TEST REPORT

Applicant:	Arashi Vision Inc.
Address of Applicant:	Floor 6, Block A, Logan Century, Baoan District, Shenzhen 518000, China
Manufacturer/Factory:	Arashi Vision Inc.
Address of Manufacturer/Factory:	Floor 6, Block A, Logan Century, Baoan District, Shenzhen 518000, China
Equipment Under Test (EUT)	
Trade Mark:	Insta360
FCC ID:	2AWWH-ING2
Applicable standards:	FCC CFR Title 47 Part 15 Subpart E Section 15.407
Date of sample receipt:	September 25, 2020
Date of Test:	September 25, 2020-October 22, 2020
Date of report issue:	October 23, 2020
Test Result :	PASS *

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

Authorized Signature:

Robinson Luo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*October 23, 2020*	*Original*

Prepared By: *Tiger Chen* ***Date:*** *October 23, 2020*

Project Engineer

Check By: ***Date:*** *October 23, 2020*

Reviewer

3 Contents

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4 Test Summary

Test Item	Section	Result
Antenna requirement	FCC part 15.203	PASS
AC Power Line Conducted Emission	FCC part 15.207	PASS
Peak Transmit Power	FCC part 15.407(a)(1)	PASS
Power Spectral Density	FCC part 15.407(a)(1)	PASS
Undesirable Emission	FCC part 15.407(b)(6), 15.205/15.209	PASS
Radiated Emission	FCC part 15.205/15.209	PASS
Band Edge	FCC part 15.407(b)(1)	PASS
Frequency Stability	FCC part 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

Product Type:	Camera
Model No.:	CING2XX/A
Serial No.:	IG2KM2011Q5659
Hardware Version:	V1.1.2
Software Version:	V1.1.1
Test sample(s) ID:	GTS202009000264-1
Sample(s) Status:	Engineer sample
Operation Frequency:	See table below
Modulation technology:	OFDM
Antenna Type:	FPC Antenna
Antenna gain:	-2.38dBi(declare by applicant)
Power supply:	Rechargeable Li-ion Battery: DC 3.8V, 215mAh, 0.82Wh

Band	Mode	Frequency Range(MHz)	Number of channels
1	IEEE 802.11ac 20MHz	5180-5240	4
	IEEE 802.11ac 40MHz	5190-5230	2
	IEEE 802.11ac 80MHz	5210	1

Channel list for 802.11a/n/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..

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
802.11ac(HT20)	6.5 Mbps
802.11ac(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

● **CNAS (No. CNAS L5775)**

CNAS has accredited Global United Technology Services Co., Ltd., to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

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, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

5.5 Description of Support Units

Manufacturer	Description	Model	Serial Number
Lenovo	Notebook PC	E40	N/A

5.6 Deviation from Standards

None.

5.7 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. 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

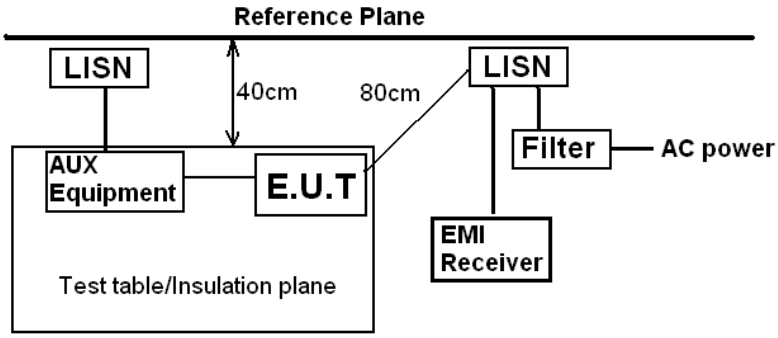
General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 25 2020	June. 24 2021
2	Barometer	ChangChun	DYM3	GTS255	June. 25 2020	June. 24 2021

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 antenna is FPC antenna, the best case gain of the antenna is -2.38dBi, reference to the appendix II for details	

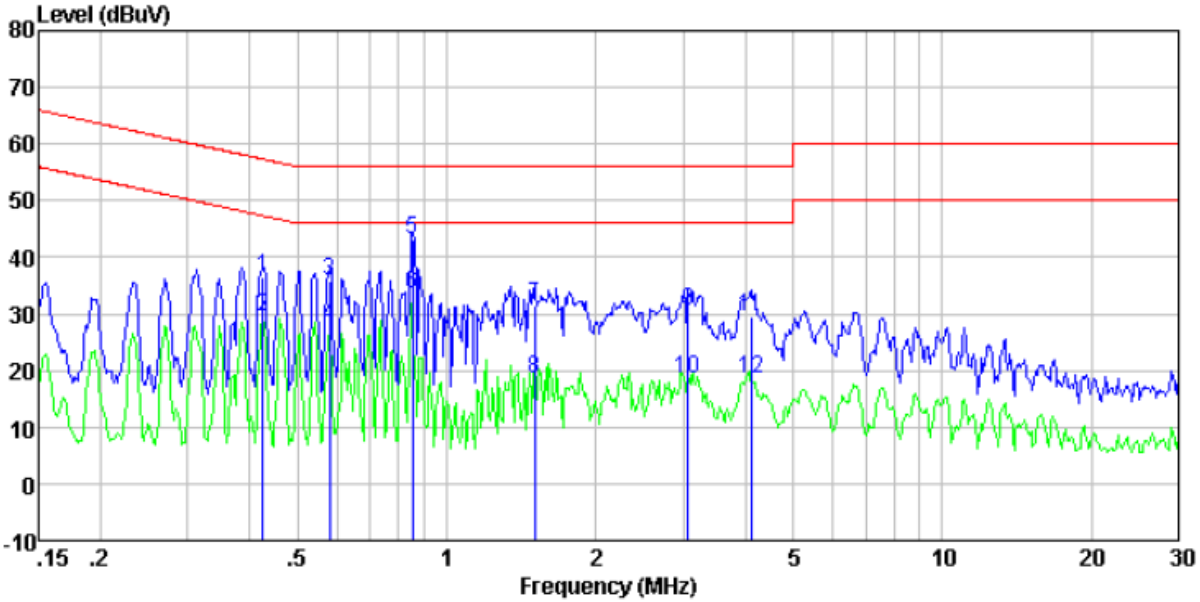
7.2 Conducted Emissions

<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 6.0 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>

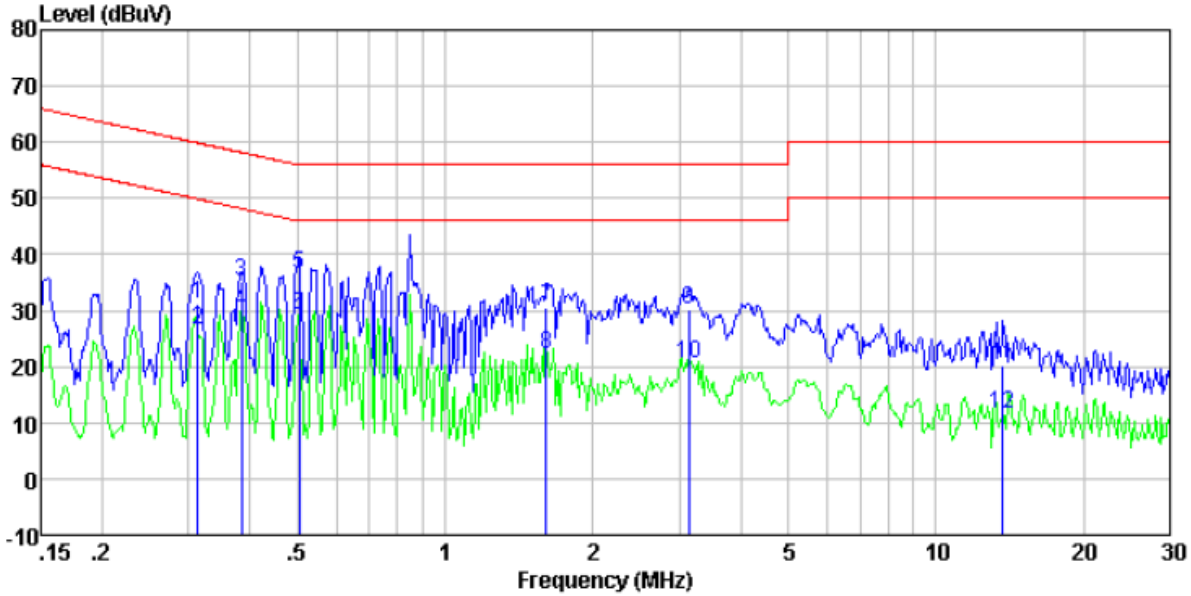
Measurement data:

Line:



Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.43	15.98	20.34	0.11	36.43	57.33	-20.90	QP
0.43	9.08	20.34	0.11	29.53	47.33	-17.80	Average
0.58	15.48	20.29	0.12	35.89	56.00	-20.11	QP
0.58	7.41	20.29	0.12	27.82	46.00	-18.18	Average
0.85	22.79	20.23	0.14	43.16	56.00	-12.84	QP
0.85	13.27	20.23	0.14	33.64	46.00	-12.36	Average
1.50	11.24	20.20	0.16	31.60	56.00	-24.40	QP
1.50	-1.94	20.20	0.16	18.42	46.00	-27.58	Average
3.07	10.01	20.20	0.19	30.40	56.00	-25.60	QP
3.07	-1.95	20.20	0.19	18.44	46.00	-27.56	Average
4.11	9.30	20.20	0.18	29.68	56.00	-26.32	QP
4.11	-1.83	20.20	0.18	18.55	46.00	-27.45	Average

Neutral:

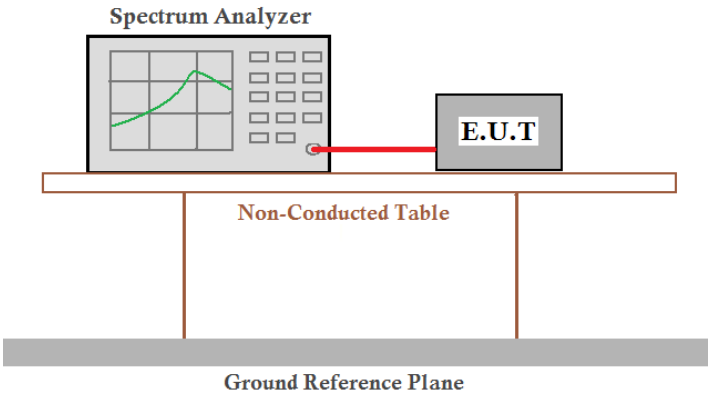


Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.31	10.73	20.39	0.10	31.22	59.88	-28.66	QP
0.31	6.07	20.39	0.10	26.56	49.88	-23.32	Average
0.39	14.67	20.36	0.10	35.13	58.17	-23.04	QP
0.39	9.51	20.36	0.10	29.97	48.17	-18.20	Average
0.50	16.04	20.31	0.11	36.46	56.00	-19.54	QP
0.50	8.67	20.31	0.11	29.09	46.00	-16.91	Average
1.61	10.21	20.20	0.17	30.58	56.00	-25.42	QP
1.61	1.76	20.20	0.17	22.13	46.00	-23.87	Average
3.14	9.81	20.20	0.19	30.20	56.00	-25.80	QP
3.14	0.21	20.20	0.19	20.60	46.00	-25.40	Average
13.70	-0.22	20.20	0.21	20.19	60.00	-39.81	QP
13.70	-8.74	20.20	0.21	11.67	50.00	-38.33	Average

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 :	ANSI C63.10:2013 & KDB 789033 D02 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 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

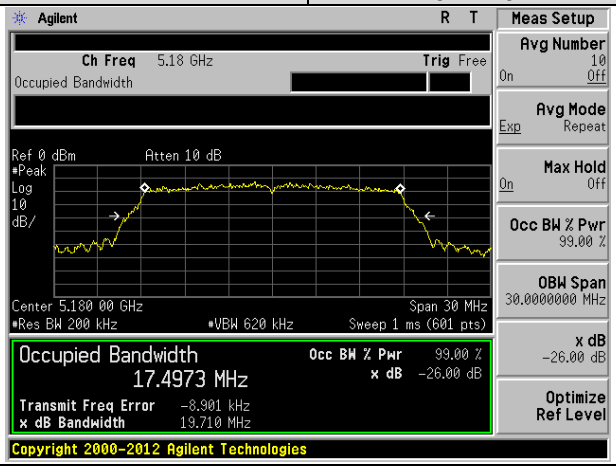
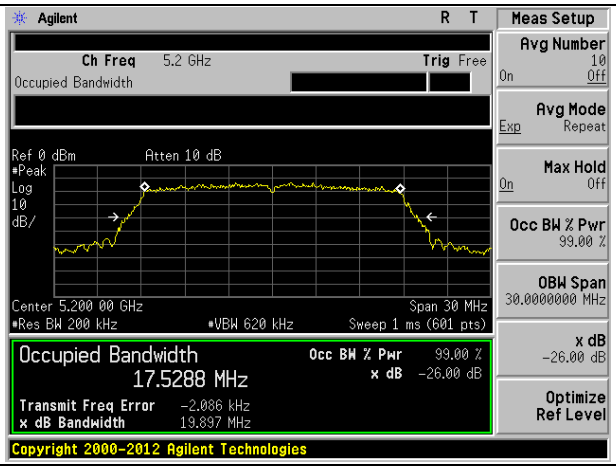
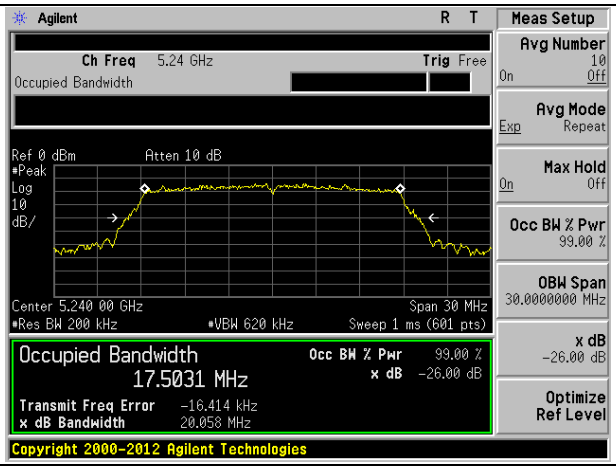
Measurement Data:

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Occupied Bandwidth (MHz)
		802.11ac(HT20)	802.11ac(HT20)
36	5180	17.4973	19.710
40	5200	17.5288	19.897
48	5240	17.5031	20.058

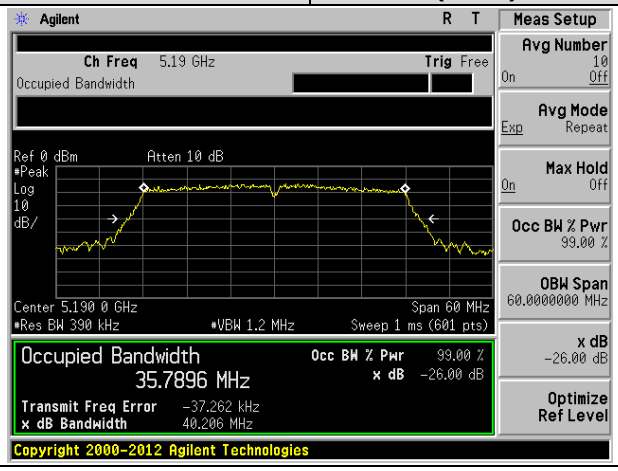
CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Occupied Bandwidth (MHz)
		802.11ac(HT40)	802.11ac(HT40)
38	5190	35.7896	40.206
46	5230	35.8799	40.069

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Occupied Bandwidth (MHz)
		802.11ac(HT80)	802.11ac(HT80)
42	5210	75.1353	80.736

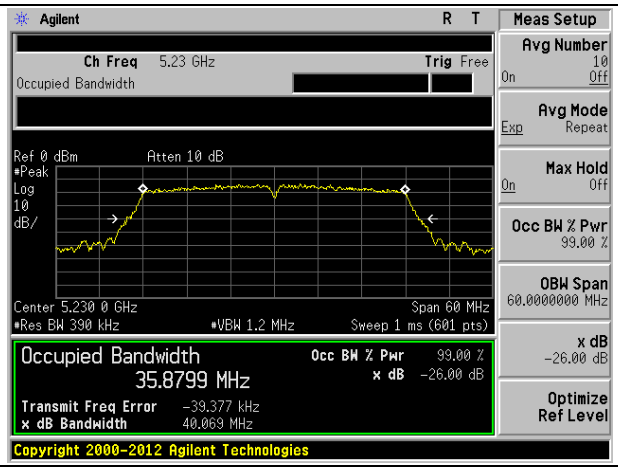
Test plots as followed:

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

Test mode:	802.11ac(HT40) mode

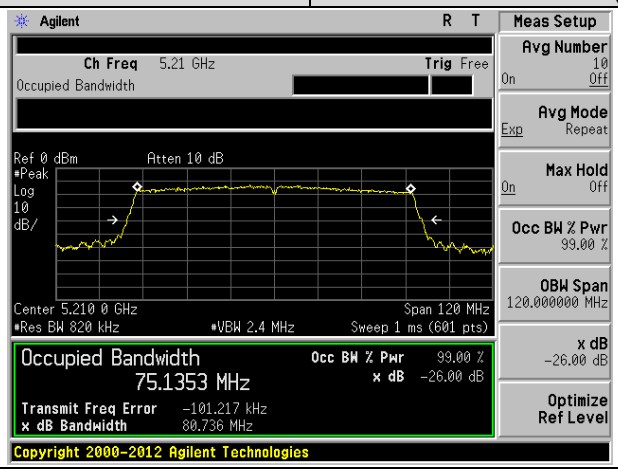


5190



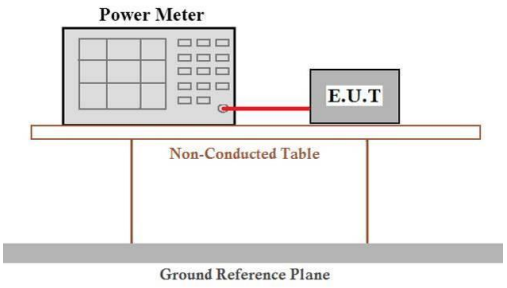
5230

Test mode:	802.11ac(HT80) mode



5210

7.4 Peak Transmit Power

<table>
<tr><td>Test Requirement</td><td>FCC Part15 E Section 15.407</td></tr>
<tr><td>Test Method :</td><td>ANSI C63.10:2013 & KDB 789033 D02 v02r01</td></tr>
<tr><td>FCC 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>IC Limit:</td><td>the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz</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 6.0 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

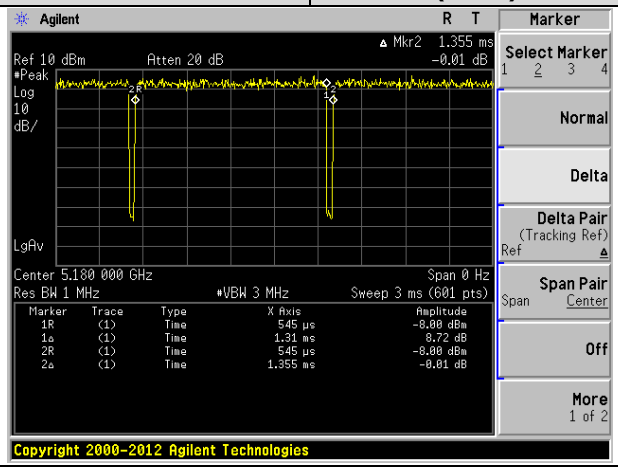
Modulation	Duty cycle	Duty Factor
802.11ac(HT20)	98.50%	0.07
802.11ac(HT40)	97.0%	0.13
802.11ac(HT80)	93.44%	0.29

802.11ac(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power(dBm)	Limit (dBm)	Result
36	5180	-0.61	0.07	-0.54	23.98	Pass
40	5200	-0.11	0.07	-0.04	23.98	Pass
48	5240	-0.45	0.07	-0.38	23.98	Pass
802.11 ac(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power(dBm)	Limit (dBm)	Result
38	5190	-0.75	0.13	-0.62	23.98	Pass
46	5230	-0.34	0.13	-0.21	23.98	Pass
802.11 ac(HT80)						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power(dBm)	Limit (dBm)	Result
42	5210	-0.84	0.29	-0.55	23.98	Pass

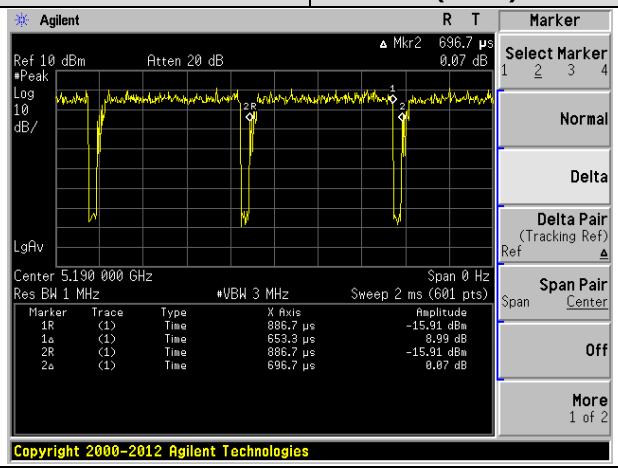
Note: Output Power = Measured Power + Duty Factor

Duty cycle Plot:

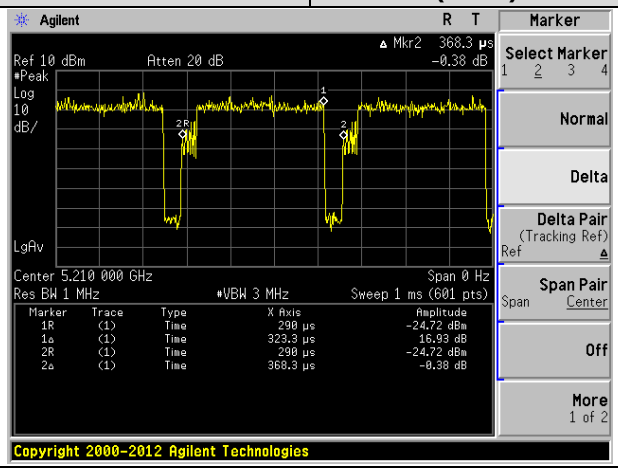
Test mode:	802.11ac(HT20) mode



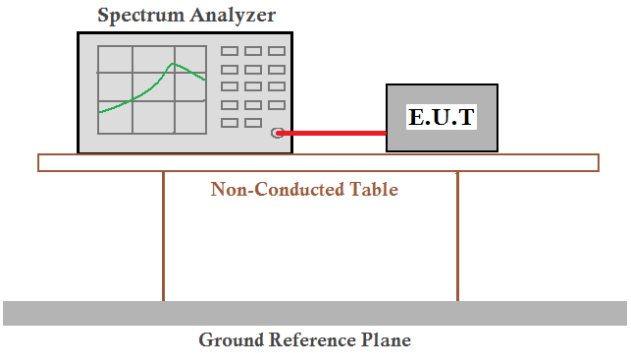
Test mode:	802.11ac(HT40) mode



Test mode:	802.11ac(HT80) mode



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>ANSI C63.10:2013 & KDB 789033 D02 v02r01</td></tr>
<tr><td>FCC 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>IC Limit:</td><td>e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.</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 6.0 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>

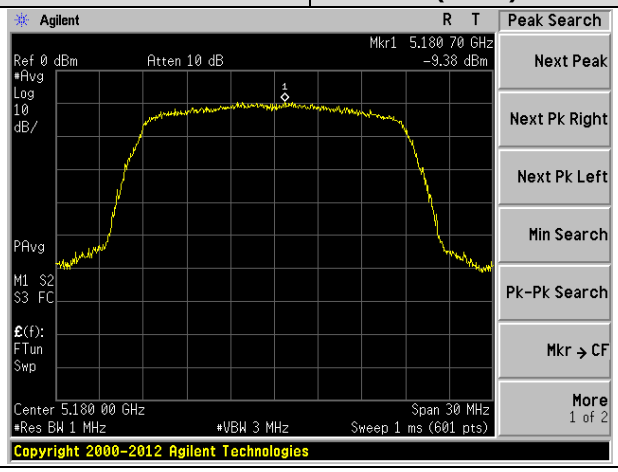
Measurement Data

Modulation	Duty cycle	Duty Factor
802.11ac(HT20)	98.50%	0.07
802.11ac(HT40)	97.0%	0.13
802.11ac(HT80)	93.44%	0.29

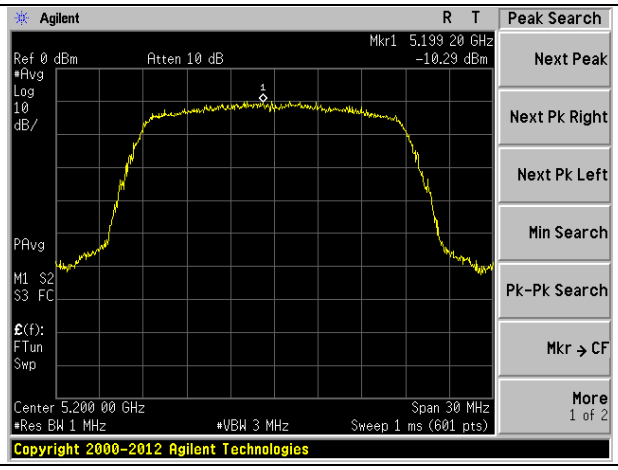
802.11ac(HT20) mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power (dBm/MHz)	Limit (dBm/MHz)	Result
36	5180	-9.38	0.07	-9.31	11	Pass
40	5200	-10.29	0.07	-10.22	11	Pass
48	5240	-9.94	0.07	-9.87	11	Pass
802.11 ac(HT40) mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power (dBm/MHz)	Limit (dBm/MHz)	Result
38	5190	-12.41	0.13	-12.28	11	Pass
46	5230	-12.56	0.13	-12.43	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	-15.26	0.29	-14.97	11	Pass

Test plots as followed:

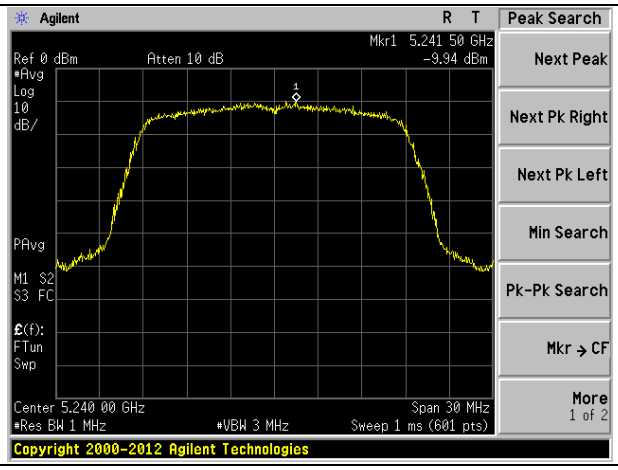
Test mode:	802.11ac(HT20) mode



5180

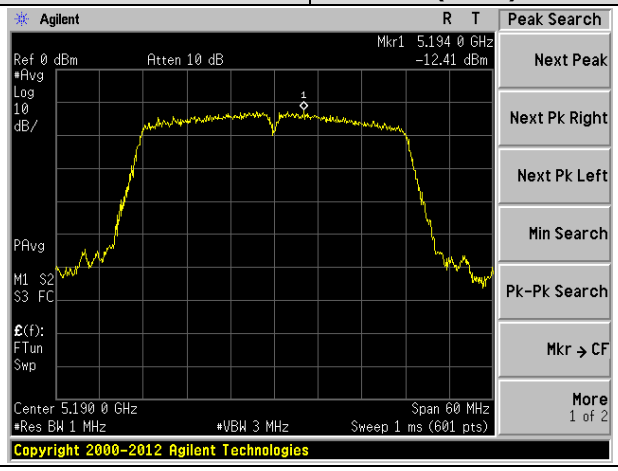


5200

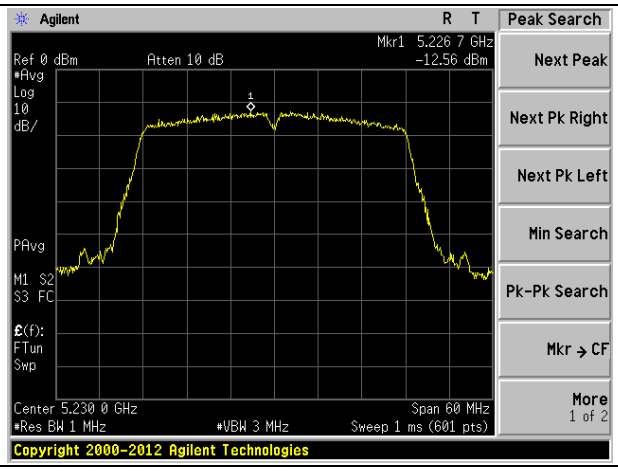


5240

Test mode:	802.11ac(HT40) mode

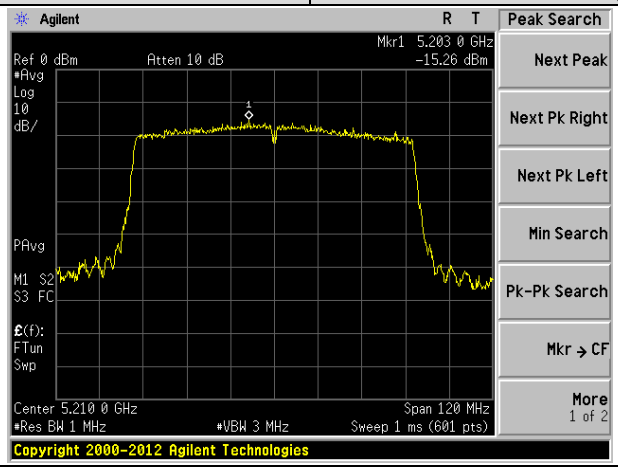


5190



5230

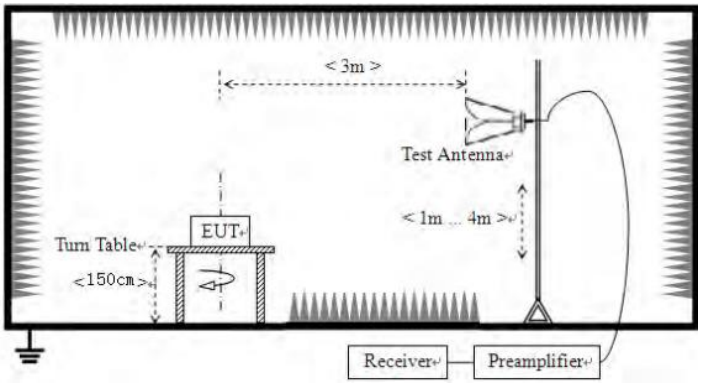
Test mode:	802.11ac(HT80) mode



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><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></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 (dBuV/m @3m)</th><th>Remark</th></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 6.0 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:

802.11ac(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	45.87	32.07	8.99	37.49	49.44	68.2	-18.76	Horizontal
5350.00	43.03	31.75	9.29	37.2	46.87	68.2	-21.33	Horizontal
5150.00	45.48	32.07	8.99	37.49	49.05	68.2	-19.15	Vertical
5350.00	44.84	31.75	9.29	37.2	48.68	68.2	-19.52	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	31.32	32.07	8.99	37.49	34.89	54	-19.11	Horizontal
5350.00	31.65	31.75	9.29	37.2	35.49	54	-18.51	Horizontal
5150.00	35.00	32.07	8.99	37.49	38.57	54	-15.43	Vertical
5350.00	31.93	31.75	9.29	37.2	35.77	54	-18.23	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	42.11	32.07	8.99	37.49	45.68	68.2	-22.52	Horizontal
5350.00	42.41	31.75	9.29	37.2	46.25	68.2	-21.95	Horizontal
5150.00	42.36	32.07	8.99	37.49	45.93	68.2	-22.27	Vertical
5350.00	42.60	31.75	9.29	37.2	46.44	68.2	-21.76	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	36.97	32.07	8.99	37.49	40.54	54	-13.46	Horizontal
5350.00	34.70	31.75	9.29	37.2	38.54	54	-15.46	Horizontal
5150.00	32.92	32.07	8.99	37.49	36.49	54	-17.51	Vertical
5350.00	33.25	31.75	9.29	37.2	37.09	54	-16.91	Vertical

802.11ac(HT80)					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	44.33	32.07	8.99	37.49	47.9	68.2	-20.3	Horizontal
5350.00	42.18	31.75	9.29	37.2	46.02	68.2	-22.18	Horizontal
5150.00	44.86	32.07	8.99	37.49	48.43	68.2	-19.77	Vertical
5350.00	44.83	31.75	9.29	37.2	48.67	68.2	-19.53	Vertical

802.11ac(HT80)					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	34.87	32.07	8.99	37.49	38.44	54	-15.56	Horizontal
5350.00	34.84	31.75	9.29	37.2	38.68	54	-15.32	Horizontal
5150.00	34.42	32.07	8.99	37.49	37.99	54	-16.01	Vertical
5350.00	34.95	31.75	9.29	37.2	38.79	54	-15.21	Vertical

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>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>FCC Limit:</td><td>
<table>
<tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr>
<tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr>
<tr><td>1.705-30.0</td><td>30</td><td>30</td></tr>
<tr><td>30-88</td><td>100**</td><td>3</td></tr>
<tr><td>88-216</td><td>150**</td><td>3</td></tr>
<tr><td>216-960</td><td>200**</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>3</td></tr>
</table>
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
</td></tr>
<tr><td>IC Limit:</td><td>
Table 5 – General field strength limits at frequencies above 30 MHz
<table>
<tr><th>Frequency (MHz)</th><th>Field strength (µV/m at 3 m)</th></tr>
<tr><td>30 – 88</td><td>100</td></tr>
<tr><td>88 – 216</td><td>150</td></tr>
<tr><td>216 – 960</td><td>200</td></tr>
<tr><td>Above 960</td><td>500</td></tr>
</table>
Table 6 – General field strength limits at frequencies below 30 MHz
<table>
<tr><th>Frequency</th><th>Magnetic field strength (H-Field) (µA/m)</th><th>Measurement distance (m)</th></tr>
<tr><td>9 - 490 kHz [1]</td><td>6.37/F (F in kHz)</td><td>300</td></tr>
<tr><td>490 - 1705 kHz</td><td>63.7/F (F in kHz)</td><td>30</td></tr>
<tr><td>1.705 - 30 MHz</td><td>0.08</td><td>30</td></tr>
</table>
Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.
</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</td></tr>
</table>

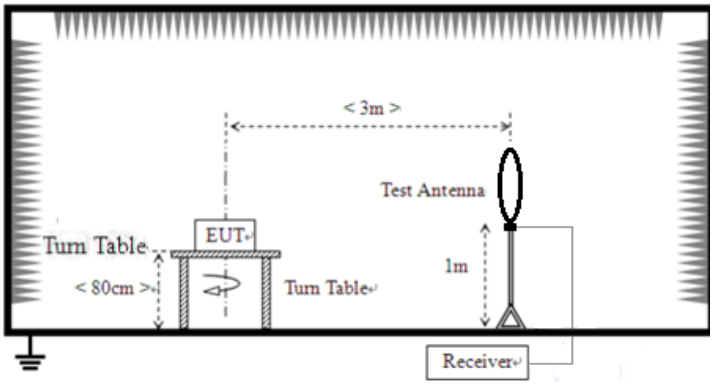
meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.

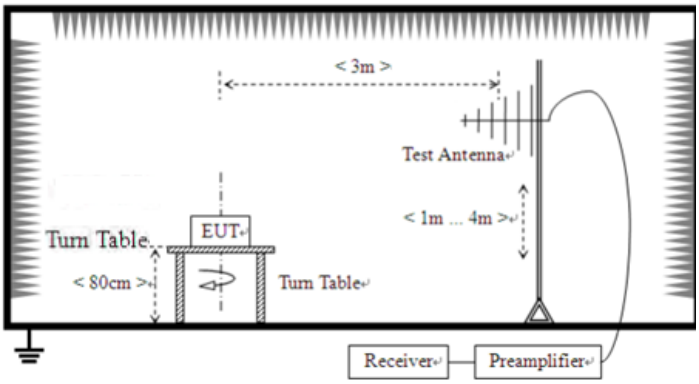
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical 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.

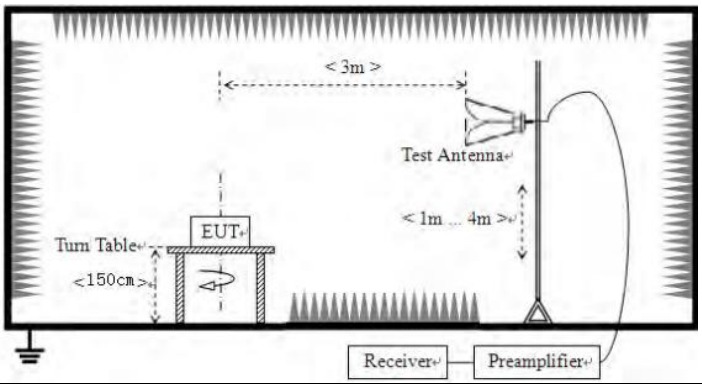
2>.Above 1GHz test procedure:

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)

<table>
<tr><td></td><td colspan="6">where:
Pg is the generator output power into the substitution antenna.</td></tr>
<tr><td>Test setup:</td><td colspan="6">For radiated emissions from 9kHz to 30MHz
 

For radiated emissions from 30MHz to1GHz
 

For radiated emissions above 1GHz
 
</td></tr>
<tr><td>Test Instruments:</td><td colspan="6">Refer to section 6.0 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. 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:

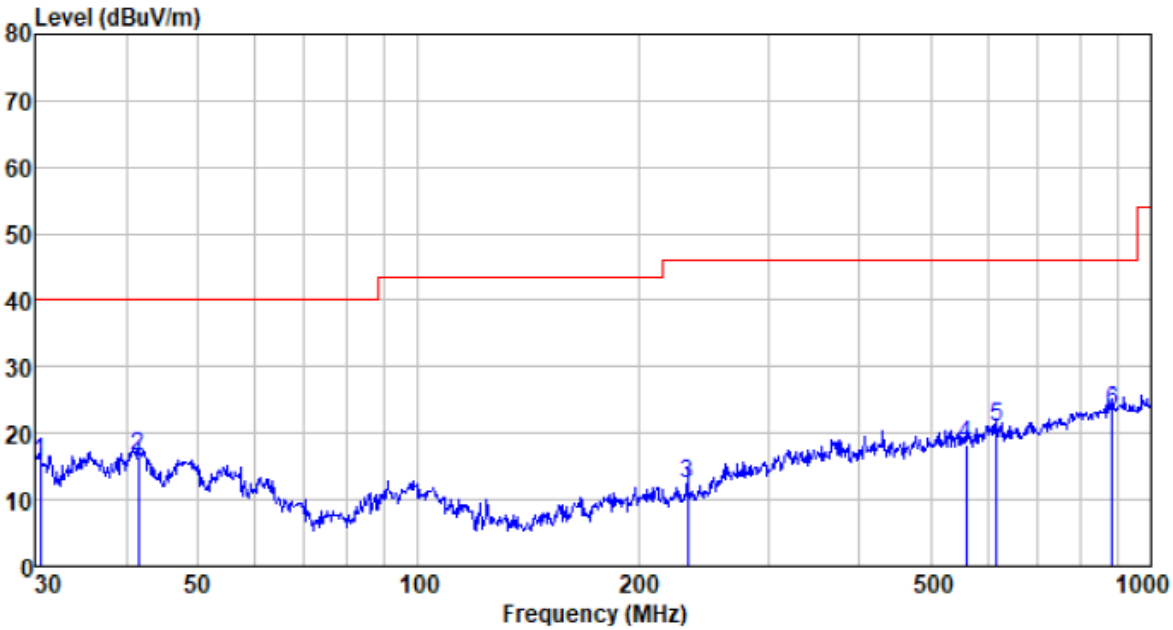
9 kHz ~ 30 MHz

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

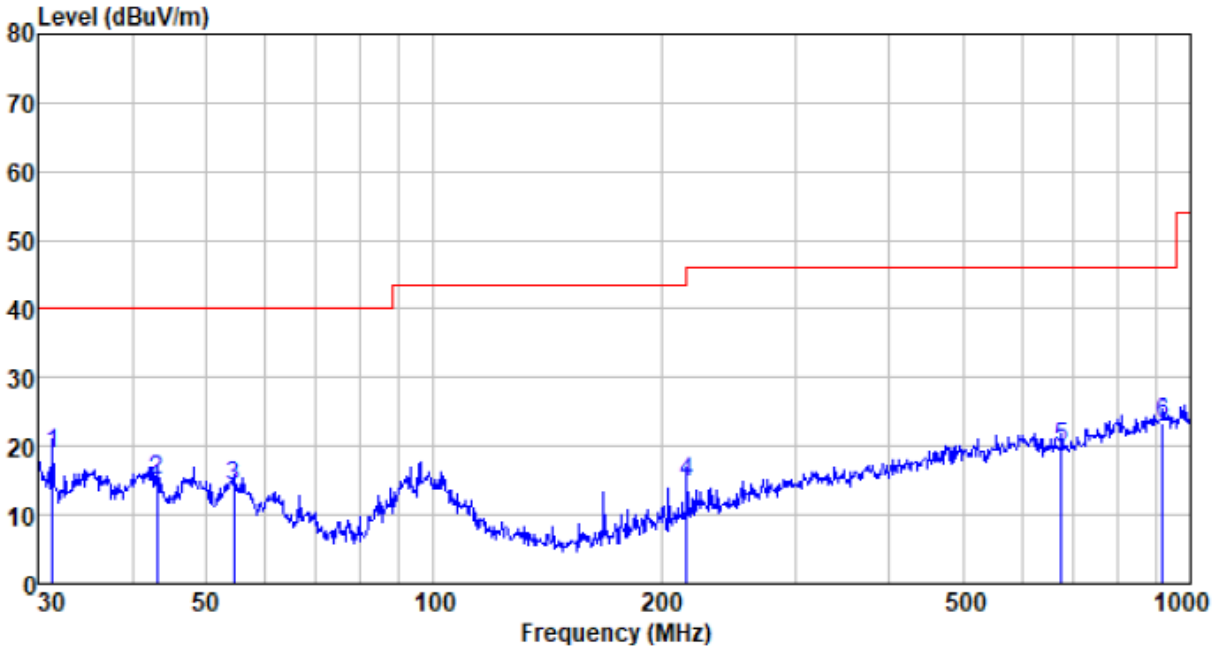
Pre-scan all test modes, found worst case at 802.11ac(HT20) 5200MHz, and so only show the test result of 802.11ac(HT20) 5200MHz

Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
30.531	38.85	11.21	0.56	35.04	15.58	40.00	-24.42	QP
41.567	39.52	12.22	0.68	35.75	16.67	40.00	-23.33	QP
233.349	36.08	11.60	2.04	37.36	12.36	46.00	-33.64	QP
558.730	33.80	18.62	3.56	37.53	18.45	46.00	-27.55	QP
616.372	35.31	19.52	3.79	37.56	21.06	46.00	-24.94	QP
884.503	33.86	22.16	4.79	37.60	23.21	46.00	-22.79	QP

Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
31.399	42.26	11.23	0.57	35.11	18.95	40.00	-21.05	QP
43.050	37.99	12.23	0.70	35.83	15.09	40.00	-24.91	QP
54.452	37.62	11.85	0.81	36.25	14.03	40.00	-25.97	QP
216.024	39.17	11.02	1.93	37.35	14.77	46.00	-31.23	QP
675.208	33.87	19.58	4.00	37.61	19.84	46.00	-26.16	QP
919.287	33.73	22.37	4.93	37.58	23.45	46.00	-22.55	QP

Above 1GHz:

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	34.37	39.67	14.62	32.65	56.01	68.2	-12.19	Vertical
15540.00	36.49	38.6	17.66	34.46	58.29	68.2	-9.91	Vertical
10360.00	34.65	39.67	14.62	32.65	56.29	68.2	-11.91	Horizontal
15540.00	33.96	38.6	17.66	34.46	55.76	68.2	-12.44	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	21.31	39.67	14.62	32.65	42.95	54	-11.05	Vertical
15540.00	25.17	38.6	17.66	34.46	46.97	54	-7.03	Vertical
10360.00	22.31	39.67	14.62	32.65	43.95	54	-10.05	Horizontal
15540.00	24.78	38.6	17.66	34.46	46.58	54	-7.42	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	33.95	39.75	14.63	32.71	55.62	68.2	-12.58	Vertical
15600.00	32.87	38.33	17.67	34.17	54.7	68.2	-13.5	Vertical
10400.00	32.31	39.75	14.63	32.71	53.98	68.2	-14.22	Horizontal
15600.00	33.36	38.33	17.67	34.17	55.19	68.2	-13.01	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	21.43	39.75	14.63	32.71	43.1	54	-10.9	Vertical
15600.00	25.98	38.33	17.67	34.17	47.81	54	-6.19	Vertical
10400.00	21.19	39.75	14.63	32.71	42.86	54	-11.14	Horizontal
15600.00	22.79	38.33	17.67	34.17	44.62	54	-9.38	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	35.77	39.82	14.68	32.86	57.41	68.2	-10.79	Vertical
15720.00	34.70	38.09	17.73	33.66	56.86	68.2	-11.34	Vertical
10480.00	34.23	39.82	14.68	32.86	55.87	68.2	-12.33	Horizontal
15720.00	34.13	38.09	17.73	33.66	56.29	68.2	-11.91	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	23.92	39.82	14.68	32.86	45.56	54	-8.44	Vertical
15720.00	22.69	38.09	17.73	33.66	44.85	54	-9.15	Vertical
10480.00	25.20	39.82	14.68	32.86	46.84	54	-7.16	Horizontal
15720.00	24.11	38.09	17.73	33.66	46.27	54	-7.73	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	33.37	39.71	14.63	32.68	55.03	68.2	-13.17	Vertical
15570.00	36.18	38.46	17.67	34.32	57.99	68.2	-10.21	Vertical
10380.00	36.39	39.71	14.63	32.68	58.05	68.2	-10.15	Horizontal
15570.00	35.94	38.46	17.67	34.32	57.75	68.2	-10.45	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	25.15	39.71	14.63	32.68	46.81	54	-7.19	Vertical
15570.00	24.17	38.46	17.67	34.32	45.98	54	-8.02	Vertical
10380.00	25.41	39.71	14.63	32.68	47.07	54	-6.93	Horizontal
15570.00	21.46	38.46	17.67	34.32	43.27	54	-10.73	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	36.87	39.75	14.65	32.74	58.53	68.2	-9.67	Vertical
15690.00	34.35	38.33	17.69	34.03	56.34	68.2	-11.86	Vertical
10460.00	34.95	39.75	14.65	32.74	56.61	68.2	-11.59	Horizontal
15690.00	32.18	38.33	17.69	34.03	54.17	68.2	-14.03	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
10460.00	24.03	39.75	14.65	32.74	45.69	54	-8.31	Vertical
15690.00	25.01	38.33	17.69	34.03	47	54	-7	Vertical
10460.00	21.71	39.75	14.65	32.74	43.37	54	-10.63	Horizontal
15690.00	21.61	38.33	17.69	34.03	43.6	54	-10.4	Horizontal

802.11ac(HT80) 5210MHz

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
10420.00	33.18	39.82	14.66	32.8	54.86	68.2	-13.34	Vertical
15630.00	33.22	38.09	17.71	33.81	55.21	68.2	-12.99	Vertical
10420.00	36.34	39.82	14.66	32.8	58.02	68.2	-10.18	Horizontal
15630.00	34.72	38.09	17.71	33.81	56.71	68.2	-11.49	Horizontal

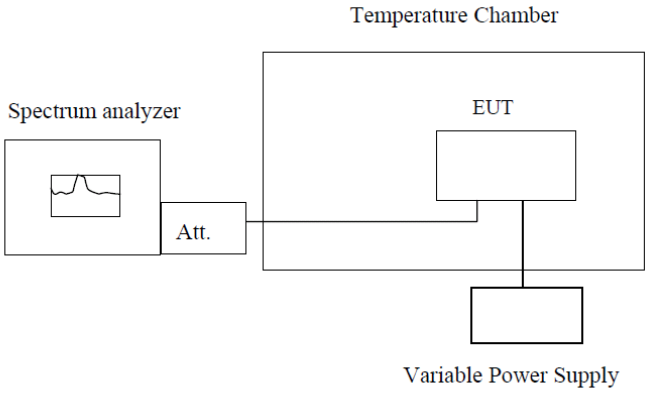
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10420.00	23.14	39.82	14.66	32.8	44.82	54	-9.18	Vertical
15630.00	21.71	38.09	17.71	33.81	43.7	54	-10.3	Vertical
10420.00	24.55	39.82	14.66	32.8	46.23	54	-7.77	Horizontal
15630.00	22.97	38.09	17.71	33.81	44.96	54	-9.04	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.

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 6.0 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 (VDC)	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	3.85	5180.957	Pass	5180.469	Pass	5180.648	Pass	5180.117	Pass
-20	3.85	5180.749	Pass	5180.522	Pass	5180.191	Pass	5180.774	Pass
-10	3.85	5180.351	Pass	5180.527	Pass	5180.469	Pass	5180.510	Pass
0	3.85	5180.626	Pass	5180.696	Pass	5180.488	Pass	5180.575	Pass
10	3.85	5180.412	Pass	5180.728	Pass	5180.345	Pass	5180.420	Pass
20	3.85	5180.047	Pass	5180.144	Pass	5180.164	Pass	5180.249	Pass
30	3.85	5180.459	Pass	5180.905	Pass	5180.647	Pass	5180.467	Pass
40	3.85	5180.031	Pass	5180.124	Pass	5180.958	Pass	5180.807	Pass
50	3.85	5180.316	Pass	5180.640	Pass	5180.963	Pass	5180.340	Pass
Frequency stability versus Temp.									
Worse Case Operating Frequency：5180MHz									
Temp. (°C)	Power Supply (VDC)	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	3.6	5180.731	Pass	5180.285	Pass	5180.927	Pass	5180.444	Pass
25	4.4	5180.980	Pass	5180.507	Pass	5180.270	Pass	5180.325	Pass

Frequency stability versus Temp.									
Worse Case Operating Frequency：5190MHz									
Temp. (°C)	Power Supply (VDC)	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	3.85	5190.517	Pass	5190.795	Pass	5190.862	Pass	5190.572	Pass
-20	3.85	5190.981	Pass	5190.027	Pass	5190.350	Pass	5190.976	Pass
-10	3.85	5190.053	Pass	5190.020	Pass	5190.139	Pass	5190.100	Pass
0	3.85	5190.135	Pass	5190.948	Pass	5190.447	Pass	5190.597	Pass
10	3.85	5190.828	Pass	5190.167	Pass	5190.656	Pass	5190.947	Pass
20	3.85	5190.798	Pass	5190.696	Pass	5190.288	Pass	5190.235	Pass
30	3.85	5190.016	Pass	5190.724	Pass	5190.884	Pass	5190.772	Pass
40	3.85	5190.423	Pass	5190.619	Pass	5190.026	Pass	5190.026	Pass
50	3.85	5190.169	Pass	5190.846	Pass	5190.678	Pass	5190.396	Pass
Frequency stability versus Temp.									
Worse Case Operating Frequency：5190MHz									
Temp. (°C)	Power Supply (VDC)	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	3.6	5190.671	Pass	5190.723	Pass	5190.637	Pass	5190.698	Pass
25	4.4	5190.042	Pass	5190.992	Pass	5190.174	Pass	5190.860	Pass

Frequency stability versus Temp.									
Worse Case Operating Frequency：5210MHz									
Temp. (°C)	Power Supply (VDC)	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	3.85	5210.744	Pass	5210.079	Pass	5210.145	Pass	5210.358	Pass
-20	3.85	5210.668	Pass	5210.502	Pass	5210.509	Pass	5210.515	Pass
-10	3.85	5210.427	Pass	5210.844	Pass	5210.721	Pass	5210.971	Pass
0	3.85	5210.882	Pass	5210.450	Pass	5210.257	Pass	5210.311	Pass
10	3.85	5210.163	Pass	5210.237	Pass	5210.591	Pass	5210.129	Pass
20	3.85	5210.720	Pass	5210.957	Pass	5210.181	Pass	5210.195	Pass
30	3.85	5210.130	Pass	5210.937	Pass	5210.099	Pass	5210.487	Pass
40	3.85	5210.691	Pass	5210.066	Pass	5210.727	Pass	5210.364	Pass
50	3.85	5210.220	Pass	5210.038	Pass	5210.651	Pass	5210.775	Pass
Frequency stability versus Temp.									
Worse Case Operating Frequency：5210MHz									
Temp. (°C)	Power Supply (VDC)	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	3.6	5210.752	Pass	5210.873	Pass	5210.714	Pass	5210.731	Pass
25	4.4	5210.610	Pass	5210.401	Pass	5210.461	Pass	5210.881	Pass

8 Test Setup Photo

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

9 EUT Constructional Details

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

---END---