

FCC Test Report

Report No.: RF181011C15-6

FCC ID: 2AIBC-ENJOYNOW

Test Model: TLP201

Received Date: Oct. 11, 2018

Test Date: Dec. 13, 2018 ~ Mar. 31, 2019

Issued Date: Apr. 11, 2019

Applicant: The Light Phone Inc

Address: 49 Bogart St #44 Brooklyn New York United States 11206

Manufacturer: The Light Phone Inc

Address: 19 Morris Ave, Brooklyn, NY 11205

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

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Taiwan, R.O.C

FCC Registration /
Designation Number: 427177 / TW0011



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Release Control Record

Issue No.	Description	Date Issued
RF181011C15-6	Original Release	Apr. 11, 2019

1 Certificate of Conformity

Product: Light Phone 2

Brand: Light

Test Model: TLP201

Sample Status: Engineering Sample

Applicant: The Light Phone Inc

Test Date: Dec. 13, 2018 ~ Mar. 31, 2019

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:

Apr. 11, 2019

Ivonne Wu / Supervisor

Approved by :



Date:

Apr. 11, 2019

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 -21.11 dB at 0.49476 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 -2.39 dB at 5149.55 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6 dB Bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	No antenna connector is used.

Note:

- For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.
- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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	9 kHz ~ 30 MHz	3.04 dB
	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	Light Phone 2
Brand	Light
Test Model	TLP201
Status of EUT	Engineering Sample
Power Supply Rating	5.0 Vdc (adapter) 3.8 Vdc (battery)
Modulation Type	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 150.0 Mbps
Operating Frequency	5180 ~ 5240 MHz, 5260 ~ 5320 MHz, 5500 ~ 5720 MHz, 5745 ~ 5825 MHz
Number of Channel	5180 ~ 5240 MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 5260 ~ 5320 MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 5500 ~ 5720 MHz: 12 for 802.11a, 802.11n (HT20) 6 for 802.11n (HT40) 5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40)
Output Power	11.194 mW for 5180 ~ 5240 MHz 11.092 mW for 5260 ~ 5320 MHz 10.765 mW for 5500 ~ 5720 MHz 11.169 mW for 5745 ~ 5825 MHz
Antenna Type	PIFA antenna with -5 dBi gain
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

- There're 2 colors for EUT listed as below

Brand	Model	Color	Description
Light	TLP201	Black	Different colors are for marketing purpose
		Gray	

- The EUT contains following accessory devices.

Product	Brand	Model	Description
USB Cable 1 (Black)	UDE	LP2	1 m cable P/N.: 410-4102000001
USB Cable 2 (Gray)	UDE	LP2	1 m cable P/N.: 410-4101000001
Battery	ZHENGZHOU BAK Battery Co. Ltd.	V304556P	3.8 Vdc

* The USB cables have the same layout, circuit, and components, but different P/N and color.

3. The EUT provides one transmitter and receiver.

Modulation Mode	Tx Function
802.11a	1TX
802.11n (HT20)	1TX
802.11n (HT40)	1TX

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):

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

2 channels are provided for 802.11n (HT40):

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):

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

2 channels are provided for 802.11n (HT40):

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 ~ 5720 MHz

12 channels are provided for 802.11a, 802.11n (HT20):

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	144	5720

6 channels are provided for 802.11n (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
102	5510	126	5630
110	5550	134	5670
118	5590	142	5710

For 5745 ~ 5825 MHz:

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

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

2 channels are provided for 802.11n (HT40):

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

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 **X-plane** for 5180-5240MHz & 5260-5320MHz and **Z-plane** for 5500-5720MHz & 5745-5825MHz.

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
-		802.11n (HT20)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	13.5
-	5260-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-		802.11n (HT20)	52 to 64	52, 60, 64	OFDM	BPSK	6.5
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	13.5
-	5500-5720	802.11a	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.5
-		802.11n (HT40)	102 to 142	102, 110, 134, 142	OFDM	BPSK	13.5
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	13.5

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)
-	5180-5240	802.11n (HT40)	38 to 46	38	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)
-	5180-5240	802.11n (HT40)	38 to 46	38	OFDM	BPSK	13.5

Antenna Port Conducted Measurement:

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

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
-		802.11n (HT20)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	13.5
-	5260-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-		802.11n (HT20)	52 to 64	52, 60, 64	OFDM	BPSK	6.5
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	13.5
-	5500-5720	802.11a	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.5
-		802.11n (HT40)	102 to 142	102, 110, 134, 142	OFDM	BPSK	13.5
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	13.5

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Charles Hsiao
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Charles Hsiao
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Jisyong Wang
APCM	25 deg. C, 65 % RH	3.8 Vdc	Gavin Wu

3.3 Duty Cycle of Test Signal

MODULATION TYPE: BPSK

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

802.11a: Duty cycle = $1.362/1.562 = 0.872$, Duty factor = $10 * \log(1/0.872) = 0.59$

802.11n (HT20): Duty cycle = $1.267/1.49 = 0.850$, Duty factor = $10 * \log(1/0.850) = 0.71$

802.11n (HT40): Duty cycle = $0.634/0.857 = 0.740$, Duty factor = $10 * \log(1/0.740) = 1.31$



3.4 Description of Support Units

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

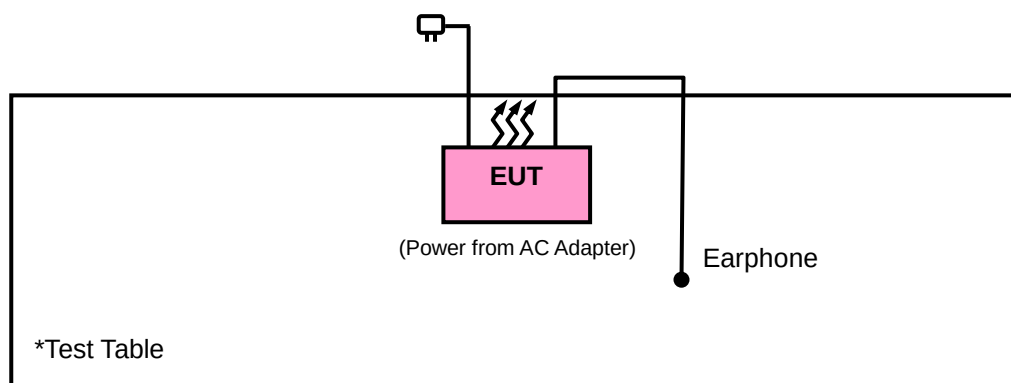
No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Adapter	SONY	AC-0060-EU	N/A	N/A
2.	Earphone	N/A	N/A	N/A	N/A

No.	Signal Cable Description Of The Above Support Units
1.	N/A
2.	N/A

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item 1 was provided by client.

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart E (15.407)

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 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:

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

4.1.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9038A	MY52260177	Aug. 20, 2018	Aug. 19, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSV40	100980	Apr. 17, 2018	Apr. 16, 2019
HORN Antenna ETS-Lindgren	3117	00143293	Nov. 25, 2018	Nov. 24, 2019
BILOG Antenna SCHWARZBECK	VULB 9168	9168-616	Nov. 27, 2018	Nov. 26, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Nov. 25, 2018	Nov. 24, 2019
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 16, 2018	Apr. 15, 2019
Loop Antenna	EM-6879	269	Sep. 07, 2018	Sep. 06, 2019
Preamplifier Agilent	310N	187226	Jun. 19, 2018	Jun. 18, 2019
Preamplifier Agilent	83017A	MY39501357	Jun. 19, 2018	Jun. 18, 2019
Preamplifier EMCI	EMC 184045	980116	Oct. 12, 2018	Oct. 11, 2019
Power Meter Anritsu	ML2495A	1012010	Sep. 05, 2018	Sep. 04, 2019
Power Sensor Anritsu	MA2411B	1315050	Sep. 04, 2018	Sep. 03, 2019
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
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
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
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Temperature & Humidity Chamber	GTH-120-40-CP-A R	MAA1306-019	Sep. 05, 2018	Sep. 04, 2019
DC Power Supply Topward	33010D	807748	NA	NA
Digital Multimeter Fluke	87-III	70360742	Jun. 29, 2018	Jun. 28, 2019

- 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 7450I-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:

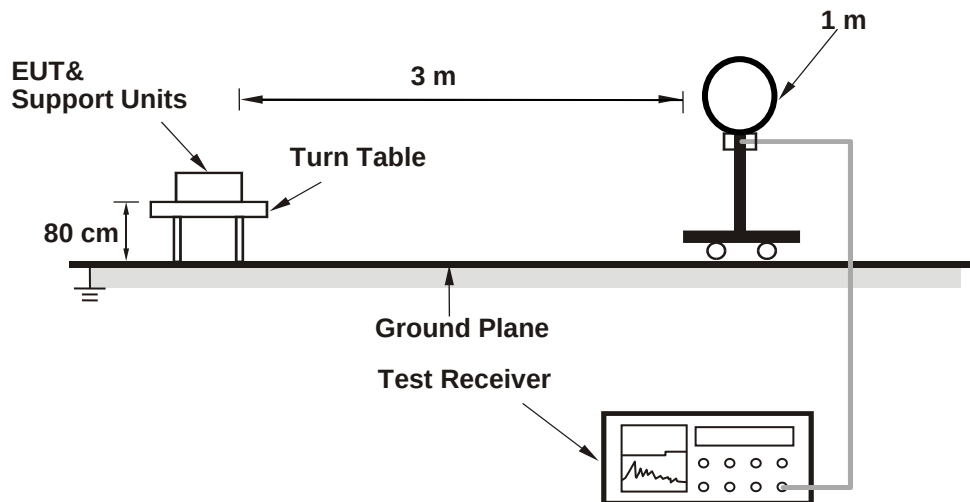
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) 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 $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz.
(11a: RBW = 1 MHz, VBW = 1 kHz ; 11n (HT20): RBW = 1 MHz, VBW = 1 kHz ;
11n (HT40): 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

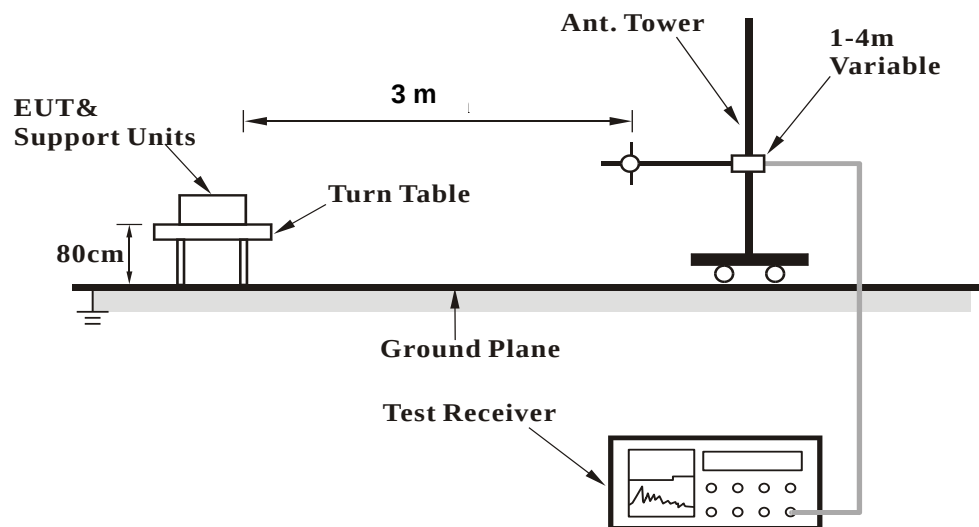
No deviation.

4.1.6 Test Setup

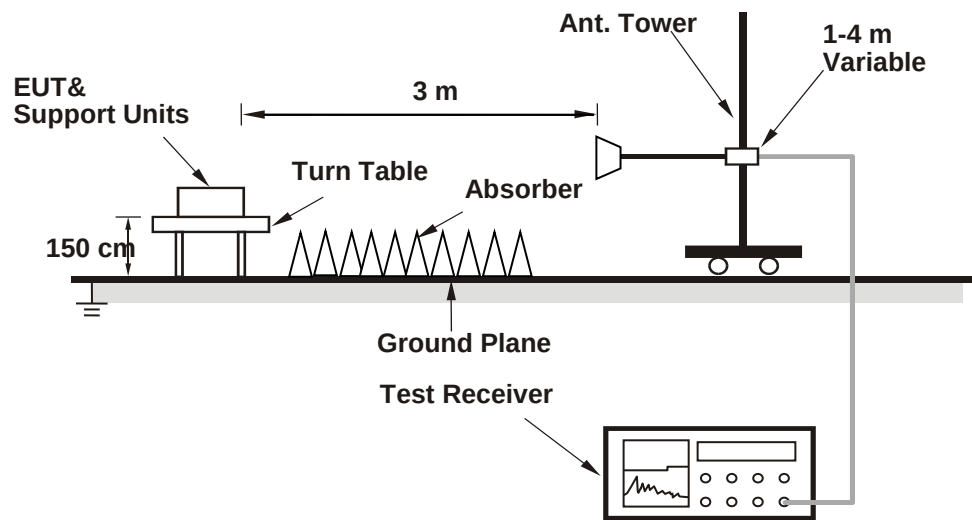
<Radiated Emission below 30 MHz>



<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
5150	47.62	35.08	54	-6.38	34.12	8.13	29.71	218	143	Average
5150	54.43	41.89	74	-19.57	34.12	8.13	29.71	218	143	Peak
5180	94.31	81.72			34.15	8.16	29.72	218	143	Average
5180	101.11	88.52			34.15	8.16	29.72	218	143	Peak
*10360	57.01	39.74	68.2	-11.19	37.12	12.3	32.15	196	235	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
5149.85	42.67	30.13	54	-11.33	34.12	8.13	29.71	251	280	Average
5149.85	53.15	40.61	74	-20.85	34.12	8.13	29.71	251	280	Peak
5180	86.46	73.87			34.15	8.16	29.72	251	280	Average
5180	93.85	81.26			34.15	8.16	29.72	251	280	Peak
*10360	56.66	39.39	68.2	-11.54	37.12	12.3	32.15	179	115	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
5125.4	42.64	30.14	54	-11.36	34.11	8.1	29.71	218	143	Average
5125.4	53.46	40.96	74	-20.54	34.11	8.1	29.71	218	143	Peak
5200	94.52	81.89			34.16	8.19	29.72	218	143	Average
5200	101.52	88.89			34.16	8.19	29.72	218	143	Peak
5450.76	42.51	29.4	54	-11.49	34.36	8.51	29.76	218	143	Average
5450.76	53.33	40.22	74	-20.67	34.36	8.51	29.76	218	143	Peak
*10400	57.19	39.88	68.2	-11.01	37.14	12.36	32.19	112	180	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
5130.8	42.53	30.03	54	-11.47	34.11	8.1	29.71	251	280	Average
5130.8	53.47	40.97	74	-20.53	34.11	8.1	29.71	251	280	Peak
5200	86.61	73.98			34.16	8.19	29.72	251	280	Average
5200	93.29	80.66			34.16	8.19	29.72	251	280	Peak
5447.79	42.65	29.53	54	-11.35	34.36	8.51	29.75	251	280	Average
5447.79	54.04	40.92	74	-19.96	34.36	8.51	29.75	251	280	Peak
*10400	56.54	39.23	68.2	-11.66	37.14	12.36	32.19	174	126	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5200 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. 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	94.7	81.97			34.19	8.26	29.72	218	143	Average
5240	101.03	88.3			34.19	8.26	29.72	218	143	Peak
5459.89	42.66	29.55	54	-11.34	34.36	8.51	29.76	218	143	Average
5459.89	53.47	40.36	74	-20.53	34.36	8.51	29.76	218	143	Peak
*10480	57.16	39.69	68.2	-11.04	37.19	12.53	32.25	186	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
5240	86.97	74.24			34.19	8.26	29.72	251	280	Average
5240	93.15	80.42			34.19	8.26	29.72	251	280	Peak
5418.2	42.48	29.46	54	-11.52	34.33	8.44	29.75	251	280	Average
5418.2	53.29	40.27	74	-20.71	34.33	8.44	29.75	251	280	Peak
*10480	57.57	40.1	68.2	-10.63	37.19	12.53	32.25	154	216	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
5133.65	42.5	29.97	54	-11.5	34.11	8.13	29.71	201	140	Average
5133.65	52.78	40.25	74	-21.22	34.11	8.13	29.71	201	140	Peak
5260	93.84	81.1			34.21	8.26	29.73	201	140	Average
5260	100.95	88.21			34.21	8.26	29.73	201	140	Peak
*10520	57.74	40.19	68.2	-10.46	37.21	12.61	32.27	195	247	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
5131.4	42.65	30.15	54	-11.35	34.11	8.1	29.71	158	5	Average
5131.4	53.29	40.79	74	-20.71	34.11	8.1	29.71	158	5	Peak
5260	83.37	70.63			34.21	8.26	29.73	158	5	Average
5260	90.3	77.56			34.21	8.26	29.73	158	5	Peak
*10520	57.94	40.39	68.2	-10.26	37.21	12.61	32.27	137	143	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5260 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. 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
5127.2	42.52	30.02	54	-11.48	34.11	8.1	29.71	201	140	Average
5127.2	53.34	40.84	74	-20.66	34.11	8.1	29.71	201	140	Peak
5300	93.05	80.22			34.24	8.32	29.73	201	140	Average
5300	100.61	87.78			34.24	8.32	29.73	201	140	Peak
5352.53	43.37	30.45	54	-10.63	34.28	8.38	29.74	201	140	Average
5352.53	54.27	41.35	74	-19.73	34.28	8.38	29.74	201	140	Peak
10600	47.92	30.23	54	-6.08	37.28	12.67	32.26	103	195	Average
10600	58.01	40.32	74	-15.99	37.28	12.67	32.26	103	195	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
5132.6	42.45	29.95	54	-11.55	34.11	8.1	29.71	158	5	Average
5132.6	54.04	41.54	74	-19.96	34.11	8.1	29.71	158	5	Peak
5300	83.83	71			34.24	8.32	29.73	158	5	Average
5300	90.11	77.28			34.24	8.32	29.73	158	5	Peak
5444.16	42.55	29.47	54	-11.45	34.35	8.48	29.75	158	5	Average
5444.16	53.04	39.96	74	-20.96	34.35	8.48	29.75	158	5	Peak
10600	47.89	30.2	54	-6.11	37.28	12.67	32.26	158	131	Average
10600	58.01	40.32	74	-15.99	37.28	12.67	32.26	158	131	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5300 MHz: Fundamental Frequency
3. 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	93.82	80.95			34.25	8.35	29.73	201	140	Average
5320	100.25	87.38			34.25	8.35	29.73	201	140	Peak
5373.43	43.24	30.29	54	-10.76	34.29	8.41	29.75	201	140	Average
5373.43	54.62	41.67	74	-19.38	34.29	8.41	29.75	201	140	Peak
10640	47.93	30.17	54	-6.07	37.31	12.71	32.26	136	52	Average
10640	58.15	40.39	74	-15.85	37.31	12.71	32.26	136	52	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	83.93	71.06			34.25	8.35	29.73	158	5	Average
5320	90.02	77.15			34.25	8.35	29.73	158	5	Peak
5406.76	42.57	29.56	54	-11.43	34.32	8.44	29.75	158	5	Average
5406.76	53.87	40.86	74	-20.13	34.32	8.44	29.75	158	5	Peak
10640	47.51	29.75	54	-6.49	37.31	12.71	32.26	185	117	Average
10640	57.68	39.92	74	-16.32	37.31	12.71	32.26	185	117	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5320 MHz: Fundamental Frequency
3. 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
5447.92	44.11	30.99	54	-9.89	34.36	8.51	29.75	100	234	Average
5447.92	53.94	40.82	74	-20.06	34.36	8.51	29.75	100	234	Peak
*5470	55.78	42.66	68.2	-12.42	34.37	8.51	29.76	100	234	Peak
5500	92.57	79.36			34.4	8.57	29.76	100	234	Average
5500	99.1	85.89			34.4	8.57	29.76	100	234	Peak
11000	47.08	28.75	54	-6.92	37.6	12.96	32.23	157	222	Average
11000	60.2	41.87	74	-13.8	37.6	12.96	32.23	157	222	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
5447.76	43.7	30.58	54	-10.3	34.36	8.51	29.75	137	173	Average
5447.76	53.48	40.36	74	-20.52	34.36	8.51	29.75	137	173	Peak
*5468.56	55.13	42.01	68.2	-13.07	34.37	8.51	29.76	137	173	Peak
5500	90.59	77.38			34.4	8.57	29.76	137	173	Average
5500	97.72	84.51			34.4	8.57	29.76	137	173	Peak
11000	46.89	28.56	54	-7.11	37.6	12.96	32.23	158	88	Average
11000	59.07	40.74	74	-14.93	37.6	12.96	32.23	158	88	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5500 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. 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
5442.32	42.69	29.61	54	-11.31	34.35	8.48	29.75	100	234	Average
5442.32	53.53	40.45	74	-20.47	34.35	8.48	29.75	100	234	Peak
*5469.2	53.27	40.15	68.2	-14.93	34.37	8.51	29.76	100	234	Peak
5580	92.65	79.39			34.47	8.6	29.81	100	234	Average
5580	99.47	86.21			34.47	8.6	29.81	100	234	Peak
*5724.92	52.43	39.02	68.2	-15.77	34.62	8.65	29.86	100	234	Peak
11160	46.35	28	54	-7.65	37.7	12.83	32.18	162	133	Average
11160	58.61	40.26	74	-15.39	37.7	12.83	32.18	162	133	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
5449.04	42.77	29.65	54	-11.23	34.36	8.51	29.75	137	173	Average
5449.04	53.59	40.47	74	-20.41	34.36	8.51	29.75	137	173	Peak
*5469.36	51.83	38.71	68.2	-16.37	34.37	8.51	29.76	137	173	Peak
5580	90.65	77.39			34.47	8.6	29.81	137	173	Average
5580	97.63	84.37			34.47	8.6	29.81	137	173	Peak
*5724.12	52.09	38.68	68.2	-16.11	34.62	8.65	29.86	137	173	Peak
11160	46.24	27.89	54	-7.76	37.7	12.83	32.18	137	179	Average
11160	59.85	41.5	74	-14.15	37.7	12.83	32.18	137	179	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5580 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. 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	93.58	80.2			34.59	8.64	29.85	100	234	Average
5700	100.84	87.46			34.59	8.64	29.85	100	234	Peak
*5724.36	61.19	47.78	68.2	-7.01	34.62	8.65	29.86	100	234	Peak
11400	46.67	28.25	54	-7.33	37.84	12.67	32.09	195	199	Average
11400	59.59	41.17	74	-14.41	37.84	12.67	32.09	195	199	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	91.65	78.27			34.59	8.64	29.85	137	173	Average
5700	98.95	85.57			34.59	8.64	29.85	137	173	Peak
*5724.44	60.24	46.83	68.2	-7.96	34.62	8.65	29.86	137	173	Peak
11400	46.65	28.23	54	-7.35	37.84	12.67	32.09	184	326	Average
11400	58.61	40.19	74	-15.39	37.84	12.67	32.09	184	326	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 144	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
5371.6	42.51	29.55	54	-11.49	34.29	8.41	29.74	100	234	Average
5371.6	53.13	40.17	74	-20.87	34.29	8.41	29.74	100	234	Peak
*5470.64	51.4	38.28	68.2	-16.8	34.37	8.51	29.76	100	234	Peak
5720	93.28	79.87			34.62	8.65	29.86	100	234	Average
5720	100.82	87.41			34.62	8.65	29.86	100	234	Peak
11440	48.85	30.43	54	-5.15	37.86	12.65	32.09	169	135	Average
11440	59.11	40.69	74	-14.89	37.86	12.65	32.09	169	135	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
5459.92	42.58	29.47	54	-11.42	34.36	8.51	29.76	137	173	Average
5459.92	53.1	39.99	74	-20.9	34.36	8.51	29.76	137	173	Peak
*5468.56	51.42	38.3	68.2	-16.78	34.37	8.51	29.76	137	173	Peak
5720	91.35	77.94			34.62	8.65	29.86	137	173	Average
5720	98.77	85.36			34.62	8.65	29.86	137	173	Peak
11440	48.53	30.11	54	-5.47	37.86	12.65	32.09	137	205	Average
11440	58.7	40.28	74	-15.3	37.86	12.65	32.09	137	205	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5720 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. 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	94.77	81.35			34.64	8.66	29.88	179	234	Average
5745	101.69	88.27			34.64	8.66	29.88	179	234	Peak
11490	48.65	30.21	54	-5.35	37.89	12.62	32.07	154	179	Average
11490	59.03	40.59	74	-14.97	37.89	12.62	32.07	154	179	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	91.57	78.15			34.64	8.66	29.88	150	167	Average
5745	98.26	84.84			34.64	8.66	29.88	150	167	Peak
11490	48.78	30.34	54	-5.22	37.89	12.62	32.07	111	187	Average
11490	58.74	40.3	74	-15.26	37.89	12.62	32.07	111	187	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
*5584	53.48	40.2	68.2	-14.72	34.49	8.6	29.81	179	234	Peak
5651.725	52.53	39.18	69.48	-16.95	34.56	8.62	29.83	179	234	Peak
5921.575	52.7	39.1	70.73	-18.03	34.83	8.73	29.96	179	234	Peak
*6016.075	53.3	39.63	68.2	-14.9	34.92	8.76	30.01	179	234	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
*5515.75	53.67	40.45	68.2	-14.53	34.42	8.57	29.77	150	167	Peak
5651.725	52.92	39.57	69.48	-16.56	34.56	8.62	29.83	150	167	Peak
5923.675	52.44	38.84	69.18	-16.74	34.83	8.73	29.96	150	167	Peak
*5987.725	54.55	40.91	68.2	-13.65	34.88	8.75	29.99	150	167	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	94.52	81.06			34.68	8.68	29.9	179	234	Average
5785	101.18	87.72			34.68	8.68	29.9	179	234	Peak
11570	47.42	28.79	54	-6.58	38	12.68	32.05	196	245	Average
11570	57.41	38.78	74	-16.59	38	12.68	32.05	196	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
5785	91.52	78.06			34.68	8.68	29.9	150	167	Average
5785	98.91	85.45			34.68	8.68	29.9	150	167	Peak
11570	47.75	29.12	54	-6.25	38	12.68	32.05	126	341	Average
11570	57.62	38.99	74	-16.38	38	12.68	32.05	126	341	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	53.33	40	68.2	-14.87	34.54	8.62	29.83	179	234	Peak
5653.3	52.02	38.66	70.64	-18.62	34.56	8.63	29.83	179	234	Peak
5916.85	53.27	39.69	74.23	-20.96	34.81	8.73	29.96	179	234	Peak
*5967.25	53.9	40.26	68.2	-14.3	34.87	8.75	29.98	179	234	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
*5576.65	53.19	39.91	68.2	-15.01	34.47	8.6	29.79	150	167	Peak
5652.25	52.36	39.01	69.86	-17.5	34.56	8.62	29.83	150	167	Peak
5920.525	52.78	39.2	71.51	-18.73	34.81	8.73	29.96	150	167	Peak
*5956.225	54.65	41.01	68.2	-13.55	34.87	8.74	29.97	150	167	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	94.26	80.75			34.73	8.69	29.91	179	234	Average
5825	101	87.49			34.73	8.69	29.91	179	234	Peak
11650	48.07	29.21	54	-5.93	38.09	12.8	32.03	192	224	Average
11650	58.16	39.3	74	-15.84	38.09	12.8	32.03	192	224	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	91.77	78.26			34.73	8.69	29.91	150	167	Average
5825	98.66	85.15			34.73	8.69	29.91	150	167	Peak
11650	49.54	30.68	54	-4.46	38.09	12.8	32.03	158	132	Average
11650	59.73	40.87	74	-14.27	38.09	12.8	32.03	158	132	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
*5582.95	53.78	40.5	68.2	-14.42	34.49	8.6	29.81	179	234	Peak
5651.725	50.04	36.69	69.48	-19.44	34.56	8.62	29.83	179	234	Peak
5919.475	53.25	39.67	72.29	-19.04	34.81	8.73	29.96	179	234	Peak
*5967.25	53.66	40.02	68.2	-14.54	34.87	8.75	29.98	179	234	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
*5605	54.23	40.94	68.2	-13.97	34.5	8.61	29.82	150	167	Peak
5651.2	52.05	38.7	69.09	-17.04	34.56	8.62	29.83	150	167	Peak
5917.9	51.75	38.17	73.45	-21.7	34.81	8.73	29.96	150	167	Peak
*5931.55	54.66	41.06	68.2	-13.54	34.83	8.73	29.96	150	167	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

802.11n (HT20)

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
5127.8	44.02	31.52	54	-9.98	34.11	8.1	29.71	218	143	Average
5127.8	54.56	42.06	74	-19.44	34.11	8.1	29.71	218	143	Peak
5180	93.43	80.84			34.15	8.16	29.72	218	143	Average
5180	100.5	87.91			34.15	8.16	29.72	218	143	Peak
*10360	56.36	39.09	68.2	-11.84	37.12	12.3	32.15	148	112	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
5148.05	42.55	30.01	54	-11.45	34.12	8.13	29.71	251	280	Average
5148.05	53.64	41.1	74	-20.36	34.12	8.13	29.71	251	280	Peak
5180	85.88	73.29			34.15	8.16	29.72	251	280	Average
5180	92.58	79.99			34.15	8.16	29.72	251	280	Peak
*10360	56.87	39.6	68.2	-11.33	37.12	12.3	32.15	130	168	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
5148.5	42.55	30.01	54	-11.45	34.12	8.13	29.71	218	143	Average
5148.5	53.05	40.51	74	-20.95	34.12	8.13	29.71	218	143	Peak
5200	92.92	80.29			34.16	8.19	29.72	218	143	Average
5200	100.5	87.87			34.16	8.19	29.72	218	143	Peak
5452.63	42.55	29.44	54	-11.45	34.36	8.51	29.76	218	143	Average
5452.63	53.22	40.11	74	-20.78	34.36	8.51	29.76	218	143	Peak
*10400	56.64	39.33	68.2	-11.56	37.14	12.36	32.19	142	181	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
5139.65	42.49	29.95	54	-11.51	34.12	8.13	29.71	251	280	Average
5139.65	53.72	41.18	74	-20.28	34.12	8.13	29.71	251	280	Peak
5200	85.5	72.87			34.16	8.19	29.72	251	280	Average
5200	92.31	79.68			34.16	8.19	29.72	251	280	Peak
5450.21	42.59	29.48	54	-11.41	34.36	8.51	29.76	251	280	Average
5450.21	54.01	40.9	74	-19.99	34.36	8.51	29.76	251	280	Peak
*10400	56.88	39.57	68.2	-11.32	37.14	12.36	32.19	131	86	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	93.56	80.83			34.19	8.26	29.72	218	143	Average
5240	100.58	87.85			34.19	8.26	29.72	218	143	Peak
5432.5	42.58	29.5	54	-11.42	34.35	8.48	29.75	218	143	Average
5432.5	53.32	40.24	74	-20.68	34.35	8.48	29.75	218	143	Peak
*10480	58.01	40.54	68.2	-10.19	37.19	12.53	32.25	141	117	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	85.54	72.81			34.19	8.26	29.72	251	280	Average
5240	92.98	80.25			34.19	8.26	29.72	251	280	Peak
5442.84	42.65	29.57	54	-11.35	34.35	8.48	29.75	251	280	Average
5442.84	53.57	40.49	74	-20.43	34.35	8.48	29.75	251	280	Peak
*10480	56.95	39.48	68.2	-11.25	37.19	12.53	32.25	195	224	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
5129.15	42.5	30	54	-11.5	34.11	8.1	29.71	201	140	Average
5129.15	53.28	40.78	74	-20.72	34.11	8.1	29.71	201	140	Peak
5260	92.48	79.74			34.21	8.26	29.73	201	140	Average
5260	99.47	86.73			34.21	8.26	29.73	201	140	Peak
*10520	57.74	40.19	68.2	-10.46	37.21	12.61	32.27	152	127	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
5142.05	42.57	30.03	54	-11.43	34.12	8.13	29.71	158	5	Average
5142.05	53.35	40.81	74	-20.65	34.12	8.13	29.71	158	5	Peak
5260	82.6	69.86			34.21	8.26	29.73	158	5	Average
5260	89.83	77.09			34.21	8.26	29.73	158	5	Peak
*10520	57.94	40.39	68.2	-10.26	37.21	12.61	32.27	133	68	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5260 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. 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
5129.15	42.55	30.05	54	-11.45	34.11	8.1	29.71	201	140	Average
5129.15	53.91	41.41	74	-20.09	34.11	8.1	29.71	201	140	Peak
5300	92.39	79.56			34.24	8.32	29.73	201	140	Average
5300	99.75	86.92			34.24	8.32	29.73	201	140	Peak
5351.76	43.43	30.51	54	-10.57	34.28	8.38	29.74	201	140	Average
5351.76	53.01	40.09	74	-20.99	34.28	8.38	29.74	201	140	Peak
10600	47.85	30.16	54	-6.15	37.28	12.67	32.26	163	343	Average
10600	57.96	40.27	74	-16.04	37.28	12.67	32.26	163	343	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
5115.65	42.52	30.03	54	-11.48	34.09	8.1	29.7	158	5	Average
5115.65	53.45	40.96	74	-20.55	34.09	8.1	29.7	158	5	Peak
5300	82.87	70.04			34.24	8.32	29.73	158	5	Average
5300	89.12	76.29			34.24	8.32	29.73	158	5	Peak
5407.42	42.61	29.6	54	-11.39	34.32	8.44	29.75	158	5	Average
5407.42	53.68	40.67	74	-20.32	34.32	8.44	29.75	158	5	Peak
10600	48.04	30.35	54	-5.96	37.28	12.67	32.26	187	123	Average
10600	58.15	40.46	74	-15.85	37.28	12.67	32.26	187	123	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5300 MHz: Fundamental Frequency
3. 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	92.43	79.56			34.25	8.35	29.73	201	140	Average
5320	99.29	86.42			34.25	8.35	29.73	201	140	Peak
5371.78	43.18	30.22	54	-10.82	34.29	8.41	29.74	201	140	Average
5371.78	53.72	40.76	74	-20.28	34.29	8.41	29.74	201	140	Peak
10640	48.21	30.45	54	-5.79	37.31	12.71	32.26	111	174	Average
10640	58.07	40.31	74	-15.93	37.31	12.71	32.26	111	174	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	82.73	69.86			34.25	8.35	29.73	158	5	Average
5320	89.17	76.3			34.25	8.35	29.73	158	5	Peak
5418.75	42.53	29.51	54	-11.47	34.33	8.44	29.75	158	5	Average
5418.75	53.53	40.51	74	-20.47	34.33	8.44	29.75	158	5	Peak
10640	47.53	29.77	54	-6.47	37.31	12.71	32.26	132	86	Average
10640	57.73	39.97	74	-16.27	37.31	12.71	32.26	132	86	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5320 MHz: Fundamental Frequency
3. 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
5448.56	44.26	31.14	54	-9.74	34.36	8.51	29.75	100	234	Average
5448.56	53.8	40.68	74	-20.2	34.36	8.51	29.75	100	234	Peak
*5470.16	55.51	42.39	68.2	-12.69	34.37	8.51	29.76	100	234	Peak
5500	91.52	78.31			34.4	8.57	29.76	100	234	Average
5500	98.42	85.21			34.4	8.57	29.76	100	234	Peak
11000	45.58	27.25	54	-8.42	37.6	12.96	32.23	123	322	Average
11000	59.62	41.29	74	-14.38	37.6	12.96	32.23	123	322	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
5448.56	43.71	30.59	54	-10.29	34.36	8.51	29.75	137	173	Average
5448.56	53.46	40.34	74	-20.54	34.36	8.51	29.75	137	173	Peak
*5469.68	55.68	42.56	68.2	-12.52	34.37	8.51	29.76	137	173	Peak
5500	89.77	76.56			34.4	8.57	29.76	137	173	Average
5500	96.71	83.5			34.4	8.57	29.76	137	173	Peak
11000	45.98	27.65	54	-8.02	37.6	12.96	32.23	176	225	Average
11000	58.85	40.52	74	-15.15	37.6	12.96	32.23	176	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
5446.32	42.82	29.7	54	-11.18	34.36	8.51	29.75	100	234	Average
5446.32	53.26	40.14	74	-20.74	34.36	8.51	29.75	100	234	Peak
*5468.56	52.77	39.65	68.2	-15.43	34.37	8.51	29.76	100	234	Peak
5580	91.56	78.3			34.47	8.6	29.81	100	234	Average
5580	98.13	84.87			34.47	8.6	29.81	100	234	Peak
*5724.04	53.3	39.89	68.2	-14.9	34.62	8.65	29.86	100	234	Peak
11160	46.39	28.04	54	-7.61	37.7	12.83	32.18	175	22	Average
11160	58.26	39.91	74	-15.74	37.7	12.83	32.18	175	22	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
5451.12	42.86	29.75	54	-11.14	34.36	8.51	29.76	137	173	Average
5451.12	53.4	40.29	74	-20.6	34.36	8.51	29.76	137	173	Peak
*5470.48	51.58	38.46	68.2	-16.62	34.37	8.51	29.76	137	173	Peak
5580	89.63	76.37			34.47	8.6	29.81	137	173	Average
5580	96.74	83.48			34.47	8.6	29.81	137	173	Peak
*5724.44	53.34	39.93	68.2	-14.86	34.62	8.65	29.86	137	173	Peak
11160	45.62	27.27	54	-8.38	37.7	12.83	32.18	195	179	Average
11160	58.99	40.64	74	-15.01	37.7	12.83	32.18	195	179	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5580 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. 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	92.58	79.2			34.59	8.64	29.85	100	234	Average
5700	99.94	86.56			34.59	8.64	29.85	100	234	Peak
*5725.56	60.19	46.78	68.2	-8.01	34.62	8.65	29.86	100	234	Peak
11400	46.29	27.87	54	-7.71	37.84	12.67	32.09	175	114	Average
11400	59.35	40.93	74	-14.65	37.84	12.67	32.09	175	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
5700	90.52	77.14			34.59	8.64	29.85	137	173	Average
5700	97.02	83.64			34.59	8.64	29.85	137	173	Peak
*5723.96	62.95	49.54	68.2	-5.25	34.62	8.65	29.86	137	173	Peak
11400	46.63	28.21	54	-7.37	37.84	12.67	32.09	184	279	Average
11400	58.54	40.12	74	-15.46	37.84	12.67	32.09	184	279	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 144	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
5458.32	42.49	29.38	54	-11.51	34.36	8.51	29.76	100	234	Average
5458.32	53.33	40.22	74	-20.67	34.36	8.51	29.76	100	234	Peak
*5470.96	51.61	38.46	68.2	-16.59	34.37	8.54	29.76	100	234	Peak
5720	92.47	79.06			34.62	8.65	29.86	100	234	Average
5720	99.44	86.03			34.62	8.65	29.86	100	234	Peak
11440	48.59	30.17	54	-5.41	37.86	12.65	32.09	124	57	Average
11440	59.11	40.69	74	-14.89	37.86	12.65	32.09	124	57	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
5446.96	42.47	29.35	54	-11.53	34.36	8.51	29.75	137	173	Average
5446.96	53.48	40.36	74	-20.52	34.36	8.51	29.75	137	173	Peak
*5468.56	52.55	39.43	68.2	-15.65	34.37	8.51	29.76	137	173	Peak
5720	90.54	77.13			34.62	8.65	29.86	137	173	Average
5720	97.65	84.24			34.62	8.65	29.86	137	173	Peak
11440	48.64	30.22	54	-5.36	37.86	12.65	32.09	176	294	Average
11440	58.7	40.28	74	-15.3	37.86	12.65	32.09	176	294	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5720 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	93.59	80.17			34.64	8.66	29.88	179	234	Average
5745	100.23	86.81			34.64	8.66	29.88	179	234	Peak
11490	47.68	29.24	54	-6.32	37.89	12.62	32.07	152	127	Average
11490	57.55	39.11	74	-16.45	37.89	12.62	32.07	152	127	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	90.68	77.26			34.64	8.66	29.88	150	167	Average
5745	97.87	84.45			34.64	8.66	29.88	150	167	Peak
11490	48.16	29.72	54	-5.84	37.89	12.62	32.07	144	35	Average
11490	58.3	39.86	74	-15.7	37.89	12.62	32.07	144	35	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
*5574.025	53.16	39.89	68.2	-15.04	34.47	8.59	29.79	179	234	Peak
5654.35	51.91	38.56	71.42	-19.51	34.56	8.63	29.84	179	234	Peak
5921.575	50.88	37.28	70.73	-19.85	34.83	8.73	29.96	179	234	Peak
*5978.275	53.86	40.21	68.2	-14.34	34.88	8.75	29.98	179	234	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	54.32	41.04	68.2	-13.88	34.49	8.6	29.81	150	167	Peak
5651.725	52.16	38.81	69.48	-17.32	34.56	8.62	29.83	150	167	Peak
5922.625	51.75	38.15	69.96	-18.21	34.83	8.73	29.96	150	167	Peak
*5973.025	54.03	40.38	68.2	-14.17	34.88	8.75	29.98	150	167	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	93.58	80.12			34.68	8.68	29.9	179	234	Average
5785	100.55	87.09			34.68	8.68	29.9	179	234	Peak
11570	48.53	29.9	54	-5.47	38	12.68	32.05	183	276	Average
11570	58.65	40.02	74	-15.35	38	12.68	32.05	183	276	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	90.59	77.13			34.68	8.68	29.9	150	167	Average
5785	97.09	83.63			34.68	8.68	29.9	150	167	Peak
11570	48.44	29.81	54	-5.56	38	12.68	32.05	157	116	Average
11570	58.29	39.66	74	-15.71	38	12.68	32.05	157	116	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
*5572.975	54.37	41.1	68.2	-13.83	34.47	8.59	29.79	179	234	Peak
5652.775	51.08	37.72	70.25	-19.17	34.56	8.63	29.83	179	234	Peak
5923.675	50.95	37.35	69.18	-18.23	34.83	8.73	29.96	179	234	Peak
*6018.175	53.95	40.27	68.2	-14.25	34.92	8.77	30.01	179	234	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
*5622.325	53.55	40.24	68.2	-14.65	34.52	8.61	29.82	150	167	Peak
5654.35	52.63	39.28	71.42	-18.79	34.56	8.63	29.84	150	167	Peak
5920.525	52.66	39.08	71.51	-18.85	34.81	8.73	29.96	150	167	Peak
*5929.45	54.66	41.06	68.2	-13.54	34.83	8.73	29.96	150	167	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	93.56	80.05			34.73	8.69	29.91	179	234	Average
5825	100.38	86.87			34.73	8.69	29.91	179	234	Peak
11650	47.74	28.88	54	-6.26	38.09	12.8	32.03	171	140	Average
11650	57.9	39.04	74	-16.1	38.09	12.8	32.03	171	140	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	90.59	77.08			34.73	8.69	29.91	150	167	Average
5825	97.34	83.83			34.73	8.69	29.91	150	167	Peak
11650	47.49	28.63	54	-6.51	38.09	12.8	32.03	143	253	Average
11650	57.67	38.81	74	-16.33	38.09	12.8	32.03	143	253	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
*5513.65	52.94	39.72	68.2	-15.26	34.42	8.57	29.77	179	234	Peak
5652.25	51.02	37.67	69.86	-18.84	34.56	8.62	29.83	179	234	Peak
5922.1	52.41	38.81	70.35	-17.94	34.83	8.73	29.96	179	234	Peak
*5999.275	53.74	40.07	68.2	-14.46	34.9	8.76	29.99	179	234	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
*5613.925	53.84	40.55	68.2	-14.36	34.5	8.61	29.82	150	167	Peak
5651.725	50.98	37.63	69.48	-18.5	34.56	8.62	29.83	150	167	Peak
5922.625	52.19	38.59	69.96	-17.77	34.83	8.73	29.96	150	167	Peak
*5953.075	54.27	40.65	68.2	-13.93	34.85	8.74	29.97	150	167	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

802.11n (HT40)

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
5149.55	51.61	39.07	54	-2.39	34.12	8.13	29.71	218	143	Peak
5149.55	65.02	52.48	74	-8.98	34.12	8.13	29.71	218	143	Peak
5190	91.55	78.93			34.15	8.19	29.72	218	143	Average
5190	98.34	85.72			34.15	8.19	29.72	218	143	Peak
5452.3	43.05	29.94	54	-10.95	34.36	8.51	29.76	218	143	Average
5452.3	53.97	40.86	74	-20.03	34.36	8.51	29.76	218	143	Peak
*10380	56.67	39.35	68.2	-11.53	37.13	12.36	32.17	164	127	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
5149.55	47.3	34.76	54	-6.7	34.12	8.13	29.71	251	280	Average
5149.55	58.25	45.71	74	-15.75	34.12	8.13	29.71	251	280	Peak
5190	83.56	70.94			34.15	8.19	29.72	251	280	Average
5190	90.97	78.35			34.15	8.19	29.72	251	280	Peak
5417.21	43.12	30.1	54	-10.88	34.33	8.44	29.75	251	280	Average
5417.21	53.41	40.39	74	-20.59	34.33	8.44	29.75	251	280	Peak
*10380	57.26	39.94	68.2	-10.94	37.13	12.36	32.17	151	64	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
5146.55	43.51	30.97	54	-10.49	34.12	8.13	29.71	218	143	Average
5146.55	53.65	41.11	74	-20.35	34.12	8.13	29.71	218	143	Peak
5230	91.64	78.95			34.19	8.22	29.72	218	143	Average
5230	98.76	86.07			34.19	8.22	29.72	218	143	Peak
5434.37	43.2	30.12	54	-10.8	34.35	8.48	29.75	218	143	Average
5434.37	53.16	40.08	74	-20.84	34.35	8.48	29.75	218	143	Peak
*10460	56.86	39.39	68.2	-11.34	37.17	12.53	32.23	176	243	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
5136.95	42.95	30.42	54	-11.05	34.11	8.13	29.71	251	280	Average
5136.95	53.84	41.31	74	-20.16	34.11	8.13	29.71	251	280	Peak
5230	83.62	70.93			34.19	8.22	29.72	251	280	Average
5230	90.71	78.02			34.19	8.22	29.72	251	280	Peak
5443.28	43.13	30.05	54	-10.87	34.35	8.48	29.75	251	280	Average
5443.28	53.6	40.52	74	-20.4	34.35	8.48	29.75	251	280	Peak
*10460	56.36	38.89	68.2	-11.84	37.17	12.53	32.23	121	127	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
5111.6	43	30.51	54	-11	34.09	8.1	29.7	202	140	Average
5111.6	53.55	41.06	74	-20.45	34.09	8.1	29.7	202	140	Peak
5270	90.41	77.64			34.21	8.29	29.73	202	140	Average
5270	97.62	84.85			34.21	8.29	29.73	202	140	Peak
5366.28	43.2	30.27	54	-10.8	34.29	8.38	29.74	202	140	Average
5366.28	53.24	40.31	74	-20.76	34.29	8.38	29.74	202	140	Peak
*10540	57.69	40.1	68.2	-10.51	37.23	12.63	32.27	133	217	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
5133.95	42.89	30.36	54	-11.11	34.11	8.13	29.71	158	5	Average
5133.95	53.17	40.64	74	-20.83	34.11	8.13	29.71	158	5	Peak
5270	80.95	68.18			34.21	8.29	29.73	158	5	Average
5270	87.28	74.51			34.21	8.29	29.73	158	5	Peak
5375.96	43.11	30.16	54	-10.89	34.29	8.41	29.75	158	5	Average
5375.96	53.48	40.53	74	-20.52	34.29	8.41	29.75	158	5	Peak
*10540	57.33	39.74	68.2	-10.87	37.23	12.63	32.27	179	246	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
5149.25	42.5	29.96	54	-11.5	34.12	8.13	29.71	202	140	Average
5149.25	53.51	40.97	74	-20.49	34.12	8.13	29.71	202	140	Peak
5310	90.08	77.24			34.25	8.32	29.73	202	140	Average
5310	97.19	84.35			34.25	8.32	29.73	202	140	Peak
5350	46.26	33.34	54	-7.74	34.28	8.38	29.74	202	140	Average
5350	57.74	44.82	74	-16.26	34.28	8.38	29.74	202	140	Peak
10620	48.75	31.02	54	-5.25	37.3	12.69	32.26	189	244	Average
10620	58.98	41.25	74	-15.02	37.3	12.69	32.26	189	244	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
5146.85	42.49	29.95	54	-11.51	34.12	8.13	29.71	158	5	Average
5146.85	53.5	40.96	74	-20.5	34.12	8.13	29.71	158	5	Peak
5310	81.62	68.78			34.25	8.32	29.73	158	5	Average
5310	87.39	74.55			34.25	8.32	29.73	158	5	Peak
5350.11	42.7	29.78	54	-11.3	34.28	8.38	29.74	158	5	Average
5350.11	53.81	40.89	74	-20.19	34.28	8.38	29.74	158	5	Peak
10620	47.87	30.14	54	-6.13	37.3	12.69	32.26	143	249	Average
10620	58.09	40.36	74	-15.91	37.3	12.69	32.26	143	249	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5310 MHz: Fundamental Frequency
3. 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
5459.44	45.86	32.75	54	-8.14	34.36	8.51	29.76	100	234	Average
5459.44	60.24	47.13	74	-13.76	34.36	8.51	29.76	100	234	Peak
*5468.88	62.78	49.66	68.2	-5.42	34.37	8.51	29.76	100	234	Peak
5510	89.58	76.38			34.4	8.57	29.77	100	234	Average
5510	96.08	82.88			34.4	8.57	29.77	100	234	Peak
*5725.4	53.12	39.71	68.2	-15.08	34.62	8.65	29.86	100	234	Peak
11020	47.28	28.95	54	-6.72	37.61	12.94	32.22	177	187	Average
11020	59.21	40.88	74	-14.79	37.61	12.94	32.22	177	187	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
5459.6	44.47	31.36	54	-9.53	34.36	8.51	29.76	137	173	Average
5459.6	54.59	41.48	74	-19.41	34.36	8.51	29.76	137	173	Peak
*5468.88	60.33	47.21	68.2	-7.87	34.37	8.51	29.76	137	173	Peak
5510	87.19	73.99			34.4	8.57	29.77	137	173	Average
5510	94.04	80.84			34.4	8.57	29.77	137	173	Peak
*5724.12	54.28	40.87	68.2	-13.92	34.62	8.65	29.86	137	173	Peak
11020	46.87	28.54	54	-7.13	37.61	12.94	32.22	161	346	Average
11020	58.71	40.38	74	-15.29	37.61	12.94	32.22	161	346	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
5453.84	43.16	30.05	54	-10.84	34.36	8.51	29.76	100	234	Average
5453.84	53.17	40.06	74	-20.83	34.36	8.51	29.76	100	234	Peak
*5470	51.85	38.73	68.2	-16.35	34.37	8.51	29.76	100	234	Peak
5550	89.55	76.29			34.45	8.59	29.78	100	234	Average
5550	96.33	83.07			34.45	8.59	29.78	100	234	Peak
*5725.64	51.9	38.49	68.2	-16.3	34.62	8.65	29.86	100	234	Peak
11100	47.02	28.67	54	-6.98	37.66	12.89	32.2	154	144	Average
11100	58.57	40.22	74	-15.43	37.66	12.89	32.2	154	144	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
5445.04	43.38	30.27	54	-10.62	34.35	8.51	29.75	137	173	Average
5445.04	53.05	39.94	74	-20.95	34.35	8.51	29.75	137	173	Peak
*5468.4	51.69	38.57	68.2	-16.51	34.37	8.51	29.76	137	173	Peak
5550	87.58	74.32			34.45	8.59	29.78	137	173	Average
5550	94.3	81.04			34.45	8.59	29.78	137	173	Peak
*5724.12	52.54	39.13	68.2	-15.66	34.62	8.65	29.86	137	173	Peak
11100	47.34	28.99	54	-6.66	37.66	12.89	32.2	165	188	Average
11100	58.61	40.26	74	-15.39	37.66	12.89	32.2	165	188	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5550 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. 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
5447.12	43.23	30.11	54	-10.77	34.36	8.51	29.75	100	234	Average
5447.12	52.59	39.47	74	-21.41	34.36	8.51	29.75	100	234	Peak
*5469.84	52.9	39.78	68.2	-15.3	34.37	8.51	29.76	100	234	Peak
5670	89.29	75.93			34.57	8.63	29.84	100	234	Average
5670	96.46	83.1			34.57	8.63	29.84	100	234	Peak
*5724.12	54.82	41.41	68.2	-13.38	34.62	8.65	29.86	100	234	Peak
11340	47.13	28.74	54	-6.87	37.8	12.71	32.12	124	119	Average
11340	59.45	41.06	74	-14.55	37.8	12.71	32.12	124	119	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
5438.32	43.21	30.13	54	-10.79	34.35	8.48	29.75	137	173	Average
5438.32	53.15	40.07	74	-20.85	34.35	8.48	29.75	137	173	Peak
*5469.84	53.6	40.48	68.2	-14.6	34.37	8.51	29.76	137	173	Peak
5670	87.25	73.89			34.57	8.63	29.84	137	173	Average
5670	94.88	81.52			34.57	8.63	29.84	137	173	Peak
*5725.64	55.29	41.88	68.2	-12.91	34.62	8.65	29.86	137	173	Peak
11340	47.04	28.65	54	-6.96	37.8	12.71	32.12	187	88	Average
11340	60.34	41.95	74	-13.66	37.8	12.71	32.12	187	88	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5670 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 142	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
5446.48	42.47	29.35	54	-11.53	34.36	8.51	29.75	100	234	Average
5446.48	53.81	40.69	74	-20.19	34.36	8.51	29.75	100	234	Peak
*5468.72	51.69	38.57	68.2	-16.51	34.37	8.51	29.76	100	234	Peak
5710	90.11	76.71			34.61	8.65	29.86	100	234	Average
5710	97.81	84.41			34.61	8.65	29.86	100	234	Peak
11420	48.72	30.31	54	-5.28	37.85	12.65	32.09	126	255	Average
11420	59.19	40.78	74	-14.81	37.85	12.65	32.09	126	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
5454	42.64	29.53	54	-11.36	34.36	8.51	29.76	137	173	Average
5454	53.37	40.26	74	-20.63	34.36	8.51	29.76	137	173	Peak
*5468.72	52.06	38.94	68.2	-16.14	34.37	8.51	29.76	137	173	Peak
5710	88.76	75.36			34.61	8.65	29.86	137	173	Average
5710	95.41	82.01			34.61	8.65	29.86	137	173	Peak
11420	48.63	30.22	54	-5.37	37.85	12.65	32.09	116	217	Average
11420	58.58	40.17	74	-15.42	37.85	12.65	32.09	116	217	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5710 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	77.13			34.66	8.66	29.88	179	234	Average
5755	97.02	83.58			34.66	8.66	29.88	179	234	Peak
11510	47.52	29.08	54	-6.48	37.9	12.6	32.06	132	198	Average
11510	57.65	39.21	74	-16.35	37.9	12.6	32.06	132	198	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	87.59	74.15			34.66	8.66	29.88	150	167	Average
5755	94.36	80.92			34.66	8.66	29.88	150	167	Peak
11510	48.02	29.58	54	-5.98	37.9	12.6	32.06	138	224	Average
11510	58.26	39.82	74	-15.74	37.9	12.6	32.06	138	224	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	54.41	41.1	68.2	-13.79	34.52	8.61	29.82	179	234	Peak
5652.25	52.34	38.99	69.86	-17.52	34.56	8.62	29.83	179	234	Peak
5918.95	52.7	39.12	72.68	-19.98	34.81	8.73	29.96	179	234	Peak
*5935.75	53.58	39.99	68.2	-14.62	34.83	8.73	29.97	179	234	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	53.82	40.49	68.2	-14.38	34.54	8.62	29.83	150	167	Peak
5656.45	52.02	38.67	72.97	-20.95	34.56	8.63	29.84	150	167	Peak
5918.425	52.51	38.93	73.07	-20.56	34.81	8.73	29.96	150	167	Peak
*6024.475	54.48	40.79	68.2	-13.72	34.93	8.77	30.01	150	167	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	90.52	77.05			34.69	8.68	29.9	179	234	Average
5795	97.09	83.62			34.69	8.68	29.9	179	234	Peak
11590	47.42	28.73	54	-6.58	38.02	12.72	32.05	148	130	Average
11590	57.58	38.89	74	-16.42	38.02	12.72	32.05	148	130	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	87.52	74.05			34.69	8.68	29.9	150	167	Average
5795	94.76	81.29			34.69	8.68	29.9	150	167	Peak
11590	48.02	29.33	54	-5.98	38.02	12.72	32.05	157	130	Average
11590	58.24	39.55	74	-15.76	38.02	12.72	32.05	157	130	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
*5548.825	53.61	40.35	68.2	-14.59	34.45	8.59	29.78	179	234	Peak
5654.875	52.21	38.86	71.81	-19.6	34.56	8.63	29.84	179	234	Peak
5922.1	52.93	39.33	70.35	-17.42	34.83	8.73	29.96	179	234	Peak
*5969.875	53.61	39.97	68.2	-14.59	34.87	8.75	29.98	179	234	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
*5647.525	53.55	40.22	68.2	-14.65	34.54	8.62	29.83	150	167	Peak
5656.45	51.02	37.67	72.97	-21.95	34.56	8.63	29.84	150	167	Peak
5921.05	52.56	38.98	71.12	-18.56	34.81	8.73	29.96	150	167	Peak
*6015.55	54.57	40.9	68.2	-13.63	34.92	8.76	30.01	150	167	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

9 kHz ~ 30 MHz Data:

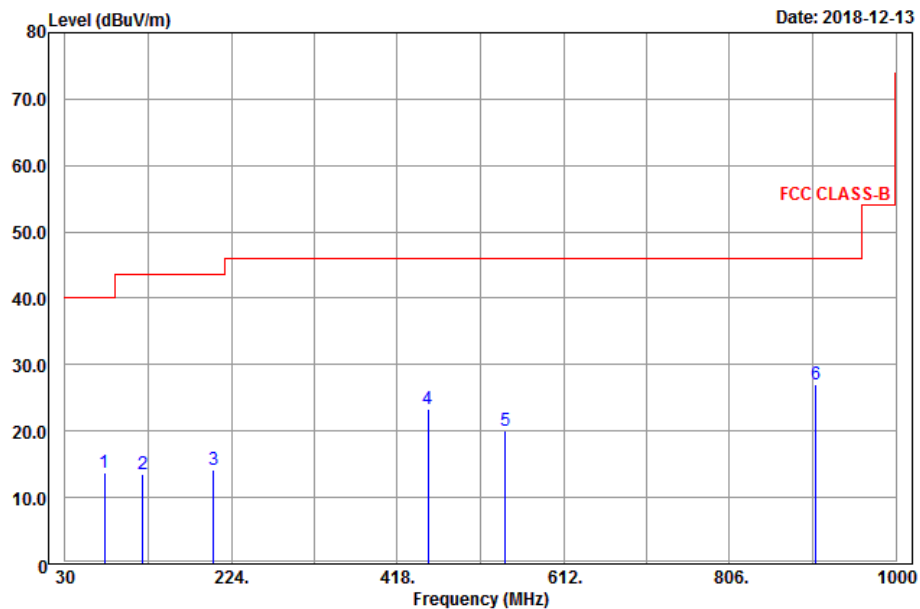
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz Worst-Case Data:

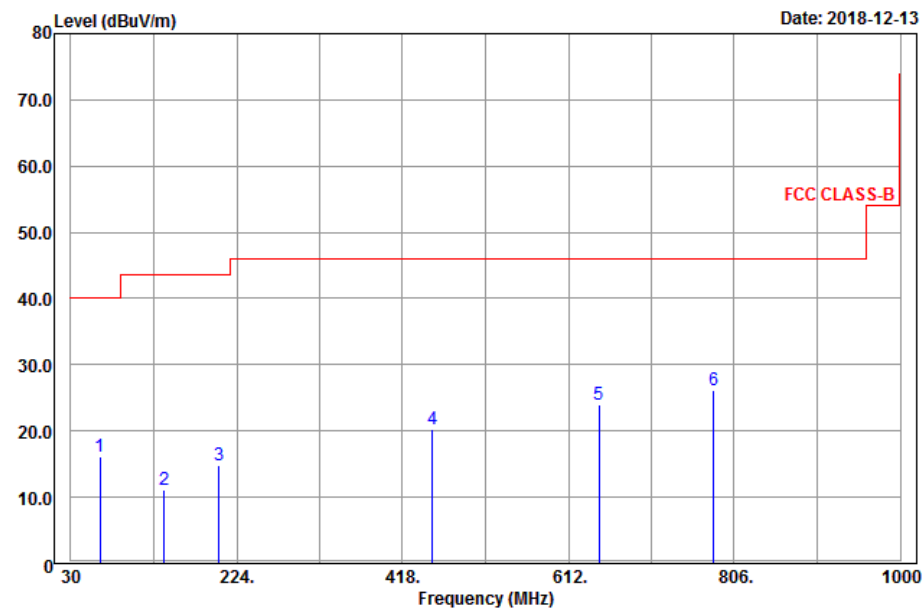
802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 38	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
76.17	13.71	36.53	40	-26.29	8.29	1.11	32.22	138	227	Peak
120.72	13.6	35.84	43.5	-29.9	8.73	1.28	32.25	150	217	Peak
203.61	14.25	33.84	43.5	-29.25	11.04	1.65	32.28	196	208	Peak
454	23.39	34.86	46	-22.61	18.18	2.49	32.14	130	221	Peak
544.3	20.04	29.08	46	-25.96	20.39	2.76	32.19	161	149	Peak
906.9	26.97	29.39	46	-19.03	25.48	3.53	31.43	150	273	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
63.75	16.18	40.2	40	-23.82	7.31	0.9	32.23	108	211	Peak
139.08	11.02	32.62	43.5	-32.48	9.29	1.38	32.27	190	234	Peak
203.61	14.79	34.38	43.5	-28.71	11.04	1.65	32.28	158	172	Peak
452.6	20.36	31.92	46	-25.64	18.09	2.49	32.14	176	261	Peak
647.9	23.87	30.93	46	-22.13	22.1	2.99	32.15	148	215	Peak
782.3	26.25	31.2	46	-19.75	23.87	3.27	32.09	150	135	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 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	ESCS 30	100288	Jan. 03, 2019	Jan. 02, 2020
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2018	Sep. 04, 2019
LISN/AMN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 21, 2019	Feb. 20, 2020
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 19, 2018	Aug. 18, 2019
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-12040.

4.2.3 Test Procedures

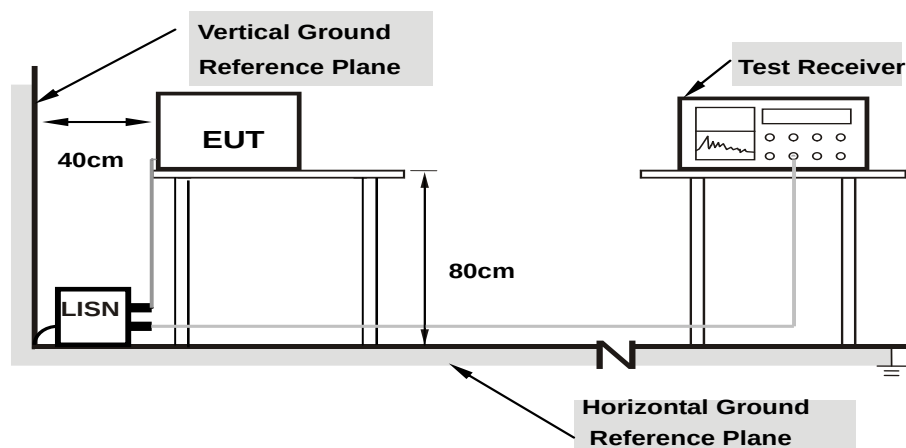
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

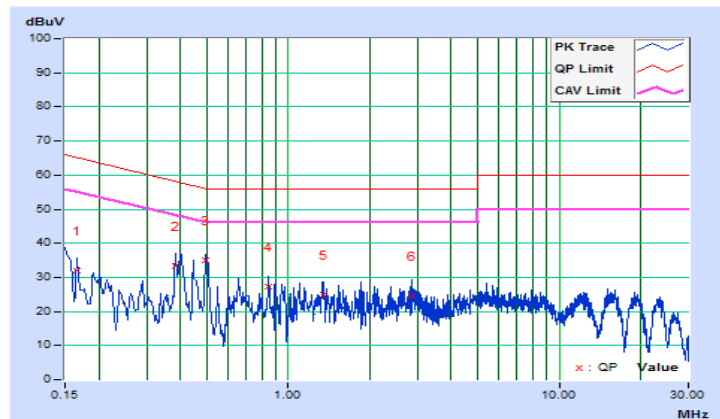
4.2.7 Test Results

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	2019/3/31

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	0.16600	0.10	31.89	10.76	31.99	10.86	65.16	55.16	-33.17	-44.30
2	0.38521	0.11	33.24	10.07	33.35	10.18	58.17	48.17	-24.82	-37.99
3	0.49476	0.11	34.87	15.40	34.98	15.51	56.09	46.09	-21.11	-30.58
4	0.84600	0.11	27.05	10.53	27.16	10.64	56.00	46.00	-28.84	-35.36
5	1.34600	0.13	24.72	10.39	24.85	10.52	56.00	46.00	-31.15	-35.48
6	2.84200	0.21	24.50	10.52	24.71	10.73	56.00	46.00	-31.29	-35.27

Remarks:

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

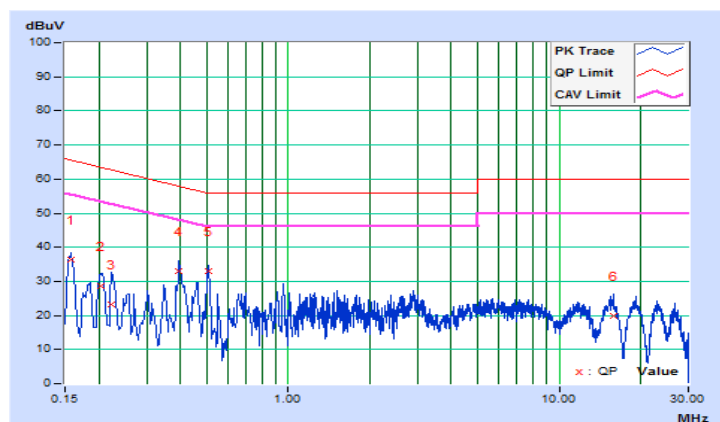


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Jisyong Wang	Test Date	2019/3/31

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	0.15728	0.09	36.35	20.39	36.44	20.48	65.61	55.61	-29.17	-35.13
2	0.20361	0.09	28.38	10.50	28.47	10.59	63.46	53.46	-34.99	-42.87
3	0.22211	0.09	23.14	8.65	23.23	8.74	62.74	52.74	-39.51	-44.00
4	0.39342	0.10	32.75	15.47	32.85	15.57	57.99	47.99	-25.14	-32.42
5	0.50663	0.10	32.95	20.15	33.05	20.25	56.00	46.00	-22.95	-25.75
6	15.80200	0.72	19.06	5.52	19.78	6.24	60.00	50.00	-40.22	-43.76

Remarks:

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



4.3 Transmit Power Measurement

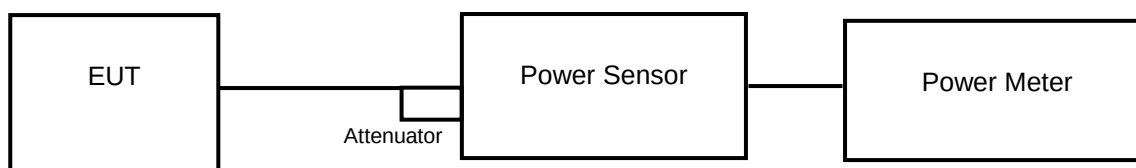
4.3.1 Limits of Transmit Power Measurement

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

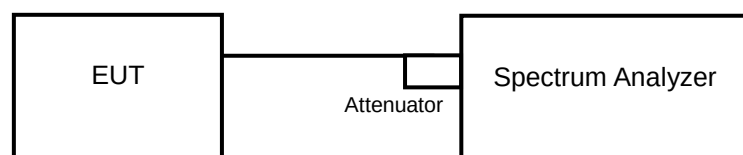
*B is the 26 dB emission bandwidth in megahertz

4.3.2 Test Setup

<Power Output Measurement>



<26 dB Bandwidth>



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

Average Power Measurement

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

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

26 dB Bandwidth

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Results

Power Output:

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	11.194	10.49	24	Pass
40	5200	10.568	10.24	24	Pass
48	5240	10.814	10.34	24	Pass
52	5260	11.092	10.45	24	Pass
60	5300	10.617	10.26	24	Pass
64	5320	10.568	10.24	24	Pass
100	5500	10.765	10.32	24	Pass
116	5580	10.740	10.31	24	Pass
140	5700	10.447	10.19	24	Pass
144	5720 (U-NII-2C)	8.679	9.38	24	Pass
144	5720 (U-NII-3)	3.644	5.62	30	Pass
149	5745	10.940	10.39	30	Pass
157	5785	11.169	10.48	30	Pass
165	5825	10.471	10.20	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log(22.69) = 24.55 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(22.44) = 24.51 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(22.60) = 24.54 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(28.01) = 25.47 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(27.42) = 25.38 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(31.36) = 25.96 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log(21.12) = 24.24 \text{ dBm} > 24 \text{ dBm}$.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	8.318	9.20	24	Pass
40	5200	8.395	9.24	24	Pass
48	5240	8.492	9.29	24	Pass
52	5260	8.770	9.43	24	Pass
60	5300	8.395	9.24	24	Pass
64	5320	8.610	9.35	24	Pass
100	5500	8.730	9.41	24	Pass
116	5580	8.770	9.43	24	Pass
140	5700	8.375	9.23	24	Pass
144	5720 (U-NII-2C)	7.07	8.49	24	Pass
144	5720 (U-NII-3)	3.158	4.99	30	Pass
149	5745	8.810	9.45	30	Pass
157	5785	8.851	9.47	30	Pass
165	5825	8.318	9.20	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log(23.00) = 24.61 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(22.70) = 24.56 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(22.98) = 24.61 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(27.28) = 25.35 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(26.36) = 25.20 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(32.31) = 26.09 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log(20.87) = 24.19 \text{ dBm} > 24 \text{ dBm}$.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	8.299	9.19	24	Pass
46	5230	8.831	9.46	24	Pass
54	5270	8.337	9.21	24	Pass
62	5310	8.831	9.46	24	Pass
102	5510	8.810	9.45	24	Pass
110	5550	8.472	9.28	24	Pass
134	5670	8.750	9.42	24	Pass
142	5710 (U-NII-2C)	9.395	9.73	24	Pass
142	5710 (U-NII-3)	2.483	3.95	30	Pass
151	5755	8.630	9.36	30	Pass
159	5795	8.831	9.46	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log(45.66) = 27.59 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(46.02) = 27.62 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(52.61) = 28.21 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(56.46) = 28.51 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(61.35) = 28.87 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(48.48) = 27.85 \text{ dBm} > 24 \text{ dBm}$.

26 dB Bandwidth:
802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	22.54
40	5200	22.36
48	5240	23.01
52	5260	22.69
60	5300	22.44
64	5320	22.60
100	5500	28.01
116	5580	27.42
140	5700	31.36
144	5720 (U-NII-2C)	21.12
144	5720 (U-NII-3)	8.86

802.11n (HT20)

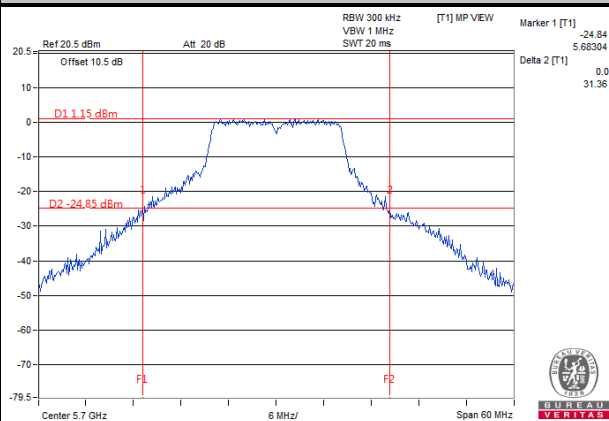
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	22.83
40	5200	22.35
48	5240	22.56
52	5260	23.00
60	5300	22.70
64	5320	22.98
100	5500	27.28
116	5580	26.36
140	5700	32.31
144	5720 (U-NII-2C)	20.87
144	5720 (U-NII-3)	9.32

802.11n (HT40)

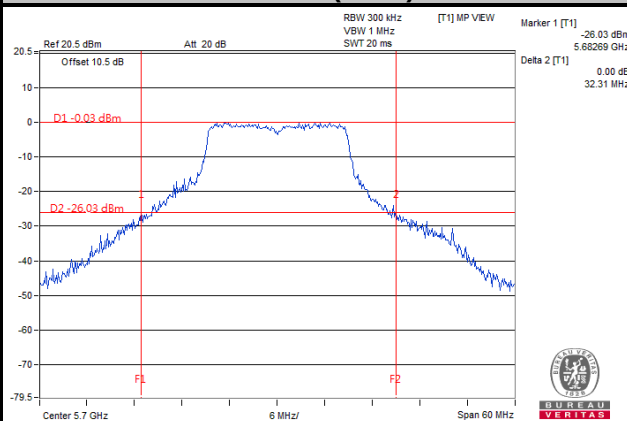
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
38	5190	46.44
46	5230	45.57
54	5270	45.66
62	5310	46.02
102	5510	52.61
110	5550	56.46
134	5670	61.35
142	5710 (U-NII-2C)	48.48
142	5710 (U-NII-3)	12.80

Spectrum Plot of Worst Value

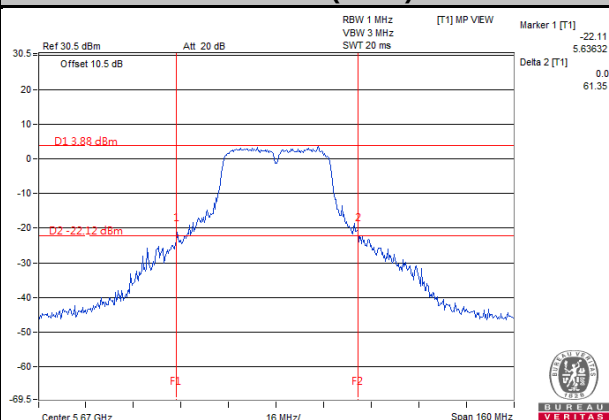
802.11a



802.11n (HT20)

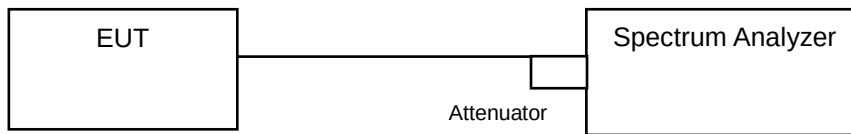


802.11n (HT40)



4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Results

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	17.04
40	5200	17.16
48	5240	16.92
52	5260	17.04
60	5300	17.04
64	5320	17.04
100	5500	17.28
116	5580	17.40
140	5700	18.12
144	5720 (U-NII-2C)	14.12
144	5720 (U-NII-3)	3.40
149	5745	17.02
157	5785	17.30
165	5825	17.02

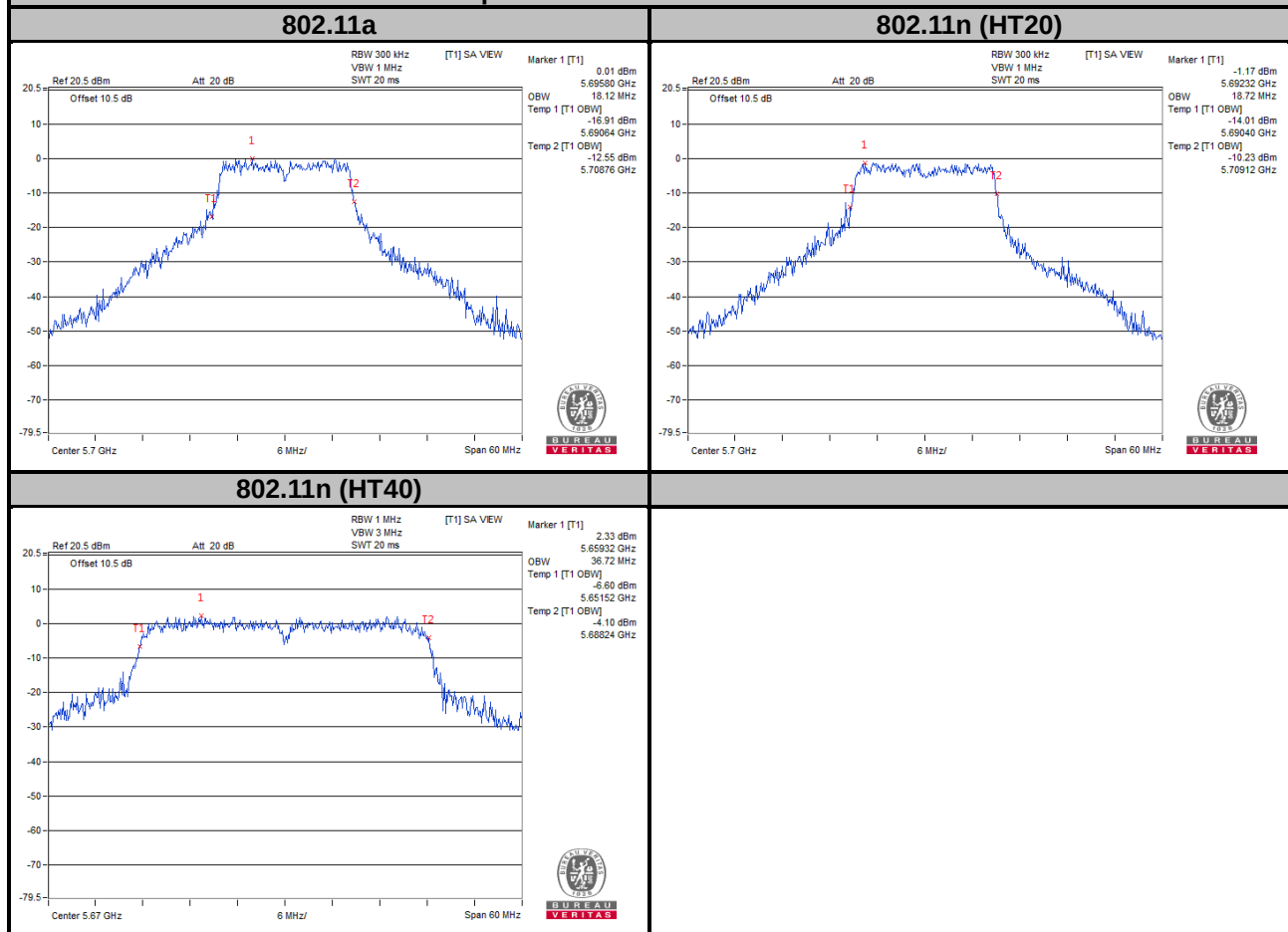
802.11n (HT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	18.00
40	5200	17.04
48	5240	17.04
52	5260	18.00
60	5300	18.12
64	5320	18.00
100	5500	18.12
116	5580	18.24
140	5700	18.72
144	5720 (U-NII-2C)	14.12
144	5720 (U-NII-3)	3.88
149	5745	18.08
157	5785	18.17
165	5825	18.08

802.11n (HT40)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	36.48
46	5230	36.48
54	5270	36.60
62	5310	36.48
102	5510	36.72
110	5550	36.60
134	5670	36.72
142	5710 (U-NII-2C)	33.72
142	5710 (U-NII-3)	3.36
151	5755	36.64
159	5795	36.54

Spectrum Plot of Worst Value

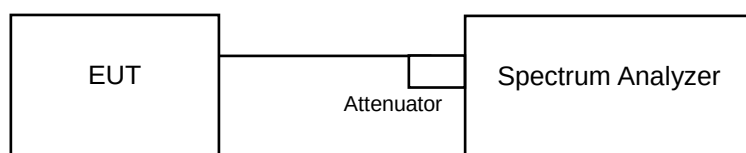


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.5.4 Test Procedures

For U-NII-1, U-NII-2A, U-NII-2C band:

Using method SA-2

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

✕ For U-NII-3:

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

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

4.5.7 Test Results

802.11a

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	-3.87	0.59	-3.28	11	Pass
40	5200	-4.07	0.59	-3.48	11	Pass
48	5240	-4.07	0.59	-3.48	11	Pass
52	5260	-3.81	0.59	-3.22	11	Pass
60	5300	-4.10	0.59	-3.51	11	Pass
64	5320	-4.24	0.59	-3.65	11	Pass
100	5500	-4.08	0.59	-3.49	11	Pass
116	5580	-4.33	0.59	-3.74	11	Pass
140	5700	-4.64	0.59	-4.05	11	Pass
144	5720 (U-NII-2C)	-1.41	0.59	-0.82	11	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

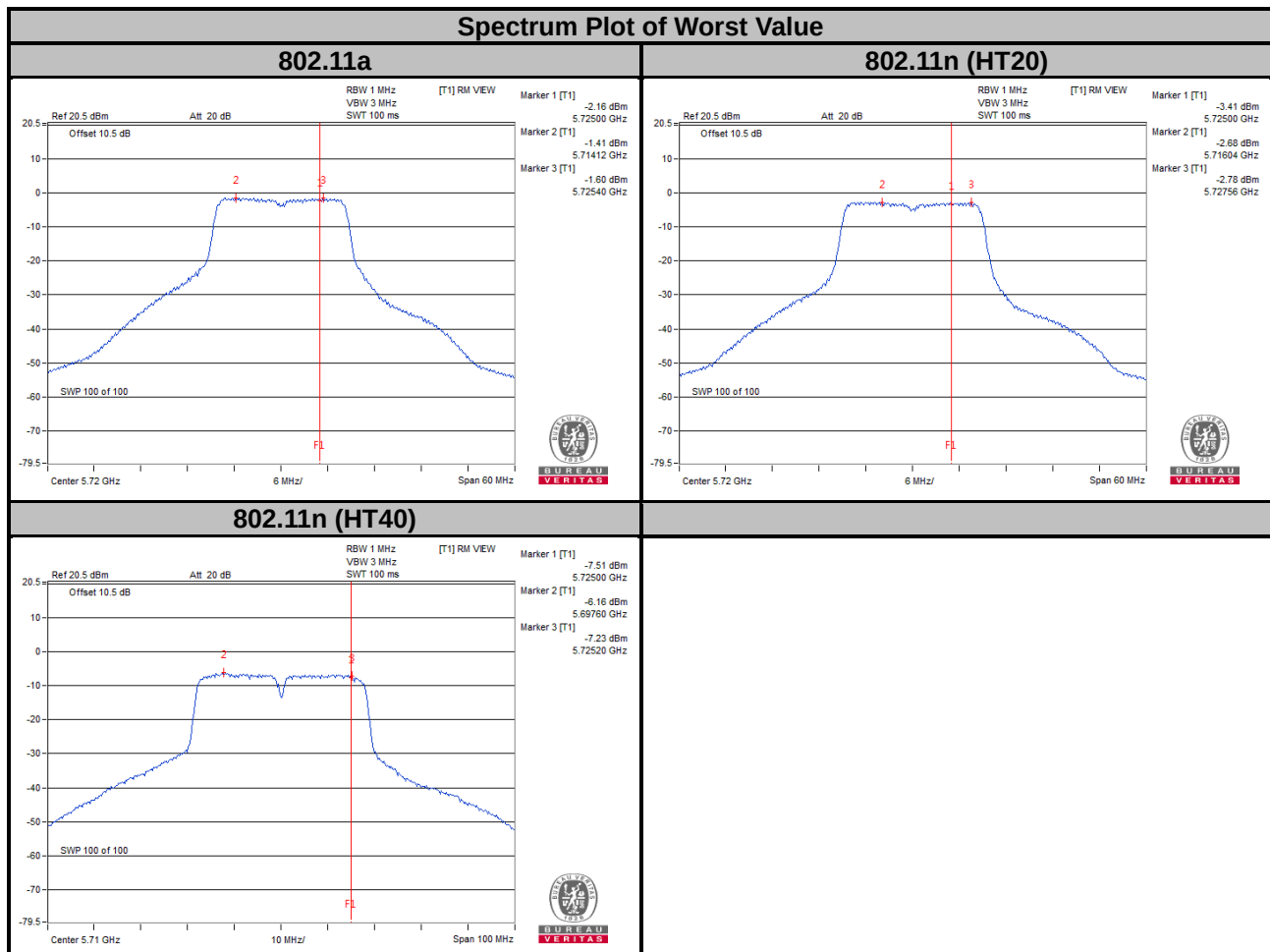
Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	-5.97	0.71	-5.26	11	Pass
40	5200	-5.83	0.71	-5.12	11	Pass
48	5240	-5.59	0.71	-4.88	11	Pass
52	5260	-5.83	0.71	-5.12	11	Pass
60	5300	-5.98	0.71	-5.27	11	Pass
64	5320	-5.61	0.71	-4.90	11	Pass
100	5500	-5.59	0.71	-4.88	11	Pass
116	5580	-5.60	0.71	-4.89	11	Pass
140	5700	-5.63	0.71	-4.92	11	Pass
144	5720 (U-NII-2C)	-2.68	0.71	-1.97	11	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
38	5190	-9.24	1.31	-7.93	11	Pass
46	5230	-9.05	1.31	-7.74	11	Pass
54	5270	-9.33	1.31	-8.02	11	Pass
62	5310	-8.96	1.31	-7.65	11	Pass
102	5510	-9.30	1.31	-7.99	11	Pass
110	5550	-9.28	1.31	-7.97	11	Pass
134	5670	-9.12	1.31	-7.81	11	Pass
142	5710 (U-NII-2C)	-6.16	1.31	-4.85	11	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.



For U-NII-3 Band

802.11a

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/300 kHz)	(dBm/500 kHz)				
144	5720 (U-NII-3)	-7.02	-4.8	0.59	-4.21	30	Pass
149	5745	-12.27	-10.05	0.59	-9.46	30	Pass
157	5785	-12.21	-9.99	0.59	-9.40	30	Pass
165	5825	-12.36	-10.14	0.59	-9.55	30	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/300 kHz)	(dBm/500 kHz)				
144	5720 (U-NII-3)	-8.3	-6.08	0.71	-5.37	30	Pass
149	5745	-13.94	-11.72	0.71	-11.01	30	Pass
157	5785	-13.66	-11.44	0.71	-10.73	30	Pass
165	5825	-14.00	-11.78	0.71	-11.07	30	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

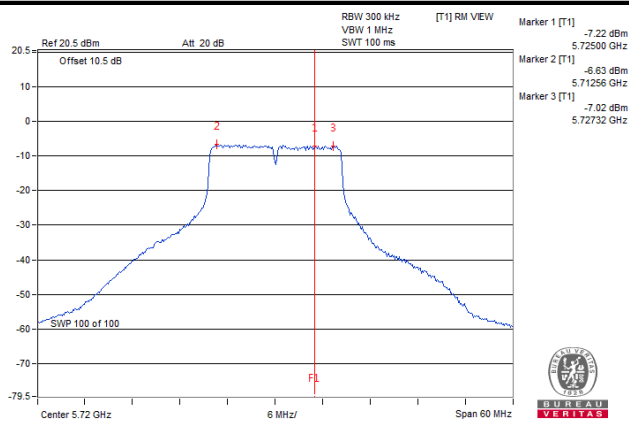
802.11n (HT40)

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/300 kHz)	(dBm/500 kHz)				
142	5710 (U-NII-3)	-12.38	-10.16	1.31	-8.85	30	Pass
151	5755	-17.36	-15.14	1.31	-13.83	30	Pass
159	5795	-17.45	-15.23	1.31	-13.92	30	Pass

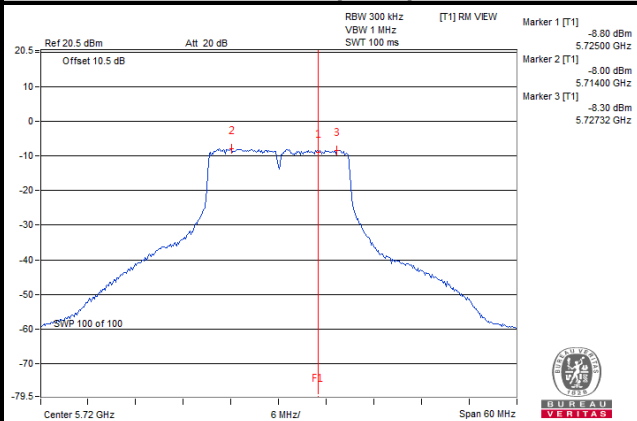
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

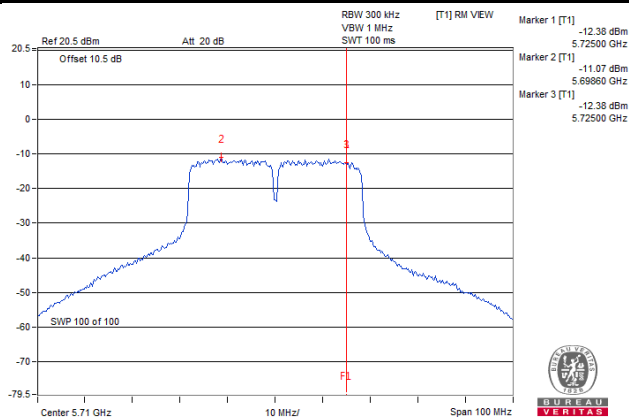
802.11a



802.11n (HT20)



802.11n (HT40)

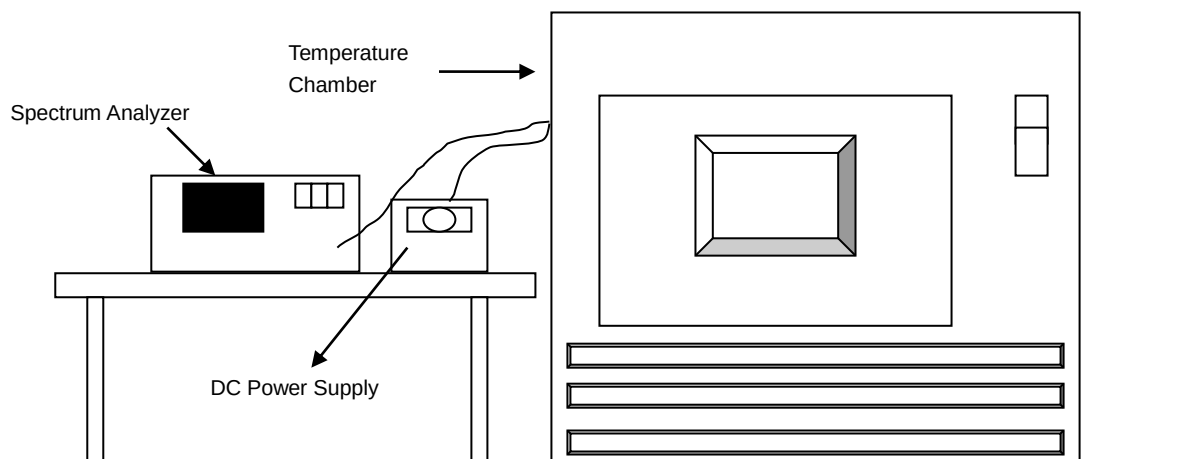


4.6 Frequency Stability

4.6.1 Limit of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.6.4 Test Procedure

- To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
- The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10 dB lower than the measured peak value.
- The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
55	3.8	5180.0211	PASS	5180.0207	PASS	5180.0212	PASS	5180.0203	PASS
50	3.8	5180.0052	PASS	5180.0093	PASS	5180.0092	PASS	5180.0049	PASS
40	3.8	5180.0016	PASS	5179.9999	PASS	5180.0013	PASS	5179.9999	PASS
30	3.8	5180.0241	PASS	5180.0231	PASS	5180.0234	PASS	5180.0228	PASS
20	3.8	5179.9837	PASS	5179.9833	PASS	5179.9814	PASS	5179.9845	PASS
10	3.8	5179.9926	PASS	5179.9927	PASS	5179.9961	PASS	5179.9956	PASS
0	3.8	5179.9998	PASS	5180.0017	PASS	5179.9995	PASS	5180.0016	PASS
-10	3.8	5180.0169	PASS	5180.0167	PASS	5180.0178	PASS	5180.0151	PASS
-20	3.8	5179.9978	PASS	5179.9943	PASS	5179.9964	PASS	5179.9985	PASS
-30	3.8	5180.0212	PASS	5180.0194	PASS	5180.0189	PASS	5180.0215	PASS

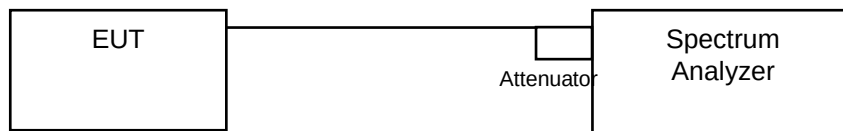
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	4.37	5179.9844	PASS	5179.9837	PASS	5179.9821	PASS	5179.9849	PASS
	3.8	5179.9837	PASS	5179.9833	PASS	5179.9814	PASS	5179.9845	PASS
	3.23	5179.9837	PASS	5179.9834	PASS	5179.9814	PASS	5179.9847	PASS

4.7 6 dB Bandwidth Measurement

4.7.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
144	5720 (U-NII-3)	3.23	0.5	Pass
149	5745	16.50	0.5	Pass
157	5785	16.48	0.5	Pass
165	5825	16.54	0.5	Pass

802.11n (HT20)

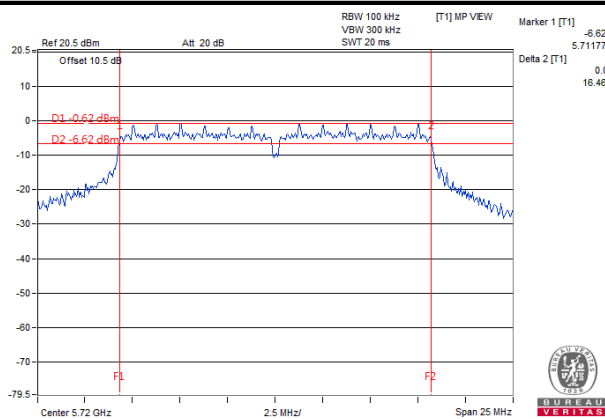
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
144	5720 (U-NII-3)	3.84	0.5	Pass
149	5745	17.67	0.5	Pass
157	5785	17.67	0.5	Pass
165	5825	17.70	0.5	Pass

802.11n (HT40)

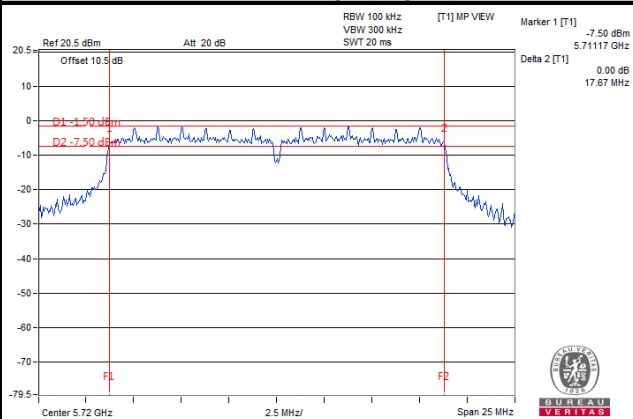
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
142	5710 (U-NII-3)	2.69	0.5	Pass
151	5755	35.65	0.5	Pass
159	5795	35.76	0.5	Pass

Spectrum Plot of Worst Value

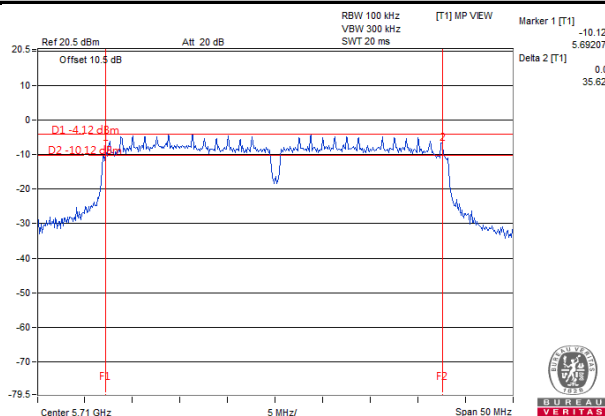
802.11a



802.11n (HT20)



802.11n (HT40)



Note:

For Ch144 (UNII-3 Band): The 6 dB bandwidth above 5725 MHz = Marker 1 + Delta 2 – 5725 MHz

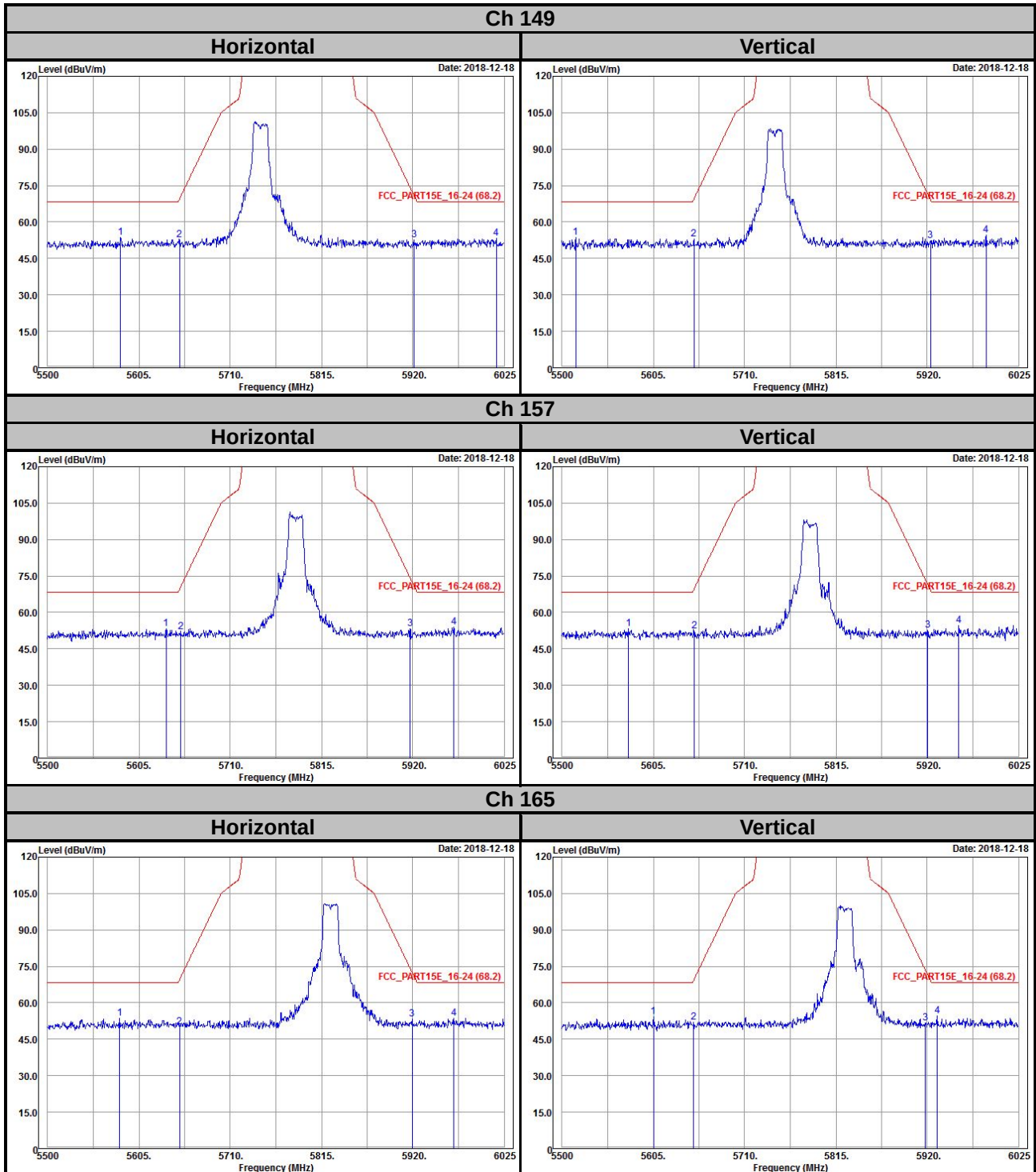
For Ch142 (UNII-3 Band): The 6 dB bandwidth above 5725 MHz = Marker 1 + Delta 2 – 5725 MHz

5 Pictures of Test Arrangements

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

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

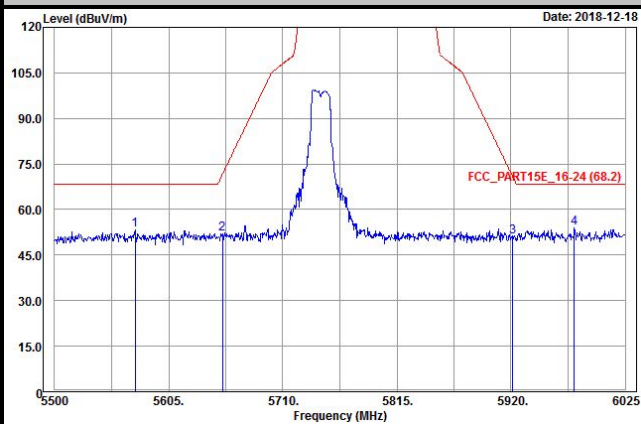
802.11a



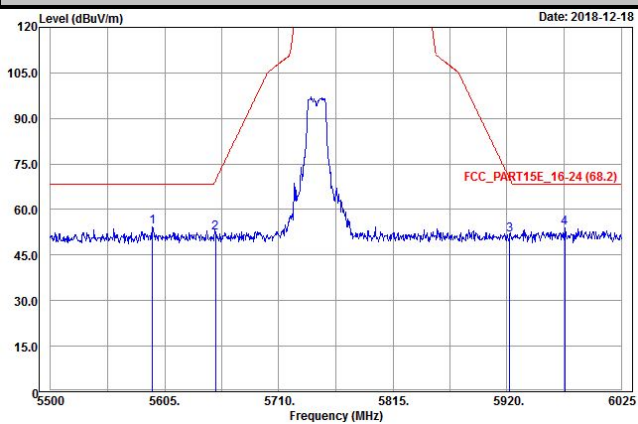
802.11n (HT20)

Ch 149

Horizontal

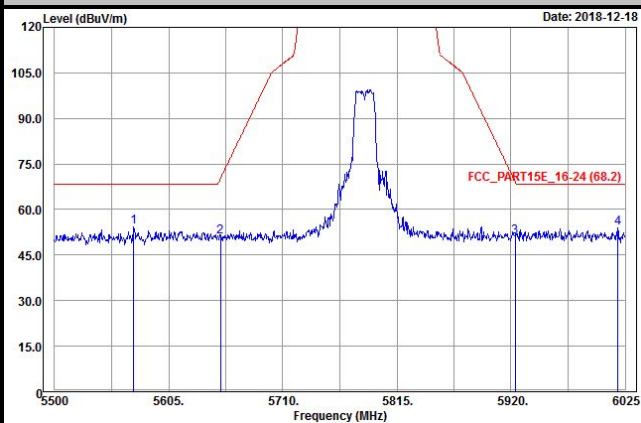


Vertical

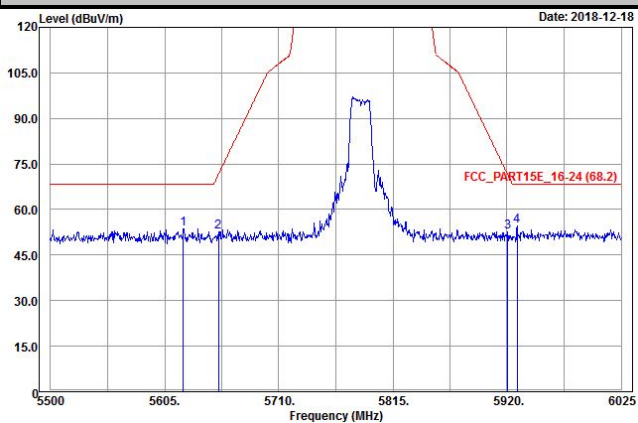


Ch 157

Horizontal

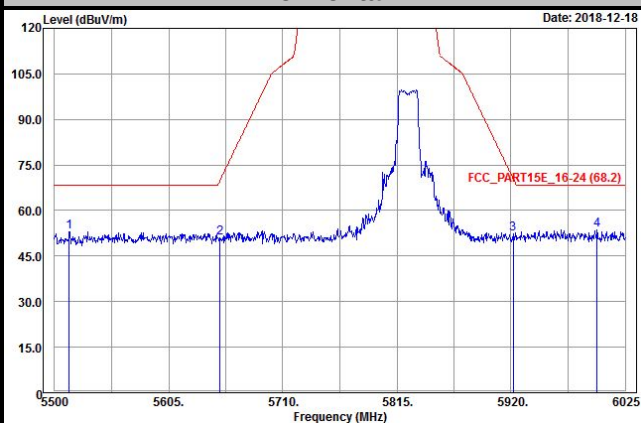


Vertical

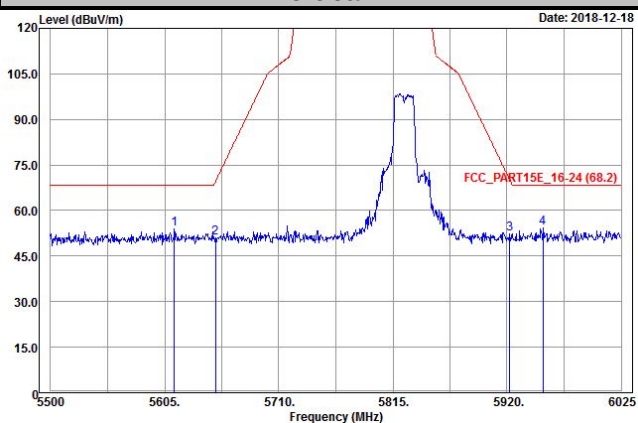


Ch 165

Horizontal

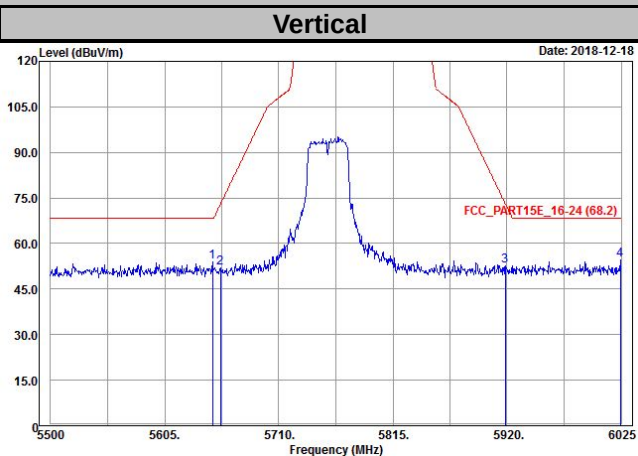
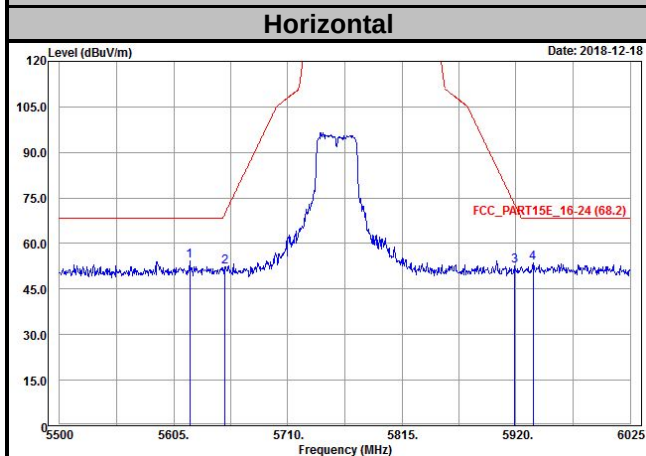


Vertical

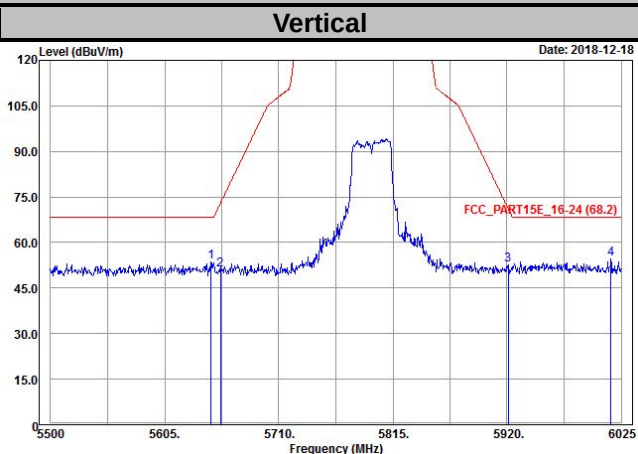
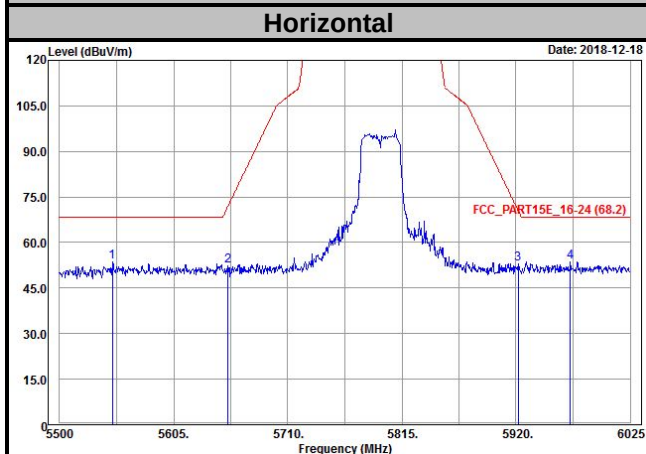


802.11n (HT40)

Ch 151



Ch 159



Appendix – Information of 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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