

FCC REPORT

Applicant: Motic China Group Co.,Ltd

Address of Applicant: MOTIC BLDG, TORCH HI-TECH INDUSTRIAL DEV ZONE,
XIAMEN FUJIAN, CHINA, 361006

Manufacturer/Factory: Motic China Group Co.,Ltd

**Address of
Manufacturer/Factory:** MOTIC BLDG, TORCH HI-TECH INDUSTRIAL DEV ZONE,
XIAMEN FUJIAN, CHINA, 361006

Equipment Under Test (EUT)

Product Name: Digital Camera

Model No.: MoticamX³

Trade Mark: N/A

FCC ID: PVEMOTICAMX3

Applicable standards: FCC CFR Title 47 Part 15 Subpart E Section 15.407:2017

Date of sample receipt: November 17, 2017

Date of Test: November 17, 2017-March 07, 2018

Date of report issue: March 07, 2018

Test Result : PASS *

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

Authorized Signature:



Robinson Lo
Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

2 Version

Version No.	Date	Description
00	March 07, 2018	Original

Prepared By:

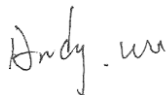


Date:

March 07, 2018

Project Engineer

Check By:



Date:

March 07, 2018

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	15.205	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	9kHz ~ 30MHz	$\pm 4.34\text{dB}$	(1)
Radiated Emission	30MHz ~ 1000MHz	$\pm 4.24\text{dB}$	(1)
Radiated Emission	1GHz ~ 40GHz	$\pm 4.68\text{dB}$	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	$\pm 3.45\text{dB}$	(1)

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

Remark: Test according to ANSI C63.10:2013 and ANSI C63.4:2014

5 General Information

5.1 General Description of EUT

Product Name:	Digital Camera
Model No.:	MoticamX ³
Test Model No:	MoticamX ³
<i>Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are color and model name for commercial purpose.</i>	
Sample(s) Status:	Engineer sample
Quantity of tested samples	1
Serial No.:	T1872000
Tested Sample(s) ID:	N/A
Hardware Version:	V1.2
Software Version:	V1.2
Operation Frequency:	802.11n(HT20): 5180MHz ~ 5240MHz; (SISO) 802.11n(HT40): 5190MHz ~ 5230MHz (SISO) 802.11ac(HT80): 5210MHz (SISO)
Channel numbers:	802.11n(HT20): 4; 802.11n(HT40): 2 802.11ac(HT80): 1
Channel separation:	802.11n(HT20): 20MHz; 802.11n(HT40): 40MHz 802.11ac(HT80): 80MHz
Modulation technology:	OFDM
Antenna Type:	FPC antenna
Antenna gain:	FPC Antenna 0, Maximum Gain is 5.0dBi for 2.4G WIFI&5G WIFI FPC Antenna 1, Maximum Gain is 5.0dBi for 2.4G WIFI&5G WIFI
Power supply:	DC 5V from adapter input AC 120V, 60Hz

5.2 Test mode

Transmitting mode	Keep the EUT in transmitting with modulation. EUT was test with 99% duty cycle at its maximum power control level.
<i>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.</i>	

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, January 08, 2018. ● Industry Canada (IC) —Registration No.: 9079A-2 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-2, August 15, 2016.
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5.4 Test Location

All tests were performed at:
Global United Technology Services Co., Ltd. Address: No. 301-309, 3/F., 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 Other Information Requested by the Customer

None.

5.9 Additional instructions

Software (Used for test) from client

Mode	Realtek 11ac 8812A
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Channel	Power level
Lowest	Default
Middle	Default
Highest	Default

Test software set:

6 Test Instruments list

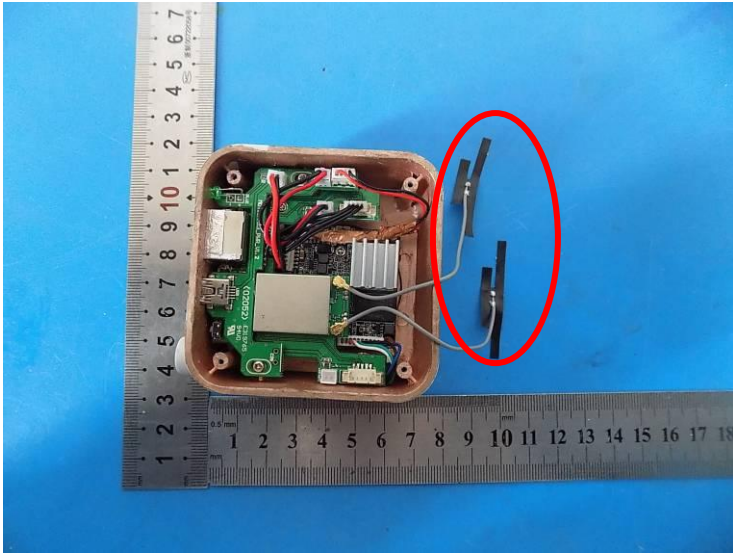
Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 28 2017	June. 27 2018
4	Spectrum analyzer	Agilent	E4447A	GTS516	June. 28 2017	June. 27 2018
5	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 28 2017	June. 27 2018
6	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 28 2017	June. 27 2018
7	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June. 28 2017	June. 27 2018
8	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 28 2017	June. 27 2018
9	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
10	Coaxial Cable	GTS	N/A	GTS213	June. 28 2017	June. 27 2018
11	Coaxial Cable	GTS	N/A	GTS211	June. 28 2017	June. 27 2018
12	Coaxial cable	GTS	N/A	GTS210	June. 28 2017	June. 27 2018
13	Coaxial Cable	GTS	N/A	GTS212	June. 29 2017	June. 27 2018
14	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 28 2017	June. 27 2018
15	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	June. 28 2017	June. 27 2018
16	Amplifier (18-40GHz)	MITEQ	AMF-6F-18004000-29-8P	GTS534	June. 28 2017	June. 27 2018
17	Band filter	Amindeon	82346	GTS219	June. 28 2017	June. 27 2018
18	Constant temperature and humidity box	Oregon Scientific	BA-888	GTS248	June. 28 2017	June. 27 2018
19	D.C. Power Supply	Instek	PS-3030	GTS232	June. 28 2017	June. 27 2018
20	Universal radio communication tester	Rohde & Schwarz	CMU200	GTS235	June. 28 2017	June. 27 2018
21	Splitter	Agilent	11636B	GTS237	June. 28 2017	June. 27 2018
22	Power Meter	Anritsu	ML2495A	GTS540	June. 28 2017	June. 27 2018
23	Power Sensor	Anritsu	MA2411B	GTS541	June. 28 2017	June. 27 2018

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 16 2014	May 15 2019
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 28 2017	June. 27 2018
3	Pulse Limiter	R&S	ESH3-Z2	GTS224	June. 28 2017	June. 27 2018
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 28 2017	June. 27 2018
5	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June. 28 2017	June. 27 2018
6	Coaxial Cable	GTS	N/A	GTS227	June. 28 2017	June. 27 2018
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Thermo meter	KTJ	TA328	GTS233	June. 28 2017	June. 27 2018

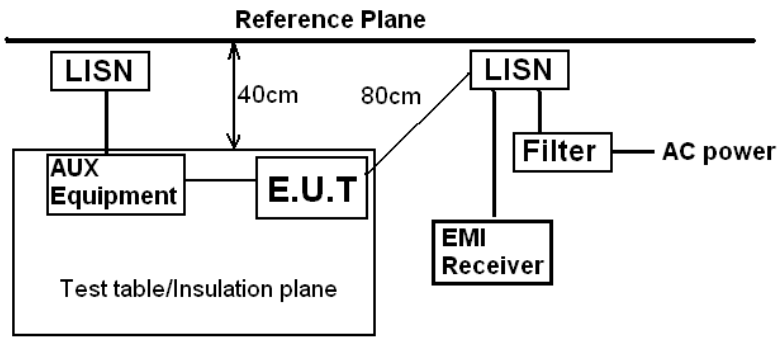
General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Barometer	ChangChun	DYM3	GTS257	June. 28 2017	June. 27 2018

7 Test results and Measurement Data

7.1 Antenna requirement:

Standard requirement:	FCC Part15 C Section 15.203
<i>15.203 requirement:</i> <i>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.</i>	
E.U.T Antenna:	
<i>The antenna is FPC antenna. The best case gain of the antenna is 5.0dBi.</i> 	

7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207		
Test Method:	ANSI C63.10:2013		
Test Frequency Range:	150KHz to 30MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9KHz, VBW=30KHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test procedure	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.		
Test setup:	 <i>Remark</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m		
Test Instruments:	Refer to section 5.10 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Pass		

Measurement Data

An initial pre-scan was performed on the line and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Line:

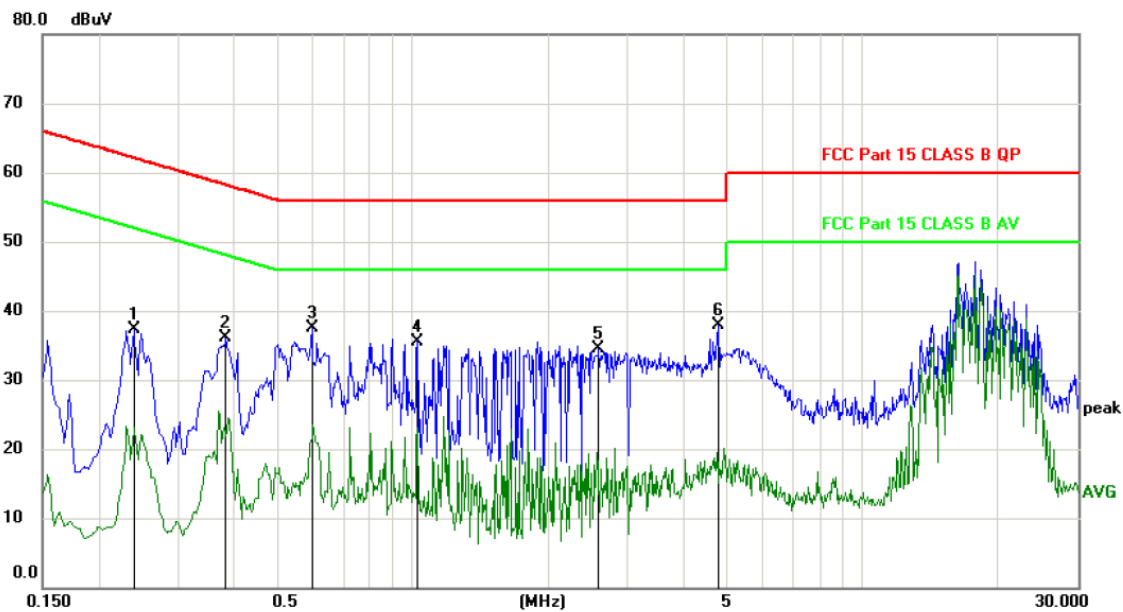
Conducted Emission Measurement

File :MoticamX

Data :#9

Date: 2017-11-17

Time: 19:14:49



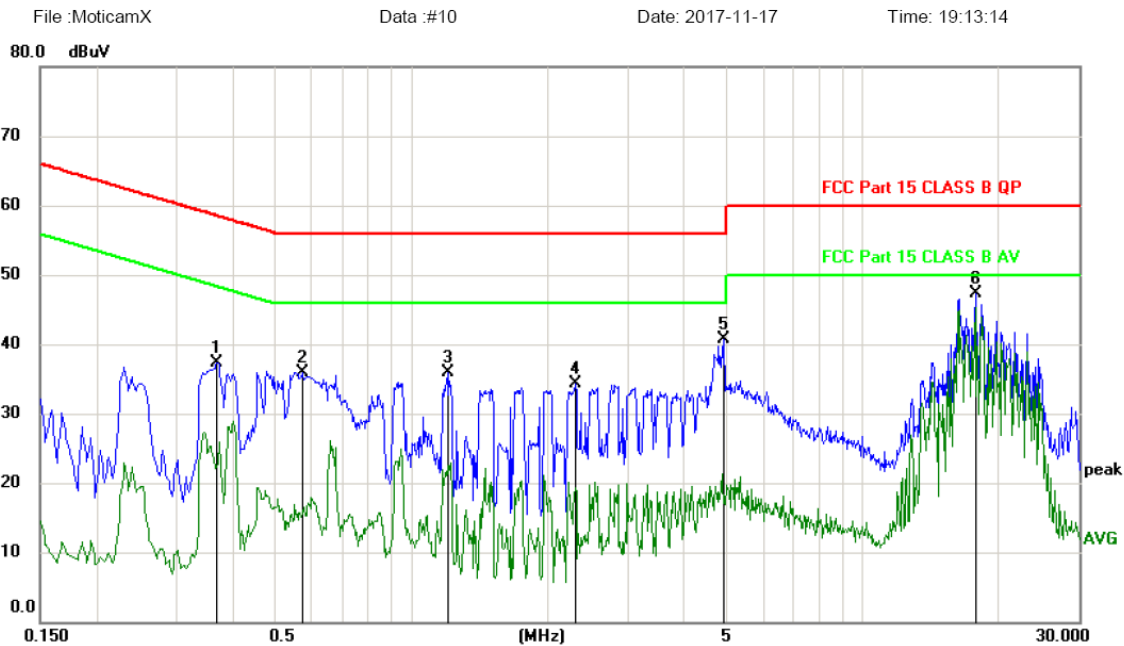
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	0.2400	27.55	9.75	37.30	62.10	-24.80	peak	
2	0.3840	26.25	9.77	36.02	58.19	-22.17	peak	
3	0.5955	27.69	9.79	37.48	56.00	-18.52	peak	
4	1.0230	25.77	9.83	35.60	56.00	-20.40	peak	
5	2.5845	24.44	10.01	34.45	56.00	-21.55	peak	
6 *	4.7805	27.78	10.18	37.96	56.00	-18.04	peak	

*:Maximum data x:Over limit !:over margin

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

Neutral:

Conducted Emission Measurement

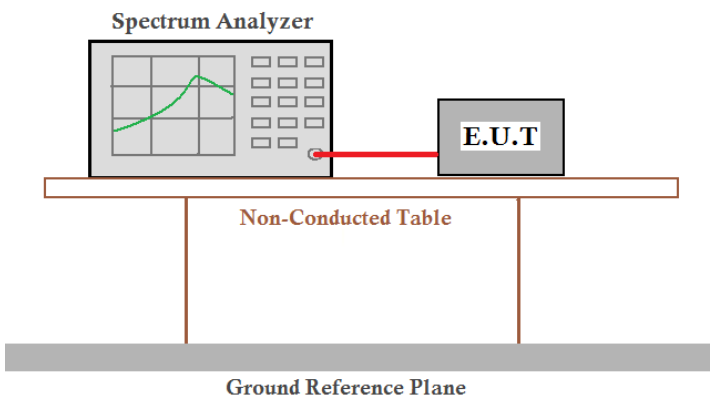


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.3704	27.55	9.77	37.32	58.49	-21.17	peak	
2		0.5730	26.08	9.79	35.87	56.00	-20.13	peak	
3		1.1985	26.09	9.85	35.94	56.00	-20.06	peak	
4		2.3010	24.33	9.96	34.29	56.00	-21.71	peak	
5		4.9064	30.59	10.19	40.78	56.00	-15.22	peak	
6	*	17.6955	36.86	10.46	47.32	60.00	-12.68	peak	

*:Maximum data x:Over limit !:over margin

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

7.3 Emission Bandwidth and 99% Occupied Bandwidth

Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General UNII Test Procedures New Rules v01
Limit:	N/A
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer, shown with a grid and a green curve, is connected to an E.U.T. (Equipment Under Test) box by a red cable. Both the Spectrum Analyzer and the E.U.T. are positioned on a 'Non-Conducted Table', which is depicted as a rectangular platform supported by two vertical legs. Below this table is a 'Ground Reference Plane', represented by a thick grey horizontal bar.
Test procedure:	According to KDB 789033 D02 General UNII Test Procedures New Rules v01.
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data:**ANT0:**

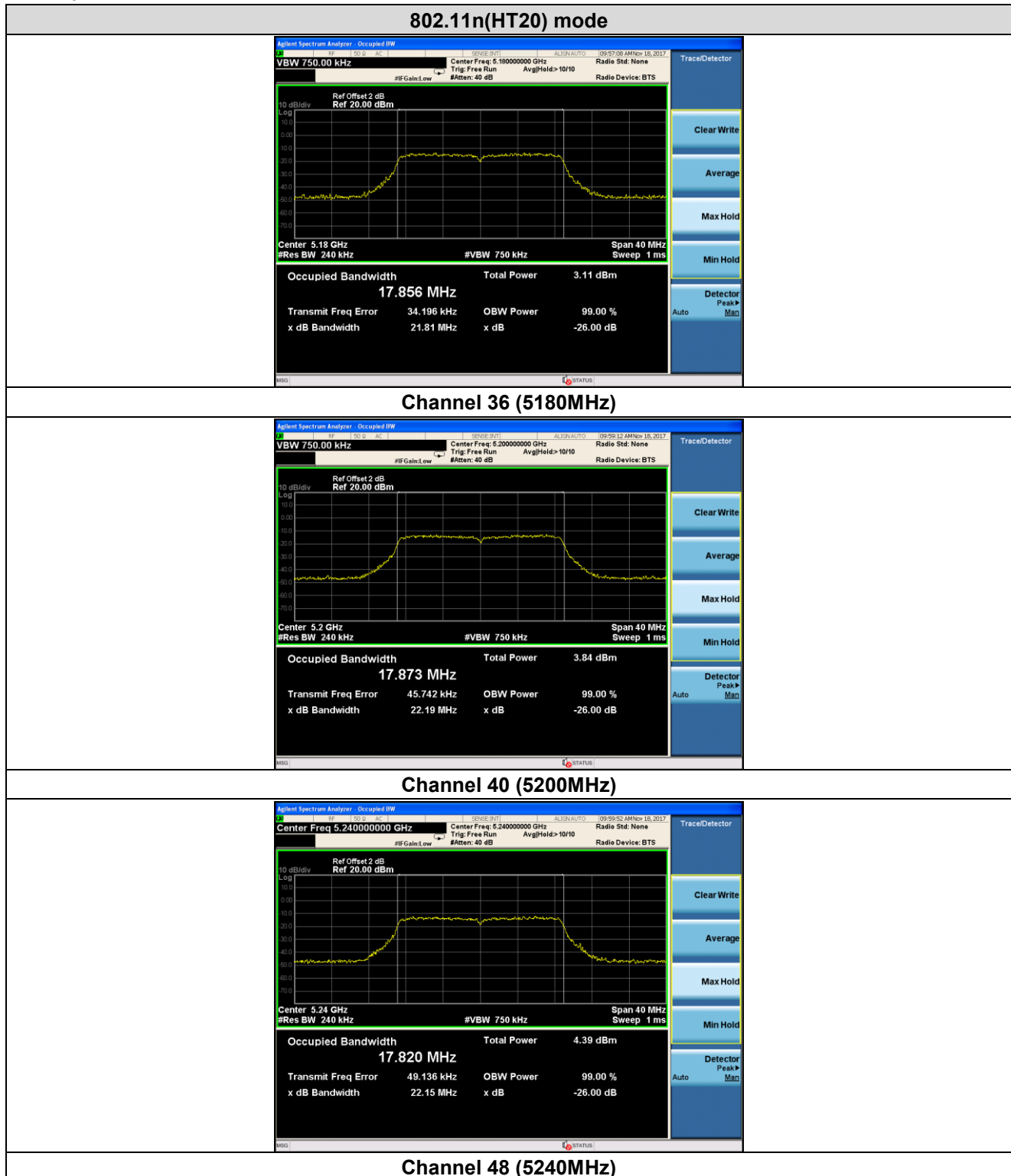
Test model	CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Occupied Bandwidth (MHz)
802.11n (HT20)	36	5180.00	17.856	21.81
	40	5200.00	17.873	22.19
	48	5240.00	17.820	22.15
802.11n (HT40)	38	5190.00	36.568	43.62
	46	5230.00	36.574	44.10
802.11ac (HT80)	42	5210.00	75.569	82.06

ANT1:

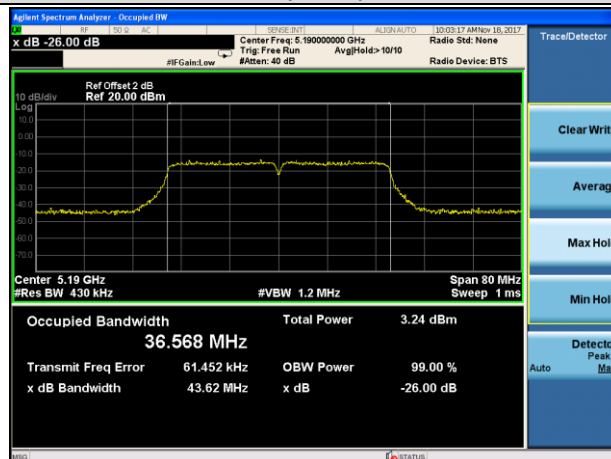
Test model	CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Occupied Bandwidth (MHz)
802.11n (HT20)	36	5180.00	17.920	22.62
	40	5200.00	17.911	22.68
	48	5240.00	17.959	22.76
802.11n (HT40)	38	5190.00	36.643	44.56
	46	5230.00	36.531	43.64
802.11ac (HT80)	42	5210.00	75.398	81.98

Test plots as followed:

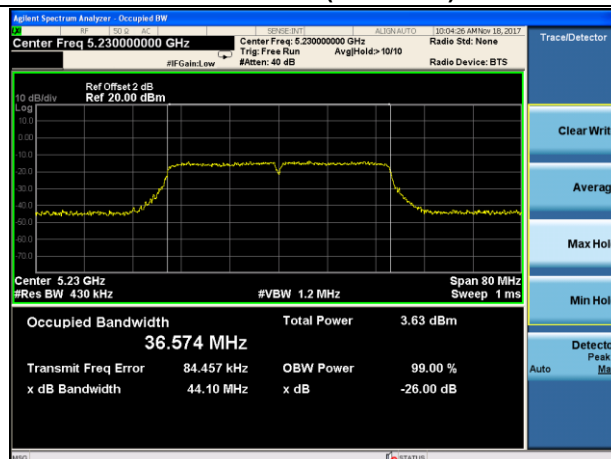
ANT0:



802.11n(HT40) mode

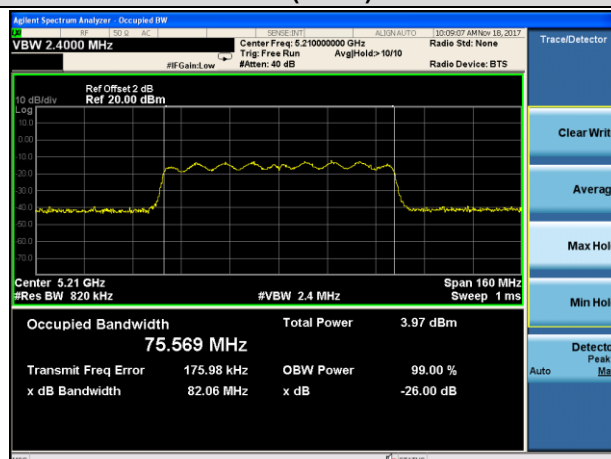


Channel 38 (5190MHz)



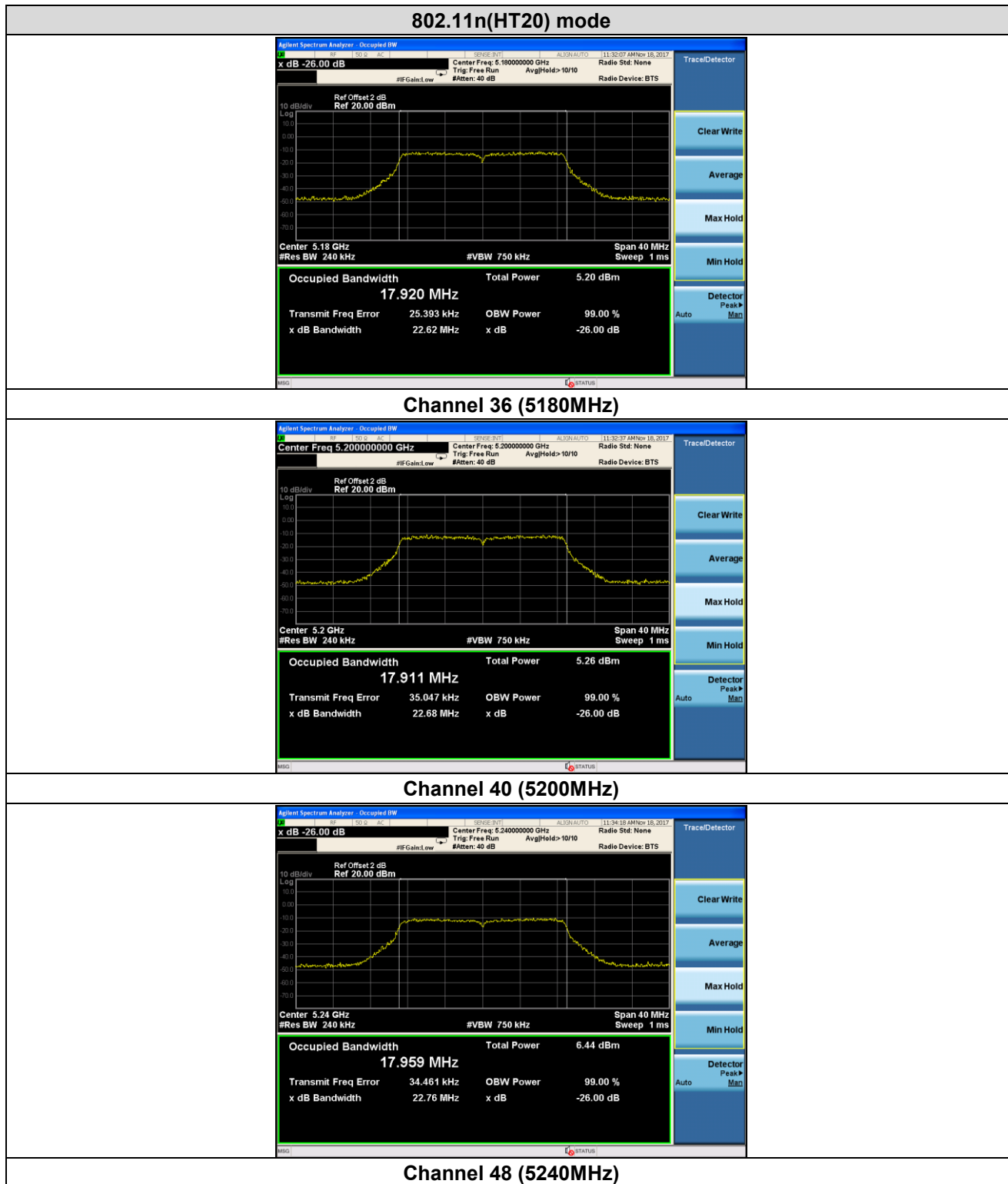
Channel 46 (5230MHz)

802.11ac(HT80) mode

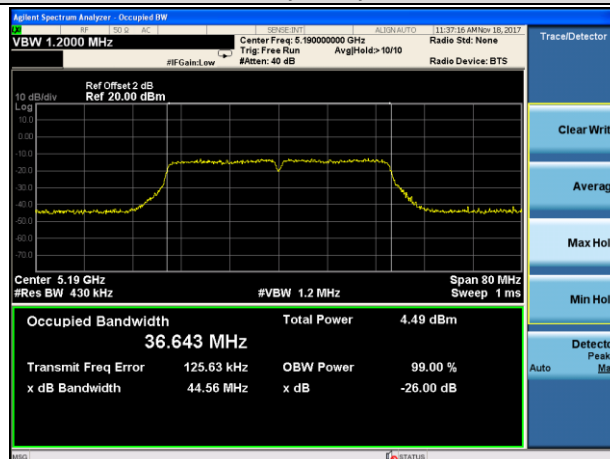


Channel 40 (5210MHz)

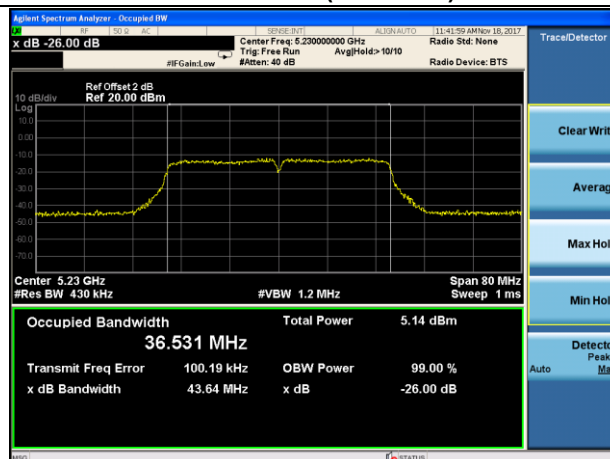
ANT1:



802.11n(HT40) mode

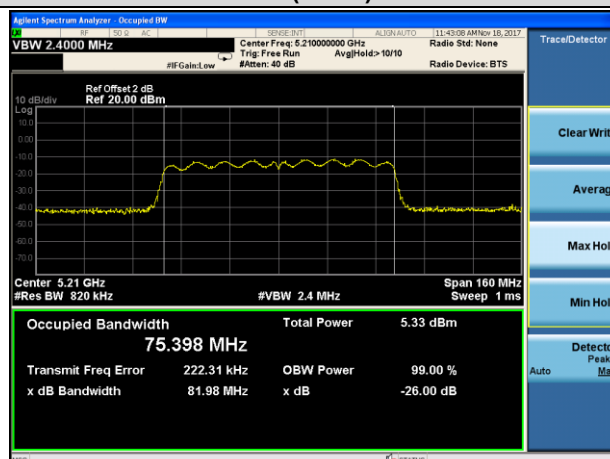


Channel 38 (5190MHz)



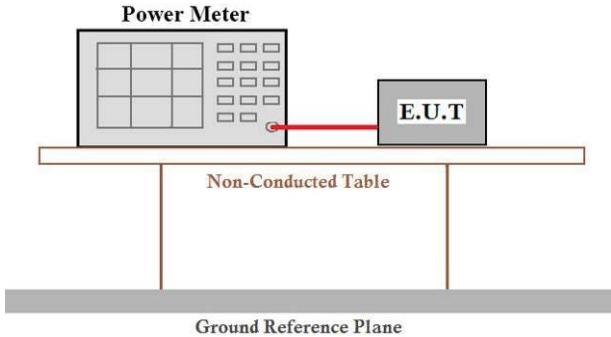
Channel 46 (5230MHz)

802.11ac(HT80) mode



Channel 40 (5210MHz)

7.4 Peak Transmit Power

Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General UNII Test Procedures New Rules v01
Limit:	For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency bands of operation shall not exceed 250mW.
Test setup:	 The diagram illustrates the test setup. A Power Meter and an E.U.T. (Equipment Under Test) are connected by a red cable. They are positioned on a Non-Conducted Table, which is elevated above a Ground Reference Plane. The table is supported by two vertical legs.
Test procedure:	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., $10 \log(1/0.25)$ if the duty cycle is 25 percent).
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data**ANT0:**

802.11n(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180.00	8.63	0.04	8.67	23.98	Pass
40	5200.00	9.72	0.04	9.76	23.98	Pass
48	5240.00	9.81	0.04	9.85	23.98	Pass

802.11n(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
38	5190.00	9.62	0.04	9.66	23.98	Pass
46	5230.00	9.37	0.04	9.41	23.98	Pass

802.11 ac(HT80)						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
42	5210.00	9.08	0.04	9.12	23.98	Pass

Note: Output Power = Measured Power + Duty Factor

Duty Factor = $10 \log (1/\text{Duty Cycle})$

ANT1:

802.11n(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180.00	9.93	0.04	9.97	23.98	Pass
40	5200.00	9.03	0.04	9.07	23.98	Pass
48	5240.00	9.21	0.04	9.25	23.98	Pass

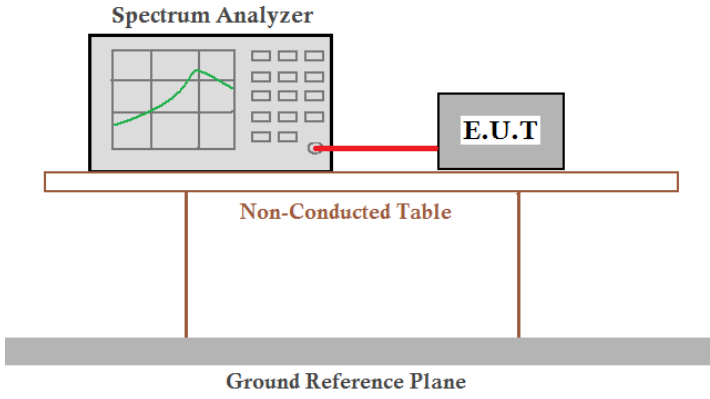
802.11n(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
38	5190.00	9.78	0.04	9.82	23.98	Pass
46	5230.00	9.52	0.04	9.56	23.98	Pass

802.11 ac(HT80)						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
42	5210.00	9.30	0.04	9.34	23.98	Pass

Note: Output Power = Measured Power + Duty Factor

Duty Factor = $10 \log (1/\text{Duty Cycle})$

7.5 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General UNII Test Procedures New Rules v01
Limit:	11dBm/MHz
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.
Test procedure:	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.
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data**ANT0:**

802.11n(HT20) mode						
Channel No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
36	5180.00	-7.012	0.04	-6.97	11	Pass
40	5200.00	-7.407	0.04	-7.37	11	Pass
48	5240.00	-6.028	0.04	-5.99	11	Pass

802.11n(HT40) mode						
Channel No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
38	5190.00	-10.933	0.04	-10.89	11	Pass
46	5230.00	-9.213	0.04	-9.17	11	Pass

802.11ac(HT80) mode						
Channel No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
38	5210.00	-11.999	0.04	-11.96	11	Pass

Note: Total PSD = Measured PSD + Duty Factor

Duty Factor = $10 \log (1/\text{Duty Cycle})$

Measurement Data**ANT1:**

802.11n(HT20) mode						
Channel No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
36	5180.00	-3.953	0.04	-3.91	11	Pass
40	5200.00	-5.361	0.04	-5.32	11	Pass
48	5240.00	-5.125	0.04	-5.09	11	Pass

802.11n(HT40) mode						
Channel No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
38	5190.00	-8.595	0.04	-8.56	11	Pass
46	5230.00	-7.368	0.04	-7.33	11	Pass

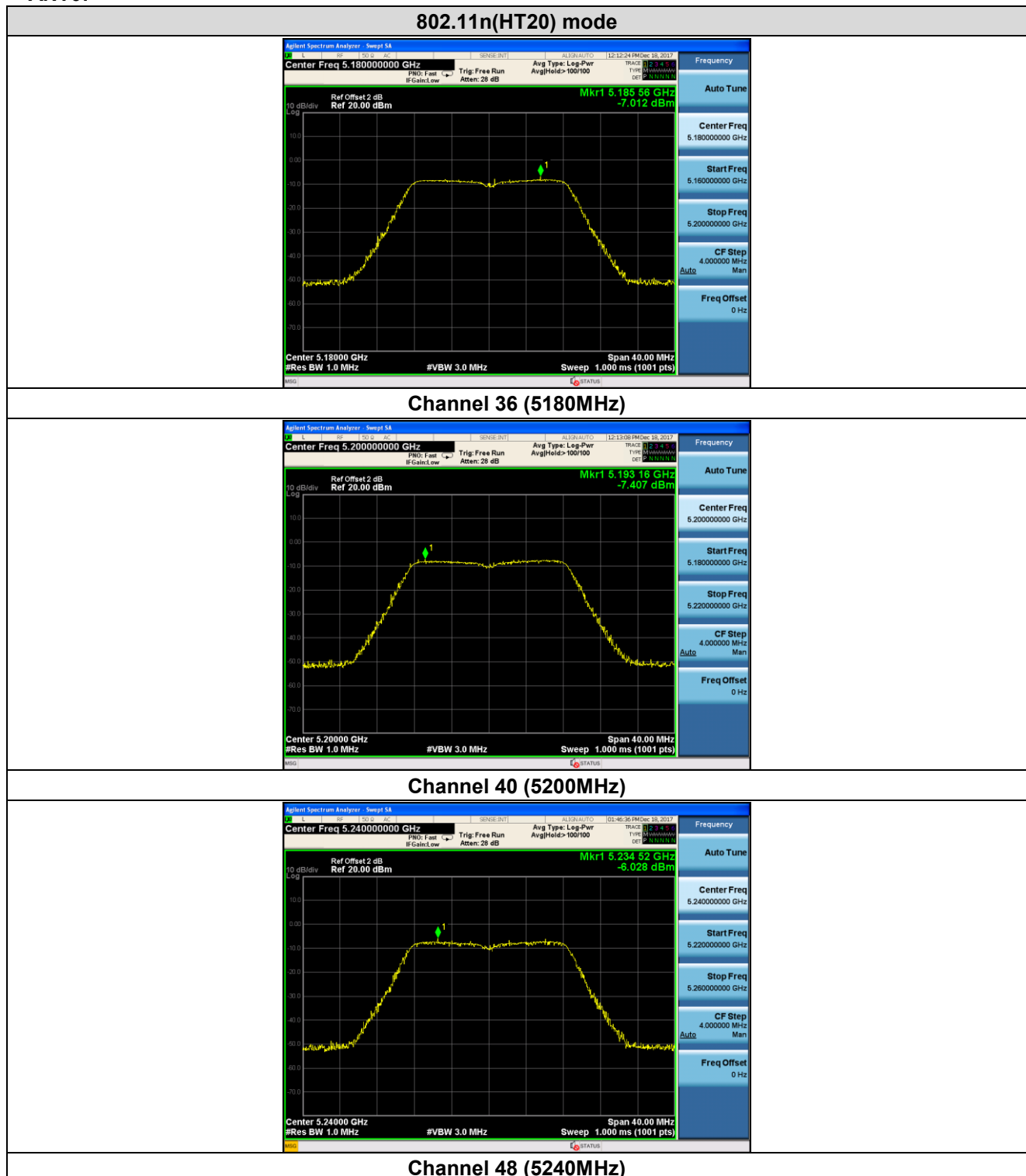
802.11ac(HT80) mode						
Channel No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
38	5210.00	-9.876	0.04	-9.84	11	Pass

Note: Total PSD = Measured PSD + Duty Factor

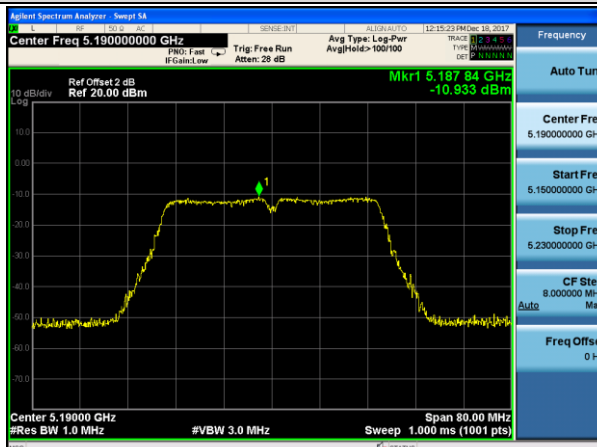
Duty Factor = $10 \log (1/\text{Duty Cycle})$

Test plots as followed:

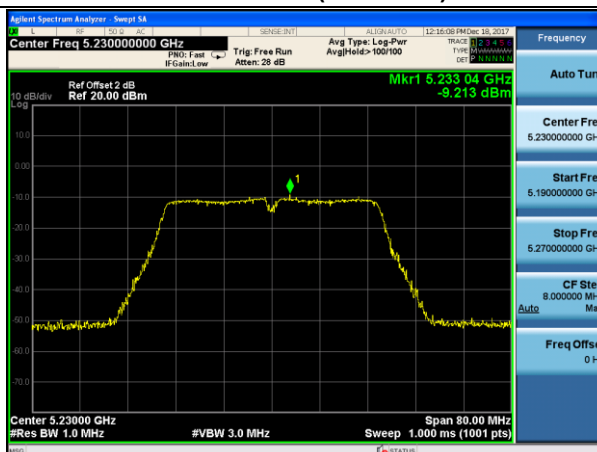
ANT0:



802.11n(HT40) mode

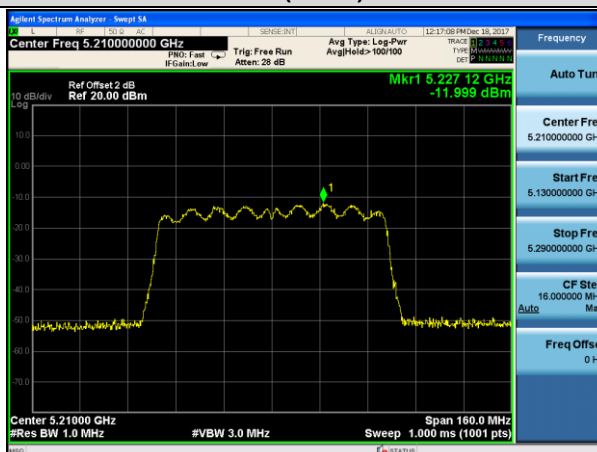


Channel 38 (5190MHz)



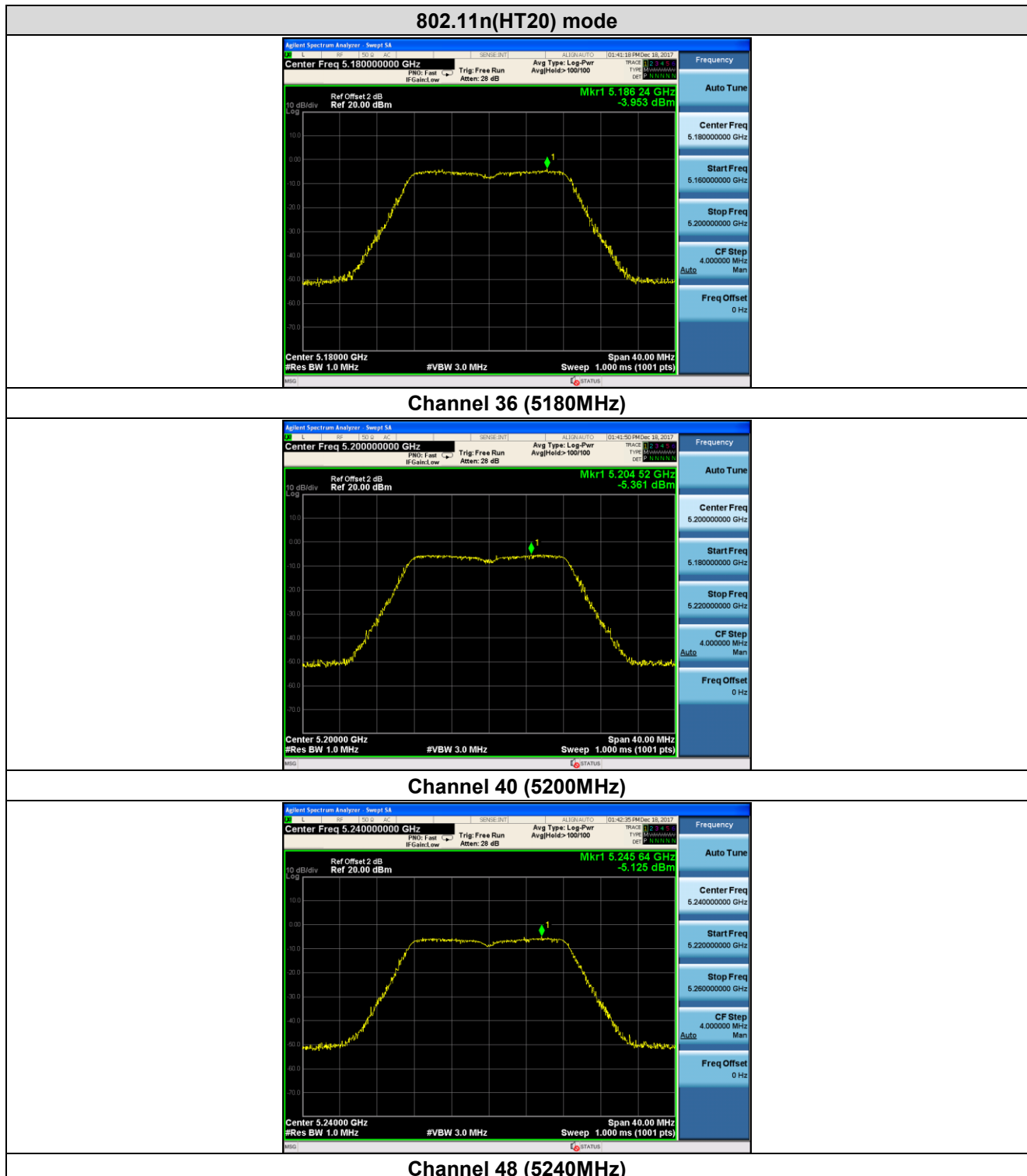
Channel 46 (5230MHz)

802.11ac(HT80) mode

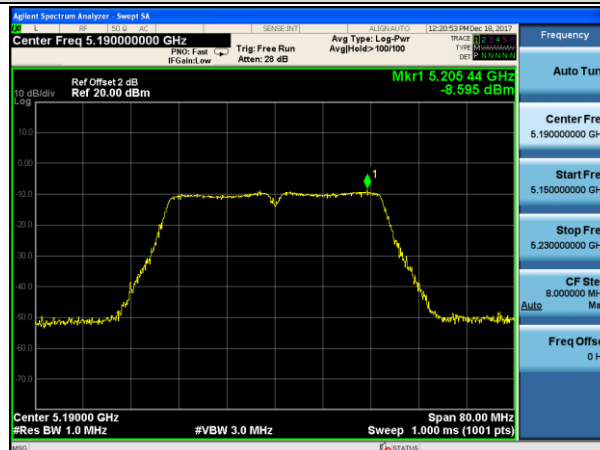


Channel 40 (5210MHz)

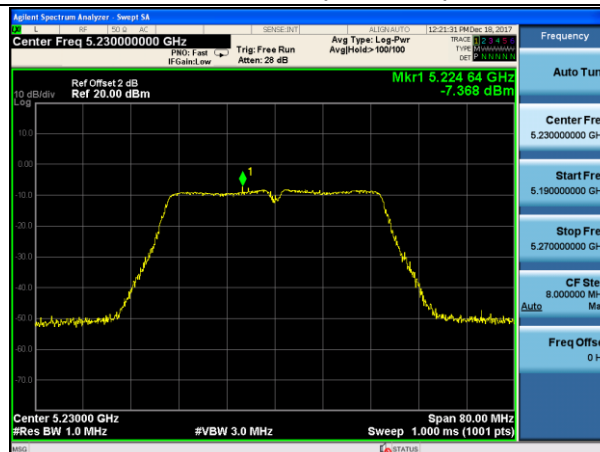
ANT1:



802.11n(HT40) mode

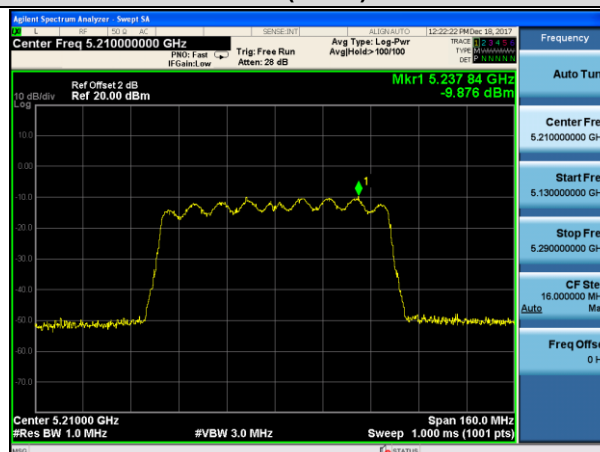


Channel 38 (5190MHz)



Channel 46 (5230MHz)

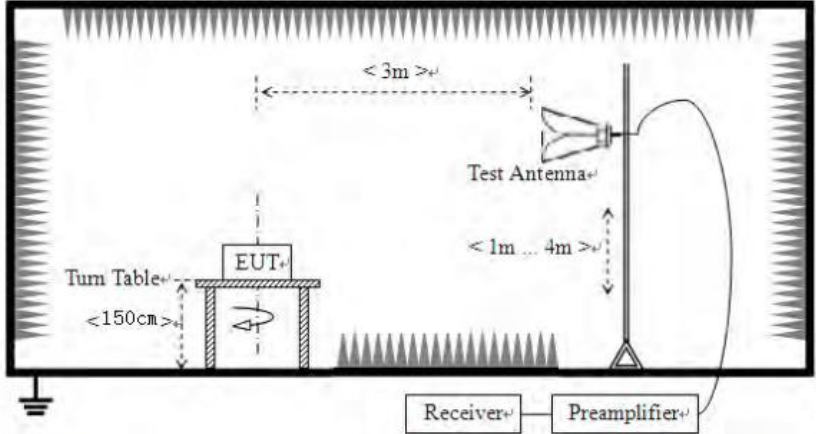
802.11ac(HT80) mode



Channel 40 (5210MHz)

7.6 Band Edge

Test Requirement:	FCC Part15 E Section 15.407 and 5.205																								
Test Method:	ANSI C63.10:2013																								
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)																								
Receiver setup:	<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>RMS</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr></table>					Frequency	Detector	RBW	VBW	Remark	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value	Above 1GHz	Peak	1MHz	3MHz	Peak Value	RMS	1MHz	3MHz	Average Value	
Frequency	Detector	RBW	VBW	Remark																					
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value																					
Above 1GHz	Peak	1MHz	3MHz	Peak Value																					
	RMS	1MHz	3MHz	Average Value																					
Limit:	<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.					Frequency	Limit (dBuV/m @3m)	Remark	30MHz-88MHz	40.0	Quasi-peak Value	88MHz-216MHz	43.5	Quasi-peak Value	216MHz-960MHz	46.0	Quasi-peak Value	960MHz-1GHz	54.0	Quasi-peak Value	Above 1GHz	54.0	Average Value	68.2	Peak Value
Frequency	Limit (dBuV/m @3m)	Remark																							
30MHz-88MHz	40.0	Quasi-peak Value																							
88MHz-216MHz	43.5	Quasi-peak Value																							
216MHz-960MHz	46.0	Quasi-peak Value																							
960MHz-1GHz	54.0	Quasi-peak Value																							
Above 1GHz	54.0	Average Value																							
	68.2	Peak Value																							
Test Procedure:	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 rotatable 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 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:	Above 1GHz 
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Remark:

According to KDB 789033 D02V01 section G) 1) (d), for For measurements above 1000 MHz @ 3m distance, the limit of field strength is computed as follows:

$$E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2;$$

For example, if $\text{EIRP} = -27\text{dBm}$

$$E[\text{dBuV/m}] = -27 + 95.2 = 68.2\text{dBuV/m}.$$

Measurement Data:

ANT0:

Mode:		802.11n(HT20)		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	33.68	17.18	50.86	68.20	-17.34	PK
V	5150.00	35.32	17.18	52.50	68.20	-15.70	PK
Mode:		802.11n(HT20)		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	25.06	17.18	42.24	54.00	-11.76	AV
V	5150.00	26.33	17.18	43.51	54.00	-10.49	AV
Mode:		802.11n(HT20)		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	33.57	17.18	50.75	68.20	-17.45	PK
V	5350.00	35.56	17.18	52.74	68.20	-15.46	PK
Mode:		802.11n(HT20)		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	25.27	17.18	42.45	54.00	-11.55	AV
V	5350.00	25.70	17.18	42.88	54.00	-11.12	AV

ANT0:

Mode:		802.11n(HT40)		Frequency:		5190MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	34.34	17.20	51.54	68.20	-16.66	PK
V	5150.00	36.15	17.20	53.35	68.20	-14.85	PK
Mode:		802.11n(HT40)		Frequency:		5190MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	24.51	17.18	41.69	54.00	-12.31	AV
V	5150.00	25.43	17.18	42.61	54.00	-11.39	AV
Mode:		802.11n(HT40)		Frequency:		5230MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	34.37	17.20	51.57	68.20	-16.63	PK
V	5350.00	35.50	17.20	52.70	68.20	-15.50	PK
Mode:		802.11n(HT40)		Frequency:		5230MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	23.98	17.18	41.16	54.00	-12.84	AV
V	5350.00	25.48	17.18	42.66	54.00	-11.34	AV

ANT0:

Mode:		802.11ac(HT80)		Frequency:		5210MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	34.97	17.20	52.17	68.20	-16.03	PK
V	5150.00	36.11	17.20	53.31	68.20	-14.89	PK
Mode:		802.11ac(HT80)		Frequency:		5210MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	24.07	17.18	41.25	54.00	-12.75	AV
V	5150.00	25.61	17.18	42.79	54.00	-11.21	AV
Mode:		802.11ac(HT80)		Frequency:		5210MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	34.57	17.20	51.77	68.20	-16.43	PK
V	5350.00	35.59	17.20	52.79	68.20	-15.41	PK
Mode:		802.11ac(HT80)		Frequency:		5210MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	24.74	17.18	41.92	54.00	-12.08	AV
V	5350.00	25.60	17.18	42.78	54.00	-11.22	AV

ANT1:

Mode:		802.11n(HT20)		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	33.60	17.18	50.78	68.20	-17.42	PK
V	5150.00	35.55	17.18	52.73	68.20	-15.47	PK
Mode:		802.11n(HT20)		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	25.27	17.18	42.45	54.00	-11.55	AV
V	5150.00	25.81	17.18	42.99	54.00	-11.01	AV
Mode:		802.11n(HT20)		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	33.79	17.18	50.97	68.20	-17.23	PK
V	5350.00	35.33	17.18	52.51	68.20	-15.69	PK
Mode:		802.11n(HT20)		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	25.61	17.18	42.79	54.00	-11.21	AV
V	5350.00	25.60	17.18	42.78	54.00	-11.22	AV

ANT1:

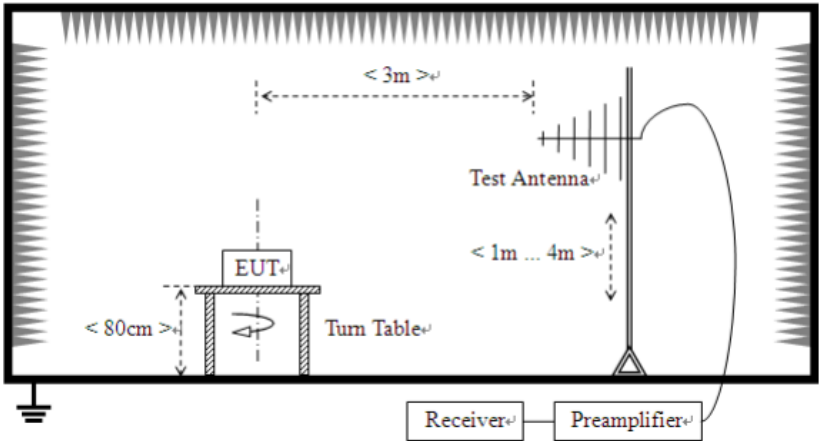
Mode:		802.11n(HT40)		Frequency:		5190MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	34.68	17.20	51.88	68.20	-16.32	PK
V	5150.00	35.55	17.20	52.75	68.20	-15.45	PK
Mode:		802.11n(HT40)		Frequency:		5190MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	24.18	17.18	41.36	54.00	-12.64	AV
V	5150.00	25.98	17.18	43.16	54.00	-10.84	AV
Mode:		802.11n(HT40)		Frequency:		5230MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	34.96	17.20	52.16	68.20	-16.04	PK
V	5350.00	36.01	17.20	53.21	68.20	-14.99	PK
Mode:		802.11n(HT40)		Frequency:		5230MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	24.37	17.18	41.55	54.00	-12.45	AV
V	5350.00	25.74	17.18	42.92	54.00	-11.08	AV

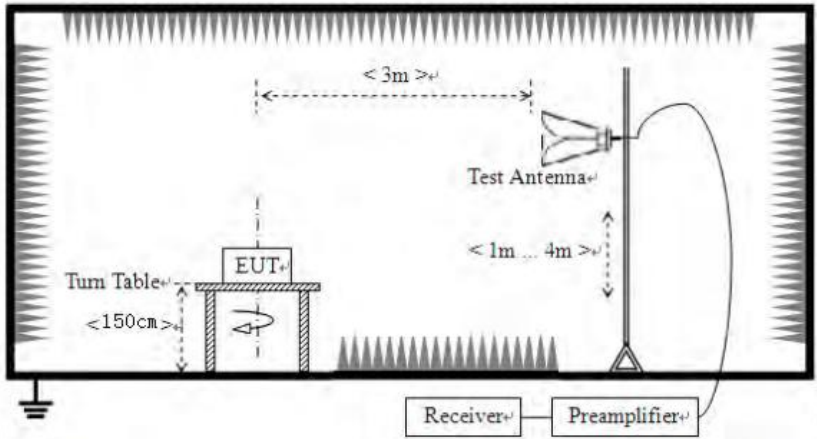
ANT1:

Mode:		802.11ac(HT80)		Frequency:		5210MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	34.09	17.20	51.29	68.20	-16.91	PK
V	5150.00	34.87	17.20	52.07	68.20	-16.13	PK
Mode:		802.11ac(HT80)		Frequency:		5210MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	24.98	17.18	42.16	54.00	-11.84	AV
V	5150.00	27.50	17.18	44.68	54.00	-9.32	AV
Mode:		802.11ac(HT80)		Frequency:		5210MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	34.05	17.20	51.25	68.20	-16.95	PK
V	5350.00	34.74	17.20	51.94	68.20	-16.26	PK
Mode:		802.11ac(HT80)		Frequency:		5210MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	25.16	17.18	42.34	54.00	-11.66	AV
V	5350.00	27.50	17.18	44.68	54.00	-9.32	AV

7.7 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	30MHz to 40GHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	30MHz-88MHz		40.0		Quasi-peak Value
	88MHz-216MHz		43.5		Quasi-peak Value
	216MHz-960MHz		46.0		Quasi-peak Value
	960MHz-1GHz		54.0		Quasi-peak Value
	Above 1GHz		68.2		Peak Value
Test Procedure:	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 rotatable 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: $\text{EIRP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBi)}$ where: Pg is the generator output power into the substitution antenna.
Test setup:	Below 1GHz  Above 1GHz

	
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data:

Below 1GHz

ANT0:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	QP Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
33.42	48.14	11.25	0.59	30.08	29.90	40.00	-10.10	Vertical
54.05	40.83	11.93	0.81	29.96	23.61	40.00	-16.39	Vertical
120.63	46.20	9.40	1.36	29.57	27.39	43.50	-16.11	Vertical
172.30	42.84	8.50	1.70	29.31	23.73	43.50	-19.77	Vertical
439.99	36.41	16.29	3.05	29.41	26.34	46.00	-19.66	Vertical
859.64	32.79	21.83	4.69	29.14	30.17	46.00	-15.83	Vertical
63.95	35.23	8.73	0.90	29.89	14.97	40.00	-25.03	Horizontal
99.34	33.33	11.73	1.19	29.70	16.55	43.50	-26.95	Horizontal
269.66	44.84	12.53	2.22	29.79	29.80	46.00	-16.20	Horizontal
350.37	35.68	14.50	2.62	29.73	23.07	46.00	-22.93	Horizontal
627.49	35.16	19.43	3.83	29.27	29.15	46.00	-16.85	Horizontal
955.51	40.77	22.54	5.06	29.10	39.27	46.00	-6.73	Horizontal

ANT1:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	QP Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
33.30	47.96	11.25	0.59	30.08	29.72	40.00	-10.28	Vertical
54.43	41.25	11.93	0.81	29.96	24.03	40.00	-15.97	Vertical
119.89	46.40	9.40	1.36	29.57	27.59	43.50	-15.91	Vertical
172.31	42.81	8.50	1.70	29.31	23.70	43.50	-19.80	Vertical
440.00	36.33	16.29	3.05	29.41	26.26	46.00	-19.74	Vertical
860.08	33.00	21.83	4.69	29.14	30.38	46.00	-15.62	Vertical
64.09	35.56	8.73	0.90	29.89	15.30	40.00	-24.70	Horizontal
99.20	33.30	11.73	1.19	29.70	16.52	43.50	-26.98	Horizontal
269.70	44.98	12.53	2.22	29.79	29.94	46.00	-16.06	Horizontal
350.48	36.09	14.50	2.62	29.73	23.48	46.00	-22.52	Horizontal
627.22	35.16	19.43	3.83	29.27	29.15	46.00	-16.85	Horizontal
955.09	40.39	22.54	5.06	29.10	38.89	46.00	-7.11	Horizontal

Above 1GHz:

ANT0:

802.11n(HT20) 5180MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360	29.08	39.67	14.62	32.65	50.72	68.20	-17.48	Vertical
15540	31.36	38.60	17.66	34.46	53.16	68.20	-15.04	Vertical
10360	29.85	39.67	14.62	32.65	51.49	68.20	-16.71	Horizontal
15540	29.01	38.60	17.66	34.46	50.81	68.20	-17.39	Horizontal

802.11n(HT20) 5200MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400	30.12	39.67	14.62	32.65	51.76	68.20	-16.44	Vertical
10400	31.05	39.67	14.62	32.65	52.69	68.20	-15.51	Horizontal
15600	30.22	38.60	17.66	34.46	52.02	68.20	-16.18	Horizontal

802.11n(HT20) 5240MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480	32.11	39.67	14.62	32.65	53.75	68.20	-14.45	Vertical
15720	31.05	38.60	17.66	34.46	52.85	68.20	-15.35	Vertical
10480	31.35	39.67	14.62	32.65	52.99	68.20	-15.21	Horizontal
15720	31.34	38.60	17.66	34.46	53.14	68.20	-15.06	Horizontal

802.11n(HT40) 5190MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10380	31.44	39.67	14.62	32.65	53.08	68.20	-15.12	Vertical
15570	30.55	38.60	17.66	34.46	52.35	68.20	-15.85	Vertical
10380	30.62	39.67	14.62	32.65	52.26	68.20	-15.94	Horizontal
15570	31.54	38.60	17.66	34.46	53.34	68.20	-14.86	Horizontal

802.11n(HT40) 5230MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10460	29.06	39.82	14.66	32.8	50.74	68.20	-17.46	Vertical
15690	28.05	38.09	17.71	33.81	50.04	68.20	-18.16	Vertical
10460	31.83	39.82	14.66	32.8	53.51	68.20	-14.69	Horizontal
15690	29.41	38.09	17.71	33.81	51.40	68.20	-16.80	Horizontal

802.11ac(HT80) 5210MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10420	31.31	39.67	14.62	32.65	52.95	68.20	-15.25	Vertical
15630	31.14	38.6	17.66	34.46	52.94	68.20	-15.26	Vertical
10420	31.02	39.67	14.62	32.65	52.66	68.20	-15.54	Horizontal
15630	31.46	38.6	17.66	34.46	53.26	68.20	-14.94	Horizontal

Note:

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.

ANT1:

802.11n(HT20) 5180MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360	29.46	39.67	14.62	32.65	51.10	68.20	-17.10	Vertical
15540	31.40	38.60	17.66	34.46	53.20	68.20	-15.00	Vertical
10360	29.48	39.67	14.62	32.65	51.12	68.20	-17.08	Horizontal
15540	29.30	38.60	17.66	34.46	51.10	68.20	-17.10	Horizontal

802.11n(HT20) 5200MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400	30.35	39.67	14.62	32.65	51.99	68.20	-16.21	Vertical
10400	31.33	39.67	14.62	32.65	52.97	68.20	-15.23	Horizontal
15600	30.06	38.60	17.66	34.46	51.86	68.20	-16.34	Horizontal

802.11n(HT20) 5240MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480	31.86	39.67	14.62	32.65	53.50	68.20	-14.70	Vertical
15720	31.41	38.60	17.66	34.46	53.21	68.20	-14.99	Vertical
10480	31.22	39.67	14.62	32.65	52.86	68.20	-15.34	Horizontal
15720	31.21	38.60	17.66	34.46	53.01	68.20	-15.19	Horizontal

802.11n(HT40) 5190MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10380	31.33	39.67	14.62	32.65	52.97	68.20	-15.23	Vertical
15570	30.67	38.60	17.66	34.46	52.47	68.20	-15.73	Vertical
10380	30.39	39.67	14.62	32.65	52.03	68.20	-16.17	Horizontal
15570	31.94	38.60	17.66	34.46	53.74	68.20	-14.46	Horizontal

802.11n(HT40) 5230MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10460	29.06	39.82	14.66	32.80	50.74	68.20	-17.46	Vertical
15690	28.14	38.09	17.71	33.81	50.13	68.20	-18.07	Vertical
10460	31.90	39.82	14.66	32.80	53.58	68.20	-14.62	Horizontal
15690	29.11	38.09	17.71	33.81	51.10	68.20	-17.10	Horizontal

802.11ac(HT80) 5210MHz

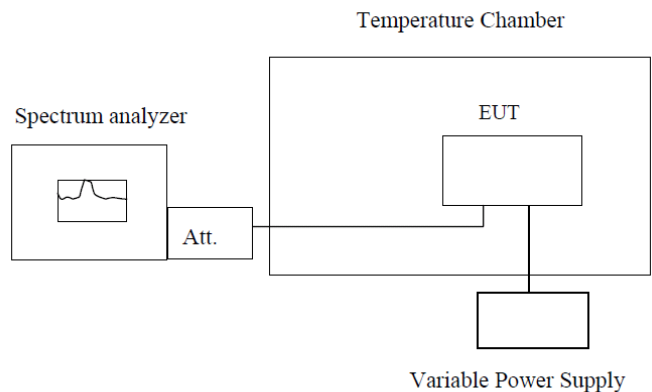
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10420	31.41	39.67	14.62	32.65	53.05	68.20	-15.15	Vertical
15630	30.75	38.60	17.66	34.46	52.55	68.20	-15.65	Vertical
10420	31.20	39.67	14.62	32.65	52.84	68.20	-15.36	Horizontal
15630	31.71	38.60	17.66	34.46	53.51	68.20	-14.69	Horizontal

Note:

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

Annex:

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 5.3 for details
Test results:	Pass

Operation frequency: 5180MHz, 5240MHz

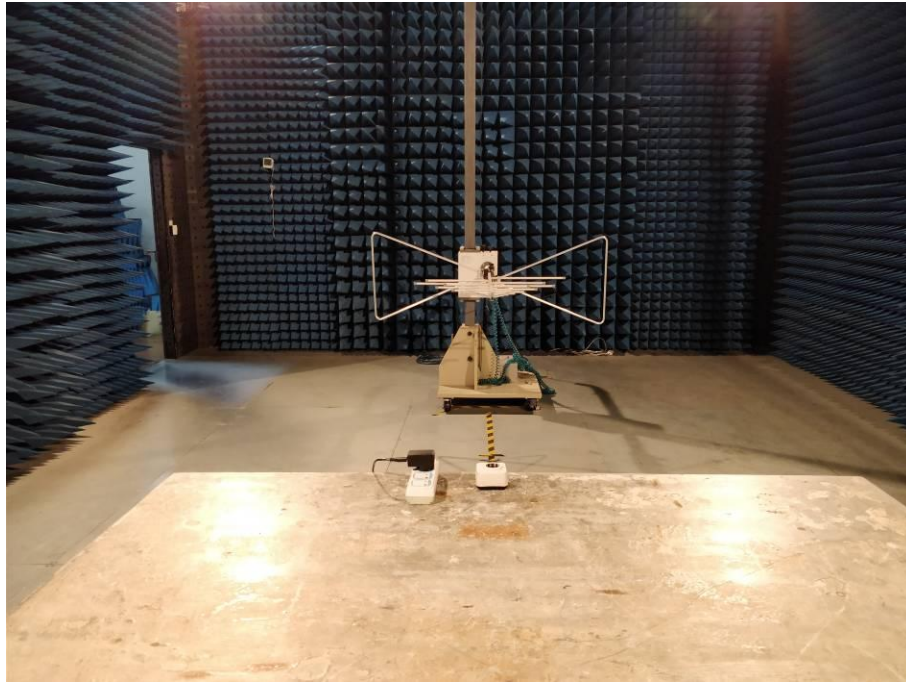
Test temperature(according to usermanual):0degree ,20degree ,50degree

Test voltage: 102VAC , 120VAC, 138VAC

Result : Emission is maintained within the band of operation

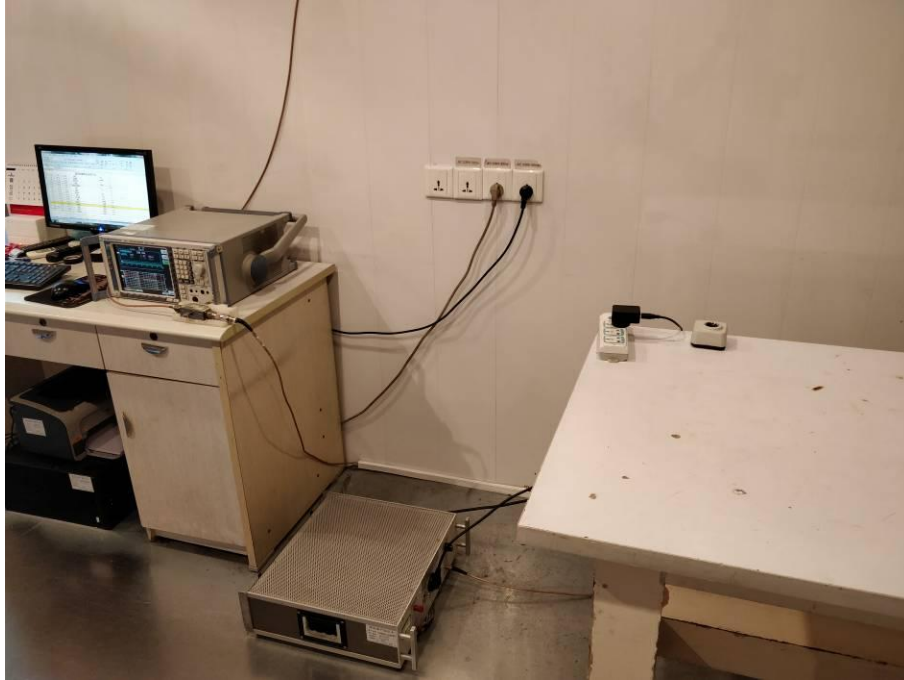
8 Test Setup Photo

Radiated Emission



T

Conducted Emission



9 EUT Constructional Details

Please refer to separated files for External Photos & Internal Photos of the EUT.

---END---