TEST REPORT

Applicant:	Shanghai Goodview Electronics Technology Co., Ltd.
Address of Applicant:	Room 866,NO.888,West Huanhu 2 Road,NanhuiXincheng Town,Pudong,201306
Manufacturer/Factory:	Shanghai Goodview Electronics Technology Co., Ltd.
Address of Manufacturer/Factory:	Room 866,NO.888,West Huanhu 2 Road,NanhuiXincheng Town,Pudong,201306

Equipment Under Test (EUT)

Product Name:	Interactive white board/LCD Digital Display
Model No.:	GM*****(*can use 0-9,A-Z，or blank, just different in customer code ,software and sales area)
Trade Mark:	GOODVIEW
FCC ID:	2AVB8GMS
Applicable standards:	FCC CFR Title 47 Part 15 Subpart E Section 15.407
Date of sample receipt:	March 24,2020
Date of Test:	March 26,2020- April 08,2020
Date of report issue:	April 09,2020
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	April 09, 2020	Original

Prepared By:  ***Date:*** April 2, 2020

Project Engineer

Check By:  ***Date:*** April 2, 2020

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
Peak 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>Interactive white board/LCD Digital Display</td></tr>
<tr><td>Model No.:</td><td>GM65S4</td></tr>
<tr><td>Serial No.:</td><td>N/A</td></tr>
<tr><td>Hardware version:</td><td>KJD66A-REV.B</td></tr>
<tr><td>Software version:</td><td>GV-MSD648-Android-2GX16G-DOUBLEWIFI-UHD-S4.5.5</td></tr>
<tr><td>Test sample(s) ID:</td><td>GTS202004000060-1</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="5">U-NII Band I</td><td>IEEE 802.11a</td><td>5180-5240</td><td>4</td></tr>
<tr><td>IEEE 802.11n 20MHz</td><td>5180-5240</td><td>4</td></tr>
<tr><td>IEEE 802.11n 40MHz</td><td>5190-5230</td><td>2</td></tr>
<tr><td>IEEE 802.11ac 20MHz</td><td>5180-5240</td><td>4</td></tr>
<tr><td>IEEE 802.11ac 40MHz</td><td>5190-5230</td><td>2</td></tr>
</table>
</td></tr>
<tr><td>Modulation technology:</td><td>OFDM with BPSK/QPSK/16QAM/64QAM/256QAM
for 802.11a/n/ac;</td></tr>
<tr><td>Antenna Type:</td><td>Integral Antenna</td></tr>
<tr><td>Antenna gain:</td><td>All Antenna :5.0dBi(Declare by applicant)</td></tr>
<tr><td>Power supply:</td><td>AC 120-240V 50/60Hz</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	/	/	/	/

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(HT20)/ac(HT20)	6/6.5 Mbps
802.11n(HT40) /ac(HT40)	13.5 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.

5.8 Additional Instructions

Test Software	Special test command provided by manufacturer
Power level setup	Default

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. 03 2015	July. 02 2020
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. 26 2019	June. 25 2020
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 26 2019	June. 25 2020
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 26 2019	June. 25 2020
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 26 2019	June. 25 2020
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 26 2019	June. 25 2020
9	Coaxial Cable	GTS	N/A	GTS211	June. 26 2019	June. 25 2020
10	Coaxial cable	GTS	N/A	GTS210	June. 26 2019	June. 25 2020
11	Coaxial Cable	GTS	N/A	GTS212	June. 26 2019	June. 25 2020
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 26 2019	June. 25 2020
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 26 2019	June. 25 2020
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 26 2019	June. 25 2020
15	Band filter	Amindeon	82346	GTS219	June. 26 2019	June. 25 2020
16	Power Meter	Anritsu	ML2495A	GTS540	June. 26 2019	June. 25 2020
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 26 2019	June. 25 2020
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 26 2019	June. 25 2020
19	Splitter	Agilent	11636B	GTS237	June. 26 2019	June. 25 2020
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 26 2019	June. 25 2020
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 19 2019	Oct. 18 2020
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 19 2019	Oct. 18 2020
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 19 2019	Oct. 18 2020
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 26 2019	June. 25 2020

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. 26 2019	June. 25 2020
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 26 2019	June. 25 2020
4	ENV216 2-L-V-NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	GTS226	June. 26 2019	June. 25 2020
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. 26 2019	June. 25 2020
8	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	June. 26 2019	June. 25 2020
9	ISN	SCHWARZBECK	NTFM 8158	GTD565	June. 26 2019	June. 25 2020

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. 26 2019	June. 25 2020
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 26 2019	June. 25 2020
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 26 2019	June. 25 2020
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	June. 26 2019	June. 25 2020
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	June. 26 2019	June. 25 2020
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	June. 26 2019	June. 25 2020
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	June. 26 2019	June. 25 2020
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	June. 26 2019	June. 25 2020

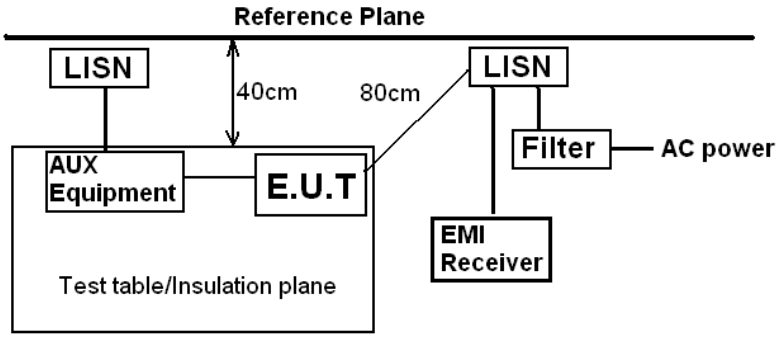
General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 26 2019	June. 25 2020
2	Barometer	ChangChun	DYM3	GTS255	June. 26 2019	June. 25 2020

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 integral antenna, the best case gain of the antennas are 5.0dBi, reference to the appendix II for details	

7.2 Conducted Emissions

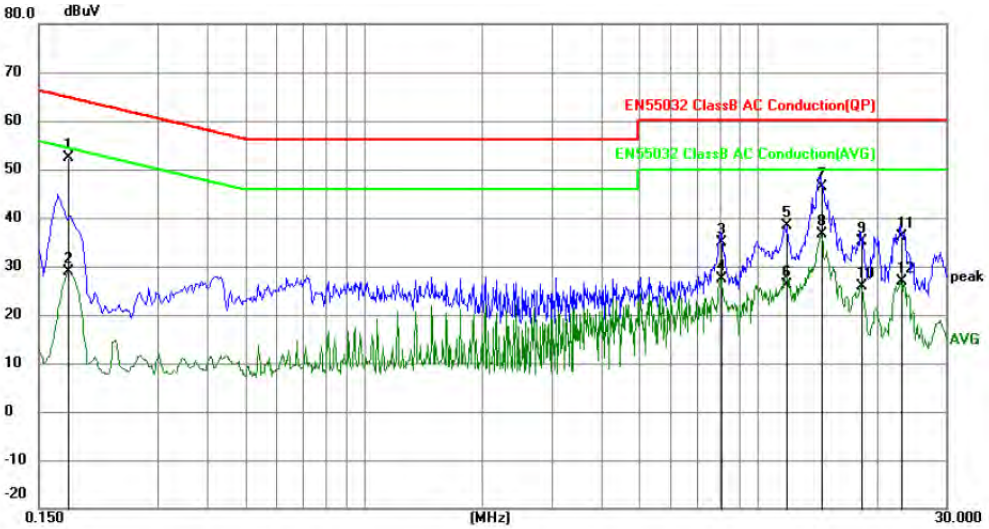
<table>
<tr><td>Test Requirement:</td><td colspan="6">FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td colspan="6">ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="6">150KHz to 30MHz</td></tr>
<tr><td>Class / Severity:</td><td colspan="6">Class B</td></tr>
<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.

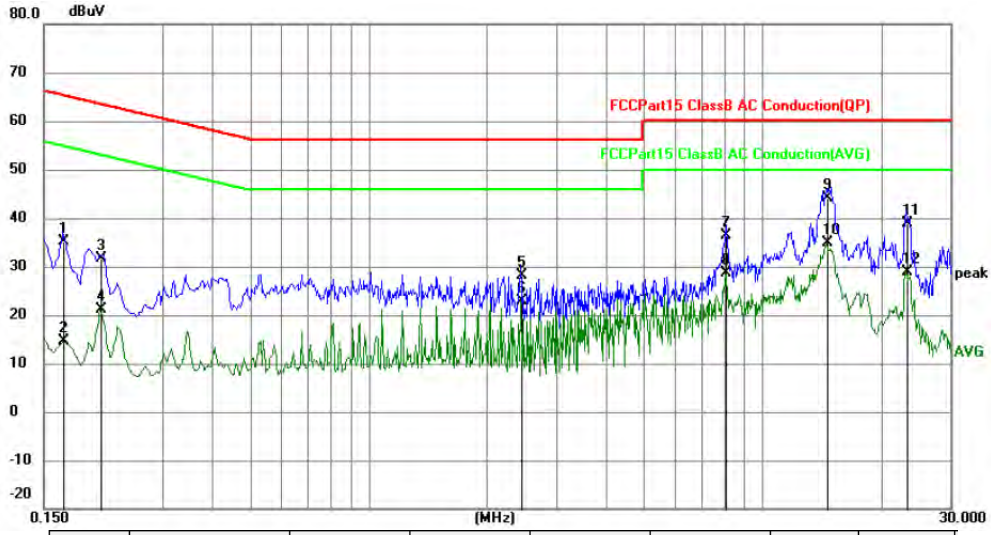
Measurement data:

Line:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1770	42.56	9.74	52.30	64.63	-12.33	QP
2	0.1770	19.04	9.74	28.78	54.63	-25.85	AVG
3	8.0385	24.80	10.20	35.00	60.00	-25.00	QP
4	8.0385	17.28	10.20	27.48	50.00	-22.52	AVG
5	11.7690	28.15	10.26	38.41	60.00	-21.59	QP
6	11.7690	15.84	10.26	26.10	50.00	-23.90	AVG
7	14.4465	36.20	10.20	46.40	60.00	-13.60	QP
8	14.4465	26.55	10.20	36.75	50.00	-13.25	AVG
9	18.2354	24.98	10.12	35.10	60.00	-24.90	QP
10	18.2354	15.80	10.12	25.92	50.00	-24.08	AVG
11	23.0415	26.02	10.18	36.20	60.00	-23.80	QP
12	23.0415	16.79	10.18	26.97	50.00	-23.03	AVG

Neutral:

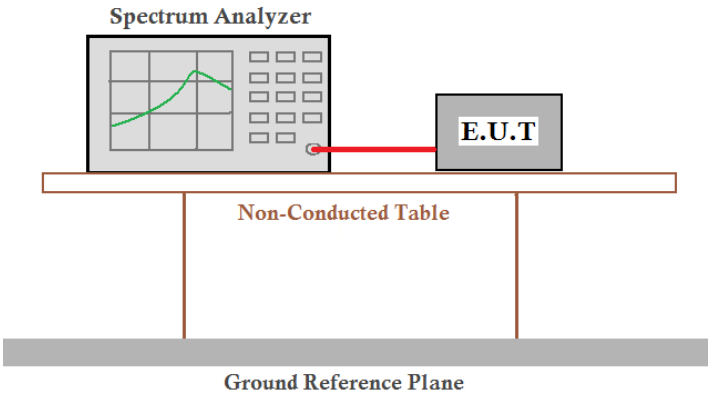


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1680	25.36	9.74	35.10	65.06	-29.96	QP
2	0.1680	4.83	9.74	14.57	55.06	-40.49	AVG
3	0.2085	21.87	9.73	31.60	63.26	-31.66	QP
4	0.2085	11.39	9.73	21.12	53.26	-32.14	AVG
5	2.4405	18.22	9.98	28.20	56.00	-27.80	QP
6	2.4405	12.82	9.98	22.80	46.00	-23.20	AVG
7	8.1015	26.30	10.20	36.50	60.00	-23.50	QP
8	8.1015	18.45	10.20	28.65	50.00	-21.35	AVG
9	14.5500	33.90	10.20	44.10	60.00	-15.90	QP
10	14.5500	24.72	10.20	34.92	50.00	-15.08	AVG
11	23.1405	28.81	10.19	39.00	60.00	-21.00	QP
12	23.1405	18.81	10.19	29.00	50.00	-21.00	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:

Module1

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)			26dB Occupied Bandwidth (MHz)		
		802.11a	802.11n (HT20)	802.11ac (HT20)	802.11a	802.11n(HT 20)	802.11ac (HT20)
36	5180	16.617	17.021	16.803	19.71	23.11	20.00
40	5200	16.622	17.128	16.904	19.60	29.21	19.96
48	5240	16.641	17.052	16.965	19.76	26.20	20.66

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	36.293	36.119	52.21	40.09
46	5230	36.405	36.225	60.58	44.23

Module2

ANT 1:

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)			26dB Occupied Bandwidth (MHz)		
		802.11a	802.11n (HT20)	802.11ac (HT20)	802.11a	802.11n(HT 20)	802.11ac (HT20)
36	5180	17.203	16.977	16.634	23.70	20.89	19.60
40	5200	16.993	17.108	16.650	21.42	23.46	19.45
48	5240	17.092	17.034	16.593	28.36	23.98	19.55

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	36.233	36.193	40.54	40.23
46	5230	36.198	36.249	48.80	40.66

ANT2

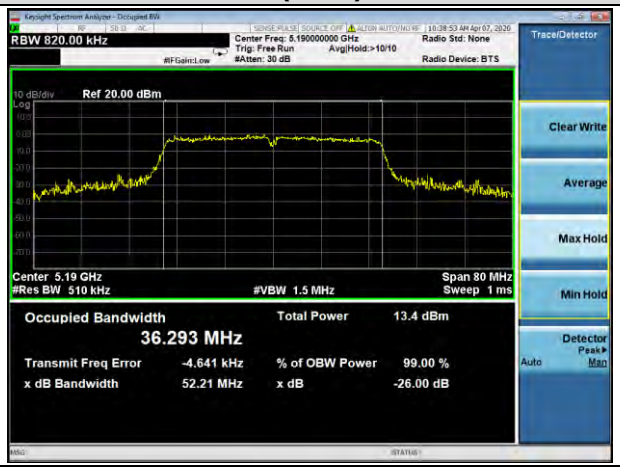
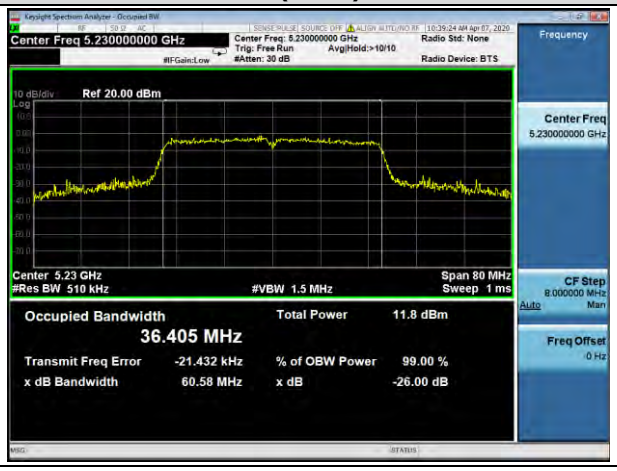
CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)			26dB Occupied Bandwidth (MHz)		
		802.11a	802.11n (HT20)	802.11ac (HT20)	802.11a	802.11n(HT 20)	802.11ac (HT20)
36	5180	17.097	16.957	16.655	28.29	24.91	19.75
40	5200	17.066	17.032	16.559	24.78	24.78	19.92
48	5240	17.097	16.958	16.687	26.64	24.66	20.06

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	36.402	36.147	60.73	41.08
46	5230	36.304	36.212	60.91	40.14

Test plots as followed:

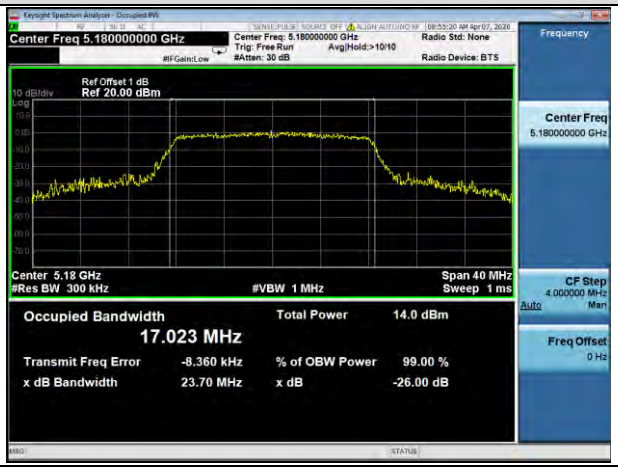
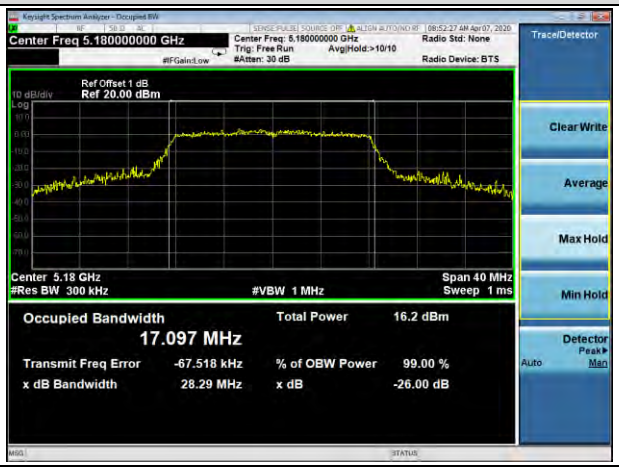
For Module1

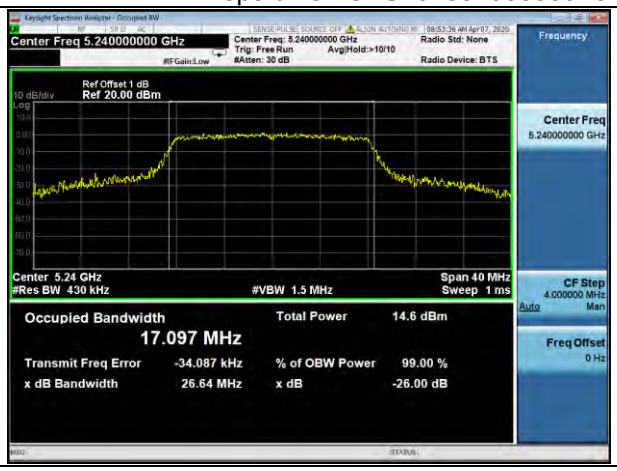
802.11a 5180	802.11a 5200
	
802.11a 5240	**802.11n (HT20) 5180**
	
802.11n (HT20) 5200	**802.11n (HT20) 5240**
	

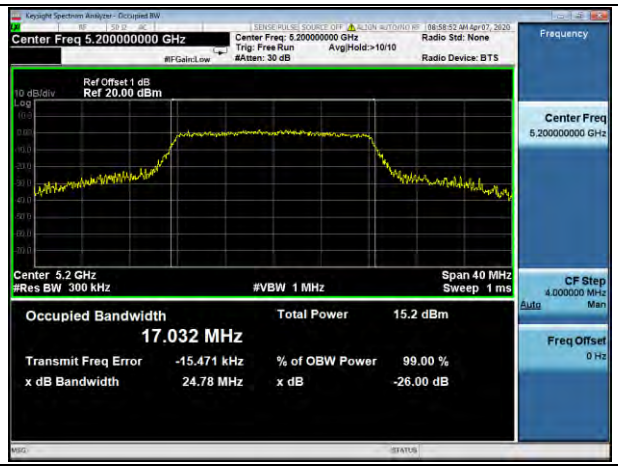
802.11n(HT40) 5190	802.11n(HT40) 5230
	
802.11ac(HT20) 5180	**802.11ac(HT20) 5200**
	
802.11ac(HT20) 5240	**802.11ac(HT40) 5190**
	

802.11ac(HT40) 5230	/
	/

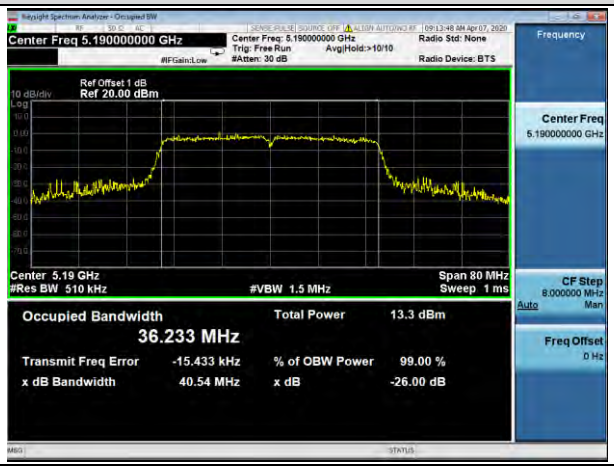
For Module2

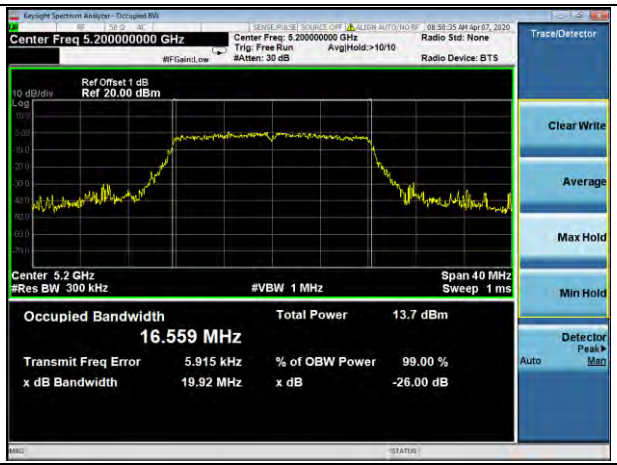
802.11a mode	
ANT 1	**ANT 2**
	
5180	**5180**
	
5200	**5200**

	
5240	**5240**

802.11n(HT20) mode	
ANT 1	**ANT 2**
	
5180	**5180**
	
5200	**5200**

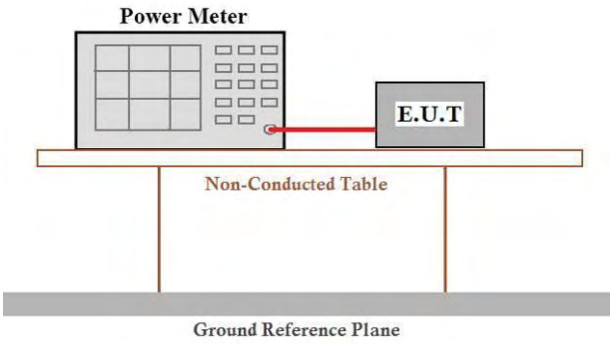
	
5240	**5240**

802.11n(HT40) mode	
ANT 1	**ANT 2**
	
5190	**5190**
	
5230	**5230**

802.11ac(HT20) mode	
ANT 1	**ANT 2**
	
5180	**5180**
	
5200	**5200**
	
5240	**5240**

802.11ac(HT40) mode	
ANT 1	**ANT 2**
	
5190	**5190**
	
5230	**5230**

Peak 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><th>Frequency band (MHz)</th><th>Limit</th></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	100%	0
802.11n(HT20)	100%	0
802.11n(HT40)	100%	0
802.11ac(HT20)	100%	0
802.11ac(HT40)	100%	0

Module1

802.11a mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	9.37	0	9.37	23.98	Pass
40	5200	9.89	0	9.89	23.98	Pass
48	5240	9.13	0	9.13	23.98	Pass
802.11n(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	8.65	0	8.65	23.98	Pass
40	5200	9.01	0	9.01	23.98	Pass
48	5240	8.43	0	8.43	23.98	Pass
802.11n(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
38	5190	7.42	0	7.42	23.98	Pass
46	5230	7.61	0	7.61	23.98	Pass
802.11ac(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	8.57	0	8.57	23.98	Pass
40	5200	9.84	0	9.84	23.98	Pass
48	5240	9.68	0	9.68	23.98	Pass
802.11ac(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
38	5190	8.98	0	8.98	23.98	Pass
46	5210	9.29	0	9.29	23.98	Pass

Module2

ANT 1:

802.11a mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	10.01	0	10.01	23.98	Pass
40	5200	10.17	0	10.17	23.98	Pass
48	5240	10.44	0	10.44	23.98	Pass
802.11n(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	9.91	0	9.91	23.98	Pass
40	5200	9.99	0	9.99	23.98	Pass
48	5240	10.72	0	10.72	23.98	Pass
802.11n(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
38	5190	6.45	0	6.45	23.98	Pass
46	5230	6.86	0	6.86	23.98	Pass
802.11ac(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	8.16	0	8.16	23.98	Pass
40	5200	7.17	0	7.17	23.98	Pass
48	5240	7.31	0	7.31	23.98	Pass
802.11ac(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
38	5190	8.84	0	8.84	23.98	Pass
46	5210	8.43	0	8.43	23.98	Pass

ANT 2:

802.11a mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	10.11	0	10.11	23.98	Pass
40	5200	10.20	0	10.20	23.98	Pass
48	5240	10.13	0	10.13	23.98	Pass
802.11n(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	10.02	0	10.02	23.98	Pass
40	5200	10.21	0	10.21	23.98	Pass
48	5240	9.48	0	9.48	23.98	Pass
802.11n(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
38	5190	6.96	0	6.96	23.98	Pass
46	5230	7.58	0	7.58	23.98	Pass
802.11ac(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	8.57	0	8.57	23.98	Pass
40	5200	8.38	0	8.38	23.98	Pass
48	5240	8.42	0	8.42	23.98	Pass
802.11ac(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
38	5190	9.12	0	9.12	23.98	Pass
46	5230	8.78	0	8.78	23.98	Pass

Note: Output Power = Measured Power + Duty Factor

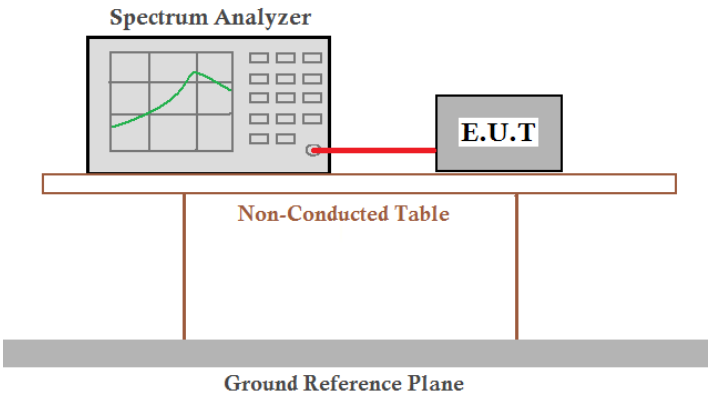
Duty Factor = 10 log (1/Duty Cycle)

ANT1+ANT2

Test mode	Frequency (MHz)	ANT 1 power (dBm)	ANT 2 power (dBm)	ANT1+ANT2 power(dBm)	Limit (dBm)	Result
802.11a	5180	10.01	10.11	13.07	21.98	Pass
	5200	10.17	10.20	13.30		
	5240	10.44	10.13	13.30		
802.11n(HT20)	5180	9.91	10.02	12.98		Pass
	5200	9.99	10.21	13.11		
	5240	10.72	9.48	13.15		
802.11ac(HT20)	5180	8.16	8.57	13.38		Pass
	5200	7.17	8.38	10.83		
	5240	7.31	8.42	10.91		
802.11n(HT40)	5190	6.45	6.96	9.72		Pass
	5230	6.86	7.58	10.25		
802.11ac(HT40)	5190	8.84	9.12	11.99		Pass
	5230	8.43	8.78	11.62		

Note: GANT =5dBi, Array Gain=10log(NANT/NSS)=3.0dBi, Directional Gain=GANT + Array Gain=8.0dBi, limit=23.98-(8-6)=21.98dBm

7.4 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	100%	0
802.11n(HT20)	100%	0
802.11n(HT40)	100%	0

Module 1

802.11a mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
36	5180	4.724	0	4.724	11	Pass
40	5200	5.247	0	5.247	11	Pass
48	5240	4.347	0	4.347	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	3.046	0	3.046	11	Pass
40	5200	3.794	0	3.794	11	Pass
48	5240	3.694	0	3.694	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	-1.354	0	-1.354	11	Pass
46	5230	-1.023	0	-1.023	111	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	3.013	0	3.013	11	Pass
40	5200	4.242	0	4.242	11	Pass
48	5240	4.521	0	4.521	11	Pass
802.11ac(HT40) mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
38	5190	0.452	0	0.452	11	Pass
46	5230	0.804	0	0.804	11	Pass

Module 2

ANT 1:

802.11a mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
36	5180	2.014	0	2.014	11	Pass
40	5200	5.585	0	5.585	11	Pass
48	5240	5.114	0	5.114	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	2.452	0	2.452	11	Pass
40	5200	4.556	0	4.556	11	Pass
48	5240	5.126	0	5.126	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	-1.396	0	-1.396	11	Pass
46	5230	2.864	0	2.864	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	2.530	0	2.530	11	Pass
40	5200	1.408	0	1.408	11	Pass
48	5240	1.879	0	1.879	11	Pass
802.11ac(HT40) mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
38	5190	-1.860	0	-1.860	11	Pass
46	5230	-1.652	0	-1.652	11	Pass

ANT 2:

802.11a mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
36	5180	-0.118	0	-0.118	11	Pass
40	5200	-0.871	0	-0.871	11	Pass
48	5240	-1.517	0	-1.517	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	-1.619	0	-1.619	11	Pass
40	5200	-1.183	0	-1.183	11	Pass

48	5240	-1.686	0	-1.686	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	-3.811	0	-3.811	11	Pass
46	5230	-4.459	0	-4.459	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	-2.951	0	-2.951	11	Pass
40	5200	-2.782	0	-2.782	11	Pass
48	5240	-2.382	0	-2.382	11	Pass
802.11ac(HT40) mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
38	5190	-5.103	0	-5.103	11	Pass
46	5230	-4.83	0	-4.83	11	Pass

Note: Output Power = Measured Power + Duty Factor

Duty Factor = 10 log (1/Duty Cycle)

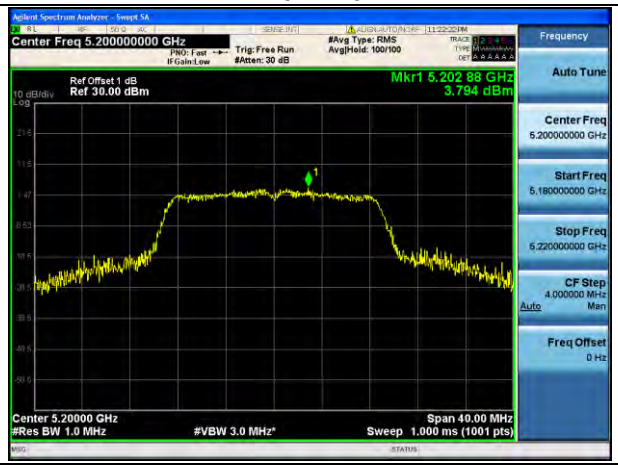
ANT1+ANT2

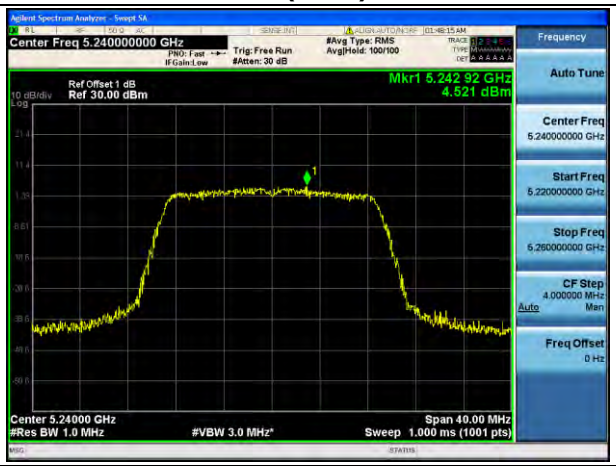
Test mode	Frequency (MHz)	ANT 1 PSD (dBm/MHz)	ANT 2 PSD (dBm/MHz)	ANT1+ANT2 (dBm/MHz)	Limit	Result
802.11a(HT20)	5180	2.014	-0.118	4.09	9 dBm/MHz	Pass
	5200	5.585	-0.871	6.47		
	5240	5.114	-1.517	5.97		
802.11n(HT20)	5180	2.452	-1.619	3.89		Pass
	5200	4.556	-1.183	5.58		
	5240	5.126	-1.686	5.95		
802.11n(HT40)	5190	-1.396	-3.811	0.57		Pass
	5230	2.864	-4.459	3.60		
802.11ac(HT20)	5180	2.530	-2.951	3.61		Pass
	5200	1.408	-2.782	2.81		
	5240	1.879	-2.382	3.26		
802.11ac(HT40)	5190	-1.860	-5.103	-0.18		Pass
	5230	-1.652	-4.83	0.05		

Note: GANT =5dBi, Array Gain=10log(NANT/NSS)=3.0dBi, Directional Gain=GANT + Array Gain=8.0dBi, limit=11-(8-6)=9dBm /MHz

Test plots as followed:

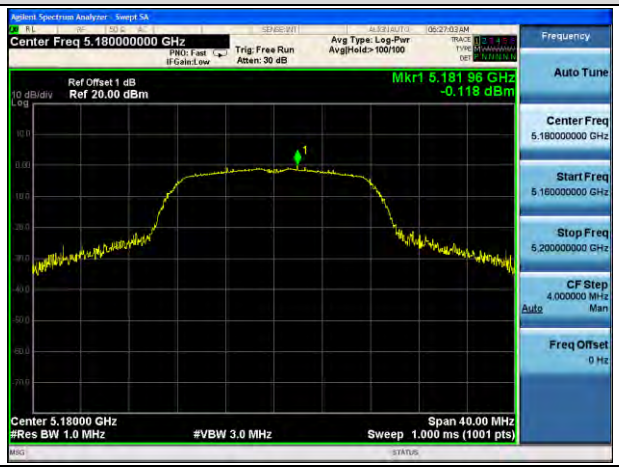
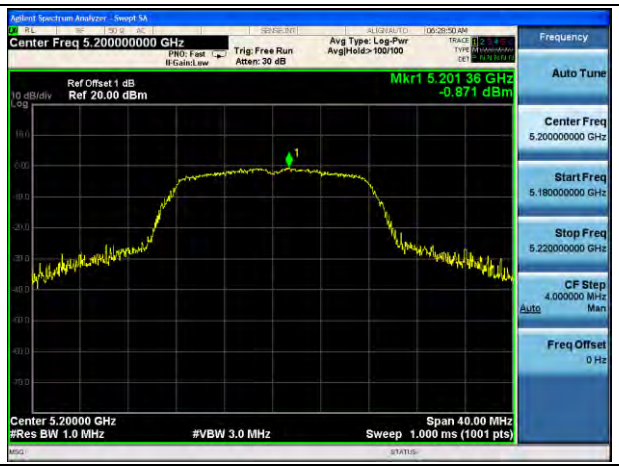
Module 1

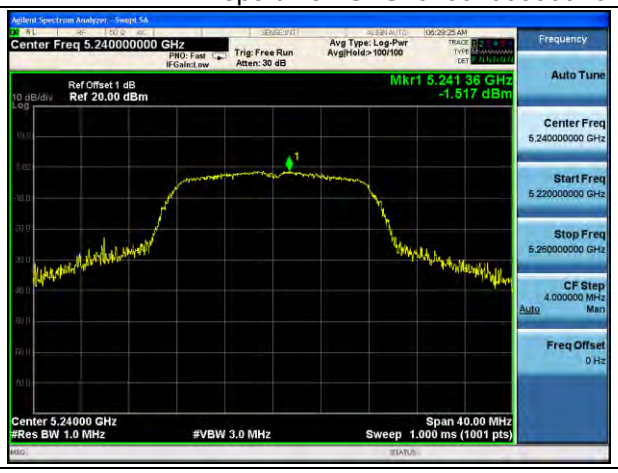
802.11a 5180	802.11a 5200
	
802.11a 5240	**802.11n(HT20) 5180**
	
802.11n(HT20) 5200	**802.11n(HT20) 5240**
	

802.11n(HT40) 5190	802.11n(HT40) 5230
	
802.11ac(HT20) 5180	**802.11ac(HT20) 5200**
	
802.11ac(HT20) 5240	**802.11ac(HT40) 5190**
	

802.11ac(HT40) 5230	/
	/

Module 2

802.11a mode	
ANT 1	**ANT 2**
	
5180	**5180**
	
5200	**5200**

	
5240	**5240**
802.11n(HT20) mode	
	
5180	**5180**
	
5200	**5200**

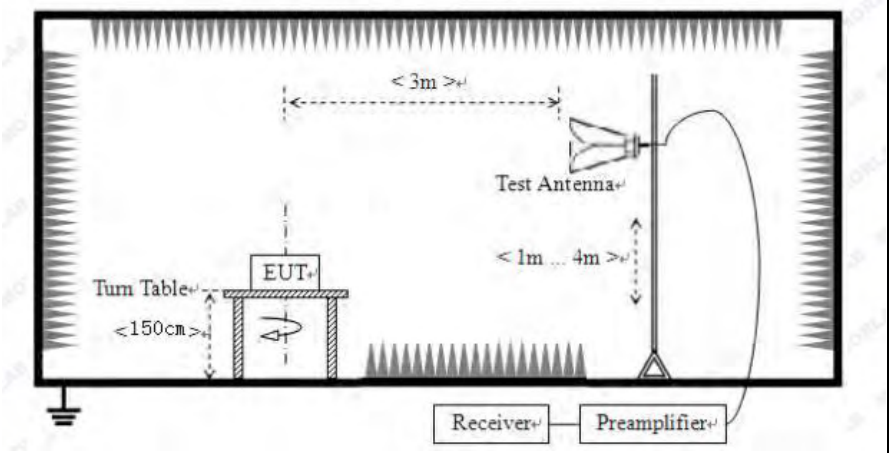
	
5240	**5240**
802.11n(HT40) mode	
	
5190	**5190**
	
5230	**5230**

802.11ac(HT20) mode	
	
5180	5180
	
5200	5200
	
5240	5240

802.11ac(HT40) mode	
	
5190	**5190**
	
5230	**5230**

7.5 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>120KHz</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. *All antennas have test, only the worst case Module1+ Module 2 ANT 1 report.*
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.

Measurement Data:

All antennas have test, only the worst case Module1+ Module 2 ANT 1 report.

802.11a(HT20)				PK				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
5150.00	41.21	32.07	8.99	37.49	44.78	74.00	-29.22	Horizontal
5350.00	42.39	31.75	9.29	37.20	46.23	74.00	-27.77	Horizontal
5150.00	43.22	32.07	8.99	37.49	46.79	74.00	-27.21	Vertical
5350.00	40.88	31.75	9.29	37.20	44.72	74.00	-29.28	Vertical

802.11a(HT20)				AV				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
5150.00	35.31	32.07	8.99	37.49	38.88	54.00	-15.12	Horizontal
5350.00	30.29	31.75	9.29	37.20	34.13	54.00	-19.87	Horizontal
5150.00	32.98	32.07	8.99	37.49	36.55	54.00	-17.45	Vertical
5350.00	30.26	31.75	9.29	37.20	34.10	54.00	-19.90	Vertical

802.11n(HT20)				PK				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
5150.00	43.46	32.07	8.99	37.49	47.03	74.00	-26.97	Horizontal
5350.00	43.27	31.75	9.29	37.20	47.11	74.00	-26.89	Horizontal
5150.00	40.42	32.07	8.99	37.49	43.99	74.00	-30.01	Vertical
5350.00	42.69	31.75	9.29	37.20	46.53	74.00	-27.47	Vertical

802.11n(HT20)				AV				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
5150.00	33.47	32.07	8.99	37.49	37.04	54.00	-16.96	Horizontal
5350.00	32.69	31.75	9.29	37.20	36.53	54.00	-17.47	Horizontal
5150.00	32.72	32.07	8.99	37.49	36.29	54.00	-17.71	Vertical
5350.00	30.19	31.75	9.29	37.20	34.03	54.00	-19.97	Vertical

802.11n(HT40)				PK				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
5150.00	43.31	32.07	8.99	37.49	46.88	74.00	-27.12	Horizontal
5350.00	40.76	31.75	9.29	37.20	44.60	74.00	-29.40	Horizontal
5150.00	42.38	32.07	8.99	37.49	45.95	74.00	-28.05	Vertical

5350.00	41.52	31.75	9.29	37.20	45.36	74.00	-28.64	Vertical

802.11n(HT40)				**AV**				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
5150.00	32.60	32.07	8.99	37.49	36.17	54.00	-17.83	Horizontal
5350.00	31.59	31.75	9.29	37.20	35.43	54.00	-18.57	Horizontal
5150.00	30.64	32.07	8.99	37.49	34.21	54.00	-19.79	Vertical
5350.00	35.87	31.75	9.29	37.20	39.71	54.00	-14.29	Vertical

802.11ac(HT20)				**PK**				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
5150.00	42.46	32.07	8.99	37.49	46.03	74.00	-27.97	Horizontal
5350.00	44.39	31.75	9.29	37.20	48.23	74.00	-25.77	Horizontal
5150.00	43.65	32.07	8.99	37.49	47.22	74.00	-26.78	Vertical
5350.00	42.71	31.75	9.29	37.20	46.55	74.00	-27.45	Vertical

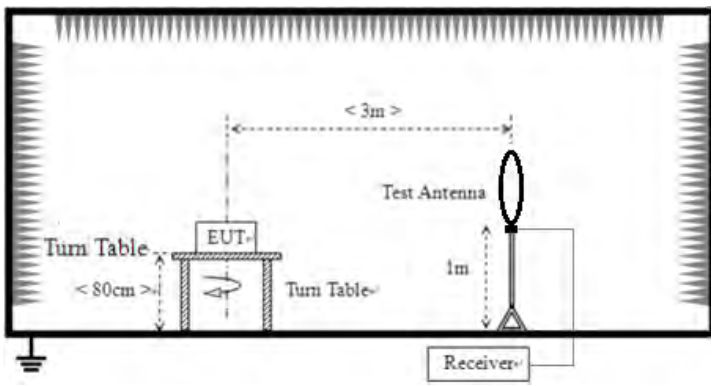
802.11ac(HT20)				**AV**				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
5150.00	34.65	32.07	8.99	37.49	38.22	54.00	-15.78	Horizontal
5350.00	34.32	31.75	9.29	37.20	38.16	54.00	-15.84	Horizontal
5150.00	33.26	32.07	8.99	37.49	36.83	54.00	-17.17	Vertical
5350.00	32.47	31.75	9.29	37.20	36.31	54.00	-17.69	Vertical

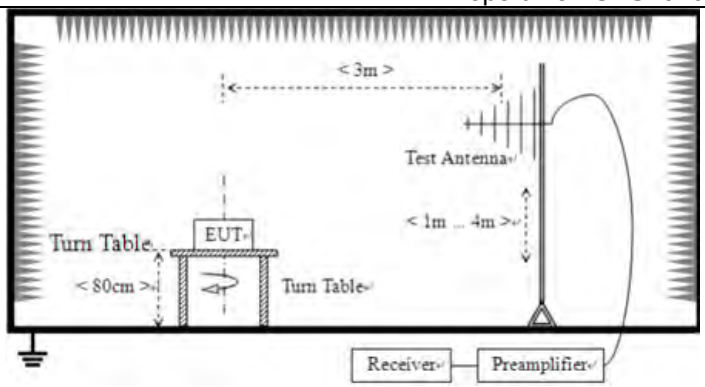
802.11ac(HT40)					PK			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
5150.00	45.62	32.07	8.99	37.49	49.19	74.00	-24.81	Horizontal
5350.00	43.49	31.75	9.29	37.20	47.33	74.00	-26.67	Horizontal
5150.00	44.38	32.07	8.99	37.49	47.95	74.00	-26.05	Vertical
5350.00	42.75	31.75	9.29	37.20	46.59	74.00	-27.41	Vertical

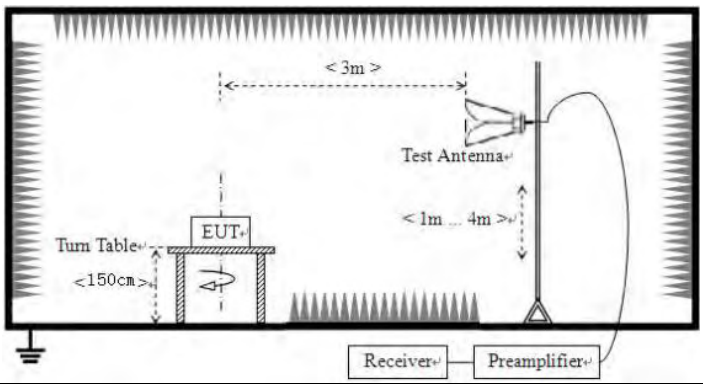
802.11ac(HT40)					AV			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
5150.00	34.83	32.07	8.99	37.49	38.4	54.00	-15.6	Horizontal
5350.00	33.09	31.75	9.29	37.20	36.93	54.00	-17.07	Horizontal
5150.00	32.36	32.07	8.99	37.49	35.93	54.00	-18.07	Vertical
5350.00	35.48	31.75	9.29	37.20	40.82	54.00	-14.68	Vertical

7.6 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>120KHz</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. *All antennas have test, only the worst case Module1+ Module 2 ANT 1 report.*
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.*

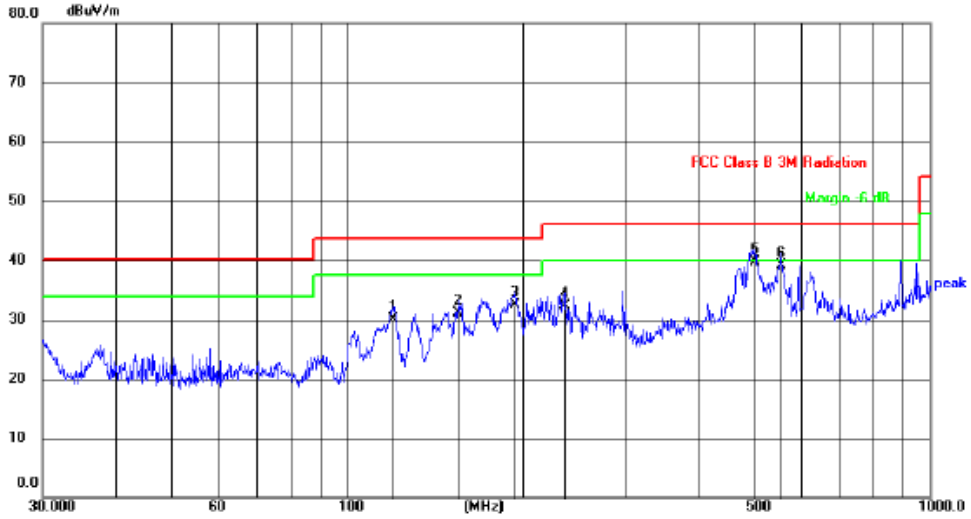
Measurement Data:

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.

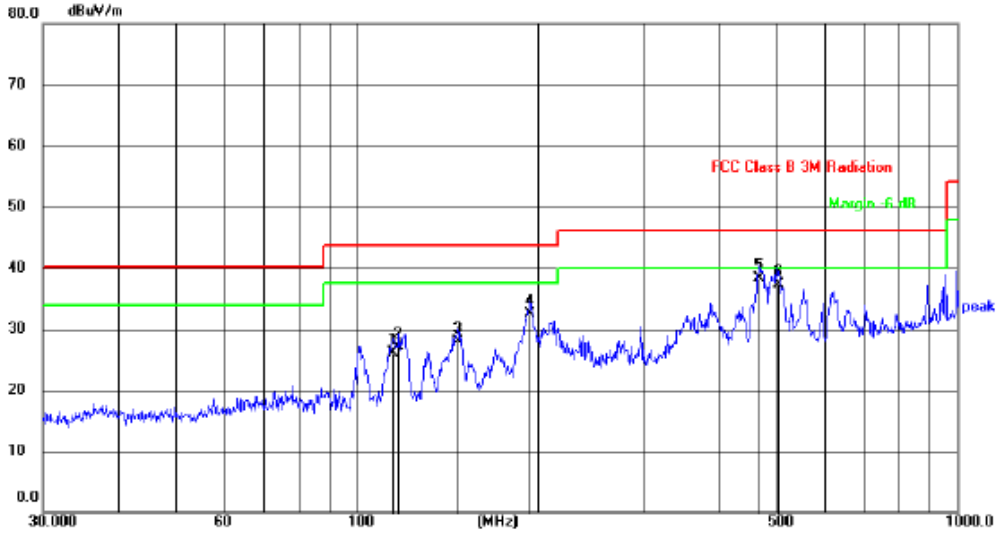
30MHz~ 1GHz

Horizontal:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	119.4361	49.42	-19.32	30.10	43.50	-13.40	QP
2	155.3642	50.42	-19.22	31.20	43.50	-12.30	QP
3	194.4534	51.75	-19.15	32.60	43.50	-10.90	QP
4	235.8163	51.15	-18.75	32.40	46.00	-13.60	QP
5	501.1790	53.78	-14.08	39.70	46.00	-6.30	QP
6	554.8252	51.89	-12.69	39.20	46.00	-6.80	QP

Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	114.9167	45.99	-19.79	26.20	43.50	-17.30	QP
2	117.3602	46.76	-19.66	27.10	43.50	-16.40	QP
3	147.4036	47.00	-19.00	28.00	43.50	-15.50	QP
4	194.4534	51.31	-18.71	32.60	43.50	-10.90	QP
5	467.2349	53.10	-14.70	38.40	46.00	-7.60	QP
6	504.7062	51.30	-14.00	37.30	46.00	-8.70	QP

Above 1GHz:

802.11a(HT20) 5180MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	35.45	39.67	14.62	32.65	57.09	74.00	-16.91	Vertical
15540.00	34.68	38.60	17.66	34.46	56.48	74.00	-17.52	Vertical
10360.00	34.76	39.67	14.62	32.65	56.40	74.00	-17.60	Horizontal
15540.00	35.52	38.60	17.66	34.46	57.32	74.00	-16.68	Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	24.56	39.67	14.62	32.65	46.20	54.00	-7.80	Vertical
15540.00	25.72	38.60	17.66	34.46	47.52	54.00	-6.48	Vertical
10360.00	21.44	39.67	14.62	32.65	43.08	54.00	-10.92	Horizontal
15540.00	24.09	38.60	17.66	34.46	45.89	54.00	-8.11	Horizontal

802.11a(HT20) 5200MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	35.75	39.75	14.63	32.71	57.42	74.00	-16.58	Vertical
15600.00	39.68	38.33	17.67	34.17	61.51	74.00	-12.49	Vertical
10400.00	35.43	39.75	14.63	32.71	57.10	74.00	-16.90	Horizontal
15600.00	39.04	38.33	17.67	34.17	60.87	74.00	-13.13	Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	21.39	39.75	14.63	32.71	43.06	54.00	-10.94	Vertical
15600.00	24.66	38.33	17.67	34.17	46.49	54.00	-7.51	Vertical
10400.00	23.71	39.75	14.63	32.71	45.38	54.00	-8.62	Horizontal
15600.00	26.49	38.33	17.67	34.17	48.32	54.00	-5.68	Horizontal

802.11a(HT20) 5240MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	35.61	39.82	14.68	32.86	57.25	74.00	-16.75	Vertical
15720.00	39.44	38.09	17.73	33.66	61.60	74.00	-12.40	Vertical
10480.00	40.38	39.82	14.68	32.86	62.02	74.00	-11.98	Horizontal
15720.00	41.63	38.09	17.73	33.66	63.79	74.00	-10.21	Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	22.76	39.82	14.68	32.86	44.40	54.00	-9.60	Vertical
15720.00	24.18	38.09	17.73	33.66	46.34	54.00	-7.66	Vertical
10480.00	23.69	39.82	14.68	32.86	45.33	54.00	-8.67	Horizontal
15720.00	24.27	38.09	17.73	33.66	46.43	54.00	-7.57	Horizontal

802.11n(HT20) 5180MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	37.61	39.67	14.62	32.65	59.25	74.00	-14.75	Vertical
15540.00	35.48	38.60	17.66	34.46	57.28	74.00	-16.72	Vertical
10360.00	34.36	39.67	14.62	32.65	56.00	74.00	-18.00	Horizontal
15540.00	32.17	38.60	17.66	34.46	53.97	74.00	-20.03	Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	24.61	39.67	14.62	32.65	46.25	54.00	-7.75	Vertical
15540.00	25.69	38.60	17.66	34.46	47.49	54.00	-6.51	Vertical
10360.00	24.93	39.67	14.62	32.65	46.57	54.00	-7.43	Horizontal
15540.00	22.58	38.60	17.66	34.46	44.38	54.00	-9.62	Horizontal

802.11n(HT20) 5200MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	40.22	39.75	14.63	32.71	61.89	74.00	-12.11	Vertical
15600.00	39.21	38.33	17.67	34.17	61.04	74.00	-12.96	Vertical
10400.00	34.54	39.75	14.63	32.71	56.21	74.00	-17.79	Horizontal
15600.00	35.49	38.33	17.67	34.17	57.32	74.00	-16.68	Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	24.63	39.75	14.63	32.71	46.30	54.00	-7.70	Vertical
15600.00	25.89	38.33	17.67	34.17	47.72	54.00	-6.28	Vertical
10400.00	23.51	39.75	14.63	32.71	45.18	54.00	-8.82	Horizontal
15600.00	24.62	38.33	17.67	34.17	46.45	54.00	-7.55	Horizontal

802.11n(HT20) 5240MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	37.58	39.82	14.68	32.86	59.22	74.00	-14.78	Vertical
15720.00	39.14	38.09	17.73	33.66	61.30	74.00	-12.70	Vertical
10480.00	33.67	39.82	14.68	32.86	55.31	74.00	-18.69	Horizontal
15720.00	36.06	38.09	17.73	33.66	58.22	74.00	-15.78	Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	21.78	39.82	14.68	32.86	43.42	54.00	-10.58	Vertical
15720.00	20.91	38.09	17.73	33.66	43.07	54.00	-10.93	Vertical
10480.00	19.98	39.82	14.68	32.86	41.62	54.00	-12.38	Horizontal
15720.00	24.47	38.09	17.73	33.66	46.63	54.00	-7.37	Horizontal

802.11nHT40) 5190MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10380.00	29.47	39.71	14.63	32.68	51.13	74.00	-22.87	Vertical
15570.00	33.69	38.46	17.67	34.32	55.50	74.00	-18.50	Vertical
10380.00	32.41	39.71	14.63	32.68	54.07	74.00	-19.93	Horizontal
15570.00	34.59	38.46	17.67	34.32	56.4	74.00	-17.6	Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10380.00	24.33	39.71	14.63	32.68	45.99	54.00	-8.01	Vertical
15570.00	23.12	38.46	17.67	34.32	44.93	54.00	-9.07	Vertical
10380.00	20.47	39.71	14.63	32.68	42.13	54.00	-11.87	Horizontal
15570.00	19.55	38.46	17.67	34.32	41.36	54.00	-12.64	Horizontal

802.11n(HT40) 5230MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10460.00	33.35	39.75	14.65	32.74	55.01	74.00	-18.99	Vertical
15690.00	32.54	38.33	17.69	34.03	54.53	74.00	-19.47	Vertical
10460.00	35.36	39.75	14.65	32.74	57.02	74.00	-16.98	Horizontal
15690.00	37.19	38.33	17.69	34.03	59.18	74.00	-14.82	Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10460.00	24.08	39.75	14.65	32.74	45.74	54.00	-8.26	Vertical
15690.00	23.44	38.33	17.69	34.03	45.43	54.00	-8.57	Vertical
10460.00	25.67	39.75	14.65	32.74	47.33	54.00	-6.67	Horizontal
15690.00	22.58	38.33	17.69	34.03	44.57	54.00	-9.43	Horizontal

802.11ac(HT20) 5180MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	36.84	39.67	14.62	32.65	58.48	74.00	-15.52	Vertical
15540.00	35.72	38.60	17.66	34.46	57.52	74.00	-16.48	Vertical
10360.00	36.48	39.67	14.62	32.65	58.12	74.00	-15.88	Horizontal
15540.00	31.52	38.60	17.66	34.46	53.32	74.00	-20.68	Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	26.47	39.67	14.62	32.65	48.11	54.00	-5.89	Vertical
15540.00	26.09	38.60	17.66	34.46	47.89	54.00	-6.11	Vertical
10360.00	23.16	39.67	14.62	32.65	44.80	54.00	-9.20	Horizontal
15540.00	21.88	38.60	17.66	34.46	43.68	54.00	-10.32	Horizontal

802.11ac(HT20) 5200MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	34.67	39.75	14.63	32.71	56.34	74.00	-17.66	Vertical
15600.00	33.54	38.33	17.67	34.17	55.37	74.00	-18.63	Vertical
10400.00	37.04	39.75	14.63	32.71	58.71	74.00	-15.29	Horizontal
15600.00	33.18	38.33	17.67	34.17	55.01	74.00	-18.99	Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	23.58	39.75	14.63	32.71	45.25	54.00	-8.75	Vertical
15600.00	23.31	38.33	17.67	34.17	45.14	54.00	-8.86	Vertical
10400.00	24.95	39.75	14.63	32.71	46.62	54.00	-7.38	Horizontal
15600.00	24.02	38.33	17.67	34.17	45.85	54.00	-8.15	Horizontal

802.11ac(HT20) 5240MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	32.67	39.82	14.68	32.86	54.31	74.00	-19.69	Vertical
15720.00	38.14	38.09	17.73	33.66	60.30	74.00	-13.70	Vertical
10480.00	33.79	39.82	14.68	32.86	55.43	74.00	-18.57	Horizontal
15720.00	34.04	38.09	17.73	33.66	56.20	74.00	-17.80	Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	26.91	39.82	14.68	32.86	48.55	54.00	-5.45	Vertical
15720.00	21.44	38.09	17.73	33.66	43.6	54.00	-10.4	Vertical
10480.00	19.03	39.82	14.68	32.86	40.67	54.00	-13.33	Horizontal
15720.00	22.68	38.09	17.73	33.66	44.84	54.00	-9.16	Horizontal

802.11acHT40) 5190MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10380.00	32.57	39.71	14.63	32.68	54.23	74.00	-19.77	Vertical
15570.00	35.63	38.46	17.67	34.32	57.44	74.00	-16.56	Vertical
10380.00	32.75	39.71	14.63	32.68	54.41	74.00	-19.59	Horizontal
15570.00	34.16	38.46	17.67	34.32	55.97	74.00	-18.03	Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10380.00	20.33	39.71	14.63	32.68	41.99	54.00	-12.01	Vertical
15570.00	21.65	38.46	17.67	34.32	43.46	54.00	-10.54	Vertical
10380.00	19.57	39.71	14.63	32.68	41.23	54.00	-12.77	Horizontal
15570.00	19.64	38.46	17.67	34.32	41.45	54.00	-12.55	Horizontal

802.11ac(HT40) 5230MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10460.00	34.09	39.75	14.65	32.74	55.75	74.00	-18.25	Vertical
15690.00	36.53	38.33	17.69	34.03	58.52	74.00	-15.48	Vertical
10460.00	40.14	39.75	14.65	32.74	61.8	74.00	-12.2	Horizontal
15690.00	35.68	38.33	17.69	34.03	57.67	74.00	-16.33	Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10460.00	21.59	39.75	14.65	32.74	43.25	54.00	-10.75	Vertical
15690.00	19.62	38.33	17.69	34.03	41.61	54.00	-12.39	Vertical
10460.00	19.59	39.75	14.65	32.74	41.25	54.00	-12.75	Horizontal
15690.00	21.34	38.33	17.69	34.03	43.33	54.00	-10.67	Horizontal

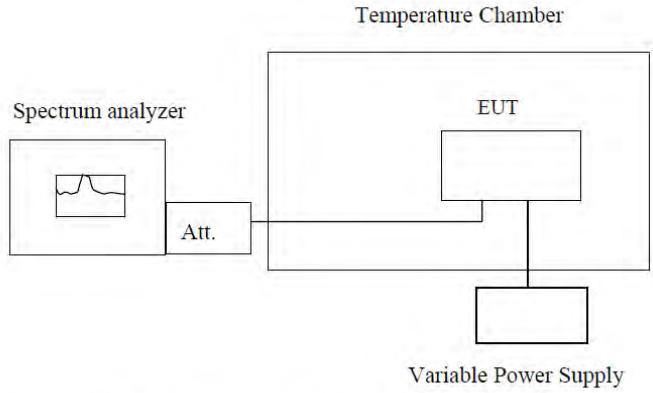
Notes:

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.

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

2. The all antennas have been tested. The report only shows the worst antenna.

The worst case is ant 1(module2).

Measurement data:

Frequency stability versus Temp.					
Power Supply: AC 120V					
Temp. (°C)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
-30	5180	5179.3120	5180.8907	5180.4599	5179.7901
	5200	5199.7650	5200.9359	5200.5489	5199.6598
	5220	5219.5434	5220.6845	5220.3031	5219.8867
	5240	5239.5699	5240.1343	5240.0156	5239.809
-20	5180	5179.7631	5180.1618	5180.9273	5179.4783
	5200	5199.4334	5200.7181	5200.4809	5199.7649
	5220	5219.6778	5220.4592	5220.9041	5219.2098
	5240	5239.3643	5240.3783	5240.6966	5239.8112
-10	5180	5179.7165	5180.7365	5180.9314	5179.2127
	5200	5199.4775	5200.5791	5200.6362	5199.6368
	5220	5219.3843	5220.9757	5220.0219	5219.9776
	5240	5239.5898	5240.1654	5240.4724	5239.1188
0	5180	5179.3167	5180.5197	5180.7297	5179.5983
	5200	5199.0576	5200.5672	5200.6892	5199.8178
	5220	5219.1809	5220.2101	5220.8590	5219.6536
	5240	5239.9512	5240.6166	5240.7331	5239.2479
10	5180	5179.0435	5180.9799	5180.4687	5179.7544
	5200	5199.1365	5200.8191	5200.0712	5199.2912
	5220	5219.8543	5220.0985	5220.3681	5219.6098
	5240	5239.8857	5240.0233	5240.6514	5239.6432
20	5180	5179.4234	5180.7746	5180.1946	5179.0756
	5200	5199.5765	5200.7413	5200.0338	5199.6732
	5220	5219.5479	5220.7823	5220.0021	5219.7299
	5240	5239.8632	5240.1028	5240.8865	5239.3487
30	5180	5179.6788	5180.3905	5180.8038	5179.1187
	5200	5199.8446	5200.7648	5200.3987	5199.1245
	5220	5219.9273	5220.1731	5220.8709	5219.4543
	5240	5239.1735	5240.1755	5240.7243	5239.5809
40	5180	5179.2845	5180.2688	5180.4726	5179.5177
	5200	5199.0187	5200.5413	5200.2376	5199.6954
	5220	5219.7035	5220.6046	5220.4143	5219.7212
	5240	5239.8354	5240.1951	5240.9290	5239.6634
50	5180	5179.8720	5180.3480	5180.1976	5179.3909
	5200	5199.3167	5200.0455	5200.3135	5199.9076
	5220	5219.5176	5220.0803	5220.0129	5219.4065
	5240	5239.7645	5240.6653	5240.1820	5239.9365

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VAC)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
108	5180	5180.5355	5180.9576	5179.6664	5179.1112
	5200	5200.2134	5200.5356	5199.2498	5199.9354
	5220	5220.33316	5220.1715	5219.7920	5219.1621
	5240	5240.1387	5240.7673	5239.4732	5239.69466
120	5180	5180.3812	5180.7045	5179.4087	5179.1501
	5200	5200.6545	5200.2634	5199.8443	5199.5154
	5220	5220.2045	5220.5355	5219.3509	5219.7121
	5240	5240.7561	5240.6821	5239.4765	5239.8556
132	5180	5180.9187	5180.3696	5179.3708	5179.7973
	5200	5200.0777	5200.6377	5199.9834	5199.9755
	5220	5220.6358	5220.0353	5219.2727	5219.2978
	5240	5240.8649	5240.3056	5239.87549	5239.6923

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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