

## FCC Test Report

**Report No.:** RF161021C22

**FCC ID:** TVE-140601

**Test Model:** PCE5501AN-FT

**Received Date:** Oct. 21, 2016

**Test Date:** Nov. 17 ~ Dec. 21, 2016

**Issued Date:** Jan. 05, 2017

**Applicant:** Fortinet Inc.

**Address:** 899 Kifer Road Sunnyvale, CA 94086 USA

**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.)



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### Release Control Record

Issue No.	Description	Date Issued
RF161021C22	Original release	Jan. 05, 2017

## 1 Certificate of Conformity

**Product:** 802.11 ac wave2 4x4 module

**Brand:** Fortinet Inc.

**Test Model:** PCE5501AN-FT

**Sample Status:** Engineering sample

**Applicant:** Fortinet Inc.

**Test Date:** Nov. 17 ~ Dec. 21, 2016

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

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

**Prepared by :** Suntree Liu , **Date:** Jan. 05, 2017  
Suntree Liu / Specialist

**Approved by :** Ken Liu , **Date:** Jan. 05, 2017  
Ken Liu / Senior Manager

## 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 -2.09dB at 0.41197MHz.
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 -1.0dB at 5150.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(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 IPEX or RSMA not a standard connector.

\*For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB 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) ( $\pm$ )
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.44 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	802.11 ac wave2 4x4 module
Brand	Fortinet Inc.
Test Model	PCE5501AN-FT
Sample Status	Engineering sample
Power Supply Rating	3.3Vdc
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 1733Mbps
Operating Frequency	5180~5240MHz, 5745~5825MHz
Number of Channel	5180~5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5745~5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1
Output Power	CDD Mode: 5180~5240MHz: 353.979mW 5745~5825MHz: 530.401mW Beamforming Mode: 5180~5240MHz: 88.507mW 5745~5825MHz: 129.016mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

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

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

\* The modulation and bandwidth are similar for 802.11n mode for 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)

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

2. The EUT uses following antennas.

Antenna 1				
Antenna Type	PIFA		Antenna Connector	IPEX
Ant. no.	5	6	7	8
Gain (dBi)	Frequency 5GHz			
	5.65	5.50	5.84	5.84

Antenna 2			
Antenna Type	Dipole	Antenna Connector	RSMA
Gain (dBi)	Frequency 5GHz		
	6		

Antenna 3			
Antenna Type	Dipole	Antenna Connector	RSMA
Gain (dBi)	Frequency 5GHz		
	3		

\* Antenna 2 is chosen for final tests since it has the maximum gain among dipole antennas.



### 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 $\geq$ 1G	RE<1G	PLC	APCM	
A	√	√	√	-	Antenna 1
B	√	√	√	√	Antenna 2

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

### **Power Line Conducted Emission Test:**

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B	802.11a	5180-5240	36 to 48	48	OFDM	6.0

### **Antenna Port Conducted Measurement:**

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
B	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
B	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	7.2
B	802.11n (HT40)		38 to 46	38, 46	OFDM	15.0
B	802.11ac (VHT80)		42	42	OFDM	130.0
B	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
B	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	7.2
B	802.11n (HT40)		151 to 159	151, 159	OFDM	15.0
B	802.11ac (VHT80)		155	155	OFDM	130.0

### **Test Condition:**

Applicable to	Environmental Conditions	Input Power (system)	Tested by
RE $\geq$ 1G	21 deg. C, 70% RH 20 deg. C, 66% RH 20 deg. C, 70% RH 16 deg. C, 70% RH	120Vac, 60Hz	Jones Chang Nick Hsu
RE<1G	21 deg. C, 70% RH	120Vac, 60Hz	Jones Chang
PLC	22 deg. C, 70% RH	120Vac, 60Hz	Jones Chang
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Ted Chang

### 3.3 Duty Cycle of Test Signal

Duty cycle of test signal is  $\geq 98\%$ , duty factor is not required.

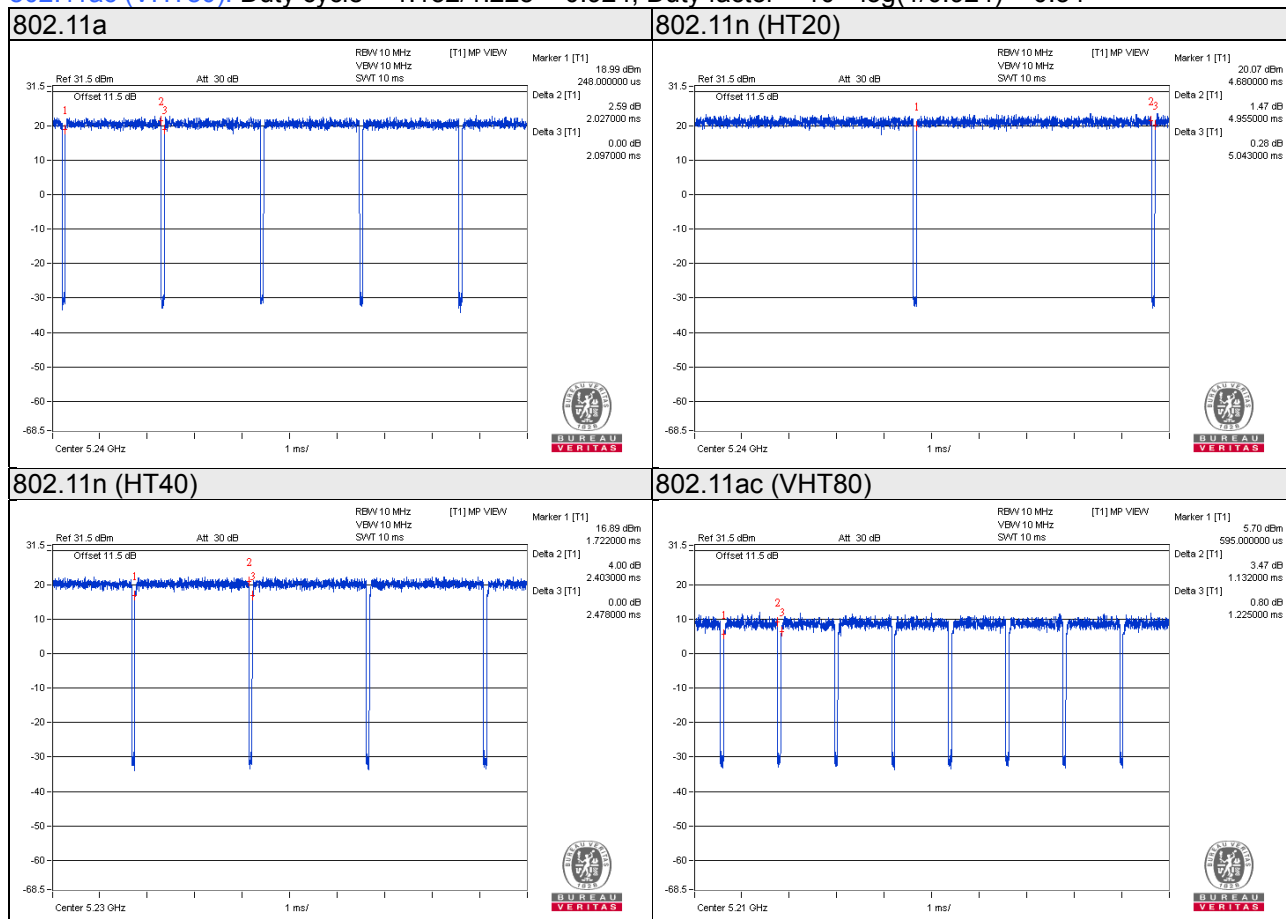
Duty cycle of test signal is  $< 98\%$ , duty factor shall be considered.

802.11a: Duty cycle =  $2.027/2.097 = 0.967$ , Duty factor =  $10 * \log(1/0.967) = 0.15$

802.11n (HT20): Duty cycle =  $4.955/5.043 = 0.983$

802.11n (HT40): Duty cycle =  $2.403/2.478 = 0.970$ , Duty factor =  $10 * \log(1/0.970) = 0.13$

802.11ac (VHT80): Duty cycle =  $1.132/1.225 = 0.924$ , Duty factor =  $10 * \log(1/0.924) = 0.34$



### 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.

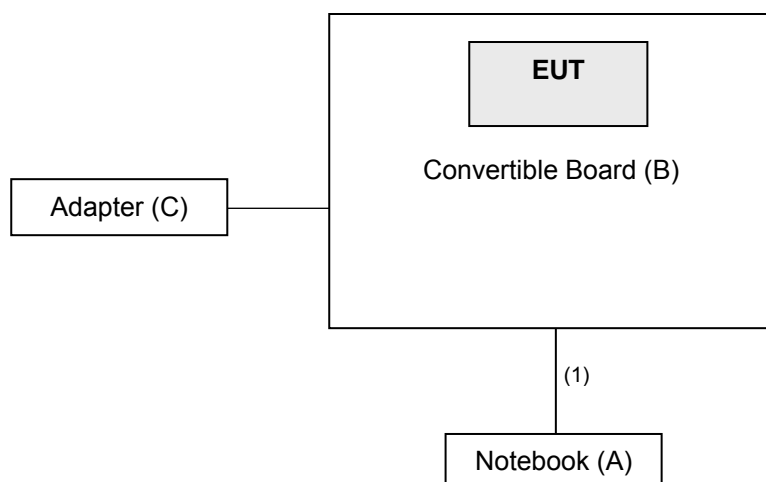
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	Latitude E6420	HPFC5Q1	FCC DoC Approved	-
B.	Convertible Board	NA	NA	NA	NA	-
C.	Adapter	DVE	DSA-24PFD-15 FUS 120200	NA	NA	Provided by manufacturer I/P: 100-240Vac, 50/60Hz, 0.8A O/P: +12Vdc, 2A Power Line: 1.5m cable attached on adapter without core

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45, Cat5e	1	3	N	0	-

#### 3.4.1 Configuration of System under Test



### 3.5 General Description of Applied Standards

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

**FCC Part 15, Subpart E (15.407)**

**KDB 789033 D02 General UNII Test Procedure New Rules v01r03**

**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

Applicable To			Limit	
789033 D02 General UNII Test Procedure New Rules v01r03			Field Strength at 3m	
			PK:74 (dBµV/m)	AV:54 (dBµV/m)
Frequency Band	Applicable To		EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)		PK: -27 (dBm/MHz)	PK: 68.2(dBµV/m)
5250~5350 MHz	15.407(b)(2)			
5470~5725 MHz	15.407(b)(3)			
5725~5850 MHz	<input checked="" type="checkbox"/>	15.407(b)(4)(i)	PK: -27 (dBm/MHz) <sup>*1</sup> PK: 10 (dBm/MHz) <sup>*2</sup> PK: 15.6 (dBm/MHz) <sup>*3</sup> PK: 27 (dBm/MHz) <sup>*4</sup>	PK: 68.2(dBµV/m) <sup>*1</sup> PK: 105.2 (dBµV/m) <sup>*2</sup> PK: 110.8(dBµV/m) <sup>*3</sup> PK: 122.2 (dBµV/m) <sup>*4</sup>
	<input type="checkbox"/>	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
<sup>*1</sup> beyond 75 MHz or more above of the band edge.			<sup>*2</sup> below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.	
<sup>*3</sup> below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.			<sup>*4</sup> from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	

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

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

#### 4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	Apr. 18, 2016	Apr. 17, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Aug. 16, 2016	Aug. 15, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Jan. 07, 2016	Jan. 06, 2017
HORN Antenna SCHWARZBECK	9120D	209	Jan. 20, 2016	Jan. 19, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Jan. 18, 2016	Jan. 17, 2017
Loop Antenna	EM-6879	269	Aug. 11, 2016	Aug. 10, 2017
Preamplifier Agilent	8447D	2944A10738	Aug. 22, 2016	Aug. 21, 2017
Preamplifier Agilent	8449B	3008A01964	Aug. 22, 2016	Aug. 21, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (214378)	Aug. 22, 2016	Aug. 21, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 106	Cable-CH3-03 (309224+12738)	Aug. 22, 2016	Aug. 21, 2017
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	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
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 17, 2016	Oct. 16, 2017
High Speed Peak Power Meter	ML2495A	0824011	Jul. 09, 2016	Jul. 08, 2017
Power Sensor	MA2411B	0738171	Aug. 11, 2016	Aug. 10, 2017

- 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 Site Registration No. is 988962.  
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. Both X and Y axes 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  $\geq 1/T$  (Duty cycle < 98%) or 10Hz (Duty cycle  $\geq 98\%$ ) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

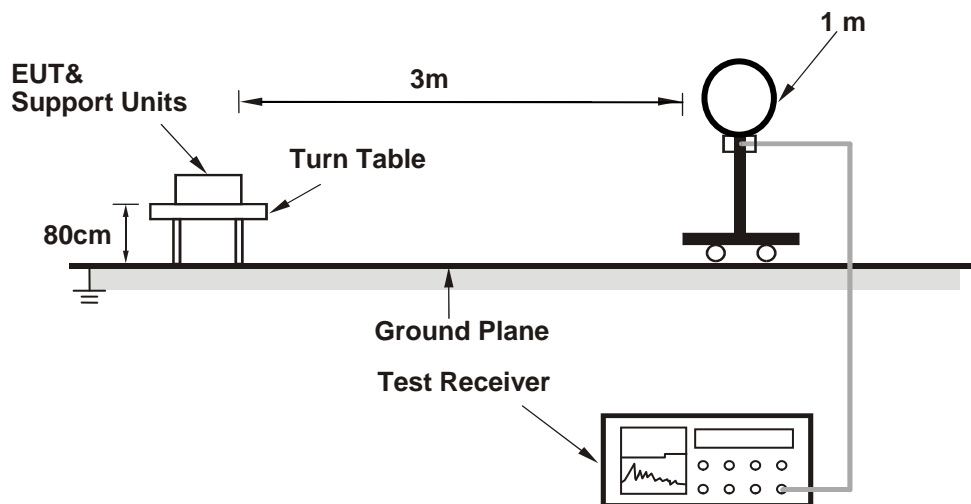
#### 4.1.4 Deviation from Test Standard

No deviation.

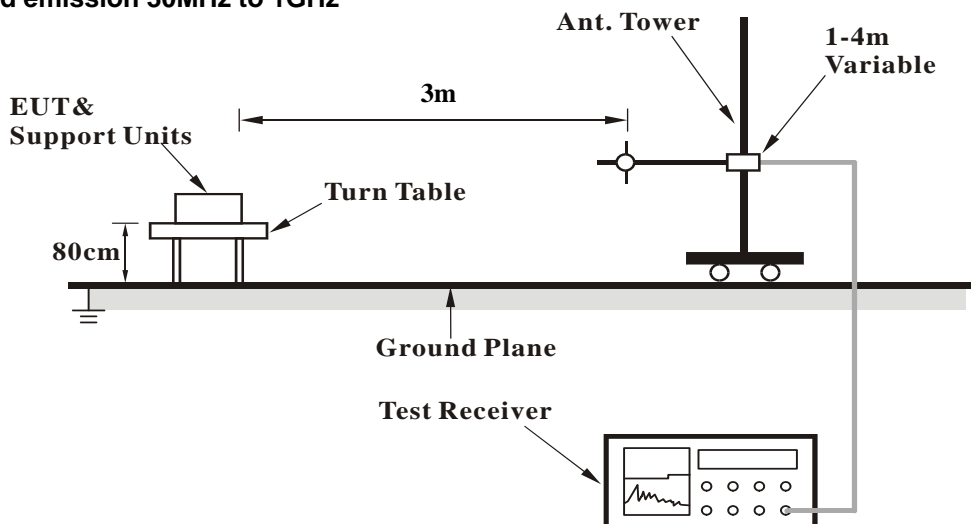


#### 4.1.5 Test Setup

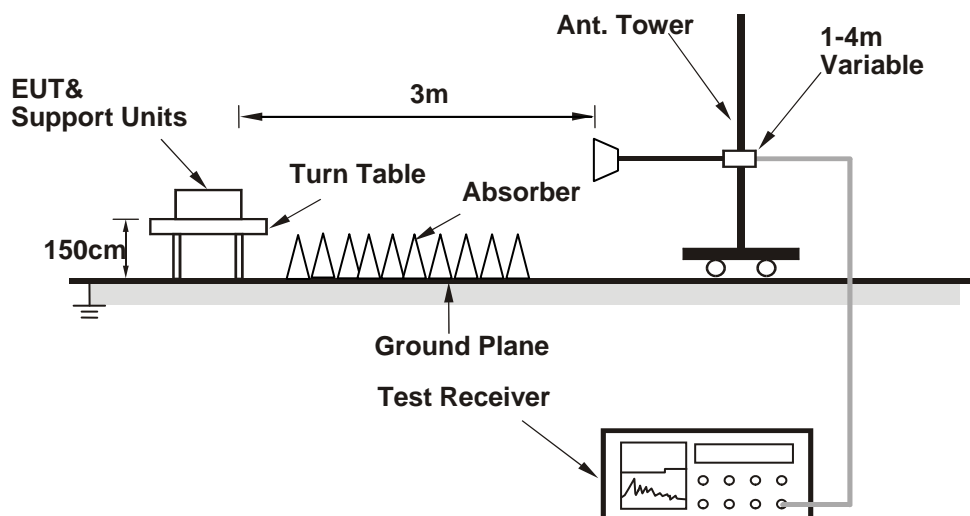
##### For Radiated emission below 30MHz



##### For Radiated emission 30MHz to 1GHz



### For Radiated emission above 1GHz



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

#### 4.1.6 EUT Operating Conditions

- Placed the EUT on the testing table.
- Prepared a notebook to act as a communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The communication partner sent data to EUT by command "PING".

#### 4.1.7 Test Results

Above 1GHz worst-Case Data:

Test Mode A

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	64.9 PK	74.0	-9.1	1.87 H	48	60.1	4.8
2	5150.00	52.3 AV	54.0	-1.7	1.87 H	48	47.5	4.8
3	*5180.00	120.4 PK			1.94 H	295	81.7	38.7
4	*5180.00	110.0 AV			1.94 H	295	71.3	38.7
5	#10360.00	64.7 PK	74.0	-9.3	2.12 H	284	47.1	17.6
6	#10360.00	51.2 AV	54.0	-2.8	2.12 H	284	33.6	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	5150.00	67.1 PK	74.0	-6.9	3.40 V	15	62.3	4.8
2	5150.00	52.6 AV	54.0	-1.4	3.40 V	15	47.8	4.8
3	*5180.00	116.0 PK			2.35 V	20	77.3	38.7
4	*5180.00	105.8 AV			2.35 V	20	67.1	38.7
5	#10360.00	62.4 PK	74.0	-11.6	2.02 V	0	44.8	17.6
6	#10360.00	49.1 AV	54.0	-4.9	2.02 V	0	31.5	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 40	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	68.2 PK	74.0	-5.8	1.65 H	48	63.4	4.8
2	5150.00	51.8 AV	54.0	-2.2	1.65 H	48	47.0	4.8
3	*5200.00	122.6 PK			2.32 H	50	83.9	38.7
4	*5200.00	112.1 AV			2.32 H	50	73.4	38.7
5	#10400.00	65.4 PK	74.0	-8.6	2.08 H	285	47.8	17.6
6	#10400.00	52.3 AV	54.0	-1.7	2.08 H	285	34.7	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	5150.00	62.1 PK	74.0	-11.9	3.04 V	4	57.3	4.8
2	5150.00	47.5 AV	54.0	-6.5	3.04 V	4	42.7	4.8
3	*5200.00	120.0 PK			2.96 V	345	81.3	38.7
4	*5200.00	109.9 AV			2.96 V	345	71.2	38.7
5	#10400.00	62.0 PK	74.0	-12.0	1.02 V	359	44.4	17.6
6	#10400.00	48.9 AV	54.0	-5.1	1.02 V	359	31.3	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 48	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	87.2 PK			1.95 H	292	82.0	5.2
2	*5240.00	77.9 AV			1.95 H	292	72.7	5.2
3	5350.00	58.4 PK	74.0	-15.6	2.00 H	52	52.9	5.5
4	5350.00	48.3 AV	54.0	-5.7	2.00 H	52	42.8	5.5
5	#10480.00	68.1 PK	74.0	-5.9	2.11 H	281	49.7	18.4
6	#10480.00	52.5 AV	54.0	-1.5	2.11 H	281	34.1	18.4
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	*5240.00	116.7 PK			2.34 V	12	77.8	38.9
2	*5240.00	105.8 AV			2.34 V	12	66.9	38.9
3	5350.00	58.9 PK	74.0	-15.1	2.30 V	22	53.4	5.5
4	5350.00	46.9 AV	54.0	-7.1	2.30 V	22	41.4	5.5
5	#10480.00	62.6 PK	74.0	-11.4	1.90 V	359	44.2	18.4
6	#10480.00	49.4 AV	54.0	-4.6	1.90 V	359	31.0	18.4

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

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	#5637.60	57.6 PK	68.2	-10.6	2.80 H	47	51.5	6.1
2	#5714.90	64.9 PK	109.4	-44.5	2.03 H	48	58.6	6.3
3	#5722.00	71.0 PK	115.4	-44.4	2.21 H	285	64.7	6.3
4	#5725.00	61.1 PK	122.2	-61.1	2.21 H	285	54.8	6.3
5	*5745.00	118.2 PK			2.80 H	47	78.2	40.0
6	*5745.00	107.9 AV			2.80 H	47	67.9	40.0
7	#5984.80	59.7 PK	68.2	-8.5	2.80 H	47	53.0	6.7
8	11490.00	61.8 PK	74.0	-12.2	2.00 H	290	42.5	19.3
9	11490.00	48.5 AV	54.0	-5.5	2.00 H	290	29.2	19.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5618.40	58.6 PK	68.2	-9.6	2.78 V	14	52.5	6.1
2	#5714.90	61.4 PK	109.4	-48.0	3.58 V	16	55.1	6.3
3	#5722.00	68.2 PK	115.4	-47.2	2.57 V	22	61.9	6.3
4	#5725.00	58.8 PK	122.2	-63.4	2.57 V	22	52.5	6.3
5	*5745.00	114.6 PK			2.78 V	14	74.6	40.0
6	*5745.00	104.4 AV			2.78 V	14	64.4	40.0
7	#5938.40	59.7 PK	68.2	-8.5	2.78 V	14	53.1	6.6
8	11490.00	60.9 PK	74.0	-13.1	1.68 V	19	41.6	19.3
9	11490.00	47.9 AV	54.0	-6.1	1.68 V	19	28.6	19.3

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5626.40	58.5 PK	68.2	-9.7	2.23 H	289	52.4	6.1
2	*5785.00	122.5 PK			2.23 H	289	82.4	40.1
3	*5785.00	112.9 AV			2.23 H	289	72.8	40.1
4	#5985.60	59.4 PK	68.2	-8.8	2.23 H	289	52.7	6.7
5	11570.00	62.3 PK	74.0	-11.7	3.83 H	280	43.1	19.2
6	11570.00	51.2 AV	54.0	-2.8	3.83 H	280	32.0	19.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5632.80	58.6 PK	68.2	-9.6	3.75 V	341	52.5	6.1
2	*5785.00	120.2 PK			3.75 V	341	80.1	40.1
3	*5785.00	109.8 AV			3.75 V	341	69.7	40.1
4	#5933.60	60.3 PK	68.2	-7.9	3.75 V	341	53.7	6.6
5	11570.00	61.5 PK	74.0	-12.5	2.29 V	56	42.3	19.2
6	11570.00	49.1 AV	54.0	-4.9	2.29 V	56	29.9	19.2

Remarks:

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

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

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	#5628.00	58.4 PK	68.2	-9.8	1.87 H	53	52.3	6.1
2	*5825.00	119.8 PK			1.87 H	53	79.7	40.1
3	*5825.00	109.5 AV			1.87 H	53	69.4	40.1
4	#5850.00	65.2 PK	122.2	-57.0	1.85 H	291	58.7	6.5
5	#5853.00	74.1 PK	115.4	-41.3	1.85 H	291	67.6	6.5
6	#5860.10	70.5 PK	109.4	-38.9	3.71 H	288	64.0	6.5
7	#5980.00	59.4 PK	68.2	-8.8	1.87 H	53	52.7	6.7
8	11650.00	60.8 PK	74.0	-13.2	2.00 H	64	41.5	19.3
9	11650.00	47.9 AV	54.0	-6.1	2.00 H	64	28.6	19.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5637.60	58.8 PK	68.2	-9.4	2.72 V	13	52.7	6.1
2	*5825.00	114.7 PK			2.72 V	13	74.6	40.1
3	*5825.00	104.7 AV			2.72 V	13	64.6	40.1
4	#5850.00	56.0 PK	122.2	-66.2	2.35 V	315	49.5	6.5
5	#5853.00	64.8 PK	115.4	-50.6	2.35 V	315	58.3	6.5
6	#5860.10	62.0 PK	109.4	-47.4	2.70 V	358	55.5	6.5
7	#5954.40	59.8 PK	68.2	-8.4	2.72 V	13	53.2	6.6
8	11650.00	61.3 PK	74.0	-12.7	1.99 V	23	42.0	19.3
9	11650.00	48.2 AV	54.0	-5.8	1.99 V	23	28.9	19.3

Remarks:

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



# 802.11n (HT20)

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

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	67.1 PK	74.0	-6.9	1.86 H	51	62.3	4.8
2	<b>5150.00</b>	<b>53.0 AV</b>	<b>54.0</b>	<b>-1.0</b>	<b>1.86 H</b>	<b>51</b>	<b>48.2</b>	<b>4.8</b>
3	*5180.00	120.1 PK			1.85 H	295	81.4	38.7
4	*5180.00	109.0 AV			1.85 H	295	70.3	38.7
5	#10360.00	64.1 PK	74.0	-9.9	2.01 H	286	46.5	17.6
6	#10360.00	50.6 AV	54.0	-3.4	2.01 H	286	33.0	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	5150.00	62.6 PK	74.0	-11.4	3.43 V	22	57.8	4.8
2	5150.00	48.4 AV	54.0	-5.6	3.43 V	22	43.6	4.8
3	*5180.00	115.2 PK			2.33 V	15	76.5	38.7
4	*5180.00	104.8 AV			2.33 V	15	66.1	38.7
5	#10360.00	61.2 PK	74.0	-12.8	1.23 V	345	43.6	17.6
6	#10360.00	48.4 AV	54.0	-5.6	1.23 V	345	30.8	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 40	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	65.5 PK	74.0	-8.5	1.64 H	54	60.7	4.8
2	5150.00	52.4 AV	54.0	-1.6	1.64 H	54	47.6	4.8
3	*5200.00	123.5 PK			2.04 H	297	84.8	38.7
4	*5200.00	112.3 AV			2.04 H	297	73.6	38.7
5	#10400.00	65.3 PK	74.0	-8.7	2.20 H	286	47.7	17.6
6	#10400.00	51.6 AV	54.0	-2.4	2.20 H	286	34.0	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	5150.00	52.5 PK	74.0	-21.5	3.53 V	0	47.7	4.8
2	5150.00	48.1 AV	54.0	-5.9	3.53 V	0	43.3	4.8
3	*5200.00	117.8 PK			2.32 V	19	79.1	38.7
4	*5200.00	107.4 AV			2.32 V	19	68.7	38.7
5	#10400.00	61.3 PK	74.0	-12.7	1.33 V	290	43.7	17.6
6	#10400.00	48.1 AV	54.0	-5.9	1.33 V	290	30.5	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 48	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	122.1 PK			2.10 H	296	83.2	38.9
2	*5240.00	110.7 AV			2.10 H	296	71.8	38.9
3	5350.00	65.2 PK	74.0	-8.8	1.89 H	145	59.7	5.5
4	5350.00	48.9 AV	54.0	-5.1	1.89 H	145	43.4	5.5
5	#10480.00	67.2 PK	74.0	-6.8	2.09 H	284	48.8	18.4
6	#10480.00	52.2 AV	54.0	-1.8	2.09 H	284	33.8	18.4
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	*5240.00	116.5 PK			2.33 V	13	77.6	38.9
2	*5240.00	106.1 AV			2.33 V	13	67.2	38.9
3	5350.00	59.7 PK	74.0	-14.3	2.22 V	342	54.2	5.5
4	5350.00	47.6 AV	54.0	-6.4	2.22 V	342	42.1	5.5
5	#10400.00	62.1 PK	74.0	-11.9	1.40 V	0	44.5	17.6
6	#10400.00	49.2 AV	54.0	-4.8	1.40 V	0	31.6	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 149	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	#5628.80	58.1 PK	68.2	-10.1	1.78 H	49	52.0	6.1
2	#5714.90	65.0 PK	109.4	-44.4	1.94 H	46	58.7	6.3
3	#5722.00	73.3 PK	115.4	-42.1	2.20 H	290	67.0	6.3
4	#5725.00	65.5 PK	122.2	-56.7	2.20 H	290	59.2	6.3
5	*5745.00	118.3 PK			1.78 H	49	78.3	40.0
6	*5745.00	108.4 AV			1.78 H	49	68.4	40.0
7	#5972.80	59.1 PK	68.2	-9.1	1.78 H	49	52.4	6.7
8	11490.00	61.9 PK	74.0	-12.1	1.80 H	280	42.6	19.3
9	11490.00	48.9 AV	54.0	-5.1	1.80 H	280	29.6	19.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5611.20	58.9 PK	68.2	-9.3	2.81 V	16	52.8	6.1
2	#5714.90	58.8 PK	109.4	-50.6	2.65 V	16	52.5	6.3
3	#5722.00	68.8 PK	115.4	-46.6	2.69 V	19	62.5	6.3
4	#5725.00	59.2 PK	122.2	-63.0	2.69 V	19	52.9	6.3
5	*5745.00	114.2 PK			2.81 V	16	74.2	40.0
6	*5745.00	103.8 AV			2.81 V	16	63.8	40.0
7	#5944.80	58.8 PK	68.2	-9.4	2.81 V	16	52.2	6.6
8	11490.00	61.3 PK	74.0	-12.7	2.44 V	280	42.0	19.3
9	11490.00	48.4 AV	54.0	-5.6	2.44 V	280	29.1	19.3

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5624.80	57.9 PK	68.2	-10.3	1.91 H	51	51.8	6.1
2	*5785.00	122.5 PK			1.91 H	51	82.4	40.1
3	*5785.00	111.6 AV			1.91 H	51	71.5	40.1
4	#5960.00	58.8 PK	68.2	-9.4	1.91 H	51	52.2	6.6
5	11570.00	62.2 PK	74.0	-11.8	3.79 H	281	43.0	19.2
6	11570.00	49.5 AV	54.0	-4.5	3.79 H	281	30.3	19.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5620.80	57.9 PK	68.2	-10.3	2.67 V	11	51.8	6.1
2	*5785.00	117.2 PK			2.67 V	11	77.1	40.1
3	*5785.00	106.9 AV			2.67 V	11	66.8	40.1
4	#5956.80	59.3 PK	68.2	-8.9	2.67 V	11	52.7	6.6
5	11650.00	61.1 PK	74.0	-12.9	2.54 V	279	41.8	19.3
6	11650.00	48.1 AV	54.0	-5.9	2.54 V	279	28.8	19.3

Remarks:

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

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

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	#5631.20	58.1 PK	68.2	-10.1	2.24 H	290	52.0	6.1
2	*5825.00	119.3 PK			2.24 H	290	79.2	40.1
3	*5825.00	108.9 AV			2.24 H	290	68.8	40.1
4	#5850.00	65.1 PK	122.2	-57.1	1.47 H	284	58.6	6.5
5	#5852.10	75.4 PK	117.4	-42.0	1.47 H	284	68.9	6.5
6	#5860.10	67.0 PK	109.4	-42.4	3.67 H	285	60.5	6.5
7	#5972.80	59.4 PK	68.2	-8.8	2.24 H	290	52.7	6.7
8	11650.00	62.1 PK	74.0	-11.9	2.12 H	356	42.8	19.3
9	11650.00	49.0 AV	54.0	-5.0	2.12 H	356	29.7	19.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5624.80	57.9 PK	68.2	-10.3	2.65 V	12	51.8	6.1
2	*5825.00	115.2 PK			2.65 V	12	75.1	40.1
3	*5825.00	106.3 AV			2.65 V	12	66.2	40.1
4	#5850.00	63.4 PK	122.2	-58.8	3.70 V	348	56.9	6.5
5	#5853.00	74.2 PK	115.4	-41.2	3.70 V	348	67.7	6.5
6	#5860.10	59.0 PK	109.4	-50.4	2.70 V	356	52.5	6.5
7	#5964.80	59.1 PK	68.2	-9.1	2.65 V	12	52.4	6.7
8	11650.00	61.5 PK	74.0	-12.5	1.80 V	252	42.2	19.3
9	11650.00	48.7 AV	54.0	-5.3	1.80 V	252	29.4	19.3

Remarks:

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

### 802.11n (HT40)

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

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	66.4 PK	74.0	-7.6	1.93 H	290	61.6	4.8
2	5150.00	52.5 AV	54.0	-1.5	1.93 H	290	47.7	4.8
3	*5190.00	113.3 PK			2.01 H	296	74.6	38.7
4	*5190.00	103.3 AV			2.01 H	296	64.6	38.7
5	#10360.00	62.2 PK	74.0	-11.8	2.00 H	296	44.6	17.6
6	#10360.00	48.8 AV	54.0	-5.2	2.00 H	296	31.2	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	5150.00	63.4 PK	74.0	-10.6	2.59 V	331	58.6	4.8
2	5150.00	49.3 AV	54.0	-4.7	2.59 V	331	44.5	4.8
3	*5190.00	110.0 PK			3.09 V	356	71.3	38.7
4	*5190.00	100.3 AV			3.09 V	356	61.6	38.7
5	#10380.00	61.1 PK	74.0	-12.9	1.25 V	268	43.5	17.6
6	#10380.00	47.8 AV	54.0	-6.2	1.25 V	268	30.2	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 46	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	64.5 PK	74.0	-9.5	1.82 H	289	59.7	4.8
2	5150.00	52.2 AV	54.0	-1.8	1.82 H	289	47.4	4.8
3	*5230.00	118.5 PK			1.83 H	295	79.6	38.9
4	*5230.00	108.9 AV			1.83 H	295	70.0	38.9
5	#10460.00	64.0 PK	74.0	-10.0	1.99 H	279	45.8	18.2
6	#10460.00	50.9 AV	54.0	-3.1	1.99 H	279	32.7	18.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.4 PK	74.0	-16.6	3.13 V	304	52.6	4.8
2	5150.00	45.3 AV	54.0	-8.7	3.13 V	304	40.5	4.8
3	*5230.00	113.3 PK			3.13 V	331	74.4	38.9
4	*5230.00	103.2 AV			3.13 V	331	64.3	38.9
5	#10460.00	61.3 PK	74.0	-12.7	1.18 V	18	43.1	18.2
6	#10460.00	48.6 AV	54.0	-5.4	1.18 V	18	30.4	18.2

Remarks:

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



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

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	59.0 PK	68.2	-9.2	2.29 H	294	52.9	6.1
2	#5714.90	66.7 PK	109.4	-42.7	2.23 H	290	60.4	6.3
3	#5722.00	68.9 PK	115.4	-46.5	2.07 H	287	62.6	6.3
4	#5725.00	62.4 PK	122.2	-59.8	2.07 H	287	56.1	6.3
5	*5755.00	111.1 PK			2.29 H	294	71.1	40.0
6	*5755.00	101.1 AV			2.29 H	294	61.1	40.0
7	#5996.00	59.5 PK	68.2	-8.7	2.29 H	294	52.8	6.7
8	11510.00	61.0 PK	74.0	-13.0	1.88 H	276	41.7	19.3
9	11510.00	47.8 AV	54.0	-6.2	1.88 H	276	28.5	19.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5608.80	58.7 PK	68.2	-9.5	2.71 V	273	52.6	6.1
2	#5714.90	67.9 PK	109.4	-41.5	2.82 V	18	61.6	6.3
3	#5722.00	67.9 PK	115.4	-47.5	2.03 V	23	61.6	6.3
4	#5725.00	61.0 PK	122.2	-61.2	2.03 V	23	54.7	6.3
5	*5755.00	106.2 PK			2.71 V	273	66.2	40.0
6	*5755.00	96.7 AV			2.71 V	273	56.7	40.0
7	#5970.40	59.2 PK	68.2	-9.0	2.71 V	273	52.5	6.7
8	11510.00	61.3 PK	74.0	-12.7	1.87 V	303	42.0	19.3
9	11510.00	48.1 AV	54.0	-5.9	1.87 V	303	28.8	19.3

Remarks:

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

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

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	#5639.20	58.0 PK	68.2	-10.2	3.04 H	289	51.9	6.1
2	*5795.00	116.8 PK			3.04 H	289	76.7	40.1
3	*5795.00	106.6 AV			3.04 H	289	66.5	40.1
4	#5850.00	59.6 PK	122.2	-62.6	1.69 H	328	53.1	6.5
5	#5853.00	67.7 PK	115.4	-47.7	1.69 H	328	61.2	6.5
6	#5860.10	69.2 PK	109.4	-40.2	1.62 H	290	62.7	6.5
7	#5981.60	59.5 PK	68.2	-8.7	3.04 H	289	52.8	6.7
8	11590.00	61.0 PK	74.0	-13.0	2.62 H	52	41.8	19.2
9	11590.00	48.2 AV	54.0	-5.8	2.62 H	52	29.0	19.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5611.20	58.7 PK	68.2	-9.5	2.46 V	14	52.6	6.1
2	*5795.00	111.2 PK			2.46 V	14	71.1	40.1
3	*5795.00	101.1 AV			2.46 V	14	61.0	40.1
4	#5850.00	59.7 PK	122.2	-62.5	2.82 V	13	53.2	6.5
5	#5853.00	66.5 PK	115.4	-48.9	2.82 V	13	60.0	6.5
6	#5860.10	58.0 PK	109.4	-51.4	2.35 V	319	51.5	6.5
7	#5984.00	59.2 PK	68.2	-9.0	2.46 V	14	52.5	6.7
8	11590.00	60.9 PK	74.0	-13.1	2.09 V	32	41.7	19.2
9	11590.00	47.8 AV	54.0	-6.2	2.09 V	32	28.6	19.2

Remarks:

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

# 802.11ac (VHT80)

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

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	1.94 H	290	60.3	4.8
2	5150.00	52.3 AV	54.0	-1.7	1.94 H	290	47.5	4.8
3	*5210.00	106.3 PK			1.87 H	296	67.6	38.7
4	*5210.00	96.2 AV			1.87 H	296	57.5	38.7
5	5350.00	64.0 PK	74.0	-10.0	2.50 H	35	58.5	5.5
6	5350.00	49.4 AV	54.0	-4.6	2.50 H	35	43.9	5.5
7	#10420.00	61.7 PK	74.0	-12.3	2.06 H	293	43.9	17.8
8	#10420.00	48.6 AV	54.0	-5.4	2.06 H	293	30.8	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	5150.00	63.7 PK	74.0	-10.3	3.43 V	0	58.9	4.8
2	5150.00	49.5 AV	54.0	-4.5	3.43 V	0	44.7	4.8
3	*5210.00	103.9 PK			3.57 V	356	65.2	38.7
4	*5210.00	92.8 AV			3.57 V	356	54.1	38.7
5	5350.00	64.7 PK	74.0	-9.3	2.60 V	110	59.2	5.5
6	5350.00	49.0 AV	54.0	-5.0	2.60 V	110	43.5	5.5
7	#10420.00	60.1 PK	74.0	-13.9	1.02 V	45	42.3	17.8
8	#10420.00	47.4 AV	54.0	-6.6	1.02 V	45	29.6	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.

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

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	#5630.40	57.6 PK	68.2	-10.6	2.17 H	289	51.5	6.1
2	#5714.90	66.7 PK	109.4	-42.7	3.73 H	288	60.4	6.3
3	#5722.00	65.6 PK	115.4	-49.8	1.70 H	301	59.3	6.3
4	#5725.00	58.3 PK	122.2	-63.9	1.70 H	301	52.0	6.3
5	*5775.00	106.4 PK			2.17 H	289	66.4	40.0
6	*5775.00	96.4 AV			2.17 H	289	56.4	40.0
7	#5850.00	55.9 PK	122.2	-66.3	3.17 H	295	49.4	6.5
8	#5853.00	65.4 PK	115.4	-50.0	3.17 H	295	58.9	6.5
9	#5860.10	62.3 PK	109.4	-47.1	1.56 H	291	55.8	6.5
10	#5933.60	59.1 PK	68.2	-9.1	2.17 H	289	52.5	6.6
11	11550.00	60.3 PK	74.0	-13.7	2.17 H	292	41.1	19.2
12	11550.00	47.4 AV	54.0	-6.6	2.17 H	292	28.2	19.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5615.20	58.9 PK	68.2	-9.3	2.75 V	14	52.8	6.1
2	#5714.90	63.2 PK	109.4	-46.2	2.72 V	358	56.9	6.3
3	#5722.00	62.8 PK	115.4	-52.6	3.59 V	0	56.5	6.3
4	#5725.00	55.0 PK	122.2	-67.2	2.59 V	0	48.7	6.3
5	*5775.00	101.1 PK			2.75 V	14	61.1	40.0
6	*5775.00	91.4 AV			2.75 V	14	51.4	40.0
7	#5850.00	52.5 PK	122.2	-69.7	2.78 V	16	46.0	6.5
8	#5853.00	62.8 PK	115.4	-52.6	2.78 V	16	56.3	6.5
9	#5860.10	58.6 PK	109.4	-50.8	2.92 V	19	52.1	6.5
10	#5960.80	60.0 PK	68.2	-8.2	2.75 V	14	53.4	6.6
11	11550.00	59.8 PK	74.0	-14.2	1.69 V	290	40.6	19.2
12	11550.00	46.9 AV	54.0	-7.1	1.69 V	290	27.7	19.2

Remarks:

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

# Test Mode B

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.4 PK	74.0	-17.6	1.55 H	85	51.6	4.8
2	5150.00	45.6 AV	54.0	-8.4	1.55 H	85	40.8	4.8
3	*5180.00	108.8 PK			1.09 H	304	70.1	38.7
4	*5180.00	98.3 AV			1.09 H	304	59.6	38.7
5	#10360.00	59.2 PK	74.0	-14.8	2.04 H	22	41.6	17.6
6	#10360.00	46.2 AV	54.0	-7.8	2.04 H	22	28.6	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	5150.00	67.8 PK	74.0	-6.2	2.14 V	354	63.0	4.8
2	5150.00	52.5 AV	54.0	-1.5	2.14 V	354	47.7	4.8
3	*5180.00	119.9 PK			1.83 V	4	81.2	38.7
4	*5180.00	109.3 AV			1.83 V	4	70.6	38.7
5	#10360.00	60.4 PK	74.0	-13.6	1.99 V	3	42.8	17.6
6	#10360.00	47.4 AV	54.0	-6.6	1.99 V	3	29.8	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 40	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	55.3 PK	74.0	-18.7	1.50 H	357	50.5	4.8
2	5150.00	44.6 AV	54.0	-9.4	1.50 H	357	39.8	4.8
3	*5200.00	111.1 PK			1.31 H	303	72.4	38.7
4	*5200.00	100.6 AV			1.31 H	303	61.9	38.7
5	#10400.00	59.6 PK	74.0	-14.4	1.58 H	296	42.0	17.6
6	#10400.00	46.8 AV	54.0	-7.2	1.58 H	296	29.2	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	5150.00	62.9 PK	74.0	-11.1	2.00 V	22	58.1	4.8
2	5150.00	49.8 AV	54.0	-4.2	2.00 V	22	45.0	4.8
3	*5200.00	123.0 PK			2.07 V	336	84.3	38.7
4	*5200.00	112.1 AV			2.07 V	336	73.4	38.7
5	#10400.00	61.2 PK	74.0	-12.8	1.84 V	3	43.6	17.6
6	#10400.00	48.1 AV	54.0	-5.9	1.84 V	3	30.5	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 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	108.8 PK			1.45 H	137	69.9	38.9
2	*5240.00	99.6 AV			1.45 H	137	60.7	38.9
3	5350.00	58.1 PK	74.0	-15.9	1.56 H	63	52.6	5.5
4	5350.00	46.3 AV	54.0	-7.7	1.56 H	63	40.8	5.5
5	#10480.00	61.4 PK	74.0	-12.6	1.60 H	0	43.0	18.4
6	#10480.00	48.3 AV	54.0	-5.7	1.60 H	0	29.9	18.4
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	*5240.00	124.3 PK			2.05 V	336	85.4	38.9
2	*5240.00	113.2 AV			2.05 V	336	74.3	38.9
3	5350.00	59.3 PK	74.0	-14.7	2.11 V	344	53.8	5.5
4	5350.00	47.2 AV	54.0	-6.8	2.11 V	344	41.7	5.5
5	#10480.00	64.0 PK	74.0	-10.0	1.84 V	5	45.6	18.4
6	#10480.00	50.6 AV	54.0	-3.4	1.84 V	5	32.2	18.4

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

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	#5642.40	58.3 PK	68.2	-9.9	1.53 H	289	52.4	5.9
2	#5714.90	56.2 PK	109.4	-53.2	1.72 H	267	50.0	6.2
3	#5722.90	57.8 PK	117.4	-59.6	1.71 H	294	51.6	6.2
4	#5725.00	46.7 PK	122.2	-75.5	1.45 H	291	40.5	6.2
5	*5745.00	103.1 PK			1.53 H	289	63.2	39.9
6	*5745.00	92.7 AV			1.53 H	289	52.8	39.9
7	#5953.60	60.1 PK	68.2	-8.1	1.53 H	289	53.3	6.8
8	11490.00	59.4 PK	74.0	-14.6	1.78 H	303	40.3	19.1
9	11490.00	47.5 AV	54.0	-6.5	1.78 H	303	28.4	19.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5607.20	59.1 PK	68.2	-9.1	2.03 V	70	53.0	6.1
2	#5714.90	64.7 PK	109.4	-44.7	1.88 V	46	58.4	6.3
3	#5722.90	72.3 PK	117.4	-45.1	1.99 V	103	66.0	6.3
4	#5725.00	61.9 PK	122.2	-60.3	1.65 V	97	55.6	6.3
5	*5745.00	121.2 PK			2.03 V	70	81.2	40.0
6	*5745.00	110.6 AV			2.03 V	70	70.6	40.0
7	#5947.20	58.8 PK	68.2	-9.4	2.03 V	70	52.2	6.6
8	11490.00	59.9 PK	74.0	-14.1	2.21 V	327	40.6	19.3
9	11490.00	47.6 AV	54.0	-6.4	2.21 V	327	28.3	19.3

Remarks:

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



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

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	#5629.60	57.9 PK	68.2	-10.3	1.57 H	64	51.8	6.1
2	*5785.00	108.4 PK			1.57 H	64	68.3	40.1
3	*5785.00	98.9 AV			1.57 H	64	58.8	40.1
4	#5964.80	58.5 PK	68.2	-9.7	1.57 H	64	51.8	6.7
5	11570.00	60.6 PK	74.0	-13.4	2.42 H	304	41.4	19.2
6	11570.00	47.4 AV	54.0	-6.6	2.42 H	304	28.2	19.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5620.00	57.9 PK	68.2	-10.3	2.05 V	65	51.8	6.1
2	*5785.00	124.0 PK			2.05 V	65	83.9	40.1
3	*5785.00	114.1 AV			2.05 V	65	74.0	40.1
4	#5952.80	59.2 PK	68.2	-9.0	2.05 V	65	52.6	6.6
5	11570.00	60.0 PK	74.0	-14.0	1.89 V	337	40.8	19.2
6	11570.00	47.6 AV	54.0	-6.4	1.89 V	337	28.4	19.2

Remarks:

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

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

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	#5628.80	58.6 PK	68.2	-9.6	1.64 H	68	52.5	6.1
2	*5825.00	106.1 PK			1.64 H	68	66.0	40.1
3	*5825.00	95.8 AV			1.64 H	68	55.7	40.1
4	#5850.00	49.2 PK	122.2	-73.0	1.73 H	57	42.7	6.5
5	#5852.10	60.5 PK	117.4	-56.9	1.81 H	90	54.0	6.5
6	#5860.10	59.2 PK	109.4	-50.2	1.85 H	70	52.7	6.5
7	#5932.80	58.8 PK	68.2	-9.4	1.64 H	68	52.2	6.6
8	11650.00	60.1 PK	74.0	-13.9	1.91 H	218	40.8	19.3
9	11650.00	47.5 AV	54.0	-6.5	1.91 H	218	28.2	19.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5648.80	58.8 PK	68.2	-9.4	2.04 V	67	52.7	6.1
2	*5825.00	121.4 PK			2.04 V	67	81.3	40.1
3	*5825.00	110.9 AV			2.04 V	67	70.8	40.1
4	#5850.00	59.4 PK	122.2	-62.8	1.90 V	107	52.9	6.5
5	#5852.10	71.5 PK	117.4	-45.9	1.97 V	86	65.0	6.5
6	#5860.10	67.7 PK	109.4	-41.7	2.06 V	39	61.2	6.5
7	#5942.40	58.9 PK	68.2	-9.3	2.04 V	67	52.3	6.6
8	11650.00	59.2 PK	74.0	-14.8	1.56 V	109	39.9	19.3
9	11650.00	46.8 AV	54.0	-7.2	1.56 V	109	27.5	19.3

Remarks:

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

### 802.11n (HT20)

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

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	57.4 PK	74.0	-16.6	1.66 H	88	52.6	4.8
2	5150.00	45.8 AV	54.0	-8.2	1.66 H	88	41.0	4.8
3	*5180.00	107.4 PK			1.62 H	303	68.7	38.7
4	*5180.00	97.2 AV			1.62 H	303	58.5	38.7
5	#10360.00	60.1 PK	74.0	-13.9	2.43 H	19	42.5	17.6
6	#10360.00	46.8 AV	54.0	-7.2	2.43 H	19	29.2	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	5150.00	66.2 PK	74.0	-7.8	1.89 V	166	61.4	4.8
2	5150.00	52.5 AV	54.0	-1.5	1.89 V	166	47.7	4.8
3	*5180.00	119.7 PK			1.89 V	333	81.0	38.7
4	*5180.00	109.4 AV			1.89 V	333	70.7	38.7
5	#10360.00	60.4 PK	74.0	-13.6	1.68 V	4	42.8	17.6
6	#10360.00	47.1 AV	54.0	-6.9	1.68 V	4	29.5	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 40	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	108.1 PK			1.49 H	150	69.4	38.7
2	*5200.00	98.4 AV			1.49 H	150	59.7	38.7
3	#10400.00	60.1 PK	74.0	-13.9	1.22 H	345	42.5	17.6
4	#10400.00	47.1 AV	54.0	-6.9	1.22 H	345	29.5	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	*5200.00	122.3 PK			1.90 V	337	83.6	38.7
2	*5200.00	112.0 AV			1.90 V	337	73.3	38.7
3	#10400.00	60.8 PK	74.0	-13.2	1.85 V	3	43.2	17.6
4	#10400.00	47.7 AV	54.0	-6.3	1.85 V	3	30.1	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 48	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	109.0 PK			1.72 H	42	70.1	38.9
2	*5240.00	98.3 AV			1.72 H	42	59.4	38.9
3	5350.00	60.5 PK	74.0	-13.5	1.77 H	306	55.0	5.5
4	5350.00	45.9 AV	54.0	-8.1	1.77 H	306	40.4	5.5
5	#10480.00	60.8 PK	74.0	-13.2	2.12 H	345	42.4	18.4
6	#10480.00	48.1 AV	54.0	-5.9	2.12 H	345	29.7	18.4
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	*5240.00	123.3 PK			2.00 V	337	84.4	38.9
2	*5240.00	112.6 AV			2.00 V	337	73.7	38.9
3	5350.00	59.4 PK	74.0	-14.6	1.74 V	55	53.9	5.5
4	5350.00	47.3 AV	54.0	-6.7	1.74 V	55	41.8	5.5
5	#10480.00	62.2 PK	74.0	-11.8	1.93 V	6	43.8	18.4
6	#10480.00	49.0 AV	54.0	-5.0	1.93 V	6	30.6	18.4

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5645.60	58.5 PK	68.2	-9.7	1.82 H	49	52.4	6.1
2	#5714.90	61.2 PK	109.4	-48.2	1.91 H	84	54.9	6.3
3	#5722.90	65.4 PK	117.4	-52.0	2.03 H	114	59.1	6.3
4	#5725.00	53.6 PK	122.2	-68.6	2.07 H	105	47.3	6.3
5	*5745.00	114.8 PK			1.82 H	49	74.8	40.0
6	*5745.00	103.8 AV			1.82 H	49	63.8	40.0
7	#5929.60	59.2 PK	68.2	-9.0	1.82 H	49	52.6	6.6
8	11490.00	60.0 PK	74.0	-14.0	1.67 H	181	40.7	19.3
9	11490.00	47.4 AV	54.0	-6.6	1.67 H	181	28.1	19.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5628.00	58.3 PK	68.2	-9.9	2.02 V	70	52.2	6.1
2	#5714.90	67.4 PK	109.4	-42.0	1.87 V	45	61.1	6.3
3	#5722.90	70.7 PK	117.4	-46.7	1.80 V	102	64.4	6.3
4	#5725.00	60.1 PK	122.2	-62.1	2.03 V	97	53.8	6.3
5	*5745.00	120.8 PK			2.02 V	70	80.8	40.0
6	*5745.00	109.6 AV			2.02 V	70	69.6	40.0
7	#5943.20	59.8 PK	68.2	-8.4	2.02 V	70	53.2	6.6
8	11490.00	59.9 PK	74.0	-14.1	1.56 V	167	40.6	19.3
9	11490.00	47.8 AV	54.0	-6.2	1.56 V	167	28.5	19.3

Remarks:

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

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

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	#5640.80	58.2 PK	68.2	-10.0	1.51 H	42	52.1	6.1
2	*5785.00	116.2 PK			1.51 H	42	76.1	40.1
3	*5785.00	105.0 AV			1.51 H	42	64.9	40.1
4	#5924.80	59.4 PK	68.3	-8.9	1.51 H	42	52.8	6.6
5	11570.00	60.2 PK	74.0	-13.8	1.82 H	134	41.0	19.2
6	11570.00	47.1 AV	54.0	-6.9	1.82 H	134	27.9	19.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5635.20	58.0 PK	68.2	-10.2	2.15 V	70	51.9	6.1
2	*5785.00	123.7 PK			2.15 V	70	83.6	40.1
3	*5785.00	113.3 AV			2.15 V	70	73.2	40.1
4	#5938.40	59.7 PK	68.2	-8.5	2.15 V	70	53.1	6.6
5	11570.00	60.7 PK	74.0	-13.3	1.80 V	244	41.5	19.2
6	11570.00	47.3 AV	54.0	-6.7	1.80 V	244	28.1	19.2

Remarks:

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

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

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	#5640.80	58.7 PK	68.2	-9.5	1.55 H	288	52.6	6.1
2	*5825.00	112.4 PK			1.55 H	288	72.3	40.1
3	*5825.00	101.6 AV			1.55 H	288	61.5	40.1
4	#5850.00	57.3 PK	122.2	-64.9	1.62 H	287	50.8	6.5
5	#5852.10	68.5 PK	117.4	-48.9	1.60 H	291	62.0	6.5
6	#5860.10	62.7 PK	109.4	-46.7	1.77 H	262	56.2	6.5
7	#5938.40	59.1 PK	68.2	-9.1	1.55 H	288	52.5	6.6
8	11650.00	59.8 PK	74.0	-14.2	1.58 H	202	40.5	19.3
9	11650.00	47.2 AV	54.0	-6.8	1.58 H	202	27.9	19.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5635.20	58.4 PK	68.2	-9.8	2.00 V	70	52.3	6.1
2	*5825.00	121.5 PK			2.00 V	70	81.4	40.1
3	*5825.00	110.7 AV			2.00 V	70	70.6	40.1
4	#5850.00	62.4 PK	122.2	-59.8	1.88 V	106	55.9	6.5
5	#5852.10	70.0 PK	117.4	-47.4	1.97 V	53	63.5	6.5
6	#5860.10	66.7 PK	109.4	-42.7	2.03 V	39	60.2	6.5
7	#5930.40	59.2 PK	68.2	-9.0	2.00 V	70	52.6	6.6
8	11650.00	60.1 PK	74.0	-13.9	1.89 V	242	40.8	19.3
9	11650.00	47.1 AV	54.0	-6.9	1.89 V	242	27.8	19.3

Remarks:

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



### 802.11n (HT40)

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

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	57.5 PK	74.0	-16.5	1.40 H	150	52.7	4.8
2	5150.00	44.9 AV	54.0	-9.1	1.40 H	150	40.1	4.8
3	*5190.00	102.2 PK			1.33 H	303	63.5	38.7
4	*5190.00	93.0 AV			1.33 H	303	54.3	38.7
5	#10380.00	59.2 PK	74.0	-14.8	1.35 H	180	41.6	17.6
6	#10380.00	46.3 AV	54.0	-7.7	1.35 H	180	28.7	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	5150.00	66.9 PK	74.0	-7.1	1.92 V	155	62.1	4.8
2	5150.00	52.7 AV	54.0	-1.3	1.92 V	155	47.9	4.8
3	*5190.00	114.0 PK			1.98 V	2	75.3	38.7
4	*5190.00	104.8 AV			1.98 V	2	66.1	38.7
5	#10380.00	59.9 PK	74.0	-14.1	1.63 V	0	42.3	17.6
6	#10380.00	46.7 AV	54.0	-7.3	1.63 V	0	29.1	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 46	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	54.8 PK	74.0	-19.2	1.69 H	272	50.0	4.8
2	5150.00	42.4 AV	54.0	-11.6	1.69 H	272	37.6	4.8
3	*5230.00	105.3 PK			1.50 H	104	66.4	38.9
4	*5230.00	95.2 AV			1.50 H	104	56.3	38.9
5	#10460.00	58.8 PK	74.0	-15.2	1.57 H	166	40.6	18.2
6	#10460.00	46.6 AV	54.0	-7.4	1.57 H	166	28.4	18.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	64.5 PK	74.0	-9.5	1.86 V	273	59.7	4.8
2	5150.00	52.3 AV	54.0	-1.7	1.86 V	273	47.5	4.8
3	*5230.00	119.4 PK			1.89 V	278	80.5	38.9
4	*5230.00	109.3 AV			1.89 V	278	70.4	38.9
5	#10460.00	59.4 PK	74.0	-14.6	1.53 V	261	41.2	18.2
6	#10460.00	46.8 AV	54.0	-7.2	1.53 V	261	28.6	18.2

Remarks:

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

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

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	#5618.40	58.6 PK	68.2	-9.6	1.65 H	287	52.5	6.1
2	#5714.90	57.3 PK	109.4	-52.1	1.88 H	282	51.0	6.3
3	#5722.90	58.7 PK	117.4	-58.7	1.64 H	280	52.4	6.3
4	#5725.00	47.1 PK	122.2	-75.1	1.85 H	281	40.8	6.3
5	*5755.00	102.9 PK			1.65 H	287	62.9	40.0
6	*5755.00	92.1 AV			1.65 H	287	52.1	40.0
7	#5968.00	58.7 PK	68.2	-9.5	1.65 H	287	52.0	6.7
8	11510.00	60.0 PK	74.0	-14.0	1.72 H	202	40.7	19.3
9	11510.00	47.6 AV	54.0	-6.4	1.72 H	202	28.3	19.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5634.40	57.5 PK	68.2	-10.7	1.82 V	50	51.4	6.1
2	#5714.90	67.3 PK	109.4	-42.1	1.92 V	107	61.0	6.3
3	#5722.90	70.6 PK	117.4	-46.8	2.11 V	85	64.3	6.3
4	#5725.00	60.8 PK	122.2	-61.4	1.85 V	82	54.5	6.3
5	*5755.00	117.1 PK			1.82 V	50	77.1	40.0
6	*5755.00	106.8 AV			1.82 V	50	66.8	40.0
7	#5936.80	59.6 PK	68.2	-8.6	1.82 V	50	53.0	6.6
8	11510.00	60.0 PK	74.0	-14.0	1.54 V	106	40.7	19.3
9	11510.00	47.8 AV	54.0	-6.2	1.54 V	106	28.5	19.3

Remarks:

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

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

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	58.9 PK	68.2	-9.3	1.88 H	286	52.8	6.1
2	*5795.00	105.0 PK			1.88 H	286	64.9	40.1
3	*5795.00	95.0 AV			1.88 H	286	54.9	40.1
4	#5850.00	45.9 PK	122.2	-76.3	1.90 H	294	39.4	6.5
5	#5852.10	57.7 PK	117.4	-59.7	1.70 H	307	51.2	6.5
6	#5860.10	57.2 PK	109.4	-52.2	1.54 H	286	50.7	6.5
7	#5943.20	58.7 PK	68.2	-9.5	1.88 H	286	52.1	6.6
8	11590.00	59.8 PK	74.0	-14.2	1.58 H	221	40.6	19.2
9	11590.00	46.8 AV	54.0	-7.2	1.58 H	221	27.6	19.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5636.80	58.8 PK	68.2	-9.4	1.78 V	51	52.7	6.1
2	*5795.00	119.8 PK			1.78 V	51	79.7	40.1
3	*5795.00	110.1 AV			1.78 V	51	70.0	40.1
4	#5850.00	55.4 PK	122.2	-66.8	2.02 V	115	48.9	6.5
5	#5852.10	68.2 PK	117.4	-49.2	2.00 V	115	61.7	6.5
6	#5860.10	66.6 PK	109.4	-42.8	1.73 V	50	60.1	6.5
7	#5936.00	59.6 PK	68.2	-8.6	1.78 V	51	53.0	6.6
8	11590.00	60.5 PK	74.0	-13.5	1.68 V	113	41.3	19.2
9	11590.00	47.5 AV	54.0	-6.5	1.68 V	113	28.3	19.2

Remarks:

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

# 802.11ac (VHT80)

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

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	55.4 PK	74.0	-18.6	2.33 H	99	50.6	4.8
2	5150.00	44.7 AV	54.0	-9.3	2.33 H	99	39.9	4.8
3	*5210.00	94.0 PK			1.64 H	154	55.3	38.7
4	*5210.00	84.0 AV			1.64 H	154	45.3	38.7
5	5350.00	58.3 PK	74.0	-15.7	1.54 H	230	52.8	5.5
6	5350.00	45.9 AV	54.0	-8.1	1.54 H	230	40.4	5.5
7	#10420.00	59.0 PK	74.0	-15.0	1.44 H	287	41.2	17.8
8	#10420.00	46.0 AV	54.0	-8.0	1.44 H	287	28.2	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	64.6 PK	74.0	-9.4	1.87 V	165	59.8	4.8
2	5150.00	52.3 AV	54.0	-1.7	1.87 V	165	47.5	4.8
3	*5210.00	107.4 PK			1.93 V	312	68.7	38.7
4	*5210.00	97.4 AV			1.93 V	312	58.7	38.7
5	5350.00	58.2 PK	74.0	-15.8	2.10 V	356	52.7	5.5
6	5350.00	47.2 AV	54.0	-6.8	2.10 V	356	41.7	5.5
7	#10420.00	59.7 PK	74.0	-14.3	1.70 V	85	41.9	17.8
8	#10420.00	46.6 AV	54.0	-7.4	1.70 V	85	28.8	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.

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

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	#5612.00	58.3 PK	68.2	-9.9	1.50 H	36	52.2	6.1
2	#5714.90	56.7 PK	109.4	-52.7	1.29 H	59	50.4	6.3
3	#5722.90	57.3 PK	117.4	-60.1	1.69 H	92	51.0	6.3
4	#5725.00	44.6 PK	122.2	-77.6	1.57 H	102	38.3	6.3
5	*5775.00	91.2 PK			1.50 H	36	51.2	40.0
6	*5775.00	81.5 AV			1.50 H	36	41.5	40.0
7	#5850.00	45.0 PK	122.2	-77.2	1.83 H	121	38.5	6.5
8	#5852.10	58.9 PK	117.4	-58.5	1.69 H	163	52.4	6.5
9	#5860.10	57.4 PK	109.4	-52.0	1.81 H	116	50.9	6.5
10	#5948.00	59.2 PK	68.2	-9.0	1.50 H	36	52.6	6.6
11	11550.00	59.7 PK	74.0	-14.3	1.73 H	109	40.5	19.2
12	11550.00	47.1 AV	54.0	-6.9	1.73 H	109	27.9	19.2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5641.60	57.7 PK	68.2	-10.5	1.89 V	111	51.6	6.1
2	#5714.90	67.8 PK	109.4	-41.6	1.93 V	113	61.5	6.3
3	#5722.90	70.2 PK	117.4	-47.2	2.05 V	101	63.9	6.3
4	#5725.00	53.0 PK	122.2	-69.2	2.09 V	85	46.7	6.3
5	*5775.00	108.8 PK			1.89 V	111	68.8	40.0
6	*5775.00	98.8 AV			1.89 V	111	58.8	40.0
7	#5850.00	50.4 PK	122.2	-71.8	1.48 V	117	43.9	6.5
8	#5852.10	66.3 PK	117.4	-51.1	1.99 V	111	59.8	6.5
9	#5860.10	61.9 PK	109.4	-47.5	2.08 V	94	55.4	6.5
10	#5948.80	58.8 PK	68.2	-9.4	1.89 V	111	52.2	6.6
11	11550.00	59.6 PK	74.0	-14.4	1.92 V	162	40.4	19.2
12	11550.00	46.8 AV	54.0	-7.2	1.92 V	162	27.6	19.2

Remarks:

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

Below 1GHz Worst-Case Data:

Test Mode A

802.11a

CHANNEL	TX Channel 48	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	57.12	28.1 QP	40.0	-11.9	2.00 H	221	42.7	-14.6
2	96.01	29.3 QP	43.5	-14.2	2.00 H	71	48.7	-19.4
3	134.89	29.8 QP	43.5	-13.7	2.00 H	247	44.8	-15.0
4	261.27	34.8 QP	46.0	-11.2	1.00 H	173	48.5	-13.7
5	319.60	33.3 QP	46.0	-12.7	1.00 H	276	44.9	-11.6
6	747.34	42.3 QP	46.0	-3.7	1.00 H	90	44.5	-2.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	38.56	36.3 QP	40.0	-3.7	1.00 V	175	51.5	-15.2
2	55.18	34.0 QP	40.0	-6.0	1.00 V	9	48.4	-14.4
3	146.56	26.6 QP	43.5	-16.9	1.00 V	227	40.7	-14.1
4	265.16	30.7 QP	46.0	-15.3	1.00 V	9	44.1	-13.4
5	327.38	31.9 QP	46.0	-14.1	2.00 V	3	43.3	-11.4
6	729.84	41.9 QP	46.0	-4.1	1.00 V	138	44.6	-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

# Test Mode B

802.11a

CHANNEL	TX Channel 48	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	57.12	27.7 QP	40.0	-12.3	1.99 H	16	42.3	-14.6
2	259.33	33.7 QP	46.0	-12.3	1.00 H	306	47.4	-13.7
3	520.26	41.3 QP	46.0	-4.7	2.00 H	282	48.8	-7.5
4	537.36	42.0 QP	46.0	-4.0	1.49 H	283	49.3	-7.3
5	739.57	36.4 QP	46.0	-9.6	1.49 H	13	38.8	-2.4
6	897.05	38.4 QP	46.0	-7.6	1.00 H	273	37.6	0.8
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	38.35	36.5 QP	40.0	-3.5	1.00 V	348	51.7	-15.2
2	61.01	34.6 QP	40.0	-5.4	1.49 V	294	49.6	-15.0
3	506.25	42.2 QP	46.0	-3.8	1.00 V	10	49.9	-7.7
4	529.52	39.4 QP	46.0	-6.6	1.00 V	6	46.8	-7.4
5	541.47	39.3 QP	46.0	-6.7	1.00 V	21	46.5	-7.2
6	729.69	41.6 QP	46.0	-4.4	1.48 V	188	44.3	-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



## 4.2 Conducted Emission Measurement

### 4.2.1 Limits of Conducted Emission Measurement

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

**Note:** 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

### 4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Dec. 23, 2015	Dec. 22, 2016
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Dec. 26, 2015	Dec. 25, 2016
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 26, 2016	Feb. 25, 2017
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 28, 2016	Jul. 27, 2017
Software ADT	BV ADT_Conc_ 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

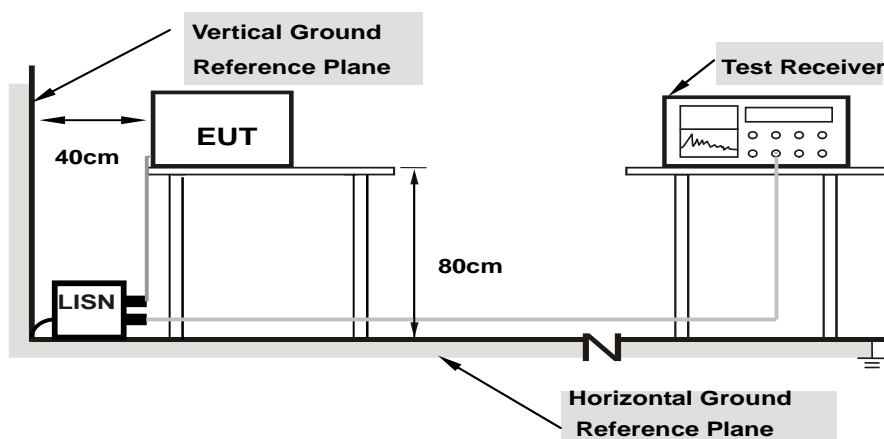
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- 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

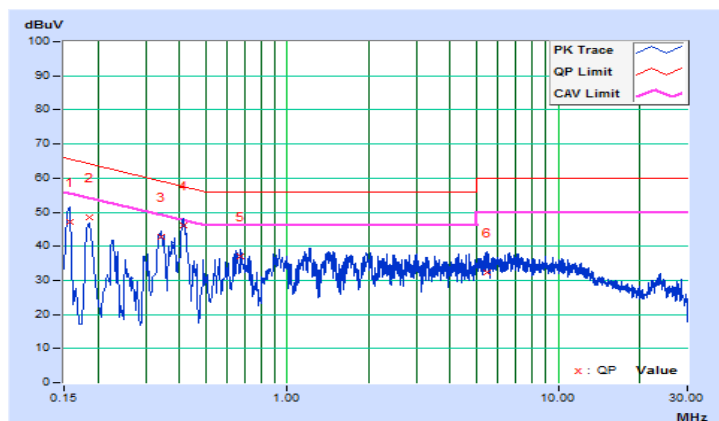
### Test Mode A

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15760	10.08	36.90	18.78	46.98	28.86	65.59	55.59	-18.61	-26.73
2	0.18508	10.08	38.41	23.54	48.49	33.62	64.25	54.25	-15.76	-20.63
3	0.34108	10.14	32.47	23.40	42.61	33.54	59.18	49.18	-16.57	-15.64
4	0.41197	10.17	36.01	26.06	46.18	36.23	57.61	47.61	-11.43	-11.38
5	0.67394	10.22	26.69	15.69	36.91	25.91	56.00	46.00	-19.09	-20.09
6	5.46760	10.54	21.95	14.48	32.49	25.02	60.00	50.00	-27.51	-24.98

#### 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.

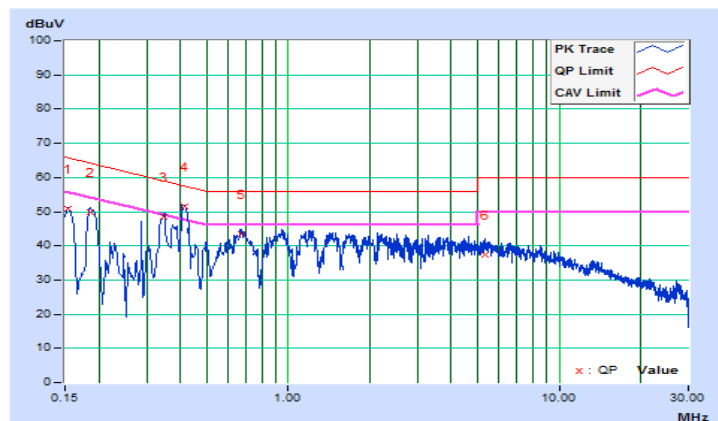


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.08	40.78	31.83	50.86	41.91	65.79	55.79	-14.93	-13.88
2	0.18508	10.08	39.68	30.52	49.76	40.60	64.25	54.25	-14.49	-13.65
3	0.34834	10.20	38.25	28.83	48.45	39.03	59.00	49.00	-10.55	-9.97
4	0.41197	10.24	41.27	34.19	51.51	44.43	57.61	47.61	-6.10	-3.18
5	0.67311	10.26	33.07	23.74	43.33	34.00	56.00	46.00	-12.67	-12.00
6	5.33857	10.65	26.69	19.27	37.34	29.92	60.00	50.00	-22.66	-20.08

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.



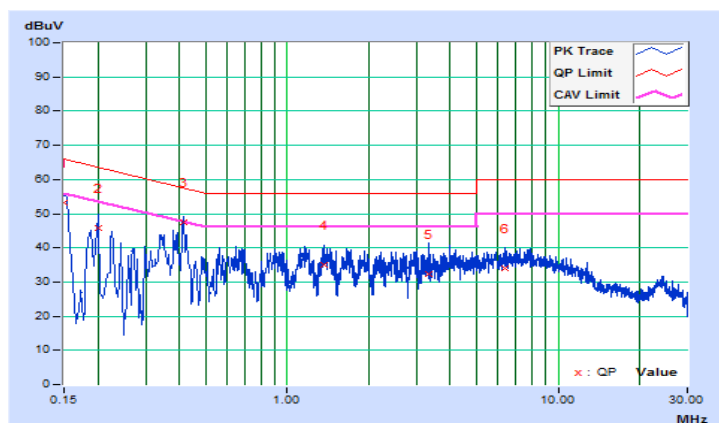
## Test Mode B

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.07	43.29	26.35	53.36	36.42	66.00	56.00	-12.64	-19.58
2	0.20083	10.08	35.81	18.29	45.89	28.37	63.58	53.58	-17.69	-25.21
3	0.41197	10.17	37.16	27.62	47.33	37.79	57.61	47.61	-10.28	-9.82
4	1.36210	10.32	24.74	15.28	35.06	25.60	56.00	46.00	-20.94	-20.40
5	3.33665	10.44	21.76	13.20	32.20	23.64	56.00	46.00	-23.80	-22.36
6	6.34735	10.59	23.56	16.10	34.15	26.69	60.00	50.00	-25.85	-23.31

### 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.

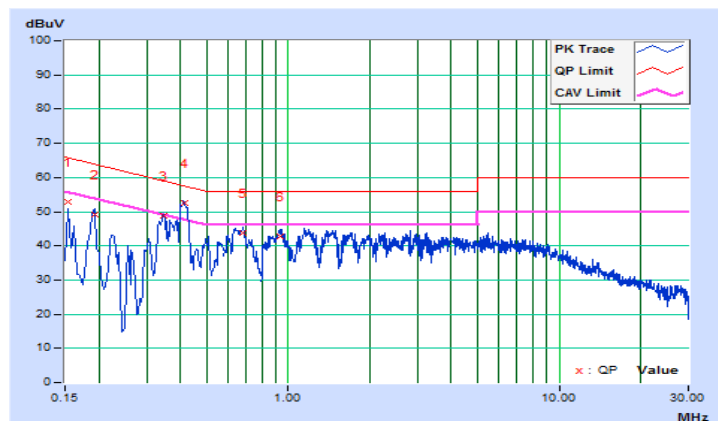


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.08	42.85	33.66	52.93	43.74	65.79	55.79	-12.86	-12.05
2	0.19255	10.08	39.14	31.50	49.22	41.58	63.93	53.93	-14.71	-12.35
3	0.34560	10.20	38.65	31.46	48.85	41.66	59.07	49.07	-10.22	-7.41
<b>4</b>	<b>0.41197</b>	<b>10.24</b>	<b>42.18</b>	<b>35.28</b>	<b>52.42</b>	<b>45.52</b>	<b>57.61</b>	<b>47.61</b>	<b>-5.19</b>	<b>-2.09</b>
5	0.68176	10.26	33.62	24.78	43.88	35.04	56.00	46.00	-12.12	-10.96
6	0.93591	10.28	32.56	24.29	42.84	34.57	56.00	46.00	-13.16	-11.43

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 $\leq$ 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  $\geq 40$  MHz for any  $N_{ANT}$ ;

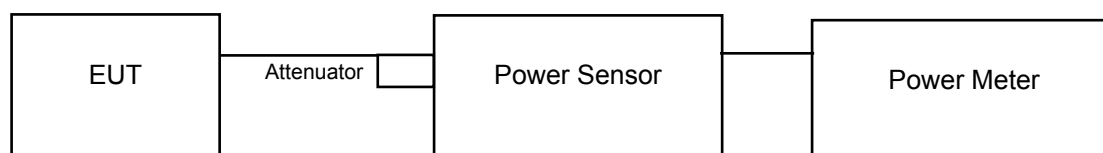
Array Gain =  $5 \log(N_{ANT}/N_{SS})$  dB or 3 dB, whichever is less for 20-MHz channel widths with  $N_{ANT} \geq 5$ .

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

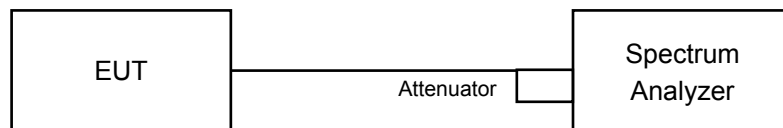
#### 4.3.2 Test Setup

For Power Output Measurement

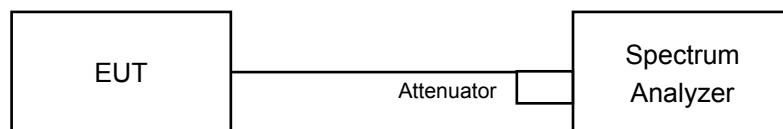
802.11a, 802.11n (HT20), 802.11n (HT40)



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)

- 1) Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- 2) Set sweep trigger to "free run".
- 3) Set RBW = 1 MHz.
- 4) Set VBW  $\geq$  3 MHz.
- 5) Number of points in sweep  $\geq$  2 Span / RBW.
- 6) Sweep time  $\leq$  (number of points in sweep) \* T
- 7) Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
- 8) Detector = RMS.
- 9) Trace mode = max hold.
- 10) Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

##### For 26dB Bandwidth

- 1) Set RBW = approximately 1% of the emission bandwidth.
- 2) Set the VBW > RBW.
- 3) Detector = Peak.
- 4) Trace mode = max hold.
- 5) 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	17.55	17.53	17.54	17.69	229.012	23.60	30	Pass
40	5200	17.67	17.57	17.66	17.57	231.120	23.64	30	Pass
48	5240	17.79	17.77	17.71	17.70	237.862	23.76	30	Pass
149	5745	16.86	16.97	16.89	16.64	193.300	22.86	30	Pass
157	5785	21.20	21.32	21.23	21.15	<b>530.401</b>	27.25	30	Pass
165	5825	18.54	18.65	18.23	18.33	279.336	24.46	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	18.30	18.28	18.37	18.23	270.140	24.32	30	Pass
40	5200	18.30	18.31	18.33	18.44	273.272	24.37	30	Pass
48	5240	18.33	18.37	18.44	18.16	272.071	24.35	30	Pass
149	5745	17.21	17.18	17.16	17.01	207.076	23.16	30	Pass
157	5785	21.12	21.33	20.85	21.11	515.992	27.13	30	Pass
165	5825	18.88	18.65	18.27	18.71	291.995	24.65	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	15.60	15.40	15.42	15.41	140.570	21.48	30	Pass
46	5230	19.70	19.32	19.60	19.24	<b>353.979</b>	25.49	30	Pass
151	5755	12.25	12.23	12.13	12.15	66.236	18.21	30	Pass
159	5795	18.18	18.09	17.81	17.85	251.532	24.01	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	11.00	10.95	11.02	10.76	49.593	16.95	30	Pass
155	5775	10.49	10.33	10.28	10.03	42.718	16.31	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	12.28	12.26	12.35	12.21	67.544	18.30	23.98	Pass
40	5200	12.28	12.29	12.31	12.42	68.327	18.35	23.98	Pass
48	5240	12.31	12.35	12.42	12.14	68.027	18.33	23.98	Pass
149	5745	11.19	11.16	11.14	10.99	51.776	17.14	23.98	Pass
157	5785	15.10	15.31	14.83	15.09	<b>129.016</b>	21.11	23.98	Pass
165	5825	12.86	12.63	12.25	12.69	73.009	18.63	23.98	Pass

Note: Max. directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the limit shall be reduced to 30-(12.02-6) = 23.98dBm.

### 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	9.58	9.38	9.40	9.39	35.148	15.46	23.98	Pass
46	5230	13.68	13.30	13.58	13.22	<b>88.507</b>	19.47	23.98	Pass
151	5755	6.23	6.21	6.11	6.13	16.561	12.19	23.98	Pass
159	5795	12.16	12.07	11.79	11.83	62.892	17.99	23.98	Pass

Note: Max. directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the limit shall be reduced to 30-(12.02-6) = 23.98dBm.

### 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	4.98	4.93	5.00	4.74	12.401	10.93	23.98	Pass
155	5775	4.47	4.31	4.26	4.01	10.682	10.29	23.98	Pass

Note: Max. directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the limit shall be reduced to 30-(12.02-6) = 23.98dBm.

## 26dB Bandwidth

### 802.11a

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	20.22	19.79	19.78	19.46
40	5200	20.27	20.19	20.25	19.65
48	5240	20.27	20.33	19.84	19.66

### 802.11n (HT20)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	20.67	20.80	20.97	20.75
40	5200	20.88	21.20	21.08	20.69
48	5240	20.83	21.10	20.95	20.69

### 802.11n (HT40)

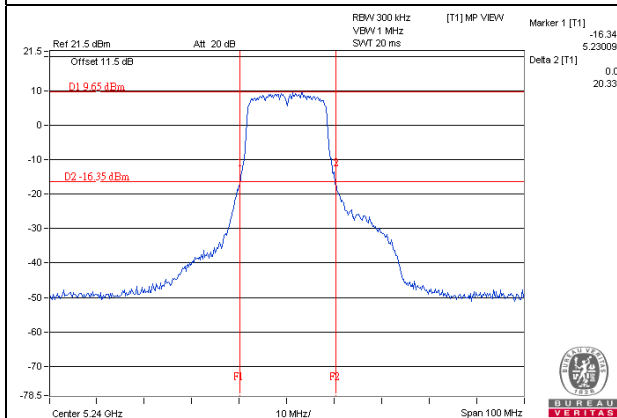
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
38	5190	40.78	40.56	40.82	40.40
46	5230	54.45	52.89	45.14	41.70

### 802.11ac (VHT80)

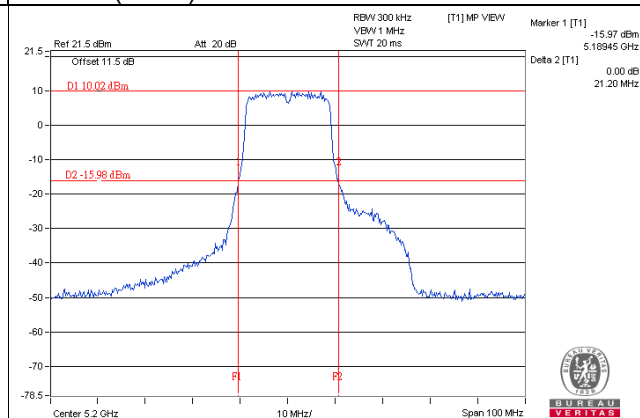
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42	5210	85.86	85.42	85.44	84.90

## Spectrum Plot of Worst Value

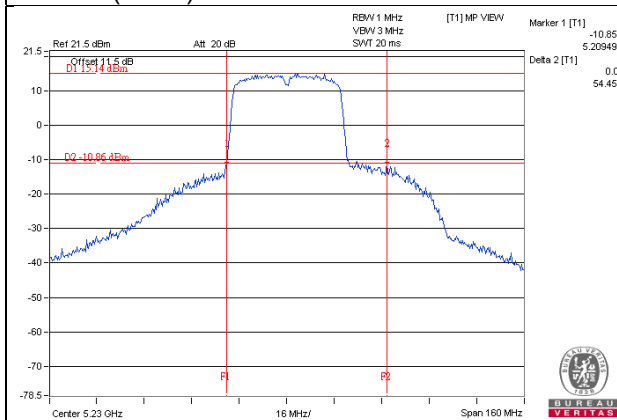
**802.11a**



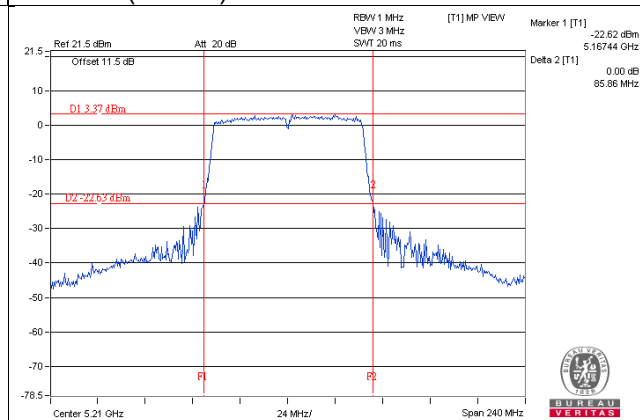
**802.11n (HT20)**



**802.11n (HT40)**

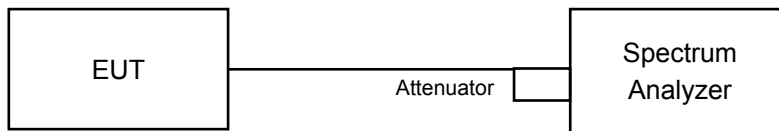


**802.11ac (VHT80)**



## 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

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	16.56	16.56	16.56	16.56
40	5200	16.44	16.56	16.56	16.44
48	5240	16.44	16.56	16.56	16.44
149	5745	16.43	16.43	16.52	16.43
157	5785	21.60	22.20	19.56	20.04
165	5825	16.44	16.56	16.56	16.56

##### 802.11n (HT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	17.64	17.76	17.76	17.64
40	5200	17.64	17.76	17.76	17.64
48	5240	17.64	17.64	17.64	17.64
149	5745	17.64	17.64	17.76	17.64
157	5785	21.72	22.92	19.80	19.32
165	5825	17.76	17.76	17.64	17.76

##### 802.11n (HT40)

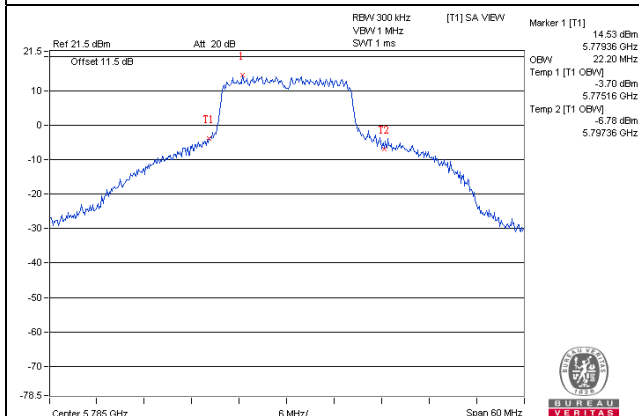
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
38	5190	36.24	36.12	36.24	36.24
46	5230	36.36	36.36	36.12	36.24
151	5755	36.12	36.00	36.12	36.12
159	5795	36.24	36.24	36.12	36.12

##### 802.11ac (VHT80)

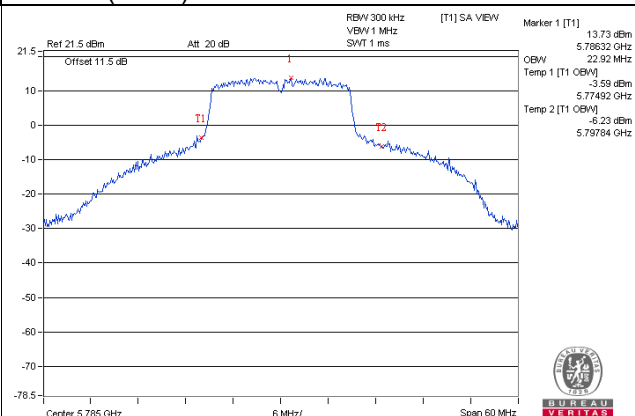
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42	5210	75.88	75.88	75.60	75.88
155	5775	75.88	75.88	75.88	76.16

## Spectrum Plot of Worst Value

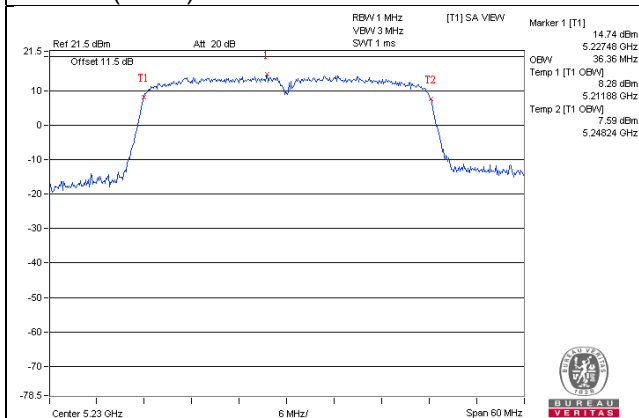
802.11a



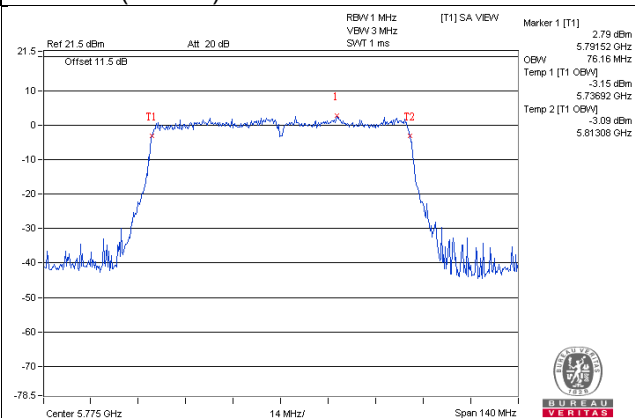
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

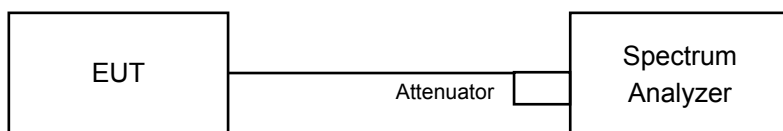


## 4.5 Peak Power Spectral Density Measurement

### 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	11dBm/ MHz
		Mobile and Portable client device	
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:

Duty cycle of test signal is  $\geq 98\%$

Using method SA-1

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW  $\geq 3$  MHz, Detector = RMS.
3. Set Channel power measure = 1MHz.
4. Sweep time = auto, trigger set to "free run".
5. Trace average at least 100 traces in power averaging mode.
6. Record the max value.

Duty cycle of test signal is  $< 98\%$

Using method SA-2

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW  $\geq 3$  MHz, Detector = RMS.
3. Set Channel power measure = 1MHz.
4. Sweep time = auto, trigger set to "free run".
5. Trace average at least 100 traces in power averaging mode.
6. Record the max value and add  $10 \log (1/\text{duty cycle})$ .

##### For U-NII-3 band:

Duty cycle of test signal is  $\geq 98\%$

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW  $\geq 1$  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  $\text{BWCF} = 10\log(500 \text{ kHz}/300\text{kHz})$ .
5. Sweep time = auto, trigger set to "free run".
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value.

Duty cycle of test signal is  $< 98\%$

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW  $\geq 1$  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  $\text{BWCF} = 10\log(500 \text{ kHz}/300\text{kHz})$ .
5. Sweep time = auto, trigger set to "free run".
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value and add  $10 \log (1/\text{duty cycle})$ .

#### 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 W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	4.30	4.49	4.30	4.37	0.15	10.53	10.98	Pass
40	5200	4.28	4.41	4.27	4.34	0.15	10.49	10.98	Pass
48	5240	4.43	4.76	4.47	4.55	0.15	10.72	10.98	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. Max. directional gain =  $6\text{dBi} + 10\log(4) = 12.02\text{dBi} > 6\text{dBi}$ , so the limit shall be reduced to  $17 - (12.02 - 6) = 10.98\text{dBm}$ .
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD (dBm/MHz)				Total PSD (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3			
36	5180	4.76	4.97	4.81	4.90	10.88	10.98	Pass
40	5200	4.82	4.90	4.87	4.93	10.90	10.98	Pass
48	5240	4.91	5.03	4.97	4.89	10.97	10.98	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. Max. directional gain =  $6\text{dBi} + 10\log(4) = 12.02\text{dBi} > 6\text{dBi}$ , so the limit shall be reduced to  $17 - (12.02 - 6) = 10.98\text{dBm}$ .

802.11n (HT40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	-0.19	-0.11	-0.30	-0.18	0.13	5.96	10.98	Pass
46	5230	4.00	3.80	3.84	3.60	0.13	9.97	10.98	Pass

Note:

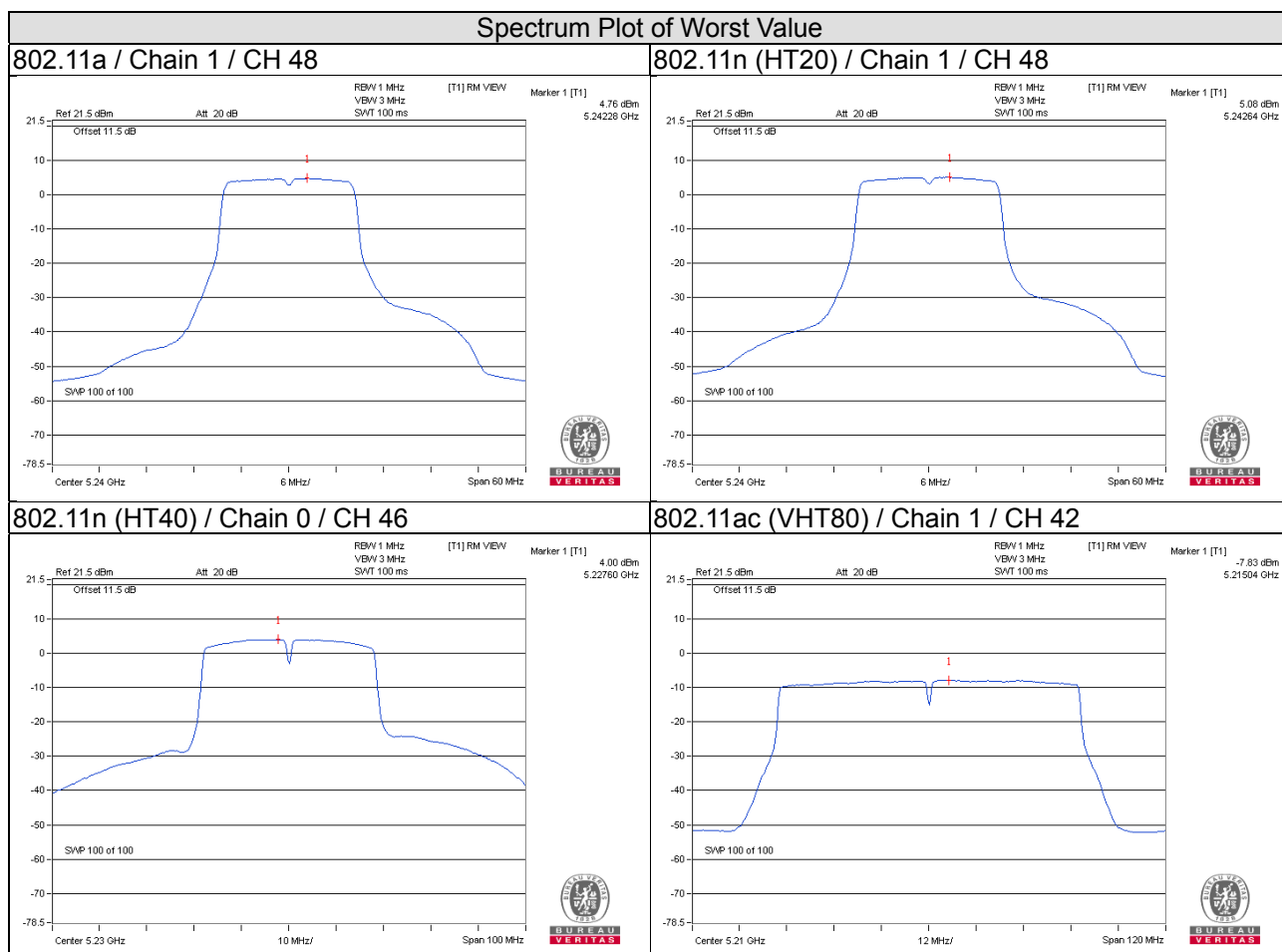
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Max. directional gain =  $6\text{dBi} + 10\log(4) = 12.02\text{dBi} > 6\text{dBi}$ , so the limit shall be reduced to  $17 - (12.02 - 6) = 10.98\text{dBm}$ .
3. Refer to section 3.3 for duty cycle spectrum plot.

## 802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	-8.20	-7.83	-8.07	-8.22	0.34	-1.71	10.98	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. Max. directional gain =  $6\text{dBi} + 10\log(4) = 12.02\text{dBi} > 6\text{dBi}$ , so the limit shall be reduced to  $17 - (12.02 - 6) = 10.98\text{dBm}$ .
3. Refer to section 3.3 for duty cycle spectrum plot.



# For U-NII-3 Band

## 802.11a

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	-3.38	-1.16	6.02	0.15	5.01	23.98	Pass
	157	5785	0.53	2.75	6.02	0.15	8.92	23.98	Pass
	165	5825	-2.08	0.14	6.02	0.15	6.31	23.98	Pass
1	149	5745	-3.22	-1.00	6.02	0.15	5.17	23.98	Pass
	157	5785	0.96	3.18	6.02	0.15	9.35	23.98	Pass
	165	5825	-1.81	0.41	6.02	0.15	6.58	23.98	Pass
2	149	5745	-4.39	-2.17	6.02	0.15	4.00	23.98	Pass
	157	5785	-0.22	2.00	6.02	0.15	8.17	23.98	Pass
	165	5825	-2.90	-0.68	6.02	0.15	5.49	23.98	Pass
3	149	5745	-3.46	-1.24	6.02	0.15	4.93	23.98	Pass
	157	5785	0.55	2.77	6.02	0.15	8.94	23.98	Pass
	165	5825	-2.26	-0.04	6.02	0.15	6.13	23.98	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. Max. directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the limit shall be reduced to 30-(12.02-6) = 23.98.
3. Refer to section 3.3 for duty cycle spectrum plot.

### 802.11n (HT20)

Tx chain	Chan.	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=4) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	149	5745	-3.53	-1.31	6.02	4.71	23.98	Pass
	157	5785	0.19	2.41	6.02	8.43	23.98	Pass
	165	5825	-2.17	0.05	6.02	6.07	23.98	Pass
1	149	5745	-3.74	-1.52	6.02	4.50	23.98	Pass
	157	5785	0.71	2.93	6.02	8.95	23.98	Pass
	165	5825	-1.82	0.40	6.02	6.42	23.98	Pass
2	149	5745	-4.74	-2.52	6.02	3.50	23.98	Pass
	157	5785	-0.61	1.61	6.02	7.63	23.98	Pass
	165	5825	-2.98	-0.76	6.02	5.26	23.98	Pass
3	149	5745	-3.76	-1.54	6.02	4.48	23.98	Pass
	157	5785	0.17	2.39	6.02	8.41	23.98	Pass
	165	5825	-2.35	-0.13	6.02	5.89	23.98	Pass

Note:

- 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.
- Max. directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the limit shall be reduced to 30-(12.02-6) = 23.98.

### 802.11n (HT40)

Tx chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	151	5755	-11.68	-9.46	6.02	0.13	-3.31	23.98	Pass
	159	5795	-5.93	-3.71	6.02	0.13	2.44	23.98	Pass
1	151	5755	-11.36	-9.14	6.02	0.13	-2.99	23.98	Pass
	159	5795	-5.59	-3.37	6.02	0.13	2.78	23.98	Pass
2	151	5755	-12.47	-10.25	6.02	0.13	-4.10	23.98	Pass
	159	5795	-6.86	-4.64	6.02	0.13	1.51	23.98	Pass
3	151	5755	-11.53	-9.31	6.02	0.13	-3.16	23.98	Pass
	159	5795	-5.86	-3.64	6.02	0.13	2.51	23.98	Pass

Note:

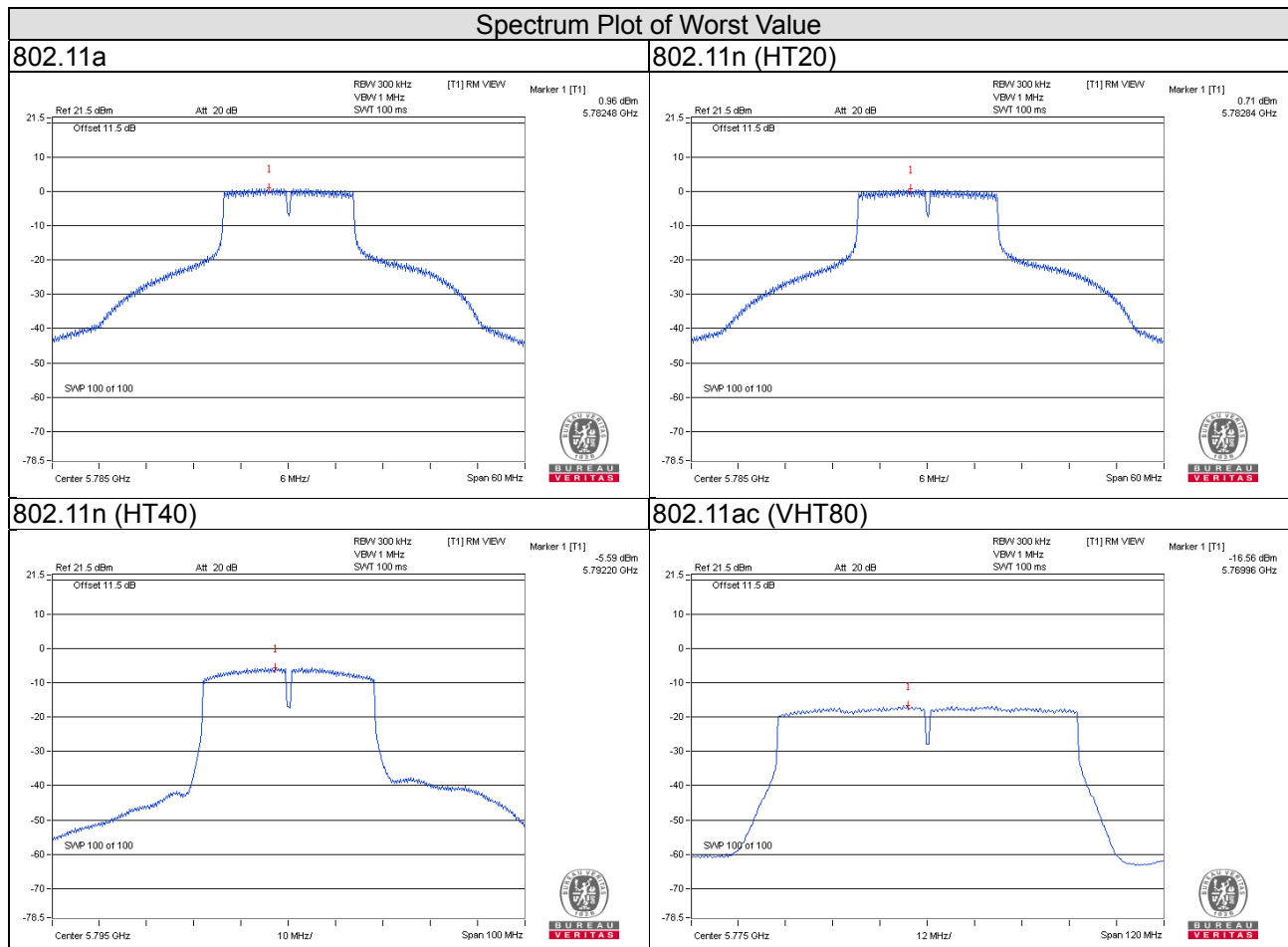
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Max. directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the limit shall be reduced to 30-(12.02-6) = 23.98.
- Refer to section 3.3 for duty cycle spectrum plot.

## 802.11ac (VHT80)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	155	5775	-16.95	-14.73	6.02	0.34	-8.37	23.98	Pass
1	155	5775	-16.56	-14.34	6.02	0.34	-7.98	23.98	Pass
2	155	5775	-17.76	-15.54	6.02	0.34	-9.18	23.98	Pass
3	155	5775	-17.06	-14.84	6.02	0.34	-8.48	23.98	Pass

### Note:

- 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.
- Max. directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the limit shall be reduced to 30-(12.02-6) = 23.98.
- Refer to section 3.3 for duty cycle spectrum plot.

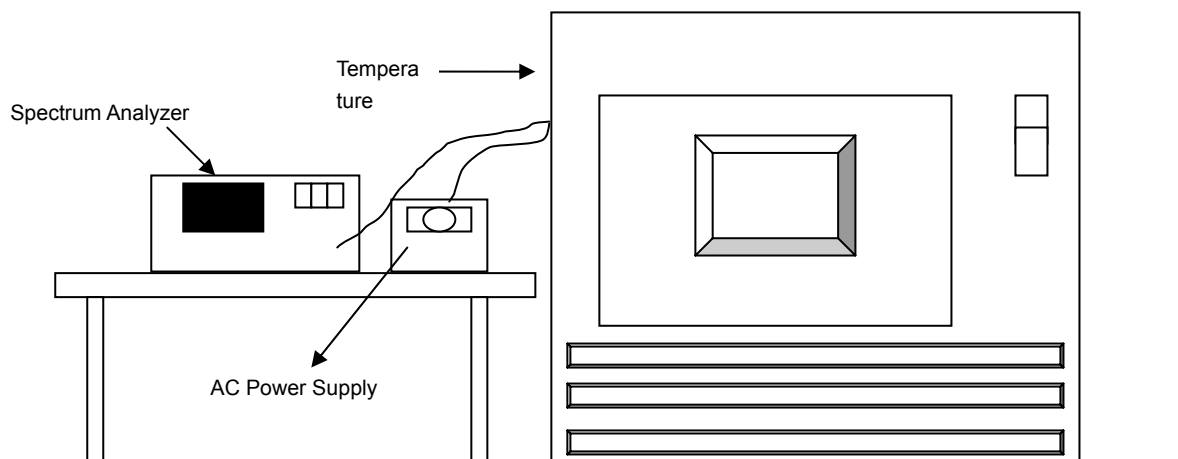


## 4.6 Frequency Stability

### 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

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- 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.
- Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- 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: 5240MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	120	5239.9873	-0.00024	5239.9902	-0.00019	5239.9903	-0.00019	5239.9883	-0.00022
40	120	5239.9972	-0.00005	5239.9975	-0.00005	5240.001	0.00002	5239.9978	-0.00004
30	120	5239.9874	-0.00024	5239.9862	-0.00026	5239.9877	-0.00023	5239.9854	-0.00028
20	120	5240.0144	0.00027	5240.012	0.00023	5240.0113	0.00022	5240.013	0.00025
10	120	5239.9939	-0.00012	5239.9942	-0.00011	5239.9942	-0.00011	5239.9945	-0.00010
0	120	5239.9793	-0.00040	5239.9836	-0.00031	5239.9826	-0.00033	5239.9812	-0.00036
-10	120	5240.0214	0.00041	5240.021	0.00040	5240.022	0.00042	5240.0253	0.00048
-20	120	5240.0203	0.00039	5240.0179	0.00034	5240.0209	0.00040	5240.0217	0.00041
-30	120	5240.0021	0.00004	5240.0006	0.00001	5240.001	0.00002	5240.0004	0.00001

Frequency Stability Versus Voltage									
Operating Frequency: 5240MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5240.014	0.00027	5240.0124	0.00024	5240.0103	0.00020	5240.0137	0.00026
	120	5240.0144	0.00027	5240.012	0.00023	5240.0113	0.00022	5240.013	0.00025
	102	5240.0141	0.00027	5240.0126	0.00024	5240.0122	0.00023	5240.0138	0.00026

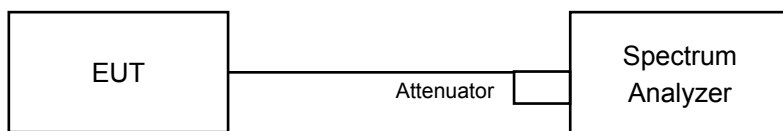


## 4.7 6dB Bandwidth Measurement

### 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

- Set resolution bandwidth (RBW) = 100kHz
- Set the video bandwidth (VBW)  $\geq 3 \times$  RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- 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	16.34	16.35	16.36	16.34	0.5	Pass
157	5785	16.10	16.36	16.39	16.37	0.5	Pass
165	5825	16.34	16.34	16.37	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	17.54	17.19	17.59	17.20	0.5	Pass
157	5785	17.60	17.22	17.56	16.97	0.5	Pass
165	5825	16.68	16.80	17.34	17.58	0.5	Pass

##### 802.11n (HT40)

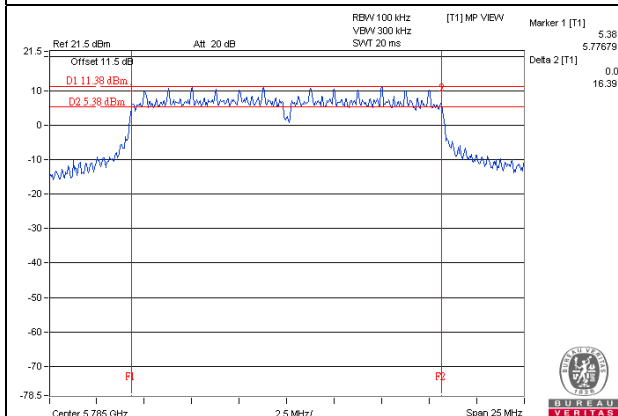
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
151	5755	35.44	33.95	35.28	35.26	0.5	Pass
159	5795	35.24	35.14	35.18	35.12	0.5	Pass

##### 802.11ac (VHT80)

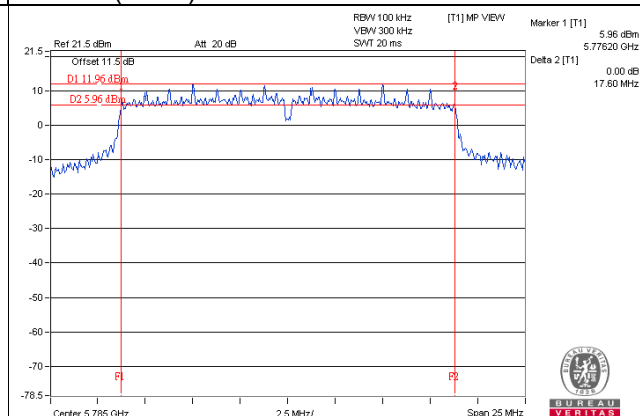
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
155	5775	75.46	75.42	75.45	75.43	0.5	Pass

## Spectrum Plot of Worst Value

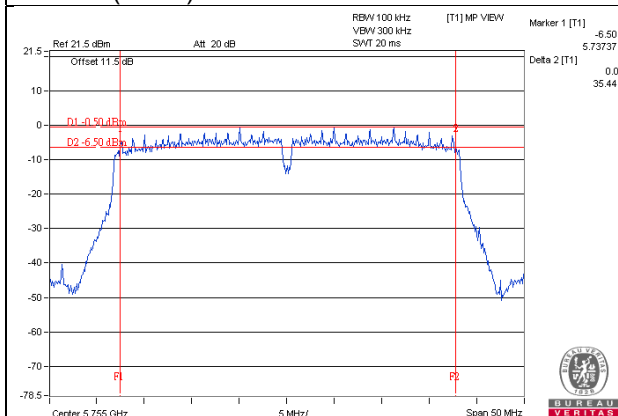
**802.11a**



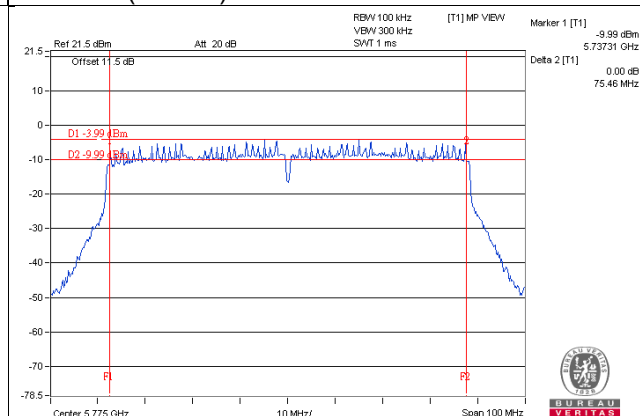
**802.11n (HT20)**



**802.11n (HT40)**



**802.11ac (VHT80)**



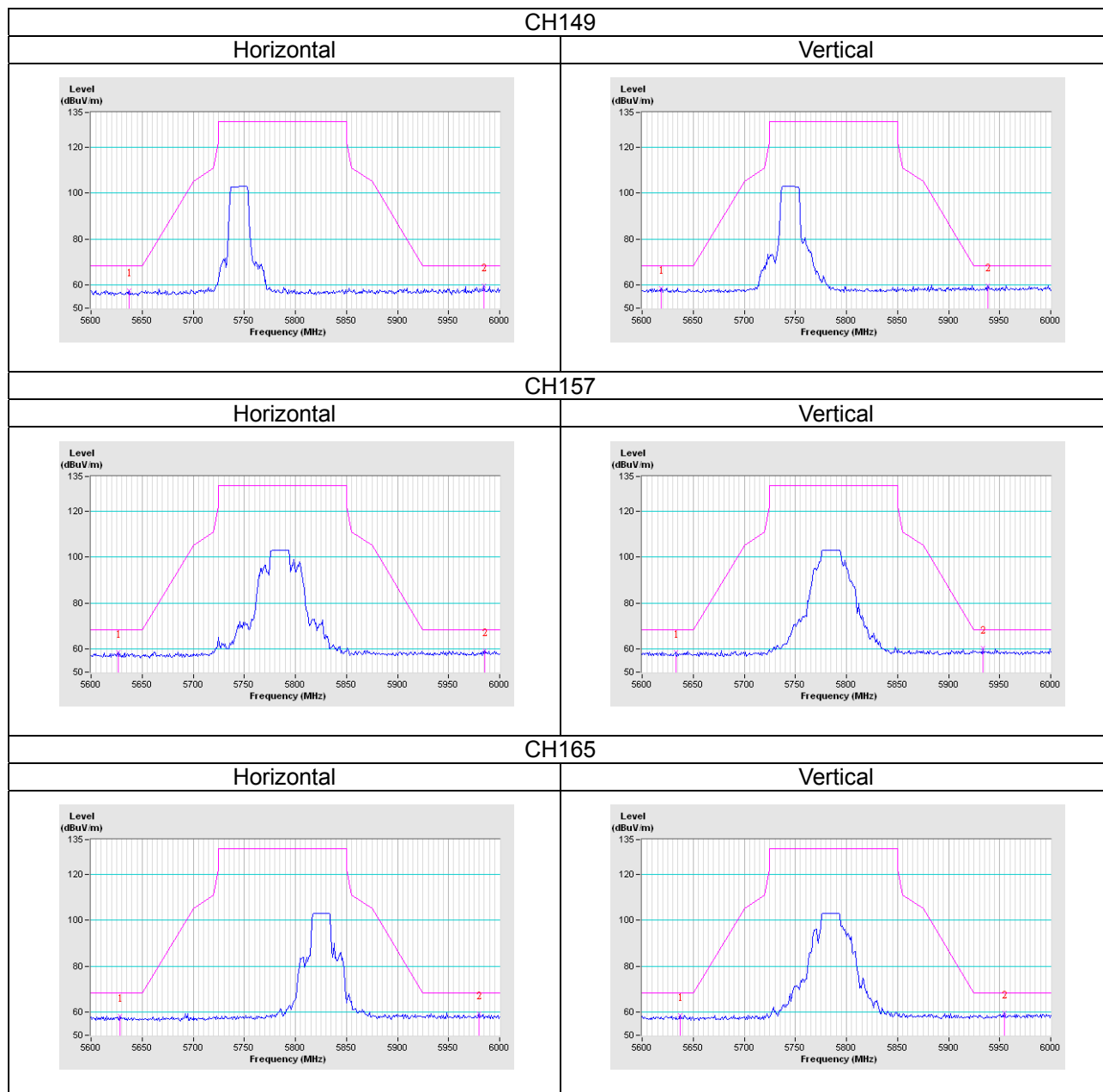
## 5 Pictures of Test Arrangements

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

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

Test Mode A

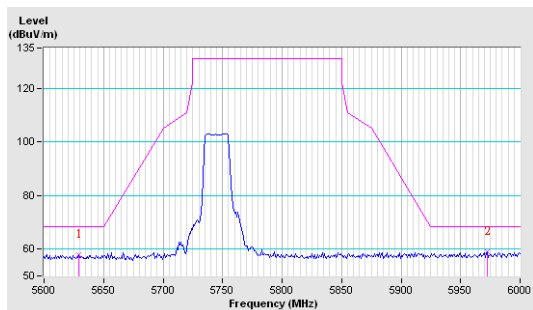
802.11a



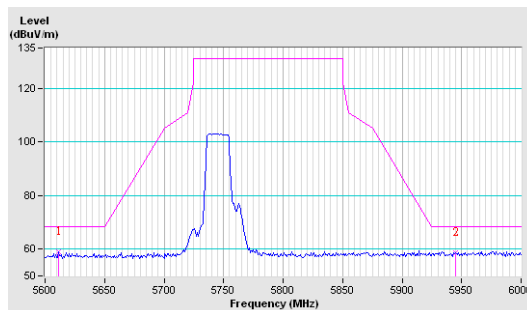
# 802.11n (HT20)

## CH149

### Horizontal

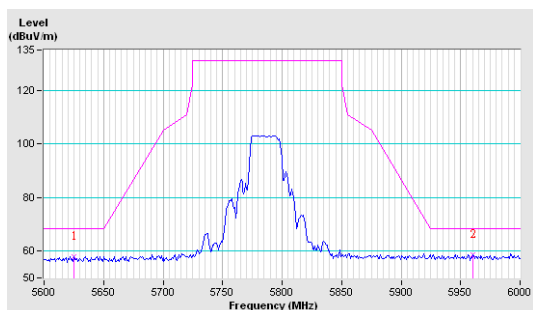


### Vertical

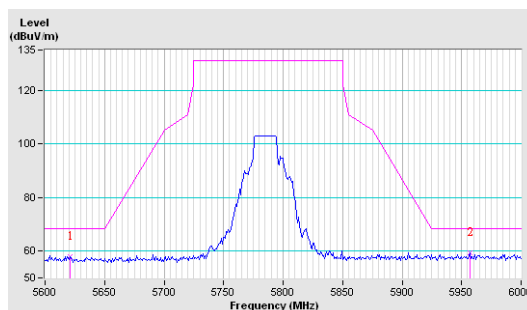


## CH157

### Horizontal

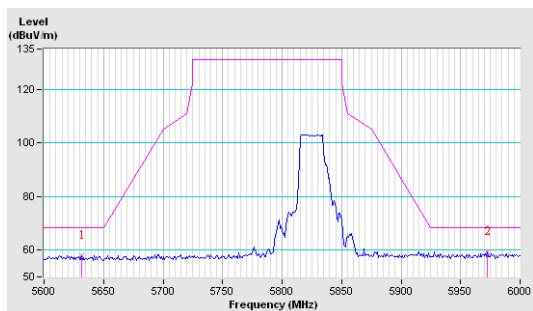


### Vertical

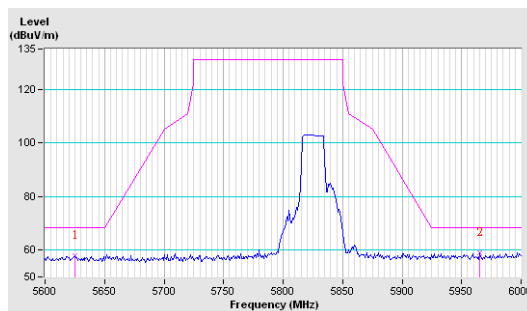


## CH165

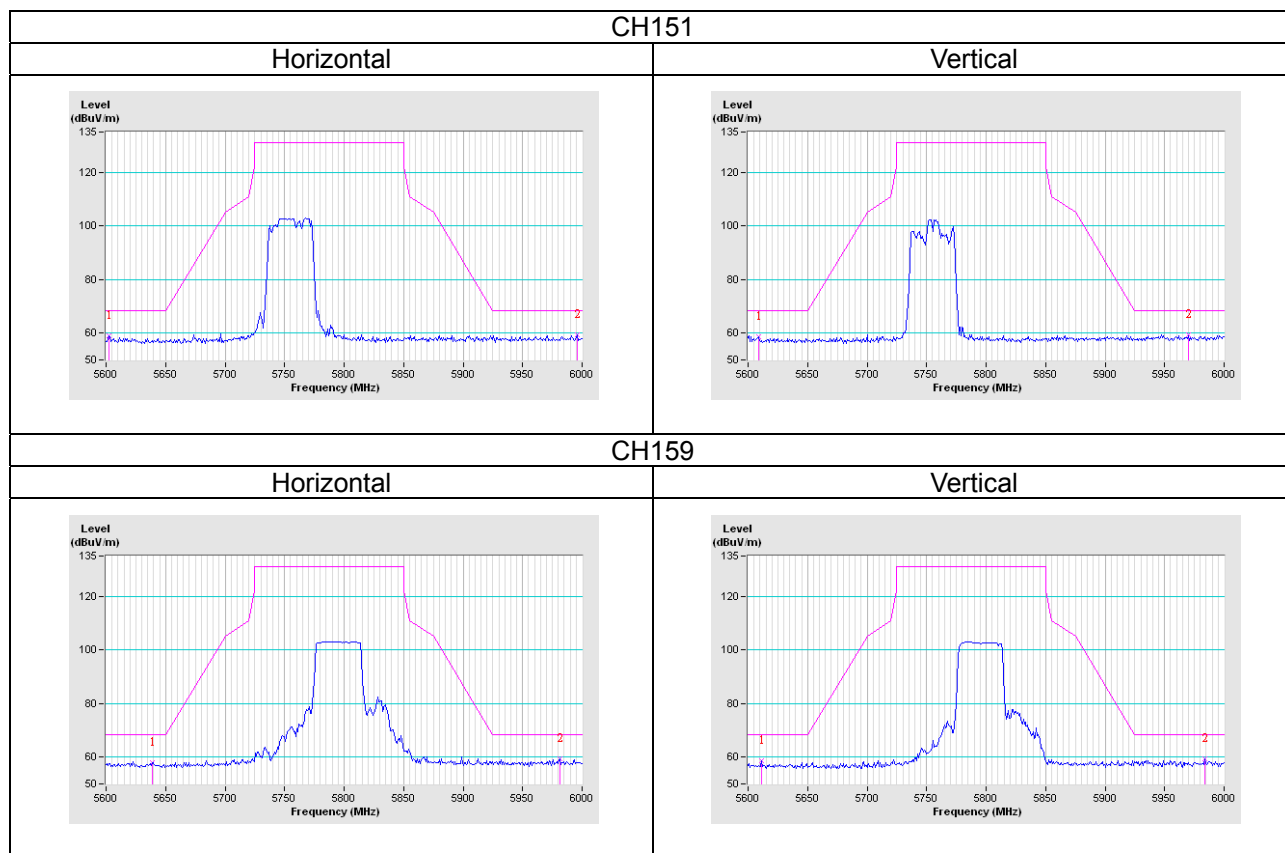
### Horizontal



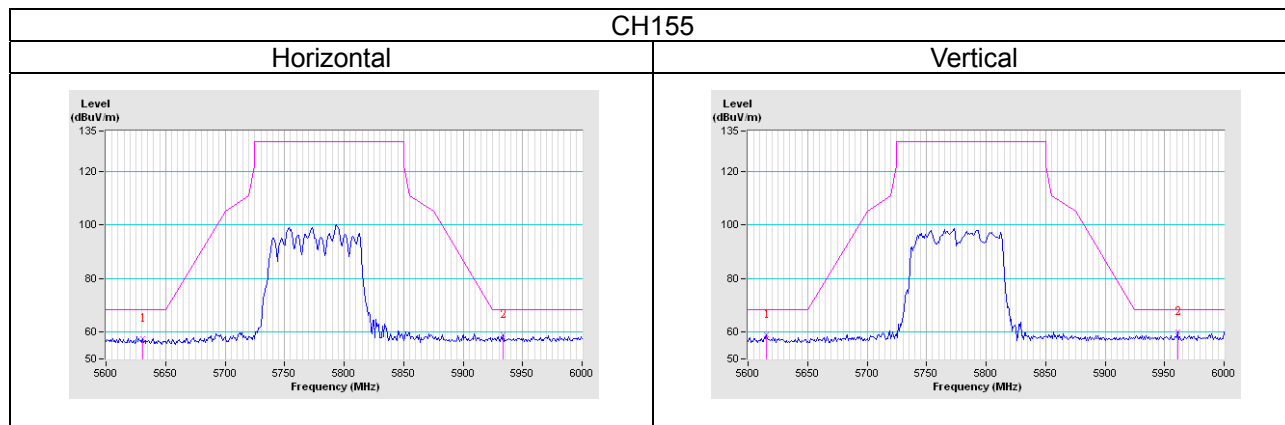
### Vertical



## 802.11n (HT40)

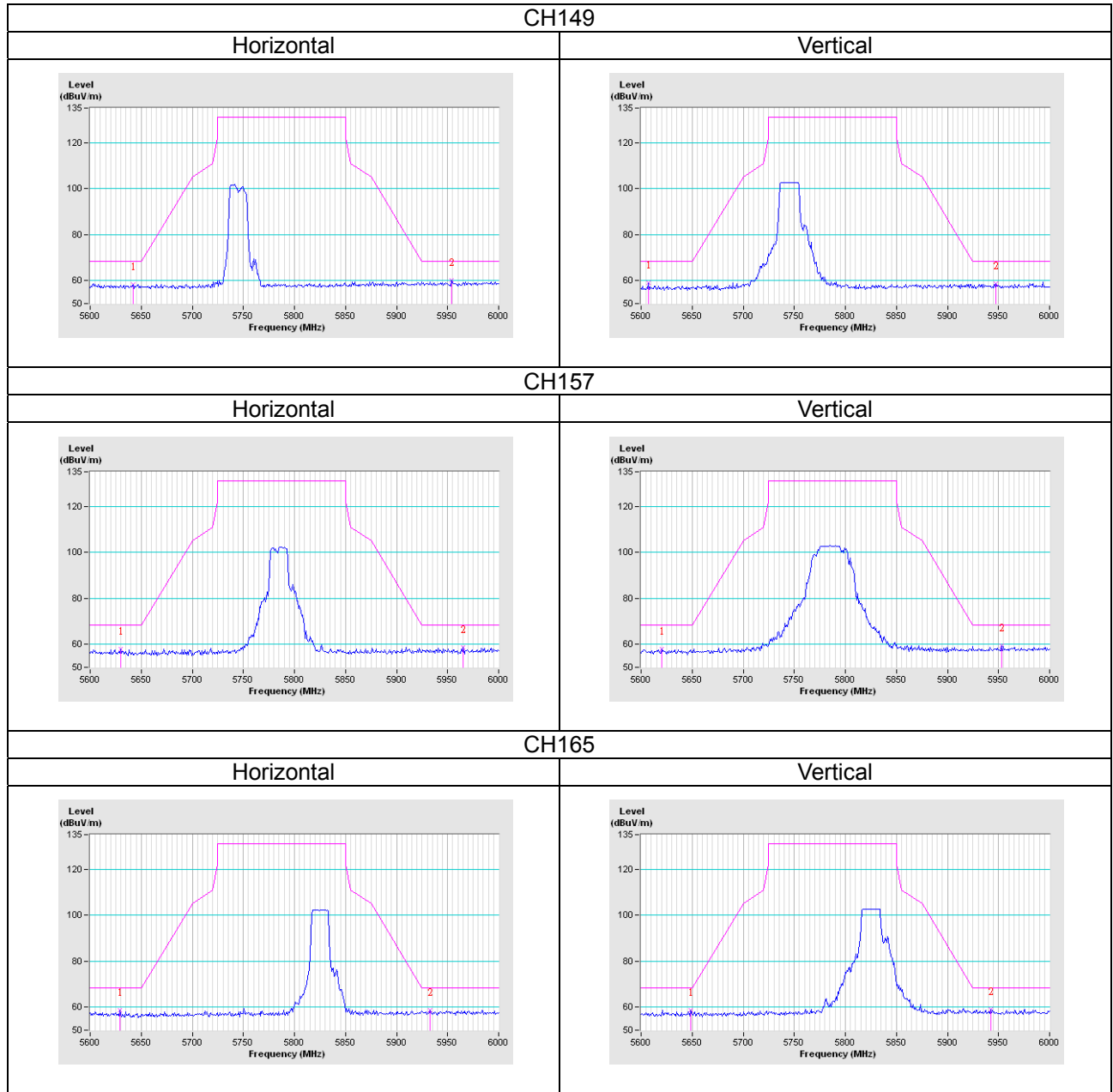


## 802.11ac (VHT80)



Test Mode B

802.11a

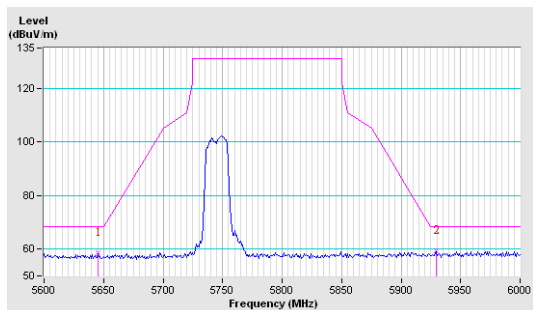




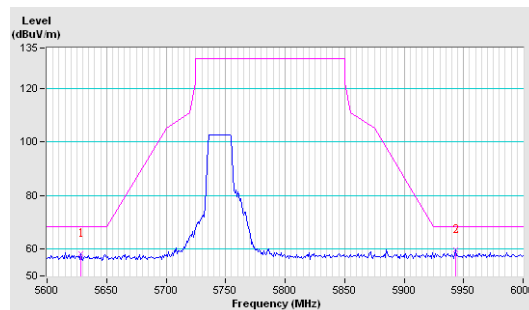
802.11n (HT20)

CH149

Horizontal

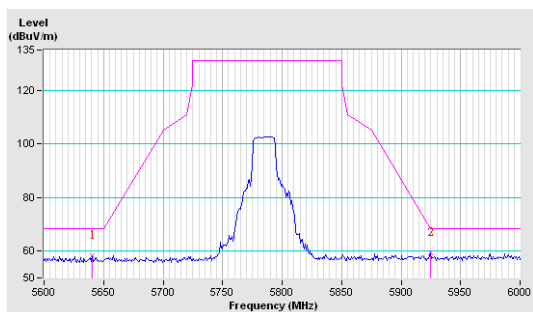


Vertical

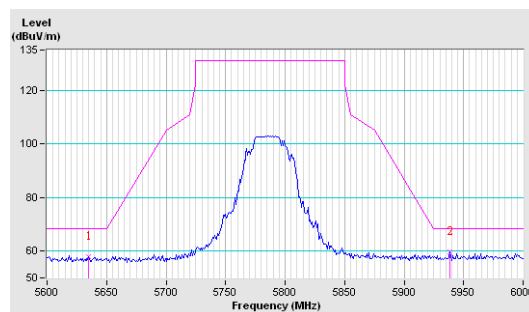


CH157

Horizontal

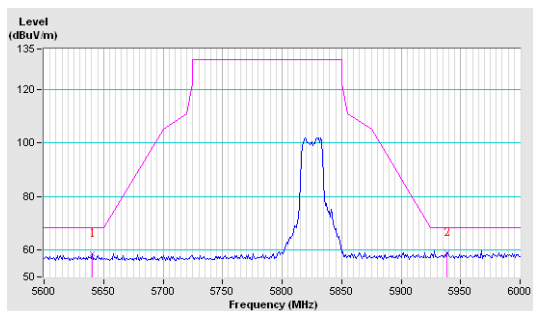


Vertical

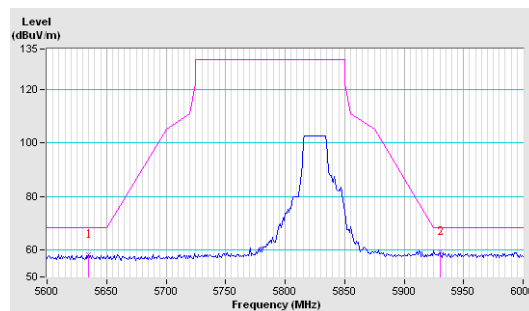


CH165

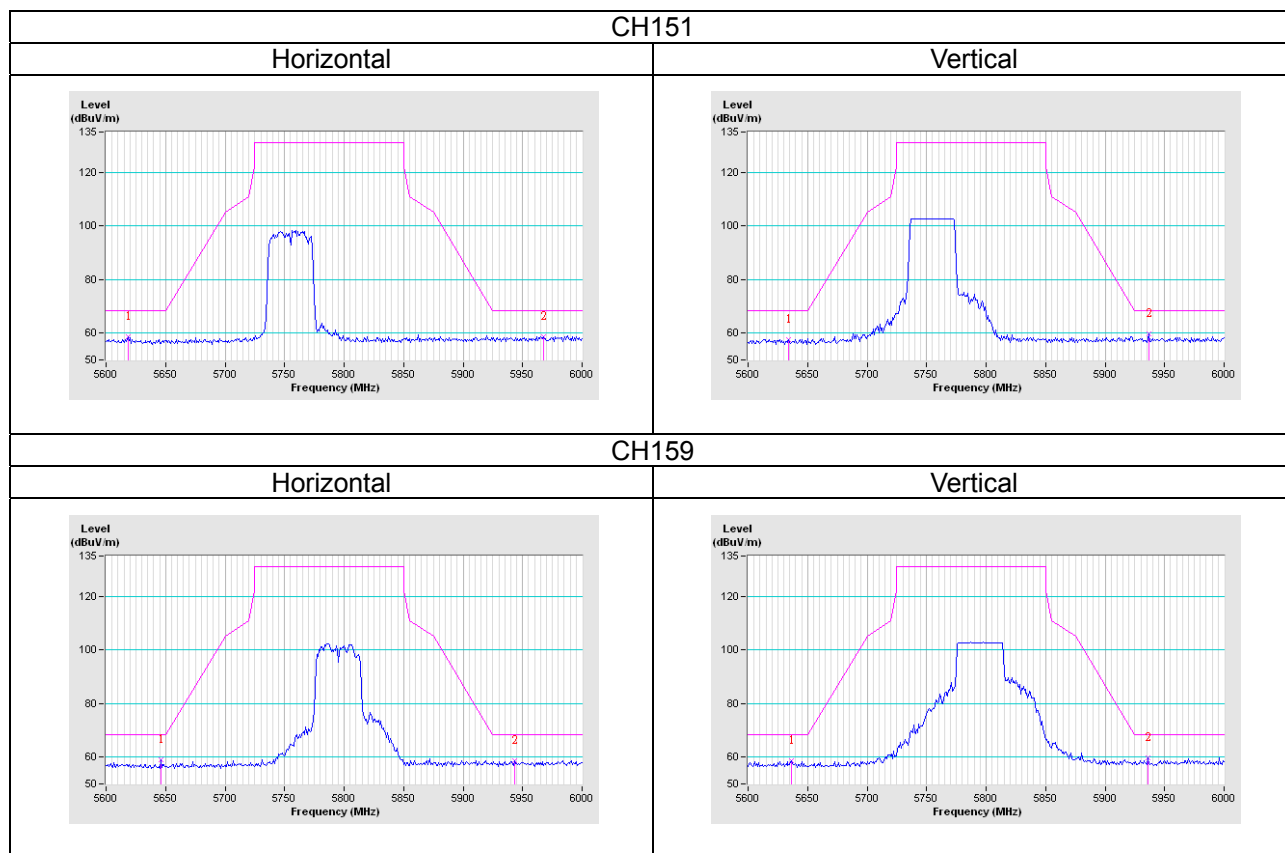
Horizontal



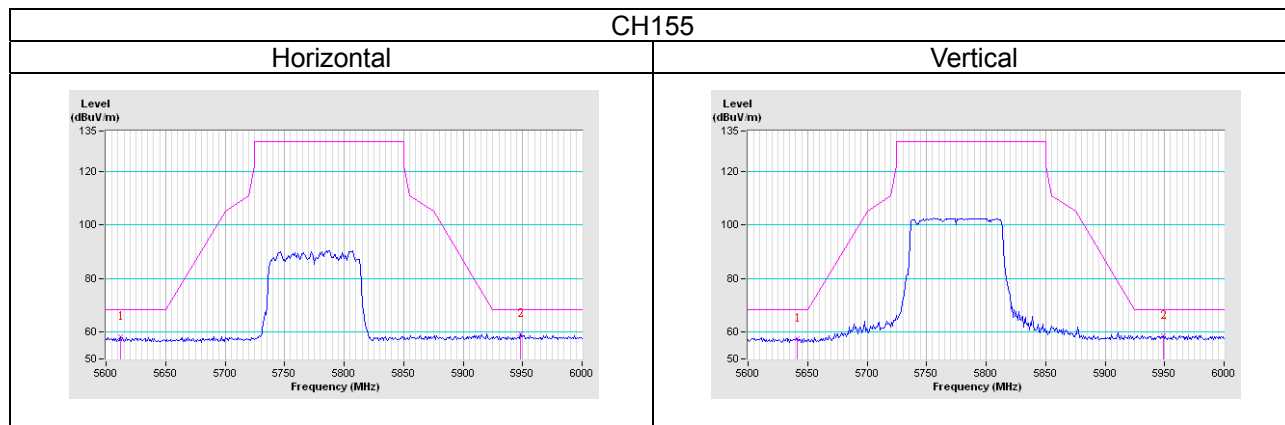
Vertical



## 802.11n (HT40)



## 802.11ac (VHT80)



## Appendix – Information on the Testing Laboratories

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

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

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

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