

FCC Test Report

Report No.: RF161124C49-4

FCC ID: HFS-QTAXIA1

Test Model: QTAXIA1

Received Date: Nov. 24, 2016

Test Date: Dec. 15, 2016 ~ Dec. 21, 2016

Issued Date: Feb. 03, 2017

Applicant: Quanta Computer Inc.

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Release Control Record

Issue No.	Description	Date Issued
RF161124C49-4	Original Release	Feb. 03, 2017

1 Certificate of Conformity

Product: 10" Tablet Computer

Test Model: QTAXIA1

Sample Status: ENGINEERING SAMPLE

Applicant: Quanta Computer Inc.

Test Date: Dec. 15, 2016 ~ Dec. 21, 2016

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 :

Evonne Liu

Date:

Feb. 03, 2017

Evonne Liu / Specialist

Approved by :

Stanley Wu

Date:

Feb. 03, 2017

Stanley Wu / Assistant Manager

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 -11.54 dB at 0.62195 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 -0.45 dB at 5724.12 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6 dB Bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	No antenna connector is used.

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.0153 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	10" Tablet Computer
Test Model	QTAXIA1
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	5.0 Vdc (adapter or host equipment) 3.85 Vdc (Li-ion battery)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0 Mbps 802.11n: up to MCS7 802.11ac: up to V9
Operating Frequency	5180 ~ 5240 MHz, 5260 ~ 5320 MHz, 5500 ~ 5700 MHz, 5745 ~ 5825 MHz
Number of Channel	5180 ~ 5240 MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 1 for 802.11ac (VHT80) 5260 ~ 5320 MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 1 for 802.11ac (VHT80) 5500 ~ 5700 MHz: 11 for 802.11a, 802.11n (HT20) 5 for 802.11n (HT40) 2 for 802.11ac (VHT80) 5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 1 for 802.11ac (VHT80)
Output Power	69.984 mW for 5180 ~ 5240 MHz 71.614 mW for 5260 ~ 5320 MHz 70.632 mW for 5500 ~ 5700 MHz 71.779 mW for 5745 ~ 5825 MHz
Antenna Type	Monopole antenna with 0.3 dBi gain (5180 ~ 5240 MHz) Monopole antenna with 0.7 dBi gain (5260 ~ 5320 MHz) Monopole antenna with 0.6 dBi gain (5500 ~ 5700 MHz) Monopole antenna with 0.1 dBi gain (5745 ~ 5825 MHz)
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

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

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

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

2. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	PI ELECTRONICS	AD2062320006LF	I/P: 100-240 Vac, 50/60 Hz, 0.3 A O/P: 5 Vdc, 2 A 1 m non-shielded cable w/o core
Battery	McNair	MLP2678135-2P	3.85 Vdc, 9300 mAh
LTE Chip	MediaTek	MT6176	--
WLAN Chip	MediaTek	MT6630	--

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

3.2 Description of Test Modes

For 5180 ~ 5240 MHz

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

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

2 channels are provided for 802.11n (HT40):

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

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
42	5210

For 5260 ~ 5320 MHz

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

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

2 channels are provided for 802.11n (HT40):

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

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
58	5290

For 5500 ~ 5700 MHz

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

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

5 channels are provided for 802.11n (HT40):

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

2 channels are provided for 802.11ac (VHT80):

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

For 5745 ~ 5825 MHz:

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

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

2 channels are provided for 802.11n (HT40):

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

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
155	5775

3.2.1 Test Mode Applicability and Tested Channel Detail

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

Where **RE $\geq$ 1G**: Radiated Emission above 1 GHz

RE<1G: Radiated Emission below 1 GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

Note:

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

Radiated Emission Test (Above 1 GHz):

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36 to 48	36, 44, 48	OFDM	BPSK	6.0
-		802.11n (HT20)	36 to 48	36, 44, 48	OFDM	BPSK	MCS0
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	42	42	OFDM	BPSK	MCS0
-	5260-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-		802.11n (HT20)	52 to 64	52, 60, 64	OFDM	BPSK	MCS0
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	58	58	OFDM	BPSK	MCS0
-	5500-5700	802.11a	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 140	100, 116, 140	OFDM	BPSK	MCS0
-		802.11n (HT40)	102 to 134	102, 110, 134	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	106 to 122	106, 122	OFDM	BPSK	MCS0
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	MCS0
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	155	155	OFDM	BPSK	MCS0

Radiated Emission Test (Below 1 GHz):

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36 to 48	48	OFDM	BPSK	6.0
-	5260-5320	802.11a	52 to 64	64	OFDM	BPSK	6.0
-	5500-5700	802.11a	100 to 140	140	OFDM	BPSK	6.0
-	5745-5825	802.11ac (VHT80)	155	155	OFDM	BPSK	MCS0

Power Line Conducted Emission Test:

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5320	802.11a	36 to 64	62	OFDM	BPSK	6.0

Antenna Port Conducted Measurement:

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36 to 48	36, 44, 48	OFDM	BPSK	6.0
-		802.11n (HT20)	36 to 48	36, 44, 48	OFDM	BPSK	MCS0
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	42	42	OFDM	BPSK	MCS0
-	5260-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-		802.11n (HT20)	52 to 64	52, 60, 64	OFDM	BPSK	MCS0
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	58	58	OFDM	BPSK	MCS0
-	5500-5700	802.11a	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 140	100, 116, 140	OFDM	BPSK	MCS0
-		802.11n (HT40)	102 to 134	102, 110, 134	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	106 to 122	106, 122	OFDM	BPSK	MCS0
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	MCS0
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	155	155	OFDM	BPSK	MCS0

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	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	Toby Tian
APCM	25 deg. C, 65 % RH	3.85 Vdc	Wayne 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 = $1.39/1.50 = 0.927$, Duty factor = $10 * \log(1/0.927) = 0.33$

802.11n (HT20): Duty cycle = $1.286/1.396 = 0.921$, Duty factor = $10 * \log(1/0.921) = 0.36$

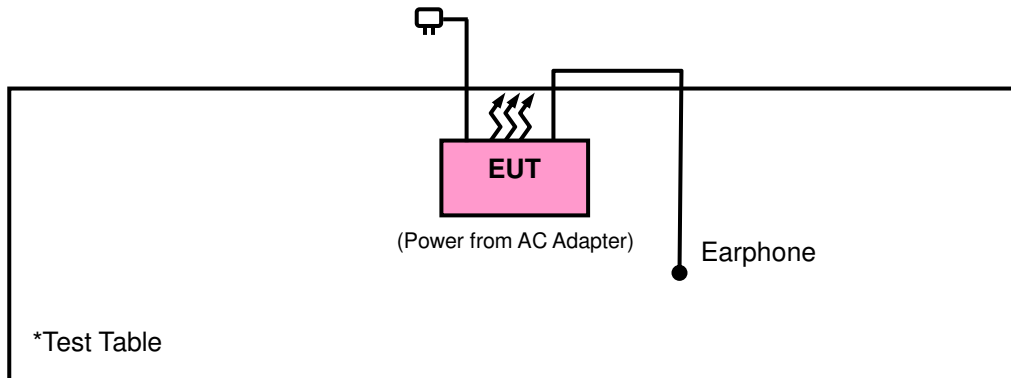
802.11n (HT40): Duty cycle = $633/752 = 0.842$, Duty factor = $10 * \log(1/0.842) = 0.75$



3.4 Description of Support Units

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

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart E (15.407)

789033 D02 General UNII Test Procedures New Rules v01r03

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.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

Note:

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

4.1.2 Limits of Unwanted Emission Out of the Restricted Bands

Applicable To		Limit	
789033 D02 General UNII Test Procedures New Rules v01r03		Field Strength at 3 m	
		PK: 74 (dBμV/m)	AV: 54 (dBμV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	15.407(b)(4)(i)	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2 (dBμV/m) ^{*1} PK:105.2 (dBμV/m) ^{*2} PK: 110.8 (dBμV/m) ^{*3} PK:122.2 (dBμV/m) ^{*4}
	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	

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

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

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

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

Note:

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

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

4.1.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9038A	MY52260177	Jun. 21, 2016	Jun. 20, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 13, 2016	Dec. 12, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Jan. 07, 2016	Jan. 06, 2017
HORN Antenna ETS-Lindgren	3117	00143293	Jan. 04, 2016	Jan. 03, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Jan. 04, 2016	Jan. 03, 2017
Bluetooth Tester	CBT	100980	Apr. 27, 2015	Apr. 26, 2017
Loop Antenna	EM-6879	269	Aug. 11, 2016	Aug. 10, 2017
Preamplifier Agilent	310N	187226	Jun. 24, 2016	Jun. 23, 2017
Preamplifier Agilent	83017A	MY39501357	Jun. 24, 2016	Jun. 23, 2017
Power Meter Anritsu	ML2495A	1232002	Sep. 08, 2016	Sep. 07, 2017
Power Sensor Anritsu	MA2411B	1207325	Sep. 08, 2016	Sep. 07, 2017
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(R FC-SMS-100-SM S-120+RFC-SMS -100-SMS-400)	Jun. 24, 2016	Jun. 23, 2017
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(R FC-SMS-100-SM S-24)	Jun. 24, 2016	Jun. 23, 2017
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Temperature & Humidity Chamber	GTH-120-40-CP-A R	MAA1306-019	Sep. 02, 2016	Sep. 01, 2017
DC Power Supply Topward	33010D	807748	Oct. 25, 2016	Oct. 24, 2018
Digital Multimeter Fluke	87-III	70360742	Jul. 01, 2016	Jun. 30, 2017

- Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 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 Site Registration No. is 149147.
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:

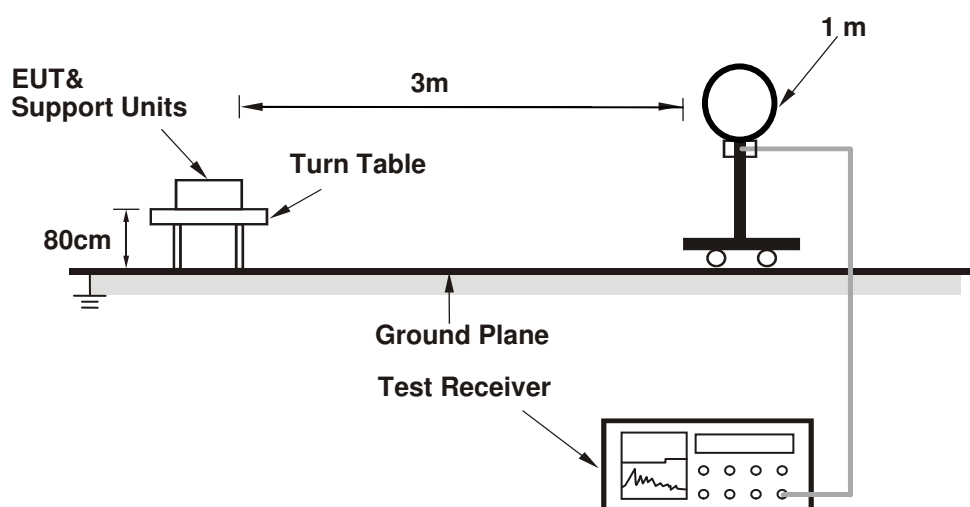
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency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

4.1.5 Deviation from Test Standard

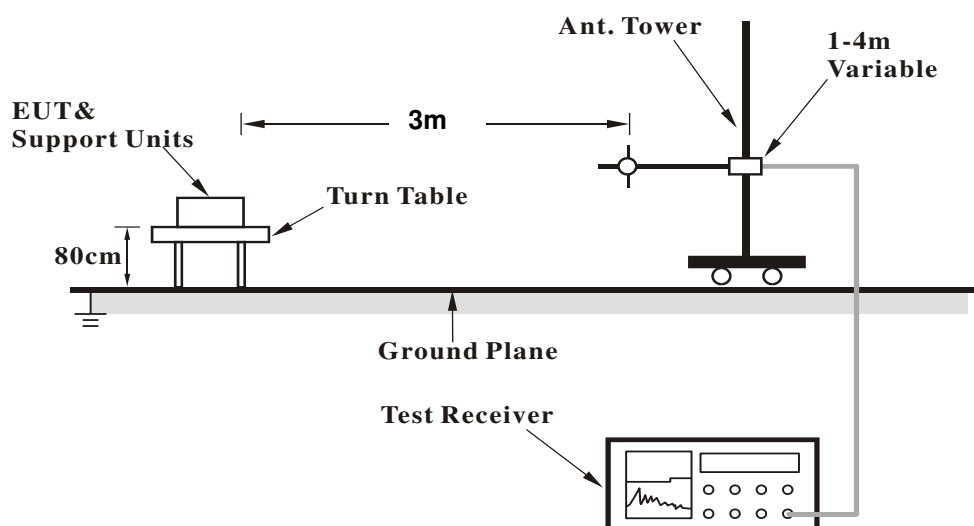
No deviation.

4.1.6 Test Set Up

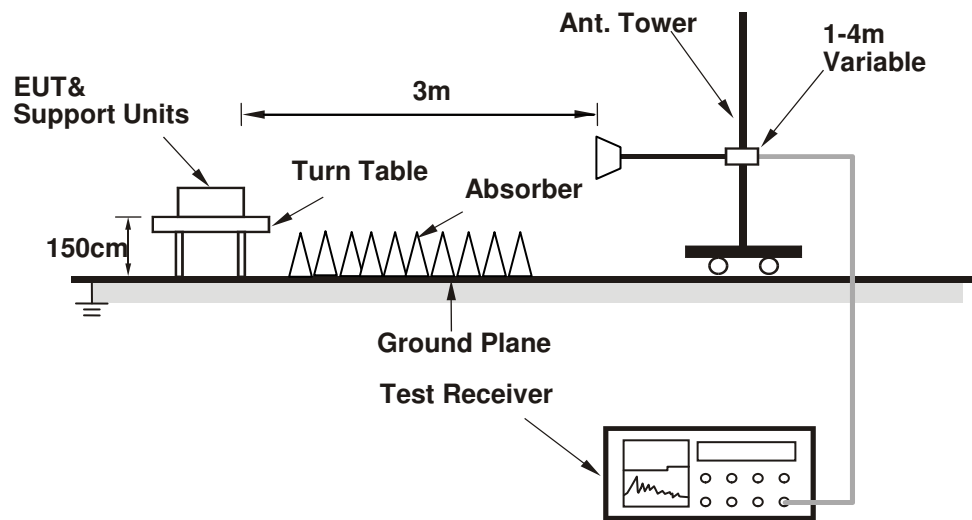
<Radiated emission below 30MHz>



<Frequency Range below 1 GHz>



<Frequency Range above 1 GHz>



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

4.1.7 EUT Operating Conditions

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

4.1.8 Test Results

Above 1 GHz Data :

802.11a

EUT Test Condition		Measurement Detail	
Channel	Channel 36	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	51.12	42.87	54	-2.88	34.12	8.13	34	115	203	Average
5149.7	64.67	56.42	74	-9.33	34.12	8.13	34	115	203	Peak
5180	103.14	94.83			34.15	8.16	34	115	203	Average
5180	110.48	102.17			34.15	8.16	34	115	203	Peak
*10360	47.08	32.78	54	-6.92	37.12	12.3	35.12	132	295	Average
*10360	56.3	42	74	-17.7	37.12	12.3	35.12	132	295	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	46.25	38	54	-7.75	34.12	8.13	34	254	53	Average
5149.4	59.18	50.93	74	-14.82	34.12	8.13	34	254	53	Peak
5180	97.7	89.39			34.15	8.16	34	254	53	Average
5180	104.62	96.31			34.15	8.16	34	254	53	Peak
*10360	47.15	32.85	54	-6.85	37.12	12.3	35.12	137	12	Average
*10360	55.62	41.32	74	-18.38	37.12	12.3	35.12	137	12	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 44	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5144.15	45.04	36.79	54	-8.96	34.12	8.13	34	114	203	Average
5146.1	55.4	47.15	74	-18.6	34.12	8.13	34	114	203	Peak
5220	105.12	96.73			34.17	8.22	34	114	203	Average
5220	110.12	101.73			34.17	8.22	34	114	203	Peak
5442.07	53.79	45	74	-20.21	34.35	8.48	34.04	114	203	Peak
5456.26	43.32	34.5	54	-10.68	34.36	8.51	34.05	114	203	Average
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5129.75	43.27	35.05	54	-10.73	34.11	8.1	33.99	236	53	Average
5133.2	53.72	45.47	74	-20.28	34.11	8.13	33.99	236	53	Peak
5220	98.11	89.72			34.17	8.22	34	236	53	Average
5220	104.79	96.4			34.17	8.22	34	236	53	Peak
5373.21	54.06	45.39	74	-19.94	34.29	8.41	34.03	236	53	Peak
5445.92	42.78	33.95	54	-11.22	34.36	8.51	34.04	236	53	Average

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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	103.69	95.25			34.19	8.26	34.01	114	202	Average
5240	110.23	101.79			34.19	8.26	34.01	114	202	Peak
5398.73	53.44	44.72	74	-20.56	34.32	8.44	34.04	114	202	Peak
5458.68	42.74	33.92	54	-11.26	34.36	8.51	34.05	114	202	Average
*10480	47.51	33	54	-6.49	37.19	12.53	35.21	101	222	Average
*10480	56.56	42.05	74	-17.44	37.19	12.53	35.21	101	222	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	97.58	89.14			34.19	8.26	34.01	236	53	Average
5240	104.89	96.45			34.19	8.26	34.01	236	53	Peak
5391.14	43.03	34.35	54	-10.97	34.31	8.41	34.04	236	53	Average
5442.29	53.71	44.92	74	-20.29	34.35	8.48	34.04	236	53	Peak
*10480	47.41	32.9	54	-6.59	37.19	12.53	35.21	119	245	Average
*10480	56.88	42.37	74	-17.12	37.19	12.53	35.21	119	245	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5240 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 52	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5128.85	54.84	46.62	74	-19.16	34.11	8.1	33.99	113	203	Peak
5147.9	44.21	35.96	54	-9.79	34.12	8.13	34	113	203	Average
5260	105.33	96.87			34.21	8.26	34.01	113	203	Average
5260	110.84	102.38			34.21	8.26	34.01	113	203	Peak
*10520	48.54	33.95	54	-5.46	37.21	12.61	35.23	126	217	Average
*10520	56.29	41.7	74	-17.71	37.21	12.61	35.23	126	217	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5123.15	42.9	34.68	54	-11.1	34.11	8.1	33.99	273	53	Average
5138	53.71	45.46	74	-20.29	34.11	8.13	33.99	273	53	Peak
5260	98.61	90.15			34.21	8.26	34.01	273	53	Average
5260	105.28	96.82			34.21	8.26	34.01	273	53	Peak
*10520	47.7	33.11	54	-6.3	37.21	12.61	35.23	128	163	Average
*10520	56.3	41.71	74	-17.7	37.21	12.61	35.23	128	163	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 60	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5122.4	54.27	46.07	74	-19.73	34.09	8.1	33.99	112	201	Peak
5142.35	43.53	35.27	54	-10.47	34.12	8.13	33.99	112	201	Average
5300	105.42	96.88			34.24	8.32	34.02	112	201	Average
5300	110.43	101.89			34.24	8.32	34.02	112	201	Peak
5351.21	44.55	35.92	54	-9.45	34.28	8.38	34.03	112	201	Average
5356.16	55.21	46.58	74	-18.79	34.28	8.38	34.03	112	201	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
5126.3	53.46	45.24	74	-20.54	34.11	8.1	33.99	267	52	Peak
5149.55	43.13	34.88	54	-10.87	34.12	8.13	34	267	52	Average
5300	98.53	89.99			34.24	8.32	34.02	267	52	Average
5300	105.49	96.95			34.24	8.32	34.02	267	52	Peak
5365.07	43.13	34.49	54	-10.87	34.29	8.38	34.03	267	52	Average
5427.11	53.66	44.89	74	-20.34	34.33	8.48	34.04	267	52	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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	105.02	96.44			34.25	8.35	34.02	111	202	Average
5320	110.47	101.89			34.25	8.35	34.02	111	202	Peak
5350	51.04	42.41	54	-2.96	34.28	8.38	34.03	111	202	Average
5350.22	63.09	54.46	74	-10.91	34.28	8.38	34.03	111	202	Peak
10640	48.35	33.62	54	-5.65	37.31	12.71	35.29	169	242	Average
10640	55.55	40.82	74	-18.45	37.31	12.71	35.29	169	242	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	98.06	89.48			34.25	8.35	34.02	269	54	Average
5320	104.68	96.1			34.25	8.35	34.02	269	54	Peak
5350.33	58.78	50.15	74	-15.22	34.28	8.38	34.03	269	54	Peak
5350.66	46.6	37.97	54	-7.4	34.28	8.38	34.03	269	54	Average
10640	47.69	32.96	54	-6.31	37.31	12.71	35.29	185	116	Average
10640	55.9	41.17	74	-18.1	37.31	12.71	35.29	185	116	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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
5457.04	61.7	52.88	74	-12.3	34.36	8.51	34.05	107	206	Peak
5460.08	47.84	39.02	54	-6.16	34.36	8.51	34.05	107	206	Peak
*5470.64	66.14	57.31	74	-7.86	34.37	8.51	34.05	107	206	Peak
*5470.8	53.27	44.41	54	-0.73	34.37	8.54	34.05	107	206	Peak
5500	104.01	95.09			34.4	8.57	34.05	107	206	Average
5500	109.65	100.73			34.4	8.57	34.05	107	206	Peak
11000	48.08	33	54	-5.92	37.6	12.96	35.48	125	335	Average
11000	56.91	41.83	74	-17.09	37.6	12.96	35.48	125	335	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5458.48	56.36	47.54	74	-17.64	34.36	8.51	34.05	259	58	Peak
5459.76	43.75	34.93	54	-10.25	34.36	8.51	34.05	259	58	Average
*5470.64	62.09	53.26	74	-11.91	34.37	8.51	34.05	259	58	Peak
*5470.96	49.57	40.71	54	-4.43	34.37	8.54	34.05	259	58	Average
5500	98.03	89.11			34.4	8.57	34.05	259	58	Average
5500	104.77	95.85			34.4	8.57	34.05	259	58	Peak
11000	48.22	33.14	54	-5.78	37.6	12.96	35.48	127	96	Average
11000	57.35	42.27	74	-16.65	37.6	12.96	35.48	127	96	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 116	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5436.88	53.7	44.91	74	-20.3	34.35	8.48	34.04	105	207	Peak
5456.88	43.32	34.5	54	-10.68	34.36	8.51	34.05	105	207	Average
*5468.72	53.31	44.48	74	-20.69	34.37	8.51	34.05	105	207	Peak
*5470.96	43.25	34.39	54	-10.75	34.37	8.54	34.05	105	207	Average
5580	103.13	94.14			34.47	8.6	34.08	105	207	Average
5580	109.63	100.64			34.47	8.6	34.08	105	207	Peak
*5724.12	53.81	44.65	74	-20.19	34.62	8.65	34.11	105	207	Peak
*5725.08	43.77	34.61	54	-10.23	34.62	8.65	34.11	105	207	Average
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5381.36	53.58	44.9	74	-20.42	34.31	8.41	34.04	280	58	Peak
5438.8	42.9	34.11	54	-11.1	34.35	8.48	34.04	280	58	Average
*5470	42.49	33.66	54	-11.51	34.37	8.51	34.05	280	58	Average
*5470	50.92	42.09	74	-23.08	34.37	8.51	34.05	280	58	Peak
5580	96.5	87.51			34.47	8.6	34.08	280	58	Average
5580	102.99	94			34.47	8.6	34.08	280	58	Peak
*5725.4	52.81	43.65	74	-21.19	34.62	8.65	34.11	280	58	Peak
*5726.04	43.35	34.19	54	-10.65	34.62	8.65	34.11	280	58	Average

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	100.22	91.09			34.59	8.64	34.1	116	204	Average
5700	107.35	98.22			34.59	8.64	34.1	116	204	Peak
*5724.12	53.55	44.39	54	-0.45	34.62	8.65	34.11	116	204	Average
*5725.08	66.14	56.98	74	-7.86	34.62	8.65	34.11	116	204	Peak
11400	48.14	33.04	54	-5.86	37.84	12.67	35.41	184	225	Average
11400	56.67	41.57	74	-17.33	37.84	12.67	35.41	184	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
5700	94.26	85.13			34.59	8.64	34.1	269	58	Average
5700	101.07	91.94			34.59	8.64	34.1	269	58	Peak
*5723.96	47.05	37.89	54	-6.95	34.62	8.65	34.11	269	58	Average
*5725.32	61.08	51.92	74	-12.92	34.62	8.65	34.11	269	58	Peak
11400	48.16	33.06	54	-5.84	37.84	12.67	35.41	137	337	Average
11400	58.21	43.11	74	-15.79	37.84	12.67	35.41	137	337	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5700 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	100.45	91.26			34.64	8.66	34.11	203	245	Average
5745	107.57	98.38			34.64	8.66	34.11	203	245	Peak
11490	48.12	33	54	-5.88	37.89	12.62	35.39	165	296	Average
11490	57.33	42.21	74	-16.67	37.89	12.62	35.39	165	296	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	95.55	86.36			34.64	8.66	34.11	257	280	Average
5745	102.74	93.55			34.64	8.66	34.11	257	280	Peak
11490	48.01	32.89	54	-5.99	37.89	12.62	35.39	137	289	Average
11490	57.45	42.33	74	-16.55	37.89	12.62	35.39	137	289	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5585.05	43.54	34.53	54	-10.46	34.49	8.6	34.08	203	245	Average
*5585.05	54.61	45.6	74	-19.39	34.49	8.6	34.08	203	245	Peak
5656.45	54.24	45.15	78.02	-23.78	34.56	8.63	34.1	203	245	Peak
5918.425	53.1	43.72	78.1	-25	34.81	8.73	34.16	203	245	Peak
*5957.8	43.97	34.52	54	-10.03	34.87	8.74	34.16	203	245	Average
*5957.8	53.89	44.44	74	-20.11	34.87	8.74	34.16	203	245	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5594.5	43.45	34.44	54	-10.55	34.49	8.6	34.08	257	280	Average
*5594.5	53.78	44.77	74	-20.22	34.49	8.6	34.08	257	280	Peak
5654.35	52.62	43.53	76.71	-24.09	34.56	8.63	34.1	257	280	Peak
5921.575	52.01	42.61	76.14	-24.13	34.83	8.73	34.16	257	280	Peak
*6016.075	43.98	34.48	54	-10.02	34.92	8.76	34.18	257	280	Average
*6016.075	53.82	44.32	74	-20.18	34.92	8.76	34.18	257	280	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5745 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 157	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	100.79	91.56			34.68	8.68	34.13	203	245	Average
5785	107.77	98.54			34.68	8.68	34.13	203	245	Peak
11570	48.23	32.92	54	-5.77	38	12.68	35.37	187	47	Average
11570	58.19	42.88	74	-15.81	38	12.68	35.37	187	47	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	95.4	86.17			34.68	8.68	34.13	257	280	Average
5785	102.39	93.16			34.68	8.68	34.13	257	280	Peak
11570	48.15	32.84	54	-5.85	38	12.68	35.37	165	59	Average
11570	56.9	41.59	74	-17.1	38	12.68	35.37	165	59	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5577.175	43.26	34.26	54	-10.74	34.47	8.6	34.07	203	245	Average
*5577.175	54.01	45.01	74	-19.99	34.47	8.6	34.07	203	245	Peak
5655.4	53.63	44.54	77.37	-23.74	34.56	8.63	34.1	203	245	Peak
5923.15	53.2	43.8	75.15	-21.95	34.83	8.73	34.16	203	245	Peak
*5944.675	43.86	34.43	54	-10.14	34.85	8.74	34.16	203	245	Average
*5944.675	54.43	45	74	-19.57	34.85	8.74	34.16	203	245	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5633.35	43.41	34.34	54	-10.59	34.54	8.62	34.09	257	280	Average
*5633.35	53.5	44.43	74	-20.5	34.54	8.62	34.09	257	280	Peak
5654.35	53.61	44.52	76.71	-23.1	34.56	8.63	34.1	257	280	Peak
5916.85	52.35	42.97	79.09	-26.74	34.81	8.73	34.16	257	280	Peak
*5936.8	43.76	34.36	54	-10.24	34.83	8.73	34.16	257	280	Average
*5936.8	53.78	44.38	74	-20.22	34.83	8.73	34.16	257	280	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5785 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	100.91	91.62			34.73	8.69	34.13	203	245	Average
5825	107.71	98.42			34.73	8.69	34.13	203	245	Peak
11650	48.43	32.9	54	-5.57	38.09	12.8	35.36	119	190	Average
11650	56.62	41.09	74	-17.38	38.09	12.8	35.36	119	190	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	95.06	85.77			34.73	8.69	34.13	257	280	Average
5825	102.03	92.74			34.73	8.69	34.13	257	280	Peak
11650	48.5	32.97	54	-5.5	38.09	12.8	35.36	190	33	Average
11650	57.12	41.59	74	-16.88	38.09	12.8	35.36	190	33	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5616.55	43.39	34.34	54	-10.61	34.52	8.61	34.08	203	245	Average
*5616.55	54.18	45.13	74	-19.82	34.52	8.61	34.08	203	245	Peak
5653.3	53.66	44.56	76.06	-22.4	34.56	8.63	34.09	203	245	Peak
5922.625	51.46	42.06	75.48	-24.02	34.83	8.73	34.16	203	245	Peak
*6015.025	43.98	34.48	54	-10.02	34.92	8.76	34.18	203	245	Average
*6015.025	54.13	44.63	74	-19.87	34.92	8.76	34.18	203	245	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5577.7	43.22	34.23	54	-10.78	34.47	8.6	34.08	257	280	Average
*5577.7	53.64	44.65	74	-20.36	34.47	8.6	34.08	257	280	Peak
5651.725	52.94	43.85	75.08	-22.14	34.56	8.62	34.09	257	280	Peak
5921.575	52.14	42.74	76.14	-24	34.83	8.73	34.16	257	280	Peak
*6019.75	43.9	34.39	54	-10.1	34.92	8.77	34.18	257	280	Average
*6019.75	53.95	44.44	74	-20.05	34.92	8.77	34.18	257	280	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band

802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 36	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5149.7	61.97	53.72	74	-12.03	34.12	8.13	34	115	203	Peak
5150	45.59	37.34	54	-8.41	34.12	8.13	34	115	203	Average
5180	101.14	92.83			34.15	8.16	34	115	203	Average
5180	107.39	99.08			34.15	8.16	34	115	203	Peak
*10360	47.07	32.77	54	-6.93	37.12	12.3	35.12	155	171	Average
*10360	55.01	40.71	74	-18.99	37.12	12.3	35.12	155	171	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5146.1	42.95	34.7	54	-11.05	34.12	8.13	34	254	53	Average
5149.25	54.74	46.49	74	-19.26	34.12	8.13	34	254	53	Peak
5180	94.38	86.07			34.15	8.16	34	254	53	Average
5180	101.37	93.06			34.15	8.16	34	254	53	Peak
*10360	47.16	32.86	54	-6.84	37.12	12.3	35.12	141	158	Average
*10360	55.39	41.09	74	-18.61	37.12	12.3	35.12	141	158	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 44	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5138.75	54.71	46.46	74	-19.29	34.11	8.13	33.99	114	203	Peak
5146.25	44.19	35.94	54	-9.81	34.12	8.13	34	114	203	Average
5220	102.05	93.66			34.17	8.22	34	114	203	Average
5220	108.03	99.64			34.17	8.22	34	114	203	Peak
5434.81	43.17	34.38	54	-10.83	34.35	8.48	34.04	114	203	Average
5441.96	53.76	44.97	74	-20.24	34.35	8.48	34.04	114	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
5099	53.2	45.04	74	-20.8	34.08	8.07	33.99	236	53	Peak
5146.85	42.93	34.68	54	-11.07	34.12	8.13	34	236	53	Average
5220	94.82	86.43			34.17	8.22	34	236	53	Average
5220	101.63	93.24			34.17	8.22	34	236	53	Peak
5417.32	53.36	44.63	74	-20.64	34.33	8.44	34.04	236	53	Peak
5435.47	42.78	33.99	54	-11.22	34.35	8.48	34.04	236	53	Average

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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	100.85	92.41			34.19	8.26	34.01	114	202	Average
5240	107.18	98.74			34.19	8.26	34.01	114	202	Peak
5362.21	54.18	45.54	74	-19.82	34.29	8.38	34.03	114	202	Peak
5456.37	43.32	34.5	54	-10.68	34.36	8.51	34.05	114	202	Average
*10480	47.11	32.6	54	-6.89	37.19	12.53	35.21	105	77	Average
*10480	56.15	41.64	74	-17.85	37.19	12.53	35.21	105	77	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	94.36	85.92			34.19	8.26	34.01	236	53	Average
5240	101.65	93.21			34.19	8.26	34.01	236	53	Peak
5376.29	42.97	34.31	54	-11.03	34.29	8.41	34.04	236	53	Average
5403.02	54.01	45.29	74	-19.99	34.32	8.44	34.04	236	53	Peak
*10480	47.27	32.76	54	-6.73	37.19	12.53	35.21	148	322	Average
*10480	56.23	41.72	74	-17.77	37.19	12.53	35.21	148	322	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5240 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 52	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5136.95	54.53	46.28	74	-19.47	34.11	8.13	33.99	113	203	Peak
5145.2	43.85	35.6	54	-10.15	34.12	8.13	34	113	203	Average
5260	101.9	93.44			34.21	8.26	34.01	113	203	Average
5260	108.83	100.37			34.21	8.26	34.01	113	203	Peak
*10520	47.96	33.37	54	-6.04	37.21	12.61	35.23	127	196	Average
*10520	56.92	42.33	74	-17.08	37.21	12.61	35.23	127	196	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5141.6	42.83	34.57	54	-11.17	34.12	8.13	33.99	273	53	Average
5144.15	53.8	45.55	74	-20.2	34.12	8.13	34	273	53	Peak
5260	95.18	86.72			34.21	8.26	34.01	273	53	Average
5260	102.43	93.97			34.21	8.26	34.01	273	53	Peak
*10520	48.54	33.95	54	-5.46	37.21	12.61	35.23	163	171	Average
*10520	56.86	42.27	74	-17.14	37.21	12.61	35.23	163	171	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 60	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	43.27	35.02	54	-10.73	34.12	8.13	34	112	201	Average
5146.85	54.71	46.46	74	-19.29	34.12	8.13	34	112	201	Peak
5300	101.89	93.35			34.24	8.32	34.02	112	201	Average
5300	108.74	100.2			34.24	8.32	34.02	112	201	Peak
5361.55	44	35.36	54	-10	34.29	8.38	34.03	112	201	Average
5367.38	54.37	45.7	74	-19.63	34.29	8.41	34.03	112	201	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	53.03	44.78	74	-20.97	34.11	8.13	33.99	267	52	Peak
5144.6	42.83	34.58	54	-11.17	34.12	8.13	34	267	52	Average
5300	95.08	86.54			34.24	8.32	34.02	267	52	Average
5300	102.08	93.54			34.24	8.32	34.02	267	52	Peak
5415.56	43.09	34.36	54	-10.91	34.33	8.44	34.04	267	52	Average
5433.05	53.99	45.2	74	-20.01	34.35	8.48	34.04	267	52	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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	101.63	93.05			34.25	8.35	34.02	111	202	Average
5320	108.06	99.48			34.25	8.35	34.02	111	202	Peak
5350.66	45.3	36.67	54	-8.7	34.28	8.38	34.03	111	202	Average
5351.21	59.9	51.27	74	-14.1	34.28	8.38	34.03	111	202	Peak
10640	47.82	33.09	54	-6.18	37.31	12.71	35.29	129	154	Average
10640	56.2	41.47	74	-17.8	37.31	12.71	35.29	129	154	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5320	94.79	86.21			34.25	8.35	34.02	269	54	Average
5320	101.79	93.21			34.25	8.35	34.02	269	54	Peak
5359.46	53.98	45.35	74	-20.02	34.28	8.38	34.03	269	54	Peak
5375.3	43.18	34.52	54	-10.82	34.29	8.41	34.04	269	54	Average
10640	47.68	32.95	54	-6.32	37.31	12.71	35.29	158	236	Average
10640	55.92	41.19	74	-18.08	37.31	12.71	35.29	158	236	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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
5457.2	44.37	35.55	54	-9.63	34.36	8.51	34.05	107	206	Average
5459.6	60.16	51.34	74	-13.84	34.36	8.51	34.05	107	206	Peak
*5470.32	64.69	55.86	74	-9.31	34.37	8.51	34.05	107	206	Peak
*5470.96	47.19	38.33	54	-6.81	34.37	8.54	34.05	107	206	Average
5500	100.67	91.75			34.4	8.57	34.05	107	206	Average
5500	107.07	98.15			34.4	8.57	34.05	107	206	Peak
11000	48.17	33.09	54	-5.83	37.6	12.96	35.48	157	228	Average
11000	57.77	42.69	74	-16.23	37.6	12.96	35.48	157	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
5362.64	53.54	44.9	74	-20.46	34.29	8.38	34.03	259	58	Peak
5433.68	42.93	34.14	54	-11.07	34.35	8.48	34.04	259	58	Average
*5470.32	58.11	49.28	74	-15.89	34.37	8.51	34.05	259	58	Peak
*5470.96	44.03	35.17	54	-9.97	34.37	8.54	34.05	259	58	Average
5500	94.66	85.74			34.4	8.57	34.05	259	58	Average
5500	101.52	92.6			34.4	8.57	34.05	259	58	Peak
11000	48.18	33.1	54	-5.82	37.6	12.96	35.48	147	154	Average
11000	56.75	41.67	74	-17.25	37.6	12.96	35.48	147	154	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 116	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5449.2	43.3	34.47	54	-10.7	34.36	8.51	34.04	105	207	Average
5451.92	54.13	45.31	74	-19.87	34.36	8.51	34.05	105	207	Peak
*5469.84	53.08	44.25	74	-20.92	34.37	8.51	34.05	105	207	Peak
*5470.16	43.25	34.42	54	-10.75	34.37	8.51	34.05	105	207	Average
5580	100.16	91.17			34.47	8.6	34.08	105	207	Average
5580	107.45	98.46			34.47	8.6	34.08	105	207	Peak
*5724.12	43.52	34.36	54	-10.48	34.62	8.65	34.11	105	207	Average
*5725.8	53.17	44.01	74	-20.83	34.62	8.65	34.11	105	207	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
5432.24	42.96	34.17	54	-11.04	34.35	8.48	34.04	280	58	Average
5450.64	53.5	44.68	74	-20.5	34.36	8.51	34.05	280	58	Peak
*5469.04	52.69	43.86	74	-21.31	34.37	8.51	34.05	280	58	Peak
*5470.32	42.66	33.83	54	-11.34	34.37	8.51	34.05	280	58	Average
5580	94.36	85.37			34.47	8.6	34.08	280	58	Average
5580	101.52	92.53			34.47	8.6	34.08	280	58	Peak
*5724.68	52.93	43.77	74	-21.07	34.62	8.65	34.11	280	58	Peak
*5726.04	43.26	34.1	54	-10.74	34.62	8.65	34.11	280	58	Average

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 140	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	98.25	89.12			34.59	8.64	34.1	116	204	Average
5700	105.88	96.75			34.59	8.64	34.1	116	204	Peak
*5724.04	71.13	61.97	74	-2.87	34.62	8.65	34.11	116	204	Peak
*5724.12	52.91	43.75	54	-1.09	34.62	8.65	34.11	116	204	Average
11400	47.61	32.51	54	-6.39	37.84	12.67	35.41	119	54	Average
11400	56.9	41.8	74	-17.1	37.84	12.67	35.41	119	54	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	93.21	84.08			34.59	8.64	34.1	269	58	Average
5700	100.9	91.77			34.59	8.64	34.1	269	58	Peak
*5723.96	48.16	39	54	-5.84	34.62	8.65	34.11	269	58	Average
*5724.04	64.87	55.71	74	-9.13	34.62	8.65	34.11	269	58	Peak
11400	47.77	32.67	54	-6.23	37.84	12.67	35.41	164	114	Average
11400	56.65	41.55	74	-17.35	37.84	12.67	35.41	164	114	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5700 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	97.3	88.11			34.64	8.66	34.11	203	245	Average
5745	104.08	94.89			34.64	8.66	34.11	203	245	Peak
11490	47.99	32.87	54	-6.01	37.89	12.62	35.39	157	224	Average
11490	56.67	41.55	74	-17.33	37.89	12.62	35.39	157	224	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	92.63	83.44			34.64	8.66	34.11	257	280	Average
5745	99.83	90.64			34.64	8.66	34.11	257	280	Peak
11490	48.57	33.45	54	-5.43	37.89	12.62	35.39	157	124	Average
11490	57.19	42.07	74	-16.81	37.89	12.62	35.39	157	124	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5637.025	43.35	34.28	54	-10.65	34.54	8.62	34.09	203	245	Average
*5637.025	54.35	45.28	74	-19.65	34.54	8.62	34.09	203	245	Peak
5651.725	52.58	43.49	75.08	-22.5	34.56	8.62	34.09	203	245	Peak
5923.675	52.39	42.99	74.83	-22.44	34.83	8.73	34.16	203	245	Peak
*6019.75	43.93	34.42	54	-10.07	34.92	8.77	34.18	203	245	Average
*6019.75	54.14	44.63	74	-19.86	34.92	8.77	34.18	203	245	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5647.525	43.54	34.47	54	-10.46	34.54	8.62	34.09	257	280	Average
*5647.525	54.68	45.61	74	-19.32	34.54	8.62	34.09	257	280	Peak
5654.35	53.33	44.24	76.71	-23.38	34.56	8.63	34.1	257	280	Peak
5919.475	52.38	43	77.45	-25.07	34.81	8.73	34.16	257	280	Peak
*5997.175	43.96	34.47	54	-10.04	34.9	8.76	34.17	257	280	Average
*5997.175	54	44.51	74	-20	34.9	8.76	34.17	257	280	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5745 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 157	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	97.36	88.13			34.68	8.68	34.13	203	245	Average
5785	104.54	95.31			34.68	8.68	34.13	203	245	Peak
11570	48.06	32.75	54	-5.94	38	12.68	35.37	148	156	Average
11570	56.95	41.64	74	-17.05	38	12.68	35.37	148	156	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	92.91	83.68			34.68	8.68	34.13	257	280	Average
5785	99.42	90.19			34.68	8.68	34.13	257	280	Peak
11570	48.35	33.04	54	-5.65	38	12.68	35.37	141	124	Average
11570	56.99	41.68	74	-17.01	38	12.68	35.37	141	124	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5556.7	43.28	34.31	54	-10.72	34.45	8.59	34.07	203	245	Average
*5556.7	53.93	44.96	74	-20.07	34.45	8.59	34.07	203	245	Peak
5651.2	53.92	44.83	74.75	-20.83	34.56	8.62	34.09	203	245	Peak
5921.05	52.51	43.13	76.46	-23.95	34.81	8.73	34.16	203	245	Peak
*5958.85	43.81	34.36	54	-10.19	34.87	8.74	34.16	203	245	Average
*5958.85	53.79	44.34	74	-20.21	34.87	8.74	34.16	203	245	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5647	43.42	34.35	54	-10.58	34.54	8.62	34.09	257	280	Average
*5647	53.63	44.56	74	-20.37	34.54	8.62	34.09	257	280	Peak
5658.025	53.11	44.02	79.01	-25.9	34.56	8.63	34.1	257	280	Peak
5923.675	53.1	43.7	74.83	-21.73	34.83	8.73	34.16	257	280	Peak
*5956.75	43.86	34.41	54	-10.14	34.87	8.74	34.16	257	280	Average
*5956.75	54.12	44.67	74	-19.88	34.87	8.74	34.16	257	280	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5785 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	97.39	88.1			34.73	8.69	34.13	203	245	Average
5825	104.19	94.9			34.73	8.69	34.13	203	245	Peak
11650	48.41	32.88	54	-5.59	38.09	12.8	35.36	140	11	Average
11650	55.97	40.44	74	-18.03	38.09	12.8	35.36	140	11	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	92.66	83.37			34.73	8.69	34.13	257	280	Average
5825	99.77	90.48			34.73	8.69	34.13	257	280	Peak
11650	48.31	32.78	54	-5.69	38.09	12.8	35.36	139	99	Average
11650	57.13	41.6	74	-16.87	38.09	12.8	35.36	139	99	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5646.475	43.24	34.17	54	-10.76	34.54	8.62	34.09	203	245	Average
*5646.475	53.92	44.85	74	-20.08	34.54	8.62	34.09	203	245	Peak
5655.925	53.5	44.41	77.7	-24.2	34.56	8.63	34.1	203	245	Peak
5918.95	53.29	43.91	77.78	-24.49	34.81	8.73	34.16	203	245	Peak
*5927.35	43.78	34.38	54	-10.22	34.83	8.73	34.16	203	245	Average
*5927.35	53.69	44.29	74	-20.31	34.83	8.73	34.16	203	245	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5648.575	43.21	34.14	54	-10.79	34.54	8.62	34.09	257	280	Average
*5648.575	53.48	44.41	74	-20.52	34.54	8.62	34.09	257	280	Peak
5653.825	53.67	44.58	76.39	-22.72	34.56	8.63	34.1	257	280	Peak
5923.15	52.17	42.77	75.15	-22.98	34.83	8.73	34.16	257	280	Peak
*5945.2	43.69	34.26	54	-10.31	34.85	8.74	34.16	257	280	Average
*5945.2	53.9	44.47	74	-20.1	34.85	8.74	34.16	257	280	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band

802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 38	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5149.1	46.54	38.29	54	-7.46	34.12	8.13	34	115	203	Average
5150	62.4	54.15	74	-11.6	34.12	8.13	34	115	203	Peak
5190	97	88.66			34.15	8.19	34	115	203	Average
5190	103.55	95.21			34.15	8.19	34	115	203	Peak
5417.76	54.83	46.1	74	-19.17	34.33	8.44	34.04	115	203	Peak
5449.77	43.2	34.38	54	-10.8	34.36	8.51	34.05	115	203	Average
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5149.25	43.58	35.33	54	-10.42	34.12	8.13	34	255	53	Average
5150	57.23	48.98	74	-16.77	34.12	8.13	34	255	53	Peak
5190	89.77	81.43			34.15	8.19	34	255	53	Average
5190	96.43	88.09			34.15	8.19	34	255	53	Peak
5386.52	53.71	45.03	74	-20.29	34.31	8.41	34.04	255	53	Peak
5451.31	42.81	33.99	54	-11.19	34.36	8.51	34.05	255	53	Average

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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
5142.2	54.8	46.54	74	-19.2	34.12	8.13	33.99	114	202	Peak
5149.4	44.2	35.95	54	-9.8	34.12	8.13	34	114	202	Average
5230	98.65	90.25			34.19	8.22	34.01	114	202	Average
5230	104.18	95.78			34.19	8.22	34.01	114	202	Peak
5398.4	53.48	44.76	74	-20.52	34.32	8.44	34.04	114	202	Peak
5439.87	43.06	34.27	54	-10.94	34.35	8.48	34.04	114	202	Average
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5113.7	53.94	45.74	74	-20.06	34.09	8.1	33.99	236	53	Peak
5123.9	42.9	34.68	54	-11.1	34.11	8.1	33.99	236	53	Average
5230	92.41	84.01			34.19	8.22	34.01	236	53	Average
5230	98.49	90.09			34.19	8.22	34.01	236	53	Peak
5437.78	42.87	34.08	54	-11.13	34.35	8.48	34.04	236	53	Average
5453.4	53.17	44.35	74	-20.83	34.36	8.51	34.05	236	53	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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
5145.95	43.53	35.28	54	-10.47	34.12	8.13	34	106	203	Average
5148.5	54.06	45.81	74	-19.94	34.12	8.13	34	106	203	Peak
5270	97.52	89.03			34.21	8.29	34.01	106	203	Average
5270	104.64	96.15			34.21	8.29	34.01	106	203	Peak
5359.35	43.49	34.86	54	-10.51	34.28	8.38	34.03	106	203	Average
5441.41	53.55	44.76	74	-20.45	34.35	8.48	34.04	106	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
5110.7	53.74	45.54	74	-20.26	34.09	8.1	33.99	258	53	Peak
5127.8	42.75	34.53	54	-11.25	34.11	8.1	33.99	258	53	Average
5270	90.3	81.81			34.21	8.29	34.01	258	53	Average
5270	97.52	89.03			34.21	8.29	34.01	258	53	Peak
5353.41	42.91	34.28	54	-11.09	34.28	8.38	34.03	258	53	Average
5443.72	54.51	45.72	74	-19.49	34.35	8.48	34.04	258	53	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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
5111.75	54.22	46.02	74	-19.78	34.09	8.1	33.99	111	202	Peak
5148.05	43.23	34.98	54	-10.77	34.12	8.13	34	111	202	Average
5310	97.46	88.91			34.25	8.32	34.02	111	202	Average
5310	103.82	95.27			34.25	8.32	34.02	111	202	Peak
5350.11	45.29	36.66	54	-8.71	34.28	8.38	34.03	111	202	Average
5350.11	59.4	50.77	74	-14.6	34.28	8.38	34.03	111	202	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
5116.4	54.03	45.83	74	-19.97	34.09	8.1	33.99	274	55	Peak
5125.85	42.58	34.36	54	-11.42	34.11	8.1	33.99	274	55	Average
5310	90.64	82.09			34.25	8.32	34.02	274	55	Average
5310	97.88	89.33			34.25	8.32	34.02	274	55	Peak
5350.44	43.07	34.44	54	-10.93	34.28	8.38	34.03	274	55	Average
5364.96	54.29	45.65	74	-19.71	34.29	8.38	34.03	274	55	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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
5457.52	56.5	47.68	74	-17.5	34.36	8.51	34.05	114	208	Peak
5459.92	45.09	36.27	54	-8.91	34.36	8.51	34.05	114	208	Average
*5470.16	65.48	56.65	74	-8.52	34.37	8.51	34.05	114	208	Peak
*5470.96	47.12	38.26	54	-6.88	34.37	8.54	34.05	114	208	Average
5510	95.95	87.04			34.4	8.57	34.06	114	208	Average
5510	102.36	93.45			34.4	8.57	34.06	114	208	Peak
*5724.12	53.6	44.44	74	-20.4	34.62	8.65	34.11	114	208	Peak
*5724.68	43.84	34.68	54	-10.16	34.62	8.65	34.11	114	208	Average

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5417.84	54.58	45.85	74	-19.42	34.33	8.44	34.04	258	58	Peak
5459.28	43.74	34.92	54	-10.26	34.36	8.51	34.05	258	58	Average
*5469.52	59.63	50.8	74	-14.37	34.37	8.51	34.05	258	58	Peak
*5470.96	44.12	35.26	54	-9.88	34.37	8.54	34.05	258	58	Average
5510	89.65	80.74			34.4	8.57	34.06	258	58	Average
5510	96.09	87.18			34.4	8.57	34.06	258	58	Peak
*5725.64	43.36	34.2	54	-10.64	34.62	8.65	34.11	258	58	Average
*5725.8	52.26	43.1	74	-21.74	34.62	8.65	34.11	258	58	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5510 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 110	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5397.04	54.49	45.77	74	-19.51	34.32	8.44	34.04	106	207	Peak
5451.12	43.66	34.84	54	-10.34	34.36	8.51	34.05	106	207	Average
*5469.04	52.3	43.47	74	-21.7	34.37	8.51	34.05	106	207	Peak
*5470.64	43.82	34.99	54	-10.18	34.37	8.51	34.05	106	207	Average
5550	95.93	86.96			34.45	8.59	34.07	106	207	Average
5550	103.3	94.33			34.45	8.59	34.07	106	207	Peak
*5724.84	43.68	34.52	54	-10.32	34.62	8.65	34.11	106	207	Average
*5725.08	53.45	44.29	74	-20.55	34.62	8.65	34.11	106	207	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
5415.92	53.87	45.14	74	-20.13	34.33	8.44	34.04	255	58	Peak
5441.04	43.33	34.54	54	-10.67	34.35	8.48	34.04	255	58	Average
*5468.72	43.28	34.45	54	-10.72	34.37	8.51	34.05	255	58	Average
*5468.72	51.77	42.94	74	-22.23	34.37	8.51	34.05	255	58	Peak
5550	89.53	80.56			34.45	8.59	34.07	255	58	Average
5550	96	87.03			34.45	8.59	34.07	255	58	Peak
*5725.32	43.91	34.75	54	-10.09	34.62	8.65	34.11	255	58	Average
*5725.4	52.05	42.89	74	-21.95	34.62	8.65	34.11	255	58	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5550 MHz: Fundamental Frequency
- *: Out of Restricted Band

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
5357.2	53.41	44.78	74	-20.59	34.28	8.38	34.03	116	205	Peak
5443.12	42.82	34.03	54	-11.18	34.35	8.48	34.04	116	205	Average
*5468.08	53.14	44.31	74	-20.86	34.37	8.51	34.05	116	205	Peak
*5469.2	42.79	33.96	54	-11.21	34.37	8.51	34.05	116	205	Average
5670	98.22	89.12			34.57	8.63	34.1	116	205	Average
5670	99.9	90.8			34.57	8.63	34.1	116	205	Peak
*5723.96	44.02	34.86	54	-9.98	34.62	8.65	34.11	116	205	Average
*5725.08	57.82	48.66	74	-16.18	34.62	8.65	34.11	116	205	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
5398.96	53.8	45.08	74	-20.2	34.32	8.44	34.04	261	58	Peak
5442.32	43.07	34.28	54	-10.93	34.35	8.48	34.04	261	58	Average
*5469.04	51.6	42.77	74	-22.4	34.37	8.51	34.05	261	58	Peak
*5470.8	42.86	34	54	-11.14	34.37	8.54	34.05	261	58	Average
5670	88.83	79.73			34.57	8.63	34.1	261	58	Average
5670	96.58	87.48			34.57	8.63	34.1	261	58	Peak
*5724.2	43.55	34.39	54	-10.45	34.62	8.65	34.11	261	58	Average
*5725.48	52.43	43.27	74	-21.57	34.62	8.65	34.11	261	58	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 151	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	95.55	86.34			34.66	8.66	34.11	203	245	Average
5755	101.5	92.29			34.66	8.66	34.11	203	245	Peak
11510	48.22	33.11	54	-5.78	37.9	12.6	35.39	168	66	Average
11510	56.67	41.56	74	-17.33	37.9	12.6	35.39	168	66	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	90.87	81.66			34.66	8.66	34.11	257	280	Average
5755	96.29	87.08			34.66	8.66	34.11	257	280	Peak
11510	48.1	32.99	54	-5.9	37.9	12.6	35.39	157	228	Average
11510	57.07	41.96	74	-16.93	37.9	12.6	35.39	157	228	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5589.25	44.09	35.08	54	-9.91	34.49	8.6	34.08	203	245	Average
*5589.25	53.5	44.49	74	-20.5	34.49	8.6	34.08	203	245	Peak
5651.2	55.08	45.99	74.75	-19.67	34.56	8.62	34.09	203	245	Peak
5923.15	51.85	42.45	75.15	-23.3	34.83	8.73	34.16	203	245	Peak
*5965.15	44.72	35.27	54	-9.28	34.87	8.75	34.17	203	245	Average
*5965.15	53.99	44.54	74	-20.01	34.87	8.75	34.17	203	245	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5619.7	44.03	34.98	54	-9.97	34.52	8.61	34.08	257	280	Average
*5619.7	54.16	45.11	74	-19.84	34.52	8.61	34.08	257	280	Peak
5652.25	51.82	42.73	75.4	-23.58	34.56	8.62	34.09	257	280	Peak
5922.625	50.43	41.03	75.48	-25.05	34.83	8.73	34.16	257	280	Peak
*5986.15	44.48	35.02	54	-9.52	34.88	8.75	34.17	257	280	Average
*5986.15	54.5	45.04	74	-19.5	34.88	8.75	34.17	257	280	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5755 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 159	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	95.55	86.31			34.69	8.68	34.13	203	245	Average
5795	101.09	91.85			34.69	8.68	34.13	203	245	Peak
11590	48.37	33	54	-5.63	38.02	12.72	35.37	115	24	Average
11590	55.93	40.56	74	-18.07	38.02	12.72	35.37	115	24	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	90.03	80.79			34.69	8.68	34.13	257	280	Average
5795	96.71	87.47			34.69	8.68	34.13	257	280	Peak
11590	48.62	33.25	54	-5.38	38.02	12.72	35.37	157	338	Average
11590	57.15	41.78	74	-16.85	38.02	12.72	35.37	157	338	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5612.35	44.23	35.2	54	-9.77	34.5	8.61	34.08	203	245	Average
*5612.35	53.91	44.88	74	-20.09	34.5	8.61	34.08	203	245	Peak
5654.875	54.22	45.13	77.04	-22.82	34.56	8.63	34.1	203	245	Peak
5923.675	51.78	42.38	74.83	-23.05	34.83	8.73	34.16	203	245	Peak
*5945.2	44.77	35.34	54	-9.23	34.85	8.74	34.16	203	245	Average
*5945.2	53.61	44.18	74	-20.39	34.85	8.74	34.16	203	245	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5582.95	44.2	35.19	54	-9.8	34.49	8.6	34.08	257	280	Average
*5582.95	53.44	44.43	74	-20.56	34.49	8.6	34.08	257	280	Peak
5653.3	52.78	43.68	76.06	-23.28	34.56	8.63	34.09	257	280	Peak
5923.15	51.91	42.51	75.15	-23.24	34.83	8.73	34.16	257	280	Peak
*5938.9	44.52	35.09	54	-9.48	34.85	8.74	34.16	257	280	Average
*5938.9	53.83	44.4	74	-20.17	34.85	8.74	34.16	257	280	Peak

Remarks:

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

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
5135.6	56.35	48.1	74	-17.65	34.11	8.13	33.99	114	202	Peak
5149.4	44.93	36.68	54	-9.07	34.12	8.13	34	114	202	Average
5210	90.08	81.72			34.17	8.19	34	114	202	Average
5210	96.23	87.87			34.17	8.19	34	114	202	Peak
5447.24	53.33	44.5	74	-20.67	34.36	8.51	34.04	114	202	Peak
5449.88	42.85	34.03	54	-11.15	34.36	8.51	34.05	114	202	Average
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5124.5	53.67	45.45	74	-20.33	34.11	8.1	33.99	251	51	Peak
5149.25	42.89	34.64	54	-11.11	34.12	8.13	34	251	51	Average
5210	83.01	74.65			34.17	8.19	34	251	51	Average
5210	89.16	80.8			34.17	8.19	34	251	51	Peak
5415.01	53.12	44.39	74	-20.88	34.33	8.44	34.04	251	51	Peak
5452.74	42.67	33.85	54	-11.33	34.36	8.51	34.05	251	51	Average

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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
5129.9	53.73	45.51	74	-20.27	34.11	8.1	33.99	112	201	Peak
5145.95	42.63	34.38	54	-11.37	34.12	8.13	34	112	201	Average
5290	88.98	80.45			34.23	8.32	34.02	112	201	Average
5290	94.8	86.27			34.23	8.32	34.02	112	201	Peak
5350	43.72	35.09	54	-10.28	34.28	8.38	34.03	112	201	Average
5389.6	53.98	45.3	74	-20.02	34.31	8.41	34.04	112	201	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
5114.9	53.87	45.67	74	-20.13	34.09	8.1	33.99	270	52	Peak
5119.1	42.52	34.32	54	-11.48	34.09	8.1	33.99	270	52	Average
5290	38.69	30.16	54	-15.31	34.23	8.32	34.02	270	52	Average
5290	87.11	78.58			34.23	8.32	34.02	270	52	Peak
5447.35	53.48	44.65	74	-20.52	34.36	8.51	34.04	270	52	Peak
5450.65	42.75	33.93	54	-11.25	34.36	8.51	34.05	270	52	Average

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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
5383.92	53.58	44.9	74	-20.42	34.31	8.41	34.04	107	208	Peak
5453.36	43.67	34.85	54	-10.33	34.36	8.51	34.05	107	208	Average
*5470.16	44.02	35.19	54	-9.98	34.37	8.51	34.05	107	208	Average
*5470.48	53.24	44.41	74	-20.76	34.37	8.51	34.05	107	208	Peak
5530	87.21	78.28			34.42	8.58	34.07	107	208	Average
5530	92.43	83.5			34.42	8.58	34.07	107	208	Peak
*5723.96	44.04	34.88	54	-9.96	34.62	8.65	34.11	107	208	Average
*5725.56	53	43.84	74	-21	34.62	8.65	34.11	107	208	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5377.84	53.51	44.83	74	-20.49	34.31	8.41	34.04	247	58	Peak
5460	43.28	34.46	54	-10.72	34.36	8.51	34.05	247	58	Average
*5469.2	43.3	34.47	54	-10.7	34.37	8.51	34.05	247	58	Average
*5469.2	52.15	43.32	74	-21.85	34.37	8.51	34.05	247	58	Peak
5530	81.43	72.5			34.42	8.58	34.07	247	58	Average
5530	86.64	77.71			34.42	8.58	34.07	247	58	Peak
*5724.44	43.35	34.19	54	-10.65	34.62	8.65	34.11	247	58	Average
*5725.64	51.71	42.55	74	-22.29	34.62	8.65	34.11	247	58	Peak

Remarks:

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

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
5450	53.66	44.84	74	-20.34	34.36	8.51	34.05	118	205	Peak
5453.2	43.34	34.52	54	-10.66	34.36	8.51	34.05	118	205	Average
*5468.24	43.22	34.39	54	-10.78	34.37	8.51	34.05	118	205	Average
*5470.8	51.75	42.89	74	-22.25	34.37	8.54	34.05	118	205	Peak
5610	88.48	79.45			34.5	8.61	34.08	118	205	Average
5610	94.12	85.09			34.5	8.61	34.08	118	205	Peak
*5724.2	52.81	43.65	74	-21.19	34.62	8.65	34.11	118	205	Peak
*5724.28	43.72	34.56	54	-10.28	34.62	8.65	34.11	118	205	Average
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5438.8	53.42	44.63	74	-20.58	34.35	8.48	34.04	243	58	Peak
5455.12	43.35	34.53	54	-10.65	34.36	8.51	34.05	243	58	Average
*5470.16	43.28	34.45	54	-10.72	34.37	8.51	34.05	243	58	Average
*5470.8	51.7	42.84	74	-22.3	34.37	8.54	34.05	243	58	Peak
5610	82.71	73.68			34.5	8.61	34.08	243	58	Average
5610	87.84	78.81			34.5	8.61	34.08	243	58	Peak
*5724.84	51.99	42.83	74	-22.01	34.62	8.65	34.11	243	58	Peak
*5725.96	43.62	34.46	54	-10.38	34.62	8.65	34.11	243	58	Average

Remarks:

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

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	86.35	77.12			34.68	8.67	34.12	203	245	Average
5775	92.88	83.65			34.68	8.67	34.12	203	245	Peak
11550	48.86	33.59	54	-5.14	37.97	12.68	35.38	194	77	Average
11550	56.88	41.61	74	-17.12	37.97	12.68	35.38	194	77	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5775	81.44	72.21			34.68	8.67	34.12	257	280	Average
5775	87.34	78.11			34.68	8.67	34.12	257	280	Peak
11550	48.72	33.45	54	-5.28	37.97	12.68	35.38	138	318	Average
11550	56.64	41.37	74	-17.36	37.97	12.68	35.38	138	318	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5634.925	45.74	36.67	54	-8.26	34.54	8.62	34.09	203	245	Average
*5634.925	53.73	44.66	74	-20.27	34.54	8.62	34.09	203	245	Peak
5651.2	53.2	44.11	74.75	-21.55	34.56	8.62	34.09	203	245	Peak
5917.9	52.84	43.46	78.43	-25.59	34.81	8.73	34.16	203	245	Peak
*5945.725	46.59	37.16	54	-7.41	34.85	8.74	34.16	203	245	Average
*5945.725	54.63	45.2	74	-19.37	34.85	8.74	34.16	203	245	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5523.1	45.85	36.91	54	-8.15	34.42	8.58	34.06	257	280	Average
*5523.1	53.65	44.71	74	-20.35	34.42	8.58	34.06	257	280	Peak
5651.725	53.39	44.3	75.08	-21.69	34.56	8.62	34.09	257	280	Peak
5920.525	52.84	43.46	76.79	-23.95	34.81	8.73	34.16	257	280	Peak
*5956.225	46.38	36.93	54	-7.62	34.87	8.74	34.16	257	280	Average
*5956.225	53.39	43.94	74	-20.61	34.87	8.74	34.16	257	280	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5775 MHz: Fundamental Frequency
- *: Out of Restricted Band

9 kHz ~ 30 MHz DATA:

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

30 MHz ~ 1 GHz WORST-CASE DATA:

802.11a

EUT Test Condition		Measurement Detail	
Channel	Channel 48	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
86.16	16.07	38.16	40	-23.93	8.71	1.11	31.91	134	117	Peak
163.11	25.29	45.45	43.5	-18.21	10.58	1.52	32.26	124	195	Peak
287.04	24.42	40.72	46	-21.58	13.8	2.03	32.13	106	343	Peak
440.7	20.79	32.57	46	-25.21	17.89	2.49	32.16	136	129	Peak
728.4	25.9	31.46	46	-20.1	23.4	3.16	32.12	145	235	Peak
907.6	27.37	29.78	46	-18.63	25.48	3.53	31.42	105	128	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
84.54	17.56	39.82	40	-22.44	8.64	1.11	32.01	153	168	Peak
153.93	16.02	36.38	43.5	-27.48	10.39	1.52	32.27	134	129	Peak
274.89	19.43	35.91	46	-26.57	13.7	1.94	32.12	139	206	Peak
407.8	18.52	30.37	46	-27.48	17.95	2.41	32.21	195	117	Peak
734	25.38	31.02	46	-20.62	23.33	3.16	32.13	163	125	Peak
930	28.37	29.81	46	-17.63	26.2	3.62	31.26	187	114	Peak

Remarks:

- 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 64	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
84.81	15.59	37.8	40	-24.41	8.64	1.11	31.96	199	164	Peak
163.65	24.16	44.39	43.5	-19.34	10.51	1.52	32.26	187	134	Peak
248.43	26.53	43.84	46	-19.47	12.94	1.85	32.1	130	128	Peak
439.3	20.03	31.81	46	-25.97	17.89	2.49	32.16	169	138	Peak
791.4	24.03	28.6	46	-21.97	24.23	3.27	32.07	124	196	Peak
930.7	27.76	29.19	46	-18.24	26.2	3.62	31.25	124	257	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
46.74	28.49	50.99	40	-11.51	8.82	0.9	32.22	145	127	Peak
84.27	17.37	39.66	40	-22.63	8.61	1.11	32.01	105	114	Peak
270.3	14.98	31.57	46	-31.02	13.58	1.94	32.11	138	164	Peak
360.9	18.53	32.01	46	-27.47	16.36	2.26	32.1	164	138	Peak
699	24.36	30.24	46	-21.64	23.1	3.11	32.09	199	126	Peak
876.1	25.83	29.17	46	-20.17	24.8	3.49	31.63	108	175	Peak

Remarks:

- 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
47.28	27.88	50.55	40	-12.12	8.65	0.9	32.22	196	241	Peak
155.01	16.75	37.05	43.5	-26.75	10.45	1.52	32.27	134	128	Peak
281.91	17.28	33.61	46	-28.72	13.76	2.03	32.12	127	145	Peak
479.2	24.36	35	46	-21.64	18.92	2.56	32.12	187	114	Peak
741.7	24.65	30.36	46	-21.35	23.27	3.16	32.14	141	224	Peak
895	27.25	30.31	46	-18.75	24.96	3.49	31.51	134	162	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
85.62	15.78	37.94	40	-24.22	8.69	1.11	31.96	168	315	Peak
160.41	25.03	44.98	43.5	-18.47	10.8	1.52	32.27	155	206	Peak
250.59	26.31	43.56	46	-19.69	13	1.85	32.1	127	164	Peak
393.8	18.71	30.93	46	-27.29	17.65	2.34	32.21	163	203	Peak
722.8	25.53	31.12	46	-20.47	23.36	3.16	32.11	155	241	Peak
928.6	27.88	29.33	46	-18.12	26.2	3.62	31.27	127	164	Peak

Remarks:

- 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 155	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
84.81	16.45	38.66	40	-23.55	8.64	1.11	31.96	174	124	Peak
164.46	23.7	44	43.5	-19.8	10.44	1.52	32.26	196	206	Peak
249.24	26.83	44.14	46	-19.17	12.94	1.85	32.1	134	128	Peak
466.6	22.01	32.95	46	-23.99	18.63	2.56	32.13	154	112	Peak
713.7	25.63	31.35	46	-20.37	23.27	3.11	32.1	186	334	Peak
974.8	29	30.23	54	-25	25.8	3.67	30.7	154	112	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
46.2	30.3	52.62	40	-9.7	9	0.9	32.22	105	117	Peak
85.08	17.36	39.55	40	-22.64	8.66	1.11	31.96	145	122	Peak
251.13	18.59	35.71	46	-27.41	13.04	1.94	32.1	163	264	Peak
438.6	20.59	32.4	46	-25.41	17.86	2.49	32.16	136	120	Peak
670.3	24.36	30.25	46	-21.64	23.18	3.05	32.12	198	125	Peak
973.4	28.63	29.87	54	-25.37	25.8	3.67	30.71	157	144	Peak

Remarks:

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

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

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 21, 2016	Nov. 20, 2017
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Dec. 22, 2016	Dec. 21, 2017
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 26, 2016	Feb. 25, 2017
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 28, 2016	Jul. 27, 2017
Software ADT	BV ADT_Conc_ V7.3.7.3	NA	NA	NA

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

2. The test was performed in HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

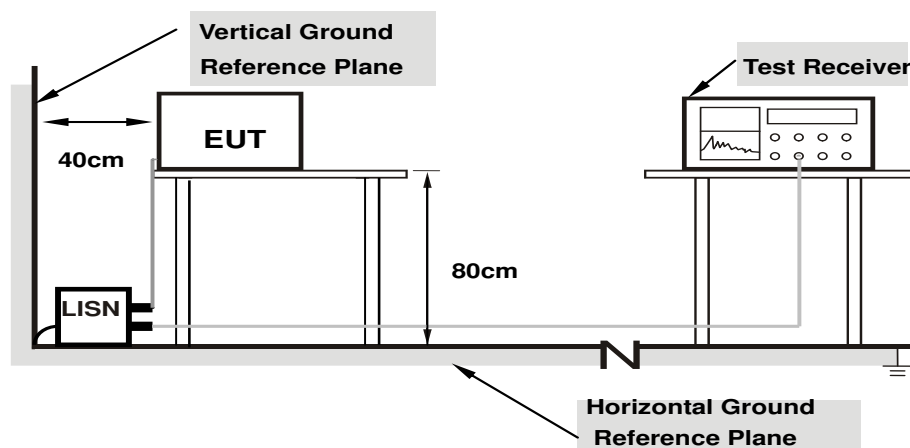
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

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

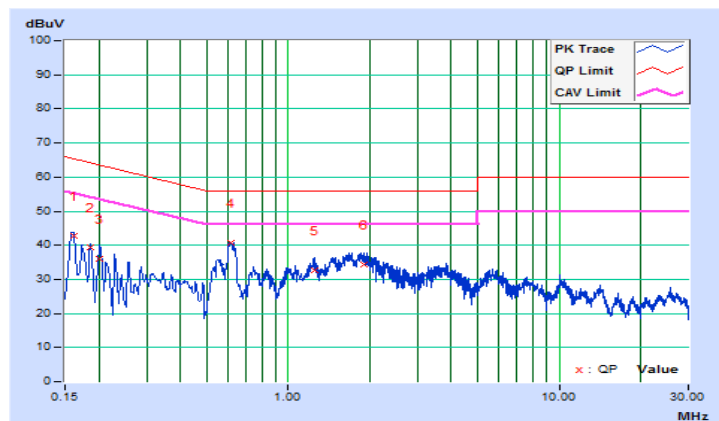
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Toby Tian	Test Date	2016/12/15

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	0.16096	10.02	32.62	20.98	42.64	31.00	65.41	55.41	-22.77	-24.41
2	0.18519	10.03	29.52	18.79	39.55	28.82	64.25	54.25	-24.70	-25.43
3	0.20084	10.03	25.88	13.36	35.91	23.39	63.58	53.58	-27.67	-30.19
4	0.61220	10.15	30.54	22.76	40.69	32.91	56.00	46.00	-15.31	-13.09
5	1.24480	10.22	22.43	15.82	32.65	26.04	56.00	46.00	-23.35	-19.96
6	1.90586	10.26	24.18	17.37	34.44	27.63	56.00	46.00	-21.56	-18.37

Remarks:

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

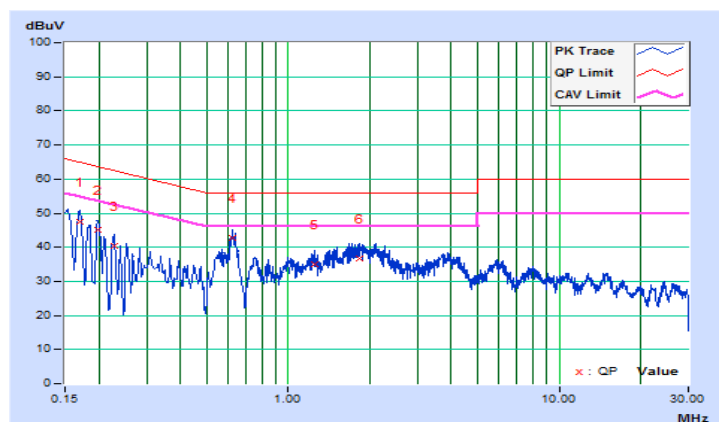


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Toby Tian	Test Date	2016/12/15

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	0.16967	10.03	37.53	23.41	47.56	33.44	64.98	54.98	-17.42	-21.54
2	0.19717	10.04	35.05	21.42	45.09	31.46	63.73	53.73	-18.64	-22.27
3	0.22820	10.05	30.29	16.71	40.34	26.76	62.51	52.51	-22.17	-25.75
4	0.62195	10.16	32.49	24.30	42.65	34.46	56.00	46.00	-13.35	-11.54
5	1.25262	10.23	24.95	17.49	35.18	27.72	56.00	46.00	-20.82	-18.28
6	1.84303	10.27	26.50	19.35	36.77	29.62	56.00	46.00	-19.23	-16.38

Remarks:

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



4.3 Transmit Power Measurement

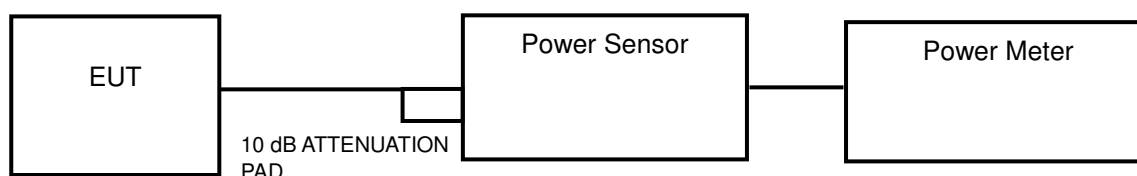
4.3.1 Limits of Transmit Power Measurement

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

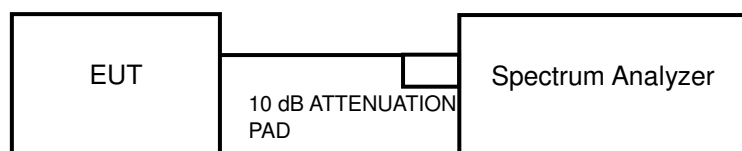
*B is the 26 dB emission bandwidth in megahertz

4.3.2 Test Setup

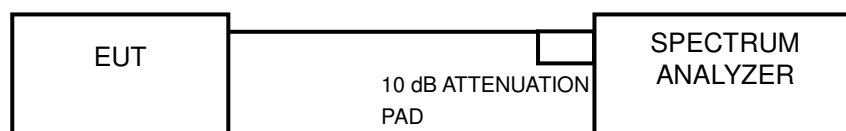
<Power Output Measurement>



or



<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 %.

Occupied Bandwidth

For transmitter output was connected to 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 Sampling. 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.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Power Output:

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	69.502	18.42	24	Pass
44	5220	69.984	18.45	24	Pass
48	5240	69.343	18.41	24	Pass
52	5260	70.958	18.51	24	Pass
60	5300	71.614	18.55	24	Pass
64	5320	71.285	18.53	24	Pass
100	5500	52.723	17.22	24	Pass
116	5580	70.632	18.49	24	Pass
140	5700	42.756	16.31	24	Pass
149	5745	68.865	18.38	30	Pass
157	5785	71.779	18.56	30	Pass
165	5825	69.823	18.44	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log(23.81) = 24.76 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(25.19) = 25.01 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(24.03) = 24.8 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(25.74) = 25.1 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(26.50) = 25.23 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(25.36) = 25.04 \text{ dBm} > 24 \text{ dBm}$.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	34.198	15.34	24	Pass
44	5220	34.435	15.37	24	Pass
48	5240	33.963	15.31	24	Pass
52	5260	35.4	15.49	24	Pass
60	5300	35.645	15.52	24	Pass
64	5320	34.995	15.44	24	Pass
100	5500	34.754	15.41	24	Pass
116	5580	35.563	15.51	24	Pass
140	5700	34.914	15.43	24	Pass
149	5745	35.645	15.52	30	Pass
157	5785	36.224	15.59	30	Pass
165	5825	35.563	15.51	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log (20.73) = 24.16 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (21.02) = 24.22 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (21.08) = 24.23 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (21.11) = 24.24 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (23.81) = 24.76 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (23.75) = 24.75 \text{ dBm} > 24 \text{ dBm}$.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	19.77	12.96	24	Pass
46	5230	19.907	12.99	24	Pass
54	5270	20.654	13.15	24	Pass
62	5310	20.893	13.20	24	Pass
102	5510	20.137	13.04	24	Pass
110	5550	20.512	13.12	24	Pass
134	5670	18.707	12.72	24	Pass
151	5755	35.727	15.53	30	Pass
159	5795	36.058	15.57	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log(41.74) = 27.2 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(41.87) = 27.21 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(41.78) = 27.2 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(41.82) = 27.21 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(41.79) = 27.21 \text{ dBm} > 24 \text{ dBm}$.

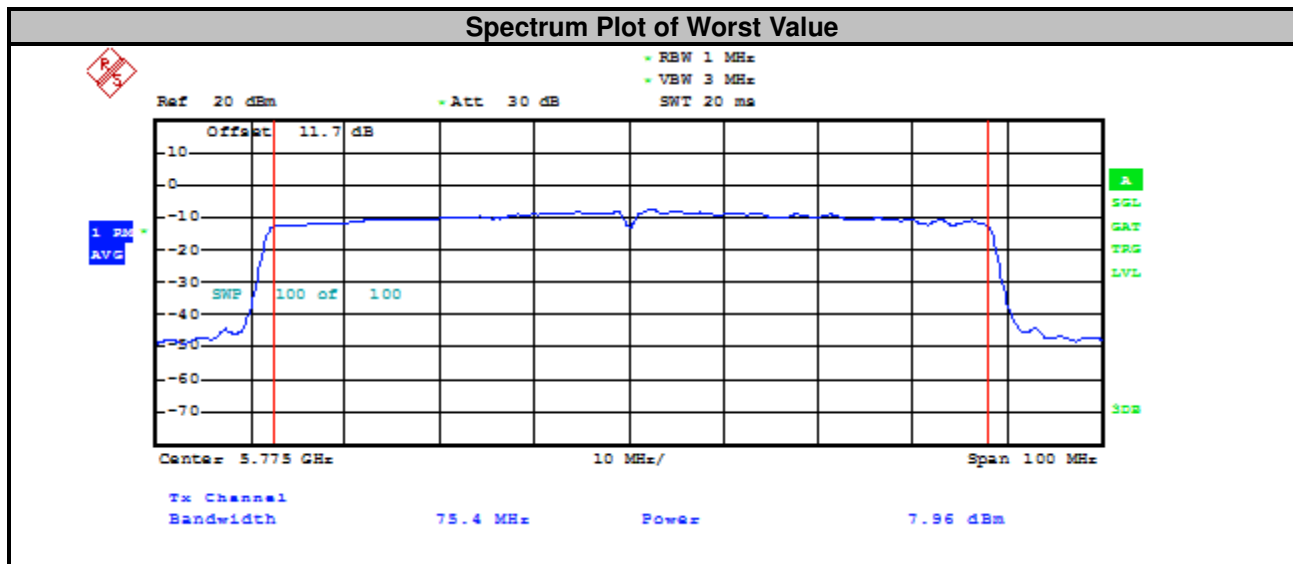
802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
42	5210	6.223	7.94	24	Pass
58	5290	6.237	7.95	24	Pass
106	5530	6.152	7.89	24	Pass
122	5610	6.053	7.82	24	Pass
155	5775	6.252	7.96	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log(87.14) = 30.4 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(88.49) = 30.46 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(86.42) = 30.36 \text{ dBm} > 24 \text{ dBm}$.



26 dB Bandwidth:
802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	23.73
44	5220	24.77
48	5240	23.75
52	5260	23.81
60	5300	25.19
64	5320	24.03
100	5500	25.74
116	5580	26.50
140	5700	25.36

802.11n (HT20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	20.55
44	5220	20.80
48	5240	20.90
52	5260	20.73
60	5300	21.02
64	5320	21.08
100	5500	21.11
116	5580	23.81
140	5700	23.75

802.11n (HT40)

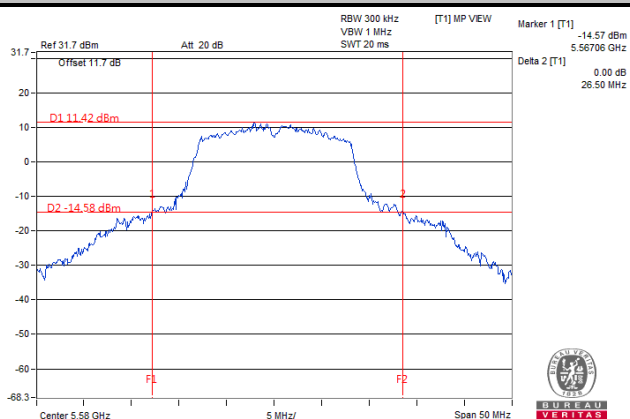
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
38	5190	41.83
46	5230	41.80
54	5270	41.74
62	5310	41.87
102	5510	41.78
110	5550	41.82
134	5670	41.79

802.11ac (VHT80)

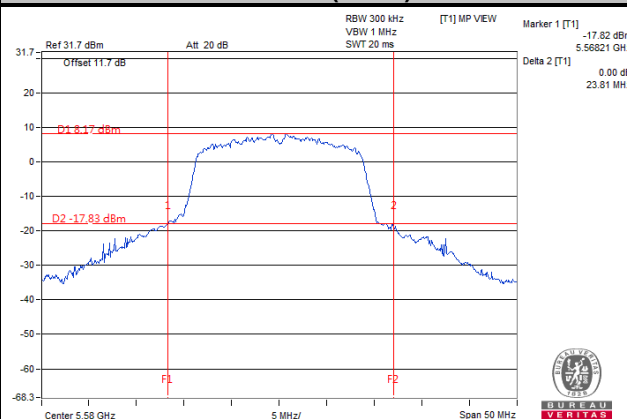
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
42	5210	84.83
58	5290	87.14
106	5530	88.49
122	5610	86.42

Spectrum Plot of Worst Value

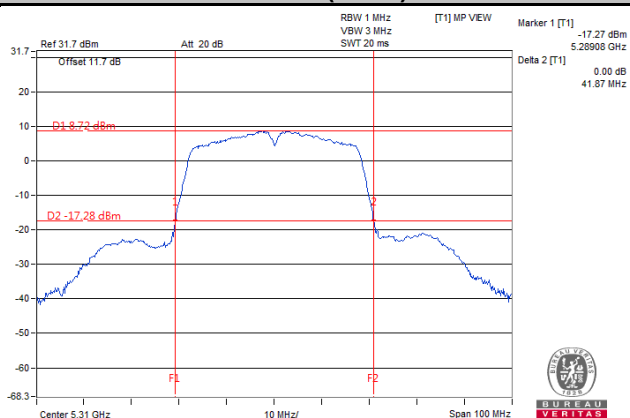
802.11a



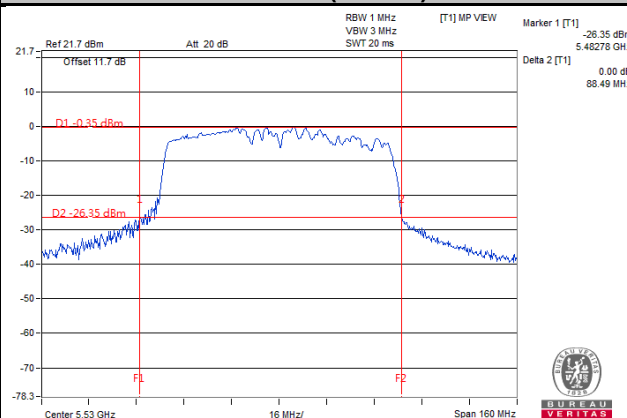
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



Occupied Bandwidth

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	16.92
44	5220	16.97
48	5240	16.92
52	5260	17.01
60	5300	16.97
64	5320	17.01
100	5500	17.16
116	5580	17.06
140	5700	16.97

802.11n (HT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	17.74
44	5220	17.74
48	5240	17.74
52	5260	17.74
60	5300	17.74
64	5320	17.74
100	5500	17.78
116	5580	17.78
140	5700	17.78

802.11n (HT40)

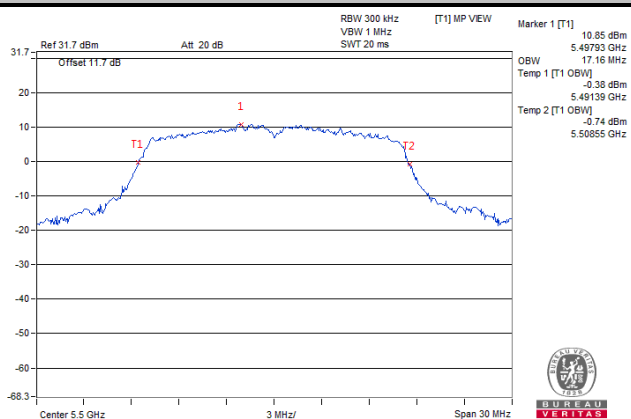
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	36.41
46	5230	36.41
54	5270	36.41
62	5310	36.41
102	5510	36.53
110	5550	36.53
134	5670	36.53

802.11ac (VHT80)

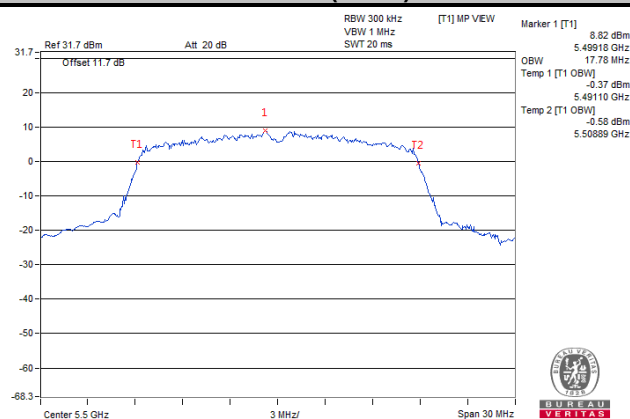
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
42	5210	75.16
58	5290	75.16
106	5530	75.16
122	5610	75.16

Spectrum Plot of Worst Value

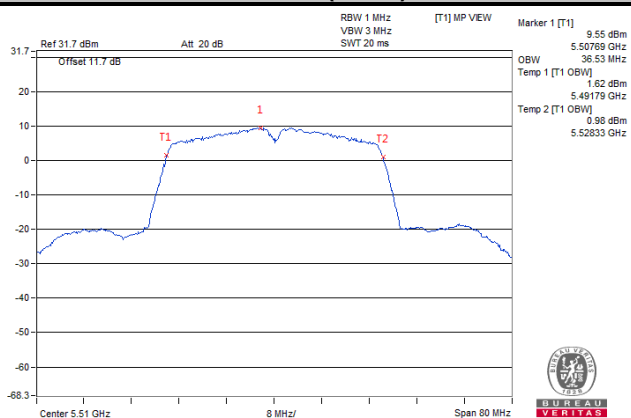
802.11a



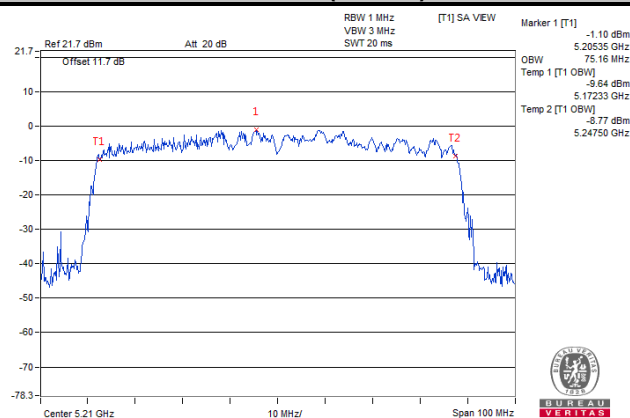
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

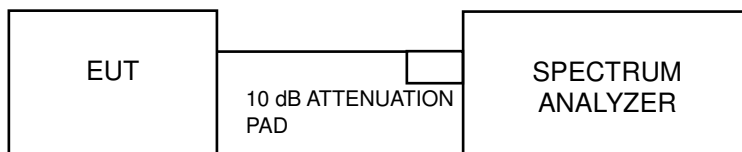


4.4 Peak Power Spectral Density Measurement

4.4.1 Limits of Peak Power Spectral Density Measurement

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.4.4 Test Procedures

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

Using method SA-2

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

※For U-NII-3:

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

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

4.4.7 Test Results

802.11a

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	6.55	0.33	6.88	11	Pass
44	5220	6.57	0.33	6.90	11	Pass
48	5240	6.73	0.33	7.06	11	Pass
52	5260	7.33	0.33	7.66	11	Pass
60	5300	7.49	0.33	7.82	11	Pass
64	5320	7.83	0.33	8.16	11	Pass
100	5500	7.40	0.33	7.73	11	Pass
116	5580	7.53	0.33	7.86	11	Pass
140	5700	4.87	0.33	5.20	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	3.32	0.36	3.68	11	Pass
44	5220	3.55	0.36	3.91	11	Pass
48	5240	3.66	0.36	4.02	11	Pass
52	5260	3.98	0.36	4.34	11	Pass
60	5300	4.31	0.36	4.67	11	Pass
64	5320	4.66	0.36	5.02	11	Pass
100	5500	5.41	0.36	5.77	11	Pass
116	5580	4.89	0.36	5.25	11	Pass
140	5700	3.99	0.36	4.35	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	-1.14	0.75	-0.39	11	Pass
46	5230	-1.06	0.75	-0.31	11	Pass
54	5270	-0.48	0.75	0.27	11	Pass
62	5310	-0.21	0.75	0.54	11	Pass
102	5510	0.75	0.75	1.50	11	Pass
110	5550	0.56	0.75	1.31	11	Pass
134	5670	-0.81	0.75	-0.06	11	Pass

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

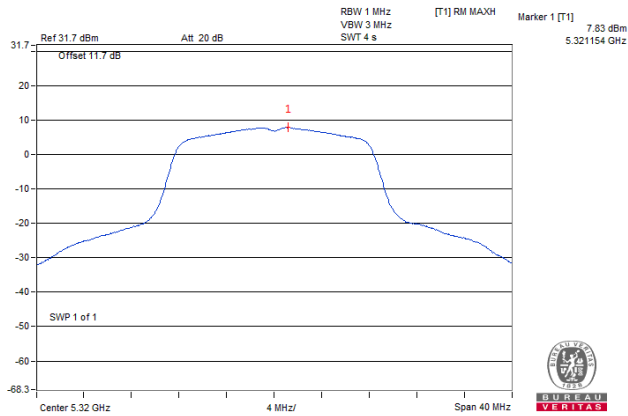
802.11ac (VHT80)

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	-9.92	0.09	-9.82	11	Pass
58	5290	-9.74	0.09	-9.64	11	Pass
106	5530	-9.73	0.09	-9.63	11	Pass
122	5610	-9.57	0.09	-9.47	11	Pass

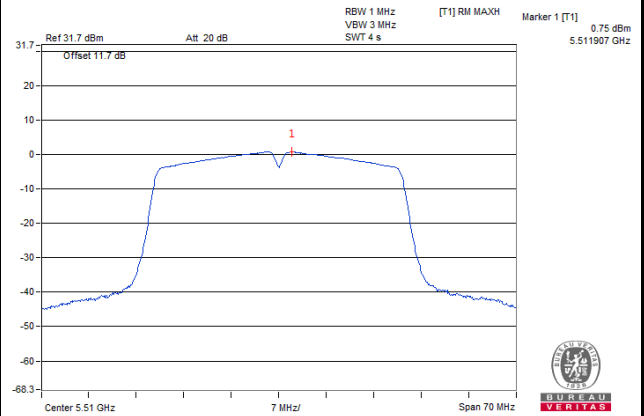
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

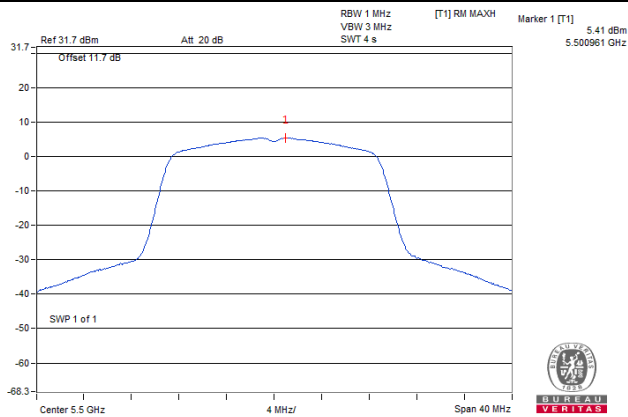
802.11a



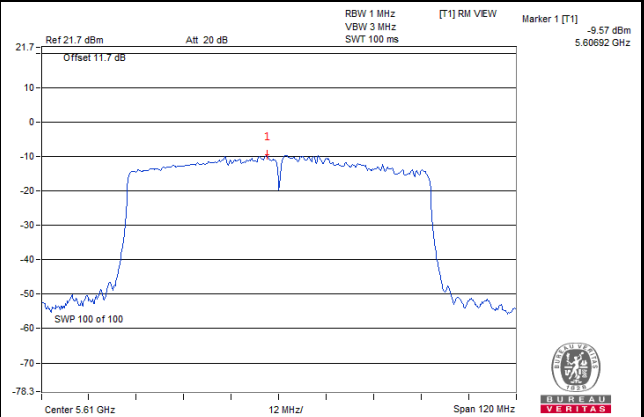
802.11n (HT20)



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	4.11	0.33	4.44	30	Pass
157	5785	4.15	0.33	4.48	30	Pass
165	5825	3.96	0.33	4.29	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	1.10	0.36	1.46	30	Pass
157	5785	1.26	0.36	1.62	30	Pass
165	5825	1.71	0.36	2.07	30	Pass

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

802.11n (HT40)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/500 kHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
151	5755	-1.94	0.75	-1.19	30	Pass
159	5795	-1.58	0.75	-0.83	30	Pass

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

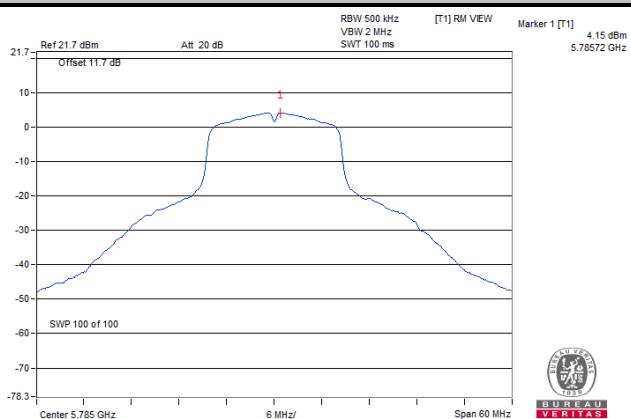
802.11ac (VHT80)

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	-11.11	0.09	-11.02	30	Pass

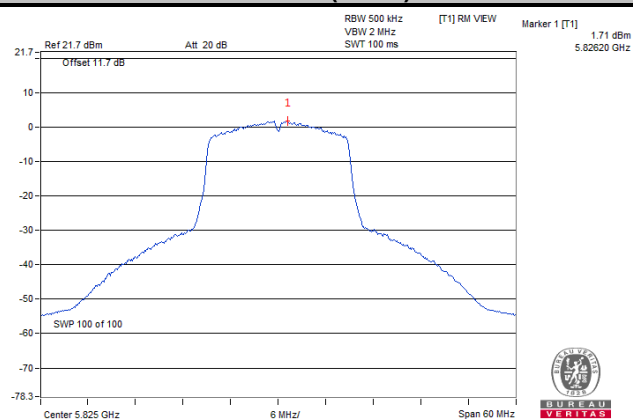
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

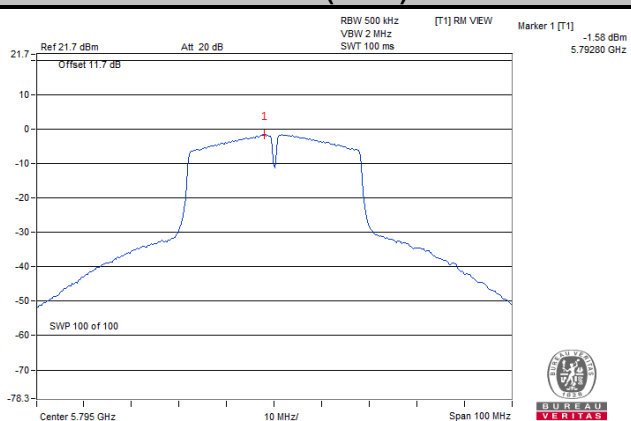
802.11a



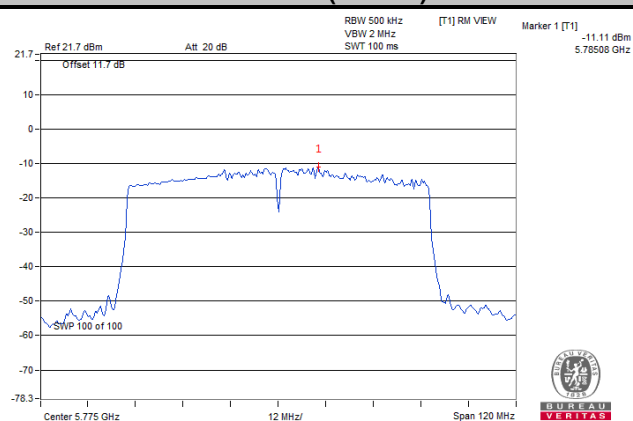
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

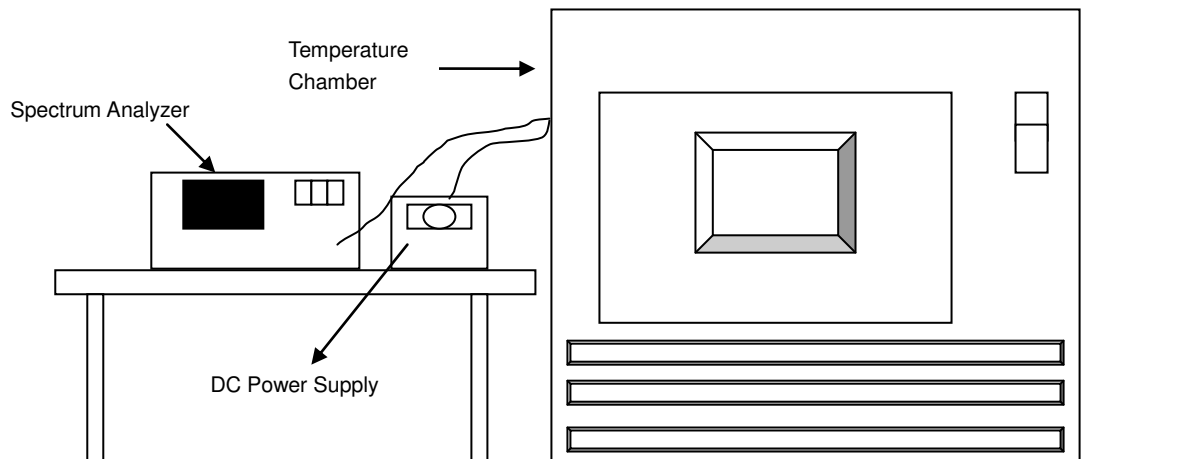


4.5 Frequency Stability

4.5.1 Limit of Frequency Stability Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.5.4 Test Procedure

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

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

4.5.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (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)
50	3.85	5179.9755	-0.00047	5179.9722	-0.00054	5179.9737	-0.00051	5179.9769	-0.00045
40	3.85	5180.0103	0.00020	5180.0102	0.00020	5180.0085	0.00016	5180.009	0.00017
30	3.85	5179.9882	-0.00023	5179.9854	-0.00028	5179.9852	-0.00029	5179.9868	-0.00025
20	3.85	5179.9967	-0.00006	5179.9973	-0.00005	5179.9969	-0.00006	5179.9962	-0.00007
10	3.85	5179.9985	-0.00003	5179.9968	-0.00006	5179.9966	-0.00007	5179.9961	-0.00008
0	3.85	5179.9812	-0.00036	5179.9792	-0.00040	5179.9798	-0.00039	5179.9828	-0.00033
-10	3.85	5179.9977	-0.00004	5179.9944	-0.00011	5179.9978	-0.00004	5179.9974	-0.00005
-20	3.85	5180.0011	0.00002	5179.9989	-0.00002	5179.9998	0.00000	5180.0006	0.00001
-30	3.85	5180.0141	0.00027	5180.0128	0.00025	5180.0112	0.00022	5180.0153	0.00030

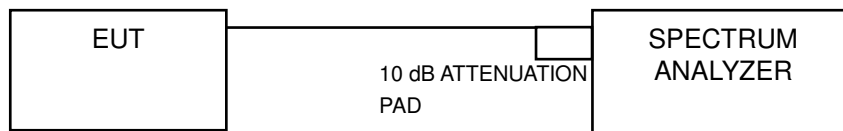
Frequency Stability Versus Temp.									
Operating Frequency: 5320 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	4.4275	5179.9971	-0.00006	5179.9972	-0.00005	5179.9979	-0.00004	5179.9961	-0.00008
	3.85	5179.9967	-0.00006	5179.9973	-0.00005	5179.9969	-0.00006	5179.9962	-0.00007
	3.2725	5179.9966	-0.00007	5179.9969	-0.00006	5179.9967	-0.00006	5179.9969	-0.00006

4.6 6 dB Bandwidth Measurement

4.6.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	15.14	0.5	Pass
157	5785	15.16	0.5	Pass
165	5825	15.14	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	15.12	0.5	Pass
157	5785	15.15	0.5	Pass
165	5825	15.15	0.5	Pass

802.11n (HT40)

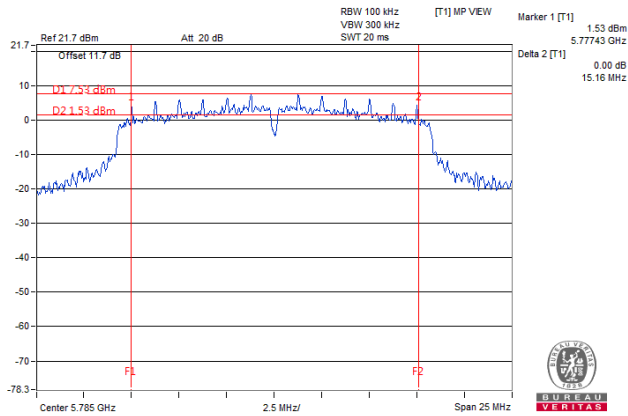
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	35.13	0.5	Pass
159	5795	35.19	0.5	Pass

802.11ac (VHT80)

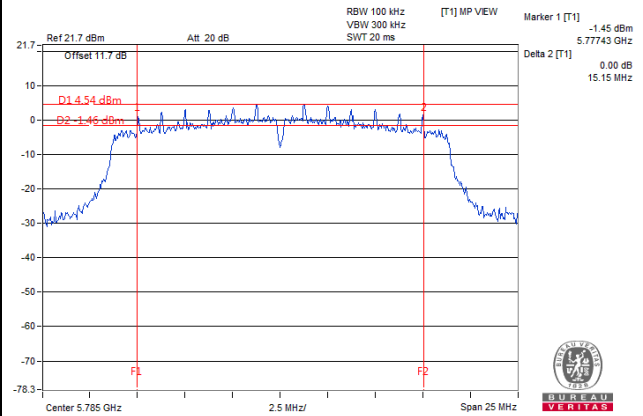
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
155	5775	75.40	0.5	Pass

Spectrum Plot of Worst Value

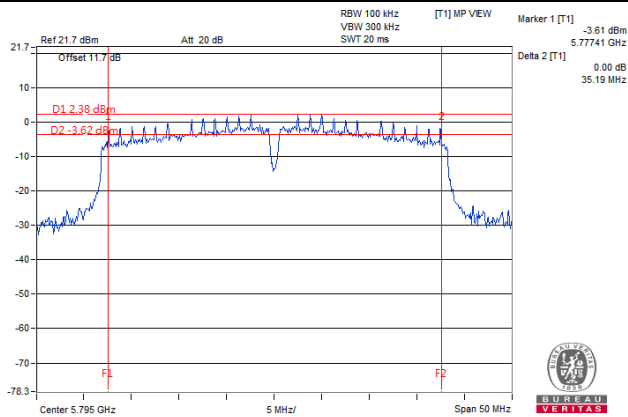
802.11a



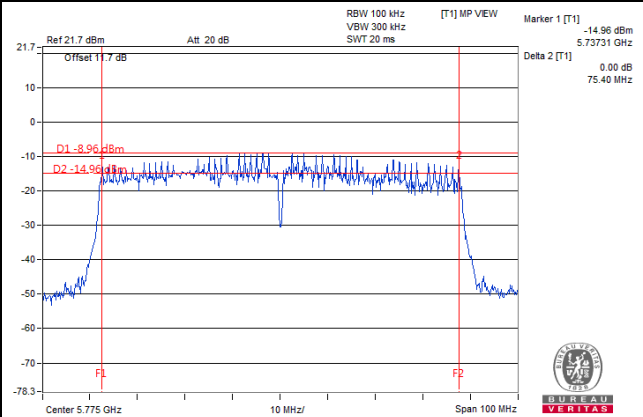
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

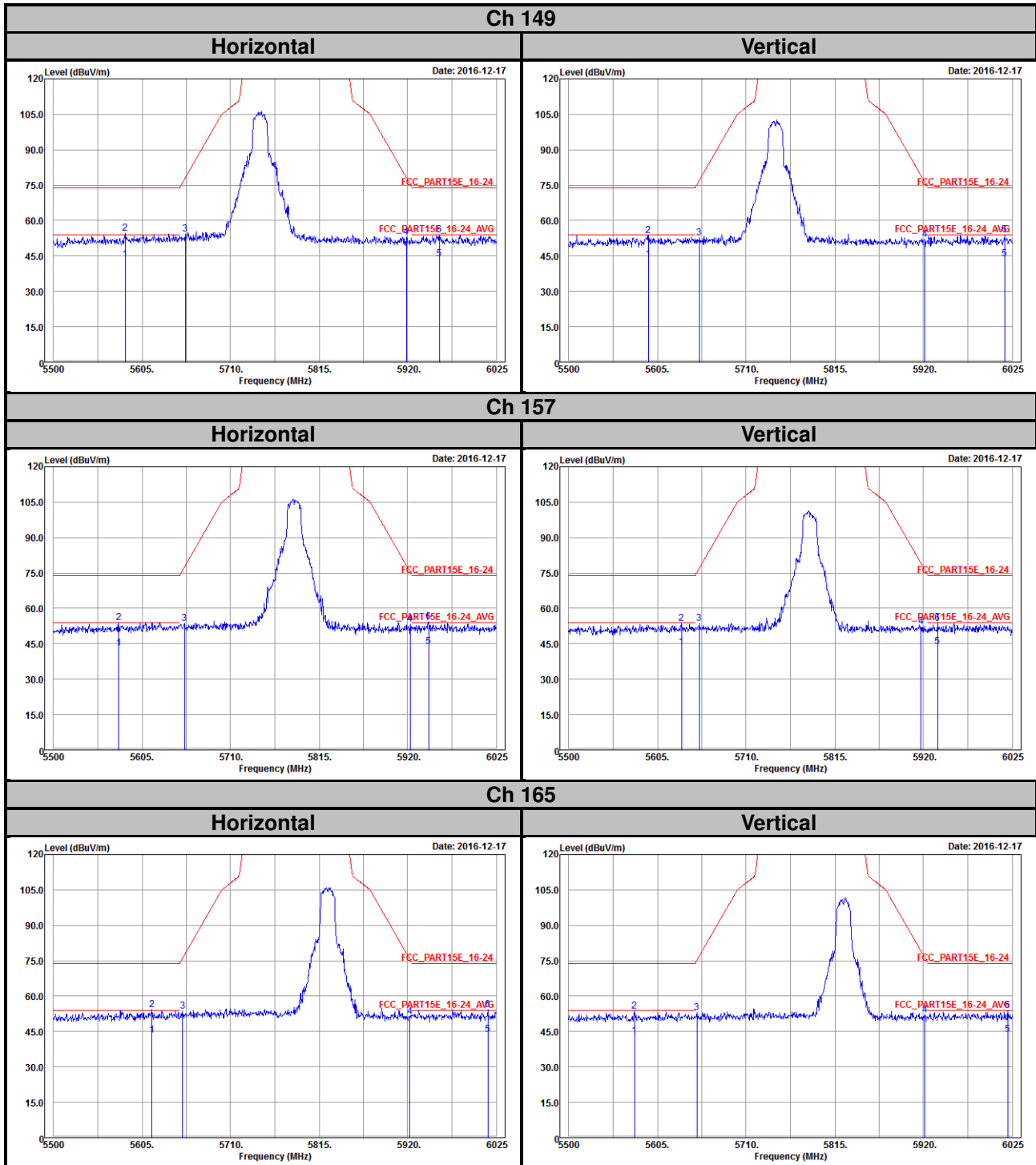


5 Pictures of Test Arrangements

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

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

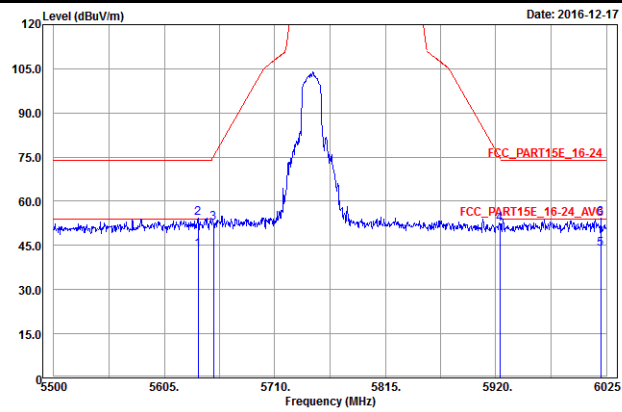
802.11a



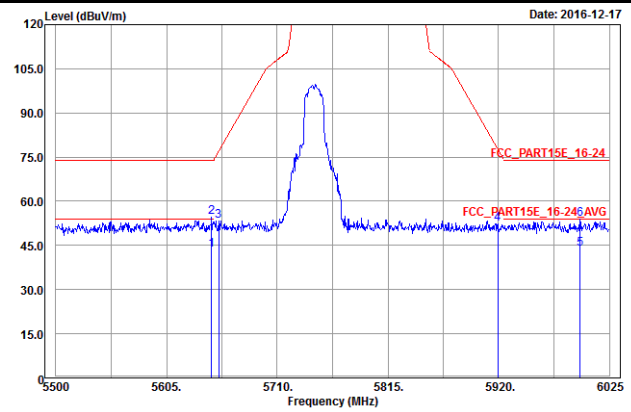
802.11n (HT20)

Ch 149

Horizontal

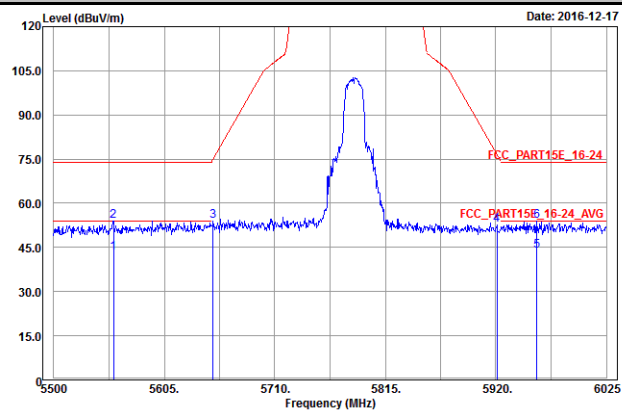


Vertical

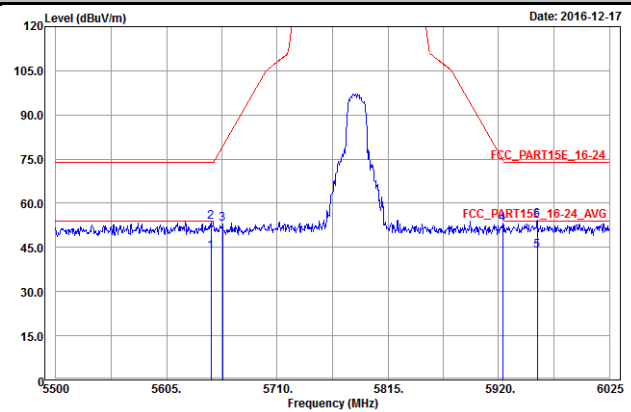


Ch 157

Horizontal

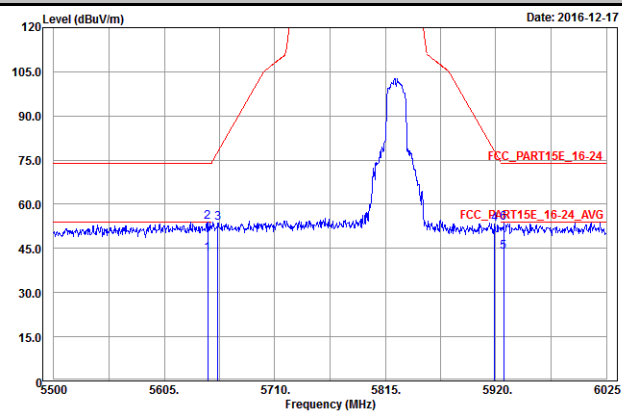


Vertical

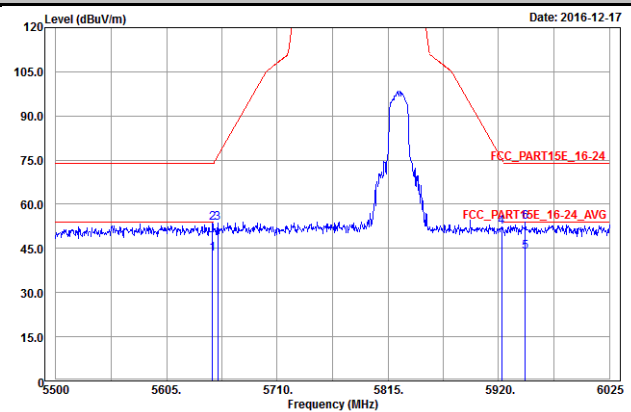


Ch 165

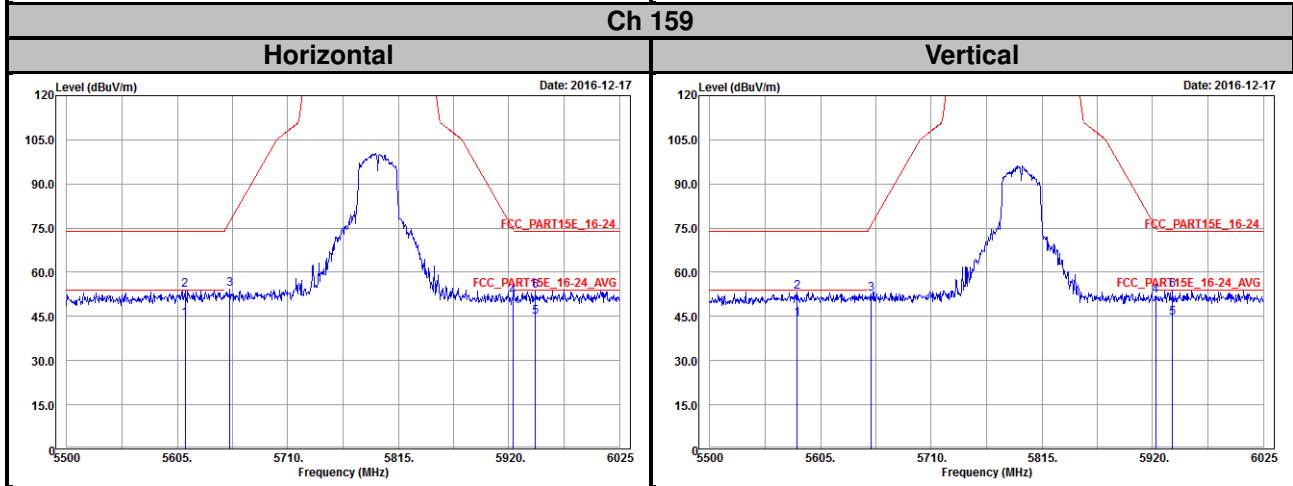
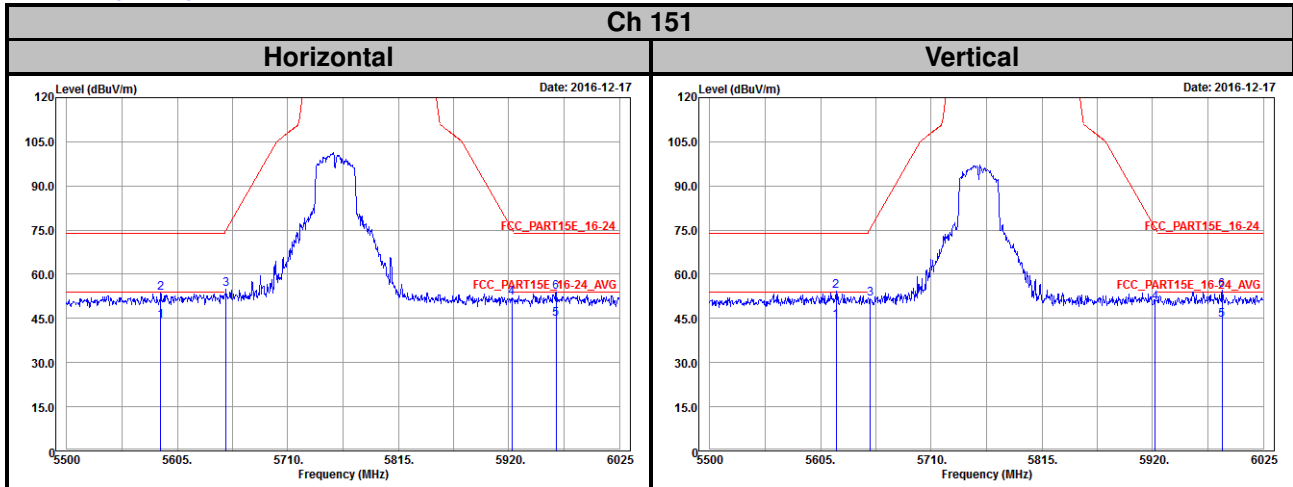
Horizontal



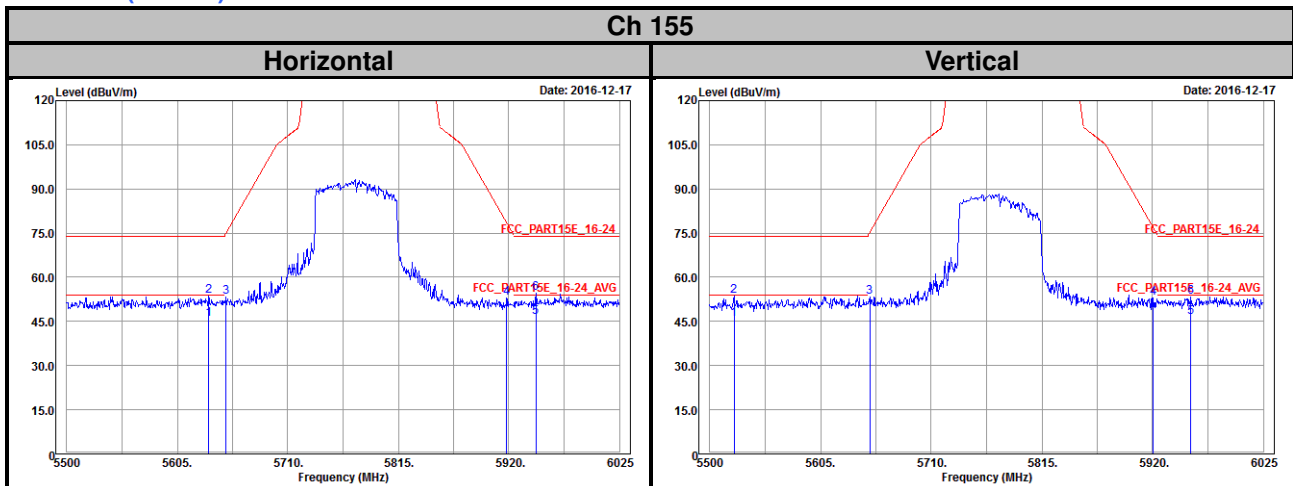
Vertical



802.11n (HT40)



802.11ac (VHT80)



Appendix – Information on the Testing Laboratories

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

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Web Site: www.bureauveritas-adt.com

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

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