

FCC Test Report

Report No.: RF171013C04B-11

FCC ID: MSQTP370QL

Test Model: TP370QL

Received Date: Oct. 13, 2017

Test Date: Oct. 31, 2017 ~ Nov. 23, 2017

Issued Date: Mar. 06, 2018

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



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Release Control Record

Issue No.	Description	Date Issued
RF171013C04B-11	Original Release	Mar. 06, 2018

1 Certificate of Conformity

Product: Notebook PC

Brand: ASUS

Test Model: TP370QL

Sample Status: Production Unit

Applicant: ASUSTek COMPUTER INC.

Test Date: Oct. 31, 2017 ~ Nov. 23, 2017

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

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

Prepared by : Evonne Liu , **Date:** Mar. 06, 2018
Evonne Liu / Specialist

Approved by : Dylan Chiou , **Date:** Mar. 06, 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	Pass	Meet the requirement of limit. Minimum passing margin is -13.20 dB at 1.01800 MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -3.69 dB at 5353.08 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6 dB Bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	No antenna connector is used.

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

2.1 Measurement Uncertainty

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

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

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Notebook PC
Brand	ASUS
Test Model	TP370QL
Status of EUT	Production Unit
Power Supply Rating	15.4 Vdc (Battery) 19.0 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 300 Mbps 802.11ac: up to 866.7 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)
Output Power	42.575 mW for 5180 ~ 5240 MHz 41.667 mW for 5260 ~ 5320 MHz 48.296 mW for 5500 ~ 5700 MHz 55.319 mW for 5745 ~ 5825 MHz
Antenna Type	PCB antenna with 1.12 dBi gain (5180 ~ 5240 MHz) PCB antenna with 0.44 dBi gain (5260 ~ 5320 MHz) PCB antenna with -0.89 dBi gain (5500 ~ 5700 MHz) PCB antenna with -1.24 dBi gain (5745 ~ 5825 MHz)
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. The EUT 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 (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)

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

3.2 Description of Test Modes

For 5180 ~ 5240 MHz

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

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

2 channels are provided for 802.11n (HT40):

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

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
42	5210

For 5260 ~ 5320 MHz

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

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

2 channels are provided for 802.11n (HT40):

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

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
58	5290

For 5500 ~ 5700 MHz

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	PLC	APCM	
-	√	√	√	√	-

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

RE $<$ 1G: Radiated Emission below 1 GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

Note: "-" means no effect.

Radiated Emission Test (Above 1 GHz):

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36 to 48	36, 44, 48	OFDM	BPSK	6.0
-		802.11n (HT20)	36 to 48	36, 44, 48	OFDM	BPSK	MCS0
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	42	42	OFDM	BPSK	MCS0
-	5260-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-		802.11n (HT20)	52 to 64	52, 60, 64	OFDM	BPSK	MCS0
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	58	58	OFDM	BPSK	MCS0
-	5500-5700	802.11a	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 144	100, 116, 140, 144	OFDM	BPSK	MCS0
-		802.11n (HT40)	102 to 142	102, 110, 134, 142	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	106 to 138	106, 122, 138	OFDM	BPSK	MCS0
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	MCS0
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	155	155	OFDM	BPSK	MCS0

Radiated Emission Test (Below 1 GHz):

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11ac (VHT80)	42	42	OFDM	BPSK	MCS0
-	5260-5320	802.11ac (VHT80)	58	58	OFDM	BPSK	MCS0
-	5500-5700	802.11a	100 to 144	100	OFDM	BPSK	6.0
-	5745-5825	802.11n (HT20)	149 to 165	165	OFDM	BPSK	MCS0

Power Line Conducted Emission Test:

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5260-5320	802.11ac (VHT80)	58	58	OFDM	BPSK	MCS0

Antenna Port Conducted Measurement:

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36 to 48	36, 44, 48	OFDM	BPSK	6.0
-		802.11n (HT20)	36 to 48	36, 44, 48	OFDM	BPSK	MCS0
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	42	42	OFDM	BPSK	MCS0
-	5260-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-		802.11n (HT20)	52 to 64	52, 60, 64	OFDM	BPSK	MCS0
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	58	58	OFDM	BPSK	MCS0
-	5500-5700	802.11a	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 144	100, 116, 140, 144	OFDM	BPSK	MCS0
-		802.11n (HT40)	102 to 142	102, 110, 134, 142	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	106 to 138	106, 122, 138	OFDM	BPSK	MCS0
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	MCS0
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	155	155	OFDM	BPSK	MCS0

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE \geq 1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Charles Hsiao
RE $<$ 1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
APCM	25 deg. C, 65 % RH	15.5 Vdc	Gavin Wu

3.3 Duty Cycle of Test Signal

MODULATION TYPE: BPSK

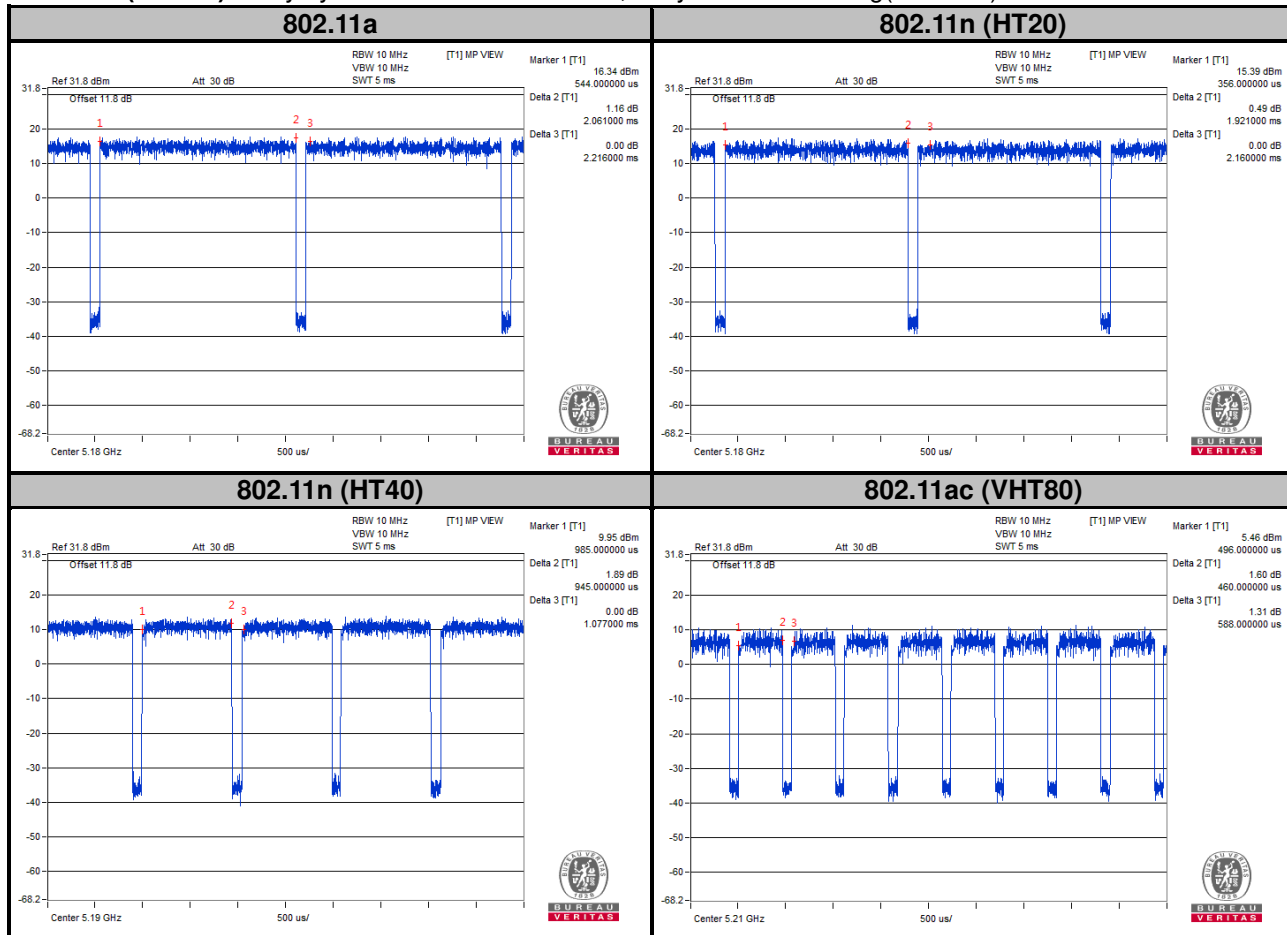
Duty cycle of test signal is < 98 %, duty factor is required.

802.11a: Duty cycle = $2.061/2.216 = 0.93$, Duty factor = $10 * \log(1/0.93) = 0.31$

802.11n (HT20): Duty cycle = $1.921/2.16 = 0.889$, Duty factor = $10 * \log(1/0.889) = 0.51$

802.11n (HT40): Duty cycle = $0.945/1.077 = 0.877$, Duty factor = $10 * \log(1/0.877) = 0.57$

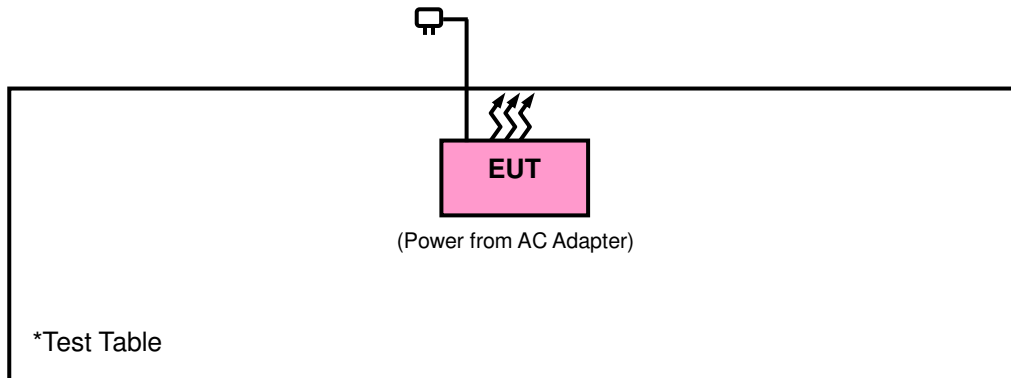
802.11ac (VHT80): Duty cycle = $0.46/0.588 = 0.782$, Duty factor = $10 * \log(1/0.782) = 1.07$



3.4 Description of Support Units

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

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart E (15.407)

789033 D02 General UNII Test Procedures New Rules v02r01

644545 D01 Guidance for IEEE 802 11ac v01r02

662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

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

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

Note:

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

4.1.2 Limits of Unwanted Emission Out of the Restricted Bands

Applicable To		Limit	
789033 D02 General UNII Test Procedures New Rules 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	Dec. 13, 2016	Dec. 12, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 13, 2016	Dec. 12, 2017
HORN Antenna ETS-Lindgren	3117	00143293	Jun. 26, 2017	Jun. 25, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 14, 2016	Dec. 13, 2017
Fixed Attenuator Mini-Circuits	BW-N10W5+	NA	Jul. 07, 2017	Jul. 06, 2018
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	1012010	Aug. 15, 2017	Aug. 14, 2018
Power Sensor Anritsu	MA2411B	1315050	Aug. 15, 2017	Aug. 14, 2018
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(R FC-SMS-100-SM S-120+RFC-SMS -100-SMS-400)	Jun. 26, 2017	Jun. 25, 2018
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(R FC-SMS-100-SM S-24)	Jun. 26, 2017	Jun. 25, 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 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HsinTien Chamber 1.
3. The horn antenna and preamplifier (model: 83017A) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The IC Site Registration No. is IC7450I-1.

4.1.4 Test Procedures

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

Note:

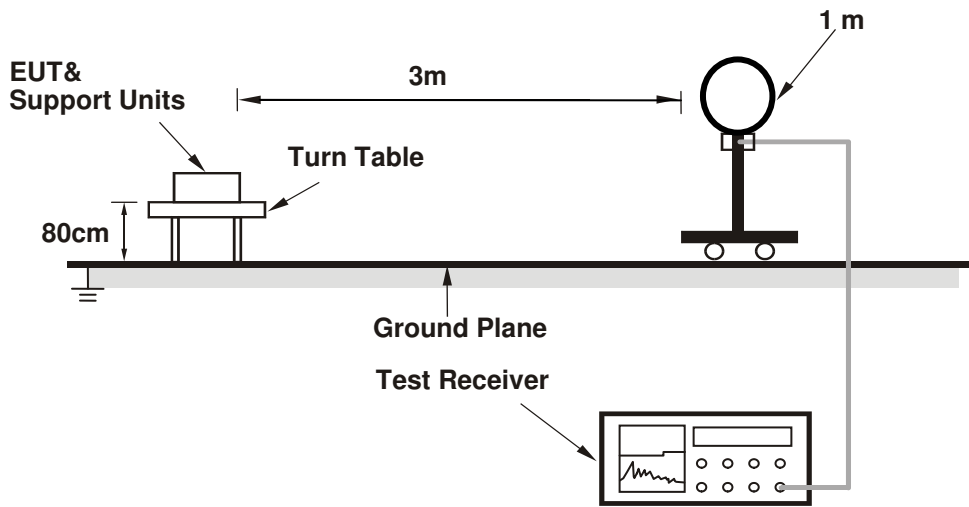
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency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

4.1.5 Deviation from Test Standard

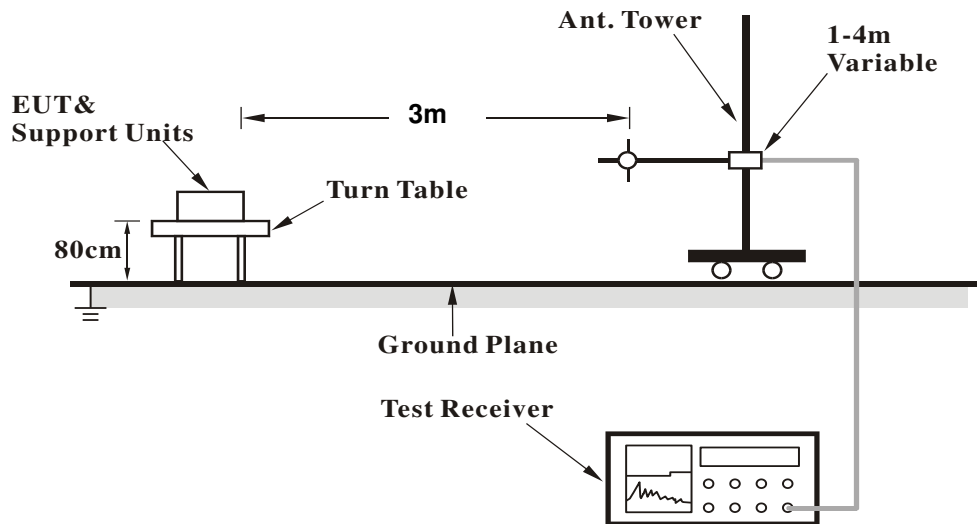
No deviation.

4.1.6 Test Set Up

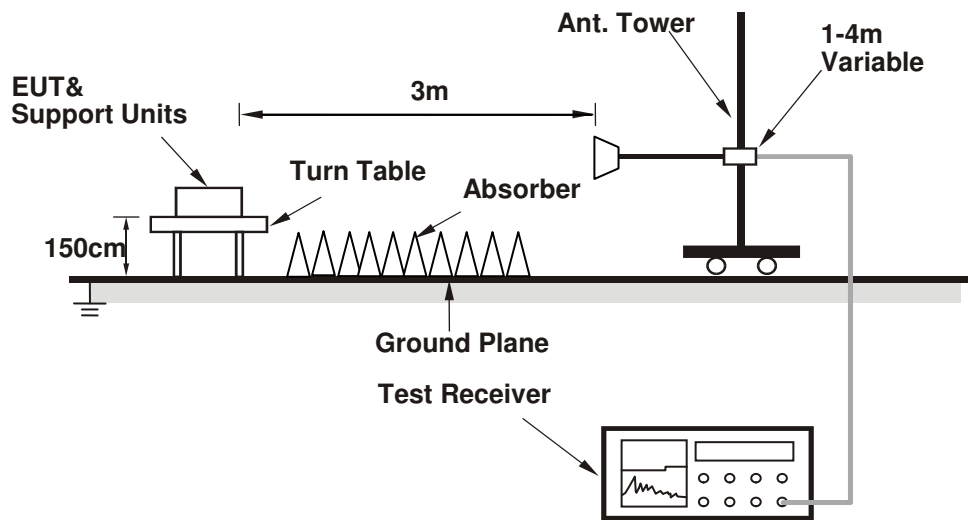
<Radiated emission below 30 MHz>



<Frequency Range below 1 GHz>



<Frequency Range above 1 GHz>



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

4.1.7 EUT Operating Conditions

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

4.1.8 Test Results
 Above 1 GHz Data :
 802.11a

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	44.48	36.23	54	-9.52	34.12	8.13	34	100	253	Average
5150	54.14	45.89	74	-19.86	34.12	8.13	34	100	253	Peak
5180	100.58	92.27			34.15	8.16	34	100	253	Average
5180	107.76	99.45			34.15	8.16	34	100	253	Peak
*10360	55.63	41.33	68.2	-12.57	37.12	12.3	35.12	147	112	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	44.74	36.49	54	-9.26	34.12	8.13	34	200	215	Average
5150	54.66	46.41	74	-19.34	34.12	8.13	34	200	215	Peak
5180	101.56	93.25			34.15	8.16	34	200	215	Average
5180	108.82	100.51			34.15	8.16	34	200	215	Peak
*10360	55.64	41.34	68.2	-12.56	37.12	12.3	35.12	112	300	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5142.65	42.84	34.58	54	-11.16	34.12	8.13	33.99	100	253	Average
5142.65	53.1	44.84	74	-20.9	34.12	8.13	33.99	100	253	Peak
5220	100.51	92.12			34.17	8.22	34	100	253	Average
5220	107.31	98.92			34.17	8.22	34	100	253	Peak
5443.83	42.54	33.75	54	-11.46	34.35	8.48	34.04	100	253	Average
5443.83	53	44.21	74	-21	34.35	8.48	34.04	100	253	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5138.6	43	34.75	54	-11	34.11	8.13	33.99	200	215	Average
5138.6	52.99	44.74	74	-21.01	34.11	8.13	33.99	200	215	Peak
5220	101.39	93			34.17	8.22	34	200	215	Average
5220	108.22	99.83			34.17	8.22	34	200	215	Peak
5452.74	42.72	33.9	54	-11.28	34.36	8.51	34.05	200	215	Average
5452.74	52.72	43.9	74	-21.28	34.36	8.51	34.05	200	215	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	100.25	91.81			34.19	8.26	34.01	100	253	Average
5240	107.05	98.61			34.19	8.26	34.01	100	253	Peak
5422.16	42.57	33.8	54	-11.43	34.33	8.48	34.04	100	253	Average
5422.16	52.92	44.15	74	-21.08	34.33	8.48	34.04	100	253	Peak
*10480	55.9	41.39	68.2	-12.3	37.19	12.53	35.21	105	208	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	101.41	92.97			34.19	8.26	34.01	200	215	Average
5240	108.82	100.38			34.19	8.26	34.01	200	215	Peak
5452.63	42.82	34	54	-11.18	34.36	8.51	34.05	200	215	Average
5452.63	53.23	44.41	74	-20.77	34.36	8.51	34.05	200	215	Peak
*10480	55.37	40.86	68.2	-12.83	37.19	12.53	35.21	121	253	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5130.2	42.68	34.46	54	-11.32	34.11	8.1	33.99	100	171	Average
5130.2	53.67	45.45	74	-20.33	34.11	8.1	33.99	100	171	Peak
5260	101.41	92.95			34.21	8.26	34.01	100	171	Average
5260	108.92	100.46			34.21	8.26	34.01	100	171	Peak
*10520	56.89	42.3	68.2	-11.31	37.21	12.61	35.23	136	182	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
5146.55	42.51	34.26	54	-11.49	34.12	8.13	34	200	214	Average
5146.55	53.46	45.21	74	-20.54	34.12	8.13	34	200	214	Peak
5260	100.26	91.8			34.21	8.26	34.01	200	214	Average
5260	107.09	98.63			34.21	8.26	34.01	200	214	Peak
*10520	56.17	41.58	68.2	-12.03	37.21	12.61	35.23	135	126	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5111.6	42.4	34.2	54	-11.6	34.09	8.1	33.99	100	171	Average
5111.6	53.7	45.5	74	-20.3	34.09	8.1	33.99	100	171	Peak
5300	101.32	92.78			34.24	8.32	34.02	100	171	Average
5300	108.86	100.32			34.24	8.32	34.02	100	171	Peak
5350.66	43.42	34.79	54	-10.58	34.28	8.38	34.03	100	171	Average
5350.66	53.61	44.98	74	-20.39	34.28	8.38	34.03	100	171	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5127.35	42.53	34.31	54	-11.47	34.11	8.1	33.99	200	214	Average
5127.35	53.6	45.38	74	-20.4	34.11	8.1	33.99	200	214	Peak
5300	100.35	91.81			34.24	8.32	34.02	200	214	Average
5300	107.72	99.18			34.24	8.32	34.02	200	214	Peak
5350.44	43.29	34.66	54	-10.71	34.28	8.38	34.03	200	214	Average
5350.44	53.99	45.36	74	-20.01	34.28	8.38	34.03	200	214	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5320	101.19	92.61			34.25	8.35	34.02	100	171	Average
5320	108.23	99.65			34.25	8.35	34.02	100	171	Peak
5350.55	44.77	36.14	54	-9.23	34.28	8.38	34.03	100	171	Average
5350.55	53.81	45.18	74	-20.19	34.28	8.38	34.03	100	171	Peak
10640	45.84	31.11	54	-8.16	37.31	12.71	35.29	154	248	Average
10640	55.58	40.85	74	-18.42	37.31	12.71	35.29	154	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
5320	100.42	91.84			34.25	8.35	34.02	220	173	Average
5320	107.58	99			34.25	8.35	34.02	220	173	Peak
5350	44.05	35.42	54	-9.95	34.28	8.38	34.03	220	173	Average
5350	54.45	45.82	74	-19.55	34.28	8.38	34.03	220	173	Peak
10640	46.28	31.55	54	-7.72	37.31	12.71	35.29	174	132	Average
10640	55.96	41.23	74	-18.04	37.31	12.71	35.29	174	132	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5455.28	44.21	35.39	54	-9.79	34.36	8.51	34.05	162	127	Average
5455.28	54.27	45.45	74	-19.73	34.36	8.51	34.05	162	127	Peak
*5469.84	58.63	49.8	68.2	-9.57	34.37	8.51	34.05	162	127	Peak
5500	101.17	92.25			34.4	8.57	34.05	155	130	Average
5500	108.53	99.61			34.4	8.57	34.05	155	130	Peak
11000	47.18	32.1	54	-6.82	37.6	12.96	35.48	142	108	Average
11000	57.54	42.46	74	-16.46	37.6	12.96	35.48	142	108	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5459.6	45.64	36.82	54	-8.36	34.36	8.51	34.05	160	142	Average
5459.6	56.15	47.33	74	-17.85	34.36	8.51	34.05	160	142	Peak
*5469.68	64.18	55.35	68.2	-4.02	34.37	8.51	34.05	160	142	Peak
5500	104.43	95.51			34.4	8.57	34.05	167	148	Average
5500	111.26	102.34			34.4	8.57	34.05	167	148	Peak
11000	47.93	32.85	54	-6.07	37.6	12.96	35.48	137	154	Average
11000	57.33	42.25	74	-16.67	37.6	12.96	35.48	137	154	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5440.88	43.04	34.25	54	-10.96	34.35	8.48	34.04	137	137	Average
5440.88	53.65	44.86	74	-20.35	34.35	8.48	34.04	137	137	Peak
*5469.84	52.26	43.43	68.2	-15.94	34.37	8.51	34.05	137	137	Peak
5580	101.43	92.44			34.47	8.6	34.08	137	137	Average
5580	108.26	99.27			34.47	8.6	34.08	137	137	Peak
*5725.16	53.44	44.28	68.2	-14.76	34.62	8.65	34.11	137	137	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
5408.08	43.08	34.36	54	-10.92	34.32	8.44	34.04	119	145	Average
5408.08	54.35	45.63	74	-19.65	34.32	8.44	34.04	119	145	Peak
*5469.2	52.61	43.78	68.2	-15.59	34.37	8.51	34.05	119	145	Peak
5580	104.38	95.39			34.47	8.6	34.08	119	145	Average
5580	111.08	102.09			34.47	8.6	34.08	119	145	Peak
*5725.08	54.21	45.05	68.2	-13.99	34.62	8.65	34.11	119	145	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	98.05	88.92			34.59	8.64	34.1	198	105	Average
5700	104.9	95.77			34.59	8.64	34.1	198	105	Peak
*5725.08	54.63	45.47	68.2	-13.57	34.62	8.65	34.11	198	105	Peak
11400	47.16	32.06	54	-6.84	37.84	12.67	35.41	196	315	Average
11400	57.51	42.41	74	-16.49	37.84	12.67	35.41	196	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
5700	99.42	90.29			34.59	8.64	34.1	158	144	Average
5700	107.04	97.91			34.59	8.64	34.1	158	144	Peak
*5725.8	56.28	47.12	68.2	-11.92	34.62	8.65	34.11	158	144	Peak
11400	47.43	32.33	54	-6.57	37.84	12.67	35.41	137	248	Average
11400	56.75	41.65	74	-17.25	37.84	12.67	35.41	137	248	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5447.6	42.68	33.85	54	-11.32	34.36	8.51	34.04	300	5	Average
5447.6	53.56	44.73	74	-20.44	34.36	8.51	34.04	300	5	Peak
5469.04	51.94	43.11	74	-22.06	34.37	8.51	34.05	300	5	Peak
5720	97.15	87.99			34.62	8.65	34.11	300	5	Average
5720	104.33	95.17			34.62	8.65	34.11	300	5	Peak
5854	56.76	47.44	74	-17.24	34.76	8.7	34.14	300	5	Peak
5864	57.3	47.97	74	-16.7	34.76	8.71	34.14	300	5	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
5456.56	42.55	33.73	54	-11.45	34.36	8.51	34.05	102	319	Average
5456.56	53.42	44.6	74	-20.58	34.36	8.51	34.05	102	319	Peak
5469.36	52.94	44.11	74	-21.06	34.37	8.51	34.05	102	319	Peak
5720	93.31	84.15			34.62	8.65	34.11	102	319	Average
5720	100.26	91.1			34.62	8.65	34.11	102	319	Peak
5858	56.11	46.79	74	-17.89	34.76	8.7	34.14	102	319	Peak
5864	57.48	48.15	74	-16.52	34.76	8.71	34.14	102	319	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	99.11	89.92			34.64	8.66	34.11	100	91	Average
5745	106.21	97.02			34.64	8.66	34.11	100	91	Peak
11490	47.46	32.34	54	-6.54	37.89	12.62	35.39	196	334	Average
11490	58.29	43.17	74	-15.71	37.89	12.62	35.39	196	334	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	105.48	96.29			34.64	8.66	34.11	161	129	Average
5745	112.37	103.18			34.64	8.66	34.11	161	129	Peak
11490	47.37	32.25	54	-6.63	37.89	12.62	35.39	136	134	Average
11490	56.62	41.5	74	-17.38	37.89	12.62	35.39	136	134	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
*5533.6	53.97	45.03	68.2	-14.23	34.43	8.58	34.07	100	91	Peak
5652.25	51.39	42.3	69.86	-18.47	34.56	8.62	34.09	100	91	Peak
5923.675	50.9	41.5	69.18	-18.28	34.83	8.73	34.16	100	91	Peak
*6000.85	53.94	44.45	68.2	-14.26	34.9	8.76	34.17	100	91	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5644.9	54.24	45.17	68.2	-13.96	34.54	8.62	34.09	161	129	Peak
5652.775	49.9	40.8	70.25	-20.35	34.56	8.63	34.09	161	129	Peak
5923.675	51.19	41.79	69.18	-17.99	34.83	8.73	34.16	161	129	Peak
*5992.45	54.28	44.79	68.2	-13.92	34.9	8.76	34.17	161	129	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	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	99.28	90.05			34.68	8.68	34.13	100	91	Average
5785	106.17	96.94			34.68	8.68	34.13	100	91	Peak
11570	47.1	31.79	54	-6.9	38	12.68	35.37	190	127	Average
11570	56.23	40.92	74	-17.77	38	12.68	35.37	190	127	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	105.7	96.47			34.68	8.68	34.13	161	129	Average
5785	112.1	102.87			34.68	8.68	34.13	161	129	Peak
11570	46.32	31.01	54	-7.68	38	12.68	35.37	140	157	Average
11570	56.71	41.4	74	-17.29	38	12.68	35.37	140	157	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
*5572.45	53.91	44.92	68.2	-14.29	34.47	8.59	34.07	100	91	Peak
5651.2	50.56	41.47	69.09	-18.53	34.56	8.62	34.09	100	91	Peak
5923.15	50.86	41.46	69.57	-18.71	34.83	8.73	34.16	100	91	Peak
*5981.425	53.95	44.49	68.2	-14.25	34.88	8.75	34.17	100	91	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5591.875	53.93	44.92	68.2	-14.27	34.49	8.6	34.08	161	129	Peak
5652.25	50.4	41.31	69.86	-19.46	34.56	8.62	34.09	161	129	Peak
5923.15	50.42	41.02	69.57	-19.15	34.83	8.73	34.16	161	129	Peak
*5950.975	55.02	45.59	68.2	-13.18	34.85	8.74	34.16	161	129	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	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	98.31	89.02			34.73	8.69	34.13	100	91	Average
5825	105.86	96.57			34.73	8.69	34.13	100	91	Peak
11650	47.33	31.8	54	-6.67	38.09	12.8	35.36	164	49	Average
11650	57.46	41.93	74	-16.54	38.09	12.8	35.36	164	49	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	105.5	96.21			34.73	8.69	34.13	161	129	Average
5825	111.38	102.09			34.73	8.69	34.13	161	129	Peak
11650	47.35	31.82	54	-6.65	38.09	12.8	35.36	124	101	Average
11650	57.32	41.79	74	-16.68	38.09	12.8	35.36	124	101	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
*5617.6	53.69	44.64	68.2	-14.51	34.52	8.61	34.08	100	91	Peak
5652.25	52.43	43.34	69.86	-17.43	34.56	8.62	34.09	100	91	Peak
5923.675	51.87	42.47	69.18	-17.31	34.83	8.73	34.16	100	91	Peak
*5973.55	54.16	44.7	68.2	-14.04	34.88	8.75	34.17	100	91	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5529.4	54.11	45.18	68.2	-14.09	34.42	8.58	34.07	161	129	Peak
5652.25	54.35	45.26	69.86	-15.51	34.56	8.62	34.09	161	129	Peak
5922.625	51.03	41.63	69.96	-18.93	34.83	8.73	34.16	161	129	Peak
*5952.55	54.41	44.98	68.2	-13.79	34.85	8.74	34.16	161	129	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	45.09	36.84	54	-8.91	34.12	8.13	34	100	253	Average
5150	56.74	48.49	74	-17.26	34.12	8.13	34	100	253	Peak
5180	99.74	91.43			34.15	8.16	34	100	253	Average
5180	106.17	97.86			34.15	8.16	34	100	253	Peak
*10360	55.86	41.56	68.2	-12.34	37.12	12.3	35.12	112	327	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	44.03	35.78	54	-9.97	34.12	8.13	34	200	215	Average
5150	55.07	46.82	74	-18.93	34.12	8.13	34	200	215	Peak
5180	100.77	92.46			34.15	8.16	34	200	215	Average
5180	107.9	99.59			34.15	8.16	34	200	215	Peak
*10360	55.66	41.36	68.2	-12.54	37.12	12.3	35.12	187	141	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5148.05	42.79	34.54	54	-11.21	34.12	8.13	34	100	253	Average
5148.05	53.41	45.16	74	-20.59	34.12	8.13	34	100	253	Peak
5220	99.36	90.97			34.17	8.22	34	100	253	Average
5220	106.12	97.73			34.17	8.22	34	100	253	Peak
5399.83	42.82	34.1	54	-11.18	34.32	8.44	34.04	100	253	Average
5399.83	53.13	44.41	74	-20.87	34.32	8.44	34.04	100	253	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
5145.8	42.86	34.61	54	-11.14	34.12	8.13	34	200	215	Average
5145.8	53.22	44.97	74	-20.78	34.12	8.13	34	200	215	Peak
5220	100.35	91.96			34.17	8.22	34	200	215	Average
5220	107.2	98.81			34.17	8.22	34	200	215	Peak
5453.51	43.02	34.2	54	-10.98	34.36	8.51	34.05	200	215	Average
5453.51	54.45	45.63	74	-19.55	34.36	8.51	34.05	200	215	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	99.63	91.19			34.19	8.26	34.01	100	253	Average
5240	106.58	98.14			34.19	8.26	34.01	100	253	Peak
5446.58	42.5	33.67	54	-11.5	34.36	8.51	34.04	100	253	Average
5446.58	53.97	45.14	74	-20.03	34.36	8.51	34.04	100	253	Peak
*10480	56.9	42.39	68.2	-11.3	37.19	12.53	35.21	156	228	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	100.22	91.78			34.19	8.26	34.01	200	215	Average
5240	107.13	98.69			34.19	8.26	34.01	200	215	Peak
5452.85	42.74	33.92	54	-11.26	34.36	8.51	34.05	200	215	Average
5452.85	52.92	44.1	74	-21.08	34.36	8.51	34.05	200	215	Peak
*10480	55.28	40.77	68.2	-12.92	37.19	12.53	35.21	109	119	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5111.75	42.39	34.19	54	-11.61	34.09	8.1	33.99	100	171	Average
5111.75	52.9	44.7	74	-21.1	34.09	8.1	33.99	100	171	Peak
5260	100.2	91.74			34.21	8.26	34.01	100	171	Average
5260	107.3	98.84			34.21	8.26	34.01	100	171	Peak
*10520	55.76	41.17	68.2	-12.44	37.21	12.61	35.23	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
5143.55	42.58	34.32	54	-11.42	34.12	8.13	33.99	200	214	Average
5143.55	54.02	45.76	74	-19.98	34.12	8.13	33.99	200	214	Peak
5260	99.47	91.01			34.21	8.26	34.01	200	214	Average
5260	106.05	97.59			34.21	8.26	34.01	200	214	Peak
*10520	55.49	40.9	68.2	-12.71	37.21	12.61	35.23	149	43	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5134.1	42.38	34.13	54	-11.62	34.11	8.13	33.99	100	171	Average
5134.1	53.39	45.14	74	-20.61	34.11	8.13	33.99	100	171	Peak
5300	100.35	91.81			34.24	8.32	34.02	100	171	Average
5300	107.69	99.15			34.24	8.32	34.02	100	171	Peak
5351.1	43.6	34.97	54	-10.4	34.28	8.38	34.03	100	171	Average
5351.1	53.67	45.04	74	-20.33	34.28	8.38	34.03	100	171	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5126.45	42.43	34.21	54	-11.57	34.11	8.1	33.99	200	214	Average
5126.45	52.87	44.65	74	-21.13	34.11	8.1	33.99	200	214	Peak
5300	99.62	91.08			34.24	8.32	34.02	200	214	Average
5300	106.7	98.16			34.24	8.32	34.02	200	214	Peak
5360.78	43.42	34.78	54	-10.58	34.29	8.38	34.03	200	214	Average
5360.78	53.92	45.28	74	-20.08	34.29	8.38	34.03	200	214	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5320	100.05	91.47			34.25	8.35	34.02	100	171	Average
5320	107	98.42			34.25	8.35	34.02	100	171	Peak
5350.33	44.1	35.47	54	-9.9	34.28	8.38	34.03	100	171	Average
5350.33	54.32	45.69	74	-19.68	34.28	8.38	34.03	100	171	Peak
10640	45.21	30.48	54	-8.79	37.31	12.71	35.29	196	276	Average
10640	55.43	40.7	74	-18.57	37.31	12.71	35.29	196	276	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	99.92	91.34			34.25	8.35	34.02	220	173	Average
5320	106.9	98.32			34.25	8.35	34.02	220	173	Peak
5350.11	43.84	35.21	54	-10.16	34.28	8.38	34.03	220	173	Average
5350.11	53.68	45.05	74	-20.32	34.28	8.38	34.03	220	173	Peak
10640	45.28	30.55	54	-8.72	37.31	12.71	35.29	136	121	Average
10640	55.53	40.8	74	-18.47	37.31	12.71	35.29	136	121	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5459.76	44.28	35.46	54	-9.72	34.36	8.51	34.05	150	130	Average
5459.76	54.52	45.7	74	-19.48	34.36	8.51	34.05	150	130	Peak
*5470	57.45	48.62	68.2	-10.75	34.37	8.51	34.05	150	130	Peak
5500	101.16	92.24			34.4	8.57	34.05	155	130	Average
5500	108.6	99.68			34.4	8.57	34.05	155	130	Peak
11000	48.17	33.09	54	-5.83	37.6	12.96	35.48	195	150	Average
11000	57.31	42.23	74	-16.69	37.6	12.96	35.48	195	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
5459.76	45.38	36.56	54	-8.62	34.36	8.51	34.05	143	150	Average
5459.76	55.24	46.42	74	-18.76	34.36	8.51	34.05	143	150	Peak
*5468.4	62.26	53.43	68.2	-5.94	34.37	8.51	34.05	143	150	Peak
5500	103.83	94.91			34.4	8.57	34.05	151	151	Average
5500	110.8	101.88			34.4	8.57	34.05	151	151	Peak
11000	48.25	33.17	54	-5.75	37.6	12.96	35.48	165	127	Average
11000	57.29	42.21	74	-16.71	37.6	12.96	35.48	165	127	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5422.96	43.42	34.65	54	-10.58	34.33	8.48	34.04	137	137	Average
5422.96	53.87	45.1	74	-20.13	34.33	8.48	34.04	137	137	Peak
*5470.32	53.04	44.21	68.2	-15.16	34.37	8.51	34.05	137	137	Peak
5580	99.54	90.55			34.47	8.6	34.08	137	137	Average
5580	107.1	98.11			34.47	8.6	34.08	137	137	Peak
*5725.48	52.57	43.41	68.2	-15.63	34.62	8.65	34.11	137	137	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
5444.24	43.01	34.22	54	-10.99	34.35	8.48	34.04	124	145	Average
5444.24	55.12	46.33	74	-18.88	34.35	8.48	34.04	124	145	Peak
*5470.64	54.03	45.2	68.2	-14.17	34.37	8.51	34.05	124	145	Peak
5580	102.61	93.62			34.47	8.6	34.08	124	145	Average
5580	110.29	101.3			34.47	8.6	34.08	124	145	Peak
*5725.24	52.98	43.82	68.2	-15.22	34.62	8.65	34.11	124	145	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	94.07	84.94			34.59	8.64	34.1	198	105	Average
5700	102.86	93.73			34.59	8.64	34.1	198	105	Peak
*5726.04	54.53	45.37	68.2	-13.67	34.62	8.65	34.11	198	105	Peak
11400	48.34	33.24	54	-5.66	37.84	12.67	35.41	158	245	Average
11400	57.46	42.36	74	-16.54	37.84	12.67	35.41	158	245	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	98.52	89.39			34.59	8.64	34.1	158	144	Average
5700	105.45	96.32			34.59	8.64	34.1	158	144	Peak
*5725.32	56.93	47.77	68.2	-11.27	34.62	8.65	34.11	158	144	Peak
11400	46.89	31.79	54	-7.11	37.84	12.67	35.41	164	49	Average
11400	57.04	41.94	74	-16.96	37.84	12.67	35.41	164	49	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5443.92	42.43	33.64	54	-11.57	34.35	8.48	34.04	300	5	Average
5443.92	52.81	44.02	74	-21.19	34.35	8.48	34.04	300	5	Peak
5470.64	51.66	42.83	74	-22.34	34.37	8.51	34.05	300	5	Peak
5720	96.95	87.79			34.62	8.65	34.11	300	5	Average
5720	104.42	95.26			34.62	8.65	34.11	300	5	Peak
5858	56.63	47.31	74	-17.37	34.76	8.7	34.14	300	5	Peak
5868	56.64	47.31	74	-17.36	34.76	8.71	34.14	300	5	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
5454	42.56	33.74	54	-11.44	34.36	8.51	34.05	102	319	Average
5454	53.41	44.59	74	-20.59	34.36	8.51	34.05	102	319	Peak
5470.32	52.36	43.53	74	-21.64	34.37	8.51	34.05	102	319	Peak
5720	92.55	83.39			34.62	8.65	34.11	102	319	Average
5720	100.23	91.07			34.62	8.65	34.11	102	319	Peak
5860	57.44	48.12	74	-16.56	34.76	8.7	34.14	102	319	Peak
5862	57.16	47.83	74	-16.84	34.76	8.71	34.14	102	319	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	97.54	88.35			34.64	8.66	34.11	100	91	Average
5745	104.89	95.7			34.64	8.66	34.11	100	91	Peak
11490	46.43	31.31	54	-7.57	37.89	12.62	35.39	196	152	Average
11490	56.62	41.5	74	-17.38	37.89	12.62	35.39	196	152	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	103.74	94.55			34.64	8.66	34.11	161	129	Average
5745	110.21	101.02			34.64	8.66	34.11	161	129	Peak
11490	46.76	31.64	54	-7.24	37.89	12.62	35.39	165	124	Average
11490	56.37	41.25	74	-17.63	37.89	12.62	35.39	165	124	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5601.85	53.85	44.82	68.2	-14.35	34.5	8.61	34.08	100	91	Peak
5652.25	51.23	42.14	69.86	-18.63	34.56	8.62	34.09	100	91	Peak
5923.675	50.57	41.17	69.18	-18.61	34.83	8.73	34.16	100	91	Peak
*5973.55	54.22	44.76	68.2	-13.98	34.88	8.75	34.17	100	91	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5617.6	53.52	44.47	68.2	-14.68	34.52	8.61	34.08	161	129	Peak
5652.25	50.43	41.34	69.86	-19.43	34.56	8.62	34.09	161	129	Peak
5923.675	52.44	43.04	69.18	-16.74	34.83	8.73	34.16	161	129	Peak
*5978.8	54.01	44.55	68.2	-14.19	34.88	8.75	34.17	161	129	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	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	96.65	87.42			34.68	8.68	34.13	100	91	Average
5785	105.25	96.02			34.68	8.68	34.13	100	91	Peak
11570	47.92	32.61	54	-6.08	38	12.68	35.37	100	260	Average
11570	58.27	42.96	74	-15.73	38	12.68	35.37	100	260	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	103.75	94.52			34.68	8.68	34.13	161	129	Average
5785	110.74	101.51			34.68	8.68	34.13	161	129	Peak
11570	47.26	31.95	54	-6.74	38	12.68	35.37	162	94	Average
11570	57.49	42.18	74	-16.51	38	12.68	35.37	162	94	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
*5615.5	53.24	44.19	68.2	-14.96	34.52	8.61	34.08	100	91	Peak
5652.25	51.58	42.49	69.86	-18.28	34.56	8.62	34.09	100	91	Peak
5923.15	52.94	43.54	69.57	-16.63	34.83	8.73	34.16	100	91	Peak
*5964.625	53.78	44.33	68.2	-14.42	34.87	8.75	34.17	100	91	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5562.475	53.81	44.84	68.2	-14.39	34.45	8.59	34.07	161	129	Peak
5651.725	51.26	42.17	69.48	-18.22	34.56	8.62	34.09	161	129	Peak
5923.15	53.48	44.08	69.57	-16.09	34.83	8.73	34.16	161	129	Peak
*5959.9	53.5	44.06	68.2	-14.7	34.87	8.74	34.17	161	129	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	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	97.66	88.37			34.73	8.69	34.13	100	91	Average
5825	104.77	95.48			34.73	8.69	34.13	100	91	Peak
11650	48.12	32.59	54	-5.88	38.09	12.8	35.36	154	211	Average
11650	57.84	42.31	74	-16.16	38.09	12.8	35.36	154	211	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	104.44	95.15			34.73	8.69	34.13	161	129	Average
5825	110.69	101.4			34.73	8.69	34.13	161	129	Peak
11650	48.49	32.96	54	-5.51	38.09	12.8	35.36	145	249	Average
11650	57.35	41.82	74	-16.65	38.09	12.8	35.36	145	249	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
*5571.925	53.18	44.19	68.2	-15.02	34.47	8.59	34.07	100	91	Peak
5651.725	50.54	41.45	69.48	-18.94	34.56	8.62	34.09	100	91	Peak
5923.15	51.99	42.59	69.57	-17.58	34.83	8.73	34.16	100	91	Peak
*6020.8	54.23	44.72	68.2	-13.97	34.92	8.77	34.18	100	91	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5643.325	53.43	44.36	68.2	-14.77	34.54	8.62	34.09	161	129	Peak
5652.25	51.44	42.35	69.86	-18.42	34.56	8.62	34.09	161	129	Peak
5923.15	50.68	41.28	69.57	-18.89	34.83	8.73	34.16	161	129	Peak
*5977.75	53.79	44.33	68.2	-14.41	34.88	8.75	34.17	161	129	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5149.7	47.3	39.05	54	-6.7	34.12	8.13	34	247	109	Average
5149.7	58.39	50.14	74	-15.61	34.12	8.13	34	247	109	Peak
5190	95.79	87.45			34.15	8.19	34	100	253	Average
5190	102.23	93.89			34.15	8.19	34	100	253	Peak
5418.75	41.98	33.25	54	-12.02	34.33	8.44	34.04	100	253	Average
5418.75	52.47	43.74	74	-21.53	34.33	8.44	34.04	100	253	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	48.06	39.81	54	-5.94	34.12	8.13	34	228	210	Average
5149.85	56.11	47.86	74	-17.89	34.12	8.13	34	228	210	Peak
5190	96.62	88.28			34.15	8.19	34	200	215	Average
5190	103.25	94.91			34.15	8.19	34	200	215	Peak
5423.15	43.09	34.32	54	-10.91	34.33	8.48	34.04	200	215	Average
5423.15	53.53	44.76	74	-20.47	34.33	8.48	34.04	200	215	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5148.65	43.68	35.43	54	-10.32	34.12	8.13	34	247	109	Average
5148.65	54.42	46.17	74	-19.58	34.12	8.13	34	247	109	Peak
5230	97.44	89.04			34.19	8.22	34.01	247	109	Average
5230	104.58	96.18			34.19	8.22	34.01	247	109	Peak
5370.9	43.03	34.36	54	-10.97	34.29	8.41	34.03	247	109	Average
5370.9	53.17	44.5	74	-20.83	34.29	8.41	34.03	247	109	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	43.31	35.06	54	-10.69	34.12	8.13	34	200	215	Average
5149.7	53.56	45.31	74	-20.44	34.12	8.13	34	200	215	Peak
5230	98.49	90.09			34.19	8.22	34.01	200	215	Average
5230	105.08	96.68			34.19	8.22	34.01	200	215	Peak
5382.67	43.19	34.51	54	-10.81	34.31	8.41	34.04	200	215	Average
5382.67	53.56	44.88	74	-20.44	34.31	8.41	34.04	200	215	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5106.65	42.86	34.69	54	-11.14	34.09	8.07	33.99	100	171	Average
5106.65	52.61	44.44	74	-21.39	34.09	8.07	33.99	100	171	Peak
5270	99.76	91.27			34.21	8.29	34.01	100	171	Average
5270	106.83	98.34			34.21	8.29	34.01	100	171	Peak
5351.1	44.1	35.47	54	-9.9	34.28	8.38	34.03	100	171	Average
5351.1	53.1	44.47	74	-20.9	34.28	8.38	34.03	100	171	Peak

Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5141.45	42.88	34.62	54	-11.12	34.12	8.13	33.99	200	214	Average
5141.45	52.82	44.56	74	-21.18	34.12	8.13	33.99	200	214	Peak
5270	98.43	89.94			34.21	8.29	34.01	200	214	Average
5270	105.57	97.08			34.21	8.29	34.01	200	214	Peak
5361.77	43.71	35.07	54	-10.29	34.29	8.38	34.03	200	214	Average
5361.77	53.16	44.52	74	-20.84	34.29	8.38	34.03	200	214	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5119.85	42.69	34.49	54	-11.31	34.09	8.1	33.99	100	171	Average
5119.85	53.41	45.21	74	-20.59	34.09	8.1	33.99	100	171	Peak
5310	97.74	89.19			34.25	8.32	34.02	100	171	Average
5310	104.79	96.24			34.25	8.32	34.02	100	171	Peak
5350	48.29	39.66	54	-5.71	34.28	8.38	34.03	100	187	Average
5350	55.4	46.77	74	-18.6	34.28	8.38	34.03	100	187	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
5136.35	42.68	34.43	54	-11.32	34.11	8.13	33.99	220	173	Average
5136.35	52.99	44.74	74	-21.01	34.11	8.13	33.99	220	173	Peak
5310	96.14	87.59			34.25	8.32	34.02	220	173	Average
5310	103.38	94.83			34.25	8.32	34.02	220	173	Peak
5350.11	47.26	38.63	54	-6.74	34.28	8.38	34.03	236	202	Average
5350.11	57.43	48.8	74	-16.57	34.28	8.38	34.03	236	202	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5454.48	42.8	33.98	54	-11.2	34.36	8.51	34.05	136	130	Average
5454.48	52.49	43.67	74	-21.51	34.36	8.51	34.05	136	130	Peak
*5469.52	54.38	45.55	68.2	-13.82	34.37	8.51	34.05	136	130	Peak
5510	97.8	88.89			34.4	8.57	34.06	142	137	Average
5510	105.08	96.17			34.4	8.57	34.06	142	137	Peak
*5724.28	53.21	44.05	68.2	-14.99	34.62	8.65	34.11	142	137	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
5459.28	44.7	35.88	54	-9.3	34.36	8.51	34.05	140	127	Average
5459.28	54.34	45.52	74	-19.66	34.36	8.51	34.05	140	127	Peak
*5469.68	56.37	47.54	68.2	-11.83	34.37	8.51	34.05	140	127	Peak
5510	100.49	91.58			34.4	8.57	34.06	148	151	Average
5510	107.34	98.43			34.4	8.57	34.06	148	151	Peak
*5724.6	52.65	43.49	68.2	-15.55	34.62	8.65	34.11	148	151	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5444.72	43.53	34.74	54	-10.47	34.35	8.48	34.04	137	137	Average
5444.72	54.14	45.35	74	-19.86	34.35	8.48	34.04	137	137	Peak
*5468.4	54.28	45.45	68.2	-13.92	34.37	8.51	34.05	137	137	Peak
5550	99.15	90.18			34.45	8.59	34.07	137	137	Average
5550	106.39	97.42			34.45	8.59	34.07	137	137	Peak
*5725.56	52.45	43.29	68.2	-15.75	34.62	8.65	34.11	137	137	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
5439.6	43.92	35.13	54	-10.08	34.35	8.48	34.04	119	145	Average
5439.6	53.94	45.15	74	-20.06	34.35	8.48	34.04	119	145	Peak
*5470.8	56.23	47.37	68.2	-11.97	34.37	8.54	34.05	119	145	Peak
5550	102.69	93.72			34.45	8.59	34.07	119	145	Average
5550	109.65	100.68			34.45	8.59	34.07	119	145	Peak
*5726.04	53.73	44.57	68.2	-14.47	34.62	8.65	34.11	119	145	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5386.16	42.92	34.24	54	-11.08	34.31	8.41	34.04	198	105	Average
5386.16	53.78	45.1	74	-20.22	34.31	8.41	34.04	198	105	Peak
*5469.2	51.35	42.52	68.2	-16.85	34.37	8.51	34.05	198	105	Peak
5670	95.76	86.66			34.57	8.63	34.1	198	105	Average
5670	102.96	93.86			34.57	8.63	34.1	198	105	Peak
*5725.48	58.76	49.6	68.2	-9.44	34.62	8.65	34.11	174	89	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
5438.16	43.14	34.35	54	-10.86	34.35	8.48	34.04	158	144	Average
5438.16	53.08	44.29	74	-20.92	34.35	8.48	34.04	158	144	Peak
*5470	52.41	43.58	68.2	-15.79	34.37	8.51	34.05	158	144	Peak
5670	98.4	89.3			34.57	8.63	34.1	158	144	Average
5670	105.74	96.64			34.57	8.63	34.1	158	144	Peak
*5725.48	63.7	54.54	68.2	-4.5	34.62	8.65	34.11	149	144	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5458.8	42.89	34.07	54	-11.11	34.36	8.51	34.05	300	5	Average
5458.8	53.19	44.37	74	-20.81	34.36	8.51	34.05	300	5	Peak
5468.88	52.23	43.4	74	-21.77	34.37	8.51	34.05	300	5	Peak
5710	94.25	85.1			34.61	8.65	34.11	300	5	Average
5710	102.69	93.54			34.61	8.65	34.11	300	5	Peak
5858	58.17	48.85	74	-15.83	34.76	8.7	34.14	300	5	Peak
5866	57.57	48.24	74	-16.43	34.76	8.71	34.14	300	5	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
5422	43.07	34.3	54	-10.93	34.33	8.48	34.04	102	319	Average
5422	53.9	45.13	74	-20.1	34.33	8.48	34.04	102	319	Peak
5469.2	52.22	43.39	74	-21.78	34.37	8.51	34.05	102	319	Peak
5710	90.45	81.3			34.61	8.65	34.11	102	319	Average
5710	98.39	89.24			34.61	8.65	34.11	102	319	Peak
5860	57.22	47.9	74	-16.78	34.76	8.7	34.14	102	319	Peak
5866	55.74	46.41	74	-18.26	34.76	8.71	34.14	102	319	Peak

Remarks:

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

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

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5755	96.09	86.88			34.66	8.66	34.11	100	91	Average
5755	103.4	94.19			34.66	8.66	34.11	100	91	Peak
11510	47.41	32.3	54	-6.59	37.9	12.6	35.39	196	125	Average
11510	56.93	41.82	74	-17.07	37.9	12.6	35.39	196	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
5755	102.1	92.89			34.66	8.66	34.11	161	129	Average
5755	109.42	100.21			34.66	8.66	34.11	161	129	Peak
11510	47.36	32.25	54	-6.64	37.9	12.6	35.39	141	187	Average
11510	57.21	42.1	74	-16.79	37.9	12.6	35.39	141	187	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
*5645.425	53.39	44.32	68.2	-14.81	34.54	8.62	34.09	100	91	Peak
5652.25	49.95	40.86	69.86	-19.91	34.56	8.62	34.09	100	91	Peak
5922.625	51.59	42.19	69.96	-18.37	34.83	8.73	34.16	100	91	Peak
*5961.475	54.25	44.81	68.2	-13.95	34.87	8.74	34.17	100	91	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5645.95	54.37	45.3	68.2	-13.83	34.54	8.62	34.09	161	129	Peak
5652.25	51.95	42.86	69.86	-17.91	34.56	8.62	34.09	161	129	Peak
5923.675	52.41	43.01	69.18	-16.77	34.83	8.73	34.16	161	129	Peak
*5967.25	53.84	44.39	68.2	-14.36	34.87	8.75	34.17	161	129	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	Charles Hsiao

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	96.31	87.07			34.69	8.68	34.13	100	91	Average
5795	103.13	93.89			34.69	8.68	34.13	100	91	Peak
11590	47.06	31.69	54	-6.94	38.02	12.72	35.37	127	345	Average
11590	57.19	41.82	74	-16.81	38.02	12.72	35.37	127	345	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	102.06	92.82			34.69	8.68	34.13	161	129	Average
5795	109.04	99.8			34.69	8.68	34.13	161	129	Peak
11590	47.26	31.89	54	-6.74	38.02	12.72	35.37	195	47	Average
11590	56.99	41.62	74	-17.01	38.02	12.72	35.37	195	47	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5629.15	54.04	44.99	68.2	-14.16	34.52	8.62	34.09	100	91	Peak
5653.3	50.19	41.09	70.64	-20.45	34.56	8.63	34.09	100	91	Peak
5923.15	50.93	41.53	69.57	-18.64	34.83	8.73	34.16	100	91	Peak
*5933.125	53.75	44.35	68.2	-14.45	34.83	8.73	34.16	100	91	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5619.7	54.21	45.16	68.2	-13.99	34.52	8.61	34.08	161	129	Peak
5652.25	51.39	42.3	69.86	-18.47	34.56	8.62	34.09	161	129	Peak
5922.625	52.88	43.48	69.96	-17.08	34.83	8.73	34.16	161	129	Peak
*6015.55	54.1	44.6	68.2	-14.1	34.92	8.76	34.18	161	129	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5138.3	48.35	40.1	54	-5.65	34.11	8.13	33.99	100	253	Average
5138.3	60.05	51.8	74	-13.95	34.11	8.13	33.99	100	253	Peak
5210	92.14	83.78			34.17	8.19	34	100	253	Average
5210	99	90.64			34.17	8.19	34	100	253	Peak
5360.01	43.03	34.4	54	-10.97	34.28	8.38	34.03	100	253	Average
5360.01	53.33	44.7	74	-20.67	34.28	8.38	34.03	100	253	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
5146.55	49.41	41.16	54	-4.59	34.12	8.13	34	233	216	Average
5146.55	59.22	50.97	74	-14.78	34.12	8.13	34	233	216	Peak
5210	93.99	85.63			34.17	8.19	34	200	215	Average
5210	100.76	92.4			34.17	8.19	34	200	215	Peak
5448.67	43.07	34.24	54	-10.93	34.36	8.51	34.04	200	215	Average
5448.67	54.18	45.35	74	-19.82	34.36	8.51	34.04	200	215	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5054.45	43.16	35.1	54	-10.84	34.04	8	33.98	100	171	Average
5054.45	53.2	45.14	74	-20.8	34.04	8	33.98	100	171	Peak
5290	92.85	84.32			34.23	8.32	34.02	100	171	Average
5290	99.95	91.42			34.23	8.32	34.02	100	171	Peak
5353.08	50.31	41.68	54	-3.69	34.28	8.38	34.03	100	187	Average
5353.08	58.62	49.99	74	-15.38	34.28	8.38	34.03	100	187	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
5126.15	42.98	34.76	54	-11.02	34.11	8.1	33.99	200	214	Average
5126.15	53.47	45.25	74	-20.53	34.11	8.1	33.99	200	214	Peak
5290	91.43	82.9			34.23	8.32	34.02	200	214	Average
5290	98.6	90.07			34.23	8.32	34.02	200	214	Peak
5350	49.68	41.05	54	-4.32	34.28	8.38	34.03	222	168	Average
5350	58.37	49.74	74	-15.63	34.28	8.38	34.03	222	168	Peak

Remarks:

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

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5459.92	42.56	33.74	54	-11.44	34.36	8.51	34.05	122	136	Average
5459.92	51.58	42.76	74	-22.42	34.36	8.51	34.05	122	136	Peak
*5468.08	52.85	44.02	68.2	-15.35	34.37	8.51	34.05	122	136	Peak
5530	91.6	82.67			34.42	8.58	34.07	136	135	Average
5530	98.66	89.73			34.42	8.58	34.07	136	135	Peak
*5726.04	53.07	43.91	68.2	-15.13	34.62	8.65	34.11	136	135	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
5459.92	44.96	36.14	54	-9.04	34.36	8.51	34.05	140	127	Average
5459.92	54.99	46.17	74	-19.01	34.36	8.51	34.05	140	127	Peak
*5470	53.12	44.29	68.2	-15.08	34.37	8.51	34.05	140	127	Peak
5530	93.84	84.91			34.42	8.58	34.07	149	151	Average
5530	101.41	92.48			34.42	8.58	34.07	149	151	Peak
*5724.36	52.3	43.14	68.2	-15.9	34.62	8.65	34.11	149	151	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5434	43.65	34.86	54	-10.35	34.35	8.48	34.04	137	137	Average
5434	53.45	44.66	74	-20.55	34.35	8.48	34.04	137	137	Peak
*5469.52	52.41	43.58	68.2	-15.79	34.37	8.51	34.05	137	137	Peak
5610	93.57	84.54			34.5	8.61	34.08	137	137	Average
5610	101.4	92.37			34.5	8.61	34.08	137	137	Peak
*5725.64	53.68	44.52	68.2	-14.52	34.62	8.65	34.11	137	137	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
5434.96	43.79	35	54	-10.21	34.35	8.48	34.04	115	146	Average
5434.96	53.25	44.46	74	-20.75	34.35	8.48	34.04	115	146	Peak
*5470.16	53.04	44.21	68.2	-15.16	34.37	8.51	34.05	115	146	Peak
5610	97.19	88.16			34.5	8.61	34.08	115	146	Average
5610	104.36	95.33			34.5	8.61	34.08	115	146	Peak
*5725.56	54.31	45.15	68.2	-13.89	34.62	8.65	34.11	115	146	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	Charles Hsiao

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5459.12	43.18	34.36	54	-10.82	34.36	8.51	34.05	300	5	Average
5459.12	53.18	44.36	74	-20.82	34.36	8.51	34.05	300	5	Peak
5469.52	51.46	42.63	74	-22.54	34.37	8.51	34.05	300	5	Peak
5690	92.25	83.12			34.59	8.64	34.1	300	5	Average
5690	99.08	89.95			34.59	8.64	34.1	300	5	Peak
5856	57.38	48.06	74	-16.62	34.76	8.7	34.14	300	5	Peak
5864	56.72	47.39	74	-17.28	34.76	8.71	34.14	300	5	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5446.16	43.27	34.44	54	-10.73	34.36	8.51	34.04	102	319	Average
5446.16	53.2	44.37	74	-20.8	34.36	8.51	34.04	102	319	Peak
5470.48	51.58	42.75	74	-22.42	34.37	8.51	34.05	102	319	Peak
5690	88.74	79.61			34.59	8.64	34.1	102	319	Average
5690	95.8	86.67			34.59	8.64	34.1	102	319	Peak
5860	57.08	47.76	74	-16.92	34.76	8.7	34.14	102	319	Peak
5864	57.33	48	74	-16.67	34.76	8.71	34.14	102	319	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5690 MHz: Fundamental Frequency

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

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5775	90.49	81.26			34.68	8.67	34.12	100	91	Average
5775	97.91	88.68			34.68	8.67	34.12	100	91	Peak
11550	47.42	32.15	54	-6.58	37.97	12.68	35.38	165	137	Average
11550	57.54	42.27	74	-16.46	37.97	12.68	35.38	165	137	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	96.89	87.66			34.68	8.67	34.12	161	129	Average
5775	103.55	94.32			34.68	8.67	34.12	161	129	Peak
11550	46.49	31.22	54	-7.51	37.97	12.68	35.38	145	234	Average
11550	56.78	41.51	74	-17.22	37.97	12.68	35.38	145	234	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
*5564.05	53.12	44.15	68.2	-15.08	34.45	8.59	34.07	100	91	Peak
5652.25	50.5	41.41	69.86	-19.36	34.56	8.62	34.09	100	91	Peak
5923.15	50.98	41.58	69.57	-18.59	34.83	8.73	34.16	100	91	Peak
*5962.525	54.3	44.86	68.2	-13.9	34.87	8.74	34.17	100	91	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5597.65	54.12	45.11	68.2	-14.08	34.49	8.6	34.08	161	129	Peak
5652.25	51.78	42.69	69.86	-18.08	34.56	8.62	34.09	161	129	Peak
5923.15	52.53	43.13	69.57	-17.04	34.83	8.73	34.16	161	129	Peak
*6008.2	53.78	44.27	68.2	-14.42	34.92	8.76	34.17	161	129	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:

802.11ac (VHT80)

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

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
67.26	12.66	36.2	40	-27.34	7.78	0.9	32.22	136	128	Peak
126.12	16.63	38.49	43.5	-26.87	9	1.38	32.24	134	160	Peak
215.76	22.25	41.29	43.5	-21.25	11.54	1.65	32.23	196	127	Peak
414.8	22.9	34.84	46	-23.1	17.85	2.41	32.2	174	164	Peak
640.2	21.52	28.65	46	-24.48	22.1	2.93	32.16	129	165	Peak
838.3	23.7	28.53	46	-22.3	23.65	3.38	31.86	134	182	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
61.05	19.67	44.06	40	-20.33	6.94	0.9	32.23	134	108	Peak
132.06	14.83	36.47	43.5	-28.67	9.22	1.38	32.24	195	298	Peak
224.13	16.71	35.41	46	-29.29	11.85	1.65	32.2	134	177	Peak
359.5	19.32	32.8	46	-26.68	16.36	2.26	32.1	168	126	Peak
592.6	19.88	28.35	46	-26.12	20.85	2.87	32.19	143	108	Peak
840.4	23.07	27.84	46	-22.93	23.7	3.38	31.85	190	155	Peak

Remarks:

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

802.11ac (VHT80)

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

Antenna Polarity & Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
75.36	15.93	38.77	40	-24.07	8.27	1.11	32.22	125	199	Peak
139.62	19.51	41.1	43.5	-23.99	9.3	1.38	32.27	137	185	Peak
205.23	23.98	43.47	43.5	-19.52	11.13	1.65	32.27	131	240	Peak
325.9	25.31	40.01	46	-20.69	15.29	2.11	32.1	185	126	Peak
572.3	21.33	30.59	46	-24.67	20.12	2.82	32.2	184	152	Peak
770.4	24.8	30.19	46	-21.2	23.45	3.27	32.11	163	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
35.94	18.55	36.29	40	-21.45	13.75	0.74	32.23	196	245	Peak
147.72	13.56	34.39	43.5	-29.94	9.92	1.52	32.27	130	127	Peak
237.36	19.37	37.25	46	-26.63	12.42	1.85	32.15	165	215	Peak
441.4	19.88	31.66	46	-26.12	17.89	2.49	32.16	163	135	Peak
692.7	22.94	28.74	46	-23.06	23.19	3.11	32.1	149	125	Peak
885.2	24.95	28.15	46	-21.05	24.88	3.49	31.57	163	44	Peak

Remarks:

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

802.11a

EUT Test Condition		Measurement Detail	
Channel	Channel 100	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
103.71	14.71	36.1	43.5	-28.79	9.59	1.28	32.26	165	313	Peak
168.51	24.22	44.79	43.5	-19.28	10.15	1.52	32.24	184	125	Peak
277.86	27.96	44.33	46	-18.04	13.72	2.03	32.12	128	136	Peak
461	20.28	31.49	46	-25.72	18.36	2.56	32.13	150	137	Peak
667.5	22.42	28.53	46	-23.58	22.97	3.05	32.13	185	177	Peak
965.7	26.83	28.04	54	-27.17	25.96	3.67	30.84	195	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
46.74	20.19	42.69	40	-19.81	8.82	0.9	32.22	188	215	Peak
87.24	18.38	40.37	40	-21.62	8.76	1.11	31.86	190	175	Peak
163.38	14.85	35.08	43.5	-28.65	10.51	1.52	32.26	103	219	Peak
507.2	22.53	32.44	46	-23.47	19.57	2.63	32.11	190	163	Peak
714.4	24.7	30.42	46	-21.3	23.27	3.11	32.1	154	128	Peak
862.1	25.55	29.63	46	-20.45	24.2	3.44	31.72	166	148	Peak

Remarks:

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

802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	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
44.58	8.64	30.37	40	-31.36	9.59	0.9	32.22	128	166	Peak
126.66	16.32	38.15	43.5	-27.18	9.03	1.38	32.24	193	137	Peak
209.28	22.04	41.39	43.5	-21.46	11.26	1.65	32.26	140	155	Peak
355.3	24.41	37.85	46	-21.59	16.38	2.26	32.08	149	124	Peak
559.7	19.68	28.89	46	-26.32	20.23	2.76	32.2	160	134	Peak
805.4	25.01	29.34	46	-20.99	24.38	3.32	32.03	187	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
68.88	24.72	48.08	40	-15.28	7.96	0.9	32.22	140	234	Peak
113.43	9.81	31.64	43.5	-33.69	9.14	1.28	32.25	168	190	Peak
256.8	19.31	36.26	46	-26.69	13.21	1.94	32.1	171	115	Peak
305.6	21.4	37.17	46	-24.6	14.25	2.11	32.13	188	293	Peak
634.6	21.63	28.76	46	-24.37	22.1	2.93	32.16	133	209	Peak
874.7	25.4	28.75	46	-20.6	24.8	3.49	31.64	145	127	Peak

Remarks:

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

- Note: 1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN/AMN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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

4.2.3 Test Procedures

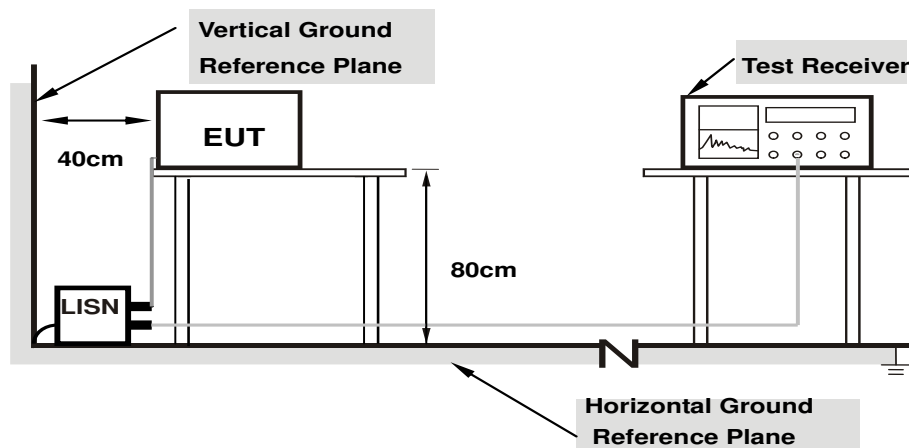
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

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

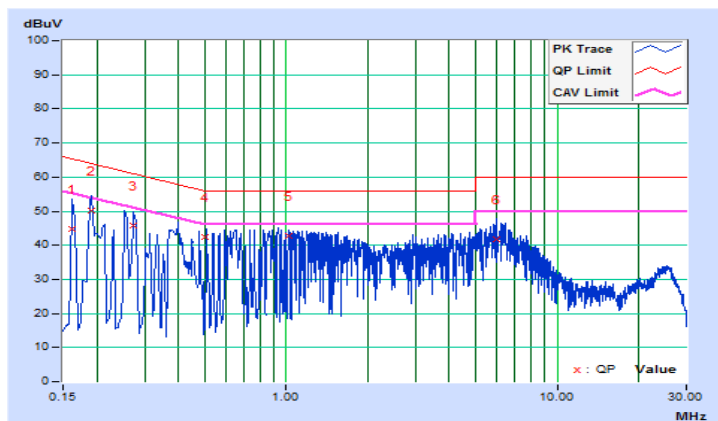
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2017/11/23

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16200	10.39	34.39	7.11	44.78	17.50	65.36	55.36	-20.58	-37.86
2	0.19000	10.39	39.80	27.99	50.19	38.38	64.04	54.04	-13.85	-15.66
3	0.27422	10.40	35.49	23.15	45.89	33.55	60.99	50.99	-15.10	-17.44
4	0.50000	10.41	32.12	17.89	42.53	28.30	56.00	46.00	-13.47	-17.70
5	1.01800	10.42	32.38	18.66	42.80	29.08	56.00	46.00	-13.20	-16.92
6	5.93800	10.65	30.98	16.66	41.63	27.31	60.00	50.00	-18.37	-22.69

Remarks:

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

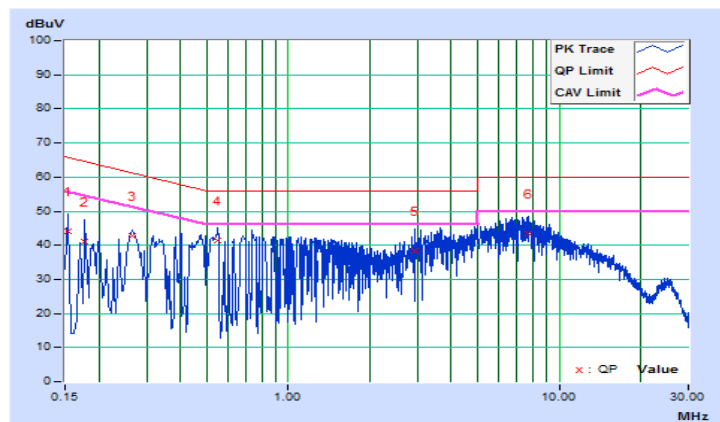


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2017/11/23

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.15	33.90	6.56	44.05	16.71	65.78	55.78	-21.73	-39.07
2	0.17800	10.16	30.84	8.74	41.00	18.90	64.58	54.58	-23.58	-35.68
3	0.26600	10.16	32.69	23.82	42.85	33.98	61.24	51.24	-18.39	-17.26
4	0.54975	10.17	31.19	16.61	41.36	26.78	56.00	46.00	-14.64	-19.22
5	2.93400	10.28	28.22	13.13	38.50	23.41	56.00	46.00	-17.50	-22.59
6	7.72600	10.48	32.98	19.89	43.46	30.37	60.00	50.00	-16.54	-19.63

Remarks:

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



4.3 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

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

*B is the 26 dB emission bandwidth in megahertz

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

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

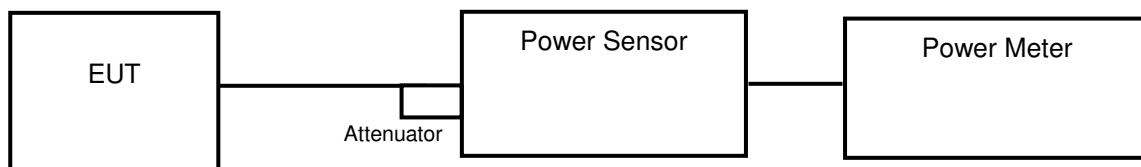
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

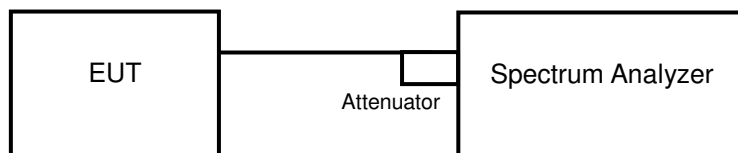
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup

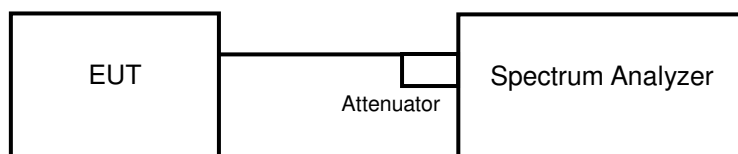
<Power Output Measurement>



or



<26 dB Bandwidth>



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

Average Power Measurement

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

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

<802.11ac (VHT80)>

Method SA-1 is used to perform output power measurement, trigger and gating function of spectrum analyzer is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

26 dB Bandwidth

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Power Output:

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	12.02	12.98	35.783	15.54	24	Pass
44	5220	12.23	12.85	35.986	15.56	24	Pass
48	5240	12.34	12.74	35.933	15.55	24	Pass
52	5260	12.14	12.69	34.946	15.43	24	Pass
60	5300	12.22	12.87	36.036	15.57	24	Pass
64	5320	12.29	12.90	36.441	15.62	24	Pass
100	5500	13.27	14.12	47.055	16.73	24	Pass
116	5580	13.35	14.26	48.296	16.84	24	Pass
140	5700	13.20	14.29	47.746	16.79	24	Pass
144	5720 (U-NII-2C)	13.10	14.12	46.24	16.65	Chain 0: 23.09 Chain 1: 23.10	Pass
144	5720 (U-NII-3)	13.10	14.12	46.24	16.65	30	Pass
149	5745	13.20	14.32	47.933	16.81	30	Pass
157	5785	13.41	14.51	50.177	17.01	30	Pass
165	5825	13.35	14.66	50.869	17.06	30	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0

1. $11 \text{ dBm} + 10\log (23.05) = 24.63 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (22.27) = 24.48 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (22.34) = 24.49 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (22.40) = 24.50 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (22.28) = 24.48 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (22.14) = 24.45 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log (16.18) = 23.09 \text{ dBm} < 24 \text{ dBm}$.

Chain 1

1. $11 \text{ dBm} + 10\log (22.25) = 24.47 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (22.90) = 24.60 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (21.89) = 24.40 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (22.17) = 24.46 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (22.33) = 24.49 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (22.44) = 24.51 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log (16.22) = 23.10 \text{ dBm} < 24 \text{ dBm}$.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	11.54	12.97	34.071	15.32	24	Pass
44	5220	11.56	12.86	33.642	15.27	24	Pass
48	5240	11.23	12.69	31.852	15.03	24	Pass
52	5260	11.34	12.87	32.978	15.18	24	Pass
60	5300	11.42	12.94	33.547	15.26	24	Pass
64	5320	11.52	12.89	33.645	15.27	24	Pass
100	5500	11.89	13.65	38.627	15.87	24	Pass
116	5580	11.98	13.56	38.475	15.85	24	Pass
140	5700	11.76	13.59	37.853	15.78	24	Pass
144	5720 (U-NII-2C)	11.94	13.42	37.61	15.75	Chain 0: 23.16 Chain 1: 23.22	Pass
144	5720 (U-NII-3)	11.94	13.42	37.61	15.75	30	Pass
149	5745	13.12	14.42	48.181	16.83	30	Pass
157	5785	13.06	14.50	48.414	16.85	30	Pass
165	5825	12.95	14.23	46.209	16.65	30	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0

- $11 \text{ dBm} + 10\log(24.93) = 24.97 \text{ dBm} > 24 \text{ dBm}$.
- $11 \text{ dBm} + 10\log(23.59) = 24.73 \text{ dBm} > 24 \text{ dBm}$.
- $11 \text{ dBm} + 10\log(23.23) = 24.66 \text{ dBm} > 24 \text{ dBm}$.
- $11 \text{ dBm} + 10\log(22.57) = 24.54 \text{ dBm} > 24 \text{ dBm}$.
- $11 \text{ dBm} + 10\log(23.47) = 24.71 \text{ dBm} > 24 \text{ dBm}$.
- $11 \text{ dBm} + 10\log(23.50) = 24.71 \text{ dBm} > 24 \text{ dBm}$.
- $11 \text{ dBm} + 10\log(16.45) = 23.16 \text{ dBm} < 24 \text{ dBm}$.

Chain 1

- $11 \text{ dBm} + 10\log(23.64) = 24.74 \text{ dBm} > 24 \text{ dBm}$.
- $11 \text{ dBm} + 10\log(23.63) = 24.73 \text{ dBm} > 24 \text{ dBm}$.
- $11 \text{ dBm} + 10\log(23.37) = 24.69 \text{ dBm} > 24 \text{ dBm}$.
- $11 \text{ dBm} + 10\log(23.53) = 24.72 \text{ dBm} > 24 \text{ dBm}$.
- $11 \text{ dBm} + 10\log(23.34) = 24.68 \text{ dBm} > 24 \text{ dBm}$.
- $11 \text{ dBm} + 10\log(23.44) = 24.70 \text{ dBm} > 24 \text{ dBm}$.
- $11 \text{ dBm} + 10\log(16.69) = 23.22 \text{ dBm} < 24 \text{ dBm}$.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	10.03	11.93	25.665	14.09	24	Pass
46	5230	12.83	13.69	42.575	16.29	24	Pass
54	5270	12.67	13.65	41.667	16.20	24	Pass
62	5310	11.61	13.23	35.526	15.51	24	Pass
102	5510	11.51	12.67	32.651	15.14	24	Pass
110	5550	13.21	14.11	46.704	16.69	24	Pass
134	5670	13.18	14.09	46.442	16.67	24	Pass
142	5710 (U-NII-2C)	13.09	13.95	45.201	16.55	24	Pass
142	5710 (U-NII-3)	13.09	13.95	45.201	16.55	30	Pass
151	5755	13.73	14.80	53.805	17.31	30	Pass
159	5795	13.72	15.02	55.335	17.43	30	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0

1. $11 \text{ dBm} + 10\log (42.14) = 27.25 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (42.07) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (42.08) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (42.28) = 27.26 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (42.06) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (35.96) = 26.56 \text{ dBm} > 24 \text{ dBm}$.

Chain 1

1. $11 \text{ dBm} + 10\log (42.16) = 27.25 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (42.23) = 27.26 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (42.19) = 27.25 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (42.11) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (42.18) = 27.25 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (36.10) = 26.58 \text{ dBm} > 24 \text{ dBm}$.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	8.67	9.63	16.545	12.19	24	Pass
58	5290	8.71	10.13	17.734	12.49	24	Pass
106	5530	7.33	8.72	12.855	11.09	24	Pass
122	5610	10.89	11.23	25.548	14.07	24	Pass
138	5690 (U-NII-2C)	10.67	11.10	24.55	13.90	24	Pass
138	5690 (U-NII-3)	10.67	11.10	24.55	13.90	30	Pass
155	5775	10.89	11.26	25.64	14.09	30	Pass

Note:

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

Chain 0

1. $11 \text{ dBm} + 10\log (83.72) = 30.23 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (83.67) = 30.23 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (84.37) = 30.26 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (76.25) = 29.82 \text{ dBm} > 24 \text{ dBm}$.

Chain 1

1. $11 \text{ dBm} + 10\log (83.27) = 30.20 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (84.23) = 30.25 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (83.74) = 30.23 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (76.21) = 29.82 \text{ dBm} > 24 \text{ dBm}$.

26 dB Bandwidth:
802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	22.42	21.55
44	5220	23.03	21.79
48	5240	22.85	21.82
52	5260	23.05	22.25
60	5300	22.27	22.90
64	5320	22.34	21.89
100	5500	22.40	22.17
116	5580	22.28	22.33
140	5700	22.14	22.44
144	5720 (U-NII-2C)	16.18	16.22
144	5720 (U-NII-3)	5.96	6.07

802.11n (HT20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	23.22	23.60
44	5220	23.15	23.43
48	5240	23.96	23.48
52	5260	24.93	23.64
60	5300	23.59	23.63
64	5320	23.23	23.37
100	5500	22.57	23.53
116	5580	23.47	23.34
140	5700	23.50	23.44
144	5720 (U-NII-2C)	16.45	16.69
144	5720 (U-NII-3)	6.69	7.02

802.11n (HT40)

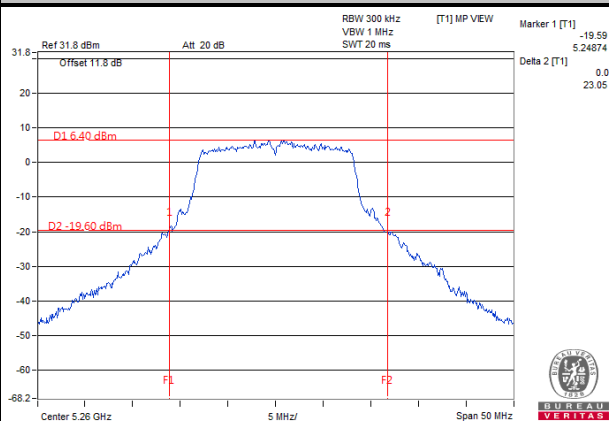
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	41.93	42.23
46	5230	41.96	42.09
54	5270	42.14	42.16
62	5310	42.07	42.23
102	5510	42.08	42.19
110	5550	42.28	42.11
134	5670	42.06	42.18
142	5710 (U-NII-2C)	35.96	36.10
142	5710 (U-NII-3)	5.98	6.18

802.11ac (VHT80)

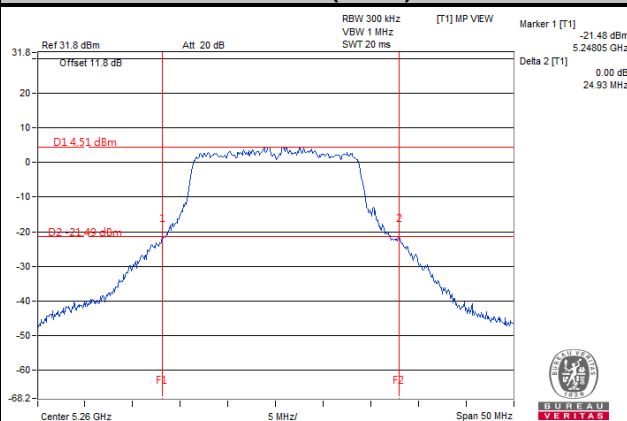
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	83.96	83.89
58	5290	83.72	83.27
106	5530	83.67	84.23
122	5610	84.37	83.74
138	5690 (U-NII-2C)	76.25	76.21
138	5690 (U-NII-3)	6.72	6.52

Spectrum Plot of Worst Value

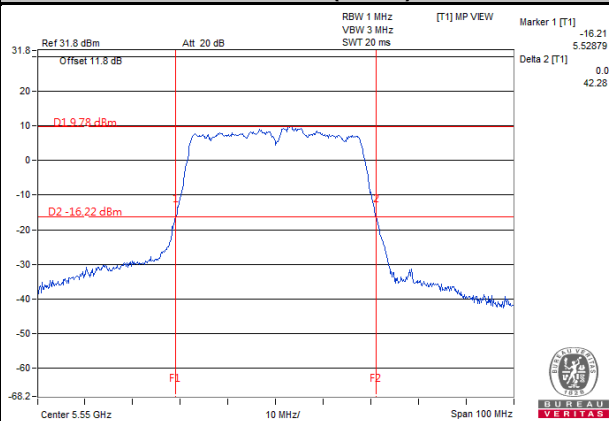
802.11a



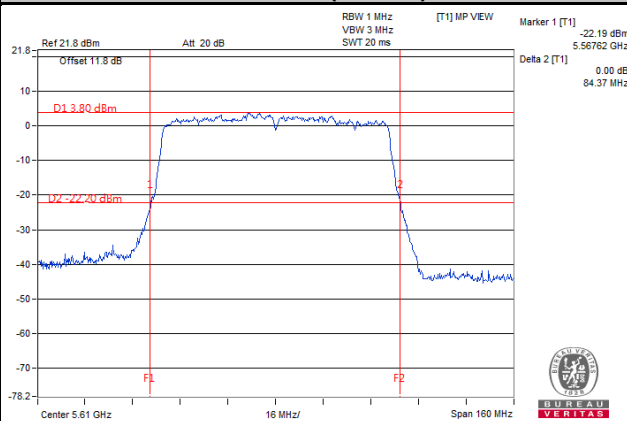
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Results

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	16.77	16.68
40	5200	16.73	16.63
48	5240	16.77	16.68
52	5260	16.73	16.63
60	5300	16.77	16.68
64	5320	16.73	16.63
100	5500	16.73	16.63
116	5580	16.68	16.63
140	5700	16.77	16.63
144	5720 (U-NII-2C)	13.28	13.28
144	5720 (U-NII-3)	3.16	3.16
149	5745	16.63	16.63
157	5785	16.60	16.60
165	5825	16.65	16.65

802.11n (HT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.88	17.93
40	5200	17.88	17.78
48	5240	18.02	17.83
52	5260	17.98	17.83
60	5300	17.88	17.88
64	5320	17.93	17.83
100	5500	17.98	17.88
116	5580	17.93	17.83
140	5700	17.93	17.88
144	5720 (U-NII-2C)	13.88	13.88
144	5720 (U-NII-3)	3.76	3.76
149	5745	17.88	17.83
157	5785	17.90	17.80
165	5825	17.75	17.85

802.11n (HT40)

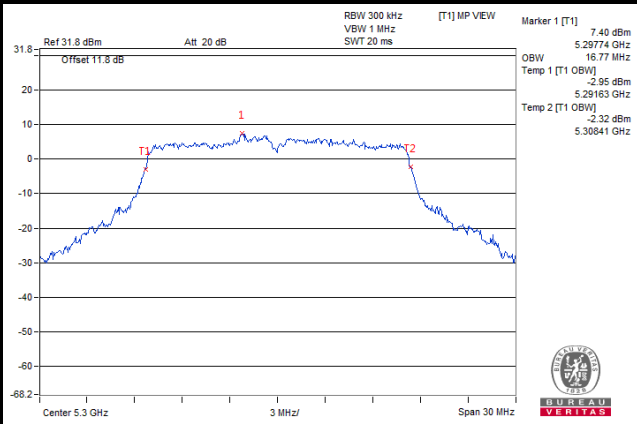
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.66	36.53
46	5230	36.66	36.53
54	5270	36.66	36.53
62	5310	36.66	36.53
102	5510	36.79	36.53
110	5550	36.79	36.66
134	5670	36.79	36.53
142	5710 (U-NII-2C)	33.36	33.36
142	5710 (U-NII-3)	3.24	3.24
151	5755	36.53	36.53
159	5795	36.50	36.66

802.11ac (VHT80)

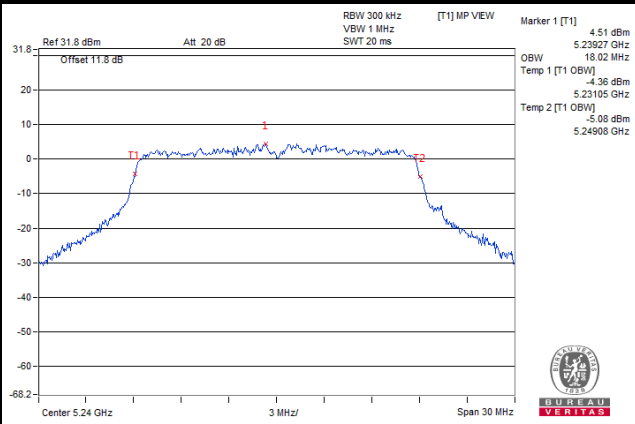
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	75.80	75.96
58	5290	75.80	75.80
106	5530	75.96	75.80
122	5610	75.96	75.96
138	5690 (U-NII-2C)	72.92	72.92
138	5690 (U-NII-3)	2.92	2.92
155	5775	75.80	75.80

Spectrum Plot of Worst Value

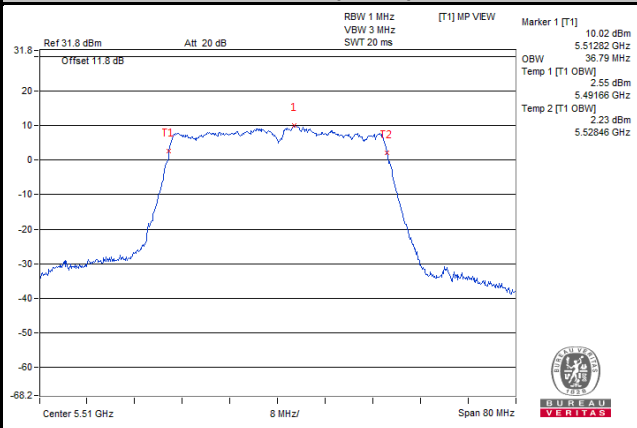
802.11a



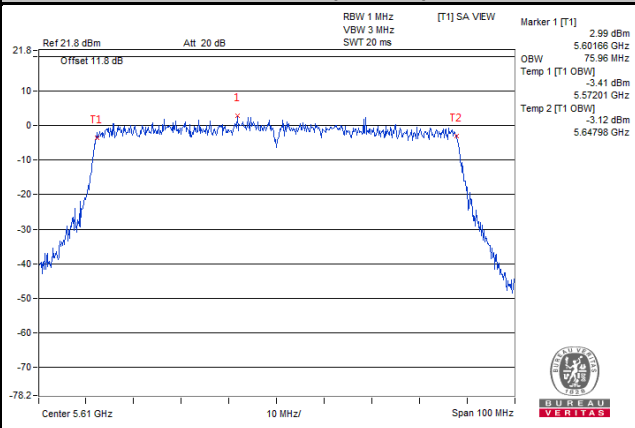
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

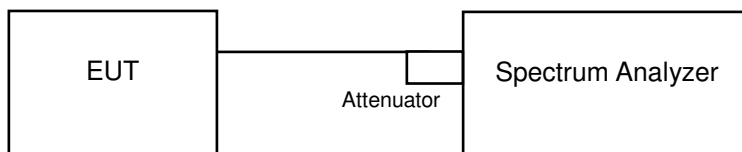


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.5.4 Test Procedures

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

Using method SA-2

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

※For U-NII-3:

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

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

4.5.7 Test Results

For U-NII-1, U-NII-2A, U-NII-2C Band

802.11a

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	2.46	2.41	0.31	5.76	11	Pass
44	5220	2.73	2.90	0.31	6.14	11	Pass
48	5240	2.52	2.93	0.31	6.06	11	Pass
52	5260	3.06	3.17	0.31	6.44	11	Pass
60	5300	3.45	3.55	0.31	6.83	11	Pass
64	5320	3.86	3.84	0.31	7.18	11	Pass
100	5500	4.32	4.49	0.31	7.68	11	Pass
116	5580	4.00	4.26	0.31	7.46	11	Pass
140	5700	2.94	2.96	0.31	6.28	11	Pass
144	5720	1.07	1.70	0.31	4.72	11	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
 Directional gain = $1.12 \text{ dBi} + 10\log(2) = 4.13 \text{ dBi} < 6 \text{ dBi}$, so the power density limit no need to reduced.
For U-NII-2A, U-NII-2C Band:
 Directional gain = $0.44 \text{ dBi} + 10\log(2) = 3.45 \text{ dBi} < 6 \text{ dBi}$, so the power density limit no need to reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	1.16	0.97	0.51	4.59	11	Pass
44	5220	1.57	1.58	0.51	5.10	11	Pass
48	5240	0.55	1.24	0.51	4.43	11	Pass
52	5260	0.72	1.51	0.51	4.65	11	Pass
60	5300	1.75	2.13	0.51	5.47	11	Pass
64	5320	2.23	2.46	0.51	5.87	11	Pass
100	5500	2.80	3.09	0.51	6.47	11	Pass
116	5580	2.60	3.07	0.51	6.36	11	Pass
140	5700	1.36	1.54	0.51	4.97	11	Pass
144	5720	0.16	1.35	0.51	4.32	11	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Directional gain = $1.12 \text{ dBi} + 10\log(2) = 4.13 \text{ dBi} < 6 \text{ dBi}$, so the power density limit no need to reduced.
- For U-NII-2A, U-NII-2C Band:**
Directional gain = $0.44 \text{ dBi} + 10\log(2) = 3.45 \text{ dBi} < 6 \text{ dBi}$, so the power density limit no need to reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
38	5190	-2.05	-1.25	0.57	1.95	11	Pass
46	5230	-1.07	-2.15	0.57	2.00	11	Pass
54	5270	-0.61	-0.75	0.57	2.90	11	Pass
62	5310	-0.23	-0.41	0.57	3.26	11	Pass
102	5510	0.06	0.82	0.57	4.04	11	Pass
110	5550	0.00	0.62	0.57	3.90	11	Pass
134	5670	-0.71	-0.81	0.57	2.82	11	Pass
142	5710	-1.46	-1.57	0.57	2.07	11	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Directional gain = 1.12 dBi + 10log(2) = 4.13 dBi < 6 dBi , so the power density limit no need to reduced.
- For U-NII-2A, U-NII-2C Band:**
Directional gain = 0.44 dBi + 10log(2) = 3.45 dBi < 6 dBi , so the power density limit no need to reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

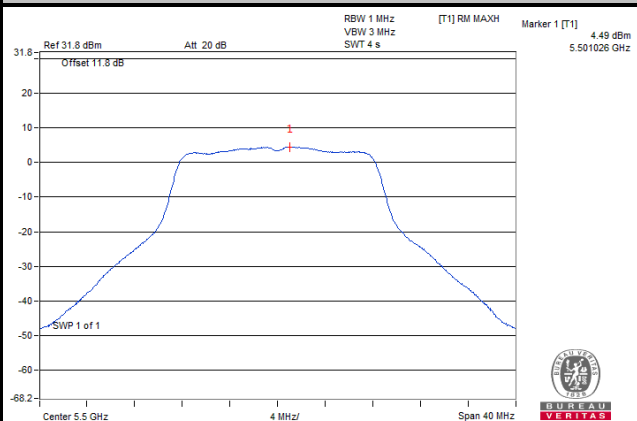
Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-8.02	-7.44	1.07	-3.64	11	Pass
58	5290	-7.29	-6.88	1.07	-3.00	11	Pass
106	5530	-6.49	-5.87	1.07	-2.09	11	Pass
122	5610	-6.65	-6.87	1.07	-2.68	11	Pass
138	5690	-7.06	-7.03	1.07	-2.97	11	Pass

Note:

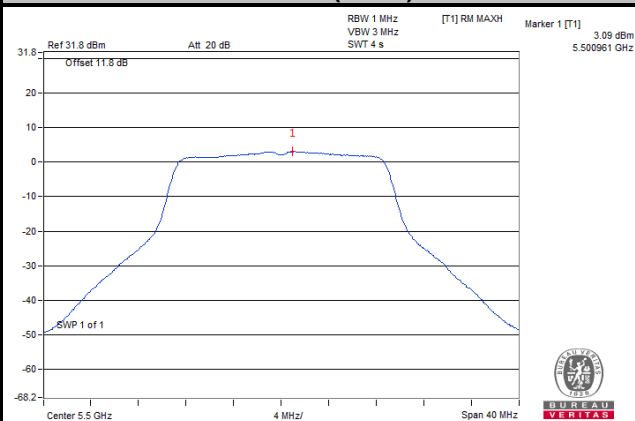
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Directional gain = 1.12 dBi + 10log(2) = 4.13 dBi < 6 dBi , so the power density limit no need to reduced.
- For U-NII-2A, U-NII-2C Band:**
Directional gain = 0.44 dBi + 10log(2) = 3.45 dBi < 6 dBi , so the power density limit no need to reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

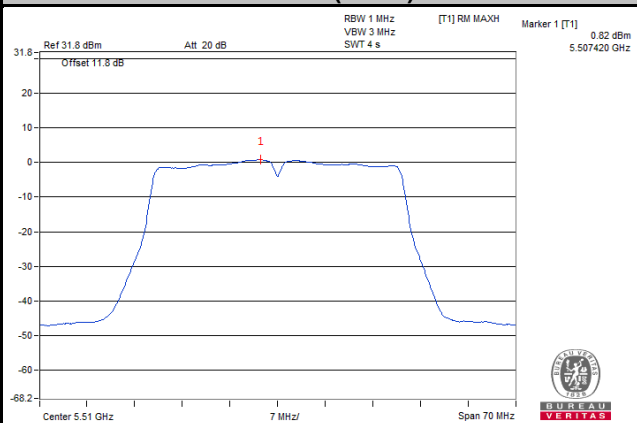
802.11a



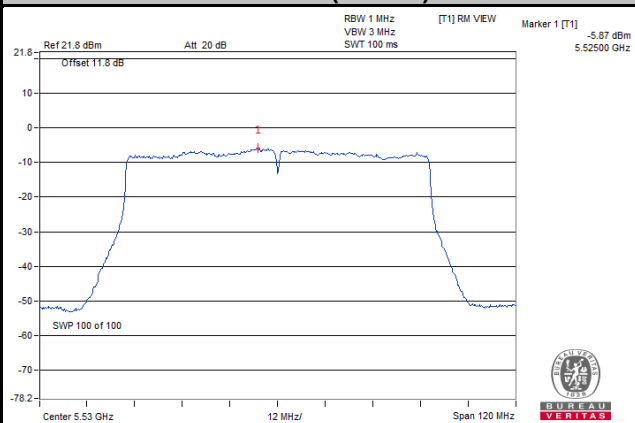
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



For U-NII-3 Band

802.11a

TX Chain	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	144	5720	-2.94	3.01	0.31	0.38	30	Pass
	149	5745	-0.01	3.01	0.31	3.31	30	Pass
	157	5785	0.29	3.01	0.31	3.61	30	Pass
	165	5825	0.63	3.01	0.31	3.95	30	Pass
1	144	5720	-2.04	3.01	0.31	1.28	30	Pass
	149	5745	-0.22	3.01	0.31	3.10	30	Pass
	157	5785	0.24	3.01	0.31	3.56	30	Pass
	165	5825	0.48	3.01	0.31	3.80	30	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $-1.24 \text{ dBi} + 10\log(2) = 1.77 \text{ dBi} < 6 \text{ dBi}$, so the power density limit no need to reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX Chain	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	144	5720	-4.38	3.01	0.51	-0.86	30	Pass
	149	5745	-2.30	3.01	0.51	1.22	30	Pass
	157	5785	-1.98	3.01	0.51	1.54	30	Pass
	165	5825	-0.82	3.01	0.51	2.70	30	Pass
1	144	5720	-3.37	3.01	0.51	0.15	30	Pass
	149	5745	-1.66	3.01	0.51	1.86	30	Pass
	157	5785	-0.94	3.01	0.51	2.58	30	Pass
	165	5825	-0.59	3.01	0.51	2.93	30	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $-1.24 \text{ dBi} + 10\log(2) = 1.77 \text{ dBi} < 6 \text{ dBi}$, so the power density limit no need to reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

TX Chain	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	142	5710	-7.48	3.01	0.57	-1.68	30	Pass
	151	5755	-4.70	3.01	0.57	1.10	30	Pass
	159	5795	-4.10	3.01	0.57	1.70	30	Pass
1	142	5710	-6.63	3.01	0.57	-0.83	30	Pass
	151	5755	-4.35	3.01	0.57	1.45	30	Pass
	159	5795	-3.44	3.01	0.57	2.36	30	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $-1.24 \text{ dBi} + 10\log(2) = 1.77 \text{ dBi} < 6 \text{ dBi}$, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

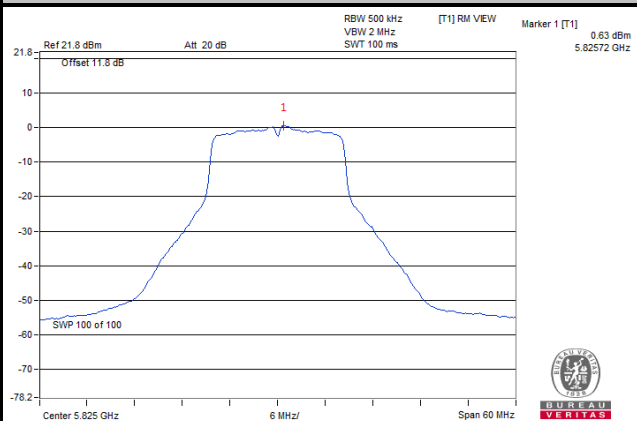
TX Chain	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	138	5690	-9.92	3.01	1.07	-3.62	30	Pass
	155	5775	-9.97	3.01	1.07	-3.67	30	Pass
1	138	5690	-9.85	3.01	1.07	-3.55	30	Pass
	155	5775	-9.34	3.01	1.07	-3.04	30	Pass

Note:

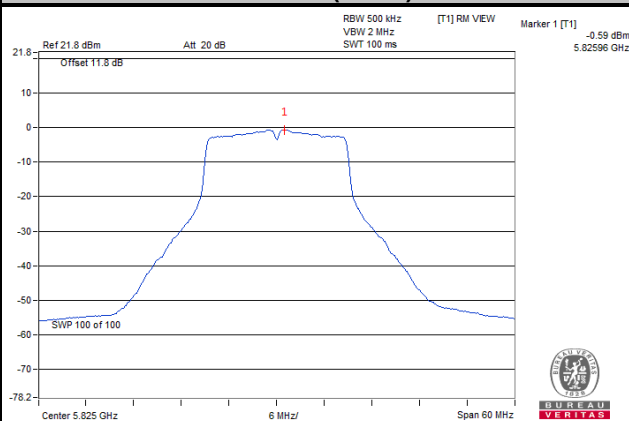
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $-1.24 \text{ dBi} + 10\log(2) = 1.77 \text{ dBi} < 6 \text{ dBi}$, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

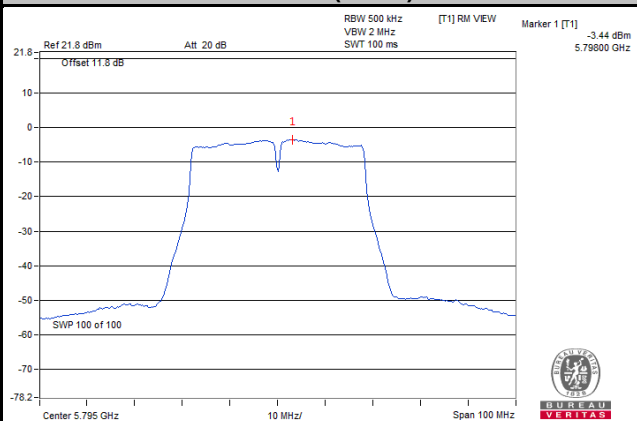
802.11a



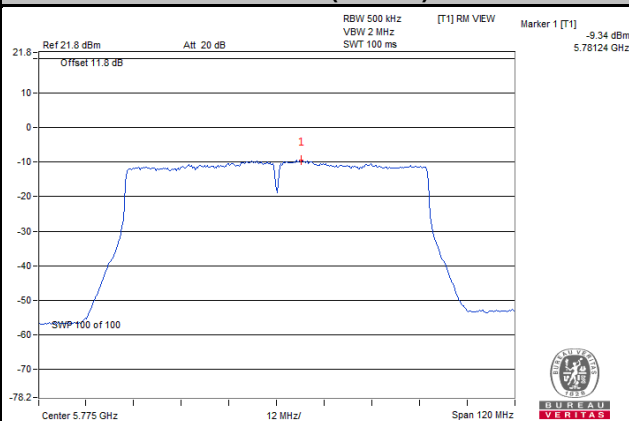
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

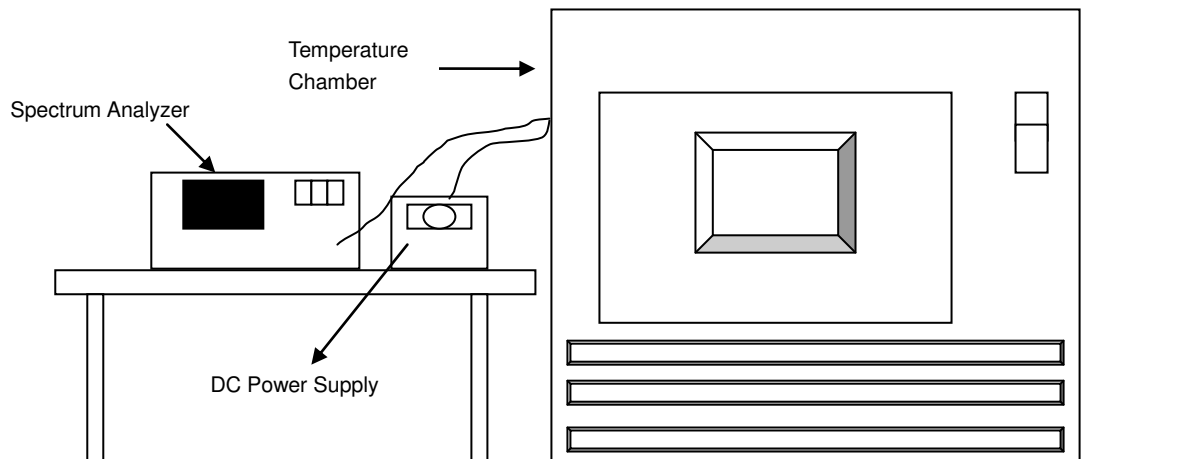


4.6 Frequency Stability

4.6.1 Limit of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.6.4 Test Procedure

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
50	15.5	5179.9763	-4.58000	5179.9747	-4.88000	5179.9728	-5.25000	5179.9761	-4.61000
40	15.5	5179.9859	-2.72000	5179.984	-3.09000	5179.9828	-3.32000	5179.986	-2.70000
30	15.5	5179.9942	-1.12000	5179.9903	-1.87000	5179.9926	-1.43000	5179.9896	-2.01000
20	15.5	5180.0218	4.21000	5180.0222	4.29000	5180.0252	4.86000	5180.0213	4.11000
10	15.5	5179.98	-3.86000	5179.9775	-4.34000	5179.9813	-3.61000	5179.9796	-3.94000
0	15.5	5180.021	4.05000	5180.0205	3.96000	5180.0224	4.32000	5180.0206	3.98000
-10	15.5	5179.9852	-2.86000	5179.9849	-2.92000	5179.9838	-3.13000	5179.9844	-3.01000
-20	15.5	5179.9737	-5.08000	5179.9764	-4.56000	5179.9759	-4.65000	5179.9773	-4.38000
-30	15.5	5180.0104	2.01000	5180.0102	1.97000	5180.0122	2.36000	5180.011	2.12000

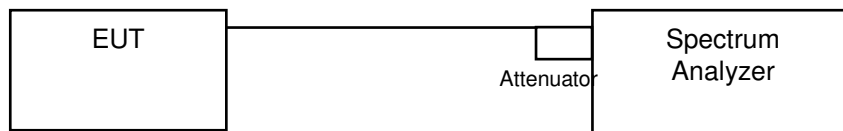
Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	17	5180.0212	4.09000	5180.0222	4.29000	5180.0255	4.92000	5180.0211	4.07000
	15.5	5180.0218	4.21000	5180.0222	4.29000	5180.0252	4.86000	5180.0213	4.11000
	14	5180.0225	4.34000	5180.0222	4.29000	5180.0244	4.71000	5180.0204	3.94000

4.7 6 dB Bandwidth Measurement

4.7.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144	5720	2.90	2.80	0.5	Pass
149	5745	15.18	15.14	0.5	Pass
157	5785	15.17	15.69	0.5	Pass
165	5825	15.18	15.74	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144	5720	2.58	3.41	0.5	Pass
149	5745	16.84	16.53	0.5	Pass
157	5785	16.54	15.96	0.5	Pass
165	5825	15.17	16.05	0.5	Pass

802.11n (HT40)

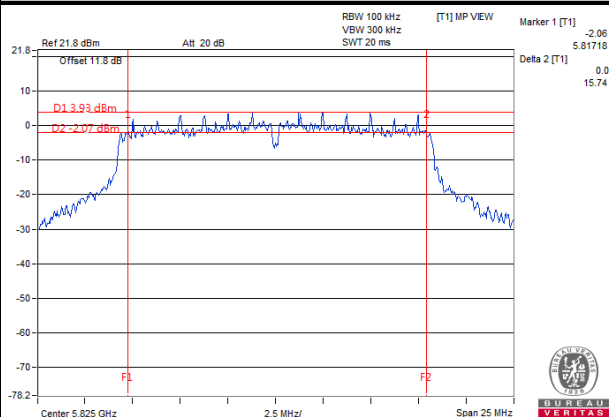
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
142	5710	2.66	2.66	0.5	Pass
151	5755	35.28	35.56	0.5	Pass
159	5795	35.24	35.27	0.5	Pass

802.11ac (VHT80)

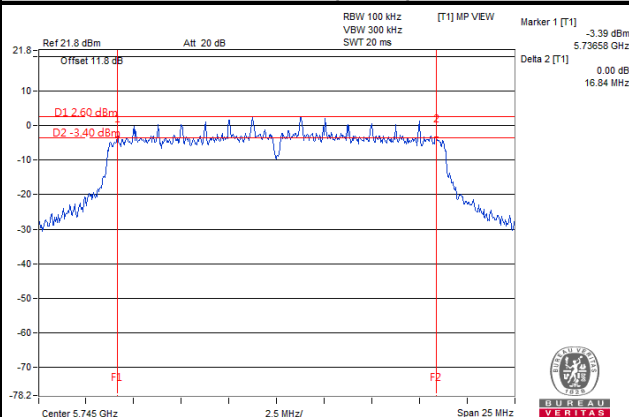
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
138	5690	2.75	2.74	0.5	Pass
155	5775	75.35	75.52	0.5	Pass

Spectrum Plot of Worst Value

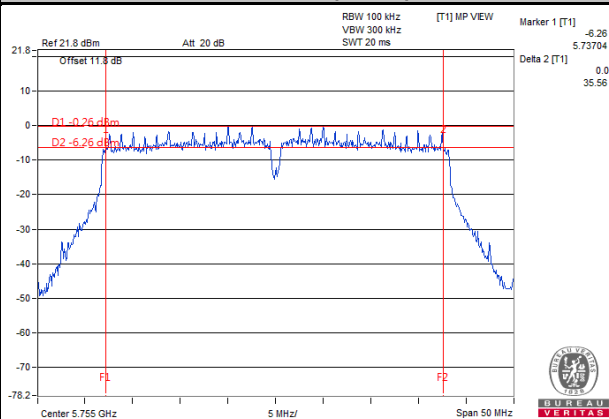
802.11a



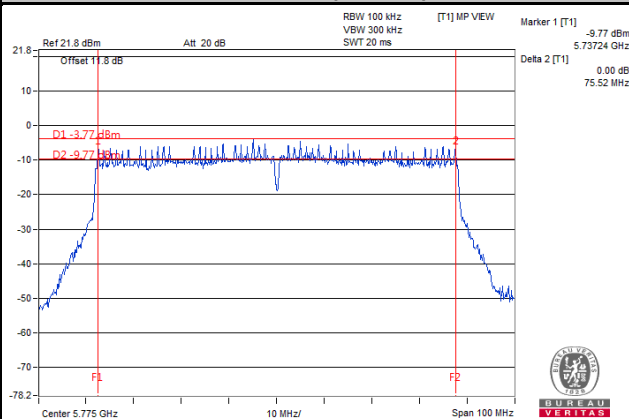
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

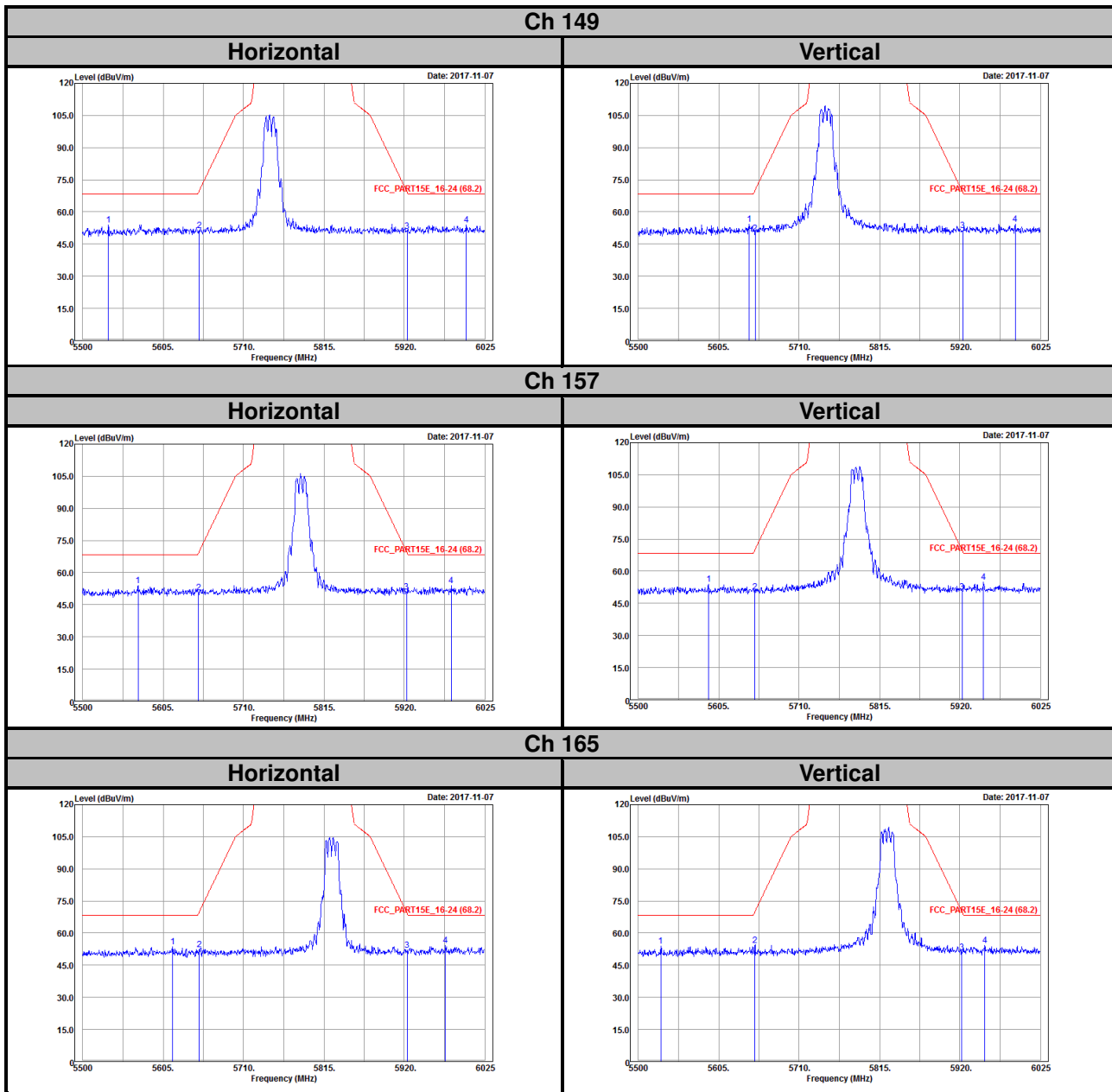


5 Pictures of Test Arrangements

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

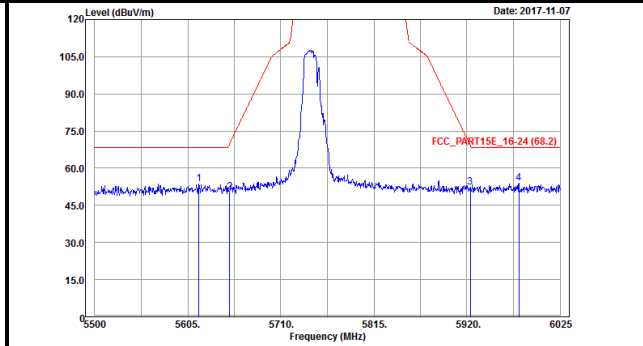
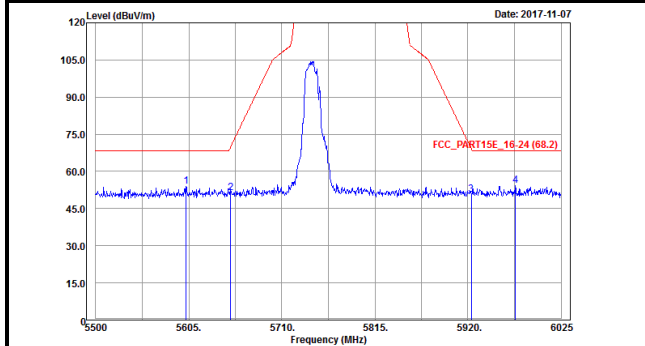
Annex A- Radiated Out of Band Emisison (OOBE) Measurement (For U-NII-3 band)

802.11a

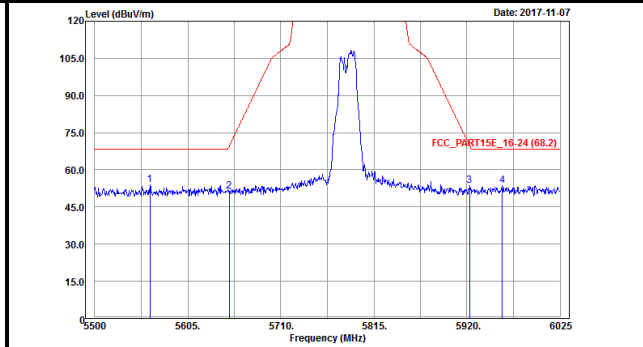
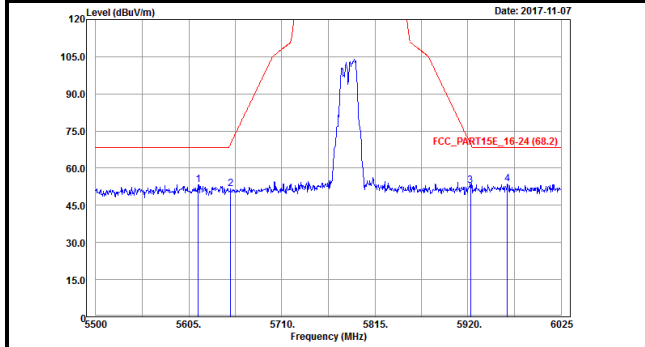


802.11n (HT20)

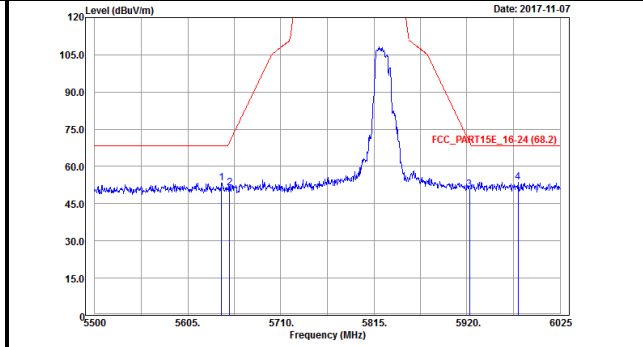
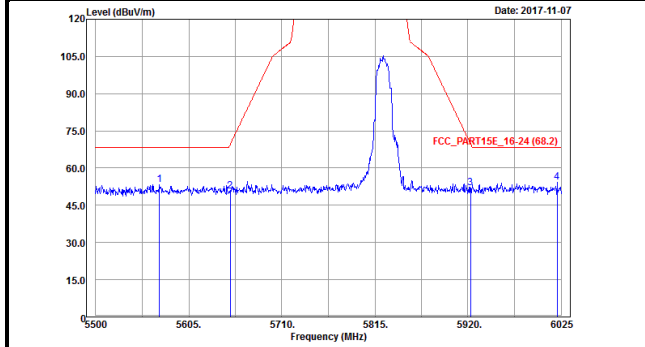
Ch 149



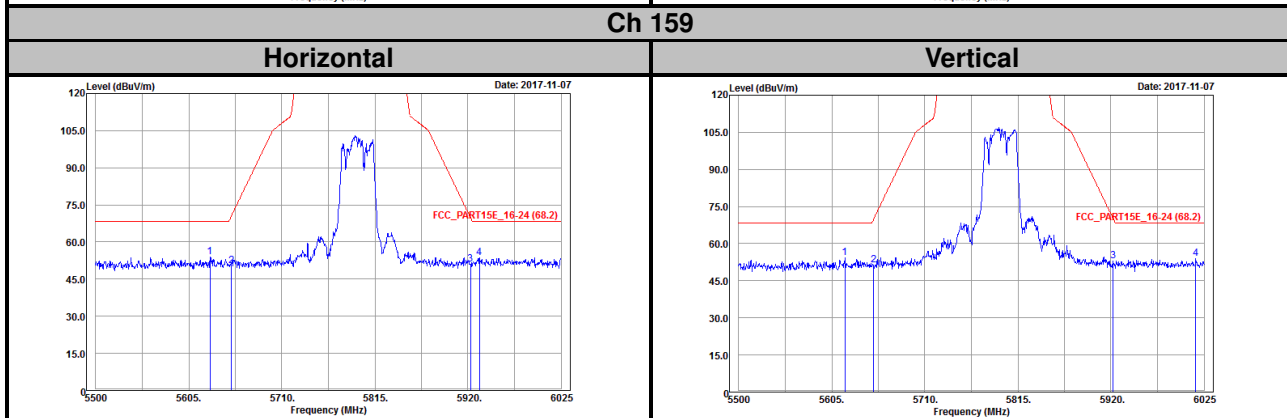
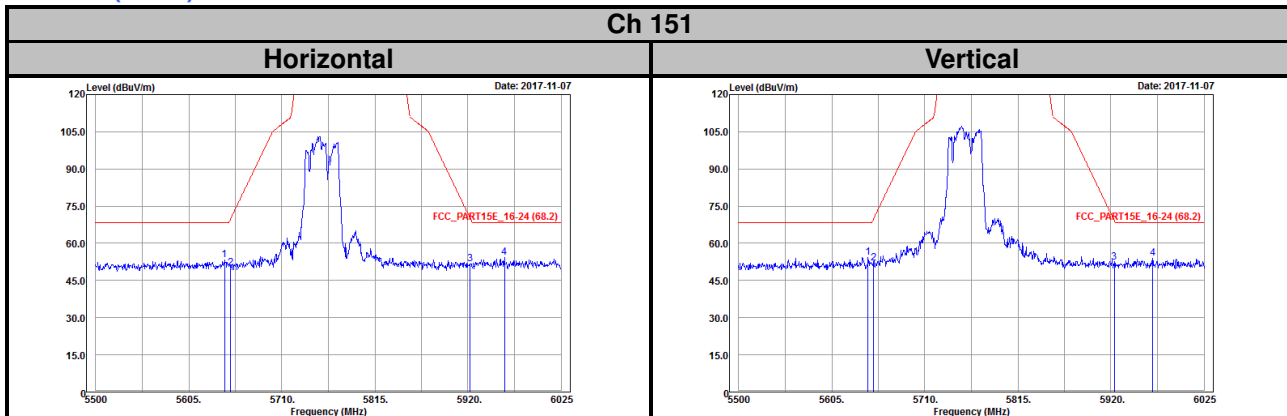
Ch 157



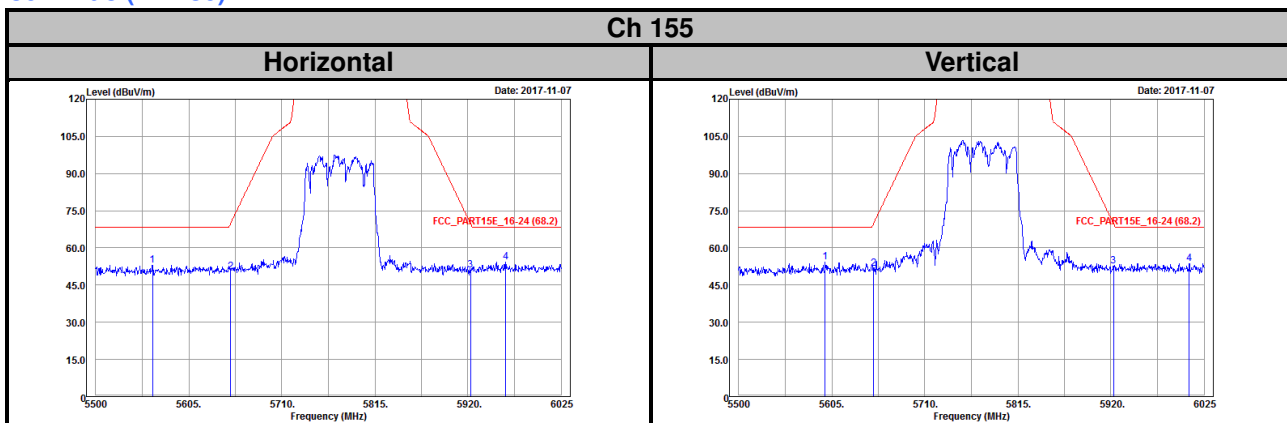
Ch 165



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:

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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