

## FCC Test Report

**Report No.:** RF161013C32B

**FCC ID:** TVE-2507T021

**Test Model:** FortiAP S221E, FortiAP S223E (refer to item 3.1 for more details)

**Series Model:** FortiAP S221Exxxxx, FAP-S221Exxxxx, FORTIAP-S221E xxxxxx, FortiAP S223Exxxxxx, FAP-S223Exxxxxx, FORTIAP-S223E xxxxx (where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only) (refer to item 3.1 for more details)

**Received Date:** Sep. 20, 2017

**Test Date:** Oct. 02 ~ Oct. 17, 2017

**Issued Date:** Oct. 19, 2017

**Applicant:** Fortinet Inc.

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

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)



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### Release Control Record

Issue No.	Description	Date Issued
RF161013C32B	Original release.	Oct. 19, 2017

## 1 Certificate of Conformity

**Product:** Secured Wireless Access Point

**Brand:** Fortinet Inc.

**Test Model:** FortiAP S221E, FortiAP S223E (refer to item 3.1 for more details)

**Series Model:** FortiAP S221Exxxxxx, FAP-S221Exxxxxx, FORTIAP-S221E xxxxxx, FortiAP S223Exxxxxx, FAP-S223Exxxxxx, FORTIAP-S223E xxxxx (where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only) (refer to item 3.1 for more details)


**Sample Status:** Engineering sample

**Applicant:** Fortinet Inc.

**Test Date:** Oct. 02 ~ 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 :**  , **Date:** Oct. 19, 2017  
Pettie Chen / Senior Specialist

**Approved by :**  , **Date:** Oct. 19, 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 -3.13dB at 0.51177MHz.
15.407(b)(1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.4dB at 5470.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector for FortiAP S221E is IPEX. Antenna connector for FortiAP S223E is RP SMA plug.

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

### 2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) ( $\pm$ )
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 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	FortiAP S221E, FortiAP S223E (refer to Note for more details)
Series Model	FortiAP S221Exxxxx, FAP-S221Exxxxx, FORTIAP-S221E xxxxxx, FortiAP S223Exxxxxx, FAP-S223Exxxxxx, FORTIAP-S223E xxxxx (where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only) (refer to Note for more details)
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: 54/48/36/24/18/12/9/6Mbps 802.11n: up to MCS15 802.11ac: up to V9
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: 244.818mW 5500~5720MHz: 233.657mW Beamforming Mode: 5260~5320MHz: 122.462mW 5500~5720MHz: 116.950mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. The difference compared with the original report (BV ADT report no.: RF161013C32-2) is adding 5.26GHz to 5.32GHz and 5.50GHz to 5.72GHz by software. Therefore, the EUT was re-tested and presented in the test report.

2. All models are listed as below. Model: FortiAP S221E and FortiAP S223E were chosen for the final test.

Brand	Model	Difference
Fortinet Inc.	FortiAP S221Exxxxxx (Main test model: FortiAP S221E)	With Internal Antenna
	FAP-S221Exxxxxx	
	FORTIAP-S221Exxxxxx	
	FortiAP S223Exxxxxx (Main test model: FortiAP S223E)	With External Antenna
	FAP-S223Exxxxxx	
	FORTIAP-S223Exxxxxx	

where “x” can be used as  
“A-Z”, or “0-9”, or “-”, or  
blank for software changes  
or 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 20MHz/40MHz and 802.11ac mode for 20MHz/40MHz, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

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

4. The EUT consumes power from the following adapter and POE.

Adapter	
Brand	Asian Power Devices Inc.
Model	WA-30J12R
Input Power	100-240Vac, 50-60Hz, 0.9A Max
Output Power	12Vdc, 2.5A
Power Line	1.8m power cable without core

POE (Support unit only)	
Brand	EnGenius
Model	EPA5006GAT
Input Power	100-240Vac, 50-60Hz, 0.8A
Output Power	54Vdc, 0.6A



5. The EUT uses following antennas.

For Model: FortiAP S221E (Internal antenna)

Antenna Type	PIFA	Antenna Connector	IPEX
Gain (dBi)	Frequency (MHz)		
	2400-2500	5150-5850	
Internal Ant. 1	4.36	-	
Internal Ant. 2	4.95	-	
Internal Ant. 3	-	5.64	
Internal Ant. 4	-	5.83	

For Model: FortiAP S223E (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 test only.

6. 2.4GHz & BT LE or 5GHz & BT LE technology can transmit at same time.
7. Spurious emission of the simultaneous operation (2.4GHz & BT LE or 5GHz & BT LE) has been evaluated and no non-compliance was found.
8. Maximum EIRP of this device is 937.562mW which more than 500mW, therefore it's require TPC function. The EUT can adjust a transmitter's output power based on the signal level present at the receiver. TPC is auto controlled by software.

### 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	EUT Model	Power Supply
A	√	√	√	√	FortiAP S221E	Power from adapter
B	-	√	√	-		Power from POE
C	√	√	√	-	FortiAP S223E	Power from adapter
D	-	√	√	-		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:

- The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane (For EUT Model: FortiAP S221E), X-plane (For EUT Model: FortiAP S223E)**.
- "-" 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	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	29.3
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	6.5
	802.11n (HT40)		102 to 142	102, 110, 134, 142	OFDM	13.5
	802.11ac (VHT80)		106 to 138	106, 138	OFDM	29.3

#### 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	60	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	60	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)
CDD Mode						
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	29.3
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	6.5
	802.11n (HT40)		102 to 142	102, 110, 134, 142	OFDM	13.5
	802.11ac (VHT80)		106 to 138	106, 138	OFDM	29.3
Beamforming Mode						
A	802.11n (HT20)	5260-5320	52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	29.3
A	802.11n (HT20)	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.5
	802.11n (HT40)		102 to 142	102, 110, 134, 142	OFDM	13.5
	802.11ac (VHT80)		106 to 138	106, 138	OFDM	29.3

### 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	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	29.3
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	6.5
	802.11n (HT40)		102 to 142	102, 110, 134, 142	OFDM	13.5
	802.11ac (VHT80)		106 to 138	106, 138	OFDM	29.3

### Test Condition:

Applicable to	Environmental Conditions	Input Power (System)	Tested by
RE $\geq$ 1G	20 deg. C, 70% RH	120Vac, 60Hz	Willy Cheng
RE<1G	20 deg. C, 70% RH	120Vac, 60Hz 54Vdc	Willy Cheng
PLC	23 deg. C, 68% RH	120Vac, 60Hz 54Vdc	Willy Cheng
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Chris Lin

### 3.3 Duty Cycle of Test Signal

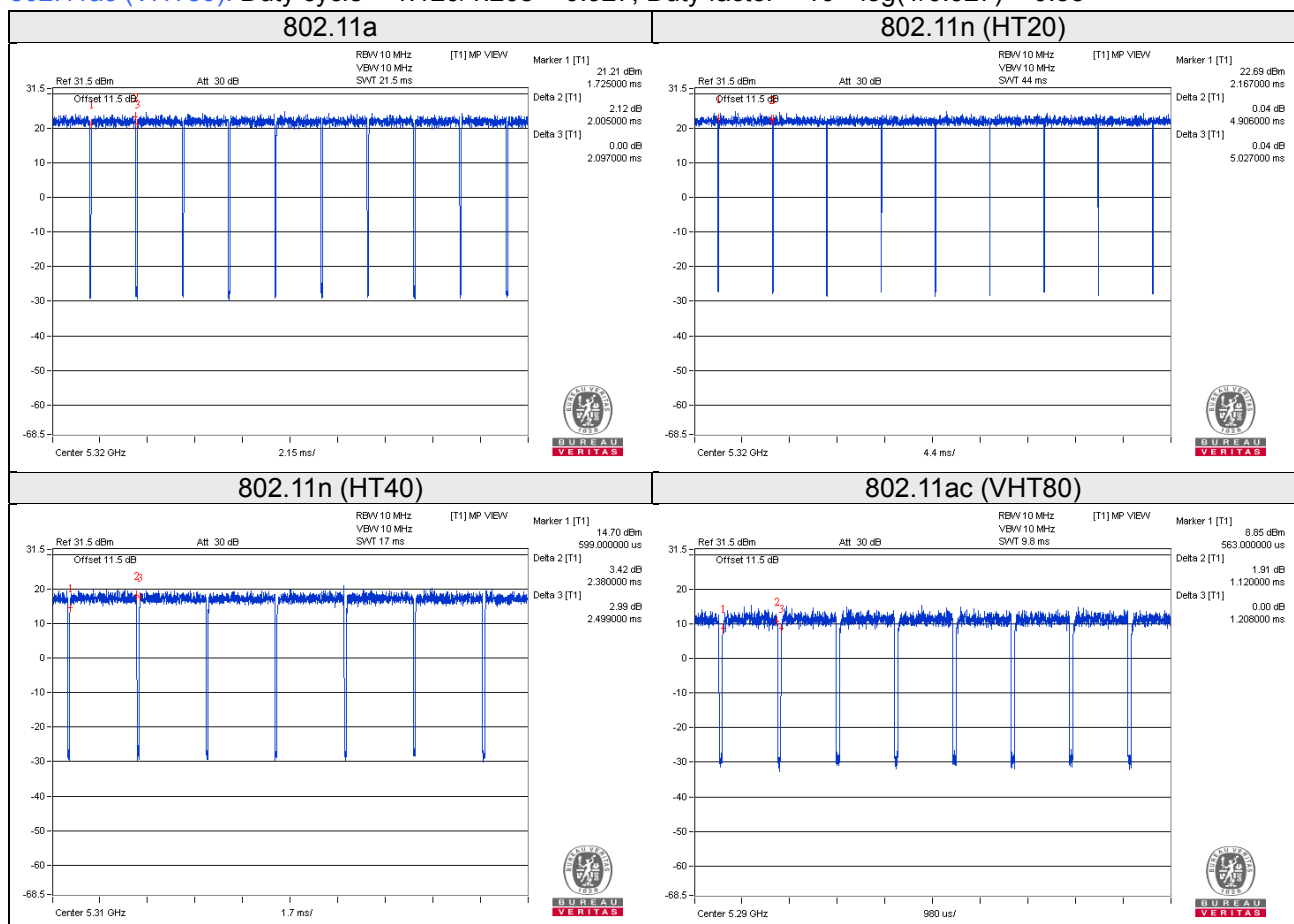
Duty cycle of test signal is < 98%, duty factor is required.

802.11a: Duty cycle = 2.005/2.097 = 0.956, Duty factor =  $10 * \log(1/0.956) = 0.19$

802.11n (HT20): Duty cycle = 4.906/5.027 = 0.976, Duty factor =  $10 * \log(1/0.976) = 0.11$

802.11n (HT40): Duty cycle = 2.380/2.499 = 0.952, Duty factor =  $10 * \log(1/0.952) = 0.21$

802.11ac (VHT80): Duty cycle = 1.120/1.208 = 0.927, Duty factor =  $10 * \log(1/0.927) = 0.33$



### 3.4 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	Load	NA	NA	NA	NA	-
C.	POE	EnGenius	EPA5006GAT	NA	NA	Provided by manufacturer

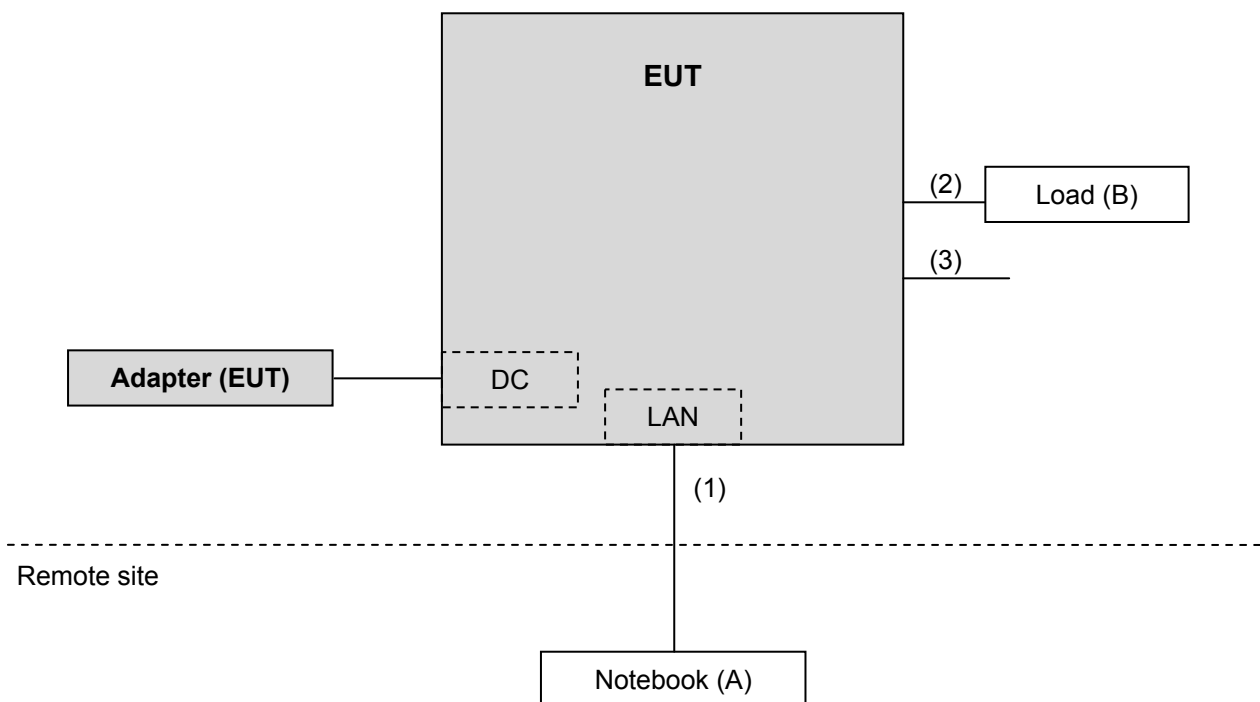
Note:

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

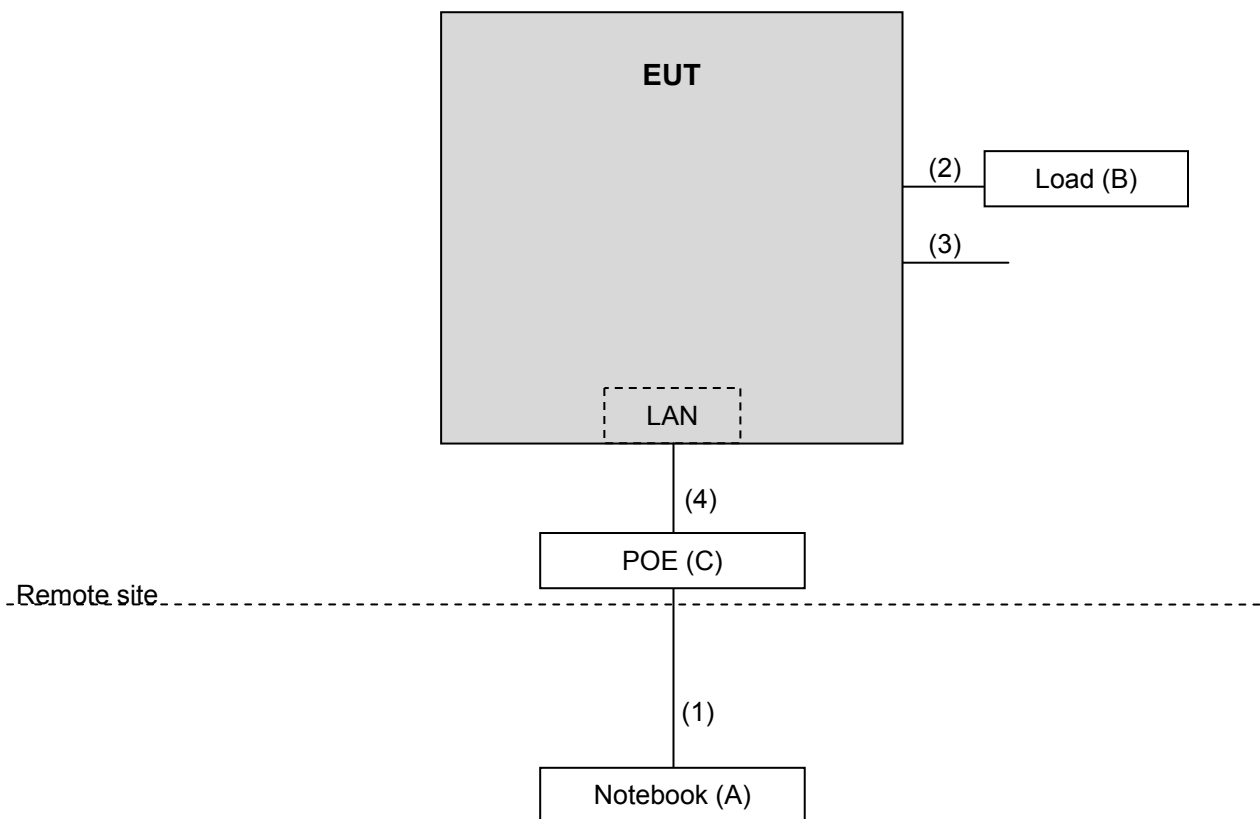
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45, Cat5e	1	10	N	0	-
2.	RJ45, Cat5e	1	1.8	N	0	-
3.	RJ45 to Console	1	1.8	N	0	-
4.	RJ45, Cat5e	1	1.8	N	0	-

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

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

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



#### 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-S M-8000	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
Pre-amplifier	EMC184045B	980175	Nov. 07, 2016	Nov. 06, 2017
High Speed Peak Power Meter	ML2495A	0824012	Aug. 18, 2017	Aug. 17, 2018
Power Sensor	MA2411B	0738171	Aug. 18, 2017	Aug. 17, 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 IC7450F-4.

#### 4.1.3 Test Procedures

##### For Radiated emission below 30MHz

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

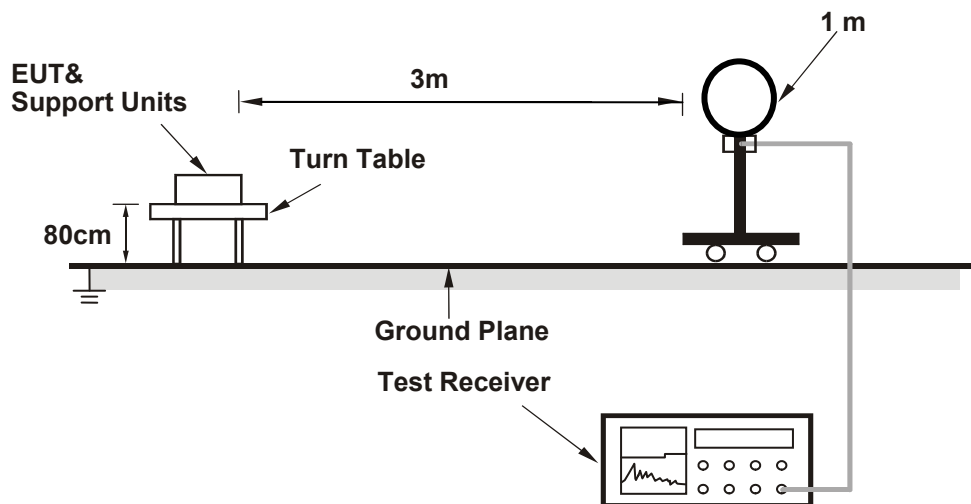
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

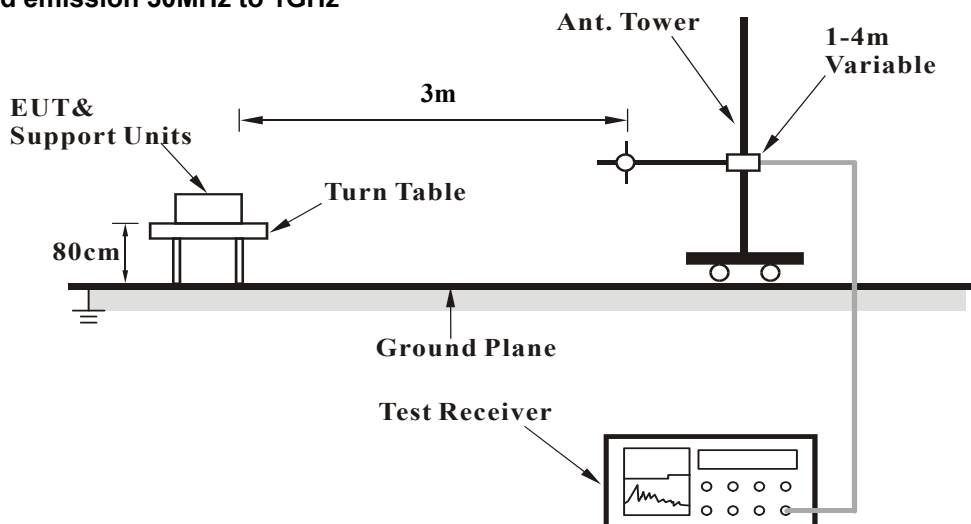
No deviation.

#### 4.1.5 Test Setup

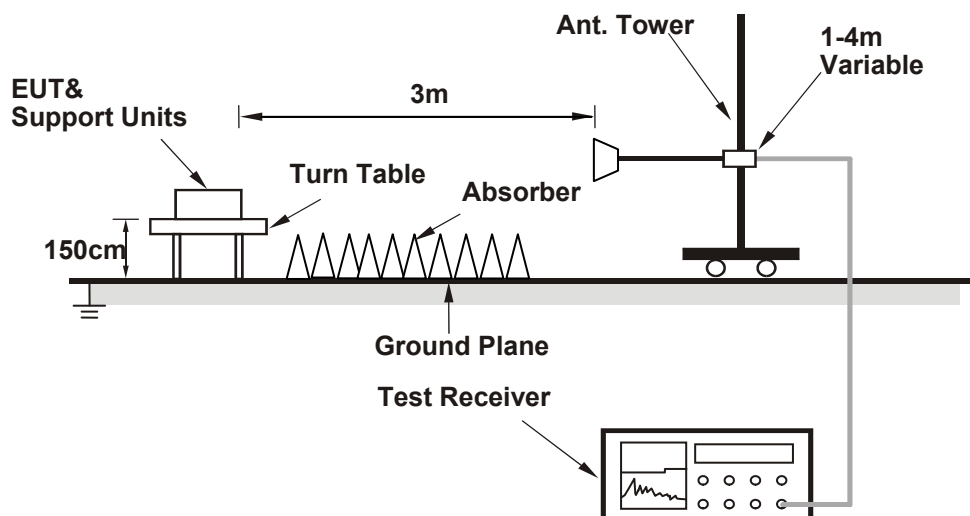
##### For Radiated emission below 30MHz



##### 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	56.6 PK	74.0	-17.4	3.36 H	36	53.0	3.6
2	5150.00	44.6 AV	54.0	-9.4	3.36 H	36	41.0	3.6
3	*5260.00	121.0 PK			2.50 H	49	81.4	39.6
4	*5260.00	110.6 AV			2.50 H	49	71.0	39.6
5	#10520.00	58.5 PK	74.0	-15.5	2.38 H	122	41.5	17.0
6	#10520.00	45.2 AV	54.0	-8.8	2.38 H	122	28.2	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	55.6 PK	74.0	-18.4	2.88 V	313	52.0	3.6
2	5150.00	42.8 AV	54.0	-11.2	2.88 V	313	39.2	3.6
3	*5260.00	114.7 PK			3.71 V	351	75.1	39.6
4	*5260.00	104.3 AV			3.71 V	351	64.7	39.6
5	#10520.00	59.2 PK	74.0	-14.8	1.99 V	293	42.2	17.0
6	#10520.00	45.8 AV	54.0	-8.2	1.99 V	293	28.8	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	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	121.2 PK			2.48 H	46	81.6	39.6
2	*5300.00	111.6 AV			2.48 H	46	72.0	39.6
3	10600.00	58.9 PK	74.0	-15.1	1.89 H	99	41.8	17.1
4	10600.00	45.9 AV	54.0	-8.1	1.89 H	99	28.8	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	113.2 PK			3.87 V	348	73.6	39.6
2	*5300.00	103.0 AV			3.87 V	348	63.4	39.6
3	10600.00	58.9 PK	74.0	-15.1	3.41 V	333	41.8	17.1
4	10600.00	45.4 AV	54.0	-8.6	3.41 V	333	28.3	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	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	117.1 PK			3.84 H	47	77.4	39.7
2	*5320.00	106.7 AV			3.84 H	47	67.0	39.7
3	5350.00	68.8 PK	74.0	-5.2	3.29 H	45	64.9	3.9
4	5350.00	52.3 AV	54.0	-1.7	3.29 H	45	48.4	3.9
5	10640.00	59.2 PK	74.0	-14.8	2.93 H	68	41.9	17.3
6	10640.00	45.4 AV	54.0	-8.6	2.93 H	68	28.1	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	112.3 PK			4.00 V	348	72.6	39.7
2	*5320.00	101.5 AV			4.00 V	348	61.8	39.7
3	5350.00	63.7 PK	74.0	-10.3	3.84 V	341	59.8	3.9
4	5350.00	47.4 AV	54.0	-6.6	3.84 V	341	43.5	3.9
5	10640.00	58.6 PK	74.0	-15.4	3.13 V	298	41.3	17.3
6	10640.00	45.3 AV	54.0	-8.7	3.13 V	298	28.0	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	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	5460.00	60.5 PK	74.0	-13.5	2.99 H	45	56.5	4.0
2	5460.00	47.4 AV	54.0	-6.6	2.99 H	45	43.4	4.0
3	#5470.00	69.6 PK	74.0	-4.4	2.88 H	38	65.6	4.0
4	#5470.00	52.4 AV	54.0	-1.6	2.88 H	38	48.4	4.0
5	*5500.00	117.5 PK			3.02 H	33	77.5	40.0
6	*5500.00	107.0 AV			3.02 H	33	67.0	40.0
7	11000.00	60.3 PK	74.0	-13.7	2.63 H	79	41.3	19.0
8	11000.00	47.1 AV	54.0	-6.9	2.63 H	79	28.1	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	5460.00	58.4 PK	74.0	-15.6	3.63 V	342	54.4	4.0
2	5460.00	44.4 AV	54.0	-9.6	3.63 V	342	40.4	4.0
3	#5470.00	65.8 PK	74.0	-8.2	3.77 V	323	61.8	4.0
4	#5470.00	48.3 AV	54.0	-5.7	3.77 V	323	44.3	4.0
5	*5500.00	114.3 PK			3.86 V	340	74.3	40.0
6	*5500.00	104.1 AV			3.86 V	340	64.1	40.0
7	11000.00	60.2 PK	74.0	-13.8	2.99 V	311	41.2	19.0
8	11000.00	46.8 AV	54.0	-7.2	2.99 V	311	27.8	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	118.3 PK			3.15 H	37	78.2	40.1
2	*5580.00	107.7 AV			3.15 H	37	67.6	40.1
3	11160.00	60.4 PK	74.0	-13.6	2.98 H	56	41.7	18.7
4	11160.00	47.2 AV	54.0	-6.8	2.98 H	56	28.5	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	115.8 PK			3.93 V	331	75.7	40.1
2	*5580.00	105.7 AV			3.93 V	331	65.6	40.1
3	11160.00	60.8 PK	74.0	-13.2	3.54 V	56	42.1	18.7
4	11160.00	47.2 AV	54.0	-6.8	3.54 V	56	28.5	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	117.6 PK			3.46 H	41	77.3	40.3
2	*5700.00	107.1 AV			3.46 H	41	66.8	40.3
3	#5725.00	71.3 PK	74.0	-2.7	3.27 H	39	66.8	4.5
4	#5725.00	52.7 AV	54.0	-1.3	3.27 H	39	48.2	4.5
5	11400.00	60.4 PK	74.0	-13.6	2.79 H	51	42.2	18.2
6	11400.00	47.2 AV	54.0	-6.8	2.79 H	51	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	111.0 PK			3.93 V	12	70.7	40.3
2	*5700.00	101.0 AV			3.93 V	12	60.7	40.3
3	#5725.00	63.2 PK	74.0	-10.8	3.73 V	33	58.7	4.5
4	#5725.00	46.0 AV	54.0	-8.0	3.73 V	33	41.5	4.5
5	11400.00	61.0 PK	74.0	-13.0	3.77 V	29	42.8	18.2
6	11400.00	47.2 AV	54.0	-6.8	3.77 V	29	29.0	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.

CHANNEL	TX Channel 144	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	#5470.00	56.9 PK	74.0	-17.1	3.21 H	63	52.9	4.0
2	#5470.00	43.7 AV	54.0	-10.3	3.21 H	63	39.7	4.0
3	*5720.00	120.9 PK			3.30 H	40	80.5	40.4
4	*5720.00	110.7 AV			3.30 H	40	70.3	40.4
5	#5825.00	58.5 PK	74.0	-15.5	3.43 H	56	53.8	4.7
6	#5825.00	45.0 AV	54.0	-9.0	3.43 H	56	40.3	4.7
7	11440.00	60.7 PK	74.0	-13.3	2.96 H	88	42.4	18.3
8	11440.00	47.3 AV	54.0	-6.7	2.96 H	88	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	57.3 PK	74.0	-16.7	3.42 V	311	53.3	4.0
2	#5470.00	43.7 AV	54.0	-10.3	3.42 V	311	39.7	4.0
3	*5720.00	115.9 PK			3.94 V	330	75.5	40.4
4	*5720.00	105.7 AV			3.94 V	330	65.3	40.4
5	#5825.00	57.8 PK	74.0	-16.2	3.73 V	357	53.1	4.7
6	#5825.00	44.2 AV	54.0	-9.8	3.73 V	357	39.5	4.7
7	11440.00	60.9 PK	74.0	-13.1	2.93 V	278	42.6	18.3
8	11440.00	47.1 AV	54.0	-6.9	2.93 V	278	28.8	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 & 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	58.8 PK	74.0	-15.2	3.50 H	76	55.2	3.6
2	5150.00	46.8 AV	54.0	-7.2	3.50 H	76	43.2	3.6
3	*5260.00	120.7 PK			3.70 H	50	81.1	39.6
4	*5260.00	110.0 AV			3.70 H	50	70.4	39.6
5	#10520.00	58.2 PK	74.0	-15.8	3.33 H	123	41.2	17.0
6	#10520.00	45.2 AV	54.0	-8.8	3.33 H	123	28.2	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	55.5 PK	74.0	-18.5	3.22 V	346	51.9	3.6
2	5150.00	42.8 AV	54.0	-11.2	3.22 V	346	39.2	3.6
3	*5260.00	115.4 PK			3.60 V	17	75.8	39.6
4	*5260.00	104.8 AV			3.60 V	17	65.2	39.6
5	#10520.00	59.3 PK	74.0	-14.7	3.43 V	344	42.3	17.0
6	#10520.00	45.1 AV	54.0	-8.9	3.43 V	344	28.1	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	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	120.6 PK			2.55 H	49	81.0	39.6
2	*5300.00	110.4 AV			2.55 H	49	70.8	39.6
3	10600.00	59.3 PK	74.0	-14.7	2.93 H	77	42.2	17.1
4	10600.00	45.4 AV	54.0	-8.6	2.93 H	77	28.3	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	115.4 PK			3.97 V	17	75.8	39.6
2	*5300.00	104.2 AV			3.97 V	17	64.6	39.6
3	10600.00	58.9 PK	74.0	-15.1	2.93 V	322	41.8	17.1
4	10600.00	45.5 AV	54.0	-8.5	2.93 V	322	28.4	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	119.0 PK			3.61 H	47	79.3	39.7
2	*5320.00	107.9 AV			3.61 H	47	68.2	39.7
3	5350.00	70.8 PK	74.0	-3.2	2.43 H	43	66.9	3.9
4	5350.00	52.5 AV	54.0	-1.5	2.43 H	43	48.6	3.9
5	10640.00	58.5 PK	74.0	-15.5	2.66 H	66	41.2	17.3
6	10640.00	45.5 AV	54.0	-8.5	2.66 H	66	28.2	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	113.5 PK			3.94 V	353	73.8	39.7
2	*5320.00	102.3 AV			3.94 V	353	62.6	39.7
3	5350.00	60.4 PK	74.0	-13.6	3.49 V	321	56.5	3.9
4	5350.00	45.4 AV	54.0	-8.6	3.49 V	321	41.5	3.9
5	10640.00	58.6 PK	74.0	-15.4	3.73 V	344	41.3	17.3
6	10640.00	45.3 AV	54.0	-8.7	3.73 V	344	28.0	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	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	5460.00	56.9 PK	74.0	-17.1	2.88 H	56	52.9	4.0
2	5460.00	44.8 AV	54.0	-9.2	2.88 H	56	40.8	4.0
3	#5470.00	69.2 PK	74.0	-4.8	2.19 H	42	65.2	4.0
4	#5470.00	52.4 AV	54.0	-1.6	2.19 H	42	48.4	4.0
5	*5500.00	118.5 PK			3.35 H	47	78.5	40.0
6	*5500.00	107.6 AV			3.35 H	47	67.6	40.0
7	11000.00	60.4 PK	74.0	-13.6	2.68 H	77	41.4	19.0
8	11000.00	46.9 AV	54.0	-7.1	2.68 H	77	27.9	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	5460.00	57.6 PK	74.0	-16.4	3.87 V	319	53.6	4.0
2	5460.00	44.3 AV	54.0	-9.7	3.87 V	319	40.3	4.0
3	#5470.00	63.5 PK	74.0	-10.5	3.99 V	331	59.5	4.0
4	#5470.00	47.3 AV	54.0	-6.7	3.99 V	331	43.3	4.0
5	*5500.00	115.1 PK			3.86 V	340	75.1	40.0
6	*5500.00	104.2 AV			3.86 V	340	64.2	40.0
7	11000.00	60.4 PK	74.0	-13.6	3.54 V	322	41.4	19.0
8	11000.00	47.2 AV	54.0	-6.8	3.54 V	322	28.2	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	120.4 PK			3.13 H	38	80.3	40.1
2	*5580.00	109.8 AV			3.13 H	38	69.7	40.1
3	11160.00	60.6 PK	74.0	-13.4	2.79 H	100	41.9	18.7
4	11160.00	47.3 AV	54.0	-6.7	2.79 H	100	28.6	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	115.3 PK			3.94 V	339	75.2	40.1
2	*5580.00	104.7 AV			3.94 V	339	64.6	40.1
3	11160.00	60.1 PK	74.0	-13.9	3.52 V	45	41.4	18.7
4	11160.00	47.2 AV	54.0	-6.8	3.52 V	45	28.5	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	117.0 PK			3.14 H	40	76.7	40.3
2	*5700.00	106.3 AV			3.14 H	40	66.0	40.3
3	#5725.00	70.6 PK	74.0	-3.4	3.27 H	40	66.1	4.5
4	#5725.00	52.4 AV	54.0	-1.6	3.27 H	40	47.9	4.5
5	11400.00	60.7 PK	74.0	-13.3	3.13 H	123	42.5	18.2
6	11400.00	47.1 AV	54.0	-6.9	3.13 H	123	28.9	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	110.9 PK			3.79 V	19	70.6	40.3
2	*5700.00	100.5 AV			3.79 V	19	60.2	40.3
3	#5725.00	58.5 PK	74.0	-15.5	3.33 V	25	54.0	4.5
4	#5725.00	44.7 AV	54.0	-9.3	3.33 V	25	40.2	4.5
5	11400.00	60.7 PK	74.0	-13.3	3.23 V	56	42.5	18.2
6	11400.00	47.3 AV	54.0	-6.7	3.23 V	56	29.1	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	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	#5470.00	57.3 PK	74.0	-16.7	3.63 H	72	53.3	4.0
2	#5470.00	43.8 AV	54.0	-10.2	3.63 H	72	39.8	4.0
3	*5720.00	120.6 PK			3.28 H	45	80.2	40.4
4	*5720.00	109.6 AV			3.28 H	45	69.2	40.4
5	#5825.00	58.1 PK	74.0	-15.9	3.46 H	66	53.4	4.7
6	#5825.00	44.8 AV	54.0	-9.2	3.46 H	66	40.1	4.7
7	11440.00	60.0 PK	74.0	-14.0	3.22 H	35	41.7	18.3
8	11440.00	46.3 AV	54.0	-7.7	3.22 H	35	28.0	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	56.3 PK	74.0	-17.7	3.63 V	333	52.3	4.0
2	#5470.00	53.6 AV	54.0	-0.4	3.63 V	333	49.6	4.0
3	*5720.00	116.5 PK			3.73 V	327	76.1	40.4
4	*5720.00	105.3 AV			3.73 V	327	64.9	40.4
5	#5825.00	58.0 PK	74.0	-16.0	3.13 V	344	53.3	4.7
6	#5825.00	44.2 AV	54.0	-9.8	3.13 V	344	39.5	4.7
7	11440.00	60.6 PK	74.0	-13.4	3.22 V	343	42.3	18.3
8	11440.00	47.1 AV	54.0	-6.9	3.22 V	343	28.8	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	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.2 PK	74.0	-15.8	3.33 H	59	54.6	3.6
2	5150.00	44.3 AV	54.0	-9.7	3.33 H	59	40.7	3.6
3	*5270.00	117.4 PK			3.50 H	50	77.8	39.6
4	*5270.00	107.7 AV			3.50 H	50	68.1	39.6
5	#10540.00	58.8 PK	74.0	-15.2	3.39 H	103	41.7	17.1
6	#10540.00	45.6 AV	54.0	-8.4	3.39 H	103	28.5	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	5150.00	55.4 PK	74.0	-18.6	3.62 V	357	51.8	3.6
2	5150.00	42.3 AV	54.0	-11.7	3.62 V	357	38.7	3.6
3	*5270.00	106.6 PK			3.79 V	15	67.0	39.6
4	*5270.00	97.3 AV			3.79 V	15	57.7	39.6
5	#10540.00	59.1 PK	74.0	-14.9	2.99 V	303	42.0	17.1
6	#10540.00	45.5 AV	54.0	-8.5	2.99 V	303	28.4	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	112.2 PK			3.44 H	56	72.6	39.6
2	*5310.00	102.8 AV			3.44 H	56	63.2	39.6
3	5350.00	67.3 PK	74.0	-6.7	3.23 H	49	63.4	3.9
4	5350.00	52.6 AV	54.0	-1.4	3.23 H	49	48.7	3.9
5	10620.00	58.5 PK	74.0	-15.5	3.11 H	78	41.2	17.3
6	10620.00	45.5 AV	54.0	-8.5	3.11 H	78	28.2	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	107.4 PK			3.78 V	343	67.8	39.6
2	*5310.00	97.6 AV			3.78 V	343	58.0	39.6
3	5350.00	60.6 PK	74.0	-13.4	3.77 V	355	56.7	3.9
4	5350.00	46.1 AV	54.0	-7.9	3.77 V	355	42.2	3.9
5	10620.00	58.9 PK	74.0	-15.1	3.03 V	319	41.6	17.3
6	10620.00	45.1 AV	54.0	-8.9	3.03 V	319	27.8	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	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	5460.00	63.4 PK	74.0	-10.6	2.55 H	77	59.4	4.0
2	5460.00	46.5 AV	54.0	-7.5	2.55 H	77	42.5	4.0
3	#5470.00	70.4 PK	74.0	-3.6	3.00 H	44	66.4	4.0
4	#5470.00	52.6 AV	54.0	-1.4	3.00 H	44	48.6	4.0
5	*5510.00	112.6 PK			2.93 H	41	72.6	40.0
6	*5510.00	103.6 AV			2.93 H	41	63.6	40.0
7	11020.00	60.2 PK	74.0	-13.8	2.69 H	110	41.3	18.9
8	11020.00	47.2 AV	54.0	-6.8	2.69 H	110	28.3	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	60.2 PK	74.0	-13.8	2.93 V	300	56.2	4.0
2	5460.00	46.2 AV	54.0	-7.8	2.93 V	300	42.2	4.0
3	#5470.00	67.3 PK	74.0	-6.7	3.33 V	354	63.3	4.0
4	#5470.00	48.7 AV	54.0	-5.3	3.33 V	354	44.7	4.0
5	*5510.00	110.1 PK			3.87 V	334	70.1	40.0
6	*5510.00	100.5 AV			3.87 V	334	60.5	40.0
7	11020.00	60.4 PK	74.0	-13.6	3.67 V	352	41.5	18.9
8	11020.00	46.7 AV	54.0	-7.3	3.67 V	352	27.8	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	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	116.8 PK			3.00 H	35	76.8	40.0
2	*5550.00	107.4 AV			3.00 H	35	67.4	40.0
3	11100.00	60.4 PK	74.0	-13.6	2.79 H	99	41.9	18.5
4	11100.00	47.3 AV	54.0	-6.7	2.79 H	99	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	112.7 PK			3.94 V	335	72.7	40.0
2	*5550.00	103.4 AV			3.94 V	335	63.4	40.0
3	11100.00	60.8 PK	74.0	-13.2	2.79 V	293	42.3	18.5
4	11100.00	47.4 AV	54.0	-6.6	2.79 V	293	28.9	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	114.0 PK			3.36 H	50	73.7	40.3
2	*5670.00	104.2 AV			3.36 H	50	63.9	40.3
3	#5725.00	70.7 PK	74.0	-3.3	3.90 H	35	66.2	4.5
4	#5725.00	52.4 AV	54.0	-1.6	3.90 H	35	47.9	4.5
5	11340.00	60.8 PK	74.0	-13.2	3.56 H	65	42.4	18.4
6	11340.00	47.0 AV	54.0	-7.0	3.56 H	65	28.6	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	110.5 PK			3.62 V	334	70.2	40.3
2	*5670.00	100.9 AV			3.62 V	334	60.6	40.3
3	#5725.00	62.7 PK	74.0	-11.3	3.59 V	351	58.2	4.5
4	#5725.00	47.3 AV	54.0	-6.7	3.59 V	351	42.8	4.5
5	11340.00	60.1 PK	74.0	-13.9	2.79 V	307	41.7	18.4
6	11340.00	47.2 AV	54.0	-6.8	2.79 V	307	28.8	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	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	#5470.00	57.0 PK	74.0	-17.0	3.03 H	66	53.0	4.0
2	#5470.00	43.6 AV	54.0	-10.4	3.03 H	66	39.6	4.0
3	*5710.00	117.1 PK			3.55 H	49	76.7	40.4
4	*5710.00	107.1 AV			3.55 H	49	66.7	40.4
5	#5825.00	58.4 PK	74.0	-15.6	3.27 H	36	53.7	4.7
6	#5825.00	46.5 AV	54.0	-7.5	3.27 H	36	41.8	4.7
7	11420.00	60.3 PK	74.0	-13.7	2.93 H	101	42.1	18.2
8	11420.00	46.8 AV	54.0	-7.2	2.93 H	101	28.6	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	57.2 PK	74.0	-16.8	3.36 V	357	53.2	4.0
2	#5470.00	43.8 AV	54.0	-10.2	3.36 V	357	39.8	4.0
3	*5710.00	112.9 PK			3.94 V	330	72.5	40.4
4	*5710.00	103.2 AV			3.94 V	330	62.8	40.4
5	#5825.00	58.5 PK	74.0	-15.5	3.72 V	352	53.8	4.7
6	#5825.00	44.9 AV	54.0	-9.1	3.72 V	352	40.2	4.7
7	11420.00	60.7 PK	74.0	-13.3	2.78 V	322	42.5	18.2
8	11420.00	47.0 AV	54.0	-7.0	2.78 V	322	28.8	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.



# 802.11ac (VHT80)

CHANNEL	TX Channel 58	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	*5290.00	107.3 PK			2.55 H	46	67.7	39.6
2	*5290.00	97.4 AV			2.55 H	46	57.8	39.6
3	5350.00	65.1 PK	74.0	-8.9	3.23 H	47	61.2	3.9
4	5350.00	52.3 AV	54.0	-1.7	3.23 H	47	48.4	3.9
5	#10580.00	60.7 PK	74.0	-13.3	3.44 H	59	43.5	17.2
6	#10580.00	45.9 AV	54.0	-8.1	3.44 H	59	28.7	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	*5290.00	101.8 PK			3.66 V	344	62.2	39.6
2	*5290.00	91.8 AV			3.66 V	344	52.2	39.6
3	5350.00	60.2 PK	74.0	-13.8	3.72 V	322	56.3	3.9
4	5350.00	46.3 AV	54.0	-7.7	3.72 V	322	42.4	3.9
5	#10580.00	59.0 PK	74.0	-15.0	3.44 V	293	41.8	17.2
6	#10580.00	45.9 AV	54.0	-8.1	3.44 V	293	28.7	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	60.5 PK	74.0	-13.5	2.52 H	55	56.5	4.0
2	5460.00	47.7 AV	54.0	-6.3	2.52 H	55	43.7	4.0
3	#5470.00	68.4 PK	74.0	-5.6	2.71 H	33	64.4	4.0
4	#5470.00	52.3 AV	54.0	-1.7	2.71 H	33	48.3	4.0
5	*5530.00	109.3 PK			3.13 H	37	69.3	40.0
6	*5530.00	99.4 AV			3.13 H	37	59.4	40.0
7	#5725.00	57.4 PK	74.0	-16.6	2.93 H	77	52.9	4.5
8	#5725.00	44.6 AV	54.0	-9.4	2.93 H	77	40.1	4.5
9	11060.00	60.9 PK	74.0	-13.1	2.99 H	103	42.3	18.6
10	11060.00	47.2 AV	54.0	-6.8	2.99 H	103	28.6	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	58.3 PK	74.0	-15.7	2.79 V	93	54.3	4.0
2	5460.00	45.8 AV	54.0	-8.2	2.79 V	93	41.8	4.0
3	#5470.00	60.7 PK	74.0	-13.3	3.29 V	57	56.7	4.0
4	#5470.00	46.6 AV	54.0	-7.4	3.29 V	57	42.6	4.0
5	*5530.00	104.7 PK			3.00 V	22	64.7	40.0
6	*5530.00	94.5 AV			3.00 V	22	54.5	40.0
7	#5725.00	57.3 PK	74.0	-16.7	2.93 V	41	52.8	4.5
8	#5725.00	43.8 AV	54.0	-10.2	2.93 V	41	39.3	4.5
9	11060.00	61.1 PK	74.0	-12.9	3.21 V	33	42.5	18.6
10	11060.00	47.6 AV	54.0	-6.4	3.21 V	33	29.0	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	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	#5470.00	57.4 PK	74.0	-16.6	1.77 H	29	53.4	4.0
2	#5470.00	43.9 AV	54.0	-10.1	1.77 H	29	39.9	4.0
3	*5690.00	112.3 PK			3.49 H	50	72.0	40.3
4	*5690.00	101.6 AV			3.49 H	50	61.3	40.3
5	#5825.00	68.4 PK	74.0	-5.6	3.54 H	43	63.7	4.7
6	#5825.00	52.8 AV	54.0	-1.2	3.54 H	43	48.1	4.7
7	11380.00	60.6 PK	74.0	-13.4	1.56 H	343	42.3	18.3
8	11380.00	46.9 AV	54.0	-7.1	1.56 H	343	28.6	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	3.22 V	303	53.5	4.0
2	#5470.00	43.6 AV	54.0	-10.4	3.22 V	303	39.6	4.0
3	*5690.00	108.8 PK			3.16 V	318	68.5	40.3
4	*5690.00	99.3 AV			3.16 V	318	59.0	40.3
5	#5825.00	60.8 PK	74.0	-13.2	3.39 V	334	56.1	4.7
6	#5825.00	46.0 AV	54.0	-8.0	3.39 V	334	41.3	4.7
7	11380.00	60.2 PK	74.0	-13.8	2.99 V	298	41.9	18.3
8	11380.00	47.6 AV	54.0	-6.4	2.99 V	298	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.

## Test Mode C

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.3 PK	74.0	-18.7	1.76 H	56	51.7	3.6
2	5150.00	42.1 AV	54.0	-11.9	1.76 H	56	38.5	3.6
3	*5260.00	114.5 PK			1.27 H	262	74.9	39.6
4	*5260.00	103.5 AV			1.27 H	262	63.9	39.6
5	#10520.00	58.8 PK	74.0	-15.2	1.49 H	211	41.8	17.0
6	#10520.00	45.0 AV	54.0	-9.0	1.49 H	211	28.0	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	55.0 PK	74.0	-19.0	1.28 V	85	51.4	3.6
2	5150.00	42.9 AV	54.0	-11.1	1.28 V	85	39.3	3.6
3	*5260.00	118.6 PK			1.20 V	320	79.0	39.6
4	*5260.00	108.1 AV			1.20 V	320	68.5	39.6
5	#10520.00	58.3 PK	74.0	-15.7	1.33 V	111	41.3	17.0
6	#10520.00	45.0 AV	54.0	-9.0	1.33 V	111	28.0	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	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	113.2 PK			1.12 H	262	73.6	39.6
2	*5300.00	103.1 AV			1.12 H	262	63.5	39.6
3	10600.00	58.4 PK	74.0	-15.6	1.33 H	299	41.3	17.1
4	10600.00	45.4 AV	54.0	-8.6	1.33 H	299	28.3	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	117.9 PK			1.23 V	320	78.3	39.6
2	*5300.00	107.4 AV			1.23 V	320	67.8	39.6
3	10600.00	58.4 PK	74.0	-15.6	1.56 V	300	41.3	17.1
4	10600.00	45.4 AV	54.0	-8.6	1.56 V	300	28.3	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 & 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	110.8 PK			1.21 H	262	71.1	39.7
2	*5320.00	100.6 AV			1.21 H	262	60.9	39.7
3	5350.00	65.4 PK	74.0	-8.6	1.22 H	271	61.5	3.9
4	5350.00	47.9 AV	54.0	-6.1	1.22 H	271	44.0	3.9
5	10640.00	58.5 PK	74.0	-15.5	1.44 H	297	41.2	17.3
6	10640.00	45.1 AV	54.0	-8.9	1.44 H	297	27.8	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	115.9 PK			1.86 V	6	76.2	39.7
2	*5320.00	105.6 AV			1.86 V	6	65.9	39.7
3	5350.00	69.6 PK	74.0	-4.4	1.87 V	12	65.7	3.9
4	5350.00	52.3 AV	54.0	-1.7	1.87 V	12	48.4	3.9
5	10640.00	58.6 PK	74.0	-15.4	1.73 V	111	41.3	17.3
6	10640.00	45.1 AV	54.0	-8.9	1.73 V	111	27.8	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	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	5460.00	56.3 PK	74.0	-17.7	2.02 H	100	52.3	4.0
2	5460.00	44.0 AV	54.0	-10.0	2.02 H	100	40.0	4.0
3	#5470.00	65.3 PK	74.0	-8.7	1.93 H	29	61.3	4.0
4	#5470.00	48.0 AV	54.0	-6.0	1.93 H	29	44.0	4.0
5	*5500.00	110.8 PK			1.83 H	19	70.8	40.0
6	*5500.00	100.6 AV			1.83 H	19	60.6	40.0
7	11000.00	60.6 PK	74.0	-13.4	1.79 H	133	41.6	19.0
8	11000.00	47.1 AV	54.0	-6.9	1.79 H	133	28.1	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	5460.00	58.9 PK	74.0	-15.1	1.22 V	311	54.9	4.0
2	5460.00	45.7 AV	54.0	-8.3	1.22 V	311	41.7	4.0
3	#5470.00	69.7 PK	74.0	-4.3	1.07 V	300	65.7	4.0
4	#5470.00	52.5 AV	54.0	-1.5	1.07 V	300	48.5	4.0
5	*5500.00	115.9 PK			1.09 V	338	75.9	40.0
6	*5500.00	105.9 AV			1.09 V	338	65.9	40.0
7	11000.00	60.7 PK	74.0	-13.3	1.52 V	299	41.7	19.0
8	11000.00	47.2 AV	54.0	-6.8	1.52 V	299	28.2	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	111.1 PK			1.78 H	20	71.0	40.1
2	*5580.00	101.7 AV			1.78 H	20	61.6	40.1
3	11160.00	60.5 PK	74.0	-13.5	1.99 H	45	41.8	18.7
4	11160.00	46.8 AV	54.0	-7.2	1.99 H	45	28.1	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	116.1 PK			1.06 V	317	76.0	40.1
2	*5580.00	105.4 AV			1.06 V	317	65.3	40.1
3	11160.00	60.1 PK	74.0	-13.9	1.33 V	333	41.4	18.7
4	11160.00	47.4 AV	54.0	-6.6	1.33 V	333	28.7	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	107.7 PK			2.04 H	20	67.4	40.3
2	*5700.00	97.3 AV			2.04 H	20	57.0	40.3
3	#5725.00	60.7 PK	74.0	-13.3	1.87 H	11	56.2	4.5
4	#5725.00	44.6 AV	54.0	-9.4	1.87 H	11	40.1	4.5
5	11400.00	60.6 PK	74.0	-13.4	1.97 H	110	42.4	18.2
6	11400.00	47.8 AV	54.0	-6.2	1.97 H	110	29.6	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	115.4 PK			1.67 V	15	75.1	40.3
2	*5700.00	105.1 AV			1.67 V	15	64.8	40.3
3	#5725.00	68.6 PK	74.0	-5.4	1.65 V	20	64.1	4.5
4	#5725.00	52.3 AV	54.0	-1.7	1.65 V	20	47.8	4.5
5	11400.00	60.4 PK	74.0	-13.6	1.53 V	333	42.2	18.2
6	11400.00	47.4 AV	54.0	-6.6	1.53 V	333	29.2	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	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	#5470.00	56.5 PK	74.0	-17.5	2.06 H	200	52.5	4.0
2	#5470.00	45.6 AV	54.0	-8.4	2.06 H	200	41.6	4.0
3	*5720.00	112.0 PK			2.09 H	198	71.6	40.4
4	*5720.00	102.0 AV			2.09 H	198	61.6	40.4
5	#5850.00	58.0 PK	74.0	-16.0	2.05 H	199	53.2	4.8
6	#5850.00	47.2 AV	54.0	-6.8	2.05 H	199	42.4	4.8
7	11440.00	61.2 PK	74.0	-12.8	1.55 H	95	42.9	18.3
8	11440.00	48.2 AV	54.0	-5.8	1.55 H	95	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	58.8 PK	74.0	-15.2	1.86 V	20	54.8	4.0
2	#5470.00	47.6 AV	54.0	-6.4	1.86 V	20	43.6	4.0
3	*5720.00	119.2 PK			1.90 V	23	78.8	40.4
4	*5720.00	108.9 AV			1.90 V	23	68.5	40.4
5	#5850.00	60.3 PK	74.0	-13.7	1.91 V	19	55.5	4.8
6	#5850.00	49.2 AV	54.0	-4.8	1.91 V	19	44.4	4.8
7	11440.00	62.4 PK	74.0	-11.6	1.71 V	227	44.1	18.3
8	11440.00	49.2 AV	54.0	-4.8	1.71 V	227	30.9	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 & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.9 PK	74.0	-19.1	1.22 H	279	51.3	3.6
2	5150.00	41.9 AV	54.0	-12.1	1.22 H	279	38.3	3.6
3	*5260.00	113.0 PK			1.12 H	263	73.4	39.6
4	*5260.00	102.9 AV			1.12 H	263	63.3	39.6
5	#10520.00	59.1 PK	74.0	-14.9	1.31 H	298	42.1	17.0
6	#10520.00	45.4 AV	54.0	-8.6	1.31 H	298	28.4	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	55.1 PK	74.0	-18.9	1.44 V	299	51.5	3.6
2	5150.00	42.1 AV	54.0	-11.9	1.44 V	299	38.5	3.6
3	*5260.00	118.9 PK			1.14 V	320	79.3	39.6
4	*5260.00	108.5 AV			1.14 V	320	68.9	39.6
5	#10520.00	58.5 PK	74.0	-15.5	1.29 V	351	41.5	17.0
6	#10520.00	45.3 AV	54.0	-8.7	1.29 V	351	28.3	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	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	113.0 PK			1.14 H	265	73.4	39.6
2	*5300.00	102.9 AV			1.14 H	265	63.3	39.6
3	10600.00	58.2 PK	74.0	-15.8	1.32 H	279	41.1	17.1
4	10600.00	45.4 AV	54.0	-8.6	1.32 H	279	28.3	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	118.1 PK			1.17 V	318	78.5	39.6
2	*5300.00	107.8 AV			1.17 V	318	68.2	39.6
3	10600.00	58.8 PK	74.0	-15.2	1.51 V	303	41.7	17.1
4	10600.00	45.7 AV	54.0	-8.3	1.51 V	303	28.6	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 & 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	110.7 PK			1.19 H	271	71.0	39.7
2	*5320.00	100.3 AV			1.19 H	271	60.6	39.7
3	5350.00	65.7 PK	74.0	-8.3	1.13 H	265	61.8	3.9
4	5350.00	48.2 AV	54.0	-5.8	1.13 H	265	44.3	3.9
5	10640.00	58.6 PK	74.0	-15.4	1.21 H	293	41.3	17.3
6	10640.00	45.2 AV	54.0	-8.8	1.21 H	293	27.9	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	116.1 PK			1.16 V	320	76.4	39.7
2	*5320.00	105.4 AV			1.16 V	320	65.7	39.7
3	5350.00	70.4 PK	74.0	-3.6	1.03 V	322	66.5	3.9
4	5350.00	52.4 AV	54.0	-1.6	1.03 V	322	48.5	3.9
5	10640.00	58.8 PK	74.0	-15.2	1.19 V	311	41.5	17.3
6	10640.00	45.2 AV	54.0	-8.8	1.19 V	311	27.9	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 100	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	5460.00	54.7 PK	74.0	-19.3	1.99 H	193	50.7	4.0
2	5460.00	43.5 AV	54.0	-10.5	1.99 H	193	39.5	4.0
3	#5470.00	64.6 PK	74.0	-9.4	2.00 H	233	60.6	4.0
4	#5470.00	47.5 AV	54.0	-6.5	2.00 H	233	43.5	4.0
5	*5500.00	111.2 PK			2.18 H	117	71.2	40.0
6	*5500.00	100.7 AV			2.18 H	117	60.7	40.0
7	11000.00	60.7 PK	74.0	-13.3	2.18 H	97	41.7	19.0
8	11000.00	47.1 AV	54.0	-6.9	2.18 H	97	28.1	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	5460.00	54.8 PK	74.0	-19.2	1.99 V	193	50.8	4.0
2	5460.00	43.6 AV	54.0	-10.4	1.99 V	193	39.6	4.0
3	#5470.00	60.5 PK	74.0	-13.5	1.83 V	191	56.5	4.0
4	#5470.00	52.4 AV	54.0	-1.6	1.83 V	191	48.4	4.0
5	*5500.00	117.9 PK			2.11 V	16	77.9	40.0
6	*5500.00	106.6 AV			2.11 V	16	66.6	40.0
7	11000.00	60.6 PK	74.0	-13.4	1.73 V	223	41.6	19.0
8	11000.00	47.1 AV	54.0	-6.9	1.73 V	223	28.1	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	114.3 PK			2.10 H	195	74.2	40.1
2	*5580.00	103.4 AV			2.10 H	195	63.3	40.1
3	11160.00	59.8 PK	74.0	-14.2	1.93 H	177	41.1	18.7
4	11160.00	46.8 AV	54.0	-7.2	1.93 H	177	28.1	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	120.5 PK			1.86 V	18	80.4	40.1
2	*5580.00	109.4 AV			1.86 V	18	69.3	40.1
3	11160.00	60.0 PK	74.0	-14.0	1.99 V	29	41.3	18.7
4	11160.00	46.7 AV	54.0	-7.3	1.99 V	29	28.0	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	110.2 PK			2.30 H	196	69.9	40.3
2	*5700.00	99.3 AV			2.30 H	196	59.0	40.3
3	#5725.00	62.0 PK	74.0	-12.0	1.94 H	222	57.5	4.5
4	#5725.00	46.6 AV	54.0	-7.4	1.94 H	222	42.1	4.5
5	11400.00	61.6 PK	74.0	-12.4	1.79 H	245	43.4	18.2
6	11400.00	47.6 AV	54.0	-6.4	1.79 H	245	29.4	18.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	115.6 PK			1.80 V	15	75.3	40.3
2	*5700.00	105.0 AV			1.80 V	15	64.7	40.3
3	#5725.00	58.6 PK	74.0	-15.4	2.08 V	166	54.1	4.5
4	#5725.00	52.2 AV	54.0	-1.8	2.08 V	166	47.7	4.5
5	11400.00	60.6 PK	74.0	-13.4	1.79 V	203	42.4	18.2
6	11400.00	47.4 AV	54.0	-6.6	1.79 V	203	29.2	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	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	#5470.00	56.2 PK	74.0	-17.8	2.11 H	195	52.2	4.0
2	#5470.00	45.3 AV	54.0	-8.7	2.11 H	195	41.3	4.0
3	*5720.00	112.4 PK			2.10 H	199	72.0	40.4
4	*5720.00	102.0 AV			2.10 H	199	61.6	40.4
5	#5850.00	58.8 PK	74.0	-15.2	2.12 H	200	54.0	4.8
6	#5850.00	46.7 AV	54.0	-7.3	2.12 H	200	41.9	4.8
7	11440.00	61.6 PK	74.0	-12.4	1.46 H	93	43.3	18.3
8	11440.00	48.3 AV	54.0	-5.7	1.46 H	93	30.0	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	55.5 PK	74.0	-18.5	1.88 V	26	51.5	4.0
2	#5470.00	46.0 AV	54.0	-8.0	1.88 V	26	42.0	4.0
3	*5720.00	118.8 PK			1.94 V	24	78.4	40.4
4	*5720.00	108.2 AV			1.94 V	24	67.8	40.4
5	#5850.00	59.6 PK	74.0	-14.4	1.90 V	18	54.8	4.8
6	#5850.00	47.4 AV	54.0	-6.6	1.90 V	18	42.6	4.8
7	11440.00	61.9 PK	74.0	-12.1	1.69 V	225	43.6	18.3
8	11440.00	48.8 AV	54.0	-5.2	1.69 V	225	30.5	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	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	46.0 PK	74.0	-28.0	1.11 H	181	42.4	3.6
2	5150.00	42.5 AV	54.0	-11.5	1.11 H	181	38.9	3.6
3	*5270.00	110.9 PK			1.20 H	262	71.3	39.6
4	*5270.00	101.1 AV			1.20 H	262	61.5	39.6
5	#10540.00	58.7 PK	74.0	-15.3	1.31 H	187	41.6	17.1
6	#10540.00	46.1 AV	54.0	-7.9	1.31 H	187	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	5150.00	55.6 PK	74.0	-18.4	1.42 V	312	52.0	3.6
2	5150.00	43.3 AV	54.0	-10.7	1.42 V	312	39.7	3.6
3	*5270.00	115.9 PK			1.18 V	318	76.3	39.6
4	*5270.00	106.3 AV			1.18 V	318	66.7	39.6
5	#10540.00	69.0 PK	74.0	-5.0	1.31 V	213	51.9	17.1
6	#10540.00	45.8 AV	54.0	-8.2	1.31 V	213	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 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	106.1 PK			1.12 H	263	66.5	39.6
2	*5310.00	96.2 AV			1.12 H	263	56.6	39.6
3	5350.00	61.3 PK	74.0	-12.7	1.20 H	297	57.4	3.9
4	5350.00	46.8 AV	54.0	-7.2	1.20 H	297	42.9	3.9
5	10620.00	59.5 PK	74.0	-14.5	1.31 H	292	42.2	17.3
6	10620.00	46.2 AV	54.0	-7.8	1.31 H	292	28.9	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	109.9 PK			1.17 V	321	70.3	39.6
2	*5310.00	101.0 AV			1.17 V	321	61.4	39.6
3	5350.00	67.6 PK	74.0	-6.4	1.13 V	316	63.7	3.9
4	5350.00	52.4 AV	54.0	-1.6	1.13 V	316	48.5	3.9
5	10620.00	58.6 PK	74.0	-15.4	1.22 V	332	41.3	17.3
6	10620.00	45.5 AV	54.0	-8.5	1.22 V	332	28.2	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	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	5460.00	62.5 PK	74.0	-11.5	2.09 H	194	58.5	4.0
2	5460.00	46.4 AV	54.0	-7.6	2.09 H	194	42.4	4.0
3	#5470.00	71.4 PK	74.0	-2.6	2.08 H	192	67.4	4.0
4	#5470.00	53.0 AV	54.0	-1.0	2.08 H	192	49.0	4.0
5	*5510.00	106.6 PK			2.13 H	196	66.6	40.0
6	*5510.00	97.3 AV			2.13 H	196	57.3	40.0
7	11020.00	60.4 PK	74.0	-13.6	1.54 H	101	41.5	18.9
8	11020.00	47.4 AV	54.0	-6.6	1.54 H	101	28.5	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	65.3 PK	74.0	-8.7	2.00 V	15	61.3	4.0
2	5460.00	48.4 AV	54.0	-5.6	2.00 V	15	44.4	4.0
3	#5470.00	69.0 PK	74.0	-5.0	1.81 V	15	65.0	4.0
4	#5470.00	52.0 AV	54.0	-2.0	1.81 V	15	48.0	4.0
5	*5510.00	111.6 PK			2.05 V	19	71.6	40.0
6	*5510.00	102.3 AV			2.05 V	19	62.3	40.0
7	11020.00	61.1 PK	74.0	-12.9	1.78 V	222	42.2	18.9
8	11020.00	48.0 AV	54.0	-6.0	1.78 V	222	29.1	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	5460.00	55.6 PK	74.0	-18.4	2.10 H	195	51.6	4.0
2	5460.00	44.3 AV	54.0	-9.7	2.10 H	195	40.3	4.0
3	#5470.00	62.7 PK	74.0	-11.3	2.10 H	195	58.7	4.0
4	#5470.00	47.5 AV	54.0	-6.5	2.10 H	195	43.5	4.0
5	*5550.00	109.4 PK			2.05 H	196	69.4	40.0
6	*5550.00	99.9 AV			2.05 H	196	59.9	40.0
7	11100.00	60.8 PK	74.0	-13.2	1.49 H	86	42.3	18.5
8	11100.00	47.5 AV	54.0	-6.5	1.49 H	86	29.0	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	5460.00	65.6 PK	74.0	-8.4	1.99 V	16	61.6	4.0
2	5460.00	47.5 AV	54.0	-6.5	1.99 V	16	43.5	4.0
3	#5470.00	66.9 PK	74.0	-7.1	1.94 V	15	62.9	4.0
4	#5470.00	52.9 AV	54.0	-1.1	1.94 V	15	48.9	4.0
5	*5550.00	116.4 PK			1.94 V	20	76.4	40.0
6	*5550.00	107.0 AV			1.94 V	20	67.0	40.0
7	11100.00	61.1 PK	74.0	-12.9	1.70 V	240	42.6	18.5
8	11100.00	48.1 AV	54.0	-5.9	1.70 V	240	29.6	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	106.5 PK			1.90 H	196	66.2	40.3
2	*5670.00	97.0 AV			1.90 H	196	56.7	40.3
3	#5725.00	62.4 PK	74.0	-11.6	2.06 H	195	57.9	4.5
4	#5725.00	46.7 AV	54.0	-7.3	2.06 H	195	42.2	4.5
5	11340.00	59.9 PK	74.0	-14.1	1.39 H	96	41.5	18.4
6	11340.00	46.8 AV	54.0	-7.2	1.39 H	96	28.4	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	112.5 PK			2.07 V	13	72.2	40.3
2	*5670.00	103.1 AV			2.07 V	13	62.8	40.3
3	#5725.00	66.6 PK	74.0	-7.4	2.00 V	13	62.1	4.5
4	#5725.00	52.3 AV	54.0	-1.7	2.00 V	13	47.8	4.5
5	11340.00	60.4 PK	74.0	-13.6	1.70 V	219	42.0	18.4
6	11340.00	47.3 AV	54.0	-6.7	1.70 V	219	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	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	#5470.00	55.6 PK	74.0	-18.4	2.03 H	203	51.6	4.0
2	#5470.00	44.6 AV	54.0	-9.4	2.03 H	203	40.6	4.0
3	*5710.00	109.7 PK			2.09 H	196	69.3	40.4
4	*5710.00	100.2 AV			2.09 H	196	59.8	40.4
5	#5850.00	59.6 PK	74.0	-14.4	2.05 H	200	54.8	4.8
6	#5850.00	47.6 AV	54.0	-6.4	2.05 H	200	42.8	4.8
7	11420.00	60.8 PK	74.0	-13.2	1.46 H	90	42.6	18.2
8	11420.00	47.4 AV	54.0	-6.6	1.46 H	90	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	#5470.00	55.9 PK	74.0	-18.1	1.95 V	20	51.9	4.0
2	#5470.00	45.3 AV	54.0	-8.7	1.95 V	20	41.3	4.0
3	*5710.00	115.9 PK			1.93 V	17	75.5	40.4
4	*5710.00	106.2 AV			1.93 V	17	65.8	40.4
5	#5850.00	60.5 PK	74.0	-13.5	2.02 V	20	55.7	4.8
6	#5850.00	49.4 AV	54.0	-4.6	2.02 V	20	44.6	4.8
7	11420.00	61.2 PK	74.0	-12.8	1.72 V	211	43.0	18.2
8	11420.00	48.1 AV	54.0	-5.9	1.72 V	211	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.

# 802.11ac (VHT80)

CHANNEL	TX Channel 58	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	*5290.00	101.5 PK			1.19 H	262	61.9	39.6
2	*5290.00	91.6 AV			1.19 H	262	52.0	39.6
3	5350.00	61.9 PK	74.0	-12.1	1.23 H	266	58.0	3.9
4	5350.00	48.6 AV	54.0	-5.4	1.23 H	266	44.7	3.9
5	#10580.00	58.5 PK	74.0	-15.5	1.41 H	283	41.3	17.2
6	#10580.00	45.9 AV	54.0	-8.1	1.41 H	283	28.7	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	*5290.00	106.9 PK			1.12 V	322	67.3	39.6
2	*5290.00	96.9 AV			1.12 V	322	57.3	39.6
3	5350.00	66.2 PK	74.0	-7.8	1.11 V	314	62.3	3.9
4	5350.00	52.8 AV	54.0	-1.2	1.11 V	314	48.9	3.9
5	#10580.00	58.8 PK	74.0	-15.2	1.23 V	333	41.6	17.2
6	#10580.00	46.1 AV	54.0	-7.9	1.23 V	333	28.9	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	55.5 PK	74.0	-18.5	2.00 H	188	51.5	4.0
2	5460.00	44.8 AV	54.0	-9.2	2.00 H	188	40.8	4.0
3	#5470.00	57.6 PK	74.0	-16.4	2.18 H	190	53.6	4.0
4	#5470.00	46.5 AV	54.0	-7.5	2.18 H	190	42.5	4.0
5	*5530.00	101.8 PK			2.12 H	196	61.8	40.0
6	*5530.00	91.8 AV			2.12 H	196	51.8	40.0
7	#5725.00	56.6 PK	74.0	-17.4	2.15 H	196	52.1	4.5
8	#5725.00	44.9 AV	54.0	-9.1	2.15 H	196	40.4	4.5
9	11060.00	60.0 PK	74.0	-14.0	1.52 H	83	41.4	18.6
10	11060.00	47.0 AV	54.0	-7.0	1.52 H	83	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	63.6 PK	74.0	-10.4	2.00 V	20	59.6	4.0
2	5460.00	49.2 AV	54.0	-4.8	2.00 V	20	45.2	4.0
3	#5470.00	67.2 PK	74.0	-6.8	2.00 V	17	63.2	4.0
4	#5470.00	52.3 AV	54.0	-1.7	2.00 V	17	48.3	4.0
5	*5530.00	108.7 PK			2.06 V	22	68.7	40.0
6	*5530.00	98.4 AV			2.06 V	22	58.4	40.0
7	#5725.00	58.1 PK	74.0	-15.9	1.88 V	300	53.6	4.5
8	#5725.00	46.7 AV	54.0	-7.3	1.88 V	300	42.2	4.5
9	11060.00	60.2 PK	74.0	-13.8	1.68 V	210	41.6	18.6
10	11060.00	47.2 AV	54.0	-6.8	1.68 V	210	28.6	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	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	#5470.00	55.8 PK	74.0	-18.2	2.06 H	214	51.8	4.0
2	#5470.00	44.5 AV	54.0	-9.5	2.06 H	214	40.5	4.0
3	*5690.00	105.0 PK			2.16 H	198	64.7	40.3
4	*5690.00	95.7 AV			2.16 H	198	55.4	40.3
5	#5850.00	58.8 PK	74.0	-15.2	1.96 H	202	54.0	4.8
6	#5850.00	47.3 AV	54.0	-6.7	1.96 H	202	42.5	4.8
7	11380.00	60.2 PK	74.0	-13.8	1.49 H	222	41.9	18.3
8	11380.00	47.4 AV	54.0	-6.6	1.49 H	222	29.1	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	56.8 PK	74.0	-17.2	1.90 V	19	52.8	4.0
2	#5470.00	45.9 AV	54.0	-8.1	1.90 V	19	41.9	4.0
3	*5690.00	113.0 PK			1.94 V	16	72.7	40.3
4	*5690.00	102.6 AV			1.94 V	16	62.3	40.3
5	#5850.00	67.3 PK	74.0	-6.7	1.87 V	357	62.5	4.8
6	#5850.00	52.3 AV	54.0	-1.7	1.87 V	357	47.5	4.8
7	11380.00	60.6 PK	74.0	-13.4	1.71 V	220	42.3	18.3
8	11380.00	48.1 AV	54.0	-5.9	1.71 V	220	29.8	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 60	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.07	28.6 QP	40.0	-11.4	1.99 H	194	43.2	-14.6
2	123.04	26.1 QP	43.5	-17.4	1.49 H	224	42.0	-15.9
3	216.18	27.7 QP	46.0	-18.3	1.00 H	174	43.8	-16.1
4	346.19	28.3 QP	46.0	-17.7	1.00 H	147	40.5	-12.2
5	464.55	33.0 QP	46.0	-13.0	1.49 H	288	43.0	-10.0
6	906.96	29.6 QP	46.0	-16.4	1.49 H	191	32.4	-2.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	62.89	34.4 QP	40.0	-5.6	1.00 V	289	49.6	-15.2
2	124.98	29.1 QP	43.5	-14.4	1.00 V	205	44.9	-15.8
3	159.91	28.3 QP	43.5	-15.2	1.00 V	198	42.1	-13.8
4	287.97	24.7 QP	46.0	-21.3	1.51 V	154	37.7	-13.0
5	369.47	26.1 QP	46.0	-19.9	1.00 V	177	37.8	-11.7
6	468.43	35.3 QP	46.0	-10.7	1.00 V	163	45.2	-9.9

Remarks:

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

CHANNEL	TX Channel 60	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	76.47	32.6 QP	40.0	-7.4	2.00 H	264	50.2	-17.6
2	126.92	31.1 QP	43.5	-12.4	1.51 H	265	46.8	-15.7
3	237.52	28.6 QP	46.0	-17.4	1.51 H	65	43.8	-15.2
4	470.37	35.2 QP	46.0	-10.8	1.51 H	351	45.1	-9.9
5	714.86	27.9 QP	46.0	-18.1	1.01 H	15	33.8	-5.9
6	906.96	29.3 QP	46.0	-16.7	1.51 H	192	32.1	-2.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.37	34.8 QP	40.0	-5.2	1.48 V	147	50.7	-15.9
2	62.95	34.4 QP	40.0	-5.6	1.49 V	13	49.6	-15.2
3	119.34	31.5 QP	43.5	-12.0	1.49 V	354	47.7	-16.2
4	216.55	22.1 QP	46.0	-23.9	1.00 V	111	38.2	-16.1
5	459.59	35.4 QP	46.0	-10.6	1.00 V	153	45.5	-10.1
6	671.52	34.9 QP	46.0	-11.1	1.00 V	11	41.4	-6.5

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

CHANNEL	TX Channel 60	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	41.57	27.1 QP	40.0	-12.9	1.99 H	81	42.1	-15.0
2	57.12	27.7 QP	40.0	-12.3	1.99 H	19	42.3	-14.6
3	125.17	28.7 QP	43.5	-14.8	1.49 H	67	44.5	-15.8
4	162.11	25.9 QP	43.5	-17.6	1.99 H	114	39.8	-13.9
5	407.09	27.9 QP	46.0	-18.1	1.99 H	236	39.0	-11.1
6	904.83	31.9 QP	46.0	-14.1	1.99 H	311	34.9	-3.0
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	42.47	35.7 QP	40.0	-4.3	1.00 V	0	50.6	-14.9
2	59.06	37.2 QP	40.0	-2.8	1.01 V	25	51.9	-14.7
3	125.17	26.5 QP	43.5	-17.0	1.01 V	207	42.3	-15.8
4	160.17	26.2 QP	43.5	-17.3	1.01 V	270	40.0	-13.8
5	409.04	27.6 QP	46.0	-18.4	1.51 V	87	38.8	-11.2
6	906.77	29.2 QP	46.0	-16.8	1.01 V	160	32.0	-2.8

Remarks:

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

CHANNEL	TX Channel 60	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	33.79	26.3 QP	40.0	-13.7	1.49 H	92	42.3	-16.0
2	57.12	27.1 QP	40.0	-12.9	1.99 H	227	41.7	-14.6
3	90.17	26.2 QP	43.5	-17.3	1.99 H	85	45.8	-19.6
4	202.94	32.6 QP	43.5	-10.9	1.49 H	154	49.4	-16.8
5	284.60	26.4 QP	46.0	-19.6	1.00 H	220	39.4	-13.0
6	401.26	27.3 QP	46.0	-18.7	1.99 H	229	38.6	-11.3
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	35.52	37.5 QP	40.0	-2.5	1.00 V	41	53.4	-15.9
2	62.95	35.3 QP	40.0	-4.7	1.01 V	351	50.5	-15.2
3	109.62	24.5 QP	43.5	-19.0	1.51 V	77	41.9	-17.4
4	152.39	26.1 QP	43.5	-17.4	1.01 V	276	40.1	-14.0
5	263.21	26.2 QP	46.0	-19.8	2.00 V	145	40.2	-14.0
6	414.87	26.5 QP	46.0	-19.5	1.51 V	77	37.5	-11.0

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

## 4.2 Conducted Emission Measurement

### 4.2.1 Limits of Conducted Emission Measurement

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

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

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

### 4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 21, 2016	Nov. 20, 2017
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Conc_ V7.3.7.3	NA	NA	NA

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

2. The test was performed in HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

#### 4.2.3 Test Procedures

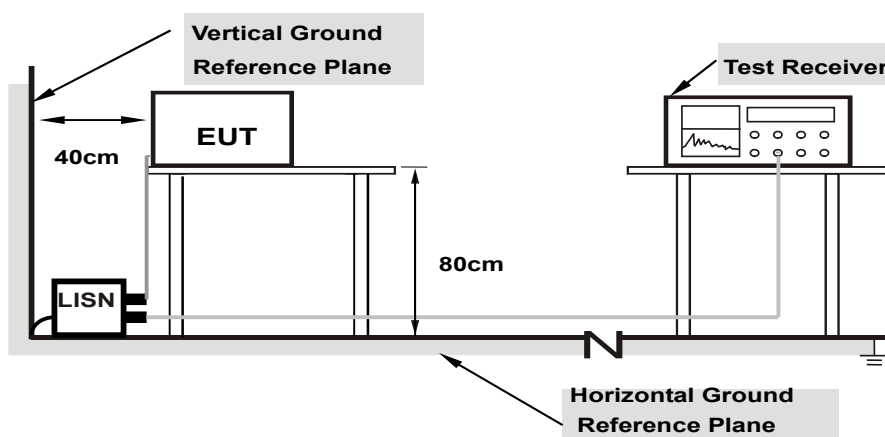
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

#### 4.2.4 Deviation from Test Standard

No deviation.

#### 4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

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

#### 4.2.6 EUT Operating Conditions

Same as 4.1.6.



## 4.2.7 Test Results

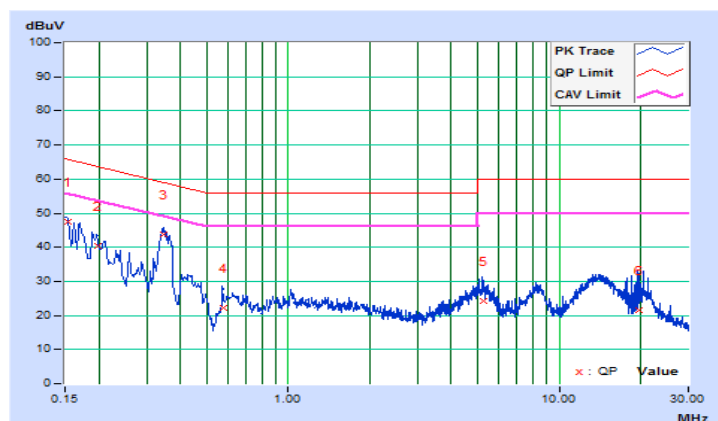
Worst-case data: 802.11a

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	0.15391	10.45	36.95	24.66	47.40	35.11	65.79	55.79	-18.39	-20.68
2	0.19717	10.45	30.01	19.96	40.46	30.41	63.73	53.73	-23.27	-23.32
3	0.34560	10.50	33.18	24.97	43.68	35.47	59.07	49.07	-15.39	-13.60
4	0.57317	10.51	11.59	4.93	22.10	15.44	56.00	46.00	-33.90	-30.56
5	5.23691	10.70	13.63	5.95	24.33	16.65	60.00	50.00	-35.67	-33.35
6	19.63353	11.40	10.29	0.68	21.69	12.08	60.00	50.00	-38.31	-37.92

### 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.

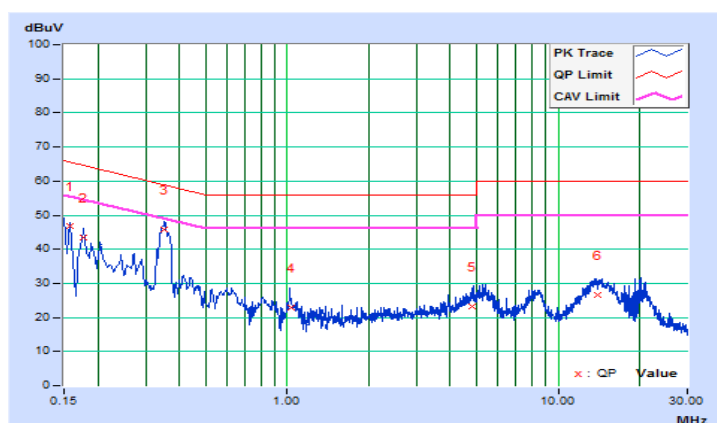


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

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	0.15719	10.21	36.56	23.06	46.77	33.27	65.61	55.61	-18.84	-22.34
2	0.17605	10.21	33.10	21.88	43.31	32.09	64.67	54.67	-21.36	-22.58
3	0.35111	10.23	35.40	26.01	45.63	36.24	58.94	48.94	-13.31	-12.70
4	1.02975	10.26	12.54	9.34	22.80	19.60	56.00	46.00	-33.20	-26.40
5	4.79899	10.44	12.77	5.86	23.21	16.30	56.00	46.00	-32.79	-29.70
6	13.94057	10.82	15.66	9.26	26.48	20.08	60.00	50.00	-33.52	-29.92

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.

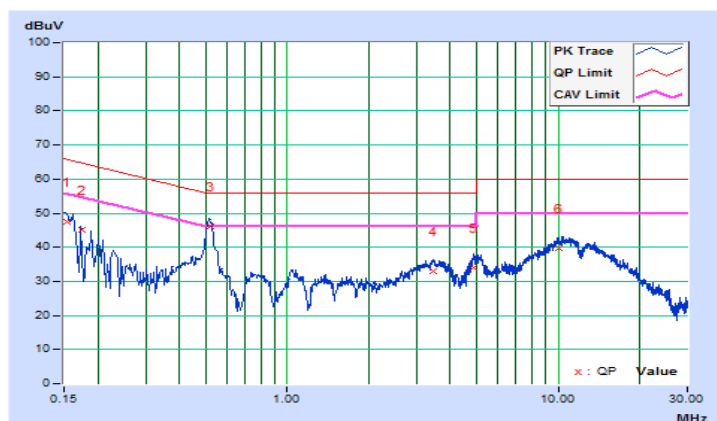


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	10.45	36.92	22.86	47.37	33.31	65.79	55.79	-18.42	-22.48
2	0.17374	10.45	34.62	19.44	45.07	29.89	64.78	54.78	-19.71	-24.89
3	0.51856	10.51	35.67	29.90	46.18	40.41	56.00	46.00	-9.82	-5.59
4	3.44222	10.61	22.24	17.01	32.85	27.62	56.00	46.00	-23.15	-18.38
5	4.86933	10.69	23.37	16.22	34.06	26.91	56.00	46.00	-21.94	-19.09
6	10.00711	10.93	28.74	23.80	39.67	34.73	60.00	50.00	-20.33	-15.27

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.

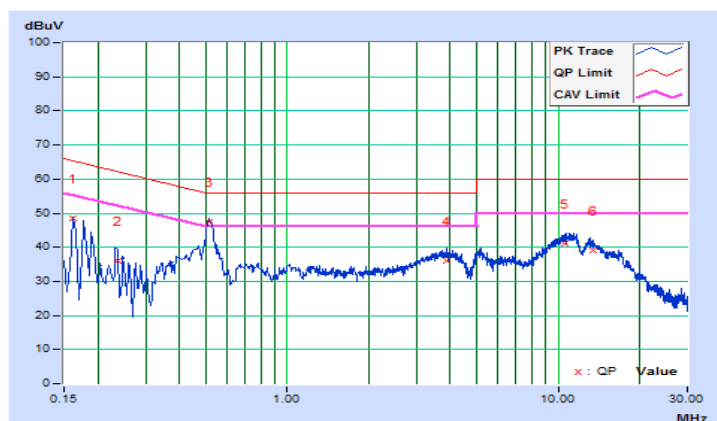


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	0.16096	10.21	38.16	23.52	48.37	33.73	65.41	55.41	-17.04	-21.68
2	0.23602	10.23	25.93	13.22	36.16	23.45	62.24	52.24	-26.08	-28.79
<b>3</b>	<b>0.51177</b>	<b>10.24</b>	<b>37.31</b>	<b>32.63</b>	<b>47.55</b>	<b>42.87</b>	<b>56.00</b>	<b>46.00</b>	<b>-8.45</b>	<b>-3.13</b>
4	3.86162	10.40	25.55	20.62	35.95	31.02	56.00	46.00	-20.05	-14.98
5	10.51932	10.69	30.51	25.46	41.20	36.15	60.00	50.00	-18.80	-13.85
6	13.42054	10.80	28.24	23.20	39.04	34.00	60.00	50.00	-20.96	-16.00

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.

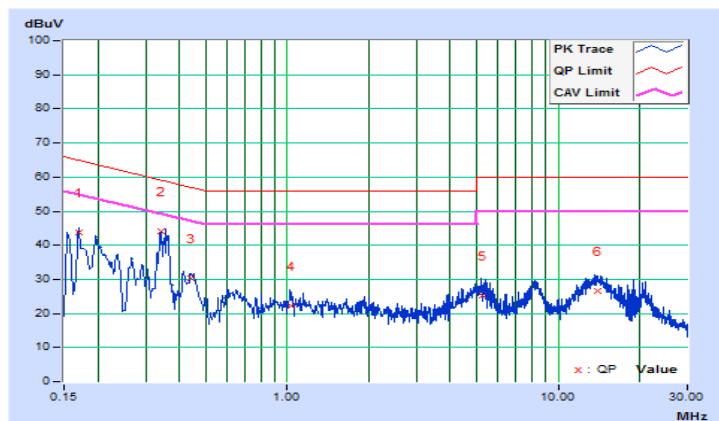


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

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	0.16967	10.45	33.48	22.52	43.93	32.97	64.98	54.98	-21.05	-22.01
2	0.34108	10.50	33.59	27.45	44.09	37.95	59.18	49.18	-15.09	-11.23
3	0.43934	10.51	19.94	12.74	30.45	23.25	57.07	47.07	-26.62	-23.82
4	1.02878	10.48	11.86	8.93	22.34	19.41	56.00	46.00	-33.66	-26.59
5	5.24216	10.70	14.51	6.85	25.21	17.55	60.00	50.00	-34.79	-32.45
6	13.94839	11.12	15.43	8.95	26.55	20.07	60.00	50.00	-33.45	-29.93

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.

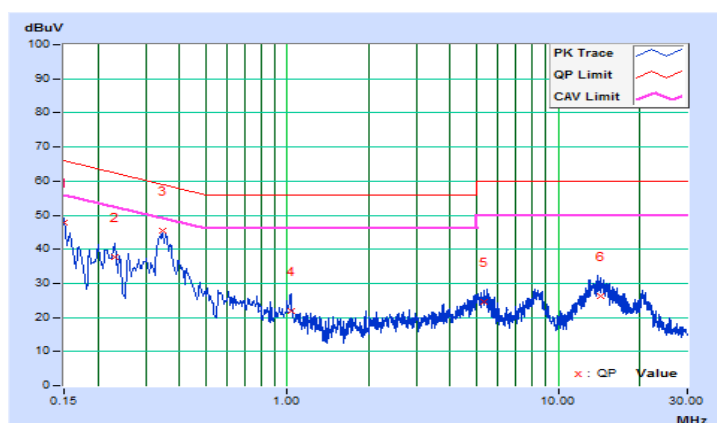


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

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	10.20	37.47	25.30	47.67	35.50	66.00	56.00	-18.33	-20.50
2	0.22972	10.23	27.47	16.28	37.70	26.51	62.46	52.46	-24.76	-25.95
3	0.34560	10.23	35.22	27.25	45.45	37.48	59.07	49.07	-13.62	-11.59
4	1.02878	10.26	11.67	8.57	21.93	18.83	56.00	46.00	-34.07	-27.17
5	5.31168	10.46	14.10	6.09	24.56	16.55	60.00	50.00	-35.44	-33.45
6	14.29247	10.83	15.53	9.22	26.36	20.05	60.00	50.00	-33.64	-29.95

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.

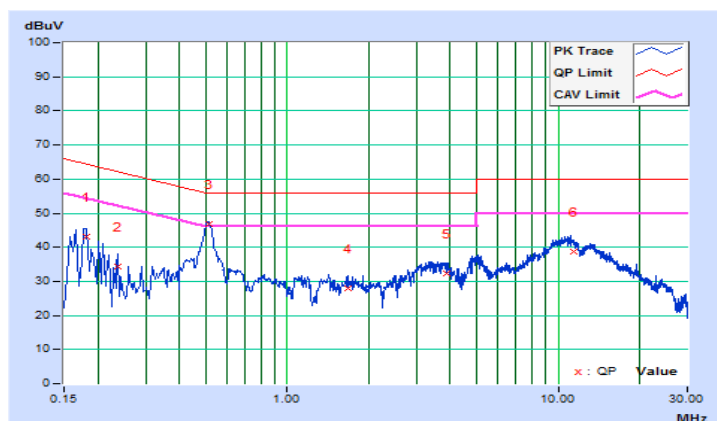


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	D		

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	0.18075	10.45	32.52	17.54	42.97	27.99	64.45	54.45	-21.48	-26.46
2	0.23586	10.47	23.84	12.71	34.31	23.18	62.24	52.24	-27.93	-29.06
3	0.51177	10.51	36.32	31.60	46.83	42.11	56.00	46.00	-9.17	-3.89
4	1.67061	10.51	17.57	13.42	28.08	23.93	56.00	46.00	-27.92	-22.07
5	3.85668	10.64	21.72	16.21	32.36	26.85	56.00	46.00	-23.64	-19.15
6	11.35997	11.00	27.60	22.33	38.60	33.33	60.00	50.00	-21.40	-16.67

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.

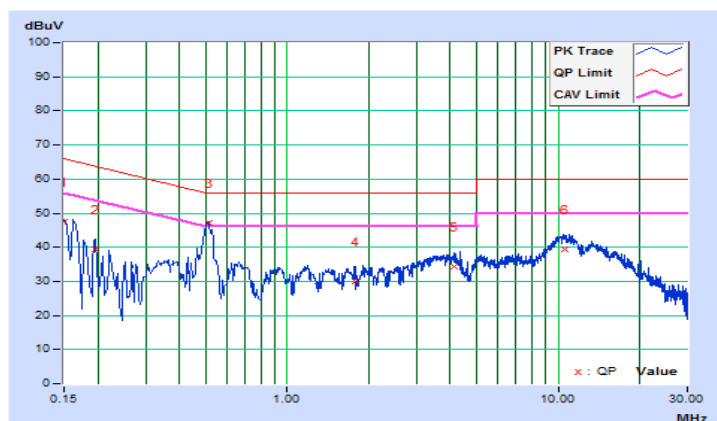


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	D		

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	10.20	37.16	23.18	47.36	33.38	66.00	56.00	-18.64	-22.62
2	0.19510	10.22	29.32	16.05	39.54	26.27	63.82	53.82	-24.28	-27.55
3	0.51177	10.24	36.80	32.07	47.04	42.31	56.00	46.00	-8.96	-3.69
4	1.78436	10.30	19.70	14.70	30.00	25.00	56.00	46.00	-26.00	-21.00
5	4.11370	10.41	23.87	18.57	34.28	28.98	56.00	46.00	-21.72	-17.02
6	10.52323	10.69	28.86	23.75	39.55	34.44	60.00	50.00	-20.45	-15.56

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	$\sqrt{\quad}$		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	$\sqrt{\quad}$		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	$\sqrt{\quad}$		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  $N_{ANT}$ ;

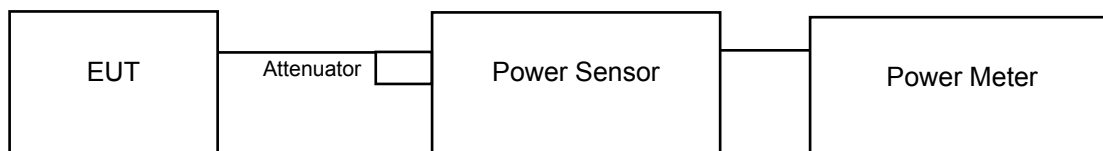
Array Gain =  $5 \log(N_{ANT}/N_{SS})$  dB or 3 dB, whichever is less for 20-MHz channel widths with  $N_{ANT} \geq 5$ .

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

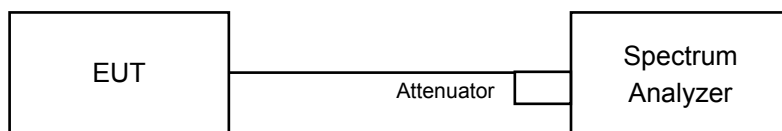
#### 4.3.2 Test Setup

For Power Output

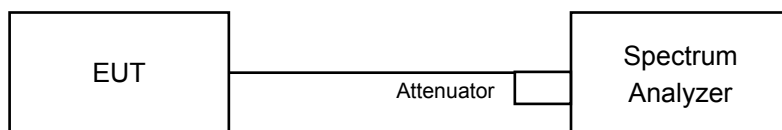
802.11a, 802.11n (HT20), 802.11n (HT40)



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	16.66	16.62	92.265	19.65	23.92	Pass
60	5300	17.92	17.91	123.746	20.93	23.94	Pass
64	5320	17.66	17.81	118.740	20.75	23.91	Pass
100	5500	17.92	17.87	123.179	20.91	23.89	Pass
116	5580	17.63	17.73	117.236	20.69	23.94	Pass
140	5700	17.64	17.56	115.092	20.61	23.86	Pass
144	5720 For U-NII-2C	16.50	16.45	88.825	19.49	22.67	Pass
144	5720 For U-NII-3	11.66	11.64	29.243	14.66	30.00	Pass

Note:

Chain 0

1.  $11\text{dBm} + 10\log(19.60) = 23.92\text{ dBm} < 24\text{dBm}$
2.  $11\text{dBm} + 10\log(19.70) = 23.94\text{ dBm} < 24\text{dBm}$
3.  $11\text{dBm} + 10\log(19.80) = 23.97\text{ dBm} < 24\text{dBm}$
4.  $11\text{dBm} + 10\log(19.93) = 24.00\text{ dBm} = 24\text{dBm}$
5.  $11\text{dBm} + 10\log(20.10) = 24.03\text{ dBm} > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(19.67) = 23.94\text{ dBm} < 24\text{dBm}$
7.  $11\text{dBm} + 10\log(5725.00 - 5710.11) = 22.73\text{ dBm} < 24\text{dBm}$ .

Chain 1

1.  $11\text{dBm} + 10\log(19.87) = 23.98\text{ dBm} < 24\text{dBm}$
2.  $11\text{dBm} + 10\log(19.69) = 23.94\text{ dBm} < 24\text{dBm}$
3.  $11\text{dBm} + 10\log(19.56) = 23.91\text{ dBm} < 24\text{dBm}$
4.  $11\text{dBm} + 10\log(19.47) = 23.89\text{ dBm} < 24\text{dBm}$
5.  $11\text{dBm} + 10\log(19.70) = 23.94\text{ dBm} < 24\text{dBm}$
6.  $11\text{dBm} + 10\log(19.32) = 23.86\text{ dBm} < 24\text{dBm}$
7.  $11\text{dBm} + 10\log(5725.00 - 5710.30) = 22.67\text{ dBm} < 24\text{dBm}$ .

## 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	17.59	17.67	115.891	20.64	24.00	Pass
60	5300	17.81	17.83	121.069	20.83	24.00	Pass
64	5320	17.22	17.28	106.179	20.26	24.00	Pass
100	5500	17.44	17.55	112.348	20.51	24.00	Pass
116	5580	17.52	17.61	114.171	20.58	24.00	Pass
140	5700	17.73	17.75	118.859	20.75	24.00	Pass
144	5720 For U-NII-2C	17.26	17.28	106.667	20.28	22.80	Pass
144	5720 For U-NII-3	12.62	12.51	36.105	15.58	30.00	Pass

Note:

Chain 0

1.  $11\text{dBm} + 10\log(20.55) = 24.13\text{ dBm} > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(20.59) = 24.14\text{ dBm} > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(20.62) = 24.14\text{ dBm} > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(20.61) = 24.14\text{ dBm} > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(20.58) = 24.13\text{ dBm} > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(20.47) = 24.11\text{ dBm} > 24\text{dBm}$
7.  $11\text{dBm} + 10\log(5725.00 - 5709.69) = 22.85\text{ dBm} < 24\text{dBm}$ .

Chain 1

1.  $11\text{dBm} + 10\log(20.95) = 24.21\text{ dBm} > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(20.57) = 24.13\text{ dBm} > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(20.76) = 24.17\text{ dBm} > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(20.47) = 24.11\text{ dBm} > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(20.46) = 24.11\text{ dBm} > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(20.56) = 24.13\text{ dBm} > 24\text{dBm}$
7.  $11\text{dBm} + 10\log(5725.00 - 5709.84) = 22.80\text{ dBm} < 24\text{dBm}$ .

# 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	20.71	21.04	<b>244.818</b>	23.89	24.00	Pass
62	5310	15.96	16.11	80.278	19.05	24.00	Pass
102	5510	18.13	18.25	131.847	21.20	24.00	Pass
110	5550	20.74	20.61	<b>233.657</b>	23.69	24.00	Pass
134	5670	18.69	18.71	148.263	21.71	24.00	Pass
142	5710 For U-NII-2C	18.91	19.41	165.101	22.18	24.00	Pass
142	5710 For U-NII-3	15.11	15.61	68.826	18.38	30.00	Pass

Note:

Chain 0

1.  $11\text{dBm} + 10\log(69.81) = 29.44\text{ dBm} > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(40.70) = 27.10\text{ dBm} > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(40.72) = 27.10\text{ dBm} > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(71.84) = 29.56\text{ dBm} > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(40.91) = 27.12\text{ dBm} > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(5725.00 - 5673.48) = 28.12\text{ dBm} > 24\text{dBm}$ .

Chain 1

1.  $11\text{dBm} + 10\log(72.03) = 29.58\text{ dBm} > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(40.84) = 27.11\text{ dBm} > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(40.98) = 27.13\text{ dBm} > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(60.93) = 28.85\text{ dBm} > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(40.69) = 27.09\text{ dBm} > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(5725.00 - 5673.61) = 28.11\text{ dBm} > 24\text{dBm}$ .

# 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	13.92	14.11	50.423	17.03	24.00	Pass
106	5530	16.88	17.01	98.987	19.96	24.00	Pass
138	5690 For U-NII-2C	19.11	19.18	164.264	22.16	24.00	Pass
138	5690 For U-NII-3	8.89	8.64	15.056	11.78	30.00	Pass

Note:

Chain 0

1.  $11\text{dBm} + 10\log(84.15) = 30.25\text{ dBm} > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(83.96) = 30.24\text{ dBm} > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(5725.00 - 5647.79) = 29.88\text{ dBm} > 24\text{dBm}.$

Chain 1

1.  $11\text{dBm} + 10\log(83.83) = 30.23\text{ dBm} > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(83.90) = 30.24\text{ dBm} > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(5725.00 - 5648.11) = 29.86\text{ dBm} > 24\text{dBm}.$

## 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	14.58	14.66	57.943	17.63	21.16	Pass
60	5300	14.80	14.82	60.534	17.82	21.16	Pass
64	5320	14.21	14.27	53.088	17.25	21.16	Pass
100	5500	14.43	14.54	56.234	17.50	21.16	Pass
116	5580	14.51	14.60	57.148	17.57	21.16	Pass
140	5700	14.72	14.74	59.429	17.74	21.16	Pass
144	5720 For U-NII-2C	14.25	14.27	53.333	17.27	21.16	Pass
144	5720 For U-NII-3	9.61	9.50	18.072	12.57	27.16	Pass

Note:

- 5260~5320MHz, 5500~5720MHz: Directional gain = 5.83 dBi + 10log(2) = 8.84 dBi > 6dBi, so the power limit shall be reduced to "Determined Limit-(8.84-6)".
- 5745~5825MHz: Directional gain = 5.83 dBi + 10log(2) = 8.84 dBi > 6dBi, so the power limit shall be reduced to 30-(8.84-6) = 27.16dBm.

\* Determined Limit means compare the minimum value after 24dBm and 11 dBm+10 log(26dB Bandwidth)

#### Chain 0

- 11dBm + 10log( 20.55 ) = 24.13 dBm > 24dBm
- 11dBm + 10log( 20.59 ) = 24.14 dBm > 24dBm
- 11dBm + 10log( 20.62 ) = 24.14 dBm > 24dBm
- 11dBm + 10log( 20.61 ) = 24.14 dBm > 24dBm
- 11dBm + 10log( 20.58 ) = 24.13 dBm > 24dBm
- 11dBm + 10log( 20.47 ) = 24.11 dBm > 24dBm
- 11dBm + 10log(5725.00 - 5709.69 ) = 22.85 dBm < 24dBm.

#### Chain 1

- 11dBm + 10log( 20.95 ) = 24.21 dBm > 24dBm
- 11dBm + 10log( 20.57 ) = 24.13 dBm > 24dBm
- 11dBm + 10log( 20.76 ) = 24.17 dBm > 24dBm
- 11dBm + 10log( 20.47 ) = 24.11 dBm > 24dBm
- 11dBm + 10log( 20.46 ) = 24.11 dBm > 24dBm
- 11dBm + 10log( 20.56 ) = 24.13 dBm > 24dBm
- 11dBm + 10log(5725.00 - 5709.84 ) = 22.80 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	17.70	18.03	<b>122.462</b>	20.88	21.16	Pass
62	5310	12.95	13.10	40.179	16.04	21.16	Pass
102	5510	15.12	15.24	65.917	18.19	21.16	Pass
110	5550	17.73	17.60	<b>116.950</b>	20.68	21.16	Pass
134	5670	15.68	15.70	74.131	18.70	21.16	Pass
142	5710 For U-NII-2C	15.90	16.40	82.604	19.17	21.16	Pass
142	5710 For U-NII-3	12.10	12.60	34.435	15.37	27.16	Pass

Note:

- 5260~5320MHz, 5500~5720MHz: Directional gain = 5.83 dBi + 10log(2) = 8.84 dBi > 6dBi, so the power limit shall be reduced to "Determined Limit-(8.84-6)".
- 5745~5825MHz: Directional gain = 5.83 dBi + 10log(2) = 8.84 dBi > 6dBi, so the power limit shall be reduced to 30-(8.84-6) = 27.16dBm.

\* Determined Limit means compare the minimum value after 24dBm and 11 dBm+10 log(26dB Bandwidth)

Chain 0

- 11dBm + 10log(69.81) = 29.44 dBm > 24dBm
- 11dBm + 10log(40.70) = 27.10 dBm > 24dBm
- 11dBm + 10log(40.72) = 27.10 dBm > 24dBm
- 11dBm + 10log(71.84) = 29.56 dBm > 24dBm
- 11dBm + 10log(40.91) = 27.12 dBm > 24dBm
- 11dBm + 10log(5725.00 - 5673.48) = 28.12 dBm > 24dBm.

Chain 1

- 11dBm + 10log(72.03) = 29.58 dBm > 24dBm
- 11dBm + 10log(40.84) = 27.11 dBm > 24dBm
- 11dBm + 10log(40.98) = 27.13 dBm > 24dBm
- 11dBm + 10log(60.93) = 28.85 dBm > 24dBm
- 11dBm + 10log(40.69) = 27.09 dBm > 24dBm
- 11dBm + 10log(5725.00 - 5673.61) = 28.11 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	10.91	11.10	25.235	14.02	21.16	Pass
106	5530	13.87	14.00	49.545	16.95	21.16	Pass
138	5690 For U-NII-2C	16.10	16.17	82.224	19.15	21.16	Pass
138	5690 For U-NII-3	5.88	5.63	7.534	8.77	27.16	Pass

Note:

- 5260~5320MHz, 5500~5720MHz: Directional gain = 5.83 dBi + 10log(2) = 8.84 dBi > 6dBi, so the power limit shall be reduced to "Determined Limit-(8.84-6)".
- 5745~5825MHz: Directional gain = 5.83 dBi + 10log(2) = 8.84 dBi > 6dBi, so the power limit shall be reduced to 30-(8.84-6) = 27.16dBm.

\* Determined Limit means compare the minimum value after 24dBm and 11 dBm+10 log(26dB Bandwidth)

Chain 0

- 11dBm + 10log( 84.15 ) = 30.25 dBm > 24dBm
- 11dBm + 10log( 83.96 ) = 30.24 dBm > 24dBm
- 11dBm + 10log(5725.00 - 5647.79 ) = 29.88 dBm > 24dBm.

Chain 1

- 11dBm + 10log( 83.83 ) = 30.23 dBm > 24dBm
- 11dBm + 10log( 83.90 ) = 30.24 dBm > 24dBm
- 11dBm + 10log(5725.00 - 5648.11 ) = 29.86 dBm > 24dBm.

26dB Bandwidth:

802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	19.60	19.87
60	5300	19.70	19.69
64	5320	19.80	19.56
100	5500	19.93	19.47
116	5580	20.10	19.70
140	5700	19.67	19.32
144	5720 For U-NII-2C	14.90	14.70
144	5720 For U-NII-3	4.88	4.85

802.11n (HT20)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.55	20.95
60	5300	20.59	20.57
64	5320	20.62	20.76
100	5500	20.61	20.47
116	5580	20.58	20.46
140	5700	20.47	20.56
144	5720 For U-NII-2C	15.32	15.17
144	5720 For U-NII-3	5.25	5.05

#### 802.11n (HT40)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	69.81	72.03
62	5310	40.70	40.84
102	5510	40.72	40.98
110	5550	71.84	60.93
134	5670	40.91	40.69
142	5710 For U-NII-2C	51.52	51.40
142	5710 For U-NII-3	21.57	21.43

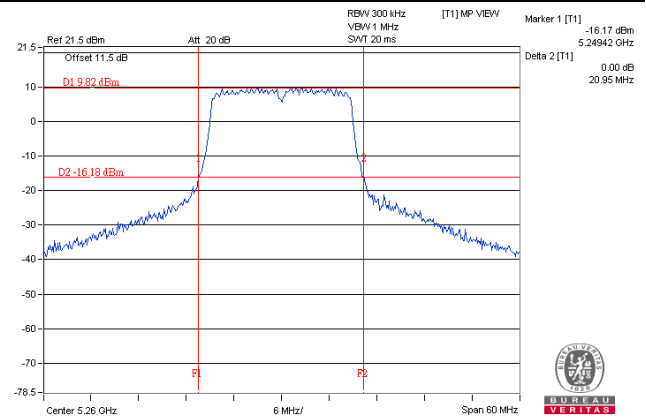
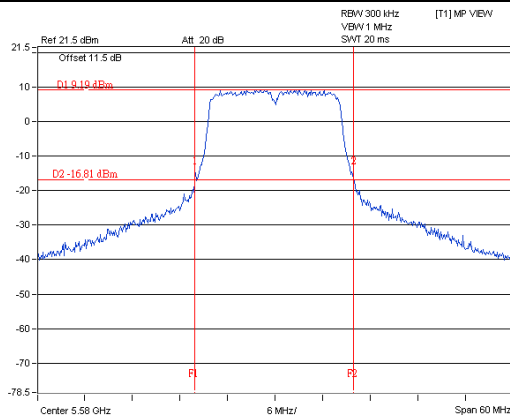
#### 802.11ac (VHT80)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	84.15	83.83
106	5530	83.96	83.90
138	5690 For U-NII-2C	77.21	76.90
138	5690 For U-NII-3	7.34	6.78

## Spectrum Plot of Worst Value

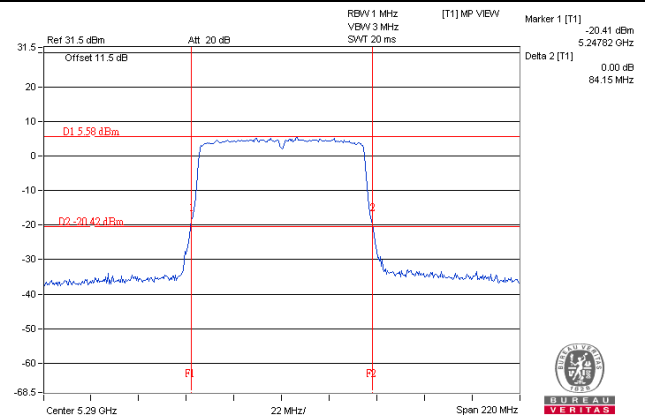
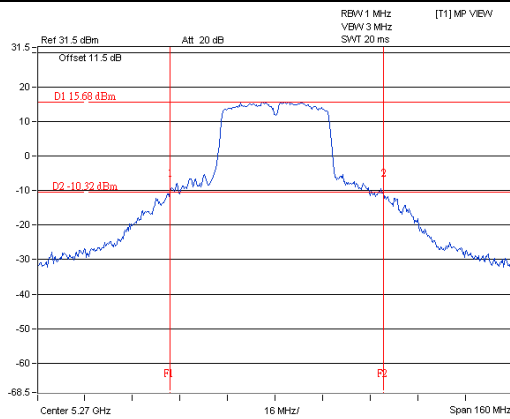
802.11a

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	123.746	20.93
5470~5725	123.179	20.91

#### 802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	121.069	20.83
5470~5725	118.859	20.75

#### 802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	244.818	23.89
5470~5725	233.657	23.69

#### 802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	98.987	19.96
5470~5725	164.264	22.16

## Beamforming Mode

### 802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	60.534	17.82
5470~5725	59.429	17.74

### 802.11n (HT40)

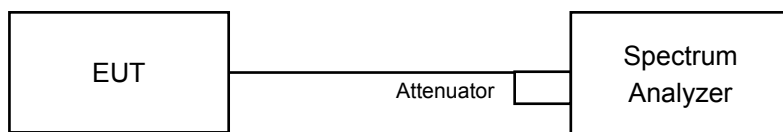
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	122.462	20.88
5470~5725	116.950	20.68

### 802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	25.235	14.02
5470~5725	82.224	19.15

## 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	16.44	16.44
60	5300	16.44	16.44
64	5320	16.44	16.44
100	5500	16.44	16.44
116	5580	16.44	16.44
140	5700	16.44	16.44
144	5720 For U-NII-2C	13.28	13.28
144	5720 For U-NII-3	3.04	3.04

##### 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	17.64	17.64
116	5580	17.64	17.64
140	5700	17.64	17.64
144	5720 For U-NII-2C	13.88	13.88
144	5720 For U-NII-3	3.64	3.64



#### 802.11n (HT40)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	36.36	36.60
62	5310	36.12	36.12
102	5510	36.12	36.12
110	5550	36.36	36.36
134	5670	36.12	36.12
142	5710 For U-NII-2C	33.36	33.24
142	5710 For U-NII-3	3.24	3.24

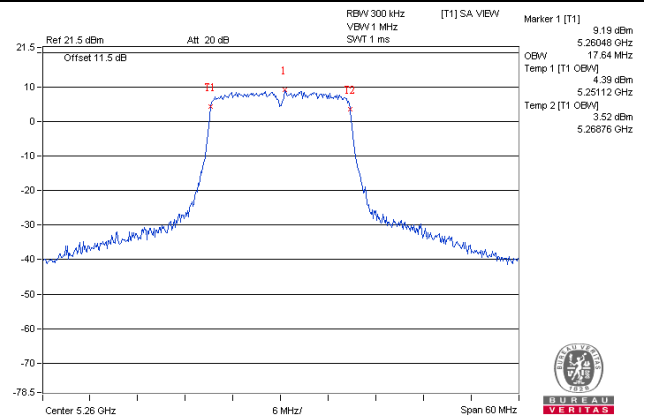
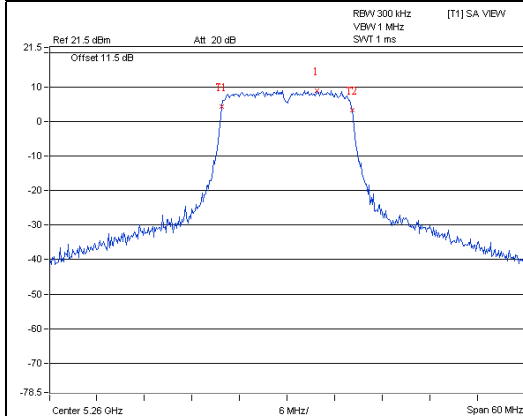
#### 802.11ac (VHT80)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	75.84	75.84
106	5530	75.84	75.60
138	5690 For U-NII-2C	72.92	72.92
138	5690 For U-NII-3	2.92	2.92

## Spectrum Plot of Worst Value

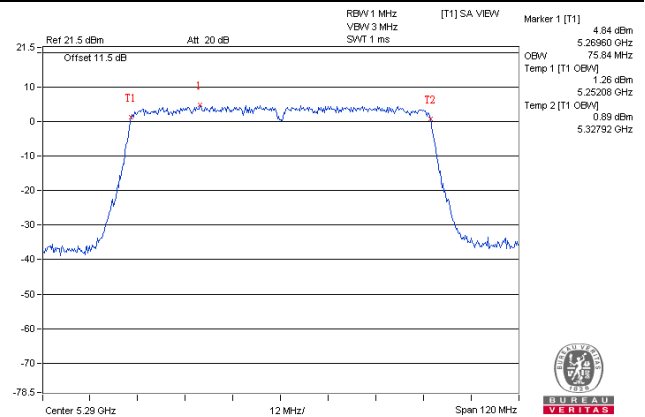
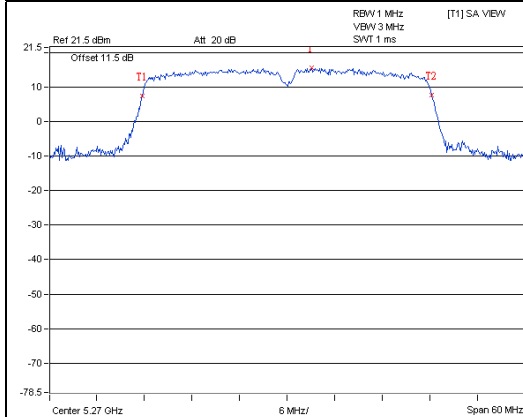
802.11a

802.11n (HT20)



802.11n (HT40)

802.11ac (VHT80)

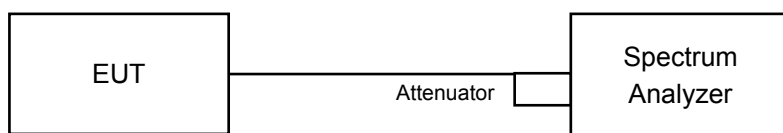


## 4.5 Peak Power Spectral Density Measurement

### 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

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

For U-NII-3 band:

Duty cycle of test signal is < 98%

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

#### 4.5.5 Deviation from Test Standard

No deviation.

#### 4.5.6 EUT Operating Conditions

Same as 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	4.63	4.60	0.19	7.82	8.16	Pass
60	5300	4.68	5.12	0.19	8.11	8.16	Pass
64	5320	4.70	5.01	0.19	8.06	8.16	Pass
100	5500	4.50	4.55	0.19	7.73	8.16	Pass
116	5580	4.78	4.73	0.19	7.96	8.16	Pass
140	5700	4.43	4.80	0.19	7.82	8.16	Pass
144	5720 For U-NII-2C	4.79	4.69	0.19	7.95	8.16	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 =  $5.83\text{dBi} + 10\log(2) = 8.84\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $11-(8.84-6) = 8.16\text{dBm}$ .
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	4.66	5.02	0.11	7.96	8.16	Pass
60	5300	4.64	4.99	0.11	7.93	8.16	Pass
64	5320	4.58	4.85	0.11	7.83	8.16	Pass
100	5500	4.35	4.46	0.11	7.52	8.16	Pass
116	5580	4.21	4.60	0.11	7.53	8.16	Pass
140	5700	4.35	4.69	0.11	7.64	8.16	Pass
144	5720 For U-NII-2C	4.89	5.02	0.11	8.07	8.16	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 =  $5.83\text{dBi} + 10\log(2) = 8.84\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $11-(8.84-6) = 8.16\text{dBm}$ .
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	4.70	4.94	0.21	8.05	8.16	Pass
62	5310	0.42	0.54	0.21	3.70	8.16	Pass
102	5510	1.65	1.53	0.21	4.81	8.16	Pass
110	5550	4.42	4.28	0.21	7.57	8.16	Pass
134	5670	2.87	2.79	0.21	6.05	8.16	Pass
142	5710 For U-NII-2C	4.61	4.68	0.21	7.87	8.16	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 =  $5.83\text{dBi} + 10\log(2) = 8.84\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $11-(8.84-6) = 8.16\text{dBm}$ .
3. Refer to section 3.3 for duty cycle spectrum plot.

#### 802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
58	5290	-5.13	-5.00	0.33	-1.73	8.16	Pass
106	5530	-3.03	-3.37	0.33	0.14	8.16	Pass
138	5690 For U-NII-2C	0.61	0.47	0.33	3.88	8.16	Pass

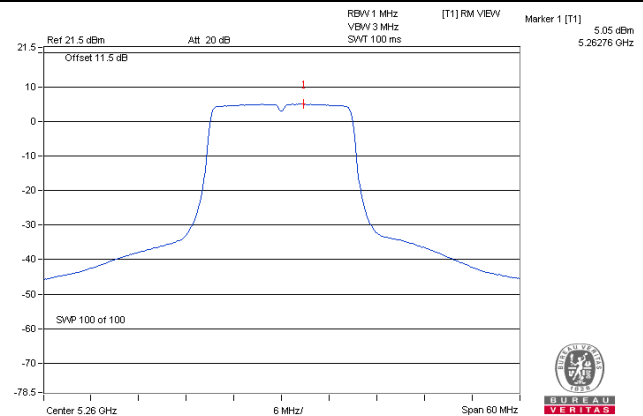
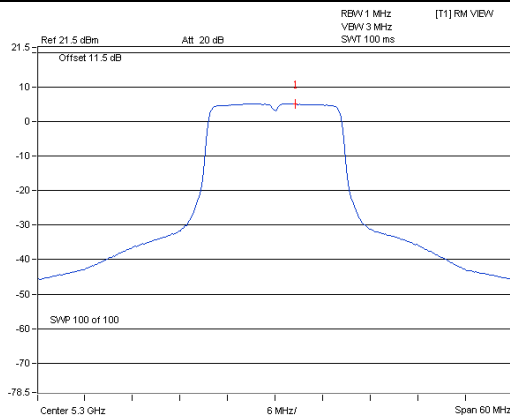
Note:

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 =  $5.83\text{dBi} + 10\log(2) = 8.84\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $11-(8.84-6) = 8.16\text{dBm}$ .
3. Refer to section 3.3 for duty cycle spectrum plot.

# Spectrum Plot of Worst Value

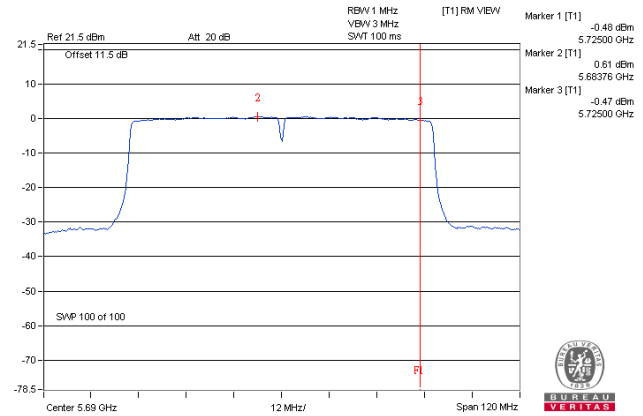
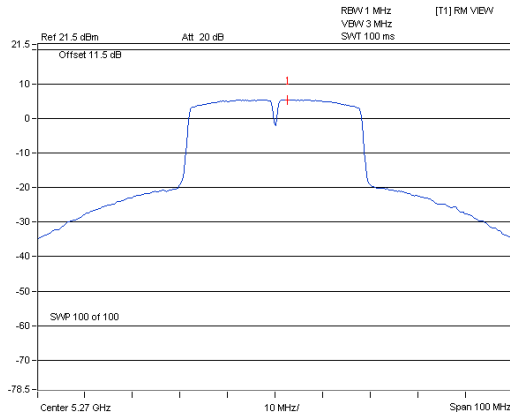
802.11a / Chain 1 / CH 60

802.11n (HT20) / Chain 1 / 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 For U-NII-3	-3.81	-1.59	3.01	0.19	1.61	27.16	Pass
1	144	5720 For U-NII-3	-4.03	-1.81	3.01	0.19	1.39	27.16	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 =  $5.83\text{dBi} + 10\log(2) = 8.84\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $30 - (8.84 - 6) = 27.16\text{dBm}$ .
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 For U-NII-3	-3.76	-1.54	3.01	0.11	1.58	27.16	Pass
1	144	5720 For U-NII-3	-3.68	-1.46	3.01	0.11	1.66	27.16	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 =  $5.83\text{dBi} + 10\log(2) = 8.84\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $30 - (8.84 - 6) = 27.16\text{dBm}$ .
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 For U-NII-3	-4.51	-2.29	3.01	0.21	0.93	27.16	Pass
1	142	5710 For U-NII-3	-4.41	-2.19	3.01	0.21	1.03	27.16	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 =  $5.83\text{dBi} + 10\log(2) = 8.84\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $30 - (8.84 - 6) = 27.16\text{dBm}$ .
3. Refer to section 3.3 for duty cycle spectrum plot.

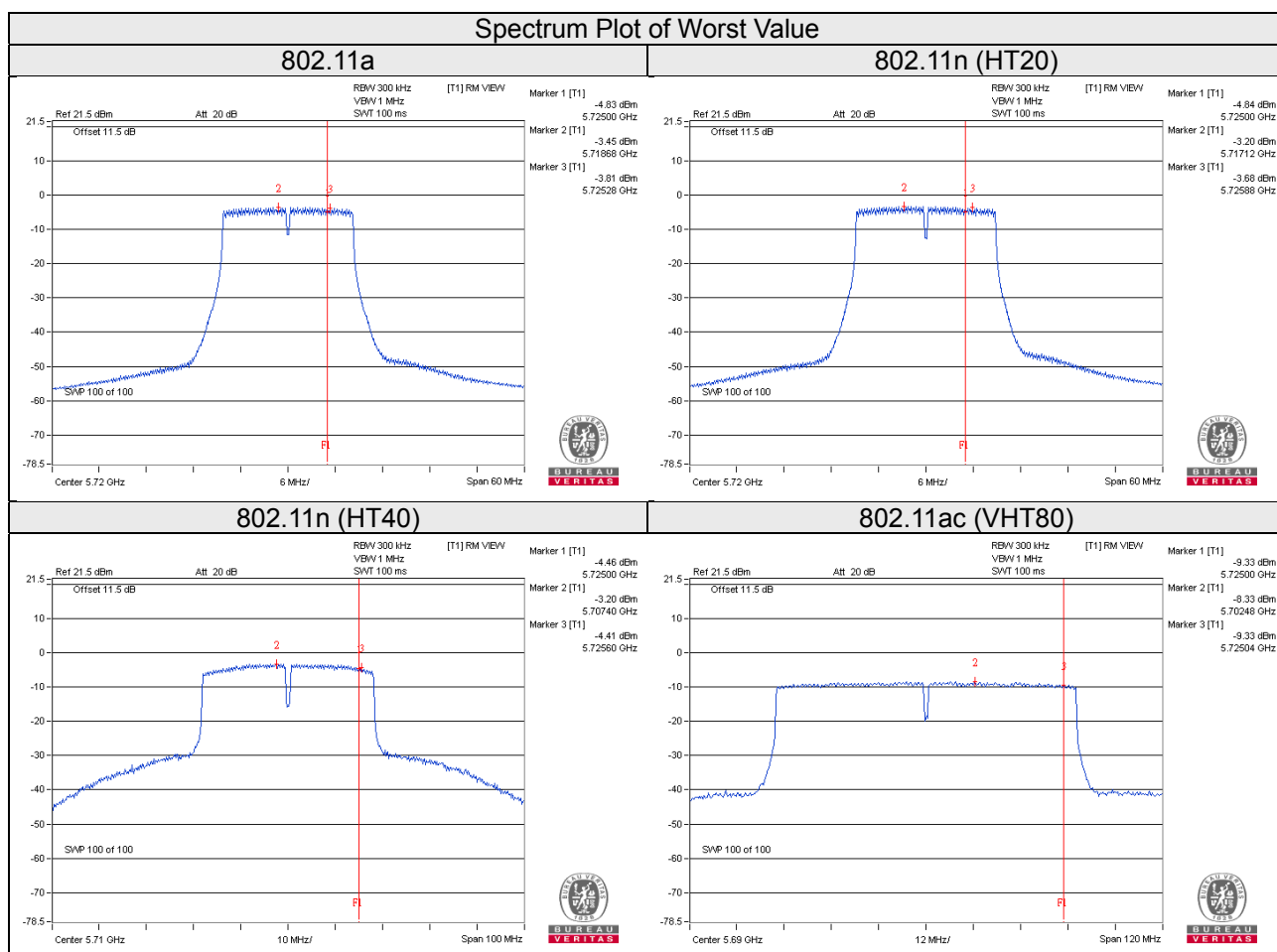


## 802.11ac (VHT80)

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 For U-NII-3	-9.33	-7.11	3.01	0.33	-3.77	27.16	Pass
1	138	5690 For U-NII-3	-9.41	-7.19	3.01	0.33	-3.85	27.16	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 =  $5.83\text{dBi} + 10\log(2) = 8.84\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $30 - (8.84 - 6) = 27.16\text{dBm}$ .
- Refer to section 3.3 for duty cycle spectrum plot.

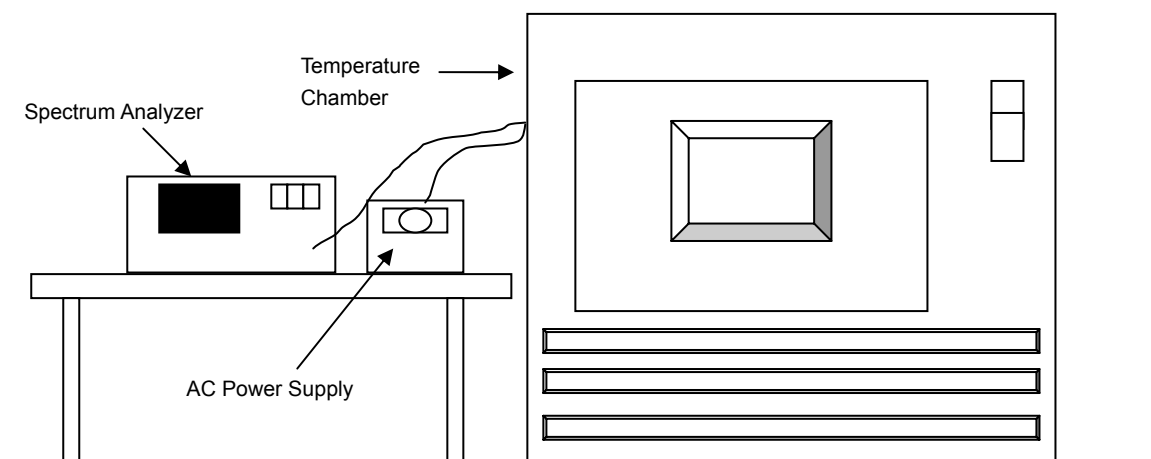


## 4.6 Frequency Stability

### 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	5260.0260	0.00049	5260.0270	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	5259.9820	-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	5259.9740	-0.00049	5259.9743	-0.00049	5259.9771	-0.00044	5259.9774	-0.00043

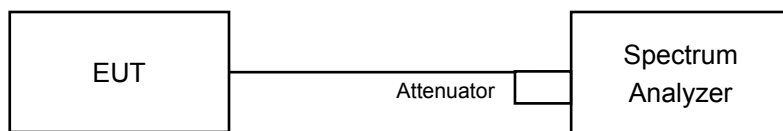
Frequency Stability Versus Voltage									
Operating Frequency: 5260MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (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	5260.0000	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	3.13	3.15	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	3.75	3.77	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	2.57	2.54	0.5	Pass

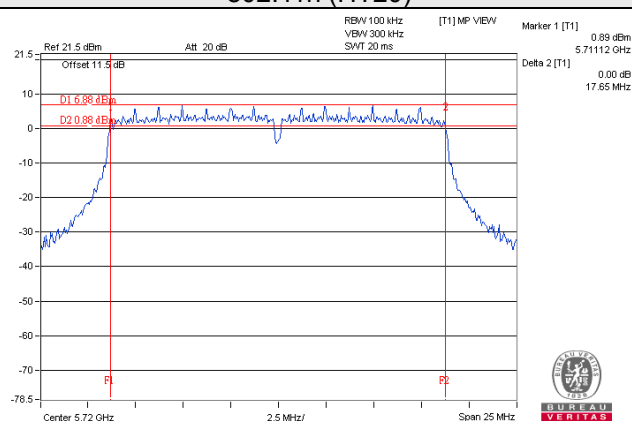
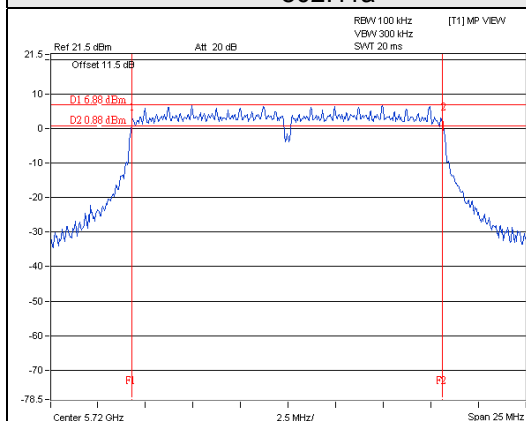
##### 802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
138	5690 For U-NII-3	2.91	2.79	0.5	Pass

## Spectrum Plot of Worst Value

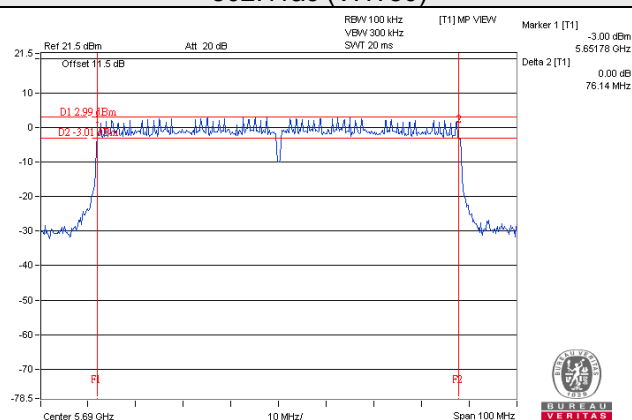
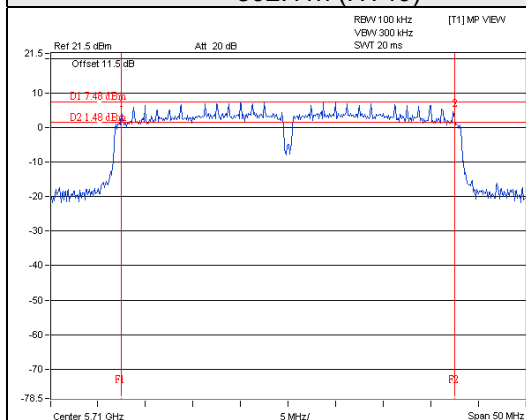
**802.11a**

**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**

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**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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