

FCC Test Report

Report No.: RF190620C21-1

FCC ID: 2AQLWYYCBV2

Test Model: Cubo2

Received Date: Jun. 20, 2019

Test Date: Oct. 04 ~ Oct. 22, 2019

Issued Date: Oct. 30, 2019

Applicant: Yun yun AI Baby camera Co., Ltd.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration /
Designation Number: 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
RF190620C21-1	Original Release	Oct. 30, 2019

1 Certificate of Conformity

Product: Cubo AI Baby Monitor

Brand: CuboAi

Test Model: Cubo2

Sample Status: Production Unit

Applicant: Yun yun AI Baby camera Co., Ltd.

Test Date: Oct. 04 ~ Oct. 22, 2019

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 : Lena Wang , Date: Oct. 30, 2019
Lena Wang / Specialist

Approved by : Dylan Chiou , Date: Oct. 30, 2019
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 -5.77 dB at 0.44999 MHz.
15.407(b)(1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.39 dB at 15540 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.

Note:

- For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.
- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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) ($\pm$)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.94 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Cubo AI Baby Monitor
Brand	CuboAi
Test Model	Cubo2
Status of EUT	Production Unit
Power Supply Rating	5.0 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, 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) 5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 1 for 802.11ac (VHT80)
Output Power	69.595 mW for 5180 ~ 5240 MHz 185.724 mW for 5745 ~ 5825 MHz
Antenna Type	FPC antenna with 2 dBi gain (5180 ~ 5240 MHz) FPC antenna with 2 dBi gain (5745 ~ 5825 MHz)
Antenna Connector	ipex
Accessory Device	Refer to Note as below
Cable Supplied	Refer to Note as below

Note:

- 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 EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	CuboAi	MX15W-0502000UU	I/P: 100-240 Vac, 50/60 Hz, 0.4 A O/P: 5 Vdc, 2 A
Mobile stand	CuboAi	Mobile stand	--
USB Cable	CuboAi	Cubo cable	1.9 m shielded cable with 1 core

- The above EUT information is declared by manufacturer and for more detailed features description, please refers 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 5745 ~ 5825 MHz:

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

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

2 channels are provided for 802.11n (HT40):

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

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
155	5775

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	With Charging stand
B	-	√	-	√	With Mobile stand

Where **RE≥1G**: Radiated Emission above 1 GHz

RE<1G: Radiated Emission below 1 GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

Note:

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

Radiated Emission Test (Above 1 GHz):

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	5180-5240	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
		802.11n (HT20)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	13.5
		802.11ac (VHT80)	42	42	OFDM	BPSK	29.3
	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	13.5
		802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

Radiated Emission Test (Below 1 GHz):

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A 、 B	5180-5240	802.11n (HT20)	36 to 48	36	OFDM	BPSK	6.5

Power Line Conducted Emission Test:

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A 、 B	5180-5240	802.11n (HT20)	36 to 48	36	OFDM	BPSK	6.5

Antenna Port Conducted Measurement:

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	5180-5240	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
		802.11n (HT20)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	13.5
		802.11ac (VHT80)	42	42	OFDM	BPSK	29.3
	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	13.5
		802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Tim-Chen, Thomas Wei, Getaz Yang
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
PLC	25 deg. C, 65 % RH	110 Vac, 60 Hz	Jisyong Wang
APCM	25 deg. C, 65 % RH	120 Vac, 60 Hz	Gavin Wu

3.3 Duty Cycle of Test Signal

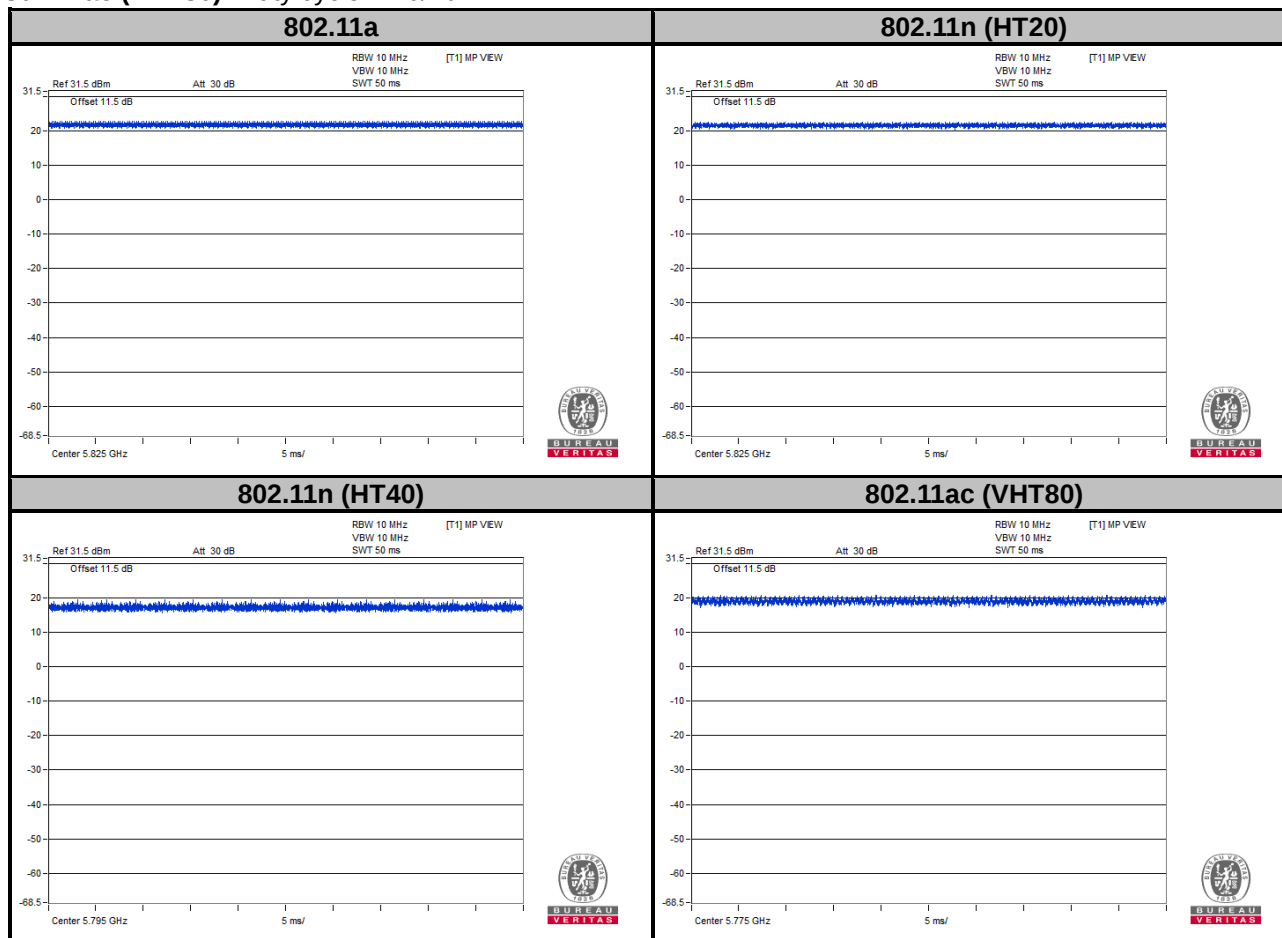
Duty cycle of test signal is 100 %, duty factor is not required.

802.11a: Duty cycle = 10/10 = 1

802.11n (HT20): Duty cycle = 10/10 = 1

802.11n (HT40): Duty cycle = 10/10 = 1

802.11ac (VHT80): Duty cycle = 10/10 = 1



3.4 Description of Support Units

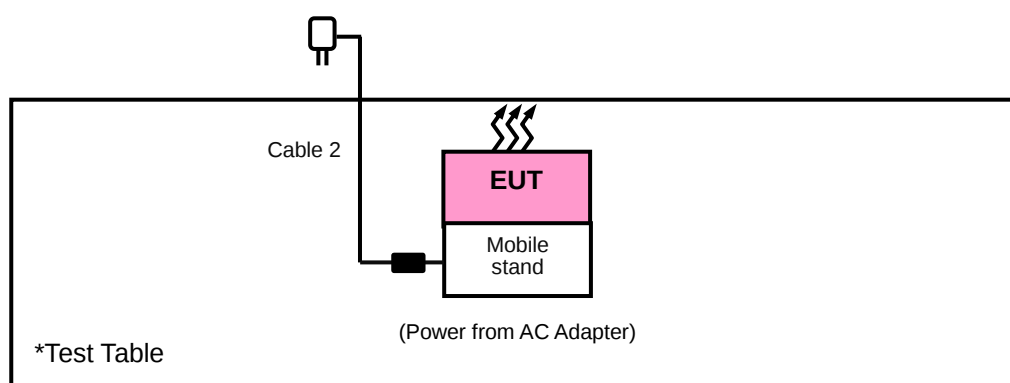
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Mobile stand	CuboAi	Mobile stand	N/A	N/A
2.	Stand	N/A	N/A	N/A	N/A

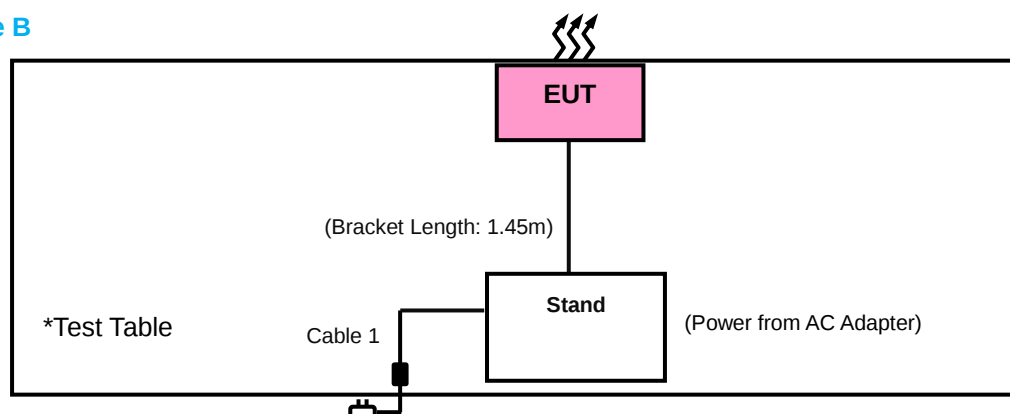
No.	Signal Cable Description of The Above Support Units
1.	USB cable 1.15 m shielded cable with 1 core
2.	USB cable 1.9 m shielded cable with 1 core

3.4.1 Configuration of System under Test

Mode A



Mode B



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)

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

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	N9038A	MY51210203	Mar. 18, 2019	Mar. 17, 2020
Spectrum Analyzer Agilent	N9010A	MY52220314	Dec. 13, 2018	Dec. 12, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Apr. 15, 2019	Apr. 14, 2020
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Nov. 23, 2018	Nov. 22, 2019
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 25, 2018	Nov. 24, 2019
Broadband Horn Antenna SCHWARZBECK	BBHA 9170	148	Nov. 25, 2018	Nov. 24, 2019
Fixed Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020
Loop Antenna	EM-6879	269	Sep. 16, 2019	Sep. 15, 2020
Preamplifier EMCI	EMC001340	980201	Oct. 12, 2018 Oct. 14, 2019	Oct. 11, 2019 Oct. 13, 2020
Preamplifier EMCI	EMC 012645	980115	Oct. 12, 2018 Oct. 08, 2019	Oct. 11, 2019 Oct. 07, 2020
Preamplifier EMCI	EMC 184045	980116	Oct. 12, 2018 Oct. 08, 2019	Oct. 11, 2019 Oct. 07, 2020
Preamplifier EMCI	EMC 330H	980112	Oct. 12, 2018 Oct. 08, 2019	Oct. 11, 2019 Oct. 07, 2020
Power Meter Anritsu	ML2495A	1012010	Sep. 04, 2019	Sep. 03, 2020
Power Sensor Anritsu	MA2411B	1315050	Sep. 04, 2019	Sep. 03, 2020
RF Coaxial Cable HUBER+SUHNNER	EMC104-SM-SM-8000&3000	140811+170717	Oct. 12, 2018 Oct. 08, 2019	Oct. 11, 2019 Oct. 07, 2020
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1000(140807)	Oct. 12, 2018 Oct. 08, 2019	Oct. 11, 2019 Oct. 07, 2020
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	Oct. 12, 2018 Oct. 08, 2019	Oct. 11, 2019 Oct. 07, 2020
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Temperature & Humidity Chamber	GTH-120-40-CP-AR	MAA1306-019	Sep. 06, 2019	Sep. 05, 2020
Digital Multimeter Fluke	87-III	70360742	Jun. 27, 2019	Jun. 26, 2020
AC power supply EEC	6905S	1991553	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 Chamber 10.

4.1.4 Test Procedures

For Radiated Emission below 30 MHz

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

Note:

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

For Radiated Emission above 30 MHz

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

Note:

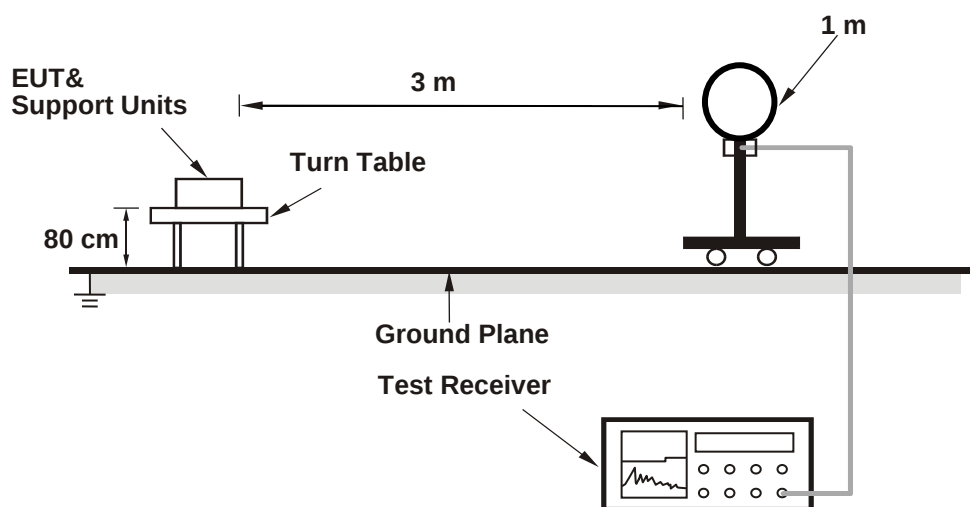
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz.
(11a: RBW = 1 MHz, VBW = 100 Hz ; 11n (HT20): RBW = 1 MHz, VBW = 100 Hz ;
11n (HT40): RBW = 1 MHz, VBW = 100 Hz ; 11ac (VHT80): RBW = 1 MHz, VBW = 100 Hz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.5 Deviation from Test Standard

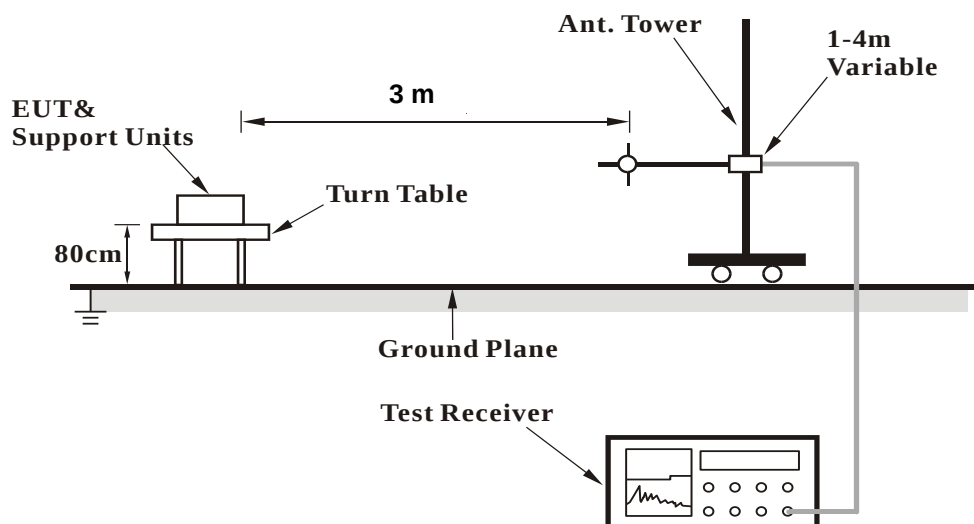
No deviation.

4.1.6 Test Setup

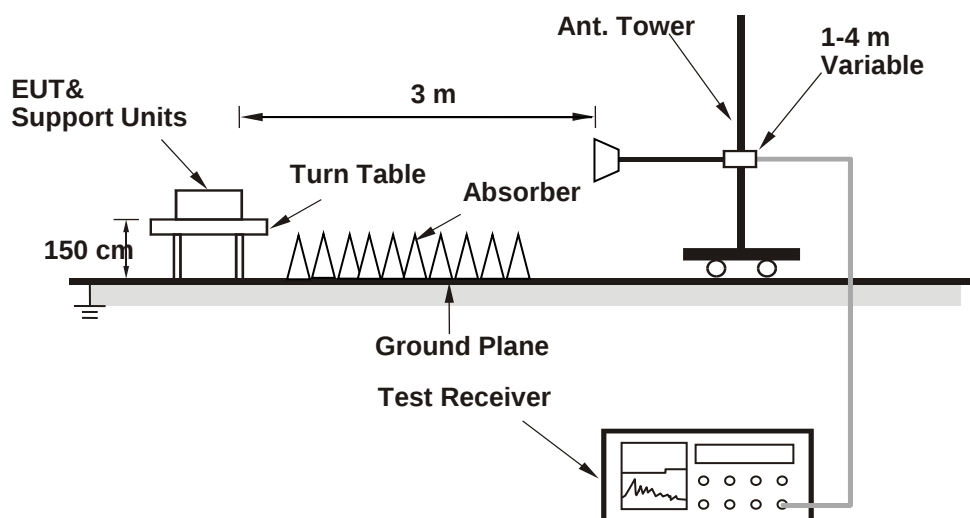
<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 1 GHz>



<Radiated Emission above 1 GHz>



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

4.1.7 EUT Operating Conditions

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

4.1.8 Test Results

Above 1 GHz Data :

802.11a

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

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5149.94	45.88	44.35	1.53	54	-8.12	193	335	Average
5149.94	54.72	53.19	1.53	74	-19.28	193	335	Peak
5180	102.51	100.98	1.53			193	335	Average
5180	108.25	106.72	1.53			193	335	Peak
*10360	56.11	58.95	-2.84	68.2	-12.09	152	217	Peak
15540	50.97	51.1	-0.13	54	-3.03	163	35	Average
15540	60.48	60.61	-0.13	74	-13.52	163	35	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5148.14	41.61	40.08	1.53	54	-12.39	100	327	Average
5148.14	50.83	49.3	1.53	74	-23.17	100	327	Peak
5180	93.83	92.3	1.53			100	327	Average
5180	99.81	98.28	1.53			100	327	Peak
*10360	56.4	59.24	-2.84	68.2	-11.8	156	128	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5180 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 40	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	Thomas Wei

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5142.56	43.84	42.29	1.55	54	-10.16	176	326	Average
5142.56	54.07	52.52	1.55	74	-19.93	176	326	Peak
5200	102.61	101.08	1.53			176	326	Average
5200	108.66	107.13	1.53			176	326	Peak
*10400	54.92	57.81	-2.89	68.2	-13.28	103	73	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5143.1	41.08	39.53	1.55	54	-12.92	109	328	Average
5143.1	50.34	48.79	1.55	74	-23.66	109	328	Peak
5200	93.21	91.68	1.53			109	328	Average
5200	99.89	98.36	1.53			109	328	Peak
*10400	55.61	58.5	-2.89	68.2	-12.59	113	197	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5200 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

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	Thomas Wei

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5149.94	43.18	41.65	1.53	54	-10.82	173	325	Average
5149.94	53.13	51.6	1.53	74	-20.87	173	325	Peak
5240	102.6	101.22	1.38			173	325	Average
5240	108.74	107.36	1.38			173	325	Peak
5356.6	41.91	40.45	1.46	54	-12.09	173	325	Average
5356.6	51.94	50.48	1.46	74	-22.06	173	325	Peak
*10480	55.82	58.55	-2.73	68.2	-12.38	100	209	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5133.02	40.9	39.41	1.49	54	-13.1	131	330	Average
5133.02	51.77	50.28	1.49	74	-22.23	131	330	Peak
5240	92.69	91.31	1.38			131	330	Average
5240	98.86	97.48	1.38			131	330	Peak
5427.22	40.81	39.05	1.76	54	-13.19	131	330	Average
5427.22	50.26	48.5	1.76	74	-23.74	131	330	Peak
*10480	55.53	58.26	-2.73	68.2	-12.67	119	93	Peak

Remarks:

1. Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
2. 5240 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	Getaz Yang

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	104.9	103.08	1.82			196	330	Average
5745	111.12	109.3	1.82			196	330	Peak
11490	46.74	48.94	-2.2	54	-7.26	201	77	Average
11490	55.95	58.15	-2.2	74	-18.05	201	77	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	102.97	101.15	1.82			211	77	Average
5745	108.87	107.05	1.82			211	77	Peak
11490	46.3	48.5	-2.2	54	-7.7	155	38	Average
11490	55.43	57.63	-2.2	74	-18.57	155	38	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5595.125	59.99	58.12	1.87	68.2	-8.21	196	330	Peak
5654.5	60.2	58.35	1.85	71.54	-11.34	196	330	Peak
5920.5	60.68	58.37	2.31	71.52	-10.84	196	330	Peak
6019.3	60.73	58.33	2.4	68.2	-7.47	196	330	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5645.95	60.73	58.85	1.88	68.2	-7.47	211	77	Peak
5654.025	61	59.15	1.85	71.19	-10.19	211	77	Peak
5915.75	59.41	57.1	2.31	75.02	-15.61	211	77	Peak
5942.825	60.62	58.33	2.29	68.2	-7.58	211	77	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5745 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

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	Getaz Yang

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	105.73	103.81	1.92			197	330	Average
5785	111.91	109.99	1.92			197	330	Peak
11570	45.03	47.23	-2.2	54	-8.97	173	165	Average
11570	55.46	57.66	-2.2	74	-18.54	173	165	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	103.33	101.41	1.92			204	82	Average
5785	110.23	108.31	1.92			204	82	Peak
11570	44.86	47.06	-2.2	54	-9.14	119	307	Average
11570	54.79	56.99	-2.2	74	-19.21	119	307	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5644.525	60.99	59.11	1.88	68.2	-7.21	197	330	Peak
5657.35	60.95	59.1	1.85	73.66	-12.71	197	330	Peak
5918.6	60.36	58.05	2.31	72.92	-12.56	197	330	Peak
5939.975	60.78	58.49	2.29	68.2	-7.42	197	330	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5567.575	60.57	58.71	1.86	68.2	-7.63	204	82	Peak
5658.775	59.22	57.37	1.85	74.72	-15.5	204	82	Peak
5921.45	59.74	57.43	2.31	70.82	-11.08	204	82	Peak
5968	60.79	58.49	2.3	68.2	-7.41	204	82	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5785 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

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	Getaz Yang

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	105.96	103.88	2.08			193	330	Average
5825	112.84	110.76	2.08			193	330	Peak
11650	47.26	49.65	-2.39	54	-6.74	200	82	Average
11650	55.88	58.27	-2.39	74	-18.12	200	82	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	103.94	101.86	2.08			201	82	Average
5825	109.49	107.41	2.08			201	82	Peak
11650	46.56	48.95	-2.39	54	-7.44	156	42	Average
11650	55.24	57.63	-2.39	74	-18.76	156	42	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5601.775	60.56	58.63	1.93	68.2	-7.64	193	330	Peak
5660.2	60.92	59.07	1.85	75.77	-14.85	193	330	Peak
5922.875	60.08	57.78	2.3	69.77	-9.69	193	330	Peak
5994.125	61.05	58.69	2.36	68.2	-7.15	193	330	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5603.2	60.87	59	1.87	68.2	-7.33	201	82	Peak
5652.6	60.06	58.15	1.91	70.13	-10.07	201	82	Peak
5917.65	59.95	57.64	2.31	73.62	-13.67	201	82	Peak
5944.25	61.74	59.45	2.29	68.2	-6.46	201	82	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

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	Thomas Wei

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5148.2	43.19	41.66	1.53	54	-10.81	154	331	Average
5148.2	51.18	49.65	1.53	74	-22.82	154	331	Peak
5180	97.99	96.46	1.53			154	331	Average
5180	104.52	102.99	1.53			154	331	Peak
*10360	55.7	58.54	-2.84	68.2	-12.5	162	101	Peak
15540	50.43	50.56	-0.13	54	-3.57	167	110	Average
15540	58.97	59.1	-0.13	74	-15.03	167	110	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5149.1	42.13	40.6	1.53	54	-11.87	200	168	Average
5149.1	50.48	48.95	1.53	74	-23.52	200	168	Peak
5180	93.52	91.99	1.53			200	168	Average
5180	100.45	98.92	1.53			200	168	Peak
*10360	55.33	58.17	-2.84	68.2	-12.87	146	233	Peak
15540	53.61	53.74	-0.13	54	-0.39	165	107	Average
15540	64.62	64.75	-0.13	74	-9.38	165	107	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5180 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 40	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	Thomas Wei

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5144.75	42.25	40.72	1.53	54	-11.75	146	327	Average
5144.75	52.05	50.52	1.53	74	-21.95	146	327	Peak
5200	98.91	97.38	1.53			146	327	Average
5200	104.84	103.31	1.53			146	327	Peak
*10400	55.29	58.18	-2.89	68.2	-12.91	137	155	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5145.65	41.4	39.87	1.53	54	-12.6	150	182	Average
5145.65	50.5	48.97	1.53	74	-23.5	150	182	Peak
5200	93.19	91.66	1.53			150	182	Average
5200	99.47	97.94	1.53			150	182	Peak
*10400	55.06	57.95	-2.89	68.2	-13.14	162	215	Peak
15600	53.33	53.8	-0.47	54	-0.67	167	102	Average
15600	64.94	65.41	-0.47	74	-9.06	167	102	Peak

Remarks:

1. Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
2. 5200 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	Thomas Wei

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5145.62	41.67	40.14	1.53	54	-12.33	180	346	Average
5145.62	50.85	49.32	1.53	74	-23.15	180	346	Peak
5240	98.54	97.16	1.38			180	346	Average
5240	103.08	101.7	1.38			180	346	Peak
5447.46	41.36	39.54	1.82	54	-12.64	180	346	Average
5447.46	50.09	48.27	1.82	74	-23.91	180	346	Peak
*10480	55.48	58.21	-2.73	68.2	-12.72	135	200	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5134.1	41.27	39.78	1.49	54	-12.73	173	159	Average
5134.1	51.05	49.56	1.49	74	-22.95	173	159	Peak
5240	92.86	91.48	1.38			173	159	Average
5240	99.26	97.88	1.38			173	159	Peak
5447.13	41.24	39.42	1.82	54	-12.76	173	159	Average
5447.13	50.7	48.88	1.82	74	-23.3	173	159	Peak
*10480	55.89	58.62	-2.73	68.2	-12.31	164	251	Peak
15720	53.57	55	-1.43	54	-0.43	167	103	Average
15720	62.57	64	-1.43	74	-11.43	167	103	Peak

Remarks:

1. Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
2. 5240 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	Tim-Chen

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	103.21	101.39	1.82			128	333	Average
5746	109.49	107.67	1.82			128	333	Peak
11490	45.32	47.52	-2.2	54	-8.68	202	141	Average
11490	54.45	56.65	-2.2	74	-19.55	202	141	Peak
*17235	65.88	64.59	1.29	68.2	-2.32	199	132	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	100.42	98.6	1.82			111	54	Average
5745	106.75	104.93	1.82			111	54	Peak
11490	45.02	47.22	-2.2	54	-8.98	187	223	Average
11490	55.55	57.75	-2.2	74	-18.45	187	223	Peak
*17235	64.71	63.42	1.29	68.2	-3.49	204	68	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5629.325	51.74	49.9	1.84	68.2	-16.46	128	333	Peak
5654.5	50.91	49.06	1.85	71.54	-20.63	128	333	Peak
5921.925	50.54	48.24	2.3	70.47	-19.93	128	333	Peak
5964.2	51.05	48.75	2.3	68.2	-17.15	128	333	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5580.875	50.88	49.06	1.82	68.2	-17.32	111	54	Peak
5653.55	50.87	48.96	1.91	70.84	-19.97	111	54	Peak
5921.925	49.98	47.68	2.3	70.47	-20.49	111	54	Peak
5934.75	52.15	49.85	2.3	68.2	-16.05	111	54	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5745 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

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	Tim-Chen

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	102.92	101	1.92			219	328	Average
5785	110.05	108.13	1.92			219	328	Peak
11570	44.36	46.56	-2.2	54	-9.64	196	143	Average
11570	53.56	55.76	-2.2	74	-20.44	196	143	Peak
*17355	67.31	65.12	2.19	68.2	-0.89	203	135	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	100.58	98.66	1.92			106	54	Average
5785	107.08	105.16	1.92			106	54	Peak
11570	44.37	46.57	-2.2	54	-9.63	198	74	Average
11570	53.49	55.69	-2.2	74	-20.51	198	74	Peak
*17355	64.66	62.47	2.19	68.2	-3.54	201	69	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5634.55	51.77	49.89	1.88	68.2	-16.43	219	328	Peak
5657.825	50.37	48.52	1.85	74.01	-23.64	219	328	Peak
5918.125	50.32	48.01	2.31	73.27	-22.95	219	328	Peak
5929.05	51.12	48.82	2.3	68.2	-17.08	219	328	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5639.775	50.73	48.85	1.88	68.2	-17.47	106	54	Peak
5657.35	49.24	47.39	1.85	73.66	-24.42	106	54	Peak
5919.075	50.12	47.81	2.31	72.57	-22.45	106	54	Peak
6019.775	51.34	48.94	2.4	68.2	-16.86	106	54	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5785 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

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	Tim-Chen

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	103.69	101.61	2.08			111	327	Average
5825	110.65	108.57	2.08			111	327	Peak
11650	45.02	47.41	-2.39	54	-8.98	102	222	Average
11650	53.87	56.26	-2.39	74	-20.13	102	222	Peak
*17475	67.22	64.02	3.2	68.2	-0.98	100	68	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	101.4	99.32	2.08			110	61	Average
5825	108.19	106.11	2.08			110	61	Peak
11650	43.87	46.26	-2.39	54	-10.13	136	118	Average
11650	53.35	55.74	-2.39	74	-20.65	136	118	Peak
*17475	64.5	61.3	3.2	68.2	-3.7	100	73	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5643.575	50.74	48.86	1.88	68.2	-17.46	111	327	Peak
5659.25	49.26	47.41	1.85	75.07	-25.81	111	327	Peak
5920.975	51.46	49.15	2.31	71.17	-19.71	111	327	Peak
6018.825	50.88	48.48	2.4	68.2	-17.32	111	327	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5642.15	49.98	48.1	1.88	68.2	-18.22	110	61	Peak
5655.45	49.85	48	1.85	72.25	-22.4	110	61	Peak
5920.975	50.14	47.83	2.31	71.17	-21.03	110	61	Peak
5926.2	51.43	49.13	2.3	68.2	-16.77	110	61	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

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	Thomas Wei

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5149.4	47.82	46.29	1.53	54	-6.18	186	337	Average
5149.4	56	54.47	1.53	74	-18	186	337	Peak
5190	96.17	94.64	1.53			186	337	Average
5190	102.85	101.32	1.53			186	337	Peak
5355.83	41.61	40.15	1.46	54	-12.39	186	337	Average
5355.83	50.83	49.37	1.46	74	-23.17	186	337	Peak
*10380	55.06	57.93	-2.87	68.2	-13.14	158	201	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5149.22	47.02	45.49	1.53	54	-6.98	186	168	Average
5149.22	55.35	53.82	1.53	74	-18.65	186	168	Peak
5190	90.28	88.75	1.53			186	168	Average
5190	97.02	95.49	1.53			186	168	Peak
5440.09	41.49	39.71	1.78	54	-12.51	186	168	Average
5440.09	50.88	49.1	1.78	74	-23.12	186	168	Peak
*10380	55.63	58.5	-2.87	68.2	-12.57	159	225	Peak
15570	52.79	53.08	-0.29	54	-1.21	163	105	Average
15570	61.55	61.84	-0.29	74	-12.45	163	105	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5190 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

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	Thomas Wei

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5149.76	42.71	41.18	1.53	54	-11.29	182	318	Average
5149.76	51.51	49.98	1.53	74	-22.49	182	318	Peak
5230	97.75	96.37	1.38			182	318	Average
5230	102.6	101.22	1.38			182	318	Peak
5444.71	41.71	39.93	1.78	54	-12.29	182	318	Average
5444.71	50.37	48.59	1.78	74	-23.63	182	318	Peak
*10460	55.42	58.21	-2.79	68.2	-12.78	154	266	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5136.08	41.72	40.23	1.49	54	-12.28	171	171	Average
5136.08	50.86	49.37	1.49	74	-23.14	171	171	Peak
5230	90.83	89.45	1.38			171	171	Average
5230	98.08	96.7	1.38			171	171	Peak
5424.58	41.55	39.79	1.76	54	-12.45	171	171	Average
5424.58	50.43	48.67	1.76	74	-23.57	171	171	Peak
*10460	55.88	58.67	-2.79	68.2	-12.32	138	245	Peak
15690	52.22	53.44	-1.22	54	-1.78	165	105	Average
15690	61.38	62.6	-1.22	74	-12.62	165	105	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5230 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

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	Tim-Chen, Getaz Yang

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5755	103.58	101.68	1.9			191	330	Average
5755	110.02	108.12	1.9			191	330	Peak
11510	44.69	46.9	-2.21	54	-9.31	165	188	Average
11510	54.3	56.51	-2.21	74	-19.7	165	188	Peak
*17265	65.75	64.29	1.46	68.2	-2.45	202	131	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5755	101.31	99.41	1.9			211	68	Average
5755	107.33	105.43	1.9			211	68	Peak
11510	44.07	46.28	-2.21	54	-9.93	135	188	Average
11510	55.57	57.78	-2.21	74	-18.43	135	188	Peak
*17265	61.3	59.84	1.46	68.2	-6.9	200	0	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5567.575	60.69	58.83	1.86	68.2	-7.51	191	330	Peak
5654.5	59.7	57.85	1.85	71.54	-11.84	191	330	Peak
5915.75	60.35	58.04	2.31	75.02	-14.67	191	330	Peak
6020.725	61.78	59.38	2.4	68.2	-6.42	191	330	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5578.025	60.55	58.73	1.82	68.2	-7.65	211	68	Peak
5652.6	60.44	58.53	1.91	70.13	-9.69	211	68	Peak
5920.5	59.63	57.32	2.31	71.52	-11.89	211	68	Peak
5955.175	60.92	58.63	2.29	68.2	-7.28	211	68	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5755 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

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	Tim-Chen, Getaz Yang

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	100.75	98.75	2			198	330	Average
5795	107.22	105.22	2			198	330	Peak
11590	44.92	47.11	-2.19	54	-9.08	166	217	Average
11590	55.24	57.43	-2.19	74	-18.76	166	217	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	98.46	96.46	2			211	66	Average
5795	104.7	102.7	2			211	66	Peak
11590	45.12	47.31	-2.19	54	-8.88	103	333	Average
11590	54.47	56.66	-2.19	74	-19.53	103	333	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5635.975	60.59	58.71	1.88	68.2	-7.61	198	330	Peak
5655.45	59.99	58.14	1.85	72.25	-12.26	198	330	Peak
5915.75	60.32	58.01	2.31	75.02	-14.7	198	330	Peak
5953.275	61.44	59.15	2.29	68.2	-6.76	198	330	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5568.525	60.57	58.71	1.86	68.2	-7.63	211	66	Peak
5660.2	59.78	57.93	1.85	75.77	-15.99	211	66	Peak
5915.75	59.96	57.65	2.31	75.02	-15.06	211	66	Peak
5993.65	61.23	58.87	2.36	68.2	-6.97	211	66	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5795 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

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	Tim-Chen

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	52.95	51.42	1.53	54	-1.05	100	360	Average
5150	60.12	58.59	1.53	74	-13.88	100	360	Peak
5210	91.71	90.27	1.44			100	360	Average
5210	97.15	95.71	1.44			100	360	Peak
5350	42.81	41.35	1.46	54	-11.19	100	360	Average
5350	50.62	49.16	1.46	74	-23.38	100	360	Peak
*10420	54.96	57.81	-2.85	68.2	-13.24	103	126	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	50.57	49.04	1.53	54	-3.43	100	91	Average
5150	56.8	55.27	1.53	74	-17.2	100	91	Peak
5210	88.91	87.47	1.44			100	91	Average
5210	96.23	94.79	1.44			100	91	Peak
5350	42.26	40.8	1.46	54	-11.74	100	91	Average
5350	49.72	48.26	1.46	74	-24.28	100	91	Peak
*10420	54.56	57.41	-2.85	68.2	-13.64	116	307	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5210 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

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	Tim-Chen

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5775	101.78	99.82	1.96			200	330	Average
5775	107.65	105.69	1.96			200	330	Peak
11550	44.13	46.33	-2.2	54	-9.87	208	134	Average
11550	54.47	56.67	-2.2	74	-19.53	208	134	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5775	101.93	99.97	1.96			226	102	Average
5775	107.28	105.32	1.96			226	102	Peak
11550	44.68	46.88	-2.2	54	-9.32	138	264	Average
11550	54.83	57.03	-2.2	74	-19.17	138	264	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5644.525	65.58	63.7	1.88	68.2	-2.62	200	330	Peak
5659.725	65.51	63.66	1.85	75.42	-9.91	200	330	Peak
5915.75	63.19	60.88	2.31	75.02	-11.83	200	330	Peak
5929.05	62.39	60.09	2.3	68.2	-5.81	200	330	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5645.95	63.6	61.72	1.88	68.2	-4.6	226	102	Peak
5657.35	65.58	63.73	1.85	73.66	-8.08	226	102	Peak
5920.5	64.3	61.99	2.31	71.52	-7.22	226	102	Peak
5930.95	61.85	59.55	2.3	68.2	-6.35	226	102	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 5775 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The emission levels of other frequencies were very low against the limit

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:

802.11n (HT20)

Mode A

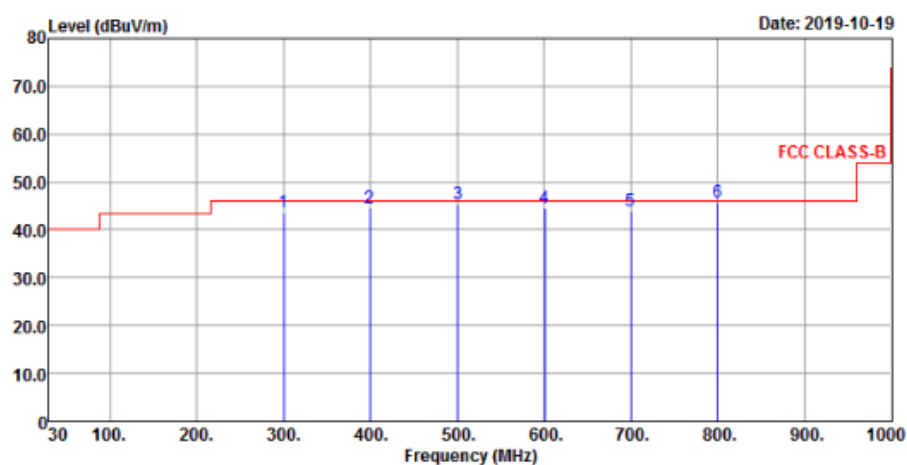
EUT Test Condition		Measurement Detail	
Channel	Channel 36	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Getaz Yang

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
299.66	43.61	60.29	-16.68	46	-2.39	138	254	QP
399.57	44.58	58.62	-14.04	46	-1.42	131	157	QP
500.45	45.35	55.86	-10.51	46	-0.65	124	62	QP
600.36	44.59	52.88	-8.29	46	-1.41	106	60	QP
700.27	43.96	50.95	-6.99	46	-2.04	109	284	QP
800.18	45.87	51.14	-5.27	46	-0.13	118	213	QP
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
299.66	44.52	61.2	-16.68	46	-1.48	137	71	QP
399.57	43.99	58.03	-14.04	46	-2.01	120	158	QP
500.45	44.72	55.23	-10.51	46	-1.28	126	339	QP
600.36	45.78	54.07	-8.29	46	-0.22	123	176	QP
700.27	44.62	51.61	-6.99	46	-1.38	138	6	QP
800.18	43.94	49.21	-5.27	46	-2.06	108	236	QP

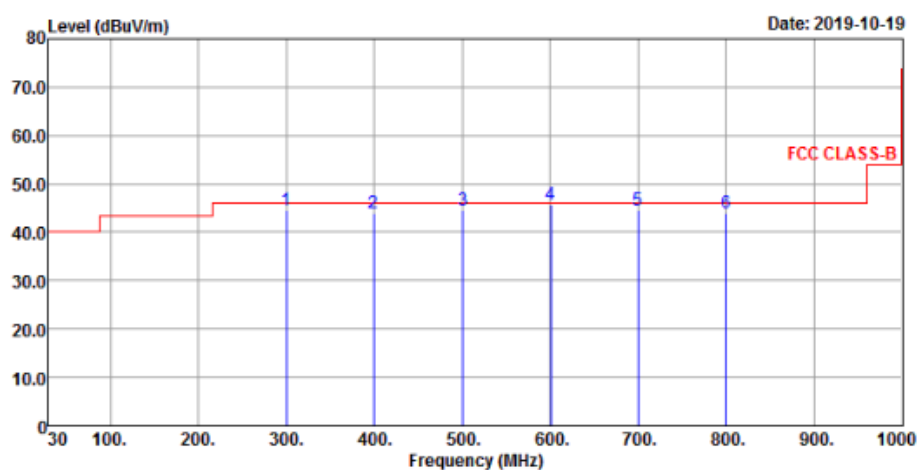
Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- The emission levels of other frequencies were very low against the limit

Horizontal



Vertical



Mode B

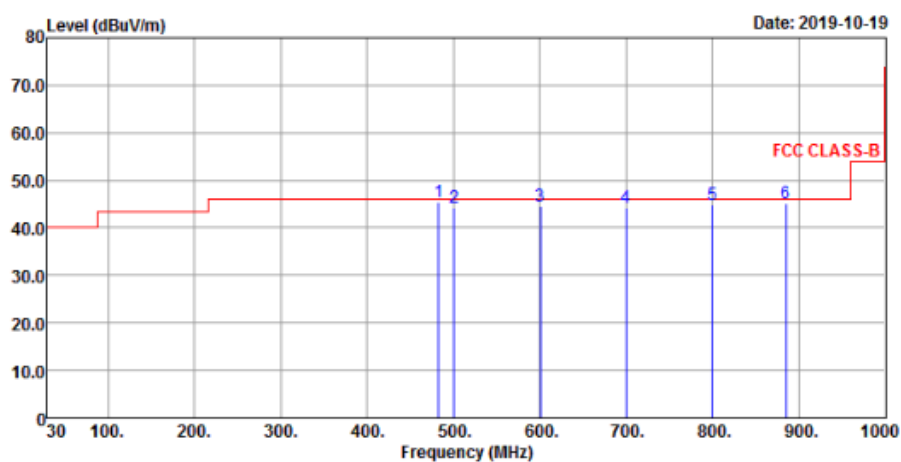
EUT Test Condition		Measurement Detail	
Channel	Channel 36	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Getaz Yang

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
482.99	45.49	57.17	-11.68	46	-0.51	114	357	QP
500.45	44.22	54.73	-10.51	46	-1.78	120	155	QP
600.36	44.54	52.83	-8.29	46	-1.46	136	32	QP
700.27	44.16	51.15	-6.99	46	-1.84	133	129	QP
800.18	44.85	50.12	-5.27	46	-1.15	129	309	QP
885.54	45.23	49.87	-4.64	46	-0.77	111	126	QP
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
399.57	45.47	59.51	-14.04	46	-0.53	130	94	QP
500.45	45.21	55.72	-10.51	46	-0.79	109	211	QP
600.36	45.56	53.85	-8.29	46	-0.44	107	234	QP
700.27	44.05	51.04	-6.99	46	-1.95	116	301	QP
800.18	44.47	49.74	-5.27	46	-1.53	119	141	QP
885.54	44.14	48.78	-4.64	46	-1.86	121	314	QP

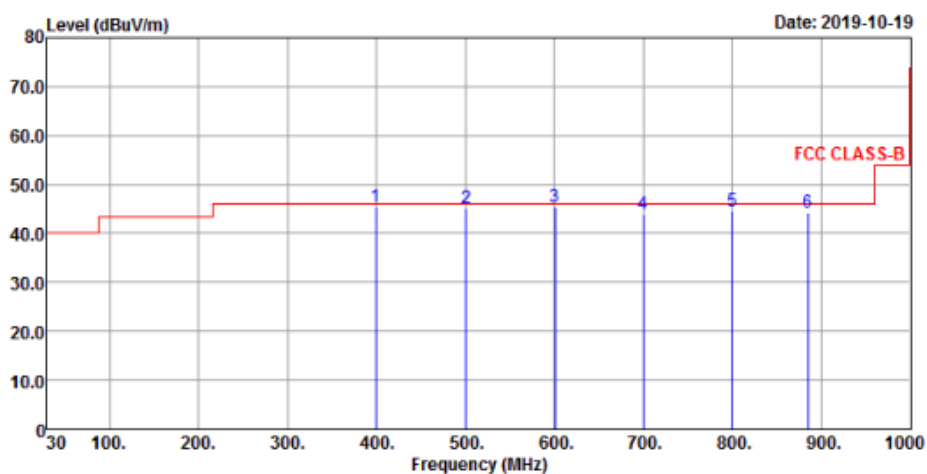
Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- The emission levels of other frequencies were very low against the limit

Horizontal



Vertical



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	Dec. 10, 2018	Dec. 09, 2019
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2019	Sep. 04, 2020
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 21, 2019	Feb. 20, 2020
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 22, 2019	Aug. 21, 2020
Software ADT	BV ADT_Cond_ V7.3.7.4	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-12040.

4.2.3 Test Procedures

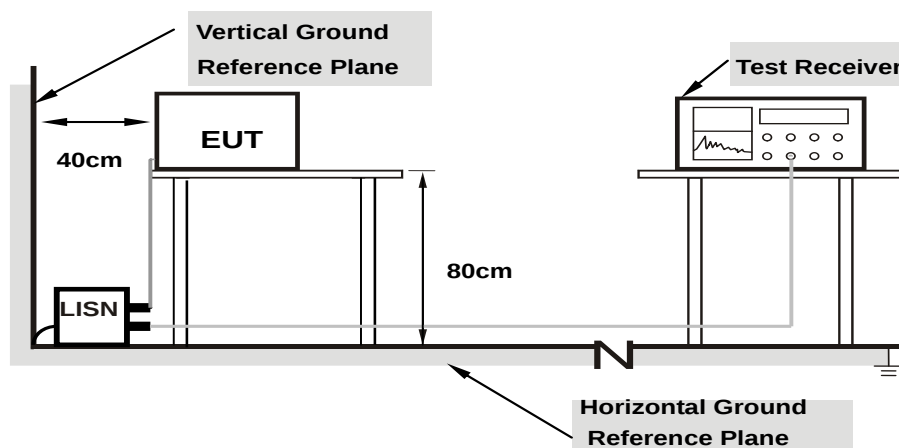
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

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

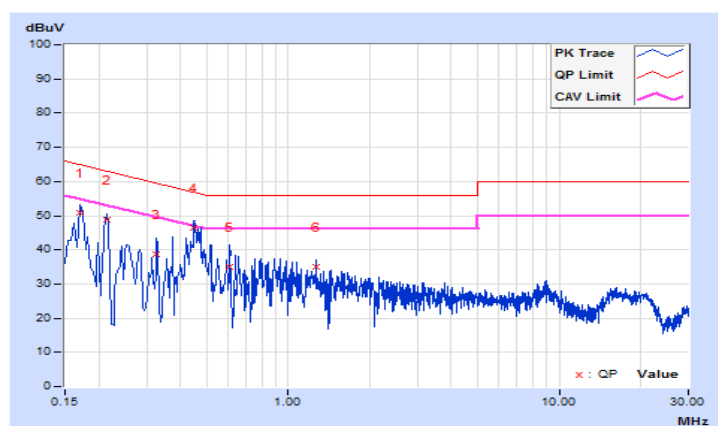
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	110Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Jisyoung Wang	Test Date	2019/10/20
Test Mode	Mode A		

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	0.17022	9.67	41.08	33.09	50.75	42.76	64.95	54.95	-14.20	-12.19
2	0.21406	9.66	39.15	31.48	48.81	41.14	63.05	53.05	-14.24	-11.91
3	0.32630	9.68	28.99	20.27	38.67	29.95	59.54	49.54	-20.87	-19.59
4	0.44999	9.69	36.70	31.42	46.39	41.11	56.88	46.88	-10.49	-5.77
5	0.61000	9.70	25.24	17.56	34.94	27.26	56.00	46.00	-21.06	-18.74
6	1.26600	9.74	25.18	17.77	34.92	27.51	56.00	46.00	-21.08	-18.49

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

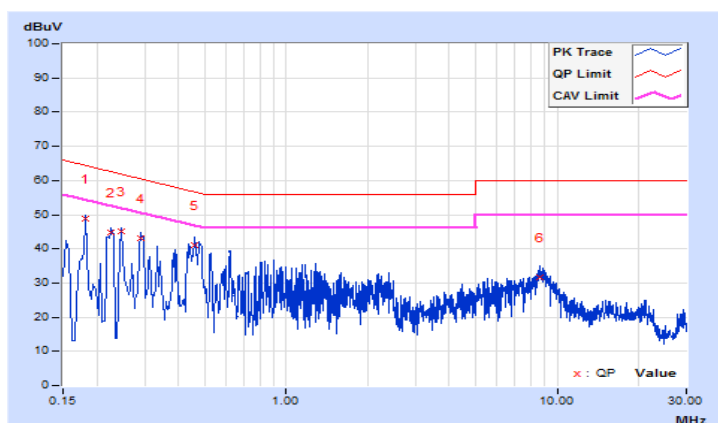


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	110Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Jisyong Wang	Test Date	2019/10/20
Test Mode	Mode A		

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	0.18200	9.64	39.32	31.82	48.96	41.46	64.39	54.39	-15.43	-12.93
2	0.22600	9.64	35.29	30.82	44.93	40.46	62.60	52.60	-17.67	-12.14
3	0.24600	9.64	35.33	30.34	44.97	39.98	61.89	51.89	-16.92	-11.91
4	0.29058	9.65	33.37	27.92	43.02	37.57	60.51	50.51	-17.49	-12.94
5	0.45716	9.66	31.53	26.19	41.19	35.85	56.74	46.74	-15.55	-10.89
6	8.61800	9.89	21.64	17.38	31.53	27.27	60.00	50.00	-28.47	-22.73

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

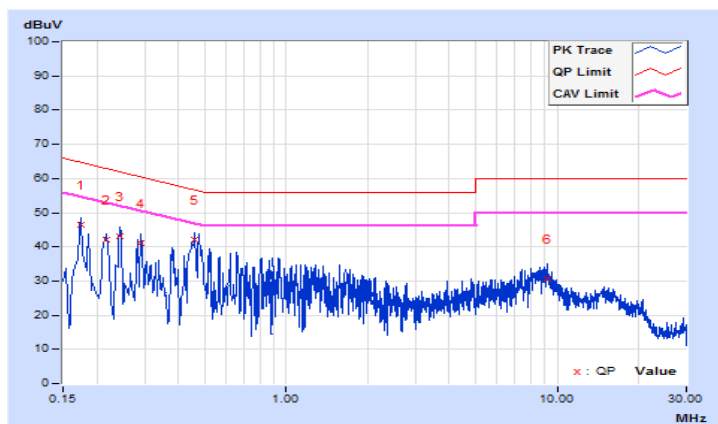


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	110Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Jisyong Wang	Test Date	2019/10/20
Test Mode	Mode B		

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	0.17400	9.67	36.79	28.20	46.46	37.87	64.77	54.77	-18.31	-16.90
2	0.21748	9.66	32.39	27.48	42.05	37.14	62.91	52.91	-20.86	-15.77
3	0.24228	9.67	33.42	26.59	43.09	36.26	62.02	52.02	-18.93	-15.76
4	0.29000	9.67	31.56	25.34	41.23	35.01	60.52	50.52	-19.29	-15.51
5	0.45800	9.69	32.40	29.27	42.09	38.96	56.73	46.73	-14.64	-7.77
6	9.14600	9.92	20.76	12.66	30.68	22.58	60.00	50.00	-29.32	-27.42

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

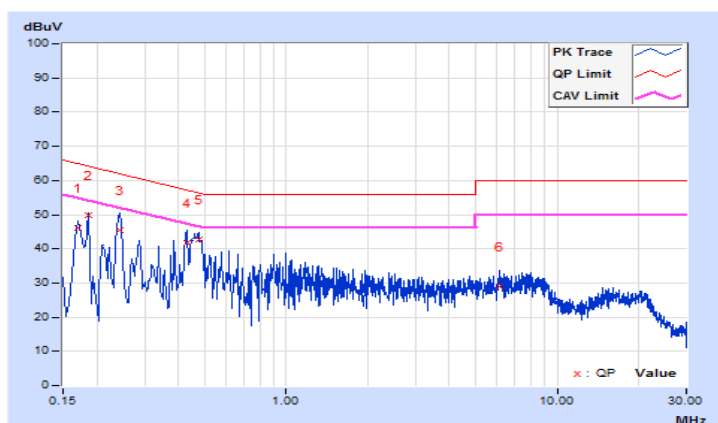


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	110Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Jisyong Wang	Test Date	2019/10/20
Test Mode	Mode B		

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	0.17000	9.64	36.43	29.80	46.07	39.44	64.96	54.96	-18.89	-15.52
2	0.18600	9.64	40.03	32.44	49.67	42.08	64.21	54.21	-14.54	-12.13
3	0.24200	9.64	35.74	28.26	45.38	37.90	62.03	52.03	-16.65	-14.13
4	0.43000	9.66	32.02	26.42	41.68	36.08	57.25	47.25	-15.57	-11.17
5	0.47434	9.66	33.14	25.37	42.80	35.03	56.44	46.44	-13.64	-11.41
6	6.15000	9.85	19.00	12.32	28.85	22.17	60.00	50.00	-31.15	-27.83

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 $N_{ANT} \leq 4$;

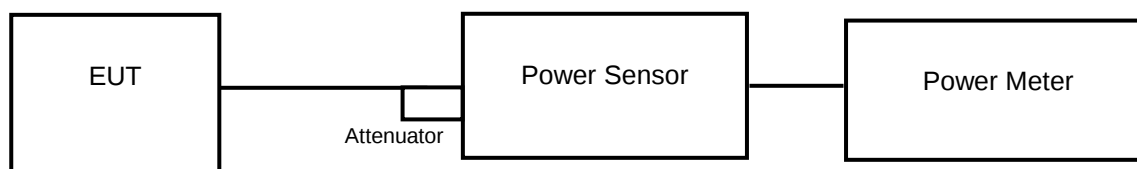
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

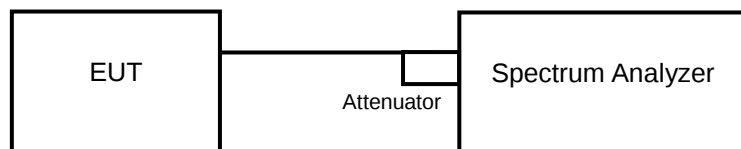
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup

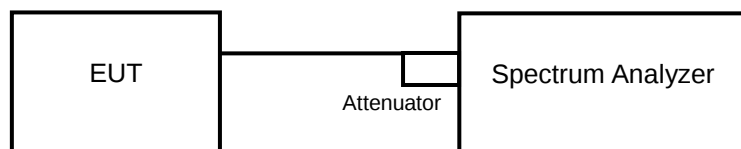
<Power Output Measurement>



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)>

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

26 dB Bandwidth

- a. Set RBW = approximately 1 % of the emission bandwidth.
- b. Set the VBW > RBW.
- c. Detector = Peak.
- d. Trace mode = max hold.
- e. 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 Results

Power Output:

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	25.823	14.12	24	Pass
40	5200	24.717	13.93	24	Pass
48	5240	30.061	14.78	24	Pass
149	5745	69.984	18.45	30	Pass
157	5785	74.131	18.70	30	Pass
165	5825	75.858	18.80	30	Pass

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	14.00	13.78	48.997	16.90	24	Pass
40	5200	13.83	13.70	47.597	16.78	24	Pass
48	5240	13.25	12.54	39.082	15.92	24	Pass
149	5745	17.61	18.20	123.746	20.93	30	Pass
157	5785	17.38	18.42	124.204	20.94	30	Pass
165	5825	17.45	19.09	136.686	21.36	30	Pass

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	11.20	11.00	25.772	14.11	24	Pass
46	5230	11.52	11.19	27.343	14.37	24	Pass
151	5755	18.23	18.19	132.444	21.22	30	Pass
159	5795	16.93	16.77	96.851	19.86	30	Pass

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	15.48	15.35	69.595	18.43	24	Pass
155	5775	19.02	20.25	185.724	22.69	30	Pass

26 dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	20.18
40	5200	20.38
48	5240	20.33

802.11n (HT20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	20.49	20.21
40	5200	20.62	20.22
48	5240	20.62	20.20

802.11n (HT40)

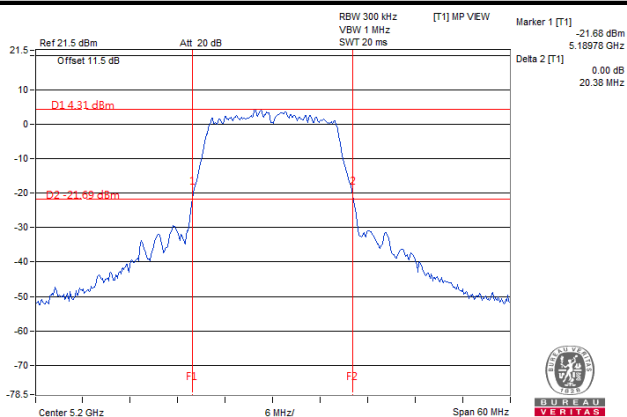
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	42.25	41.78
46	5230	42.23	41.86

802.11ac (VHT80)

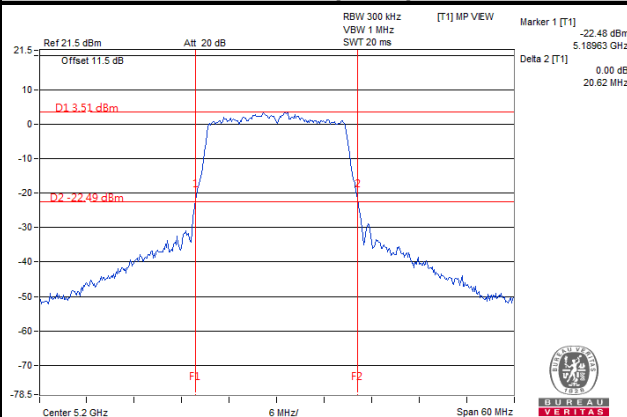
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	102.15	87.58

Spectrum Plot of Worst Value

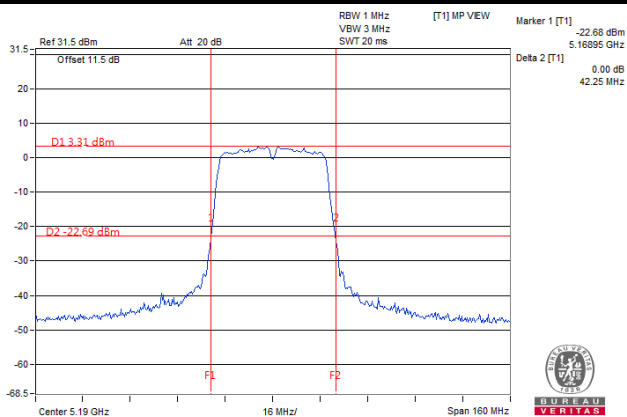
802.11a



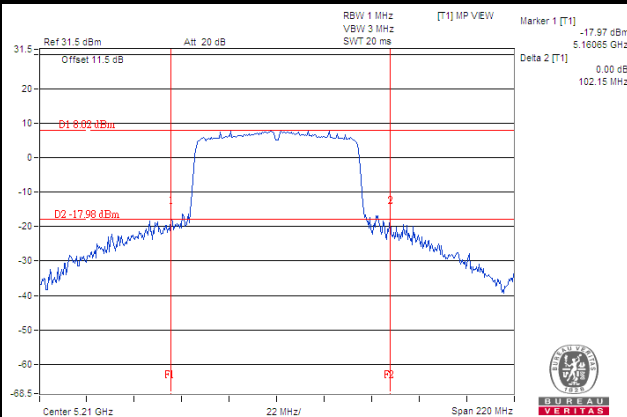
802.11n (HT20)



802.11n (HT40)

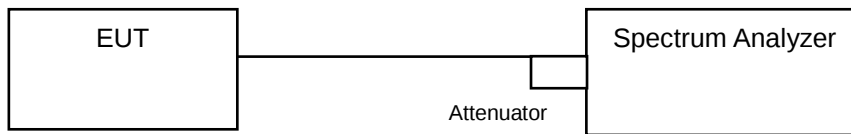


802.11ac (VHT80)



4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Results

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	16.80
40	5200	17.04
48	5240	16.92
149	5745	17.16
157	5785	17.34
165	5825	17.70

802.11n (HT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.64	17.64
40	5200	17.76	17.64
48	5240	17.64	17.64
149	5745	18.54	19.44
157	5785	18.24	24.54
165	5825	19.44	28.26

802.11n (HT40)

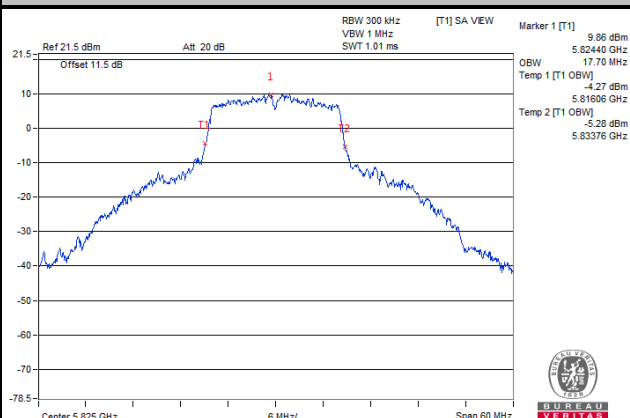
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.36	36.24
46	5230	36.36	36.24
151	5755	36.72	38.94
159	5795	36.36	36.66

802.11ac (VHT80)

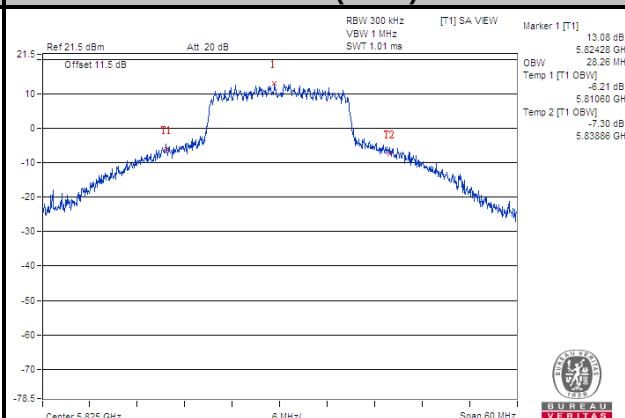
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	75.12	75.12
155	5775	76.08	81.84

Spectrum Plot of Worst Value

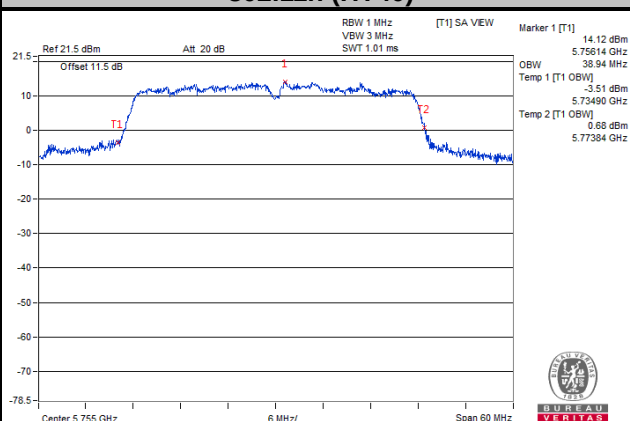
802.11a



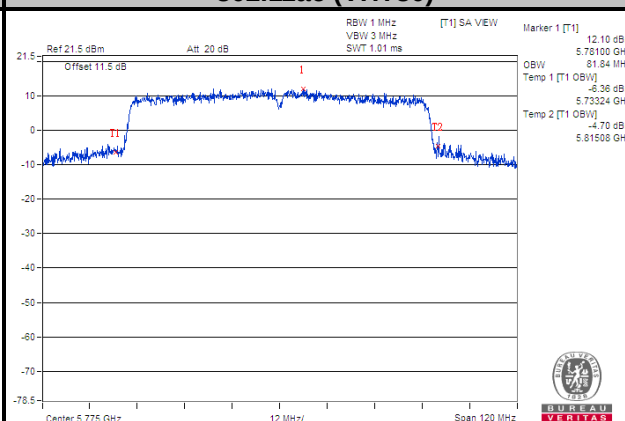
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

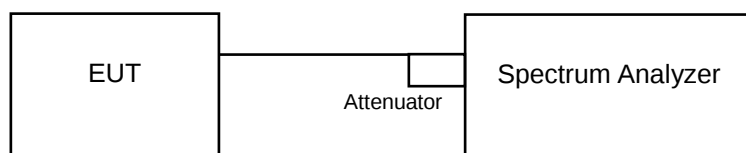


4.5 Peak Power Spectral Density Measurement

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-1

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

※ For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW $\geq$ 1 RBW, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz} / 300 \text{ kHz})$.
5. Sweep time = auto, trigger set to "free run".
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value

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 Band

802.11a

Channel	Frequency (MHz)	PSD (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	1.87	11	Pass
40	5200	1.34	11	Pass
48	5240	1.28	11	Pass

802.11n (HT20)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1			
36	5180	0.92	0.53	3.74	11	Pass
40	5200	1.01	1.03	4.03	11	Pass
48	5240	0.47	0.08	3.29	11	Pass

Note:

- Method E) 2) a) 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 = 2 dBi + $10\log(2)$ = 5.01 dBi < 6 dBi, so the limit no need to be reduced.

802.11n (HT40)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1			
38	5190	-5.08	-5.21	-2.13	11	Pass
46	5230	-5.06	-5.17	-2.10	11	Pass

Note:

- Method E) 2) a) 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 = 2 dBi + $10\log(2)$ = 5.01 dBi < 6 dBi, so the limit no need to be reduced.

802.11ac (VHT80):

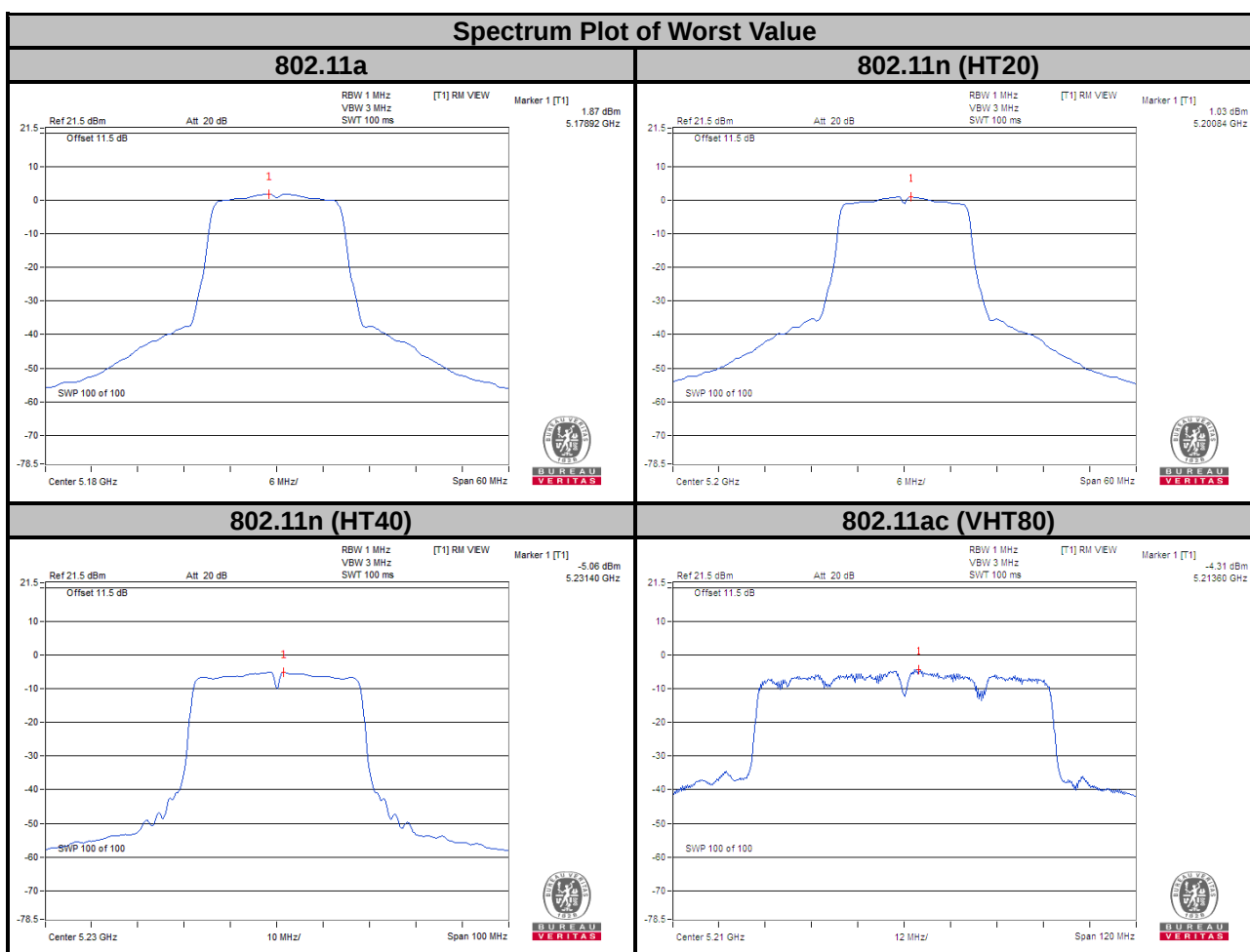
Channel	Frequency (MHz)	PSD (dBm/MHz)		Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1			
42	5210	-4.31	-4.95	-1.61	11	Pass

Note:

- Method E) 2) a) 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. For U-NII-1 Band:

Directional gain = 2 dBi + 10log(2) = 5.01 dBi < 6 dBi, so the limit no need to be reduced.



For U-NII-3 Band

802.11a

Channel	Freq. (MHz)	PSD (dBm/300 kHz)	PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
149	5745	1.81	4.03	30	Pass
157	5785	2.36	4.58	30	Pass
165	5825	2.95	5.17	30	Pass

802.11n (HT20)

TX Chain	Channel	Freq. (MHz)	PSD		10 log (N=2) dB	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300 kHz)	(dBm/500 kHz)				
0	149	5745	0.95	3.17	3.01	6.18	30	Pass
	157	5785	0.66	2.88	3.01	5.89	30	Pass
	165	5825	1.77	3.99	3.01	7.00	30	Pass
1	149	5745	1.95	4.17	3.01	7.18	30	Pass
	157	5785	2.62	4.84	3.01	7.85	30	Pass
	165	5825	2.74	4.96	3.01	7.97	30	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
- Directional gain = 2 dBi + 10log(2) = 5.01 dBi < 6 dBi, so the limit no need to be reduced.

802.11n (HT40)

TX Chain	Channel	Freq. (MHz)	PSD		10 log (N=2) dB	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300 kHz)	(dBm/500 kHz)				
0	151	5755	-0.93	1.29	3.01	4.30	30	Pass
	159	5795	-3.89	-1.67	3.01	1.34	30	Pass
1	151	5755	-0.86	1.36	3.01	4.37	30	Pass
	159	5795	-3.82	-1.60	3.01	1.41	30	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
- Directional gain = 2 dBi + 10log(2) = 5.01 dBi < 6 dBi, so the limit no need to be reduced.

802.11ac (VHT80)

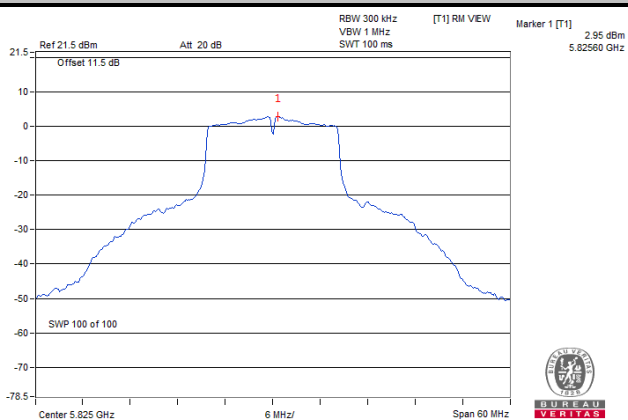
TX Chain	Channel	Freq. (MHz)	PSD		10 log (N=2) dB	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300 kHz)	(dBm/500 kHz)				
0	155	5775	-4.54	-2.32	3.01	0.69	30	Pass
1	155	5775	-5.92	-3.70	3.01	-0.69	30	Pass

Note:

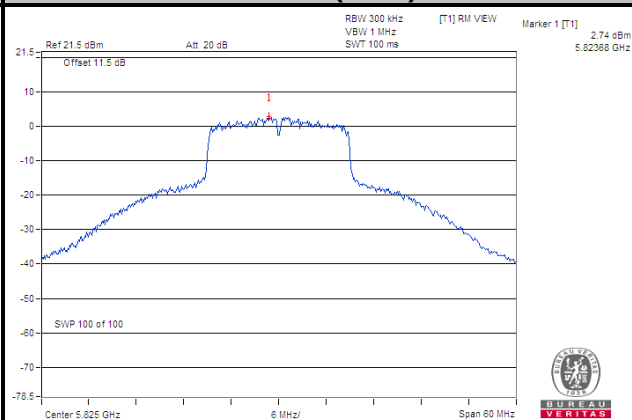
- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
- Directional gain = 2 dBi + 10log(2) = 5.01 dBi < 6 dBi, so the limit no need to be reduced.

Spectrum Plot of Worst Value

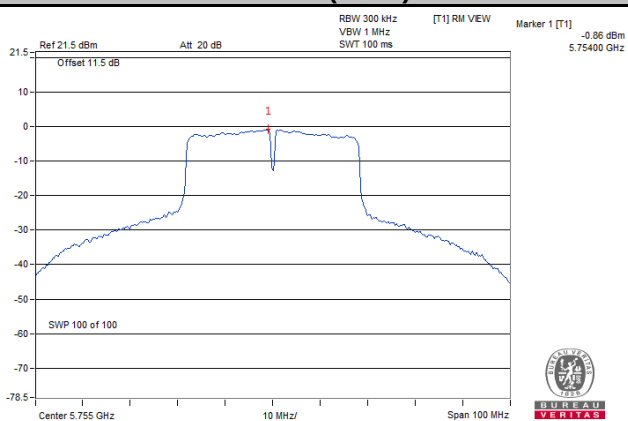
802.11a



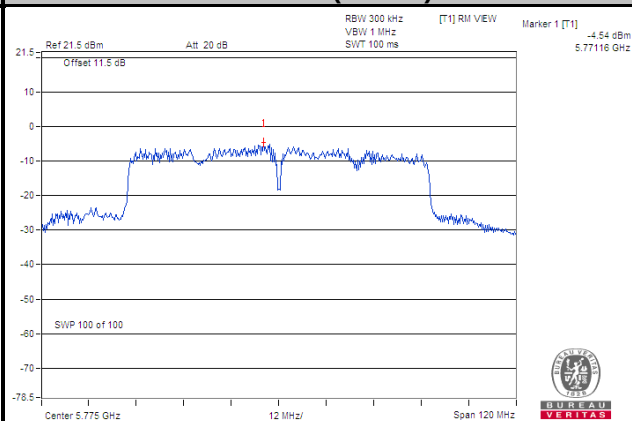
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

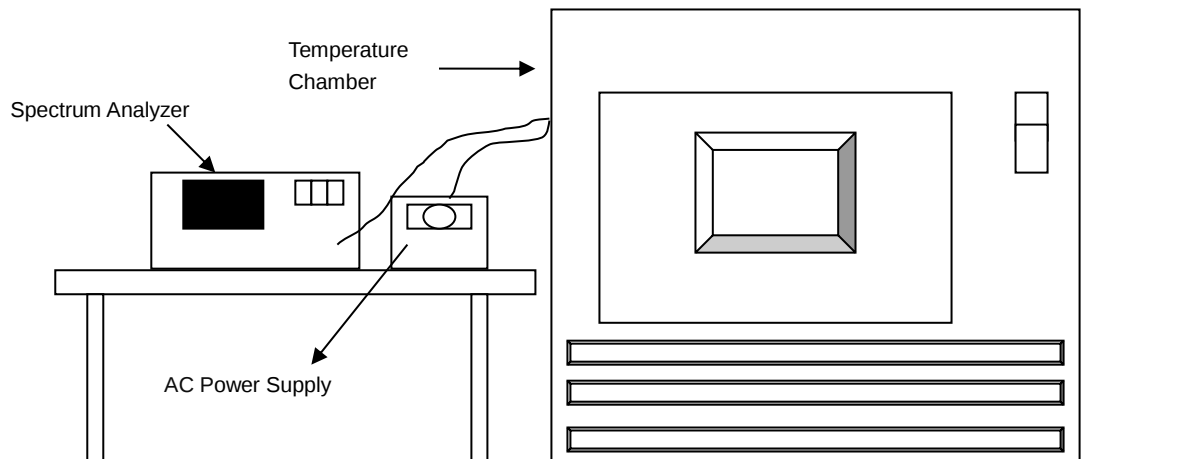


4.6 Frequency Stability

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

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.
- Repeat step c and d with every 10 degrees reduction until the lowest temperature achieved.
- The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

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 (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
45	120	5180.013	PASS	5180.0115	PASS	5180.0116	PASS	5180.0148	PASS
40	120	5179.9995	PASS	5179.9987	PASS	5180.0005	PASS	5179.999	PASS
30	120	5179.9904	PASS	5179.9899	PASS	5179.9909	PASS	5179.9931	PASS
20	120	5180.0033	PASS	5180.0043	PASS	5180.001	PASS	5180.001	PASS
10	120	5179.985	PASS	5179.9837	PASS	5179.9818	PASS	5179.9803	PASS
0	120	5179.9965	PASS	5179.9987	PASS	5179.9974	PASS	5179.9983	PASS

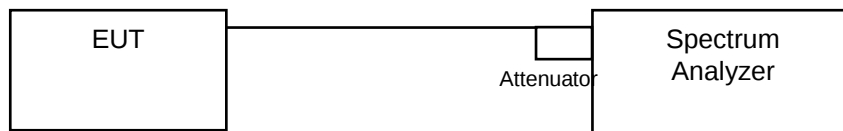
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5180.003	PASS	5180.0043	PASS	5180.0014	PASS	5180.0015	PASS
	120	5180.0033	PASS	5180.0043	PASS	5180.001	PASS	5180.001	PASS
	102	5180.0038	PASS	5180.0034	PASS	5180.0013	PASS	5180.0019	PASS

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
149	5745	16.41	0.5	Pass
157	5785	16.42	0.5	Pass
165	5825	16.44	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	16.81	17.57	0.5	Pass
157	5785	16.93	17.57	0.5	Pass
165	5825	17.29	17.58	0.5	Pass

802.11n (HT40)

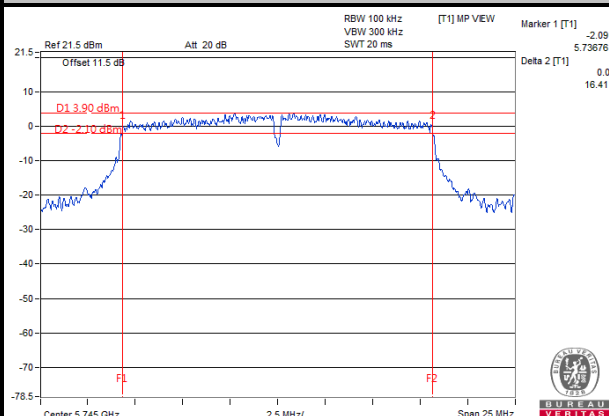
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	36.40	36.39	0.5	Pass
159	5795	36.39	36.37	0.5	Pass

802.11ac (VHT80)

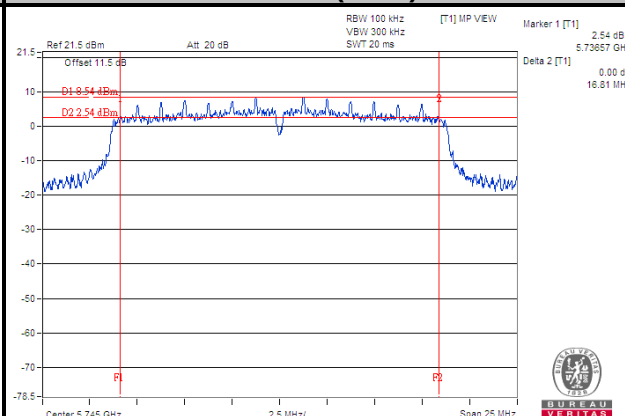
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	75.15	73.94	0.5	Pass

Spectrum Plot of Worst Value

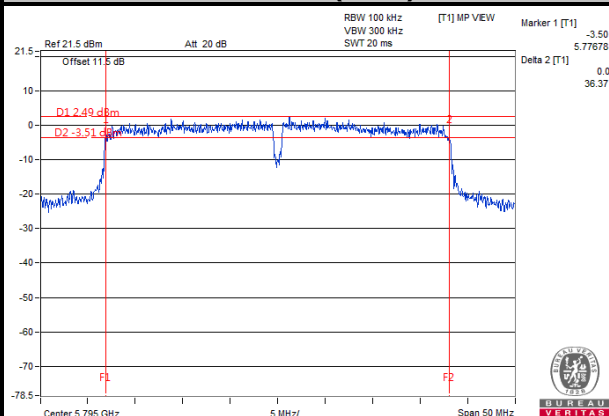
802.11a



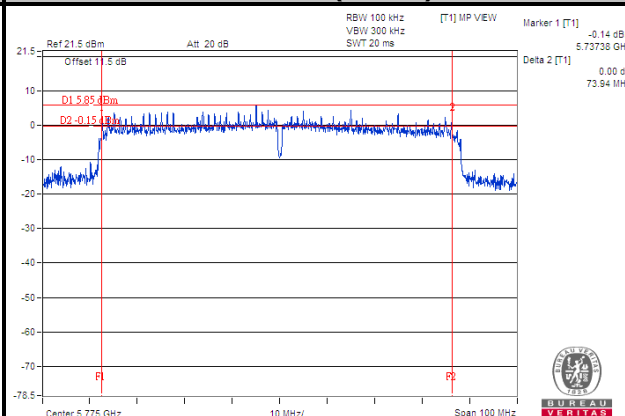
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

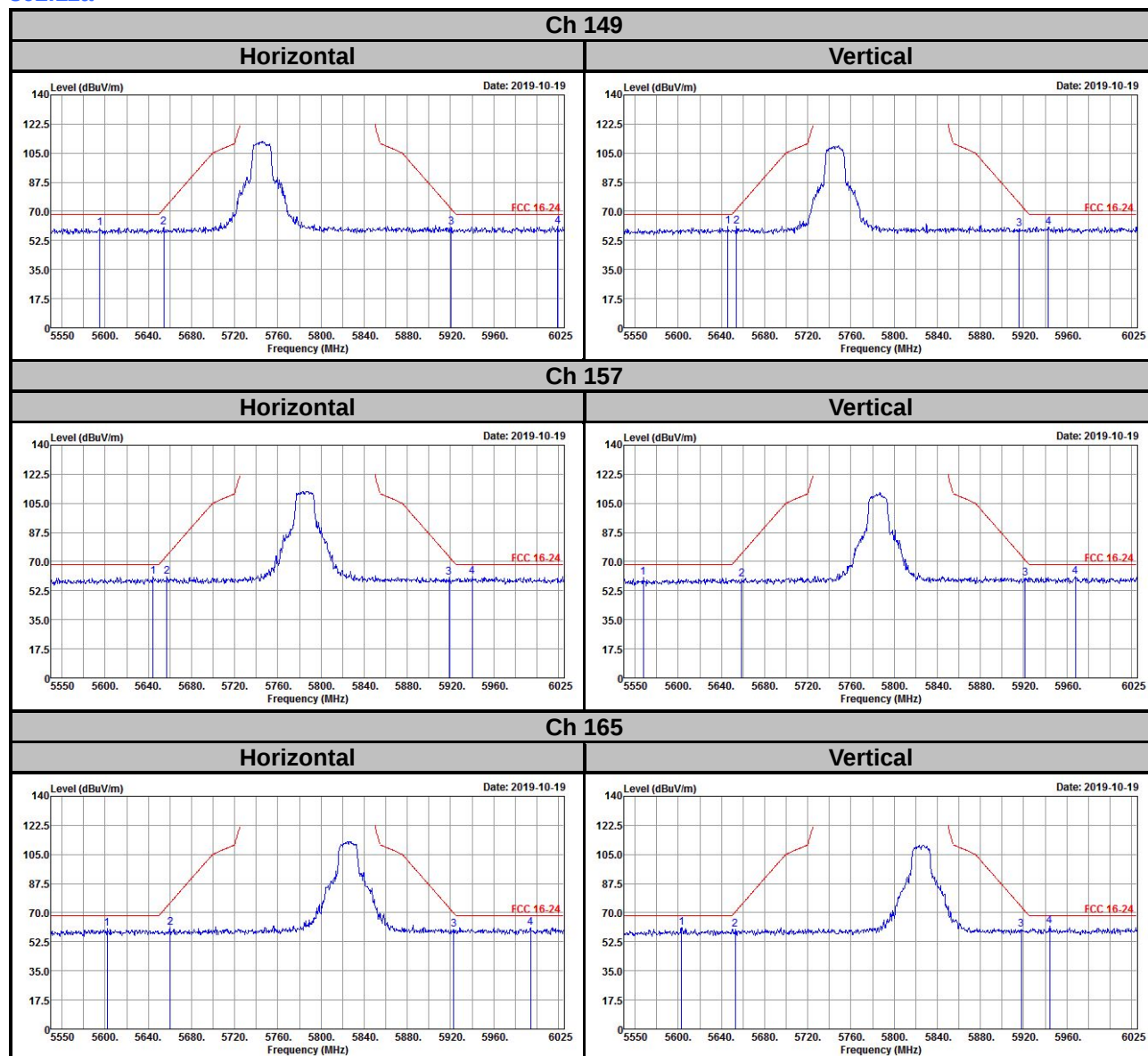


5 Pictures of Test Arrangements

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

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

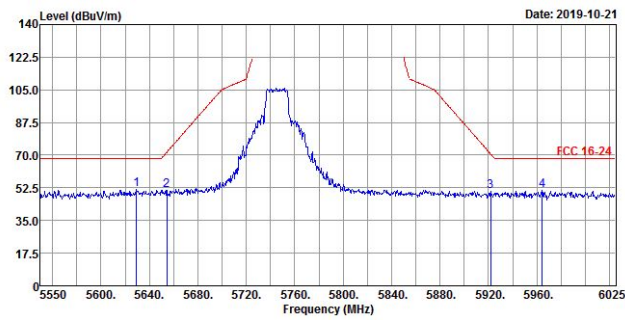
802.11a



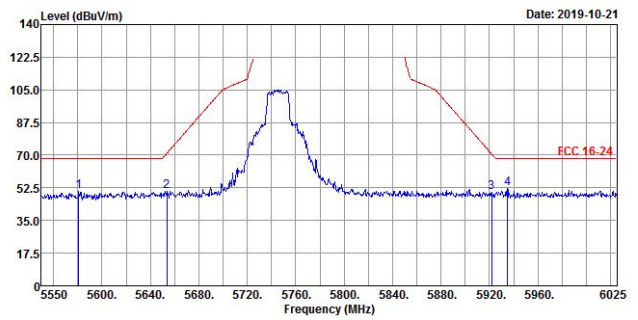
802.11n (HT20)

Ch 149

Horizontal

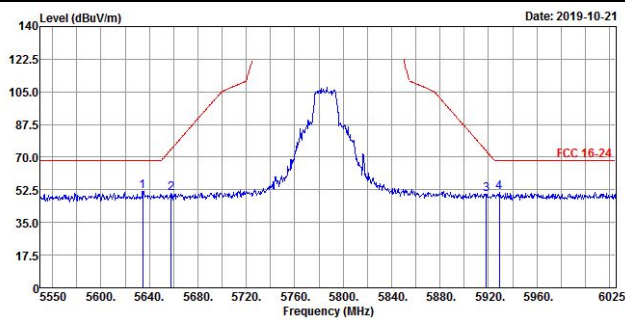


Vertical

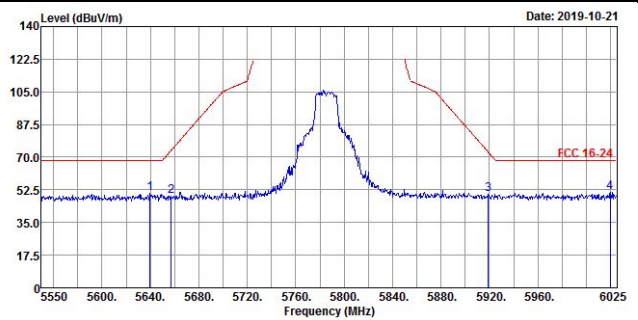


Ch 157

Horizontal

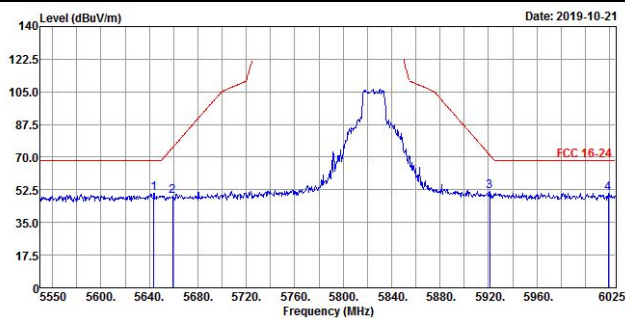


Vertical

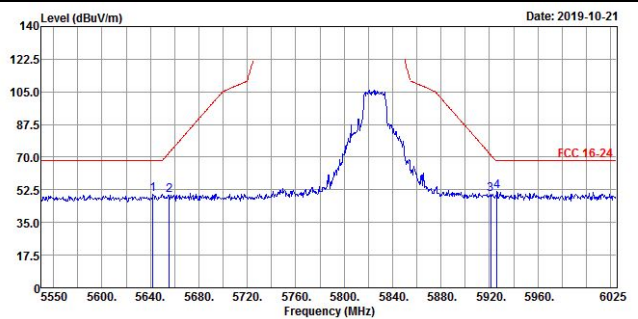


Ch 165

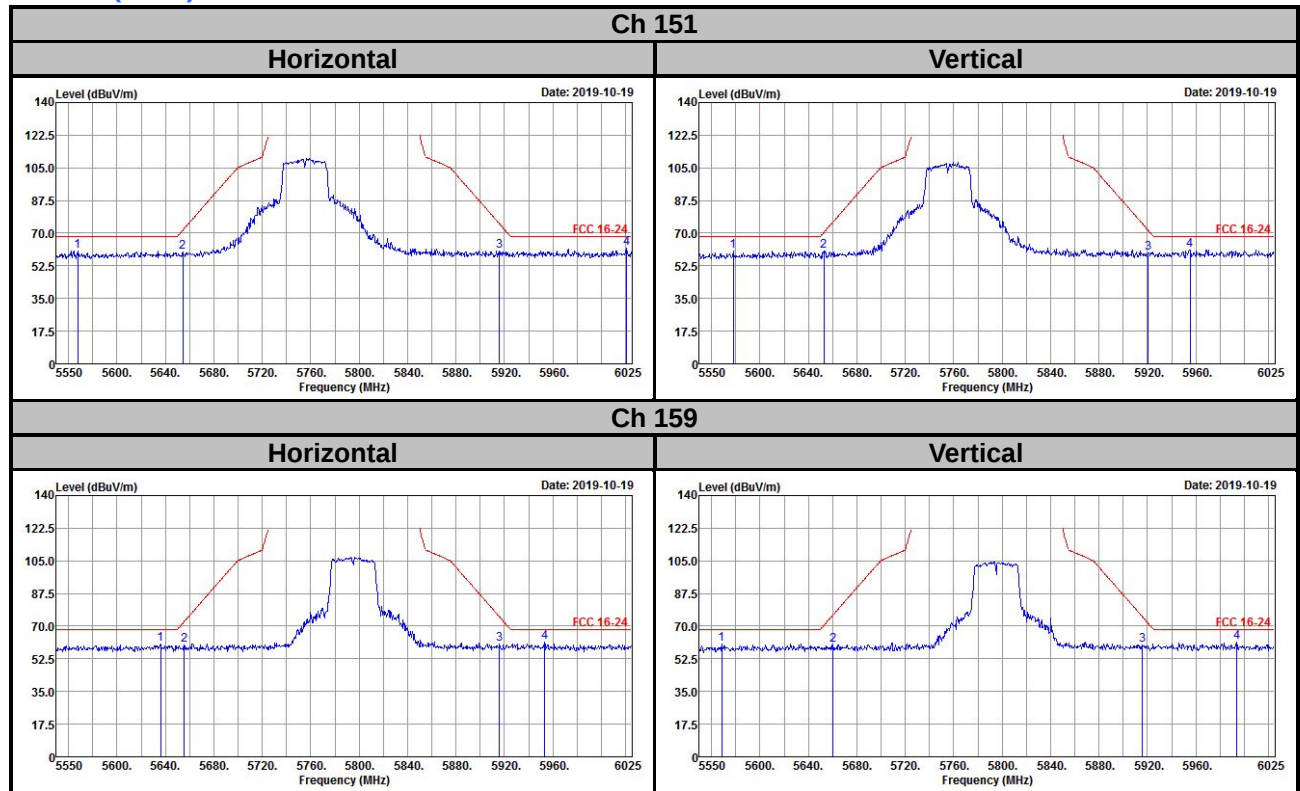
Horizontal



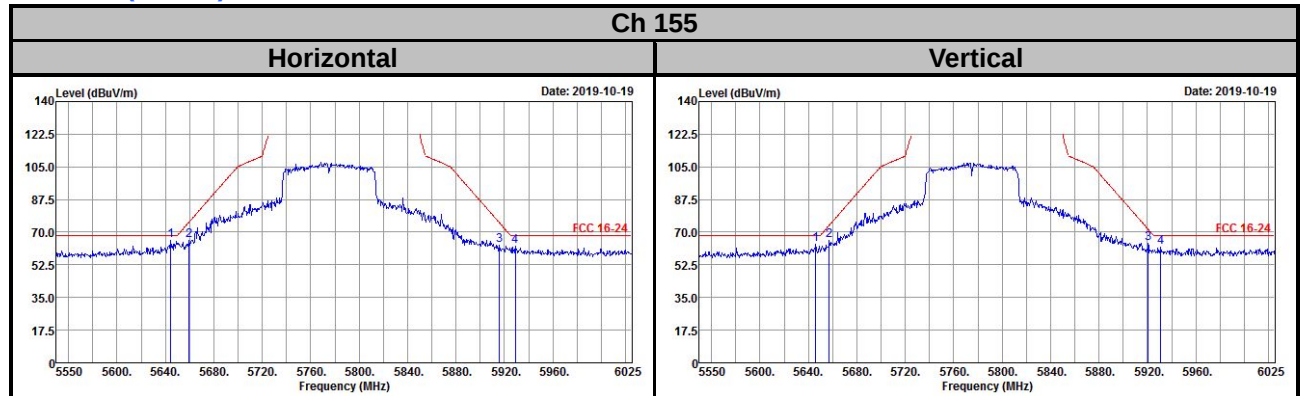
Vertical



802.11n (HT40)



802.11ac (VHT80)



Appendix – Information of the Testing Laboratories

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

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

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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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