FCC Test Report

Report No.:	RF181023C12-1
FCC ID:	PY318300422
Test Model:	EX7300v2
Series Model:	EX6400v2 (refer to item 3.1 for more details)
Received Date:	Oct. 23, 2018
Test Date:	Nov. 05 ~ Dec. 18, 2018
Issued Date:	Dec. 18, 2018
Applicant:	NETGEAR, INC.
Address:	350 East Plumeria Drive San Jose, CA 95134
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)
FCC Registration / Designation Number:	788550 / TW0003

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RF181023C12-1	Original release.	Dec. 18, 2018

1 Certificate of Conformity

Product:	Nighthawk X4 AC2200 WiFi Mesh Extender (refer to item 3.1 for more details)
Brand:	NETGEAR
Test Model:	EX7300v2
Series Model:	EX6400v2 (refer to item 3.1 for more details)
Sample Status:	Engineering sample
Applicant:	NETGEAR, INC.
Test Date:	Nov. 05 ~ Dec. 18, 2018
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 EMC characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** Dec. 18, 2018

Polly Chien / Specialist

Approved by : _____ , **Date:** Dec. 18, 2018

Bruce Chen / 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 -13.30dB at 0.15000MHz.
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. (U-NII-3 Band only)
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit.
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	No antenna connector is used.

*For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOBE test plots were recorded in Annex A.

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	2.94 dB
Radiated Emissions up to 1 GHz	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	Nighthawk X4 AC2200 WiFi Mesh Extender (refer to note for more details)
Brand	NETGEAR
Test Model	EX7300v2
Series Model	EX6400v2
Model Difference	Refer to Note
Sample Status	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 600Mbps 802.11ac: up to 1733.3Mbps
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: 854.155mW 5745~5825MHz: 860.770mW Beamforming Mode: 5180~5240MHz: 803.297mW 5745~5825MHz: 848.822mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Cable Supplied	NA

Note:

1. All models are listed as below.

Brand	Product Name	Model	Difference
NETGEAR	Nighthawk X4 AC2200 WiFi Mesh Extender	EX7300v2	The listed models are electrically and mechanically identical. The intention of these models is only for RF output transmit antenna (EX7300v2 2.4G: 4T4R; EX6400v2 2.4G: 3T3R) and different NETGEAR logo (EX7300v2 has silver coating. EX6400v2 has no silver coating) purpose.
	AC1900 WiFi Mesh Extender	EX6400v2	

* For above two model are presented in power output test item. For other test items, model EX7300v2 is the worst case for final tests after pretesting.

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

Band	Modulation Mode	TX Function	Beamforming
5GHz	802.11a	4TX	Not Support
	802.11n (HT20)	4TX	Support
	802.11n (HT40)	4TX	Support
	802.11ac (VHT20)	4TX	Support
	802.11ac (VHT40)	4TX	Support
	802.11ac (VHT80)	4TX	Support

* The modulation and bandwidth are similar for 802.11n mode for 20MHz/40MHz and 802.11ac mode for 20MHz/40MHz, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

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

3. The EUT uses following antennas.

Model: EX6400v2 & EX7300v2

Ant. Type	PIFA
Connecter Type	NA
Frequency	Directional Gain (dBi)
5150~5250MHz	5.49
5250~5350MHz	5.48
5470~5725MHz	5.11
5725~5850MHz	5.14

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 Z-plane.

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)	Remark
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0	4TX
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	13.0	4TX
	802.11n (HT40)		38 to 46	38, 46	OFDM	27.0	4TX
	802.11ac (VHT80)		42	42	OFDM	58.5	4TX
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0	4TX
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	13.0	4TX
	802.11n (HT40)		151 to 159	151, 159	OFDM	27.0	4TX
	802.11ac (VHT80)		155	155	OFDM	130.0	4TX

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)	Remark
-	802.11a	5180-5240	36 to 48	165	OFDM	6.0	4TX
		5745-5825	149 to 165		OFDM	6.0	4TX

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)	Remark
-	802.11a	5180-5240	36 to 48	165	OFDM	6.0	4TX
		5745-5825	149 to 165		OFDM	6.0	4TX

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)	Remark
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0	4TX
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	13.0	4TX
	802.11n (HT40)		38 to 46	38, 46	OFDM	27.0	4TX
	802.11ac (VHT80)		42	42	OFDM	58.5	4TX
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0	4TX
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	13.0	4TX
	802.11n (HT40)		151 to 159	151, 159	OFDM	27.0	4TX
	802.11ac (VHT80)		155	155	OFDM	130.0	4TX

Test Condition:

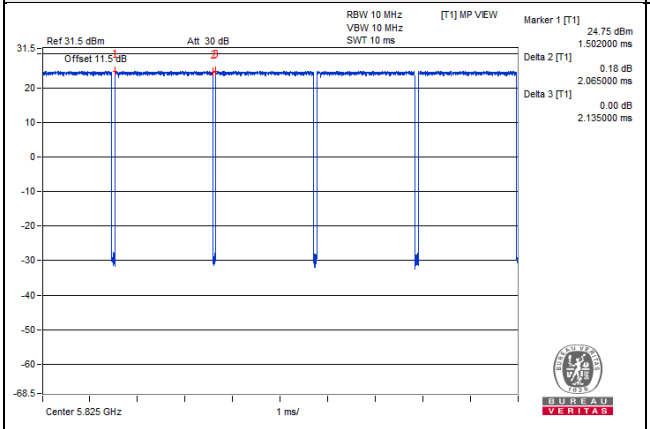
Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	25deg. C, 70%RH	120Vac, 60Hz	Noah Chang
RE<1G	25deg. C, 71%RH	120Vac, 60Hz	Noah Chang
PLC	25deg. C, 71%RH	120Vac, 60Hz	Noah Chang
APCM	25deg. C, 60%RH	120Vac, 60Hz	Alan Wu

3.3 Duty Cycle of Test Signal

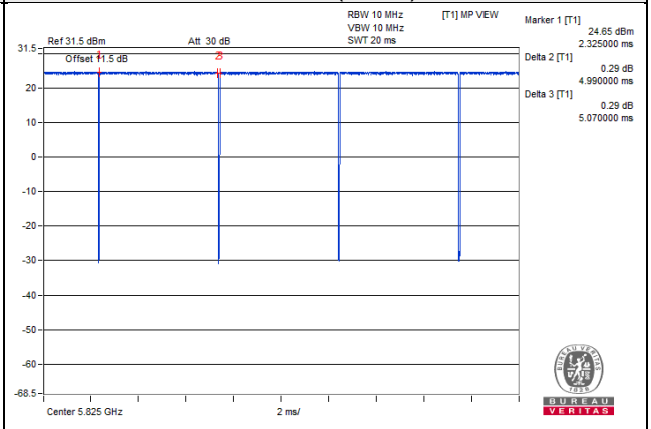
Duty cycle of test signal is ≥ 98%, duty factor is not required.
Duty cycle of test signal is < 98%, duty factor shall be considered.

802.11a: Duty cycle = 2.065/2.135 = 0.967, Duty factor = 10 * log (1/0.967) = 0.14
802.11n (HT20): Duty cycle = 4.990/5.070 = 0.984
802.11n (HT40): Duty cycle = 2.425/2.500 = 0.970, Duty factor = 10 * log (1/0.970) = 0.13
802.11ac (VHT80): Duty cycle = 1.144/1.223 = 0.935, Duty factor = 10 * log (1/0.935) = 0.29

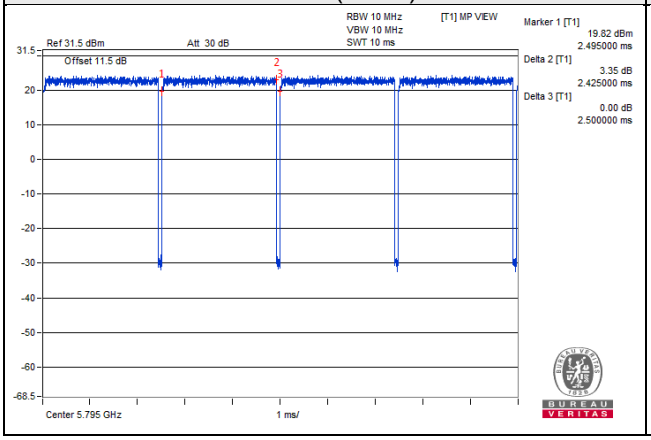
802.11a



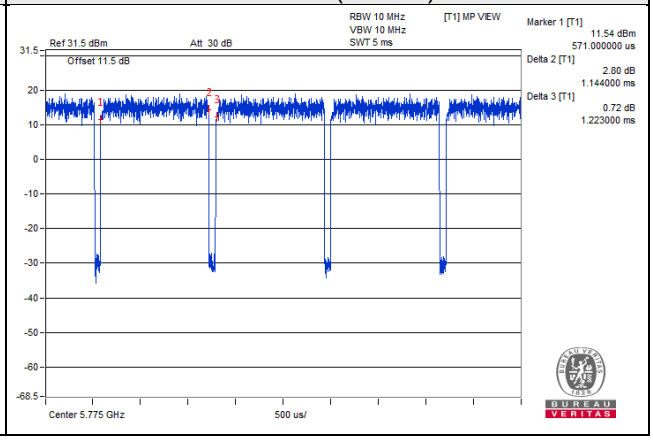
802.11n (HT20)



802.11n (HT40)



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.

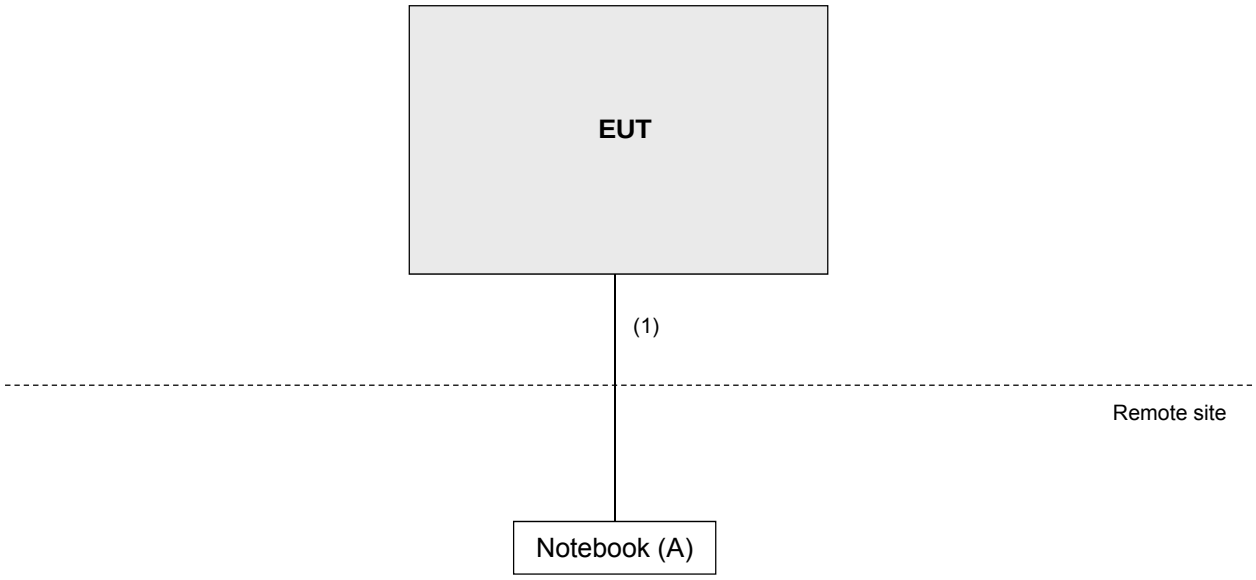
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45, Cat5e	1	6	N	0	-

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart E (15.407)
KDB 789033 D02 General UNII Test Procedure New Rules v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10:2013

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

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><th colspan="3">Applicable To</th><th colspan="2">Limit</th></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.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	May 29, 2018	May 28, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 25, 2018	Sep. 24, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Nov. 21, 2018	Dec. 20, 2019
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Dec. 13, 2017	Dec. 12, 2018
			Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
			Nov. 25, 2018	Nov. 24, 2019
Loop Antenna TESEQ	HLA 6121	45745	Jun. 14, 2018	Jun. 13, 2019
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Aug. 08, 2018	Aug. 07, 2019
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jul. 02, 2018	Jul. 01, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 08, 2018	Aug. 07, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 08, 2018	Aug. 07, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Nov. 14, 2017	Nov. 13, 2018
			Nov. 14, 2018	Nov. 13, 2019
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/MY55190007/MY55210005	Jul. 17, 2018	Jul. 16, 2019

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.
3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is 7450F-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:

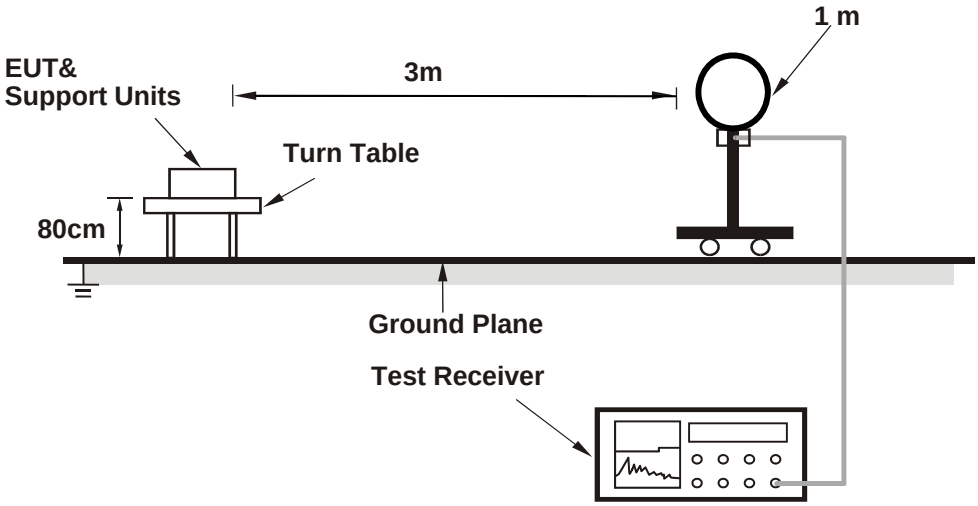
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

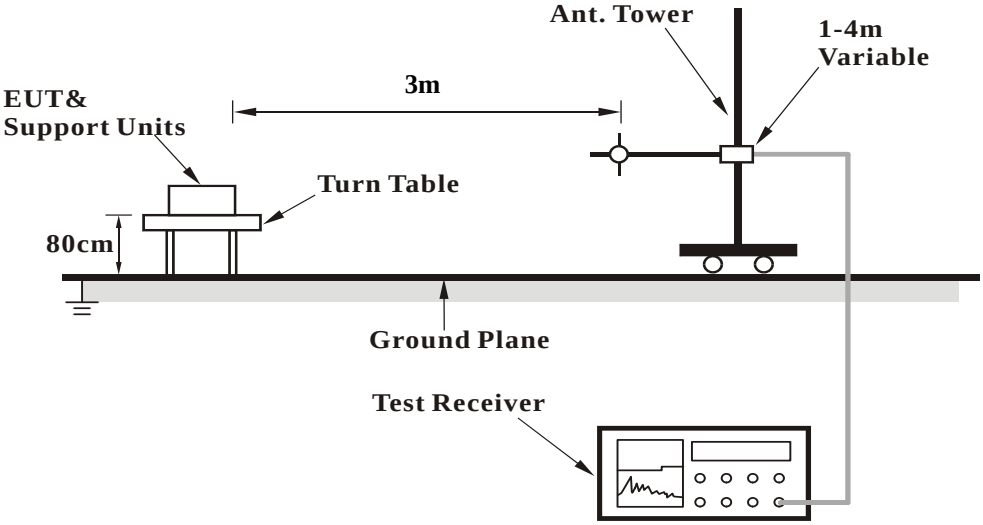
No deviation.

4.1.5 Test Setup

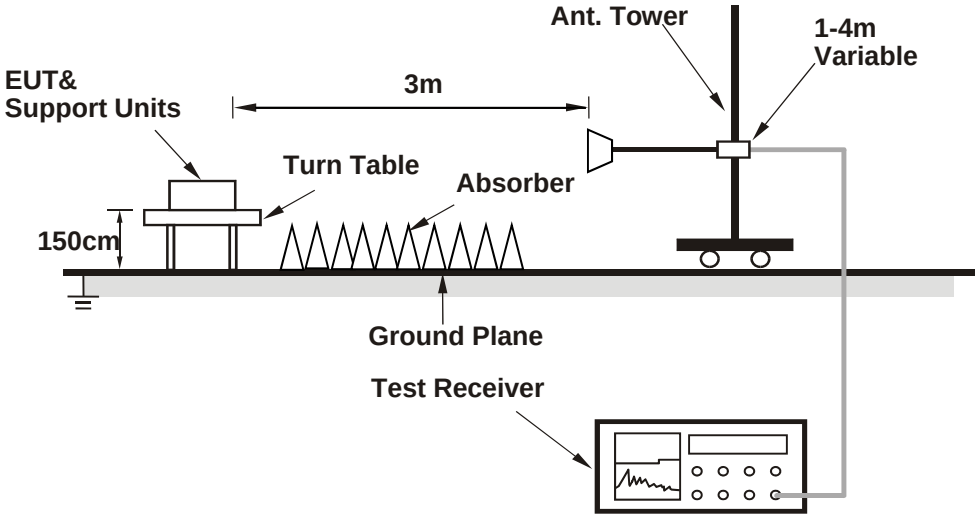
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

a. Placed the EUT on the testing table.
b. Prepared a notebook to act as a communication partner and placed it outside of testing area.
c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".
e. 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.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	64.6 PK	74.0	-9.4	1.26 H	236	52.8	11.8
2	5150.00	52.3 AV	54.0	-1.7	1.26 H	236	40.5	11.8
3	*5180.00	113.9 PK			1.26 H	236	73.1	40.8
4	*5180.00	103.8 AV			1.26 H	236	63.0	40.8
5	#10360.00	61.7 PK	68.2	-6.5	2.35 H	155	39.6	22.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	65.9 PK	74.0	-8.1	2.38 V	175	54.1	11.8
2	**5150.00**	**53.9 AV**	**54.0**	**-0.1**	**2.38 V**	**175**	**42.1**	**11.8**
3	*5180.00	117.6 PK			2.38 V	175	76.8	40.8
4	*5180.00	107.0 AV			2.38 V	175	66.2	40.8
5	#10360.00	62.6 PK	68.2	-5.6	1.96 V	250	40.5	22.1

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.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	67.4 PK	74.0	-6.6	1.25 H	238	55.6	11.8
2	5150.00	52.6 AV	54.0	-1.4	1.25 H	238	40.8	11.8
3	*5200.00	119.3 PK			1.25 H	238	78.5	40.8
4	*5200.00	108.6 AV			1.25 H	238	67.8	40.8
5	#10400.00	62.2 PK	68.2	-6.0	2.81 H	136	39.8	22.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	67.3 PK	74.0	-6.7	2.13 V	178	55.5	11.8
2	5150.00	53.6 AV	54.0	-0.4	2.13 V	178	41.8	11.8
3	*5200.00	121.6 PK			2.13 V	178	80.8	40.8
4	*5200.00	111.4 AV			2.13 V	178	70.6	40.8
5	#10400.00	63.2 PK	68.2	-5.0	1.88 V	243	40.8	22.4

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	115.8 PK			1.29 H	279	75.3	40.5
2	*5240.00	105.4 AV			1.29 H	279	64.9	40.5
3	5350.00	61.2 PK	74.0	-12.8	1.29 H	279	49.3	11.9
4	5350.00	47.7 AV	54.0	-6.3	1.29 H	279	35.8	11.9
5	#10480.00	62.2 PK	68.2	-6.0	2.41 H	118	40.0	22.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	122.0 PK			2.12 V	172	81.5	40.5
2	*5240.00	111.3 AV			2.12 V	172	70.8	40.5
3	5350.00	65.1 PK	74.0	-8.9	2.12 V	172	53.2	11.9
4	5350.00	50.4 AV	54.0	-3.6	2.12 V	172	38.5	11.9
5	#10480.00	62.4 PK	68.2	-5.8	1.92 V	261	40.2	22.2

Remarks:

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

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5635.20	63.1 PK	68.2	-5.1	1.00 H	229	50.5	12.6
2	*5745.00	120.2 PK			1.00 H	229	78.0	42.2
3	*5745.00	110.4 AV			1.00 H	229	68.2	42.2
4	#5944.80	63.9 PK	68.2	-4.3	1.00 H	229	50.3	13.6
5	11490.00	63.3 PK	74.0	-10.7	2.33 H	154	39.8	23.5
6	11490.00	50.7 AV	54.0	-3.3	2.33 H	154	27.2	23.5
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	#5644.80	64.0 PK	68.2	-4.2	1.73 V	174	51.5	12.5
2	*5745.00	123.1 PK			1.67 V	172	80.9	42.2
3	*5745.00	112.6 AV			1.67 V	172	70.4	42.2
4	#5984.00	63.5 PK	68.2	-4.7	1.73 V	174	49.8	13.7
5	11490.00	63.1 PK	74.0	-10.9	1.73 V	174	39.6	23.5
6	11490.00	50.1 AV	54.0	-3.9	1.73 V	174	26.6	23.5

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5626.40	64.3 PK	68.2	-3.9	1.20 H	228	51.7	12.6
2	*5785.00	121.9 PK			1.20 H	228	79.4	42.5
3	*5785.00	111.3 AV			1.20 H	228	68.8	42.5
4	#5958.40	64.0 PK	68.2	-4.2	1.20 H	228	50.3	13.7
5	11570.00	63.4 PK	74.0	-10.6	2.15 H	147	40.2	23.2
6	11570.00	49.5 AV	54.0	-4.5	2.15 H	147	26.3	23.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5628.80	63.3 PK	68.2	-4.9	1.77 V	173	50.7	12.6
2	*5785.00	123.1 PK			1.77 V	173	80.6	42.5
3	*5785.00	112.8 AV			1.77 V	173	70.3	42.5
4	#5996.00	63.2 PK	68.2	-5.0	1.77 V	173	49.5	13.7
5	11570.00	63.9 PK	74.0	-10.1	1.52 V	271	40.7	23.2
6	11570.00	49.3 AV	54.0	-4.7	1.52 V	271	26.1	23.2

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5644.80	63.6 PK	68.2	-4.6	1.17 H	230	51.1	12.5
2	*5825.00	122.1 PK			1.17 H	230	79.3	42.8
3	*5825.00	111.9 AV			1.17 H	230	69.1	42.8
4	#5936.00	66.7 PK	68.2	-1.5	1.17 H	230	53.1	13.6
5	11650.00	63.1 PK	74.0	-10.9	2.05 H	173	40.2	22.9
6	11650.00	49.7 AV	54.0	-4.3	2.05 H	173	26.8	22.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5618.40	62.3 PK	68.2	-5.9	2.00 V	184	49.7	12.6
2	*5825.00	124.3 PK			2.00 V	184	81.5	42.8
3	*5825.00	113.9 AV			2.00 V	184	71.1	42.8
4	#5927.20	67.3 PK	68.2	-0.9	2.00 V	184	53.7	13.6
5	11650.00	62.7 PK	74.0	-11.3	1.30 V	245	39.8	22.9
6	11650.00	49.6 AV	54.0	-4.4	1.30 V	245	26.7	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.

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	62.8 PK	74.0	-11.2	1.16 H	236	51.0	11.8
2	5150.00	51.0 AV	54.0	-3.0	1.16 H	236	39.2	11.8
3	*5180.00	112.7 PK			1.16 H	236	71.9	40.8
4	*5180.00	101.7 AV			1.16 H	236	60.9	40.8
5	#10360.00	62.3 PK	68.2	-5.9	2.39 H	152	40.2	22.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.0 PK	74.0	-8.0	2.37 V	202	54.2	11.8
2	5150.00	53.7 AV	54.0	-0.3	2.37 V	202	41.9	11.8
3	*5180.00	116.1 PK			2.37 V	202	75.3	40.8
4	*5180.00	105.8 AV			2.37 V	202	65.0	40.8
5	#10360.00	62.4 PK	68.2	-5.8	1.76 V	234	40.3	22.1

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.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	64.1 PK	74.0	-9.9	1.16 H	235	52.3	11.8
2	5150.00	49.9 AV	54.0	-4.1	1.16 H	235	38.1	11.8
3	*5200.00	117.7 PK			1.16 H	235	76.9	40.8
4	*5200.00	106.9 AV			1.16 H	235	66.1	40.8
5	#10400.00	61.9 PK	68.2	-6.3	2.95 H	188	39.5	22.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	68.2 PK	74.0	-5.8	2.42 V	195	56.4	11.8
2	5150.00	53.7 AV	54.0	-0.3	2.42 V	195	41.9	11.8
3	*5200.00	120.5 PK			2.42 V	195	79.7	40.8
4	*5200.00	110.1 AV			2.42 V	195	69.3	40.8
5	#10400.00	63.1 PK	68.2	-5.1	1.99 V	218	40.7	22.4

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	117.5 PK			1.21 H	232	77.0	40.5
2	*5240.00	106.4 AV			1.21 H	232	65.9	40.5
3	5350.00	60.5 PK	74.0	-13.5	1.21 H	232	48.6	11.9
4	5350.00	47.7 AV	54.0	-6.3	1.21 H	232	35.8	11.9
5	#10480.00	61.9 PK	68.2	-6.3	2.36 H	174	39.7	22.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	121.5 PK			2.50 V	190	81.0	40.5
2	*5240.00	111.2 AV			2.50 V	190	70.7	40.5
3	5350.00	59.5 PK	74.0	-14.5	2.50 V	190	47.6	11.9
4	5350.00	46.9 AV	54.0	-7.1	2.50 V	190	35.0	11.9
5	#10480.00	62.8 PK	68.2	-5.4	1.82 V	269	40.6	22.2

Remarks:

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

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5622.40	63.3 PK	68.2	-4.9	1.48 H	230	50.7	12.6
2	*5745.00	119.4 PK			1.48 H	230	77.2	42.2
3	*5745.00	109.4 AV			1.48 H	230	67.2	42.2
4	#5981.60	63.7 PK	68.2	-4.5	1.48 H	230	50.0	13.7
5	11490.00	63.7 PK	74.0	-10.3	2.47 H	195	40.2	23.5
6	11490.00	50.4 AV	54.0	-3.6	2.47 H	195	26.9	23.5
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	#5650.40	65.1 PK	68.5	-3.4	1.96 V	164	52.7	12.4
2	*5745.00	121.8 PK			1.96 V	164	79.6	42.2
3	*5745.00	111.8 AV			1.96 V	164	69.6	42.2
4	#5926.40	64.3 PK	68.2	-3.9	1.96 V	164	50.7	13.6
5	11490.00	64.1 PK	74.0	-9.9	1.88 V	263	40.6	23.5
6	11490.00	50.3 AV	54.0	-3.7	1.88 V	263	26.8	23.5

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5605.60	63.4 PK	68.2	-4.8	1.34 H	228	50.8	12.6
2	*5785.00	120.4 PK			1.34 H	228	77.9	42.5
3	*5785.00	110.1 AV			1.34 H	228	67.6	42.5
4	#5951.20	64.2 PK	68.2	-4.0	1.34 H	228	50.5	13.7
5	11570.00	63.2 PK	74.0	-10.8	2.35 H	165	40.0	23.2
6	11570.00	49.9 AV	54.0	-4.1	2.35 H	165	26.7	23.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5635.20	62.5 PK	68.2	-5.7	1.92 V	165	49.9	12.6
2	*5785.00	122.7 PK			1.92 V	165	80.2	42.5
3	*5785.00	112.7 AV			1.92 V	165	70.2	42.5
4	#5927.20	63.9 PK	68.2	-4.3	1.92 V	165	50.3	13.6
5	11570.00	63.3 PK	74.0	-10.7	1.39 V	204	40.1	23.2
6	11570.00	50.0 AV	54.0	-4.0	1.39 V	204	26.8	23.2

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5616.80	62.9 PK	68.2	-5.3	1.40 H	75	50.3	12.6
2	*5825.00	120.5 PK			1.40 H	75	77.7	42.8
3	*5825.00	109.7 AV			1.40 H	75	66.9	42.8
4	#5935.20	66.9 PK	68.2	-1.3	1.40 H	75	53.3	13.6
5	11650.00	63.2 PK	74.0	-10.8	2.91 H	184	40.3	22.9
6	11650.00	49.7 AV	54.0	-4.3	2.91 H	184	26.8	22.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5622.40	62.4 PK	68.2	-5.8	1.89 V	167	49.8	12.6
2	*5825.00	122.4 PK			1.89 V	167	79.6	42.8
3	*5825.00	112.2 AV			1.89 V	167	69.4	42.8
4	#5950.40	65.0 PK	68.2	-3.2	1.89 V	167	51.3	13.7
5	11650.00	63.0 PK	74.0	-11.0	1.46 V	287	40.1	22.9
6	11650.00	49.3 AV	54.0	-4.7	1.46 V	287	26.4	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.

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	63.5 PK	74.0	-10.5	1.21 H	127	51.7	11.8
2	5150.00	49.9 AV	54.0	-4.1	1.21 H	127	38.1	11.8
3	*5190.00	111.5 PK			1.21 H	127	70.7	40.8
4	*5190.00	100.8 AV			1.21 H	127	60.0	40.8
5	#10380.00	62.2 PK	68.2	-6.0	2.23 H	129	39.9	22.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.1 PK	74.0	-7.9	2.64 V	187	54.3	11.8
2	5150.00	53.6 AV	54.0	-0.4	2.64 V	187	41.8	11.8
3	*5190.00	112.6 PK			2.64 V	187	71.8	40.8
4	*5190.00	103.0 AV			2.64 V	187	62.2	40.8
5	#10380.00	63.0 PK	68.2	-5.2	1.53 V	247	40.7	22.3

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	67.4 PK	74.0	-6.6	1.00 H	122	55.6	11.8
2	5150.00	53.7 AV	54.0	-0.3	1.00 H	122	41.9	11.8
3	*5230.00	113.8 PK			1.00 H	122	73.2	40.6
4	*5230.00	103.9 AV			1.00 H	122	63.3	40.6
5	5350.00	61.0 PK	74.0	-13.0	1.00 H	122	49.1	11.9
6	5350.00	47.9 AV	54.0	-6.1	1.00 H	122	36.0	11.9
7	#10460.00	62.7 PK	68.2	-5.5	2.48 H	155	40.4	22.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	69.1 PK	74.0	-4.9	2.63 V	183	57.3	11.8
2	**5150.00**	**53.9 AV**	**54.0**	**-0.1**	**2.63 V**	**183**	**42.1**	**11.8**
3	*5230.00	117.5 PK			2.63 V	183	76.9	40.6
4	*5230.00	107.9 AV			2.63 V	183	67.3	40.6
5	5350.00	61.8 PK	74.0	-12.2	2.63 V	183	49.9	11.9
6	5350.00	48.3 AV	54.0	-5.7	2.63 V	183	36.4	11.9
7	#10460.00	63.2 PK	68.2	-5.0	1.75 V	241	40.9	22.3

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5645.60	66.1 PK	68.2	-2.1	1.40 H	222	53.7	12.4
2	*5755.00	116.7 PK			1.40 H	222	74.4	42.3
3	*5755.00	106.4 AV			1.40 H	222	64.1	42.3
4	#5999.20	64.4 PK	68.2	-3.8	1.40 H	222	50.7	13.7
5	11510.00	63.7 PK	74.0	-10.3	2.16 H	139	40.4	23.3
6	11510.00	50.1 AV	54.0	-3.9	2.16 H	139	26.8	23.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5644.00	67.2 PK	68.2	-1.0	1.86 V	165	54.7	12.5
2	*5755.00	118.4 PK			1.86 V	165	76.1	42.3
3	*5755.00	108.0 AV			1.86 V	165	65.7	42.3
4	#5929.60	64.4 PK	68.2	-3.8	1.86 V	165	50.8	13.6
5	11510.00	63.1 PK	74.0	-10.9	1.65 V	274	39.8	23.3
6	11510.00	50.2 AV	54.0	-3.8	1.65 V	274	26.9	23.3

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5624.00	63.0 PK	68.2	-5.2	1.40 H	225	50.4	12.6
2	*5795.00	117.1 PK			1.40 H	225	74.5	42.6
3	*5795.00	106.9 AV			1.40 H	225	64.3	42.6
4	#5931.20	66.7 PK	68.2	-1.5	1.40 H	225	53.1	13.6
5	11590.00	63.0 PK	74.0	-11.0	2.34 H	176	40.1	22.9
6	11590.00	49.5 AV	54.0	-4.5	2.34 H	176	26.6	22.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5646.40	63.2 PK	68.2	-5.0	2.03 V	164	50.8	12.4
2	*5795.00	119.2 PK			2.03 V	164	76.6	42.6
3	*5795.00	108.8 AV			2.03 V	164	66.2	42.6
4	#5926.40	65.2 PK	68.2	-3.0	2.03 V	164	51.6	13.6
5	11590.00	62.8 PK	74.0	-11.2	1.83 V	250	39.9	22.9
6	11590.00	49.6 AV	54.0	-4.4	1.83 V	250	26.7	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.

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.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.1 PK	74.0	-7.9	1.00 H	134	54.3	11.8
2	5150.00	53.3 AV	54.0	-0.7	1.00 H	134	41.5	11.8
3	*5210.00	105.0 PK			1.00 H	134	64.3	40.7
4	*5210.00	95.2 AV			1.00 H	134	54.5	40.7
5	5350.00	61.2 PK	74.0	-12.8	1.00 H	134	49.3	11.9
6	5350.00	47.4 AV	54.0	-6.6	1.00 H	134	35.5	11.9
7	#10420.00	62.6 PK	68.2	-5.6	1.94 H	274	40.3	22.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5131.00	67.4 PK	74.0	-6.6	2.62 V	189	55.7	11.7
2	5131.00	53.6 AV	54.0	-0.4	2.62 V	189	41.9	11.7
3	*5210.00	108.4 PK			2.62 V	189	67.7	40.7
4	*5210.00	98.6 AV			2.62 V	189	57.9	40.7
5	5350.00	60.6 PK	74.0	-13.4	2.62 V	189	48.7	11.9
6	5350.00	47.4 AV	54.0	-6.6	2.62 V	189	35.5	11.9
7	#10420.00	63.1 PK	68.2	-5.1	2.01 V	299	40.8	22.3

Remarks:

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

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5644.80	64.1 PK	68.2	-4.1	1.40 H	221	51.6	12.5
2	*5775.00	108.5 PK			1.40 H	221	66.0	42.5
3	*5775.00	98.8 AV			1.40 H	221	56.3	42.5
4	#5944.00	64.0 PK	68.2	-4.2	1.40 H	221	50.4	13.6
5	11550.00	63.3 PK	74.0	-10.7	2.35 H	114	40.1	23.2
6	11550.00	49.6 AV	54.0	-4.4	2.35 H	114	26.4	23.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5647.20	67.8 PK	68.2	-0.4	1.92 V	165	55.4	12.4
2	*5775.00	110.1 PK			1.92 V	165	67.6	42.5
3	*5775.00	100.2 AV			1.92 V	165	57.7	42.5
4	#5969.60	64.7 PK	68.2	-3.5	1.92 V	165	51.0	13.7
5	11550.00	63.7 PK	74.0	-10.3	1.95 V	228	40.5	23.2
6	11550.00	49.8 AV	54.0	-4.2	1.95 V	228	26.6	23.2

Remarks:

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

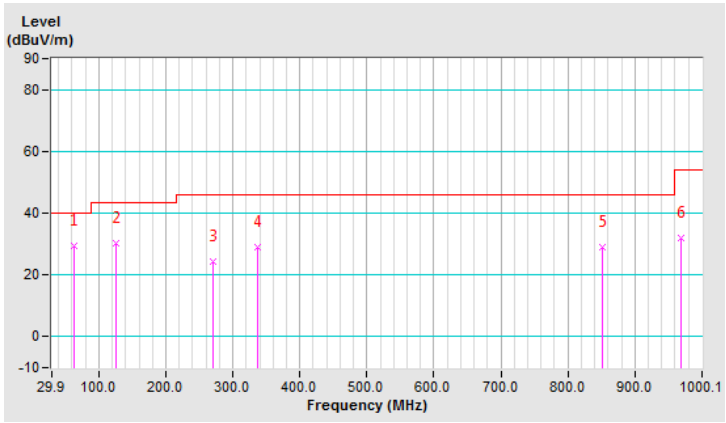
Below 1GHz Worst-Case Data: 802.11a

CHANNEL	TX Channel 165	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	62.89	29.3 QP	40.0	-10.7	2.00 H	326	38.7	-9.4
2	124.98	30.3 QP	43.5	-13.2	1.00 H	301	41.0	-10.7
3	270.51	24.4 QP	46.0	-21.6	1.00 H	284	33.1	-8.7
4	336.48	28.8 QP	46.0	-17.2	2.00 H	142	36.1	-7.3
5	850.69	29.1 QP	46.0	-16.9	1.00 H	142	26.4	2.7
6	969.05	31.9 QP	54.0	-22.1	1.00 H	328	27.2	4.7

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 of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

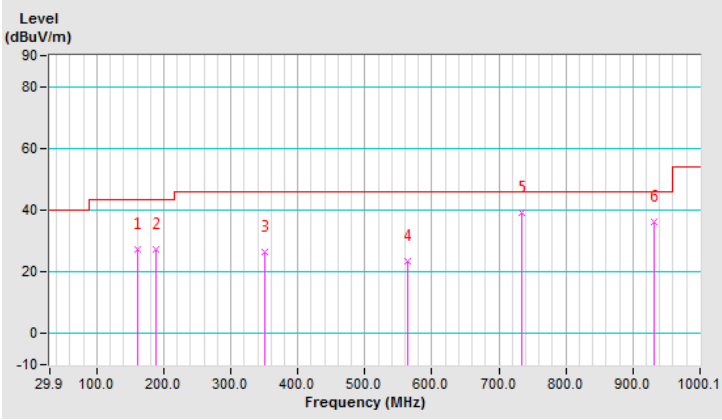


CHANNEL	TX Channel 165	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	161.85	27.4 QP	43.5	-16.1	2.00 V	9	36.1	-8.7
2	189.01	27.2 QP	43.5	-16.3	1.00 V	271	38.4	-11.2
3	350.07	26.5 QP	46.0	-19.5	1.00 V	252	33.8	-7.3
4	563.51	23.3 QP	46.0	-22.7	1.50 V	5	27.1	-3.8
5	734.27	39.2 QP	46.0	-6.8	1.00 V	155	38.6	0.6
6	932.19	36.1 QP	46.0	-9.9	1.00 V	209	32.0	4.1

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 of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Sep. 03, 2018	Sep. 02, 2019
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2018	Sep. 04, 2019
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 26, 2018	Feb. 25, 2019
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 19, 2018	Aug. 18, 2019
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.
3. The VCCI Site Registration No. is C-2040.

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.

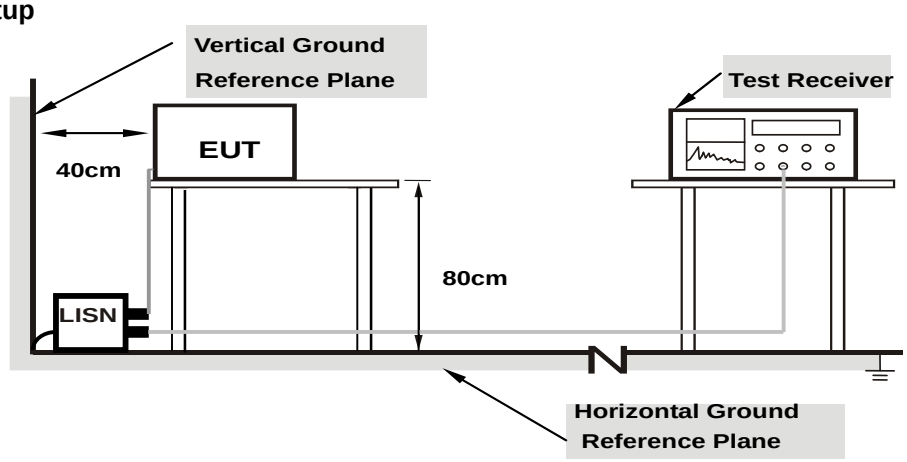
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

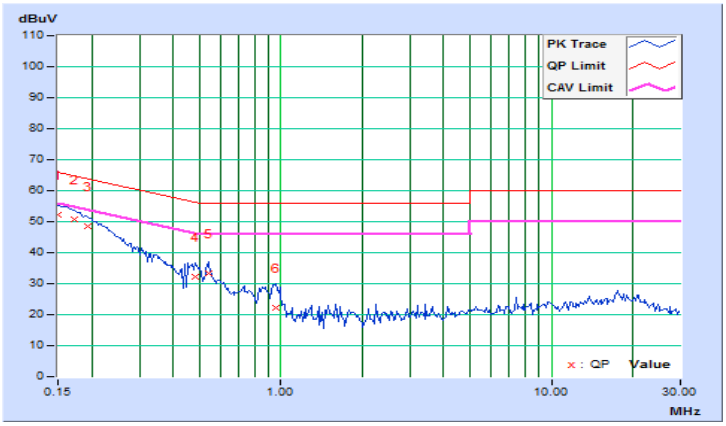
Worst-case data: 802.11a

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

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.67	42.66	26.02	52.33	35.69	66.00	56.00	-13.67	-20.31
2	0.17344	9.67	40.91	25.68	50.58	35.35	64.79	54.79	-14.21	-19.44
3	0.19297	9.67	38.71	23.31	48.38	32.98	63.91	53.91	-15.53	-20.93
4	0.48203	9.66	22.41	12.95	32.07	22.61	56.30	46.30	-24.23	-23.69
5	0.54063	9.66	23.80	15.23	33.46	24.89	56.00	46.00	-22.54	-21.11
6	0.95859	9.65	12.66	1.85	22.31	11.50	56.00	46.00	-33.69	-34.50

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.

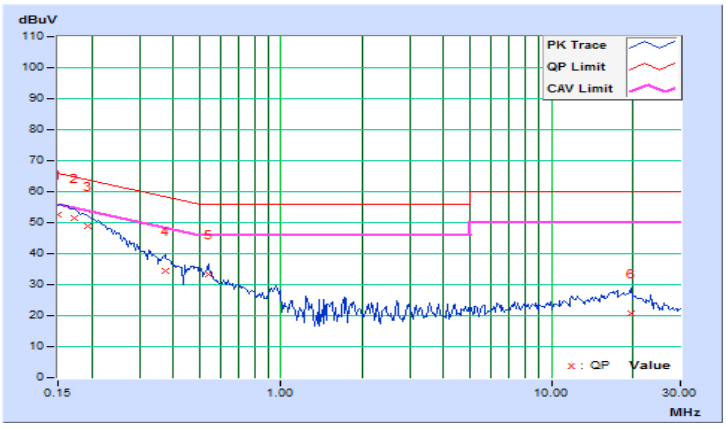


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	**0.15000**	**9.68**	**43.02**	**27.20**	**52.70**	**36.88**	**66.00**	**56.00**	**-13.30**	**-19.12**
2	0.17344	9.68	41.67	26.93	51.35	36.61	64.79	54.79	-13.44	-18.18
3	0.19297	9.67	39.29	24.41	48.96	34.08	63.91	53.91	-14.95	-19.83
4	0.37266	9.67	24.92	11.94	34.59	21.61	58.44	48.44	-23.85	-26.83
5	0.54063	9.67	23.55	15.29	33.22	24.96	56.00	46.00	-22.78	-21.04
6	19.71875	10.01	10.87	5.27	20.88	15.28	60.00	50.00	-39.12	-34.72

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)

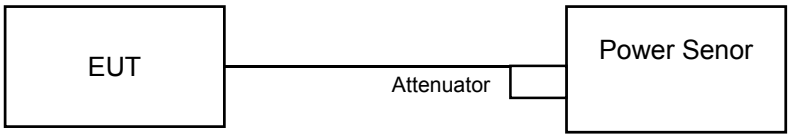
*B is the 26 dB emission bandwidth in megahertz

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

Channel	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	20.16	20.22	20.46	20.35	428.515	26.32	30	Pass
40	5200	22.96	23.44	23.48	23.28	**854.155**	29.32	30	Pass
48	5240	23.19	23.23	23.44	23.25	850.976	29.30	30	Pass
149	5745	22.31	24.05	24.37	22.12	**860.770**	29.35	30	Pass
157	5785	22.38	23.92	24.00	22.08	832.211	29.20	30	Pass
165	5825	22.09	23.80	23.92	22.15	812.354	29.10	30	Pass

802.11n (HT20)

Channel	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	19.18	18.94	19.01	19.14	322.788	25.09	30	Pass
40	5200	23.15	22.96	23.03	22.97	803.297	29.05	30	Pass
48	5240	23.02	22.95	23.12	22.98	801.414	29.04	30	Pass
149	5745	22.34	23.90	24.31	22.10	848.822	29.29	30	Pass
157	5785	22.21	23.91	24.15	22.05	832.719	29.20	30	Pass
165	5825	22.10	23.70	23.82	22.19	803.172	29.05	30	Pass

802.11n (HT40)

Channel	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	18.11	17.97	18.00	18.10	255.036	24.07	30	Pass
46	5230	20.89	20.91	21.05	20.75	492.254	26.92	30	Pass
151	5755	22.30	23.79	23.80	22.27	817.694	29.13	30	Pass
159	5795	22.36	23.70	23.78	22.19	810.968	29.09	30	Pass

802.11ac (VHT80)

Channel	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	16.20	16.09	16.19	16.22	165.801	22.20	30	Pass
155	5775	17.21	18.50	18.70	17.09	248.696	23.96	30	Pass

Beamforming Mode

802.11n (HT20)

Channel	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	19.18	18.94	19.01	19.14	322.788	25.09	30	Pass
40	5200	23.15	22.96	23.03	22.97	**803.297**	29.05	30	Pass
48	5240	23.02	22.95	23.12	22.98	801.414	29.04	30	Pass
149	5745	22.34	23.90	24.31	22.10	**848.822**	29.29	30	Pass
157	5785	22.21	23.91	24.15	22.05	832.719	29.20	30	Pass
165	5825	22.10	23.70	23.82	22.19	803.172	29.05	30	Pass

Note:

1. U-NII-1 Band: Directional gain = 5.49dBi < 6dBi, so the power limit no need to reduced.
2. U-NII-3 Band: Directional gain = 5.14dBi < 6dBi, so the power limit no need to reduced.

802.11n (HT40)

Channel	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	18.11	17.97	18.00	18.10	255.036	24.07	30	Pass
46	5230	20.89	20.91	21.05	20.75	492.254	26.92	30	Pass
151	5755	22.30	23.79	23.80	22.27	817.694	29.13	30	Pass
159	5795	22.36	23.70	23.78	22.19	810.968	29.09	30	Pass

Note:

1. U-NII-1 Band: Directional gain = 5.49dBi < 6dBi, so the power limit no need to reduced.
2. U-NII-3 Band: Directional gain = 5.14dBi < 6dBi, so the power limit no need to reduced.

802.11ac (VHT80)

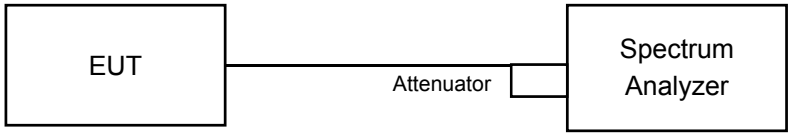
Channel	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	16.20	16.09	16.19	16.22	165.801	22.20	30	Pass
155	5775	17.21	18.50	18.70	17.09	248.696	23.96	30	Pass

Note:

1. U-NII-1 Band: Directional gain = 5.49dBi < 6dBi, so the power limit no need to reduced.
2. U-NII-3 Band: Directional gain = 5.14dBi < 6dBi, so the power limit no need to reduced.

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Result

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	16.44	16.56	16.32	16.56
40	5200	16.56	16.56	16.32	16.44
48	5240	16.56	16.56	16.44	16.44
149	5745	21.82	28.95	27.57	21.48
157	5785	18.44	28.95	30.61	25.39
165	5825	23.13	28.35	29.30	22.34

802.11n (HT20)

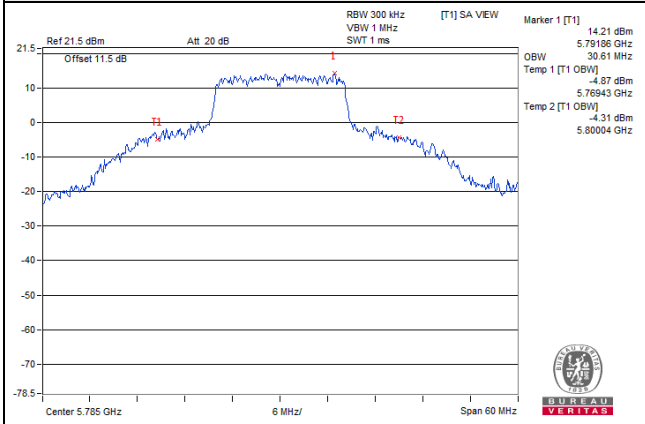
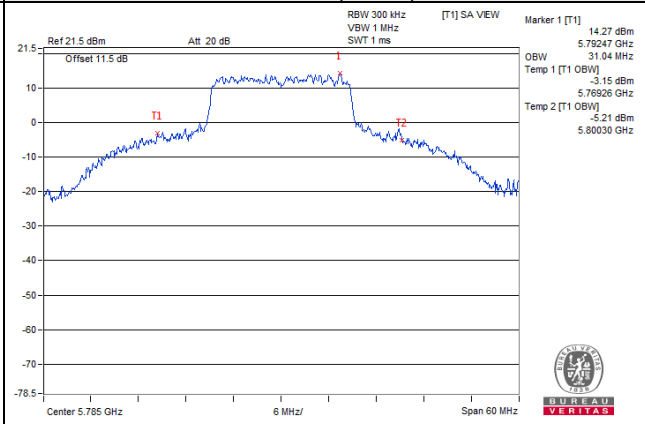
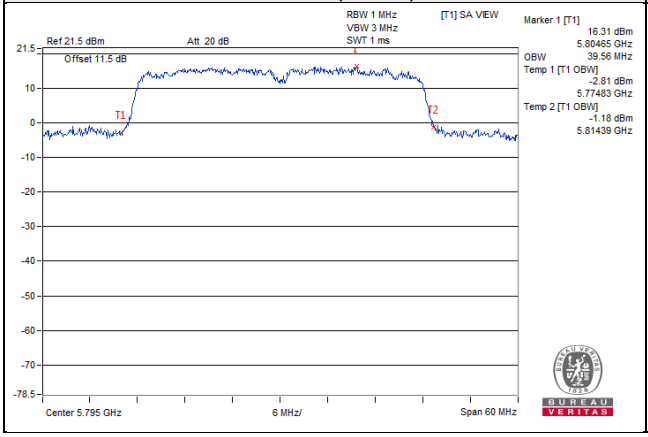
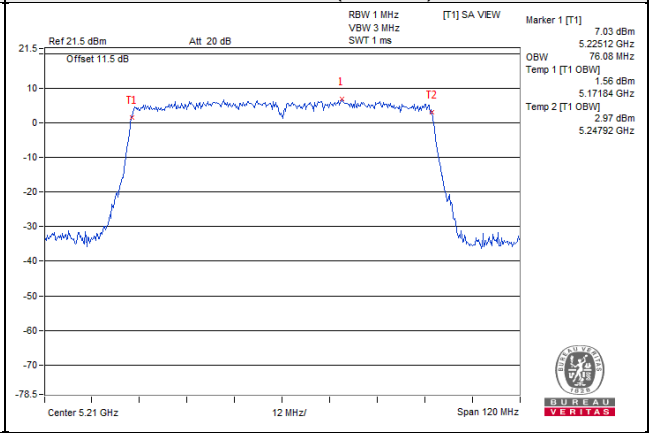
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	17.64	17.64	17.52	17.64
40	5200	17.64	17.76	17.64	17.64
48	5240	17.64	17.76	17.64	17.64
149	5745	19.74	23.30	27.30	19.83
157	5785	18.78	29.74	31.04	24.78
165	5825	20.44	29.31	29.74	21.39

802.11n (HT40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
38	5190	36.12	36.00	36.00	36.00
46	5230	36.60	36.12	36.24	36.24
151	5755	38.35	38.78	37.83	37.31
159	5795	37.22	39.56	37.48	37.04

802.11ac (VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42	5210	75.84	75.84	75.84	76.08
155	5775	75.84	75.84	75.84	75.84

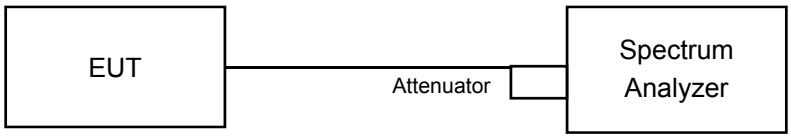
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

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 5180~5240MHz
Duty cycle of test signal is ≥ 98%
Using method SA-1
1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1MHz, Set VBW ≥ 3 MHz, Detector = RMS
3) Set Channel power measure = 1MHz
4) Sweep time = auto, trigger set to “free run”.
5) Trace average at least 100 traces in power averaging mode.
6) Record the max value

Duty cycle of test signal is < 98%
Using method SA-2
1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1MHz, Set VBW ≥ 3 MHz, Detector = RMS
3) Set Channel power measure = 1MHz
4) Sweep time = auto, trigger set to “free run”.
5) Trace average at least 100 traces in power averaging mode.
6) Record the max value and add 10 log (1/duty cycle)

For 5745~5825MHz
Duty cycle of test signal is ≥ 98%
Using method SA-1
1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS.
3) Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4) Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured 1) power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz / 300 kHz).
5) Sweep time = auto, trigger set to “free run”.
6) Trace average at least 100 traces in power averaging mode.
7) Record the max value.

Duty cycle of test signal is < 98%
1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
3) Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4) Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz / 300 kHz)
5) Sweep time = auto, trigger set to “free run”.
6) Trace average at least 100 traces in power averaging mode.
7) Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as 4.3.6.

4.5.7 Test Results

For U-NII-1 Band

802.11a

Chan.	Freq. (MHz)	PSD (dBm)				Duty factor (dB)	Total PSD with duty factor (dBm/MHz))	Max. Limit (dBm/ MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	5.29	5.32	5.86	5.79	0.14	11.73	17.00	Pass
40	5200	5.33	5.39	5.52	5.85	0.14	11.69	17.00	Pass
48	5240	5.78	5.66	5.75	5.63	0.14	11.87	17.00	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5.49dBi < 6dBi, so the power density limit no need to reduced.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD (dBm)				Total PSD (dBm/MHz))	Max. Limit (dBm/ MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3			
36	5180	5.00	5.17	4.86	4.83	10.99	17.00	Pass
40	5200	5.40	5.63	5.40	5.32	11.46	17.00	Pass
48	5240	5.25	5.68	5.59	5.63	11.56	17.00	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5.49dBi < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Chan.	Freq. (MHz)	PSD (dBm)				Duty factor (dB)	Total PSD with duty factor (dBm/MHz))	Max. Limit (dBm/ MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	1.09	1.35	1.28	1.02	0.13	7.34	17.00	Pass
46	5230	4.42	4.68	4.36	4.23	0.13	10.58	17.00	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5.49dBi < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

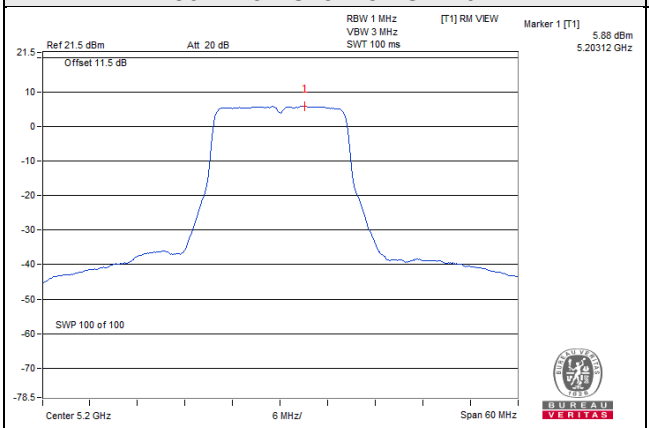
Chan.	Freq. (MHz)	PSD (dBm)				Duty factor (dB)	Total PSD with duty factor (dBm/MHz))	Max. Limit (dBm/ MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	-3.83	-3.12	-3.57	-3.87	0.29	2.72	17.00	Pass

Note:

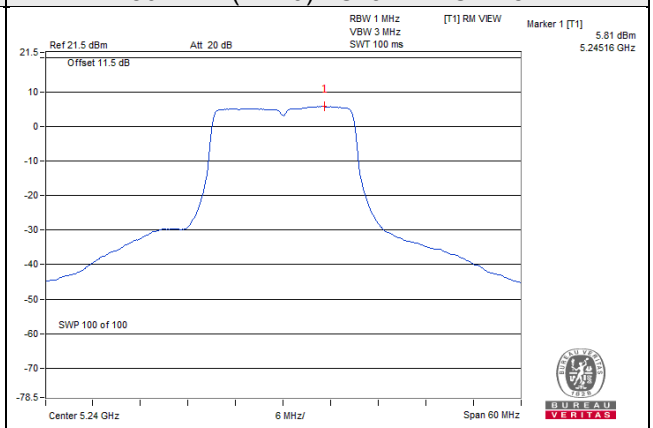
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5.49dBi < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

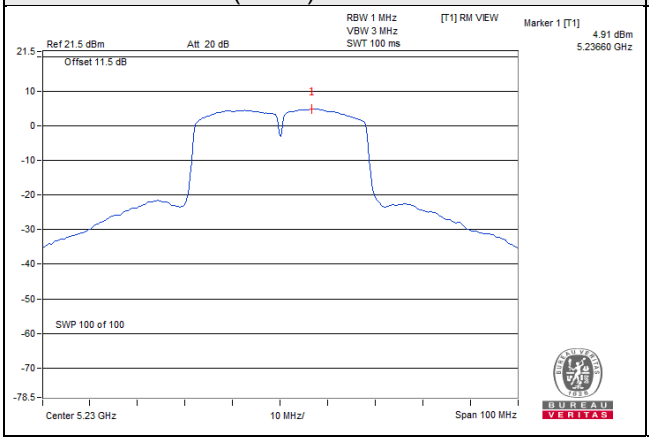
802.11a / Chain 3 / CH 40



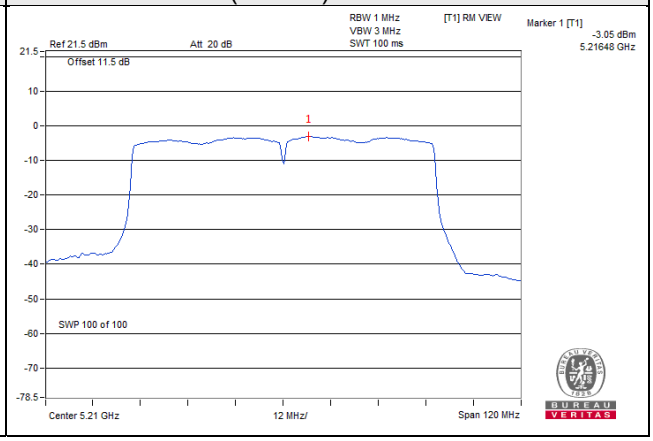
802.11n (HT20) / Chain 1 / CH 48



802.11n (HT40)/ Chain 1 / CH 46



802.11ac (VHT80) / Chain 1 / CH 42



For U-NII-3 band:

802.11a

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	1.62	3.84	6.02	0.14	10.00	30.00	Pass
	157	5785	1.63	3.85	6.02	0.14	10.01	30.00	Pass
	165	5825	1.86	4.08	6.02	0.14	10.24	30.00	Pass
1	149	5745	1.15	3.37	6.02	0.14	9.53	30.00	Pass
	157	5785	0.76	2.98	6.02	0.14	9.14	30.00	Pass
	165	5825	0.70	2.92	6.02	0.14	9.08	30.00	Pass
2	149	5745	1.09	3.31	6.02	0.14	9.47	30.00	Pass
	157	5785	0.80	3.02	6.02	0.14	9.18	30.00	Pass
	165	5825	0.56	2.78	6.02	0.14	8.94	30.00	Pass
3	149	5745	1.15	3.37	6.02	0.14	9.53	30.00	Pass
	157	5785	1.19	3.41	6.02	0.14	9.57	30.00	Pass
	165	5825	1.63	3.85	6.02	0.14	10.01	30.00	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5.14dBi < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=4) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	149	5745	1.08	3.30	6.02	9.32	30.00	Pass
	157	5785	1.33	3.55	6.02	9.57	30.00	Pass
	165	5825	1.53	3.75	6.02	9.77	30.00	Pass
1	149	5745	0.84	3.06	6.02	9.08	30.00	Pass
	157	5785	0.54	2.76	6.02	8.78	30.00	Pass
	165	5825	0.43	2.65	6.02	8.67	30.00	Pass
2	149	5745	0.95	3.17	6.02	9.19	30.00	Pass
	157	5785	0.61	2.83	6.02	8.85	30.00	Pass
	165	5825	0.39	2.61	6.02	8.63	30.00	Pass
3	149	5745	0.92	3.14	6.02	9.16	30.00	Pass
	157	5785	0.98	3.20	6.02	9.22	30.00	Pass
	165	5825	1.34	3.56	6.02	9.58	30.00	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5.14dBi < 6dBi, so the power density limit no need to reduced.

802.11n (HT40)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	151	5755	-1.95	0.27	6.02	0.13	6.42	30.00	Pass
	159	5795	-1.72	0.50	6.02	0.13	6.65	30.00	Pass
1	151	5755	-2.38	-0.16	6.02	0.13	5.99	30.00	Pass
	159	5795	-2.23	-0.01	6.02	0.13	6.14	30.00	Pass
2	151	5755	-2.03	0.19	6.02	0.13	6.34	30.00	Pass
	159	5795	-2.78	-0.56	6.02	0.13	5.59	30.00	Pass
3	151	5755	-2.20	0.02	6.02	0.13	6.17	30.00	Pass
	159	5795	-2.03	0.19	6.02	0.13	6.34	30.00	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5.14dBi < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

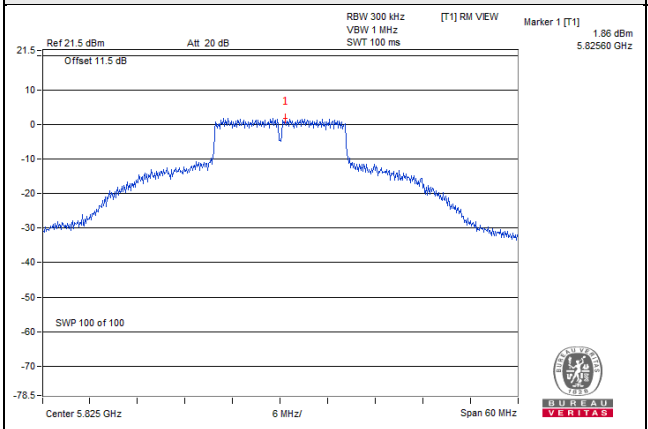
TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	155	5775	-10.65	-8.43	6.02	0.29	-2.12	30.00	Pass
1	155	5775	-10.62	-8.40	6.02	0.29	-2.09	30.00	Pass
2	155	5775	-10.89	-8.67	6.02	0.29	-2.36	30.00	Pass
3	155	5775	-11.12	-8.90	6.02	0.29	-2.59	30.00	Pass

Note:

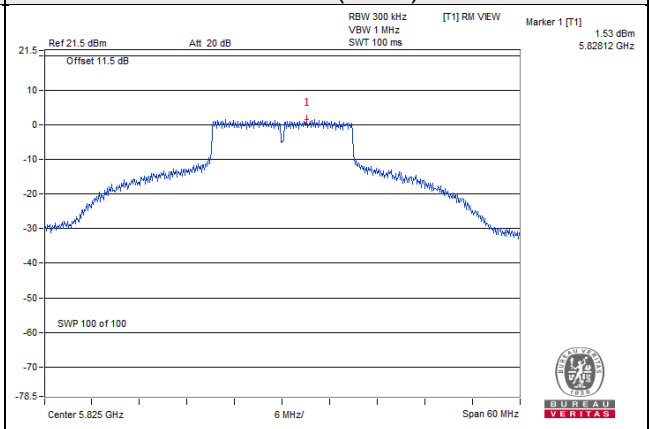
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5.14dBi < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

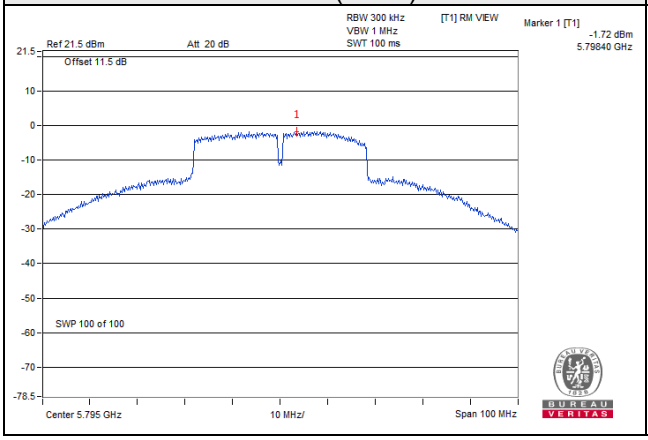
802.11a



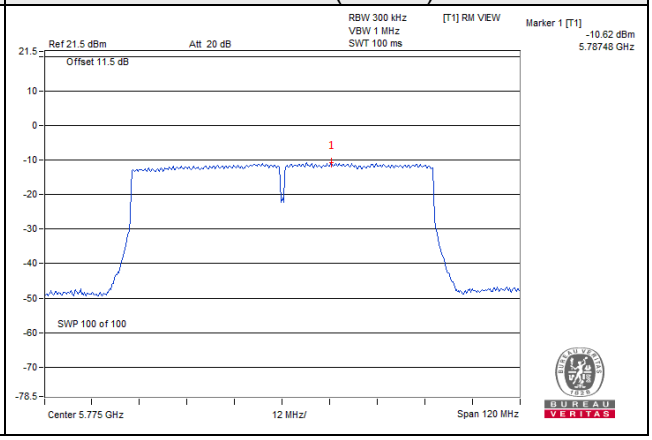
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

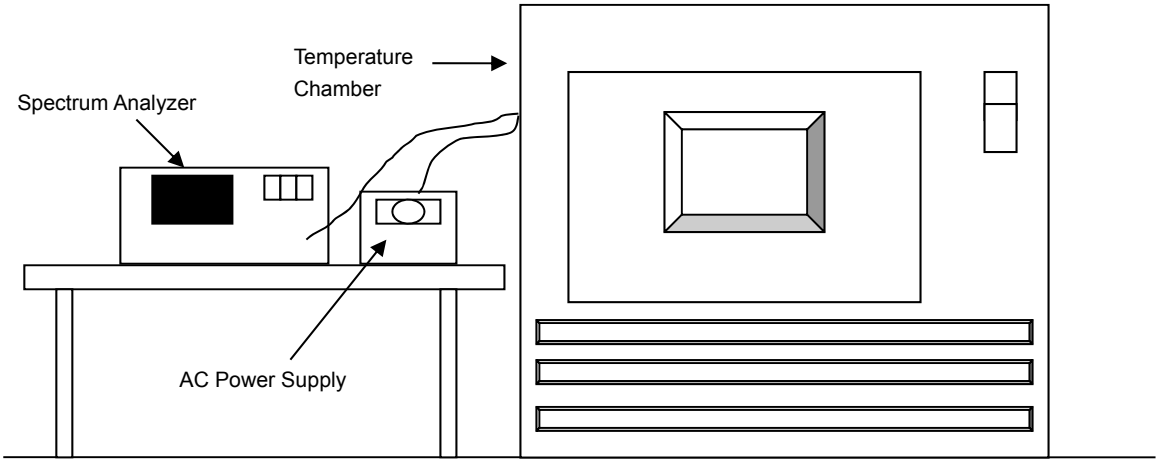


4.6 Frequency Stability

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. 11, 2018	Jun. 10, 2019
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 04, 2018	Jun. 03, 2019
Digital Multimeter Fluke	87-III	70360742	Jun. 29, 2018	Jun. 28, 2019
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 2 and 3 with the temperature chamber set to the lowest temperature.
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
45	120	5180.0208	Pass	5180.0225	Pass	5180.021	Pass	5180.024	Pass
40	120	5180.0103	Pass	5180.0097	Pass	5180.0108	Pass	5180.0095	Pass
30	120	5180.0196	Pass	5180.0203	Pass	5180.0211	Pass	5180.0209	Pass
20	120	5179.978	Pass	5179.979	Pass	5179.9787	Pass	5179.979	Pass
10	120	5179.9935	Pass	5179.9941	Pass	5179.9934	Pass	5179.9956	Pass
0	120	5179.9738	Pass	5179.9742	Pass	5179.9742	Pass	5179.9751	Pass

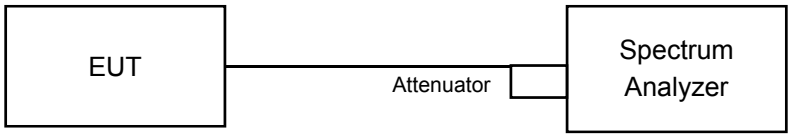
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5179.9783	Pass	5179.9798	Pass	5179.9783	Pass	5179.9792	Pass
	120	5179.978	Pass	5179.979	Pass	5179.9787	Pass	5179.979	Pass
	102	5179.9784	Pass	5179.9786	Pass	5179.978	Pass	5179.9786	Pass

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

Measurement Procedure REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
149	5745	16.08	16.29	16.29	16.06	0.5	Pass
157	5785	16.11	16.38	17.68	15.54	0.5	Pass
165	5825	16.31	17.67	17.67	15.51	0.5	Pass

802.11n (HT20)

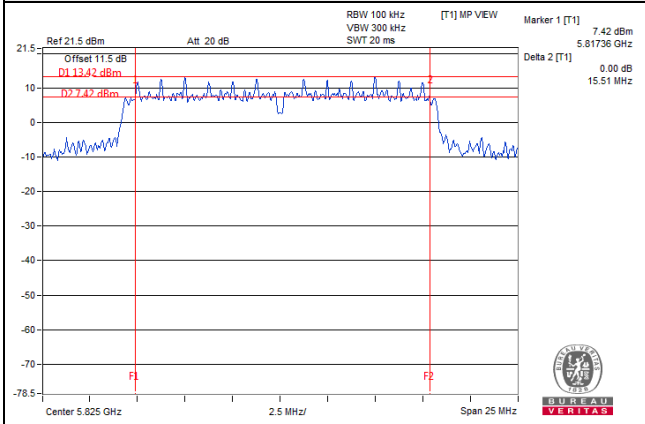
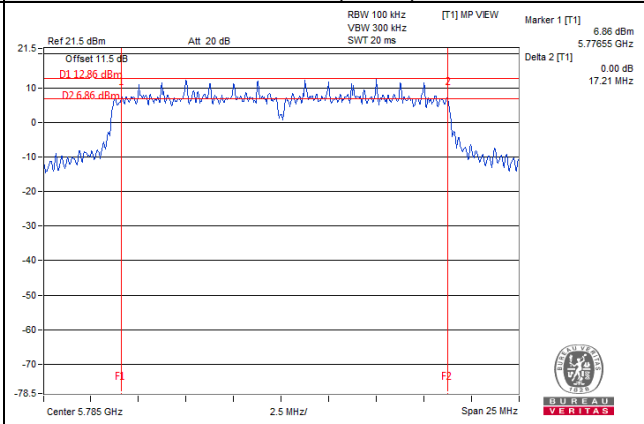
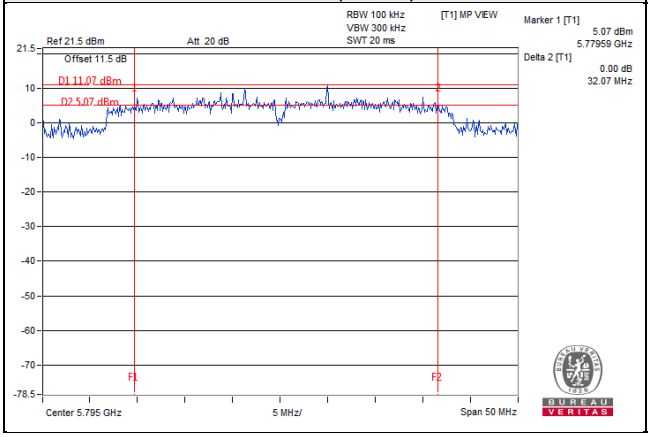
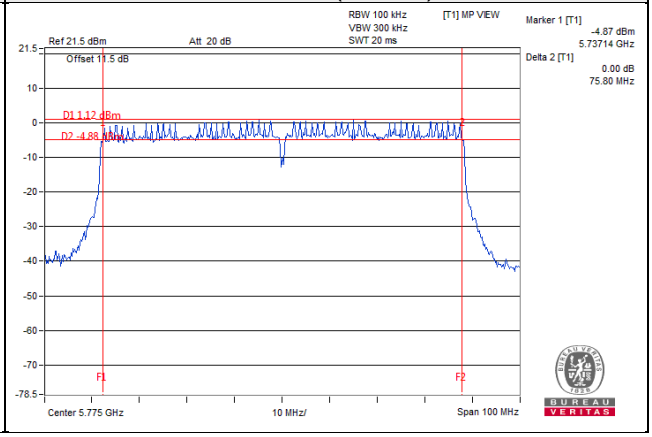
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
149	5745	17.64	17.69	17.64	17.63	0.5	Pass
157	5785	17.64	17.81	17.75	17.21	0.5	Pass
165	5825	17.67	17.75	17.74	17.57	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
151	5755	35.15	35.20	33.93	35.06	0.5	Pass
159	5795	34.18	32.07	42.62	35.14	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
155	5775	75.80	75.98	76.05	75.99	0.5	Pass

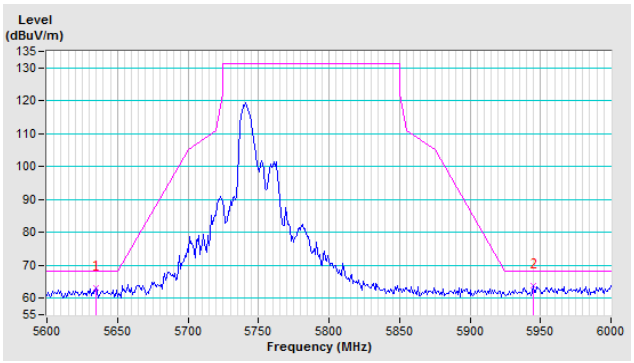
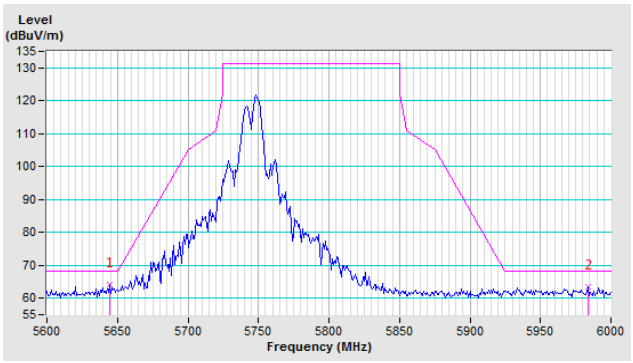
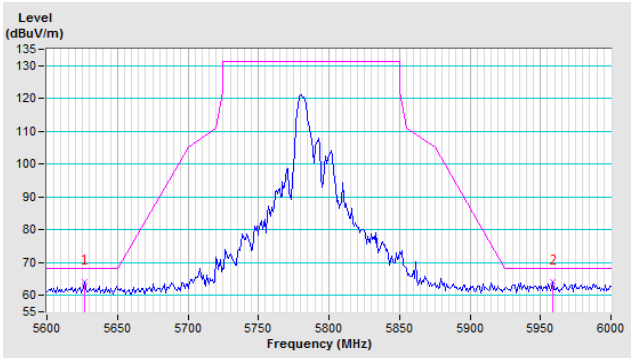
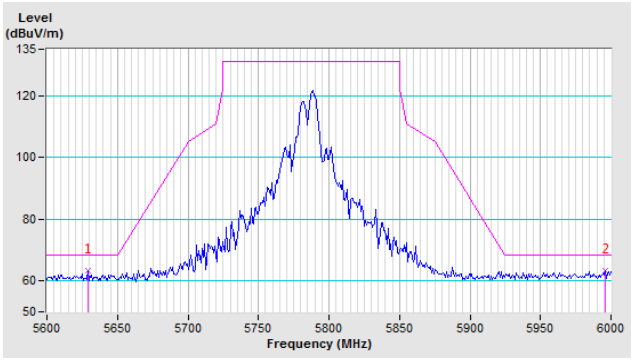
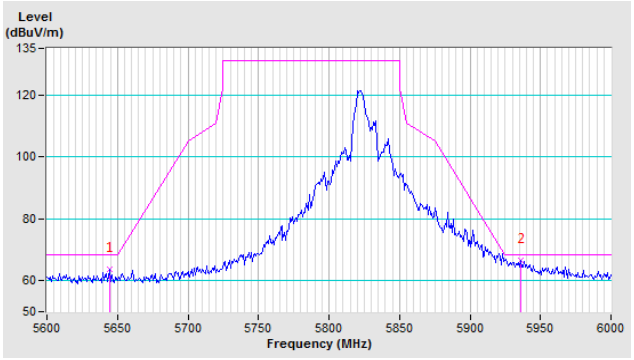
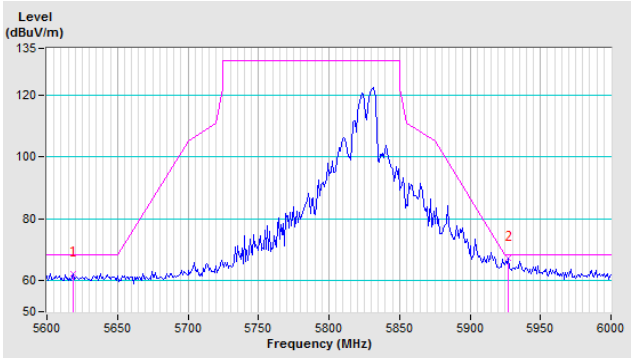
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

5 Pictures of Test Arrangements

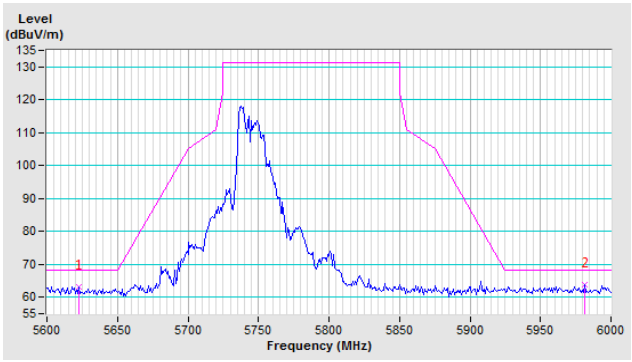
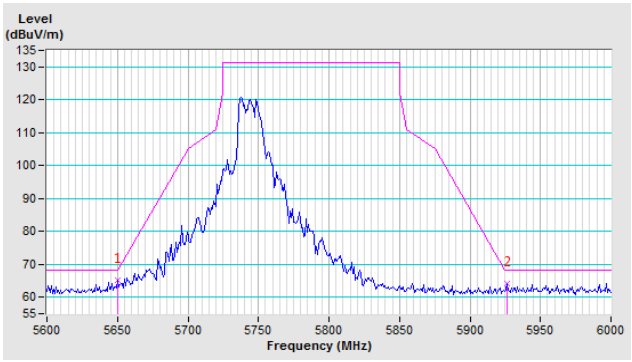
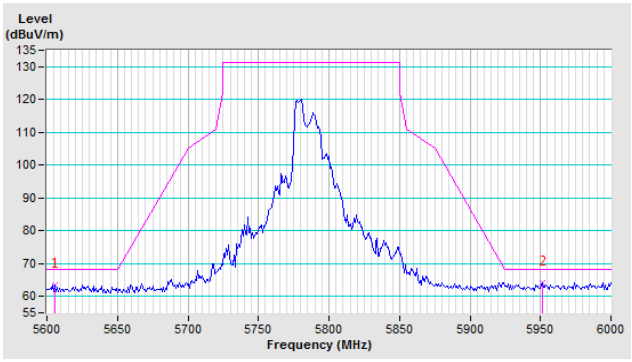
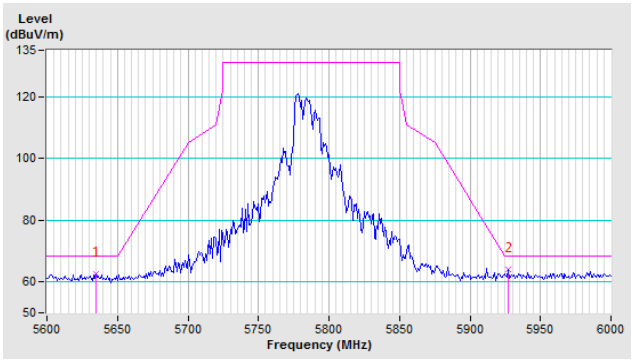
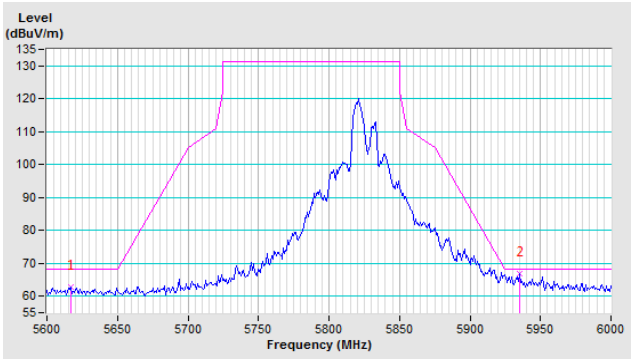
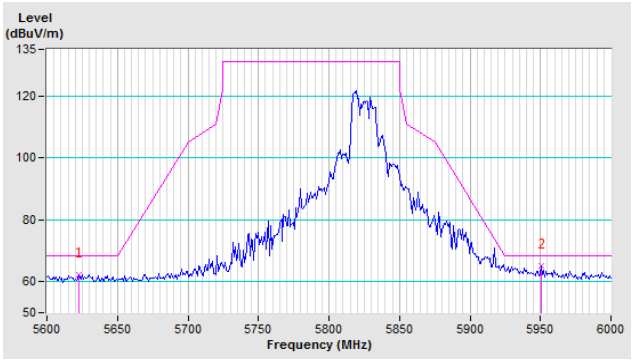
Please refer to the attached file (Test Setup Photo).

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

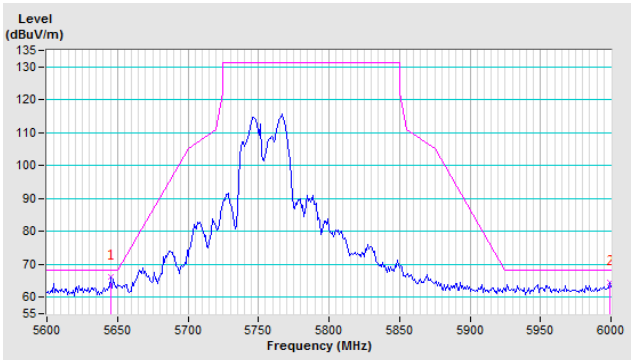
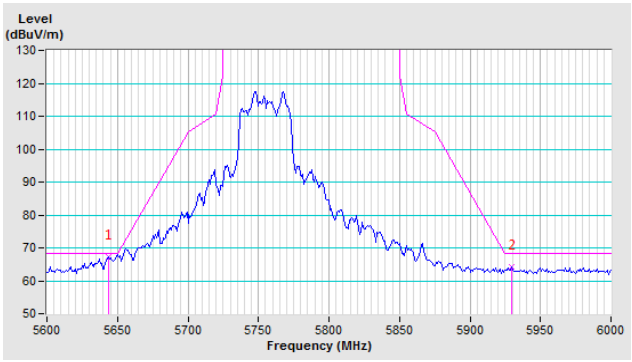
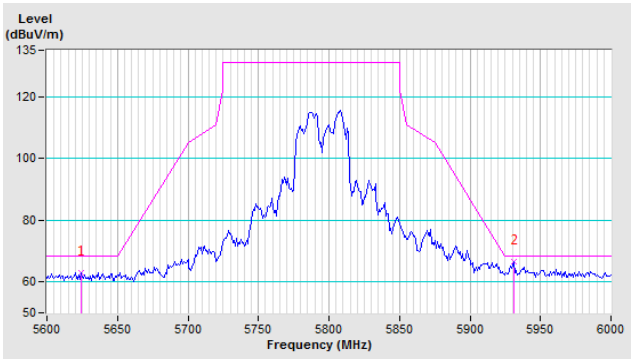
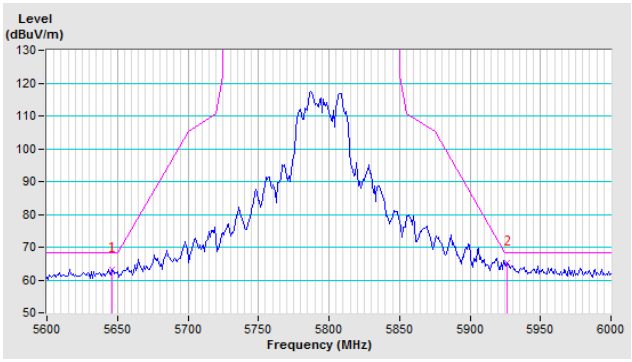
802.11a

CH149	
Horizontal	Vertical
	
CH157	
Horizontal	Vertical
	
CH165	
Horizontal	Vertical
	

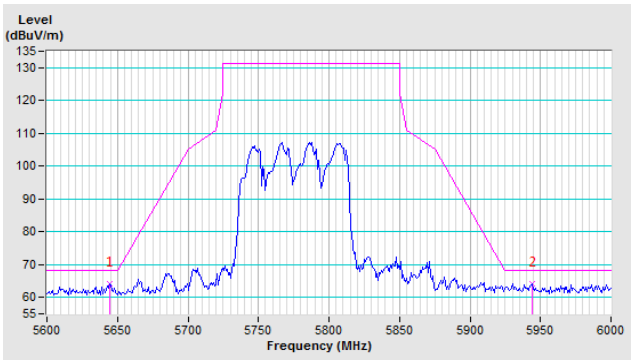
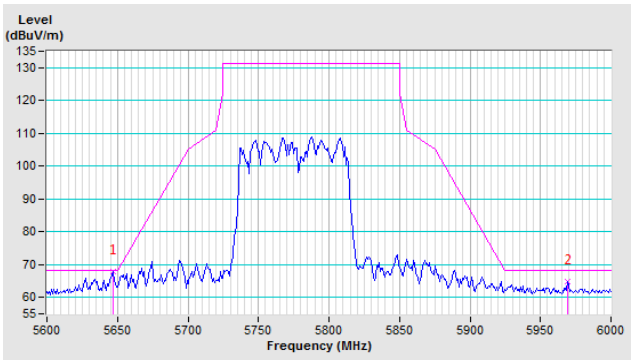
802.11n (HT20)

CH149	
Horizontal	Vertical
	
CH157	
Horizontal	Vertical
	
CH165	
Horizontal	Vertical
	

802.11n (HT40)

CH151	
Horizontal	Vertical
	
CH159	
Horizontal	Vertical
	

802.11ac (VHT80)

CH155	
Horizontal	Vertical
	

Appendix – Information on 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 accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Web Site: www.bureauveritas-adt.com

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

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