FCC Test Report (WLAN)

Report No.:	RFBCKS-WTW-P20110426-1
FCC ID:	K7S-03685
Test Model:	MX8500
Series Model:	MX85EC, MX85WH, MX85MS
Received Date:	Nov. 12, 2020
Test Date:	Nov. 12 to Dec. 12, 2020
Issued Date:	Dec. 15, 2020
Applicant:	Belkin International, Inc.
Address:	12045 East Waterfront Drive, Playa Vista, CA 90094
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
FCC Registration / Designation Number:	198487 / TW2021

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RFBCKS-WTW-P20110426-1	Original release.	Dec. 15, 2020

1 Certificate of Conformity

Product:	Linksys Tri-Band 802.11ax Wireless Router
Brand:	Linksys
Test Model:	MX8500
Series Model:	MX85EC, MX85WH, MX85MS
Sample Status:	Engineering sample
Applicant:	Belkin International, Inc.
Test Date:	Nov. 12 to Dec. 12, 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 RF characteristics under the conditions specified in this report.

Prepared by : Annie Chang , **Date:** Dec. 15, 2020

Annie Chang / Senior Specialist

Approved by : Rex. Lai , **Date:** Dec. 15, 2020

Rex Lai / Associate 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 -13.15dB at 0.39219MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.02dB at 5460.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is i-pex (MHF) not a standard connector.

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

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	3.00 dB
Conducted Emissions	9kHz ~ 40GHz	2.63 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	2.61 dB
	30MHz ~ 1GHz	5.43 dB
Radiated Emissions above 1 GHz	Above 1GHz	5.42 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Linksys Tri-Band 802.11ax Wireless Router
Brand	Linksys
Test Model	MX8500
Series Model	MX85EC, MX85WH, MX85MS
Model Difference	Marketing Differentiation
Status of EUT	Engineering sample
Driver version	SPF11.3_CS_v1.12_CBP
Power Supply Rating	12Vdc from adapter
Modulation Type	802.11a: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM 802.11ax: BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
Modulation Technology	OFDM
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n (20MHz/40MHz): up to 600Mbps 802.11ac (20MHz/40MHz/80MHz): up to 1733.3Mbps 802.11ax (20MHz/40MHz/80MHz): up to 2402Mbps
Operating Frequency	5260~5320MHz, 5500~5720MHz
Number of Channel	5260~5320MHz: 802.11a, 802.11n (20MHz), 802.11ac (20MHz) , 802.11ax (20MHz): 4 802.11n (40MHz), 802.11ac (40MHz) , 802.11ax (40MHz): 2 802.11ac (80MHz) , 802.11ax (80MHz): 1 5500~5720MHz: 802.11a, 802.11n (20MHz), 802.11ac (20MHz) , 802.11ax (20MHz): 12 802.11n (40MHz), 802.11ac (40MHz) , 802.11ax (40MHz): 6 802.11ac (80MHz) , 802.11ax (80MHz): 3
Output Power	5260~5320MHz: CDD Mode: 236.634mW Beamforming Mode: 137.520 mW 5500~5720MHz: CDD Mode: 247.816 mW Beamforming Mode: 157.837mW
Antenna Type	Refer to Note as below
Antenna Connector	Refer to Note as below
Accessory Device	Refer to Note
Data Cable Supplied	N/A

Note:

1. This report is prepared for FCC class II permissive change.
2. This report is issued as a supplementary report of original BV CPS report no. RFBCKS-WTW-P20110426. The difference compared with original report is adding U-NII-2A and U-NII-2C bands; therefore the EUT is re-tested in this report.

3. The EUT incorporates a MIMO function. Physically, the EUT provides 4 completed transmitters and 4 receivers.

Modulation Mode	CDD Mode	Beamforming Mode	TX Function
802.11a	Support	Not Support	4TX
802.11n (20MHz)	Support	Not Support	4TX
802.11n (40MHz)	Support	Not Support	4TX
802.11ac (20MHz)	Support	Support	4TX
802.11ac (40MHz)	Support	Support	4TX
802.11ac (80MHz)	Support	Support	4TX
802.11ax (20MHz)	Support	Support	4TX
802.11ax (40MHz)	Support	Support	4TX
802.11ax (80MHz)	Support	Support	4TX

* The bandwidth and modulation are similar for 20MHz/40MHz on 802.11n mode and 20MHz/40MHz on 802.11n mode and 20MHz/40MHz on 802.11ax mode. Therefore the investigated worst case is the representative mode in test report. (Final test mode refer section 3.2.1)

* For 802.11n/ac/ax, CDD mode and Beamforming mode are presented in power output test item. For other test items, CDD mode is the worst case for final tests after pretesting.

4. The following antennas were provided to the EUT.

Antenna Type	Dipole on PCB			
Antenna Connector	i-pex (MHF)			
Antenna No.	Gain (dBi)			
	5150~5250MHz	5250~5350MHz	5500~5720MHz	5745~5825MHz
Ant1=5GA	4.9	**5.7**	**5.2**	5.4
Ant2=5GB	5.1	5.1	4.6	4.8
Ant3=5GC	4.1	4.8	4.4	5.7
Ant4=5GD	3.0	4.1	4.6	5.8

The following antenna allocation table was provided to the EUT.

5G Antenna port		5G Antenna port		TX Function	
Degree -45°	5GC	Degree +45°	5GD	MIMO	Correlated
Degree -45°	5GA	Degree +45°	5GB	MIMO	

All antennas are dipole type. Thus antennas are all used the same type, the difference is only in the placement direction. According this condition, 2GA1 / 2GA2 are cross-polarization, 2GB1 / 2GB2 are cross-polarization, 5GA and 5GC locates on the opposite side of the device. The Degree -45º means the angle we see when facing towards to the antenna. This means if we look at 5GA(-45º) in front of us, the 5GC at the opposite side will be +45º. Therefore, it is sure that 5GA and 5GC have exactly 90-degree angle difference and they are cross-polarized. The same situation are with 5GB and 5GD. 6GA and 6GC locates on the opposite side of the device. The Degree +45º means the angle we see when facing towards to the antenna. This means if we look at 6GA(+45º) in front of us, the 6GC at the opposite side will be -45º. Therefore, it is sure that 6GA and 6GC have exactly 90-degree angle difference and are cross-polarized. The same situation are with 6GB and 6GD.

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.

5. The following Filters were provided to the EUT.

✧Filter Soshin

✧Filter ACX

After pre-tested, **Filter Soshin** was the worst case for final tset.

6. The EUT uses following adapter.

Adapter 1	
Brand	Ktec
Model	KSAS0501200400HU
Input Power	100-240Vac, 50/60Hz, 1.2A
Output Power	12Vdc, 4.0A
Power Cord	AC 2-Pin, Non-shielded DC cable (1.5m)
Adapter 2	
Brand	APD
Model	WA-48B12FU
Input Power	100-240Vac, 50/60Hz, 1.5A
Output Power	12Vdc, 4.0A
Power Cord	AC 2-Pin, Non-shielded DC cable (1.5m)

The above two adapters were pre-tested, and Adapter 1 was the worst case for final test.

7. WiFi 2.4GHz, 5GHz & 6E technologies can transmit at same time.

8. Spurious emission of the simultaneous operation (WiFi 2.4GHz, 5GHz & 6E technologies) has been evaluated and no non-compliance was found.

9. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

5260~5320MHz:

4 channels are provided for 802.11a, 802.11n (20MHz), 802.11ac (20MHz), 802.11ax (20MHz):

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

2 channels are provided for 802.11n (40MHz), 802.11ac (40MHz), 802.11ax (40MHz):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (80MHz), 802.11ax (80MHz):

Channel	Frequency
58	5290MHz

5500~5720MHz:

12 channels are provided for 802.11a, 802.11n (20MHz), 802.11ac (20MHz), 802.11ax (20MHz):

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

6 channels are provided for 802.11n (40MHz), 802.11ac (40MHz), 802.11ax (40MHz):

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

3 channels are provided for 802.11ac (80MHz), 802.11ax (80MHz):

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610MHz
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

NOTE: Radiated emission test (below 1GHz) and power line conducted emission test items chosen the worst maximum power.

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.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
CDD Mode						
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11ax (20MHz)		52 to 64	52, 60, 64	OFDMA	MCS0
	802.11ax (40MHz)		54 to 62	54, 62	OFDMA	MCS0
	802.11ax (80MHz)		58	58	OFDMA	MCS0
-	802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.0
	802.11ax (20MHz)		100 to 144	100, 116, 140, 144	OFDMA	MCS0
	802.11ax (40MHz)		102 to 142	102, 110, 134, 142	OFDMA	MCS0
	802.11ax (80MHz)		106 to 138	106, 122, 138	OFDMA	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.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
CDD Mode						
-	802.11ax (40MHz)	5260-5320	54 to 62	134	OFDMA	MCS0
-	802.11ax (40MHz)	5500-5720	102 to 142		OFDMA	MCS0

Power Line Conducted Emission Test:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
CDD Mode						
-	802.11ax (40MHz)	5260-5320	54 to 62	134	OFDMA	MCS0
-	802.11ax (40MHz)	5500-5720	102 to 142		OFDMA	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.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
CDD Mode						
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11ac (20MHz)*		52 to 64	52, 60, 64	OFDM	6.5
	802.11ac (40MHz)*		54 to 62	54, 62	OFDM	13.5
	802.11ac (80MHz)*		58	58	OFDM	65.0
	802.11ax (20MHz)		52 to 64	52, 60, 64	OFDMA	MCS0
	802.11ax (40MHz)		54 to 62	54, 62	OFDMA	MCS0
	802.11ax (80MHz)		58	58	OFDMA	MCS0
-	802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.0
	802.11ac (20MHz)*		100 to 144	100, 116, 140, 144	OFDM	6.5
	802.11ac (40MHz)*		102 to 142	102, 110, 134, 142	OFDM	13.5
	802.11ac (80MHz)*		106 to 138	106, 122, 138	OFDM	65.0
	802.11ax (20MHz)		100 to 144	100, 116, 140, 144	OFDMA	MCS0
	802.11ax (40MHz)		102 to 142	102, 110, 134, 142	OFDMA	MCS0
	802.11ax (80MHz)		106 to 138	106, 122, 138	OFDMA	MCS0
*802.11ac (20MHz), 802.11ac (40MHz), 802.11ac (80MHz) are for Conducted Output Power Measurement only.						
Beamforming Mode (Conducted Power Measurement only)						
-	802.11ac (20MHz)	5260-5320	52 to 64	52, 60, 64	OFDM	6.5
	802.11ac (40MHz)		54 to 62	54, 62	OFDM	13.5
	802.11ac (80MHz)		58	58	OFDM	65.0
	802.11ax (20MHz)		52 to 64	52, 60, 64	OFDMA	MCS0
	802.11ax (40MHz)		54 to 62	54, 62	OFDMA	MCS0
	802.11ax (80MHz)		58	58	OFDMA	MCS0
-	802.11ac (20MHz)	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.5
	802.11ac (40MHz)		102 to 142	102, 110, 134, 142	OFDM	13.5
	802.11ac (80MHz)		106 to 138	106, 122, 138	OFDM	65.0
	802.11ax (20MHz)		100 to 144	100, 116, 140, 144	OFDMA	MCS0
	802.11ax (40MHz)		102 to 142	102, 110, 134, 142	OFDMA	MCS0
	802.11ax (80MHz)		106 to 138	106, 122, 138	OFDMA	MCS0

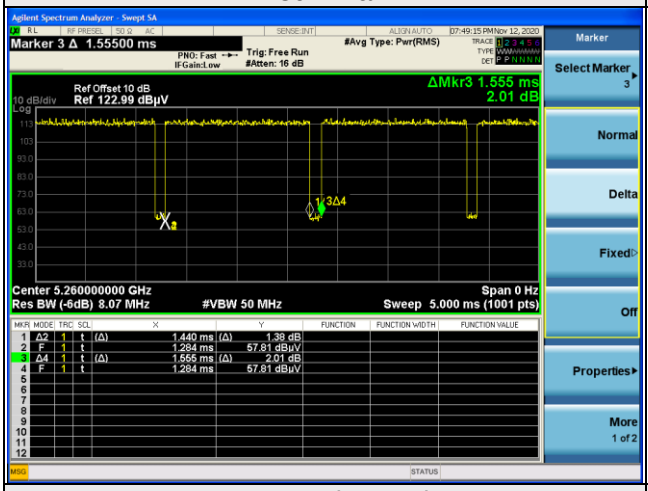
Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE≥1G	24deg. C, 63%RH, 22deg. C, 69%RH	120Vac, 60Hz	Ian Chang, Dalen Dai
RE<1G	25deg. C, 68%RH	120Vac, 60Hz	Dalen Dai
PLC	25deg. C, 75%RH	120Vac, 60Hz	Ian Chang
APCM	25deg. C, 76%RH	120Vac, 60Hz	Saxon Lee

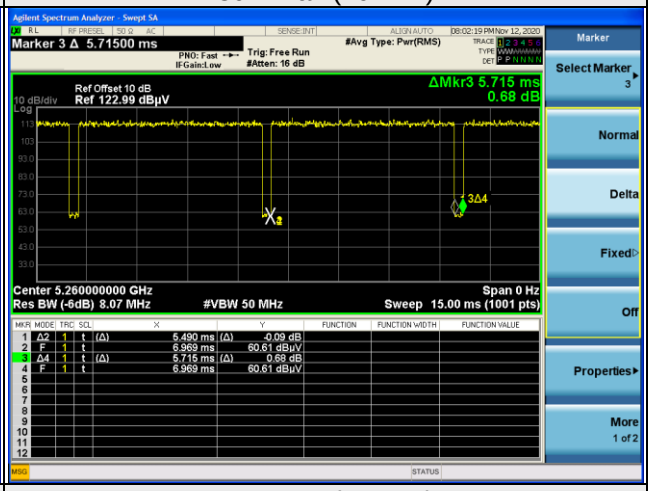
3.3 Duty Cycle of Test Signal

Duty cycle of test signal is < 98%, duty factor is required.
802.11a: Duty cycle = 1.44/1.555 = 0.926, Duty factor = 10 * log (1/0.926) = 0.33
802.11ax (20MHz): Duty cycle = 5.49/5.715 = 0.961, Duty factor = 10 * log (1/0.961) = 0.17
802.11ax (40MHz): Duty cycle = 5.475/5.685 = 0.963, Duty factor = 10 * log (1/0.963) = 0.16
802.11ax (80MHz): Duty cycle = 5.49/5.67 = 0.968, Duty factor = 10 * log (1/0.968) = 0.14

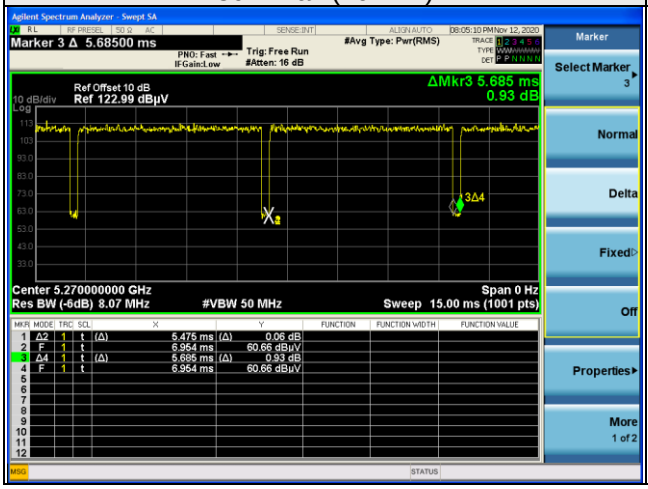
802.11a



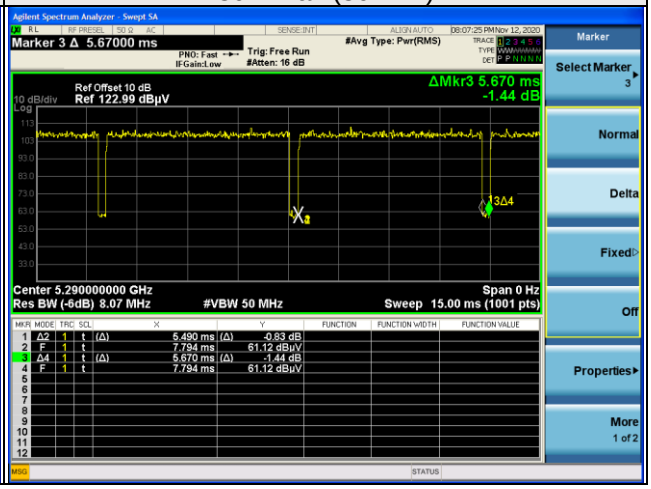
802.11ax (20MHz)



802.11ax (40MHz)



802.11ax (80MHz)



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.	Notebook PC	Lenove	81LG	PF1NF9V2	N/A	Provided by Lab
B.	LAN Load	N/A	N/A	N/A	N/A	Provided by Lab
C.	USB 3.0 Flash Drive	HP	v250w	N/A	N/A	Provided by Lab

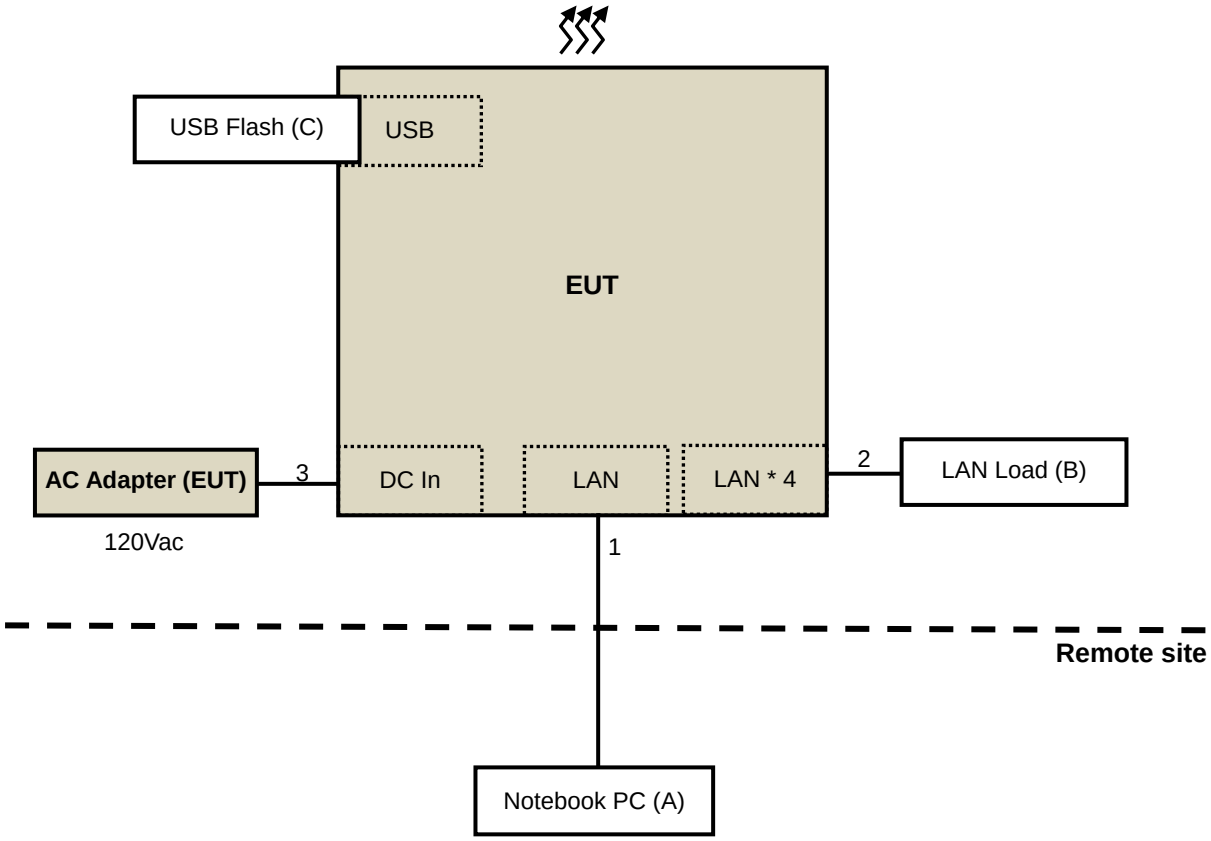
Note:

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

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN cable	1	10	N	0	Provided by Lab (RJ45, Cat.5e)
2.	LAN cable	4	1	N	0	Provided by Lab (RJ45, Cat.5e)
3.	DC cable	1	1.5	N	0	Supplied by client

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

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standard and References

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

Test standard:

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

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

References Test Guidance:

KDB 789033 D02 General UNII Test Procedure New Rules v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

<table>
<tr><td colspan="3">Applicable To</td><td colspan="2">Limit</td></tr>
<tr><td colspan="3" rowspan="2">789033 D02 General UNII Test Procedure New Rules v02r01</td><td colspan="2">Field Strength at 3m</td></tr>
<tr><td>PK:74 (dBµV/m)</td><td>AV:54 (dBµV/m)</td></tr>
<tr><td>Frequency Band</td><td colspan="2">Applicable To</td><td>EIRP Limit</td><td>Equivalent Field Strength at 3m</td></tr>
<tr><td>5150~5250 MHz</td><td colspan="2">15.407(b)(1)</td><td rowspan="3">PK:-27 (dBm/MHz)</td><td rowspan="3">PK:68.2(dBµV/m)</td></tr>
<tr><td>5250~5350 MHz</td><td colspan="2">15.407(b)(2)</td></tr>
<tr><td>5470~5725 MHz</td><td colspan="2">15.407(b)(3)</td></tr>
<tr><td rowspan="2">5725~5850 MHz</td><td>☒</td><td>15.407(b)(4)(i)</td><td>PK:-27 (dBm/MHz) *1
PK:10 (dBm/MHz) *2
PK:15.6 (dBm/MHz) *3
PK:27 (dBm/MHz) *4</td><td>PK: 68.2(dBµV/m) *1
PK:105.2 (dBµV/m) *2
PK: 110.8(dBµV/m) *3
PK:122.2 (dBµV/m) *4</td></tr>
<tr><td>☐</td><td>15.407(b)(4)(ii)</td><td colspan="2">Emission limits in section 15.247(d)</td></tr>
<tr><td colspan="5">*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.</td></tr>
</table>

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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	Feb. 19, 2020	Feb. 18, 2021
HP Preamplifier	8449B	3008A01201	Feb. 20, 2020	Feb. 19, 2021
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Feb. 19, 2020	Feb. 18, 2021
Agilent TEST RECEIVER	N9038A	MY51210129	Mar. 18, 2020	Mar. 17, 2021
Schwarzbeck Antenna	VULB 9168	139	Nov. 6, 2020	Nov. 5, 2021
Schwarzbeck Antenna	VHBA 9123	480	Jun. 3, 2019	Jun. 2, 2021
Schwarzbeck Horn Antenna	BBHA-9170	212	Nov. 24, 2019	Nov. 23, 2020
			Nov. 22, 2020	Nov. 21, 2021
EMCO Horn Antenna	3115	00028257	Nov. 24, 2019	Nov. 23, 2020
			Nov. 22, 2020	Nov. 21, 2021
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	Radiated_V7.6.15.9.5	NA	NA	NA
SUHNER RF cable With 4dB PAD	SF102	Cable-CH6-01	Jul. 9, 2020	Jul. 8, 2021
EMEC RF cable With 3/4dB PAD	EM102-KMKM	01	Aug. 21, 2020	Aug. 20, 2021
KEYSIGHT MIMO Powermeasurement Test set	U2021XA	U2021XA-001	Jun. 16, 2020	Jun. 15, 2021
KEYSIGHT Spectrum Analyzer	N9030A	MY54490260	Jul. 22, 2020	Jul. 21, 2021
Loop Antenna EMCI	LPA600	270	Aug. 23, 2019	Aug. 22, 2021
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA
ROHDE & SCHWARZ Spectrum Analyzer	FSV40	101042	Sep. 8, 2020	Sep. 7, 2021
Anritsu Power Sensor	MA2411B	0738404	Apr. 13, 2020	Apr. 12, 2021
Anritsu Power Meter	ML2495A	0842014	Apr. 13, 2020	Apr. 12, 2021

NOTE: 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.

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.

   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. (802.11a: RBW = 1MHz, VBW = 750Hz; 802.11ax (20MHz): RBW = 1MHz, VBW = 200Hz; 802.11ax (40MHz): RBW = 1MHz, VBW = 200Hz; 802.11ax (80MHz): RBW = 1MHz, VBW = 200Hz)

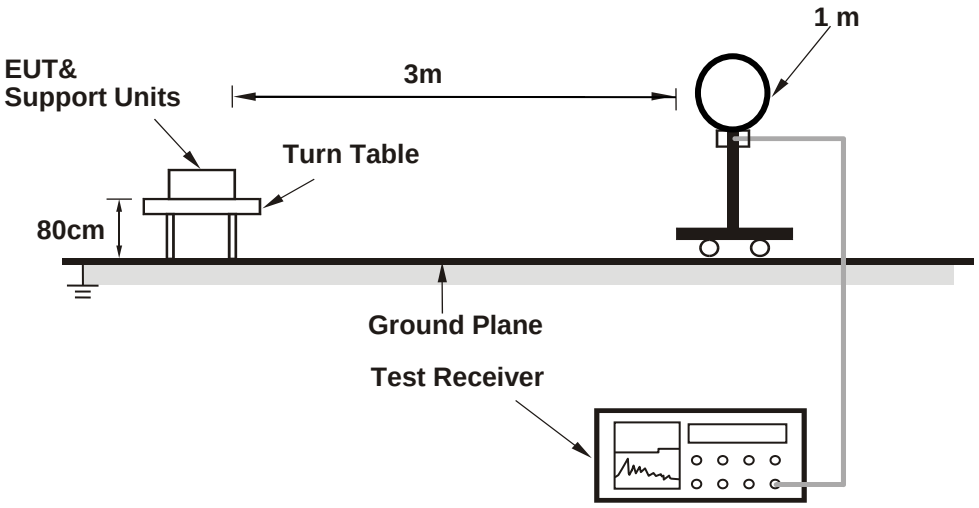
3. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

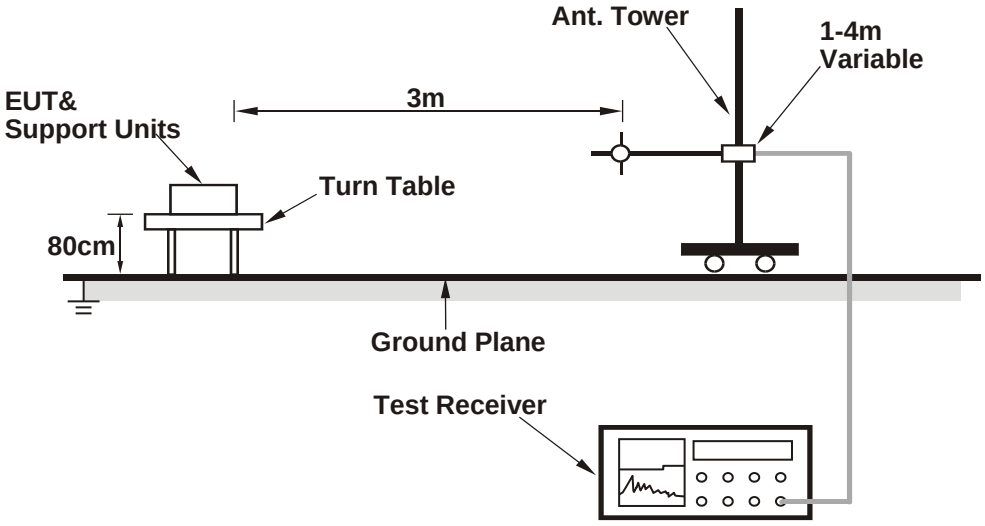
No deviation.

4.1.5 Test Setup

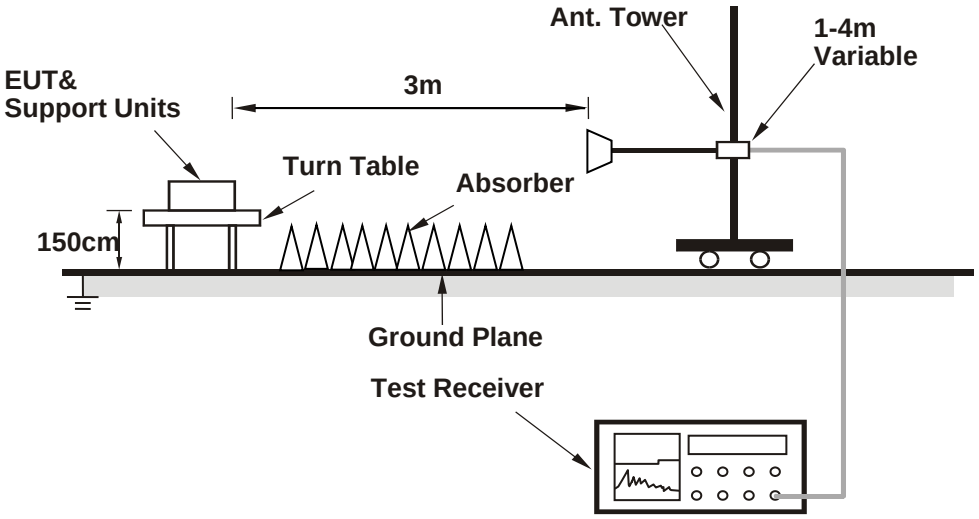
For Radiated emission below 30MHz



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. Placed the EUT on the testing table.
b. Prepared a notebook to act as a communication partner and placed it outside of testing area.
c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".
e. The communication partner read and wrote messages from USB Flash via EUT.

4.1.7 Test Results

CDD Mode

ABOVE 1GHz DATA

802.11a

RF Mode	TX 802.11a	Channel	CH 52：5260 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	52.96 PK	74.00	-21.04	1.22 H	125	42.95	10.01
2	5150.00	43.17 AV	54.00	-10.83	1.22 H	125	33.16	10.01
3	*5260.00	113.65 PK			1.22 H	125	103.27	10.38
4	*5260.00	106.10 AV			1.22 H	125	95.72	10.38
5	#10520.00	56.25 PK	68.20	-11.95	1.59 H	354	40.16	16.09
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	52.76 PK	74.00	-21.24	1.45 V	50	42.75	10.01
2	5150.00	42.03 AV	54.00	-11.97	1.45 V	50	32.02	10.01
3	*5260.00	112.46 PK			1.45 V	50	102.08	10.38
4	*5260.00	105.19 AV			1.45 V	50	94.81	10.38
5	#10520.00	56.44 PK	68.20	-11.76	1.42 V	111	40.35	16.09

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	114.12 PK			1.34 H	129	103.45	10.67
2	*5300.00	106.89 AV			1.34 H	129	96.22	10.67
3	10600.00	57.20 PK	74.00	-16.80	1.62 H	231	41.25	15.95
4	10600.00	46.98 AV	54.00	-7.02	1.62 H	231	31.03	15.95
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	112.86 PK			1.41 V	39	102.19	10.67
2	*5300.00	104.73 AV			1.41 V	39	94.06	10.67
3	10600.00	56.53 PK	74.00	-17.47	1.52 V	216	40.58	15.95
4	10600.00	46.06 AV	54.00	-7.94	1.52 V	216	30.11	15.95

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	114.53 PK			2.52 H	328	103.73	10.80
2	*5320.00	106.95 AV			2.52 H	328	96.15	10.80
3	5350.00	53.50 PK	74.00	-20.50	2.52 H	328	42.51	10.99
4	5350.00	42.87 AV	54.00	-11.13	2.52 H	328	31.88	10.99
5	10640.00	57.19 PK	74.00	-16.81	1.58 H	274	41.05	16.14
6	10640.00	47.08 AV	54.00	-6.92	1.58 H	274	30.94	16.14
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	115.25 PK			1.40 V	187	104.45	10.80
2	*5320.00	107.49 AV			1.40 V	187	96.69	10.80
3	5350.00	53.62 PK	74.00	-20.38	1.40 V	187	42.63	10.99
4	5350.00	43.06 AV	54.00	-10.94	1.40 V	187	32.07	10.99
5	10640.00	56.80 PK	74.00	-17.20	2.30 V	164	40.66	16.14
6	10640.00	46.49 AV	54.00	-7.51	2.30 V	164	30.35	16.14

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	56.77 PK	74.00	-17.23	2.54 H	318	45.40	11.37
2	5460.00	47.65 AV	54.00	-6.35	2.54 H	318	36.28	11.37
3	#5470.00	57.36 PK	68.20	-10.84	2.54 H	318	45.91	11.45
4	*5500.00	118.88 PK			2.54 H	318	107.22	11.66
5	*5500.00	110.17 AV			2.54 H	318	98.51	11.66
6	11000.00	56.94 PK	74.00	-17.06	1.32 H	214	40.16	16.78
7	11000.00	47.04 AV	54.00	-6.96	1.32 H	214	30.26	16.78
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	55.01 PK	74.00	-18.99	1.53 V	48	43.64	11.37
2	5460.00	46.24 AV	54.00	-7.76	1.53 V	48	34.87	11.37
3	#5470.00	55.14 PK	68.20	-13.06	1.53 V	48	43.69	11.45
4	*5500.00	117.83 PK			1.53 V	48	106.17	11.66
5	*5500.00	108.92 AV			1.53 V	48	97.26	11.66
6	11000.00	56.04 PK	74.00	-17.96	1.19 V	142	39.26	16.78
7	11000.00	46.66 AV	54.00	-7.34	1.19 V	142	29.88	16.78

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 116：5580 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	118.55 PK			2.62 H	208	107.64	10.91
2	*5580.00	109.46 AV			2.62 H	208	98.55	10.91
3	11160.00	57.83 PK	74.00	-16.17	1.84 H	264	40.15	17.68
4	11160.00	48.01 AV	54.00	-5.99	1.84 H	264	30.33	17.68
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	117.18 PK			1.61 V	57	106.27	10.91
2	*5580.00	108.33 AV			1.61 V	57	97.42	10.91
3	11160.00	57.00 PK	74.00	-17.00	1.88 V	205	39.32	17.68
4	11160.00	46.86 AV	54.00	-7.14	1.88 V	205	29.18	17.68

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	115.36 PK			2.49 H	132	104.71	10.65
2	*5700.00	106.95 AV			2.49 H	132	96.30	10.65
3	#5725.00	58.16 PK	68.20	-10.04	2.49 H	132	47.58	10.58
4	11400.00	57.11 PK	74.00	-16.89	1.90 H	273	39.25	17.86
5	11400.00	47.52 AV	54.00	-6.48	1.90 H	273	29.66	17.86
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	118.58 PK			1.73 V	149	107.93	10.65
2	*5700.00	110.62 AV			1.73 V	149	99.97	10.65
3	#5725.00	59.58 PK	68.20	-8.62	1.73 V	149	49.00	10.58
4	11400.00	57.29 PK	74.00	-16.71	1.21 V	146	39.43	17.86
5	11400.00	47.81 AV	54.00	-6.19	1.21 V	146	29.95	17.86

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5470.00	53.12 PK	68.20	-15.08	2.46 H	315	41.67	11.45
2	*5720.00	117.56 PK			2.46 H	315	106.96	10.60
3	*5720.00	109.11 AV			2.46 H	315	98.51	10.60
4	11440.00	57.34 PK	74.00	-16.66	1.65 H	258	39.28	18.06
5	11440.00	47.69 AV	54.00	-6.31	1.65 H	258	29.63	18.06
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	#5470.00	54.19 PK	68.20	-14.01	1.71 V	319	42.74	11.45
2	*5720.00	116.12 PK			1.71 V	319	105.52	10.60
3	*5720.00	107.73 AV			1.71 V	319	97.13	10.60
4	11440.00	57.25 PK	74.00	-16.75	1.30 V	152	39.19	18.06
5	11440.00	47.61 AV	54.00	-6.39	1.30 V	152	29.55	18.06

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 (20MHz)

RF Mode	TX 802.11ax (20MHz)	Channel	CH 52：5260 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	52.91 PK	74.00	-21.09	2.37 H	327	42.90	10.01
2	5150.00	41.38 AV	54.00	-12.62	2.37 H	327	31.37	10.01
3	*5260.00	117.08 PK			2.37 H	327	106.70	10.38
4	*5260.00	106.15 AV			2.37 H	327	95.77	10.38
5	#10520.00	57.58 PK	68.20	-10.62	1.88 H	294	41.49	16.09
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	52.39 PK	74.00	-21.61	1.43 V	159	42.38	10.01
2	5150.00	40.87 AV	54.00	-13.13	1.43 V	159	30.86	10.01
3	*5260.00	115.95 PK			1.43 V	159	105.57	10.38
4	*5260.00	105.03 AV			1.43 V	159	94.65	10.38
5	#10520.00	56.93 PK	68.20	-11.27	2.27 V	160	40.84	16.09

Remarks:

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

RF Mode	TX 802.11ax (20MHz)	Channel	CH 60：5300 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	117.29 PK			2.42 H	331	106.62	10.67
2	*5300.00	106.18 AV			2.42 H	331	95.51	10.67
3	10600.00	57.60 PK	74.00	-16.40	1.76 H	285	41.65	15.95
4	10600.00	46.79 AV	54.00	-7.21	1.76 H	285	30.84	15.95
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	116.12 PK			1.44 V	191	105.45	10.67
2	*5300.00	105.09 AV			1.44 V	191	94.42	10.67
3	10600.00	56.85 PK	74.00	-17.15	2.48 V	256	40.90	15.95
4	10600.00	46.37 AV	54.00	-7.63	2.48 V	256	30.42	15.95

Remarks:

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

RF Mode	TX 802.11ax (20MHz)	Channel	CH 64：5320 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	116.98 PK			2.50 H	334	106.18	10.80
2	*5320.00	106.04 AV			2.50 H	334	95.24	10.80
3	5350.00	54.68 PK	74.00	-19.32	2.50 H	334	43.69	10.99
4	5350.00	43.34 AV	54.00	-10.66	2.50 H	334	32.35	10.99
5	10640.00	57.72 PK	74.00	-16.28	1.79 H	291	41.58	16.14
6	10640.00	46.85 AV	54.00	-7.15	1.79 H	291	30.71	16.14
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	115.52 PK			1.38 V	183	104.72	10.80
2	*5320.00	104.61 AV			1.38 V	183	93.81	10.80
3	5350.00	53.37 PK	74.00	-20.63	1.38 V	183	42.38	10.99
4	5350.00	42.15 AV	54.00	-11.85	1.38 V	183	31.16	10.99
5	10640.00	56.79 PK	74.00	-17.21	2.31 V	264	40.65	16.14
6	10640.00	46.33 AV	54.00	-7.67	2.31 V	264	30.19	16.14

Remarks:

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

RF Mode	TX 802.11ax (20MHz)	Channel	CH 100：5500 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	59.32 PK	74.00	-14.68	2.61 H	321	47.95	11.37
2	5460.00	48.16 AV	54.00	-5.84	2.61 H	321	36.79	11.37
3	#5470.00	63.01 PK	68.20	-5.19	2.61 H	321	51.56	11.45
4	*5500.00	121.46 PK			2.61 H	321	109.80	11.66
5	*5500.00	110.38 AV			2.61 H	321	98.72	11.66
6	11000.00	56.04 PK	74.00	-17.96	1.82 H	241	39.26	16.78
7	11000.00	46.82 AV	54.00	-7.18	1.82 H	241	30.04	16.78
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	59.31 PK	74.00	-14.69	1.71 V	348	47.94	11.37
2	5460.00	47.88 AV	54.00	-6.12	1.71 V	348	36.51	11.37
3	#5470.00	62.81 PK	68.20	-5.39	1.71 V	348	51.36	11.45
4	*5500.00	120.68 PK			1.71 V	348	109.02	11.66
5	*5500.00	109.54 AV			1.71 V	348	97.88	11.66
6	11000.00	55.97 PK	74.00	-18.03	1.33 V	159	39.19	16.78
7	11000.00	46.71 AV	54.00	-7.29	1.33 V	159	29.93	16.78

Remarks:

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

RF Mode	TX 802.11ax (20MHz)	Channel	CH 116：5580 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	118.23 PK			3.24 H	322	107.32	10.91
2	*5580.00	107.18 AV			3.24 H	322	96.27	10.91
3	11160.00	57.04 PK	74.00	-16.96	1.52 H	168	39.36	17.68
4	11160.00	47.36 AV	54.00	-6.64	1.52 H	168	29.68	17.68
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	119.34 PK			1.64 V	145	108.43	10.91
2	*5580.00	108.07 AV			1.64 V	145	97.16	10.91
3	11160.00	57.27 PK	74.00	-16.73	2.31 V	154	39.59	17.68
4	11160.00	47.47 AV	54.00	-6.53	2.31 V	154	29.79	17.68

Remarks:

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

RF Mode	TX 802.11ax (20MHz)	Channel	CH 140：5700 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	116.17 PK			1.21 H	132	105.52	10.65
2	*5700.00	104.50 AV			1.21 H	132	93.85	10.65
3	#5725.00	59.63 PK	68.20	-8.57	1.21 H	132	49.05	10.58
4	11400.00	56.90 PK	74.00	-17.10	2.14 H	169	39.04	17.86
5	11400.00	47.09 AV	54.00	-6.91	2.14 H	169	29.23	17.86
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	119.06 PK			1.83 V	318	108.41	10.65
2	*5700.00	108.11 AV			1.83 V	318	97.46	10.65
3	#5725.00	60.12 PK	68.20	-8.08	1.83 V	318	49.54	10.58
4	11400.00	57.50 PK	74.00	-16.50	1.45 V	274	39.64	17.86
5	11400.00	47.44 AV	54.00	-6.56	1.45 V	274	29.58	17.86

Remarks:

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

RF Mode	TX 802.11ax (20MHz)	Channel	CH 144：5720 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5470.00	53.99 PK	68.20	-14.21	2.83 H	132	42.54	11.45
2	*5720.00	119.72 PK			2.83 H	132	109.12	10.60
3	*5720.00	108.32 AV			2.83 H	132	97.72	10.60
4	11440.00	57.62 PK	74.00	-16.38	1.54 H	128	39.56	18.06
5	11440.00	47.45 AV	54.00	-6.55	1.54 H	128	29.39	18.06
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	#5470.00	54.23 PK	68.20	-13.97	1.86 V	162	42.78	11.45
2	*5720.00	121.37 PK			1.86 V	162	110.77	10.60
3	*5720.00	110.51 AV			1.86 V	162	99.91	10.60
4	11440.00	57.84 PK	74.00	-16.16	1.69 V	325	39.78	18.06
5	11440.00	47.88 AV	54.00	-6.12	1.69 V	325	29.82	18.06

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 (40MHz)

RF Mode	TX 802.11ax (40MHz)	Channel	CH 54：5270 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	53.94 PK	74.00	-20.06	2.46 H	321	43.93	10.01
2	5150.00	43.17 AV	54.00	-10.83	2.46 H	321	33.16	10.01
3	*5270.00	115.31 PK			2.46 H	321	104.86	10.45
4	*5270.00	104.46 AV			2.46 H	321	94.01	10.45
5	#10540.00	57.52 PK	68.20	-10.68	1.82 H	201	41.47	16.05
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	52.33 PK	74.00	-21.67	1.56 V	189	42.32	10.01
2	5150.00	40.91 AV	54.00	-13.09	1.56 V	189	30.90	10.01
3	*5270.00	114.07 PK			1.56 V	189	103.62	10.45
4	*5270.00	103.14 AV			1.56 V	189	92.69	10.45
5	#10540.00	56.81 PK	68.20	-11.39	2.14 V	258	40.76	16.05

Remarks:

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

RF Mode	TX 802.11ax (40MHz)	Channel	CH 62：5310 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5310.00	115.63 PK			2.52 H	323	104.89	10.74
2	*5310.00	104.71 AV			2.52 H	323	93.97	10.74
3	5350.00	65.07 PK	74.00	-8.93	2.52 H	323	54.08	10.99
4	5350.00	47.97 AV	54.00	-6.03	2.52 H	323	36.98	10.99
5	10620.00	57.36 PK	74.00	-16.64	1.83 H	294	41.32	16.04
6	10620.00	46.93 AV	54.00	-7.07	1.83 H	294	30.89	16.04
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	114.36 PK			1.63 V	180	103.62	10.74
2	*5310.00	103.57 AV			1.63 V	180	92.83	10.74
3	5350.00	63.71 PK	74.00	-10.29	1.63 V	180	52.72	10.99
4	5350.00	46.85 AV	54.00	-7.15	1.63 V	180	35.86	10.99
5	10620.00	56.55 PK	74.00	-17.45	2.27 V	234	40.51	16.04
6	10620.00	46.39 AV	54.00	-7.61	2.27 V	234	30.35	16.04

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	59.68 PK	74.00	-14.32	2.72 H	322	48.31	11.37
2	5460.00	48.40 AV	54.00	-5.60	2.72 H	322	37.03	11.37
3	#5470.00	66.93 PK	68.20	-1.27	2.72 H	322	55.48	11.45
4	*5510.00	117.02 PK			2.72 H	322	105.46	11.56
5	*5510.00	106.37 AV			2.72 H	322	94.81	11.56
6	11020.00	56.47 PK	74.00	-17.53	1.63 H	291	39.57	16.90
7	11020.00	46.53 AV	54.00	-7.47	1.63 H	291	29.63	16.90
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	57.59 PK	74.00	-16.41	1.19 V	353	46.22	11.37
2	5460.00	46.62 AV	54.00	-7.38	1.19 V	353	35.25	11.37
3	#5470.00	66.80 PK	68.20	-1.40	1.19 V	353	55.35	11.45
4	*5510.00	116.43 PK			1.19 V	353	104.87	11.56
5	*5510.00	105.59 AV			1.19 V	353	94.03	11.56
6	11020.00	56.24 PK	74.00	-17.76	1.45 V	214	39.34	16.90
7	11020.00	46.29 AV	54.00	-7.71	1.45 V	214	29.39	16.90

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5550.00	117.98 PK			2.75 H	154	106.80	11.18
2	*5550.00	107.35 AV			2.75 H	154	96.17	11.18
3	11100.00	56.63 PK	74.00	-17.37	1.88 H	261	39.26	17.37
4	11100.00	46.78 AV	54.00	-7.22	1.88 H	261	29.41	17.37
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	118.82 PK			1.78 V	144	107.64	11.18
2	*5550.00	107.79 AV			1.78 V	144	96.61	11.18
3	11100.00	56.79 PK	74.00	-17.21	1.25 V	180	39.42	17.37
4	11100.00	46.98 AV	54.00	-7.02	1.25 V	180	29.61	17.37

Remarks:

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

RF Mode	TX 802.11ax (40MHz)	Channel	CH 134：5670 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5670.00	117.41 PK			3.21 H	322	106.72	10.69
2	*5670.00	106.03 AV			3.21 H	322	95.34	10.69
3	#5725.00	59.92 PK	68.20	-8.28	3.21 H	322	49.34	10.58
4	11340.00	56.87 PK	74.00	-17.13	2.16 H	223	39.47	17.40
5	11340.00	46.78 AV	54.00	-7.22	2.16 H	223	29.38	17.40
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	116.54 PK			2.80 V	139	105.85	10.69
2	*5670.00	105.18 AV			2.80 V	139	94.49	10.69
3	#5725.00	59.61 PK	68.20	-8.59	2.80 V	139	49.03	10.58
4	11340.00	56.64 PK	74.00	-17.36	2.45 V	178	39.24	17.40
5	11340.00	46.48 AV	54.00	-7.52	2.45 V	178	29.08	17.40

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5470.00	54.34 PK	68.20	-13.86	2.95 H	322	42.89	11.45
2	*5710.00	116.98 PK			2.95 H	322	106.36	10.62
3	*5710.00	106.28 AV			2.95 H	322	95.66	10.62
4	11420.00	57.38 PK	74.00	-16.62	2.09 H	228	39.42	17.96
5	11420.00	47.14 AV	54.00	-6.86	2.09 H	228	29.18	17.96
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	#5470.00	54.71 PK	68.20	-13.49	1.61 V	174	43.26	11.45
2	*5710.00	117.46 PK			1.61 V	174	106.84	10.62
3	*5710.00	106.57 AV			1.61 V	174	95.95	10.62
4	11420.00	57.57 PK	74.00	-16.43	1.88 V	201	39.61	17.96
5	11420.00	47.43 AV	54.00	-6.57	1.88 V	201	29.47	17.96

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 (80MHz)

RF Mode	TX 802.11ax (80MHz)	Channel	CH 58：5290 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	53.81 PK	74.00	-20.19	2.52 H	321	43.80	10.01
2	5150.00	42.94 AV	54.00	-11.06	2.52 H	321	32.93	10.01
3	*5290.00	111.53 PK			2.52 H	321	100.93	10.60
4	*5290.00	100.48 AV			2.52 H	321	89.88	10.60
5	5350.00	68.49 PK	74.00	-5.51	2.52 H	321	57.50	10.99
6	5350.00	52.84 AV	54.00	-1.16	2.52 H	321	41.85	10.99
7	#10580.00	57.81 PK	68.20	-10.39	1.85 H	264	41.83	15.98
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	52.94 PK	74.00	-21.06	1.48 V	191	42.93	10.01
2	5150.00	42.17 AV	54.00	-11.83	1.48 V	191	32.16	10.01
3	*5290.00	111.27 PK			1.48 V	191	100.67	10.60
4	*5290.00	100.13 AV			1.48 V	191	89.53	10.60
5	5350.00	67.92 PK	74.00	-6.08	1.48 V	191	56.93	10.99
6	5350.00	52.60 AV	54.00	-1.40	1.48 V	191	41.61	10.99
7	#10580.00	56.61 PK	68.20	-11.59	1.07 V	230	40.63	15.98

Remarks:

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

RF Mode	TX 802.11ax (80MHz)	Channel	CH 106：5530 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	63.67 PK	74.00	-10.33	1.69 H	147	52.30	11.37
2	**5460.00**	**52.98 AV**	**54.00**	**-1.02**	**1.69 H**	**147**	**41.61**	**11.37**
3	#5470.00	62.08 PK	68.20	-6.12	1.69 H	147	50.63	11.45
4	*5530.00	111.34 PK			1.69 H	147	99.97	11.37
5	*5530.00	100.72 AV			1.69 H	147	89.35	11.37
6	11060.00	56.71 PK	74.00	-17.29	1.94 H	104	39.58	17.13
7	11060.00	46.79 AV	54.00	-7.21	1.94 H	104	29.66	17.13
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	60.73 PK	74.00	-13.27	1.71 V	146	49.36	11.37
2	5460.00	49.66 AV	54.00	-4.34	1.71 V	146	38.29	11.37
3	#5470.00	66.45 PK	68.20	-1.75	1.71 V	146	55.00	11.45
4	*5530.00	113.59 PK			1.71 V	146	102.22	11.37
5	*5530.00	103.27 AV			1.71 V	146	91.90	11.37
6	11060.00	56.82 PK	74.00	-17.18	1.20 V	29	39.69	17.13
7	11060.00	46.92 AV	54.00	-7.08	1.20 V	29	29.79	17.13

Remarks:

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

RF Mode	TX 802.11ax (80MHz)	Channel	CH 122：5610 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5610.00	111.58 PK			1.49 H	158	100.85	10.73
2	*5610.00	101.01 AV			1.49 H	158	90.28	10.73
3	#5725.00	61.01 PK	68.20	-7.19	1.49 H	158	50.43	10.58
4	11220.00	57.10 PK	74.00	-16.90	2.36 H	201	39.37	17.73
5	11220.00	46.89 AV	54.00	-7.11	2.36 H	201	29.16	17.73
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5610.00	115.62 PK			1.43 V	156	104.89	10.73
2	*5610.00	104.70 AV			1.43 V	156	93.97	10.73
3	#5725.00	65.01 PK	68.20	-3.19	1.43 V	156	54.43	10.58
4	11220.00	57.35 PK	74.00	-16.65	1.88 V	256	39.62	17.73
5	11220.00	47.21 AV	54.00	-6.79	1.88 V	256	29.48	17.73

Remarks:

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

RF Mode	TX 802.11ax (80MHz)	Channel	CH 138：5690 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5470.00	54.28 PK	68.20	-13.92	2.39 H	325	42.83	11.45
2	*5690.00	115.19 PK			2.39 H	325	104.53	10.66
3	*5690.00	104.49 AV			2.39 H	325	93.83	10.66
4	11380.00	57.26 PK	74.00	-16.74	1.45 H	168	39.56	17.70
5	11380.00	47.19 AV	54.00	-6.81	1.45 H	168	29.49	17.70
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	#5470.00	54.21 PK	68.20	-13.99	1.60 V	173	42.76	11.45
2	*5690.00	114.82 PK			1.60 V	173	104.16	10.66
3	*5690.00	103.95 AV			1.60 V	173	93.29	10.66
4	11380.00	57.11 PK	74.00	-16.89	1.20 V	220	39.41	17.70
5	11380.00	46.96 AV	54.00	-7.04	1.20 V	220	29.26	17.70

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:

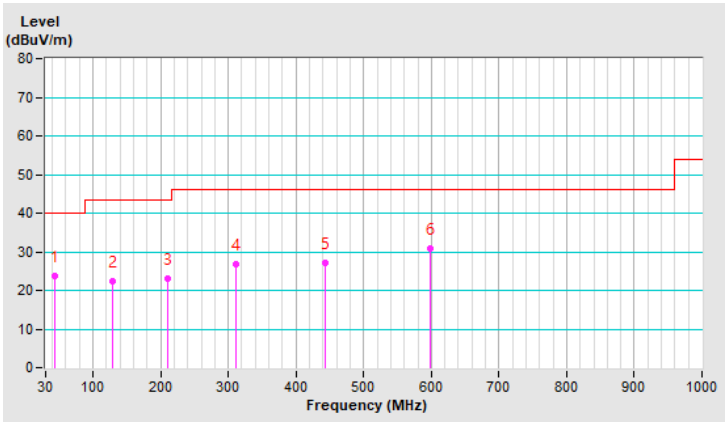
802.11ax (40MHz)

CHANNEL	TX Channel 134	**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	43.29	23.85 QP	40.00	-16.15	1.46 H	33	31.36	-7.51
2	128.21	22.30 QP	43.50	-21.20	1.27 H	214	30.59	-8.29
3	211.20	23.13 QP	43.50	-20.37	1.89 H	268	32.03	-8.90
4	310.43	26.81 QP	46.00	-19.19	1.63 H	228	30.89	-4.08
5	443.32	27.21 QP	46.00	-18.79	2.37 H	268	28.17	-0.96
6	597.79	30.98 QP	46.00	-15.02	1.85 H	178	28.75	2.23

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.

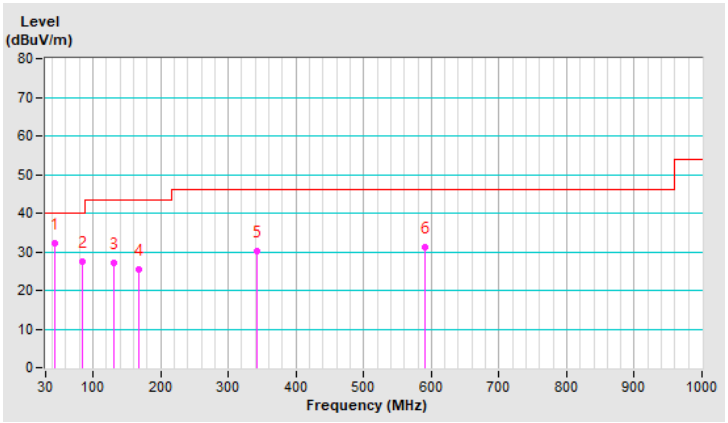


CHANNEL	TX Channel 134	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	42.85	32.23 QP	40.00	-7.77	1.54 V	259	39.75	-7.52
2	83.59	27.60 QP	40.00	-12.40	1.34 V	276	39.91	-12.31
3	131.12	27.27 QP	43.50	-16.23	1.27 V	208	35.27	-8.00
4	167.98	25.34 QP	43.50	-18.16	1.94 V	261	32.04	-6.70
5	342.39	30.23 QP	46.00	-15.77	1.28 V	268	33.66	-3.43
6	591.58	31.27 QP	46.00	-14.73	1.71 V	227	29.15	2.12

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.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESCS30	100276	Apr. 16, 2020	Apr. 15, 2021
R&S Artificial Mains Network (for EUT)	ENV216	101196	Apr. 20, 2020	Apr. 19, 2021
LISN With Adapter (for EUT)	101196	NA	Apr. 20, 2020	Apr. 19, 2021
R&S Artificial Mains Network (for peripheral)	ESH3-Z5	100220	Dec. 1, 2020	Nov. 30, 2021
Software	Cond_V7.3.7.4	NA	NA	NA
RF cable (JYEBAO) With 10dB PAD	5D-FB	Cable-C05.01	Jan. 30, 2020	Jan. 29, 2021
LYNICS Terminator (For R&S LISN)	0900510	E1-01-305	Feb. 17, 2020	Feb. 16, 2021

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. 5. (Conduction 5)

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.

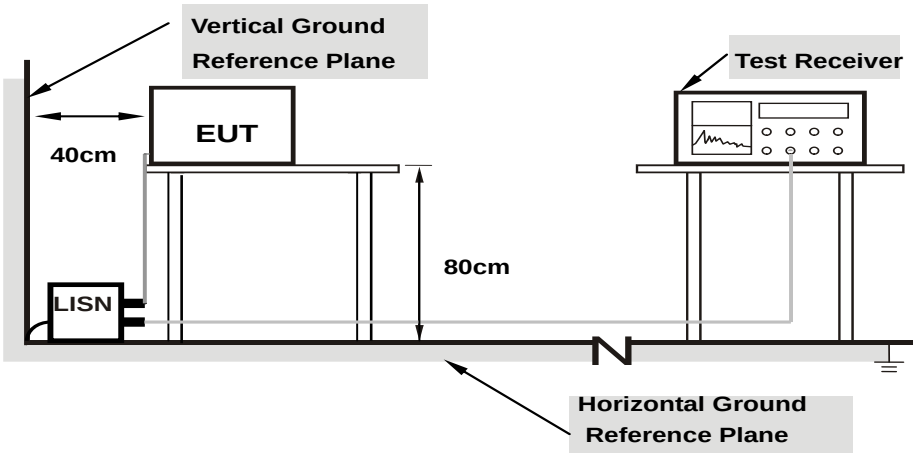
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

CDD Mode

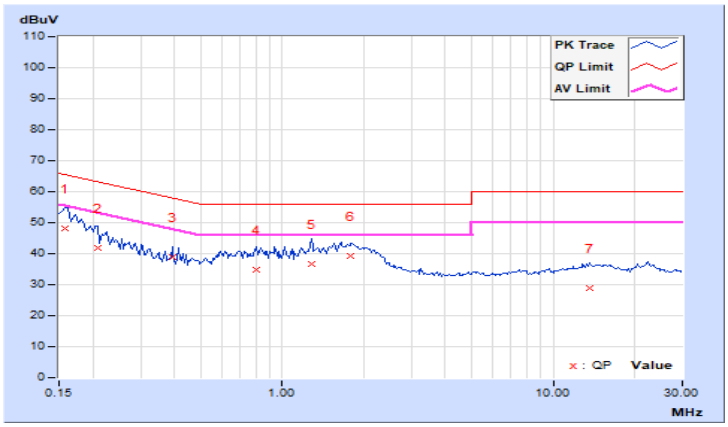
802.11ax (40MHz)

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

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	19.49	28.78	11.95	48.27	31.44	65.58	55.58	-17.31	-24.14
2	0.20859	19.49	22.51	5.52	42.00	25.01	63.26	53.26	-21.26	-28.25
3	**0.39219**	**19.51**	**19.31**	**15.36**	**38.82**	**34.87**	**58.02**	**48.02**	**-19.20**	**-13.15**
4	0.80234	19.54	15.26	10.12	34.80	29.66	56.00	46.00	-21.20	-16.34
5	1.28125	19.56	16.95	9.73	36.51	29.29	56.00	46.00	-19.49	-16.71
6	1.79688	19.57	19.73	11.30	39.30	30.87	56.00	46.00	-16.70	-15.13
7	13.64844	19.98	9.00	4.45	28.98	24.43	60.00	50.00	-31.02	-25.57

Remarks:

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

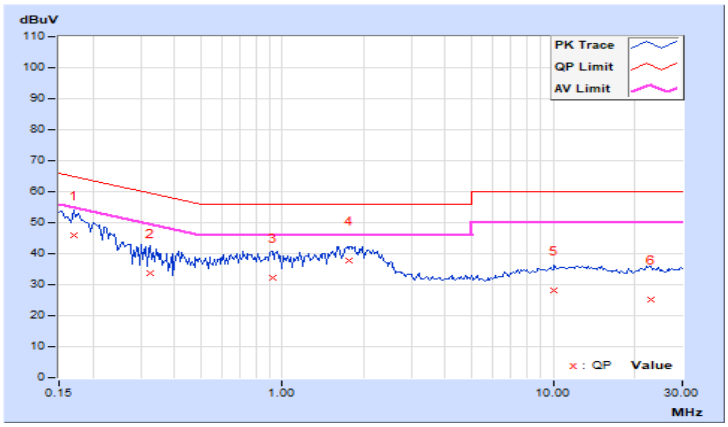


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	19.53	26.26	8.58	45.79	28.11	64.98	54.98	-19.19	-26.87
2	0.32578	19.54	14.28	4.42	33.82	23.96	59.56	49.56	-25.74	-25.60
3	0.91953	19.57	12.71	4.73	32.28	24.30	56.00	46.00	-23.72	-21.70
4	1.77344	19.60	18.32	8.24	37.92	27.84	56.00	46.00	-18.08	-18.16
5	10.10547	19.83	8.17	2.53	28.00	22.36	60.00	50.00	-32.00	-27.64
6	22.99609	20.18	4.87	1.06	25.05	21.24	60.00	50.00	-34.95	-28.76

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

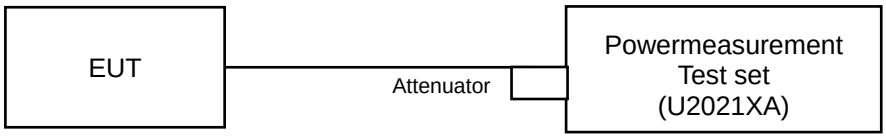
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

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 $N_{ANT} \geq 5$.

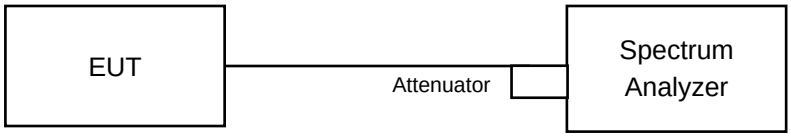
For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.3.2 Test Setup

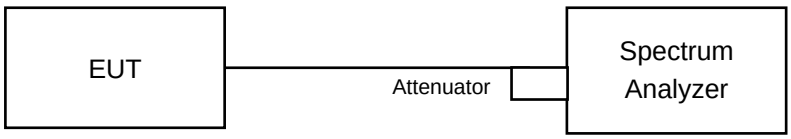
For Power Output Measurement



For Straddle Channel:



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 Average Power Measurement

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 and set the detector to AVERAGE. Duty factor is not added to measured value.

For Straddle Channel:

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

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 Result

CDD Mode

Power Output:

802.11a

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	15.68	15.78	15.66	15.69	148.708	21.72	23.90	Pass
60	5300	15.59	15.84	15.59	15.71	148.058	21.70	23.92	Pass
64	5320	15.66	15.82	15.62	15.71	148.722	21.72	23.90	Pass
100	5500	16.28	16.19	16.18	15.90	164.453	22.16	23.88	Pass
116	5580	16.26	16.31	16.08	15.92	164.658	22.17	23.88	Pass
140	5700	16.22	15.98	16.30	15.94	163.430	22.13	23.92	Pass
144	5720 For U-NII-2C	11.82	10.47	10.89	10.73	54.482	17.36	22.71	Pass
144	5720 For U-NII-3	4.37	5.85	4.63	4.98	13.642	11.35	30.00	Pass

NOTE:

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

Chain 0

1. 11dBm+10log(19.61) = 23.92 dBm< 24dBm.
2. 11dBm+10log(19.71) = 23.95 dBm< 24dBm.
3. 11dBm+10log(19.80) = 23.97 dBm< 24dBm.
4. 11dBm+10log(19.54) = 23.91 dBm< 24dBm.
5. 11dBm+10log(19.75) = 23.96 dBm< 24dBm.
6. 11dBm+10log(19.64) = 23.93 dBm< 24dBm.
7. 11dBm+10log(5725.00-5710.07)=22.74dBm<24dBm.

Chain 1

1. 11dBm+10log(19.51) = 23.90 dBm < 24dBm.
2. 11dBm+10log(19.60) = 23.92 dBm < 24dBm.
3. 11dBm+10log(19.63) = 23.93 dBm < 24dBm.
4. 11dBm+10log(19.62) = 23.93 dBm < 24dBm.
5. 11dBm+10log(19.66) = 23.94 dBm < 24dBm.
6. 11dBm+10log(20.08) = 24.03 dBm > 24dBm.
7. 11dBm+10log(5725.00-5710.16)=22.71dBm<24dBm.

Chain 2

1. 11dBm+10log(19.58) = 23.92 dBm< 24dBm.
2. 11dBm+10log(19.84) = 23.98 dBm< 24dBm.
3. 11dBm+10log(19.72) = 23.95 dBm< 24dBm.
4. 11dBm+10log(19.53) = 23.91 dBm< 24dBm.
5. 11dBm+10log(19.54) = 23.91 dBm< 24dBm.
6. 11dBm+10log(19.63) = 23.92 dBm< 24dBm.
7. 11dBm+10log(5725.00-5710.07)=22.74Bm<24dBm.

Chain 3

1. 11dBm+10log(19.57) = 23.92 dBm < 24dBm.
2. 11dBm+10log(19.66) = 23.94 dBm < 24dBm.
3. 11dBm+10log(19.54) = 23.90 dBm < 24dBm.
4. 11dBm+10log(19.45) = 23.88 dBm < 24dBm.
5. 11dBm+10log(19.42) = 23.88 dBm < 24dBm.
6. 11dBm+10log(19.69) = 23.94 dBm < 24dBm.
7. 11dBm+10log(5725.00-5710.03)=22.75dBm<24dBm.

For Reference only-Power meter value

The power value was measured by power meter with average sensor

Chan.	Freq. (MHz)	Conducted Power (mW)	Conducted Power (dBm)
144	5720	68.124	18.33

802.11ac (20MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	15.34	15.47	15.01	15.19	134.168	21.28	24.00	Pass
60	5300	15.16	15.38	15.34	15.34	135.720	21.33	24.00	Pass
64	5320	15.45	15.35	15.36	15.62	140.183	21.47	24.00	Pass
100	5500	16.04	16.10	15.68	15.43	152.814	21.84	24.00	Pass
116	5580	16.15	15.49	16.00	15.54	152.230	21.83	24.00	Pass
140	5700	16.14	15.33	16.14	15.71	153.588	21.86	24.00	Pass
144	5720 For U-NII-2C	12.59	11.39	12.42	11.38	65.713	18.18	22.95	Pass
144	5720 For U-NII-3	5.00	6.24	5.36	7.44	17.022	12.31	30.00	Pass

NOTE:

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

Chain 0

1. 11dBm+10log(21.21) = 24.27 dBm>24dBm.
2. 11dBm+10log(21.43) = 24.31 dBm>24dBm.
3. 11dBm+10log(21.32) = 24.29 dBm>24dBm.
4. 11dBm+10log(21.39) = 24.30 dBm>24dBm.
5. 11dBm+10log(21.74) = 24.37 dBm>24dBm.
6. 11dBm+10log(21.30) = 24.28 dBm>24dBm.
7. 11dBm+10log(5725.00-5709.33)=22.95dBm<24dBm.

Chain 1

1. 11dBm+10log(21.72) = 24.37 dBm >24dBm.
2. 11dBm+10log(21.02) = 24.23 dBm >24dBm.
3. 11dBm+10log(21.25) = 24.27 dBm >24dBm.
4. 11dBm+10log(21.47) = 24.32 dBm >24dBm.
5. 11dBm+10log(21.16) = 24.26 dBm >24dBm.
6. 11dBm+10log(21.11) = 24.24 dBm >24dBm.
7. 11dBm+10log(5725.00-5709.22)=22.98dBm<24dBm.

Chain 2

1. 11dBm+10log(21.33) = 24.29 dBm>24dBm.
2. 11dBm+10log(21.44) = 24.31 dBm>24dBm.
3. 11dBm+10log(21.22) = 24.27 dBm>24dBm.
4. 11dBm+10log(21.26) = 24.28 dBm>24dBm.
5. 11dBm+10log(21.37) = 24.30 dBm>24dBm.
6. 11dBm+10log(21.77) = 24.38 dBm>24dBm.
7. 11dBm+10log(5725.00-5709.32)=22.95dBm<24dBm.

Chain 3

1. 11dBm+10log(21.24) = 24.27 dBm >24dBm.
2. 11dBm+10log(21.41) = 24.31 dBm >24dBm.
3. 11dBm+10log(21.33) = 24.29 dBm >24dBm.
4. 11dBm+10log(21.29) = 24.28 dBm >24dBm.
5. 11dBm+10log(21.61) = 24.35 dBm >24dBm.
6. 11dBm+10log(21.39) = 24.30 dBm >24dBm.
7. 11dBm+10log(5725.00-5709.32)=22.95dBm<24dBm.

For Reference only-Power meter value

The power value was measured by power meter with average sensor

Chan.	Freq. (MHz)	Conducted Power (mW)	Conducted Power (dBm)
144	5720	82.735	19.18

802.11ac (40MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	17.06	17.04	16.92	17.12	202.125	23.06	24.00	Pass
62	5310	17.04	17.16	16.98	17.11	203.875	23.09	24.00	Pass
102	5510	15.74	16.12	15.66	15.28	148.965	21.73	24.00	Pass
110	5550	17.08	17.34	17.38	17.13	211.594	23.26	24.00	Pass
134	5670	17.26	16.91	17.41	17.51	213.746	23.30	24.00	Pass
142	5710 For U-NII-2C	13.95	12.87	14.18	10.89	85.822	19.34	24.00	Pass
142	5710 For U-NII-3	3.11	3.58	2.88	3.49	8.827	9.46	30.00	Pass

NOTE:

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

Chain 0

1. 11dBm+10log(41.51) = 27.18 dBm > 24dBm.
2. 11dBm+10log(41.33) = 27.16 dBm > 24dBm.
3. 11dBm+10log(41.64) = 27.20 dBm > 24dBm.
4. 11dBm+10log(41.91) = 27.22 dBm > 24dBm.
5. 11dBm+10log(41.25) = 27.15 dBm > 24dBm.
6. 11dBm+10log(5725.00-5688.98)=25.67dBm>24dBm.

Chain 1

1. 11dBm+10log(41.59) = 27.19 dBm >24dBm.
2. 11dBm+10log(41.39) = 27.17 dBm >24dBm.
3. 11dBm+10log(41.26) = 27.16 dBm >24dBm.
4. 11dBm+10log(40.99) = 27.13 dBm >24dBm.
5. 11dBm+10log(41.15) = 27.14 dBm >24dBm.
6. 11dBm+10log(5725.00-5689.01)=26.56dBm>24dBm.

Chain 2

1. 11dBm+10log(41.44) = 27.17 dBm > 24dBm.
2. 11dBm+10log(41.60) = 27.19 dBm > 24dBm.
3. 11dBm+10log(41.72) = 27.20 dBm > 24dBm.
4. 11dBm+10log(41.46) = 27.18 dBm > 24dBm.
5. 11dBm+10log(41.24) = 27.15 dBm > 24dBm.
6. 11dBm+10log(5725.00-5688.88)=26.58dBm>24dBm.

Chain 3

1. 11dBm+10log(41.39) = 27.17 dBm >24dBm.
2. 11dBm+10log(41.47) = 27.18 dBm >24dBm.
3. 11dBm+10log(41.32) = 27.16 dBm >24dBm.
4. 11dBm+10log(41.15) = 27.14 dBm >24dBm.
5. 11dBm+10log(41.16) = 27.14 dBm >24dBm.
6. 11dBm+10log(5725.00-5689.05)=26.56dBm>24dBm.

For Reference only-Power meter value

The power value was measured by power meter with average sensor

Chan.	Freq. (MHz)	Conducted Power (mW)	Conducted Power (dBm)
142	5710	94.649	19.76

802.11ac (80MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	17.03	17.06	17.07	17.09	203.383	23.08	24.00	Pass
106	5530	16.51	15.72	16.04	15.97	161.812	22.09	24.00	Pass
122	5610	17.26	16.93	17.30	16.83	204.426	23.11	24.00	Pass
138	5690 For U-NII-2C	13.72	13.41	13.06	13.98	93.686	19.72	24.00	Pass
138	5690 For U-NII-3	-0.26	0.66	-0.32	0.01	4.1697	6.20	30.00	Pass

NOTE:

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

Chain 0

1. 11dBm+10log(82.91) = 30.19 dBm > 24dBm.
2. 11dBm+10log(82.58) = 30.17 dBm > 24dBm.
3. 11dBm+10log(83.07) = 30.19 dBm > 24dBm.
4. 11dBm+10log(5725.00-5648.53)=29.83dBm>24dBm.

Chain 1

1. 11dBm+10log(83.07) = 30.19 dBm >24dBm.
2. 11dBm+10log(83.03) = 30.19 dBm >24dBm.
3. 11dBm+10log(83.03) = 30.19 dBm >24dBm.
4. 11dBm+10log(5725.00-5648.35)=29.85dBm>24dBm.

Chain 2

1. 11dBm+10log(83.17) = 30.20 dBm > 24dBm.
2. 11dBm+10log(83.15) = 30.20 dBm > 24dBm.
3. 11dBm+10log(83.27) = 30.20 dBm > 24dBm.
4. 11dBm+10log(5725.00-5648.54)=29.83dBm>24dBm.

Chain 3

1. 11dBm+10log(83.02) = 30.19 dBm >24dBm.
2. 11dBm+10log(82.90) = 30.19 dBm >24dBm.
3. 11dBm+10log(82.56) = 30.17 dBm >24dBm.
4. 11dBm+10log(5725.00-5648.45)=29.84dBm>24dBm.

For Reference only-Power meter value

The power value was measured by power meter with average sensor

Chan.	Freq. (MHz)	Conducted Power (mW)	Conducted Power (dBm)
138	5690	97.8557	19.91

802.11ax (20MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	16.10	16.10	15.71	15.83	156.998	21.96	24.00	Pass
60	5300	15.99	15.93	16.13	15.94	159.178	22.02	24.00	Pass
64	5320	16.14	15.92	15.95	15.97	159.091	22.02	24.00	Pass
100	5500	16.79	16.51	16.26	16.01	174.694	22.42	24.00	Pass
116	5580	16.77	16.21	16.64	16.06	175.813	22.45	24.00	Pass
140	5700	16.75	16.10	16.59	16.25	175.826	22.45	24.00	Pass
144	5720 For U-NII-2C	13.21	12.01	13.04	12.00	75.797	18.80	22.95	Pass
144	5720 For U-NII-3	5.62	6.86	5.98	8.06	19.634	12.93	30.00	Pass

NOTE:

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

Chain 0

1. 11dBm+10log(21.21) = 24.27 dBm>24dBm.
2. 11dBm+10log(21.43) = 24.31 dBm>24dBm.
3. 11dBm+10log(21.32) = 24.29 dBm>24dBm.
4. 11dBm+10log(21.39) = 24.30 dBm>24dBm.
5. 11dBm+10log(21.74) = 24.37 dBm>24dBm.
6. 11dBm+10log(21.30) = 24.28 dBm>24dBm.
7. 11dBm+10log(5725.00-5709.33)=22.95dBm<24dBm.

Chain 1

1. 11dBm+10log(21.72) = 24.37 dBm >24dBm.
2. 11dBm+10log(21.02) = 24.23 dBm >24dBm.
3. 11dBm+10log(21.25) = 24.27 dBm >24dBm.
4. 11dBm+10log(21.47) = 24.32 dBm >24dBm.
5. 11dBm+10log(21.16) = 24.26 dBm >24dBm.
6. 11dBm+10log(21.11) = 24.24 dBm >24dBm.
7. 11dBm+10log(5725.00-5709.22)=22.98dBm<24dBm.

Chain 2

1. 11dBm+10log(21.33) = 24.29 dBm>24dBm.
2. 11dBm+10log(21.44) = 24.31 dBm>24dBm.
3. 11dBm+10log(21.22) = 24.27 dBm>24dBm.
4. 11dBm+10log(21.26) = 24.28 dBm>24dBm.
5. 11dBm+10log(21.37) = 24.30 dBm>24dBm.
6. 11dBm+10log(21.77) = 24.38 dBm>24dBm.
7. 11dBm+10log(5725.00-5709.32)=22.95dBm<24dBm.

Chain 3

1. 11dBm+10log(21.24) = 24.27 dBm >24dBm.
2. 11dBm+10log(21.41) = 24.31 dBm >24dBm.
3. 11dBm+10log(21.33) = 24.29 dBm >24dBm.
4. 11dBm+10log(21.29) = 24.28 dBm >24dBm.
5. 11dBm+10log(21.61) = 24.35 dBm >24dBm.
6. 11dBm+10log(21.39) = 24.30 dBm >24dBm.
7. 11dBm+10log(5725.00-5709.32)=22.95dBm<24dBm.

For Reference only-Power meter value

The power value was measured by power meter with average sensor

Chan.	Freq. (MHz)	Conducted Power (mW)	Conducted Power (dBm)
144	5720	95.431	19.80

802.11ax (40MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	17.73	17.69	17.58	17.77	235.162	23.71	24.00	Pass
62	5310	17.66	17.83	17.61	17.75	236.261	23.73	24.00	Pass
102	5510	16.35	16.79	16.33	15.90	172.763	22.37	24.00	Pass
110	5550	17.74	18.00	18.06	17.79	246.616	23.92	24.00	Pass
134	5670	17.92	17.55	18.06	18.13	**247.816**	23.94	24.00	Pass
142	5710 For U-NII-2C	14.60	13.52	14.83	11.54	99.678	19.99	24.00	Pass
142	5710 For U-NII-3	3.76	4.23	3.53	4.14	10.252	10.11	30.00	Pass

NOTE:

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

Chain 0

1. 11dBm+10log(41.51) = 27.18 dBm> 24dBm.
2. 11dBm+10log(41.33) = 27.16 dBm> 24dBm.
3. 11dBm+10log(41.64) = 27.20 dBm> 24dBm.
4. 11dBm+10log(41.91) = 27.22 dBm> 24dBm.
5. 11dBm+10log(41.25) = 27.15 dBm> 24dBm.
6. 11dBm+10log(5725.00-5688.98)=25.67dBm>24dBm.

Chain 1

1. 11dBm+10log(41.59) = 27.19 dBm >24dBm.
2. 11dBm+10log(41.39) = 27.17 dBm >24dBm.
3. 11dBm+10log(41.26) = 27.16 dBm >24dBm.
4. 11dBm+10log(40.99) = 27.13 dBm >24dBm.
5. 11dBm+10log(41.15) = 27.14 dBm >24dBm.
6. 11dBm+10log(5725.00-5689.01)=26.56dBm>24dBm.

Chain 2

1. 11dBm+10log(41.44) = 27.17 dBm> 24dBm.
2. 11dBm+10log(41.60) = 27.19 dBm> 24dBm.
3. 11dBm+10log(41.72) = 27.20 dBm> 24dBm.
4. 11dBm+10log(41.46) = 27.18 dBm> 24dBm.
5. 11dBm+10log(41.24) = 27.15 dBm> 24dBm.
6. 11dBm+10log(5725.00-5688.88)=26.58dBm>24dBm.

Chain 3

1. 11dBm+10log(41.39) = 27.17 dBm >24dBm.
2. 11dBm+10log(41.47) = 27.18 dBm >24dBm.
3. 11dBm+10log(41.32) = 27.16 dBm >24dBm.
4. 11dBm+10log(41.15) = 27.14 dBm >24dBm.
5. 11dBm+10log(41.16) = 27.14 dBm >24dBm.
6. 11dBm+10log(5725.00-5689.05)=26.56dBm>24dBm.

For Reference only-Power meter value

The power value was measured by power meter with average sensor

Chan.	Freq. (MHz)	Conducted Power (mW)	Conducted Power (dBm)
142	5710	109.93	20.41

802.11ax (80MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	17.67	17.74	17.70	17.77	**236.634**	23.74	24.00	Pass
106	5530	17.13	16.40	16.73	16.64	188.523	22.75	24.00	Pass
122	5610	17.94	17.60	17.97	17.47	238.282	23.77	24.00	Pass
138	5690 For U-NII-2C	14.40	14.09	13.74	14.66	109.566	20.40	24.00	Pass
138	5690 For U-NII-3	0.42	1.34	0.36	0.69	4.876	6.88	30.00	Pass

NOTE:

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

Chain 0

1. 11dBm+10log(82.91) = 30.19 dBm> 24dBm.
2. 11dBm+10log(82.58) = 30.17 dBm> 24dBm.
3. 11dBm+10log(83.07) = 30.19 dBm> 24dBm.
4. 11dBm+10log(5725.00-5648.53)=29.83dBm>24dBm.

Chain 1

1. 11dBm+10log(83.07) = 30.19 dBm >24dBm.
2. 11dBm+10log(83.03) = 30.19 dBm >24dBm.
3. 11dBm+10log(83.03) = 30.19 dBm >24dBm.
4. 11dBm+10log(5725.00-5648.35)=29.85dBm>24dBm.

Chain 2

1. 11dBm+10log(83.17) = 30.20 dBm> 24dBm.
2. 11dBm+10log(83.15) = 30.20 dBm> 24dBm.
3. 11dBm+10log(83.27) = 30.20 dBm> 24dBm.
4. 11dBm+10log(5725.00-5648.54)=29.83dBm>24dBm.

Chain 3

1. 11dBm+10log(83.02) = 30.19 dBm >24dBm.
2. 11dBm+10log(82.90) = 30.19 dBm >24dBm.
3. 11dBm+10log(82.56) = 30.17 dBm >24dBm.
4. 11dBm+10log(5725.00-5648.45)=29.84dBm>24dBm.

For Reference only-Power meter value

The power value was measured by power meter with average sensor

Chan.	Freq. (MHz)	Conducted Power (mW)	Conducted Power (dBm)
138	5690	114.442	20.59

Beamforming Mode

802.11ac (20MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	14.68	14.84	14.41	14.55	115.971	20.64	21.58	Pass
60	5300	14.48	14.78	14.67	14.68	116.801	20.67	21.58	Pass
64	5320	14.77	14.73	14.61	14.93	119.732	20.78	21.58	Pass
100	5500	15.40	15.54	14.99	14.77	132.025	21.21	22.08	Pass
116	5580	15.60	14.83	15.43	15.01	133.326	21.25	22.08	Pass
140	5700	15.54	14.76	15.56	15.15	134.441	21.29	22.08	Pass
144	5720 For U-NII-2C	12.09	10.89	11.92	10.88	58.567	17.68	21.03	Pass
144	5720 For U-NII-3	4.50	5.74	4.86	6.94	15.170	11.81	27.24	Pass

NOTE:

For U-NII-2A:

Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2] =8.42dBi > 6dBi, so the power limit shall be reduced to 24-(8.42-6) = 21.58dBm.

For U-NII-2C:

Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2] =7.92dBi > 6dBi, so the power limit shall be reduced to 24-(7.92-6) = 22.08dBm

Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2] =7.92dBi > 6dBi, so the power limit shall be reduced to 22.95-(7.92-6) = 21.03dBm.

For U-NII-3:

Directional gain = 10 log[$(10^{Chain2/20} + 10^{Chain3/20})^2$ / 2] =8.76dBi > 6dBi, so the power limit shall be reduced to 30-(8.76-6) = 27.24dBm.

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

Chain 0

1. 11dBm+10log(21.21) = 24.27 dBm>24dBm.
2. 11dBm+10log(21.43) = 24.31 dBm>24dBm.
3. 11dBm+10log(21.32) = 24.29 dBm>24dBm.
4. 11dBm+10log(21.39) = 24.30 dBm>24dBm.
5. 11dBm+10log(21.74) = 24.37 dBm>24dBm.
6. 11dBm+10log(21.30) = 24.28 dBm>24dBm.
7. 11dBm+10log(5725.00-5709.33)=22.95dBm<24dBm.

Chain 1

1. 11dBm+10log(21.72) = 24.37 dBm >24dBm.
2. 11dBm+10log(21.02) = 24.23 dBm >24dBm.
3. 11dBm+10log(21.25) = 24.27 dBm >24dBm.
4. 11dBm+10log(21.47) = 24.32 dBm >24dBm.
5. 11dBm+10log(21.16) = 24.26 dBm >24dBm.
6. 11dBm+10log(21.11) = 24.24 dBm >24dBm.
7. 11dBm+10log(5725.00-5709.22)=22.98dBm<24dBm.

Chain 2

1. 11dBm+10log(21.33) = 24.29 dBm>24dBm.
2. 11dBm+10log(21.44) = 24.31 dBm>24dBm.
3. 11dBm+10log(21.22) = 24.27 dBm>24dBm.
4. 11dBm+10log(21.26) = 24.28 dBm>24dBm.
5. 11dBm+10log(21.37) = 24.30 dBm>24dBm.
6. 11dBm+10log(21.77) = 24.38 dBm>24dBm.
7. 11dBm+10log(5725.00-5709.32)=22.95dBm<24dBm.

Chain 3

1. 11dBm+10log(21.24) = 24.27 dBm >24dBm.
2. 11dBm+10log(21.41) = 24.31 dBm >24dBm.
3. 11dBm+10log(21.33) = 24.29 dBm >24dBm.
4. 11dBm+10log(21.29) = 24.28 dBm >24dBm.
5. 11dBm+10log(21.61) = 24.35 dBm >24dBm.
6. 11dBm+10log(21.39) = 24.30 dBm >24dBm.
7. 11dBm+10log(5725.00-5709.32)=22.95dBm<24dBm.

For Reference only-Power meter value

The power value was measured by power meter with average sensor

Chan.	Freq. (MHz)	Conducted Power (mW)	Conducted Power (dBm)
144	5720	73.737	18.68

802.11ac (40MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	14.78	14.74	14.52	14.83	118.569	20.74	21.58	Pass
62	5310	14.83	14.75	14.69	14.67	119.016	20.76	21.58	Pass
102	5510	14.72	15.10	15.02	14.68	123.153	20.90	22.08	Pass
110	5550	14.68	15.07	14.97	14.74	122.703	20.89	22.08	Pass
134	5670	14.81	14.64	15.01	15.06	123.135	20.90	22.08	Pass
142	5710 For U-NII-2C	12.25	11.17	12.48	9.19	58.023	17.64	22.08	Pass
142	5710 For U-NII-3	1.41	1.88	1.18	1.79	5.968	7.76	27.24	Pass

NOTE:

For U-NII-2A:

Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] =8.42dBi > 6dBi, so the power limit shall be reduced to 24-(8.42-6) = 21.58dBm.

For U-NII-2C:

Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] =7.92dBi > 6dBi, so the power limit shall be reduced to 24-(7.92-6) = 22.08dBm

For U-NII-3:

Directional gain = 10 log[(10$^{Chain2/20}$ + 10$^{Chain3/20}$)^2 / 2] =8.76dBi > 6dBi, so the power limit shall be reduced to 30-(8.76-6) = 27.24dBm.

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

Chain 0

1. 11dBm+10log(41.51) = 27.18 dBm > 24dBm.
2. 11dBm+10log(41.33) = 27.16 dBm > 24dBm.
3. 11dBm+10log(41.64) = 27.20 dBm > 24dBm.
4. 11dBm+10log(41.91) = 27.22 dBm > 24dBm.
5. 11dBm+10log(41.25) = 27.15 dBm > 24dBm.
6. 11dBm+10log(5725.00-5688.98)=25.67dBm>24dBm.

Chain 1

1. 11dBm+10log(41.59) = 27.19 dBm >24dBm.
2. 11dBm+10log(41.39) = 27.17 dBm >24dBm.
3. 11dBm+10log(41.26) = 27.16 dBm >24dBm.
4. 11dBm+10log(40.99) = 27.13 dBm >24dBm.
5. 11dBm+10log(41.15) = 27.14 dBm >24dBm.
6. 11dBm+10log(5725.00-5689.01)=26.56dBm>24dBm.

Chain 2

1. 11dBm+10log(41.44) = 27.17 dBm > 24dBm.
2. 11dBm+10log(41.60) = 27.19 dBm > 24dBm.
3. 11dBm+10log(41.72) = 27.20 dBm > 24dBm.
4. 11dBm+10log(41.46) = 27.18 dBm > 24dBm.
5. 11dBm+10log(41.24) = 27.15 dBm > 24dBm.
6. 11dBm+10log(5725.00-5688.88)=26.58dBm>24dBm.

Chain 3

1. 11dBm+10log(41.39) = 27.17 dBm >24dBm.
2. 11dBm+10log(41.47) = 27.18 dBm >24dBm.
3. 11dBm+10log(41.32) = 27.16 dBm >24dBm.
4. 11dBm+10log(41.15) = 27.14 dBm >24dBm.
5. 11dBm+10log(41.16) = 27.14 dBm >24dBm.
6. 11dBm+10log(5725.00-5689.05)=26.56dBm>24dBm.

For Reference only-Power meter value

The power value was measured by power meter with average sensor

Chan.	Freq. (MHz)	Conducted Power (mW)	Conducted Power (dBm)
142	5710	63.991	18.06

802.11ac (80MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	14.68	14.69	14.76	14.69	118.188	20.73	21.58	Pass
106	5530	15.76	14.88	15.15	15.20	134.279	21.28	22.08	Pass
122	5610	15.46	15.15	15.55	14.98	135.260	21.31	22.08	Pass
138	5690 For U-NII-2C	12.25	11.94	11.59	12.51	66.785	18.25	22.08	Pass
138	5690 For U-NII-3	-1.73	-0.81	-1.79	-1.46	2.9724	4.73	27.24	Pass

NOTE:

For U-NII-2A:

Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] =8.42dBi > 6dBi, so the power limit shall be reduced to 24-(8.42-6) = 21.58dBm.

For U-NII-2C:

Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] =7.92dBi > 6dBi, so the power limit shall be reduced to 24-(7.92-6) = 22.08dBm

For U-NII-3:

Directional gain = 10 log[(10$^{Chain2/20}$ + 10$^{Chain3/20}$)^2 / 2] =8.76dBi > 6dBi, so the power limit shall be reduced to 30-(8.76-6) = 27.24dBm.

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

Chain 0

1. 11dBm+10log(82.91) = 30.19 dBm> 24dBm.
2. 11dBm+10log(82.58) = 30.17 dBm> 24dBm.
3. 11dBm+10log(83.07) = 30.19 dBm> 24dBm.
4. 11dBm+10log(5725.00-5648.53)=29.83dBm>24dBm.

Chain 1

1. 11dBm+10log(83.07) = 30.19 dBm >24dBm.
2. 11dBm+10log(83.03) = 30.19 dBm >24dBm.
3. 11dBm+10log(83.03) = 30.19 dBm >24dBm.
4. 11dBm+10log(5725.00-5648.35)=29.85dBm>24dBm.

Chain 2

1. 11dBm+10log(83.17) = 30.20 dBm> 24dBm.
2. 11dBm+10log(83.15) = 30.20 dBm> 24dBm.
3. 11dBm+10log(83.27) = 30.20 dBm> 24dBm.
4. 11dBm+10log(5725.00-5648.54)=29.83dBm>24dBm.

Chain 3

1. 11dBm+10log(83.02) = 30.19 dBm >24dBm.
2. 11dBm+10log(82.90) = 30.19 dBm >24dBm.
3. 11dBm+10log(82.56) = 30.17 dBm >24dBm.
4. 11dBm+10log(5725.00-5648.45)=29.84dBm>24dBm.

For Reference only-Power meter value

The power value was measured by power meter with average sensor

Chan.	Freq. (MHz)	Conducted Power (mW)	Conducted Power (dBm)
138	5690	69.7574	18.44

802.11ax (20MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	15.43	15.51	15.04	15.25	135.889	21.33	21.58	Pass
60	5300	15.29	15.32	15.43	15.29	136.568	21.35	21.58	Pass
64	5320	15.47	15.28	15.33	15.37	**137.520**	21.38	21.58	Pass
100	5500	16.22	15.91	15.60	15.36	151.537	21.81	22.08	Pass
116	5580	16.08	15.59	16.09	15.53	153.147	21.85	22.08	Pass
140	5700	16.20	15.43	15.93	15.64	152.419	21.83	22.08	Pass
144	5720 For U-NII-2C	12.71	11.51	12.54	11.50	67.554	18.30	21.03	Pass
144	5720 For U-NII-3	5.12	6.36	5.48	7.56	17.498	12.43	27.24	Pass

NOTE:

For U-NII-2A:

Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] =8.42dBi > 6dBi, so the power limit shall be reduced to 24-(8.42-6) = 21.58dBm.

For U-NII-2C:

Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] =7.92dBi > 6dBi, so the power limit shall be reduced to 24-(7.92-6) = 22.08dBm

Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] =7.92dBi > 6dBi, so the power limit shall be reduced to 22.95-(7.92-6) = 21.03dBm.

For U-NII-3:

Directional gain = 10 log[(10$^{Chain2/20}$ + 10$^{Chain3/20}$)^2 / 2] =8.76dBi > 6dBi, so the power limit shall be reduced to 30-(8.76-6) = 27.24dBm.

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

Chain 0

1. 11dBm+10log(21.21) = 24.27 dBm>24dBm.
2. 11dBm+10log(21.43) = 24.31 dBm>24dBm.
3. 11dBm+10log(21.32) = 24.29 dBm>24dBm.
4. 11dBm+10log(21.39) = 24.30 dBm>24dBm.
5. 11dBm+10log(21.74) = 24.37 dBm>24dBm.
6. 11dBm+10log(21.30) = 24.28 dBm>24dBm.
7. 11dBm+10log(5725.00-5709.33)=22.95dBm<24dBm.

Chain 1

1. 11dBm+10log(21.72) = 24.37 dBm >24dBm.
2. 11dBm+10log(21.02) = 24.23 dBm >24dBm.
3. 11dBm+10log(21.25) = 24.27 dBm >24dBm.
4. 11dBm+10log(21.47) = 24.32 dBm >24dBm.
5. 11dBm+10log(21.16) = 24.26 dBm >24dBm.
6. 11dBm+10log(21.11) = 24.24 dBm >24dBm.
7. 11dBm+10log(5725.00-5709.22)=22.98dBm<24dBm.

Chain 2

1. 11dBm+10log(21.33) = 24.29 dBm>24dBm.
2. 11dBm+10log(21.44) = 24.31 dBm>24dBm.
3. 11dBm+10log(21.22) = 24.27 dBm>24dBm.
4. 11dBm+10log(21.26) = 24.28 dBm>24dBm.
5. 11dBm+10log(21.37) = 24.30 dBm>24dBm.
6. 11dBm+10log(21.77) = 24.38 dBm>24dBm.
7. 11dBm+10log(5725.00-5709.32)=22.95dBm<24dBm.

Chain 3

1. 11dBm+10log(21.24) = 24.27 dBm >24dBm.
2. 11dBm+10log(21.41) = 24.31 dBm >24dBm.
3. 11dBm+10log(21.33) = 24.29 dBm >24dBm.
4. 11dBm+10log(21.29) = 24.28 dBm >24dBm.
5. 11dBm+10log(21.61) = 24.35 dBm >24dBm.
6. 11dBm+10log(21.39) = 24.30 dBm >24dBm.
7. 11dBm+10log(5725.00-5709.32)=22.95dBm<24dBm.

For Reference only-Power meter value

The power value was measured by power meter with average sensor

Chan.	Freq. (MHz)	Conducted Power (mW)	Conducted Power (dBm)
144	5720	85.052	19.30

802.11ax (40MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	15.31	15.25	15.21	15.45	135.724	21.33	21.58	Pass
62	5310	15.37	15.47	15.27	15.29	137.130	21.37	21.58	Pass
102	5510	15.34	15.82	15.58	15.43	143.447	21.57	22.08	Pass
110	5550	15.24	15.73	15.62	15.49	142.706	21.54	22.08	Pass
134	5670	15.61	15.25	15.58	15.64	142.673	21.54	22.08	Pass
142	5710 For U-NII-2C	12.90	11.82	13.13	9.84	67.390	18.29	22.08	Pass
142	5710 For U-NII-3	2.06	2.53	1.83	2.44	6.932	8.41	27.24	Pass

NOTE:

For U-NII-2A:

Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] =8.42dBi > 6dBi, so the power limit shall be reduced to 24-(8.42-6) = 21.58dBm.

For U-NII-2C:

Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] =7.92dBi > 6dBi, so the power limit shall be reduced to 24-(7.92-6) = 22.08dBm

For U-NII-3:

Directional gain = 10 log[(10$^{Chain2/20}$ + 10$^{Chain3/20}$)^2 / 2] =8.76dBi > 6dBi, so the power limit shall be reduced to 30-(8.76-6) = 27.24dBm.

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

Chain 0

1. 11dBm+10log(41.51) = 27.18 dBm > 24dBm.
2. 11dBm+10log(41.33) = 27.16 dBm > 24dBm.
3. 11dBm+10log(41.64) = 27.20 dBm > 24dBm.
4. 11dBm+10log(41.91) = 27.22 dBm > 24dBm.
5. 11dBm+10log(41.25) = 27.15 dBm > 24dBm.
6. 11dBm+10log(5725.00-5688.98)=25.67dBm>24dBm.

Chain 1

1. 11dBm+10log(41.59) = 27.19 dBm >24dBm.
2. 11dBm+10log(41.39) = 27.17 dBm >24dBm.
3. 11dBm+10log(41.26) = 27.16 dBm >24dBm.
4. 11dBm+10log(40.99) = 27.13 dBm >24dBm.
5. 11dBm+10log(41.15) = 27.14 dBm >24dBm.
6. 11dBm+10log(5725.00-5689.01)=26.56dBm>24dBm.

Chain 2

1. 11dBm+10log(41.44) = 27.17 dBm > 24dBm.
2. 11dBm+10log(41.60) = 27.19 dBm > 24dBm.
3. 11dBm+10log(41.72) = 27.20 dBm > 24dBm.
4. 11dBm+10log(41.46) = 27.18 dBm > 24dBm.
5. 11dBm+10log(41.24) = 27.15 dBm > 24dBm.
6. 11dBm+10log(5725.00-5688.88)=26.58dBm>24dBm.

Chain 3

1. 11dBm+10log(41.39) = 27.17 dBm >24dBm.
2. 11dBm+10log(41.47) = 27.18 dBm >24dBm.
3. 11dBm+10log(41.32) = 27.16 dBm >24dBm.
4. 11dBm+10log(41.15) = 27.14 dBm >24dBm.
5. 11dBm+10log(41.16) = 27.14 dBm >24dBm.
6. 11dBm+10log(5725.00-5689.05)=26.56dBm>24dBm.

For Reference only-Power meter value

The power value was measured by power meter with average sensor

Chan.	Freq. (MHz)	Conducted Power (mW)	Conducted Power (dBm)
142	5710	74.322	18.71

802.11ax (80MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	15.30	15.28	15.29	15.30	135.304	21.31	21.58	Pass
106	5530	16.37	15.58	15.92	15.79	156.508	21.95	22.08	Pass
122	5610	16.23	15.85	16.12	15.62	**157.837**	21.98	22.08	Pass
138	5690 For U-NII-2C	12.92	12.61	12.26	13.18	77.925	18.92	22.08	Pass
138	5690 For U-NII-3	-1.06	-0.14	-1.12	-0.79	3.4682	5.40	27.24	Pass

NOTE:

For U-NII-2A:

Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2] =8.42dBi > 6dBi, so the power limit shall be reduced to 24-(8.42-6) = 21.58dBm.

For U-NII-2C:

Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2] =7.92dBi > 6dBi, so the power limit shall be reduced to 24-(7.92-6) = 22.08dBm

For U-NII-3:

Directional gain = 10 log[$(10^{Chain2/20} + 10^{Chain3/20})^2$ / 2] =8.76dBi > 6dBi, so the power limit shall be reduced to 30-(8.76-6) = 27.24dBm.

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

Chain 0

1. 11dBm+10log(82.91) = 30.19 dBm> 24dBm.
2. 11dBm+10log(82.58) = 30.17 dBm> 24dBm.
3. 11dBm+10log(83.07) = 30.19 dBm> 24dBm.
4. 11dBm+10log(5725.00-5648.53)=29.83dBm>24dBm.

Chain 1

1. 11dBm+10log(83.07) = 30.19 dBm >24dBm.
2. 11dBm+10log(83.03) = 30.19 dBm >24dBm.
3. 11dBm+10log(83.03) = 30.19 dBm >24dBm.
4. 11dBm+10log(5725.00-5648.35)=29.85dBm>24dBm.

Chain 2

1. 11dBm+10log(83.17) = 30.20 dBm> 24dBm.
2. 11dBm+10log(83.15) = 30.20 dBm> 24dBm.
3. 11dBm+10log(83.27) = 30.20 dBm> 24dBm.
4. 11dBm+10log(5725.00-5648.54)=29.83dBm>24dBm.

Chain 3

1. 11dBm+10log(83.02) = 30.19 dBm >24dBm.
2. 11dBm+10log(82.90) = 30.19 dBm >24dBm.
3. 11dBm+10log(82.56) = 30.17 dBm >24dBm.
4. 11dBm+10log(5725.00-5648.45)=29.84dBm>24dBm.

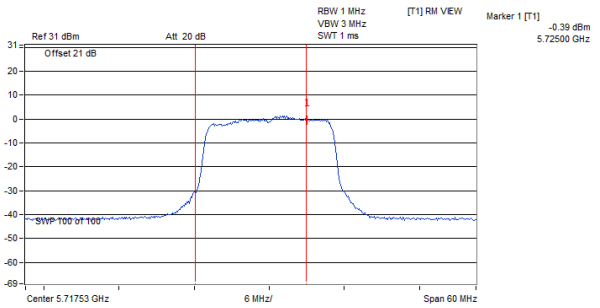
For Reference only-Power meter value

The power value was measured by power meter with average sensor

Chan.	Freq. (MHz)	Conducted Power (mW)	Conducted Power (dBm)
138	5690	81.3932	19.11

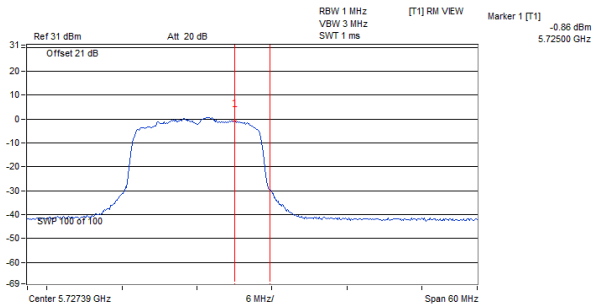
Spectrum Plot of Straddle channel

802.11a_Chain 0: CH 144 (For U-NII-2C)



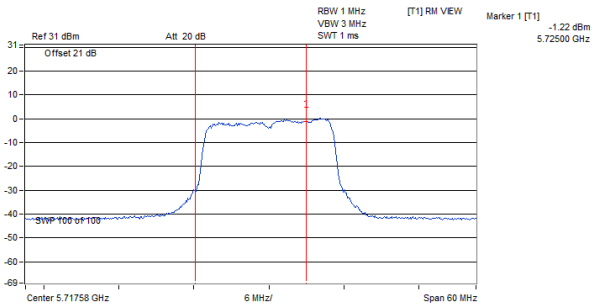
TX Channel Bandwidth 14.93 MHz Power 11.82 dBm

802.11a_Chain 0: CH 144(For U-NII-3)



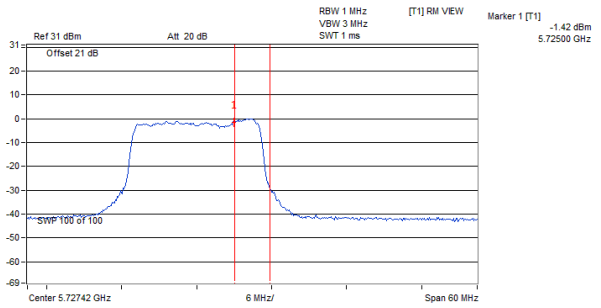
TX Channel Bandwidth 4.78 MHz Power 4.37 dBm

802.11a_Chain 1: CH 144 (For U-NII-2C)



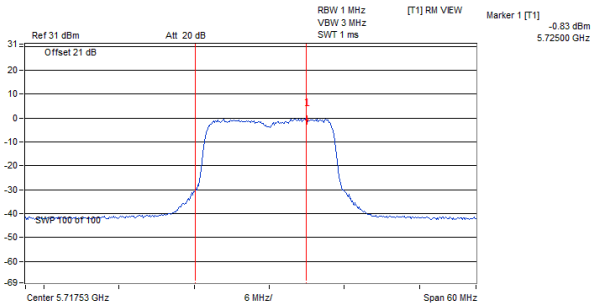
TX Channel Bandwidth 14.84 MHz Power 10.47 dBm

802.11a_Chain 1: CH 144(For U-NII-3)



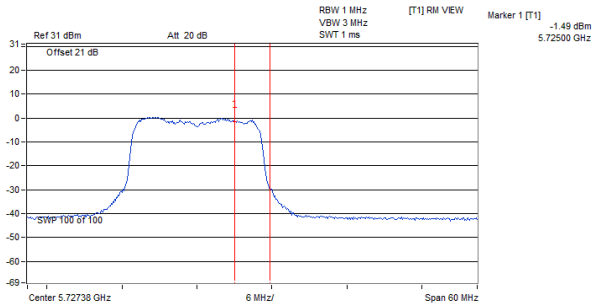
TX Channel Bandwidth 4.84 MHz Power 5.85 dBm

802.11a_Chain 2: CH 144 (For U-NII-2C)



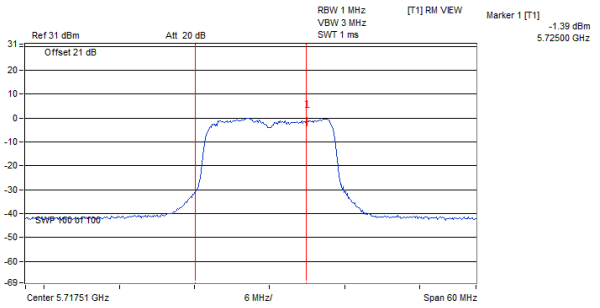
TX Channel Bandwidth 14.93 MHz Power 10.89 dBm

802.11a_Chain 2: CH 144(For U-NII-3)



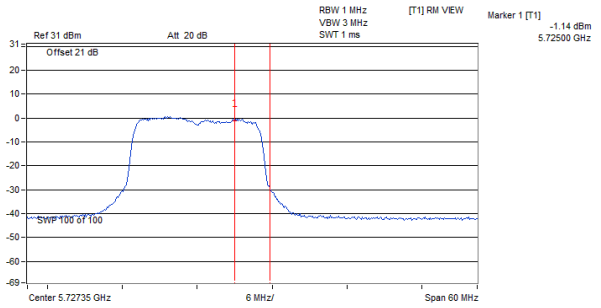
TX Channel Bandwidth 4.76 MHz Power 4.63 dBm

802.11a_Chain 3: CH 144 (For U-NII-2C)

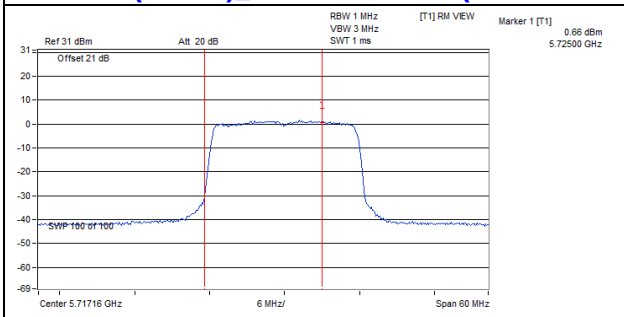
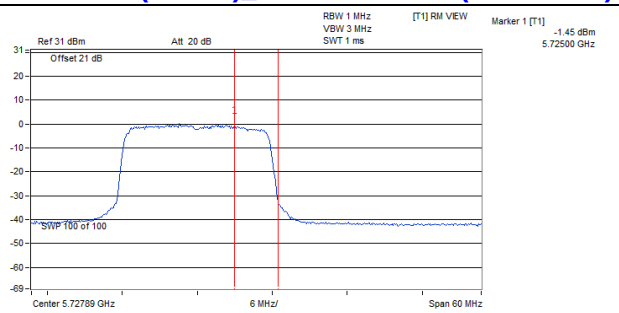
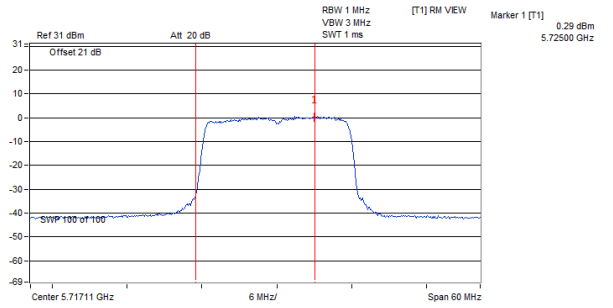
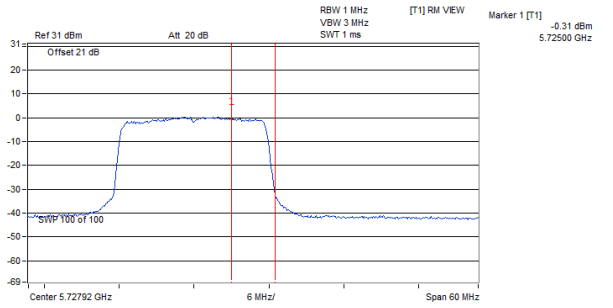
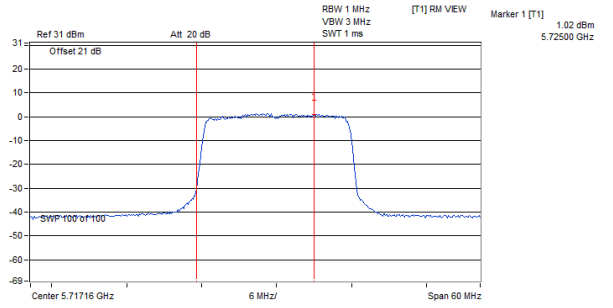
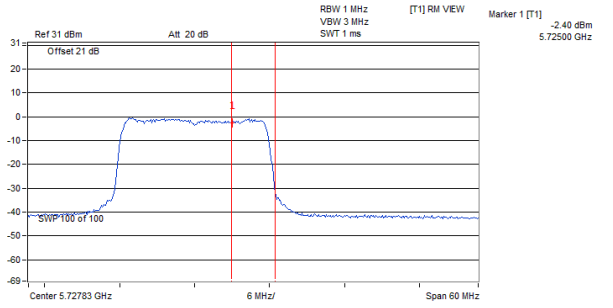
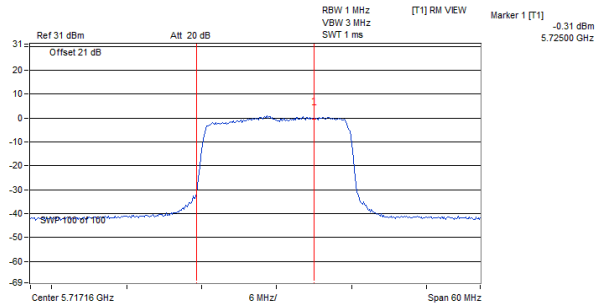
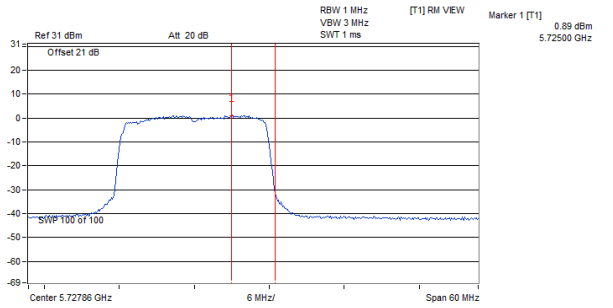


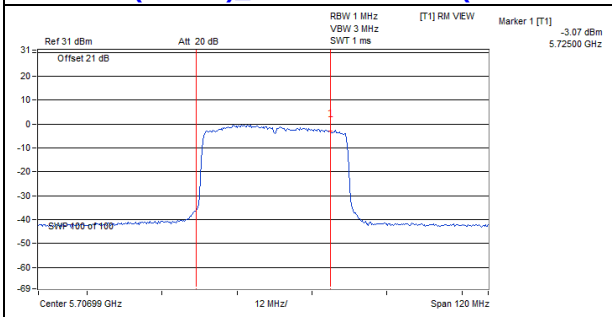
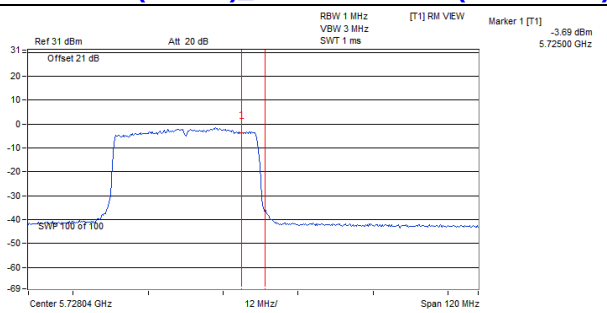
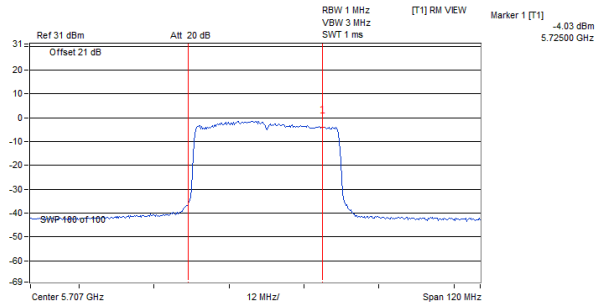
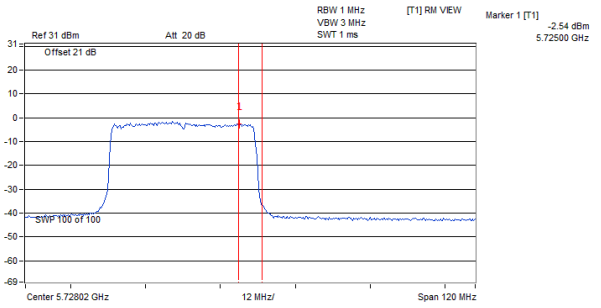
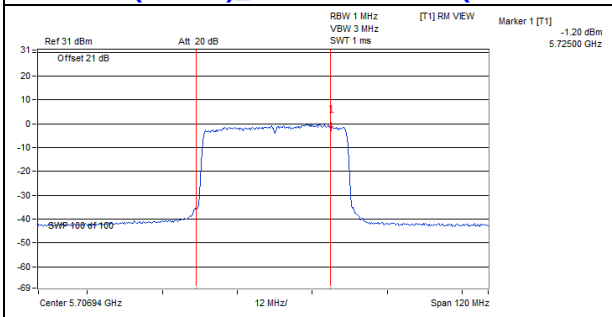
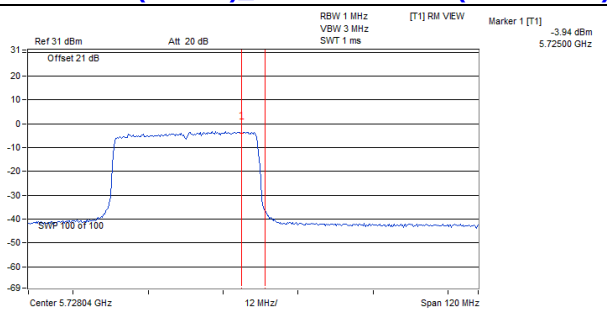
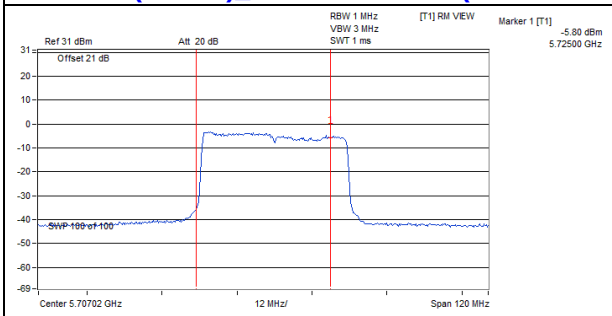
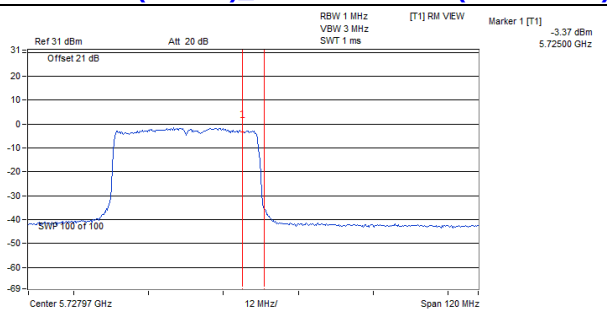
TX Channel Bandwidth 14.97 MHz Power 10.73 dBm

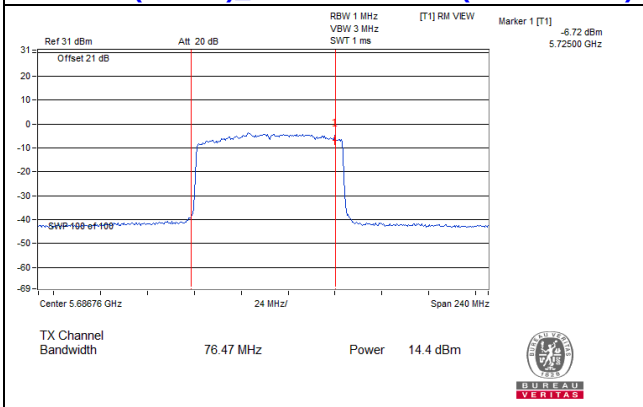
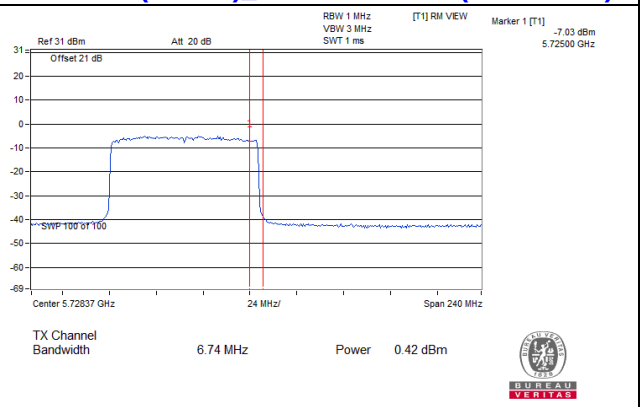
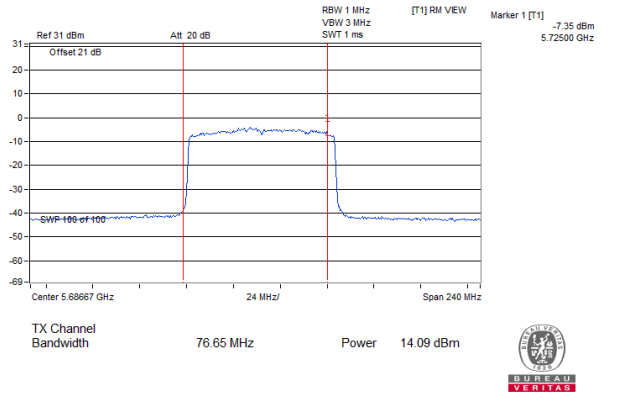
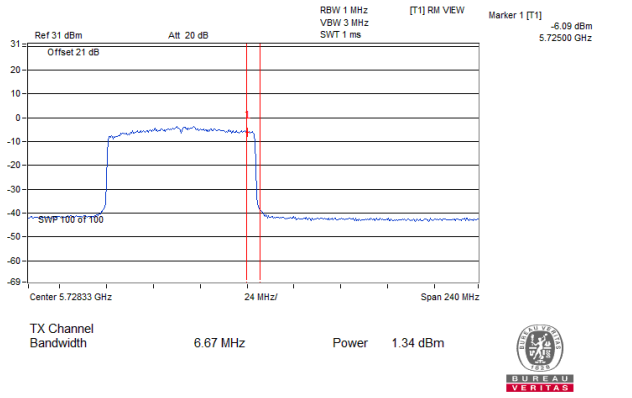
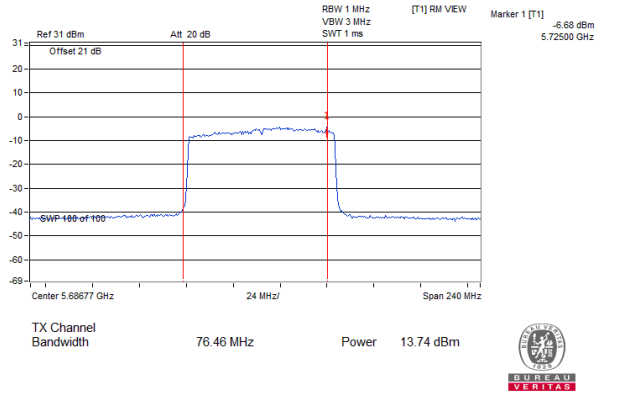
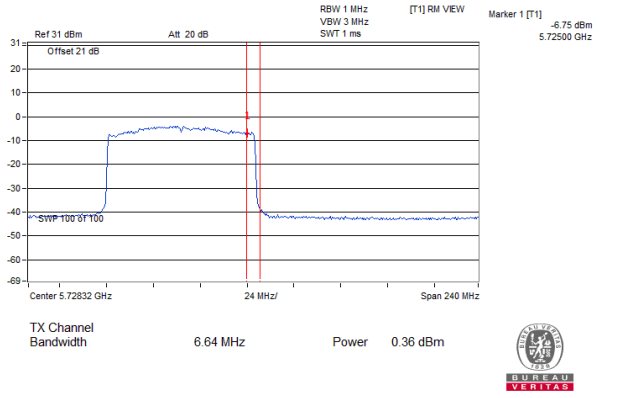
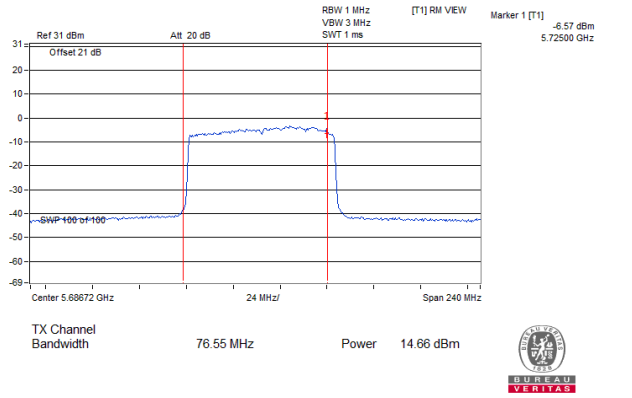
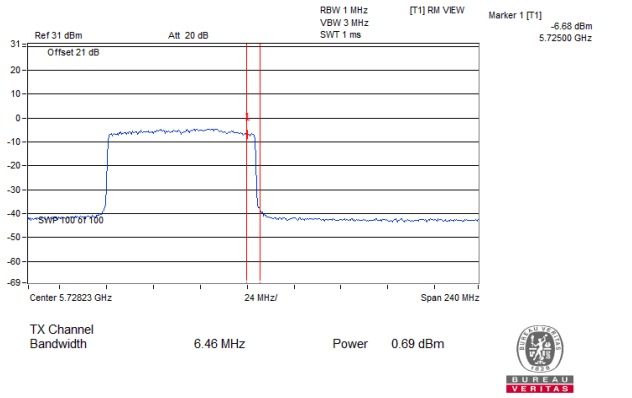
802.11a_Chain 3: CH 144(For U-NII-3)



TX Channel Bandwidth 4.7 MHz Power 4.98 dBm

Spectrum Plot of Straddle channel	
802.11ax (20MHz)_Chain 0: CH 144 (For U-NII-2C)	**802.11ax (20MHz)_Chain 0: CH 144(For U-NII-3)**
 TX Channel Bandwidth 15.67 MHz Power 13.21 dBm	 TX Channel Bandwidth 5.78 MHz Power 5.62 dBm
802.11ax (20MHz)_Chain 1: CH 144 (For U-NII-2C)	**802.11ax (20MHz)_Chain 1: CH 144(For U-NII-3)**
 TX Channel Bandwidth 15.78 MHz Power 12.01 dBm	 TX Channel Bandwidth 5.85 MHz Power 6.86 dBm
802.11ax (20MHz)_Chain 2: CH 144 (For U-NII-2C)	**802.11ax (20MHz)_Chain 2: CH 144(For U-NII-3)**
 TX Channel Bandwidth 15.68 MHz Power 13.04 dBm	 TX Channel Bandwidth 5.66 MHz Power 5.98 dBm
802.11ax (20MHz)_Chain 3: CH 144 (For U-NII-2C)	**802.11ax (20MHz)_Chain 3: CH 144(For U-NII-3)**
 TX Channel Bandwidth 15.68 MHz Power 12 dBm	 TX Channel Bandwidth 5.72 MHz Power 8.06 dBm

Spectrum Plot of Straddle channel	
802.11ax (40MHz)_Chain 0: CH 142 (For U-NII-2C)	**802.11ax (40MHz)_Chain 0: CH 142(For U-NII-3)**
 TX Channel Bandwidth 36.02 MHz Power 14.6 dBm	 TX Channel Bandwidth 6.08 MHz Power 3.76 dBm
802.11ax (40MHz)_Chain 1: CH 142 (For U-NII-2C)	**802.11ax (40MHz)_Chain 1: CH 142(For U-NII-3)**
 TX Channel Bandwidth 35.99 MHz Power 13.52 dBm	 TX Channel Bandwidth 6.04 MHz Power 4.23 dBm
802.11ax (40MHz)_Chain 2: CH 142 (For U-NII-2C)	**802.11ax (40MHz)_Chain 2: CH 142(For U-NII-3)**
 TX Channel Bandwidth 36.12 MHz Power 14.83 dBm	 TX Channel Bandwidth 6.08 MHz Power 3.53 dBm
802.11ax (40MHz)_Chain 3: CH 142 (For U-NII-2C)	**802.11ax (40MHz)_Chain 3: CH 142(For U-NII-3)**
 TX Channel Bandwidth 35.95 MHz Power 11.54 dBm	 TX Channel Bandwidth 5.94 MHz Power 4.14 dBm

Spectrum Plot of Straddle channel	
802.11ax (80MHz)_Chain 0: CH 138 (For U-NII-2C)	**802.11ax (80MHz)_Chain 0: CH 138(For U-NII-3)**
 TX Channel Bandwidth 76.47 MHz Power 14.4 dBm	 TX Channel Bandwidth 6.74 MHz Power 0.42 dBm
802.11ax (80MHz)_Chain 1: CH 138 (For U-NII-2C)	**802.11ax (80MHz)_Chain 1: CH 138(For U-NII-3)**
 TX Channel Bandwidth 76.65 MHz Power 14.09 dBm	 TX Channel Bandwidth 6.67 MHz Power 1.34 dBm
802.11ax (80MHz)_Chain 2: CH 138 (For U-NII-2C)	**802.11ax (80MHz)_Chain 2: CH 138(For U-NII-3)**
 TX Channel Bandwidth 76.46 MHz Power 13.74 dBm	 TX Channel Bandwidth 6.64 MHz Power 0.36 dBm
802.11ax (80MHz)_Chain 3: CH 138 (For U-NII-2C)	**802.11ax (80MHz)_Chain 3: CH 138(For U-NII-3)**
 TX Channel Bandwidth 76.55 MHz Power 14.66 dBm	 TX Channel Bandwidth 6.46 MHz Power 0.69 dBm

26dB Bandwidth:

802.11a

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	19.61	19.51	19.58	19.57
60	5300	19.71	19.60	19.84	19.66
64	5320	19.80	19.63	19.72	19.54
100	5500	19.54	19.62	19.53	19.45
116	5580	19.75	19.66	19.54	19.42
140	5700	19.64	20.08	19.63	19.69
144	5720 For U-NII-2C	14.93	14.84	14.93	14.97
144	5720 For U-NII-3	4.78	4.84	4.76	4.7

802.11ax (20MHz)

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	21.21	21.72	21.33	21.24
60	5300	21.43	21.02	21.44	21.41
64	5320	21.32	21.25	21.22	21.33
100	5500	21.39	21.47	21.26	21.29
116	5580	21.74	21.16	21.37	21.61
140	5700	21.30	21.11	21.77	21.39
144	5720 For U-NII-2C	15.67	15.78	15.68	15.68
144	5720 For U-NII-3	5.78	5.85	5.66	5.72

802.11ax (40MHz)

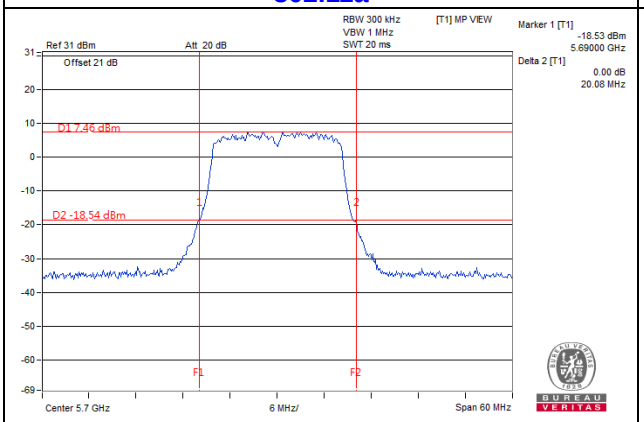
Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	41.51	41.59	41.44	41.39
62	5310	41.33	41.39	41.60	41.47
102	5510	41.64	41.26	41.72	41.32
110	5550	41.91	40.99	41.46	41.15
134	5670	41.25	41.15	41.24	41.16
142	5710 For U-NII-2C	36.02	35.99	36.12	35.95
142	5710 For U-NII-3	6.08	6.04	6.08	5.94

802.11ax (80MHz)

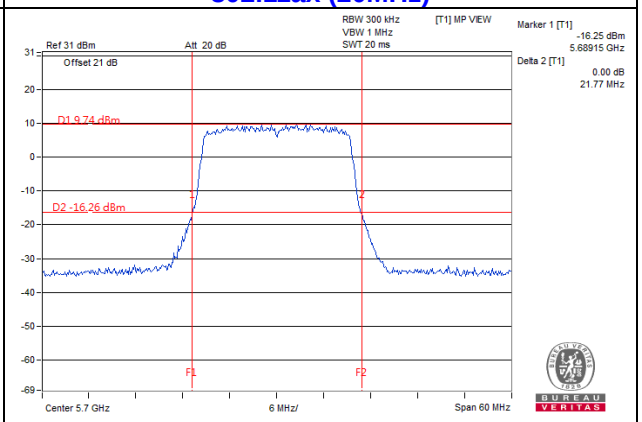
Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	82.91	83.07	83.17	83.02
106	5530	82.58	83.03	83.15	82.90
122	5610	83.07	83.03	83.27	82.56
138	5690 For U-NII-2C	76.47	76.65	76.46	76.55
138	5690 For U-NII-3	6.74	6.67	6.64	6.46

Spectrum Plot of Worst Value

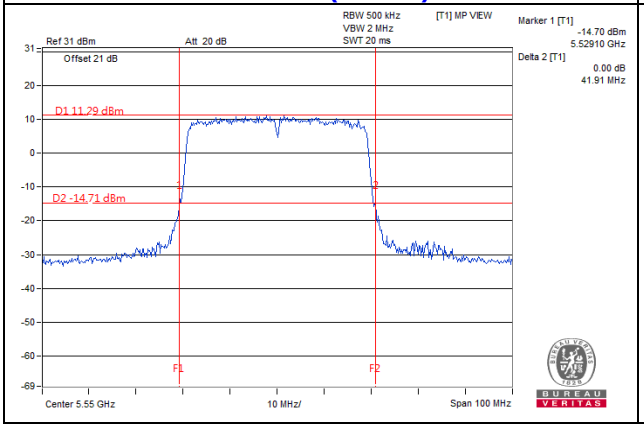
802.11a



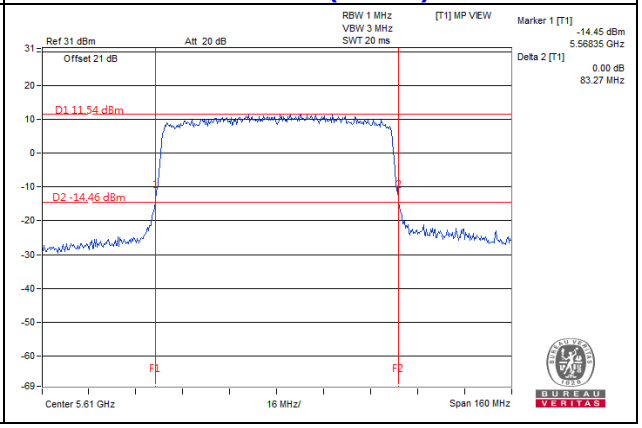
802.11ax (20MHz)



802.11ax (40MHz)

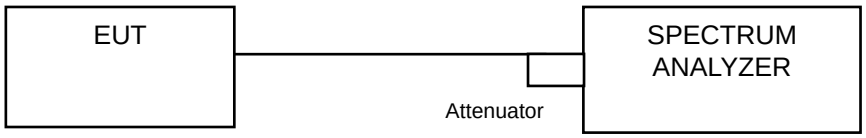


802.11ax (80MHz)



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

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3
52	5260	16.44	16.44	16.44	16.44
60	5300	16.44	16.44	16.44	16.44
64	5320	16.44	16.44	16.44	16.44
100	5500	16.44	16.44	16.44	16.44
116	5580	16.44	16.44	16.44	16.44
140	5700	16.44	16.44	16.44	16.44
144	5720 For U-NII-2C	13.28	13.28	13.28	13.28
144	5720 For U-NII-3	3.16	3.16	3.16	3.16

802.11ax (20MHz)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3
52	5260	18.96	18.96	18.96	18.96
60	5300	18.96	18.96	18.96	18.96
64	5320	18.96	18.96	18.96	18.96
100	5500	18.96	19.08	18.96	18.96
116	5580	18.96	18.96	18.96	18.96
140	5700	18.96	18.96	18.96	18.96
144	5720 For U-NII-2C	14.48	14.48	14.48	14.60
144	5720 For U-NII-3	4.48	4.48	4.48	4.48

802.11ax (40MHz)

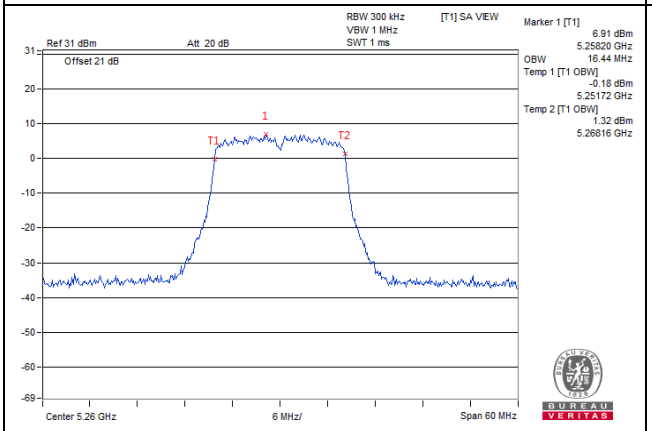
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3
54	5270	37.80	37.80	37.80	37.80
62	5310	37.80	37.80	37.80	37.80
102	5510	37.80	37.80	37.80	37.80
110	5550	37.80	37.80	37.80	37.80
134	5670	38.00	37.80	37.80	38.00
142	5710 For U-NII-2C	34.20	33.96	33.96	33.96
142	5710 For U-NII-3	3.96	3.96	3.96	3.96

802.11ac (80MHz)

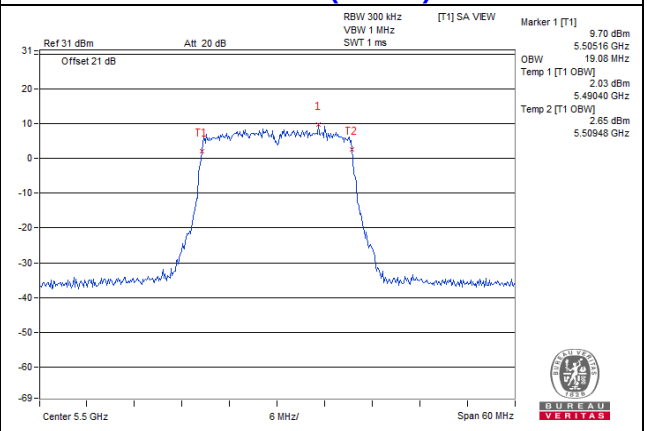
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3
58	5290	77.28	77.28	77.28	77.28
106	5530	77.04	77.04	77.28	77.28
122	5610	77.28	77.28	77.28	77.52
138	5690 For U-NII-2C	73.88	73.88	73.88	73.40
138	5690 For U-NII-3	3.88	3.40	3.40	3.88

Spectrum Plot of Worst Value

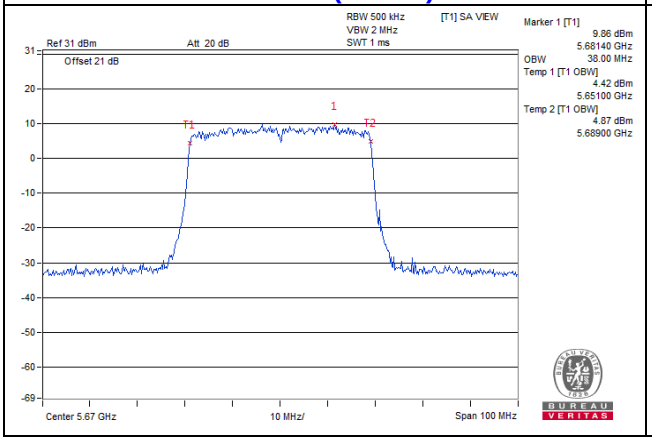
802.11a



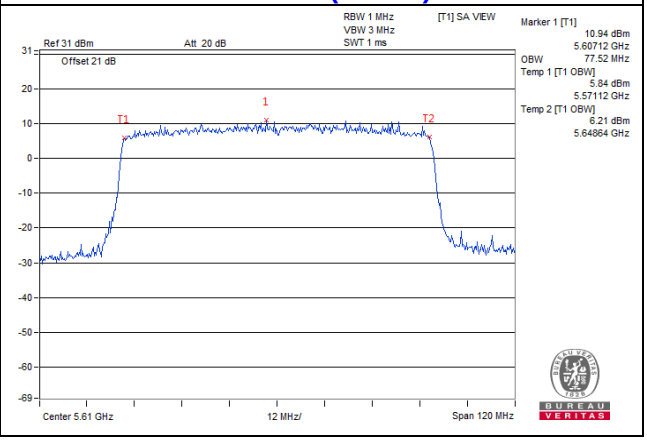
802.11ax (20MHz)



802.11ax (40MHz)



802.11ax (80MHz)

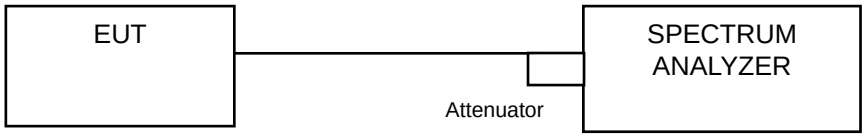


4.5 Peak Power Spectral Density Measurement

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-1, 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) Set Channel power measure = 1MHz
4) Sweep time = auto, trigger set to “free run”.
5) Trace average at least 100 traces in power averaging mode.
6) Record the max value and add 10 log (1/duty cycle)

For U-NII-3 band:

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
b. Set RBW = 500 kHz, Set VBW ≥ 1 MHz, Detector = RMS
c. Use the peak marker function to determine the maximum power level in any 500 kHz band segment within the fundamental EBW.
d. Sweep time = auto, trigger set to “free run”.
e. Trace average at least 100 traces in power averaging mode.

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

802.11a

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm)				Duty Factor (dB)	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 2				
52	5260	2.15	2.02	2.08	2.10	0.33	8.44	8.58	Pass
60	5300	2.08	1.92	2.10	1.94	0.33	8.37	8.58	Pass
64	5320	2.06	2.19	2.09	2.18	0.33	8.48	8.58	Pass
100	5500	2.62	2.60	2.54	2.55	0.33	8.93	9.08	Pass
116	5580	2.47	2.53	2.44	2.51	0.33	8.84	9.08	Pass
140	5700	2.52	2.46	2.56	2.54	0.33	8.87	9.08	Pass
144	5720 For U-NII-2C	2.47	2.34	2.55	2.46	0.33	8.81	9.08	Pass
144	5720 For U-NII-3	-6.11	-6.09	-6.14	-6.13	0.33	0.24	27.24	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 Band>**
Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] = 8.42dBi > 6dBi, so the power density limit shall be reduced to 11-(8.42-6) = 8.58dBm.
<For U-NII-2C Band>
Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] = 7.92dBi > 6dBi, so the power density limit shall be reduced to 11-(7.92-6) = 9.08dBm
<For U-NII-3 Band>
Directional gain = 10 log[(10$^{Chain2/20}$ + 10$^{Chain3/20}$)^2 / 2] = 8.76dBi > 6dBi, so the power density limit shall be reduced to 30-(8.76-6) = 27.24dBm

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

802.11ax (20MHz)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm)				Duty Factor (dB)	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 2				
52	5260	2.13	2.40	2.42	2.36	0.17	8.52	8.58	Pass
60	5300	2.32	2.22	2.32	2.29	0.17	8.48	8.58	Pass
64	5320	2.18	2.23	2.29	2.08	0.17	8.39	8.58	Pass
100	5500	2.64	2.56	2.59	2.69	0.17	8.82	9.08	Pass
116	5580	2.75	2.72	2.77	2.75	0.17	8.94	9.08	Pass
140	5700	2.74	2.80	2.69	2.87	0.17	8.97	9.08	Pass
144	5720 For U-NII-2C	2.67	2.82	2.83	2.80	0.17	8.98	9.08	Pass
144	5720 For U-NII-3	-7.43	-7.33	-7.19	-7.40	0.17	-1.14	27.24	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 Band>**
Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] = 8.42dBi > 6dBi, so the power density limit shall be reduced to 11-(8.42-6) = 8.58dBm.
<For U-NII-2C Band>
Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] = 7.92dBi > 6dBi, so the power density limit shall be reduced to 11-(7.92-6) = 9.08dBm
<For U-NII-3 Band>
Directional gain = 10 log[(10$^{Chain2/20}$ + 10$^{Chain3/20}$)^2 / 2] = 8.76dBi > 6dBi, so the power density limit shall be reduced to 30-(8.76-6) = 27.24dBm

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

802.11ax (40MHz)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm)				Duty Factor (dB)	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 2				
54	5270	0.70	0.63	0.87	0.82	0.16	6.94	8.58	Pass
62	5310	1.08	0.82	0.86	0.96	0.16	7.12	8.58	Pass
102	5510	-0.46	-0.47	-0.49	-0.48	0.16	5.71	9.08	Pass
110	5550	1.43	1.38	1.54	1.53	0.16	7.65	9.08	Pass
134	5670	0.65	0.80	0.82	0.71	0.16	6.93	9.08	Pass
142	5710 For U-NII-2C	0.68	0.86	0.59	0.81	0.16	6.92	9.08	Pass
142	5710 For U-NII-3	-9.65	-9.71	-9.79	-9.45	0.16	-3.46	27.24	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 Band>**
Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] = 8.42dBi > 6dBi, so the power density limit shall be reduced to 11-(8.42-6) = 8.58dBm.
<For U-NII-2C Band>
Directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] = 7.92dBi > 6dBi, so the power density limit shall be reduced to 11-(7.92-6) = 9.08dBm
<For U-NII-3 Band>
Directional gain = 10 log[(10$^{Chain2/20}$ + 10$^{Chain3/20}$)^2 / 2] = 8.76dBi > 6dBi, so the power density limit shall be reduced to 30-(8.76-6) = 27.24dBm

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

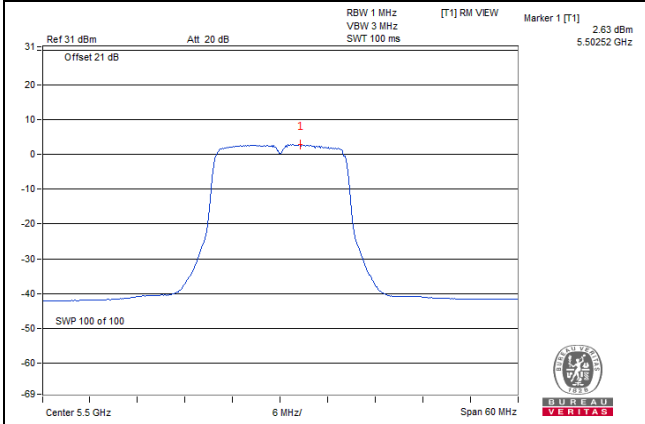
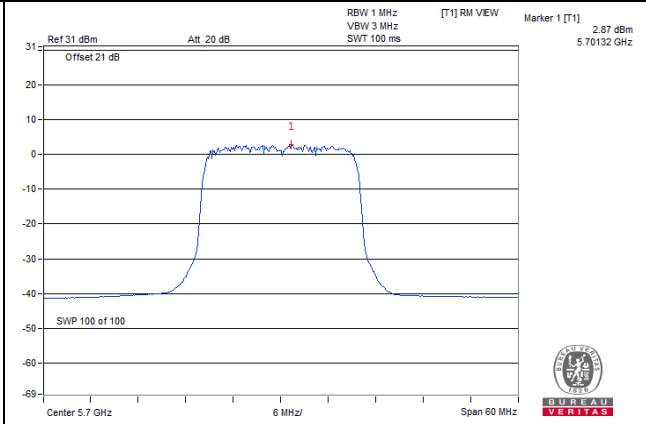
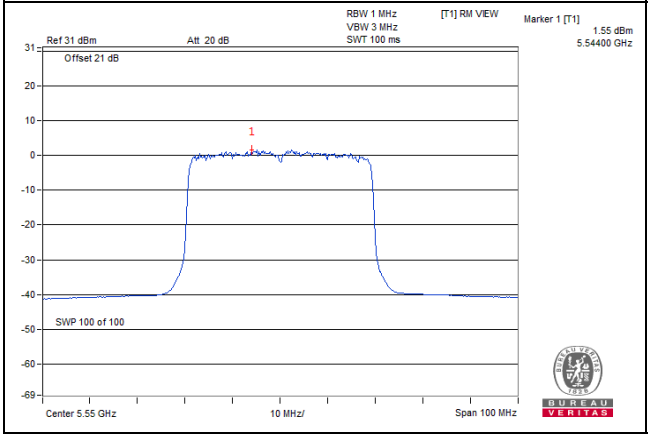
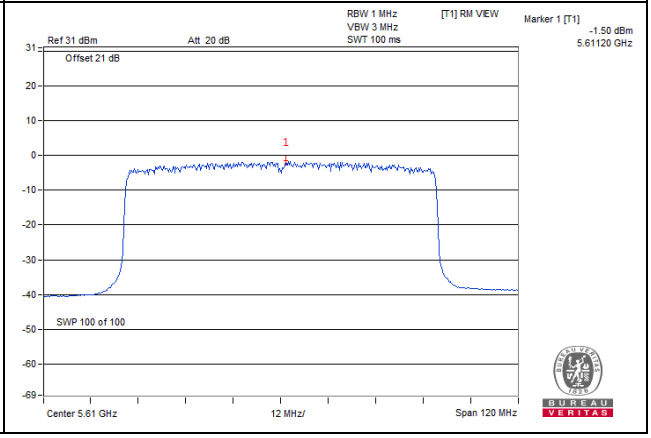
802.11ax (80MHz)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm)				Duty Factor (dB)	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 2				
58	5290	-1.81	-1.91	-1.79	-1.77	0.14	4.34	8.58	Pass
106	5530	-3.37	-3.42	-3.11	-3.19	0.14	2.89	9.08	Pass
122	5610	-1.85	-1.79	-1.51	-1.71	0.14	4.45	9.08	Pass
138	5690 For U-NII-2C	-1.79	-1.56	-1.66	-1.64	0.14	4.50	9.08	Pass
138	5690 For U-NII-3	-13.78	-13.75	-13.49	-13.68	0.14	-7.51	27.24	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 Band>**
Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2] = 8.42dBi > 6dBi, so the power density limit shall be reduced to 11-(8.42-6) = 8.58dBm.
<For U-NII-2C Band>
Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2] = 7.92dBi > 6dBi, so the power density limit shall be reduced to 11-(7.92-6) = 9.08dBm
<For U-NII-3 Band>
Directional gain = 10 log[$(10^{Chain2/20} + 10^{Chain3/20})^2$ / 2] = 8.76dBi > 6dBi, so the power density limit shall be reduced to 30-(8.76-6) = 27.24dBm

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

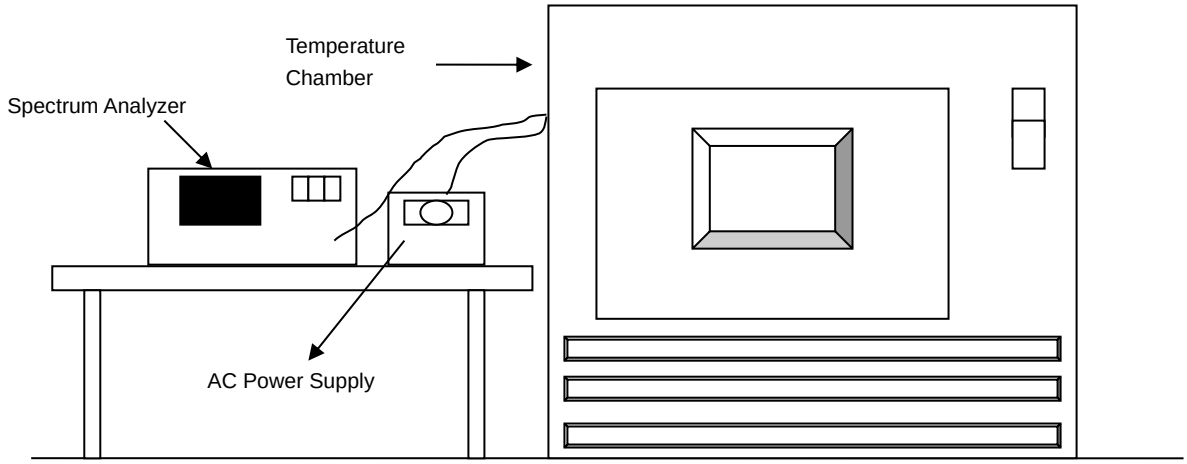
Spectrum Plot of Worst Value	
802.11a	**802.11ax (20MHz)**
	
802.11ax (40MHz)	**802.11ax (80MHz)**
	

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

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ Spectrum Analyzer	FSV40	101042	Sep. 8, 2020	Sep. 7, 2021
Temperature & Humidity Chamber	MHU-225AU	920409	May 22, 2020	May 21, 2021
DIGITAL POWER METER IDRC	CP-240	240515	Sep. 10, 2020	Sep. 9, 2021
AC Power Source ExTech	CFW-105	E000603	NA	NA

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

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

CDD Mode

Frequency Stability Versus Temp.									
Operating Frequency: 5260 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
50	120	5259.9913	Pass	5259.9943	Pass	5259.9925	Pass	5259.9917	Pass
40	120	5259.9849	Pass	5259.9893	Pass	5259.9890	Pass	5259.9886	Pass
30	120	5259.9845	Pass	5259.9848	Pass	5259.9856	Pass	5259.9856	Pass
20	120	5260.0185	Pass	5260.0167	Pass	5260.0171	Pass	5260.0187	Pass
10	120	5260.0035	Pass	5260.0033	Pass	5260.0018	Pass	5260.0023	Pass
0	120	5260.0096	Pass	5260.0094	Pass	5260.0113	Pass	5260.0080	Pass
-10	120	5259.9817	Pass	5259.9805	Pass	5259.9822	Pass	5259.9847	Pass
-20	120	5260.0186	Pass	5260.0190	Pass	5260.0166	Pass	5260.0151	Pass
-30	120	5260.0143	Pass	5260.0156	Pass	5260.0117	Pass	5260.0129	Pass

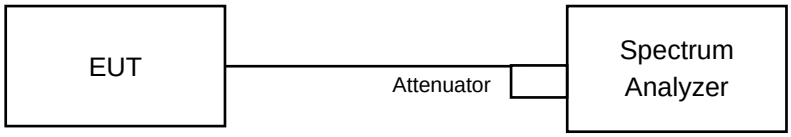
Frequency Stability Versus Voltage									
Operating Frequency: 5260 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5260.0195	Pass	5260.0167	Pass	5260.0167	Pass	5260.0184	Pass
	120	5260.0185	Pass	5260.0167	Pass	5260.0171	Pass	5260.0187	Pass
	102	5260.0189	Pass	5260.0159	Pass	5260.0166	Pass	5260.0196	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

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
		Chain 0	Chain 1	Chain 2	Chain 3		
144	5720 For U-NII-3	3.18	3.18	3.18	3.17	0.5	Pass

802.11ax (20MHz)

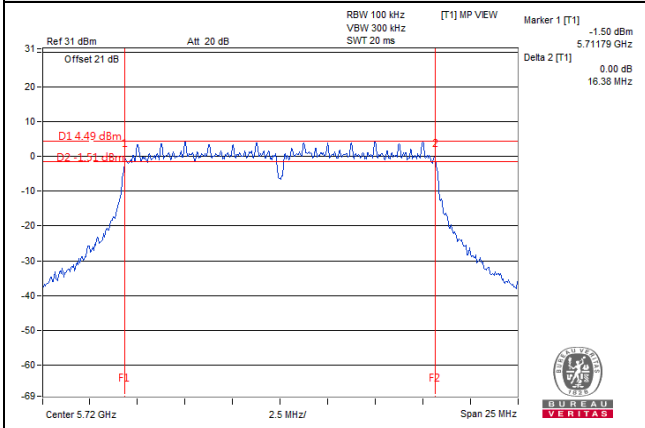
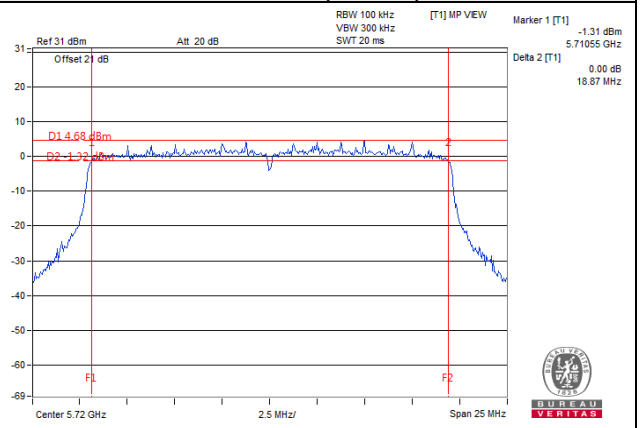
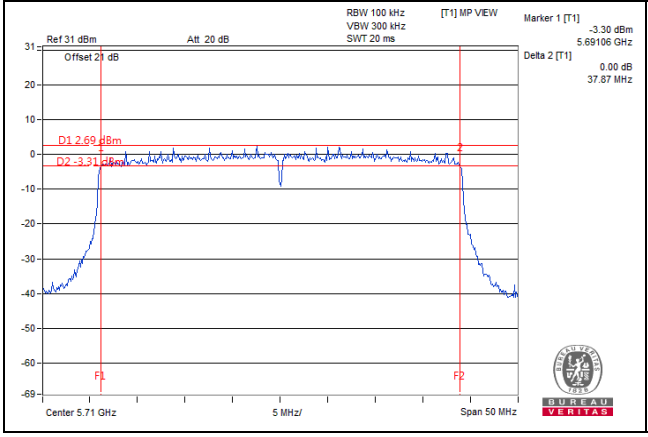
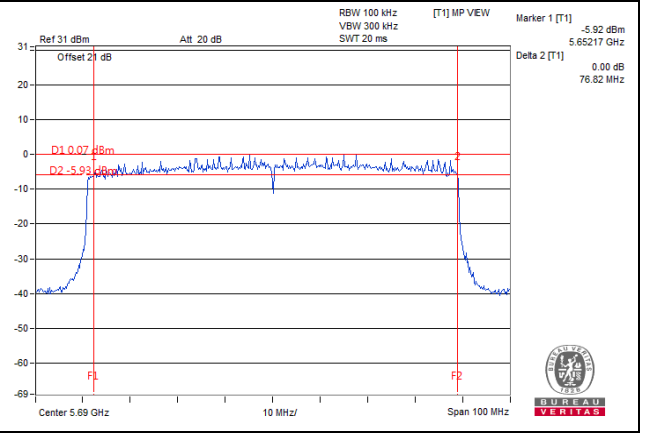
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
144	5720 For U-NII-3	4.44	4.47	4.42	4.46	0.5	Pass

802.11ax (40MHz)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
142	5710 For U-NII-3	3.93	3.97	4.08	4.05	0.5	Pass

802.11ax (80MHz)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
138	5690 For U-NII-3	4.15	4.08	3.99	4.01	0.5	Pass

Spectrum Plot of Worst Value	
802.11a	802.11ax (20MHz)
	
802.11ax (40MHz)	802.11ax (80MHz)
	

5 Pictures of Test Arrangements

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

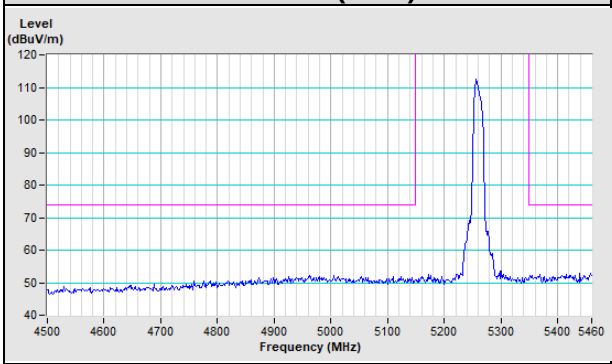
Annex A- Bandedge Measurement

The test plots shall address as below for reference.

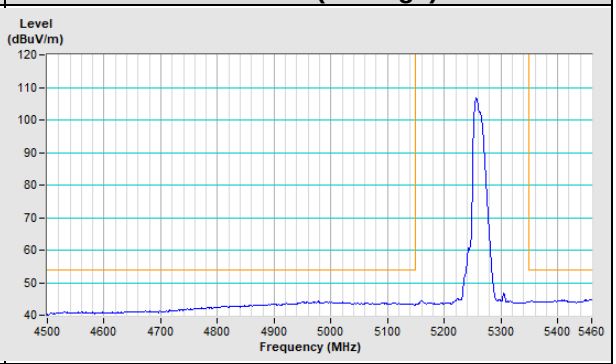
CDD Mode

802.11a Channel 52

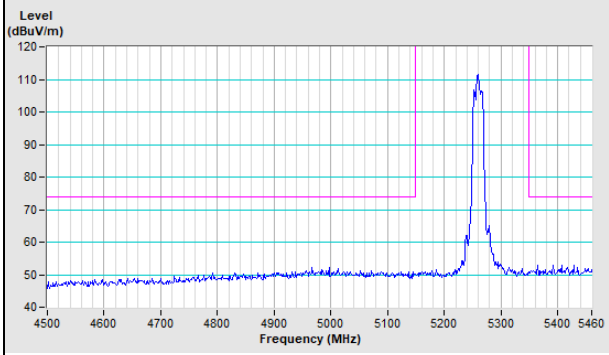
Horizontal (Peak)



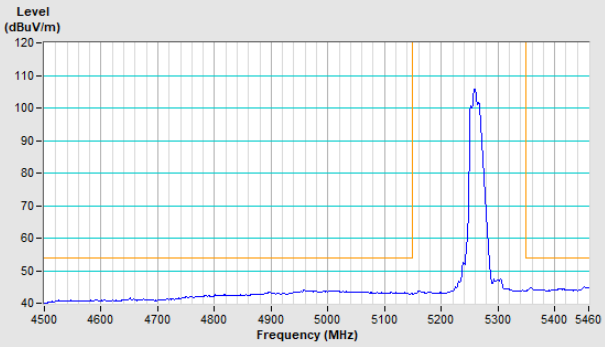
Horizontal (Average)



Vertical (Peak)

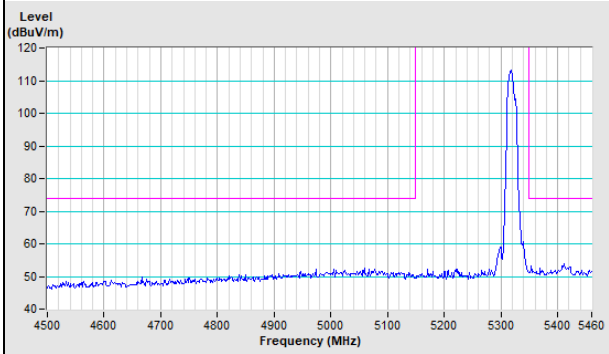


Vertical (Average)

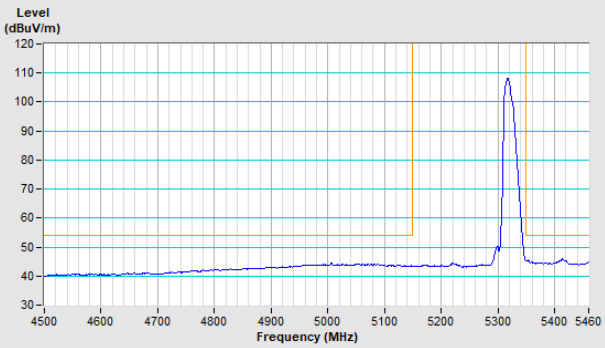


802.11a Channel 64

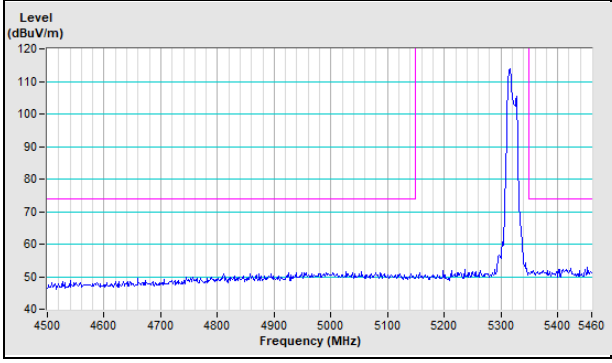
Horizontal (Peak)



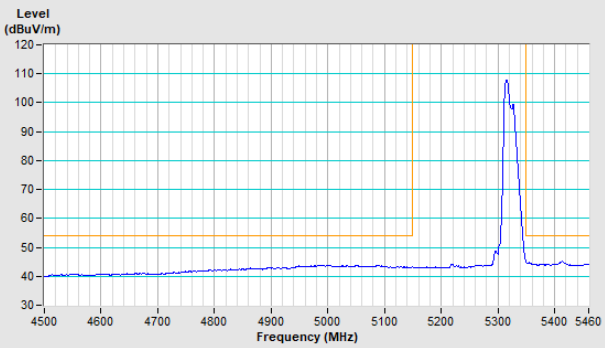
Horizontal (Average)



Vertical (Peak)

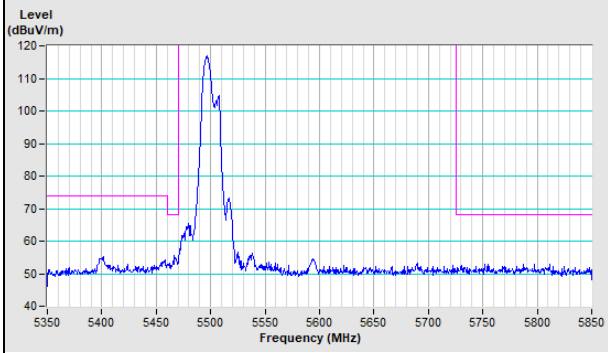


Vertical (Average)

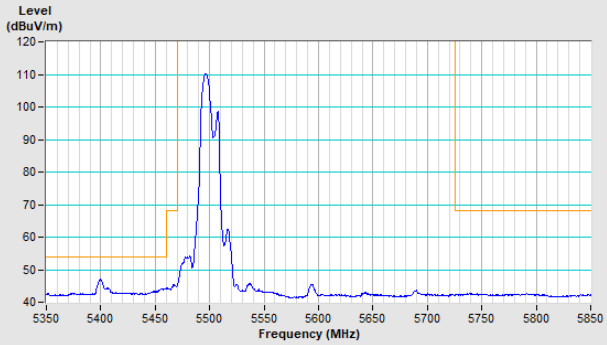


802.11a Channel 100

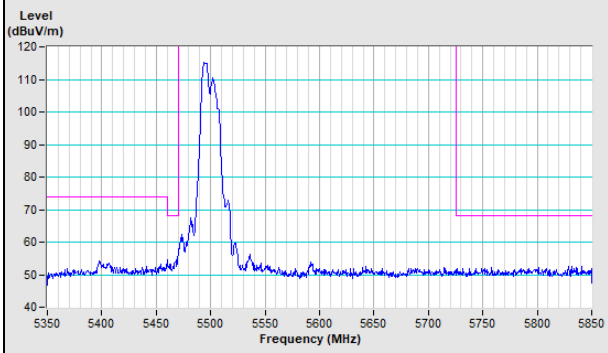
Horizontal (Peak)



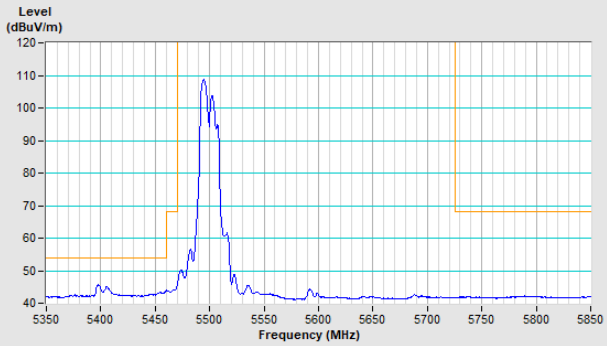
Horizontal (Average)



Vertical (Peak)

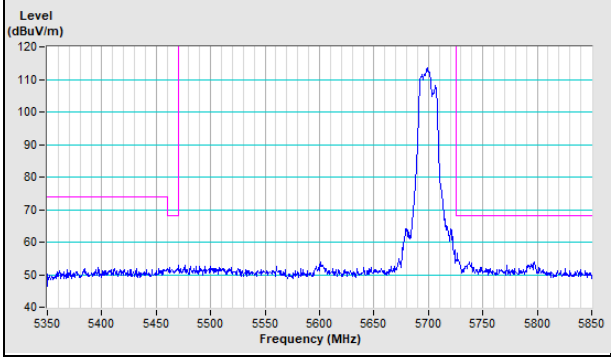


Vertical (Average)

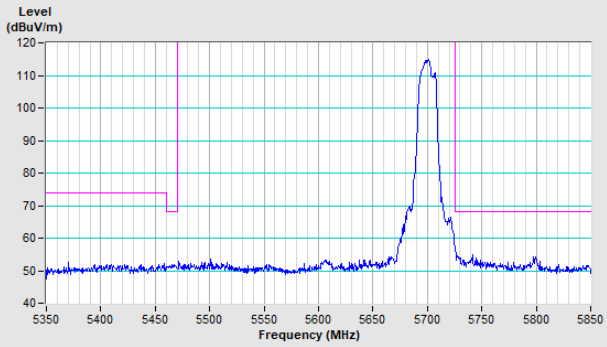


802.11a Channel 140

Horizontal (Peak)

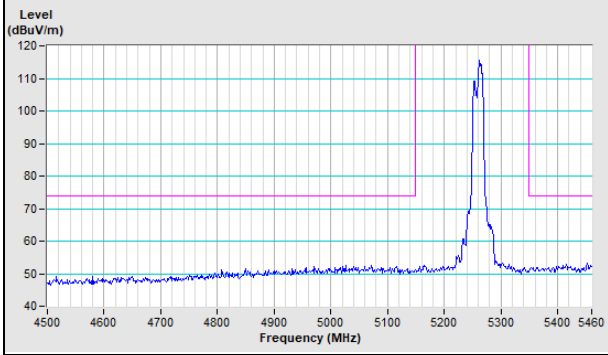


Vertical (Peak)

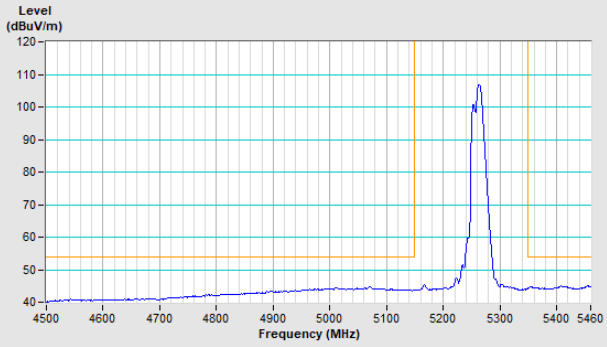


802.11ax (20MHz) Channel 52

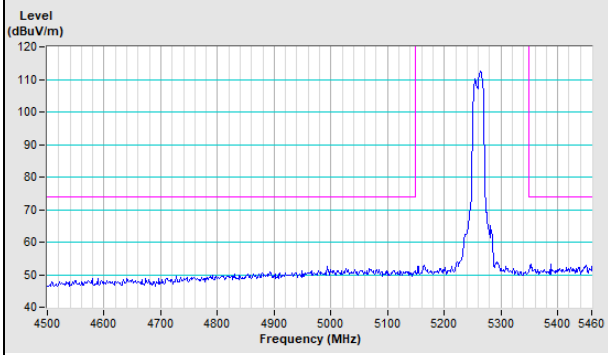
Horizontal (Peak)



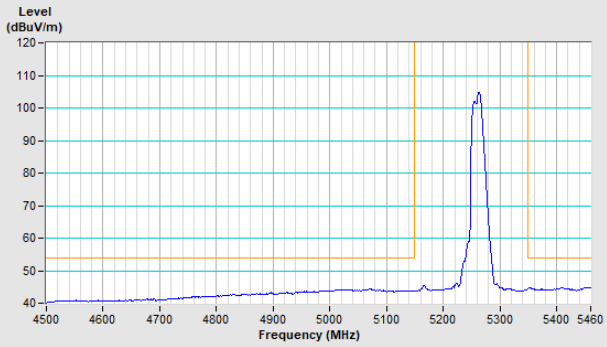
Horizontal (Average)



Vertical (Peak)

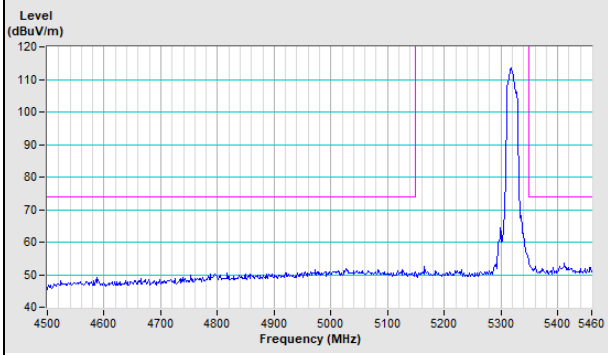


Vertical (Average)

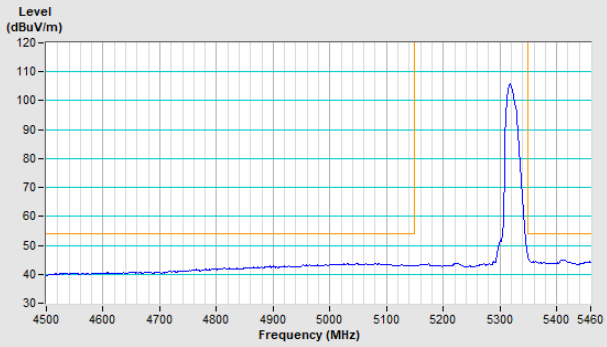


802.11ax (20MHz) Channel 64

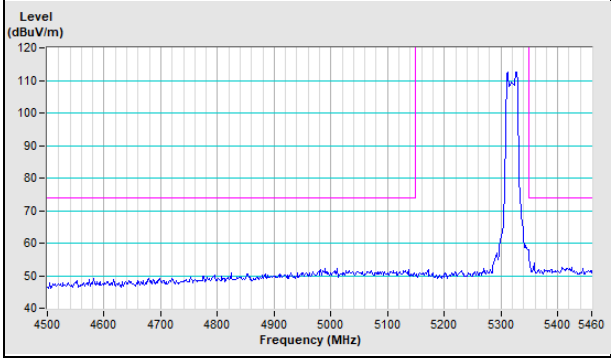
Horizontal (Peak)



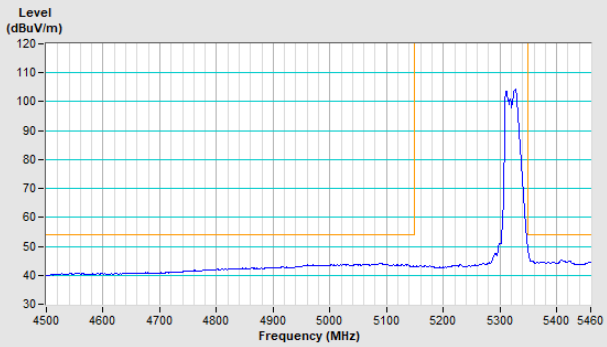
Horizontal (Average)

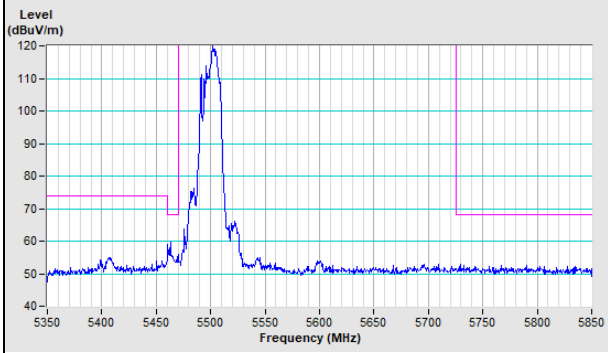
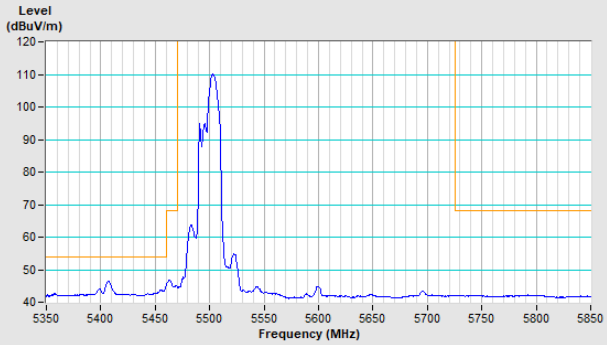
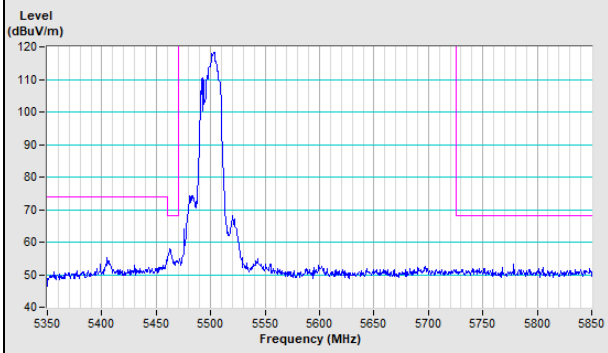
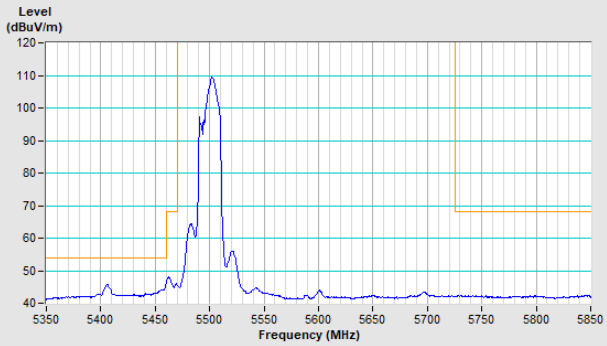
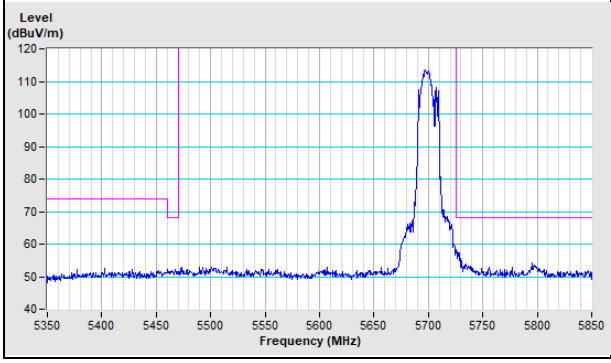
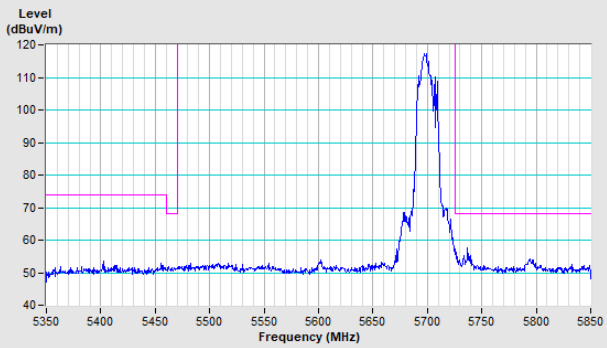


Vertical (Peak)



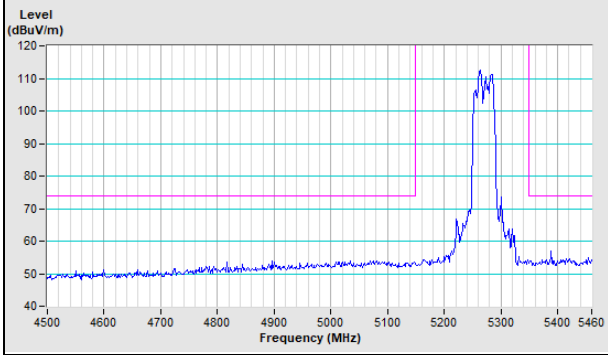
Vertical (Average)



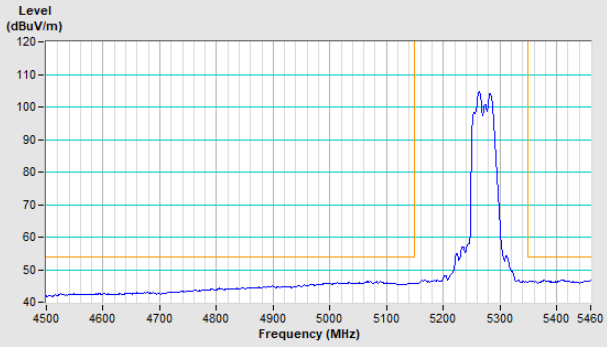
802.11ax (20MHz) Channel 100	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
802.11ax (20MHz) Channel 140	
Horizontal (Peak)	Vertical (Peak)
	

802.11ax (40MHz) Channel 54

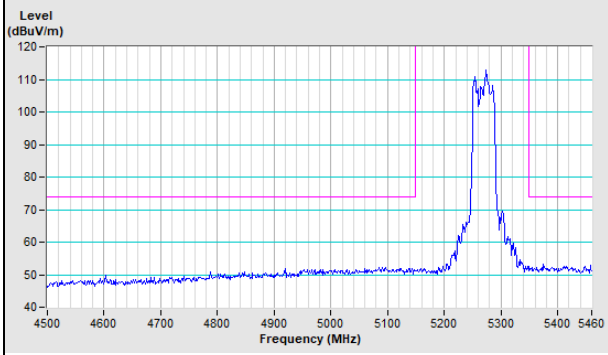
Horizontal (Peak)



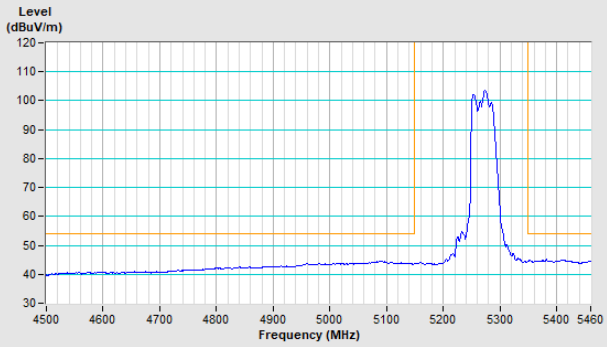
Horizontal (Average)



Vertical (Peak)

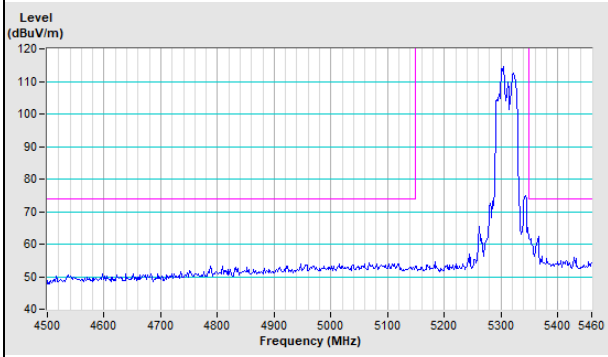


Vertical (Average)

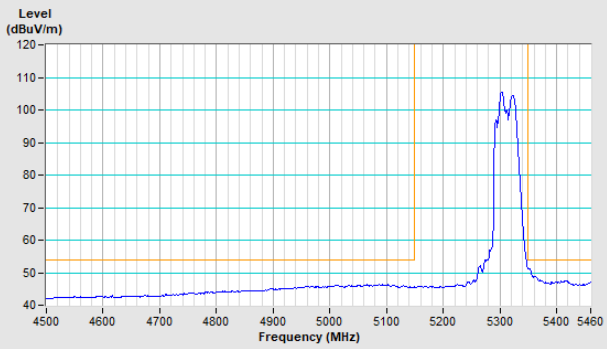


802.11ax (40MHz) Channel 62

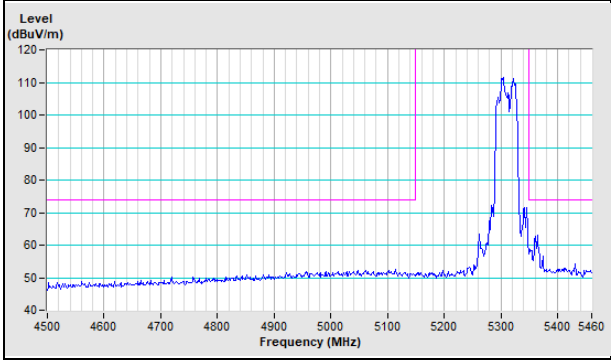
Horizontal (Peak)



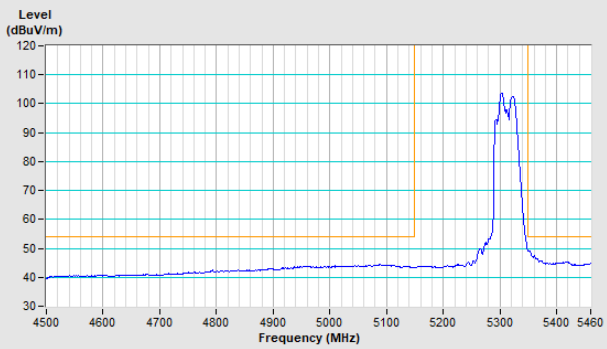
Horizontal (Average)



Vertical (Peak)

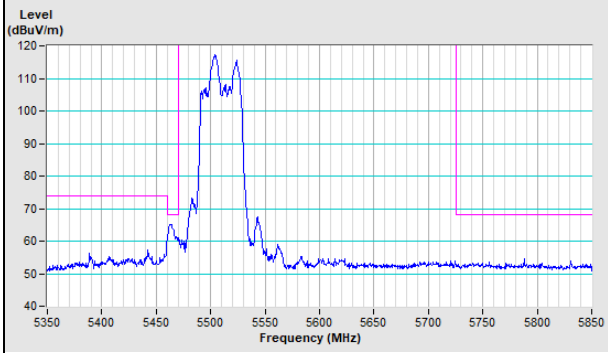


Vertical (Average)

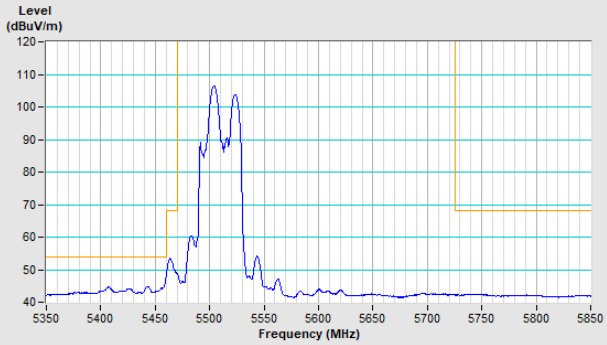


802.11ax (40MHz) Channel 102

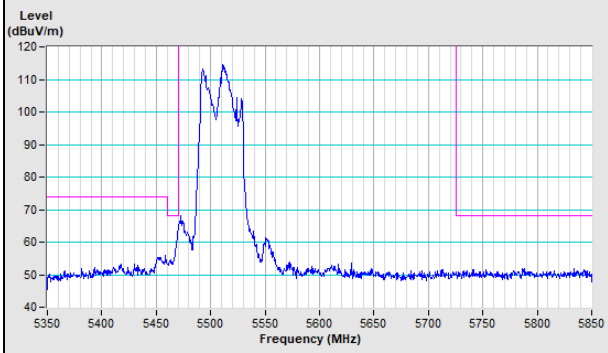
Horizontal (Peak)



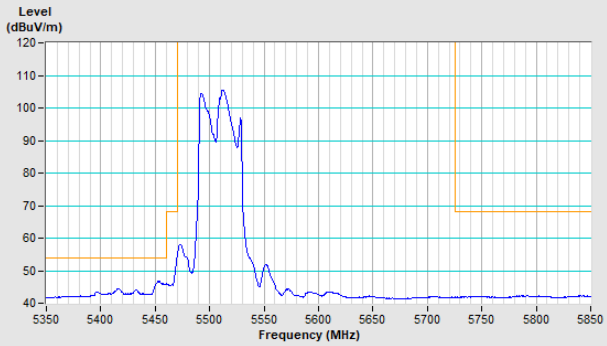
Horizontal (Average)



Vertical (Peak)

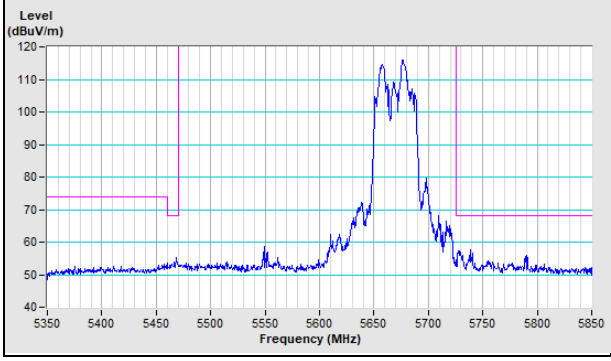


Vertical (Average)

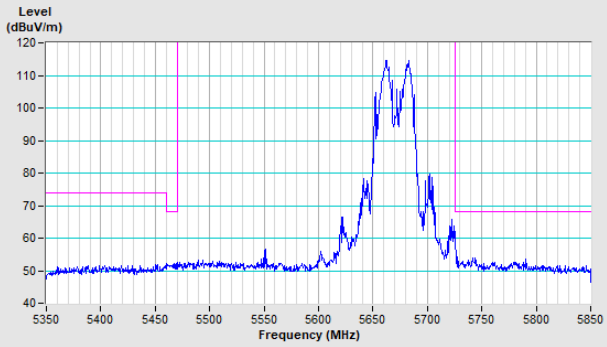


802.11ax (40MHz) Channel 134

Horizontal (Peak)

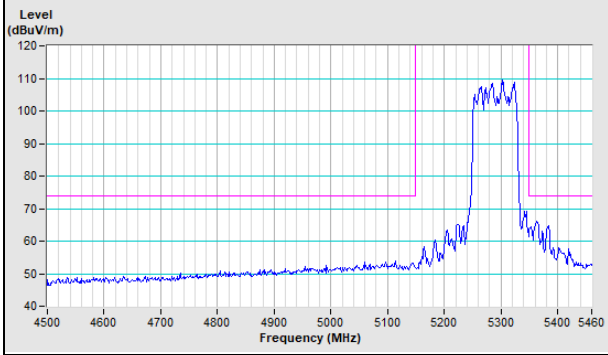


Vertical (Peak)

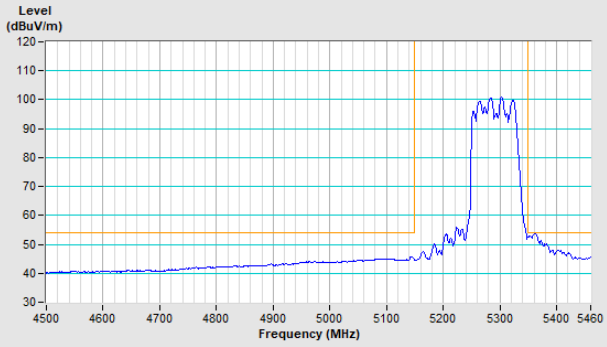


802.11ax (80MHz) Channel 58

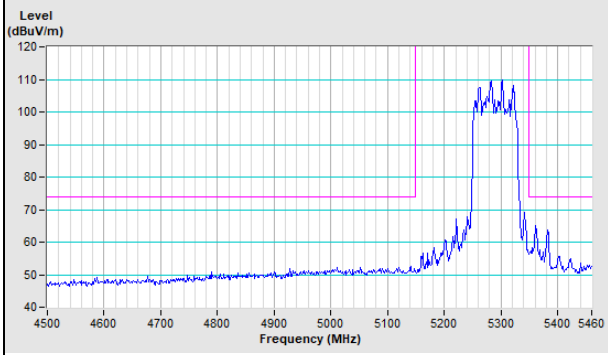
Horizontal (Peak)



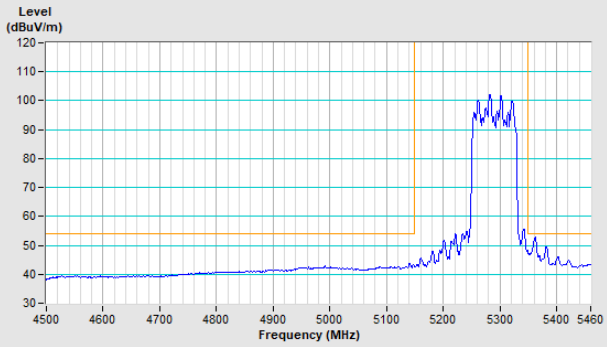
Horizontal (Average)



Vertical (Peak)

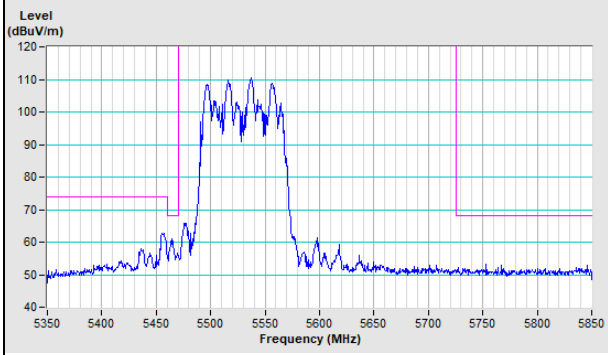


Vertical (Average)

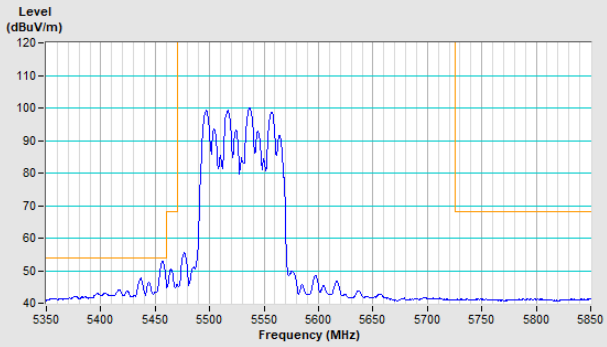


802.11ax (80MHz) Channel 106

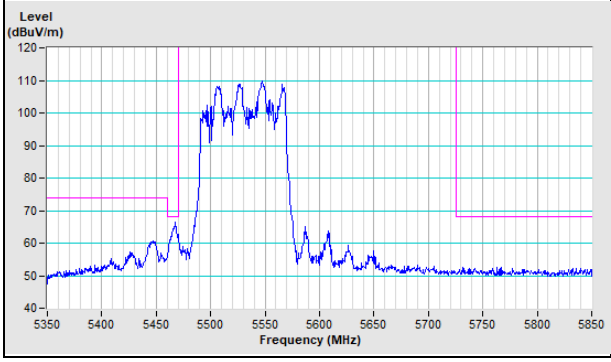
Horizontal (Peak)



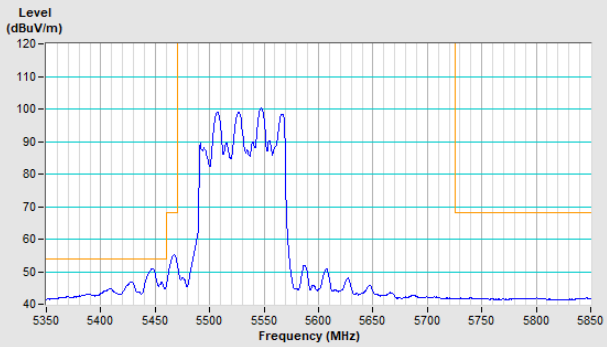
Horizontal (Average)

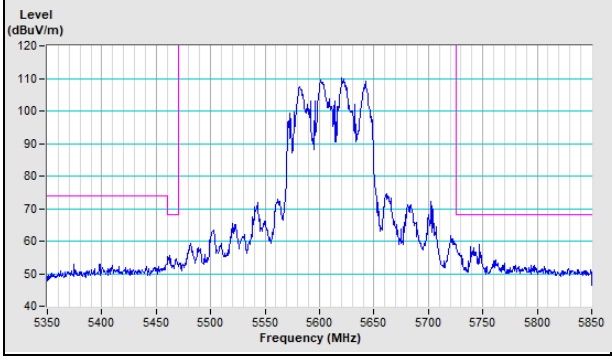
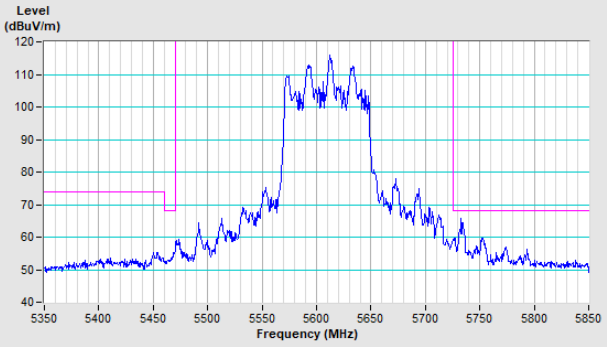


Vertical (Peak)



Vertical (Average)



802.11ax (80MHz) Channel 122	
Horizontal (Peak)	**Vertical (Peak)**
	

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.

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

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