RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART E

INDUSTRY CANADA RSS-247

Test Standard	**FCC Part 15.407+ RSS-247 issue 2 and RSS-GEN issue 5**
Brand name	**ICON/iFit**
Product name	**Tablet**
Model No.	**MP7-ARGON2-C**
Test Result	**Pass**
Statements of Conformity	**Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.**

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.
The test results of this report relate only to the tested sample (EUT) identified in this report.
The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc.(Wugu Laboratory)

Approved by:

Kevin Tsai
Deputy Manager

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	July 23, 2021	Initial Issue	ALL	Allison Chen
01	August 2, 2021	See the following Note Rev.(01)	P.76	Allison Chen

Note:
Rev.(01)
1. Modified test result @802.11a/5180MHz. horizontal in section 4.5.4.

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1. GENERAL INFORMATION

1.1 EUT INFORMATION

FCC Applicant	Compal Electronics Inc No.581 & 581-1, Ruiguang Rd., Neihu District, Taipei city, 11492 Taiwan
IC Applicant	COMPAL ELECTRONICS INC. No. 581 & 581-1, Ruiguang Rd,, Neihu District Taipei R.O.C. 114 Taiwan
Manufacturer	Compal Electronics Inc No.581 & 581-1, Ruiguang Rd., Neihu District, Taipei city, 11492 Taiwan
Equipment	Tablet
Model No.	MP7-ARGON2-C
Model Discrepancy	N/A
Trade Name	ICON/iFit
Received Date	April 13, 2021
Date of Test	June 29 ~ July 8, 2021
Power Operation	EUT Power from Power Supply. (DC12V)
HW Version	LA-L511P
SW Version	Android 9
EUT Serial #	Conducted Emission: PP41D304791 Radiated Emission: PP41D304792

Remark:

1. For more details, refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

1.2 EUT CHANNEL INFORMATION

Frequency Range	**UNII-1**
	IEEE 802.11a: 5180 ~ 5240 MHz
	IEEE 802.11n HT 20 MHz: 5180 ~ 5240 MHz
	IEEE 802.11n HT 40 MHz: 5190 ~ 5230 MHz
	UNII-2a
	IEEE 802.11a: 5260 ~ 5320 MHz
	IEEE 802.11n HT 20 MHz: 5260 ~ 5320 MHz
	IEEE 802.11n HT 40 MHz: 5270 ~ 5310 MHz
	UNII-2c
	IEEE 802.11a: 5500 ~ 5700 MHz
	IEEE 802.11n HT 20 MHz: 5500 ~ 5700 MHz
	IEEE 802.11n HT 40 MHz: 5510 ~ 5670 MHz
	UNII-3
	IEEE 802.11a: 5745 ~ 5825 MHz
	IEEE 802.11n HT 20 MHz: 5745 ~ 5825 MHz
	IEEE 802.11n HT 40 MHz: 5755 ~ 5795 MHz
Modulation Type	1. IEEE 802.11a mode: OFDM 2. IEEE 802.11n HT 20 MHz mode: OFDM 3. IEEE 802.11n HT 40 MHz mode: OFDM

Remark:
Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 for test channels

Number of frequencies to be tested		
Frequency range in which device operates	**Number of frequencies**	**Location in frequency range of operation**
☐ 1 MHz or less	1	Middle
☐ 1 MHz to 10 MHz	2	1 near top and 1 near bottom
☒ More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

1.3 ANTENNA INFORMATION

Antenna Type	☒ PIFA ☐ PCB ☐ Dipole ☐ Coils
Antenna Gain	Band 1: 5.09 dBi Band 2a: 5.09 dBi Band 2c: 3.12 dBi Band 3: 2.74 dBi
Antenna Connector	IPEX

Remark:
1.The antenna(s) of the EUT are permanently attached and there are no provisions for connection to an external antenna. So the EUT complies with the requirements of §15.203.

1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 20dB bandwidth	+/- 0.0014
RF output power, conducted	+/- 1.14
Power density, conducted	+/- 1.40
3M Semi Anechoic Chamber / 30M~1G (Horizontally)	+/- 3.91
3M Semi Anechoic Chamber / 30M~1G (Vertically)	+/- 4.57
3M Semi Anechoic Chamber / 1G~6G	+/- 5.20
3M Semi Anechoic Chamber / 6G~18G	+/- 5.18
3M Semi Anechoic Chamber / 18G~40G	+/- 3.68

Remark:
1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan. (R.O.C.)

CAB Identifier: TW1309

Test site	Test Engineer	Remark
AC Conduction Room	N/A	Not applicable, because EUT doesn't connect to AC Main Source direct.
Radiation	Ray Li	-
RF Conducted	Lance Chen	-

Remark: The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

1.6 INSTRUMENT CALIBRATION

3M 966 Chamber Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Bilog Antenna	Sunol Sciences	JB3	A030105	07/24/2020	07/23/2021
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/24/2021	02/23/2022
Coaxial Cable	EMCI	EMC105	190914+327109/4	09/19/2020	09/18/2021
K Type Cable	Huber+Suhner	SUCOFLEX 102	29406/2	12/09/2020	12/08/2021
K Type Cable	Huber+Suhner	SUCOFLEX 102	22470/2	12/09/2020	12/08/2021
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	01/06/2021	01/05/2022
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	09/30/2020	09/29/2021
High Pass Filters	MICRO TRONICS	HPM13195	003	02/08/2021	02/07/2022
Horn Antenna	ETS LINDGREN	3116	00026370	12/11/2020	12/10/2021
Loop Ant	COM-POWER	AL-130	121051	04/07/2021	04/06/2022
Pre-Amplifier	EMEC	EM330	060609	02/24/2021	02/23/2022
Pre-Amplifier	HP	8449B	3008A00965	02/25/2021	02/24/2022
Pre-Amplifier	MITEQ	AMF-6F-18004000-37-8P	985646	09/02/2020	09/01/2021
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	07/24/2020	07/23/2021
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	e3 6.11-20180419c				

RF Conducted Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
EXA Signal Analyzer	KEYSIGHT	N9010B	MY55460167	09/07/2020	09/06/2021
Coaxial Cable	Woken	WC12	CC003	06/28/2021	06/27/2022
Coaxial Cable	Woken	WC12	CC001	06/28/2021	06/27/2022
Power Meter	Anritsu	ML2487A	6K00003260	05/24/2021	05/23/2022
Power Seneor	Anritsu	MA2490A	032910	05/24/2021	05/23/2022
Software	Radio Test Software				

Remark:
1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.

1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

EUT Accessories Equipment					
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**
	N/A				

Support Equipment					
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**
1	Adapter	WEIHAI POWER	HAS060123-EA	N/A	N/A

1.8 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.407, KDB 789033 D02, KDB 905462 D02, RSS-247 Issue 2 and RSS-GEN Issue 5.

2. TEST SUMMARY

FCC Standard Sec.	IC Standard Sec.	Chapter	Test Item	Result
15.203	RSS-Gen (6.8)	1.3	Antenna Requirement	Pass
15.207	RSS-Gen(8.8)	4.1	AC Conducted Emission	N/A
15.403(i)	-	4.2	26dB Bandwidth	Pass
15.407(e)	RSS-247(6.2.4)	4.2	6dB Bandwidth	Pass
15.403(i)	RSS-Gen (6.7)	4.2	Occupied Bandwidth (99%)	Pass
15.407(a)	RSS-247(6.2.1.1) RSS-247(6.2.2.1) RSS-247(6.2.3.1) RSS-247(6.2.4.1)	4.3	Output Power Measurement	Pass
15.407(a)	RSS-247(6.2.1.1) RSS-247(6.2.2.1) RSS-247(6.2.3.1) RSS-247(6.2.4.1)	4.4	Power Spectral Density	Pass
15.407(b)	RSS-247(6.2.1.2) RSS-247(6.2.2.2) RSS-247(6.2.3.2) RSS-247(6.2.4.2)	4.5	Radiation Band Edge	Pass
15.407(b)	RSS-247(6.2.1.2) RSS-247(6.2.2.2) RSS-247(6.2.3.2) RSS-247(6.2.4.2)	4.5	Radiation Spurious Emission	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE EUT CHANNEL NUMBER OF OPERATING CONDITION

<table>
<tr><td>Operation mode</td><td>1. IEEE 802.11a mode: 6Mbps
2. IEEE 802.11n HT 20 MHz mode: MCS0
3. IEEE 802.11n HT 40 MHz mode: MCS0</td></tr>
<tr><td>Operating Frequency</td><td>
<table>
<tr><th></th><th>Mode</th><th>Frequency Range (MHz)</th></tr>
<tr><td rowspan="3">U-NII-1</td><td>IEEE 802.11a</td><td>5180, 5220, 5240</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5180, 5220, 5240</td></tr>
<tr><td>IEEE 802.11n HT 40 MHz</td><td>5190, 5230</td></tr>
<tr><td rowspan="3">U-NII-2a</td><td>IEEE 802.11a</td><td>5260, 5280, 5320</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5260, 5280, 5320</td></tr>
<tr><td>IEEE 802.11n HT 40 MHz</td><td>5270, 5310</td></tr>
<tr><td rowspan="3">U-NII-2c</td><td>IEEE 802.11a</td><td>5500, 5580, 5700</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5500, 5580, 5700</td></tr>
<tr><td>IEEE 802.11n HT 40 MHz</td><td>5510, 5550, 5670</td></tr>
<tr><td rowspan="3">U-NII-3</td><td>IEEE 802.11a</td><td>5745, 5785, 5825</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5745, 5785, 5825</td></tr>
<tr><td>IEEE 802.11n HT 40 MHz</td><td>5755, 5795</td></tr>
</table>
</td></tr>
</table>

Remark:
1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.
2. For Canada the EUT Frequency Range 5600~5650MHz will be disabled.

3.2 THE WORST MODE OF MEASUREMENT

Radiated Emission Measurement Above 1G	
Test Condition	**Radiated Emission Above 1G**
Power supply Mode	**Mode 1: EUT power by Power Supply**
Worst Mode	☒ **Mode 1** ☐ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**
Worst Position	☐ **Placed in fixed position.** ☐ **Placed in fixed position at X-Plane (E2-Plane)** ☒ **Placed in fixed position at Y-Plane (E1-Plane)**

Radiated Emission Measurement Below 1G	
Test Condition	**Radiated Emission Below 1G**
Power supply Mode	**Mode 1: EUT power by Power Supply**
Worst Mode	☒ **Mode 1** ☐ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**

Remark:
1. The worst mode was record in this test report.
2. EUT pre-scanned in two axis ,X,Y and two polarity, for radiated measurement. The worst case(Y-Plane) were recorded in this report

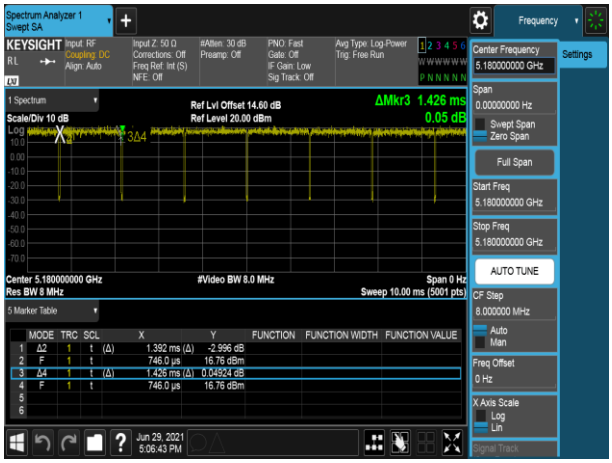
3.3 EUT DUTY CYCLE

Temperature: 20.2 ~ 25.9℃ **Tested by:** Lance Chen

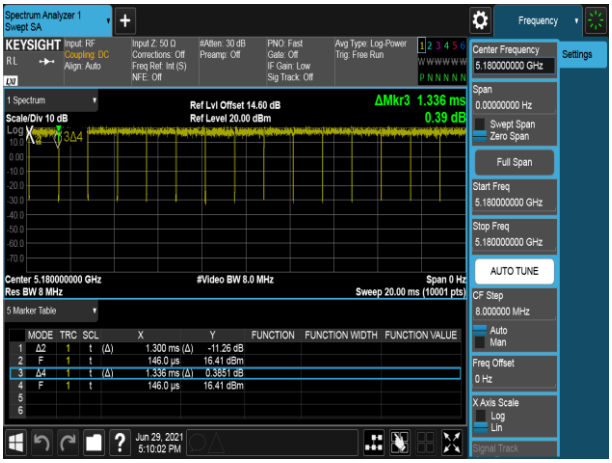
Humidity: 48 ~ 62% RH **Test date:** June 29, 2021

Duty Cycle				
Configuration	Duty Cycle (%)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11a	98.00	0.09	0.72	0.01
802.11n HT20	97.00	0.13	0.77	1.00
802.11n HT40	95.00	0.22	1.54	2.00

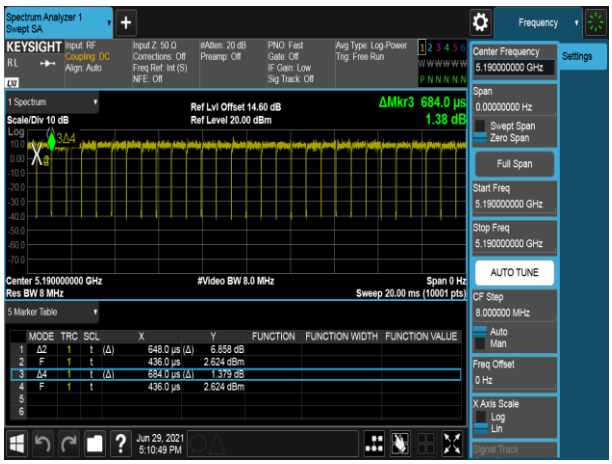
802.11a



802.11n HT20



802.11n HT40



4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

According to §15.207(a) and RSS-GEN section 8.8,

Frequency Range (MHz)	Limits(dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

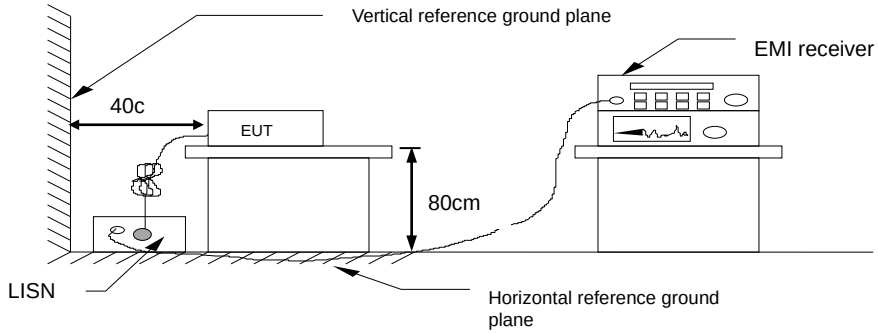
* Decreases with the logarithm of the frequency.

4.1.2 Test Procedure

Test method Refer as ANSI C63.10: 2013,

1. The EUT was placed on a non-conducted table, which is 0.8m above horizontal ground plane and 0.4m above vertical ground plane.
2. EUT connected to the line impedance stabilization network (LISN)
3. Receiver set RBW of 9kHz and Detector Peak, and note as quasi-peak and average.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. Recorded Line for Neutral and Line.

4.1.3 Test Setup



4.1.4 Test Result

Not applicable, because EUT doesn't connect to AC Main Source direct.

4.2 26dB BANDWIDTH, 6dB BANDWIDTH AND OCCUPIED BANDWIDTH(99%)

4.2.1 Test Limit

26 dB Bandwidth ：For reporting purposes only.

6 dB Bandwidth ：Least 500kHz.

Occupied Bandwidth(99%) ： For reporting purposes only.

4.2.2 Test Procedure

26dB

1. This measurement setting are specified in section D of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

2. Set RBW: approximately 1% of the emission bandwidth.

3. Set the VBW>RBW.

4. Detoctor = Peak.

5. Trace mode = max hold.

6. Measure the maximum width of the emission that is 26dB down from the peak of the emission. Compare this with the RBW setting of the analyser. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

6dB

1. This measurement setting are specified in section D of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

2. Set RBW = 100 kHz.

3. Set the video bandwidth (VBW) ≥ 3 x RBW.

4. Detoctor = Peak.

5. Trace mode = max hold.

6. Sweep = auto couple.

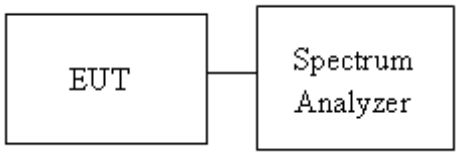
7. Allow the trace to stabilize.

8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

99%

1. This measurement setting are specified in section D of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set center frequency to the nominal EUT channel center frequency.
3. Set span = 1.5 times to 5.0 times the OBW.
4. Set RBW = 1 % to 5% of the OBW.
5. Set VBW ≧ 3 xRBW

4.2.3 Test Setup



4.2.4 Test Result

Temperature: 20.2 ~ 25.9℃ **Tested by:** Lance Chen

Humidity: 48 ~ 62% RH **Test date:** June 30, 2021

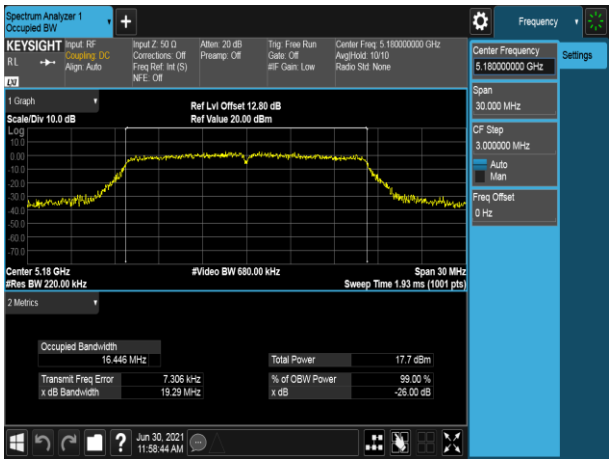
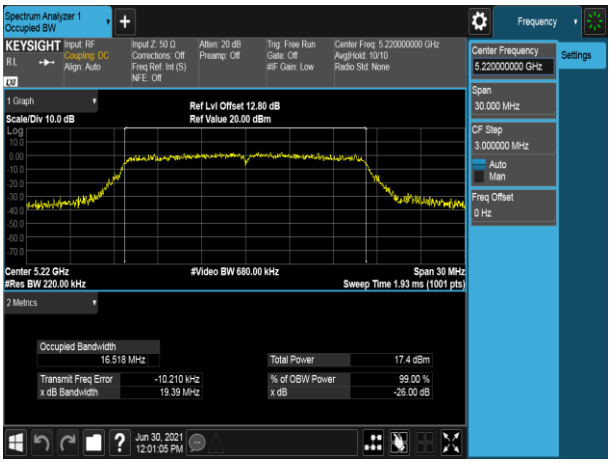
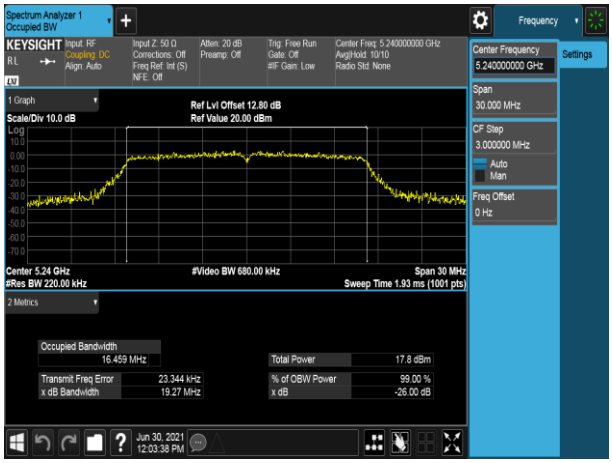
UNII-1 5150-5250 MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW (99%) (MHz)**	**Chain 1 OBW (99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
36	5180	16.446	-	19.43	-
44	5220	16.518	-	19.25	-
48	5240	16.459	-	19.67	-
Test mode: IEEE 802.11n HT20 mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW (99%) (MHz)**	**Chain 1 OBW (99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
36	5180	17.574	-	19.68	-
44	5220	17.550	-	19.65	-
48	5240	17.576	-	19.76	-
Test mode: IEEE 802.11n HT40 mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW (99%) (MHz)**	**Chain 1 OBW (99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
38	5190	36.164	-	39.67	-
46	5230	35.918	-	39.70	-

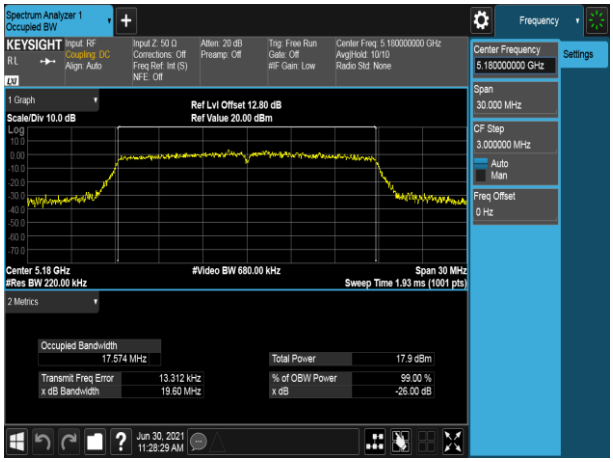
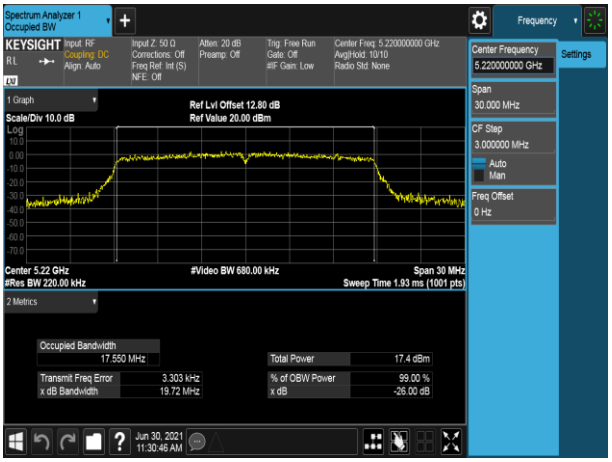
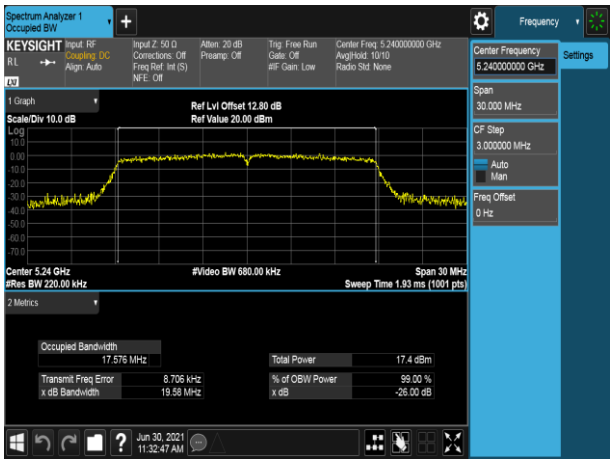
UNII-2a 5250-5350 MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW (99%) (MHz)**	**Chain 1 OBW (99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
52	5260	16.440	-	19.27	-
60	5300	16.440	-	19.45	-
64	5320	16.473	-	19.46	-
Test mode: IEEE 802.11n HT20 mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW (99%) (MHz)**	**Chain 1 OBW (99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
52	5260	17.581	-	19.67	-
60	5300	17.564	-	19.84	-
64	5320	17.612	-	19.58	-
Test mode: IEEE 802.11n HT40 mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW (99%) (MHz)**	**Chain 1 OBW (99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
54	5270	35.898	-	40.88	-
62	5310	36.130	-	39.55	-

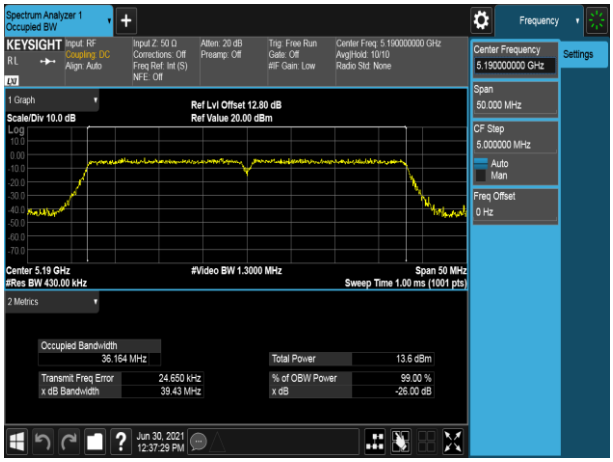
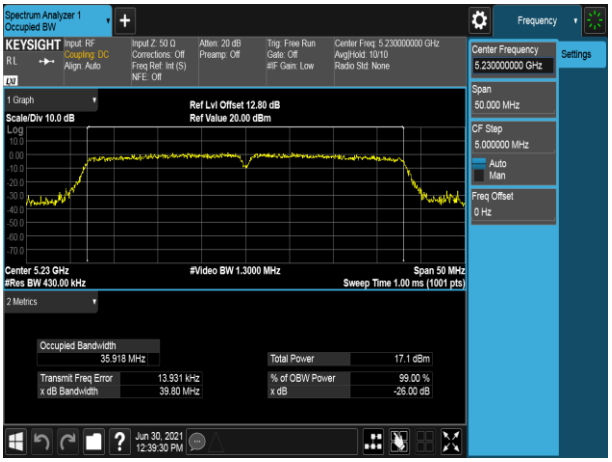
UNII-2c 5475-5725 MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW (99%) (MHz)**	**Chain 1 OBW (99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
100	5500	16.532	-	22.00	-
116	5580	16.521	-	21.04	-
140	5700	16.677	-	22.84	-
Test mode: IEEE 802.11n HT20 mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW (99%) (MHz)**	**Chain 1 OBW (99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
100	5500	17.611	-	21.19	-
116	5580	17.630	-	20.68	-
140	5700	17.714	-	20.03	-
Test mode: IEEE 802.11n HT40 mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW (99%) (MHz)**	**Chain 1 OBW (99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
102	5510	36.167	-	39.67	-
110	5550	36.052	-	**49.11**	-
134	5670	36.104	-	43.57	-

UNII-3 5725-5825MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 6dB BW (MHz)**	**Chain 1 6dB BW (MHz)**
149	5745	16.657	-	16.49	-
157	5785	16.651	-	16.42	-
165	5825	16.652	-	16.39	-
Test mode: IEEE 802.11n HT20 mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 6dB BW (MHz)**	**Chain 1 6dB BW (MHz)**
149	5745	17.699	-	17.63	-
157	5785	17.716	-	17.64	-
165	5825	17.713	-	17.60	-
Test mode: IEEE 802.11n HT40 mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 6dB BW (MHz)**	**Chain 1 6dB BW (MHz)**
151	5755	36.152	-	35.78	-
159	5795	36.122	-	36.28	-

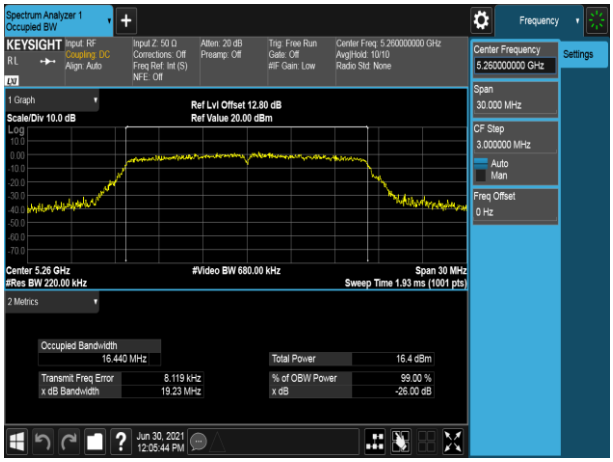
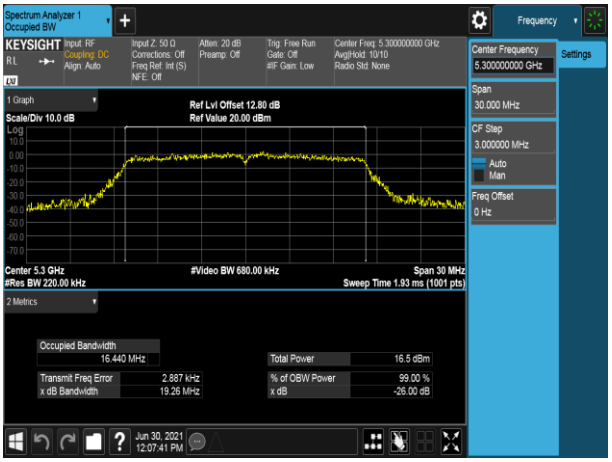
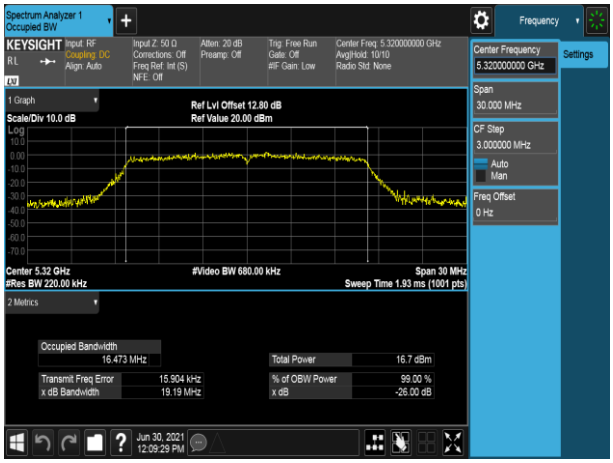
Test Data (99%OBW)

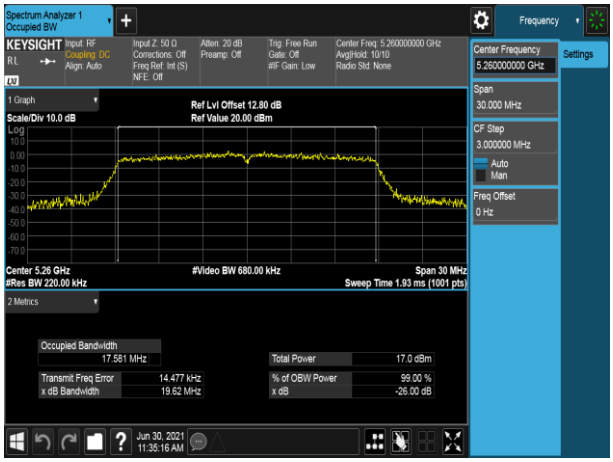
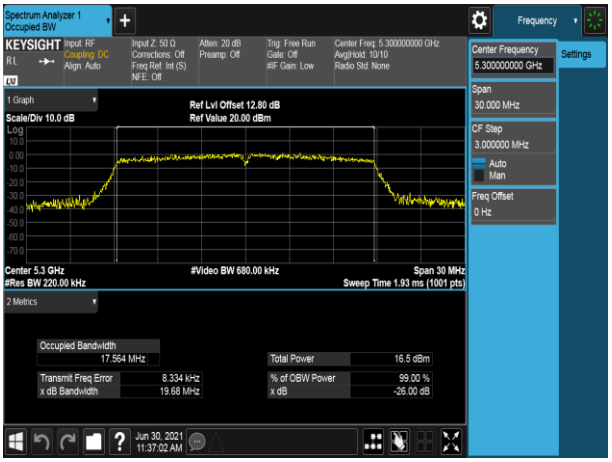
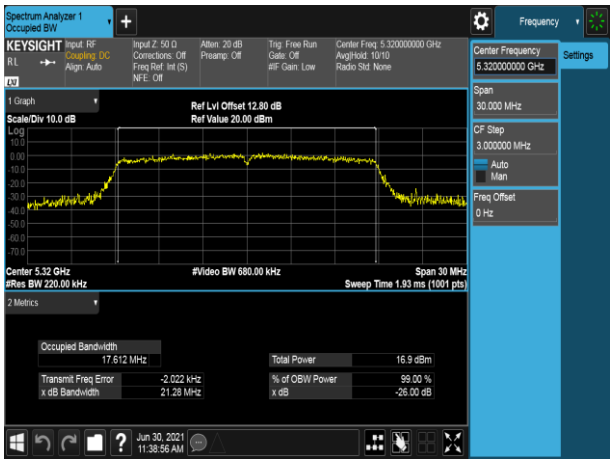
UNII-1 IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

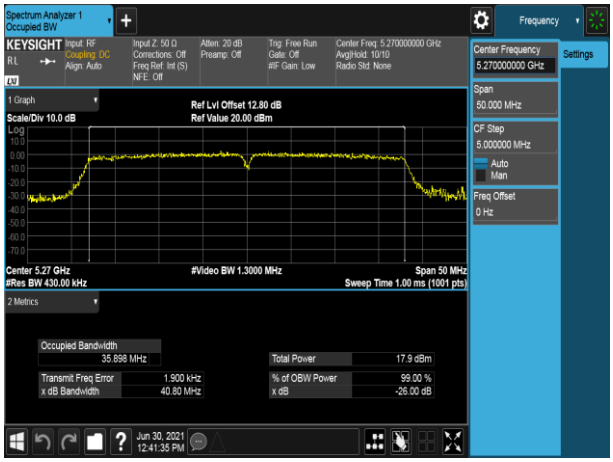
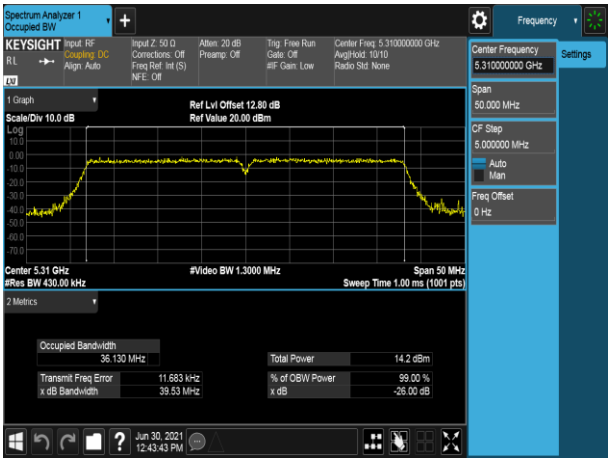
UNII-1 IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-1 IEEE 802.11n HT40 mode- chain 0	
Low CH	**High CH**
	

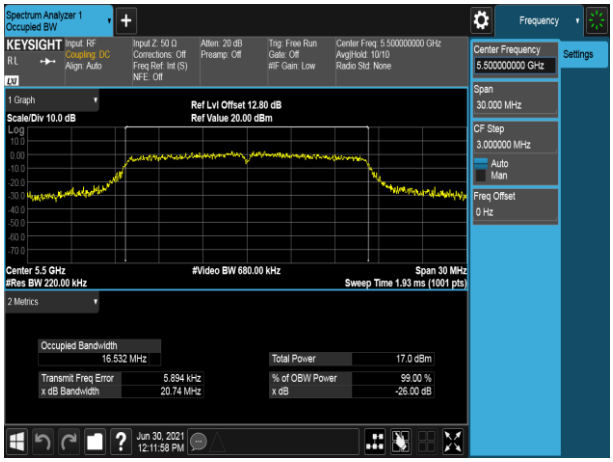
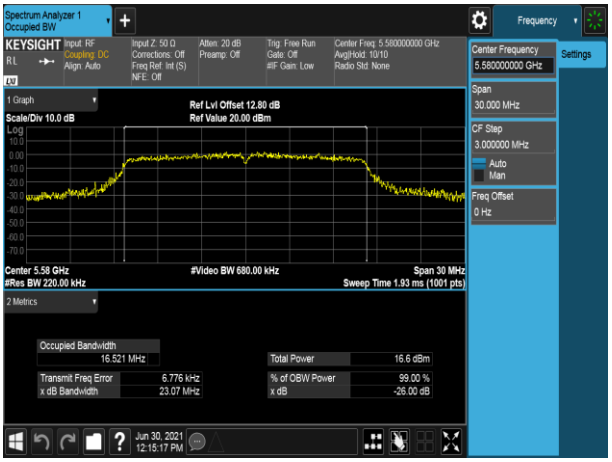
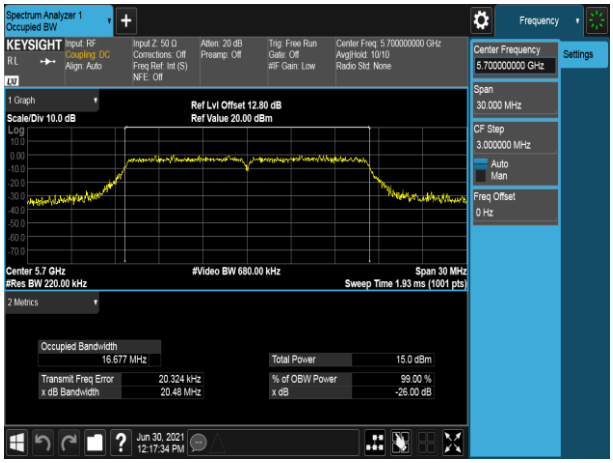
Test Data (99%OBW)

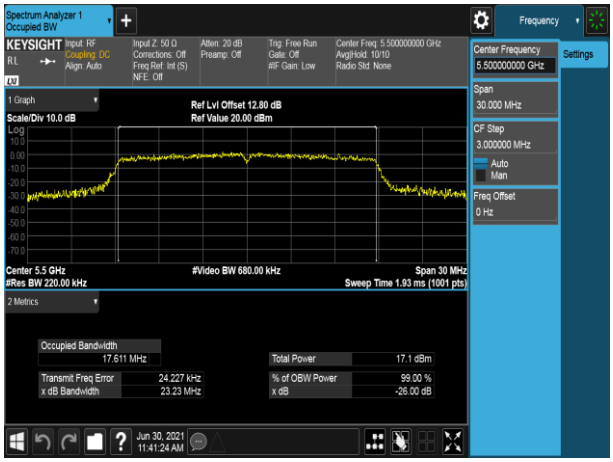
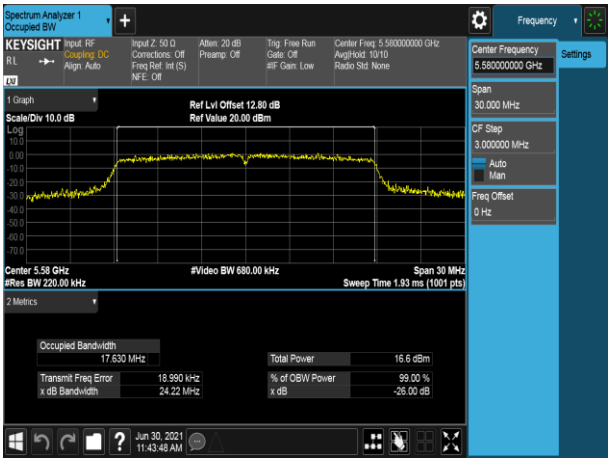
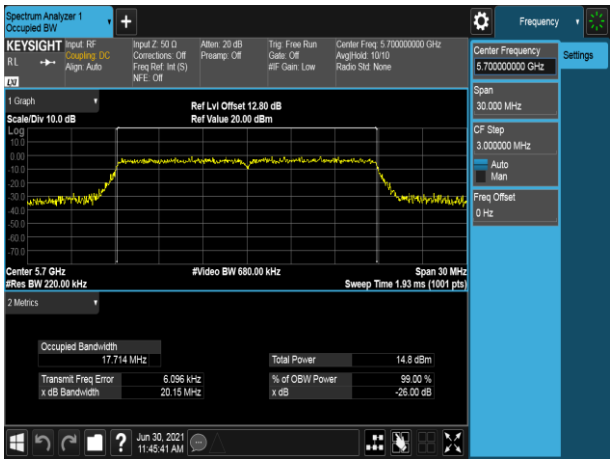
UNII-2a IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

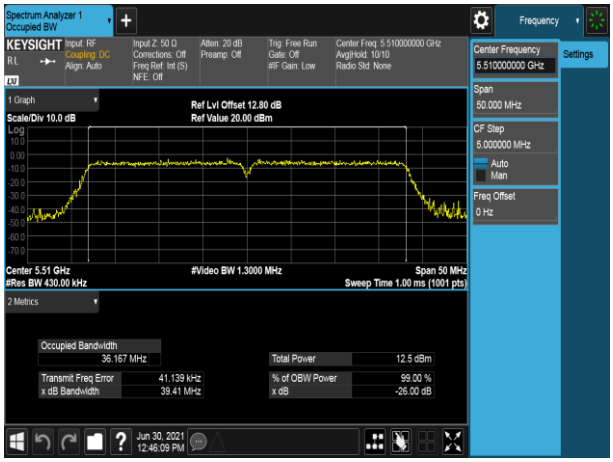
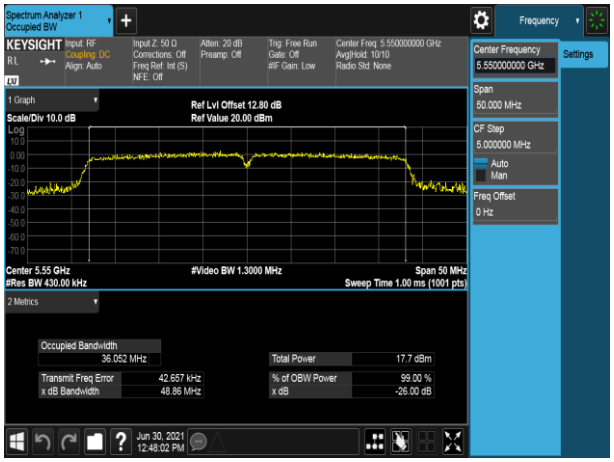
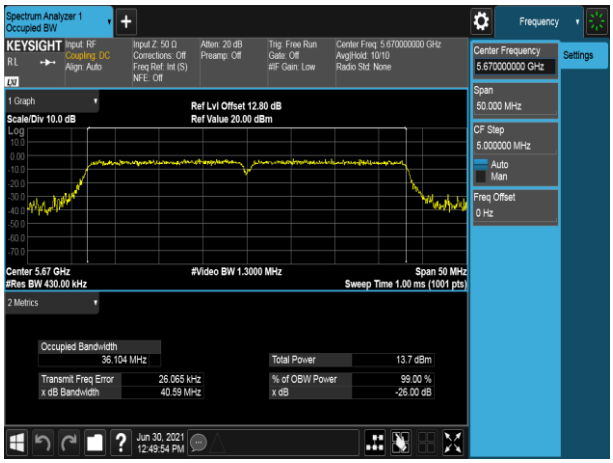
UNII-2a IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-2a IEEE 802.11n HT40 mode- chain 0	
Low CH	**High CH**
	

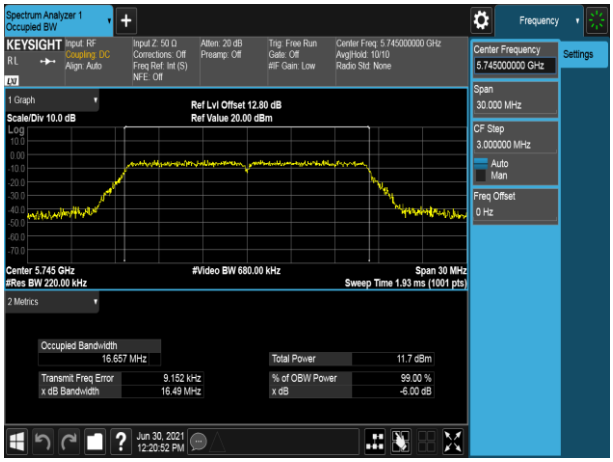
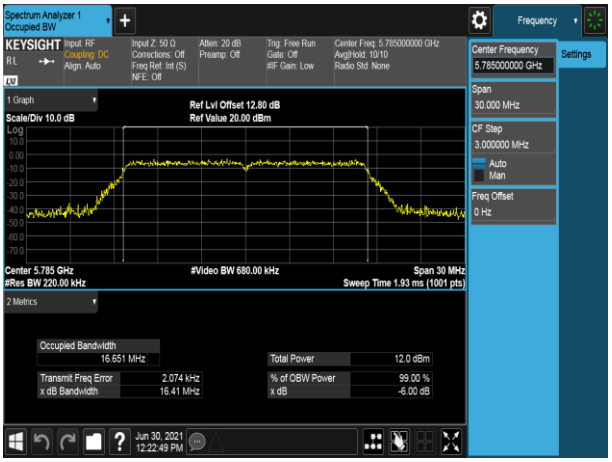
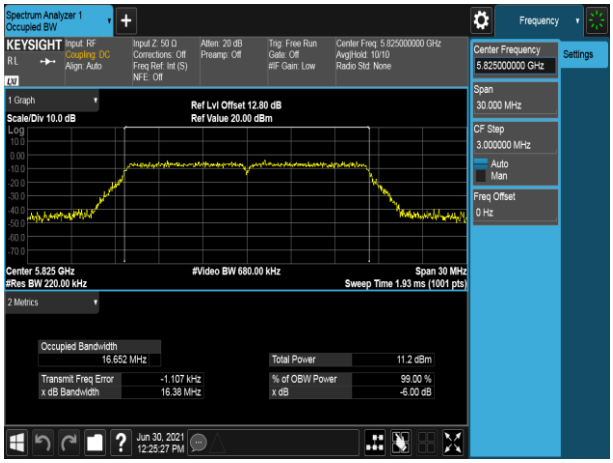
Test Data (99%OBW)

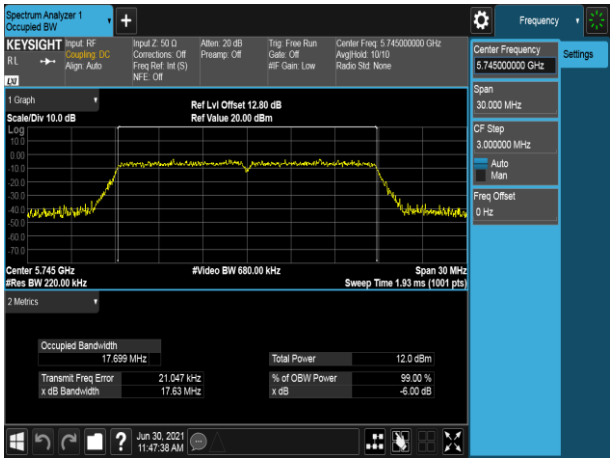
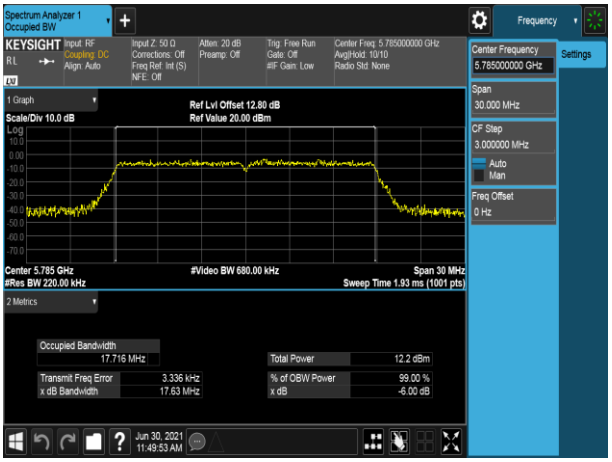
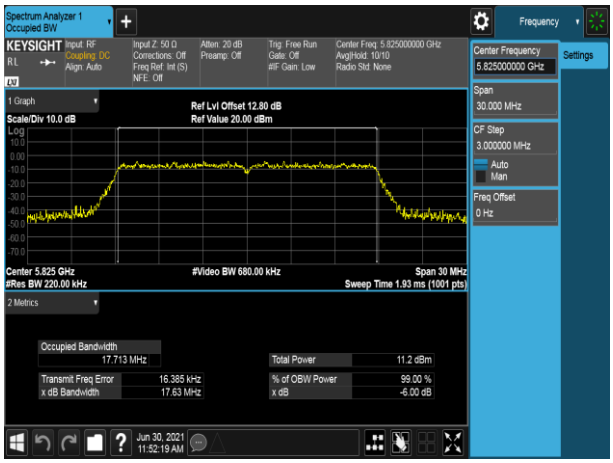
UNII-2c IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

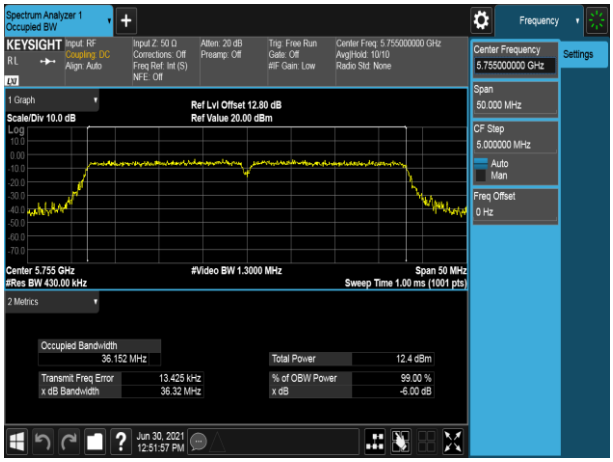
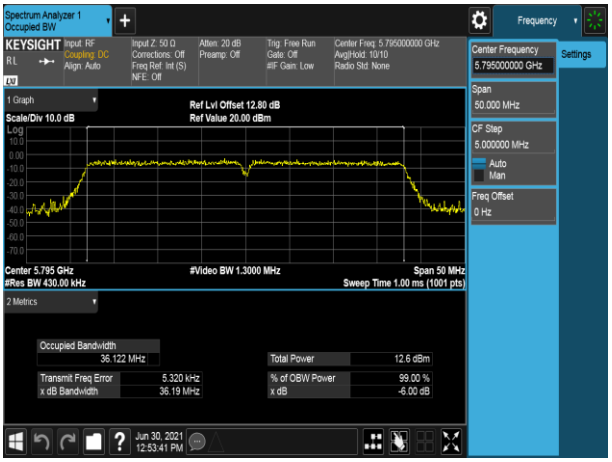
UNII-2c IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-2c IEEE 802.11n HT40 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

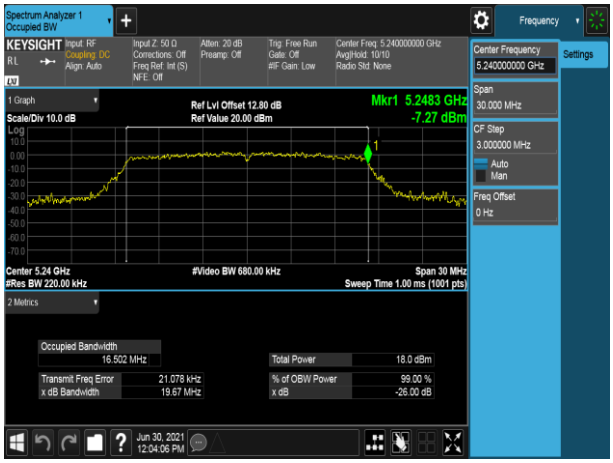
Test Data (99%OBW)

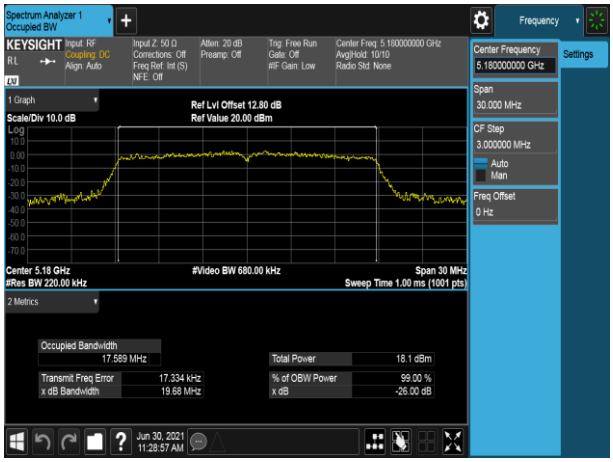
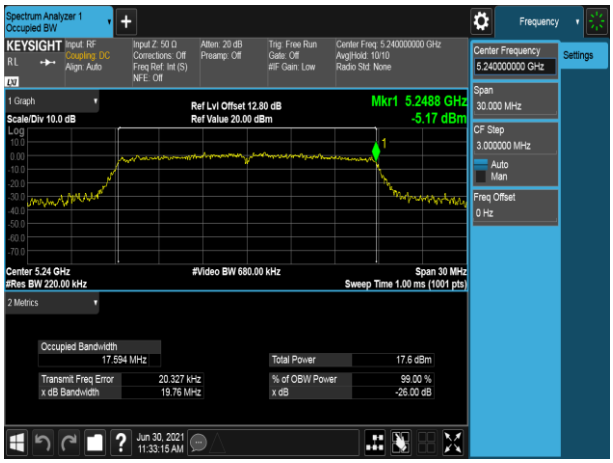
UNII-3 IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

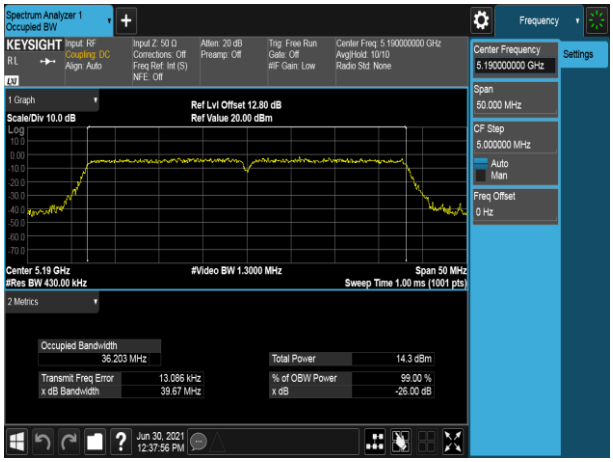
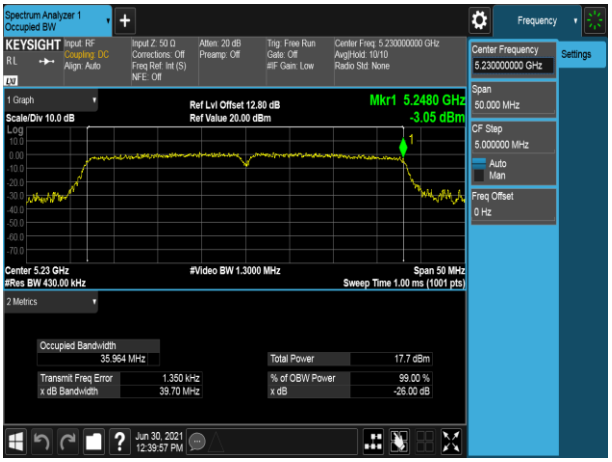
UNII-3 IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-3 IEEE 802.11n HT40 mode- chain 0	
Low CH	**High CH**
	

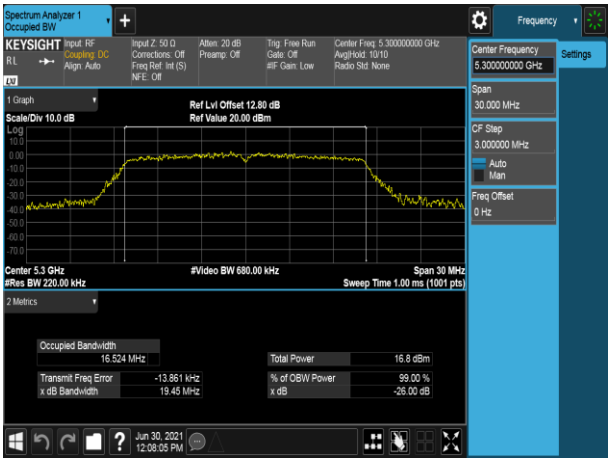
Test Data (26dB Bandwidth)

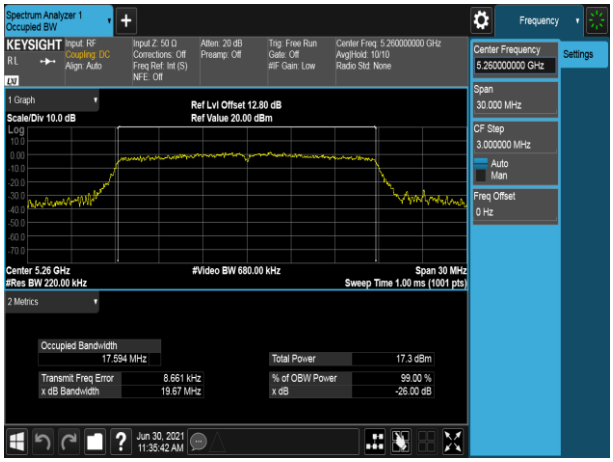
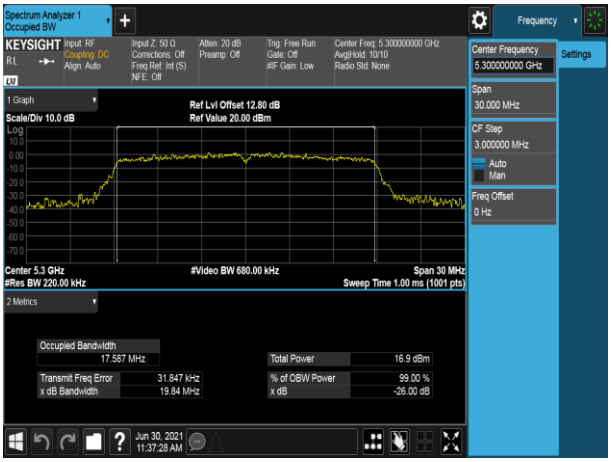
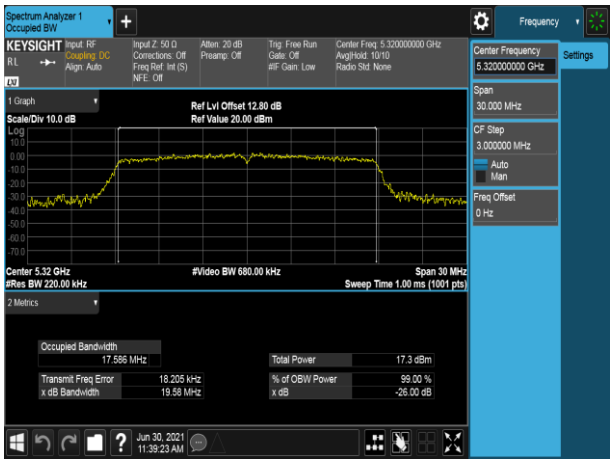
UNII-1 IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

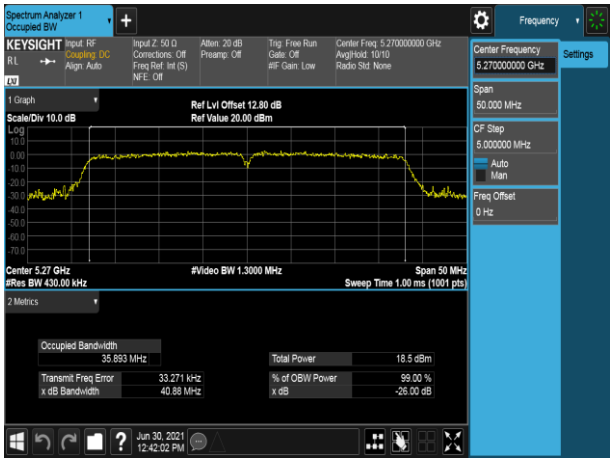
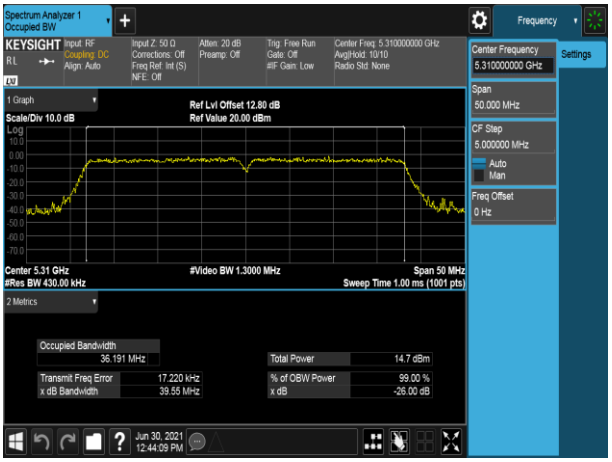
UNII-1 IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-1 IEEE 802.11n HT40 mode- chain 0	
Low CH	**High CH**
	

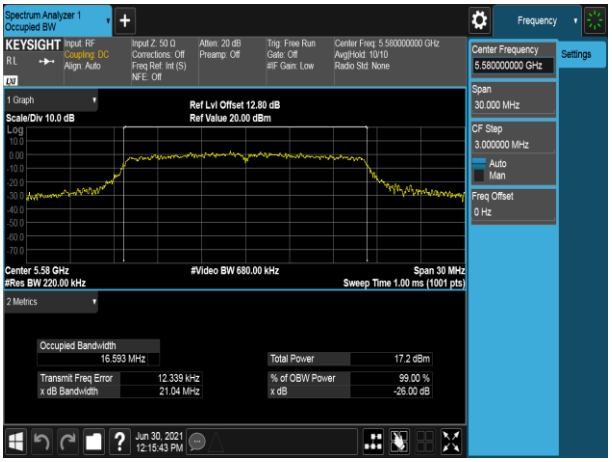
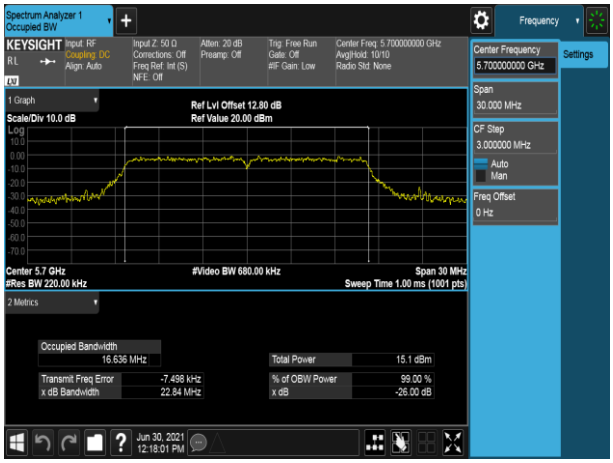
Test Data (26dB Bandwidth)

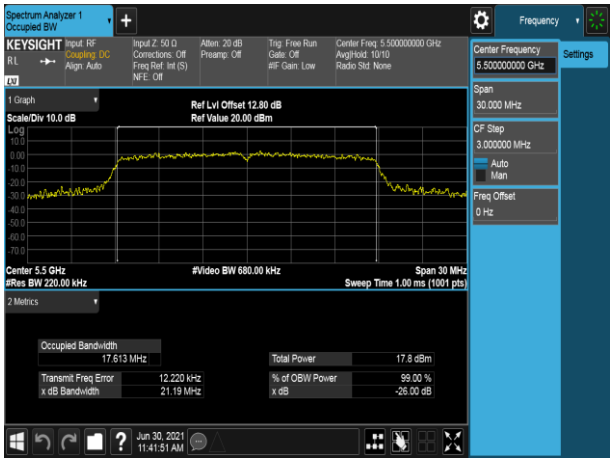
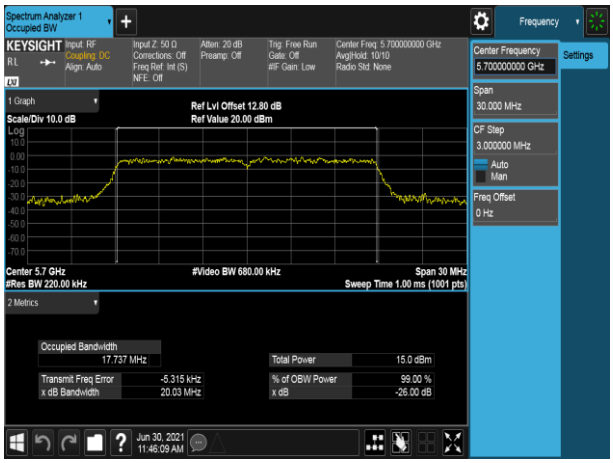
UNII-2a IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

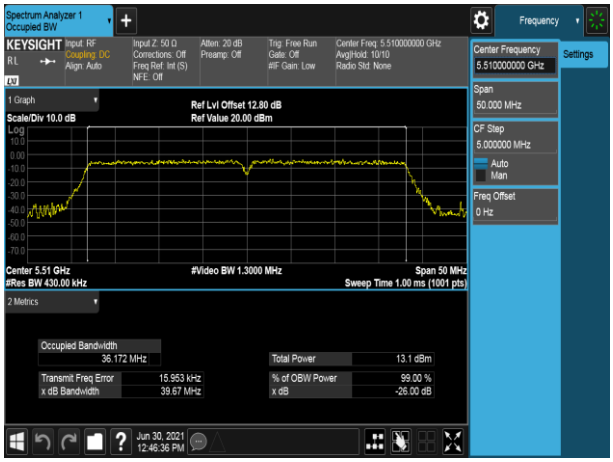
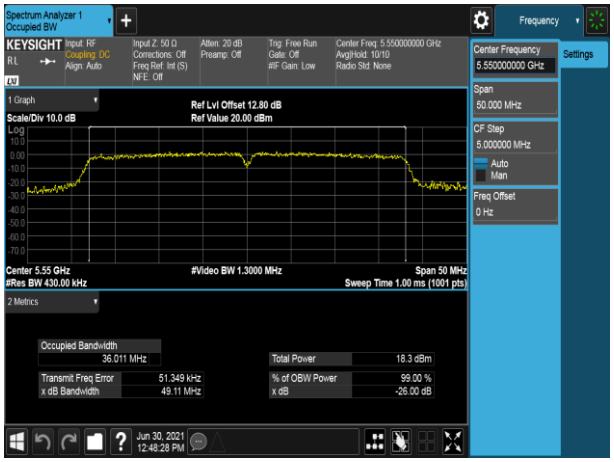
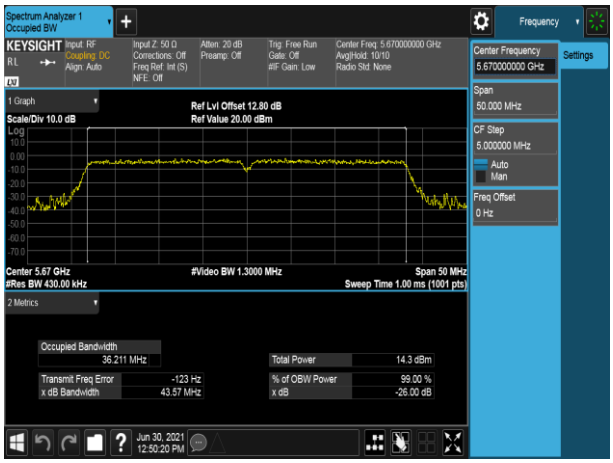
UNII-2a IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-2a IEEE 802.11n HT40 mode- chain 0	
Low CH	**High CH**
	

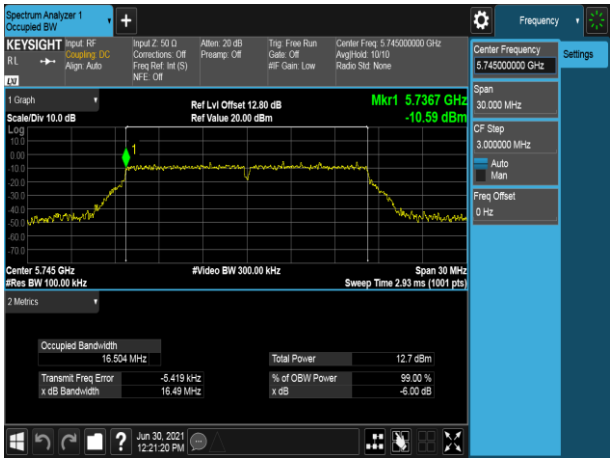
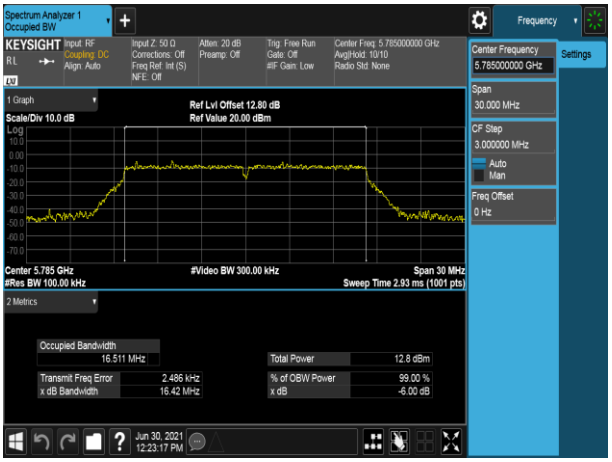
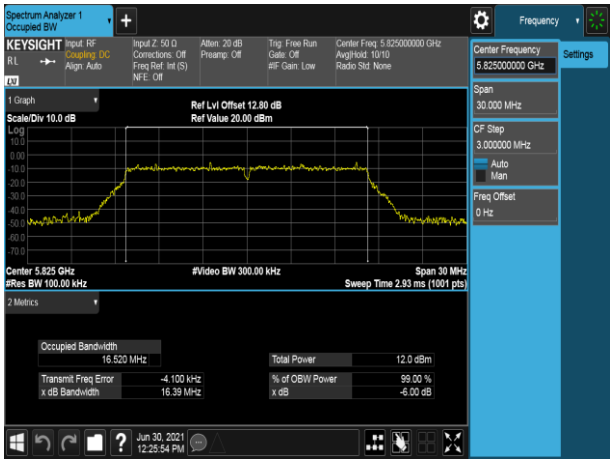
Test Data (26dB Bandwidth)

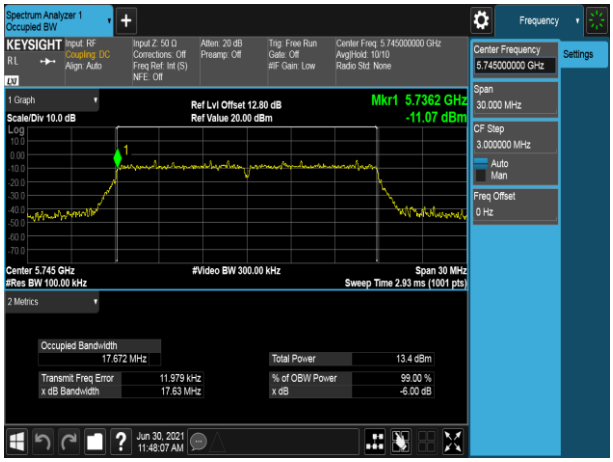
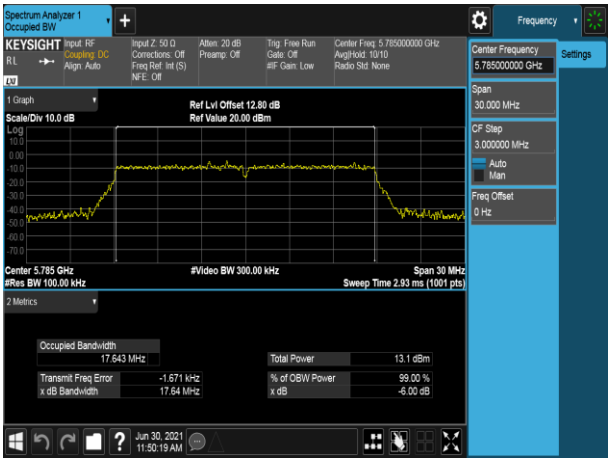
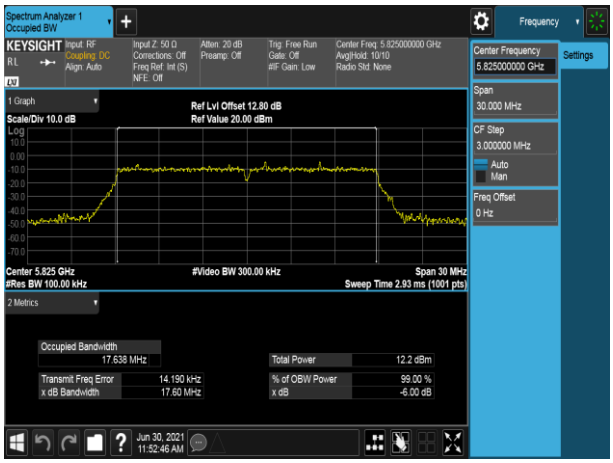
UNII-2c IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

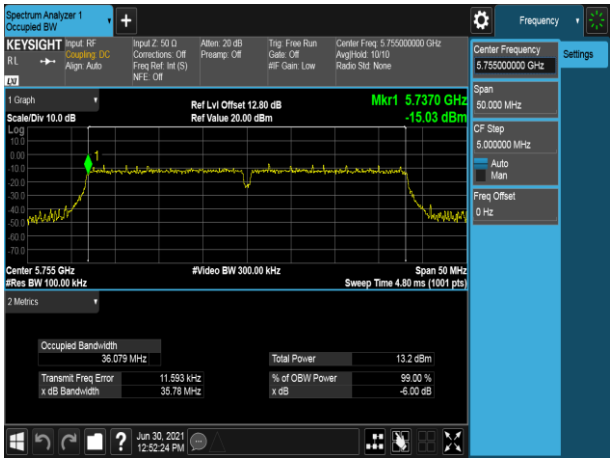
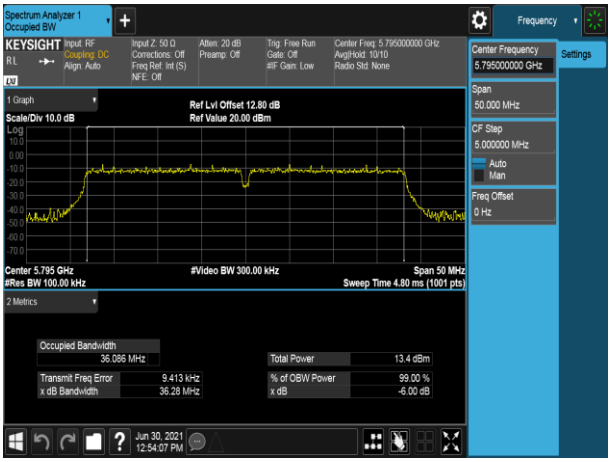
UNII-2c IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-2c IEEE 802.11n HT40 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

Test Data (6dB Bandwidth)

UNII-3 IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-3 IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-3 IEEE 802.11n HT40 mode- chain 0	
Low CH	**High CH**
	

4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.407 (a)(1), 15.407(a)(2) and 15.407(a)(3), and RSS-247 section 6.2.1.1, section 6.2.2.1, section 6.2.3.1 and section 6.2.4.1

FCC:

UNII-1 :

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW(24 dBm), whichever power is less. B is the 99% emission bandwidth in megahertz, provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-2a and 2c:

the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. and The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 Log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC:

UNII-1 :

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 log10B, dBm, whichever is less. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

For other devices, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

UNII-2a and 2c:

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 log10B, dBm, whichever is less. Devices shall implement TPC in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

Devices, other than devices installed in vehicles, shall comply with the following:

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band;

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

UNII-2c (5470-5600 MHz and 5650-5725 MHz)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-1 Limit	☒ Antenna not exceed 6 dBi：24dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 24 – (DG – 6)]
UNII-2a/2c Limit	☒ Antenna not exceed 6 dBi：24dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 24 – (DG – 6)]
UNII-3 Limit	☒ Antenna not exceed 6 dBi：30dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 30 – (DG – 6)]

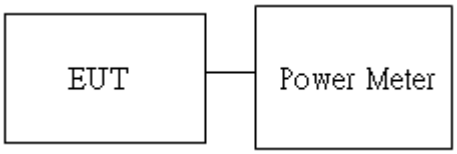
4.3.2 Test Procedure

Test method Refer as KDB 789033 D02, Section E.3.b for BW 20MHz and 40MHz, E.2.b for BW 80MHz.

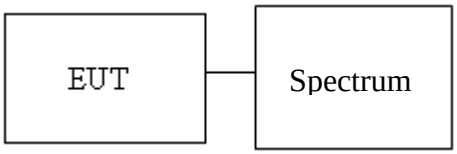
1. The EUT RF output connected to the power meter or spectrum by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Average output power. in the test report.

4.3.3 Test Setup

For BW 20MHz and 40MHz



For BW 80MHz



4.3.4 Test Result

Temperature: 20.2 ~ 25.9℃ **Tested by:** Lance Chen

Humidity: 48 ~ 62% RH **Test date:** June 29 ~ July 5, 2021

FCC Output power

IEEE 802.11a Mode:

CH	Frequency (MHz)	Data Rate	Power set	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	6	17	14.41	27.591	23.98	PASS
44	5220	6	17	**14.45**	27.847	23.98	PASS
48	5240	6	17	13.74	23.647	23.98	PASS
52	5260	6	17	13.46	22.170	23.85	PASS
60	5300	6	17	12.90	19.488	23.89	PASS
64	5320	6	17	**13.75**	23.701	23.89	PASS
100	5500	6	17	**13.24**	21.075	23.98	PASS
116	5580	6	17	13.03	20.080	23.98	PASS
140	5700	6	17	12.22	16.664	23.98	PASS
149	5745	6	17	9.33	8.566	30	PASS
157	5785	6	17	**9.44**	8.786	30	PASS
165	5825	6	17	8.96	7.866	30	PASS

802.11n HT20 Mode:

CH	Frequency (MHz)	Data Rate	Power set	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	MCS0	17	**14.54**	28.460	23.98	PASS
44	5220	MCS0	17	14.37	27.367	23.98	PASS
48	5240	MCS0	17	14.36	27.304	23.98	PASS
52	5260	MCS0	17	13.44	22.092	23.96	PASS
60	5300	MCS0	17	12.92	19.599	23.94	PASS
64	5320	MCS0	17	**13.94**	24.787	23.98	PASS
100	5500	MCS0	17	**13.47**	22.245	23.92	PASS
116	5580	MCS0	17	12.59	18.165	23.98	PASS
140	5700	MCS0	17	12.32	17.070	23.98	PASS
149	5745	MCS0	17	9.37	8.654	30	PASS
157	5785	MCS0	17	**9.49**	8.897	30	PASS
165	5825	MCS0	17	9.07	8.077	30	PASS

802.11n HT40 Mode:

CH	Frequency (MHz)	Data Rate	Power set	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
38	5190	MCS0	17	10.60	11.489	23.98	PASS
46	5230	MCS0	17	**14.20**	26.319	23.98	PASS
54	5270	MCS0	17	**13.71**	23.511	23.98	PASS
62	5310	MCS0	17	10.88	12.254	23.98	PASS
102	5510	MCS0	17	10.12	10.287	23.98	PASS
110	5550	MCS0	17	**13.84**	24.226	23.98	PASS
134	5670	MCS0	17	10.54	11.331	23.98	PASS
151	5755	MCS0	17	9.44	8.796	30	PASS
159	5795	MCS0	17	**9.55**	9.021	30	PASS

IC Output power

IEEE 802.11a Mode:

CH	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
52	5260	13.46	22.170	23.16	PASS
60	5300	12.90	19.488	23.16	PASS
64	5320	**13.75**	**23.701**	23.17	PASS
100	5500	13.24	**21.075**	23.18	PASS
116	5580	13.03	20.080	23.18	PASS
140	5700	12.22	**16.664**	23.22	PASS
149	5745	9.33	8.566	30	PASS
157	5785	9.44	**8.786**	30	PASS
165	5825	8.96	7.866	30	PASS

802.11n HT20 Mode:

CH	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
52	5260	13.44	22.092	23.45	PASS
60	5300	12.92	19.599	23.45	PASS
64	5320	**13.94**	**24.787**	23.46	PASS
100	5500	**13.47**	**22.245**	23.46	PASS
116	5580	12.59	18.165	23.46	PASS
140	5700	**12.32**	**17.070**	23.48	PASS
149	5745	9.37	8.654	30	PASS
157	5785	**9.49**	**8.897**	30	PASS
165	5825	9.07	8.077	30	PASS

802.11n HT40 Mode:

CH	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
54	5270	**13.71**	23.511	23.98	PASS
62	5310	10.88	12.254	23.98	PASS
102	5510	10.12	10.287	23.98	PASS
110	5550	**13.84**	**24.226**	23.98	PASS
134	5670	**10.54**	**11.331**	23.98	PASS
151	5755	9.44	8.796	30	PASS
159	5795	**9.55**	**9.021**	30	PASS

IC EIRP Output power

IEEE 802.11a Mode:

CH	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	14.41	5.09	19.50	89.079	22.16	PASS
44	5220	**14.45**	5.09	**19.54**	**89.903**	22.18	PASS
48	5240	13.74	5.09	18.83	76.344	22.16	PASS
52	5260	13.46	5.09	18.55	71.577	22.16	PASS
60	5300	12.90	5.09	17.99	62.918	22.16	PASS
64	5320	**13.75**	5.09	**18.84**	**76.520**	22.17	PASS
100	5500	**13.24**	3.12	**16.36**	**43.229**	22.18	PASS
116	5580	13.03	3.12	16.15	41.188	22.18	PASS
140	5700	**12.22**	3.12	**15.34**	**34.180**	22.22	PASS

802.11n HT20 Mode:

CH	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	**14.54**	5.09	**19.63**	**91.882**	22.45	PASS
44	5220	14.37	5.09	19.46	88.354	22.44	PASS
48	5240	14.36	5.09	19.45	88.151	22.45	PASS
52	5260	13.44	5.09	18.53	71.323	22.45	PASS
60	5300	12.92	5.09	18.01	63.274	22.45	PASS
64	5320	**13.94**	5.09	**19.03**	**80.025**	22.46	PASS
100	5500	**13.47**	3.12	**16.59**	**45.628**	22.46	PASS
116	5580	12.59	3.12	15.71	37.259	22.46	PASS
140	5700	**12.32**	3.12	**15.44**	**35.013**	22.48	PASS

802.11n HT40 Mode:

CH	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	REQUIRED LIMIT (dBm)	RESULT
38	5190	10.60	5.09	15.69	37.092	23.01	PASS
46	5230	**14.20**	5.09	**19.29**	**84.972**	23.01	PASS
54	5270	**13.71**	5.09	**18.80**	**75.906**	25.55	PASS
62	5310	10.88	5.09	15.97	39.562	25.58	PASS
102	5510	10.12	3.12	13.24	21.100	25.58	PASS
110	5550	**13.84**	3.12	**16.96**	**49.691**	25.57	PASS
134	5670	**10.54**	3.12	**13.66**	**23.242**	25.58	PASS

4.4 POWER SPECTRAL DENSITY

4.4.1 Test Limit

According to §15.407 (a)(1), 15.407(a)(2) and 15.407(a)(3)

According to RSS-247 section 6.2.1.1, section 6.2.2.1, section 6.2.3.1 and section 6.2.4.1

UNII-1:

FCC: The maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

IC: The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-2a and 2c:

The maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

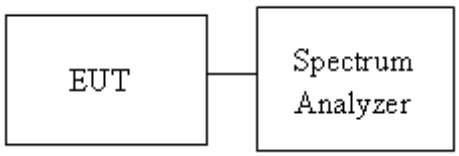
UNII-1 Limit	☒ Antenna not exceed 6 dBi：11 dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 11 – (DG – 6)]
UNII-2a Limit	☒ Antenna not exceed 6 dBi：11 dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 11 – (DG – 6)]
UNII-2c Limit	☒ Antenna not exceed 6 dBi：11 dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 11 – (DG – 6)]
UNII-3 Limit	☒ Antenna not exceed 6 dBi：30 dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 30 – (DG – 6)]

4.4.2 Test Procedure

Test method Refer as KDB 789033 D02

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. UNII-1, UNII-2a and UNII-2c, SA set RBW = 1MHz, VBW = 3MHz and Detector = RMS, to measurement Power Density.
4. UNII-3, SA set RBW = 500kHz, VBW = 2MHz and Detector = RMS, to measurement Power Density
5. The path loss and Duty Factor were compensated to the results for each measurement by SA.
6. Mark the maximum level.
7. Measure and record the result of power spectral density. in the test report.

4.4.3 Test Setup



4.4.4 Test Result

Temperature:	20.2 ~ 25.9℃	**Tested by:**	Lance Chen
Humidity:	48 ~ 62% RH	**Test date:**	June 30 ~ July 5, 2021

IEEE 802.11a Mode:

Frequency (MHz)	ch0 meas PSD (dBm/MHz)	Duty Factor (dB)	Maxmum Corr'd PSD (dBm/MHz)		Limit (dBm/MHz)	Margin (dB)
5180	2.89	0.00	2.89		11.00	-8.11
5220	2.41	0.00	2.41		11.00	-8.59
5240	2.86	0.00	2.86		11.00	-8.14
5260	1.36	0.00	1.36		11.00	-9.64
5300	1.27	0.00	1.27		11.00	-9.73
5320	1.90	0.00	1.90		11.00	-9.10
5500	2.17	0.00	2.17		11.00	-8.83
5580	1.80	0.00	1.80		11.00	-9.20
5700	0.95	0.00	0.95		11.00	-10.05
Frequency (MHz)	**ch0 meas PSD (dBm/300kHz)**	**Duty Factor (dB)**	**10log (500kHz/RBW)**	**Maxmum Corr'd PSD (dBm/500kHz)**	**Limit (dBm/500kHz)**	**Margin (dB)**
5745	-6.13	0.00	2.22	-3.91	30.00	-33.91
5785	-6.58	0.00	2.22	-4.36	30.00	-34.36
5825	-7.13	0.00	2.22	-4.91	30.00	-34.91

EIRP spectral density 802.11a MODE					
Freq. (MHz)	**PSD (dBm)**	**Ant. Gain (dBi)**	**EIRP PSD (dBm)**	**Limit (dBm)**	**Margin (dB)**
5180	2.89	5.09	7.98	10	-2.02
5220	2.41	5.09	7.50	10	-2.50
5240	2.86	5.09	7.95	10	-2.05