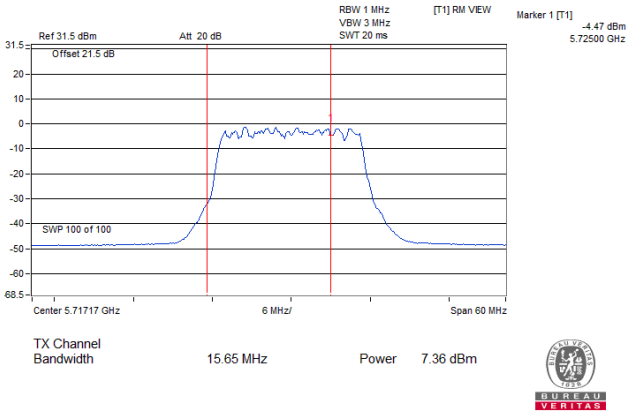
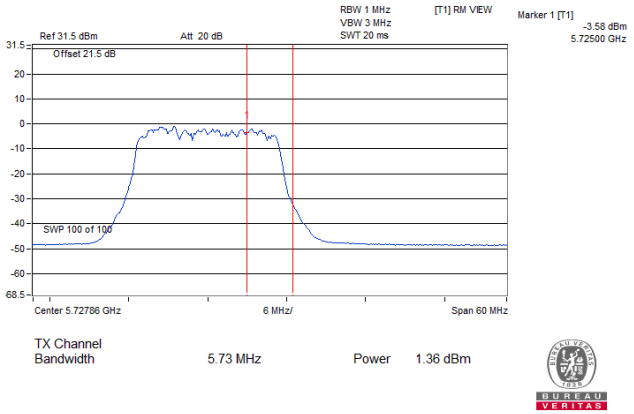


TX Channel Bandwidth 14.74 MHz Power 7.49 dBm

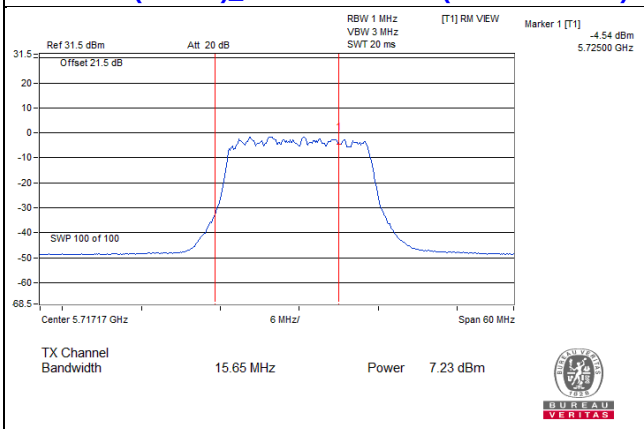
802.11a_Chain 3 / CH144 (U-NII-3 Band)



TX Channel Bandwidth 4.84 MHz Power 0.48 dBm

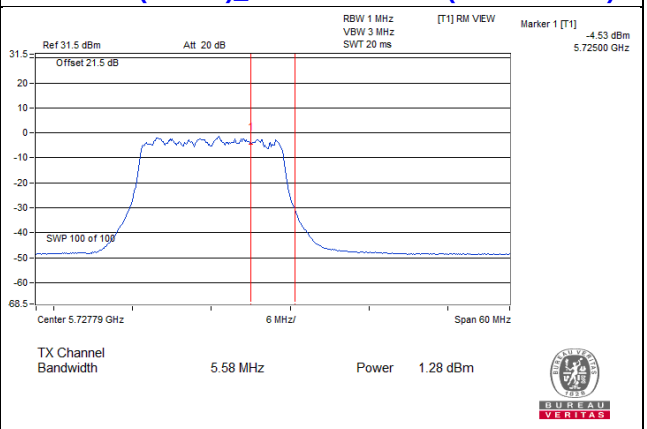
Spectrum Plot Value of Power	
802.11ac (VHT20)_Chain 0 / CH144 (U-NII-2C Band)	**802.11ac (VHT20)_Chain 0 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 15.51 MHz Power 7.33 dBm	 TX Channel Bandwidth 5.63 MHz Power 2.03 dBm
802.11ac (VHT20)_Chain 1 / CH144 (U-NII-2C Band)	**802.11ac (VHT20)_Chain 1 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 15.65 MHz Power 7.36 dBm	 TX Channel Bandwidth 5.73 MHz Power 1.36 dBm

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



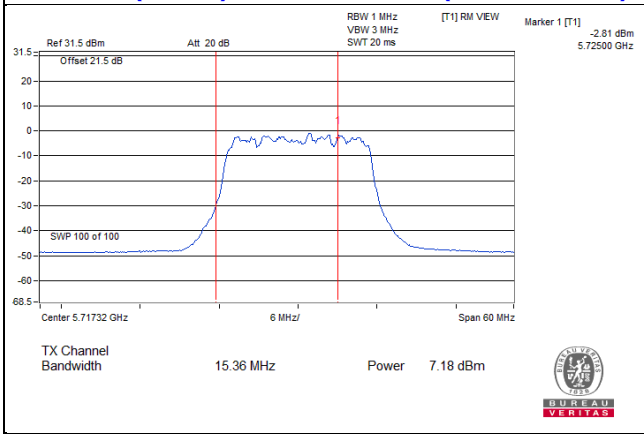
TX Channel Bandwidth 15.65 MHz Power 7.23 dBm

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



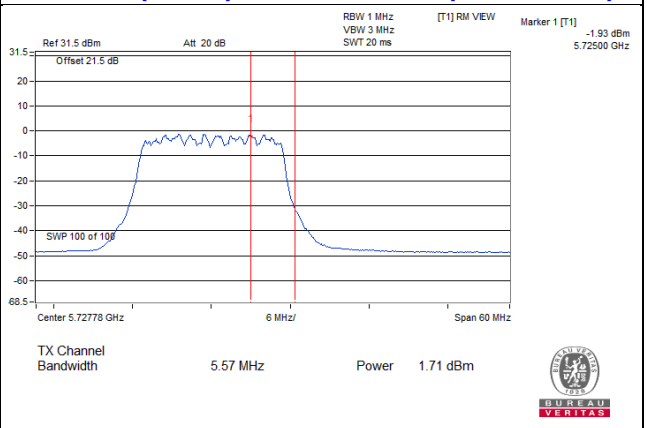
TX Channel Bandwidth 5.58 MHz Power 1.28 dBm

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

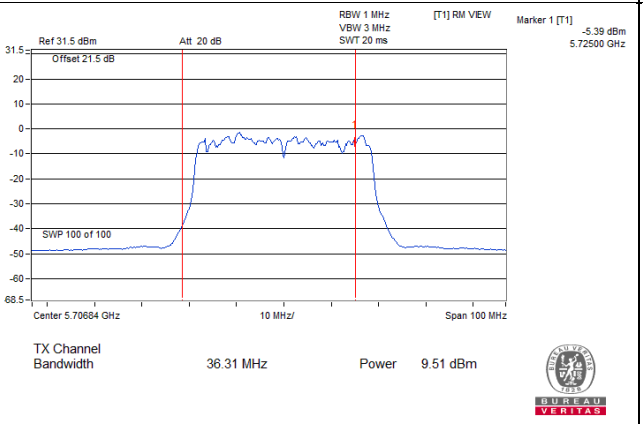
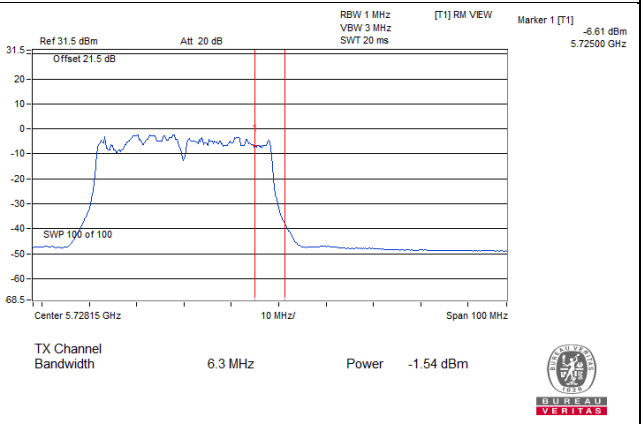
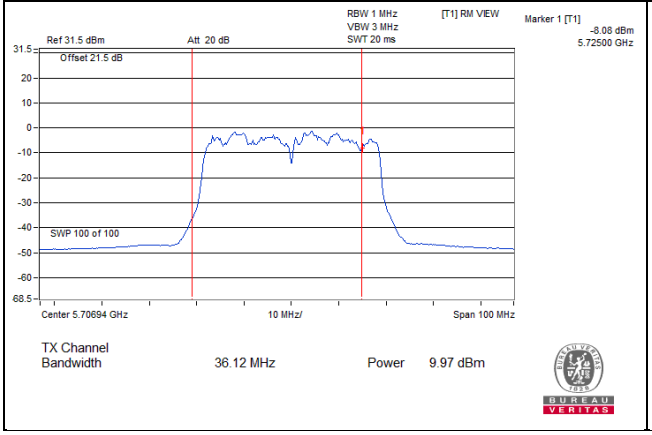
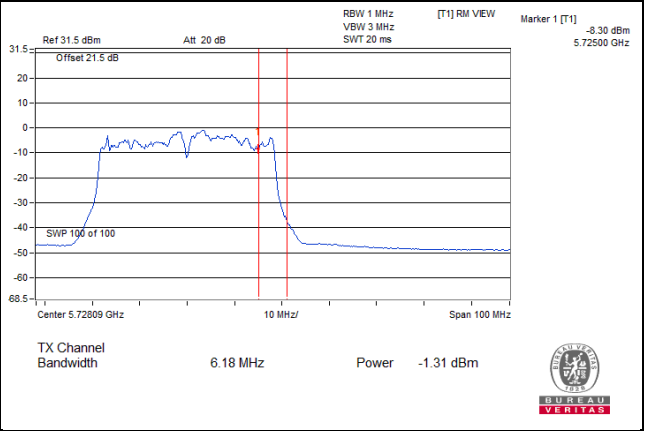


TX Channel Bandwidth 15.36 MHz Power 7.18 dBm

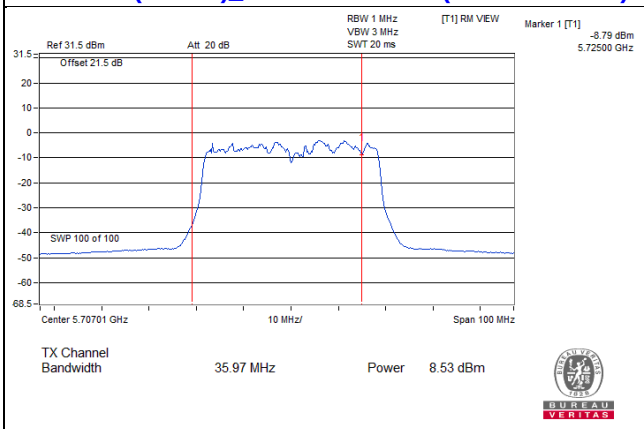
802.11ac (VHT20)_Chain 3 / CH144 (U-NII-3 Band)



TX Channel Bandwidth 5.57 MHz Power 1.71 dBm

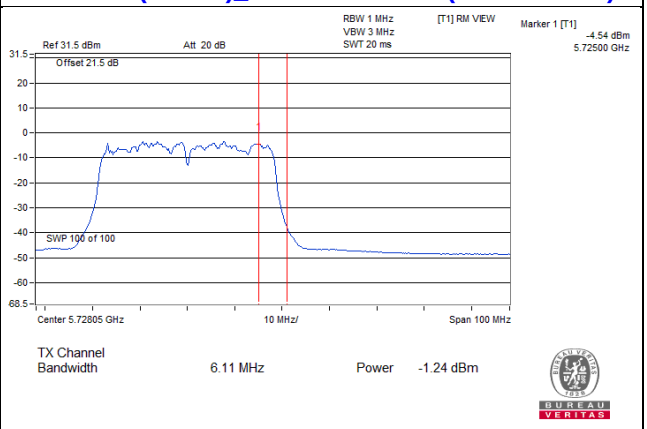
Spectrum Plot Value of Power	
802.11ac (VHT40)_Chain 0 / CH142 (U-NII-2C Band)	**802.11ac (VHT40)_Chain 0 / CH142 (U-NII-3 Band)**
 TX Channel Bandwidth 36.31 MHz Power 9.51 dBm	 TX Channel Bandwidth 6.3 MHz Power -1.54 dBm
802.11ac (VHT40)_Chain 1 / CH142 (U-NII-2C Band)	**802.11ac (VHT40)_Chain 1 / CH142 (U-NII-3 Band)**
 TX Channel Bandwidth 36.12 MHz Power 9.97 dBm	 TX Channel Bandwidth 6.18 MHz Power -1.31 dBm

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



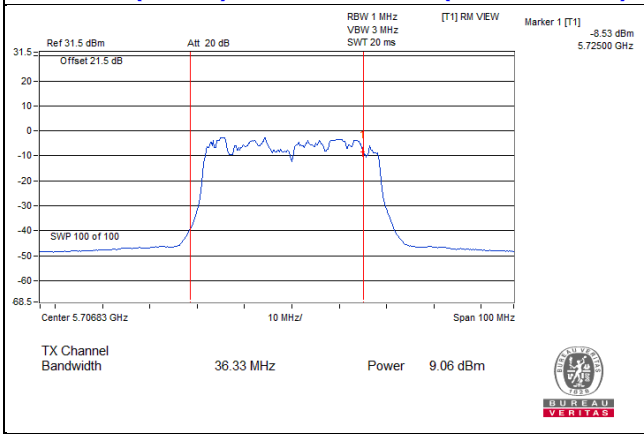
TX Channel Bandwidth 35.97 MHz Power 8.53 dBm

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



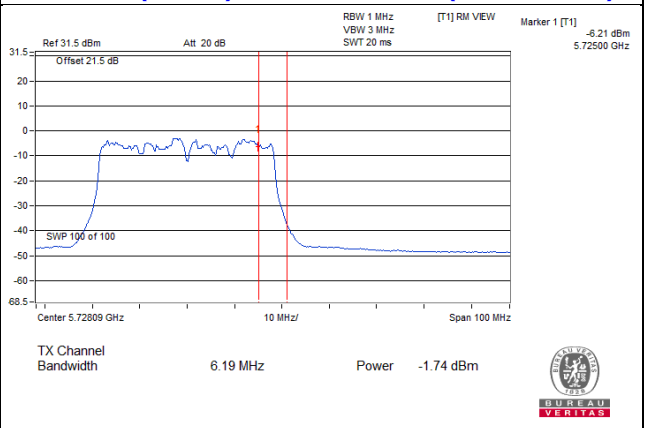
TX Channel Bandwidth 6.11 MHz Power -1.24 dBm

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



TX Channel Bandwidth 36.33 MHz Power 9.06 dBm

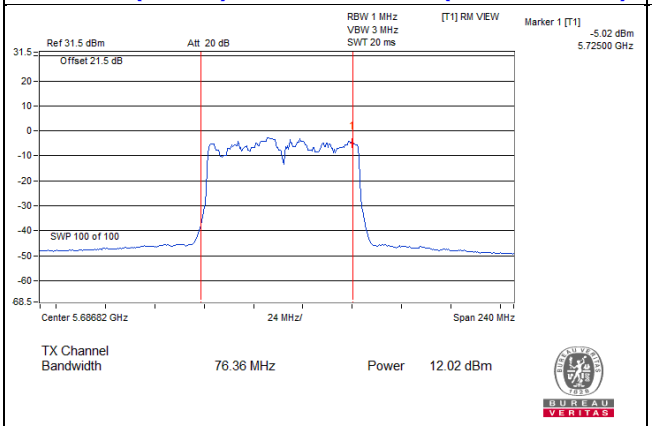
802.11ac (VHT40)_Chain 3 / CH142 (U-NII-3 Band)



TX Channel Bandwidth 6.19 MHz Power -1.74 dBm

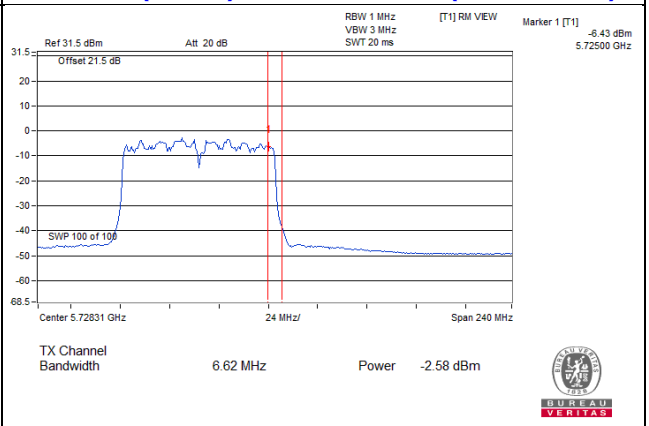
Spectrum Plot Value of Power

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



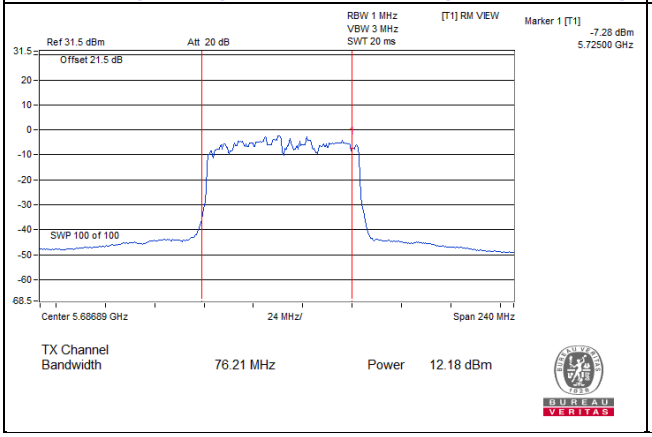
TX Channel Bandwidth 76.36 MHz Power 12.02 dBm

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



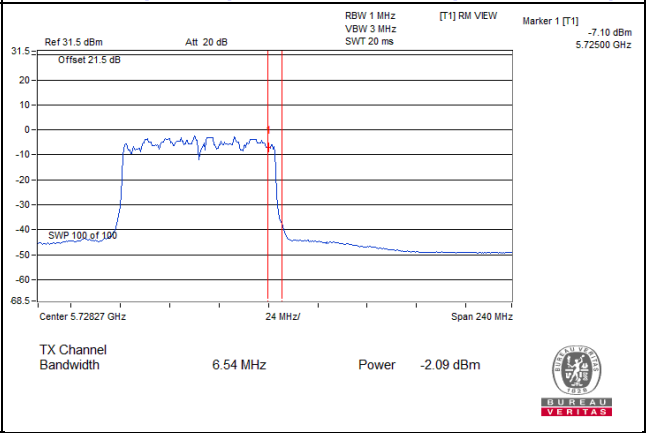
TX Channel Bandwidth 6.62 MHz Power -2.58 dBm

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



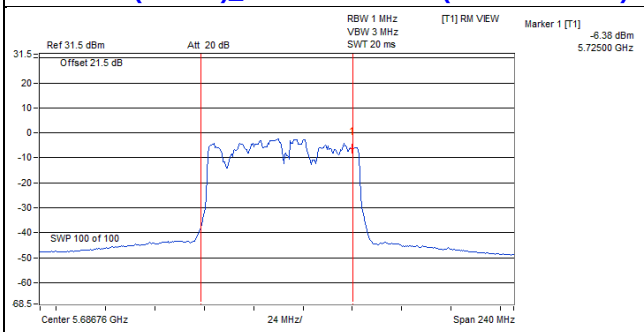
TX Channel Bandwidth 76.21 MHz Power 12.18 dBm

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



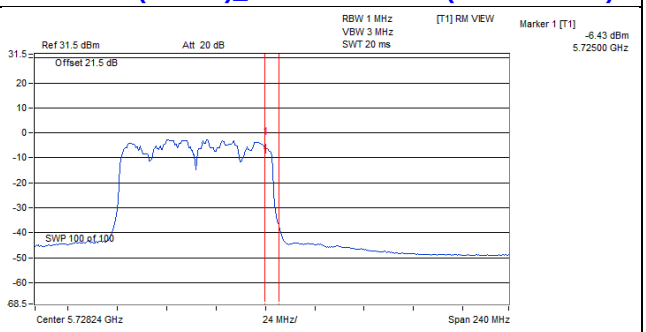
TX Channel Bandwidth 6.54 MHz Power -2.09 dBm

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



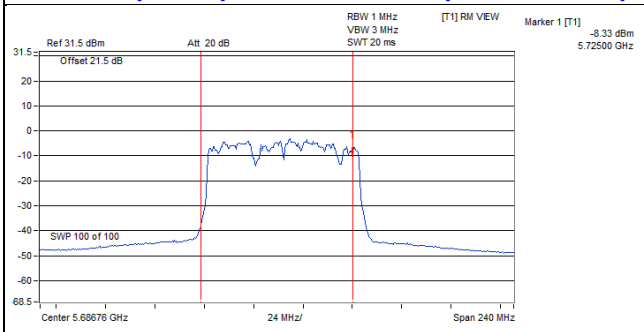
TX Channel Bandwidth 76.47 MHz Power 12.3 dBm

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



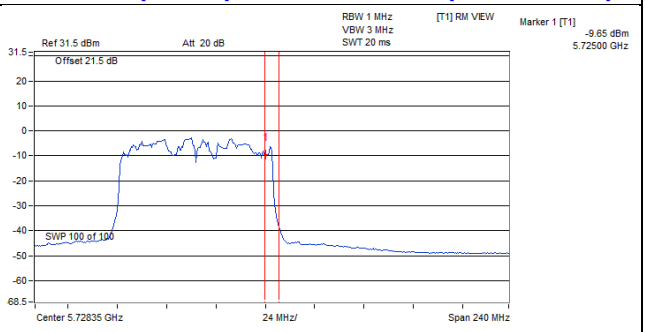
TX Channel Bandwidth 6.49 MHz Power -2.3 dBm

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

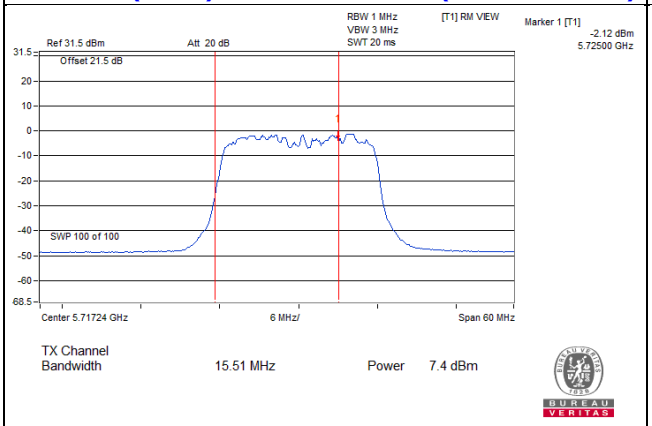
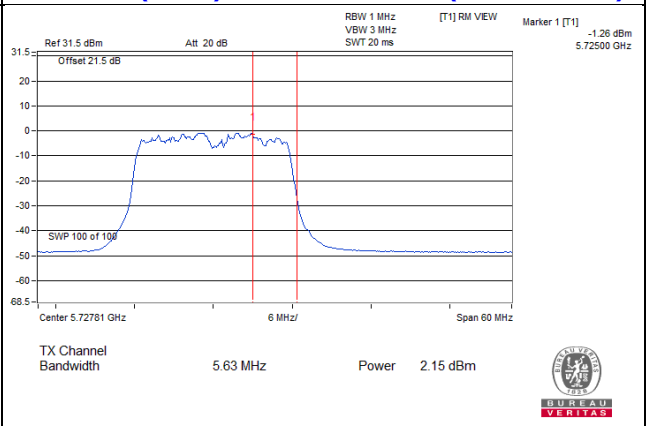
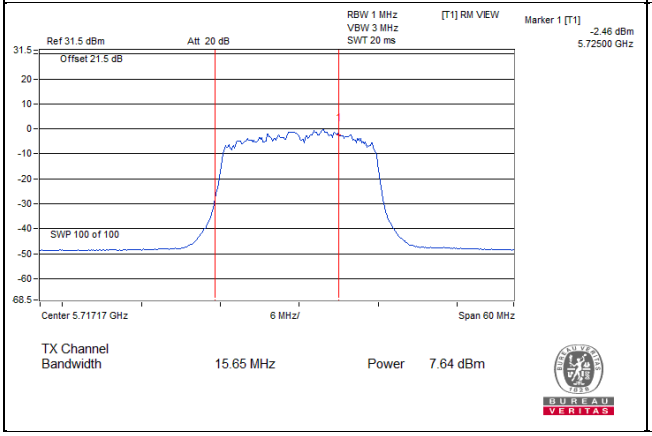
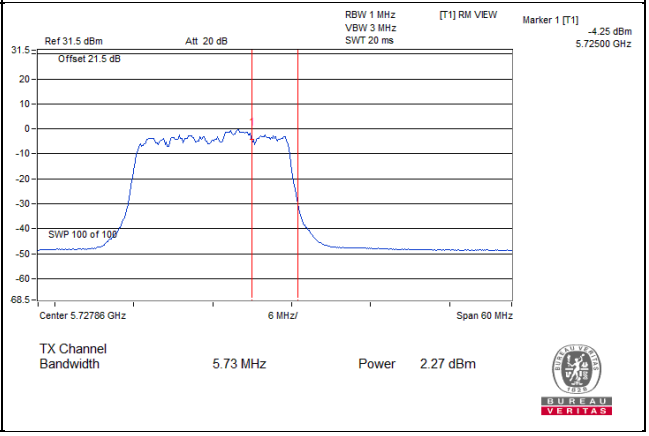


TX Channel Bandwidth 76.47 MHz Power 11.7 dBm

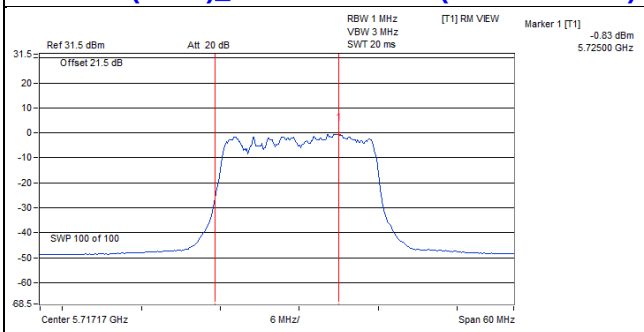
802.11ac (VHT80)_Chain 3 / CH138 (U-NII-3 Band)



TX Channel Bandwidth 6.7 MHz Power -3.24 dBm

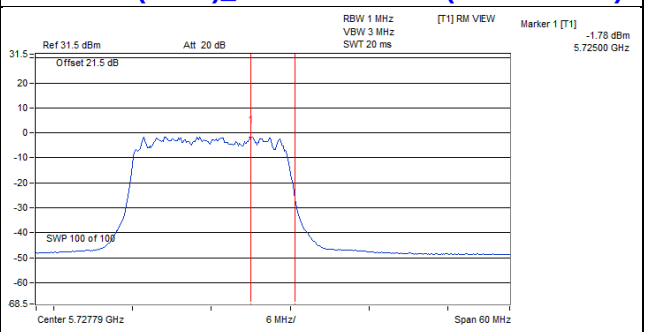
Spectrum Plot Value of Power	
802.11ax (HE20)_Chain 0 / CH144 (U-NII-2C Band)	**802.11ax (HE20)_Chain 0 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 15.51 MHz Power 7.4 dBm	 TX Channel Bandwidth 5.63 MHz Power 2.15 dBm
802.11ax (HE20)_Chain 1 / CH144 (U-NII-2C Band)	**802.11ax (HE20)_Chain 1 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 15.65 MHz Power 7.64 dBm	 TX Channel Bandwidth 5.73 MHz Power 2.27 dBm

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



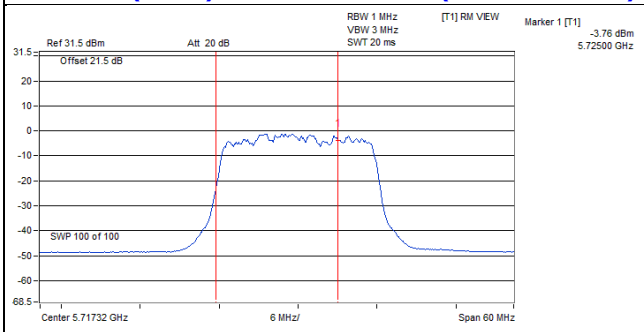
TX Channel Bandwidth 15.65 MHz Power 7.84 dBm

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



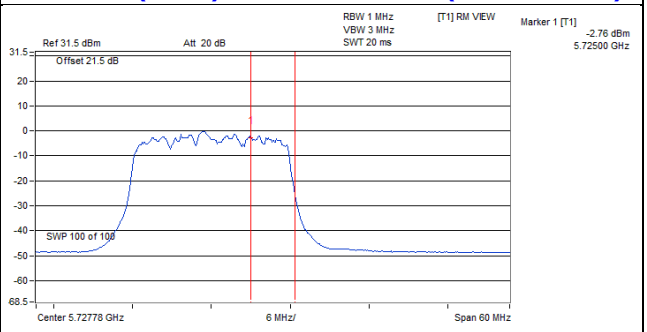
TX Channel Bandwidth 5.58 MHz Power 2.25 dBm

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



TX Channel Bandwidth 15.36 MHz Power 7.63 dBm

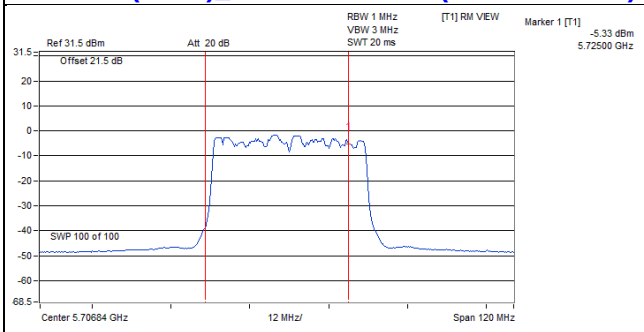
802.11ax (HE20)_Chain 3 / CH144 (U-NII-3 Band)



TX Channel Bandwidth 5.57 MHz Power 2.17 dBm

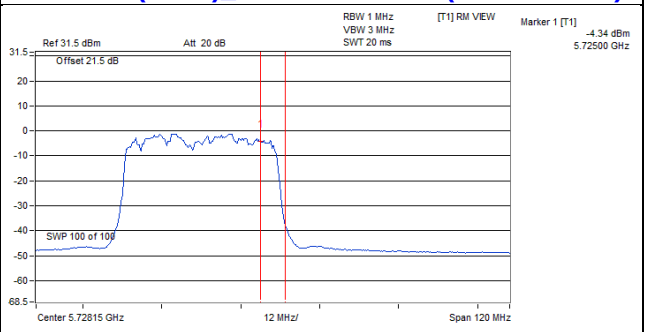
Spectrum Plot Value of Power

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



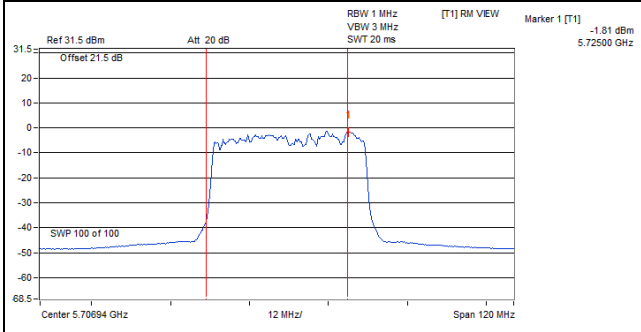
TX Channel Bandwidth 36.31 MHz Power 10.59 dBm

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



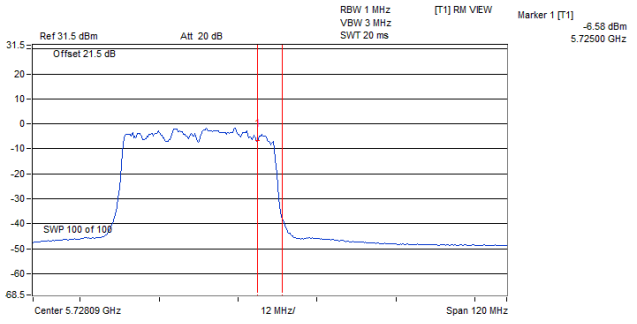
TX Channel Bandwidth 6.3 MHz Power 0.39 dBm

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



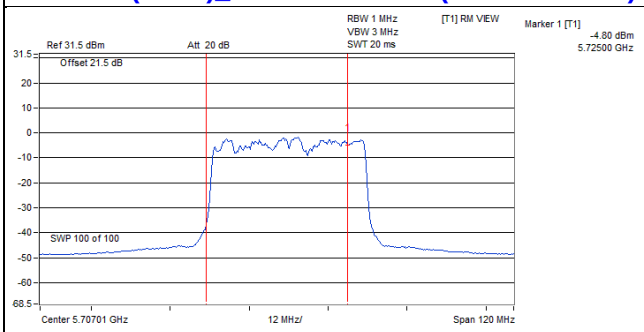
TX Channel Bandwidth 36.12 MHz Power 10.23 dBm

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



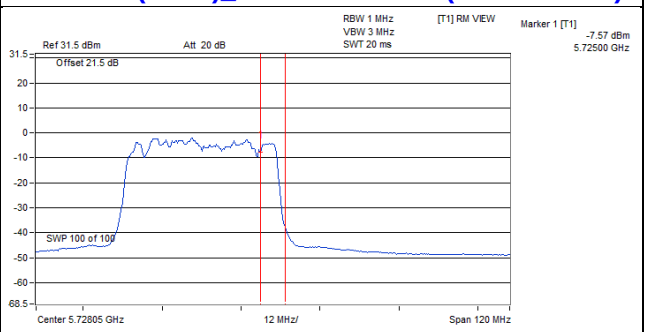
TX Channel Bandwidth 6.18 MHz Power -0.26 dBm

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



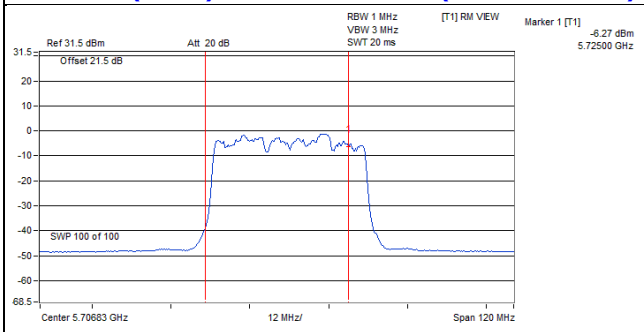
TX Channel Bandwidth 35.97 MHz Power 10.21 dBm

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



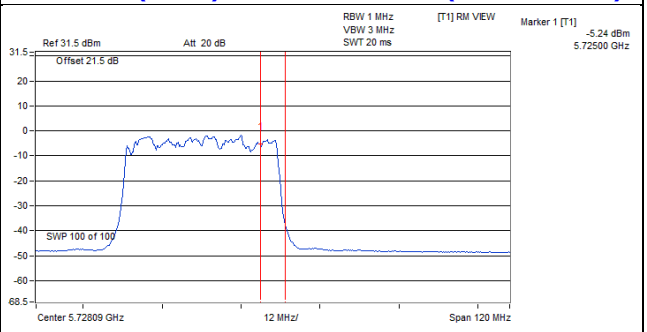
TX Channel Bandwidth 6.11 MHz Power 0.65 dBm

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

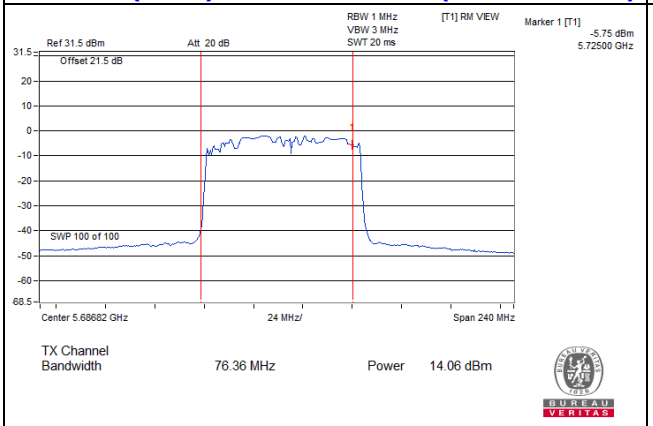
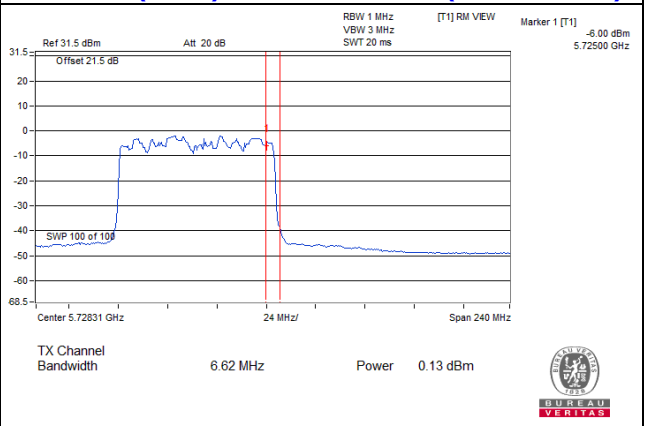
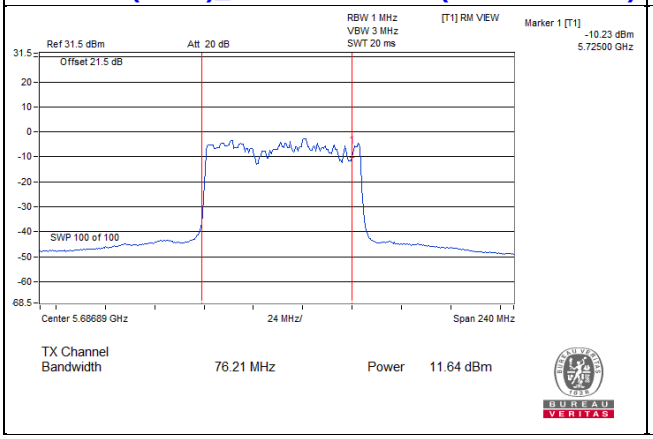
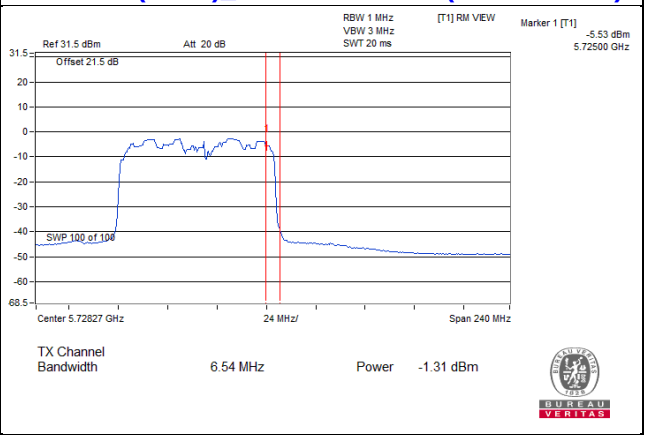


TX Channel Bandwidth 36.33 MHz Power 10.49 dBm

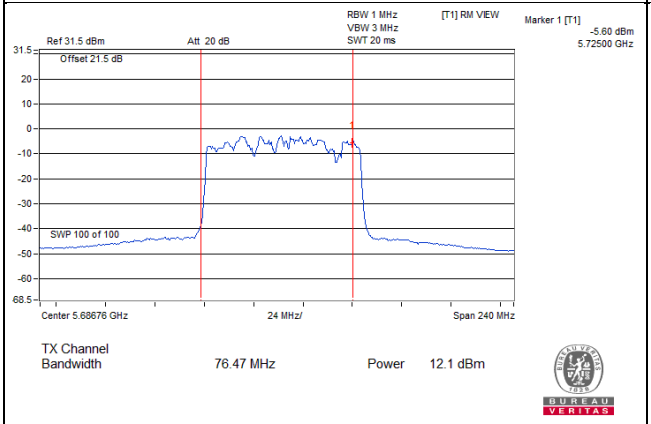
802.11ax (HE40)_Chain 3 / CH142 (U-NII-3 Band)



TX Channel Bandwidth 6.19 MHz Power 1.15 dBm

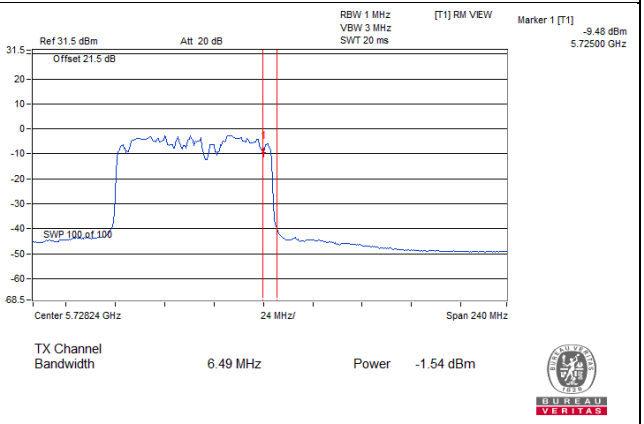
Spectrum Plot Value of Power	
802.11ax (HE80)_Chain 0 / CH138 (U-NII-2C Band)	**802.11ax (HE80)_Chain 0 / CH138 (U-NII-3 Band)**
 TX Channel Bandwidth 76.36 MHz Power 14.06 dBm	 TX Channel Bandwidth 6.62 MHz Power 0.13 dBm
802.11ax (HE80)_Chain 1 / CH138 (U-NII-2C Band)	**802.11ax (HE80)_Chain 1 / CH138 (U-NII-3 Band)**
 TX Channel Bandwidth 76.21 MHz Power 11.64 dBm	 TX Channel Bandwidth 6.54 MHz Power -1.31 dBm

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



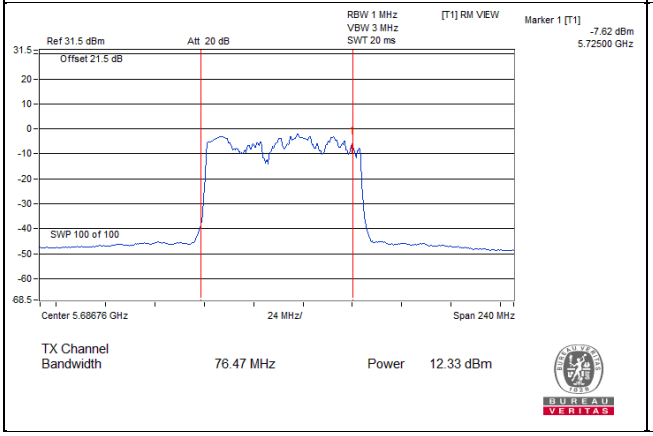
TX Channel Bandwidth 76.47 MHz Power 12.1 dBm

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



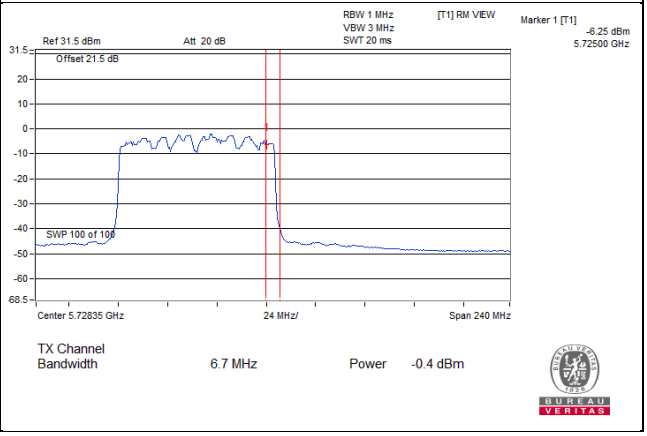
TX Channel Bandwidth 6.49 MHz Power -1.54 dBm

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



TX Channel Bandwidth 76.47 MHz Power 12.33 dBm

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



TX Channel Bandwidth 6.7 MHz Power -0.4 dBm

CDD Mode

26dB OCCUPIED BANDWIDTH

802.11a

Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		Chain0	Chain1	Chain2	Chain3
52	5260	19.6	19.68	19.6	19.66
60	5300	19.49	19.72	19.74	19.65
64	5320	19.59	19.79	19.61	19.7
100	5500	19.68	19.22	19.6	19.77
116	5580	19.45	19.34	19.62	19.88
140	5700	19.65	19.56	19.65	19.73
144 (U-NII-2C Band)	5720	14.9	14.73	14.93	14.74

802.11ax (HE20)

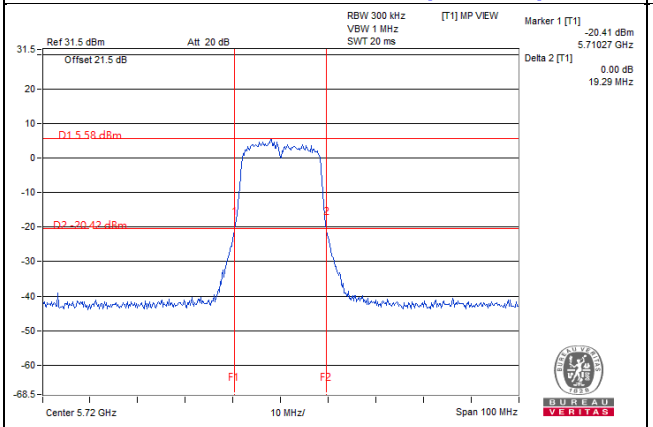
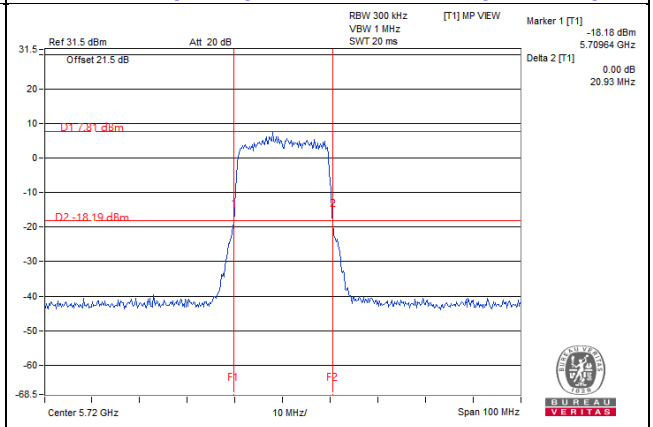
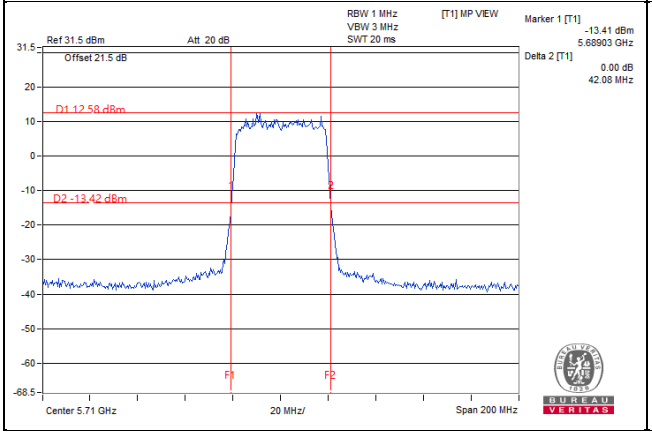
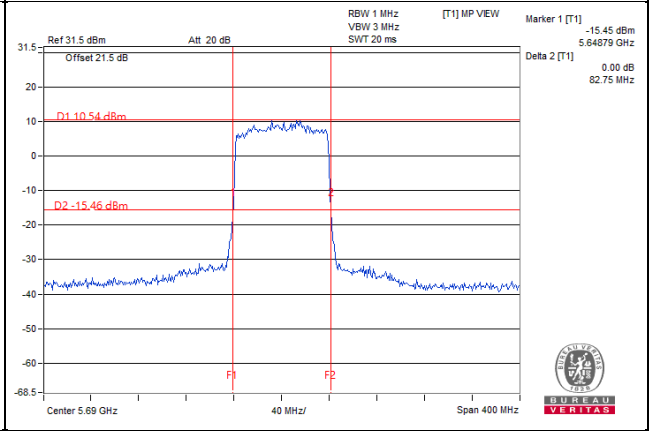
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		Chain0	Chain1	Chain2	Chain3
52	5260	21.55	21.68	21.24	21.24
60	5300	21.34	21.49	21.32	21.62
64	5320	21.59	21.37	21.67	21.45
100	5500	21.44	21.3	21.07	21.37
116	5580	21.74	21.56	21.29	21.29
140	5700	21.25	21.21	21.43	21.2
144 (U-NII-2C Band)	5720	15.51	15.65	15.65	15.36

802.11ax (HE40)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		Chain0	Chain1	Chain2	Chain3
54	5270	42.49	42.67	42.67	42.46
62	5310	42.31	42.29	42.27	42.77
102	5510	42.69	42.71	42.58	42.55
110	5550	42.27	42.42	42.28	41.99
134	5670	42.63	42.28	42.94	42.75
142 (U-NII-2C Band)	5710	36.31	36.12	35.97	36.33

802.11ax (HE80)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		Chain0	Chain1	Chain2	Chain3
58	5290	83.42	82.78	83.4	83.37
106	5530	83.25	83.64	83.08	83.02
138 (U-NII-2C Band)	5690	76.36	76.21	76.47	76.47

Spectrum Plot of Worst Value	
802.11a_Chain 1 / CH144 (U-NII-2C)	**802.11ax (HE20)_Chain 3 / CH144 (U-NII-2C)**
	
802.11ax (HE40)_Chain 2 / CH142 (U-NII-2C)	**802.11ax (HE80)_Chain 1 / CH138 (U-NII-2C)**
	

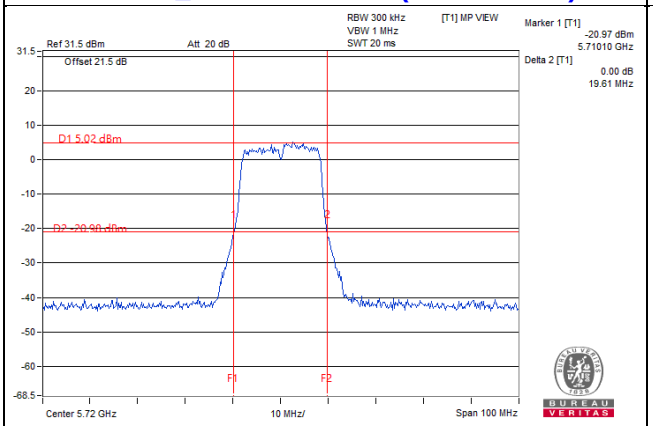
Note:

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

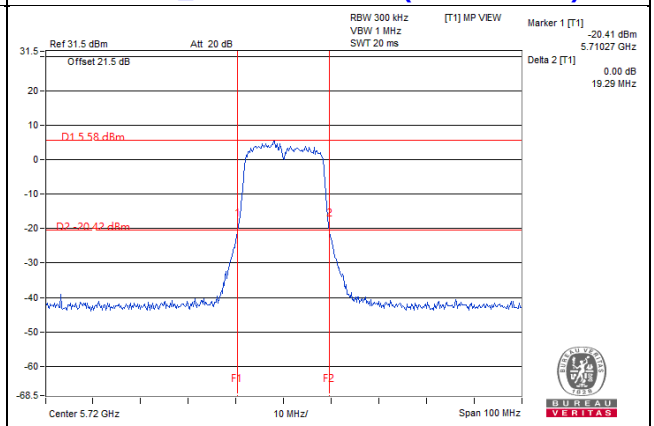
For channel straddling 5725MHz of 26dB BW

Spectrum Plot Value of 26dB BW

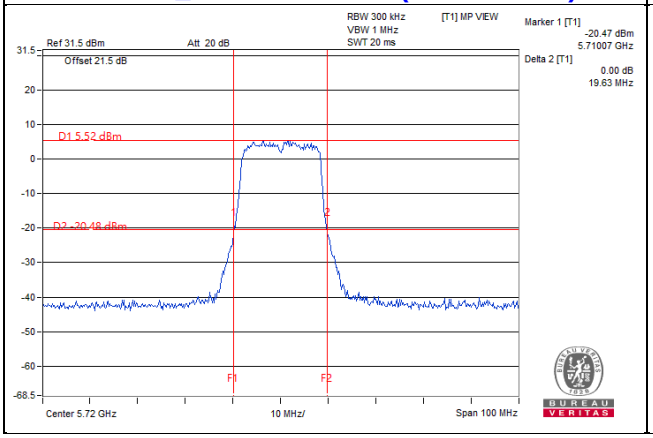
802.11a _Chain 0 / CH144 (U-NII-3 Band)



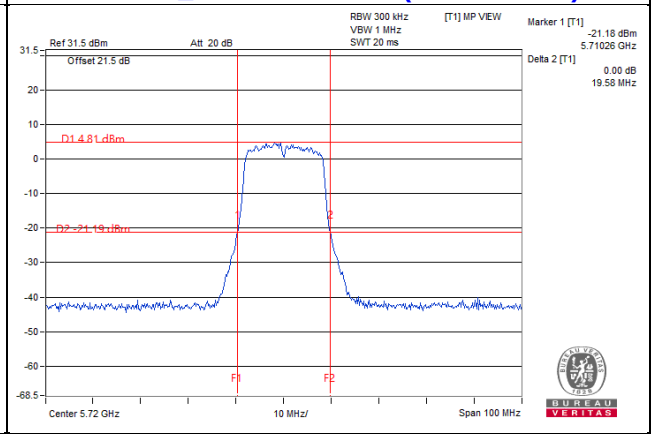
802.11a _Chain 1 / CH144 (U-NII-3 Band)

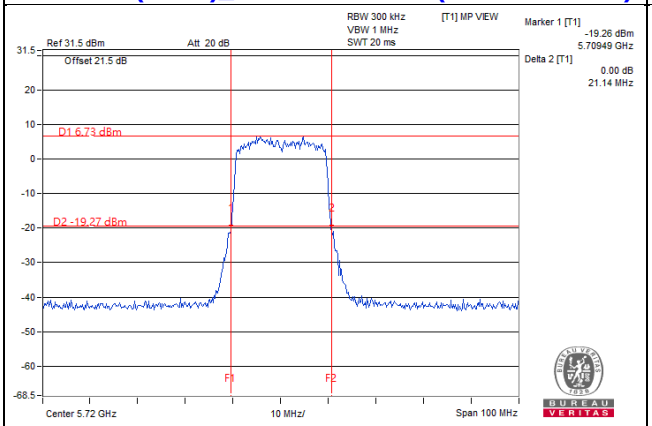
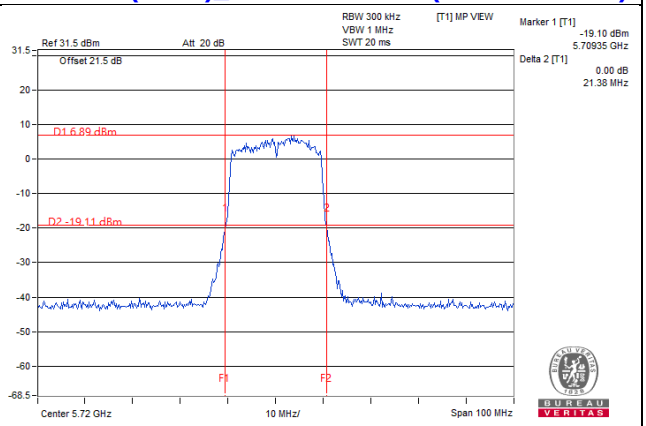
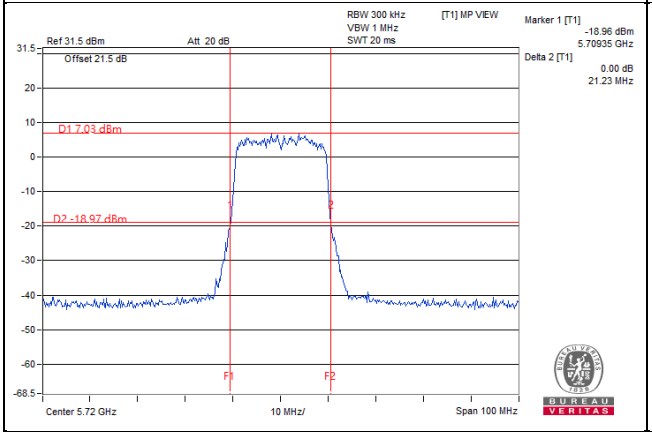
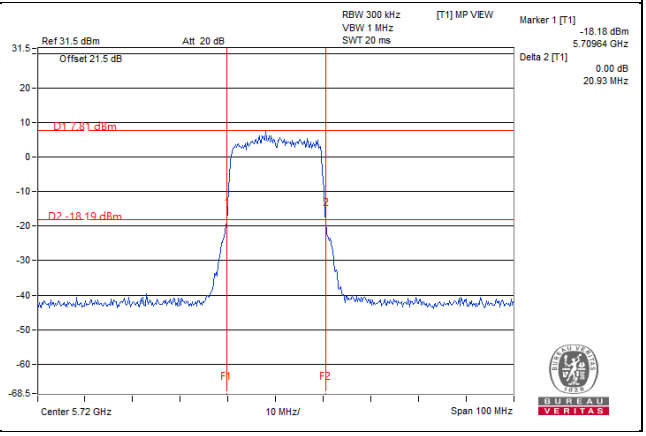


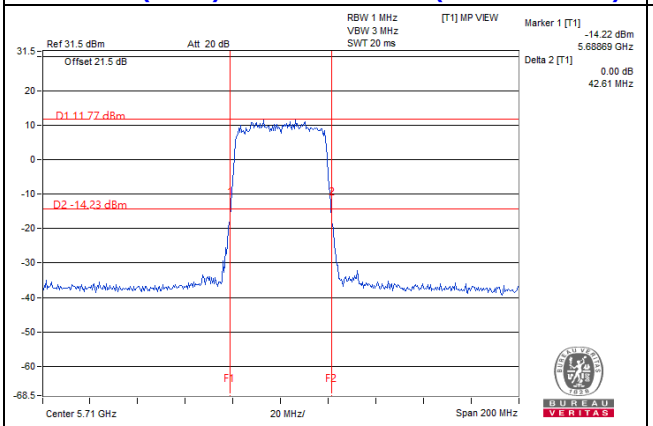
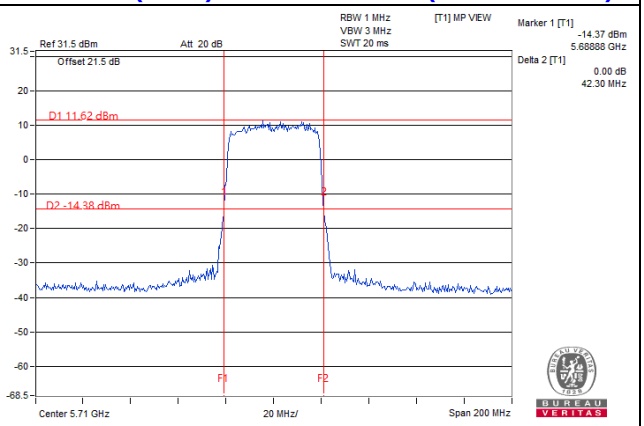
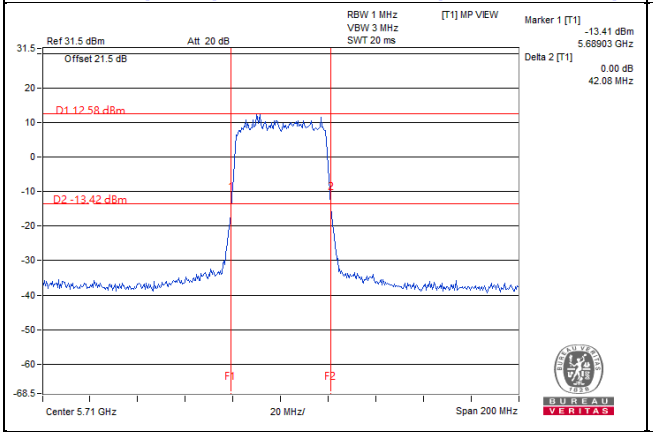
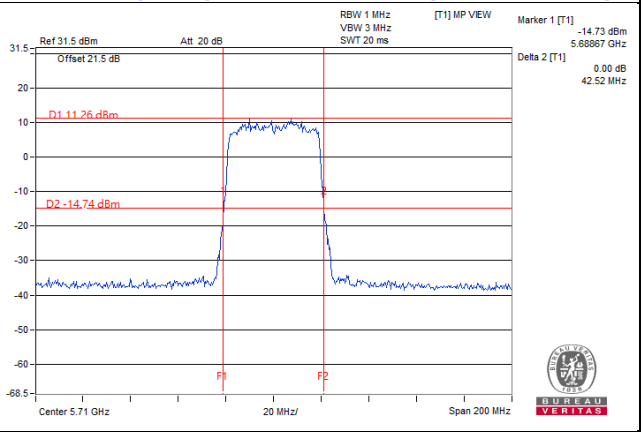
802.11a _Chain 2 / CH144 (U-NII-3 Band)

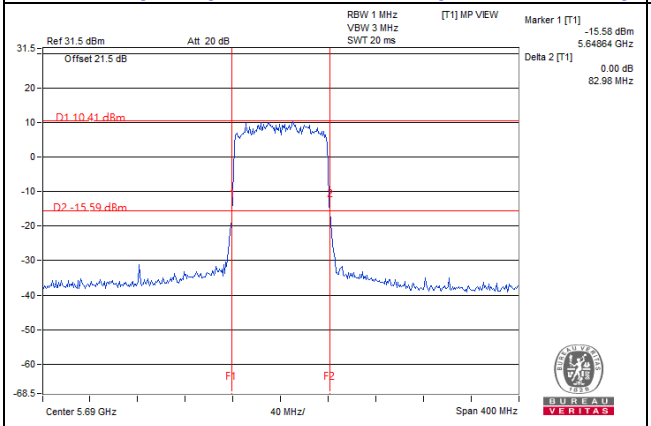
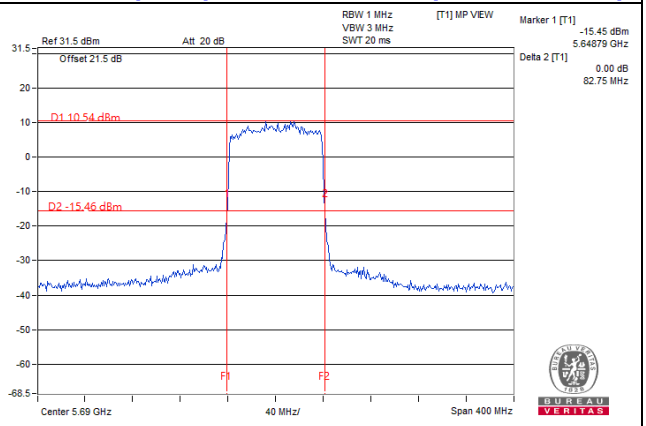
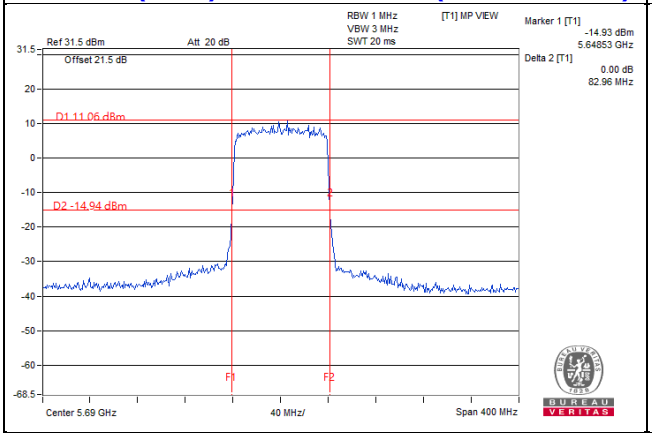
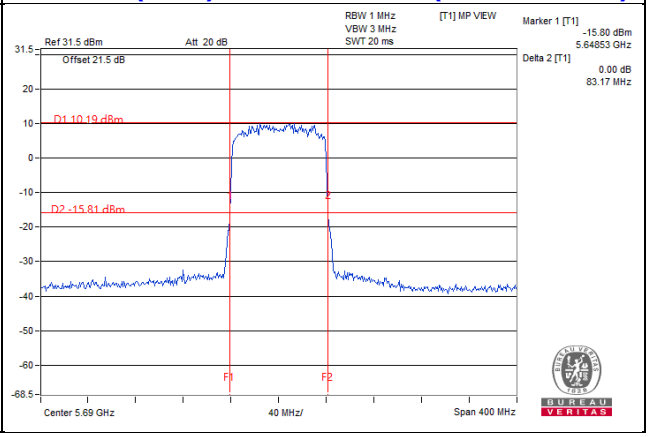


802.11a _Chain 3 / CH144 (U-NII-3 Band)



Spectrum Plot Value of 26dB BW	
802.11ax (HE20)_Chain 0/ CH144 (U-NII-2C Band)	**802.11ax (HE20)_Chain 1/ CH144 (U-NII-2C Band)**
	
802.11ax (HE20)_Chain 2/ CH144 (U-NII-2C Band)	**802.11ax (HE20)_Chain 3/ CH144 (U-NII-2C Band)**
	

Spectrum Plot Value of 26dB BW	
802.11ax (HE40)_Chain 0 / CH142 (U-NII-2C Band)	**802.11ax (HE40)_Chain 1 / CH142 (U-NII-2C Band)**
	
802.11ax (HE40)_Chain 2 / CH142 (U-NII-2C Band)	**802.11ax (HE40)_Chain 3 / CH142 (U-NII-2C Band)**
	

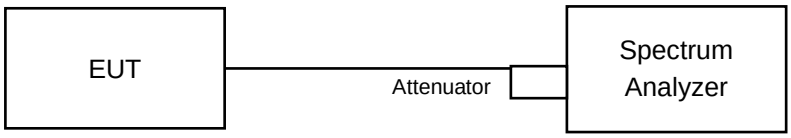
Spectrum Plot Value of 26dB BW	
802.11ax (HE80)_Chain 0/ CH138 (U-NII-2C Band)	**802.11ax (HE80)_Chain 1/ CH138 (U-NII-2C Band)**
	
802.11ax (HE80)_Chain 2/ CH138 (U-NII-2C Band)	**802.11ax (HE80)_Chain 3/ CH138 (U-NII-2C Band)**
	

Note:

For CH144 (U-NII-2C Band) = 5725MHz - Marker 1
For CH142 (U-NII-2C Band) = 5725MHz - Marker 1
For CH138 (U-NII-2C Band) = 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	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	16.44	16.44	16.56	16.44
60	5300	16.44	16.44	16.44	16.56
64	5320	16.44	16.44	16.44	16.44
100	5500	16.56	16.44	16.44	16.56
116	5580	16.56	16.56	16.44	16.56
140	5700	16.56	16.56	16.44	16.44
144 (U-NII-2C Band)	5720	13.28	13.28	13.28	13.28
144 (U-NII-3 Band)	5720	3.28	3.16	3.16	3.28

802.11ax (HE20)

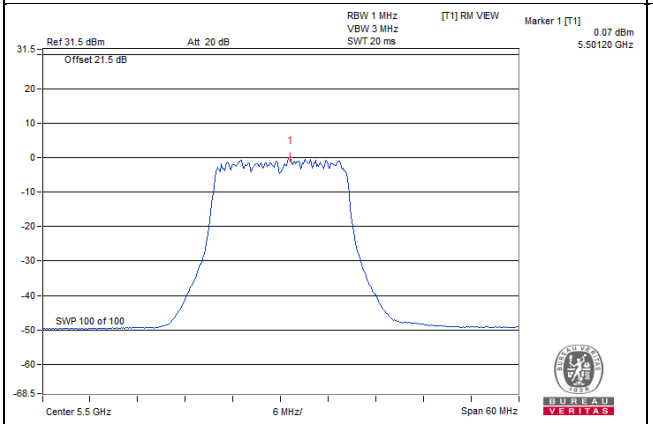
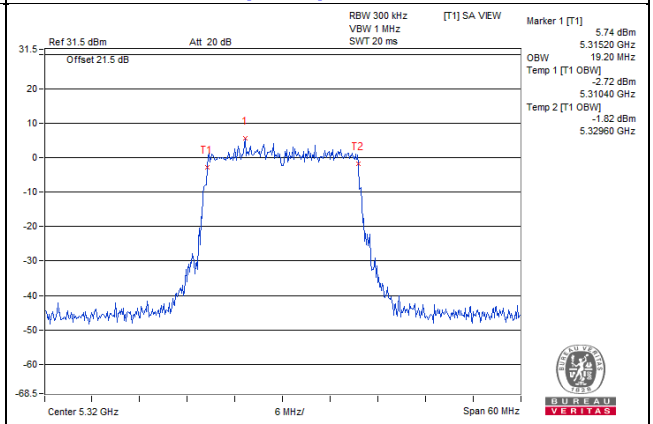
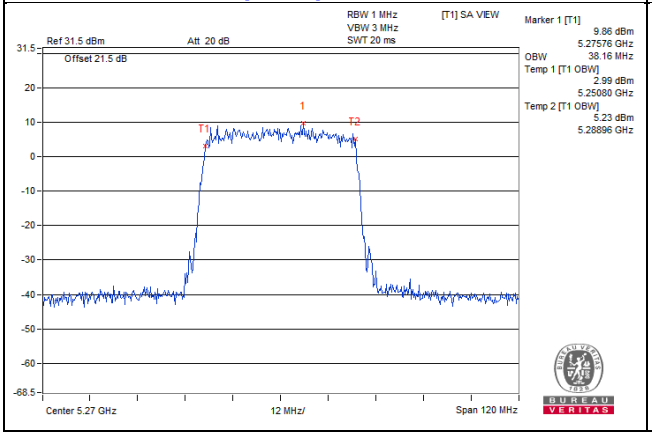
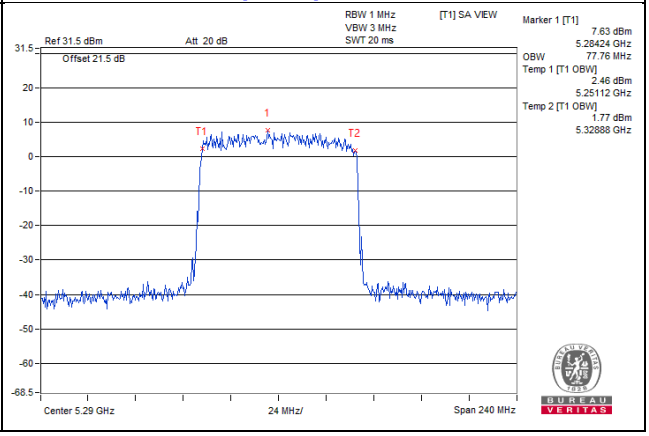
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	18.96	19.08	18.96	18.96
60	5300	19.08	18.96	19.08	18.96
64	5320	18.96	19.08	19.08	19.2
100	5500	18.96	18.96	19.08	18.96
116	5580	18.84	19.08	19.08	18.96
140	5700	18.96	18.96	18.96	19.08
144 (U-NII-2C Band)	5720	14.48	14.48	14.6	14.48
144 (U-NII-3 Band)	5720	4.48	4.48	4.48	4.48

802.11ax (HE40)

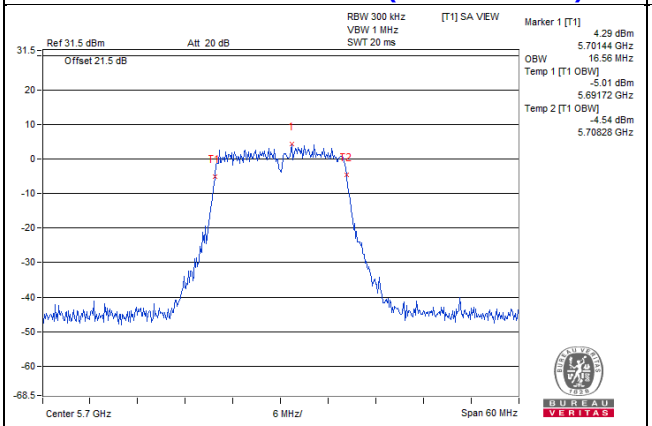
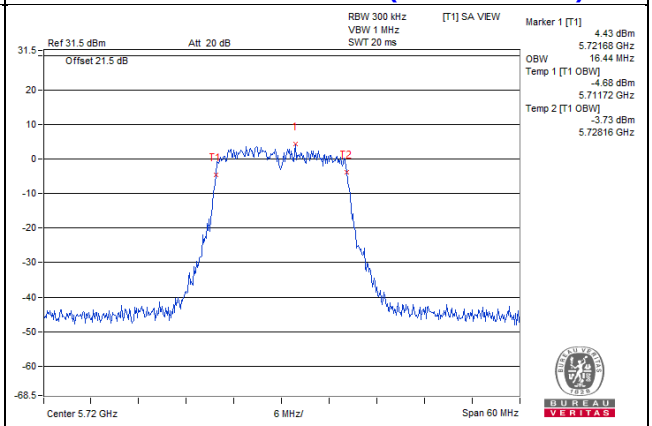
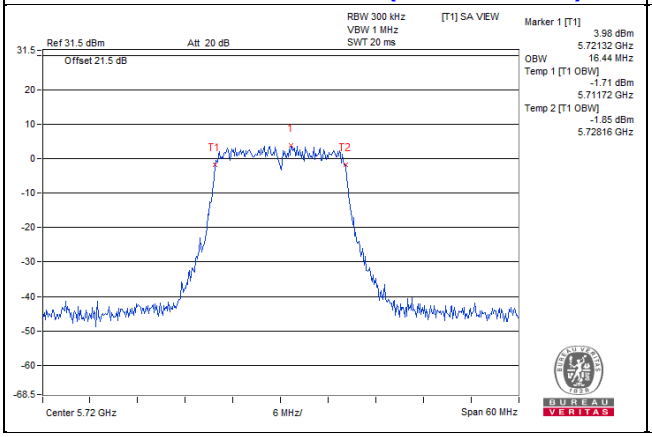
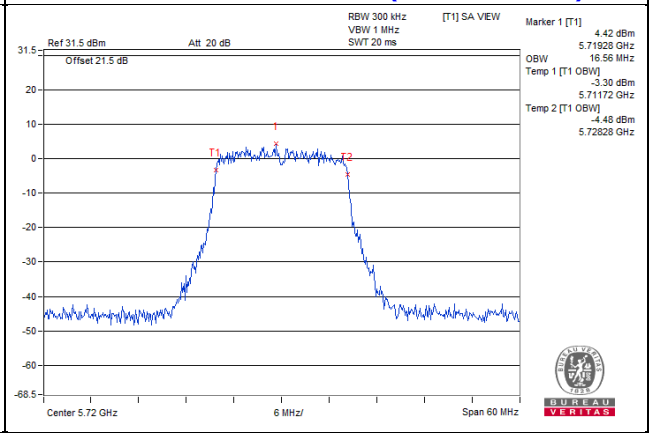
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	38.16	37.92	38.16	38.16
62	5310	38.16	38.16	37.92	38.16
102	5510	37.92	38.16	38.16	37.92
110	5550	37.92	38.16	38.16	37.68
134	5670	38.16	38.16	38.16	38.16
142 (U-NII-2C Band)	5710	34.2	33.96	33.96	33.96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

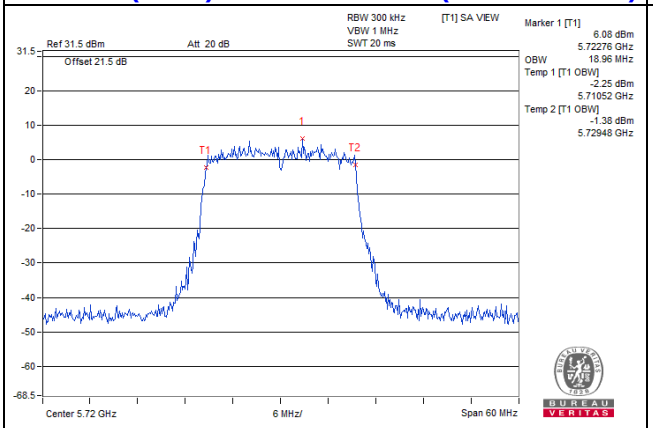
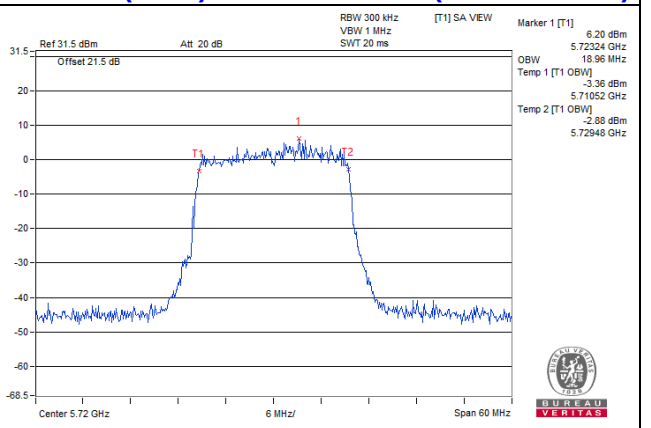
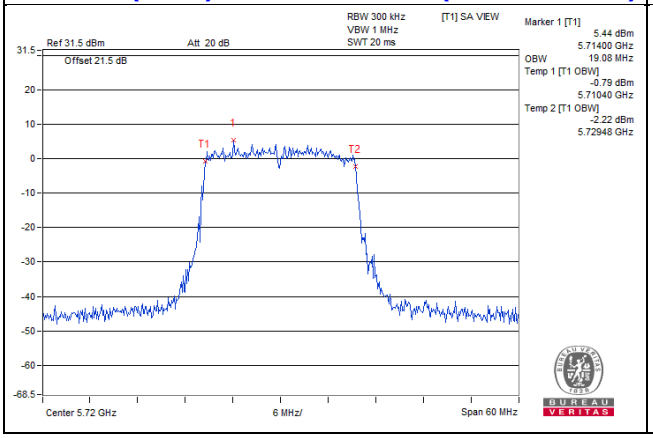
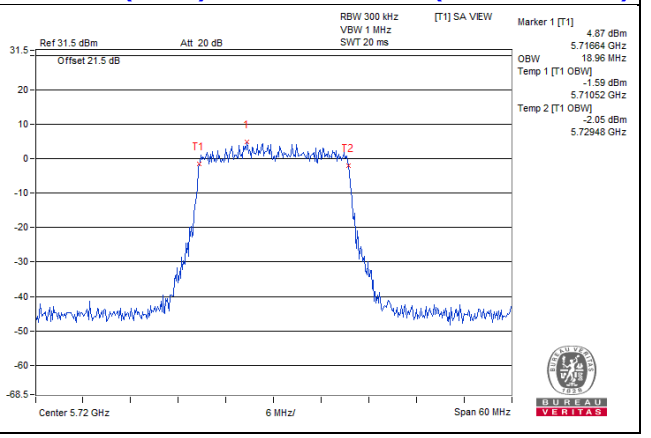
802.11ax (HE80)

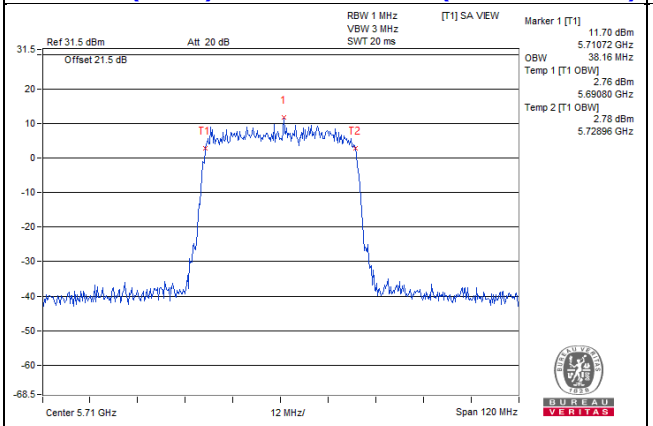
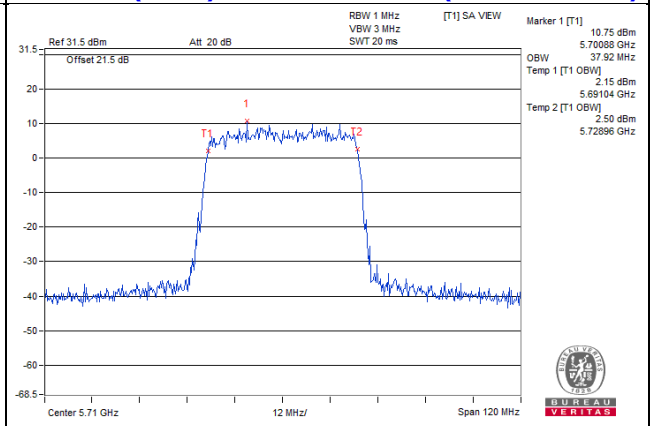
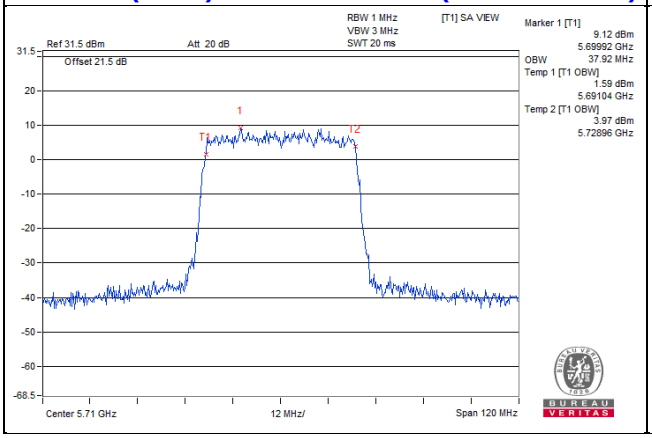
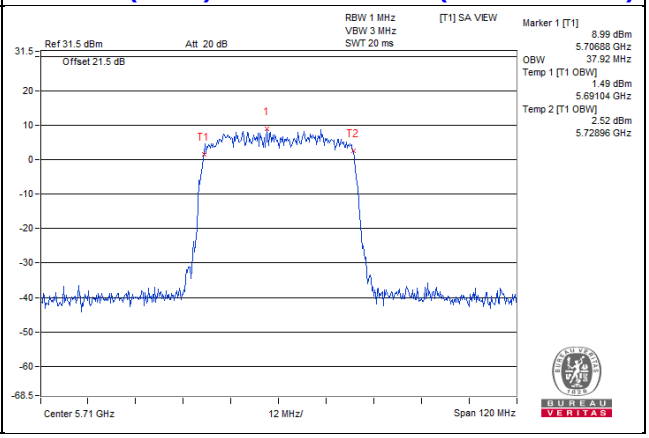
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	77.76	77.28	76.8	77.28
106	5530	77.28	77.28	77.76	77.28
138 (U-NII-2C Band)	5690	73.88	73.4	73.88	73.4
138 (U-NII-3 Band)	5690	3.4	3.4	3.4	3.4

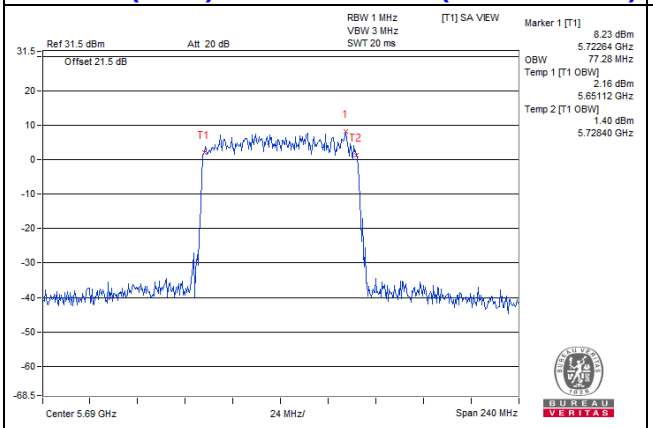
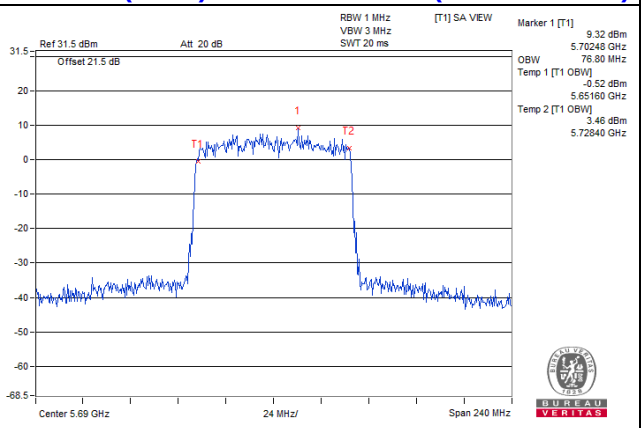
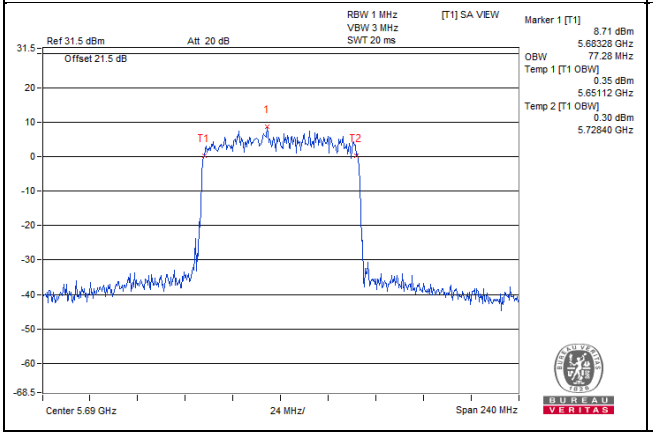
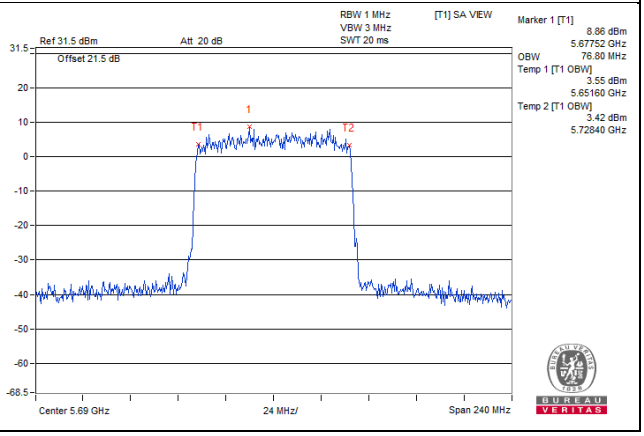
Spectrum Plot of Max. Value	
802.11a_Chain 0 / CH100	**802.11ax (HE20)_Chain 3 / CH64**
	
802.11ax (HE40)_Chain 0 / CH54	**802.11ax (HE80)_Chain 0 / CH58**
	

For channel straddling 5725MHz of OCP99 BW

Spectrum Plot Value of OCP99 BW	
802.11a / Chain0 : CH144 (U-NII-2C Band)	**802.11a / Chain1 : CH144 (U-NII-2C Band)**
	
802.11a / Chain2 : CH144 (U-NII-2C Band)	**802.11a / Chain3 : CH144 (U-NII-2C Band)**
	

Spectrum Plot Value of OCP99 BW	
802.11ax (HE20) / Chain0 : CH144 (U-NII-2C Band)	**802.11ax (HE20) / Chain1 : CH144 (U-NII-2C Band)**
	
802.11ax (HE20) / Chain2 : CH144 (U-NII-2C Band)	**802.11ax (HE20) / Chain3 : CH144 (U-NII-2C Band)**
	

Spectrum Plot Value of OCP99 BW	
802.11ax (HE40) / Chain0 : CH142 (U-NII-2C Band)	**802.11ax (HE40) / Chain1 : CH142 (U-NII-2C Band)**
	
802.11ax (HE40) / Chain2 : CH142 (U-NII-2C Band)	**802.11ax (HE40) / Chain3 : CH142 (U-NII-2C Band)**
	

Spectrum Plot Value of OCP99 BW	
802.11ax (HE80) / Chain0 : CH138 (U-NII-2C Band)	**802.11ax (HE80) / Chain1 : CH138 (U-NII-2C Band)**
	
802.11ax (HE80) / Chain2 : CH138 (U-NII-2C Band)	**802.11ax (HE80) / Chain3 : CH138 (U-NII-2C Band)**
	

Note:

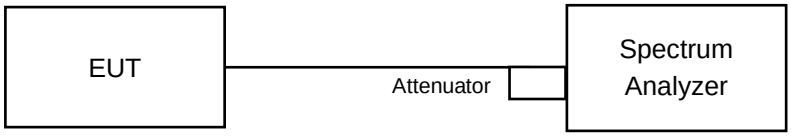
For CH144 (U-NII-2C) = 5725MHz - Temp 1
For CH142 (U-NII-2C) = 5725MHz - Temp 1
For CH138 (U-NII-2C) = 5725MHz - Temp 1
For CH144 (U-NII-3) = Temp 2 - 5725MHz
For CH142 (U-NII-3) = Temp 2 - 5725MHz
For CH138 (U-NII-3) = Temp 2 - 5725MHz

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

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:

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 (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz/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

CDD Mode

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

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	-0.20	-0.65	-2.98	-0.55	0.31	5.36	5.70	PASS
60	5300	-0.49	-1.42	-0.25	-0.56	0.31	5.67	5.70	PASS
64	5320	0.31	-0.03	-2.41	-1.90	0.31	5.48	5.70	PASS
100	5500	-0.63	-2.10	-0.52	-0.07	0.31	5.56	5.70	PASS
116	5580	-0.68	-0.59	-0.59	-0.82	0.31	5.66	5.70	PASS
140	5700	-1.31	-0.87	-0.67	-0.93	0.31	5.39	5.70	PASS
144 (U-NII-2C Band)	5720	-2.05	-1.53	-1.97	0.71	0.31	5.28	5.70	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, U-NII-2C: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)2 / 4] = 11.3 dBi > 6dBi, so the power density limit shall be reduced to 11-(11.3-6) = 5.70 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/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	-0.40	-0.90	-0.87	-0.89	0.21	5.47	5.70	PASS
60	5300	-0.73	-1.27	-0.73	-2.00	0.21	5.08	5.70	PASS
64	5320	-0.95	-0.89	-1.55	-0.54	0.21	5.27	5.70	PASS
100	5500	-1.28	-1.41	-0.68	-0.07	0.21	5.41	5.70	PASS
116	5580	-1.14	-0.99	-0.33	-1.14	0.21	5.35	5.70	PASS
140	5700	-1.06	0.07	-1.38	-0.99	0.21	5.43	5.70	PASS
144 (U-NII-2C Band)	5720	-1.83	0.72	-0.48	-1.65	0.21	5.55	5.70	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, U-NII-2C: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)2 / 4] = 11.3 dBi > 6dBi, so the power density limit shall be reduced to 11-(11.3-6) = 5.70 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

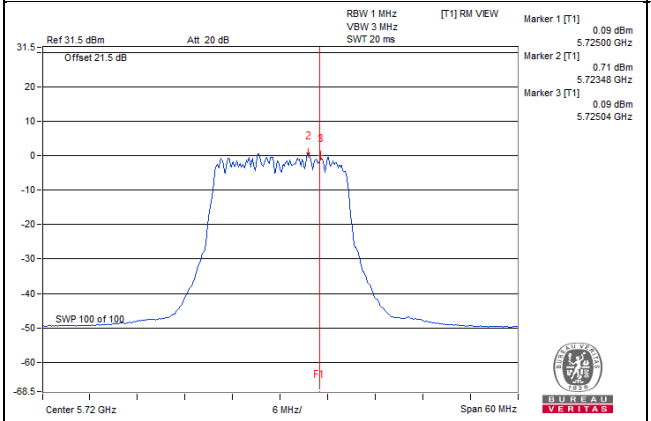
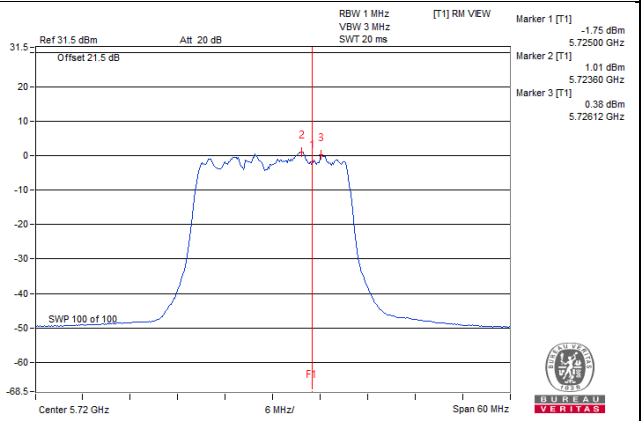
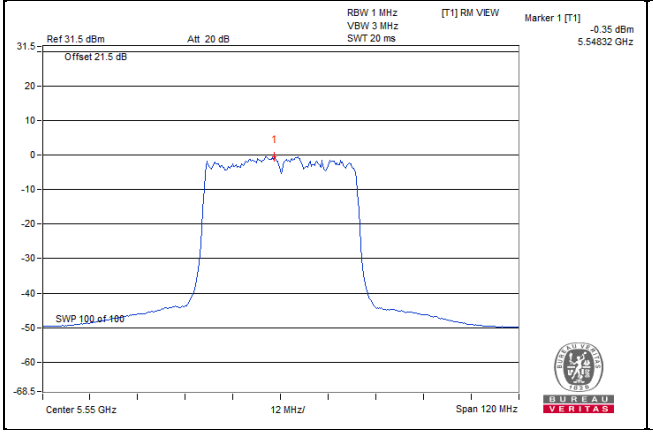
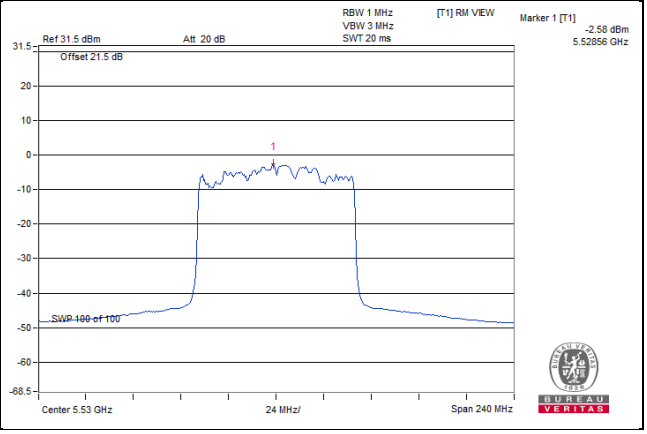
Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	-0.73	-0.91	-2.32	-1.00	0.23	5.06	5.70	PASS
62	5310	-0.91	-1.52	-1.71	-0.80	0.23	5.04	5.70	PASS
102	5510	-1.67	-1.14	-0.71	-1.50	0.23	5.01	5.70	PASS
110	5550	-0.94	-0.35	-2.24	-0.40	0.23	5.33	5.70	PASS
134	5670	-0.67	-1.30	-1.23	-1.50	0.23	5.09	5.70	PASS
142 (U-NII-2C Band)	5710	-1.74	-0.77	-1.25	-0.98	0.23	5.08	5.70	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, U-NII-2C: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)2 / 4] = 11.3 dBi > 6dBi, so the power density limit shall be reduced to 11-(11.3-6) = 5.70 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/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	-3.48	-3.64	-3.41	-3.52	0.75	3.25	5.70	PASS
106	5530	-5.22	-2.95	-2.58	-3.67	0.75	3.27	5.70	PASS
138 (U-NII-2C Band)	5690	-2.85	-3.68	-3.43	-3.60	0.75	3.39	5.70	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, U-NII-2C: The directional gain = 10 log[($10^{G0/20}$+ $10^{G1/20}$ + $10^{G2/20}$ +$10^{G3/20}$)2 / 4] = 11.3 dBi > 6dBi, so the power density limit shall be reduced to 11-(11.3-6) = 5.70 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a_Chain 3 / CH144 (U-NII-2C Band)	**802.11ax (HE20)_Chain 1 / CH144 (U-NII-2C Band)**
	
802.11ax (HE40)_Chain 1 / CH110	**802.11ax (HE80)_Chain 2 / CH106**
	

For U-NII-3:

802.11a

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)				Duty Factor (dB)	Total PSD (mW/300kHz)	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	-8.45	-9.93	-9.17	-8.70	0.31	0.5373	-2.70	-0.48	24.70	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] =11.3 dBi > 6dBi, so the power density limit shall be reduced to 30-(11.3-6) =24.70 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 (mW/300kHz)	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	-9.65	-9.37	-9.22	-9.80	0.21	0.4709	-3.27	-1.05	24.70	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] =11.3 dBi > 6dBi, so the power density limit shall be reduced to 30-(11.3-6) =24.70 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

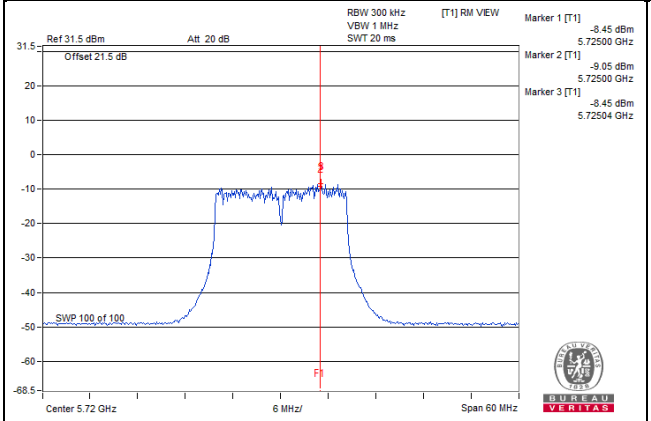
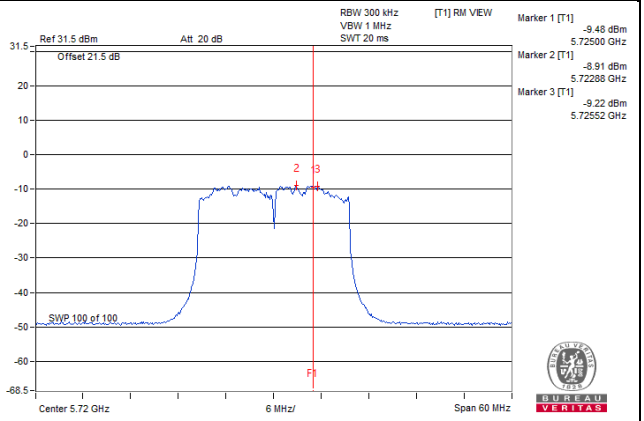
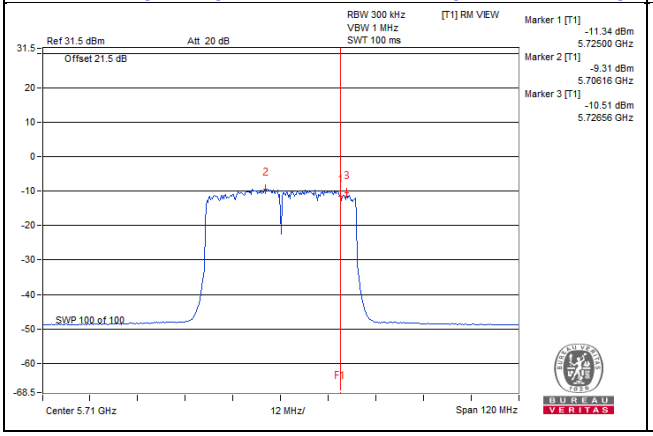
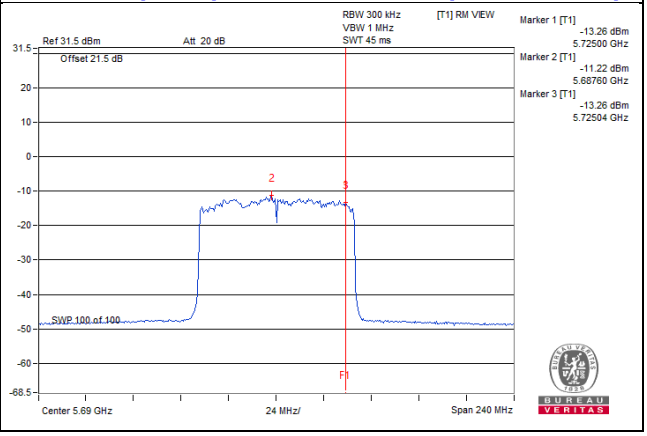
Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)				Duty Factor (dB)	Total PSD (mW/300kHz)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3						
142 (U-NII-3 Band)	5710	-10.95	-10.51	-10.81	-11.15	0.23	0.34715	-4.59	-2.37	24.70	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] =11.3 dBi > 6dBi, so the power density limit shall be reduced to 30-(11.3-6) =24.70 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 (mW/300kHz)	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	-14.04	-13.26	-14.24	-13.63	0.75	0.1991	-7.01	-4.79	24.70	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] =11.3 dBi > 6dBi, so the power density limit shall be reduced to 30-(11.3-6) =24.70 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

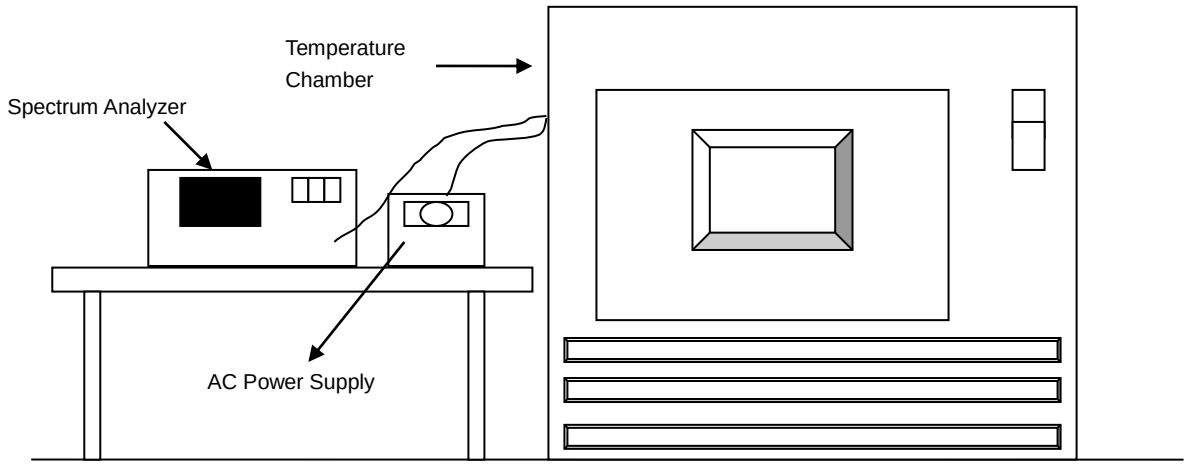
Spectrum Plot of Worst Value	
802.11a_Chain 0 / CH144 (U-NII-3 Band)	**802.11ax (HE20)_Chain 2 / CH144 (U-NII-3 Band)**
	
802.11ax (HE40)_Chain 1 / CH142 (U-NII-3 Band)	**802.11ax (HE80)_Chain 1 / CH138 (U-NII-3 Band)**
	

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
40	120	5259.9748	PASS	5259.9776	PASS	5259.9792	PASS	5259.9742	PASS
30	120	5260.0221	PASS	5260.0257	PASS	5260.026	PASS	5260.023	PASS
20	120	5259.9993	PASS	5259.9977	PASS	5259.9964	PASS	5259.9985	PASS
10	120	5260.0134	PASS	5260.0123	PASS	5260.0146	PASS	5260.0138	PASS
0	120	5259.9939	PASS	5259.9909	PASS	5259.9916	PASS	5259.9911	PASS

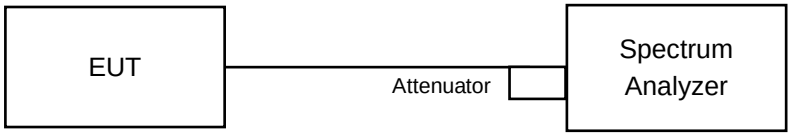
Frequency Stability Versus Voltage									
Operating Frequency: 5260 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5259.9992	PASS	5259.9967	PASS	5259.9966	PASS	5259.9976	PASS
	120	5259.9993	PASS	5259.9977	PASS	5259.9964	PASS	5259.9985	PASS
	102	5259.9997	PASS	5259.9976	PASS	5259.9957	PASS	5259.9995	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

CDD Mode

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain0	Chain1	Chain2	Chain3		
144 (U-NII-3 Band)	5720	3.18	2.9	3.17	2.9	0.5	Pass

802.11ax (HE20)

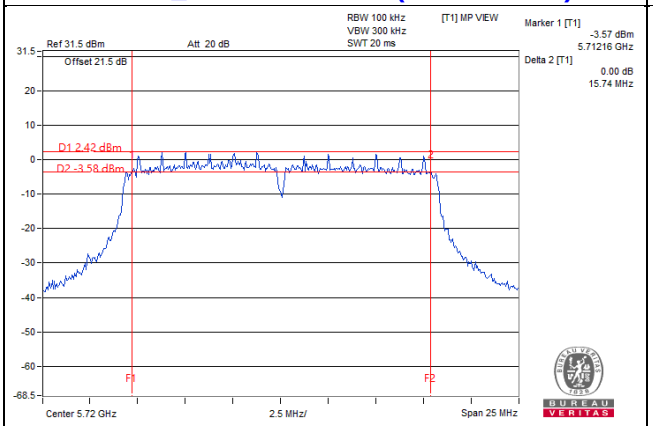
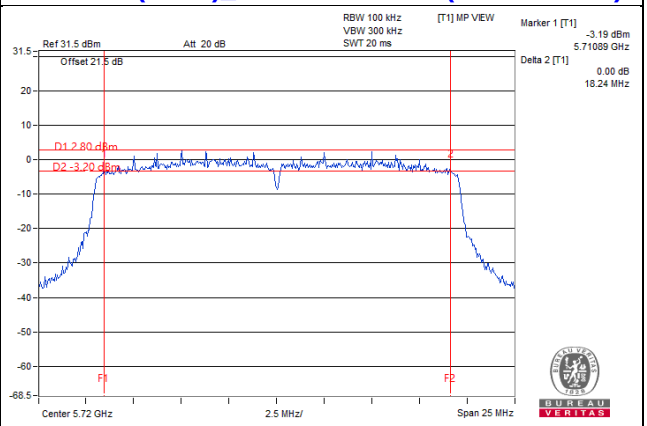
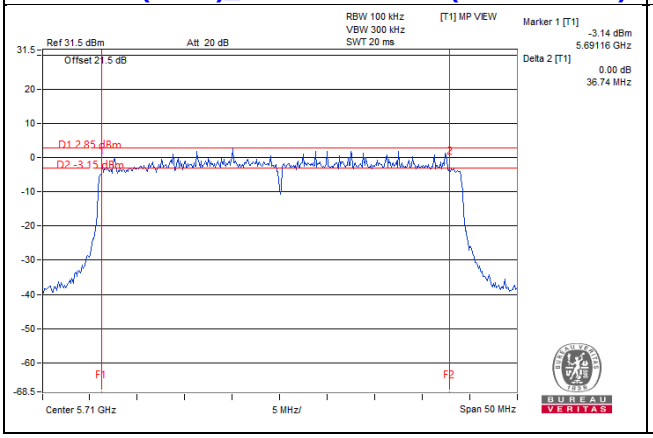
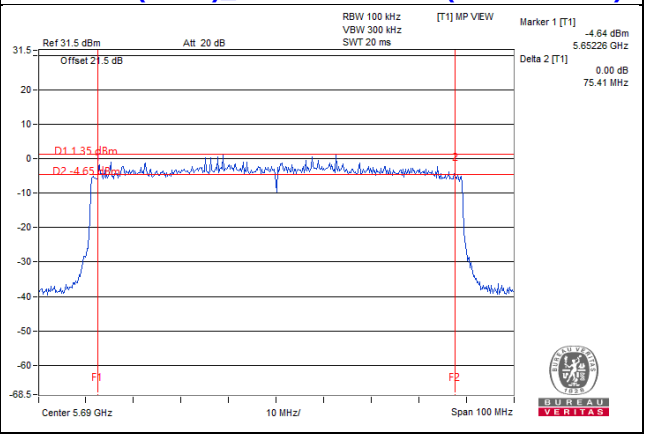
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain0	Chain1	Chain2	Chain3		
144 (U-NII-3 Band)	5720	4.13	4.34	4.31	4.13	0.5	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain0	Chain1	Chain2	Chain3		
142 (U-NII-3 Band)	5710	3.02	2.9	3.91	3.9	0.5	Pass

802.11ax (HE80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain0	Chain1	Chain2	Chain3		
138 (U-NII-3 Band)	5690	2.67	3.1	3.74	2.87	0.5	Pass

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 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

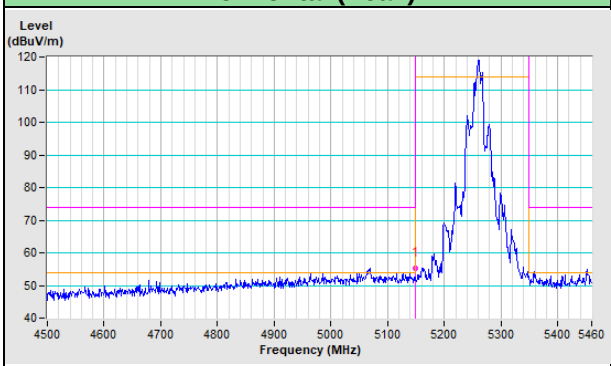
Please refer to the attached file (Test Setup Photo).

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

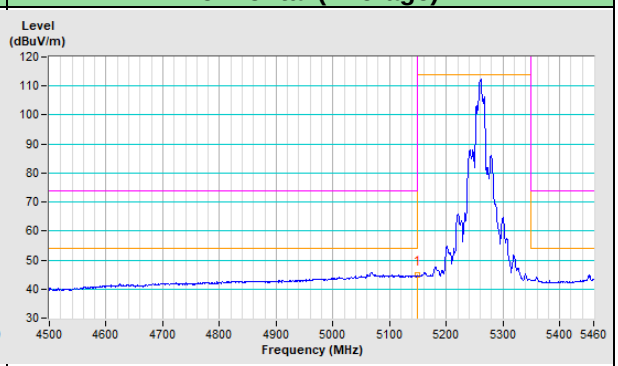
802.11a

Channel 52

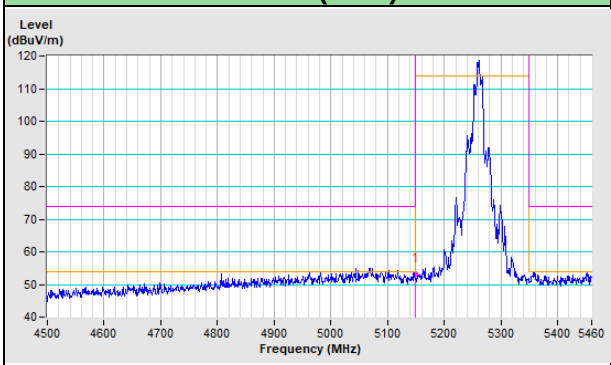
Horizontal (Peak)



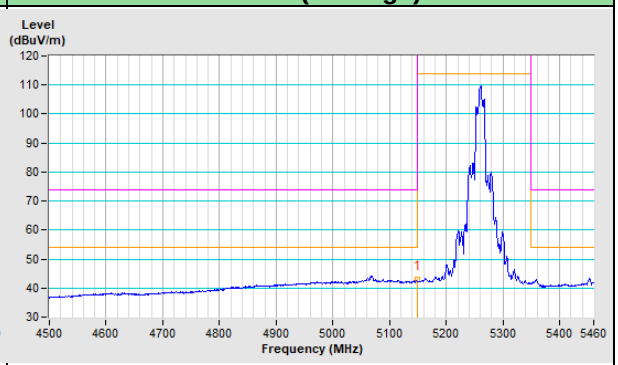
Horizontal (Average)



Vertical (Peak)

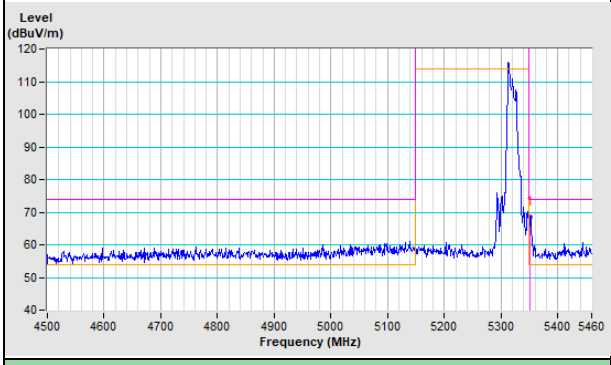


Vertical (Average)

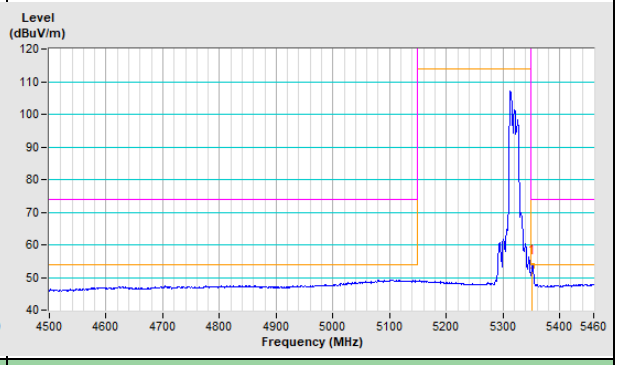


Channel 64

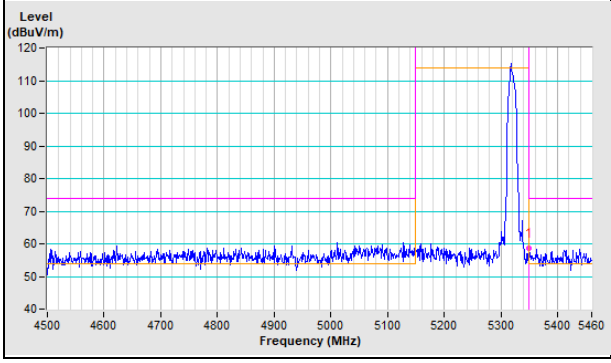
Horizontal (Peak)



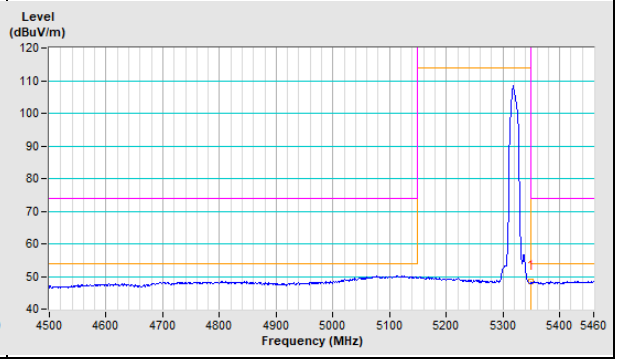
Horizontal (Average)

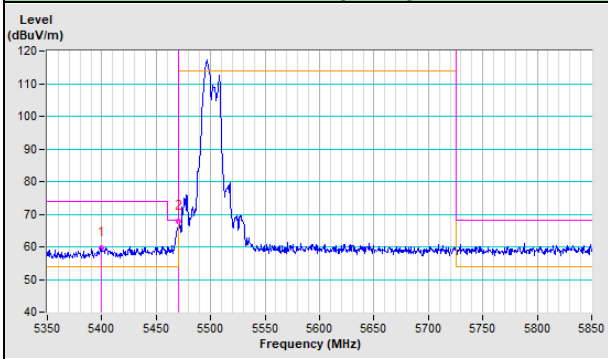
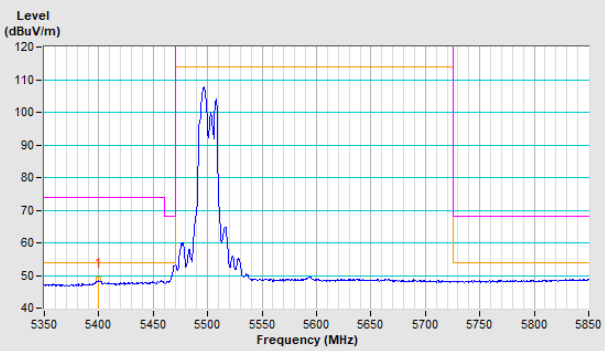
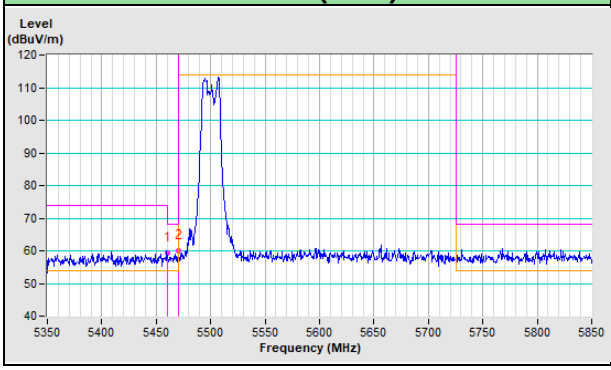
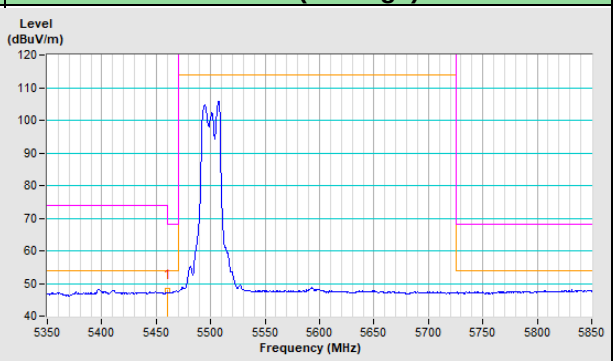


Vertical (Peak)



Vertical (Average)

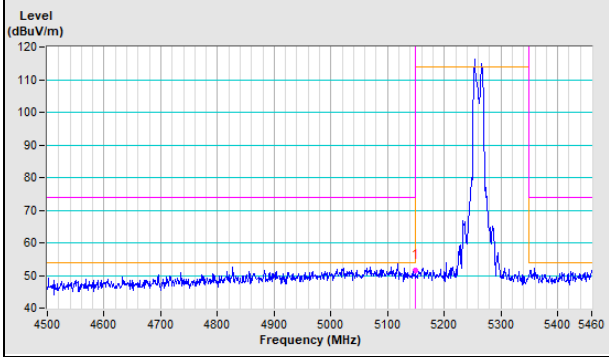


Channel 100	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

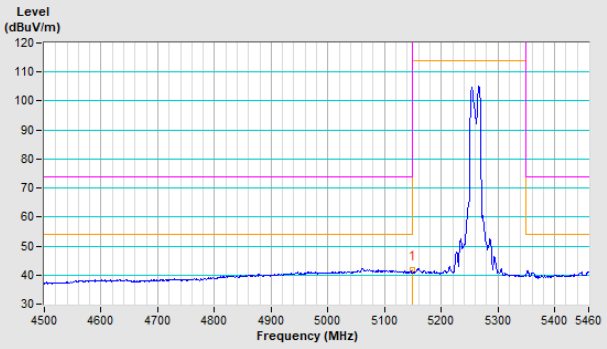
802.11ax (HE20)

Channel 52

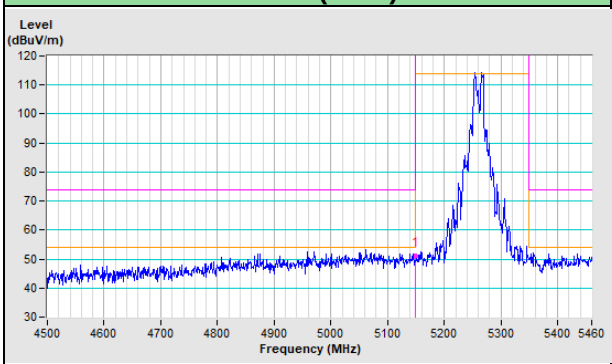
Horizontal (Peak)



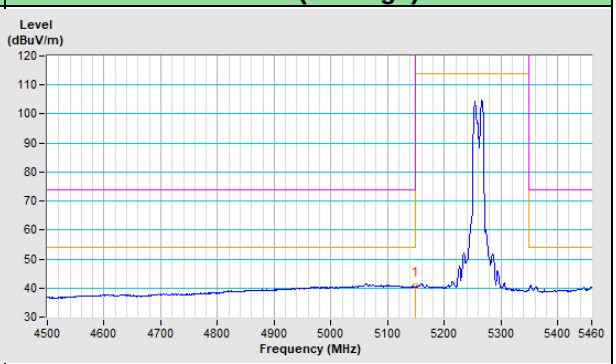
Horizontal (Average)



Vertical (Peak)

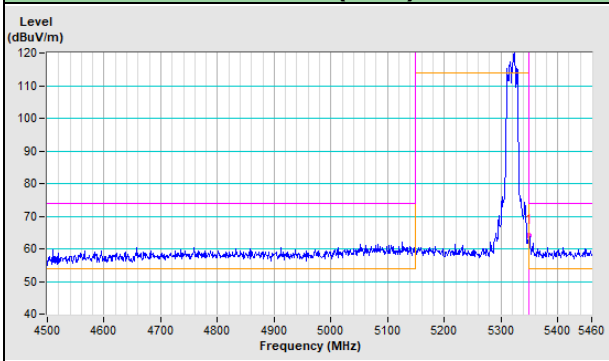


Vertical (Average)

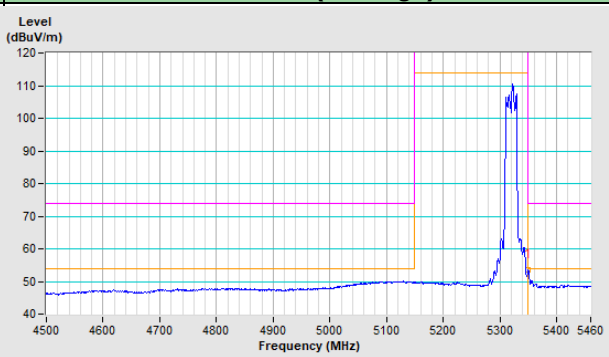


Channel 64

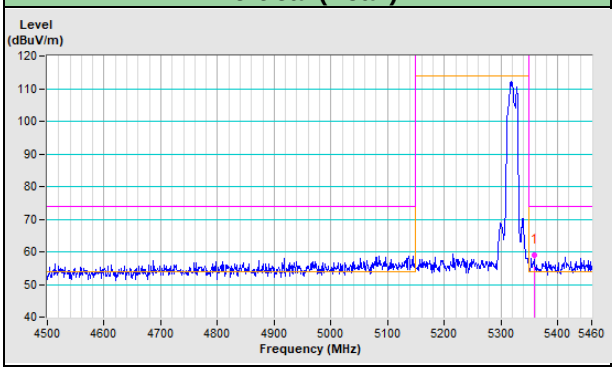
Horizontal (Peak)



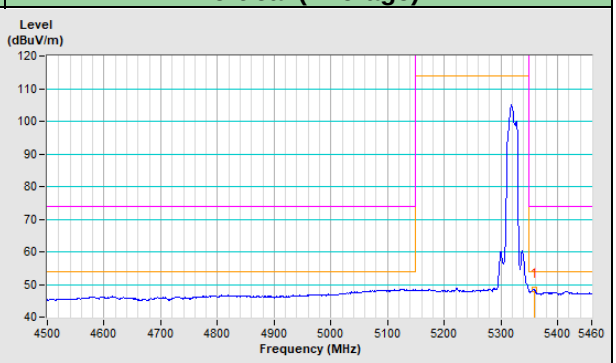
Horizontal (Average)

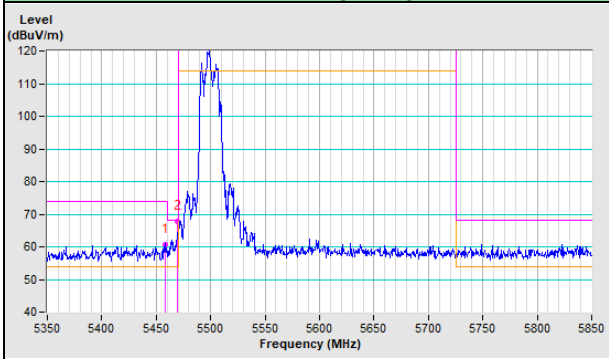
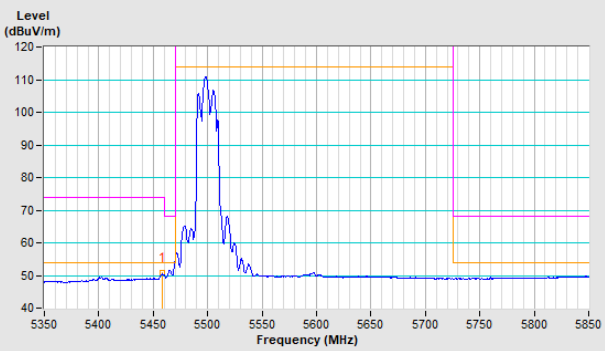
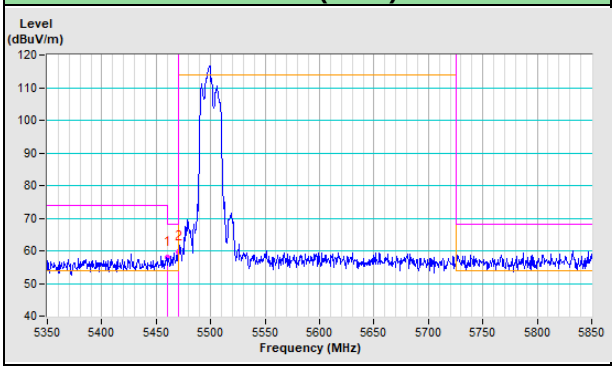
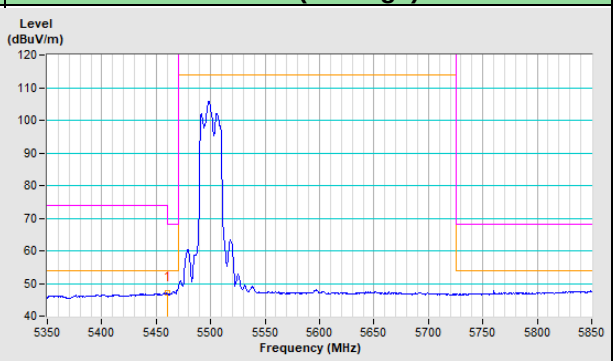


Vertical (Peak)



Vertical (Average)

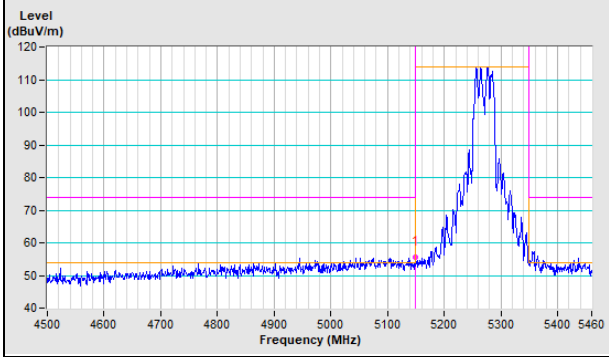


Channel 100	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

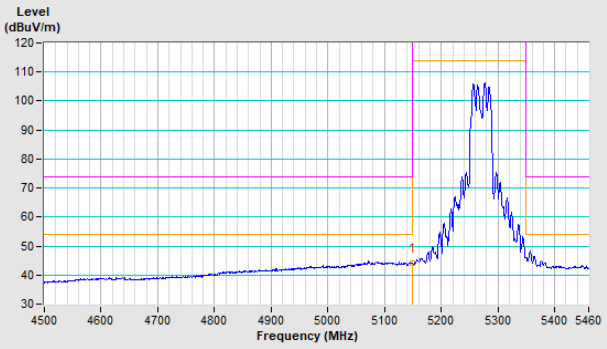
802.11ax (HE40)

Channel 54

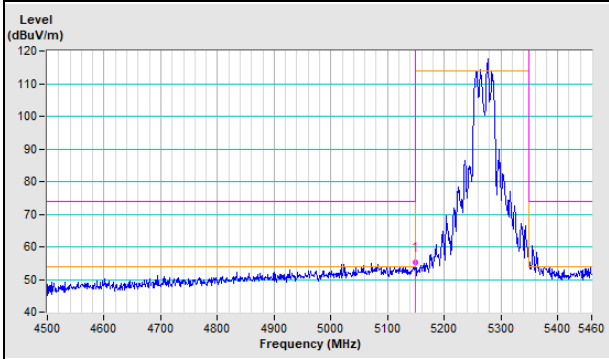
Horizontal (Peak)



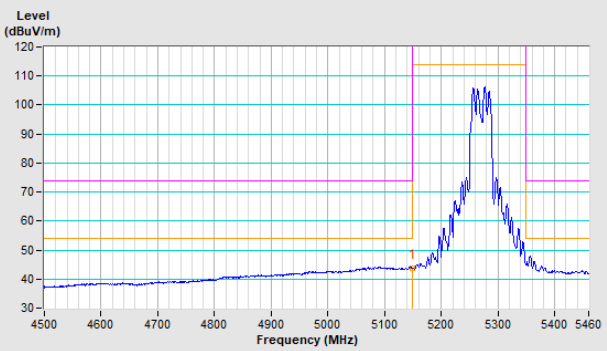
Horizontal (Average)



Vertical (Peak)

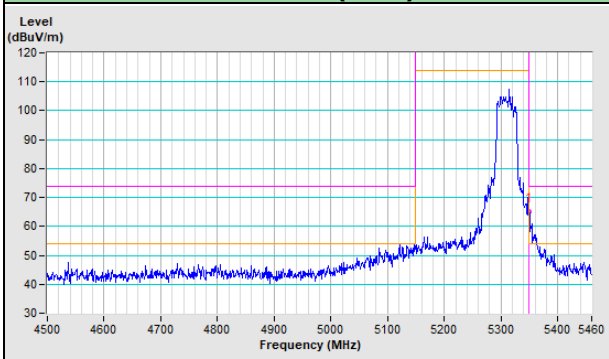


Vertical (Average)

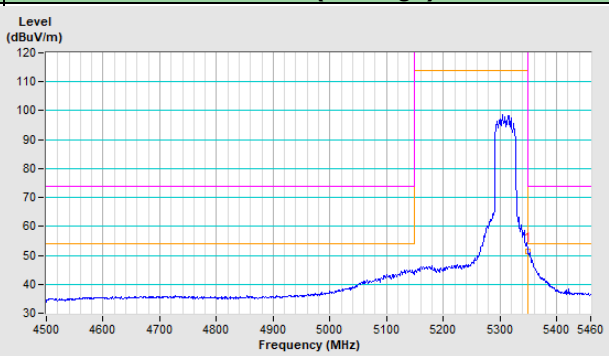


Channel 62

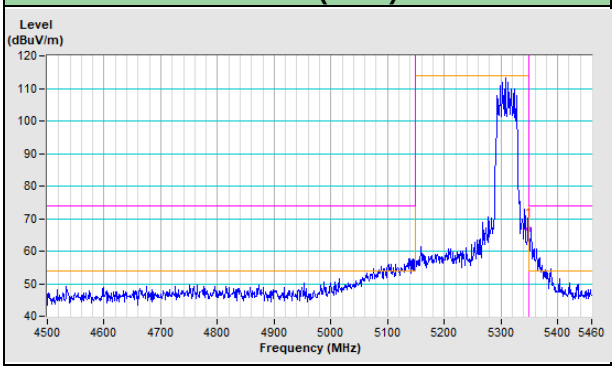
Horizontal (Peak)



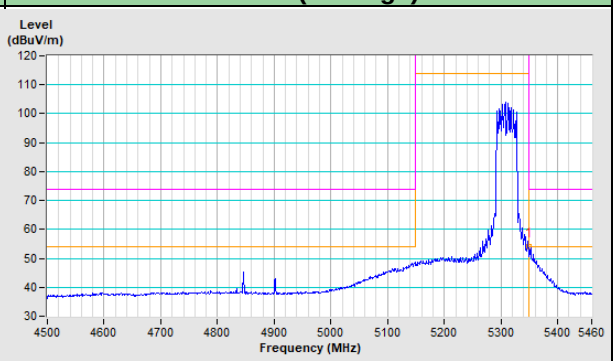
Horizontal (Average)

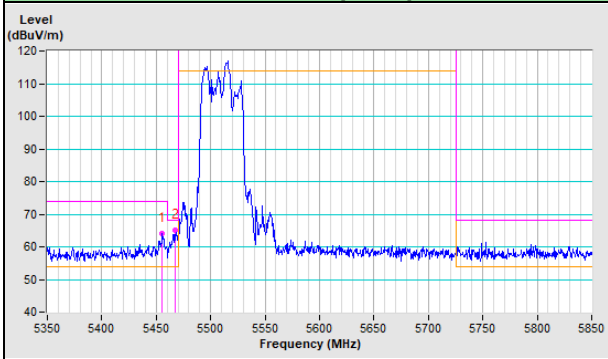
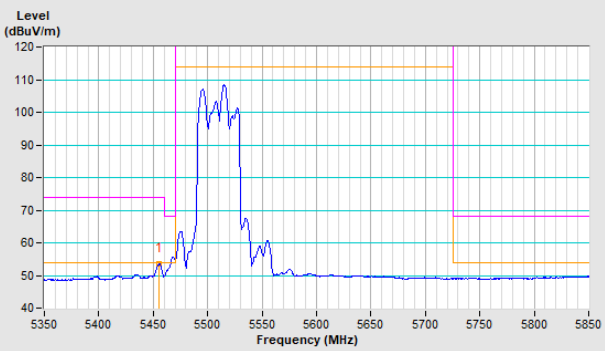
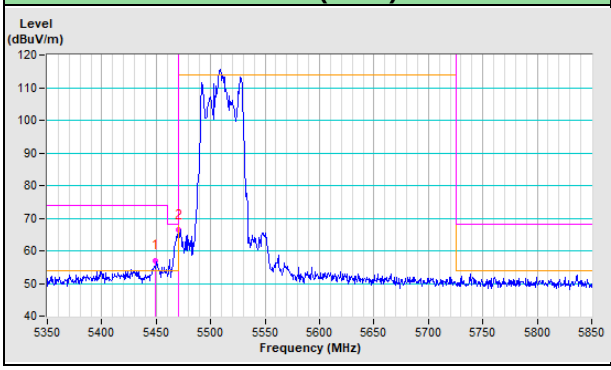
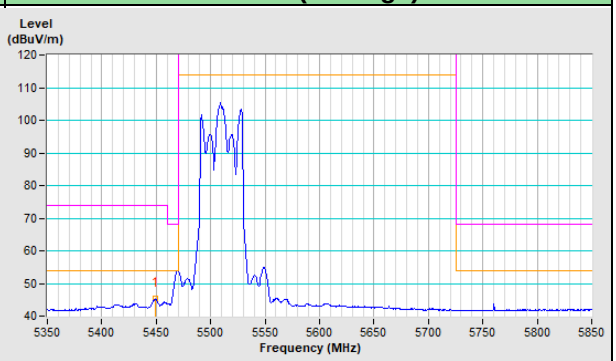


Vertical (Peak)



Vertical (Average)

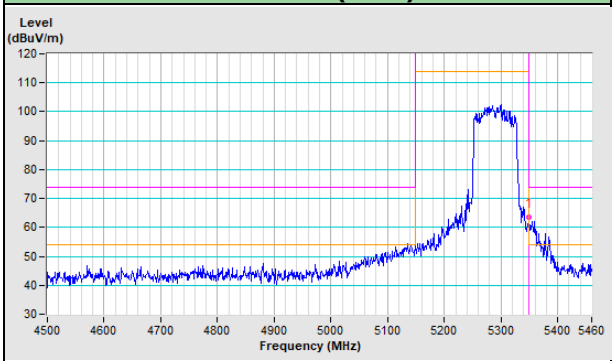


Channel 102	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

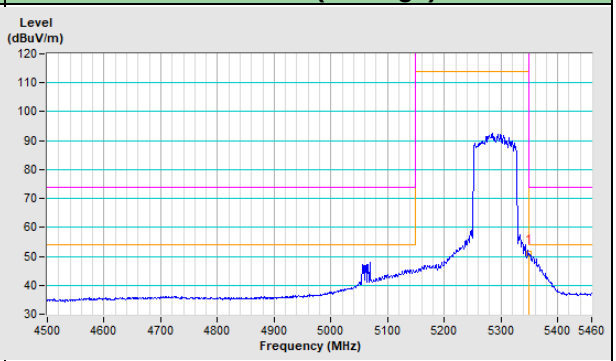
802.11ax (HE80)

Channel 58

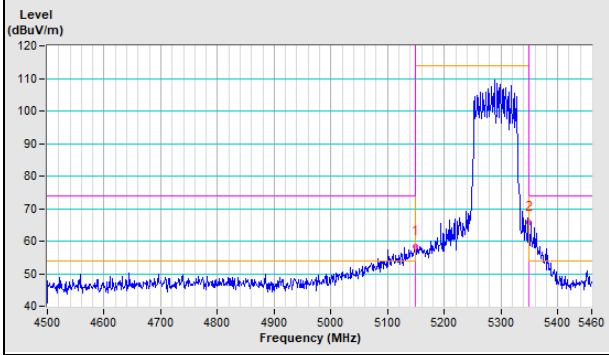
Horizontal (Peak)



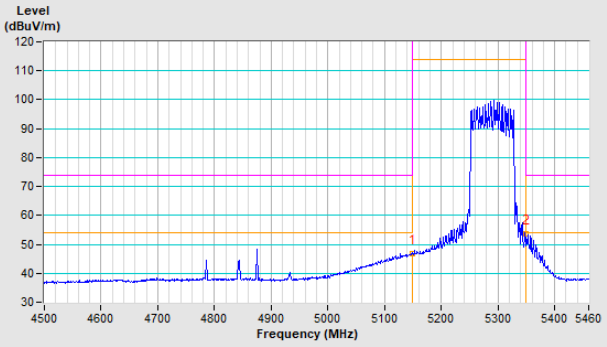
Horizontal (Average)



Vertical (Peak)

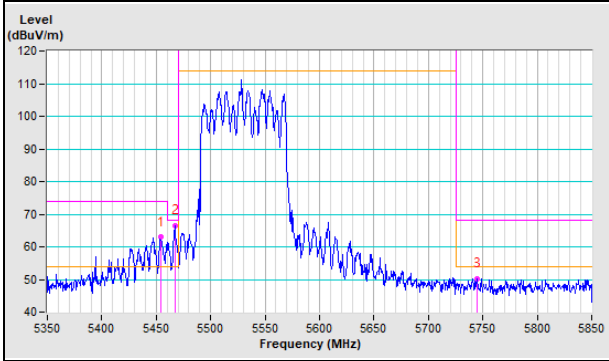


Vertical (Average)

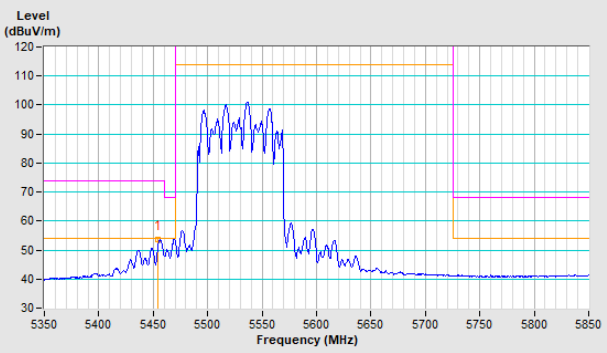


Channel 106

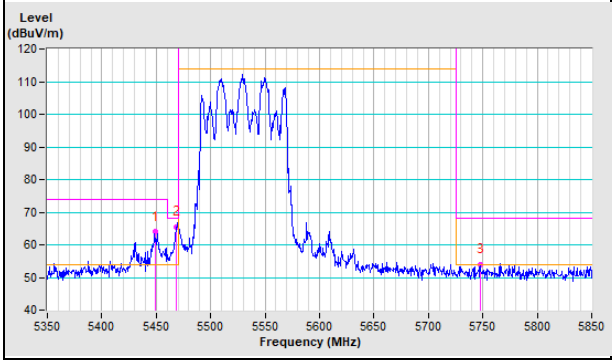
Horizontal (Peak)



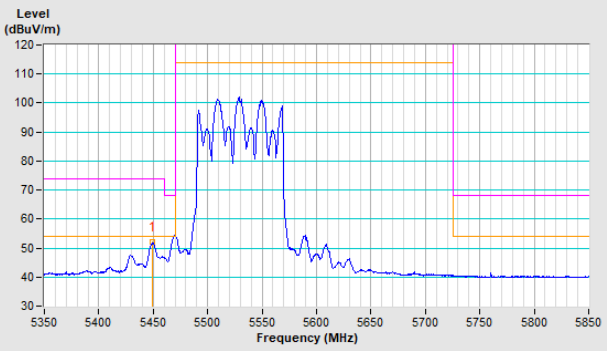
Horizontal (Average)



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.

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