FCC Test Report

Report No.:	RF180323C16-1
FCC ID:	2APRXH2C
Test Model:	H2C
Series Model:	H3C (refer to item 3.1 for more details)
Received Date:	Mar. 23, 2018
Test Date:	Apr. 02 ~ Apr. 18, 2018
Issued Date:	Apr. 25, 2018
Applicant:	Western Digital Technologies, Inc
Address:	3355 Michelson Dr #100, Irvine, CA 92612
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 (1):	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)
Test Location (2):	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
FCC Registration/ Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RF180323C16-1	Original release	Apr. 25, 2018

1 Certificate of Conformity

Product:	ibi Wireless
Brand:	SanDisk
Test Model:	H2C
Series Model:	H3C (refer to item 3.1 for more details)
Sample Status:	Engineering sample
Applicant:	Western Digital Technologies, Inc
Test Date:	Apr. 02 ~ Apr. 18, 2018
Standards:	47 CFR FCC Part 15, Subpart E (Section 15.407) ANSI C63.10:2013

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

Prepared by : Polly Chien , **Date:** Apr. 25, 2018

Polly Chien / Specialist

Approved by : Bruce Chen , **Date:** Apr. 25, 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 -8.10dB at 0.15000MHz
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -6.4dB at 45.81MHz
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	No antenna connector is used.

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1000MHz	3.89 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	4.77 dB
	6GHz ~ 40GHz	5.48 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	ibi Wireless
Brand	SanDisk
Model	H2C
Series Model	H3C
Model Difference	Refer to Note
Status of EUT	Engineering sample
Power Supply Rating	12dc (Adapter)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300Mbps 802.11ac: up to 867Mbps
Operating Frequency	5180 ~ 5240MHz, 5745 ~ 5825MHz
Number of Channel	5180 ~ 5240MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)
Output Power	5180 ~ 5240MHz: 84.341mW 5745 ~ 5825MHz: 83.570mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	Adapter
Data Cable Supplied	NA

Note:

1. All models are listed as below. Model H2C is the representative for final test.

Model	HDD Capacity	AC adapter	Interface	Remark
H2C	1TB	12V / 1.5A	USB & DC in	H3C & H2C share identical PCB, with H3C being the de-populated version without USB port. H2C/ H3C are available with 1GB/ 512MB RAM, respectively.
	2TB			
	4TB			
H3C	500GB	12V / 1.0A	DC in	

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

Modulation Mode	TX Function
802.11a	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX
802.11ac (VHT20)	2TX
802.11ac (VHT40)	2TX
802.11ac (VHT80)	2TX

*The modulation and bandwidth are similar for 802.11n mode for HT20/HT40 and 802.11ac mode for VHT20/VHT40, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

3. The following antennas were provided to the EUT.

Ant. Type	PCB		
Connecter Type	NA		
Antenna Gain (dBi)			
Item	2.4G	5G Band 1	5G Band 4
Ant. 1	**2.14**	0.97	1.36
Ant. 2	0.78	**3.19**	**2.32**

* The maximum antenna gain is chosen for final test.

4. The EUT consumes power from the following Adapters.

For H3C

Adapter 1	
Brand	Ktec
Model	KSAS0181200100HU
Input Power	100-240Vac, 50/60Hz, 0.5A
Output Power	12Vdc, 1.0A
Power Line	1.5m cable without core attached on adapter

Adapter 2	
Brand	Ktec
Model	KSAS0181200100D5
Input Power	100-240Vac, 50/60Hz, 0.5A
Output Power	12Vdc, 1.0A
Power Line	1.5m cable without core attached on adapter

For H2C

Adapter 3	
Brand	Ktec
Model	KSA-24W-120150D5
Input Power	120-240Vac, 50/60Hz, 0.6A
Output Power	12Vdc, 1.5A
Power Line	1.8m cable with 1 core attached on adapter

Adapter 4	
Brand	Asian Power Devices Inc.
Model	WB-18R12R
Input Power	120-240Vac, 50/60Hz, 0.6A Max.
Output Power	12Vdc, 1.5A
Power Line	1.75m cable without core attached on adapter

Adapter 5	
Brand	Asian Power Devices Inc.
Model	WB-18R12FU
Input Power	120-240Vac, 50/60Hz, 0.6A Max.
Output Power	12Vdc, 1.5A
Power Line	1.75m cable without core attached on adapter

Adapter 6	
Brand	Ktec
Model	KSA-24W-120150HU
Input Power	120-240Vac 50/60Hz 0.6A
Output Power	12Vdc 1.5A
Power Line	1.8m cable without core attached on adapter

* Adapter 1 & 2, 3 & 6, 4 & 5 are identical with each other except for their Plug Type difference, therefore adapter 4 was the worst case, therefore chosen for final tests and presented in the test report.

5. WLAN 2.4GHz, 5GHz and BT LE technology cannot transmit at same time.

3.2 Description of Test Modes

For 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

For 5745 ~ 5825MHz:

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

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

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

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE≥1G:** Radiated Emission above 1GHz& Bandedge Measurement **RE<1G:** Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0
-	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	7.2
-	802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	15.0
-	802.11ac (VHT80)		42	42	OFDM	BPSK	58.5
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	7.2
-	802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	15.0
-	802.11ac (VHT80)		155	155	OFDM	BPSK	58.5

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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240	36 to 48	40	OFDM	BPSK	6.0
	802.11a	5745-5825	149 to 165		OFDM	BPSK	6.0

Power Line Conducted Emission Test:

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

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240	36 to 48	40	OFDM	BPSK	6.0
	802.11a	5745-5825	149 to 165		OFDM	BPSK	6.0

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

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

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0
-	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	7.2
-	802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	15.0
-	802.11ac (VHT80)		42	42	OFDM	BPSK	58.5
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	7.2
-	802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	15.0
-	802.11ac (VHT80)		155	155	OFDM	BPSK	58.5

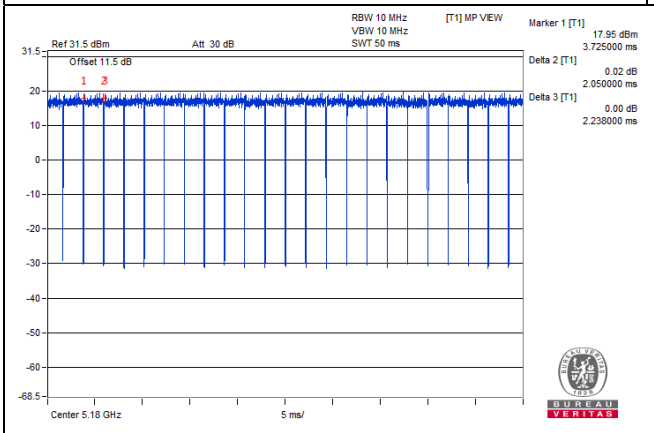
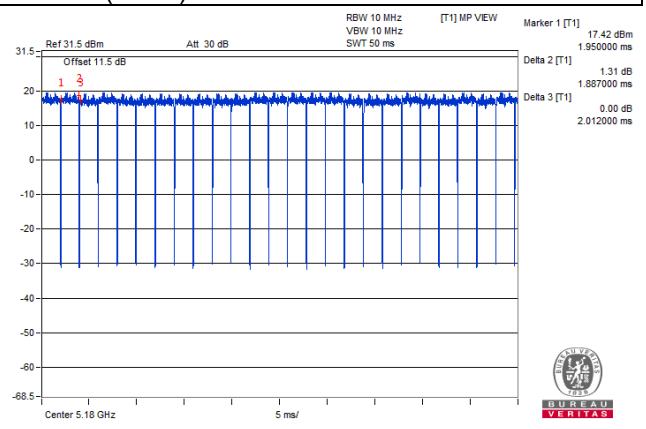
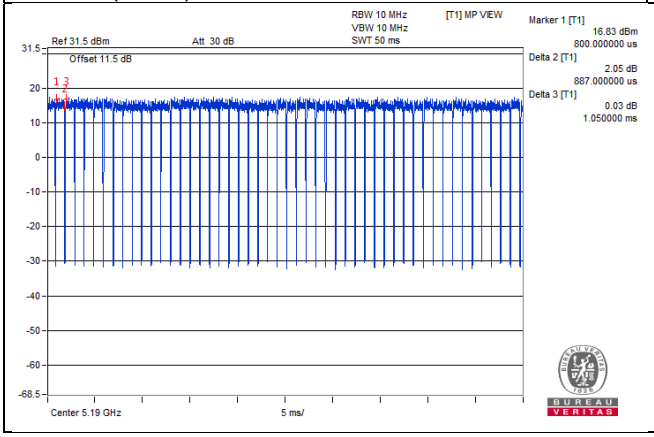
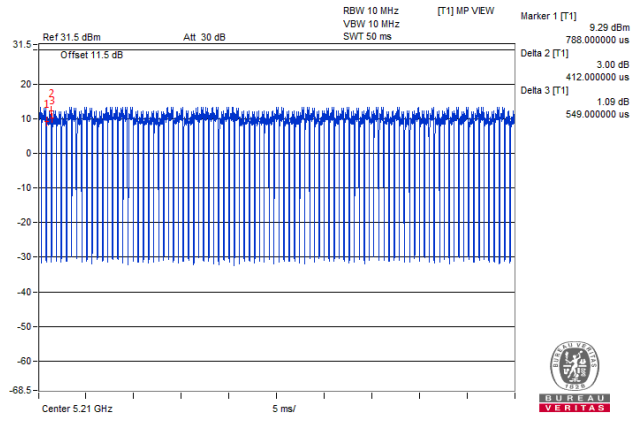
Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25 deg. C, 77% RH	120Vac, 60Hz	James Wei
RE<1G	22 deg. C, 79% RH	120Vac, 60Hz	James Wei
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Jones Chang
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Frank Chiu

3.3 Duty Cycle of Test Signal

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

802.11a: Duty cycle = 2.050/2.238 =0.916, Duty factor = 10 * log(1/0.916) = 0.38
802.11n (HT20): Duty cycle = 1.887/2.012 =0.938, Duty factor = 10 * log(1/0.938) = 0.28
802.11n (HT40): Duty cycle = 0.887/1.050 =0.845, Duty factor = 10 * log(1/0.845) = 0.73
802.11ac (VHT80): Duty cycle = 0.412/0.549 =0.750, Duty factor = 10 * log(1/0.750) = 1.25

802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

3.4 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	USB Flash	HP	v250W	01	NA	For PLC & APCM test
	USB Flash	HP	v250w	NA	NA	For RE test

3.4.1 Configuration of System under Test

3.5 General Description of Applied Standards

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

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

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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

Limits of unwanted emission out of the restricted bands

<table>
<tr><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.	Cal. Date	Cal. Due
HP Preamplifier	8447D	2432A03504	Feb. 21, 2018	Feb. 20, 2019
HP Preamplifier	8449B	3008A01201	Feb. 22, 2018	Feb. 21, 2019
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Feb. 21, 2018	Feb. 20, 2019
Agilent TEST RECEIVER	N9038A	MY51210129	Feb. 06, 2018	Feb. 05, 2019
Schwarzbeck Antenna	VULB 9168	139	Nov. 29, 2017	Nov. 28, 2018
Schwarzbeck Antenna	VHBA 9123	480	May 19, 2017	May 18, 2019
Schwarzbeck Horn Antenna	BBHA-9170	212	Dec. 01, 2017	Nov. 30, 2018
Schwarzbeck Horn Antenna	BBHA 9120-D1	D130	Dec. 01, 2017	Nov. 30, 2018
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Loop Antenna EMCI	LPA600	270	Aug. 11, 2017	Aug. 10, 2019
Software	Radiated_V7.6.15.9.5	NA	NA	NA
SUHNER RF cable With 4dB PAD	SF104	CABLE-CH6	Aug. 14, 2017	Aug. 13, 2018
SUHNER RF cable With 3dB PAD	SF102	Cable-CH8-3.6m	Aug. 14, 2017	Aug. 13, 2018
KEYSIGHT MIMO Powermeasurement Test set	U2021XA	U2021XA-001	May 31,2017	May 30,2018
KEYSIGHT Spectrum Analyzer	N9030A	MY54490260	Jul. 26, 2017	Jul. 25, 2018
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	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
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Dec. 12, 2017	Dec. 11, 2018
EMCO Horn Antenna	3115	00028257	Nov. 30, 2017	Nov. 29, 2018

Note:
1. The calibration interval of the above test instruments is 12/24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 3 (PLC & APCM test) and in Lin Kou Chamber No. 6 (RE test).
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:

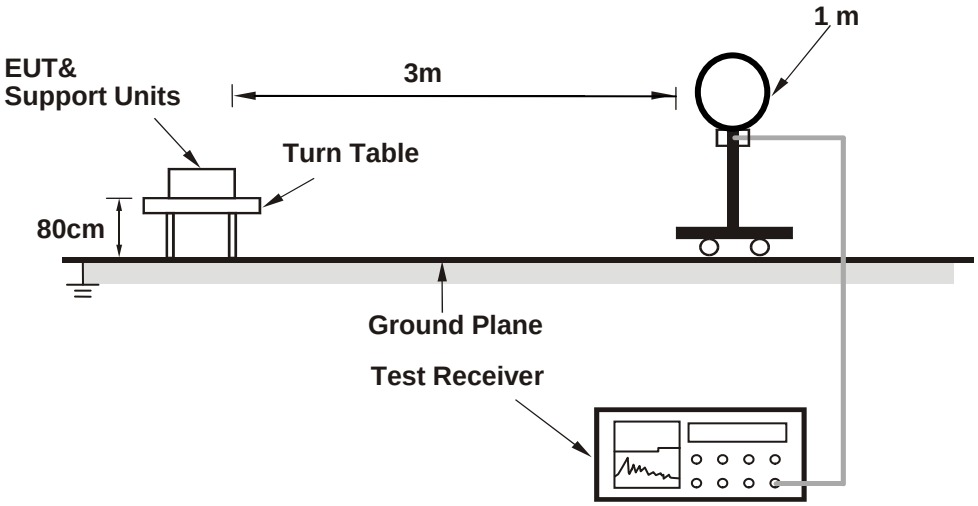
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

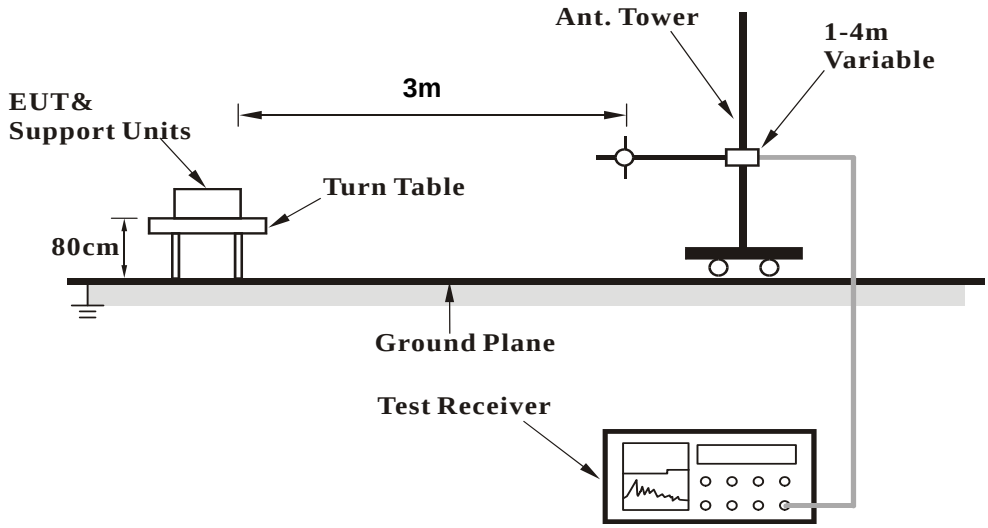
No deviation.

4.1.5 Test Set Up

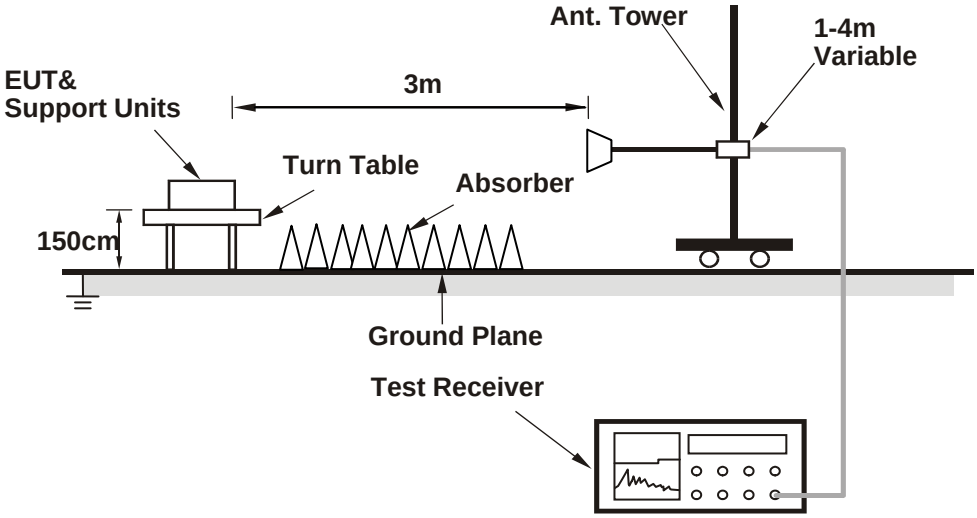
For Radiated emission below 30MHz



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. Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz Worst-Case 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	56.5 PK	74.0	-17.5	2.63 H	331	52.83	3.66
2	5150.00	43.2 AV	54.0	-10.8	2.63 H	331	39.51	3.66
3	*5180.00	102.9 PK			2.63 H	331	99.56	3.38
4	*5180.00	92.5 AV			2.63 H	331	89.10	3.38
5	#10360.00	54.4 PK	74.0	-19.6	1.01 H	225	39.74	14.69
6	#10360.00	42.5 AV	54.0	-11.5	1.01 H	225	27.82	14.69
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	55.4 PK	74.0	-18.6	1.54 V	290	51.72	3.66
2	5150.00	42.3 AV	54.0	-11.7	1.54 V	290	38.64	3.66
3	*5180.00	100.7 PK			1.54 V	290	97.31	3.38
4	*5180.00	90.9 AV			1.54 V	290	87.54	3.38
5	#10360.00	53.3 PK	74.0	-20.8	1.18 V	152	38.56	14.69
6	#10360.00	41.7 AV	54.0	-12.3	1.18 V	152	27.02	14.69

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)
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	*5200.00	103.0 PK			2.43 H	323	99.76	3.19
2	*5200.00	92.5 AV			2.43 H	323	89.27	3.19
3	#10400.00	54.7 PK	74.0	-19.3	1.00 H	215	39.79	14.94
4	#10400.00	42.8 AV	54.0	-11.2	1.00 H	215	27.84	14.94
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	*5200.00	100.7 PK			1.55 V	291	97.48	3.19
2	*5200.00	90.9 AV			1.55 V	291	87.67	3.19
3	#10400.00	53.6 PK	74.0	-20.4	1.24 V	157	38.62	14.94
4	#10400.00	42.1 AV	54.0	-12.0	1.24 V	157	27.11	14.94

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)
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	102.5 PK			2.88 H	340	99.50	3.00
2	*5240.00	92.0 AV			2.88 H	340	88.97	3.00
3	5350.00	55.2 PK	74.0	-18.8	2.88 H	340	52.26	2.92
4	5350.00	41.6 AV	54.0	-12.5	2.88 H	340	38.63	2.92
5	#10480.00	55.2 PK	74.0	-18.8	1.00 H	231	39.68	15.51
6	#10480.00	43.3 AV	54.0	-10.7	1.00 H	231	27.75	15.51
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	100.2 PK			1.68 V	302	97.22	3.00
2	*5240.00	90.4 AV			1.68 V	302	87.43	3.00
3	5350.00	54.7 PK	74.0	-19.3	1.68 V	302	51.82	2.92
4	5350.00	40.9 AV	54.0	-13.1	1.68 V	302	37.98	2.92
5	#10480.00	54.0 PK	74.0	-20.1	1.19 V	151	38.44	15.51
6	#10480.00	42.5 AV	54.0	-11.5	1.19 V	151	26.96	15.51

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)
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	#5641.54	52.3 PK	68.2	-15.9	2.40 H	343	48.54	3.78
2	#5641.54	52.3 PK	68.2	-15.9	2.40 H	343	48.54	3.78
3	*5745.00	106.6 PK			2.40 H	343	102.10	4.45
4	*5745.00	96.6 AV			2.40 H	343	92.17	4.45
5	#5960.36	52.6 PK	68.2	-15.6	2.40 H	343	47.34	5.28
6	#5960.36	52.6 PK	68.2	-15.6	2.40 H	343	47.34	5.28
7	11490.00	56.5 PK	74.0	-17.5	1.72 H	103	39.98	16.50
8	11490.00	42.4 AV	54.0	-11.6	1.72 H	103	25.87	16.50
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	#5632.03	52.1 PK	68.2	-16.1	1.90 V	294	48.38	3.74
2	#5632.03	52.1 PK	68.2	-16.1	1.90 V	294	48.38	3.74
3	*5745.00	105.9 PK			1.90 V	294	101.44	4.45
4	*5745.00	96.2 AV			1.90 V	294	91.73	4.45
5	#5953.52	53.5 PK	68.2	-14.8	1.90 V	294	48.20	5.25
6	#5953.52	53.5 PK	68.2	-14.8	1.90 V	294	48.20	5.25
7	11490.00	55.8 PK	74.0	-18.2	1.12 V	205	39.27	16.50
8	11490.00	41.8 AV	54.0	-12.2	1.12 V	205	25.33	16.50

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5626.21	54.3 PK	68.2	-13.9	1.78 H	220	50.60	3.73
2	#5626.21	54.3 PK	68.2	-13.9	1.78 H	220	50.60	3.73
3	*5785.00	106.3 PK			1.78 H	220	101.59	4.75
4	*5785.00	96.1 AV			1.78 H	220	91.33	4.75
5	#5959.22	54.3 PK	68.2	-13.9	1.78 H	220	49.06	5.26
6	#5959.22	54.3 PK	68.2	-13.9	1.78 H	220	49.06	5.26
7	11570.00	56.4 PK	74.0	-17.6	1.77 H	100	39.82	16.61
8	11570.00	42.3 AV	54.0	-11.7	1.77 H	100	25.66	16.61
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	#5643.72	52.5 PK	68.2	-15.7	2.27 V	281	48.71	3.80
2	#5643.72	52.5 PK	68.2	-15.7	2.27 V	281	48.71	3.80
3	*5785.00	105.4 PK			2.27 V	281	100.62	4.75
4	*5785.00	95.3 AV			2.27 V	281	90.53	4.75
5	#5940.22	53.3 PK	68.2	-14.9	2.27 V	281	48.12	5.19
6	#5940.22	53.3 PK	68.2	-14.9	2.27 V	281	48.12	5.19
7	11570.00	55.6 PK	74.0	-18.4	1.32 V	185	38.98	16.61
8	11570.00	41.6 AV	54.0	-12.4	1.32 V	185	25.02	16.61

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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	#5579.83	54.2 PK	68.2	-14.0	1.77 H	209	50.62	3.55
2	#5579.83	54.2 PK	68.2	-14.0	1.77 H	209	50.62	3.55
3	*5825.00	104.8 PK			1.77 H	209	99.81	4.97
4	*5825.00	95.1 AV			1.77 H	209	90.11	4.97
5	#5958.95	52.8 PK	68.2	-15.4	1.77 H	209	47.54	5.26
6	#5958.95	52.8 PK	68.2	-15.4	1.77 H	209	47.54	5.26
7	11650.00	56.0 PK	74.0	-18.0	1.88 H	91	39.61	16.36
8	11650.00	41.8 AV	54.0	-12.2	1.88 H	91	25.42	16.36
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	#5641.52	53.5 PK	68.2	-14.7	2.58 V	229	49.74	3.78
2	#5641.52	53.5 PK	68.2	-14.7	2.58 V	229	49.74	3.78
3	*5825.00	103.8 PK			2.58 V	229	98.87	4.97
4	*5825.00	93.9 AV			2.58 V	229	88.92	4.97
5	#5952.74	53.3 PK	68.2	-14.9	2.58 V	229	48.11	5.23
6	#5952.74	53.3 PK	68.2	-14.9	2.58 V	229	48.11	5.23
7	11650.00	55.0 PK	74.0	-19.0	1.59 V	227	38.61	16.36
8	11650.00	41.0 AV	54.0	-13.0	1.59 V	227	24.66	16.36

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)
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	55.8 PK	74.0	-18.2	2.43 H	329	52.16	3.66
2	5150.00	42.4 AV	54.0	-11.6	2.43 H	329	38.72	3.66
3	*5180.00	101.5 PK			2.43 H	329	98.08	3.38
4	*5180.00	89.9 AV			2.43 H	329	86.52	3.38
5	#10360.00	53.4 PK	74.0	-20.6	1.55 H	284	38.75	14.69
6	#10360.00	41.1 AV	54.0	-12.9	1.55 H	284	26.38	14.69
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	55.7 PK	74.0	-18.3	1.58 V	305	52.02	3.66
2	5150.00	42.3 AV	54.0	-11.7	1.58 V	305	38.63	3.66
3	*5180.00	101.4 PK			1.58 V	305	97.97	3.38
4	*5180.00	91.0 AV			1.58 V	305	87.61	3.38
5	#10360.00	52.9 PK	74.0	-21.1	1.12 V	103	38.22	14.69
6	#10360.00	40.5 AV	54.0	-13.5	1.12 V	103	25.81	14.69

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)
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	*5200.00	102.3 PK			2.52 H	322	99.08	3.19
2	*5200.00	91.6 AV			2.52 H	322	88.36	3.19
3	#10400.00	54.0 PK	74.0	-20.0	1.54 H	288	39.02	14.94
4	#10400.00	41.5 AV	54.0	-12.5	1.54 H	288	26.55	14.94
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	*5200.00	101.8 PK			1.57 V	310	98.62	3.19
2	*5200.00	91.7 AV			1.57 V	310	88.48	3.19
3	#10400.00	53.4 PK	74.0	-20.6	1.00 V	111	38.49	14.94
4	#10400.00	41.0 AV	54.0	-13.0	1.00 V	111	26.03	14.94

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)
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	102.7 PK			2.36 H	326	99.73	3.00
2	*5240.00	92.5 AV			2.36 H	326	89.46	3.00
3	5350.00	55.6 PK	74.0	-18.4	2.36 H	326	52.68	2.92
4	5350.00	40.6 AV	54.0	-13.5	2.36 H	326	37.63	2.92
5	#10480.00	54.9 PK	74.0	-19.1	1.48 H	302	39.39	15.51
6	#10480.00	42.3 AV	54.0	-11.7	1.48 H	302	26.81	15.51
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	102.1 PK			1.55 V	301	99.13	3.00
2	*5240.00	91.7 AV			1.55 V	301	88.72	3.00
3	5350.00	55.0 PK	74.0	-19.1	1.55 V	301	52.03	2.92
4	5350.00	39.9 AV	54.0	-14.1	1.55 V	301	36.98	2.92
5	#10480.00	54.1 PK	74.0	-19.9	1.21 V	98	38.63	15.51
6	#10480.00	41.9 AV	54.0	-12.1	1.21 V	98	26.42	15.51

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)
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	#5646.03	53.3 PK	68.2	-14.9	2.68 H	235	49.55	3.79
2	#5646.03	53.3 PK	68.2	-14.9	2.68 H	235	49.55	3.79
3	*5745.00	101.6 PK			2.68 H	235	97.15	4.45
4	*5745.00	91.3 AV			2.68 H	235	86.84	4.45
5	#5933.17	53.6 PK	68.2	-14.6	2.68 H	235	48.38	5.18
6	#5933.17	53.6 PK	68.2	-14.6	2.68 H	235	48.38	5.18
7	11490.00	55.1 PK	74.0	-18.9	1.12 H	55	38.62	16.50
8	11490.00	42.5 AV	54.0	-11.6	1.12 H	55	25.95	16.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5650.37	53.5 PK	68.5	-15.0	3.07 V	286	49.64	3.82
2	#5650.37	53.5 PK	68.5	-15.0	3.07 V	286	49.64	3.82
3	*5745.00	100.8 PK			3.07 V	286	96.34	4.45
4	*5745.00	90.6 AV			3.07 V	286	86.17	4.45
5	#5939.23	52.7 PK	68.2	-15.5	3.07 V	286	47.48	5.20
6	#5939.23	52.7 PK	68.2	-15.5	3.07 V	286	47.48	5.20
7	11490.00	54.3 PK	74.0	-19.7	1.00 V	274	37.82	16.50
8	11490.00	41.7 AV	54.0	-12.3	1.00 V	274	25.17	16.50

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)
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	#5633.23	53.1 PK	68.2	-15.1	1.27 H	198	49.39	3.75
2	#5633.23	53.1 PK	68.2	-15.1	1.27 H	198	49.39	3.75
3	*5785.00	102.2 PK			1.27 H	198	97.40	4.75
4	*5785.00	91.9 AV			1.27 H	198	87.12	4.75
5	#5932.96	53.2 PK	68.2	-15.0	1.27 H	198	48.06	5.18
6	#5932.96	53.2 PK	68.2	-15.0	1.27 H	198	48.06	5.18
7	11570.00	55.3 PK	74.0	-18.7	1.24 H	61	38.71	16.61
8	11570.00	42.6 AV	54.0	-11.4	1.24 H	61	26.03	16.61
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	#5613.29	53.5 PK	68.2	-14.7	2.75 V	288	49.81	3.68
2	#5613.29	53.5 PK	68.2	-14.7	2.75 V	288	49.81	3.68
3	*5785.00	101.6 PK			2.75 V	288	96.88	4.75
4	*5785.00	90.5 AV			2.75 V	288	85.72	4.75
5	#5976.68	53.2 PK	68.2	-15.0	2.75 V	288	47.85	5.36
6	#5976.68	53.2 PK	68.2	-15.0	2.75 V	288	47.85	5.36
7	11570.00	54.6 PK	74.0	-19.4	1.00 V	166	37.96	16.61
8	11570.00	41.9 AV	54.0	-12.1	1.00 V	166	25.31	16.61

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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	#5608.21	54.4 PK	68.2	-13.9	1.24 H	208	50.70	3.65
2	#5608.21	54.4 PK	68.2	-13.9	1.24 H	208	50.70	3.65
3	*5825.00	103.1 PK			1.24 H	208	98.12	4.97
4	*5825.00	92.8 AV			1.24 H	208	87.85	4.97
5	#5935.93	54.3 PK	68.2	-13.9	1.24 H	208	49.09	5.20
6	#5935.93	54.3 PK	68.2	-13.9	1.24 H	208	49.09	5.20
7	11650.00	55.4 PK	74.0	-18.7	1.59 H	271	38.99	16.36
8	11650.00	42.6 AV	54.0	-11.4	1.59 H	271	26.21	16.36
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	#5608.88	53.8 PK	68.2	-14.5	2.03 V	182	50.09	3.66
2	#5608.88	53.8 PK	68.2	-14.5	2.03 V	182	50.09	3.66
3	*5825.00	102.6 PK			2.03 V	182	97.63	4.97
4	*5825.00	91.8 AV			2.03 V	182	86.87	4.97
5	#5933.73	53.4 PK	68.2	-14.8	2.03 V	182	48.26	5.18
6	#5933.73	53.4 PK	68.2	-14.8	2.03 V	182	48.26	5.18
7	11650.00	54.5 PK	74.0	-19.5	1.00 V	227	38.14	16.36
8	11650.00	41.8 AV	54.0	-12.2	1.00 V	227	25.48	16.36

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)
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	57.6 PK	74.0	-16.4	2.48 H	320	53.90	3.66
2	5150.00	45.3 AV	54.0	-8.7	2.48 H	320	41.64	3.66
3	*5190.00	99.7 PK			2.48 H	320	96.41	3.29
4	*5190.00	89.6 AV			2.48 H	320	86.31	3.29
5	#10380.00	55.4 PK	74.0	-18.6	1.55 H	284	40.63	14.81
6	#10380.00	43.5 AV	54.0	-10.5	1.55 H	284	28.66	14.81
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.7 PK	74.0	-17.3	1.40 V	304	53.04	3.66
2	5150.00	45.0 AV	54.0	-9.0	1.40 V	304	41.31	3.66
3	*5190.00	99.1 PK			1.40 V	304	95.78	3.29
4	*5190.00	88.6 AV			1.40 V	304	85.34	3.29
5	#10380.00	53.4 PK	74.0	-20.6	2.28 V	102	38.55	14.81
6	#10380.00	41.7 AV	54.0	-12.3	2.28 V	102	26.92	14.81

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)
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	*5230.00	100.3 PK			1.81 H	238	97.27	3.04
2	*5230.00	89.7 AV			1.81 H	238	86.65	3.04
3	5350.00	53.5 PK	74.0	-20.5	1.81 H	238	50.57	2.92
4	5350.00	41.8 AV	54.0	-12.2	1.81 H	238	38.91	2.92
5	#10460.00	56.4 PK	74.0	-17.6	1.66 H	159	41.02	15.38
6	#10460.00	44.4 AV	54.0	-9.7	1.66 H	159	28.97	15.38
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	*5230.00	99.5 PK			1.58 V	329	96.42	3.04
2	*5230.00	89.0 AV			1.58 V	329	85.91	3.04
3	5350.00	53.0 PK	74.0	-21.0	1.58 V	329	50.11	2.92
4	5350.00	41.4 AV	54.0	-12.6	1.58 V	329	38.51	2.92
5	#10460.00	54.2 PK	74.0	-19.8	1.00 V	242	38.82	15.38
6	#10460.00	42.7 AV	54.0	-11.3	1.00 V	242	27.31	15.38

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)
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	#5640.44	52.6 PK	68.2	-15.6	1.02 H	242	48.79	3.78
2	#5640.44	52.6 PK	68.2	-15.6	1.02 H	242	48.79	3.78
3	*5755.00	98.9 PK			1.02 H	242	94.41	4.52
4	*5755.00	88.9 AV			1.02 H	242	84.35	4.52
5	#5959.73	53.5 PK	68.2	-14.8	1.02 H	242	48.17	5.28
6	#5959.73	53.5 PK	68.2	-14.8	1.02 H	242	48.17	5.28
7	11510.00	54.8 PK	74.0	-19.2	1.02 H	251	38.27	16.54
8	11510.00	42.2 AV	54.0	-11.9	1.02 H	251	25.61	16.54
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	#5643.48	52.9 PK	68.2	-15.3	2.41 V	296	49.13	3.80
2	#5643.48	52.9 PK	68.2	-15.3	2.41 V	296	49.13	3.80
3	*5755.00	98.8 PK			2.41 V	296	94.23	4.52
4	*5755.00	88.5 AV			2.41 V	296	84.01	4.52
5	#5969.95	53.1 PK	68.2	-15.1	2.41 V	296	47.76	5.32
6	#5969.95	53.1 PK	68.2	-15.1	2.41 V	296	47.76	5.32
7	11510.00	54.6 PK	74.0	-19.4	1.00 V	113	38.03	16.54
8	11510.00	42.1 AV	54.0	-11.9	1.00 V	113	25.52	16.54

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)
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	#5603.64	53.2 PK	68.2	-15.1	1.00 H	240	49.50	3.65
2	#5603.64	53.2 PK	68.2	-15.1	1.00 H	240	49.50	3.65
3	*5795.00	99.4 PK			1.00 H	240	94.61	4.82
4	*5795.00	88.8 AV			1.00 H	240	83.96	4.82
5	#5960.64	53.4 PK	68.2	-14.8	1.00 H	240	48.16	5.28
6	#5960.64	53.4 PK	68.2	-14.8	1.00 H	240	48.16	5.28
7	11590.00	55.0 PK	74.0	-19.0	1.15 H	273	38.42	16.62
8	11590.00	42.3 AV	54.0	-11.7	1.15 H	273	25.71	16.62
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	#5627.57	52.8 PK	68.2	-15.4	1.82 V	253	49.08	3.73
2	#5627.57	52.8 PK	68.2	-15.4	1.82 V	253	49.08	3.73
3	*5795.00	99.5 PK			1.82 V	253	94.66	4.82
4	*5795.00	89.2 AV			1.82 V	253	84.37	4.82
5	#5953.52	54.3 PK	68.2	-13.9	1.82 V	253	49.06	5.25
6	#5953.52	54.3 PK	68.2	-13.9	1.82 V	253	49.06	5.25
7	11590.00	54.8 PK	74.0	-19.2	1.66 V	82	38.18	16.62
8	11590.00	42.2 AV	54.0	-11.8	1.66 V	82	25.59	16.62

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)
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	59.2 PK	74.0	-14.9	2.40 H	320	55.49	3.66
2	5150.00	47.2 AV	54.0	-6.8	2.40 H	320	43.54	3.66
3	*5210.00	97.9 PK			2.40 H	320	94.71	3.14
4	*5210.00	88.0 AV			2.40 H	320	84.90	3.14
5	5350.00	54.4 PK	74.0	-19.7	2.40 H	320	51.43	2.92
6	5350.00	41.3 AV	54.0	-12.7	2.40 H	320	38.35	2.92
7	#10420.00	54.0 PK	74.0	-20.0	1.27 H	254	38.95	15.09
8	#10420.00	41.6 AV	54.0	-12.4	1.27 H	254	26.47	15.09
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	58.7 PK	74.0	-15.3	1.51 V	295	55.01	3.66
2	5150.00	46.7 AV	54.0	-7.3	1.51 V	295	43.04	3.66
3	*5210.00	96.9 PK			1.51 V	295	93.74	3.14
4	*5210.00	86.4 AV			1.51 V	295	83.27	3.14
5	5350.00	54.0 PK	74.0	-20.0	1.51 V	295	51.09	2.92
6	5350.00	41.1 AV	54.0	-12.9	1.51 V	295	38.21	2.92
7	#10420.00	53.4 PK	74.0	-20.6	2.46 V	185	38.31	15.09
8	#10420.00	41.3 AV	54.0	-12.7	2.46 V	185	26.18	15.09

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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	#5639.72	54.0 PK	68.2	-14.2	2.57 H	228	50.23	3.78
2	#5639.72	54.0 PK	68.2	-14.2	2.57 H	228	50.23	3.78
3	*5775.00	98.4 PK			2.57 H	228	93.75	4.68
4	*5775.00	89.1 AV			2.57 H	228	84.38	4.68
5	#5941.25	53.0 PK	68.2	-15.3	2.57 H	228	47.74	5.21
6	#5941.25	53.0 PK	68.2	-15.3	2.57 H	228	47.74	5.21
7	11550.00	54.7 PK	74.0	-19.3	2.28 H	105	38.12	16.58
8	11550.00	41.9 AV	54.0	-12.1	2.28 H	105	25.33	16.58
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	#5631.62	53.0 PK	68.2	-15.2	2.78 V	290	49.24	3.74
2	#5631.62	53.0 PK	68.2	-15.2	2.78 V	290	49.24	3.74
3	*5775.00	97.0 PK			2.78 V	290	92.35	4.68
4	*5775.00	88.1 AV			2.78 V	290	83.38	4.68
5	#5964.39	52.8 PK	68.2	-15.4	2.78 V	290	47.55	5.29
6	#5964.39	52.8 PK	68.2	-15.4	2.78 V	290	47.55	5.29
7	11590.00	54.2 PK	74.0	-19.8	1.13 V	284	37.62	16.62
8	11590.00	41.5 AV	54.0	-12.5	1.13 V	284	24.89	16.62

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Below 1GHz Worst-Case Data:

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	46.30	25.7 QP	40.0	-14.3	2.27 H	99	33.03	-7.30
2	95.86	23.9 QP	43.5	-19.6	2.05 H	266	36.29	-12.38
3	539.44	27.7 QP	46.0	-18.3	1.66 H	167	28.03	-0.37
4	600.02	29.8 QP	46.0	-16.2	2.07 H	134	28.54	1.29
5	729.42	32.9 QP	46.0	-13.1	2.24 H	120	29.28	3.59
6	836.89	38.4 QP	46.0	-7.6	1.65 H	344	33.20	5.20
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	**45.81**	**33.6 QP**	**40.0**	**-6.4**	**1.11 V**	**334**	**40.96**	**-7.33**
2	93.00	26.7 QP	43.5	-16.8	1.02 V	278	39.23	-12.51
3	513.16	27.9 QP	46.0	-18.1	2.75 V	0	28.55	-0.68
4	599.34	31.3 QP	46.0	-14.7	1.02 V	144	30.03	1.28
5	729.42	34.3 QP	46.0	-11.7	1.35 V	304	30.72	3.59
6	805.56	34.1 QP	46.0	-11.9	2.95 V	67	29.58	4.51

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)
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

Tested date: Apr. 18, 2018

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
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_ V7.3.7.3	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.

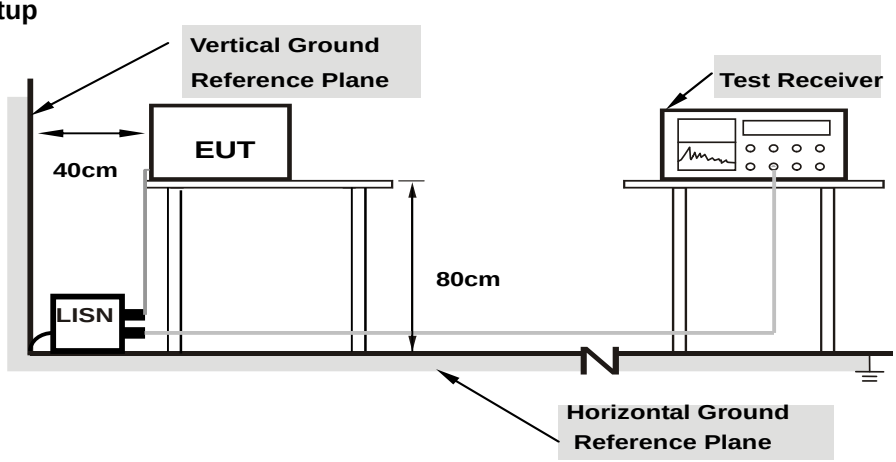
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

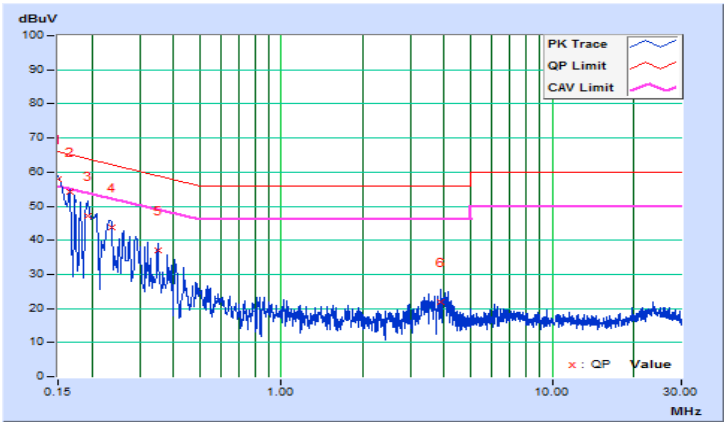
4.2.7 Test Results

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.16	47.65	33.43	57.81	43.59	66.00	56.00	-8.19	-12.41
2	0.16564	10.16	44.11	28.42	54.27	38.58	65.18	55.18	-10.91	-16.60
3	0.19305	10.16	37.14	20.72	47.30	30.88	63.90	53.90	-16.60	-23.02
4	0.23602	10.16	33.63	21.74	43.79	31.90	62.24	52.24	-18.45	-20.34
5	0.34941	10.19	26.93	20.63	37.12	30.82	58.98	48.98	-21.86	-18.16
6	3.86059	10.34	11.66	1.20	22.00	11.54	56.00	46.00	-34.00	-34.46

Remarks:

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

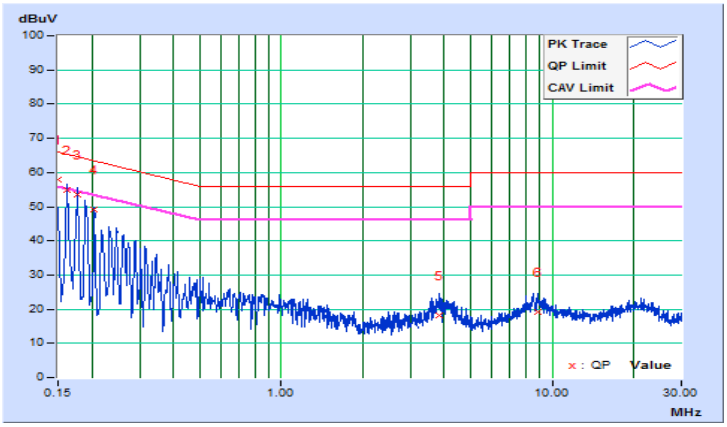


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.15000**	**10.14**	**47.76**	**33.60**	**57.90**	**43.74**	**66.00**	**56.00**	**-8.10**	**-12.26**
2	0.16173	10.15	44.58	26.48	54.73	36.63	65.37	55.37	-10.64	-18.74
3	0.17737	10.15	43.47	28.42	53.62	38.57	64.61	54.61	-10.99	-16.04
4	0.20474	10.16	39.07	25.10	49.23	35.26	63.42	53.42	-14.19	-18.16
5	3.81758	10.33	7.74	0.91	18.07	11.24	56.00	46.00	-37.93	-34.76
6	8.85366	10.53	8.76	2.27	19.29	12.80	60.00	50.00	-40.71	-37.20

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

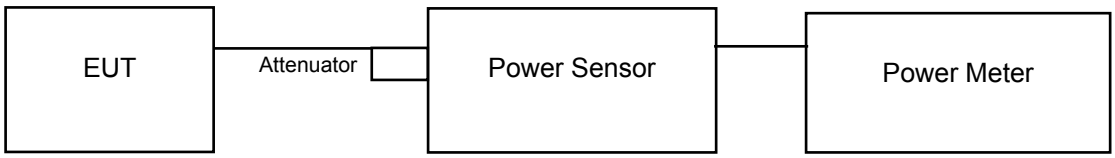
Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
	√	Indoor Access Point	1 Watt (30 dBm)
		Mobile and Portable client 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

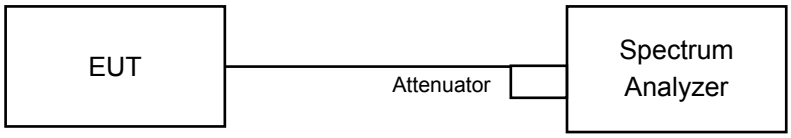
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz 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

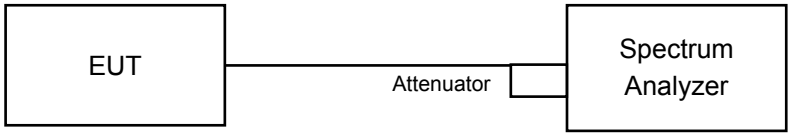
For Power Output Measurement
802.11a, 802.11n (HT20), 802.11n (HT40)



802.11ac (VHT80)



For 26dB 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)

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 fromTest 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:

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	16.18	16.09	82.139	19.15	30	Pass
40	5200	16.28	16.22	**84.341**	19.26	30	Pass
48	5240	16.08	16.29	83.111	19.20	30	Pass
149	5745	16.22	16.07	82.337	19.16	30	Pass
157	5785	15.98	16.28	82.090	19.14	30	Pass
165	5825	16.25	16.17	**83.570**	19.22	30	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	15.09	15.22	65.551	18.17	30	Pass
40	5200	15.39	15.03	66.436	18.22	30	Pass
48	5240	15.04	15.15	64.649	18.11	30	Pass
149	5745	15.12	15.37	66.944	18.26	30	Pass
157	5785	15.06	15.46	67.219	18.27	30	Pass
165	5825	15.32	14.92	65.087	18.13	30	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	14.25	14.17	52.729	17.22	30	Pass
46	5230	14.35	14.31	54.204	17.34	30	Pass
151	5755	14.16	14.32	53.102	17.25	30	Pass
159	5795	14.33	14.01	52.279	17.18	30	Pass

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	14.12	14.15	51.825	17.15	30	Pass
155	5775	14.12	14.24	52.369	17.19	30	Pass

26dB Bandwidth:

802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	20.92	21.15
40	5200	21.12	20.68
48	5240	20.94	21.12

802.11n (HT20)

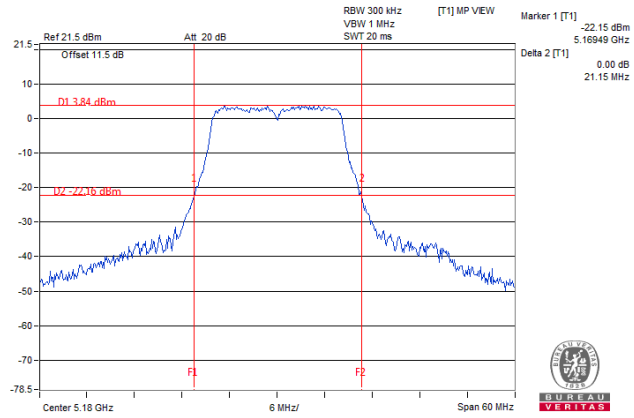
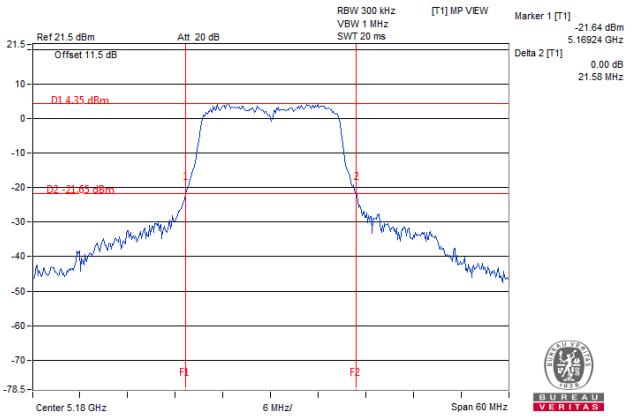
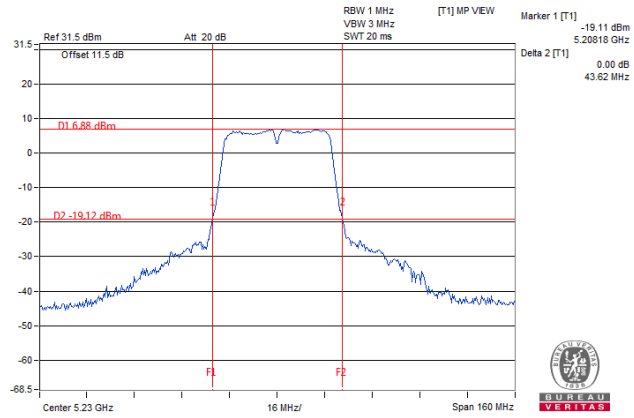
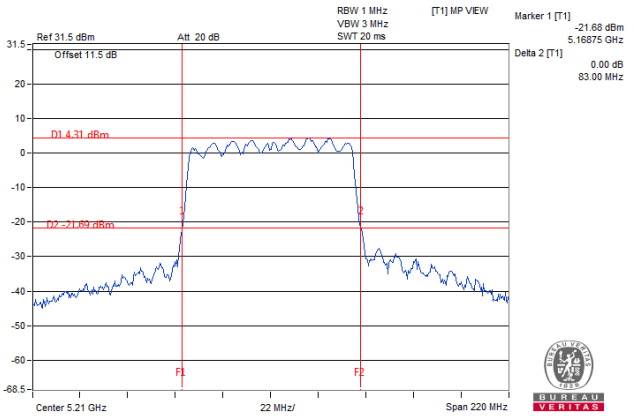
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	21.58	21.55
40	5200	21.38	21.16
48	5240	21.49	21.33

802.11n (HT40)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	43.38	43.54
46	5230	43.62	43.57

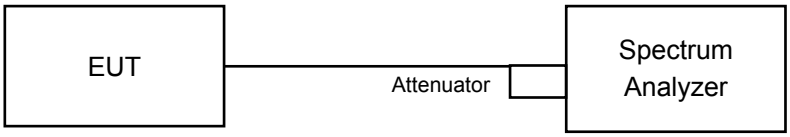
802.11ac (VHT80)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	83.00	81.88

Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (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 Sample. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

4.4.4 Test Result

802.11a

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	16.68	16.80
40	5200	16.68	16.68
48	5240	16.68	16.68
149	5745	16.87	17.04
157	5785	16.80	16.80
165	5825	16.80	16.68

802.11n (HT20)

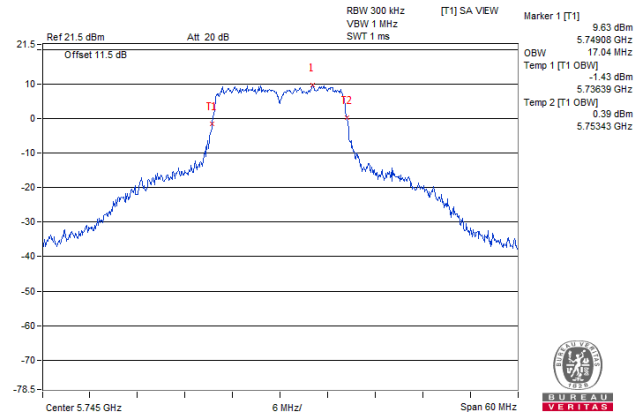
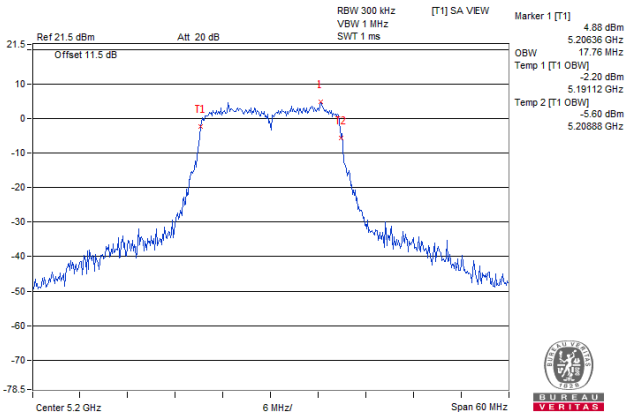
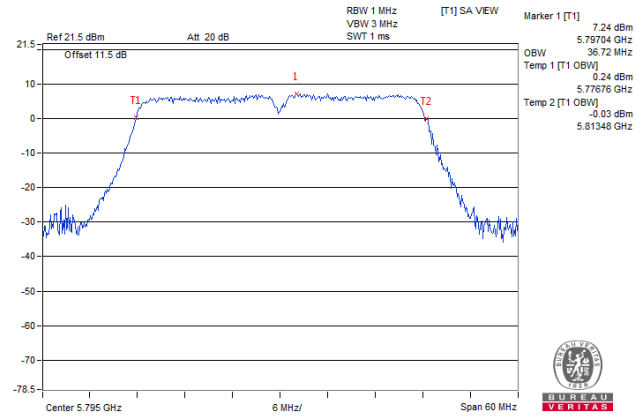
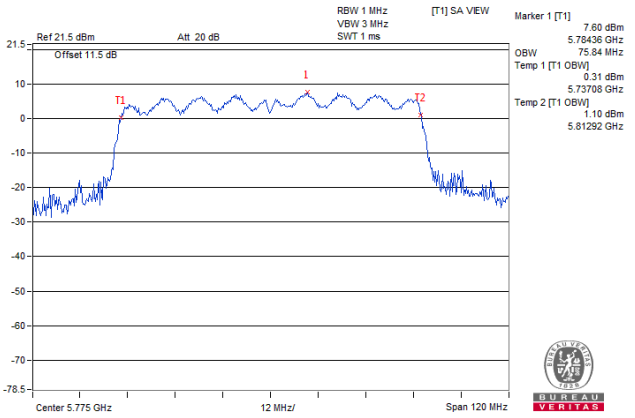
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.64	17.76
40	5200	17.76	17.64
48	5240	17.76	17.64
149	5745	17.64	17.76
157	5785	17.76	17.76
165	5825	17.64	17.76

802.11n (HT40)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.36	36.60
46	5230	36.60	36.60
151	5755	36.36	36.48
159	5795	36.72	36.72

802.11ac (VHT80)

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

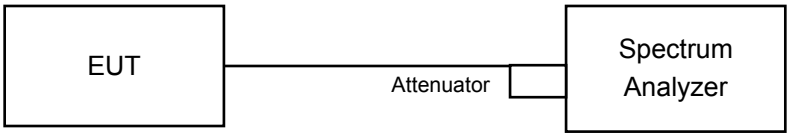
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
	√	Indoor Access Point	
		Mobile and Portable client device	11dBm/ MHz
U-NII-2A	---		11dBm/ MHz
U-NII-2C	---		11dBm/ MHz
U-NII-3	√		30dBm/ 500kHz

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

For U-NII-1 band:
Using method SA-2, Duty cycle <98%

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
c. Sweep time = auto, trigger set to “free run”.
d. Trace average at least 100 traces in power averaging mode.
e. Record the max value and add 10 log (1/duty cycle)

For U-NII-3 band:
Duty cycle <98%

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as Item 4.3.6.

4.5.7 Test Results

For U-NII-1 Band

802.11a

Chan.	Freq. (MHz)	PSD (dBm/MHz)		Duty factor (dB)	Total PSD with duty factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	-0.59	-0.65	0.38	2.77	16.80	Pass
40	5200	0.23	-0.09	0.38	3.46	16.80	Pass
48	5240	-0.01	0.24	0.38	3.51	16.80	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 3.19dBi + 10log(2) = 6.20dBi dBi > 6dBi , so the power density limit shall be reduced to 17-(6.20-6) = 16.80dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD (dBm/MHz)		Duty factor (dB)	Total PSD with duty factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	-0.22	-1.09	0.28	2.66	16.80	Pass
40	5200	-0.43	-0.42	0.28	2.86	16.80	Pass
48	5240	0.84	-0.09	0.28	3.69	16.80	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 3.19dBi + 10log(2) = 6.20dBi dBi > 6dBi , so the power density limit shall be reduced to 17-(6.2-6) = 16.80dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

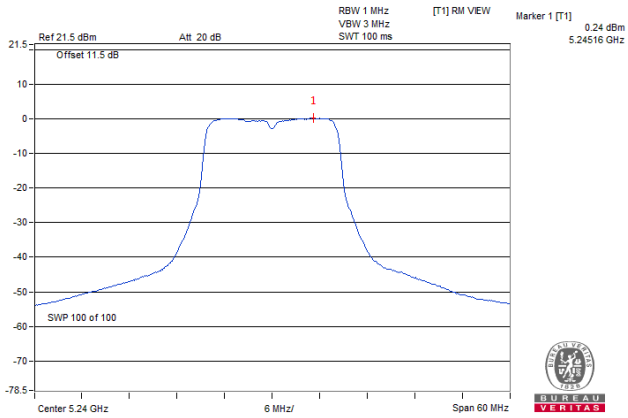
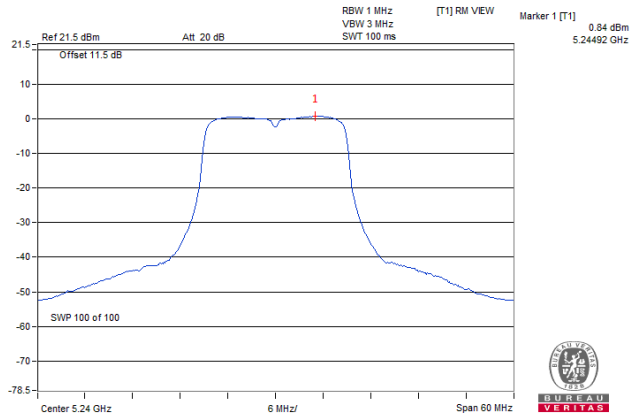
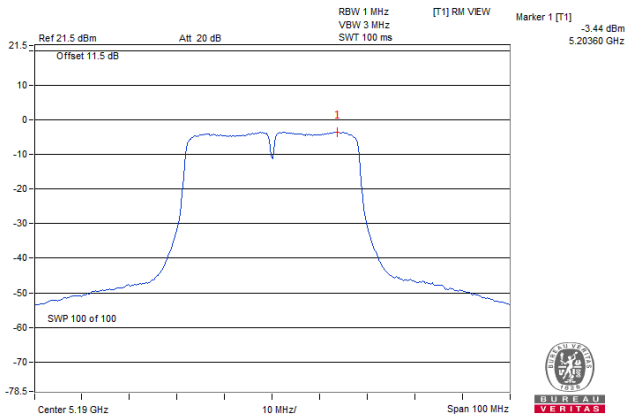
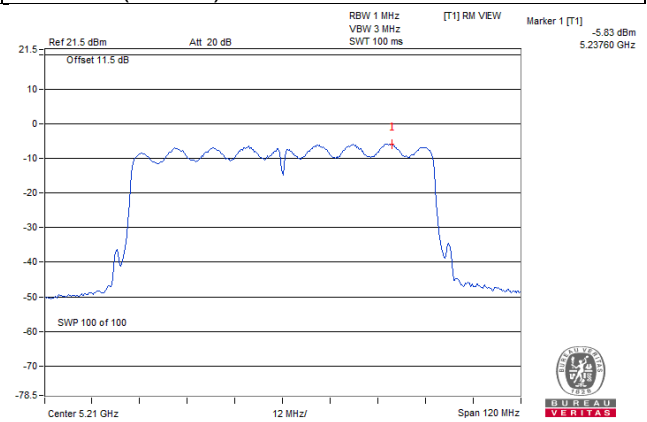
Chan.	Freq. (MHz)	PSD (dBm/MHz)		Duty factor (dB)	Total PSD with duty factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
38	5190	-3.44	-4.44	0.73	-0.17	16.80	Pass
46	5230	-3.89	-3.46	0.73	0.07	16.80	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 3.19dBi + 10log(2) = 6.20dBi dBi > 6dBi , so the power density limit shall be reduced to 17-(6.20-6) = 16.80dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD (dBm/MHz)		Duty factor (dB)	Total PSD with duty factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-6.62	-5.83	1.25	-1.95	16.80	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 3.19dBi + 10log(2) = 6.20dBi dBi > 6dBi , so the power density limit shall be reduced to 17-(6.20-6) = 16.80dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a / Chain 1 / CH 48	802.11n (HT20) / Chain 0 / CH 48
	
802.11n (HT40)/ Chain 0 / CH 38	802.11ac (VHT80) / Chain 1 / CH 42
	

For U-NII-3 Band

802.11a

TX chain	Chan.	Freq. (MHz)	PSD (dBm/300 kHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty factor (dB)	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	149	5745	-4.99	-2.77	3.01	0.38	0.62	30.00	Pass
	157	5785	-5.18	-2.96	3.01	0.38	0.43	30.00	Pass
	165	5825	-7.01	-4.79	3.01	0.38	-1.40	30.00	Pass
1	149	5745	-2.99	-0.77	3.01	0.38	2.62	30.00	Pass
	157	5785	-4.83	-2.61	3.01	0.38	0.78	30.00	Pass
	165	5825	-5.61	-3.39	3.01	0.38	0.00	30.00	Pass

Note:
1. Directional gain = 2.32dBi + 10log(2) = 5.33dBi dBi < 6dBi, so the limit no need to reduced.
2. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/300 kHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty factor (dB)	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	149	5745	-7.79	-5.57	3.01	0.28	-2.28	30.00	Pass
	157	5785	-7.52	-5.30	3.01	0.28	-2.01	30.00	Pass
	165	5825	-7.11	-4.89	3.01	0.28	-1.60	30.00	Pass
1	149	5745	-8.66	-6.44	3.01	0.28	-3.15	30.00	Pass
	157	5785	-8.32	-6.10	3.01	0.28	-2.81	30.00	Pass
	165	5825	-7.15	-4.93	3.01	0.28	-1.64	30.00	Pass

Note:
1. Directional gain = 2.32dBi + 10log(2) = 5.33dBi dBi < 6dBi, so the limit no need to reduced.
2. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

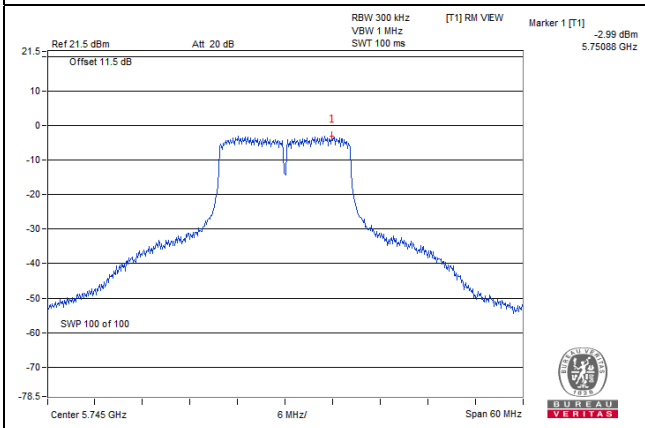
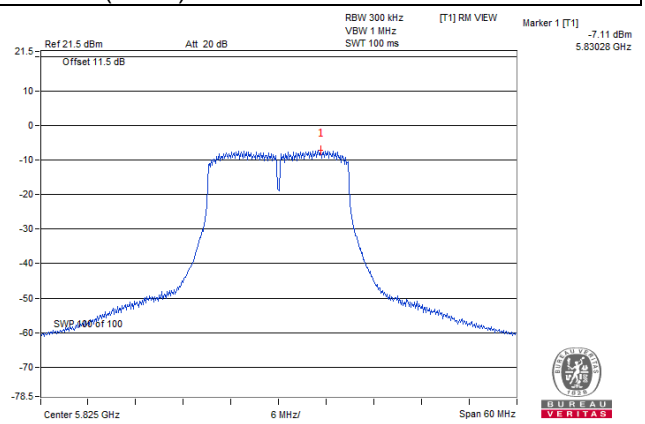
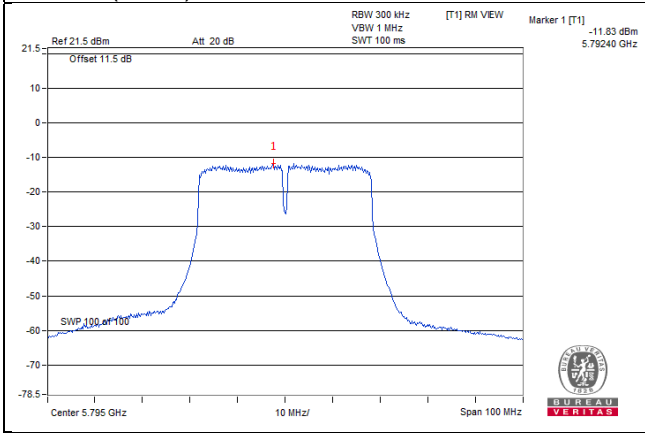
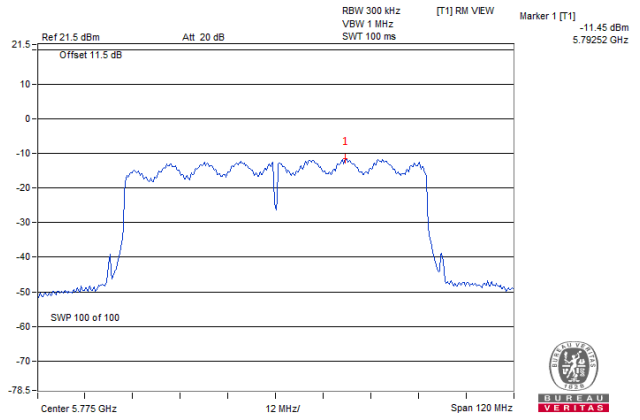
TX chain	Chan.	Freq. (MHz)	PSD (dBm/300 kHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty factor (dB)	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	151	5755	-12.44	-10.22	3.01	0.73	-6.48	30.00	Pass
	159	5795	-11.84	-9.62	3.01	0.73	-5.88	30.00	Pass
1	151	5755	-12.65	-10.43	3.01	0.73	-6.69	30.00	Pass
	159	5795	-11.83	-9.61	3.01	0.73	-5.87	30.00	Pass

Note:
1. Directional gain = 2.32dBi + 10log(2) = 5.33dBi dBi < 6dBi, so the limit no need to reduced.
2. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/300 kHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty factor	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	155	5775	-11.45	-9.23	3.01	1.25	-4.97	30.00	Pass
1	155	5775	-14.05	-11.83	3.01	1.25	-7.57	30.00	Pass

Note:
1. Directional gain = 2.32dBi + 10log(2) = 5.33dBi dBi < 6dBi, so the limit no need to reduced.
2. Refer to section 3.3 for duty cycle spectrum plot.

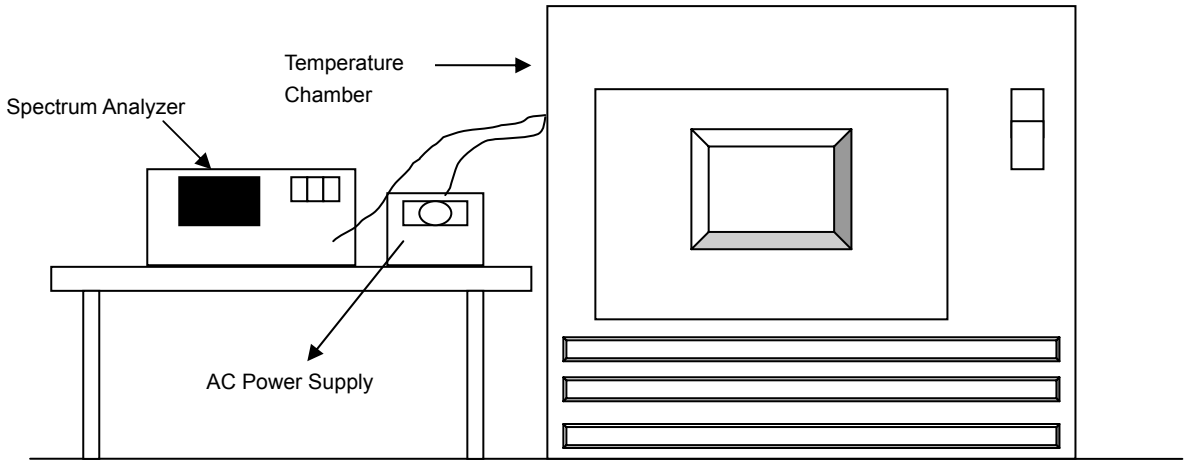
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

4.6 Frequency Stability

4.6.1 Limits of Frequency Stability Measurement

The frequency of the carrier signal shall be maintained within band of operation

4.6.2 Test Setup



4.6.3 Test 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.

4.6.4 Deviation from Test Standard

No deviation.

4.6.5 EUT Operating Condition

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

4.6.6 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
50	120	5180.0007	PASS	5180.0003	PASS	5180.0017	PASS	5180.0005	PASS
40	120	5180.0024	PASS	5180.0037	PASS	5180.0036	PASS	5180.0026	PASS
30	120	5180.0237	PASS	5180.0229	PASS	5180.0199	PASS	5180.0201	PASS
20	120	5180.0099	PASS	5180.0105	PASS	5180.0107	PASS	5180.0115	PASS
10	120	5179.9854	PASS	5179.987	PASS	5179.9852	PASS	5179.9851	PASS
0	120	5180.0054	PASS	5180.0041	PASS	5180.0035	PASS	5180.0029	PASS
-10	120	5179.9787	PASS	5179.98	PASS	5179.9782	PASS	5179.9787	PASS
-20	120	5179.9926	PASS	5179.9953	PASS	5179.9927	PASS	5179.9915	PASS
-30	120	5180.0097	PASS	5180.0091	PASS	5180.0136	PASS	5180.0107	PASS

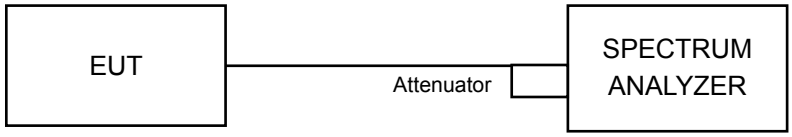
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5180.0108	PASS	5180.0096	PASS	5180.0105	PASS	5180.0105	PASS
	120	5180.0099	PASS	5180.0105	PASS	5180.0107	PASS	5180.0115	PASS
	102	5180.0105	PASS	5180.0102	PASS	5180.011	PASS	5180.0114	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		
149	5745	16.31	16.34	0.5	Pass
157	5785	16.34	16.35	0.5	Pass
165	5825	16.09	16.33	0.5	Pass

802.11n (HT20)

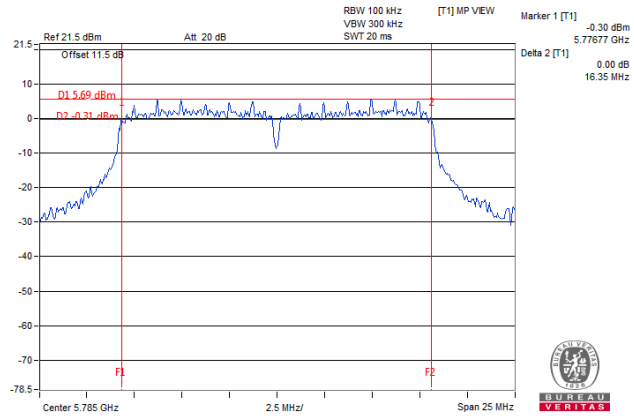
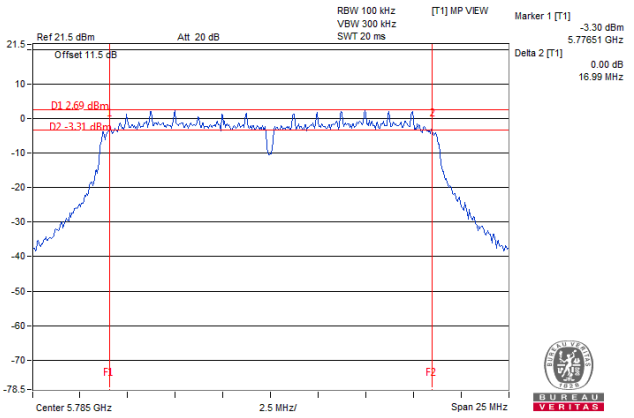
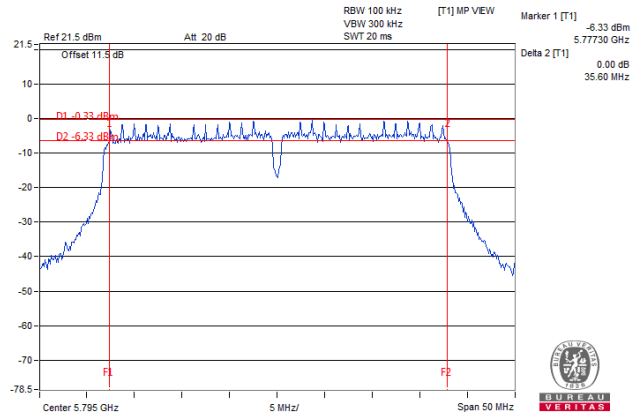
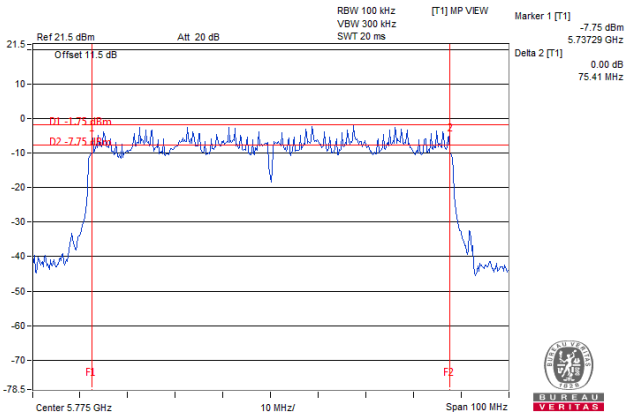
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	16.98	16.84	0.5	Pass
157	5785	16.94	16.99	0.5	Pass
165	5825	16.93	16.37	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	35.32	35.43	0.5	Pass
159	5795	35.60	35.27	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	75.38	75.41	0.5	Pass

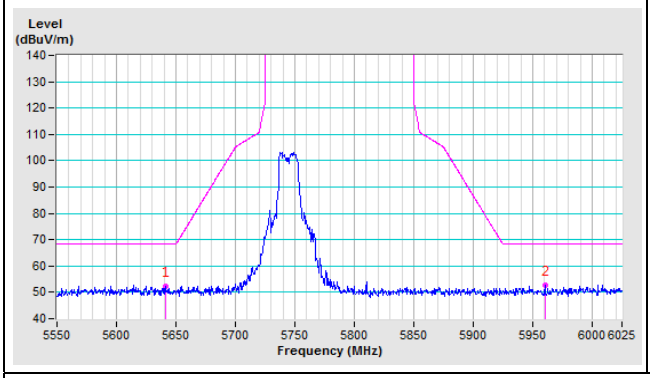
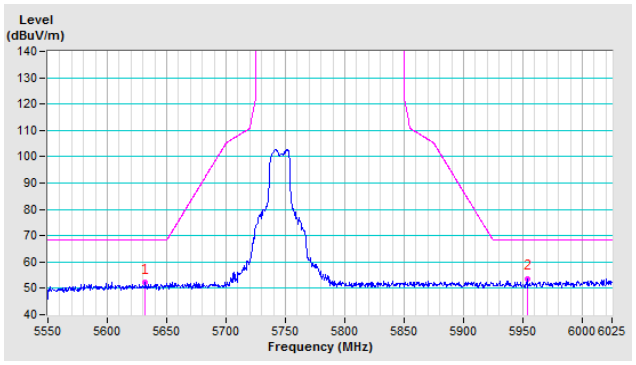
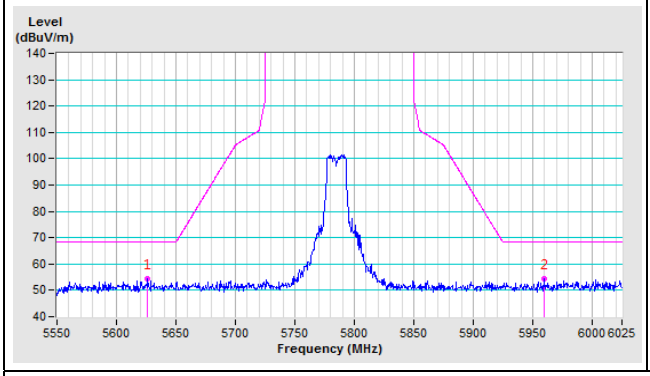
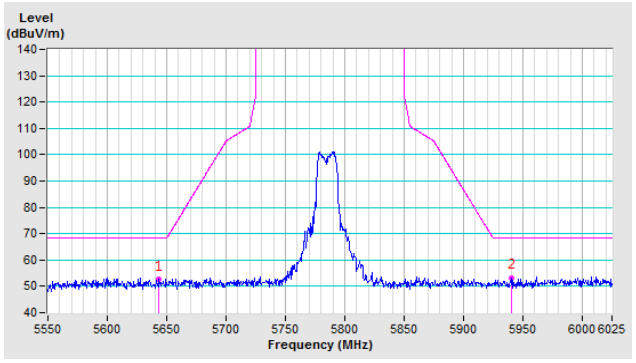
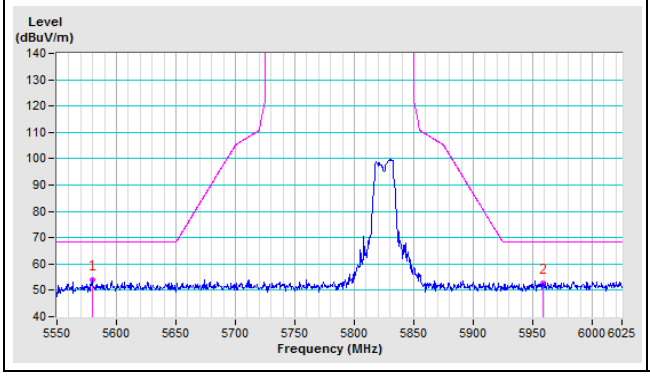
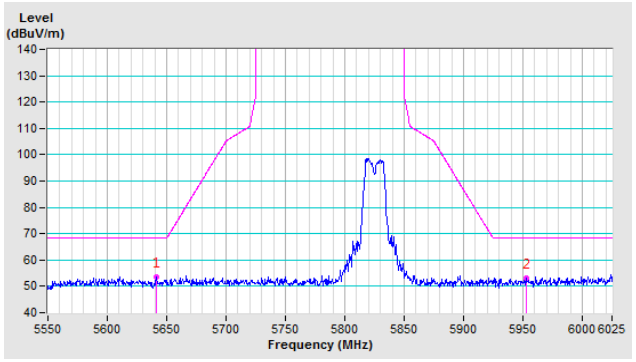
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

5 Pictures of Test Arrangements

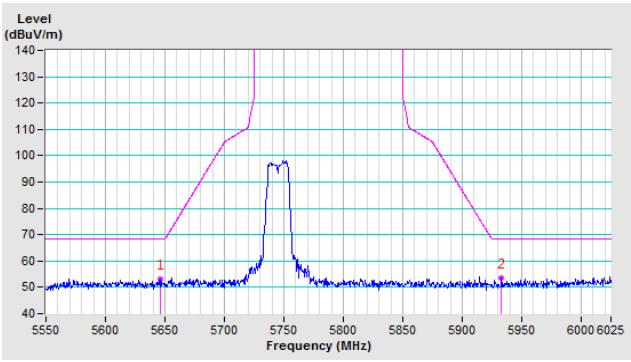
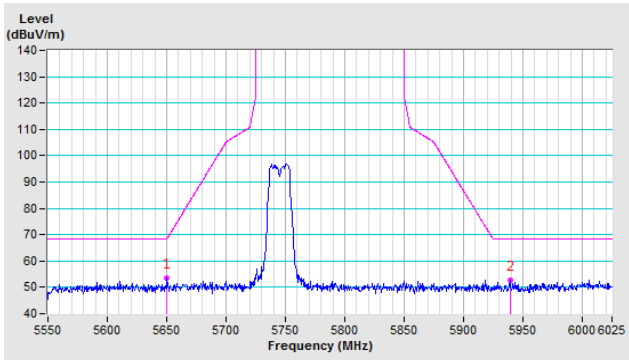
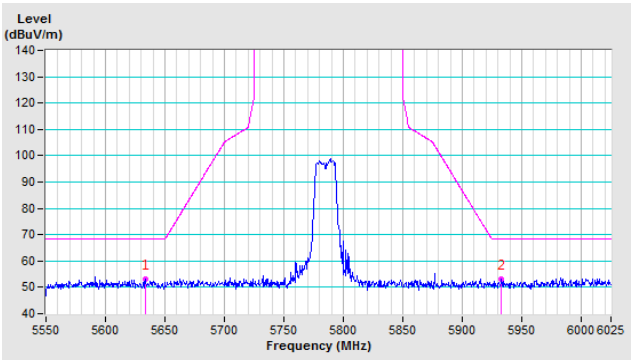
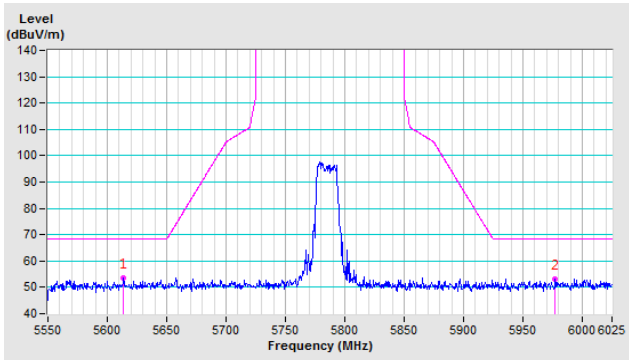
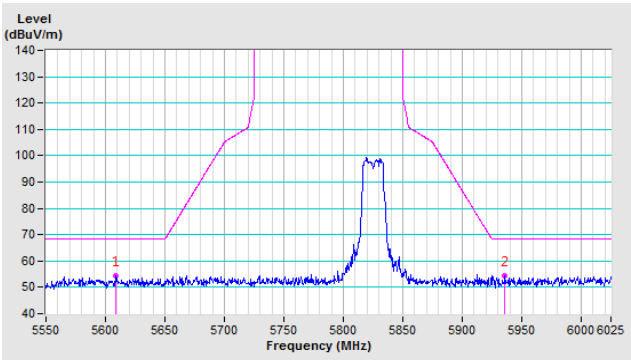
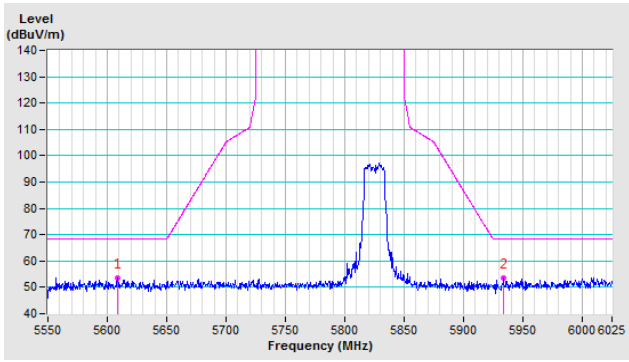
Please refer to the attached file (Test Setup Photo).

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

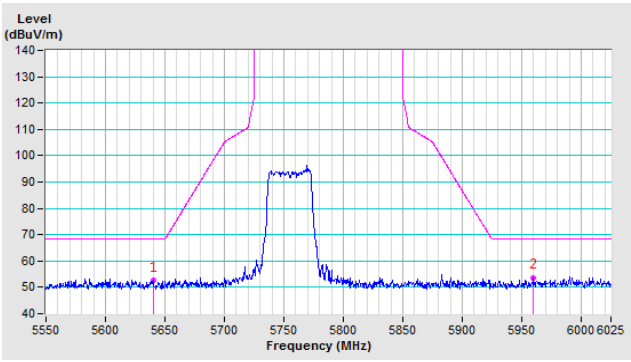
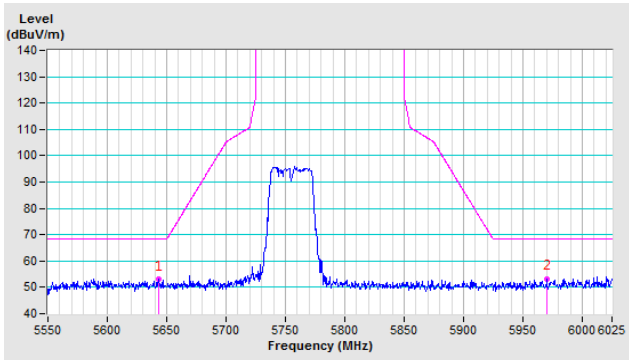
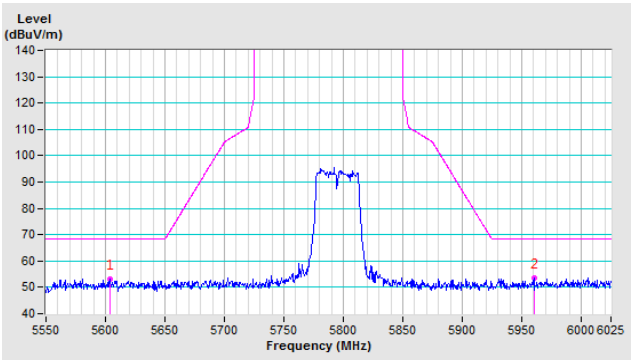
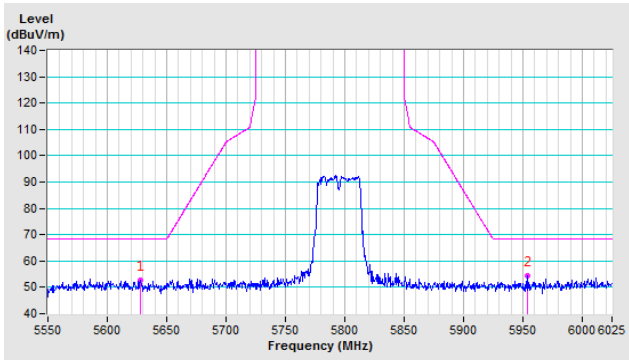
802.11a

CH149	
Horizontal	Vertical
	
CH157	
Horizontal	Vertical
	
CH165	
Horizontal	Vertical
	

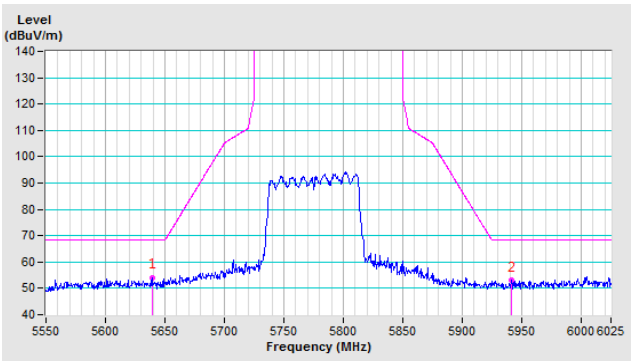
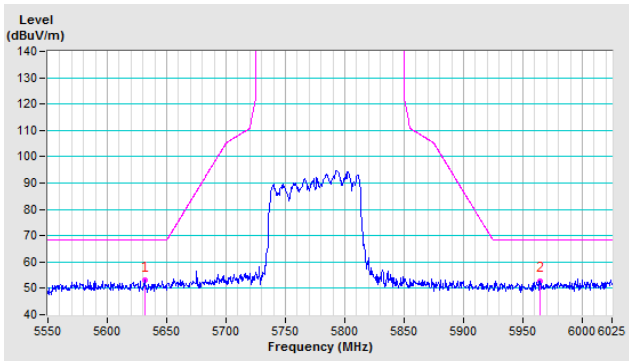
802.11n (HT20)

CH149	
Horizontal	Vertical
	
CH157	
Horizontal	Vertical
	
CH165	
Horizontal	Vertical
	

802.11n (HT40)

CH151	
Horizontal	Vertical
	
CH159	
Horizontal	Vertical
	

802.11ac (VHT80)

CH155	
Horizontal	Vertical
	

Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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

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Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
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Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
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Email: service.adt@tw.bureauveritas.com
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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