FCC Test Report

Report No.:	RF170905C13A-1
FCC ID:	PY317200377
Test Model:	RBS50Y
Received Date:	Sep. 05, 2017
Test Date:	Sep. 22 ~ Oct. 16, 2017 (For 1st Source test data) May 04 ~ May 23, 2018 (For 2nd Source test data)
Issued Date:	May 29, 2018
Applicant:	NETGEAR, INC.
Address:	350 East Plumeria Drive San Jose, CA 95134
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RF170905C13A-1	Original release.	May 29, 2018

1 Certificate of Conformity

Product:	Orbi Router, Orbi Satellite, Orbi AC3000 Tri-band WiFi System
Brand:	NETGEAR
Test Model:	RBS50Y
Sample Status:	Engineering sample
Applicant:	NETGEAR, INC.
Test Date:	Sep. 22 ~ Oct. 16, 2017 (For 1st Source test data) May 04 ~ May 23, 2018 (For 2nd Source test data)
Standards:	47 CFR FCC Part 15, Subpart E (Section 15.407) ANSI C63.10:2013

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

Prepared by : Celine Chou , **Date:** May 29, 2018

Celine Chou / Specialist

Approved by : Bruce Chen , **Date:** May 29, 2018

Bruce Chen / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -10.38dB at 0.30534MHz.
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 -0.1dB at 5350.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is i-pex (MHF) not a standard connector.

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.63 dB
	200MHz ~1000MHz	3.64 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	Orbi Router, Orbi Satellite, Orbi AC3000 Tri-band WiFi System
Brand	NETGEAR
Test Model	RBS50Y
Sample Status	Engineering sample
Power Supply Rating	12Vdc from adapter
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 600Mbps 802.11ac: up to 1734Mbps
Operating Frequency	5180 ~ 5240MHz, 5260 ~ 5320MHz, 5500 ~ 5700MHz, 5745 ~ 5825MHz
Number of Channel	5180 ~ 5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5260 ~ 5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5500 ~ 5700MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 11 802.11n (HT40), 802.11ac (VHT40): 5 802.11ac (VHT80): 2 5745 ~ 5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1
Output Power	CDD Mode: 5180 ~ 5240MHz 1TX: 52.000mW 5180 ~ 5240MHz 2TX: 52.124mW 5260 ~ 5320MHz: 236.649mW 5500 ~ 5700MHz: 231.252mW 5745 ~ 5825MHz: 930.220mW Beamforming Mode: 5180 ~ 5240MHz: 26.154mW 5260 ~ 5320MHz: 235.552mW 5500 ~ 5700MHz: 133.221mW 5745 ~ 5825MHz: 660.130mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter
Cable Supplied	N/A

Note:

1. This report is prepared for FCC class II permissive change. The differences compared with the original report (BV CPS report no.: RF170906C13-1) are list as below:
   - Adding 5.26GHz to 5.32GHz & 5.50GHz to 5.70GHz by software. (Perform testing under 1st Source)
   - Adding 2nd Source. After evaluation, only the radiated emission and power line conducted emission of worst channels for each band has been an addendum test. (Final test channel refer section 3.2.1)
2. The EUT incorporates a MIMO function. Physically, the EUT provides 4 completed transmitters and 4 receivers.

Band	Modulation Mode	Beamforming Mode	TX Function
5GHz Band 1	802.11a	Not Support	1TX / 2TX
	802.11n (HT20)	Not Support / Support (CDD / NSS=1)	1TX / 2TX
	802.11n (HT40)	Not Support / Support (CDD / NSS=1)	1TX / 2TX
	802.11ac (VHT20)	Not Support / Support (CDD / NSS=1)	1TX / 2TX
	802.11ac (VHT40)	Not Support / Support (CDD / NSS=1)	1TX / 2TX
	802.11ac (VHT80)	Not Support / Support (CDD / NSS=1)	1TX / 2TX
5GHz Band 2	802.11a	Not Support	2TX
	802.11n (HT20)	Support (CDD / NSS=1)	2TX
	802.11n (HT40)	Support (CDD / NSS=1)	2TX
	802.11ac (VHT20)	Support (CDD / NSS=1)	2TX
	802.11ac (VHT40)	Support (CDD / NSS=1)	2TX
	802.11ac (VHT80)	Support (CDD / NSS=1)	2TX
5GHz Band 3 and 4	802.11a	Not Support	4TX
	802.11n (HT20)	Support (CDD / NSS=1)	4TX
	802.11n (HT40)	Support (CDD / NSS=1)	4TX
	802.11ac (VHT20)	Support (CDD / NSS=1)	4TX
	802.11ac (VHT40)	Support (CDD / NSS=1)	4TX
	802.11ac (VHT80)	Support (CDD / NSS=1)	4TX

* 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.

3. The following RF Modules are for the EUT. (New source are marked in boldface)

Brand	Model	RF Module	Band
NETGEAR	RBS50Y	Module 1	2.4G
			UNII-1
			UNII-2A
		Module 2	UNII-2C
			UNII-3
		BT Module	BT LE

RF Module	Filter	Position	Remark
Module 1	1st	TFL1,TFL2	pin to pin & Same design
	2nd	**TFL1,TFL2**	**pin to pin & Same design**
Module 2	1st	BHPF1,BHPF2,BHPF3,BHPF4	pin to pin & Same design
	2nd	**BHPF1,BHPF2,BHPF3,BHPF4**	**pin to pin & Same design**

RF Module	RF Switch	Position	Remark
Module 1	1st	AS1,AS2,TS1,TS2	pin to pin & Same design
	2nd	**AS1,AS2,TS1,TS2**	**pin to pin & Same design**

4. The EUT uses following antennas.

Ant. Type	Dipole				
Connecter Type	i-pex(MHF)				
Directional Antenna Gain (dBi)					
Item	2.4G	UNII-1	UNII-2A	UNII-2C	UNII-3
-	5.31	5.97	5.41	8.74	7.57

5. The EUT consumes power from the following adapters.

Adapter 1 (US)	
Brand	NETGEAR
Model	AD2110F10
P/N	332-10999-01
Input Power	100-120Vac, 50/60Hz, 1.0A
Output Power	12Vdc, 2.5A
Power Line	3m power cable without core attached on adapter

Adapter 2 (US)	
Brand	NETGEAR
Model	2ADF030F1 NA
P/N	332-11000-01
Input Power	100-120Vac, 50/60Hz, 1.0A
Output Power	12Vdc, 2.5A
Power Line	3m power cable without core attached on adapter

* After pre- test, adapter 1 was chosen for final test and presented in the test report.

6. Spurious emission of the simultaneous operation mode as below and the test data please refer to report no.: RF170905C13A-2.

No	Mode
1	WLAN 2.4GHz + WLAN 5GHz B1 (2TX) + WLAN 5GHz B3 + BT LE
2	WLAN 2.4GHz + WLAN 5GHz B2 + WLAN 5GHz B3 + BT LE
3	WLAN 2.4GHz + WLAN 5GHz B2 + WLAN 5GHz B4 + BT LE

3.2 Description of Test Modes

For 5180 ~ 5240MHz:

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

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210MHz

For 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	5290 MHz

For 5500 ~ 5700MHz

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

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz		

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

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz		

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530MHz	122	5610 MHz

For 5745 ~ 5825MHz:

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

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

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

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

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

Note: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.

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)	TX Function
1st Source							
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0	2TX
	802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	6.5	2TX
	802.11ac (VHT40)		54 to 62	54, 62	OFDM	13.5	2TX
	802.11ac (VHT80)		58	58	OFDM	29.3	2TX
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0	4TX
	802.11ac (VHT20)		100 to 140	100, 116, 140	OFDM	6.5	4TX
	802.11ac (VHT40)		102 to 134	102, 110, 134	OFDM	13.5	4TX
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	29.3	4TX
2nd Source							
-	802.11ac (VHT80)	5180-5240	42	42	OFDM	29.3	2TX
-	802.11ac (VHT80)	5260-5320	58	58	OFDM	29.3	2TX
-	802.11ac (VHT80)	5500-5700	106 to 122	106	OFDM	29.3	4TX
-	802.11ac (VHT40)	5745-5825	151 to 159	151	OFDM	13.5	4TX

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)	TX Function
1st Source							
-	802.11a	5180-5240	36 to 48	52	OFDM	6.0	2TX
	802.11a	5260-5320	36 to 48		OFDM	6.0	2TX
	802.11a	5500-5700	149 to 165		OFDM	6.0	4TX
	802.11a	5745-5825	149 to 165		OFDM	6.0	4TX
2nd Source							
-	802.11ac (VHT80)	5180-5240	42	42	OFDM	29.3	2TX
-	802.11ac (VHT80)	5260-5320	58		OFDM	29.3	2TX
-	802.11ac (VHT80)	5500-5700	106 to 122		OFDM	29.3	4TX
-	802.11ac (VHT40)	5745-5825	151 to 159		OFDM	13.5	4TX

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)	TX Function
1st Source							
-	802.11a	5180-5240	36 to 48	52	OFDM	6.0	2TX
	802.11a	5260-5320	36 to 48		OFDM	6.0	2TX
	802.11a	5500-5700	149 to 165		OFDM	6.0	4TX
	802.11a	5745-5825	149 to 165		OFDM	6.0	4TX
2nd Source							
-	802.11ac (VHT80)	5180-5240	42	42	OFDM	29.3	2TX
-	802.11ac (VHT80)	5260-5320	58		OFDM	29.3	2TX
-	802.11ac (VHT80)	5500-5700	106 to 122		OFDM	29.3	4TX
-	802.11ac (VHT40)	5745-5825	151 to 159		OFDM	13.5	4TX

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)	TX Function
1st Source - CDD Mode							
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0	2TX
	802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	6.5	2TX
	802.11ac (VHT40)		54 to 62	54, 62	OFDM	13.5	2TX
	802.11ac (VHT80)		58	58	OFDM	29.3	2TX
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0	4TX
	802.11ac (VHT20)		100 to 140	100, 116, 140	OFDM	6.5	4TX
	802.11ac (VHT40)		102 to 134	102, 110, 134	OFDM	13.5	4TX
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	29.3	4TX
1st Source - Beamforming Mode							
-	802.11ac (VHT20)	5260-5320	52 to 64	52, 60, 64	OFDM	6.5	2TX
	802.11ac (VHT40)		54 to 62	54, 62	OFDM	13.5	2TX
	802.11ac (VHT80)		58	58	OFDM	29.3	2TX
-	802.11ac (VHT20)	5500-5700	100 to 140	100, 116, 140	OFDM	6.5	4TX
	802.11ac (VHT40)		102 to 134	102, 110, 134	OFDM	13.5	4TX
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	29.3	4TX

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)	TX Function
1st Source							
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0	2TX
	802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	6.5	2TX
	802.11ac (VHT40)		54 to 62	54, 62	OFDM	13.5	2TX
	802.11ac (VHT80)		58	58	OFDM	29.3	2TX
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0	4TX
	802.11ac (VHT20)		100 to 140	100, 116, 140	OFDM	6.5	4TX
	802.11ac (VHT40)		102 to 134	102, 110, 134	OFDM	13.5	4TX
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	29.3	4TX

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 70% RH	120Vac, 60Hz	Luis Lee
RE<1G	25 deg. C, 70% RH	120Vac, 60Hz	Luis Lee
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Matthew Yang
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Ted Chang

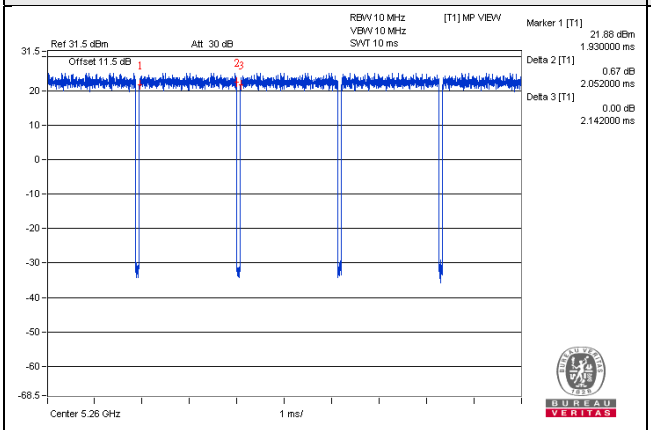
3.3 Duty Cycle of Test Signal

For U-NII-2A Band

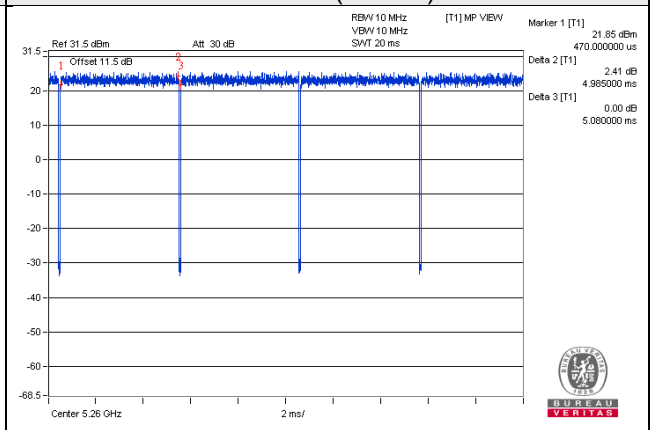
802.11a, 802.11ac (VHT40), 802.11ac (VHT80): Duty cycle of test signal is < 98%, duty factor is required.
802.11ac (VHT20): Duty cycle of test signal is > 98%, duty factor is not required.

802.11a: Duty cycle = 2.052/2.142 = 0.958, Duty factor = 10 * log(1/0.958) = 0.19
802.11ac (VHT20): Duty cycle = 4.985/5.080 = 0.981
802.11ac (VHT40): Duty cycle = 2.420/2.522 = 0.960, Duty factor = 10 * log(1/0.960) = 0.18
802.11ac (VHT80): Duty cycle = 1.144/1.225 = 0.934, Duty factor = 10 * log(1/0.934) = 0.30

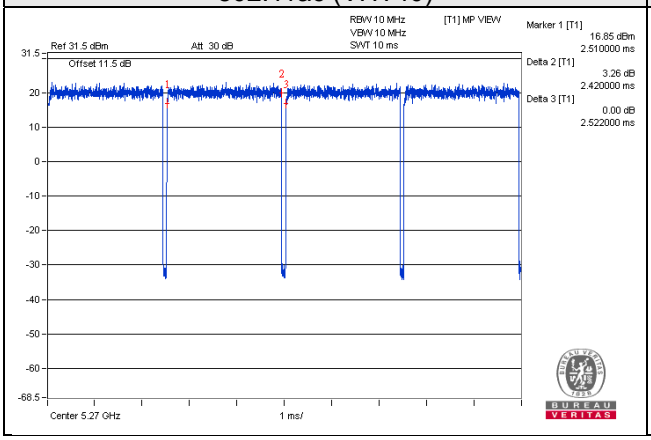
802.11a



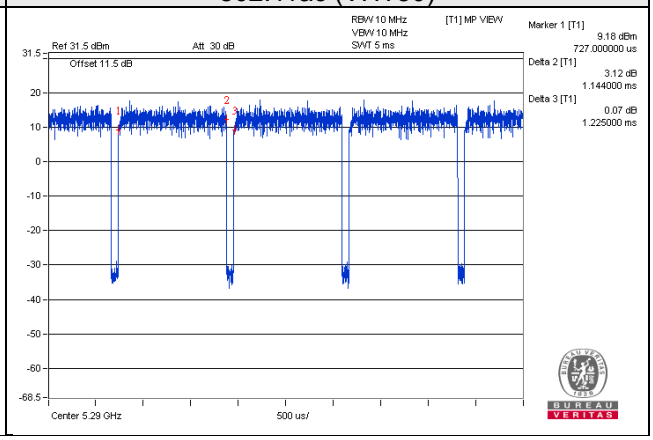
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)

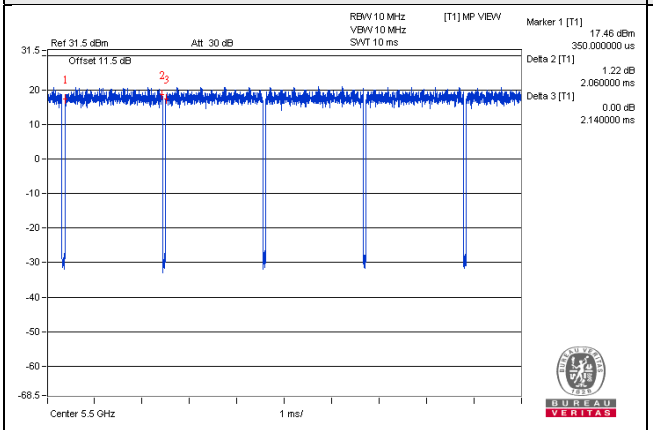


For U-NII-2C Band

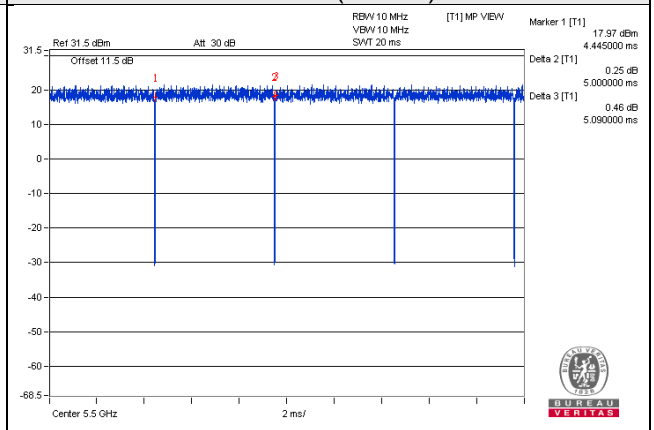
802.11a, 802.11ac (VHT40), 802.11ac (VHT80): Duty cycle of test signal is < 98%, duty factor is required.
802.11ac (VHT20): Duty cycle of test signal is > 98%, duty factor is not required.

802.11a: Duty cycle = 2.060/2.140 = 0.963, Duty factor = 10 * log(1/0.963) = 0.17
802.11ac (VHT20): Duty cycle = 5.000/5.090 = 0.982
802.11ac (VHT40): Duty cycle = 2.422/2.502 = 0.968, Duty factor = 10 * log(1/0.968) = 0.14
802.11ac (VHT80): Duty cycle = 1.140/1.215 = 0.938, Duty factor = 10 * log(1/0.938) = 0.28

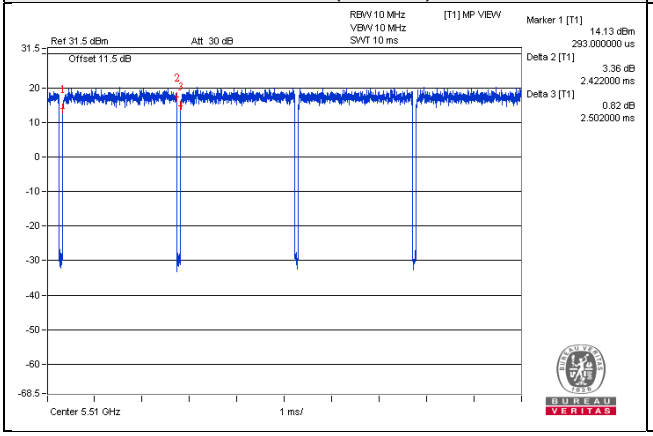
802.11a



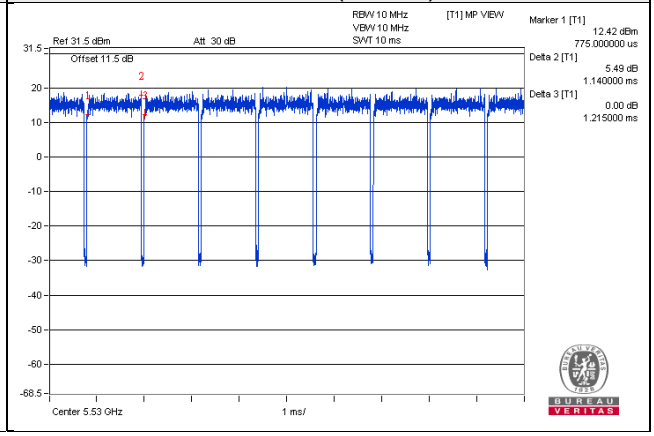
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



3.4 Description of Support Units

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

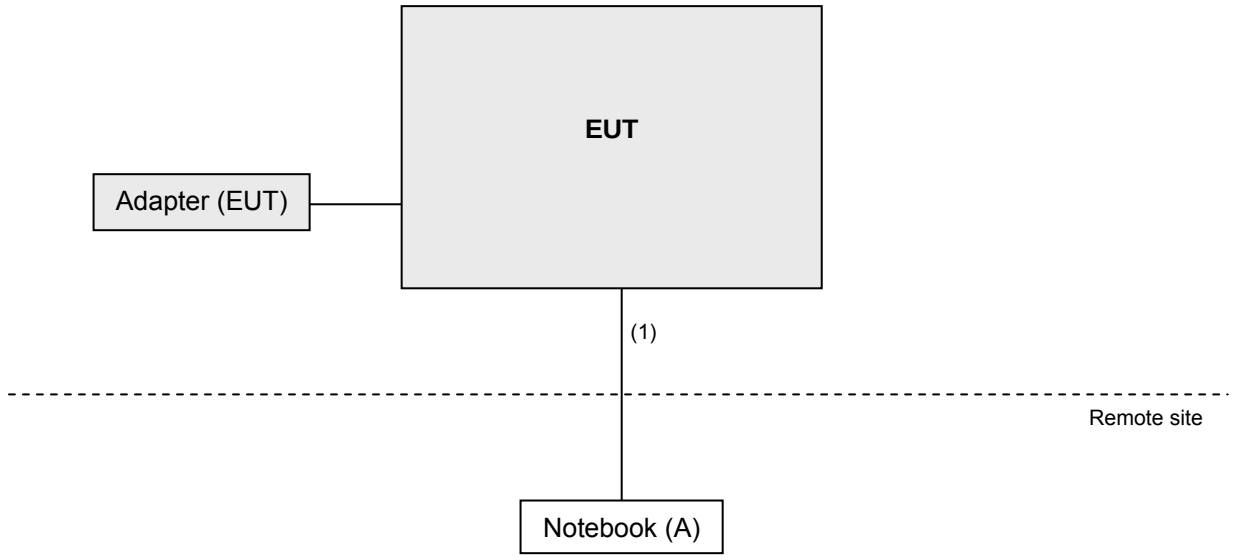
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	6RP2YM1	FCC DoC Approved	-

Note:

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

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

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

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

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

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

Note:

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

Limits of unwanted emission out of the restricted bands

<table>
<tr><td colspan="3">Applicable To</td><td colspan="2">Limit</td></tr>
<tr><td colspan="3" rowspan="2">789033 D02 General UNII Test Procedure New Rules v02r01</td><td colspan="2">Field Strength at 3m</td></tr>
<tr><td>PK: 74 (dBμV/m)</td><td>AV: 54 (dBμV/m)</td></tr>
<tr><td>Frequency Band</td><td colspan="2">Applicable To</td><td>EIRP Limit</td><td>Equivalent Field Strength at 3m</td></tr>
<tr><td>5150~5250 MHz</td><td colspan="2">15.407(b)(1)</td><td rowspan="3">PK: -27 (dBm/MHz)</td><td rowspan="3">PK: 68.2(dBμV/m)</td></tr>
<tr><td>5250~5350 MHz</td><td colspan="2">15.407(b)(2)</td></tr>
<tr><td>5470~5725 MHz</td><td colspan="2">15.407(b)(3)</td></tr>
<tr><td rowspan="2">5725~5850 MHz</td><td>☒</td><td>15.407(b)(4)(i)</td><td>PK: -27 (dBm/MHz) *1
PK: 10 (dBm/MHz) *2
PK: 15.6 (dBm/MHz) *3
PK: 27 (dBm/MHz) *4</td><td>PK: 68.2(dBμV/m) *1
PK: 105.2 (dBμV/m) *2
PK: 110.8(dBμV/m) *3
PK: 122.2 (dBμV/m) *4</td></tr>
<tr><td>☐</td><td>15.407(b)(4)(ii)</td><td colspan="2">Emission limits in section 15.247(d)</td></tr>
<tr><td colspan="5">*1 beyond 75 MHz or more above of the band edge.
*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.
*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.
*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.</td></tr>
</table>

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

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

4.1.2 Test Instruments

Test Date: Sep. 22 ~ Oct. 16, 2017

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 24, 2016	Oct. 23, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Aug. 18, 2017	Aug. 17, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Dec. 28, 2016	Dec. 27, 2017
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Dec. 15, 2016	Dec. 14, 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	8449B	3008A01960	Aug. 08, 2017	Aug. 07, 2018
Preamplifier Agilent	8447D	2944A10631	Aug. 08, 2017	Aug. 07, 2018
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 08, 2017	Aug. 07, 2018
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 08, 2017	Aug. 07, 2018
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 17, 2016	Oct. 16, 2017
High Speed Peak Power Meter	ML2495A	0824012	Aug. 18, 2017	Aug. 17, 2018
Power Sensor	MA2411B	0738171	Aug. 18, 2017	Aug. 17, 2018
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 07, 2017	Jun. 06, 2018

Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 4.
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.

Test Date: May 04 ~ May 23, 2018

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 17, 2017	Oct. 16, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Aug. 18, 2017	Aug. 17, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Loop Antenna EMCI	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Aug. 08, 2017	Aug. 07, 2018
Preamplifier Agilent (Above 1GHz)	8449B	3008A01922	Sep. 15, 2017	Sep. 14, 2018
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 08, 2017	Aug. 07, 2018
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 08, 2017	Aug. 07, 2018
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
High Speed Peak Power Meter	ML2495A	0824012	Aug. 18, 2017	Aug. 17, 2018
Power Sensor	MA2411B	0738171	Aug. 18, 2017	Aug. 17, 2018

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 4.
3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is IC 7450F-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. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

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

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

3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.

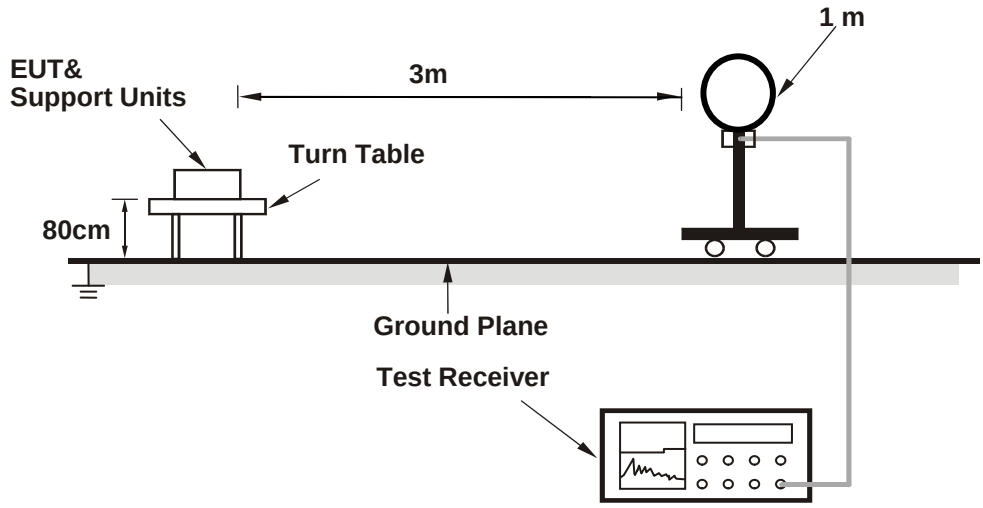
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

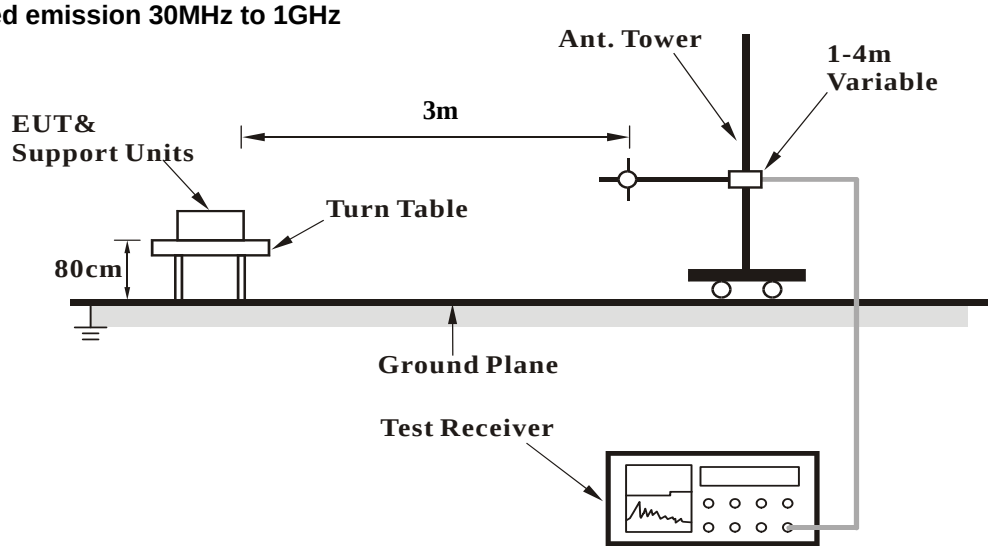
No deviation.

4.1.5 Test Setup

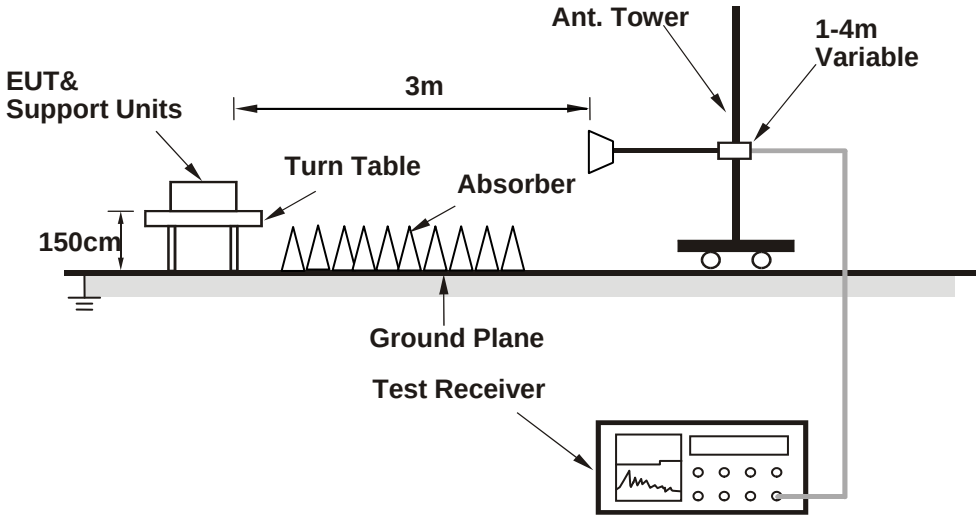
For Radiated emission below 30MHz



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

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

4.1.7 Test Results

Above 1GHz data:

For 1st Source

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.9 PK	74.0	-15.1	1.16 H	360	51.5	7.4
2	5150.00	46.1 AV	54.0	-7.9	1.16 H	360	38.7	7.4
3	*5260.00	111.2 PK			1.16 H	360	69.7	41.5
4	*5260.00	99.9 AV			1.16 H	360	58.4	41.5
5	#10520.00	62.2 PK	74.0	-11.8	2.34 H	119	41.9	20.3
6	#10520.00	49.2 AV	54.0	-4.8	2.34 H	119	28.9	20.3
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	5150.00	59.6 PK	74.0	-14.4	1.07 V	97	52.2	7.4
2	5150.00	46.7 AV	54.0	-7.3	1.07 V	97	39.3	7.4
3	*5260.00	117.8 PK			1.07 V	97	76.3	41.5
4	*5260.00	107.4 AV			1.07 V	97	65.9	41.5
5	#10520.00	63.2 PK	74.0	-10.8	1.69 V	228	42.9	20.3
6	#10520.00	49.9 AV	54.0	-4.1	1.69 V	228	29.6	20.3

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	109.2 PK			1.24 H	12	67.6	41.6
2	*5300.00	98.6 AV			1.24 H	12	57.0	41.6
3	10600.00	62.7 PK	74.0	-11.3	2.64 H	186	41.9	20.8
4	10600.00	49.9 AV	54.0	-4.1	2.64 H	186	29.1	20.8
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	*5300.00	116.9 PK			1.06 V	88	75.3	41.6
2	*5300.00	106.2 AV			1.06 V	88	64.6	41.6
3	10600.00	63.3 PK	74.0	-10.7	1.56 V	219	42.5	20.8
4	10600.00	50.1 AV	54.0	-3.9	1.56 V	219	29.3	20.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	109.7 PK			1.25 H	360	68.1	41.6
2	*5320.00	98.8 AV			1.25 H	360	57.2	41.6
3	5350.00	64.1 PK	74.0	-9.9	1.25 H	360	56.1	8.0
4	5350.00	48.8 AV	54.0	-5.2	1.25 H	360	40.8	8.0
5	10640.00	62.6 PK	74.0	-11.4	3.01 H	154	41.8	20.8
6	10640.00	50.0 AV	54.0	-4.0	3.01 H	154	29.2	20.8
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	*5320.00	117.8 PK			1.19 V	99	76.2	41.6
2	*5320.00	106.8 AV			1.19 V	99	65.2	41.6
3	**5350.00**	**73.9 PK**	**74.0**	**-0.1**	**1.19 V**	**99**	**65.9**	**8.0**
4	5350.00	53.6 AV	54.0	-0.4	1.19 V	99	45.6	8.0
5	10640.00	64.0 PK	74.0	-10.0	1.63 V	241	43.2	20.8
6	10640.00	50.6 AV	54.0	-3.4	1.63 V	241	29.8	20.8

Remarks:

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

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	49.2 PK	74.0	-24.8	1.77 H	52	41.0	8.2
2	5460.00	46.2 AV	54.0	-7.8	1.77 H	52	38.0	8.2
3	#5470.00	50.1 PK	74.0	-23.9	1.77 H	52	41.9	8.2
4	#5470.00	46.9 AV	54.0	-7.1	1.77 H	52	38.7	8.2
5	*5500.00	113.2 PK			1.77 H	52	71.2	42.0
6	*5500.00	101.6 AV			1.77 H	52	59.6	42.0
7	11000.00	62.7 PK	74.0	-11.3	1.97 H	293	41.3	21.4
8	11000.00	49.6 AV	54.0	-4.4	1.97 H	293	28.2	21.4
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	5460.00	60.9 PK	74.0	-13.1	1.51 V	299	52.7	8.2
2	5460.00	48.5 AV	54.0	-5.5	1.51 V	299	40.3	8.2
3	#5470.00	62.1 PK	74.0	-11.9	1.51 V	299	53.9	8.2
4	#5470.00	48.3 AV	54.0	-5.7	1.51 V	299	40.1	8.2
5	*5500.00	119.3 PK			1.51 V	299	77.3	42.0
6	*5500.00	108.5 AV			1.51 V	299	66.5	42.0
7	11000.00	63.8 PK	74.0	-10.2	1.94 V	223	42.4	21.4
8	11000.00	50.5 AV	54.0	-3.5	1.94 V	223	29.1	21.4

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	113.7 PK			1.82 H	49	71.5	42.2
2	*5580.00	101.7 AV			1.82 H	49	59.5	42.2
3	11160.00	62.8 PK	74.0	-11.2	1.97 H	224	41.3	21.5
4	11160.00	50.1 AV	54.0	-3.9	1.97 H	224	28.6	21.5
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	*5580.00	119.2 PK			2.21 V	353	77.0	42.2
2	*5580.00	108.1 AV			2.21 V	353	65.9	42.2
3	11160.00	64.3 PK	74.0	-9.7	1.69 V	238	42.8	21.5
4	11160.00	50.9 AV	54.0	-3.1	1.69 V	238	29.4	21.5

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	114.2 PK			1.64 H	54	71.7	42.5
2	*5700.00	102.8 AV			1.64 H	54	60.3	42.5
3	#5725.00	50.9 PK	74.0	-23.1	1.64 H	54	42.2	8.7
4	#5725.00	48.4 AV	54.0	-5.6	1.64 H	54	39.7	8.7
5	11400.00	62.7 PK	74.0	-11.3	2.08 H	173	41.2	21.5
6	11400.00	49.8 AV	54.0	-4.2	2.08 H	173	28.3	21.5
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	*5700.00	120.1 PK			2.17 V	352	77.6	42.5
2	*5700.00	108.6 AV			2.17 V	352	66.1	42.5
3	#5725.00	64.7 PK	74.0	-9.3	2.17 V	352	56.0	8.7
4	#5725.00	51.3 AV	54.0	-2.7	2.17 V	352	42.6	8.7
5	11400.00	64.3 PK	74.0	-9.7	1.86 V	274	42.8	21.5
6	11400.00	51.2 AV	54.0	-2.8	1.86 V	274	29.7	21.5

Remarks:

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

802.11ac (VHT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.1 PK	74.0	-14.9	1.22 H	358	51.7	7.4
2	5150.00	45.7 AV	54.0	-8.3	1.22 H	358	38.3	7.4
3	*5260.00	110.4 PK			1.22 H	358	68.9	41.5
4	*5260.00	99.2 AV			1.22 H	358	57.7	41.5
5	#10520.00	61.9 PK	74.0	-12.1	1.56 H	220	41.6	20.3
6	#10520.00	49.1 AV	54.0	-4.9	1.56 H	220	28.8	20.3
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	5150.00	59.6 PK	74.0	-14.4	1.20 V	56	52.2	7.4
2	5150.00	46.2 AV	54.0	-7.8	1.20 V	56	38.8	7.4
3	*5260.00	118.6 PK			1.20 V	56	77.1	41.5
4	*5260.00	107.6 AV			1.20 V	56	66.1	41.5
5	#10520.00	63.1 PK	74.0	-10.9	1.52 V	227	42.8	20.3
6	#10520.00	50.0 AV	54.0	-4.0	1.52 V	227	29.7	20.3

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	109.4 PK			1.26 H	6	67.8	41.6
2	*5300.00	98.1 AV			1.26 H	6	56.5	41.6
3	10600.00	62.5 PK	74.0	-11.5	2.43 H	221	41.7	20.8
4	10600.00	49.7 AV	54.0	-4.3	2.43 H	221	28.9	20.8
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	*5300.00	118.2 PK			1.20 V	53	76.6	41.6
2	*5300.00	107.1 AV			1.20 V	53	65.5	41.6
3	10600.00	63.7 PK	74.0	-10.3	2.16 V	307	42.9	20.8
4	10600.00	50.6 AV	54.0	-3.4	2.16 V	307	29.8	20.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	110.2 PK			1.23 H	358	68.6	41.6
2	*5320.00	98.6 AV			1.23 H	358	57.0	41.6
3	5350.00	63.4 PK	74.0	-10.6	1.23 H	358	55.4	8.0
4	5350.00	48.8 AV	54.0	-5.2	1.23 H	358	40.8	8.0
5	10640.00	62.6 PK	74.0	-11.4	2.58 H	143	41.8	20.8
6	10640.00	49.7 AV	54.0	-4.3	2.58 H	143	28.9	20.8
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	*5320.00	118.8 PK			1.22 V	51	77.2	41.6
2	*5320.00	107.2 AV			1.22 V	51	65.6	41.6
3	5350.00	70.4 PK	74.0	-3.6	1.22 V	51	62.4	8.0
4	5350.00	53.3 AV	54.0	-0.7	1.22 V	51	45.3	8.0
5	10640.00	63.4 PK	74.0	-10.6	2.25 V	304	42.6	20.8
6	10640.00	50.7 AV	54.0	-3.3	2.25 V	304	29.9	20.8

Remarks:

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

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	48.6 PK	74.0	-25.4	1.76 H	52	40.4	8.2
2	5460.00	36.2 AV	54.0	-17.8	1.76 H	52	28.0	8.2
3	#5470.00	50.9 PK	74.0	-23.1	1.76 H	52	42.7	8.2
4	#5470.00	36.8 AV	54.0	-17.2	1.76 H	52	28.6	8.2
5	*5500.00	112.0 PK			1.76 H	52	70.0	42.0
6	*5500.00	100.7 AV			1.76 H	52	58.7	42.0
7	11000.00	62.8 PK	74.0	-11.2	1.95 H	268	41.4	21.4
8	11000.00	50.0 AV	54.0	-4.0	1.95 H	268	28.6	21.4
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	5460.00	62.0 PK	74.0	-12.0	1.51 V	303	53.8	8.2
2	5460.00	49.0 AV	54.0	-5.0	1.51 V	303	40.8	8.2
3	#5470.00	62.8 PK	74.0	-11.2	1.51 V	303	54.6	8.2
4	#5470.00	49.5 AV	54.0	-4.5	1.51 V	303	41.3	8.2
5	*5500.00	118.5 PK			1.51 V	303	76.5	42.0
6	*5500.00	107.3 AV			1.51 V	303	65.3	42.0
7	11000.00	64.3 PK	74.0	-9.7	2.41 V	186	42.9	21.4
8	11000.00	51.2 AV	54.0	-2.8	2.41 V	186	29.8	21.4

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	112.0 PK			1.75 H	53	69.8	42.2
2	*5580.00	100.6 AV			1.75 H	53	58.4	42.2
3	11160.00	63.0 PK	74.0	-11.0	2.84 H	199	41.5	21.5
4	11160.00	50.2 AV	54.0	-3.8	2.84 H	199	28.7	21.5
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	*5580.00	117.7 PK			1.69 V	354	75.5	42.2
2	*5580.00	106.8 AV			1.69 V	354	64.6	42.2
3	11160.00	64.1 PK	74.0	-9.9	2.19 V	188	42.6	21.5
4	11160.00	50.9 AV	54.0	-3.1	2.19 V	188	29.4	21.5

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	113.9 PK			1.75 H	53	71.4	42.5
2	*5700.00	102.1 AV			1.75 H	53	59.6	42.5
3	#5725.00	62.2 PK	74.0	-11.8	1.75 H	53	53.5	8.7
4	#5725.00	48.4 AV	54.0	-5.6	1.75 H	53	39.7	8.7
5	11400.00	63.0 PK	74.0	-11.0	2.38 H	141	41.5	21.5
6	11400.00	50.2 AV	54.0	-3.8	2.38 H	141	28.7	21.5
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	*5700.00	119.3 PK			1.36 V	355	76.8	42.5
2	*5700.00	108.1 AV			1.36 V	355	65.6	42.5
3	#5725.00	64.2 PK	74.0	-9.8	1.36 V	355	55.5	8.7
4	#5725.00	50.9 AV	54.0	-3.1	1.36 V	355	42.2	8.7
5	11400.00	64.3 PK	74.0	-9.7	2.01 V	229	42.8	21.5
6	11400.00	51.2 AV	54.0	-2.8	2.01 V	229	29.7	21.5

Remarks:

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

802.11ac (VHT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.7 PK	74.0	-14.3	1.38 H	3	52.3	7.4
2	5150.00	46.0 AV	54.0	-8.0	1.38 H	3	38.6	7.4
3	*5270.00	107.8 PK			1.38 H	3	66.3	41.5
4	*5270.00	98.2 AV			1.38 H	3	56.7	41.5
5	#10540.00	62.3 PK	74.0	-11.7	2.41 H	133	41.8	20.5
6	#10540.00	49.1 AV	54.0	-4.9	2.41 H	133	28.6	20.5
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	5150.00	60.5 PK	74.0	-13.5	1.23 V	99	53.1	7.4
2	5150.00	46.7 AV	54.0	-7.3	1.23 V	99	39.3	7.4
3	*5270.00	114.9 PK			1.23 V	99	73.4	41.5
4	*5270.00	104.6 AV			1.23 V	99	63.1	41.5
5	#10540.00	63.1 PK	74.0	-10.9	2.01 V	183	42.6	20.5
6	#10540.00	50.2 AV	54.0	-3.8	2.01 V	183	29.7	20.5

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	105.9 PK			1.39 H	1	64.3	41.6
2	*5310.00	96.2 AV			1.39 H	1	54.6	41.6
3	5358.00	65.6 PK	74.0	-8.4	1.39 H	1	62.1	3.5
4	5358.00	50.0 AV	54.0	-4.0	1.39 H	1	46.5	3.5
5	10620.00	57.7 PK	74.0	-16.3	2.69 H	26	41.5	16.2
6	10620.00	46.0 AV	54.0	-8.0	2.69 H	26	29.8	16.2
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	*5310.00	111.9 PK			2.83 V	99	70.3	41.6
2	*5310.00	102.3 AV			2.83 V	99	60.7	41.6
3	5358.00	72.9 PK	74.0	-1.1	2.84 V	99	69.4	3.5
4	5358.00	53.6 AV	54.0	-0.4	2.84 V	99	50.1	3.5
5	10620.00	59.9 PK	74.0	-14.1	1.75 V	112	43.7	16.2
6	10620.00	47.3 AV	54.0	-6.7	1.75 V	112	31.1	16.2

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.4 PK	74.0	-14.6	1.62 H	53	51.2	8.2
2	5460.00	46.6 AV	54.0	-7.4	1.62 H	53	38.4	8.2
3	#5470.00	60.7 PK	74.0	-13.3	1.62 H	53	52.5	8.2
4	#5470.00	47.4 AV	54.0	-6.6	1.62 H	53	39.2	8.2
5	*5510.00	110.8 PK			1.62 H	53	68.8	42.0
6	*5510.00	99.9 AV			1.62 H	53	57.9	42.0
7	11020.00	62.6 PK	74.0	-11.4	2.14 H	199	41.3	21.3
8	11020.00	49.8 AV	54.0	-4.2	2.14 H	199	28.5	21.3
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	5460.00	61.1 PK	74.0	-12.9	1.73 V	352	52.9	8.2
2	5460.00	47.0 AV	54.0	-7.0	1.73 V	352	38.8	8.2
3	#5470.00	62.7 PK	74.0	-11.3	1.73 V	352	54.5	8.2
4	#5470.00	49.4 AV	54.0	-4.6	1.73 V	352	41.2	8.2
5	*5510.00	115.7 PK			1.73 V	352	73.7	42.0
6	*5510.00	105.3 AV			1.73 V	352	63.3	42.0
7	11020.00	64.1 PK	74.0	-9.9	2.64 V	173	42.8	21.3
8	11020.00	50.9 AV	54.0	-3.1	2.64 V	173	29.6	21.3

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	111.5 PK			1.78 H	50	69.3	42.2
2	*5550.00	101.1 AV			1.78 H	50	58.9	42.2
3	11100.00	63.0 PK	74.0	-11.0	2.41 H	199	41.7	21.3
4	11100.00	50.4 AV	54.0	-3.6	2.41 H	199	29.1	21.3
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	*5550.00	116.6 PK			1.62 V	354	74.4	42.2
2	*5550.00	106.0 AV			1.62 V	354	63.8	42.2
3	11100.00	64.1 PK	74.0	-9.9	1.69 V	338	42.8	21.3
4	11100.00	51.2 AV	54.0	-2.8	1.69 V	338	29.9	21.3

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	110.5 PK			1.77 H	55	68.1	42.4
2	*5670.00	100.4 AV			1.77 H	55	58.0	42.4
3	#5725.00	50.8 PK	74.0	-23.2	1.77 H	55	42.1	8.7
4	#5725.00	48.3 AV	54.0	-5.7	1.77 H	55	39.6	8.7
5	11340.00	63.0 PK	74.0	-11.0	2.41 H	118	41.5	21.5
6	11340.00	50.4 AV	54.0	-3.6	2.41 H	118	28.9	21.5
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	*5670.00	117.1 PK			1.88 V	355	74.7	42.4
2	*5670.00	106.7 AV			1.88 V	355	64.3	42.4
3	#5725.00	63.2 PK	74.0	-10.8	1.88 V	355	54.5	8.7
4	#5725.00	50.6 AV	54.0	-3.4	1.88 V	355	41.9	8.7
5	11340.00	64.7 PK	74.0	-9.3	1.94 V	289	43.2	21.5
6	11340.00	51.4 AV	54.0	-2.6	1.94 V	289	29.9	21.5

Remarks:

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

802.11ac (VHT80)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.8 PK	74.0	-15.2	1.39 H	16	55.9	2.9
2	5150.00	46.1 AV	54.0	-7.9	1.39 H	16	43.2	2.9
3	*5290.00	101.0 PK			1.39 H	16	59.5	41.5
4	*5290.00	92.2 AV			1.39 H	16	50.7	41.5
5	5358.00	58.4 PK	74.0	-15.6	1.39 H	16	54.9	3.5
6	5358.00	46.7 AV	54.0	-7.3	1.39 H	16	43.2	3.5
7	#10580.00	58.3 PK	74.0	-15.7	3.52 H	65	42.3	16.0
8	#10580.00	47.3 AV	54.0	-6.7	3.52 H	65	31.3	16.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.3 PK	74.0	-13.7	2.93 V	103	57.4	2.9
2	5150.00	46.0 AV	54.0	-8.0	2.93 V	103	43.1	2.9
3	*5290.00	109.1 PK			2.93 V	103	67.6	41.5
4	*5290.00	98.8 AV			2.93 V	103	57.3	41.5
5	5358.00	66.6 PK	74.0	-7.4	2.93 V	103	63.1	3.5
6	5358.00	53.5 AV	54.0	-0.5	2.93 V	103	50.0	3.5
7	#10580.00	59.6 PK	74.0	-14.4	1.67 V	107	43.6	16.0
8	#10580.00	47.2 AV	54.0	-6.8	1.67 V	107	31.2	16.0

Remarks:

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

CHANNEL	TX Channel 106	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.6 PK	74.0	-14.4	1.38 H	57	51.4	8.2
2	5460.00	46.6 AV	54.0	-7.4	1.38 H	57	38.4	8.2
3	#5470.00	63.1 PK	74.0	-10.9	1.38 H	57	54.9	8.2
4	#5470.00	48.0 AV	54.0	-6.0	1.38 H	57	39.8	8.2
5	*5530.00	108.3 PK			1.38 H	57	66.2	42.1
6	*5530.00	97.4 AV			1.38 H	57	55.3	42.1
7	#5725.00	60.2 PK	74.0	-13.8	1.38 H	57	51.5	8.7
8	#5725.00	37.6 AV	54.0	-16.4	1.38 H	57	28.9	8.7
9	11060.00	62.7 PK	74.0	-11.3	2.77 H	192	41.4	21.3
10	11060.00	49.6 AV	54.0	-4.4	2.77 H	192	28.3	21.3
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	5460.00	63.3 PK	74.0	-10.7	1.55 V	15	55.1	8.2
2	5460.00	49.4 AV	54.0	-4.6	1.55 V	15	41.2	8.2
3	#5470.00	68.3 PK	74.0	-5.7	1.55 V	15	60.1	8.2
4	#5470.00	52.0 AV	54.0	-2.0	1.55 V	15	43.8	8.2
5	*5530.00	113.1 PK			1.55 V	15	71.0	42.1
6	*5530.00	103.1 AV			1.55 V	15	61.0	42.1
7	#5725.00	60.7 PK	74.0	-13.3	1.55 V	15	52.0	8.7
8	#5725.00	48.0 AV	54.0	-6.0	1.55 V	15	39.3	8.7
9	11060.00	64.1 PK	74.0	-9.9	2.64 V	118	42.8	21.3
10	11060.00	51.0 AV	54.0	-3.0	2.64 V	118	29.7	21.3

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.4 PK	74.0	-14.6	1.16 H	55	51.2	8.2
2	5460.00	46.4 AV	54.0	-7.6	1.16 H	55	38.2	8.2
3	#5470.00	59.5 PK	74.0	-14.5	1.16 H	55	51.3	8.2
4	#5470.00	47.1 AV	54.0	-6.9	1.16 H	55	38.9	8.2
5	*5610.00	107.5 PK			1.16 H	55	65.2	42.3
6	*5610.00	97.1 AV			1.16 H	55	54.8	42.3
7	#5725.00	61.5 PK	74.0	-12.5	1.16 H	55	52.8	8.7
8	#5725.00	48.1 AV	54.0	-5.9	1.16 H	55	39.4	8.7
9	11220.00	62.9 PK	74.0	-11.1	2.64 H	192	41.2	21.7
10	11220.00	50.2 AV	54.0	-3.8	2.64 H	192	28.5	21.7
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	5460.00	59.5 PK	74.0	-14.5	1.54 V	351	51.3	8.2
2	5460.00	46.4 AV	54.0	-7.6	1.54 V	351	38.2	8.2
3	#5470.00	61.5 PK	74.0	-12.5	1.54 V	351	53.3	8.2
4	#5470.00	47.9 AV	54.0	-6.1	1.54 V	351	39.7	8.2
5	*5610.00	114.3 PK			1.54 V	351	72.0	42.3
6	*5610.00	103.5 AV			1.54 V	351	61.2	42.3
7	#5725.00	64.1 PK	74.0	-9.9	1.54 V	351	55.4	8.7
8	#5725.00	51.0 AV	54.0	-3.0	1.54 V	351	42.3	8.7
9	11220.00	63.3 PK	74.0	-10.7	2.87 V	183	41.6	21.7
10	11220.00	50.5 AV	54.0	-3.5	2.87 V	183	28.8	21.7

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.

For 2nd Source

802.11ac (VHT80)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.0 PK	74.0	-15.0	2.86 H	7	56.4	2.6
2	5150.00	46.1 AV	54.0	-7.9	2.86 H	7	43.5	2.6
3	*5210.00	97.3 PK			2.86 H	7	56.5	40.8
4	*5210.00	87.0 AV			2.86 H	7	46.2	40.8
5	5350.00	56.7 PK	74.0	-17.3	2.86 H	7	53.9	2.8
6	5350.00	43.3 AV	54.0	-10.7	2.86 H	7	40.5	2.8
7	#10420.00	58.9 PK	74.0	-15.1	3.22 H	215	44.1	14.8
8	#10420.00	45.8 AV	54.0	-8.2	3.22 H	215	31.0	14.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	65.0 PK	74.0	-9.0	1.00 V	275	62.4	2.6
2	5150.00	52.1 AV	54.0	-1.9	1.00 V	275	49.5	2.6
3	*5210.00	102.5 PK			1.00 V	275	61.7	40.8
4	*5210.00	92.3 AV			1.00 V	275	51.5	40.8
5	5350.00	56.6 PK	74.0	-17.4	1.00 V	275	53.8	2.8
6	5350.00	43.9 AV	54.0	-10.1	1.00 V	275	41.1	2.8
7	#10420.00	59.4 PK	74.0	-14.6	2.23 V	306	44.6	14.8
8	#10420.00	46.3 AV	54.0	-7.7	2.23 V	306	31.5	14.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.4 PK	74.0	-17.6	3.08 H	11	53.8	2.6
2	5150.00	43.5 AV	54.0	-10.5	3.08 H	11	40.9	2.6
3	*5290.00	99.0 PK			3.08 H	11	58.4	40.6
4	*5290.00	88.8 AV			3.08 H	11	48.2	40.6
5	5350.00	58.0 PK	74.0	-16.0	3.08 H	11	55.2	2.8
6	5350.00	45.8 AV	54.0	-8.2	3.08 H	11	43.0	2.8
7	#10580.00	59.4 PK	74.0	-14.6	2.10 H	215	44.3	15.1
8	#10580.00	46.0 AV	54.0	-8.0	2.10 H	215	30.9	15.1
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	57.6 PK	74.0	-16.4	1.01 V	280	55.0	2.6
2	5150.00	44.0 AV	54.0	-10.0	1.01 V	280	41.4	2.6
3	*5290.00	105.1 PK			1.01 V	280	64.5	40.6
4	*5290.00	95.1 AV			1.01 V	280	54.5	40.6
5	5350.00	64.7 PK	74.0	-9.3	1.01 V	280	61.9	2.8
6	5350.00	52.2 AV	54.0	-1.8	1.01 V	280	49.4	2.8
7	#10580.00	59.6 PK	74.0	-14.4	2.55 V	58	44.5	15.1
8	#10580.00	46.1 AV	54.0	-7.9	2.55 V	58	31.0	15.1

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.4 PK	74.0	-14.6	1.19 H	11	56.2	3.2
2	5460.00	45.5 AV	54.0	-8.5	1.19 H	11	42.3	3.2
3	#5470.00	60.2 PK	74.0	-13.8	1.19 H	11	57.0	3.2
4	#5470.00	45.9 AV	54.0	-8.1	1.19 H	11	42.7	3.2
5	*5530.00	104.5 PK			1.19 H	11	62.7	41.8
6	*5530.00	95.1 AV			1.19 H	11	53.3	41.8
7	#5725.00	58.1 PK	74.0	-15.9	1.19 H	11	54.4	3.7
8	#5725.00	44.9 AV	54.0	-9.1	1.19 H	11	41.2	3.7
9	11060.00	59.9 PK	74.0	-14.1	2.10 H	244	44.2	15.7
10	11060.00	47.2 AV	54.0	-6.8	2.10 H	244	31.5	15.7
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	5460.00	61.6 PK	74.0	-12.4	1.93 V	16	58.4	3.2
2	5460.00	47.6 AV	54.0	-6.4	1.93 V	16	44.4	3.2
3	#5470.00	65.5 PK	74.0	-8.5	1.93 V	16	62.3	3.2
4	#5470.00	52.0 AV	54.0	-2.0	1.93 V	16	48.8	3.2
5	*5530.00	112.6 PK			1.93 V	16	70.8	41.8
6	*5530.00	102.7 AV			1.93 V	16	60.9	41.8
7	#5725.00	58.6 PK	74.0	-15.4	1.93 V	16	54.9	3.7
8	#5725.00	46.4 AV	54.0	-7.6	1.93 V	16	42.7	3.7
9	11060.00	60.2 PK	74.0	-13.8	2.66 V	302	44.5	15.7
10	11060.00	47.3 AV	54.0	-6.7	2.66 V	302	31.6	15.7

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.

802.11ac (VHT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5648.00	62.3 PK	68.2	-5.9	1.10 H	39	58.9	3.4
2	*5755.00	114.6 PK			1.10 H	39	72.3	42.3
3	*5755.00	105.2 AV			1.10 H	39	62.9	42.3
4	#5933.60	58.7 PK	68.2	-9.5	1.10 H	39	54.2	4.5
5	11510.00	60.3 PK	74.0	-13.7	3.21 H	120	44.3	16.0
6	11510.00	46.6 AV	54.0	-7.4	3.21 H	120	30.6	16.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5645.60	67.7 PK	68.2	-0.5	1.62 V	16	64.3	3.4
2	*5755.00	123.0 PK			1.62 V	16	80.7	42.3
3	*5755.00	112.5 AV			1.62 V	16	70.2	42.3
4	#5926.40	59.7 PK	68.2	-8.5	1.62 V	16	55.2	4.5
5	11510.00	60.5 PK	74.0	-13.5	2.22 V	200	44.5	16.0
6	11510.00	47.6 AV	54.0	-6.4	2.22 V	200	31.6	16.0

Remarks:

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

Below 1GHz Worst-Case Data:

For 1st Source

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	82.29	20.2 QP	40.0	-19.8	1.50 H	205	38.6	-18.4
2	183.19	20.4 QP	43.5	-23.1	1.00 H	259	35.7	-15.3
3	344.24	25.4 QP	46.0	-20.6	1.50 H	58	36.8	-11.4
4	555.75	32.0 QP	46.0	-14.0	1.50 H	151	39.4	-7.4
5	722.62	26.8 QP	46.0	-19.2	1.00 H	16	30.2	-3.4
6	939.95	39.3 QP	46.0	-6.7	1.00 H	118	38.5	0.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	51.24	35.8 QP	40.0	-4.2	2.00 V	116	49.9	-14.1
2	101.69	21.7 QP	43.5	-21.8	1.00 V	15	39.8	-18.1
3	268.57	19.9 QP	46.0	-26.1	1.50 V	83	33.0	-13.1
4	352.01	26.0 QP	46.0	-20.0	1.00 V	71	37.3	-11.3
5	563.51	35.6 QP	46.0	-10.4	1.50 V	104	42.8	-7.2
6	939.95	39.7 QP	46.0	-6.3	1.00 V	86	38.9	0.8

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

For 2nd Source

802.11ac (VHT80)

CHANNEL	TX Channel 42	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	74.53	24.9 QP	40.0	-15.1	2.00 H	89	41.5	-16.6
2	476.19	27.9 QP	46.0	-18.1	1.49 H	7	36.8	-8.9
3	565.45	39.1 QP	46.0	-6.9	2.00 H	232	46.4	-7.3
4	619.78	34.3 QP	46.0	-11.7	1.24 H	149	39.8	-5.5
5	747.85	42.5 QP	46.0	-3.5	2.00 H	186	45.3	-2.8
6	932.19	41.5 QP	46.0	-4.5	1.49 H	327	41.3	0.2
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	49.30	30.6 QP	40.0	-9.4	2.00 V	311	45.0	-14.4
2	402.46	24.4 QP	46.0	-21.6	1.00 V	204	34.8	-10.4
3	565.45	40.4 QP	46.0	-5.6	1.00 V	119	47.7	-7.3
4	608.14	33.9 QP	46.0	-12.1	1.50 V	315	39.6	-5.7
5	895.32	35.2 QP	46.0	-10.8	1.00 V	301	36.0	-0.8
6	951.59	36.4 QP	46.0	-9.6	1.50 V	163	35.7	0.7

Remarks:

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

Test Date: Sep. 22 ~ Oct. 16, 2017

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	Dec. 22, 2016	Dec. 21, 2017
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_Cond_ V7.3.7.3	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

Test Date: May 04 ~ May 23, 2018

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 06, 2018	Mar. 05, 2019
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

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

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

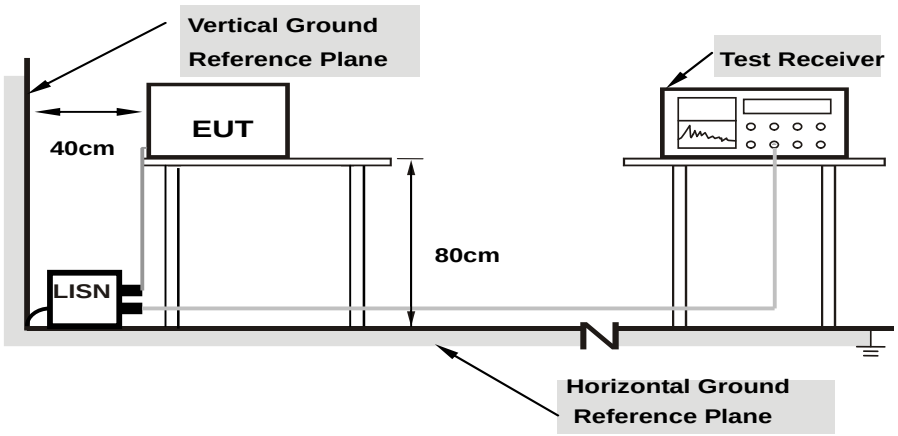
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

Worst-case data:

For 1st Source

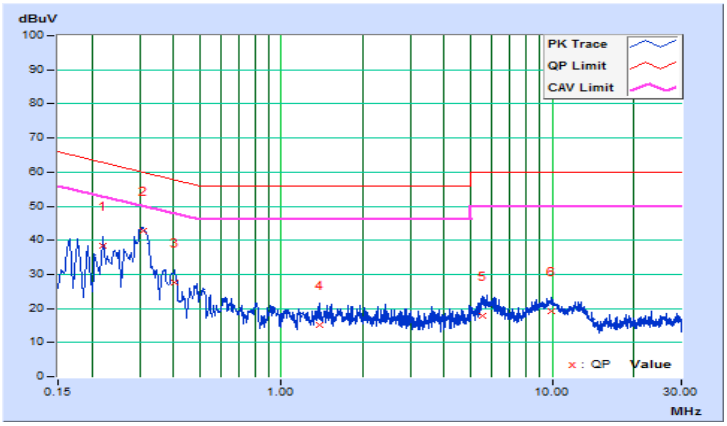
802.11a

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.22024	10.46	27.81	18.13	38.27	28.59	62.81	52.81	-24.54	-24.22
2	0.31031	10.49	32.24	26.50	42.73	36.99	59.96	49.96	-17.23	-12.97
3	0.40415	10.52	17.15	8.48	27.67	19.00	57.77	47.77	-30.10	-28.77
4	1.39338	10.50	4.50	-0.04	15.00	10.46	56.00	46.00	-41.00	-35.54
5	5.55753	10.72	7.07	0.80	17.79	11.52	60.00	50.00	-42.21	-38.48
6	9.90154	10.92	8.13	3.92	19.05	14.84	60.00	50.00	-40.95	-35.16

Remarks:

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

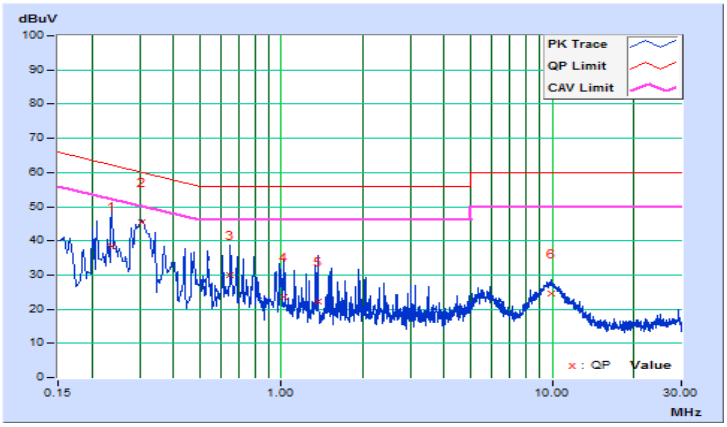


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.23602	10.23	28.25	20.00	38.48	30.23	62.24	52.24	-23.76	-22.01
2	**0.30534**	**10.23**	**35.11**	**29.49**	**45.34**	**39.72**	**60.10**	**50.10**	**-14.76**	**-10.38**
3	0.65044	10.25	19.60	8.09	29.85	18.34	56.00	46.00	-26.15	-27.66
4	1.02193	10.26	13.16	3.12	23.42	13.38	56.00	46.00	-32.58	-32.62
5	1.36601	10.28	11.91	2.64	22.19	12.92	56.00	46.00	-33.81	-33.08
6	9.93282	10.67	13.92	9.35	24.59	20.02	60.00	50.00	-35.41	-29.98

Remarks:

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



For 2nd Source

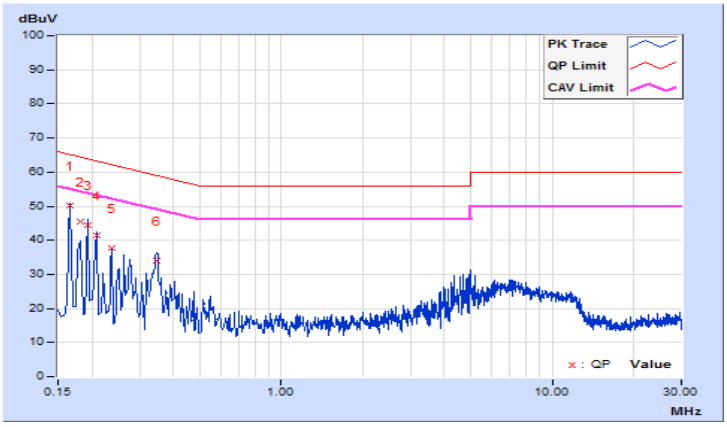
802.11ac (VHT80)

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16526	10.16	40.00	24.94	50.16	35.10	65.20	55.20	-15.04	-20.10
2	0.18075	10.16	35.19	16.11	45.35	26.27	64.45	54.45	-19.10	-28.18
3	0.19255	10.16	34.41	19.08	44.57	29.24	63.93	53.93	-19.36	-24.69
4	0.20783	10.16	31.17	14.76	41.33	24.92	63.29	53.29	-21.96	-28.37
5	0.23586	10.16	27.58	11.88	37.74	22.04	62.24	52.24	-24.50	-30.20
6	0.34560	10.19	23.66	15.24	33.85	25.43	59.07	49.07	-25.22	-23.64

Remarks:

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

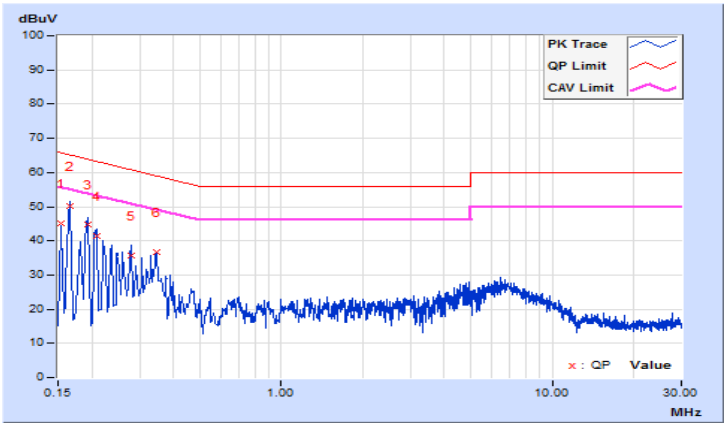


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.15	35.08	16.82	45.23	26.97	65.79	55.79	-20.56	-28.82
2	0.16526	10.15	40.07	24.61	50.22	34.76	65.20	55.20	-14.98	-20.44
3	0.19255	10.16	34.46	18.47	44.62	28.63	63.93	53.93	-19.31	-25.30
4	0.20783	10.17	31.22	14.49	41.39	24.66	63.29	53.29	-21.90	-28.63
5	0.27844	10.18	25.40	10.39	35.58	20.57	60.86	50.86	-25.28	-30.29
6	0.34560	10.19	26.66	17.36	36.85	27.55	59.07	49.07	-22.22	-21.52

Remarks:

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



4.3 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

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

*B is the 26 dB emission bandwidth in megahertz

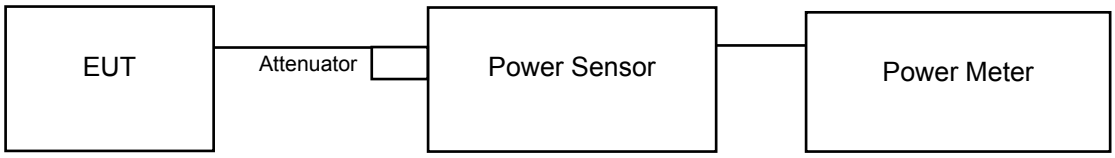
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

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

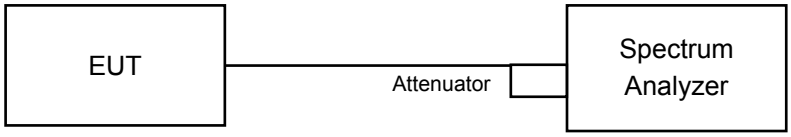
For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.3.2 Test Setup

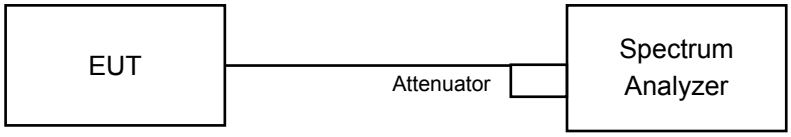
For Power Output
802.11a, 802.11ac (VHT20), 802.11ac (VHT40)



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, 802.11ac (VHT20), 802.11ac (VHT40)

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

For 802.11ac (VHT80)

a. Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.

b. Set sweep trigger to “free run”.

c. Set RBW = 1 MHz.

d. Set VBW ≥ 3 MHz.

e. Number of points in sweep ≥ 2 Span / RBW.

f. Sweep time ≤ (number of points in sweep) * T

g. Using emission bandwidth to determine the frequency span for integration the channel bandwidth.

h. Detector = RMS.

i. Trace mode = max hold.

j. Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

k. Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

For 26dB Bandwidth

a. Set RBW = approximately 1% of the emission bandwidth.

b. Set the VBW > RBW.

c. Detector = Peak.

d. Trace mode = max hold.

e. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.3.5 Deviation 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:

For U-NII-2A Band

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	20.68	20.55	230.451	23.63	24.00	Pass
60	5300	20.55	20.78	233.175	23.68	24.00	Pass
64	5320	20.65	20.81	**236.649**	23.74	24.00	Pass

Note:
Chain 0
1. 11dBm + 10log (32.20) = 26.08 > 24dBm
2. 11dBm + 10log (33.28) = 26.22 > 24dBm
3. 11dBm + 10log (31.13) = 25.93 > 24dBm

Chain 1
1. 11dBm + 10log (38.13) = 26.81 > 24dBm
2. 11dBm + 10log (34.82) = 26.42 > 24dBm
3. 11dBm + 10log (33.42) = 26.24 > 24dBm

802.11ac (VHT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	20.59	20.63	230.162	23.62	24.00	Pass
60	5300	20.78	20.64	235.552	23.72	24.00	Pass
64	5320	20.73	20.59	232.855	23.67	24.00	Pass

Note:
Chain 0
1. 11dBm + 10log (28.14) = 25.49 > 24dBm
2. 11dBm + 10log (29.90) = 25.76 > 24dBm
3. 11dBm + 10log (32.07) = 26.06 > 24dBm

Chain 1
1. 11dBm + 10log (40.72) = 27.10 > 24dBm
2. 11dBm + 10log (38.97) = 26.91 > 24dBm
3. 11dBm + 10log (32.88) = 26.17 > 24dBm

802.11ac (VHT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	20.53	20.61	228.060	23.58	24.00	Pass
62	5310	18.64	19.61	164.525	22.16	24.00	Pass

Note:
Chain 0
1. 11dBm + 10log (74.77) = 29.74 > 24dBm
2. 11dBm + 10log (40.98) = 27.13 > 24dBm
Chain 1
1. 11dBm + 10log (87.56) = 30.42 > 24dBm
2. 11dBm + 10log (41.09) = 27.14 > 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	18.84	19.50	165.685	22.19	24.00	Pass

Note:
Chain 0
1. 11dBm + 10log (83.86) = 30.24 > 24dBm
Chain 1
1. 11dBm + 10log (83.05) = 30.19 > 24dBm

Beamforming Mode

802.11ac (VHT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	20.59	20.63	230.162	23.62	24.00	Pass
60	5300	20.78	20.64	**235.552**	23.72	24.00	Pass
64	5320	20.73	20.59	232.855	23.67	24.00	Pass

Note: Directional gain = 5.41dBi < 6dBi, so the limit no need to be reduced.

Chain 0

1. 11dBm + 10log (28.14) = 25.49 > 24dBm
2. 11dBm + 10log (29.90) = 25.76 > 24dBm
3. 11dBm + 10log (32.07) = 26.06 > 24dBm

Chain 1

1. 11dBm + 10log (40.72) = 27.10 > 24dBm
2. 11dBm + 10log (38.97) = 26.91 > 24dBm
3. 11dBm + 10log (32.88) = 26.17 > 24dBm

802.11ac (VHT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	20.53	20.61	228.060	23.58	24.00	Pass
62	5310	18.64	19.61	164.525	22.16	24.00	Pass

Note: Directional gain = 5.41dBi < 6dBi, so the limit no need to be reduced.

Chain 0

1. 11dBm + 10log (74.77) = 29.74 > 24dBm
2. 11dBm + 10log (40.98) = 27.13 > 24dBm

Chain 1

1. 11dBm + 10log (87.56) = 30.42 > 24dBm
2. 11dBm + 10log (41.09) = 27.14 > 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	18.84	19.50	165.685	22.19	24.00	Pass

Note: Directional gain = 5.41dBi < 6dBi, so the limit no need to be reduced.

Chain 0

1. 11dBm + 10log (83.86) = 30.24 > 24dBm

Chain 1

1. 11dBm + 10log (83.05) = 30.19 > 24dBm

For U-NII-2C Band

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	Chain 2	Chain 3				
100	5500	16.13	16.16	16.06	16.14	163.805	22.14	23.97	Pass
116	5580	16.32	16.18	16.03	16.11	165.269	22.18	23.89	Pass
140	5700	16.56	16.53	16.35	16.28	175.882	22.45	23.92	Pass

Note:
Chain 0
1. 11dBm + 10log (19.90) = 23.99 < 24dBm
2. 11dBm + 10log (19.95) = 24.00 = 24dBm
3. 11dBm + 10log (20.09) = 24.03 > 24dBm

Chain 1
1. 11dBm + 10log (19.99) = 24.01 > 24dBm
2. 11dBm + 10log (20.34) = 24.08 > 24dBm
3. 11dBm + 10log (19.75) = 23.96 < 24dBm

Chain 2
1. 11dBm + 10log (19.83) = 23.97 < 24dBm
2. 11dBm + 10log (19.48) = 23.89 < 24dBm
3. 11dBm + 10log (19.63) = 23.92 < 24dBm

Chain 3
1. 11dBm + 10log (19.93) = 24.00 = 24dBm
2. 11dBm + 10log (19.93) = 24.00 = 24dBm
3. 11dBm + 10log (20.15) = 24.04 > 24dBm

802.11ac (VHT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
100	5500	16.36	16.23	16.18	16.26	168.989	22.28	24.00	Pass
116	5580	16.09	16.17	16.19	16.13	164.655	22.17	24.00	Pass
140	5700	16.18	16.22	16.31	16.27	168.494	22.27	24.00	Pass

Note:
Chain 0
1. 11dBm + 10log (20.64) = 24.15 > 24dBm
2. 11dBm + 10log (20.60) = 24.14 > 24dBm
3. 11dBm + 10log (20.79) = 24.18 > 24dBm

Chain 1
1. 11dBm + 10log (20.78) = 24.18 > 24dBm
2. 11dBm + 10log (20.71) = 24.16 > 24dBm
3. 11dBm + 10log (20.68) = 24.16 > 24dBm

Chain 2
1. 11dBm + 10log (20.74) = 24.17 > 24dBm
2. 11dBm + 10log (20.71) = 24.16 > 24dBm
3. 11dBm + 10log (20.66) = 24.15 > 24dBm

Chain 3
1. 11dBm + 10log (20.56) = 24.13 > 24dBm
2. 11dBm + 10log (20.62) = 24.14 > 24dBm
3. 11dBm + 10log (20.63) = 24.14 > 24dBm

802.11ac (VHT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
102	5510	17.53	17.60	17.67	17.59	230.059	23.62	24.00	Pass
110	5550	17.61	17.55	17.68	17.64	**231.252**	23.64	24.00	Pass
134	5670	17.69	17.58	17.60	17.55	230.458	23.63	24.00	Pass

Note:
Chain 0
1. 11dBm + 10log (41.12) = 27.14 > 24dBm
2. 11dBm + 10log (40.96) = 27.12 > 24dBm
3. 11dBm + 10log (41.05) = 27.13 > 24dBm

Chain 1
1. 11dBm + 10log (40.90) = 27.12 > 24dBm
2. 11dBm + 10log (40.89) = 27.12 > 24dBm
3. 11dBm + 10log (40.93) = 27.12 > 24dBm

Chain 2
1. 11dBm + 10log (40.77) = 27.10 > 24dBm
2. 11dBm + 10log (40.91) = 27.12 > 24dBm
3. 11dBm + 10log (40.82) = 27.11 > 24dBm

Chain 3
1. 11dBm + 10log (40.73) = 27.10 > 24dBm
2. 11dBm + 10log (40.76) = 27.10 > 24dBm
3. 11dBm + 10log (40.77) = 27.10 > 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	Chain 2	Chain 3				
106	5530	17.55	17.59	17.66	17.62	230.452	23.63	24.00	Pass
122	5610	17.68	17.53	17.59	17.56	229.666	23.61	24.00	Pass

Note:
Chain 0
1. 11dBm + 10log (83.61) = 30.22 > 24dBm
2. 11dBm + 10log (84.05) = 30.25 > 24dBm

Chain 1
1. 11dBm + 10log (83.53) = 30.22 > 24dBm
2. 11dBm + 10log (83.98) = 30.24 > 24dBm

Chain 2
1. 11dBm + 10log (83.73) = 30.23 > 24dBm
2. 11dBm + 10log (83.95) = 30.24 > 24dBm

Chain 3
1. 11dBm + 10log (82.84) = 30.18 > 24dBm
2. 11dBm + 10log (83.18) = 30.20 > 24dBm

Beamforming Mode

802.11ac (VHT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
100	5500	15.27	15.19	15.20	15.24	**133.221**	21.25	21.26	Pass
116	5580	15.13	15.15	15.22	15.10	130.943	21.17	21.26	Pass
140	5700	15.21	15.15	15.18	15.15	131.618	21.19	21.26	Pass

Note: Directional gain = 8.74dBi > 6dBi, so the power limit shall be reduced to 24-(8.74-6) = 21.26dBm.

Chain 0
1. 11dBm + 10log (20.64) = 24.15 > 24dBm
2. 11dBm + 10log (20.60) = 24.14 > 24dBm
3. 11dBm + 10log (20.79) = 24.18 > 24dBm

Chain 1
1. 11dBm + 10log (20.78) = 24.18 > 24dBm
2. 11dBm + 10log (20.71) = 24.16 > 24dBm
3. 11dBm + 10log (20.68) = 24.16 > 24dBm

Chain 2
1. 11dBm + 10log (20.74) = 24.17 > 24dBm
2. 11dBm + 10log (20.71) = 24.16 > 24dBm
3. 11dBm + 10log (20.66) = 24.15 > 24dBm

Chain 3
1. 11dBm + 10log (20.56) = 24.13 > 24dBm
2. 11dBm + 10log (20.62) = 24.14 > 24dBm
3. 11dBm + 10log (20.63) = 24.14 > 24dBm

802.11ac (VHT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
102	5510	15.05	15.12	15.21	15.13	130.271	21.15	21.26	Pass
110	5550	15.12	15.09	15.22	15.16	130.870	21.17	21.26	Pass
134	5670	15.22	15.13	15.08	15.07	130.198	21.15	21.26	Pass

Note: Directional gain = 8.74dBi > 6dBi, so the power limit shall be reduced to 24-(8.74-6) = 21.26dBm.

Chain 0
1. 11dBm + 10log (41.12) = 27.14 > 24dBm
2. 11dBm + 10log (40.96) = 27.12 > 24dBm
3. 11dBm + 10log (41.05) = 27.13 > 24dBm

Chain 1
1. 11dBm + 10log (40.90) = 27.12 > 24dBm
2. 11dBm + 10log (40.89) = 27.12 > 24dBm
3. 11dBm + 10log (40.93) = 27.12 > 24dBm

Chain 2
1. 11dBm + 10log (40.77) = 27.10 > 24dBm
2. 11dBm + 10log (40.91) = 27.12 > 24dBm
3. 11dBm + 10log (40.82) = 27.11 > 24dBm

Chain 3
1. 11dBm + 10log (40.73) = 27.10 > 24dBm
2. 11dBm + 10log (40.76) = 27.10 > 24dBm
3. 11dBm + 10log (40.77) = 27.10 > 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	Chain 2	Chain 3				
106	5530	15.06	15.13	15.18	15.17	130.493	21.16	21.26	Pass
122	5610	15.18	15.04	15.15	15.09	129.895	21.14	21.26	Pass

Note: Directional gain = 8.74dBi > 6dBi, so the power limit shall be reduced to 24-(8.74-6) = 21.26dBm.
Chain 0
1. 11dBm + 10log (83.61) = 30.22 > 24dBm
2. 11dBm + 10log (84.05) = 30.25 > 24dBm
Chain 1
1. 11dBm + 10log (83.53) = 30.22 > 24dBm
2. 11dBm + 10log (83.98) = 30.24 > 24dBm
Chain 2
1. 11dBm + 10log (83.73) = 30.23 > 24dBm
2. 11dBm + 10log (83.95) = 30.24 > 24dBm
Chain 3
1. 11dBm + 10log (82.84) = 30.18 > 24dBm
2. 11dBm + 10log (83.18) = 30.20 > 24dBm

26dB Bandwidth:

For U-NII-2A Band

802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	32.20	38.13
60	5300	33.28	34.82
64	5320	31.13	33.42

802.11n (HT20)

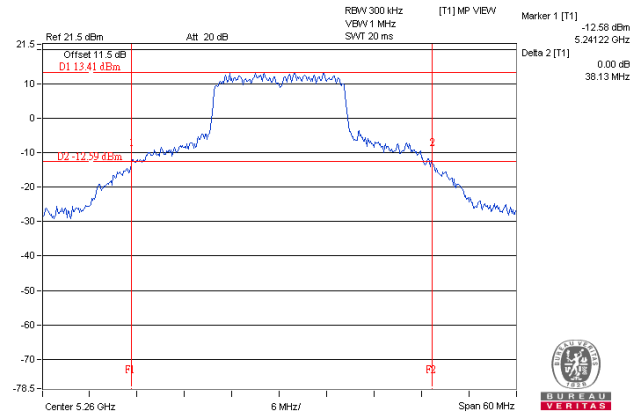
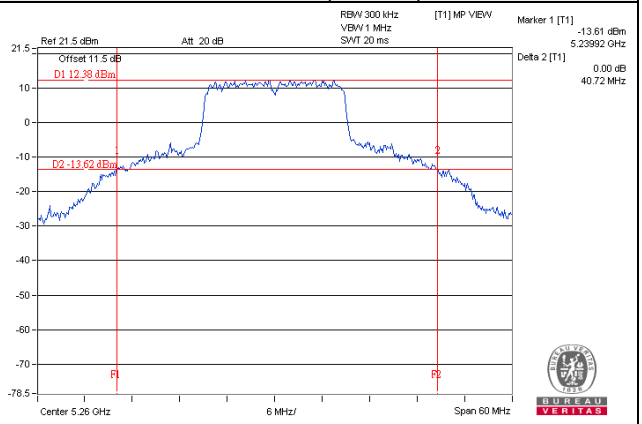
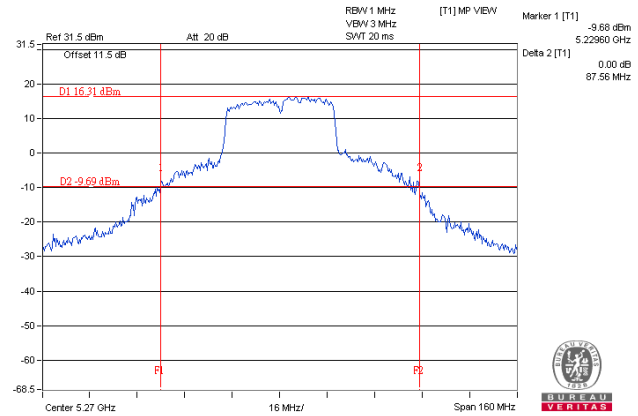
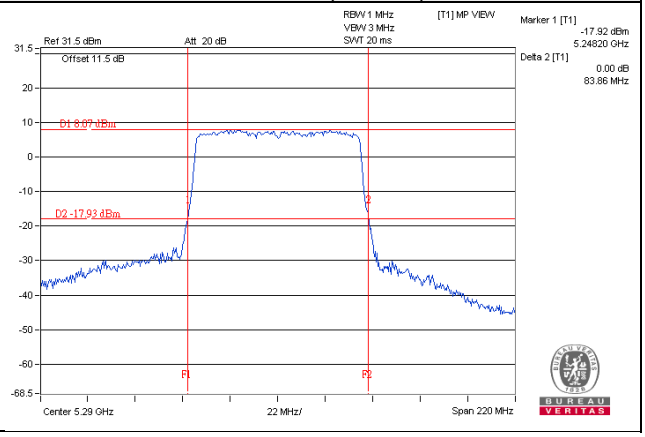
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	28.14	40.72
60	5300	29.90	38.97
64	5320	32.07	32.88

802.11n (HT40)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	74.77	87.56
62	5310	40.98	41.09

802.11ac (VHT80)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	83.86	83.05

Spectrum Plot of Worst Value	
802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	802.11ac (VHT80)
	

For U-NII-2C Band

802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
100	5500	19.90	19.99	19.83	19.93
116	5580	19.95	20.34	19.48	19.93
140	5700	20.09	19.75	19.63	20.15

802.11ac (VHT20)

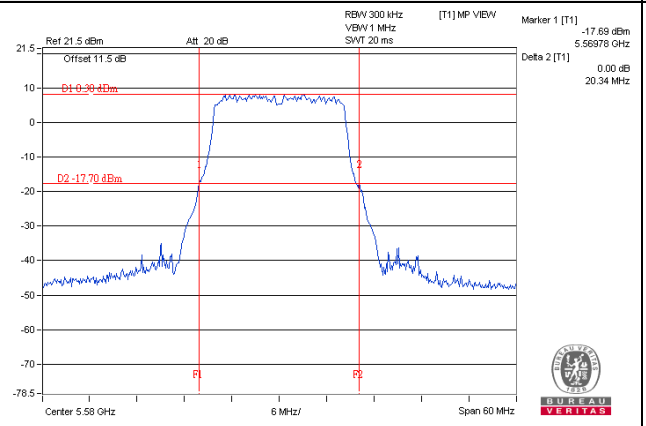
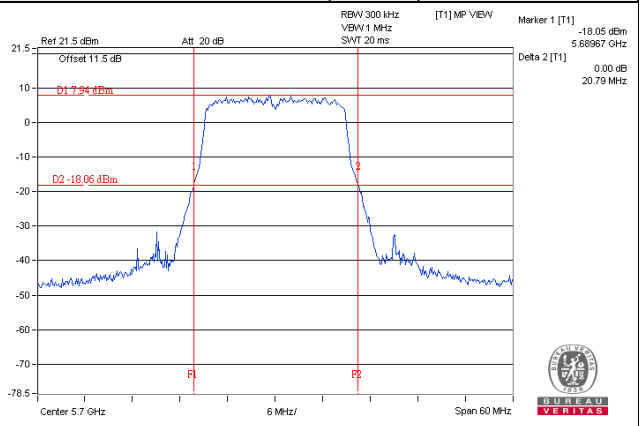
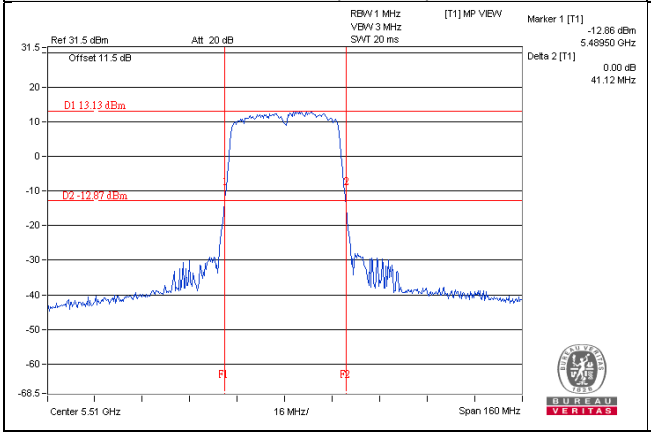
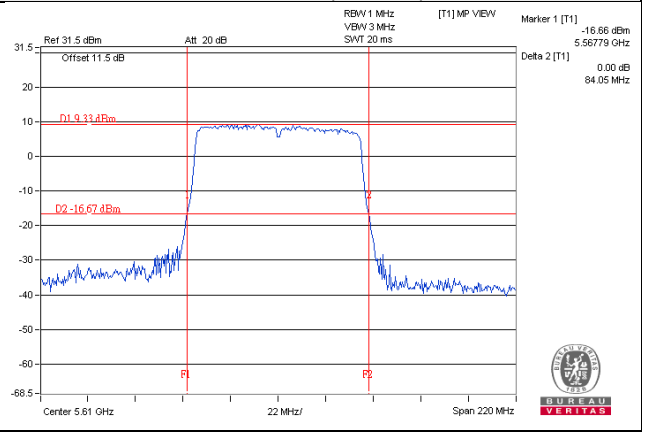
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
100	5500	20.64	20.78	20.74	20.56
116	5580	20.60	20.71	20.71	20.62
140	5700	20.79	20.68	20.66	20.63

802.11ac (VHT40)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
102	5510	41.12	40.90	40.77	40.73
110	5550	40.96	40.89	40.91	40.76
134	5670	41.05	40.93	40.82	40.77

802.11ac (VHT80)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
106	5530	83.61	83.53	83.73	82.84
122	5610	84.05	83.98	83.95	83.18

Spectrum Plot of Worst Value	
802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	802.11ac (VHT80)
	

EUT Maximum Conducted Power

CDD Mode

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	236.649	23.74
5470~5725	175.882	22.45

802.11ac (VHT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	235.552	23.72
5470~5725	168.989	22.28

802.11ac (VHT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	228.060	23.58
5470~5725	231.252	23.64

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	165.685	22.19
5470~5725	230.452	23.63

Beamforming Mode

802.11ac (VHT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	235.552	23.72
5470~5725	133.221	21.25

802.11ac (VHT40)

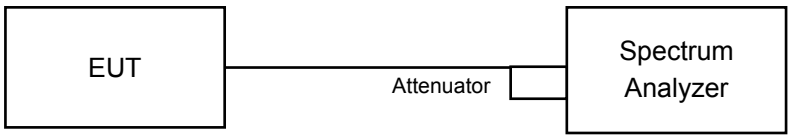
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	228.060	23.58
5470~5725	130.870	21.17

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	165.685	22.19
5470~5725	130.493	21.16

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

For U-NII-2A Band

802.11a

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	16.68	20.28
60	5300	16.68	17.64
64	5320	16.68	16.92

802.11ac (VHT20)

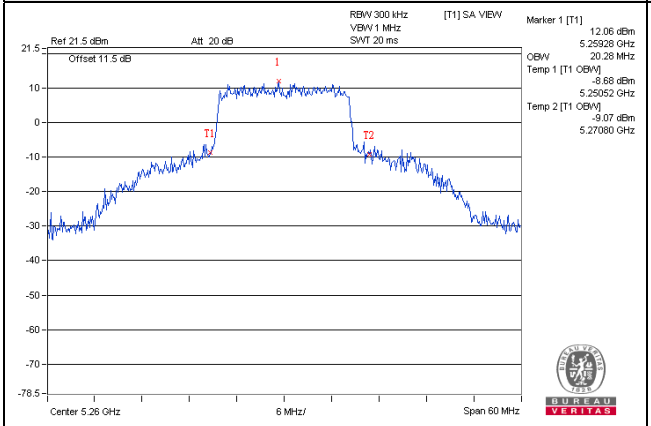
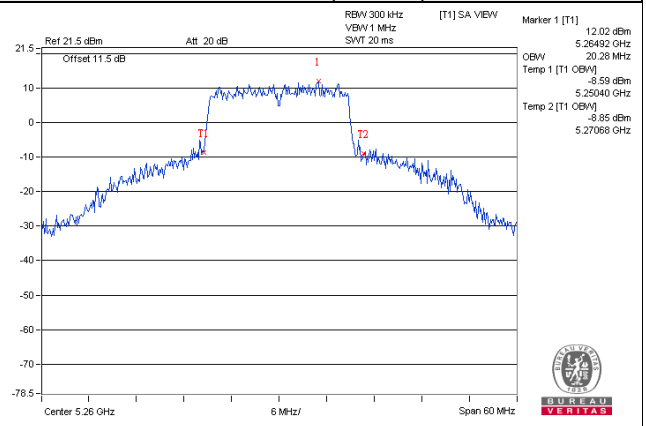
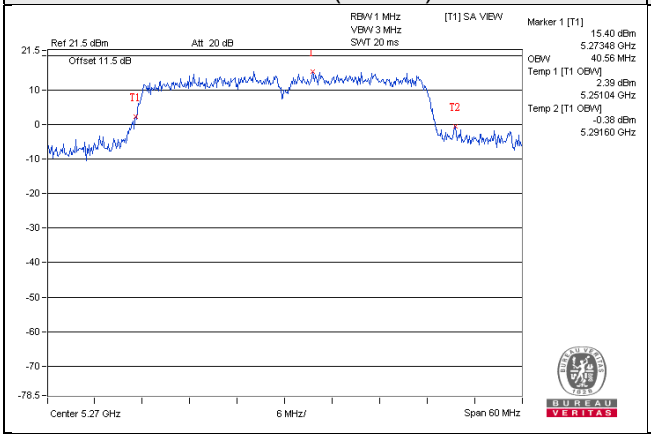
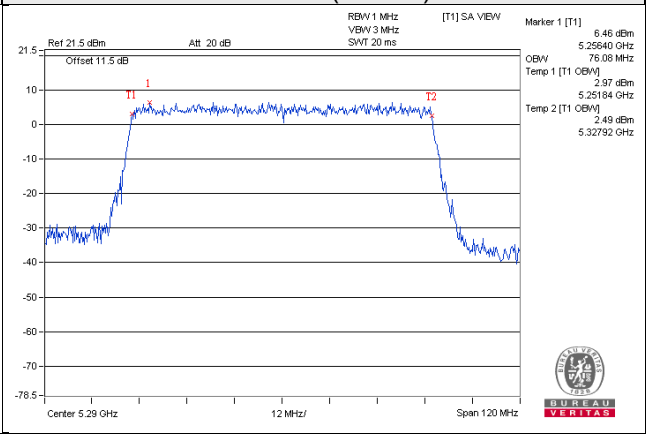
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	17.88	20.28
60	5300	17.76	18.48
64	5320	17.76	17.88

802.11ac (VHT40)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	36.72	40.56
62	5310	36.36	36.12

802.11ac (VHT80)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	76.08	75.84

Spectrum Plot of Worst Value	
802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	802.11ac (VHT80)
	

For U-NII-2C Band

802.11a

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
100	5500	16.44	16.56	16.44	16.56
116	5580	16.44	16.56	16.56	16.56
140	5700	16.44	16.56	16.44	16.44

802.11ac (VHT20)

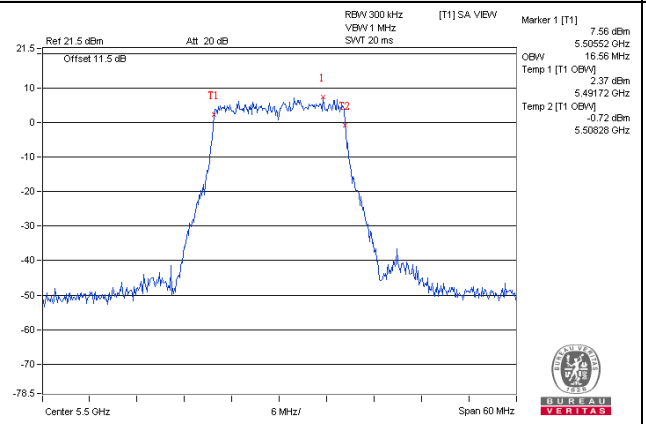
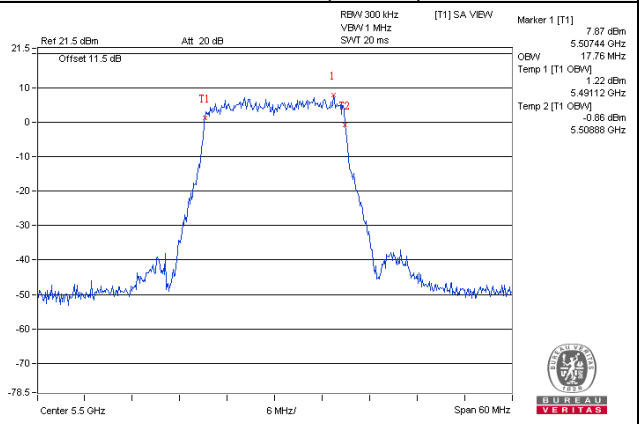
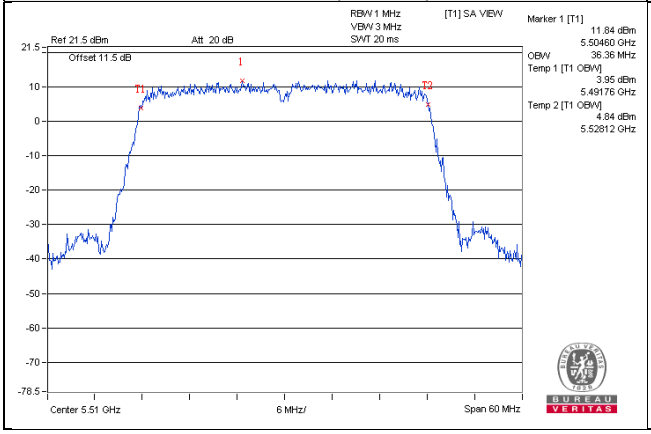
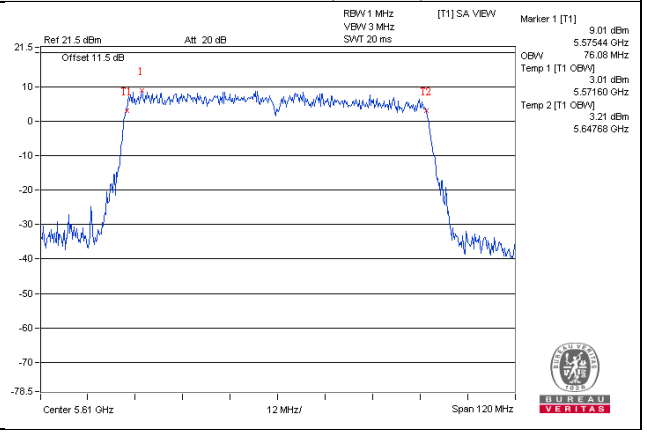
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
100	5500	17.64	17.76	17.64	17.64
116	5580	17.64	17.76	17.64	17.64
140	5700	17.64	17.64	17.64	17.64

802.11ac (VHT40)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
102	5510	36.36	36.24	36.24	36.24
110	5550	36.24	36.12	36.24	36.12
134	5670	36.24	36.24	36.24	36.24

802.11ac (VHT80)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
106	5530	75.84	75.84	75.84	75.84
122	5610	75.84	76.08	75.84	75.84

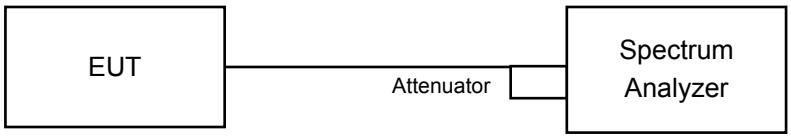
Spectrum Plot of Worst Value	
802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	802.11ac (VHT80)
	

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

Duty cycle of test signal is > 98%

Using method SA-1

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.

b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS

c. Sweep time = auto, trigger set to “free run”.

d. Trace average at least 100 traces in power averaging mode.

e. Record the max value

Duty cycle of test signal is < 98%

Using method SA-2

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.

b. Set RBW = 1MHz, Set VBW ≥ 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)

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 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	6.89	6.88	0.19	10.08	11.00	Pass
60	5300	6.69	7.77	0.19	10.46	11.00	Pass
64	5320	6.75	7.67	0.19	10.43	11.00	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 = 5.41dBi < 6dBi, so the limit no need to be reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Chan.	Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1			
52	5260	6.88	6.73	9.82	11.00	Pass
60	5300	6.62	7.77	10.24	11.00	Pass
64	5320	6.71	7.48	10.12	11.00	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 = 5.41dBi < 6dBi, so the limit no need to be reduced.

802.11ac (VHT40)

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	4.43	4.52	0.18	7.66	11.00	Pass
62	5310	2.95	3.51	0.18	6.43	11.00	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 = 5.41dBi < 6dBi, so the limit no need to be reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

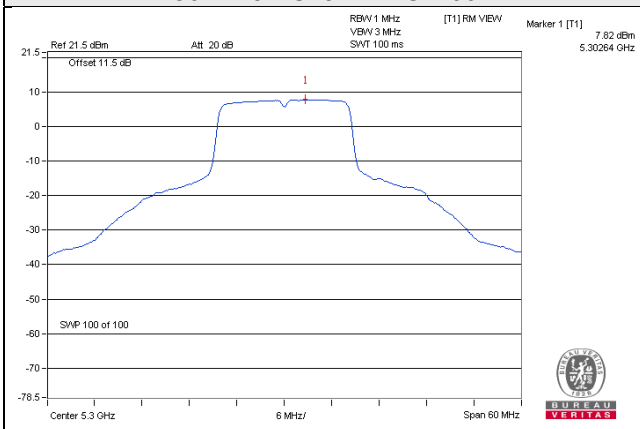
802.11ac (VHT80)

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	-0.33	1.52	0.30	4.00	11.00	Pass

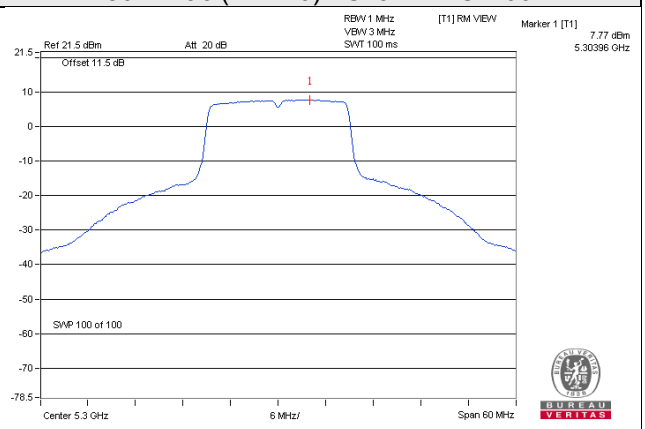
Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5.41dBi < 6dBi, so the limit no need to be reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

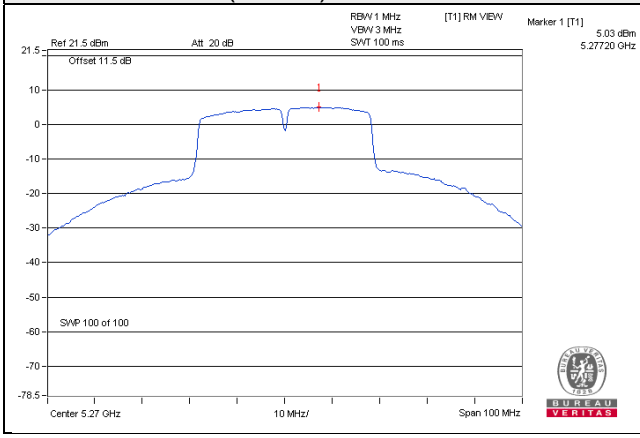
802.11a / Chain 1 / CH 60



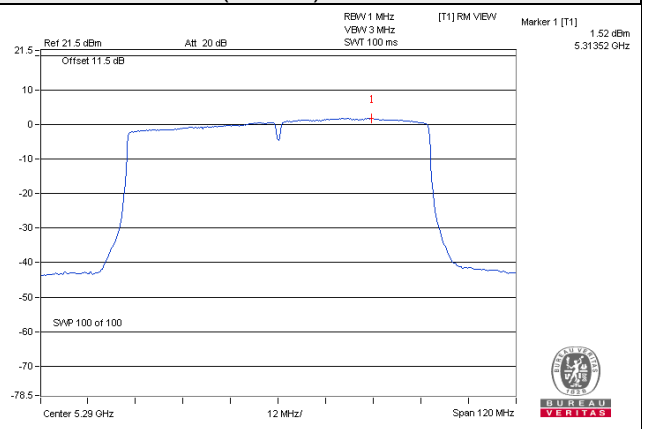
802.11ac (VHT20) / Chain 1 / CH 60



802.11ac (VHT40) / Chain 1 / CH 54



802.11ac (VHT80) / Chain 1 / CH 58



For 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	Chain 2	Chain 3				
100	5500	1.46	1.88	2.45	1.33	0.17	7.99	8.26	Pass
116	5580	1.67	2.13	2.42	1.77	0.17	8.19	8.26	Pass
140	5700	1.30	2.15	1.77	1.97	0.17	7.99	8.26	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 = 8.74dBi > 6dBi, so the power limit shall be reduced to 11-(8.74-6) = 8.26dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Chan.	Freq. (MHz)	PSD (dBm/MHz)				Total PSD (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3			
100	5500	1.69	2.10	2.83	2.06	8.21	8.26	Pass
116	5580	1.59	2.25	2.54	2.22	8.18	8.26	Pass
140	5700	1.85	2.42	2.17	2.36	8.23	8.26	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 = 8.74dBi > 6dBi, so the power limit shall be reduced to 11-(8.74-6) = 8.26dBm.

802.11ac (VHT40)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
102	5510	1.34	2.43	2.25	1.60	0.14	8.09	8.26	Pass
110	5550	1.58	2.06	2.26	1.86	0.14	8.11	8.26	Pass
134	5670	0.27	1.09	0.87	0.16	0.14	6.78	8.26	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 = 8.74dBi > 6dBi, so the power limit shall be reduced to 11-(8.74-6) = 8.26dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

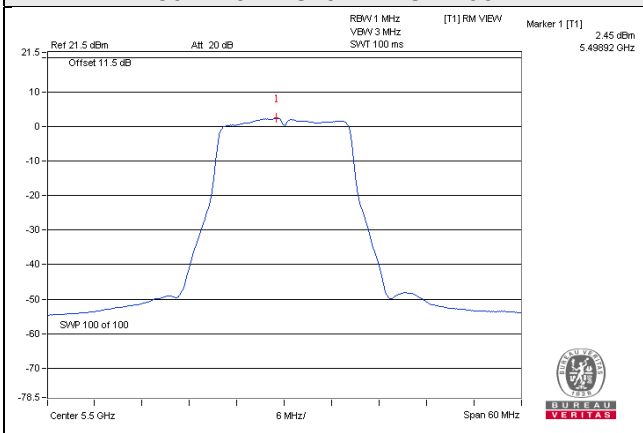
802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
106	5530	-1.43	-0.66	-0.64	-1.15	0.28	5.34	8.26	Pass
122	5610	-2.01	-1.40	-1.07	-1.95	0.28	4.71	8.26	Pass

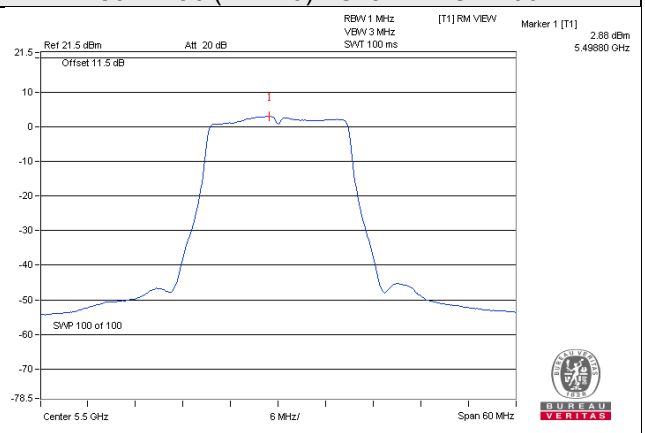
Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 8.74dBi > 6dBi, so the power limit shall be reduced to 11-(8.74-6) = 8.26dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

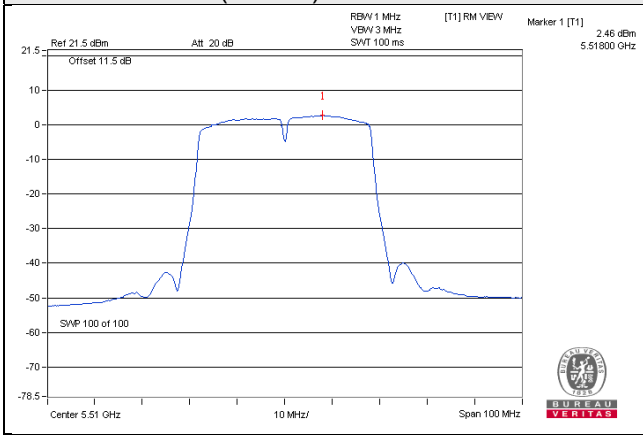
802.11a / Chain 2 / CH 100



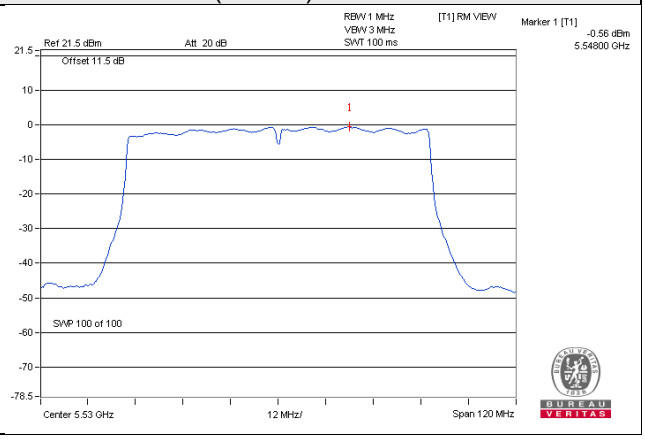
802.11ac (VHT20) / Chain 2 / CH 100



802.11ac (VHT40) / Chain 1 / CH 102



802.11ac (VHT80) / Chain 2 / CH 106

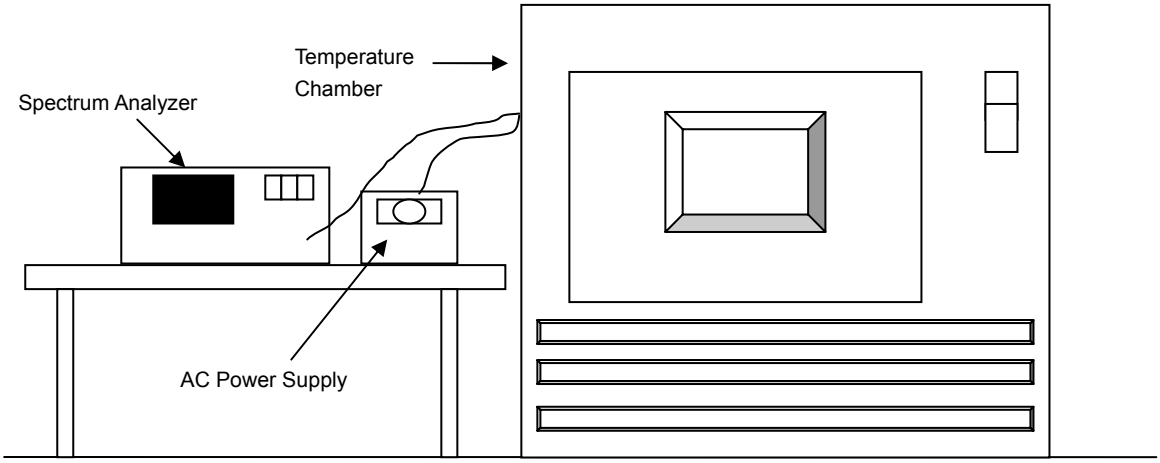


4.6 Frequency Stability

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Aug. 18, 2017	Aug. 17, 2018
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 08, 2017	Jun. 07, 2018
Digital Multimeter Fluke	87-III	70360742	Jun. 30, 2017	Jun. 29, 2018
AC Power Supply Extech	CFW-105	E000603	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.

4.6.4 Test Procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.

b. Turn the EUT on and couple its output to a spectrum analyzer.

c. Turn the EUT off and set the chamber to the highest temperature specified.

d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.

e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.

f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

For U-NII-2A Band

Frequency Stability Versus Temp.									
Operating Frequency: 5260MHz									
Temp. (℃)	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	5259.982	-0.00034	5259.9813	-0.00036	5259.9781	-0.00042	5259.9812	-0.00036
40	120	5260.0042	0.00008	5260.0077	0.00015	5260.0072	0.00014	5260.0042	0.00008
30	120	5260.0037	0.00007	5260.0084	0.00016	5260.007	0.00013	5260.0057	0.00011
20	120	5260.006	0.00011	5260.0057	0.00011	5260.007	0.00013	5260.0043	0.00008
10	120	5260.0054	0.00010	5260.002	0.00004	5260.0045	0.00009	5260.003	0.00006
0	120	5260.0094	0.00018	5260.0079	0.00015	5260.0087	0.00017	5260.0063	0.00012
-10	120	5260.018	0.00034	5260.0168	0.00032	5260.0193	0.00037	5260.0157	0.00030
-20	120	5260.0027	0.00005	5260.0032	0.00006	5260.0005	0.00001	5259.999	-0.00002
-30	120	5260.0217	0.00041	5260.0258	0.00049	5260.0267	0.00051	5260.0251	0.00048

Frequency Stability Versus Voltage									
Operating Frequency: 5260MHz									
Temp. (℃)	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	5260.0069	0.00013	5260.0062	0.00012	5260.0072	0.00014	5260.0037	0.00007
	120	5260.006	0.00011	5260.0057	0.00011	5260.007	0.00013	5260.0043	0.00008
	102	5260.0058	0.00011	5260.0067	0.00013	5260.0076	0.00014	5260.0049	0.00009

For U-NII-2C Band

Frequency Stability Versus Temp.									
Operating Frequency: 5500MHz									
Temp. (℃)	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	5500.0036	0.00007	5500.0055	0.00010	5500.0068	0.00012	5500.0021	0.00004
40	120	5499.98	-0.00036	5499.9762	-0.00043	5499.9764	-0.00043	5499.9759	-0.00044
30	120	5500.0142	0.00026	5500.0108	0.00020	5500.0113	0.00021	5500.0129	0.00023
20	120	5500.0076	0.00014	5500.0072	0.00013	5500.0065	0.00012	5500.006	0.00011
10	120	5499.9882	-0.00021	5499.9882	-0.00021	5499.9926	-0.00013	5499.9915	-0.00015
0	120	5500.0096	0.00017	5500.0058	0.00011	5500.0082	0.00015	5500.011	0.00020
-10	120	5499.9835	-0.00030	5499.9852	-0.00027	5499.9834	-0.00030	5499.9851	-0.00027
-20	120	5499.9985	-0.00003	5499.9956	-0.00008	5499.9948	-0.00009	5499.9947	-0.00010
-30	120	5499.9894	-0.00019	5499.9932	-0.00012	5499.9918	-0.00015	5499.9919	-0.00015

Frequency Stability Versus Voltage									
Operating Frequency: 5500MHz									
Temp. (℃)	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	5500.0084	0.00015	5500.0064	0.00012	5500.0055	0.00010	5500.0065	0.00012
	120	5500.0076	0.00014	5500.0072	0.00013	5500.0065	0.00012	5500.006	0.00011
	102	5500.0071	0.00013	5500.0078	0.00014	5500.0073	0.00013	5500.005	0.00009

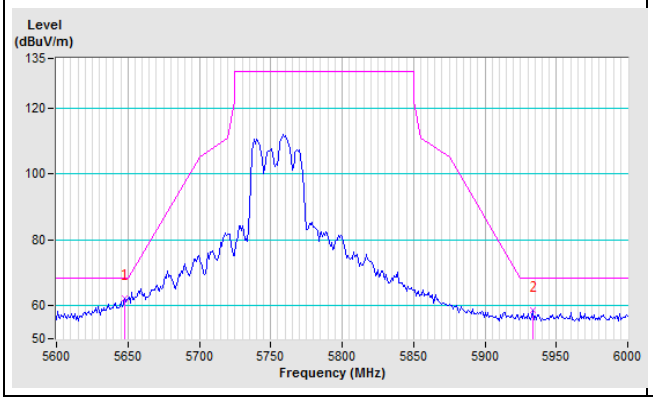
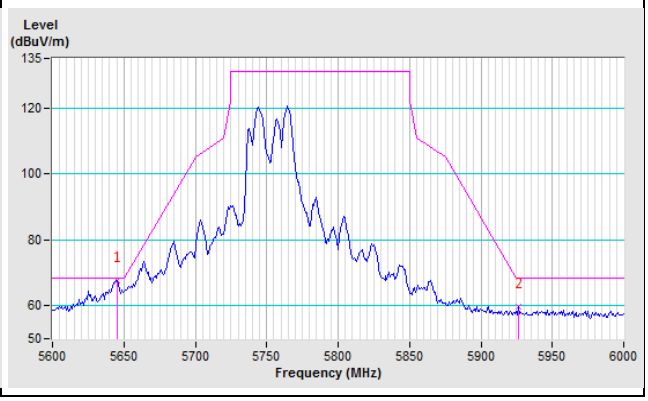
5 Pictures of Test Arrangements

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

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

For 2nd Source

802.11ac (VHT40)

CH151	
Horizontal	Vertical
	

Appendix – Information on the Testing Laboratories

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

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

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Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
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Hwa Ya EMC/RF/Safety
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

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