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	**ac2x2+BT5.0 USB2.0**
Brand Name	**CC&C**
Model No.	**P31ASUS**
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

Report No.: TMWK2109000561KR

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	November 25, 2021	Initial Issue	ALL	Doris Chu

Table of contents

1. GENERAL INFORMATION 4
1.1 EUT INFORMATION 4
1.2 EUT CHANNEL INFORMATION 5
1.3 ANTENNA INFORMATION 6
1.4 MEASUREMENT UNCERTAINTY 6
1.5 FACILITIES AND TEST LOCATION 8
1.6 INSTRUMENT CALIBRATION 8
1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT 10
1.8 TEST METHODOLOGY AND APPLIED STANDARDS 10
2. TEST SUMMARY 11
3. DESCRIPTION OF TEST MODES 12
3.1 THE EUT CHANNEL NUMBER OF OPERATING CONDITION 12
3.2 THE WORST MODE OF MEASUREMENT 13
3.3 EUT DUTY CYCLE 14
4. TEST RESULT 15
4.1 AC POWER LINE CONDUCTED EMISSION 15
4.2 26DB BANDWIDTH, 6DB BANDWIDTH AND OCCUPIED BANDWIDTH(99%) 18
4.3 OUTPUT POWER MEASUREMENT 42
4.4 POWER SPECTRAL DENSITY 48
4.5 RADIATION BANDEDGE AND SPURIOUS EMISSION 63
APPENDIX-A TEST PHOTO A-1
APPENDIX 1 - PHOTOGRAPHS OF EUT

1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	CC&C Technologies, Inc. 8F, No.150, Jian Yi Rd, Zhonghe District, New Taipei City, 235, Taiwan
Manufacturer	CC&C Technologies, Inc. 8F, No.150, Jian Yi Rd, Zhonghe District, New Taipei City, 235, Taiwan
Equipment	ac2x2+BT5.0 USB2.0
Model No.	P31ASUS
Model Discrepancy	N/A
Trade Name	CC&C
Received Date	September 10, 2021
Date of Test	September 28 ~ October 4, 2021
Power Supply	Power from host device.
HW Version	V.A
SW Version	V15
EUT Serial #	CCCP312145001

Remark:
1. For more details, please 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
	IEEE 802.11ac VHT 80 MHz: 5210 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
	IEEE 802.11ac VHT 80 MHz: 5775 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 4. IEEE 802.11ac VHT 80 MHz mode: OFDM

Remark:
1. 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	☐ FPC ☒ PCB ☐ Dipole ☐ Coils
Antenna Gain	Main: WA-P-LB-02-914: 5150~5250: Gain: 3.37 dBi 5725~5850: Gain: 4.32 dBi Aux: WA-P-LB-01-289: 5150~5250: Gain: 3.47 dBi 5725~5850: Gain: 4.55 dBi Power Directional Gain: 5150~5250: Gain: 6.43 dBi 5725~5850: Gain: 7.45 dBi

Notes:
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 and RSS-Gen 6.8.
2. Power Directional Gain = 10*log { [10^(Ant1/20) + 10^(Ant2/20) + … + 10^(Ant N /20)]^2 / N ANT} dBi

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.

Report No.: TMWK2109000561KR

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	Jack Chen	-
Radiation	Ray Li	-
RF Conducted	Lance Chen	-

Remark: The lab has been recognized as the FCC accredited lad under the KDB 974614 D01 and is listed in the FCC pubic Access Link (PAL) database, FCC Registration No. :444940, the FCC Designation No.:TW1309

1.6 INSTRUMENT CALIBRATION

RF Conducted Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
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
EXA Signal Analyzer	KEYSIGHT	N9010B	MY55460167	09/07/2021	09/06/2022
Software	Radio Test Software Ver. 21				

Conducted Emission Room					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
CABLE	EMCI	CFD300-NL	CERF	06/28/2021	06/27/2022
EMI Test Receiver	R&S	ESCI	100064	07/05/2021	07/04/2022
LISN	SCHAFFNER	NNB 41	03/10013	02/02/2021	02/01/2022
Software	EZ-EMC(CCS-3A1-CE)				

Report No.: TMWK2109000561KR

3M 966 Chamber Test Site					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Cal Date**	**Cal Due**
Bilog Antenna	Sunol Sciences	JB3	A030105	07/19/2021	07/18/2022
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/24/2021	02/23/2022
Coaxial Cable	EMCI	EMC105	190914+1111	09/17/2021	09/16/2022
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	01/06/2021	01/05/2022
High Pass Filters	MICRO TRONICS	HPM13195	003	02/08/2021	02/07/2022
Horn Antenna	ETS LINDGREN	3117	00055165	07/29/2021	07/28/2022
Horn Antenna	ETS LINDGREN	3116	00026370	12/11/2020	12/10/2021
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
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	12/25/2020	12/24/2021
Pre-Amplifier	MITEQ	AMF-6F-18004000-37-8P	985646	09/08/2021	09/07/2022
PSA Series Spectrum Analyzer	Agilent	E4446A	US42510268	09/23/2021	09/22/2022
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				

Remark: Each piece of equipment is scheduled for calibration once a year.

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**	**IC**
1	NB(G)	Lenovo	IBM 1951	N/A	CJ6UPA3489WL	N/A
2	NB(J)	TOSHIBA	PT345T-00L002	N/A	PD97260H	1000M-7260H

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	Pass
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(6.2.4.1)	4.3	Output Power Measurement	Pass
15.407(a)	RSS-247(6.2.1.1) RSS-247(6.2.4.1)	4.4	Power Spectral Density	Pass
15.407(b)	RSS-247(6.2.1.2) RSS-247(6.2.4.2)	4.5	Radiation Band Edge	Pass
15.407(b)	RSS-247(6.2.1.2) 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: MCS8
3. IEEE 802.11n HT 40 MHz mode: MCS8
4. 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="4">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 80 MHz</td><td>5210</td></tr>
<tr><td rowspan="4">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 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 system support 802.11a/n HT20/n HT40/ac VHT20/40/80, the VHT20/VHT40 were reduced since the identical parameters with 802.11n HT20 and HT40.
3. The worst-case data rates are determined to be as follows for each mode based upon investigations by evaluate the average power and PSD across all date rates, bandwidths, and modulations. The device supports SISO and MIMO at 802.11a/n/ac mode, per pre-test, MIMO 2TX mode was the worst and reported.

3.2 THE WORST MODE OF MEASUREMENT

AC Power Line Conducted Emission	
Test Condition	AC Power line conducted emission for line and neutral
Power supply Mode	Mode 1: EUT power by Host System
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

Radiated Emission Measurement Above 1G	
Test Condition	Radiated Emission Above 1G
Power supply Mode	Mode 1: EUT power by Host System
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 Host System
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
3. AC power line conducted emission and for below 1G radiation emission were performed the EUT transmit at the highest output power channel as worse case.

Report No.: TMWK2109000561KR

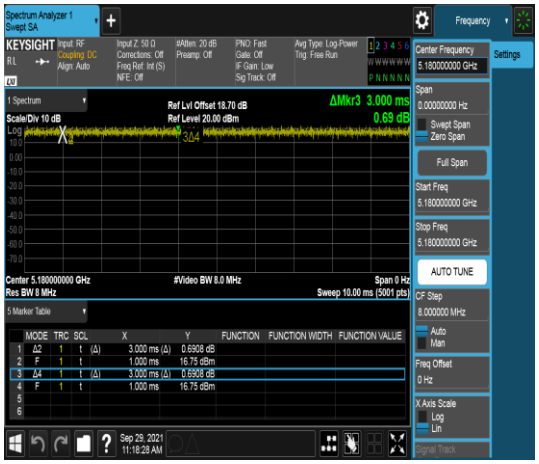
3.3 EUT DUTY CYCLE

Temperature: 21.7 ~ 24.4℃ **Humidity:** 55 ~ 56% RH

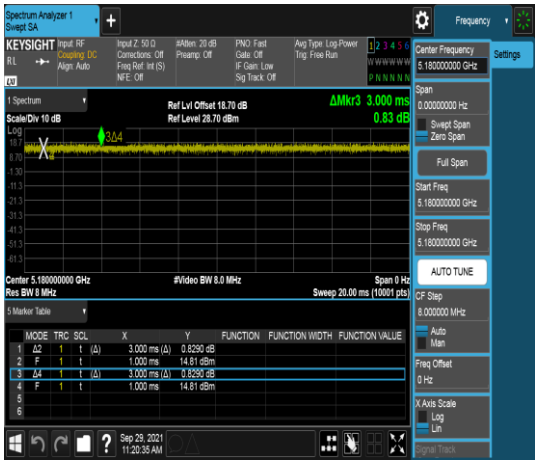
Tested by: Lance Chen **Test date:** September 29 ~ 30, 2021

Duty Cycle				
Configuration	Duty Cycle (%)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11a	100.00	0.00	0.00	0.01
802.11n HT20	100.00	0.00	0.00	0.01
802.11n HT40	100.00	0.00	0.00	0.01
802.11ac VHT80	100.00	0.00	0.00	0.01

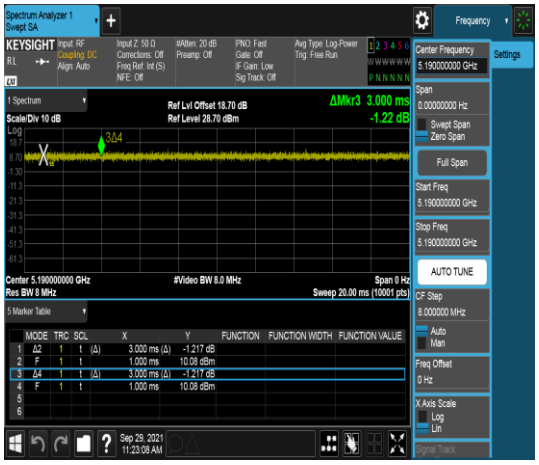
802.11a



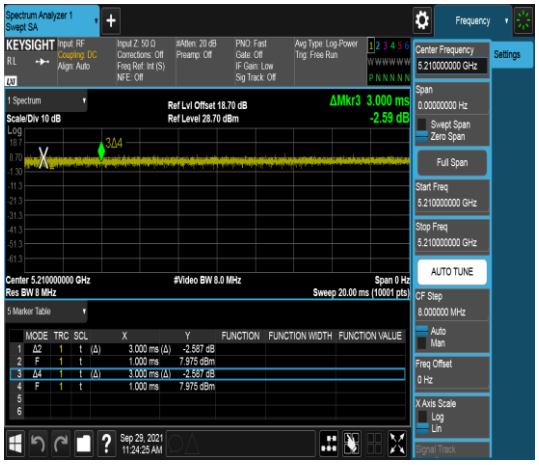
802.11n HT20



802.11n HT40



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

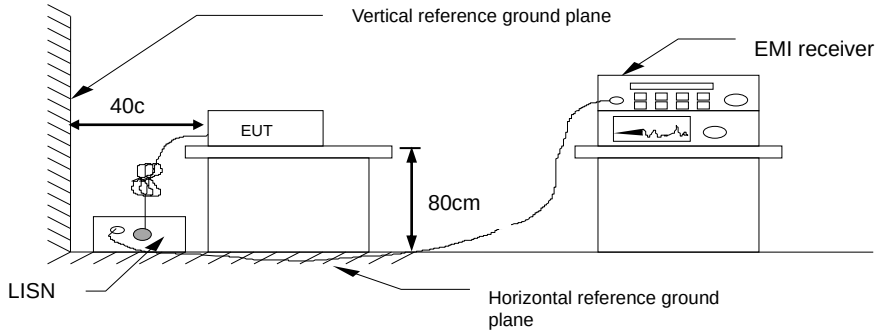
* Decreases with the logarithm of the frequency.

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



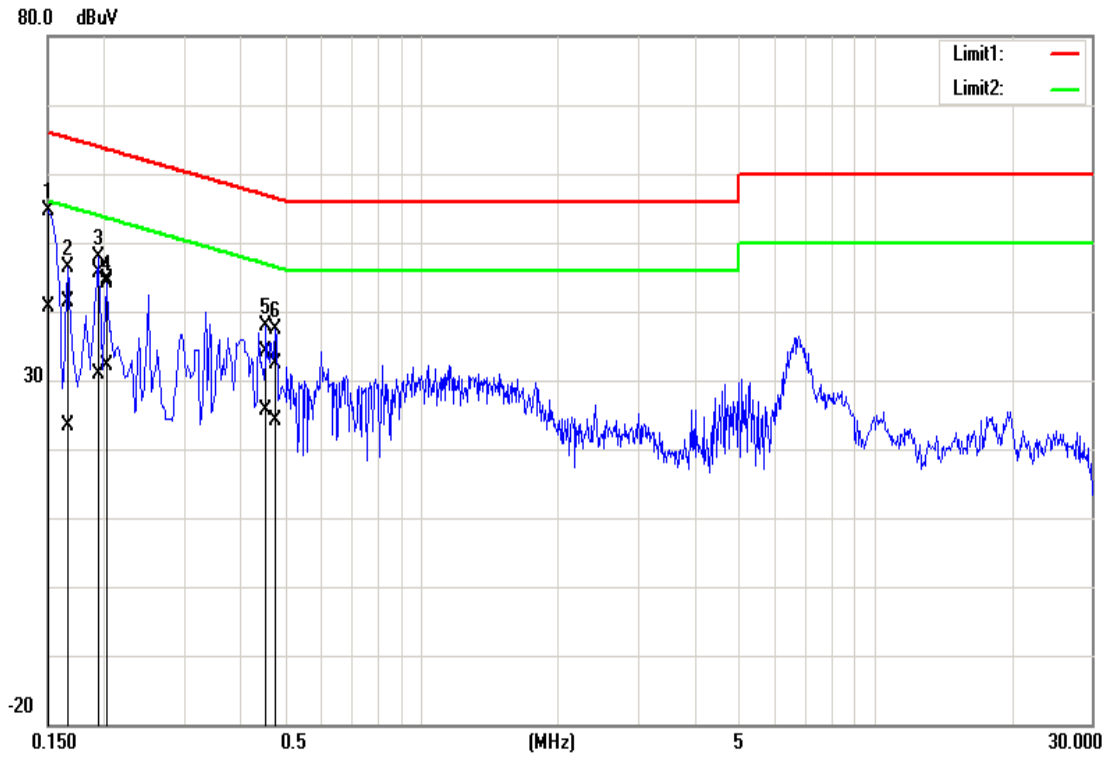
4.1.4 Test Result

PASS

Report No.: TMWK2109000561KR

Test Data

Test Mode:	Mode 1	Temp/Hum	24.6(℃)/ 51%RH
Phase:	Line	Test Date	September 28, 2021
		Test Engineer	Jack Chen

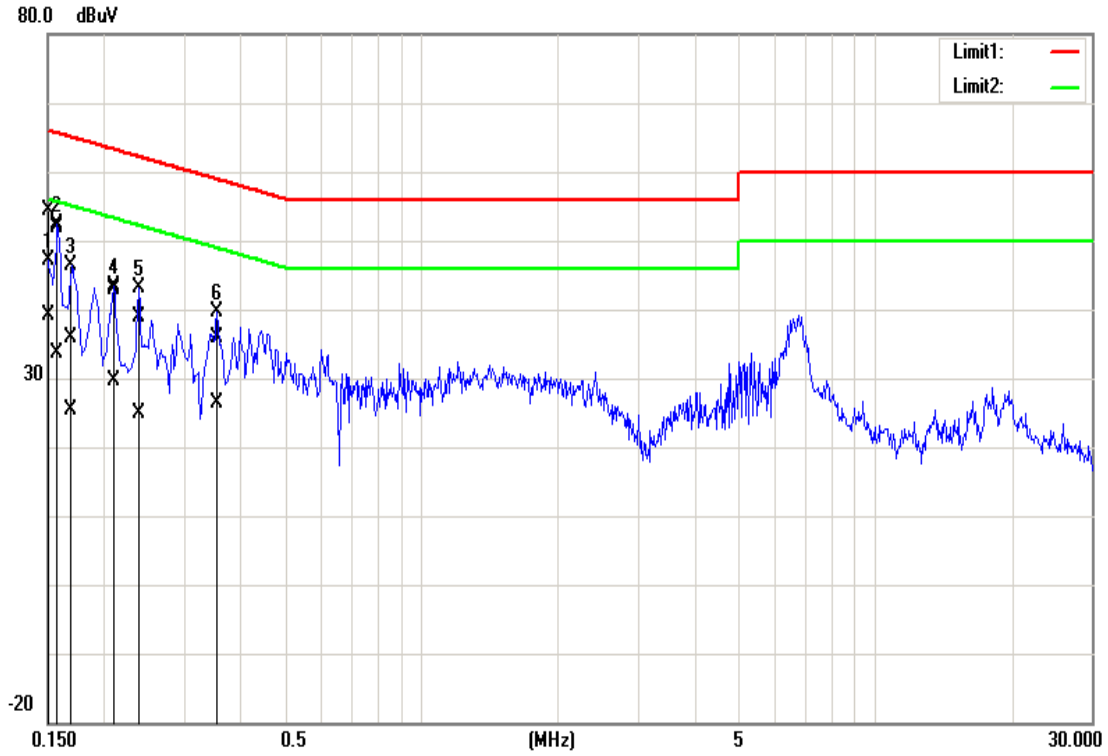


Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.1500	44.22	30.25	10.29	54.51	40.54	66.00	56.00	-11.49	-15.46	Pass
0.1660	31.00	13.11	10.29	41.29	23.40	65.16	55.16	-23.87	-31.76	Pass
0.1940	35.28	20.71	10.29	45.57	31.00	63.86	53.86	-18.29	-22.86	Pass
0.2020	34.44	21.81	10.29	44.73	32.10	63.53	53.53	-18.80	-21.43	Pass
0.4540	23.74	15.46	10.29	34.03	25.75	56.80	46.80	-22.77	-21.05	Pass
0.4780	22.08	13.89	10.29	32.37	24.18	56.37	46.37	-24.00	-22.19	Pass

Note: Correction factor = LISN loss + Cable loss.

Report No.: TMWK2109000561KR

Test Mode:	Mode 1	Temp/Hum	24.6(℃)/ 51%RH
Phase:	Neutral	Test Date	September 28, 2021
		Test Engineer	Jack Chen



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.1500	44.15	28.94	10.29	54.44	39.23	66.00	56.00	-11.56	-16.77	Pass
0.1580	41.57	23.36	10.29	51.86	33.65	65.57	55.57	-13.71	-21.92	Pass
0.1700	25.68	15.01	10.29	35.97	25.30	64.96	54.96	-28.99	-29.66	Pass
0.2100	32.64	19.35	10.29	42.93	29.64	63.21	53.21	-20.28	-23.57	Pass
0.2380	28.61	14.51	10.29	38.90	24.80	62.17	52.17	-23.27	-27.37	Pass
0.3540	25.48	16.06	10.29	35.77	26.35	58.87	48.87	-23.10	-22.52	Pass

Note: Correction factor = LISN loss + Cable loss.

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.

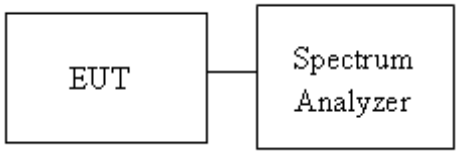
7. Allow the trace to stabilize.

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



Report No.: TMWK2109000561KR

4.2.4 Test Result

Temperature: 21.7 ~ 24.4℃ **Humidity:** 55 ~ 56% RH

Tested by: Lance Chen **Test date:** September 29 ~ 30, 2021

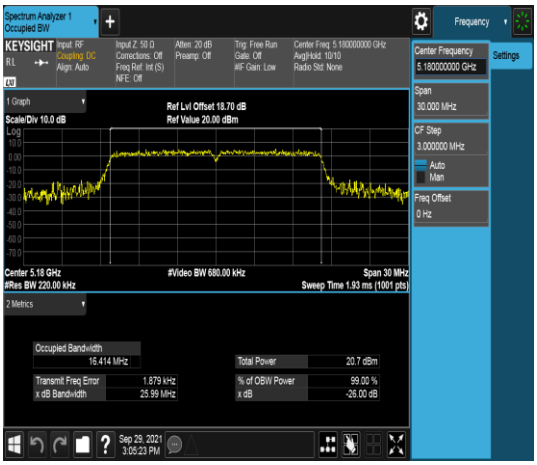
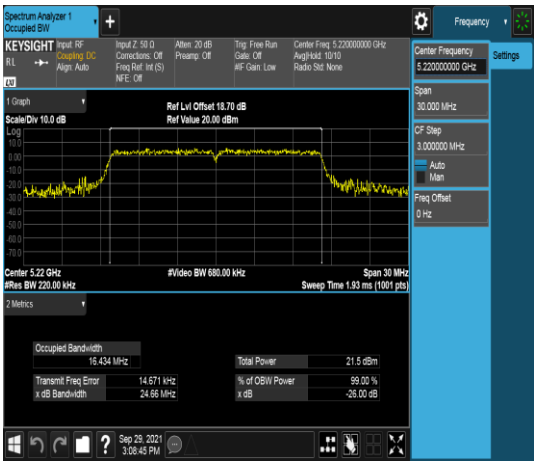
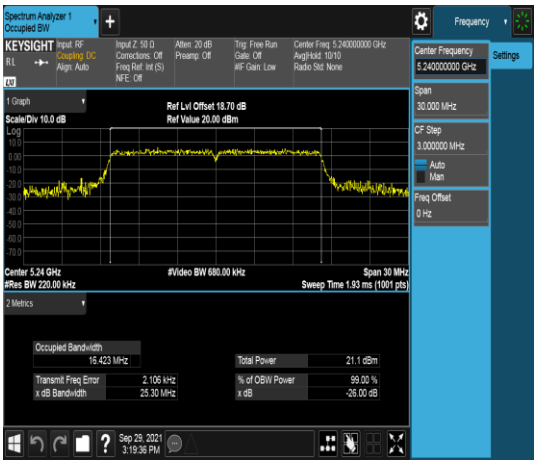
UNII-1 5150-5250 MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW (99%) (MHz)**	**Chain 1 OBW (99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
Low	5180	16.414	-	24.86	-
Mid	5220	16.434	-	25.60	-
High	5240	16.423	-	25.44	-
Test mode: IEEE 802.11n HT20 mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW (99%) (MHz)**	**Chain 1 OBW (99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
Low	5180	17.559	17.564	19.36	19.40
Mid	5220	29.727	17.558	19.38	19.35
High	5240	17.559	17.554	19.32	19.10
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)**
Low	5190	36.015	35.975	40.12	42.14
High	5230	35.980	35.990	40.74	40.72
Test mode: IEEE 802.11ac VHT80 mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW (99%) (MHz)**	**Chain 1 OBW (99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
Mid	5210	74.518	74.683	80.65	80.61

Report No.: TMWK2109000561KR

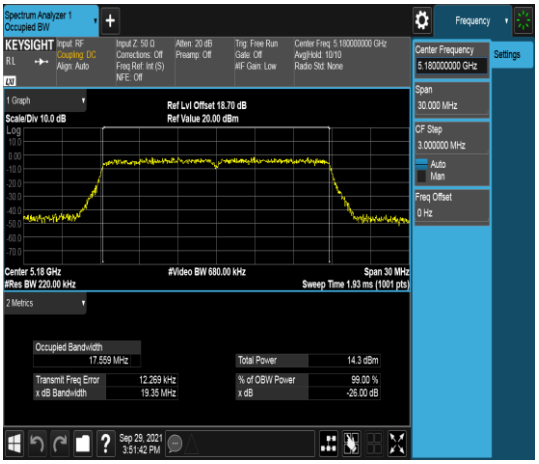
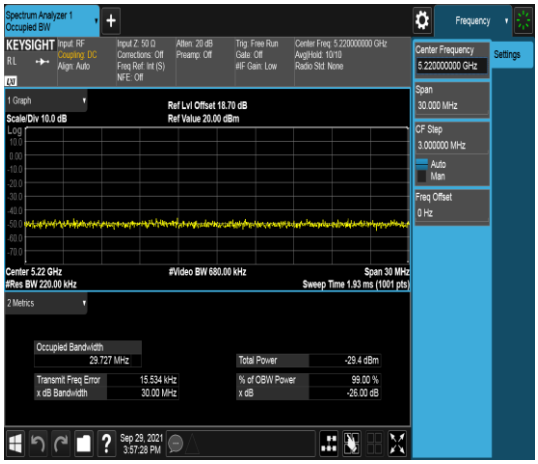
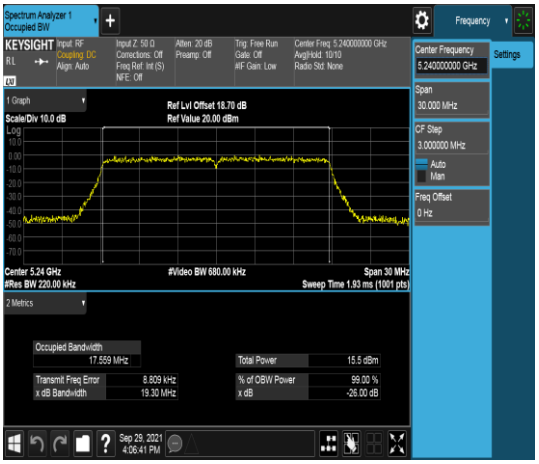
UNII-3 5725-5825MHz						
Test mode: IEEE 802.11a mode						
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 6dB BW (MHz)**	**Chain 1 6dB BW (MHz)**	**Limit**
Low	5745	16.712	-	16.43	-	>500kHz
Mid	5785	20.525	-	16.44	-	
High	5825	20.143	-	16.39	-	
Test mode: 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)**	**Limit**
Low	5745	17.637	17.629	17.74	17.70	>500kHz
Mid	5785	17.609	17.608	17.68	17.68	
High	5825	17.614	17.585	17.72	17.67	
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)**	**Limit**
Low	5755	36.014	36.056	36.43	36.39	>500kHz
High	5795	35.999	36.092	36.42	36.40	
Test mode: IEEE 802.11ac VHT80 mode						
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 6dB BW (MHz)**	**Chain 1 6dB BW (MHz)**	**Limit**
Mid	5775	74.647	74.586	73.23	72.70	>500kHz

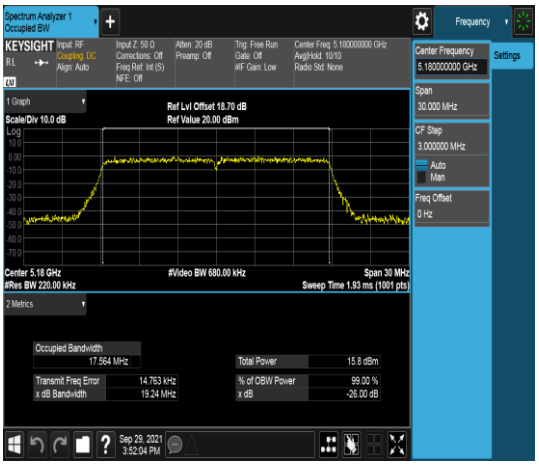
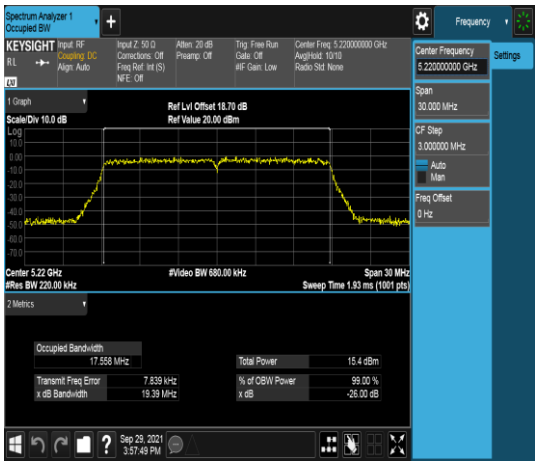
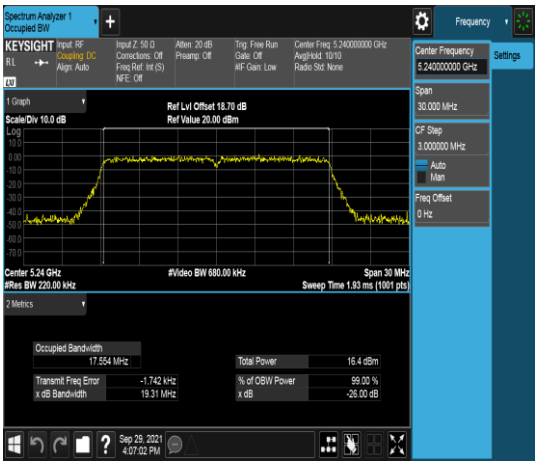
Report No.: TMWK2109000561KR

Test Data (99% OBW)

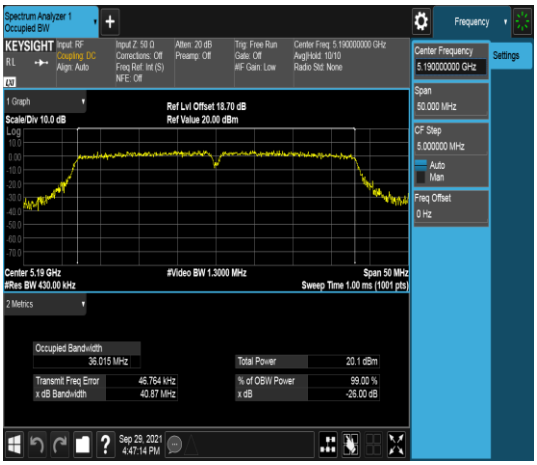
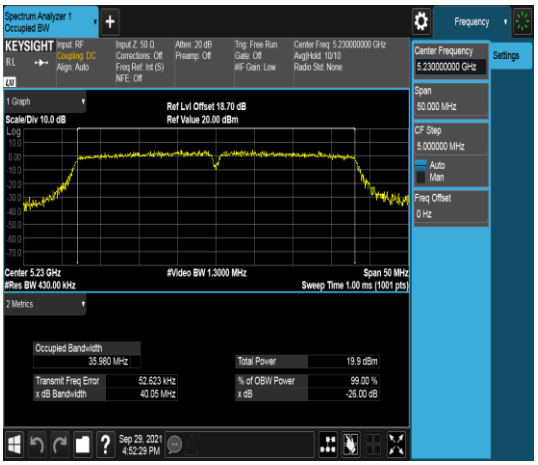
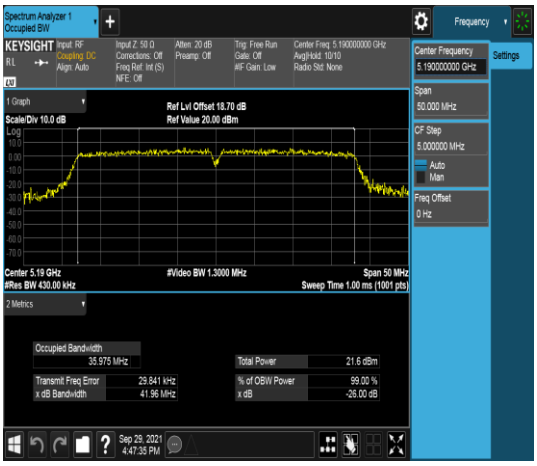
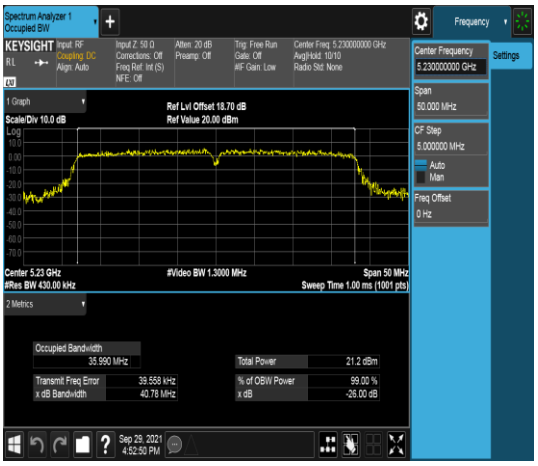
UNII-1 IEEE 802.11a mode - Chain 0	
Low CH	**Mid CH**
	
High CH	
	

Report No.: TMWK2109000561KR

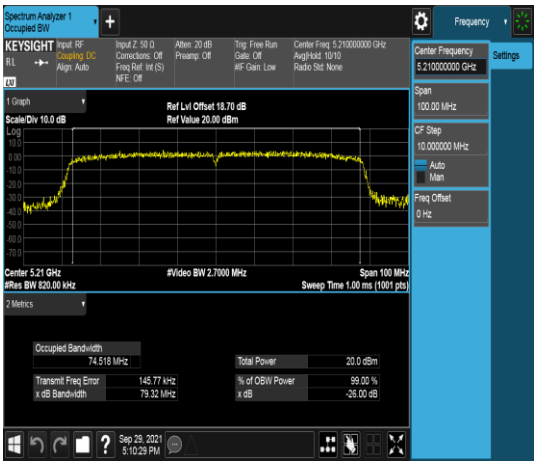
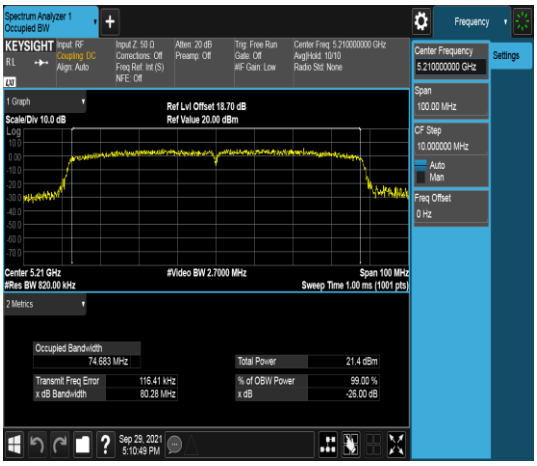
UNII-1 IEEE 802.11n HT20 mode - Chain 0	
Low CH	**Mid CH**
	
High CH	
	

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

Report No.: TMWK2109000561KR

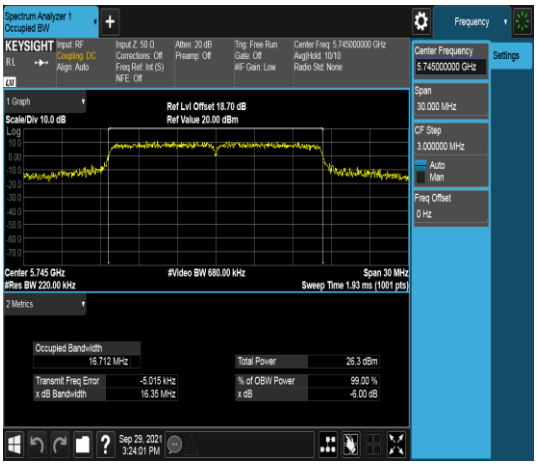
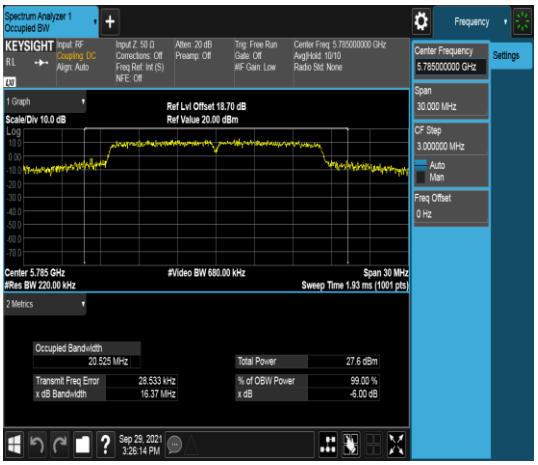
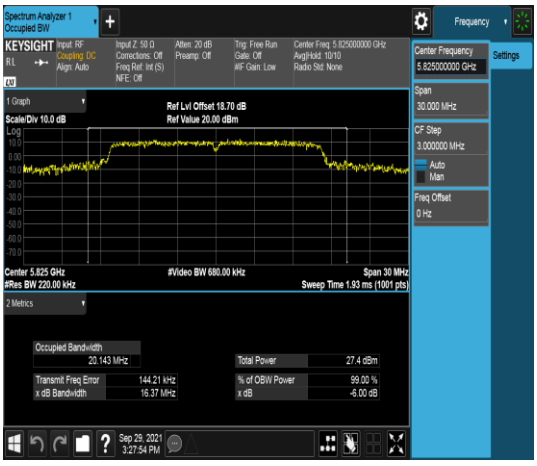
UNII-1 IEEE 802.11n HT40 mode- Chain 0	
Low CH	**High CH**
	
UNII-1 IEEE 802.11n HT40 mode- Chain 1	
Low CH	**High CH**
	

Report No.: TMWK2109000561KR

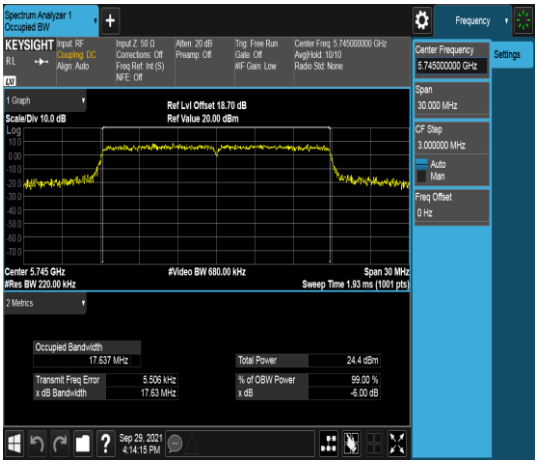
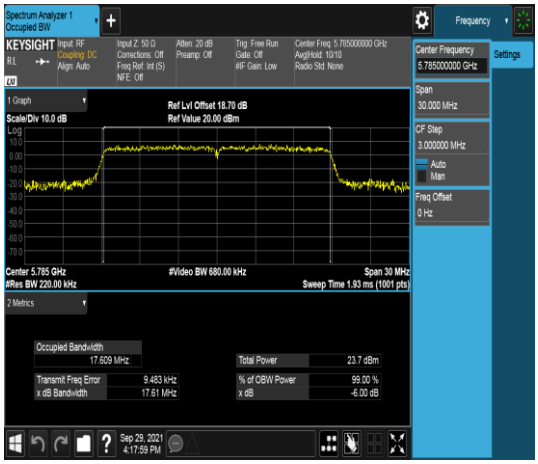
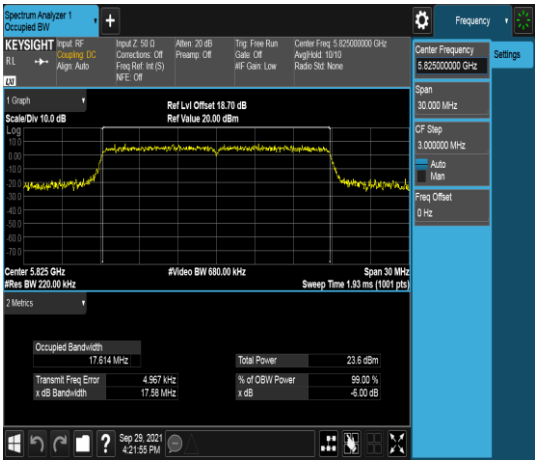
UNII-1 IEEE 802.11ac VHT80 mode- Chain 0	
Low CH	
	
UNII-1 IEEE 802.11ac VHT80 mode- Chain 1	
Low CH	
	

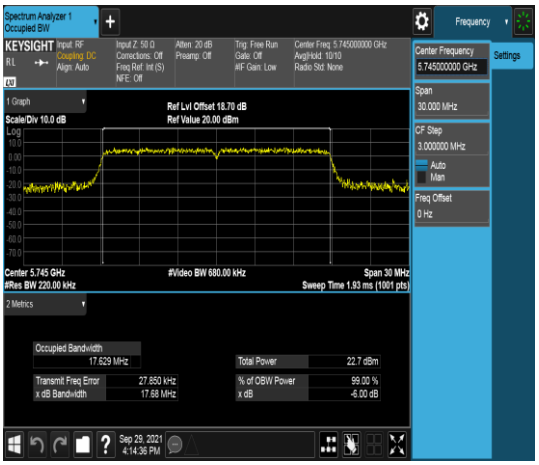
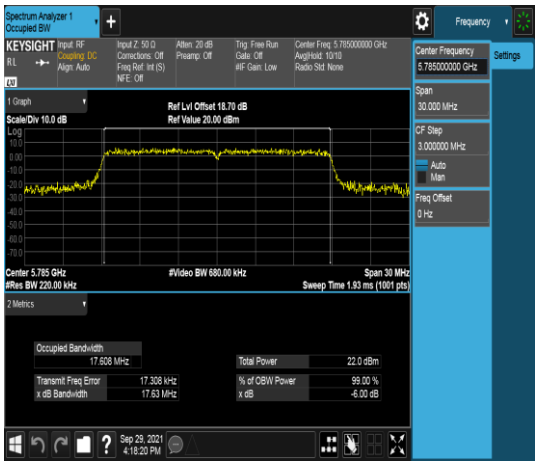
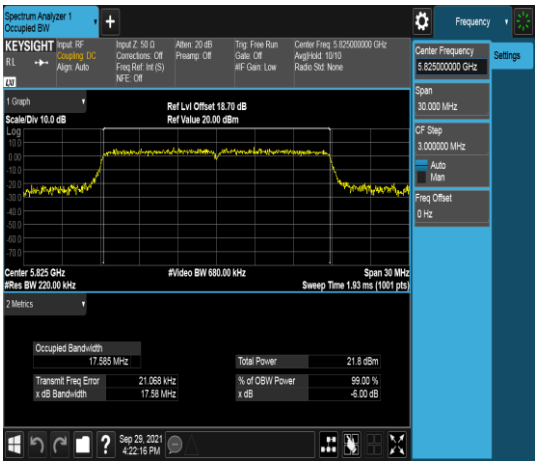
Report No.: TMWK2109000561KR

Test Data (99% OBW)

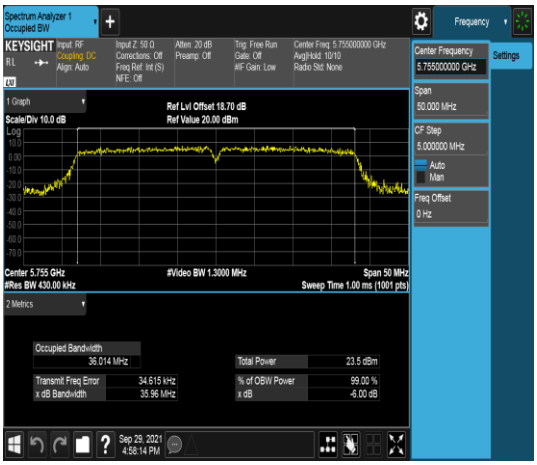
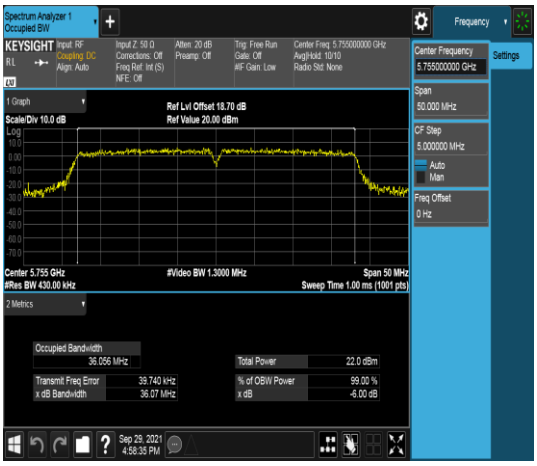
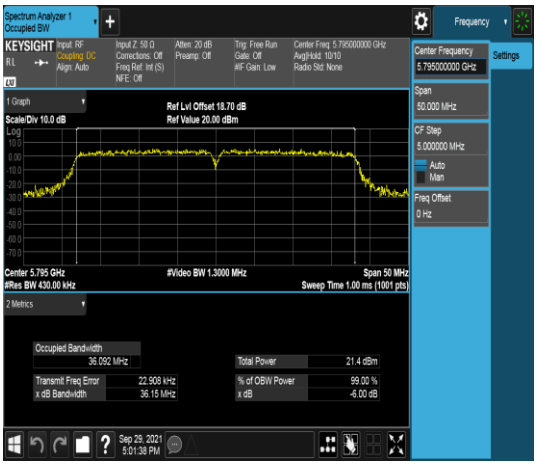
UNII-3 IEEE 802.11a mode- Chain 0	
Low CH	**Mid CH**
	
High CH	
	

Report No.: TMWK2109000561KR

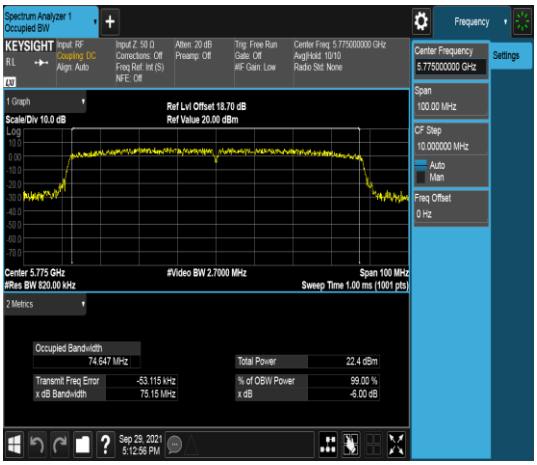
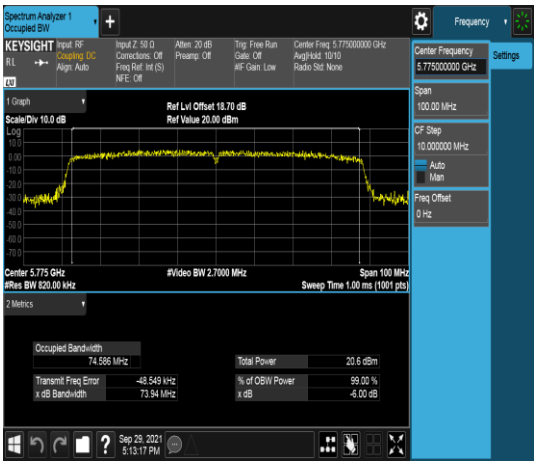
UNII-3 IEEE 802.11n HT20 mode- Chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-3 IEEE 802.11n HT20 mode- Chain 1	
Low CH	**Mid CH**
	
High CH	
	

Report No.: TMWK2109000561KR

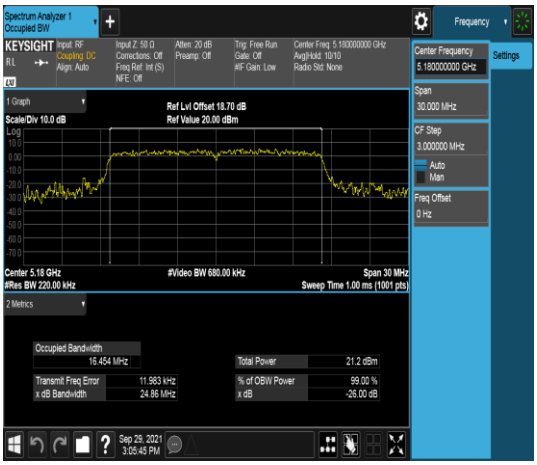
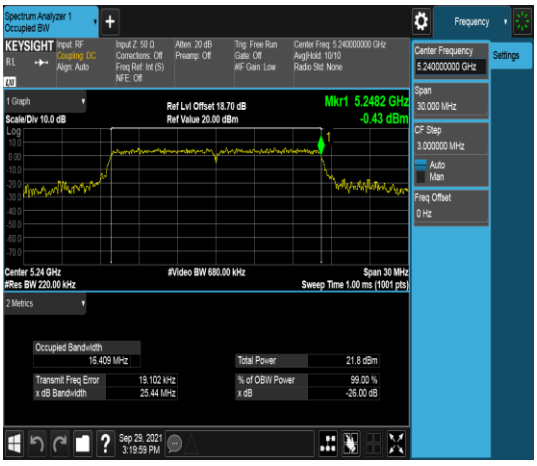
UNII-3 IEEE 802.11n HT40 mode- Chain 0	
Low CH	**High CH**
	
UNII-3 IEEE 802.11n HT40 mode- Chain 1	
Low CH	**High CH**
	

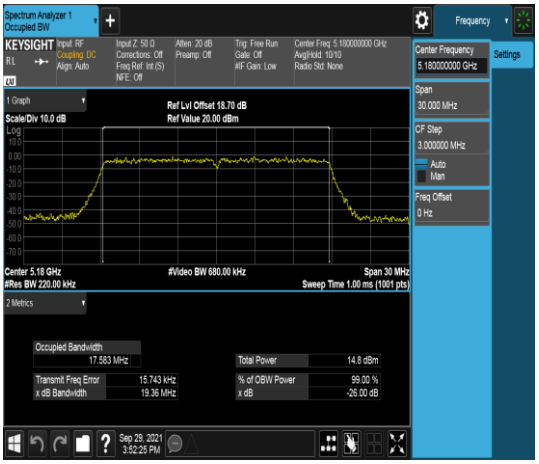
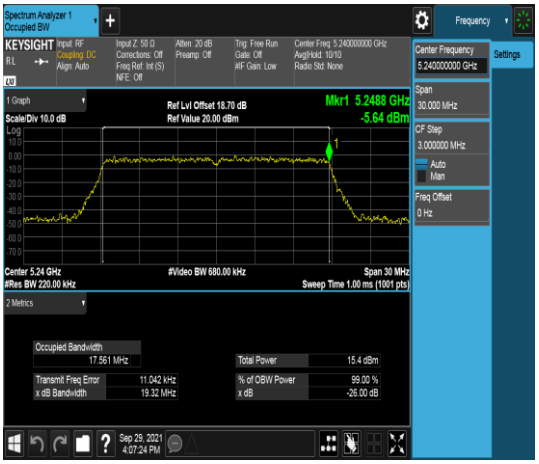
Report No.: TMWK2109000561KR

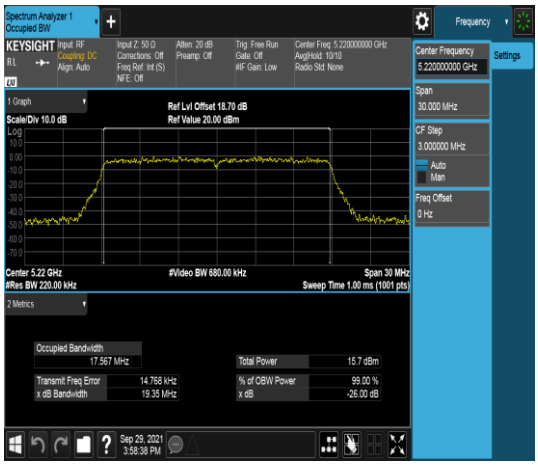
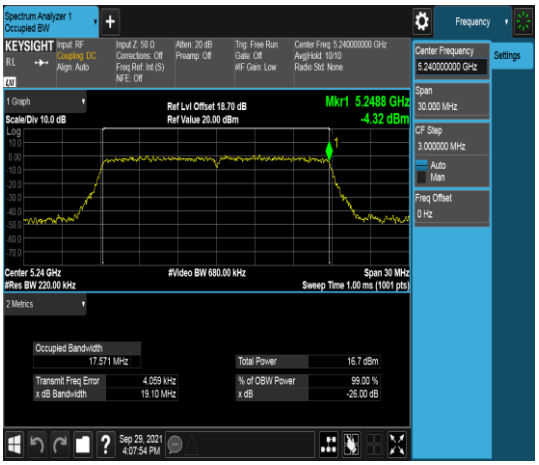
UNII-3 IEEE 802.11ac VHT80 mode- Chain 0	
Low CH	
	
UNII-3 IEEE 802.11ac VHT80 mode- Chain 1	
Low CH	
	

Report No.: TMWK2109000561KR

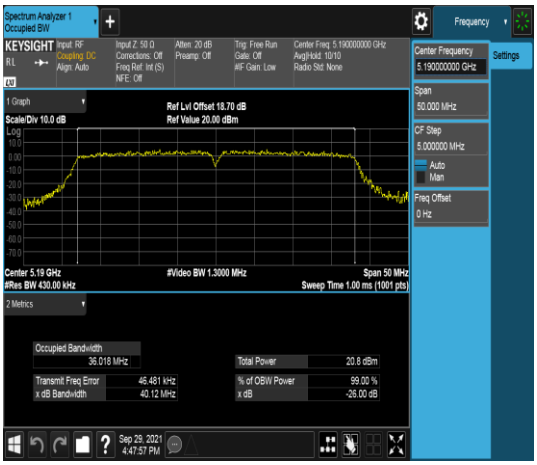
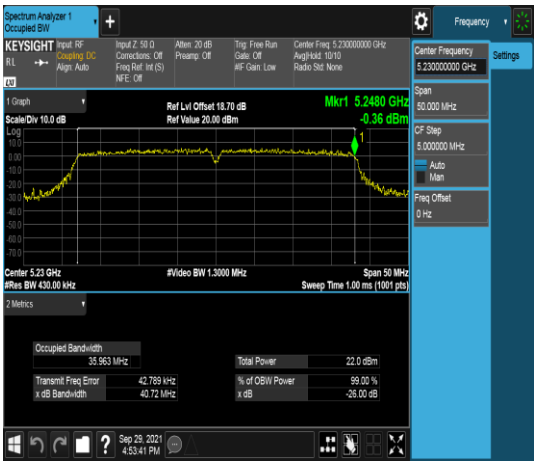
Test Data (26dB BANDWIDTH)

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

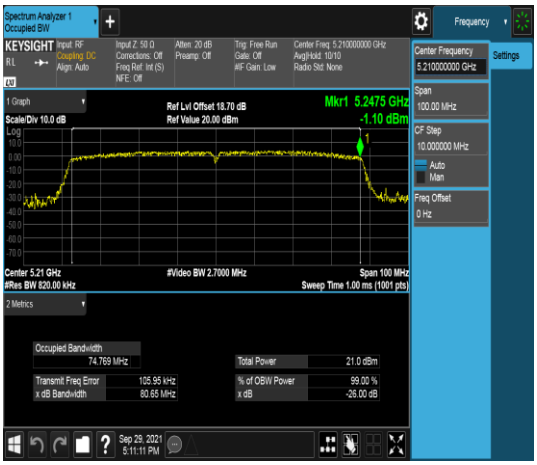
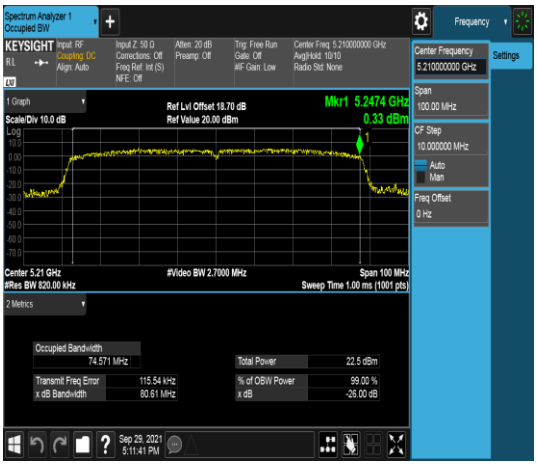
UNII-1 IEEE 802.11n HT20 mode- Chain 0	
Low CH	**Mid CH**
	
High CH	
	

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

Report No.: TMWK2109000561KR

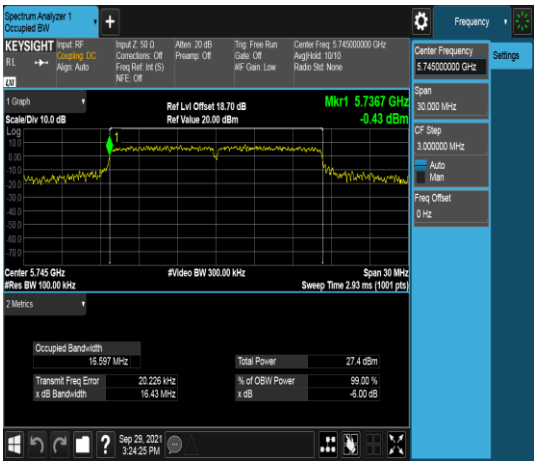
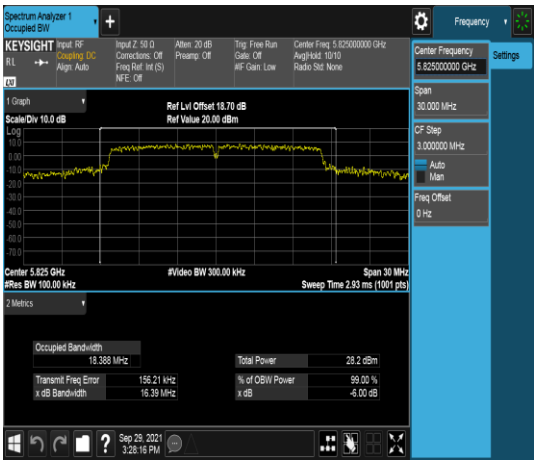
UNII-1 IEEE 802.11n HT40 mode- Chain 0	
Low CH	**High CH**
	
UNII-1 IEEE 802.11n HT40 mode- Chain 1	
Low CH	**High CH**
	

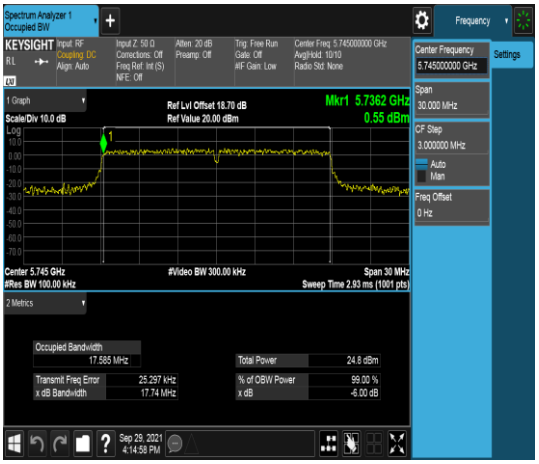
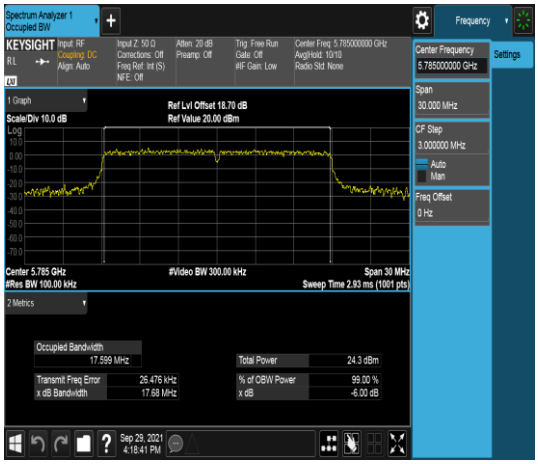
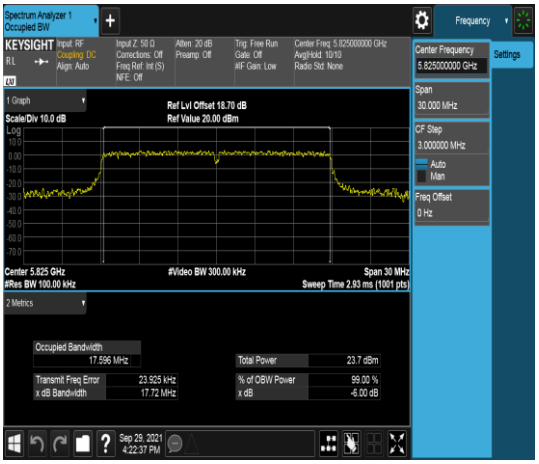
Report No.: TMWK2109000561KR

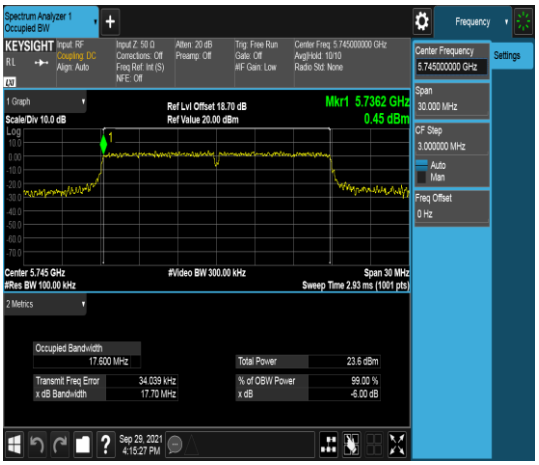
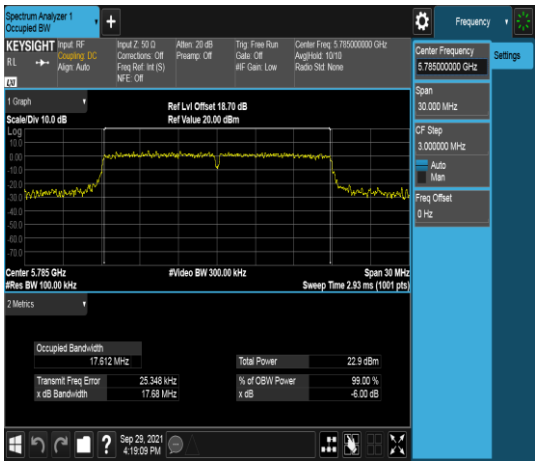
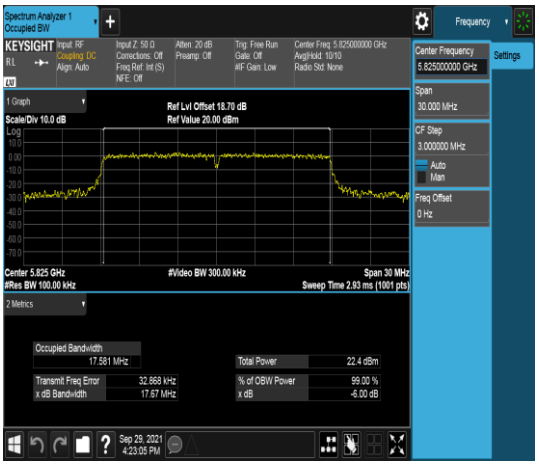
UNII-1 IEEE 802.11ac VHT80 mode- Chain 0	
Low CH	
	
UNII-1 IEEE 802.11ac VHT80 mode- Chain 1	
Low CH	
	

Report No.: TMWK2109000561KR

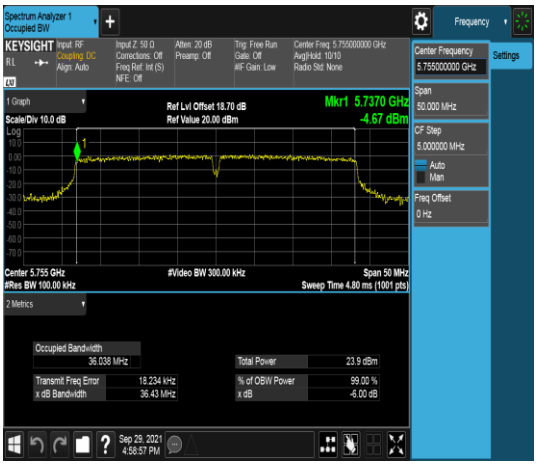
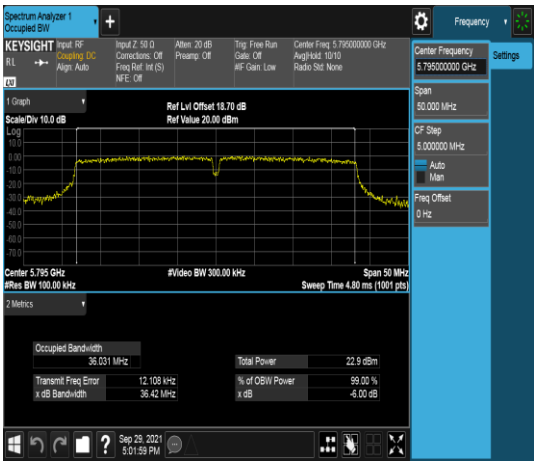
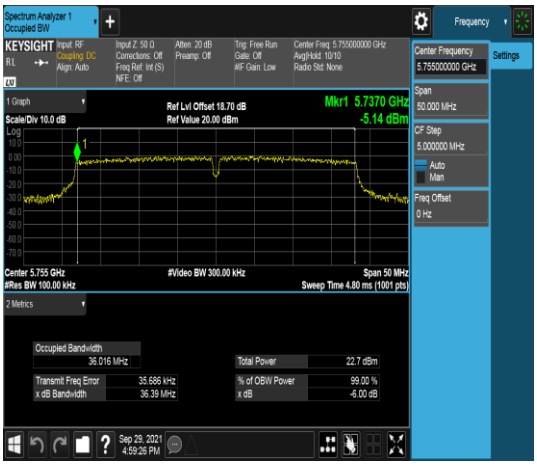
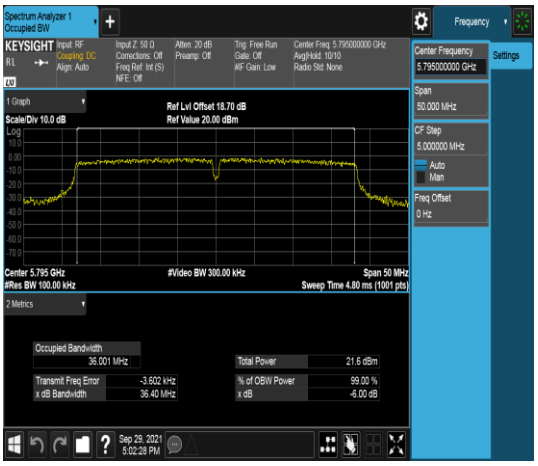
Test Data (6dB BANDWIDTH)

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

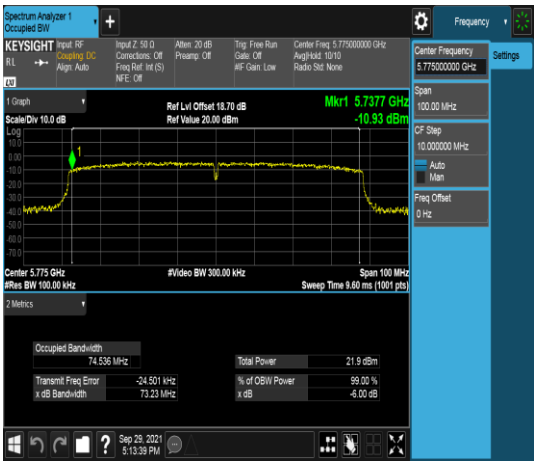
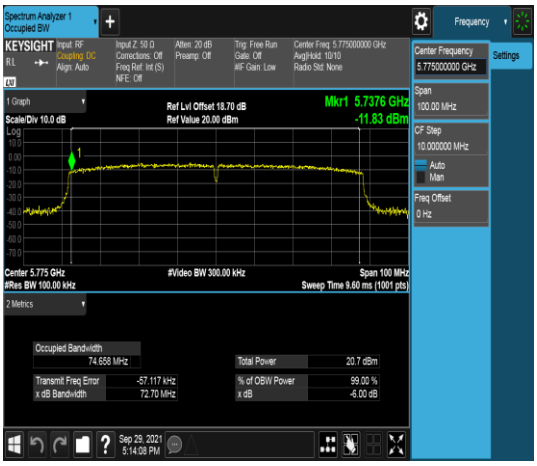
UNII-3 IEEE 802.11n HT20 mode- Chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-3 IEEE 802.11n HT20 mode- Chain 1	
Low CH	**Mid CH**
	
High CH	
	

Report No.: TMWK2109000561KR

UNII-3 IEEE 802.11n HT40 mode- Chain 0	
Low CH	**High CH**
	
UNII-3 IEEE 802.11n HT40 mode- Chain 1	
Low CH	**High CH**
	

Report No.: TMWK2109000561KR

UNII-3 IEEE 802.11ac VHT80 mode- Chain 0	
Low CH	
	
UNII-3 IEEE 802.11ac VHT80 mode- Chain 1	
Low CH	
	

4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.407 (a)(1) and 15.407(a)(3), and RSS-247 section 6.2.1.1 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), 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-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-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 ☒ 200mW or 10 + 10 log10B for IC ☐ 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)]

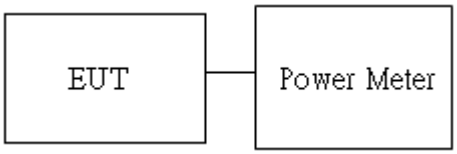
4.3.2 Test Procedure

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