

Project No.: TM-2308000057P
Report No.: TMWK2308002691KR

FCC ID: VPYLBEE6XX1UR
IC: 772C-LBEE6XX1UR

Page 1 / 391
Rev.: 00

RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART E

INDUSTRY CANADA RSS-247

Test Standard	FCC Part 15.407 RSS-247 issue 2 and RSS-GEN issue 5
Brand name	muRata
Applicant	Murata manufacturing co., ltd.
Product name	Communication module
Model No.	LBEE6XX1UR
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:

Shawn Wu
Supervisor

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	September 22, 2023	Initial Issue	ALL	Allison Chen

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.....	7
1.5	FACILITIES AND TEST LOCATION	8
1.6	INSTRUMENT CALIBRATION	9
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 WORST MODE OF OPERATING CONDITION	12
3.2	THE WORST MODE OF MEASUREMENT	13
3.3	EUT DUTY CYCLE.....	14
4.	TEST RESULT	16
4.1	AC POWER LINE CONDUCTED EMISSION	16
4.2	26DB BANDWIDTH, 6DB BANDWIDTH AND OCCUPIED BANDWIDTH(99%).....	17
4.3	OUTPUT POWER MEASUREMENT	66
4.4	POWER SPECTRAL DENSITY.....	77
4.5	RADIATION BANDEDGE AND SPURIOUS EMISSION	102
APPENDIX 1 - PHOTOGRAPHS OF EUT		

1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	Murata manufacturing co., ltd. 1-10-1, Higashikotari, Nagaokakyou-shi, Kyoto 617-8555 Japan
Manufacturer	Murata manufacturing co., ltd. 1-10-1, Higashikotari, Nagaokakyou-shi, Kyoto 617-8555 Japan
Equipment	Communication module
Model No.	LBEE6XX1UR
Model Discrepancy	N/A
Trade Name	muRata
Received Date	August 7, 2023
Date of Test	August 15 ~ September 4, 2023
Power Supply	Powered from power supply. (DC 3.3V)
HW Version	1.0
SW Version	1.0

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 HT20	5180 ~ 5240 MHz
	IEEE 802.11ac VHT20	5180 ~ 5240 MHz
	IEEE 802.11n HT40	5190 ~ 5230 MHz
	IEEE 802.11ac VHT40	5190 ~ 5230 MHz
	IEEE 802.11ac VHT80	5210 MHz
	UNII-2a	
	IEEE 802.11a	5260 ~ 5320 MHz
	IEEE 802.11n HT20	5260 ~ 5320 MHz
	IEEE 802.11ac VHT20	5260 ~ 5320 MHz
	IEEE 802.11n HT40	5270 ~ 5310 MHz
	IEEE 802.11ac VHT40	5270 ~ 5310 MHz
	IEEE 802.11ac VHT80	5290 MHz
	UNII-2c	
	IEEE 802.11a	5500 ~ 5720 MHz
	IEEE 802.11n HT20	5500 ~ 5720 MHz
	IEEE 802.11ac VHT20	5500 ~ 5720 MHz
	IEEE 802.11n HT40	5510 ~ 5710 MHz
	IEEE 802.11ac VHT40	5510 ~ 5710 MHz
	IEEE 802.11ac VHT80	5530 ~ 5690 MHz
	UNII-3	
	IEEE 802.11a	5745 ~ 5825 MHz
	IEEE 802.11n HT20	5745 ~ 5825 MHz
	IEEE 802.11ac VHT20	5745 ~ 5825 MHz
	IEEE 802.11n HT40	5755 ~ 5795 MHz
	IEEE 802.11ac VHT40	5755 ~ 5795 MHz
IEEE 802.11ac VHT80	5775 MHz	
Modulation Type	<ol style="list-style-type: none"> 1. IEEE 802.11a mode: OFDM 2. IEEE 802.11n HT20 mode: OFDM 3. IEEE 802.11n HT40 mode: OFDM 4. IEEE 802.11ac VHT20 mode: OFDM 5. IEEE 802.11ac VHT40 mode: OFDM 6. IEEE 802.11ac VHT80 mode: OFDM 	

Remark:

1. Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 for test channels
2. For Canada the EUT Frequency Range 5600~5650MHz will be disabled.

Number of frequencies to be tested		
Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
<input type="checkbox"/> 1 MHz or less	1	Middle
<input type="checkbox"/> 1 MHz to 10 MHz	2	1 near top and 1 near bottom
<input checked="" type="checkbox"/> More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

1.3 ANTENNA INFORMATION

Antenna Type	<input type="checkbox"/> PIFA <input type="checkbox"/> PCB <input type="checkbox"/> Dipole <input type="checkbox"/> Coils <input checked="" type="checkbox"/> Chip
Antenna Gain	Gain: 1.7 dBi
Antenna Trade / Model	INPAQ TECHNOLOGY / VGAP-CLB-AS-A1
Antenna connector	N/A

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.

1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	± 2.213 dB
Channel Bandwidth	± 2.7 %
RF output power (Spectrum)	± 2.440 dB
Power Spectral density	± 2.739 dB
Radiated Emission_9kHz-30MHz	± 3.761 dB
Radiated Emission_30MHz-200MHz	± 3.473 dB
Radiated Emission_200MHz-1GHz	± 3.946 dB
Radiated Emission_1GHz-6GHz	± 4.797 dB
Radiated Emission_6GHz-18GHz	± 4.803 dB
Radiated Emission_18GHz-26GHz	± 3.459 dB
Radiated Emission_26GHz-40GHz	± 3.297 dB

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.: TMWK2308002691KR

1.5 FACILITIES AND TEST LOCATION

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

AC Powerline Conducted Emission and Conducted:

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan.

Radiated emission 9kHz to 40GHz:

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan.

No. 12, Ln. 116, Wugong 3rd Rd., Wugu Dist., New Taipei City, Taiwan 24803

CAB identifier: TW1309

Test site	Test Engineer	Remark
AC Conduction Room	-	Not applicable, because EUT doesn't connect to AC Main Source direct.
Radiation	Ray Li / Tony Chao	-
RF Conducted	Marco Chan	-

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

1.6 INSTRUMENT CALIBRATION

Conducted_FCC/IC/NCC (All)					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Power Sensor	Anritsu	MA2411B	1911386	2023-07-25	2024-07-24
Power Sensor	Anritsu	MA2411B	1911387	2023-07-25	2024-07-24
Power Meter	Anritsu	ML2496A	2136002	2022-11-24	2023-11-23
Bluetooth Test Set	Anritsu	MT8852B	750013	2023-04-27	2024-04-06
EXA Signal Analyzer	Keysight	N9010B	MY60242460	2023-02-02	2024-02-01
Software	Radio Test Software Ver. 21				

966A_Radiated Wi-Fi 5GHz					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
PXA Signal Analyzer	Keysight Technologies	N9030B	MY62291089	2022-10-14	2023-10-13
Cable	EMCI	EMC101G	211010+211011+211012	2022-12-12	2023-12-11
Loop Antenna	SCHWARZBECK	FMZB 1513_60	1513_60_028	2022-12-27	2023-12-26
Preamplifier	EMEC	EM330	060609	2023-02-22	2024-02-21
Thermo-Hygro Meter	WISEWIND	1206	D07	2022-12-19	2023-12-18
Preamplifier	HP	8449B	3008A00965	2022-12-23	2023-12-22
Bi-Log Antenna	Sunol Sciences	JB3	A030105	2023-08-08	2024-08-07
Cable	Huber+Suhner	104PEA	20995+21000+182330	2023-02-22	2024-02-21
Horn Antenna	ETC	MCTD 1209	DRH13M02003	2023-01-12	2024-01-11
High Pass Filters	MICRO TRONICS	HPM13195	003	2023-02-01	2024-01-31
Horn Antenna	SCHWARZBECK	BBHA9170	1047	2022-12-30	2023-12-29
Pre-Amplifier	EMCI	EMC184045SE	980860	2022-12-27	2023-12-26
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Software	e3 V9-210616c				

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

Support Unit List for Client				
N0	Kind/ Brand/ Model(S/N)	Core(Qty)	Length	Remark
A	TypeA to TypeB Cable/NA/NA	N/A	N/A	N/A
B	Power Cable/NA/NA	N/A	N/A	N/A
C	TypeA to RS232 Cable/NA/NA	N/A	N/A	N/A
D	Power Cable/NA/NA	N/A	N/A	N/A
E	Power Cable/NA/NA	N/A	N/A	N/A
Support Unit List				
N0	Kind/ Brand/ Model(S/N)	Core(Qty)	Length	Remark
1	Power Supply/ABM/9603D-D011314	N/A	N/A	N/A
2	NB(D)/Lenovo/ThinkPad X260	N/A	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.

2. TEST SUMMARY

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

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	<ol style="list-style-type: none"> 1. IEEE 802.11a mode: 6Mbps 2. IEEE 802.11n HT20 mode: MCS0 3. IEEE 802.11n HT40 mode: MCS0 4. IEEE 802.11ac VHT20 mode: MCS0 5. IEEE 802.11ac VHT40 mode: MCS0 6. IEEE 802.11ac VHT80 mode: MCS0 																																																							
Operating Frequency Range	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 45%;">Mode</th> <th style="width: 40%;">Frequency Range (MHz)</th> </tr> </thead> <tbody> <tr> <td rowspan="6" style="text-align: center; vertical-align: middle;">U-NII-1</td> <td>IEEE 802.11a</td> <td>5180, 5220, 5240</td> </tr> <tr> <td>IEEE 802.11n HT20</td> <td>5180, 5220, 5240</td> </tr> <tr> <td>IEEE 802.11n HT40</td> <td>5190, 5230</td> </tr> <tr> <td>IEEE 802.11ac VHT20</td> <td>5180, 5220, 5240</td> </tr> <tr> <td>IEEE 802.11ac VHT40</td> <td>5190, 5230</td> </tr> <tr> <td>IEEE 802.11ac VHT80</td> <td>5210</td> </tr> <tr> <td rowspan="6" style="text-align: center; vertical-align: middle;">U-NII-2a</td> <td>IEEE 802.11a</td> <td>5260, 5300, 5320</td> </tr> <tr> <td>IEEE 802.11n HT20</td> <td>5260, 5300, 5320</td> </tr> <tr> <td>IEEE 802.11n HT40</td> <td>5270, 5310</td> </tr> <tr> <td>IEEE 802.11ac VHT20</td> <td>5260, 5300, 5320</td> </tr> <tr> <td>IEEE 802.11ac VHT40</td> <td>5270, 5310</td> </tr> <tr> <td>IEEE 802.11ac VHT80</td> <td>5290</td> </tr> <tr> <td rowspan="6" style="text-align: center; vertical-align: middle;">U-NII-2c</td> <td>IEEE 802.11a</td> <td>5500, 5580, 5700, 5720</td> </tr> <tr> <td>IEEE 802.11n HT20</td> <td>5500, 5580, 5700, 5720</td> </tr> <tr> <td>IEEE 802.11n HT40</td> <td>5510, 5550, 5670, 5710</td> </tr> <tr> <td>IEEE 802.11ac VHT20</td> <td>5500, 5580, 5700, 5720</td> </tr> <tr> <td>IEEE 802.11ac VHT40</td> <td>5510, 5550, 5670, 5710</td> </tr> <tr> <td>IEEE 802.11ac VHT80</td> <td>5530, 5610, 5690</td> </tr> <tr> <td rowspan="6" style="text-align: center; vertical-align: middle;">U-NII-3</td> <td>IEEE 802.11a</td> <td>5745, 5785, 5825</td> </tr> <tr> <td>IEEE 802.11n HT20</td> <td>5745, 5785, 5825</td> </tr> <tr> <td>IEEE 802.11n HT40</td> <td>5755, 5795</td> </tr> <tr> <td>IEEE 802.11ac VHT20</td> <td>5745, 5785, 5825</td> </tr> <tr> <td>IEEE 802.11ac VHT40</td> <td>5755, 5795</td> </tr> <tr> <td>IEEE 802.11ac VHT80</td> <td>5775</td> </tr> </tbody> </table>		Mode	Frequency Range (MHz)	U-NII-1	IEEE 802.11a	5180, 5220, 5240	IEEE 802.11n HT20	5180, 5220, 5240	IEEE 802.11n HT40	5190, 5230	IEEE 802.11ac VHT20	5180, 5220, 5240	IEEE 802.11ac VHT40	5190, 5230	IEEE 802.11ac VHT80	5210	U-NII-2a	IEEE 802.11a	5260, 5300, 5320	IEEE 802.11n HT20	5260, 5300, 5320	IEEE 802.11n HT40	5270, 5310	IEEE 802.11ac VHT20	5260, 5300, 5320	IEEE 802.11ac VHT40	5270, 5310	IEEE 802.11ac VHT80	5290	U-NII-2c	IEEE 802.11a	5500, 5580, 5700, 5720	IEEE 802.11n HT20	5500, 5580, 5700, 5720	IEEE 802.11n HT40	5510, 5550, 5670, 5710	IEEE 802.11ac VHT20	5500, 5580, 5700, 5720	IEEE 802.11ac VHT40	5510, 5550, 5670, 5710	IEEE 802.11ac VHT80	5530, 5610, 5690	U-NII-3	IEEE 802.11a	5745, 5785, 5825	IEEE 802.11n HT20	5745, 5785, 5825	IEEE 802.11n HT40	5755, 5795	IEEE 802.11ac VHT20	5745, 5785, 5825	IEEE 802.11ac VHT40	5755, 5795	IEEE 802.11ac VHT80	5775
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	IEEE 802.11ac VHT80	5775																																																						

Remark:

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

3.2 THE WORST MODE OF MEASUREMENT

Radiated Emission Measurement Above 1G	
Test Condition	Radiated Emission Above 1G
Power supply Mode	Mode 1: EUT power by Power supply
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4
Worst Position	<input type="checkbox"/> Placed in fixed position. <input checked="" type="checkbox"/> Placed in fixed position at X-Plane (E2-Plane) <input type="checkbox"/> Placed in fixed position at Y-Plane (E1-Plane) <input type="checkbox"/> 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	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4

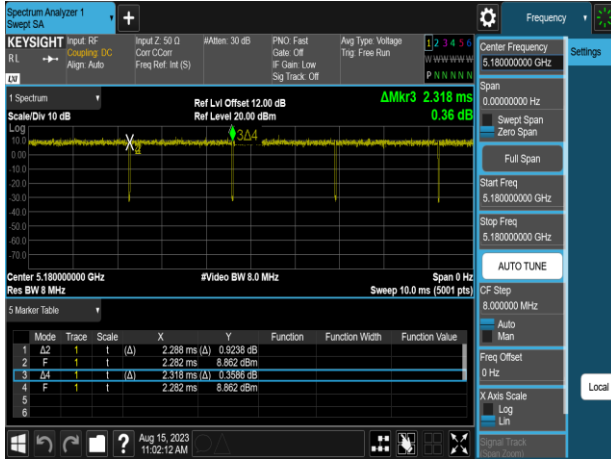
Remark:

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

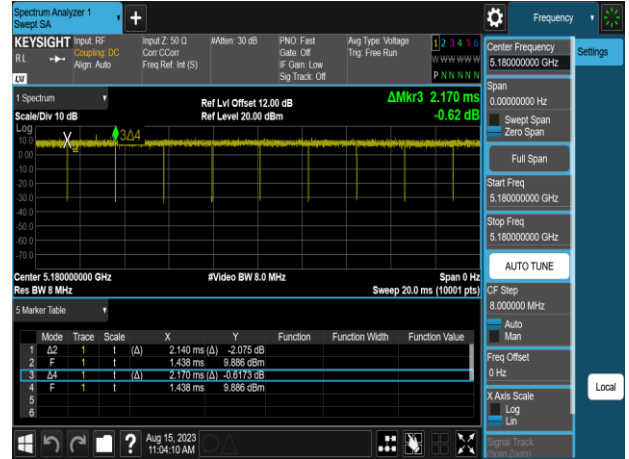
3.3 EUT DUTY CYCLE

Mode	Duty Cycle (%) =Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11a	98.71	0.06	0.44	0.01
802.11n_20	98.61	0.06	0.47	0.01
802.11ac_20	98.62	0.06	0.47	0.01
802.11n_40	97.21	0.12	0.96	1.00
802.11ac_40	97.23	0.12	0.95	1.00
802.11ac_80	94.42	0.25	1.97	2.00

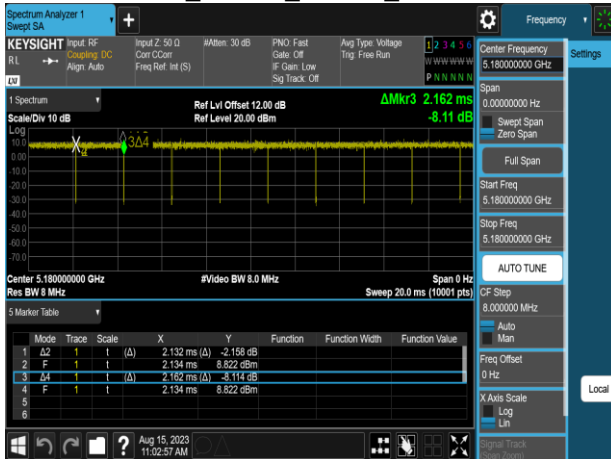
802.11a_20MHz_Chain0_5180MHz



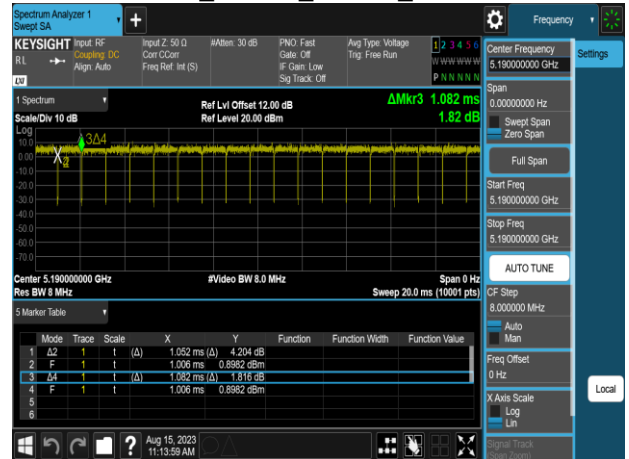
802.11ac_20MHz_Chain0_5180MHz



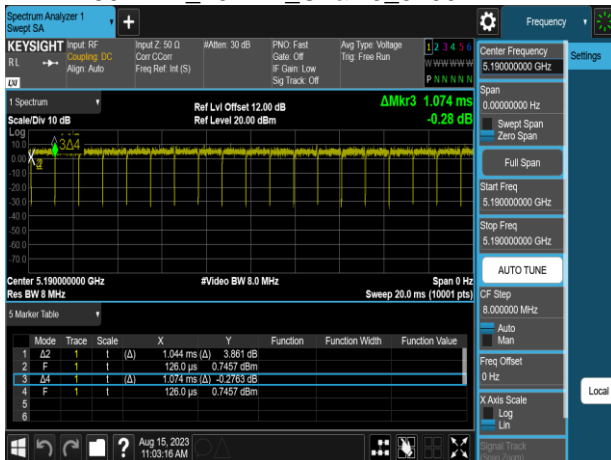
802.11n_20MHz_Chain0_5180MHz



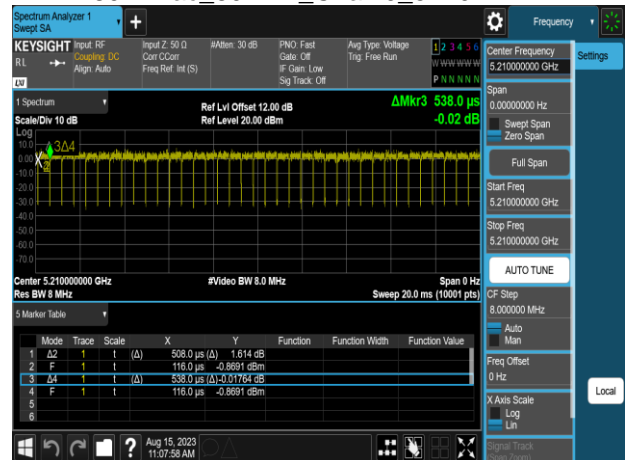
802.11ac_40MHz_Chain0_5190MHz



802.11n_40MHz_Chain0_5190MHz



802.11ac_80MHz_Chain0_5210MHz



Report No.: TMWK2308002691KR

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(dB μ V)	
	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

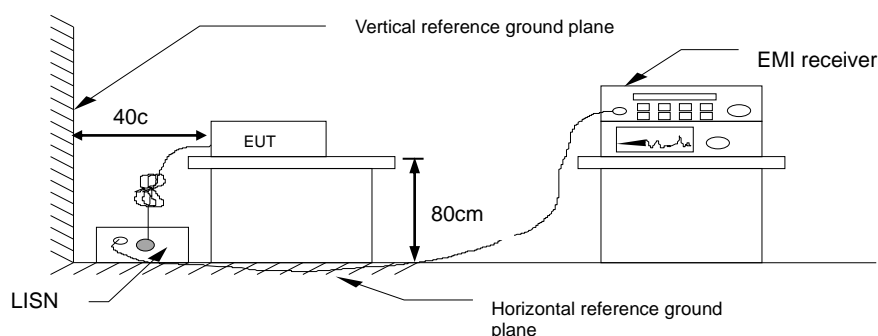
* Decreases with the logarithm of the frequency.

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. Detector = 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%.

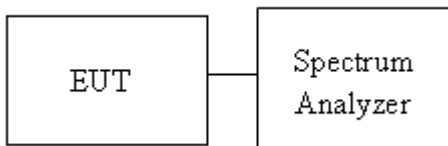
6dB

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) $\geq 3 \times$ RBW.
4. Detector = 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 $\geq 3 \times$ RBW

4.2.3 Test Setup



Report No.: TMWK2308002691KR

4.2.4 Test Result

Temperature: 23.8~26.7°C Test date: August 15~September 4, 2023
Humidity: 50~60%RH Tested by: Marco Chan

Standard: FCC 99% OBW

802.11a_Ch0

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	16.756	12.240
5220	16.755	12.240
5240	16.791	12.250
5260	16.747	12.240
5300	16.761	12.240
5320	16.756	12.240
5500	16.753	12.240
5580	16.781	12.250
5700	16.777	12.250
5720(U-NII 2C)	13.405	11.270
5720(U-NII 3)	3.406	5.320

802.11a_Ch0

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5745	16.750	16.44
5785	16.783	16.42
5825	16.775	16.45

802.11n_HT20_Ch0

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	17.934	12.540
5220	17.907	12.530
5240	17.935	12.540
5260	17.923	12.530
5300	17.905	12.530
5320	17.883	12.520
5500	17.904	12.530
5580	17.939	12.540
5700	17.929	12.540
5720(U-NII 2C)	13.959	11.450
5720(U-NII 3)	3.960	5.980

802.11n_HT20_Ch0

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5745	17.900	17.71
5785	17.879	17.71
5825	17.920	17.67

802.11n_HT40_Ch0

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5190	36.335	15.600
5230	36.238	15.590
5270	36.258	15.590
5310	36.300	15.600
5510	36.325	15.600
5550	36.266	15.590
5670	36.334	15.600
5710(U-NII 2C)	33.177	15.210
5710(U-NII 3)	3.178	5.020

802.11n_HT40_Ch0

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5755	36.392	36.60
5795	36.319	36.29

802.11ac_VHT80_Ch0

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5210	75.843	18.800
5290	75.960	18.810
5530	75.883	18.800
5610	75.802	18.800
5690(U-NII 2C)	72.932	18.630
5690(U-NII 3)	2.933	4.670

802.11ac_VHT80_Ch0

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5775	75.797	76.19

Standard: FCC 26dB/6dB Bandwidth

802.11a_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	20.94	13.210
5220	21.33	13.290
5240	21.09	13.240
5260	21.25	13.270
5300	21.26	13.280
5320	21.39	13.300
5500	21.24	13.270
5580	21.36	13.300
5700	21.53	13.330
5720(U-NII 2C)	15.58	11.930
5720(U-NII 3)	5.58	7.470

802.11a_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.43	12.160
5785	16.38	12.140
5825	16.42	12.150

802.11a_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.418595	< 5250
5745	5736.717723	> 5725

802.11n_HT20_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	21.30	13.280
5220	21.63	13.350
5240	21.50	13.320
5260	21.43	13.310
5300	21.78	13.380
5320	21.47	13.320
5500	21.66	13.360
5580	21.41	13.310
5700	21.68	13.360
5720(U-NII 2C)	15.72	11.960
5720(U-NII 3)	5.72	7.570

802.11n_HT20_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	17.63	12.460
5785	17.81	12.510
5825	17.59	12.450

802.11n_HT20_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.990183	< 5250
5745	5736.121572	> 5725

802.11n_HT40_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	39.35	15.950
5230	39.52	15.970
5270	39.69	15.990
5310	40.00	16.020
5510	39.83	16.000
5550	39.87	16.010
5670	39.75	15.990
5710(U-NII 2C)	34.925	15.430
5710(U-NII 3)	4.925	6.920

802.11n_HT40_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	36.41	15.610
5795	36.39	15.610

802.11n_HT40_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.214559	< 5250
5755	5736.892525	> 5725

802.11ac_VHT80_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	81.91	19.130
5290	85.99	19.340
5530	80.59	19.060
5610	81.57	19.120
5690(U-NII 2C)	75.875	18.800
5690(U-NII 3)	5.875	7.690

802.11ac_VHT80_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	75.84	18.800

802.11ac_VHT80_Ch0

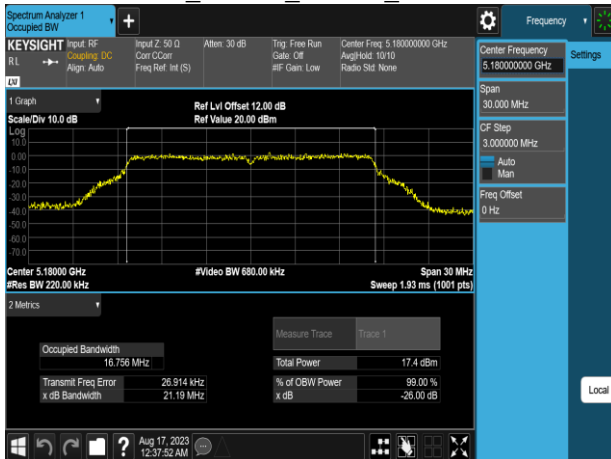
Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5247.902345	< 5250
5775	5737.212273	> 5725

Report No.: TMWK2308002691KR

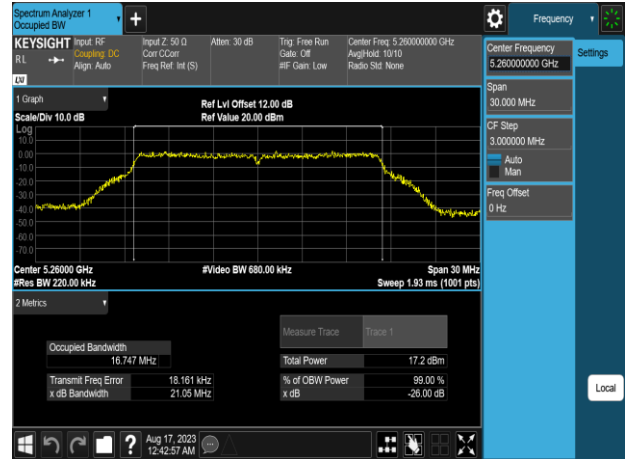
Test Data

Standard: FCC 99% OBW

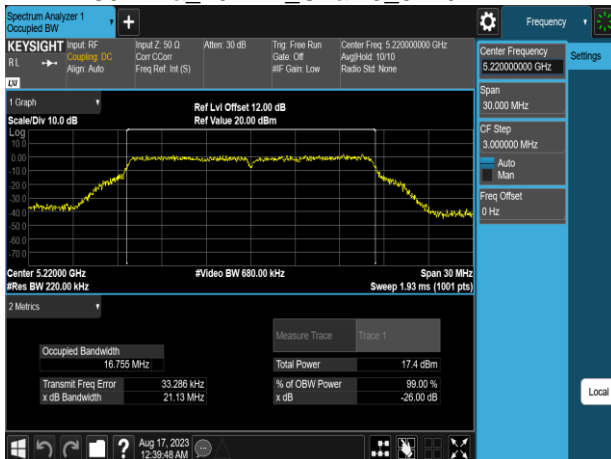
802.11a_20MHz_Chain0_5180MHz



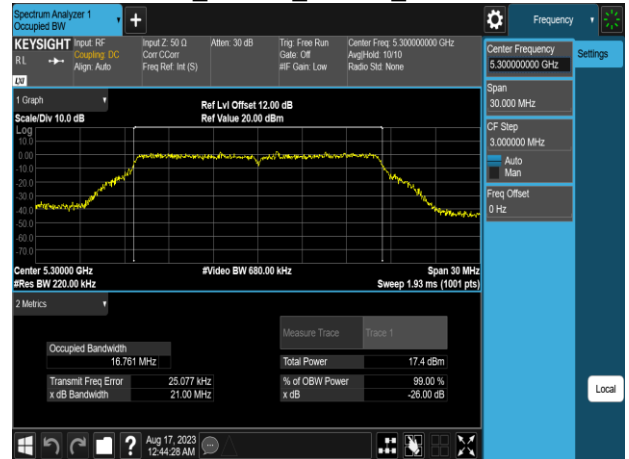
802.11a_20MHz_Chain0_5260MHz



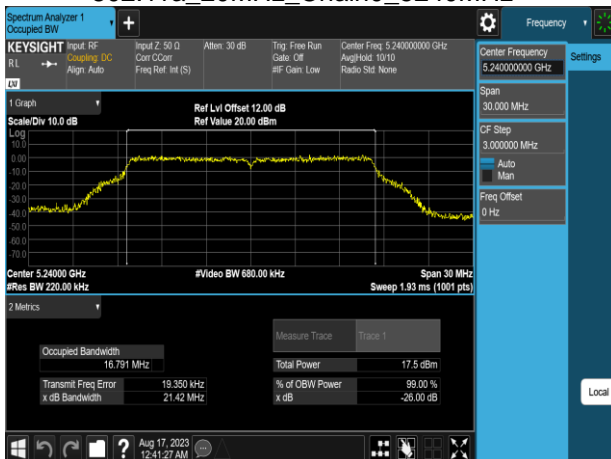
802.11a_20MHz_Chain0_5220MHz



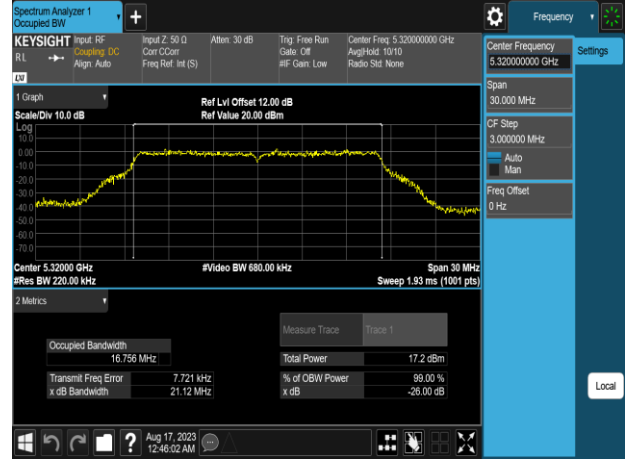
802.11a_20MHz_Chain0_5300MHz



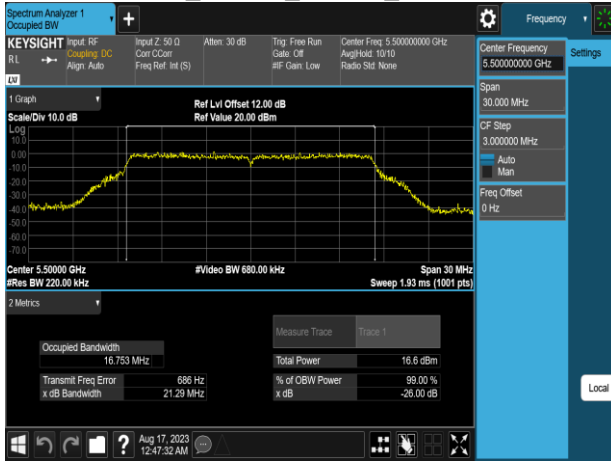
802.11a_20MHz_Chain0_5240MHz



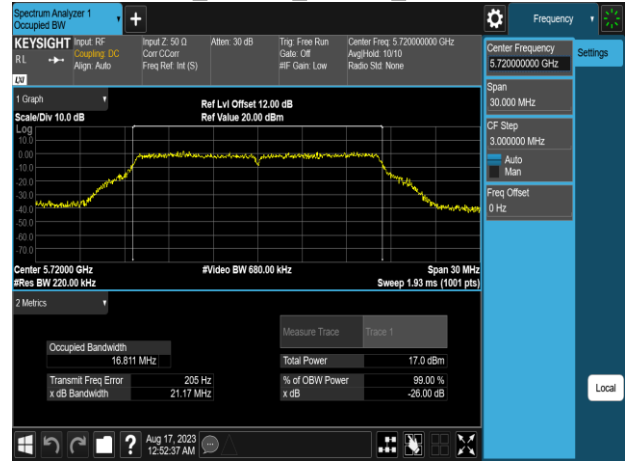
802.11a_20MHz_Chain0_5320MHz



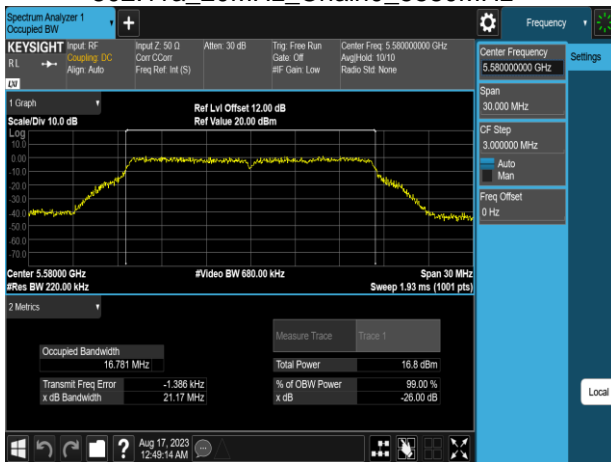
802.11a_20MHz_Chain0_5500MHz



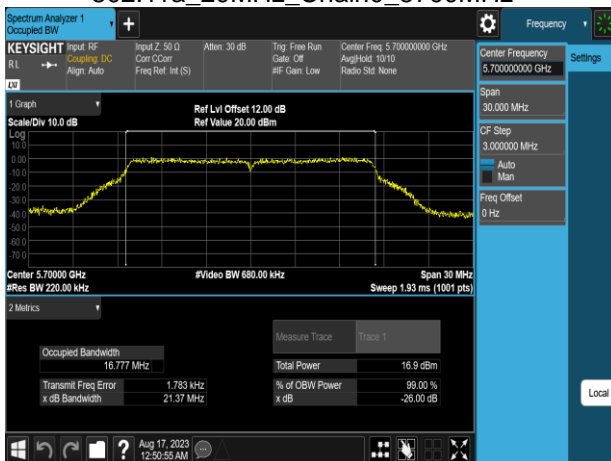
802.11a_20MHz_Chain0_5720MHz



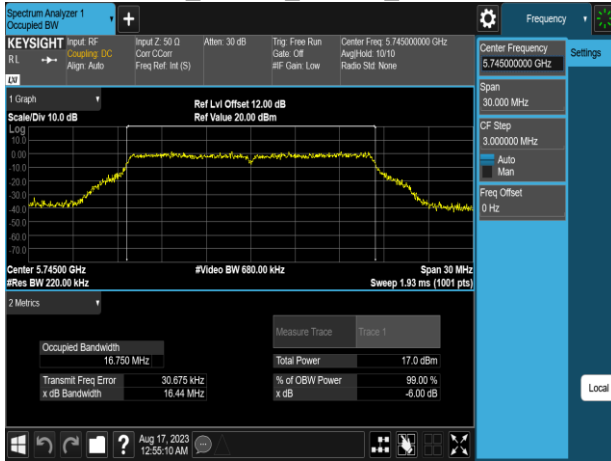
802.11a_20MHz_Chain0_5580MHz



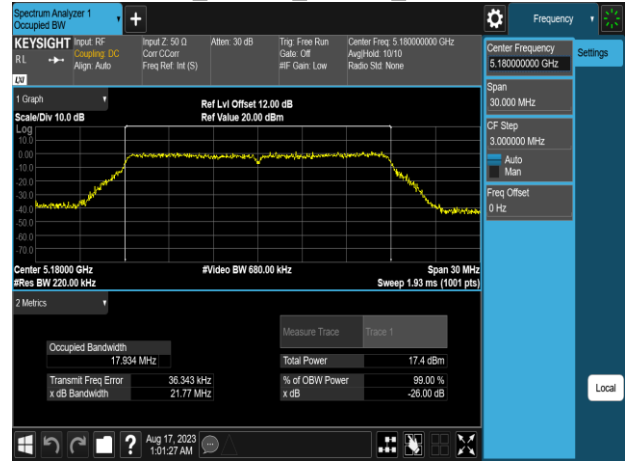
802.11a_20MHz_Chain0_5700MHz



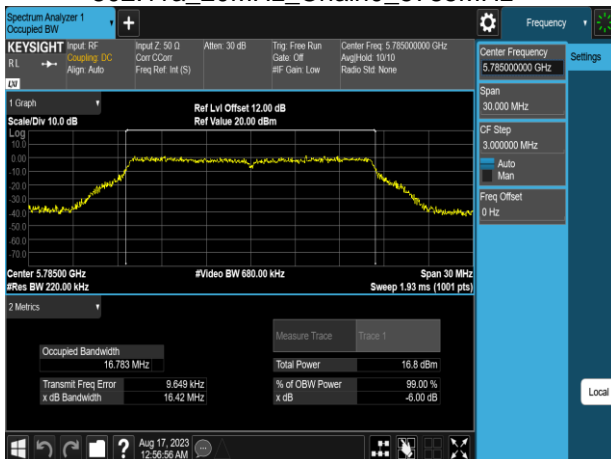
802.11a_20MHz_Chain0_5745MHz



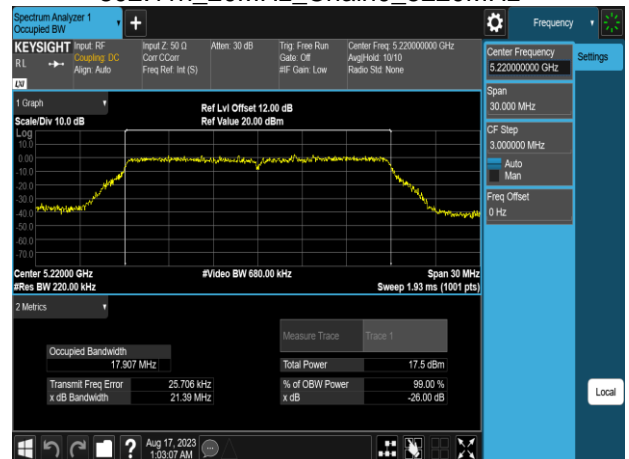
802.11n_20MHz_Chain0_5180MHz



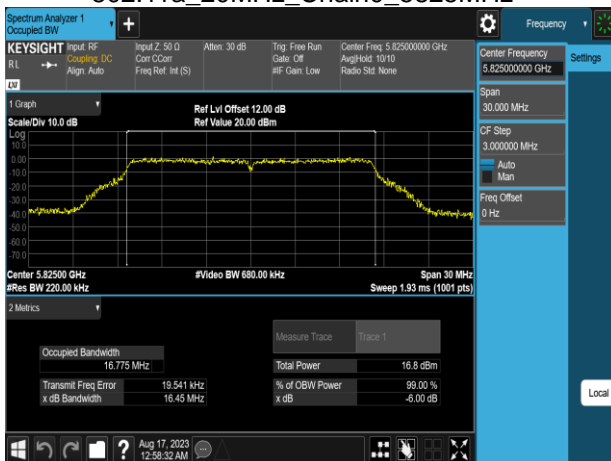
802.11a_20MHz_Chain0_5785MHz



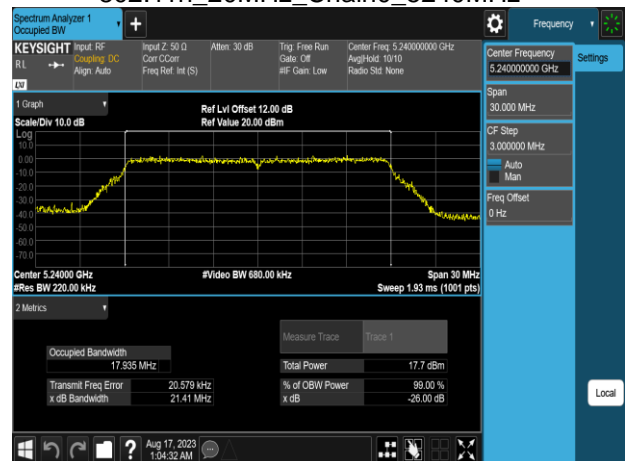
802.11n_20MHz_Chain0_5220MHz



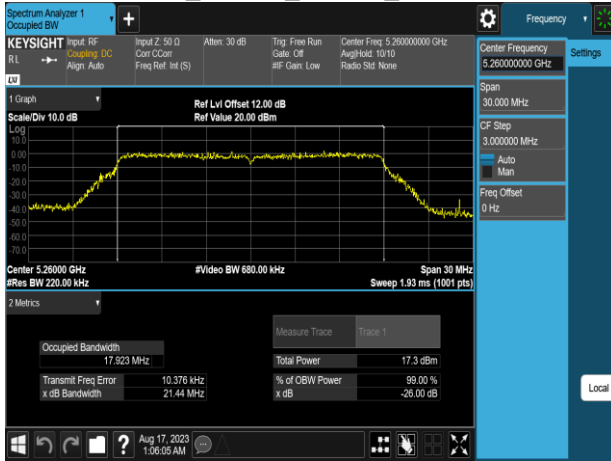
802.11a_20MHz_Chain0_5825MHz



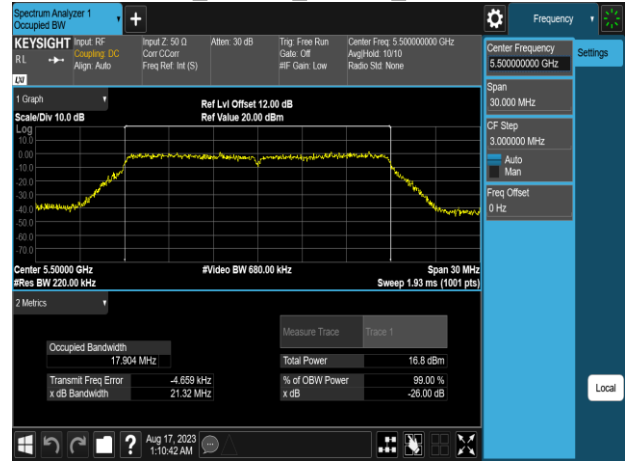
802.11n_20MHz_Chain0_5240MHz



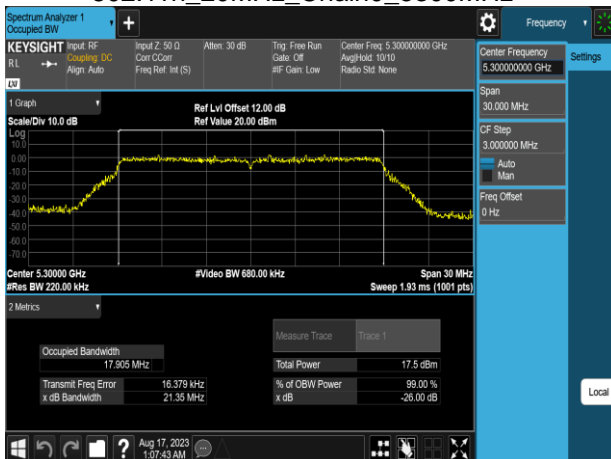
802.11n_20MHz_Chain0_5260MHz



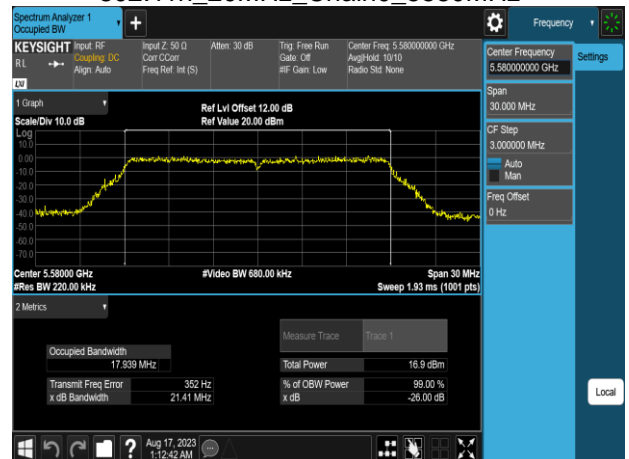
802.11n_20MHz_Chain0_5500MHz



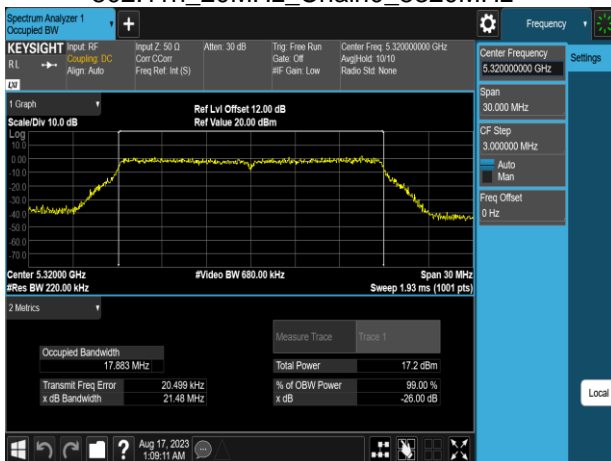
802.11n_20MHz_Chain0_5300MHz



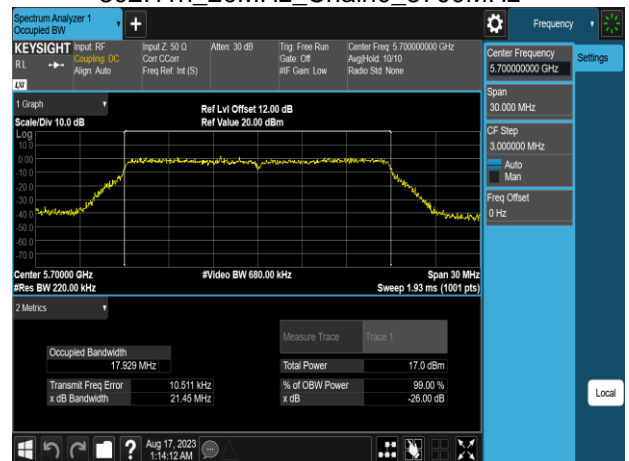
802.11n_20MHz_Chain0_5580MHz



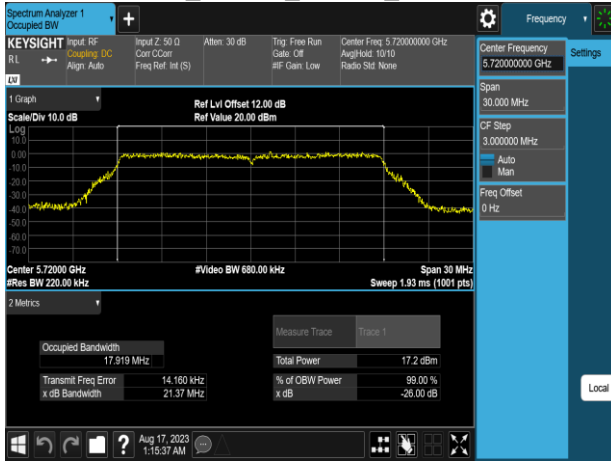
802.11n_20MHz_Chain0_5320MHz



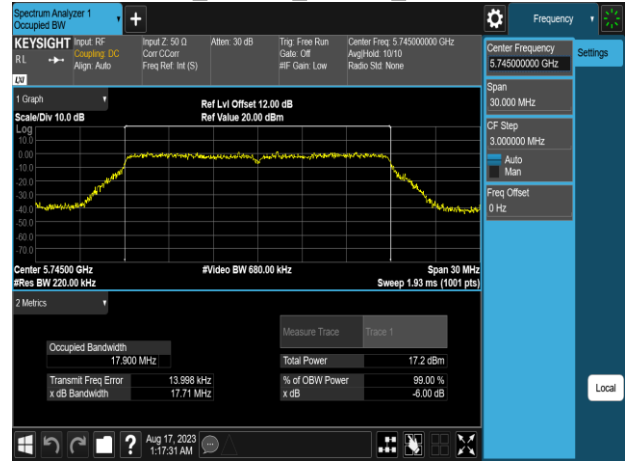
802.11n_20MHz_Chain0_5700MHz



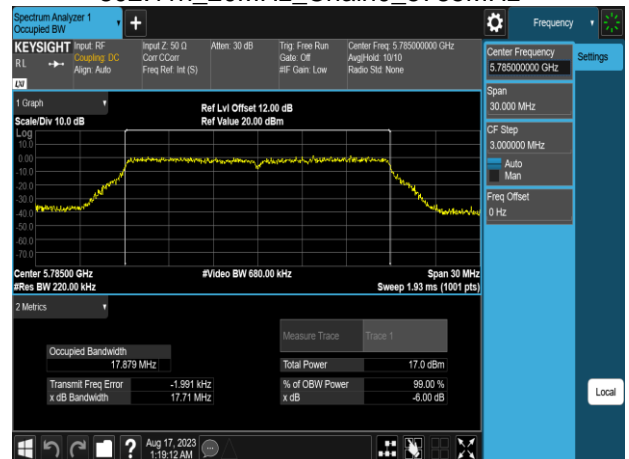
802.11n_20MHz_Chain0_5720MHz



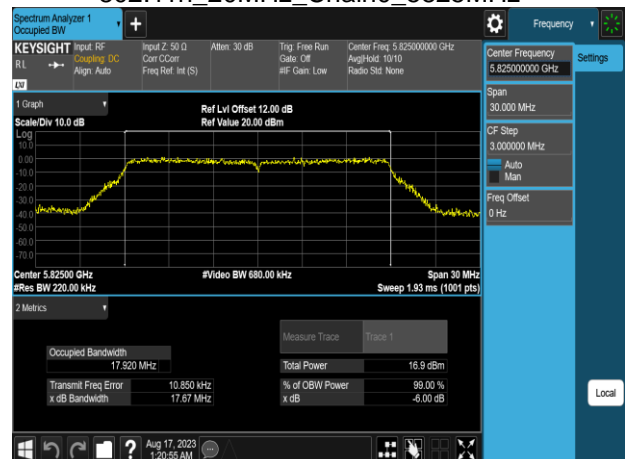
802.11n_20MHz_Chain0_5745MHz



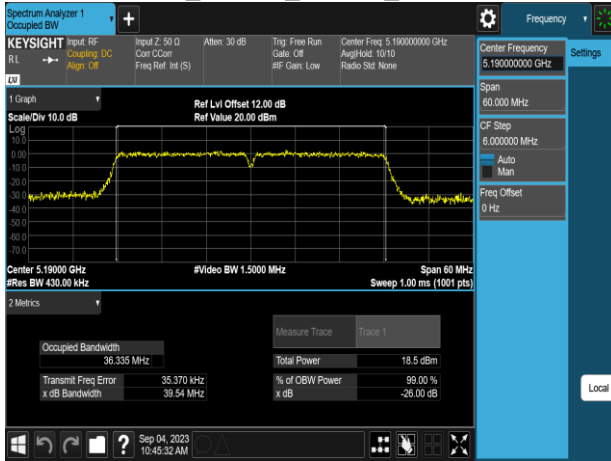
802.11n_20MHz_Chain0_5785MHz



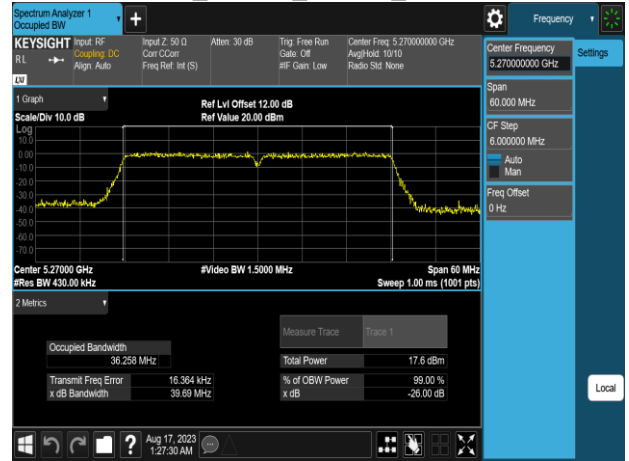
802.11n_20MHz_Chain0_5825MHz



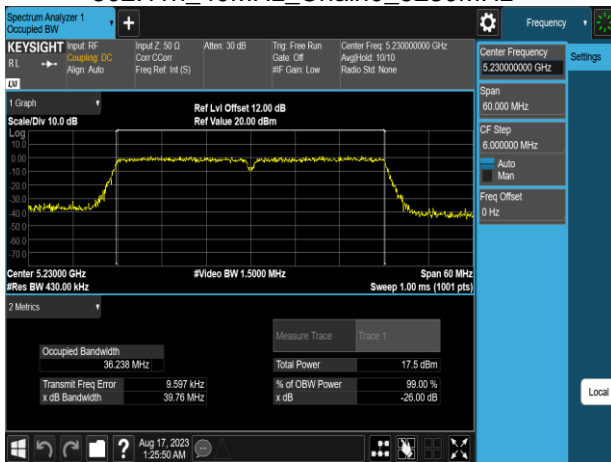
802.11n_40MHz_Chain0_5190MHz



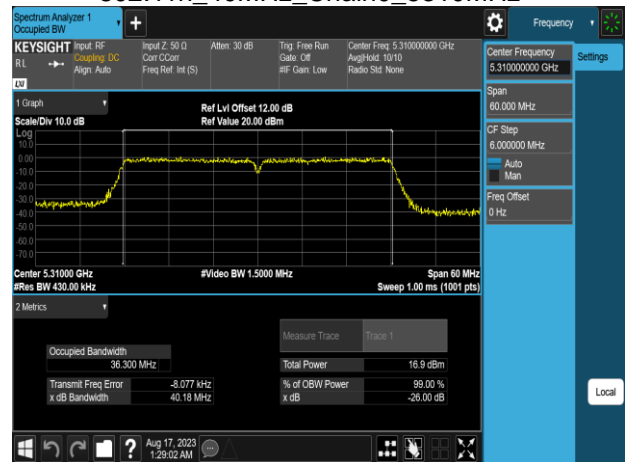
802.11n_40MHz_Chain0_5270MHz



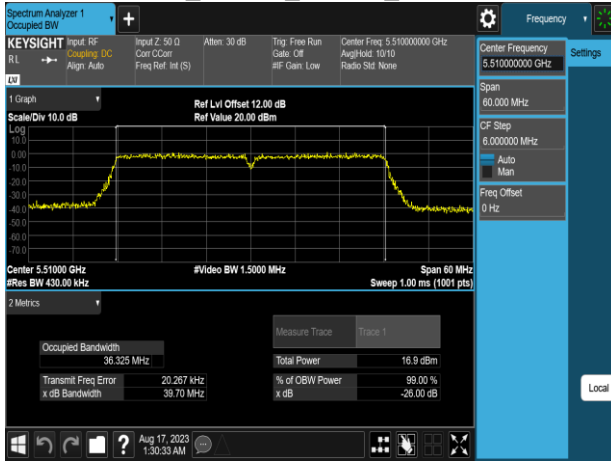
802.11n_40MHz_Chain0_5230MHz



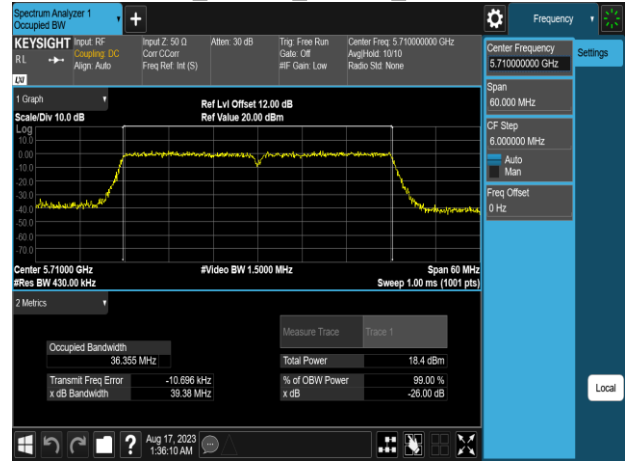
802.11n_40MHz_Chain0_5310MHz



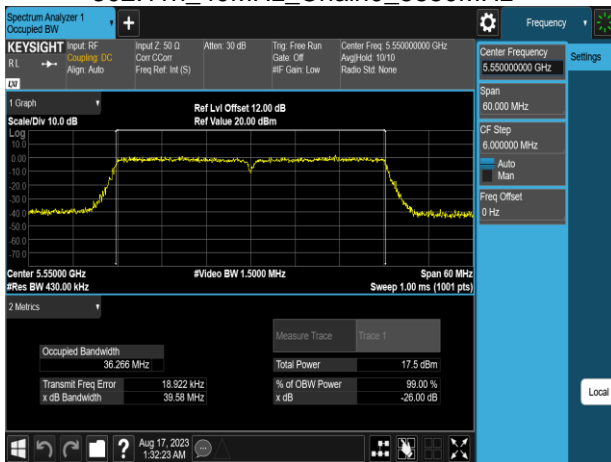
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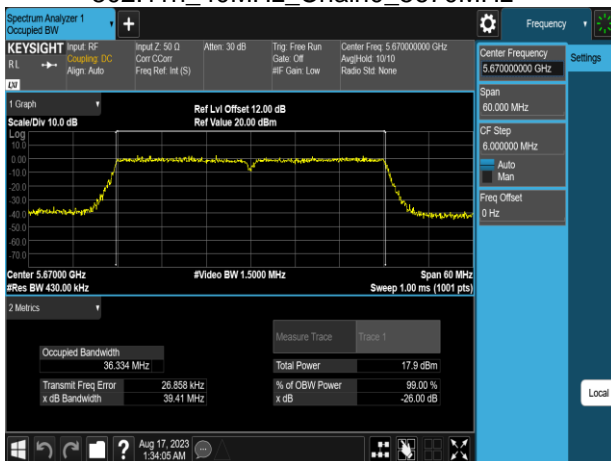
802.11n_40MHz_Chain0_5710MHz



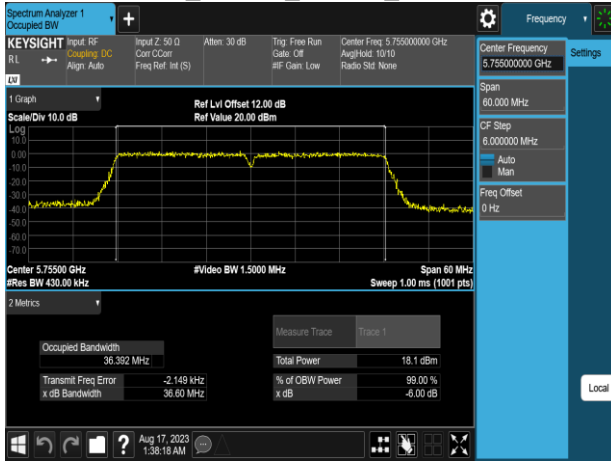
802.11n_40MHz_Chain0_5550MHz



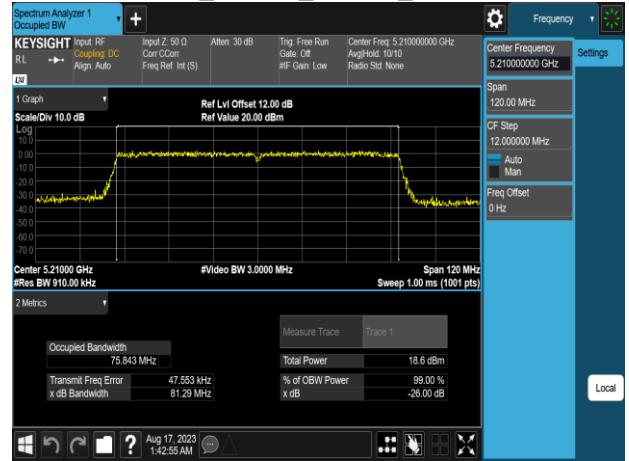
802.11n_40MHz_Chain0_5670MHz



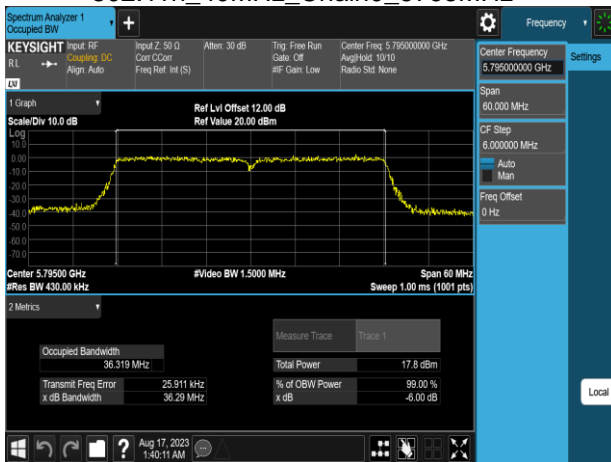
802.11n_40MHz_Chain0_5755MHz



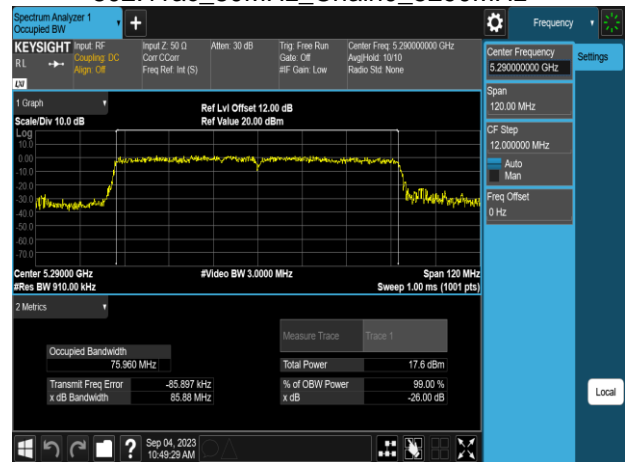
802.11ac_80MHz_Chain0_5210MHz



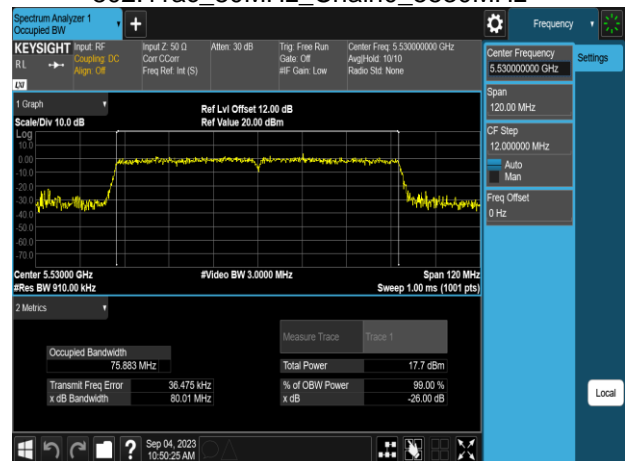
802.11n_40MHz_Chain0_5795MHz



802.11ac_80MHz_Chain0_5290MHz

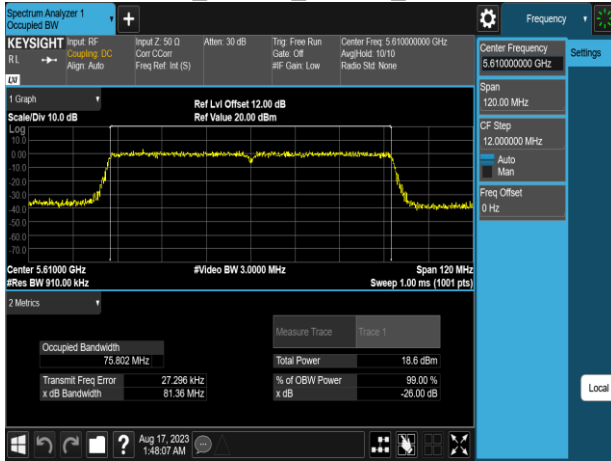


802.11ac_80MHz_Chain0_5530MHz

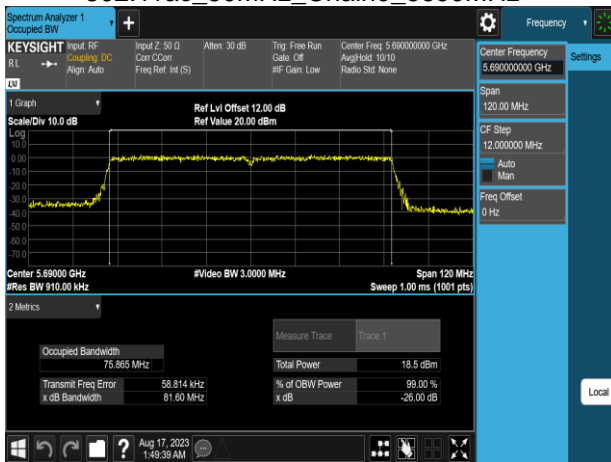


Report No.: TMWK2308002691KR

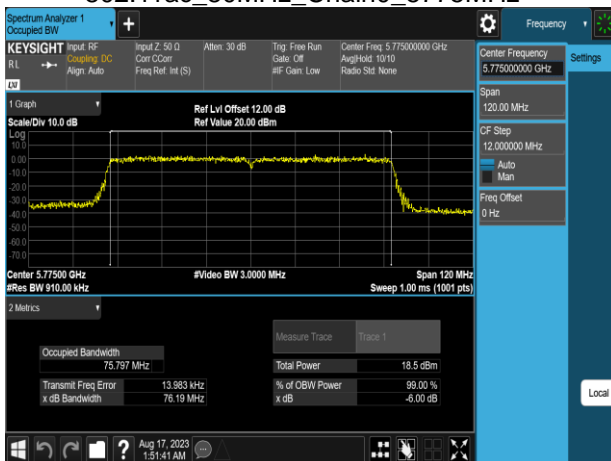
802.11ac_80MHz_Chain0_5610MHz



802.11ac_80MHz_Chain0_5690MHz

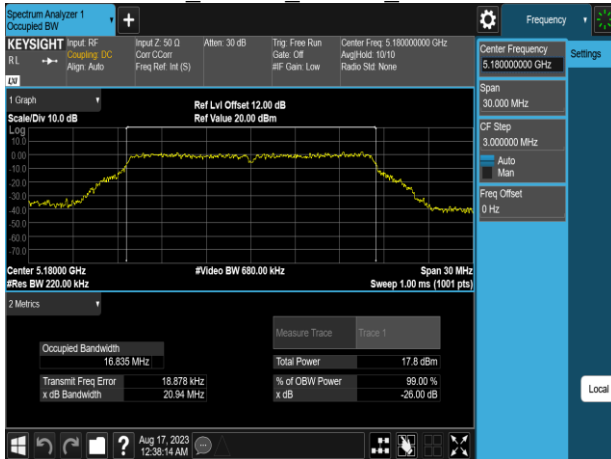


802.11ac_80MHz_Chain0_5775MHz



Report No.: TMWK2308002691KR

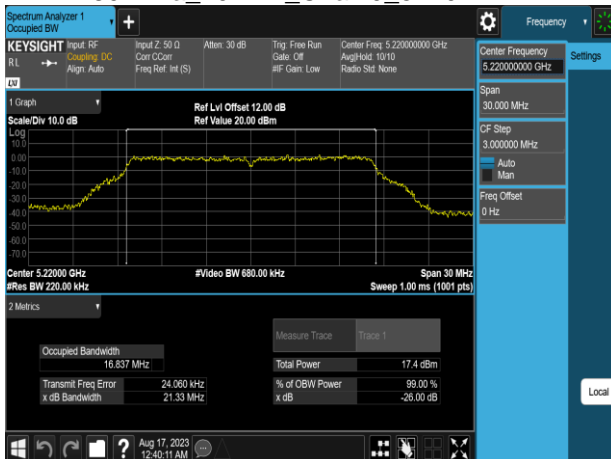
Standard: FCC 26dB/6dB Bandwidth 802.11a_20MHz_Chain0_5180MHz



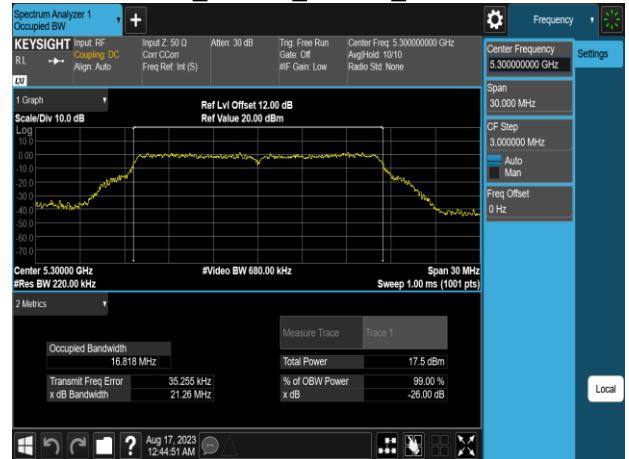
802.11a_20MHz_Chain0_5260MHz



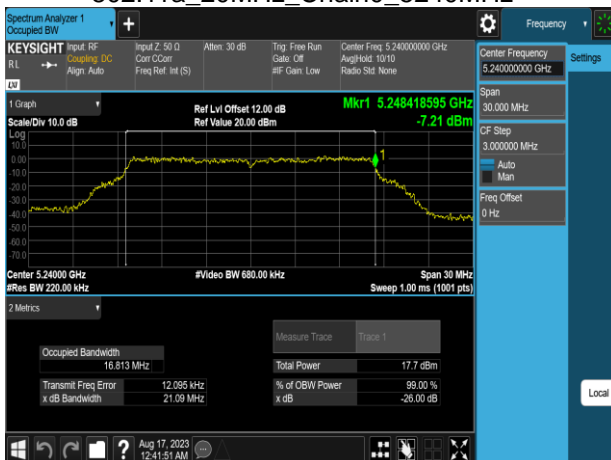
802.11a_20MHz_Chain0_5220MHz



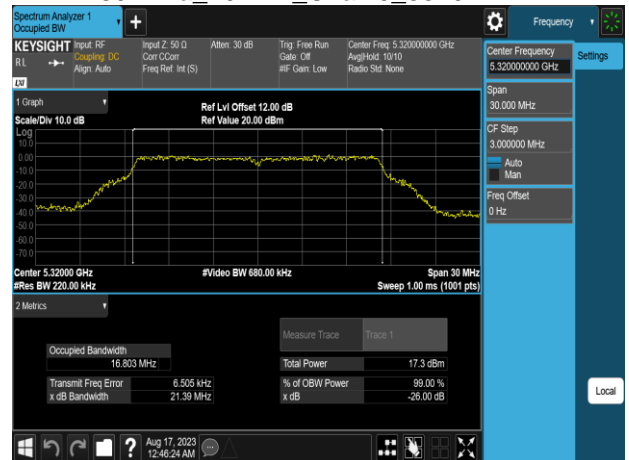
802.11a_20MHz_Chain0_5300MHz



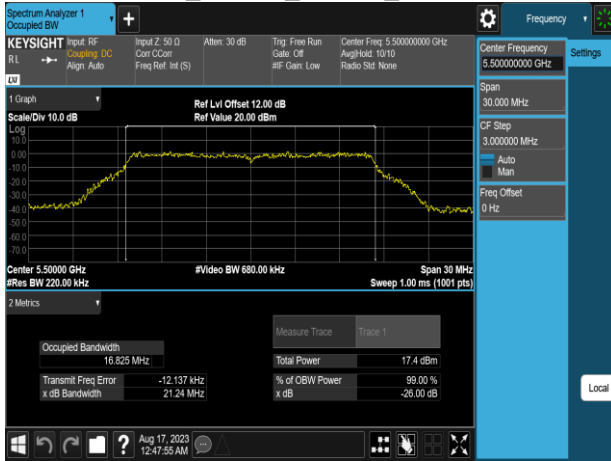
802.11a_20MHz_Chain0_5240MHz



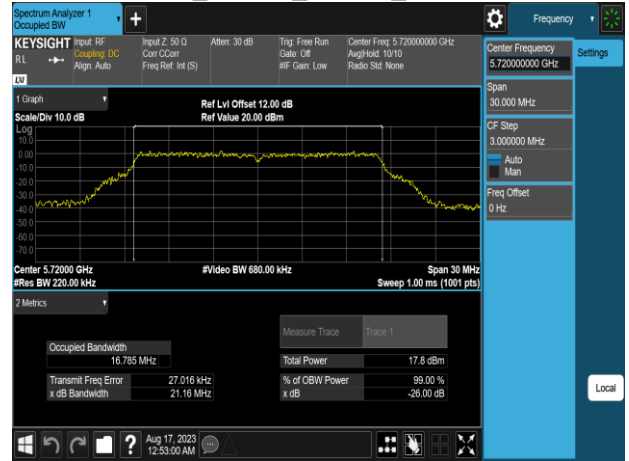
802.11a_20MHz_Chain0_5320MHz



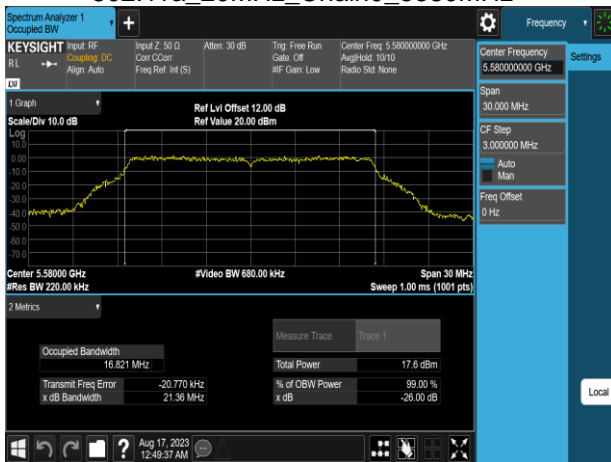
802.11a_20MHz_Chain0_5500MHz



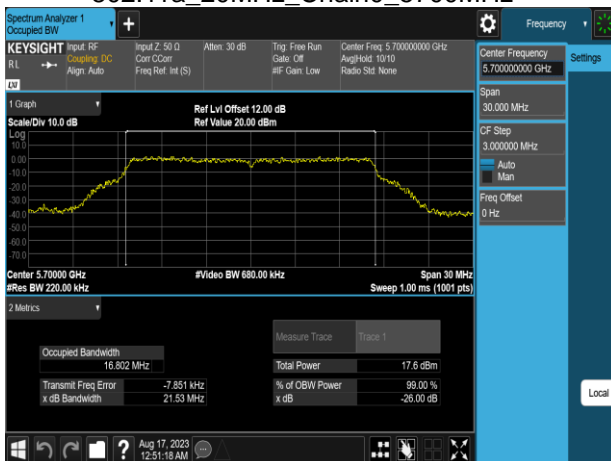
802.11a_20MHz_Chain0_5720MHz



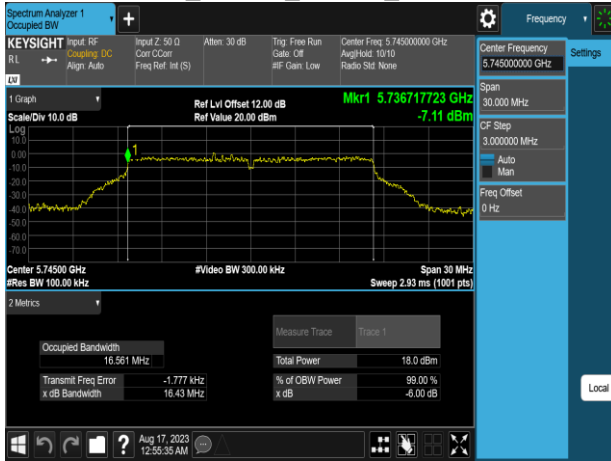
802.11a_20MHz_Chain0_5580MHz



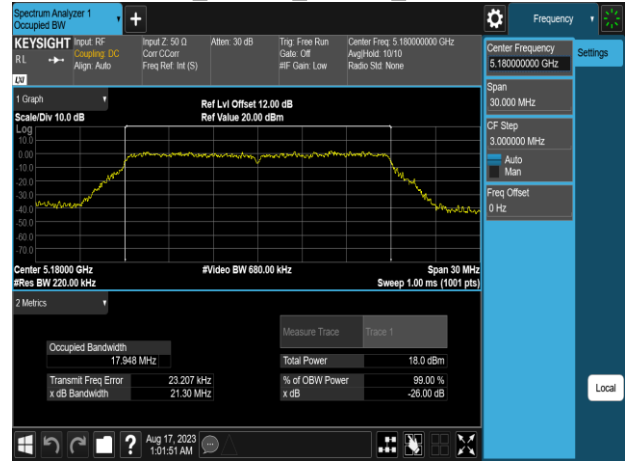
802.11a_20MHz_Chain0_5700MHz



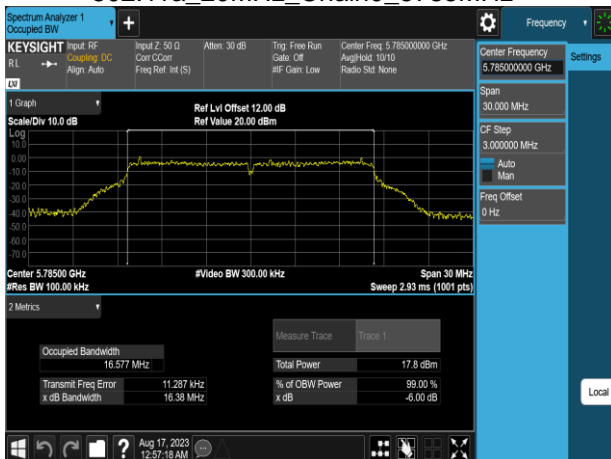
802.11a_20MHz_Chain0_5745MHz



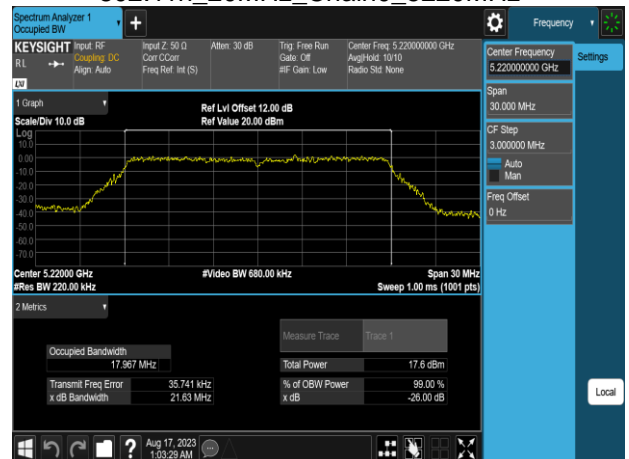
802.11n_20MHz_Chain0_5180MHz



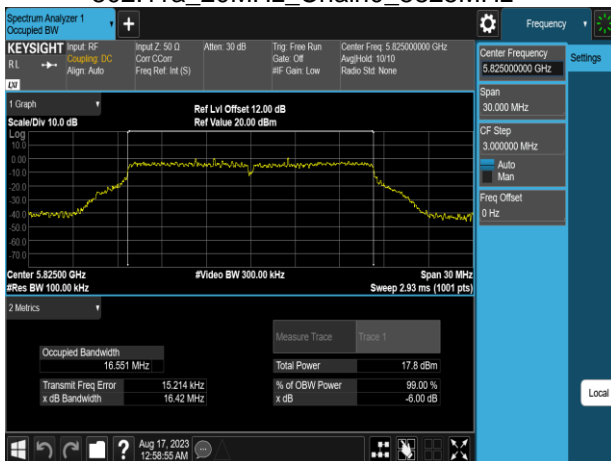
802.11a_20MHz_Chain0_5785MHz



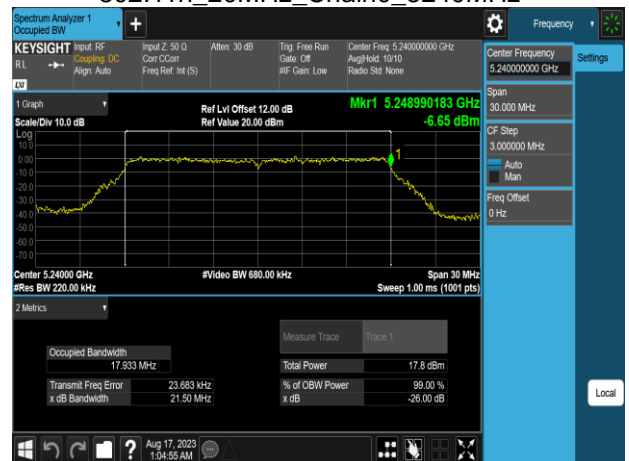
802.11n_20MHz_Chain0_5220MHz



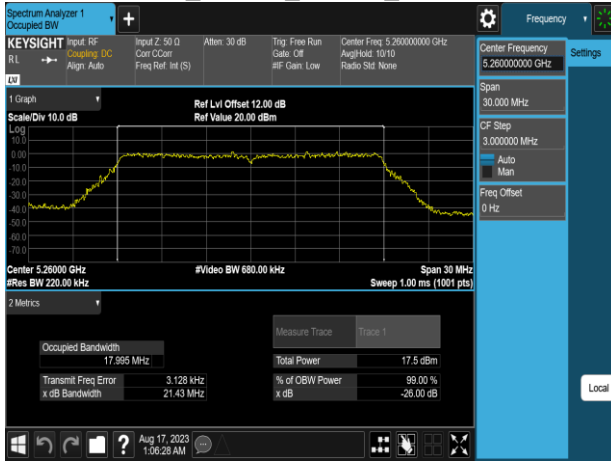
802.11a_20MHz_Chain0_5825MHz



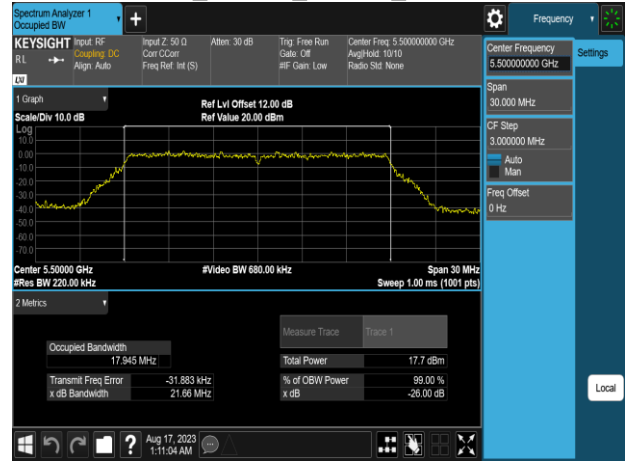
802.11n_20MHz_Chain0_5240MHz



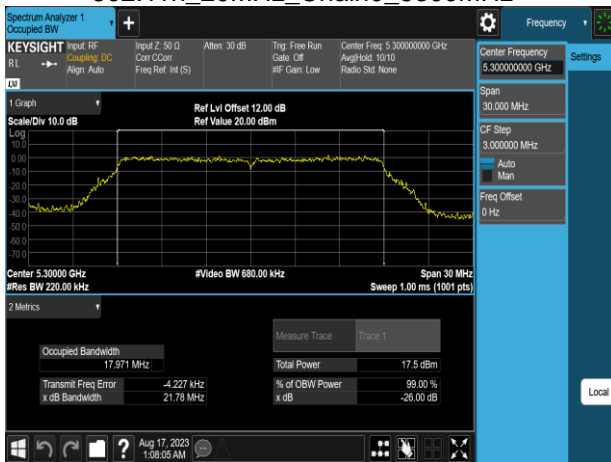
802.11n_20MHz_Chain0_5260MHz



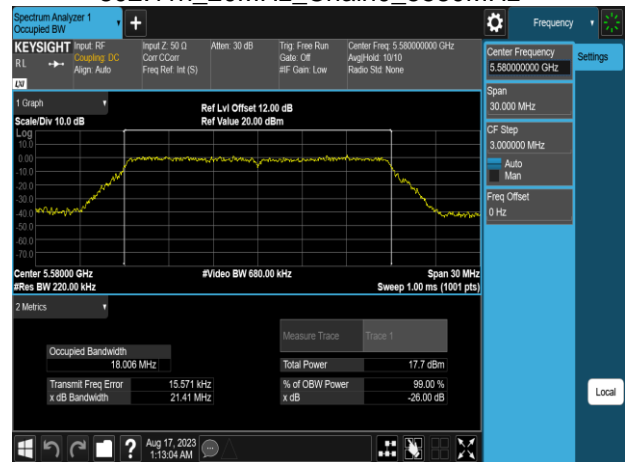
802.11n_20MHz_Chain0_5500MHz



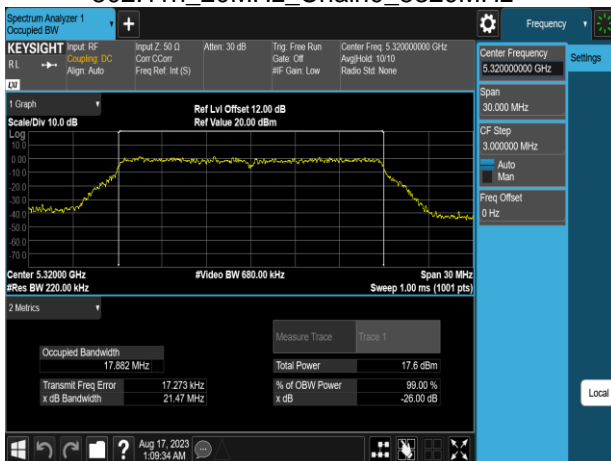
802.11n_20MHz_Chain0_5300MHz



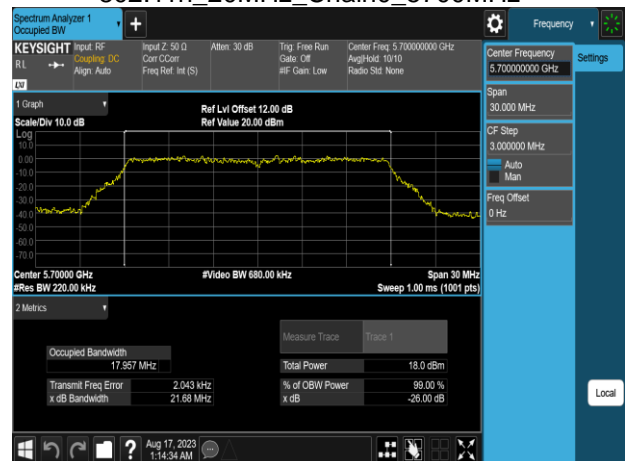
802.11n_20MHz_Chain0_5580MHz



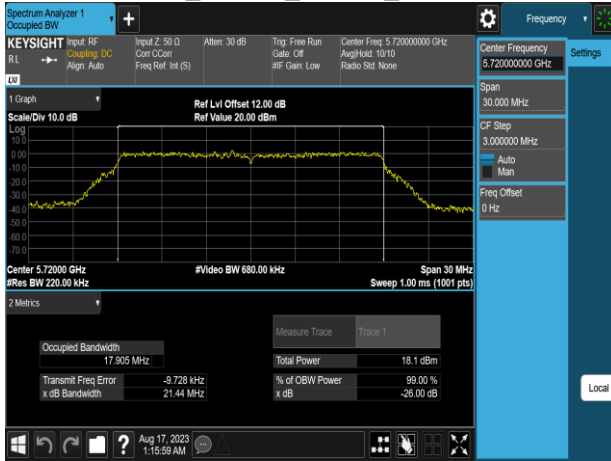
802.11n_20MHz_Chain0_5320MHz



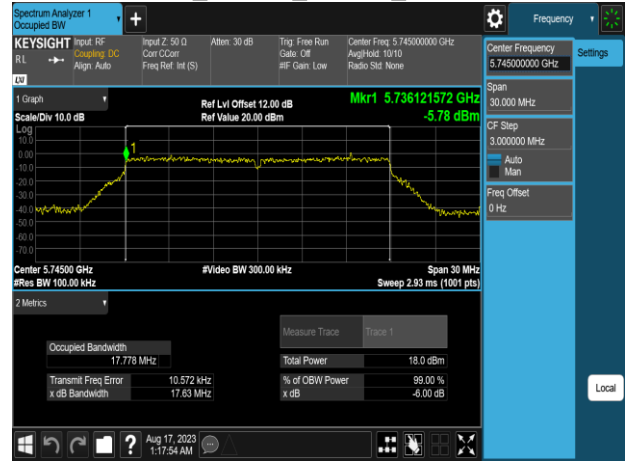
802.11n_20MHz_Chain0_5700MHz



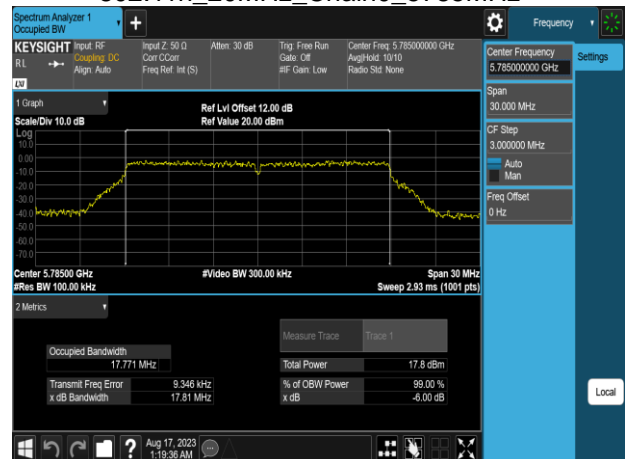
802.11n_20MHz_Chain0_5720MHz



802.11n_20MHz_Chain0_5745MHz



802.11n_20MHz_Chain0_5785MHz



802.11n_20MHz_Chain0_5825MHz

