FCC Test Report

Report No.: RF150624E06H-1

FCC ID: PY315300321

Test Model: WAC730

Received Date: Apr. 13, 2016

Test Date: May 11 to 14, 2016

Issued Date: May 27, 2016

Applicant: NETGEAR, Inc.

Address: 350 East Plumeria Drive San Jose, CA 95134

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

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Release Control Record

Issue No.	Description	Date Issued
RF150624E07F-1	Original release.	May 27, 2016

1 Certificate of Conformity

Product: ProSAFE Dual Band Wireless AC Access Point

Brand: NETGEAR

Test Model: WAC730

Sample Status: MASS-PRODUCTION

Applicant: NETGEAR, Inc.

Test Date: May 11 to 14, 2016

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

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

Prepared by : _____ , **Date:** May 27, 2016
Wendy Wu / Specialist

Approved by : _____ , **Date:** May 27, 2016
May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (SECTION 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement*	Pass	Meet the requirement of limit. Minimum passing margin is -0.10dB at 5990.00MHz, 5585.50MHz, 5985.80MHz and 5600.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
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 R-SMA and i-pex 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.

NOTE: 1. This report is prepared for FCC Class II change. (Upgrade the standard to section 15.407 under new rule (16-24) for U-NII-3 band)

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) (±)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.19 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.40 dB
	6GHz ~ 18GHz	3.49 dB
	18GHz ~ 40GHz	4.11 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	ProSAFE Dual Band Wireless AC Access Point
Brand	NETGEAR
Test Model	WAC730
Status of EUT	MASS-PRODUCTION
Power Supply Rating	12Vdc from power adapter or 55Vdc from POE
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11g/a: up to 54Mbps 802.11n: up to 450Mbps 802.11ac: up to 1300Mbps
Operating Frequency	**For 15.407** 5.18 ~ 5.24GHz, 5.745 ~ 5.825GHz **For 15.247** 2.412 ~ 2.462GHz
Number of Channel	**For 15.407** 9 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 4 for 802.11n (HT40), 802.11ac (VHT40) 2 for 802.11ac (VHT80) **For 15.247** 11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Output Power	**For 15.407** **5.18 ~ 5.24GHz:** **CDD Mode:** 92.996mW **Beamforming Mode:** 49.089mW **5.745 ~ 5.825GHz:** **CDD Mode:** 241.15mW **Beamforming Mode:** 217.016mW **For 15.247** **CDD Mode:** 484.435mW **Beamforming Mode:** 386.973mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	NA

Note:

1. This report is prepared for FCC Class II change. The difference compared with the Report No.: RF150624E07-1 is as the following:

   ◆Upgrade the standard to section 15.407 under new rule (16-24) for U-NII-3 band.

2. According to above conditions, all test items need to be performed, except for AC power conducted emission test item. And all data was verified to meet the requirements.
3. 2.4GHz and 5GHz technology can transmit at same time.
4. The antennas provided to the EUT, please refer to the following table:

External Antenna

PCB Chain No.	Brand	Model	Antenna Gain (dBi) (Excelude cable loss)	Cable Loss (dB)	Net Gain (dBi)	Cable Length (mm)	Frequency range (GHz to GHz)	Antenna Type	Connecter Type
Chain (0) (Left)	Master Wave Tech.	98364PRSX004	0.8	0.8	0	180	2.4~2.4835	Dipole	R-SMA
			1.5	1.5	0		5.15~5.25		
			1.6	1.5	0.1		5.25~5.35		
			0.7	1.5	-0.8		5.47~5.725		
			0.5	1.5	-1		5.725~5.85		
Chain (1) (Mid)	Master Wave Tech.	98364PRSX004	0.8	0.5	0.3	60	2.4~2.4835	Dipole	R-SMA
			1.5	0.9	0.6		5.15~5.25		
			1.6	0.9	0.7		5.25~5.35		
			0.7	0.9	-0.2		5.47~5.725		
			0.5	0.9	-0.4		5.725~5.85		
Chain (2) (Right)	Master Wave Tech.	98364PRSX004	0.8	0.9	-0.1	190	2.4~2.4835	Dipole	R-SMA
			1.4	1.7	-0.3		5.15~5.25		
			1.6	1.7	-0.1		5.25~5.35		
			0.7	1.7	-1		5.47~5.725		
			0.7	1.7	-1		5.725~5.85		

Internal Antenna

PCB Chain No.	Brand	Model	Antenna Gain (dBi)	Frequency range (GHz to GHz)	Antenna Type	Connecter Type
Chain (0)	NA	NA	5	2.4~2.4835	PIFA	i-pex(MHF)
			6	5.15~5.25		
			6	5.25~5.35		
			6	5.47~5.725		
			6	5.725~5.85		
Chain (1)	NA	NA	5	2.4~2.4835	PIFA	i-pex(MHF)
			6	5.15~5.25		
			6	5.25~5.35		
			6	5.47~5.725		
			6	5.725~5.85		
Chain (2)	NA	NA	5	2.4~2.4835	PIFA	i-pex(MHF)
			6	5.15~5.25		
			6	5.25~5.35		
			6	5.47~5.725		
			6	5.725~5.85		

5. The EUT need to be supplied from a POE or a power adapter and following two different models could be chosen as following table:

Adapter				
No	Brand Name	Model No.	P/N	Spec.
1	NETGEAR	2ABL030F 1	332-10758-01	Input: 100-120V, 1.0A, 50/60Hz Output: 12V, 2.5A DC output cable: 1.8m, unshielded
2	NETGEAR	ADS-40FPA-12	332-10759-01	Input: 100-120V, 1.0A, 60Hz Output: 12V, 2.5A DC output cable: 1.8m, unshielded
POE (test only, not for sale)				
No	Brand Name	Model No.		Spec.
1	Microsemi Corp.	PD-9001GR/AC		Input: 100-240V, 0.8A, 50/60Hz Output: 55V, 0.6A
Note: From the above adapters & POE, the radiated emission worse case was found in adapter 2. Therefore only the test data of the mode was recorded in this report.				

6. The EUT incorporates a MIMO function with beamforming.(Except for 802.11a/b/g).

2.4GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	3TX	3RX
802.11g	6 ~ 54Mbps	3TX	3RX
802.11n (HT20)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11n (HT40)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
5GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	3TX	3RX
802.11n (HT20)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11n (HT40)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11ac (VHT20)	MCS 0~8, Nss=1	3TX	3RX
	MCS 0~8, Nss=2	3TX	3RX
	MCS 0~9, Nss=3	3TX	3RX
802.11ac (VHT40)	MCS 0~9, Nss=1	3TX	3RX
	MCS 0~9, Nss=2	3TX	3RX
	MCS 0~9, Nss=3	3TX	3RX
802.11ac (VHT80)	MCS 0~9, Nss=1	3TX	3RX
	MCS 0~9, Nss=2	3TX	3RX
	MCS 0~9, Nss=3	3TX	3RX
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)			

7. The emission of the simultaneous operation (2.4GHz & 5GHz) has been evaluated and no non-compliance was found.
8. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

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	APCM	
1	√	√	√	With adapter 2 + Internal antenna
2	√	-	-	With adapter 2 + External antenna

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

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

Radiated Emission Test (Above 1GHz):

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

CDD MODE						
MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
Beamforming MODE						
MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3

Radiated Emission Test (Below 1GHz):

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

CDD MODE						
MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5745-5825	149 to 165	149	OFDM	BPSK	6

Antenna Port Conducted Measurement:

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

CDD MODE						
MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
Beamforming MODE						
MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3

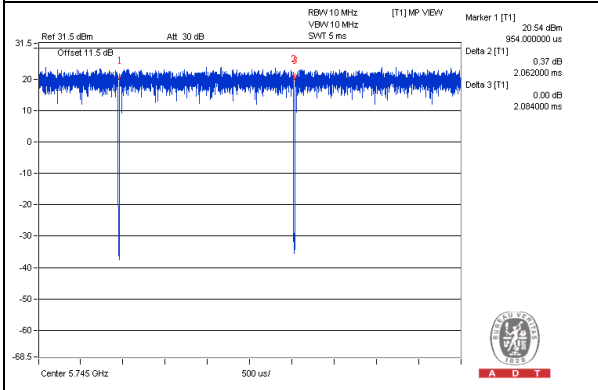
Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE≥1G	29deg. C, 76%RH	120Vac, 60Hz	Gary Cheng
RE<1G	23deg. C, 67%RH	120Vac, 60Hz	Andy Ho
APCM	22deg. C, 64%RH	120Vac, 60Hz	Anderson Chen

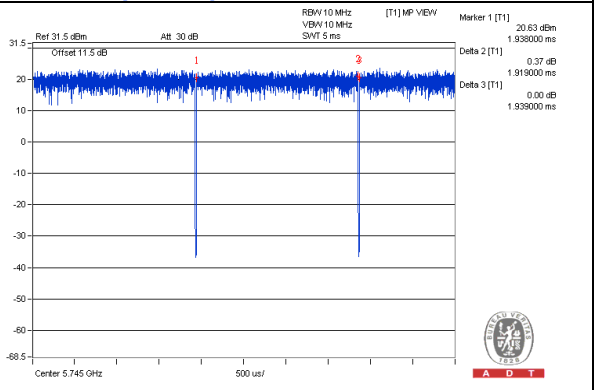
3.3 Duty Cycle of Test Signal

If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.
802.11a: Duty cycle = 2.062 ms/2.084 ms = 0.989
802.11ac (VHT20): Duty cycle = 1.919 ms/1.939 ms = 0.99
802.11ac (VHT40): Duty cycle = 0.944 ms/0.963 ms = 0.98
802.11ac (VHT80): Duty cycle = 0.459 ms/0.478 ms = 0.96, Duty factor = 10 * log(1/0.96) = 0.18

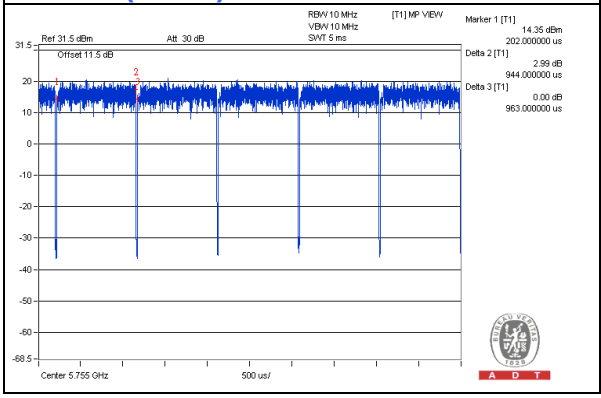
802.11a



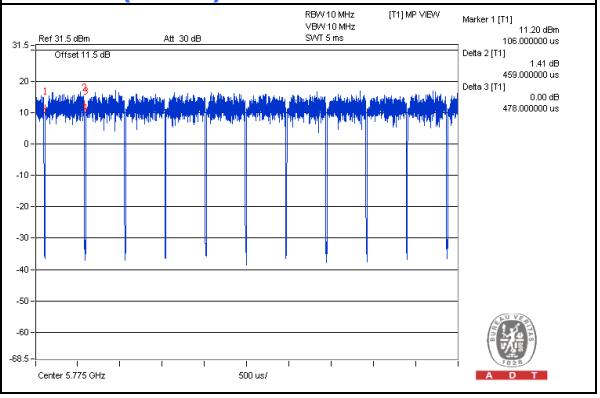
802.11ac (VHT20)



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.

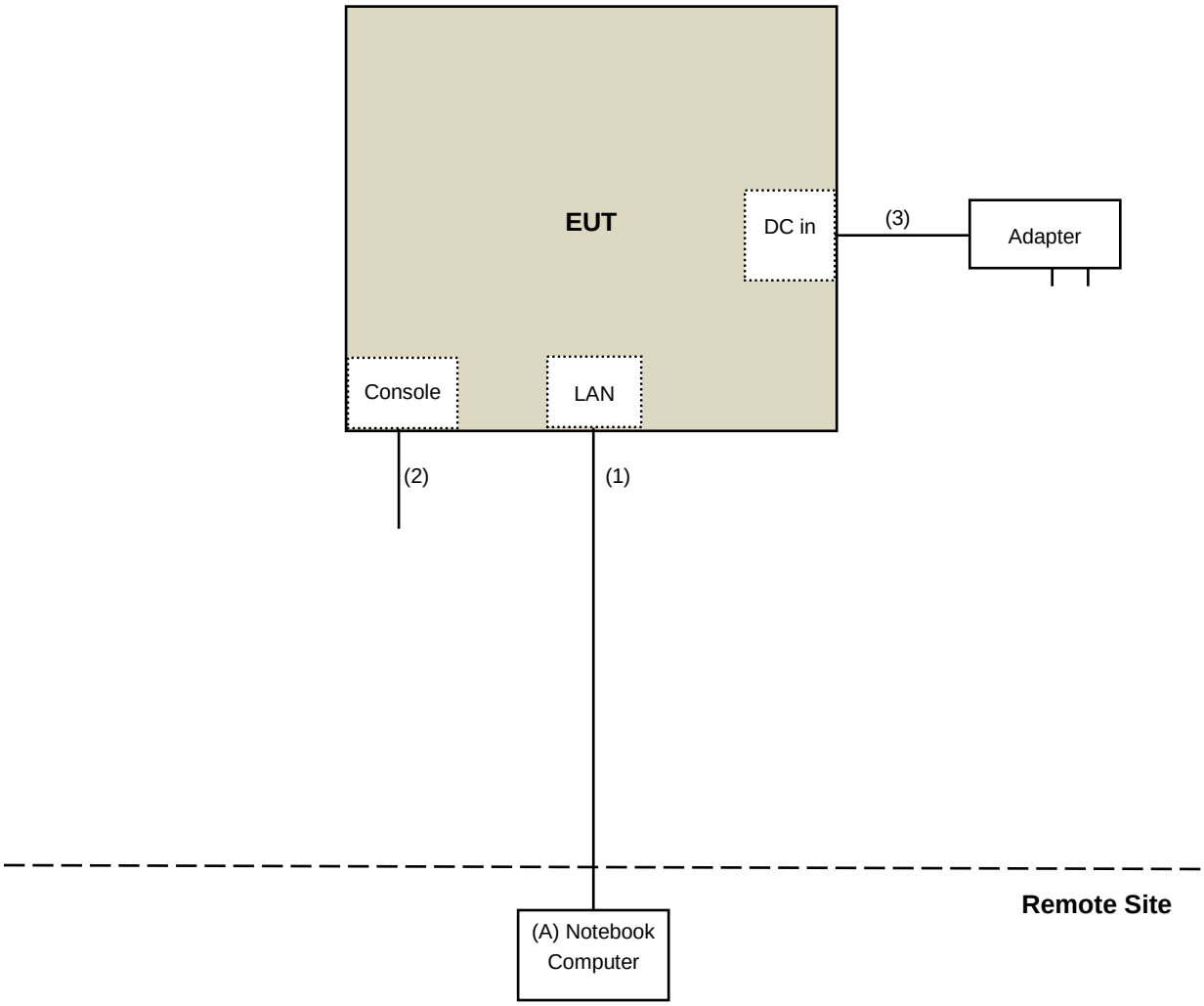
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook Computer	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab

Note:

1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45 cable	1	10	No	0	Provided by Lab
2.	Console cable	1	1.6	No	0	Provided by Lab
3.	DC cable	1	1.8	No	0	Supplied by Client

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standard

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 v01r02
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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

LimitS OF UNWANTED EMISSION OUT OF THE RESTRICTED BandS

Applicable To	Limit	
789033 D02 General UNII Test Procedure New Rules v01r02	FIELD STRENGTH at 3m	
	PK:74 (dBµV/m)	AV:54 (dBµV/m)
Applicable To	EIRP Limit	Equivalent Field Strength at 3m
15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBµV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)(i)	PK:-27 (dBm/MHz) *1 PK:10 (dBm/MHz) *2 PK:15.6 (dBm/MHz) *3 PK:27 (dBm/MHz) *4	PK: 68.2(dBµV/m) *1 PK:105.2 (dBµV/m) *2 PK: 110.8(dBµV/m) *3 PK:122.2 (dBµV/m) *4
15.407(b)(4)(ii)	FIELD STRENGTH at 3m / § 15.247(d),	
	PK:74 (dBµV/m)	AV:54 (dBµV/m)

*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.

NOTE:

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

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY54450088	July 24, 2015	July 23, 2016
Pre-Amplifier(*) EMCI	EMC001340	980142	Jan. 20, 2016	Jan. 19, 2018
Loop Antenna(*) Electro-Metrics	EM-6879	264	Dec. 16, 2014	Dec. 15, 2016
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 18, 2016	Jan. 17, 2017
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Nov. 11, 2015	Nov. 10, 2016
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Jan. 04, 2016	Jan. 03, 2017
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 02, 2016	Apr. 01, 2017
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Jan. 19, 2016	Jan. 18, 2017
Pre-Amplifier Agilent	8449B	3008A01922	Sep. 19, 2015	Sep. 18, 2016
RF Cable	EMC104-SM-SM-2000 EMC104-SM-SM-5000 EMC104-SM-SM-5000	150318 150323 150324	Mar. 30, 2016	Mar. 29, 2017
Pre-Amplifier EMCI	EMC184045	980143	Jan. 15, 2016	Jan. 14, 2017
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Jan. 08, 2016	Jan. 07, 2017
RF Cable	SUCOFLEX 102	36432/2 36441/2	Jan. 16, 2016	Jan. 15, 2017
Software	ADT_Radiated_V8.7.07	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208410	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP02	NA	NA
Spectrum Analyzer R&S	FSP40	100036	Jan. 27, 2016	Jan. 26, 2017
Power meter Anritsu	ML2495A	0824006	May 25, 2015	May 24, 2016
Power sensor Anritsu	MA2411B	0738172	May 25, 2015	May 24, 2016
Temperature & Humidity Chamber GIANTFORCE	GTH-150-40-SP-AR	MAA0812-008	Jan. 15, 2016	Jan. 14, 2017

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. 4.
4. The FCC Site Registration No. is 292998

5. The CANADA Site Registration No. is 20331-2
6. Tested Date:May 11 to 14, 2016

4.1.3 Test Procedure

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 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:

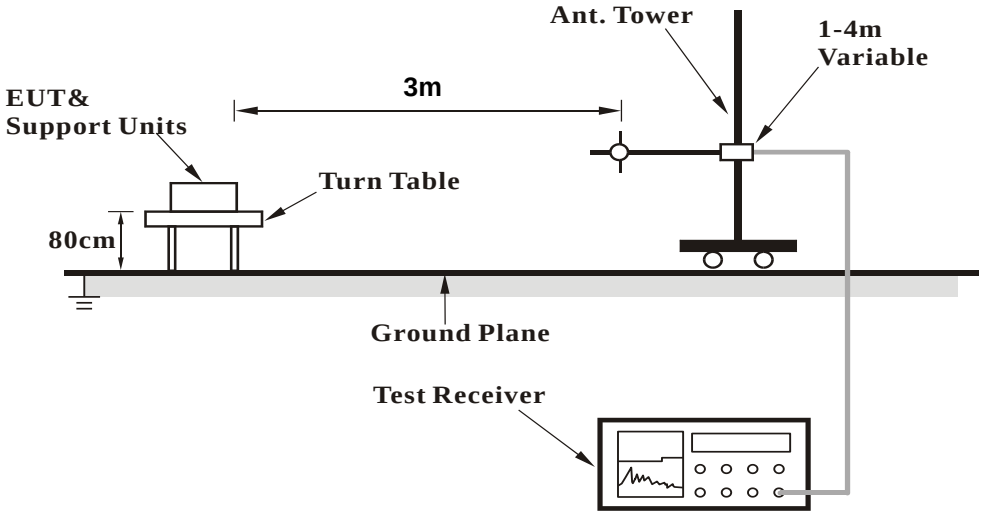
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

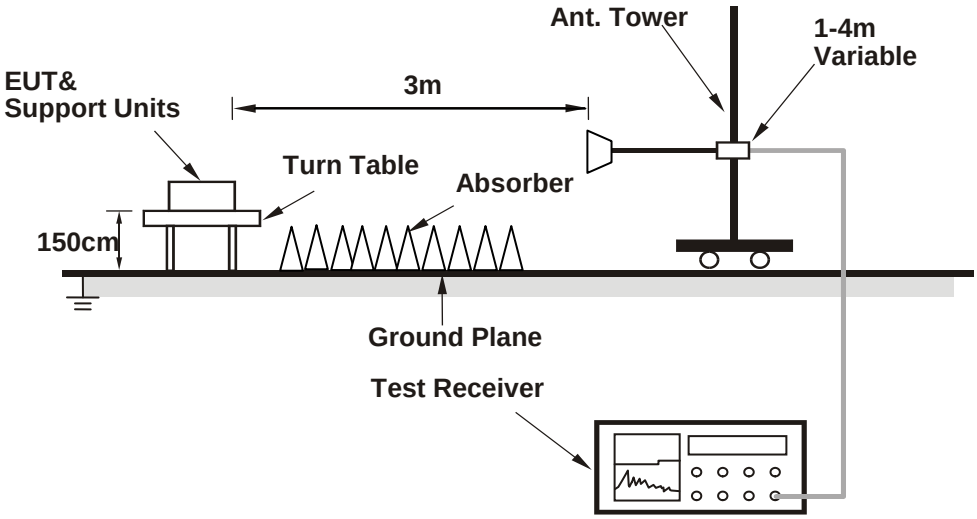
No deviation.

4.1.5 Test Setup

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.1.6 EUT Operating Condition

1. Connect the EUT with the support unit A (Notebook Computer) which is placed on remote site.
2. Controlling software (Mtool.exe V1.0.0.10) has been activated to set the EUT on specific status.

4.1.7 Test Results (Mode 1)

Above 1GHz Data:

802.11a

CHANNEL	TX Channel 149	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	#5578.02	63.43 PK	68.20	-4.77	1.73 H	315	60.95	2.48
2	*5745.00	116.10 PK			1.74 H	315	113.28	2.82
3	*5745.00	106.20 AV			1.74 H	315	103.38	2.82
4	#5979.87	64.55 PK	68.20	-3.65	1.73 H	315	61.28	3.27
5	11490.00	56.50 PK	74.00	-17.50	1.48 H	20	43.04	13.46
6	11490.00	38.20 AV	54.00	-15.80	1.48 H	20	24.74	13.46
7	#17235.00	53.70 PK	74.00	-20.30	1.42 H	182	35.25	18.45
8	#17235.00	40.10 AV	54.00	-13.90	1.42 H	182	21.65	18.45
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	#5586.00	66.70 PK	68.20	-1.50	1.60 V	354	64.18	2.52
2	#5658.30	69.52 PK	74.36	-4.84	1.60 V	354	66.86	2.66
3	*5745.00	116.80 PK			1.60 V	354	113.98	2.82
4	*5745.00	106.50 AV			1.60 V	354	103.68	2.82
5	#5907.68	70.93 PK	80.98	-10.05	1.60 V	354	67.94	2.99
6	#5991.10	68.00 PK	68.20	-0.20	1.60 V	354	64.68	3.32
7	11490.00	53.30 PK	74.00	-20.70	1.39 V	333	39.84	13.46
8	11490.00	39.30 AV	54.00	-14.70	1.39 V	333	25.84	13.46
9	#17235.00	55.10 PK	74.00	-18.90	1.46 V	206	36.65	18.45
10	#17235.00	41.10 AV	54.00	-12.90	1.46 V	206	22.65	18.45

REMARKS:

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

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) 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	#5628.37	63.33 PK	68.20	-4.87	2.04 H	296	60.74	2.59
2	*5785.00	116.60 PK			2.04 H	296	113.71	2.89
3	*5785.00	106.90 AV			2.04 H	296	104.01	2.89
4	#5940.93	67.72 PK	68.20	-0.48	2.04 H	296	64.61	3.11
5	11570.00	56.60 PK	74.00	-17.40	1.43 H	26	43.36	13.24
6	11570.00	38.10 AV	54.00	-15.90	1.43 H	26	24.86	13.24
7	#17355.00	54.00 PK	74.00	-20.00	1.44 H	178	34.90	19.10
8	#17355.00	40.50 AV	54.00	-13.50	1.44 H	178	21.40	19.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5627.00	63.50 PK	68.20	-4.70	1.50 V	351	60.90	2.60
2	*5785.00	116.40 PK			1.50 V	355	113.51	2.89
3	*5785.00	106.50 AV			1.50 V	355	103.61	2.89
4	#5948.60	68.00 PK	68.20	-0.20	1.50 V	354	64.80	3.20
5	11570.00	52.80 PK	74.00	-21.20	1.35 V	335	39.56	13.24
6	11570.00	38.80 AV	54.00	-15.20	1.35 V	335	25.56	13.24
7	#17355.00	55.30 PK	74.00	-18.70	1.42 V	212	36.20	19.10
8	#17355.00	41.10 AV	54.00	-12.90	1.42 V	212	22.00	19.10

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5587.52	58.58 PK	68.20	-9.62	3.10 H	299	56.06	2.52
2	*5825.00	117.10 PK			3.10 H	299	114.16	2.94
3	*5825.00	107.40 AV			3.10 H	299	104.46	2.94
4	#5987.48	67.38 PK	68.20	-0.82	3.10 H	299	64.08	3.30
5	11650.00	56.90 PK	74.00	-17.10	1.50 H	5	43.69	13.21
6	11650.00	38.30 AV	54.00	-15.70	1.50 H	5	25.09	13.21
7	#17475.00	53.50 PK	74.00	-20.50	1.40 H	169	34.07	19.43
8	#17475.00	39.90 AV	54.00	-14.10	1.40 H	169	20.47	19.43
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	*5825.00	117.70 PK			1.57 V	353	114.76	2.94
2	*5825.00	107.50 AV			1.57 V	353	104.56	2.94
3	#5906.73	70.18 PK	81.68	-11.50	1.57 V	12	67.19	2.99
4	**#5990.00**	**68.10 PK**	**68.20**	**-0.10**	**1.57 V**	**12**	**64.79**	**3.31**
5	11650.00	52.90 PK	74.00	-21.10	1.36 V	344	39.69	13.21
6	11650.00	39.00 AV	54.00	-15.00	1.36 V	344	25.79	13.21
7	#17475.00	55.40 PK	74.00	-18.60	1.41 V	213	35.97	19.43
8	#17475.00	41.20 AV	54.00	-12.80	1.41 V	213	21.77	19.43

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5579.45	63.20 PK	68.20	-5.00	1.84 H	293	60.70	2.50
2	*5745.00	115.70 PK			1.84 H	293	112.88	2.82
3	*5745.00	106.10 AV			1.84 H	293	103.28	2.82
4	#5976.55	61.80 PK	68.20	-6.40	1.84 H	293	58.60	3.20
5	11490.00	56.20 PK	74.00	-17.80	1.52 H	9	42.74	13.46
6	11490.00	37.90 AV	54.00	-16.10	1.52 H	9	24.44	13.46
7	#17235.00	53.90 PK	74.00	-20.10	1.34 H	164	35.45	18.45
8	#17235.00	40.20 AV	54.00	-13.80	1.34 H	164	21.75	18.45
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	**#5585.50**	**68.10 PK**	**68.20**	**-0.10**	**1.50 V**	**360**	**65.59**	**2.51**
2	#5661.62	71.62 PK	76.83	-5.21	1.50 V	360	68.96	2.66
3	*5745.00	115.80 PK			1.50 V	360	112.98	2.82
4	*5745.00	105.60 AV			1.50 V	360	102.78	2.82
5	#5912.43	68.75 PK	77.47	-8.72	1.50 V	360	65.75	3.00
6	#5986.00	65.50 PK	68.20	-2.70	1.50 V	360	62.21	3.29
7	11490.00	53.00 PK	74.00	-21.00	1.31 V	338	39.54	13.46
8	11490.00	38.80 AV	54.00	-15.20	1.31 V	338	25.34	13.46
9	#17235.00	55.60 PK	74.00	-18.40	1.36 V	223	37.15	18.45
10	#17235.00	41.60 AV	54.00	-12.40	1.36 V	223	23.15	18.45

REMARKS:

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

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) 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	#5631.70	60.40 PK	68.20	-7.80	1.91 H	297	57.80	2.60
2	*5785.00	115.90 PK			1.91 H	297	113.01	2.89
3	*5785.00	106.00 AV			1.91 H	297	103.11	2.89
4	#5943.77	66.90 PK	68.20	-1.30	1.91 H	297	63.80	3.10
5	11570.00	55.50 PK	74.00	-18.50	1.55 H	8	42.26	13.24
6	11570.00	37.50 AV	54.00	-16.50	1.55 H	8	24.26	13.24
7	#17355.00	54.20 PK	74.00	-19.80	1.34 H	168	35.10	19.10
8	#17355.00	40.50 AV	54.00	-13.50	1.34 H	168	21.40	19.10
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	#5625.80	64.10 PK	68.20	-4.10	1.50 V	360	61.51	2.59
2	#5661.62	65.75 PK	76.83	-11.08	1.50 V	360	63.09	2.66
3	*5785.00	115.80 PK			1.50 V	360	112.91	2.89
4	*5785.00	105.90 AV			1.50 V	360	103.01	2.89
5	#5912.43	63.92 PK	77.47	-13.55	1.50 V	360	60.92	3.00
6	#5946.10	68.00 PK	68.20	-0.20	1.50 V	360	64.86	3.14
7	11570.00	53.50 PK	74.00	-20.50	1.35 V	336	40.26	13.24
8	11570.00	39.30 AV	54.00	-14.70	1.35 V	336	26.06	13.24
9	#17355.00	56.00 PK	74.00	-18.00	1.40 V	207	36.90	19.10
10	#17355.00	41.80 AV	54.00	-12.20	1.40 V	207	22.70	19.10

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5583.25	58.10 PK	68.20	-10.10	1.79 H	297	55.60	2.50
2	*5825.00	115.80 PK			1.79 H	297	112.86	2.94
3	*5825.00	106.10 AV			1.79 H	297	103.16	2.94
4	#5987.48	66.30 PK	68.20	-1.90	1.79 H	297	63.00	3.30
5	11650.00	55.20 PK	74.00	-18.80	1.53 H	0	41.99	13.21
6	11650.00	37.40 AV	54.00	-16.60	1.53 H	0	24.19	13.21
7	#17475.00	54.30 PK	74.00	-19.70	1.33 H	156	34.87	19.43
8	#17475.00	40.80 AV	54.00	-13.20	1.33 H	156	21.37	19.43
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	#5662.10	65.20 PK	77.18	-11.98	1.66 V	2	62.54	2.66
2	*5825.00	115.00 PK			1.66 V	2	112.06	2.94
3	*5825.00	105.10 AV			1.66 V	2	102.16	2.94
4	#5941.87	65.28 PK	68.20	-2.92	1.66 V	2	62.17	3.11
5	**#5985.80**	**68.10 PK**	**68.20**	**-0.10**	**1.66 V**	**2**	**64.81**	**3.29**
6	11650.00	53.20 PK	74.00	-20.80	1.32 V	350	39.99	13.21
7	11650.00	39.00 AV	54.00	-15.00	1.32 V	350	25.79	13.21
8	#17475.00	56.30 PK	74.00	-17.70	1.40 V	204	36.87	19.43
9	#17475.00	42.00 AV	54.00	-12.00	1.40 V	204	22.57	19.43

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	#5653.07	64.40 PK	70.50	-6.10	1.88 H	296	61.80	2.60
2	*5755.00	112.70 PK			1.88 H	296	109.86	2.84
3	*5755.00	102.70 AV			1.88 H	296	99.86	2.84
4	#5929.52	66.00 PK	68.20	-2.20	1.88 H	296	62.90	3.10
5	11510.00	55.30 PK	74.00	-18.70	1.60 H	9	41.87	13.43
6	11510.00	37.10 AV	54.00	-16.90	1.60 H	9	23.67	13.43
7	#17265.00	54.00 PK	74.00	-20.00	1.37 H	161	35.44	18.56
8	#17265.00	40.50 AV	54.00	-13.50	1.37 H	161	21.94	18.56
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	**#5600.00**	**68.10 PK**	**68.20**	**-0.10**	**1.56 V**	**360**	**65.56**	**2.54**
2	#5656.87	69.87 PK	73.30	-3.43	1.56 V	360	67.21	2.66
3	*5755.00	114.20 PK			1.56 V	360	111.36	2.84
4	*5755.00	102.10 AV			1.56 V	360	99.26	2.84
5	#5921.93	66.20 PK	70.46	-4.26	1.56 V	360	63.16	3.04
6	#5926.20	67.00 PK	68.20	-1.20	1.56 V	360	63.94	3.06
7	11510.00	52.80 PK	74.00	-21.20	1.35 V	337	39.37	13.43
8	11510.00	38.80 AV	54.00	-15.20	1.35 V	337	25.37	13.43
9	#17265.00	56.40 PK	74.00	-17.60	1.42 V	213	37.84	18.56
10	#17265.00	42.30 AV	54.00	-11.70	1.42 V	213	23.74	18.56

REMARKS:

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

CHANNEL	TX Channel 159	DETECTOR 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	#5631.23	58.60 PK	68.20	-9.60	1.91 H	298	56.00	2.60
2	*5795.00	112.60 PK			1.91 H	298	109.68	2.92
3	*5795.00	102.50 AV			1.91 H	298	99.58	2.92
4	#5950.43	64.30 PK	68.20	-3.90	1.91 H	298	61.10	3.20
5	11590.00	55.40 PK	74.00	-18.60	1.59 H	20	42.22	13.18
6	11590.00	37.50 AV	54.00	-16.50	1.59 H	20	24.32	13.18
7	#17385.00	54.00 PK	74.00	-20.00	1.34 H	155	34.68	19.32
8	#17385.00	40.50 AV	54.00	-13.50	1.34 H	155	21.18	19.32
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	*5795.00	114.60 PK			1.61 V	359	111.68	2.92
2	*5795.00	102.80 AV			1.61 V	359	99.88	2.92
3	#5919.07	67.14 PK	72.57	-5.43	1.61 V	5	64.11	3.03
4	#5951.00	68.00 PK	68.20	-0.20	1.61 V	5	64.84	3.16
5	11590.00	52.30 PK	74.00	-21.70	1.31 V	325	39.12	13.18
6	11590.00	38.60 AV	54.00	-15.40	1.31 V	325	25.42	13.18
7	#17385.00	56.70 PK	74.00	-17.30	1.42 V	207	37.38	19.32
8	#17385.00	42.50 AV	54.00	-11.50	1.42 V	207	23.18	19.32

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5658.30	58.20 PK	74.30	-16.10	1.93 H	299	55.60	2.60
2	#5658.30	49.50 AV	74.30	-24.80	1.93 H	299	46.90	2.60
3	*5775.00	108.70 PK			1.93 H	299	105.82	2.88
4	*5775.00	97.70 AV			1.93 H	299	94.82	2.88
5	#5932.37	60.50 PK	74.00	-13.50	1.93 H	299	57.40	3.10
6	#5932.37	53.00 AV	54.00	-1.00	1.93 H	299	49.90	3.10
7	11550.00	54.90 PK	74.00	-19.10	1.55 H	0	41.60	13.30
8	11550.00	37.20 AV	54.00	-16.80	1.55 H	0	23.90	13.30
9	#17325.00	54.20 PK	74.00	-19.80	1.37 H	155	35.32	18.88
10	#17325.00	40.80 AV	54.00	-13.20	1.37 H	155	21.92	18.88

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5650.00	68.50 PK	74.00	-5.50	1.50 V	0	65.86	2.64
2	#5650.00	53.70 AV	54.00	-0.30	1.50 V	0	51.06	2.64
3	#5658.80	71.34 PK	74.71	-3.37	1.50 V	0	68.69	2.65
4	*5775.00	110.70 PK			1.50 V	0	107.82	2.88
5	*5775.00	98.60 AV			1.50 V	0	95.72	2.88
6	#5917.18	70.40 PK	74.00	-3.60	1.50 V	0	67.38	3.02
7	#5917.18	52.80 AV	54.00	-1.20	1.50 V	0	49.78	3.02
8	#5929.05	67.10 PK	74.00	-6.90	1.50 V	0	64.04	3.06
9	#5929.05	52.80 AV	54.00	-1.20	1.50 V	0	49.74	3.06
10	11550.00	52.70 PK	74.00	-21.30	1.28 V	329	39.40	13.30
11	11550.00	38.90 AV	54.00	-15.10	1.28 V	329	25.60	13.30
12	#17325.00	57.10 PK	74.00	-16.90	1.47 V	206	38.22	18.88
13	#17325.00	42.70 AV	54.00	-11.30	1.47 V	206	23.82	18.88

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 Data:

802.11a

CHANNEL	TX Channel 149	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	68.12	29.08 QP	40.00	-10.92	1.50 H	238	39.74	-10.66
2	88.95	30.64 QP	43.50	-12.86	2.00 H	97	45.19	-14.55
3	207.70	37.22 QP	43.50	-6.28	1.00 H	279	49.12	-11.90
4	331.32	39.06 QP	46.00	-6.94	1.00 H	57	46.07	-7.01
5	500.01	33.33 QP	46.00	-12.67	1.50 H	337	36.17	-2.84
6	953.12	30.79 QP	46.00	-15.21	1.00 H	301	26.19	4.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	38.24	30.14 QP	40.00	-9.86	1.00 V	360	39.34	-9.20
2	90.84	36.08 QP	43.50	-7.42	1.50 V	352	50.48	-14.40
3	299.13	37.47 QP	46.00	-8.53	1.00 V	289	45.49	-8.02
4	500.01	32.15 QP	46.00	-13.85	1.00 V	360	34.99	-2.84
5	633.53	31.04 QP	46.00	-14.96	1.00 V	282	31.00	0.04
6	964.43	30.97 QP	54.00	-23.03	2.00 V	283	26.32	4.65

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

4.1.8 Test Results (Mode 2)

Above 1GHz Data:

802.11a

CHANNEL	TX Channel 149	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	#5591.32	59.01 PK	68.20	-9.19	2.15 H	291	56.49	2.52
2	*5745.00	112.10 PK			2.15 H	291	109.28	2.82
3	*5745.00	101.80 AV			2.15 H	291	98.98	2.82
4	#5983.68	58.92 PK	68.20	-9.28	2.15 H	291	55.63	3.29
5	11490.00	56.20 PK	74.00	-17.80	1.43 H	36	42.74	13.46
6	11490.00	41.10 AV	54.00	-12.90	1.43 H	36	27.64	13.46
7	#17235.00	54.30 PK	74.00	-19.70	1.45 H	190	35.85	18.45
8	#17235.00	40.50 AV	54.00	-13.50	1.45 H	190	22.05	18.45
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	#5583.73	63.99 PK	68.20	-4.21	2.30 V	343	61.49	2.50
2	*5745.00	120.70 PK			2.30 V	343	117.88	2.82
3	*5745.00	109.90 AV			2.30 V	343	107.08	2.82
4	#5979.87	65.37 PK	68.20	-2.83	2.30 V	343	62.10	3.27
5	11490.00	52.80 PK	74.00	-21.20	1.34 V	343	39.34	13.46
6	11490.00	38.60 AV	54.00	-15.40	1.34 V	343	25.14	13.46
7	#17235.00	54.90 PK	74.00	-19.10	1.42 V	227	36.45	18.45
8	#17235.00	39.60 AV	54.00	-14.40	1.42 V	227	21.15	18.45

REMARKS:

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

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) 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	#5623.62	59.97 PK	68.20	-8.23	2.13 H	249	57.37	2.60
2	*5785.00	108.70 PK			2.13 H	249	105.81	2.89
3	*5785.00	99.20 AV			2.13 H	249	96.31	2.89
4	#5945.68	63.25 PK	68.20	-4.95	2.13 H	249	60.12	3.13
5	11570.00	56.20 PK	74.00	-17.80	1.43 H	36	42.96	13.24
6	11570.00	41.10 AV	54.00	-12.90	1.43 H	36	27.86	13.24
7	#17355.00	54.30 PK	74.00	-19.70	1.45 H	190	35.20	19.10
8	#17355.00	40.50 AV	54.00	-13.50	1.45 H	190	21.40	19.10
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	#5623.15	62.60 PK	68.20	-5.60	2.34 V	355	60.00	2.60
2	*5785.00	118.20 PK			2.34 V	355	115.31	2.89
3	*5785.00	108.60 AV			2.34 V	355	105.71	2.89
4	#5946.15	67.80 PK	68.20	-0.40	2.34 V	355	64.66	3.14
5	11570.00	52.80 PK	74.00	-21.20	1.35 V	324	39.56	13.24
6	11570.00	38.80 AV	54.00	-15.20	1.35 V	324	25.56	13.24
7	#17355.00	54.90 PK	74.00	-19.10	1.52 V	222	35.80	19.10
8	#17355.00	39.60 AV	54.00	-14.40	1.52 V	222	20.50	19.10

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5607.00	56.67 PK	68.20	-11.53	2.12 H	289	54.11	2.56
2	*5825.00	110.50 PK			2.12 H	289	107.56	2.94
3	*5825.00	100.20 AV			2.12 H	289	97.26	2.94
4	#5983.20	60.28 PK	68.20	-7.92	2.12 H	289	56.99	3.29
5	11650.00	56.20 PK	74.00	-17.80	1.43 H	36	42.99	13.21
6	11650.00	41.10 AV	54.00	-12.90	1.43 H	36	27.89	13.21
7	#17475.00	54.30 PK	74.00	-19.70	1.45 H	190	34.87	19.43
8	#17475.00	40.50 AV	54.00	-13.50	1.45 H	190	21.07	19.43
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	#5582.77	58.36 PK	68.20	-9.84	2.30 V	354	55.86	2.50
2	*5825.00	119.70 PK			2.30 V	354	116.76	2.94
3	*5825.00	109.20 AV			2.30 V	354	106.26	2.94
4	#5985.57	67.86 PK	68.20	-0.34	2.30 V	354	64.57	3.29
5	11650.00	52.90 PK	74.00	-21.10	1.45 V	347	39.69	13.21
6	11650.00	38.90 AV	54.00	-15.10	1.45 V	347	25.69	13.21
7	#17475.00	56.20 PK	74.00	-17.80	1.45 V	209	36.77	19.43
8	#17475.00	40.50 AV	54.00	-13.50	1.45 V	209	21.07	19.43

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5588.00	58.10 PK	68.20	-10.10	2.23 H	308	55.60	2.50
2	*5745.00	110.50 PK			2.23 H	308	107.68	2.82
3	*5745.00	100.20 AV			2.23 H	308	97.38	2.82
4	#5984.15	58.40 PK	68.20	-9.80	2.23 H	308	55.10	3.30
5	11490.00	55.70 PK	74.00	-18.30	1.47 H	23	42.24	13.46
6	11490.00	40.80 AV	54.00	-13.20	1.47 H	23	27.34	13.46
7	#17235.00	55.00 PK	74.00	-19.00	1.42 H	194	36.55	18.45
8	#17235.00	40.90 AV	54.00	-13.10	1.42 H	194	22.45	18.45
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	#5577.55	65.30 PK	68.20	-2.90	2.30 V	343	62.80	2.50
2	*5745.00	120.40 PK			2.31 V	358	117.58	2.82
3	*5745.00	109.60 AV			2.31 V	358	106.78	2.82
4	#5987.95	61.70 PK	68.20	-6.50	2.30 V	343	58.40	3.30
5	11490.00	52.90 PK	74.00	-21.10	1.33 V	350	39.44	13.46
6	11490.00	38.80 AV	54.00	-15.20	1.33 V	350	25.34	13.46
7	#17235.00	55.40 PK	74.00	-18.60	1.48 V	219	36.95	18.45
8	#17235.00	40.00 AV	54.00	-14.00	1.48 V	219	21.55	18.45

REMARKS:

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

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) 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	#5635.50	60.30 PK	68.20	-7.90	2.35 H	312	57.70	2.60
2	*5785.00	109.50 PK			2.35 H	312	106.61	2.89
3	*5785.00	99.50 AV			2.35 H	312	96.61	2.89
4	#5938.55	61.40 PK	68.20	-6.80	2.35 H	312	58.30	3.10
5	11570.00	56.10 PK	74.00	-17.90	1.51 H	24	42.86	13.24
6	11570.00	41.30 AV	54.00	-12.70	1.51 H	24	28.06	13.24
7	#17355.00	54.60 PK	74.00	-19.40	1.44 H	179	35.50	19.10
8	#17355.00	40.80 AV	54.00	-13.20	1.44 H	179	21.70	19.10
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	#5630.75	63.20 PK	68.20	-5.00	2.33 V	357	60.60	2.60
2	*5785.00	117.90 PK			2.33 V	357	115.01	2.89
3	*5785.00	107.50 AV			2.33 V	357	104.61	2.89
4	#5949.00	67.20 PK	68.20	-1.00	2.33 V	357	64.00	3.20
5	11570.00	52.50 PK	74.00	-21.50	1.29 V	360	39.26	13.24
6	11570.00	38.30 AV	54.00	-15.70	1.29 V	360	25.06	13.24
7	#17355.00	55.40 PK	74.00	-18.60	1.42 V	223	36.30	19.10
8	#17355.00	40.00 AV	54.00	-14.00	1.42 V	223	20.90	19.10

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5632.65	60.50 PK	68.20	-7.70	2.29 H	313	57.90	2.60
2	*5825.00	109.30 PK			2.29 H	313	106.36	2.94
3	*5825.00	98.70 AV			2.29 H	313	95.76	2.94
4	#5989.85	61.70 PK	68.20	-6.50	2.29 H	313	58.30	3.40
5	11650.00	56.30 PK	74.00	-17.70	1.55 H	30	43.09	13.21
6	11650.00	41.30 AV	54.00	-12.70	1.55 H	30	28.09	13.21
7	#17475.00	54.70 PK	74.00	-19.30	1.43 H	180	35.27	19.43
8	#17475.00	40.80 AV	54.00	-13.20	1.43 H	180	21.37	19.43
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	#5583.25	59.10 PK	68.20	-9.10	2.31 V	357	56.60	2.50
2	*5825.00	116.60 PK			2.31 V	357	113.66	2.94
3	*5825.00	106.80 AV			2.31 V	357	103.86	2.94
4	#5987.95	66.80 PK	68.20	-1.40	2.31 V	357	63.50	3.30
5	11650.00	52.30 PK	74.00	-21.70	1.27 V	360	39.09	13.21
6	11650.00	38.10 AV	54.00	-15.90	1.27 V	360	24.89	13.21
7	#17475.00	55.80 PK	74.00	-18.20	1.36 V	217	36.37	19.43
8	#17475.00	40.20 AV	54.00	-13.80	1.36 V	217	20.77	19.43

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	#5652.60	61.00 PK	70.10	-9.10	2.19 H	250	58.40	2.60
2	*5755.00	107.60 PK			2.19 H	250	104.76	2.84
3	*5755.00	96.50 AV			2.19 H	250	93.66	2.84
4	#5990.80	61.10 PK	68.20	-7.10	2.19 H	250	57.70	3.40
5	11510.00	56.90 PK	74.00	-17.10	1.57 H	26	43.47	13.43
6	11510.00	41.70 AV	54.00	-12.30	1.57 H	26	28.27	13.43
7	#17265.00	55.10 PK	74.00	-18.90	1.45 H	188	36.54	18.56
8	#17265.00	41.00 AV	54.00	-13.00	1.45 H	188	22.44	18.56
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	#5604.15	65.70 PK	68.20	-2.50	2.38 V	356	63.20	2.50
2	*5755.00	116.90 PK			2.38 V	356	114.06	2.84
3	*5755.00	105.30 AV			2.38 V	356	102.46	2.84
4	#5930.00	67.60 PK	68.20	-0.60	2.38 V	356	64.50	3.10
5	11510.00	51.80 PK	74.00	-22.20	1.21 V	360	38.37	13.43
6	11510.00	37.70 AV	54.00	-16.30	1.21 V	360	24.27	13.43
7	#17265.00	55.80 PK	74.00	-18.20	1.31 V	227	37.24	18.56
8	#17265.00	40.10 AV	54.00	-13.90	1.31 V	227	21.54	18.56

REMARKS:

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

CHANNEL	TX Channel 159	DETECTOR 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	#5613.65	61.40 PK	68.20	-6.80	2.21 H	231	58.80	2.60
2	*5795.00	104.60 PK			2.21 H	231	101.68	2.92
3	*5795.00	94.50 AV			2.21 H	231	91.58	2.92
4	#5959.45	61.40 PK	68.20	-6.80	2.21 H	231	58.20	3.20
5	11590.00	57.20 PK	74.00	-16.80	1.60 H	32	44.02	13.18
6	11590.00	42.00 AV	54.00	-12.00	1.60 H	32	28.82	13.18
7	#17385.00	54.70 PK	74.00	-19.30	1.40 H	177	35.38	19.32
8	#17385.00	40.80 AV	54.00	-13.20	1.40 H	177	21.48	19.32
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	#5649.75	62.50 PK	68.20	-5.70	2.35 V	356	59.90	2.60
2	*5795.00	104.90 PK			2.35 V	356	101.98	2.92
3	*5795.00	103.20 AV			2.35 V	356	100.28	2.92
4	#5948.05	65.80 PK	68.20	-2.40	2.35 V	356	62.60	3.20
5	11590.00	51.70 PK	74.00	-22.30	1.22 V	360	38.52	13.18
6	11590.00	37.60 AV	54.00	-16.40	1.22 V	360	24.42	13.18
7	#17385.00	55.90 PK	74.00	-18.10	1.30 V	225	36.58	19.32
8	#17385.00	39.90 AV	54.00	-14.10	1.30 V	225	20.58	19.32

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5638.35	56.30 PK	68.20	-11.90	2.23 H	231	53.70	2.60
2	*5775.00	102.70 PK			2.23 H	231	99.82	2.88
3	*5775.00	91.40 AV			2.23 H	231	88.52	2.88
4	#5921.45	60.50 PK	70.80	-10.30	2.23 H	231	57.40	3.10
5	11550.00	57.30 PK	74.00	-16.70	1.64 H	20	44.00	13.30
6	11550.00	42.20 AV	54.00	-11.80	1.64 H	20	28.90	13.30
7	#17325.00	54.80 PK	74.00	-19.20	1.36 H	190	35.92	18.88
8	#17325.00	40.90 AV	54.00	-13.10	1.36 H	190	22.02	18.88
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	**#5638.35**	**68.00 PK**	**68.20**	**-0.20**	**2.39 V**	**360**	**65.40**	**2.60**
2	*5775.00	112.10 PK			2.39 V	360	109.22	2.88
3	*5775.00	100.10 AV			2.39 V	360	97.22	2.88
4	#5928.10	64.80 PK	68.20	-3.40	2.39 V	360	61.70	3.10
5	11550.00	51.90 PK	74.00	-22.10	1.20 V	360	38.60	13.30
6	11550.00	37.70 AV	54.00	-16.30	1.20 V	360	24.40	13.30
7	#17325.00	55.70 PK	74.00	-18.30	1.28 V	231	36.82	18.88
8	#17325.00	39.50 AV	54.00	-14.50	1.28 V	231	20.62	18.88

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.

4.2 Transmit Power Measurement

4.2.1 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)

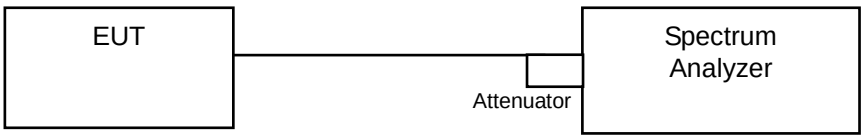
*B is the 26 dB emission bandwidth in megahertz

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.

4.2.2 Test Setup



4.2.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.2.4 Test Procedure

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.

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Condition

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

4.2.7 Test Result

802.11a

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
149	5745	18.92	19.21	19.02	241.15	23.82	30	Pass
157	5785	18.83	19.32	18.72	236.364	23.74	30	Pass
165	5825	18.75	19.27	18.69	233.478	23.68	30	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
149	5745	18.56	18.73	18.42	215.926	23.34	25.23	Pass
157	5785	18.46	18.93	18.37	217.016	23.36	25.23	Pass
165	5825	18.42	18.72	18.15	209.288	23.21	25.23	Pass

Note: 1. Directional gain = 6dBi + 10log(3) = 10.77dBi > 6dBi , so the power limit shall be reduced to 30-(10.77-6) = 25.23dBm.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
151	5755	18.36	18.54	18.36	208.548	23.19	25.23	Pass
159	5795	18.24	18.42	18.21	202.405	23.06	25.23	Pass

Note: 1. Directional gain = 6dBi + 10log(3) = 10.77dBi > 6dBi , so the power limit shall be reduced to 30-(10.77-6) = 25.23dBm.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
155	5775	17.12	17.21	17.09	155.293	21.91	25.23	Pass

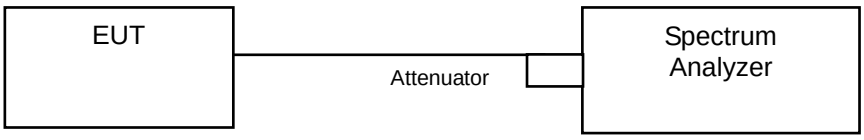
Note: 1. Directional gain = 6dBi + 10log(3) = 10.77dBi > 6dBi , so the power limit shall be reduced to 30-(10.77-6) = 25.23dBm.

4.3 Peak Power Spectral Density Measurement

4.3.1 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

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Condition

Same as Item 4.2.6

4.3.7 Test Results

802.11a

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	149	5745	-2.31	-0.09	4.77	4.68	25.23	Pass
	157	5785	-2.42	-0.20	4.77	4.57	25.23	Pass
	165	5825	-2.33	-0.11	4.77	4.66	25.23	Pass
1	149	5745	-1.44	0.78	4.77	5.55	25.23	Pass
	157	5785	-1.78	0.44	4.77	5.21	25.23	Pass
	165	5825	-1.81	0.41	4.77	5.18	25.23	Pass
2	149	5745	-2.21	0.01	4.77	4.78	25.23	Pass
	157	5785	-2.36	-0.14	4.77	4.63	25.23	Pass
	165	5825	-2.54	-0.32	4.77	4.45	25.23	Pass

Note: 1. Directional gain = 6dBi + 10log(3) = 10.77dBi > 6dBi , so the power density limit shall be reduced to 30-(10.77-6) = 25.23dBm.

802.11ac (VHT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	149	5745	-2.60	-0.38	4.77	4.39	25.23	Pass
	157	5785	-2.71	-0.49	4.77	4.28	25.23	Pass
	165	5825	-2.47	-0.25	4.77	4.52	25.23	Pass
1	149	5745	-2.43	-0.21	4.77	4.56	25.23	Pass
	157	5785	-2.60	-0.38	4.77	4.39	25.23	Pass
	165	5825	-2.87	-0.65	4.77	4.12	25.23	Pass
2	149	5745	-3.27	-1.05	4.77	3.72	25.23	Pass
	157	5785	-3.35	-1.13	4.77	3.64	25.23	Pass
	165	5825	-3.20	-0.98	4.77	3.79	25.23	Pass

Note: 1. Directional gain = 6dBi + 10log(3) = 10.77dBi > 6dBi , so the power density limit shall be reduced to 30-(10.77-6) = 25.23dBm.

802.11ac (VHT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	151	5755	-6.49	-4.27	4.77	0.50	25.23	Pass
	159	5795	-6.71	-4.49	4.77	0.28	25.23	Pass
1	151	5755	-6.69	-4.47	4.77	0.30	25.23	Pass
	159	5795	-7.01	-4.79	4.77	-0.02	25.23	Pass
2	151	5755	-7.15	-4.93	4.77	-0.16	25.23	Pass
	159	5795	-7.08	-4.86	4.77	-0.09	25.23	Pass

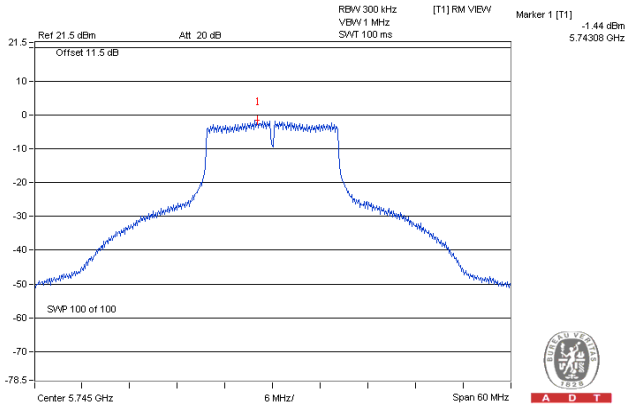
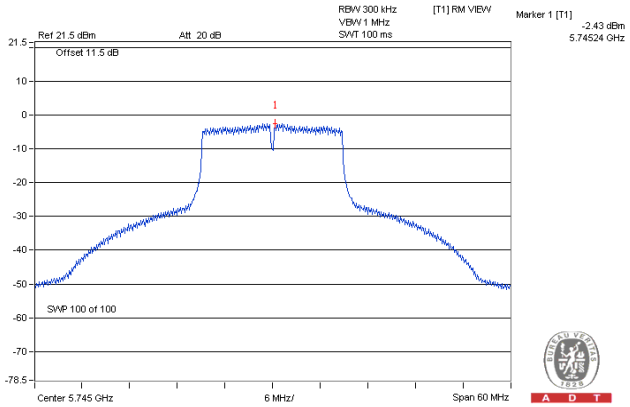
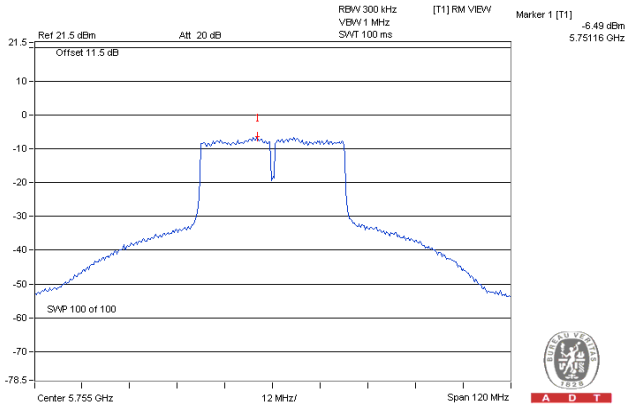
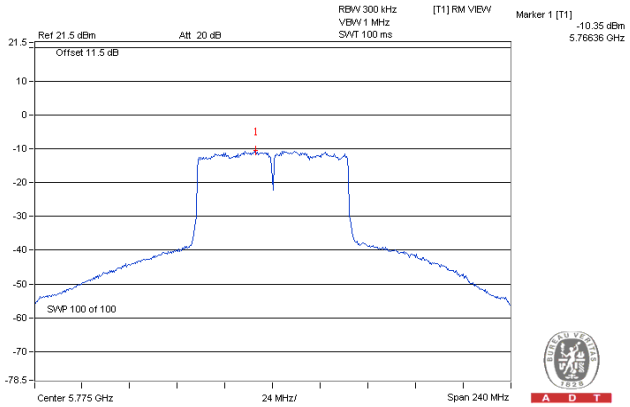
Note: 1. Directional gain = 6dBi + 10log(3) = 10.77dBi > 6dBi , so the power density limit shall be reduced to 30-(10.77-6) = 25.23dBm.

802.11ac (VHT80)

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=3) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	155	5775	-10.35	-8.13	4.77	0.18	-3.18	25.23	Pass
1	155	5775	-10.84	-8.62	4.77	0.18	-3.67	25.23	Pass
2	155	5775	-10.83	-8.61	4.77	0.18	-3.66	25.23	Pass

Note: 1. Directional gain = 6dBi + 10log(3) = 10.77dBi > 6dBi , so the power density limit shall be reduced to 30-(10.77-6) = 25.23dBm.

2. Refer to section 3.3 for duty cycle spectrum plot.

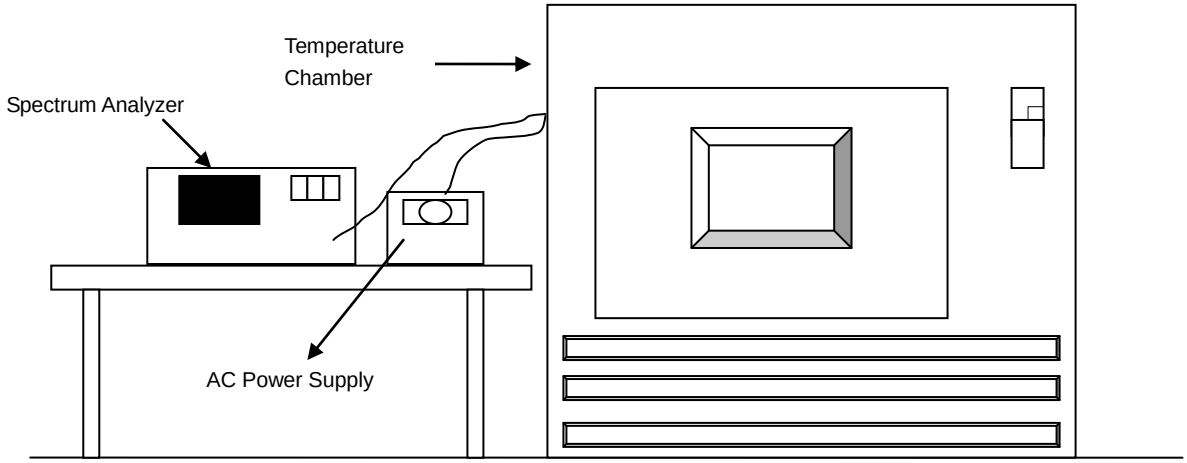
Spectrum Plot of Worst Value	
802.11a_Chain 1 / CH149	**802.11ac (VHT20)_Chain 1 / CH149**
	
802.11ac (VHT40)_Chain 0 / CH151	**802.11ac (VHT80)_Chain 0 / CH155**
	

4.4 Frequency Stability Measurement

4.4.1 Limits of Frequency Stability Measurement

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 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.
.

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Condition

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

4.4.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5745 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
50	120	5744.9743	Pass	5744.9757	Pass	5744.9722	Pass	5744.9724	Pass
40	120	5745.0002	Pass	5745.0001	Pass	5745.0025	Pass	5745.0002	Pass
30	120	5745.0234	Pass	5745.0277	Pass	5745.0269	Pass	5745.0232	Pass
20	120	5745.0171	Pass	5745.0163	Pass	5745.013	Pass	5745.0138	Pass
10	120	5744.983	Pass	5744.9846	Pass	5744.9839	Pass	5744.9834	Pass
0	120	5744.9878	Pass	5744.9828	Pass	5744.985	Pass	5744.9823	Pass
-10	120	5745.0062	Pass	5745.0068	Pass	5745.0023	Pass	5745.0024	Pass
-20	120	5745.0023	Pass	5744.9976	Pass	5744.9984	Pass	5744.9984	Pass
-30	120	5745.0158	Pass	5745.0174	Pass	5745.0166	Pass	5745.0169	Pass

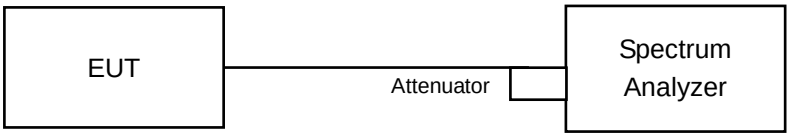
Frequency Stability Versus Voltage									
Operating Frequency: 5745 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5745.0176	Pass	5745.0167	Pass	5745.0141	Pass	5745.0145	Pass
	120	5745.0171	Pass	5745.0163	Pass	5745.013	Pass	5745.0138	Pass
	102	5745.0165	Pass	5745.0152	Pass	5745.0122	Pass	5745.0128	Pass

4.5 6dB Bandwidth Measurement

4.5.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

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 Procedure

MEASUREMENT PROCEDURE REF

a. Set resolution bandwidth (RBW) = 100kHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

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

4.5.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
149	5745	16.36	16.38	16.39	0.5	Pass
157	5785	16.35	16.37	16.39	0.5	Pass
165	5825	16.36	16.38	16.39	0.5	Pass

802.11n (HT20)

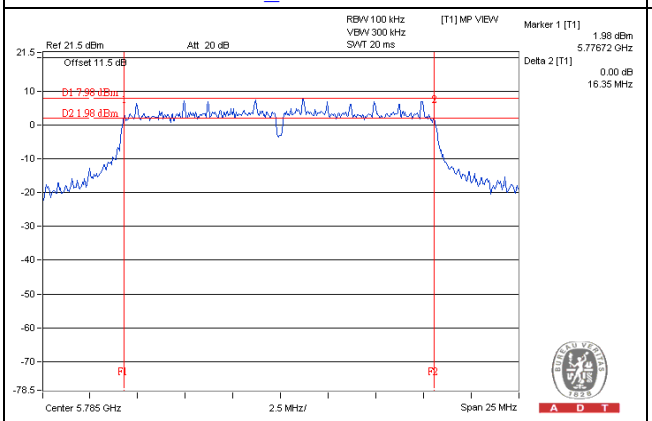
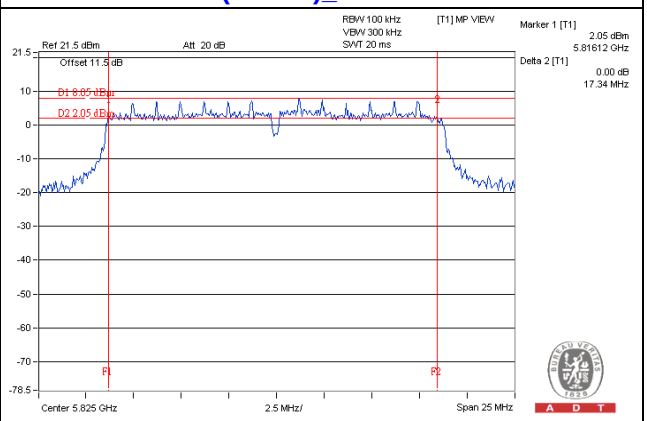
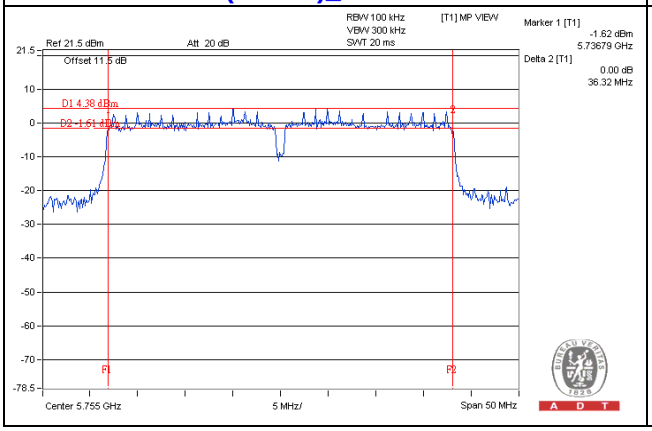
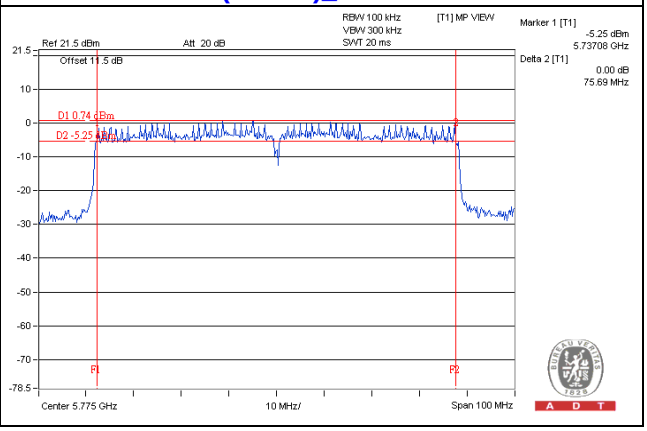
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
149	5745	17.57	17.65	17.62	0.5	Pass
157	5785	17.35	17.63	17.64	0.5	Pass
165	5825	17.34	17.65	17.62	0.5	Pass

802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
151	5755	36.32	36.41	36.36	0.5	Pass
159	5795	36.39	36.41	36.35	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
155	5775	75.74	75.69	75.70	0.5	Pass

Spectrum Plot of Worst Value	
802.11a_Chain 0 / CH157	**802.11ac (VHT20)_Chain 0 / CH165**
	
802.11ac (VHT40)_Chain 0 / CH151	**802.11ac (VHT80)_Chain 1 / CH155**
	

5 Pictures of Test Arrangements

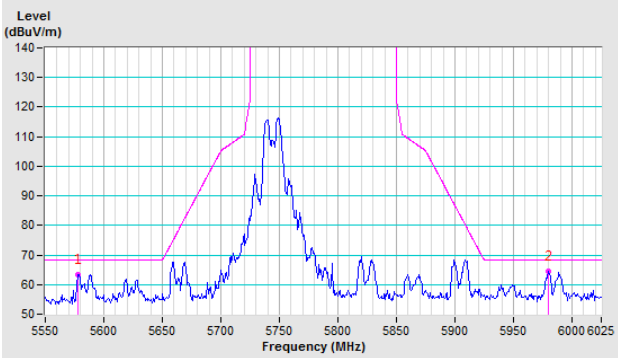
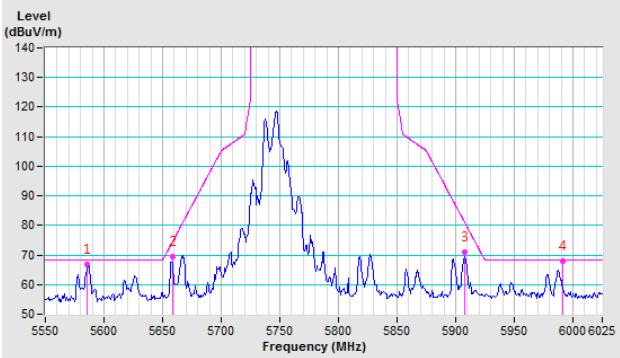
Please refer to the attached file (Test Setup Photo).

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

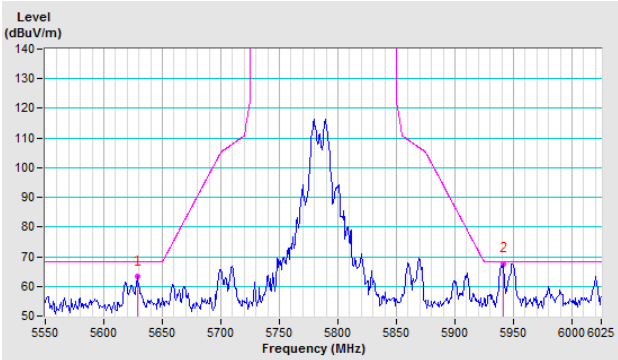
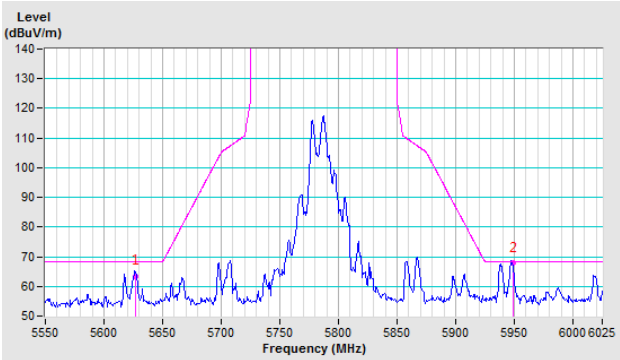
Mode 1

802.11a

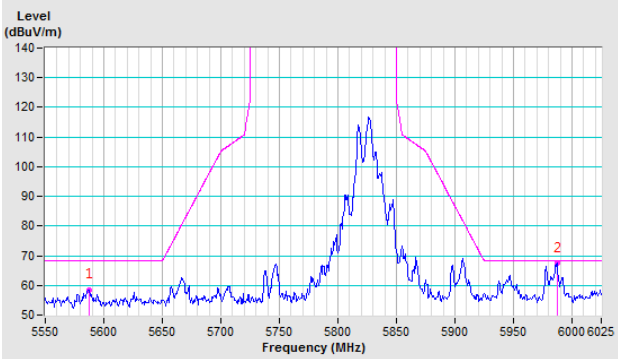
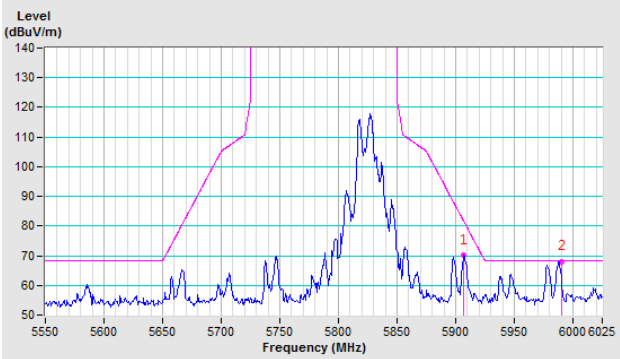
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

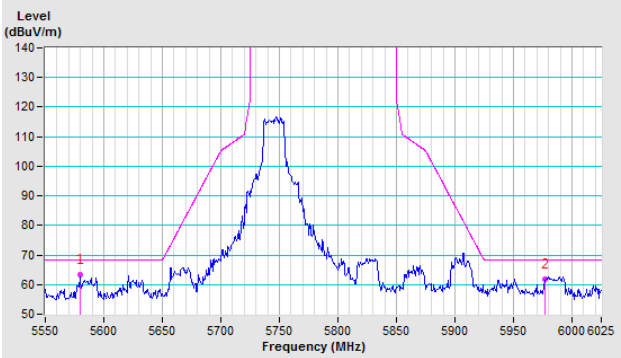
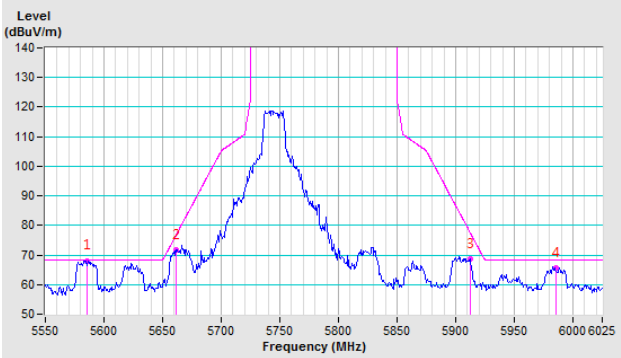
Horizontal	Vertical
	

CH 165 5825 MHz

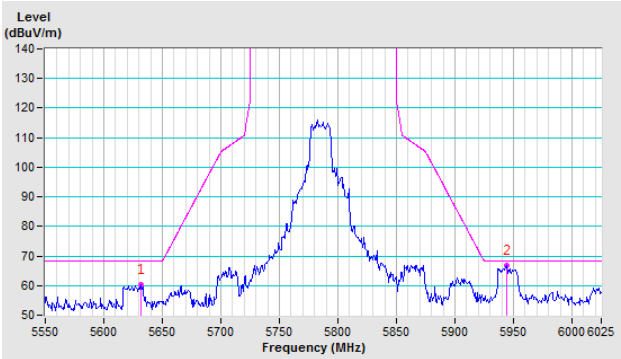
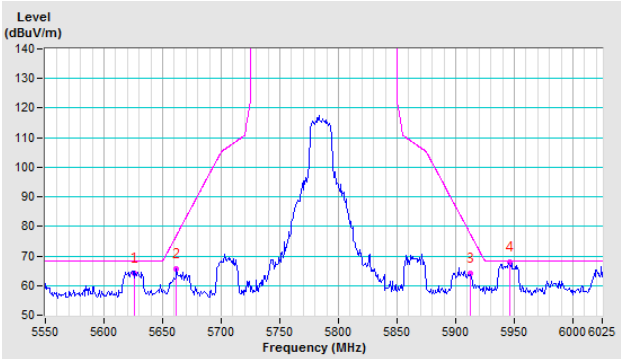
Horizontal	Vertical
	

802.11ac (VHT20)

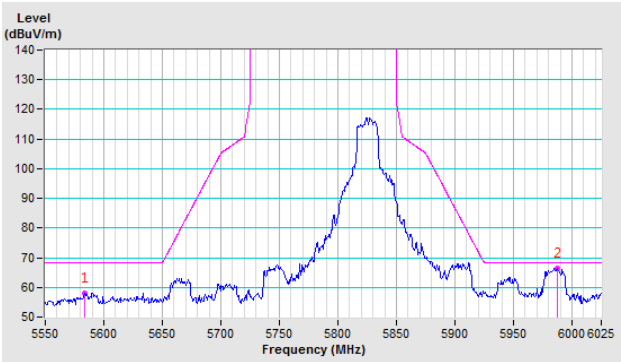
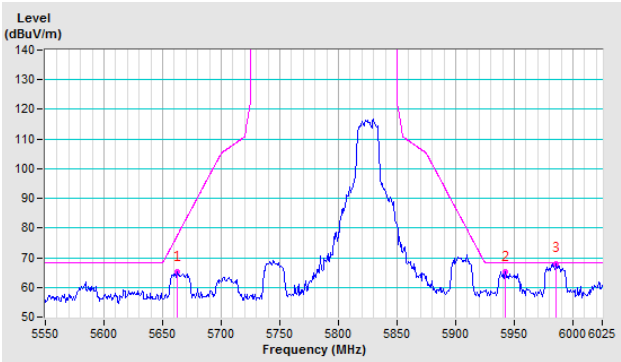
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

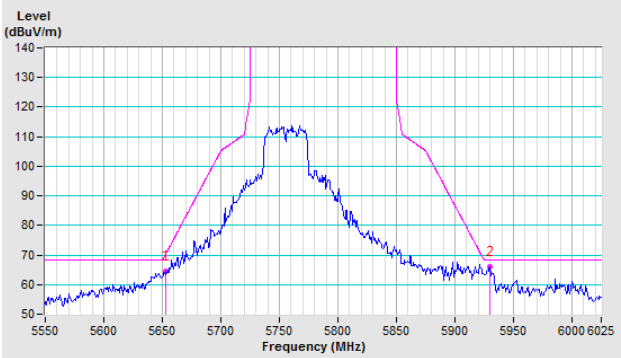
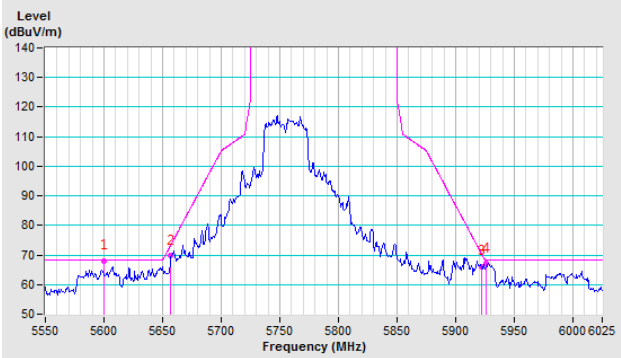
Horizontal	Vertical
	

CH 165 5825 MHz

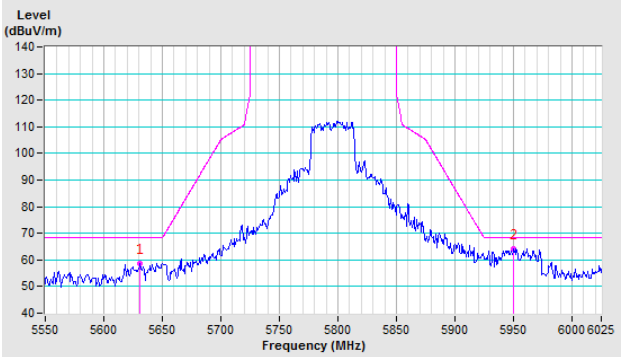
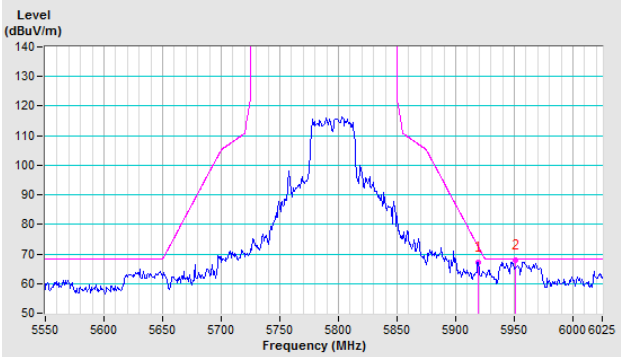
Horizontal	Vertical
	

802.11ac (VHT40)

CH 151 5755 MHz

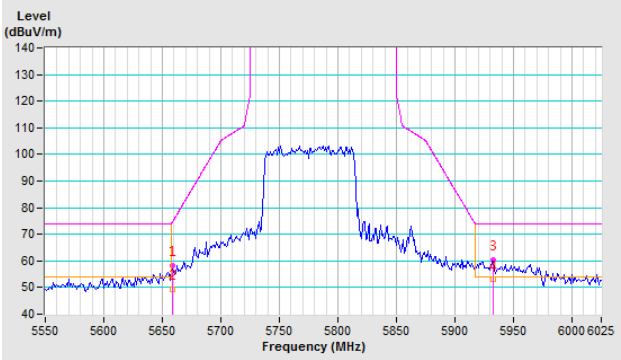
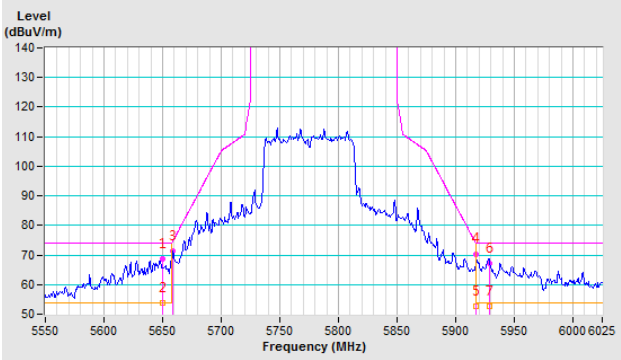
Horizontal	Vertical
	

CH 159 5795 MHz

Horizontal	Vertical
	

802.11ac (VHT80)

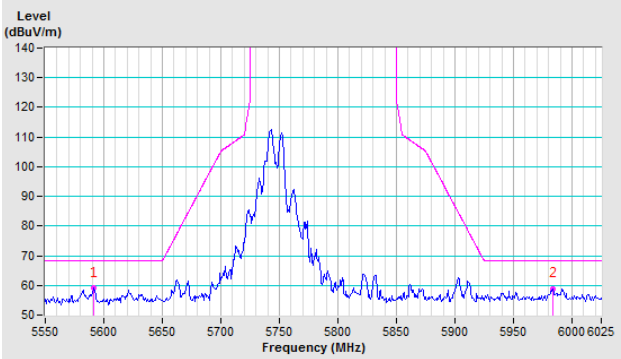
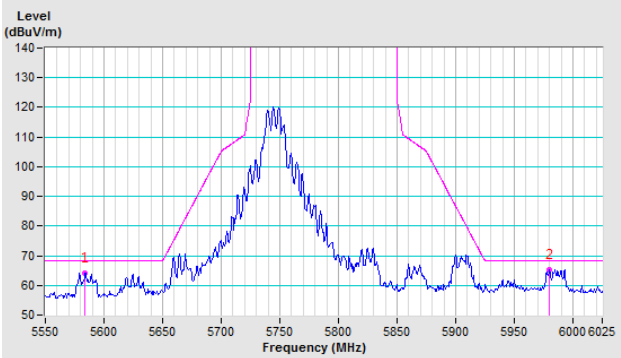
CH 155 5775 MHz

Horizontal	Vertical
	

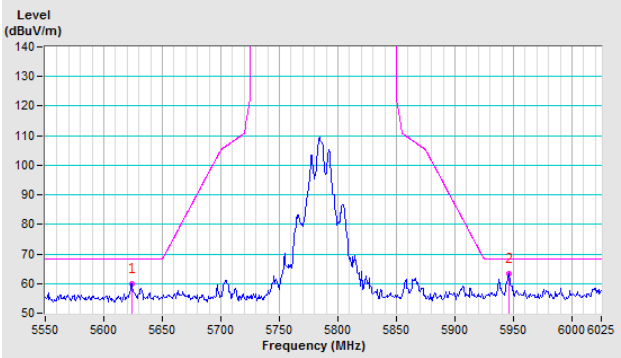
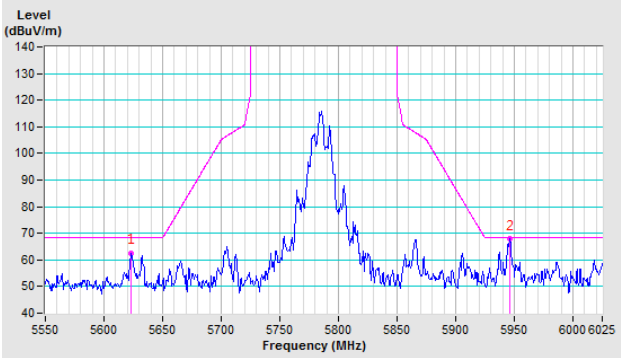
Mode 2

802.11a

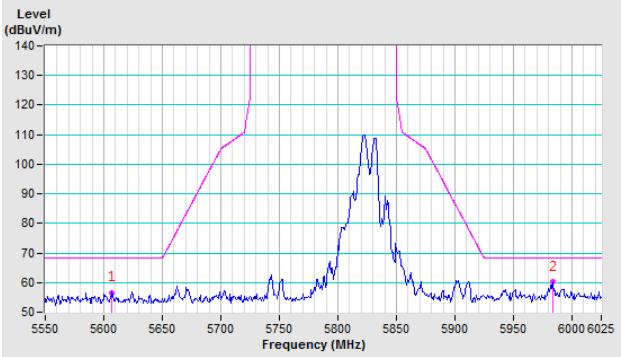
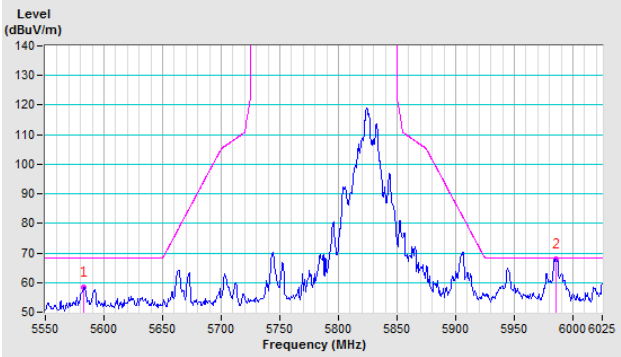
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

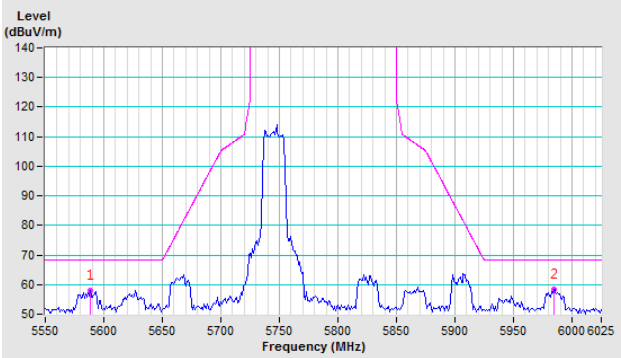
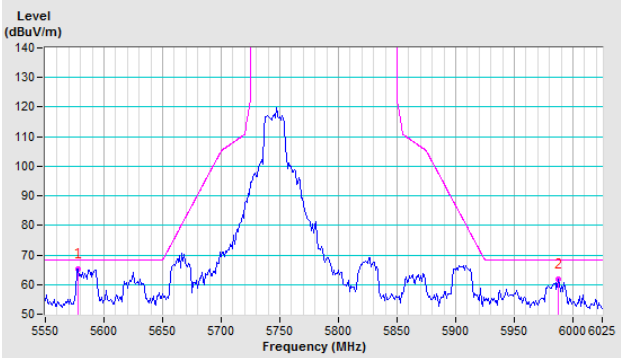
Horizontal	Vertical
	

CH 165 5825 MHz

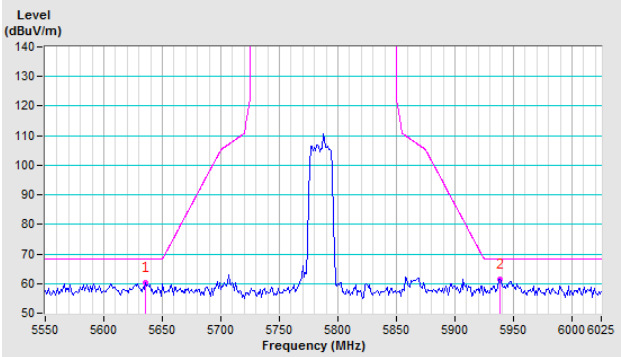
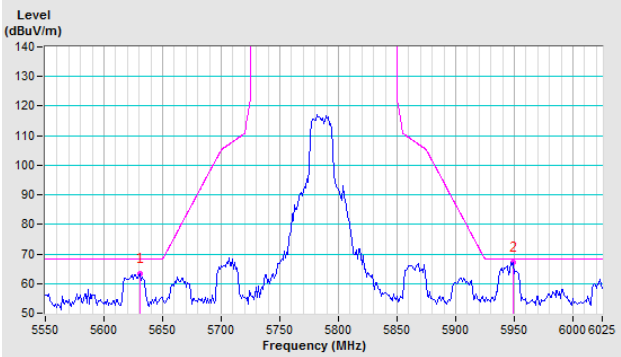
Horizontal	Vertical
	

802.11ac (VHT20)

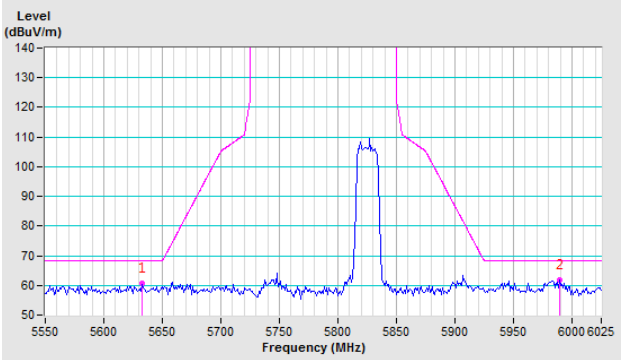
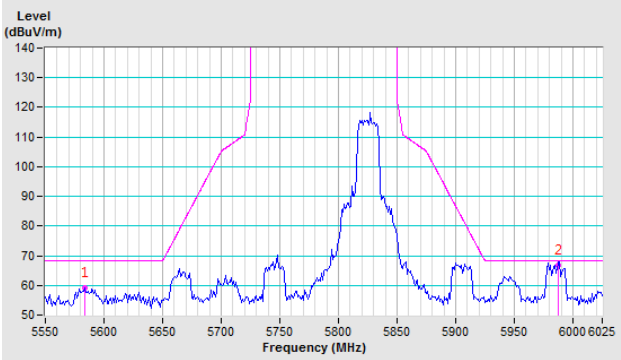
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

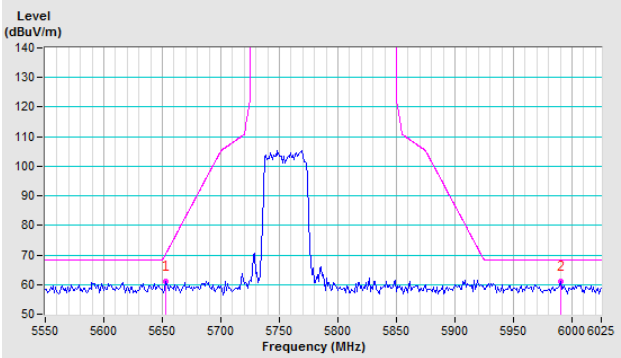
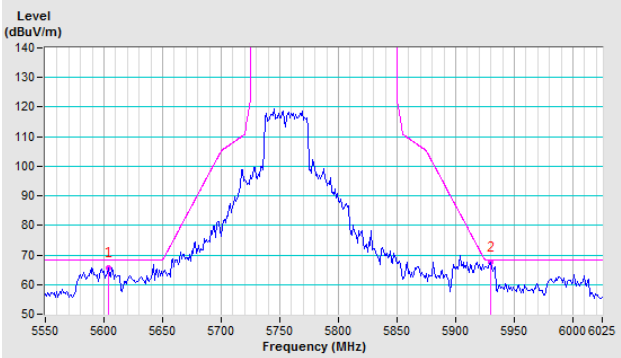
Horizontal	Vertical
	

CH 165 5825 MHz

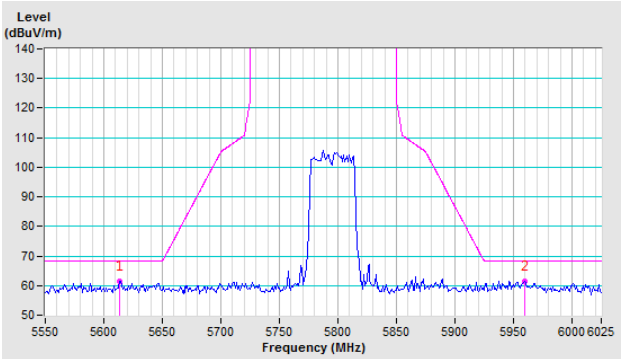
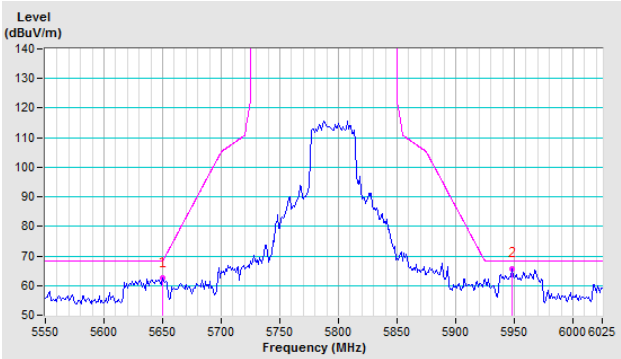
Horizontal	Vertical
	

802.11ac (VHT40)

CH 151 5755 MHz

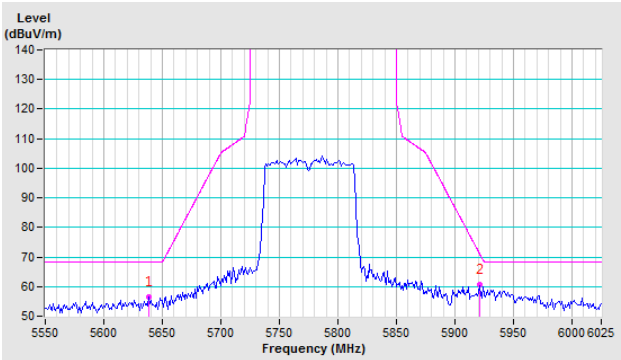
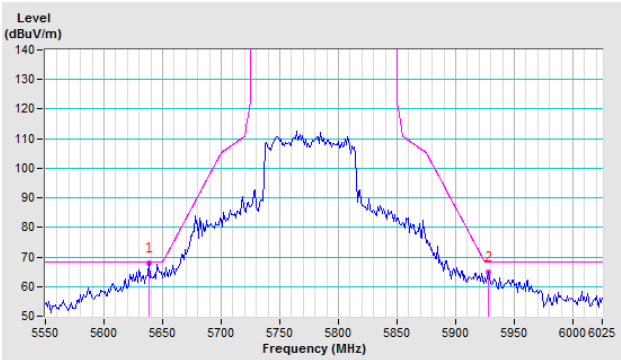
Horizontal	Vertical
	

CH 159 5795 MHz

Horizontal	Vertical
	

802.11ac (VHT80)

CH 155 5775 MHz

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 accredited and approved according to ISO/IEC 17025.

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

Linko EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
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.

--- END ---