FCC Test Report

Report No.:	RF170706C19-4
FCC ID:	NM8X2-HT
Test Model:	X2-HT
Received Date:	Jul. 06, 2017
Test Date:	Jul. 18, 2017 ~ Aug. 28, 2017
Issued Date:	Sep. 20, 2017
Applicant:	HTC Corporation
Address:	No.23 Xinghua Road,Taoyuan District, Taoyuan City 330, 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

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RF170706C19-4	Original Release	Sep. 20, 2017

1 Certificate of Conformity

Product:	Smartphone
Brand:	HTC
Test Model:	X2-HT
Sample Status:	Production Unit
Applicant:	HTC Corporation
Test Date:	Jul. 18, 2017 ~ Aug. 28, 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:** Sep. 20, 2017

Ivonne Wu / Supervisor

Approved by : _____ , **Date:** Sep. 20, 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 -14.71 dB at 0.60747 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 -1.17 dB at 5353.85 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6 dB Bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	No antenna connector is used.

*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	Smartphone
Brand	HTC
Test Model	X2-HT
Status of EUT	Production Unit
Power Supply Rating	5 Vdc or 9 Vdc or 12 Vdc (adapter) 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	45.499 mW for 5180 ~ 5240 MHz 46.559 mW for 5260 ~ 5320 MHz 46.559 mW for 5500 ~ 5700 MHz 46.452 mW for 5745 ~ 5825 MHz
Antenna Type	PIFA antenna with -3 dBi gain (5180 ~ 5240 MHz) PIFA antenna with -2.2 dBi gain (5260 ~ 5320 MHz) PIFA antenna with -1.5 dBi gain (5500 ~ 5700 MHz) PIFA antenna with -1.8 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. There're 2 configurations for the EUT listed as below.

   Main Sample: EUT + Battery 1

   2nd Sample: EUT + Battery 2

   ✧ Only the worst test data was presented in the report.

2. 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)

3. The EUT's accessories list refers to Ext. Pho.
4. 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	
A	√	√	√	√	Main Sample
B	√	√	√	-	2nd Sample

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

Radiated Emission Test (Above 1 GHz):

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

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	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
B	5180-5240	802.11ac (VHT80)	42	42	OFDM	BPSK	MCS0
	5260-5320	802.11ac (VHT80)	58	58	OFDM	BPSK	MCS0
	5500-5700	802.11a	100 to 140	140	OFDM	BPSK	6.0
	5745-5825	802.11n (HT40)	151 to 159	159	OFDM	BPSK	MCS0

Radiated Emission Test (Below 1 GHz):

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

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	5180-5240	802.11ac (VHT80)	42	42	OFDM	BPSK	MCS0
	5260-5320	802.11ac (VHT80)	58	58	OFDM	BPSK	MCS0
	5500-5700	802.11a	100 to 140	140	OFDM	BPSK	6.0
	5745-5825	802.11n (HT40)	151 to 159	159	OFDM	BPSK	MCS0

Power Line Conducted Emission Test:

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

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B	5260-5320	802.11ac (VHT80)	58	58	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)
A	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	Karl Lee
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee
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

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

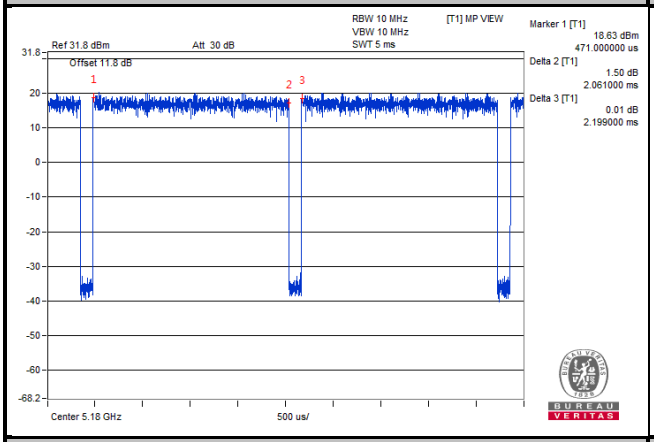
802.11a: Duty cycle = 2.061/2.199 = 0.937, Duty factor = 10 * log(1/0.937) = 0.28

802.11n (HT20): Duty cycle = 1.922/2.060 = 0.933, Duty factor = 10 * log(1/0.933) = 0.30

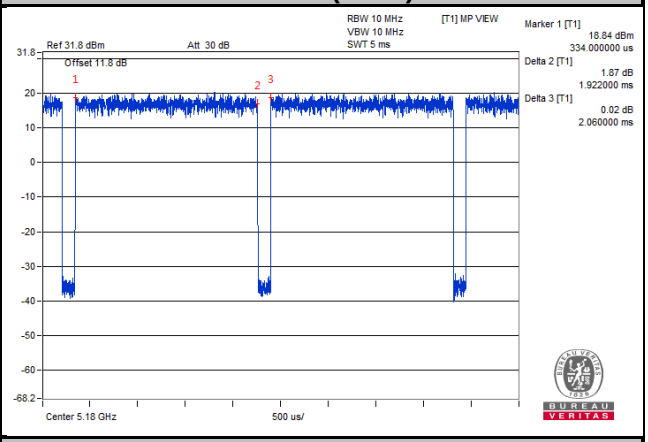
802.11n (HT40): Duty cycle = 0.945/1.070 = 0.883, Duty factor = 10 * log(1/0.883) = 0.54

802.11ac (VHT80): Duty cycle = 462/583 = 0.792, Duty factor = 10 * log(1/0.792) = 1.01

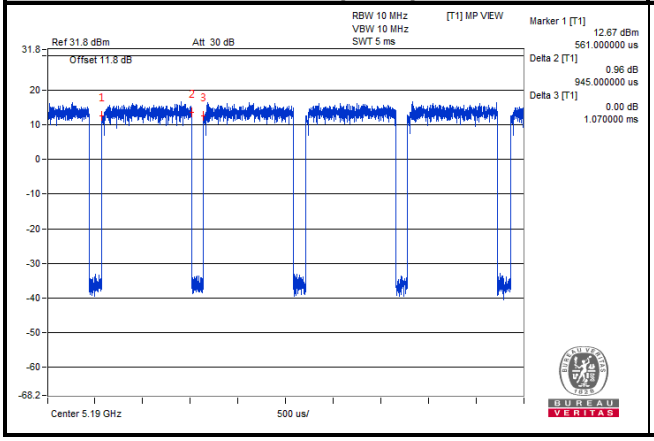
802.11a



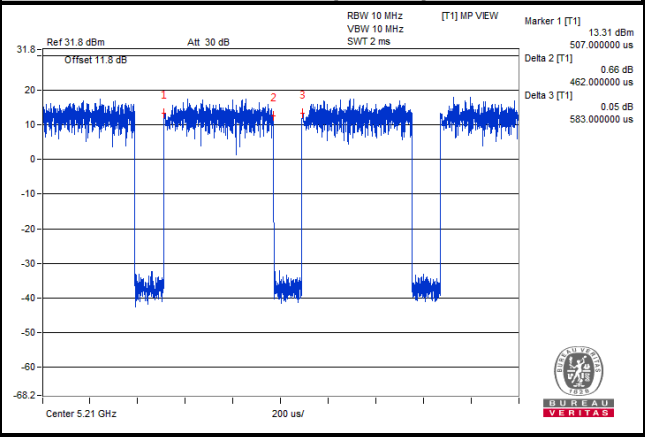
802.11n (HT20)



802.11n (HT40)



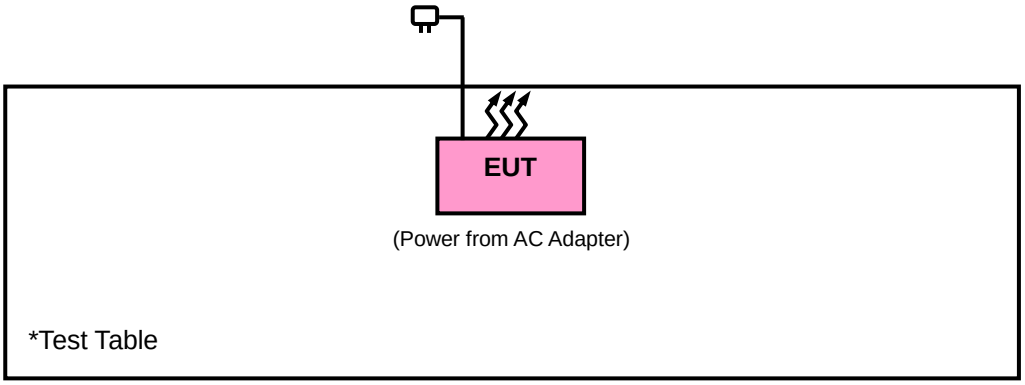
802.11ac (VHT80)



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

Description & Manaufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9038A	MY52260177	Jul. 05, 2017	Jul. 04, 2018
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. 07, 2017	Jul. 06, 2018
Bluetooth Tester	CBT	100980	Jun. 28, 2017	Jun. 27, 2019
Loop Antenna	EM-6879	269	Aug. 11, 2016	Aug. 10, 2017
Preamplifier Agilent	310N	187226	Jun. 23, 2017	Jun. 22, 2018
Preamplifier Agilent	83017A	MY39501357	Jun. 23, 2017	Jun. 22, 2018
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. 23, 2017	Jun. 22, 2018
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC-SMS-100-SMS-24)	Jun. 23, 2017	Jun. 22, 2018
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 FCC Designation Number is TW0011. The number will be varied with the Lab location and scope as attached.
5. 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:

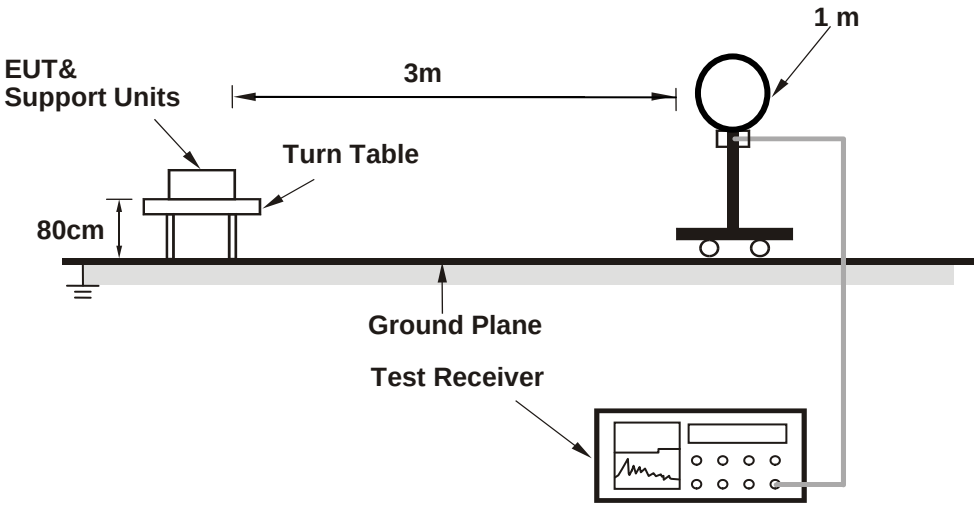
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency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

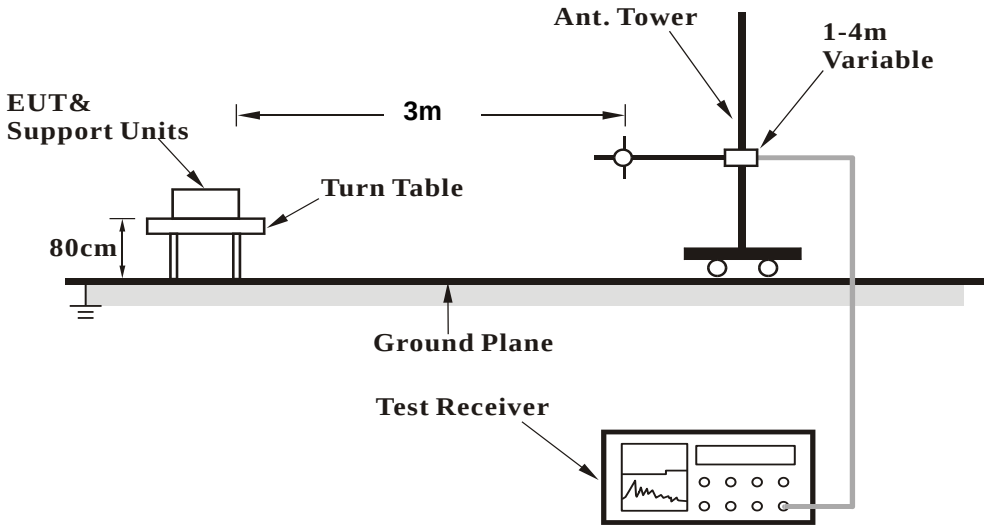
No deviation.

4.1.6 Test Set Up

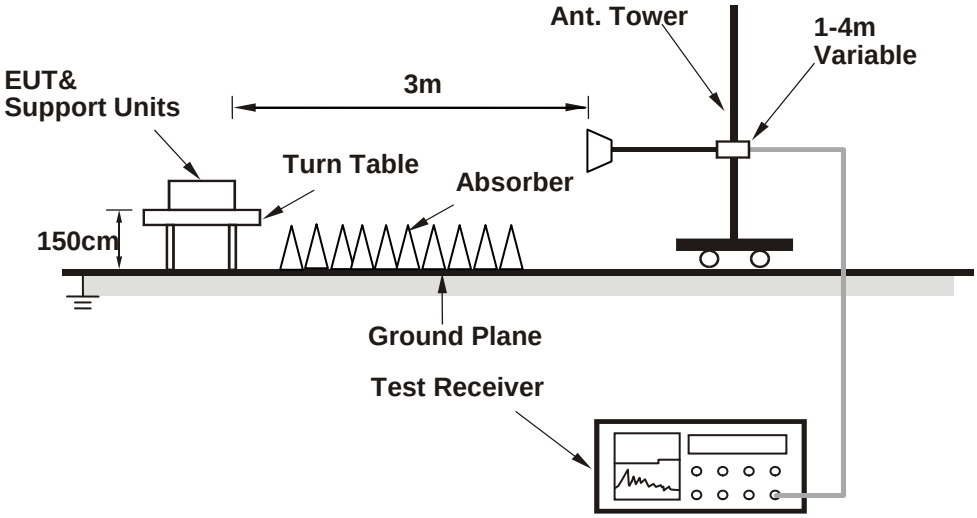
<Radiated emission below 30MHz>



<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：

Mode A

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**	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5150	44.42	36.17	54	-9.58	34.12	8.13	34	100	228	Average
5150	54.25	46	74	-19.75	34.12	8.13	34	100	228	Peak
5180	97.31	89			34.15	8.16	34	100	228	Average
5180	104.54	96.23			34.15	8.16	34	100	228	Peak
*10360	56.71	42.41	68.2	-11.49	37.12	12.3	35.12	155	206	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5132.45	43.55	35.33	54	-10.45	34.11	8.1	33.99	185	26	Average
5132.45	53.68	45.46	74	-20.32	34.11	8.1	33.99	185	26	Peak
5180	93.65	85.34			34.15	8.16	34	185	26	Average
5180	100.84	92.53			34.15	8.16	34	185	26	Peak
*10360	55.8	41.5	68.2	-12.4	37.12	12.3	35.12	158	127	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 44	**Frequency Range**	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5149.55	43.24	34.99	54	-10.76	34.12	8.13	34	100	228	Average
5149.55	53.9	45.65	74	-20.1	34.12	8.13	34	100	228	Peak
5220	97.49	89.1			34.17	8.22	34	100	228	Average
5220	104.81	96.42			34.17	8.22	34	100	228	Peak
5447.68	43.05	34.22	54	-10.95	34.36	8.51	34.04	100	228	Average
5447.68	54.06	45.23	74	-19.94	34.36	8.51	34.04	100	228	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5140.85	42.88	34.62	54	-11.12	34.12	8.13	33.99	185	26	Average
5140.85	54.1	45.84	74	-19.9	34.12	8.13	33.99	185	26	Peak
5220	93.34	84.95			34.17	8.22	34	185	26	Average
5220	100.6	92.21			34.17	8.22	34	185	26	Peak
5413.25	43.03	34.3	54	-10.97	34.33	8.44	34.04	185	26	Average
5413.25	53.44	44.71	74	-20.56	34.33	8.44	34.04	185	26	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**	Karl Lee

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	97.84	89.4			34.19	8.26	34.01	100	228	Average
5240	104.6	96.16			34.19	8.26	34.01	100	228	Peak
5451.09	42.99	34.17	54	-11.01	34.36	8.51	34.05	100	228	Average
5451.09	53.69	44.87	74	-20.31	34.36	8.51	34.05	100	228	Peak
10480	56.9	42.39	74	-17.1	37.19	12.53	35.21	133	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**
5240	93.24	84.8			34.19	8.26	34.01	185	26	Average
5240	100.67	92.23			34.19	8.26	34.01	185	26	Peak
5439.54	43.12	34.33	54	-10.88	34.35	8.48	34.04	185	26	Average
5439.54	53.57	44.78	74	-20.43	34.35	8.48	34.04	185	26	Peak
10480	56.08	41.57	74	-17.92	37.19	12.53	35.21	196	147	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**	Karl Lee

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**
5105	42.8	34.64	54	-11.2	34.08	8.07	33.99	185	291	Average
5105	53.7	45.54	74	-20.3	34.08	8.07	33.99	185	291	Peak
5260	98.82	90.36			34.21	8.26	34.01	185	291	Average
5260	106	97.54			34.21	8.26	34.01	185	291	Peak
*10520	57.07	42.48	68.2	-11.13	37.21	12.61	35.23	166	147	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5133.8	42.75	34.5	54	-11.25	34.11	8.13	33.99	120	19	Average
5133.8	53.12	44.87	74	-20.88	34.11	8.13	33.99	120	19	Peak
5260	96.41	87.95			34.21	8.26	34.01	120	19	Average
5260	103.54	95.08			34.21	8.26	34.01	120	19	Peak
*10520	57.1	42.51	68.2	-11.1	37.21	12.61	35.23	125	334	Peak

Remarks:

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

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**	Karl Lee

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**
5083.4	43.25	35.09	54	-10.75	34.07	8.07	33.98	185	301	Average
5083.4	53.39	45.23	74	-20.61	34.07	8.07	33.98	185	301	Peak
5300	99.32	90.78			34.24	8.32	34.02	185	301	Average
5300	106.39	97.85			34.24	8.32	34.02	185	301	Peak
5433.38	43.87	35.08	54	-10.13	34.35	8.48	34.04	185	301	Average
5433.38	53.67	44.88	74	-20.33	34.35	8.48	34.04	185	301	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**
5012.9	43.17	35.16	54	-10.83	34.01	7.97	33.97	119	18	Average
5012.9	53.03	45.02	74	-20.97	34.01	7.97	33.97	119	18	Peak
5300	97.46	88.92			34.24	8.32	34.02	119	18	Average
5300	104.63	96.09			34.24	8.32	34.02	119	18	Peak
5438.66	43.83	35.04	54	-10.17	34.35	8.48	34.04	119	18	Average
5438.66	53.65	44.86	74	-20.35	34.35	8.48	34.04	119	18	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**	Karl Lee

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	99.71	91.13			34.25	8.35	34.02	183	301	Average
5320	106.55	97.97			34.25	8.35	34.02	183	301	Peak
5361.22	43.74	35.1	54	-10.26	34.29	8.38	34.03	183	301	Average
5361.22	53.85	45.21	74	-20.15	34.29	8.38	34.03	183	301	Peak
10640	48.52	33.79	54	-5.48	37.31	12.71	35.29	121	86	Average
10640	57.11	42.38	74	-16.89	37.31	12.71	35.29	121	86	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	98.54	89.96			34.25	8.35	34.02	119	18	Average
5320	105.59	97.01			34.25	8.35	34.02	119	18	Peak
5404.56	43.61	34.89	54	-10.39	34.32	8.44	34.04	119	18	Average
5404.56	53.89	45.17	74	-20.11	34.32	8.44	34.04	119	18	Peak
10640	48.54	33.81	54	-5.46	37.31	12.71	35.29	157	123	Average
10640	57.76	43.03	74	-16.24	37.31	12.71	35.29	157	123	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**	Karl Lee

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**
5455.6	43.72	34.9	54	-10.28	34.36	8.51	34.05	100	213	Average
5455.6	54.19	45.37	74	-19.81	34.36	8.51	34.05	100	213	Peak
*5469.52	53.75	44.92	68.2	-14.45	34.37	8.51	34.05	100	213	Peak
5500	97.27	88.35			34.4	8.57	34.05	100	213	Average
5500	105.5	96.58			34.4	8.57	34.05	100	213	Peak
11000	47.07	31.99	54	-6.93	37.6	12.96	35.48	147	159	Average
11000	57.45	42.37	74	-16.55	37.6	12.96	35.48	147	159	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5446.96	43.45	34.62	54	-10.55	34.36	8.51	34.04	135	15	Average
5446.96	53.49	44.66	74	-20.51	34.36	8.51	34.04	135	15	Peak
*5470.64	53.36	44.53	68.2	-14.84	34.37	8.51	34.05	135	15	Peak
5500	96.14	87.22			34.4	8.57	34.05	135	15	Average
5500	104.33	95.41			34.4	8.57	34.05	135	15	Peak
11000	47.49	32.41	54	-6.51	37.6	12.96	35.48	115	281	Average
11000	57.12	42.04	74	-16.88	37.6	12.96	35.48	115	281	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**	Karl Lee

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**
5384.24	43.17	34.49	54	-10.83	34.31	8.41	34.04	100	213	Average
5384.24	53.72	45.04	74	-20.28	34.31	8.41	34.04	100	213	Peak
*5469.04	52.81	43.98	68.2	-15.39	34.37	8.51	34.05	100	213	Peak
5580	96.35	87.36			34.47	8.6	34.08	100	213	Average
5580	104.47	95.48			34.47	8.6	34.08	100	213	Peak
*5724.2	52.65	43.49	68.2	-15.55	34.62	8.65	34.11	100	213	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**
5450.16	42.89	34.07	54	-11.11	34.36	8.51	34.05	135	15	Average
5450.16	53.36	44.54	74	-20.64	34.36	8.51	34.05	135	15	Peak
*5470.96	52.17	43.31	68.2	-16.03	34.37	8.54	34.05	135	15	Peak
5580	95.47	86.48			34.47	8.6	34.08	135	15	Average
5580	103.29	94.3			34.47	8.6	34.08	135	15	Peak
*5725.32	52.55	43.39	68.2	-15.65	34.62	8.65	34.11	135	15	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**	Karl Lee

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	96.35	87.22			34.59	8.64	34.1	100	213	Average
5700	104	94.87			34.59	8.64	34.1	100	213	Peak
*5724.92	52.75	43.59	68.2	-15.45	34.62	8.65	34.11	100	213	Peak
11400	47.43	32.33	54	-6.57	37.84	12.67	35.41	106	344	Average
11400	56.83	41.73	74	-17.17	37.84	12.67	35.41	106	344	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	95.14	86.01			34.59	8.64	34.1	135	15	Average
5700	103.04	93.91			34.59	8.64	34.1	135	15	Peak
*5725.72	54.01	44.85	68.2	-14.19	34.62	8.65	34.11	135	15	Peak
11400	46.6	31.5	54	-7.4	37.84	12.67	35.41	151	199	Average
11400	56.91	41.81	74	-17.09	37.84	12.67	35.41	151	199	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**	Karl Lee

<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	98.65	89.46			34.64	8.66	34.11	165	232	Average
5745	106.18	96.99			34.64	8.66	34.11	165	232	Peak
11490	47.26	32.14	54	-6.74	37.89	12.62	35.39	134	108	Average
11490	56.45	41.33	74	-17.55	37.89	12.62	35.39	134	108	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	97.47	88.28			34.64	8.66	34.11	104	355	Average
5745	105.05	95.86			34.64	8.66	34.11	104	355	Peak
11490	47.85	32.73	54	-6.15	37.89	12.62	35.39	126	342	Average
11490	56.94	41.82	74	-17.06	37.89	12.62	35.39	126	342	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**
*5638.6	53.89	44.82	68.2	-14.31	34.54	8.62	34.09	165	232	Peak
5654.875	52.8	43.71	71.81	-19.01	34.56	8.63	34.1	165	232	Peak
5922.625	51.15	41.75	69.96	-18.81	34.83	8.73	34.16	165	232	Peak
*5968.825	54.21	44.76	68.2	-13.99	34.87	8.75	34.17	165	232	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**
*5631.775	53.15	44.1	68.2	-15.05	34.52	8.62	34.09	104	355	Peak
5653.825	52.86	43.77	71.03	-18.17	34.56	8.63	34.1	104	355	Peak
5918.95	51.59	42.21	72.68	-21.09	34.81	8.73	34.16	104	355	Peak
*5956.225	55.02	45.57	68.2	-13.18	34.87	8.74	34.16	104	355	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**	Karl Lee

<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	98.74	89.51			34.68	8.68	34.13	165	232	Average
5785	106.84	97.61			34.68	8.68	34.13	165	232	Peak
11570	47.54	32.23	54	-6.46	38	12.68	35.37	168	203	Average
11570	56.35	41.04	74	-17.65	38	12.68	35.37	168	203	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	97.47	88.24			34.68	8.68	34.13	104	355	Average
5785	105.68	96.45			34.68	8.68	34.13	104	355	Peak
11570	47.52	32.21	54	-6.48	38	12.68	35.37	127	136	Average
11570	56.86	41.55	74	-17.14	38	12.68	35.37	127	136	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**
*5595.025	54.6	45.59	68.2	-13.6	34.49	8.6	34.08	165	232	Peak
5656.45	52.62	43.53	72.97	-20.35	34.56	8.63	34.1	165	232	Peak
5923.15	52.17	42.77	69.57	-17.4	34.83	8.73	34.16	165	232	Peak
*5937.325	55.16	45.76	68.2	-13.04	34.83	8.73	34.16	165	232	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**
*5599.225	53.54	44.52	68.2	-14.66	34.5	8.6	34.08	104	355	Peak
5659.075	52.51	43.42	74.92	-22.41	34.56	8.63	34.1	104	355	Peak
5924.725	52.61	43.21	68.4	-15.79	34.83	8.73	34.16	104	355	Peak
*6023.95	53.86	44.34	68.2	-14.34	34.93	8.77	34.18	104	355	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**	Karl Lee

<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	98.05	88.76			34.73	8.69	34.13	165	232	Average
5825	106.14	96.85			34.73	8.69	34.13	165	232	Peak
11650	47.82	32.29	54	-6.18	38.09	12.8	35.36	196	342	Average
11650	56.99	41.46	74	-17.01	38.09	12.8	35.36	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**
5825	97.65	88.36			34.73	8.69	34.13	104	355	Average
5825	105.04	95.75			34.73	8.69	34.13	104	355	Peak
11650	47.25	31.72	54	-6.75	38.09	12.8	35.36	129	41	Average
11650	56.55	41.02	74	-17.45	38.09	12.8	35.36	129	41	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**
*5632.3	53.81	44.76	68.2	-14.39	34.52	8.62	34.09	165	232	Peak
5658.025	53.68	44.59	74.14	-20.46	34.56	8.63	34.1	165	232	Peak
5916.85	52.96	43.58	74.23	-21.27	34.81	8.73	34.16	165	232	Peak
*5928.925	54.17	44.77	68.2	-14.03	34.83	8.73	34.16	165	232	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	53.43	44.36	68.2	-14.77	34.54	8.62	34.09	104	355	Peak
5652.775	52.07	42.97	70.25	-18.18	34.56	8.63	34.09	104	355	Peak
5924.2	51.96	42.56	68.79	-16.83	34.83	8.73	34.16	104	355	Peak
*5984.05	55.04	45.58	68.2	-13.16	34.88	8.75	34.17	104	355	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**	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5125.1	43.18	34.96	54	-10.82	34.11	8.1	33.99	100	229	Average
5125.1	53.91	45.69	74	-20.09	34.11	8.1	33.99	100	229	Peak
5180	96.2	87.89			34.15	8.16	34	100	229	Average
5180	103.83	95.52			34.15	8.16	34	100	229	Peak
*10360	56.58	42.28	68.2	-11.62	37.12	12.3	35.12	136	251	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5138.45	43.2	34.95	54	-10.8	34.11	8.13	33.99	153	29	Average
5138.45	54.12	45.87	74	-19.88	34.11	8.13	33.99	153	29	Peak
5180	92.92	84.61			34.15	8.16	34	153	29	Average
5180	100.8	92.49			34.15	8.16	34	153	29	Peak
*10360	55.69	41.39	68.2	-12.51	37.12	12.3	35.12	172	116	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 44	**Frequency Range**	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5134.55	42.86	34.61	54	-11.14	34.11	8.13	33.99	100	213	Average
5134.55	54.22	45.97	74	-19.78	34.11	8.13	33.99	100	213	Peak
5220	96.77	88.38			34.17	8.22	34	100	213	Average
5220	104.32	95.93			34.17	8.22	34	100	213	Peak
5440.64	42.99	34.2	54	-11.01	34.35	8.48	34.04	100	213	Average
5440.64	53.76	44.97	74	-20.24	34.35	8.48	34.04	100	213	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**
5039.9	42.84	34.77	54	-11.16	34.04	8	33.97	150	27	Average
5039.9	53.03	44.96	74	-20.97	34.04	8	33.97	150	27	Peak
5220	93.72	85.33			34.17	8.22	34	150	27	Average
5220	101.67	93.28			34.17	8.22	34	150	27	Peak
5442.62	42.93	34.14	54	-11.07	34.35	8.48	34.04	150	27	Average
5442.62	53.79	45	74	-20.21	34.35	8.48	34.04	150	27	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**	Karl Lee

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	96.93	88.49			34.19	8.26	34.01	112	220	Average
5240	104.64	96.2			34.19	8.26	34.01	112	220	Peak
5390.15	43.7	35.02	54	-10.3	34.31	8.41	34.04	112	220	Average
5390.15	53.56	44.88	74	-20.44	34.31	8.41	34.04	112	220	Peak
10480	56.95	42.44	74	-17.05	37.19	12.53	35.21	185	302	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	93.46	85.02			34.19	8.26	34.01	150	27	Average
5240	101.1	92.66			34.19	8.26	34.01	150	27	Peak
5400.93	43.04	34.32	54	-10.96	34.32	8.44	34.04	150	27	Average
5400.93	54.34	45.62	74	-19.66	34.32	8.44	34.04	150	27	Peak
10480	56.17	41.66	74	-17.83	37.19	12.53	35.21	137	125	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**	Karl Lee

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**
5041.4	42.77	34.7	54	-11.23	34.04	8	33.97	185	291	Average
5041.4	53.43	45.36	74	-20.57	34.04	8	33.97	185	291	Peak
5260	97.79	89.33			34.21	8.26	34.01	185	291	Average
5260	105.54	97.08			34.21	8.26	34.01	185	291	Peak
*10520	57.16	42.57	68.2	-11.04	37.21	12.61	35.23	163	225	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**
5129.45	42.7	34.48	54	-11.3	34.11	8.1	33.99	120	19	Average
5129.45	54.01	45.79	74	-19.99	34.11	8.1	33.99	120	19	Peak
5260	95.44	86.98			34.21	8.26	34.01	120	19	Average
5260	102.89	94.43			34.21	8.26	34.01	120	19	Peak
*10520	57.24	42.65	68.2	-10.96	37.21	12.61	35.23	137	165	Peak

Remarks:

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

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**	Karl Lee

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**
5095.85	42.78	34.62	54	-11.22	34.08	8.07	33.99	185	301	Average
5095.85	53.56	45.4	74	-20.44	34.08	8.07	33.99	185	301	Peak
5300	98.48	89.94			34.24	8.32	34.02	185	301	Average
5300	106.44	97.9			34.24	8.32	34.02	185	301	Peak
5363.64	44.15	35.51	54	-9.85	34.29	8.38	34.03	185	301	Average
5363.64	54.46	45.82	74	-19.54	34.29	8.38	34.03	185	301	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**
5127.35	42.95	34.73	54	-11.05	34.11	8.1	33.99	119	18	Average
5127.35	53.8	45.58	74	-20.2	34.11	8.1	33.99	119	18	Peak
5300	96.69	88.15			34.24	8.32	34.02	119	18	Average
5300	104.64	96.1			34.24	8.32	34.02	119	18	Peak
5350.88	43.91	35.28	54	-10.09	34.28	8.38	34.03	119	18	Average
5350.88	54.51	45.88	74	-19.49	34.28	8.38	34.03	119	18	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**	Karl Lee

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	99.49	90.91			34.25	8.35	34.02	183	301	Average
5320	107.2	98.62			34.25	8.35	34.02	183	301	Peak
5361.77	44.33	35.69	54	-9.67	34.29	8.38	34.03	183	301	Average
5361.77	54.31	45.67	74	-19.69	34.29	8.38	34.03	183	301	Peak
10640	48.32	33.59	54	-5.68	37.31	12.71	35.29	190	252	Average
10640	57.24	42.51	74	-16.76	37.31	12.71	35.29	190	252	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	98.26	89.68			34.25	8.35	34.02	119	18	Average
5320	105.86	97.28			34.25	8.35	34.02	119	18	Peak
5361.66	44.24	35.6	54	-9.76	34.29	8.38	34.03	119	18	Average
5361.66	54.62	45.98	74	-19.38	34.29	8.38	34.03	119	18	Peak
10640	48.37	33.64	54	-5.63	37.31	12.71	35.29	163	115	Average
10640	57.64	42.91	74	-16.36	37.31	12.71	35.29	163	115	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**	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5452.88	44.53	35.71	54	-9.47	34.36	8.51	34.05	100	213	Average
5452.88	55.33	46.51	74	-18.67	34.36	8.51	34.05	100	213	Peak
*5470.48	54.47	45.64	68.2	-13.73	34.37	8.51	34.05	100	213	Peak
5500	98.47	89.55			34.4	8.57	34.05	100	213	Average
5500	105.57	96.65			34.4	8.57	34.05	100	213	Peak
11000	47.27	32.19	54	-6.73	37.6	12.96	35.48	144	154	Average
11000	55.63	40.55	74	-18.37	37.6	12.96	35.48	144	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**
5433.68	44.07	35.28	54	-9.93	34.35	8.48	34.04	135	15	Average
5433.68	54.84	46.05	74	-19.16	34.35	8.48	34.04	135	15	Peak
*5469.52	53.94	45.11	68.2	-14.26	34.37	8.51	34.05	135	15	Peak
5500	97.65	88.73			34.4	8.57	34.05	135	15	Average
5500	104.85	95.93			34.4	8.57	34.05	135	15	Peak
11000	47.13	32.05	54	-6.87	37.6	12.96	35.48	141	213	Average
11000	56.51	41.43	74	-17.49	37.6	12.96	35.48	141	213	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**	Karl Lee

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**
5458.96	43	34.18	54	-11	34.36	8.51	34.05	100	213	Average
5458.96	53.85	45.03	74	-20.15	34.36	8.51	34.05	100	213	Peak
*5470.32	52.81	43.98	68.2	-15.39	34.37	8.51	34.05	100	213	Peak
5580	97.49	88.5			34.47	8.6	34.08	100	213	Average
5580	104.26	95.27			34.47	8.6	34.08	100	213	Peak
*5724.36	52.88	43.72	68.2	-15.32	34.62	8.65	34.11	100	213	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5445.52	42.95	34.12	54	-11.05	34.36	8.51	34.04	135	15	Average
5445.52	53.5	44.67	74	-20.5	34.36	8.51	34.04	135	15	Peak
*5469.2	52.45	43.62	68.2	-15.75	34.37	8.51	34.05	135	15	Peak
5580	96.32	87.33			34.47	8.6	34.08	135	15	Average
5580	103.84	94.85			34.47	8.6	34.08	135	15	Peak
*5725.08	53.13	43.97	68.2	-15.07	34.62	8.65	34.11	135	15	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**	Karl Lee

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	97.05	87.92			34.59	8.64	34.1	100	213	Average
5700	104.33	95.2			34.59	8.64	34.1	100	213	Peak
*5725.08	52.91	43.75	68.2	-15.29	34.62	8.65	34.11	100	213	Peak
11400	46.55	31.45	54	-7.45	37.84	12.67	35.41	189	161	Average
11400	56.27	41.17	74	-17.73	37.84	12.67	35.41	189	161	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	96.26	87.13			34.59	8.64	34.1	135	15	Average
5700	103.68	94.55			34.59	8.64	34.1	135	15	Peak
*5725.4	54.67	45.51	68.2	-13.53	34.62	8.65	34.11	135	15	Peak
11400	47.26	32.16	54	-6.74	37.84	12.67	35.41	112	140	Average
11400	56.1	41	74	-17.9	37.84	12.67	35.41	112	140	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**	Karl Lee

<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	99.63	90.44			34.64	8.66	34.11	165	232	Average
5745	106.78	97.59			34.64	8.66	34.11	165	232	Peak
11490	47.24	32.12	54	-6.76	37.89	12.62	35.39	127	164	Average
11490	56.4	41.28	74	-17.6	37.89	12.62	35.39	127	164	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	98.86	89.67			34.64	8.66	34.11	104	355	Average
5745	105.85	96.66			34.64	8.66	34.11	104	355	Peak
11490	46.82	31.7	54	-7.18	37.89	12.62	35.39	136	254	Average
11490	55.86	40.74	74	-18.14	37.89	12.62	35.39	136	254	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**
*5593.45	53.42	44.41	68.2	-14.78	34.49	8.6	34.08	165	232	Peak
5652.25	52.74	43.65	69.86	-17.12	34.56	8.62	34.09	165	232	Peak
5920	52.78	43.4	71.9	-19.12	34.81	8.73	34.16	165	232	Peak
*6002.95	55.57	46.08	68.2	-12.63	34.9	8.76	34.17	165	232	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	53.71	44.64	68.2	-14.49	34.54	8.62	34.09	104	355	Peak
5655.4	52.05	42.96	72.2	-20.15	34.56	8.63	34.1	104	355	Peak
5923.675	51.26	41.86	69.18	-17.92	34.83	8.73	34.16	104	355	Peak
*6010.3	54.82	45.31	68.2	-13.38	34.92	8.76	34.17	104	355	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**	Karl Lee

<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	99.49	90.26			34.68	8.68	34.13	165	232	Average
5785	106.33	97.1			34.68	8.68	34.13	165	232	Peak
11570	47.64	32.33	54	-6.36	38	12.68	35.37	164	192	Average
11570	56.77	41.46	74	-17.23	38	12.68	35.37	164	192	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	98.76	89.53			34.68	8.68	34.13	104	355	Average
5785	105.9	96.67			34.68	8.68	34.13	104	355	Peak
11570	48.34	33.03	54	-5.66	38	12.68	35.37	162	127	Average
11570	57.29	41.98	74	-16.71	38	12.68	35.37	162	127	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**
*5551.45	53.35	44.38	68.2	-14.85	34.45	8.59	34.07	165	232	Peak
5654.875	52.27	43.18	71.81	-19.54	34.56	8.63	34.1	165	232	Peak
5922.1	53.76	44.36	70.35	-16.59	34.83	8.73	34.16	165	232	Peak
*5937.85	53.46	44.06	68.2	-14.74	34.83	8.73	34.16	165	232	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**
*5539.375	53.73	44.79	68.2	-14.47	34.43	8.58	34.07	104	355	Peak
5654.875	52.85	43.76	71.81	-18.96	34.56	8.63	34.1	104	355	Peak
5921.575	54.44	45.04	70.73	-16.29	34.83	8.73	34.16	104	355	Peak
*5946.775	54	44.57	68.2	-14.2	34.85	8.74	34.16	104	355	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**	Karl Lee

<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	99.45	90.16			34.73	8.69	34.13	165	232	Average
5825	106.28	96.99			34.73	8.69	34.13	165	232	Peak
11650	48.37	32.84	54	-5.63	38.09	12.8	35.36	162	123	Average
11650	57.57	42.04	74	-16.43	38.09	12.8	35.36	162	123	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	98.28	88.99			34.73	8.69	34.13	104	355	Average
5825	105.05	95.76			34.73	8.69	34.13	104	355	Peak
11650	47.15	31.62	54	-6.85	38.09	12.8	35.36	159	133	Average
11650	56.24	40.71	74	-17.76	38.09	12.8	35.36	159	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**
*5615.5	53.33	44.28	68.2	-14.87	34.52	8.61	34.08	165	232	Peak
5653.3	52.3	43.2	70.64	-18.34	34.56	8.63	34.09	165	232	Peak
5920.525	54.3	44.92	71.51	-17.21	34.81	8.73	34.16	165	232	Peak
*5928.925	55.22	45.82	68.2	-12.98	34.83	8.73	34.16	165	232	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
*5580.85	52.95	43.96	68.2	-15.25	34.47	8.6	34.08	104	355	Peak
5652.775	52	42.9	70.25	-18.25	34.56	8.63	34.09	104	355	Peak
5920.525	52.42	43.04	71.51	-19.09	34.81	8.73	34.16	104	355	Peak
*5943.1	54.04	44.61	68.2	-14.16	34.85	8.74	34.16	104	355	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**	Karl Lee

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**
5145.8	43.53	35.28	54	-10.47	34.12	8.13	34	151	29	Average
5145.8	53.88	45.63	74	-20.12	34.12	8.13	34	151	29	Peak
5190	91.09	82.75			34.15	8.19	34	151	29	Average
5190	97.84	89.5			34.15	8.19	34	151	29	Peak
5387.84	42.81	34.13	54	-11.19	34.31	8.41	34.04	151	29	Average
5387.84	54.81	46.13	74	-19.19	34.31	8.41	34.04	151	29	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	45.27	37.02	54	-8.73	34.12	8.13	34	100	221	Average
5146.85	55.17	46.92	74	-18.83	34.12	8.13	34	100	221	Peak
5190	93.71	85.37			34.15	8.19	34	100	221	Average
5190	100.05	91.71			34.15	8.19	34	100	221	Peak
5439.43	43.35	34.56	54	-10.65	34.35	8.48	34.04	100	221	Average
5439.43	53.45	44.66	74	-20.55	34.35	8.48	34.04	100	221	Peak

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**	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5118.5	43.26	35.06	54	-10.74	34.09	8.1	33.99	135	216	Average
5118.5	54.12	45.92	74	-19.88	34.09	8.1	33.99	135	216	Peak
5230	93.96	85.56			34.19	8.22	34.01	135	216	Average
5230	100.99	92.59			34.19	8.22	34.01	135	216	Peak
5436.35	43.49	34.7	54	-10.51	34.35	8.48	34.04	135	216	Average
5436.35	54.05	45.26	74	-19.95	34.35	8.48	34.04	135	216	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5085.5	43.17	35.01	54	-10.83	34.07	8.07	33.98	150	27	Average
5085.5	53.36	45.2	74	-20.64	34.07	8.07	33.98	150	27	Peak
5230	91.87	83.47			34.19	8.22	34.01	150	27	Average
5230	99.27	90.87			34.19	8.22	34.01	150	27	Peak
5442.51	43.35	34.56	54	-10.65	34.35	8.48	34.04	150	27	Average
5442.51	53.24	44.45	74	-20.76	34.35	8.48	34.04	150	27	Peak

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**	Karl Lee

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**
5036.3	43.18	35.12	54	-10.82	34.03	8	33.97	185	291	Average
5036.3	53.61	45.55	74	-20.39	34.03	8	33.97	185	291	Peak
5270	95.17	86.68			34.21	8.29	34.01	185	291	Average
5270	102.51	94.02			34.21	8.29	34.01	185	291	Peak
5365.51	43.7	35.06	54	-10.3	34.29	8.38	34.03	185	291	Average
5365.51	53.69	45.05	74	-20.31	34.29	8.38	34.03	185	291	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**
5095.85	43.02	34.86	54	-10.98	34.08	8.07	33.99	120	19	Average
5095.85	53.38	45.22	74	-20.62	34.08	8.07	33.99	120	19	Peak
5270	92.8	84.31			34.21	8.29	34.01	120	19	Average
5270	100.26	91.77			34.21	8.29	34.01	120	19	Peak
5447.24	43.5	34.67	54	-10.5	34.36	8.51	34.04	120	19	Average
5447.24	53.87	45.04	74	-20.13	34.36	8.51	34.04	120	19	Peak

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**	Karl Lee

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**
5112.5	43.16	34.96	54	-10.84	34.09	8.1	33.99	186	302	Average
5112.5	53.45	45.25	74	-20.55	34.09	8.1	33.99	186	302	Peak
5310	96.14	87.59			34.25	8.32	34.02	186	302	Average
5310	103.24	94.69			34.25	8.32	34.02	186	302	Peak
5350.44	47.15	38.52	54	-6.85	34.28	8.38	34.03	186	302	Average
5350.44	55.59	46.96	74	-18.41	34.28	8.38	34.03	186	302	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**
5100.2	43.04	34.88	54	-10.96	34.08	8.07	33.99	119	18	Average
5100.2	53.66	45.5	74	-20.34	34.08	8.07	33.99	119	18	Peak
5310	95.16	86.61			34.25	8.32	34.02	119	18	Average
5310	102.26	93.71			34.25	8.32	34.02	119	18	Peak
5351.43	47.04	38.41	54	-6.96	34.28	8.38	34.03	119	18	Average
5351.43	56.52	47.89	74	-17.48	34.28	8.38	34.03	119	18	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**	Karl Lee

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**
5451.76	44.34	35.52	54	-9.66	34.36	8.51	34.05	100	213	Average
5451.76	54.38	45.56	74	-19.62	34.36	8.51	34.05	100	213	Peak
*5470.32	55.98	47.15	68.2	-12.22	34.37	8.51	34.05	100	213	Peak
5510	95.74	86.83			34.4	8.57	34.06	100	213	Average
5510	102.45	93.54			34.4	8.57	34.06	100	213	Peak
*5724.04	52.37	43.21	68.2	-15.83	34.62	8.65	34.11	100	213	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**
5458.96	44.16	35.34	54	-9.84	34.36	8.51	34.05	135	15	Average
5458.96	53.97	45.15	74	-20.03	34.36	8.51	34.05	135	15	Peak
*5468.08	54.13	45.3	68.2	-14.07	34.37	8.51	34.05	135	15	Peak
5510	94.52	85.61			34.4	8.57	34.06	135	15	Average
5510	101.76	92.85			34.4	8.57	34.06	135	15	Peak
*5725.16	53.24	44.08	68.2	-14.96	34.62	8.65	34.11	135	15	Peak

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**	Karl Lee

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**
5459.28	44.19	35.37	54	-9.81	34.36	8.51	34.05	100	213	Average
5459.28	53.83	45.01	74	-20.17	34.36	8.51	34.05	100	213	Peak
*5470.16	53.28	44.45	68.2	-14.92	34.37	8.51	34.05	100	213	Peak
5550	95.55	86.58			34.45	8.59	34.07	100	213	Average
5550	102.2	93.23			34.45	8.59	34.07	100	213	Peak
*5724.36	53.64	44.48	68.2	-14.56	34.62	8.65	34.11	100	213	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**
5455.92	43.82	35	54	-10.18	34.36	8.51	34.05	135	15	Average
5455.92	54.29	45.47	74	-19.71	34.36	8.51	34.05	135	15	Peak
*5469.52	52.71	43.88	68.2	-15.49	34.37	8.51	34.05	135	15	Peak
5550	94.66	85.69			34.45	8.59	34.07	135	15	Average
5550	101.77	92.8			34.45	8.59	34.07	135	15	Peak
*5725.08	52.99	43.83	68.2	-15.21	34.62	8.65	34.11	135	15	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**	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5447.6	43.36	34.53	54	-10.64	34.36	8.51	34.04	100	213	Average
5447.6	54.67	45.84	74	-19.33	34.36	8.51	34.04	100	213	Peak
*5468.08	53.25	44.42	68.2	-14.95	34.37	8.51	34.05	100	213	Peak
5670	95.19	86.09			34.57	8.63	34.1	100	213	Average
5670	102.46	93.36			34.57	8.63	34.1	100	213	Peak
*5724.2	56.83	47.67	68.2	-11.37	34.62	8.65	34.11	100	213	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**
5450.8	43.22	34.4	54	-10.78	34.36	8.51	34.05	135	15	Average
5450.8	54.3	45.48	74	-19.7	34.36	8.51	34.05	135	15	Peak
*5469.04	52.33	43.5	68.2	-15.87	34.37	8.51	34.05	135	15	Peak
5670	94.43	85.33			34.57	8.63	34.1	135	15	Average
5670	101.57	92.47			34.57	8.63	34.1	135	15	Peak
*5724.36	54.76	45.6	68.2	-13.44	34.62	8.65	34.11	135	15	Peak

Remarks:

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

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**	Karl Lee

<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	96.44	87.23			34.66	8.66	34.11	165	232	Average
5755	103.62	94.41			34.66	8.66	34.11	165	232	Peak
11510	48.07	32.96	54	-5.93	37.9	12.6	35.39	193	256	Average
11510	57.14	42.03	74	-16.86	37.9	12.6	35.39	193	256	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	95.47	86.26			34.66	8.66	34.11	104	355	Average
5755	102.22	93.01			34.66	8.66	34.11	104	355	Peak
11510	47.61	32.5	54	-6.39	37.9	12.6	35.39	127	168	Average
11510	56.68	41.57	74	-17.32	37.9	12.6	35.39	127	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**
*5610.775	54.02	44.99	68.2	-14.18	34.5	8.61	34.08	165	232	Peak
5652.775	53.45	44.35	70.25	-16.8	34.56	8.63	34.09	165	232	Peak
5923.675	52.49	43.09	69.18	-16.69	34.83	8.73	34.16	165	232	Peak
*5950.975	54.99	45.56	68.2	-13.21	34.85	8.74	34.16	165	232	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**
*5552.5	53.75	44.78	68.2	-14.45	34.45	8.59	34.07	104	355	Peak
5652.775	50.84	41.74	70.25	-19.41	34.56	8.63	34.09	104	355	Peak
5920	53.32	43.94	71.9	-18.58	34.81	8.73	34.16	104	355	Peak
*5966.2	55.24	45.79	68.2	-12.96	34.87	8.75	34.17	104	355	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**	Karl Lee

<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	96.47	87.23			34.69	8.68	34.13	165	232	Average
5795	103.64	94.4			34.69	8.68	34.13	165	232	Peak
11590	48.52	33.15	54	-5.48	38.02	12.72	35.37	185	106	Average
11590	57.77	42.4	74	-16.23	38.02	12.72	35.37	185	106	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	95.46	86.22			34.69	8.68	34.13	104	355	Average
5795	102.78	93.54			34.69	8.68	34.13	104	355	Peak
11590	48.72	33.35	54	-5.28	38.02	12.72	35.37	134	162	Average
11590	57.87	42.5	74	-16.13	38.02	12.72	35.37	134	162	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	53.49	44.42	68.2	-14.71	34.54	8.62	34.09	165	232	Peak
5652.775	50.16	41.06	70.25	-20.09	34.56	8.63	34.09	165	232	Peak
5924.2	53.64	44.24	68.79	-15.15	34.83	8.73	34.16	165	232	Peak
*5931.55	53.42	44.02	68.2	-14.78	34.83	8.73	34.16	165	232	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**
*5617.6	53.4	44.35	68.2	-14.8	34.52	8.61	34.08	104	355	Peak
5655.925	52.02	42.93	72.58	-20.56	34.56	8.63	34.1	104	355	Peak
5924.2	52.35	42.95	68.79	-16.44	34.83	8.73	34.16	104	355	Peak
*5949.925	53.73	44.3	68.2	-14.47	34.85	8.74	34.16	104	355	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**	Karl Lee

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**
5145.2	49.92	41.67	54	-4.08	34.12	8.13	34	100	213	Average
5145.2	60.65	52.4	74	-13.35	34.12	8.13	34	100	213	Peak
5210	93.38	85.02			34.17	8.19	34	100	213	Average
5210	101.18	92.82			34.17	8.19	34	100	213	Peak
5456.7	43.62	34.8	54	-10.38	34.36	8.51	34.05	100	213	Average
5456.7	53.46	44.64	74	-20.54	34.36	8.51	34.05	100	213	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5149.4	46.04	37.79	54	-7.96	34.12	8.13	34	150	27	Average
5149.4	58.04	49.79	74	-15.96	34.12	8.13	34	150	27	Peak
5210	90.79	82.43			34.17	8.19	34	150	27	Average
5210	99	90.64			34.17	8.19	34	150	27	Peak
5445.92	42.97	34.14	54	-11.03	34.36	8.51	34.04	150	27	Average
5445.92	53.81	44.98	74	-20.19	34.36	8.51	34.04	150	27	Peak

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**	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5109.95	43.43	35.23	54	-10.57	34.09	8.1	33.99	185	301	Average
5109.95	54.21	46.01	74	-19.79	34.09	8.1	33.99	185	301	Peak
5290	94.17	85.64			34.23	8.32	34.02	185	301	Average
5290	102.25	93.72			34.23	8.32	34.02	185	301	Peak
5353.85	52.83	44.2	54	-1.17	34.28	8.38	34.03	185	301	Average
5353.85	64.05	55.42	74	-9.95	34.28	8.38	34.03	185	301	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5149.55	43.65	35.4	54	-10.35	34.12	8.13	34	119	19	Average
5149.55	53.97	45.72	74	-20.03	34.12	8.13	34	119	19	Peak
5290	92.76	84.23			34.23	8.32	34.02	119	19	Average
5290	100.5	91.97			34.23	8.32	34.02	119	19	Peak
5352.09	51.58	42.95	54	-2.42	34.28	8.38	34.03	119	19	Average
5352.09	63.12	54.49	74	-10.88	34.28	8.38	34.03	119	19	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**	Karl Lee

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**
5458.96	46.59	37.77	54	-7.41	34.36	8.51	34.05	161	213	Average
5458.96	56.46	47.64	74	-17.54	34.36	8.51	34.05	161	213	Peak
*5470	57.5	48.67	68.2	-10.7	34.37	8.51	34.05	161	213	Peak
5530	93.14	84.21			34.42	8.58	34.07	161	213	Average
5530	100.26	91.33			34.42	8.58	34.07	161	213	Peak
*5724.6	52.88	43.72	68.2	-15.32	34.62	8.65	34.11	161	213	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**
5459.44	46.4	37.58	54	-7.6	34.36	8.51	34.05	135	15	Average
5459.44	55.81	46.99	74	-18.19	34.36	8.51	34.05	135	15	Peak
*5470.32	56.67	47.84	68.2	-11.53	34.37	8.51	34.05	135	15	Peak
5530	92.28	83.35			34.42	8.58	34.07	135	15	Average
5530	99.31	90.38			34.42	8.58	34.07	135	15	Peak
*5724.6	53.25	44.09	68.2	-14.95	34.62	8.65	34.11	135	15	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**	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5447.12	43.91	35.08	54	-10.09	34.36	8.51	34.04	100	213	Average
5447.12	53.3	44.47	74	-20.7	34.36	8.51	34.04	100	213	Peak
*5469.84	53.19	44.36	68.2	-15.01	34.37	8.51	34.05	100	213	Peak
5610	94.55	85.52			34.5	8.61	34.08	100	213	Average
5610	101.76	92.73			34.5	8.61	34.08	100	213	Peak
*5724.76	52.83	43.67	68.2	-15.37	34.62	8.65	34.11	100	213	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**
5456.88	43.87	35.05	54	-10.13	34.36	8.51	34.05	135	15	Average
5456.88	53.73	44.91	74	-20.27	34.36	8.51	34.05	135	15	Peak
*5470.32	51.88	43.05	68.2	-16.32	34.37	8.51	34.05	135	15	Peak
5610	93.14	84.11			34.5	8.61	34.08	135	15	Average
5610	100.33	91.3			34.5	8.61	34.08	135	15	Peak
*5724.2	53.18	44.02	68.2	-15.02	34.62	8.65	34.11	135	15	Peak

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**	Karl Lee

<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	96.47	87.24			34.68	8.67	34.12	165	232	Average
5775	102.13	92.9			34.68	8.67	34.12	165	232	Peak
11550	47.28	32.01	54	-6.72	37.97	12.68	35.38	116	213	Average
11550	56.49	41.22	74	-17.51	37.97	12.68	35.38	116	213	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	95.17	85.94			34.68	8.67	34.12	104	355	Average
5775	101.83	92.6			34.68	8.67	34.12	104	355	Peak
11550	47.25	31.98	54	-6.75	37.97	12.68	35.38	176	120	Average
11550	56.42	41.15	74	-17.58	37.97	12.68	35.38	176	120	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**
*5558.275	54.02	45.05	68.2	-14.18	34.45	8.59	34.07	165	232	Peak
5653.825	53.05	43.96	71.03	-17.98	34.56	8.63	34.1	165	232	Peak
5924.2	52.4	43	68.79	-16.39	34.83	8.73	34.16	165	232	Peak
*5946.775	54.54	45.11	68.2	-13.66	34.85	8.74	34.16	165	232	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
*5649.625	53.48	44.39	68.2	-14.72	34.56	8.62	34.09	104	355	Peak
5658.025	52.42	43.33	74.14	-21.72	34.56	8.63	34.1	104	355	Peak
5918.95	52.77	43.39	72.68	-19.91	34.81	8.73	34.16	104	355	Peak
*5991.925	53.84	44.35	68.2	-14.36	34.9	8.76	34.17	104	355	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

Mode B

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**	Karl Lee

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**
5146.31	49.85	41.6	54	-4.15	34.12	8.13	34	116	204	Average
5146.31	60.43	52.18	74	-13.57	34.12	8.13	34	116	204	Peak
5210	91.18	82.82			34.17	8.19	34	116	204	Average
5210	99.06	90.7			34.17	8.19	34	116	204	Peak
5387.46	43.45	34.77	54	-10.55	34.31	8.41	34.04	116	204	Average
5387.46	53.41	44.73	74	-20.59	34.31	8.41	34.04	116	204	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5148.97	45.83	37.58	54	-8.17	34.12	8.13	34	143	12	Average
5148.97	57.96	49.71	74	-16.04	34.12	8.13	34	143	12	Peak
5210	88.89	80.53			34.17	8.19	34	143	12	Average
5210	96.86	88.5			34.17	8.19	34	143	12	Peak
5423.08	43.06	34.29	54	-10.94	34.33	8.48	34.04	143	12	Average
5423.08	53.64	44.87	74	-20.36	34.33	8.48	34.04	143	12	Peak

Remarks:

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

802.11ac (VHT80)

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**	Karl Lee

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**
5123.47	43.32	35.1	54	-10.68	34.11	8.1	33.99	168	324	Average
5123.47	54.18	45.96	74	-19.82	34.11	8.1	33.99	168	324	Peak
5290	91.98	83.45			34.23	8.32	34.02	168	324	Average
5290	100.18	91.65			34.23	8.32	34.02	168	324	Peak
5352.17	51.59	42.96	54	-2.41	34.28	8.38	34.03	168	324	Average
5352.17	63.57	54.94	74	-10.43	34.28	8.38	34.03	168	324	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**
5068.45	43.39	35.29	54	-10.61	34.05	8.03	33.98	131	10	Average
5068.45	53.46	45.36	74	-20.54	34.05	8.03	33.98	131	10	Peak
5290	90.64	82.11			34.23	8.32	34.02	131	10	Average
5290	98.26	89.73			34.23	8.32	34.02	131	10	Peak
5350.67	50.39	41.76	54	-3.61	34.28	8.38	34.03	131	10	Average
5350.67	62.86	54.23	74	-11.14	34.28	8.38	34.03	131	10	Peak

Remarks:

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

802.11a

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**	Karl Lee

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	96.66	87.53			34.59	8.64	34.1	108	236	Average
5700	103.54	94.41			34.59	8.64	34.1	108	236	Peak
5724.92	53.51	44.35	74	-20.49	34.62	8.65	34.11	108	236	Peak
11400	47.06	31.96	54	-6.94	37.84	12.67	35.41	114	240	Average
11400	57.61	42.51	74	-16.39	37.84	12.67	35.41	114	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	95.46	86.33			34.59	8.64	34.1	163	24	Average
5700	102.17	93.04			34.59	8.64	34.1	163	24	Peak
5724.28	54.28	45.12	74	-19.72	34.62	8.65	34.11	163	24	Peak
11400	47.16	32.06	54	-6.84	37.84	12.67	35.41	167	166	Average
11400	56.5	41.4	74	-17.5	37.84	12.67	35.41	167	166	Peak

Remarks:

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

802.11n (HT40)

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**	Karl Lee

<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	94.85	85.61			34.69	8.68	34.13	100	236	Average
5795	101.83	92.59			34.69	8.68	34.13	100	236	Peak
11590	47.96	32.59	54	-6.04	38.02	12.72	35.37	105	321	Average
11590	56.59	41.22	74	-17.41	38.02	12.72	35.37	105	321	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	93.62	84.38			34.69	8.68	34.13	163	24	Average
5795	100.76	91.52			34.69	8.68	34.13	163	24	Peak
11590	48.22	32.85	54	-5.78	38.02	12.72	35.37	132	333	Average
11590	56.52	41.15	74	-17.48	38.02	12.72	35.37	132	333	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**
*5515.75	54.01	45.08	68.2	-14.19	34.42	8.57	34.06	100	236	Peak
5654.875	51.65	42.56	71.81	-20.16	34.56	8.63	34.1	100	236	Peak
5917.9	53	43.62	73.45	-20.45	34.81	8.73	34.16	100	236	Peak
*5932.075	53.34	43.94	68.2	-14.86	34.83	8.73	34.16	100	236	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**
*5631.775	53.43	44.38	68.2	-14.77	34.52	8.62	34.09	163	24	Peak
5652.775	51.36	42.26	70.25	-18.89	34.56	8.63	34.09	163	24	Peak
5918.95	52.37	42.99	72.68	-20.31	34.81	8.73	34.16	163	24	Peak
*5966.2	54.11	44.66	68.2	-14.09	34.87	8.75	34.17	163	24	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

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:

Mode A

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**	Karl Lee

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**
85.62	14.49	36.15	40	-25.51	9.19	1.11	31.96	135	120	Peak
135.57	13.24	35.46	43.5	-30.26	8.65	1.38	32.25	195	231	Peak
211.44	21.79	41.21	43.5	-21.71	11.18	1.65	32.25	187	124	Peak
444.9	14.91	29.08	46	-31.09	15.49	2.49	32.15	186	312	Peak
640.2	18.05	28.99	46	-27.95	18.29	2.93	32.16	175	131	Peak
788.6	19.54	28.13	46	-26.46	20.22	3.27	32.08	146	215	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
56.19	19.99	37.33	40	-20.01	13.99	0.9	32.23	142	156	Peak
150.96	12.31	34.62	43.5	-31.19	8.44	1.52	32.27	178	124	Peak
255.72	15.1	32.84	46	-30.9	12.42	1.94	32.1	131	165	Peak
375.6	13.54	28.9	46	-32.46	14.53	2.26	32.15	126	137	Peak
689.2	19.47	29.44	46	-26.53	19.08	3.05	32.1	185	115	Peak
766.9	19.54	28.45	46	-26.46	19.99	3.22	32.12	196	132	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**	Karl Lee

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**
49.17	12.06	28.83	40	-27.94	14.55	0.9	32.22	196	340	Peak
150.96	15.87	38.18	43.5	-27.63	8.44	1.52	32.27	172	154	Peak
235.47	14.47	32.82	46	-31.53	11.95	1.85	32.15	136	128	Peak
419.7	15.05	29.6	46	-30.95	15.23	2.41	32.19	142	167	Peak
561.8	16.05	28.18	46	-29.95	17.31	2.76	32.2	190	315	Peak
759.9	19.27	28.27	46	-26.73	19.91	3.22	32.13	177	105	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**
64.29	16.65	35.63	40	-23.35	12.35	0.9	32.23	129	185	Peak
115.05	9.09	28.76	43.5	-34.41	11.3	1.28	32.25	126	134	Peak
215.49	22.35	41.69	43.5	-21.15	11.25	1.65	32.24	160	182	Peak
440.7	13.84	28.09	46	-32.16	15.42	2.49	32.16	137	144	Peak
729.1	19.13	28.48	46	-26.87	19.61	3.16	32.12	158	321	Peak
787.2	19.37	27.97	46	-26.63	20.21	3.27	32.08	143	64	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 140	**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**	Karl Lee

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**
84.27	8.95	30.85	40	-31.05	9	1.11	32.01	174	115	Peak
115.05	12.54	32.21	43.5	-30.96	11.3	1.28	32.25	146	195	Peak
203.88	24.18	43.7	43.5	-19.32	11.11	1.65	32.28	162	113	Peak
461.7	14.76	28.59	46	-31.24	15.74	2.56	32.13	196	137	Peak
623.4	17.86	28.94	46	-28.14	18.16	2.93	32.17	128	108	Peak
794.9	20.02	28.54	46	-25.98	20.28	3.27	32.07	177	165	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
49.98	19.35	36.13	40	-20.65	14.54	0.9	32.22	159	137	Peak
158.79	13.27	35.31	43.5	-30.23	8.71	1.52	32.27	187	124	Peak
236.01	12.32	30.67	46	-33.68	11.95	1.85	32.15	144	162	Peak
463.1	14.43	28.24	46	-31.57	15.76	2.56	32.13	137	165	Peak
672.4	17.93	28.2	46	-28.07	18.8	3.05	32.12	180	156	Peak
831.3	20.7	28.43	46	-25.3	20.78	3.38	31.89	142	137	Peak

Remarks:

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

802.11n (HT40)

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

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**
93.18	15.36	34.97	43.5	-28.14	11.16	1.11	31.88	145	128	Peak
157.17	21.12	43.23	43.5	-22.38	8.64	1.52	32.27	169	138	Peak
249.78	14	31.93	46	-32	12.32	1.85	32.1	171	54	Peak
408.5	14.17	28.88	46	-31.83	15.09	2.41	32.21	169	134	Peak
640.2	18.05	28.99	46	-27.95	18.29	2.93	32.16	126	134	Peak
798.4	19.69	28.12	46	-26.31	20.31	3.32	32.06	180	129	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**
65.91	13.42	33.04	40	-26.58	11.7	0.9	32.22	146	273	Peak
138.54	8.08	30.49	43.5	-35.42	8.48	1.38	32.27	199	204	Peak
244.92	11.23	29.29	46	-34.77	12.21	1.85	32.12	191	113	Peak
387.5	13.64	28.74	46	-32.36	14.75	2.34	32.19	120	159	Peak
572.3	17.55	29.43	46	-28.45	17.5	2.82	32.2	154	168	Peak
839.7	21.23	28.81	46	-24.77	20.89	3.38	31.85	167	43	Peak

Remarks:

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

Mode B

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**	Karl Lee

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**
48.63	12.87	29.63	40	-27.13	14.56	0.9	32.22	156	134	Peak
112.89	14.33	33.64	43.5	-29.17	11.66	1.28	32.25	190	227	Peak
250.86	14.21	32.03	46	-31.79	12.34	1.94	32.1	138	120	Peak
384	13.52	28.69	46	-32.48	14.67	2.34	32.18	125	160	Peak
714.4	19.19	28.74	46	-26.81	19.44	3.11	32.1	169	121	Peak
905.5	22.63	29.05	46	-23.37	21.49	3.53	31.44	187	146	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**
35.13	19.82	39.23	40	-20.18	12.09	0.74	32.24	195	208	Peak
183.36	19.95	40.56	43.5	-23.55	10.02	1.61	32.24	167	124	Peak
278.67	15.18	32.55	46	-30.82	12.72	2.03	32.12	168	304	Peak
367.2	13.45	28.87	46	-32.55	14.44	2.26	32.12	143	208	Peak
576.5	17.36	29.17	46	-28.64	17.57	2.82	32.2	132	210	Peak
717.9	18.8	28.32	46	-27.2	19.48	3.11	32.11	197	146	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**	Karl Lee

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**
62.94	10.63	29.36	40	-29.37	12.6	0.9	32.23	164	234	Peak
133.14	16.19	38.25	43.5	-27.31	8.8	1.38	32.24	146	158	Peak
223.59	18.16	37.2	46	-27.84	11.51	1.65	32.2	171	122	Peak
353.2	14.38	30.01	46	-31.62	14.26	2.19	32.08	135	126	Peak
731.2	19.74	29.08	46	-26.26	19.62	3.16	32.12	189	237	Peak
916.7	22.53	28.82	46	-23.47	21.54	3.53	31.36	162	220	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**
45.12	20.8	37.71	40	-19.2	14.41	0.9	32.22	124	185	Peak
170.13	17.69	39.32	43.5	-25.81	9.09	1.52	32.24	136	128	Peak
244.65	11.11	29.19	46	-34.89	12.19	1.85	32.12	190	324	Peak
395.9	13.69	28.65	46	-32.31	14.91	2.34	32.21	196	125	Peak
511.4	15.68	28.61	46	-30.32	16.49	2.7	32.12	180	224	Peak
839	21.15	28.74	46	-24.85	20.88	3.38	31.85	131	64	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 140	**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**	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
105.06	17.61	36.17	43.5	-25.89	12.42	1.28	32.26	200	200	Peak
147.99	16.11	38.47	43.5	-27.39	8.39	1.52	32.27	109	103	Peak
234.12	18.49	36.91	46	-27.51	11.89	1.85	32.16	162	4	Peak
519.1	16.61	29.45	46	-29.39	16.59	2.7	32.13	151	191	Peak
692	20.08	30.02	46	-25.92	19.11	3.05	32.1	114	170	Peak
734.7	20.78	30.1	46	-25.22	19.65	3.16	32.13	150	300	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
65.1	17.41	36.64	40	-22.59	12.09	0.9	32.22	107	86	Peak
147.18	13.75	36.11	43.5	-29.75	8.39	1.52	32.27	183	152	Peak
225.48	18.53	37.28	46	-27.47	11.59	1.85	32.19	185	111	Peak
522.6	16.73	29.53	46	-29.27	16.64	2.7	32.14	154	296	Peak
631.8	18.62	29.64	46	-27.38	18.22	2.93	32.17	186	195	Peak
736.8	19.99	29.28	46	-26.01	19.68	3.16	32.13	105	322	Peak

Remarks:

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

802.11n (HT40)

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

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**
110.46	15.76	34.82	43.5	-27.74	11.91	1.28	32.25	110	285	Peak
146.37	19.09	41.6	43.5	-24.41	8.38	1.38	32.27	113	241	Peak
207.39	27.88	47.36	43.5	-15.62	11.14	1.65	32.27	154	356	Peak
528.2	17.18	29.92	46	-28.82	16.72	2.7	32.16	199	198	Peak
686.4	19.32	29.34	46	-26.68	19.03	3.05	32.1	154	273	Peak
848.8	22.56	29.91	46	-23.44	21.01	3.44	31.8	105	104	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**
59.43	20.73	38.54	40	-19.27	13.52	0.9	32.23	125	207	Peak
166.35	18.08	39.82	43.5	-25.42	8.99	1.52	32.25	187	99	Peak
203.88	22.24	41.76	43.5	-21.26	11.11	1.65	32.28	160	66	Peak
497.4	16.56	29.71	46	-29.44	16.32	2.63	32.1	187	188	Peak
694.8	20.44	30.27	46	-25.56	19.15	3.11	32.09	135	90	Peak
727.7	20.08	29.45	46	-25.92	19.59	3.16	32.12	119	323	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)	ENV216	101196	Apr. 20, 2017	Apr. 19, 2018
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

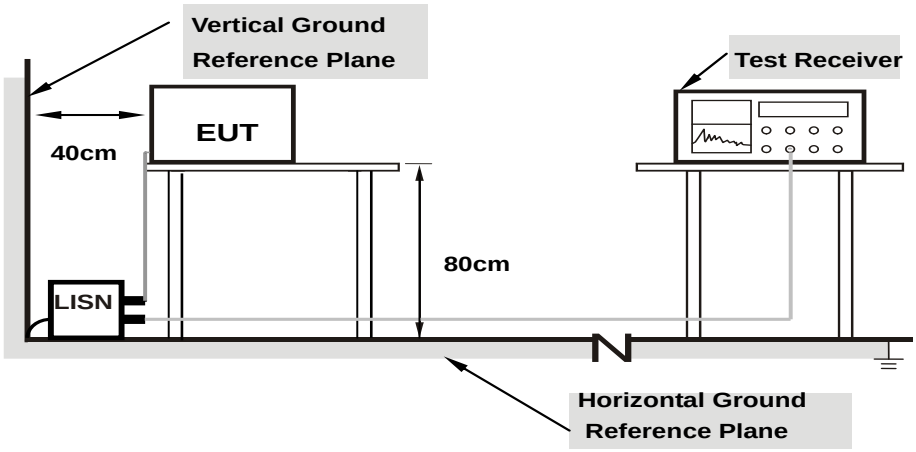
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

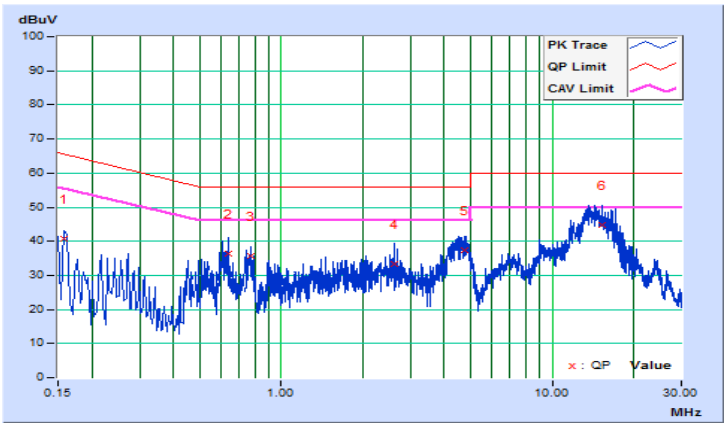
Mode A

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	2017/7/28

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	0.15802	10.35	30.40	20.03	40.75	30.38	65.57	55.57	-24.82	-25.19
2	0.63484	10.40	26.12	16.80	36.52	27.20	56.00	46.00	-19.48	-18.80
3	0.77560	10.40	25.32	16.74	35.72	27.14	56.00	46.00	-20.28	-18.86
4	2.60157	10.49	22.93	12.46	33.42	22.95	56.00	46.00	-22.58	-23.05
5	4.72470	10.60	26.83	17.93	37.43	28.53	56.00	46.00	-18.57	-17.47
6	15.21132	11.10	33.77	22.12	44.87	33.22	60.00	50.00	-15.13	-16.78

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

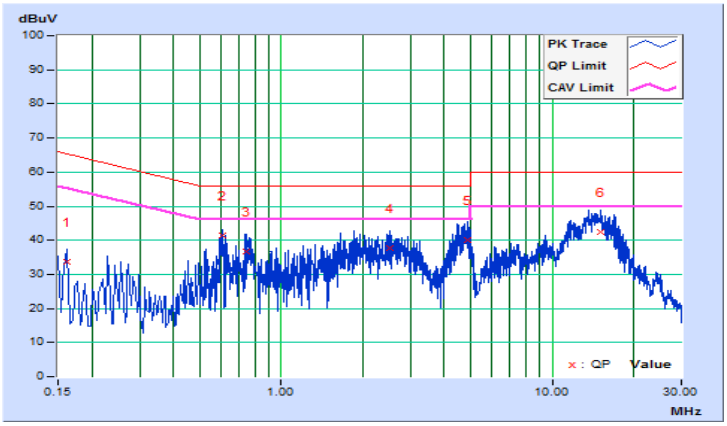


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Getaz Yang	Test Date	2017/7/28

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	0.16173	10.11	23.72	14.15	33.83	24.26	65.37	55.37	-31.54	-31.11
2	0.60747	10.16	31.13	19.20	41.29	29.36	56.00	46.00	-14.71	-16.64
3	0.74823	10.17	26.63	14.18	36.80	24.35	56.00	46.00	-19.20	-21.65
4	2.51164	10.26	27.29	15.67	37.55	25.93	56.00	46.00	-18.45	-20.07
5	4.87328	10.37	29.73	18.83	40.10	29.20	56.00	46.00	-15.90	-16.80
6	15.11357	10.75	31.75	21.12	42.50	31.87	60.00	50.00	-17.50	-18.13

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



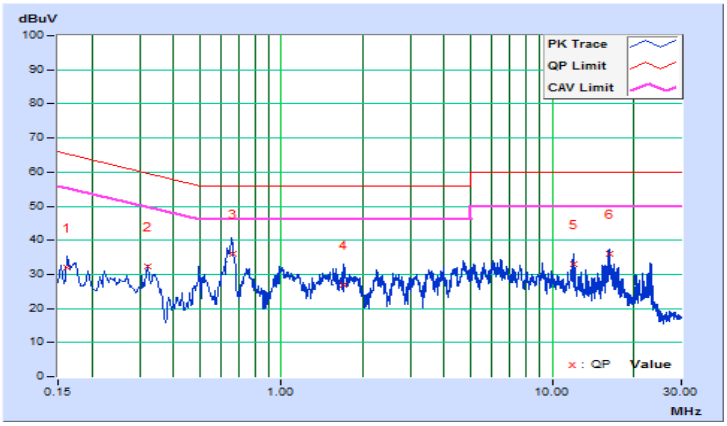
Mode B

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 75%RH
Tested by	Getaz Yang	Test Date	2017/8/28

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	0.16200	10.35	21.77	10.61	32.12	20.96	65.36	55.36	-33.24	-34.40
2	0.32203	10.39	21.82	18.86	32.21	29.25	59.65	49.65	-27.44	-20.40
3	0.65934	10.40	25.62	16.69	36.02	27.09	56.00	46.00	-19.98	-18.91
4	1.70200	10.44	16.61	8.83	27.05	19.27	56.00	46.00	-28.95	-26.73
5	11.94600	10.93	22.06	19.08	32.99	30.01	60.00	50.00	-27.01	-19.99
6	16.22600	11.15	24.91	22.81	36.06	33.96	60.00	50.00	-23.94	-16.04

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

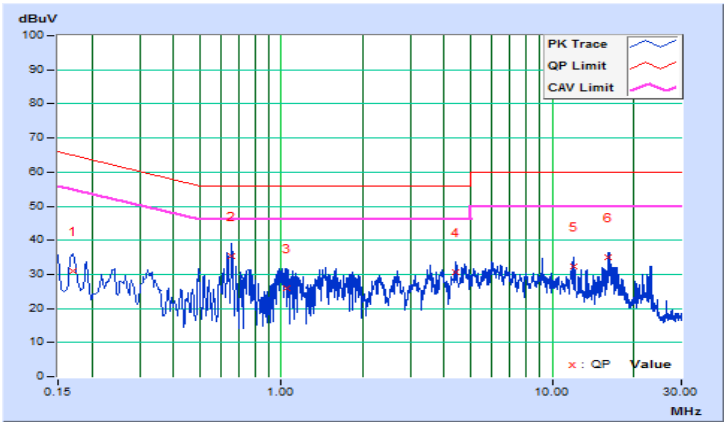


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 75%RH
Tested by	Getaz Yang	Test Date	2017/8/28
Test Mode	Mode 1		

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	0.16932	10.12	20.93	11.68	31.05	21.80	64.99	54.99	-33.94	-33.19
2	0.65415	10.16	25.12	14.95	35.28	25.11	56.00	46.00	-20.72	-20.89
3	1.05400	10.17	15.92	7.25	26.09	17.42	56.00	46.00	-29.91	-28.58
4	4.42200	10.35	20.20	14.19	30.55	24.54	56.00	46.00	-25.45	-21.46
5	11.94600	10.63	21.79	18.65	32.42	29.28	60.00	50.00	-27.58	-20.72

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

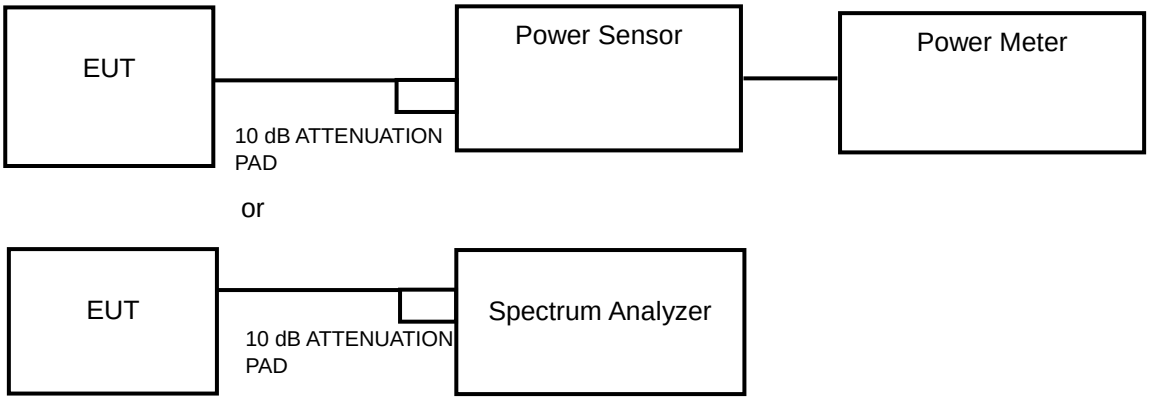
4.3.1 Limits of Transmit Power Measurement

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)

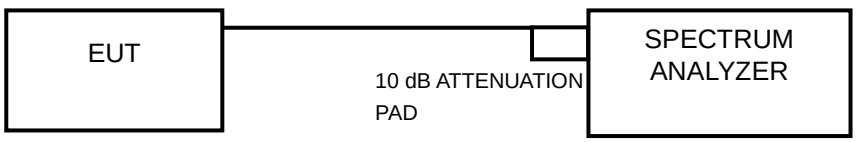
*B is the 26 dB emission bandwidth in megahertz

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	44.771	16.51	24	Pass
44	5220	44.978	16.53	24	Pass
48	5240	45.186	16.55	24	Pass
52	5260	45.604	16.59	24	Pass
60	5300	44.978	16.53	24	Pass
64	5320	44.875	16.52	24	Pass
100	5500	45.920	16.62	24	Pass
116	5580	46.238	16.65	24	Pass
140	5700	45.709	16.6	24	Pass
149	5745	45.290	16.56	30	Pass
157	5785	46.026	16.63	30	Pass
165	5825	45.186	16.55	30	Pass

Note:

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

1. 11 dBm + 10log (22.66) = 24.55 dBm > 24 dBm.
2. 11 dBm + 10log (22.37) = 24.50 dBm > 24 dBm.
3. 11 dBm + 10log (22.96) = 24.61 dBm > 24 dBm.
4. 11 dBm + 10log (22.47) = 24.52 dBm > 24 dBm.
5. 11 dBm + 10log (22.43) = 24.51 dBm > 24 dBm.
6. 11 dBm + 10log (22.43) = 24.51 dBm > 24 dBm.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	44.771	16.51	24	Pass
44	5220	45.186	16.55	24	Pass
48	5240	45.394	16.57	24	Pass
52	5260	44.875	16.52	24	Pass
60	5300	44.978	16.53	24	Pass
64	5320	45.082	16.54	24	Pass
100	5500	46.559	16.68	24	Pass
116	5580	45.499	16.58	24	Pass
140	5700	44.875	16.52	24	Pass
149	5745	45.499	16.58	30	Pass
157	5785	46.452	16.67	30	Pass
165	5825	45.814	16.61	30	Pass

Note:

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

1. 11 dBm + 10log (23.78) = 24.76 dBm > 24 dBm.
2. 11 dBm + 10log (24.16) = 24.83 dBm > 24 dBm.
3. 11 dBm + 10log (24.19) = 24.84 dBm > 24 dBm.
4. 11 dBm + 10log (24.06) = 24.81 dBm > 24 dBm.
5. 11 dBm + 10log (23.69) = 24.75 dBm > 24 dBm.
6. 11 dBm + 10log (24.88) = 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	44.771	16.51	24	Pass
46	5230	44.875	16.52	24	Pass
54	5270	45.082	16.54	24	Pass
62	5310	44.771	16.51	24	Pass
102	5510	44.978	16.53	24	Pass
110	5550	45.814	16.61	24	Pass
134	5670	45.082	16.54	24	Pass
151	5755	45.394	16.57	30	Pass
159	5795	44.875	16.52	30	Pass

Note:

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

1. 11 dBm + 10log (42.10) = 27.24 dBm > 24 dBm.
2. 11 dBm + 10log (42.12) = 27.24 dBm > 24 dBm.
3. 11 dBm + 10log (42.33) = 27.27 dBm > 24 dBm.
4. 11 dBm + 10log (42.00) = 27.23 dBm > 24 dBm.
5. 11 dBm + 10log (42.21) = 27.25 dBm > 24 dBm.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
42	5210	45.499	16.58	24	Pass
58	5290	46.559	16.68	24	Pass
106	5530	45.290	16.56	24	Pass
122	5610	44.771	16.51	24	Pass
155	5775	45.499	16.58	30	Pass

Note:

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

1. 11 dBm + 10log (85.58) = 30.32 dBm > 24 dBm.
2. 11 dBm + 10log (84.40) = 30.26 dBm > 24 dBm.
3. 11 dBm + 10log (84.72) = 30.28 dBm > 24 dBm.

26 dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	22.33
44	5220	22.44
48	5240	22.40
52	5260	22.66
60	5300	22.37
64	5320	22.96
100	5500	22.47
116	5580	22.43
140	5700	22.43

802.11n (HT20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	24.06
44	5220	23.92
48	5240	24.05
52	5260	23.78
60	5300	24.16
64	5320	24.19
100	5500	24.06
116	5580	23.69
140	5700	24.88

802.11n (HT40)

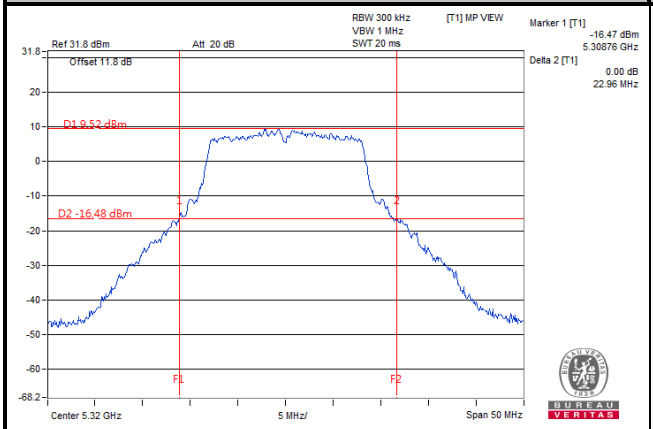
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
38	5190	41.78
46	5230	41.98
54	5270	42.10
62	5310	42.12
102	5510	42.33
110	5550	42.00
134	5670	42.21

802.11ac (VHT80)

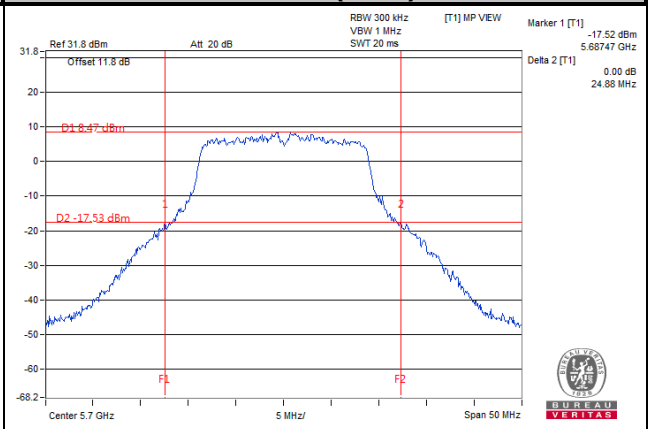
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
42	5210	85.34
58	5290	85.58
106	5530	84.40
122	5610	84.72

Spectrum Plot of Worst Value

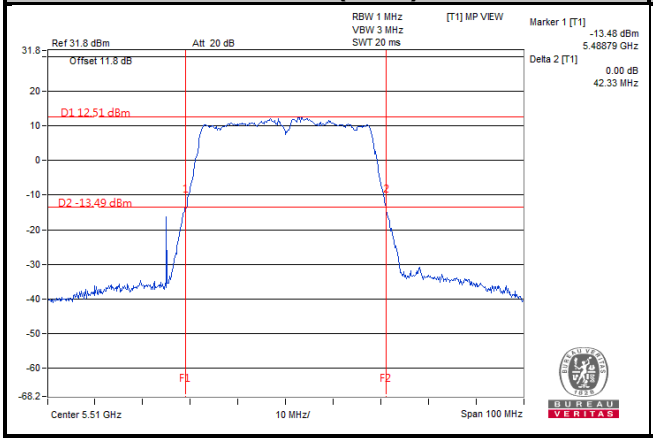
802.11a



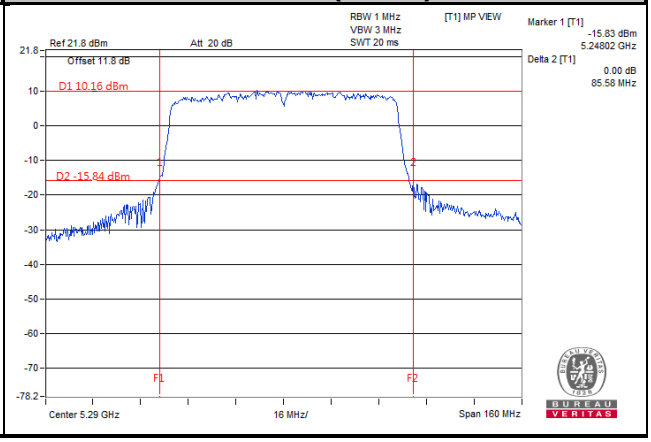
802.11n (HT20)



802.11n (HT40)

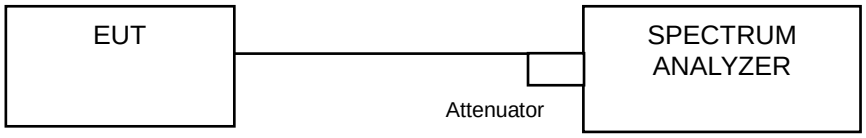


802.11ac (VHT80)



4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Results

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	16.77
40	5200	16.77
48	5240	16.77
52	5260	16.77
60	5300	16.77
64	5320	16.77
100	5500	16.73
116	5580	16.73
140	5700	16.73
149	5745	16.68
157	5785	16.60
165	5825	16.65

802.11n (HT20)

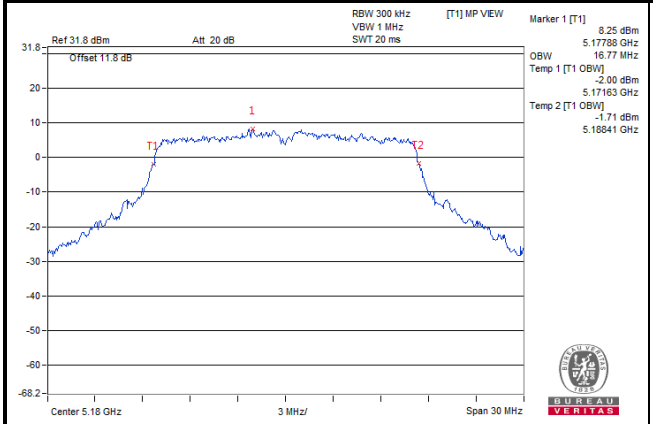
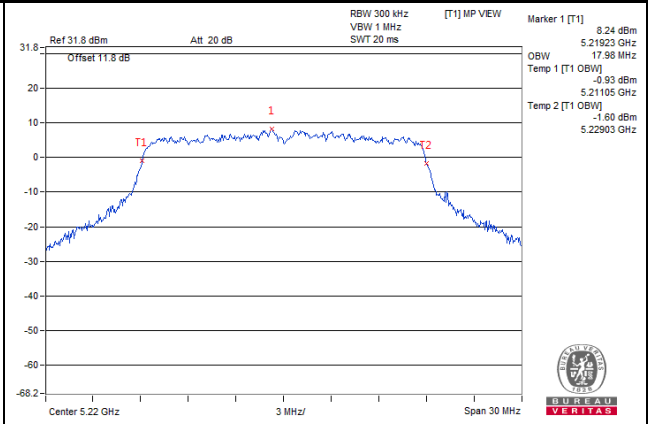
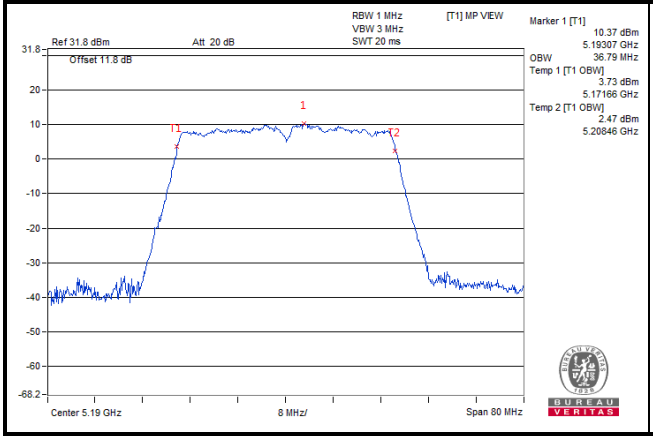
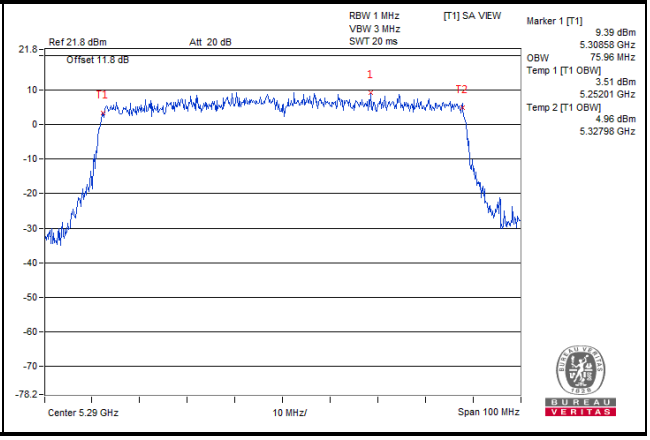
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	17.93
40	5200	17.98
48	5240	17.98
52	5260	17.93
60	5300	17.98
64	5320	17.93
100	5500	17.93
116	5580	17.88
140	5700	17.93
149	5745	17.83
157	5785	17.90
165	5825	17.90

802.11n (HT40)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	36.79
46	5230	36.66
54	5270	36.66
62	5310	36.66
102	5510	36.79
110	5550	36.79
134	5670	36.66
151	5755	36.69
159	5795	36.50

802.11ac (VHT80)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
42	5210	75.64
58	5290	75.96
106	5530	75.80
155	5775	75.80

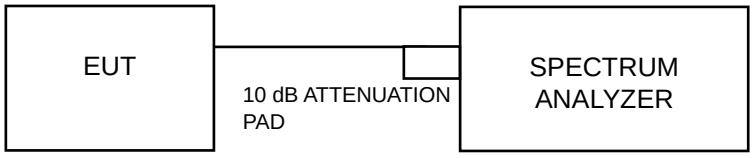
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.5.4 Test Procedures

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

Using method SA-2

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 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)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

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

4.5.7 Test Results

802.11a

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	4.44	0.28	4.72	11	Pass
44	5220	4.57	0.28	4.85	11	Pass
48	5240	4.35	0.28	4.63	11	Pass
52	5260	4.44	0.28	4.72	11	Pass
60	5300	4.49	0.28	4.77	11	Pass
64	5320	4.59	0.28	4.87	11	Pass
100	5500	4.78	0.28	5.06	11	Pass
116	5580	4.60	0.28	4.88	11	Pass
140	5700	4.65	0.28	4.93	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	3.96	0.30	4.26	11	Pass
44	5220	4.23	0.30	4.53	11	Pass
48	5240	4.43	0.30	4.73	11	Pass
52	5260	4.72	0.30	5.02	11	Pass
60	5300	4.53	0.30	4.83	11	Pass
64	5320	4.62	0.30	4.92	11	Pass
100	5500	4.62	0.30	4.92	11	Pass
116	5580	4.53	0.30	4.83	11	Pass
140	5700	4.53	0.30	4.83	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	0.43	0.54	0.97	11	Pass
46	5230	0.97	0.54	1.51	11	Pass
54	5270	0.97	0.54	1.51	11	Pass
62	5310	0.78	0.54	1.32	11	Pass
102	5510	0.94	0.54	1.48	11	Pass
110	5550	1.21	0.54	1.75	11	Pass
134	5670	1.08	0.54	1.62	11	Pass

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

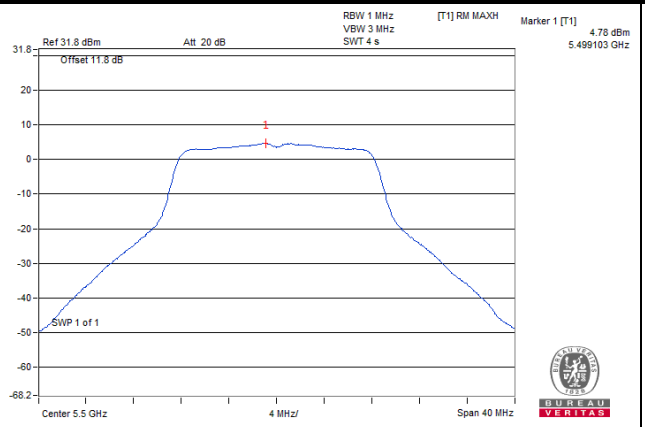
802.11ac (VHT80)

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	-0.28	1.01	0.73	11	Pass
58	5290	0.42	1.01	1.43	11	Pass
106	5530	0.15	1.01	1.16	11	Pass
122	5610	-0.48	1.01	0.53	11	Pass

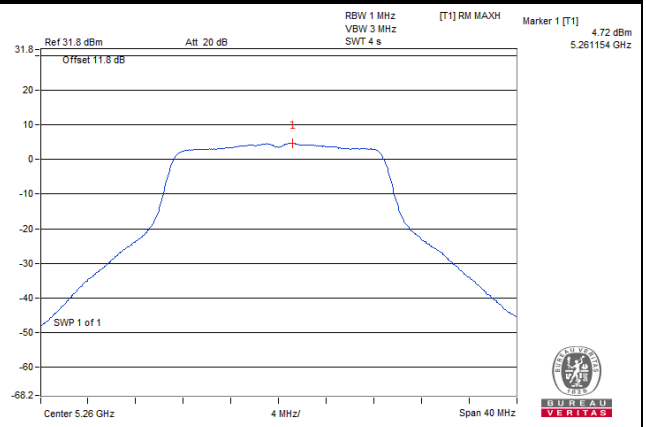
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

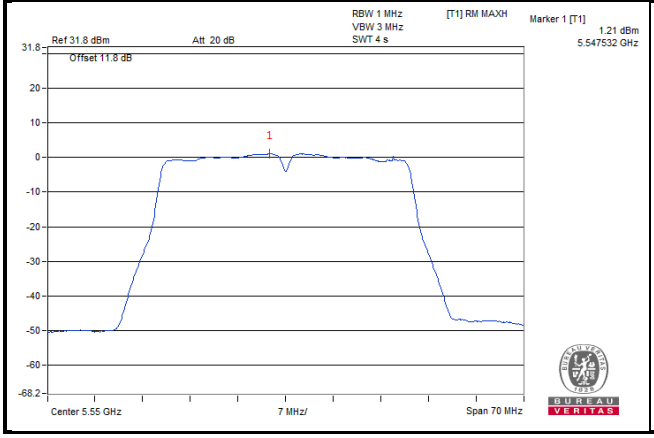
802.11a



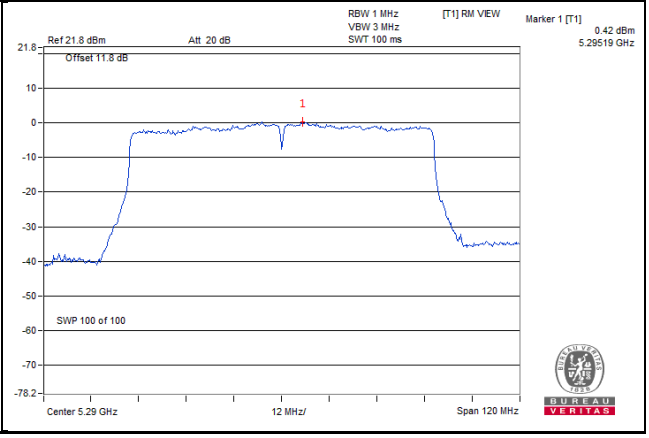
802.11n (HT20)



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	1.98	0.28	2.26	30	Pass
157	5785	2.28	0.28	2.56	30	Pass
165	5825	1.92	0.28	2.20	30	Pass

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

802.11n (HT20)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/500 kHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
149	5745	1.45	0.30	1.75	30	Pass
157	5785	1.90	0.30	2.20	30	Pass
165	5825	1.80	0.30	2.10	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	-1.70	0.54	-1.16	30	Pass
159	5795	-2.24	0.54	-1.70	30	Pass

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

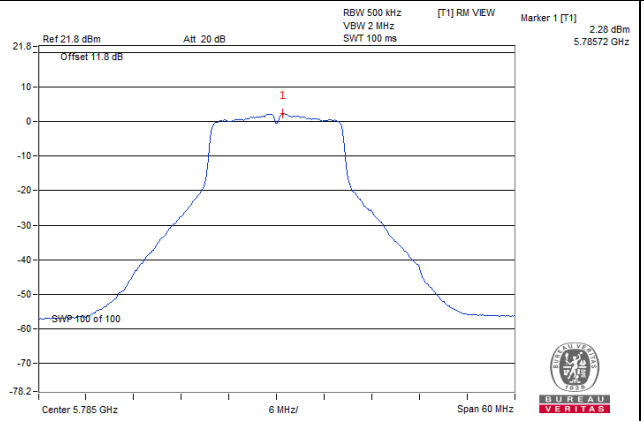
802.11ac (VHT80)

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	-3.38	1.01	-2.37	30	Pass

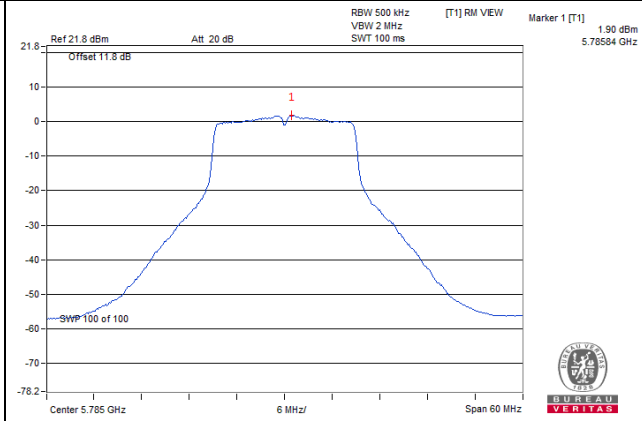
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

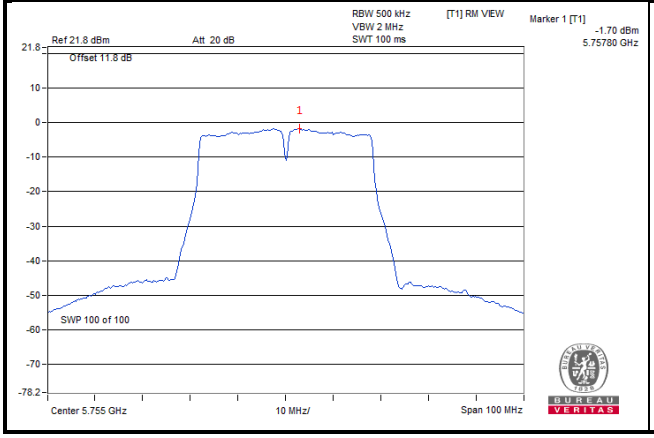
802.11a



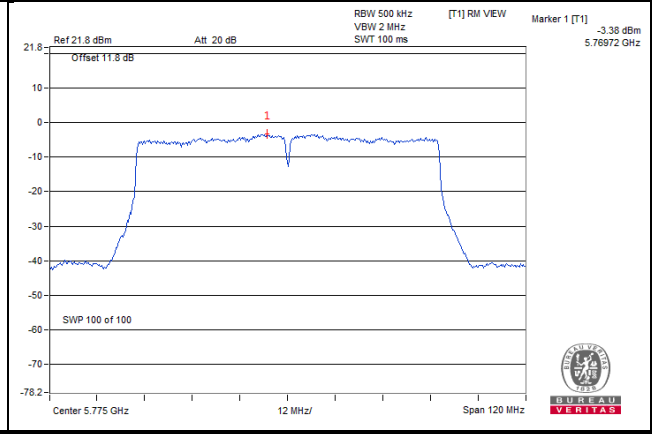
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

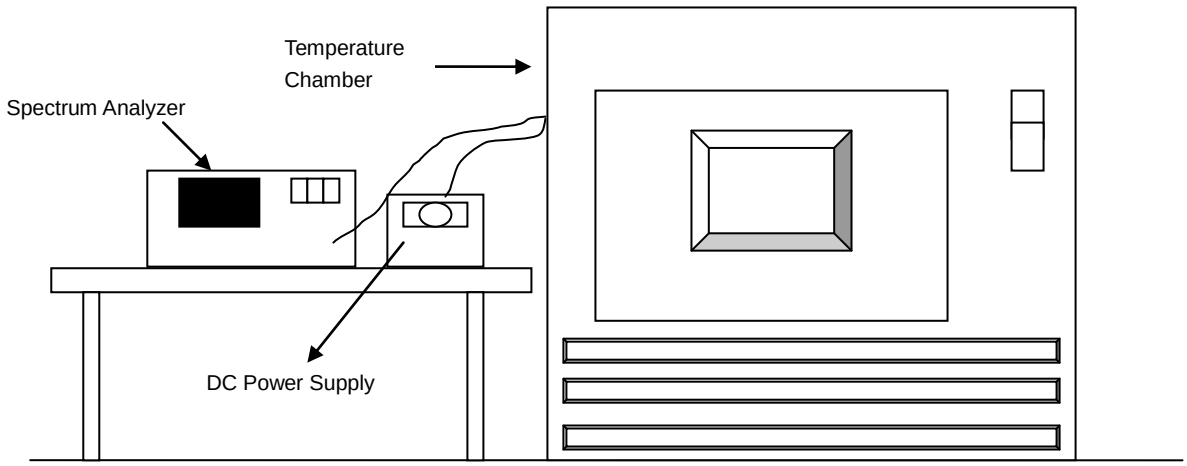


4.6 Frequency Stability

4.6.1 Limit of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.6.4 Test Procedure

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.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5320 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	5179.9918	-1.58000	5179.9884	-2.24000	5179.9885	-2.22000	5179.9913	-1.68000
50	3.85	5179.9861	-2.68000	5179.982	-3.47000	5179.9825	-3.38000	5179.9848	-2.93000
40	3.85	5179.991	-1.74000	5179.9952	-0.93000	5179.9927	-1.41000	5179.9914	-1.66000
30	3.85	5180	0.00000	5180.0009	0.17000	5180.0001	0.02000	5179.9988	-0.23000
20	3.85	5180.0252	4.86000	5180.0237	4.58000	5180.0262	5.06000	5180.0235	4.54000
10	3.85	5179.9796	-3.94000	5179.976	-4.63000	5179.9772	-4.40000	5179.9765	-4.54000
0	3.85	5179.9736	-5.10000	5179.9732	-5.17000	5179.9763	-4.58000	5179.9777	-4.31000
-10	3.85	5179.995	-0.97000	5179.9946	-1.04000	5179.9909	-1.76000	5179.9933	-1.29000
-20	3.85	5180.0276	5.33000	5180.0263	5.08000	5180.0278	5.37000	5180.0235	4.54000

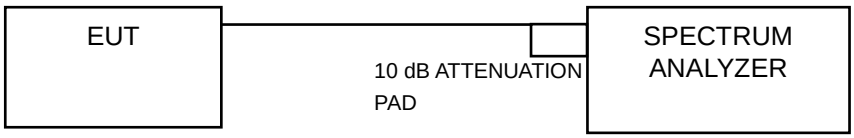
Frequency Stability Versus Temp.									
Operating Frequency: 5320 MHz									
Temp. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	4.4275	5180.0251	4.85000	5180.0241	4.65000	5180.027	5.21000	5180.0234	4.52000
	3.85	5180.0252	4.86000	5180.0237	4.58000	5180.0262	5.06000	5180.0235	4.54000
	3.2725	5180.0258	4.98000	5180.0227	4.38000	5180.0265	5.12000	5180.024	4.63000

4.7 6 dB Bandwidth Measurment

4.7.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	15.52	0.5	Pass
157	5785	15.67	0.5	Pass
165	5825	15.36	0.5	Pass

802.11n (HT20)

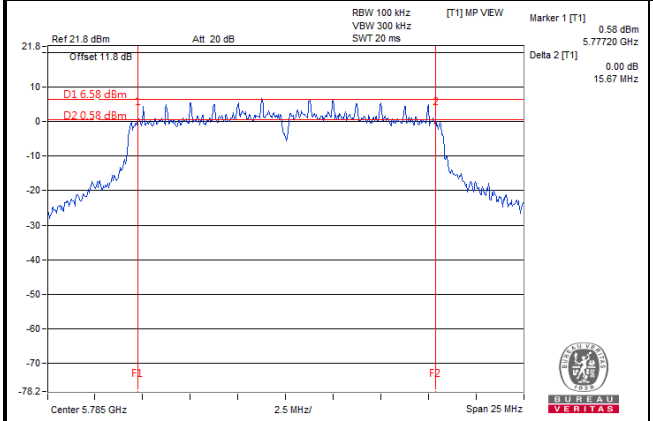
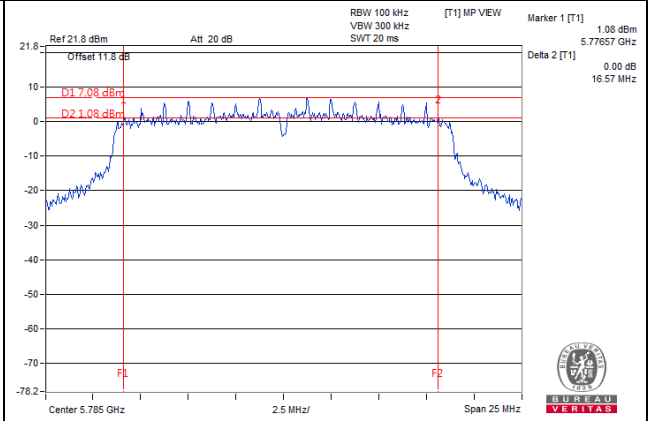
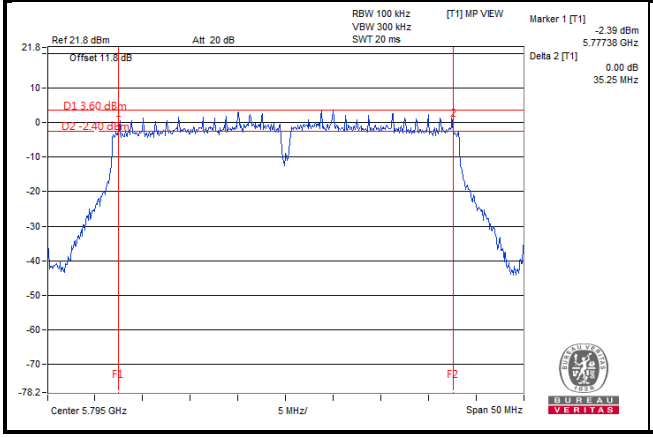
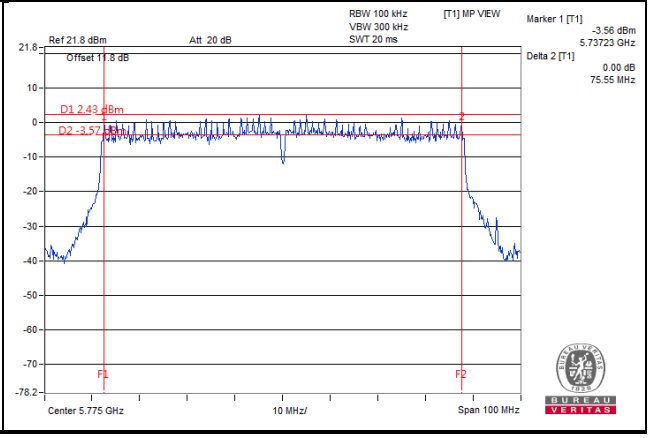
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.00	0.5	Pass
157	5785	16.57	0.5	Pass
165	5825	16.01	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	35.23	0.5	Pass
159	5795	35.25	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
155	5775	75.55	0.5	Pass

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

5 Pictures of Test Arrangements

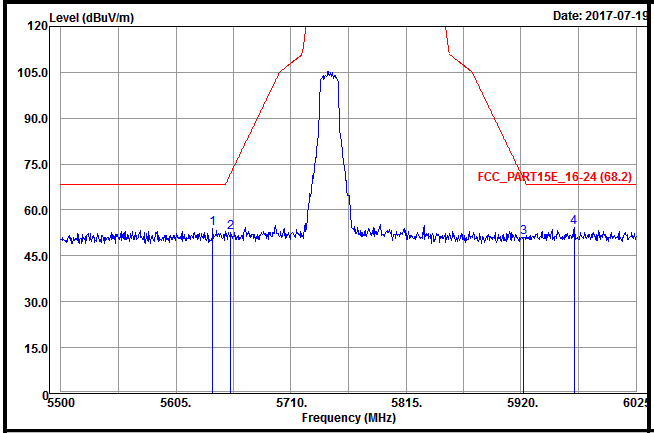
Please refer to the attached file (Test Setup Photo).

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

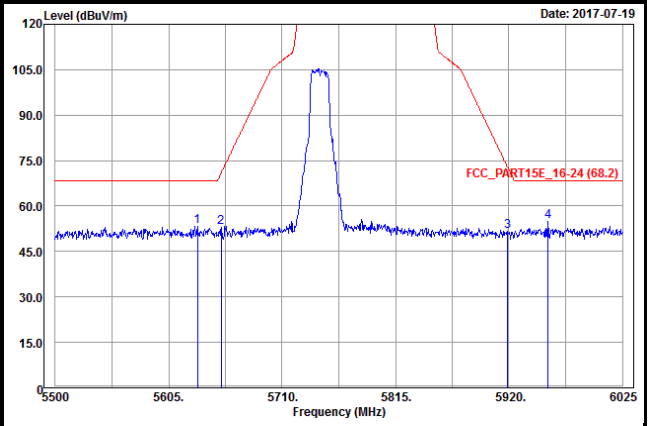
802.11a

Ch 149

Horizontal

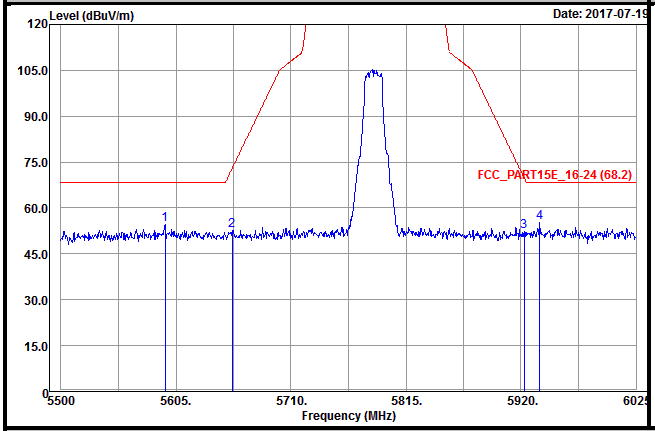


Vertical

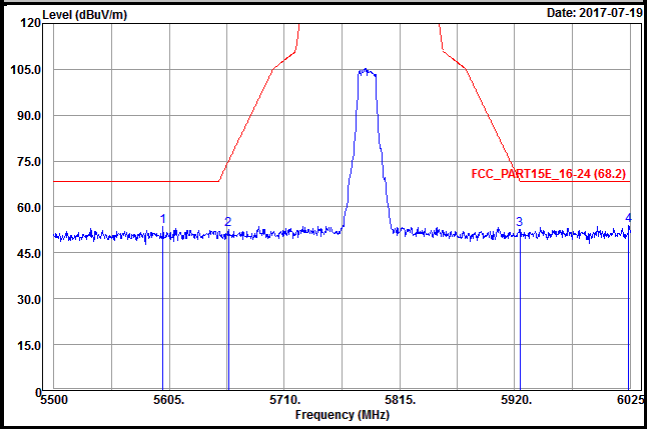


Ch 157

Horizontal

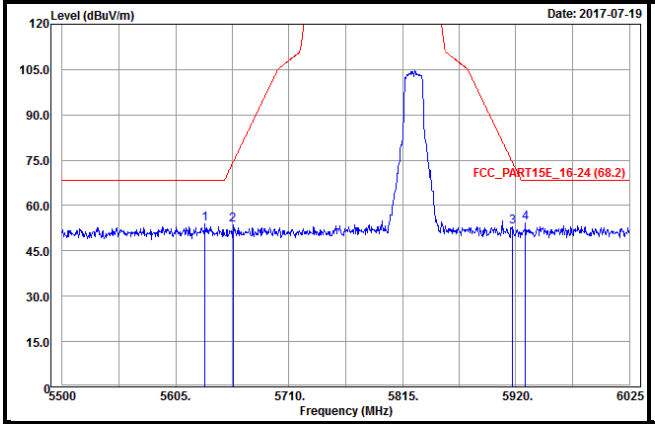


Vertical

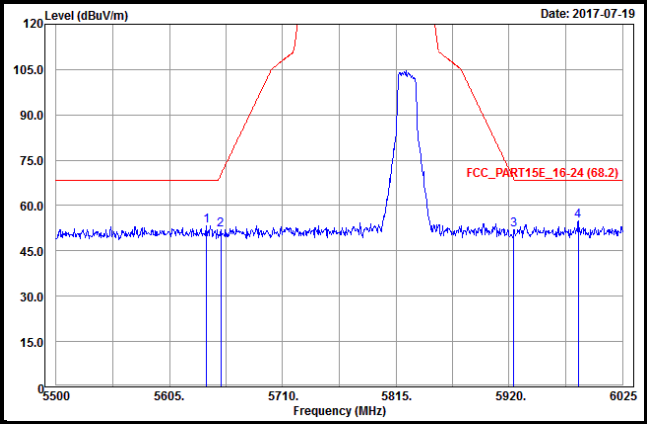


Ch 165

Horizontal



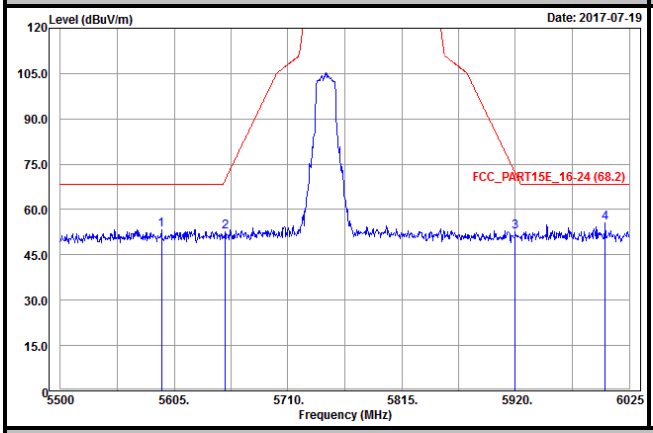
Vertical



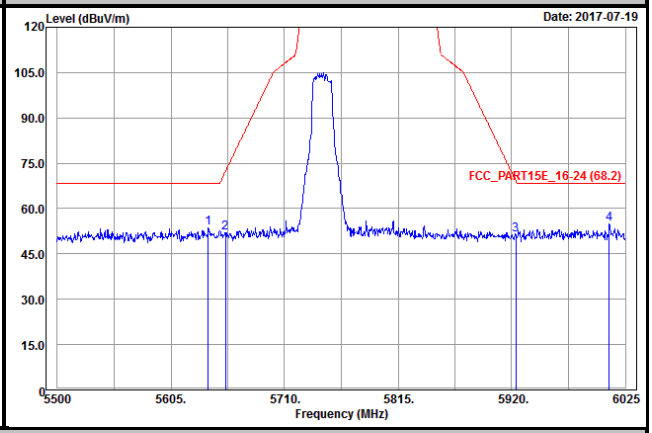
802.11n (HT20)

Ch 149

Horizontal

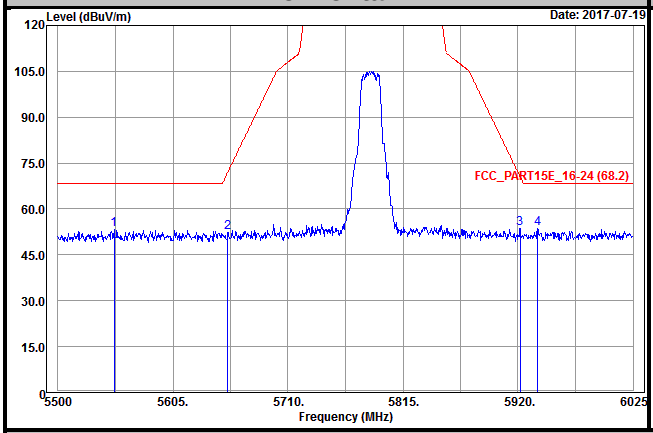


Vertical

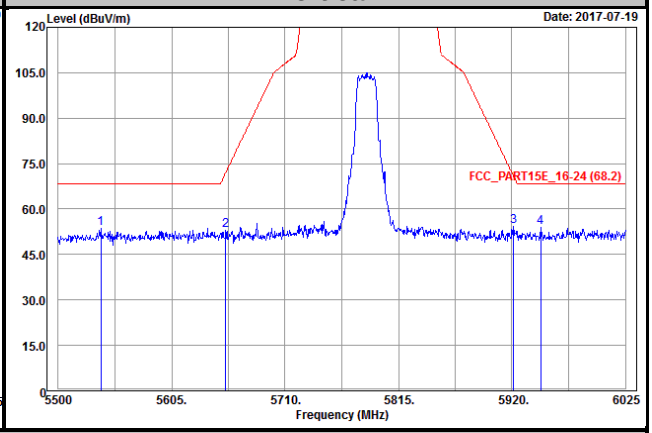


Ch 157

Horizontal

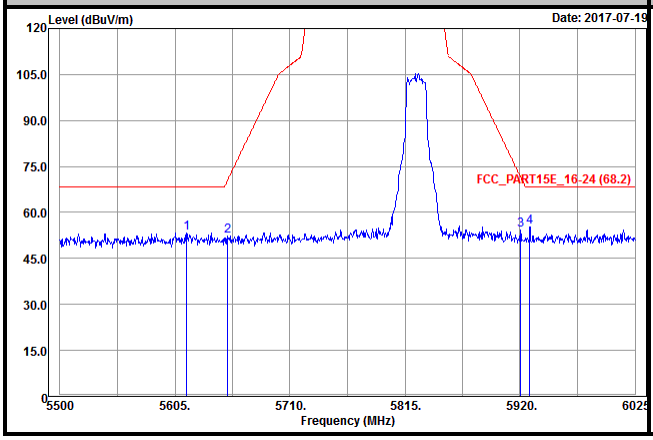


Vertical

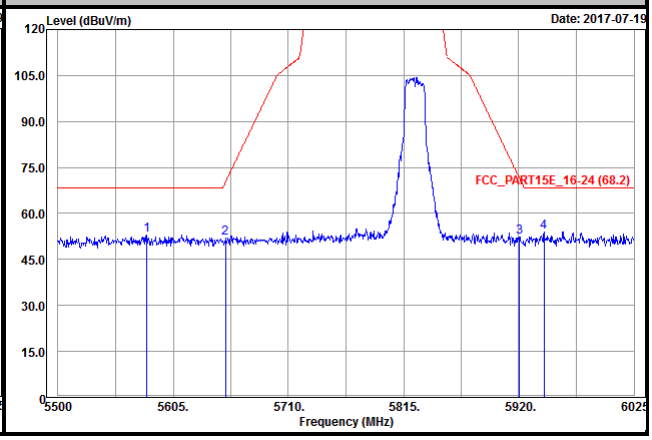


Ch 165

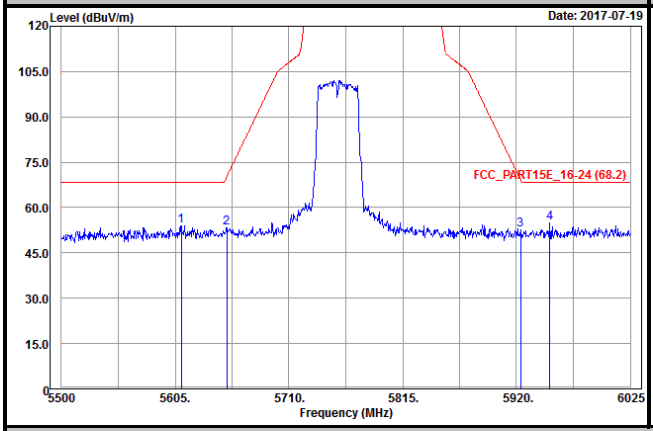
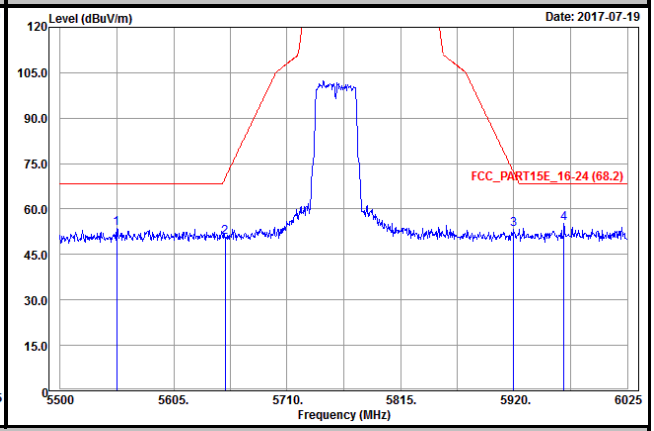
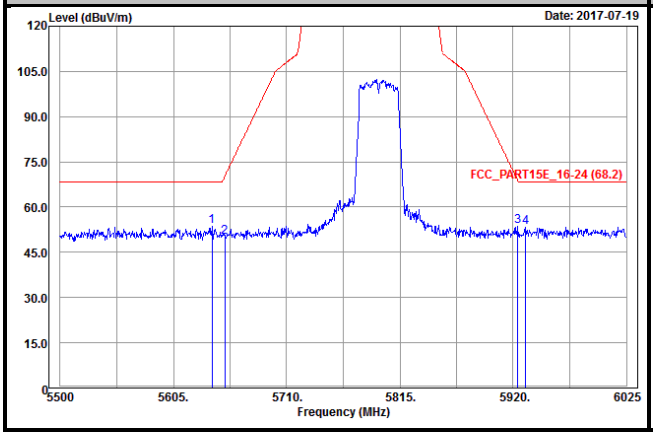
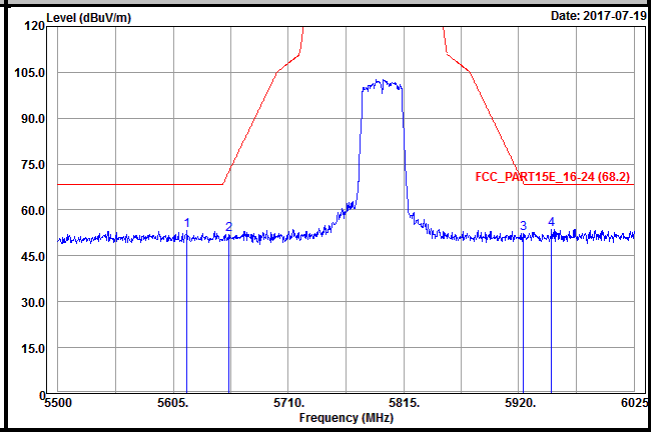
Horizontal



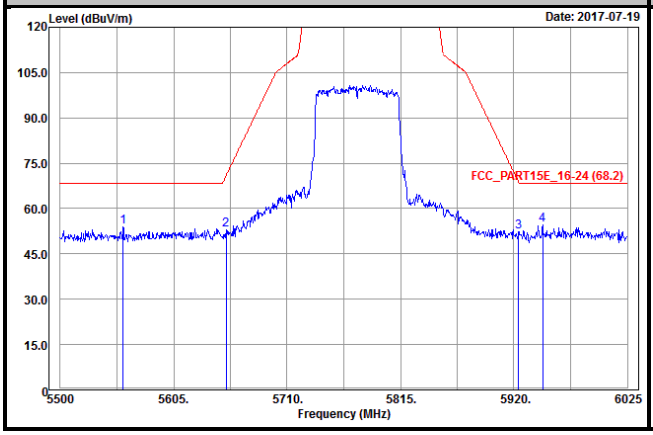
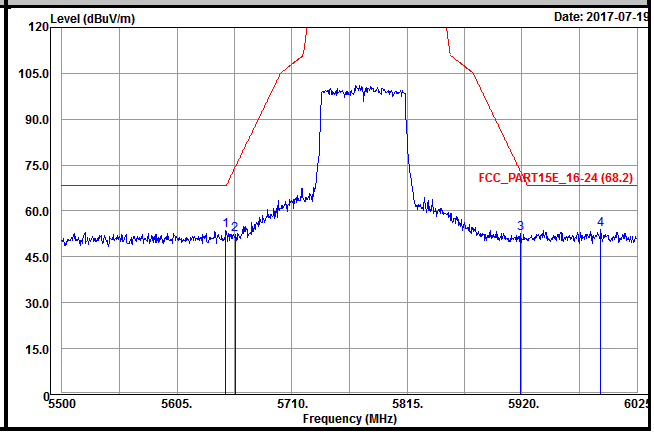
Vertical



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 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 ---