FCC Test Report

Report No.:	RFBBQZ-WTW-P20080343
FCC ID:	PY320200498
Test Model:	WAX610Y
Received Date:	Aug. 19, 2020
Test Date:	Aug. 25 ~ Sep. 04, 2020
Issued Date:	Sep. 15, 2020
Applicant:	NETGEAR, INC.
Address:	350 East Plumeria Drive San Jose, CA 95134, USA
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
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RFBBQZ-WTW-P20080343	Original release.	Sep. 15, 2020

1 Certificate of Conformity

Product: WiFi 6 AX1800 Outdoor Access Point WAX610Y

Brand: NETGEAR

Test Model: WAX610Y

Sample Status: Engineering sample

Applicant: NETGEAR, INC.

Test Date: Aug. 25 ~ Sep. 04, 2020

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

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

Prepared by : _____ , **Date:** Sep. 15, 2020
Polly Chien / Specialist

Approved by : _____ , **Date:** Sep. 15, 2020
Bruce Chen / Senior Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -11.20dB at 0.47000MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.8dB 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(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector are i-pex(MHF) not a standard connector.

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.79 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.63 dB
	200MHz ~1000MHz	3.64 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	WiFi 6 AX1800 Outdoor Access Point WAX610Y
Brand	NETGEAR
Test Model	WAX610Y
Sample Status	Engineering sample
Power Supply Rating	54Vdc (POE)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM for OFDMA
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps 802.11ac: up to 867Mbps 802.11ax: up to 1200Mbps
Operating Frequency	5260 ~ 5320MHz, 5500 ~ 5720MHz
Number of Channel	5260 ~ 5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 4 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 2 802.11ac (VHT80), 802.11ax (HE80): 1 5500~5720MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 12 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 6 802.11ac (VHT80), 802.11ax (HE80): 3
Output Power	CDD Mode: 5260 ~ 5320MHz: 218.101mW 5500 ~ 5720MHz: 222.859mW Beamforming Mode: 5260 ~ 5320MHz: 218.101mW 5500 ~ 5720MHz: 222.859mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. The difference compared with the original report (BV CPS report no.: RF200507C18-1 R1) is adding 5.26GHz to 5.32GHz and 5.50GHz to 5.72GHz by software.
2. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	Beamforming Mode	TX Function
802.11a	Not Support	2TX
802.11n (HT20)	Not Support	2TX
802.11n (HT40)	Not Support	2TX
802.11ac (VHT20)	Support	2TX
802.11ac (VHT40)	Support	2TX
802.11ac (VHT80)	Support	2TX
802.11ax (HE20)	Support	2TX
802.11ax (HE40)	Support	2TX
802.11ax (HE80)	Support	2TX

* The bandwidth and modulation are similar for HT20/HT40 on 802.11n mode and VHT20/VHT40/VHT80 on 802.11ac mode and HE20/HE40/HE80 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 and 802.11ac, CDD mode and Beamforming mode are presented in power output test item.

3. The EUT consumes power from the following POE (for support unit only).

Adapter	
Brand	EnGenius
Model	EPA5006GAT-B
Input Power	100-240Vac, 0.8A, 50-60Hz
Output Power	54Vdc, 0.6A

4. The following antennas were provided to the EUT.

Ant. Type	Dipole
Connector	i-pex(MHF)
Gain (dBi)	Directional Gain
2.4GHz	5.11
5GHz Band 1	5.30
5GHz Band 2	5.28
5GHz Band 3	5.92
5GHz Band 4	5.81

*For detailed antenna information, please refer to the Operational Description-Antenna Specification report.
* 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. WLAN 2.4GHz & WLAN 5GHz technology can transmit at same time.

3.2 Description of Test Modes

5260~5320MHz:

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

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

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

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

Channel	Frequency
58	5290MHz

5500~5720MHz:

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

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

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

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

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

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

3.2.1 Test Mode Applicability and Tested Channel Detail

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

Where RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission APCM: Antenna Port Conducted Measurement

Note:
1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
2. 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)
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11ax (HE20)		52 to 64	52, 60, 64	OFDMA	MCS0
	802.11ax (HE40)		54 to 62	54, 62	OFDMA	MCS0
	802.11ax (HE80)		58	58	OFDMA	MCS0
-	802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.0
	802.11ax (HE20)		100 to 144	100, 116, 140, 144	OFDMA	MCS0
	802.11ax (HE40)		102 to 142	102, 110, 134, 142	OFDMA	MCS0
	802.11ax (HE80)		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)
-	802.11ax (HE20)	5260-5320	52 to 64	60	OFDMA	MCS0
		5500-5720	100 to 144			

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)
-	802.11ax (HE20)	5260-5320	52 to 64	60	OFDMA	MCS0
		5500-5720	100 to 144			

Transmit Power 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)
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	7.2
	802.11ac (VHT40)		54 to 62	54, 62	OFDM	15.0
	802.11ac (VHT80)		58	58	OFDM	29.3
	802.11ax (HE20)		52 to 64	52, 60, 64	OFDMA	MCS0
	802.11ax (HE40)		54 to 62	54, 62	OFDMA	MCS0
	802.11ax (HE80)		58	58	OFDMA	MCS0
-	802.11a	5500-5720	100 to 140	100, 116, 140, 144	OFDM	6.0
	802.11ac (VHT20)		100 to 140	100, 116, 140, 144	OFDM	7.2
	802.11ac (VHT40)		102 to 134	102, 110, 134, 142	OFDM	15.0
	802.11ac (VHT80)		106 to 122	106, 122, 138	OFDM	29.3
	802.11ax (HE20)		100 to 140	100, 116, 140, 144	OFDMA	MCS0
	802.11ax (HE40)		102 to 134	102, 110, 134, 142	OFDMA	MCS0
	802.11ax (HE80)		106 to 122	106, 122, 138	OFDMA	MCS0

Peak Power Spectral Density, Bandwidth and Frequency Stability 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)
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11ax (HE20)		52 to 64	52, 60, 64	OFDMA	MCS0
	802.11ax (HE40)		54 to 62	54, 62	OFDMA	MCS0
	802.11ax (HE80)		58	58	OFDMA	MCS0
-	802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.0
	802.11ax (HE20)		100 to 144	100, 116, 140, 144	OFDMA	MCS0
	802.11ax (HE40)		102 to 142	102, 110, 134, 142	OFDMA	MCS0
	802.11ax (HE80)		106 to 138	106, 122, 138	OFDMA	MCS0

Test Condition:

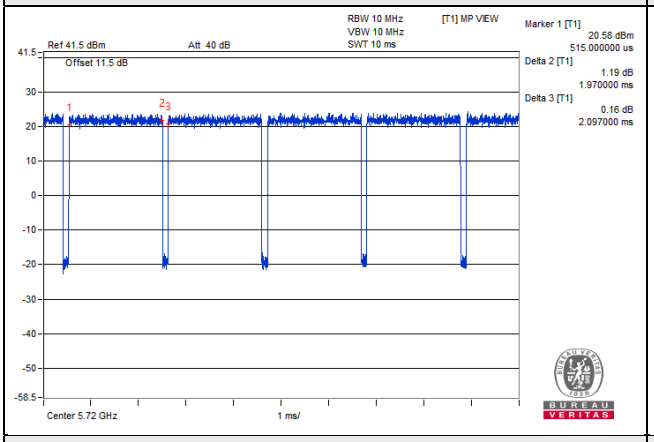
Applicable to	Environmental Conditions	Input Power(System)	Tested by
RE≥1G	25 deg. C, 70% RH	120Vac, 60Hz	Noah Chang
RE<1G	25 deg. C, 70% RH	120Vac, 60Hz	Noah Chang
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Noah Chang
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Ivan Tseng

3.3 Duty Cycle of Test Signal

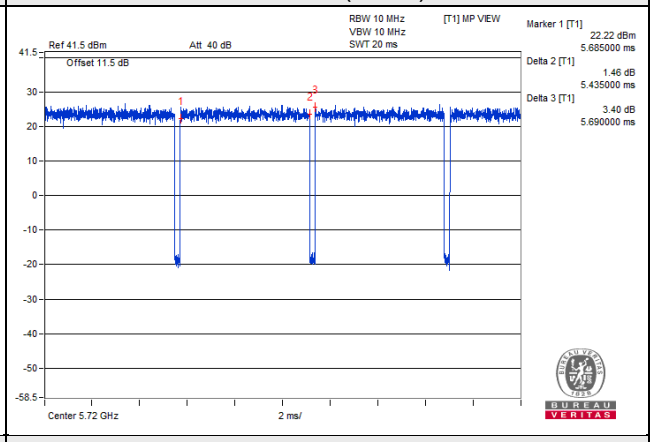
Duty cycle of test signal is < 98%, duty factor shall be considered.

802.11a: Duty cycle = 1.970/2.097 = 0.939, Duty factor = 10 * log (1/0.939) = 0.27
802.11ax (HE20): Duty cycle = 5.435/5.690 = 0.955, Duty factor = 10 * log (1/0.955) = 0.20
802.11ax (HE40): Duty cycle = 5.400/5.715 = 0.945, Duty factor = 10 * log (1/0.945) = 0.25
802.11ax (HE80): Duty cycle = 5.415/5.785 = 0.936, Duty factor = 10 * log (1/0.936) = 0.29

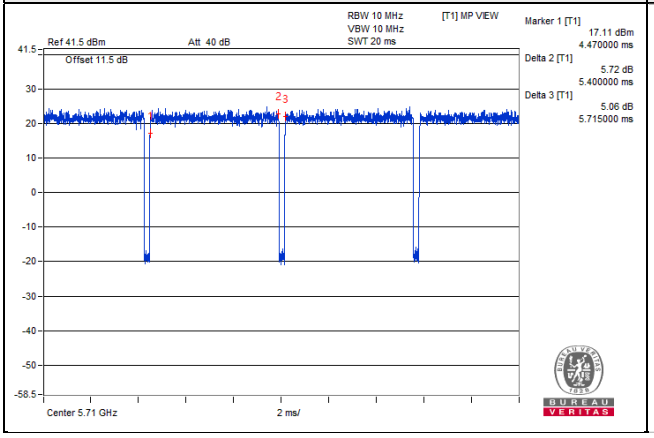
802.11a



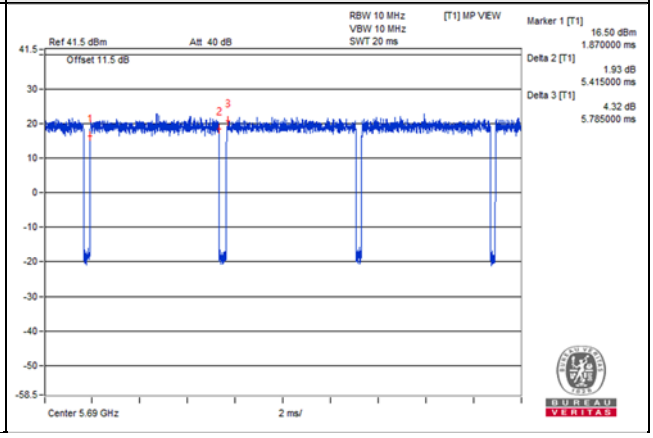
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



3.4 Description of Support Units

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

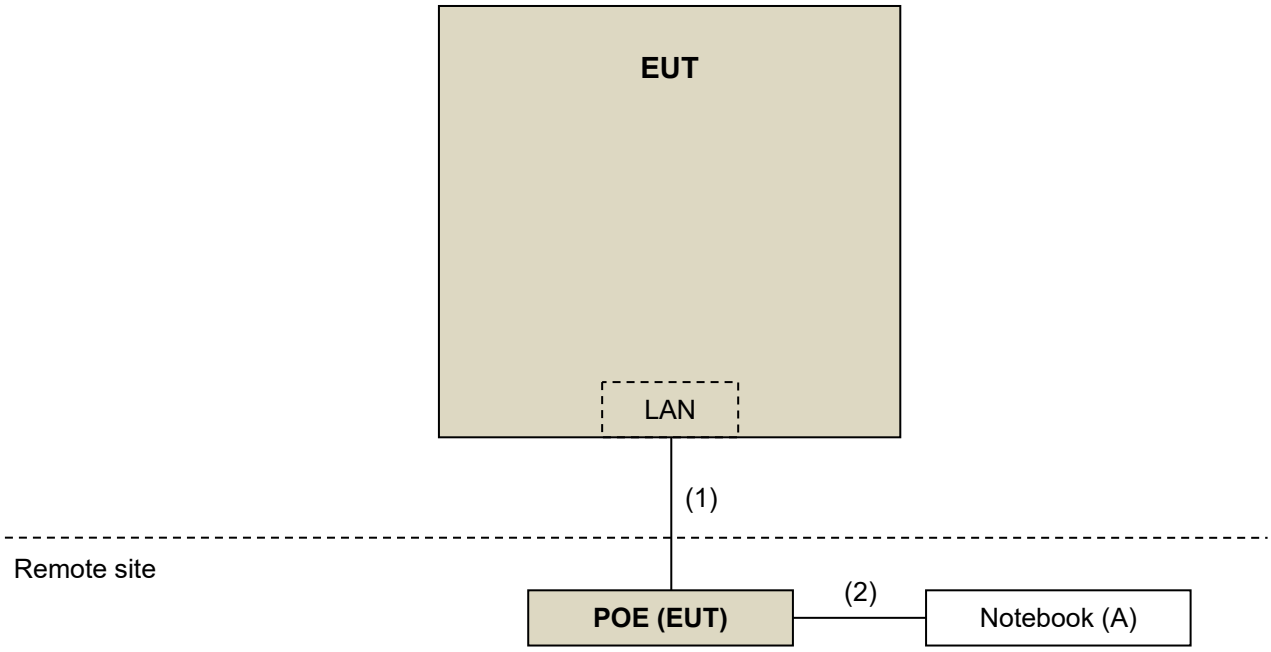
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-

Note:

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

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN cable	1	1.5	N	0	RJ45, Cat5e
2.	LAN cable	1	7	N	0	RJ45, Cat5e

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards and References

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

Test standard:

FCC Part 15, Subpart E (15.407)

ANSI C63.10:2013

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

KD References Test Guidance:

B 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.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Dec. 31, 2019	Dec. 30, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 23, 2019	Sep. 22, 2020
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Nov. 11, 2019	Nov. 10, 2020
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
Loop Antenna TESEQ	HLA 6121	45745	Jul. 06, 2020	Jul. 05, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Jun. 08, 2020	Jun. 07, 2021
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jun. 08, 2020	Jun. 07, 2021
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH4-01	Aug. 16, 2020	Aug. 15, 2021
RF Coaxial Cable EMCI	EMC102-KM-KM-3000	150929	Aug. 16, 2020	Aug. 15, 2021
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Jun. 08, 2020	Jun. 07, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Jun. 08, 2020	Jun. 07, 2021
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Sep. 05, 2019	Sep. 04, 2020
			Sep. 04, 2020	Sep. 03, 2021
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/MY55190007/MY55210005	Jul. 13, 2020	Jul. 12, 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 HwaYa Chamber 4.

4.1.3 Test Procedures

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 detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

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

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

3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.

   (802.11a: RBW = 1MHz, VBW = 1kHz; 802.11ax (HE20): RBW = 1MHz, VBW = 1kHz; 802.11ax (HE40): RBW = 1MHz, VBW = 1kHz; 802.11ax (HE80): RBW = 1MHz, VBW = 1kHz)

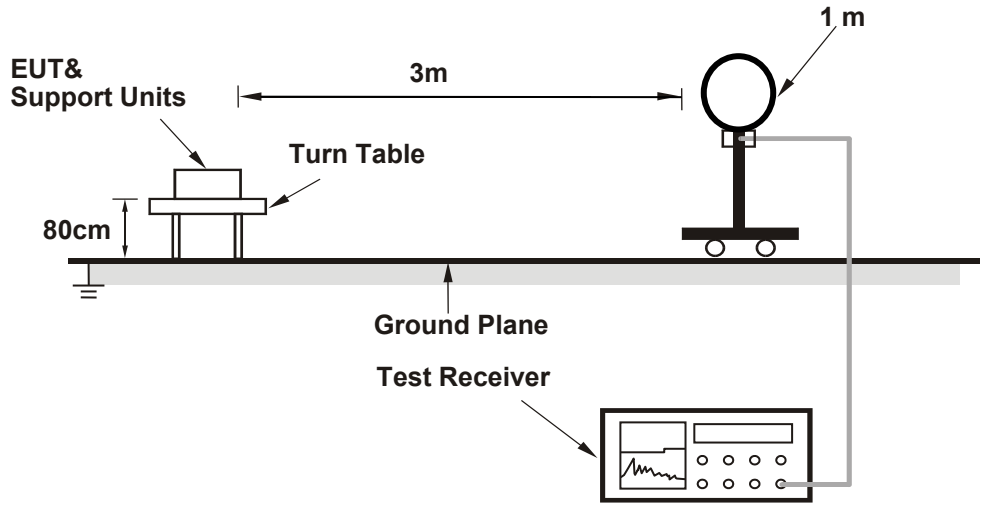
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

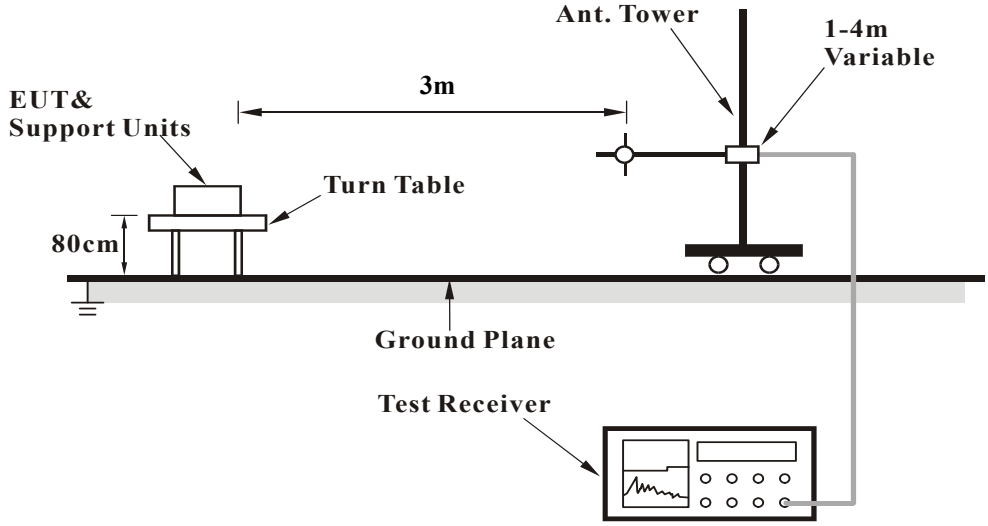
No deviation.

4.1.5 Test Setup

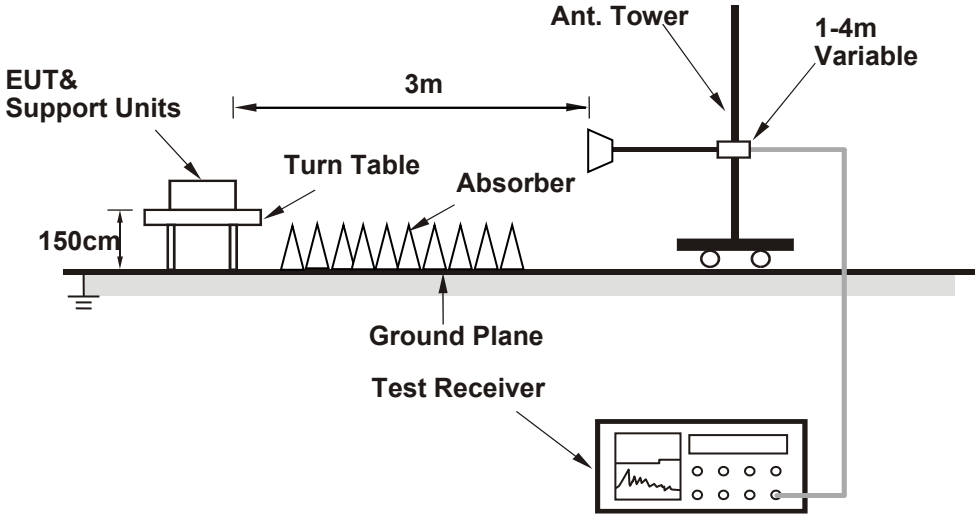
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

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".

4.1.7 Test Results

Above 1GHz data:

802.11a

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	56.6 PK	74.0	-17.4	1.30 H	253	46.1	10.5
2	5150.00	44.7 AV	54.0	-9.3	1.30 H	253	34.2	10.5
3	*5260.00	112.9 PK			1.30 H	253	73.7	39.2
4	*5260.00	101.8 AV			1.30 H	253	62.6	39.2
5	#10520.00	60.4 PK	68.2	-7.8	2.15 H	200	39.5	20.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	57.0 PK	74.0	-17.0	1.39 V	95	46.5	10.5
2	5150.00	46.2 AV	54.0	-7.8	1.39 V	95	35.7	10.5
3	*5260.00	117.9 PK			1.39 V	95	78.7	39.2
4	*5260.00	107.7 AV			1.39 V	95	68.5	39.2
5	#10520.00	60.0 PK	68.2	-8.2	1.52 V	17	39.1	20.9

Remarks:

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

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	111.8 PK			1.20 H	216	72.5	39.3
2	*5300.00	103.1 AV			1.20 H	216	63.8	39.3
3	10600.00	61.8 PK	74.0	-12.2	1.13 H	20	40.0	21.8
4	10600.00	49.9 AV	54.0	-4.1	1.13 H	20	28.1	21.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	116.8 PK			1.42 V	97	77.5	39.3
2	*5300.00	108.1 AV			1.42 V	97	68.8	39.3
3	10600.00	62.3 PK	74.0	-11.7	2.16 V	116	40.5	21.8
4	10600.00	50.3 AV	54.0	-3.7	2.16 V	116	28.5	21.8

Remarks:

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

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	111.6 PK			1.30 H	266	72.3	39.3
2	*5320.00	102.9 AV			1.30 H	266	63.6	39.3
3	5350.00	53.6 PK	74.0	-20.4	1.30 H	266	43.7	9.9
4	5350.00	42.9 AV	54.0	-11.1	1.30 H	266	33.0	9.9
5	10640.00	62.5 PK	74.0	-11.5	1.33 H	199	40.6	21.9
6	10640.00	50.0 AV	54.0	-4.0	1.33 H	199	28.1	21.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	118.0 PK			1.39 V	91	78.7	39.3
2	*5320.00	108.5 AV			1.39 V	91	69.2	39.3
3	5350.00	55.9 PK	74.0	-18.1	1.39 V	91	46.0	9.9
4	5350.00	47.1 AV	54.0	-6.9	1.39 V	91	37.2	9.9
5	10640.00	62.1 PK	74.0	-11.9	1.69 V	125	40.2	21.9
6	10640.00	50.5 AV	54.0	-3.5	1.69 V	125	28.6	21.9

Remarks:

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

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.3 PK	74.0	-19.7	2.15 H	200	44.0	10.3
2	5460.00	43.3 AV	54.0	-10.7	2.15 H	200	33.0	10.3
3	#5470.00	56.3 PK	68.2	-11.9	2.15 H	200	46.0	10.3
4	*5500.00	111.7 PK			2.15 H	200	72.0	39.7
5	*5500.00	102.4 AV			2.15 H	200	62.7	39.7
6	11000.00	61.9 PK	74.0	-12.1	1.05 H	116	39.5	22.4
7	11000.00	49.9 AV	54.0	-4.1	1.05 H	116	27.5	22.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.3 PK	74.0	-15.7	2.44 V	6	48.0	10.3
2	5460.00	47.8 AV	54.0	-6.2	2.44 V	6	37.5	10.3
3	#5470.00	59.0 PK	68.2	-9.2	2.44 V	6	48.7	10.3
4	*5500.00	118.2 PK			2.44 V	6	78.5	39.7
5	*5500.00	108.9 AV			2.44 V	6	69.2	39.7
6	11000.00	62.8 PK	74.0	-11.2	1.00 V	345	40.4	22.4
7	11000.00	50.8 AV	54.0	-3.2	1.00 V	345	28.4	22.4

Remarks:

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

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	112.7 PK			2.44 H	200	72.9	39.8
2	*5580.00	103.1 AV			2.44 H	200	63.3	39.8
3	11160.00	62.3 PK	74.0	-11.7	1.10 H	215	39.9	22.4
4	11160.00	50.6 AV	54.0	-3.4	1.10 H	215	28.2	22.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	118.7 PK			2.44 V	10	78.9	39.8
2	*5580.00	109.1 AV			2.44 V	10	69.3	39.8
3	11160.00	63.0 PK	74.0	-11.0	1.55 V	109	40.6	22.4
4	11160.00	51.0 AV	54.0	-3.0	1.55 V	109	28.6	22.4

Remarks:

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

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	111.3 PK			1.50 H	159	71.3	40.0
2	*5700.00	101.7 AV			1.50 H	159	61.7	40.0
3	#5725.00	57.1 PK	68.2	-11.1	1.50 H	159	46.7	10.4
4	11400.00	62.4 PK	74.0	-11.6	1.05 H	311	39.2	23.2
5	11400.00	50.0 AV	54.0	-4.0	1.05 H	311	26.8	23.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	118.7 PK			2.33 V	17	78.7	40.0
2	*5700.00	109.4 AV			2.33 V	17	69.4	40.0
3	#5725.00	63.0 PK	68.2	-5.2	2.33 V	17	52.6	10.4
4	11400.00	63.8 PK	74.0	-10.2	1.05 V	136	40.6	23.2
5	11400.00	52.1 AV	54.0	-1.9	1.05 V	136	28.9	23.2

Remarks:

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

CHANNEL	TX Channel 144	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	56.3 PK	68.2	-11.9	2.55 H	200	46.0	10.3
2	*5720.00	112.8 PK			2.55 H	200	72.7	40.1
3	*5720.00	104.4 AV			2.55 H	200	64.3	40.1
4	#5850.00	56.5 PK	68.2	-11.7	2.55 H	200	45.3	11.2
5	11440.00	62.6 PK	74.0	-11.4	1.05 H	115	39.5	23.1
6	11440.00	49.9 AV	54.0	-4.1	1.05 H	115	26.8	23.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	58.1 PK	68.2	-10.1	2.34 V	4	47.8	10.3
2	*5720.00	119.3 PK			2.34 V	4	79.2	40.1
3	*5720.00	110.1 AV			2.34 V	4	70.0	40.1
4	#5850.00	57.9 PK	68.2	-10.3	2.34 V	4	46.7	11.2
5	11440.00	63.2 PK	74.0	-10.8	1.36 V	322	40.1	23.1
6	11440.00	50.6 AV	54.0	-3.4	1.36 V	322	27.5	23.1

Remarks:

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

802.11ax (HE20)

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	56.6 PK	74.0	-17.4	1.49 H	305	46.1	10.5
2	5150.00	44.6 AV	54.0	-9.4	1.49 H	305	34.1	10.5
3	*5260.00	112.0 PK			1.49 H	305	72.8	39.2
4	*5260.00	101.7 AV			1.49 H	305	62.5	39.2
5	#10520.00	60.9 PK	68.2	-7.3	3.16 H	305	40.0	20.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	57.5 PK	74.0	-16.5	1.41 V	93	47.0	10.5
2	5150.00	45.7 AV	54.0	-8.3	1.41 V	93	35.2	10.5
3	*5260.00	119.2 PK			1.41 V	93	80.0	39.2
4	*5260.00	107.8 AV			1.41 V	93	68.6	39.2
5	#10520.00	61.8 PK	68.2	-6.4	2.00 V	269	40.9	20.9

Remarks:

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

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	114.3 PK			1.44 H	250	75.0	39.3
2	*5300.00	102.1 AV			1.44 H	250	62.8	39.3
3	10600.00	61.9 PK	74.0	-12.1	1.00 H	215	40.1	21.8
4	10600.00	50.3 AV	54.0	-3.7	1.00 H	215	28.5	21.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	119.3 PK			1.44 V	95	80.0	39.3
2	*5300.00	107.1 AV			1.44 V	95	67.8	39.3
3	10600.00	62.4 PK	74.0	-11.6	1.63 V	326	40.6	21.8
4	10600.00	50.7 AV	54.0	-3.3	1.63 V	326	28.9	21.8

Remarks:

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

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	112.2 PK			1.55 H	302	72.9	39.3
2	*5320.00	101.1 AV			1.55 H	302	61.8	39.3
3	5350.00	55.5 PK	74.0	-18.5	1.55 H	302	45.6	9.9
4	5350.00	44.4 AV	54.0	-9.6	1.55 H	302	34.5	9.9
5	10640.00	62.0 PK	74.0	-12.0	1.99 H	216	40.1	21.9
6	10640.00	50.5 AV	54.0	-3.5	1.99 H	216	28.6	21.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	119.1 PK			1.44 V	95	79.8	39.3
2	*5320.00	107.3 AV			1.44 V	95	68.0	39.3
3	5350.00	57.2 PK	74.0	-16.8	1.44 V	95	47.3	9.9
4	5350.00	48.0 AV	54.0	-6.0	1.44 V	95	38.1	9.9
5	10640.00	62.0 PK	74.0	-12.0	1.35 V	116	40.1	21.9
6	10640.00	50.0 AV	54.0	-4.0	1.35 V	116	28.1	21.9

Remarks:

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

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.4 PK	74.0	-19.6	2.40 H	150	44.1	10.3
2	5460.00	43.7 AV	54.0	-10.3	2.40 H	150	33.4	10.3
3	#5470.00	56.3 PK	68.2	-11.9	2.40 H	150	46.0	10.3
4	*5500.00	111.9 PK			2.40 H	150	72.2	39.7
5	*5500.00	101.4 AV			2.40 H	150	61.7	39.7
6	11000.00	61.7 PK	74.0	-12.3	4.00 H	159	39.3	22.4
7	11000.00	51.3 AV	54.0	-2.7	4.00 H	159	28.9	22.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.4 PK	74.0	-15.6	2.45 V	9	48.1	10.3
2	5460.00	47.4 AV	54.0	-6.6	2.45 V	9	37.1	10.3
3	#5470.00	60.3 PK	68.2	-7.9	2.45 V	9	50.0	10.3
4	*5500.00	117.5 PK			2.45 V	9	77.8	39.7
5	*5500.00	107.8 AV			2.45 V	9	68.1	39.7
6	11000.00	62.6 PK	74.0	-11.4	1.59 V	105	40.2	22.4
7	11000.00	50.8 AV	54.0	-3.2	1.59 V	105	28.4	22.4

Remarks:

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

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	112.0 PK			2.44 H	211	72.2	39.8
2	*5580.00	102.1 AV			2.44 H	211	62.3	39.8
3	11160.00	61.9 PK	74.0	-12.1	1.50 H	21	39.5	22.4
4	11160.00	50.4 AV	54.0	-3.6	1.50 H	21	28.0	22.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	118.0 PK			2.44 V	10	78.2	39.8
2	*5580.00	108.1 AV			2.44 V	10	68.3	39.8
3	11160.00	62.4 PK	74.0	-11.6	2.00 V	211	40.0	22.4
4	11160.00	50.8 AV	54.0	-3.2	2.00 V	211	28.4	22.4

Remarks:

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

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	113.2 PK			2.21 H	150	73.2	40.0
2	*5700.00	101.7 AV			2.21 H	150	61.7	40.0
3	#5725.00	56.3 PK	68.2	-11.9	2.21 H	150	45.9	10.4
4	11400.00	62.7 PK	74.0	-11.3	1.52 H	105	39.5	23.2
5	11400.00	50.9 AV	54.0	-3.1	1.52 H	105	27.7	23.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	118.5 PK			2.24 V	17	78.5	40.0
2	*5700.00	108.4 AV			2.24 V	17	68.4	40.0
3	#5725.00	60.8 PK	68.2	-7.4	2.24 V	18	50.4	10.4
4	11400.00	63.8 PK	74.0	-10.2	1.55 V	100	40.6	23.2
5	11400.00	51.3 AV	54.0	-2.7	1.55 V	100	28.1	23.2

Remarks:

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

CHANNEL	TX Channel 144	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	55.9 PK	68.2	-12.3	2.33 H	210	45.6	10.3
2	*5720.00	113.8 PK			2.33 H	210	73.7	40.1
3	*5720.00	102.6 AV			2.33 H	210	62.5	40.1
4	#5850.00	56.1 PK	68.2	-12.1	2.33 H	210	44.9	11.2
5	11440.00	62.9 PK	74.0	-11.1	2.22 H	215	39.8	23.1
6	11440.00	50.1 AV	54.0	-3.9	2.22 H	215	27.0	23.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	56.9 PK	68.2	-11.3	2.34 V	6	46.6	10.3
2	*5720.00	119.1 PK			2.34 V	6	79.0	40.1
3	*5720.00	109.4 AV			2.34 V	6	69.3	40.1
4	#5850.00	58.4 PK	68.2	-9.8	2.34 V	6	47.2	11.2
5	11440.00	63.7 PK	74.0	-10.3	2.16 V	216	40.6	23.1
6	11440.00	51.0 AV	54.0	-3.0	2.16 V	216	27.9	23.1

Remarks:

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

802.11ax (HE40)

CHANNEL	TX Channel 54	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	56.7 PK	74.0	-17.3	2.15 H	200	46.2	10.5
2	5150.00	44.9 AV	54.0	-9.1	2.15 H	200	34.4	10.5
3	*5270.00	108.7 PK			2.15 H	200	69.5	39.2
4	*5270.00	98.9 AV			2.15 H	200	59.7	39.2
5	#10540.00	60.1 PK	68.2	-8.1	1.00 H	111	39.0	21.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	56.9 PK	74.0	-17.1	1.31 V	91	46.4	10.5
2	5150.00	46.1 AV	54.0	-7.9	1.31 V	91	35.6	10.5
3	*5270.00	114.7 PK			1.31 V	91	75.5	39.2
4	*5270.00	104.6 AV			1.31 V	91	65.4	39.2
5	#10520.00	59.4 PK	68.2	-8.8	1.05 V	119	38.5	20.9

Remarks:

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

CHANNEL	TX Channel 62	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	109.8 PK			1.59 H	200	70.5	39.3
2	*5310.00	99.1 AV			1.59 H	200	59.8	39.3
3	5354.00	55.3 PK	74.0	-18.7	1.59 H	200	45.4	9.9
4	5354.00	45.4 AV	54.0	-8.6	1.59 H	200	35.5	9.9
5	10620.00	60.8 PK	74.0	-13.2	1.66 H	133	38.9	21.9
6	10620.00	48.8 AV	54.0	-5.2	1.66 H	133	26.9	21.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	115.7 PK			1.31 V	94	76.4	39.3
2	*5310.00	104.5 AV			1.31 V	94	65.2	39.3
3	5354.00	58.1 PK	74.0	-15.9	1.31 V	94	48.2	9.9
4	5354.00	49.4 AV	54.0	-4.6	1.31 V	94	39.5	9.9
5	10620.00	61.4 PK	74.0	-12.6	3.00 V	316	39.5	21.9
6	10620.00	48.9 AV	54.0	-5.1	3.00 V	316	27.0	21.9

Remarks:

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

CHANNEL	TX Channel 102	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.7 PK	74.0	-19.3	2.55 H	166	44.4	10.3
2	5460.00	44.4 AV	54.0	-9.6	2.55 H	166	34.1	10.3
3	#5463.80	59.0 PK	68.2	-9.2	2.55 H	166	48.7	10.3
4	*5510.00	109.1 PK			2.55 H	166	69.4	39.7
5	*5510.00	98.2 AV			2.55 H	166	58.5	39.7
6	11020.00	62.9 PK	74.0	-11.1	1.66 H	169	40.5	22.4
7	11020.00	50.5 AV	54.0	-3.5	1.66 H	169	28.1	22.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	57.6 PK	74.0	-16.4	2.52 V	16	47.3	10.3
2	5460.00	46.8 AV	54.0	-7.2	2.52 V	16	36.5	10.3
3	#5463.80	62.1 PK	68.2	-6.1	2.52 V	16	51.8	10.3
4	*5510.00	115.2 PK			2.52 V	16	75.5	39.7
5	*5510.00	105.1 AV			2.52 V	16	65.4	39.7
6	11020.00	62.7 PK	74.0	-11.3	1.66 V	105	40.3	22.4
7	11020.00	50.3 AV	54.0	-3.7	1.66 V	105	27.9	22.4

Remarks:

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

CHANNEL	TX Channel 110	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	108.9 PK			2.55 H	201	69.1	39.8
2	*5550.00	99.4 AV			2.55 H	201	59.6	39.8
3	11100.00	62.2 PK	74.0	-11.8	1.56 H	300	39.8	22.4
4	11100.00	49.9 AV	54.0	-4.1	1.56 H	300	27.5	22.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	115.0 PK			2.52 V	13	75.2	39.8
2	*5550.00	105.5 AV			2.52 V	13	65.7	39.8
3	11100.00	62.5 PK	74.0	-11.5	1.59 V	115	40.1	22.4
4	11100.00	50.7 AV	54.0	-3.3	1.59 V	115	28.3	22.4

Remarks:

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

CHANNEL	TX Channel 134	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	107.0 PK			2.31 H	159	67.1	39.9
2	*5670.00	97.6 AV			2.31 H	159	57.7	39.9
3	#5725.00	56.8 PK	68.2	-11.4	2.31 H	159	46.4	10.4
4	11340.00	62.2 PK	74.0	-11.8	3.16 H	306	39.5	22.7
5	11340.00	50.8 AV	54.0	-3.2	3.16 H	306	28.1	22.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	115.4 PK			2.36 V	18	75.5	39.9
2	*5670.00	105.9 AV			2.36 V	18	66.0	39.9
3	#5725.00	55.2 PK	68.2	-13.0	2.36 V	18	44.8	10.4
4	11340.00	62.7 PK	74.0	-11.3	2.00 V	215	40.0	22.7
5	11340.00	50.7 AV	54.0	-3.3	2.00 V	215	28.0	22.7

Remarks:

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

CHANNEL	TX Channel 142	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5710.00	110.0 PK			2.34 H	155	70.0	40.0
2	*5710.00	100.6 AV			2.34 H	155	60.6	40.0
3	#5850.00	56.2 PK	68.2	-12.0	2.34 H	155	45.0	11.2
4	11420.00	62.1 PK	74.0	-11.9	1.55 H	105	38.9	23.2
5	11420.00	50.0 AV	54.0	-4.0	1.55 H	105	26.8	23.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5710.00	116.5 PK			2.34 V	8	76.5	40.0
2	*5710.00	107.1 AV			2.34 V	8	67.1	40.0
3	#5850.00	59.5 PK	68.2	-8.7	2.34 V	8	48.3	11.2
4	11420.00	62.6 PK	74.0	-11.4	1.63 V	166	39.4	23.2
5	11420.00	50.0 AV	54.0	-4.0	1.63 V	166	26.8	23.2

Remarks:

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

802.11ax (HE80)

CHANNEL	TX Channel 58	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	56.4 PK	74.0	-17.6	1.05 H	150	45.9	10.5
2	5150.00	45.2 AV	54.0	-8.8	1.05 H	150	34.7	10.5
3	*5290.00	105.8 PK			1.05 H	150	66.5	39.3
4	*5290.00	95.8 AV			1.05 H	150	56.5	39.3
5	5358.00	55.9 PK	74.0	-18.1	1.05 H	150	46.0	9.9
6	5358.00	46.2 AV	54.0	-7.8	1.05 H	150	36.3	9.9
7	#10580.00	60.7 PK	68.2	-7.5	1.05 H	115	39.1	21.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	59.4 PK	74.0	-14.6	1.30 V	90	48.9	10.5
2	5150.00	48.1 AV	54.0	-5.9	1.30 V	90	37.6	10.5
3	*5290.00	113.4 PK			1.30 V	90	74.1	39.3
4	*5290.00	101.6 AV			1.30 V	90	62.3	39.3
5	5358.00	60.4 PK	74.0	-13.6	1.30 V	90	50.5	9.9
6	5358.00	50.7 AV	54.0	-3.3	1.30 V	90	40.8	9.9
7	#10580.00	61.1 PK	68.2	-7.1	1.66 V	101	39.5	21.6

Remarks:

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

CHANNEL	TX Channel 106	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.6 PK	74.0	-15.4	2.51 H	200	48.3	10.3
2	5460.00	47.9 AV	54.0	-6.1	2.51 H	200	37.6	10.3
3	#5462.00	62.1 PK	68.2	-6.1	2.51 H	200	51.8	10.3
4	*5530.00	106.9 PK			2.51 H	200	67.2	39.7
5	*5530.00	95.5 AV			2.51 H	200	55.8	39.7
6	#5725.00	54.8 PK	68.2	-13.4	2.51 H	200	44.4	10.4
7	11060.00	60.8 PK	74.0	-13.2	1.00 H	105	38.5	22.3
8	11060.00	49.2 AV	54.0	-4.8	1.00 H	105	26.9	22.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	63.5 PK	74.0	-10.5	2.35 V	2	53.2	10.3
2	**5460.00**	**53.2 AV**	**54.0**	**-0.8**	**2.35 V**	**2**	**42.9**	**10.3**
3	#5462.00	67.2 PK	68.2	-1.0	2.35 V	2	56.9	10.3
4	*5530.00	111.8 PK			2.35 V	2	72.1	39.7
5	*5530.00	102.0 AV			2.35 V	2	62.3	39.7
6	#5725.00	57.2 PK	68.2	-11.0	2.35 V	2	46.8	10.4
7	11060.00	61.2 PK	74.0	-12.8	1.39 V	133	38.9	22.3
8	11060.00	49.5 AV	54.0	-4.5	1.39 V	133	27.2	22.3

Remarks:

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

CHANNEL	TX Channel 122	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	55.3 PK	74.0	-18.7	2.33 H	233	45.0	10.3
2	5460.00	44.0 AV	54.0	-10.0	2.33 H	233	33.7	10.3
3	#5470.00	56.5 PK	68.2	-11.7	2.33 H	233	46.2	10.3
4	*5610.00	105.9 PK			2.33 H	233	66.0	39.9
5	*5610.00	96.9 AV			2.33 H	233	57.0	39.9
6	#5743.20	57.8 PK	68.2	-10.4	2.33 H	233	47.3	10.5
7	11220.00	60.6 PK	74.0	-13.4	1.05 H	177	38.3	22.3
8	11220.00	49.3 AV	54.0	-4.7	1.05 H	177	27.0	22.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.1 PK	74.0	-15.9	2.35 V	5	47.8	10.3
2	5460.00	47.4 AV	54.0	-6.6	2.35 V	5	37.1	10.3
3	#5470.00	59.8 PK	68.2	-8.4	2.35 V	5	49.5	10.3
4	*5610.00	113.0 PK			2.35 V	5	73.1	39.9
5	*5610.00	103.3 AV			2.35 V	5	63.4	39.9
6	#5743.20	61.0 PK	68.2	-7.2	2.35 V	5	50.5	10.5
7	11220.00	61.9 PK	74.0	-12.1	1.05 V	159	39.6	22.3
8	11220.00	49.3 AV	54.0	-4.7	1.05 V	159	27.0	22.3

Remarks:

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

CHANNEL	TX Channel 138	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	55.1 PK	68.2	-13.1	1.56 H	169	44.8	10.3
2	*5690.00	108.8 PK			1.56 H	169	68.8	40.0
3	*5690.00	96.7 AV			1.56 H	169	56.7	40.0
4	#5850.00	53.8 PK	68.2	-14.4	1.56 H	169	42.6	11.2
5	11380.00	61.3 PK	74.0	-12.7	1.56 H	169	38.3	23.0
6	11380.00	49.2 AV	54.0	-4.8	1.56 H	169	26.2	23.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	58.0 PK	68.2	-10.2	2.33 V	6	47.7	10.3
2	*5690.00	112.4 PK			2.33 V	6	72.4	40.0
3	*5690.00	103.9 AV			2.33 V	6	63.9	40.0
4	#5850.00	58.7 PK	68.2	-9.5	2.33 V	6	47.5	11.2
5	11380.00	61.5 PK	74.0	-12.5	2.16 V	200	38.5	23.0
6	11380.00	49.8 AV	54.0	-4.2	2.16 V	200	26.8	23.0

Remarks:

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

Below 1GHz Worst-Case

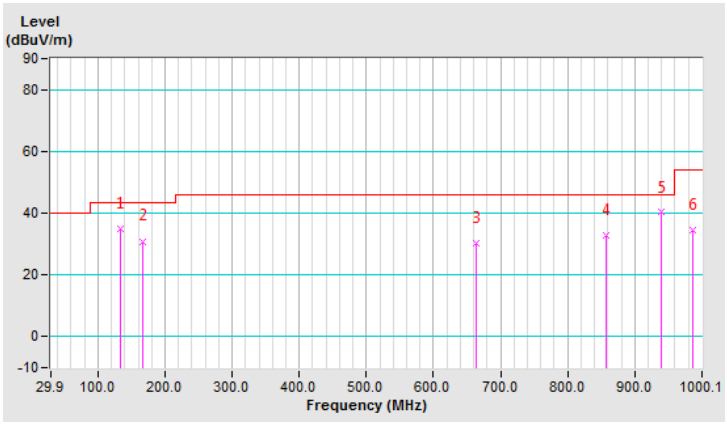
802.11ax (HE20)

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	132.74	35.1 QP	43.5	-8.4	2.00 H	93	44.9	-9.8
2	167.67	30.9 QP	43.5	-12.6	1.49 H	40	39.9	-9.0
3	664.41	30.1 QP	46.0	-15.9	1.49 H	56	29.8	0.3
4	856.51	32.6 QP	46.0	-13.4	1.01 H	29	27.4	5.2
5	939.95	40.2 QP	46.0	-5.8	1.49 H	269	33.0	7.2
6	986.52	34.4 QP	54.0	-19.6	1.01 H	9	26.5	7.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
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.

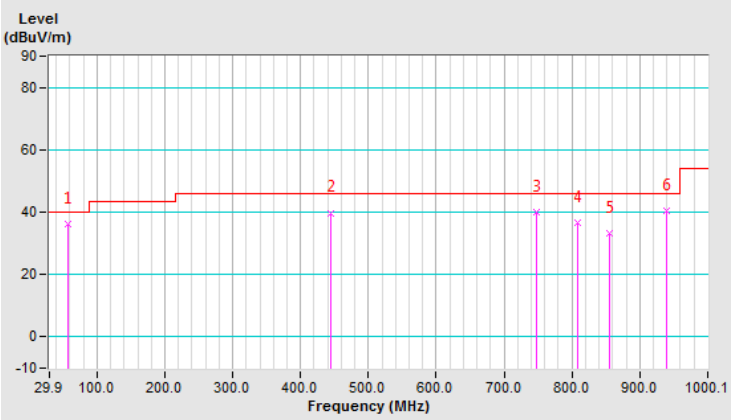


CHANNEL	TX Channel 60	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.07	36.1 QP	40.0	-3.9	1.49 V	312	45.4	-9.3
2	445.15	39.8 QP	46.0	-6.2	1.00 V	94	44.6	-4.8
3	747.85	40.0 QP	46.0	-6.0	1.49 V	103	37.3	2.7
4	808.00	36.5 QP	46.0	-9.5	1.49 V	30	32.3	4.2
5	854.57	33.2 QP	46.0	-12.8	1.49 V	265	28.0	5.2
6	939.95	40.6 QP	46.0	-5.4	1.00 V	322	33.4	7.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
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

Tested date: Aug. 28, 2020

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 11, 2019	Dec. 10, 2020
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2019	Sep. 04, 2020
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 20, 2020	Feb. 19, 2021
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 28, 2020	Aug. 27, 2021
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1 (Conduction 1).
3. The VCCI Site Registration No. is C-12040.

4.2.3 Test Procedures

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.

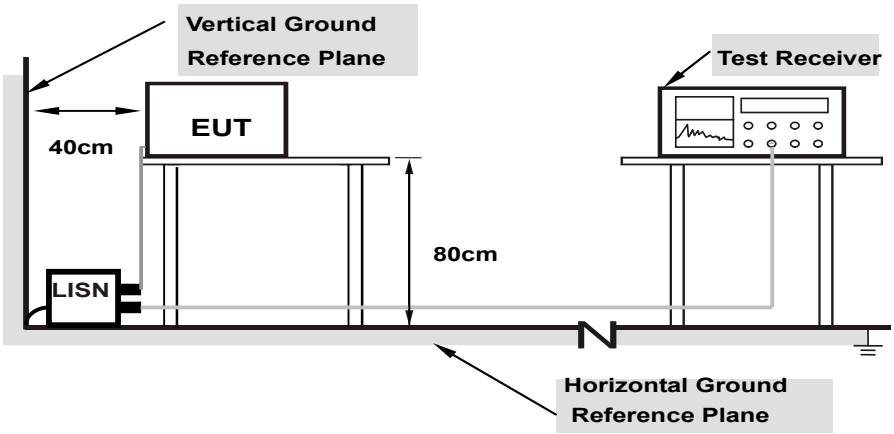
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

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 Conditions

Same as 4.1.6.

4.2.7 Test Results

Worst-case data:

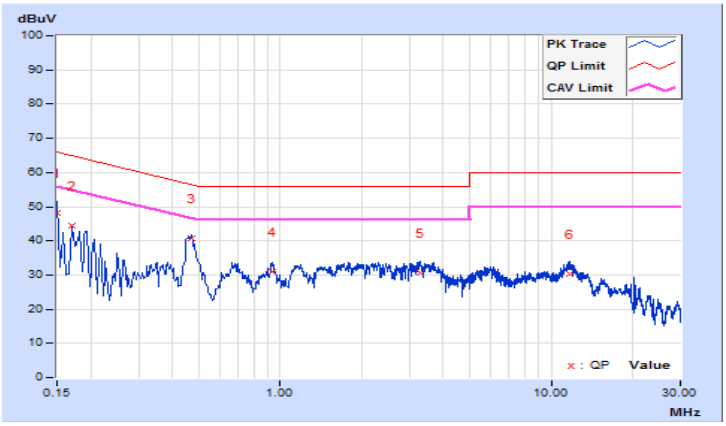
802.11ax (HE20)

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	0.15000	9.63	38.47	24.47	48.10	34.10	66.00	56.00	-17.90	-21.90
2	0.17000	9.63	34.66	20.31	44.29	29.94	64.96	54.96	-20.67	-25.02
3	**0.47000**	**9.65**	**31.14**	**25.66**	**40.79**	**35.31**	**56.51**	**46.51**	**-15.72**	**-11.20**
4	0.93000	9.68	21.37	17.90	31.05	27.58	56.00	46.00	-24.95	-18.42
5	3.30600	9.77	21.02	16.35	30.79	26.12	56.00	46.00	-25.21	-19.88
6	11.76600	9.88	20.35	15.45	30.23	25.33	60.00	50.00	-29.77	-24.67

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.

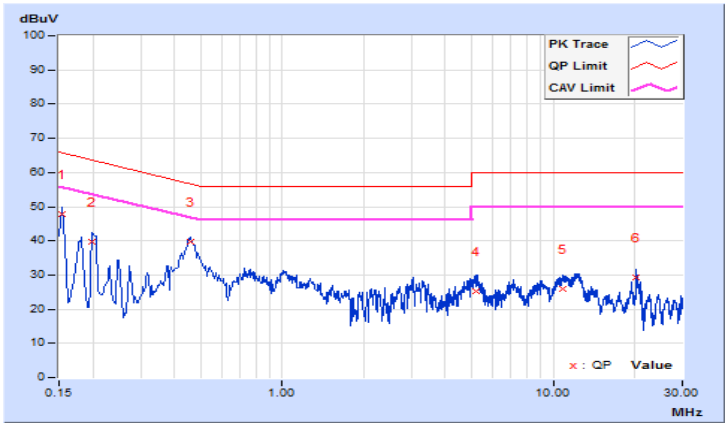


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	0.15400	9.66	38.00	23.32	47.66	32.98	65.78	55.78	-18.12	-22.80
2	0.19800	9.64	30.22	14.10	39.86	23.74	63.69	53.69	-23.83	-29.95
3	0.45716	9.67	30.15	25.30	39.82	34.97	56.74	46.74	-16.92	-11.77
4	5.19800	9.84	15.47	9.37	25.31	19.21	60.00	50.00	-34.69	-30.79
5	10.85000	9.92	16.10	10.69	26.02	20.61	60.00	50.00	-33.98	-29.39
6	20.21400	10.03	19.23	18.10	29.26	28.13	60.00	50.00	-30.74	-21.87

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)
		Mobile and Portable 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

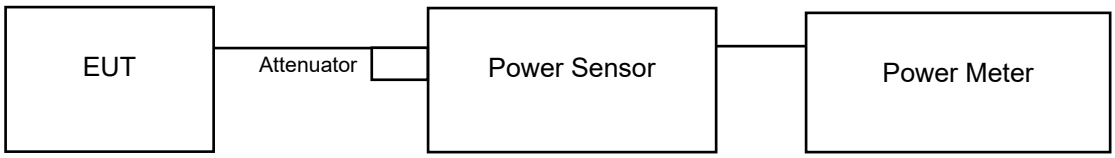
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

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 $N_{ANT} \geq 5$.

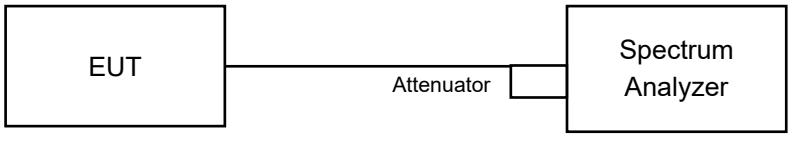
For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.3.2 Test Setup

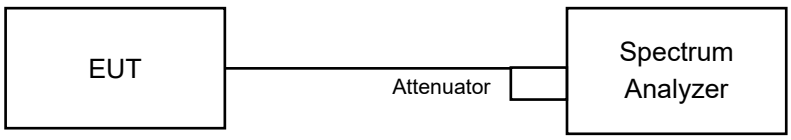
For Power Output
802.11a, 802.11ac (VHT20), 802.11ac (VHT40), 802.11ax (HE20), 802.11ax (HE40)



802.11ac (VHT80), 802.11ax (HE80)



For 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

802.11a, 802.11ac (VHT20), 802.11ac (VHT40), 802.11ax (HE20), 802.11ax (HE40)
Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

802.11ac (VHT80) , 802.11ax (HE80)

a. Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
b. Set sweep trigger to “free run”.
c. Set RBW = 1 MHz
d. Set VBW ≥ 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 Bandwidth

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Power Output:

CDD Mode

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	20.16	20.26	209.922	23.22	24.00	Pass
60	5300	20.25	20.15	209.440	23.21	24.00	Pass
64	5320	20.22	20.11	207.761	23.18	24.00	Pass
100	5500	20.16	20.29	210.658	23.24	24.00	Pass
116	5580	20.19	20.26	210.642	23.24	24.00	Pass
140	5700	20.12	20.27	209.216	23.21	24.00	Pass
144	5720 For U-NII-2C	16.34	15.95	87.720	19.43	22.86	Pass
144	5720 For U-NII-3	11.20	10.43	25.785	14.11	30.00	Pass

Note:

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

Chain 0

1. 11dBm + 10log (20.83) = 24.18 > 24dBm
2. 11dBm + 10log (20.89) = 24.19 > 24dBm
3. 11dBm + 10log (20.77) = 24.17 > 24dBm
4. 11dBm + 10log (20.82) = 24.18 > 24dBm
5. 11dBm + 10log (20.80) = 24.18 > 24dBm
6. 11dBm + 10log (20.60) = 24.13 > 24dBm
7. 11dBm + 10log (5725.00 - 5709.61) = 22.87 < 24dBm

Chain 1

1. 11dBm + 10log (20.73) = 24.16 > 24dBm
2. 11dBm + 10log (20.77) = 24.17 > 24dBm
3. 11dBm + 10log (20.72) = 24.16 > 24dBm
4. 11dBm + 10log (20.79) = 24.17 > 24dBm
5. 11dBm + 10log (20.67) = 24.15 > 24dBm
6. 11dBm + 10log (20.74) = 24.16 > 24dBm
7. 11dBm + 10log (5725.00 - 5709.63) = 22.86 < 24dBm

802.11ac (VHT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	20.32	20.12	210.448	23.23	24.00	Pass
60	5300	20.38	20.25	215.069	23.33	24.00	Pass
64	5320	20.26	20.17	210.162	23.23	24.00	Pass
100	5500	20.27	20.19	210.886	23.24	24.00	Pass
116	5580	20.34	20.37	217.036	23.37	24.00	Pass
140	5700	20.25	20.44	216.588	23.36	24.00	Pass
144	5720 For U-NII-2C	16.76	16.25	93.797	19.72	23.01	Pass
144	5720 For U-NII-3	11.07	8.58	20.943	13.21	30.00	Pass

Note:

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

Chain 0

1. 11dBm + 10log (21.75) = 24.37 > 24dBm
2. 11dBm + 10log (21.96) = 24.41 > 24dBm
3. 11dBm + 10log (21.90) = 24.40 > 24dBm
4. 11dBm + 10log (22.12) = 24.44 > 24dBm
5. 11dBm + 10log (21.77) = 24.37 > 24dBm
6. 11dBm + 10log (21.50) = 24.32 > 24dBm
7. 11dBm + 10log (5725.00 - 5709.04) = 23.03 < 24dBm

Chain 1

1. 11dBm + 10log (22.19) = 24.46 > 24dBm
2. 11dBm + 10log (21.67) = 24.35 > 24dBm
3. 11dBm + 10log (22.33) = 24.48 > 24dBm
4. 11dBm + 10log (21.69) = 24.36 > 24dBm
5. 11dBm + 10log (21.61) = 24.34 > 24dBm
6. 11dBm + 10log (21.57) = 24.33 > 24dBm
7. 11dBm + 10log (5725.00 - 5709.11) = 23.01 < 24dBm

802.11ac (VHT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	20.28	20.20	211.372	23.25	24.00	Pass
62	5310	20.27	20.32	214.061	23.31	24.00	Pass
102	5510	20.13	20.20	207.751	23.18	24.00	Pass
110	5550	20.16	20.30	210.905	23.24	24.00	Pass
134	5670	20.08	19.99	201.629	23.05	24.00	Pass
142	5710 For U-NII-2C	16.67	16.31	94.412	19.75	24.00	Pass
142	5710 For U-NII-3	6.52	8.43	12.122	10.84	30.00	Pass

Note:

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

Chain 0

1. 11dBm + 10log (42.33) = 27.26 > 24dBm
2. 11dBm + 10log (42.53) = 27.28 > 24dBm
3. 11dBm + 10log (42.41) = 27.27 > 24dBm
4. 11dBm + 10log (42.30) = 27.26 > 24dBm
5. 11dBm + 10log (42.11) = 27.24 > 24dBm
6. 11dBm + 10log (5725.00 - 5688.87) = 26.57 > 24dBm

Chain 1

1. 11dBm + 10log (42.61) = 27.29 > 24dBm
2. 11dBm + 10log (42.07) = 27.23 > 24dBm
3. 11dBm + 10log (42.13) = 27.24 > 24dBm
4. 11dBm + 10log (42.08) = 27.24 > 24dBm
5. 11dBm + 10log (42.20) = 27.25 > 24dBm
6. 11dBm + 10log (5725.00 - 5688.94) = 26.57 > 24dBm

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	20.40	20.22	214.844	23.32	24.00	Pass
106	5530	20.09	20.36	210.737	23.24	24.00	Pass
122	5610	20.15	20.27	209.929	23.22	24.00	Pass
138	5690 For U-NII-2C	17.70	16.88	112.485	20.51	24.00	Pass
138	5690 For U-NII-3	2.23	3.92	4.323	6.36	30.00	Pass

Note:

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

Chain 0

1. 11dBm + 10log (82.55) = 30.16 > 24dBm
2. 11dBm + 10log (82.58) = 30.16 > 24dBm
3. 11dBm + 10log (82.73) = 30.17 > 24dBm
4. 11dBm + 10log (5725.00 - 5648.61) = 29.83 > 24dBm

Chain 1

1. 11dBm + 10log (82.95) = 30.18 > 24dBm
2. 11dBm + 10log (82.65) = 30.17 > 24dBm
3. 11dBm + 10log (82.77) = 30.17 > 24dBm
4. 11dBm + 10log (5725.00 - 5648.41) = 29.84 > 24dBm

802.11ax (HE20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	20.38	20.15	212.658	23.28	24.00	Pass
60	5300	20.48	20.27	**218.101**	23.39	24.00	Pass
64	5320	20.36	20.19	213.115	23.29	24.00	Pass
100	5500	20.35	20.29	215.298	23.33	24.00	Pass
116	5580	20.46	20.48	**222.859**	23.48	24.00	Pass
140	5700	20.35	20.52	221.112	23.45	24.00	Pass
144	5720 For U-NII-2C	16.83	16.32	95.322	19.79	23.01	Pass
144	5720 For U-NII-3	11.14	8.62	21.231	13.27	30.00	Pass

Note:

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

Chain 0

1. 11dBm + 10log (21.75) = 24.37 > 24dBm
2. 11dBm + 10log (21.96) = 24.41 > 24dBm
3. 11dBm + 10log (21.90) = 24.40 > 24dBm
4. 11dBm + 10log (22.12) = 24.44 > 24dBm
5. 11dBm + 10log (21.77) = 24.37 > 24dBm
6. 11dBm + 10log (21.50) = 24.32 > 24dBm
7. 11dBm + 10log (5725.00 - 5709.04) = 23.03 < 24dBm

Chain 1

1. 11dBm + 10log (22.19) = 24.46 > 24dBm
2. 11dBm + 10log (21.67) = 24.35 > 24dBm
3. 11dBm + 10log (22.33) = 24.48 > 24dBm
4. 11dBm + 10log (21.69) = 24.36 > 24dBm
5. 11dBm + 10log (21.61) = 24.34 > 24dBm
6. 11dBm + 10log (21.57) = 24.33 > 24dBm
7. 11dBm + 10log (5725.00 - 5709.11) = 23.01 < 24dBm

802.11ax (HE40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	20.32	20.25	213.572	23.30	24.00	Pass
62	5310	20.31	20.39	216.795	23.36	24.00	Pass
102	5510	20.25	20.31	213.324	23.29	24.00	Pass
110	5550	20.26	20.39	215.565	23.34	24.00	Pass
134	5670	20.19	20.03	205.165	23.12	24.00	Pass
142	5710 For U-NII-2C	16.72	16.38	95.716	19.81	24.00	Pass
142	5710 For U-NII-3	6.55	8.47	12.223	10.87	30.00	Pass

Note:

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

Chain 0

1. 11dBm + 10log (42.33) = 27.26 > 24dBm
2. 11dBm + 10log (42.53) = 27.28 > 24dBm
3. 11dBm + 10log (42.41) = 27.27 > 24dBm
4. 11dBm + 10log (42.30) = 27.26 > 24dBm
5. 11dBm + 10log (42.11) = 27.24 > 24dBm
6. 11dBm + 10log (5725.00 - 5688.87) = 26.57 > 24dBm

Chain 1

1. 11dBm + 10log (42.61) = 27.29 > 24dBm
2. 11dBm + 10log (42.07) = 27.23 > 24dBm
3. 11dBm + 10log (42.13) = 27.24 > 24dBm
4. 11dBm + 10log (42.08) = 27.24 > 24dBm
5. 11dBm + 10log (42.20) = 27.25 > 24dBm
6. 11dBm + 10log (5725.00 - 5688.94) = 26.57 > 24dBm

802.11ax (HE80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	20.45	20.26	217.087	23.37	24.00	Pass
106	5530	20.21	20.41	214.855	23.32	24.00	Pass
122	5610	20.19	20.37	213.365	23.29	24.00	Pass
138	5690 For U-NII-2C	17.77	16.96	114.432	20.59	24.00	Pass
138	5690 For U-NII-3	2.26	3.98	4.371	6.41	30.00	Pass

Note:

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

Chain 0

1. 11dBm + 10log (82.55) = 30.16 > 24dBm
2. 11dBm + 10log (82.58) = 30.16 > 24dBm
3. 11dBm + 10log (82.73) = 30.17 > 24dBm
4. 11dBm + 10log (5725.00 - 5648.61) = 29.83 > 24dBm

Chain 1

1. 11dBm + 10log (82.95) = 30.18 > 24dBm
2. 11dBm + 10log (82.65) = 30.17 > 24dBm
3. 11dBm + 10log (82.77) = 30.17 > 24dBm
4. 11dBm + 10log (5725.00 - 5648.41) = 29.84 > 24dBm

Beamforming Mode

802.11ac (VHT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	20.32	20.12	210.448	23.23	24.00	Pass
60	5300	20.38	20.25	215.069	23.33	24.00	Pass
64	5320	20.26	20.17	210.162	23.23	24.00	Pass
100	5500	20.27	20.19	210.886	23.24	24.00	Pass
116	5580	20.34	20.37	217.036	23.37	24.00	Pass
140	5700	20.25	20.44	216.588	23.36	24.00	Pass
144	5720 For U-NII-2C	16.76	16.25	93.797	19.72	23.01	Pass
144	5720 For U-NII-3	11.07	8.58	20.943	13.21	30.00	Pass

Note:
1. 5260-5320MHz: Beamforming Directional gain = 5.28dBi < 6dBi, so the power limit is not reduced.
2. 5500-5720MHz: Beamforming Directional gain = 5.92dBi < 6dBi, so the power limit is not reduced.
3. 5745-5825MHz: Beamforming Directional gain = 5.81dBi < 6dBi, so the power limit is not reduced.

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

Chain 0

1. 11dBm + 10log (21.75) = 24.37 > 24dBm
2. 11dBm + 10log (21.96) = 24.41 > 24dBm
3. 11dBm + 10log (21.90) = 24.40 > 24dBm
4. 11dBm + 10log (22.12) = 24.44 > 24dBm
5. 11dBm + 10log (21.77) = 24.37 > 24dBm
6. 11dBm + 10log (21.50) = 24.32 > 24dBm
7. 11dBm + 10log (5725.00 - 5709.04) = 23.03 < 24dBm

Chain 1

1. 11dBm + 10log (22.19) = 24.46 > 24dBm
2. 11dBm + 10log (21.67) = 24.35 > 24dBm
3. 11dBm + 10log (22.33) = 24.48 > 24dBm
4. 11dBm + 10log (21.69) = 24.36 > 24dBm
5. 11dBm + 10log (21.61) = 24.34 > 24dBm
6. 11dBm + 10log (21.57) = 24.33 > 24dBm
7. 11dBm + 10log (5725.00 - 5709.11) = 23.01 < 24dBm

802.11ac (VHT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	20.28	20.20	211.372	23.25	24.00	Pass
62	5310	20.27	20.32	214.061	23.31	24.00	Pass
102	5510	20.13	20.20	207.751	23.18	24.00	Pass
110	5550	20.16	20.30	210.905	23.24	24.00	Pass
134	5670	20.08	19.99	201.629	23.05	24.00	Pass
142	5710 For U-NII-2C	16.67	16.31	94.412	19.75	24.00	Pass
142	5710 For U-NII-3	6.52	8.43	12.122	10.84	30.00	Pass

Note:
1. 5260-5320MHz: Beamforming Directional gain = 5.28dBi < 6dBi, so the power limit is not reduced.
2. 5500-5720MHz: Beamforming Directional gain = 5.92dBi < 6dBi, so the power limit is not reduced.
3. 5745-5825MHz: Beamforming Directional gain = 5.81dBi < 6dBi, so the power limit is not reduced.

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

Chain 0

1. 11dBm + 10log (42.33) = 27.26 > 24dBm
2. 11dBm + 10log (42.53) = 27.28 > 24dBm
3. 11dBm + 10log (42.41) = 27.27 > 24dBm
4. 11dBm + 10log (42.30) = 27.26 > 24dBm
5. 11dBm + 10log (42.11) = 27.24 > 24dBm
6. 11dBm + 10log (5725.00 - 5688.87) = 26.57 > 24dBm

Chain 1

1. 11dBm + 10log (42.61) = 27.29 > 24dBm
2. 11dBm + 10log (42.07) = 27.23 > 24dBm
3. 11dBm + 10log (42.13) = 27.24 > 24dBm
4. 11dBm + 10log (42.08) = 27.24 > 24dBm
5. 11dBm + 10log (42.20) = 27.25 > 24dBm
6. 11dBm + 10log (5725.00 - 5688.94) = 26.57 > 24dBm

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	20.40	20.22	214.844	23.32	24.00	Pass
106	5530	20.09	20.36	210.737	23.24	24.00	Pass
122	5610	20.15	20.27	209.929	23.22	24.00	Pass
138	5690 For U-NII-2C	17.70	16.88	112.485	20.51	24.00	Pass
138	5690 For U-NII-3	2.23	3.92	4.323	6.36	30.00	Pass

Note:
1. 5260-5320MHz: Beamforming Directional gain = 5.28dBi < 6dBi, so the power limit is not reduced.
2. 5500-5720MHz: Beamforming Directional gain = 5.92dBi < 6dBi, so the power limit is not reduced.
3. 5745-5825MHz: Beamforming Directional gain = 5.81dBi < 6dBi, so the power limit is not reduced.

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

Chain 0

1. 11dBm + 10log (82.55) = 30.16 > 24dBm
2. 11dBm + 10log (82.58) = 30.16 > 24dBm
3. 11dBm + 10log (82.73) = 30.17 > 24dBm
4. 11dBm + 10log (5725.00 - 5648.61) = 29.83 > 24dBm

Chain 1

1. 11dBm + 10log (82.95) = 30.18 > 24dBm
2. 11dBm + 10log (82.65) = 30.17 > 24dBm
3. 11dBm + 10log (82.77) = 30.17 > 24dBm
4. 11dBm + 10log (5725.00 - 5648.41) = 29.84 > 24dBm

802.11ax (HE20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	20.38	20.15	212.658	23.28	24.00	Pass
60	5300	20.48	20.27	**218.101**	23.39	24.00	Pass
64	5320	20.36	20.19	213.115	23.29	24.00	Pass
100	5500	20.35	20.29	215.298	23.33	24.00	Pass
116	5580	20.46	20.48	**222.859**	23.48	24.00	Pass
140	5700	20.35	20.52	221.112	23.45	24.00	Pass
144	5720 For U-NII-2C	16.83	16.32	95.322	19.79	23.01	Pass
144	5720 For U-NII-3	11.14	8.62	21.231	13.27	30.00	Pass

Note:
1. 5260-5320MHz: Beamforming Directional gain = 5.28dBi < 6dBi, so the power limit is not reduced.
2. 5500-5720MHz: Beamforming Directional gain = 5.92dBi < 6dBi, so the power limit is not reduced.
3. 5745-5825MHz: Beamforming Directional gain = 5.81dBi < 6dBi, so the power limit is not reduced.

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

Chain 0

1. 11dBm + 10log (21.75) = 24.37 > 24dBm
2. 11dBm + 10log (21.96) = 24.41 > 24dBm
3. 11dBm + 10log (21.90) = 24.40 > 24dBm
4. 11dBm + 10log (22.12) = 24.44 > 24dBm
5. 11dBm + 10log (21.77) = 24.37 > 24dBm
6. 11dBm + 10log (21.50) = 24.32 > 24dBm
7. 11dBm + 10log (5725.00 - 5709.04) = 23.03 < 24dBm

Chain 1

1. 11dBm + 10log (22.19) = 24.46 > 24dBm
2. 11dBm + 10log (21.67) = 24.35 > 24dBm
3. 11dBm + 10log (22.33) = 24.48 > 24dBm
4. 11dBm + 10log (21.69) = 24.36 > 24dBm
5. 11dBm + 10log (21.61) = 24.34 > 24dBm
6. 11dBm + 10log (21.57) = 24.33 > 24dBm
7. 11dBm + 10log (5725.00 - 5709.11) = 23.01 < 24dBm

802.11ax (HE40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	20.32	20.25	213.572	23.30	24.00	Pass
62	5310	20.31	20.39	216.795	23.36	24.00	Pass
102	5510	20.25	20.31	213.324	23.29	24.00	Pass
110	5550	20.26	20.39	215.565	23.34	24.00	Pass
134	5670	20.19	20.03	205.165	23.12	24.00	Pass
142	5710 For U-NII-2C	16.72	16.38	95.716	19.81	24.00	Pass
142	5710 For U-NII-3	6.55	8.47	12.223	10.87	30.00	Pass

Note:
1. 5260-5320MHz: Beamforming Directional gain = 5.28dBi < 6dBi, so the power limit is not reduced.
2. 5500-5720MHz: Beamforming Directional gain = 5.92dBi < 6dBi, so the power limit is not reduced.
3. 5745-5825MHz: Beamforming Directional gain = 5.81dBi < 6dBi, so the power limit is not reduced.

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

Chain 0

1. 11dBm + 10log (42.33) = 27.26 > 24dBm
2. 11dBm + 10log (42.53) = 27.28 > 24dBm
3. 11dBm + 10log (42.41) = 27.27 > 24dBm
4. 11dBm + 10log (42.30) = 27.26 > 24dBm
5. 11dBm + 10log (42.11) = 27.24 > 24dBm
6. 11dBm + 10log (5725.00 - 5688.87) = 26.57 > 24dBm

Chain 1

1. 11dBm + 10log (42.61) = 27.29 > 24dBm
2. 11dBm + 10log (42.07) = 27.23 > 24dBm
3. 11dBm + 10log (42.13) = 27.24 > 24dBm
4. 11dBm + 10log (42.08) = 27.24 > 24dBm
5. 11dBm + 10log (42.20) = 27.25 > 24dBm
6. 11dBm + 10log (5725.00 - 5688.94) = 26.57 > 24dBm

802.11ax (HE80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	20.45	20.26	217.087	23.37	24.00	Pass
106	5530	20.21	20.41	214.855	23.32	24.00	Pass
122	5610	20.19	20.37	213.365	23.29	24.00	Pass
138	5690 For U-NII-2C	17.77	16.96	114.432	20.59	24.00	Pass
138	5690 For U-NII-3	2.26	3.98	4.371	6.41	30.00	Pass

Note:
1. 5260-5320MHz: Beamforming Directional gain = 5.28dBi < 6dBi, so the power limit is not reduced.
2. 5500-5720MHz: Beamforming Directional gain = 5.92dBi < 6dBi, so the power limit is not reduced.
3. 5745-5825MHz: Beamforming Directional gain = 5.81dBi < 6dBi, so the power limit is not reduced.

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

Chain 0

1. 11dBm + 10log (82.55) = 30.16 > 24dBm
2. 11dBm + 10log (82.58) = 30.16 > 24dBm
3. 11dBm + 10log (82.73) = 30.17 > 24dBm
4. 11dBm + 10log (5725.00 - 5648.61) = 29.83 > 24dBm

Chain 1

1. 11dBm + 10log (82.95) = 30.18 > 24dBm
2. 11dBm + 10log (82.65) = 30.17 > 24dBm
3. 11dBm + 10log (82.77) = 30.17 > 24dBm
4. 11dBm + 10log (5725.00 - 5648.41) = 29.84 > 24dBm

26dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.83	20.73
60	5300	20.89	20.77
64	5320	20.77	20.72
100	5500	20.82	20.79
116	5580	20.80	20.67
140	5700	20.60	20.74
144	5720 For U-NII-2C	15.39	15.37

802.11ax (HE20)

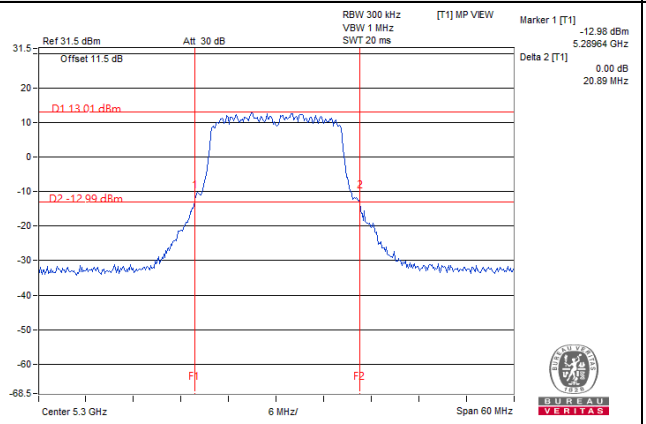
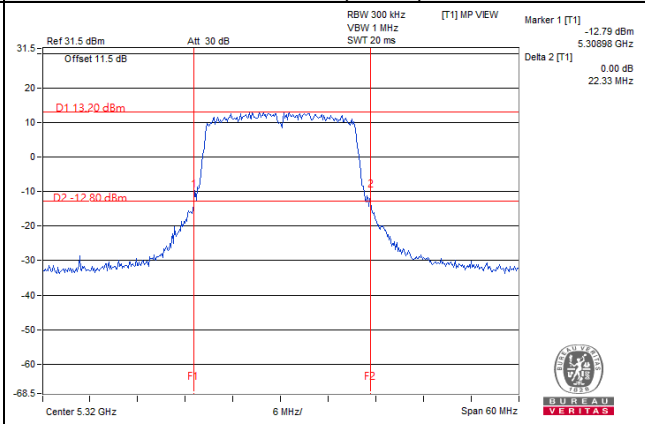
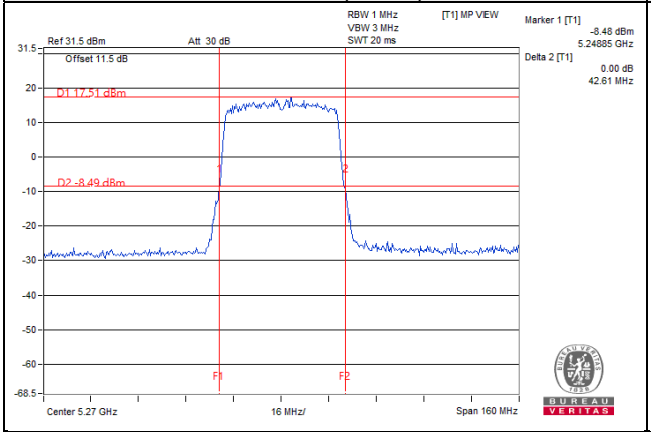
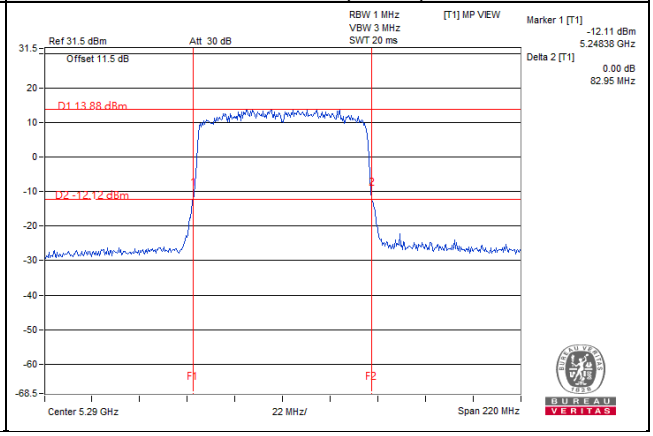
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	21.75	22.19
60	5300	21.96	21.67
64	5320	21.90	22.33
100	5500	22.12	21.69
116	5580	21.77	21.61
140	5700	21.50	21.57
144	5720 For U-NII-2C	15.96	15.89

802.11ax (HE40)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	42.33	42.61
62	5310	42.53	42.07
102	5510	42.41	42.13
110	5550	42.30	42.08
134	5670	42.11	42.20
142	5710 For U-NII-2C	36.13	36.06

802.11ax (HE80)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	82.55	82.95
106	5530	82.58	82.65
122	5610	82.73	82.77
138	5690 For U-NII-2C	76.39	76.59

Spectrum Plot of Worst Value	
802.11a	802.11ax (HE20)
	
802.11ax (HE40)	802.11ax (HE80)
	

EUT Maximum Conducted Power

CDD

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	209.922	23.22
5470~5725	210.658	23.24

802.11ac (VHT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	215.069	23.33
5470~5725	217.036	23.37

802.11ac (VHT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	214.061	23.31
5470~5725	210.905	23.24

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	214.844	23.32
5470~5725	210.737	23.24

802.11ax (HE20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	218.101	23.39
5470~5725	222.859	23.48

802.11ax (HE40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	216.795	23.36
5470~5725	215.565	23.34

802.11ax (HE80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	217.087	23.37
5470~5725	214.855	23.32

Beamforming Mode

802.11ac (VHT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	215.069	23.33
5470~5725	217.036	23.37

802.11ac (VHT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	214.061	23.31
5470~5725	210.905	23.24

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	214.844	23.32
5470~5725	210.737	23.24

802.11ax (HE20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	218.101	23.39
5470~5725	222.859	23.48

802.11ax (HE40)

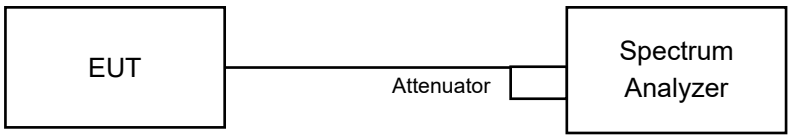
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	216.795	23.36
5470~5725	215.565	23.34

802.11ax (HE80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	217.087	23.37
5470~5725	214.855	23.32

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 sampling. 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 Result

802.11a

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

802.11ax (HE20)

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

802.11ax (HE40)

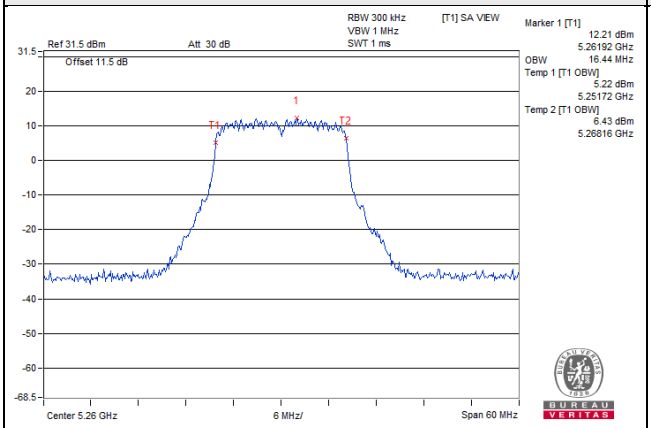
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	38.04	38.16
62	5310	37.92	38.04
102	5510	38.04	38.04
110	5550	37.92	38.04
134	5670	38.04	38.04
142	5710 For U-NII-2C	34.08	33.96
142	5710 For U-NII-3	3.96	3.96

802.11ax (HE80)

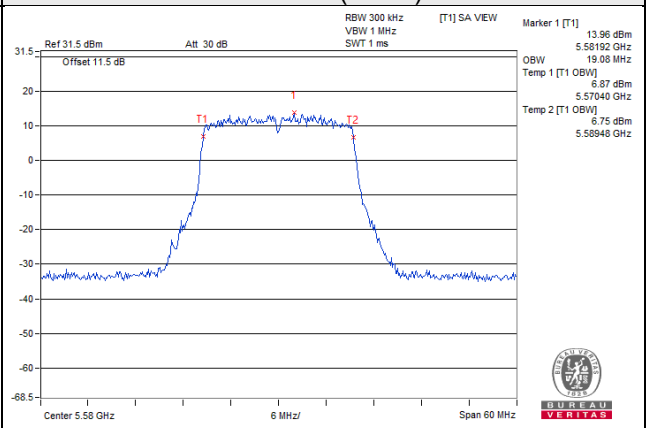
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	77.28	77.28
106	5530	77.28	77.28
122	5610	77.28	77.52
138	5690 For U-NII-2C	73.64	73.88
138	5690 For U-NII-3	3.64	3.40

Spectrum Plot of Worst Value

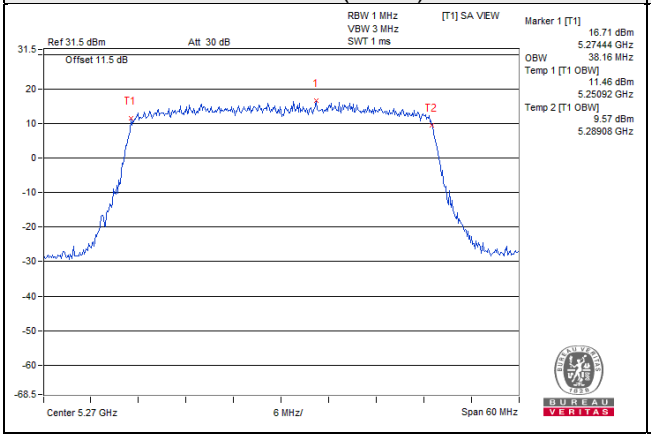
802.11a



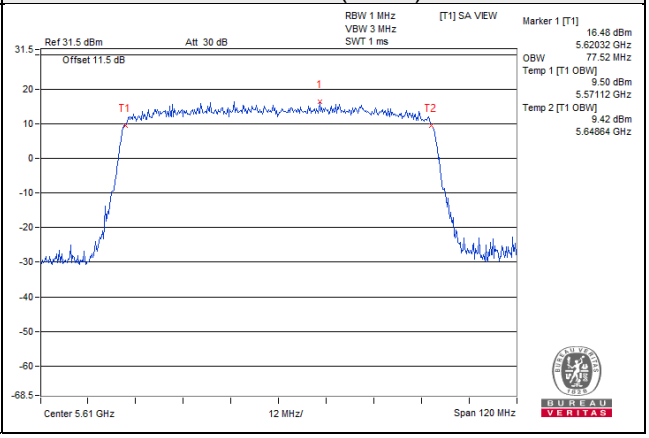
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)

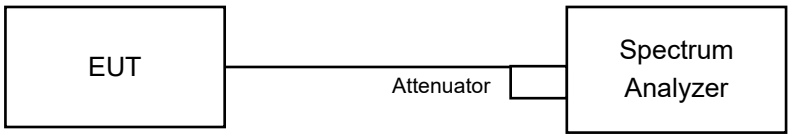


4.5 Peak Power Spectral Density Measurement

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	
		Mobile and Portable 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 Procedures

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

Duty cycle of test signal is < 98%
Using method SA-2
1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1MHz, 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
Duty cycle <98%

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as 4.3.6.

4.5.7 Test Results

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

802.11a

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
52	5260	7.03	7.28	0.27	10.44	11.00	Pass
60	5300	7.29	7.29	0.27	10.57	11.00	Pass
64	5320	7.46	6.87	0.27	10.46	11.00	Pass
100	5500	7.00	7.42	0.27	10.50	11.00	Pass
116	5580	7.30	7.35	0.27	10.61	11.00	Pass
140	5700	7.19	7.32	0.27	10.54	11.00	Pass
144	5720 For U-NII-2C	7.16	7.23	0.27	10.48	11.00	Pass

Note:
1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. 5260-5320MHz: Directional gain = 5.28dBi < 6dBi, so the power limit is not reduced.
   5500-5720MHz: Directional gain = 5.92dBi < 6dBi, so the power limit is not reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
52	5260	6.98	6.66	0.20	10.03	11.00	Pass
60	5300	7.31	6.60	0.20	10.18	11.00	Pass
64	5320	7.06	6.55	0.20	10.02	11.00	Pass
100	5500	6.93	6.94	0.20	10.15	11.00	Pass
116	5580	6.66	7.05	0.20	10.07	11.00	Pass
140	5700	6.83	7.18	0.20	10.22	11.00	Pass
144	5720 For U-NII-2C	6.93	6.76	0.20	10.06	11.00	Pass

Note:
1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. 5260-5320MHz: Directional gain = 5.28dBi < 6dBi, so the power limit is not reduced.
   5500-5720MHz: Directional gain = 5.92dBi < 6dBi, so the power limit is not reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

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802.11ax (HE40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
54	5270	3.89	3.58	0.25	7.00	11.00	Pass
62	5310	3.43	3.81	0.25	6.88	11.00	Pass
102	5510	3.86	2.75	0.25	6.60	11.00	Pass
110	5550	3.35	3.64	0.25	6.76	11.00	Pass
134	5670	3.52	2.86	0.25	6.46	11.00	Pass
142	5710 For U-NII-2C	3.19	3.71	0.25	6.72	11.00	Pass

Note:
1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. 5260-5320MHz: Directional gain = 5.28dBi < 6dBi, so the power limit is not reduced.
   5500-5720MHz: Directional gain = 5.92dBi < 6dBi, so the power limit is not reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
58	5290	0.45	0.93	0.29	4.00	11.00	Pass
106	5530	0.05	0.60	0.29	3.63	11.00	Pass
122	5610	0.38	0.86	0.29	3.93	11.00	Pass
138	5690 For U-NII-2C	0.89	0.67	0.29	4.08	11.00	Pass

Note:
1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. 5260-5320MHz: Directional gain = 5.28dBi < 6dBi, so the power limit is not reduced.
   5500-5720MHz: Directional gain = 5.92dBi < 6dBi, so the power limit is not reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

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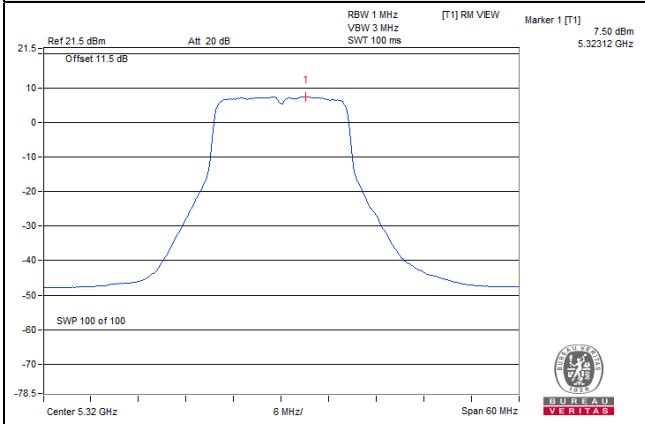
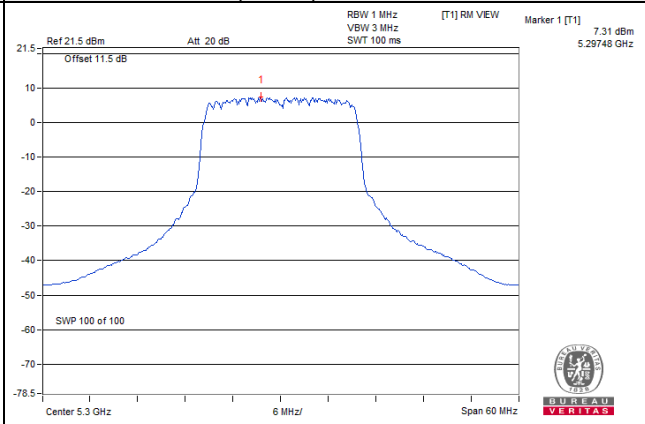
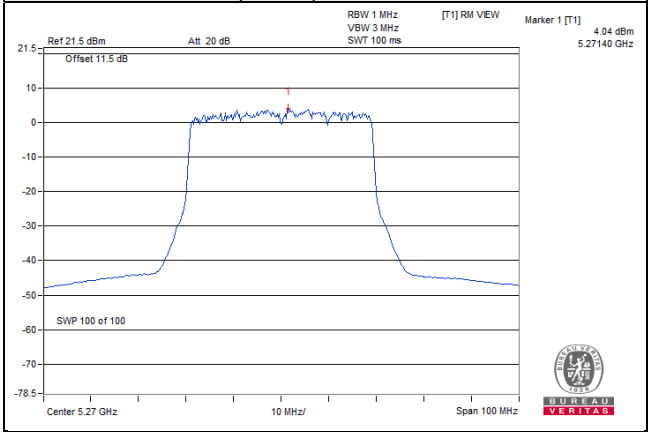
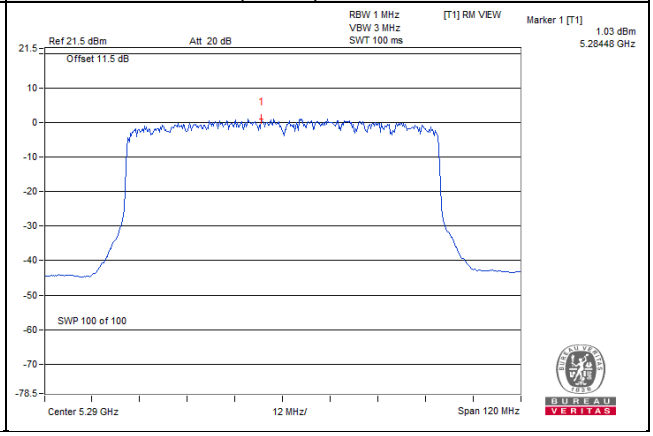
Spectrum Plot of Worst Value	
802.11a / Chain 0 / CH 64	802.11ax (HE20) / Chain 0 / CH 60
	
802.11ax (HE40) / Chain 0 / CH 54	802.11ax (HE80) / Chain 1 / CH 58
	

For U-NII-3 band:

802.11a

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/ 500kHz)	Limit (dBm/ 500kHz)	Pass / Fail
			(dBm/ 300kHz)	(dBm/ 500kHz)					
0	144	5720 For U-NII-3	-1.70	0.52	3.01	0.27	3.80	30.00	Pass
1	144	5720 For U-NII-3	-1.49	0.73	3.01	0.27	4.01	30.00	Pass

Note:
1. Method E)2)c) 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. Directional gain = 5.81dBi < 6dBi, so the power density limit is not reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/ 500kHz)	Limit (dBm/ 500kHz)	Pass / Fail
			(dBm/ 300kHz)	(dBm/ 500kHz)					
0	144	5720 For U-NII-3	-2.90	-0.68	3.01	0.20	2.53	30.00	Pass
1	144	5720 For U-NII-3	-2.98	-0.76	3.01	0.20	2.45	30.00	Pass

Note:
1. Method E)2)c) 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. Directional gain = 5.81dBi < 6dBi, so the power density limit is not reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/ 500kHz)	Limit (dBm/ 500kHz)	Pass / Fail
			(dBm/ 300kHz)	(dBm/ 500kHz)					
0	142	5710 For U-NII-3	-7.04	-4.82	3.01	0.25	-1.56	30.00	Pass
1	142	5710 For U-NII-3	-6.91	-4.69	3.01	0.25	-1.43	30.00	Pass

Note:
1. Method E)2)c) 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. Directional gain = 5.81dBi < 6dBi, so the power density limit is not reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

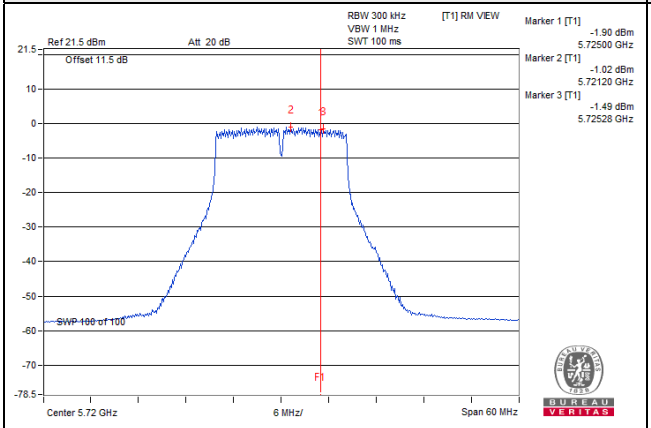
802.11ax (HE80)

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/ 500kHz)	Limit (dBm/ 500kHz)	Pass / Fail
			(dBm/ 300kHz)	(dBm/ 500kHz)					
0	138	5690 For U-NII-3	-10.90	-8.68	3.01	0.29	-5.38	30.00	Pass
1	138	5690 For U-NII-3	-10.70	-8.48	3.01	0.29	-5.18	30.00	Pass

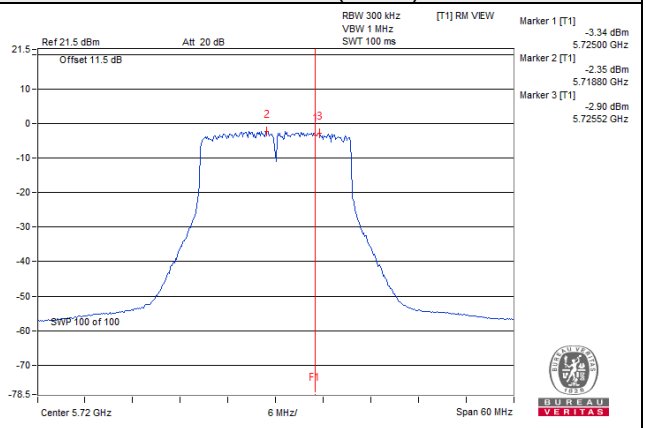
Note:
1. Method E)2)c) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5.81dBi < 6dBi, so the power density limit is not reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

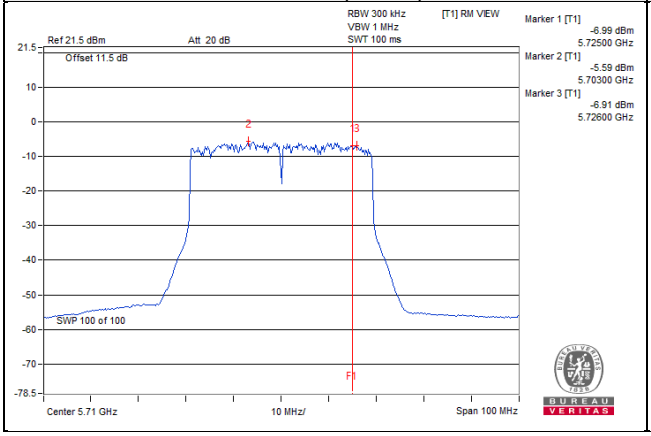
802.11a



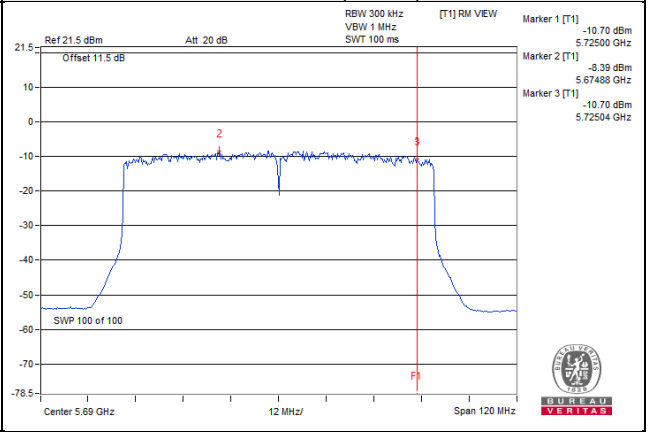
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)

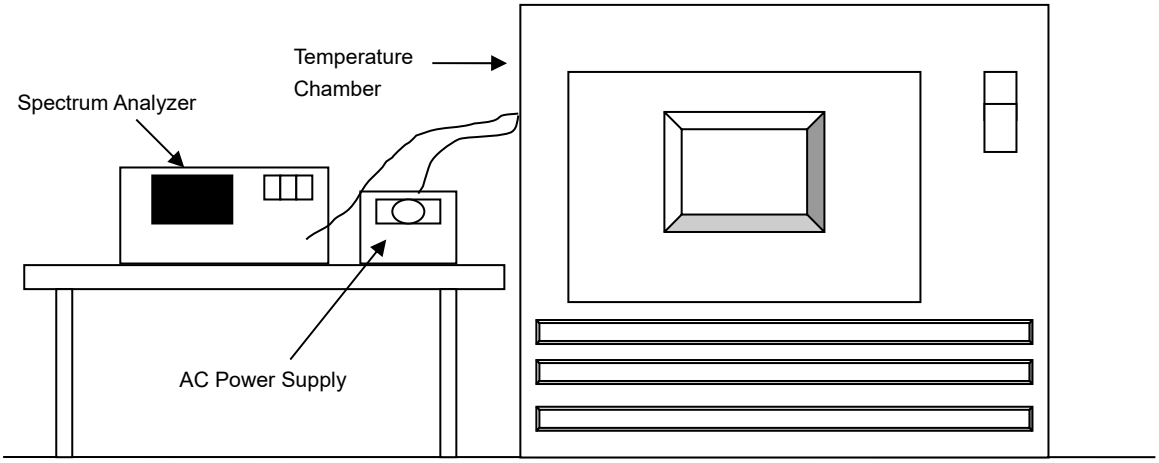


4.6 Frequency Stability

4.6.1 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
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 12, 2020	Jun. 11, 2021
Standard Temperature And Humidity Chamber	MHU-225AU	920842	May 28, 2020	May 27, 2021
Digital Multimeter Fluke	87-III	70360742	Jun. 23, 2020	Jun. 22, 2021
AC Power Supply Extech	CFW-105	E000603	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.4 Test Procedure

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5260MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
50	120	5260.0077	PASS	5260.0039	PASS	5260.0075	PASS	5260.0086	PASS
40	120	5259.9966	PASS	5259.9980	PASS	5259.9958	PASS	5259.9955	PASS
30	120	5260.0184	PASS	5260.0169	PASS	5260.0157	PASS	5260.0168	PASS
20	120	5260.0176	PASS	5260.0181	PASS	5260.0144	PASS	5260.0187	PASS
10	120	5260.0262	PASS	5260.0216	PASS	5260.0249	PASS	5260.0237	PASS
0	120	5259.9872	PASS	5259.9836	PASS	5259.9830	PASS	5259.9821	PASS
-10	120	5259.9884	PASS	5259.9848	PASS	5259.9869	PASS	5259.9871	PASS

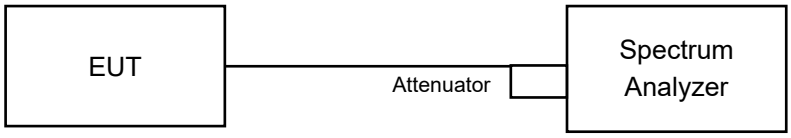
Frequency Stability Versus Voltage									
Operating Frequency: 5260MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5260.0168	PASS	5260.0172	PASS	5260.0153	PASS	5260.0185	PASS
	120	5260.0176	PASS	5260.0181	PASS	5260.0144	PASS	5260.0187	PASS
	102	5260.0183	PASS	5260.0181	PASS	5260.0140	PASS	5260.0187	PASS

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

Measurement Procedure REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

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

802.11ax (HE20)

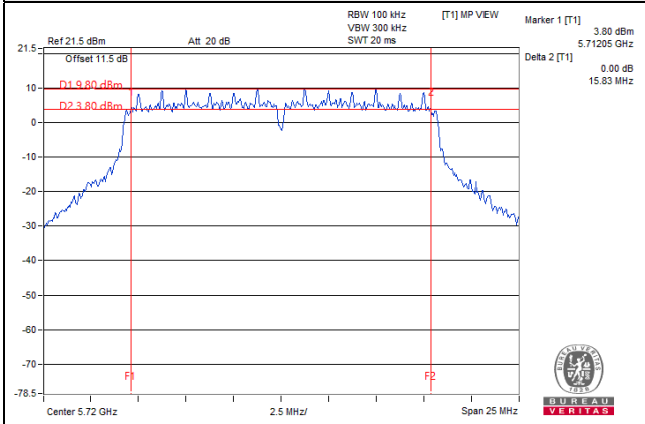
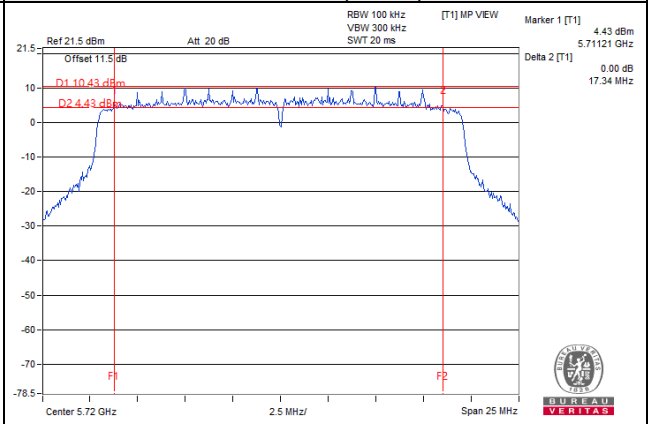
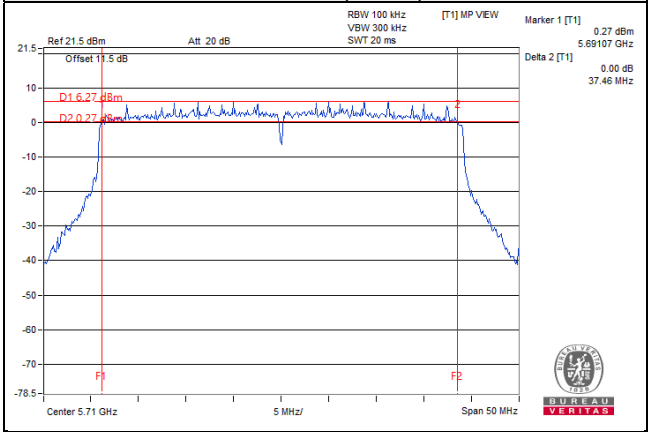
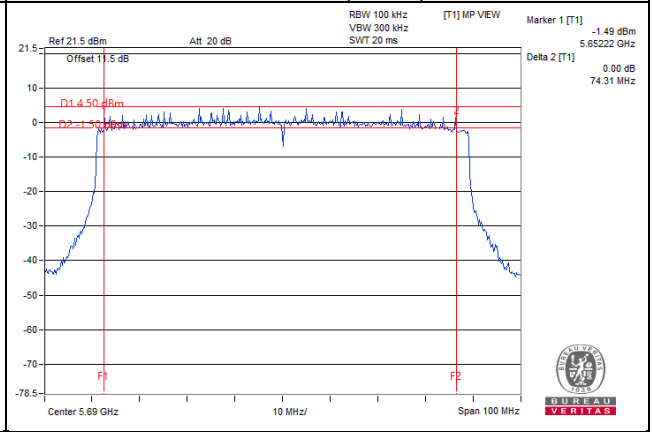
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144	5720 For U-NII-3	4.20	3.55	0.5	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
142	5710 For U-NII-3	3.78	3.53	0.5	Pass

802.11ax (HE80)

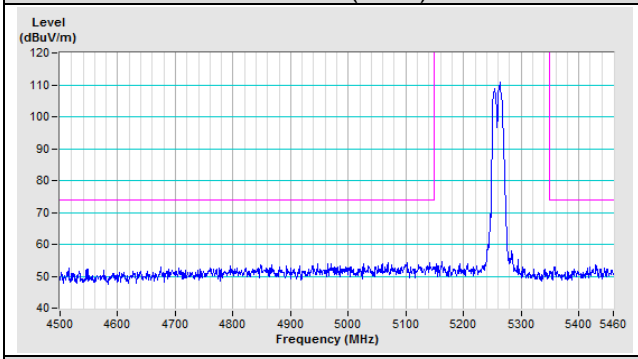
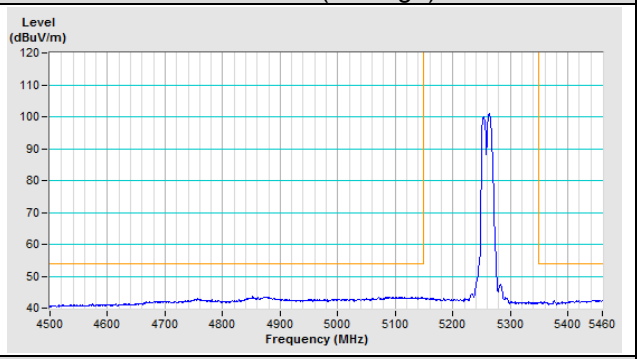
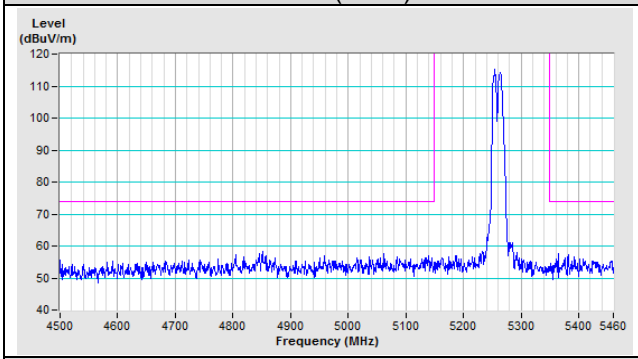
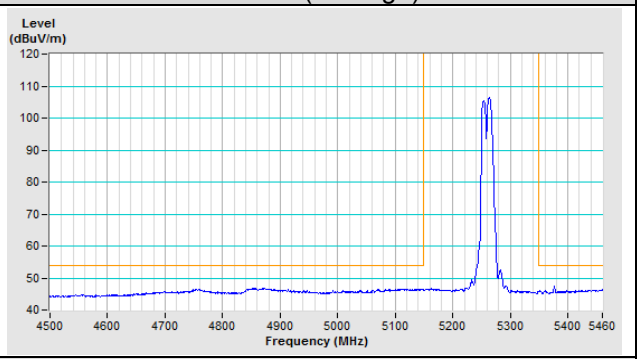
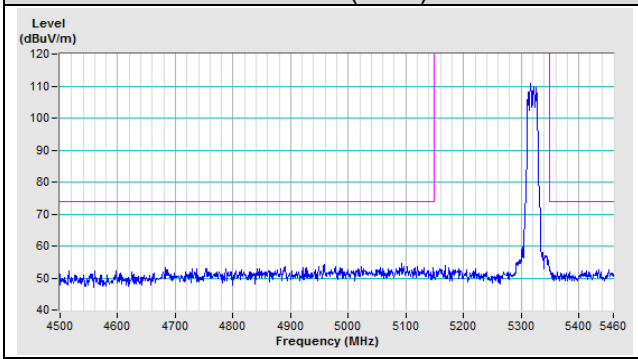
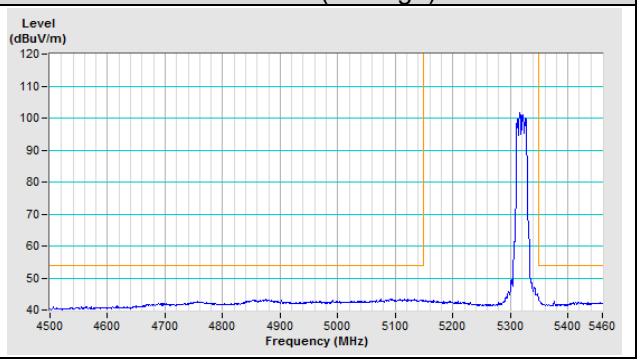
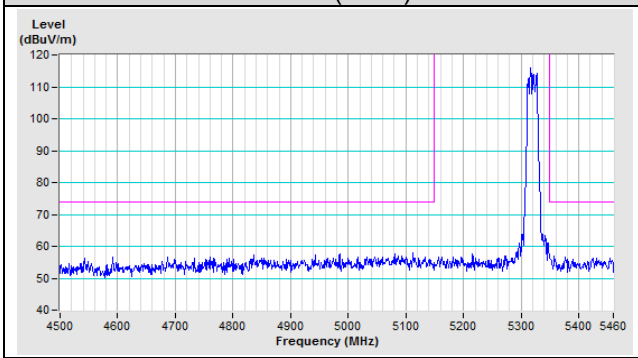
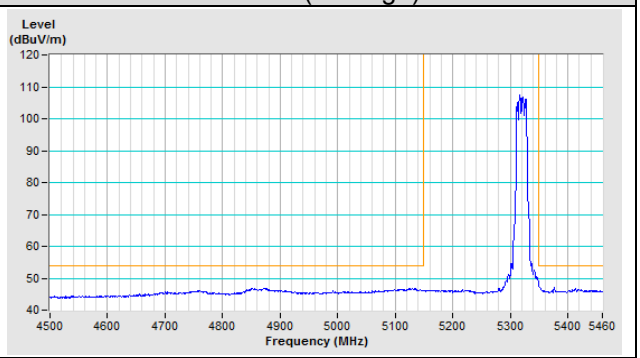
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
138	5690 For U-NII-3	1.53	2.73	0.5	Pass

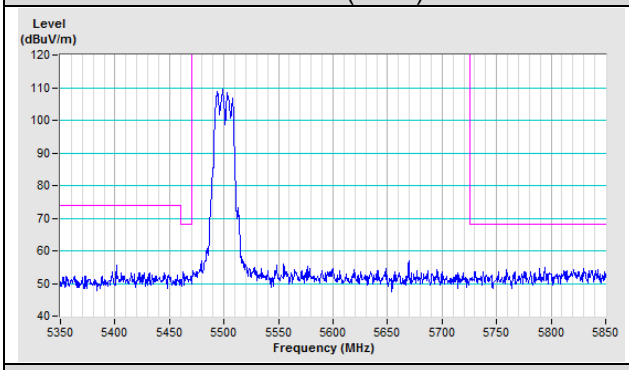
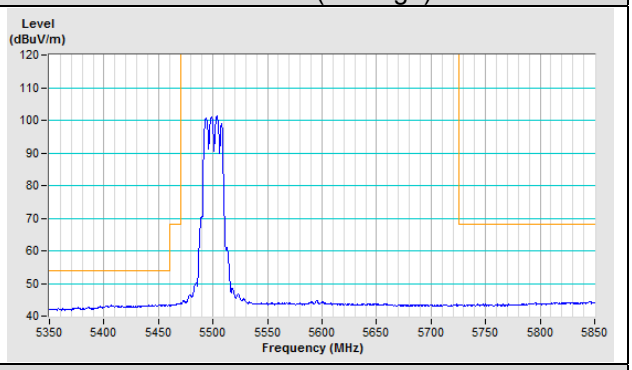
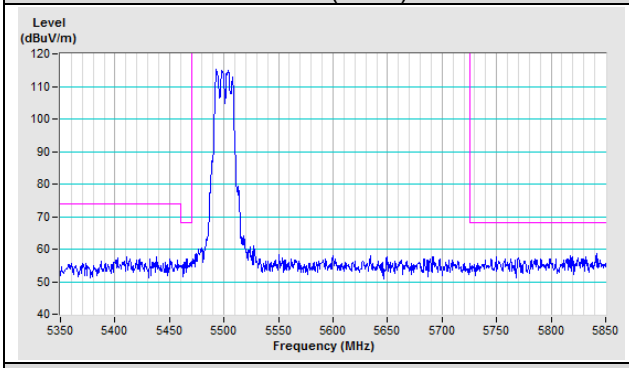
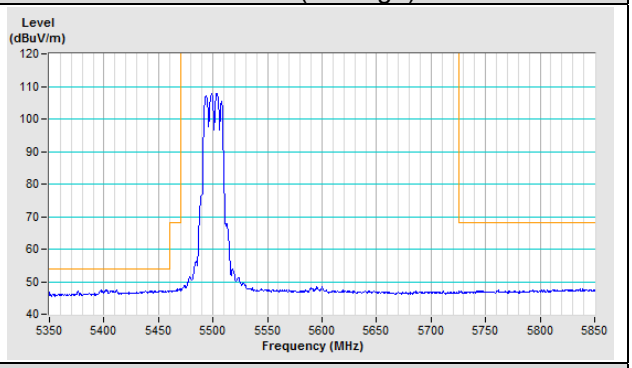
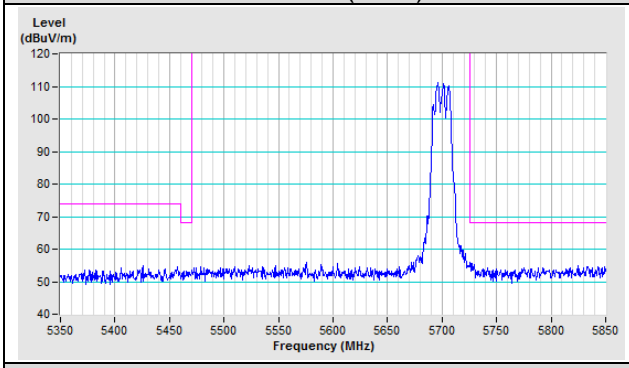
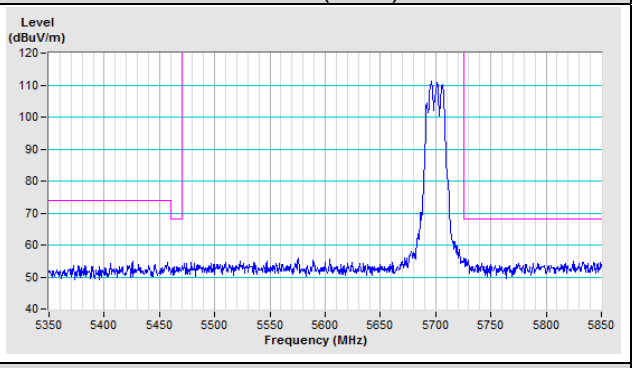
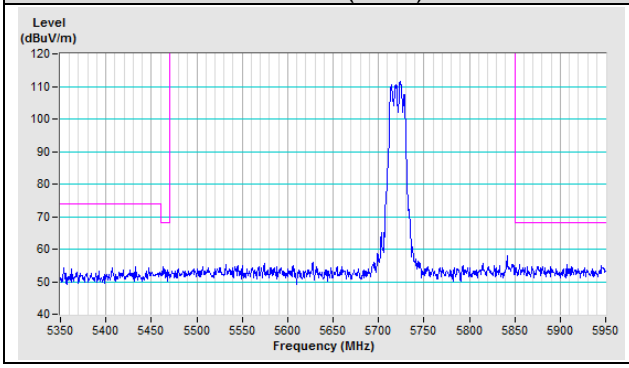
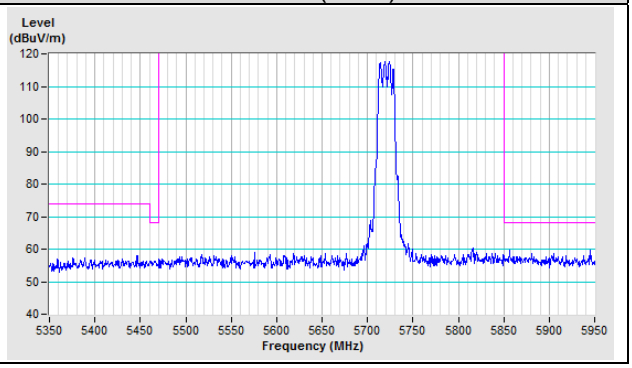
Spectrum Plot of Worst Value	
802.11a	802.11ax (HE20)
	
802.11ax (HE40)	802.11ax (HE80)
	

*802.11a: Ch 144 (5720MHz for U-NII-3): 15.83-(5725-5712.05) = 2.88
*802.11ax (HE20): Ch 144 (5720MHz for U-NII-3): 17.34-(5725-5711.21) = 3.55
*802.11ax (HE40): Ch 142 (5710MHz for U-NII-3): 37.46-(5725-5691.07) = 3.53
*802.11ax (HE80): Ch 138 (5690MHz for U-NII-3): 74.31-(5725-5652.22) = 1.53

Annex A- Band Edge Measurement

802.11a

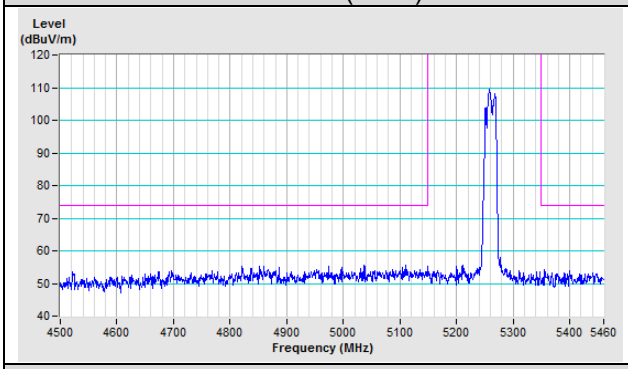
Channel 52	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
Channel 64	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

Channel 100	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
Channel 140	
Horizontal (Peak)	Vertical (Peak)
	
Channel 144	
Horizontal (Peak)	Vertical (Peak)
	

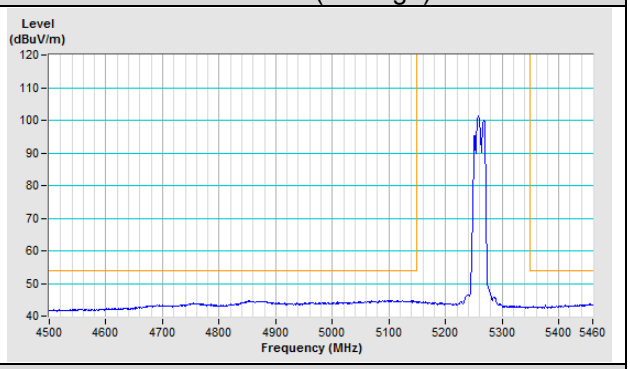
802.11ax (HE20)

Channel 52

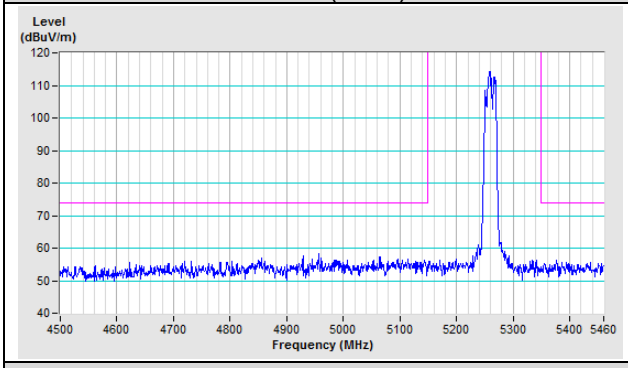
Horizontal (Peak)



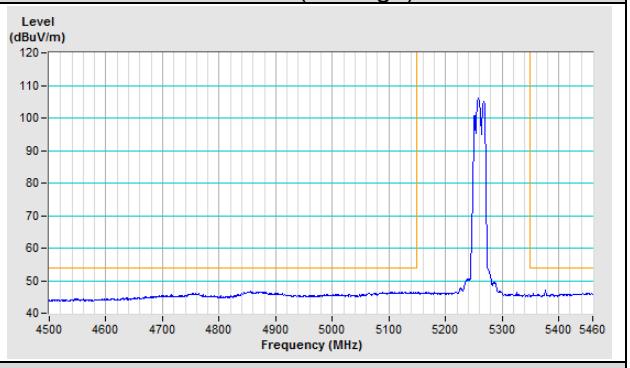
Horizontal (Average)



Vertical (Peak)

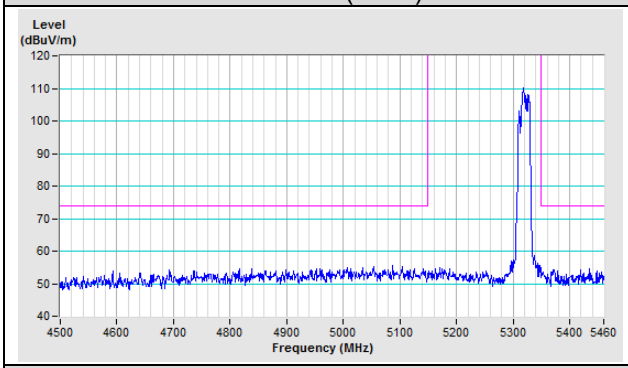


Vertical (Average)

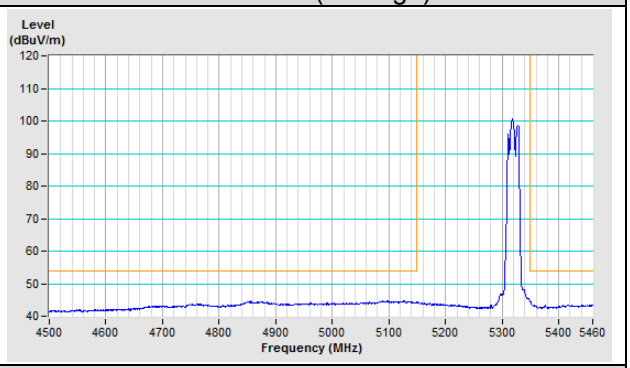


Channel 64

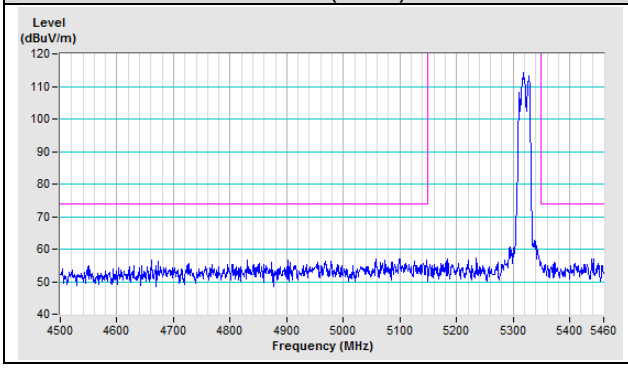
Horizontal (Peak)



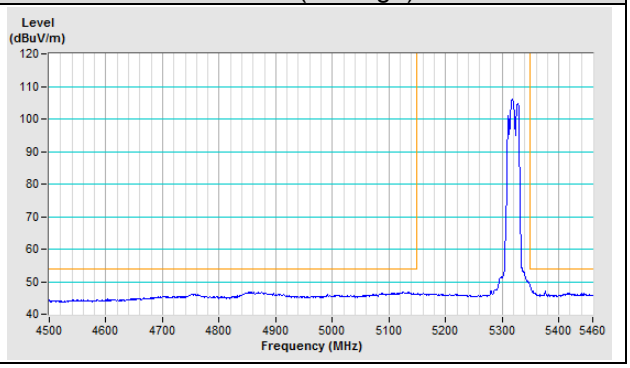
Horizontal (Average)

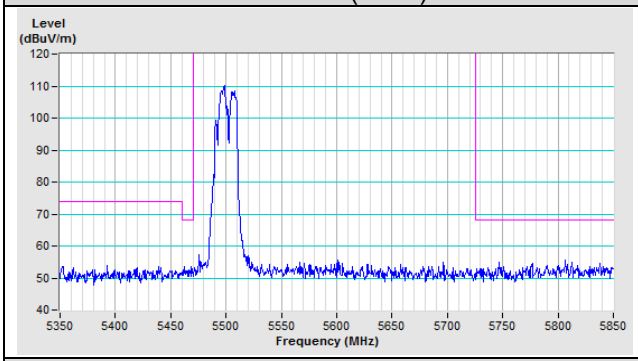
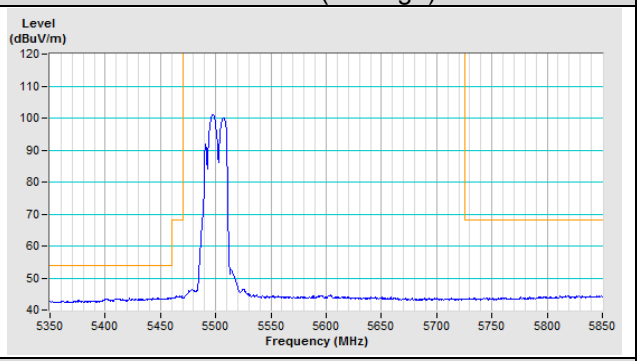
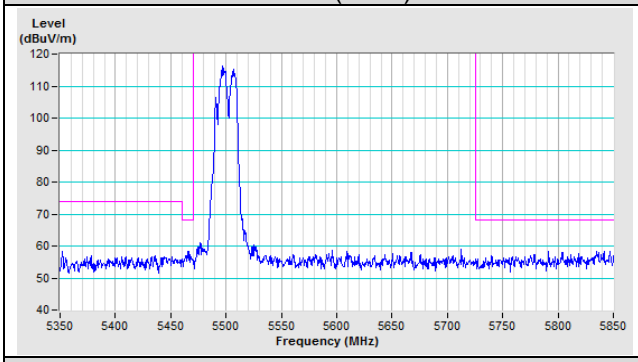
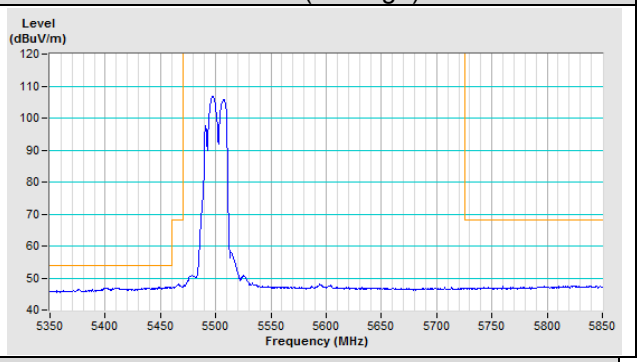


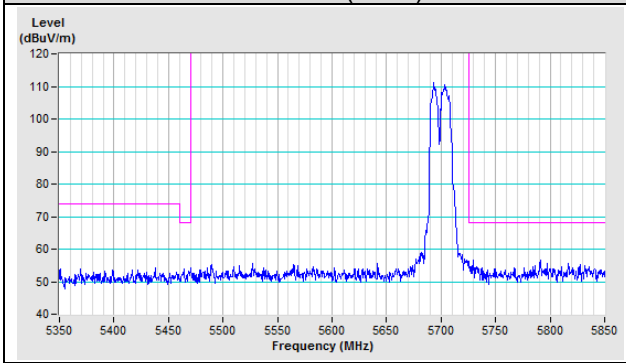
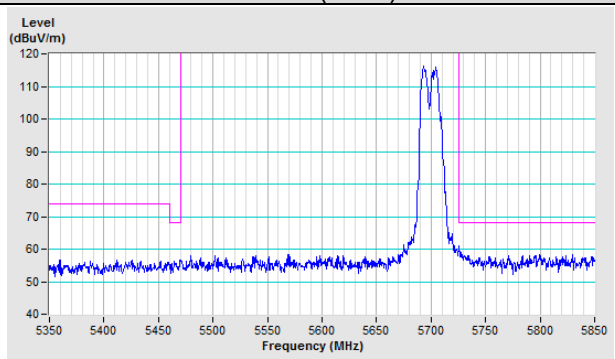
Vertical (Peak)

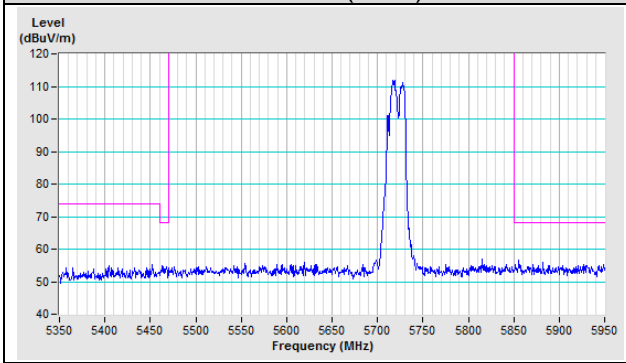
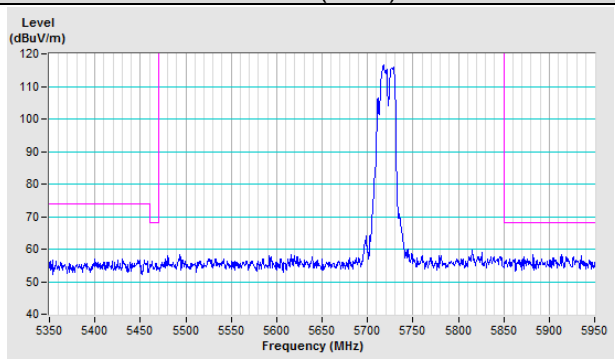


Vertical (Average)



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

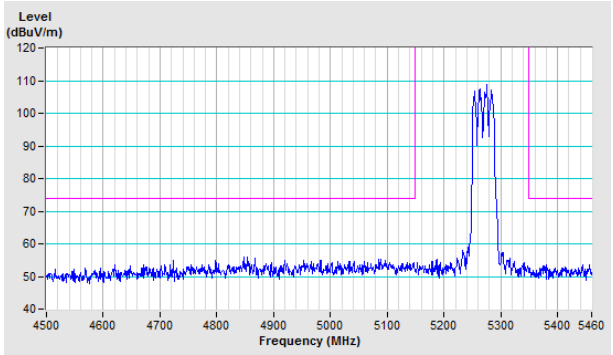
Channel 140	
Horizontal (Peak)	Vertical (Peak)
	

Channel 144	
Horizontal (Peak)	Vertical (Peak)
	

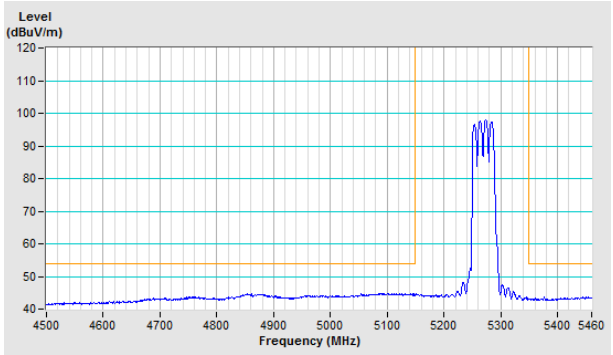
802.11ax (HE40)

Channel 54

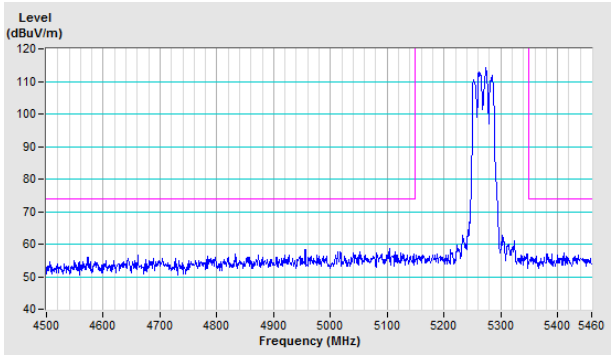
Horizontal (Peak)



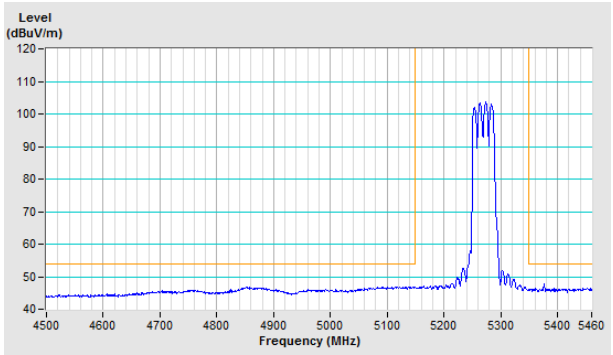
Horizontal (Average)



Vertical (Peak)

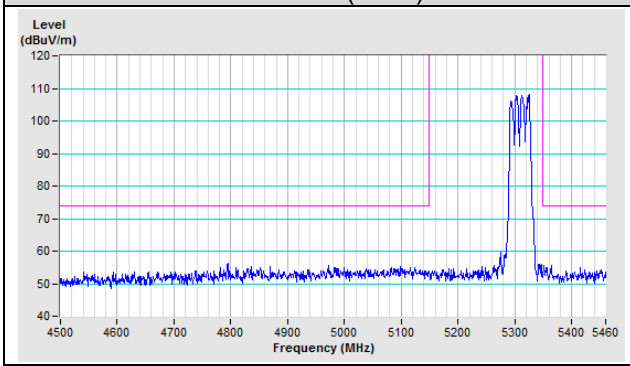


Vertical (Average)

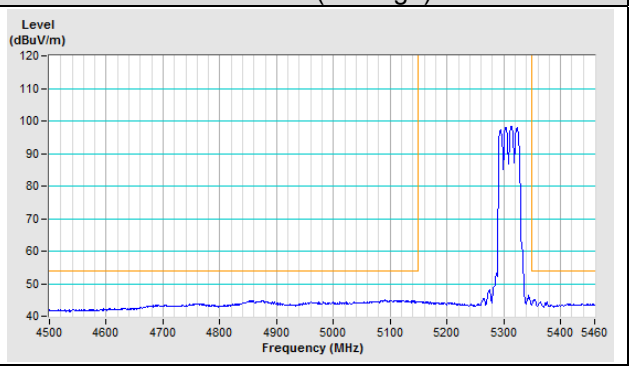


Channel 62

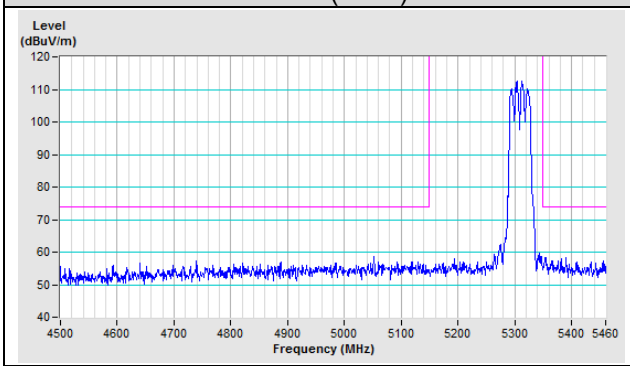
Horizontal (Peak)



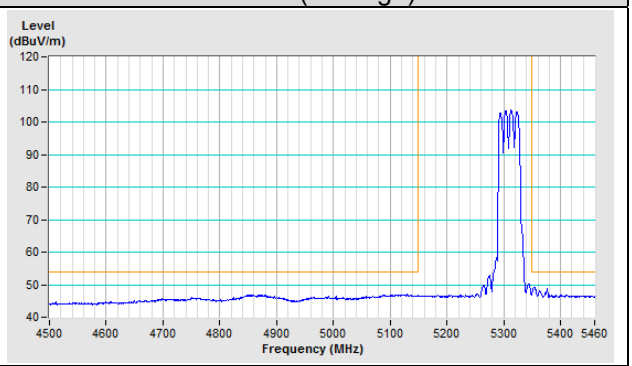
Horizontal (Average)

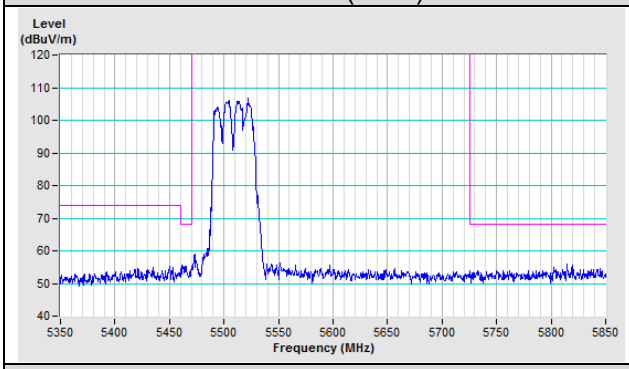
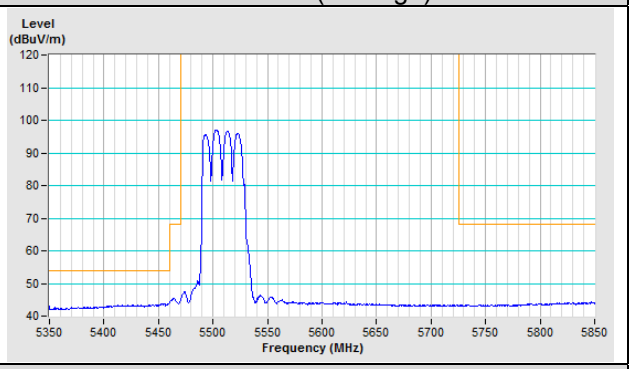
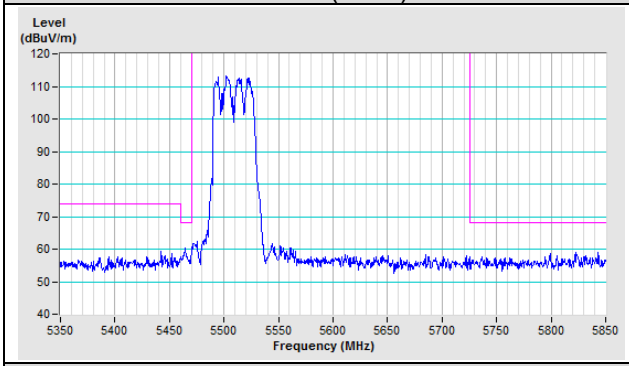
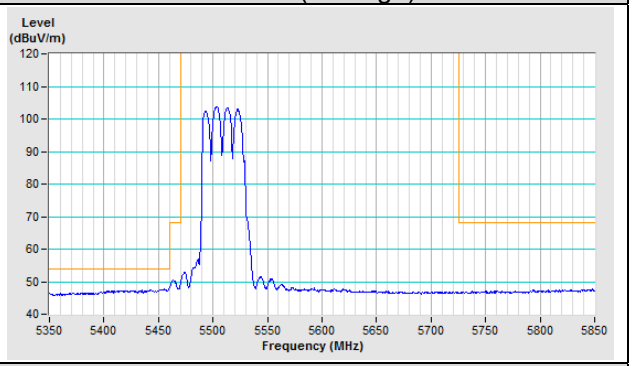
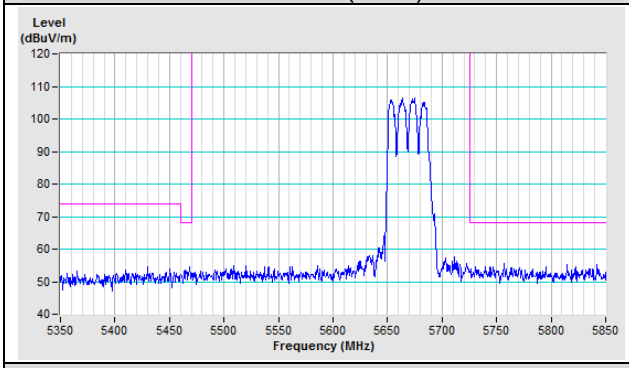
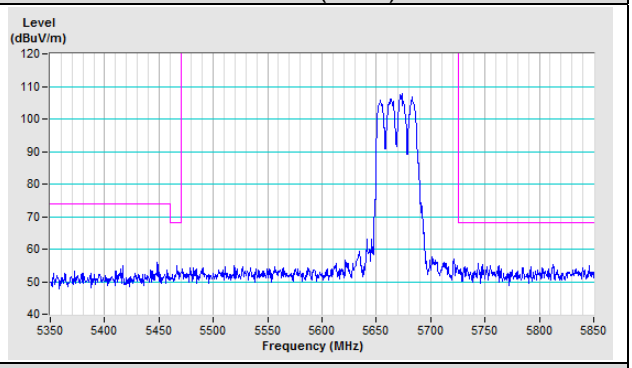
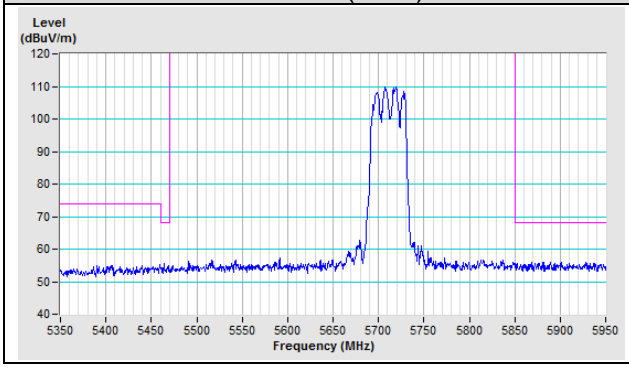
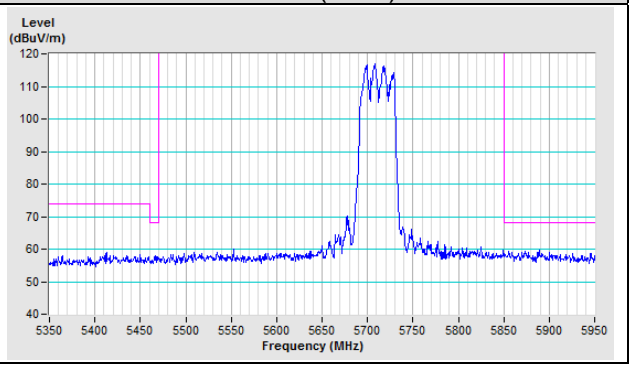


Vertical (Peak)



Vertical (Average)

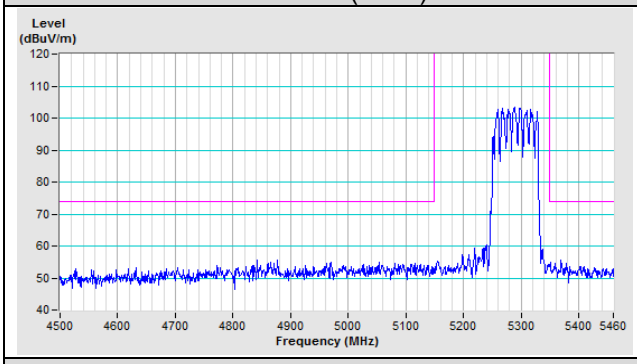


Channel 102	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
Channel 134	
Horizontal (Peak)	Vertical (Peak)
	
Channel 142	
Horizontal (Peak)	Vertical (Peak)
	

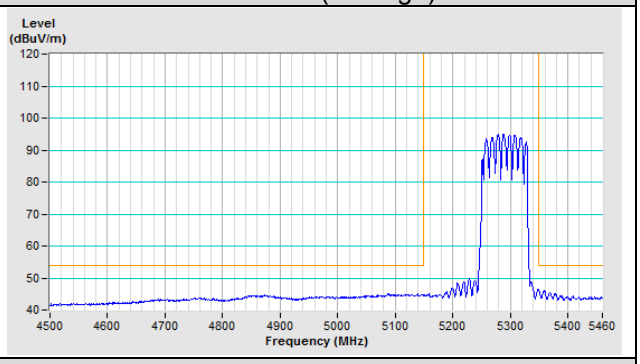
802.11ax (HE80)

Channel 58

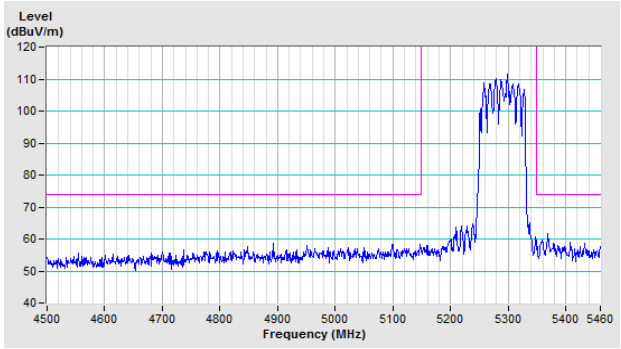
Horizontal (Peak)



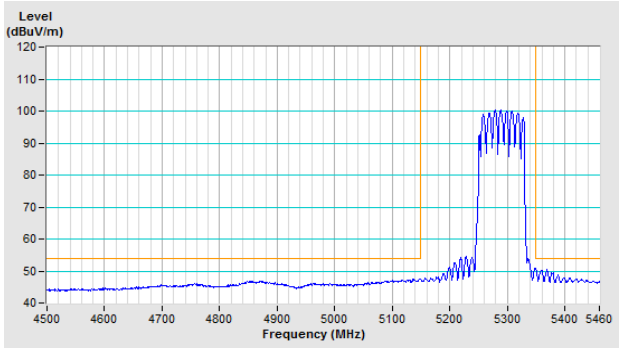
Horizontal (Average)



Vertical (Peak)

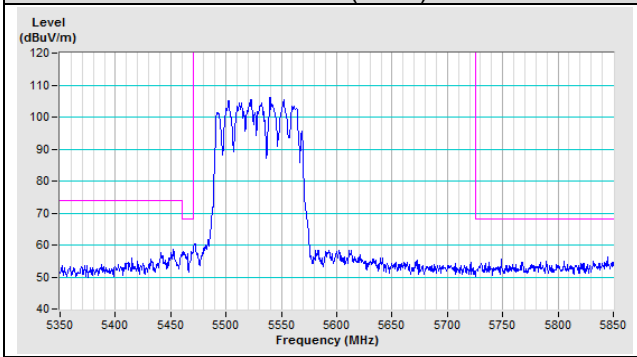


Vertical (Average)

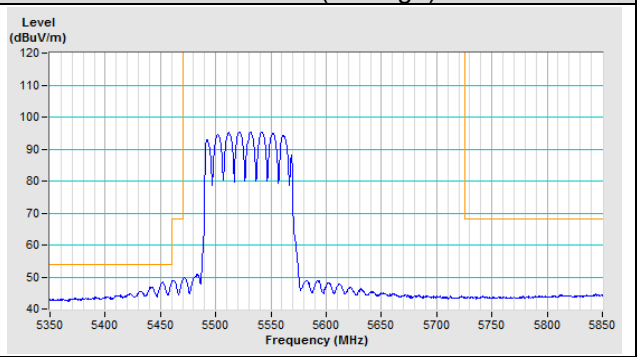


Channel 106

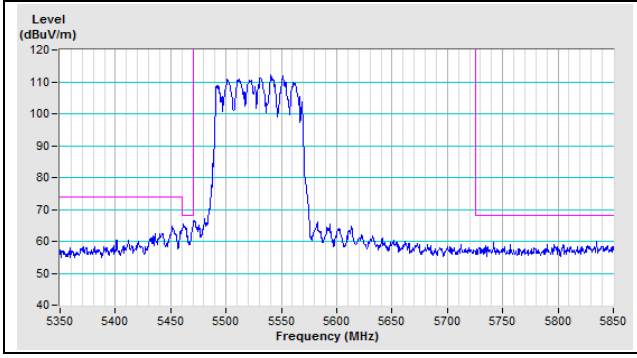
Horizontal (Peak)



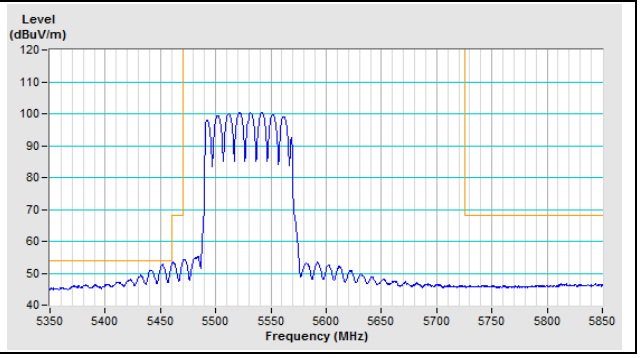
Horizontal (Average)

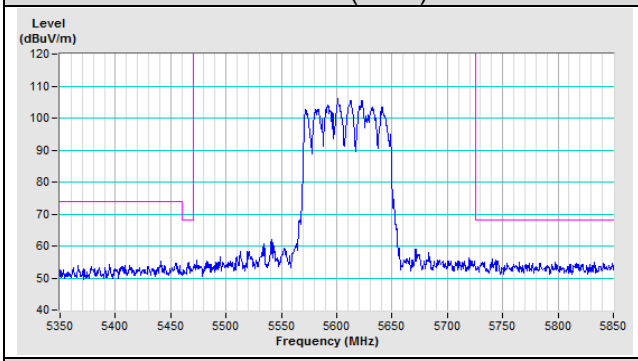
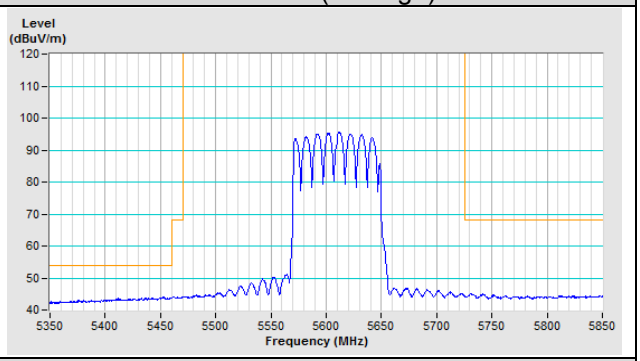
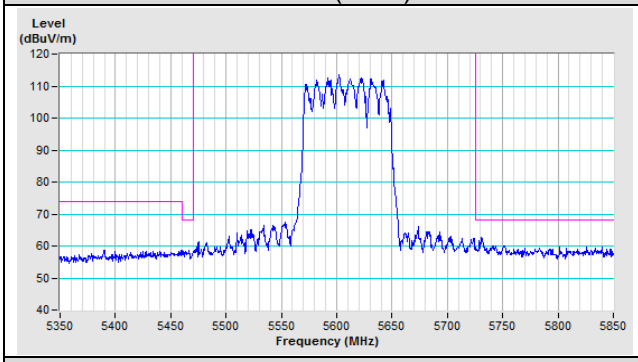
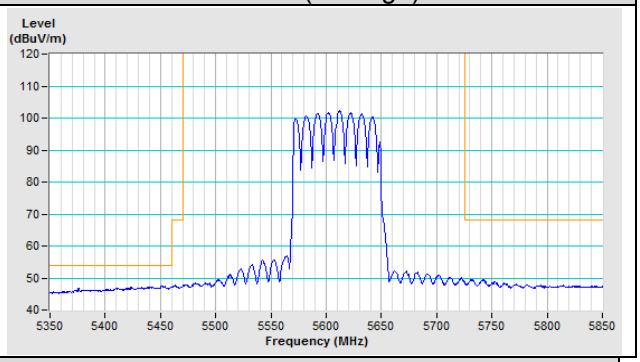


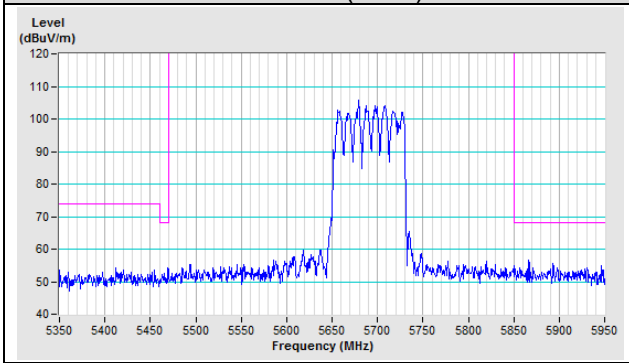
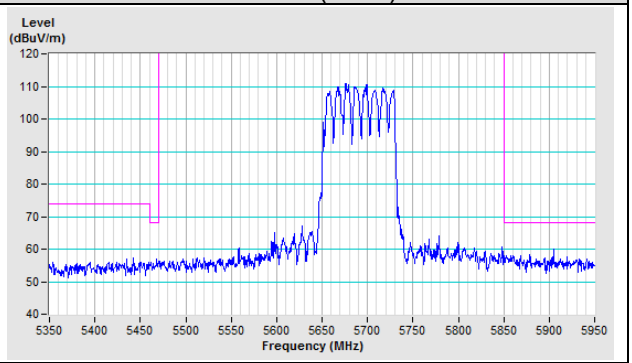
Vertical (Peak)



Vertical (Average)



Channel 122	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

Channel 138	
Horizontal (Peak)	Vertical (Peak)
	

5 Pictures of Test Arrangements

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

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 and approved 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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