FCC Test Report

Report No.:	RF170425C26-8
FCC ID:	MSQZ01KD
Test Model:	ASUS_Z01KD
Received Date:	Apr. 25, 2017
Test Date:	May 27, 2017 ~ Jul. 06, 2017
Issued Date:	Aug. 08, 2017
Applicant:	ASUSTek COMPUTER INC.
Address:	4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)
Test Location (1):	No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.
Test Location (2):	No.215, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan, R.O.C

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Release Control Record

Issue No.	Description	Date Issued
RF170425C26-8	Original Release	Aug. 08, 2017

1 Certificate of Conformity

Product:	ASUS Phone
Brand:	ASUS
Test Model:	ASUS_Z01KD
Sample Status:	Production Unit
Applicant:	ASUSTek COMPUTER INC.
Test Date:	May 27, 2017 ~ Jul. 06, 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 : _____ , **Date:** Aug. 08, 2017

Ivonne Wu / Supervisor

Approved by : _____ , **Date:** Aug. 08, 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 -19.10 dB at 0.15400 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 -1.03 dB at 5470 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 OOBE test plots were recorded in Annex A.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.0153 dB
	200 MHz ~1000 MHz	2.0224 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	1.0121 dB
	18 GHz ~ 40 GHz	1.1508 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	ASUS Phone
Brand	ASUS
Test Model	ASUS_Z01KD
SKU	BR/NA/SA-2CA US/BR/CO/PE/CL
Status of EUT	Production Unit
Power Supply Rating	5.0 Vdc or 9 Vdc (adapter) 5.0 Vdc (host equipment) 3.85 Vdc (Li-ion battery)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0 Mbps 802.11n: up to MCS7 802.11ac: up to V9
Operating Frequency	5180 ~ 5240 MHz, 5260 ~ 5320 MHz, 5500 ~ 5700 MHz, 5745 ~ 5825 MHz
Number of Channel	5180 ~ 5240 MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 1 for 802.11ac (VHT80) 5260 ~ 5320 MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 1 for 802.11ac (VHT80) 5500 ~ 5700 MHz: 11 for 802.11a, 802.11n (HT20) 5 for 802.11n (HT40) 2 for 802.11ac (VHT80) 5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 1 for 802.11ac (VHT80)
Output Power	53.211 mW for 5180 ~ 5240 MHz 54.702 mW for 5260 ~ 5320 MHz 54.450 mW for 5500 ~ 5700 MHz 54.325 mW for 5745 ~ 5825 MHz
Antenna Type	PIFA antenna with -0.03 dBi gain (5180 ~ 5240 MHz) PIFA antenna with 1.42 dBi gain (5260 ~ 5320 MHz) PIFA antenna with 1.08 dBi gain (5500 ~ 5700 MHz) PIFA antenna with -0.62 dBi gain (5745 ~ 5825 MHz)
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. The EUT provides one transmitter and receiver.

Modulation Mode	Tx Function
802.11a	1TX
802.11n (HT20)	1TX
802.11n (HT40)	1TX
802.11ac (HT20)	1TX
802.11ac (HT40)	1TX
802.11ac (VHT80)	1TX

   * The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ac 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's accessories list refers to Ext. Pho.
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

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
42	5210

For 5260 ~ 5320 MHz

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

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

2 channels are provided for 802.11n (HT40):

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

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
58	5290

For 5500 ~ 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		

2 channels are provided for 802.11ac (VHT80):

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

For 5745 ~ 5825 MHz:

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

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

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
155	5775

3.2.1 Test Mode Applicability and Tested Channel Detail

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

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

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

Radiated Emission Test (Above 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36 to 48	36, 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
-		802.11ac (VHT80)	42	42	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
-		802.11ac (VHT80)	58	58	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
-		802.11ac (VHT80)	106 to 122	106, 122	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
-		802.11ac (VHT80)	155	155	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	802.11ac (VHT80)	42	42	OFDM	BPSK	MCS0
-	5260-5320	802.11ac (VHT80)	58	58	OFDM	BPSK	MCS0
-	5500-5700	802.11ac (VHT80)	106 to 122	106	OFDM	BPSK	MCS0
	5745-5825	802.11a	155	165	OFDM	BPSK	6.0

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)
-	5500-5700	802.11ac (VHT80)	106 to 122	106	OFDM	BPSK	6.0

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
-		802.11ac (VHT80)	42	42	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
-		802.11ac (VHT80)	58	58	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
-		802.11ac (VHT80)	106 to 122	106, 122	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
-		802.11ac (VHT80)	155	155	OFDM	BPSK	MCS0

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Charles Hsiao
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Charles Hsiao
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
APCM	25 deg. C, 65 % RH	3.85 Vdc	Anson Lin

3.3 Duty Cycle of Test Signal

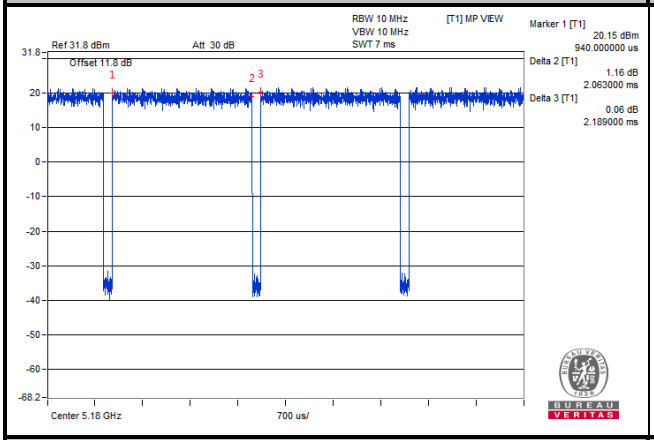
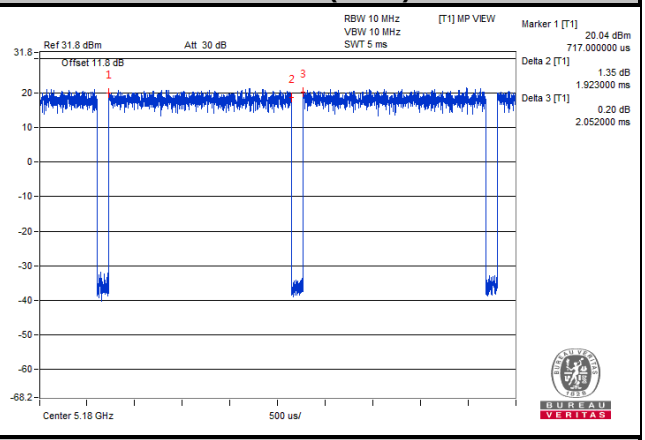
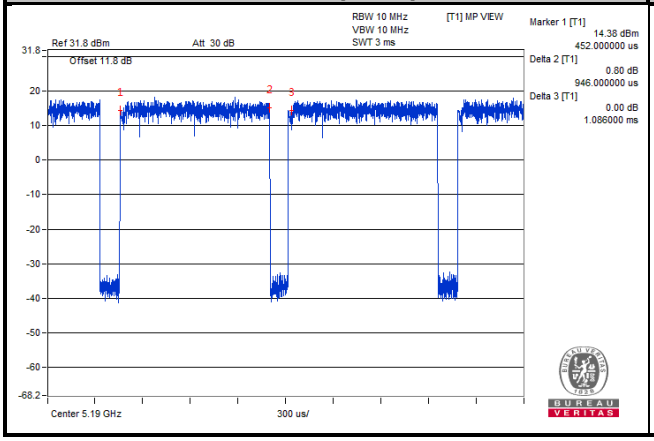
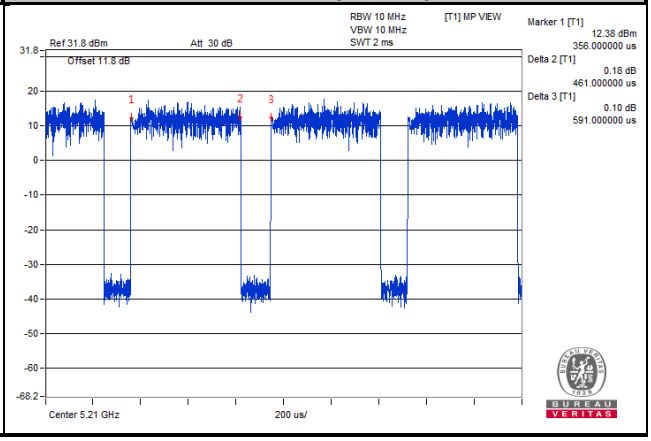
MODULATION TYPE: BPSK

802.11a: Duty cycle = 2.063/2.189 = 0.942, Duty factor = 10 * log(1/0.942) = 0.26

802.11n (HT20): Duty cycle = 1.923/2.052 = 0.937, Duty factor = 10 * log(1/0.937) = 0.28

802.11n (HT40): Duty cycle = 946/1086 = 0.871, Duty factor = 10 * log(1/0.871) = 0.60

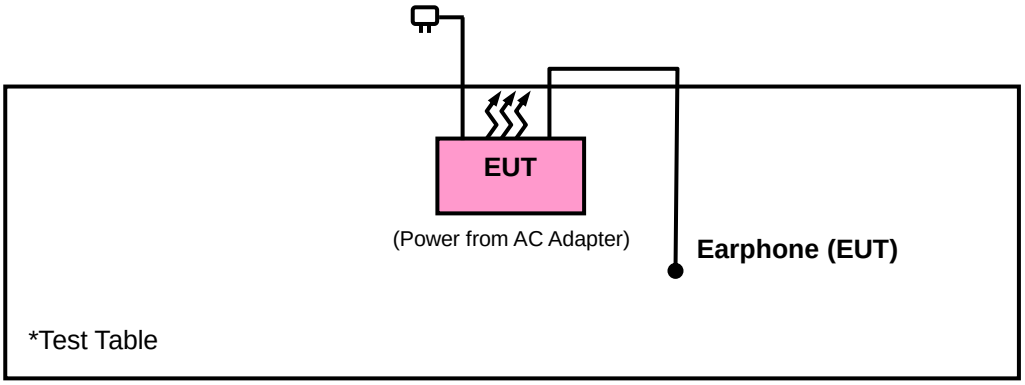
802.11ac (VHT80): Duty cycle = 461/591 = 0.780, Duty factor = 10 * log(1/0.780) = 1.08

802.11a	802.11n (HT20)
	
802.11n (HT40)	**802.11ac (VHT80)**
	

3.4 Description of Support Units

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

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 v01r04
644545 D01 Guidance for IEEE 802 11ac v01r02
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 v01r04		Field Strength at 3 m	
		PK: 74 (dBμV/m)	AV: 54 (dBμV/m)
Frequency Band	**Applicable To**	**EIRP Limit**	**Equivalent Field Strength at 3 m**
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	15.407(b)(4)(i)	PK:-27 (dBm/MHz) *1 PK:10 (dBm/MHz) *2 PK:15.6 (dBm/MHz) *3 PK:27 (dBm/MHz) *4	PK: 68.2 (dBμV/m) *1 PK:105.2 (dBμV/m) *2 PK: 110.8 (dBμV/m) *3 PK:122.2 (dBμV/m) *4
	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	

*1 beyond 75 MHz or more above of the band edge.

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

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

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

Note:

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

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

4.1.3 Test Instruments

<Test Date: May 27, 2017 ~ Jun. 02, 2017>

Description & Manaufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9010A	MY52220314	Nov. 16, 2016	Nov. 15, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 13, 2016	Dec. 12, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 16, 2016	Dec. 15, 2017
HORN Antenna ETS-Lindgren	3117	00143293	Dec. 29, 2016	Dec. 28, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 14, 2016	Dec. 13, 2017
Fixed Attenuator Mini-Circuits	BW-N10W5+	NA	Jul. 08, 2016	Jul. 07, 2017
Bluetooth Tester	CBT	100946	Jul. 29, 2016	Jul. 28, 2018
Loop Antenna	EM-6879	269	Aug. 11, 2016	Aug. 10, 2017
Preamplifier Agilent	310N	187226	Jun. 24, 2016	Jun. 23, 2017
Preamplifier Agilent	83017A	MY39501357	Jun. 24, 2016	Jun. 23, 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 ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 24, 2016	Jun. 23, 2017
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC-SMS-100-SMS-24)	Jun. 24, 2016	Jun. 23, 2017
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA

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

2. The test was performed in HsinTien Chamber 1.

3. The horn antenna and preamplifier (model: 83017A) are used only for the measurement of emission frequency above 1 GHz if tested.

4. The IC Site Registration No. is IC7450I-1.

4.1.4 Test Procedures

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:

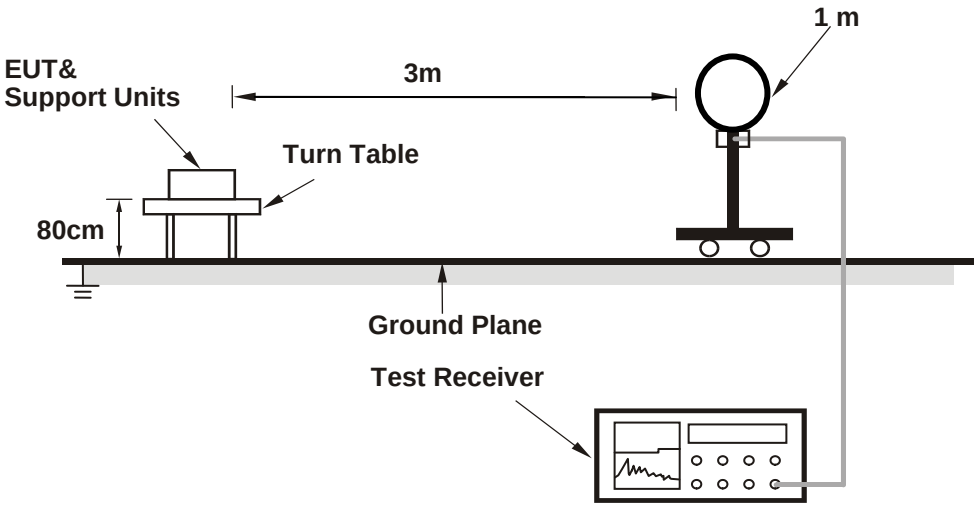
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1/T for Average (Duty cycle < 98 %) 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

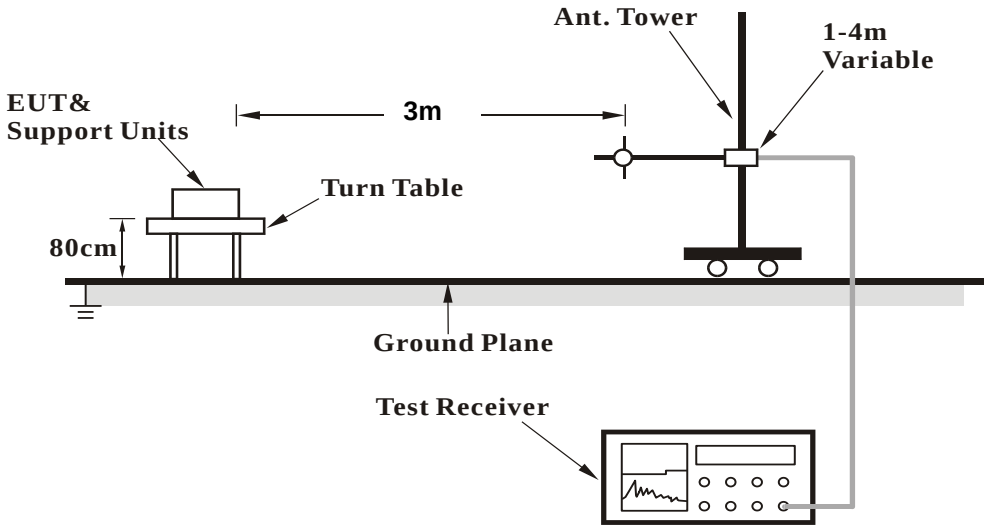
No deviation.

4.1.6 Test Set Up

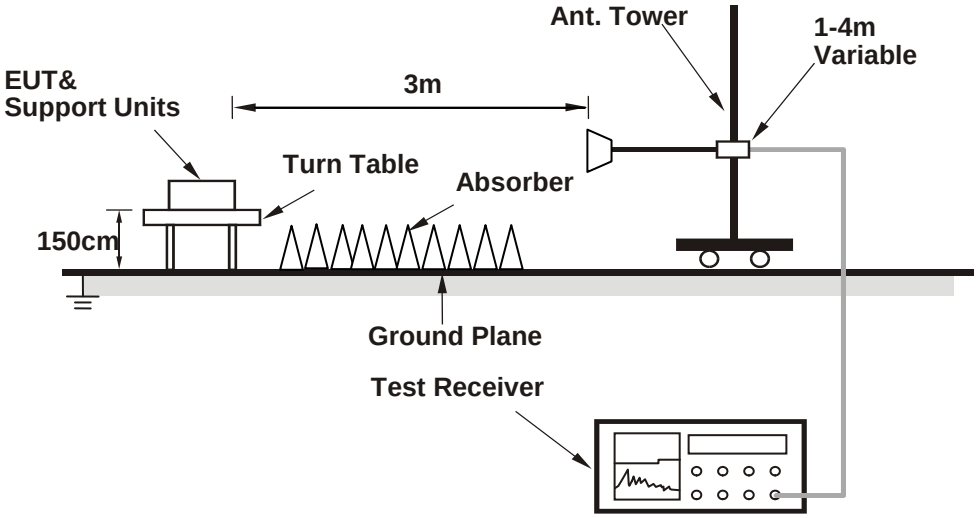
<Radiated emission below 30MHz>



<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

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

4.1.8 Test Results

Above 1 GHz Data：

802.11a

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5139.95	55.98	47.72	74	-18.02	34.12	8.13	33.99	235	69	Peak
5149.85	44.58	36.33	54	-9.42	34.12	8.13	34	235	69	Average
5180	99.31	91			34.15	8.16	34	235	69	Average
5180	106.11	97.8			34.15	8.16	34	235	69	Peak
10360	46.35	32.05	54	-7.65	37.12	12.3	35.12	177	4	Average
10360	55.63	41.33	74	-18.37	37.12	12.3	35.12	177	4	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**
5105.6	53.37	45.2	74	-20.63	34.09	8.07	33.99	106	96	Peak
5149.7	43.64	35.39	54	-10.36	34.12	8.13	34	106	96	Average
5180	95.66	87.35			34.15	8.16	34	106	96	Average
5180	102.89	94.58			34.15	8.16	34	106	96	Peak
10360	45.89	31.59	54	-8.11	37.12	12.3	35.12	155	24	Average
10360	55.11	40.81	74	-18.89	37.12	12.3	35.12	155	24	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5180 MHz: Fundamental Frequency

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**	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5138.3	53.85	45.6	74	-20.15	34.11	8.13	33.99	235	69	Peak
5148.65	43.21	34.96	54	-10.79	34.12	8.13	34	235	69	Average
5220	99.74	91.35			34.17	8.22	34	235	69	Average
5220	106.12	97.73			34.17	8.22	34	235	69	Peak
5413.14	54.19	45.46	74	-19.81	34.33	8.44	34.04	235	69	Peak
5435.91	43.3	34.51	54	-10.7	34.35	8.48	34.04	235	69	Average
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**
5073.65	53.53	45.41	74	-20.47	34.07	8.03	33.98	106	96	Peak
5088.8	42.88	34.71	54	-11.12	34.08	8.07	33.98	106	96	Average
5220	95.8	87.41			34.17	8.22	34	106	96	Average
5220	102.78	94.39			34.17	8.22	34	106	96	Peak
5355.28	53.47	44.84	74	-20.53	34.28	8.38	34.03	106	96	Peak
5401.92	43.16	34.44	54	-10.84	34.32	8.44	34.04	106	96	Average

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5220 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5240	99.14	90.7			34.19	8.26	34.01	235	69	Average
5240	106.94	98.5			34.19	8.26	34.01	235	69	Peak
5426.01	43.45	34.68	54	-10.55	34.33	8.48	34.04	235	69	Average
5445.15	53.84	45.02	74	-20.16	34.35	8.51	34.04	235	69	Peak
10480	46.38	31.87	54	-7.62	37.19	12.53	35.21	105	114	Average
10480	55.7	41.19	74	-18.3	37.19	12.53	35.21	105	114	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5240	95.77	87.33			34.19	8.26	34.01	106	96	Average
5240	102.5	94.06			34.19	8.26	34.01	106	96	Peak
5378.6	43.13	34.45	54	-10.87	34.31	8.41	34.04	106	96	Average
5427.88	53.96	45.19	74	-20.04	34.33	8.48	34.04	106	96	Peak
10480	46.86	32.35	54	-7.14	37.19	12.53	35.21	119	346	Average
10480	55.9	41.39	74	-18.1	37.19	12.53	35.21	119	346	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5240 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5035.4	53.41	45.35	74	-20.59	34.03	8	33.97	198	304	Peak
5078	42.91	34.79	54	-11.09	34.07	8.03	33.98	198	304	Average
5260	100	91.54			34.21	8.26	34.01	198	304	Average
5260	108.41	99.95			34.21	8.26	34.01	198	304	Peak
10520	50.12	35.53	54	-3.88	37.21	12.61	35.23	116	145	Average
10520	58.65	44.06	74	-15.35	37.21	12.61	35.23	116	145	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**
5105.45	53.7	45.54	74	-20.3	34.08	8.07	33.99	123	289	Peak
5119.1	42.84	34.64	54	-11.16	34.09	8.1	33.99	123	289	Average
5260	96.25	87.79			34.21	8.26	34.01	123	289	Average
5260	103.42	94.96			34.21	8.26	34.01	123	289	Peak
10520	47.83	33.24	54	-6.17	37.21	12.61	35.23	104	157	Average
10520	56.98	42.39	74	-17.02	37.21	12.61	35.23	104	157	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5260 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5123.9	42.9	34.68	54	-11.1	34.11	8.1	33.99	198	304	Average
5147.3	53.8	45.55	74	-20.2	34.12	8.13	34	198	304	Peak
5300	100.68	92.14			34.24	8.32	34.02	198	304	Average
5300	108.61	100.07			34.24	8.32	34.02	198	304	Peak
5350.66	44.87	36.24	54	-9.13	34.28	8.38	34.03	198	304	Average
5384.21	54.86	46.18	74	-19.14	34.31	8.41	34.04	198	304	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**
5062.25	54.4	46.3	74	-19.6	34.05	8.03	33.98	123	289	Peak
5117.75	42.81	34.61	54	-11.19	34.09	8.1	33.99	123	289	Average
5300	96.18	87.64			34.24	8.32	34.02	123	289	Average
5300	103.96	95.42			34.24	8.32	34.02	123	289	Peak
5352.53	43.1	34.47	54	-10.9	34.28	8.38	34.03	123	289	Average
5444.27	53.22	44.43	74	-20.78	34.35	8.48	34.04	123	289	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5300 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5320	99.83	91.25			34.25	8.35	34.02	198	304	Average
5320	107.95	99.37			34.25	8.35	34.02	198	304	Peak
5352.2	45.18	36.55	54	-8.82	34.28	8.38	34.03	198	304	Average
5363.75	56.71	48.07	74	-17.29	34.29	8.38	34.03	198	304	Peak
10640	48.99	34.26	54	-5.01	37.31	12.71	35.29	112	154	Average
10640	57.54	42.81	74	-16.46	37.31	12.71	35.29	112	154	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	94.74	86.16			34.25	8.35	34.02	103	289	Average
5320	102.16	93.58			34.25	8.35	34.02	103	289	Peak
5372.22	53.89	45.22	74	-20.11	34.29	8.41	34.03	103	289	Peak
5453.18	43.07	34.25	54	-10.93	34.36	8.51	34.05	103	289	Average
10640	49.28	34.55	54	-4.72	37.31	12.71	35.29	108	195	Average
10640	56.96	42.23	74	-17.04	37.31	12.71	35.29	108	195	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5320 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5442.96	54.81	46.02	74	-19.19	34.35	8.48	34.04	224	70	Peak
5459.76	44.74	35.92	54	-9.26	34.36	8.51	34.05	224	70	Average
*5470.16	55.01	46.18	74	-18.99	34.37	8.51	34.05	224	70	Peak
*5470.96	45.44	36.58	54	-8.56	34.37	8.54	34.05	224	70	Average
5500	101.87	92.95			34.4	8.57	34.05	224	70	Average
5500	108.17	99.25			34.4	8.57	34.05	224	70	Peak
11000	47.07	31.99	54	-6.93	37.6	12.96	35.48	108	246	Average
11000	57.79	42.71	74	-16.21	37.6	12.96	35.48	108	246	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5358.64	53.45	44.82	74	-20.55	34.28	8.38	34.03	119	107	Peak
5458.64	43.71	34.89	54	-10.29	34.36	8.51	34.05	119	107	Average
*5468.24	53.73	44.9	74	-20.27	34.37	8.51	34.05	119	107	Peak
*5469.84	43.96	35.13	54	-10.04	34.37	8.51	34.05	119	107	Average
5500	97.44	88.52			34.4	8.57	34.05	119	107	Average
5500	104.8	95.88			34.4	8.57	34.05	119	107	Peak
11000	46.78	31.7	54	-7.22	37.6	12.96	35.48	129	354	Average
11000	57.19	42.11	74	-16.81	37.6	12.96	35.48	129	354	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5500 MHz: Fundamental Frequency
3. *: Out of Restricted Band

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5446.16	43.32	34.49	54	-10.68	34.36	8.51	34.04	224	70	Average
5447.6	53.98	45.15	74	-20.02	34.36	8.51	34.04	224	70	Peak
*5468.72	43.35	34.52	54	-10.65	34.37	8.51	34.05	224	70	Average
*5469.84	53.79	44.96	74	-20.21	34.37	8.51	34.05	224	70	Peak
5580	101.47	92.48			34.47	8.6	34.08	224	70	Average
5580	108.83	99.84			34.47	8.6	34.08	224	70	Peak
*5724.28	44.04	34.88	54	-9.96	34.62	8.65	34.11	224	70	Average
*5725.56	53.14	43.98	74	-20.86	34.62	8.65	34.11	224	70	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**
5370.96	54.08	45.41	74	-19.92	34.29	8.41	34.03	119	107	Peak
5456.56	43.14	34.32	54	-10.86	34.36	8.51	34.05	119	107	Average
*5469.2	53.27	44.44	74	-20.73	34.37	8.51	34.05	119	107	Peak
*5470.8	43.21	34.35	54	-10.79	34.37	8.54	34.05	119	107	Average
5580	97.49	88.5			34.47	8.6	34.08	119	107	Average
5580	104.64	95.65			34.47	8.6	34.08	119	107	Peak
*5724.12	43.42	34.26	54	-10.58	34.62	8.65	34.11	119	107	Average
*5724.12	53.62	44.46	74	-20.38	34.62	8.65	34.11	119	107	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**	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5700	100.41	91.28			34.59	8.64	34.1	224	70	Average
5700	107.56	98.43			34.59	8.64	34.1	224	70	Peak
*5724.04	46.65	37.49	54	-7.35	34.62	8.65	34.11	224	70	Average
*5725.4	56.84	47.68	74	-17.16	34.62	8.65	34.11	224	70	Peak
11400	46.71	31.61	54	-7.29	37.84	12.67	35.41	105	240	Average
11400	57.07	41.97	74	-16.93	37.84	12.67	35.41	105	240	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	96.62	87.49			34.59	8.64	34.1	119	107	Average
5700	103.58	94.45			34.59	8.64	34.1	119	107	Peak
*5724.12	54.72	45.56	74	-19.28	34.62	8.65	34.11	119	107	Peak
*5725.16	45	35.84	54	-9	34.62	8.65	34.11	119	107	Average
11400	46.81	31.71	54	-7.19	37.84	12.67	35.41	180	246	Average
11400	57.18	42.08	74	-16.82	37.84	12.67	35.41	180	246	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5700 MHz: Fundamental Frequency
3. *: 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**	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5745	101.1	91.91			34.64	8.66	34.11	202	299	Average
5745	108.33	99.14			34.64	8.66	34.11	202	299	Peak
11490	47.52	32.4	54	-6.48	37.89	12.62	35.39	196	340	Average
11490	56.72	41.6	74	-17.28	37.89	12.62	35.39	196	340	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	95.67	86.48			34.64	8.66	34.11	126	354	Average
5745	103.08	93.89			34.64	8.66	34.11	126	354	Peak
11490	47.46	32.34	54	-6.54	37.89	12.62	35.39	123	264	Average
11490	56.73	41.61	74	-17.27	37.89	12.62	35.39	123	264	Peak

<Ouf 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**
*5643.325	45.23	36.16	54	-8.77	34.54	8.62	34.09	202	299	Average
*5643.325	54.34	45.27	74	-19.66	34.54	8.62	34.09	202	299	Peak
5650.675	53.75	44.66	74.42	-20.67	34.56	8.62	34.09	202	299	Peak
5923.15	53.09	43.69	75.15	-22.06	34.83	8.73	34.16	202	299	Peak
*5987.725	44.69	35.23	54	-9.31	34.88	8.75	34.17	202	299	Average
*5987.725	53.94	44.48	74	-20.06	34.88	8.75	34.17	202	299	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**
*5630.2	45.4	36.35	54	-8.6	34.52	8.62	34.09	126	354	Average
*5630.2	54.09	45.04	74	-19.91	34.52	8.62	34.09	126	354	Peak
5651.2	50.92	41.83	74.75	-23.83	34.56	8.62	34.09	126	354	Peak
5923.675	53.25	43.85	74.83	-21.58	34.83	8.73	34.16	126	354	Peak
*6011.875	46.29	36.79	54	-7.71	34.92	8.76	34.18	126	354	Average
*6011.875	55.29	45.79	74	-18.71	34.92	8.76	34.18	126	354	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5745 MHz: Fundamental Frequency
3. *: 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**	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5785	100.7	91.47			34.68	8.68	34.13	202	299	Average
5785	108.12	98.89			34.68	8.68	34.13	202	299	Peak
11570	47.96	32.65	54	-6.04	38	12.68	35.37	136	284	Average
11570	56.48	41.17	74	-17.52	38	12.68	35.37	136	284	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**
5786	96.25	87.01			34.69	8.68	34.13	126	354	Average
5786	103.48	94.24			34.69	8.68	34.13	126	354	Peak
11570	47.54	32.23	54	-6.46	38	12.68	35.37	173	69	Average
11570	56.85	41.54	74	-17.15	38	12.68	35.37	173	69	Peak

<Ouf 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**
*5556.175	46.09	37.12	54	-7.91	34.45	8.59	34.07	202	299	Average
*5556.175	55.32	46.35	74	-18.68	34.45	8.59	34.07	202	299	Peak
5651.725	52.84	43.75	75.08	-22.24	34.56	8.62	34.09	202	299	Peak
5922.625	52.53	43.13	75.48	-22.95	34.83	8.73	34.16	202	299	Peak
*5977.225	46.52	37.06	54	-7.48	34.88	8.75	34.17	202	299	Average
*5977.225	56.07	46.61	74	-17.93	34.88	8.75	34.17	202	299	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**
*5646.475	44.96	35.89	54	-9.04	34.54	8.62	34.09	126	354	Average
*5646.475	53.51	44.44	74	-20.49	34.54	8.62	34.09	126	354	Peak
5651.725	51.71	42.62	75.08	-23.37	34.56	8.62	34.09	126	354	Peak
5923.675	52.94	43.54	74.83	-21.89	34.83	8.73	34.16	126	354	Peak
*5988.775	45.34	35.88	54	-8.66	34.88	8.75	34.17	126	354	Average
*5988.775	54.24	44.78	74	-19.76	34.88	8.75	34.17	126	354	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5785 MHz: Fundamental Frequency
3. *: 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**	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5825	101.22	91.93			34.73	8.69	34.13	202	299	Average
5825	108.34	99.05			34.73	8.69	34.13	202	299	Peak
11650	47.63	32.1	54	-6.37	38.09	12.8	35.36	168	107	Average
11650	56.87	41.34	74	-17.13	38.09	12.8	35.36	168	107	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	96.05	86.76			34.73	8.69	34.13	126	354	Average
5825	103.29	94			34.73	8.69	34.13	126	354	Peak
11650	48.32	32.79	54	-5.68	38.09	12.8	35.36	158	133	Average
11650	57.64	42.11	74	-16.36	38.09	12.8	35.36	158	133	Peak

<Ouf 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**
*5581.375	45.26	36.27	54	-8.74	34.47	8.6	34.08	202	299	Average
*5581.375	54.88	45.89	74	-19.12	34.47	8.6	34.08	202	299	Peak
5651.725	52.8	43.71	75.08	-22.28	34.56	8.62	34.09	202	299	Peak
5923.15	53.11	43.71	75.15	-22.04	34.83	8.73	34.16	202	299	Peak
*5933.65	45.58	36.18	54	-8.42	34.83	8.73	34.16	202	299	Average
*5933.65	54.47	45.07	74	-19.53	34.83	8.73	34.16	202	299	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**
*5519.425	45.28	36.35	54	-8.72	34.42	8.57	34.06	126	354	Average
*5519.425	54.38	45.45	74	-19.62	34.42	8.57	34.06	126	354	Peak
5652.775	52.87	43.77	75.73	-22.86	34.56	8.63	34.09	126	354	Peak
5923.15	53.07	43.67	75.15	-22.08	34.83	8.73	34.16	126	354	Peak
*5994.025	46.21	36.72	54	-7.79	34.9	8.76	34.17	126	354	Average
*5994.025	55.03	45.54	74	-18.97	34.9	8.76	34.17	126	354	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5825 MHz: Fundamental Frequency
3. *: 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**	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5141.9	54.95	46.69	74	-19.05	34.12	8.13	33.99	235	69	Peak
5147.45	44.73	36.48	54	-9.27	34.12	8.13	34	235	69	Average
5180	100.36	92.05			34.15	8.16	34	235	69	Average
5180	107.68	99.37			34.15	8.16	34	235	69	Peak
10360	46.36	32.06	54	-7.64	37.12	12.3	35.12	154	255	Average
10360	55.1	40.8	74	-18.9	37.12	12.3	35.12	154	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**
5120	54.19	45.99	74	-19.81	34.09	8.1	33.99	106	96	Peak
5131.25	44	35.78	54	-10	34.11	8.1	33.99	106	96	Average
5180	96.47	88.16			34.15	8.16	34	106	96	Average
5180	103.31	95			34.15	8.16	34	106	96	Peak
10360	46.19	31.89	54	-7.81	37.12	12.3	35.12	195	350	Average
10360	55.77	41.47	74	-18.23	37.12	12.3	35.12	195	350	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5180 MHz: Fundamental Frequency

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**	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5145.05	53.87	45.62	74	-20.13	34.12	8.13	34	235	69	Peak
5148.5	43.67	35.42	54	-10.33	34.12	8.13	34	235	69	Average
5220	100.74	92.35			34.17	8.22	34	235	69	Average
5220	107.02	98.63			34.17	8.22	34	235	69	Peak
5439.1	54.35	45.56	74	-19.65	34.35	8.48	34.04	235	69	Peak
5452.74	43.46	34.64	54	-10.54	34.36	8.51	34.05	235	69	Average
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**
5127.35	53.74	45.52	74	-20.26	34.11	8.1	33.99	106	96	Peak
5145.95	43.2	34.95	54	-10.8	34.12	8.13	34	106	96	Average
5220	96.66	88.27			34.17	8.22	34	106	96	Average
5220	103.38	94.99			34.17	8.22	34	106	96	Peak
5386.63	43.27	34.59	54	-10.73	34.31	8.41	34.04	106	96	Average
5408.85	53.65	44.93	74	-20.35	34.32	8.44	34.04	106	96	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5220 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5240	100.47	92.03			34.19	8.26	34.01	235	69	Average
5240	107.27	98.83			34.19	8.26	34.01	235	69	Peak
5352.64	54.51	45.88	74	-19.49	34.28	8.38	34.03	235	69	Peak
5447.13	43.49	34.66	54	-10.51	34.36	8.51	34.04	235	69	Average
10480	46.65	32.14	54	-7.35	37.19	12.53	35.21	114	198	Average
10480	56.92	42.41	74	-17.08	37.19	12.53	35.21	114	198	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5240	96.35	87.91			34.19	8.26	34.01	106	96	Average
5240	103.41	94.97			34.19	8.26	34.01	106	96	Peak
5361.77	53.5	44.86	74	-20.5	34.29	8.38	34.03	106	96	Peak
5458.02	43.26	34.44	54	-10.74	34.36	8.51	34.05	106	96	Average
10480	46.73	32.22	54	-7.27	37.19	12.53	35.21	119	324	Average
10480	56.58	42.07	74	-17.42	37.19	12.53	35.21	119	324	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5240 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5130.05	52.87	44.65	74	-21.13	34.11	8.1	33.99	123	289	Peak
5141.15	42.92	34.66	54	-11.08	34.12	8.13	33.99	123	289	Average
5260	95.99	87.53			34.21	8.26	34.01	123	289	Average
5260	103.76	95.3			34.21	8.26	34.01	123	289	Peak
10520	48.76	34.17	54	-5.24	37.21	12.61	35.23	116	118	Average
10520	56.85	42.26	74	-17.15	37.21	12.61	35.23	116	118	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**
5129.9	54.05	45.83	74	-19.95	34.11	8.1	33.99	198	304	Peak
5139.2	42.88	34.63	54	-11.12	34.11	8.13	33.99	198	304	Average
5260	99.93	91.47			34.21	8.26	34.01	198	304	Average
5260	108.12	99.66			34.21	8.26	34.01	198	304	Peak
10520	48.2	33.61	54	-5.8	37.21	12.61	35.23	113	221	Average
10520	56.46	41.87	74	-17.54	37.21	12.61	35.23	113	221	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5260 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5060.3	53.71	45.61	74	-20.29	34.05	8.03	33.98	123	289	Peak
5138.3	42.72	34.47	54	-11.28	34.11	8.13	33.99	123	289	Average
5300	94.77	86.23			34.24	8.32	34.02	123	289	Average
5300	102.44	93.9			34.24	8.32	34.02	123	289	Peak
5365.07	43.3	34.66	54	-10.7	34.29	8.38	34.03	123	289	Average
5416.33	53.84	45.11	74	-20.16	34.33	8.44	34.04	123	289	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**
5075.15	54.11	45.99	74	-19.89	34.07	8.03	33.98	198	304	Peak
5126.15	42.93	34.71	54	-11.07	34.11	8.1	33.99	198	304	Average
5300	100.79	92.25			34.24	8.32	34.02	198	304	Average
5300	108.3	99.76			34.24	8.32	34.02	198	304	Peak
5350	46.86	38.23	54	-7.14	34.28	8.38	34.03	198	304	Average
5351.21	56.85	48.22	74	-17.15	34.28	8.38	34.03	198	304	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5300 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5320	94.74	86.16			34.25	8.35	34.02	103	289	Average
5320	102.69	94.11			34.25	8.35	34.02	103	289	Peak
5350.22	43.4	34.77	54	-10.6	34.28	8.38	34.03	103	289	Average
5381.46	54.84	46.16	74	-19.16	34.31	8.41	34.04	103	289	Peak
10640	48.25	33.52	54	-5.75	37.31	12.71	35.29	121	169	Average
10640	56.91	42.18	74	-17.09	37.31	12.71	35.29	121	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**
5320	99.93	91.35			34.25	8.35	34.02	198	304	Average
5320	107.93	99.35			34.25	8.35	34.02	198	304	Peak
5353.08	47.23	38.6	54	-6.77	34.28	8.38	34.03	198	304	Average
5365.73	57.43	48.79	74	-16.57	34.29	8.38	34.03	198	304	Peak
10640	48.58	33.85	54	-5.42	37.31	12.71	35.29	118	219	Average
10640	56.94	42.21	74	-17.06	37.31	12.71	35.29	118	219	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5320 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5441.52	44.96	36.17	54	-9.04	34.35	8.48	34.04	224	70	Average
5445.04	54.63	45.81	74	-19.37	34.35	8.51	34.04	224	70	Peak
*5470.64	45.33	36.5	54	-8.67	34.37	8.51	34.05	224	70	Average
*5470.8	54.75	45.89	74	-19.25	34.37	8.54	34.05	224	70	Peak
5500	100.24	91.32			34.4	8.57	34.05	224	70	Average
5500	107.74	98.82			34.4	8.57	34.05	224	70	Peak
11000	46.97	31.89	54	-7.03	37.6	12.96	35.48	180	9	Average
11000	57.01	41.93	74	-16.99	37.6	12.96	35.48	180	9	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5384.08	53.91	45.23	74	-20.09	34.31	8.41	34.04	119	107	Peak
5455.6	43.8	34.98	54	-10.2	34.36	8.51	34.05	119	107	Average
*5468.4	53.38	44.55	74	-20.62	34.37	8.51	34.05	119	107	Peak
*5469.52	44.25	35.42	54	-9.75	34.37	8.51	34.05	119	107	Average
5500	97.15	88.23			34.4	8.57	34.05	119	107	Average
5500	104.17	95.25			34.4	8.57	34.05	119	107	Peak
11000	46.57	31.49	54	-7.43	37.6	12.96	35.48	181	322	Average
11000	57.38	42.3	74	-16.62	37.6	12.96	35.48	181	322	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5500 MHz: Fundamental Frequency
3. *: Out of Restricted Band

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5365.84	53.63	44.99	74	-20.37	34.29	8.38	34.03	224	70	Peak
5460	43.38	34.56	54	-10.62	34.36	8.51	34.05	224	70	Average
*5468.72	43.44	34.61	54	-10.56	34.37	8.51	34.05	224	70	Average
*5470	52.92	44.09	74	-21.08	34.37	8.51	34.05	224	70	Peak
5580	101.47	92.48			34.47	8.6	34.08	224	70	Average
5580	108.65	99.66			34.47	8.6	34.08	224	70	Peak
*5724.84	53.1	43.94	74	-20.9	34.62	8.65	34.11	224	70	Peak
*5725.48	43.87	34.71	54	-10.13	34.62	8.65	34.11	224	70	Average
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**
5413.36	53.63	44.9	74	-20.37	34.33	8.44	34.04	119	107	Peak
5456.08	43.17	34.35	54	-10.83	34.36	8.51	34.05	119	107	Average
*5468.08	43.03	34.2	54	-10.97	34.37	8.51	34.05	119	107	Average
*5468.4	52.57	43.74	74	-21.43	34.37	8.51	34.05	119	107	Peak
5580	97.85	88.86			34.47	8.6	34.08	119	107	Average
5580	104.19	95.2			34.47	8.6	34.08	119	107	Peak
*5724.76	43.57	34.41	54	-10.43	34.62	8.65	34.11	119	107	Average
*5724.76	52.62	43.46	74	-21.38	34.62	8.65	34.11	119	107	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**	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5700	100.65	91.52			34.59	8.64	34.1	224	70	Average
5700	107.44	98.31			34.59	8.64	34.1	224	70	Peak
*5724.36	47.09	37.93	54	-6.91	34.62	8.65	34.11	224	70	Average
*5725.8	57.15	47.99	74	-16.85	34.62	8.65	34.11	224	70	Peak
11400	46.8	31.7	54	-7.2	37.84	12.67	35.41	171	240	Average
11400	57.08	41.98	74	-16.92	37.84	12.67	35.41	171	240	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	96.77	87.64			34.59	8.64	34.1	119	107	Average
5700	103.56	94.43			34.59	8.64	34.1	119	107	Peak
*5724.6	55.7	46.54	74	-18.3	34.62	8.65	34.11	119	107	Peak
*5724.76	45.46	36.3	54	-8.54	34.62	8.65	34.11	119	107	Average
11400	47	31.9	54	-7	37.84	12.67	35.41	134	147	Average
11400	57.15	42.05	74	-16.85	37.84	12.67	35.41	134	147	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5700 MHz: Fundamental Frequency
3. *: 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**	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5745	100.37	91.18			34.64	8.66	34.11	202	299	Average
5745	108.51	99.32			34.64	8.66	34.11	202	299	Peak
11490	48.17	33.05	54	-5.83	37.89	12.62	35.39	147	340	Average
11490	57.33	42.21	74	-16.67	37.89	12.62	35.39	147	340	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	94.98	85.79			34.64	8.66	34.11	126	354	Average
5745	102.62	93.43			34.64	8.66	34.11	126	354	Peak
11490	47.68	32.56	54	-6.32	37.89	12.62	35.39	157	108	Average
11490	56.79	41.67	74	-17.21	37.89	12.62	35.39	157	108	Peak

<Ouf 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**
*5598.175	44.75	35.74	54	-9.25	34.49	8.6	34.08	202	299	Average
*5598.175	55.01	46	74	-18.99	34.49	8.6	34.08	202	299	Peak
5652.775	53.42	44.32	75.73	-22.31	34.56	8.63	34.09	202	299	Peak
5923.675	52.67	43.27	74.83	-22.16	34.83	8.73	34.16	202	299	Peak
*5958.325	45.33	35.88	54	-8.67	34.87	8.74	34.16	202	299	Average
*5958.325	54.93	45.48	74	-19.07	34.87	8.74	34.16	202	299	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**
*5603.95	44.99	35.96	54	-9.01	34.5	8.61	34.08	126	354	Average
*5603.95	54.15	45.12	74	-19.85	34.5	8.61	34.08	126	354	Peak
5651.725	53.05	43.96	75.08	-22.03	34.56	8.62	34.09	126	354	Peak
5923.15	53.61	44.21	75.15	-21.54	34.83	8.73	34.16	126	354	Peak
*6004.525	45.35	35.86	54	-8.65	34.9	8.76	34.17	126	354	Average
*6004.525	54.51	45.02	74	-19.49	34.9	8.76	34.17	126	354	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5745 MHz: Fundamental Frequency
3. *: 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**	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5785	100.48	91.25			34.68	8.68	34.13	202	299	Average
5785	108.65	99.42			34.68	8.68	34.13	202	299	Peak
11570	48.27	32.96	54	-5.73	38	12.68	35.37	139	127	Average
11570	57.26	41.95	74	-16.74	38	12.68	35.37	139	127	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5785	94.94	85.71			34.68	8.68	34.13	126	354	Average
5785	102.86	93.63			34.68	8.68	34.13	126	354	Peak
11570	48.01	32.7	54	-5.99	38	12.68	35.37	128	169	Average
11570	57.15	41.84	74	-16.85	38	12.68	35.37	128	169	Peak

<Ouf 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**
*5586.1	45.81	36.8	54	-8.19	34.49	8.6	34.08	202	299	Average
*5586.1	55.09	46.08	74	-18.91	34.49	8.6	34.08	202	299	Peak
5652.25	52.38	43.29	75.4	-23.02	34.56	8.62	34.09	202	299	Peak
5921.575	54.02	44.62	76.14	-22.12	34.83	8.73	34.16	202	299	Peak
*5935.75	45.24	35.84	54	-8.76	34.83	8.73	34.16	202	299	Average
*5935.75	54.61	45.21	74	-19.39	34.83	8.73	34.16	202	299	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**
*5608.15	44.75	35.72	54	-9.25	34.5	8.61	34.08	126	354	Average
*5608.15	53.87	44.84	74	-20.13	34.5	8.61	34.08	126	354	Peak
5652.25	51.81	42.72	75.4	-23.59	34.56	8.62	34.09	126	354	Peak
5922.1	53.77	44.37	75.81	-22.04	34.83	8.73	34.16	126	354	Peak
*5969.875	44.82	35.37	54	-9.18	34.87	8.75	34.17	126	354	Average
*5969.875	53.76	44.31	74	-20.24	34.87	8.75	34.17	126	354	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5785 MHz: Fundamental Frequency
3. *: 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**	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5825	100.07	90.78			34.73	8.69	34.13	202	299	Average
5825	107.83	98.54			34.73	8.69	34.13	202	299	Peak
11650	47.63	32.1	54	-6.37	38.09	12.8	35.36	156	275	Average
11650	56.62	41.09	74	-17.38	38.09	12.8	35.36	156	275	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	96.07	86.78			34.73	8.69	34.13	126	354	Average
5825	103.76	94.47			34.73	8.69	34.13	126	354	Peak
11650	48.06	32.53	54	-5.94	38.09	12.8	35.36	196	157	Average
11650	58.94	43.41	74	-15.06	38.09	12.8	35.36	196	157	Peak

<Ouf 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**
*5638.075	45.38	36.31	54	-8.62	34.54	8.62	34.09	202	299	Average
*5638.075	54.84	45.77	74	-19.16	34.54	8.62	34.09	202	299	Peak
5652.25	54.76	45.67	75.4	-20.64	34.56	8.62	34.09	202	299	Peak
5923.675	54.83	45.43	74.83	-20	34.83	8.73	34.16	202	299	Peak
*5947.825	45.29	35.86	54	-8.71	34.85	8.74	34.16	202	299	Average
*5947.825	54.58	45.15	74	-19.42	34.85	8.74	34.16	202	299	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**
*5617.075	45.82	36.77	54	-8.18	34.52	8.61	34.08	126	354	Average
*5617.075	54.99	45.94	74	-19.01	34.52	8.61	34.08	126	354	Peak
5652.775	53.09	43.99	75.73	-22.64	34.56	8.63	34.09	126	354	Peak
5921.05	54.42	45.04	76.46	-22.04	34.81	8.73	34.16	126	354	Peak
*5995.075	45.71	36.22	54	-8.29	34.9	8.76	34.17	126	354	Average
*5995.075	54.87	45.38	74	-19.13	34.9	8.76	34.17	126	354	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5825 MHz: Fundamental Frequency
3. *: 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**	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5148.65	61.03	52.78	74	-12.97	34.12	8.13	34	235	69	Peak
5149.7	51.64	43.39	54	-2.36	34.12	8.13	34	235	69	Average
5190	96.48	88.14			34.15	8.19	34	235	69	Average
5190	103.62	95.28			34.15	8.19	34	235	69	Peak
5372.33	54.02	45.35	74	-19.98	34.29	8.41	34.03	235	69	Peak
5435.58	43.71	34.92	54	-10.29	34.35	8.48	34.04	235	69	Average
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5148.5	58.92	50.67	74	-15.08	34.12	8.13	34	106	96	Peak
5150	49.42	41.17	54	-4.58	34.12	8.13	34	106	96	Average
5190	92.33	83.99			34.15	8.19	34	106	96	Average
5190	99.68	91.34			34.15	8.19	34	106	96	Peak
5361.88	53.92	45.28	74	-20.08	34.29	8.38	34.03	106	96	Peak
5393.23	43.64	34.93	54	-10.36	34.31	8.44	34.04	106	96	Average

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5190 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5146.1	54.05	45.8	74	-19.95	34.12	8.13	34	235	69	Peak
5146.7	44.35	36.1	54	-9.65	34.12	8.13	34	235	69	Average
5230	96.69	88.29			34.19	8.22	34.01	235	69	Average
5230	103.5	95.1			34.19	8.22	34.01	235	69	Peak
5351.76	44.35	35.72	54	-9.65	34.28	8.38	34.03	235	69	Average
5364.63	55.26	46.62	74	-18.74	34.29	8.38	34.03	235	69	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5146.85	54.07	45.82	74	-19.93	34.12	8.13	34	106	96	Peak
5148.8	43.47	35.22	54	-10.53	34.12	8.13	34	106	96	Average
5230	92.22	83.82			34.19	8.22	34.01	106	96	Average
5230	99.52	91.12			34.19	8.22	34.01	106	96	Peak
5365.62	54.45	45.81	74	-19.55	34.29	8.38	34.03	106	96	Peak
5449.77	43.65	34.83	54	-10.35	34.36	8.51	34.05	106	96	Average

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5230 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5080.7	54.21	46.09	74	-19.79	34.07	8.03	33.98	198	304	Peak
5146.1	43	34.75	54	-11	34.12	8.13	34	198	304	Average
5270	96.16	87.67			34.21	8.29	34.01	198	304	Average
5270	104.49	96			34.21	8.29	34.01	198	304	Peak
5351.43	44.78	36.15	54	-9.22	34.28	8.38	34.03	198	304	Average
5362.54	54.48	45.84	74	-19.52	34.29	8.38	34.03	198	304	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5102.75	42.79	34.63	54	-11.21	34.08	8.07	33.99	123	289	Average
5135.45	53.37	45.12	74	-20.63	34.11	8.13	33.99	123	289	Peak
5270	91.03	82.54			34.21	8.29	34.01	123	289	Average
5270	98.99	90.5			34.21	8.29	34.01	123	289	Peak
5403.35	54.3	45.58	74	-19.7	34.32	8.44	34.04	123	289	Peak
5448.89	43.24	34.41	54	-10.76	34.36	8.51	34.04	123	289	Average

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5270 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5053.1	53.9	45.84	74	-20.1	34.04	8	33.98	198	304	Peak
5132.75	42.83	34.61	54	-11.17	34.11	8.1	33.99	198	304	Average
5310	96.91	88.36			34.25	8.32	34.02	198	304	Average
5310	104.18	95.63			34.25	8.32	34.02	198	304	Peak
5350.33	50.44	41.81	54	-3.56	34.28	8.38	34.03	198	304	Average
5351.65	59.75	51.12	74	-14.25	34.28	8.38	34.03	198	304	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**
5068.7	53.23	45.13	74	-20.77	34.05	8.03	33.98	123	289	Peak
5101.55	42.72	34.56	54	-11.28	34.08	8.07	33.99	123	289	Average
5310	90.8	82.25			34.25	8.32	34.02	123	289	Average
5310	98.47	89.92			34.25	8.32	34.02	123	289	Peak
5350.44	44.08	35.45	54	-9.92	34.28	8.38	34.03	123	289	Average
5351.1	54.44	45.81	74	-19.56	34.28	8.38	34.03	123	289	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5310 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5459.76	45.29	36.47	54	-8.71	34.36	8.51	34.05	119	107	Average
5459.76	54.37	45.55	74	-19.63	34.36	8.51	34.05	119	107	Peak
*5469.84	58.73	49.9	74	-15.27	34.37	8.51	34.05	119	107	Peak
*5470.96	49.84	40.98	54	-4.16	34.37	8.54	34.05	119	107	Average
5510	94.44	85.53			34.4	8.57	34.06	119	107	Average
5510	101.15	92.24			34.4	8.57	34.06	119	107	Peak
*5725.56	43.84	34.68	54	-10.16	34.62	8.65	34.11	119	107	Average
*5725.88	53.92	44.76	74	-20.08	34.62	8.65	34.11	119	107	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**
5458.48	56.24	47.42	74	-17.76	34.36	8.51	34.05	224	70	Peak
5459.76	46.86	38.04	54	-7.14	34.36	8.51	34.05	224	70	Average
*5470.64	52.18	43.35	54	-1.82	34.37	8.51	34.05	224	70	Average
*5470.96	61.77	52.91	74	-12.23	34.37	8.54	34.05	224	70	Peak
5510	98.74	89.83			34.4	8.57	34.06	224	70	Average
5510	105.36	96.45			34.4	8.57	34.06	224	70	Peak
*5724.12	53.38	44.22	74	-20.62	34.62	8.65	34.11	224	70	Peak
*5724.6	43.6	34.44	54	-10.4	34.62	8.65	34.11	224	70	Average

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5510 MHz: Fundamental Frequency
3. *: 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**	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5369.2	54.82	46.15	74	-19.18	34.29	8.41	34.03	224	70	Peak
5459.44	44.45	35.63	54	-9.55	34.36	8.51	34.05	224	70	Average
*5468.4	54.58	45.75	74	-19.42	34.37	8.51	34.05	224	70	Peak
*5470.32	45.09	36.26	54	-8.91	34.37	8.51	34.05	224	70	Average
5550	98.06	89.09			34.45	8.59	34.07	224	70	Average
5550	105.52	96.55			34.45	8.59	34.07	224	70	Peak
*5724.12	44.16	35	54	-9.84	34.62	8.65	34.11	224	70	Average
*5725.56	53.91	44.75	74	-20.09	34.62	8.65	34.11	224	70	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**
5409.68	54.14	45.42	74	-19.86	34.32	8.44	34.04	119	107	Peak
5457.52	43.95	35.13	54	-10.05	34.36	8.51	34.05	119	107	Average
*5469.2	44.16	35.33	54	-9.84	34.37	8.51	34.05	119	107	Average
*5470.64	53.18	44.35	74	-20.82	34.37	8.51	34.05	119	107	Peak
5550	94.22	85.25			34.45	8.59	34.07	119	107	Average
5550	101.51	92.54			34.45	8.59	34.07	119	107	Peak
*5724.04	44.07	34.91	54	-9.93	34.62	8.65	34.11	119	107	Average
*5724.36	53.04	43.88	74	-20.96	34.62	8.65	34.11	119	107	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**	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5375.76	53.55	44.89	74	-20.45	34.29	8.41	34.04	224	70	Peak
5446.8	43.81	34.98	54	-10.19	34.36	8.51	34.04	224	70	Average
*5468.72	54.02	45.19	74	-19.98	34.37	8.51	34.05	224	70	Peak
*5469.84	43.6	34.77	54	-10.4	34.37	8.51	34.05	224	70	Average
5670	97.9	88.8			34.57	8.63	34.1	224	70	Average
5670	104.2	95.1			34.57	8.63	34.1	224	70	Peak
*5724.04	46.24	37.08	54	-7.76	34.62	8.65	34.11	224	70	Average
*5725.48	56.37	47.21	74	-17.63	34.62	8.65	34.11	224	70	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**
5423.92	43.43	34.66	54	-10.57	34.33	8.48	34.04	119	107	Average
5446.16	53.67	44.84	74	-20.33	34.36	8.51	34.04	119	107	Peak
*5468.4	43.43	34.6	54	-10.57	34.37	8.51	34.05	119	107	Average
*5469.84	52.51	43.68	74	-21.49	34.37	8.51	34.05	119	107	Peak
5670	93.25	84.15			34.57	8.63	34.1	119	107	Average
5670	100.37	91.27			34.57	8.63	34.1	119	107	Peak
*5723.96	54.33	45.17	74	-19.67	34.62	8.65	34.11	119	107	Peak
*5725.24	44.87	35.71	54	-9.13	34.62	8.65	34.11	119	107	Average

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5670 MHz: Fundamental Frequency
3. *: Out of Restricted Band

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

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5755	97.38	88.17			34.66	8.66	34.11	202	299	Average
5755	104.95	95.74			34.66	8.66	34.11	202	299	Peak
11510	47.86	32.75	54	-6.14	37.9	12.6	35.39	168	115	Average
11510	58.05	42.94	74	-15.95	37.9	12.6	35.39	168	115	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	92.12	82.91			34.66	8.66	34.11	126	354	Average
5755	99.53	90.32			34.66	8.66	34.11	126	354	Peak
11510	48.07	32.96	54	-5.93	37.9	12.6	35.39	127	246	Average
11510	57.63	42.52	74	-16.37	37.9	12.6	35.39	127	246	Peak

<Ouf of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
*5640.7	45.33	36.26	54	-8.67	34.54	8.62	34.09	202	299	Average
*5640.7	54.52	45.45	74	-19.48	34.54	8.62	34.09	202	299	Peak
5652.25	53.59	44.5	75.4	-21.81	34.56	8.62	34.09	202	299	Peak
5923.15	52.28	42.88	75.15	-22.87	34.83	8.73	34.16	202	299	Peak
*5998.75	45.74	36.25	54	-8.26	34.9	8.76	34.17	202	299	Average
*5998.75	54.86	45.37	74	-19.14	34.9	8.76	34.17	202	299	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**
*5557.75	45.23	36.26	54	-8.77	34.45	8.59	34.07	126	354	Average
*5557.75	54.18	45.21	74	-19.82	34.45	8.59	34.07	126	354	Peak
5653.3	53.06	43.96	76.06	-23	34.56	8.63	34.09	126	354	Peak
5921.575	52.83	43.43	76.14	-23.31	34.83	8.73	34.16	126	354	Peak
*5964.1	45.64	36.2	54	-8.36	34.87	8.74	34.17	126	354	Average
*5964.1	54.72	45.28	74	-19.28	34.87	8.74	34.17	126	354	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5755 MHz: Fundamental Frequency
3. *: 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**	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5795	97.51	88.27			34.69	8.68	34.13	202	299	Average
5795	104.94	95.7			34.69	8.68	34.13	202	299	Peak
11590	47.16	31.79	54	-6.84	38.02	12.72	35.37	159	166	Average
11590	56.19	40.82	74	-17.81	38.02	12.72	35.37	159	166	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	91.82	82.58			34.69	8.68	34.13	126	350	Average
5795	99.34	90.1			34.69	8.68	34.13	126	350	Peak
11590	47.29	31.92	54	-6.71	38.02	12.72	35.37	137	115	Average
11590	56.45	41.08	74	-17.55	38.02	12.72	35.37	137	115	Peak

<Ouf 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**
*5614.975	46.03	37	54	-7.97	34.5	8.61	34.08	202	299	Average
*5614.975	55.18	46.15	74	-18.82	34.5	8.61	34.08	202	299	Peak
5652.25	54.08	44.99	75.4	-21.32	34.56	8.62	34.09	202	299	Peak
5922.625	53.41	44.01	75.48	-22.07	34.83	8.73	34.16	202	299	Peak
*5980.9	45.71	36.25	54	-8.29	34.88	8.75	34.17	202	299	Average
*5980.9	55.61	46.15	74	-18.39	34.88	8.75	34.17	202	299	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**
*5639.65	45.68	36.61	54	-8.32	34.54	8.62	34.09	126	350	Average
*5639.65	54.79	45.72	74	-19.21	34.54	8.62	34.09	126	350	Peak
5652.25	53	43.91	75.4	-22.4	34.56	8.62	34.09	126	350	Peak
5920.525	53.91	44.53	76.79	-22.88	34.81	8.73	34.16	126	350	Peak
*5997.7	46.17	36.68	54	-7.83	34.9	8.76	34.17	126	350	Average
*5997.7	55.31	45.82	74	-18.69	34.9	8.76	34.17	126	350	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5795 MHz: Fundamental Frequency
3. *: Out of Restricted Band

802.11ac (VHT80)

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5138.75	61.3	53.05	74	-12.7	34.11	8.13	33.99	235	69	Peak
5149.55	52.51	44.26	54	-1.49	34.12	8.13	34	235	69	Average
5210	93.59	85.23			34.17	8.19	34	235	69	Average
5210	100	91.64			34.17	8.19	34	235	69	Peak
5371.23	54.09	45.42	74	-19.91	34.29	8.41	34.03	235	69	Peak
5457.47	44.24	35.42	54	-9.76	34.36	8.51	34.05	235	69	Average
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**
5138.3	59.89	51.64	74	-14.11	34.11	8.13	33.99	106	96	Peak
5147.75	49.13	40.88	54	-4.87	34.12	8.13	34	106	96	Average
5210	89.04	80.68			34.17	8.19	34	106	96	Average
5210	96.21	87.85			34.17	8.19	34	106	96	Peak
5350.22	54.28	45.65	74	-19.72	34.28	8.38	34.03	106	96	Peak
5443.06	43.92	35.13	54	-10.08	34.35	8.48	34.04	106	96	Average

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5210 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5108.9	53.95	45.75	74	-20.05	34.09	8.1	33.99	123	289	Peak
5127.05	43.62	35.4	54	-10.38	34.11	8.1	33.99	123	289	Average
5290	87.51	78.98			34.23	8.32	34.02	123	289	Average
5290	95.54	87.01			34.23	8.32	34.02	123	289	Peak
5350	60.29	51.66	74	-13.71	34.28	8.38	34.03	123	289	Peak
5350.11	46.81	38.18	54	-7.19	34.28	8.38	34.03	123	289	Average
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5102.75	53.91	45.75	74	-20.09	34.08	8.07	33.99	198	304	Peak
5144.9	43.8	35.55	54	-10.2	34.12	8.13	34	198	304	Average
5290	93.13	84.6			34.23	8.32	34.02	198	304	Average
5290	101.65	93.12			34.23	8.32	34.02	198	304	Peak
5350.11	52.92	44.29	54	-1.08	34.28	8.38	34.03	198	304	Average
5351.32	69.05	60.42	74	-4.95	34.28	8.38	34.03	198	304	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5290 MHz: Fundamental Frequency

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5458.32	51.25	42.43	54	-2.75	34.36	8.51	34.05	224	70	Average
5459.28	62.09	53.27	74	-11.91	34.36	8.51	34.05	224	70	Peak
*5468.08	63.94	55.11	74	-10.06	34.37	8.51	34.05	224	70	Peak
*5470	52.97	44.14	54	-1.03	34.37	8.51	34.05	224	70	Average
5530	95.65	86.72			34.42	8.58	34.07	224	70	Average
5530	102.11	93.18			34.42	8.58	34.07	224	70	Peak
*5724.84	44.4	35.24	54	-9.6	34.62	8.65	34.11	224	70	Average
*5725.16	53.53	44.37	74	-20.47	34.62	8.65	34.11	224	70	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5459.76	49.65	40.83	54	-4.35	34.36	8.51	34.05	119	107	Average
5460	57.84	49.02	74	-16.16	34.36	8.51	34.05	119	107	Peak
*5468.88	59.63	50.8	74	-14.37	34.37	8.51	34.05	119	107	Peak
*5470	51.34	42.51	54	-2.66	34.37	8.51	34.05	119	107	Average
5530	91.25	82.32			34.42	8.58	34.07	119	107	Average
5530	98.45	89.52			34.42	8.58	34.07	119	107	Peak
*5724.92	44.25	35.09	54	-9.75	34.62	8.65	34.11	119	107	Average
*5726.04	53.48	44.32	74	-20.52	34.62	8.65	34.11	119	107	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5530 MHz: Fundamental Frequency
3. *: Out of Restricted Band

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5455.28	53.83	45.01	74	-20.17	34.36	8.51	34.05	224	70	Peak
5459.76	44.17	35.35	54	-9.83	34.36	8.51	34.05	224	70	Average
*5468.08	44.29	35.46	54	-9.71	34.37	8.51	34.05	224	70	Average
*5469.2	53.15	44.32	74	-20.85	34.37	8.51	34.05	224	70	Peak
5610	94.55	85.52			34.5	8.61	34.08	224	70	Average
5610	101.2	92.17			34.5	8.61	34.08	224	70	Peak
*5724.12	44.85	35.69	54	-9.15	34.62	8.65	34.11	224	70	Average
*5725.72	54.36	45.2	74	-19.64	34.62	8.65	34.11	224	70	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**
5429.52	53.87	45.08	74	-20.13	34.35	8.48	34.04	119	107	Peak
5449.68	44.02	35.19	54	-9.98	34.36	8.51	34.04	119	107	Average
*5468.4	44.07	35.24	54	-9.93	34.37	8.51	34.05	119	107	Average
*5470.64	53.05	44.22	74	-20.95	34.37	8.51	34.05	119	107	Peak
5610	90.47	81.44			34.5	8.61	34.08	119	107	Average
5610	97.42	88.39			34.5	8.61	34.08	119	107	Peak
*5724.2	53.44	44.28	74	-20.56	34.62	8.65	34.11	119	107	Peak
*5724.84	44.51	35.35	54	-9.49	34.62	8.65	34.11	119	107	Average

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5610 MHz: Fundamental Frequency
3. *: Out of Restricted Band

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

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5775	95.44	86.21	54	41.44	34.68	8.67	34.12	202	299	Average
5775	103.6	94.37	74	29.6	34.68	8.67	34.12	202	299	Peak
11550	47.19	31.92	54	-6.81	37.97	12.68	35.38	196	342	Average
11550	56.56	41.29	74	-17.44	37.97	12.68	35.38	196	342	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5775	91.11	81.88	54	37.11	34.68	8.67	34.12	126	354	Average
5775	98.49	89.26	74	24.49	34.68	8.67	34.12	126	354	Peak
11550	47.58	32.31	54	-6.42	37.97	12.68	35.38	137	168	Average
11550	56.8	41.53	74	-17.2	37.97	12.68	35.38	137	168	Peak

<Ouf 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**
*5631.25	46.48	37.43	54	-7.52	34.52	8.62	34.09	202	299	Average
*5631.25	55.65	46.6	74	-18.35	34.52	8.62	34.09	202	299	Peak
5653.3	54.86	45.76	76.06	-21.2	34.56	8.63	34.09	202	299	Peak
5923.675	53.37	43.97	74.83	-21.46	34.83	8.73	34.16	202	299	Peak
*5997.7	45.72	36.23	54	-8.28	34.9	8.76	34.17	202	299	Average
*5997.7	54.67	45.18	74	-19.33	34.9	8.76	34.17	202	299	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**
*5589.775	45.27	36.26	54	-8.73	34.49	8.6	34.08	126	354	Average
*5589.775	54.36	45.35	74	-19.64	34.49	8.6	34.08	126	354	Peak
5651.2	52.14	43.05	74.75	-22.61	34.56	8.62	34.09	126	354	Peak
5923.675	52.55	43.15	74.83	-22.28	34.83	8.73	34.16	126	354	Peak
*6015.55	45.72	36.22	54	-8.28	34.92	8.76	34.18	126	354	Average
*6015.55	54.58	45.08	74	-19.42	34.92	8.76	34.18	126	354	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5775 MHz: Fundamental Frequency
3. *: 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:

802.11ac (VHT80)

EUT Test Condition		Measurement Detail	
Channel	Channel 42	**Frequency Range**	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Charles Hsiao

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**
55.38	27.9	45.09	40	-12.1	14.14	0.9	32.23	111	154	Peak
96.42	23.19	42.2	43.5	-20.31	11.75	1.28	32.04	132	169	Peak
181.2	26.01	46.81	43.5	-17.49	9.83	1.61	32.24	157	148	Peak
370	15.29	30.68	46	-30.71	14.48	2.26	32.13	115	185	Peak
539.4	17.68	30.23	46	-28.32	16.87	2.76	32.18	104	174	Peak
776.7	21.7	30.43	46	-24.3	20.1	3.27	32.1	159	184	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
48.36	36.93	53.69	40	-3.07	14.56	0.9	32.22	121	215	Peak
58.35	36.22	53.87	40	-3.78	13.68	0.9	32.23	158	184	Peak
145.02	21.06	43.58	43.5	-22.44	8.37	1.38	32.27	101	194	Peak
333.6	13.9	29.91	46	-32.1	13.89	2.19	32.09	115	124	Peak
628.3	19.12	30.16	46	-26.88	18.2	2.93	32.17	135	152	Peak
746.6	21.35	30.49	46	-24.65	19.78	3.22	32.14	184	112	Peak

Remarks:

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

802.11ac (VHT80)

EUT Test Condition		Measurement Detail	
Channel	Channel 58	**Frequency Range**	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Charles Hsiao

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**
42.15	17.23	34.73	40	-22.77	13.98	0.74	32.22	152	169	Peak
99.12	23.69	42.47	43.5	-19.81	12.15	1.28	32.21	132	145	Peak
187.68	26.55	46.74	43.5	-16.95	10.45	1.61	32.25	118	174	Peak
372.8	14.38	29.76	46	-31.62	14.5	2.26	32.14	105	184	Peak
658.4	19.73	30.3	46	-26.27	18.58	2.99	32.14	195	174	Peak
808.2	21.4	29.65	46	-24.6	20.45	3.32	32.02	113	112	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
46.47	35.42	52.28	40	-4.58	14.46	0.9	32.22	200	154	Peak
78.06	28.68	51.49	40	-11.32	8.29	1.11	32.21	102	223	Peak
186.06	17.34	37.7	43.5	-26.16	10.28	1.61	32.25	115	169	Peak
329.4	14.13	30.25	46	-31.87	13.78	2.19	32.09	112	165	Peak
624.8	19.08	30.15	46	-26.92	18.17	2.93	32.17	159	145	Peak
864.2	22.34	29.41	46	-23.66	21.19	3.44	31.7	105	214	Peak

Remarks:

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

802.11ac (VHT80)

EUT Test Condition		Measurement Detail	
Channel	Channel 106	**Frequency Range**	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Charles Hsiao

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**
55.92	24.13	41.47	40	-15.87	13.99	0.9	32.23	115	158	Peak
96.96	22.08	41.02	43.5	-21.42	11.88	1.28	32.1	158	221	Peak
173.91	27.11	48.42	43.5	-16.39	9.32	1.61	32.24	126	145	Peak
399.4	14.63	29.52	46	-31.37	14.99	2.34	32.22	105	187	Peak
645.8	19.22	30	46	-26.78	18.38	2.99	32.15	195	165	Peak
693.4	20.75	30.6	46	-25.25	19.14	3.11	32.1	118	194	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**
53.22	36.89	53.92	40	-3.11	14.3	0.9	32.23	105	187	Peak
64.56	28.94	48.17	40	-11.06	12.09	0.9	32.22	115	114	Peak
173.37	14.73	36.04	43.5	-28.77	9.32	1.61	32.24	118	159	Peak
420.4	15.6	30.15	46	-30.4	15.23	2.41	32.19	188	195	Peak
678.7	20.14	30.29	46	-25.86	18.91	3.05	32.11	105	188	Peak
902.7	23.77	30.23	46	-22.23	21.47	3.53	31.46	132	165	Peak

Remarks:

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

802.11a

EUT Test Condition		Measurement Detail	
Channel	Channel 165	**Frequency Range**	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Charles Hsiao

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**
57	18.02	35.52	40	-21.98	13.83	0.9	32.23	115	188	Peak
102.09	22.45	41.09	43.5	-21.05	12.34	1.28	32.26	199	164	Peak
174.72	26.04	47.29	43.5	-17.46	9.38	1.61	32.24	147	184	Peak
438.6	15.62	29.89	46	-30.38	15.4	2.49	32.16	154	184	Peak
650.7	19.5	30.2	46	-26.5	18.46	2.99	32.15	126	174	Peak
740.3	21.01	30.27	46	-24.99	19.71	3.16	32.13	126	194	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**
56.46	35.55	52.89	40	-4.45	13.99	0.9	32.23	126	195	Peak
76.44	30.53	53.27	40	-9.47	8.37	1.11	32.22	188	177	Peak
122.34	18.49	39.43	43.5	-25.01	9.92	1.38	32.24	153	169	Peak
379.8	14.42	29.73	46	-31.58	14.59	2.26	32.16	146	192	Peak
617.1	19.08	30.23	46	-26.92	18.1	2.93	32.18	184	108	Peak
706	20.61	30.27	46	-25.39	19.32	3.11	32.09	112	203	Peak

Remarks:

1. 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/AMN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN/AMN 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

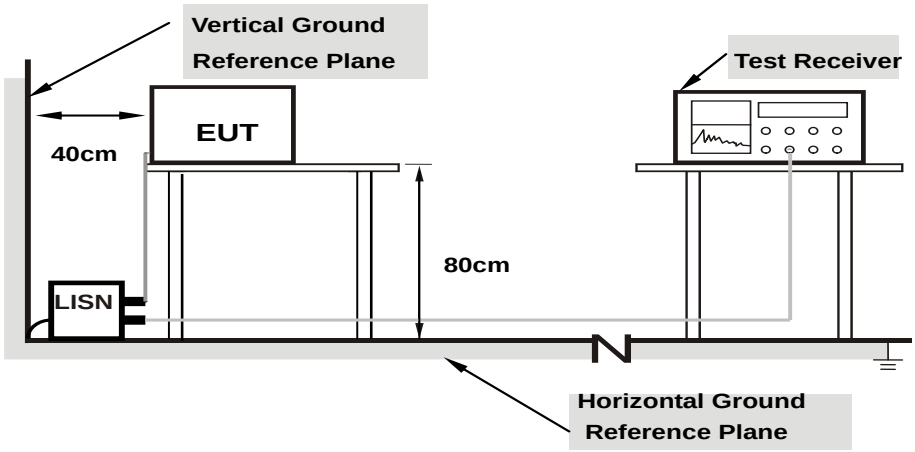
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

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

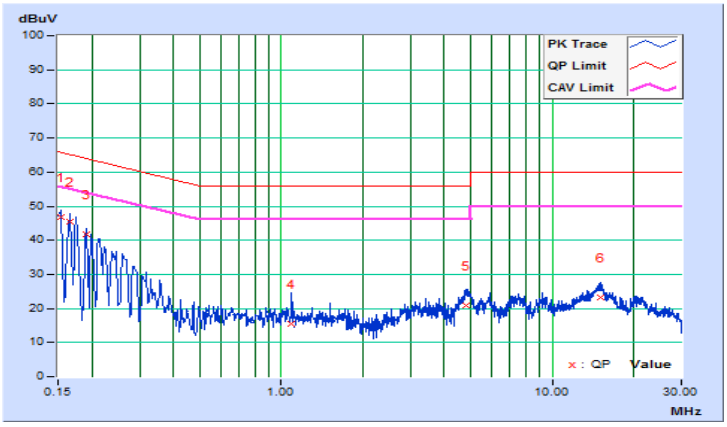
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Getaz Yang	Test Date	2017/7/6

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	0.15400	10.35	36.33	20.83	46.68	31.18	65.78	55.78	-19.10	-24.60
2	0.16600	10.35	35.17	20.22	45.52	30.57	65.16	55.16	-19.64	-24.59
3	0.19000	10.36	31.39	18.38	41.75	28.74	64.04	54.04	-22.29	-25.30
4	1.09400	10.41	5.13	0.85	15.54	11.26	56.00	46.00	-40.46	-34.74
5	4.81400	10.61	10.38	5.82	20.99	16.43	56.00	46.00	-35.01	-29.57
6	15.01400	11.09	12.21	7.61	23.30	18.70	60.00	50.00	-36.70	-31.30

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

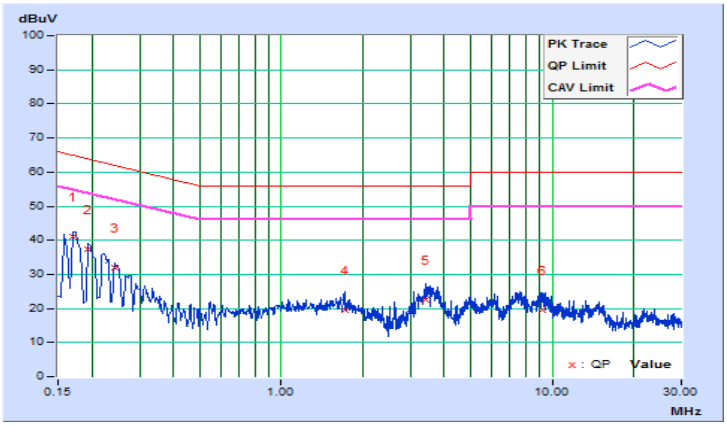


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Getaz Yang	Test Date	2017/7/6

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	0.17111	10.12	31.05	19.85	41.17	29.97	64.91	54.91	-23.74	-24.94
2	0.19418	10.14	27.14	16.45	37.28	26.59	63.86	53.86	-26.58	-27.27
3	0.24228	10.14	22.01	10.72	32.15	20.86	62.02	52.02	-29.87	-31.16
4	1.71400	10.21	9.35	5.34	19.56	15.55	56.00	46.00	-36.44	-30.45
5	3.41800	10.31	12.39	7.10	22.70	17.41	56.00	46.00	-33.30	-28.59
6	9.23000	10.52	8.88	4.23	19.40	14.75	60.00	50.00	-40.60	-35.25

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 Measurment

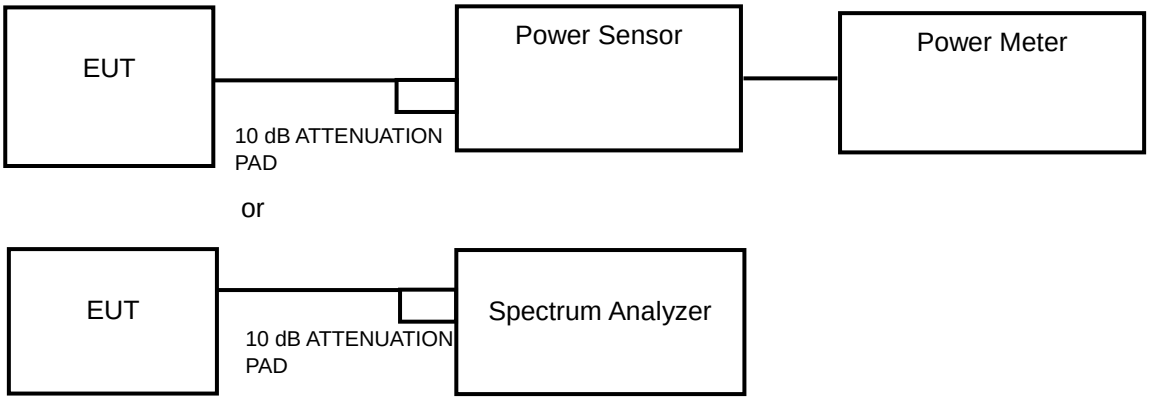
4.3.1 Limits of Transmit Power Measurement

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

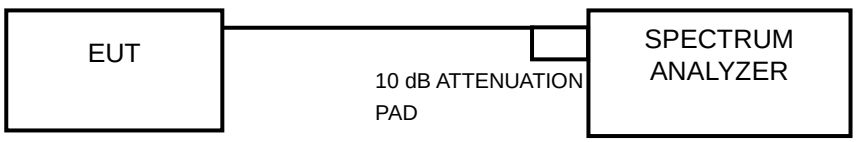
*B is the 26 dB emission bandwidth in megahertz

4.3.2 Test Setup

<Power Output Measurement>



<26 dB Bandwidth>



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

Average Power Measurement

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

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

<802.11ac (VHT80)>

Method SA-1 is used to perform output power measurement, trigger and gating function of spectrum analyzer 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 fromTest 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	51.761	17.14	24	Pass
44	5220	52.723	17.22	24	Pass
48	5240	52.845	17.23	24	Pass
52	5260	54.200	17.34	24	Pass
60	5300	53.951	17.32	24	Pass
64	5320	53.580	17.29	24	Pass
100	5500	54.075	17.33	24	Pass
116	5580	53.333	17.27	24	Pass
140	5700	53.211	17.26	24	Pass
149	5745	53.951	17.32	30	Pass
157	5785	52.966	17.24	30	Pass
165	5825	53.088	17.25	30	Pass

Note:

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

1. 11 dBm + 10log (22.39) = 24.50 dBm > 24 dBm.
2. 11 dBm + 10log (23.00) = 24.62 dBm > 24 dBm.
3. 11 dBm + 10log (22.39) = 24.50 dBm > 24 dBm.
4. 11 dBm + 10log (22.45) = 24.51 dBm > 24 dBm.
5. 11 dBm + 10log (22.49) = 24.52 dBm > 24 dBm.
6. 11 dBm + 10log (22.47) = 24.52 dBm > 24 dBm.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	52.240	17.18	24	Pass
44	5220	52.723	17.22	24	Pass
48	5240	53.211	17.26	24	Pass
52	5260	54.702	17.38	24	Pass
60	5300	54.075	17.33	24	Pass
64	5320	53.333	17.27	24	Pass
100	5500	54.075	17.33	24	Pass
116	5580	53.456	17.28	24	Pass
140	5700	52.602	17.21	24	Pass
149	5745	54.325	17.35	30	Pass
157	5785	53.333	17.27	30	Pass
165	5825	52.602	17.21	30	Pass

Note:

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

1. 11 dBm + 10log (24.37) = 24.87 dBm > 24 dBm.
2. 11 dBm + 10log (24.00) = 24.80 dBm > 24 dBm.
3. 11 dBm + 10log (24.65) = 24.92 dBm > 24 dBm.
4. 11 dBm + 10log (24.49) = 24.89 dBm > 24 dBm.
5. 11 dBm + 10log (23.58) = 24.73 dBm > 24 dBm.
6. 11 dBm + 10log (24.91) = 24.96 dBm > 24 dBm.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	52.240	17.18	24	Pass
46	5230	53.211	17.26	24	Pass
54	5270	53.456	17.28	24	Pass
62	5310	53.951	17.32	24	Pass
102	5510	54.450	17.36	24	Pass
110	5550	53.827	17.31	24	Pass
134	5670	53.333	17.27	24	Pass
151	5755	51.642	17.13	30	Pass
159	5795	53.211	17.26	30	Pass

Note:

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

1. 11 dBm + 10log (42.23) = 27.26 dBm > 24 dBm.
2. 11 dBm + 10log (42.17) = 27.25 dBm > 24 dBm.
3. 11 dBm + 10log (42.21) = 27.25 dBm > 24 dBm.
4. 11 dBm + 10log (42.16) = 27.25 dBm > 24 dBm.
5. 11 dBm + 10log (42.07) = 27.24 dBm > 24 dBm.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
42	5210	47.863	16.80	24	Pass
58	5290	43.053	16.34	24	Pass
106	5530	43.551	16.39	24	Pass
122	5610	43.152	16.35	24	Pass
155	5775	41.879	16.22	30	Pass

Note:

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

1. 11 dBm + 10log (84.63) = 30.28 dBm > 24 dBm.
2. 11 dBm + 10log (84.80) = 30.28 dBm > 24 dBm.
3. 11 dBm + 10log (84.65) = 30.28 dBm > 24 dBm.

26 dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	22.97
44	5220	22.99
48	5240	23.08
52	5260	22.39
60	5300	23.00
64	5320	22.39
100	5500	22.45
116	5580	22.49
140	5700	22.47

802.11n (HT20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	23.42
44	5220	24.30
48	5240	24.01
52	5260	24.37
60	5300	24.00
64	5320	24.65
100	5500	24.49
116	5580	23.58
140	5700	24.91

802.11n (HT40)

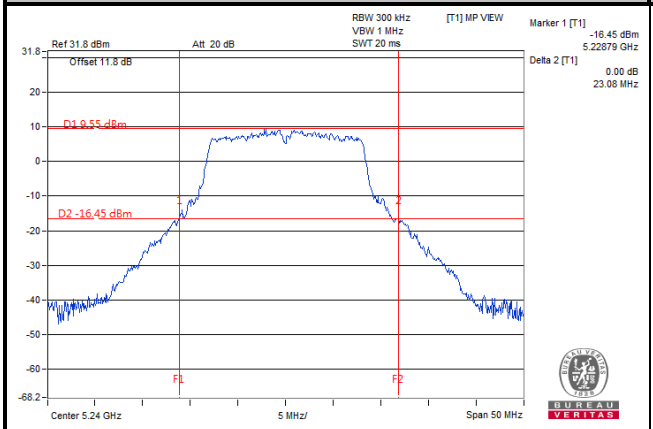
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
38	5190	42.11
46	5230	42.12
54	5270	42.23
62	5310	42.17
102	5510	42.21
110	5550	42.16
134	5670	42.07

802.11ac (VHT80)

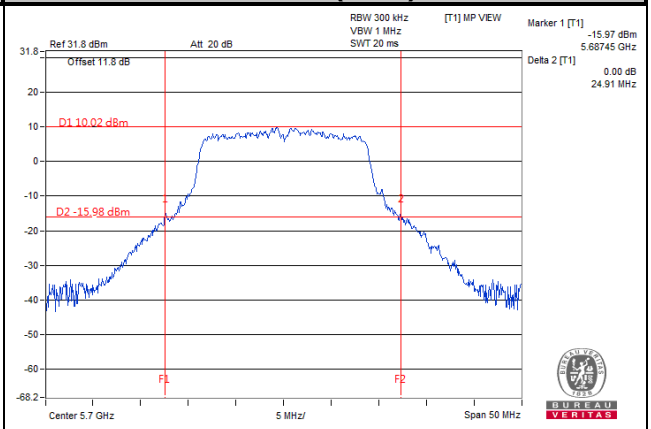
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
42	5210	84.68
58	5290	84.63
106	5530	84.80
122	5610	84.65

Spectrum Plot of Worst Value

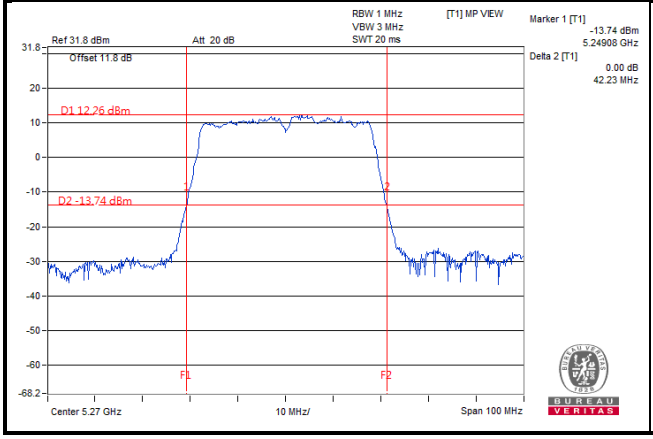
802.11a



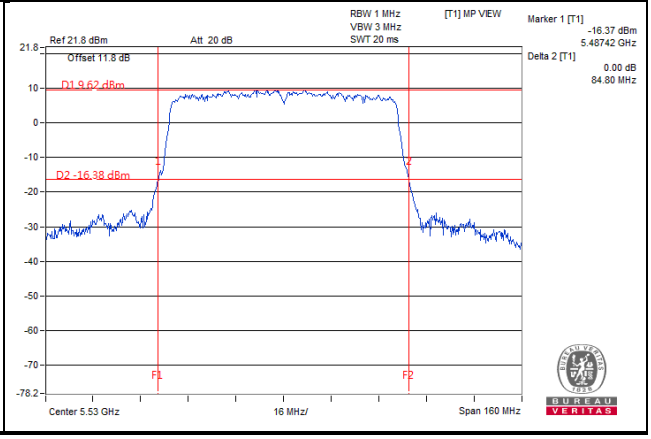
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

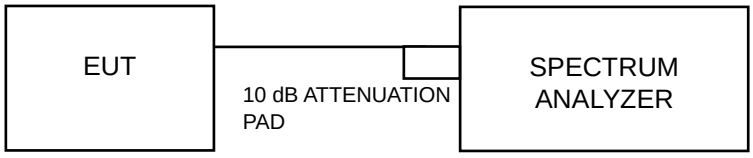


4.4 Peak Power Spectral Density Measurement

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-2

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

※For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 500 kHz, Set VBW ≥ 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/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	6.43	0.26	6.69	11	Pass
44	5220	6.66	0.26	6.92	11	Pass
48	5240	6.70	0.26	6.96	11	Pass
52	5260	6.56	0.26	6.82	11	Pass
60	5300	6.42	0.26	6.68	11	Pass
64	5320	6.58	0.26	6.84	11	Pass
100	5500	6.82	0.26	7.08	11	Pass
116	5580	6.77	0.26	7.03	11	Pass
140	5700	6.36	0.26	6.62	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	6.31	0.28	6.59	11	Pass
44	5220	6.55	0.28	6.83	11	Pass
48	5240	6.65	0.28	6.93	11	Pass
52	5260	6.47	0.28	6.75	11	Pass
60	5300	6.25	0.28	6.53	11	Pass
64	5320	6.45	0.28	6.73	11	Pass
100	5500	6.58	0.28	6.86	11	Pass
116	5580	6.75	0.28	7.03	11	Pass
140	5700	6.54	0.28	6.82	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	3.75	0.60	4.35	11	Pass
46	5230	4.05	0.60	4.65	11	Pass
54	5270	4.16	0.60	4.76	11	Pass
62	5310	4.05	0.60	4.65	11	Pass
102	5510	4.17	0.60	4.77	11	Pass
110	5550	4.10	0.60	4.70	11	Pass
134	5670	4.03	0.60	4.63	11	Pass

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

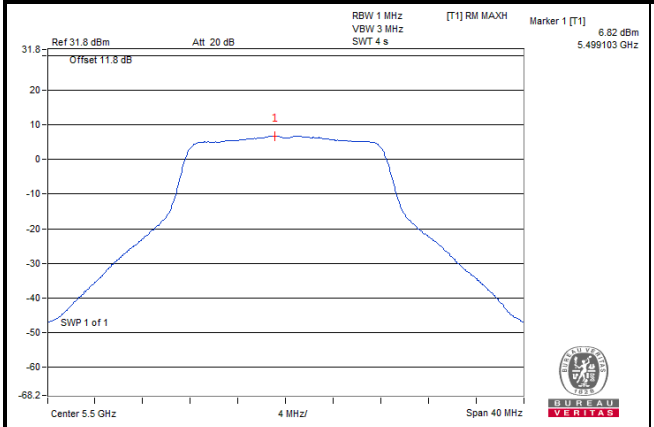
802.11ac (VHT80)

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
42	5210	-0.61	1.08	0.47	11	Pass
58	5290	-0.69	1.08	0.39	11	Pass
106	5530	-0.56	1.08	0.52	11	Pass
122	5610	-0.66	1.08	0.42	11	Pass

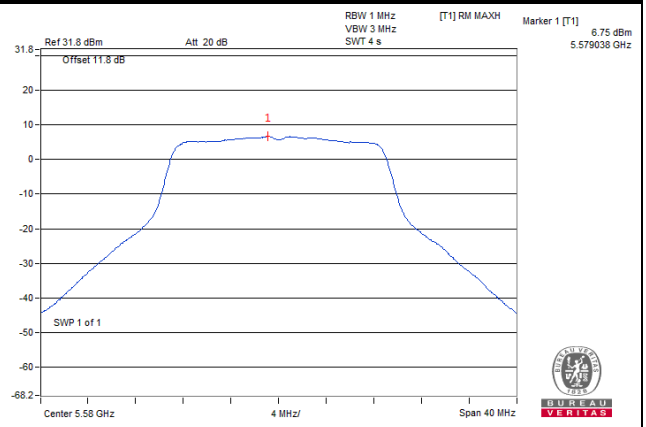
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

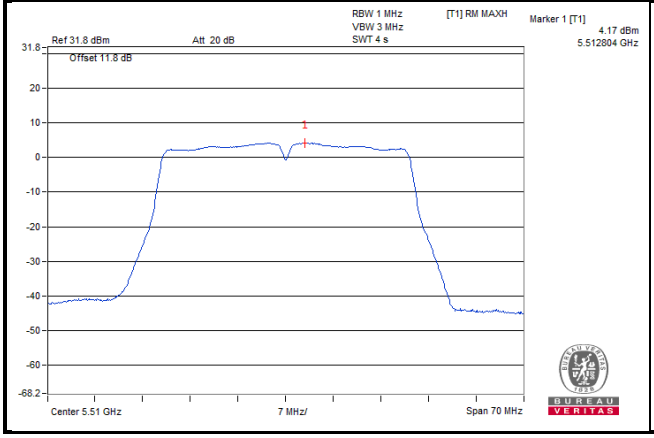
802.11a



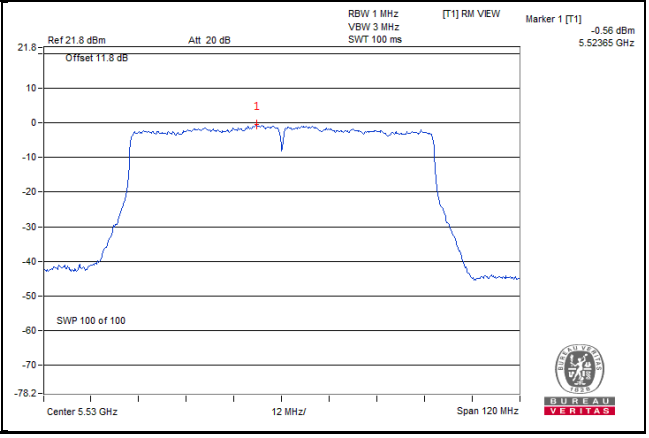
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



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	3.40	0.26	3.66	30	Pass
157	5785	3.24	0.26	3.50	30	Pass
165	5825	3.20	0.26	3.46	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	3.18	0.28	3.46	30	Pass
157	5785	3.06	0.28	3.34	30	Pass
165	5825	2.95	0.28	3.23	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	-0.26	0.60	0.34	30	Pass
159	5795	0.14	0.60	0.74	30	Pass

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

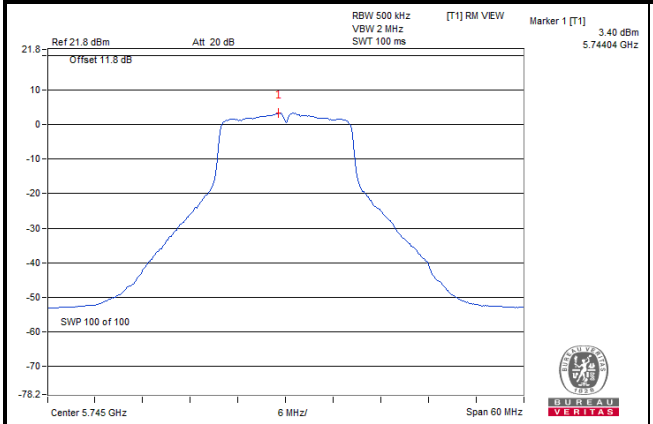
802.11ac (VHT80)

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
155	5775	-3.03	1.08	-1.95	30	Pass

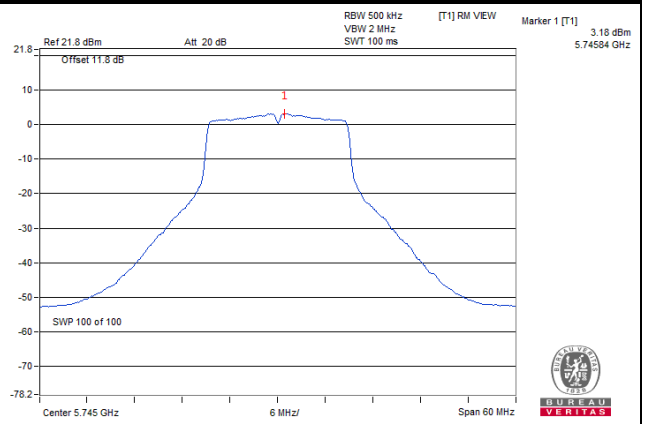
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

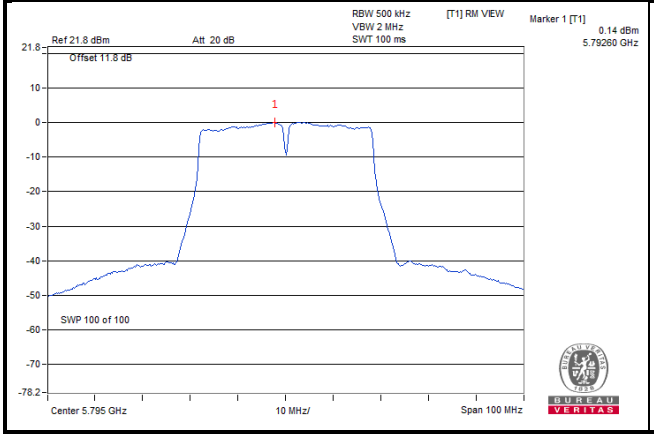
802.11a



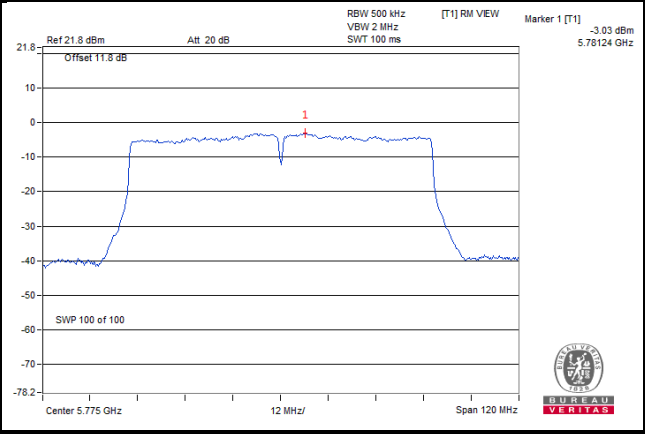
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

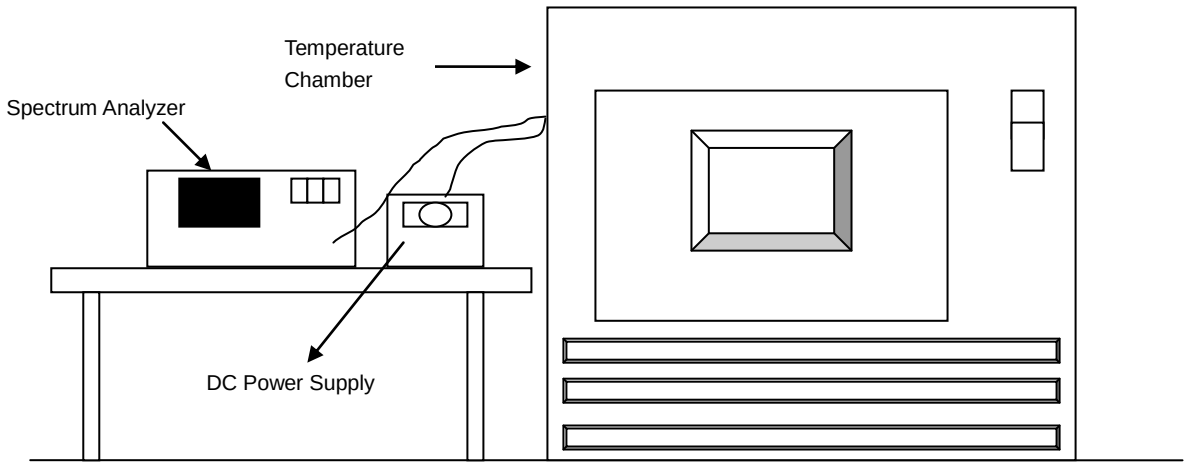


4.5 Frequency Stability

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

a. 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.
b. 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.
c. 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. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
55	3.85	5179.9828	-0.00033	5179.9821	-0.00035	5179.9843	-0.00030	5179.9859	-0.00027
50	3.85	5179.9849	-0.00029	5179.9868	-0.00025	5179.985	-0.00029	5179.9889	-0.00021
40	3.85	5180.003	0.00006	5180.0027	0.00005	5180.0036	0.00007	5180.0024	0.00005
30	3.85	5180.0231	0.00045	5180.0228	0.00044	5180.0257	0.00050	5180.0237	0.00046
20	3.85	5180.0088	0.00017	5180.008	0.00015	5180.0084	0.00016	5180.007	0.00014
10	3.85	5180.0037	0.00007	5180.0055	0.00011	5180.0057	0.00011	5180.0029	0.00006
0	3.85	5180.003	0.00006	5180.0031	0.00006	5179.9995	-0.00001	5180.0004	0.00001
-10	3.85	5179.9829	-0.00033	5179.9803	-0.00038	5179.9833	-0.00032	5179.9807	-0.00037
-20	3.85	5180.0154	0.00030	5180.0115	0.00022	5180.0156	0.00030	5180.0138	0.00027
-30	3.85	5179.993	-0.00014	5179.9963	-0.00007	5179.9969	-0.00006	5179.9945	-0.00011

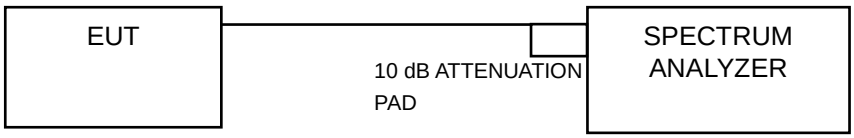
Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	4.4275	5180.0084	0.00016	5180.0089	0.00017	5180.0084	0.00016	5180.008	0.00015
	3.85	5180.0088	0.00017	5180.008	0.00015	5180.0084	0.00016	5180.007	0.00014
	3.2725	5180.0094	0.00018	5180.0082	0.00016	5180.0084	0.00016	5180.0075	0.00014

4.6 6 dB Bandwidth Measurment

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

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

4.6.5 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	15.56	0.5	Pass
157	5785	15.56	0.5	Pass
165	5825	15.15	0.5	Pass

802.11n (HT20)

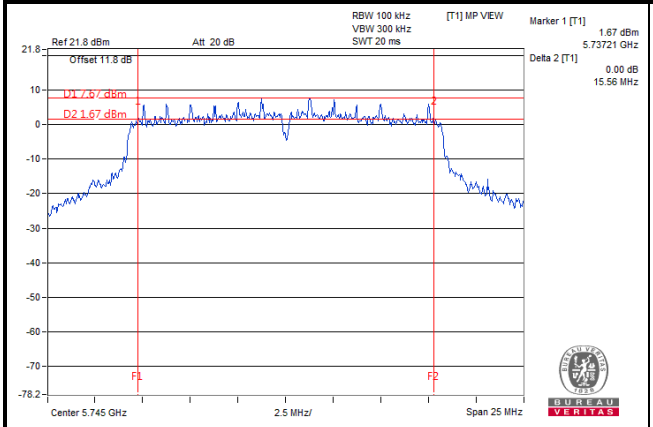
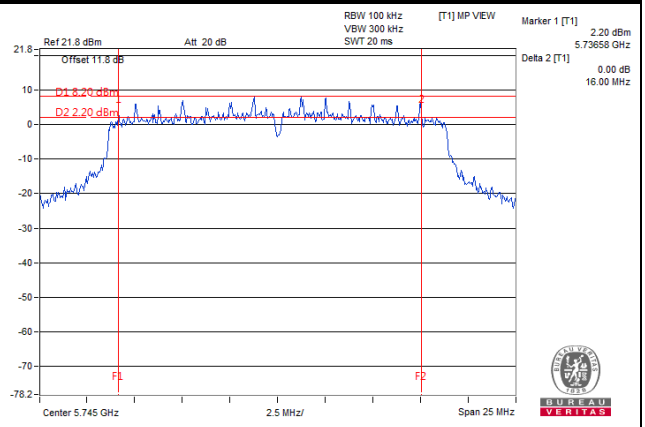
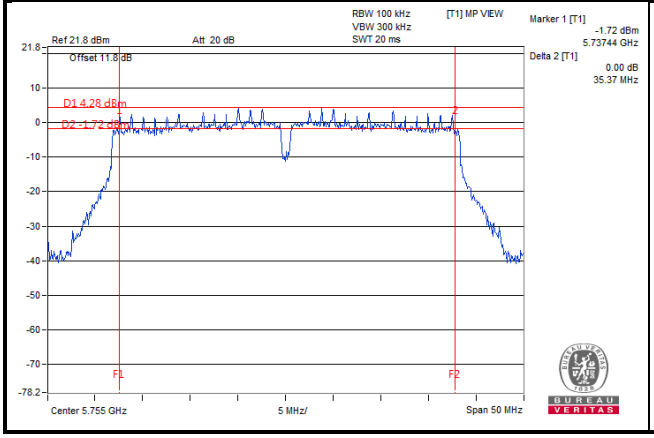
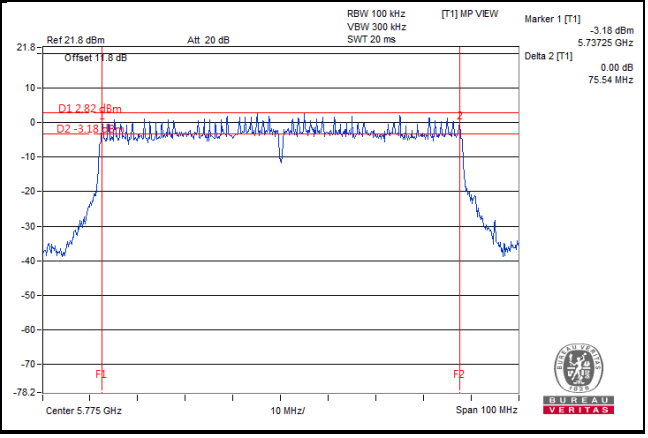
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.00	0.5	Pass
157	5785	15.17	0.5	Pass
165	5825	15.11	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	35.37	0.5	Pass
159	5795	35.27	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
155	5775	75.54	0.5	Pass

Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

5 Pictures of Test Arrangements

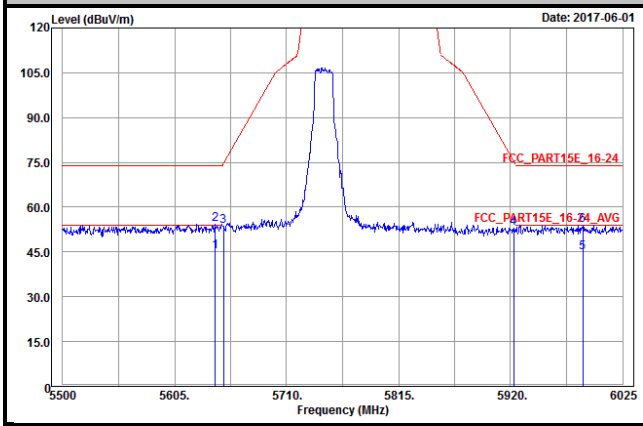
Please refer to the attached file (Test Setup Photo).

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

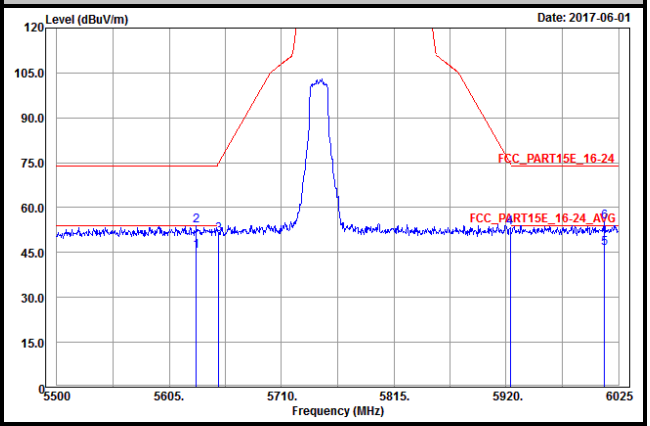
802.11a

Ch 149

Horizontal

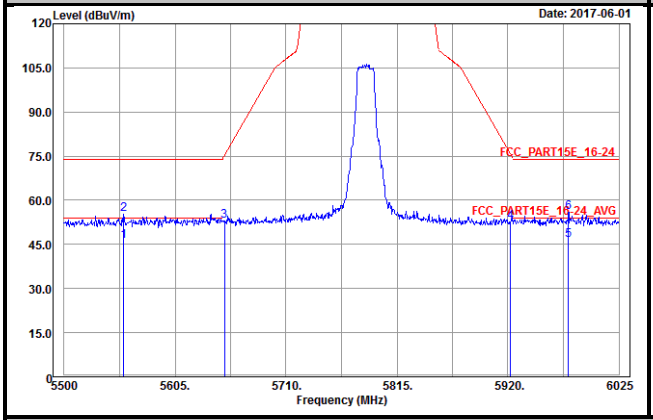


Vertical

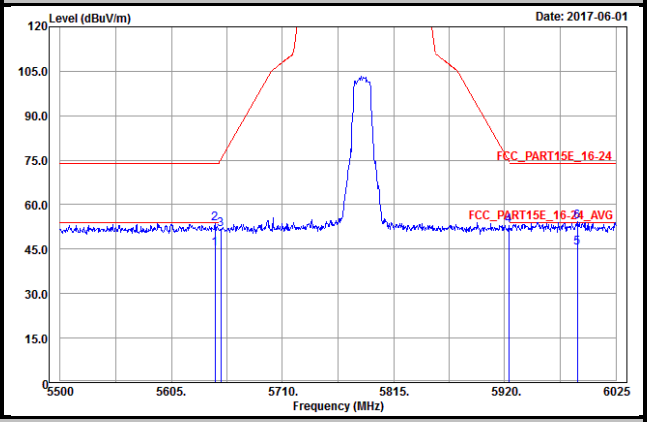


Ch 157

Horizontal

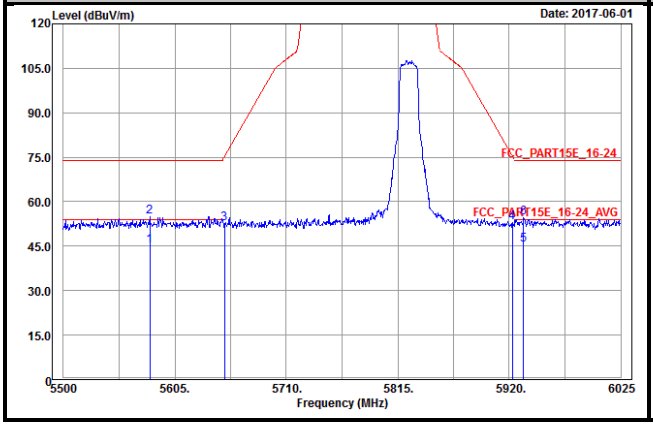


Vertical

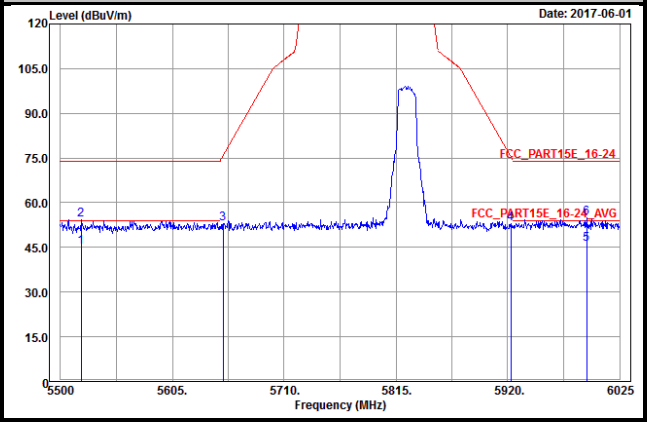


Ch 165

Horizontal



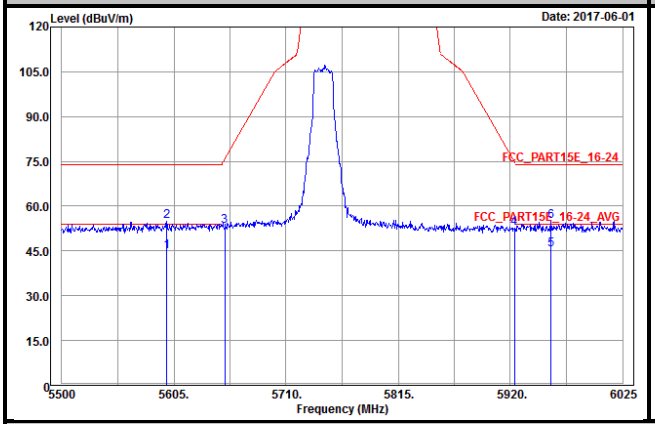
Vertical



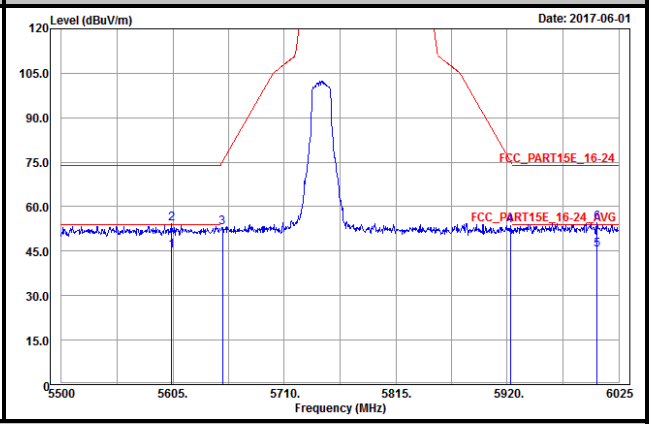
802.11n (HT20)

Ch 149

Horizontal

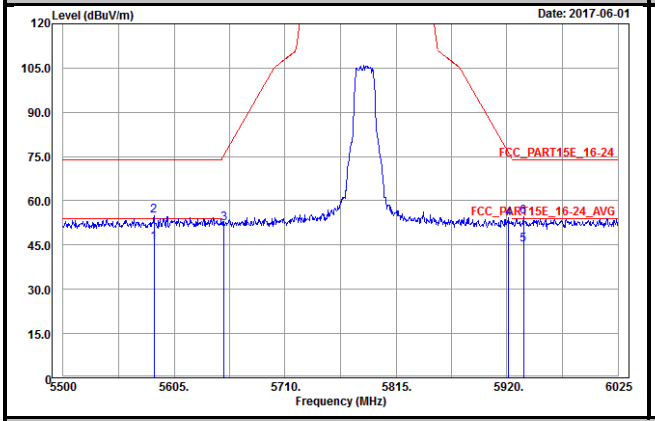


Vertical

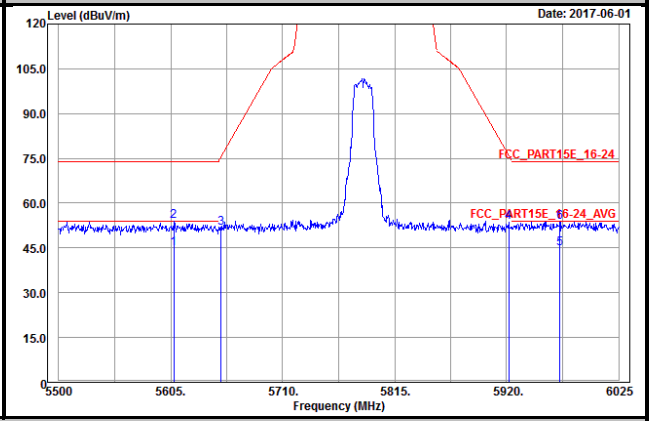


Ch 157

Horizontal

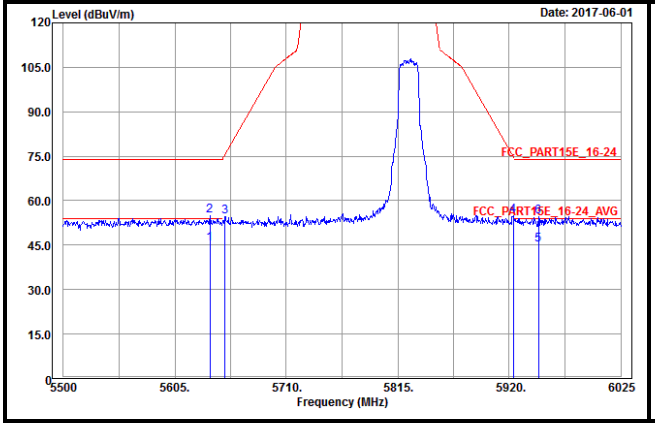


Vertical

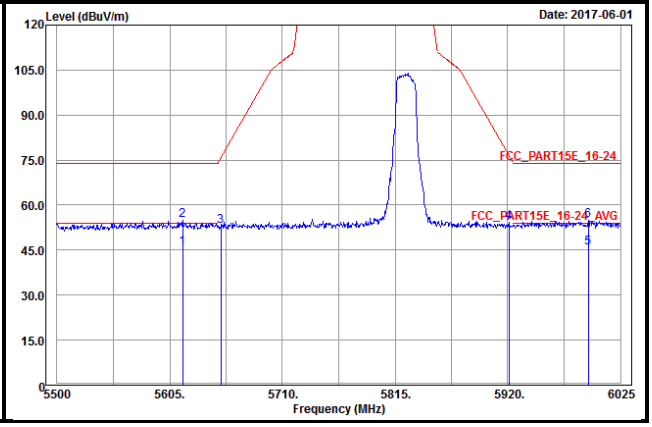


Ch 165

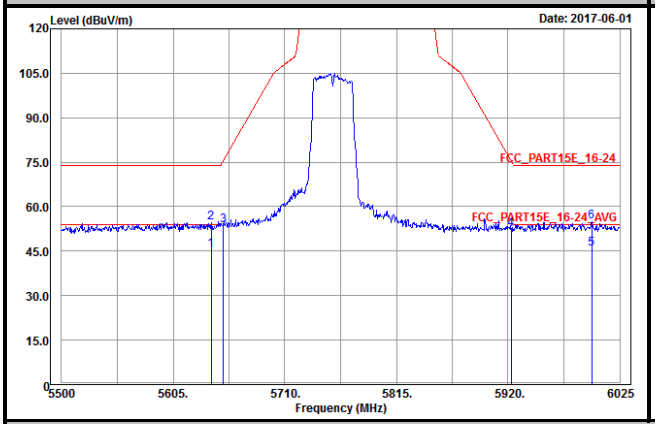
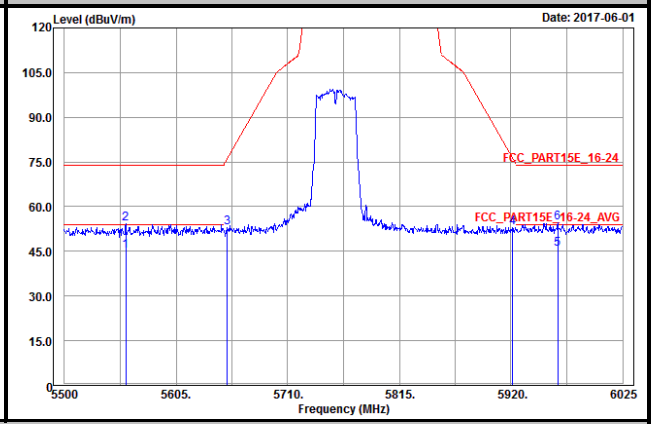
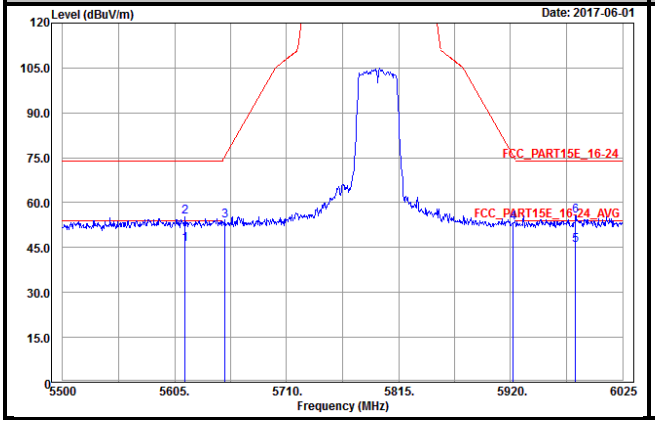
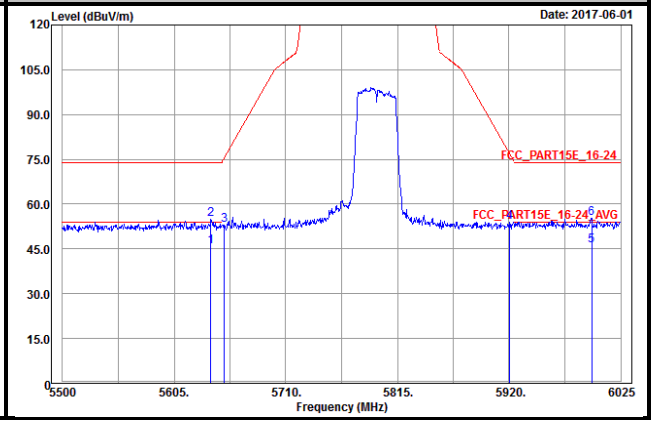
Horizontal



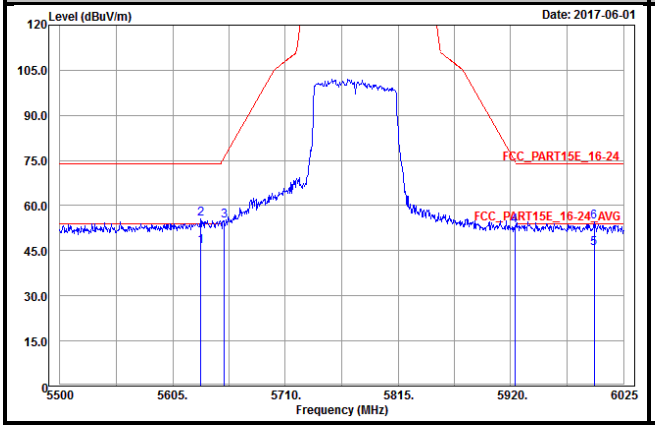
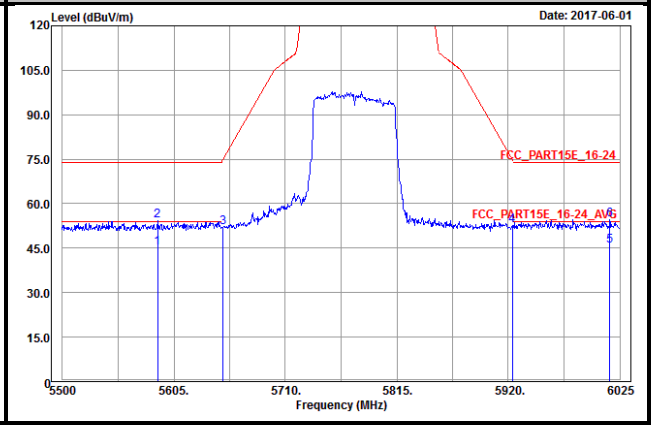
Vertical



802.11n (HT40)

Ch 151	
Horizontal	Vertical
	
Ch 159	
Horizontal	Vertical
	

802.11ac (VHT80)

Ch 155	
Horizontal	Vertical
	

Appendix – Information on the Testing Laboratories

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

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

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

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

Hwa Ya EMC/RF/Safety
Tel: 886-3-3183232
Fax: 886-3-3270892

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

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

--- END ---