

FCC Test Report

Report No.: RF180125C14-3

FCC ID: B94-8265D2WEE

Test Model: HSN-Q10C

Received Date: Feb. 05, 2018

Test Date: Apr. 03, 2018 ~ May 02, 2018

Issued Date: May 04, 2018

Applicant: HP Inc.

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

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(R.O.C)

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R.O.C

**FCC Registration /
Designation Number:** 427177 / TW0011



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Release Control Record

Issue No.	Description	Date Issued
RF180125C14-3	Original Release	May 04, 2018

1 Certificate of Conformity

Product: Notebook Computer

Brand: HP

Test Model: HSN-Q10C

Sample Status: Production Unit

Applicant: HP Inc.

Test Date: Apr. 03, 2018 ~ May 02, 2018

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

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

Prepared by : Evonne Liu, **Date:** May 04, 2018
Evonne Liu / Specialist

Approved by : Dylan Chiou, **Date:** May 04, 2018
Dylan Chiou / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	N/A	Refer to Note
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 -6.48 dB at 11490 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	N/A	Refer to Note
15.407(a)(1/2/3)	Peak Power Spectral Density	N/A	Refer to Note
15.407(e)	6 dB Bandwidth	N/A	Refer to Note
15.407(g)	Frequency Stability	N/A	Refer to Note
15.203	Antenna Requirement	N/A	Refer to Note

Note: This report is a partial report, only test item of Output Power and Radiated Emissions tests were performed for this report. Other testing data please refer to BV CPS report no.: 160321-02.TR01 & 160321-02.TR02 & 160321-02.TR03 for module (Brand: Intel, Model: 8265D2W).

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) (±)
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	Notebook Computer
Brand	HP
Test Model	HSN-Q10C
Status of EUT	Production Unit
Power Supply Rating	20 or 15 or 12 or 9 or 5 Vdc (Adapter)
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 150.0 Mbps 802.11ac: up to 433.3 Mbps
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: 12 for 802.11a, 802.11n (HT20) 6 for 802.11n (HT40) 3 for 802.11ac (VHT80) 5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 1 for 802.11ac (VHT80)
Antenna Type	Refer to Note as below
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. The WLAN/BT module (Brand: Intel, Model: 8265D2W) was installed in the EUT.
2. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

Modulation Mode	Tx Function
802.11a	1TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX
802.11ac (VHT20)	2TX
802.11ac (VHT40)	2TX
802.11ac (VHT80)	2TX

* The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ac mode for VHT20 / VHT40, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

3. The antenna information is listed as below.

Antenna Type	Vendor	Part Number	Antenna Gain (dBi)			
			Laptop PC Mode			
			WLAN 2.4GHz	WLAN 5.2GHz	WLAN 5.5GHz	WLAN 5.8GHz
PIFA	INPAQ	WLAN Main Antenna: DQ6LB020509 (WA-P-LBLB-02-059) WLAN Aux Antenna: DQ6LB020509 (WA-P-LBLB-02-059)	1.66	0.54	0.56	-0.21
			Tablet PC Mode			
			WLAN 2.4GHz	WLAN 5.2GHz	WLAN 5.5GHz	WLAN 5.8GHz
			-0.36	3.36	2.21	3.08

4. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	hp	TPN-LA12	I/P: 100-240 Vac, 50-60 Hz, 1.6 A O/P: 20 Vdc, 3.25 A, 15 Vdc, 4.33 A, 12 Vdc, 5 A, 9 Vdc, 3 A, 5 Vdc, 3 A

5. 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

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	124	5620
104	5520	128	5640
108	5540	132	5660
112	5560	136	5680
116	5580	140	5700
120	5600	144	5720

6 channels are provided for 802.11n (HT40):

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

3 channels are provided for 802.11ac (VHT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530	138	5690
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	
-	√	√	-

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

Note:

- The EUT had been pre-tested on the positioned of each 4 axis. The worst case was found when positioned on **Z-plane**.

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	6.5
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	13.5
-		802.11ac (VHT80)	42	42	OFDM	BPSK	29.3
-	5260-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-		802.11n (HT20)	52 to 64	52, 60, 64	OFDM	BPSK	6.5
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	13.5
-		802.11ac (VHT80)	58	58	OFDM	BPSK	29.3
-	5500-5700	802.11a	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.5
-		802.11n (HT40)	102 to 142	102, 110, 134, 142	OFDM	BPSK	13.5
-		802.11ac (VHT80)	106 to 138	106, 122, 138	OFDM	BPSK	29.3
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	13.5
-		802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

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)
	5745-5825	802.11a	149 to 165	149	OFDM	BPSK	6.0

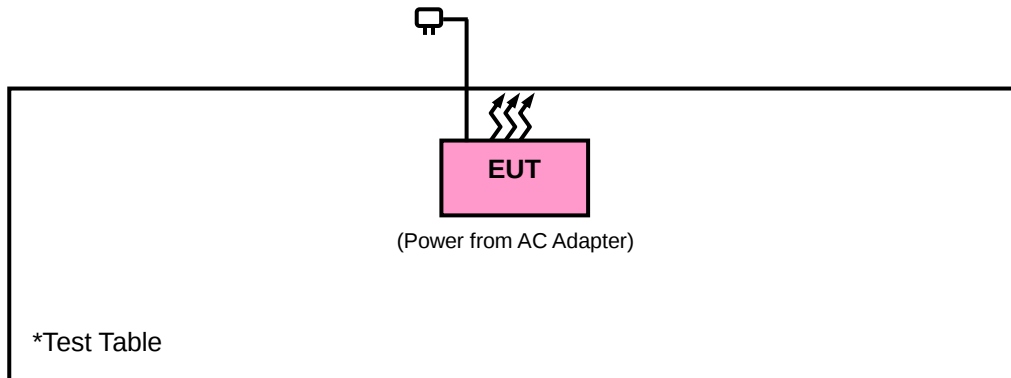
Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE $\geq$ 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

3.3 Description of Support Units

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

3.3.1 Configuration of System under Test



3.4 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 v02r01

662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. 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 v02r01		Field Strength at 3 m	
		PK: 74 (dBμV/m)	AV: 54 (dBμV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	15.407(b)(4)(i)	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2 (dBμV/m) ^{*1} PK:105.2 (dBμV/m) ^{*2} PK: 110.8 (dBμV/m) ^{*3} PK:122.2 (dBμV/m) ^{*4}
	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	

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

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

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

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

Note:

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

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

4.1.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9038A	MY52260177	Jul. 05, 2017	Jul. 04, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Jan. 11, 2018	Jan. 10, 2019
Double Ridge Guide Horn Antenna EMCO	3115	5619	Nov. 30, 2017	Nov. 29, 2018
BILOG Antenna SCHWARZBECK	VULB 9168	9168-153	Dec. 06, 2017	Dec. 05, 2018
Fixed Attenuator Mini-Circuits	BW-N10W5+	NA	Jul. 07, 2017	Jul. 06, 2018
Loop Antenna	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent	310N	187226	Jun. 23, 2017	Jun. 22, 2018
Preamplifier Agilent	83017A	MY39501357	Jun. 23, 2017	Jun. 22, 2018
Power Meter Anritsu	ML2495A	1232002	Dec. 07, 2017	Dec. 06, 2018
Power Sensor Anritsu	MA2411B	1207325	Dec. 07, 2017	Dec. 06, 2018
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(R FC-SMS-100-SM S-120+RFC-SMS -100-SMS-400)	Jun. 23, 2017	Jun. 22, 2018
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(R FC-SMS-100-SM S-24)	Jun. 23, 2017	Jun. 22, 2018
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HsinTien Chamber 1.
3. The horn antenna and preamplifier (model: 83017A) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The IC Site Registration No. is IC7450I-1.

4.1.4 Test Procedures

For Radiated emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Both Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.

For Radiated emission above 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

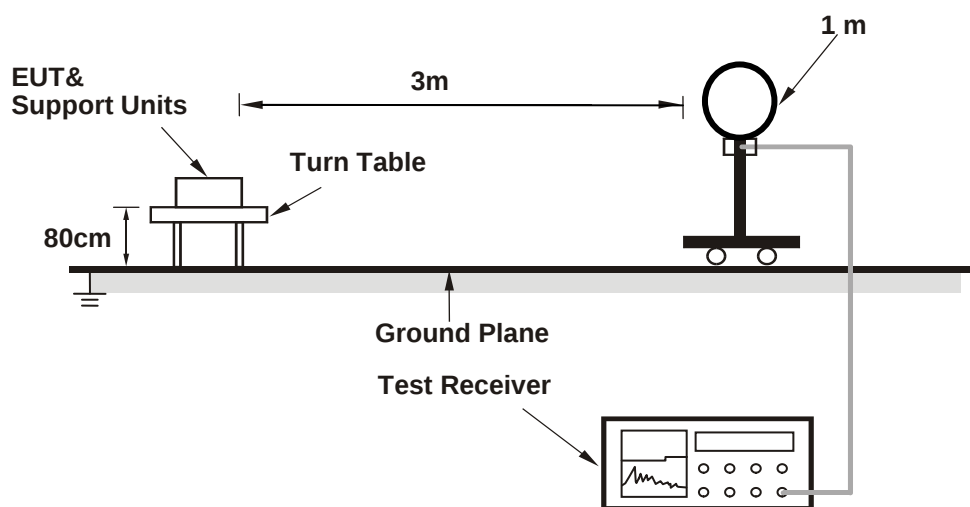
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.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

4.1.5 Deviation from Test Standard

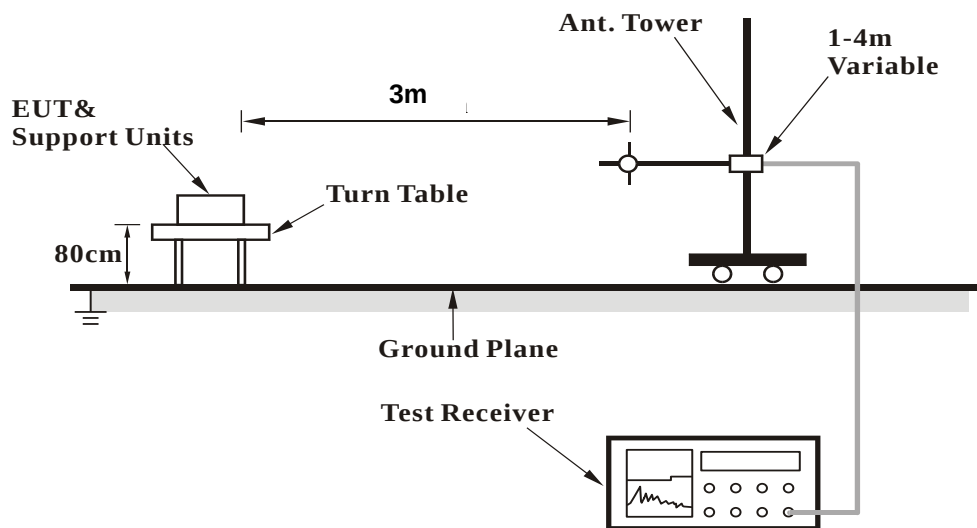
No deviation.

4.1.6 Test Set Up

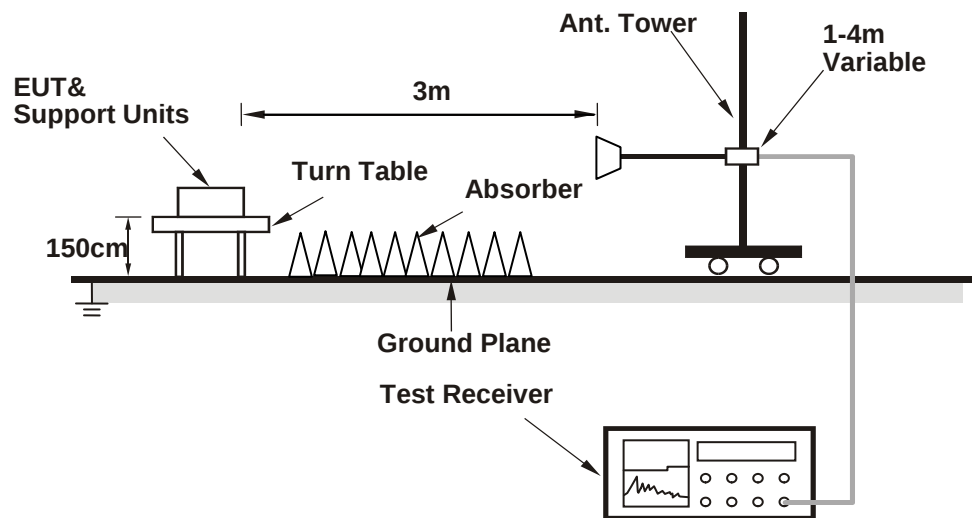
<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 1 GHz>



<Radiated Emission above 1 GHz>



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

4.1.7 EUT Operating Conditions

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

4.1.8 Test Results

Above 1 GHz Data :

802.11a

EUT Test Condition		Measurement Detail	
Channel	Channel 36	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5124.8	42.61	34.39	54	-11.39	34.11	8.1	33.99	327	235	Average
5124.8	53.4	45.18	74	-20.6	34.11	8.1	33.99	327	235	Peak
5180	89.12	80.81			34.15	8.16	34	327	235	Average
5180	97.22	88.91			34.15	8.16	34	327	235	Peak
*10360	55.64	41.34	68.2	-12.56	37.12	12.3	35.12	127	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
5149.7	44.98	36.73	54	-9.02	34.12	8.13	34	138	40	Average
5149.7	56.64	48.39	74	-17.36	34.12	8.13	34	138	40	Peak
5180	99.79	91.48			34.15	8.16	34	141	40	Average
5180	107.81	99.5			34.15	8.16	34	141	40	Peak
*10360	55.22	40.92	68.2	-12.98	37.12	12.3	35.12	127	332	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
5113.45	42.43	34.23	54	-11.57	34.09	8.1	33.99	327	232	Average
5113.45	53.61	45.41	74	-20.39	34.09	8.1	33.99	327	232	Peak
5220	90.81	82.42			34.17	8.22	34	327	232	Average
5220	98.52	90.13			34.17	8.22	34	327	232	Peak
5388.43	42.61	33.93	54	-11.39	34.31	8.41	34.04	327	232	Average
5388.43	53.51	44.83	74	-20.49	34.31	8.41	34.04	327	232	Peak
*10440	56.43	41.97	68.2	-11.77	37.16	12.47	35.17	124	226	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5140.47	43.62	35.36	54	-10.38	34.12	8.13	33.99	141	38	Average
5140.47	54.18	45.92	74	-19.82	34.12	8.13	33.99	141	38	Peak
5220	100.69	92.3			34.17	8.22	34	141	38	Average
5220	108.57	100.18			34.17	8.22	34	141	38	Peak
5364.65	43.21	34.57	54	-10.79	34.29	8.38	34.03	141	38	Average
5364.65	53.28	44.64	74	-20.72	34.29	8.38	34.03	141	38	Peak
*10440	56.24	41.78	68.2	-11.96	37.16	12.47	35.17	120	68	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 48	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	92.34	83.9			34.19	8.26	34.01	326	235	Average
5240	100.14	91.7			34.19	8.26	34.01	326	235	Peak
5413.45	42.53	33.8	54	-11.47	34.33	8.44	34.04	326	235	Average
5413.45	51.86	43.13	74	-22.14	34.33	8.44	34.04	326	235	Peak
*10480	55.73	41.22	68.2	-12.47	37.19	12.53	35.21	183	115	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	100.74	92.3			34.19	8.26	34.01	146	39	Average
5240	108.96	100.52			34.19	8.26	34.01	146	39	Peak
5376.34	43.31	34.65	54	-10.69	34.29	8.41	34.04	146	39	Average
5376.34	53.6	44.94	74	-20.4	34.29	8.41	34.04	146	39	Peak
*10480	56.55	42.04	68.2	-11.65	37.19	12.53	35.21	165	204	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
5104.69	42.62	34.46	54	-11.38	34.08	8.07	33.99	100	115	Average
5104.69	53.68	45.52	74	-20.32	34.08	8.07	33.99	100	115	Peak
5260	93.17	84.71			34.21	8.26	34.01	100	115	Average
5260	101.24	92.78			34.21	8.26	34.01	100	115	Peak
*10520	56.04	41.45	68.2	-12.16	37.21	12.61	35.23	158	240	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5118.44	42.49	34.29	54	-11.51	34.09	8.1	33.99	139	30	Average
5118.44	53.23	45.03	74	-20.77	34.09	8.1	33.99	139	30	Peak
5260	101.4	92.94			34.21	8.26	34.01	139	30	Average
5260	109.21	100.75			34.21	8.26	34.01	139	30	Peak
*10520	56.31	41.72	68.2	-11.89	37.21	12.61	35.23	122	168	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5074.32	42.37	34.25	54	-11.63	34.07	8.03	33.98	100	115	Average
5074.32	53.36	45.24	74	-20.64	34.07	8.03	33.98	100	115	Peak
5300	93.67	85.13			34.24	8.32	34.02	100	115	Average
5300	101.43	92.89			34.24	8.32	34.02	100	115	Peak
5428.3	42.69	33.92	54	-11.31	34.33	8.48	34.04	100	115	Average
5428.3	53.55	44.78	74	-20.45	34.33	8.48	34.04	100	115	Peak
10600	46.74	32.06	54	-7.26	37.28	12.67	35.27	187	150	Average
10600	57.03	42.35	74	-16.97	37.28	12.67	35.27	187	150	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
5048.15	42.35	34.29	54	-11.65	34.04	8	33.98	139	30	Average
5048.15	53.66	45.6	74	-20.34	34.04	8	33.98	139	30	Peak
5300	101.36	92.82			34.24	8.32	34.02	139	30	Average
5300	109.25	100.71			34.24	8.32	34.02	139	30	Peak
5352.37	44.08	35.45	54	-9.92	34.28	8.38	34.03	139	30	Average
5352.37	54.52	45.89	74	-19.48	34.28	8.38	34.03	139	30	Peak
10600	46.18	31.5	54	-7.82	37.28	12.67	35.27	144	232	Average
10600	56.27	41.59	74	-17.73	37.28	12.67	35.27	144	232	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 64	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	91.15	82.57			34.25	8.35	34.02	100	117	Average
5320	99.21	90.63			34.25	8.35	34.02	100	117	Peak
5352.09	42.74	34.11	54	-11.26	34.28	8.38	34.03	100	117	Average
5352.09	53.55	44.92	74	-20.45	34.28	8.38	34.03	100	117	Peak
10640	46.72	31.99	54	-7.28	37.31	12.71	35.29	152	314	Average
10640	56.84	42.11	74	-17.16	37.31	12.71	35.29	152	314	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5320	99.2	90.62			34.25	8.35	34.02	139	30	Average
5320	107.34	98.76			34.25	8.35	34.02	139	30	Peak
5352.31	44.49	35.86	54	-9.51	34.28	8.38	34.03	127	30	Average
5352.31	54.67	46.04	74	-19.33	34.28	8.38	34.03	127	30	Peak
10640	46.68	31.95	54	-7.32	37.31	12.71	35.29	131	209	Average
10640	56.92	42.19	74	-17.08	37.31	12.71	35.29	131	209	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 100	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5433.45	42.67	33.88	54	-11.33	34.35	8.48	34.04	142	318	Average
5433.45	54.24	45.45	74	-19.76	34.35	8.48	34.04	142	318	Peak
*5469.84	52.67	43.84	68.2	-15.53	34.37	8.51	34.05	142	318	Peak
5500	90.93	82.01			34.4	8.57	34.05	142	318	Average
5500	98.24	89.32			34.4	8.57	34.05	142	318	Peak
11000	46.71	31.63	54	-7.29	37.6	12.96	35.48	161	324	Average
11000	57.56	42.48	74	-16.44	37.6	12.96	35.48	161	324	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5453.75	46.01	37.19	54	-7.99	34.36	8.51	34.05	136	34	Average
5453.75	57.04	48.22	74	-16.96	34.36	8.51	34.05	136	34	Peak
*5469.57	56.81	47.98	68.2	-11.39	34.37	8.51	34.05	136	34	Peak
5500	102.08	93.16			34.4	8.57	34.05	145	32	Average
5500	109.32	100.4			34.4	8.57	34.05	145	32	Peak
11000	46.3	31.22	54	-7.7	37.6	12.96	35.48	157	237	Average
11000	57.21	42.13	74	-16.79	37.6	12.96	35.48	157	237	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
5398.76	42.73	34.01	54	-11.27	34.32	8.44	34.04	144	292	Average
5398.76	53.46	44.74	74	-20.54	34.32	8.44	34.04	144	292	Peak
*5469.72	53.79	44.96	68.2	-14.41	34.37	8.51	34.05	144	292	Peak
5580	93.72	84.73			34.47	8.6	34.08	144	292	Average
5580	100.69	91.7			34.47	8.6	34.08	144	292	Peak
*5725.4	52.36	43.2	68.2	-15.84	34.62	8.65	34.11	144	292	Peak
11600	47.43	32	54	-6.57	38.04	12.76	35.37	158	41	Average
11600	57.58	42.15	74	-16.42	38.04	12.76	35.37	158	41	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5430.12	43.31	34.52	54	-10.69	34.35	8.48	34.04	134	9	Average
5430.12	53.55	44.76	74	-20.45	34.35	8.48	34.04	134	9	Peak
*5469.06	52.16	43.33	68.2	-16.04	34.37	8.51	34.05	134	9	Peak
5580	104.91	95.92			34.47	8.6	34.08	134	9	Average
5580	111.75	102.76			34.47	8.6	34.08	134	9	Peak
*5725.05	52.93	43.77	68.2	-15.27	34.62	8.65	34.11	134	9	Peak
11600	47.54	32.11	54	-6.46	38.04	12.76	35.37	122	164	Average
11600	58.64	43.21	74	-15.36	38.04	12.76	35.37	122	164	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 140	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	90.47	81.34			34.59	8.64	34.1	146	86	Average
5700	97.26	88.13			34.59	8.64	34.1	146	86	Peak
*5725.4	52.71	43.55	68.2	-15.49	34.62	8.65	34.11	146	86	Peak
11400	47.1	32	54	-6.9	37.84	12.67	35.41	134	295	Average
11400	57.29	42.19	74	-16.71	37.84	12.67	35.41	134	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
5700	100.02	90.89			34.59	8.64	34.1	199	6	Average
5700	107.25	98.12			34.59	8.64	34.1	199	6	Peak
*5724.36	60.4	51.24	68.2	-7.8	34.62	8.65	34.11	206	6	Peak
11400	47.61	32.51	54	-6.39	37.84	12.67	35.41	129	137	Average
11400	57.79	42.69	74	-16.21	37.84	12.67	35.41	129	137	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 144	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5436.77	42.51	33.72	54	-11.49	34.35	8.48	34.04	146	87	Average
5436.77	54.24	45.45	74	-19.76	34.35	8.48	34.04	146	87	Peak
5469.83	53.36	44.53	74	-20.64	34.37	8.51	34.05	146	87	Peak
5720	94.46	85.3			34.62	8.65	34.11	146	87	Average
5720	101.47	92.31			34.62	8.65	34.11	146	87	Peak
5857	57.16	47.84	74	-16.84	34.76	8.7	34.14	146	87	Peak
5869	57.22	47.89	74	-16.78	34.76	8.71	34.14	146	87	Peak
11400	47.46	32.36	54	-6.54	37.84	12.67	35.41	195	324	Average
11400	57.63	42.53	74	-16.37	37.84	12.67	35.41	195	324	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5369.47	42.67	34	54	-11.33	34.29	8.41	34.03	203	8	Average
5369.47	53.11	44.44	74	-20.89	34.29	8.41	34.03	203	8	Peak
5468.94	52.83	44	74	-21.17	34.37	8.51	34.05	203	8	Peak
5720	104.27	95.11			34.62	8.65	34.11	203	8	Average
5720	111.68	102.52			34.62	8.65	34.11	203	8	Peak
5854	57.52	48.2	74	-16.48	34.76	8.7	34.14	203	8	Peak
5863	57.36	48.03	74	-16.64	34.76	8.71	34.14	203	8	Peak
11400	47.41	32.31	54	-6.59	37.84	12.67	35.41	136	172	Average
11400	57.39	42.29	74	-16.61	37.84	12.67	35.41	136	172	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5720 MHz: Fundamental Frequency
- *: Out of Restricted Band

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	95.59	86.4			34.64	8.66	34.11	145	86	Average
5745	102.83	93.64			34.64	8.66	34.11	145	86	Peak
11490	47.16	32.04	54	-6.84	37.89	12.62	35.39	105	175	Average
11490	57.46	42.34	74	-16.54	37.89	12.62	35.39	105	175	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	106.57	97.38			34.64	8.66	34.11	199	13	Average
5745	113.29	104.1			34.64	8.66	34.11	199	13	Peak
11490	47.52	32.4	54	-6.48	37.89	12.62	35.39	116	303	Average
11490	58.25	43.13	74	-15.75	37.89	12.62	35.39	116	303	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
*5593.45	54.01	45	68.2	-14.19	34.49	8.6	34.08	145	86	Peak
5651.2	52.74	43.65	69.09	-16.35	34.56	8.62	34.09	145	86	Peak
5923.15	51.07	41.67	69.57	-18.5	34.83	8.73	34.16	145	86	Peak
*5945.2	53.38	43.95	68.2	-14.82	34.85	8.74	34.16	145	86	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5646.475	54.73	45.66	68.2	-13.47	34.54	8.62	34.09	199	13	Peak
5651.2	52.61	43.52	69.09	-16.48	34.56	8.62	34.09	199	13	Peak
5923.15	49.77	40.37	69.57	-19.8	34.83	8.73	34.16	199	13	Peak
*5985.625	53.3	43.84	68.2	-14.9	34.88	8.75	34.17	199	13	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	96.07	86.84			34.68	8.68	34.13	145	86	Average
5785	102.96	93.73			34.68	8.68	34.13	145	86	Peak
11570	47.51	32.2	54	-6.49	38	12.68	35.37	128	53	Average
11570	57.67	42.36	74	-16.33	38	12.68	35.37	128	53	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	106.72	97.49			34.68	8.68	34.13	199	13	Average
5785	113.4	104.17			34.68	8.68	34.13	199	13	Peak
11570	46.69	31.38	54	-7.31	38	12.68	35.37	123	169	Average
11570	57.12	41.81	74	-16.88	38	12.68	35.37	123	169	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
*5526.775	54	45.07	68.2	-14.2	34.42	8.58	34.07	145	86	Peak
5651.2	51.22	42.13	69.09	-17.87	34.56	8.62	34.09	145	86	Peak
5924.2	51.87	42.47	68.79	-16.92	34.83	8.73	34.16	145	86	Peak
*5962	54.01	44.57	68.2	-14.19	34.87	8.74	34.17	145	86	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5549.875	54.47	45.5	68.2	-13.73	34.45	8.59	34.07	199	13	Peak
5651.2	51.19	42.1	69.09	-17.9	34.56	8.62	34.09	199	13	Peak
5923.675	51.67	42.27	69.18	-17.51	34.83	8.73	34.16	199	13	Peak
*5944.675	53.92	44.49	68.2	-14.28	34.85	8.74	34.16	199	13	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	95.22	85.93			34.73	8.69	34.13	145	86	Average
5825	102.66	93.37			34.73	8.69	34.13	145	86	Peak
11650	46.74	31.21	54	-7.26	38.09	12.8	35.36	120	297	Average
11650	56.83	41.3	74	-17.17	38.09	12.8	35.36	120	297	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	105.99	96.7			34.73	8.69	34.13	199	13	Average
5825	113.36	104.07			34.73	8.69	34.13	199	13	Peak
11650	47.39	31.86	54	-6.61	38.09	12.8	35.36	198	253	Average
11650	57.52	41.99	74	-16.48	38.09	12.8	35.36	198	253	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5593.975	53.99	44.98	68.2	-14.21	34.49	8.6	34.08	145	86	Peak
5653.3	53.03	43.93	70.64	-17.61	34.56	8.63	34.09	145	86	Peak
5921.575	54.57	45.17	70.73	-16.16	34.83	8.73	34.16	145	86	Peak
*5952.55	54.34	44.91	68.2	-13.86	34.85	8.74	34.16	145	86	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5504.2	53.47	44.56	68.2	-14.73	34.4	8.57	34.06	199	13	Peak
5651.725	50.77	41.68	69.48	-18.71	34.56	8.62	34.09	199	13	Peak
5923.675	51.05	41.65	69.18	-18.13	34.83	8.73	34.16	199	13	Peak
*5970.4	53.88	44.43	68.2	-14.32	34.87	8.75	34.17	199	13	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
5124.35	42.64	34.42	54	-11.36	34.11	8.1	33.99	327	235	Average
5124.35	53.31	45.09	74	-20.69	34.11	8.1	33.99	327	235	Peak
5180	89.67	81.36			34.15	8.16	34	327	235	Average
5180	97.49	89.18			34.15	8.16	34	327	235	Peak
*10360	55.04	40.74	68.2	-13.16	37.12	12.3	35.12	158	210	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5149.85	44.95	36.7	54	-9.05	34.12	8.13	34	125	61	Average
5149.85	56.43	48.18	74	-17.57	34.12	8.13	34	125	61	Peak
5180	98.03	89.72			34.15	8.16	34	143	42	Average
5180	106.23	97.92			34.15	8.16	34	143	42	Peak
*10360	55.41	41.11	68.2	-12.79	37.12	12.3	35.12	131	243	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
5143.24	42.58	34.32	54	-11.42	34.12	8.13	33.99	327	232	Average
5143.24	52.82	44.56	74	-21.18	34.12	8.13	33.99	327	232	Peak
5220	91.31	82.92			34.17	8.22	34	327	232	Average
5220	99.42	91.03			34.17	8.22	34	327	232	Peak
5375.26	42.46	33.8	54	-11.54	34.29	8.41	34.04	327	232	Average
5375.26	53.43	44.77	74	-20.57	34.29	8.41	34.04	327	232	Peak
*10440	55.81	41.35	68.2	-12.39	37.16	12.47	35.17	122	315	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
5125.74	43.61	35.39	54	-10.39	34.11	8.1	33.99	141	38	Average
5125.74	54.33	46.11	74	-19.67	34.11	8.1	33.99	141	38	Peak
5220	101.24	92.85			34.17	8.22	34	141	38	Average
5220	108.44	100.05			34.17	8.22	34	141	38	Peak
5405.65	43.65	34.93	54	-10.35	34.32	8.44	34.04	141	38	Average
5405.65	53.23	44.51	74	-20.77	34.32	8.44	34.04	141	38	Peak
*10440	55.42	40.96	68.2	-12.78	37.16	12.47	35.17	150	306	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 48	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	91.27	82.83			34.19	8.26	34.01	326	235	Average
5240	99.64	91.2			34.19	8.26	34.01	326	235	Peak
5389.14	42.74	34.06	54	-11.26	34.31	8.41	34.04	326	235	Average
5389.14	53.06	44.38	74	-20.94	34.31	8.41	34.04	326	235	Peak
*10480	56.11	41.6	68.2	-12.09	37.19	12.53	35.21	130	97	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	100.55	92.11			34.19	8.26	34.01	146	39	Average
5240	108.38	99.94			34.19	8.26	34.01	146	39	Peak
5363.27	42.86	34.22	54	-11.14	34.29	8.38	34.03	146	39	Average
5363.27	53.44	44.8	74	-20.56	34.29	8.38	34.03	146	39	Peak
*10480	55.49	40.98	68.2	-12.71	37.19	12.53	35.21	155	57	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
5130.75	42.39	34.17	54	-11.61	34.11	8.1	33.99	147	106	Average
5130.75	53.6	45.38	74	-20.4	34.11	8.1	33.99	147	106	Peak
5260	92.56	84.1			34.21	8.26	34.01	147	106	Average
5260	100.26	91.8			34.21	8.26	34.01	147	106	Peak
*10520	56.67	42.08	68.2	-11.53	37.21	12.61	35.23	149	248	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5107.63	43.47	35.27	54	-10.53	34.09	8.1	33.99	179	23	Average
5107.63	53.69	45.49	74	-20.31	34.09	8.1	33.99	179	23	Peak
5260	100.71	92.25			34.21	8.26	34.01	179	23	Average
5260	108.63	100.17			34.21	8.26	34.01	179	23	Peak
*10520	55.65	41.06	68.2	-12.55	37.21	12.61	35.23	113	46	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5038.45	42.63	34.56	54	-11.37	34.04	8	33.97	147	106	Average
5038.45	53.01	44.94	74	-20.99	34.04	8	33.97	147	106	Peak
5300	92.26	83.72			34.24	8.32	34.02	147	106	Average
5300	100.34	91.8			34.24	8.32	34.02	147	106	Peak
5382.27	42.77	34.09	54	-11.23	34.31	8.41	34.04	147	106	Average
5382.27	53.18	44.5	74	-20.82	34.31	8.41	34.04	147	106	Peak
10600	46.17	31.49	54	-7.83	37.28	12.67	35.27	190	125	Average
10600	56.24	41.56	74	-17.76	37.28	12.67	35.27	190	125	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
5116.63	43.45	35.25	54	-10.55	34.09	8.1	33.99	179	23	Average
5116.63	54.58	46.38	74	-19.42	34.09	8.1	33.99	179	23	Peak
5300	100.64	92.1			34.24	8.32	34.02	179	23	Average
5300	108.72	100.18			34.24	8.32	34.02	179	23	Peak
5380.94	43.21	34.53	54	-10.79	34.31	8.41	34.04	179	23	Average
5380.94	53.47	44.79	74	-20.53	34.31	8.41	34.04	179	23	Peak
10600	46.06	31.38	54	-7.94	37.28	12.67	35.27	147	237	Average
10600	56.29	41.61	74	-17.71	37.28	12.67	35.27	147	237	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 64	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	91.27	82.69			34.25	8.35	34.02	147	108	Average
5320	98.03	89.45			34.25	8.35	34.02	147	108	Peak
5350.11	42.85	34.22	54	-11.15	34.28	8.38	34.03	147	108	Average
5350.11	53.9	45.27	74	-20.1	34.28	8.38	34.03	147	108	Peak
10640	45.93	31.2	54	-8.07	37.31	12.71	35.29	112	305	Average
10640	56.47	41.74	74	-17.53	37.31	12.71	35.29	112	305	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	98.75	90.17			34.25	8.35	34.02	179	19	Average
5320	106.42	97.84			34.25	8.35	34.02	179	19	Peak
5350.22	43.76	35.13	54	-10.24	34.28	8.38	34.03	179	19	Average
5350.22	53.94	45.31	74	-20.06	34.28	8.38	34.03	179	19	Peak
10640	46.82	32.09	54	-7.18	37.31	12.71	35.29	137	54	Average
10640	56.03	41.3	74	-17.97	37.31	12.71	35.29	137	54	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 100	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5425.38	43.11	34.34	54	-10.89	34.33	8.48	34.04	141	316	Average
5425.38	54.13	45.36	74	-19.87	34.33	8.48	34.04	141	316	Peak
*5468.71	52.46	43.63	68.2	-15.74	34.37	8.51	34.05	141	316	Peak
5500	89.83	80.91			34.4	8.57	34.05	141	316	Average
5500	97.15	88.23			34.4	8.57	34.05	141	316	Peak
11000	46.63	31.55	54	-7.37	37.6	12.96	35.48	119	169	Average
11000	56.86	41.78	74	-17.14	37.6	12.96	35.48	119	169	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5459.55	46.07	37.25	54	-7.93	34.36	8.51	34.05	152	27	Average
5459.55	57.27	48.45	74	-16.73	34.36	8.51	34.05	152	27	Peak
*5469.95	58.66	49.83	68.2	-9.54	34.37	8.51	34.05	152	27	Peak
5500	100.68	91.76			34.4	8.57	34.05	153	36	Average
5500	108.04	99.12			34.4	8.57	34.05	153	36	Peak
11000	46.08	31	54	-7.92	37.6	12.96	35.48	143	99	Average
11000	56.18	41.1	74	-17.82	37.6	12.96	35.48	143	99	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
5437.45	42.49	33.7	54	-11.51	34.35	8.48	34.04	144	292	Average
5437.45	53.21	44.42	74	-20.79	34.35	8.48	34.04	144	292	Peak
*5469.86	53.16	44.33	68.2	-15.04	34.37	8.51	34.05	144	292	Peak
5580	92.65	83.66			34.47	8.6	34.08	144	292	Average
5580	99.61	90.62			34.47	8.6	34.08	144	292	Peak
*5724.63	53.02	43.86	68.2	-15.18	34.62	8.65	34.11	144	292	Peak
11600	47.26	31.83	54	-6.74	38.04	12.76	35.37	128	158	Average
11600	57.11	41.68	74	-16.89	38.04	12.76	35.37	128	158	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5395.24	43.34	34.62	54	-10.66	34.32	8.44	34.04	134	9	Average
5395.24	54.11	45.39	74	-19.89	34.32	8.44	34.04	134	9	Peak
*5469.55	53.05	44.22	68.2	-15.15	34.37	8.51	34.05	134	9	Peak
5580	103.84	94.85			34.47	8.6	34.08	134	9	Average
5580	110.71	101.72			34.47	8.6	34.08	134	9	Peak
*5725.13	54.18	45.02	68.2	-14.02	34.62	8.65	34.11	134	9	Peak
11600	46.79	31.36	54	-7.21	38.04	12.76	35.37	148	124	Average
11600	56.92	41.49	74	-17.08	38.04	12.76	35.37	148	124	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 140	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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	89.51	80.38			34.59	8.64	34.1	146	86	Average
5700	96.63	87.5			34.59	8.64	34.1	146	86	Peak
*5725.16	53.33	44.17	68.2	-14.87	34.62	8.65	34.11	146	86	Peak
11400	46.08	30.98	54	-7.92	37.84	12.67	35.41	142	139	Average
11400	56.23	41.13	74	-17.77	37.84	12.67	35.41	142	139	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	99.41	90.28			34.59	8.64	34.1	201	11	Average
5700	106.15	97.02			34.59	8.64	34.1	201	11	Peak
*5725.16	61.23	52.07	68.2	-6.97	34.62	8.65	34.11	204	126	Peak
11400	45.75	30.65	54	-8.25	37.84	12.67	35.41	136	188	Average
11400	55.92	40.82	74	-18.08	37.84	12.67	35.41	136	188	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 144	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5423.69	42.58	33.81	54	-11.42	34.33	8.48	34.04	146	87	Average
5423.69	53.02	44.25	74	-20.98	34.33	8.48	34.04	146	87	Peak
5470.04	52.21	43.38	74	-21.79	34.37	8.51	34.05	146	87	Peak
5720	93.84	84.68			34.62	8.65	34.11	146	87	Average
5720	101.08	91.92			34.62	8.65	34.11	146	87	Peak
5857.76	58.24	48.92	74	-15.76	34.76	8.7	34.14	146	87	Peak
5863.92	57.93	48.6	74	-16.07	34.76	8.71	34.14	146	87	Peak
11400	47.3	32.2	54	-6.7	37.84	12.67	35.41	136	18	Average
11400	57.55	42.45	74	-16.45	37.84	12.67	35.41	136	18	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
5395.21	42.49	33.77	54	-11.51	34.32	8.44	34.04	203	8	Average
5395.21	54.36	45.64	74	-19.64	34.32	8.44	34.04	203	8	Peak
5469.8	53.62	44.79	74	-20.38	34.37	8.51	34.05	203	8	Peak
5720	103.54	94.38			34.62	8.65	34.11	203	8	Average
5720	111.32	102.16			34.62	8.65	34.11	203	8	Peak
5857.4	57.4	48.08	74	-16.6	34.76	8.7	34.14	203	8	Peak
5867	57.1	47.77	74	-16.9	34.76	8.71	34.14	203	8	Peak
11400	47.34	32.24	54	-6.66	37.84	12.67	35.41	152	130	Average
11400	57.45	42.35	74	-16.55	37.84	12.67	35.41	152	130	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5720 MHz: Fundamental Frequency
- *: Out of Restricted Band

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	93.65	84.46			34.64	8.66	34.11	145	86	Average
5745	102.12	92.93			34.64	8.66	34.11	145	86	Peak
11490	46.39	31.27	54	-7.61	37.89	12.62	35.39	162	18	Average
11490	56.57	41.45	74	-17.43	37.89	12.62	35.39	162	18	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	105.05	95.86			34.64	8.66	34.11	199	13	Average
5745	112.74	103.55			34.64	8.66	34.11	199	13	Peak
11490	46.29	31.17	54	-7.71	37.89	12.62	35.39	174	158	Average
11490	56.41	41.29	74	-17.59	37.89	12.62	35.39	174	158	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
*5635.45	53.29	44.22	68.2	-14.91	34.54	8.62	34.09	145	86	Peak
5651.2	51.08	41.99	69.09	-18.01	34.56	8.62	34.09	145	86	Peak
5922.625	52	42.6	69.96	-17.96	34.83	8.73	34.16	145	86	Peak
*5933.125	53.26	43.86	68.2	-14.94	34.83	8.73	34.16	145	86	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5641.75	53.99	44.92	68.2	-14.21	34.54	8.62	34.09	199	13	Peak
5651.725	52.27	43.18	69.48	-17.21	34.56	8.62	34.09	199	13	Peak
5923.15	50.45	41.05	69.57	-19.12	34.83	8.73	34.16	199	13	Peak
*6016.6	53.96	44.45	68.2	-14.24	34.92	8.77	34.18	199	13	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	93.96	84.73			34.68	8.68	34.13	145	87	Average
5785	102.19	92.96			34.68	8.68	34.13	145	87	Peak
11570	45.35	30.04	54	-8.65	38	12.68	35.37	154	124	Average
11570	55.47	40.16	74	-18.53	38	12.68	35.37	154	124	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	104.59	95.36			34.68	8.68	34.13	199	13	Average
5785	112.89	103.66			34.68	8.68	34.13	199	13	Peak
11570	46.61	31.3	54	-7.39	38	12.68	35.37	142	139	Average
11570	56.55	41.24	74	-17.45	38	12.68	35.37	142	139	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
*5617.075	54.43	45.38	68.2	-13.77	34.52	8.61	34.08	145	87	Peak
5651.2	51.1	42.01	69.09	-17.99	34.56	8.62	34.09	145	87	Peak
5923.675	51.81	42.41	69.18	-17.37	34.83	8.73	34.16	145	87	Peak
*5995.6	53.49	44	68.2	-14.71	34.9	8.76	34.17	145	87	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
*5544.1	54.42	45.48	68.2	-13.78	34.43	8.58	34.07	199	13	Peak
5651.725	52.44	43.35	69.48	-17.04	34.56	8.62	34.09	199	13	Peak
5921.05	53.29	43.91	71.12	-17.83	34.81	8.73	34.16	199	13	Peak
*5944.15	53.8	44.37	68.2	-14.4	34.85	8.74	34.16	199	13	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	93.62	84.33			34.73	8.69	34.13	145	86	Average
5825	102.29	93			34.73	8.69	34.13	145	86	Peak
11650	46.82	31.29	54	-7.18	38.09	12.8	35.36	139	323	Average
11650	56.89	41.36	74	-17.11	38.09	12.8	35.36	139	323	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	105.26	95.97			34.73	8.69	34.13	199	13	Average
5825	112.89	103.6			34.73	8.69	34.13	199	13	Peak
11650	46.65	31.12	54	-7.35	38.09	12.8	35.36	142	177	Average
11650	56.86	41.33	74	-17.14	38.09	12.8	35.36	142	177	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5584	53.94	44.93	68.2	-14.26	34.49	8.6	34.08	145	86	Peak
5653.3	51.88	42.78	70.64	-18.76	34.56	8.63	34.09	145	86	Peak
5923.675	51.27	41.87	69.18	-17.91	34.83	8.73	34.16	145	86	Peak
*5994.025	53.85	44.36	68.2	-14.35	34.9	8.76	34.17	145	86	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5588.725	54.53	45.52	68.2	-13.67	34.49	8.6	34.08	199	13	Peak
5652.25	52.08	42.99	69.86	-17.78	34.56	8.62	34.09	199	13	Peak
5923.15	51.68	42.28	69.57	-17.89	34.83	8.73	34.16	199	13	Peak
*5936.8	53.8	44.4	68.2	-14.4	34.83	8.73	34.16	199	13	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
5128.85	42.56	34.34	54	-11.44	34.11	8.1	33.99	327	235	Average
5128.85	53.01	44.79	74	-20.99	34.11	8.1	33.99	327	235	Peak
5190	82.65	74.31			34.15	8.19	34	327	235	Average
5190	89.88	81.54			34.15	8.19	34	327	235	Peak
5419.19	42.56	33.79	54	-11.44	34.33	8.48	34.04	327	235	Average
5419.19	53.64	44.87	74	-20.36	34.33	8.48	34.04	327	235	Peak
*10380	54.83	40.48	68.2	-13.37	37.13	12.36	35.14	187	238	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
5150	44.98	36.73	54	-9.02	34.12	8.13	34	141	42	Average
5150	54.21	45.96	74	-19.79	34.12	8.13	34	141	42	Peak
5190	92.7	84.36			34.15	8.19	34	137	42	Average
5190	99.77	91.43			34.15	8.19	34	137	42	Peak
5420.95	42.79	34.02	54	-11.21	34.33	8.48	34.04	137	42	Average
5420.95	54.37	45.6	74	-19.63	34.33	8.48	34.04	137	42	Peak
*10380	54.88	40.53	68.2	-13.32	37.13	12.36	35.14	191	254	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5190 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 46	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5137.21	43.18	34.93	54	-10.82	34.11	8.13	33.99	327	235	Average
5137.21	52.98	44.73	74	-21.02	34.11	8.13	33.99	327	235	Peak
5230	86.54	78.14			34.19	8.22	34.01	327	235	Average
5230	94.36	85.96			34.19	8.22	34.01	327	235	Peak
5380.82	43.07	34.39	54	-10.93	34.31	8.41	34.04	327	235	Average
5380.82	53.26	44.58	74	-20.74	34.31	8.41	34.04	327	235	Peak
*10460	56.04	41.53	68.2	-12.16	37.17	12.53	35.19	195	215	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5124.75	44.06	35.84	54	-9.94	34.11	8.1	33.99	143	36	Average
5124.75	53.78	45.56	74	-20.22	34.11	8.1	33.99	143	36	Peak
5230	96.82	88.42			34.19	8.22	34.01	143	36	Average
5230	104.15	95.75			34.19	8.22	34.01	143	36	Peak
5397.44	43.59	34.87	54	-10.41	34.32	8.44	34.04	143	36	Average
5397.44	53.62	44.9	74	-20.38	34.32	8.44	34.04	143	36	Peak
*10460	56.1	41.59	68.2	-12.1	37.17	12.53	35.19	152	211	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5230 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 54	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5100.49	43.26	35.1	54	-10.74	34.08	8.07	33.99	147	105	Average
5100.49	53.21	45.05	74	-20.79	34.08	8.07	33.99	147	105	Peak
5270	88.54	80.05			34.21	8.29	34.01	147	105	Average
5270	96.36	87.87			34.21	8.29	34.01	147	105	Peak
5360.47	43.14	34.51	54	-10.86	34.28	8.38	34.03	147	105	Average
5360.47	53.32	44.69	74	-20.68	34.28	8.38	34.03	147	105	Peak
*10540	55.69	41.07	68.2	-12.51	37.23	12.63	35.24	129	350	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5085.12	43.59	35.43	54	-10.41	34.07	8.07	33.98	179	21	Average
5085.12	53.76	45.6	74	-20.24	34.07	8.07	33.98	179	21	Peak
5270	96.42	87.93			34.21	8.29	34.01	179	21	Average
5270	103.79	95.3			34.21	8.29	34.01	179	21	Peak
5352.47	43.07	34.44	54	-10.93	34.28	8.38	34.03	179	21	Average
5352.47	53.29	44.66	74	-20.71	34.28	8.38	34.03	179	21	Peak
*10540	56.7	42.08	68.2	-11.5	37.23	12.63	35.24	134	205	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5270 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 62	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5147	42.89	34.64	54	-11.11	34.12	8.13	34	147	108	Average
5147	53.14	44.89	74	-20.86	34.12	8.13	34	147	108	Peak
5310	81.97	73.42			34.25	8.32	34.02	147	108	Average
5310	89.01	80.46			34.25	8.32	34.02	147	108	Peak
5351.21	43.19	34.56	54	-10.81	34.28	8.38	34.03	147	108	Average
5351.21	53.51	44.88	74	-20.49	34.28	8.38	34.03	147	108	Peak
10620	46.32	31.61	54	-7.68	37.3	12.69	35.28	123	290	Average
10620	56.51	41.8	74	-17.49	37.3	12.69	35.28	123	290	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
5073.35	43.24	35.12	54	-10.76	34.07	8.03	33.98	190	21	Average
5073.35	53.69	45.57	74	-20.31	34.07	8.03	33.98	190	21	Peak
5310	89.34	80.79			34.25	8.32	34.02	190	21	Average
5310	97.4	88.85			34.25	8.32	34.02	190	21	Peak
5354.07	43.48	34.85	54	-10.52	34.28	8.38	34.03	190	21	Average
5354.07	53.6	44.97	74	-20.4	34.28	8.38	34.03	190	21	Peak
10620	45.74	31.03	54	-8.26	37.3	12.69	35.28	158	216	Average
10620	55.9	41.19	74	-18.1	37.3	12.69	35.28	158	216	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5458.32	43.1	34.28	54	-10.9	34.36	8.51	34.05	131	296	Average
5458.32	53.6	44.78	74	-20.4	34.36	8.51	34.05	131	296	Peak
*5468.88	52.71	43.88	68.2	-15.49	34.37	8.51	34.05	131	296	Peak
5510	84.77	75.86			34.4	8.57	34.06	131	296	Average
5510	92.19	83.28			34.4	8.57	34.06	131	296	Peak
*5724.12	53.24	44.08	68.2	-14.96	34.62	8.65	34.11	131	296	Peak
11020	45.72	30.65	54	-8.28	37.61	12.94	35.48	150	204	Average
11020	56.16	41.09	74	-17.84	37.61	12.94	35.48	150	204	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5456.4	44.34	35.52	54	-9.66	34.36	8.51	34.05	157	344	Average
5456.4	53.95	45.13	74	-20.05	34.36	8.51	34.05	157	344	Peak
*5469.52	56.42	47.59	68.2	-11.78	34.37	8.51	34.05	157	344	Peak
5510	95.61	86.7			34.4	8.57	34.06	147	36	Average
5510	102.85	93.94			34.4	8.57	34.06	147	36	Peak
*5724.92	52.62	43.46	68.2	-15.58	34.62	8.65	34.11	147	36	Peak
11020	46.85	31.78	54	-7.15	37.61	12.94	35.48	143	61	Average
11020	56.97	41.9	74	-17.03	37.61	12.94	35.48	143	61	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
5386.27	42.85	34.17	54	-11.15	34.31	8.41	34.04	145	286	Average
5386.27	53.24	44.56	74	-20.76	34.31	8.41	34.04	145	286	Peak
*5470.21	54.02	45.19	68.2	-14.18	34.37	8.51	34.05	145	286	Peak
5550	91.82	82.85			34.45	8.59	34.07	145	286	Average
5550	99.23	90.26			34.45	8.59	34.07	145	286	Peak
*5725.09	53.11	43.95	68.2	-15.09	34.62	8.65	34.11	145	286	Peak
11000	46.97	31.89	54	-7.03	37.6	12.96	35.48	104	123	Average
11000	57.02	41.94	74	-16.98	37.6	12.96	35.48	104	123	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5420.63	43.57	34.8	54	-10.43	34.33	8.48	34.04	134	12	Average
5420.63	54.25	45.48	74	-19.75	34.33	8.48	34.04	134	12	Peak
*5470.64	53.92	45.09	68.2	-14.28	34.37	8.51	34.05	134	12	Peak
5550	100.96	91.99			34.45	8.59	34.07	134	12	Average
5550	108.54	99.57			34.45	8.59	34.07	134	12	Peak
*5724.95	53.9	44.74	68.2	-14.3	34.62	8.65	34.11	134	12	Peak
11000	45.81	30.73	54	-8.19	37.6	12.96	35.48	139	180	Average
11000	56.01	40.93	74	-17.99	37.6	12.96	35.48	139	180	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
5422.38	43.28	34.51	54	-10.72	34.33	8.48	34.04	144	87	Average
5422.38	53.06	44.29	74	-20.94	34.33	8.48	34.04	144	87	Peak
*5469.27	52.71	43.88	68.2	-15.49	34.37	8.51	34.05	144	87	Peak
5670	89.61	80.51			34.57	8.63	34.1	144	87	Average
5670	97.3	88.2			34.57	8.63	34.1	144	87	Peak
*5725.02	54.27	45.11	68.2	-13.93	34.62	8.65	34.11	144	87	Peak
11340	46.8	31.71	54	-7.2	37.8	12.71	35.42	142	69	Average
11340	56.93	41.84	74	-17.07	37.8	12.71	35.42	142	69	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5378.46	43.38	34.7	54	-10.62	34.31	8.41	34.04	209	11	Average
5378.46	53.36	44.68	74	-20.64	34.31	8.41	34.04	209	11	Peak
*5470.14	53.16	44.33	68.2	-15.04	34.37	8.51	34.05	209	11	Peak
5670	99.33	90.23			34.57	8.63	34.1	209	11	Average
5670	106.74	97.64			34.57	8.63	34.1	209	11	Peak
*5725.34	56.42	47.26	68.2	-11.78	34.62	8.65	34.11	186	11	Peak
11340	47.21	32.12	54	-6.79	37.8	12.71	35.42	156	241	Average
11340	57.41	42.32	74	-16.59	37.8	12.71	35.42	156	241	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 142	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
5440.62	42.41	33.62	54	-11.59	34.35	8.48	34.04	146	87	Average
5440.62	52.95	44.16	74	-21.05	34.35	8.48	34.04	146	87	Peak
5469.8	52.38	43.55	74	-21.62	34.37	8.51	34.05	146	87	Peak
5710	100.91	91.76			34.61	8.65	34.11	146	87	Average
5710	98	88.85			34.61	8.65	34.11	146	87	Peak
5850.67	57.13	47.83	74	-16.87	34.74	8.7	34.14	146	87	Peak
5863.27	56.89	47.56	74	-17.11	34.76	8.71	34.14	146	87	Peak
11420	47.44	32.34	54	-6.56	37.85	12.65	35.4	127	230	Average
11420	56.82	41.72	74	-17.18	37.85	12.65	35.4	127	230	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
5417.96	42.43	33.7	54	-11.57	34.33	8.44	34.04	203	8	Average
5417.96	53.67	44.94	74	-20.33	34.33	8.44	34.04	203	8	Peak
5469.81	52.33	43.5	74	-21.67	34.37	8.51	34.05	203	8	Peak
5710	101.21	92.06			34.61	8.65	34.11	203	8	Average
5710	108.15	99			34.61	8.65	34.11	203	8	Peak
5856.34	57.16	47.84	74	-16.84	34.76	8.7	34.14	203	8	Peak
5867.14	57.39	48.06	74	-16.61	34.76	8.71	34.14	203	8	Peak
11420	47.25	32.15	54	-6.75	37.85	12.65	35.4	121	186	Average
11420	57.36	42.26	74	-16.64	37.85	12.65	35.4	121	186	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5710 MHz: Fundamental Frequency
- *: Out of Restricted Band

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	91.56	82.35			34.66	8.66	34.11	145	86	Average
5755	99.89	90.68			34.66	8.66	34.11	145	86	Peak
11510	46.5	31.39	54	-7.5	37.9	12.6	35.39	139	316	Average
11510	56.57	41.46	74	-17.43	37.9	12.6	35.39	139	316	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	101.54	92.33			34.66	8.66	34.11	199	13	Average
5755	109.82	100.61			34.66	8.66	34.11	199	13	Peak
11510	45.86	30.75	54	-8.14	37.9	12.6	35.39	143	286	Average
11510	55.96	40.85	74	-18.04	37.9	12.6	35.39	143	286	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
*5569.825	55.15	46.16	68.2	-13.05	34.47	8.59	34.07	145	86	Peak
5651.2	51.15	42.06	69.09	-17.94	34.56	8.62	34.09	145	86	Peak
5923.675	51.22	41.82	69.18	-17.96	34.83	8.73	34.16	145	86	Peak
*5941	53.92	44.49	68.2	-14.28	34.85	8.74	34.16	145	86	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5637.025	55.1	46.03	68.2	-13.1	34.54	8.62	34.09	199	13	Peak
5651.725	53.95	44.86	69.48	-15.53	34.56	8.62	34.09	199	13	Peak
5923.15	53.76	44.36	69.57	-15.81	34.83	8.73	34.16	199	13	Peak
*5964.625	55.12	45.67	68.2	-13.08	34.87	8.75	34.17	199	13	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	91.51	82.27			34.69	8.68	34.13	145	86	Average
5795	99.87	90.63			34.69	8.68	34.13	145	86	Peak
11590	46.75	31.38	54	-7.25	38.02	12.72	35.37	197	344	Average
11590	56.82	41.45	74	-17.18	38.02	12.72	35.37	197	344	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	101.51	92.27			34.69	8.68	34.13	199	13	Average
5795	109.72	100.48			34.69	8.68	34.13	199	13	Peak
11590	46.33	30.96	54	-7.67	38.02	12.72	35.37	136	313	Average
11590	56.49	41.12	74	-17.51	38.02	12.72	35.37	136	313	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
*5593.975	53.74	44.73	68.2	-14.46	34.49	8.6	34.08	145	86	Peak
5653.3	52.48	43.38	70.64	-18.16	34.56	8.63	34.09	145	86	Peak
5923.675	51.39	41.99	69.18	-17.79	34.83	8.73	34.16	145	86	Peak
*5983	53.48	44.02	68.2	-14.72	34.88	8.75	34.17	145	86	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5626.525	54.66	45.61	68.2	-13.54	34.52	8.61	34.08	199	13	Peak
5651.725	53.88	44.79	69.48	-15.6	34.56	8.62	34.09	199	13	Peak
5923.675	51.39	41.99	69.18	-17.79	34.83	8.73	34.16	199	13	Peak
*5991.925	53.74	44.25	68.2	-14.46	34.9	8.76	34.17	199	13	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
5119.7	42.94	34.74	54	-11.06	34.09	8.1	33.99	327	235	Average
5119.7	53.56	45.36	74	-20.44	34.09	8.1	33.99	327	235	Peak
5210	76.28	67.92			34.17	8.19	34	327	235	Average
5210	84.77	76.41			34.17	8.19	34	327	235	Peak
5414.46	43.17	34.44	54	-10.83	34.33	8.44	34.04	327	235	Average
5414.46	53.51	44.78	74	-20.49	34.33	8.44	34.04	327	235	Peak
*10420	54.47	40.06	68.2	-13.73	37.15	12.42	35.16	169	305	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5146.85	43.92	35.67	54	-10.08	34.12	8.13	34	136	40	Average
5146.85	54.22	45.97	74	-19.78	34.12	8.13	34	136	40	Peak
5210	87.66	79.3			34.17	8.19	34	136	40	Average
5210	95.59	87.23			34.17	8.19	34	136	40	Peak
5435.69	43.03	34.24	54	-10.97	34.35	8.48	34.04	136	40	Average
5435.69	54.23	45.44	74	-19.77	34.35	8.48	34.04	136	40	Peak
*10420	54.77	40.36	68.2	-13.43	37.15	12.42	35.16	135	228	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5210 MHz: Fundamental Frequency
- *: Out of Restricted Band

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
5130.5	43.27	35.05	54	-10.73	34.11	8.1	33.99	147	108	Average
5130.5	52.85	44.63	74	-21.15	34.11	8.1	33.99	147	108	Peak
5290	78.18	69.65			34.23	8.32	34.02	147	108	Average
5290	86.11	77.58			34.23	8.32	34.02	147	108	Peak
5447.9	43.4	34.57	54	-10.6	34.36	8.51	34.04	147	108	Average
5447.9	53.84	45.01	74	-20.16	34.36	8.51	34.04	147	108	Peak
*10580	56.4	41.75	68.2	-11.8	37.27	12.65	35.27	196	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
5126.9	43.48	35.26	54	-10.52	34.11	8.1	33.99	179	22	Average
5126.9	52.95	44.73	74	-21.05	34.11	8.1	33.99	179	22	Peak
5290	86.5	77.97			34.23	8.32	34.02	179	22	Average
5290	94.07	85.54			34.23	8.32	34.02	179	22	Peak
5357.7	43.81	35.18	54	-10.19	34.28	8.38	34.03	179	22	Average
5357.7	53.76	45.13	74	-20.24	34.28	8.38	34.03	179	22	Peak
*10580	55.45	40.8	68.2	-12.75	37.27	12.65	35.27	196	247	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5290 MHz: Fundamental Frequency
- *: Out of Restricted Band

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
5449.36	43.36	34.53	54	-10.64	34.36	8.51	34.04	131	296	Average
5449.36	53.2	44.37	74	-20.8	34.36	8.51	34.04	131	296	Peak
*5468.56	52.1	43.27	68.2	-16.1	34.37	8.51	34.05	131	296	Peak
5530	79.57	70.64			34.42	8.58	34.07	131	296	Average
5530	86.71	77.78			34.42	8.58	34.07	131	296	Peak
*5725.56	53.16	44	68.2	-15.04	34.62	8.65	34.11	131	296	Peak
10600	45.74	31.06	54	-8.26	37.28	12.67	35.27	108	199	Average
10600	55.98	41.3	74	-18.02	37.28	12.67	35.27	108	199	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5458.16	44.47	35.65	54	-9.53	34.36	8.51	34.05	153	27	Average
5458.16	54.19	45.37	74	-19.81	34.36	8.51	34.05	153	27	Peak
*5469.2	54.14	45.31	68.2	-14.06	34.37	8.51	34.05	153	27	Peak
5530	89.87	80.94			34.42	8.58	34.07	153	27	Average
5530	97.01	88.08			34.42	8.58	34.07	153	27	Peak
*5724.36	52.14	42.98	68.2	-16.06	34.62	8.65	34.11	153	27	Peak
10600	45.36	30.68	54	-8.64	37.28	12.67	35.27	154	129	Average
10600	55.48	40.8	74	-18.52	37.28	12.67	35.27	154	129	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
5368.22	43.46	34.79	54	-10.54	34.29	8.41	34.03	145	290	Average
5368.22	53.42	44.75	74	-20.58	34.29	8.41	34.03	145	290	Peak
*5469.54	52.13	43.3	68.2	-16.07	34.37	8.51	34.05	145	290	Peak
5610	87.88	78.85			34.5	8.61	34.08	145	290	Average
5610	94.81	85.78			34.5	8.61	34.08	145	290	Peak
*5724.63	52.28	43.12	68.2	-15.92	34.62	8.65	34.11	145	290	Peak
11220	46.51	31.42	54	-7.49	37.73	12.8	35.44	167	126	Average
11220	56.62	41.53	74	-17.38	37.73	12.8	35.44	167	126	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
5437.64	43.75	34.96	54	-10.25	34.35	8.48	34.04	135	9	Average
5437.64	53.33	44.54	74	-20.67	34.35	8.48	34.04	135	9	Peak
*5469.75	54.12	45.29	68.2	-14.08	34.37	8.51	34.05	135	9	Peak
5610	98.74	89.71			34.5	8.61	34.08	135	9	Average
5610	106.23	97.2			34.5	8.61	34.08	135	9	Peak
*5725.04	57.42	48.26	68.2	-10.78	34.62	8.65	34.11	162	11	Peak
11220	46.8	31.71	54	-7.2	37.73	12.8	35.44	136	154	Average
11220	57.31	42.22	74	-16.69	37.73	12.8	35.44	136	154	Peak

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 138	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
5437.24	42.46	33.67	54	-11.54	34.35	8.48	34.04	146	87	Average
5437.24	52.43	43.64	74	-21.57	34.35	8.48	34.04	146	87	Peak
5469.82	51.52	42.69	74	-22.48	34.37	8.51	34.05	146	87	Peak
5690	90.13	81			34.59	8.64	34.1	146	87	Average
5690	98.97	89.84			34.59	8.64	34.1	146	87	Peak
5853	57.61	48.31	74	-16.39	34.74	8.7	34.14	146	87	Peak
5864.53	57.7	48.37	74	-16.3	34.76	8.71	34.14	146	87	Peak
11380	47.25	32.14	54	-6.75	37.83	12.69	35.41	124	106	Average
11380	57.38	42.27	74	-16.62	37.83	12.69	35.41	124	106	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5380.43	42.61	33.93	54	-11.39	34.31	8.41	34.04	203	8	Average
5380.43	52.65	43.97	74	-21.35	34.31	8.41	34.04	203	8	Peak
5470.24	52.21	43.38	74	-21.79	34.37	8.51	34.05	203	8	Peak
5690	99.78	90.65			34.59	8.64	34.1	203	8	Average
5690	106.95	97.82			34.59	8.64	34.1	203	8	Peak
5858.25	57.56	48.24	74	-16.44	34.76	8.7	34.14	203	8	Peak
5866.74	57.42	48.09	74	-16.58	34.76	8.71	34.14	203	8	Peak
11380	47.39	32.28	54	-6.61	37.83	12.69	35.41	105	82	Average
11380	57.69	42.58	74	-16.31	37.83	12.69	35.41	105	82	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5690 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	86.19	76.96			34.68	8.67	34.12	145	86	Average
5775	94.77	85.54			34.68	8.67	34.12	145	86	Peak
11550	46.26	30.99	54	-7.74	37.97	12.68	35.38	108	124	Average
11550	56.37	41.1	74	-17.63	37.97	12.68	35.38	108	124	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	97.29	88.06			34.68	8.67	34.12	199	13	Average
5775	105.04	95.81			34.68	8.67	34.12	199	13	Peak
11550	45.61	30.34	54	-8.39	37.97	12.68	35.38	142	191	Average
11550	55.74	40.47	74	-18.26	37.97	12.68	35.38	142	191	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
*5526.775	53.99	45.06	68.2	-14.21	34.42	8.58	34.07	145	86	Peak
5651.2	50.47	41.38	69.09	-18.62	34.56	8.62	34.09	145	86	Peak
5923.675	50.97	41.57	69.18	-18.21	34.83	8.73	34.16	145	86	Peak
*5965.675	53.56	44.11	68.2	-14.64	34.87	8.75	34.17	145	86	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5644.9	54.02	44.95	68.2	-14.18	34.54	8.62	34.09	199	13	Peak
5651.725	52.65	43.56	69.48	-16.83	34.56	8.62	34.09	199	13	Peak
5923.675	49.91	40.51	69.18	-19.27	34.83	8.73	34.16	199	13	Peak
*5950.975	53.64	44.21	68.2	-14.56	34.85	8.74	34.16	199	13	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 149	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
108.3	20.18	39.04	43.5	-23.32	12.11	1.28	32.25	187	199	Peak
182.82	7.34	27.95	43.5	-36.16	10.02	1.61	32.24	101	4	Peak
252.75	18.78	36.57	46	-27.22	12.37	1.94	32.1	187	188	Peak
457.5	15.99	29.96	46	-30.01	15.68	2.49	32.14	156	181	Peak
683.6	18.83	28.9	46	-27.17	18.99	3.05	32.11	188	187	Peak
791.4	20.37	28.93	46	-25.63	20.24	3.27	32.07	124	204	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
73.74	15.46	37.79	40	-24.54	8.78	1.11	32.22	187	315	Peak
170.67	17.12	38.69	43.5	-26.38	9.15	1.52	32.24	175	332	Peak
280.02	17.61	34.96	46	-28.39	12.74	2.03	32.12	127	102	Peak
380.5	14.93	30.24	46	-31.07	14.59	2.26	32.16	145	55	Peak
710.2	20.33	29.94	46	-25.67	19.38	3.11	32.1	178	205	Peak
827.8	20.78	28.57	46	-25.22	20.74	3.38	31.91	199	354	Peak

Remarks:

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

4.2 Transmit Power Measurement

4.2.1 Limits of Transmit Power Measurement

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

*B is the 26 dB emission bandwidth in megahertz

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

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

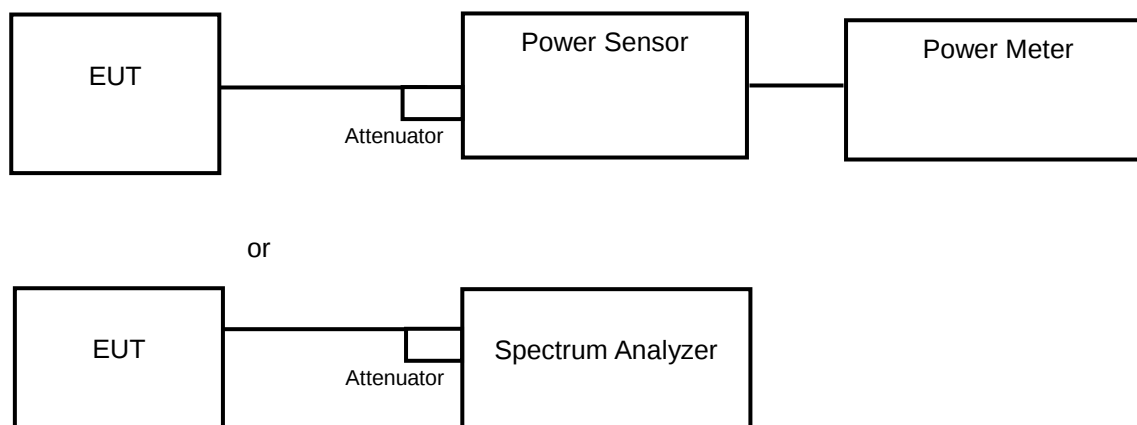
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

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

4.2.2 Test Setup

<Power Output Measurement>



4.2.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.2.4 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)>

- a. Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- b. Set sweep trigger to "free run".
- c. Set RBW = 1 MHz.
- d. Set VBW $\geq$ 3 MHz
- e. Number of points in sweep $\geq$ 2 Span / RBW.
- f. Sweep time $\leq$ (number of points in sweep) * T
- g. Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
- h. Detector = RMS.
- i. Trace mode = max hold.
- j. Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Conditions

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

4.2.7 Test Result

Power Output:

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	17.73	24	Pass
44	5220	19.91	24	Pass
48	5240	19.32	24	Pass
52	5260	19.77	24	Pass
60	5300	19.95	24	Pass
64	5320	15.87	24	Pass
100	5500	16.44	24	Pass
116	5580	19.84	24	Pass
140	5700	19.85	24	Pass
144	5720	19.93	30	Pass
149	5745	19.87	30	Pass
157	5785	15.73	30	Pass
165	5825	19.74	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1			
36	5180	12.85	12.71	15.79	24	Pass
44	5220	14.94	14.73	17.85	24	Pass
48	5240	14.92	14.82	17.88	24	Pass
52	5260	14.85	14.82	17.85	24	Pass
60	5300	14.90	14.63	17.78	24	Pass
64	5320	12.34	12.52	15.44	24	Pass
100	5500	12.86	12.42	15.66	24	Pass
116	5580	14.89	14.58	17.75	24	Pass
140	5700	10.85	10.61	13.74	24	Pass
144	5720	14.75	14.67	17.72	24	Pass
149	5745	15.65	15.84	18.76	30	Pass
157	5785	15.88	15.93	18.92	30	Pass
165	5825	15.87	15.84	18.87	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1			
38	5190	10.40	10.28	13.35	24	Pass
46	5230	14.84	14.88	17.87	24	Pass
54	5270	14.78	14.93	17.87	24	Pass
62	5310	8.84	8.61	11.74	24	Pass
102	5510	8.91	8.69	11.81	24	Pass
110	5550	14.82	14.78	17.81	24	Pass
134	5670	13.23	13.42	16.34	24	Pass
142	5710	14.82	14.92	17.88	24	Pass
151	5755	15.98	15.87	18.94	30	Pass
159	5795	15.85	15.93	18.90	30	Pass

802.11ac (VHT80)

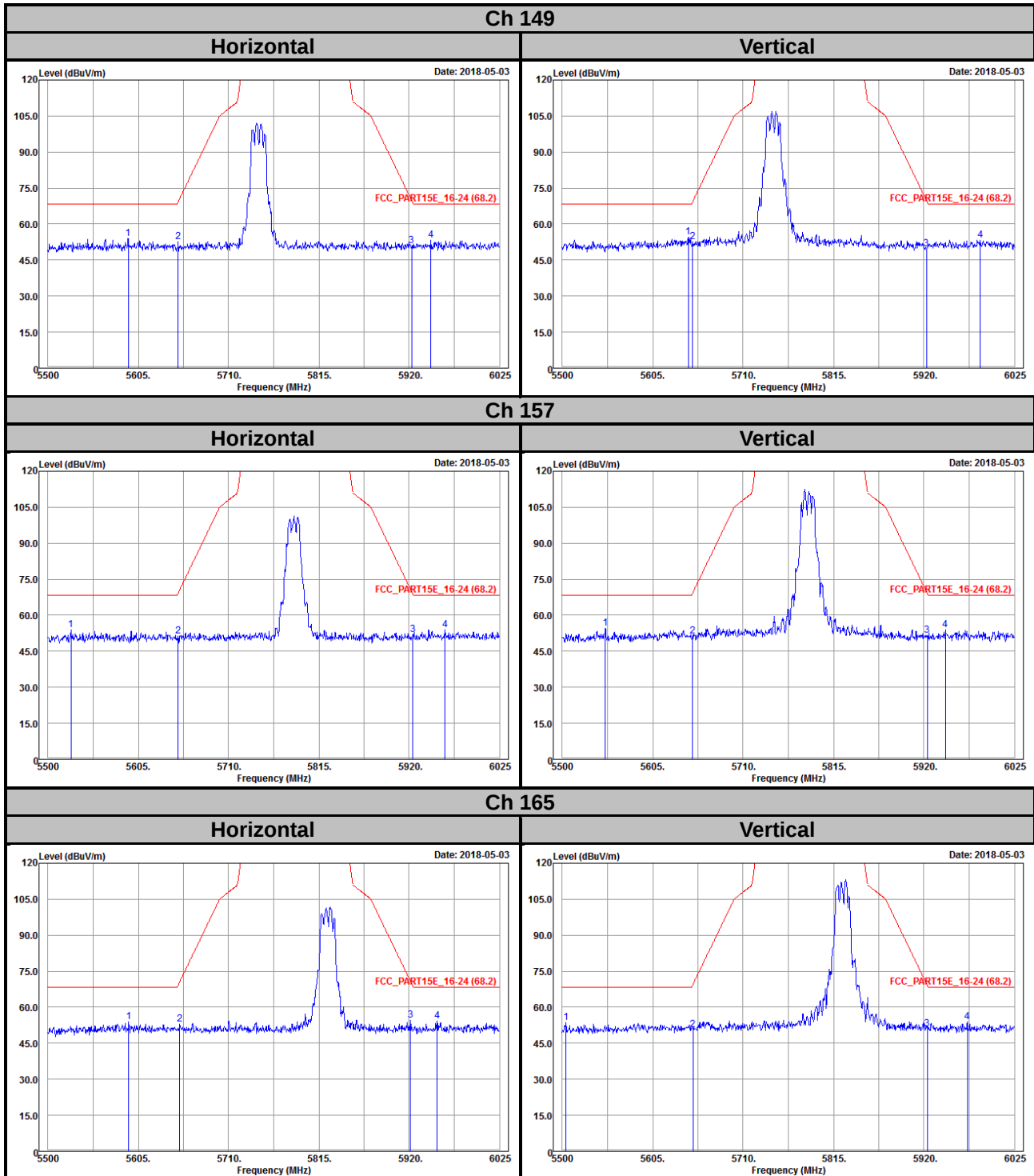
Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1			
42	5210	8.81	8.64	11.74	24	Pass
58	5290	7.43	7.16	10.31	24	Pass
106	5530	7.39	7.08	10.25	24	Pass
122	5610	14.78	14.83	17.82	24	Pass
138	5690	15.56	15.41	18.50	24	Pass
155	5775	13.65	13.74	16.71	30	Pass

5 Pictures of Test Arrangements

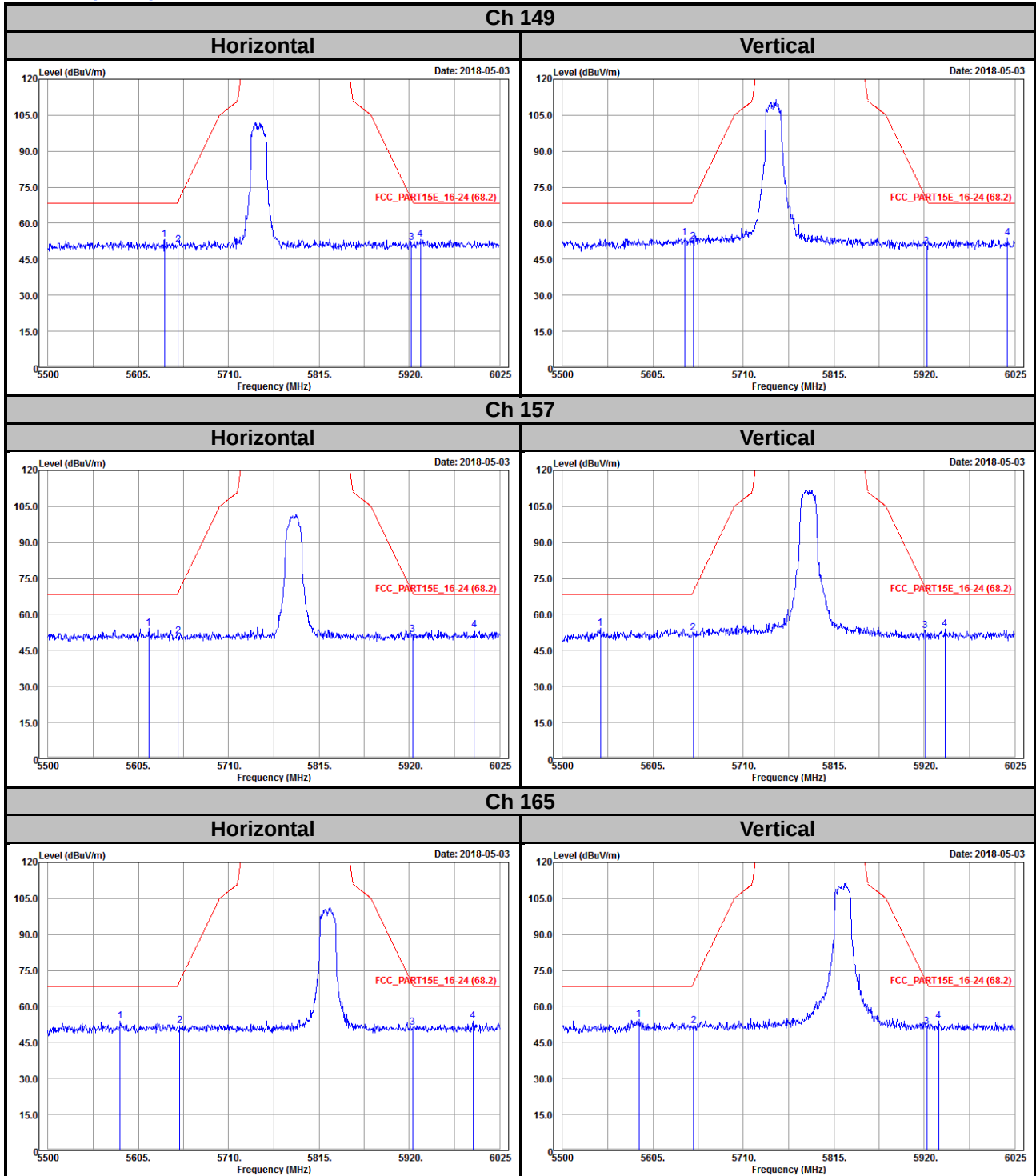
Please refer to the attached file (Test Setup Photo).

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

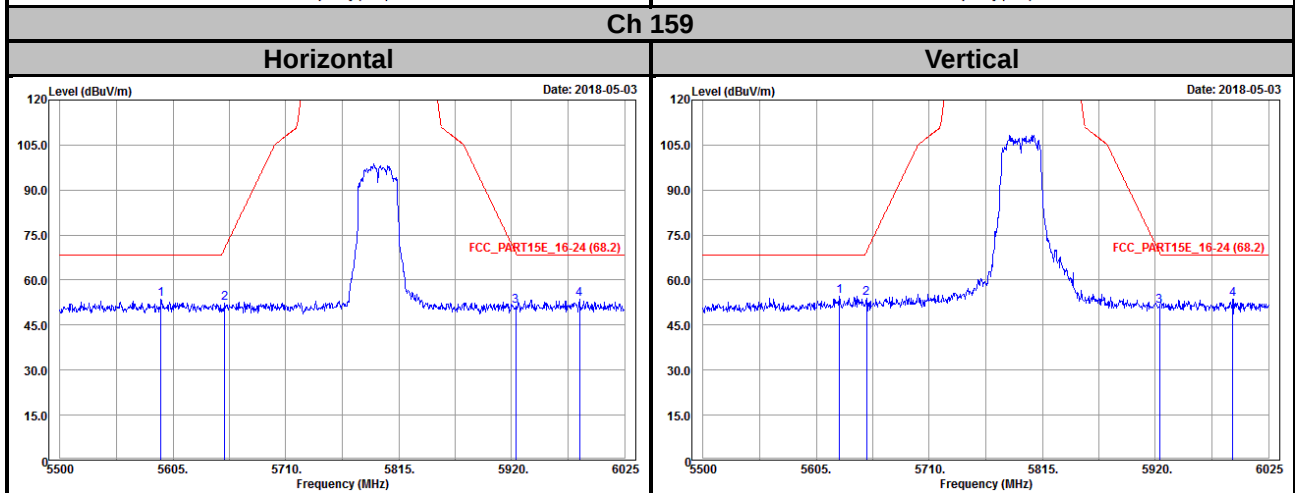
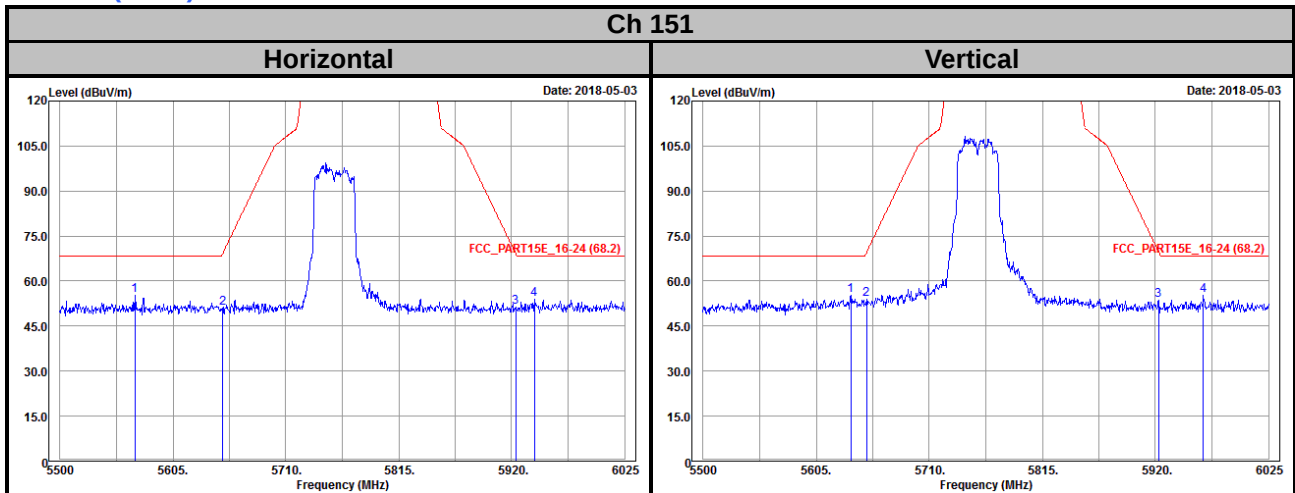
802.11a



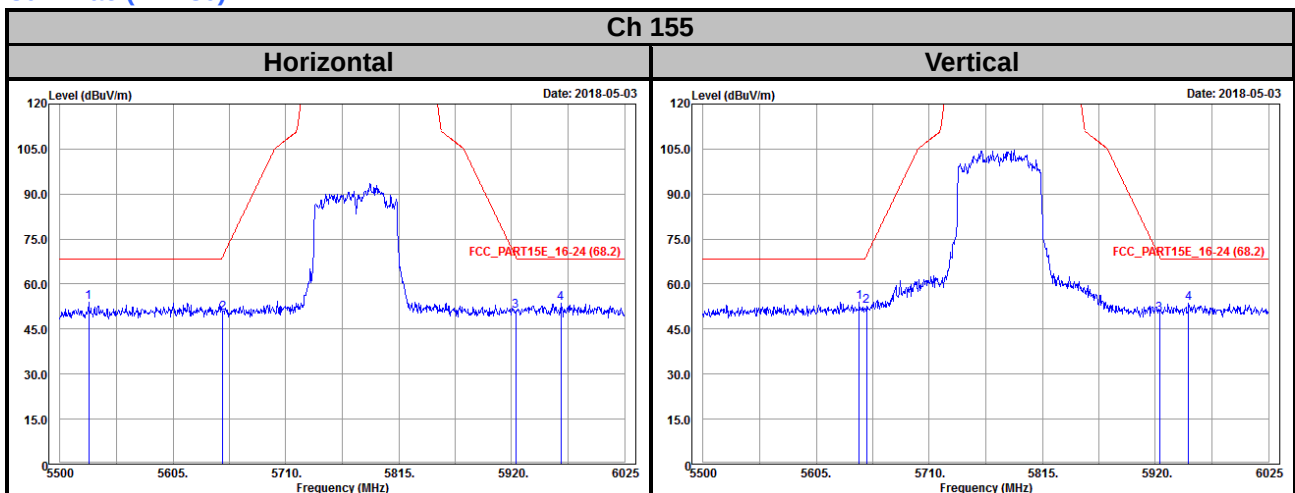
802.11n (HT20)



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 FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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

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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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