

Partial FCC Test Report

Report No.: RF180604C04-8 R1

FCC ID: A4R-WT4

Test Model: AW-CM389NF

Received Date: Jun. 04, 2018

Test Date: Jul. 18, 2018 ~ Jul. 19, 2018

Issued Date: Sep. 03, 2018

Applicant: Google LLC

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**FCC Registration /
Designation Number:** 427177 / TW0011



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Release Control Record

Issue No.	Description	Date Issued
RF180604C04-8	Original Release	Jul. 23, 2018
RF180604C04-8 R1	Revised to C2PC.	Sep. 03, 2018

1 Certificate of Conformity

Product: IEEE 802.11 2X2 MIMO a/b/g/n/ac Wireless LAN + Bluetooth + NFC NGFF Module

Brand: AzureWave

Test Model: AW-CM389NF

Sample Status: Production Unit

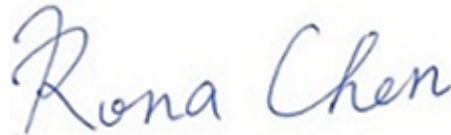
Applicant: Google LLC

Test Date: Jul. 18, 2018 ~ Jul. 19, 2018

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 :



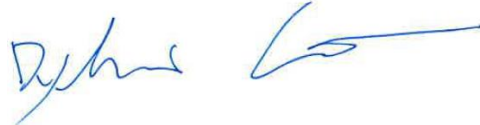
,

Date:

Sep. 03, 2018

Rona Chen / Specialist

Approved by :



,

Date:

Sep. 03, 2018

Dylan Chiou / 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 -13.47 dB at 0.57228 MHz.
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 -11.92 dB at 11590 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	N/A	Refer to Note
---	Occupied Bandwidth Measurement	N/A	Refer to Note
15.407(a)(1/2/3)	Peak Power Spectral Density	N/A	Refer to Note
15.407(e)	6 dB Bandwidth	N/A	Refer to Note
15.407(g)	Frequency Stability	N/A	Refer to Note
15.203	Antenna Requirement	N/A	Refer to Note

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

Note: This is a partial report. Therefore, only test item of AC Power Conducted Emission and Radiated Emissions test were performed for this report. Other testing data please refer to BV CPS report no.: RF140407E07D-1 for module (Brand: AzureWave, Model: AW-CM389NF).

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	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.0153 dB
	200 MHz ~ 1000 MHz	2.0224 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	1.0121 dB
	18 GHz ~ 40 GHz	1.1508 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	IEEE 802.11 2X2 MIMO a/b/g/n/ac Wireless LAN + Bluetooth + NFC NGFF Module
Brand	AzureWave
Test Model	AW-CM389NF
Status of EUT	Production Unit
Nominal Voltage	5.0 Vdc (Host equipment)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0 Mbps 802.11n: up to 300.0 Mbps 802.11ac: up to 866.7 Mbps
Operating Frequency	5180 ~ 5240 MHz, 5260 ~ 5320 MHz, 5500 ~ 5700 MHz, 5745 ~ 5825 MHz
Number of Channel	5180 ~ 5240 MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5260 ~ 5320 MHz: 4 for 802.11a, 802.11n (HT20) , 802.11ac (VHT20) 2 for 802.11n (HT40) , 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5500 ~ 5700 MHz: 11 for 802.11a, 802.11n (HT20) , 802.11ac (VHT20) 5 for 802.11n (HT40) , 802.11ac (VHT40) 2 for 802.11ac (VHT80) 5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20) , 802.11ac (VHT20) 2 for 802.11n (HT40) , 802.11ac (VHT40) 1 for 802.11ac (VHT80)
Antenna Type	PIFA antenna with 3.61 dBi gain (5180 ~ 5240 MHz) PIFA antenna with 3.48 dBi gain (5260 ~ 5320 MHz) PIFA antenna with 3.08 dBi gain (5500 ~ 5700 MHz) PIFA antenna with 3.35 dBi gain (5745 ~ 5825 MHz)
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. The EUT was installed in a specific End-product.

Product	Brand	Model
Study Hub	Verily	WT3

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

Modulation Mode	Tx Function
802.11a	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX
802.11ac (VHT20)	2TX
802.11ac (VHT40)	2TX
802.11ac (VHT80)	2TX

* The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ac mode for VHT20 / VHT40, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

3. The End-product contains following accessory devices.

Product	Brand	Model	Description
Adapter	TPT	MSS050200WI	I/P: 100-240 Vac, 50-60 Hz, 0.3 A O/P: 5 Vdc, 2 A 1.5m shielded cable w/o core
BT/WLAN Module	AzureWave	AW-CM389NF	--
WWAN Module	Fibocom	L850-GL	--

4. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

For 5180 ~ 5240 MHz

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

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

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
42	5210

For 5260 ~ 5320 MHz

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

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

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270	62	5310

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
58	5290

For 5500 ~ 5700 MHz

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

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

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

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

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530	122	5610

For 5745 ~ 5825 MHz:

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

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

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
155	5775

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE \geq 1G	RE<1G	PLC	APCM	
-	√	√	√	-	-

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

Note:

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

Radiated Emission Test (Above 1 GHz):

- 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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)	
-	5180-5240	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0	
-		802.11ac (VHT20)	36 to 48	36, 40, 48	OFDM	BPSK	6.5	
-		802.11ac (VHT40)	38 to 46	38, 46	38, 46	OFDM	BPSK	13.5
-		802.11ac (VHT80)	42	42	42	OFDM	BPSK	29.3
-	5260-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0	
-		802.11ac (VHT20)	52 to 64	52, 60, 64	OFDM	BPSK	6.5	
-		802.11ac (VHT40)	54 to 62	54, 62	54, 62	OFDM	BPSK	13.5
-		802.11ac (VHT80)	58	58	58	OFDM	BPSK	29.3
-	5500-5700	802.11a	100 to 140	100, 116, 140	OFDM	BPSK	6.0	
-		802.11ac (VHT20)	100 to 140	100, 116, 140	OFDM	BPSK	6.5	
-		802.11ac (VHT40)	102 to 134	102, 110, 134	102, 110, 134	OFDM	BPSK	13.5
-		802.11ac (VHT80)	106 to 122	106, 122	106, 122	OFDM	BPSK	29.3
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0	
-		802.11ac (VHT20)	149 to 165	149, 157, 165	149, 157, 165	OFDM	BPSK	6.5
-		802.11ac (VHT40)	151 to 159	151, 159	151, 159	OFDM	BPSK	13.5
-		802.11ac (VHT80)	155	155	155	OFDM	BPSK	29.3

Radiated Emission Test (Below 1 GHz):

- 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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5745-5825	802.11ac (VHT40)	151 to 159	159	OFDM	BPSK	13.5

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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5745-5825	802.11ac (VHT40)	151 to 159	159	OFDM	BPSK	13.5

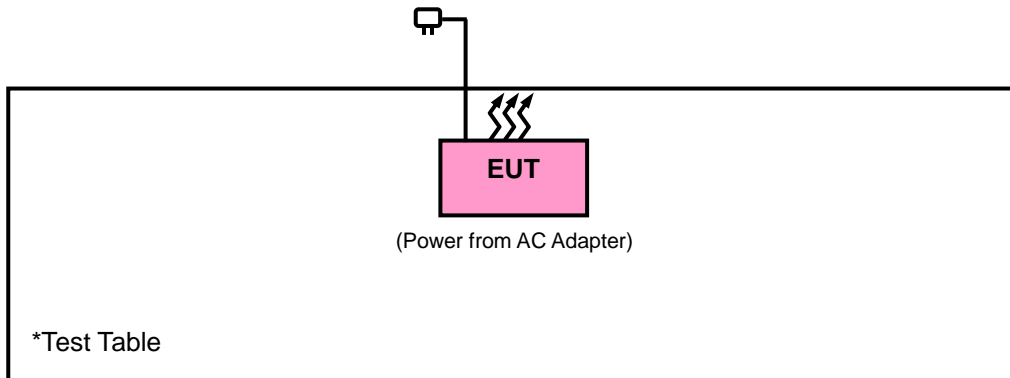
Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Charles Hsiao
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Jisyong Wang

3.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.3.1 Configuration of System under Test



3.4 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 Procedures 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. Other emissions shall be at least 20 dB below the highest level of the desired power:

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 1000 MHz, 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 20 dB under any condition of modulation.

4.1.2 Limits of Unwanted Emission Out of the Restricted Bands

Applicable To		Limit	
789033 D02 General UNII Test Procedures New Rules v02r01		Field Strength at 3 m	
		PK: 74 (dBµV/m)	AV: 54 (dBµV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBµV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	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)	Emission limits in section 15.247(d)	

^{*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:

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

4.1.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9038A	MY51210203	Mar. 16, 2018	Mar. 15, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Jan. 11, 2018	Jan. 10, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 06, 2017	Dec. 05, 2018
HORN Antenna ETS-Lindgren	3117	00143293	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 01, 2017	Nov. 30, 2018
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 16, 2018	Apr. 15, 2019
Loop Antenna	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier	EMC 184045	980116	Oct. 12, 2017	Oct. 11, 2018
Preamplifier Agilent	310N	187226	Jun. 19, 2018	Jun. 18, 2019
Preamplifier Agilent	83017A	MY39501357	Jun. 19, 2018	Jun. 18, 2019
Power Meter Anritsu	ML2495A	1012010	Aug. 15, 2017	Aug. 14, 2018
Power Sensor Anritsu	MA2411B	1315050	Aug. 15, 2017	Aug. 14, 2018
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC -SMS-100-SMS-12 0+RFC-SMS-100-S MS-400)	Jun. 19, 2018	Jun. 18, 2019
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC -SMS-100-SMS-24)	Jun. 19, 2018	Jun. 18, 2019
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	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 HsinTien Chamber 1.
3. The horn antenna and preamplifier (model: 83017A) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The IC Site Registration No. is IC7450I-1.

4.1.4 Test Procedures

For Radiated Emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Both 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 9 kHz at frequency below 30 MHz.

For Radiated Emission above 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) 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 detected 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:

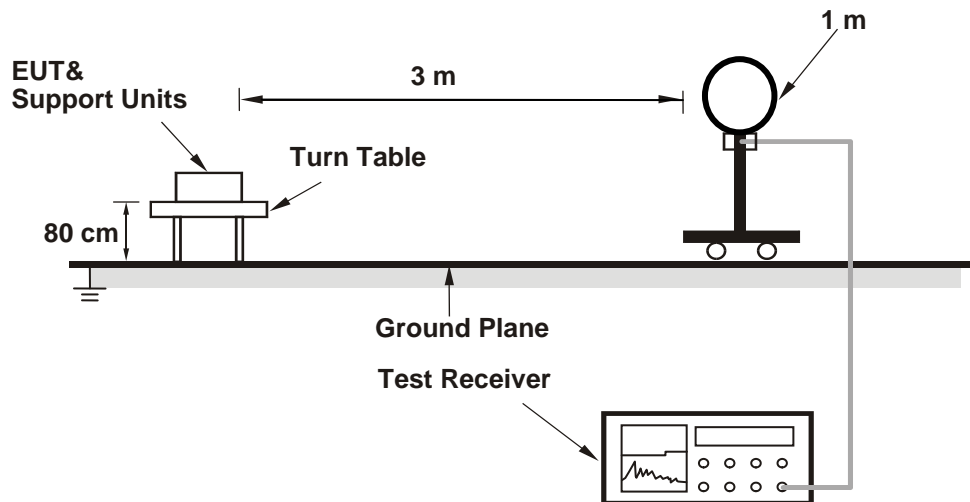
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98 %) or 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz.
(11a: RBW = 1 MHz, VBW = 1 kHz ; 11ac (VHT20): RBW = 1 MHz, VBW = 1 kHz ;
11ac (VHT40): RBW = 1 MHz, VBW = 2 kHz ; 11ac (VHT80): RBW = 1 MHz, VBW = 3 kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.5 Deviation from Test Standard

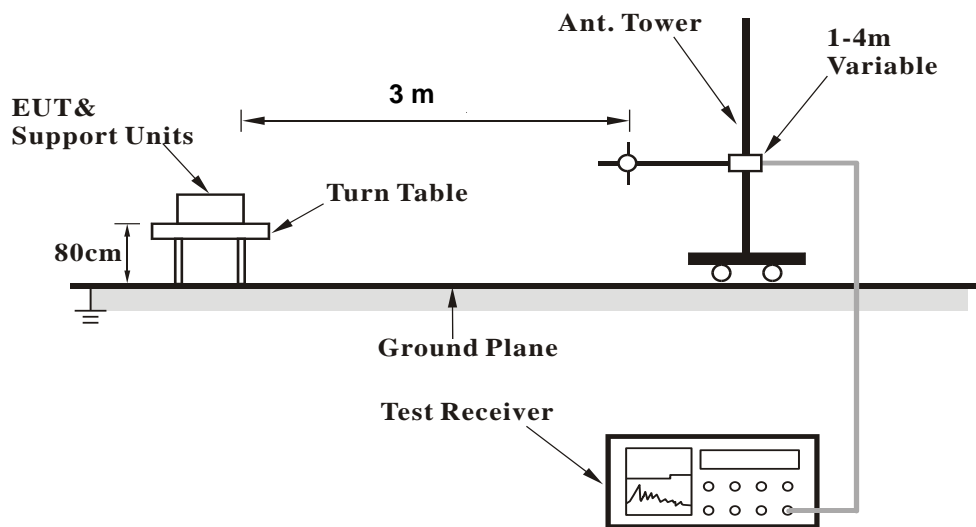
No deviation.

4.1.6 Test Setup

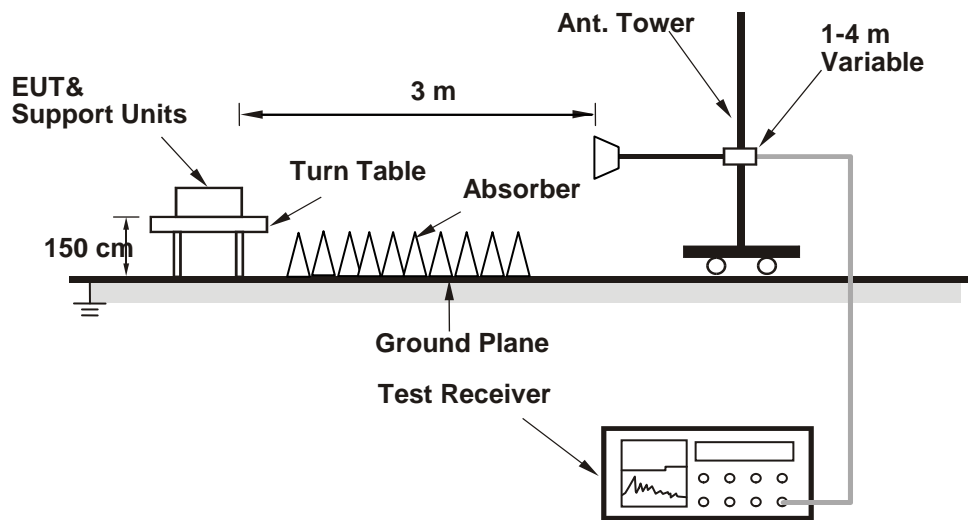
<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 1 GHz>



<Radiated Emission above 1 GHz>



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

4.1.7 EUT Operating Conditions

- Placed the EUT on a testing table.
- Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.8 Test Results
Above 1 GHz Data :
802.11a

EUT Test Condition		Measurement Detail	
Channel	Channel 36	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5042.75	52.52	44.46	68.2	-15.68	34.04	8	33.98	226	328	Peak
5180	90.37	82.06			34.15	8.16	34	226	328	Average
5180	97.21	88.9			34.15	8.16	34	226	328	Peak
*10360	53.01	38.71	68.2	-15.19	37.12	12.3	35.12	159	300	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5107.7	53.49	45.29	68.2	-14.71	34.09	8.1	33.99	162	257	Peak
5180	89.16	80.85			34.15	8.16	34	162	257	Average
5180	96.04	87.73			34.15	8.16	34	162	257	Peak
*10360	53.5	39.2	68.2	-14.7	37.12	12.3	35.12	112	320	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5180 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 40	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5106.65	52.96	44.79	68.2	-15.24	34.09	8.07	33.99	226	328	Peak
5200	90.87	82.52			34.16	8.19	34	226	328	Average
5200	97.76	89.41			34.16	8.19	34	226	328	Peak
5371.89	53.61	44.94	68.2	-14.59	34.29	8.41	34.03	226	328	Peak
*10400	52.66	38.32	68.2	-15.54	37.14	12.36	35.16	157	266	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5074.25	52.82	44.7	68.2	-15.38	34.07	8.03	33.98	162	257	Peak
5200	89.6	81.25			34.16	8.19	34	162	257	Average
5200	96.49	88.14			34.16	8.19	34	162	257	Peak
5445.59	53.57	44.74	68.2	-14.63	34.36	8.51	34.04	162	257	Peak
*10400	52.53	38.19	68.2	-15.67	37.14	12.36	35.16	114	159	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5200 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 48	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	90.3	81.86			34.19	8.26	34.01	226	328	Average
5240	97.46	89.02			34.19	8.26	34.01	226	328	Peak
5437.45	53.13	44.34	68.2	-15.07	34.35	8.48	34.04	226	328	Peak
*10480	52.9	38.39	68.2	-15.3	37.19	12.53	35.21	124	1	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	89.07	80.63			34.19	8.26	34.01	162	257	Average
5240	96.26	87.82			34.19	8.26	34.01	162	257	Peak
5443.39	52.62	43.83	68.2	-15.58	34.35	8.48	34.04	162	257	Peak
*10480	52.11	37.6	68.2	-16.09	37.19	12.53	35.21	152	109	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5240 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 52	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5134.7	53.01	44.76	68.2	-15.19	34.11	8.13	33.99	100	161	Peak
5260	90.45	81.99			34.21	8.26	34.01	100	161	Average
5260	97.13	88.67			34.21	8.26	34.01	100	161	Peak
*10520	54.21	39.62	68.2	-13.99	37.21	12.61	35.23	199	9	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5060.45	53.33	45.23	68.2	-14.87	34.05	8.03	33.98	126	126	Peak
5260	89.6	81.14			34.21	8.26	34.01	126	126	Average
5260	96.71	88.25			34.21	8.26	34.01	126	126	Peak
*10520	52.78	38.19	68.2	-15.42	37.21	12.61	35.23	117	216	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5260 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 60	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5090.45	52.84	44.67	68.2	-15.36	34.08	8.07	33.98	100	161	Peak
5300	89.77	81.23			34.24	8.32	34.02	100	161	Average
5300	96.39	87.85			34.24	8.32	34.02	100	161	Peak
5381.9	52.88	44.2	68.2	-15.32	34.31	8.41	34.04	100	161	Peak
10600	53.33	38.65	68.2	-14.87	37.28	12.67	35.27	114	77	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5093.45	52.86	44.7	68.2	-15.34	34.08	8.07	33.99	126	126	Peak
5300	88.58	80.04			34.24	8.32	34.02	126	126	Average
5300	95.89	87.35			34.24	8.32	34.02	126	126	Peak
5416.77	53.71	44.98	68.2	-14.49	34.33	8.44	34.04	126	126	Peak
10600	53.38	38.7	68.2	-14.82	37.28	12.67	35.27	185	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5300 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 64	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5320	88.56	79.98			34.25	8.35	34.02	100	161	Average
5320	95	86.42			34.25	8.35	34.02	100	161	Peak
5359.35	52.89	44.26	68.2	-15.31	34.28	8.38	34.03	100	161	Peak
10640	53.3	38.57	68.2	-14.9	37.31	12.71	35.29	187	310	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5320	87.14	78.56			34.25	8.35	34.02	126	126	Average
5320	94.23	85.65			34.25	8.35	34.02	126	126	Peak
5353.41	53.52	44.89	68.2	-14.68	34.28	8.38	34.03	126	126	Peak
10640	53.78	39.05	68.2	-14.42	37.31	12.71	35.29	115	24	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5320 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 100	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5391.92	53.11	44.43	68.2	-15.09	34.31	8.41	34.04	169	0	Peak
*5470.8	52.72	43.86	68.2	-15.48	34.37	8.54	34.05	169	0	Peak
5500	88.36	79.44			34.4	8.57	34.05	169	0	Average
5500	95	86.08			34.4	8.57	34.05	169	0	Peak
11000	54.97	39.89	68.2	-13.23	37.6	12.96	35.48	157	19	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5435.12	53.48	44.69	68.2	-14.72	34.35	8.48	34.04	200	272	Peak
*5470.8	51.76	42.9	68.2	-16.44	34.37	8.54	34.05	200	272	Peak
5500	85.66	76.74			34.4	8.57	34.05	200	272	Average
5500	92.55	83.63			34.4	8.57	34.05	200	272	Peak
11000	54.34	39.26	68.2	-13.86	37.6	12.96	35.48	135	225	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5500 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 116	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5429.52	53.14	44.35	68.2	-15.06	34.35	8.48	34.04	169	0	Peak
*5469.04	51.93	43.1	68.2	-16.27	34.37	8.51	34.05	169	0	Peak
5580	89.14	80.15			34.47	8.6	34.08	169	0	Average
5580	96.54	87.55			34.47	8.6	34.08	169	0	Peak
*5724.6	52.41	43.25	68.2	-15.79	34.62	8.65	34.11	169	0	Peak
11160	55.78	40.7	68.2	-12.42	37.7	12.83	35.45	141	245	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5392.4	53.13	44.45	68.2	-15.07	34.31	8.41	34.04	200	272	Peak
*5469.36	52.19	43.36	68.2	-16.01	34.37	8.51	34.05	200	272	Peak
5580	86.54	77.55			34.47	8.6	34.08	200	272	Average
5580	93.96	84.97			34.47	8.6	34.08	200	272	Peak
*5725.88	51.94	42.78	68.2	-16.26	34.62	8.65	34.11	200	272	Peak
11160	55.12	40.04	68.2	-13.08	37.7	12.83	35.45	127	2	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5580 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 140	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	88.65	79.52			34.59	8.64	34.1	169	90	Average
5700	95.3	86.17			34.59	8.64	34.1	169	90	Peak
*5724.68	55.46	46.3	68.2	-12.74	34.62	8.65	34.11	169	90	Peak
11400	55.01	39.91	68.2	-13.19	37.84	12.67	35.41	108	165	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	85.33	76.2			34.59	8.64	34.1	200	272	Average
5700	92.01	82.88			34.59	8.64	34.1	200	272	Peak
*5724.28	54.96	45.8	68.2	-13.24	34.62	8.65	34.11	200	272	Peak
11400	54.75	39.65	68.2	-13.45	37.84	12.67	35.41	125	240	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5700 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	94.46	85.27			34.64	8.66	34.11	200	265	Average
5745	101.29	92.1			34.64	8.66	34.11	200	265	Peak
11490	54.69	39.57	68.2	-13.51	37.89	12.62	35.39	154	44	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	93.33	84.14			34.64	8.66	34.11	200	260	Average
5745	100.81	91.62			34.64	8.66	34.11	200	260	Peak
11490	54.9	39.78	68.2	-13.3	37.89	12.62	35.39	185	190	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5640.7	53.53	44.46	68.2	-14.67	34.54	8.62	34.09	200	265	Peak
5662.225	52.74	43.65	77.25	-24.51	34.56	8.63	34.1	200	265	Peak
5916.325	52.47	43.09	74.62	-22.15	34.81	8.73	34.16	200	265	Peak
*5947.3	53.47	44.04	68.2	-14.73	34.85	8.74	34.16	200	265	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5593.975	53.33	44.32	68.2	-14.87	34.49	8.6	34.08	200	260	Peak
5654.35	51.9	42.81	71.42	-19.52	34.56	8.63	34.1	200	260	Peak
5916.325	51.76	42.38	74.62	-22.86	34.81	8.73	34.16	200	260	Peak
*5959.9	53.4	43.96	68.2	-14.8	34.87	8.74	34.17	200	260	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5745 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 157	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	93.65	84.42			34.68	8.68	34.13	200	265	Average
5785	100.07	90.84			34.68	8.68	34.13	200	265	Peak
11570	54.44	39.13	68.2	-13.76	38	12.68	35.37	154	3	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	92.78	83.55			34.68	8.68	34.13	200	260	Average
5785	99.95	90.72			34.68	8.68	34.13	200	260	Peak
11570	54.67	39.36	68.2	-13.53	38	12.68	35.37	135	55	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5648.05	53.68	44.61	68.2	-14.52	34.54	8.62	34.09	200	265	Peak
5663.275	52.38	43.29	78.02	-25.64	34.56	8.63	34.1	200	265	Peak
5916.325	52.19	42.81	74.62	-22.43	34.81	8.73	34.16	200	265	Peak
*6017.65	54.07	44.56	68.2	-14.13	34.92	8.77	34.18	200	265	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5585.05	53.46	44.45	68.2	-14.74	34.49	8.6	34.08	200	260	Peak
5658.55	50.47	41.38	74.53	-24.06	34.56	8.63	34.1	200	260	Peak
5917.9	51.61	42.23	73.45	-21.84	34.81	8.73	34.16	200	260	Peak
*5996.65	52.99	43.5	68.2	-15.21	34.9	8.76	34.17	200	260	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5785 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	93.66	84.37			34.73	8.69	34.13	200	265	Average
5825	100.19	90.9			34.73	8.69	34.13	200	265	Peak
11650	55.58	40.05	68.2	-12.62	38.09	12.8	35.36	154	229	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	92.57	83.28			34.73	8.69	34.13	200	260	Average
5825	99.73	90.44			34.73	8.69	34.13	200	260	Peak
11650	54.93	39.4	68.2	-13.27	38.09	12.8	35.36	128	330	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5552.5	53.94	44.97	68.2	-14.26	34.45	8.59	34.07	200	265	Peak
5656.45	51.81	42.72	72.97	-21.16	34.56	8.63	34.1	200	265	Peak
5914.225	52.56	43.18	76.17	-23.61	34.81	8.73	34.16	200	265	Peak
*5945.2	52.95	43.52	68.2	-15.25	34.85	8.74	34.16	200	265	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5564.05	53.74	44.77	68.2	-14.46	34.45	8.59	34.07	200	260	Peak
5656.45	53.43	44.34	72.97	-19.54	34.56	8.63	34.1	200	260	Peak
5919.475	52.93	43.55	72.29	-19.36	34.81	8.73	34.16	200	260	Peak
*6000.85	53.42	43.93	68.2	-14.78	34.9	8.76	34.17	200	260	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

802.11ac (VHT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 36	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5138.6	53.17	44.92	68.2	-15.03	34.11	8.13	33.99	226	328	Peak
5180	90.79	82.48			34.15	8.16	34	226	328	Average
5180	97.64	89.33			34.15	8.16	34	226	328	Peak
*10360	52.74	38.44	68.2	-15.46	37.12	12.3	35.12	112	85	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5148.8	54.34	46.09	68.2	-13.86	34.12	8.13	34	162	257	Peak
5180	89.56	81.25			34.15	8.16	34	162	257	Average
5180	96.45	88.14			34.15	8.16	34	162	257	Peak
*10360	53.44	39.14	68.2	-14.76	37.12	12.3	35.12	159	112	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5180 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 40	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5034.35	53.61	45.55	68.2	-14.59	34.03	8	33.97	226	328	Peak
5200	90.78	82.43			34.16	8.19	34	226	328	Average
5200	97.21	88.86			34.16	8.19	34	226	328	Peak
5414.9	52.71	43.98	68.2	-15.49	34.33	8.44	34.04	226	328	Peak
*10400	52.47	38.13	68.2	-15.73	37.14	12.36	35.16	112	258	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5040.65	54.12	46.05	68.2	-14.08	34.04	8	33.97	162	257	Peak
5200	89.54	81.19			34.16	8.19	34	162	257	Average
5200	96.07	87.72			34.16	8.19	34	162	257	Peak
5445.81	53.23	44.4	68.2	-14.97	34.36	8.51	34.04	162	257	Peak
*10400	52.36	38.02	68.2	-15.84	37.14	12.36	35.16	137	114	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5200 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 48	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	90.63	82.19			34.19	8.26	34.01	226	328	Average
5240	97.59	89.15			34.19	8.26	34.01	226	328	Peak
5455.38	53	44.18	68.2	-15.2	34.36	8.51	34.05	226	328	Peak
*10480	52.47	37.96	68.2	-15.73	37.19	12.53	35.21	168	223	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	89.4	80.96			34.19	8.26	34.01	162	257	Average
5240	96.47	88.03			34.19	8.26	34.01	162	257	Peak
5455.71	52.88	44.06	68.2	-15.32	34.36	8.51	34.05	162	257	Peak
*10480	52	37.49	68.2	-16.2	37.19	12.53	35.21	152	225	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5240 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 52	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5142.35	52.7	44.44	68.2	-15.5	34.12	8.13	33.99	100	161	Peak
5260	89.99	81.53			34.21	8.26	34.01	100	161	Average
5260	96.59	88.13			34.21	8.26	34.01	100	161	Peak
*10520	54.14	39.55	68.2	-14.06	37.21	12.61	35.23	125	288	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5106.2	52.97	44.8	68.2	-15.23	34.09	8.07	33.99	126	126	Peak
5260	88.52	80.06			34.21	8.26	34.01	126	126	Average
5260	95.64	87.18			34.21	8.26	34.01	126	126	Peak
*10520	52.65	38.06	68.2	-15.55	37.21	12.61	35.23	159	244	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5260 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 60	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5114.75	52.78	44.58	68.2	-15.42	34.09	8.1	33.99	100	161	Peak
5300	88.57	80.03			34.24	8.32	34.02	100	161	Average
5300	95.69	87.15			34.24	8.32	34.02	100	161	Peak
5359.02	53.28	44.65	68.2	-14.92	34.28	8.38	34.03	100	161	Peak
10600	52.98	38.3	68.2	-15.22	37.28	12.67	35.27	165	5	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5102.15	52.1	43.94	68.2	-16.1	34.08	8.07	33.99	126	126	Peak
5300	87.55	79.01			34.24	8.32	34.02	126	126	Average
5300	94.68	86.14			34.24	8.32	34.02	126	126	Peak
5433.6	53.66	44.87	68.2	-14.54	34.35	8.48	34.04	126	126	Peak
10600	53.25	38.57	68.2	-14.95	37.28	12.67	35.27	125	335	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5300 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 64	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5320	87.49	78.91			34.25	8.35	34.02	100	161	Average
5320	94.79	86.21			34.25	8.35	34.02	100	161	Peak
5373.87	53.82	45.16	68.2	-14.38	34.29	8.41	34.04	100	161	Peak
10640	53.22	38.49	68.2	-14.98	37.31	12.71	35.29	154	7	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5320	86.55	77.97			34.25	8.35	34.02	126	126	Average
5320	93.43	84.85			34.25	8.35	34.02	126	126	Peak
5402.36	53.57	44.85	68.2	-14.63	34.32	8.44	34.04	126	126	Peak
10640	53.57	38.84	68.2	-14.63	37.31	12.71	35.29	125	306	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5320 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 100	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5449.36	53.25	44.42	68.2	-14.95	34.36	8.51	34.04	169	0	Peak
*5469.52	52.14	43.31	68.2	-16.06	34.37	8.51	34.05	169	0	Peak
5500	88.57	79.65			34.4	8.57	34.05	169	0	Average
5500	95.26	86.34			34.4	8.57	34.05	169	0	Peak
11000	54.74	39.66	68.2	-13.46	37.6	12.96	35.48	105	134	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5404.56	53.49	44.77	68.2	-14.71	34.32	8.44	34.04	200	272	Peak
*5468.4	51.04	42.21	68.2	-17.16	34.37	8.51	34.05	200	272	Peak
5500	85.49	76.57			34.4	8.57	34.05	200	272	Average
5500	92.15	83.23			34.4	8.57	34.05	200	272	Peak
11000	54.16	39.08	68.2	-14.04	37.6	12.96	35.48	112	240	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5500 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 116	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5425.52	53.58	44.81	68.2	-14.62	34.33	8.48	34.04	169	0	Peak
*5470	52.7	43.87	68.2	-15.5	34.37	8.51	34.05	169	0	Peak
5580	88.36	79.37			34.47	8.6	34.08	169	0	Average
5580	95.34	86.35			34.47	8.6	34.08	169	0	Peak
*5723.96	52.86	43.7	68.2	-15.34	34.62	8.65	34.11	169	0	Peak
11160	55.14	40.06	68.2	-13.06	37.7	12.83	35.45	105	360	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5418	53.06	44.33	68.2	-15.14	34.33	8.44	34.04	200	272	Peak
*5469.68	52.32	43.49	68.2	-15.88	34.37	8.51	34.05	200	272	Peak
5580	85.74	76.75			34.47	8.6	34.08	200	272	Average
5580	92.41	83.42			34.47	8.6	34.08	200	272	Peak
*5724.2	52.86	43.7	68.2	-15.34	34.62	8.65	34.11	200	272	Peak
11160	54.68	39.6	68.2	-13.52	37.7	12.83	35.45	158	88	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5580 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 140	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	87.49	78.36			34.59	8.64	34.1	169	90	Average
5700	94.74	85.61			34.59	8.64	34.1	169	90	Peak
5725.24	53.43	44.27	68.2	-14.77	34.62	8.65	34.11	169	90	Peak
*11400	55.01	39.91	68.2	-13.19	37.84	12.67	35.41	108	15	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	84.25	75.12			34.59	8.64	34.1	200	272	Average
5700	91.68	82.55			34.59	8.64	34.1	200	272	Peak
5724.2	54.24	45.08	68.2	-13.96	34.62	8.65	34.11	200	272	Peak
*11400	54.75	39.65	68.2	-13.45	37.84	12.67	35.41	157	199	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5700 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	93.34	84.15			34.64	8.66	34.11	200	265	Average
5745	100.03	90.84			34.64	8.66	34.11	200	265	Peak
11490	54.25	39.13	68.2	-13.95	37.89	12.62	35.39	118	255	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	92.54	83.35			34.64	8.66	34.11	200	260	Average
5745	99.19	90			34.64	8.66	34.11	200	260	Peak
11490	54.66	39.54	68.2	-13.54	37.89	12.62	35.39	128	25	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5619.7	53.18	44.13	68.2	-15.02	34.52	8.61	34.08	200	265	Peak
5652.25	53.15	44.06	69.86	-16.71	34.56	8.62	34.09	200	265	Peak
5921.05	52.44	43.06	71.12	-18.68	34.81	8.73	34.16	200	265	Peak
*5954.125	53.06	43.63	68.2	-15.14	34.85	8.74	34.16	200	265	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5535.7	52.71	43.77	68.2	-15.49	34.43	8.58	34.07	200	260	Peak
5654.875	52.17	43.08	71.81	-19.64	34.56	8.63	34.1	200	260	Peak
5918.425	51.98	42.6	73.07	-21.09	34.81	8.73	34.16	200	260	Peak
*6022.9	53	43.49	68.2	-15.2	34.92	8.77	34.18	200	260	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5745 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 157	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	93.65	84.42			34.68	8.68	34.13	200	265	Average
5785	100.15	90.92			34.68	8.68	34.13	200	265	Peak
11570	54.32	39.01	68.2	-13.88	38	12.68	35.37	124	216	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	92.88	83.65			34.68	8.68	34.13	200	260	Average
5785	99.36	90.13			34.68	8.68	34.13	200	260	Peak
11570	54.44	39.13	68.2	-13.76	38	12.68	35.37	144	285	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5559.85	53.03	44.06	68.2	-15.17	34.45	8.59	34.07	200	265	Peak
5654.875	52.35	43.26	71.81	-19.46	34.56	8.63	34.1	200	265	Peak
5921.05	52.19	42.81	71.12	-18.93	34.81	8.73	34.16	200	265	Peak
*5976.7	53.58	44.12	68.2	-14.62	34.88	8.75	34.17	200	265	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5618.65	53.59	44.54	68.2	-14.61	34.52	8.61	34.08	200	260	Peak
5659.6	52.38	43.29	75.3	-22.92	34.56	8.63	34.1	200	260	Peak
5916.325	52.35	42.97	74.62	-22.27	34.81	8.73	34.16	200	260	Peak
*5972.5	52.86	43.41	68.2	-15.34	34.87	8.75	34.17	200	260	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5785 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	92.53	83.24			34.73	8.69	34.13	200	265	Average
5825	99.6	90.31			34.73	8.69	34.13	200	265	Peak
11650	55.14	39.61	68.2	-13.06	38.09	12.8	35.36	141	300	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	91.4	82.11			34.73	8.69	34.13	200	260	Average
5825	98.47	89.18			34.73	8.69	34.13	200	260	Peak
11650	54.87	39.34	68.2	-13.33	38.09	12.8	35.36	132	96	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5634.4	53.07	44	68.2	-15.13	34.54	8.62	34.09	200	265	Peak
5655.4	49.9	40.81	72.2	-22.3	34.56	8.63	34.1	200	265	Peak
5917.9	51.59	42.21	73.45	-21.86	34.81	8.73	34.16	200	265	Peak
*6012.925	53.87	44.37	68.2	-14.33	34.92	8.76	34.18	200	265	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5618.65	53.39	44.34	68.2	-14.81	34.52	8.61	34.08	200	260	Peak
5659.075	51.01	41.92	74.92	-23.91	34.56	8.63	34.1	200	260	Peak
5919.475	53.95	44.57	72.29	-18.34	34.81	8.73	34.16	200	260	Peak
*6022.9	53.47	43.96	68.2	-14.73	34.92	8.77	34.18	200	260	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

802.11ac (VHT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 38	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5124.05	52.81	44.59	68.2	-15.39	34.11	8.1	33.99	226	328	Peak
5190	82.23	73.89			34.15	8.19	34	226	328	Average
5190	89.63	81.29			34.15	8.19	34	226	328	Peak
5442.84	52.99	44.2	68.2	-15.21	34.35	8.48	34.04	226	328	Peak
*10380	53.85	39.5	68.2	-14.35	37.13	12.36	35.14	124	215	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5140.4	53.27	45.01	68.2	-14.93	34.12	8.13	33.99	162	257	Peak
5190	81.97	73.63			34.15	8.19	34	162	257	Average
5190	88.48	80.14			34.15	8.19	34	162	257	Peak
5432.06	52.96	44.17	68.2	-15.24	34.35	8.48	34.04	162	257	Peak
*10380	52.83	38.48	68.2	-15.37	37.13	12.36	35.14	137	300	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5190 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 46	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5127.65	52.56	44.34	68.2	-15.64	34.11	8.1	33.99	226	328	Peak
5230	86.16	77.76	68.2	17.96	34.19	8.22	34.01	226	328	Average
5230	93.34	84.94			34.19	8.22	34.01	226	328	Peak
5395.21	53.8	45.08			34.32	8.44	34.04	226	328	Peak
*10460	52.43	37.92	68.2	-15.77	37.17	12.53	35.19	183	134	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5097.5	52.83	44.67	68.2	-15.37	34.08	8.07	33.99	162	257	Peak
5230	85.92	77.52			34.19	8.22	34.01	162	257	Average
5230	92	83.6			34.19	8.22	34.01	162	257	Peak
5415.78	52.69	43.96	68.2	-15.51	34.33	8.44	34.04	162	257	Peak
*10460	52.82	38.31	68.2	-15.38	37.17	12.53	35.19	118	246	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5230 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 54	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5093.3	53.77	45.61	68.2	-14.43	34.08	8.07	33.99	100	161	Peak
5270	85.63	77.14			34.21	8.29	34.01	100	161	Average
5270	92.28	83.79			34.21	8.29	34.01	100	161	Peak
5374.97	53.35	44.69	68.2	-14.85	34.29	8.41	34.04	100	161	Peak
*10540	52.72	38.1	68.2	-15.48	37.23	12.63	35.24	157	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5018.3	52.87	44.86	68.2	-15.33	34.01	7.97	33.97	126	126	Peak
5270	84.55	76.06			34.21	8.29	34.01	126	126	Average
5270	91.72	83.23			34.21	8.29	34.01	126	126	Peak
5440.64	52.71	43.92	68.2	-15.49	34.35	8.48	34.04	126	126	Peak
*10540	53.21	38.59	68.2	-14.99	37.23	12.63	35.24	125	225	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5270 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 62	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5093.9	53.2	45.04	68.2	-15	34.08	8.07	33.99	100	161	Peak
5310	82.25	73.7			34.25	8.32	34.02	100	161	Average
5310	89.48	80.93			34.25	8.32	34.02	100	161	Peak
5445.15	53.25	44.43	68.2	-14.95	34.35	8.51	34.04	100	161	Peak
10620	53.68	38.97	68.2	-14.52	37.3	12.69	35.28	124	114	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5067.35	53.1	45	68.2	-15.1	34.05	8.03	33.98	126	126	Peak
5310	81.46	72.91			34.25	8.32	34.02	126	126	Average
5310	88.31	79.76			34.25	8.32	34.02	126	126	Peak
5386.19	53.44	44.76	68.2	-14.76	34.31	8.41	34.04	126	126	Peak
10620	52.57	37.86	68.2	-15.63	37.3	12.69	35.28	158	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5310 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 102	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5432.72	52.87	44.08	68.2	-15.33	34.35	8.48	34.04	169	0	Peak
*5470.96	51.35	42.49	68.2	-16.85	34.37	8.54	34.05	169	0	Peak
5510	81.49	72.58			34.4	8.57	34.06	169	0	Average
5510	88.63	79.72			34.4	8.57	34.06	169	0	Peak
*5724.68	52.76	43.6	68.2	-15.44	34.62	8.65	34.11	169	0	Peak
11020	53.97	38.9	68.2	-14.23	37.61	12.94	35.48	152	335	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5434.32	52.72	43.93	68.2	-15.48	34.35	8.48	34.04	200	272	Peak
*5470	52.13	43.3	68.2	-16.07	34.37	8.51	34.05	200	272	Peak
5510	78.49	69.58			34.4	8.57	34.06	200	272	Average
5510	85.58	76.67			34.4	8.57	34.06	200	272	Peak
*5724.6	51.74	42.58	68.2	-16.46	34.62	8.65	34.11	200	272	Peak
11020	54.26	39.19	68.2	-13.94	37.61	12.94	35.48	164	265	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5510 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 110	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5420.72	52.89	44.12	68.2	-15.31	34.33	8.48	34.04	169	0	Peak
*5469.2	52.69	43.86	68.2	-15.51	34.37	8.51	34.05	169	0	Peak
5550	87.43	78.46			34.45	8.59	34.07	169	0	Average
5550	94.06	85.09			34.45	8.59	34.07	169	0	Peak
*5724.6	51.75	42.59	68.2	-16.45	34.62	8.65	34.11	169	0	Peak
11100	55.03	39.94	68.2	-13.17	37.66	12.89	35.46	105	24	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5385.68	53.9	45.22	68.2	-14.3	34.31	8.41	34.04	200	272	Peak
*5468.72	52.14	43.31	68.2	-16.06	34.37	8.51	34.05	200	272	Peak
5550	84.65	75.68			34.45	8.59	34.07	200	272	Average
5550	91.41	82.44			34.45	8.59	34.07	200	272	Peak
*5725.4	52.31	43.15	68.2	-15.89	34.62	8.65	34.11	200	272	Peak
11100	53.84	38.75	68.2	-14.36	37.66	12.89	35.46	128	354	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5550 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 134	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5452.72	53.29	44.47	68.2	-14.91	34.36	8.51	34.05	169	90	Peak
*5470.96	52.15	43.29	68.2	-16.05	34.37	8.54	34.05	169	90	Peak
5670	85.88	76.78			34.57	8.63	34.1	169	90	Average
5670	92.51	83.41			34.57	8.63	34.1	169	90	Peak
*5725.24	52.42	43.26	68.2	-15.78	34.62	8.65	34.11	169	90	Peak
11340	55.42	40.33	68.2	-12.78	37.8	12.71	35.42	124	215	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5439.28	52.46	43.67	68.2	-15.74	34.35	8.48	34.04	200	272	Peak
*5468.56	51.42	42.59	68.2	-16.78	34.37	8.51	34.05	200	272	Peak
5670	82.3	73.2			34.57	8.63	34.1	200	272	Average
5670	89.56	80.46			34.57	8.63	34.1	200	272	Peak
*5724.92	52.13	42.97	68.2	-16.07	34.62	8.65	34.11	200	272	Peak
11340	55.42	40.33	68.2	-12.78	37.8	12.71	35.42	125	263	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5670 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 151	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5755	90.57	81.36			34.66	8.66	34.11	200	265	Average
5755	97.77	88.56			34.66	8.66	34.11	200	265	Peak
11510	54.85	39.74	68.2	-13.35	37.9	12.6	35.39	101	246	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5755	89.95	80.74			34.66	8.66	34.11	200	260	Average
5755	96.59	87.38			34.66	8.66	34.11	200	260	Peak
11510	55.08	39.97	68.2	-13.12	37.9	12.6	35.39	173	0	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5634.925	53.25	44.18	68.2	-14.95	34.54	8.62	34.09	200	265	Peak
5658.55	52.52	43.43	74.53	-22.01	34.56	8.63	34.1	200	265	Peak
5920.525	51.17	41.79	71.51	-20.34	34.81	8.73	34.16	200	265	Peak
*5997.175	53.11	43.62	68.2	-15.09	34.9	8.76	34.17	200	265	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5629.15	53.64	44.59	68.2	-14.56	34.52	8.62	34.09	200	260	Peak
5654.35	52.18	43.09	71.42	-19.24	34.56	8.63	34.1	200	260	Peak
5917.9	51.42	42.04	73.45	-22.03	34.81	8.73	34.16	200	260	Peak
*5991.4	53.16	43.67	68.2	-15.04	34.9	8.76	34.17	200	260	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5755 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 159	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	89.48	80.24			34.69	8.68	34.13	200	265	Average
5795	96.03	86.79			34.69	8.68	34.13	200	265	Peak
11590	55.13	39.76	68.2	-13.07	38.02	12.72	35.37	124	206	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	88.77	79.53			34.69	8.68	34.13	200	260	Average
5795	95.4	86.16			34.69	8.68	34.13	200	260	Peak
11590	56.28	40.91	68.2	-11.92	38.02	12.72	35.37	135	305	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5516.275	53.19	44.26	68.2	-15.01	34.42	8.57	34.06	200	265	Peak
5656.45	52.01	42.92	72.97	-20.96	34.56	8.63	34.1	200	265	Peak
5916.85	52.38	43	74.23	-21.85	34.81	8.73	34.16	200	265	Peak
*5983	53.92	44.46	68.2	-14.28	34.88	8.75	34.17	200	265	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5580.85	53.83	44.84	68.2	-14.37	34.47	8.6	34.08	200	260	Peak
5653.825	49.9	40.81	71.03	-21.13	34.56	8.63	34.1	200	260	Peak
5920	51.81	42.43	71.9	-20.09	34.81	8.73	34.16	200	260	Peak
*5958.85	53.96	44.51	68.2	-14.24	34.87	8.74	34.16	200	260	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5795 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

802.11ac (VHT80)

EUT Test Condition		Measurement Detail	
Channel	Channel 42	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5149.7	52.9	44.65	68.2	-15.3	34.12	8.13	34	226	328	Peak
5210	76.89	68.53			34.17	8.19	34	226	328	Average
5210	83.8	75.44			34.17	8.19	34	226	328	Peak
5366.94	52.69	44.02	68.2	-15.51	34.29	8.41	34.03	226	328	Peak
*10420	52.38	37.97	68.2	-15.82	37.15	12.42	35.16	154	3	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5083.4	53.08	44.92	68.2	-15.12	34.07	8.07	33.98	162	257	Peak
5210	75.64	67.28			34.17	8.19	34	162	257	Average
5210	82.52	74.16			34.17	8.19	34	162	257	Peak
5440.2	53.75	44.96	68.2	-14.45	34.35	8.48	34.04	162	257	Peak
*10420	52.55	38.14	68.2	-15.65	37.15	12.42	35.16	115	246	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5210 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 58	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5118.65	53.29	45.09	68.2	-14.91	34.09	8.1	33.99	100	161	Peak
5290	75.26	66.73			34.23	8.32	34.02	100	161	Average
5290	82.23	73.7			34.23	8.32	34.02	100	161	Peak
5364.19	53.95	45.31	68.2	-14.25	34.29	8.38	34.03	100	161	Peak
*10580	52.7	38.05	68.2	-15.5	37.27	12.65	35.27	108	246	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5146.4	54.1	45.85	68.2	-14.1	34.12	8.13	34	126	126	Peak
5290	74.44	65.91			34.23	8.32	34.02	126	126	Average
5290	81.75	73.22			34.23	8.32	34.02	126	126	Peak
5409.07	53.17	44.45	68.2	-15.03	34.32	8.44	34.04	126	126	Peak
*10580	53.04	38.39	68.2	-15.16	37.27	12.65	35.27	124	111	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5290 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 106	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5442.64	53.34	44.55	68.2	-14.86	34.35	8.48	34.04	169	0	Peak
*5468.24	52.55	43.72	68.2	-15.65	34.37	8.51	34.05	169	0	Peak
5530	76.44	67.51			34.42	8.58	34.07	169	0	Average
5530	83.02	74.09			34.42	8.58	34.07	169	0	Peak
*5725.4	52.59	43.43	68.2	-15.61	34.62	8.65	34.11	169	0	Peak
11060	54.76	39.68	68.2	-13.44	37.64	12.91	35.47	124	208	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5384.72	52.62	43.94	68.2	-15.58	34.31	8.41	34.04	200	272	Peak
*5470.16	52.2	43.37	68.2	-16	34.37	8.51	34.05	200	272	Peak
5530	73.99	65.06			34.42	8.58	34.07	200	272	Average
5530	80.89	71.96			34.42	8.58	34.07	200	272	Peak
*5724.28	52.17	43.01	68.2	-16.03	34.62	8.65	34.11	200	272	Peak
11060	54.12	39.04	68.2	-14.08	37.64	12.91	35.47	112	216	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5530 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 122	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5457.52	53.89	45.07	68.2	-14.31	34.36	8.51	34.05	169	90	Peak
*5468.56	53.24	44.41	68.2	-14.96	34.37	8.51	34.05	169	90	Peak
5610	76.66	67.63			34.5	8.61	34.08	169	90	Average
5610	83.86	74.83			34.5	8.61	34.08	169	90	Peak
*5725.88	52.74	43.58	68.2	-15.46	34.62	8.65	34.11	169	90	Peak
11220	55.14	40.05	68.2	-13.06	37.73	12.8	35.44	136	36	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5440.72	52.94	44.15	68.2	-15.26	34.35	8.48	34.04	200	272	Peak
*5468.56	52.62	43.79	68.2	-15.58	34.37	8.51	34.05	200	272	Peak
5610	73.3	64.27			34.5	8.61	34.08	200	272	Average
5610	80.43	71.4			34.5	8.61	34.08	200	272	Peak
*5724.12	52.66	43.5	68.2	-15.54	34.62	8.65	34.11	200	272	Peak
11220	55.27	40.18	68.2	-12.93	37.73	12.8	35.44	157	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5610 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 155	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5775	85.54	76.31			34.68	8.67	34.12	200	265	Average
5775	92.19	82.96			34.68	8.67	34.12	200	265	Peak
11550	54.61	39.34	68.2	-13.59	37.97	12.68	35.38	190	24	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5775	84.1	74.87			34.68	8.67	34.12	200	260	Average
5775	91.2	81.97			34.68	8.67	34.12	200	260	Peak
11550	54.79	39.52	68.2	-13.41	37.97	12.68	35.38	124	326	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5636.5	55.63	46.56	68.2	-12.57	34.54	8.62	34.09	200	265	Peak
5658.025	53.28	44.19	74.14	-20.86	34.56	8.63	34.1	200	265	Peak
5913.7	52.36	42.98	76.56	-24.2	34.81	8.73	34.16	200	265	Peak
*5962	52.4	42.96	68.2	-15.8	34.87	8.74	34.17	200	265	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5649.1	53.08	44.01	68.2	-15.12	34.54	8.62	34.09	200	260	Peak
5654.35	52.71	43.62	71.42	-18.71	34.56	8.63	34.1	200	260	Peak
5922.1	53.04	43.64	70.35	-17.31	34.83	8.73	34.16	200	260	Peak
*6006.625	53.67	44.16	68.2	-14.53	34.92	8.76	34.17	200	260	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5775 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

9 kHz ~ 30 MHz Data:

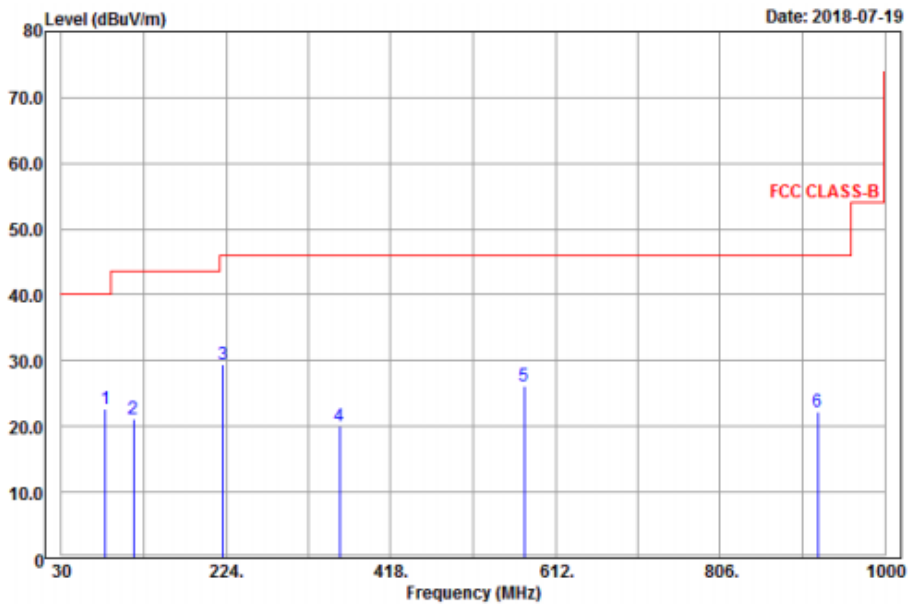
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz Worst-Case Data:

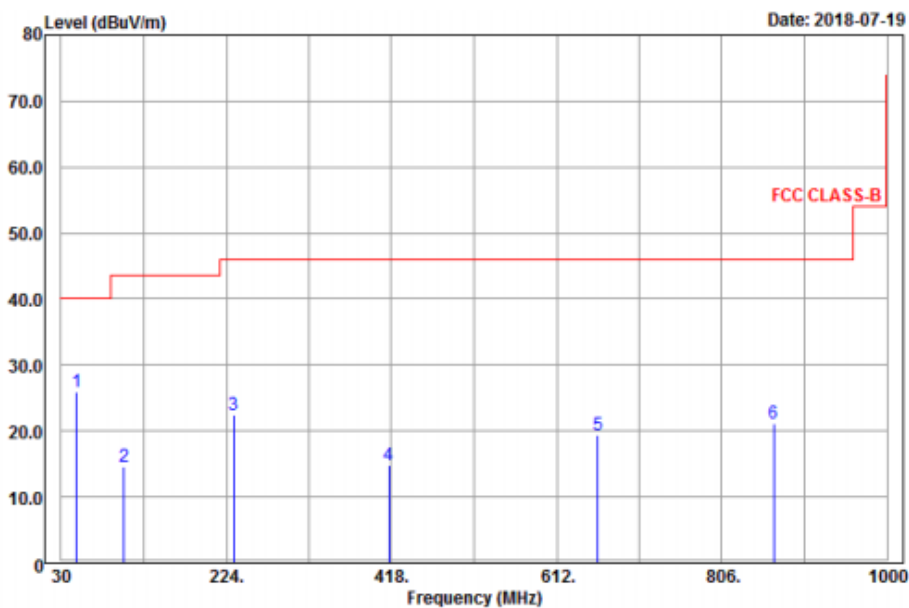
802.11ac (VHT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 159	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

Horizontal



Vertical



Antenna Polarity & Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
82.11	22.7	45.09	40	-17.3	8.61	1.11	32.11	153	332	Peak
114.78	21.2	40.75	43.5	-22.3	11.42	1.28	32.25	179	168	Peak
220.62	29.45	48.63	46	-16.55	11.38	1.65	32.21	134	226	Peak
358.1	20.13	35.64	46	-25.87	14.32	2.26	32.09	181	144	Peak
575.1	26.11	37.94	46	-19.89	17.55	2.82	32.2	108	205	Peak
920.9	22.3	28.54	46	-23.7	21.56	3.53	31.33	133	196	Peak

Antenna Polarity & Test Distance: Vertical at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
48.36	25.87	42.63	40	-14.13	14.56	0.9	32.22	163	323	Peak
103.44	14.51	33.1	43.5	-28.99	12.39	1.28	32.26	185	146	Peak
232.5	22.43	40.89	46	-23.57	11.86	1.85	32.17	121	178	Peak
414.8	14.74	29.36	46	-31.26	15.17	2.41	32.2	132	169	Peak
660.5	19.37	29.9	46	-26.63	18.62	2.99	32.14	163	321	Peak
867	21.08	28.11	46	-24.92	21.22	3.44	31.69	172	55	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- The emission levels of other frequencies were very low against the limit

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 0.50 MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
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/AMN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 26, 2018	Feb. 25, 2019
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Cond_ V7.3.7.4	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

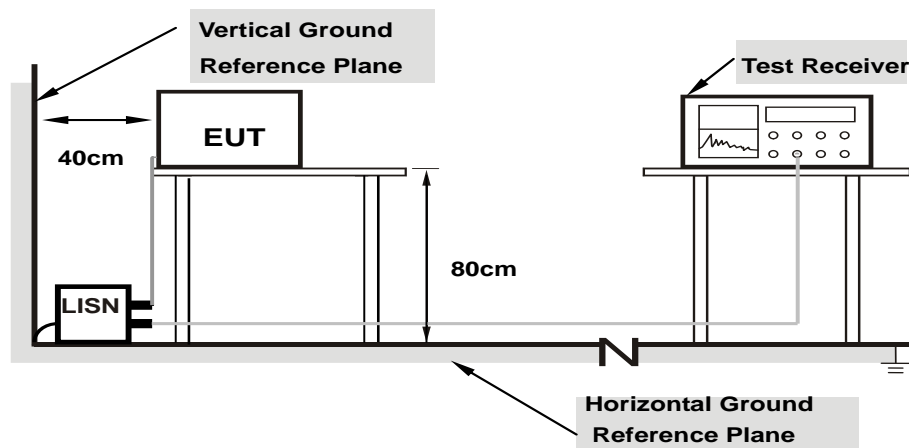
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

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

4.2.6 EUT Operating Conditions

- a. Placed the EUT on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

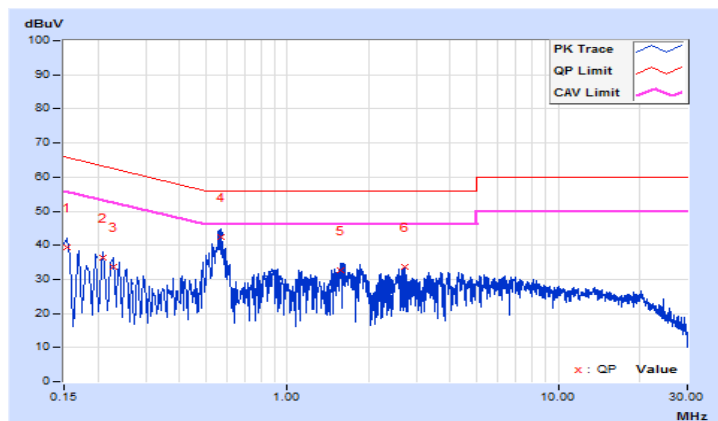
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Jisyong Wang	Test Date	2018/7/19

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.67	29.78	16.25	39.45	25.92	65.79	55.79	-26.34	-29.87
2	0.20865	9.67	26.60	14.45	36.27	24.12	63.26	53.26	-26.99	-29.14
3	0.22820	9.67	24.05	11.81	33.72	21.48	62.51	52.51	-28.79	-31.03
4	0.57228	9.67	32.86	20.11	42.53	29.78	56.00	46.00	-13.47	-16.22
5	1.56933	9.70	23.09	8.43	32.79	18.13	56.00	46.00	-23.21	-27.87
6	2.70714	9.73	23.78	9.24	33.51	18.97	56.00	46.00	-22.49	-27.03

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

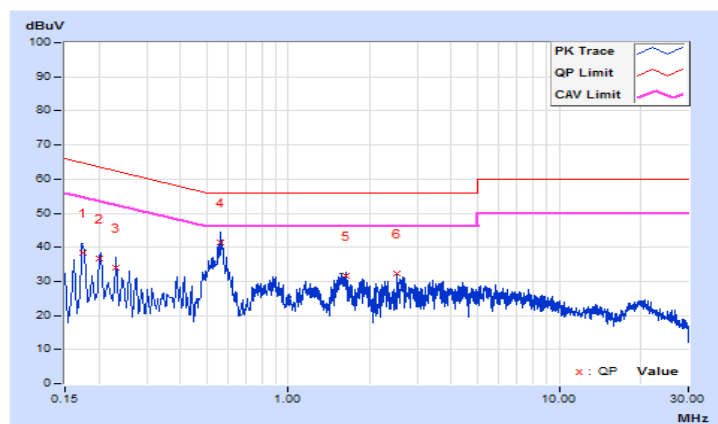


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Jisyong Wang	Test Date	2018/7/19

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17374	9.68	28.82	15.68	38.50	25.36	64.78	54.78	-26.28	-29.42
2	0.20084	9.68	26.92	13.52	36.60	23.20	63.58	53.58	-26.98	-30.38
3	0.23211	9.68	24.16	12.71	33.84	22.39	62.37	52.37	-28.53	-29.98
4	0.56418	9.68	31.85	18.60	41.53	28.28	56.00	46.00	-14.47	-17.72
5	1.64362	9.70	21.91	9.18	31.61	18.88	56.00	46.00	-24.39	-27.12
6	2.52728	9.72	22.61	9.86	32.33	19.58	56.00	46.00	-23.67	-26.42

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

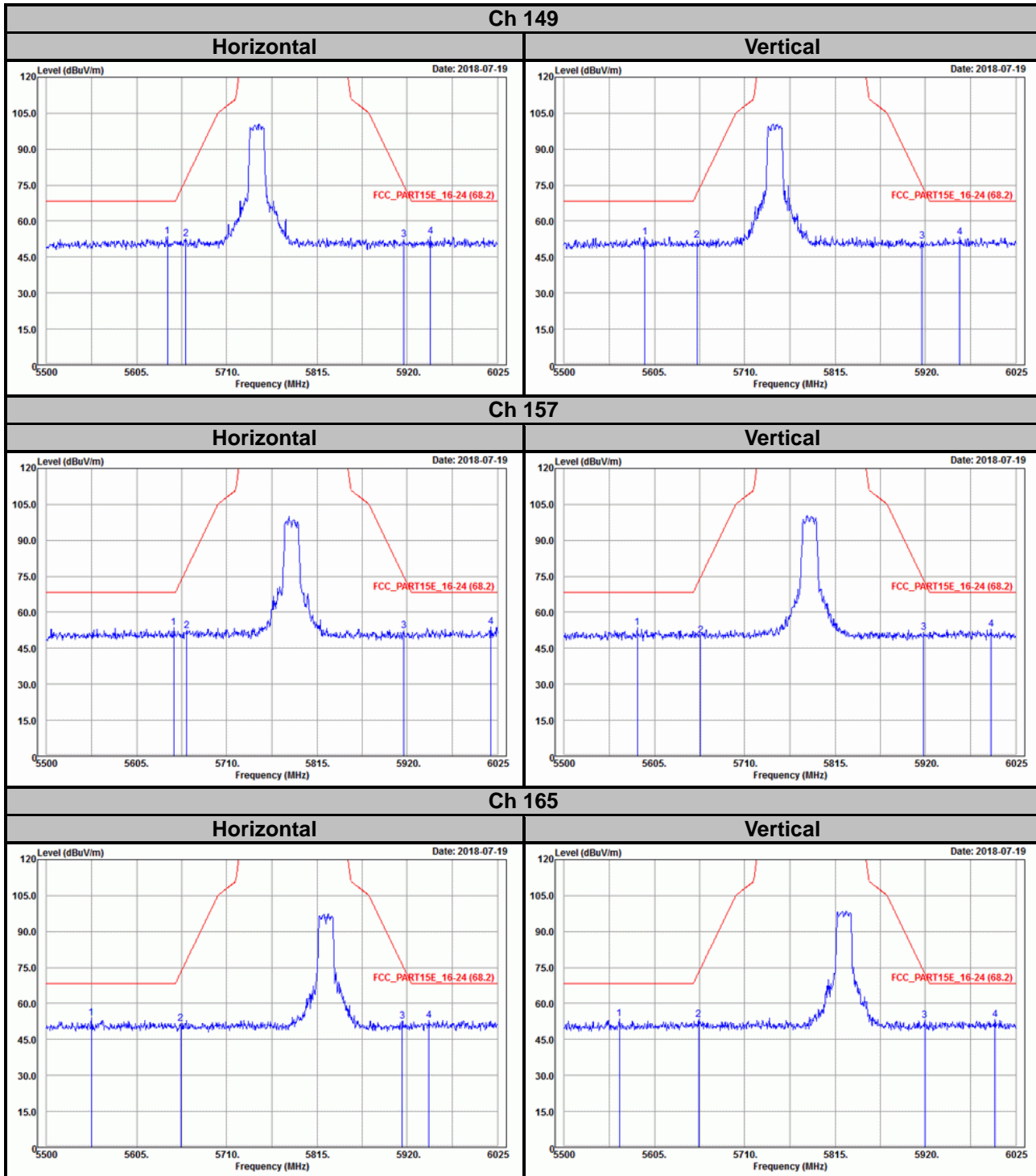


5 Pictures of Test Arrangements

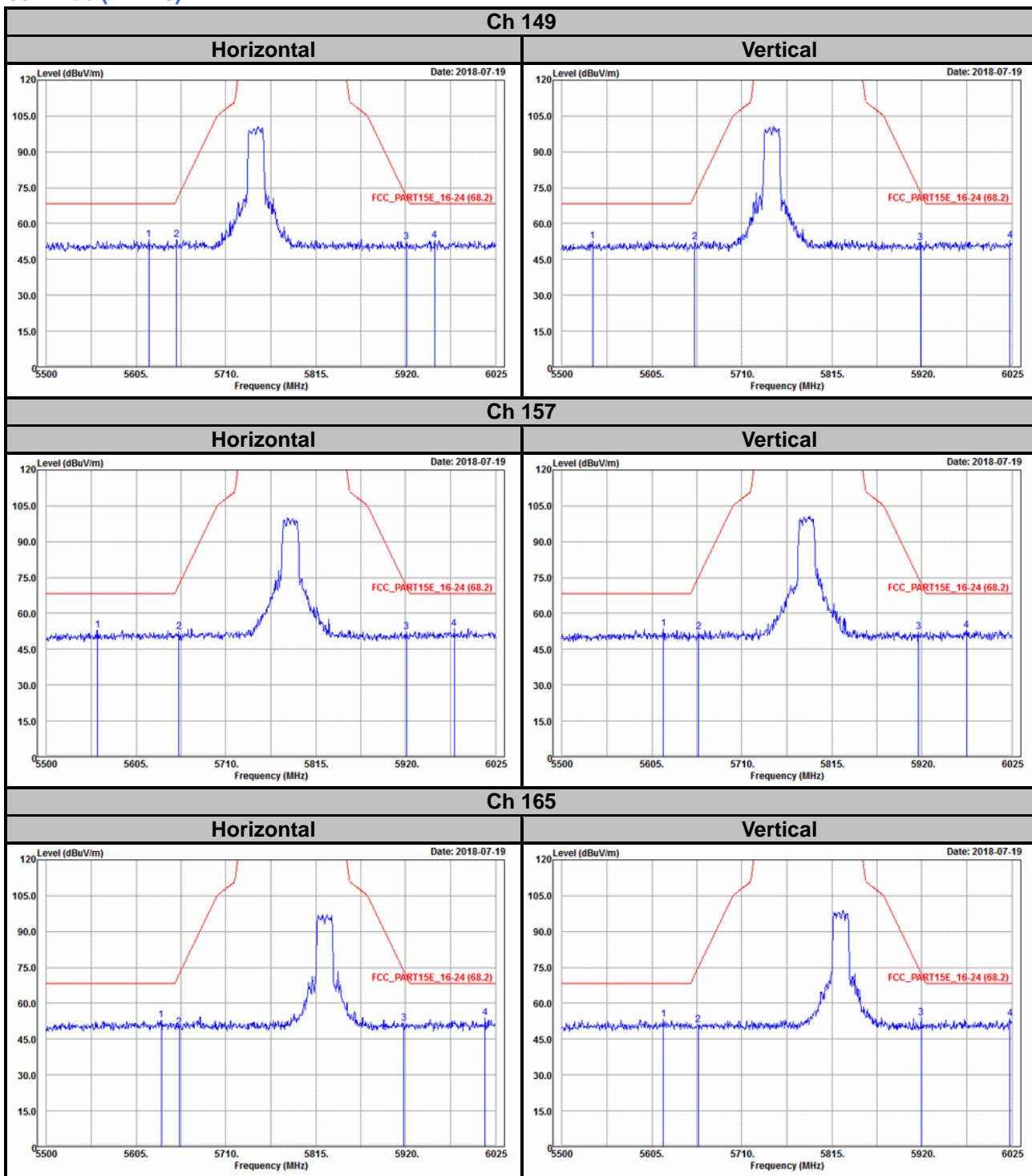
Please refer to the attached file (Test Setup Photo).

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

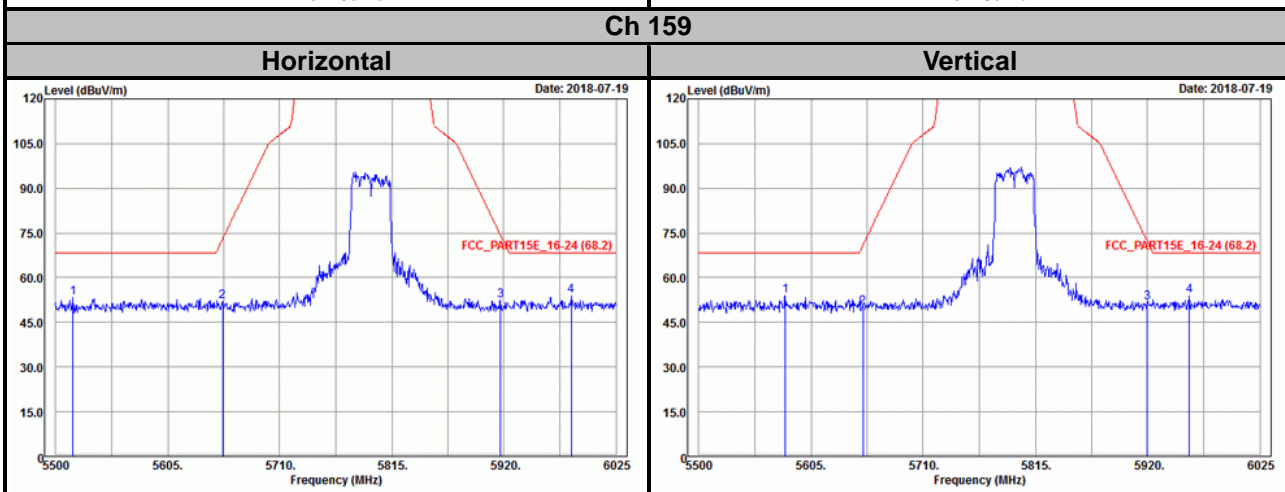
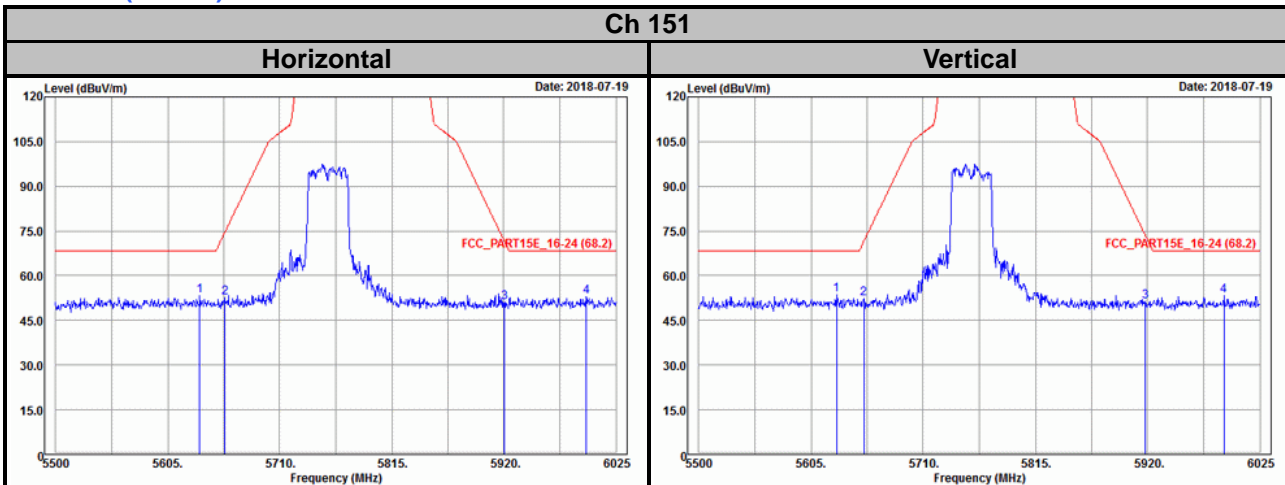
802.11a



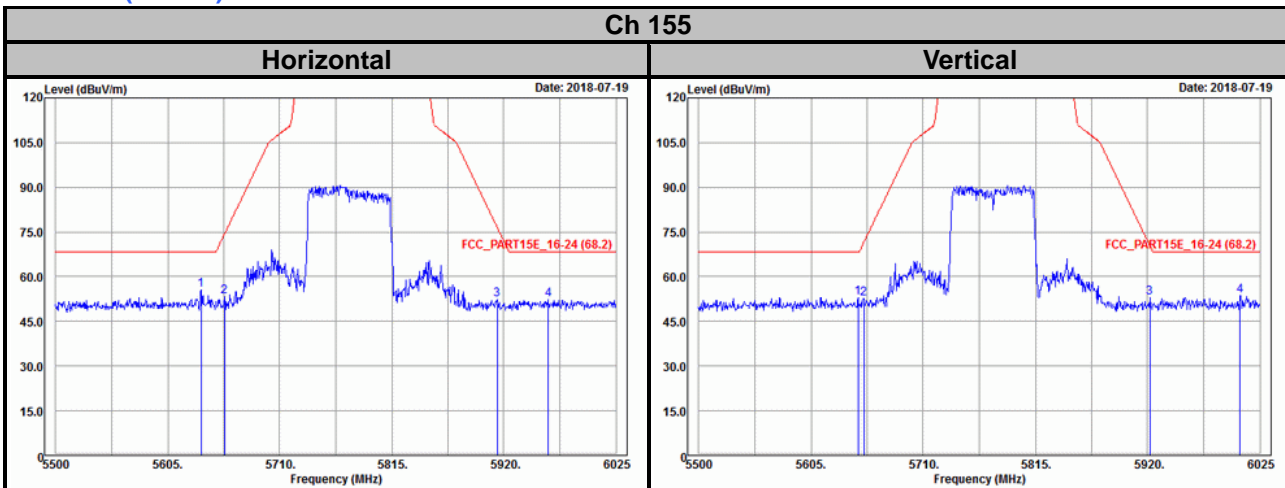
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



Appendix – Information on the Testing Laboratories

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

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

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

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