Partial FCC Test Report

Report No.:	RFBCYK-WTW-P21010405-3
FCC ID:	TX2-RTL8822CE
Test Model:	RTL8822CE
Received Date:	Jan. 15, 2021
Test Date:	Jan. 21, 2021 ~ Feb. 09, 2021
Issued Date:	Feb. 20, 2021
Applicant:	Realtek Semiconductor Corp.
Address:	No. 2. Innovation Road II, Hsinchu Science Park, Hsinchu 300, Taiwan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Test Location:	No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RFBCYK-WTW-P21010405-3	Original Release	Feb. 20, 2021

1 Certificate of Conformity

Product:	802.11a/b/g/n/ac RTL8822CE Combo module
Brand:	Realtek
Test Model:	RTL8822CE
Sample Status:	Engineering Sample
Applicant:	Realtek Semiconductor Corp.
Test Date:	Jan. 21, 2021 ~ Feb. 09, 2021
Standards:	47 CFR FCC Part 15, Subpart E (Section 15.407) ANSI C63.10:2013

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

Prepared by : _____ , **Date:** Feb. 20, 2021

Shelly Hsueh / Specialist

Approved by : _____ , **Date:** Feb. 20, 2021

Stanley Wu / Assistant Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	**Test Item**	**Result**	**Remarks**
15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -22.05 dB at 0.40600 MHz.
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.08 dB at 5350 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6 dB Bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Meet the requirement of limit.

2.1 Measurement Uncertainty

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

Measurement	**Frequency**	**Expended Uncertainty (k=2) (±)**
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.93 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	802.11a/b/g/n/ac RTL8822CE Combo module
Brand	Realtek
Test Model	RTL8822CE
Status of EUT	Engineering Sample
Power Supply Rating	19Vdc (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 ~ 5720 MHz, 5745 ~ 5825 MHz
Number of Channel	5180 ~ 5240 MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5260 ~ 5320 MHz: 4 for 802.11a, 802.11n (HT20) , 802.11ac (VHT20) 2 for 802.11n (HT40) , 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5500 ~ 5720 MHz: 9 for 802.11a, 802.11n (HT20) , 802.11ac (VHT20) 4 for 802.11n (HT40) , 802.11ac (VHT40) 2 for 802.11ac (VHT80) 5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20) , 802.11ac (VHT20) 2 for 802.11n (HT40) , 802.11ac (VHT40) 1 for 802.11ac (VHT80)
Output Power	**SISO** 149.624 mW for 5180 ~ 5240 MHz 152.757 mW for 5260 ~ 5320 MHz 154.882 mW for 5500 ~ 5720 MHz 154.17 mW for 5745 ~ 5825 MHz **MIMO** 203.293 mW for 5180 ~ 5240 MHz 203.874 mW for 5260 ~ 5320 MHz 215.872 mW for 5500 ~ 5720 MHz 307.404 mW for 5745 ~ 5825 MHz
Antenna Type	PIFA antenna with 1.99 dBi gain (5180 ~ 5240 MHz) PIFA antenna with 1.99 dBi gain (5260 ~ 5320 MHz) PIFA antenna with 1.58 dBi gain (5500 ~ 5720 MHz) PIFA antenna with 1.79 dBi gain (5745 ~ 5825 MHz)
HW Version	R2.01
SW Version(FVIN)	V0.03
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report to BV CPS report no. RF180816E04-1. The difference compared with original report is added End-product and updated the antenna. Therefore, the EUT is re-tested in this report.
2. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

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

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

3. The End-product is not supported beamforming function.
4. The EUT is authorized for use in specific End-product. Please refer to below table for further details.

Product Name	Brand	Model
Developer Board Kit	ASUS	DKSC-101

5. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	DELTA	ADP-65DE B	I/P: 100-240 Vac, 50/60 Hz, 1.5 A O/P: 19 Vdc, 3.42 A, 65W

6. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible
7. 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), 802.11ac (VHT20):

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

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

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), 802.11ac (VHT20):

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

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

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 ~ 5580 MHz & 5660 ~ 5720 MHz

9 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	132	5660
104	5520	136	5680
108	5540	140	5700
112	5560	144	5720
116	5580		

4 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
102	5510	134	5670
110	5550	142	5710

2 channels are provided for 802.11ac (VHT80):

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

FOR 5745 ~ 5825 MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20)::

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

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

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	√	√	√	√	SISO Mode
B	√		√		MIMO Mode

Where **RE≥1G:** Radiated Emission above 1 GHz **RE<1G:** Radiated Emission below 1 GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

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

Radiated Emission Test (Above 1 GHz):

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

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B	5180-5240	802.11a	36 to 48	36	OFDM	BPSK	6.0
		802.11ac (VHT20)	36 to 48	36	OFDM	BPSK	MCS0
		802.11ac (VHT40)	38 to 46	38	OFDM	BPSK	MCS0
		802.11ac (VHT80)	42	42	OFDM	BPSK	V0
	5260-5320	802.11a	52 to 64	64	OFDM	BPSK	6.0
		802.11ac (VHT20)	52 to 64	64	OFDM	BPSK	MCS0
		802.11ac (VHT40)	54 to 62	62	OFDM	BPSK	MCS0
		802.11ac (VHT80)	58	58	OFDM	BPSK	V0
	5500 ~ 5580 & 5660 ~ 5720	802.11a	100 to 144	100, 140	OFDM	BPSK	6.0
		802.11ac (VHT20)	100 to 144	100, 140	OFDM	BPSK	MCS0
		802.11ac (VHT40)	102 to 142	102, 134	OFDM	BPSK	MCS0
		802.11ac (VHT80)	106 to 138	106	OFDM	BPSK	V0
	5745-5825	802.11a	149 to 165	149, 165	OFDM	BPSK	6.0
		802.11ac (VHT20)	149 to 165	149, 165	OFDM	BPSK	MCS0
		802.11ac (VHT40)	151 to 159	151, 159	OFDM	BPSK	MCS0
		802.11ac (VHT80)	155	155	OFDM	BPSK	V0

Radiated Emission Test (Below 1 GHz):

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

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	5180-5240	802.11a	36 to 48	36	OFDM	BPSK	MCS0

Power Line Conducted Emission Test:

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

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

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

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

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

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B	5180-5240	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
		802.11ac (VHT20)	36 to 48	36, 40, 48	OFDM	BPSK	MCS0
		802.11ac (VHT40)	38 to 46	38, 46	OFDM	BPSK	MCS0
		802.11ac (VHT80)	42	42	OFDM	BPSK	V0
	5260-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0
		802.11ac (VHT20)	52 to 64	52, 60, 64	OFDM	BPSK	MCS0
		802.11ac (VHT40)	54 to 62	54, 62	OFDM	BPSK	MCS0
		802.11ac (VHT80)	58	58	OFDM	BPSK	V0
	5500 ~ 5580 & 5660 ~ 5720	802.11a	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.0
		802.11ac (VHT20)	100 to 144	100, 116, 140, 144	OFDM	BPSK	MCS0
		802.11ac (VHT40)	102 to 142	102, 110, 134	OFDM	BPSK	MCS0
		802.11ac (VHT80)	106 to 138	106	OFDM	BPSK	V0
	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
		802.11ac (VHT20)	149 to 165	149, 157, 165	OFDM	BPSK	MCS0
		802.11ac (VHT40)	151 to 159	151, 159	OFDM	BPSK	MCS0
		802.11ac (VHT80)	155	155	OFDM	BPSK	V0

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Carles Hsiao, Karl Lee
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Carles Hsiao, Karl Lee
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Tim Chen
APCM	25 deg. C, 65 % RH	120 Vac, 60 Hz	Jisyong Wang

3.3 Duty Cycle of Test Signal

MODULATION TYPE: BPSK

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

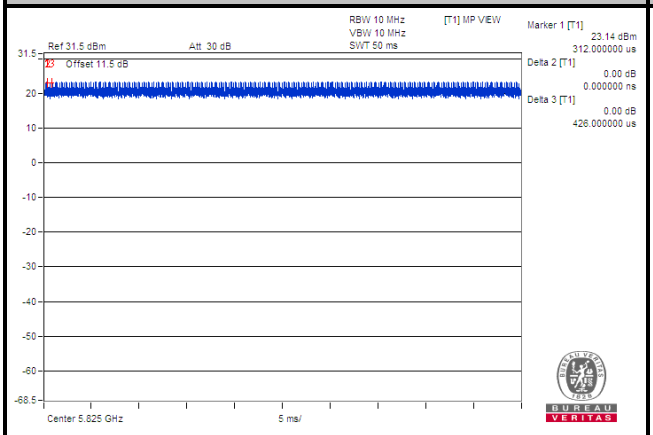
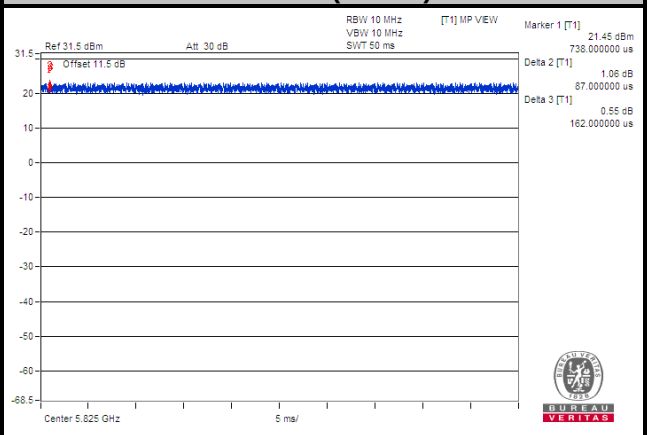
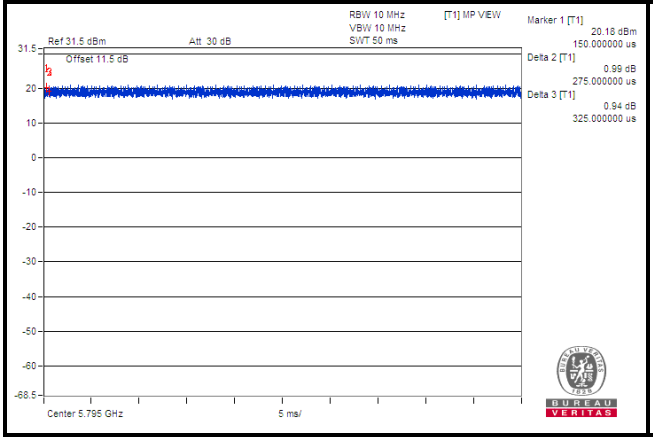
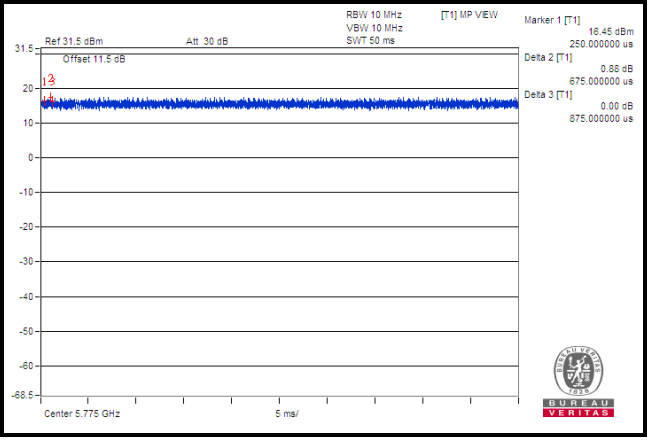
SISO

802.11a: Duty cycle = 100%

802.11ac (VHT20): Duty cycle = 100%

802.11ac (VHT40): Duty cycle = 100%

802.11ac (VHT80): Duty cycle = 100%

802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	**802.11ac (VHT80)**
	

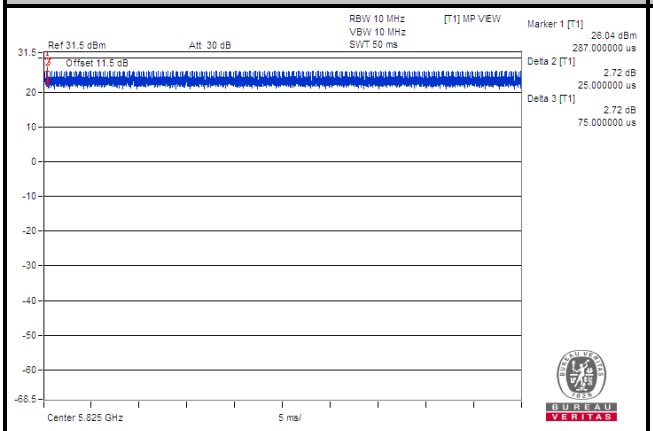
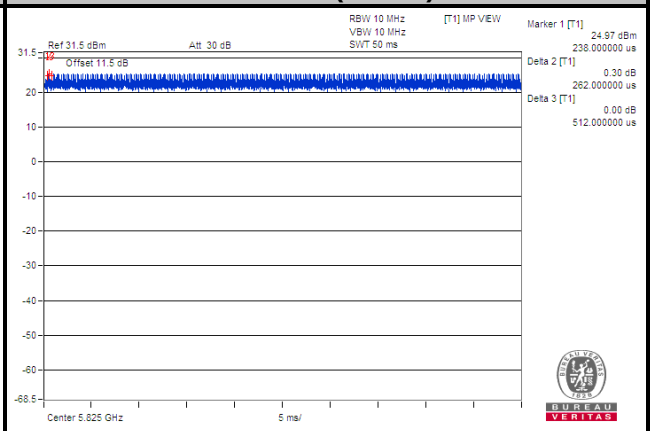
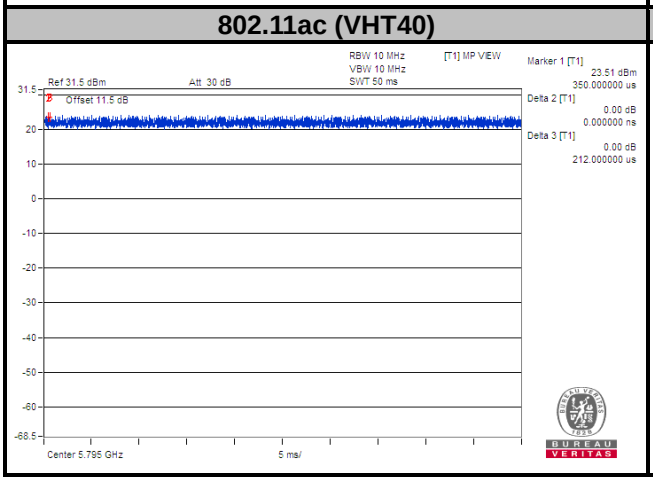
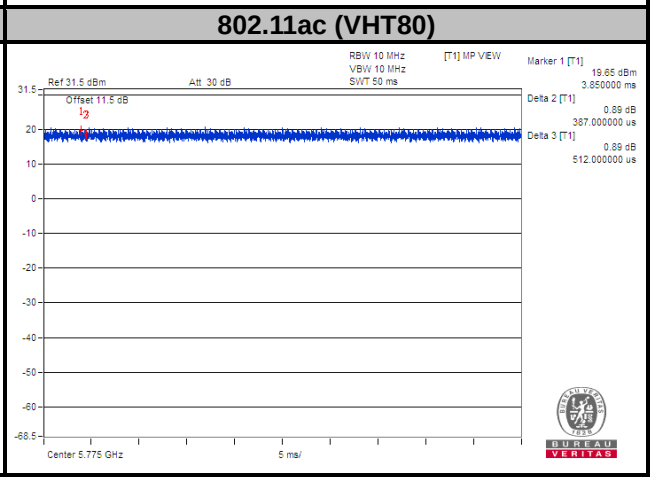
MIMO

802.11a: Duty cycle = 100%

802.11ac (VHT20): Duty cycle = 100%

802.11ac (VHT40): Duty cycle = 100%

802.11ac (VHT80): Duty cycle = 100%

802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	**802.11ac (VHT80)**
	

3.4 Description of Support Units

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

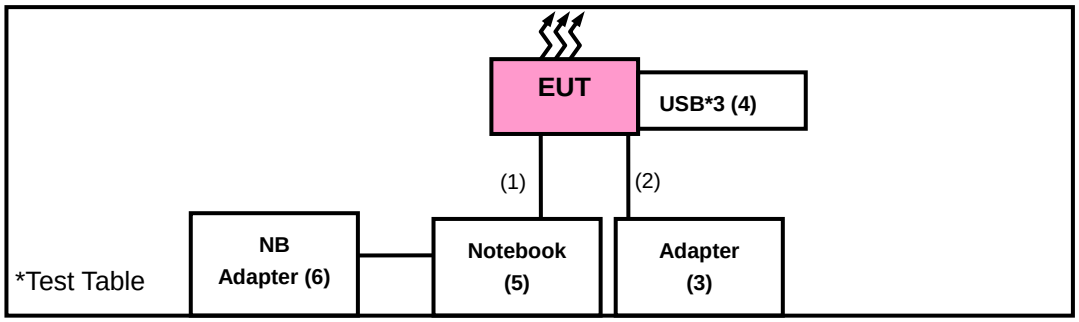
No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	LAN cable	NEX1	E142890	N/A	N/A
2.	Adapter Cable	N/A	N/A	N/A	N/A
3.	Adapter	DELTA	ADP-65DE B	N/A	N/A
4.	USB	TOSHIBA	N/A	N/A	N/A
	USB	SP	N/A	N/A	N/A
	USB	Apacer	N/A	N/A	N/A
5.	Notebook	Dell	LATITUDE	F9MQBW1	N/A
6.	NB Adapter	Dell	DA90PM111	0mk947	N/A

No.	Signal Cable Description of The Above Support Units
1.	1.5 m
2.	1.5 m

Note:

1. All power cords of the above support units are non-shielded (1.8m).

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart E (15.407)
789033 D02 General UNII Test Procedures New Rules v01r03
644545 D01 Guidance for IEEE 802 11ac v01r02
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 v01r03	Field Strength at 3 m	
	PK: 74 (dBμV/m)	AV: 54 (dBμV/m)
Applicable To	**EIRP Limit**	**Equivalent Field Strength at 3 m**
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	PK: -27 (dBm/MHz) *1 PK: -17 (dBm/MHz) *2	PK: 68.2 (dBμV/m) *1 PK: 78.2 (dBμV/m) *2

NOTE: *1 beyond 10 MHz of the band edge *2 within 10 MHz of band edge

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

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

4.1.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ (Above 1GHz)	ESR7	101471	Mar. 11, 2020	Mar. 10, 2021
Spectrum Analyzer Agilent	E4446A	MY51100039	Dec. 01, 2020	Nov. 30, 2021
PXA S Analyzer KEYSIGHT	N9030B	MY57140953	Jul. 02, 2020	Jul. 01, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-149	Nov. 04, 2020	Nov. 03, 2021
RF signal cable (with 5dB PAD) Times	LMR-400 (18M)	CABLE-CH2-01	Mar. 23, 2020	Mar. 22, 2021
HORN Antenna (with 4dB PAD) SCHWARZBECK	BBHA 9120 D	9120D-405	Nov. 22, 2020	Nov. 21, 2021
Loop Antenna EMCI	EM-6879	269	Sep. 17, 2020	Sep. 16, 2021
Pre-Amplifier Agilent (Above 1GHz)	8449B	3008A01961	Sep. 04, 2020	Sep. 03, 2021
Software BV ADT	BV ADT_Radiated_ V8.7.08	NA	NA	NA
Antenna Tower BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Controller BV ADT	SC100	SC93021702	NA	NA
BandPass Filter (2.4G) MICRO-TRONICS	BRM17690-01	003	Sep. 04, 2020	Sep. 03, 2021
BandPass Filter (5G) MICRO-TRONICS	BRM50716-01	G011	Sep. 04, 2020	Sep. 03, 2021
RF Coaxial Cable EMCI	EMC102-KM-KM-1 000	170819	Sep. 04, 2020	Sep. 03, 2021
RF Coaxial Cable Rosnol	K1K50-UP0279-K1 K50-3000	181129-1	Sep. 04, 2020	Sep. 03, 2021
RF Coaxial Cable JUNFLON+EMC	JUNFLON+EMC10 4-SM-SM-6000	Cable-CH2-02(MW X3221308G003+13 0710)	Jan. 16, 2021	Jan. 15, 2022
Fix tool for Boresight antenna	BAF-01	2	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Sep. 04, 2020	Sep. 03, 2021
HORN Antenna (with 3dB PAD) SCHWARZBECK	BBHA 9170	148	Nov. 22, 2020	Nov. 21, 2021

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 2 (966 Chamber 1).
3. The VCCI Site Registration No. is G-10018.

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:

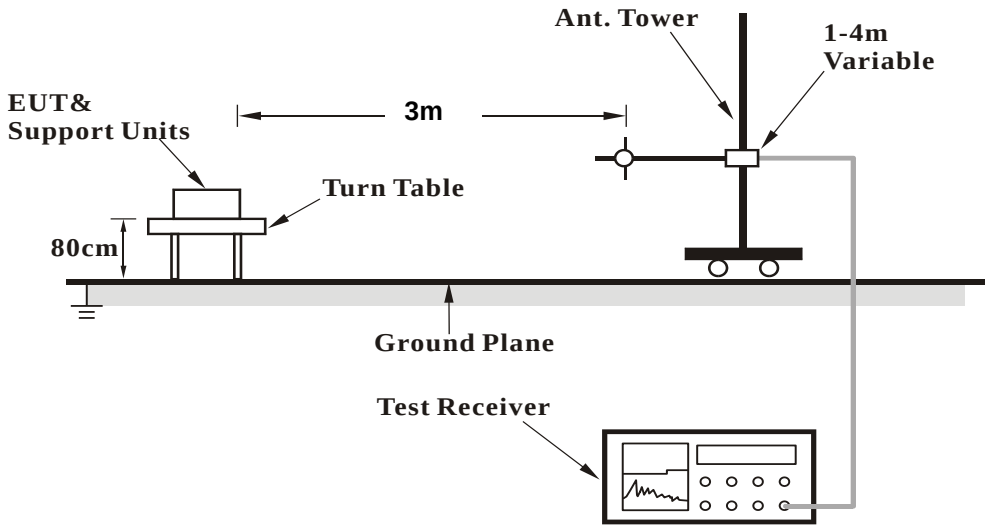
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98 %) or 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz. (11a: RBW = 1 MHz, VBW = 10Hz ; 11ac (VHT20): RBW = 1 MHz, VBW = 20Hz ; 11Aac (VHT40): RBW = 1 MHz, VBW = 10 Hz ; 11ac (VHT80): RBW = 1 MHz, VBW = 10 Hz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.5 Deviation from Test Standard

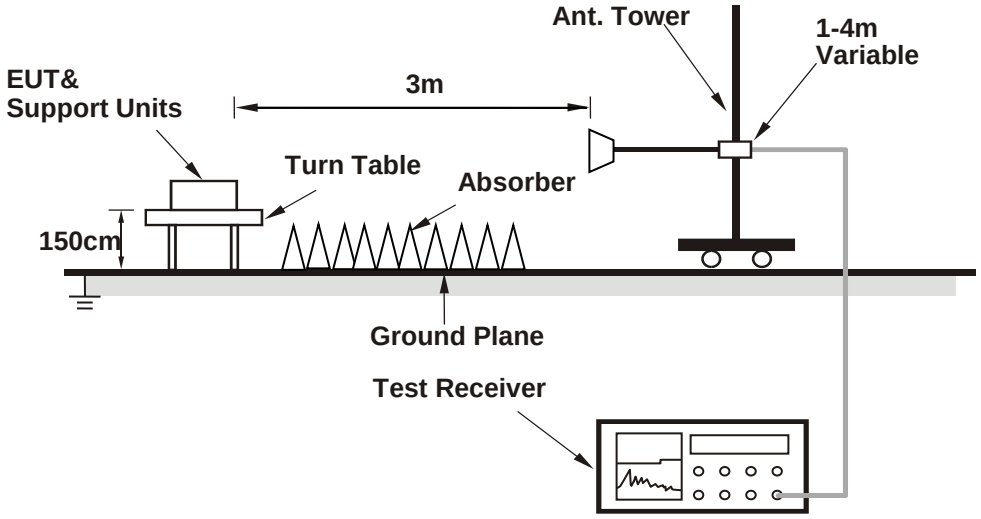
No deviation.

4.1.6 Test Set Up

<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：

SISO

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**	Carles Hsiao, Karl Lee

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	41.74	31.69	10.05	54	-12.26	102	275	Average
5150	52.66	42.61	10.05	74	-21.34	102	275	Peak
5180	88.67	78.55	10.12			102	275	Average
5180	96.27	86.15	10.12			102	275	Peak
*10360	53.94	37.92	16.02	68.2	-14.26	105	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**
5150	60.17	50.12	10.05	74	-13.83	226	218	Peak
5150	48.17	38.12	10.05	54	-5.83	226	218	Average
5180	101.93	91.81	10.12			226	218	Average
5180	109.17	99.05	10.12			226	218	Peak
*10360	54.16	38.14	16.02	68.2	-14.04	149	167	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 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**	Carles Hsiao, Karl Lee

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**
5320	94.55	84.46	10.09			221	89	Average
5320	101.12	91.03	10.09			221	89	Peak
5350	44.27	34.04	10.23	54	-9.73	221	89	Average
5350	55.86	45.63	10.23	74	-18.14	221	89	Peak
10640	47.26	31.27	15.99	54	-6.74	141	188	Average
10640	57.64	41.65	15.99	74	-16.36	141	188	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**
5320	103.64	93.55	10.09			212	210	Average
5320	110.64	100.55	10.09			212	210	Peak
5350	**52.92**	**42.69**	**10.23**	**54**	**-1.08**	**212**	**210**	**Average**
5350	64.81	54.58	10.23	74	-9.19	212	210	Peak
10640	47.25	31.26	15.99	54	-6.75	113	324	Average
10640	56.9	40.91	15.99	74	-17.1	113	324	Peak

Remarks:

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

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

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**
5460	42.07	31.56	10.51	54	-11.93	222	83	Average
5460	52.92	42.41	10.51	74	-21.08	222	83	Peak
*5470	53.14	42.61	10.53	68.2	-15.06	222	83	Peak
5500	93.64	83.04	10.6			222	83	Average
5500	100.24	89.64	10.6			222	83	Peak
11000	47.44	31.31	16.13	54	-6.56	117	48	Average
11000	57.08	40.95	16.13	74	-16.92	117	48	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**
5460	43.93	33.42	10.51	54	-10.07	200	171	Average
5460	53.11	42.6	10.51	74	-20.89	200	171	Peak
*5470	61.63	51.1	10.53	68.2	-6.57	200	171	Peak
5500	101.24	90.64	10.6			200	171	Average
5500	108.19	97.59	10.6			200	171	Peak
11000	47.75	31.62	16.13	54	-6.25	115	246	Average
11000	57.16	41.03	16.13	74	-16.84	115	246	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5500 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: Out of Restricted Band
4. *: 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**	Carles Hsiao, Karl Lee

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**
5700	92.66	81.71	10.95			222	83	Average
5700	99.36	88.41	10.95			222	83	Peak
*5725	56.67	45.75	10.92	68.2	-11.53	222	83	Peak
11400	47.67	31.48	16.19	54	-6.33	189	5	Average
11400	56.67	40.48	16.19	74	-17.33	189	5	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**
5700	100.64	89.69	10.95			200	171	Average
5700	107.48	96.53	10.95			200	171	Peak
*5725	66.94	56.02	10.92	68.2	-1.26	200	171	Peak
11400	47.52	31.33	16.19	54	-6.48	140	184	Average
11400	56.43	40.24	16.19	74	-17.57	140	184	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5700 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: Out of Restricted Band
4. *: Out of Restricted Band

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

<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	93.66	82.78	10.88			222	83	Average
5745	100.37	89.49	10.88			222	83	Peak
11490	47.86	31.39	16.47	54	-6.14	187	77	Average
11490	57.16	40.69	16.47	74	-16.84	187	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	102.55	91.67	10.88			200	171	Average
5745	109.74	98.86	10.88			200	171	Peak
11490	47.73	31.26	16.47	54	-6.27	115	14	Average
11490	57.71	41.24	16.47	74	-16.29	115	14	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**
*5558.275	53.16	42.48	10.68	68.2	-15.04	222	83	Peak
5655.925	51.7	40.83	10.87	72.58	-20.88	222	83	Peak
5918.425	52.71	41.62	11.09	73.07	-20.36	222	83	Peak
*6017.125	53.02	41.67	11.35	68.2	-15.18	222	83	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**
*5609.725	53.54	42.77	10.77	68.2	-14.66	200	171	Peak
5652.775	53.11	42.24	10.87	70.25	-17.14	200	171	Peak
5918.425	52.68	41.59	11.09	73.07	-20.39	200	171	Peak
*5940.475	54.22	43.04	11.18	68.2	-13.98	200	171	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5745 MHz: Fundamental Frequency
3. *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 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**	Carles Hsiao, Karl Lee

<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	94.59	83.71	10.88			222	83	Average
5825	101.71	90.83	10.88			222	83	Peak
11650	48.13	31.35	16.78	54	-5.87	118	98	Average
11650	58.75	41.97	16.78	74	-15.25	118	98	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	103.66	92.78	10.88			200	171	Average
5825	110.14	99.26	10.88			200	171	Peak
11650	48.19	31.41	16.78	54	-5.81	138	26	Average
11650	58.93	42.15	16.78	74	-15.07	138	26	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**
*5607.1	52.94	42.19	10.75	68.2	-15.26	222	83	Peak
5654.35	51.62	40.75	10.87	71.42	-19.8	222	83	Peak
5918.425	51.8	40.71	11.09	73.07	-21.27	222	83	Peak
*5978.8	53.69	42.43	11.26	68.2	-14.51	222	83	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**
*5627.05	53.42	42.63	10.79	68.2	-14.78	200	171	Peak
5654.35	53.3	42.43	10.87	71.42	-18.12	200	171	Peak
5920.525	52.24	41.15	11.09	71.51	-19.27	200	171	Peak
*5983	53.09	41.83	11.26	68.2	-15.11	200	171	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5825 MHz: Fundamental Frequency
3. *: Out of Restricted Band

802.11ac (VHT20)

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**	Carles Hsiao, Karl Lee

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	42.77	32.72	10.05	54	-11.23	102	275	Average
5150	52.55	42.5	10.05	74	-21.45	102	275	Peak
5180	88.78	78.66	10.12			102	275	Average
5180	95.2	85.08	10.12			102	275	Peak
*10360	55.77	39.75	16.02	68.2	-12.43	163	3	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	52.01	41.96	10.05	54	-1.99	182	218	Average
5150	62.35	52.3	10.05	74	-11.65	182	218	Peak
5180	102.29	92.17	10.12			182	218	Average
5180	108.31	98.19	10.12			182	218	Peak
*10360	55.47	39.45	16.02	68.2	-12.73	114	174	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 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**	Carles Hsiao, Karl Lee

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**
5320	94.17	84.08	10.09			221	89	Average
5320	101.58	91.49	10.09			221	89	Peak
5350	44.52	34.29	10.23	54	-9.48	221	89	Average
5350	55.47	45.24	10.23	74	-18.53	221	89	Peak
10640	47.26	31.27	15.99	54	-6.74	134	311	Average
10640	55.88	39.89	15.99	74	-18.12	134	311	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**
5320	103.33	93.24	10.09			212	210	Average
5320	110.71	100.62	10.09			212	210	Peak
5350	52.84	42.61	10.23	54	-1.16	212	210	Average
5350	65.05	54.82	10.23	74	-8.95	212	210	Peak
10640	47.25	31.26	15.99	54	-6.75	155	198	Average
10640	55.03	39.04	15.99	74	-18.97	155	198	Peak

Remarks:

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

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

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**
5460	42.09	31.58	10.51	54	-11.91	222	83	Average
5460	52.5	41.99	10.51	74	-21.5	222	83	Peak
*5470	53.75	43.22	10.53	68.2	-14.45	222	83	Peak
5500	92.55	81.95	10.6			222	83	Average
5500	99.52	88.92	10.6			222	83	Peak
11000	47.42	31.29	16.13	54	-6.58	159	55	Average
11000	56.72	40.59	16.13	74	-17.28	159	55	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**
5460	44.28	33.77	10.51	54	-9.72	200	171	Average
5460	53.86	43.35	10.51	74	-20.14	200	171	Peak
*5470	66.39	55.86	10.53	68.2	-1.81	200	171	Peak
5500	100.84	90.24	10.6			200	171	Average
5500	107.5	96.9	10.6			200	171	Peak
11000	47.47	31.34	16.13	54	-6.53	123	255	Average
11000	57.13	41	16.13	74	-16.87	123	255	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5500 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: Out of Restricted Band
4. *: 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**	Carles Hsiao, Karl Lee

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**
5700	92.66	81.71	10.95			222	83	Average
5700	99.36	88.41	10.95			222	83	Peak
*5725	56.67	45.75	10.92	68.2	-11.53	222	83	Peak
11400	47.67	31.48	16.19	54	-6.33	189	5	Average
11400	56.67	40.48	16.19	74	-17.33	189	5	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**
5700	100.64	89.69	10.95			200	171	Average
5700	107.48	96.53	10.95			200	171	Peak
*5725	66.94	56.02	10.92	68.2	-1.26	200	171	Peak
11400	47.52	31.33	16.19	54	-6.48	140	184	Average
11400	56.43	40.24	16.19	74	-17.57	140	184	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5700 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: Out of Restricted Band
4. *: Out of Restricted Band

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

<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	93.28	82.4	10.88			222	83	Average
5745	100.57	89.69	10.88			222	83	Peak
11490	47.92	31.45	16.47	54	-6.08	140	17	Average
11490	57.26	40.79	16.47	74	-16.74	140	17	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	102.31	91.43	10.88			200	171	Average
5745	109.52	98.64	10.88			200	171	Peak
11490	48.08	31.61	16.47	54	-5.92	189	333	Average
11490	56.43	39.96	16.47	74	-17.57	189	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**
*5625.475	53.39	42.6	10.79	68.2	-14.81	222	83	Peak
5654.875	51.16	40.29	10.87	71.81	-20.65	222	83	Peak
5920.525	51.52	40.43	11.09	71.51	-19.99	222	83	Peak
*6004	53.18	41.85	11.33	68.2	-15.02	222	83	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**
*5641.75	53.11	42.28	10.83	68.2	-15.09	200	171	Peak
5654.875	54.12	43.25	10.87	71.81	-17.69	200	171	Peak
5917.9	52.29	41.2	11.09	73.45	-21.16	200	171	Peak
*6007.675	53.49	42.14	11.35	68.2	-14.71	200	171	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5745 MHz: Fundamental Frequency
3. *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 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**	Carles Hsiao, Karl Lee

<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	94.84	83.96	10.88			222	83	Average
5825	101.48	90.6	10.88			222	83	Peak
11650	48.11	31.33	16.78	54	-5.89	181	60	Average
11650	56.6	39.82	16.78	74	-17.4	181	60	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	103.55	92.67	10.88			200	171	Average
5825	110.09	99.21	10.88			200	171	Peak
11650	48.13	31.35	16.78	54	-5.87	117	241	Average
11650	56.41	39.63	16.78	74	-17.59	117	241	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**
*5644.375	53.13	42.3	10.83	68.2	-15.07	222	83	Peak
5656.45	51.93	41.06	10.87	72.97	-21.04	222	83	Peak
5919.475	52.49	41.4	11.09	72.29	-19.8	222	83	Peak
*5970.4	53.04	41.79	11.25	68.2	-15.16	222	83	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**
*5592.4	53.81	43.06	10.75	68.2	-14.39	200	171	Peak
5656.975	52.27	41.4	10.87	73.36	-21.09	200	171	Peak
5918.425	52.24	41.15	11.09	73.07	-20.83	200	171	Peak
*6000.85	53.5	42.17	11.33	68.2	-14.7	200	171	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5825 MHz: Fundamental Frequency
3. *: Out of Restricted Band

802.11ac (VHT40)

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**	Carles Hsiao, Karl Lee

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	45.96	35.91	10.05	54	-8.04	265	335	Average
5150	55.79	45.74	10.05	74	-18.21	265	335	Peak
5190	89.17	79.05	10.12			265	335	Average
5190	96.04	85.92	10.12			265	335	Peak
5350	42.61	32.38	10.23	54	-11.39	265	335	Average
5350	53	42.77	10.23	74	-21	265	335	Peak
*10380	55.59	39.49	16.1	68.2	-12.61	199	54	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	52.91	42.86	10.05	54	-1.09	188	218	Average
5150	63.13	53.08	10.05	74	-10.87	188	218	Peak
5190	97.64	87.52	10.12			188	218	Average
5190	103.23	93.11	10.12			188	218	Peak
5350	42.19	31.96	10.23	54	-11.81	188	218	Average
5350	52.01	41.78	10.23	74	-21.99	188	218	Peak
*10380	55.84	39.74	16.1	68.2	-12.36	113	241	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5190 MHz: Fundamental Frequency
3. *: Out of Restricted Band

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

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	42.44	32.39	10.05	54	-11.56	221	89	Average
5150	52.99	42.94	10.05	74	-21.01	221	89	Peak
5310	89.58	79.49	10.09			221	89	Average
5310	96.63	86.54	10.09			221	89	Peak
5350	45.49	35.26	10.23	54	-8.51	221	89	Average
5350	55.5	45.27	10.23	74	-18.5	221	89	Peak
10620	47.14	31.26	15.88	54	-6.86	118	77	Average
10620	56.98	41.1	15.88	74	-17.02	118	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**
5150	42.77	32.72	10.05	54	-11.23	212	210	Average
5150	53.28	43.23	10.05	74	-20.72	212	210	Peak
5310	98.57	88.48	10.09			212	210	Average
5310	105.03	94.94	10.09			212	210	Peak
5350	52.71	42.48	10.23	54	-1.29	212	210	Average
5350	65.16	54.93	10.23	74	-8.84	212	210	Peak
10620	47.22	31.34	15.88	54	-6.78	119	344	Average
10620	55.57	39.69	15.88	74	-18.43	119	344	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5310 MHz: Fundamental Frequency

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

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**
5460	42.79	32.28	10.51	54	-11.21	222	83	Average
5460	53.53	43.02	10.51	74	-20.47	222	83	Peak
*5470	53.77	43.24	10.53	68.2	-14.43	222	83	Peak
5510	86.11	75.51	10.6			222	83	Average
5510	93.76	83.16	10.6			222	83	Peak
*5725	51.31	40.39	10.92	68.2	-16.89	222	83	Peak
11020	47.65	31.49	16.16	54	-6.35	181	166	Average
11020	57.26	41.1	16.16	74	-16.74	181	166	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**
5460	46.33	35.82	10.51	54	-7.67	200	171	Average
5460	56.47	45.96	10.51	74	-17.53	200	171	Peak
*5470	60.3	49.77	10.53	68.2	-7.9	200	171	Peak
5510	94.19	83.59	10.6			200	171	Average
5510	101.84	91.24	10.6			200	171	Peak
*5725	53.03	42.11	10.92	68.2	-15.17	200	171	Peak
11020	47.5	31.34	16.16	54	-6.5	136	242	Average
11020	58.3	42.14	16.16	74	-15.7	136	242	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5510 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: Out of Restricted Band
4. *: 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**	Carles Hsiao, Karl Lee

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**
5460	42.65	32.14	10.51	54	-11.35	222	83	Average
5460	52.53	42.02	10.51	74	-21.47	222	83	Peak
*5470	51.78	41.25	10.53	68.2	-16.42	222	83	Peak
5670	92.48	81.58	10.9			222	83	Average
5670	99.24	88.34	10.9			222	83	Peak
*5725	55.76	44.84	10.92	68.2	-12.44	222	83	Peak
11340	47.89	31.47	16.42	54	-6.11	117	185	Average
11340	57.48	41.06	16.42	74	-16.52	117	185	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**
5460	42.59	32.08	10.51	54	-11.41	200	171	Average
5460	53.62	43.11	10.51	74	-20.38	200	171	Peak
*5470	50.82	40.29	10.53	68.2	-17.38	200	171	Peak
5670	100.57	89.67	10.9			200	171	Average
5670	107.08	96.18	10.9			200	171	Peak
*5725	67.07	56.15	10.92	68.2	-1.13	200	171	Peak
11340	47.67	31.25	16.42	54	-6.33	181	11	Average
11340	56.29	39.87	16.42	74	-17.71	181	11	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5670 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: Out of Restricted Band
4. *: Out of Restricted Band

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

<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	90.64	79.74	10.9			222	83	Average
5755	97.22	86.32	10.9			222	83	Peak
11510	47.93	31.42	16.51	54	-6.07	189	88	Average
11510	56.39	39.88	16.51	74	-17.61	189	88	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	99.85	88.95	10.9			200	171	Average
5755	106.02	95.12	10.9			200	171	Peak
11510	47.85	31.34	16.51	54	-6.15	139	225	Average
11510	56.42	39.91	16.51	74	-17.58	139	225	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**
*5602.375	53.58	42.82	10.76	68.2	-14.62	222	83	Peak
5659.6	52.39	41.52	10.87	75.3	-22.91	222	83	Peak
5917.9	53.12	42.03	11.09	73.45	-20.33	222	83	Peak
*6016.6	54.29	42.94	11.35	68.2	-13.91	222	83	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**
*5640.175	53.64	42.81	10.83	68.2	-14.56	200	171	Peak
5653.825	53.6	42.73	10.87	71.03	-17.43	200	171	Peak
5919.475	52.4	41.31	11.09	72.29	-19.89	200	171	Peak
*6016.6	53.26	41.91	11.35	68.2	-14.94	200	171	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5755 MHz: Fundamental Frequency
3. *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 159	**Frequency Range**	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Carles Hsiao, Karl Lee

<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	91.44	80.62	10.82			222	83	Average
5795	98.67	87.85	10.82			222	83	Peak
11590	47.96	31.45	16.51	54	-6.04	188	25	Average
11590	56.89	40.38	16.51	74	-17.11	188	25	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	100.51	89.69	10.82			200	171	Average
5795	107.61	96.79	10.82			200	171	Peak
11590	47.88	31.37	16.51	54	-6.12	135	226	Average
11590	56.02	39.51	16.51	74	-17.98	135	226	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**
*5550.925	54.33	43.65	10.68	68.2	-13.87	222	83	Peak
5653.825	51.24	40.37	10.87	71.03	-19.79	222	83	Peak
5923.15	52.24	41.13	11.11	69.57	-17.33	222	83	Peak
*5979.85	52.6	41.34	11.26	68.2	-15.6	222	83	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**
*5630.725	53.51	42.7	10.81	68.2	-14.69	200	171	Peak
5652.25	51.93	41.06	10.87	69.86	-17.93	200	171	Peak
5922.1	51.22	40.11	11.11	70.35	-19.13	200	171	Peak
*5955.175	53.64	42.45	11.19	68.2	-14.56	200	171	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5795 MHz: Fundamental Frequency
3. *: Out of Restricted Band

802.11ac (VHT80)

EUT Test Condition		Measurement Detail	
Channel	Channel 42	**Frequency Range**	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Carles Hsiao, Karl Lee

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	45.39	35.34	10.05	54	-8.61	265	335	Average
5150	55.85	45.8	10.05	74	-18.15	265	335	Peak
5210	86.17	76	10.17			265	335	Average
5210	91.8	81.63	10.17			265	335	Peak
5350	42.51	32.28	10.23	54	-11.49	265	335	Average
5350	52.21	41.98	10.23	74	-21.79	265	335	Peak
*10420	55.17	39.01	16.16	68.2	-13.03	165	8	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	52.77	42.72	10.05	54	-1.23	188	218	Average
5150	63.85	53.8	10.05	74	-10.15	188	218	Peak
5210	94.82	84.65	10.17			188	218	Average
5210	100.99	90.82	10.17			188	218	Peak
5350	43.03	32.8	10.23	54	-10.97	188	218	Average
5350	52.1	41.87	10.23	74	-21.9	188	218	Peak
*10420	55.12	38.96	16.16	68.2	-13.08	115	142	Peak

Remarks:

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

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

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	42.82	32.77	10.05	54	-11.18	221	89	Average
5150	52.82	42.77	10.05	74	-21.18	221	89	Peak
5290	85.44	75.34	10.1			221	89	Average
5290	92.28	82.18	10.1			221	89	Peak
5350	44.67	34.44	10.23	54	-9.33	221	89	Average
5350	56.93	46.7	10.23	74	-17.07	221	89	Peak
*10580	56.3	40.59	15.71	68.2	-11.9	155	111	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	43.17	33.12	10.05	54	-10.83	212	210	Average
5150	52.86	42.81	10.05	74	-21.14	212	210	Peak
5290	94.59	84.49	10.1			212	210	Average
5290	101.71	91.61	10.1			212	210	Peak
5350	52.8	42.57	10.23	54	-1.2	212	210	Average
5350	65.43	55.2	10.23	74	-8.57	212	210	Peak
*10580	55.37	39.66	15.71	68.2	-12.83	104	155	Peak

Remarks:

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

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

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**
5460	43.54	33.03	10.51	54	-10.46	222	83	Average
5460	53.07	42.56	10.51	74	-20.93	222	83	Peak
*5470	53.53	43	10.53	68.2	-14.67	222	83	Peak
5530	84.38	73.75	10.63			222	83	Average
5530	91.5	80.87	10.63			222	83	Peak
*5725	51.36	40.44	10.92	68.2	-16.84	222	83	Peak
11060	47.47	31.24	16.23	54	-6.53	137	7	Average
11060	57.37	41.14	16.23	74	-16.63	137	7	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**
5460	49.1	38.59	10.51	54	-4.9	200	171	Average
5460	59.53	49.02	10.51	74	-14.47	200	171	Peak
*5470	62.43	51.9	10.53	68.2	-5.77	200	171	Peak
5530	92.69	82.06	10.63			200	171	Average
5530	99.25	88.62	10.63			200	171	Peak
*5725	53.02	42.1	10.92	68.2	-15.18	200	171	Peak
11060	47.68	31.45	16.23	54	-6.32	112	247	Average
11060	56.43	40.2	16.23	74	-17.57	112	247	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5530 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: Out of Restricted Band
4. *: Out of Restricted Band

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

<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	87.43	76.56	10.87			222	83	Average
5775	94.12	83.25	10.87			222	83	Peak
11550	47.91	31.41	16.5	54	-6.09	189	8	Average
11550	56.1	39.6	16.5	74	-17.9	189	8	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	96.59	85.72	10.87			200	171	Average
5775	103.38	92.51	10.87			200	171	Peak
11550	48.01	31.51	16.5	54	-5.99	164	286	Average
11550	59.37	42.87	16.5	74	-14.63	164	286	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**
*5634.925	53.31	42.48	10.83	68.2	-14.89	222	83	Peak
5652.775	54.34	43.47	10.87	70.25	-15.91	222	83	Peak
5922.625	52.39	41.28	11.11	69.96	-17.57	222	83	Peak
*5934.175	53.36	42.23	11.13	68.2	-14.84	222	83	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**
*5645.425	59.49	48.66	10.83	68.2	-8.71	200	171	Peak
5657.5	60.01	49.14	10.87	73.75	-13.74	200	171	Peak
5920	54.99	43.9	11.09	71.9	-16.91	200	171	Peak
*5935.225	54.55	43.39	11.16	68.2	-13.65	200	171	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5775 MHz: Fundamental Frequency
3. *: Out of Restricted Band

MIMO

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**	Carles Hsiao, Karl Lee

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	43.02	32.97	10.05	54	-10.98	224	16	Average
5150	53.11	43.06	10.05	74	-20.89	224	16	Peak
5180	89.56	79.44	10.12			219	2	Average
5180	97.08	86.96	10.12			219	2	Peak
*10360	56.79	40.77	16.02	68.2	-11.41	142	169	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	43.99	33.94	10.05	54	-10.01	227	181	Average
5150	53.29	43.24	10.05	74	-20.71	227	181	Peak
5180	102.64	92.52	10.12			227	176	Average
5180	109.06	98.94	10.12			227	176	Peak
*10360	55.9	39.88	16.02	68.2	-12.3	169	197	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 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**	Carles Hsiao, Karl Lee

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**
5320	92.36	82.27	10.09			199	2	Average
5320	98.44	88.35	10.09			199	2	Peak
5350	41.86	31.63	10.23	54	-12.14	163	2	Average
5350	53.17	42.94	10.23	74	-20.83	163	2	Peak
10640	48.23	32.24	15.99	54	-5.77	122	198	Average
10640	56.16	40.17	15.99	74	-17.84	122	198	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**
5320	105.67	95.58	10.09			212	185	Average
5320	110.95	100.86	10.09			212	185	Peak
5350	48.51	38.28	10.23	54	-5.49	209	154	Average
5350	59.98	49.75	10.23	74	-14.02	209	154	Peak
10640	47.23	31.24	15.99	54	-6.77	144	178	Average
10640	56.44	40.45	15.99	74	-17.56	144	178	Peak

Remarks:

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

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

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**
5460	43.2	32.69	10.51	54	-10.8	166	56	Average
5460	52.79	42.28	10.51	74	-21.21	166	56	Peak
*5470	51.2	40.67	10.53	68.2	-17	172	84	Peak
5500	88.12	77.52	10.6			166	79	Average
5500	94.34	83.74	10.6			166	79	Peak
11000	47.25	31.12	16.13	54	-6.75	263	184	Average
11000	57.48	41.35	16.13	74	-16.52	263	184	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**
5460	43.83	33.32	10.51	54	-10.17	209	184	Average
5460	54.37	43.86	10.51	74	-19.63	209	184	Peak
*5470	54.13	43.6	10.53	68.2	-14.07	191	152	Peak
5500	102.33	91.73	10.6			198	185	Average
5500	108.63	98.03	10.6			198	185	Peak
11000	47.01	30.88	16.13	54	-6.99	138	229	Average
11000	57.11	40.98	16.13	74	-16.89	138	229	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5500 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: Out of Restricted Band
4. *: 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**	Carles Hsiao, Karl Lee

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**
5700	89.46	78.51	10.95			166	89	Average
5700	95.2	84.25	10.95			166	89	Peak
*5725	53.66	42.74	10.92	68.2	-14.54	152	89	Peak
11400	46.19	30	16.19	54	-7.81	271	156	Average
11400	56.4	40.21	16.19	74	-17.6	271	156	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**
5700	104.55	93.6	10.95			200	217	Average
5700	110.26	99.31	10.95			200	217	Peak
*5725	56.87	45.95	10.92	68.2	-11.33	224	197	Peak
11400	46.29	30.1	16.19	54	-7.71	132	180	Average
11400	56.55	40.36	16.19	74	-17.45	132	180	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5700 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: Out of Restricted Band
4. *: Out of Restricted Band

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

<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	96.55	85.67	10.88			226	54	Average
5745	103.22	92.34	10.88			226	54	Peak
11490	45.47	29	16.47	54	-8.53	163	93	Average
11490	55.64	39.17	16.47	74	-18.36	163	93	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	105.54	94.66	10.88			200	208	Average
5745	112.77	101.89	10.88			200	208	Peak
11490	46.87	30.4	16.47	54	-7.13	198	21	Average
11490	57.01	40.54	16.47	74	-16.99	198	21	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**
*5613.4	53.4	42.63	10.77	68.2	-14.8	226	54	Peak
5650.15	52.97	42.1	10.87	68.31	-15.34	226	54	Peak
5922.625	51.84	40.73	11.11	69.96	-18.12	226	54	Peak
*5968.825	53.16	41.93	11.23	68.2	-15.04	226	54	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**
*5592.4	54.45	43.7	10.75	68.2	-13.75	200	208	Peak
5658.025	54.01	43.14	10.87	74.14	-20.13	200	208	Peak
5923.675	52.3	41.19	11.11	69.18	-16.88	200	208	Peak
*5936.275	53.9	42.74	11.16	68.2	-14.3	200	208	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5745 MHz: Fundamental Frequency
3. *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 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**	Carles Hsiao, Karl Lee

<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	96.59	85.71	10.88			226	54	Average
5825	103.56	92.68	10.88			226	54	Peak
11650	45.69	28.91	16.78	54	-8.31	131	47	Average
11650	56.1	39.32	16.78	74	-17.9	131	47	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	105.51	94.63	10.88			200	208	Average
5825	112.47	101.59	10.88			200	208	Peak
11650	45.81	29.03	16.78	54	-8.19	196	325	Average
11650	56.19	39.41	16.78	74	-17.81	196	325	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**
*5549.875	53.33	42.65	10.68	68.2	-14.87	226	54	Peak
5652.775	50.86	39.99	10.87	70.25	-19.39	226	54	Peak
5917.375	50.58	39.49	11.09	73.84	-23.26	226	54	Peak
*5984.05	52.66	41.4	11.26	68.2	-15.54	226	54	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**
*5607.1	53.28	42.53	10.75	68.2	-14.92	200	208	Peak
5653.825	53.14	42.27	10.87	71.03	-17.89	200	208	Peak
5920.525	52.58	41.49	11.09	71.51	-18.93	200	208	Peak
*5937.325	54.64	43.48	11.16	68.2	-13.56	200	208	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5825 MHz: Fundamental Frequency
3. *: Out of Restricted Band

802.11ac (VHT20)

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**	Carles Hsiao, Karl Lee

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	42.95	32.9	10.05	54	-11.05	218	11	Average
5150	52.39	42.34	10.05	74	-21.61	218	11	Peak
5180	88.31	78.19	10.12			219	2	Average
5180	95.55	85.43	10.12			219	2	Peak
*10360	56.52	40.5	16.02	68.2	-11.68	142	174	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	45.63	35.58	10.05	54	-8.37	227	159	Average
5150	55.69	45.64	10.05	74	-18.31	227	159	Peak
5180	101.31	91.19	10.12			227	176	Average
5180	107.46	97.34	10.12			227	176	Peak
*10360	56.82	40.8	16.02	68.2	-11.38	166	192	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 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**	Carles Hsiao, Karl Lee

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**
5320	89.07	78.98	10.09			199	2	Average
5320	97.45	87.36	10.09			199	2	Peak
5350	42.94	32.71	10.23	54	-11.06	209	5	Average
5350	52.45	42.22	10.23	74	-21.55	209	5	Peak
10640	48.31	32.32	15.99	54	-5.69	144	168	Average
10640	56.24	40.25	15.99	74	-17.76	144	168	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**
5320	103.08	92.99	10.09			212	185	Average
5320	109.36	99.27	10.09			212	185	Peak
5350	46.34	36.11	10.23	54	-7.66	216	165	Average
5350	56.96	46.73	10.23	74	-17.04	216	165	Peak
10640	48.11	32.12	15.99	54	-5.89	155	198	Average
10640	57.49	41.5	15.99	74	-16.51	155	198	Peak

Remarks:

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

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

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**
5460	42.95	32.44	10.51	54	-11.05	143	88	Average
5460	52.62	42.11	10.51	74	-21.38	143	88	Peak
*5470	51.11	40.58	10.53	68.2	-17.09	184	79	Peak
5500	86.61	76.01	10.6			166	79	Average
5500	93.17	82.57	10.6			166	79	Peak
11000	45.82	29.69	16.13	54	-8.18	185	226	Average
11000	55.94	39.81	16.13	74	-18.06	185	226	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**
5460	43.71	33.2	10.51	54	-10.29	199	180	Average
5460	52.6	42.09	10.51	74	-21.4	199	180	Peak
*5470	53.29	42.76	10.53	68.2	-14.91	194	159	Peak
5500	100.67	90.07	10.6			198	185	Average
5500	107.05	96.45	10.6			198	185	Peak
11000	45.87	29.74	16.13	54	-8.13	162	176	Average
11000	56.04	39.91	16.13	74	-17.96	162	176	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5500 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: 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**	Carles Hsiao, Karl Lee

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**
5700	90.64	79.69	10.95			166	233	Average
5700	97.2	86.25	10.95			166	233	Peak
*5725	52.34	41.42	10.92	68.2	-15.86	166	233	Peak
11400	46.18	29.99	16.19	54	-7.82	198	133	Average
11400	56.47	40.28	16.19	74	-17.53	198	133	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**
5700	103.66	92.71	10.95			200	217	Average
5700	110.58	99.63	10.95			200	217	Peak
*5725	63.79	52.87	10.92	68.2	-4.41	210	217	Peak
11400	45.84	29.65	16.19	54	-8.16	183	106	Average
11400	55.97	39.78	16.19	74	-18.03	183	106	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5700 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: Out of Restricted Band
4. *: Out of Restricted Band

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

<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	95.59	84.71	10.88			226	54	Average
5745	102.2	91.32	10.88			226	54	Peak
11490	46.27	29.8	16.47	54	-7.73	107	56	Average
11490	56.45	39.98	16.47	74	-17.55	107	56	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	105.51	94.63	10.88			200	208	Average
5745	112.43	101.55	10.88			200	208	Peak
11490	45.85	29.38	16.47	54	-8.15	186	243	Average
11490	56.12	39.65	16.47	74	-17.88	186	243	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**
*5650.15	52.57	41.7	10.87	68.31	-15.74	226	54	Peak
5654.35	52.49	41.62	10.87	71.42	-18.93	226	54	Peak
5922.625	51.42	40.31	11.11	69.96	-18.54	226	54	Peak
*6013.45	52.91	41.56	11.35	68.2	-15.29	226	54	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**
*5641.225	53.21	42.38	10.83	68.2	-14.99	200	208	Peak
5660.65	56.51	45.64	10.87	76.08	-19.57	200	208	Peak
5919.475	52.64	41.55	11.09	72.29	-19.65	200	208	Peak
*6024.475	54.39	43.02	11.37	68.2	-13.81	200	208	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5745 MHz: Fundamental Frequency
3. *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 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**	Carles Hsiao, Karl Lee

<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	96.36	85.48	10.88			226	54	Average
5825	103.78	92.9	10.88			226	54	Peak
11650	47.58	30.8	16.78	54	-6.42	273	156	Average
11650	57.79	41.01	16.78	74	-16.21	273	156	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	105.55	94.67	10.88			200	208	Average
5825	112.93	102.05	10.88			200	208	Peak
11650	47.74	30.96	16.78	54	-6.26	182	19	Average
11650	57.87	41.09	16.78	74	-16.13	182	19	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**
*5621.275	52.82	42.03	10.79	68.2	-15.38	226	54	Peak
5653.3	48.74	37.87	10.87	70.64	-21.9	226	54	Peak
5923.15	51.54	40.43	11.11	69.57	-18.03	226	54	Peak
*5991.4	52.85	41.52	11.33	68.2	-15.35	226	54	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**
*5576.125	54.15	43.42	10.73	68.2	-14.05	200	208	Peak
5657.5	54.27	43.4	10.87	73.75	-19.48	200	208	Peak
5922.625	53.19	42.08	11.11	69.96	-16.77	200	208	Peak
*5984.05	54.47	43.21	11.26	68.2	-13.73	200	208	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5825 MHz: Fundamental Frequency
3. *: Out of Restricted Band

802.11ac (VHT40)

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**	Carles Hsiao, Karl Lee

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	43.41	33.36	10.05	54	-10.59	207	6	Average
5150	53.01	42.96	10.05	74	-20.99	207	6	Peak
5190	84.62	74.5	10.12			219	2	Average
5190	92.55	82.43	10.12			219	2	Peak
5350	42.92	32.69	10.23	54	-11.08	219	2	Average
5350	52.62	42.39	10.23	74	-21.38	219	2	Peak
*10380	55.9	39.8	16.1	68.2	-12.3	144	198	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	49.59	39.54	10.05	54	-4.41	216	188	Average
5150	58.95	48.9	10.05	74	-15.05	216	188	Peak
5190	96.19	86.07	10.12			227	176	Average
5190	104.5	94.38	10.12			227	176	Peak
5350	42.47	32.24	10.23	54	-11.53	227	176	Average
5350	53.72	43.49	10.23	74	-20.28	227	176	Peak
*10380	55.8	39.7	16.1	68.2	-12.4	157	220	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5190 MHz: Fundamental Frequency
3. *: Out of Restricted Band

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

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	41.9	31.85	10.05	54	-12.1	199	2	Average
5150	52.53	42.48	10.05	74	-21.47	199	2	Peak
5310	85.12	75.03	10.09			199	2	Average
5310	91.24	81.15	10.09			199	2	Peak
5350	41.93	31.7	10.23	54	-12.07	183	11	Average
5350	53.3	43.07	10.23	74	-20.7	183	11	Peak
10620	48	32.12	15.88	54	-6	155	198	Average
10620	55.72	39.84	15.88	74	-18.28	155	198	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	43.75	33.7	10.05	54	-10.25	212	185	Average
5150	53.24	43.19	10.05	74	-20.76	212	185	Peak
5310	98.84	88.75	10.09			212	185	Average
5310	105.23	95.14	10.09			212	185	Peak
5350	45.8	35.57	10.23	54	-8.2	204	146	Average
5350	54.26	44.03	10.23	74	-19.74	204	146	Peak
10620	48.13	32.25	15.88	54	-5.87	166	198	Average
10620	56.39	40.51	15.88	74	-17.61	166	198	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5310 MHz: Fundamental Frequency

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

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**
5460	42.95	32.44	10.51	54	-11.05	181	64	Average
5460	53.11	42.6	10.51	74	-20.89	181	64	Peak
*5470	50.62	40.09	10.53	68.2	-17.58	209	80	Peak
5510	79.81	69.21	10.6			166	79	Average
5510	86.13	75.53	10.6			166	79	Peak
*5725	51.19	40.27	10.92	68.2	-17.01	166	79	Peak
11020	46.17	30.01	16.16	54	-7.83	154	292	Average
11020	56.34	40.18	16.16	74	-17.66	154	292	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**
5460	43.73	33.22	10.51	54	-10.27	211	184	Average
5460	53.21	42.7	10.51	74	-20.79	211	184	Peak
*5470	58.48	47.95	10.53	68.2	-9.72	183	172	Peak
5510	94.19	83.59	10.6			197	185	Average
5510	101.37	90.77	10.6			197	185	Peak
*5725	52.36	41.44	10.92	68.2	-15.84	197	185	Peak
11020	45.97	29.81	16.16	54	-8.03	162	28	Average
11020	56.09	39.93	16.16	74	-17.91	162	28	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5510 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: Out of Restricted Band
4. *: 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**	Carles Hsiao, Karl Lee

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**
5460	42.3	31.79	10.51	54	-11.7	166	233	Average
5460	52.53	42.02	10.51	74	-21.47	166	233	Peak
*5470	50.57	40.04	10.53	68.2	-17.63	166	233	Peak
5670	88.57	77.67	10.9			166	233	Average
5670	95.78	84.88	10.9			166	233	Peak
*5725	51.81	40.89	10.92	68.2	-16.39	166	233	Peak
11340	45.59	29.17	16.42	54	-8.41	205	73	Average
11340	55.82	39.4	16.42	74	-18.18	205	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**
5460	42.76	32.25	10.51	54	-11.24	200	217	Average
5460	53.49	42.98	10.51	74	-20.51	200	217	Peak
*5470	51.62	41.09	10.53	68.2	-16.58	200	217	Peak
5670	102.54	91.64	10.9			200	217	Average
5670	109.2	98.3	10.9			200	217	Peak
*5725	60.11	49.19	10.92	68.2	-8.09	200	217	Peak
11340	46.11	29.69	16.42	54	-7.89	182	245	Average
11340	56.28	39.86	16.42	74	-17.72	182	245	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5670 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: Out of Restricted Band

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

<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	92.59	81.69	10.9			226	54	Average
5755	99.53	88.63	10.9			226	54	Peak
11510	46.13	29.62	16.51	54	-7.87	329	246	Average
11510	56.4	39.89	16.51	74	-17.6	329	246	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	102.22	91.32	10.9			200	208	Average
5755	109.06	98.16	10.9			200	208	Peak
11510	46.15	29.64	16.51	54	-7.85	188	183	Average
11510	56.47	39.96	16.51	74	-17.53	188	183	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**
*5642.275	53.21	42.38	10.83	68.2	-14.99	226	54	Peak
5652.25	51.37	40.5	10.87	69.86	-18.49	226	54	Peak
5918.95	51.25	40.16	11.09	72.68	-21.43	226	54	Peak
*5965.15	53.11	41.88	11.23	68.2	-15.09	226	54	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**
*5647.525	54.14	43.29	10.85	68.2	-14.06	200	208	Peak
5655.925	52.54	41.67	10.87	72.58	-20.04	200	208	Peak
5923.675	52.94	41.83	11.11	69.18	-16.24	200	208	Peak
*5990.35	53.83	42.5	11.33	68.2	-14.37	200	208	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5755 MHz: Fundamental Frequency
3. *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 159	**Frequency Range**	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Carles Hsiao, Karl Lee

<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	91.44	80.62	10.82			226	54	Average
5795	98.93	88.11	10.82			226	54	Peak
11590	46.33	29.82	16.51	54	-7.67	146	84	Average
11590	56.52	40.01	16.51	74	-17.48	146	84	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	101.24	90.42	10.82			200	208	Average
5795	108.33	97.51	10.82			200	208	Peak
11590	47.34	30.83	16.51	54	-6.66	238	176	Average
11590	57.44	40.93	16.51	74	-16.56	238	176	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**
*5598.7	52.66	41.9	10.76	68.2	-15.54	226	54	Peak
5658.025	52.55	41.68	10.87	74.14	-21.59	226	54	Peak
5922.1	51.5	40.39	11.11	70.35	-18.85	226	54	Peak
*5934.7	53.56	42.4	11.16	68.2	-14.64	226	54	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**
*5646.475	53.5	42.65	10.85	68.2	-14.7	200	208	Peak
5658.55	53.89	43.02	10.87	74.53	-20.64	200	208	Peak
5922.625	51.19	40.08	11.11	69.96	-18.77	200	208	Peak
*5950.975	53.97	42.79	11.18	68.2	-14.23	200	208	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5795 MHz: Fundamental Frequency
3. *: Out of Restricted Band

802.11ac (VHT80)

EUT Test Condition		Measurement Detail	
Channel	Channel 42	**Frequency Range**	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Carles Hsiao, Karl Lee

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	43.45	33.4	10.05	54	-10.55	213	4	Average
5150	52.69	42.64	10.05	74	-21.31	213	4	Peak
5210	80.73	70.56	10.17			219	2	Average
5210	88.78	78.61	10.17			219	2	Peak
5350	43.06	32.83	10.23	54	-10.94	219	2	Average
5350	52.25	42.02	10.23	74	-21.75	219	2	Peak
*10420	56.15	39.99	16.16	68.2	-12.05	169	198	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	49.42	39.37	10.05	54	-4.58	199	214	Average
5150	60.23	50.18	10.05	74	-13.77	199	214	Peak
5210	94.58	84.41	10.17			227	176	Average
5210	101.9	91.73	10.17			227	176	Peak
5350	43.48	33.25	10.23	54	-10.52	227	176	Average
5350	53.44	43.21	10.23	74	-20.56	227	176	Peak
*10420	56.02	39.86	16.16	68.2	-12.18	140	188	Peak

Remarks:

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

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

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	43.11	33.06	10.05	54	-10.89	199	20	Average
5150	52.53	42.48	10.05	74	-21.47	199	20	Peak
5290	81.08	70.98	10.1			199	20	Average
5290	88.8	78.7	10.1			199	20	Peak
5350	43.01	32.78	10.23	54	-10.99	196	15	Average
5350	52.86	42.63	10.23	74	-21.14	196	15	Peak
*10580	56.35	40.64	15.71	68.2	-11.85	199	168	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	43.83	33.78	10.05	54	-10.17	212	185	Average
5150	53.35	43.3	10.05	74	-20.65	212	185	Peak
5290	95.42	85.32	10.1			212	185	Average
5290	102.71	92.61	10.1			212	185	Peak
5350	46.23	36	10.23	54	-7.77	175	182	Average
5350	55.44	45.21	10.23	74	-18.56	175	182	Peak
*10580	55.78	40.07	15.71	68.2	-12.42	144	187	Peak

Remarks:

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

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

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**
5460	43.23	32.72	10.51	54	-10.77	142	94	Average
5460	52.29	41.78	10.51	74	-21.71	142	94	Peak
*5470	51.18	40.65	10.53	68.2	-17.02	176	64	Peak
5530	78.98	68.35	10.63			166	89	Average
5530	86.7	76.07	10.63			166	89	Peak
*5725	53.05	42.13	10.92	68.2	-15.15	166	89	Peak
11060	45.63	29.4	16.23	54	-8.37	121	158	Average
11060	55.82	39.59	16.23	74	-18.18	121	158	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**
5460	47.45	36.94	10.51	54	-6.55	188	217	Average
5460	55.76	45.25	10.51	74	-18.24	188	217	Peak
*5470	57.78	47.25	10.53	68.2	-10.42	208	166	Peak
5530	92.36	81.73	10.63			197	185	Average
5530	99.84	89.21	10.63			197	185	Peak
*5725	52.73	41.81	10.92	68.2	-15.47	197	185	Peak
11060	45.49	29.26	16.23	54	-8.51	165	288	Average
11060	55.77	39.54	16.23	74	-18.23	165	288	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5530 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: Out of Restricted Band
4. *: Out of Restricted Band

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

<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	86.59	75.72	10.87			226	54	Average
5775	93.43	82.56	10.87			226	54	Peak
11550	46.59	30.09	16.5	54	-7.41	234	110	Average
11550	56.77	40.27	16.5	74	-17.23	234	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**
5775	96.59	85.72	10.87			200	208	Average
5775	103.68	92.81	10.87			200	208	Peak
11550	47.1	30.6	16.5	54	-6.9	138	56	Average
11550	57.28	40.78	16.5	74	-16.72	138	56	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**
*5610.25	52.12	41.35	10.77	68.2	-16.08	226	54	Peak
5652.25	49.96	39.09	10.87	69.86	-19.9	226	54	Peak
5918.425	51.28	40.19	11.09	73.07	-21.79	226	54	Peak
*5929.975	53.07	41.96	11.11	68.2	-15.13	226	54	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**
*5601.85	53.55	42.79	10.76	68.2	-14.65	200	208	Peak
5656.45	53.33	42.46	10.87	72.97	-19.64	200	208	Peak
5915.275	53.35	42.26	11.09	75.4	-22.05	200	208	Peak
*5967.775	53.98	42.75	11.23	68.2	-14.22	200	208	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5775 MHz: Fundamental Frequency
3. *: Out of Restricted Band

9 kHz ~ 30 MHz DATA:

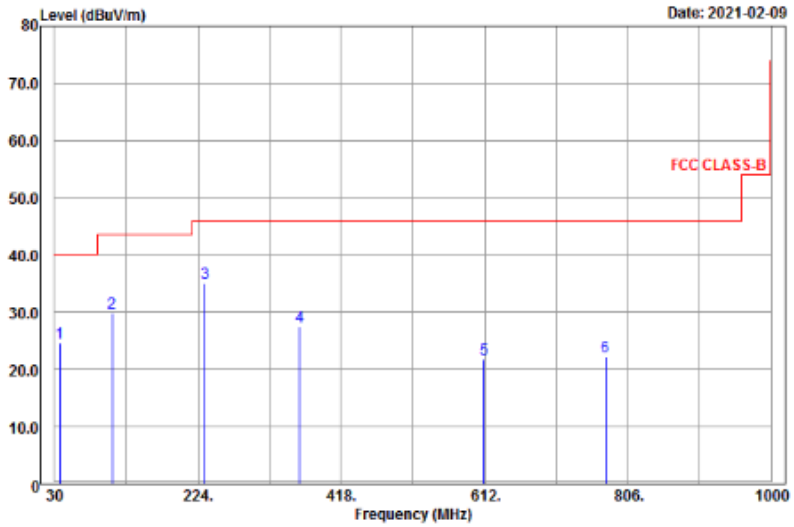
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz WORST-CASE DATA:

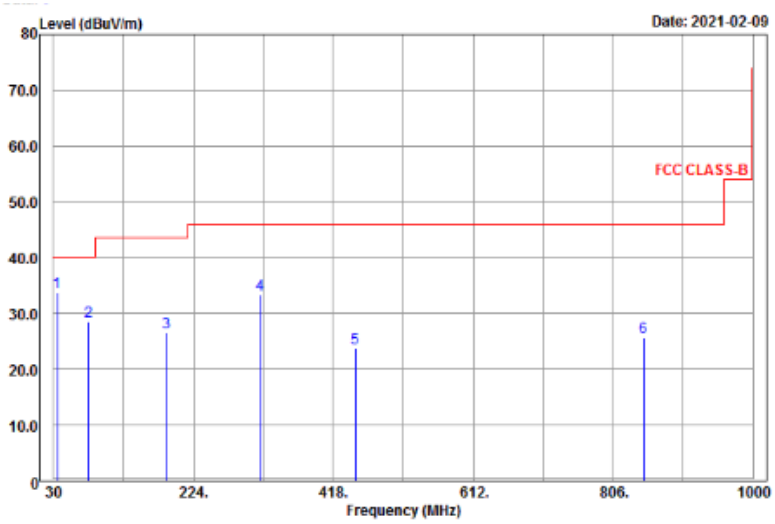
802.11a

EUT Test Condition		Measurement Detail	
Channel	Channel 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**	Carles Hsiao, Karl Lee

Horizontal



Vertical



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**
37.29	24.65	41.43	-16.78	40	-15.35	126	135	Peak
108.3	29.88	47.34	-17.46	43.5	-13.62	105	168	Peak
233.31	35.09	52.37	-17.28	46	-10.91	147	184	Peak
361.6	27.44	42	-14.56	46	-18.56	102	168	Peak
611.5	21.83	32.28	-10.45	46	-24.17	144	198	Peak
776	22.18	30.35	-8.17	46	-23.82	177	184	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**
35.14	33.69	51.33	-17.64	40	-6.31	109	168	QP
78.33	28.63	49.94	-21.31	40	-11.37	136	137	Peak
186.6	26.69	45.76	-19.07	43.5	-16.81	106	194	Peak
316.8	33.37	48.94	-15.57	46	-12.63	136	195	Peak
448.4	23.85	37.15	-13.3	46	-22.15	198	167	Peak
848.8	25.69	32.52	-6.83	46	-20.31	108	172	Peak

Remarks:

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 04, 2020	Dec. 03, 2021
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Jan. 16, 2021	Jan. 15, 2022
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 19, 2020	Mar. 18, 2021
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	101196	Aug. 28, 2020	Aug. 27, 2021
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

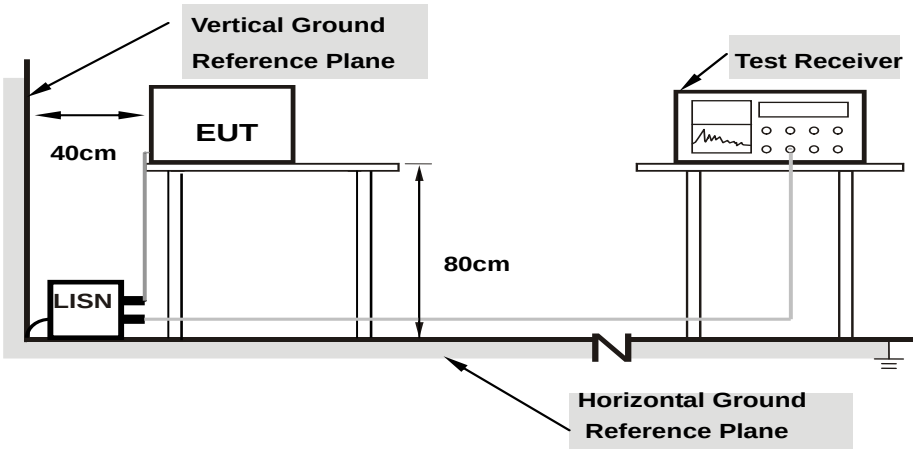
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

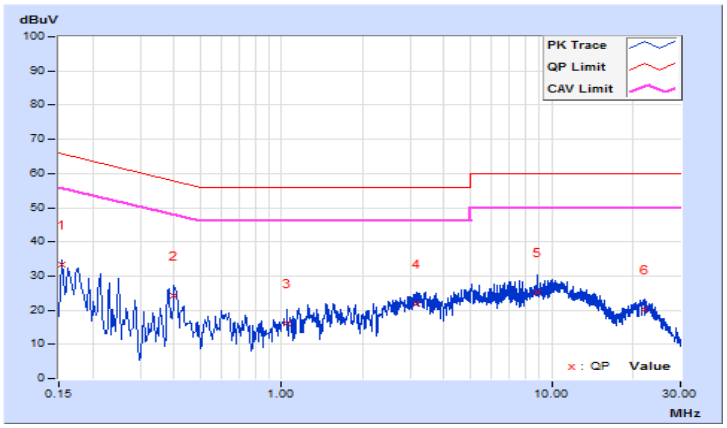
4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	0.13	33.10	22.90	33.23	23.03	65.78	55.78	-32.55	-32.75
2	0.39800	0.24	24.15	14.15	24.39	14.39	57.90	47.90	-33.51	-33.51
3	1.04600	0.31	15.98	11.35	16.29	11.66	56.00	46.00	-39.71	-34.34
4	3.14600	0.40	21.59	12.13	21.99	12.53	56.00	46.00	-34.01	-33.47
5	8.81000	0.49	24.73	17.20	25.22	17.69	60.00	50.00	-34.78	-32.31
6	22.08200	0.64	19.44	12.15	20.08	12.79	60.00	50.00	-39.92	-37.21

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.

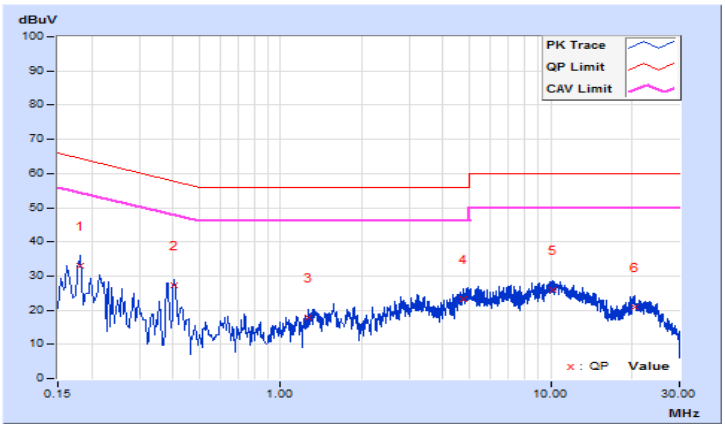


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18200	0.13	32.83	18.24	32.96	18.37	64.39	54.39	-31.43	-36.02
2	**0.40600**	**0.23**	**26.92**	**25.45**	**27.15**	**25.68**	**57.73**	**47.73**	**-30.58**	**-22.05**
3	1.26200	0.32	17.47	11.81	17.79	12.13	56.00	46.00	-38.21	-33.87
4	4.75800	0.47	22.72	15.14	23.19	15.61	56.00	46.00	-32.81	-30.39
5	10.16200	0.62	25.42	19.04	26.04	19.66	60.00	50.00	-33.96	-30.34
6	20.41000	0.91	19.97	12.86	20.88	13.77	60.00	50.00	-39.12	-36.23

REMARKS:

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



4.3 Transmit Power Measurment

4.3.1 Limits of Transmit Power Measurement

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

*B is the 26 dB emission bandwidth in megahertz

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

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

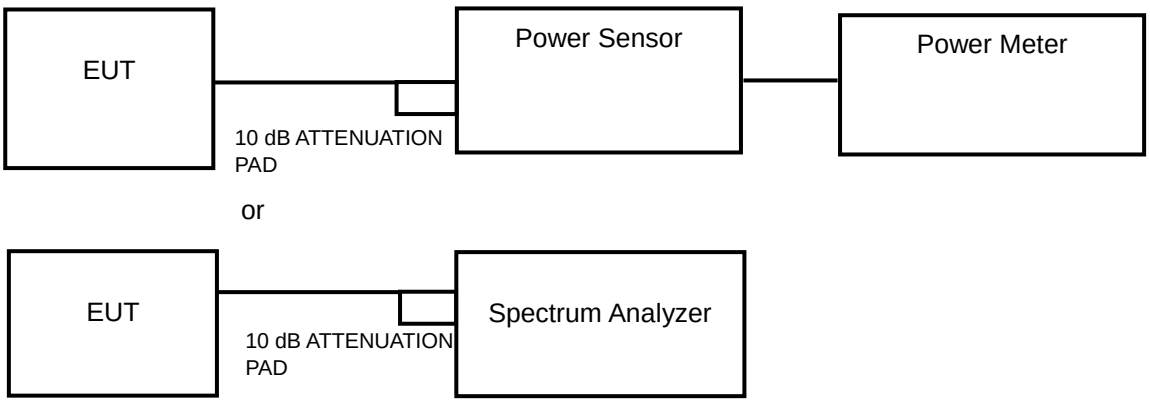
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};

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

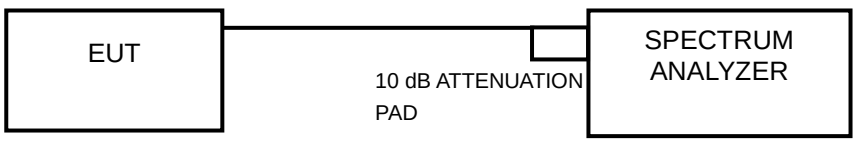
For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.3.2 Test Setup

<Power Output Measurement>



<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, 802.11ac (VHT20), 802.11ac (VHT40)>

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

<802.11ac (VHT80)>

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

26 dB Bandwidth

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

4.3.5 Deviation fromTest Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Power Output:

802.11a

SISO

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	100	20.00	24	Pass
40	5200	149.624	21.75	24	Pass
48	5240	148.936	21.73	24	Pass
52	5260	152.055	21.82	24	Pass
60	5300	152.757	21.84	24	Pass
64	5320	74.989	18.75	23.70	Pass
100	5500	89.125	19.50	24	Pass
116	5580	154.882	21.90	24	Pass
140	5700	90.782	19.58	24	Pass
144 (U-NII-2C Band)	5720	94.406	19.75	23.49	Pass
144 (U-NII-3 Band)	5720	19.099	12.81	30	Pass
149	5745	153.109	21.85	30	Pass
157	5785	154.17	21.88	30	Pass
165	5825	151.008	21.79	30	Pass

Note:

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

1. 11 dBm + 10log (25.31) = 25.03 dBm > 24 dBm.
2. 11 dBm + 10log (24.01) = 24.8 dBm > 24 dBm.
3. 11 dBm + 10log (18.65) = 23.7 dBm < 24 dBm.
4. 11 dBm + 10log (20.05) = 24.02 dBm > 24 dBm.
5. 11 dBm + 10log (30.8) = 25.88 dBm > 24 dBm.
6. 11 dBm + 10log (20.15) = 24.04 dBm > 24 dBm.
7. 11 dBm + 10log (17.77) = 23.49 dBm < 24 dBm.

MIMO

Channel	Frequency (MHz)	Maximum Cunducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	18.50	18.98	149.862	21.76	24	Pass
40	5200	18.67	18.92	151.604	21.81	24	Pass
48	5240	18.71	18.89	151.748	21.81	24	Pass
52	5260	18.65	18.87	150.373	21.77	23.69	Pass
60	5300	18.42	18.68	143.293	21.56	23.71	Pass
64	5320	18.52	18.75	146.111	21.65	23.70	Pass
100	5500	17.58	17.95	119.653	20.78	23.71	Pass
116	5580	18.57	18.96	150.649	21.78	24	Pass
140	5700	17.52	17.85	117.447	20.70	23.70	Pass
144 (U-NII-2C Band)	5720	16.91	17.15	100.971	20.04	22.56	Pass
144 (U-NII-3 Band)	5720	10.01	10.15	20.374	13.09	30	Pass
149	5745	21.75	21.95	306.299	24.86	30	Pass
157	5785	21.70	21.95	304.586	24.84	30	Pass
165	5825	21.80	21.89	305.882	24.86	30	Pass

Note:

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

Chain 0

1. 11 dBm + 10log (18.62) = 23.70 dBm < 24 dBm.
2. 11 dBm + 10log (18.68) = 23.71 dBm < 24 dBm.
3. 11 dBm + 10log (18.66) = 23.71 dBm < 24 dBm.
4. 11 dBm + 10log (18.68) = 23.71 dBm < 24 dBm.
5. 11 dBm + 10log (23.34) = 24.68 dBm > 24 dBm.
6. 11 dBm + 10log (18.65) = 23.71 dBm < 24 dBm.
7. 11 dBm + 10log (14.36) = 22.57 dBm < 24 dBm.

Chain 1

1. 11 dBm + 10log (18.69) = 23.72 dBm < 24 dBm.
2. 11 dBm + 10log (18.72) = 23.72 dBm < 24 dBm.
3. 11 dBm + 10log (18.63) = 23.70 dBm < 24 dBm.
4. 11 dBm + 10log (21.05) = 24.23 dBm > 24 dBm.
5. 11 dBm + 10log (31.02) = 25.92 dBm > 24 dBm.
6. 11 dBm + 10log (18.73) = 23.73 dBm < 24 dBm.
7. 11 dBm + 10log (14.35) = 22.57 dBm < 24 dBm.

802.11ac (VHT20)

SISO

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	97.949	19.91	24	Pass
40	5200	147.911	21.70	24	Pass
48	5240	148.594	21.72	24	Pass
52	5260	148.936	21.73	24	Pass
60	5300	149.279	21.74	24	Pass
64	5320	71.285	18.53	23.94	Pass
100	5500	84.333	19.26	23.95	Pass
116	5580	153.815	21.87	24	Pass
140	5700	70.795	18.50	23.93	Pass
144 (U-NII-2C Band)	5720	88.105	19.45	22.72	Pass
144 (U-NII-3 Band)	5720	19.724	12.95	24	Pass
149	5745	150.661	21.78	30	Pass
157	5785	152.055	21.82	30	Pass
165	5825	151.356	21.80	30	Pass

Note:

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

1. 11 dBm + 10log (20.7) = 24.15 dBm > 24 dBm.
2. 11 dBm + 10log (19.97) = 24 dBm = 24 dBm.
3. 11 dBm + 10log (19.71) = 23.94 dBm < 24 dBm.
4. 11 dBm + 10log (19.75) = 23.95 dBm < 24 dBm.
5. 11 dBm + 10log (23.02) = 24.62 dBm > 24 dBm.
6. 11 dBm + 10log (19.67) = 23.93 dBm < 24 dBm.
7. 11 dBm + 10log (14.88) = 22.72 dBm < 24 dBm.

MIMO

Channel	Frequency (MHz)	Maximum Cunducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	18.62	18.95	151.302	21.80	24	Pass
40	5200	18.58	18.96	150.815	21.78	24	Pass
48	5240	18.62	18.89	150.224	21.77	24	Pass
52	5260	18.65	18.96	151.987	21.82	23.71	Pass
60	5300	17.85	18.11	125.668	20.99	23.71	Pass
64	5320	18.58	18.98	151.179	21.79	23.70	Pass
100	5500	16.51	16.85	93.189	19.69	23.70	Pass
116	5580	18.62	18.89	150.224	21.77	24	Pass
140	5700	16.50	16.85	93.086	19.69	23.70	Pass
144 (U-NII-2C Band)	5720	16.25	17.41	97.25	19.88	22.71	Pass
144 (U-NII-3 Band)	5720	10.25	10.70	22.342	13.49	30	Pass
149	5745	21.74	21.99	307.404	24.88	30	Pass
157	5785	21.71	21.89	302.777	24.81	30	Pass
165	5825	21.68	21.92	302.828	24.81	30	Pass

Note:

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

Chain 0

1. 11 dBm + 10log (18.68) = 23.71 dBm < 24 dBm.
2. 11 dBm + 10log (18.68) = 23.71 dBm < 24 dBm.
3. 11 dBm + 10log (18.65) = 23.71 dBm < 24 dBm.
4. 11 dBm + 10log (18.66) = 23.71 dBm < 24 dBm.
5. 11 dBm + 10log (20.1) = 24.03 dBm > 24 dBm.
6. 11 dBm + 10log (18.65) = 23.71 dBm < 24 dBm.
7. 11 dBm + 10log (14.86) = 22.72 dBm < 24 dBm.

Chain 1

1. 11 dBm + 10log (19.76) = 23.96 dBm < 24 dBm.
2. 11 dBm + 10log (19.74) = 23.95 dBm < 24 dBm.
3. 11 dBm + 10log (19.77) = 23.96 dBm < 24 dBm.
4. 11 dBm + 10log (19.76) = 23.96 dBm < 24 dBm.
5. 11 dBm + 10log (22.82) = 24.58 dBm > 24 dBm.
6. 11 dBm + 10log (19.72) = 23.95 dBm < 24 dBm.
7. 11 dBm + 10log (14.83) = 22.71 dBm < 24 dBm.

802.11ac (VHT40)

SISO

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	63.826	18.05	24	Pass
46	5230	108.643	20.36	24	Pass
54	5270	107.399	20.31	24	Pass
62	5310	36.058	15.57	24	Pass
102	5510	42.855	16.32	24	Pass
110	5550	107.152	20.30	24	Pass
134	5670	106.66	20.28	24	Pass
142 (U-NII-2C Band)	5710	79.799	19.02	24	Pass
142 (U-NII-3 Band)	5710	5.309	7.25	30	Pass
151	5755	107.152	20.30	30	Pass
159	5795	103.992	20.17	30	Pass

Note:

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

1. 11 dBm + 10log (42.9) = 27.32 dBm > 24 dBm.
2. 11 dBm + 10log (42.9) = 27.32 dBm > 24 dBm.
3. 11 dBm + 10log (42.9) = 27.32 dBm > 24 dBm.
4. 11 dBm + 10log (68.18) = 29.33 dBm > 24 dBm.
5. 11 dBm + 10log (44.35) = 27.46 dBm > 24 dBm.
6. 11 dBm + 10log (36.32) = 26.6 dBm > 24 dBm.

MIMO

Channel	Frequency (MHz)	Maximum Cunducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	16.42	16.62	89.773	19.53	24	Pass
46	5230	19.98	20.16	203.293	23.08	24	Pass
54	5270	19.91	20.25	203.874	23.09	24	Pass
62	5310	15.92	16.25	81.254	19.10	24	Pass
102	5510	14.85	15.18	63.51	18.03	24	Pass
110	5550	20.21	20.45	215.872	23.34	24	Pass
134	5670	18.82	18.99	155.458	21.92	24	Pass
142 (U-NII-2C Band)	5710	19.21	19.52	172.905	22.38	24	Pass
142 (U-NII-3 Band)	5710	7.25	7.73	11.238	10.51	30	Pass
151	5755	20.18	20.45	215.149	23.33	30	Pass
159	5795	20.05	20.39	210.554	23.23	30	Pass

Note:

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

Chain 0

1. 11 dBm + 10log (42.92) = 27.33 dBm > 24 dBm.
2. 11 dBm + 10log (42.94) = 27.33 dBm > 24 dBm.
3. 11 dBm + 10log (42.96) = 27.33 dBm > 24 dBm.
4. 11 dBm + 10log (57.06) = 28.56 dBm > 24 dBm.
5. 11 dBm + 10log (44.75) = 27.51 dBm > 24 dBm.
6. 11 dBm + 10log (36.49) = 26.62 dBm > 24 dBm.

Chain 1

1. 11 dBm + 10log (43.03) = 27.34 dBm > 24 dBm.
2. 11 dBm + 10log (43) = 27.33 dBm > 24 dBm.
3. 11 dBm + 10log (42.82) = 27.32 dBm > 24 dBm.
4. 11 dBm + 10log (71.13) = 29.52 dBm > 24 dBm.
5. 11 dBm + 10log (42.8) = 27.31 dBm > 24 dBm.
6. 11 dBm + 10log (36.46) = 26.62 dBm > 24 dBm.

802.11ac (VHT80)

SISO

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
42	5210	51.642	17.13	24	Pass
58	5290	33.189	15.21	24	Pass
106	5530	42.855	16.32	24	Pass
138 (U-NII-2C Band)	5690	77.983	18.92	24	Pass
138 (U-NII-3 Band)	5690	1.384	1.41	30	Pass
155	5775	98.175	19.92	30	Pass

Note:

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

1. 11 dBm + 10log (82.24) = 30.15 dBm > 24 dBm.
2. 11 dBm + 10log (82.2) = 30.14 dBm > 24 dBm.
3. 11 dBm + 10log (82.25) = 30.15 dBm > 24 dBm.
4. 11 dBm + 10log (76.13) = 29.81 dBm > 24 dBm.

MIMO

Channel	Frequency (MHz)	Maximum Cunducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	15.20	15.28	66.842	18.25	24	Pass
58	5290	14.90	14.92	61.949	17.92	24	Pass
106	5530	13.98	14.18	51.185	17.09	24	Pass
138 (U-NII-2C Band)	5690	19.18	19.76	177.418	22.49	24	Pass
138 (U-NII-3 Band)	5690	1.71	2.23	3.154	4.99	30	Pass
155	5775	17.30	17.45	109.294	20.39	30	Pass

Note:

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

Chain 0

1. 11 dBm + 10log (81.85) = 30.13 dBm > 24 dBm.
2. 11 dBm + 10log (82.06) = 30.14 dBm > 24 dBm.
3. 11 dBm + 10log (81.75) = 30.12 dBm > 24 dBm.
4. 11 dBm + 10log (78.19) = 29.93 dBm > 24 dBm.

Chain 1

1. 11 dBm + 10log (82.06) = 30.14 dBm > 24 dBm.
2. 11 dBm + 10log (81.52) = 30.11 dBm > 24 dBm.
3. 11 dBm + 10log (81.91) = 30.13 dBm > 24 dBm.
4. 11 dBm + 10log (78.22) = 29.93 dBm > 24 dBm.

26 dB Bandwidth:

802.11a

SISO

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	23.71
44	5220	26.98
48	5240	25.31
52	5260	25.31
60	5300	24.01
64	5320	18.65
100	5500	20.05
116	5580	30.8
140	5700	20.15
144 (U-NII-2C Band)	5720	17.77

MIMO

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	18.62	18.65
40	5200	18.62	18.68
48	5240	18.66	18.67
52	5260	18.62	18.69
60	5300	18.68	18.72
64	5320	18.66	18.63
100	5500	18.68	21.05
116	5580	23.34	31.02
140	5700	18.65	18.73
144 (U-NII-2C Band)	5720	14.36	14.35

802.11ac (VHT20)

SISO

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	19.7
44	5220	19.93
48	5240	19.85
52	5260	20.7
60	5300	19.97
64	5320	19.71
100	5500	19.75
116	5580	23.02
140	5700	19.67
144 (U-NII-2C Band)	5720	14.88

MIMO

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	18.63	19.76
40	5200	18.61	19.72
48	5240	18.66	19.7
52	5260	18.68	19.76
60	5300	18.68	19.74
64	5320	18.65	19.77
100	5500	18.66	19.76
116	5580	20.1	22.82
140	5700	18.65	19.72
144 (U-NII-2C Band)	5720	14.86	14.83

802.11ac (VHT40)

SISO

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
38	5190	42.93
46	5230	42.95
54	5270	42.9
62	5310	42.9
102	5510	42.9
110	5550	68.18
134	5670	44.35
142 (U-NII-2C Band)	5710	36.32

MIMO

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	42.67	42.79
46	5230	42.94	42.89
54	5270	42.92	43.03
62	5310	42.94	43
102	5510	42.96	42.82
110	5550	57.06	71.13
134	5670	44.75	42.8
142 (U-NII-2C Band)	5710	36.49	36.46

802.11ac (VHT80)

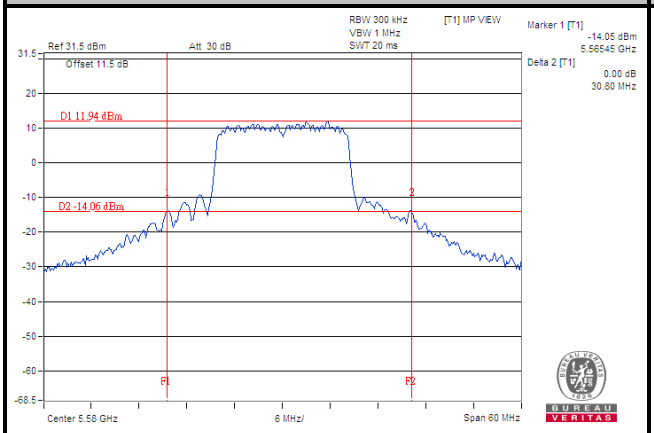
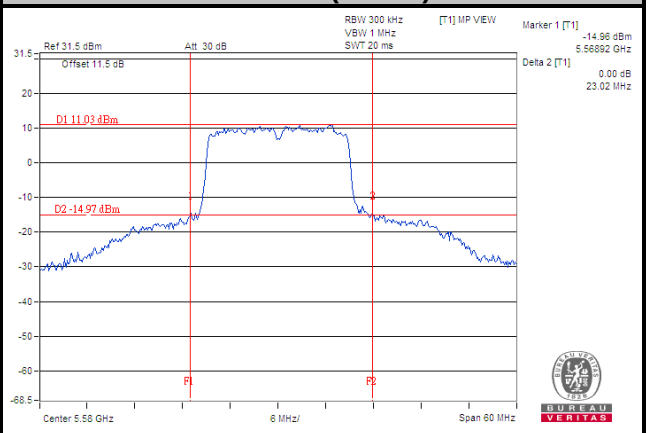
SISO

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
42	5210	82.3
58	5290	82.24
106	5530	82.2
138 (U-NII-2C Band)	5690	76.13

MIMO

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	81.92	81.88
58	5290	81.85	82.06
106	5530	82.06	81.52
138 (U-NII-2C Band)	5690	78.19	78.22

SISO

Spectrum Plot of Worst Value	
802.11a	802.11ac (VHT20)
	
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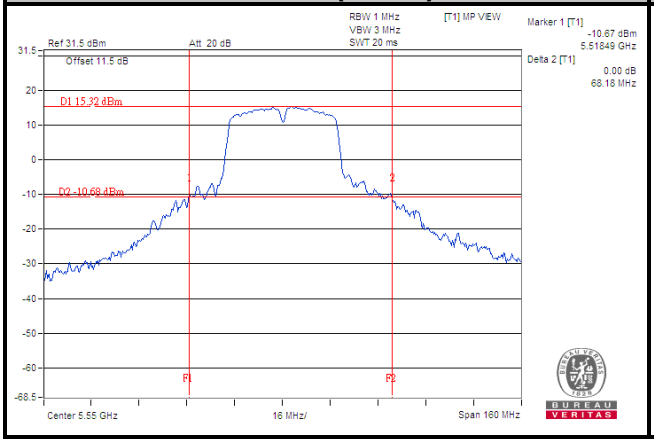
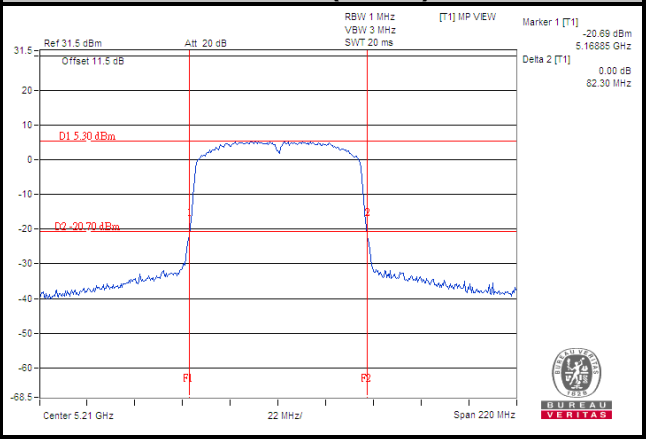
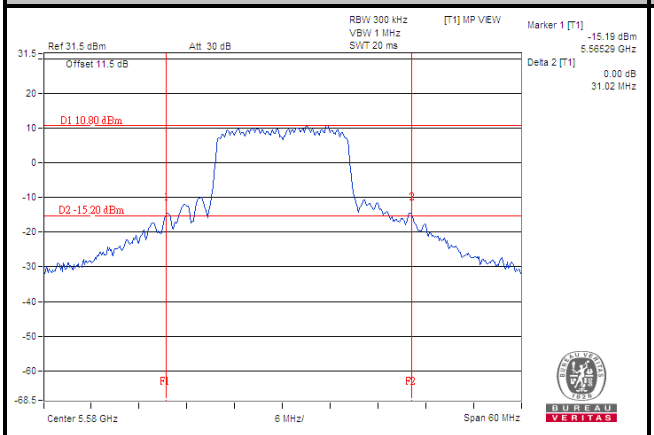
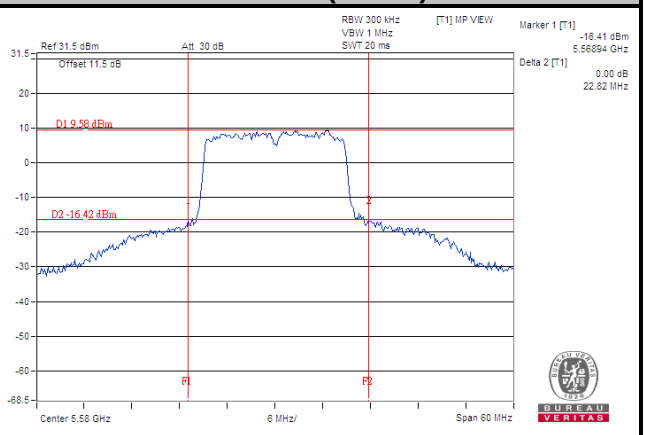
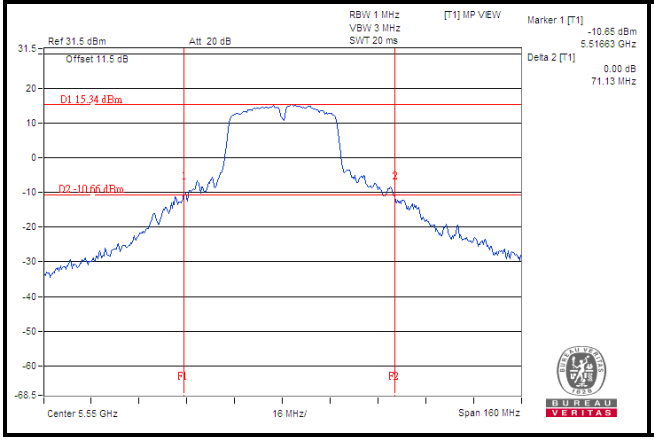
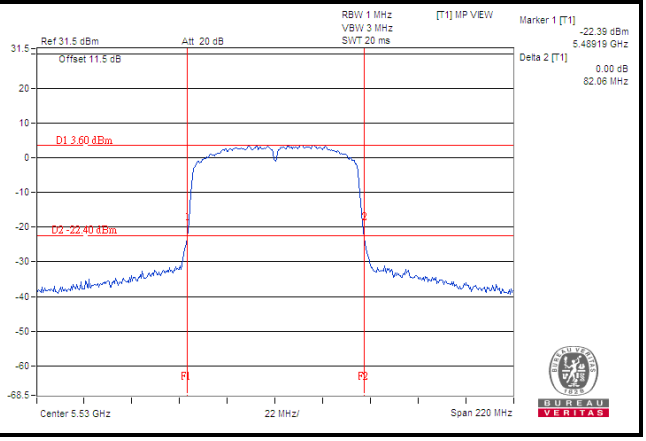
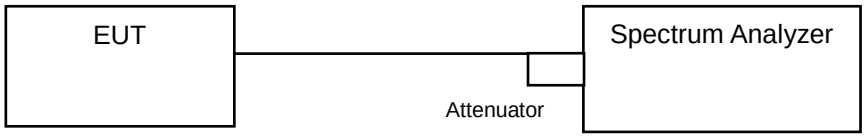
	

MIMO

Spectrum Plot of Worst Value	
802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	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

SISO

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	Pass / Fail
36	5180	16.44	Pass
40	5200	16.44	Pass
48	5240	16.44	Pass
52	5260	16.44	Pass
60	5300	16.56	Pass
64	5320	16.44	Pass
100	5500	16.44	Pass
116	5580	16.56	Pass
140	5700	16.44	Pass
144	5720 (U-NII-2C)	13.28	Pass
144	5720 (U-NII-3)	3.16	Pass
149	5745	16.56	Pass
157	5785	16.56	Pass
165	5825	16.44	Pass

MIMO

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
36	5180	16.44	16.44	Pass
40	5200	16.44	16.44	Pass
48	5240	16.44	16.44	Pass
52	5260	16.44	16.44	Pass
60	5300	16.44	16.44	Pass
64	5320	16.44	16.44	Pass
100	5500	16.44	16.44	Pass
116	5580	16.44	16.68	Pass
140	5700	16.44	16.44	Pass
144	5720 (U-NII-2C)	13.28	13.28	Pass
144	5720 (U-NII-3)	3.16	3.16	Pass
149	5745	16.56	16.44	Pass
157	5785	16.56	16.44	Pass
165	5825	16.44	16.44	Pass

802.11ac (VHT20)

SISO

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	Pass / Fail
36	5180	17.64	Pass
40	5200	17.64	Pass
48	5240	17.64	Pass
52	5260	17.76	Pass
60	5300	17.64	Pass
64	5320	17.64	Pass
100	5500	17.64	Pass
116	5580	17.76	Pass
140	5700	17.64	Pass
144	5720 (U-NII-2C)	13.88	Pass
144	5720 (U-NII-3)	3.76	Pass
149	5745	17.76	Pass
157	5785	17.76	Pass
165	5825	17.76	Pass

MIMO

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
36	5180	16.44	17.64	Pass
40	5200	16.44	17.64	Pass
48	5240	16.44	17.64	Pass
52	5260	16.44	17.64	Pass
60	5300	16.44	17.64	Pass
64	5320	16.44	17.64	Pass
100	5500	16.44	17.64	Pass
116	5580	16.44	17.76	Pass
140	5700	16.44	17.64	Pass
144	5720 (U-NII-2C)	13.88	13.88	Pass
144	5720 (U-NII-3)	3.76	3.76	Pass
149	5745	16.8	17.64	Pass
157	5785	16.56	17.64	Pass
165	5825	16.56	17.76	Pass

802.11ac (VHT40)

SISO

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	Pass / Fail
38	5190	36.36	Pass
46	5230	36.36	Pass
54	5270	36.36	Pass
62	5310	36.36	Pass
102	5510	36.48	Pass
110	5550	36.72	Pass
134	5670	36.48	Pass
142	5710 (U-NII-2C)	33.12	Pass
142	5710 (U-NII-3)	3.24	Pass
151	5755	36.36	Pass
159	5795	36.48	Pass

MIMO

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
38	5190	36.36	36.24	Pass
46	5230	36.36	36.48	Pass
54	5270	36.36	36.36	Pass
62	5310	36.48	36.48	Pass
102	5510	36.36	36.36	Pass
110	5550	36.48	37.08	Pass
134	5670	36.48	36.36	Pass
142	5710 (U-NII-2C)	33.24	33.24	Pass
142	5710 (U-NII-3)	3.24	3.24	Pass
151	5755	36.48	36.36	Pass
159	5795	36.36	36.36	Pass

802.11ac (VHT80)

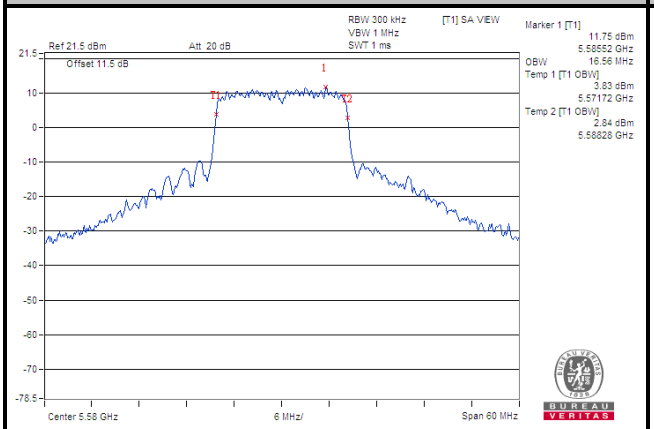
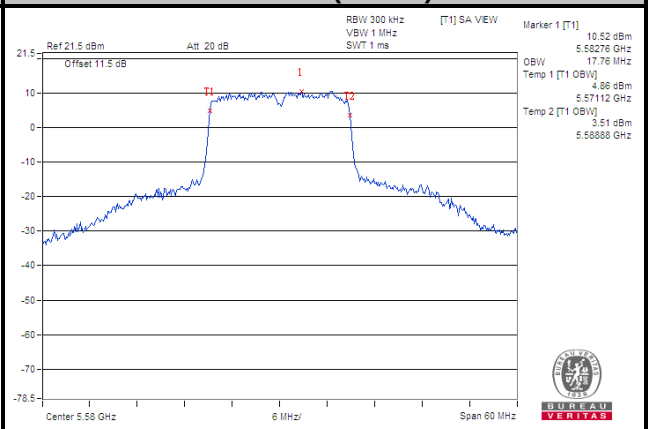
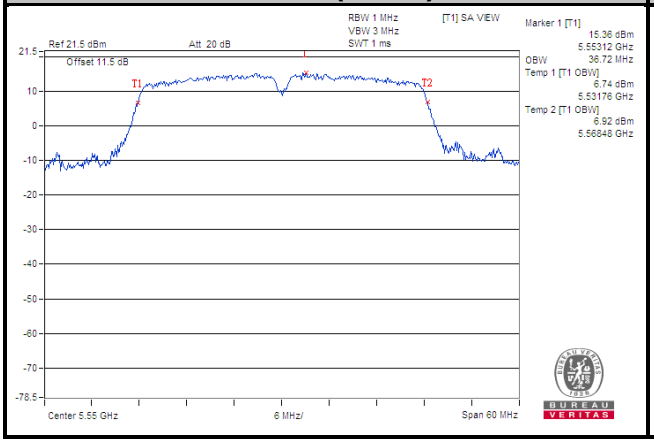
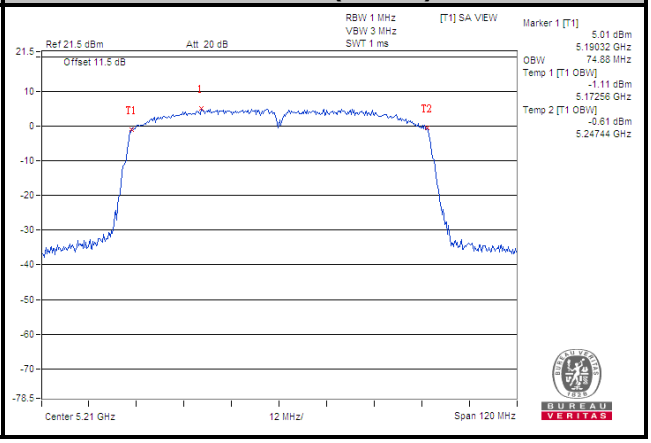
SISO

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	Pass / Fail
42	5210	74.88	Pass
58	5290	74.64	Pass
106	5530	74.64	Pass
138	5690 (U-NII-2C)	72.44	Pass
138	5690 (U-NII-3)	2.2	Pass
155	5775	74.64	Pass

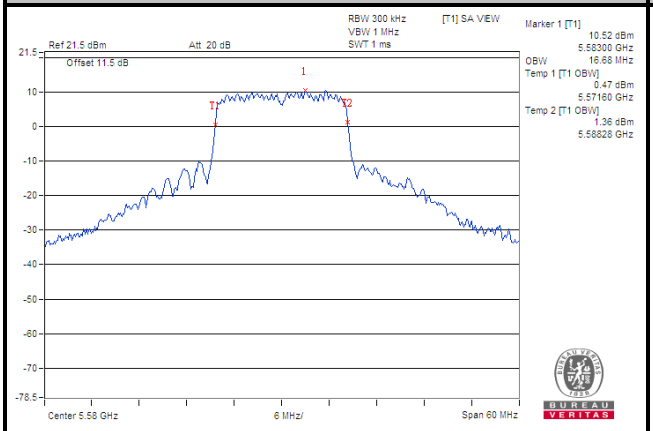
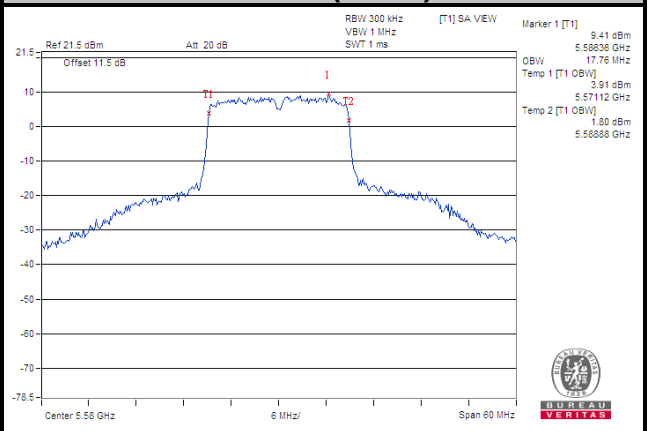
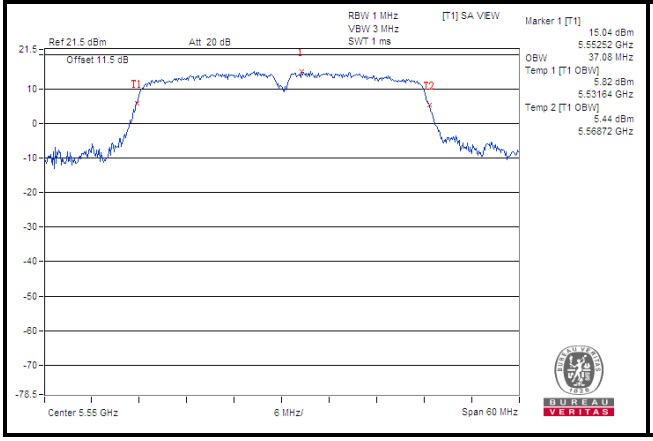
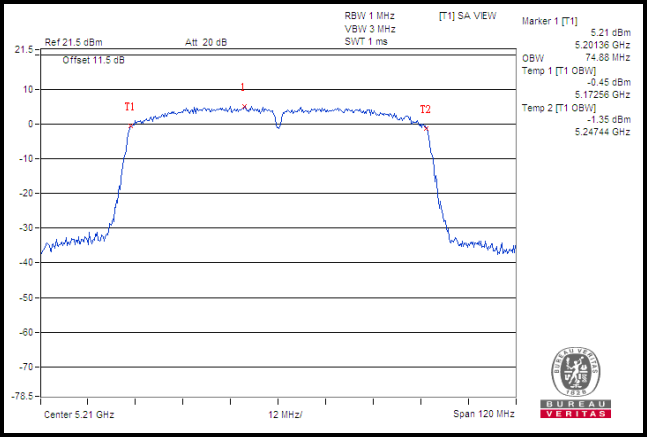
MIMO

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
42	5210	74.88	74.64	Pass
58	5290	74.64	74.88	Pass
106	5530	74.64	74.4	Pass
138	5690 (U-NII-2C)	72.68	72.68	Pass
138	5690 (U-NII-3)	2.44	2.44	Pass
155	5775	74.64	74.4	Pass

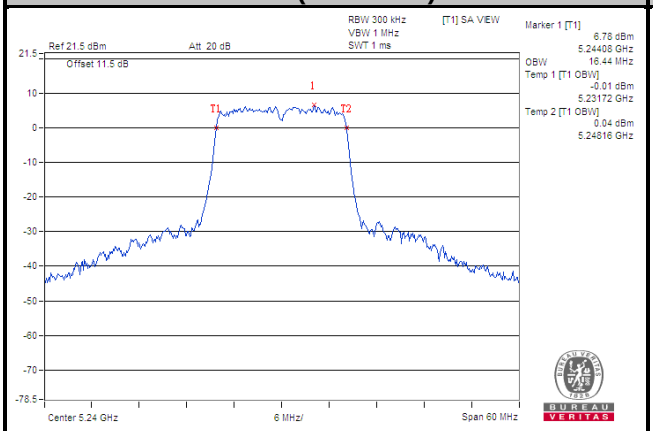
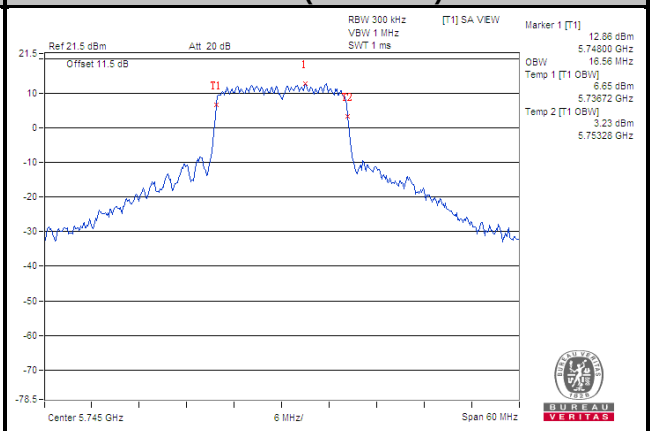
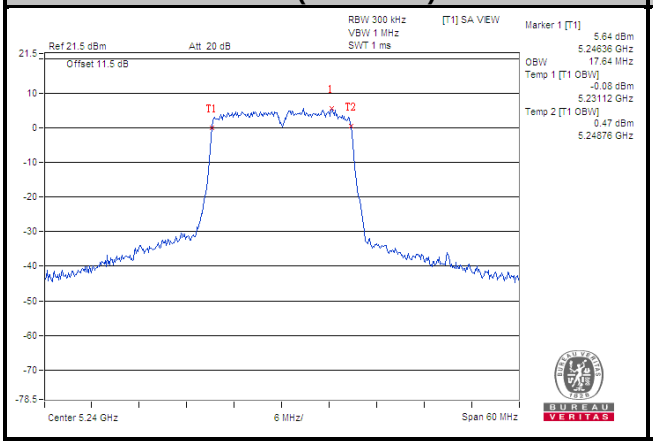
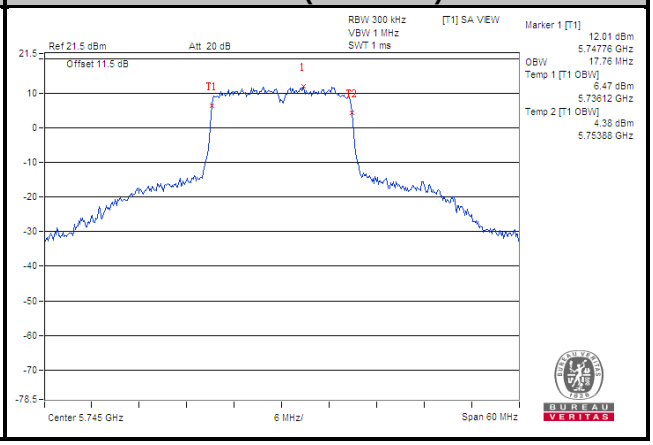
SISO

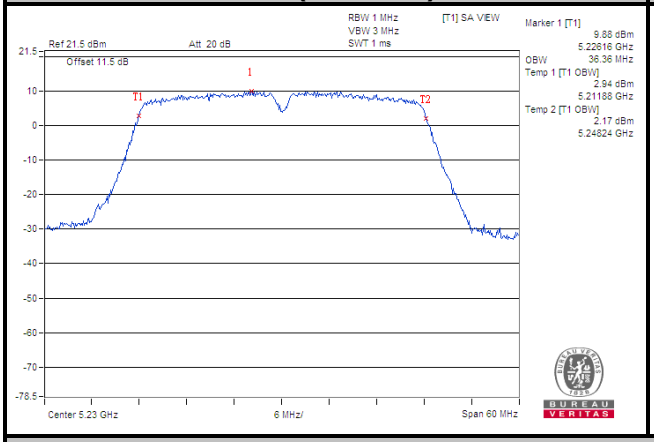
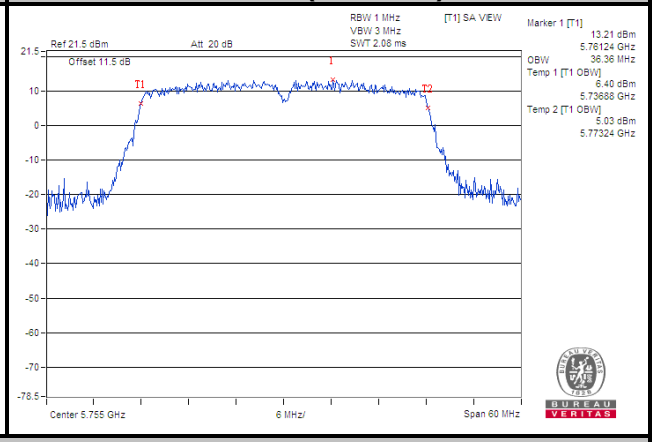
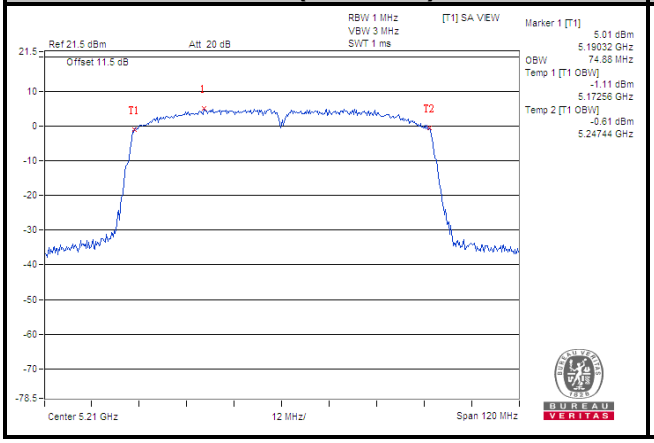
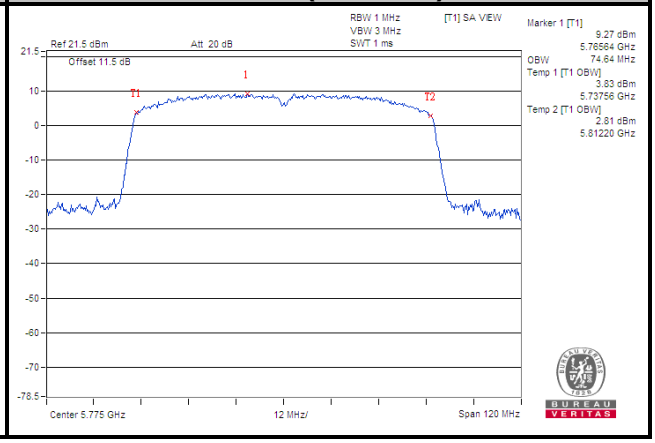
Spectrum Plot of Worst Value	
802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	802.11ac (VHT80)
	

MIMO

Spectrum Plot of Worst Value	
802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	802.11ac (VHT80)
	

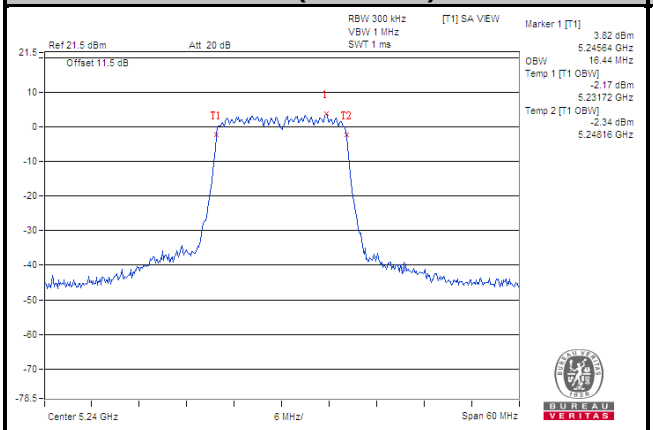
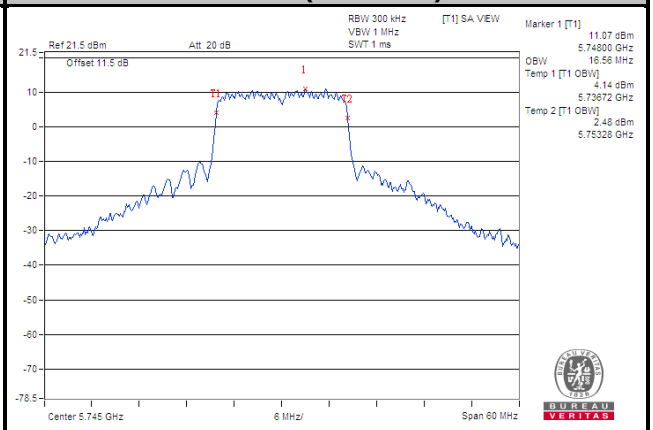
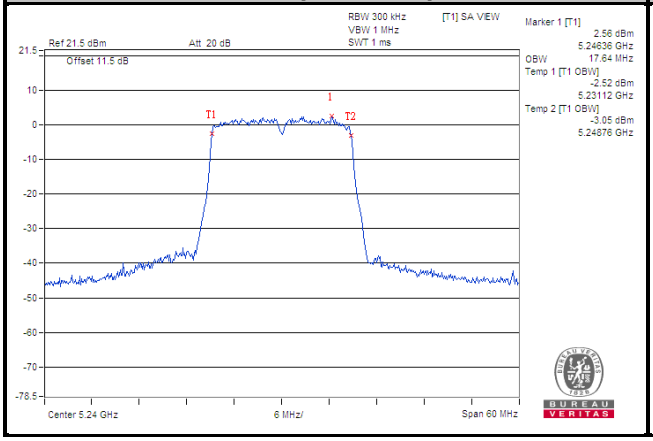
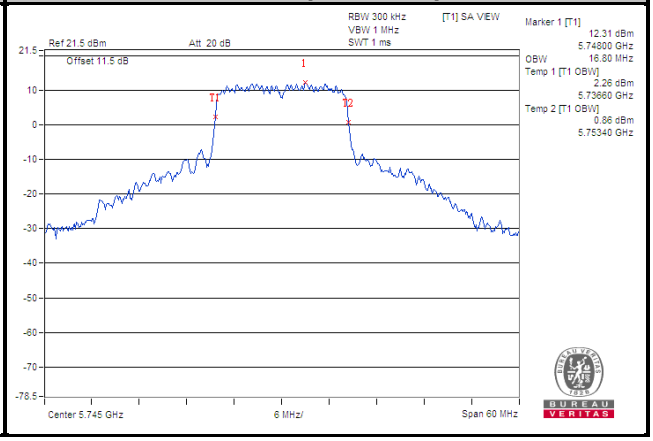
SISO

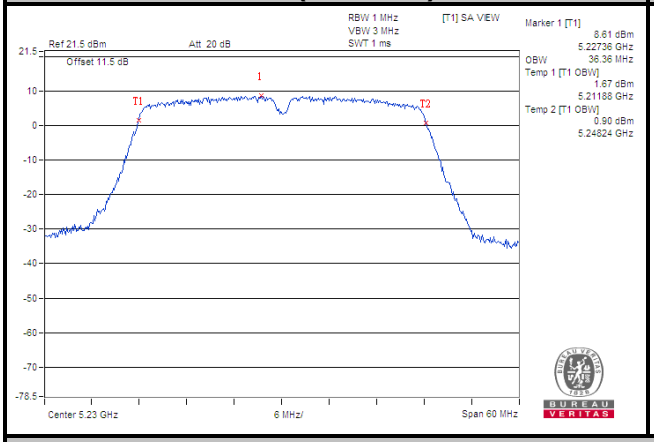
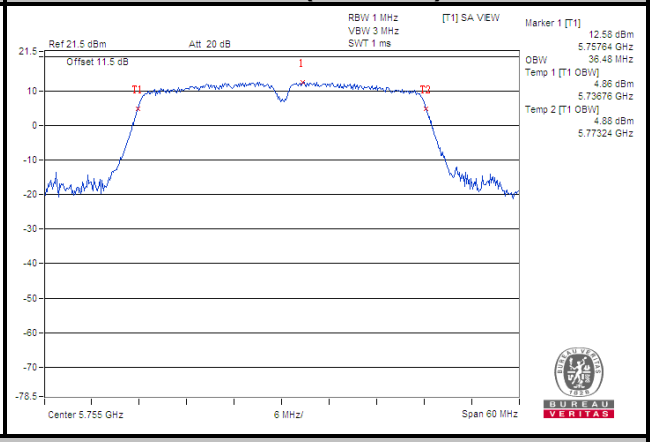
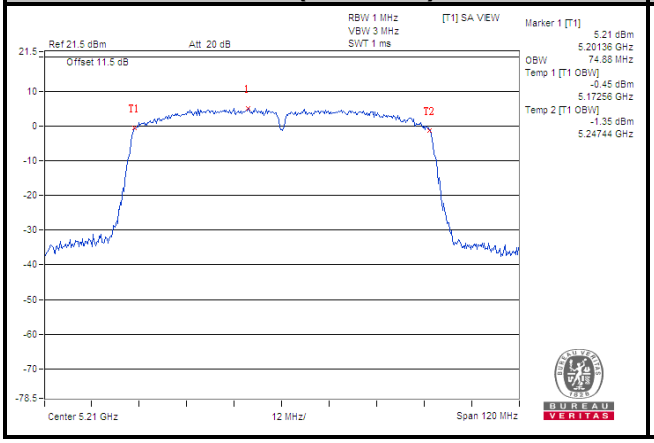
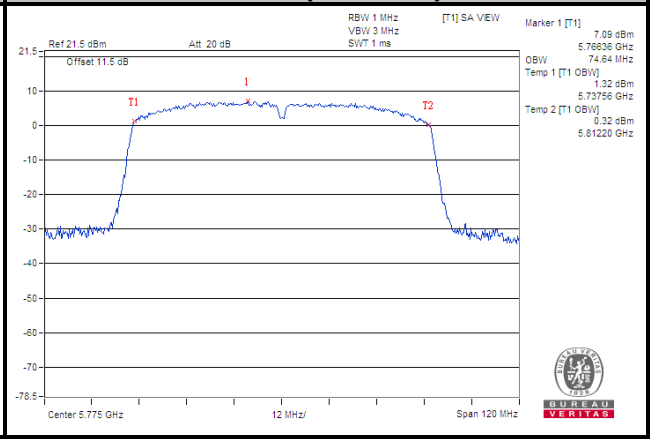
Spectrum Plot for Nearby DFS Band	
802.11a	
Ch 48 (5240 MHz)	Ch 149 (5745 MHz)
	
802.11ac (VHT20)	
Ch 48 (5240 MHz)	Ch 149 (5745 MHz)
	

802.11ac (VHT40)	
Ch 46 (5230 MHz)	Ch 151 (5755 MHz)
	
802.11ac (VHT80)	
Ch 42 (5210 MHz)	Ch 155 (5775 MHz)
	

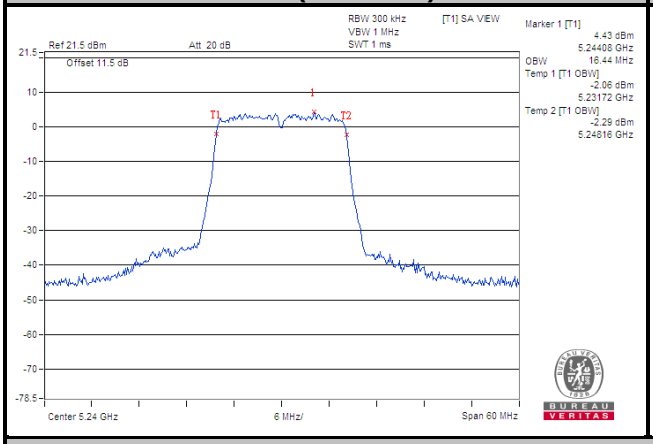
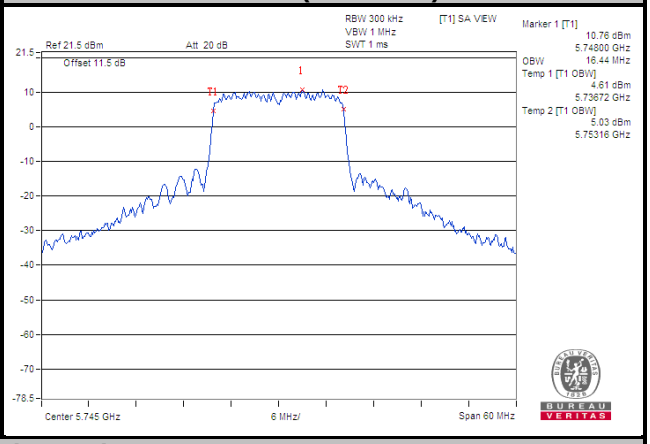
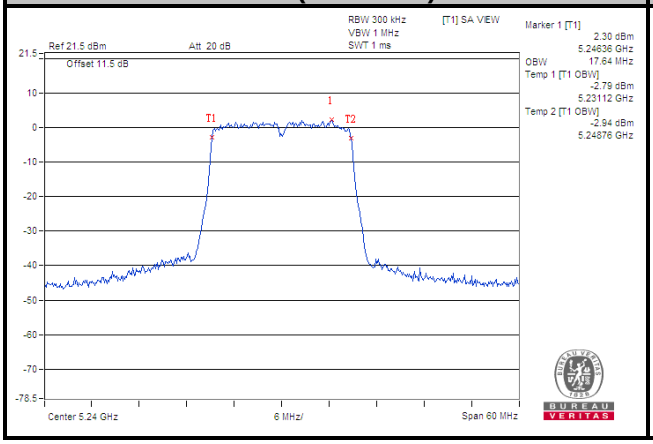
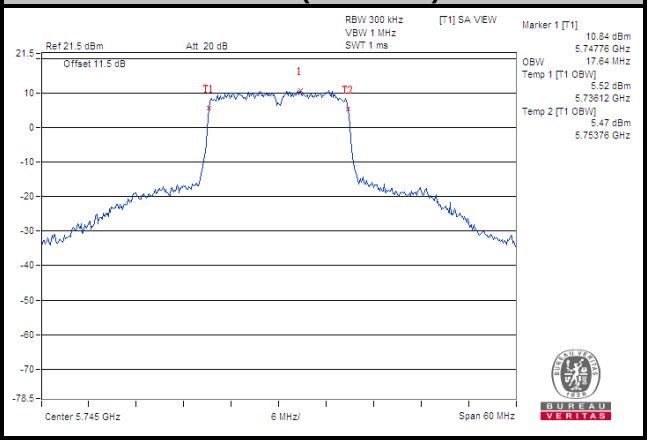
MIMO

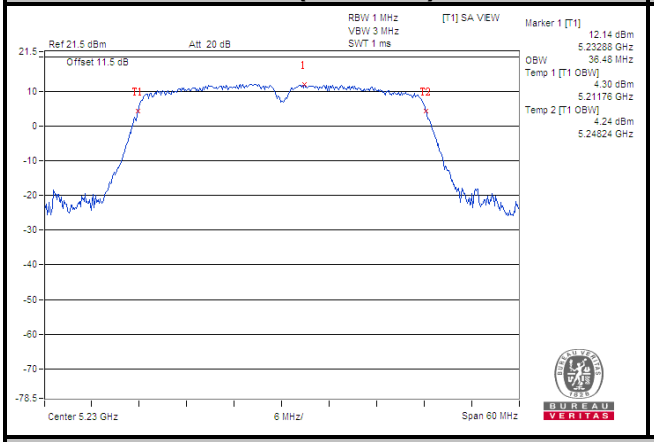
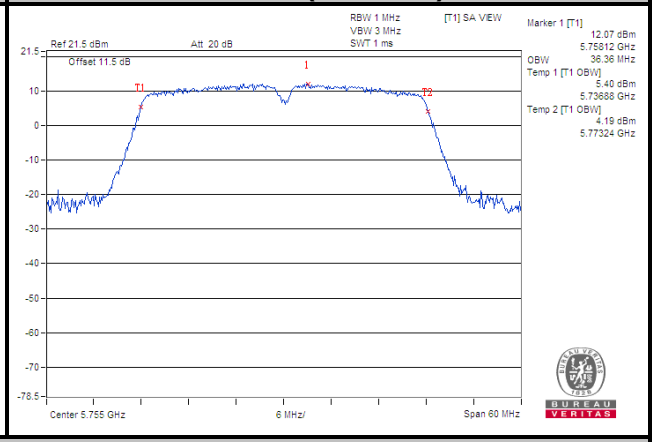
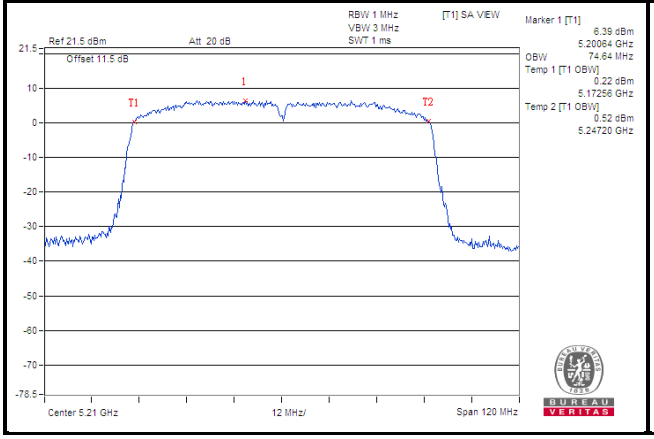
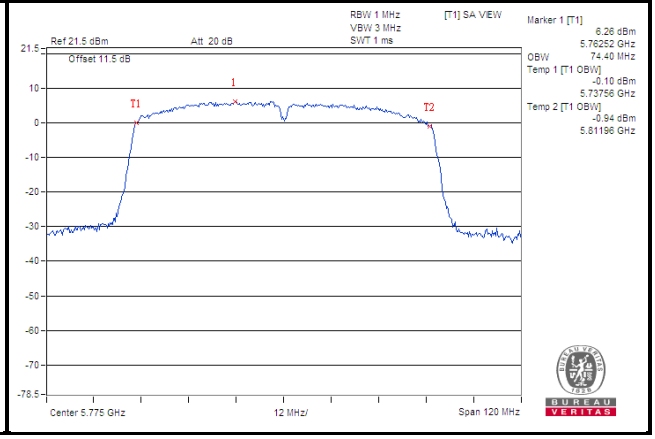
Chain 0

Spectrum Plot for Nearby DFS Band	
802.11a	
Ch 48 (5240 MHz)	**Ch 149 (5745 MHz)**
	
802.11ac (VHT20)	
Ch 48 (5240 MHz)	**Ch 149 (5745 MHz)**
	

802.11ac (VHT40)	
Ch 46 (5230 MHz)	Ch 151 (5755 MHz)
	
802.11ac (VHT80)	
Ch 42 (5210 MHz)	Ch 155 (5775 MHz)
	

Chain 1

Spectrum Plot for Nearby DFS Band	
802.11a	
Ch 48 (5240 MHz)	Ch 149 (5745 MHz)
	
802.11ac (VHT20)	
Ch 48 (5240 MHz)	Ch 149 (5745 MHz)
	

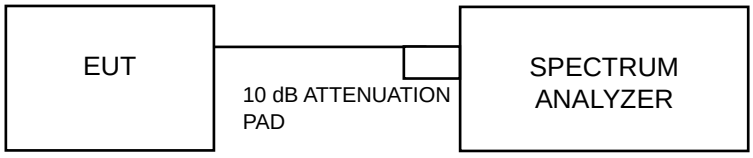
802.11ac (VHT40)	
Ch 46 (5230 MHz)	Ch 151 (5755 MHz)
	
802.11ac (VHT80)	
Ch 42 (5210 MHz)	Ch 155 (5775 MHz)
	

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 ≥ 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 = 500 kHz, Set VBW ≥ 3 RBW, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 500 kHz band segment within the fundamental EBW.
4. Sweep time = auto, trigger set to “free run”.
5. Trace average at least 100 traces in power averaging mode.
6. Record the max value

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.