

## FCC Test Report

**Report No.:** RF170320C17-4 R1

**FCC ID:** 2AFD7-P0501

**Test Model:** P0501

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

**Test Date:** Mar. 11, 2017 ~ Apr. 11, 2017

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

**Applicant:** COMPAL ELECTRONICS, INC.

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

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( R.O.C )

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### Release Control Record

Issue No.	Description	Date Issued
RF170320C17-4	Original Release	May 15, 2017
RF170320C17-4 R1	Revise model no.	Jun. 19, 2017

## 1 Certificate of Conformity

**Product:** Smart Terminal

**Brand:** Poynt

**Test Model:** P0501

**Sample Status:** Identical Prototype

**Applicant:** COMPAL ELECTRONICS, INC.

**Test Date:** Mar. 11, 2017 ~ Apr. 11, 2017

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

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

**Prepared by :** Gina Liu , **Date:** Jun. 19, 2017  
Gina Liu / Specialist

**Approved by :** David Huang , **Date:** Jun. 19, 2017  
David Huang / 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 -9.30 dB at 0.52960 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 -5.69 dB at 5149.4 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	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.

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

### 2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

<b>Product</b>	Smart Terminal
<b>Brand</b>	Poynt
<b>Test Model</b>	P0501
<b>Status of EUT</b>	Identical Prototype
<b>Power Supply Rating</b>	5.0 Vdc (adapter) 3.8 Vdc (Li-ion battery)
<b>Modulation Type</b>	64QAM, 16QAM, QPSK, BPSK
<b>Modulation Technology</b>	OFDM
<b>Transfer Rate</b>	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0 Mbps 802.11n: up to MCS7
<b>Operating Frequency</b>	5180 ~ 5240 MHz, 5260 ~ 5320 MHz, 5500 ~ 5700 MHz, 5745 ~ 5825 MHz
<b>Number of Channel</b>	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 ~ 5700 MHz: 11 for 802.11a, 802.11n (HT20) 5 for 802.11n (HT40) 5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40)
<b>Output Power</b>	19.907 mW for 5180 ~ 5240 MHz 18.967 mW for 5260 ~ 5320 MHz 19.588 mW for 5500 ~ 5700 MHz 19.815 mW for 5745 ~ 5825 MHz
<b>Antenna Type</b>	PCB antenna with 1.59 dBi gain (5180 ~ 5240 MHz) PCB antenna with 1.59 dBi gain (5260 ~ 5320 MHz) PCB antenna with 2.62 dBi gain (5500 ~ 5700 MHz) PCB antenna with 1.76 dBi gain (5745 ~ 5825 MHz)
<b>Antenna Connector</b>	N/A
<b>Accessory Device</b>	Refer to Note as below
<b>Data Cable Supplied</b>	Refer to Note as below

**Note:**

1. The EUT provides one completed transmitter and one receiver.

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

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

2. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	MASS POWER	NBS10B050200VUU	I/P: 100-240 Vac, 50/60 Hz, 0.3 A O/P: 5.0 Vdc, 2.0 A
Battery	Getac Technology corp.	CCQ60	3.8 Vdc, 1900 mAh
BT/WLAN Module	Mediatek	MT6625L	
NFC Module	NXP	CLRC663	

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



### 3.2 Description of Test Modes

#### For 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

#### 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

### For 5500 ~ 5700 MHz

11 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		

5 channels are provided for 802.11n (HT40):

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

### 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 **Z-plane**.
2. "-" means no effect.

#### **Radiated Emission Test (Above 1 GHz):**

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36 to 48	36, 44, 48	OFDM	BPSK	6.0
-		802.11n (HT20)	36 to 48	36, 44, 48	OFDM	BPSK	MCS0
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	MCS0
-	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	MCS0
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	MCS0
-	5500-5700	802.11a	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 140	100, 116, 140	OFDM	BPSK	MCS0
-		802.11n (HT40)	102 to 134	102, 110, 134	OFDM	BPSK	MCS0
-	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	MCS0
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	MCS0

#### **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	MCS0
-	5260-5320	802.11n (HT40)	54 to 62	62	OFDM	BPSK	MCS0
-	5500-5700	802.11n (HT40)	102 to 134	102	OFDM	BPSK	MCS0
-	5745-5825	802.11n (HT20)	149 to 165	149	OFDM	BPSK	MCS0

### 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	MCS0

### 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, 44, 48	OFDM	BPSK	6.0
-		802.11n (HT20)	36 to 48	36, 44, 48	OFDM	BPSK	MCS0
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	MCS0
-	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	MCS0
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	MCS0
-	5500-5700	802.11a	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 140	100, 116, 140	OFDM	BPSK	MCS0
-		802.11n (HT40)	102 to 134	102, 110, 134	OFDM	BPSK	MCS0
-	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	MCS0
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	MCS0

### Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Gavin Wu
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
APCM	25 deg. C, 65 % RH	3.8 Vdc	Carlos Chen

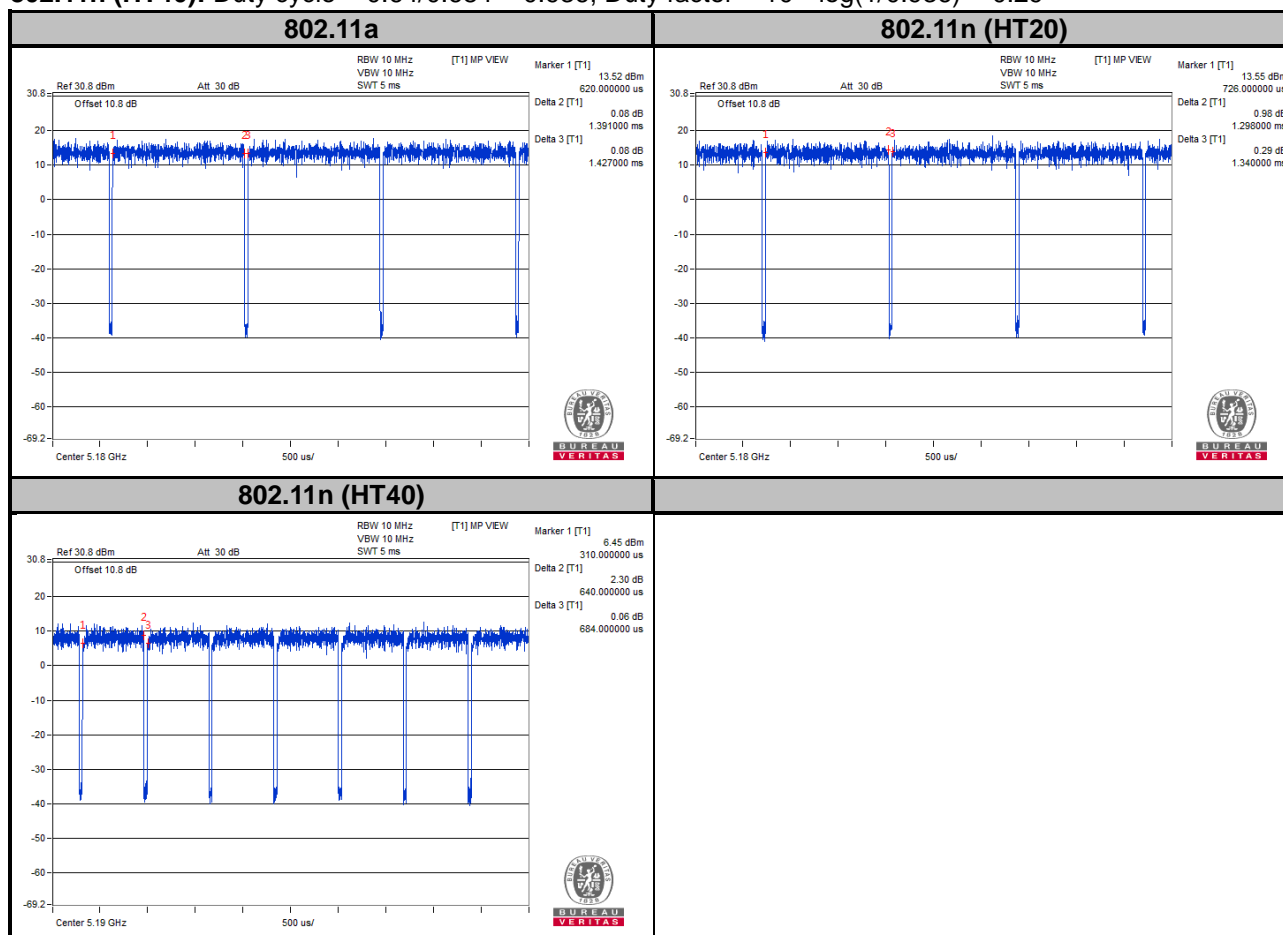
### 3.3 Duty Cycle of Test Signal

#### MODULATION TYPE: BPSK

**802.11a:** Duty cycle =  $1.391/1.427 = 0.975$ , Duty factor =  $10 * \log(1/0.975) = 0.11$

**802.11n (HT20):** Duty cycle =  $1.298/1.34 = 0.969$ , Duty factor =  $10 * \log(1/0.969) = 0.14$

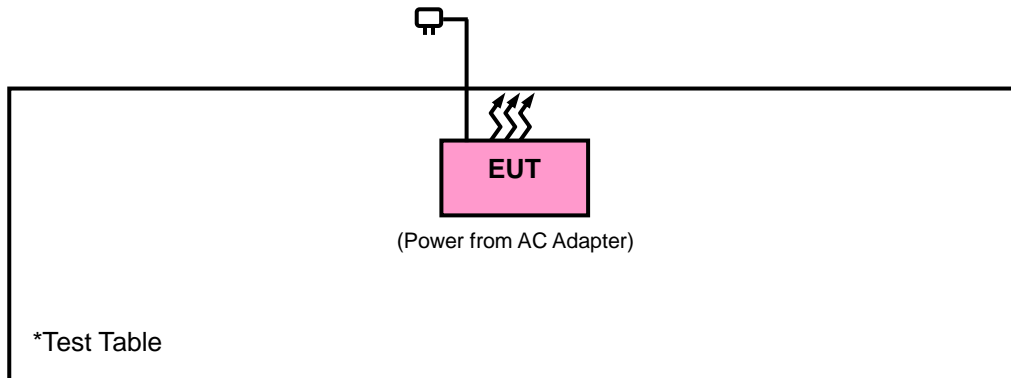
**802.11n (HT40):** Duty cycle =  $0.64/0.684 = 0.936$ , Duty factor =  $10 * \log(1/0.936) = 0.29$



### 3.4 Description of Support Units

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

#### 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)**

**789033 D02 General UNII Test Procedures New Rules v01r03**

ANSI C63.10-2013

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

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

## 4 Test Types and Results

### 4.1 Radiated Emission and Bandedge Measurement

#### 4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

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

**Note:**

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

#### 4.1.2 Limits of Unwanted Emission Out of the Restricted Bands

Applicable To		Limit	
789033 D02 General UNII Test Procedures New Rules v01r03		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) <sup>*1</sup> PK:10 (dBm/MHz) <sup>*2</sup> PK:15.6 (dBm/MHz) <sup>*3</sup> PK:27 (dBm/MHz) <sup>*4</sup>	PK: 68.2 (dBμV/m) <sup>*1</sup> PK:105.2 (dBμV/m) <sup>*2</sup> PK: 110.8 (dBμV/m) <sup>*3</sup> PK:122.2 (dBμV/m) <sup>*4</sup>
	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	

<sup>\*1</sup> beyond 75 MHz or more above of the band edge.

<sup>\*2</sup> below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

<sup>\*3</sup> below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

<sup>\*4</sup> from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

#### Note:

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

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



#### 4.1.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Feb. 17, 2017	Feb. 16, 2018
Spectrum Analyzer Agilent	N9010A	MY52220314	Dec. 16, 2016	Dec. 15, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 13, 2016	Dec. 12, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 26, 2016	Dec. 27, 2017
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Dec. 12, 2016	Dec. 13, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 14, 2016	Dec. 13, 2017
Loop Antenna	EM-6879	269	Aug. 11, 2016	Aug. 10, 2017
Bluetooth Tester	CBT	100980	Apr. 27, 2015	Apr. 26, 2017
Preamplifier EMCI	EMC 012645	980115	Oct. 21, 2016	Oct. 20, 2017
Preamplifier EMCI	EMC 184045	980116	Oct. 21, 2016	Oct. 20, 2017
Preamplifier EMCI	EMC 330H	980112	Oct. 21, 2016	Oct. 20, 2017
Power Meter Anritsu	ML2495A	1232002	Sep. 08, 2016	Sep. 07, 2017
Power Sensor Anritsu	MA2411B	1207325	Sep. 08, 2016	Sep. 07, 2017
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 21, 2016	Oct. 20, 2017
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 21, 2016	Oct. 20, 2017
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 21, 2016	Oct. 20, 2017
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	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. 02, 2016	Sep. 01, 2017
DC Power Supply Topward	33010D	807748	Oct. 27, 2014	Oct. 26, 2016
Digital Multimeter Fluke	87-III	70360742	Jul. 01, 2016	Jun. 30, 2017

Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 10.

3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1 GHz if tested.

4. The FCC Site Registration No. is 690701.

5. The IC Site Registration No. is IC7450F-10.

#### 4.1.4 Test Procedures

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

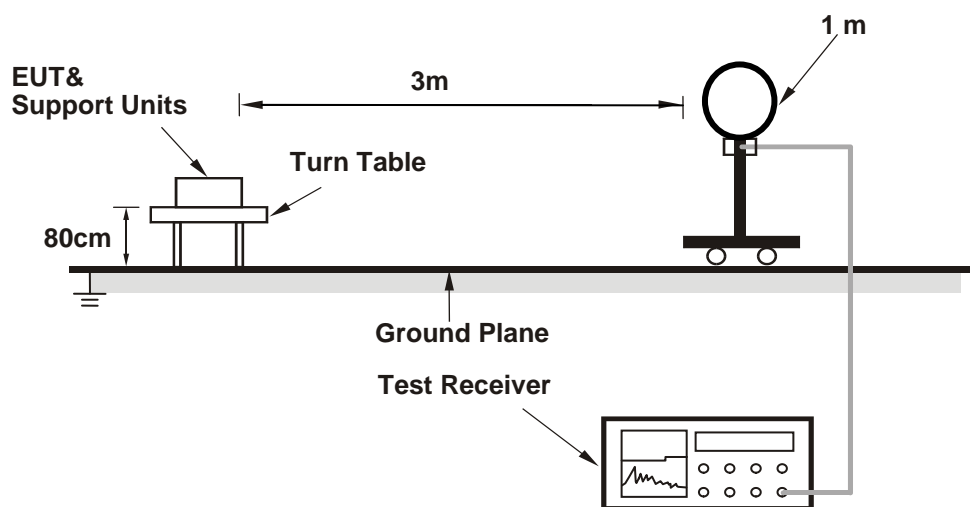
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1/T for RMS Average (Duty cycle < 98 %) for Peak detection at frequency above 1 GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.5 Deviation from Test Standard

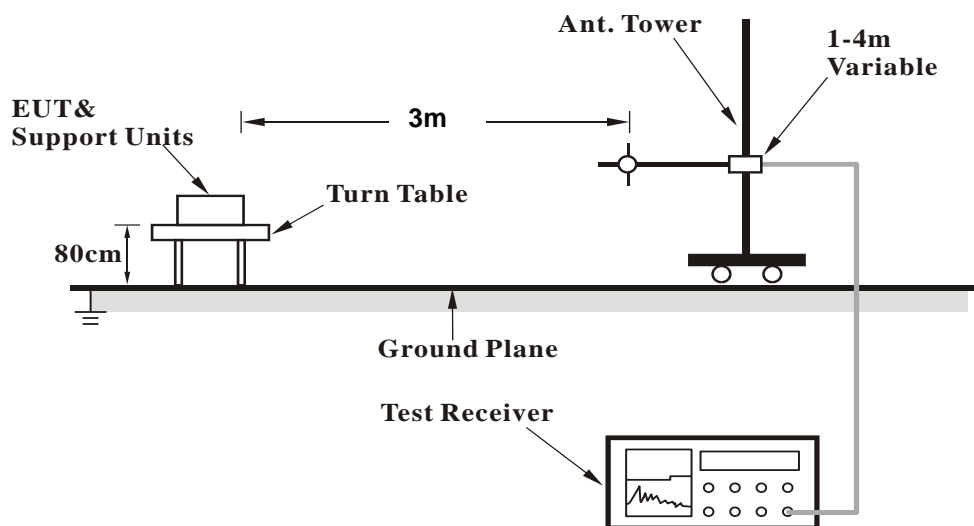
No deviation.

#### 4.1.6 Test Set Up

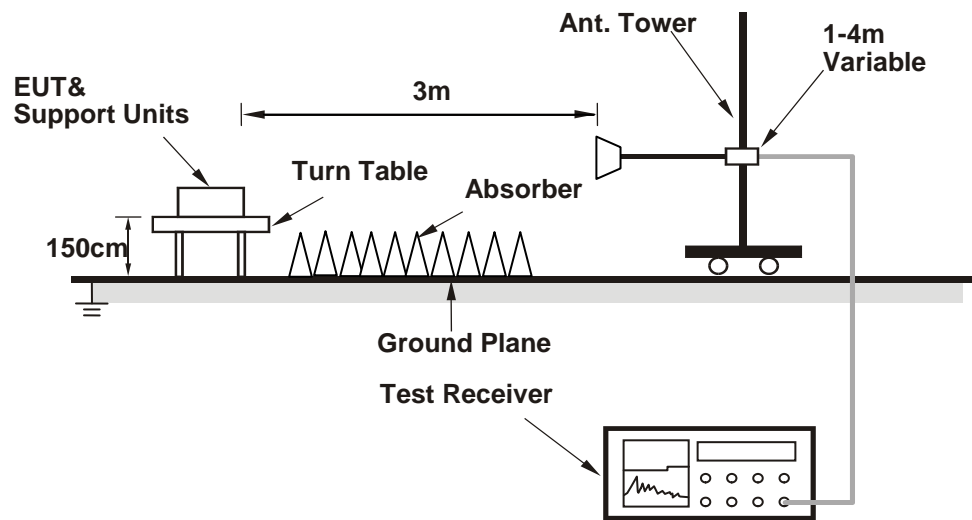
##### <Radiated emission below 30MHz>



##### <Frequency Range below 1 GHz>



### <Frequency Range 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	Gavin Wu

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
5098.1	51.67	51.48	74	-22.33	31.28	6.19	37.28	228	219	Peak
5148.5	42.23	42.03	54	-11.77	31.32	6.2	37.32	228	219	Average
5180	91.21	90.98			31.35	6.22	37.34	228	219	Average
5180	98.23	98			31.35	6.22	37.34	228	219	Peak
*10360	56.12	60.02	68.2	-12.08	39.19	9.05	52.14	100	81	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
5132.15	51.72	51.51	74	-22.28	31.31	6.2	37.3	221	168	Peak
5143.7	42.62	42.4	54	-11.38	31.32	6.2	37.3	221	168	Average
5180	94.05	93.82			31.35	6.22	37.34	221	168	Average
5180	102.26	102.03			31.35	6.22	37.34	221	168	Peak
*10360	55.55	59.45	68.2	-12.65	39.19	9.05	52.14	100	169	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

EUT Test Condition		Measurement Detail	
Channel	Channel 44	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	Gavin Wu

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
5006.15	51.01	50.9	74	-22.99	31.21	6.13	37.23	228	218	Peak
5139.95	41.29	41.07	54	-12.71	31.32	6.2	37.3	228	218	Average
5220	91.66	91.41			31.37	6.24	37.36	228	218	Average
5220	97.93	97.68			31.37	6.24	37.36	228	218	Peak
5372.11	41.13	40.51	54	-12.87	31.49	6.31	37.18	228	218	Average
5392.13	50.53	49.89	74	-23.47	31.51	6.31	37.18	228	218	Peak
*10440	55.19	59.29	68.2	-13.01	39.29	9.09	52.48	100	169	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
5033.9	51.75	51.61	74	-22.25	31.23	6.15	37.24	220	168	Peak
5140.25	42.05	41.83	54	-11.95	31.32	6.2	37.3	220	168	Average
5220	94.9	94.65			31.37	6.24	37.36	220	168	Average
5220	102.15	101.9			31.37	6.24	37.36	220	168	Peak
5372.22	51.13	50.51	74	-22.87	31.49	6.31	37.18	220	168	Peak
5372.77	41.81	41.19	54	-12.19	31.49	6.31	37.18	220	168	Average
*10440	55.65	59.75	68.2	-12.55	39.29	9.09	52.48	122	315	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5220 MHz: Fundamental Frequency
- \*: Out of Restricted Band

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	Gavin Wu

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
5058.2	50.3	50.13	74	-23.7	31.25	6.17	37.25	234	218	Peak
5147.15	40.96	40.76	54	-13.04	31.32	6.2	37.32	234	218	Average
5240	91.14	90.82			31.39	6.25	37.32	234	218	Average
5240	97.97	97.65			31.39	6.25	37.32	234	218	Peak
5389.16	51.38	50.74	74	-22.62	31.51	6.31	37.18	234	218	Peak
5393.23	41.32	40.68	54	-12.68	31.51	6.31	37.18	234	218	Average
*10480	55.48	59.73	68.2	-12.72	39.37	9.09	52.71	158	71	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
5113.4	51.63	51.43	74	-22.37	31.29	6.19	37.28	218	167	Peak
5148.95	41.34	41.14	54	-12.66	31.32	6.2	37.32	218	167	Average
5240	95.54	95.22			31.39	6.25	37.32	218	167	Average
5240	102.65	102.33			31.39	6.25	37.32	218	167	Peak
5366.39	51.42	50.8	74	-22.58	31.49	6.31	37.18	218	167	Peak
5393.12	41.89	41.25	54	-12.11	31.51	6.31	37.18	218	167	Average
*10480	55.88	60.13	68.2	-12.32	39.37	9.09	52.71	114	310	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

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	Gavin Wu

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
5107.55	40.89	40.69	54	-13.11	31.29	6.19	37.28	225	220	Average
5135.3	50.76	50.55	74	-23.24	31.31	6.2	37.3	225	220	Peak
5260	91.7	91.31			31.41	6.25	37.27	225	220	Average
5260	98.1	97.71			31.41	6.25	37.27	225	220	Peak
5363.64	41.41	40.79	54	-12.59	31.49	6.31	37.18	225	220	Average
5445.04	51.83	51.07	74	-22.17	31.55	6.34	37.13	225	220	Peak
*10520	55.73	60.01	68.2	-12.47	39.43	9.12	52.83	164	82	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
5021.9	50.99	50.85	74	-23.01	31.23	6.15	37.24	236	168	Peak
5107.4	41.39	41.19	54	-12.61	31.29	6.19	37.28	236	168	Average
5260	95.22	94.83			31.41	6.25	37.27	236	168	Average
5260	102.36	101.97			31.41	6.25	37.27	236	168	Peak
5356.38	51.12	50.53	74	-22.88	31.48	6.29	37.18	236	168	Peak
5412.81	42.08	41.41	54	-11.92	31.53	6.32	37.18	236	168	Average
*10520	55.31	59.59	68.2	-12.89	39.43	9.12	52.83	128	327	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5260 MHz: Fundamental Frequency
- \*: Out of Restricted Band



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	Gavin Wu

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
5109.05	50.43	50.23	74	-23.57	31.29	6.19	37.28	223	222	Peak
5147.15	40.99	40.79	54	-13.01	31.32	6.2	37.32	223	222	Average
5300	91.99	91.47			31.44	6.27	37.19	223	222	Average
5300	98.57	98.05			31.44	6.27	37.19	223	222	Peak
5355.5	42.26	41.67	54	-11.74	31.48	6.29	37.18	223	222	Average
5380.03	52.36	51.72	74	-21.64	31.51	6.31	37.18	223	222	Peak
10600	41.69	45.37	54	-12.31	39.57	9.16	52.41	178	91	Average
10600	55.21	58.89	74	-18.79	39.57	9.16	52.41	178	91	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
5068.4	50.97	50.82	74	-23.03	31.25	6.17	37.27	232	166	Peak
5146.25	41.4	41.2	54	-12.6	31.32	6.2	37.32	232	166	Average
5300	94.86	94.34			31.44	6.27	37.19	232	166	Average
5300	102.36	101.84			31.44	6.27	37.19	232	166	Peak
5350	43.37	42.78	54	-10.63	31.48	6.29	37.18	232	166	Average
5361.88	52.59	51.97	74	-21.41	31.49	6.31	37.18	232	166	Peak
10600	41.93	45.61	54	-12.07	39.57	9.16	52.41	121	318	Average
10600	55.54	59.22	74	-18.46	39.57	9.16	52.41	121	318	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5300 MHz: Fundamental Frequency
- \*: Out of Restricted Band

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	Gavin Wu

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	91.92	91.37			31.45	6.29	37.19	220	221	Average
5320	98.29	97.74			31.45	6.29	37.19	220	221	Peak
5352.53	42.62	42.03	54	-11.38	31.48	6.29	37.18	220	221	Average
5352.75	52.15	51.56	74	-21.85	31.48	6.29	37.18	220	221	Peak
10640	43.15	46.6	54	-10.85	39.62	9.2	52.27	162	78	Average
10640	55.24	58.69	74	-18.76	39.62	9.2	52.27	162	78	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	94.94	94.39			31.45	6.29	37.19	231	165	Average
5320	101.99	101.44			31.45	6.29	37.19	231	165	Peak
5350	44.22	43.63	54	-9.78	31.48	6.29	37.18	231	165	Average
5362.54	53.55	52.93	74	-20.45	31.49	6.31	37.18	231	165	Peak
10640	43.45	46.9	54	-10.55	39.62	9.2	52.27	125	331	Average
10640	56.48	59.93	74	-17.52	39.62	9.2	52.27	125	331	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5320 MHz: Fundamental Frequency
- \*: Out of Restricted Band

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	Gavin Wu

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
5454.32	39.08	38.26	54	-14.92	31.56	6.34	37.08	214	223	Average
5455.92	50.61	49.79	74	-23.39	31.56	6.34	37.08	214	223	Peak
*5469.84	50.32	49.49	68.2	-17.88	31.57	6.34	37.08	214	223	Peak
5500	90.69	89.76			31.6	6.36	37.03	214	223	Average
5500	98.21	97.28			31.6	6.36	37.03	214	223	Peak
11000	42.74	46.64	54	-11.26	40.2	9.35	53.45	156	52	Average
11000	55.8	59.7	74	-18.2	40.2	9.35	53.45	156	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
5452.72	52.04	51.22	74	-21.96	31.56	6.34	37.08	223	167	Peak
5460.08	39.97	39.15	54	-14.03	31.56	6.34	37.08	223	167	Average
*5470.16	52.01	51.18	68.2	-16.19	31.57	6.34	37.08	223	167	Peak
5500	92.44	91.51			31.6	6.36	37.03	223	167	Average
5500	101.27	100.34			31.6	6.36	37.03	223	167	Peak
11000	43.05	46.95	54	-10.95	40.2	9.35	53.45	135	311	Average
11000	55.14	59.04	74	-18.86	40.2	9.35	53.45	135	311	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

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	Gavin Wu

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
5370.8	50.82	50.2	74	-23.18	31.49	6.31	37.18	224	172	Peak
5428.88	38.64	37.9	54	-15.36	31.55	6.32	37.13	224	172	Average
*5468.4	49.94	49.11	68.2	-18.26	31.57	6.34	37.08	224	172	Peak
5580	89.27	88.23			31.71	6.49	37.16	224	172	Average
5580	98.2	97.16			31.71	6.49	37.16	224	172	Peak
*5725.72	51.38	50.1	68.2	-16.82	31.96	6.75	37.43	224	172	Peak
11160	42.06	45.78	54	-11.94	40.1	9.57	53.39	100	174	Average
11160	54.94	58.66	74	-19.06	40.1	9.57	53.39	100	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
5453.84	38.97	38.15	54	-15.03	31.56	6.34	37.08	225	178	Average
5455.28	51.89	51.07	74	-22.11	31.56	6.34	37.08	225	178	Peak
*5470.64	49.32	48.49	68.2	-18.88	31.57	6.34	37.08	225	178	Peak
5580	92.95	91.91			31.71	6.49	37.16	225	178	Average
5580	101.63	100.59			31.71	6.49	37.16	225	178	Peak
*5724.44	51.56	50.34	68.2	-16.64	31.96	6.69	37.43	225	178	Peak
11160	42.51	46.23	54	-11.49	40.1	9.57	53.39	100	122	Average
11160	55.77	59.49	74	-18.23	40.1	9.57	53.39	100	122	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5580 MHz: Fundamental Frequency
- \*: Out of Restricted Band

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	Gavin Wu

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	89.67	88.48			31.9	6.69	37.4	208	182	Average
5700	98.58	97.39			31.9	6.69	37.4	208	182	Peak
*5723.96	54.82	53.6	68.2	-13.38	31.96	6.69	37.43	208	182	Peak
11400	42.62	44.88	54	-11.38	39.96	9.91	52.13	159	58	Average
11400	55.07	57.33	74	-18.93	39.96	9.91	52.13	159	58	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	91.91	90.72			31.9	6.69	37.4	224	182	Average
5700	101.17	99.98	74	27.17	31.9	6.69	37.4	224	182	Peak
*5724.92	56.78	55.56	68.2	-11.42	31.96	6.69	37.43	224	182	Peak
11400	42.75	45.01	54	-11.25	39.96	9.91	52.13	132	306	Average
11400	55.41	57.67	74	-18.59	39.96	9.91	52.13	132	306	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

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	Getaz Yang

#### <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	93.67	92.4			31.99	6.75	37.47	201	186	Average
5745	101.64	100.37			31.99	6.75	37.47	201	186	Peak
11490	41.09	43.98	54	-12.91	39.91	10.03	52.83	151	250	Average
11490	54	56.89	74	-20	39.91	10.03	52.83	151	250	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	93.79	92.52			31.99	6.75	37.47	206	175	Average
5745	102.92	101.65			31.99	6.75	37.47	206	175	Peak
11490	41.23	44.12	54	-12.77	39.91	10.03	52.83	113	39	Average
11490	54.14	57.03	74	-19.86	39.91	10.03	52.83	113	39	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
5637.4	50.89	49.79	68.2	-17.31	31.82	6.56	37.28	202	186	Peak
5653.075	49.17	47.98	70.49	-21.32	31.85	6.62	37.28	202	186	Peak
5921.925	51.12	49.32	70.47	-19.35	32.29	7.01	37.5	202	186	Peak
6013.125	51.9	49.81	68.2	-16.3	32.45	7.14	37.5	202	186	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
5625.05	51.29	50.16	68.2	-16.91	31.79	6.56	37.22	206	175	Peak
5655.45	50.65	49.52	72.25	-21.6	31.85	6.62	37.34	206	175	Peak
5920.5	50.93	49.16	71.52	-20.59	32.26	7.01	37.5	206	175	Peak
5960.4	51.9	49.99	68.2	-16.3	32.34	7.08	37.51	206	175	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

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	Getaz Yang

#### <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	92.72	91.4			32.04	6.82	37.54	203	180	Average
5785	101.05	99.73			32.04	6.82	37.54	203	180	Peak
11570	41.43	44.89	54	-12.57	39.78	10.09	53.33	149	251	Average
11570	53.17	56.63	74	-20.83	39.78	10.09	53.33	149	251	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	93.74	92.42			32.04	6.82	37.54	217	180	Average
5785	103.1	101.78			32.04	6.82	37.54	217	180	Peak
11570	41.58	45.04	54	-12.42	39.78	10.09	53.33	112	33	Average
11570	55	58.46	74	-19	39.78	10.09	53.33	112	33	Peak

#### <Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5640.725	51.06	49.96	68.2	-17.14	31.82	6.56	37.28	203	180	Peak
5654.5	48.92	47.79	71.54	-22.62	31.85	6.62	37.34	203	180	Peak
5919.075	50.78	49.01	72.57	-21.79	32.26	7.01	37.5	203	180	Peak
5937.6	52.35	50.55	68.2	-15.85	32.29	7.01	37.5	203	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
5648.8	51.92	50.76	68.2	-16.28	31.82	6.62	37.28	217	180	Peak
5654.5	51.26	50.13	71.54	-20.28	31.85	6.62	37.34	217	180	Peak
5922.4	51.16	49.36	70.12	-18.96	32.29	7.01	37.5	217	180	Peak
5938.55	52.65	50.82	68.2	-15.55	32.32	7.01	37.5	217	180	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

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	Getaz Yang

#### <Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	92.12	90.65			32.12	6.88	37.53	208	185	Average
5825	100.86	99.39			32.12	6.88	37.53	208	185	Peak
11650	41.21	44.76	54	-12.79	39.65	10.15	53.35	144	255	Average
11650	52.48	56.03	74	-21.52	39.65	10.15	53.35	144	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
5825	93.46	91.99			32.12	6.88	37.53	217	177	Average
5825	101.95	100.48			32.12	6.88	37.53	217	177	Peak
11650	41.21	44.76	54	-12.79	39.65	10.15	53.35	111	29	Average
11650	52.27	55.82	74	-21.73	39.65	10.15	53.35	111	29	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
5610.8	51.45	50.34	68.2	-16.75	31.77	6.56	37.22	208	185	Peak
5657.825	52.09	50.96	74.01	-21.92	31.85	6.62	37.34	208	185	Peak
5915.75	52.64	50.87	75.02	-22.38	32.26	7.01	37.5	208	185	Peak
5970.375	52.71	50.8	68.2	-15.49	32.34	7.08	37.51	208	185	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
5598.925	51.26	50.16	68.2	-16.94	31.77	6.49	37.16	217	177	Peak
5655.925	50.48	49.35	72.6	-22.12	31.85	6.62	37.34	217	177	Peak
5920.025	50.04	48.27	71.87	-21.83	32.26	7.01	37.5	217	177	Peak
5930.95	52.99	51.19	68.2	-15.21	32.29	7.01	37.5	217	177	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



# 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	Gavin Wu

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
5140.7	52.06	51.84	74	-21.94	31.32	6.2	37.3	230	217	Peak
5148.95	42.43	42.23	54	-11.57	31.32	6.2	37.32	230	217	Average
5180	91.28	91.05			31.35	6.22	37.34	230	217	Average
5180	98.19	97.96			31.35	6.22	37.34	230	217	Peak
*10360	54.75	58.65	68.2	-13.45	39.19	9.05	52.14	100	158	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
5128.7	52.68	52.47	74	-21.32	31.31	6.2	37.3	220	165	Peak
5147.3	43.27	43.07	54	-10.73	31.32	6.2	37.32	220	165	Average
5180	94.02	93.79			31.35	6.22	37.34	220	165	Average
5180	101.1	100.87			31.35	6.22	37.34	220	165	Peak
*10360	55.38	59.28	68.2	-12.82	39.19	9.05	52.14	100	269	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

EUT Test Condition		Measurement Detail	
Channel	Channel 44	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	Gavin Wu

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
5121.35	51.44	51.26	74	-22.56	31.29	6.19	37.3	216	213	Peak
5140.25	41.87	41.65	54	-12.13	31.32	6.2	37.3	216	213	Average
5220	92.01	91.76			31.37	6.24	37.36	216	213	Average
5220	98.66	98.41			31.37	6.24	37.36	216	213	Peak
5387.29	41.3	40.66	54	-12.7	31.51	6.31	37.18	216	213	Average
5448.78	51.41	50.64	74	-22.59	31.56	6.34	37.13	216	213	Peak
*10440	55.22	59.32	68.2	-12.98	39.29	9.09	52.48	155	28	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
5135.6	52.22	52.01	74	-21.78	31.31	6.2	37.3	218	165	Peak
5139.95	42.51	42.29	54	-11.49	31.32	6.2	37.3	218	165	Average
5220	96.09	95.84			31.37	6.24	37.36	218	165	Average
5220	102.74	102.49			31.37	6.24	37.36	218	165	Peak
5370.35	51.31	50.69	74	-22.69	31.49	6.31	37.18	218	165	Peak
5372.22	41.81	41.19	54	-12.19	31.49	6.31	37.18	218	165	Average
*10440	55.02	59.12	68.2	-13.18	39.29	9.09	52.48	100	36	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5220 MHz: Fundamental Frequency
- \*: Out of Restricted Band

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	Gavin Wu

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
5089.85	51.24	51.04	74	-22.76	31.28	6.19	37.27	205	214	Peak
5142.65	41.1	40.88	54	-12.9	31.32	6.2	37.3	205	214	Average
5240	92.17	91.85			31.39	6.25	37.32	205	214	Average
5240	99.03	98.71			31.39	6.25	37.32	205	214	Peak
5391.69	41.29	40.65	54	-12.71	31.51	6.31	37.18	205	214	Average
5392.02	51.88	51.24	74	-22.12	31.51	6.31	37.18	205	214	Peak
*10480	55.51	59.76	68.2	-12.69	39.37	9.09	52.71	161	120	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
5062.85	50.96	50.79	74	-23.04	31.25	6.17	37.25	217	165	Peak
5143.25	41.23	41.01	54	-12.77	31.32	6.2	37.3	217	165	Average
5240	95.15	94.83			31.39	6.25	37.32	217	165	Average
5240	102.64	102.32			31.39	6.25	37.32	217	165	Peak
5390.81	41.5	40.86	54	-12.5	31.51	6.31	37.18	217	165	Average
5451.97	51.41	50.59	74	-22.59	31.56	6.34	37.08	217	165	Peak
*10480	55.31	59.56	68.2	-12.89	39.37	9.09	52.71	100	133	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

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	Gavin Wu

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
5075	50.72	50.55	74	-23.28	31.27	6.17	37.27	221	219	Peak
5125.85	40.87	40.66	54	-13.13	31.31	6.2	37.3	221	219	Average
5260	91.31	90.92			31.41	6.25	37.27	221	219	Average
5260	98.7	98.31			31.41	6.25	37.27	221	219	Peak
5356.82	41.26	40.67	54	-12.74	31.48	6.29	37.18	221	219	Average
5394	51.09	50.45	74	-22.91	31.51	6.31	37.18	221	219	Peak
*10520	55.12	59.4	68.2	-13.08	39.43	9.12	52.83	171	64	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5107.1	41.47	41.27	54	-12.53	31.29	6.19	37.28	236	164	Average
5108.75	51.18	50.98	74	-22.82	31.29	6.19	37.28	236	164	Peak
5260	95.37	94.98			31.41	6.25	37.27	236	164	Average
5260	102.39	102			31.41	6.25	37.27	236	164	Peak
5402.58	51.42	50.76	74	-22.58	31.52	6.32	37.18	236	164	Peak
5412.48	42.38	41.71	54	-11.62	31.53	6.32	37.18	236	164	Average
*10520	54.1	58.38	68.2	-14.1	39.43	9.12	52.83	121	335	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5260 MHz: Fundamental Frequency
- \*: Out of Restricted Band

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	Gavin Wu

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
5008.55	51.31	51.2	74	-22.69	31.21	6.13	37.23	223	213	Peak
5128.25	40.91	40.7	54	-13.09	31.31	6.2	37.3	223	213	Average
5300	91.56	91.04			31.44	6.27	37.19	223	213	Average
5300	98.88	98.36			31.44	6.27	37.19	223	213	Peak
5351.21	42.22	41.63	54	-11.78	31.48	6.29	37.18	223	213	Average
5369.69	51.86	51.24	74	-22.14	31.49	6.31	37.18	223	213	Peak
10600	42.65	46.33	54	-11.35	39.57	9.16	52.41	157	96	Average
10600	55.73	59.41	74	-18.27	39.57	9.16	52.41	157	96	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
5137.55	51.56	51.35	74	-22.44	31.31	6.2	37.3	234	161	Peak
5147.3	41.4	41.2	54	-12.6	31.32	6.2	37.32	234	161	Average
5300	94.74	94.22			31.44	6.27	37.19	234	161	Average
5300	101.96	101.44			31.44	6.27	37.19	234	161	Peak
5351.21	43.26	42.67	54	-10.74	31.48	6.29	37.18	234	161	Average
5382.78	52.21	51.57	74	-21.79	31.51	6.31	37.18	234	161	Peak
10600	42.84	46.52	54	-11.16	39.57	9.16	52.41	128	336	Average
10600	55.21	58.89	74	-18.79	39.57	9.16	52.41	128	336	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5300 MHz: Fundamental Frequency
- \*: Out of Restricted Band

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	Gavin Wu

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	92.28	91.73			31.45	6.29	37.19	221	213	Average
5320	99.4	98.85			31.45	6.29	37.19	221	213	Peak
5350.66	42.68	42.09	54	-11.32	31.48	6.29	37.18	221	213	Average
5374.64	52.31	51.69	74	-21.69	31.49	6.31	37.18	221	213	Peak
10640	42.92	46.37	54	-11.08	39.62	9.2	52.27	168	72	Average
10640	55.07	58.52	74	-18.93	39.62	9.2	52.27	168	72	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	95.21	94.66			31.45	6.29	37.19	233	159	Average
5320	101.91	101.36			31.45	6.29	37.19	233	159	Peak
5350.44	52.96	52.37	74	-21.04	31.48	6.29	37.18	233	159	Peak
5350.66	44.31	43.72	54	-9.69	31.48	6.29	37.18	233	159	Average
10640	43.42	46.87	54	-10.58	39.62	9.2	52.27	128	354	Average
10640	55.5	58.95	74	-18.5	39.62	9.2	52.27	128	354	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5320 MHz: Fundamental Frequency
- \*: Out of Restricted Band

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	Gavin Wu

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	50.82	50.05	74	-23.18	31.56	6.34	37.13	210	177	Peak
5457.52	39.26	38.44	54	-14.74	31.56	6.34	37.08	210	177	Average
*5470.48	50.88	50.05	68.2	-17.32	31.57	6.34	37.08	210	177	Peak
5500	88.99	88.06			31.6	6.36	37.03	210	177	Average
5500	98.03	97.1			31.6	6.36	37.03	210	177	Peak
11000	42.23	46.13	54	-11.77	40.2	9.35	53.45	154	51	Average
11000	55.43	59.33	74	-18.57	40.2	9.35	53.45	154	51	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
5443.28	40.26	39.5	54	-13.74	31.55	6.34	37.13	204	173	Average
5452.24	52.1	51.28	74	-21.9	31.56	6.34	37.08	204	173	Peak
*5470.16	52.92	52.09	68.2	-15.28	31.57	6.34	37.08	204	173	Peak
5500	92.61	91.68			31.6	6.36	37.03	204	173	Average
5500	101.68	100.75			31.6	6.36	37.03	204	173	Peak
11000	42.74	46.64	54	-11.26	40.2	9.35	53.45	141	318	Average
11000	55.6	59.5	74	-18.4	40.2	9.35	53.45	141	318	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

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	Gavin Wu

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
5423.76	38.66	37.99	54	-15.34	31.53	6.32	37.18	203	187	Average
5424.08	51.22	50.55	74	-22.78	31.53	6.32	37.18	203	187	Peak
*5469.84	49.65	48.82	68.2	-18.55	31.57	6.34	37.08	203	187	Peak
5580	89.59	88.55			31.71	6.49	37.16	203	187	Average
5580	98.37	97.33			31.71	6.49	37.16	203	187	Peak
*5725.72	50.03	48.75	68.2	-18.17	31.96	6.75	37.43	203	187	Peak
11160	42.21	45.93	54	-11.79	40.1	9.57	53.39	100	165	Average
11160	55.39	59.11	74	-18.61	40.1	9.57	53.39	100	165	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5393.04	51.27	50.63	74	-22.73	31.51	6.31	37.18	204	174	Peak
5428.56	39.24	38.5	54	-14.76	31.55	6.32	37.13	204	174	Average
*5470.48	50.15	49.32	68.2	-18.05	31.57	6.34	37.08	204	174	Peak
5580	93.4	92.36			31.71	6.49	37.16	204	174	Average
5580	101.86	100.82			31.71	6.49	37.16	204	174	Peak
*5725.4	49.98	48.7	68.2	-18.22	31.96	6.75	37.43	204	174	Peak
11160	42.47	46.19	54	-11.53	40.1	9.57	53.39	100	228	Average
11160	55.86	59.58	74	-18.14	40.1	9.57	53.39	100	228	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



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	Gavin Wu

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	89.8	88.61			31.9	6.69	37.4	203	184	Average
5700	98.39	97.2			31.9	6.69	37.4	203	184	Peak
*5724.76	61.1	59.88	68.2	-7.1	31.96	6.69	37.43	203	184	Peak
11400	42.47	44.73	54	-11.53	39.96	9.91	52.13	143	48	Average
11400	55.41	57.67	74	-18.59	39.96	9.91	52.13	143	48	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	91.95	90.76			31.9	6.69	37.4	206	175	Average
5700	101.01	99.82			31.9	6.69	37.4	206	175	Peak
*5724.36	58.25	57.03	68.2	-9.95	31.96	6.69	37.43	206	175	Peak
11400	42.77	45.03	54	-11.23	39.96	9.91	52.13	128	309	Average
11400	55.81	58.07	74	-18.19	39.96	9.91	52.13	128	309	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

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	Getaz Yang

#### <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	94.03	92.76			31.99	6.75	37.47	187	173	Average
5745	101.89	100.62			31.99	6.75	37.47	187	173	Peak
11490	44.71	47.6	54	-9.29	39.91	10.03	52.83	152	271	Average
11490	54.26	57.15	74	-19.74	39.91	10.03	52.83	152	271	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	94.11	92.84			31.99	6.75	37.47	203	180	Average
5745	103.28	102.01			31.99	6.75	37.47	203	180	Peak
11490	45.86	48.75	54	-8.14	39.91	10.03	52.83	119	49	Average
11490	55.68	58.57	74	-18.32	39.91	10.03	52.83	119	49	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
5583.25	51.59	50.52	68.2	-16.61	31.74	6.49	37.16	187	173	Peak
5658.3	50.38	49.25	74.36	-23.98	31.85	6.62	37.34	187	173	Peak
5918.125	50.76	48.99	73.27	-22.51	32.26	7.01	37.5	187	173	Peak
6006	51.59	49.56	68.2	-16.61	32.4	7.14	37.51	187	173	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
5587.525	51.51	50.44	68.2	-16.69	31.74	6.49	37.16	203	180	Peak
5653.075	51.72	50.53	70.49	-18.77	31.85	6.62	37.28	203	180	Peak
5917.65	50.87	49.1	73.62	-22.75	32.26	7.01	37.5	203	180	Peak
5974.65	52.01	50.07	68.2	-16.19	32.37	7.08	37.51	203	180	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

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	Getaz Yang

#### <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	94.15	92.83			32.04	6.82	37.54	188	171	Average
5785	101.77	100.45			32.04	6.82	37.54	188	171	Peak
11570	44.23	47.69	54	-9.77	39.78	10.09	53.33	159	278	Average
11570	55.29	58.75	74	-18.71	39.78	10.09	53.33	159	278	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	94.55	93.23			32.04	6.82	37.54	202	181	Average
5785	103.56	102.24			32.04	6.82	37.54	202	181	Peak
11570	45.2	48.66	54	-8.8	39.78	10.09	53.33	116	41	Average
11570	54.62	58.08	74	-19.38	39.78	10.09	53.33	116	41	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
5562.825	51.34	50.29	68.2	-16.86	31.68	6.49	37.12	188	171	Peak
5661.15	51.1	49.97	76.48	-25.38	31.85	6.62	37.34	188	171	Peak
5915.75	51.29	49.52	75.02	-23.73	32.26	7.01	37.5	188	171	Peak
5969.9	51.9	49.99	68.2	-16.3	32.34	7.08	37.51	188	171	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
5576.6	50.86	49.78	68.2	-17.34	31.71	6.49	37.12	202	181	Peak
5654.975	52.14	51.01	71.9	-19.76	31.85	6.62	37.34	202	181	Peak
5916.225	52.8	51.03	74.67	-21.87	32.26	7.01	37.5	202	181	Peak
6002.2	52.32	50.29	68.2	-15.88	32.4	7.14	37.51	202	181	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

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	Getaz Yang

#### <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	93.99	92.52			32.12	6.88	37.53	187	176	Average
5825	101.57	100.1			32.12	6.88	37.53	187	176	Peak
11650	44.27	47.82	54	-9.73	39.65	10.15	53.35	157	265	Average
11650	53.61	57.16	74	-20.39	39.65	10.15	53.35	157	265	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	94.23	92.76			32.12	6.88	37.53	204	175	Average
5825	103.01	101.54			32.12	6.88	37.53	204	175	Peak
11650	45.87	49.42	54	-8.13	39.65	10.15	53.35	113	52	Average
11650	54.3	57.85	74	-19.7	39.65	10.15	53.35	113	52	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
5583.25	50.32	49.25	68.2	-17.88	31.74	6.49	37.16	187	176	Peak
5659.725	51.43	50.3	75.42	-23.99	31.85	6.62	37.34	187	176	Peak
5915.75	51.67	49.9	75.02	-23.35	32.26	7.01	37.5	187	176	Peak
6011.7	52.82	50.73	68.2	-15.38	32.45	7.14	37.5	187	176	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
5570.9	52.34	51.26	68.2	-15.86	31.71	6.49	37.12	204	175	Peak
5656.4	52.27	51.14	72.95	-20.68	31.85	6.62	37.34	204	175	Peak
5920.025	53.94	52.17	71.87	-17.93	32.26	7.01	37.5	204	175	Peak
5982.725	52.99	51.05	68.2	-15.21	32.37	7.08	37.51	204	175	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

# 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	Gavin Wu

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
5149.4	56.49	56.29	74	-17.51	31.32	6.2	37.32	235	210	Peak
5150	45.9	45.7	54	-8.1	31.32	6.2	37.32	235	210	Average
5190	86.63	86.4			31.35	6.22	37.34	235	210	Average
5190	93.81	93.58			31.35	6.22	37.34	235	210	Peak
5381.68	51.09	50.45	74	-22.91	31.51	6.31	37.18	235	210	Peak
5406.43	41.6	40.94	54	-12.4	31.52	6.32	37.18	235	210	Average
*10380	55.47	59.46	68.2	-12.73	39.21	9.05	52.25	166	54	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
5149.25	61.03	60.83	74	-12.97	31.32	6.2	37.32	251	166	Peak
<b>5149.4</b>	<b>48.31</b>	<b>48.11</b>	<b>54</b>	<b>-5.69</b>	<b>31.32</b>	<b>6.2</b>	<b>37.32</b>	<b>251</b>	<b>166</b>	<b>Average</b>
5190	91.66	91.43			31.35	6.22	37.34	251	166	Average
5190	99.17	98.94			31.35	6.22	37.34	251	166	Peak
5367.6	41.56	40.94	54	-12.44	31.49	6.31	37.18	251	166	Average
5409.73	51.05	50.39	74	-22.95	31.52	6.32	37.18	251	166	Peak
*10380	55.86	59.85	68.2	-12.34	39.21	9.05	52.25	120	337	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

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	Gavin Wu

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
5085.5	50.48	50.31	74	-23.52	31.27	6.17	37.27	207	216	Peak
5146.55	41.35	41.15	54	-12.65	31.32	6.2	37.32	207	216	Average
5230	86.29	85.98			31.39	6.24	37.32	207	216	Average
5230	93.63	93.32			31.39	6.24	37.32	207	216	Peak
5376.95	41.25	40.63	54	-12.75	31.49	6.31	37.18	207	216	Average
5421.94	50.73	50.06	74	-23.27	31.53	6.32	37.18	207	216	Peak
*10460	54.95	59.14	68.2	-13.25	39.32	9.09	52.6	128	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
5081.6	41.91	41.74	54	-12.09	31.27	6.17	37.27	249	166	Average
5143.7	51.34	51.12	74	-22.66	31.32	6.2	37.3	249	166	Peak
5230	91.81	91.5			31.39	6.24	37.32	249	166	Average
5230	99.74	99.43			31.39	6.24	37.32	249	166	Peak
5378.16	42.49	41.85	54	-11.51	31.51	6.31	37.18	249	166	Average
5383.99	51.83	51.19	74	-22.17	31.51	6.31	37.18	249	166	Peak
*10460	55.35	59.54	68.2	-12.85	39.32	9.09	52.6	106	132	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

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	Gavin Wu

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
5013.8	51.08	50.95	74	-22.92	31.21	6.15	37.23	224	211	Peak
5122.85	41.43	41.23	54	-12.57	31.31	6.19	37.3	224	211	Average
5270	86.2	85.81			31.41	6.25	37.27	224	211	Average
5270	92.89	92.5			31.41	6.25	37.27	224	211	Peak
5424.58	41.73	41.01	54	-12.27	31.53	6.32	37.13	224	211	Average
5452.41	50.97	50.15	74	-23.03	31.56	6.34	37.08	224	211	Peak
*10540	54.22	58.33	68.2	-13.98	39.46	9.12	52.69	163	76	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
5045.75	50.25	50.11	74	-23.75	31.24	6.15	37.25	222	180	Peak
5117.3	38.96	38.76	54	-15.04	31.29	6.19	37.28	222	180	Average
5270	86.57	86.18			31.41	6.25	37.27	222	180	Average
5270	95.48	95.09			31.41	6.25	37.27	222	180	Peak
5361	51.12	50.5	74	-22.88	31.49	6.31	37.18	222	180	Peak
5417.21	39.48	38.81	54	-14.52	31.53	6.32	37.18	222	180	Average
*10540	53.67	57.78	68.2	-14.53	39.46	9.12	52.69	126	348	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

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	Gavin Wu

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
5004.95	38.64	38.53	54	-15.36	31.21	6.13	37.23	214	227	Average
5131.7	50.67	50.46	74	-23.33	31.31	6.2	37.3	214	227	Peak
5310	84.2	83.67			31.45	6.27	37.19	214	227	Average
5310	92.9	92.37			31.45	6.27	37.19	214	227	Peak
5350.11	42.74	42.15	54	-11.26	31.48	6.29	37.18	214	227	Average
5351.65	56.39	55.8	74	-17.61	31.48	6.29	37.18	214	227	Peak
10620	42.46	46.05	54	-11.54	39.59	9.16	52.34	178	51	Average
10620	55.95	59.54	74	-18.05	39.59	9.16	52.34	178	51	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
5079.65	50.6	50.43	74	-23.4	31.27	6.17	37.27	227	184	Peak
5130.95	39.01	38.8	54	-14.99	31.31	6.2	37.3	227	184	Average
5310	86.13	85.6			31.45	6.27	37.19	227	184	Average
5310	95.36	94.83			31.45	6.27	37.19	227	184	Peak
5350.33	61.99	61.4	74	-12.01	31.48	6.29	37.18	227	184	Peak
5350.44	45.31	44.72	54	-8.69	31.48	6.29	37.18	227	184	Average
10620	42.03	45.62	54	-11.97	39.59	9.16	52.34	118	342	Average
10620	55.06	58.65	74	-18.94	39.59	9.16	52.34	118	342	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5310 MHz: Fundamental Frequency
- \*: Out of Restricted Band



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	Gavin Wu

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
5459.76	51.77	50.95	74	-22.23	31.56	6.34	37.08	206	39	Peak
5460.08	43.18	42.36	54	-10.82	31.56	6.34	37.08	206	39	Average
*5469.36	62.55	61.72	68.2	-5.65	31.57	6.34	37.08	206	39	Peak
5510	88.19	87.29			31.6	6.36	37.06	206	39	Average
5510	96.21	95.31			31.6	6.36	37.06	206	39	Peak
*5724.28	50.3	49.08	68.2	-17.9	31.96	6.69	37.43	206	39	Peak
11020	45.4	49.35	54	-8.6	40.19	9.35	53.49	145	59	Average
11020	56.92	60.87	74	-17.08	40.19	9.35	53.49	145	59	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
5449.68	57.34	56.57	74	-16.66	31.56	6.34	37.13	194	173	Peak
5459.92	45.26	44.44	54	-8.74	31.56	6.34	37.08	194	173	Average
*5469.84	66.57	65.74	68.2	-1.63	31.57	6.34	37.08	194	173	Peak
5510	91	90.1			31.6	6.36	37.06	194	173	Average
5510	98.7	97.8			31.6	6.36	37.06	194	173	Peak
*5725.56	50.65	49.37	68.2	-17.55	31.96	6.75	37.43	194	173	Peak
11020	45.78	49.73	54	-8.22	40.19	9.35	53.49	133	301	Average
11020	55.85	59.8	74	-18.15	40.19	9.35	53.49	133	301	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

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	Gavin Wu

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
5376.72	50.7	50.08	74	-23.3	31.49	6.31	37.18	116	129	Peak
5438.16	41.58	40.82	54	-12.42	31.55	6.34	37.13	116	129	Average
*5470.16	50.51	49.68	68.2	-17.69	31.57	6.34	37.08	116	129	Peak
5550	87.04	86.03			31.68	6.42	37.09	116	129	Average
5550	93.42	92.41			31.68	6.42	37.09	116	129	Peak
*5725.48	50.67	49.39	68.2	-17.53	31.96	6.75	37.43	116	129	Peak
11110	45.66	49.68	54	-8.34	40.13	9.46	53.61	100	136	Average
11110	57.25	61.27	74	-16.75	40.13	9.46	53.61	100	136	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
5407.28	51.75	51.09	74	-22.25	31.52	6.32	37.18	235	173	Peak
5458.64	41.69	40.87	54	-12.31	31.56	6.34	37.08	235	173	Average
*5469.84	50.9	50.07	68.2	-17.3	31.57	6.34	37.08	235	173	Peak
5550	90.46	89.45			31.68	6.42	37.09	235	173	Average
5550	97.18	96.17			31.68	6.42	37.09	235	173	Peak
*5723.96	50.3	49.08	68.2	-17.9	31.96	6.69	37.43	235	173	Peak
11110	46.39	50.41	54	-7.61	40.13	9.46	53.61	100	96	Average
11110	57.43	61.45	74	-16.57	40.13	9.46	53.61	100	96	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

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	Gavin Wu

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5425.04	51.09	50.37	74	-22.91	31.53	6.32	37.13	204	177	Peak
5447.44	41.39	40.62	54	-12.61	31.56	6.34	37.13	204	177	Average
*5468.4	51.02	50.19	68.2	-17.18	31.57	6.34	37.08	204	177	Peak
5670	88.75	87.59			31.88	6.62	37.34	204	177	Average
5670	96.09	94.93			31.88	6.62	37.34	204	177	Peak
*5725.16	53.91	52.63	68.2	-14.29	31.96	6.75	37.43	204	177	Peak
11340	45.69	48.4	54	-8.31	40	9.8	52.51	132	41	Average
11340	57.92	60.63	74	-16.08	40	9.8	52.51	132	41	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
5431.28	50.26	49.52	74	-23.74	31.55	6.32	37.13	194	175	Peak
5453.52	41.51	40.69	54	-12.49	31.56	6.34	37.08	194	175	Average
*5468.72	49.43	48.6	68.2	-18.77	31.57	6.34	37.08	194	175	Peak
5670	91.07	89.91			31.88	6.62	37.34	194	175	Average
5670	98.76	97.6			31.88	6.62	37.34	194	175	Peak
*5725.72	57.36	56.08	68.2	-10.84	31.96	6.75	37.43	194	175	Peak
11340	46.13	48.84	54	-7.87	40	9.8	52.51	125	298	Average
11340	55.74	58.45	74	-18.26	40	9.8	52.51	125	298	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 5670 MHz: Fundamental Frequency
- \*: Out of Restricted Band

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	Getaz Yang

#### <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	90.11	88.82			32.01	6.75	37.47	190	175	Average
5755	98.1	96.81			32.01	6.75	37.47	190	175	Peak
11510	44.11	47.25	54	-9.89	39.9	10.03	53.07	156	270	Average
11510	55.59	58.73	74	-18.41	39.9	10.03	53.07	156	270	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	91.05	89.76			32.01	6.75	37.47	203	185	Average
5755	99.93	98.64			32.01	6.75	37.47	203	185	Peak
11510	45.68	48.82	54	-8.32	39.9	10.03	53.07	117	53	Average
11510	54.94	58.08	74	-19.06	39.9	10.03	53.07	117	53	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
5565.2	51.97	50.89	68.2	-16.23	31.71	6.49	37.12	190	175	Peak
5654.975	51.2	50.07	71.9	-20.7	31.85	6.62	37.34	190	175	Peak
5920.5	51.44	49.67	71.52	-20.08	32.26	7.01	37.5	190	175	Peak
6000.775	52.03	50	68.2	-16.17	32.4	7.14	37.51	190	175	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
5573.75	51.88	50.8	68.2	-16.32	31.71	6.49	37.12	203	185	Peak
5653.55	50.68	49.49	70.84	-20.16	31.85	6.62	37.28	203	185	Peak
5916.7	51.3	49.53	74.32	-23.02	32.26	7.01	37.5	203	185	Peak
5999.825	52.48	50.45	68.2	-15.72	32.4	7.14	37.51	203	185	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

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	Getaz Yang

#### <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	90.35	89			32.07	6.82	37.54	192	178	Average
5795	98.12	96.77			32.07	6.82	37.54	192	178	Peak
11590	44.5	48	54	-9.5	39.74	10.09	53.33	149	266	Average
11590	55.34	58.84	74	-18.66	39.74	10.09	53.33	149	266	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	91.02	89.67			32.07	6.82	37.54	205	187	Average
5795	99.86	98.51			32.07	6.82	37.54	205	187	Peak
11590	45.77	49.27	54	-8.23	39.74	10.09	53.33	106	47	Average
11590	54.47	57.97	74	-19.53	39.74	10.09	53.33	106	47	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
5604.15	50.5	49.39	68.2	-17.7	31.77	6.56	37.22	192	178	Peak
5659.25	50.89	49.76	75.07	-24.18	31.85	6.62	37.34	192	178	Peak
5918.6	53.25	51.48	72.92	-19.67	32.26	7.01	37.5	192	178	Peak
5972.275	52.09	50.18	68.2	-16.11	32.34	7.08	37.51	192	178	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
5583.725	50.67	49.6	68.2	-17.53	31.74	6.49	37.16	205	187	Peak
5654.025	50.67	49.54	71.19	-20.52	31.85	6.62	37.34	205	187	Peak
5918.6	52.18	50.41	72.92	-20.74	32.26	7.01	37.5	205	187	Peak
5982.725	53.53	51.59	68.2	-14.67	32.37	7.08	37.51	205	187	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

## 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	Getaz Yang

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
105.66	22.26	43.45	43.5	-21.24	9.62	1.08	31.89	137	24	Peak
176.47	27.03	46.56	43.5	-16.47	11.1	1.17	31.8	108	119	Peak
262.8	24.28	42.8	46	-21.72	11.85	1.53	31.9	120	328	Peak
323.91	27.98	44.62	46	-18.02	13.52	1.7	31.86	131	221	Peak
388.9	35.84	50.92	46	-10.16	15.07	1.88	32.03	138	258	Peak
748.77	26.12	33.41	46	-19.88	21.5	2.53	31.32	116	176	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
33.88	22.36	40.21	40	-17.64	12.63	0.6	31.08	106	319	Peak
105.66	25.22	46.41	43.5	-18.28	9.62	1.08	31.89	113	14	Peak
176.47	25.69	45.22	43.5	-17.81	11.1	1.17	31.8	110	82	Peak
242.43	25.4	44.61	46	-20.6	11.15	1.46	31.82	128	43	Peak
389.87	30	45.06	46	-16	15.1	1.88	32.04	122	349	Peak
870.99	26.72	32.88	46	-19.28	23.14	2.71	32.01	113	355	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value

# 802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 62	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	Getaz Yang

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
43.58	19.99	36.84	40	-20.01	13.59	0.67	31.11	110	125	Peak
108.57	22.33	43.18	43.5	-21.17	9.9	1.1	31.85	114	354	Peak
175.5	26.34	45.78	43.5	-17.16	11.19	1.16	31.79	126	112	Peak
322.94	27.75	44.42	46	-18.25	13.5	1.7	31.87	118	169	Peak
392.78	34.69	49.7	46	-11.31	15.17	1.89	32.07	118	74	Peak
659.53	23.78	33.02	46	-22.22	20.33	2.38	31.95	132	28	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
105.66	25.81	47	43.5	-17.69	9.62	1.08	31.89	105	299	Peak
177.44	25.46	45.07	43.5	-18.04	11.01	1.19	31.81	119	201	Peak
238.55	25.11	44.46	46	-20.89	10.99	1.45	31.79	110	287	Peak
354.95	28.68	44.54	46	-17.32	14.26	1.78	31.9	102	118	Peak
386.96	30.65	45.76	46	-15.35	15.03	1.87	32.01	121	217	Peak
732.28	25.01	32.8	46	-20.99	21.27	2.51	31.57	113	177	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value

# 802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 102	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	Getaz Yang

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
105.66	22.37	43.56	43.5	-21.13	9.62	1.08	31.89	127	54	Peak
176.47	27.11	46.64	43.5	-16.39	11.1	1.17	31.8	101	335	Peak
322.94	27.65	44.32	46	-18.35	13.5	1.7	31.87	124	50	Peak
385.99	34.58	49.7	46	-11.42	15.01	1.87	32	101	49	Peak
471.35	23.55	36.66	46	-22.45	16.75	2.03	31.89	103	196	Peak
771.08	26.19	33.11	46	-19.81	21.82	2.57	31.31	132	75	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
105.66	26.36	47.55	43.5	-17.14	9.62	1.08	31.89	135	253	Peak
175.5	25.71	45.15	43.5	-17.79	11.19	1.16	31.79	115	231	Peak
241.46	25.04	44.28	46	-20.96	11.11	1.46	31.81	101	120	Peak
360.77	28.87	44.64	46	-17.13	14.4	1.8	31.97	119	146	Peak
415.09	28.49	42.93	46	-17.51	15.64	1.94	32.02	139	223	Peak
765.26	25.67	32.75	46	-20.33	21.74	2.56	31.38	125	4	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value



## 802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 149	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	Getaz Yang

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
105.66	21.14	42.33	43.5	-22.36	9.62	1.08	31.89	121	255	Peak
175.5	23.01	42.45	43.5	-20.49	11.19	1.16	31.79	103	269	Peak
296.75	24.82	42.14	46	-21.18	12.85	1.62	31.79	107	90	Peak
349.13	29.19	45.15	46	-16.81	14.12	1.76	31.84	128	251	Peak
406.36	29.32	43.98	46	-16.68	15.46	1.92	32.04	131	7	Peak
719.67	24.4	32.49	46	-21.6	21.09	2.48	31.66	130	3	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
40.67	22.79	39.61	40	-17.21	13.55	0.65	31.02	121	112	Peak
105.66	24.62	45.81	43.5	-18.88	9.62	1.08	31.89	112	57	Peak
174.53	23.74	43.08	43.5	-19.76	11.28	1.16	31.78	115	145	Peak
240.49	24.3	43.56	46	-21.7	11.07	1.46	31.79	110	92	Peak
386.96	29.34	44.45	46	-16.66	15.03	1.87	32.01	107	67	Peak
738.1	25.58	33.21	46	-20.42	21.35	2.52	31.5	107	179	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value

## 4.2 Conducted Emission Measurement

### 4.2.1 Limits of Conducted Emission Measurement

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

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

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

### 4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 21, 2016	Nov. 20, 2017
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Dec. 22, 2016	Dec. 21, 2017
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 28, 2016	Jul. 27, 2017
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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

#### 4.2.3 Test Procedures

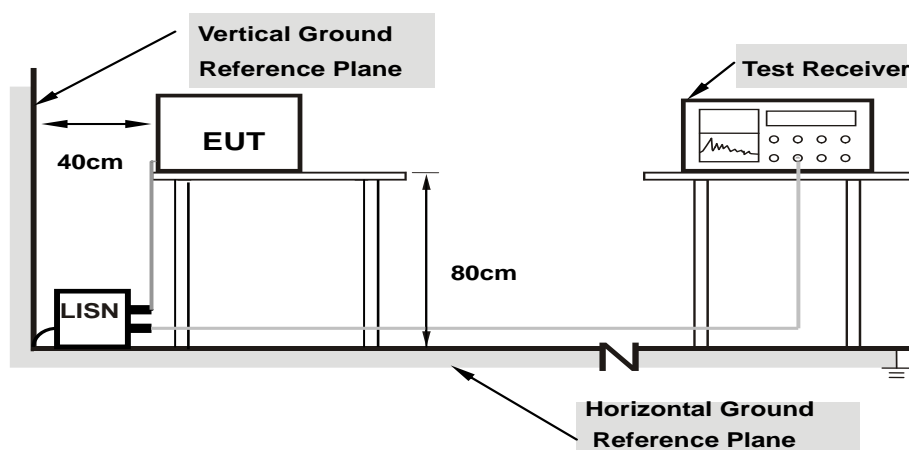
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

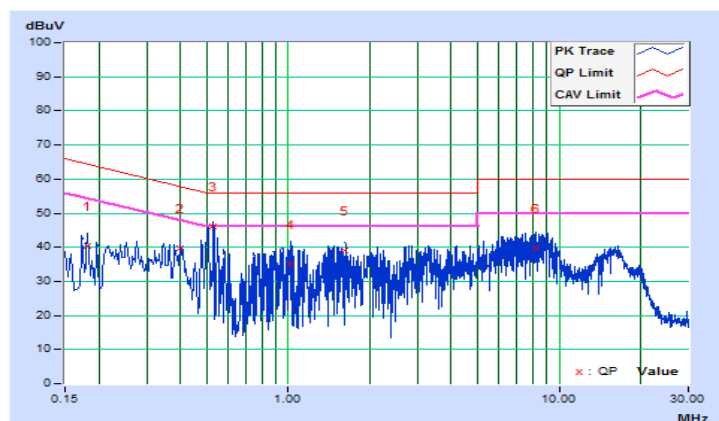
#### 4.2.7 Test Results

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	Getaz Yang	Test Date	2017/3/31

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	0.18122	10.36	30.21	16.11	40.57	26.47	64.43	54.43	-23.86	-27.96
2	0.40024	10.40	29.48	18.58	39.88	28.98	57.85	47.85	-17.97	-18.87
<b>3</b>	<b>0.52960</b>	<b>10.40</b>	<b>35.80</b>	<b>26.30</b>	<b>46.20</b>	<b>36.70</b>	<b>56.00</b>	<b>46.00</b>	<b>-9.80</b>	<b>-9.30</b>
4	1.01802	10.40	24.56	12.17	34.96	22.57	56.00	46.00	-21.04	-23.43
5	1.62407	10.44	28.68	16.19	39.12	26.63	56.00	46.00	-16.88	-19.37
6	8.20851	10.75	28.91	17.45	39.66	28.20	60.00	50.00	-20.34	-21.80

#### 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

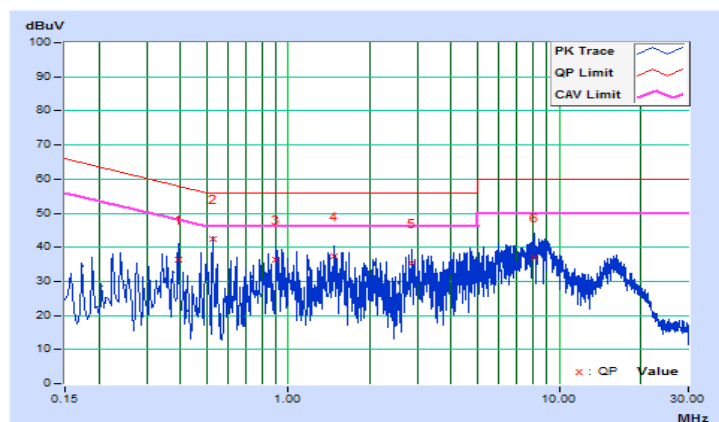


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2017/3/31

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	0.39242	10.16	26.19	14.33	36.35	24.49	58.01	48.01	-21.66	-23.52
2	0.52544	10.16	32.20	22.94	42.36	33.10	56.00	46.00	-13.64	-12.90
3	0.89681	10.17	26.03	16.44	36.20	26.61	56.00	46.00	-19.80	-19.39
4	1.47158	10.20	27.06	15.67	37.26	25.87	56.00	46.00	-18.74	-20.13
5	2.85968	10.28	24.95	11.76	35.23	22.04	56.00	46.00	-20.77	-23.96
6	8.06775	10.48	26.65	13.63	37.13	24.11	60.00	50.00	-22.87	-25.89

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

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

Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$ ;

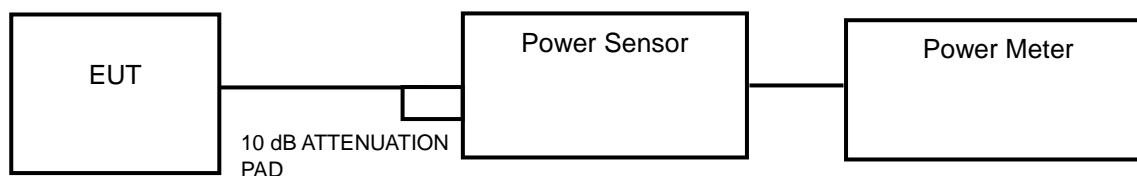
Array Gain = 0 dB (i.e., no array gain) for channel widths  $\geq 40$  MHz for any  $N_{ANT}$ ;

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

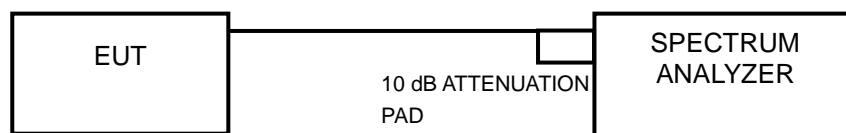
For power measurements on all other devices: Array Gain =  $10 \log(N_{ANT}/N_{SS})$  dB.

#### 4.3.2 Test Setup

##### <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**

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

#### 4.3.5 Deviation from Test Standard

No deviation.

#### 4.3.6 EUT Operating Conditions

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

#### 4.3.7 Test Result

##### Power Output:

##### 802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	19.907	12.99	24	Pass
44	5220	18.967	12.78	24	Pass
48	5240	18.281	12.62	24	Pass
52	5260	18.967	12.78	24	Pass
60	5300	18.197	12.60	24	Pass
64	5320	18.750	12.73	24	Pass
100	5500	18.197	12.60	24	Pass
116	5580	18.493	12.67	24	Pass
140	5700	19.588	12.92	24	Pass
149	5745	19.320	12.86	30	Pass
157	5785	19.543	12.91	30	Pass
165	5825	19.815	12.97	30	Pass

##### Note:

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

1.  $11 \text{ dBm} + 10\log (21.04) = 24.23 \text{ dBm} > 24 \text{ dBm}$ .
2.  $11 \text{ dBm} + 10\log (20.96) = 24.21 \text{ dBm} > 24 \text{ dBm}$ .
3.  $11 \text{ dBm} + 10\log (21.19) = 24.26 \text{ dBm} > 24 \text{ dBm}$ .
4.  $11 \text{ dBm} + 10\log (23.09) = 24.63 \text{ dBm} > 24 \text{ dBm}$ .
5.  $11 \text{ dBm} + 10\log (23.34) = 24.68 \text{ dBm} > 24 \text{ dBm}$ .
6.  $11 \text{ dBm} + 10\log (21.27) = 24.28 \text{ dBm} > 24 \text{ dBm}$ .



### 802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	19.454	12.89	24	Pass
44	5220	19.055	12.80	24	Pass
48	5240	18.239	12.61	24	Pass
52	5260	18.880	12.76	24	Pass
60	5300	19.231	12.84	24	Pass
64	5320	19.187	12.83	24	Pass
100	5500	18.493	12.67	24	Pass
116	5580	18.365	12.64	24	Pass
140	5700	19.143	12.82	24	Pass
149	5745	19.055	12.80	30	Pass
157	5785	19.231	12.84	30	Pass
165	5825	19.724	12.95	30	Pass

#### Note:

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

1.  $11 \text{ dBm} + 10\log(20.17) = 24.05 \text{ dBm} > 24 \text{ dBm}$ .
2.  $11 \text{ dBm} + 10\log(20.71) = 24.16 \text{ dBm} > 24 \text{ dBm}$ .
3.  $11 \text{ dBm} + 10\log(22.62) = 24.54 \text{ dBm} > 24 \text{ dBm}$ .
4.  $11 \text{ dBm} + 10\log(24.14) = 24.83 \text{ dBm} > 24 \text{ dBm}$ .
5.  $11 \text{ dBm} + 10\log(23.10) = 24.64 \text{ dBm} > 24 \text{ dBm}$ .
6.  $11 \text{ dBm} + 10\log(25.03) = 24.98 \text{ dBm} > 24 \text{ dBm}$ .

### 802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	13.521	11.31	24	Pass
46	5230	13.305	11.24	24	Pass
54	5270	13.772	11.39	24	Pass
62	5310	13.868	11.42	24	Pass
102	5510	13.740	11.38	24	Pass
110	5550	13.836	11.41	24	Pass
134	5670	14.060	11.48	24	Pass
151	5755	14.289	11.55	30	Pass
159	5795	14.555	11.63	30	Pass

**Note:**

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

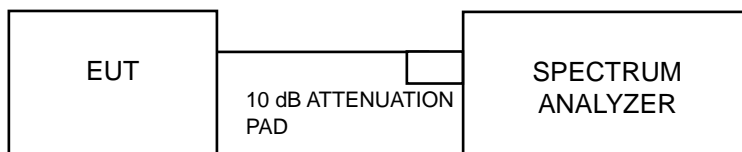
1.  $11 \text{ dBm} + 10\log (53.69) = 28.30 \text{ dBm} > 24 \text{ dBm}$ .
2.  $11 \text{ dBm} + 10\log (53.74) = 28.30 \text{ dBm} > 24 \text{ dBm}$ .
3.  $11 \text{ dBm} + 10\log (67.46) = 29.29 \text{ dBm} > 24 \text{ dBm}$ .
4.  $11 \text{ dBm} + 10\log (67.61) = 29.30 \text{ dBm} > 24 \text{ dBm}$ .
5.  $11 \text{ dBm} + 10\log (56.69) = 28.54 \text{ dBm} > 24 \text{ dBm}$ .

#### 4.4 Peak Power Spectral Density Measurement

##### 4.4.1 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

##### 4.4.2 Test Setup



##### 4.4.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

##### 4.4.4 Test Procedures

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

Using method SA-1

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

Using method SA-2 **Duty cycle <98%**

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: with duty cycle & Duty cycle <98 %

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

#### 4.4.5 Deviation from Test Standard

No deviation.

#### 4.4.6 EUT Operating Conditions

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

#### 4.4.7 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	1.02	0.11	1.13	11	Pass
44	5220	1.40	0.11	1.51	11	Pass
48	5240	1.62	0.11	1.73	11	Pass
52	5260	1.87	0.11	1.98	11	Pass
60	5300	1.98	0.11	2.09	11	Pass
64	5320	2.30	0.11	2.41	11	Pass
100	5500	1.43	0.11	1.54	11	Pass
116	5580	1.69	0.11	1.80	11	Pass
140	5700	1.60	0.11	1.71	11	Pass

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

##### 802.11n (HT20)

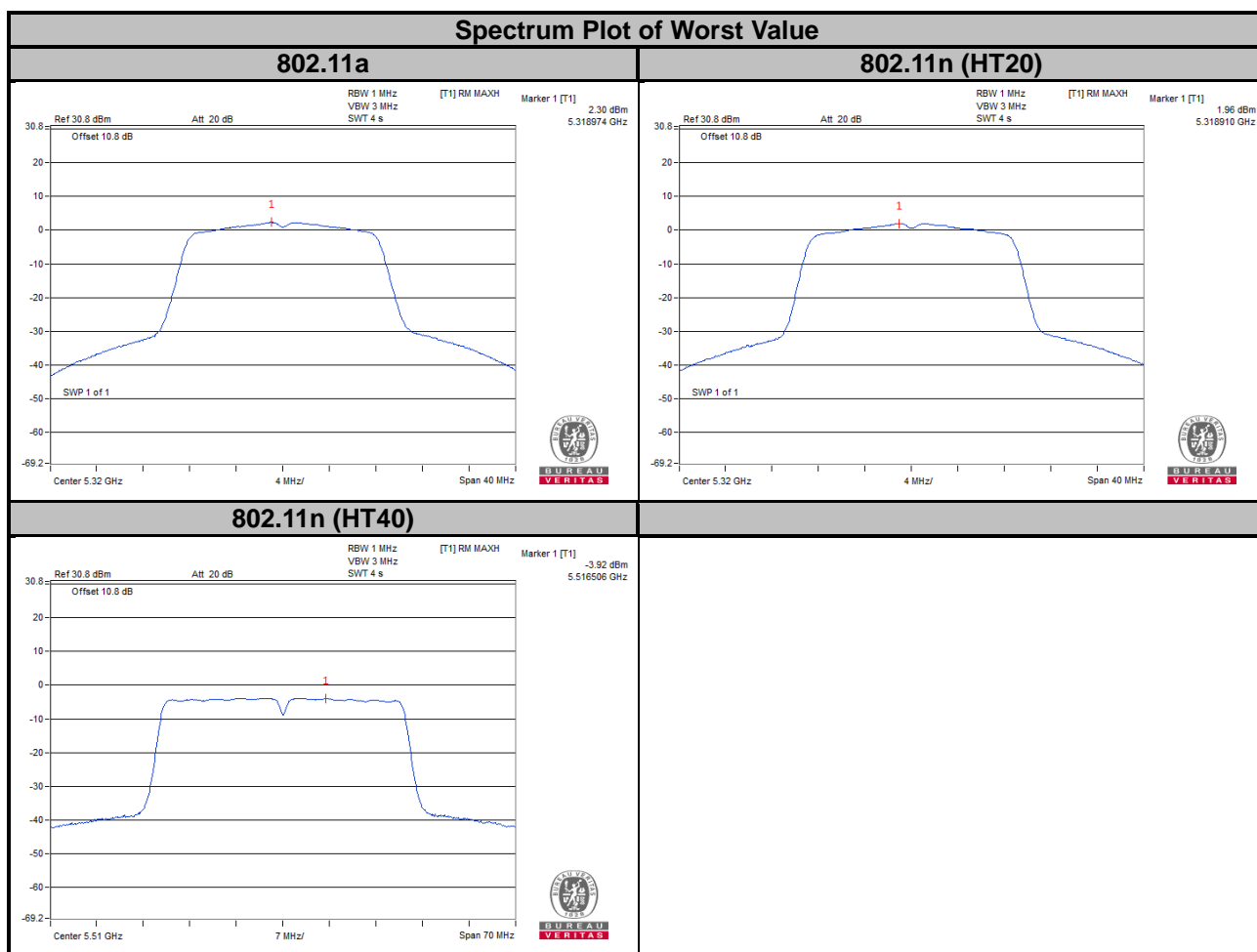
Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	0.99	0.14	1.13	11	Pass
44	5220	1.19	0.14	1.33	11	Pass
48	5240	1.33	0.14	1.47	11	Pass
52	5260	1.49	0.14	1.63	11	Pass
60	5300	1.91	0.14	2.05	11	Pass
64	5320	1.96	0.14	2.10	11	Pass
100	5500	1.67	0.14	1.81	11	Pass
116	5580	1.49	0.14	1.63	11	Pass
140	5700	1.33	0.14	1.47	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	-4.50	0.29	-4.21	11	Pass
46	5230	-4.07	0.29	-3.78	11	Pass
54	5270	-3.92	0.29	-3.63	11	Pass
62	5310	-3.94	0.29	-3.65	11	Pass
102	5510	-3.92	0.29	-3.63	11	Pass
110	5550	-4.12	0.29	-3.83	11	Pass
134	5670	-4.02	0.29	-3.73	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 (dBm/500 kHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
149	5745	-1.59	0.11	-1.48	30	Pass
157	5785	-1.08	0.11	-0.97	30	Pass
165	5825	-1.14	0.11	-1.03	30	Pass

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

### 802.11n (HT20)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/500 kHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
149	5745	-1.55	0.14	-1.41	30	Pass
157	5785	-1.30	0.14	-1.16	30	Pass
165	5825	-1.46	0.14	-1.32	30	Pass

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

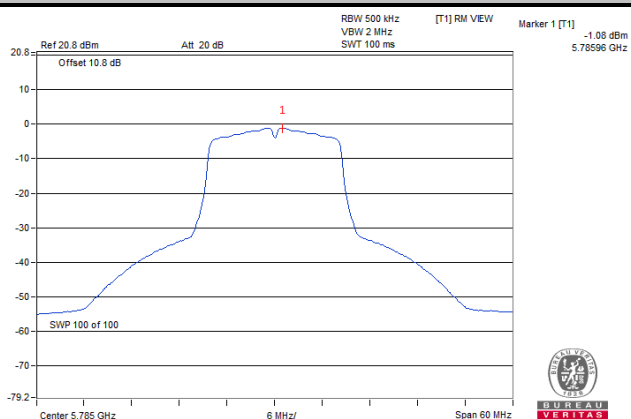
### 802.11n (HT40)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/500 kHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
151	5755	-5.96	0.29	-5.67	30	Pass
159	5795	-5.32	0.29	-5.03	30	Pass

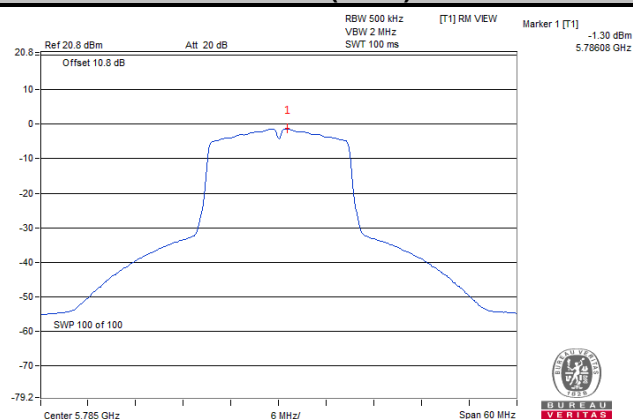
**Note:** Refer to section 3.3 for duty cycle spectrum plot.

## Spectrum Plot of Worst Value

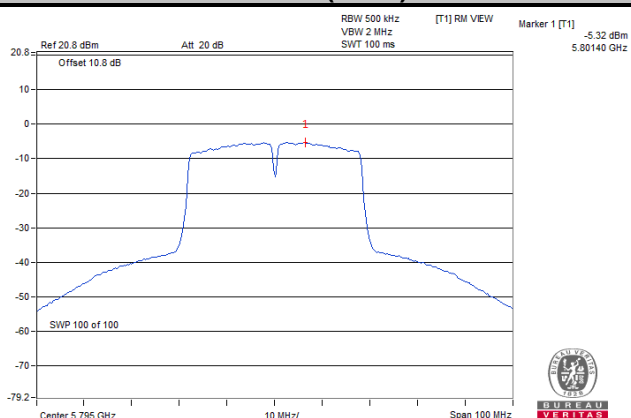
### 802.11a



### 802.11n (HT20)



### 802.11n (HT40)



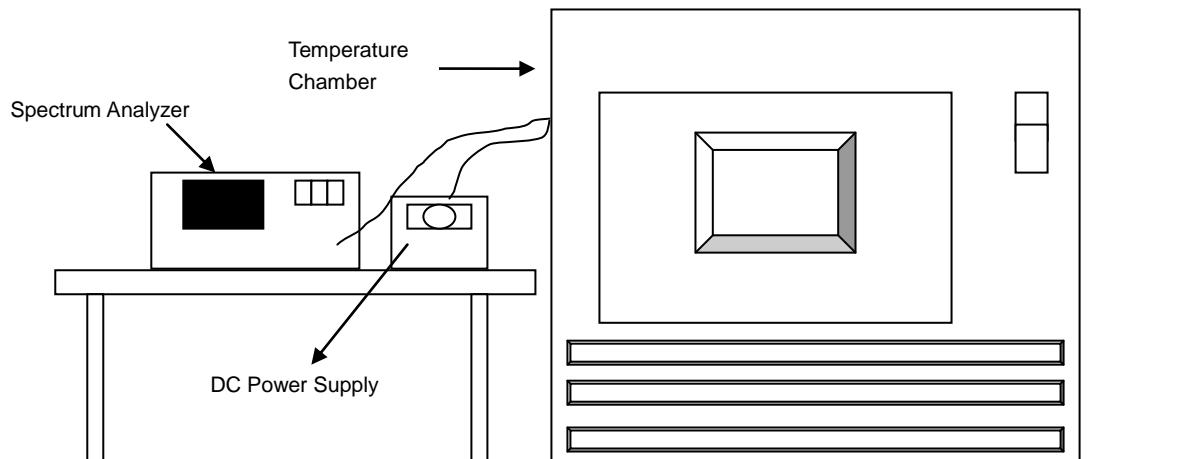


## 4.5 Frequency Stability

### 4.5.1 Limit of Frequency Stability Measurement

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

### 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 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.

### 4.5.5 Deviation from Test Standard

No deviation.

### 4.5.6 EUT Operating Condition

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

#### 4.5.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vac)	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)
50	120	5180.0251	0.00048	5180.0232	0.00045	5180.0258	0.00050	5180.0257	0.00050
40	120	5180.0034	0.00007	5180.0054	0.00010	5180.0077	0.00015	5180.0064	0.00012
30	120	5179.9919	-0.00016	5179.9903	-0.00019	5179.9917	-0.00016	5179.9937	-0.00012
20	120	5179.9997	-0.00001	5180.0002	0.00000	5180	0.00000	5179.9991	-0.00002
10	120	5179.9871	-0.00025	5179.9902	-0.00019	5179.9857	-0.00028	5179.988	-0.00023
0	120	5180.0107	0.00021	5180.0105	0.00020	5180.011	0.00021	5180.0092	0.00018
-10	120	5179.9786	-0.00041	5179.9775	-0.00043	5179.9745	-0.00049	5179.978	-0.00042
-20	120	5179.9881	-0.00023	5179.9882	-0.00023	5179.9875	-0.00024	5179.9878	-0.00024
-30	120	5180.0129	0.00025	5180.0097	0.00019	5180.0138	0.00027	5180.0114	0.00022

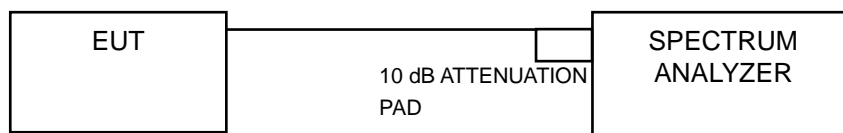
Frequency Stability Versus Temp.									
Operating Frequency: 5320 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	138	5179.9988	-0.00002	5180.0005	0.00001	5180.0007	0.00001	5179.9987	-0.00003
	120	5179.9997	-0.00001	5180.0002	0.00000	5180	0.00000	5179.9991	-0.00002
	102	5179.9994	-0.00001	5180.0006	0.00001	5180.0006	0.00001	5179.9986	-0.00003

## 4.6 6 dB Bandwidth Measurement

### 4.6.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

### 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

#### 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

### 4.6.5 Deviation from Test Standard

No deviation.

### 4.6.6 EUT Operating Condition

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

#### 4.6.7 Test Results

##### 802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	15.36	0.5	Pass
157	5785	15.80	0.5	Pass
165	5825	15.19	0.5	Pass

##### 802.11n (HT20)

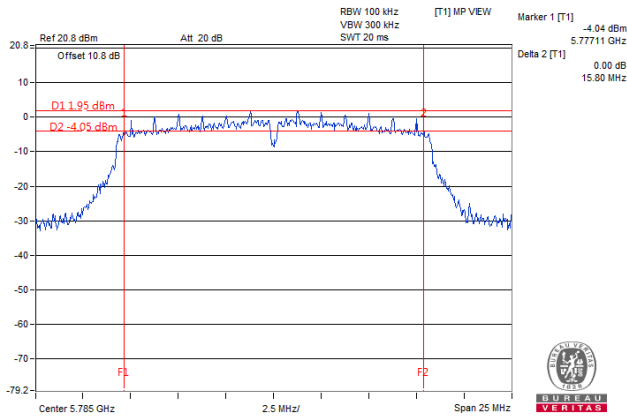
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.01	0.5	Pass
157	5785	16.30	0.5	Pass
165	5825	15.98	0.5	Pass

##### 802.11n (HT40)

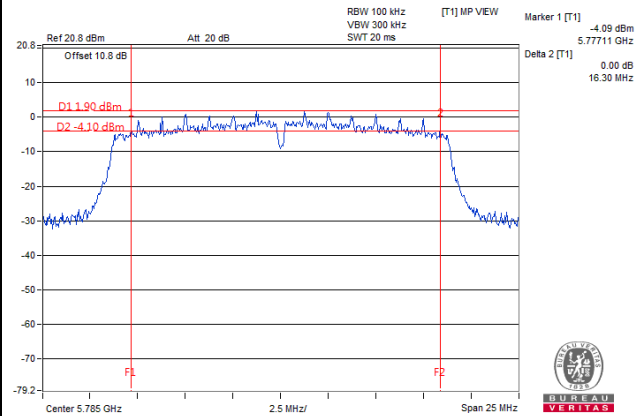
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	35.23	0.5	Pass
159	5795	35.23	0.5	Pass

## Spectrum Plot of Worst Value

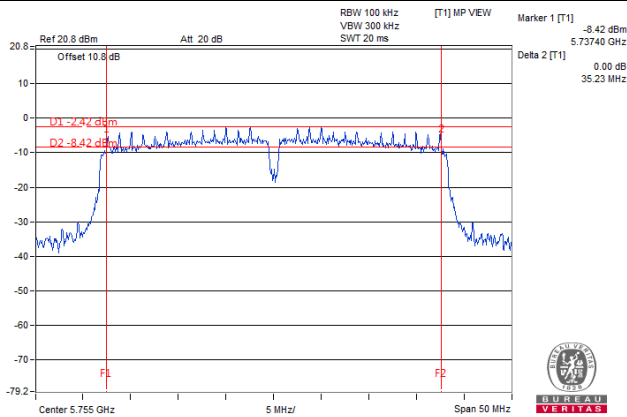
### 802.11a



### 802.11n (HT20)



### 802.11n (HT40)



### 802.11ac (VHT80)

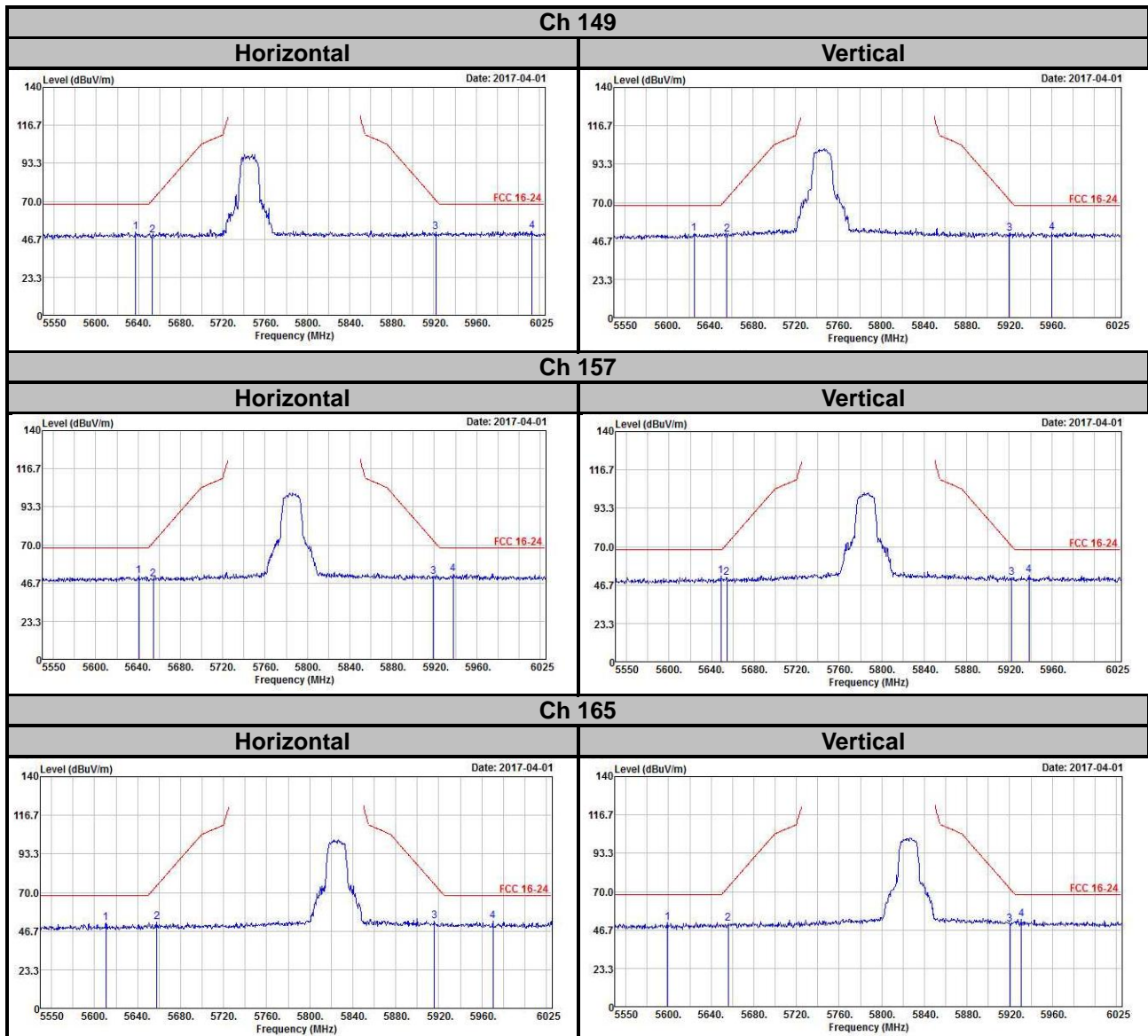


## 5 Pictures of Test Arrangements

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

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

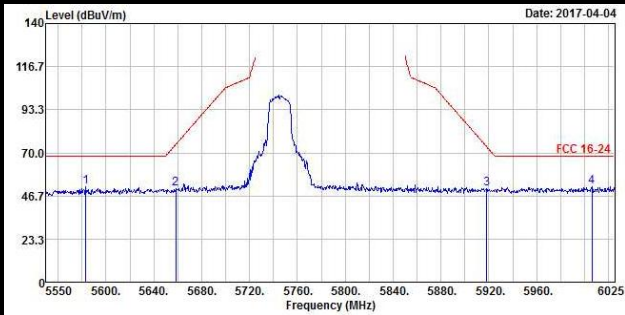
802.11a



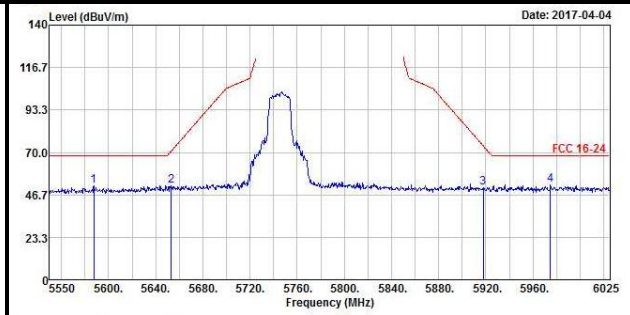
## 802.11n (HT20)

### Ch 149

#### Horizontal

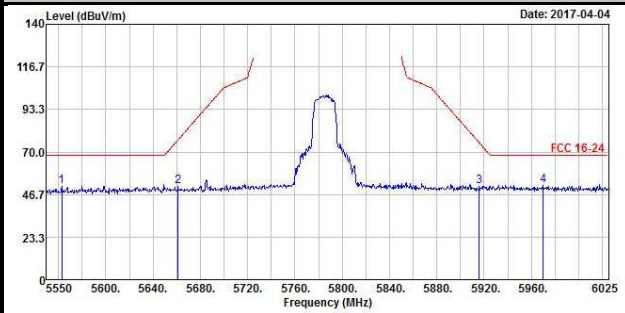


#### Vertical

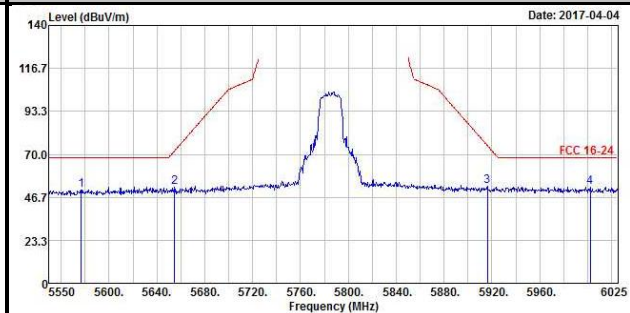


### Ch 157

#### Horizontal

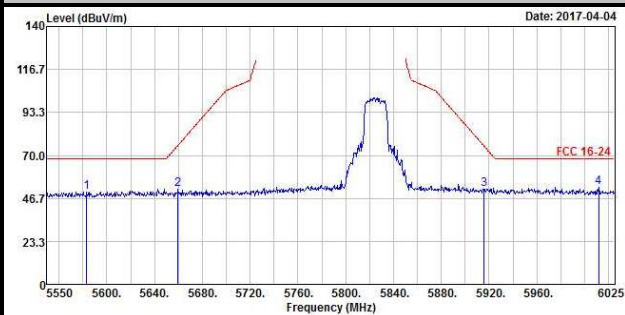


#### Vertical

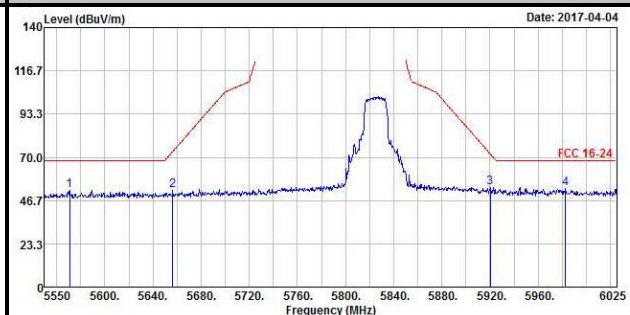


### Ch 165

#### Horizontal



#### Vertical

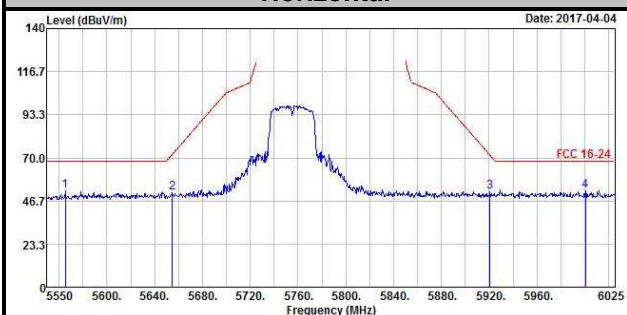




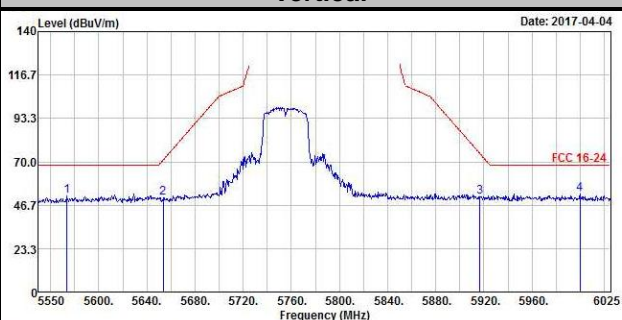
## 802.11n (HT40)

### Ch 151

#### Horizontal

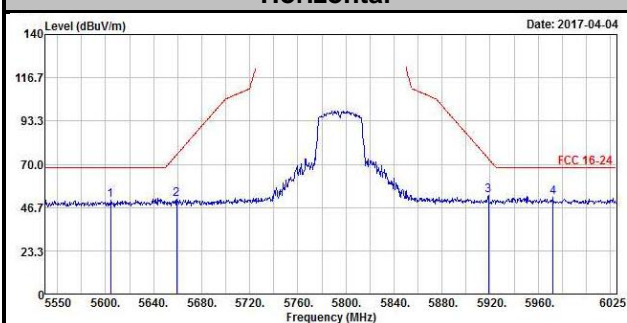


#### Vertical

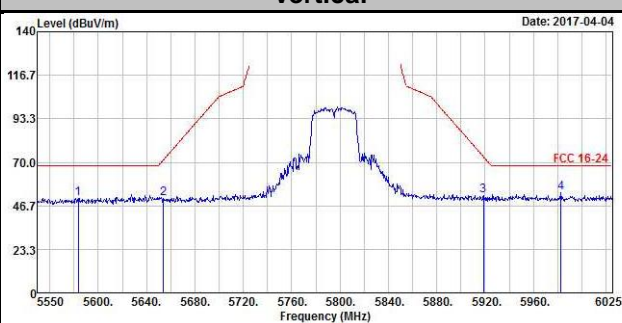


### Ch 159

#### Horizontal



#### Vertical



## Appendix – Information on the Testing Laboratories

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

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**Web Site:** [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

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

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