FCC Test Report

Report No.:	RFBBQZ-WTW-P20100749-1
FCC ID:	PY320200499
Test Model:	EX6250v2
Series Model:	EX6400v3 (refer to item 3.1 for more details)
Received Date:	Nov. 18, 2020
Test Date:	Nov. 24 ~ Dec. 19, 2020
Issued Date:	Dec. 21, 2020
Applicant:	NETGEAR Inc.
Address:	350 East Plumeria Drive San Jose, CA 95134
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-P20100749-1	Original release.	Dec. 21, 2020

1 Certificate of Conformity

Product:	WiFi Mesh Extender
Brand:	NETGEAR
Test Model:	EX6250v2
Series Model:	EX6400v3 (refer to item 3.1 for more details)
Sample Status:	Engineering sample
Applicant:	NETGEAR Inc.
Test Date:	Nov. 24 ~ Dec. 19, 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:** Dec. 21, 2020

Polly Chien / Specialist

Approved by : _____ , **Date:** Dec. 21, 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 -13.06dB at 0.54600MHz.
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 -0.1dB at 5150.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	Pass	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	No antenna connector is used.

Note:

1. For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOBE test plots were recorded in Annex A.
2. For U-NII-1 band compliance with rule 15.407(b) of the band-edge items, the test plots were recorded in Annex B. Test Procedures refer to report 4.1.3.
3. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	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 Mesh Extender
Brand	NETGEAR Inc.
Test Model	EX6250v2
Series Model	EX6400v3
Model Difference	Refer to note for more details
Status of EUT	Engineering sample
Power Supply Rating	100~240Vac
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 450Mbps (Model: EX6250v2) 802.11n: up to 600Mbps (Model: EX6400v3) 802.11ac: up to 1300Mbps
Operating Frequency	5180~5240MHz, 5745~5825MHz
Number of Channel	5180~5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5745~5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1
Output Power	CDD Mode: 5180~5240MHz: 656.090mW 5745~5825MHz: 764.868mW Beamforming Mode: 5180~5240MHz: 656.090mW 5745~5825MHz: 636.187mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Cable Supplied	NA

Note:

1. The following models are provided to this EUT. The model EX6250v2 was chosen for final test.

Model	Difference
EX6250v2	Transfer rate difference only.
EX6400v3	

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

Modulation Mode	Beamforming Mode	TX Function
802.11a	Not Support	3TX
802.11n (HT20)	Support	3TX
802.11n (HT40)	Support	3TX
802.11ac (VHT20)	Support	3TX
802.11ac (VHT40)	Support	3TX
802.11ac (VHT80)	Support	3TX

* The modulation and bandwidth are similar for 802.11n mode for HT20/HT40 and 802.11ac mode for VHT20/VHT40/VHT80. (Final test mode refer section 3.2.1)
* For 802.11n, CDD mode is the worst case for final radiated emission and power line conducted emission tests after pretesting CDD mode and beamforming mode.

3. The following antennas were provided to the EUT.

Ant. Type	PCB			
Connecter Type	NA			
Antenna Gain(dBi)				
Frequency (MHz)	WiFi 1	WiFi 2	WiFi 3	Directional Gain
2400~2483.5	1.79	2.55	2.54	7.07
5150~5250	3.31	2.94	2.10	7.57
5725~5850	2.90	3.11	2.55	7.63

* The maximum antenna gain is chosen for final test.

*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.

4. 2.4GHz & 5GHz technology can transmit at same time.
5. The EUT has two thermal pad resources, after pretest the thermal pad 1st was the worst case for final test.

3.2 Description of Test Modes

5180 ~ 5240MHz:

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

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210MHz

5745 ~ 5825MHz:

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

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

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

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

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 **Y-plane**.
2. Radiated emission (below 1GHz) and power line conducted emission test items chosen the worst maximum fundamental frequency emission level channel.

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	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
-	802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	6.5
-	802.11ac (VHT40)		38 to 46	38, 46	OFDM	13.5
-	802.11ac (VHT80)		42	42	OFDM	29.3
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
-	802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	6.5
-	802.11ac (VHT40)		151 to 159	151, 159	OFDM	13.5
-	802.11ac (VHT80)		155	155	OFDM	29.3

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)
-	802.11a	5180-5240	36 to 48	40	OFDM	6.0

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)
-	802.11a	5180-5240	36 to 48	40	OFDM	6.0

Antenna Port Conducted Measurement:

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
-	802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	6.5
-	802.11ac (VHT40)		38 to 46	38, 46	OFDM	13.5
-	802.11ac (VHT80)		42	42	OFDM	29.3
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
-	802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	6.5
-	802.11ac (VHT40)		151 to 159	151, 159	OFDM	13.5
-	802.11ac (VHT80)		155	155	OFDM	29.3

Test Condition:

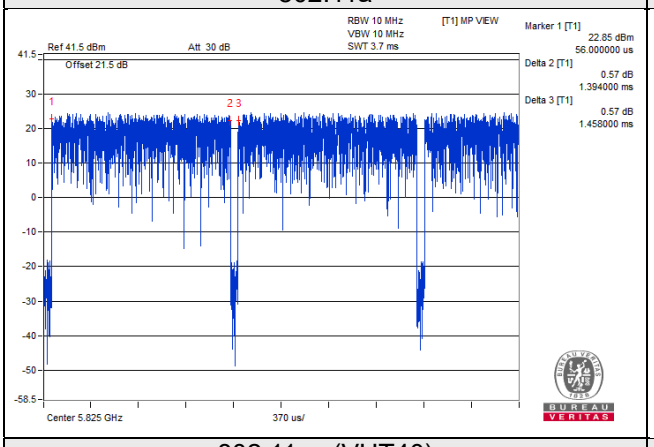
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 70%RH	120Vac, 60Hz	Noah Chang
RE<1G	25deg. C, 70%RH	120Vac, 60Hz	Luis Lee
PLC	25deg. C, 75%RH	120Vac, 60Hz	Greg Lin
APCM	25deg. C, 60%RH	120Vac, 60Hz	Frank Liu

3.3 Duty Cycle of Test Signal

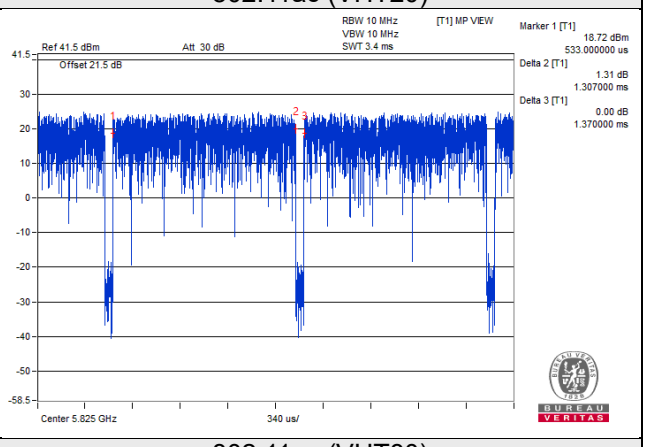
Duty cycle of test signal is < 98 %, duty factor is required

802.11a: Duty cycle = 1.394/1.458 = 0.956, Duty factor = 10 * log(1/0.956) = 0.19
802.11ac (VHT20): Duty cycle = 1.307/1.370 = 0.954, Duty factor = 10 * log(1/0.954) = 0.20
802.11ac (VHT40): Duty cycle = 0.645/0.707 = 0.912, Duty factor = 10 * log(1/0.912) = 0.40
802.11ac (VHT80): Duty cycle = 0.147/0.208 = 0.707, Duty factor = 10 * log(1/0.707) = 1.51

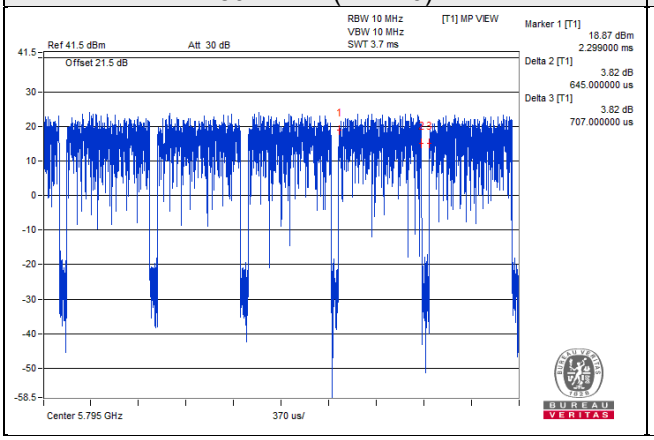
802.11a



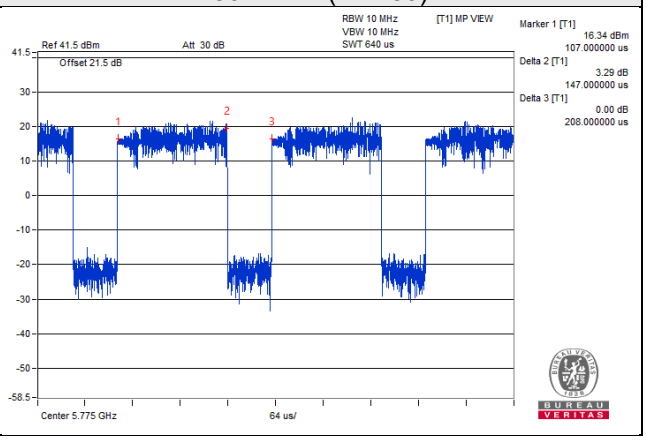
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



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.

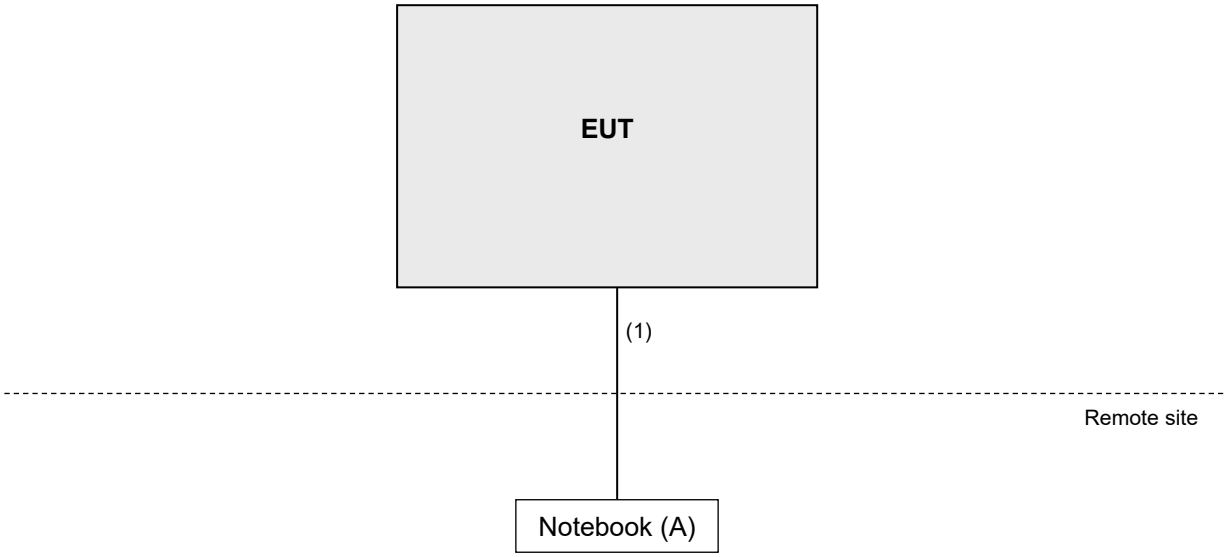
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5420	FHNR5S1	FCC DoC Approved	-

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	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45, Cat5e	1	5	N	0	-

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:

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

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

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

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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

Limits of unwanted emission out of the restricted bands

<table>
<tr><td colspan="3">Applicable To</td><td colspan="2">Limit</td></tr>
<tr><td colspan="3" rowspan="2">789033 D02 General UNII Test Procedure New Rules v02r01</td><td colspan="2">Field Strength at 3m</td></tr>
<tr><td>PK: 74 (dBμV/m)</td><td>AV: 54 (dBμV/m)</td></tr>
<tr><td>Frequency Band</td><td colspan="2">Applicable To</td><td>EIRP Limit</td><td>Equivalent Field Strength at 3m</td></tr>
<tr><td>5150~5250 MHz</td><td colspan="2">15.407(b)(1)</td><td rowspan="3">PK: -27 (dBm/MHz)</td><td rowspan="3">PK: 68.2(dBμV/m)</td></tr>
<tr><td>5250~5350 MHz</td><td colspan="2">15.407(b)(2)</td></tr>
<tr><td>5470~5725 MHz</td><td colspan="2">15.407(b)(3)</td></tr>
<tr><td rowspan="2">5725~5850 MHz</td><td>☒</td><td>15.407(b)(4)(i)</td><td>PK: -27 (dBm/MHz) *1
PK: 10 (dBm/MHz) *2
PK: 15.6 (dBm/MHz) *3
PK: 27 (dBm/MHz) *4</td><td>PK: 68.2(dBμV/m) *1
PK: 105.2 (dBμV/m) *2
PK: 110.8(dBμV/m) *3
PK: 122.2 (dBμV/m) *4</td></tr>
<tr><td>☐</td><td>15.407(b)(4)(ii)</td><td colspan="2">Emission limits in section 15.247(d)</td></tr>
<tr><td colspan="5">*1 beyond 75 MHz or more above of the band edge.
*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.
*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.
*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.</td></tr>
</table>

Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	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. 16, 2020	Sep. 15, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Nov. 03, 2020	Nov. 02, 2021
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 22, 2020	Nov. 21, 2021
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
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/MY55190007/MY55210005	Jul. 13, 2020	Jul. 12, 2021
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Sep. 04, 2020	Sep. 03, 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:

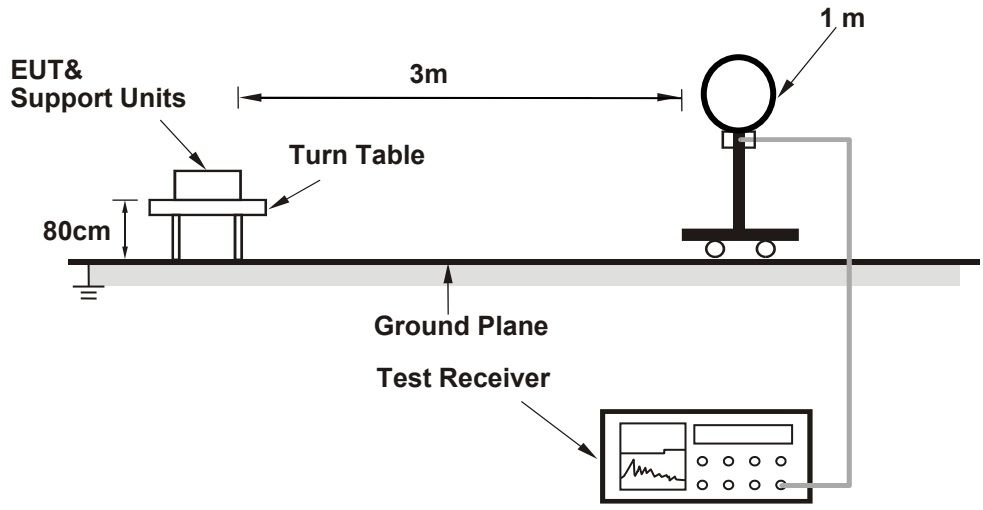
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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. (11a: RBW = 1 MHz, VBW =1 kHz ; 11n (HT20): RBW = 1 MHz, VBW = 1 kHz ; 11n (HT40): RBW = 1 MHz, VBW = 3 kHz ; 11ac (VHT80): RBW = 1 MHz, VBW = 10 kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

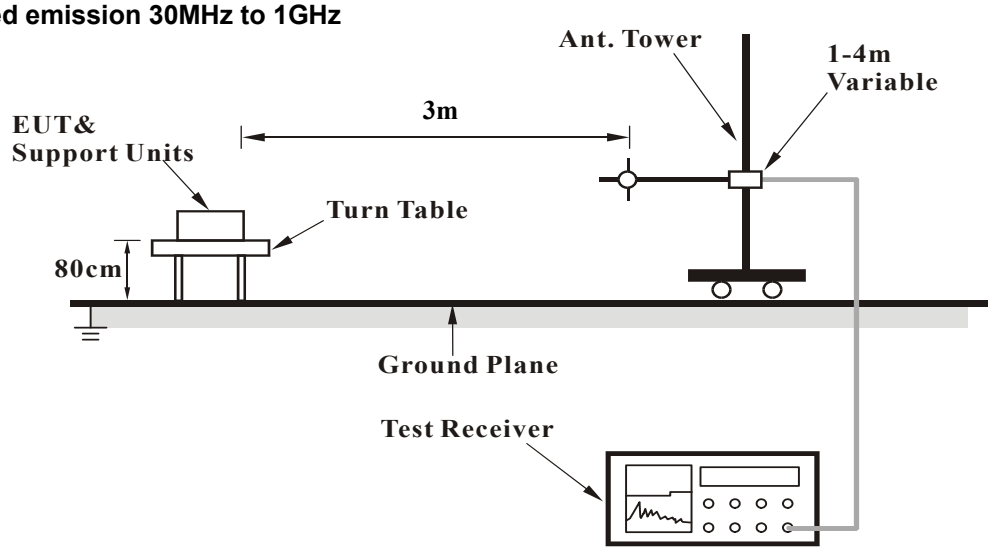
No deviation.

4.1.5 Test Set Up

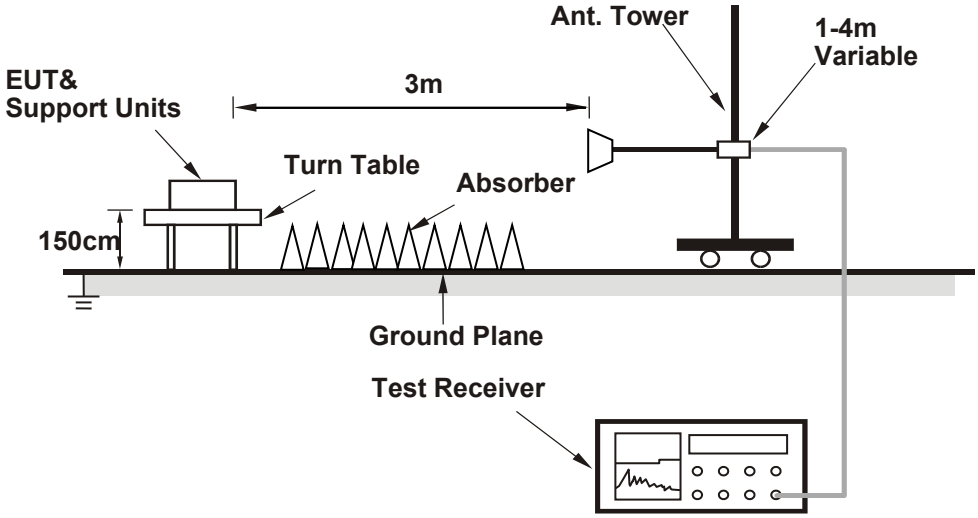
For Radiated emission below 30MHz



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 necessary accessories enable the system in full functions.

4.1.7 Test Results

Above 1GHz data:

802.11a

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	65.1 PK	74.0	-8.9	1.15 H	237	54.6	10.5
2	5150.00	53.6 AV	54.0	-0.4	1.15 H	237	43.1	10.5
3	*5180.00	110.0 PK			1.15 H	237	70.4	39.6
4	*5180.00	101.0 AV			1.15 H	237	61.4	39.6
5	#10360.00	65.7 PK	68.2	-2.5	1.04 H	228	44.6	21.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	57.1 PK	74.0	-16.9	1.00 V	190	46.6	10.5
2	5150.00	45.5 AV	54.0	-8.5	1.00 V	190	35.0	10.5
3	*5180.00	106.0 PK			1.00 V	190	66.4	39.6
4	*5180.00	98.0 AV			1.00 V	190	58.4	39.6
5	#10360.00	63.2 PK	68.2	-5.0	2.13 V	299	42.1	21.1

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.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	113.5 PK			1.21 H	232	73.9	39.6
2	*5200.00	104.5 AV			1.21 H	232	64.9	39.6
3	#10400.00	66.7 PK	68.2	-1.5	1.00 H	169	45.0	21.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	110.4 PK			1.25 V	221	70.8	39.6
2	*5200.00	101.3 AV			1.25 V	221	61.7	39.6
3	#10400.00	64.3 PK	68.2	-3.9	1.35 V	125	42.6	21.7

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 48	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	112.8 PK			1.12 H	232	73.6	39.2
2	*5240.00	104.2 AV			1.12 H	232	65.0	39.2
3	5350.00	55.5 PK	74.0	-18.5	1.12 H	232	45.6	9.9
4	5350.00	44.8 AV	54.0	-9.2	1.12 H	232	34.9	9.9
5	#10480.00	65.5 PK	68.2	-2.7	2.05 H	119	44.6	20.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	110.4 PK			1.00 V	212	71.2	39.2
2	*5240.00	102.0 AV			1.00 V	212	62.8	39.2
3	5350.00	56.0 PK	74.0	-18.0	1.00 V	212	46.1	9.9
4	5350.00	44.7 AV	54.0	-9.3	1.00 V	212	34.8	9.9
5	#10480.00	62.8 PK	68.2	-5.4	2.63 V	316	41.9	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 149	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5622.40	59.4 PK	68.2	-8.8	1.56 H	25	49.0	10.4
2	*5745.00	112.0 PK			1.56 H	25	71.8	40.2
3	*5745.00	103.9 AV			1.56 H	25	63.7	40.2
4	#5934.40	60.7 PK	68.2	-7.5	1.56 H	25	49.8	10.9
5	11490.00	65.9 PK	74.0	-8.1	1.00 H	11	42.8	23.1
6	11490.00	53.5 AV	54.0	-0.5	1.00 H	11	30.4	23.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5627.60	59.2 PK	68.2	-9.0	1.00 V	244	48.9	10.3
2	*5745.00	110.3 PK			1.00 V	244	70.1	40.2
3	*5745.00	101.7 AV			1.00 V	244	61.5	40.2
4	#5926.40	60.0 PK	68.2	-8.2	1.00 V	244	49.0	11.0
5	11490.00	63.2 PK	74.0	-10.8	2.10 V	105	40.1	23.1
6	11490.00	52.0 AV	54.0	-2.0	2.10 V	105	28.9	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.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5642.40	59.2 PK	68.2	-9.0	2.01 H	16	48.8	10.4
2	*5785.00	112.4 PK			2.01 H	16	72.0	40.4
3	*5785.00	103.8 AV			2.01 H	16	63.4	40.4
4	#5962.40	60.3 PK	68.2	-7.9	2.01 H	16	49.3	11.0
5	11570.00	63.3 PK	74.0	-10.7	1.21 H	6	40.4	22.9
6	11570.00	52.7 AV	54.0	-1.3	1.21 H	6	29.8	22.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5644.80	59.6 PK	68.2	-8.6	1.09 V	246	49.2	10.4
2	*5785.00	109.3 PK			1.09 V	246	68.9	40.4
3	*5785.00	101.5 AV			1.09 V	246	61.1	40.4
4	#5937.20	60.5 PK	68.2	-7.7	1.09 V	246	49.6	10.9
5	11570.00	62.4 PK	74.0	-11.6	1.07 V	261	39.5	22.9
6	11570.00	51.7 AV	54.0	-2.3	1.07 V	261	28.8	22.9

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 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5636.00	58.5 PK	68.2	-9.7	1.98 H	20	48.2	10.3
2	*5825.00	112.6 PK			1.98 H	20	71.9	40.7
3	*5825.00	103.9 AV			1.98 H	20	63.2	40.7
4	#5998.80	61.5 PK	68.2	-6.7	1.98 H	20	50.5	11.0
5	11650.00	61.9 PK	74.0	-12.1	1.00 H	9	39.3	22.6
6	11650.00	51.9 AV	54.0	-2.1	1.00 H	9	29.3	22.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5630.80	59.9 PK	68.2	-8.3	1.02 V	240	49.6	10.3
2	*5825.00	109.9 PK			1.02 V	240	69.2	40.7
3	*5825.00	101.5 AV			1.02 V	240	60.8	40.7
4	#5976.40	59.6 PK	68.2	-8.6	1.02 V	240	48.7	10.9
5	11650.00	61.4 PK	74.0	-12.6	1.36 V	155	38.8	22.6
6	11650.00	50.7 AV	54.0	-3.3	1.36 V	155	28.1	22.6

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.

802.11ac (VHT20)

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	64.7 PK	74.0	-9.3	1.76 H	15	54.2	10.5
2	5150.00	53.8 AV	54.0	-0.2	1.76 H	15	43.3	10.5
3	*5180.00	110.2 PK			1.76 H	15	70.6	39.6
4	*5180.00	102.1 AV			1.76 H	15	62.5	39.6
5	#10360.00	63.2 PK	68.2	-5.0	1.01 H	163	42.1	21.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.4 PK	74.0	-15.6	1.00 V	119	47.9	10.5
2	5150.00	46.3 AV	54.0	-7.7	1.00 V	119	35.8	10.5
3	*5180.00	108.3 PK			1.00 V	119	68.7	39.6
4	*5180.00	100.2 AV			1.00 V	119	60.6	39.6
5	#10360.00	61.7 PK	68.2	-6.5	1.69 V	115	40.6	21.1

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.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	113.5 PK			1.02 H	170	73.9	39.6
2	*5200.00	104.7 AV			1.02 H	170	65.1	39.6
3	#10400.00	66.4 PK	68.2	-1.8	1.00 H	166	44.7	21.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	110.8 PK			1.05 V	219	71.2	39.6
2	*5200.00	101.7 AV			1.05 V	219	62.1	39.6
3	#10400.00	62.2 PK	68.2	-6.0	2.11 V	205	40.5	21.7

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 48	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	112.6 PK			1.41 H	176	73.4	39.2
2	*5240.00	103.9 AV			1.41 H	176	64.7	39.2
3	5350.00	56.2 PK	74.0	-17.8	1.41 H	176	46.3	9.9
4	5350.00	44.7 AV	54.0	-9.3	1.41 H	176	34.8	9.9
5	#10480.00	65.9 PK	68.2	-2.3	1.00 H	165	45.0	20.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	110.3 PK			1.00 V	210	71.1	39.2
2	*5240.00	101.2 AV			1.00 V	210	62.0	39.2
3	5350.00	56.0 PK	74.0	-18.0	1.00 V	210	46.1	9.9
4	5350.00	44.6 AV	54.0	-9.4	1.00 V	210	34.7	9.9
5	#10480.00	61.9 PK	68.2	-6.3	1.02 V	114	41.0	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 149	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5644.80	60.5 PK	68.2	-7.7	1.82 H	22	50.1	10.4
2	*5745.00	112.6 PK			1.82 H	22	72.4	40.2
3	*5745.00	103.5 AV			1.82 H	22	63.3	40.2
4	#5952.40	60.6 PK	68.2	-7.6	1.82 H	22	49.6	11.0
5	11490.00	64.1 PK	74.0	-9.9	1.09 H	6	41.0	23.1
6	11490.00	53.5 AV	54.0	-0.5	1.09 H	6	30.4	23.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5630.80	60.0 PK	68.2	-8.2	1.00 V	244	49.7	10.3
2	*5745.00	109.2 PK			1.00 V	244	69.0	40.2
3	*5745.00	100.7 AV			1.00 V	244	60.5	40.2
4	#5983.60	61.1 PK	68.2	-7.1	1.00 V	244	50.2	10.9
5	11490.00	62.9 PK	74.0	-11.1	3.05 V	311	39.8	23.1
6	11490.00	51.6 AV	54.0	-2.4	3.05 V	311	28.5	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.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5624.40	60.3 PK	68.2	-7.9	1.37 H	31	49.9	10.4
2	*5785.00	111.7 PK			1.37 H	31	71.3	40.4
3	*5785.00	102.8 AV			1.37 H	31	62.4	40.4
4	#5945.60	59.5 PK	68.2	-8.7	1.37 H	31	48.6	10.9
5	11570.00	64.1 PK	74.0	-9.9	1.16 H	8	41.2	22.9
6	11570.00	52.8 AV	54.0	-1.2	1.16 H	8	29.9	22.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5639.20	59.2 PK	68.2	-9.0	1.00 V	202	48.8	10.4
2	*5785.00	109.2 PK			1.00 V	202	68.8	40.4
3	*5785.00	100.8 AV			1.00 V	202	60.4	40.4
4	#5944.80	59.6 PK	68.2	-8.6	1.00 V	202	48.7	10.9
5	11570.00	62.4 PK	74.0	-11.6	2.93 V	315	39.5	22.9
6	11570.00	50.7 AV	54.0	-3.3	2.93 V	315	27.8	22.9

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 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5617.20	60.3 PK	68.2	-7.9	1.74 H	23	49.9	10.4
2	*5825.00	111.7 PK			1.74 H	23	71.0	40.7
3	*5825.00	102.4 AV			1.74 H	23	61.7	40.7
4	#5998.40	60.4 PK	68.2	-7.8	1.74 H	23	49.4	11.0
5	11650.00	61.9 PK	74.0	-12.1	1.37 H	6	39.3	22.6
6	11650.00	51.5 AV	54.0	-2.5	1.37 H	6	28.9	22.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5640.00	59.3 PK	68.2	-8.9	1.00 V	239	48.9	10.4
2	*5825.00	108.5 PK			1.00 V	239	67.8	40.7
3	*5825.00	99.8 AV			1.00 V	239	59.1	40.7
4	#5962.40	59.6 PK	68.2	-8.6	1.00 V	239	48.6	11.0
5	11650.00	61.4 PK	74.0	-12.6	3.16 V	215	38.8	22.6
6	11650.00	50.5 AV	54.0	-3.5	3.16 V	215	27.9	22.6

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.

802.11ac (VHT40)

CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	65.2 PK	74.0	-8.8	1.00 H	168	54.7	10.5
2	5150.00	53.8 AV	54.0	-0.2	1.00 H	168	43.3	10.5
3	*5190.00	106.6 PK			1.00 H	168	67.0	39.6
4	*5190.00	97.0 AV			1.00 H	168	57.4	39.6
5	#10380.00	60.3 PK	68.2	-7.9	1.02 H	164	38.9	21.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	56.7 PK	74.0	-17.3	1.00 V	213	46.2	10.5
2	5150.00	46.1 AV	54.0	-7.9	1.00 V	213	35.6	10.5
3	*5190.00	103.5 PK			1.00 V	213	63.9	39.6
4	*5190.00	94.4 AV			1.00 V	213	54.8	39.6
5	#10380.00	60.1 PK	68.2	-8.1	1.88 V	144	38.7	21.4

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 46	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	64.2 PK	74.0	-9.8	1.01 H	174	53.7	10.5
2	5150.00	53.5 AV	54.0	-0.5	1.01 H	174	43.0	10.5
3	*5230.00	110.3 PK			1.01 H	174	71.0	39.3
4	*5230.00	101.8 AV			1.01 H	174	62.5	39.3
5	5350.00	56.9 PK	74.0	-17.1	1.01 H	174	47.0	9.9
6	5350.00	46.5 AV	54.0	-7.5	1.01 H	174	36.6	9.9
7	#10460.00	64.9 PK	68.2	-3.3	1.03 H	164	43.8	21.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.4 PK	74.0	-15.6	1.00 V	210	47.9	10.5
2	5150.00	46.3 AV	54.0	-7.7	1.00 V	210	35.8	10.5
3	*5230.00	107.4 PK			1.00 V	210	68.1	39.3
4	*5230.00	98.6 AV			1.00 V	210	59.3	39.3
5	5350.00	56.2 PK	74.0	-17.8	1.00 V	210	46.3	9.9
6	5350.00	45.4 AV	54.0	-8.6	1.00 V	210	35.5	9.9
7	#10460.00	61.3 PK	68.2	-6.9	2.68 V	145	40.2	21.1

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.

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5646.80	66.9 PK	68.2	-1.3	1.82 H	16	56.5	10.4
2	*5755.00	110.5 PK			1.82 H	16	70.3	40.2
3	*5755.00	101.6 AV			1.82 H	16	61.4	40.2
4	#5935.20	62.8 PK	68.2	-5.4	1.82 H	16	51.9	10.9
5	11510.00	62.3 PK	74.0	-11.7	1.00 H	6	39.3	23.0
6	11510.00	52.7 AV	54.0	-1.3	1.00 H	6	29.7	23.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.40	60.7 PK	68.5	-7.8	1.00 V	241	50.3	10.4
2	*5755.00	107.1 PK			1.00 V	241	66.9	40.2
3	*5755.00	98.9 AV			1.00 V	241	58.7	40.2
4	#5999.20	60.1 PK	68.2	-8.1	1.00 V	241	49.1	11.0
5	11510.00	61.9 PK	74.0	-12.1	1.06 V	131	38.9	23.0
6	11510.00	51.0 AV	54.0	-3.0	1.06 V	131	28.0	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.

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5639.60	59.6 PK	68.2	-8.6	1.83 H	27	49.2	10.4
2	*5795.00	111.1 PK			1.83 H	27	70.5	40.6
3	*5795.00	101.7 AV			1.83 H	27	61.1	40.6
4	#5938.00	61.1 PK	68.2	-7.1	1.83 H	27	50.2	10.9
5	11590.00	62.4 PK	74.0	-11.6	1.22 H	2	39.7	22.7
6	11590.00	51.7 AV	54.0	-2.3	1.22 H	2	29.0	22.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5606.40	60.2 PK	68.2	-8.0	1.00 V	243	49.8	10.4
2	*5795.00	107.4 PK			1.00 V	243	66.8	40.6
3	*5795.00	98.7 AV			1.00 V	243	58.1	40.6
4	#5978.80	60.5 PK	68.2	-7.7	1.00 V	243	49.6	10.9
5	11590.00	61.5 PK	74.0	-12.5	3.21 V	101	38.8	22.7
6	11590.00	50.5 AV	54.0	-3.5	3.21 V	101	27.8	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.

802.11ac (VHT80)

CHANNEL	TX Channel 42	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	64.0 PK	74.0	-10.0	1.00 H	169	53.5	10.5
2	**5150.00**	**53.9 AV**	**54.0**	**-0.1**	**1.00 H**	**169**	**43.4**	**10.5**
3	*5210.00	105.2 PK			1.00 H	169	65.7	39.5
4	*5210.00	93.5 AV			1.00 H	169	54.0	39.5
5	5350.00	55.5 PK	74.0	-18.5	1.00 H	169	45.6	9.9
6	5350.00	46.2 AV	54.0	-7.8	1.00 H	169	36.3	9.9
7	#10420.00	59.2 PK	68.2	-9.0	1.00 H	147	37.7	21.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	61.0 PK	74.0	-13.0	1.00 V	225	50.5	10.5
2	5150.00	52.3 AV	54.0	-1.7	1.00 V	225	41.8	10.5
3	*5210.00	100.7 PK			1.00 V	225	61.2	39.5
4	*5210.00	91.3 AV			1.00 V	225	51.8	39.5
5	5350.00	55.9 PK	74.0	-18.1	1.00 V	225	46.0	9.9
6	5350.00	44.9 AV	54.0	-9.1	1.00 V	225	35.0	9.9
7	#10420.00	59.0 PK	68.2	-9.2	1.99 V	136	37.5	21.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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 155	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5644.70	67.5 PK	68.2	-0.7	1.00 H	2	57.1	10.4
2	*5775.00	107.0 PK			1.00 H	2	66.7	40.3
3	*5775.00	98.6 AV			1.00 H	2	58.3	40.3
4	#5939.20	65.6 PK	68.2	-2.6	1.00 H	2	54.7	10.9
5	11550.00	63.1 PK	74.0	-10.9	2.56 H	120	40.2	22.9
6	11550.00	52.5 AV	54.0	-1.5	2.56 H	120	29.6	22.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5648.40	59.7 PK	68.2	-8.5	1.55 V	240	49.3	10.4
2	*5775.00	104.3 PK			1.55 V	240	64.0	40.3
3	*5775.00	95.3 AV			1.55 V	240	55.0	40.3
4	#5965.20	60.3 PK	68.2	-7.9	1.55 V	240	49.3	11.0
5	11550.00	61.7 PK	74.0	-12.3	3.10 V	166	38.8	22.9
6	11550.00	50.5 AV	54.0	-3.5	3.10 V	166	27.6	22.9

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.

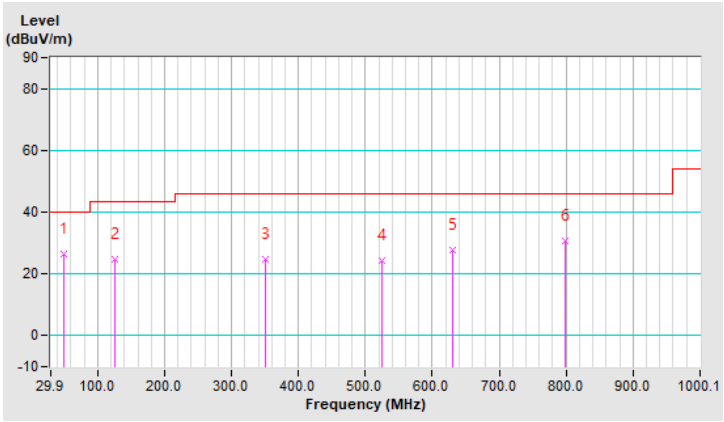
Below 1GHz Worst-Case Data: 802.11a

CHANNEL	TX Channel 40	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	50.27	26.5 QP	40.0	-13.5	1.50 H	240	35.4	-8.9
2	125.95	24.9 QP	43.5	-18.6	1.01 H	106	35.4	-10.5
3	351.04	24.8 QP	46.0	-21.2	1.01 H	325	31.5	-6.7
4	524.70	24.2 QP	46.0	-21.8	1.01 H	231	27.5	-3.3
5	630.45	27.6 QP	46.0	-18.4	1.01 H	77	28.0	-0.4
6	799.27	30.6 QP	46.0	-15.4	1.50 H	343	26.8	3.8

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 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 20dB below the permissible value to be report.

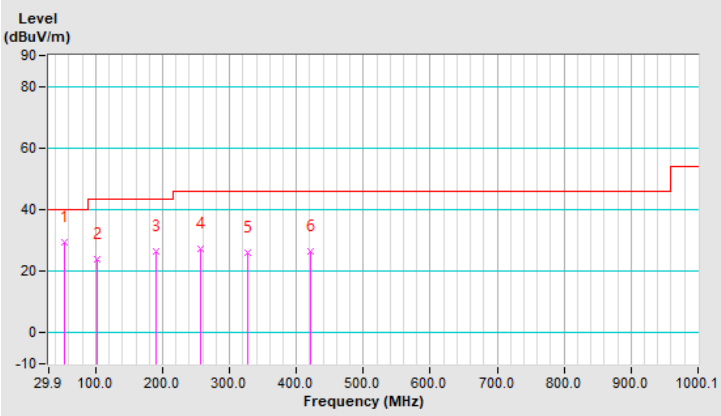


CHANNEL	TX Channel 40	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	54.16	29.2 QP	40.0	-10.8	1.50 V	63	38.3	-9.1
2	101.69	23.7 QP	43.5	-19.8	1.00 V	226	36.8	-13.1
3	190.95	26.5 QP	43.5	-17.0	1.00 V	59	37.9	-11.4
4	255.96	27.4 QP	46.0	-18.6	1.50 V	73	36.8	-9.4
5	326.78	26.2 QP	46.0	-19.8	2.00 V	75	33.1	-6.9
6	421.86	26.4 QP	46.0	-19.6	1.00 V	61	31.7	-5.3

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 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 20dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Dec. 31, 2019	Dec. 30, 2020
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 04, 2020	Sep. 03, 2021
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.

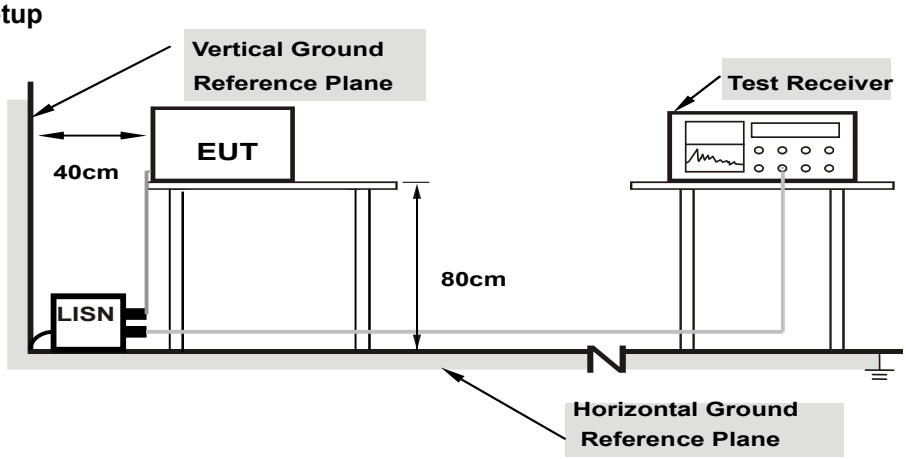
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

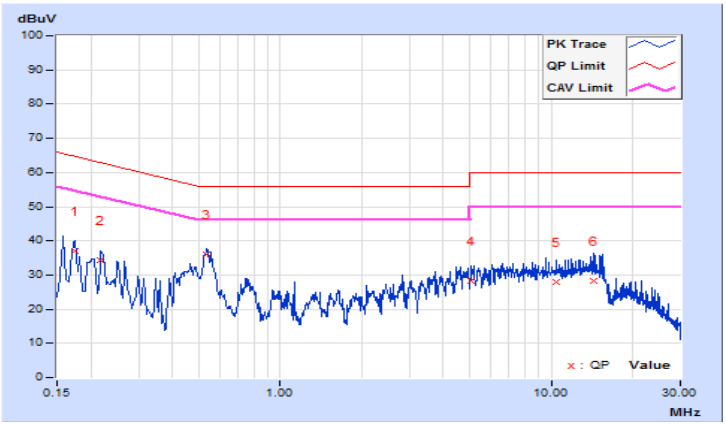
Worst-Case Data: 802.11a

Phase	Line (L)	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	0.17384	9.65	27.34	15.34	36.99	24.99	64.77	54.77	-27.78	-29.78
2	0.21800	9.66	24.63	13.95	34.29	23.61	62.89	52.89	-28.60	-29.28
3	0.53400	9.66	26.36	20.95	36.02	30.61	56.00	46.00	-19.98	-15.39
4	5.07000	9.75	18.40	10.42	28.15	20.17	60.00	50.00	-31.85	-29.83
5	10.43000	9.80	18.16	10.80	27.96	20.60	60.00	50.00	-32.04	-29.40
6	14.29800	9.84	18.28	11.54	28.12	21.38	60.00	50.00	-31.88	-28.62

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.

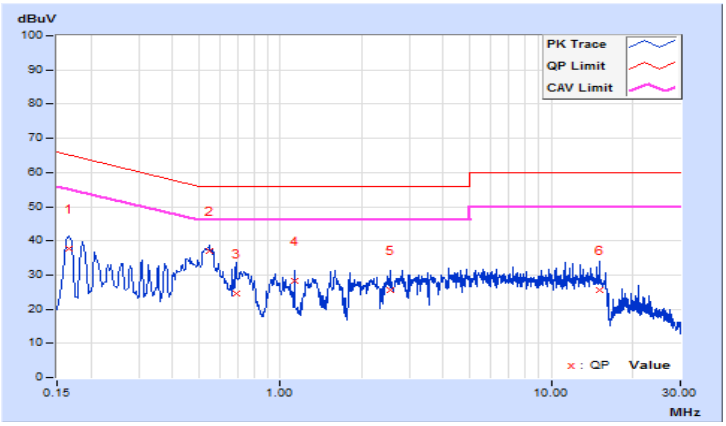


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	0.16535	9.68	28.14	14.24	37.82	23.92	65.19	55.19	-27.37	-31.27
2	**0.54600**	**9.68**	**27.28**	**23.26**	**36.96**	**32.94**	**56.00**	**46.00**	**-19.04**	**-13.06**
3	0.68592	9.68	14.92	10.05	24.60	19.73	56.00	46.00	-31.40	-26.27
4	1.13000	9.70	18.71	10.71	28.41	20.41	56.00	46.00	-27.59	-25.59
5	2.53800	9.74	15.93	11.52	25.67	21.26	56.00	46.00	-30.33	-24.74
6	15.09000	9.93	15.59	9.95	25.52	19.88	60.00	50.00	-34.48	-30.12

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)

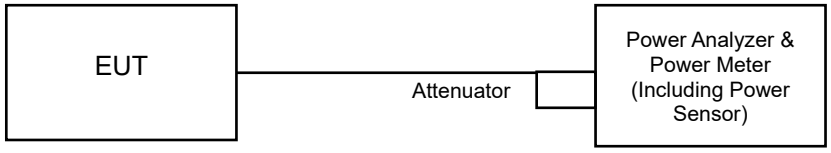
*B is the 26 dB emission bandwidth in megahertz

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



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to average. Duty factor is not added to measured value.

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	Chain 2				
36	5180	22.12	20.28	22.02	428.810	26.32	30.00	Pass
40	5200	23.59	22.72	23.23	626.006	27.97	30.00	Pass
48	5240	23.50	22.66	23.29	621.678	27.94	30.00	Pass
149	5745	23.31	23.29	22.15	591.653	27.72	30.00	Pass
157	5785	23.36	23.05	22.48	595.618	27.75	30.00	Pass
165	5825	23.22	23.90	22.61	637.754	28.05	30.00	Pass

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	Chain 2				
36	5180	21.13	19.35	21.28	350.094	25.44	30.00	Pass
40	5200	23.69	22.63	23.09	620.819	27.93	30.00	Pass
48	5240	23.41	22.47	23.41	615.165	27.89	30.00	Pass
149	5745	23.71	23.42	22.45	630.542	28.00	30.00	Pass
157	5785	23.55	23.35	22.53	621.797	27.94	30.00	Pass
165	5825	23.23	23.89	22.34	626.680	27.97	30.00	Pass

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	Chain 2				
38	5190	20.03	18.45	19.94	269.305	24.30	30.00	Pass
46	5230	23.90	22.76	23.46	**656.090**	28.17	30.00	Pass
151	5755	24.33	24.38	23.21	754.588	28.78	30.00	Pass
159	5795	24.75	23.91	23.43	**764.868**	28.84	30.00	Pass

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	Chain 2				
42	5210	19.63	17.90	19.35	239.592	23.79	30.00	Pass
155	5775	23.63	23.49	22.40	627.812	27.98	30.00	Pass

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	Chain 2				
36	5180	21.13	19.35	21.28	350.094	25.44	28.43	Pass
40	5200	23.69	22.63	23.09	620.819	27.93	28.43	Pass
48	5240	23.41	22.47	23.41	615.165	27.89	28.43	Pass
149	5745	23.40	22.99	22.45	593.636	27.74	28.37	Pass
157	5785	23.31	23.29	22.24	595.088	27.75	28.37	Pass
165	5825	23.04	23.89	22.01	605.133	27.82	28.37	Pass

Note:
1. 5180-5240MHz: Beamforming Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/3$] = 7.57dBi > 6dBi, so the power limit shall be reduced to 30-(7.57-6) = 28.43dBm.
2. 5745-5825MHz: Beamforming Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \cdots + 10^{GN/20})^2/3$] = 7.63dBi > 6dBi, so the power limit shall be reduced to 30-(7.63-6) = 28.37dBm.

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	Chain 2				
38	5190	20.03	18.45	19.94	269.305	24.30	28.43	Pass
46	5230	23.90	22.76	23.46	**656.090**	28.17	28.43	Pass
151	5755	23.98	23.35	22.21	632.648	28.01	28.37	Pass
159	5795	23.95	23.24	22.48	**636.187**	28.04	28.37	Pass

Note:
1. 5180-5240MHz: Beamforming Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/3$] = 7.57dBi > 6dBi, so the power limit shall be reduced to 30-(7.57-6) = 28.43dBm.
2. 5745-5825MHz: Beamforming Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \cdots + 10^{GN/20})^2/3$] = 7.63dBi > 6dBi, so the power limit shall be reduced to 30-(7.63-6) = 28.37dBm.

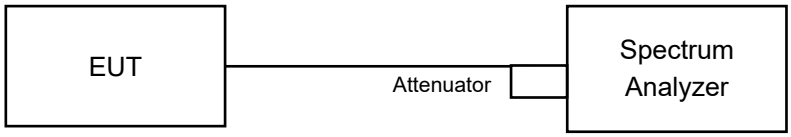
802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
42	5210	19.63	17.90	19.35	239.592	23.79	28.43	Pass
155	5775	23.63	23.49	22.40	627.812	27.98	28.37	Pass

Note:
1. 5180-5240MHz: Beamforming Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/3$] = 7.57dBi > 6dBi, so the power limit shall be reduced to 30-(7.57-6) = 28.43dBm.
2. 5745-5825MHz: Beamforming Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \cdots + 10^{GN/20})^2/3$] = 7.63dBi > 6dBi, so the power limit shall be reduced to 30-(7.63-6) = 28.37dBm.

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

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
36	5180	16.80	16.92	16.92
40	5200	20.16	19.92	19.80
48	5240	16.92	16.92	16.86
149	5745	17.64	17.64	17.64
157	5785	17.76	17.88	17.76
165	5825	17.76	17.76	17.76

802.11ac (VHT20)

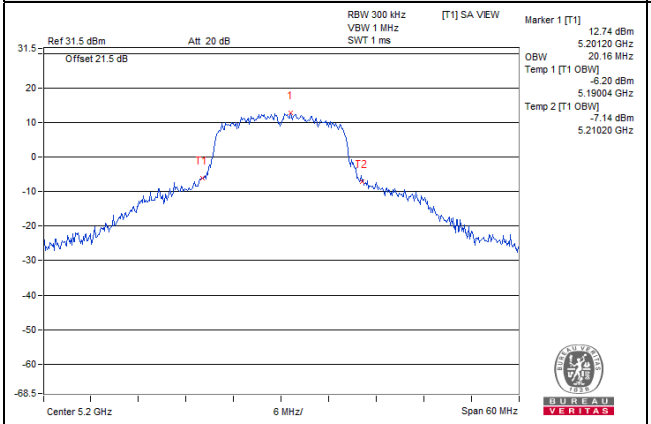
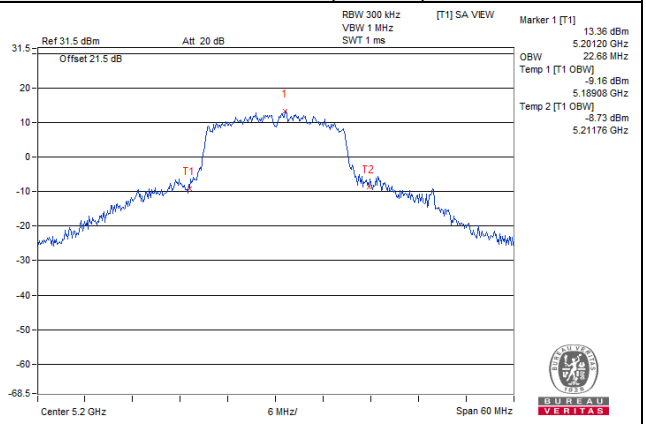
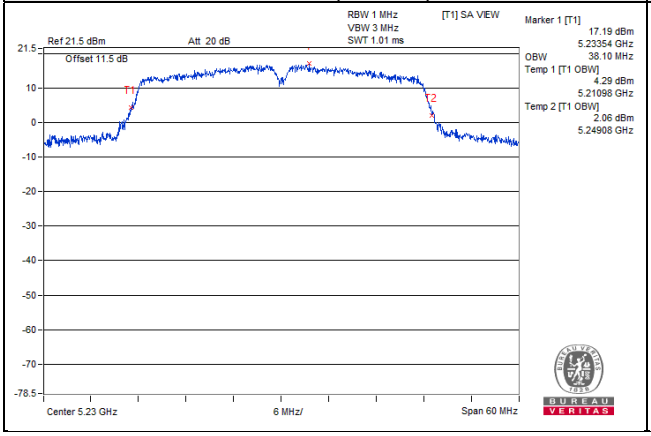
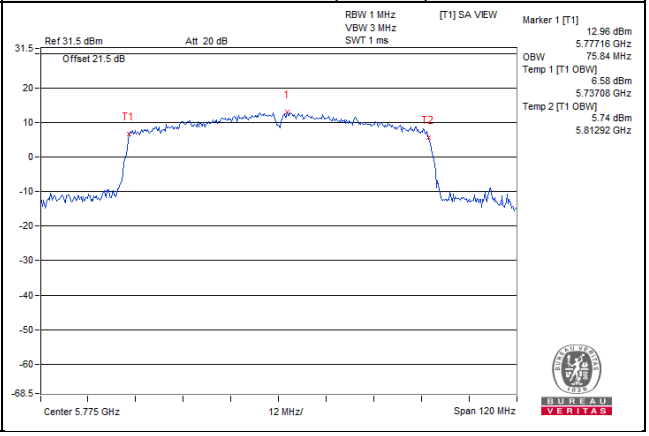
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
36	5180	17.88	17.88	17.88
40	5200	22.20	22.20	22.68
48	5240	17.82	17.70	17.82
149	5745	18.60	18.60	18.60
157	5785	18.60	18.72	18.60
165	5825	18.48	18.48	18.36

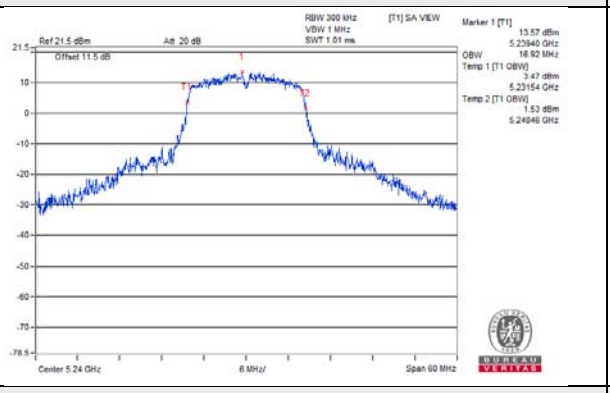
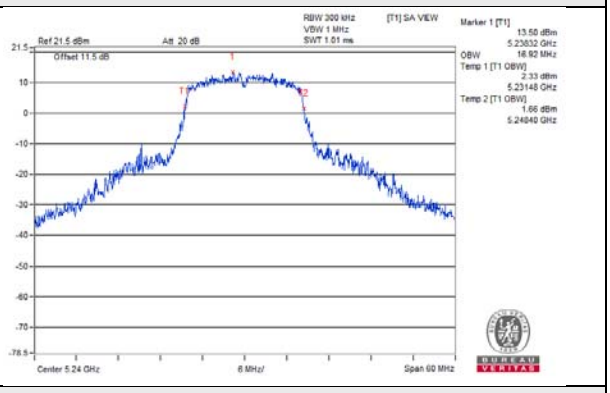
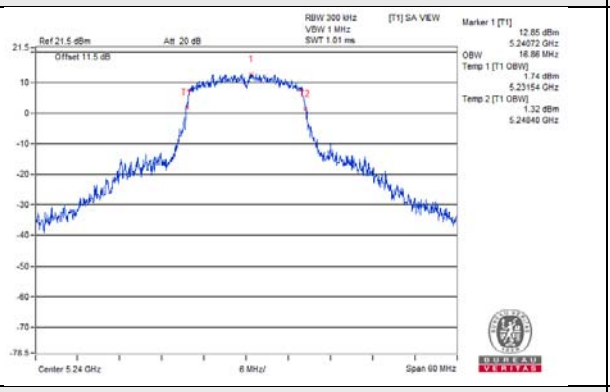
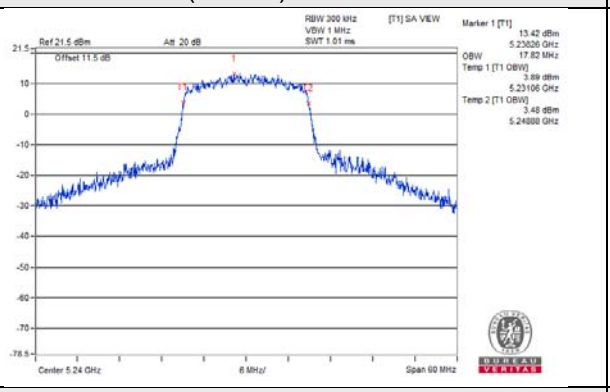
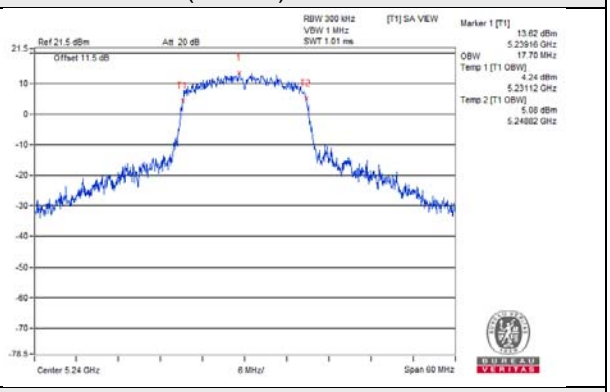
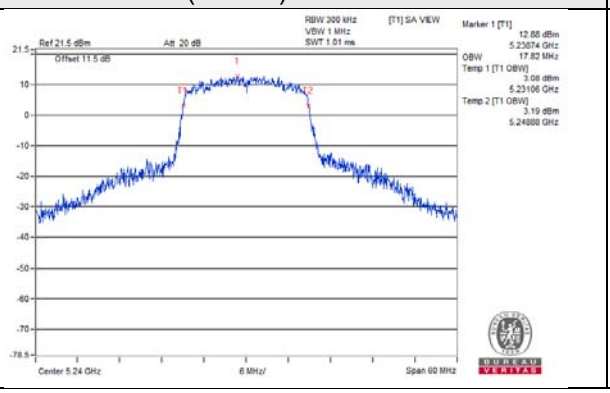
802.11ac (VHT40)

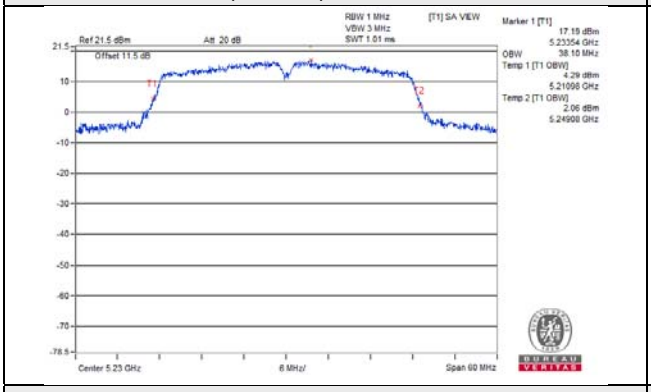
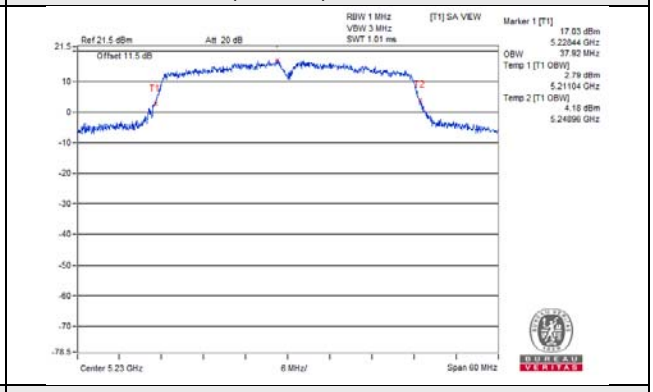
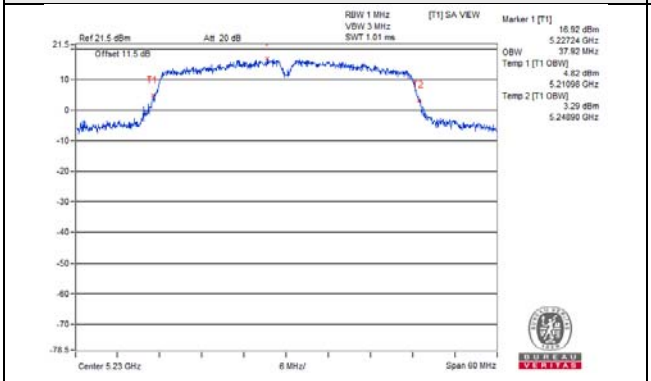
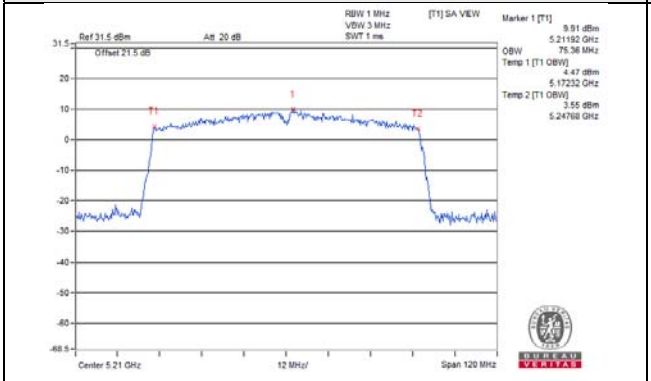
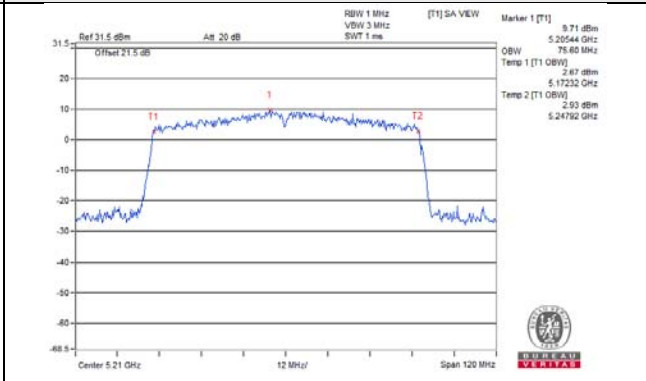
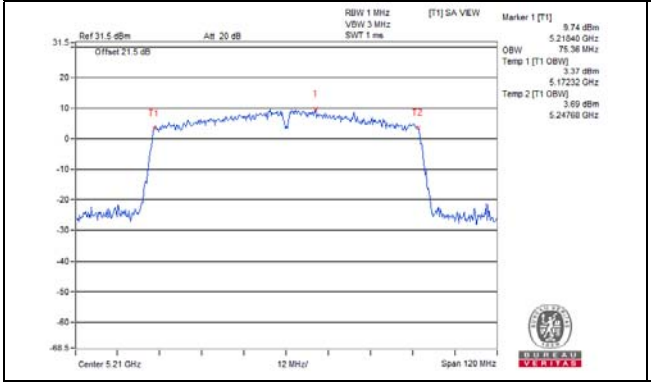
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
38	5190	36.24	36.36	36.36
46	5230	38.10	37.92	37.92
151	5755	37.80	37.44	37.68
159	5795	37.80	37.68	37.68

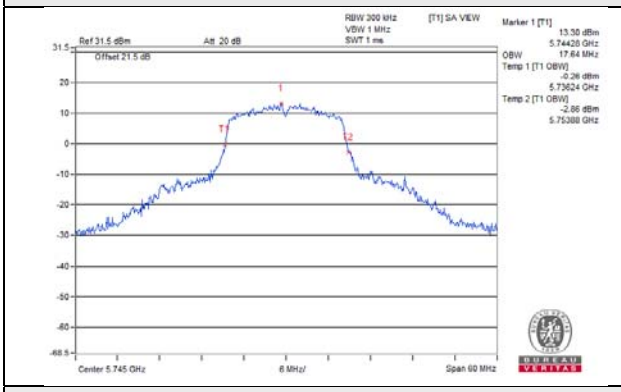
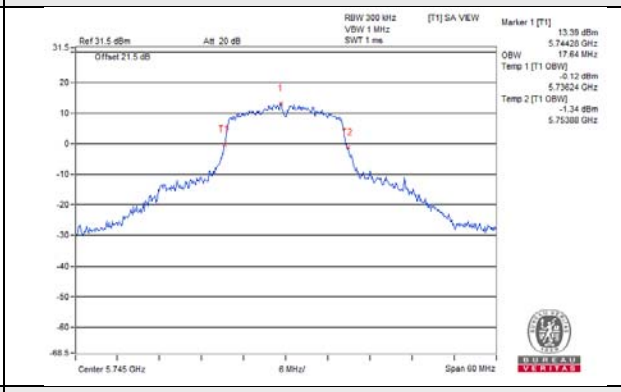
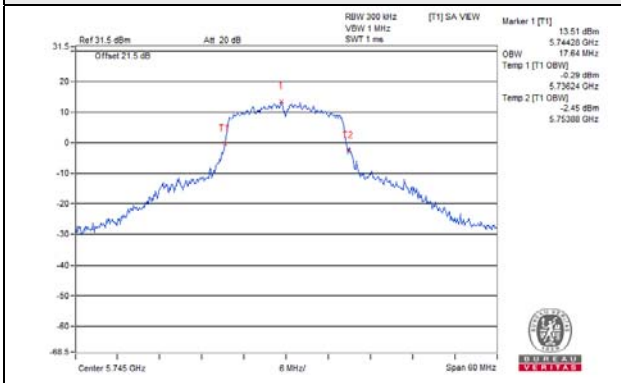
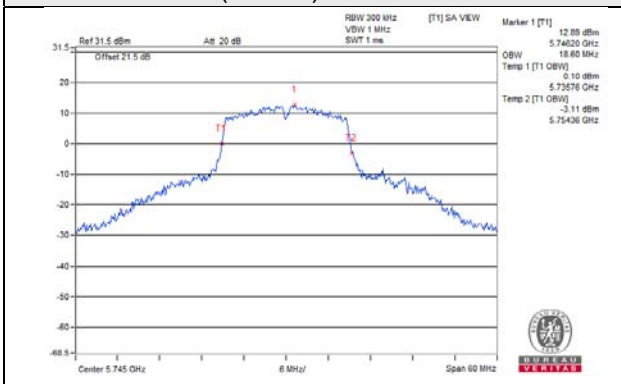
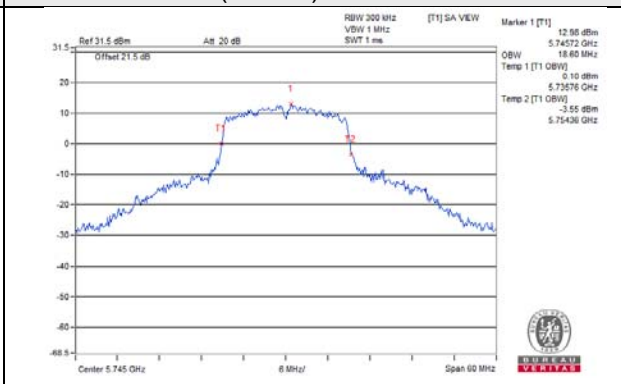
802.11ac (VHT80)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
42	5210	75.36	75.60	75.36
155	5775	75.84	75.84	75.84

Spectrum Plot of Worst Value	
802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	802.11ac (VHT80)
	

Spectrum Plot for near By DFS Band	
802.11a / Chain 0 / CH 48	802.11a / Chain 1 / CH 48
	
802.11a / Chain 2 / CH 48	
	
802.11ac (VHT20) / Chain 0 / CH 48	802.11ac (VHT20) / Chain 1 / CH 48
	
802.11ac (VHT20) / Chain 2 / CH 48	
	

802.11ac (VHT40) / Chain 0 / CH 46	802.11ac (VHT40) / Chain 1 / CH 46
	
802.11ac (VHT40) / Chain 2 / CH 46	
	
802.11ac (VHT80) / Chain 0 / CH 42	802.11ac (VHT80) / Chain 1 / CH 42
	
802.11ac (VHT80) / Chain 2 / CH 42	
	

Spectrum Plot for near By DFS Band	
802.11a / Chain 0 / CH 149	802.11a / Chain 1 / CH 149
	
802.11a / Chain 2 / CH 149	802.11a / Chain 1 / CH 149
	
802.11ac (VHT20) / Chain 0 / CH 149	802.11ac (VHT20) / Chain 1 / CH 149
	
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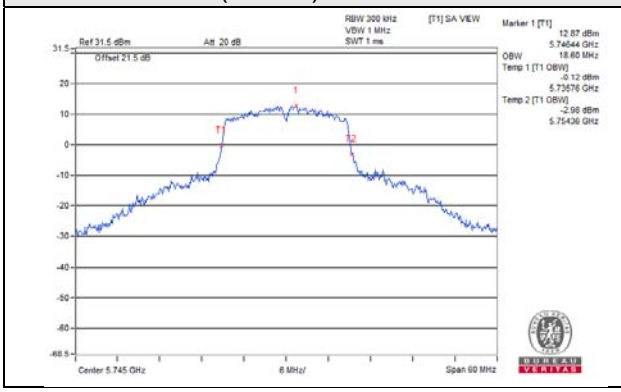
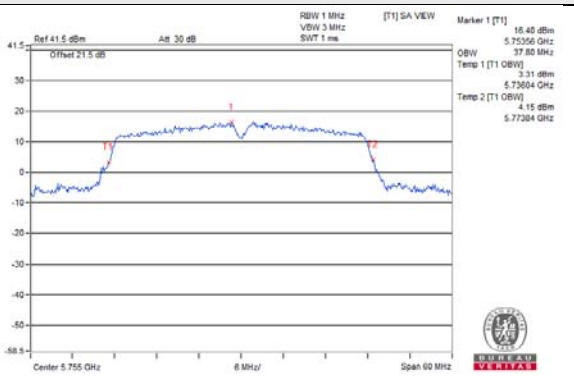
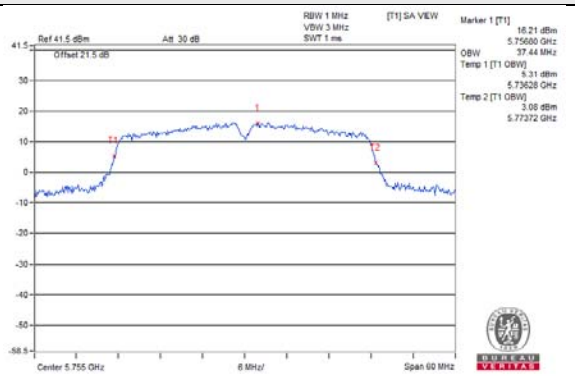
	

802.11ac (VHT40) / Chain 0 / CH 151	802.11ac (VHT40) / Chain 1 / CH 151
	
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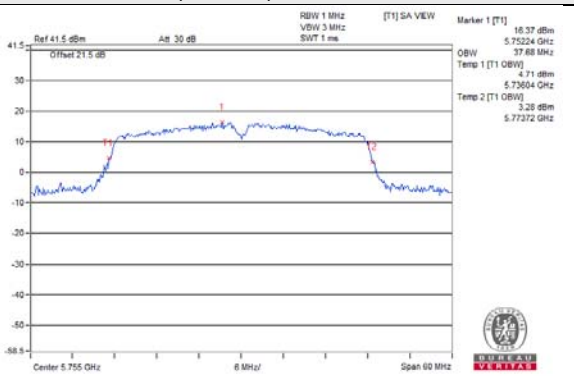	
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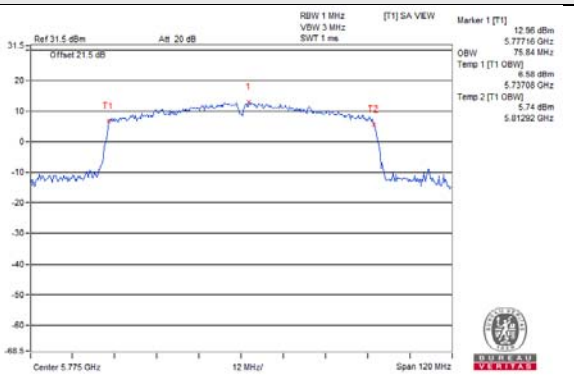
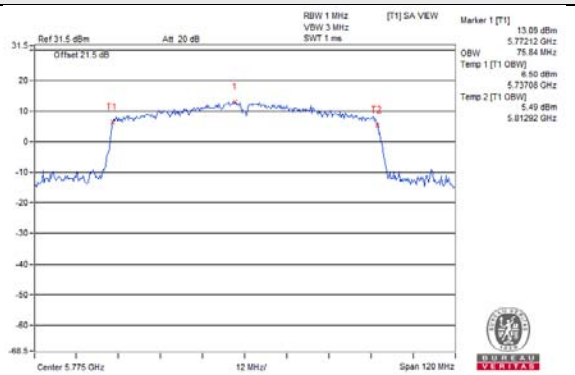
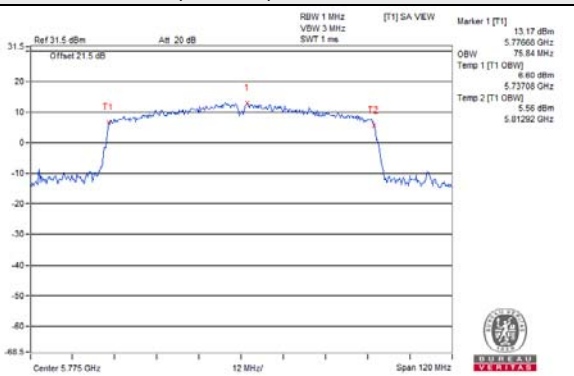
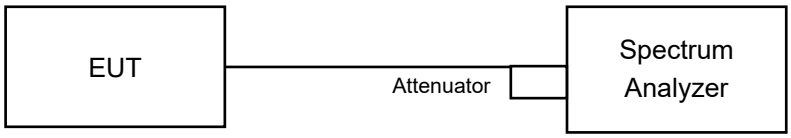
	
802.11ac (VHT80) / Chain 2 / CH 155	
	

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-1 band:

Using method SA-2

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.

b. Set RBW = 1MHz, Set VBW ≥ 3 MHz, Detector = RMS

c. Set Channel power measure = 1MHz

d. Sweep time = auto, trigger set to “free run”.

e. Trace average at least 100 traces in power averaging mode.

f. Record the max value and add 10 log (1/duty cycle)

For U-NII-3 band:

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.

b. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS

c. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.

d. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz / 300 kHz)

e. Sweep time = auto, trigger set to “free run”.

f. Trace average at least 100 traces in power averaging mode.

g. 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-1 band:

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	Chain 2				
36	5180	9.21	9.25	9.12	0.19	14.16	15.43	Pass
40	5200	10.12	10.26	10.56	0.19	15.28	15.43	Pass
48	5240	9.92	9.90	10.01	0.19	14.91	15.43	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. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/3$] = 7.57dBi > 6dBi, so the power density limit shall be reduced to 17-(7.57-6) = 15.43dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

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	Chain 2				
36	5180	8.37	8.55	8.58	0.20	13.48	15.43	Pass
40	5200	10.03	10.00	10.06	0.20	15.01	15.43	Pass
48	5240	9.59	9.64	9.68	0.20	14.61	15.43	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. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/3$] = 7.57dBi > 6dBi, so the power density limit shall be reduced to 17-(7.57-6) = 15.43dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT40)

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	Chain 2				
38	5190	5.88	6.26	6.25	0.40	11.30	15.43	Pass
46	5230	9.42	9.80	9.74	0.40	14.83	15.43	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. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/3$] = 7.57dBi > 6dBi, so the power density limit shall be reduced to 17-(7.57-6) = 15.43dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

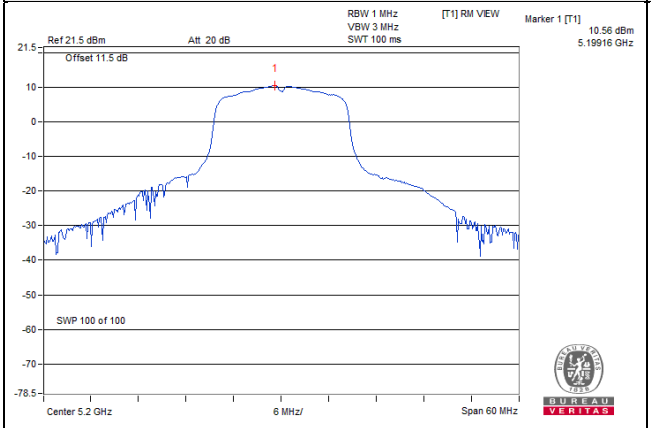
Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)			Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
42	5210	3.39	2.41	3.30	1.51	9.33	15.43	Pass

Note:

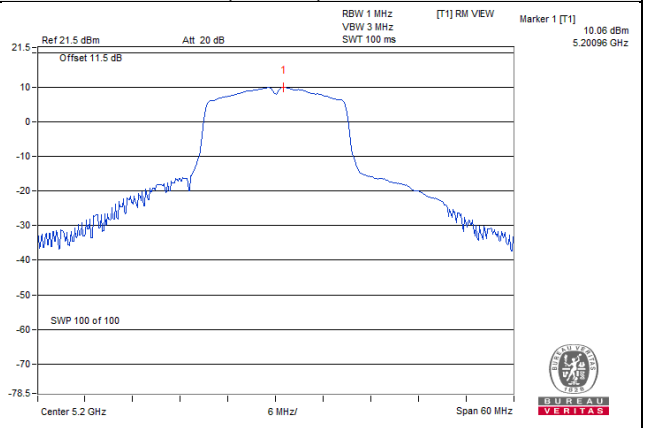
1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$ + ... + $10^{GN/20}$)^2/3] = 7.57dBi > 6dBi, so the power density limit shall be reduced to 17-(7.57-6) = 15.43dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

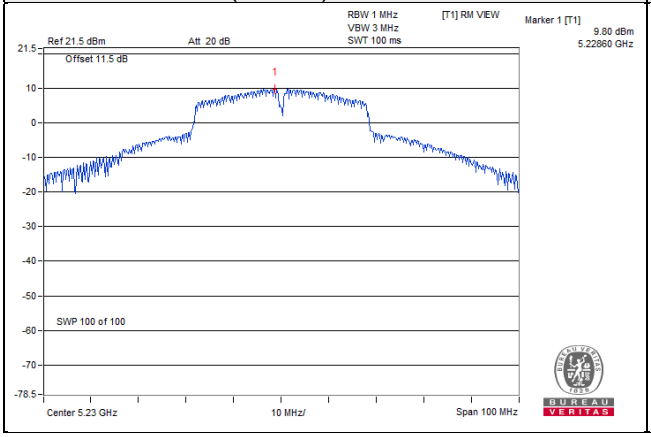
802.11a / Chain 2 / Ch 40



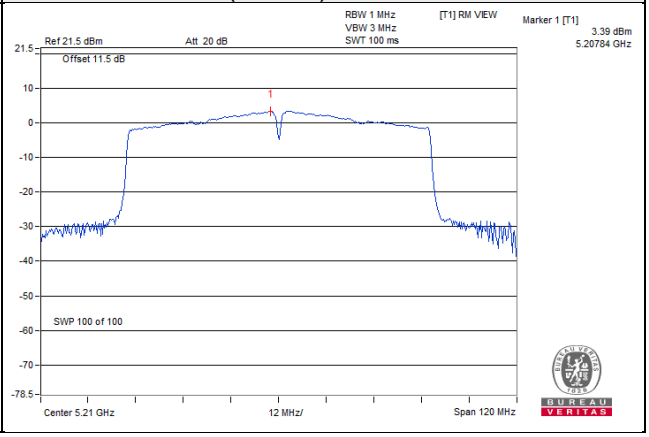
802.11ac (VHT20) / Chain 2 / Ch 40



802.11ac (VHT40) / Chain 1 / Ch 46



802.11ac (VHT80) / Chain 0 / Ch 42



For U-NII-3 band:

802.11a

TX chain	Chan.	Freq. (MHz)	PSD w/o Duty Factor		10 log (N=3) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	3.11	5.33	4.77	0.19	10.29	28.37	Pass
	157	5785	3.25	5.47	4.77	0.19	10.43	28.37	Pass
	165	5825	3.23	5.45	4.77	0.19	10.41	28.37	Pass
1	149	5745	3.31	5.53	4.77	0.19	10.49	28.37	Pass
	157	5785	3.39	5.61	4.77	0.19	10.57	28.37	Pass
	165	5825	3.14	5.36	4.77	0.19	10.32	28.37	Pass
2	149	5745	3.11	5.33	4.77	0.19	10.29	28.37	Pass
	157	5785	3.01	5.23	4.77	0.19	10.19	28.37	Pass
	165	5825	3.26	5.48	4.77	0.19	10.44	28.37	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add 10 log (N_{ANT}) dB.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/3$] = 7.63dBi > 6dBi, so the power density limit shall be reduced to 30-(7.63-6) = 28.37dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

TX chain	Chan.	Freq. (MHz)	PSD w/o Duty Factor		10 log (N=3) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	2.89	5.11	4.77	0.20	10.08	28.37	Pass
	157	5785	2.79	5.01	4.77	0.20	9.98	28.37	Pass
	165	5825	2.85	5.07	4.77	0.20	10.04	28.37	Pass
1	149	5745	2.76	4.98	4.77	0.20	9.95	28.37	Pass
	157	5785	2.93	5.15	4.77	0.20	10.12	28.37	Pass
	165	5825	2.48	4.70	4.77	0.20	9.67	28.37	Pass
2	149	5745	2.96	5.18	4.77	0.20	10.15	28.37	Pass
	157	5785	2.76	4.98	4.77	0.20	9.95	28.37	Pass
	165	5825	2.58	4.80	4.77	0.20	9.77	28.37	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add 10 log (N_{ANT}) dB.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/3$] = 7.63dBi > 6dBi, so the power density limit shall be reduced to 30-(7.63-6) = 28.37dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT40)

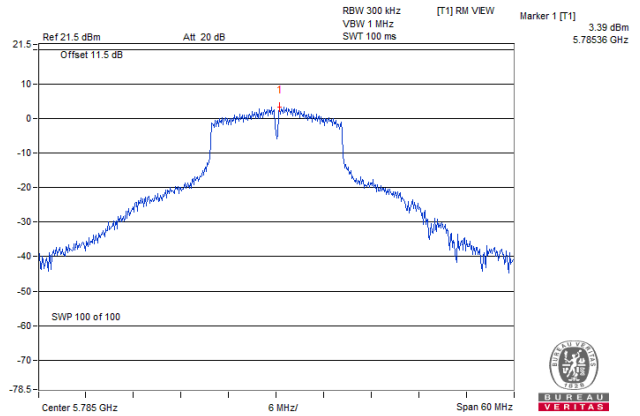
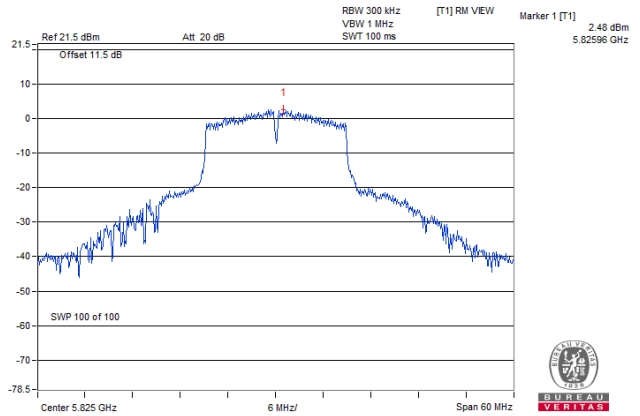
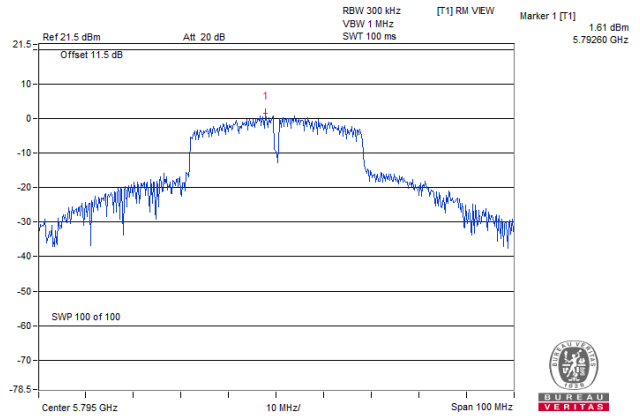
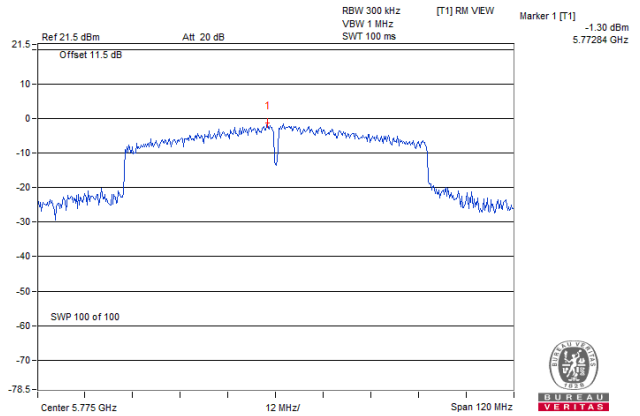
TX chain	Chan.	Freq. (MHz)	PSD w/o Duty Factor		10 log (N=3) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	151	5755	0.34	2.56	4.77	0.40	7.73	26.93	Pass
	159	5795	1.02	3.24	4.77	0.40	8.41	26.93	Pass
1	151	5755	1.46	3.68	4.77	0.40	8.85	26.93	Pass
	159	5795	1.61	3.83	4.77	0.40	9.00	26.93	Pass
2	151	5755	0.66	2.88	4.77	0.40	8.05	26.93	Pass
	159	5795	1.05	3.27	4.77	0.40	8.44	26.93	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add 10 log (N_{ANT}) dB.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/3$] = 7.63dBi > 6dBi, so the power density limit shall be reduced to 30-(7.63-6) = 28.37dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

TX chain	Chan.	Freq. (MHz)	PSD w/o Duty Factor		10 log (N=3) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	155	5775	-1.77	0.45	4.77	1.51	6.73	28.37	Pass
1	155	5775	-1.30	0.92	4.77	1.51	7.20	28.37	Pass
2	155	5775	-1.69	0.53	4.77	1.51	6.81	28.37	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add 10 log (N_{ANT}) dB.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/3$] = 7.63dBi > 6dBi, so the power density limit shall be reduced to 30-(7.63-6) = 28.37dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

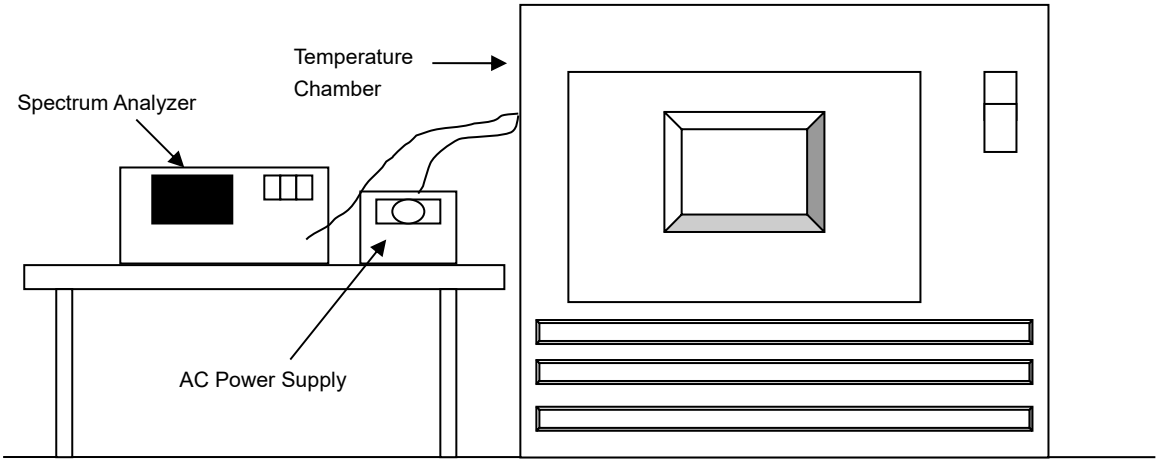
Spectrum Plot of Worst Value	
802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	802.11ac (VHT80)
	

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 GIANT FORCE	GTH-120-40-CP-AR	MAA1306-019	Sep. 09, 2020	Sep. 08, 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: 5180MHz									
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
55	120	5179.9804	PASS	5179.9762	PASS	5179.9767	PASS	5179.9788	PASS
50	120	5179.981	PASS	5179.9833	PASS	5179.9808	PASS	5179.985	PASS
40	120	5180.0046	PASS	5180.003	PASS	5180.0056	PASS	5180.0051	PASS
30	120	5179.9858	PASS	5179.9889	PASS	5179.9876	PASS	5179.9857	PASS
20	120	5179.9811	PASS	5179.9838	PASS	5179.9819	PASS	5179.9827	PASS
10	120	5180.0079	PASS	5180.0066	PASS	5180.0066	PASS	5180.0077	PASS
0	120	5180.0046	PASS	5180.0055	PASS	5180.0079	PASS	5180.0067	PASS
-10	120	5179.9747	PASS	5179.9779	PASS	5179.9743	PASS	5179.9744	PASS

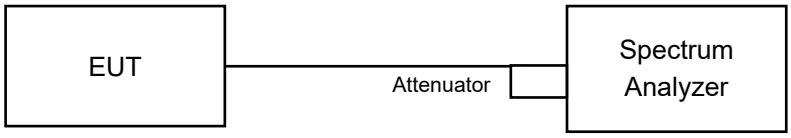
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5179.9807	PASS	5179.9829	PASS	5179.9817	PASS	5179.9826	PASS
	120	5179.9811	PASS	5179.9838	PASS	5179.9819	PASS	5179.9827	PASS
	102	5179.9805	PASS	5179.9841	PASS	5179.9824	PASS	5179.9817	PASS

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

Measurement Procedure REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
149	5745	15.16	15.17	15.16	0.5	Pass
157	5785	15.17	15.18	15.16	0.5	Pass
165	5825	15.18	15.18	15.17	0.5	Pass

802.11ac (VHT20)

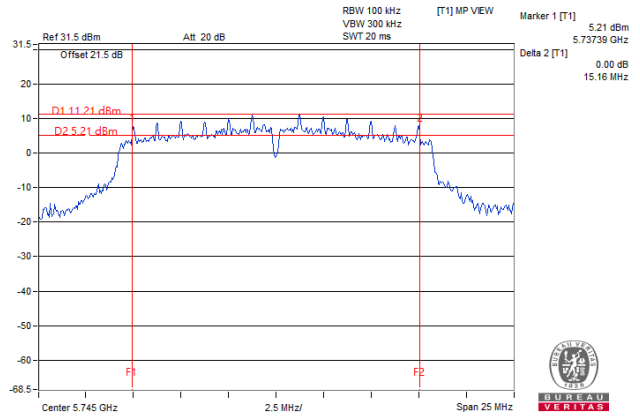
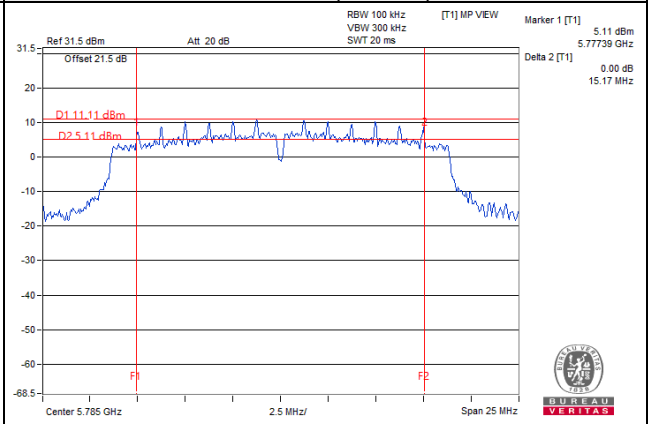
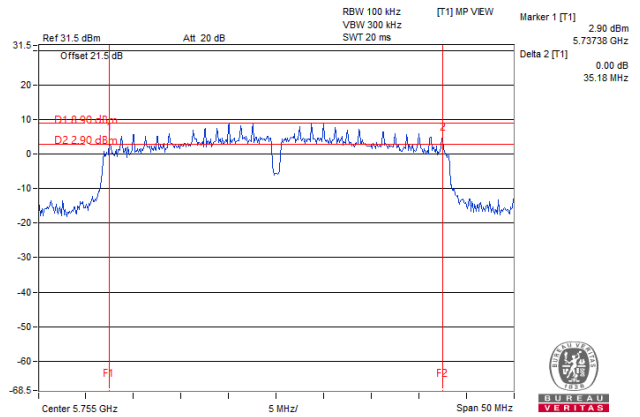
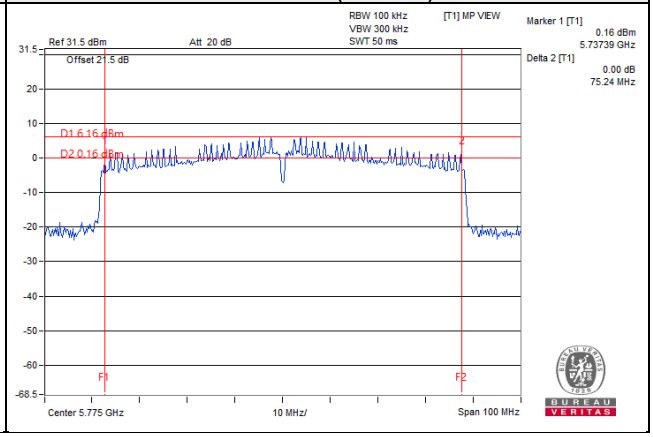
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
149	5745	15.18	15.17	15.19	0.5	Pass
157	5785	15.17	15.19	15.18	0.5	Pass
165	5825	15.17	15.17	15.18	0.5	Pass

802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
151	5755	35.18	35.23	35.22	0.5	Pass
159	5795	35.24	35.18	35.24	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
155	5775	75.25	75.24	75.25	0.5	Pass

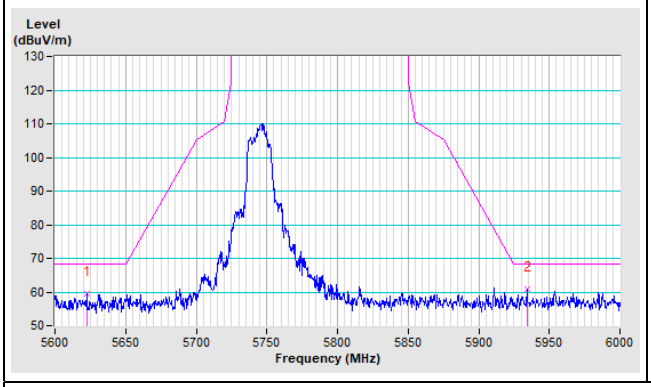
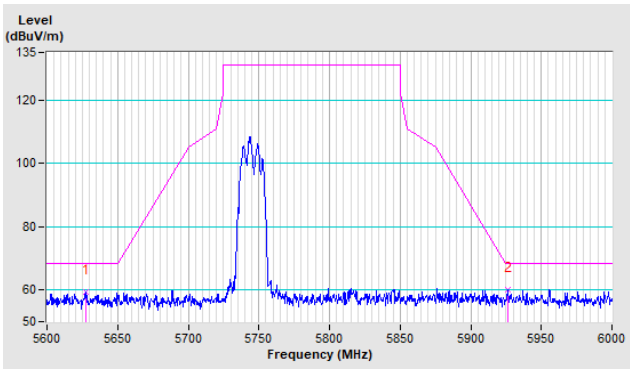
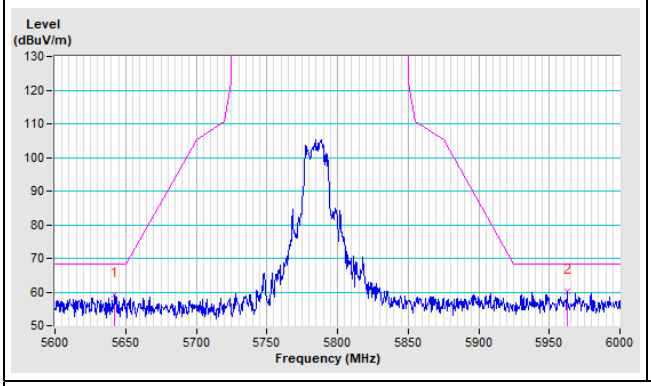
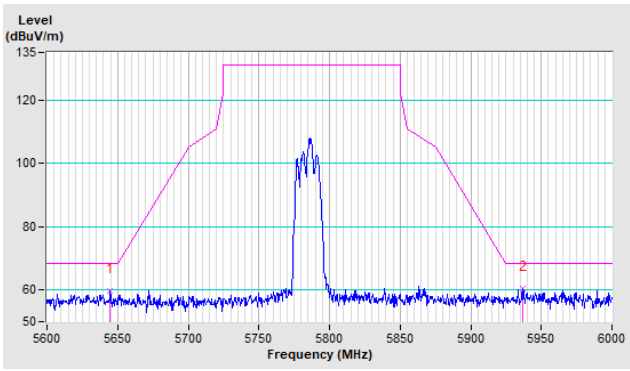
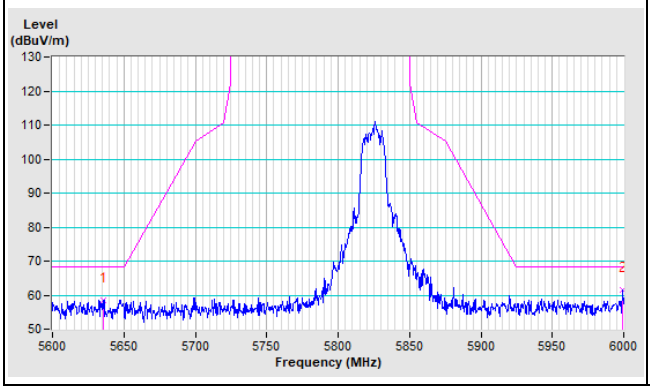
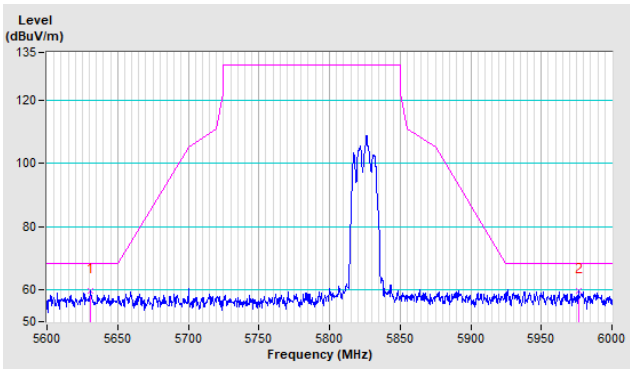
Spectrum Plot of Worst Value	
802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	802.11ac (VHT80)
	

5 Pictures of Test Arrangements

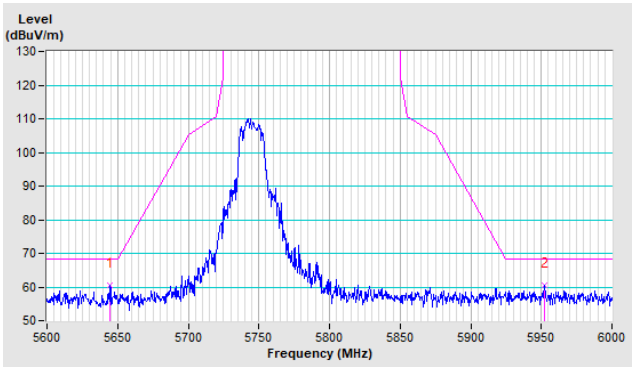
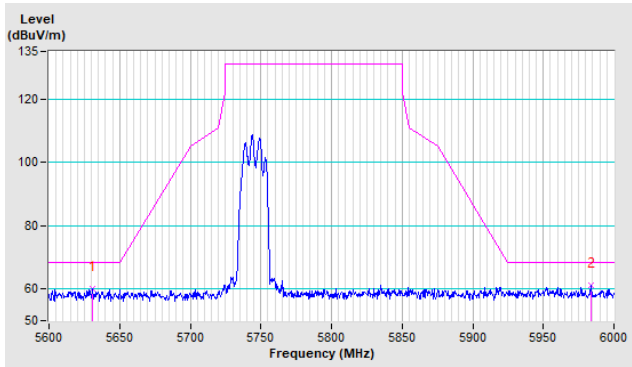
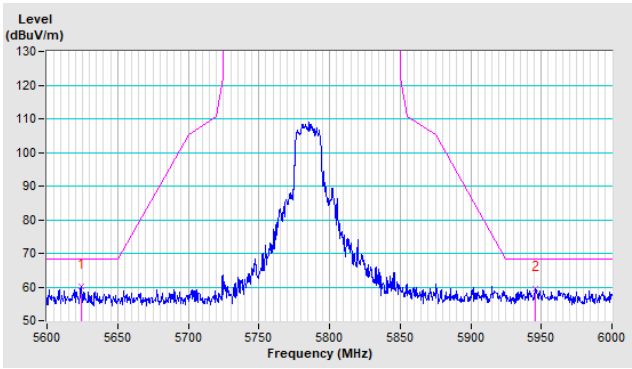
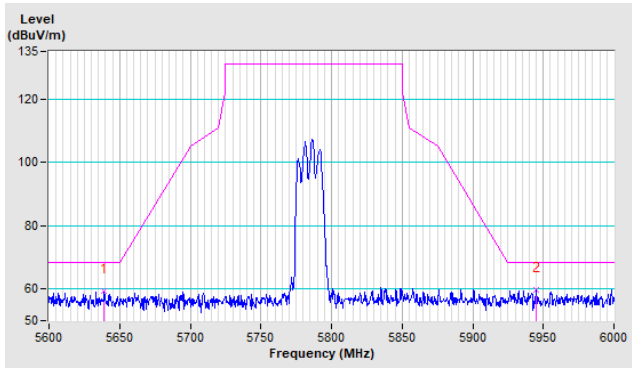
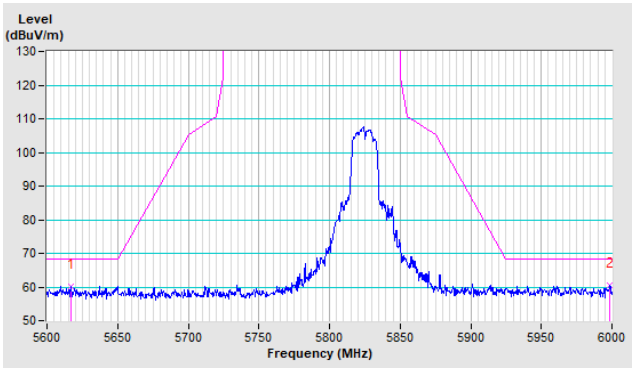
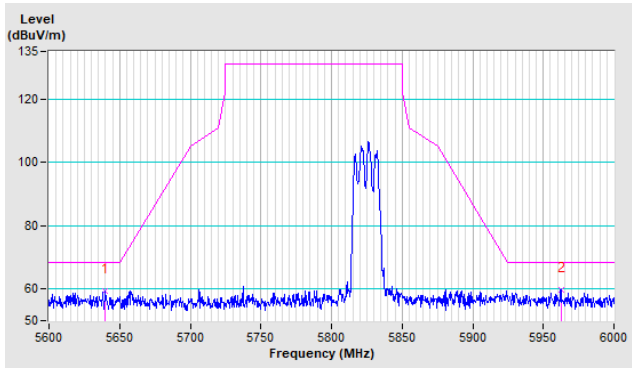
Please refer to the attached file (Test Setup Photo).

Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

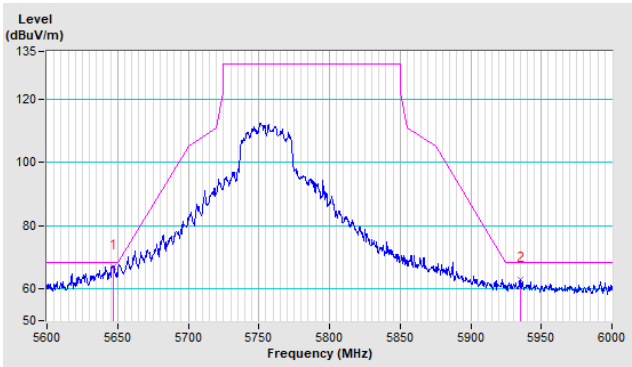
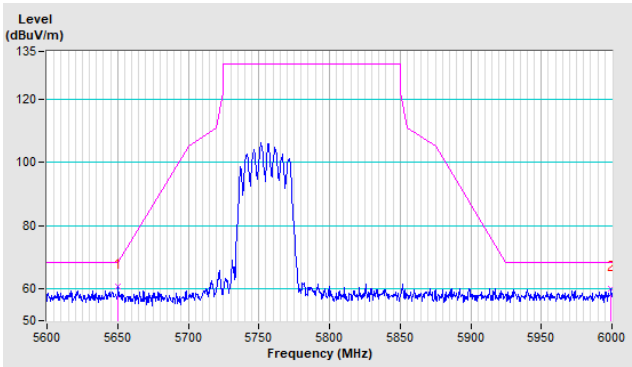
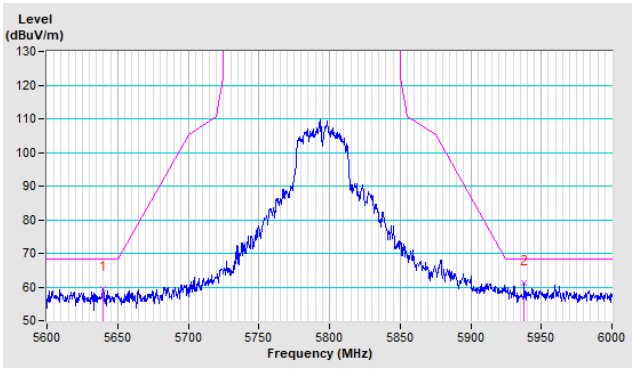
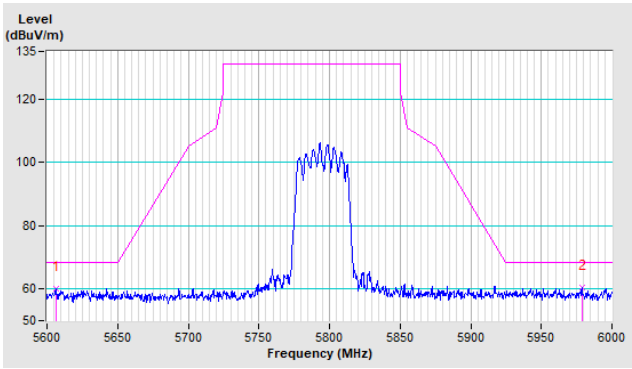
802.11a

CH149	
Horizontal	Vertical
	
CH157	
Horizontal	Vertical
	
CH165	
Horizontal	Vertical
	

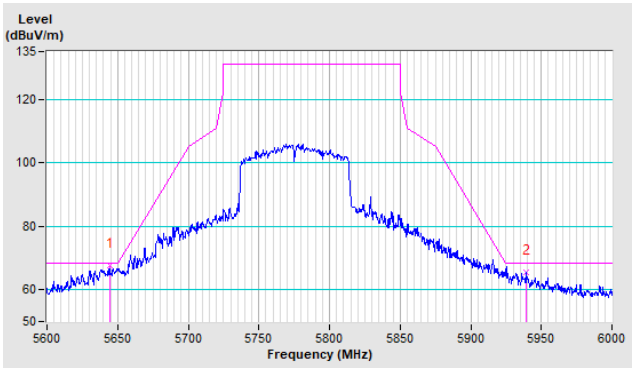
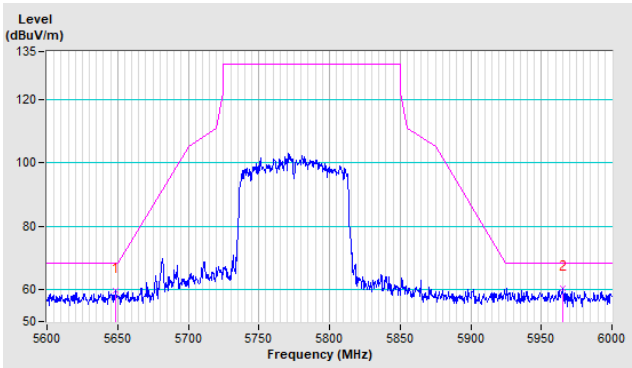
802.11ac (VHT20)

CH149	
Horizontal	Vertical
	
CH157	
Horizontal	Vertical
	
CH165	
Horizontal	Vertical
	

802.11ac (VHT40)

CH151	
Horizontal	Vertical
	
CH159	
Horizontal	Vertical
	

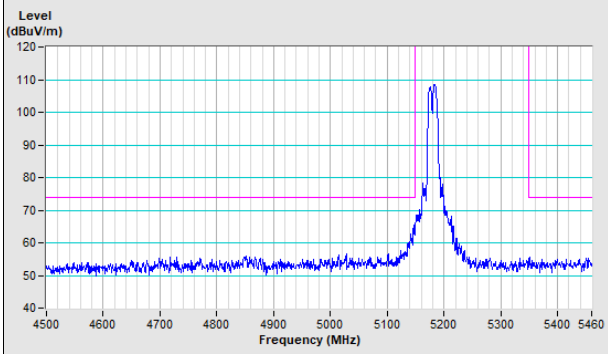
802.11ac (VHT80)

CH155	
Horizontal	Vertical
	

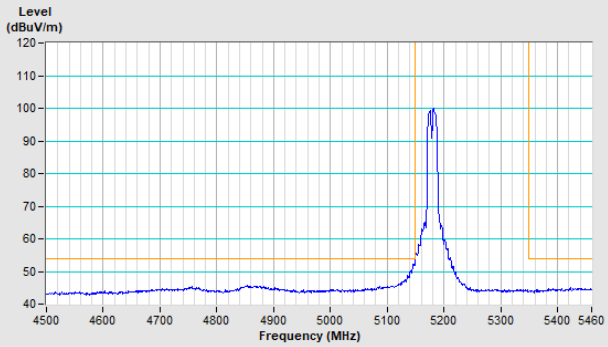
Annex B- Band Edge Measurement

802.11a Channel 36

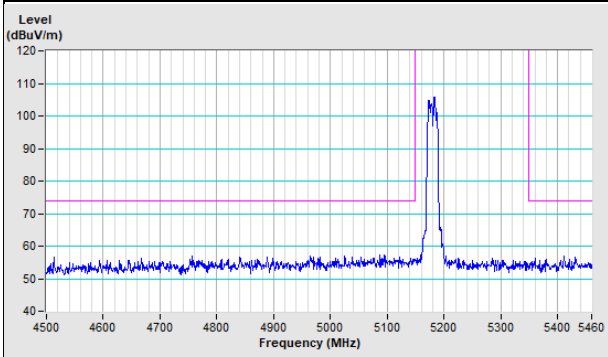
Horizontal (Peak)



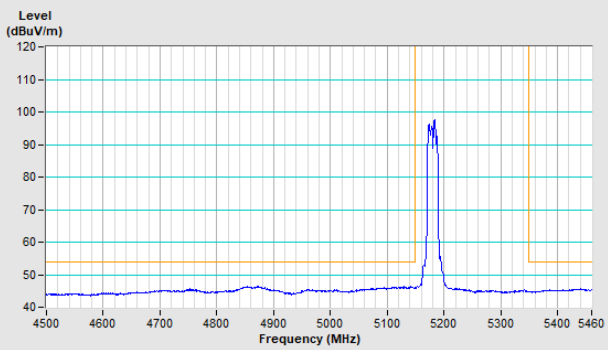
Horizontal (Average)



Vertical (Peak)

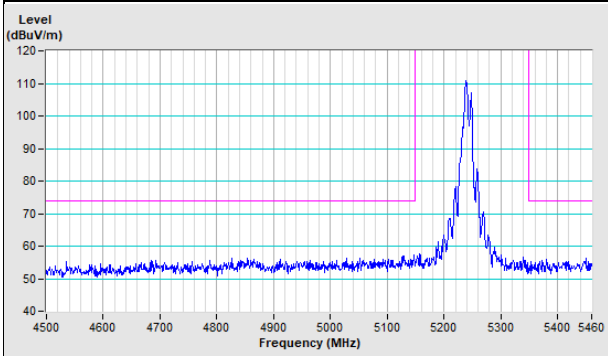


Vertical (Average)

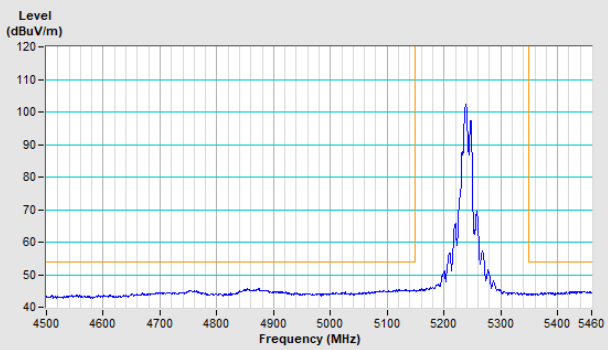


802.11a Channel 48

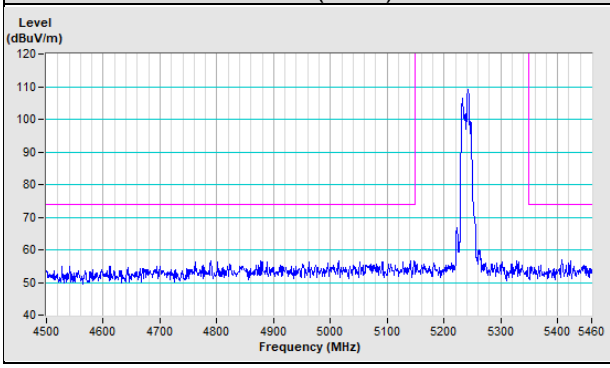
Horizontal (Peak)



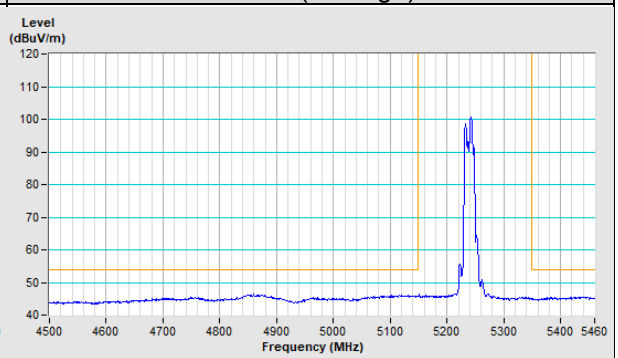
Horizontal (Average)

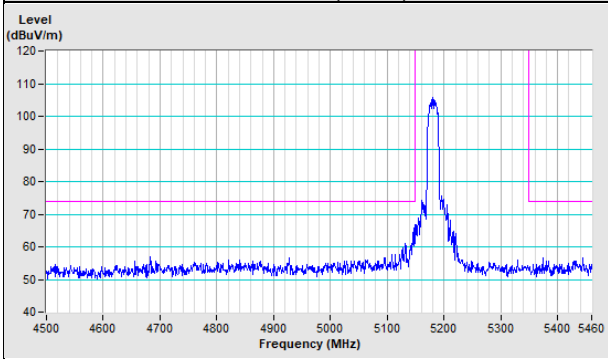
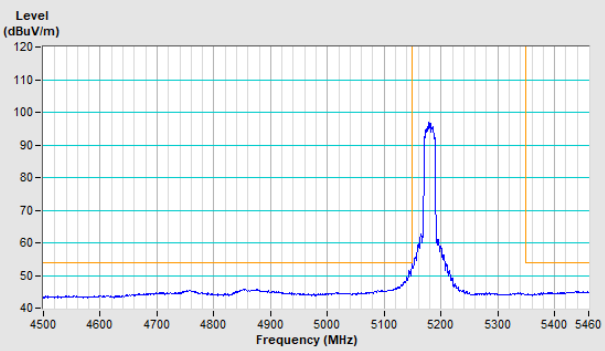
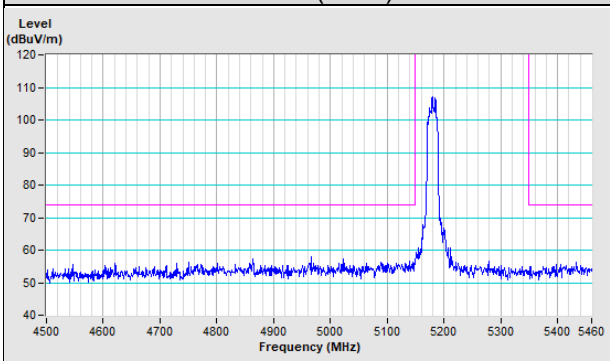
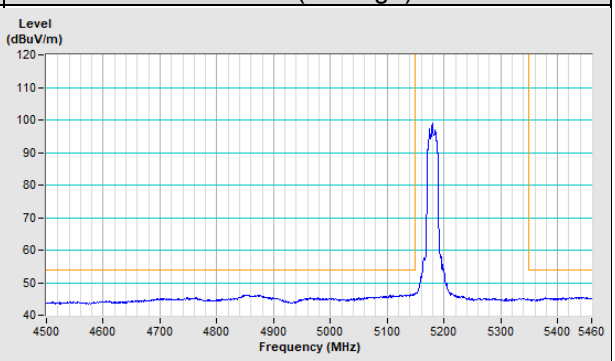
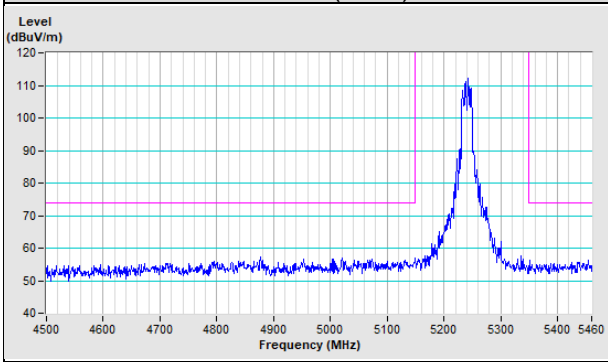
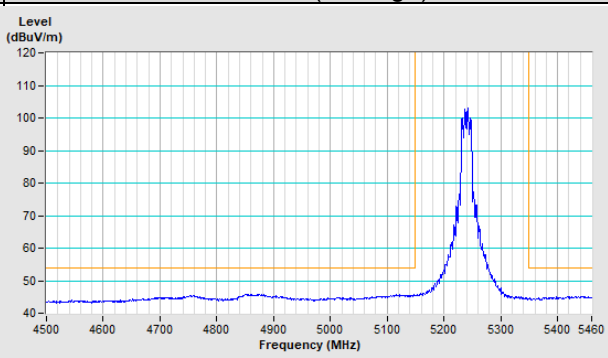
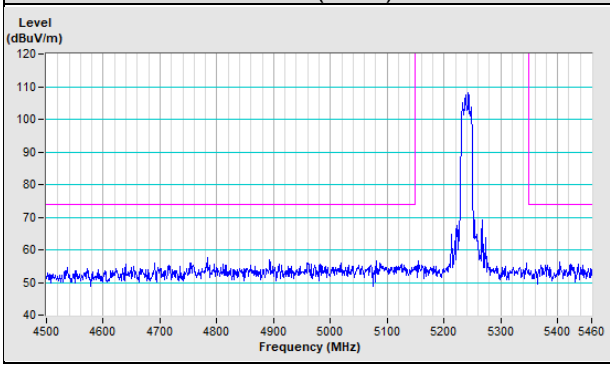
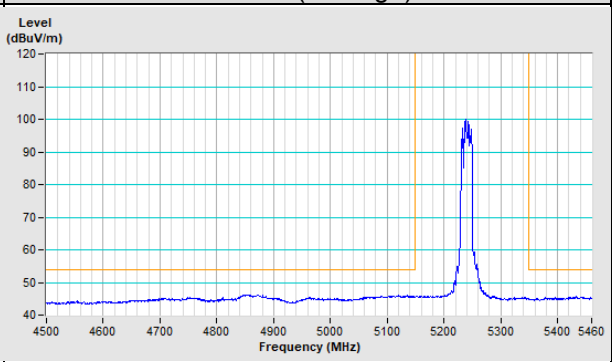


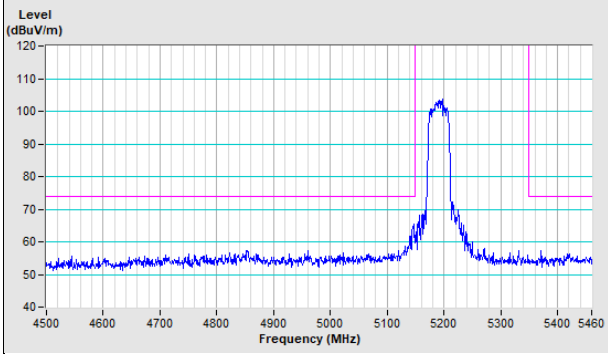
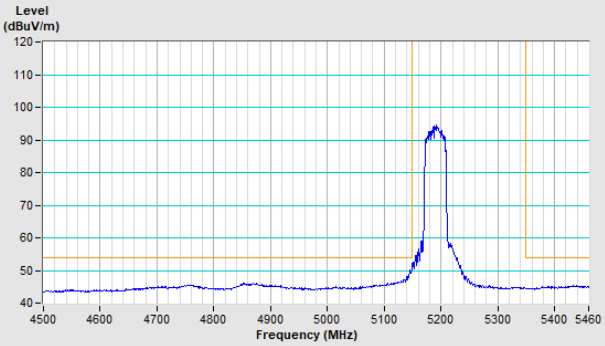
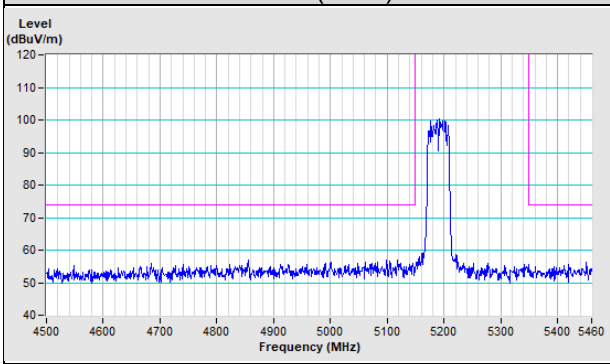
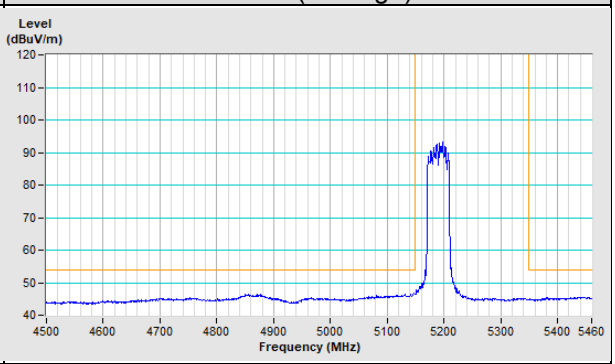
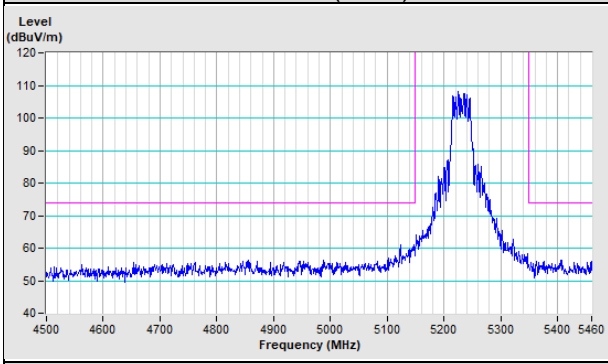
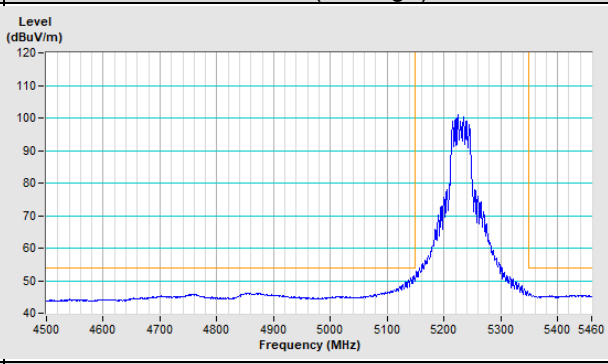
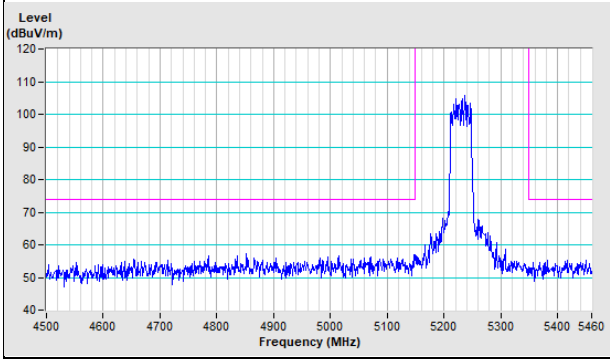
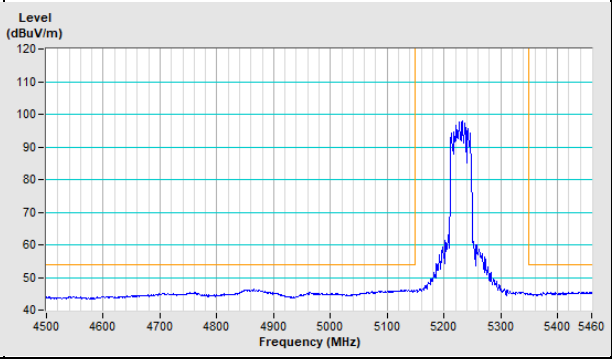
Vertical (Peak)

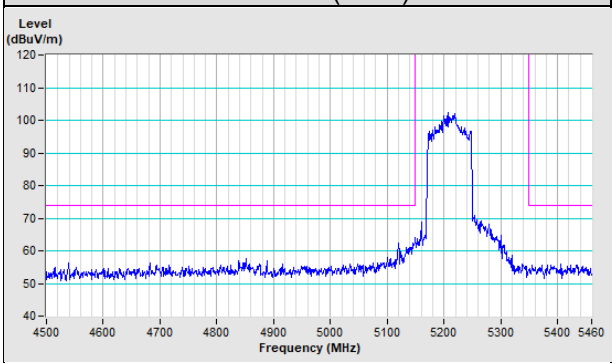
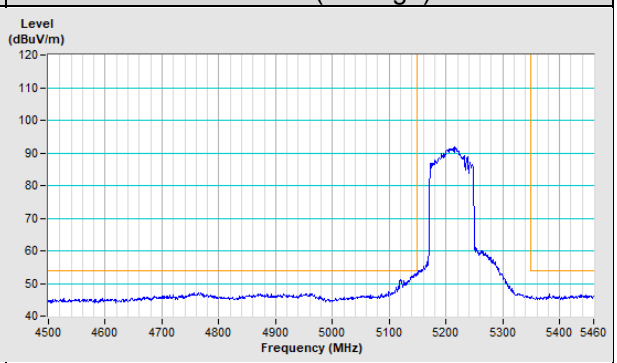
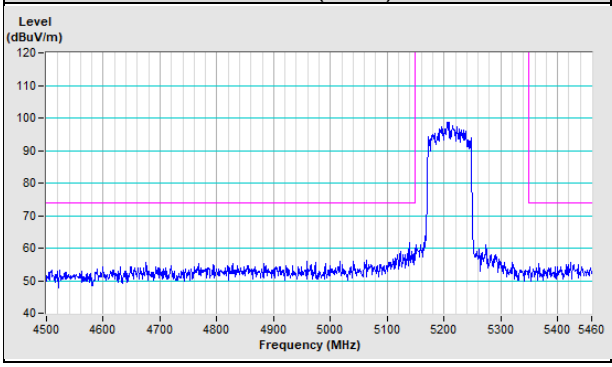
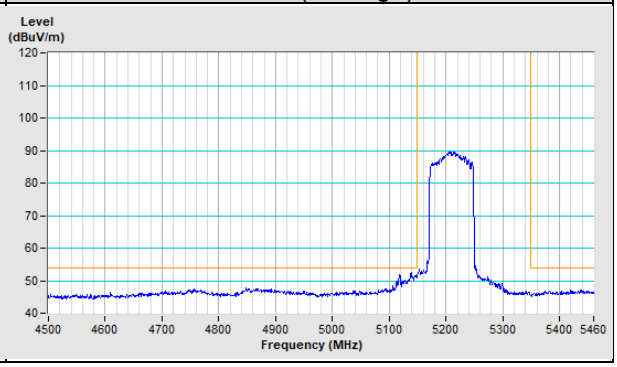


Vertical (Average)



802.11ac (VHT20) Channel 36	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
802.11ac (VHT20) Channel 48	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

802.11ac (VHT40) Channel 38	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
802.11ac (VHT40) Channel 46	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

802.11ac (VHT80) Channel 58	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

Appendix – Information of the Testing Laboratories

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