

## FCC Test Report

**Report No.:** RF161004C24E

**FCC ID:** TVE-140701

**Test Model:** FAP-221E, FAP-223E (refer to item 3.1 for more details)

**Series Model:** FortiAP 221Exxxxx, FAP-221Exxxxx, FORTIAP-221Exxxxx, FortiAP 223Exxxxx, FAP-223Exxxxx, FORTIAP-223Exxxxx (where "x" can be used as "A-Z", or "0-9", or "-", or blank for marketing purposes only) (refer to item 3.1 for more details)

**Received Date:** Sep. 22, 2017

**Test Date:** Sep. 27 ~ Oct. 17, 2017

**Issued Date:** Oct. 20, 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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## Table of Contents

<b>Release Control Record</b> .....	<b>4</b>
<b>1 Certificate of Conformity</b> .....	<b>5</b>
<b>2 Summary of Test Results</b> .....	<b>6</b>
2.1 Measurement Uncertainty .....	6
2.2 Modification Record .....	6
<b>3 General Information</b> .....	<b>7</b>
3.1 General Description of EUT .....	7
3.2 Description of Test Modes .....	9
3.2.1 Test Mode Applicability and Tested Channel Detail.....	10
3.3 Duty Cycle of Test Signal .....	12
3.4 Description of Support Units .....	13
3.4.1 Configuration of System under Test .....	14
3.5 General Description of Applied Standards .....	15
<b>4 Test Types and Results</b> .....	<b>16</b>
4.1 Radiated Emission and Bandedge Measurement.....	16
4.1.1 Limits of Radiated Emission and Bandedge Measurement .....	16
4.1.2 Test Instruments .....	17
4.1.3 Test Procedures.....	18
4.1.4 Deviation from Test Standard .....	18
4.1.5 Test Setup.....	19
4.1.6 EUT Operating Conditions.....	20
4.1.7 Test Results .....	21
4.2 Conducted Emission Measurement .....	71
4.2.1 Limits of Conducted Emission Measurement .....	71
4.2.2 Test Instruments .....	71
4.2.3 Test Procedures.....	72
4.2.4 Deviation from Test Standard .....	72
4.2.5 Test Setup.....	72
4.2.6 EUT Operating Conditions.....	72
4.2.7 Test Results .....	73
4.3 Transmit Power Measurement .....	81
4.3.1 Limits of Transmit Power Measurement .....	81
4.3.2 Test Setup.....	81
4.3.3 Test Instruments .....	82
4.3.4 Test Procedure .....	82
4.3.5 Deviation from Test Standard .....	82
4.3.6 EUT Operating Conditions.....	82
4.3.7 Test Result.....	83
4.4 Occupied Bandwidth Measurement .....	95
4.4.1 Test Setup.....	95
4.4.2 Test Instruments .....	95
4.4.3 Test Procedure .....	95
4.4.4 Test Result.....	96
4.5 Peak Power Spectral Density Measurement .....	99
4.5.1 Limits of Peak Power Spectral Density Measurement .....	99
4.5.2 Test Setup.....	99
4.5.3 Test Instruments .....	99
4.5.4 Test Procedures.....	99
4.5.5 Deviation from Test Standard .....	100
4.5.6 EUT Operating Conditions.....	100
4.5.7 Test Results .....	101
4.6 Frequency Stability.....	106
4.6.1 Limits of Frequency Stability Measurement .....	106

4.6.2	Test Setup.....	106
4.6.3	Test Instruments .....	106
4.6.4	Test Procedure .....	106
4.6.5	Deviation from Test Standard .....	106
4.6.6	EUT Operating Condition .....	106
4.6.7	Test Results .....	107
4.7	6dB Bandwidth Measurement.....	108
4.7.1	Limits of 6dB Bandwidth Measurement.....	108
4.7.2	Test Setup.....	108
4.7.3	Test Instruments .....	108
4.7.4	Test Procedure .....	108
4.7.5	Deviation from Test Standard .....	108
4.7.6	EUT Operating Condition .....	108
4.7.7	Test Results .....	109
<b>5</b>	<b>Pictures of Test Arrangements.....</b>	<b>111</b>
	<b>Appendix – Information on the Testing Laboratories .....</b>	<b>112</b>

### Release Control Record

Issue No.	Description	Date Issued
RF161004C24E	Original release.	Oct. 20, 2017

## 1 Certificate of Conformity

**Product:** Secured Wireless Access Point

**Brand:** Fortinet Inc.

**Test Model:** FAP-221E, FAP-223E (refer to item 3.1 for more details)

**Series Model:** FortiAP 221Exxxxx, FAP-221Exxxxx, FORTIAP-221Exxxxx, FortiAP 223Exxxxx, FAP-223Exxxxx, FORTIAP-223Exxxxx (where "x" can be used as "A-Z", or "0-9", or "-", or blank for marketing purposes only) (refer to item 3.1 for more details)

**Sample Status:** Engineering sample

**Applicant:** Fortinet Inc.

**Test Date:** Sep. 27 ~ Oct. 17, 2017

**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 :** Celine Chou , **Date:** Oct. 20, 2017  
Celine Chou / Specialist

**Approved by :** Ken Liu , **Date:** Oct. 20, 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 -3.00dB at 0.52500MHz.
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 -1.2dB at 5725.00MHz and 5350.00MHz.
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	For printed antenna Antenna connector is IPEX not a standard connector. For dipole antenna Antenna connector is RP SMA plug not a standard connector.

### 2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) ( $\pm$ )
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.86 dB
	200MHz ~ 1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

Product	Secured Wireless Access Point
Brand	Fortinet Inc.
Test Model	FAP-221E, FAP-223E
Series Model	FortiAP 221Exxxxx, FAP-221Exxxxx, FORTIAP-221Exxxxx, FortiAP 223Exxxxx, FAP-223Exxxxx, FORTIAP-223Exxxxx (where "x" can be used as "A-Z", or "0-9", or "-", or blank for marketing purposes only)
Model Difference	Refer to note for more details
Sample Status	Engineering sample
Power Supply Rating	12Vdc from adapter 54Vdc from POE
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300Mbps 802.11ac: up to 867Mbps
Operating Frequency	5260~5320MHz, 5500~5720MHz
Number of Channel	5260~5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5500~5720MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	CDD Mode: 5260~5320MHz: 240.092mW 5500~5720MHz: 235.400mW Beamforming Mode: 5260~5320MHz: 119.950mW 5500~5720MHz: 117.761mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	Adapter (option)
Cable Supplied	NA

**Note:**

1. This report is prepared for FCC class II permissive change. The differences compared with the original report (BV ADT report no.: RF161004C24-1) are adding 5.26GHz to 5.32GHz and 5.50GHz to 5.72GHz by software and updating internal antenna type.

2. All models are listed as below. Model: FAP-221E and FAP-223E were chosen for final test.

Brand	Model	Difference
Fortinet Inc.	FortiAP 221Exxxxx	With Internal Antenna
	FAP-221Exxxxx (Main test model: FAP-221E)	
	FORTIAP-221Exxxxxx	
	FortiAP 223Exxxxxx	With External Antenna
	FAP-223Exxxxxx (Main test model: FAP-223E)	
	FORTIAP-223Exxxxxx	

where "x" can be used as "A-Z", or "0-9", or "-", or blank for marketing purposes only

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

Modulation Mode	TX Function	Beamforming
802.11a	2TX	Not Support
802.11n (HT20)	2TX	Support
802.11n (HT40)	2TX	Support
802.11ac (VHT20)	2TX	Support
802.11ac (VHT40)	2TX	Support
802.11ac (VHT80)	2TX	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.

4. The EUT uses following antennas.

**For Model: FAP-221E (Internal antenna)**

Antenna Type	PIFA	Antenna Connector	IPEX
Gain (dBi)	Frequency (MHz)		
	2400-2500	5150-5850	
Internal Ant. 1	4.4	-	
Internal Ant. 2	4.5	-	
Internal Ant. 3	-	5.6	
Internal Ant. 4	-	5.6	

**For Model: FAP-223E (External antenna)**

Antenna Type	Dipole		Antenna Connector	RP SMA plug		
Gain (dBi)	Frequency (MHz)					
	2400	2450	2500	5150	5550	5850
External Ant.	4.06	4.26	4.58	5.27	5.35	5.04

\* The highest antenna gain was chosen for antenna port conducted measurement tested only

5. 2.4GHz and 5GHz technology can transmit at same time.

6. Spurious emission of the simultaneous operation (2.4GHz and 5GHz) has been evaluated and no non-compliance was found.

### 3.2 Description of Test Modes

#### 5260~5320MHz:

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

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290MHz

#### 5500~5720MHz:

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

Channel	Frequency	Channel	Frequency
100	5500 MHz	132	5660 MHz
104	5520 MHz	136	5680 MHz
108	5540 MHz	140	5700 MHz
112	5560 MHz	144	5720 MHz
116	5580 MHz		

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

Channel	Frequency	Channel	Frequency
102	5510 MHz	134	5670 MHz
110	5550 MHz	142	5710 MHz

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	138	5690 MHz

### 3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE $\geq$ 1G	RE $<$ 1G	PLC	APCM	
A	√	√	√	√	Model: FAP-221E Power from adapter
B	-	√	√	-	Model: FAP-221E Power from POE
C	√	√	√	-	Model: FAP-223E Power from adapter
D	-	√	√	-	Model: FAP-223E Power from POE

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

#### **Radiated Emission Test (Above 1GHz):**

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, C	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	7.2
	802.11n (HT40)		54 to 62	54, 62	OFDM	15.0
	802.11ac (VHT80)		58	58	OFDM	65.0
A, C	802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.0
	802.11n (HT20)		100 to 144	100, 116, 140, 144	OFDM	7.2
	802.11n (HT40)		102 to 142	102, 110, 134, 142	OFDM	15.0
	802.11ac (VHT80)		106 to 138	106, 138	OFDM	65.0

#### **Radiated Emission Test (Below 1GHz):**

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B, C, D	802.11a	5260-5320	52 to 64	52	OFDM	6.0
	802.11a	5500-5720	100 to 144		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, C, D	802.11a	5260-5320	52 to 64	52	OFDM	6.0
	802.11a	5500-5720	100 to 144		OFDM	6.0

### Transmit Power 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>CDD Mode</b>						
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	7.2
	802.11n (HT40)		54 to 62	54, 62	OFDM	15.0
	802.11ac (VHT80)		58	58	OFDM	65.0
A	802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.0
	802.11n (HT20)		100 to 144	100, 116, 140, 144	OFDM	7.2
	802.11n (HT40)		102 to 142	102, 110, 134, 142	OFDM	15.0
	802.11ac (VHT80)		106 to 138	106, 138	OFDM	65.0
<b>Beamforming Mode</b>						
A	802.11n (HT20)	5260-5320	52 to 64	52, 60, 64	OFDM	7.2
	802.11n (HT40)		54 to 62	54, 62	OFDM	15.0
	802.11ac (VHT80)		58	58	OFDM	65.0
A	802.11n (HT20)	5500-5720	100 to 144	100, 116, 140, 144	OFDM	7.2
	802.11n (HT40)		102 to 142	102, 110, 134, 142	OFDM	15.0
	802.11ac (VHT80)		106 to 138	106, 138	OFDM	65.0

### Peak Power Spectral Density, Bandwidth and Frequency Stability Measurement:

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	7.2
	802.11n (HT40)		54 to 62	54, 62	OFDM	15.0
	802.11ac (VHT80)		58	58	OFDM	65.0
A	802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.0
	802.11n (HT20)		100 to 144	100, 116, 140, 144	OFDM	7.2
	802.11n (HT40)		102 to 142	102, 110, 134, 142	OFDM	15.0
	802.11ac (VHT80)		106 to 138	106, 138	OFDM	65.0

**Test Condition:**

Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	20deg. C, 70%RH 22deg. C, 70%RH	120Vac, 60Hz	Willy Cheng Jones Chang
RE<1G	20deg. C, 70%RH	120Vac, 60Hz 54Vdc	Jones Chang
PLC	25deg. C, 64%RH 23deg. C, 70%RH	120Vac, 60Hz 54Vdc	Jones Chang
APCM	25deg. C, 60%RH	120Vac, 60Hz	Chris Lin

**3.3 Duty Cycle of Test Signal**

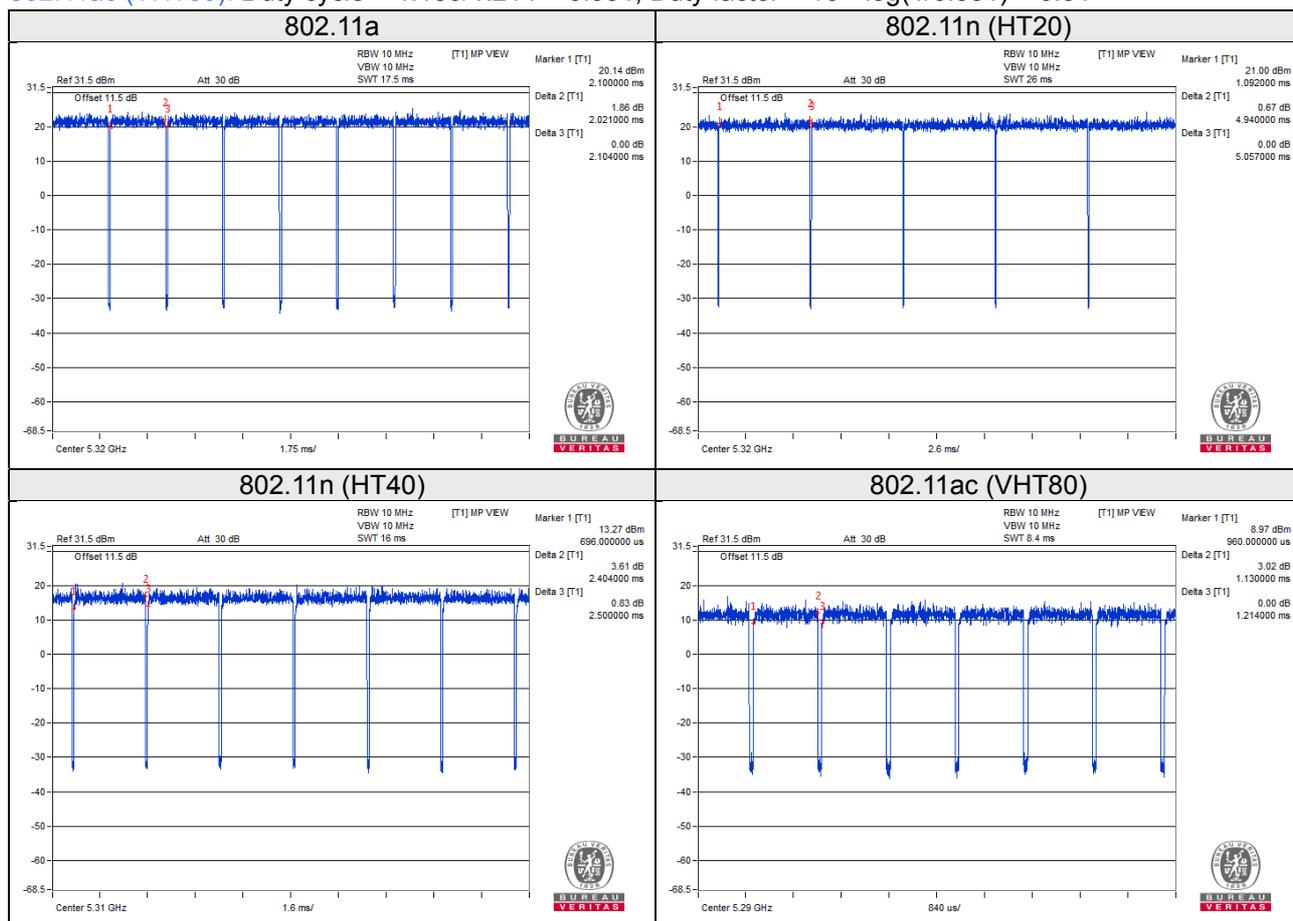
Duty cycle of test signal is < 98%, duty factor is required.

802.11a: Duty cycle = 2.021/2.104 = 0.961, Duty factor = 10 \* log(1/0.961) = 0.17

802.11n (HT20): Duty cycle = 4.940/5.057 = 0.977, Duty factor = 10 \* log(1/0.977) = 0.10

802.11n (HT40): Duty cycle = 2.404/2.500 = 0.962, Duty factor = 10 \* log(1/0.962) = 0.17

802.11ac (VHT80): Duty cycle = 1.130/1.214 = 0.931, Duty factor = 10 \* log(1/0.931) = 0.31



### 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.	Adapter	Asian Power Devices Inc.	WA-30J12R	NA	NA	Option of EUT I/P: 100-240Vac, 50-60Hz, 0.9A Max. O/P: 12Vdc, 2.5A 1.8m power cable without core attached on adapter For test mode A and C only
C.	POE	EnGenius	EPA5006GAT	NA	NA	Provided by client I/P: 100-240Vac, 50-60Hz 0.8A O/P: 54Vdc, 0.6A 0.5m power cable without core For test mode B and D only

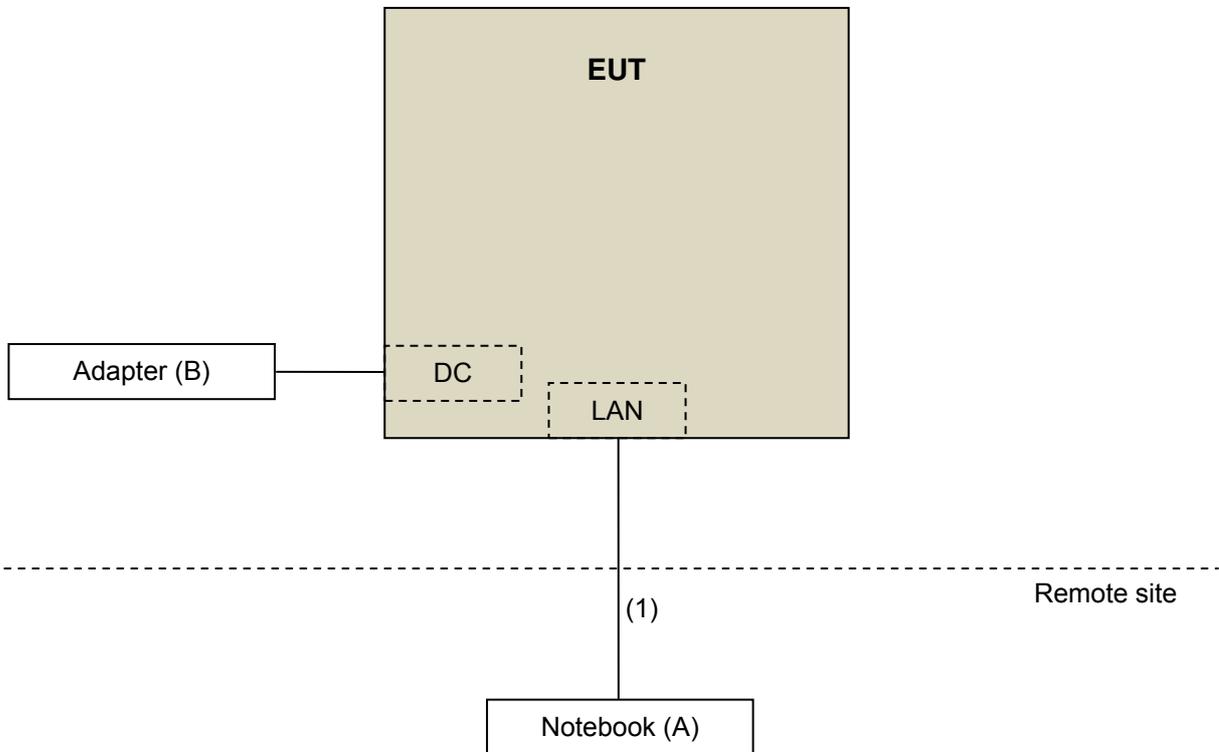
Note:

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

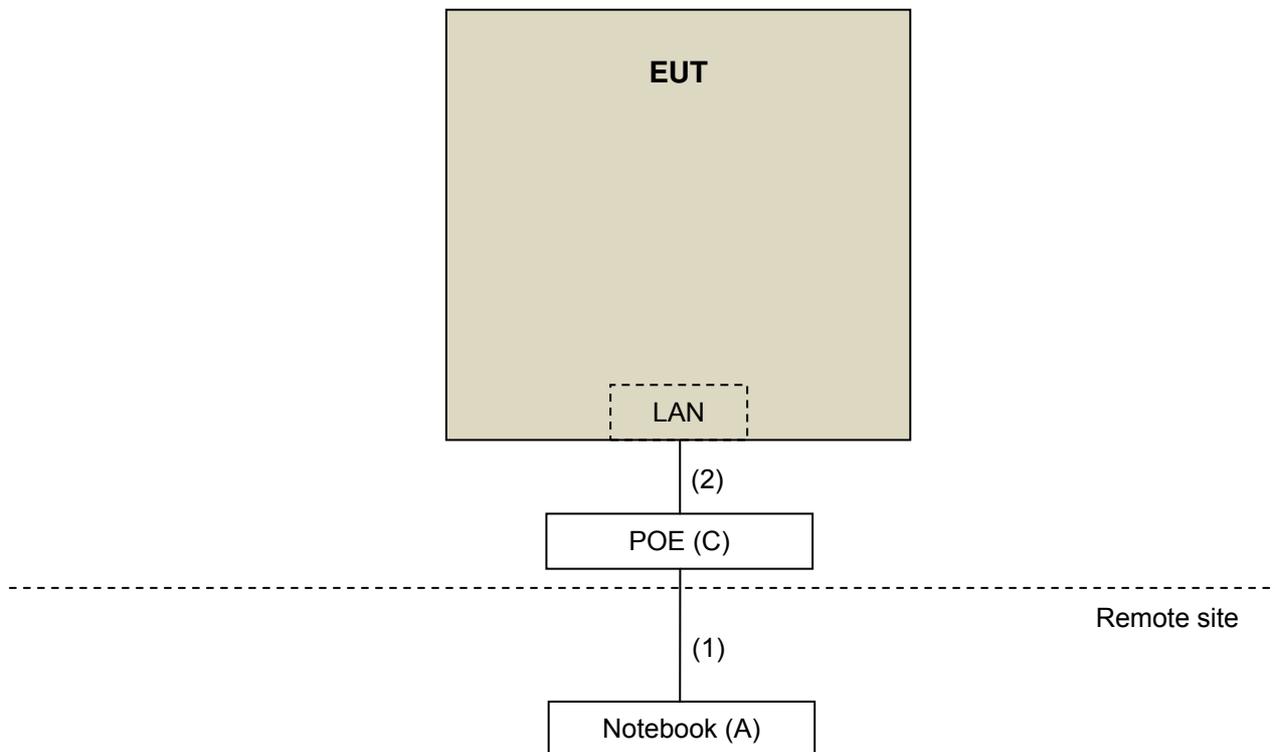
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45 Cable	1	3	N	0	Cat5e
2.	RJ45 Cable	1	1.8	N	0	Cat5e For test mode B and D only

### 3.4.1 Configuration of System under Test

Test Mode A, C



Test Mode B, D



### **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 v01r04**

**KDB 662911 D01 Multiple Transmitter Output v02r01**

ANSI C63.10:2013

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

Note: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC).  
The test report has been issued separately.

## 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 v01r04		Field Strength at 3m	
		PK: 74 (dBuV/m)	AV: 54 (dBuV/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(dBuV/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(dBuV/m) <sup>*1</sup> PK: 105.2 (dBuV/m) <sup>*2</sup> PK: 110.8(dBuV/m) <sup>*3</sup> PK: 122.2 (dBuV/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:

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

#### 4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	May 02, 2017	May 01, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Nov. 16, 2016	Nov. 15, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Dec. 28, 2016	Dec. 27, 2017
HORN Antenna SCHWARZBECK	9120D	209	Dec. 27, 2016	Dec. 26, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 14, 2016	Dec. 13, 2017
Loop Antenna EMCI	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent	8447D	2944A10738	Aug. 21, 2017	Aug. 20, 2018
Preamplifier Agilent	8449B	3008A02465	Apr. 05, 2017	Apr. 04, 2018
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 21, 2017	Aug. 20, 2018
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-SM-8 000	Cable-CH3-03 (309224+170907)	Sep.11, 2017	Sep. 10, 2018
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	0824012	Aug. 18, 2017	Aug. 17, 2018
Power Sensor	MA2411B	0738171	Aug. 18, 2017	Aug. 17, 2018
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 07, 2017	Jun. 06, 2018

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
 2. The test was performed in HwaYa Chamber 3.  
 3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.  
 4. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.  
 5. The IC Site Registration No. is IC 7450F-3.

### 4.1.3 Test Procedures

#### For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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:

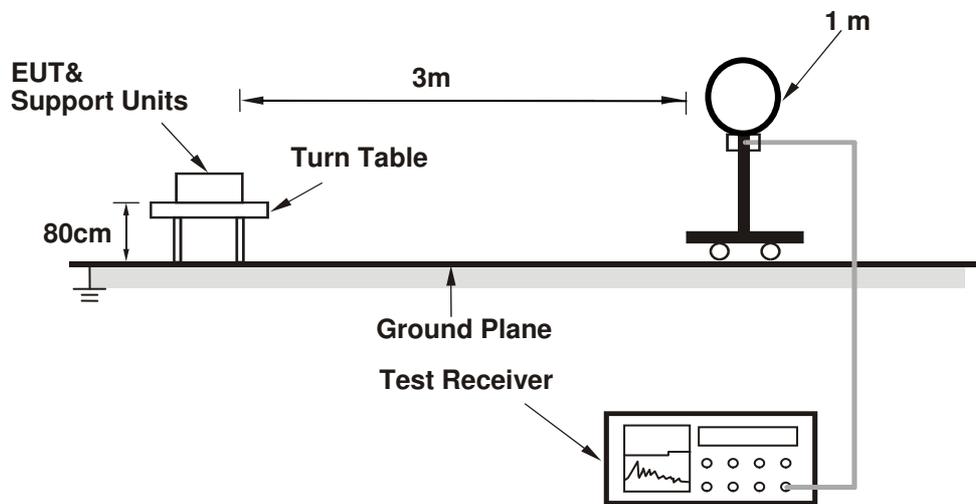
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

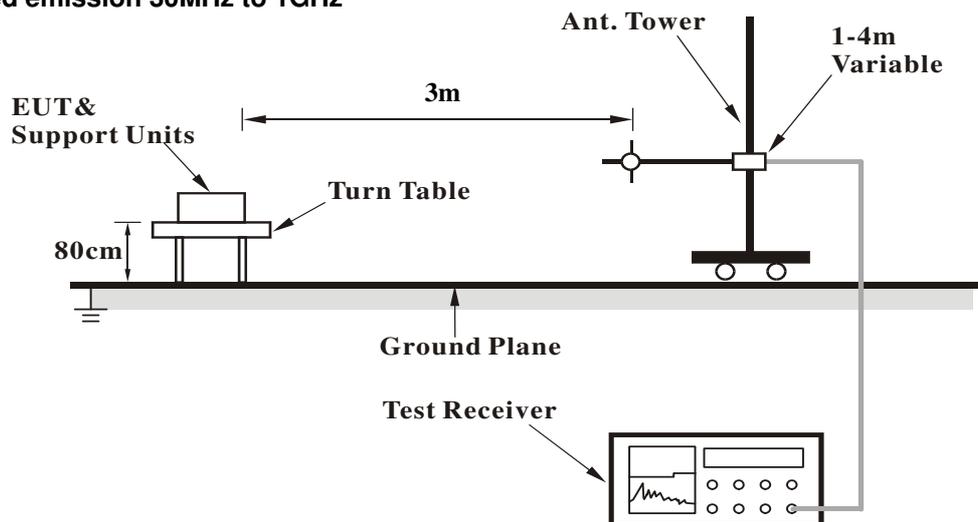
No deviation.

### 4.1.5 Test Setup

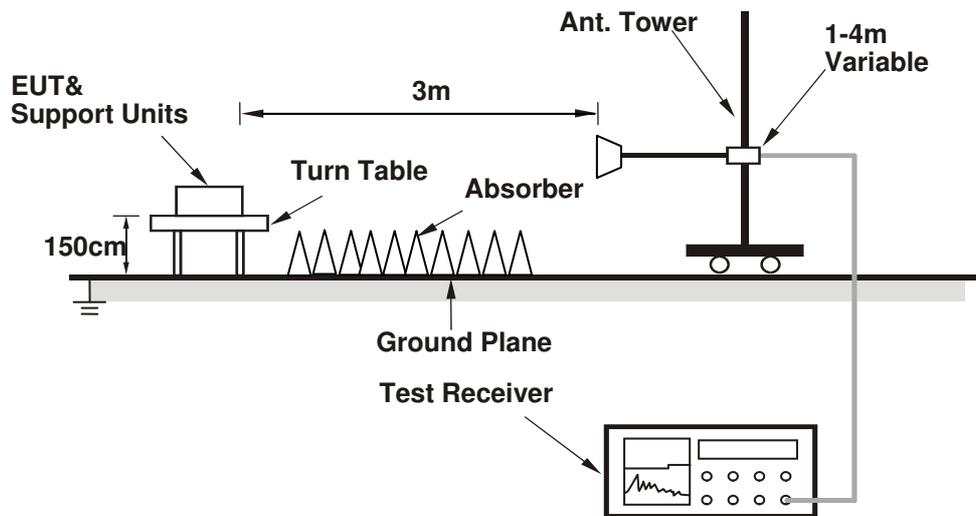
#### For Radiated emission below 30MHz



#### 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 data:

Test Mode A

802.11a

CHANNEL	TX Channel 52	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	56.0 PK	74.0	-18.0	1.99 H	330	52.4	3.6
2	5150.00	44.9 AV	54.0	-9.1	1.99 H	330	41.3	3.6
3	*5260.00	119.8 PK			1.87 H	311	80.2	39.6
4	*5260.00	109.3 AV			1.87 H	311	69.7	39.6
5	#10520.00	58.8 PK	74.0	-15.2	1.85 H	150	41.8	17.0
6	#10520.00	46.0 AV	54.0	-8.0	1.85 H	150	29.0	17.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	45.8 PK	74.0	-28.2	1.66 V	200	42.2	3.6
2	5150.00	33.2 AV	54.0	-20.8	1.66 V	200	29.6	3.6
3	*5260.00	117.9 PK			1.90 V	352	78.3	39.6
4	*5260.00	108.1 AV			1.90 V	352	68.5	39.6
5	#10560.00	59.4 PK	74.0	-14.6	1.70 V	221	42.2	17.2
6	#10560.00	46.3 AV	54.0	-7.7	1.70 V	221	29.1	17.2

#### 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 60	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	*5300.00	119.4 PK			1.58 H	317	79.8	39.6
2	*5300.00	108.8 AV			1.58 H	317	69.2	39.6
3	10600.00	59.5 PK	74.0	-14.5	1.79 H	231	42.4	17.1
4	10600.00	46.1 AV	54.0	-7.9	1.79 H	231	29.0	17.1

**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	*5300.00	117.6 PK			2.14 V	349	78.0	39.6
2	*5300.00	107.0 AV			2.14 V	349	67.4	39.6
3	10600.00	58.2 PK	74.0	-15.8	1.78 V	291	41.1	17.1
4	10600.00	45.8 AV	54.0	-8.2	1.78 V	291	28.7	17.1

**Remarks:**

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

CHANNEL	TX Channel 64	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	*5320.00	117.4 PK			1.74 H	315	77.7	39.7
2	*5320.00	107.3 AV			1.74 H	315	67.6	39.7
3	5350.00	67.8 PK	74.0	-6.2	1.73 H	319	63.9	3.9
4	5350.00	51.3 AV	54.0	-2.7	1.73 H	319	47.4	3.9
5	10640.00	59.3 PK	74.0	-14.7	1.88 H	293	42.0	17.3
6	10640.00	46.5 AV	54.0	-7.5	1.88 H	293	29.2	17.3

**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	*5320.00	116.2 PK			2.03 V	349	76.5	39.7
2	*5320.00	105.5 AV			2.03 V	349	65.8	39.7
3	5350.00	69.7 PK	74.0	-4.3	1.94 V	350	65.8	3.9
4	5350.00	52.3 AV	54.0	-1.7	1.94 V	350	48.4	3.9
5	10640.00	58.4 PK	74.0	-15.6	2.01 V	223	41.1	17.3
6	10640.00	45.6 AV	54.0	-8.4	2.01 V	223	28.3	17.3

**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 100	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	5424.00	57.6 PK	74.0	-16.4	1.77 H	344	53.6	4.0
2	5424.00	46.4 AV	54.0	-7.6	1.77 H	344	42.4	4.0
3	#5470.00	68.8 PK	74.0	-5.2	1.69 H	313	64.8	4.0
4	#5470.00	52.4 AV	54.0	-1.6	1.69 H	313	48.4	4.0
5	*5500.00	118.4 PK			1.82 H	317	78.4	40.0
6	*5500.00	108.3 AV			1.82 H	317	68.3	40.0
7	11000.00	61.4 PK	74.0	-12.6	1.87 H	321	42.4	19.0
8	11000.00	48.4 AV	54.0	-5.6	1.87 H	321	29.4	19.0

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5424.00	57.8 PK	74.0	-16.2	1.22 V	45	53.8	4.0
2	5424.00	46.8 AV	54.0	-7.2	1.22 V	45	42.8	4.0
3	#5470.00	69.0 PK	74.0	-5.0	1.07 V	12	65.0	4.0
4	#5470.00	52.6 AV	54.0	-1.4	1.07 V	12	48.6	4.0
5	*5500.00	119.7 PK			2.92 V	206	79.7	40.0
6	*5500.00	109.4 AV			2.92 V	206	69.4	40.0
7	11000.00	61.1 PK	74.0	-12.9	1.44 V	359	42.1	19.0
8	11000.00	48.2 AV	54.0	-5.8	1.44 V	359	29.2	19.0

Remarks:

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

CHANNEL	TX Channel 116	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	*5580.00	118.4 PK			1.83 H	318	78.3	40.1
2	*5580.00	108.0 AV			1.83 H	318	67.9	40.1
3	11160.00	60.6 PK	74.0	-13.4	1.93 H	299	41.9	18.7
4	11160.00	47.4 AV	54.0	-6.6	1.93 H	299	28.7	18.7

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	120.3 PK			2.94 V	222	80.2	40.1
2	*5580.00	110.0 AV			2.94 V	222	69.9	40.1
3	11160.00	59.9 PK	74.0	-14.1	1.99 V	191	41.2	18.7
4	11160.00	46.9 AV	54.0	-7.1	1.99 V	191	28.2	18.7

**Remarks:**

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

CHANNEL	TX Channel 140	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	*5700.00	114.7 PK			1.23 H	23	74.4	40.3
2	*5700.00	104.3 AV			1.23 H	23	64.0	40.3
3	#5725.00	69.5 PK	74.0	-4.5	1.24 H	8	65.0	4.5
4	#5725.00	50.8 AV	54.0	-3.2	1.24 H	8	46.3	4.5
5	11400.00	60.8 PK	74.0	-13.2	1.52 H	355	42.6	18.2
6	11400.00	47.4 AV	54.0	-6.6	1.52 H	355	29.2	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	*5700.00	117.6 PK			2.53 V	210	77.3	40.3
2	*5700.00	107.5 AV			2.53 V	210	67.2	40.3
3	#5725.00	68.3 PK	74.0	-5.7	3.03 V	209	63.8	4.5
4	#5725.00	52.4 AV	54.0	-1.6	3.03 V	209	47.9	4.5
5	11400.00	62.5 PK	74.0	-11.5	2.33 V	255	44.3	18.2
6	11400.00	49.0 AV	54.0	-5.0	2.33 V	255	30.8	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 144	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	#5470.00	55.4 PK	74.0	-18.6	1.50 H	302	51.4	4.0
2	#5470.00	44.0 AV	54.0	-10.0	1.50 H	302	40.0	4.0
3	*5720.00	116.4 PK			1.31 H	22	76.0	40.4
4	*5720.00	106.4 AV			1.31 H	22	66.0	40.4
5	#5850.00	56.1 PK	74.0	-17.9	1.44 H	311	51.3	4.8
6	#5850.00	45.2 AV	54.0	-8.8	1.44 H	311	40.4	4.8
7	11440.00	61.1 PK	74.0	-12.9	1.56 H	199	42.8	18.3
8	11440.00	48.2 AV	54.0	-5.8	1.56 H	199	29.9	18.3

**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	#5470.00	55.2 PK	74.0	-18.8	1.75 V	313	51.2	4.0
2	#5470.00	44.4 AV	54.0	-9.6	1.75 V	313	40.4	4.0
3	*5720.00	114.8 PK			1.86 V	349	74.4	40.4
4	*5720.00	104.8 AV			1.86 V	349	64.4	40.4
5	#5850.00	60.9 PK	74.0	-13.1	1.76 V	322	56.1	4.8
6	#5850.00	47.8 AV	54.0	-6.2	1.76 V	322	43.0	4.8
7	11440.00	62.1 PK	74.0	-11.9	2.36 V	287	43.8	18.3
8	11440.00	48.9 AV	54.0	-5.1	2.36 V	287	30.6	18.3

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

## ANTENNA POLARITY &amp; 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	56.3 PK	74.0	-17.7	1.69 H	293	52.7	3.6
2	5150.00	44.6 AV	54.0	-9.4	1.69 H	293	41.0	3.6
3	*5260.00	119.1 PK			1.54 H	316	79.5	39.6
4	*5260.00	109.1 AV			1.54 H	316	69.5	39.6
5	#10520.00	59.4 PK	74.0	-14.6	1.83 H	243	42.4	17.0
6	#10520.00	46.1 AV	54.0	-7.9	1.83 H	243	29.1	17.0

## ANTENNA POLARITY &amp; 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	47.6 PK	74.0	-26.4	1.99 V	344	44.0	3.6
2	5150.00	33.5 AV	54.0	-20.5	1.99 V	344	29.9	3.6
3	*5260.00	119.1 PK			1.86 V	355	79.5	39.6
4	*5260.00	108.8 AV			1.86 V	355	69.2	39.6
5	#10520.00	59.9 PK	74.0	-14.1	1.66 V	278	42.9	17.0
6	#10520.00	47.1 AV	54.0	-6.9	1.66 V	278	30.1	17.0

## Remarks:

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

CHANNEL	TX Channel 60	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	*5300.00	119.4 PK			1.43 H	315	79.8	39.6
2	*5300.00	109.2 AV			1.43 H	315	69.6	39.6
3	10600.00	59.3 PK	74.0	-14.7	1.72 H	303	42.2	17.1
4	10600.00	45.8 AV	54.0	-8.2	1.72 H	303	28.7	17.1

**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	*5300.00	118.2 PK			1.95 V	352	78.6	39.6
2	*5300.00	107.8 AV			1.95 V	352	68.2	39.6
3	10600.00	59.6 PK	74.0	-14.4	1.77 V	321	42.5	17.1
4	10600.00	46.3 AV	54.0	-7.7	1.77 V	321	29.2	17.1

**Remarks:**

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

CHANNEL	TX Channel 64	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	*5320.00	118.6 PK			1.55 H	315	78.9	39.7
2	*5320.00	107.6 AV			1.55 H	315	67.9	39.7
3	5350.00	69.3 PK	74.0	-4.7	2.26 H	307	65.4	3.9
4	5350.00	52.4 AV	54.0	-1.6	2.26 H	307	48.5	3.9
5	10640.00	59.5 PK	74.0	-14.5	1.55 H	309	42.2	17.3
6	10640.00	46.4 AV	54.0	-7.6	1.55 H	309	29.1	17.3

**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	*5320.00	116.4 PK			2.08 V	350	76.7	39.7
2	*5320.00	106.1 AV			2.08 V	350	66.4	39.7
3	5350.00	68.8 PK	74.0	-5.2	1.94 V	352	64.9	3.9
4	5350.00	51.1 AV	54.0	-2.9	1.94 V	352	47.2	3.9
5	10640.00	58.9 PK	74.0	-15.1	1.82 V	345	41.6	17.3
6	10640.00	45.7 AV	54.0	-8.3	1.82 V	345	28.4	17.3

**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 100	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	5424.00	55.5 PK	74.0	-18.5	1.44 H	51	51.5	4.0
2	5424.00	45.0 AV	54.0	-9.0	1.44 H	51	41.0	4.0
3	#5470.00	69.4 PK	74.0	-4.6	1.20 H	28	65.4	4.0
4	#5470.00	51.7 AV	54.0	-2.3	1.20 H	28	47.7	4.0
5	*5500.00	116.8 PK			1.10 H	58	76.8	40.0
6	*5500.00	106.7 AV			1.10 H	58	66.7	40.0
7	11000.00	60.8 PK	74.0	-13.2	1.78 H	222	41.8	19.0
8	11000.00	48.0 AV	54.0	-6.0	1.78 H	222	29.0	19.0

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5424.00	59.2 PK	74.0	-14.8	2.22 V	323	55.2	4.0
2	5424.00	47.2 AV	54.0	-6.8	2.22 V	323	43.2	4.0
3	#5470.00	68.0 PK	74.0	-6.0	2.73 V	219	64.0	4.0
4	#5470.00	52.3 AV	54.0	-1.7	2.73 V	219	48.3	4.0
5	*5500.00	117.7 PK			3.13 V	215	77.7	40.0
6	*5500.00	107.9 AV			3.13 V	215	67.9	40.0
7	11000.00	62.8 PK	74.0	-11.2	2.33 V	193	43.8	19.0
8	11000.00	49.7 AV	54.0	-4.3	2.33 V	193	30.7	19.0

Remarks:

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

CHANNEL	TX Channel 116	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	*5580.00	118.5 PK			1.15 H	56	78.4	40.1
2	*5580.00	108.2 AV			1.15 H	56	68.1	40.1
3	11160.00	62.0 PK	74.0	-12.0	1.44 H	111	43.3	18.7
4	11160.00	48.0 AV	54.0	-6.0	1.44 H	111	29.3	18.7

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	119.9 PK			2.83 V	206	79.8	40.1
2	*5580.00	109.5 AV			2.83 V	206	69.4	40.1
3	11160.00	62.3 PK	74.0	-11.7	2.53 V	301	43.6	18.7
4	11160.00	48.7 AV	54.0	-5.3	2.53 V	301	30.0	18.7

**Remarks:**

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

CHANNEL	TX Channel 140	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	*5700.00	116.5 PK			1.07 H	57	76.2	40.3
2	*5700.00	105.3 AV			1.07 H	57	65.0	40.3
3	#5725.00	68.3 PK	74.0	-5.7	1.10 H	57	63.8	4.5
4	#5725.00	51.8 AV	54.0	-2.2	1.10 H	57	47.3	4.5
5	11400.00	63.1 PK	74.0	-10.9	1.66 H	111	44.9	18.2
6	11400.00	48.4 AV	54.0	-5.6	1.66 H	111	30.2	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	*5700.00	81.7 PK			3.14 V	220	77.2	4.5
2	*5700.00	71.6 AV			3.14 V	220	67.1	4.5
3	#5725.00	69.0 PK	74.0	-5.0	2.95 V	203	64.5	4.5
4	#5725.00	52.5 AV	54.0	-1.5	2.95 V	203	48.0	4.5
5	11400.00	62.5 PK	74.0	-11.5	2.93 V	222	44.3	18.2
6	11400.00	48.1 AV	54.0	-5.9	2.93 V	222	29.9	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 144	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	#5470.00	56.6 PK	74.0	-17.4	1.40 H	20	52.6	4.0
2	#5470.00	45.6 AV	54.0	-8.4	1.40 H	20	41.6	4.0
3	*5720.00	116.4 PK			1.30 H	16	76.0	40.4
4	*5720.00	106.1 AV			1.30 H	16	65.7	40.4
5	#5850.00	58.9 PK	74.0	-15.1	1.66 H	26	54.1	4.8
6	#5850.00	47.8 AV	54.0	-6.2	1.66 H	26	43.0	4.8
7	11440.00	61.3 PK	74.0	-12.7	1.63 H	196	43.0	18.3
8	11440.00	48.4 AV	54.0	-5.6	1.63 H	196	30.1	18.3

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	#5470.00	57.2 PK	74.0	-16.8	1.82 V	278	53.2	4.0
2	#5470.00	46.0 AV	54.0	-8.0	1.82 V	278	42.0	4.0
3	*5720.00	116.5 PK			1.85 V	348	76.1	40.4
4	*5720.00	105.2 AV			1.85 V	348	64.8	40.4
5	#5850.00	58.4 PK	74.0	-15.6	1.90 V	350	53.6	4.8
6	#5850.00	47.4 AV	54.0	-6.6	1.90 V	350	42.6	4.8
7	11440.00	61.7 PK	74.0	-12.3	2.30 V	294	43.4	18.3
8	11440.00	48.7 AV	54.0	-5.3	2.30 V	294	30.4	18.3

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

## ANTENNA POLARITY &amp; 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	57.3 PK	74.0	-16.7	1.89 H	332	53.7	3.6
2	5150.00	45.1 AV	54.0	-8.9	1.89 H	332	41.5	3.6
3	*5270.00	116.3 PK			1.25 H	311	76.7	39.6
4	*5270.00	106.6 AV			1.25 H	311	67.0	39.6
5	#10540.00	61.9 PK	74.0	-12.1	1.79 H	298	44.8	17.1
6	#10540.00	47.5 AV	54.0	-6.5	1.79 H	298	30.4	17.1

## ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.9 PK	74.0	-17.1	1.97 V	343	53.3	3.6
2	5150.00	43.8 AV	54.0	-10.2	1.97 V	343	40.2	3.6
3	*5270.00	115.5 PK			2.01 V	354	75.9	39.6
4	*5270.00	106.0 AV			2.01 V	354	66.4	39.6
5	#10540.00	59.9 PK	74.0	-14.1	1.76 V	222	42.8	17.1
6	#10540.00	46.4 AV	54.0	-7.6	1.76 V	222	29.3	17.1

## Remarks:

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

CHANNEL	TX Channel 62	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	*5310.00	113.6 PK			1.66 H	313	74.0	39.6
2	*5310.00	104.2 AV			1.66 H	313	64.6	39.6
3	5350.00	67.9 PK	74.0	-6.1	1.45 H	314	64.0	3.9
4	5350.00	52.2 AV	54.0	-1.8	1.45 H	314	48.3	3.9
5	10620.00	58.5 PK	74.0	-15.5	1.77 H	334	41.2	17.3
6	10620.00	46.5 AV	54.0	-7.5	1.77 H	334	29.2	17.3

**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	*5310.00	112.3 PK			2.14 V	349	72.7	39.6
2	*5310.00	102.9 AV			2.14 V	349	63.3	39.6
3	5350.00	71.4 PK	74.0	-2.6	2.08 V	351	67.5	3.9
4	5350.00	52.6 AV	54.0	-1.4	2.08 V	351	48.7	3.9
5	10620.00	59.8 PK	74.0	-14.2	1.93 V	344	42.5	17.3
6	10620.00	46.2 AV	54.0	-7.8	1.93 V	344	28.9	17.3

**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 102	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	5460.00	62.7 PK	74.0	-11.3	1.33 H	312	58.7	4.0
2	5460.00	47.4 AV	54.0	-6.6	1.33 H	312	43.4	4.0
3	#5470.00	68.9 PK	74.0	-5.1	1.32 H	313	64.9	4.0
4	#5470.00	50.6 AV	54.0	-3.4	1.32 H	313	46.6	4.0
5	*5510.00	112.8 PK			1.64 H	314	72.8	40.0
6	*5510.00	103.1 AV			1.64 H	314	63.1	40.0
7	11020.00	61.1 PK	74.0	-12.9	1.90 H	333	42.2	18.9
8	11020.00	48.3 AV	54.0	-5.7	1.90 H	333	29.4	18.9

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	66.4 PK	74.0	-7.6	1.88 V	344	62.4	4.0
2	5460.00	50.6 AV	54.0	-3.4	1.88 V	344	46.6	4.0
3	#5470.00	71.1 PK	74.0	-2.9	1.88 V	344	67.1	4.0
4	#5470.00	52.4 AV	54.0	-1.6	1.88 V	344	48.4	4.0
5	*5510.00	111.5 PK			1.96 V	347	71.5	40.0
6	*5510.00	101.7 AV			1.96 V	347	61.7	40.0
7	11020.00	61.7 PK	74.0	-12.3	2.34 V	201	42.8	18.9
8	11020.00	48.7 AV	54.0	-5.3	2.34 V	201	29.8	18.9

**Remarks:**

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

CHANNEL	TX Channel 110	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	*5550.00	114.3 PK			1.67 H	313	74.3	40.0
2	*5550.00	104.7 AV			1.67 H	313	64.7	40.0
3	11100.00	61.6 PK	74.0	-12.4	1.84 H	205	43.1	18.5
4	11100.00	48.7 AV	54.0	-5.3	1.84 H	205	30.2	18.5

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	113.1 PK			1.94 V	345	73.1	40.0
2	*5550.00	103.9 AV			1.94 V	345	63.9	40.0
3	11100.00	62.3 PK	74.0	-11.7	2.40 V	200	43.8	18.5
4	11100.00	49.4 AV	54.0	-4.6	2.40 V	200	30.9	18.5

**Remarks:**

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

CHANNEL	TX Channel 134	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	*5670.00	111.3 PK			1.86 H	315	71.0	40.3
2	*5670.00	102.1 AV			1.86 H	315	61.8	40.3
3	#5725.00	65.9 PK	74.0	-8.1	2.16 H	5	61.4	4.5
4	#5725.00	51.8 AV	54.0	-2.2	2.16 H	5	47.3	4.5
5	11340.00	60.7 PK	74.0	-13.3	1.71 H	336	42.3	18.4
6	11340.00	47.4 AV	54.0	-6.6	1.71 H	336	29.0	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	*5670.00	111.5 PK			1.89 V	346	71.2	40.3
2	*5670.00	102.0 AV			1.89 V	346	61.7	40.3
3	#5725.00	66.4 PK	74.0	-7.6	1.94 V	345	61.9	4.5
4	#5725.00	52.4 AV	54.0	-1.6	1.94 V	345	47.9	4.5
5	11340.00	60.9 PK	74.0	-13.1	2.42 V	197	42.5	18.4
6	11340.00	48.1 AV	54.0	-5.9	2.42 V	197	29.7	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 142	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	#5470.00	57.2 PK	74.0	-16.8	1.41 H	16	53.2	4.0
2	#5470.00	46.0 AV	54.0	-8.0	1.41 H	16	42.0	4.0
3	*5710.00	113.4 PK			1.34 H	19	73.0	40.4
4	*5710.00	103.7 AV			1.34 H	19	63.3	40.4
5	#5850.00	59.8 PK	74.0	-14.2	1.51 H	358	55.0	4.8
6	#5850.00	48.3 AV	54.0	-5.7	1.51 H	358	43.5	4.8
7	11420.00	60.9 PK	74.0	-13.1	1.61 H	190	42.7	18.2
8	11420.00	47.9 AV	54.0	-6.1	1.61 H	190	29.7	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	#5470.00	56.1 PK	74.0	-17.9	1.84 V	337	52.1	4.0
2	#5470.00	45.3 AV	54.0	-8.7	1.84 V	337	41.3	4.0
3	*5710.00	112.0 PK			1.93 V	343	71.6	40.4
4	*5710.00	102.6 AV			1.93 V	343	62.2	40.4
5	#5850.00	61.8 PK	74.0	-12.2	1.84 V	313	57.0	4.8
6	#5850.00	48.0 AV	54.0	-6.0	1.84 V	313	43.2	4.8
7	11420.00	61.3 PK	74.0	-12.7	2.22 V	287	43.1	18.2
8	11420.00	48.2 AV	54.0	-5.8	2.22 V	287	30.0	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.

## 802.11ac (VHT80)

CHANNEL	TX Channel 58	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

## ANTENNA POLARITY &amp; 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	61.8 PK	74.0	-12.2	1.73 H	322	58.2	3.6
2	5150.00	47.9 AV	54.0	-6.1	1.73 H	322	44.3	3.6
3	*5290.00	109.2 PK			1.49 H	316	69.6	39.6
4	*5290.00	99.4 AV			1.49 H	316	59.8	39.6
5	5350.00	66.8 PK	74.0	-7.2	1.78 H	317	62.9	3.9
6	5350.00	52.6 AV	54.0	-1.4	1.78 H	317	48.7	3.9
7	#10580.00	59.5 PK	74.0	-14.5	1.90 H	303	42.3	17.2
8	#10580.00	46.6 AV	54.0	-7.4	1.90 H	303	29.4	17.2

## ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.4 PK	74.0	-13.6	2.09 V	333	56.8	3.6
2	5150.00	45.9 AV	54.0	-8.1	2.09 V	333	42.3	3.6
3	*5290.00	108.5 PK			1.99 V	352	68.9	39.6
4	*5290.00	98.2 AV			1.99 V	352	58.6	39.6
5	5350.00	65.7 PK	74.0	-8.3	1.95 V	353	61.8	3.9
6	5350.00	51.8 AV	54.0	-2.2	1.95 V	353	47.9	3.9
7	#10580.00	60.1 PK	74.0	-13.9	1.78 V	344	42.9	17.2
8	#10580.00	46.4 AV	54.0	-7.6	1.78 V	344	29.2	17.2

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

## ANTENNA POLARITY &amp; 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	5460.00	63.0 PK	74.0	-11.0	1.50 H	310	59.0	4.0
2	5460.00	50.3 AV	54.0	-3.7	1.50 H	310	46.3	4.0
3	#5470.00	65.3 PK	74.0	-8.7	1.55 H	310	61.3	4.0
4	#5470.00	52.1 AV	54.0	-1.9	1.55 H	310	48.1	4.0
5	*5530.00	108.3 PK			1.88 H	313	68.3	40.0
6	*5530.00	98.6 AV			1.88 H	313	58.6	40.0
7	#5725.00	58.0 PK	74.0	-16.0	1.30 H	288	53.5	4.5
8	#5725.00	46.6 AV	54.0	-7.4	1.30 H	288	42.1	4.5
9	11060.00	60.7 PK	74.0	-13.3	1.88 H	322	42.1	18.6
10	11060.00	47.6 AV	54.0	-6.4	1.88 H	322	29.0	18.6

## ANTENNA POLARITY &amp; 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	5460.00	62.5 PK	74.0	-11.5	1.95 V	346	58.5	4.0
2	5460.00	49.1 AV	54.0	-4.9	1.95 V	346	45.1	4.0
3	#5470.00	65.9 PK	74.0	-8.1	1.95 V	346	61.9	4.0
4	#5470.00	52.3 AV	54.0	-1.7	1.95 V	346	48.3	4.0
5	*5530.00	107.2 PK			1.94 V	349	67.2	40.0
6	*5530.00	96.9 AV			1.94 V	349	56.9	40.0
7	#5725.00	56.5 PK	74.0	-17.5	4.00 V	326	52.0	4.5
8	#5725.00	45.0 AV	54.0	-9.0	4.00 V	326	40.5	4.5
9	11060.00	60.4 PK	74.0	-13.6	2.46 V	190	41.8	18.6
10	11060.00	47.4 AV	54.0	-6.6	2.46 V	190	28.8	18.6

## 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 138	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	#5470.00	56.6 PK	74.0	-17.4	1.62 H	14	52.6	4.0
2	#5470.00	45.5 AV	54.0	-8.5	1.62 H	14	41.5	4.0
3	*5690.00	110.1 PK			1.47 H	18	69.8	40.3
4	*5690.00	100.1 AV			1.47 H	18	59.8	40.3
5	#5850.00	63.1 PK	74.0	-10.9	2.22 H	14	58.3	4.8
6	#5850.00	49.0 AV	54.0	-5.0	2.22 H	14	44.2	4.8
7	11380.00	60.4 PK	74.0	-13.6	1.87 H	232	42.1	18.3
8	11380.00	47.3 AV	54.0	-6.7	1.87 H	232	29.0	18.3

**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	#5470.00	61.7 PK	74.0	-12.3	1.99 V	350	57.7	4.0
2	#5470.00	46.6 AV	54.0	-7.4	1.99 V	350	42.6	4.0
3	*5690.00	109.8 PK			1.89 V	351	69.5	40.3
4	*5690.00	99.9 AV			1.89 V	351	59.6	40.3
5	#5850.00	63.8 PK	74.0	-10.2	1.91 V	356	59.0	4.8
6	#5850.00	50.7 AV	54.0	-3.3	1.91 V	356	45.9	4.8
7	11380.00	61.0 PK	74.0	-13.0	1.59 V	51	42.7	18.3
8	11380.00	48.0 AV	54.0	-6.0	1.59 V	51	29.7	18.3

**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.

Test Mode C

802.11a

CHANNEL	TX Channel 52	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	59.7 PK	74.0	-14.3	1.69 H	288	56.1	3.6
2	5150.00	47.7 AV	54.0	-6.3	1.69 H	288	44.1	3.6
3	*5260.00	116.5 PK			2.25 H	10	76.9	39.6
4	*5260.00	106.5 AV			2.25 H	10	66.9	39.6
5	#10520.00	59.8 PK	74.0	-14.2	1.89 H	340	42.8	17.0
6	#10520.00	46.8 AV	54.0	-7.2	1.89 H	340	29.8	17.0

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.9 PK	74.0	-16.1	1.55 V	234	54.3	3.6
2	5150.00	46.4 AV	54.0	-7.6	1.55 V	234	42.8	3.6
3	*5260.00	119.3 PK			1.90 V	148	79.7	39.6
4	*5260.00	109.1 AV			1.90 V	148	69.5	39.6
5	#10520.00	60.5 PK	74.0	-13.5	1.83 V	250	43.5	17.0
6	#10520.00	47.3 AV	54.0	-6.7	1.83 V	250	30.3	17.0

Remarks:

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

CHANNEL	TX Channel 60	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	*5300.00	115.5 PK			1.77 H	229	75.9	39.6
2	*5300.00	105.2 AV			1.77 H	229	65.6	39.6
3	5350.00	59.8 PK	74.0	-14.2	1.64 H	232	55.9	3.9
4	5350.00	46.3 AV	54.0	-7.7	1.64 H	232	42.4	3.9
5	10600.00	59.9 PK	74.0	-14.1	1.87 H	102	42.8	17.1
6	10600.00	46.5 AV	54.0	-7.5	1.87 H	102	29.4	17.1

**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	*5300.00	119.0 PK			1.28 V	256	79.4	39.6
2	*5300.00	109.3 AV			1.28 V	256	69.7	39.6
3	5350.00	61.0 PK	74.0	-13.0	1.12 V	20	57.1	3.9
4	5350.00	49.0 AV	54.0	-5.0	1.12 V	20	45.1	3.9
5	10600.00	60.5 PK	74.0	-13.5	1.69 V	302	43.4	17.1
6	10600.00	47.4 AV	54.0	-6.6	1.69 V	302	30.3	17.1

**Remarks:**

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

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

## ANTENNA POLARITY &amp; 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	*5320.00	112.9 PK			1.70 H	233	73.2	39.7
2	*5320.00	102.8 AV			1.70 H	233	63.1	39.7
3	5350.00	62.5 PK	74.0	-11.5	1.60 H	234	58.6	3.9
4	5350.00	48.5 AV	54.0	-5.5	1.60 H	234	44.6	3.9
5	10640.00	59.2 PK	74.0	-14.8	1.98 H	100	41.9	17.3
6	10640.00	46.4 AV	54.0	-7.6	1.98 H	100	29.1	17.3

## ANTENNA POLARITY &amp; 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	*5320.00	117.1 PK			1.28 V	257	77.4	39.7
2	*5320.00	107.4 AV			1.28 V	257	67.7	39.7
3	5350.00	69.6 PK	74.0	-4.4	1.46 V	284	65.7	3.9
4	5350.00	<b>52.8 AV</b>	<b>54.0</b>	<b>-1.2</b>	<b>1.46 V</b>	<b>284</b>	<b>48.9</b>	<b>3.9</b>
5	10640.00	59.9 PK	74.0	-14.1	1.73 V	299	42.6	17.3
6	10640.00	46.9 AV	54.0	-7.1	1.73 V	299	29.6	17.3

## 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 100	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	5424.00	56.5 PK	74.0	-17.5	1.75 H	240	52.5	4.0
2	5424.00	45.0 AV	54.0	-9.0	1.75 H	240	41.0	4.0
3	#5470.00	58.6 PK	74.0	-15.4	1.76 H	242	54.6	4.0
4	#5470.00	47.6 AV	54.0	-6.4	1.76 H	242	43.6	4.0
5	*5500.00	111.7 PK			1.86 H	101	71.7	40.0
6	*5500.00	101.5 AV			1.86 H	101	61.5	40.0
7	11000.00	61.7 PK	74.0	-12.3	1.41 H	39	42.7	19.0
8	11000.00	48.8 AV	54.0	-5.2	1.41 H	39	29.8	19.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5424.00	59.1 PK	74.0	-14.9	1.42 V	261	55.1	4.0
2	5424.00	49.0 AV	54.0	-5.0	1.42 V	261	45.0	4.0
3	#5470.00	70.4 PK	74.0	-3.6	1.62 V	287	66.4	4.0
4	#5470.00	52.5 AV	54.0	-1.5	1.62 V	287	48.5	4.0
5	*5500.00	117.6 PK			1.64 V	295	77.6	40.0
6	*5500.00	107.4 AV			1.64 V	295	67.4	40.0
7	11000.00	63.0 PK	74.0	-11.0	2.12 V	297	44.0	19.0
8	11000.00	49.6 AV	54.0	-4.4	2.12 V	297	30.6	19.0

Remarks:

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

CHANNEL	TX Channel 116	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	*5580.00	113.6 PK			1.97 H	100	73.5	40.1
2	*5580.00	102.6 AV			1.97 H	100	62.5	40.1
3	11160.00	61.7 PK	74.0	-12.3	1.80 H	344	43.0	18.7
4	11160.00	48.6 AV	54.0	-5.4	1.80 H	344	29.9	18.7

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	121.2 PK			1.58 V	319	81.1	40.1
2	*5580.00	110.9 AV			1.58 V	319	70.8	40.1
3	11160.00	62.4 PK	74.0	-11.6	1.70 V	244	43.7	18.7
4	11160.00	49.3 AV	54.0	-4.7	1.70 V	244	30.6	18.7

**Remarks:**

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

CHANNEL	TX Channel 140	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	*5700.00	108.9 PK			1.80 H	100	68.6	40.3
2	*5700.00	97.7 AV			1.80 H	100	57.4	40.3
3	#5725.00	60.0 PK	74.0	-14.0	1.68 H	249	55.5	4.5
4	#5725.00	47.6 AV	54.0	-6.4	1.68 H	249	43.1	4.5
5	11400.00	60.4 PK	74.0	-13.6	1.47 H	351	42.2	18.2
6	11400.00	47.2 AV	54.0	-6.8	1.47 H	351	29.0	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	*5700.00	117.0 PK			1.60 V	318	76.7	40.3
2	*5700.00	106.8 AV			1.60 V	318	66.5	40.3
3	#5725.00	68.6 PK	74.0	-5.4	1.70 V	308	64.1	4.5
4	#5725.00	52.4 AV	54.0	-1.6	1.70 V	308	47.9	4.5
5	11400.00	60.9 PK	74.0	-13.1	1.98 V	50	42.7	18.2
6	11400.00	48.0 AV	54.0	-6.0	1.98 V	50	29.8	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 144	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	#5470.00	46.1 PK	74.0	-27.9	1.77 H	169	42.1	4.0
2	#5470.00	42.9 AV	54.0	-11.1	1.77 H	169	38.9	4.0
3	*5720.00	115.9 PK			2.09 H	179	75.5	40.4
4	*5720.00	105.6 AV			2.09 H	179	65.2	40.4
5	#5825.00	56.3 PK	74.0	-17.7	1.95 H	166	51.6	4.7
6	#5825.00	44.1 AV	54.0	-9.9	1.95 H	166	39.4	4.7
7	11440.00	60.8 PK	74.0	-13.2	2.09 H	340	42.5	18.3
8	11440.00	48.0 AV	54.0	-6.0	2.09 H	340	29.7	18.3

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	#5470.00	56.3 PK	74.0	-17.7	1.52 V	322	52.3	4.0
2	#5470.00	43.0 AV	54.0	-11.0	1.52 V	322	39.0	4.0
3	*5720.00	119.9 PK			1.23 V	359	79.5	40.4
4	*5720.00	109.5 AV			1.23 V	359	69.1	40.4
5	#5825.00	57.9 PK	74.0	-16.1	1.64 V	303	53.2	4.7
6	#5825.00	44.1 AV	54.0	-9.9	1.64 V	303	39.4	4.7
7	11440.00	61.8 PK	74.0	-12.2	1.44 V	331	43.5	18.3
8	11440.00	48.4 AV	54.0	-5.6	1.44 V	331	30.1	18.3

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.1 PK	74.0	-16.9	1.60 H	230	53.5	3.6
2	5150.00	45.4 AV	54.0	-8.6	1.60 H	230	41.8	3.6
3	*5260.00	114.9 PK			1.61 H	231	75.3	39.6
4	*5260.00	104.2 AV			1.61 H	231	64.6	39.6
5	#10520.00	59.4 PK	74.0	-14.6	2.09 H	200	42.4	17.0
6	#10520.00	46.6 AV	54.0	-7.4	2.09 H	200	29.6	17.0

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.4 PK	74.0	-15.6	1.49 V	245	54.8	3.6
2	5150.00	47.5 AV	54.0	-6.5	1.49 V	245	43.9	3.6
3	*5260.00	119.9 PK			1.27 V	16	80.3	39.6
4	*5260.00	109.0 AV			1.27 V	16	69.4	39.6
5	#10520.00	60.9 PK	74.0	-13.1	1.89 V	56	43.9	17.0
6	#10520.00	47.7 AV	54.0	-6.3	1.89 V	56	30.7	17.0

Remarks:

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

CHANNEL	TX Channel 60	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	*5300.00	115.6 PK			1.64 H	230	76.0	39.6
2	*5300.00	105.3 AV			1.64 H	230	65.7	39.6
3	5350.00	59.5 PK	74.0	-14.5	1.55 H	263	55.6	3.9
4	5350.00	46.5 AV	54.0	-7.5	1.55 H	263	42.6	3.9
5	10600.00	59.5 PK	74.0	-14.5	1.99 H	56	42.4	17.1
6	10600.00	46.3 AV	54.0	-7.7	1.99 H	56	29.2	17.1

**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	*5300.00	120.5 PK			1.26 V	17	80.9	39.6
2	*5300.00	109.8 AV			1.26 V	17	70.2	39.6
3	5350.00	66.1 PK	74.0	-7.9	1.56 V	319	62.2	3.9
4	5350.00	50.2 AV	54.0	-3.8	1.56 V	319	46.3	3.9
5	10600.00	60.8 PK	74.0	-13.2	1.66 V	37	43.7	17.1
6	10600.00	47.7 AV	54.0	-6.3	1.66 V	37	30.6	17.1

**Remarks:**

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

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

## ANTENNA POLARITY &amp; 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	*5320.00	77.5 PK			1.63 H	233	73.6	3.9
2	*5320.00	67.1 AV			1.63 H	233	63.2	3.9
3	5350.00	63.6 PK	74.0	-10.4	1.59 H	228	59.7	3.9
4	5350.00	48.6 AV	54.0	-5.4	1.59 H	228	44.7	3.9
5	10640.00	59.1 PK	74.0	-14.9	1.89 H	210	41.8	17.3
6	10640.00	45.9 AV	54.0	-8.1	1.89 H	210	28.6	17.3

## ANTENNA POLARITY &amp; 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	*5320.00	118.3 PK			1.32 V	15	78.6	39.7
2	*5320.00	107.6 AV			1.32 V	15	67.9	39.7
3	5350.00	71.1 PK	74.0	-2.9	1.54 V	320	67.2	3.9
4	<b>5350.00</b>	<b>52.8 AV</b>	<b>54.0</b>	<b>-1.2</b>	<b>1.54 V</b>	<b>320</b>	<b>48.9</b>	<b>3.9</b>
5	10640.00	59.5 PK	74.0	-14.5	1.80 V	275	42.2	17.3
6	10640.00	46.6 AV	54.0	-7.4	1.80 V	275	29.3	17.3

## 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 100	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	5460.00	56.5 PK	74.0	-17.5	1.66 H	230	52.5	4.0
2	5460.00	45.7 AV	54.0	-8.3	1.66 H	230	41.7	4.0
3	#5470.00	58.5 PK	74.0	-15.5	1.90 H	245	54.5	4.0
4	#5470.00	47.3 AV	54.0	-6.7	1.90 H	245	43.3	4.0
5	*5500.00	110.4 PK			1.78 H	100	70.4	40.0
6	*5500.00	99.6 AV			1.78 H	100	59.6	40.0
7	11000.00	61.4 PK	74.0	-12.6	1.40 H	33	42.4	19.0
8	11000.00	48.3 AV	54.0	-5.7	1.40 H	33	29.3	19.0

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5424.00	58.8 PK	74.0	-15.2	1.51 V	251	54.8	4.0
2	5424.00	48.8 AV	54.0	-5.2	1.51 V	251	44.8	4.0
3	#5470.00	69.3 PK	74.0	-4.7	1.30 V	262	65.3	4.0
4	#5470.00	52.4 AV	54.0	-1.6	1.30 V	262	48.4	4.0
5	*5500.00	117.3 PK			1.60 V	320	77.3	40.0
6	*5500.00	107.3 AV			1.60 V	320	67.3	40.0
7	11000.00	61.9 PK	74.0	-12.1	1.90 V	233	42.9	19.0
8	11000.00	49.0 AV	54.0	-5.0	1.90 V	233	30.0	19.0

Remarks:

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

CHANNEL	TX Channel 116	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	*5580.00	112.8 PK			1.69 H	102	72.7	40.1
2	*5580.00	102.4 AV			1.69 H	102	62.3	40.1
3	11160.00	61.5 PK	74.0	-12.5	1.80 H	234	42.8	18.7
4	11160.00	48.3 AV	54.0	-5.7	1.80 H	234	29.6	18.7

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	120.6 PK			1.59 V	318	80.5	40.1
2	*5580.00	110.3 AV			1.59 V	318	70.2	40.1
3	11650.00	61.6 PK	74.0	-12.4	1.78 V	242	43.5	18.1
4	11650.00	48.5 AV	54.0	-5.5	1.78 V	242	30.4	18.1

**Remarks:**

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

CHANNEL	TX Channel 140	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	*5700.00	107.6 PK			1.81 H	101	67.3	40.3
2	*5700.00	97.4 AV			1.81 H	101	57.1	40.3
3	#5725.00	59.5 PK	74.0	-14.5	1.85 H	234	55.0	4.5
4	#5725.00	48.1 AV	54.0	-5.9	1.85 H	234	43.6	4.5
5	11400.00	60.3 PK	74.0	-13.7	1.48 H	298	42.1	18.2
6	11400.00	47.5 AV	54.0	-6.5	1.48 H	298	29.3	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	*5700.00	116.6 PK			1.61 V	307	76.3	40.3
2	*5700.00	106.6 AV			1.61 V	307	66.3	40.3
3	#5725.00	67.5 PK	74.0	-6.5	1.68 V	317	63.0	4.5
4	#5725.00	52.3 AV	54.0	-1.7	1.68 V	317	47.8	4.5
5	11400.00	61.0 PK	74.0	-13.0	1.88 V	67	42.8	18.2
6	11400.00	47.9 AV	54.0	-6.1	1.88 V	67	29.7	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 144	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	#5470.00	55.4 PK	74.0	-18.6	1.99 H	203	51.4	4.0
2	#5470.00	42.8 AV	54.0	-11.2	1.99 H	203	38.8	4.0
3	*5720.00	114.3 PK			1.84 H	238	73.9	40.4
4	*5720.00	103.8 AV			1.84 H	238	63.4	40.4
5	#5825.00	57.1 PK	74.0	-16.9	1.83 H	311	52.4	4.7
6	#5825.00	43.6 AV	54.0	-10.4	1.83 H	311	38.9	4.7
7	11440.00	60.4 PK	74.0	-13.6	2.03 H	295	42.1	18.3
8	11440.00	46.7 AV	54.0	-7.3	2.03 H	295	28.4	18.3

**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	#5470.00	56.2 PK	74.0	-17.8	1.56 V	341	52.2	4.0
2	#5470.00	43.1 AV	54.0	-10.9	1.56 V	341	39.1	4.0
3	*5720.00	120.4 PK			1.39 V	334	80.0	40.4
4	*5720.00	109.8 AV			1.39 V	334	69.4	40.4
5	#5825.00	57.5 PK	74.0	-16.5	1.70 V	311	52.8	4.7
6	#5825.00	44.2 AV	54.0	-9.8	1.70 V	311	39.5	4.7
7	11440.00	61.3 PK	74.0	-12.7	1.60 V	322	43.0	18.3
8	11440.00	48.0 AV	54.0	-6.0	1.60 V	322	29.7	18.3

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

## ANTENNA POLARITY &amp; 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	*5270.00	112.2 PK			1.75 H	232	72.6	39.6
2	*5270.00	102.7 AV			1.75 H	232	63.1	39.6
3	5350.00	64.5 PK	74.0	-9.5	1.60 H	232	60.6	3.9
4	5350.00	48.8 AV	54.0	-5.2	1.60 H	232	44.9	3.9
5	#10540.00	59.0 PK	74.0	-15.0	2.03 H	23	41.9	17.1
6	#10540.00	46.2 AV	54.0	-7.8	2.03 H	23	29.1	17.1

## ANTENNA POLARITY &amp; 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	*5270.00	116.1 PK			1.28 V	19	76.5	39.6
2	*5270.00	106.6 AV			1.28 V	19	67.0	39.6
3	5350.00	69.2 PK	74.0	-4.8	1.48 V	283	65.3	3.9
4	5350.00	51.9 AV	54.0	-2.1	1.48 V	283	48.0	3.9
5	#10540.00	59.7 PK	74.0	-14.3	1.69 V	212	42.6	17.1
6	#10540.00	46.6 AV	54.0	-7.4	1.69 V	212	29.5	17.1

## Remarks:

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

CHANNEL	TX Channel 62	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	*5310.00	109.0 PK			1.74 H	231	69.4	39.6
2	*5310.00	99.3 AV			1.74 H	231	59.7	39.6
3	5350.00	67.0 PK	74.0	-7.0	1.72 H	233	63.1	3.9
4	5350.00	48.8 AV	54.0	-5.2	1.72 H	233	44.9	3.9
5	10620.00	59.0 PK	74.0	-15.0	2.05 H	277	41.7	17.3
6	10620.00	46.0 AV	54.0	-8.0	2.05 H	277	28.7	17.3

**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	*5310.00	113.3 PK			1.52 V	334	73.7	39.6
2	*5310.00	104.1 AV			1.52 V	334	64.5	39.6
3	5350.00	71.6 PK	74.0	-2.4	1.46 V	337	67.7	3.9
4	5350.00	52.4 AV	54.0	-1.6	1.46 V	337	48.5	3.9
5	10620.00	59.3 PK	74.0	-14.7	1.85 V	33	42.0	17.3
6	10620.00	46.4 AV	54.0	-7.6	1.85 V	33	29.1	17.3

**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 102	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	5460.00	56.8 PK	74.0	-17.2	1.72 H	235	52.8	4.0
2	5460.00	45.9 AV	54.0	-8.1	1.72 H	235	41.9	4.0
3	#5470.00	58.5 PK	74.0	-15.5	1.72 H	235	54.5	4.0
4	#5470.00	47.1 AV	54.0	-6.9	1.72 H	235	43.1	4.0
5	*5510.00	106.9 PK			1.85 H	102	66.9	40.0
6	*5510.00	97.5 AV			1.85 H	102	57.5	40.0
7	11020.00	60.6 PK	74.0	-13.4	1.47 H	41	41.7	18.9
8	11020.00	47.5 AV	54.0	-6.5	1.47 H	41	28.6	18.9

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	67.4 PK	74.0	-6.6	1.64 V	321	63.4	4.0
2	5460.00	49.7 AV	54.0	-4.3	1.64 V	321	45.7	4.0
3	#5470.00	70.9 PK	74.0	-3.1	1.46 V	286	66.9	4.0
4	#5470.00	52.3 AV	54.0	-1.7	1.46 V	286	48.3	4.0
5	*5510.00	113.5 PK			1.51 V	318	73.5	40.0
6	*5510.00	103.9 AV			1.51 V	318	63.9	40.0
7	11020.00	61.4 PK	74.0	-12.6	1.77 V	299	42.5	18.9
8	11020.00	48.3 AV	54.0	-5.7	1.77 V	299	29.4	18.9

**Remarks:**

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

CHANNEL	TX Channel 110	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	*5550.00	109.7 PK			1.95 H	101	69.7	40.0
2	*5550.00	100.4 AV			1.95 H	101	60.4	40.0
3	11100.00	60.2 PK	74.0	-13.8	1.60 H	55	41.7	18.5
4	11100.00	47.3 AV	54.0	-6.7	1.60 H	55	28.8	18.5

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	116.8 PK			1.50 V	318	76.8	40.0
2	*5550.00	107.8 AV			1.50 V	318	67.8	40.0
3	11100.00	60.5 PK	74.0	-13.5	1.84 V	79	42.0	18.5
4	11100.00	47.6 AV	54.0	-6.4	1.84 V	79	29.1	18.5

**Remarks:**

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

CHANNEL	TX Channel 134	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	*5670.00	106.4 PK			1.79 H	102	66.1	40.3
2	*5670.00	96.6 AV			1.79 H	102	56.3	40.3
3	#5725.00	58.0 PK	74.0	-16.0	1.79 H	248	53.5	4.5
4	#5725.00	46.7 AV	54.0	-7.3	1.79 H	248	42.2	4.5
5	11400.00	60.2 PK	74.0	-13.8	1.63 H	34	42.0	18.2
6	11400.00	46.7 AV	54.0	-7.3	1.63 H	34	28.5	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	*5670.00	114.6 PK			1.65 V	327	74.3	40.3
2	*5670.00	105.0 AV			1.65 V	327	64.7	40.3
3	#5725.00	67.8 PK	74.0	-6.2	1.70 V	305	63.3	4.5
4	#5725.00	52.3 AV	54.0	-1.7	1.70 V	305	47.8	4.5
5	11340.00	60.2 PK	74.0	-13.8	1.82 V	250	41.8	18.4
6	11340.00	47.3 AV	54.0	-6.7	1.82 V	250	28.9	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 142	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	#5470.00	46.6 PK	74.0	-27.4	2.11 H	266	42.6	4.0
2	#5470.00	42.9 AV	54.0	-11.1	2.11 H	266	38.9	4.0
3	*5710.00	112.0 PK			2.01 H	173	71.6	40.4
4	*5710.00	102.4 AV			2.01 H	173	62.0	40.4
5	#5825.00	46.7 PK	74.0	-27.3	1.87 H	269	42.0	4.7
6	#5825.00	43.4 AV	54.0	-10.6	1.87 H	269	38.7	4.7
7	11420.00	59.5 PK	74.0	-14.5	1.77 H	255	41.3	18.2
8	11420.00	46.3 AV	54.0	-7.7	1.77 H	255	28.1	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	#5470.00	56.3 PK	74.0	-17.7	1.72 V	311	52.3	4.0
2	#5470.00	43.0 AV	54.0	-11.0	1.72 V	311	39.0	4.0
3	*5710.00	117.1 PK			1.46 V	347	76.7	40.4
4	*5710.00	107.2 AV			1.46 V	347	66.8	40.4
5	#5825.00	58.3 PK	74.0	-15.7	1.58 V	333	53.6	4.7
6	#5825.00	45.2 AV	54.0	-8.8	1.58 V	333	40.5	4.7
7	11420.00	61.0 PK	74.0	-13.0	1.51 V	330	42.8	18.2
8	11420.00	47.5 AV	54.0	-6.5	1.51 V	330	29.3	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.

802.11ac (VHT80)

CHANNEL	TX Channel 58	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.6 PK	74.0	-18.4	1.50 H	217	52.0	3.6
2	5150.00	44.4 AV	54.0	-9.6	1.50 H	217	40.8	3.6
3	*5290.00	104.2 PK			1.82 H	229	64.6	39.6
4	*5290.00	94.7 AV			1.82 H	229	55.1	39.6
5	5350.00	60.7 PK	74.0	-13.3	1.60 H	212	56.8	3.9
6	5350.00	49.4 AV	54.0	-4.6	1.60 H	212	45.5	3.9
7	#10580.00	59.2 PK	74.0	-14.8	2.00 H	29	42.0	17.2
8	#10580.00	46.0 AV	54.0	-8.0	2.00 H	29	28.8	17.2

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	59.8 PK	74.0	-14.2	1.44 V	331	56.2	3.6
2	5150.00	47.2 AV	54.0	-6.8	1.44 V	331	43.6	3.6
3	*5290.00	109.7 PK			1.47 V	331	70.1	39.6
4	*5290.00	99.5 AV			1.47 V	331	59.9	39.6
5	5350.00	66.5 PK	74.0	-7.5	1.53 V	335	62.6	3.9
<b>6</b>	<b>5350.00</b>	<b>52.8 AV</b>	<b>54.0</b>	<b>-1.2</b>	<b>1.53 V</b>	<b>335</b>	<b>48.9</b>	<b>3.9</b>
7	#10580.00	59.7 PK	74.0	-14.3	1.70 V	40	42.5	17.2
8	#10580.00	46.6 AV	54.0	-7.4	1.70 V	40	29.4	17.2

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 106	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	5460.00	58.9 PK	74.0	-15.1	1.77 H	233	54.9	4.0
2	5460.00	47.9 AV	54.0	-6.1	1.77 H	233	43.9	4.0
3	#5470.00	57.8 PK	74.0	-16.2	1.77 H	233	53.8	4.0
4	#5470.00	46.3 AV	54.0	-7.7	1.77 H	233	42.3	4.0
5	*5530.00	102.7 PK			1.85 H	101	62.7	40.0
6	*5530.00	92.9 AV			1.85 H	101	52.9	40.0
7	#5725.00	57.0 PK	74.0	-17.0	1.80 H	22	52.5	4.5
8	#5725.00	46.3 AV	54.0	-7.7	1.80 H	22	41.8	4.5
9	11060.00	60.0 PK	74.0	-14.0	1.50 H	69	41.4	18.6
10	11060.00	47.0 AV	54.0	-7.0	1.50 H	69	28.4	18.6

**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	5460.00	62.9 PK	74.0	-11.1	1.61 V	319	58.9	4.0
2	5460.00	51.5 AV	54.0	-2.5	1.61 V	319	47.5	4.0
3	#5470.00	64.6 PK	74.0	-9.4	1.23 V	259	60.6	4.0
4	#5470.00	52.4 AV	54.0	-1.6	1.23 V	259	48.4	4.0
5	*5530.00	110.2 PK			1.49 V	319	70.2	40.0
6	*5530.00	100.3 AV			1.49 V	319	60.3	40.0
7	#5725.00	58.1 PK	74.0	-15.9	1.66 V	233	53.6	4.5
8	#5725.00	46.8 AV	54.0	-7.2	1.66 V	233	42.3	4.5
9	11060.00	60.5 PK	74.0	-13.5	1.92 V	220	41.9	18.6
10	11060.00	47.3 AV	54.0	-6.7	1.92 V	220	28.7	18.6

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 138	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	#5470.00	56.4 PK	74.0	-17.6	1.98 H	168	52.4	4.0
2	#5470.00	43.3 AV	54.0	-10.7	1.98 H	168	39.3	4.0
3	*5690.00	109.0 PK			2.03 H	176	68.7	40.3
4	*5690.00	98.9 AV			2.03 H	176	58.6	40.3
5	#5825.00	59.0 PK	74.0	-15.0	2.11 H	189	54.3	4.7
6	#5825.00	47.1 AV	54.0	-6.9	2.11 H	189	42.4	4.7
7	11380.00	60.6 PK	74.0	-13.4	1.88 H	203	42.3	18.3
8	11380.00	46.8 AV	54.0	-7.2	1.88 H	203	28.5	18.3

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	#5470.00	57.5 PK	74.0	-16.5	1.22 V	313	53.5	4.0
2	#5470.00	44.5 AV	54.0	-9.5	1.22 V	313	40.5	4.0
3	*5690.00	112.2 PK			1.55 V	347	71.9	40.3
4	*5690.00	102.7 AV			1.55 V	347	62.4	40.3
5	#5825.00	68.4 PK	74.0	-5.6	1.31 V	343	63.7	4.7
6	#5825.00	52.3 AV	54.0	-1.7	1.31 V	343	47.6	4.7
7	11380.00	61.4 PK	74.0	-12.6	1.45 V	333	43.1	18.3
8	11380.00	47.6 AV	54.0	-6.4	1.45 V	333	29.3	18.3

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.

## Below 1GHz Worst-Case Data: 802.11a

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	A		

## ANTENNA POLARITY &amp; 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	25.8 QP	40.0	-14.2	1.49 H	65	40.4	-14.6
2	125.17	28.6 QP	43.5	-14.9	1.49 H	244	44.4	-15.8
3	249.60	29.0 QP	46.0	-17.0	1.00 H	90	43.6	-14.6
4	305.99	29.5 QP	46.0	-16.5	1.00 H	194	42.1	-12.6
5	381.82	28.0 QP	46.0	-18.0	1.00 H	220	39.6	-11.6
6	747.34	35.5 QP	46.0	-10.5	1.00 H	26	40.4	-4.9

## ANTENNA POLARITY &amp; 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	37.78	37.3 QP	40.0	-2.7	1.00 V	292	52.8	-15.5
2	51.29	36.6 QP	40.0	-3.4	1.00 V	11	51.0	-14.4
3	125.17	30.2 QP	43.5	-13.3	1.00 V	270	46.0	-15.8
4	358.48	26.3 QP	46.0	-19.7	1.51 V	338	38.3	-12.0
5	506.25	28.4 QP	46.0	-17.6	1.00 V	300	37.7	-9.3
6	729.84	36.7 QP	46.0	-9.3	2.00 V	126	42.1	-5.4

## 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

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	B		

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	43.51	28.7 QP	40.0	-11.3	1.50 H	129	43.4	-14.7
2	88.23	28.5 QP	43.5	-15.0	1.50 H	36	48.3	-19.8
3	160.17	33.9 QP	43.5	-9.6	1.50 H	198	47.7	-13.8
4	206.83	34.8 QP	43.5	-8.7	1.01 H	136	51.6	-16.8
5	300.16	30.3 QP	46.0	-15.7	1.01 H	200	43.0	-12.7
6	356.54	29.3 QP	46.0	-16.7	1.01 H	82	41.3	-12.0

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	37.40	36.3 QP	40.0	-3.7	1.00 V	222	51.9	-15.6
2	62.70	35.7 QP	40.0	-4.3	1.00 V	298	50.9	-15.2
3	96.01	31.3 QP	43.5	-12.2	1.00 V	78	50.3	-19.0
4	152.39	27.6 QP	43.5	-15.9	1.00 V	289	41.6	-14.0
5	204.89	26.5 QP	43.5	-17.0	1.00 V	16	43.3	-16.8
6	496.53	25.9 QP	46.0	-20.1	1.00 V	6	35.5	-9.6

**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

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	C		

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.12	26.7 QP	40.0	-13.3	1.50 H	76	41.3	-14.6
2	125.17	29.7 QP	43.5	-13.8	1.50 H	241	45.5	-15.8
3	241.83	33.1 QP	46.0	-12.9	1.50 H	350	48.0	-14.9
4	304.04	43.7 QP	46.0	-2.3	1.50 H	6	56.4	-12.7
5	315.71	40.1 QP	46.0	-5.9	1.50 H	6	52.4	-12.3
6	729.84	30.5 QP	46.0	-15.5	1.50 H	4	35.9	-5.4

**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	37.68	37.9 QP	40.0	-2.1	1.00 V	172	53.4	-15.5
2	55.18	36.2 QP	40.0	-3.8	1.00 V	16	50.7	-14.5
3	125.17	32.1 QP	43.5	-11.4	1.00 V	32	47.9	-15.8
4	296.27	30.3 QP	46.0	-15.7	1.49 V	93	43.1	-12.8
5	315.71	25.5 QP	46.0	-20.5	1.49 V	47	37.8	-12.3
6	731.79	33.8 QP	46.0	-12.2	1.00 V	289	39.0	-5.2

**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

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	D		

**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	90.17	31.5 QP	43.5	-12.0	1.99 H	63	51.1	-19.6
2	125.17	35.1 QP	43.5	-8.4	1.49 H	15	50.9	-15.8
3	206.83	36.0 QP	43.5	-7.5	1.49 H	151	52.8	-16.8
4	288.49	32.0 QP	46.0	-14.0	1.00 H	199	45.0	-13.0
5	329.32	34.9 QP	46.0	-11.1	1.00 H	50	47.0	-12.1
6	729.84	36.5 QP	46.0	-9.5	1.99 H	10	41.9	-5.4

**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	34.48	36.6 QP	40.0	-3.4	1.50 V	144	52.6	-16.0
2	62.95	37.6 QP	40.0	-2.4	1.00 V	356	52.8	-15.2
3	97.95	31.9 QP	43.5	-11.6	1.00 V	72	50.7	-18.8
4	304.04	38.3 QP	46.0	-7.7	1.00 V	307	51.0	-12.7
5	335.15	32.6 QP	46.0	-13.4	1.00 V	153	44.7	-12.1
6	933.99	34.2 QP	46.0	-11.8	1.00 V	314	36.6	-2.4

**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

## 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	ESCS 30	100288	Aug. 17, 2017	Aug. 16, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Sep. 08, 2017	Sep. 07, 2018
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 17, 2017	Jan. 16, 2018
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Aug. 02, 2017	Aug. 01, 2018
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 2.

3. The VCCI Site Registration No. is C-2047.

#### 4.2.3 Test Procedures

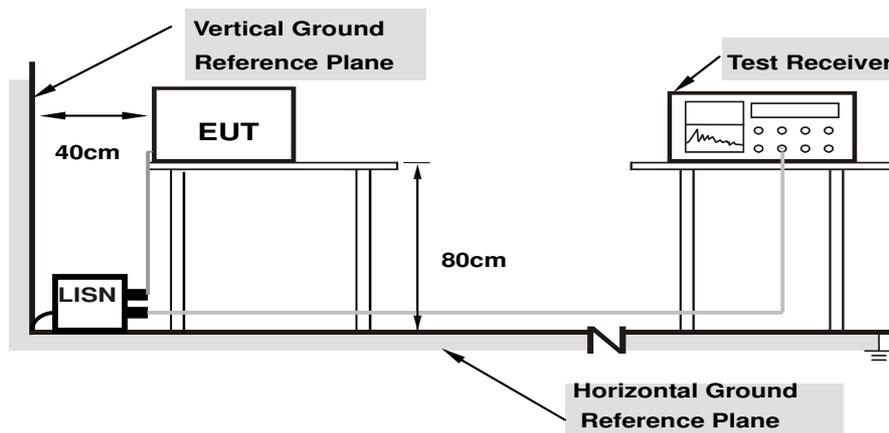
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

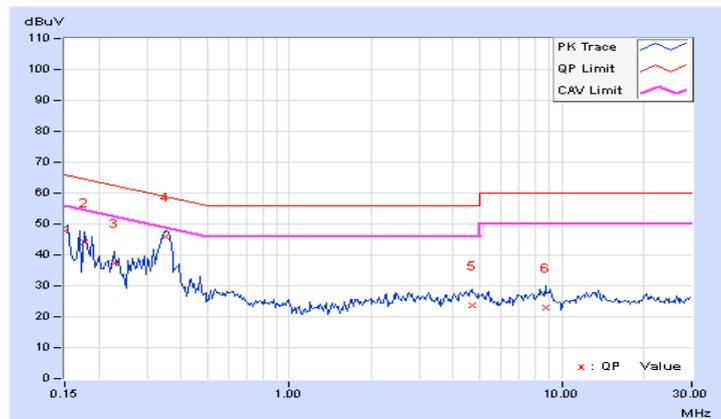
Worst-case data: 802.11a

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

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	10.18	37.66	22.28	47.84	32.46	66.00
2	0.17734	10.20	33.81	19.12	44.01	29.32	64.61	54.61	-20.60	-25.29
3	0.22812	10.21	27.08	16.56	37.29	26.77	62.52	52.52	-25.23	-25.75
4	0.34922	10.23	35.86	28.49	46.09	38.72	58.98	48.98	-12.89	-10.26
5	4.67188	10.42	13.19	5.34	23.61	15.76	56.00	46.00	-32.39	-30.24
6	8.74609	10.50	12.47	6.99	22.97	17.49	60.00	50.00	-37.03	-32.51

#### Remarks:

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

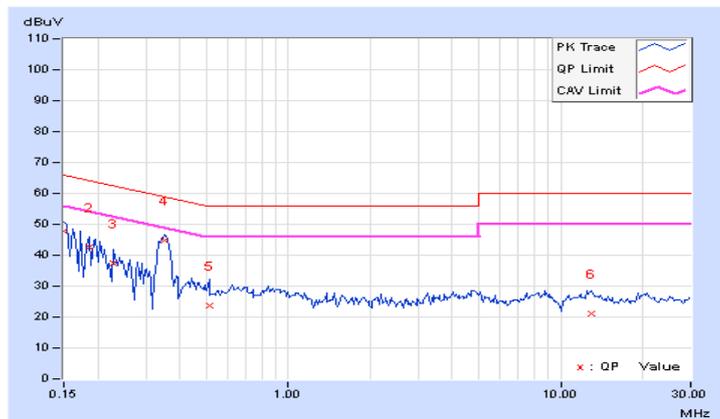


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [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	10.19	37.66	23.42	47.85	33.61	66.00
2	0.18516	10.20	32.34	19.42	42.54	29.62	64.25	54.25	-21.71	-24.63
3	0.22812	10.21	27.18	17.13	37.39	27.34	62.52	52.52	-25.13	-25.18
4	0.34922	10.27	34.43	27.12	44.70	37.39	58.98	48.98	-14.28	-11.59
5	0.51328	10.30	13.50	9.25	23.80	19.55	56.00	46.00	-32.20	-26.45
6	12.89844	10.68	10.53	4.89	21.21	15.57	60.00	50.00	-38.79	-34.43

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.

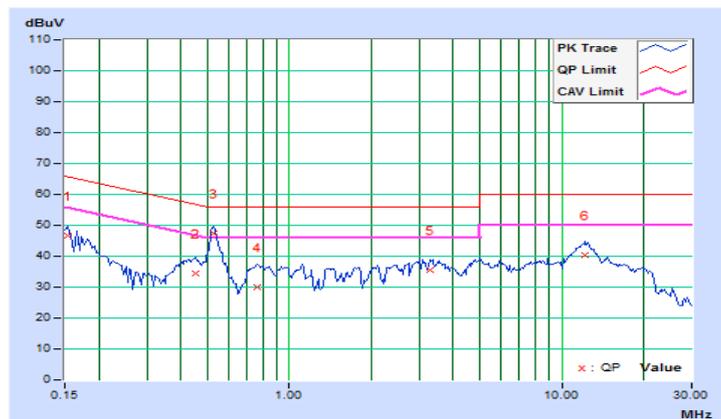


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	10.01	36.58	22.13	46.59	32.14	65.79
2	0.45078	10.04	24.24	24.05	34.28	34.09	56.86	46.86	-22.58	-12.77
<b>3</b>	<b>0.52500</b>	<b>10.05</b>	<b>37.37</b>	<b>32.95</b>	<b>47.42</b>	<b>43.00</b>	<b>56.00</b>	<b>46.00</b>	<b>-8.58</b>	<b>-3.00</b>
4	0.76719	10.08	20.01	10.64	30.09	20.72	56.00	46.00	-25.91	-25.28
5	3.27734	10.13	25.54	20.50	35.67	30.63	56.00	46.00	-20.33	-15.37
6	12.24219	10.33	29.91	25.17	40.24	35.50	60.00	50.00	-19.76	-14.50

Remarks:

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

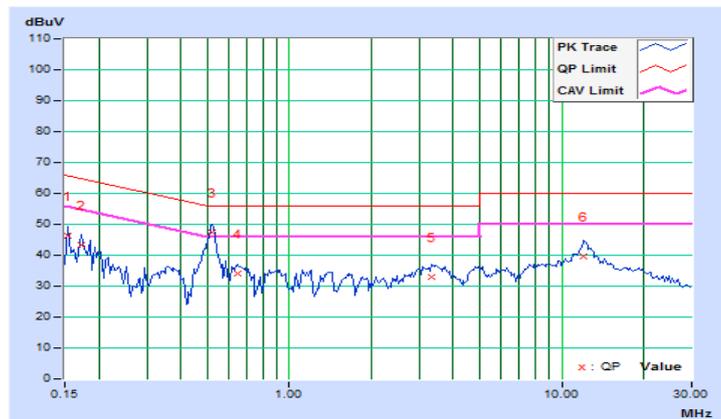


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	10.01	36.40	22.11	46.41	32.12	65.79
2	0.17344	9.99	33.50	17.65	43.49	27.64	64.79	54.79	-21.30	-27.15
3	0.52109	10.04	37.52	32.93	47.56	42.97	56.00	46.00	-8.44	-3.03
4	0.64609	10.05	24.04	19.81	34.09	29.86	56.00	46.00	-21.91	-16.14
5	3.33203	10.21	22.71	16.99	32.92	27.20	56.00	46.00	-23.08	-18.80
6	12.08203	10.39	29.15	24.26	39.54	34.65	60.00	50.00	-20.46	-15.35

Remarks:

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

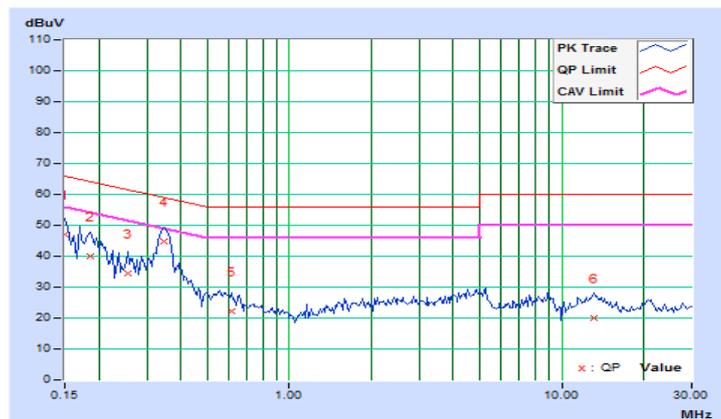


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq. [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	10.01	36.94	18.67	46.95	28.68	66.00
2	0.18516	10.02	30.16	13.72	40.18	23.74	64.25	54.25	-24.07	-30.51
3	0.25547	10.03	24.57	13.48	34.60	23.51	61.58	51.58	-26.98	-28.07
4	0.34531	10.03	34.85	23.92	44.88	33.95	59.07	49.07	-14.19	-15.12
5	0.61094	10.06	12.07	3.21	22.13	13.27	56.00	46.00	-33.87	-32.73
6	13.06641	10.35	9.64	0.88	19.99	11.23	60.00	50.00	-40.01	-38.77

Remarks:

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

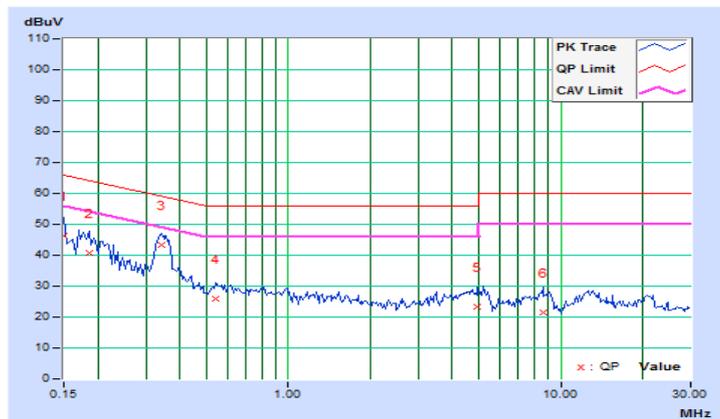


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq. [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	10.02	36.43	18.31	46.45	28.33	66.00
2	0.18516	9.98	30.83	15.37	40.81	25.35	64.25	54.25	-23.44	-28.90
3	0.34141	10.02	33.40	23.21	43.42	33.23	59.17	49.17	-15.75	-15.94
4	0.54453	10.04	15.91	4.94	25.95	14.98	56.00	46.00	-30.05	-31.02
5	4.96094	10.26	12.90	1.68	23.16	11.94	56.00	46.00	-32.84	-34.06
6	8.60547	10.30	11.19	5.80	21.49	16.10	60.00	50.00	-38.51	-33.90

Remarks:

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

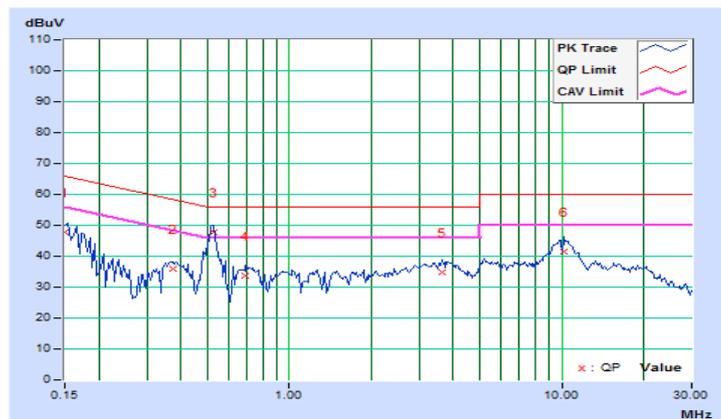


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	D		

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	10.01	37.79	23.36	47.80	33.37	66.00
2	0.37266	10.03	25.84	21.54	35.87	31.57	58.44	48.44	-22.57	-16.87
<b>3</b>	<b>0.52500</b>	<b>10.05</b>	<b>37.86</b>	<b>32.95</b>	<b>47.91</b>	<b>43.00</b>	<b>56.00</b>	<b>46.00</b>	<b>-8.09</b>	<b>-3.00</b>
4	0.69297	10.07	23.75	19.90	33.82	29.97	56.00	46.00	-22.18	-16.03
5	3.64453	10.13	24.72	20.25	34.85	30.38	56.00	46.00	-21.15	-15.62
6	10.21094	10.29	31.17	26.41	41.46	36.70	60.00	50.00	-18.54	-13.30

Remarks:

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

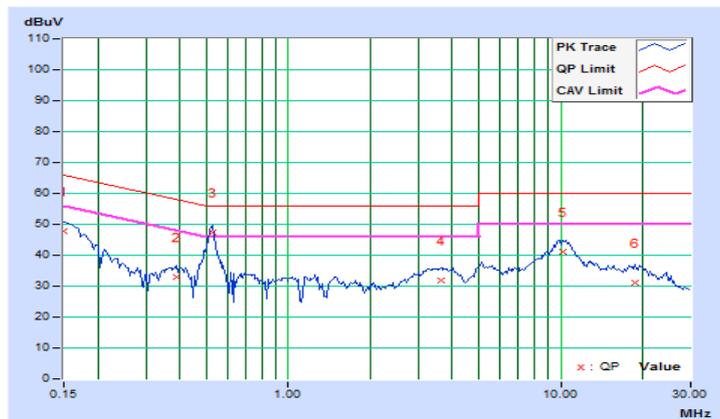


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	D		

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	10.02	37.79	21.52	47.81	31.54	66.00
2	0.38828	10.04	22.77	16.79	32.81	26.83	58.10	48.10	-25.29	-21.27
3	0.52500	10.04	37.25	32.48	47.29	42.52	56.00	46.00	-8.71	-3.48
4	3.63672	10.23	21.79	16.87	32.02	27.10	56.00	46.00	-23.98	-18.90
5	10.14063	10.32	30.71	25.82	41.03	36.14	60.00	50.00	-18.97	-13.86
6	18.75000	10.66	20.39	15.28	31.05	25.94	60.00	50.00	-28.95	-24.06

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  $N_{ANT}$ ;

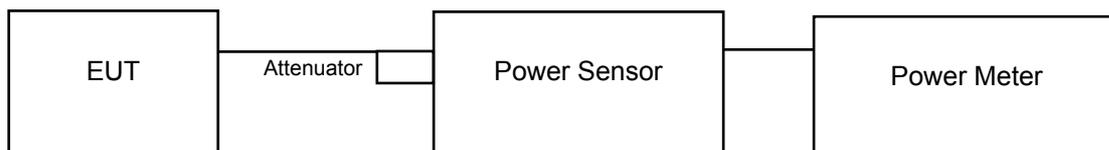
Array Gain =  $5 \log(N_{ANT}/N_{SS})$  dB or 3 dB, whichever is less for 20-MHz channel widths with  $N_{ANT} \geq 5$ .

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

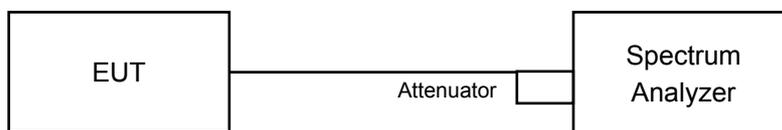
#### 4.3.2 Test Setup

For Power Output

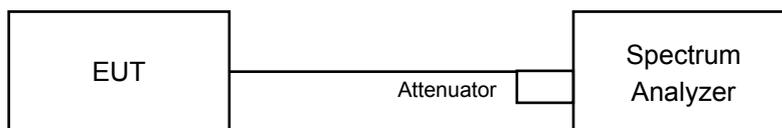
802.11a, 802.11n (HT20), 802.11n (HT40)



802.11ac (VHT80)



For 26dB Bandwidth



### 4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.3.4 Test Procedure

#### For Average Power Measurement

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

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

#### For 802.11ac (VHT80)

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

#### For 26dB Bandwidth

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

### 4.3.5 Deviation from Test Standard

No deviation.

### 4.3.6 EUT Operating Conditions

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

### 4.3.7 Test Result

Power Output:

CDD Mode

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	19.51	19.05	169.684	22.30	23.94	Pass
60	5300	19.44	19.11	169.372	22.29	24.00	Pass
64	5320	18.29	18.36	136.002	21.34	23.90	Pass
100	5500	18.67	18.72	148.094	21.71	23.90	Pass
116	5580	19.69	19.23	176.864	22.48	23.84	Pass
140	5700	17.71	17.29	112.600	20.52	23.84	Pass
144	5720 For U-NII-2C	17.76	17.66	118.049	20.72	22.71	Pass
144	5720 For U-NII-3	13.13	12.93	40.193	16.04	30.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1.  $11\text{dBm} + 10\log ( 20.31 ) = 24.08 \text{ dBm} > 24\text{dBm}$
2.  $11\text{dBm} + 10\log ( 20.25 ) = 24.06 \text{ dBm} > 24\text{dBm}$
3.  $11\text{dBm} + 10\log ( 19.94 ) = 24.00 \text{ dBm} > 24\text{dBm}$
4.  $11\text{dBm} + 10\log ( 20.07 ) = 24.03 \text{ dBm} > 24\text{dBm}$
5.  $11\text{dBm} + 10\log ( 19.82 ) = 23.97 \text{ dBm} < 24\text{dBm}$
6.  $11\text{dBm} + 10\log ( 19.55 ) = 23.91 \text{ dBm} < 24\text{dBm}$
7.  $11\text{dBm} + 10\log ( 5725.00 - 5710.19 ) = 22.71 \text{ dBm} < 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log ( 19.66 ) = 23.94 \text{ dBm} < 24\text{dBm}$
2.  $11\text{dBm} + 10\log ( 20.06 ) = 24.02 \text{ dBm} > 24\text{dBm}$
3.  $11\text{dBm} + 10\log ( 19.48 ) = 23.90 \text{ dBm} < 24\text{dBm}$
4.  $11\text{dBm} + 10\log ( 19.51 ) = 23.90 \text{ dBm} < 24\text{dBm}$
5.  $11\text{dBm} + 10\log ( 19.23 ) = 23.84 \text{ dBm} < 24\text{dBm}$
6.  $11\text{dBm} + 10\log ( 19.25 ) = 23.84 \text{ dBm} < 24\text{dBm}$
7.  $11\text{dBm} + 10\log ( 5725.00 - 5709.89 ) = 22.79 \text{ dBm} < 24\text{dBm}$

## 802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	19.44	19.01	167.518	22.24	24.00	Pass
60	5300	19.52	19.33	175.240	22.44	24.00	Pass
64	5320	18.36	18.55	140.163	21.47	24.00	Pass
100	5500	18.16	18.30	133.072	21.24	24.00	Pass
116	5580	19.68	19.21	176.265	22.46	24.00	Pass
140	5700	17.85	17.27	114.287	20.58	24.00	Pass
144	5720 For U-NII-2C	17.80	17.67	118.735	20.75	22.82	Pass
144	5720 For U-NII-3	13.26	13.06	41.414	16.17	30.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1.  $11\text{dBm} + 10\log ( 20.62 ) = 24.14 \text{ dBm} > 24\text{dBm}$
2.  $11\text{dBm} + 10\log ( 20.67 ) = 24.15 \text{ dBm} > 24\text{dBm}$
3.  $11\text{dBm} + 10\log ( 20.45 ) = 24.11 \text{ dBm} > 24\text{dBm}$
4.  $11\text{dBm} + 10\log ( 20.51 ) = 24.12 \text{ dBm} > 24\text{dBm}$
5.  $11\text{dBm} + 10\log ( 20.59 ) = 24.14 \text{ dBm} > 24\text{dBm}$
6.  $11\text{dBm} + 10\log ( 20.43 ) = 24.10 \text{ dBm} > 24\text{dBm}$
7.  $11\text{dBm} + 10\log ( 5725.00 - 5709.7 ) = 22.85 \text{ dBm} < 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log ( 20.50 ) = 24.12 \text{ dBm} > 24\text{dBm}$
2.  $11\text{dBm} + 10\log ( 20.64 ) = 24.15 \text{ dBm} > 24\text{dBm}$
3.  $11\text{dBm} + 10\log ( 20.47 ) = 24.11 \text{ dBm} > 24\text{dBm}$
4.  $11\text{dBm} + 10\log ( 20.53 ) = 24.12 \text{ dBm} > 24\text{dBm}$
5.  $11\text{dBm} + 10\log ( 20.18 ) = 24.05 \text{ dBm} > 24\text{dBm}$
6.  $11\text{dBm} + 10\log ( 20.44 ) = 24.10 \text{ dBm} > 24\text{dBm}$
7.  $11\text{dBm} + 10\log ( 5725.00 - 5709.80 ) = 22.82 \text{ dBm} < 24\text{dBm}$

## 802.11n (HT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	21.30	20.22	<b>240.092</b>	23.80	24.00	Pass
62	5310	17.75	17.54	116.320	20.66	24.00	Pass
102	5510	17.59	17.45	113.002	20.53	24.00	Pass
110	5550	21.13	20.24	<b>235.400</b>	23.72	24.00	Pass
134	5670	18.46	17.87	131.381	21.19	24.00	Pass
142	5710 For U-NII-2C	19.94	19.03	178.611	22.52	24.00	Pass
142	5710 For U-NII-3	15.00	14.39	59.102	17.72	30.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1.  $11\text{dBm} + 10\log ( 69.15 ) = 29.40 \text{ dBm} > 24\text{dBm}$
2.  $11\text{dBm} + 10\log ( 40.97 ) = 27.12 \text{ dBm} > 24\text{dBm}$
3.  $11\text{dBm} + 10\log ( 40.98 ) = 27.13 \text{ dBm} > 24\text{dBm}$
4.  $11\text{dBm} + 10\log ( 56.95 ) = 28.55 \text{ dBm} > 24\text{dBm}$
5.  $11\text{dBm} + 10\log ( 40.75 ) = 27.10 \text{ dBm} > 24\text{dBm}$
6.  $11\text{dBm} + 10\log ( 5725.00 - 5678.10 ) = 27.71 \text{ dBm} > 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log ( 76.04 ) = 29.81 \text{ dBm} > 24\text{dBm}$
2.  $11\text{dBm} + 10\log ( 41.11 ) = 27.14 \text{ dBm} > 24\text{dBm}$
3.  $11\text{dBm} + 10\log ( 40.81 ) = 27.11 \text{ dBm} > 24\text{dBm}$
4.  $11\text{dBm} + 10\log ( 58.45 ) = 28.67 \text{ dBm} > 24\text{dBm}$
5.  $11\text{dBm} + 10\log ( 40.85 ) = 27.11 \text{ dBm} > 24\text{dBm}$
6.  $11\text{dBm} + 10\log ( 5725.00 - 5678.72 ) = 27.65 \text{ dBm} > 24\text{dBm}$

## 802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	16.87	16.45	92.798	19.68	24.00	Pass
106	5530	16.90	16.75	96.293	19.84	24.00	Pass
138	5690 For U-NII-2C	19.62	19.31	176.932	22.48	24.00	Pass
138	5690 For U-NII-3	9.05	8.52	15.147	11.80	30.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1.  $11\text{dBm} + 10\log ( 83.68 ) = 30.23 \text{ dBm} > 24\text{dBm}$
2.  $11\text{dBm} + 10\log ( 83.89 ) = 30.24 \text{ dBm} > 24\text{dBm}$
3.  $11\text{dBm} + 10\log ( 83.86 ) = 30.24 \text{ dBm} > 24\text{dBm}$
4.  $11\text{dBm} + 10\log ( 5725.00 - 5648.02 ) = 29.86 \text{ dBm} > 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log ( 82.84 ) = 30.18 \text{ dBm} > 24\text{dBm}$
2.  $11\text{dBm} + 10\log ( 83.11 ) = 30.20 \text{ dBm} > 24\text{dBm}$
3.  $11\text{dBm} + 10\log ( 83.43 ) = 30.21 \text{ dBm} > 24\text{dBm}$
4.  $11\text{dBm} + 10\log ( 5725.00 - 5648.48 ) = 29.84 \text{ dBm} > 24\text{dBm}$

## Beamforming Mode

### 802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	16.43	16.00	83.753	19.23	21.39	Pass
60	5300	16.51	16.32	87.700	19.43	21.39	Pass
64	5320	15.35	15.54	70.146	18.46	21.39	Pass
100	5500	15.15	15.29	66.527	18.23	21.39	Pass
116	5580	16.67	16.20	88.105	19.45	21.39	Pass
140	5700	14.84	14.26	57.148	17.57	21.39	Pass
144	5720 For U-NII-2C	14.79	14.66	59.429	17.74	20.21	Pass
144	5720 For U-NII-3	10.25	10.05	20.701	13.16	27.39	Pass

#### Note:

- 5260~5320MHz directional gain = 5.60dBi + 10log(2) = 8.61dBi > 6dBi, so the power limit shall be reduced to 24-(8.61-6) = 21.39dBm.
- 5500~5700MHz directional gain = 5.60dBi + 10log(2) = 8.61dBi > 6dBi, so the power limit shall be reduced to 24-(8.61-6) = 21.39dBm.
- 5720MHz directional gain = 5.60dBi + 10log(2) = 8.61dBi > 6dBi, so the power limit shall be reduced to 22.82-(8.61-6) = 20.21dBm.
- 5745~5825MHz directional gain = 5.60dBi + 10log(2) = 8.61dBi > 6dBi, so the power limit shall be reduced to 30-(8.61-6) = 27.39dBm.

#### For U-NII-2A, U-NII-2C Band:

##### Chain 0

- 11dBm + 10log ( 20.62 ) = 24.14 dBm > 24dBm
- 11dBm + 10log ( 20.67 ) = 24.15 dBm > 24dBm
- 11dBm + 10log ( 20.45 ) = 24.11 dBm > 24dBm
- 11dBm + 10log ( 20.51 ) = 24.12 dBm > 24dBm
- 11dBm + 10log ( 20.59 ) = 24.14 dBm > 24dBm
- 11dBm + 10log ( 20.43 ) = 24.10 dBm > 24dBm
- 11dBm + 10log ( 5725.00 - 5709.7 ) = 22.85 dBm < 24dBm

##### Chain 1

- 11dBm + 10log ( 20.50 ) = 24.12 dBm > 24dBm
- 11dBm + 10log ( 20.64 ) = 24.15 dBm > 24dBm
- 11dBm + 10log ( 20.47 ) = 24.11 dBm > 24dBm
- 11dBm + 10log ( 20.53 ) = 24.12 dBm > 24dBm
- 11dBm + 10log ( 20.18 ) = 24.05 dBm > 24dBm
- 11dBm + 10log ( 20.44 ) = 24.10 dBm > 24dBm
- 11dBm + 10log ( 5725.00 - 5709.80 ) = 22.82 dBm < 24dBm

## 802.11n (HT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	18.29	17.21	<b>119.950</b>	20.79	21.39	Pass
62	5310	14.74	14.53	58.210	17.65	21.39	Pass
102	5510	14.58	14.44	56.494	17.52	21.39	Pass
110	5550	18.12	17.23	<b>117.761</b>	20.71	21.39	Pass
134	5670	15.45	14.86	65.766	18.18	21.39	Pass
142	5710 For U-NII-2C	16.93	16.02	89.331	19.51	21.39	Pass
142	5710 For U-NII-3	11.99	11.38	29.580	14.71	27.39	Pass

## Note:

- 5260~5320MHz directional gain = 5.60dBi + 10log(2) = 8.61dBi > 6dBi, so the power limit shall be reduced to 24-(8.61-6) = 21.39dBm.
- 5500~5720MHz directional gain = 5.60dBi + 10log(2) = 8.61dBi > 6dBi, so the power limit shall be reduced to 24-(8.61-6) = 21.39dBm.
- 5745~5825MHz directional gain = 5.60dBi + 10log(2) = 8.61dBi > 6dBi, so the power limit shall be reduced to 30-(8.61-6) = 27.39dBm.

## For U-NII-2A, U-NII-2C Band:

## Chain 0

- 11dBm + 10log ( 69.15 ) = 29.40 dBm > 24dBm
- 11dBm + 10log ( 40.97 ) = 27.12 dBm > 24dBm
- 11dBm + 10log ( 40.98 ) = 27.13 dBm > 24dBm
- 11dBm + 10log ( 56.95 ) = 28.55 dBm > 24dBm
- 11dBm + 10log ( 40.75 ) = 27.10 dBm > 24dBm
- 11dBm + 10log ( 5725.00 - 5678.10 ) = 27.71 dBm > 24dBm

## Chain 1

- 11dBm + 10log ( 76.04 ) = 29.81 dBm > 24dBm
- 11dBm + 10log ( 41.11 ) = 27.14 dBm > 24dBm
- 11dBm + 10log ( 40.81 ) = 27.11 dBm > 24dBm
- 11dBm + 10log ( 58.45 ) = 28.67 dBm > 24dBm
- 11dBm + 10log ( 40.85 ) = 27.11 dBm > 24dBm
- 11dBm + 10log ( 5725.00 - 5678.72 ) = 27.65 dBm > 24dBm

## 802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	13.86	13.44	46.452	16.67	21.39	Pass
106	5530	13.89	13.74	48.195	16.83	21.39	Pass
138	5690 For U-NII-2C	16.61	16.30	88.512	19.47	21.39	Pass
138	5690 For U-NII-3	6.04	5.51	7.568	8.79	27.39	Pass

## Note:

- 5260~5320MHz directional gain = 5.60dBi + 10log(2) = 8.61dBi > 6dBi, so the power limit shall be reduced to 24-(8.61-6) = 21.39dBm.
- 5500~5720MHz directional gain = 5.60dBi + 10log(2) = 8.61dBi > 6dBi, so the power limit shall be reduced to 24-(8.61-6) = 21.39dBm.
- 5745~5825MHz directional gain = 5.60dBi + 10log(2) = 8.61dBi > 6dBi, so the power limit shall be reduced to 30-(8.61-6) = 27.39dBm.

## For U-NII-2A, U-NII-2C Band:

## Chain 0

- 11dBm + 10log ( 83.68 ) = 30.23 dBm > 24dBm
- 11dBm + 10log ( 83.89 ) = 30.24 dBm > 24dBm
- 11dBm + 10log ( 83.86 ) = 30.24 dBm > 24dBm
- 11dBm + 10log ( 5725.00 - 5648.02 ) = 29.86 dBm > 24dBm

## Chain 1

- 11dBm + 10log ( 82.84 ) = 30.18 dBm > 24dBm
- 11dBm + 10log ( 83.11 ) = 30.20 dBm > 24dBm
- 11dBm + 10log ( 83.43 ) = 30.21 dBm > 24dBm
- 11dBm + 10log ( 5725.00 - 5648.48 ) = 29.84 dBm > 24dBm

## 26dB Bandwidth:

## 802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.31	19.66
60	5300	20.25	20.06
64	5320	19.94	19.48
100	5500	20.07	19.51
116	5580	19.82	19.23
140	5700	19.55	19.25
144	5720 For U-NII-2C	14.81	15.11
144	5720 For U-NII-3	5.10	5.07

## 802.11n (HT20)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.62	20.50
60	5300	20.67	20.64
64	5320	20.45	20.47
100	5500	20.51	20.53
116	5580	20.59	20.18
140	5700	20.43	20.44
144	5720 For U-NII-2C	15.30	15.20
144	5720 For U-NII-3	5.37	5.24

## 802.11n (HT40)

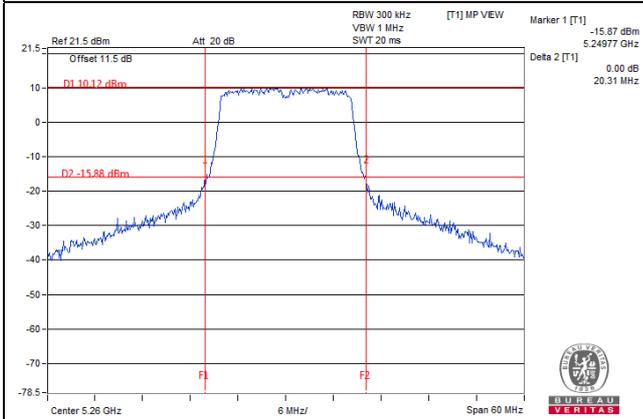
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	69.15	76.04
62	5310	40.97	41.11
102	5510	40.98	40.81
110	5550	56.95	58.45
134	5670	40.75	40.85
142	5710 For U-NII-2C	46.90	46.28
142	5710 For U-NII-3	15.02	15.93

## 802.11ac (VHT80)

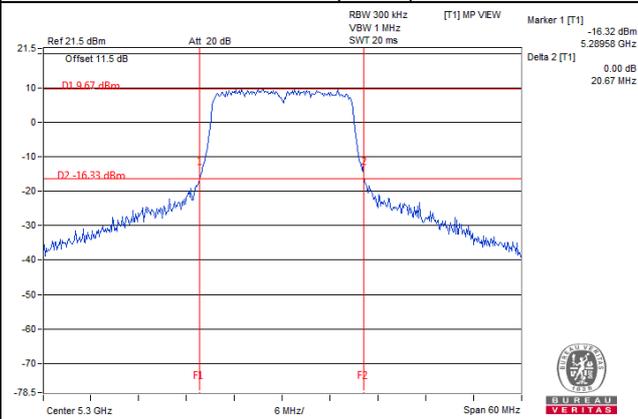
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	83.68	82.84
106	5530	83.89	83.11
138	5690 For U-NII-2C	76.98	76.52
138	5690 For U-NII-3	6.75	6.36

### Spectrum Plot of Worst Value

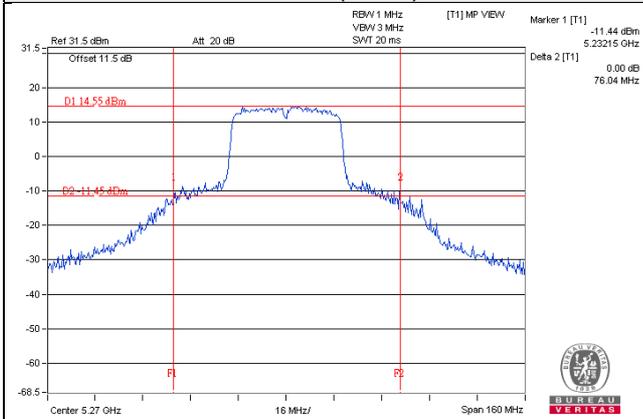
#### 802.11a



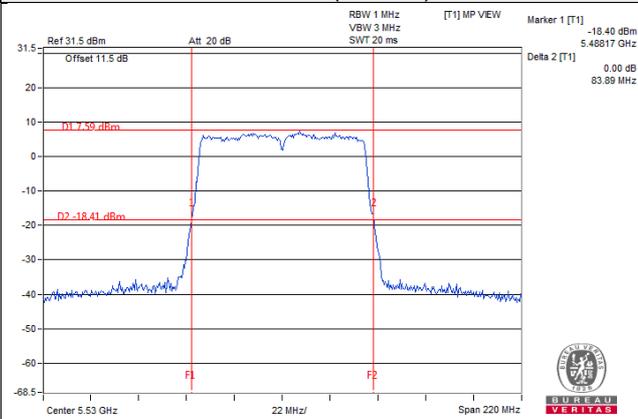
#### 802.11n (HT20)



#### 802.11n (HT40)



#### 802.11ac (VHT80)



## EUT Maximum Conducted Power

### CDD Mode

#### 802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	169.684	22.30
5470~5725	176.864	22.48

#### 802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	175.24	22.44
5470~5725	176.265	22.46

#### 802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	240.092	23.80
5470~5725	235.400	23.72

#### 802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	92.798	19.68
5470~5725	176.932	22.48

## Beamforming Mode

### 802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	87.700	19.43
5470~5725	88.105	19.45

### 802.11n (HT40)

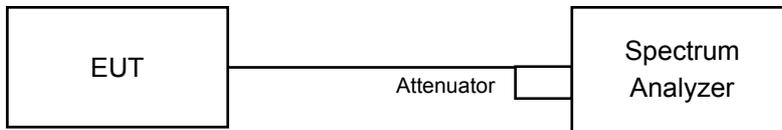
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	119.950	20.79
5470~5725	117.761	20.71

### 802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	46.452	16.67
5470~5725	88.512	19.47

## 4.4 Occupied Bandwidth Measurement

### 4.4.1 Test Setup



### 4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.4.3 Test Procedure

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

#### 4.4.4 Test Result

##### 802.11a

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	16.56	16.44
60	5300	16.44	16.44
64	5320	16.56	16.56
100	5500	16.44	16.44
116	5580	16.68	16.44
140	5700	16.56	16.44
144	5720 For U-NII-2C	13.28	13.28
144	5720 For U-NII-3	3.16	3.16

##### 802.11n (HT20)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	17.64	17.64
60	5300	17.64	17.64
64	5320	17.64	17.64
100	5500	17.76	17.64
116	5580	17.64	17.88
140	5700	17.64	17.64
144	5720 For U-NII-2C	13.88	13.88
144	5720 For U-NII-3	3.76	3.76

## 802.11n (HT40)

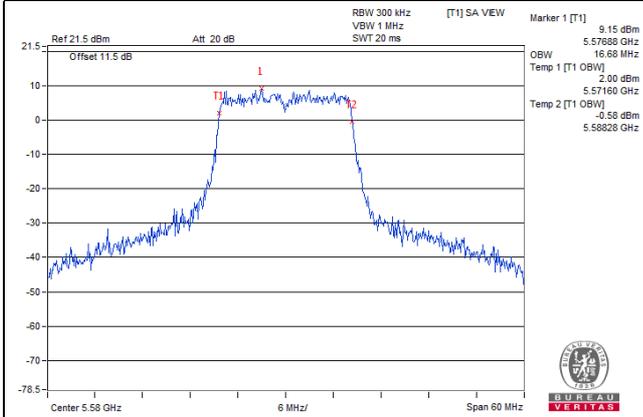
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	36.48	36.72
62	5310	36.36	36.36
102	5510	36.24	36.24
110	5550	36.48	36.36
134	5670	36.24	36.36
142	5710 For U-NII-2C	33.24	33.24
142	5710 For U-NII-3	3.12	3.12

## 802.11ac (VHT80)

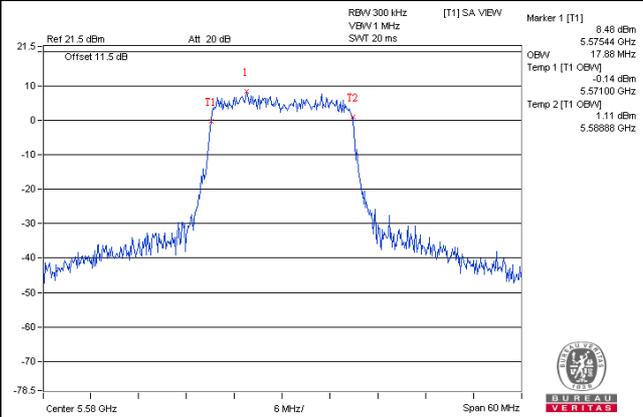
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	75.84	76.08
106	5530	75.84	75.84
138	5690 For U-NII-2C	73.16	72.92
138	5690 For U-NII-3	2.68	2.68

Spectrum Plot of Worst Value

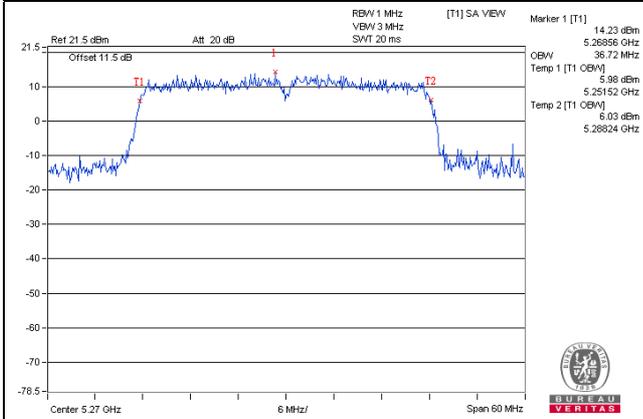
802.11a



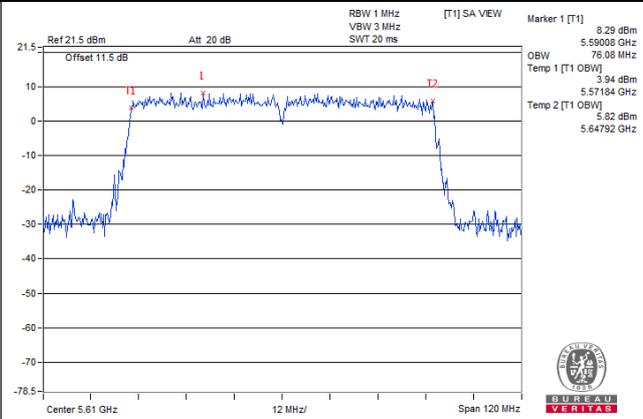
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

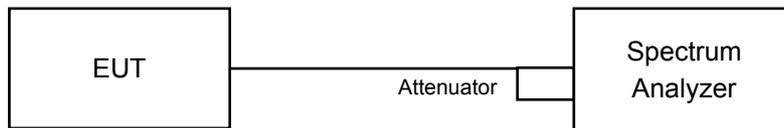


## 4.5 Peak Power Spectral Density Measurement

### 4.5.1 Limits of Peak Power Spectral Density Measurement

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

### 4.5.2 Test Setup



### 4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.5.4 Test Procedures

For U-NII-2A, U-NII-2C band:

Using method SA-2

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

For U-NII-3 band:

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

#### **4.5.5 Deviation from Test Standard**

No deviation.

#### **4.5.6 EUT Operating Conditions**

Same as 4.3.6.

#### 4.5.7 Test Results

For U-NII-2A, U-NII-2C 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				
52	5260	5.39	4.92	0.17	8.34	8.39	Pass
60	5300	5.33	5.06	0.17	8.38	8.39	Pass
64	5320	4.76	3.71	0.17	7.45	8.39	Pass
100	5500	4.11	3.73	0.17	7.11	8.39	Pass
116	5580	5.25	4.98	0.17	8.30	8.39	Pass
140	5700	3.57	2.74	0.17	6.36	8.39	Pass
144	5720	5.01	4.72	0.17	8.05	8.39	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain =  $5.60\text{dBi} + 10\log(2) = 8.61\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $11 - (8.61 - 6) = 8.39\text{dBm}$ .
3. Refer to section 3.3 for duty cycle spectrum plot.

##### 802.11n (HT20)

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				
52	5260	5.36	4.95	0.10	8.27	8.39	Pass
60	5300	5.22	5.13	0.10	8.29	8.39	Pass
64	5320	3.46	3.62	0.10	6.65	8.39	Pass
100	5500	2.75	3.37	0.10	6.18	8.39	Pass
116	5580	5.02	5.22	0.10	8.23	8.39	Pass
140	5700	2.99	2.57	0.10	5.90	8.39	Pass
144	5720	4.51	4.19	0.10	7.46	8.39	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain =  $5.60\text{dBi} + 10\log(2) = 8.61\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $11 - (8.61 - 6) = 8.39\text{dBm}$ .
3. Refer to section 3.3 for duty cycle spectrum plot.

### 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				
54	5270	3.37	3.67	0.17	6.70	8.39	Pass
62	5310	-0.18	-0.25	0.17	2.96	8.39	Pass
102	5510	-0.78	0.09	0.17	2.86	8.39	Pass
110	5550	3.32	3.08	0.17	6.38	8.39	Pass
134	5670	0.84	0.28	0.17	3.75	8.39	Pass
142	5710	3.54	3.11	0.17	6.51	8.39	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.
- Directional gain =  $5.60\text{dBi} + 10\log(2) = 8.61\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $11 - (8.61 - 6) = 8.39\text{dBm}$ .
- Refer to section 3.3 for duty cycle spectrum plot.

### 802.11ac (VHT80)

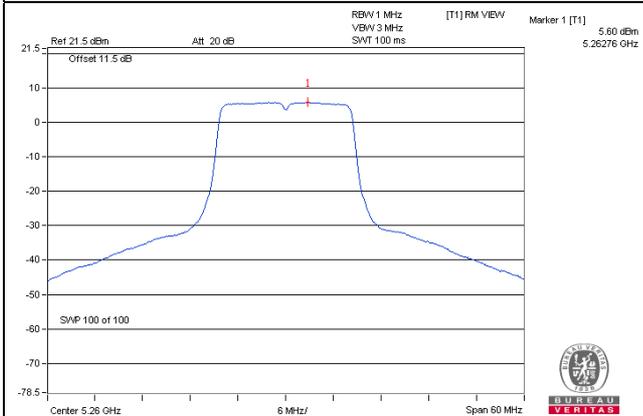
Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
58	5290	-4.74	-4.68	0.31	-1.39	8.39	Pass
106	5530	-4.66	-4.47	0.31	-1.24	8.39	Pass
138	5690	-0.84	-1.08	0.31	2.36	8.39	Pass

Note:

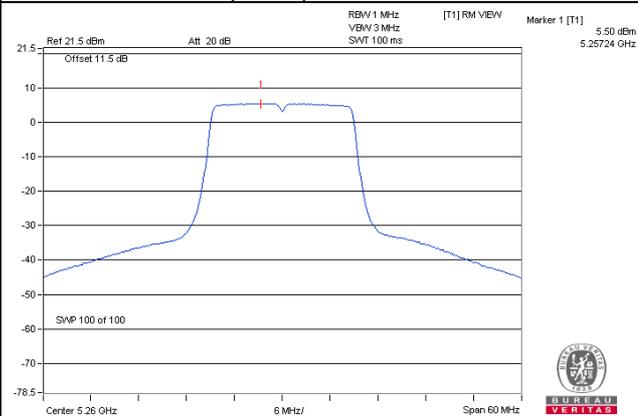
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain =  $5.60\text{dBi} + 10\log(2) = 8.61\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $11 - (8.61 - 6) = 8.39\text{dBm}$ .
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

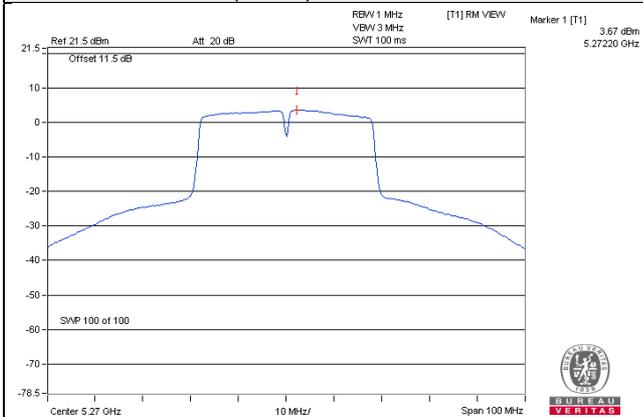
802.11a / Chain 0 / CH 52



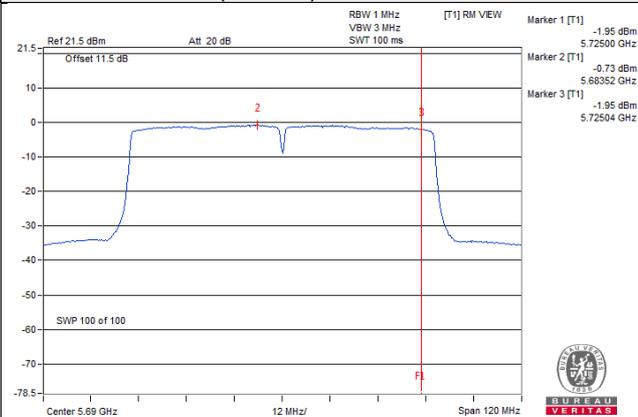
802.11n (HT20) / Chain 0 / CH 52



802.11n (HT40) / Chain 1 / CH 54



802.11ac (VHT80) / Chain 0 / CH 138



For U-NII-3 band:

802.11a

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	144	5720	-3.39	-1.17	3.01	0.17	2.01	27.39	Pass
1	144	5720	-4.11	-1.89	3.01	0.17	1.29	27.39	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain =  $5.60\text{dBi} + 10\log(2) = 8.61\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $30-(8.61-6) = 27.39\text{dBm}$ .
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	144	5720	-3.78	-1.56	3.01	0.10	1.55	27.39	Pass
1	144	5720	-4.41	-2.19	3.01	0.10	0.92	27.39	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain =  $5.60\text{dBi} + 10\log(2) = 8.61\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $30-(8.61-6) = 27.39\text{dBm}$ .
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	142	5710	-6.01	-3.79	3.01	0.17	-0.61	27.39	Pass
1	142	5710	-6.81	-4.59	3.01	0.17	-1.41	27.39	Pass

Note:

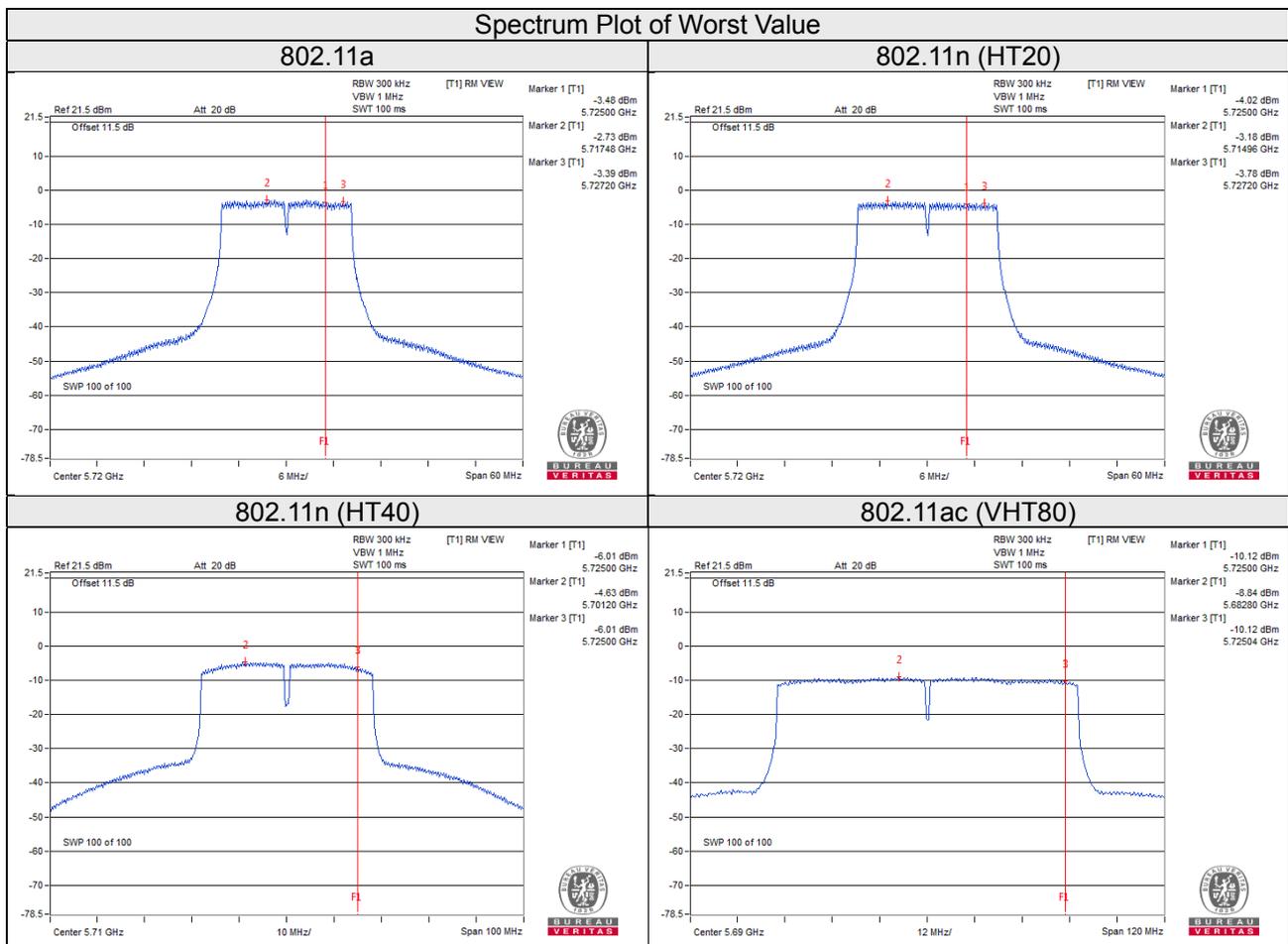
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain =  $5.60\text{dBi} + 10\log(2) = 8.61\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $30-(8.61-6) = 27.39\text{dBm}$ .
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	138	5690	-10.12	-7.90	3.01	0.31	-4.58	27.39	Pass
1	138	5690	-10.89	-8.67	3.01	0.31	-5.35	27.39	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.
- Directional gain = 5.60dBi + 10log(2) = 8.61dBi > 6dBi, so the power density limit shall be reduced to 30-(8.61-6) = 27.39dBm.
- Refer to section 3.3 for duty cycle spectrum plot.

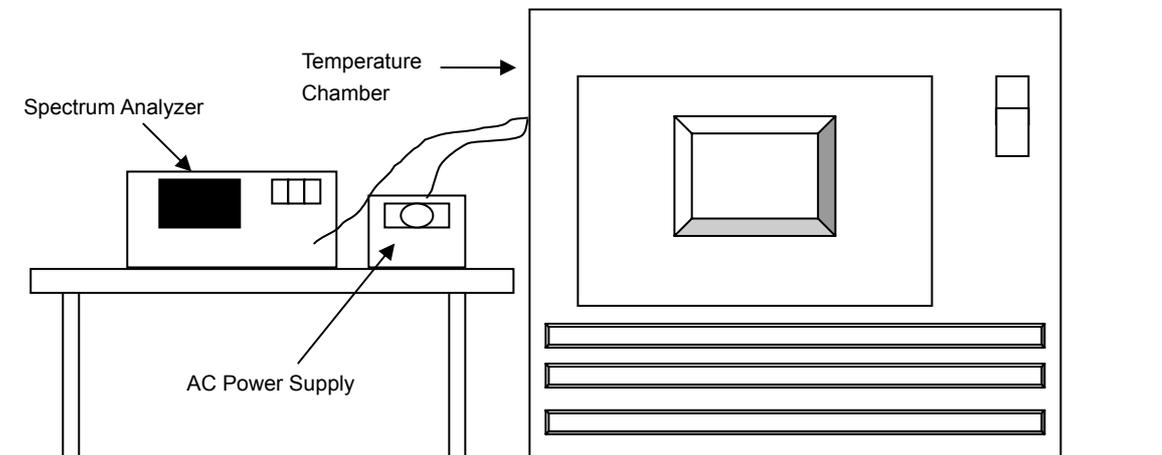


## 4.6 Frequency Stability

### 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 Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.6.4 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.

### 4.6.5 Deviation from Test Standard

No deviation.

### 4.6.6 EUT Operating Condition

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

#### 4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5260MHz									
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	5260.0062	0.00012	5260.0066	0.00013	5260.0063	0.00012	5260.0081	0.00015
40	120	5260.0063	0.00012	5260.0104	0.00020	5260.0105	0.00020	5260.0094	0.00018
30	120	5260.0179	0.00034	5260.0147	0.00028	5260.0142	0.00027	5260.0152	0.00029
20	120	5260.0008	0.00002	5259.9983	-0.00003	5260.0005	0.00001	5260.0013	0.00002
10	120	5260.026	0.00049	5260.027	0.00051	5260.0276	0.00052	5260.0287	0.00055
0	120	5260.0106	0.00020	5260.0072	0.00014	5260.0057	0.00011	5260.0084	0.00016
-10	120	5259.9808	-0.00037	5259.982	-0.00034	5259.9811	-0.00036	5259.9821	-0.00034
-20	120	5259.9941	-0.00011	5259.9949	-0.00010	5259.9962	-0.00007	5259.9944	-0.00011
-30	120	5259.974	-0.00049	5259.9743	-0.00049	5259.9771	-0.00044	5259.9774	-0.00043

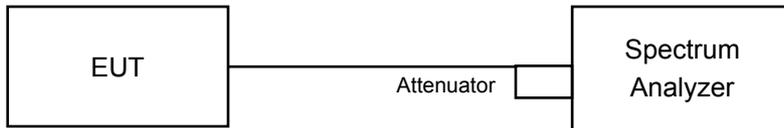
Frequency Stability Versus Voltage									
Operating Frequency: 5260MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5260.0007	0.00001	5259.9973	-0.00005	5260.0009	0.00002	5260.0019	0.00004
	120	5260.0008	0.00002	5259.9983	-0.00003	5260.0005	0.00001	5260.0013	0.00002
	102	5260.0002	0.00000	5259.9976	-0.00005	5260	0.00000	5260.0011	0.00002

## 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		
144	5720 For U-NII-3	3.18	3.18	0.5	Pass

##### 802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144	5720 For U-NII-3	3.80	3.80	0.5	Pass

##### 802.11n (HT40)

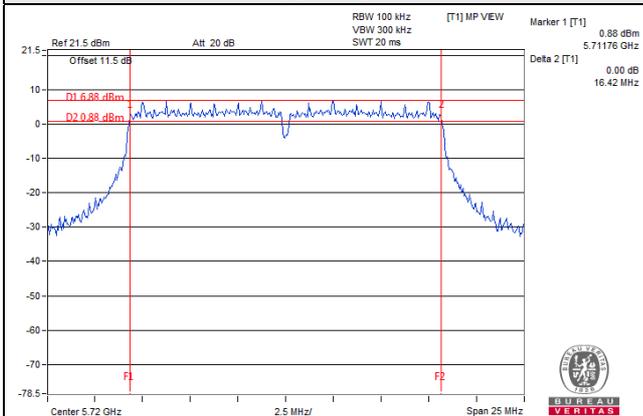
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
142	5710 For U-NII-3	2.58	2.68	0.5	Pass

##### 802.11ac (VHT80)

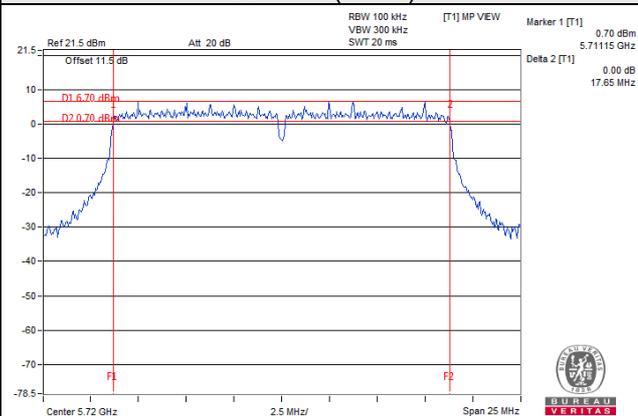
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
138	5690 For U-NII-3	3.03	2.80	0.5	Pass

### Spectrum Plot of Worst Value

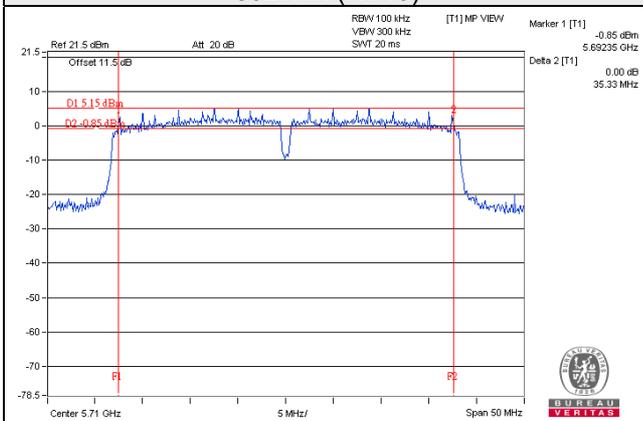
#### 802.11a



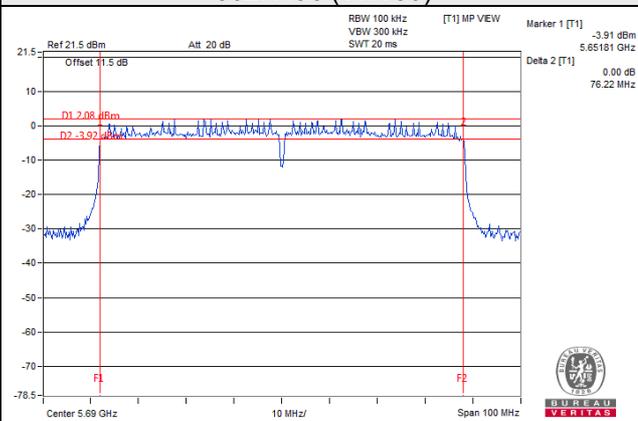
#### 802.11n (HT20)



#### 802.11n (HT40)



#### 802.11ac (VHT80)



**Note:**

For CH144 (UNII-3 Band): The 6dB bandwidth above 5725MHz = Marker 1 + Delta 2 - 5725MHz

For CH142 (UNII-3 Band): The 6dB bandwidth above 5725MHz = Marker 1 + Delta 2 - 5725MHz

For CH138 (UNII-3 Band): The 6dB bandwidth above 5725MHz = Marker 1 + Delta 2 - 5725MHz

## 5 Pictures of Test Arrangements

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

## Appendix – Information on the Testing Laboratories

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

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

### Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

### Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

### Hwa Ya EMC/RF/Safety

Tel: 886-3-3183232

Fax: 886-3-3270892

**Email:** [service.adt@tw.bureauveritas.com](mailto:service.adt@tw.bureauveritas.com)

**Web Site:** [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

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

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