

TEST REPORT

Applicant: Emdoor digital technology Co.,Ltd

Address of Applicant: Meigu bld, Wonderful life wisdom Valley technology Park,
No.83 Dabao road, Baoan district, Shenzhen, China

Manufacturer/Factory: Visiontech Dominicana, srl

Address of Manufacturer/Factory: Franco bido no 205, nibaje, Dominican republic, zip code 5100

Equipment Under Test (EUT)

Product Name: Tablet

Model No.: tablet

Trade Mark: greatwall

FCC ID: 2A2CZW1027VGTW

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

Date of sample receipt: Jun. 18, 2021

Date of Test: Jun. 18, 2021~Jun. 25, 2021

Date of report issue: Jun. 26, 2021

Test Result : PASS *

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

Authorized Signature:



Robinson Luo

Laboratory Manager

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2 Version

Version No.	Date	Description
00	Jun. 26, 2021	Original

Prepared By:

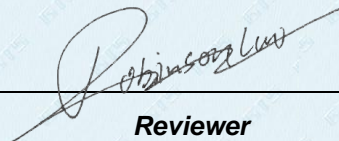


Date:

Jun. 26, 2021

Tested/Project Engineer

Check By:



Reviewer

Date:

Jun. 26, 2021

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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
26dB Bandwidth	15.407(a)	PASS
Peak Transmit Power	15.407(a)(1)	PASS
Power Spectral Density	15.407(a)(1)	PASS
Undesirable Emission	15.407(b)(6), 15.205/15.209	PASS
Radiated Emission	15.205/15.209	PASS
Band Edge	15.407(b)(1)	PASS
Frequency Stability	15.407(g)	PASS

Remark:

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

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	0.009MHz-30MHz	3.10dB	(1)
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 Name:	Tablet			
Model No.:	tablet			
Serial No.:	N/A			
Hardware Version:	EM_T6818D_V1_1_L20			
Software Version:	100011886_GTW_20210625			
Test sample(s) ID:	GTSL202106000300-1			
Sample(s) Status:	Engineer sample			
Operation Frequency:	Band	Mode	Frequency Range(MHz)	Number of channels
	U-NII Band I	IEEE 802.11a	5180-5240	4
		IEEE 802.11n/ac 20MHz	5180-5240	4
		IEEE 802.11n/ac 40MHz	5190-5230	2
		IEEE 802.11ac 80MHz	5210	1
	U-NII Band II-A	IEEE 802.11a	5260-5320	4
		IEEE 802.11n/ac 20MHz	5260-5320	4
		IEEE 802.11n/ac 40MHz	5270-5310	2
		IEEE 802.11ac 80MHz	5290	1
	U-NII Band II-C	IEEE 802.11a	5500-5700	11
		IEEE 802.11n/ac 20MHz	5500-5700	11
		IEEE 802.11n/ac 40MHz	5510-5670	5
		IEEE 802.11ac 80MHz	5530-5610	2
Modulation technology:	OFDM			
Antenna Type:	FPCB antenna			
Antenna gain:	3.9dBi			
Power supply:	Adapter:BSY01J3050200U U INPUT: 100-240V~ 50/60Hz 0.3A OUTPUT: DC 5V 2A			

Channel list for 802.11a/n(HT20)/ac(HT20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	40	5200MHz	44	5220MHz	48	5240MHz
52	5260MHz	56	5280MHz	60	5300MHz	64	5320MHz
100	5500MHz	104	5520MHz	108	5540MHz	112	5560MHz
116	5580MHz	120	5600MHz	124	5620MHz	128	5640MHz
132	5660MHz	136	5680MHz	140	5700MHz		

Channel list for 802.11n(HT40)/ac(HT40)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz	54	5270MHz	62	5310MHz
102	5510MHz	110	5550MHz	118	5590MHz	126	5630MHz
134	5670MHz						

Channel list for 802.11ac(HT80)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210MHz	58	5290MHz	106	5530MHz	122	5610MHz

5.2 Test mode

Transmitting mode	Keep the EUT in transmitting with modulation..
<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>	
We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:	
Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.	
Mode	Data rate
802.11a/n/ac(HT20)	6/6.5 Mbps
802.11n/ac(HT40)	13.5 Mbps
802.11ac(HT80)	29.3 Mbps

5.3 Test Facility

<p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> ● FCC—Registration No.: 381383 Designation Number: CN5029 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. ● IC —Registration No.: 9079A CAB identifier: CN0091 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 ● NVLAP (LAB CODE:600179-0) Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).
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5.4 Test Location

All tests were performed at:
Global United Technology Services Co., Ltd. Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, sBaoan District, Shenzhen, Guangdong, China 518102 Tel: 0755-27798480 Fax: 0755-27798960

5.5 Description of Support Units

None.

5.6 Deviation from Standards

None.

5.7 Abnormalities from Standard Conditions

None.

6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 02 2020	July. 01 2025
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 24 2021	June. 23 2022
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 24 2021	June. 23 2022
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 24 2021	June. 23 2022
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 24 2021	June. 23 2022
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 24 2021	June. 23 2022
9	Coaxial Cable	GTS	N/A	GTS211	June. 24 2021	June. 23 2022
10	Coaxial cable	GTS	N/A	GTS210	June. 24 2021	June. 23 2022
11	Coaxial Cable	GTS	N/A	GTS212	June. 24 2021	June. 23 2022
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 24 2021	June. 23 2022
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 24 2021	June. 23 2022
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 24 2021	June. 23 2022
15	Band filter	Amindeon	82346	GTS219	June. 24 2021	June. 23 2022
16	Power Meter	Anritsu	ML2495A	GTS540	June. 24 2021	June. 23 2022
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 24 2021	June. 23 2022
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 24 2021	June. 23 2022
19	Splitter	Agilent	11636B	GTS237	June. 24 2021	June. 23 2022
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 24 2021	June. 23 2022
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. 24 2021	June. 23 2022

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. 24 2021	June. 23 2022
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 24 2021	June. 23 2022
4	ENV216 2-L-V-NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	GTS226	June. 24 2021	June. 23 2022
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. 24 2021	June. 23 2022
8	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	June. 24 2021	June. 23 2022
9	ISN	SCHWARZBECK	NTFM 8158	GTS565	June. 24 2021	June. 23 2022
10	High voltage probe	SCHWARZBECK	TK9420	GTS537	July. 10 2020	July. 09 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. 24 2021	June. 23 2022
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 24 2021	June. 23 2022
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 24 2021	June. 23 2022
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	June. 24 2021	June. 23 2022
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	June. 24 2021	June. 23 2022
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	June. 24 2021	June. 23 2022
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	June. 24 2021	June. 23 2022
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	June. 24 2021	June. 23 2022
9	Spectrum Analyzer	R&S	FSV40	GTS559	June. 24 2021	June. 23 2022

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. 24 2021	June. 23 2022
2	Barometer	ChangChun	DYM3	GTS255	June. 24 2021	June. 23 2022

7 Test results and Measurement Data

7.1 Antenna requirement:

Standard requirement:	FCC Part15 C Section 15.203
<i>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.</i>	
E.U.T Antenna:	
<i>The antennas are FPCB antenna, the best case gain of the antennas are 3.9dBi, reference to the appendix II for details</i>	

7.2 Conducted Emissions

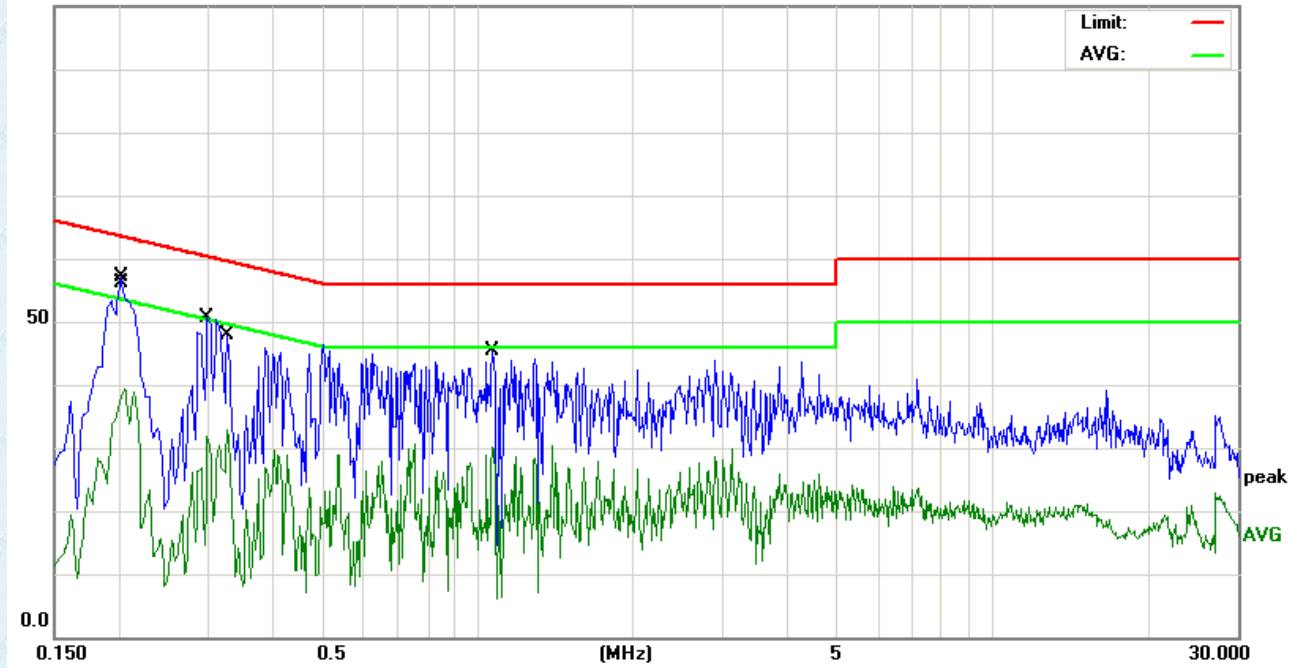
Test Requirement:	FCC Part15 C Section 15.207					
Test Method:	ANSI C63.10:2013					
Test Frequency Range:	150KHz to 30MHz					
Class / Severity:	Class B					
Receiver setup:	RBW=9KHz, VBW=30KHz					
Limit:	Frequency range (MHz)	Limit (dBuV)				
		Quasi-peak	Average			
	0.15-0.5	66 to 56*	56 to 46*			
	0.5-5	56	46			
	5-30	60	50			
* Decreases with the logarithm of the frequency.						
Test procedure	<p>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.</p>					
Test setup:	<p><i>Remark</i> <i>E.U.T: Equipment Under Test</i> <i>LISN: Line Impedance Stabilization Network</i> <i>Test table height=0.8m</i></p>					
Test Instruments:	Refer to section 5.10 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test voltage:	AC 120V, 60Hz					
Test results:	Pass					

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

Measurement data:

Line:

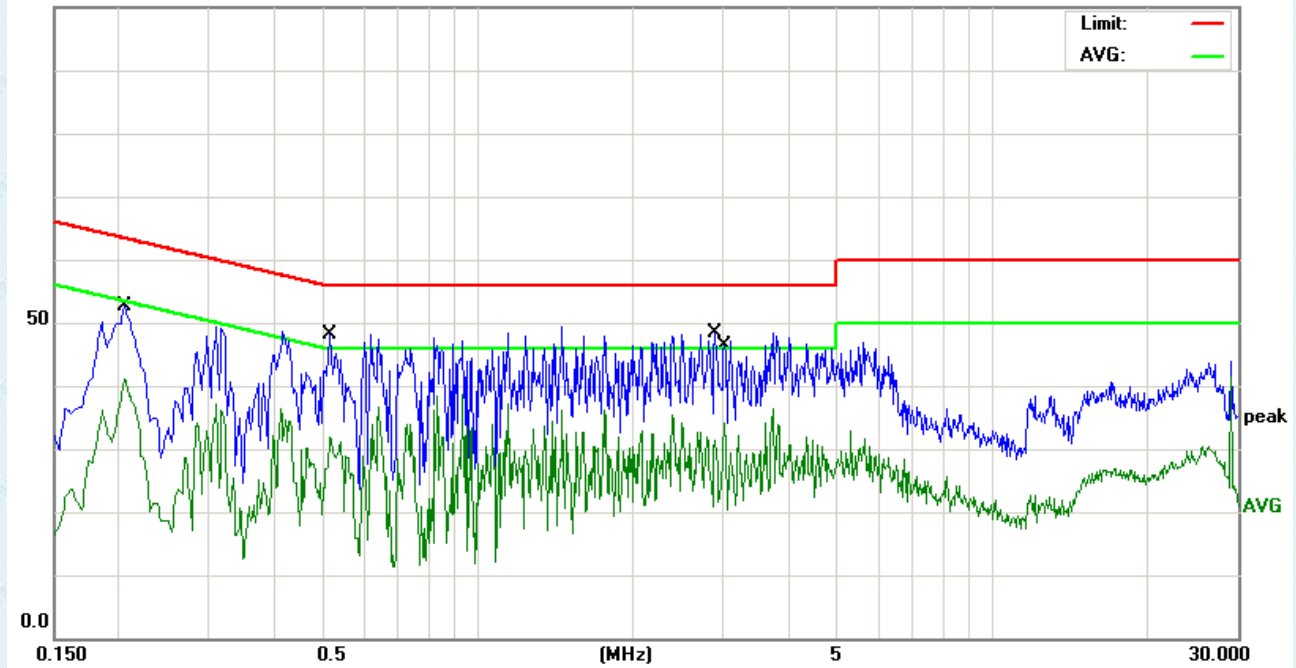
100.0 dBuV



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV	dBuV	dB	
1	*	0.2020	46.11	11.12	57.23	63.52	-6.29	QP
2		0.2060	28.24	11.09	39.33	53.36	-14.03	AVG
3		0.2980	40.41	10.26	50.67	60.30	-9.63	QP
4		0.3260	22.70	10.18	32.88	49.55	-16.67	AVG
5		1.0700	35.37	9.94	45.31	56.00	-10.69	QP
6		1.0700	20.25	9.94	30.19	46.00	-15.81	AVG

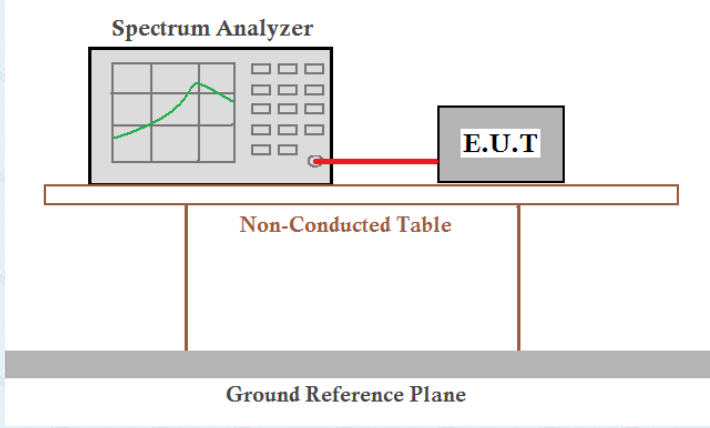
Neutral:

100.0 dBuV



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.2060	41.53	11.09	52.62	63.36	-10.74	QP
2		0.2060	29.99	11.09	41.08	53.36	-12.28	AVG
3		0.5140	21.81	10.01	31.82	46.00	-14.18	AVG
4		0.5180	38.08	10.01	48.09	56.00	-7.91	QP
5	*	2.8980	38.36	10.04	48.40	56.00	-7.60	QP
6		3.0140	24.20	10.03	34.23	46.00	-11.77	AVG

7.3 Emission Bandwidth and 99% Occupied Bandwidth

Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	N/A
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test procedure:	According to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data:

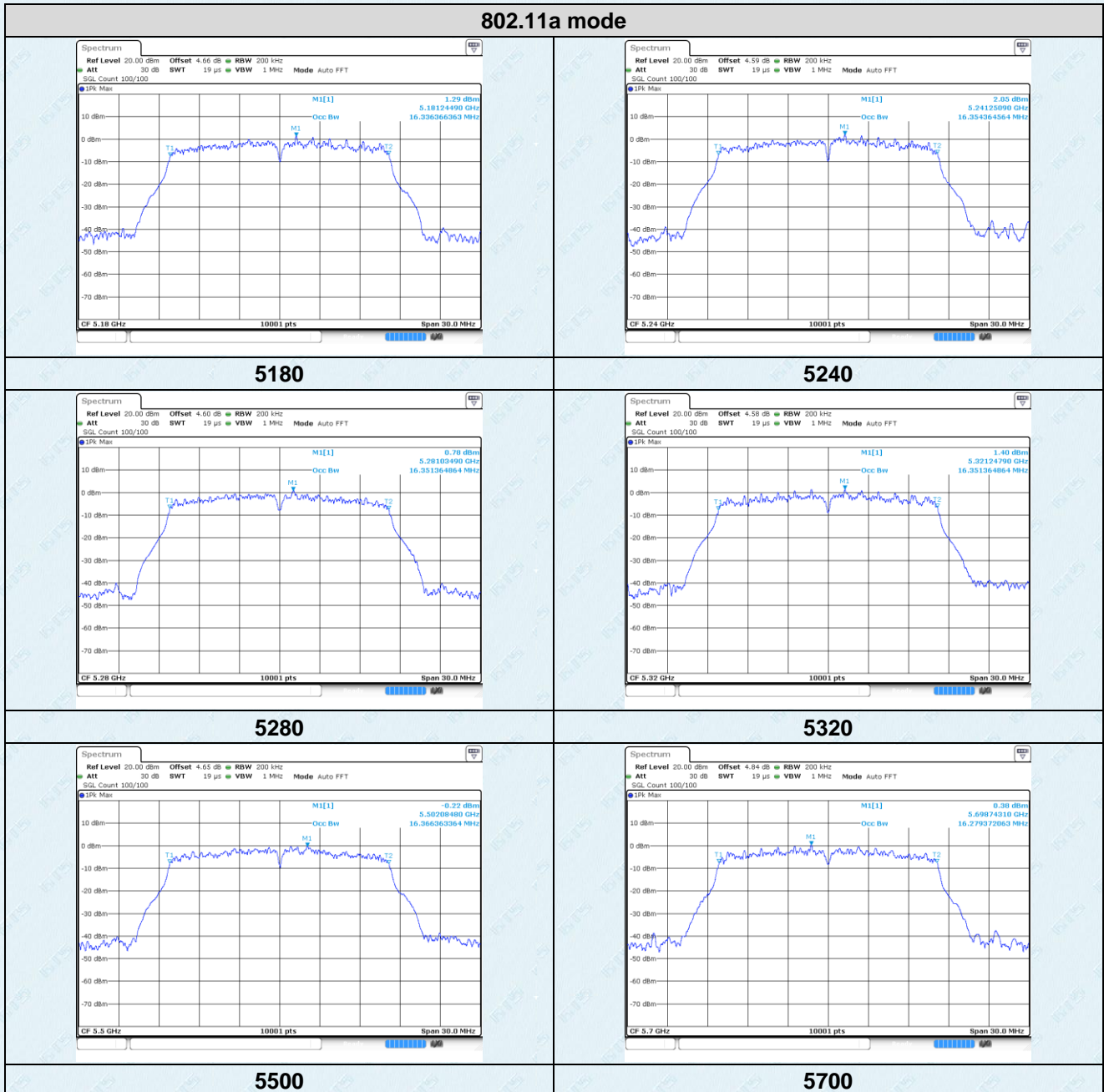
CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)			26dB Occupied Bandwidth (MHz)		
		802.11a	802.11n(HT20)	802.11ac(HT20)	802.11a	802.11n(HT20)	802.11ac(HT20)
36	5180	16.336	17.545	17.518	19.773	20.517	20.049
48	5240	16.354	17.464	17.494	19.902	20.067	20.172
56	5280	16.351	17.515	17.491	19.5	20.049	20.319
64	5320	16.351	17.539	17.527	19.884	20.175	20.055
100	5500	16.366	17.593	17.659	19.899	20.181	19.902
140	5700	16.279	17.572	17.566	20.046	20.001	20.253

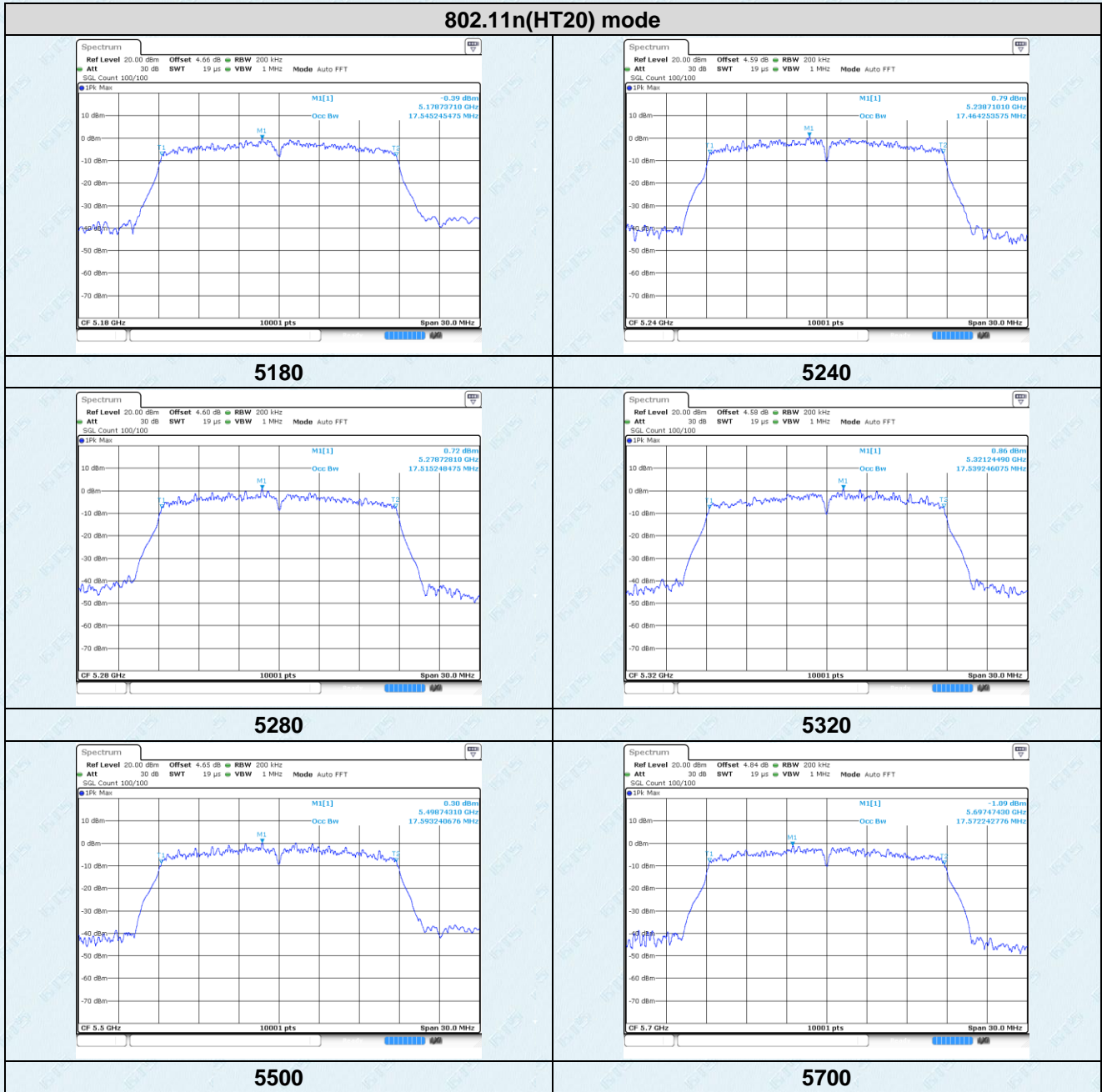
CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Occupied Bandwidth (MHz)	
		802.11n(HT40)	802.11ac(HT40)	802.11n(HT40)	802.11ac(HT40)
38	5190	35.87	35.876	39.522	39.594
62	5310	36.146	35.84	39.3	39.126
102	5510	35.93	35.996	38.742	39.618
134	5670	36.008	35.99	39.348	39.618

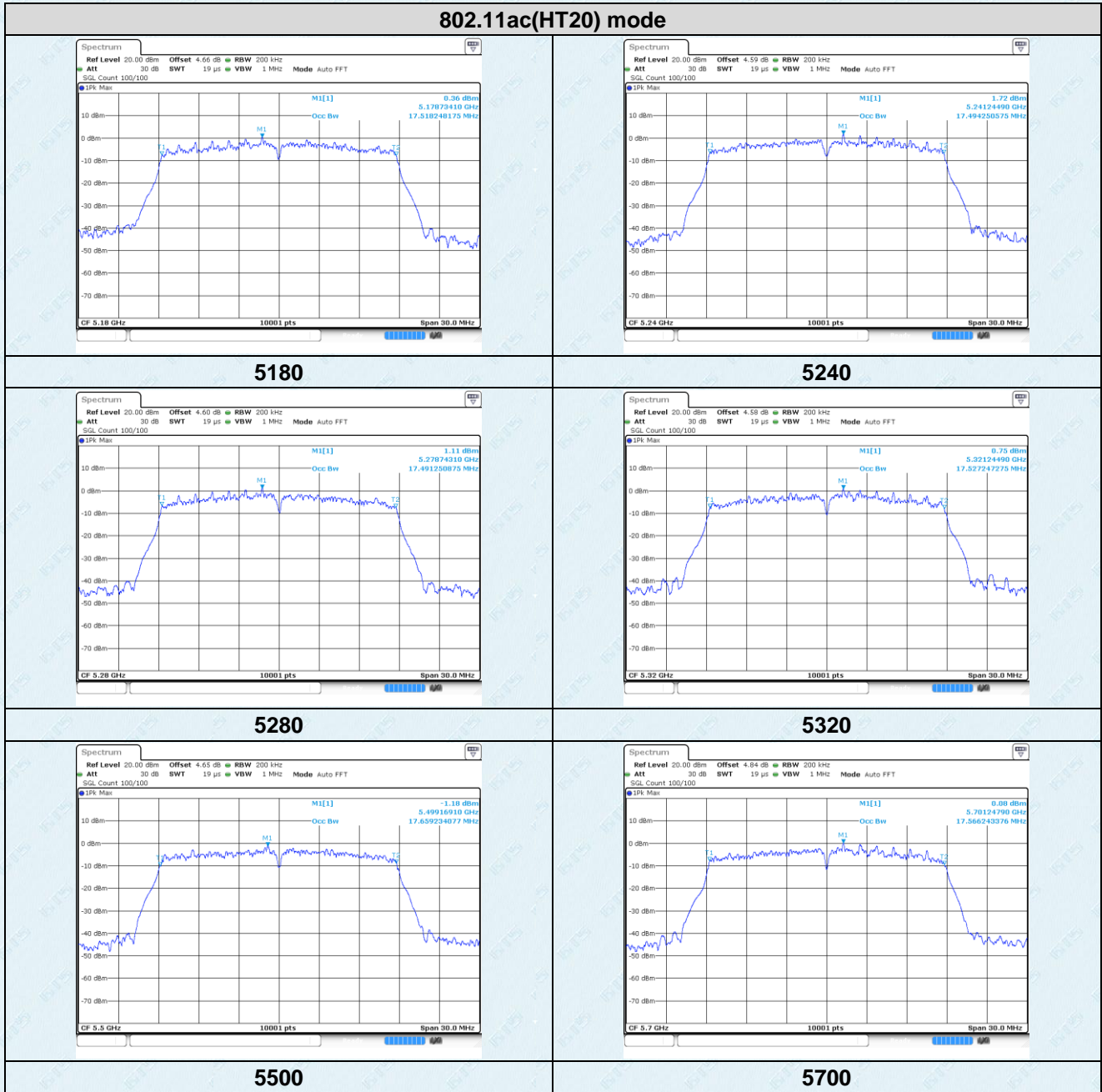
CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Occupied Bandwidth (MHz)
		802.11ac(HT80)	802.11ac(HT80)
42	5210	74.957	79.056
106	5530	75.004	79.38
122	5610	75.1	79.344

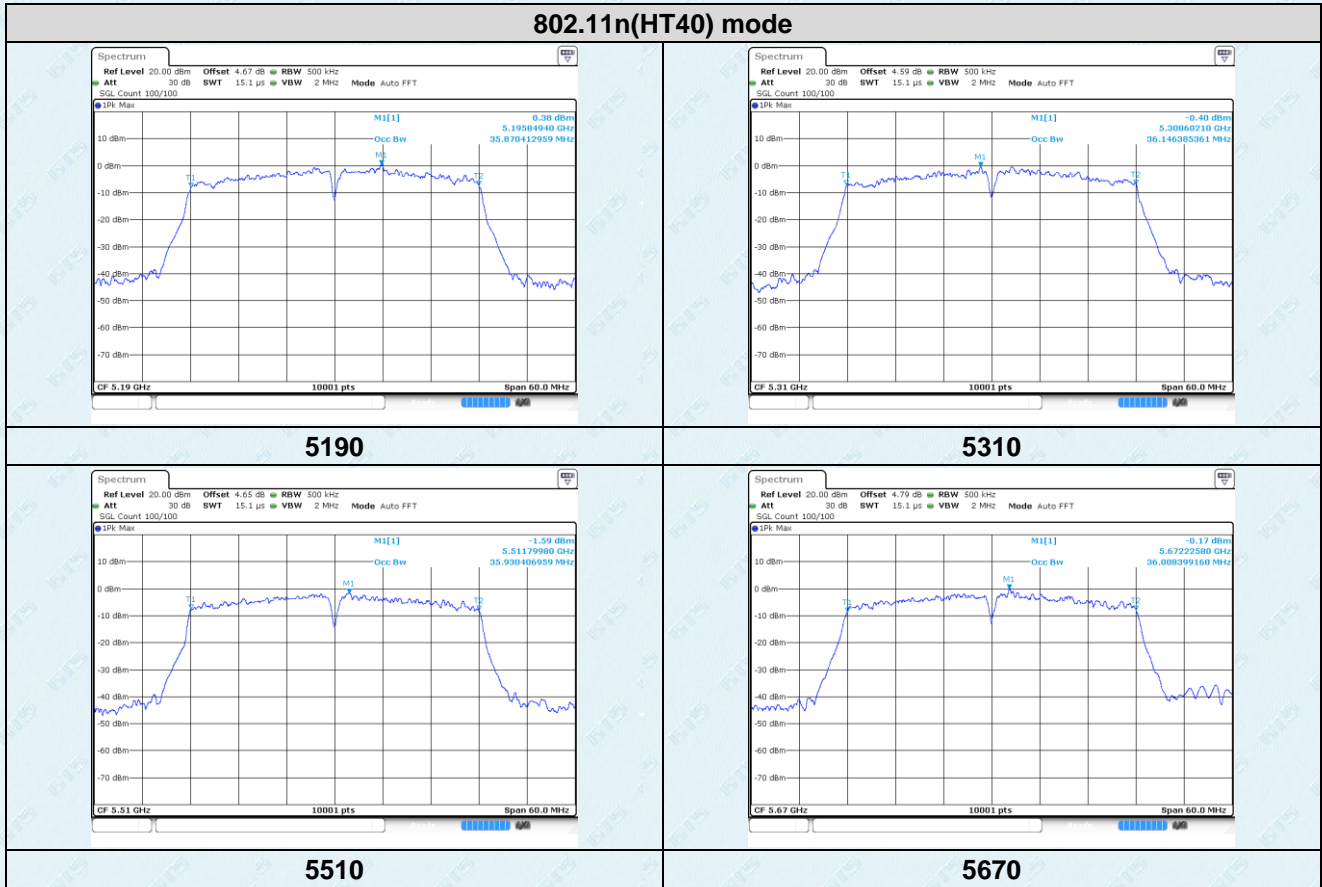
Test plots as followed:

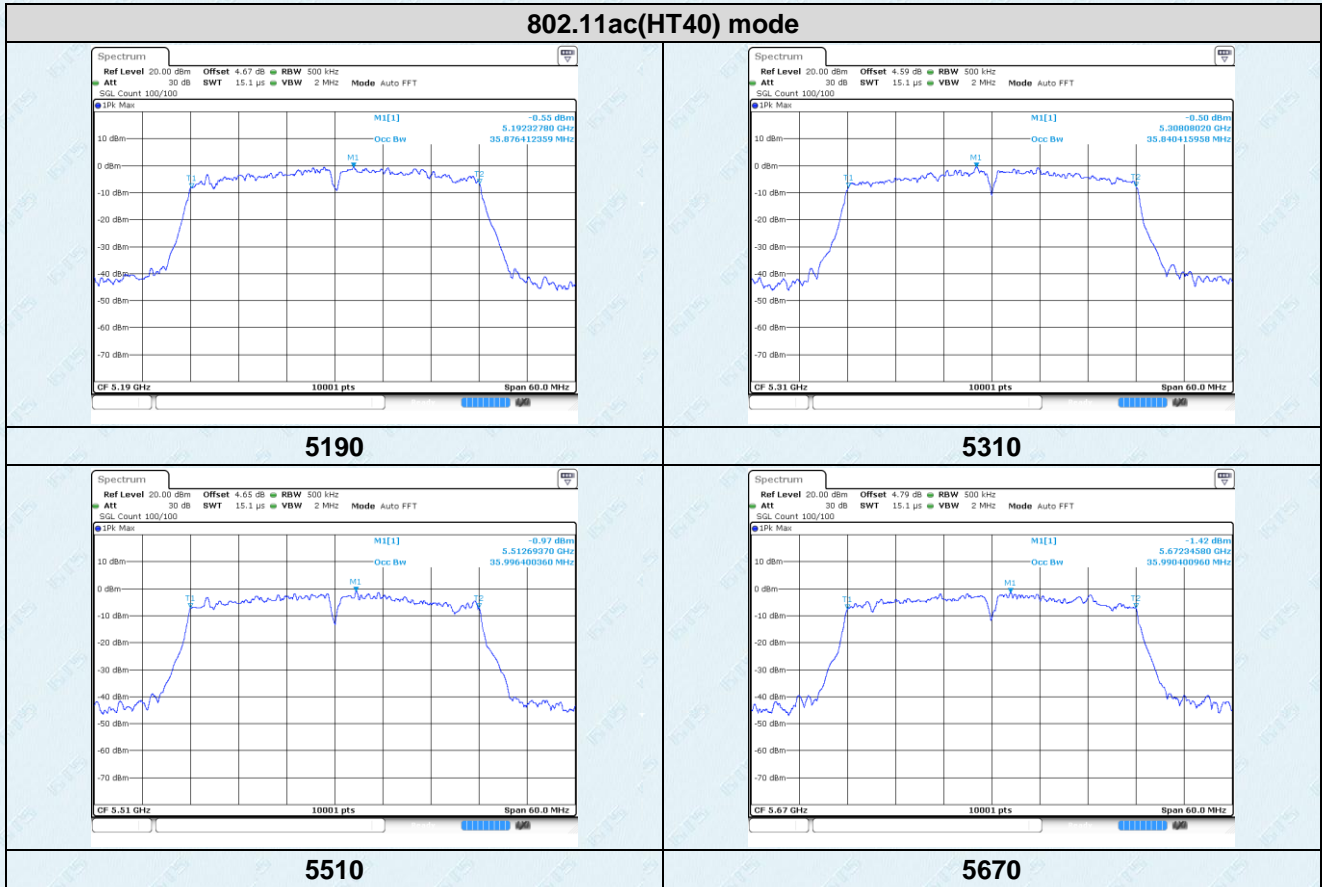
99% Occupied Bandwidth

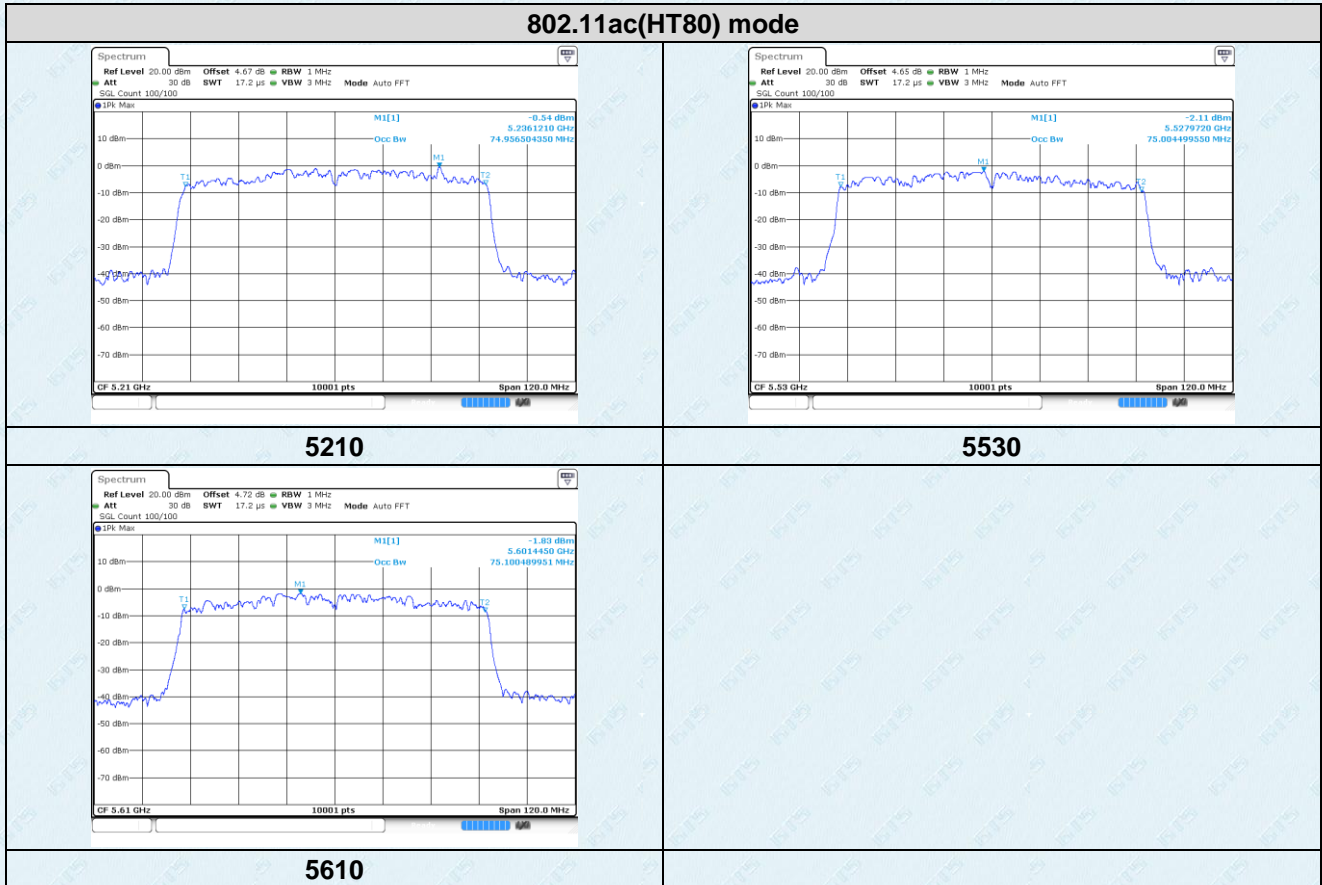




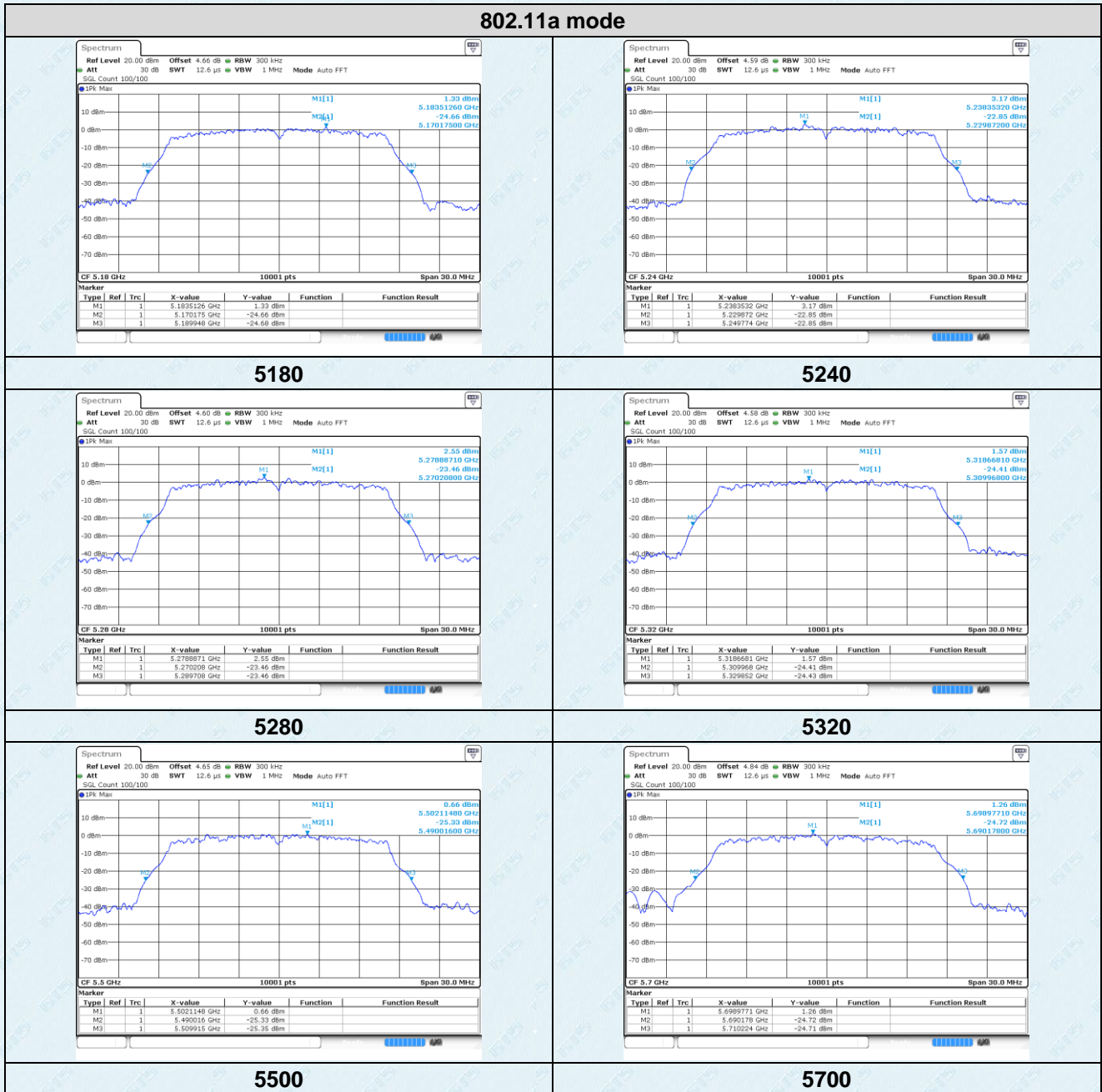


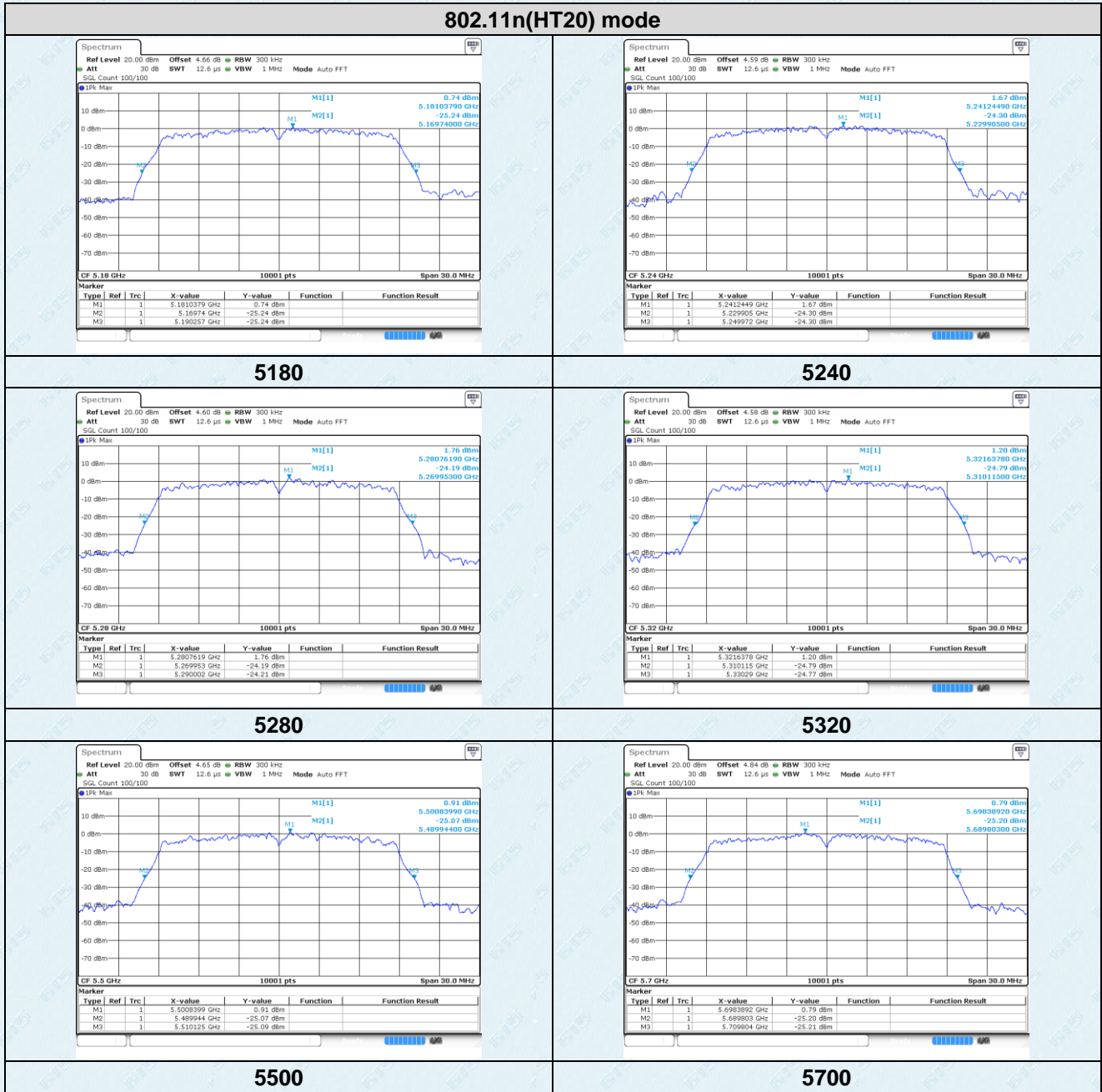


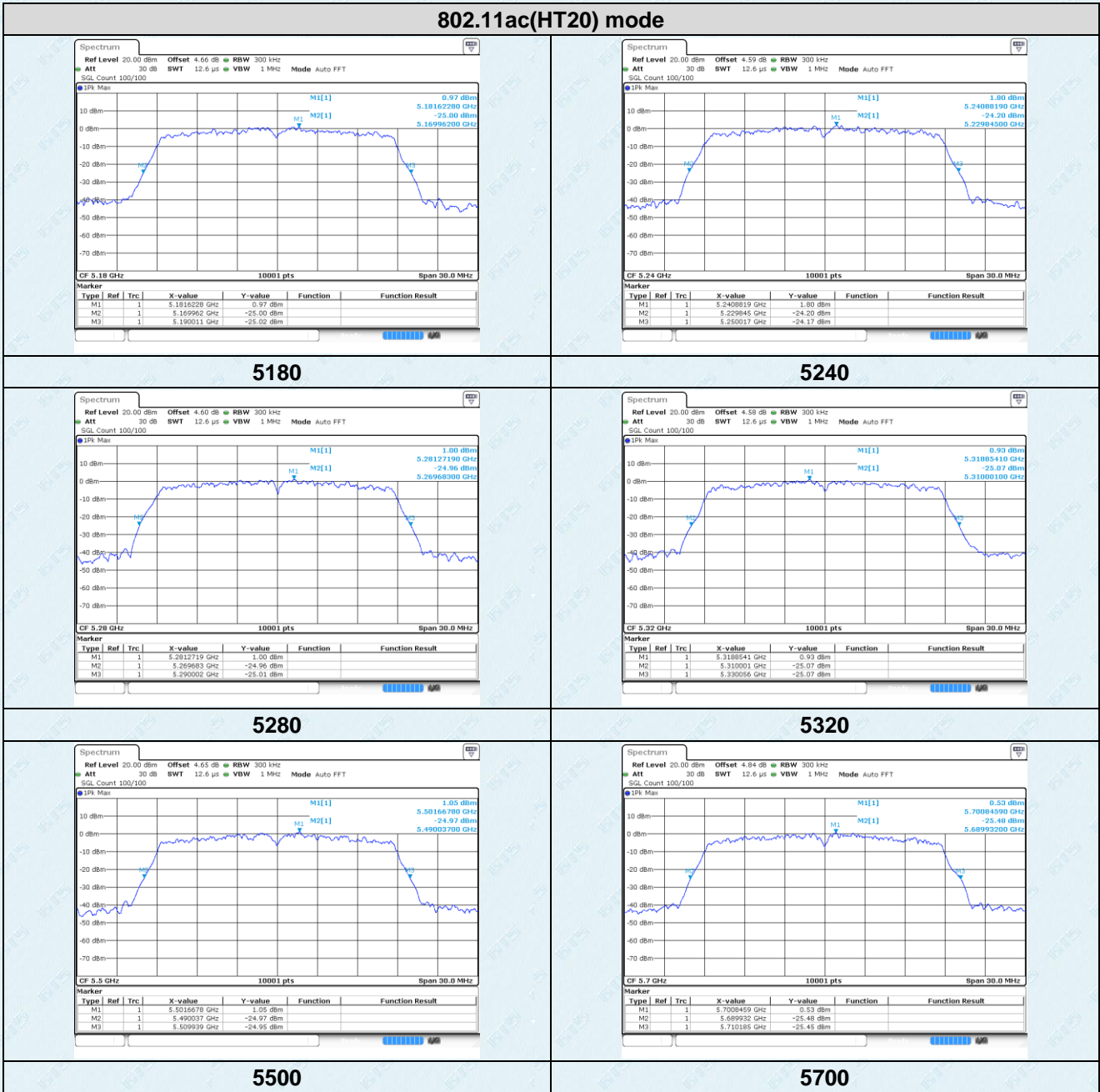


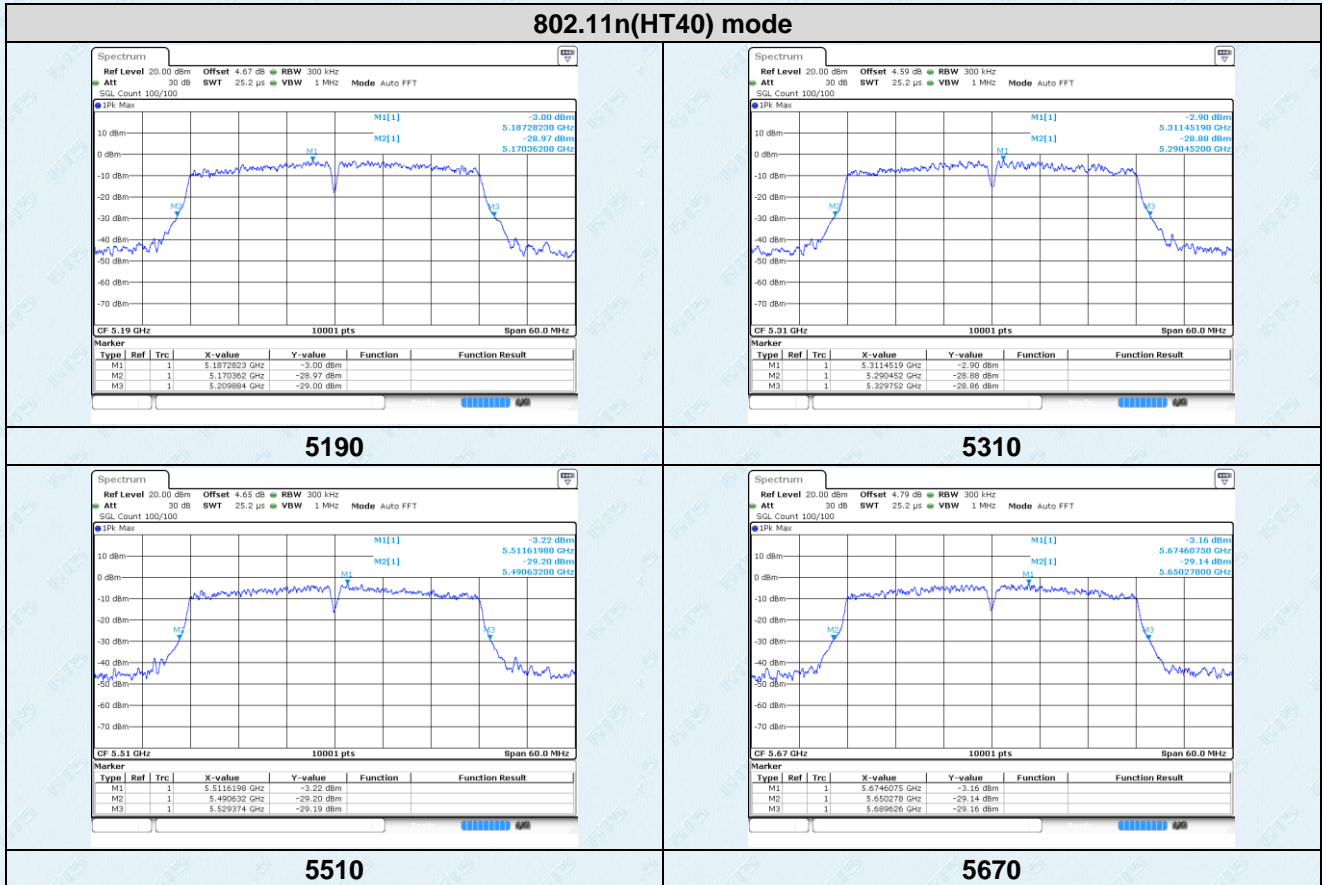


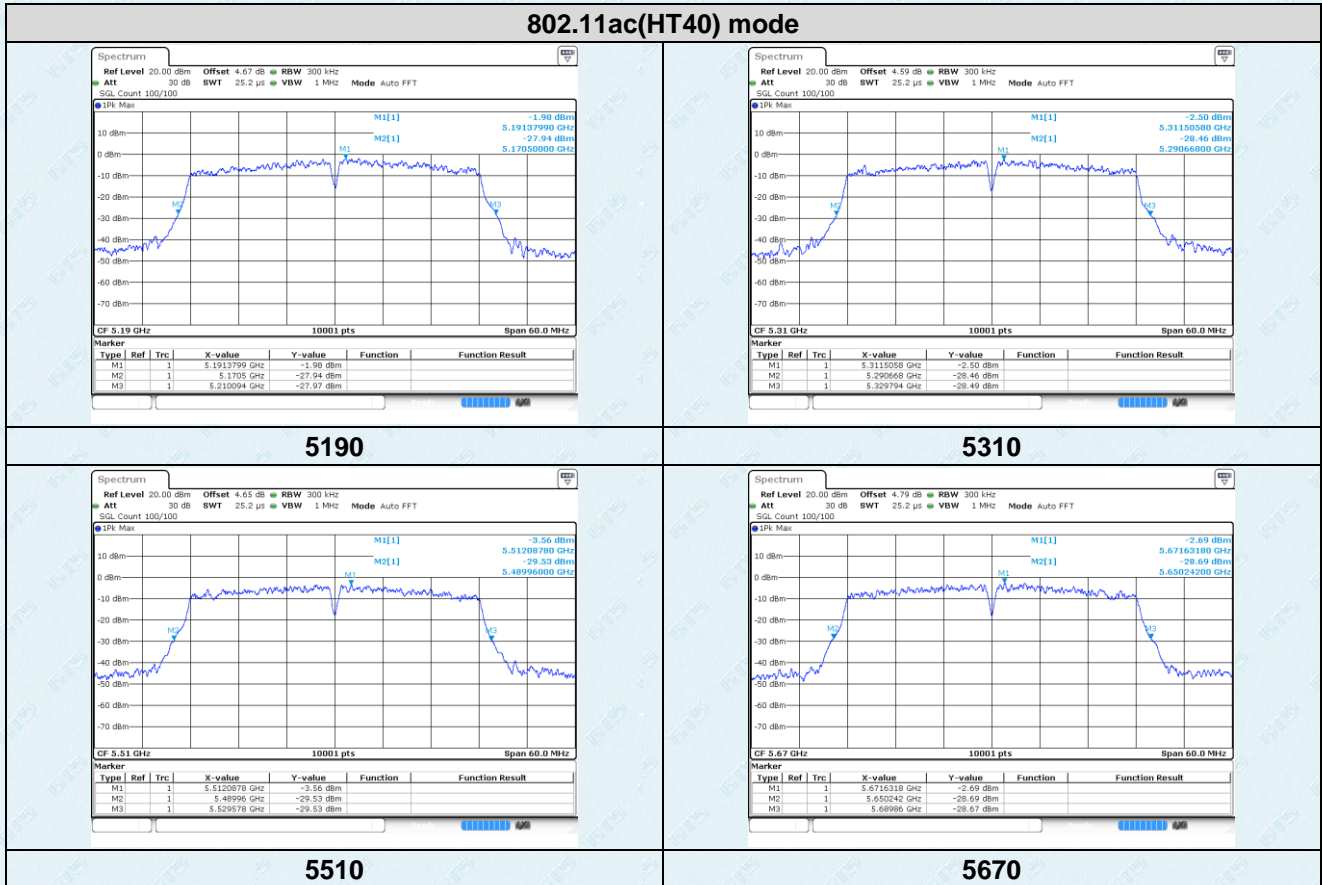
26dB Occupied Bandwidth

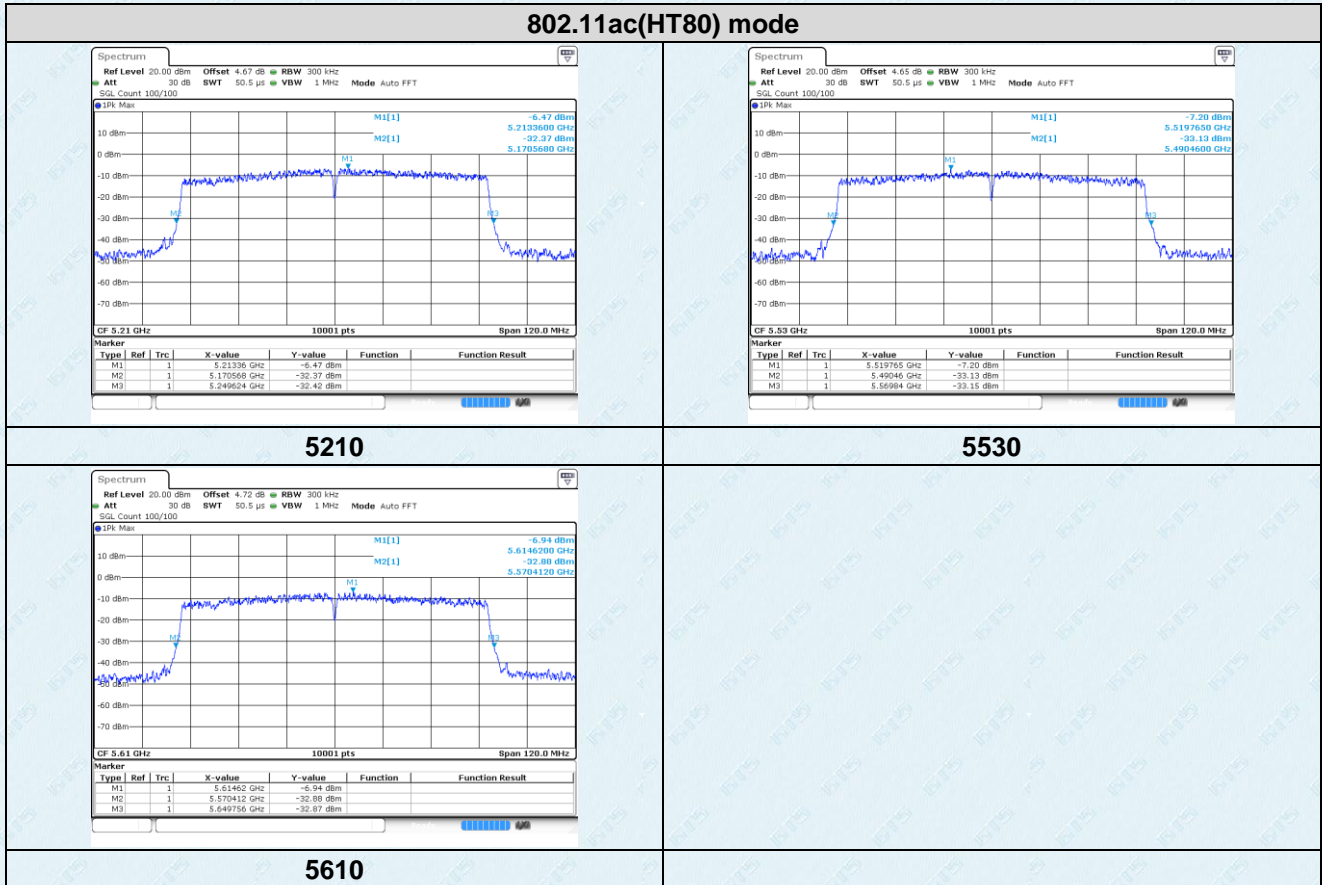




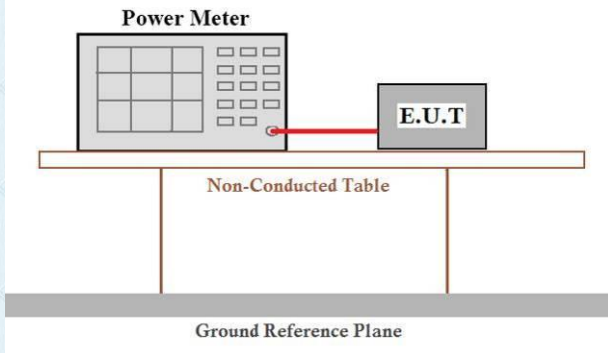








7.4 Peak Transmit Power

Test Requirement:	FCC Part15 E Section 15.407	
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01	
Limit:	Frequency band (MHz)	Limit
	5150-5250	≤1W(30dBm) for master device
		≤250mW(23.98dBm) for client device
	5250-5350	≤250mW(23.98dBm) for client device or 11dBm+10logB*
	5470-5725	≤250mW(23.98dBm) for client device or 11dBm+10logB*
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.		
Test setup:		
Test procedure:	<p>Measurement using an RF average power meter</p> <ul style="list-style-type: none"> (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 <ul style="list-style-type: none"> 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 5.2 for details	
Test results:	Pass	

Measurement Data

Modulation	Duty cycle	Duty Factor
802.11a	97.64%	0.10
802.11n(HT20)	97.51%	0.11
802.11n(HT40)	95.15%	0.22
802.11ac(HT20)	97.17%	0.11
802.11ac(HT40)	95.17%	0.21
802.11ac(HT80)	88.64%	0.52

802.11a mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	11.98	0.1	12.08	24	Pass
48	5240	12.75	0.1	12.85	24	Pass
56	5280	12.18	0.1	12.28	24	Pass
64	5320	12.08	0.1	12.18	24	Pass
100	5500	11.45	0.1	11.55	24	Pass
140	5700	11.36	0.1	11.46	24	Pass

802.11n(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	11.23	0.11	11.34	24	Pass
48	5240	12.12	0.11	12.23	24	Pass
56	5280	11.50	0.11	11.61	24	Pass
64	5320	11.21	0.11	11.32	24	Pass
100	5500	10.93	0.11	11.04	24	Pass
140	5700	10.53	0.11	10.64	24	Pass

802.11ac(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180	11.12	0.11	11.23	24	Pass
48	5240	12.08	0.11	12.19	24	Pass
56	5280	11.50	0.11	11.61	24	Pass
64	5320	11.20	0.11	11.31	24	Pass
100	5500	10.75	0.11	10.86	24	Pass
140	5700	10.61	0.11	10.72	24	Pass

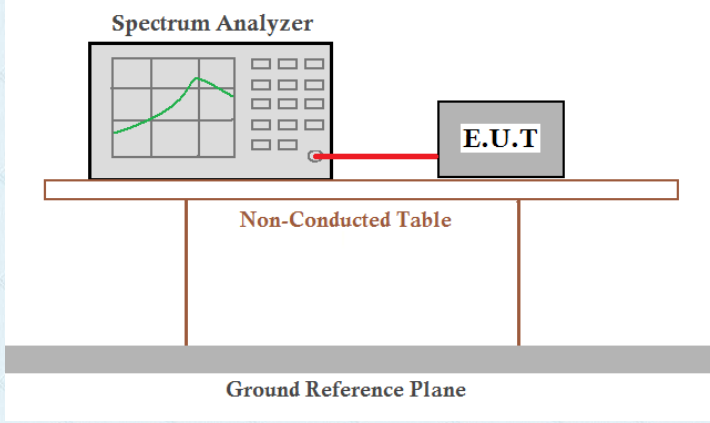
802.11n(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
38	5190	10.53	0.22	10.75	24	Pass
62	5310	10.13	0.22	10.35	24	Pass
102	5510	9.72	0.21	9.93	24	Pass
134	5670	9.85	0.22	10.07	24	Pass

802.11 ac(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
38	5190	10.47	0.21	10.68	24	Pass
62	5310	10.04	0.21	10.25	24	Pass
102	5510	9.63	0.21	9.84	24	Pass
134	5670	9.81	0.21	10.02	24	Pass

802.11 ac(HT80)						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
42	5210	11.63	0.52	12.15	24	Pass
106	5530	10.5	0.52	11.02	24	Pass
122	5610	10.95	0.52	11.47	24	Pass

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

7.5 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407									
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01									
Limit:	<table border="1"> <thead> <tr> <th>Frequency band (MHz)</th> <th>Limit</th> </tr> </thead> <tbody> <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> </tbody> </table>	Frequency band (MHz)	Limit	5150-5250	≤17dBm in 1MHz for master device	≤11dBm in 1MHz for client device	5250-5350	≤11dBm in 1MHz for client device	5470-5725	≤11dBm in 1MHz for client device
	Frequency band (MHz)	Limit								
	5150-5250	≤17dBm in 1MHz for master device								
		≤11dBm in 1MHz for client device								
	5250-5350	≤11dBm in 1MHz for client device								
5470-5725	≤11dBm in 1MHz for client device									
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.										
Test setup:	 <p>The diagram shows a Spectrum Analyzer on the left, connected by a red cable to an E.U.T. (Equipment Under Test) on the right. Both are placed on a table labeled 'Non-Conducted Table'. Below the table is a 'Ground Reference Plane'.</p>									
Test procedure:	<ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> 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 5.2 for details									
Test results:	Pass									

Measurement Data

Modulation	Duty cycle	Duty Factor
802.11a	97.64%	0.10
802.11n(HT20)	97.51%	0.11
802.11n(HT40)	95.15%	0.22
802.11ac(HT20)	97.17%	0.11
802.11ac(HT40)	95.17%	0.21
802.11ac(HT80)	88.64%	0.52

802.11a mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
36	5180	6.78	0.10	6.88	11	Pass
48	5240	7.69	0.10	7.79	11	Pass
56	5280	7.70	0.10	7.80	11	Pass
64	5320	7.21	0.10	7.31	11	Pass
100	5500	7.04	0.10	7.14	11	Pass
140	5700	6.61	0.10	6.71	11	Pass

802.11n(HT20) mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
36	5180	6.57	0.11	6.68	11	Pass
48	5240	6.1	0.11	6.21	11	Pass
56	5280	6.1	0.11	6.21	11	Pass
64	5320	6.88	0.11	6.99	11	Pass
100	5500	6.08	0.11	6.19	11	Pass
140	5700	5.59	0.11	5.70	11	Pass

802.11ac(HT20) mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
36	5180	6.45	0.11	6.56	11	Pass
48	5240	6.93	0.11	7.04	11	Pass
56	5280	6.39	0.11	6.50	11	Pass
64	5320	6.32	0.11	6.43	11	Pass
100	5500	5.99	0.11	6.10	11	Pass
140	5700	5.5	0.11	5.61	11	Pass

802.11n(HT40) mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
38	5190	2.8	0.22	3.02	11	Pass
62	5310	3.22	0.22	3.44	11	Pass
102	5510	1.93	0.22	2.15	11	Pass
134	5670	2.8	0.22	3.02	11	Pass

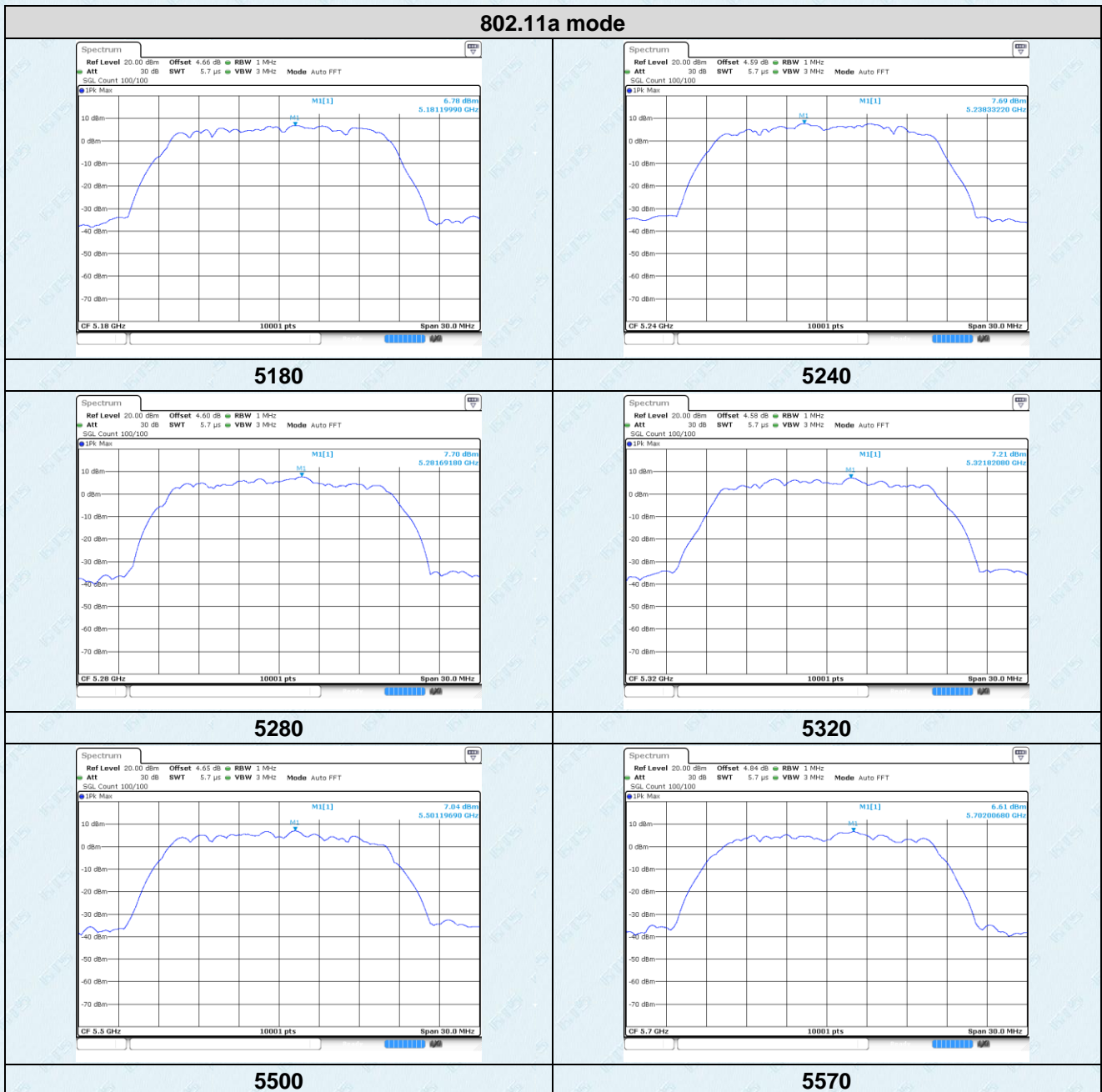
802.11 ac(HT40) mode						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
38	5190	2.62	0.21	2.83	11	Pass
62	5310	2.29	0.21	2.50	11	Pass
102	5510	2.43	0.21	2.64	11	Pass
134	5670	3.04	0.21	3.25	11	Pass

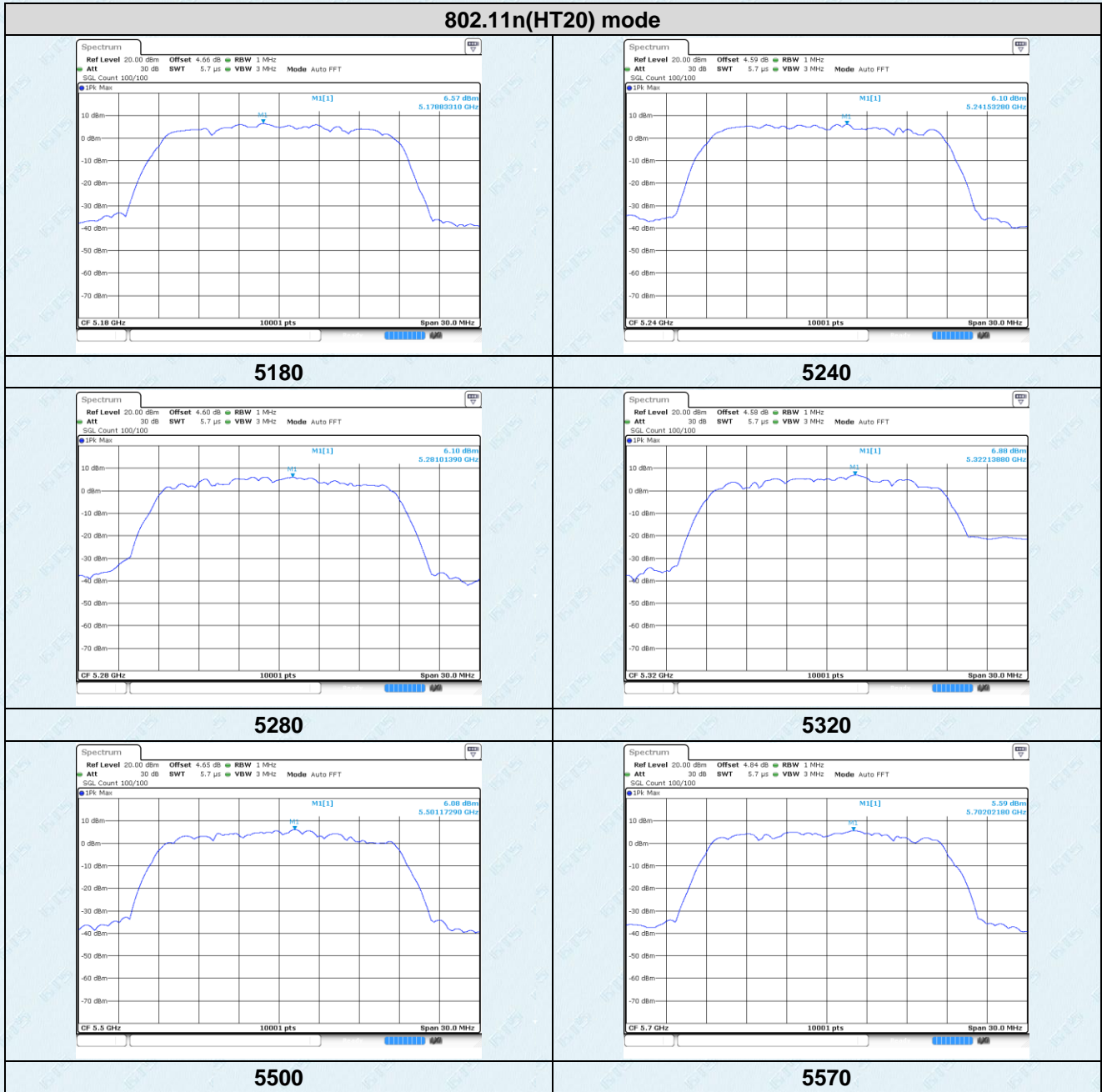
802.11 ac(HT80)						
CH No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD Power(dBm/MHz)	Limit (dBm/MHz)	Result
42	5210	-0.79	0.52	-0.27	11	Pass
106	5530	-2.21	0.52	-1.69	11	Pass
122	5610	-1.52	0.52	-1.00	11	Pass

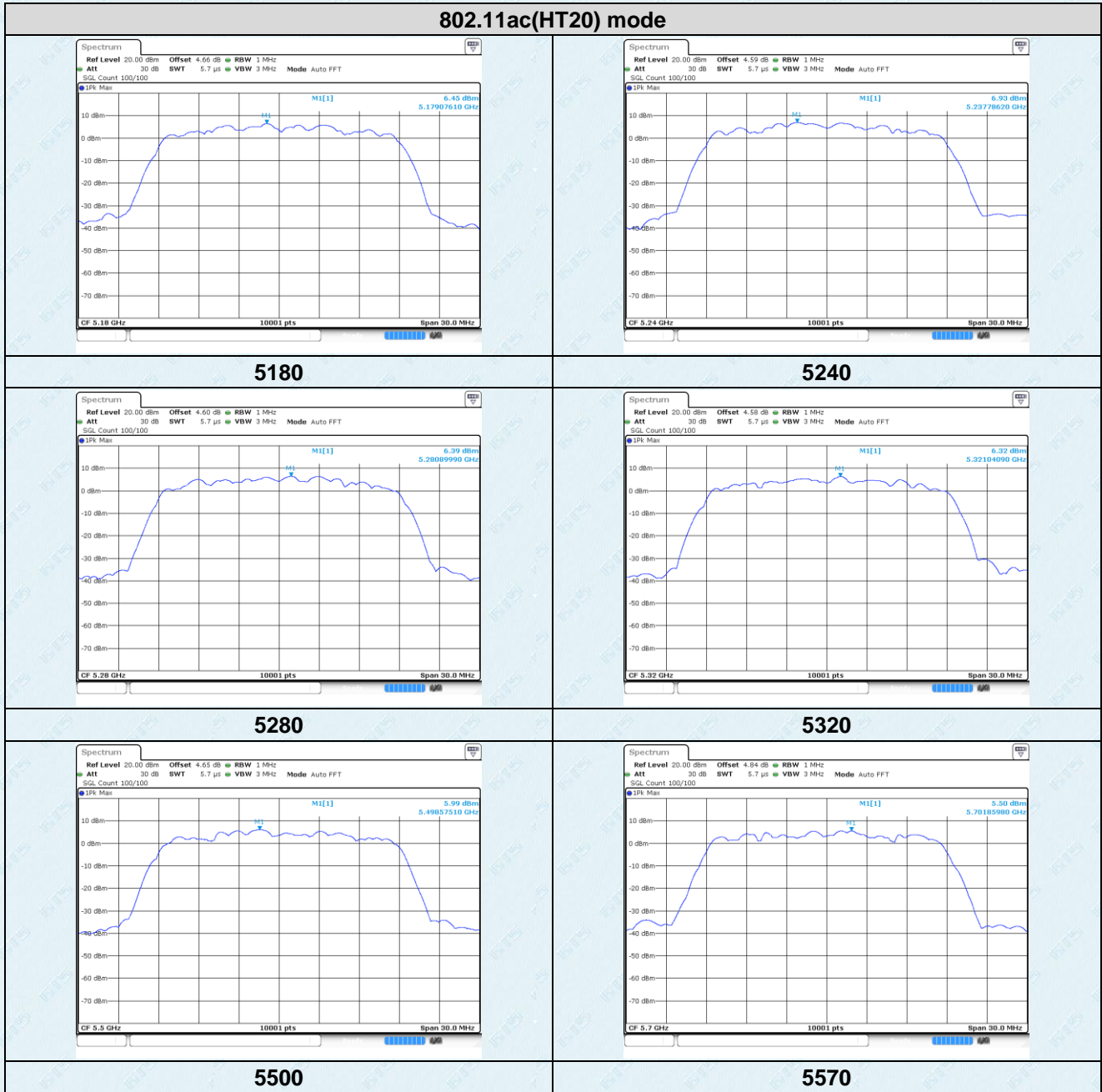
Note: Output Power = Measured Power + Duty Factor

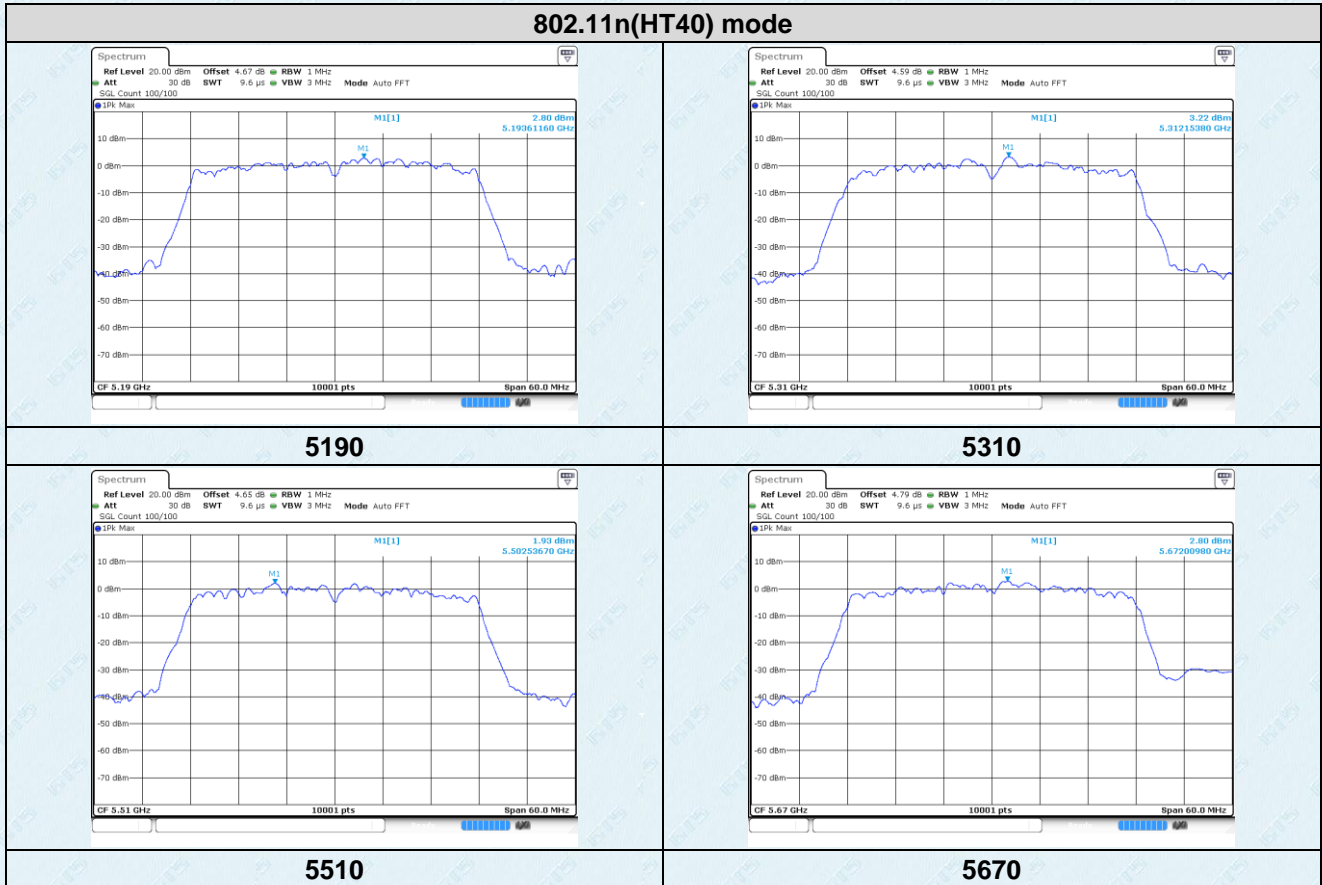
Duty Factor = $10 \log (1/\text{Duty Cycle})$

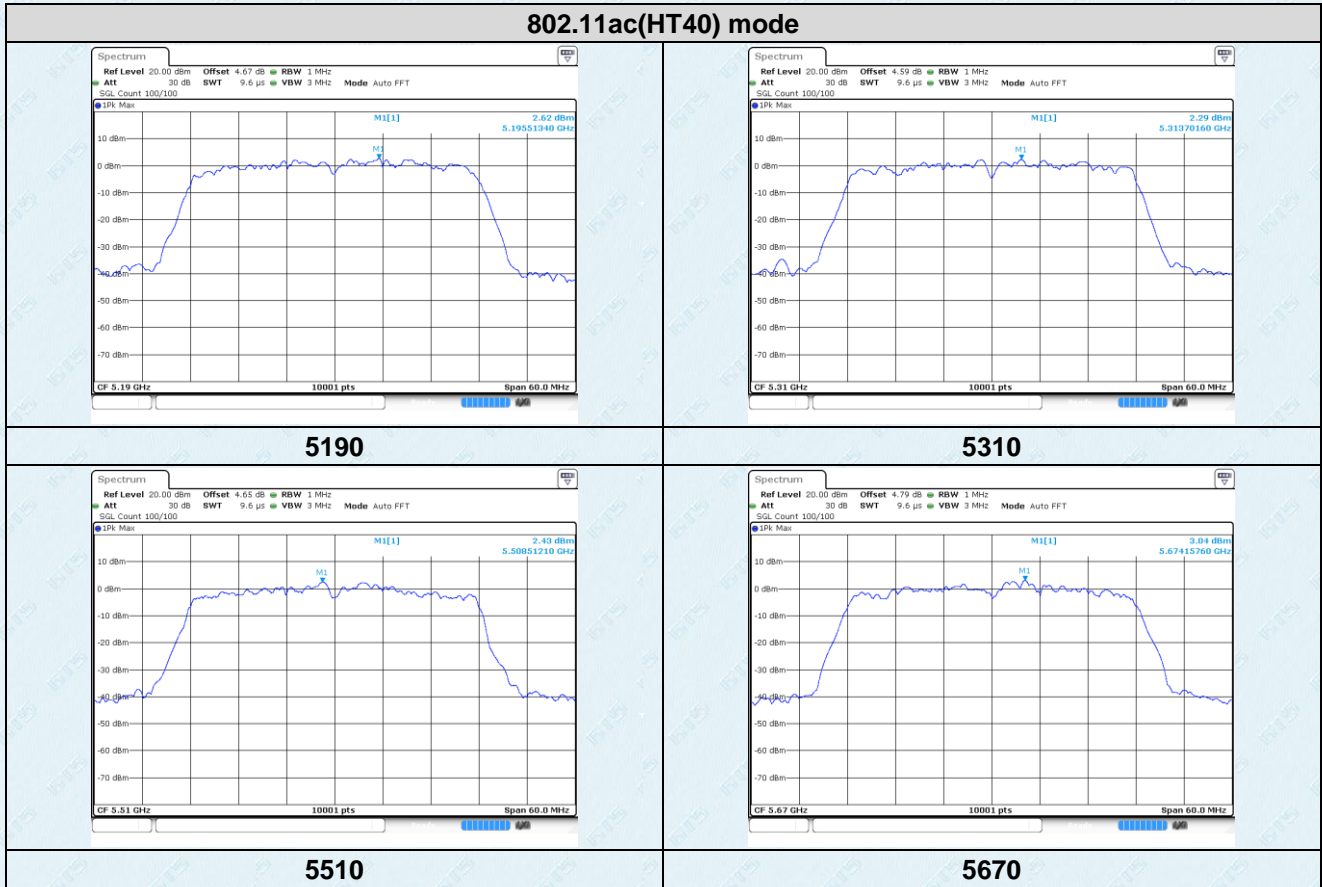
Test plots as followed:

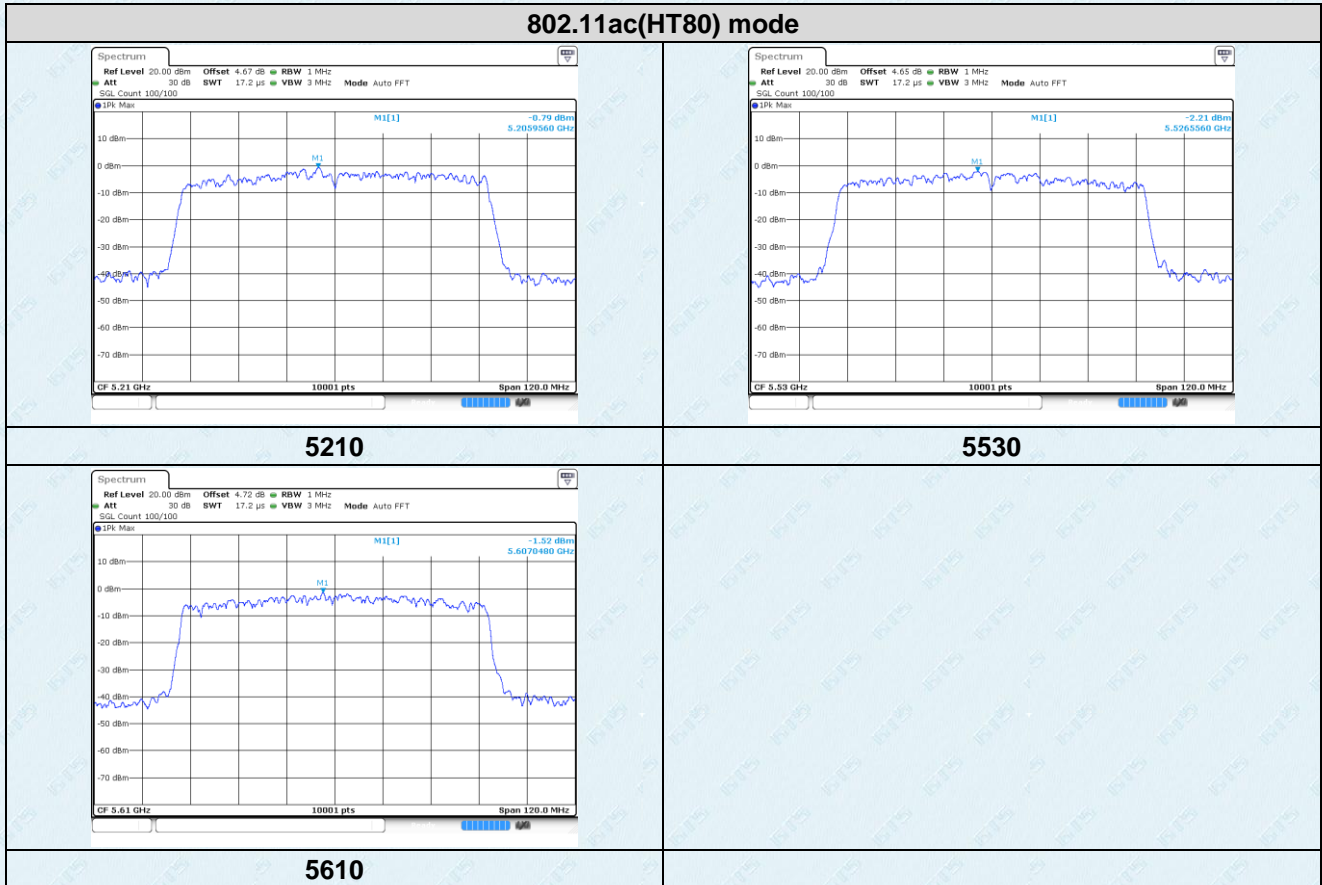






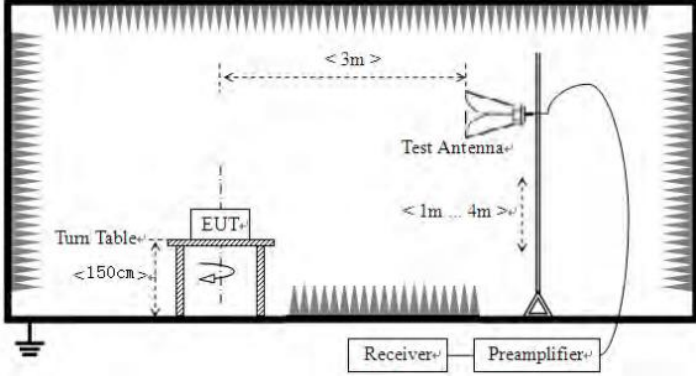






7.6 Band Edge

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:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		AV	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	54.0		Average Value	
		68.2		Peak Value	
<p>Undesirable emission limits:</p> <p>(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.</p> <p>(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.</p> <p>(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.</p>					
Test Procedure:	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>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</p>				

	<p>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.</p>
<p>Test setup:</p>	<p>For radiated emissions above 1GHz</p> 
<p>Test Instruments:</p>	<p>Refer to section 5.10 for details</p>
<p>Test mode:</p>	<p>Refer to section 5.2 for details</p>
<p>Test results:</p>	<p>Pass</p>

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:
 $E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2;$
 For example, if $\text{EIRP} = -27\text{dBm}$
 $E[\text{dBuV/m}] = -27 + 95.2 = 68.2\text{dBuV/m}.$

Measurement Data:

Pre-scan all modes and recorded the worst case results in this report (IEEE 802.11a mode.)

802.11 a/ Channel 36 :5180 MHz							
Freq (MHz)	Read Level (dBμV)	Correct Factor (dB/m)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
4500	53.92	4.85	58.77	68.2	-9.43	Peak	Horizontal
4500	40.08	4.85	44.93	54	-9.07	AV	Horizontal
5150	55.87	4.78	60.65	68.2	-7.55	Peak	Horizontal
5150	41.06	4.78	45.84	54	-8.16	AV	Horizontal

802.11 a/ Channel 36 :5180 MHz							
Freq (MHz)	Read Level (dBμV)	Correct Factor (dB/m)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
4500	50.66	4.85	55.51	68.2	-12.69	Peak	Vertical
4500	37.46	4.85	42.31	54	-11.69	AV	Vertical
5150	54.06	4.78	58.84	68.2	-9.36	Peak	Vertical
5150	39.51	4.78	44.29	54	-9.71	AV	Vertical

802.11 a/ Channel 48 :5240 MHz							
Freq (MHz)	Read Level (dBμV)	Correct Factor (dB/m)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
5350	51.71	4.3	56.01	68.2	-12.19	Peak	Horizontal
5350	36.73	4.3	41.03	54	-12.97	AV	Horizontal
5460	52.05	4	56.05	68.2	-12.15	Peak	Horizontal
5460	41.08	4	45.08	54	-8.92	AV	Horizontal

802.11 a/ Channel 48 :5240 MHz							
Freq (MHz)	Read Level (dBμV)	Correct Factor (dB/m)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
5350	51.40	4.3	55.70	68.2	-12.50	Peak	Vertical
5350	34.18	4.3	38.48	54	-15.52	AV	Vertical
5460	58.46	4	62.46	68.2	-5.74	Peak	Vertical
5460	39.43	4	43.43	54	-10.57	AV	Vertical

802.11 a/ Channel 52 :5260 MHz							
Freq (MHz)	Read Level (dBμV)	Correct Factor (dB/m)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
4500	52.30	4.85	57.15	68.2	-11.05	Peak	Horizontal
4500	43.60	4.85	48.45	54	-5.55	AV	Horizontal
5150	52.03	4.78	56.81	68.2	-11.39	Peak	Horizontal
5150	39.82	4.78	44.60	54	-9.40	AV	Horizontal

802.11 a/ Channel 52 :5260 MHz							
Freq (MHz)	Read Level (dBμV)	Correct Factor (dB/m)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
4500	50.68	4.85	55.53	68.2	-12.67	Peak	Vertical
4500	33.60	4.85	38.45	54	-15.55	AV	Vertical
5150	50.74	4.78	55.52	68.2	-12.68	Peak	Vertical
5150	35.20	4.78	39.98	54	-14.02	AV	Vertical

802.11 a/ Channel 64 :5320 MHz							
Freq (MHz)	Read Level (dBμV)	Correct Factor (dB/m)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
5350	54.04	4.3	58.34	68.2	-9.86	Peak	Horizontal
5350	33.70	4.3	38.00	54	-16.00	AV	Horizontal
5460	56.14	4	60.14	68.2	-8.06	Peak	Horizontal
5460	38.20	4	42.20	54	-11.80	AV	Horizontal

802.11 a/ Channel 64 :5320 MHz							
Freq (MHz)	Read Level (dBμV)	Correct Factor (dB/m)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
5350	51.38	4.3	55.68	68.2	-12.52	Peak	Vertical
5350	38.97	4.3	43.27	54	-10.73	AV	Vertical
5460	53.95	4	57.95	68.2	-10.25	Peak	Vertical
5460	32.53	4	36.53	54	-17.47	AV	Vertical

802.11 a/ Channel 100 :5500 MHz							
Freq (MHz)	Read Level (dBμV)	Correct Factor (dB/m)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
5460	47.97	4	51.97	68.2	-16.23	Peak	Horizontal
5460	33.58	4	37.58	54	-16.42	AV	Horizontal
5470	52.66	3.96	56.62	68.2	-11.58	Peak	Horizontal
5470	39.71	3.96	43.67	54	-10.33	AV	Horizontal

802.11 a/ Channel 100 :5500 MHz							
Freq (MHz)	Read Level (dBμV)	Correct Factor (dB/m)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
5460	47.87	4	51.87	68.2	-16.33	Peak	Vertical
5460	37.92	4	41.92	54	-12.08	AV	Vertical
5470	45.93	3.96	49.89	68.2	-18.31	Peak	Vertical
5470	39.04	3.96	43.00	54	-11.00	AV	Vertical

802.11 a/ Channel 140 :5700 MHz							
Freq (MHz)	Read Level (dBμV)	Correct Factor (dB/m)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
5725	51.49	3.95	55.44	68.2	-12.76	Peak	Horizontal
5725	36.14	3.95	40.09	54	-13.91	AV	Horizontal
5735	50.05	3.95	54.00	68.2	-14.20	Peak	Horizontal
5735	43.92	3.95	47.87	54	-6.13	AV	Horizontal

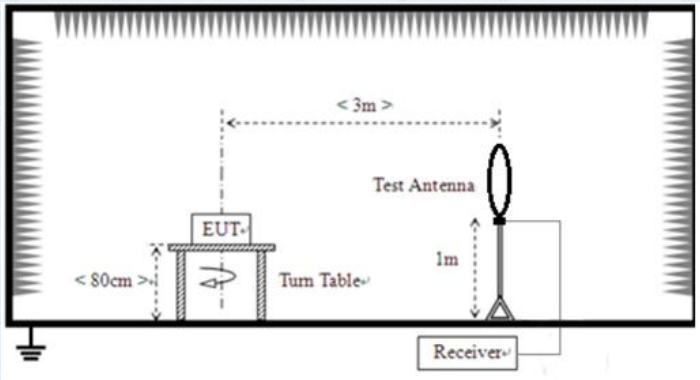
802.11 a/ Channel 140 :5700 MHz							
Freq (MHz)	Read Level (dBμV)	Correct Factor (dB/m)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
5725	44.47	3.95	48.42	68.2	-19.78	Peak	Vertical
5725	35.97	3.95	39.92	54	-14.08	AV	Vertical
5735	54.69	3.95	58.64	68.2	-9.56	Peak	Vertical
5735	35.53	3.95	39.48	54	-14.52	AV	Vertical

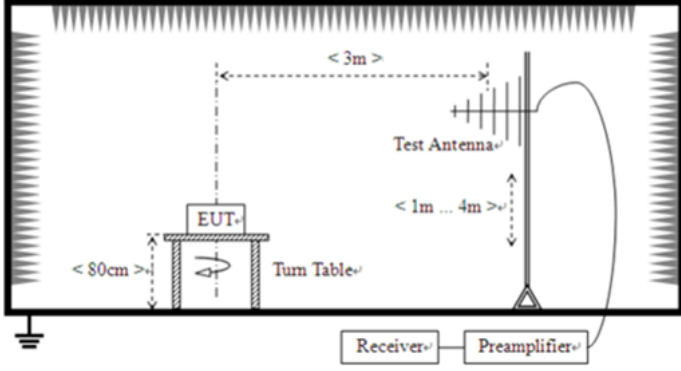
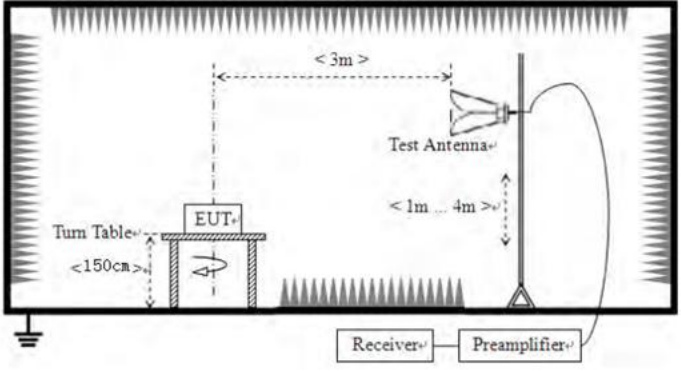
REMARKS:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. The other emission levels were very low against the limit.
3. The average measurement was not performed when the peak measured data under the limit of average detection.
4. Detector AV is setting spectrum/receiver. RBW=1MHz/VBW=1/T/Sweep time=Auto/Detector=Peak;

7.7 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	9kHz to 40GHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9kHz-150KHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
	150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
AV		1MHz	3MHz	Average Value	
Limit:	Frequency	Limit (uV/m)	Value	Measurement Distance	
	0.009MHz-0.490MHz	2400/F(KHz)	QP	300m	
	0.490MHz-1.705MHz	24000/F(KHz)	QP	300m	
	1.705MHz-30MHz	30	QP	30m	
	30MHz-88MHz	100	QP	3m	
	88MHz-216MHz	150	QP		
	216MHz-960MHz	200	QP		
	960MHz-1GHz	500	QP		
	Above 1GHz	500	Average		
		5000	Peak		
Test Procedure:	<p>Substitution method was performed to determine the actual ERP emission levels of the EUT.</p> <p>The following test procedure as below:</p> <p>1>.Below 1GHz test procedure:</p> <ol style="list-style-type: none"> 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. <p>2>.Above 1GHz test procedure:</p>				

	<ol style="list-style-type: none"> 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: $\text{EIRP(dBm)} = P_g(\text{dBm}) - \text{cable loss (dB)} + \text{antenna gain (dBi)}$ where: P_g is the generator output power into the substitution antenna.
<p>Test setup:</p>	<p>For radiated emissions from 9kHz to 30MHz</p>  <p>For radiated emissions from 30MHz to 1GHz</p>

	 <p>For radiated emissions above 1GHz</p> 				
Test Instruments:	Refer to section 5.10 for details				
Test mode:	Refer to section 5.2 for details				
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.: 1012mbar
Test voltage:	AC 120V, 60Hz				
Test results:	Pass				

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.

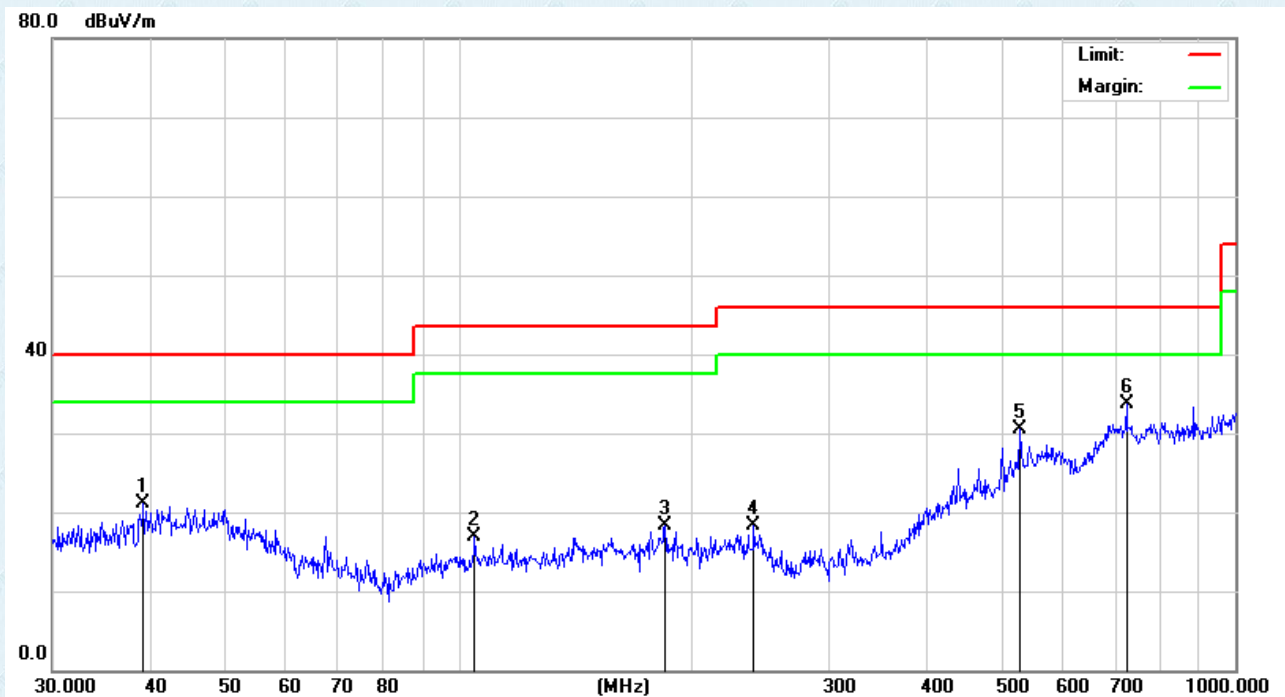
Measurement Data:

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.

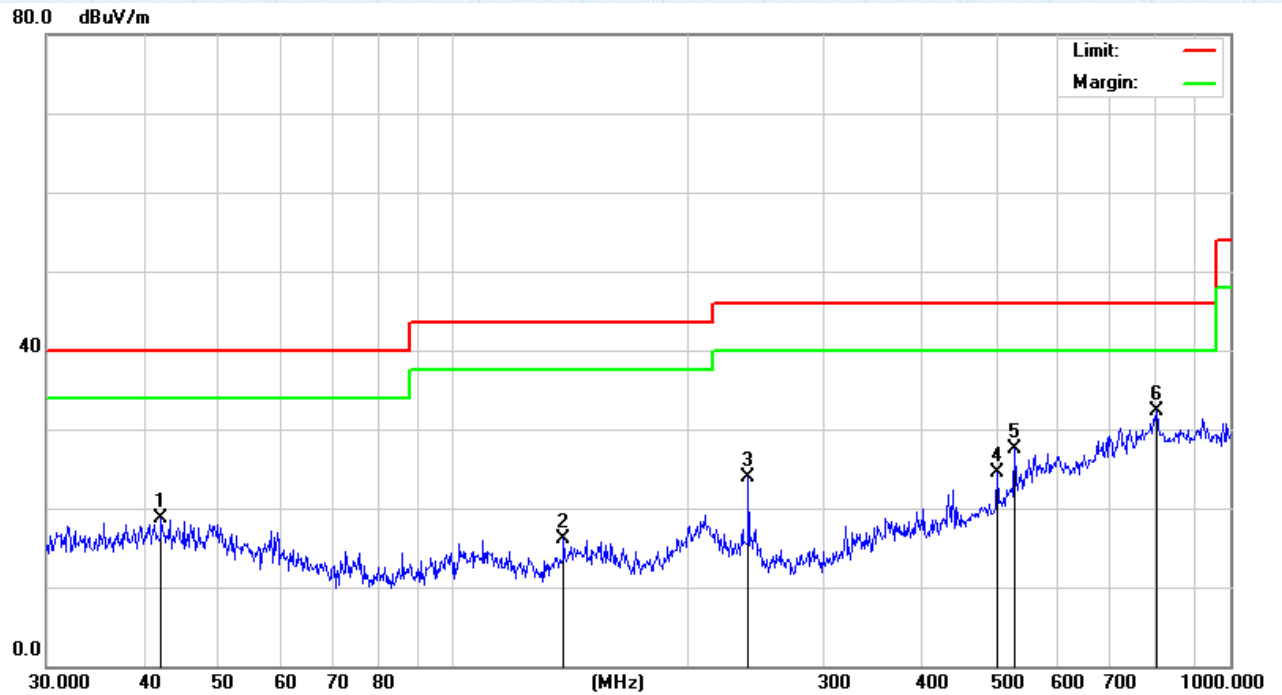
30MHz~ 1GHz

Horizontal:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		39.2991	23.23	-2.20	21.03	40.00	-18.97	QP
2		104.9033	24.17	-7.24	16.93	43.50	-26.57	QP
3		184.4898	24.27	-5.88	18.39	43.50	-25.11	QP
4		239.9874	24.75	-6.52	18.23	46.00	-27.77	QP
5		528.2458	26.62	3.83	30.45	46.00	-15.55	QP
6	*	724.2611	26.34	7.29	33.63	46.00	-12.37	QP

Vertical:



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		42.1542	23.12	-4.34	18.78	40.00	-21.22	QP
2		138.8735	24.03	-7.85	16.18	43.50	-27.32	QP
3		239.9874	30.36	-6.52	23.84	46.00	-22.16	QP
4		501.1790	26.60	-2.12	24.48	46.00	-21.52	QP
5		528.2458	27.17	0.32	27.49	46.00	-18.51	QP
6	*	804.6028	24.69	7.60	32.29	46.00	-13.71	QP

Above 1GHz:

802.11a(HT20) 5180MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10360	34.20	12.56	46.76	68.20	-21.44	PK
V	15540	36.23	16.45	52.68	68.20	-15.52	PK
H	10360	35.31	12.56	47.87	68.20	-20.33	PK
H	15540	36.32	16.45	52.77	68.20	-15.43	PK

802.11a(HT20) 5240MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10480	33.23	12.68	45.91	68.20	-22.29	PK
V	15720	34.62	16.54	51.16	68.20	-17.04	PK
H	10480	35.70	12.68	48.38	68.20	-19.82	PK
H	15720	33.94	16.54	50.48	68.20	-17.72	PK

802.11a 5320MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10640	34.05	13.81	49.18	68.2	-24.82	PK
V	15960	35.68	16.46	51.66	68.2	-22.34	PK
H	10640	35.12	13.81	51.32	68.2	-22.68	PK
H	15960	36.41	16.46	51.92	68.2	-22.08	PK

802.11a 5500MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11000	36.06	16.8	52.17	68.2	-21.83	PK
V	16500	35.54	15.82	51.02	68.2	-22.98	PK
H	11000	37.13	16.8	54.31	68.2	-19.69	PK
H	16500	35.43	15.82	51.28	68.2	-22.72	PK

802.11a 5700MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11400	33.52	17.04	49.70	68.2	-24.30	PK
V	17100	35.04	21.31	51.13	68.2	-22.87	PK
H	11400	36.49	17.04	48.09	68.2	-25.91	PK
H	17100	34.39	21.31	50.40	68.2	-23.60	PK

802.11n(HT20) 5180MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10360	34.40	12.56	46.96	68.20	-21.24	PK
V	15540	35.93	16.45	52.38	68.20	-15.82	PK
H	10360	35.57	12.56	48.13	68.20	-20.07	PK
H	15540	36.10	16.45	52.55	68.20	-15.65	PK

802.11n(HT20) 5240MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10480	33.24	12.68	45.92	68.20	-22.28	PK
V	15720	34.99	16.54	51.53	68.20	-16.67	PK
H	10480	36.12	12.68	48.80	68.20	-19.40	PK
H	15720	34.65	16.54	51.19	68.20	-17.01	PK

802.11n(HT20) 5320MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10640	35.97	13.81	49.78	68.20	-18.42	PK
V	15960	35.68	16.46	52.14	68.20	-16.06	PK
H	10640	36.87	13.81	50.68	68.20	-17.52	PK
H	15960	34.95	16.46	51.41	68.20	-16.79	PK

802.11n(HT20) 5500MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11000	33.77	16.8	50.57	68.20	-17.63	PK
V	16500	34.27	15.82	50.09	68.20	-18.11	PK
H	11000	36.06	16.8	52.86	68.20	-15.34	PK
H	16500	34.17	15.82	49.99	68.20	-18.21	PK

802.11n(HT20) 5700MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11400	33.12	17.04	50.16	68.20	-18.04	PK
V	17100	29.72	21.31	51.03	68.20	-17.17	PK
H	11400	31.47	17.04	48.51	68.20	-19.69	PK
H	17100	29.74	21.31	51.05	68.20	-17.15	PK

802.11ac(HT20) 5180MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10360	34.75	12.56	47.31	68.20	-20.89	PK
V	15540	35.78	16.45	52.23	68.20	-15.97	PK
H	10360	36.07	12.56	48.63	68.20	-19.57	PK
H	15540	36.07	16.45	52.52	68.20	-15.68	PK

802.11ac(HT20) 5240MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10480	33.94	12.68	46.62	68.20	-21.58	PK
V	15720	34.79	16.54	51.33	68.20	-16.87	PK
H	10480	36.26	12.68	48.94	68.20	-19.26	PK
H	15720	34.33	16.54	50.87	68.20	-17.33	PK

802.11ac(HT20) 5320MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10640	35.61	13.81	49.42	68.20	-18.78	PK
V	15960	35.08	16.46	51.54	68.20	-16.66	PK
H	10640	37.24	13.81	51.05	68.20	-17.15	PK
H	15960	35.23	16.46	51.69	68.20	-16.51	PK

802.11ac(HT20) 5500MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11000	33.19	16.8	49.99	68.20	-18.21	PK
V	16500	29.92	15.82	45.74	68.20	-22.46	PK
H	11000	31.29	16.8	48.09	68.20	-20.11	PK
H	16500	29.57	15.82	45.39	68.20	-22.81	PK

802.11ac(HT20) 5700MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11400	31.65	17.04	48.69	68.20	-19.51	PK
V	17100	27.95	21.31	49.26	68.20	-18.94	PK
H	11400	30.53	17.04	47.57	68.20	-20.63	PK
H	17100	28.24	21.31	49.55	68.20	-18.65	PK

802.11n(HT40) 5190MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10380	35.70	12.58	48.28	68.20	-19.92	PK
V	15570	33.73	16.48	50.21	68.20	-17.99	PK
H	10380	37.00	12.58	49.58	68.20	-18.62	PK
H	15570	32.87	16.48	49.35	68.20	-18.85	PK

802.11n(HT40) 5310MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10620	31.86	13.65	45.51	68.20	-22.69	PK
V	15930	27.42	16.53	43.95	68.20	-24.25	PK
H	10620	29.65	13.65	43.30	68.20	-24.90	PK
H	15930	28.37	16.53	44.90	68.20	-23.30	PK

802.11n(HT40) 5510MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11020	32.97	16.83	49.80	68.20	-18.40	PK
V	16530	35.28	16.1	51.38	68.20	-16.82	PK
H	11020	35.55	16.83	52.38	68.20	-15.82	PK
H	16530	36.1	16.1	52.20	68.20	-16.00	PK

802.11n(HT40) 5670MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11340	34.78	17.03	51.81	68.20	-16.39	PK
V	17010	33.18	20.57	53.75	68.20	-14.45	PK
H	11340	36.3	17.03	53.33	68.20	-14.87	PK
H	17010	35.72	20.57	56.29	68.20	-11.91	PK

802.11ac(HT40) 5190MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10380	33.40	12.58	45.98	68.20	-22.22	PK
V	15570	34.07	16.48	50.55	68.20	-17.65	PK
H	10380	34.41	12.58	46.99	68.20	-21.21	PK
H	15570	33.04	16.48	49.52	68.20	-18.68	PK

802.11ac(HT40) 5310MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10620	31.91	13.65	45.56	68.20	-22.64	PK
V	15930	27.57	16.53	44.10	68.20	-24.10	PK
H	10620	34.65	13.65	48.30	68.20	-19.90	PK
H	15930	27.48	16.53	44.01	68.20	-24.19	PK

802.11ac(HT40) 5510MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11020	33.97	16.83	50.80	68.20	-17.40	PK
V	16530	33.58	16.1	49.68	68.20	-18.52	PK
H	11020	33.72	16.83	50.55	68.20	-17.65	PK
H	16530	34.8	16.1	50.90	68.20	-17.30	PK

802.11ac(HT40) 5670MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11340	33.88	17.03	50.91	68.20	-17.29	PK
V	17010	30.76	20.57	51.33	68.20	-16.87	PK
H	11340	33.5	17.03	50.53	68.20	-17.67	PK
H	17010	31.67	20.57	52.24	68.20	-15.96	PK

802.11ac(HT80) 5210MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	10420	33.27	12.62	45.89	68.20	-22.31	PK
V	15630	33.00	16.52	49.52	68.20	-18.68	PK
H	10420	33.78	12.62	46.40	68.20	-21.80	PK
H	15630	32.11	16.52	48.63	68.20	-19.57	PK

802.11ac(HT80) 5530MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11060	34.19	16.89	51.08	68.20	-17.12	PK
V	16590	32.73	16.67	49.40	68.20	-18.80	PK
H	11060	32.35	16.89	49.24	68.20	-18.96	PK
H	16590	33.67	16.67	50.34	68.20	-17.86	PK

802.11ac(HT80) 5610MHz

Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11220	32.18	16.99	49.17	68.20	-19.03	PK
V	16830	30.51	18.92	49.43	68.20	-18.77	PK
H	11220	31.06	16.99	48.05	68.20	-20.15	PK
H	16830	28.50	18.92	47.42	68.20	-20.78	PK

Notes:

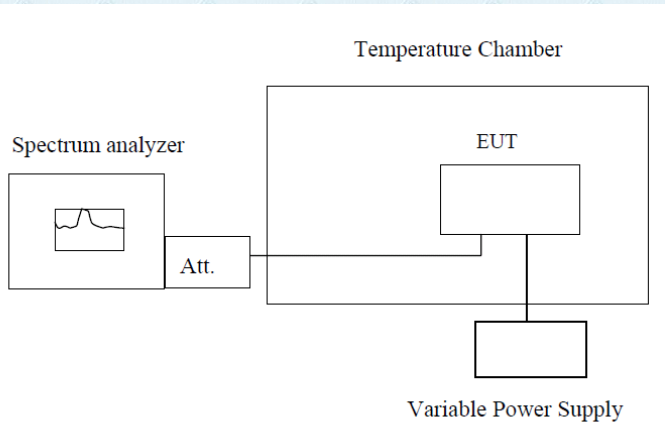
1. Level = Read Level + Antenna Factor+ Cable loss- Preamp Factor.
2. The test trace is same as the ambient noise (the test frequency range: 18GHz~40GHz), therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

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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:	 <p>Note : Measurement setup for testing on Antenna connector</p>
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

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

Measurement data:

Frequency stability versus Temp.									
Worse Case Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail
-30	120	5180.2869	Pass	5179.8965	Pass	5180.2463	Pass	5180.0528	Pass
-20	120	5180.1001	Pass	5179.9500	Pass	5180.0070	Pass	5179.8746	Pass
-10	120	5180.0549	Pass	5180.0284	Pass	5180.0406	Pass	5180.0515	Pass
0	120	5179.9818	Pass	5179.9725	Pass	5179.7898	Pass	5179.9346	Pass
10	120	5180.0759	Pass	5180.0404	Pass	5180.1062	Pass	5180.2043	Pass
20	120	5179.8809	Pass	5179.8258	Pass	5180.1317	Pass	5179.8304	Pass
30	120	5180.1322	Pass	5179.8325	Pass	5179.9684	Pass	5179.9657	Pass
40	120	5180.1128	Pass	5179.8695	Pass	5180.1157	Pass	5180.1276	Pass
50	120	5179.8715	Pass	5179.9075	Pass	5179.9021	Pass	5179.8330	Pass

Frequency stability versus Temp.									
Worse Case Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail
25	108	5179.9715	Pass	5180.2429	Pass	5179.9052	Pass	5180.0933	Pass
25	120	5180.0691	Pass	5180.0810	Pass	5180.1875	Pass	5179.9709	Pass
25	132	5179.9402	Pass	5180.0848	Pass	5180.2109	Pass	5180.1649	Pass

Frequency stability versus Temp.									
Worse Case Operating Frequency: 5190MHz									
Temp. (°C)	Power Supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail
-30	120	5190.1401	Pass	5190.0407	Pass	5189.9833	Pass	5190.1509	Pass
-20	120	5190.1202	Pass	5190.1105	Pass	5189.8645	Pass	5190.1194	Pass
-10	120	5190.0915	Pass	5190.0849	Pass	5190.0370	Pass	5189.9732	Pass
0	120	5190.2374	Pass	5189.9289	Pass	5189.9809	Pass	5190.2612	Pass
10	120	5190.0411	Pass	5190.0696	Pass	5189.8363	Pass	5190.0529	Pass
20	120	5190.0745	Pass	5189.9105	Pass	5190.0233	Pass	5190.1274	Pass
30	120	5190.1152	Pass	5189.9724	Pass	5190.1731	Pass	5189.9666	Pass
40	120	5190.0531	Pass	5189.9548	Pass	5189.9712	Pass	5190.1270	Pass
50	120	5189.9308	Pass	5189.7388	Pass	5190.0963	Pass	5190.1096	Pass

Frequency stability versus Temp.									
Worse Case Operating Frequency: 5190MHz									
Temp. (°C)	Power Supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail
25	108	5190.1187	Pass	5190.0894	Pass	5189.8808	Pass	5190.0978	Pass
25	120	5190.0386	Pass	5190.1994	Pass	5190.1175	Pass	5189.8410	Pass
25	132	5189.9248	Pass	5190.0292	Pass	5189.9481	Pass	5190.0583	Pass

Frequency stability versus Temp.									
Worse Case Operating Frequency: 5210MHz									
Temp. (°C)	Power Supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail
-30	120	5210.2293	Pass	5209.9838	Pass	5210.1766	Pass	5210.1076	Pass
-20	120	5210.2134	Pass	5210.0660	Pass	5209.9967	Pass	5210.1740	Pass
-10	120	5209.8366	Pass	5210.2660	Pass	5210.0773	Pass	5210.1390	Pass
0	120	5209.9726	Pass	5209.9347	Pass	5210.1010	Pass	5210.1353	Pass
10	120	5210.0856	Pass	5209.9225	Pass	5210.1008	Pass	5210.1356	Pass
20	120	5210.0181	Pass	5209.9216	Pass	5210.0588	Pass	5210.0237	Pass
30	120	5210.1623	Pass	5210.1171	Pass	5210.1473	Pass	5209.9668	Pass
40	120	5210.0427	Pass	5209.9838	Pass	5210.0908	Pass	5209.8535	Pass
50	120	5210.1371	Pass	5210.0660	Pass	5210.0747	Pass	5210.1515	Pass

Frequency stability versus Temp.									
Worse Case Operating Frequency: 5210MHz									
Temp. (°C)	Power Supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail	Measured Frequency (MHz)	Pass /Fail
25	108	5210.2037	Pass	5210.1147	Pass	5209.9819	Pass	5210.1079	Pass
25	120	5209.9461	Pass	5210.0889	Pass	5209.8206	Pass	5210.1128	Pass
25	132	5210.2793	Pass	5210.2014	Pass	5210.1884	Pass	5209.9290	Pass

8 Test Setup Photo

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

9 EUT Constructional Details

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

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