TEST REPORT

Applicant:	Heyuan Vastking Electronic Co., Ltd
Address of Applicant:	No. 13, Hepu Road, Yuancheng, Heyuan, Guangdong, China
Manufacturer/Factory:	Heyuan Vastking Electronic Co., Ltd
Address of Manufacturer/Factory:	No. 13, Hepu Road, Yuancheng, Heyuan, Guangdong, China
Equipment Under Test (EUT)	
Product Name:	Tablet PC
Model No.:	Kingpad K10, Kingpad SA10, Kingpad SA8, Kingpad K10 Pro, Kingpad Z10, Kingpad M10, MagicTab 12, Kingpad Z7, Kingpad Z8, Kingpad Q10, Kingpad Q8, Kingpad Q7, Joypad 8, Joypad A8, Kingpad M10 Elite, MagicTab X, Kingpad S20 , Kingpad S20 Mini, Kingpad M20, Kingpad Z20
Trade Mark:	VASTKING
FCC ID:	2AQYQ-KINGPADK10
Applicable standards:	FCC CFR Title 47 Part 15 Subpart E Section 15.407
Date of sample receipt:	Janurary 21, 2021
Date of Test:	Janurary 21, 2021~March 05, 2021
Date of report issue:	March 05, 2021
Test Result :	PASS *

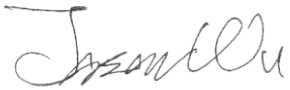
* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*March 05, 2021*	*Original*

Prepared By:  ***Date:*** *March 05, 2021*

Tested/Project Engineer

Check By:  ***Date:*** *March 05, 2021*

Reviewer

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	PASS
AC Power Line Conducted Emission	15.207	PASS
Maximum Average Transmit Power	15.407(a)(1)	PASS
Power Spectral Density	15.407(a)(1)	PASS
Undesirable Emission	15.407(b)(6), 15.205/15.209	PASS
Radiated Emission	15.205/15.209	PASS
Band Edge	15.407(b)(1)	PASS
Frequency Stability	15.407(g)	PASS

Remark:

Pass: The EUT complies with the essential requirements in the standard.

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	30MHz-200MHz	3.8039dB	(1)
Radiated Emission	200MHz-1GHz	3.9679dB	(1)
Radiated Emission	1GHz-18GHz	4.29dB	(1)
Radiated Emission	18GHz-40GHz	3.30dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	3.44dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

5 General Information

5.1 General Description of EUT

<table>
<tr><td>Product Name:</td><td>Tablet PC</td></tr>
<tr><td>Model No.:</td><td>Kingpad K10, Kingpad SA10, Kingpad SA8, Kingpad K10 Pro, Kingpad Z10, Kingpad M10, MagicTab 12, Kingpad Z7, Kingpad Z8, Kingpad Q10, Kingpad Q8, Kingpad Q7, Joypad 8, Joypad A8, Kingpad M10 Elite, MagicTab X, Kingpad S20, Kingpad S20 Mini, Kingpad M20, Kingpad Z20</td></tr>
<tr><td>Serial No.:</td><td>N/A</td></tr>
<tr><td>Hardware Version:</td><td>P30-T610-V1.0</td></tr>
<tr><td>Software Version:</td><td>Android 10</td></tr>
<tr><td>Test sample(s) ID:</td><td>GTSL202103000167-1</td></tr>
<tr><td>Sample(s) Status:</td><td>Engineer sample</td></tr>
<tr><td>Operation Frequency:</td><td>
<table>
<tr><th>Band</th><th>Mode</th><th>Frequency Range(MHz)</th><th>Number of channels</th></tr>
<tr><td rowspan="4">U-NII Band I</td><td>IEEE 802.11a</td><td>5180-5240</td><td>4</td></tr>
<tr><td>IEEE 802.11n/ac 20MHz</td><td>5180-5240</td><td>4</td></tr>
<tr><td>IEEE 802.11n/ac 40MHz</td><td>5190-5230</td><td>2</td></tr>
<tr><td>IEEE 802.11ac 80MHz</td><td>5210</td><td>1</td></tr>
</table>
</td></tr>
<tr><td>Modulation technology:</td><td>OFDM</td></tr>
<tr><td>Antenna Type:</td><td>FPCB antenna</td></tr>
<tr><td>Antenna gain:</td><td>0.36dBi</td></tr>
<tr><td>Power supply:</td><td>EE5020-P25
INPUT: 100-240V~ 50/60Hz 0.5A OUTPUT: DC 5V 2.0A</td></tr>
</table>

Channel list for 802.11a/n(HT20)/ac(HT20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	40	5200MHz	44	5220MHz	48	5240MHz

Channel list for 802.11n(HT40)/ac(HT40)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz				

Channel list for 802.11ac(HT80)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210MHz						

5.2 Test mode

Transmitting mode	Keep the EUT in transmitting with modulation..

Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate
802.11a/n/ac(HT20)	6/6.5 Mbps
802.11n/ac(HT40)	13.5 Mbps
802.11ac(HT80)	29.3 Mbps

5.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC —Registration No.: 381383**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383.

● **IC —Registration No.: 9079A**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A

● **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

5.4 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, sBaoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

5.5 Description of Support Units

None.

5.6 Deviation from Standards

None.

5.7 Abnormalities from Standard Conditions

None.

6 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 02 2020	July. 01 2025
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 25 2020	June. 24 2021
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 25 2020	June. 24 2021
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 25 2020	June. 24 2021
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 25 2020	June. 24 2021
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 25 2020	June. 24 2021
9	Coaxial Cable	GTS	N/A	GTS211	June. 25 2020	June. 24 2021
10	Coaxial cable	GTS	N/A	GTS210	June. 25 2020	June. 24 2021
11	Coaxial Cable	GTS	N/A	GTS212	June. 25 2020	June. 24 2021
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 25 2020	June. 24 2021
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 25 2020	June. 24 2021
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 25 2020	June. 24 2021
15	Band filter	Amindeon	82346	GTS219	June. 25 2020	June. 24 2021
16	Power Meter	Anritsu	ML2495A	GTS540	June. 25 2020	June. 24 2021
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 25 2020	June. 24 2021
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 25 2020	June. 24 2021
19	Splitter	Agilent	11636B	GTS237	June. 25 2020	June. 24 2021
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 25 2020	June. 24 2021
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 18 2020	Oct. 17 2021
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 18 2020	Oct. 17 2021
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 18 2020	Oct. 17 2021
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 25 2020	June. 24 2021

Conducted Emission						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.15 2019	May.14 2022
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 25 2020	June. 24 2021
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 25 2020	June. 24 2021
4	ENV216 2-L-V-NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	GTS226	June. 25 2020	June. 24 2021
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Thermo meter	KTJ	TA328	GTS233	June. 25 2020	June. 24 2021
8	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	June. 25 2020	June. 24 2021
9	ISN	SCHWARZBECK	NTFM 8158	GTD565	June. 25 2020	June. 24 2021

RF Conducted Test:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	June. 25 2020	June. 24 2021
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 25 2020	June. 24 2021
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 25 2020	June. 24 2021
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	June. 25 2020	June. 24 2021
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	June. 25 2020	June. 24 2021
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	June. 25 2020	June. 24 2021
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	June. 25 2020	June. 24 2021
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	June. 25 2020	June. 24 2021

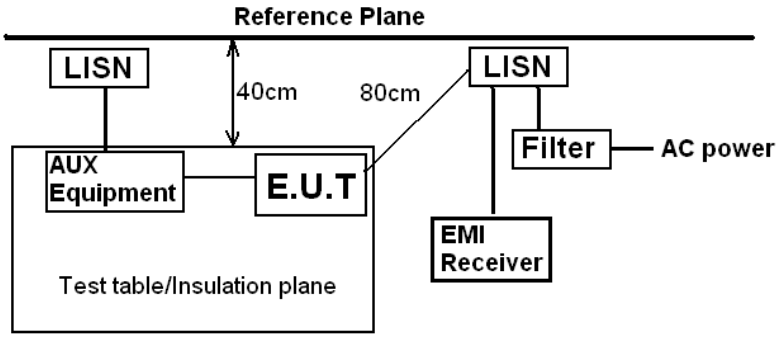
General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 25 2020	June. 24 2021
2	Barometer	ChangChun	DYM3	GTS255	June. 25 2020	June. 24 2021

7 Test results and Measurement Data

7.1 Antenna requirement:

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: *An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.*	
E.U.T Antenna:	
The antennas are FPCB antenna, the best case gain of the antennas are 0.36 dBi, reference to the appendix II for details	

7.2 Conducted Emissions

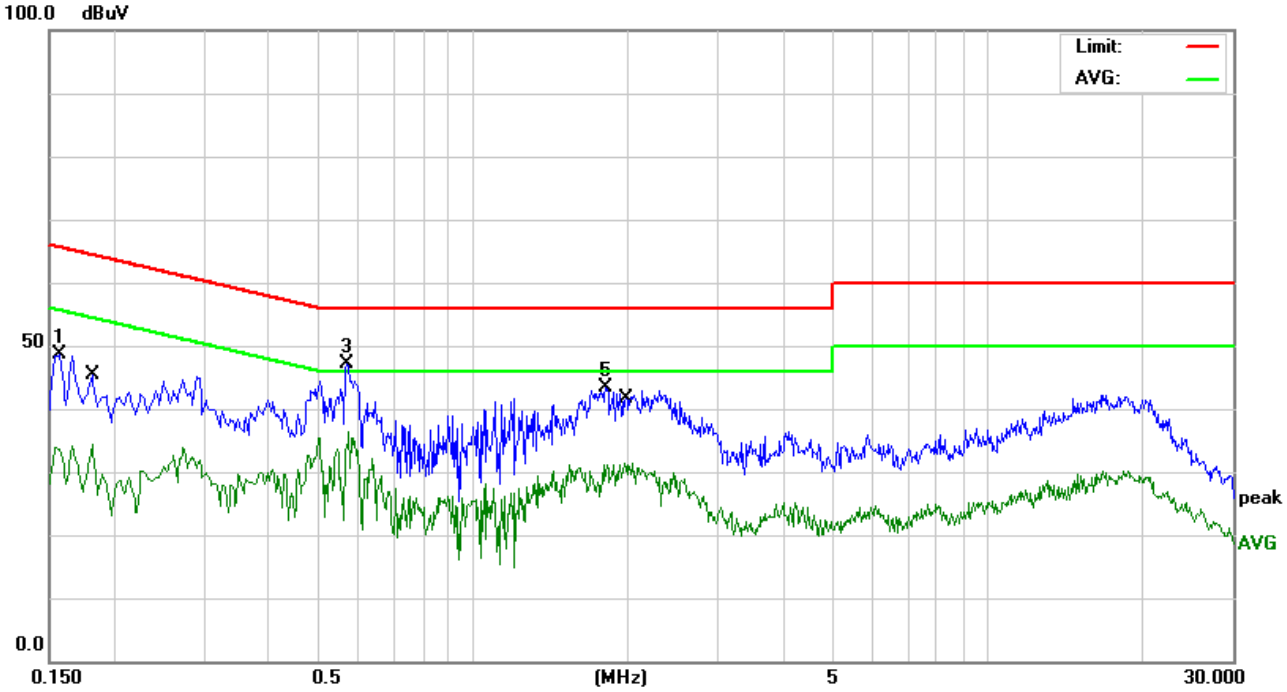
<table>
<tr><td>Test Requirement:</td><td colspan="6">FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td colspan="6">ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="6">150KHz to 30MHz</td></tr>
<tr><td>Class / Severity:</td><td colspan="6">Class B</td></tr>
<tr><td>Receiver setup:</td><td colspan="6">RBW=9KHz, VBW=30KHz</td></tr>
<tr><td>Limit:</td><td colspan="6"><table><tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr><tr><td>Quasi-peak</td><td>Average</td></tr><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>5-30</td><td>60</td><td>50</td></tr></table>* Decreases with the logarithm of the frequency.</td></tr>
<tr><td>Test procedure</td><td colspan="6">The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.</td></tr>
<tr><td>Test setup:</td><td colspan="6"> 

Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m</td></tr>
<tr><td>Test Instruments:</td><td colspan="6">Refer to section 5.10 for details</td></tr>
<tr><td>Test mode:</td><td colspan="6">Refer to section 5.2 for details</td></tr>
<tr><td>Test environment:</td><td>Temp.:</td><td>25 °C</td><td>Humid.:</td><td>52%</td><td>Press.:</td><td>1012mbar</td></tr>
<tr><td>Test voltage:</td><td colspan="6">AC 120V, 60Hz</td></tr>
<tr><td>Test results:</td><td colspan="6">Pass</td></tr>
</table>

Remark: Both high and low voltages have been tested to show only the worst low voltage test data.

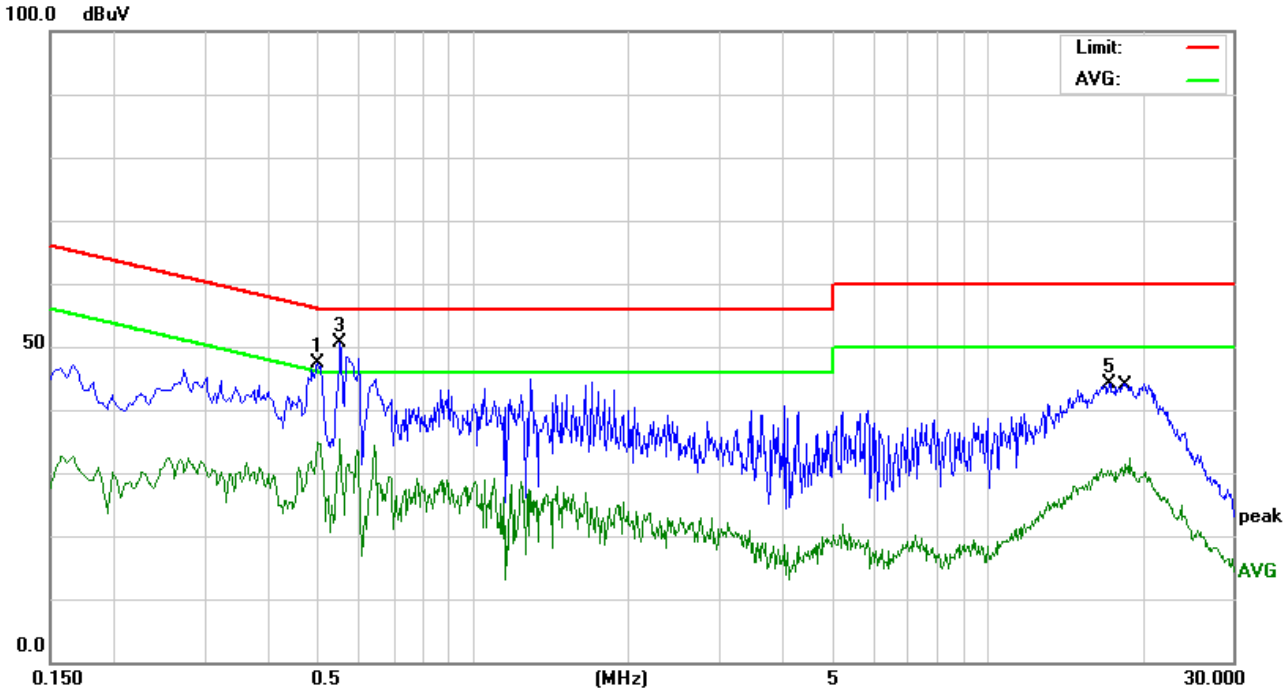
Measurement data:

Line:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1580	36.78	11.75	48.53	65.56	-17.03	peak
2		0.1819	22.99	11.36	34.35	54.39	-20.04	AVG
3	*	0.5700	37.20	9.97	47.17	56.00	-8.83	peak
4		0.5740	26.40	9.97	36.37	46.00	-9.63	AVG
5		1.8140	33.38	9.95	43.33	56.00	-12.67	peak
6		1.9780	21.36	9.96	31.32	46.00	-14.68	AVG

Neutral:

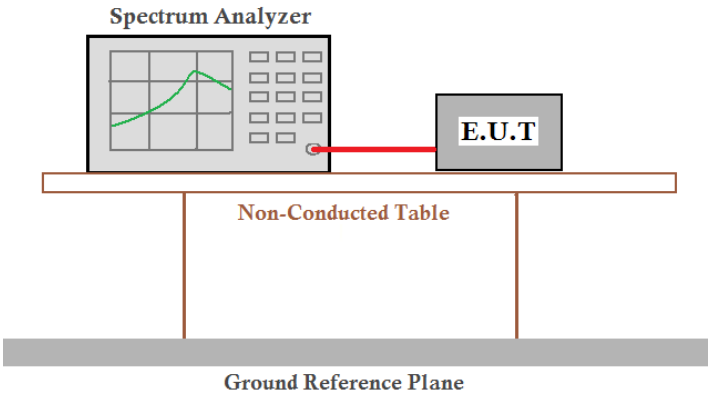


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.4980	37.36	9.98	47.34	56.03	-8.69	peak
2		0.4980	24.90	9.98	34.88	46.03	-11.15	AVG
3	*	0.5500	40.70	9.97	50.67	56.00	-5.33	peak
4		0.5500	25.28	9.97	35.25	46.00	-10.75	AVG
5		17.2500	33.76	10.47	44.23	60.00	-15.77	peak
6		18.8900	21.77	10.62	32.39	50.00	-17.61	AVG

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Cable Loss*

7.3 Emission Bandwidth and 99% Occupied Bandwidth

Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	N/A
Test setup:	
Test procedure:	According to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data:

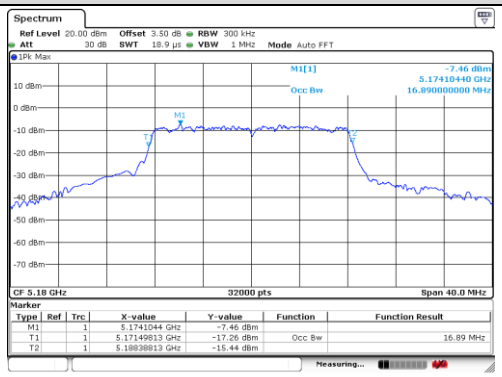
CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)			26dB Occupied Bandwidth (MHz)		
		802.11a	802.11n(HT20)	802.11ac(HT20)	802.11a	802.11n(HT20)	802.11ac(HT20)
36	5180	16.8900	17.8625	17.9200	28.5688	27.3828	26.2719
44	5220	16.9663	18.1050	17.8125	26.3609	28.7641	29.6734
48	5240	16.7838	17.7813	17.8763	27.5813	26.6141	28.2094

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Occupied Bandwidth (MHz)	
		802.11n(HT40)	802.11ac(HT40)	802.11n(HT40)	802.11ac(HT40)
38	5190	36.1350	36.2100	40.6750	39.8275
46	5230	36.3175	36.1225	39.5100	39.5275

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Occupied Bandwidth (MHz)
		802.11ac(HT80)	802.11ac(HT80)
42	5210	75.6700	79.9650

Test plots as followed:

99% Occupied Bandwidth

802.11a mode

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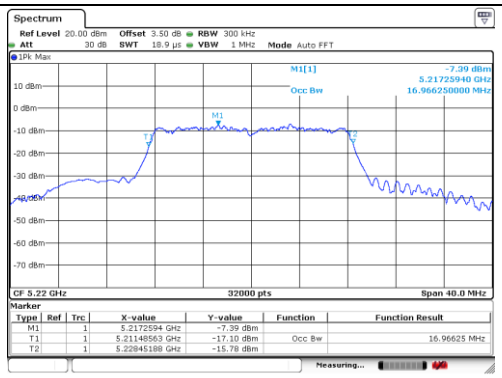
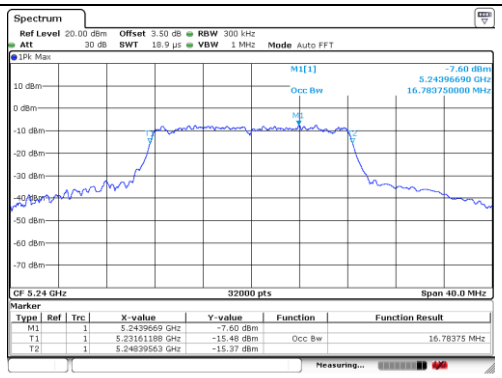
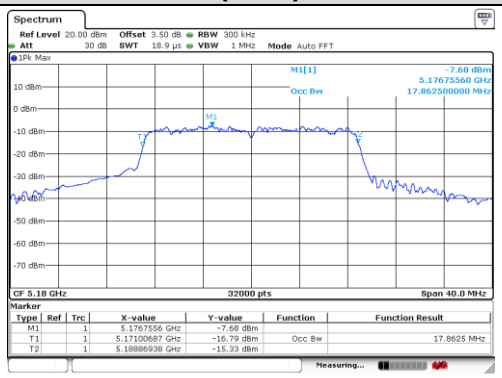

5220

5240

802.11n(HT20) mode

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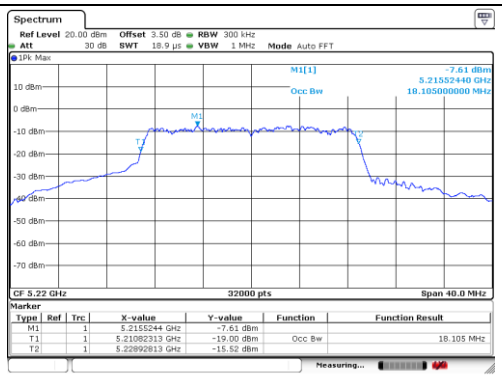
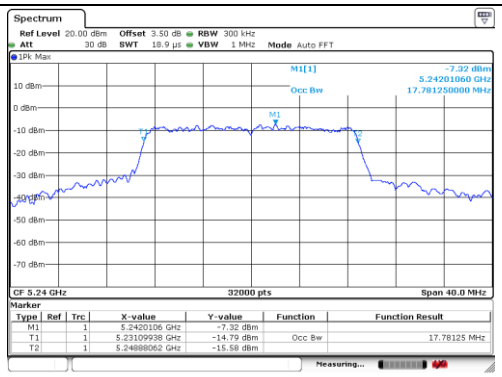
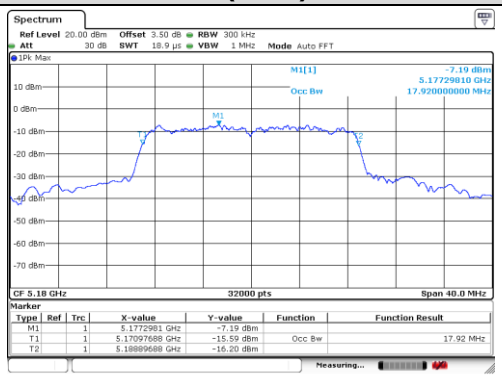

5220

5240

802.11ac(HT20) mode

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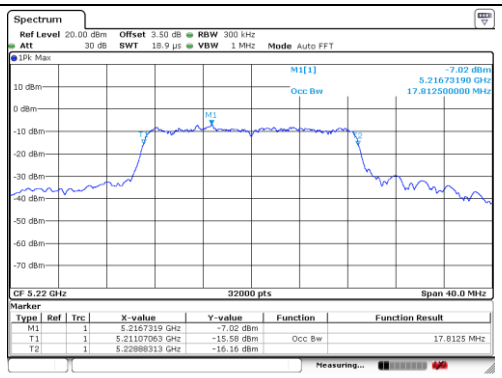
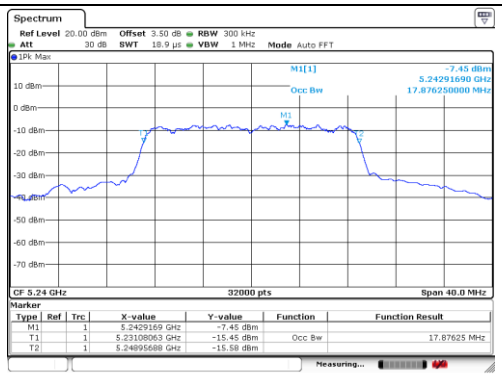
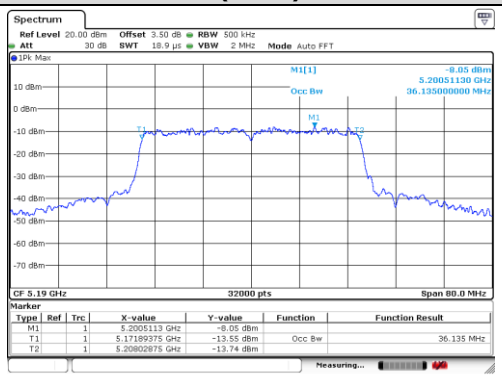

5220

5240

802.11n(HT40) mode

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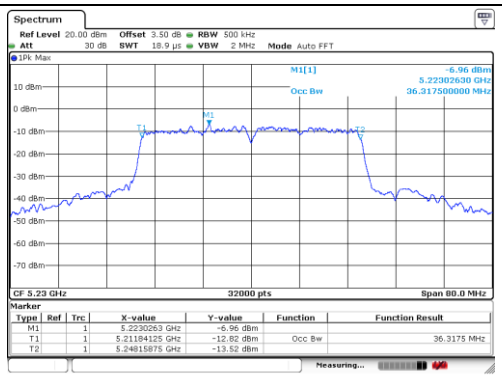
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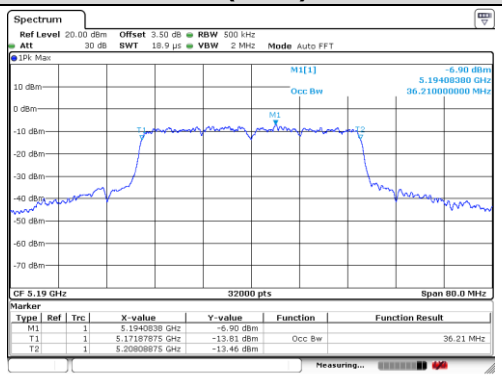
802.11ac(HT40) mode

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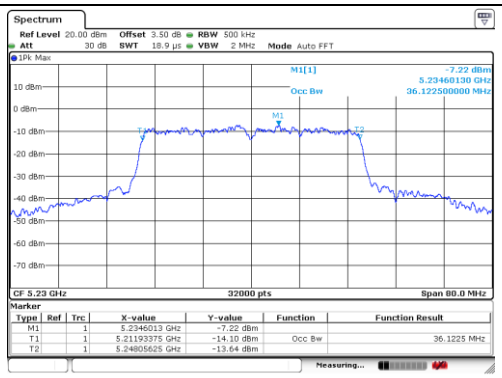
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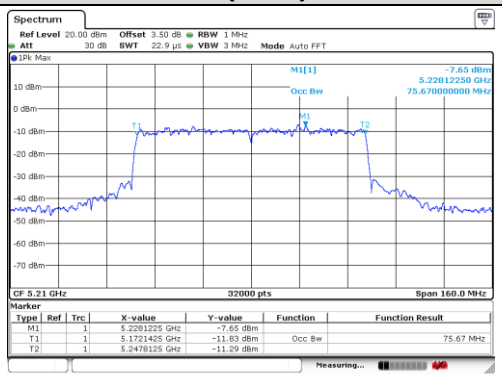
802.11ac(HT80) mode

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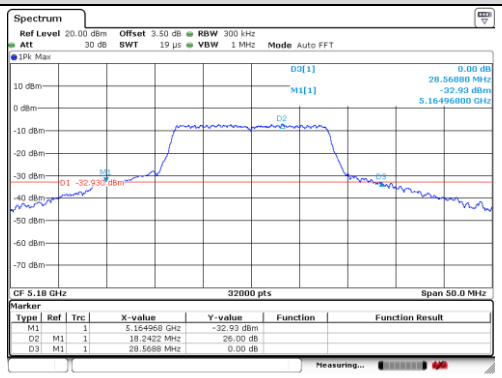
26dB Occupied Bandwidth

802.11a mode

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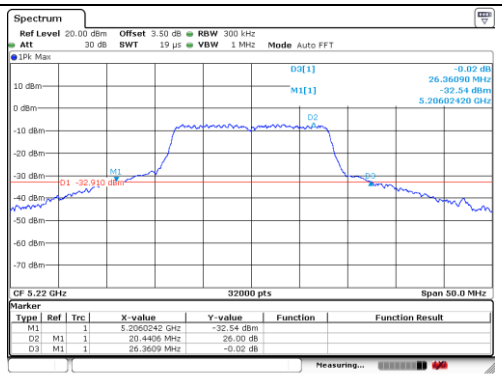
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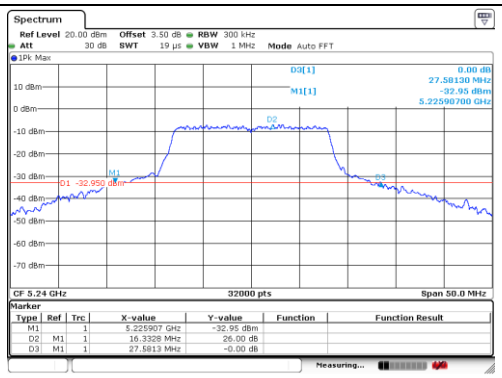
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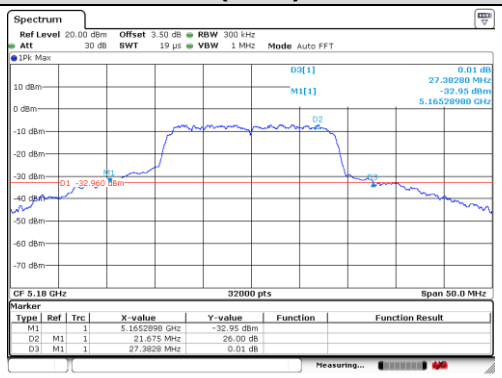
802.11n(HT20) mode

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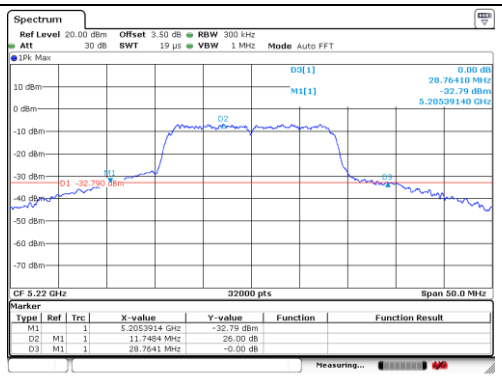
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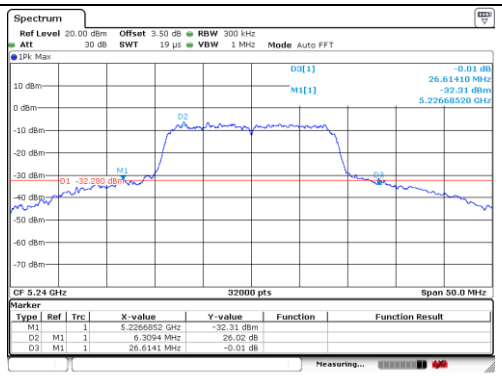
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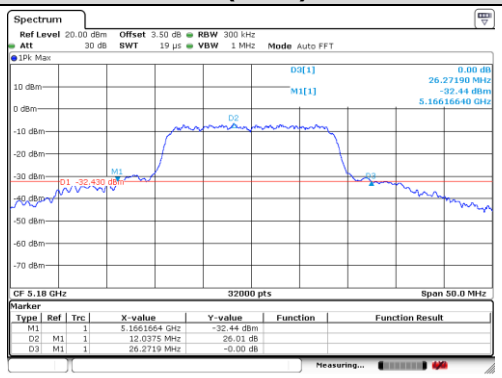
802.11ac(HT20) mode

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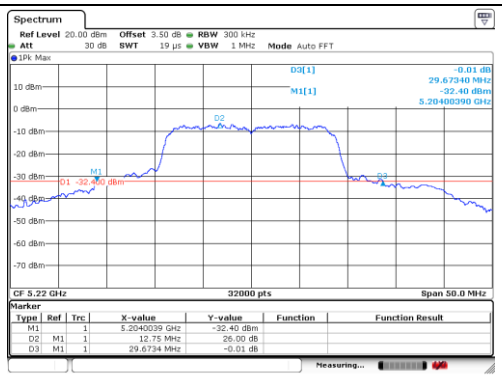
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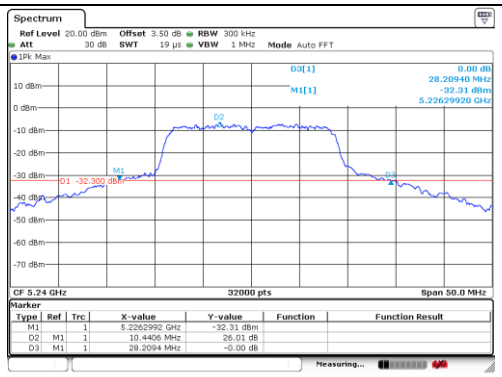
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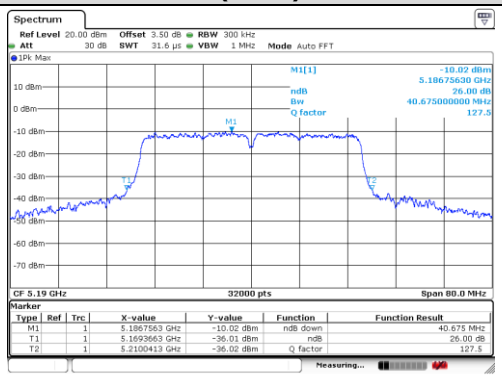
802.11n(HT40) mode

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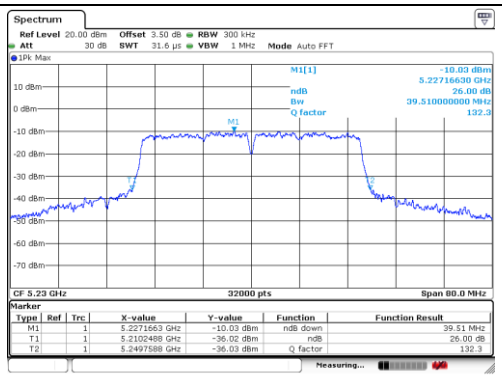
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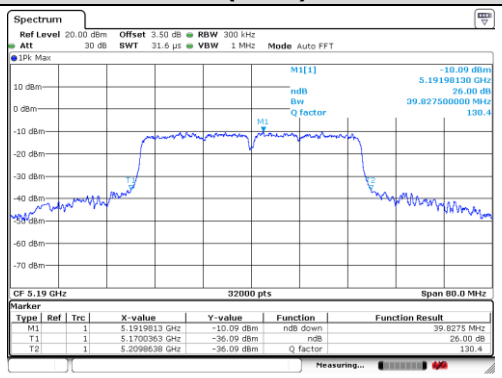
802.11ac(HT40) mode

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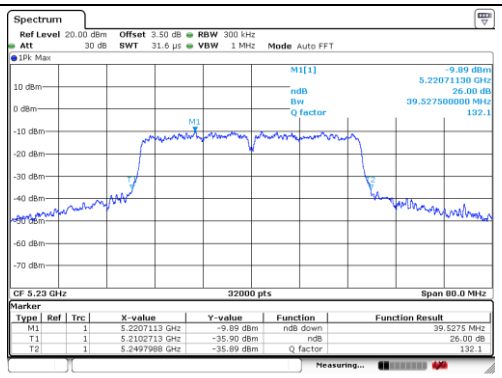
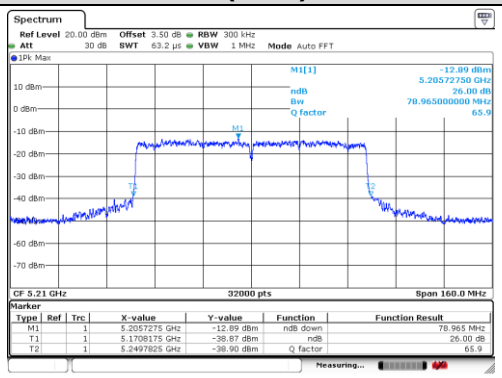

5230

802.11ac(HT80) mode

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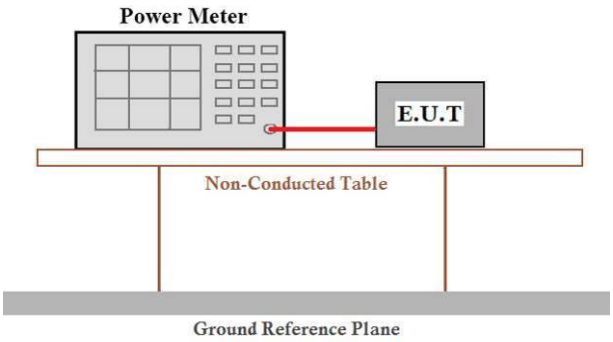
7.4 Maximum Average Transmit Power

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 E Section 15.407</td></tr>
<tr><td>Test Method:</td><td>KDB 789033 D02 General U-NII Test Procedures New Rules v02r01</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td>Frequency band (MHz)</td><td>Limit</td></tr>
<tr><td rowspan="2">5150-5250</td><td>≤1W(30dBm) for master device</td></tr>
<tr><td>≤250mW(23.98dBm) for client device</td></tr>
<tr><td>5250-5350</td><td>≤250mW(23.98dBm) for client device or 11dBm+10logB*</td></tr>
<tr><td>5470-5725</td><td>≤250mW(23.98dBm) for client device or 11dBm+10logB*</td></tr>
<tr><td colspan="2">Remark: *Where B is the 26dB emission bandwidth in MHz.
The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.</td></tr>
</table>
</td></tr>
<tr><td>Test setup:</td><td> 
</td></tr>
<tr><td>Test procedure:</td><td>Measurement using an RF average power meter
(i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied
a) The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
b) At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
c) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
(ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section B).
(iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
(iv) Adjust the measurement in dBm by adding 10 log(1/x) where x is the duty cycle (e.g., 10log(1/0.25) if the duty cycle is 25 percent).</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 5.10 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 5.2 for details</td></tr>
<tr><td>Test results:</td><td>Pass</td></tr>
</table>

Measurement Data

Modulation	Duty cycle	Duty Factor
802.11a	≥98 %	No require
802.11n(HT20)	≥98 %	No require
802.11n(HT40)	≥98 %	No require
802.11ac(HT20)	≥98 %	No require
802.11ac(HT40)	≥98 %	No require
802.11ac(HT80)	≥98 %	No require

802.11a mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	6.14	/	6.14	24	Pass
44	5220	6.80	/	6.80	24	Pass
48	5240	6.55	/	6.55	24	Pass

802.11n(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	6.04	/	6.04	24	Pass
44	5220	6.99	/	6.99	24	Pass
48	5240	6.53	/	6.53	24	Pass

802.11ac(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	6.02	/	6.02	24	Pass
44	5220	6.75	/	6.75	24	Pass
48	5240	6.65	/	6.65	24	Pass

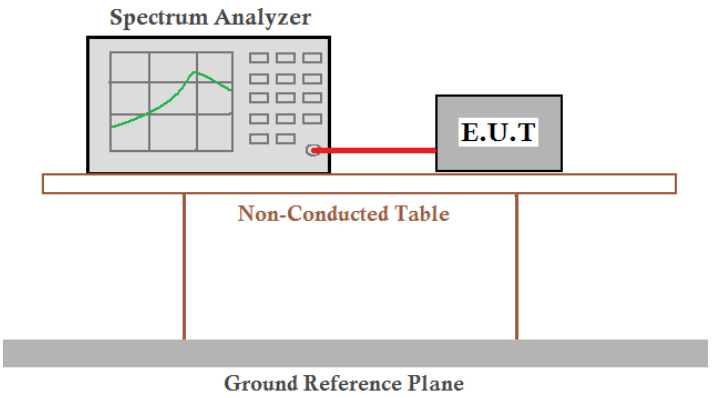
802.11n(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
38	5190	5.83	/	5.83	24	Pass
46	5230	6.92	/	6.92	24	Pass

802.11 ac(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
38	5190	6.04	/	6.04	24	Pass
46	5230	6.74	/	6.74	24	Pass

802.11 ac(HT80)						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
42	5210	6.26	/	6.26	24	Pass

Note: Output Power = Measured Power + Duty Factor
Duty Factor = 10 log (1/Duty Cycle)

7.5 Power Spectral Density

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 E Section 15.407</td></tr>
<tr><td>Test Method:</td><td>KDB 789033 D02 General U-NII Test Procedures New Rules v02r01</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td>Frequency band (MHz)</td><td>Limit</td></tr>
<tr><td rowspan="2">5150-5250</td><td>≤17dBm in 1MHz for master device</td></tr>
<tr><td>≤11dBm in 1MHz for client device</td></tr>
<tr><td>5250-5350</td><td>≤11dBm in 1MHz for client device</td></tr>
<tr><td>5470-5725</td><td>≤11dBm in 1MHz for client device</td></tr>
<tr><td colspan="2">Remark: The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test.</td></tr>
</table>
</td></tr>
<tr><td>Test setup:</td><td> 
</td></tr>
<tr><td>Test procedure:</td><td>1) Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power…”.
2) Use the peak search function on the instrument to find the peak of the spectrum.
3) Make the following adjustments to the peak value of the spectrum, if applicable:
a) If Method SA-2 or SA-2 Alternative was used, add 10 log(1/x), where x is the duty cycle, to the peak of the spectrum.
b) If Method SA-3 Alternative was used and the linear mode was used in step E)2)g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
4) The result is the PSD.</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 5.10 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 5.2 for details</td></tr>
<tr><td>Test results:</td><td>Pass</td></tr>
</table>

Measurement Data

Modulation	Duty cycle	Duty Factor
802.11a	≥98 %	No require
802.11n(HT20)	≥98 %	No require
802.11n(HT40)	≥98 %	No require
802.11ac(HT20)	≥98 %	No require
802.11ac(HT40)	≥98 %	No require
802.11ac(HT80)	≥98 %	No require

802.11a mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
36	5180	-1.85	/	-1.85	11	Pass
44	5220	-1.56	/	-1.56	11	Pass
48	5240	-1.90	/	-1.90	11	Pass

802.11n(HT20) mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
36	5180	-0.87	/	-0.87	11	Pass
44	5220	-0.46	/	-0.46	11	Pass
48	5240	-1.08	/	-1.08	11	Pass

802.11ac(HT20) mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
36	5180	-0.89	/	-0.97	11	Pass
44	5220	-1.24	/	-0.99	11	Pass
48	5240	-1.37	/	-0.37	11	Pass

802.11n(HT40) mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
38	5190	-3.53	/	-4.43	11	Pass
46	5230	-4.22	/	-3.99	11	Pass

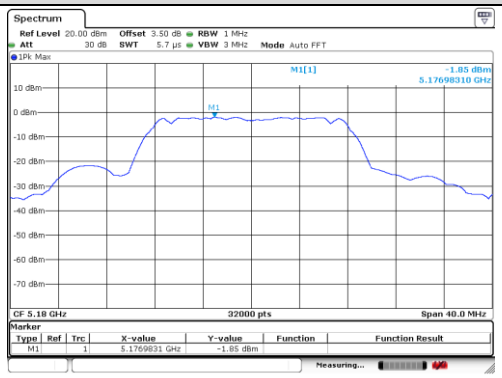
802.11 ac(HT40) mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
38	5190	-4.30	/	-4.56	11	Pass
46	5230	-4.41	/	-3.94	11	Pass

802.11 ac(HT80)						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
42	5210	-6.55	/	-13.02	11	Pass

Note: Output Power = Measured Power + Duty Factor

Duty Factor = 10 log (1/Duty Cycle)

Test plots as followed:

802.11a mode

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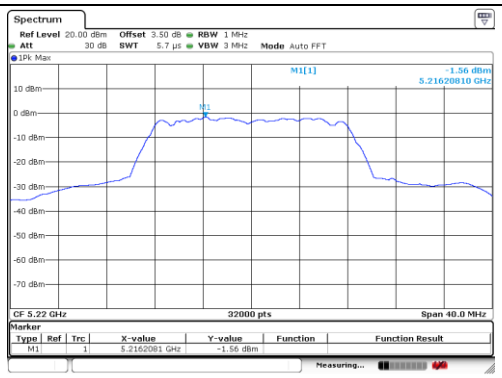
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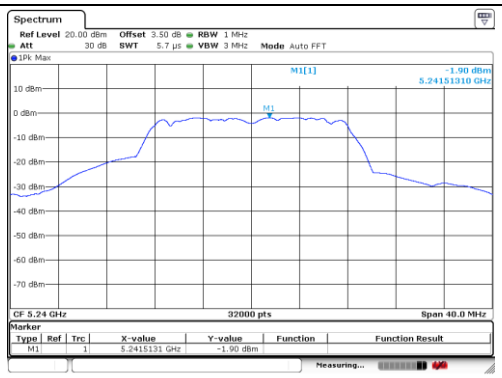
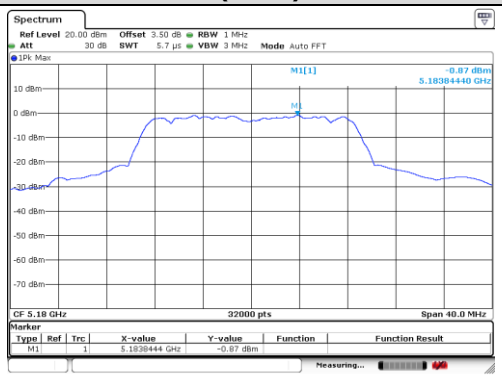

5240

802.11n(HT20) mode

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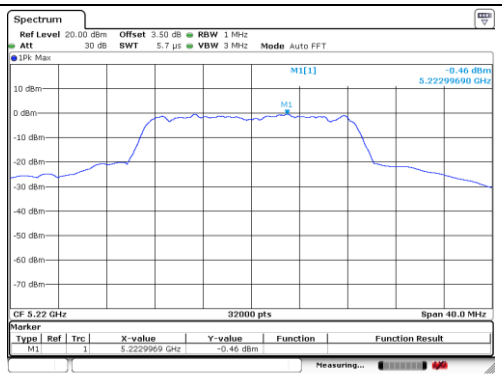
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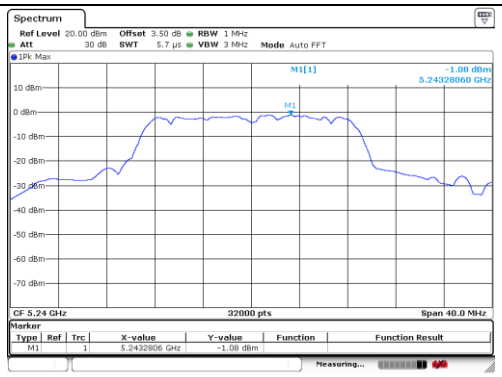
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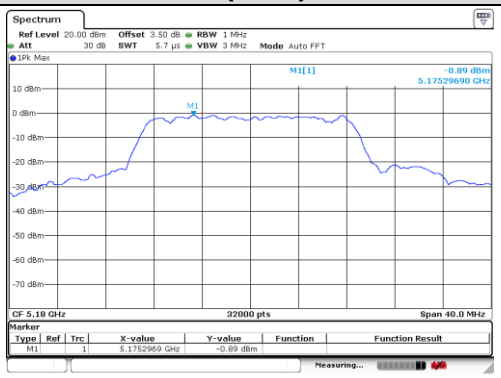
802.11ac(HT20) mode

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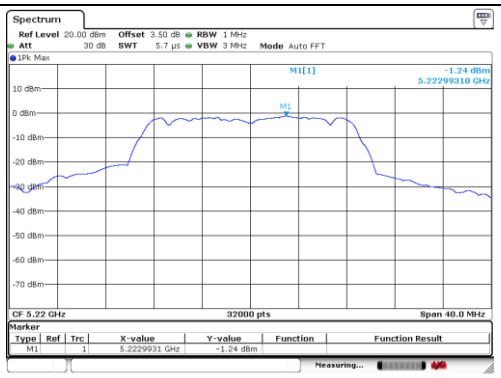
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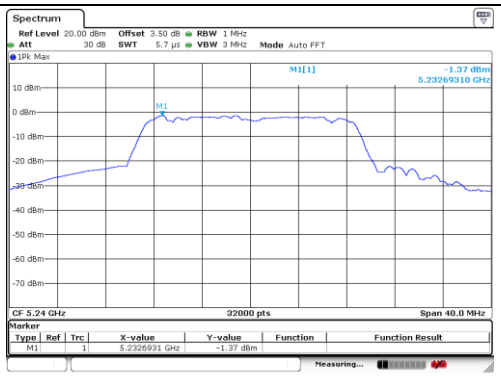
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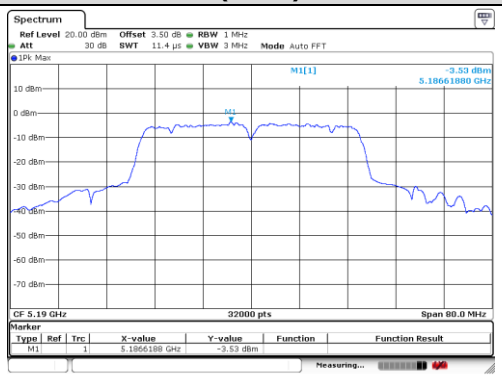
802.11n(HT40) mode

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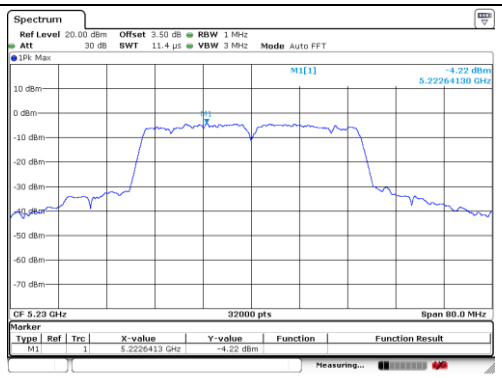
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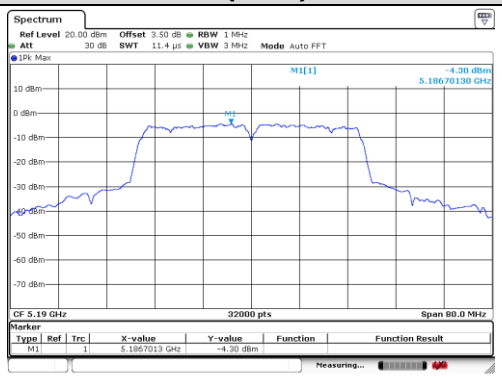
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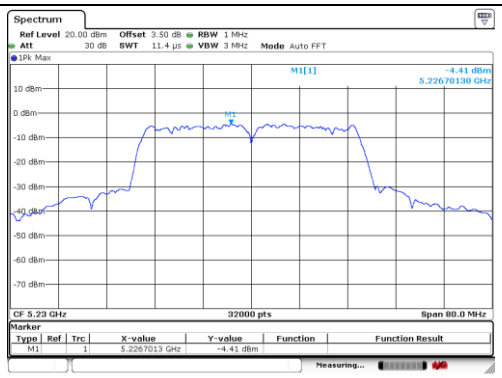
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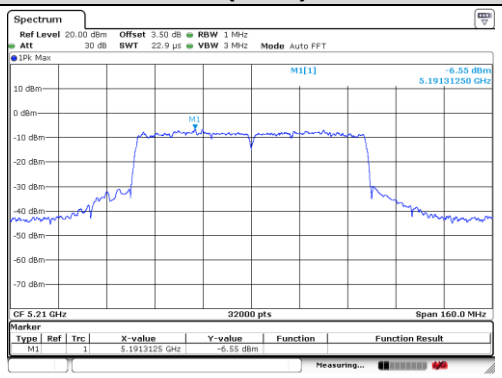
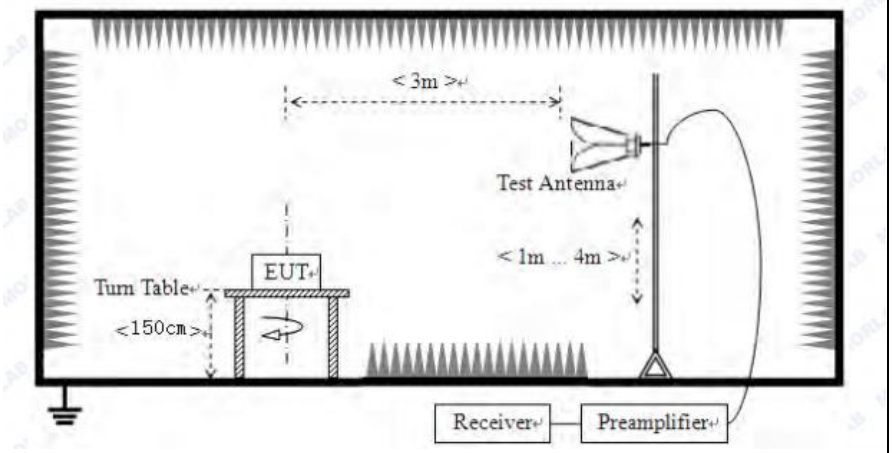
802.11ac(HT80) mode

5210

7.6 Band Edge

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 E Section 15.407 and 5.205</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>AV</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr>
<tr><td>68.2</td><td>Peak Value</td></tr>
</table>
Undesirable emission limits:
(1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.
(2) For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.
(3) For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of −27 dBm/MHz.
</td></tr>
<tr><td>Test Procedure:</td><td>
a. The EUT was placed on the top of a rotating table 1.5 m above the ground at a 3 meter camber. 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 antenna height 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 rotable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not
</td></tr>
</table>

	have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test setup:	For radiated emissions above 1GHz 
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Remarks:

1. *Only the worst case Main Antenna test data.*
2. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
4. *The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.*
5. *According to KDB 789033 D02 v02r01 section G) 1) (d), for For measurements above 1000 MHz @ 3m distance, the limit of field strength is computed as follows:*
   E[dBuV/m] = EIRP[dBm] + 95.2;
   For example, if EIRP = -27dBm
   E[dBuV/m] = -27 + 95.2 = 68.2dBuV/m.

Measurement Data:

802.11a(HT20)						
Freq. (MHz) (Peak)	Ant.Pol. H/V	Reading Peak (dBuv)	Ant/CF Peak (dB)	Act Peak (dBuv/m)	Limit Peak (dBuv/m)	Note
5150.000	V	52.74	4.78	57.52	68.20	CH36
5150.000	H	55.63	4.78	60.41	68.20	CH36
5350.000	V	41.87	4.30	46.17	68.20	CH48
5350.000	H	42.56	4.30	46.86	68.20	CH48
Freq. (MHz) (Avg)	Ant.Pol. H/V	Reading Avg (dBuv)	Ant/CF Avg (dB)	Act Avg (dBuv/m)	Limit Avg (dBuv/m)	Note
5150.000	V	45.01	4.78	49.79	54.00	CH36
5150.000	H	46.87	4.78	51.65	54.00	CH36

802.11n(HT20)						
Freq. (MHz) (Peak)	Ant.Pol. H/V	Reading Peak (dBuv)	Ant/CF Peak (dB)	Act Peak (dBuv/m)	Limit Peak (dBuv/m)	Note
5150.000	V	42.87	4.78	47.65	68.20	CH36
5150.000	H	54.16	4.78	58.94	68.20	CH36
5350.000	V	41.93	4.30	46.23	68.20	CH48
5350.000	H	43.81	4.30	48.11	68.20	CH48
Freq. (MHz) (Avg)	Ant.Pol. H/V	Reading Avg (dBuv)	Ant/CF Avg (dB)	Act Avg (dBuv/m)	Limit Avg (dBuv/m)	Note
5150.000	V	36.75	4.78	41.53	54.00	CH36
5150.000	H	45.76	4.78	50.54	54.00	CH36

802.11ac(HT20)						
Freq. (MHz) (Peak)	Ant.Pol. H/V	Reading Peak (dBuv)	Ant/CF Peak (dB)	Act Peak (dBuv/m)	Limit Peak (dBuv/m)	Note
5150.000	V	53.75	4.78	58.53	68.20	CH36
5150.000	H	55.87	4.78	60.65	68.20	CH36
5350.000	V	41.21	4.30	45.51	68.20	CH48
5350.000	H	41.93	4.30	46.23	68.20	CH48

Freq. (MHz) (Avg)	Ant.Pol. H/V	Reading Avg (dBuv)	Ant/CF Avg (dB)	Act Avg (dBuv/m)	Limit Avg (dBuv/m)	Note
5150.000	V	45.75	4.78	50.53	54.00	CH36
5150.000	H	47.02	4.78	51.80	54.00	CH36

802.11n(HT40)

Freq. (MHz) (Peak)	Ant.Pol. H/V	Reading Peak (dBuv)	Ant/CF Peak (dB)	Act Peak (dBuv/m)	Limit Peak (dBuv/m)	Note
5150.000	V	56.14	4.78	60.92	68.20	CH38
5150.000	H	58.26	4.78	63.04	68.20	CH38
5350.000	V	40.85	4.30	45.15	68.20	CH46
5350.000	H	43.16	4.30	47.46	68.20	CH46
Freq. (MHz) (Avg)	Ant.Pol. H/V	Reading Avg (dBuv)	Ant/CF Avg (dB)	Act Avg (dBuv/m)	Limit Avg (dBuv/m)	Note
5150.000	V	46.88	4.78	51.66	54.00	CH36
5150.000	H	48.44	4.78	53.22	54.00	CH36

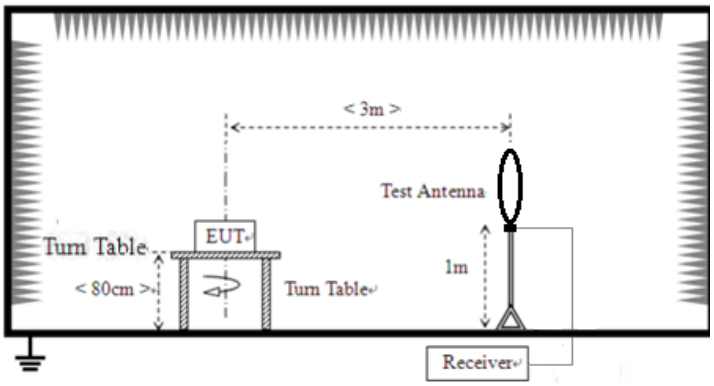
802.11ac(HT40)

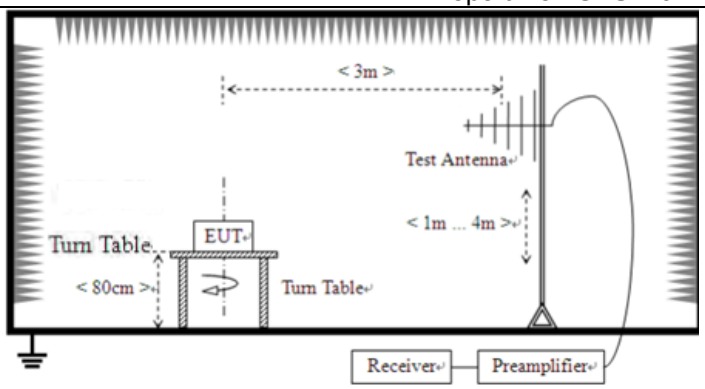
Freq. (MHz) (Peak)	Ant.Pol. H/V	Reading Peak (dBuv)	Ant/CF Peak (dB)	Act Peak (dBuv/m)	Limit Peak (dBuv/m)	Note
5150.000	V	56.41	4.78	61.19	68.20	CH38
5150.000	H	57.32	4.78	62.10	68.20	CH38
5350.000	V	41.05	4.30	45.35	68.20	CH46
5350.000	H	42.88	4.30	47.18	68.20	CH46
Freq. (MHz) (Avg)	Ant.Pol. H/V	Reading Avg (dBuv)	Ant/CF Avg (dB)	Act Avg (dBuv/m)	Limit Avg (dBuv/m)	Note
5150.000	V	48.02	4.78	52.80	54.00	CH36
5150.000	H	47.56	4.78	52.34	54.00	CH36

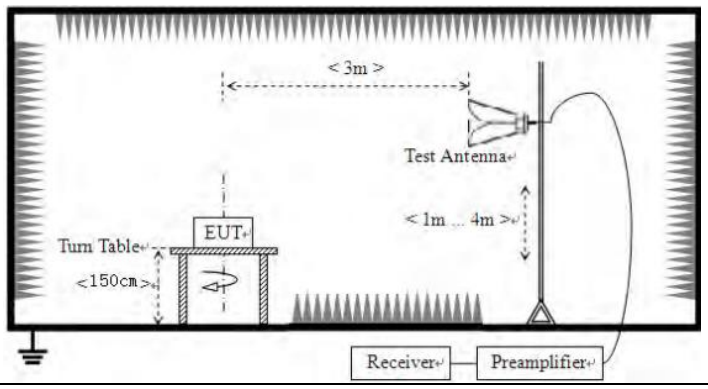
802.11ac(HT80)						
Freq. (MHz) (Peak)	Ant.Pol. H/V	Reading Peak (dBuv)	Ant/CF Peak (dB)	Act Peak (dBuv/m)	Limit Peak (dBuv/m)	Note
5150.000	V	54.25	4.78	59.03	68.20	CH42
5350.000	V	42.84	4.78	47.62	68.20	CH42
5150.000	H	55.63	4.30	59.93	68.20	CH42
5350.000	H	45.19	4.30	49.49	68.20	CH42
Freq. (MHz) (Avg)	Ant.Pol. H/V	Reading Avg (dBuv)	Ant/CF Avg (dB)	Act Avg (dBuv/m)	Limit Avg (dBuv/m)	Note
5150.000	V	46.46	4.78	51.24	54.00	CH36
5150.000	H	36.44	4.78	41.22	54.00	CH36

7.7 Radiated Emission

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209 and 15.205</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td>9kHz to 40GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Value</th></tr>
<tr><td>9kHz-150KHz</td><td>Quasi-peak</td><td>200Hz</td><td>1kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>150kHz-30MHz</td><td>Quasi-peak</td><td>9kHz</td><td>30kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>AV</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Limit (uV/m)</th><th>Value</th><th>Measurement Distance</th></tr>
<tr><td>0.009MHz-0.490MHz</td><td>2400/F(KHz)</td><td>QP</td><td>300m</td></tr>
<tr><td>0.490MHz-1.705MHz</td><td>24000/F(KHz)</td><td>QP</td><td>300m</td></tr>
<tr><td>1.705MHz-30MHz</td><td>30</td><td>QP</td><td>30m</td></tr>
<tr><td>30MHz-88MHz</td><td>100</td><td>QP</td><td rowspan="6">3m</td></tr>
<tr><td>88MHz-216MHz</td><td>150</td><td>QP</td></tr>
<tr><td>216MHz-960MHz</td><td>200</td><td>QP</td></tr>
<tr><td>960MHz-1GHz</td><td>500</td><td>QP</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>500</td><td>Average</td></tr>
<tr><td>5000</td><td>Peak</td></tr>
</table>
</td></tr>
<tr><td>Test Procedure:</td><td>Substitution method was performed to determine the actual ERP emission levels of the EUT.
The following test procedure as below:
1>.Below 1GHz test procedure:
1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height 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.
4. 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 rotable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
2>.Above 1GHz test procedure:</td></tr>
</table>

	1. On the test site as test setup graph above,the EUT shall be placed at the 0.8m support on the turntable and in the position closest to normal use as declared by the provider. 2. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter.The output of the test antenna shall be connected to the measuring receiver. 3. The transmitter shall be switched on, if possible, without modulation and the measuring receiver shall be tuned to the frequency of the transmitter under test. 4. The test antenna shall be raised and lowered from 1m to 4m until a maximum signal level is detected by the measuring receiver. Then the turntable should be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver. 5. Repeat step 4 for test frequency with the test antenna polarized horizontally. 6. Remove the transmitter and replace it with a substitution antenna 7. Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends vertically polarized, and with the signal generator tuned to a particular test frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output. 8. Repeat step 7 with both antennas horizontally polarized for each test frequency. 9. Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps 7 and 8 by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula: EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi) where: Pg is the generator output power into the substitution antenna.
Test setup:	For radiated emissions from 9kHz to 30MHz  For radiated emissions from 30MHz to1GHz

<table>
<tr><td></td><td colspan="6"> 

For radiated emissions above 1GHz

</td></tr>
<tr><td>Test Instruments:</td><td colspan="6">Refer to section 5.10 for details</td></tr>
<tr><td>Test mode:</td><td colspan="6">Refer to section 5.2 for details</td></tr>
<tr><td>Test environment:</td><td>Temp.:</td><td>25 °C</td><td>Humid.:</td><td>52%</td><td>Press.:</td><td>1012mbar</td></tr>
<tr><td>Test voltage:</td><td colspan="6">AC 120V, 60Hz</td></tr>
<tr><td>Test results:</td><td colspan="6">Pass</td></tr>
</table>

Remarks:

1. *Only the worst case Main Antenna test data.*
2. *Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.*

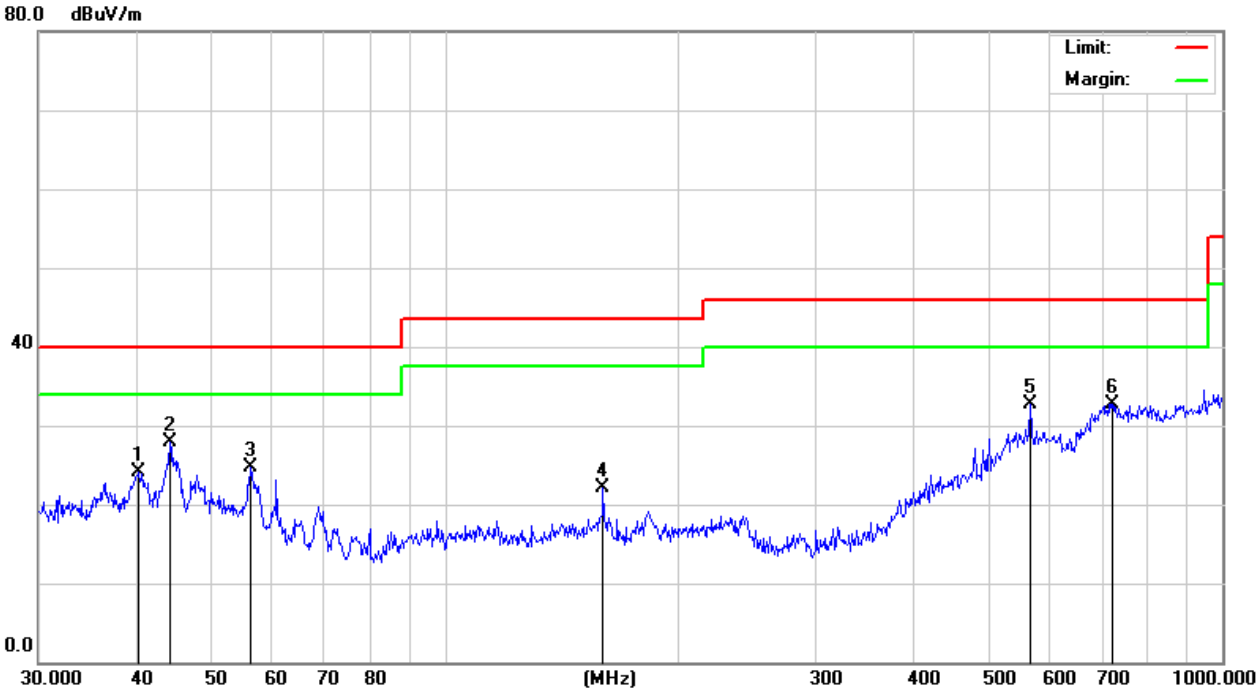
Measurement Data:

9 kHz ~ 30 MHz

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

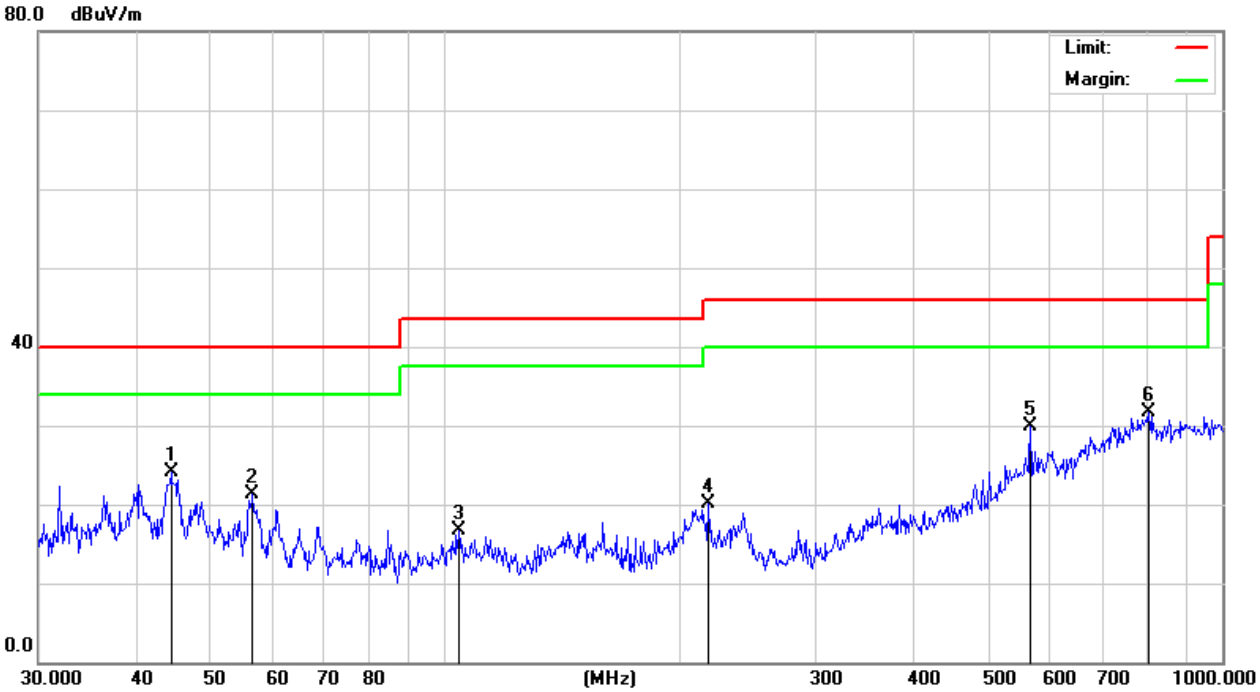
30MHz~ 1GHz

Horizontal:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		40.4172	26.02	-1.89	24.13	40.00	-15.87	peak
2	*	44.2752	30.16	-2.19	27.97	40.00	-12.03	peak
3		56.1974	29.21	-4.56	24.65	40.00	-15.35	peak
4		159.7844	28.73	-6.54	22.19	43.50	-21.31	peak
5		566.6223	28.44	4.33	32.77	46.00	-13.23	peak
6		721.7259	25.43	7.34	32.77	46.00	-13.23	peak

Vertical:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		44.4308	28.63	-4.49	24.14	40.00	-15.86	peak
2		56.5929	28.11	-6.88	21.23	40.00	-18.77	peak
3		104.1701	24.57	-7.96	16.61	43.50	-26.89	peak
4		218.3085	26.00	-5.88	20.12	46.00	-25.88	peak
5		566.6223	28.12	1.80	29.92	46.00	-16.08	peak
6	*	804.6028	24.02	7.60	31.62	46.00	-14.38	peak

Above 1GHz:

802.11a(HT20) 5180MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10360	34.21	12.56	46.77	68.20	-27.23	PK
V	15540	35.90	16.45	52.35	68.20	-21.65	PK
H	10360	35.14	12.56	47.70	68.20	-26.30	PK
H	15540	36.81	16.45	53.26	68.20	-20.74	PK

802.11a(HT20) 5220MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10440	36.14	12.64	48.78	68.20	-25.22	PK
V	15660	35.53	16.53	52.06	68.20	-21.94	PK
H	10440	37.60	12.64	50.24	68.20	-23.76	PK
H	15660	35.85	16.53	52.38	68.20	-21.62	PK

802.11a(HT20) 5240MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10480	33.70	12.68	46.38	68.20	-27.62	PK
V	15720	34.54	16.54	51.08	68.20	-22.92	PK
H	10480	35.74	12.68	48.42	68.20	-25.58	PK
H	15720	34.30	16.54	50.84	68.20	-23.16	PK

802.11n(HT20) 5180MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10360	34.64	12.56	47.20	68.20	-26.80	PK
V	15540	34.33	16.45	50.78	68.20	-23.22	PK
H	10360	33.00	12.56	45.56	68.20	-28.44	PK
H	15540	34.47	16.45	50.92	68.20	-23.08	PK

802.11n(HT20) 5220MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10440	34.08	12.64	46.72	68.20	-27.28	PK
V	15660	31.53	16.53	48.06	68.20	-25.94	PK
H	10440	33.22	12.64	45.86	68.20	-28.14	PK
H	15660	31.57	16.53	48.10	68.20	-25.90	PK

802.11n(HT20) 5240MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10480	33.41	12.68	46.09	68.20	-27.91	PK
V	15720	32.57	16.54	49.11	68.20	-24.89	PK
H	10480	32.89	12.68	45.57	68.20	-28.43	PK
H	15720	34.33	16.54	50.87	68.20	-23.13	PK

802.11ac(HT20) 5180MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10360	34.47	12.56	47.03	68.20	-26.97	PK
V	15540	33.56	16.45	50.01	68.20	-23.99	PK
H	10360	33.30	12.56	45.86	68.20	-28.14	PK
H	15540	35.20	16.45	51.65	68.20	-22.35	PK

802.11ac(HT20) 5220MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10440	34.15	12.64	46.79	68.20	-27.21	PK
V	15660	31.21	16.53	47.74	68.20	-26.26	PK
H	10440	33.14	12.64	45.78	68.20	-28.22	PK
H	15660	31.68	16.53	48.21	68.20	-25.79	PK

802.11ac(HT20) 5240MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10480	33.73	12.68	46.41	68.20	-27.59	PK
V	15720	32.11	16.54	48.65	68.20	-25.35	PK
H	10480	32.15	12.68	44.83	68.20	-29.17	PK
H	15720	34.51	16.54	51.05	68.20	-22.95	PK

802.11nHT40) 5190MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10380	35.49	12.58	48.07	68.20	-25.93	PK
V	15570	33.90	16.48	50.38	68.20	-23.62	PK
H	10380	37.34	12.58	49.92	68.20	-24.08	PK
H	15570	32.86	16.48	49.34	68.20	-24.66	PK

802.11n(HT40) 5230MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10460	36.47	12.66	49.13	68.20	-24.87	PK
V	15690	34.25	16.53	50.78	68.20	-23.22	PK
H	10460	35.75	12.66	48.41	68.20	-25.59	PK
H	15690	33.70	16.53	50.23	68.20	-23.77	PK

802.11ac(HT40) 5190MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10380	32.84	12.58	45.42	68.20	-28.58	PK
V	15570	34.97	16.48	51.45	68.20	-22.55	PK
H	10380	34.41	12.58	46.99	68.20	-27.01	PK
H	15570	32.65	16.48	49.13	68.20	-24.87	PK

802.11ac(HT40) 5230MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10460	34.21	12.66	46.87	68.20	-27.13	PK
V	15690	31.68	16.53	48.21	68.20	-25.79	PK
H	10460	34.65	12.66	47.31	68.20	-26.69	PK
H	15690	33.16	16.53	49.69	68.20	-24.31	PK

802.11ac(HT80) 5210MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10420	33.45	12.62	46.07	68.20	-27.93	PK
V	15630	32.67	16.52	49.19	68.20	-24.81	PK
H	10420	33.91	12.62	46.53	68.20	-27.47	PK
H	15630	32.13	16.52	48.65	68.20	-25.35	PK

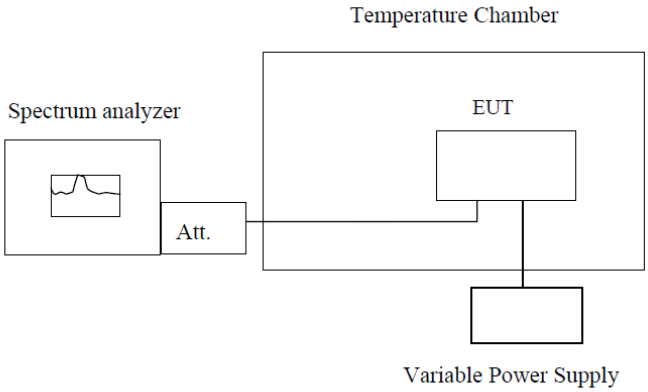
Notes:

1. Level = Read Level + Antenna Factor+ Cable loss- Preamp Factor.

2. The test trace is same as the ambient noise (the test frequency range: 18GHz~40GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

7.8 Frequency stability

Test Requirement:	FCC Part15 C Section 15.407(g)
Test Method:	ANSI C63.10:2013, FCC Part 2.1055
Limit:	Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified
Test Procedure:	The EUT was setup to ANSI C63.4, 2003; tested to 2.1055 for compliance to FCC Part 15.407(g) requirements.
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Remark: Set the EUT transmits at un-modulation mode to test frequency stability.

Measurement data:

Frequency stability versus Temp.									
Worse Case Operating Frequency：5180MHz									
Temp. (°C)	Power Supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail
-30	120	5180.1323	Pass	5179.8859	Pass	5180.0820	Pass	5180.0187	Pass
-20	120	5179.9468	Pass	5179.9590	Pass	5179.9145	Pass	5179.8524	Pass
-10	120	5180.0422	Pass	5180.0791	Pass	5179.9755	Pass	5180.0990	Pass
0	120	5180.0696	Pass	5180.1876	Pass	5179.9223	Pass	5180.0527	Pass
10	120	5180.0683	Pass	5180.0478	Pass	5179.9891	Pass	5180.1298	Pass
20	120	5179.9184	Pass	5179.8579	Pass	5179.9902	Pass	5179.8952	Pass
30	120	5180.1833	Pass	5179.9718	Pass	5179.9564	Pass	5180.0967	Pass
40	120	5180.0540	Pass	5179.9171	Pass	5179.8959	Pass	5180.0378	Pass
50	120	5179.9943	Pass	5179.8815	Pass	5179.9295	Pass	5179.9017	Pass
Frequency stability versus Temp.									
Worse Case Operating Frequency：5180MHz									
Temp. (°C)	Power Supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail
25	108	5180.2230	Pass	5179.9267	Pass	5180.0548	Pass	5180.0695	Pass
25	120	5179.9815	Pass	5180.0290	Pass	5180.0648	Pass	5179.9295	Pass
25	132	5179.8741	Pass	5180.0289	Pass	5179.9899	Pass	5180.0983	Pass

Frequency stability versus Temp.									
Worse Case Operating Frequency：5190MHz									
Temp. (°C)	Power Supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail
-30	120	5190.0683	Pass	5190.1728	Pass	5189.9806	Pass	5190.0650	Pass
-20	120	5190.0282	Pass	5190.0499	Pass	5189.9084	Pass	5190.0237	Pass
-10	120	5190.0631	Pass	5190.0314	Pass	5189.8991	Pass	5190.1490	Pass
0	120	5190.2466	Pass	5189.9622	Pass	5189.9600	Pass	5190.1761	Pass
10	120	5190.0666	Pass	5189.9035	Pass	5190.0098	Pass	5190.0607	Pass
20	120	5190.0382	Pass	5190.0489	Pass	5189.9769	Pass	5190.2361	Pass
30	120	5190.1619	Pass	5189.9096	Pass	5190.2457	Pass	5190.1566	Pass
40	120	5189.9063	Pass	5189.9777	Pass	5190.0263	Pass	5189.9759	Pass
50	120	5189.8368	Pass	5189.9618	Pass	5189.9694	Pass	5190.1080	Pass
Frequency stability versus Temp.									
Worse Case Operating Frequency：5190MHz									
Temp. (°C)	Power Supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail
25	108	5190.0614	Pass	5190.1417	Pass	5189.9396	Pass	5190.0167	Pass
25	120	5190.1225	Pass	5189.9615	Pass	5189.9284	Pass	5189.9516	Pass
25	132	5190.1033	Pass	5190.0603	Pass	5189.8233	Pass	5190.0163	Pass

Frequency stability versus Temp.									
Worse Case Operating Frequency：5210MHz									
Temp. (°C)	Power Supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail
-30	120	5210.0117	Pass	5210.0680	Pass	5210.2309	Pass	5210.0921	Pass
-20	120	5210.1607	Pass	5210.0055	Pass	5210.0858	Pass	5209.9645	Pass
-10	120	5209.9994	Pass	5210.3249	Pass	5210.0274	Pass	5210.1886	Pass
0	120	5209.9572	Pass	5209.8265	Pass	5210.0179	Pass	5210.0429	Pass
10	120	5210.1122	Pass	5209.9661	Pass	5210.0361	Pass	5209.9893	Pass
20	120	5209.9184	Pass	5209.9152	Pass	5210.1580	Pass	5209.9081	Pass
30	120	5210.1327	Pass	5209.9857	Pass	5210.0455	Pass	5210.0498	Pass
40	120	5210.0006	Pass	5209.7450	Pass	5210.0493	Pass	5209.9171	Pass
50	120	5210.0497	Pass	5210.1075	Pass	5210.1848	Pass	5210.0995	Pass
Frequency stability versus Temp.									
Worse Case Operating Frequency：5210MHz									
Temp. (°C)	Power Supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail
25	108	5210.1056	Pass	5210.1057	Pass	5210.2287	Pass	5210.1409	Pass
25	120	5210.1909	Pass	5209.9705	Pass	5210.0355	Pass	5210.0774	Pass
25	132	5210.0137	Pass	5210.3232	Pass	5209.9400	Pass	5210.1127	Pass

8 Test Setup Photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

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