FCC Test Report

Report No.:	RF180424C02-1
FCC ID:	KA2WL8620APEA1
Test Model:	DWL-8620APE
Received Date:	Apr. 24, 2018
Test Date:	May 16 ~ Jul. 08, 2018
Issued Date:	Jul. 09, 2018
Applicant:	D-Link Corporation
Address:	17595 Mt. Herrmann, Fountain Valley, California, United States, 92708
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

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RF180424C02-1	Original release.	Jul. 09, 2018

1 Certificate of Conformity

Product:	Unified AC Concurrent Dual-Band PoE Access Point
Brand:	D-Link Corporation
Test Model:	DWL-8620APE
Sample Status:	Engineering sample
Applicant:	D-Link Corporation
Test Date:	May 16 ~ Jul. 08, 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 RF characteristics under the conditions specified in this report.

Prepared by :  , **Date:** Jul. 09, 2018

Suntee Liu / Specialist

Approved by :  , **Date:** Jul. 09, 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 -7.49dB at 0.45937MHz.
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 -0.5dB at 237.94MHz.
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	Antenna connector is SMA not a standard connector.

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	3.86 dB
	200MHz ~1000MHz	3.87 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	Unified AC Concurrent Dual-Band PoE Access Point
Brand	D-Link Corporation
Test Model	DWL-8620APE
Sample Status	Engineering sample
Power Supply Rating	12Vdc (adapter) 52Vdc (POE)
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 For 802.11ac (VHT80+VHT80): 5180~5240MHz & 5745~5825MHz: 802.11ac (VHT80+VHT80): 1
Output Power	CDD Mode: 5180~5240MHz: 653.064mW 5745~5825MHz: 922.430mW Beamforming Mode: 5180~5240MHz: 434.467mW 5745~5825MHz: 613.669mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter
Cable Supplied	NA

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides 4 completed transmitter and 4 receivers.

Modulation Mode	Beamforming Mode	TX Function	Available Channel
802.11a	Not Support	4TX	36 ~ 48, 149 ~ 165
802.11n (HT20)	Support	4TX	36 ~ 48, 149 ~ 165
802.11n (HT40)	Support	4TX	38 ~ 46, 151 ~ 159
802.11ac (VHT20)	Support	4TX	36 ~ 48, 149 ~ 165
802.11ac (VHT40)	Support	4TX	38 ~ 46, 151 ~ 159
802.11ac (VHT80)	Support	4TX	42, 155
802.11ac (VHT80+ VHT80)	Not Support	2TX+2TX	42 + 155

* The modulation and bandwidth are similar for 802.11n mode for HT20/HT40 and 802.11ac mode for VHT20/VHT40. After pre-testing, 802.11ac (VHT20/VHT40) power is lower than 802.11n (HT20/HT40), therefore 802.11n (HT20/HT40) is the worst case to representative mode in test report. (Final test mode refer section 3.2.1)

2. The EUT uses following antennas.

Ant. No.	Type	Connector	Ant. Gain (dBi)		Beamforming Gain (dBi)	
			2.4GHz	5GHz	2.4GHz	5GHz
0, 1, 2, 3	Dipole	SMA	3	4	3.78	5.77

3. The EUT consumes power from the following adapters.

Adapter 1	
Brand	Channel Well Technology
Model	2ABL030F NJ
Input Power	100-240Vac~, 50/60Hz 1.0A
Output Power	12.0Vdc / 2.5A
Power Cord	1.2m non-shielded power cord without core

Adapter 2	
Brand	Asian Power Devices Inc.
Model	WA-30J12R
Input Power	100-240Vac~, 50-60Hz, 0.9A Max
Output Power	12Vdc / 2.5A
Power Cord	1.2m non-shielded power cord without core

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

For 802.11ac (VHT80+VHT80):

5180~5240MHz & 5745~5825MHz:

1 channel is provided for 802.11ac (VHT80+VHT80):

Channel	Frequency
42+155	5210MHz+5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Power from adapter 1
B	-	√	√	-	Power from adapter 2
C	-	√	√	-	Power from POE

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

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

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Z-plane.
2. "-": Means no effect.

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)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
A	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	7.2
A	802.11n (HT40)		38 to 46	38, 46	OFDM	15.0
A	802.11ac (VHT80)		42	42	OFDM	130.0
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
A	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	7.2
A	802.11n (HT40)		151 to 159	151, 159	OFDM	15.0
A	802.11ac (VHT80)		155	155	OFDM	130.0
A	802.11ac (VHT80+VHT80)	5180-5240	42	42+155	OFDM	130.0
		5745-5825	155		OFDM	130.0

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)
A, B, C	802.11n (HT20)	5180-5240	36 to 48	165	OFDM	7.2
		5745-5825	149 to 165		OFDM	7.2

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)
A, B, C	802.11n (HT20)	5180-5240	36 to 48	165	OFDM	7.2
		5745-5825	149 to 165		OFDM	7.2

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)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
A	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	7.2
A	802.11n (HT40)		38 to 46	38, 46	OFDM	15.0
A	802.11ac (VHT80)		42	42	OFDM	130.0
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
A	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	7.2
A	802.11n (HT40)		151 to 159	151, 159	OFDM	15.0
A	802.11ac (VHT80)		155	155	OFDM	130.0
A	802.11ac (VHT80+VHT80)	5180-5240	42	42+155	OFDM	130.0
		5745-5825	155		OFDM	130.0

Test Condition:

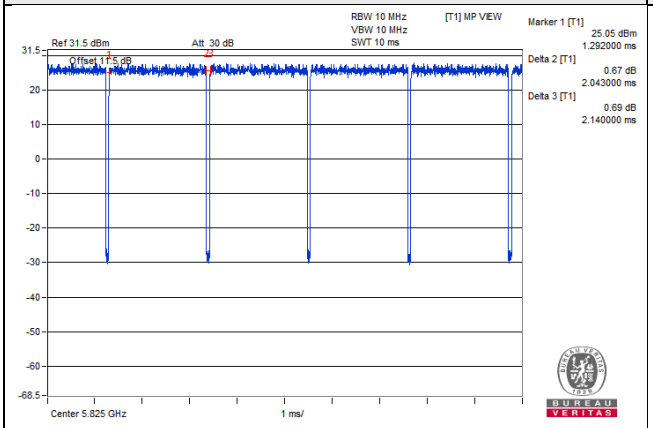
Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	24deg. C, 65%RH 25deg. C, 66%RH	120Vac, 60Hz	Willy Cheng
RE<1G	23deg. C, 66%RH 25deg. C, 65%RH	120Vac, 60Hz	Willy Cheng
PLC	24deg. C, 62%RH 24deg. C, 65%RH 25deg. C, 66%RH	120Vac, 60Hz	Willy Cheng
APCM	25deg. C, 60%RH	120Vac, 60Hz	Alan Wu

3.3 Duty Cycle of Test Signal

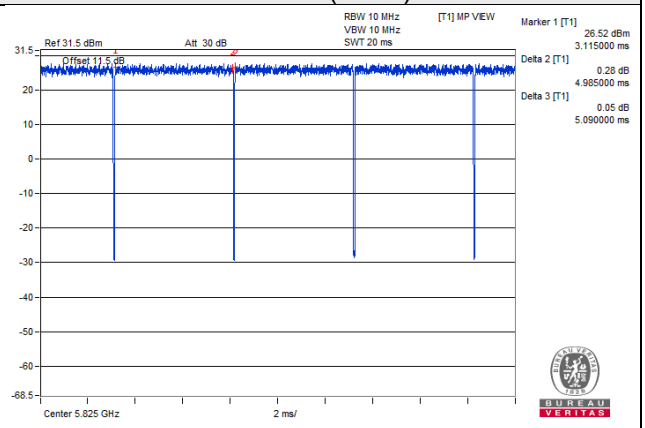
Duty cycle of test signal is ≥ 98%, duty factor is not required.
Duty cycle of test signal is < 98%, duty factor shall be considered.

802.11a: Duty cycle = 2.043/2.14 = 0.955, Duty factor = 10 * log(1/0.955) = 0.20
802.11n (HT20): Duty cycle = 4.985/5.09 = 0.979, Duty factor = 10 * log(1/0.979) = 0.09
802.11n (HT40): Duty cycle = 2.415/2.53 = 0.955, Duty factor = 10 * log(1/0.955) = 0.20
802.11ac (VHT80): Duty cycle = 1.115/1.217 = 0.916, Duty factor = 10 * log(1/0.916) = 0.38
802.11ac (VHT80+VHT80): Duty cycle = 1.115/1.217 = 0.916, Duty factor = 10 * log(1/0.916) = 0.38

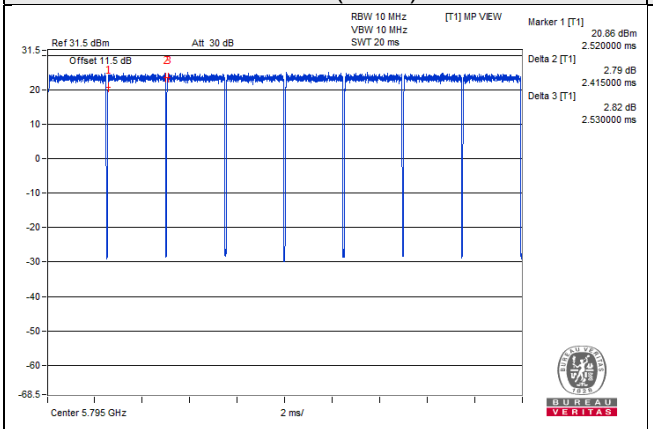
802.11a



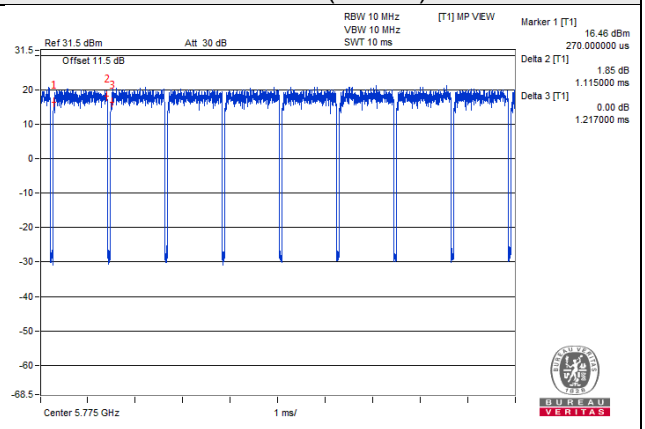
802.11n (HT20)



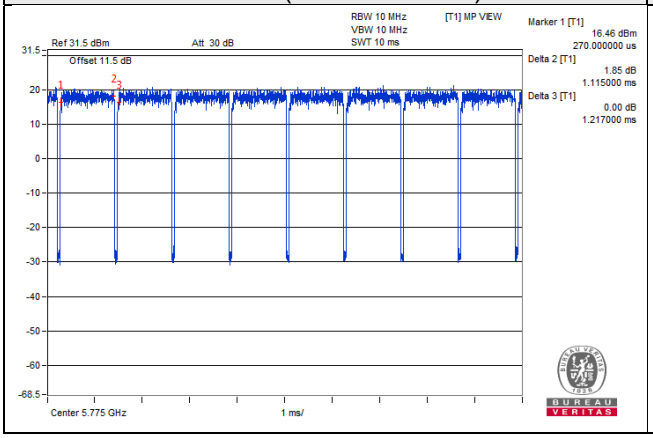
802.11n (HT40)



802.11ac (VHT80)



802.11ac (VHT80+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	-
B.	Load	NA	NA	NA	NA	-
C.	POE	PHIHONG	POE31U-1AT	NA	NA	-

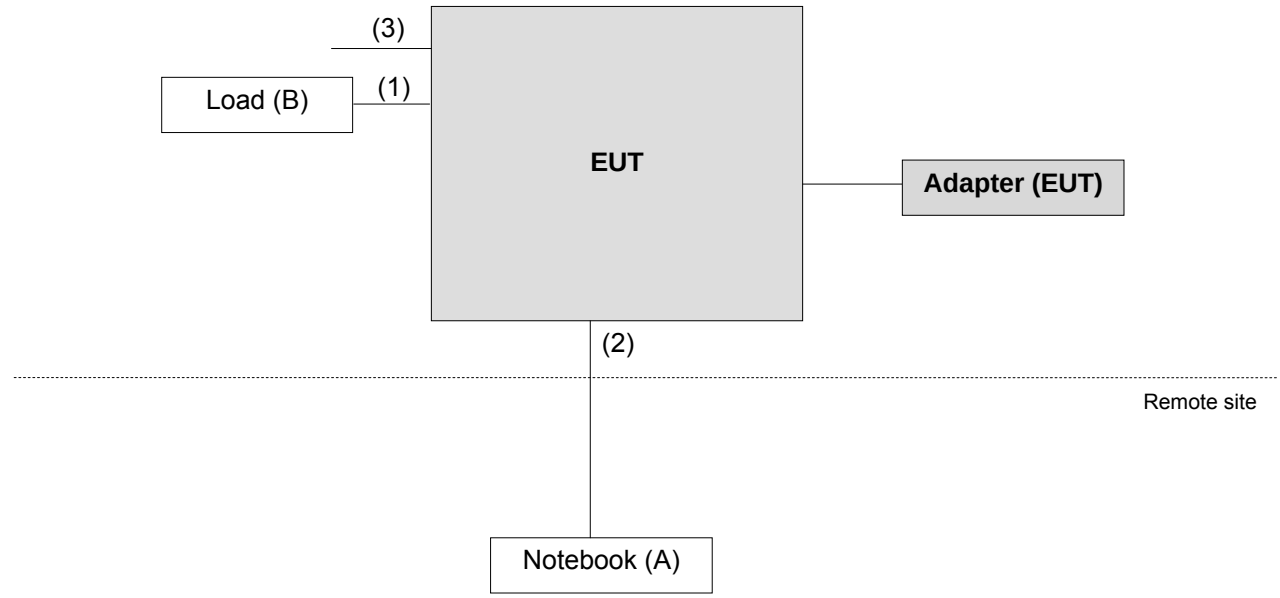
Note:

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.

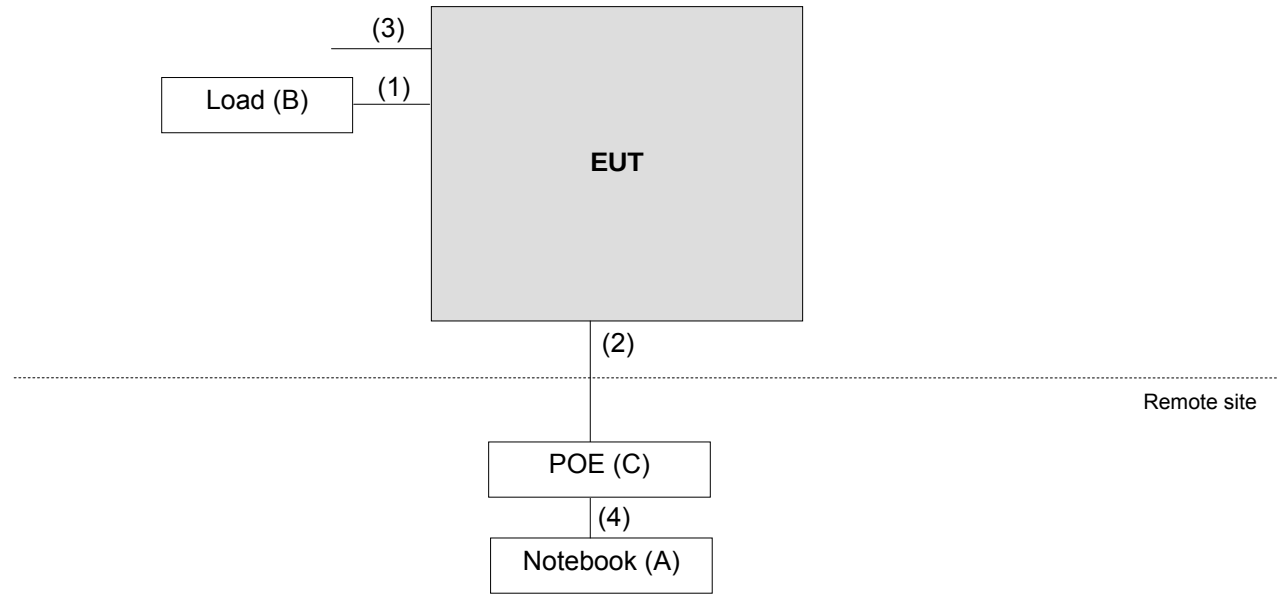
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45 cable	1	1.5	N	0	Cat5e
2.	RJ45 cable	1	5	N	0	Cat5e
3.	RJ45 to console cable	1	1.2	N	0	Cat5e
4.	RJ45, Cat5e	1	1.8	N	0	Cat5e

3.4.1 Configuration of System under Test

Mode A, B



Mode C



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><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	Oct. 17, 2017	Oct. 16, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Dec. 12, 2017	Dec. 11, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	9120D	209	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Loop Antenna EMCI	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 21, 2017	Aug. 20, 2018
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Apr. 03, 2018	Apr. 02, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 21, 2017	Aug. 20, 2018
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-SM-8000	Cable-CH3-03 (309224+170907)	Sep.11, 2017	Sep. 10, 2018
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
High Speed Peak Power Meter	ML2495A	0824012	Aug. 18, 2017	Aug. 17, 2018
Power Sensor	MA2411B	0738171	Aug. 18, 2017	Aug. 17, 2018
26GHz ~ 40GHz Amplifier Agilent	8449B	3008A1960	Aug. 08, 2017	Aug. 07, 2018

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 3.
3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
5. The IC Site Registration No. is IC 7450F-3.

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:

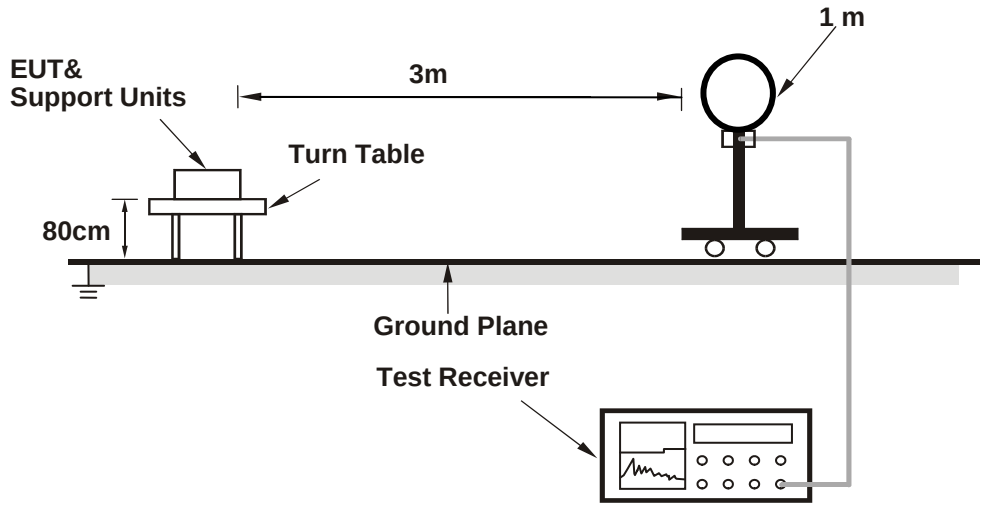
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

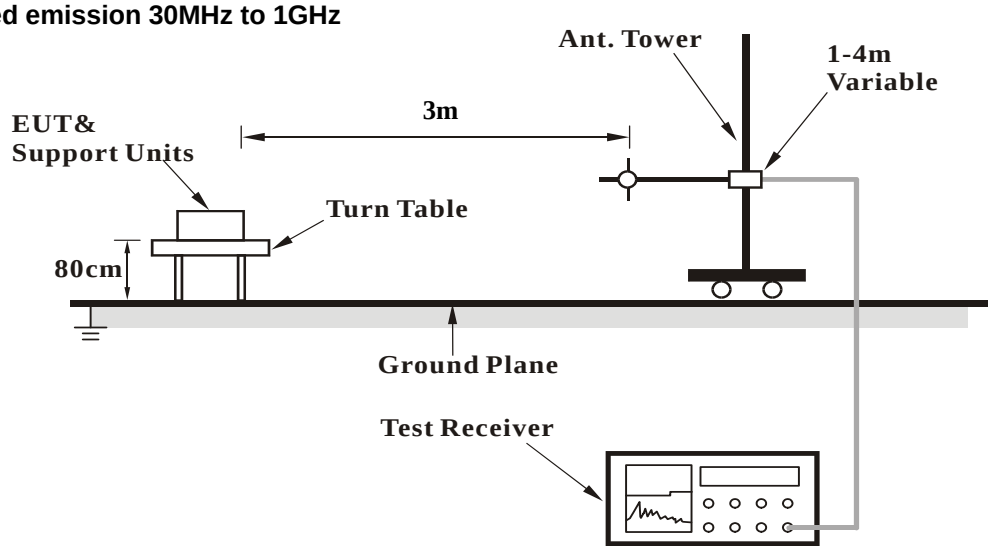
No deviation.

4.1.5 Test Set Up

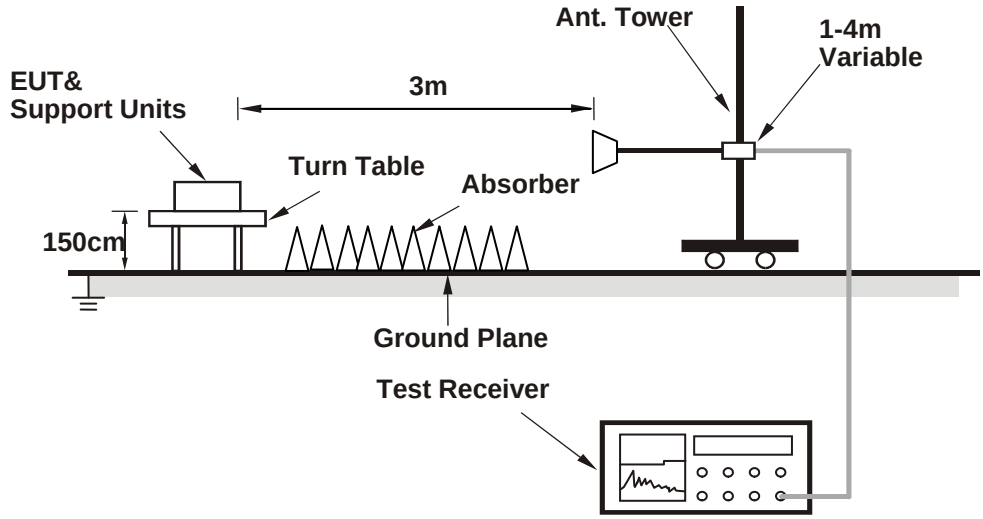
For Radiated emission below 30MHz



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 (QRCT 3.0.239.0) 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.	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	66.7 PK	74.0	-7.3	1.33 H	208	62.8	3.9
2	5150.00	52.2 AV	54.0	-1.8	1.33 H	208	48.3	3.9
3	*5180.00	121.0 PK			1.48 H	208	81.4	39.6
4	*5180.00	109.9 AV			1.48 H	208	70.3	39.6
5	#10360.00	58.1 PK	74.0	-15.9	2.64 H	181	42.3	15.8
6	#10360.00	45.1 AV	54.0	-8.9	2.64 H	181	29.3	15.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	62.1 PK	74.0	-11.9	2.98 V	262	58.2	3.9
2	5150.00	48.3 AV	54.0	-5.7	2.98 V	262	44.4	3.9
3	*5180.00	116.9 PK			3.61 V	262	77.3	39.6
4	*5180.00	106.4 AV			3.61 V	262	66.8	39.6
5	#10360.00	57.8 PK	74.0	-16.2	2.88 V	256	42.0	15.8
6	#10360.00	44.9 AV	54.0	-9.1	2.88 V	256	29.1	15.8

Remarks:

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

CHANNEL	TX Channel 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	69.2 PK	74.0	-4.8	1.14 H	207	65.3	3.9
2	5150.00	52.4 AV	54.0	-1.6	1.14 H	207	48.5	3.9
3	*5200.00	123.6 PK			1.46 H	207	84.0	39.6
4	*5200.00	112.7 AV			1.46 H	207	73.1	39.6
5	#10400.00	58.3 PK	74.0	-15.7	2.01 H	189	42.4	15.9
6	#10400.00	44.7 AV	54.0	-9.3	2.01 H	189	28.8	15.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.8 PK	74.0	-14.2	3.19 V	103	55.9	3.9
2	5150.00	46.5 AV	54.0	-7.5	3.19 V	103	42.6	3.9
3	*5200.00	116.1 PK			3.38 V	77	76.5	39.6
4	*5200.00	105.5 AV			3.38 V	77	65.9	39.6
5	#10400.00	58.0 PK	74.0	-16.0	2.97 V	265	42.1	15.9
6	#10400.00	44.8 AV	54.0	-9.2	2.97 V	265	28.9	15.9

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 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	123.2 PK			1.48 H	208	83.8	39.4
2	*5240.00	112.5 AV			1.48 H	208	73.1	39.4
3	5350.00	56.5 PK	74.0	-17.5	1.52 H	211	52.5	4.0
4	5350.00	42.9 AV	54.0	-11.1	1.52 H	211	38.9	4.0
5	#10480.00	58.7 PK	74.0	-15.3	2.33 H	184	42.0	16.7
6	#10480.00	45.3 AV	54.0	-8.7	2.33 H	184	28.6	16.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	116.7 PK			3.34 V	101	77.3	39.4
2	*5240.00	105.9 AV			3.34 V	101	66.5	39.4
3	5350.00	55.9 PK	74.0	-18.1	3.14 V	133	51.9	4.0
4	5350.00	42.8 AV	54.0	-11.2	3.14 V	133	38.8	4.0
5	#10480.00	58.5 PK	74.0	-15.5	2.69 V	287	41.8	16.7
6	#10480.00	45.1 AV	54.0	-8.9	2.69 V	287	28.4	16.7

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 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	#5646.40	56.3 PK	68.2	-11.9	1.52 H	152	51.7	4.6
2	*5745.00	123.1 PK			1.52 H	152	83.0	40.1
3	*5745.00	112.3 AV			1.52 H	152	72.2	40.1
4	#5987.20	57.1 PK	68.2	-11.1	1.52 H	152	51.8	5.3
5	11490.00	59.8 PK	74.0	-14.2	1.73 H	188	42.2	17.6
6	11490.00	46.5 AV	54.0	-7.5	1.73 H	188	28.9	17.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5632.80	56.6 PK	68.2	-11.6	3.66 V	78	52.1	4.5
2	*5745.00	118.7 PK			3.66 V	78	78.6	40.1
3	*5745.00	107.6 AV			3.66 V	78	67.5	40.1
4	#5957.60	58.2 PK	68.2	-10.0	3.66 V	78	53.0	5.2
5	11490.00	59.1 PK	74.0	-14.9	1.97 V	203	41.5	17.6
6	11490.00	45.8 AV	54.0	-8.2	1.97 V	203	28.2	17.6

Remarks:

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

CHANNEL	TX Channel 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	#5640.00	57.2 PK	68.2	-11.0	1.47 H	152	52.7	4.5
2	*5785.00	122.7 PK			1.47 H	152	82.4	40.3
3	*5785.00	111.9 AV			1.47 H	152	71.6	40.3
4	#5939.20	57.3 PK	68.2	-10.9	1.47 H	152	52.2	5.1
5	11570.00	60.5 PK	74.0	-13.5	2.31 H	186	42.6	17.9
6	11570.00	46.7 AV	54.0	-7.3	2.31 H	186	28.8	17.9
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	#5640.00	57.5 PK	68.2	-10.7	2.93 V	86	53.0	4.5
2	*5785.00	119.7 PK			2.93 V	86	79.4	40.3
3	*5785.00	108.8 AV			2.93 V	86	68.5	40.3
4	#5942.40	57.6 PK	68.2	-10.6	2.93 V	86	52.5	5.1
5	11570.00	59.9 PK	74.0	-14.1	2.01 V	188	42.0	17.9
6	11570.00	46.1 AV	54.0	-7.9	2.01 V	188	28.2	17.9

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.	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	#5600.00	57.0 PK	68.2	-11.2	1.62 H	152	52.5	4.5
2	*5825.00	122.9 PK			1.62 H	152	82.4	40.5
3	*5825.00	111.9 AV			1.62 H	152	71.4	40.5
4	#5940.00	57.2 PK	68.2	-11.0	1.62 H	152	52.1	5.1
5	11650.00	59.6 PK	74.0	-14.4	2.39 H	186	42.1	17.5
6	11650.00	46.0 AV	54.0	-8.0	2.39 H	186	28.5	17.5
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	#5620.00	56.5 PK	68.2	-11.7	3.04 V	74	52.0	4.5
2	*5825.00	119.8 PK			3.04 V	74	79.3	40.5
3	*5825.00	108.9 AV			3.04 V	74	68.4	40.5
4	#5962.40	57.8 PK	68.2	-10.4	3.04 V	74	52.6	5.2
5	11650.00	59.0 PK	74.0	-15.0	1.99 V	218	41.5	17.5
6	11650.00	45.6 AV	54.0	-8.4	1.99 V	218	28.1	17.5

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.

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	66.5 PK	74.0	-7.5	1.32 H	208	62.6	3.9
2	5150.00	52.3 AV	54.0	-1.7	1.32 H	208	48.4	3.9
3	*5180.00	119.6 PK			1.50 H	209	80.0	39.6
4	*5180.00	108.4 AV			1.50 H	209	68.8	39.6
5	#10360.00	58.5 PK	74.0	-15.5	2.23 H	189	42.7	15.8
6	#10360.00	44.8 AV	54.0	-9.2	2.23 H	189	29.0	15.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.3 PK	74.0	-14.7	3.17 V	134	55.4	3.9
2	5150.00	46.0 AV	54.0	-8.0	3.17 V	134	42.1	3.9
3	*5180.00	112.1 PK			3.39 V	95	72.5	39.6
4	*5180.00	101.1 AV			3.39 V	95	61.5	39.6
5	#10360.00	57.2 PK	74.0	-16.8	2.83 V	241	41.4	15.8
6	#10360.00	44.6 AV	54.0	-9.4	2.83 V	241	28.8	15.8

Remarks:

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

CHANNEL	TX Channel 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	69.1 PK	74.0	-4.9	1.14 H	208	65.2	3.9
2	5150.00	52.9 AV	54.0	-1.1	1.14 H	208	49.0	3.9
3	*5200.00	123.7 PK			1.46 H	208	84.1	39.6
4	*5200.00	112.4 AV			1.46 H	208	72.8	39.6
5	#10400.00	59.2 PK	74.0	-14.8	2.31 H	186	43.3	15.9
6	#10400.00	44.8 AV	54.0	-9.2	2.31 H	186	28.9	15.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.1 PK	74.0	-13.9	3.42 V	121	56.2	3.9
2	5150.00	46.5 AV	54.0	-7.5	3.42 V	121	42.6	3.9
3	*5200.00	117.0 PK			3.51 V	100	77.4	39.6
4	*5200.00	105.4 AV			3.51 V	100	65.8	39.6
5	#10400.00	58.0 PK	74.0	-16.0	2.99 V	283	42.1	15.9
6	#10400.00	44.7 AV	54.0	-9.3	2.99 V	283	28.8	15.9

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 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	123.0 PK			1.48 H	208	83.6	39.4
2	*5240.00	112.1 AV			1.48 H	208	72.7	39.4
3	5350.00	56.4 PK	74.0	-17.6	1.44 H	227	52.4	4.0
4	5350.00	42.9 AV	54.0	-11.1	1.44 H	227	38.9	4.0
5	#10480.00	58.5 PK	74.0	-15.5	2.14 H	193	41.8	16.7
6	#10480.00	45.3 AV	54.0	-8.7	2.14 H	193	28.6	16.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	111.9 PK			1.12 V	122	72.5	39.4
2	*5240.00	100.9 AV			1.12 V	122	61.5	39.4
3	5350.00	45.6 PK	74.0	-28.4	1.20 V	131	41.6	4.0
4	5350.00	42.4 AV	54.0	-11.6	1.20 V	131	38.4	4.0
5	#10480.00	58.4 PK	74.0	-15.6	2.71 V	243	41.7	16.7
6	#10480.00	45.0 AV	54.0	-9.0	2.71 V	243	28.3	16.7

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 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	#5633.60	57.6 PK	68.2	-10.6	1.53 H	151	53.1	4.5
2	*5745.00	123.3 PK			1.53 H	151	83.2	40.1
3	*5745.00	112.0 AV			1.53 H	151	71.9	40.1
4	#5980.80	57.6 PK	68.2	-10.6	1.53 H	151	52.3	5.3
5	11490.00	60.5 PK	74.0	-13.5	2.64 H	179	42.9	17.6
6	11490.00	47.0 AV	54.0	-7.0	2.64 H	179	29.4	17.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5639.20	57.5 PK	68.2	-10.7	2.96 V	78	53.0	4.5
2	*5745.00	119.8 PK			2.96 V	78	79.7	40.1
3	*5745.00	108.7 AV			2.96 V	78	68.6	40.1
4	#5935.20	57.4 PK	68.2	-10.8	2.96 V	78	52.3	5.1
5	11490.00	59.7 PK	74.0	-14.3	2.34 V	211	42.1	17.6
6	11490.00	46.3 AV	54.0	-7.7	2.34 V	211	28.7	17.6

Remarks:

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

CHANNEL	TX Channel 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	#5622.40	56.8 PK	68.2	-11.4	1.59 H	152	52.3	4.5
2	*5785.00	123.1 PK			1.59 H	152	82.8	40.3
3	*5785.00	111.7 AV			1.59 H	152	71.4	40.3
4	#5932.80	57.8 PK	68.2	-10.4	1.59 H	152	52.6	5.2
5	11570.00	60.4 PK	74.0	-13.6	2.31 H	264	42.5	17.9
6	11570.00	46.9 AV	54.0	-7.1	2.31 H	264	29.0	17.9
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	#5632.80	56.8 PK	68.2	-11.4	2.95 V	72	52.3	4.5
2	*5785.00	120.0 PK			2.95 V	72	79.7	40.3
3	*5785.00	108.9 AV			2.95 V	72	68.6	40.3
4	#5928.80	57.5 PK	68.2	-10.7	2.95 V	72	52.3	5.2
5	11570.00	59.8 PK	74.0	-14.2	2.30 V	189	41.9	17.9
6	11570.00	46.3 AV	54.0	-7.7	2.30 V	189	28.4	17.9

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.	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	#5632.00	56.4 PK	68.2	-11.8	1.61 H	151	51.9	4.5
2	*5825.00	123.5 PK			1.61 H	151	83.0	40.5
3	*5825.00	112.2 AV			1.61 H	151	71.7	40.5
4	#5949.60	57.7 PK	68.2	-10.5	1.61 H	151	52.5	5.2
5	11650.00	60.1 PK	74.0	-13.9	2.88 H	236	42.6	17.5
6	11650.00	46.2 AV	54.0	-7.8	2.88 H	236	28.7	17.5
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	#5649.60	56.2 PK	68.2	-12.0	3.04 V	72	51.6	4.6
2	*5825.00	120.2 PK			3.04 V	72	79.7	40.5
3	*5825.00	109.0 AV			3.04 V	72	68.5	40.5
4	#5947.20	57.6 PK	68.2	-10.6	3.04 V	72	52.4	5.2
5	11650.00	59.2 PK	74.0	-14.8	2.31 V	185	41.7	17.5
6	11650.00	45.8 AV	54.0	-8.2	2.31 V	185	28.3	17.5

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.

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	65.9 PK	74.0	-8.1	2.10 H	207	62.0	3.9
2	5150.00	52.5 AV	54.0	-1.5	2.10 H	207	48.6	3.9
3	*5190.00	114.9 PK			2.43 H	207	75.3	39.6
4	*5190.00	103.6 AV			2.43 H	207	64.0	39.6
5	#10380.00	57.9 PK	74.0	-16.1	1.92 H	256	42.0	15.9
6	#10380.00	45.1 AV	54.0	-8.9	1.92 H	256	29.2	15.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	62.0 PK	74.0	-12.0	1.51 V	144	58.1	3.9
2	5150.00	47.6 AV	54.0	-6.4	1.51 V	144	43.7	3.9
3	*5190.00	103.7 PK			1.47 V	121	64.1	39.6
4	*5190.00	92.9 AV			1.47 V	121	53.3	39.6
5	#10380.00	58.4 PK	74.0	-15.6	2.67 V	249	42.5	15.9
6	#10380.00	45.1 AV	54.0	-8.9	2.67 V	249	29.2	15.9

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 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	65.1 PK	74.0	-8.9	1.85 H	207	61.2	3.9
2	5150.00	52.2 AV	54.0	-1.8	1.85 H	207	48.3	3.9
3	*5230.00	120.0 PK			1.45 H	208	80.6	39.4
4	*5230.00	109.5 AV			1.45 H	208	70.1	39.4
5	5350.00	57.4 PK	74.0	-16.6	1.76 H	208	53.4	4.0
6	5350.00	43.9 AV	54.0	-10.1	1.76 H	208	39.9	4.0
7	#10460.00	58.4 PK	74.0	-15.6	2.38 H	169	42.0	16.4
8	#10460.00	45.0 AV	54.0	-9.0	2.38 H	169	28.6	16.4
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	58.0 PK	74.0	-16.0	1.65 V	184	54.1	3.9
2	5150.00	45.0 AV	54.0	-9.0	1.65 V	184	41.1	3.9
3	*5230.00	107.3 PK			4.00 V	163	67.9	39.4
4	*5230.00	96.5 AV			4.00 V	163	57.1	39.4
5	5350.00	55.9 PK	74.0	-18.1	1.56 V	171	51.9	4.0
6	5350.00	42.5 AV	54.0	-11.5	1.56 V	171	38.5	4.0
7	#10460.00	58.7 PK	74.0	-15.3	2.98 V	261	42.3	16.4
8	#10460.00	45.3 AV	54.0	-8.7	2.98 V	261	28.9	16.4

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 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	#5634.40	59.6 PK	68.2	-8.6	1.52 H	151	55.1	4.5
2	#5650.00	66.4 PK	68.2	-1.8	1.47 H	163	61.8	4.6
3	*5755.00	119.0 PK			1.52 H	151	78.9	40.1
4	*5755.00	108.6 AV			1.52 H	151	68.5	40.1
5	#5930.40	57.6 PK	68.2	-10.6	1.52 H	151	52.4	5.2
6	11510.00	60.4 PK	74.0	-13.6	2.67 H	238	42.8	17.6
7	11510.00	47.2 AV	54.0	-6.8	2.67 H	238	29.6	17.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5647.20	57.7 PK	68.2	-10.5	2.96 V	76	53.1	4.6
2	#5650.00	61.5 PK	68.2	-6.7	3.77 V	86	56.9	4.6
3	*5755.00	116.8 PK			2.96 V	76	76.7	40.1
4	*5755.00	106.0 AV			2.96 V	76	65.9	40.1
5	#5931.20	56.8 PK	68.2	-11.4	2.96 V	76	51.6	5.2
6	11510.00	59.5 PK	74.0	-14.5	2.33 V	189	41.9	17.6
7	11510.00	46.3 AV	54.0	-7.7	2.33 V	189	28.7	17.6

Remarks:

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

CHANNEL	TX Channel 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	#5602.40	56.4 PK	68.2	-11.8	1.68 H	150	51.9	4.5
2	*5795.00	119.1 PK			1.68 H	150	78.8	40.3
3	*5795.00	108.6 AV			1.68 H	150	68.3	40.3
4	#5976.80	58.1 PK	68.2	-10.1	1.68 H	150	52.8	5.3
5	11590.00	61.0 PK	74.0	-13.0	2.96 H	231	43.1	17.9
6	11590.00	47.5 AV	54.0	-6.5	2.96 H	231	29.6	17.9
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	#5600.80	56.2 PK	68.2	-12.0	2.91 V	80	51.7	4.5
2	*5795.00	116.1 PK			2.91 V	80	75.8	40.3
3	*5795.00	105.3 AV			2.91 V	80	65.0	40.3
4	#5973.60	57.1 PK	68.2	-11.1	2.91 V	80	51.8	5.3
5	11590.00	60.0 PK	74.0	-14.0	2.64 V	273	42.1	17.9
6	11590.00	46.4 AV	54.0	-7.6	2.64 V	273	28.5	17.9

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	67.9 PK	74.0	-6.1	1.48 H	208	64.0	3.9
2	5150.00	52.8 AV	54.0	-1.2	1.48 H	208	48.9	3.9
3	*5210.00	110.7 PK			2.50 H	207	71.2	39.5
4	*5210.00	99.6 AV			2.50 H	207	60.1	39.5
5	5350.00	58.0 PK	74.0	-16.0	1.59 H	213	54.0	4.0
6	5350.00	45.1 AV	54.0	-8.9	1.59 H	213	41.1	4.0
7	#10420.00	58.7 PK	74.0	-15.3	2.31 H	187	42.7	16.0
8	#10420.00	45.0 AV	54.0	-9.0	2.31 H	187	29.0	16.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	62.5 PK	74.0	-11.5	1.67 V	135	58.6	3.9
2	5150.00	47.6 AV	54.0	-6.4	1.67 V	135	43.7	3.9
3	*5210.00	98.6 PK			1.57 V	123	59.1	39.5
4	*5210.00	88.8 AV			1.57 V	123	49.3	39.5
5	5350.00	56.0 PK	74.0	-18.0	1.51 V	143	52.0	4.0
6	5350.00	42.6 AV	54.0	-11.4	1.51 V	143	38.6	4.0
7	#10420.00	58.6 PK	74.0	-15.4	2.69 V	241	42.6	16.0
8	#10420.00	45.1 AV	54.0	-8.9	2.69 V	241	29.1	16.0

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 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	#5650.00	66.6 PK	68.2	-1.6	1.18 H	151	62.0	4.6
2	#5650.00	61.2 PK	68.2	-7.0	1.48 H	151	56.6	4.6
3	*5775.00	113.1 PK			1.48 H	151	72.9	40.2
4	*5775.00	102.7 AV			1.48 H	151	62.5	40.2
5	#5925.00	63.0 PK	68.2	-5.2	2.82 H	147	57.8	5.2
6	#5930.40	57.9 PK	68.2	-10.3	1.48 H	151	52.7	5.2
7	11550.00	59.7 PK	74.0	-14.3	2.97 H	189	41.9	17.8
8	11550.00	46.6 AV	54.0	-7.4	2.97 H	189	28.8	17.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5646.40	59.3 PK	68.2	-8.9	2.91 V	76	54.7	4.6
2	#5650.00	63.8 PK	68.2	-4.4	3.64 V	78	59.2	4.6
3	*5775.00	110.4 PK			2.91 V	76	70.2	40.2
4	*5775.00	100.0 AV			2.91 V	76	59.8	40.2
5	#5925.00	61.5 PK	68.2	-6.7	2.85 V	86	56.3	5.2
6	#5925.60	59.4 PK	68.2	-8.8	2.91 V	76	54.2	5.2
7	11550.00	59.2 PK	74.0	-14.8	2.66 V	237	41.4	17.8
8	11550.00	46.2 AV	54.0	-7.8	2.66 V	237	28.4	17.8

Remarks:

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

802.11ac (VHT80+VHT80)

CHANNEL	TX Channel 42+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	5150.00	66.3 PK	74.0	-7.7	2.26 H	128	62.4	3.9
2	5150.00	50.1 AV	54.0	-3.9	2.26 H	128	46.2	3.9
3	*5210.00	108.8 PK			2.21 H	125	69.3	39.5
4	*5210.00	99.2 AV			2.21 H	125	59.7	39.5
5	5350.00	56.9 PK	74.0	-17.1	2.16 H	144	52.9	4.0
6	5350.00	44.3 AV	54.0	-9.7	2.16 H	144	40.3	4.0
7	#5644.00	57.6 PK	68.2	-10.6	1.47 H	194	53.0	4.6
8	#5650.00	57.2 PK	68.2	-11.0	1.45 H	228	52.6	4.6
9	*5775.00	104.1 PK			1.47 H	194	63.9	40.2
10	*5775.00	92.7 AV			1.47 H	194	52.5	40.2
11	#5925.00	57.2 PK	68.2	-11.0	1.51 H	207	52.0	5.2
12	#5925.60	57.4 PK	68.2	-10.8	1.47 H	194	52.2	5.2
13	#10420.00	58.0 PK	74.0	-16.0	2.36 H	129	42.0	16.0
14	#10420.00	45.3 AV	54.0	-8.7	2.36 H	129	29.3	16.0
15	11550.00	60.1 PK	74.0	-13.9	2.87 H	203	42.3	17.8
16	11550.00	46.8 AV	54.0	-7.2	2.87 H	203	29.0	17.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	63.4 PK	74.0	-10.6	3.87 V	84	59.5	3.9
2	5150.00	48.9 AV	54.0	-5.1	3.87 V	84	45.0	3.9
3	*5210.00	105.0 PK			2.98 V	79	65.5	39.5
4	*5210.00	94.9 AV			2.98 V	79	55.4	39.5
5	5350.00	55.8 PK	74.0	-18.2	3.71 V	102	51.8	4.0
6	5350.00	43.5 AV	54.0	-10.5	3.71 V	102	39.5	4.0
7	#5630.40	56.2 PK	68.2	-12.0	3.11 V	261	51.7	4.5
8	#5650.00	55.8 PK	68.2	-12.4	4.00 V	95	51.2	4.6
9	*5775.00	101.3 PK			3.11 V	261	61.1	40.2
10	*5775.00	90.4 AV			3.11 V	261	50.2	40.2
11	#5925.00	57.5 PK	68.2	-10.7	3.69 V	88	52.3	5.2
12	#5928.80	57.5 PK	68.2	-10.7	3.11 V	261	52.3	5.2
13	#10420.00	58.0 PK	74.0	-16.0	2.83 V	208	42.0	16.0
14	#10420.00	44.8 AV	54.0	-9.2	2.83 V	208	28.8	16.0
15	11550.00	60.4 PK	74.0	-13.6	2.51 V	183	42.6	17.8
16	11550.00	46.8 AV	54.0	-7.2	2.51 V	183	29.0	17.8

REMARKS:

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

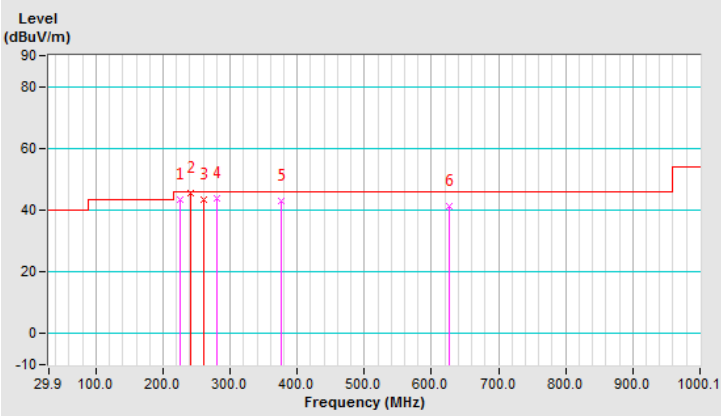
Below 1GHz Worst-Case Data: 802.11n (HT20)

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

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	225.88	43.3 QP	46.0	-2.7	1.50 H	6	59.6	-16.3
2	240.44	45.3 QP	46.0	-0.7	1.38 H	358	60.3	-15.0
3	260.04	43.6 QP	46.0	-2.4	1.19 H	352	57.8	-14.2
4	280.21	43.9 QP	46.0	-2.1	1.00 H	3	57.0	-13.1
5	375.29	42.8 QP	46.0	-3.2	1.00 H	354	54.3	-11.5
6	625.60	41.4 QP	46.0	-4.6	1.00 H	14	48.2	-6.8

Remarks:

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

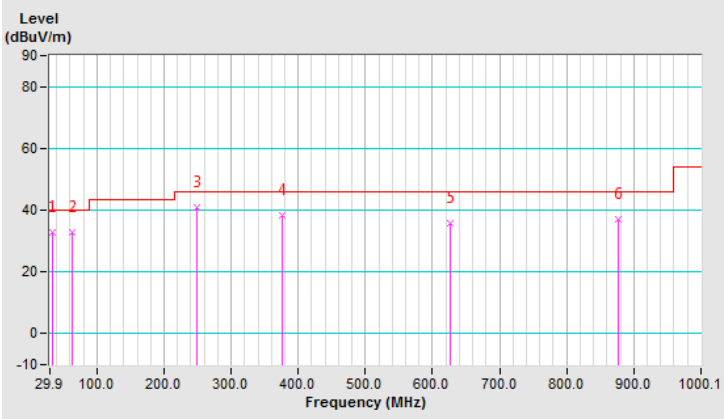


CHANNEL	TX Channel 165	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A

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	33.78	32.6 QP	40.0	-7.4	1.00 V	222	48.5	-15.9
2	62.89	32.9 QP	40.0	-7.1	1.49 V	311	47.8	-14.9
3	249.17	41.0 QP	46.0	-5.0	1.49 V	109	55.6	-14.6
4	375.29	38.2 QP	46.0	-7.8	1.00 V	275	49.7	-11.5
5	625.60	35.7 QP	46.0	-10.3	1.00 V	238	42.5	-6.8
6	875.91	36.9 QP	46.0	-9.1	1.00 V	6	39.6	-2.7

Remarks:

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

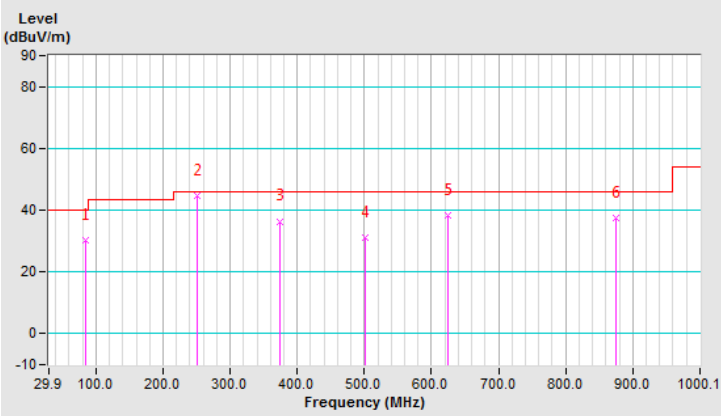


CHANNEL	TX Channel 165	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

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	84.34	30.4 QP	40.0	-9.6	2.00 H	76	49.6	-19.2
2	251.55	44.8 QP	46.0	-1.2	1.00 H	21	58.8	-14.0
3	374.04	36.4 QP	46.0	-9.6	1.00 H	121	47.1	-10.7
4	500.42	31.2 QP	46.0	-14.8	1.50 H	192	39.2	-8.0
5	624.85	38.4 QP	46.0	-7.6	1.00 H	311	43.3	-4.9
6	875.67	37.3 QP	46.0	-8.7	1.50 H	10	37.4	-0.1

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

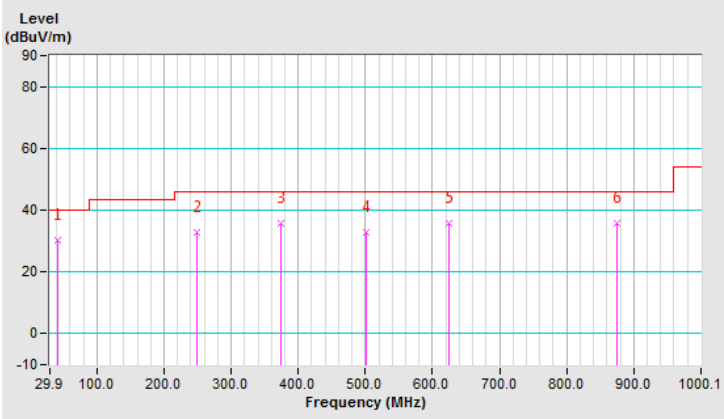


CHANNEL	TX Channel 165	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

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	41.57	30.2 QP	40.0	-9.8	1.01 V	283	44.9	-14.7
2	249.60	32.8 QP	46.0	-13.2	1.50 V	150	46.9	-14.1
3	374.04	35.6 QP	46.0	-10.4	1.50 V	66	46.3	-10.7
4	500.42	32.9 QP	46.0	-13.1	1.01 V	327	40.9	-8.0
5	624.85	35.8 QP	46.0	-10.2	1.50 V	156	40.7	-4.9
6	875.67	35.7 QP	46.0	-10.3	1.01 V	12	35.8	-0.1

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

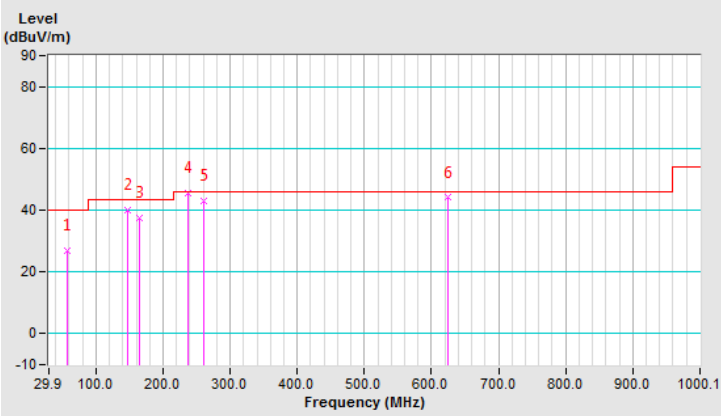


CHANNEL	TX Channel 165	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	C

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	57.12	26.8 QP	40.0	-13.2	1.99 H	16	41.3	-14.5
2	146.56	40.0 QP	43.5	-3.5	1.99 H	302	53.9	-13.9
3	164.06	37.3 QP	43.5	-6.2	1.50 H	164	51.2	-13.9
4	**237.94**	**45.5 QP**	**46.0**	**-0.5**	**1.50 H**	**15**	**60.4**	**-14.9**
5	261.27	43.0 QP	46.0	-3.0	1.50 H	15	56.6	-13.6
6	624.85	44.0 QP	46.0	-2.0	1.50 H	318	48.9	-4.9

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

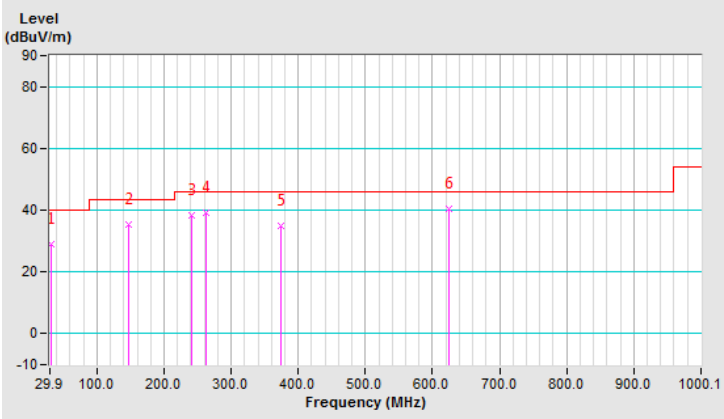


CHANNEL	TX Channel 165	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	C

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	31.84	28.8 QP	40.0	-11.2	1.01 V	103	44.8	-16.0
2	146.56	35.2 QP	43.5	-8.3	2.00 V	236	49.1	-13.9
3	241.83	38.4 QP	46.0	-7.6	1.50 V	118	52.8	-14.4
4	263.21	39.1 QP	46.0	-6.9	2.00 V	123	52.6	-13.5
5	374.04	34.9 QP	46.0	-11.1	1.01 V	140	45.6	-10.7
6	624.85	40.5 QP	46.0	-5.5	1.01 V	265	45.4	-4.9

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



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	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 06, 2018	Mar. 05, 2019
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
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.

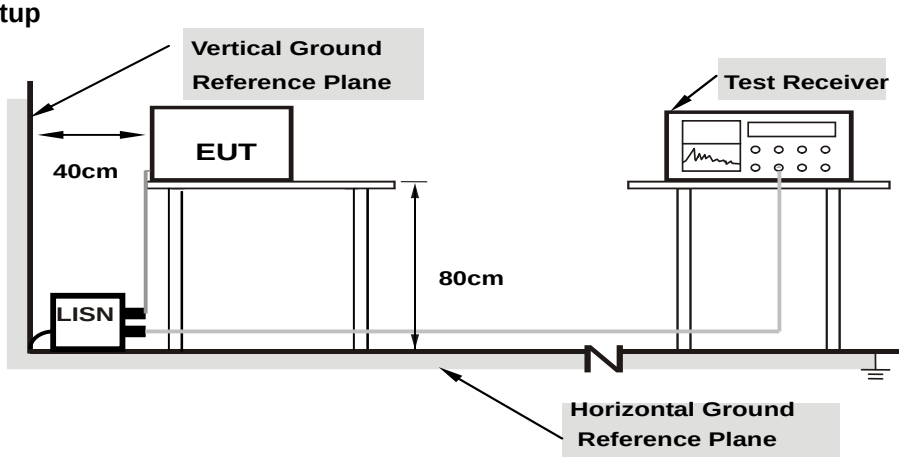
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

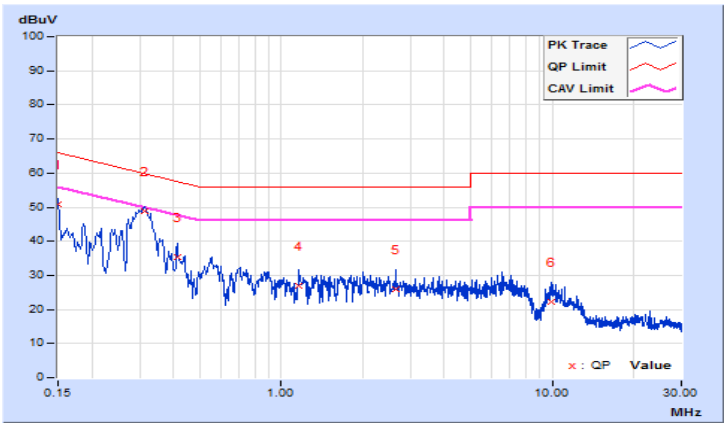
Worst-Case Data: 802.11n (HT20)

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

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	10.16	40.69	29.53	50.85	39.69	66.00	56.00	-15.15	-16.31
2	0.31432	10.18	38.61	32.17	48.79	42.35	59.86	49.86	-11.07	-7.51
3	0.41197	10.21	25.31	17.26	35.52	27.47	57.61	47.61	-22.09	-20.14
4	1.16269	10.18	16.82	12.07	27.00	22.25	56.00	46.00	-29.00	-23.75
5	2.64849	10.28	15.49	9.84	25.77	20.12	56.00	46.00	-30.23	-25.88
6	9.88199	10.64	11.67	6.46	22.31	17.10	60.00	50.00	-37.69	-32.90

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.

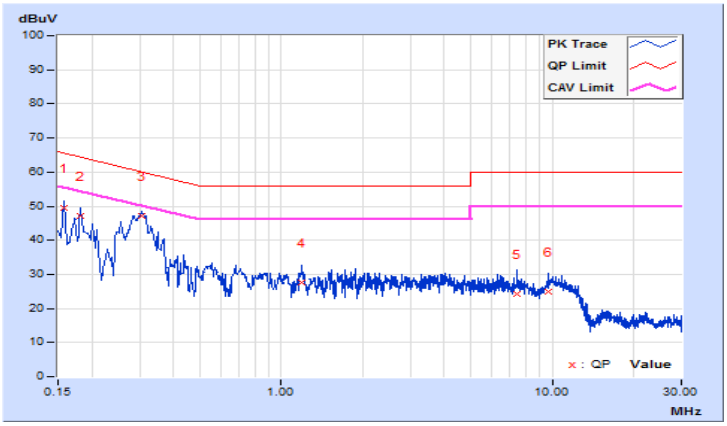


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

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	0.15782	10.15	39.24	25.50	49.39	35.65	65.58	55.58	-16.19	-19.93
2	0.18128	10.16	36.88	24.75	47.04	34.91	64.43	54.43	-17.39	-19.52
3	0.30615	10.18	37.00	30.19	47.18	40.37	60.07	50.07	-12.89	-9.70
4	1.19006	10.21	17.30	12.79	27.51	23.00	56.00	46.00	-28.49	-23.00
5	7.45388	10.47	13.62	7.72	24.09	18.19	60.00	50.00	-35.91	-31.81
6	9.72950	10.56	14.29	9.12	24.85	19.68	60.00	50.00	-35.15	-30.32

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.

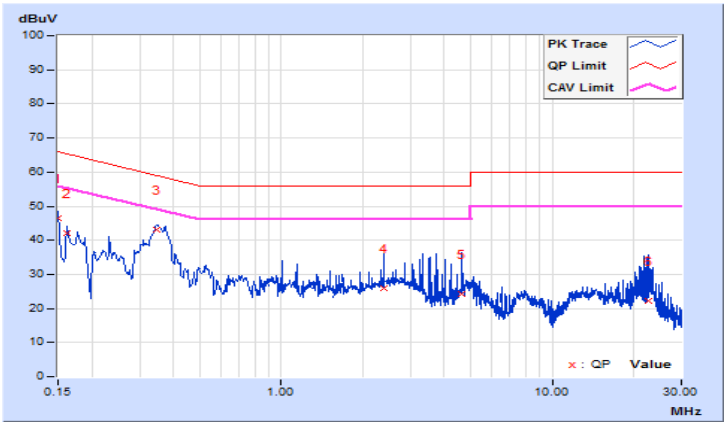


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	9.73	36.85	26.92	46.58	36.65	66.00	56.00	-19.42	-19.35
2	0.16181	9.73	32.49	20.33	42.22	30.06	65.37	55.37	-23.15	-25.31
3	0.34560	9.75	33.32	26.07	43.07	35.82	59.07	49.07	-16.00	-13.25
4	2.40216	9.78	16.31	11.79	26.09	21.57	56.00	46.00	-29.91	-24.43
5	4.64259	9.82	14.43	5.84	24.25	15.66	56.00	46.00	-31.75	-30.34
6	22.58558	10.00	12.33	3.58	22.33	13.58	60.00	50.00	-37.67	-36.42

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.

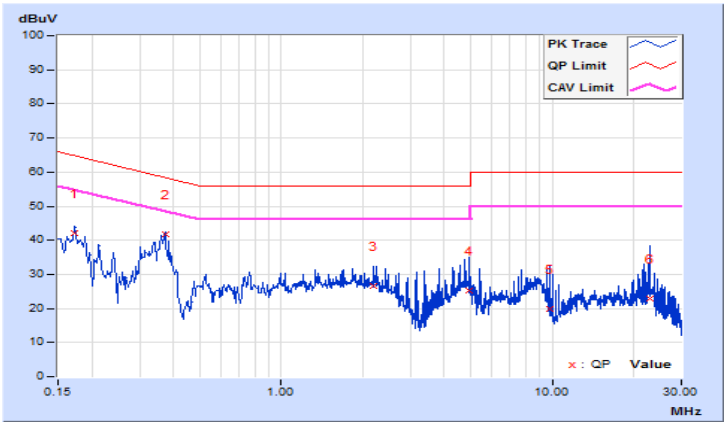


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	0.17346	9.73	32.49	23.91	42.22	33.64	64.79	54.79	-22.57	-21.15
2	0.37287	9.75	31.91	24.82	41.66	34.57	58.44	48.44	-16.78	-13.87
3	2.20275	9.77	16.84	11.62	26.61	21.39	56.00	46.00	-29.39	-24.61
4	4.96321	9.85	15.40	7.91	25.25	17.76	56.00	46.00	-30.75	-28.24
5	9.77251	9.93	9.88	1.27	19.81	11.20	60.00	50.00	-40.19	-38.80
6	22.89838	10.14	12.84	4.83	22.98	14.97	60.00	50.00	-37.02	-35.03

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.

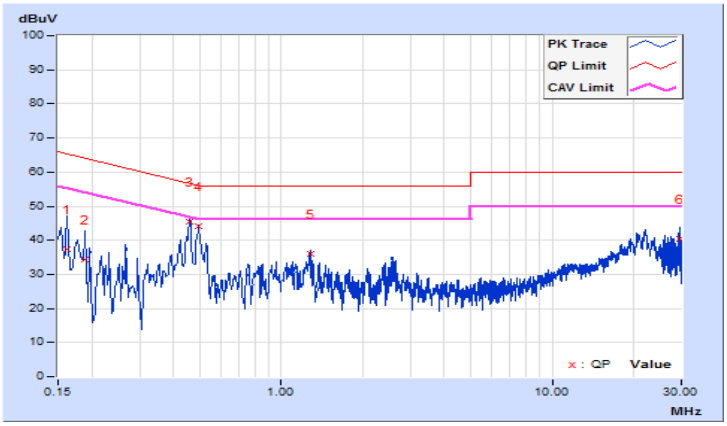


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

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	0.16173	9.67	27.82	8.17	37.49	17.84	65.37	55.37	-27.88	-37.53
2	0.18910	9.67	24.77	4.77	34.44	14.44	64.08	54.08	-29.64	-39.64
3	**0.45937**	**9.67**	**35.73**	**29.54**	**45.40**	**39.21**	**56.70**	**46.70**	**-11.30**	**-7.49**
4	0.49799	9.67	34.53	28.76	44.20	38.43	56.03	46.03	-11.83	-7.60
5	1.27999	9.69	26.41	18.62	36.10	28.31	56.00	46.00	-19.90	-17.69
6	29.64704	9.98	30.47	16.69	40.45	26.67	60.00	50.00	-19.55	-23.33

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.

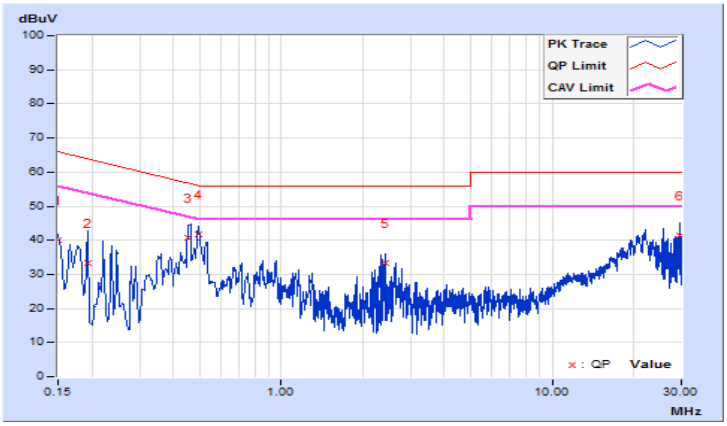


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

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	9.68	30.22	18.90	39.90	28.58	66.00	56.00	-26.10	-27.42
2	0.19301	9.68	23.76	2.49	33.44	12.17	63.91	53.91	-30.47	-41.74
3	0.45455	9.68	31.12	20.45	40.80	30.13	56.79	46.79	-15.99	-16.66
4	0.49324	9.68	32.06	25.12	41.74	34.80	56.11	46.11	-14.37	-11.31
5	2.41389	9.72	23.72	10.00	33.44	19.72	56.00	46.00	-22.56	-26.28
6	29.64704	10.11	31.31	17.73	41.42	27.84	60.00	50.00	-18.58	-22.16

REMARKS:

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



4.3 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

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

*B is the 26 dB emission bandwidth in megahertz

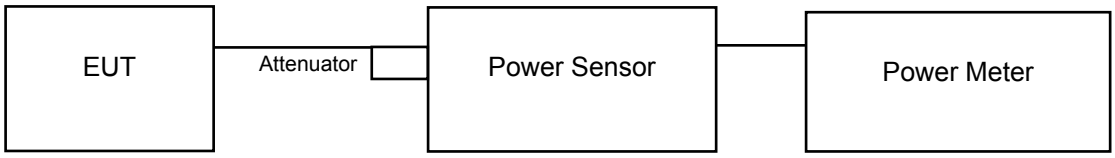
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

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

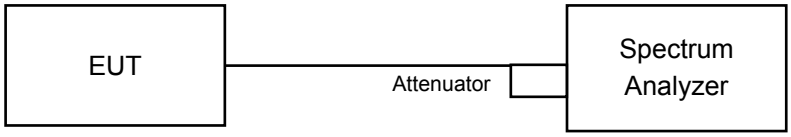
For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.3.2 Test Setup

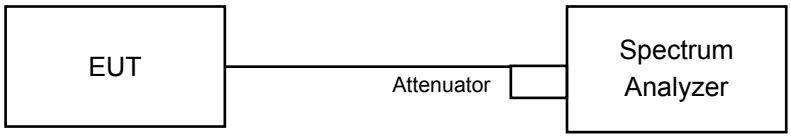
For Power Output
802.11a, 802.11n (HT20), 802.11n (HT40)



802.11ac (VHT80), 802.11ac (VHT80+VHT80)



For Bandwidth



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

For Average Power Measurement

For 802.11a, 802.11n (HT20), 802.11n (HT40)
Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

For 802.11ac (VHT80), 802.11ac (VHT80+VHT80)
a. Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
b. Set sweep trigger to “free run”.
c. Set RBW = 1 MHz
d. Set VBW ≥ 3 MHz
e. Number of points in sweep ≥ 2 Span / RBW
f. Sweep time ≤ (number of points in sweep) * T
g. Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
h. Detector = RMS
i. Trace mode = max hold
j. Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.
k. Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Power Output:

CDD Mode

802.11a

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	19.91	19.73	19.67	19.49	375.595	25.75	30	Pass
40	5200	19.60	19.76	19.12	19.89	362.763	25.60	30	Pass
48	5240	19.74	19.82	19.23	19.72	367.638	25.65	30	Pass
149	5745	23.94	23.36	23.34	23.42	900.072	29.54	30	Pass
157	5785	24.13	23.37	23.38	23.51	918.250	29.63	30	Pass
165	5825	24.20	23.30	23.06	23.42	898.911	29.54	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	19.35	18.98	19.17	19.21	331.139	25.20	30	Pass
40	5200	20.52	20.82	20.13	20.59	451.091	26.54	30	Pass
48	5240	20.47	20.63	20.05	20.59	442.749	26.46	30	Pass
149	5745	24.15	23.48	23.40	23.36	918.406	29.63	30	Pass
157	5785	24.22	23.41	23.31	23.48	920.654	29.64	30	Pass
165	5825	24.43	23.22	23.13	23.61	**922.430**	29.65	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	17.96	17.71	17.77	17.93	243.465	23.86	30	Pass
46	5230	22.30	22.13	21.82	22.25	**653.064**	28.15	30	Pass
151	5755	23.62	23.07	23.14	22.92	834.859	29.22	30	Pass
159	5795	24.19	23.21	23.14	23.42	897.682	29.53	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	16.47	16.52	16.37	16.49	177.153	22.48	30	Pass
155	5775	19.94	19.39	19.47	19.51	363.367	25.60	30	Pass

802.11ac (VHT80+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	16.46	16.23	-	-	86.235	19.36	30	Pass
155	5775	-	-	16.49	16.39	88.117	19.45	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	17.58	17.21	17.40	17.44	220.299	23.43	30	Pass
40	5200	18.75	19.05	18.36	18.82	300.099	24.77	30	Pass
48	5240	18.70	18.86	18.28	18.82	294.550	24.69	30	Pass
149	5745	22.38	21.71	21.63	21.59	610.992	27.86	30	Pass
157	5785	22.45	21.64	21.54	21.71	612.486	27.87	30	Pass
165	5825	22.66	21.45	21.36	21.84	**613.669**	27.88	30	Pass

Note: Beamforming gain = 5.77dBi < 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	16.19	15.94	16.00	16.16	161.971	22.09	30	Pass
46	5230	20.53	20.36	20.05	20.48	**434.467**	26.38	30	Pass
151	5755	21.85	21.30	21.37	21.15	555.410	27.45	30	Pass
159	5795	22.42	21.44	21.37	21.65	597.204	27.76	30	Pass

Note: Beamforming gain = 5.77dBi < 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	14.70	14.75	14.60	14.72	117.854	20.71	30	Pass
155	5775	18.17	17.62	17.70	17.74	241.738	23.83	30	Pass

Note: Beamforming gain = 5.77dBi < 6dBi, so the power limit no need to reduced.

26dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	20.04	20.05	19.97	19.81
40	5200	20.04	19.82	19.90	19.69
48	5240	19.78	19.83	19.84	19.95

802.11n (HT20)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	20.50	20.75	20.63	20.51
40	5200	20.49	20.67	20.62	20.46
48	5240	20.47	20.69	20.65	20.55

802.11n (HT40)

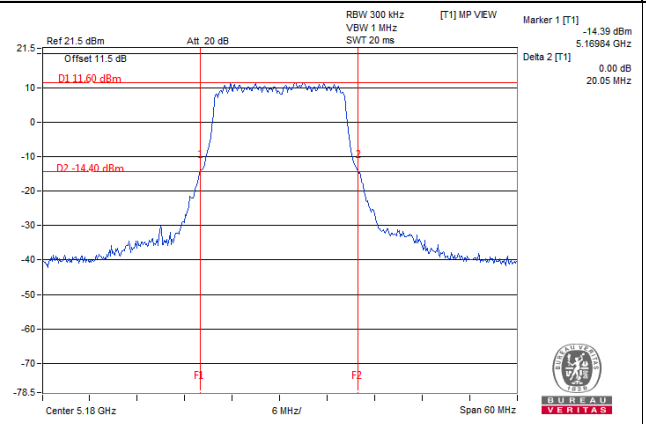
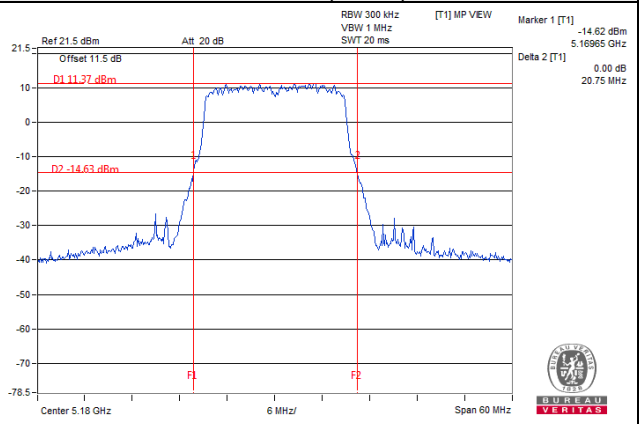
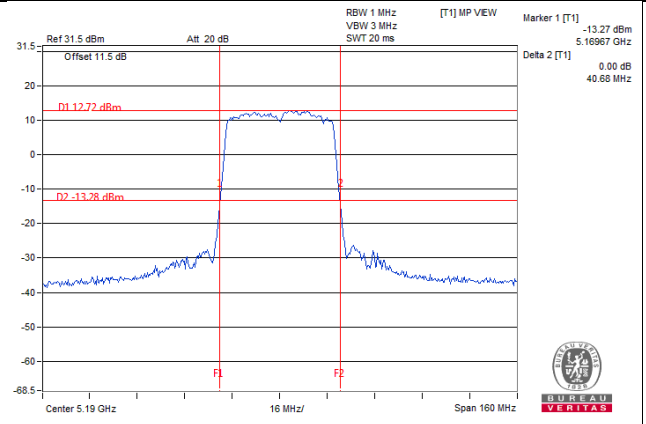
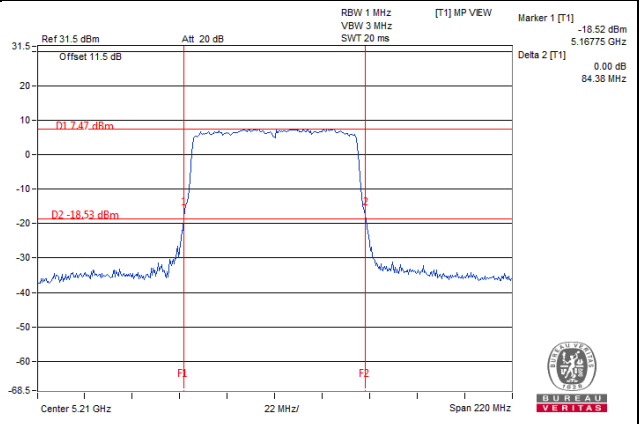
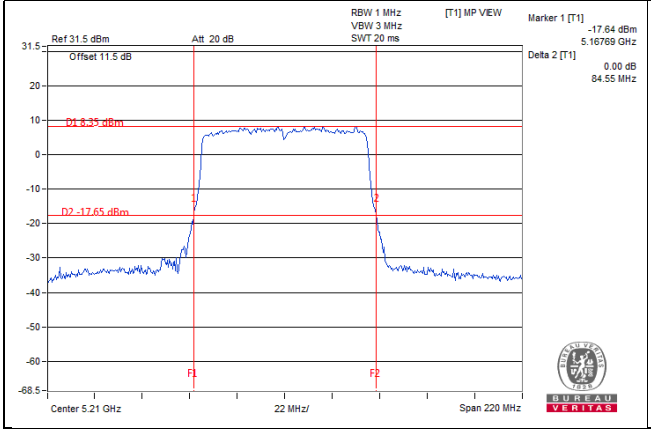
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
38	5190	40.60	40.56	40.68	40.54
46	5230	40.51	40.41	40.56	40.51

802.11ac (VHT80)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42	5210	83.43	84.38	84.36	83.94

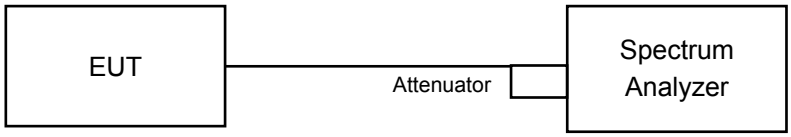
802.11ac (VHT80+VHT80)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42+155	5210	83.68	84.55	-	-
	5775	-	-	83.78	84.08

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

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	16.44	16.44	16.44
40	5200	16.44	16.44	16.44	16.44
48	5240	16.44	16.44	16.44	16.44
149	5745	16.44	16.44	16.44	16.44
157	5785	16.44	16.44	16.44	16.44
165	5825	16.44	16.44	16.56	16.44

802.11n (HT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	17.64	17.64	17.64	17.64
40	5200	17.64	17.64	17.64	17.64
48	5240	17.64	17.64	17.64	17.64
149	5745	17.64	17.64	17.64	17.64
157	5785	17.76	17.64	17.64	17.64
165	5825	17.76	17.64	17.76	17.64

802.11n (HT40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
38	5190	36.12	36.00	36.12	36.12
46	5230	36.12	36.00	36.00	36.00
151	5755	36.00	36.12	36.12	36.00
159	5795	36.00	36.00	36.00	36.00

802.11ac (VHT80)

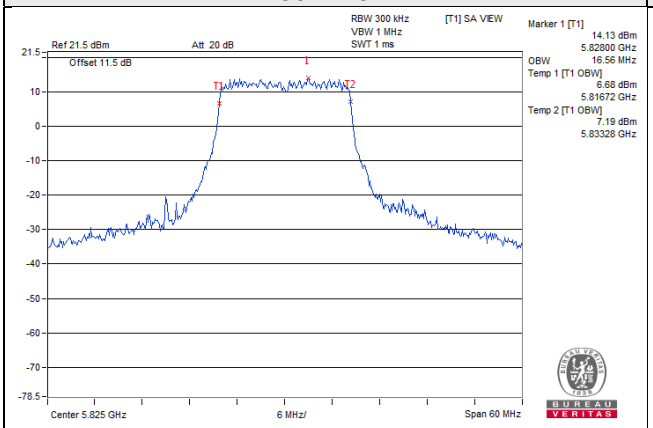
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42	5210	75.84	75.84	75.84	75.84
155	5775	75.84	75.84	75.84	75.84

802.11ac (VHT80+VHT80)

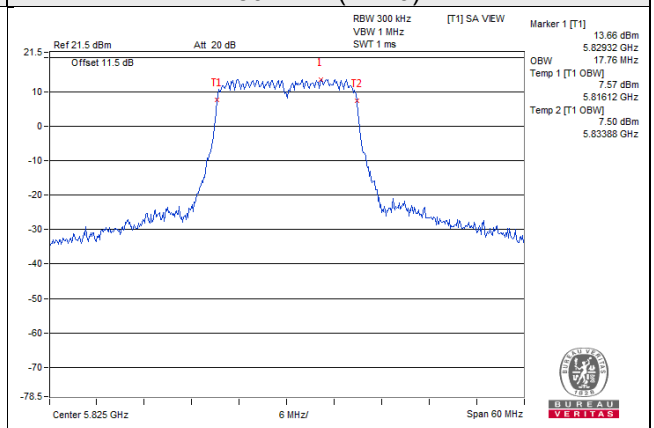
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42	5210	76.32	76.56	-	-
155	5775	-	-	75.83	76.00

Spectrum Plot of Worst Value

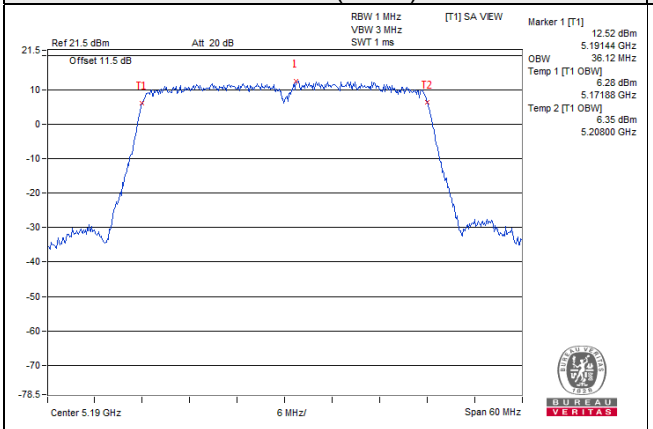
802.11a



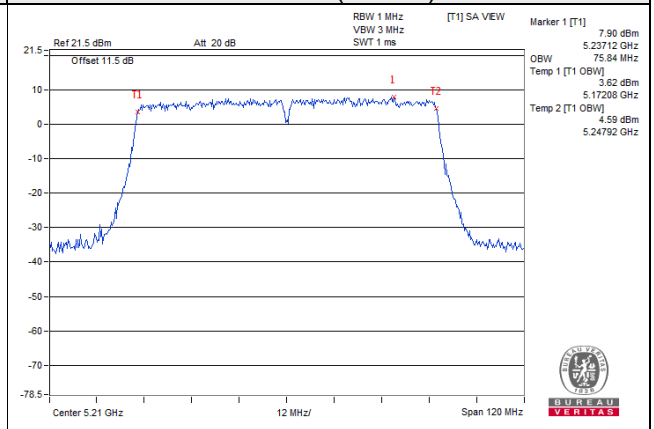
802.11n (HT20)



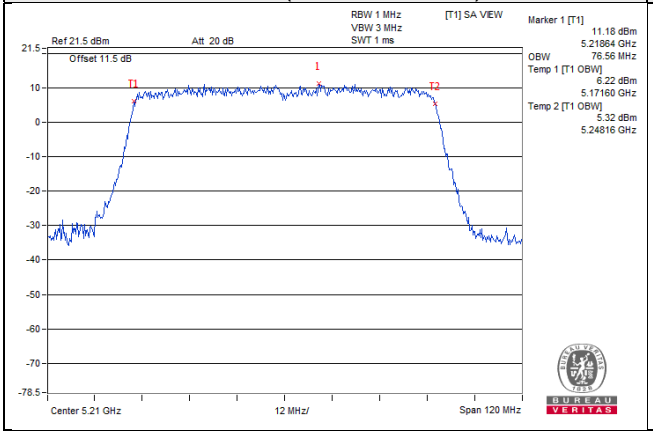
802.11n (HT40)



802.11ac (VHT80)



802.11ac (VHT80+VHT80)

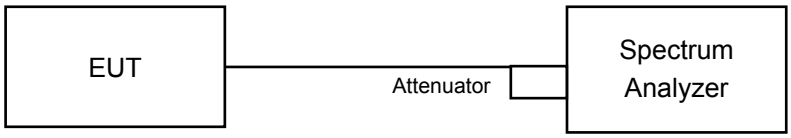


4.5 Peak Power Spectral Density Measurement

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 U-NII-1band:
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

Using method SA-2, Duty cycle <98%
1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 30 kHz, Set VBW ≥ 1 MHz, Detector = RMS
3) Set Channel power measure = 1MHz
4) Sweep time = auto, trigger set to “free run”.
5) Trace average at least 100 traces in power averaging mode.
6) Record the max value and add 10 log (1/duty cycle)

For U-NII-3 band:
Duty cycle 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 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 <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/300kHz)
5) Sweep time = auto, trigger set to “free run”.
6) Trace average at least 100 traces in power averaging mode.
7) Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as 4.3.6.

4.5.7 Test Results

For U-NII-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	6.06	6.63	6.18	6.84	0.20	12.66	12.98	Pass
40	5200	6.55	6.61	6.93	6.72	0.20	12.93	12.98	Pass
48	5240	6.84	6.45	6.70	6.73	0.20	12.90	12.98	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. **For U-NII-1:** Directional gain = 4dBi +10log (4) = 10.02dBi > 6dBi, so the power density limit shall be reduced to 17-(10.02-6) = 12.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

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	6.51	6.49	6.58	6.57	0.09	12.65	12.98	Pass
40	5200	6.90	6.99	6.65	6.75	0.09	12.94	12.98	Pass
48	5240	6.83	6.79	6.38	6.87	0.09	12.83	12.98	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. **For U-NII-1:** Directional gain = 4dBi +10log (4) = 10.02dBi > 6dBi, so the power density limit shall be reduced to 17-(10.02-6) = 12.98dBm.
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	2.30	2.13	2.24	2.55	0.20	8.53	12.98	Pass
46	5230	6.84	5.68	6.86	6.62	0.20	12.75	12.98	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. **For U-NII-1:** Directional gain = 4dBi +10log (4) = 10.02dBi > 6dBi, so the power density limit shall be reduced to 17-(10.02-6) = 12.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

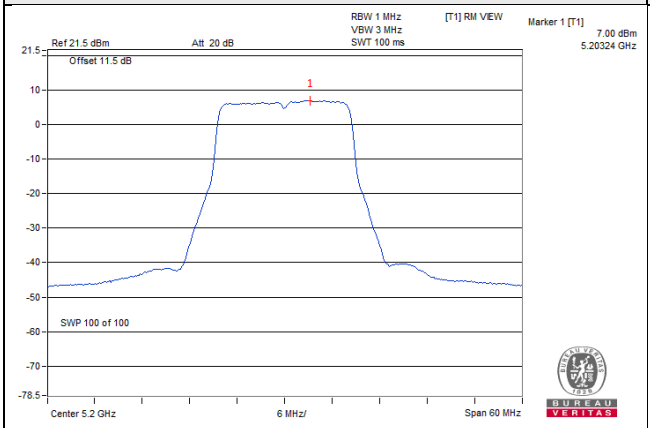
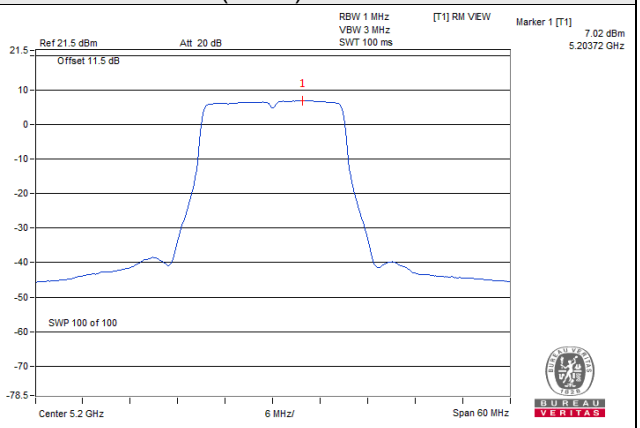
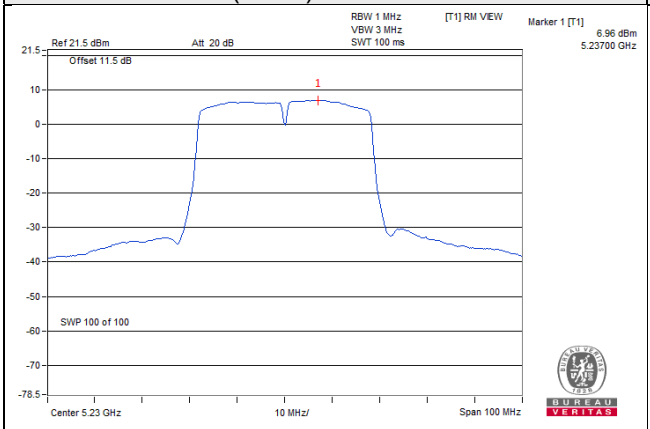
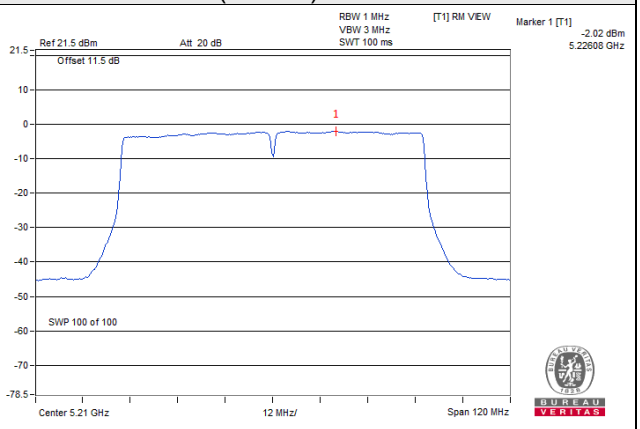
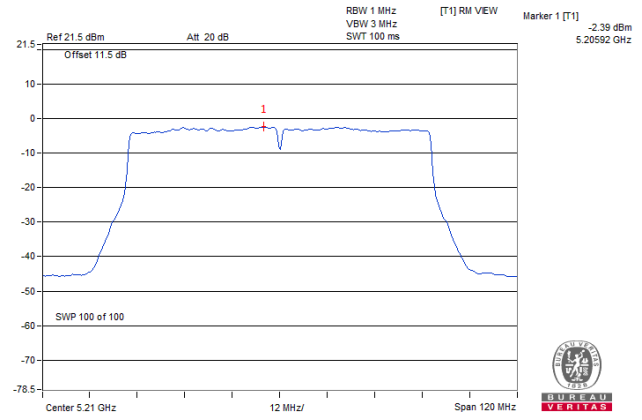
Chan.	Freq. (MHz)	PSD (dBm)				Duty factor (dB)	Total PSD with duty factor (dBm/MHz))	Max. Limit (dBm/ MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	-2.31	-2.95	-2.97	-2.11	0.38	3.83	12.98	Pass

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. **For U-NII-1:** Directional gain = 4dBi +10log (4) = 10.02dBi > 6dBi, so the power density limit shall be reduced to 17-(10.02-6) = 12.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80+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	-2.59	-2.41	-	-	0.38	0.89	15.99	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. **For U-NII-1:** Directional gain = 4dBi +10log (4/2) = 7.01dBi > 6dBi, so the power density limit shall be reduced to 17-(7.01-6) = 15.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a / Chain 2 / Ch 40	802.11n (HT20) / Chain 1 / Ch 40
	
802.11n (HT40) / Chain 2 / Ch 46	802.11ac (VHT80) / Chain 3 / Ch 42
	
802.11ac (VHT80+VHT80) / Chain 1 / Ch 42	
	

For U-NII-3 band:

802.11a

TX chain	Channel	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	1.60	3.82	6.02	0.20	10.04	25.98	Pass
	157	5785	1.55	3.77	6.02	0.20	9.99	25.98	Pass
	165	5825	1.41	3.63	6.02	0.20	9.85	25.98	Pass
1	149	5745	1.60	3.82	6.02	0.20	10.04	25.98	Pass
	157	5785	1.64	3.86	6.02	0.20	10.08	25.98	Pass
	165	5825	1.34	3.56	6.02	0.20	9.78	25.98	Pass
2	149	5745	1.83	4.05	6.02	0.20	10.27	25.98	Pass
	157	5785	1.48	3.70	6.02	0.20	9.92	25.98	Pass
	165	5825	1.20	3.42	6.02	0.20	9.64	25.98	Pass
3	149	5745	1.55	3.77	6.02	0.20	9.99	25.98	Pass
	157	5785	1.73	3.95	6.02	0.20	10.17	25.98	Pass
	165	5825	1.63	3.85	6.02	0.20	10.07	25.98	Pass

Note:

1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. **For U-NII-3:** Directional gain = 4dBi +10log (4) = 10.02dBi > 6dBi, so the power density limit shall be reduced to 30-(10.02-6) = 25.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	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	1.06	3.28	6.02	0.09	9.39	25.98	Pass
	157	5785	1.59	3.81	6.02	0.09	9.92	25.98	Pass
	165	5825	1.38	3.60	6.02	0.09	9.71	25.98	Pass
1	149	5745	1.49	3.71	6.02	0.09	9.82	25.98	Pass
	157	5785	1.34	3.56	6.02	0.09	9.67	25.98	Pass
	165	5825	1.01	3.23	6.02	0.09	9.34	25.98	Pass
2	149	5745	1.44	3.66	6.02	0.09	9.77	25.98	Pass
	157	5785	1.20	3.42	6.02	0.09	9.53	25.98	Pass
	165	5825	1.14	3.36	6.02	0.09	9.47	25.98	Pass
3	149	5745	1.66	3.88	6.02	0.09	9.99	25.98	Pass
	157	5785	1.74	3.96	6.02	0.09	10.07	25.98	Pass
	165	5825	1.70	3.92	6.02	0.09	10.03	25.98	Pass

Note:
1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. **For U-NII-3:** Directional gain = 4dBi +10log (4) = 10.02dBi > 6dBi, so the power density limit shall be reduced to 30-(10.02-6) = 25.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

TX chain	Channel	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	-2.05	0.17	6.02	0.20	6.39	25.98	Pass
	159	5795	-1.60	0.62	6.02	0.20	6.84	25.98	Pass
1	151	5755	-1.95	0.27	6.02	0.20	6.49	25.98	Pass
	159	5795	-1.94	0.28	6.02	0.20	6.50	25.98	Pass
2	151	5755	-2.20	0.02	6.02	0.20	6.24	25.98	Pass
	159	5795	-1.97	0.25	6.02	0.20	6.47	25.98	Pass
3	151	5755	-1.52	0.70	6.02	0.20	6.92	25.98	Pass
	159	5795	-1.25	0.97	6.02	0.20	7.19	25.98	Pass

Note:
1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. **For U-NII-3:** Directional gain = 4dBi +10log (4) = 10.02dBi > 6dBi, so the power density limit shall be reduced to 30-(10.02-6) = 25.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

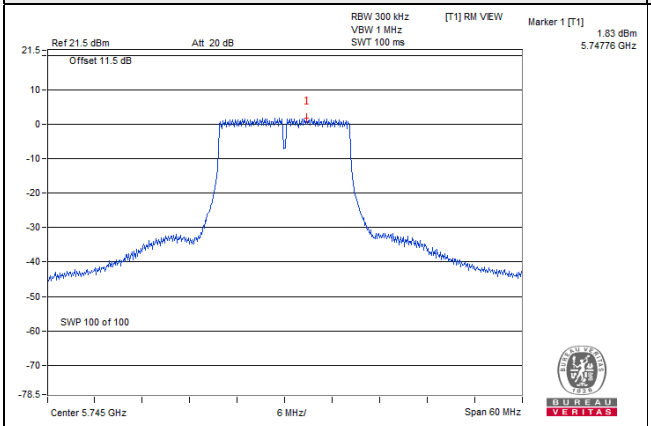
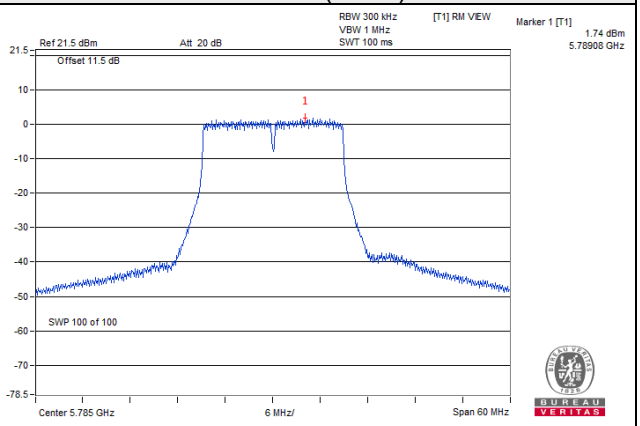
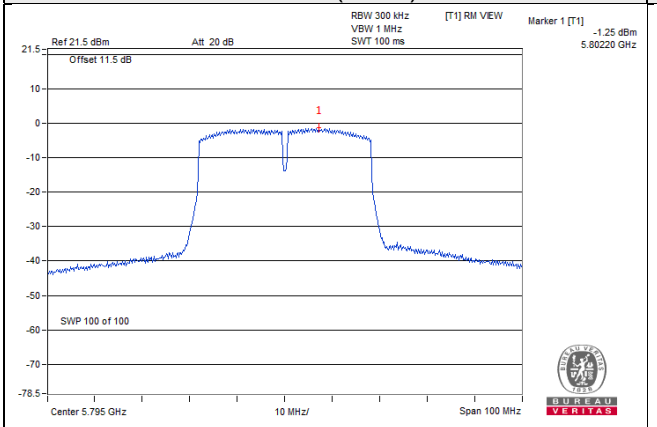
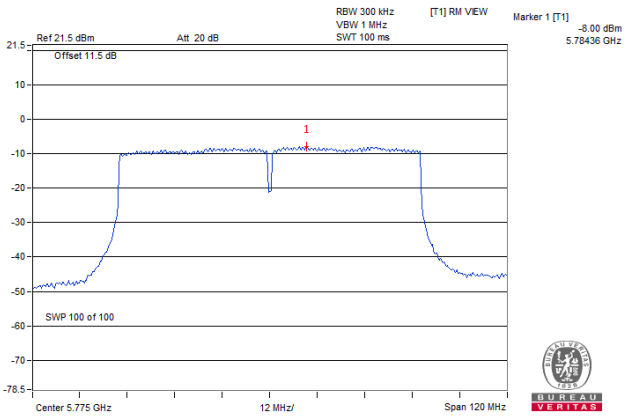
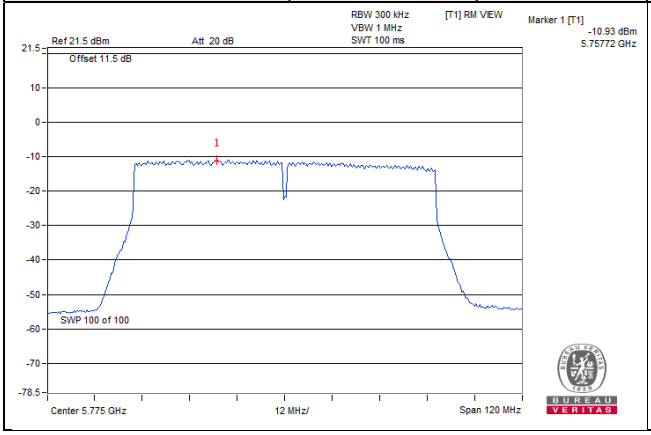
TX chain	Channel	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=4) dB	Duty factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	155	5775	-8.65	-6.43	6.02	0.38	-0.03	25.98	Pass
1	155	5775	-8.51	-6.29	6.02	0.38	0.11	25.98	Pass
2	155	5775	-8.50	-6.28	6.02	0.38	0.12	25.98	Pass
3	155	5775	-8.00	-5.78	6.02	0.38	0.62	25.98	Pass

Note:
1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. **For U-NII-3:** Directional gain = 4dBi +10log (4) = 10.02dBi > 6dBi, so the power density limit shall be reduced to 30-(10.02-6) = 25.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80+VHT80)

TX chain	Channel	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
2	155	5775	-11.02	-8.80	3.01	0.38	-5.41	28.99	Pass
3	155	5775	-10.93	-8.71	3.01	0.38	-5.32	28.99	Pass

Note:
1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. **For U-NII-3:** Directional gain = 4dBi +10log (4/2) = 7.01dBi > 6dBi, so the power density limit shall be reduced to 30-(7.01-6) = 28.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

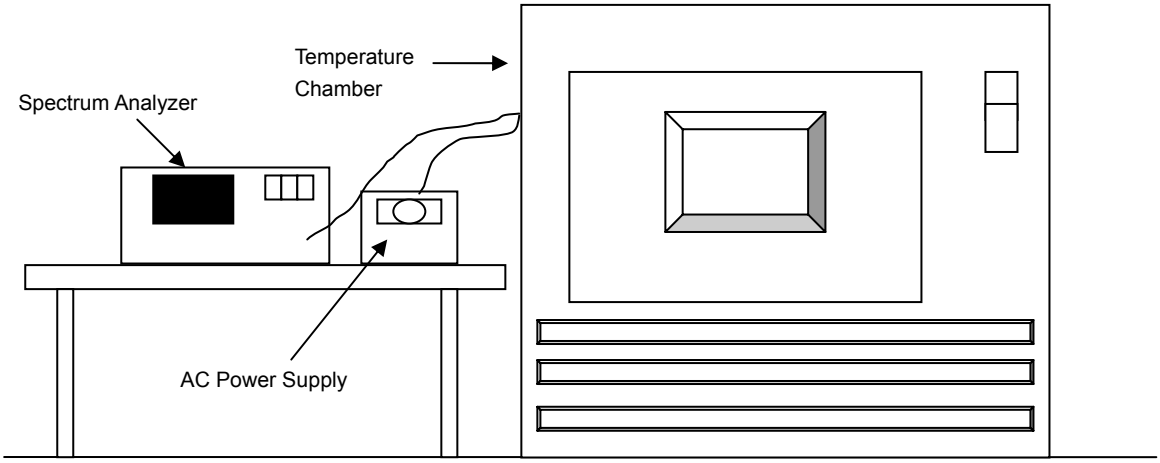
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	
802.11ac (VHT80+VHT80)	
	

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	100040	Aug. 18, 2017	Aug. 17, 2018
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 07, 2017	Jun. 06, 2018
			Jun. 04, 2018	Jun. 03, 2019
Digital Multimeter Fluke	87-III	70360742	Jun. 30, 2017	Jun. 29, 2018
AC Power Supply Extech	CFW-105	E000603	NA	NA

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: 5150MHz									
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
40	120	5180.0154	Pass	5180.0135	Pass	5180.0156	Pass	5180.0136	Pass
30	120	5179.9746	Pass	5179.9792	Pass	5179.9759	Pass	5179.9753	Pass
20	120	5180.0141	Pass	5180.012	Pass	5180.0143	Pass	5180.0101	Pass
10	120	5179.9921	Pass	5179.9955	Pass	5179.9937	Pass	5179.9917	Pass
0	120	5179.9878	Pass	5179.9912	Pass	5179.9904	Pass	5179.9885	Pass

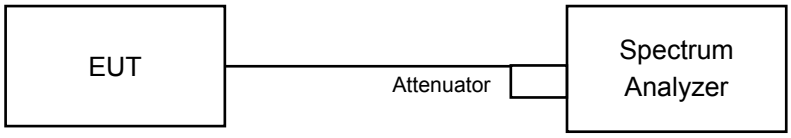
Frequency Stability Versus Voltage									
Operating Frequency: 5150MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5180.0147	Pass	5180.0111	Pass	5180.0145	Pass	5180.0099	Pass
	120	5180.0141	Pass	5180.012	Pass	5180.0143	Pass	5180.0101	Pass
	102	5180.0138	Pass	5180.0114	Pass	5180.0138	Pass	5180.0097	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	16.40	16.39	16.39	16.39	0.5	Pass
157	5785	16.40	16.42	16.40	16.39	0.5	Pass
165	5825	16.39	16.40	16.40	16.38	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	17.53	17.60	17.62	17.61	0.5	Pass
157	5785	17.59	17.64	17.63	17.58	0.5	Pass
165	5825	17.63	17.62	17.63	17.61	0.5	Pass

802.11n (HT40)

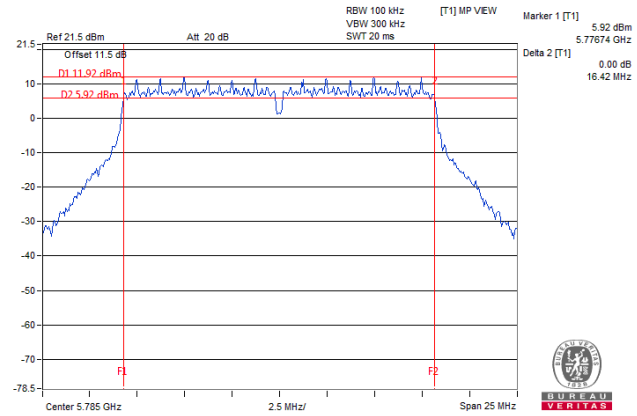
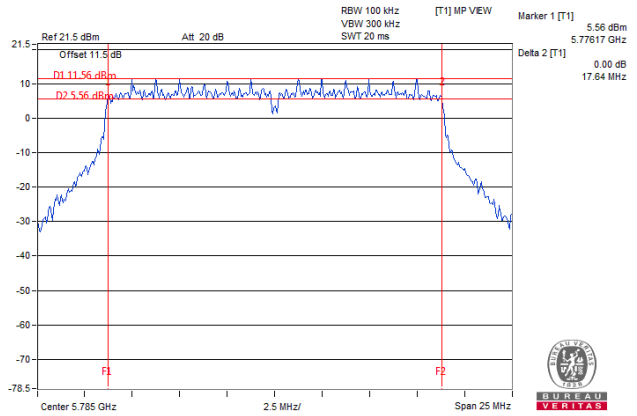
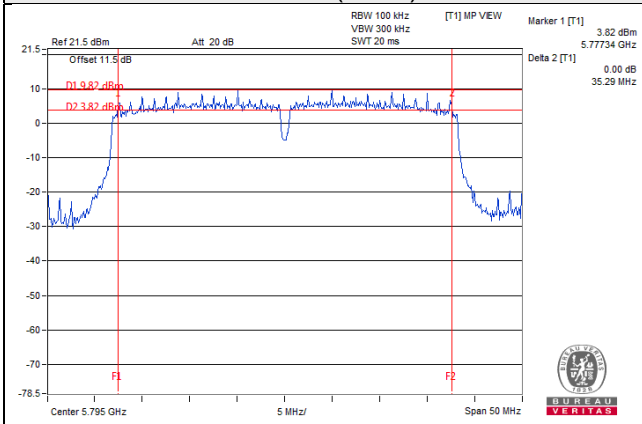
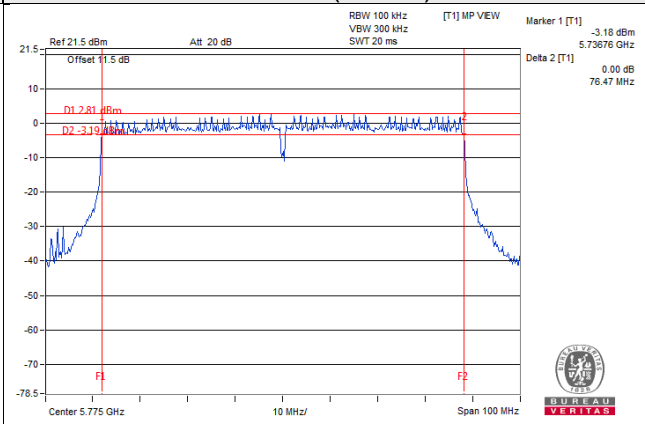
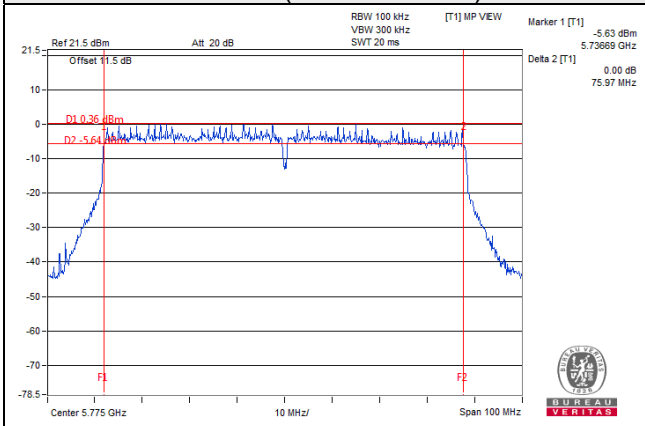
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
151	5755	33.96	35.18	35.23	35.19	0.5	Pass
159	5795	35.22	35.21	35.27	35.29	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
155	5775	76.45	76.47	76.45	76.47	0.5	Pass

802.11ac (VHT80+VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
155	5775	-	-	75.95	75.97	0.5	Pass

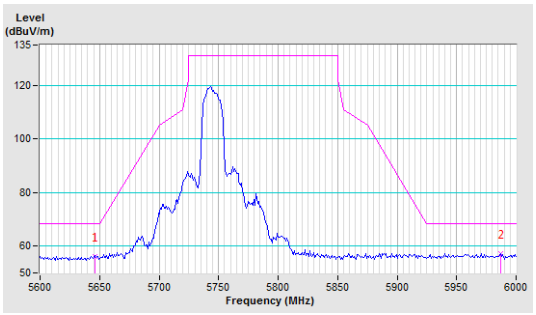
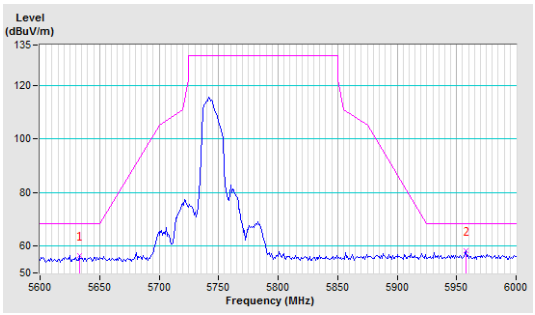
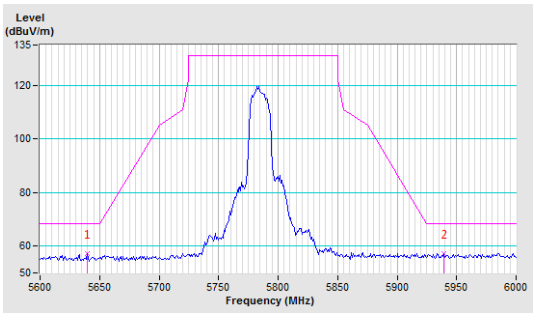
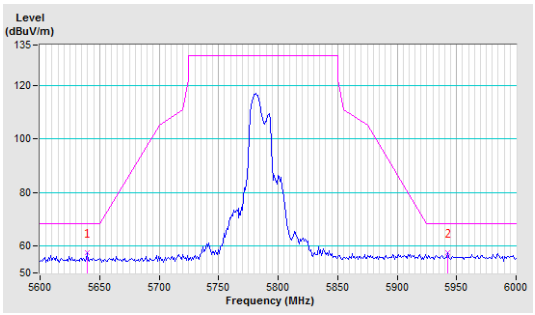
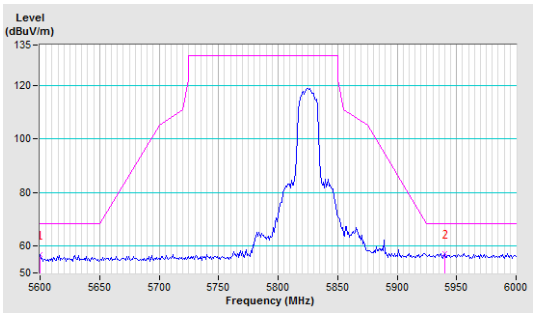
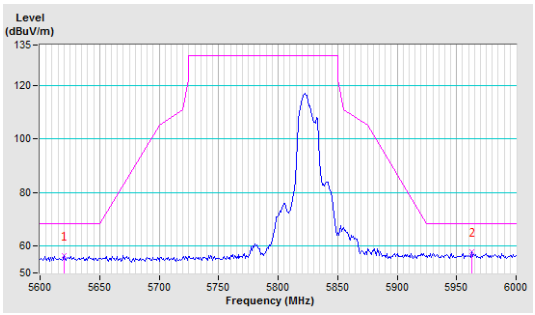
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	
802.11ac (VHT80+VHT80)	
	

5 Pictures of Test Arrangements

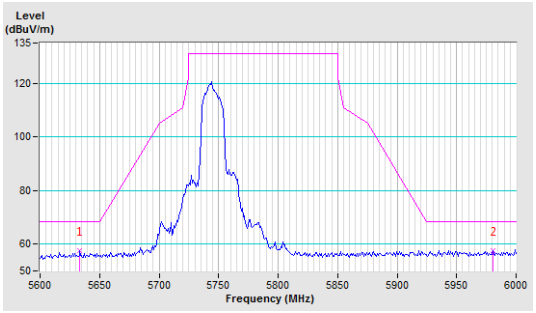
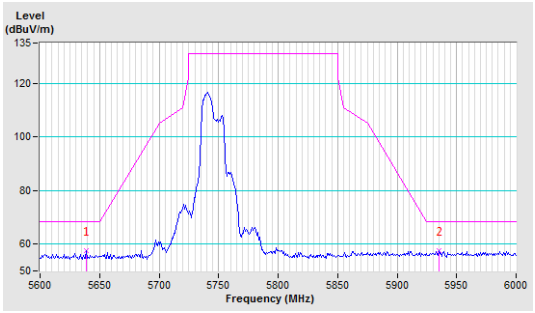
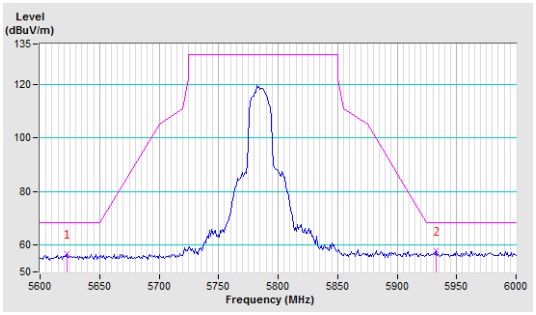
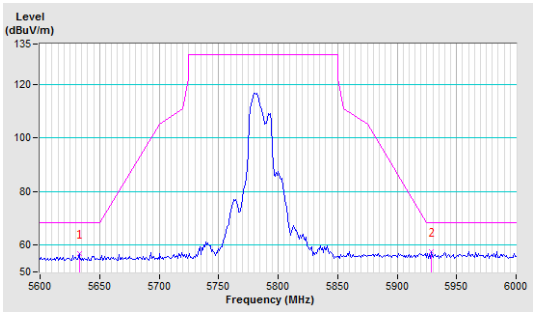
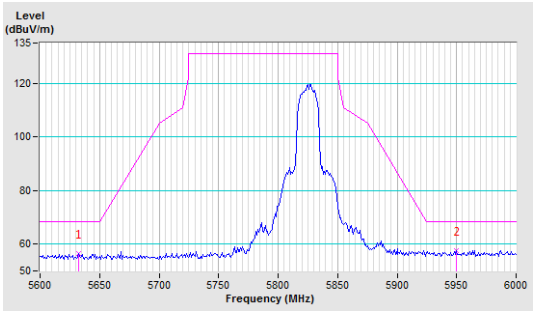
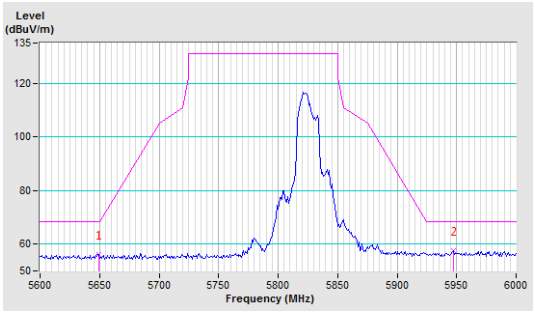
Please refer to the attached file (Test Setup Photo).

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

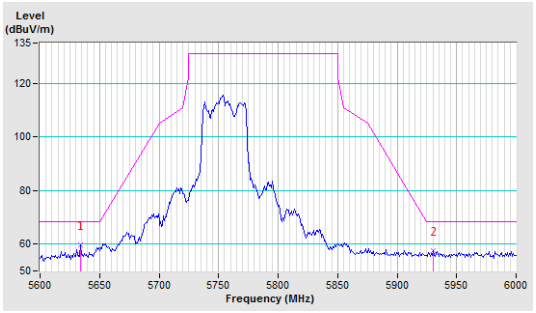
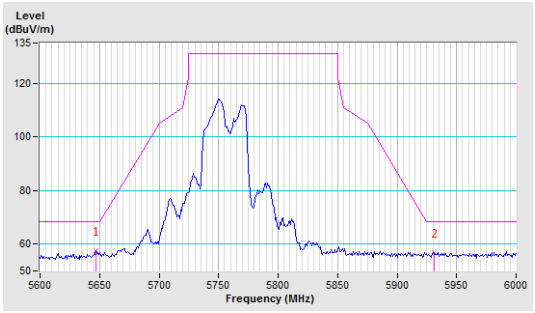
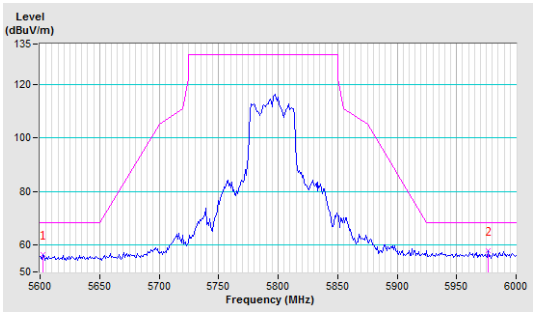
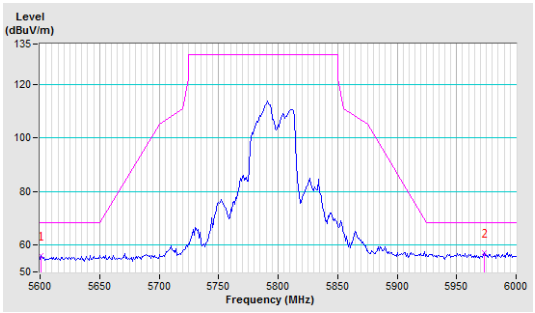
802.11a

CH149	
Horizontal	Vertical
	
CH157	
Horizontal	Vertical
	
CH165	
Horizontal	Vertical
	

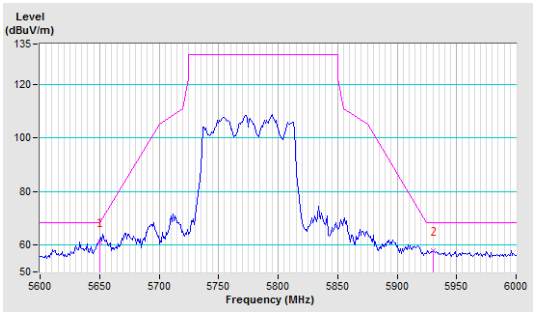
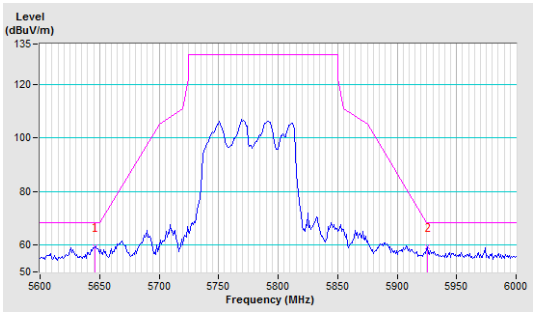
802.11n (HT20)

CH149	
Horizontal	Vertical
	
CH157	
Horizontal	Vertical
	
CH165	
Horizontal	Vertical
	

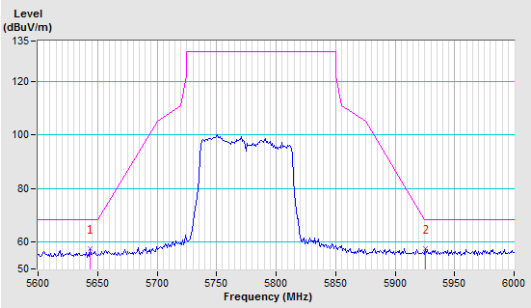
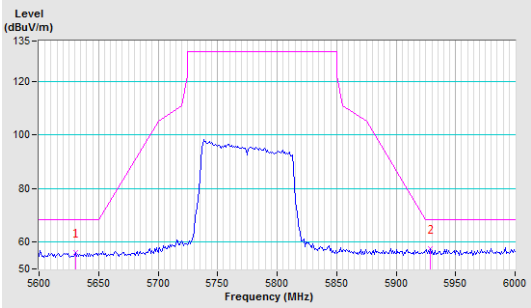
802.11n (HT40)

CH151	
Horizontal	Vertical
	
CH159	
Horizontal	Vertical
	

802.11ac (VHT80)

CH155	
Horizontal	Vertical
	

802.11ac (VHT80+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 FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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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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