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**
Product name	**Communication Module**
Brand Name	**muRata**
Model No.	**LBEE5QD1ZM**
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	December 11, 2020	Initial Issue	ALL	Mita Wu
01	January 7, 2021	See the following Note Rev.(01)	ALL	Allison Chen

Note:
Rev.(01)
1. This test report is an addendum to the original test report T200915W04-RP4, the EUTs represent the original and this test report are assessed as identical in hardware and software, measurement results in the original report are fully leveraged in this test report without further verification test.

Table of contents

1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	Murata Manufacturing Co., Ltd. 1-10-1, Higashikotari, Nagaokakyo-shi, Kyoto 617-8555 Japan
Manufacturer	Murata Manufacturing Co., Ltd. 1-10-1, Higashikotari, Nagaokakyo-shi, Kyoto 617-8555 Japan
Equipment	Communication Module
Model No.	LBEE5QD1ZM
Model Discrepancy	N/A
Trade Name	muRata
Received Date	September 15, 2020
Date of Test	September 24 ~ October 22, 2020
Power Supply	Power from Power supply.
HW Version	1.0
SW Version	1.0
EUT Serial #	Conducted：NO.1 Radiated：NO.12

Remark:
1. For more details, please refer to the User's manual and Operation description 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

<table>
<tr><td>Frequency Range</td><td>
<table>
<tr><td colspan="2">UNII-1</td></tr>
<tr><td>IEEE 802.11a</td><td>5180 ~ 5240 MHz</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5180 ~ 5240 MHz</td></tr>
<tr><td>IEEE 802.11n HT 40 MHz</td><td>5190 ~ 5230 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 20 MHz</td><td>5180 ~ 5240 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 40 MHz</td><td>5190 ~ 5230 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5210 MHz</td></tr>
<tr><td colspan="2">UNII-2a</td></tr>
<tr><td>IEEE 802.11a</td><td>5260 ~ 5320 MHz</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5260 ~ 5320 MHz</td></tr>
<tr><td>IEEE 802.11n HT 40 MHz</td><td>5270 ~ 5310 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 20 MHz</td><td>5260 ~ 5320 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 40 MHz</td><td>5270 ~ 5310 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5290 MHz</td></tr>
<tr><td colspan="2">UNII-2c</td></tr>
<tr><td>IEEE 802.11a</td><td>5500 ~ 5720 MHz</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5500 ~ 5720 MHz</td></tr>
<tr><td>IEEE 802.11n HT 40 MHz</td><td>5510 ~ 5710 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 20 MHz</td><td>5500 ~ 5720 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 40 MHz</td><td>5510 ~ 5710 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5530, 5610, 5690 MHz</td></tr>
<tr><td colspan="2">UNII-3</td></tr>
<tr><td>IEEE 802.11a</td><td>5745 ~ 5825 MHz</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5745 ~ 5825 MHz</td></tr>
<tr><td>IEEE 802.11n HT 40 MHz</td><td>5755 ~ 5795 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 20 MHz</td><td>5745 ~ 5825 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 40 MHz</td><td>5755 ~ 5795 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5775 MHz</td></tr>
</table>
</td></tr>
<tr><td>Modulation Type</td><td>1. IEEE 802.11a mode: OFDM
2. IEEE 802.11n HT 20 MHz mode: OFDM
3. IEEE 802.11n HT 40 MHz mode: OFDM
4. IEEE 802.11ac VHT 20 MHz mode: OFDM
5. IEEE 802.11ac VHT 40 MHz mode: OFDM
6. IEEE 802.11ac VHT 80 MHz mode: OFDM</td></tr>
</table>

Remark:
1. Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 for test channels.
2. For Canada the EUT Frequency Range 5600~5720MHz will be disabled.

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 Specification

No	Maker	P/N	Ant. Type	Gain (dBi)
1	Molex	146153	dipole	4.25
2	Molex	146187	dipole	4.75
3	Murata	LBEE5QD1ZM-Antenna	Monopole (PCB)	4.6

Antenna Connector

No	Maker	P/N	Connector
1	Molex	146153	u.FL
2	Molex	146187	u.FL
3	Murata	LBEE5QD1ZM-Antenna	N/A

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~200M	+/- 4.12
3M Semi Anechoic Chamber / 200M~1000M	+/- 4.68
3M Semi Anechoic Chamber / 1G~8G	+/- 5.18
3M Semi Anechoic Chamber / 8G~18G	+/- 5.47
3M Semi Anechoic Chamber / 18G~26G	+/- 3.81
3M Semi Anechoic Chamber / 26G~40G	+/- 3.87

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.)

Test site	Test Engineer	Remark
AC Conduction Room	-	Not applicable, because EUT doesn't connect to AC Main Source direct.
Radiation	Jerry Chang	-
RF Conducted	Rick Lee	-

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**	**Serial Number**	**Cal Date**	**Cal Due**
Band Reject Filters	MICRO TRONICS	BRM 50702	120	02/25/2020	02/24/2021
Bilog Antenna	Sunol Sciences	JB3	A030105	07/24/2020	07/23/2021
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/25/2020	02/24/2021
Coaxial Cable	EMCI	EMC105	190914+25111	09/19/2020	09/19/2021
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	01/15/2020	01/14/2021
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	10/04/2019	10/03/2020
Loop Ant	COM-POWER	AL-130	121051	03/27/2020	03/26/2021
Pre-Amplifier	EMEC	EM330	060609	02/25/2020	02/24/2021
Pre-Amplifier	HP	8449B	3008A00965	02/25/2020	02/24/2021
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 6.11-20180413				

RF Conducted Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Coaxial Cable	Woken	WC12	CC003	06/29/2020	06/28/2021
Signal Analyzer	R&S	FSV 40	101073	09/17/2020	09/16/2021
EXA Signal Analyzer	KEYSIGHT	N9010B	MY55460167	09/07/2020	09/06/2021
Power Meter	Anritsu	ML2487A	6K00003260	05/21/2020	05/20/2021
Power Seneor	Anritsu	MA2490A	032910	05/21/2020	05/20/2021
Software	N/A				

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	DC Power Source	Agilent	E3640A	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	-	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
15.407(g)	RSS-Gen(6.11)	4.6	Frequency Stability	Pass
15.407(h)	-	4.7	Dynamic Frequency Selection	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
4. IEEE 802.11ac VHT20 MHz mode: MCS0
5. IEEE 802.11ac VHT40 MHz mode: MCS0
6. IEEE 802.11ac VHT 80 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="6">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>IEEE 802.11ac VHT 20 MHz</td><td>5180, 5220, 5240</td></tr>
<tr><td>IEEE 802.11ac VHT 40 MHz</td><td>5190, 5230</td></tr>
<tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5210</td></tr>
<tr><td rowspan="6">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>IEEE 802.11ac VHT 20 MHz</td><td>5260, 5280, 5320</td></tr>
<tr><td>IEEE 802.11ac VHT 40 MHz</td><td>5270, 5310</td></tr>
<tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5290</td></tr>
<tr><td rowspan="6">U-NII-2c</td><td>IEEE 802.11a</td><td>5500, 5580, 5700, 5720</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5500, 5580, 5700, 5720</td></tr>
<tr><td>IEEE 802.11n HT 40 MHz</td><td>5510, 5550, 5670,5710</td></tr>
<tr><td>IEEE 802.11ac VHT 20 MHz</td><td>5500, 5580, 5700, 5720</td></tr>
<tr><td>IEEE 802.11ac VHT 40 MHz</td><td>5510, 5550, 5670, 5710</td></tr>
<tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5530, 5610, 5690</td></tr>
<tr><td rowspan="6">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>
<tr><td>IEEE 802.11ac VHT 20 MHz</td><td>5745, 5785, 5825</td></tr>
<tr><td>IEEE 802.11ac VHT 40 MHz</td><td>5755, 5795</td></tr>
<tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5775</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. The mode IEEE 802.11ac VHT20 and VHT40 MHz are only different in control messages with IEEE 802.11n HT20 and HT40 MHz, and have same power setting. Therefore, the highest power(IEEE 802.11n HT20 and HT40 MHz) were test conducted and radiated measurement and recorded in this report.
3. For Canada the EUT Frequency Range 5600~5720MHz will be disabled.

3.2 THE WORST MODE OF MEASUREMENT

PCB Test mode

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) ☐ Placed in fixed position at Z-Plane (H-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 three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(X-Plane) were recorded in this report.

Dipole Test mode

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) ☐ Placed in fixed position at Z-Plane (H-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

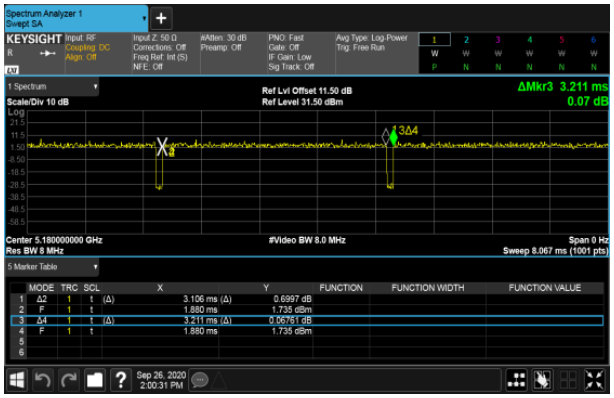
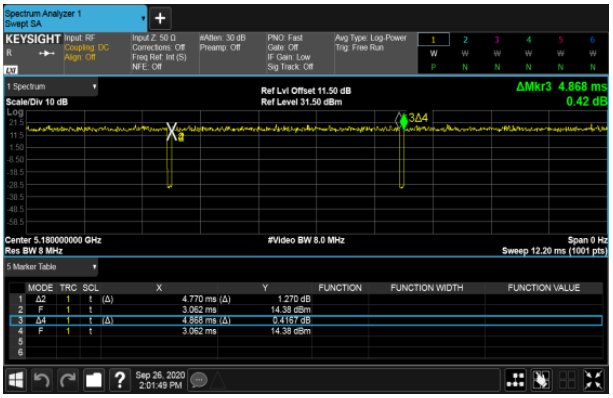
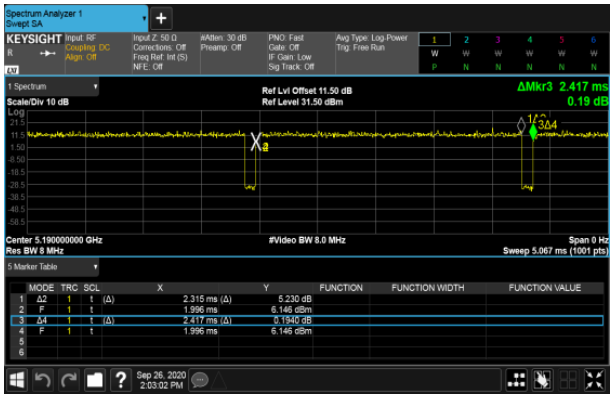
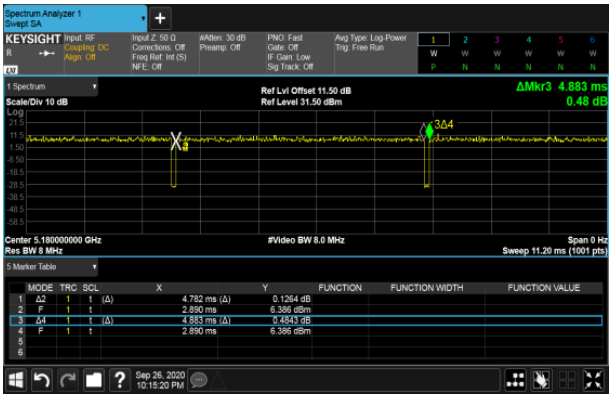
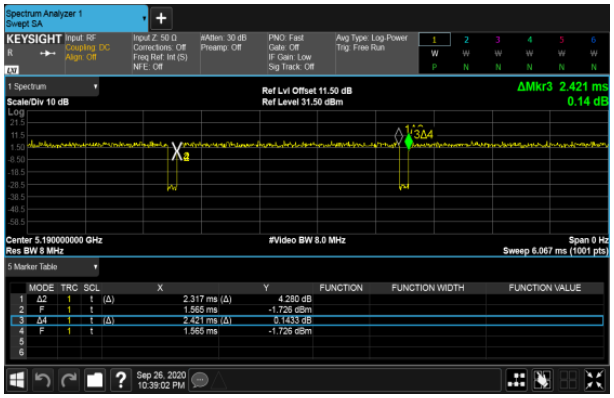
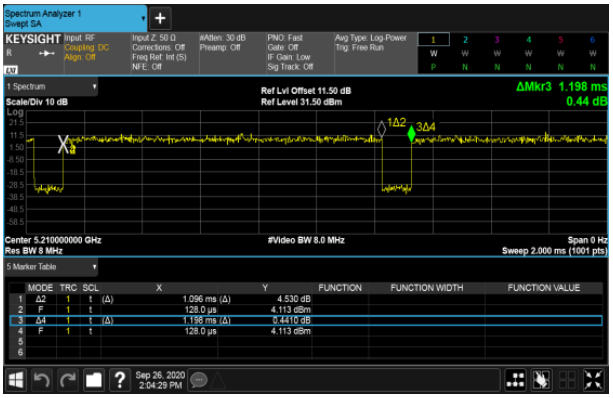
Remark:
1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(Y-Plane) were recorded in this report.

3.3 EUT DUTY CYCLE

Temperature: 23.4℃ **Humidity:** 55.5% RH

Tested by: Rick Lee **Test date:** September 26, 2020

Duty Cycle				
Configuration	Duty Cycle (%)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11a	96.73	0.14	0.32	1.00
802.11n HT20	97.63	0.10	0.21	1.00
802.11n HT40	95.78	0.19	0.43	1.00
802.11ac VHT20	97.93	0.09	0.21	1.00
802.11ac VHT40	95.70	0.19	0.43	1.00
802.11ac VHT80	91.49	0.39	0.91	1.00

802.11a	802.11n HT20
	
802.11n HT40	**802.11ac VHT20**
	
802.11ac VHT40	**802.11ac VHT80**
	

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

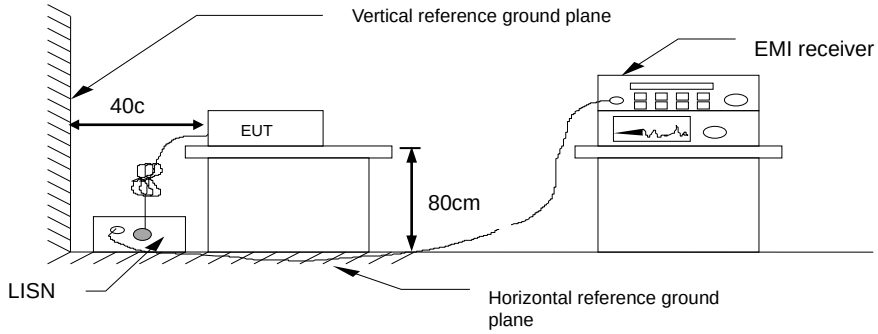
* Decreases with the logarithm of the frequency.

4.1.2 Test Procedure

Test method Refer as ANSI C63.10: 2013 clause 6.2,

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.

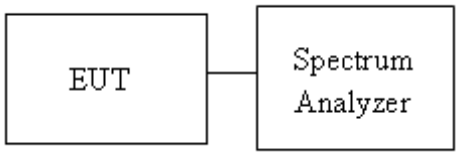
7. Allow the trace to stabilize.

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:	24.1℃	**Humidity:**	56.1% RH
Tested by:	Rick Lee	**Test date:**	September 25, 2020
Temperature:	23.4℃	**Humidity:**	55.5% RH
Tested by:	Rick Lee	**Test date:**	September 26, 2020
Temperature:	23.6℃	**Humidity:**	55.2% RH
Tested by:	Rick Lee	**Test date:**	October 7, 2020

UNII-1 5150-5250 MHz			
Test mode: IEEE 802.11a mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5180	16.617	19.63
Mid	5220	16.643	19.61
High	5240	16.608	19.73
Test mode: IEEE 802.11n HT20 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5180	17.634	20.07
Mid	5220	17.643	20.06
High	5240	17.648	20.08
Test mode: IEEE 802.11n HT40 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5190	36.214	41.02
High	5230	36.183	40.40
Test mode: IEEE 802.11ac VHT20 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5180	17.652	20.05
Mid	5220	17.660	20.14
High	5240	17.671	19.93
Test mode: IEEE 802.11ac VHT40 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5190	36.165	40.59
High	5230	36.207	40.81
Test mode: IEEE 802.11ac VHT80 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5210	76.002	81.40

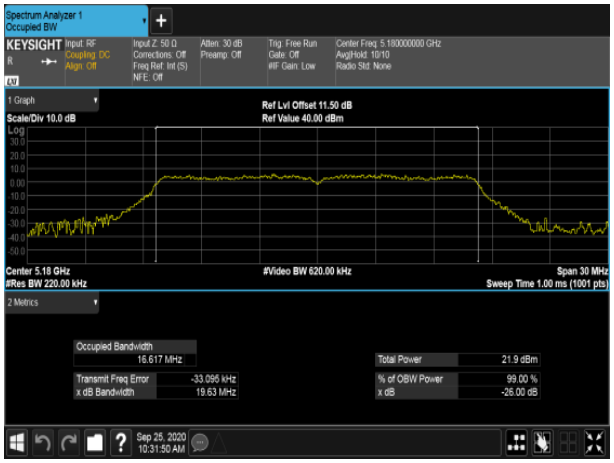
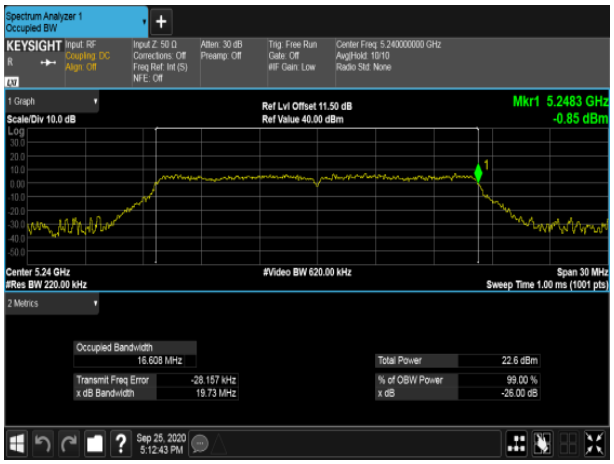
UNII-2a 5250-5350 MHz			
Test mode: IEEE 802.11a mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5260	16.612	19.58
Mid	5280	16.470	19.00
High	5320	16.643	19.61
Test mode: IEEE 802.11n HT20 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5260	17.645	20.32
Mid	5280	17.724	20.35
High	5320	17.651	19.95
Test mode: IEEE 802.11n HT40 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5270	36.212	40.90
High	5310	36.188	40.88
Test mode: IEEE 802.11ac VHT20 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5260	17.657	19.95
Mid	5280	17.607	19.36
High	5320	17.665	20.13
Test mode: IEEE 802.11ac VHT40 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5270	36.199	40.76
High	5310	36.164	40.23
Test mode: IEEE 802.11ac VHT80 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5290	75.918	81.21

UNII-2c 5475-5725 MHz			
Test mode: IEEE 802.11a mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5500	16.560	19.37
Mid	5580	16.639	19.55
High	5700	16.654	19.48
144	5720	16.437	18.69
Test mode: IEEE 802.11n HT20 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5500	17.709	20.11
Mid	5580	17.645	20.19
High	5700	17.650	20.13
144	5720	17.606	19.11
Test mode: IEEE 802.11n HT40 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5510	36.212	40.25
Mid	5550	36.220	40.32
High	5670	36.221	40.73
142	5710	36.108	38.52

Test mode: IEEE 802.11ac VHT20 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5500	17.656	19.95
Mid	5580	17.670	19.98
High	5700	17.647	20.00
144	5720	17.607	18.97
Test mode: IEEE 802.11ac VHT40 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5510	36.220	40.83
Mid	5550	36.264	40.63
High	5670	36.210	40.31
142	5710	36.156	39.72
Test mode: IEEE 802.11ac VHT80 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5530	75.877	84.11
High	5610	76.025	92.24
138	5690	75.939	81.71

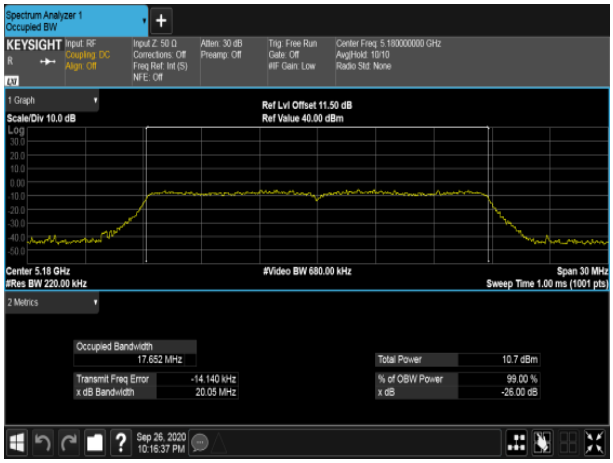
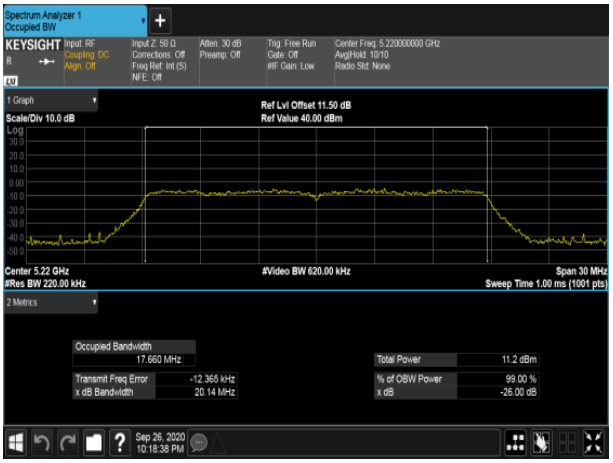
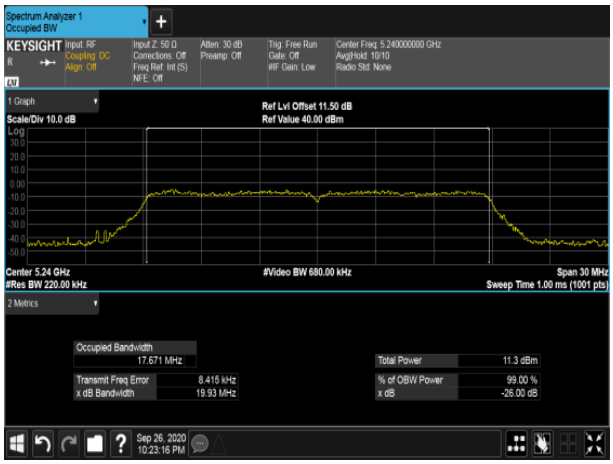
UNII-3 5725-5825MHz			
Test mode: IEEE 802.11a mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**6dB BW (MHz)**
Low	5745	16.490	16.43
Mid	5785	16.499	16.38
High	5825	16.472	16.50
Test mode: IEEE 802.11n HT20 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**6dB BW (MHz)**
Low	5745	17.617	17.61
Mid	5785	17.604	17.59
High	5825	17.619	17.64
Test mode: IEEE 802.11n HT40 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**6dB BW (MHz)**
Low	5755	36.116	35.54
High	5795	36.068	36.14
Test mode: IEEE 802.11ac VHT80 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**6dB BW (MHz)**
Low	5775	75.709	76.33

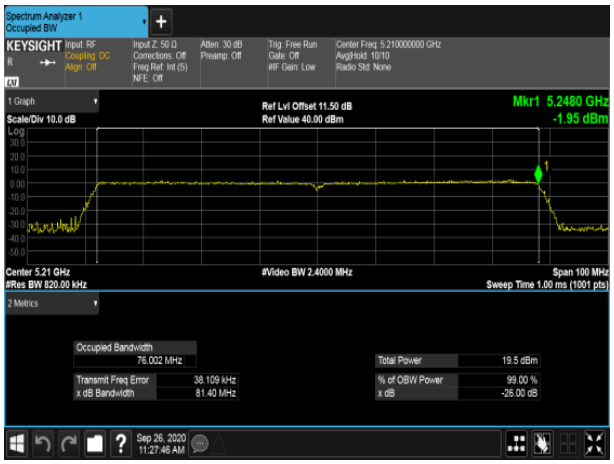
Test Data (26dB BANDWIDTH and 99% OBW)

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

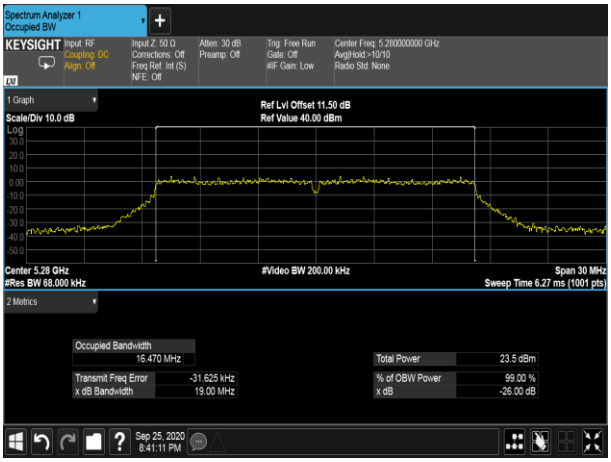
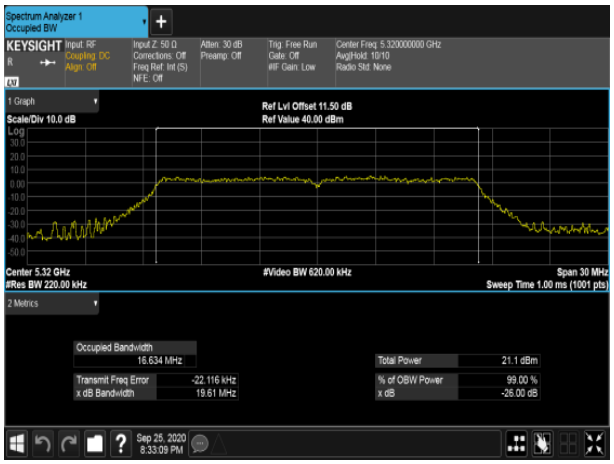
UNII-1 IEEE 802.11n HT20 mode	
Low CH	**Mid CH**
	
High CH	
	

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

UNII-1 IEEE 802.11ac VHT20 mode	
Low CH	**Mid CH**
	
High CH	
	

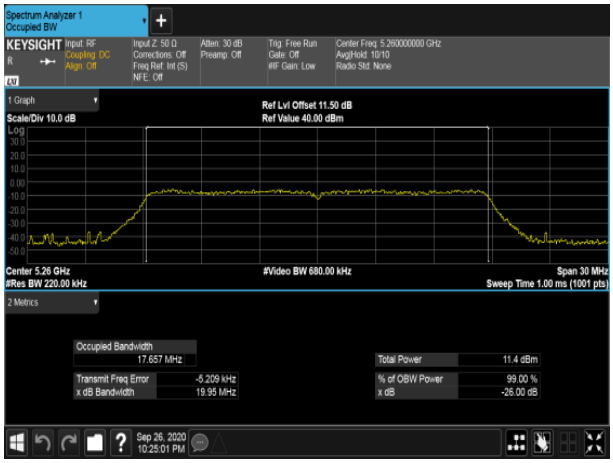
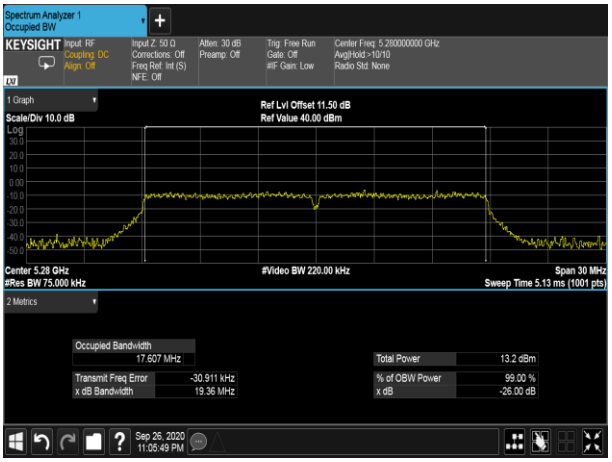
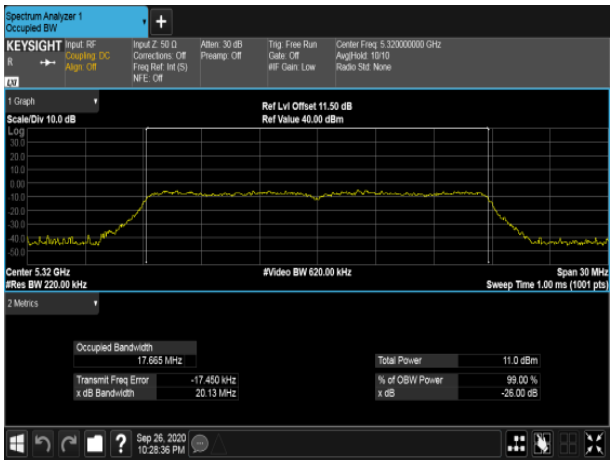
UNII-1 IEEE 802.11ac VHT40 mode	
Low CH	**High CH**
	
UNII-1 IEEE 802.11ac VHT80 mode	
Low CH	
	

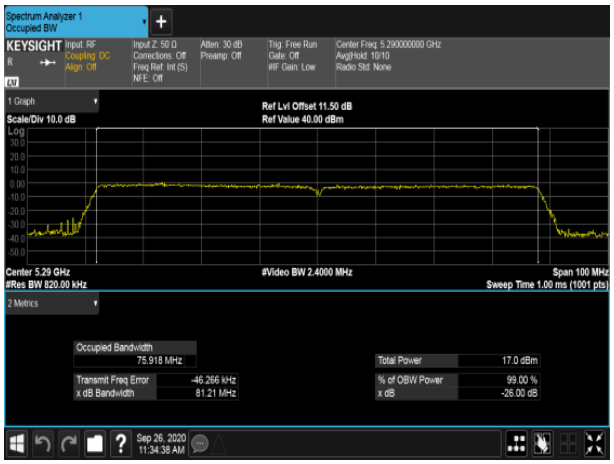
Test Data (26dB BANDWIDTH and 99% OBW)

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

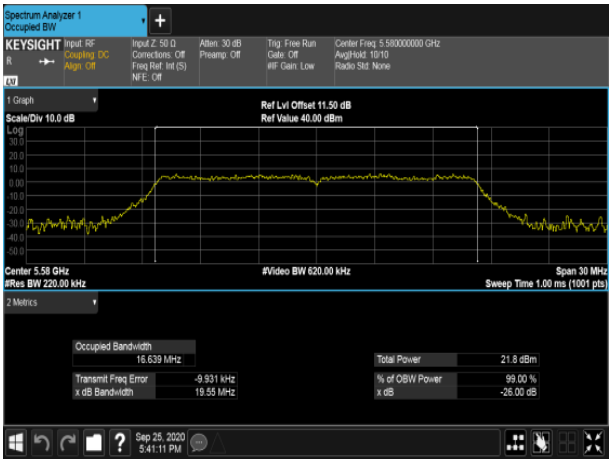
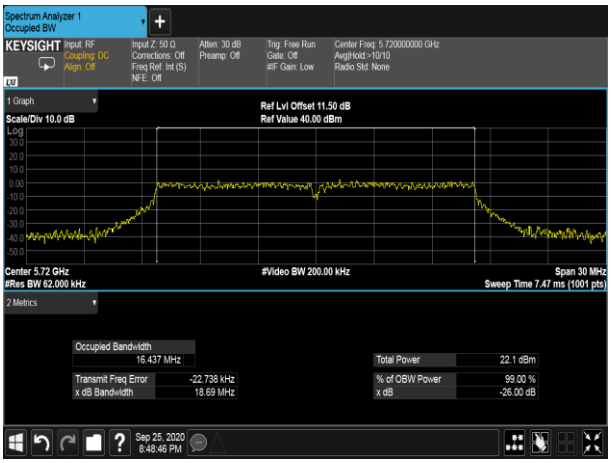
UNII-2a IEEE 802.11n HT20 mode	
Low CH	**Mid CH**
	
High CH	
	

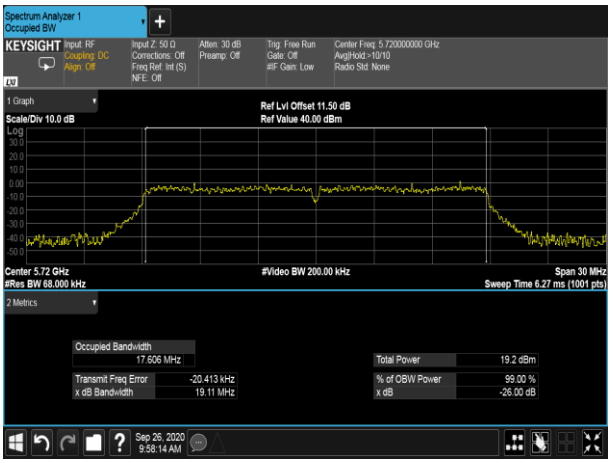
UNII-2a IEEE 802.11n HT40 mode	
Low CH	**High CH**
	

UNII-2a IEEE 802.11ac VHT20 mode	
Low CH	**Mid CH**
	
High CH	
	

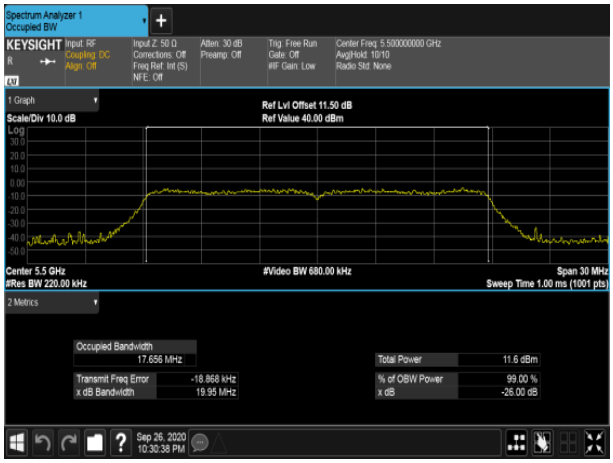
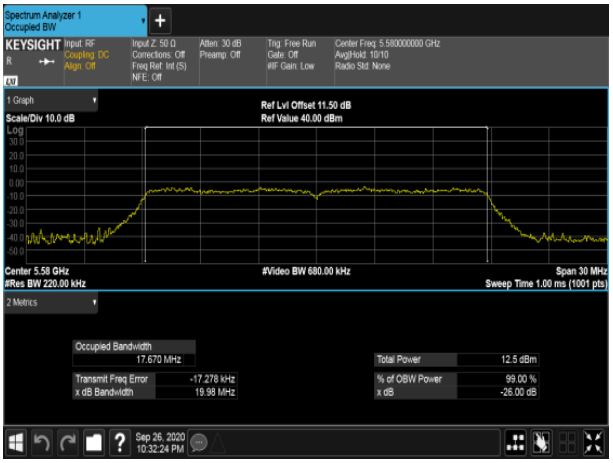
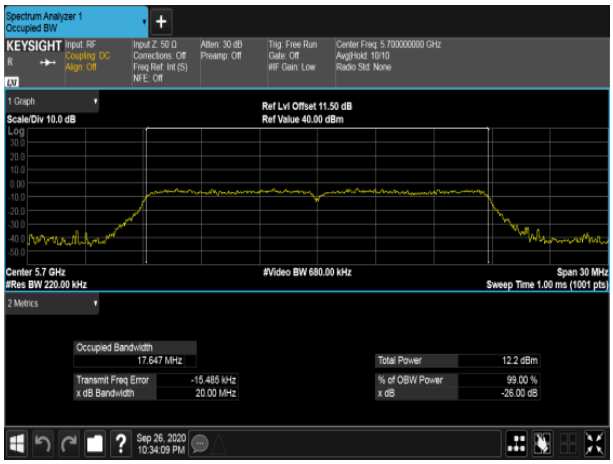
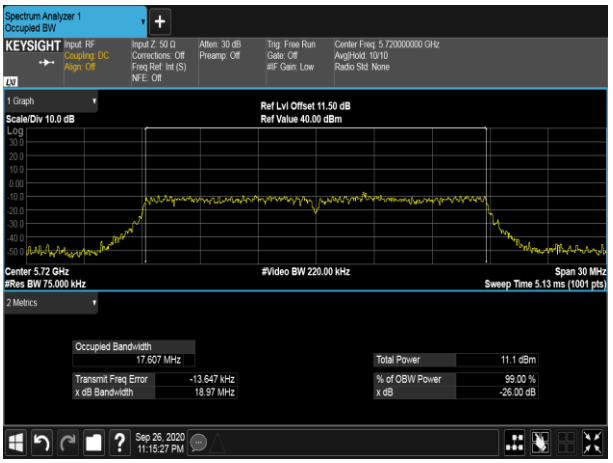
UNII-2a IEEE 802.11ac VHT40 mode	
Low CH	**High CH**
	
UNII-2a IEEE 802.11ac VHT80 mode	
Low CH	
	

Test Data (26dB BANDWIDTH and 99% OBW)

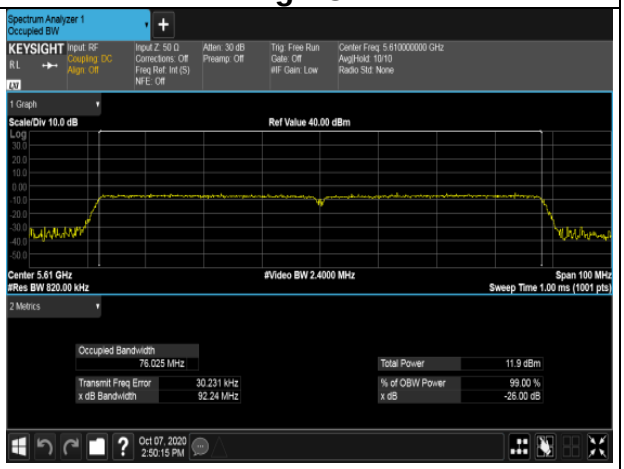
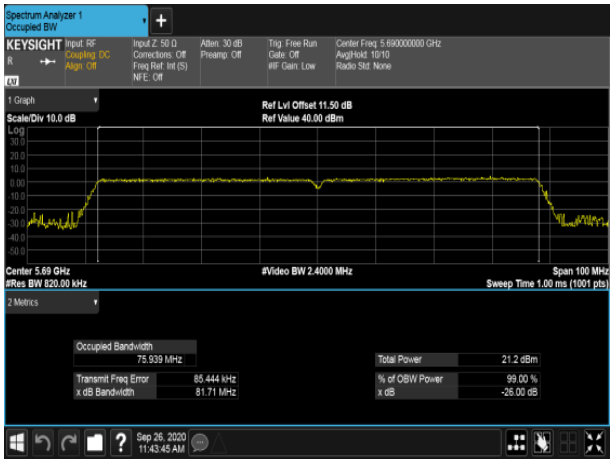
UNII-2c IEEE 802.11a mode	
Low CH	**Mid CH**
	
High CH	**Cross CH**
	

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

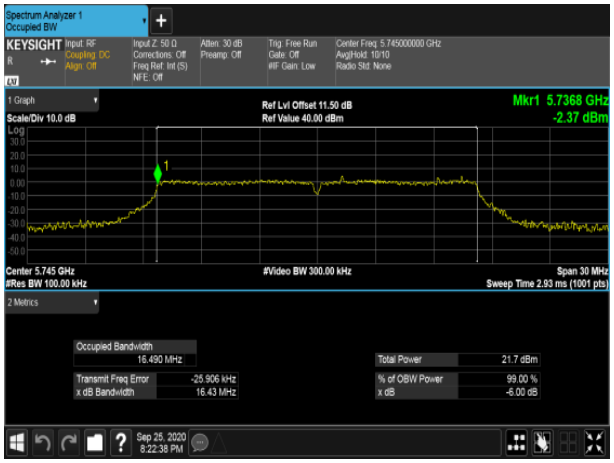
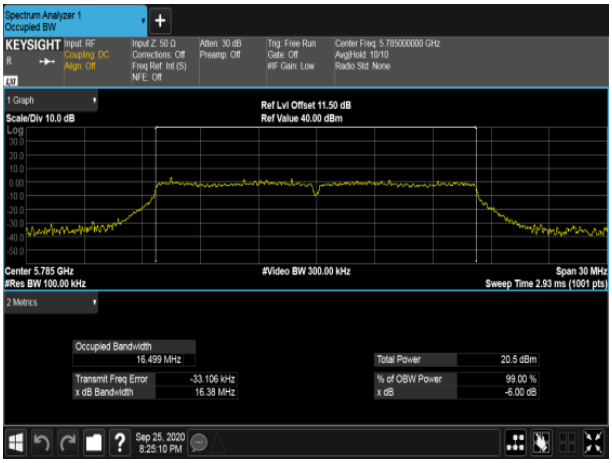
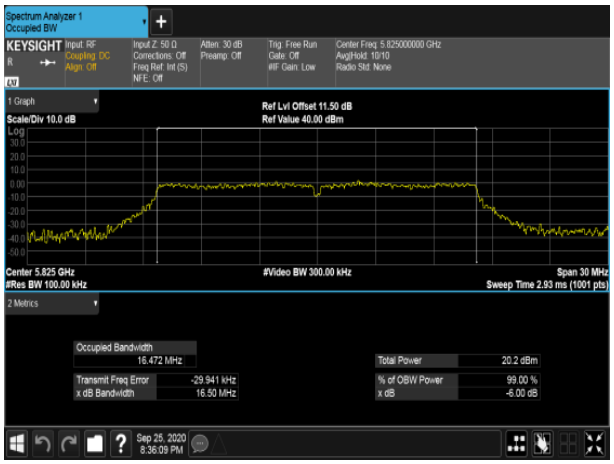
UNII-2c IEEE 802.11n HT40 mode	
Low CH	**Mid CH**
	
High CH	**Cross CH**
	

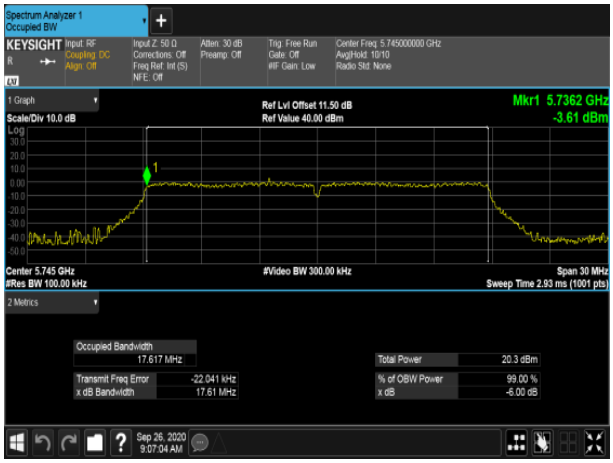
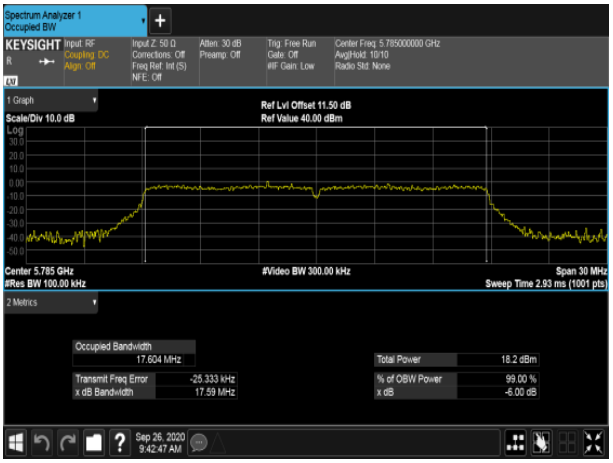
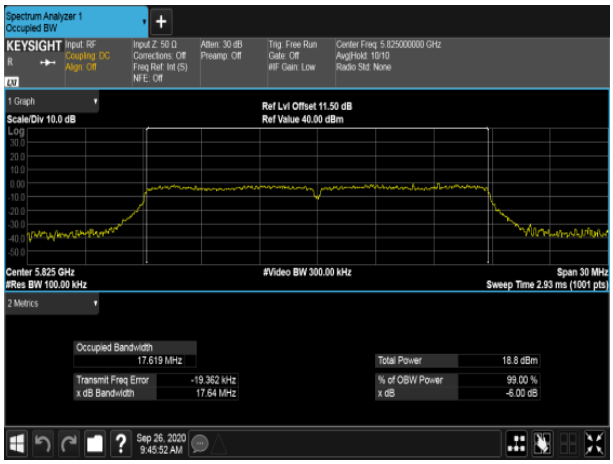
UNII-2c IEEE 802.11ac VHT20 mode	
Low CH	**Mid CH**
	
High CH	**Cross CH**
	

UNII-2c IEEE 802.11ac VHT40 mode	
Low CH	**Mid CH**
	
High CH	**Cross CH**
	

UNII-2c IEEE 802.11ac VHT80 mode	
Low CH	**High CH**
	
Cross CH	
	

Test Data (6dB BANDWIDTH and 99% OBW)

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

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

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

UNII-3 IEEE 802.11ac VHT80 mode	
Low 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)]

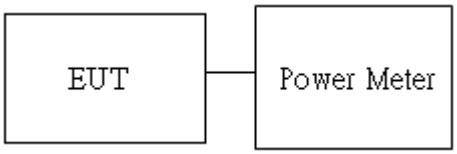
4.3.2 Test Procedure

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

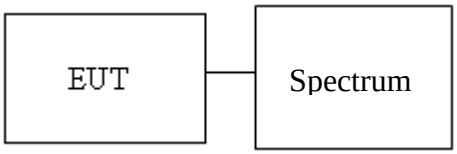
1. The EUT RF output connected to the power meter or spectrum by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Average output power. in the test report.

4.3.3 Test Setup

For BW 20MHz and 40MHz



For BW 80MHz



4.3.4 Test Result

Temperature:	25℃	**Humidity:**	50% RH
Tested by:	Rick Lee	**Test Date:**	October 22, 2020

Conducted output power：

UNII-1										
Config	**CH**	**Freq. (MHz)**	**Power Setting**	**AV Power (dBm)**	**EIRP AV Total Power (dBm)**	**AV Total Power (W)**	**EIRP AV Total Power (W)**	**Ant. Gain (dBi)**	**Limit (dBm)**	**EIRP Limit (dBm)**
IEEE 802.11a Data rate: 6Mbps	36	5180	16	15.95	20.70	0.0394	0.1175	4.75	24	23
	44	5220	17	16.87	21.62	0.0486	0.1452			
	48	5240	17	16.85	21.60	0.0484	0.1445			
IEEE 802.11n HT20 Data rate: MCS0	36	5180	14	14.51	19.26	0.0282	0.0843			
	44	5220	15	15.56	20.31	0.0360	0.1074			
	48	5240	15	15.53	20.28	0.0357	0.1067			
IEEE 802.11n HT40 Data rate: MCS0	38	5190	14	14.00	18.75	0.0251	0.0750			
	46	5230	15	15.99	20.74	0.0397	0.1186			
IEEE 802.11ac VHT20 Data rate: MCS0	36	5180	14	14.50	19.25	0.0282	0.0841			
	44	5220	15	15.53	20.28	0.0357	0.1067			
	48	5240	15	15.51	20.26	0.0356	0.1062			
IEEE 802.11ac VHT40 Data rate: MCS0	38	5190	14	13.93	18.68	0.0247	0.0738			
	46	5230	15	15.91	20.66	0.0390	0.1164			
IEEE 802.11ac VHT80 Data rate: MCS0	42	5210	14	11.94	16.69	0.0156	0.0467			

UNII-2a										
Config	**CH**	**Freq. (MHz)**	**Power Setting**	**AV Power (dBm)**	**EIRP AV Total Power (dBm)**	**AV Total Power (W)**	**EIRP AV Total Power (W)**	**Ant. Gain (dBi)**	**Limit (dBm)**	**EIRP Limit (dBm)**
IEEE 802.11a Data rate: 6Mbps	52	5260	17	16.68	21.43	0.0466	0.1390	4.75	24	30
	56	5280	17	16.76	21.51	0.0474	0.1416			
	64	5320	16	15.87	20.62	0.0386	0.1153			
IEEE 802.11n HT20 Data rate: MCS0	52	5260	15	15.52	20.27	0.0356	0.1064			
	56	5280	15	15.53	20.28	0.0357	0.1067			
	64	5320	13	14.67	19.42	0.0293	0.0875			
IEEE 802.11n HT40 Data rate: MCS0	54	5270	16	15.98	20.73	0.0396	0.1183			
	62	5310	14	14.00	18.75	0.0251	0.0750			
IEEE 802.11ac VHT20 Data rate: MCS0	52	5260	15	15.51	20.26	0.0356	0.1062			
	56	5280	15	15.50	20.25	0.0355	0.1059			
	64	5320	13	14.75	19.50	0.0299	0.0891			
IEEE 802.11ac VHT40 Data rate: MCS0	54	5270	16	15.92	20.67	0.0391	0.1167			
	62	5310	14	13.96	18.71	0.0249	0.0743			
IEEE 802.11ac VHT80 Data rate: MCS0	58	5290	12	11.81	16.56	0.0152	0.0453			

UNII-2c										
Config	**CH**	**Freq. (MHz)**	**Power Setting**	**AV Power (dBm)**	**EIRP AV Total Power (dBm)**	**AV Total Power (W)**	**EIRP AV Total Power (W)**	**Ant. Gain (dBi)**	**Limit (dBm)**	**EIRP Limit (dBm)**
IEEE 802.11a Data rate: 6Mbps	100	5500	17	15.51	20.26	0.0356	0.1062	4.75	24	30
	116	5580	17	16.63	21.38	0.0460	0.1374			
	140	5700	17	16.96	21.71	0.0497	0.1483			
	144	5720	17	15.92	20.67	0.0391	0.1167			
IEEE 802.11n HT20 Data rate: MCS0	100	5500	15	15.00	19.75	0.0316	0.0944			
	116	5580	16	15.98	20.73	0.0396	0.1183			
	140	5700	16	15.94	20.69	0.0393	0.1172			
	144	5720	16	14.78	19.53	0.0301	0.0897			
IEEE 802.11n HT40 Data rate: MCS0	102	5510	14	13.99	18.74	0.0251	0.0748			
	110	5550	16	15.94	20.69	0.0393	0.1172			
	134	5670	16	15.93	20.68	0.0392	0.1169			
	142	5710	16	15.81	20.56	0.0381	0.1138			

UNII-2c										
Config	**CH**	**Freq. (MHz)**	**Power Setting**	**AV Power (dBm)**	**EIRP AV Total Power (dBm)**	**AV Total Power (W)**	**EIRP AV Total Power (W)**	**Ant. Gain (dBi)**	**Limit (dBm)**	**EIRP Limit (dBm)**
IEEE 802.11ac VHT20 Data rate: MCS0	100	5500	15	14.97	19.72	0.0314	0.0938	4.75	24	23
	116	5580	16	15.87	20.62	0.0386	0.1153			
	140	5700	16	15.61	20.36	0.0364	0.1086			
	144	5720	16	14.85	19.60	0.0305	0.0912			
IEEE 802.11ac VHT40 Data rate: MCS0	102	5510	14	13.99	18.74	0.0251	0.0748			
	110	5550	16	15.90	20.65	0.0389	0.1161			
	134	5670	16	15.89	20.64	0.0388	0.1159			
	142	5710	16	15.71	20.46	0.0372	0.1112			
IEEE 802.11ac VHT80 Data rate: MCS0	106	5530	12	11.53	16.28	0.0142	0.0425			
	122	5610	16	15.53	20.28	0.0357	0.1067			
	138	5690	16	15.65	20.40	0.0367	0.1096			

UNII-3									
Config	**CH**	**Freq. (MHz)**	**Power Setting**	**AV Power (dBm)**	**EIRP AV Total Power (dBm)**	**AV Total Power (W)**	**EIRP AV Total Power (W)**	**Ant. Gain (dBi)**	**Limit (dBm)**
IEEE 802.11a Data rate: 6Mbps	144	5720	17	9.72	14.47	0.0094	0.0280	4.75	30
	149	5745	17	16.56	21.31	0.0453	0.1352		
	157	5785	17	16.50	21.25	0.0447	0.1334		
	165	5825	17	16.53	21.28	0.0450	0.1343		
IEEE 802.11n HT20 Data rate: MCS0	144	5720	16	9.54	14.29	0.0090	0.0269		
	149	5745	16	15.98	20.73	0.0396	0.1183		
	157	5785	16	15.96	20.71	0.0394	0.1178		
	165	5825	16	15.94	20.69	0.0393	0.1172		
IEEE 802.11n HT40 Data rate: MCS0	142	5710	16	2.07	6.82	0.0016	0.0048		
	151	5755	16	15.93	20.68	0.0392	0.1169		
	159	5795	16	15.92	20.67	0.0391	0.1167		

UNII-3									
Config	**CH**	**Freq. (MHz)**	**Power Setting**	**AV Power (dBm)**	**EIRP AV Total Power (dBm)**	**AV Total Power (W)**	**EIRP AV Total Power (W)**	**Ant. Gain (dBi)**	**Limit (dBm)**
IEEE 802.11ac VHT20 Data rate: MCS0	144	5720	16	9.50	14.25	0.0089	0.0266	4.75	30
	149	5745	16	15.70	20.45	0.0372	0.1109		
	157	5785	16	15.89	20.64	0.0388	0.1159		
	165	5825	16	15.76	20.51	0.0377	0.1125		
IEEE 802.11ac VHT40 Data rate: MCS0	142	5710	16	2.37	7.12	0.0017	0.0052		
	151	5755	16	15.90	20.65	0.0389	0.1161		
	159	5795	16	15.91	20.66	0.0390	0.1164		
IEEE 802.11ac VHT80 Data rate: MCS0	138	5690	16	1.64	6.39	0.0015	0.0044		
	155	5775	16	15.51	20.26	0.0356	0.1062		

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.

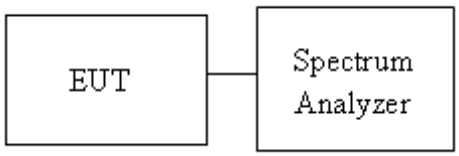
UNII-1 Limit	☒ Antenna not exceed 6 dBi：11 dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 11 – (DG – 6)]
UNII-2a Limit	☒ Antenna not exceed 6 dBi：11 dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 11 – (DG – 6)]
UNII-2c Limit	☒ Antenna not exceed 6 dBi：11 dBm ☐ Antenna with DG greater than 6 dBi： [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:	24.1℃	**Humidity:**	56.1% RH
Tested by:	Rick Lee	**Test date:**	September 25, 2020
Temperature:	23.4℃	**Humidity:**	55.5% RH
Tested by:	Rick Lee	**Test date:**	September 26, 2020
Temperature:	24.1℃	**Humidity:**	56.1% RH
Tested by:	Rick Lee	**Test date:**	October 8, 2020
Temperature:	23.8℃	**Humidity:**	56.3% RH
Tested by:	Rick Lee	**Test date:**	October 11, 2020

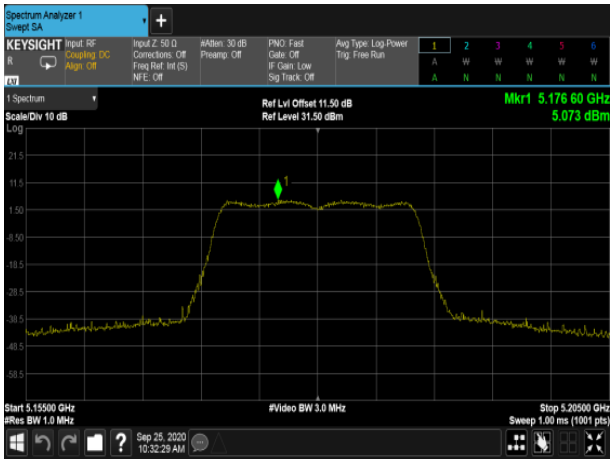
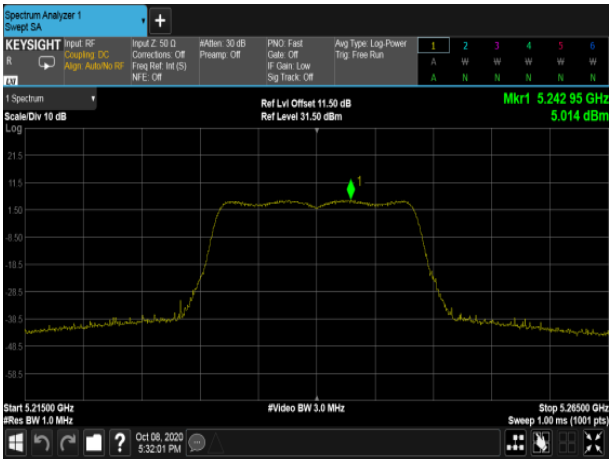
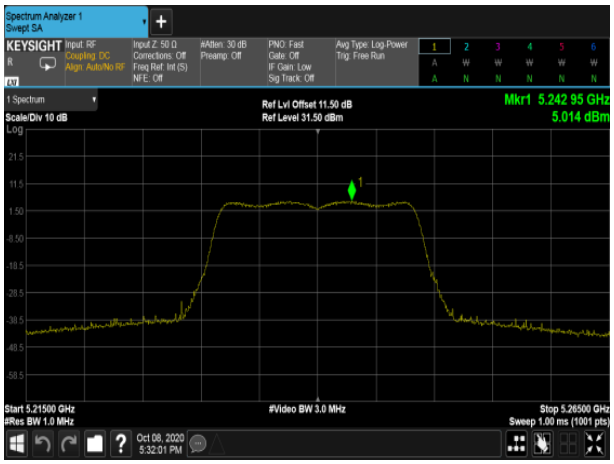
UNII-1 5150-5250 MHz							
Test mode: IEEE 802.11a mode							
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**EIRP Total PPSD (dBm)**	**FCC Limit (dBm)**	**IC Limit (dBm)**
Low	5180	5.073	-	5.073	9.823	11	10
Mid	5220	5.118	-	5.118	9.868		
High	5240	5.014	-	5.014	9.764		
Test mode: IEEE 802.11n HT20 mode							
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**EIRP Total PPSD (dBm)**	**FCC Limit (dBm)**	**IC Limit (dBm)**
Low	5180	3.242	-	3.242	7.992	11	10
Mid	5220	3.254	-	3.254	8.004		
High	5240	3.515	-	3.515	8.265		
Test mode: IEEE 802.11n HT40 mode							
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**EIRP Total PPSD (dBm)**	**FCC Limit (dBm)**	**IC Limit (dBm)**
Low	5190	-1.302	-	-1.302	3.448	11	10
High	5230	-0.261	-	-0.261	4.489		
Test mode: IEEE 802.11ac VHT80 mode							
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**EIRP Total PPSD (dBm)**	**FCC Limit (dBm)**	**IC Limit (dBm)**
Low	5210	-5.55	-	-5.55	-0.8	11	10

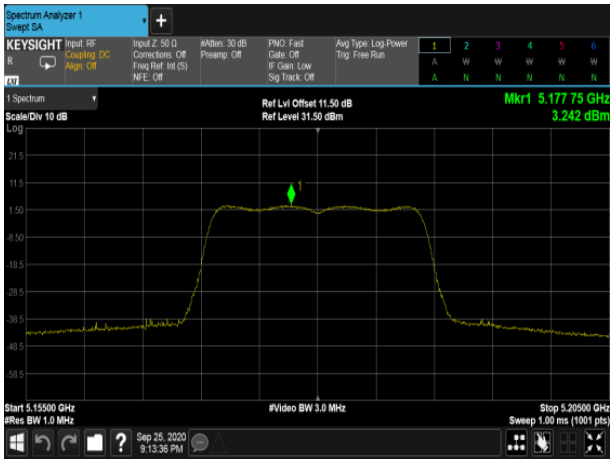
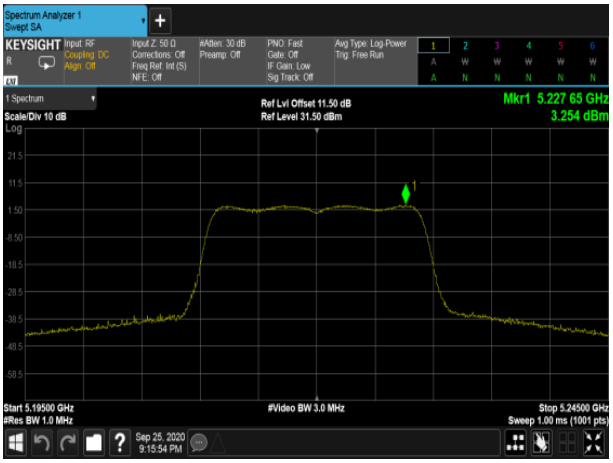
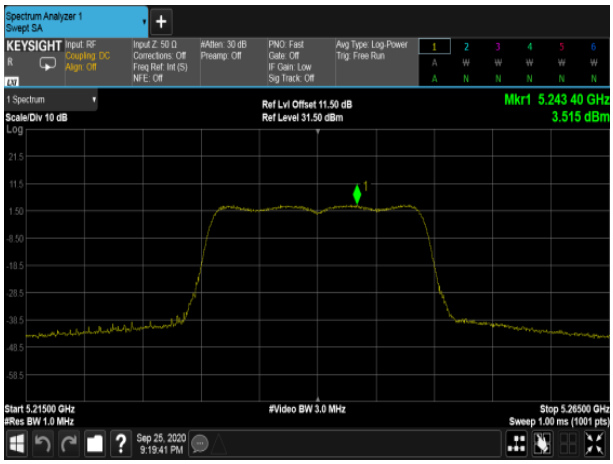
UNII-2a 5250-5350 MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5260	5.803	-	5.803	11
Mid	5280	5.395	-	5.395	
High	5320	4.573	-	4.573	
Test mode: IEEE 802.11n HT20 mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5260	3.876	-	3.876	11
Mid	5280	2.232	-	2.232	
High	5320	2.26	-	2.26	
Test mode: IEEE 802.11n HT40 mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5270	0.541	-	0.541	11
High	5310	-1.708	-	-1.708	
Test mode: IEEE 802.11ac VHT80 mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Mid	5290	-7.643	-	-7.643	11

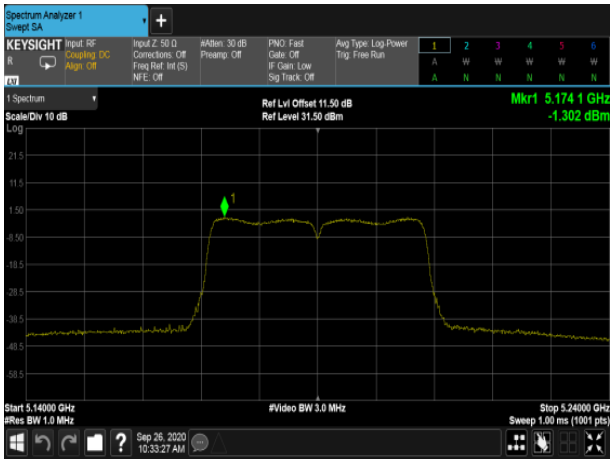
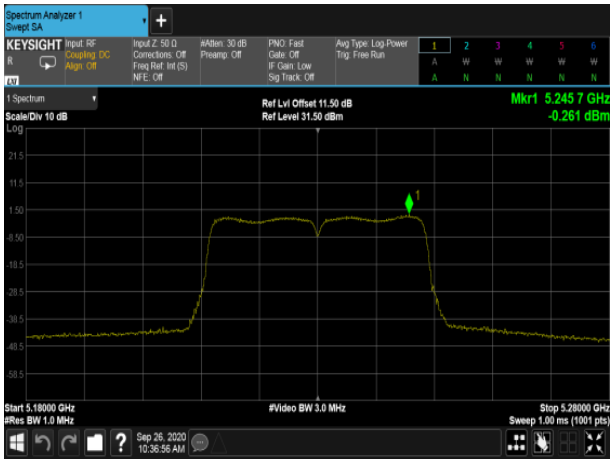
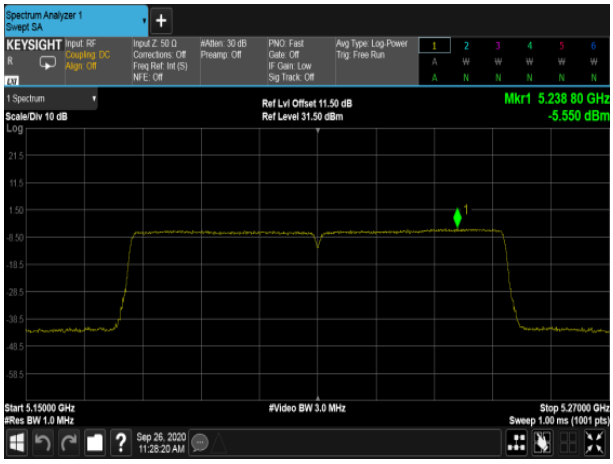
UNII-2c 5470-5725 MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5500	4.802	-	4.802	11
Mid	5580	5.238	-	5.238	
High	5700	4.264	-	4.264	
144	5720	5.87	-	5.87	
Test mode: IEEE 802.11n HT20 mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5500	5.897	-	5.897	11
Mid	5580	5.365	-	5.365	
High	5700	3.198	-	3.198	
144	5720	6.03	-	6.03	
Test mode: IEEE 802.11n HT40 mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5510	-1.816	-	-1.816	11
Mid	5550	-2.368	-	-2.368	
High	5670	-0.348	-	-0.348	
142	5710	6.23	-	6.23	
Test mode: IEEE 802.11ac VHT80 mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5530	-7.703	-	-7.703	11
High	5610	-3.499	-	-3.499	
138	5690	5.39	-	5.39	

UNII-3 5725-5825 MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
144	5720	1.725	-	1.725	30
Low	5745	0.697	-	0.697	
Mid	5785	1.257	-	1.257	
High	5825	1.82	-	1.82	
Test mode: IEEE 802.11n HT20 mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
144	5720	0.464	-	0.464	30
Low	5745	-1.63	-	-1.63	
Mid	5785	-0.366	-	-0.366	
High	5825	2.28	-	2.28	
Test mode: IEEE 802.11n HT40 mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
142	5710	-4.351	-	-4.351	30
Low	5755	-4.492	-	-4.492	
High	5795	3.42	-	3.42	
Test mode: IEEE 802.11ac VHT80 mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
138	5690	-8.689	-	-8.689	30
Mid	5775	2.18	-	2.18	

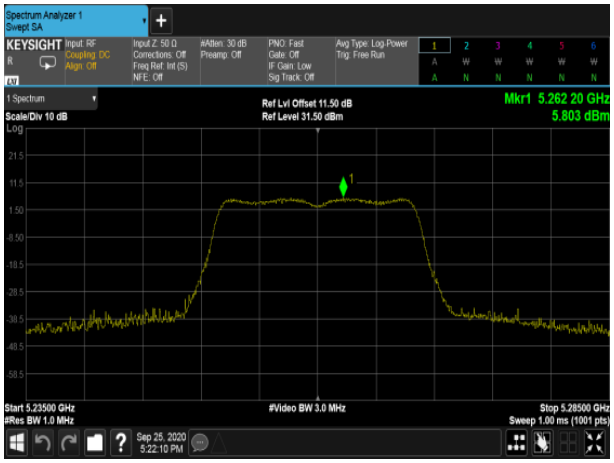
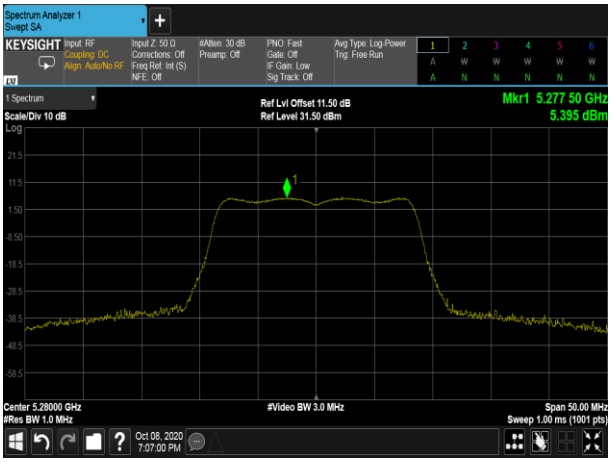
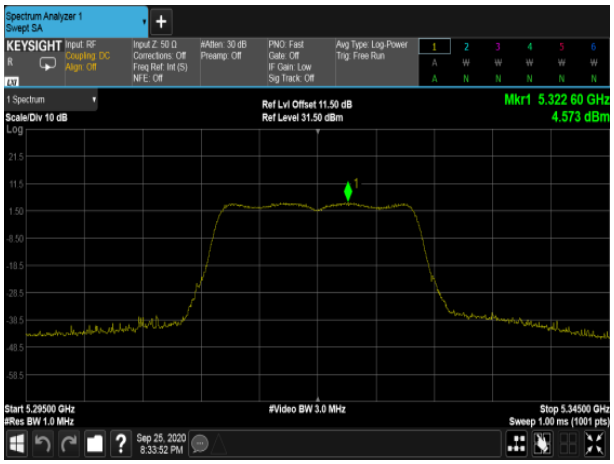
Test Data

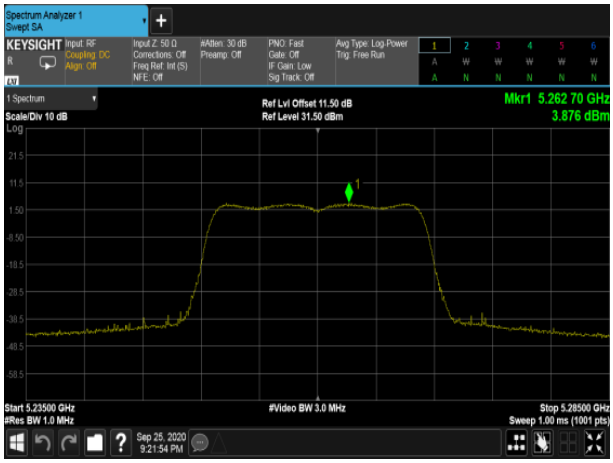
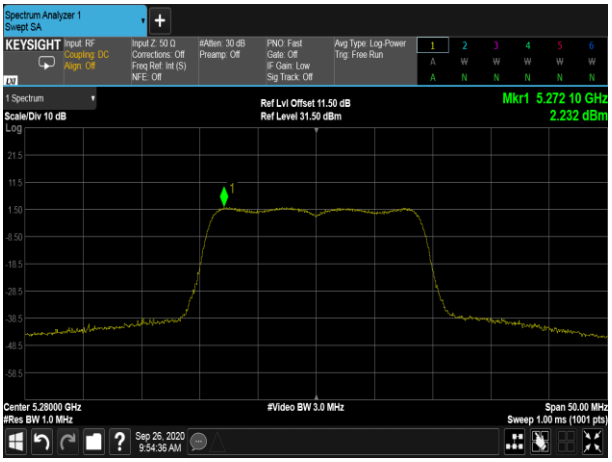
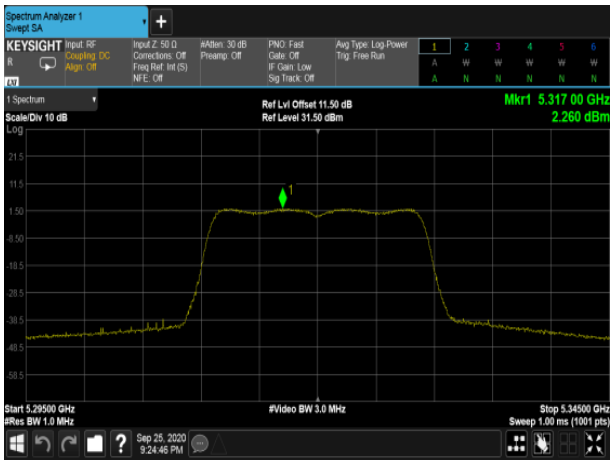
UNII-1 IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

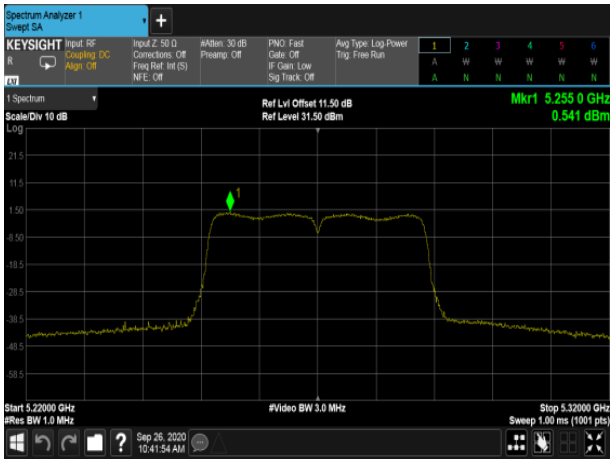
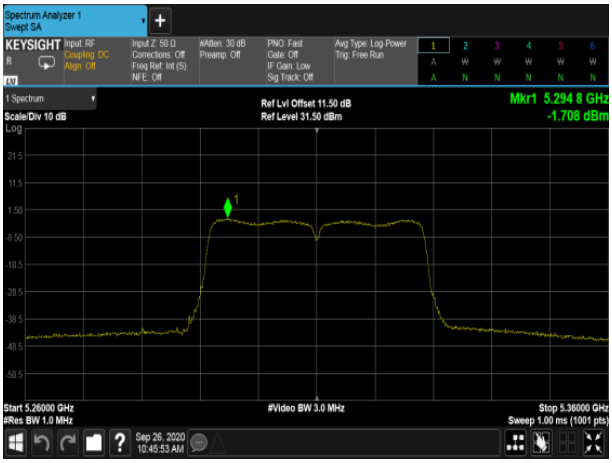
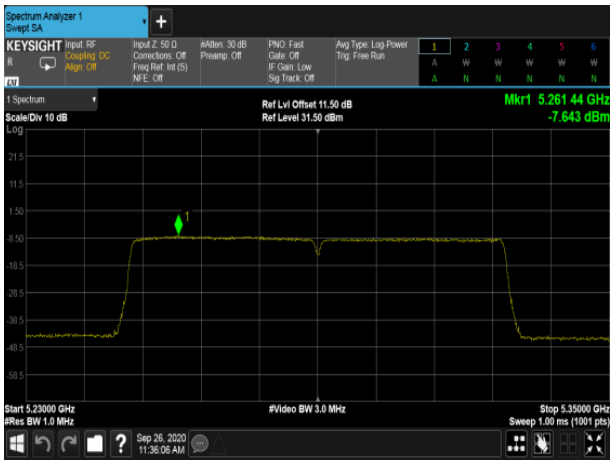
UNII-1 IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-1 IEEE 802.11n HT40 mode- chain 0	
Low CH	**High CH**
	
UNII-1 IEEE 802.11ac VHT80 mode- chain 0	
Low CH	
	

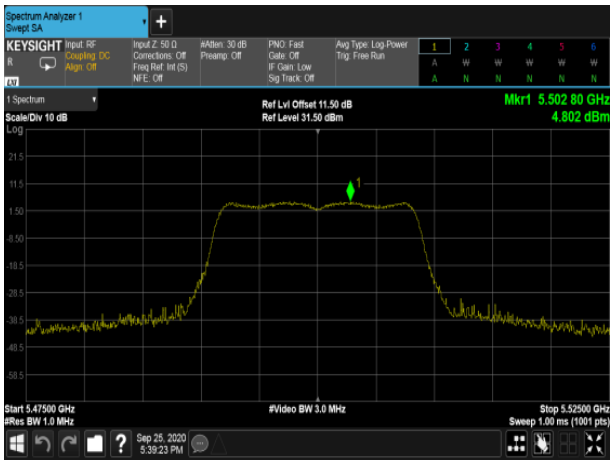
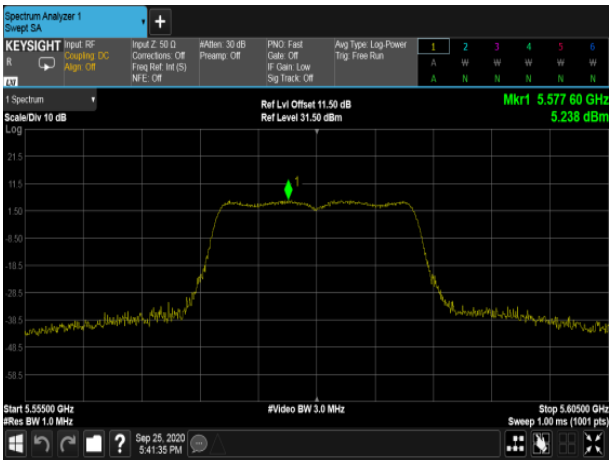
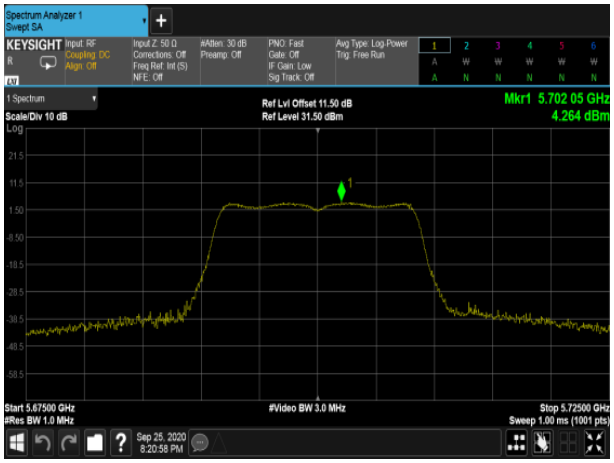
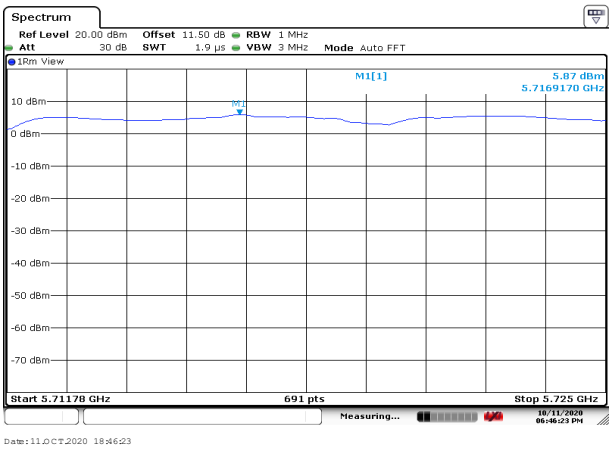
Test Data

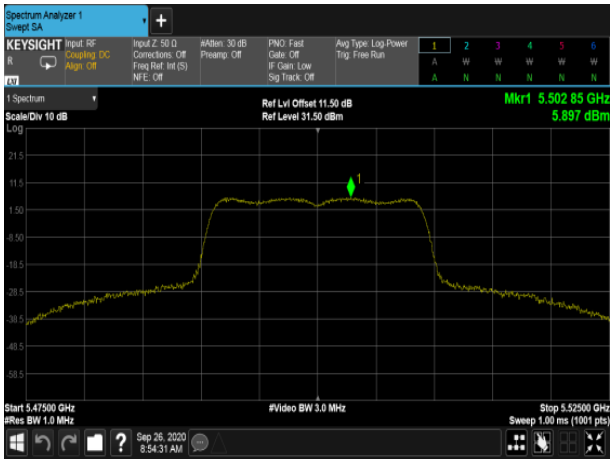
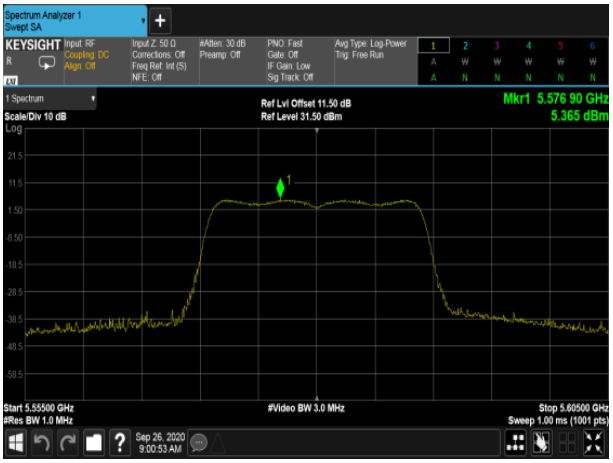
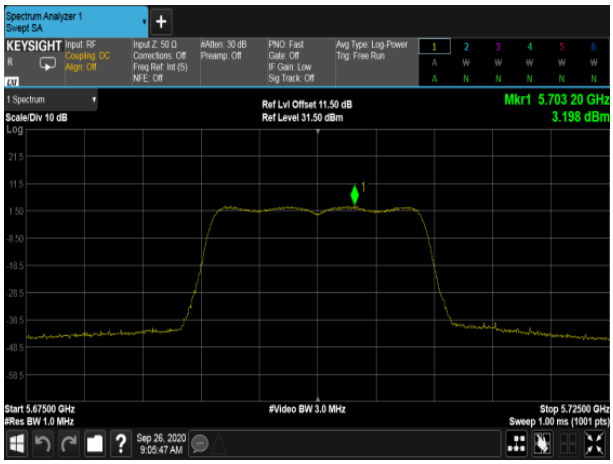
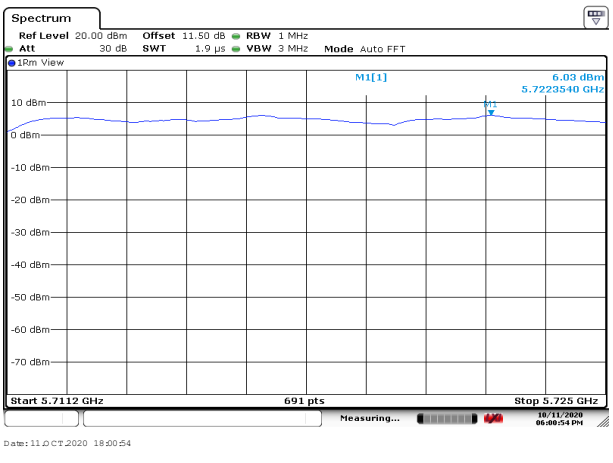
UNII-2a IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

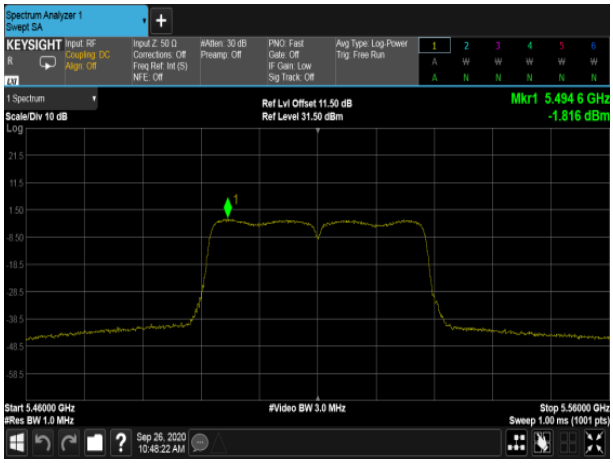
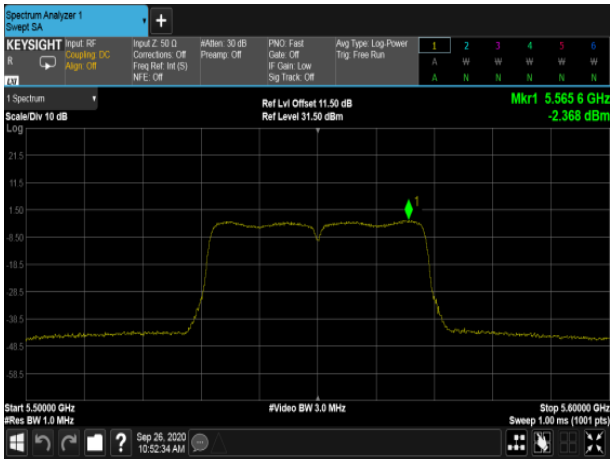
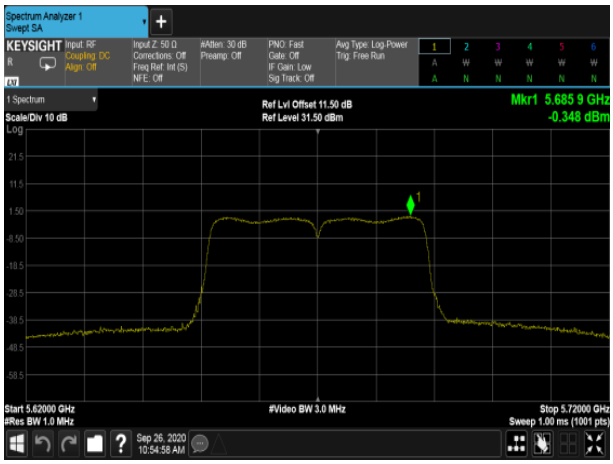
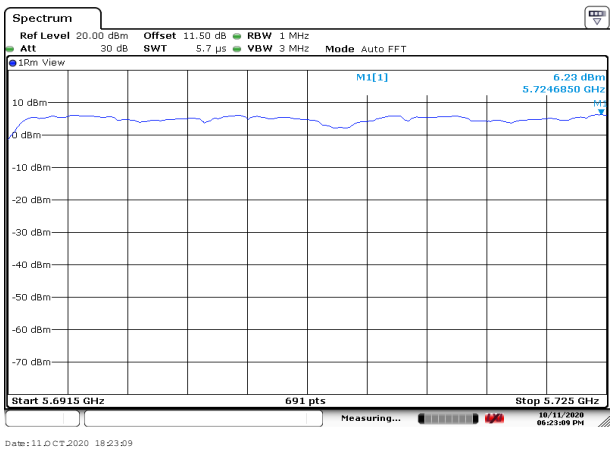
UNII-2a IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

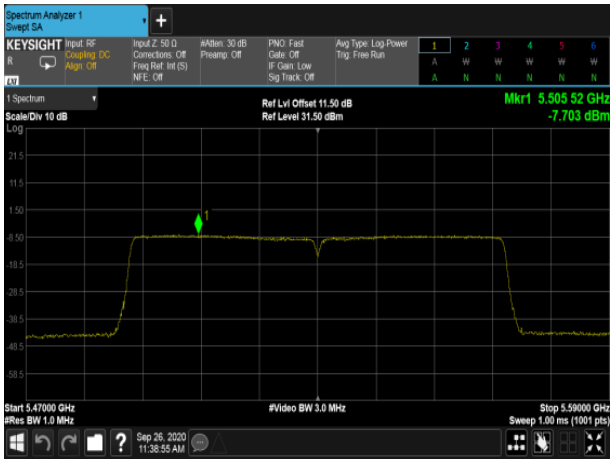
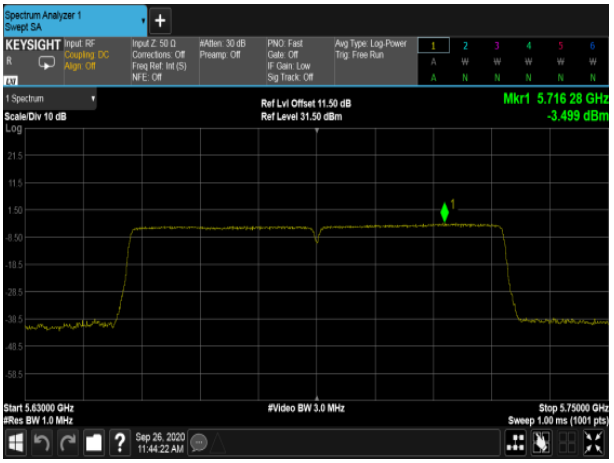
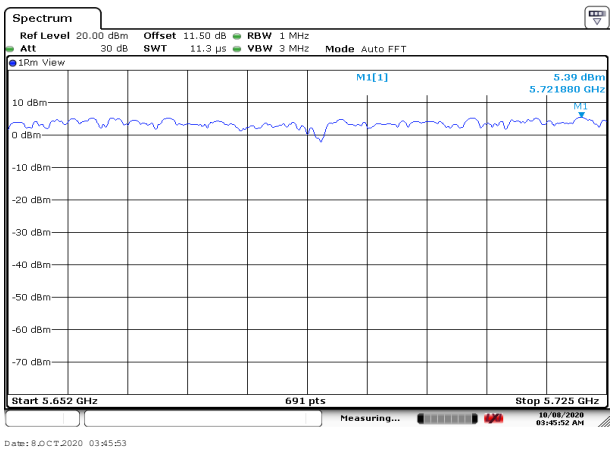
UNII-2a IEEE 802.11n HT40 mode- chain 0	
Low CH	**High CH**
	
UNII-2a IEEE 802.11ac VHT80 mode- chain 0	
Low CH	
	

Test Data

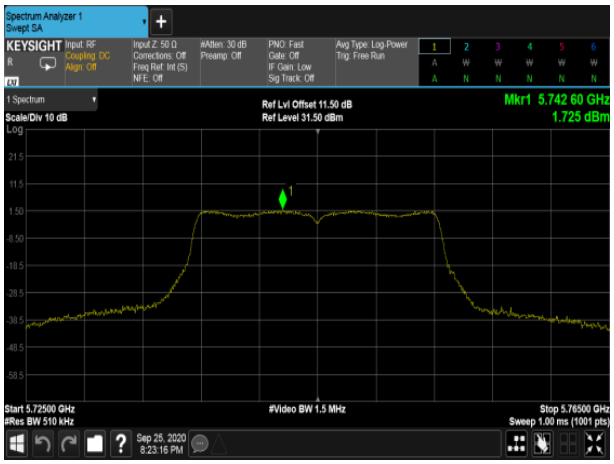
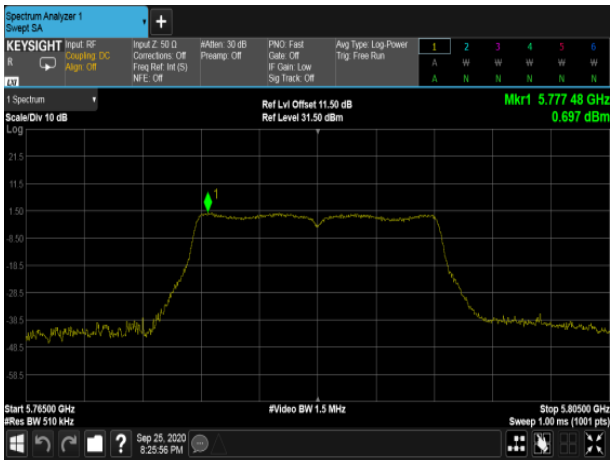
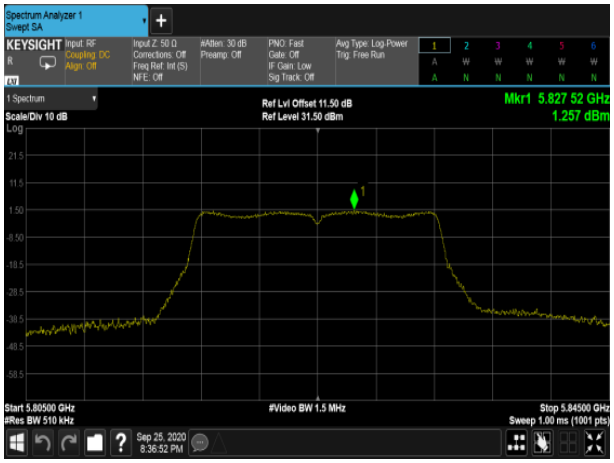
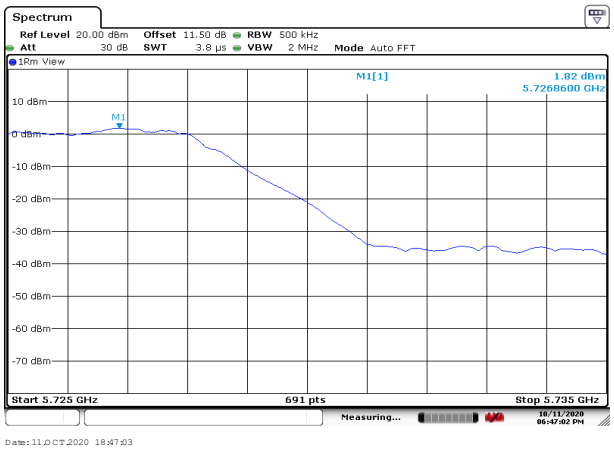
UNII-2c IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	**144 CH**
	

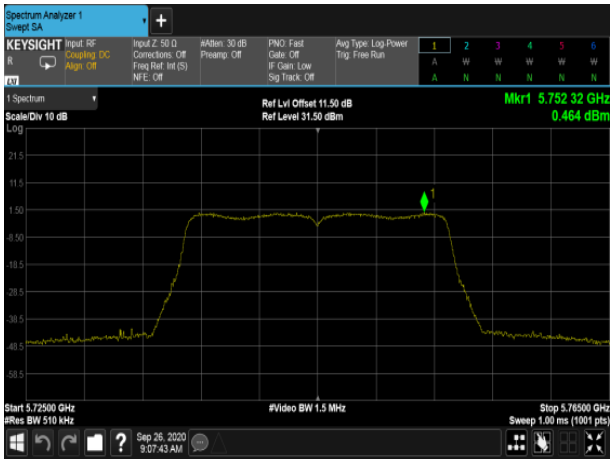
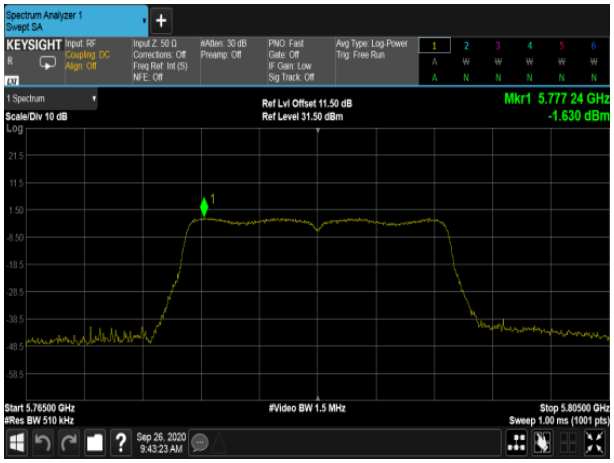
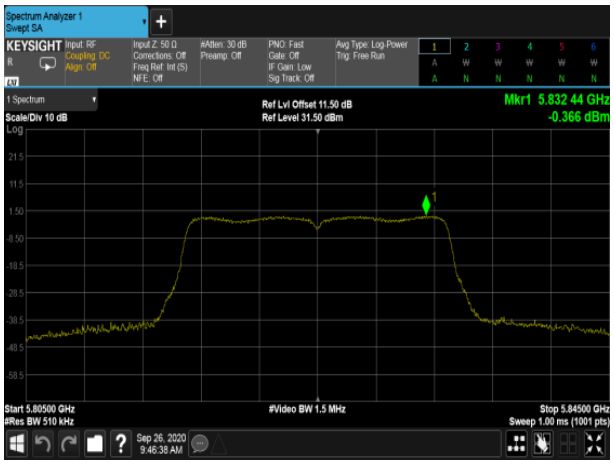
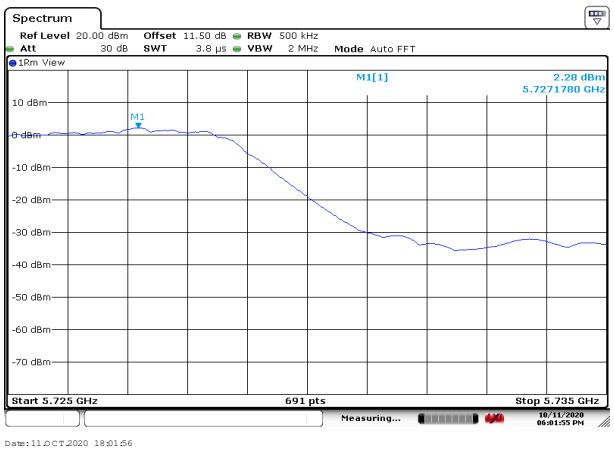
UNII-2c IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	**144 CH**
	

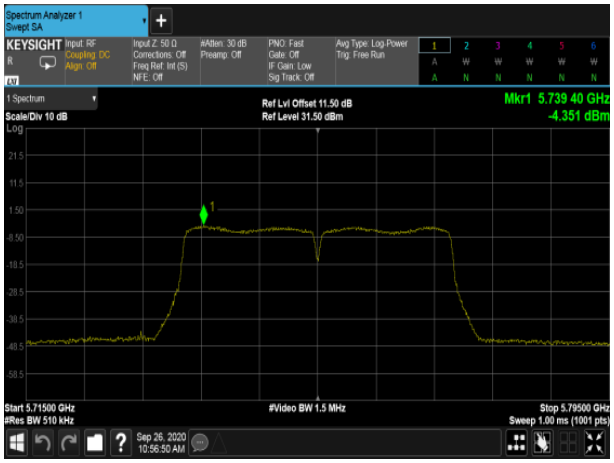
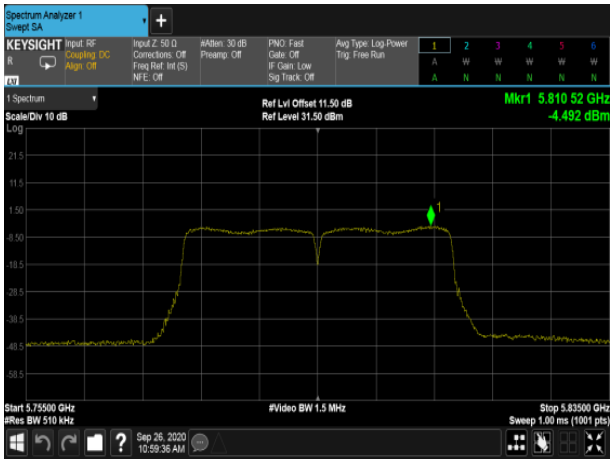
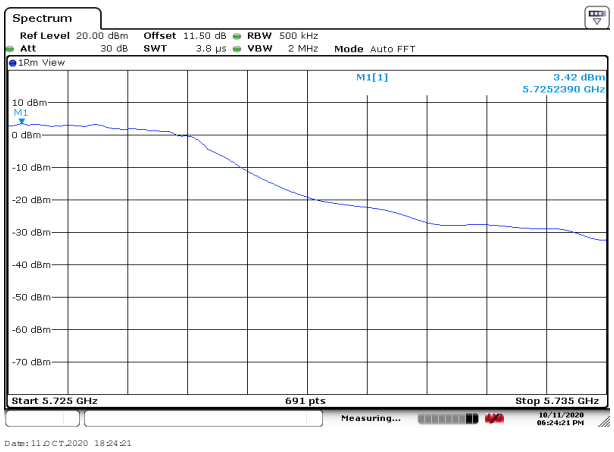
UNII-2c IEEE 802.11n HT40 mode- chain 0	
Low CH	**Mid CH**
	
High CH	**142 CH**
	

UNII-2c IEEE 802.11ac VHT80 mode- chain 0	
Low CH	**High CH**
	
138 CH	
	

Test Data

UNII-3 IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	**144 CH**
	

UNII-3 IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	**144 CH**
	

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

UNII-3 IEEE 802.11ac VHT80 mode- chain 0	
Low CH	**138 CH**