RADIO TEST REPORT
FCC 47 CFR PART 15 SUBPART E

Test Standard	**FCC Part 15.247**
Product name	**WLAN/BT USB Dongle**
Brand name	**Toshiba Tec Corporation**
Model No.	**CL-8852BU**
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:

Dally Hong
Sr. Engineer

Revision History

Rev.	Issue Date	Revisions	Revised By
00	November 1, 2023	Initial Issue	Doris Chu

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1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	Toshiba Tec Corporation 6-78, Minami-Cho, Mishima-Shi, Shizuoka-ken 411-8520 Japan
Manufacturer	CC&C Technologies Inc. 8F, 150, Jian Yi Road, Zhonghe District, New Taipei City, Taiwan 235, R. O. C.
Factory	Kunshan CC&C Technologies, Co., Ltd No.9 building,3rd Main Street, Kunshan Free Trade Zone, Jiangsu Province, P. R. China
Equipment	WLAN/BT USB Dongle
Model No.	CL-8852BU
Model Discrepancy	N/A
Trade Name	Toshiba Tec Corporation
Received Date	July 21, 2023
Date of Test	July 26 ~ September 1, 2023
Power Operation	Power from host device.
HW Version	0B
SW Version	01

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 20 MHz	5180 ~ 5240 MHz
	IEEE 802.11ac VHT 40 MHz	5190 ~ 5230 MHz
	IEEE 802.11ac VHT 80 MHz	5210 MHz
	IEEE 802.11ax HE 20 MHz	5180 ~ 5240 MHz
	IEEE 802.11ax HE 40 MHz	5190 ~ 5230 MHz
	IEEE 802.11ax HE 80 MHz	5210 MHz
	UNII-2a	
	IEEE 802.11a	5260 ~ 5320 MHz
	IEEE 802.11n HT 20 MHz	5260 ~ 5320 MHz
	IEEE 802.11n HT 40 MHz	5270 ~ 5310 MHz
	IEEE 802.11ac VHT 20 MHz	5260 ~ 5320 MHz
	IEEE 802.11ac VHT 40 MHz	5270 ~ 5310 MHz
	IEEE 802.11ac VHT 80 MHz	5290 MHz
	IEEE 802.11ax HE 20 MHz	5260 ~ 5320 MHz
	IEEE 802.11ax HE 40 MHz	5270 ~ 5310 MHz
	IEEE 802.11ax HE 80 MHz	5290 MHz
	UNII-2c	
	IEEE 802.11a	5500 ~ 5700 MHz
	IEEE 802.11n HT 20 MHz	5500 ~ 5700 MHz
	IEEE 802.11n HT 40 MHz	5510 ~ 5670 MHz
	IEEE 802.11ac VHT 20 MHz	5500 ~ 5700 MHz
	IEEE 802.11ac VHT 40 MHz	5510 ~ 5670 MHz
	IEEE 802.11ac VHT 80 MHz	5530 ~ 5610 MHz
	IEEE 802.11ax HE 20 MHz	5500 ~ 5700 MHz
	IEEE 802.11ax HE 40 MHz	5510 ~ 5670 MHz
	IEEE 802.11ax HE 80 MHz	5530 ~ 5610 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 20 MHz	5745 ~ 5825 MHz
	IEEE 802.11ac VHT 40 MHz	5755 ~ 5795 MHz
	IEEE 802.11ac VHT 80 MHz	5775 MHz
	IEEE 802.11ax HE 20 MHz	5745 ~ 5825 MHz
	IEEE 802.11ax HE 40 MHz	5755 ~ 5795 MHz
	IEEE 802.11ax HE 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 20 MHz mode: OFDM 5. IEEE 802.11ac VHT 40 MHz mode: OFDM 6. IEEE 802.11ac VHT 80 MHz mode: OFDM 7. IEEE 802.11ax HE 20 MHz mode: OFDM 8. IEEE 802.11ax HE 40 MHz mode: OFDM 9. IEEE 802.11ax HE 80 MHz mode: OFDM

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

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

1.3 ANTENNA INFORMATION

Antenna Type	☐ PIFA ☒ PCB ☐ Dipole ☐ Coils
Antenna Gain	5150~5250 Chain 0: Gain: 3.43 dBi Chain 1: Gain: 4.25 dBi Power Directional Gain: 6.86 dBi 5250~5350 Chain 0: Gain: 4.41 dBi Chain 1: Gain: 4.97 dBi Power Directional Gain: 7.70 dBi 5470~5725 Chain 0: Gain: 4.06 dBi Chain 1: Gain: 6.05 dBi Power Directional Gain: 8.12 dBi 5725~5850 Chain 0: Gain: 4.86 dBi Chain 1: Gain: 6.05 dBi Power Directional Gain: 8.49 dBi
Antenna Connector	N/A

Notes:
1. Power Directional Gain: 10LOG(((10^(Ant1/10)+10^(Ant2/10))/2))
2.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	± 3.115 dB
Radiated Emission_30MHz-200MHz	± 4.071 dB
Radiated Emission_200MHz-1GHz	± 4.419 dB
Radiated Emission_1GHz-6GHz	± 5.023 dB
Radiated Emission_6GHz-18GHz	± 5.068 dB
Radiated Emission_18GHz-26GHz	± 3.349 dB
Radiated Emission_26GHz-40GHz	± 3.229 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.

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	Tony Chao	-
Radiation	Czerny Lin	-
RF Conducted	Allen Shen	-

Remark: The lab has been recognized as the FCC accredited lab. 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

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
EXA Signal Analyzer	Keysight	N9010B	MY60242460	2023-02-02	2024-02-01
Software	Radio Test Software Ver. 21				

Radiated Emission Test Site: 966 D					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Antenna	SHWARZBECK	VULB 9168	1277	2023-01-13	2024-01-12
Pre-Amplifier	EMCI	EMC118A45SE	980820	2022-12-23	2023-12-22
Pre-Amplifier	EMCI	EMC330N	980853	2022-12-23	2023-12-22
Coaxial Cable	EMC	EMC101G-KM-KM-9000	220407+211228+230205	2023-03-21	2024-03-20
EXA Signal Analyzer	Agilent	N9010A	MY52220817	2023-03-09	2024-03-08
Coaxial Cable	EMC	EMCCFD400	211212+211222+211020	2023-03-21	2024-03-20
High Pass Filter	TITAN	T04H7000260005OS01	211215-7-3	2023-02-02	2024-02-01
Thermo-Hygro Meter	EDSDS	EDS-A49	966D1	2023-05-11	2024-05-10
Pre-Amplifier	EMCI	EMC184045SE	980872	2023-01-03	2024-01-02
Horn Antenna	RF SPIN	DRH18-E	210301A18ES	2023-02-03	2024-02-02
Horn Antenna	SHWARZBECK	BBHA 9170	1134	2022-12-30	2023-12-29
Loop Antenna	SCHWARZBECK	FMZB 1513-60	1513-60-028	2022-12-27	2023-12-26
Software	e3 V9-210616c				

RF_Conduction(RF)					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EMI Test Receiver	R&S	ESCI	100064	2023-06-07	2024-06-06
LISN	TESEQ	LN2-16N	22012	2023-03-08	2024-03-07
Cable	EMCI	CFD300-NL	CERF	2023-06-27	2024-06-26
Software	EZ-EMC(CCS-3A1-CE-WUGU)				

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					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
NB(E)	Lenovo	IBM 7663	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 SUMMERY

FCC Standard Sec.	Chapter	Test Item	Result
15.203	1.3	Antenna Requirement	Pass
15.207	4.1	AC Conducted Emission	Pass
15.407(a)	4.2	26dB Bandwidth	Pass
15.407(e)	4.2	6dB Bandwidth	Pass
2.1049	4.2	Occupied Bandwidth (99%)	Pass
15.407(a)	4.3	Output Power Measurement	Pass
15.407(a)	4.4	Power Spectral Density	Pass
15.407(b)	4.5	Radiation Band Edge	Pass
15.407(b)	4.5	Radiation Spurious Emission	Pass
15.407(g)	4.6	Frequency Stability	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

<table>
<tr><td>Operation mode</td><td colspan="3">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 VHT 20 MHz mode: MCS0
5. IEEE 802.11ac VHT 40 MHz mode: MCS0
6. IEEE 802.11ac VHT 80 MHz mode: MCS0
7. IEEE 802.11ax HE 20 MHz mode: MCS0
8. IEEE 802.11ax HE 40 MHz mode: MCS0
9. IEEE 802.11ax HE 80 MHz mode: MCS0</td></tr>
<tr><td>Operating Frequency Range &
Number of Channels</td><td></td><td>
<table>
<tr><th></th><th>Mode</th><th>Frequency Range (MHz)</th></tr>
<tr><td rowspan="9">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>IEEE 802.11ax HE20</td><td>5180, 5220, 5240</td></tr>
<tr><td>IEEE 802.11ax HE40</td><td>5190, 5230</td></tr>
<tr><td>IEEE 802.11ax HE80</td><td>5210</td></tr>
<tr><td rowspan="9">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>IEEE 802.11ax HE20</td><td>5260, 5300, 5320</td></tr>
<tr><td>IEEE 802.11ax HE40</td><td>5270, 5310</td></tr>
<tr><td>IEEE 802.11ax HE80</td><td>5290</td></tr>
<tr><td rowspan="9">U-NII-2c</td><td>IEEE 802.11a</td><td>5500, 5580, 5700</td></tr>
<tr><td>IEEE 802.11n HT20</td><td>5500, 5580, 5700</td></tr>
<tr><td>IEEE 802.11n HT40</td><td>5510, 5550, 5670</td></tr>
<tr><td>IEEE 802.11ac VHT20</td><td>5500, 5580, 5700</td></tr>
<tr><td>IEEE 802.11ac VHT40</td><td>5510, 5550, 5670</td></tr>
<tr><td>IEEE 802.11ac VHT80</td><td>5530, 5610</td></tr>
<tr><td>IEEE 802.11ax HE20</td><td>5500, 5580, 5700</td></tr>
<tr><td>IEEE 802.11ax HE40</td><td>5510, 5550, 5670</td></tr>
<tr><td>IEEE 802.11ax HE80</td><td>5530, 5610</td></tr>
<tr><td rowspan="9">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>
<tr><td>IEEE 802.11ax HE20</td><td>5745, 5785, 5825</td></tr>
<tr><td>IEEE 802.11ax HE40</td><td>5755, 5795</td></tr>
<tr><td>IEEE 802.11ax HE80</td><td>5775</td></tr>
</table>
</td><td></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 are only different in control messages with IEEE 802.11n HT20 and HT40, and have same power setting. Therefore, the highest power(IEEE 802.11n HT20 and HT40) were test conducted and radiated measurement and recorded in this report.

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 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 System
Worst Mode	☒ Mode 1
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 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.

3.3 EUT DUTY CYCLE

Temperature: 24.3 ~ 28℃ **Test date:** July 26 ~ September 1, 2023

Humidity: 50 ~ 61% RH **Tested by:** Allen Shen

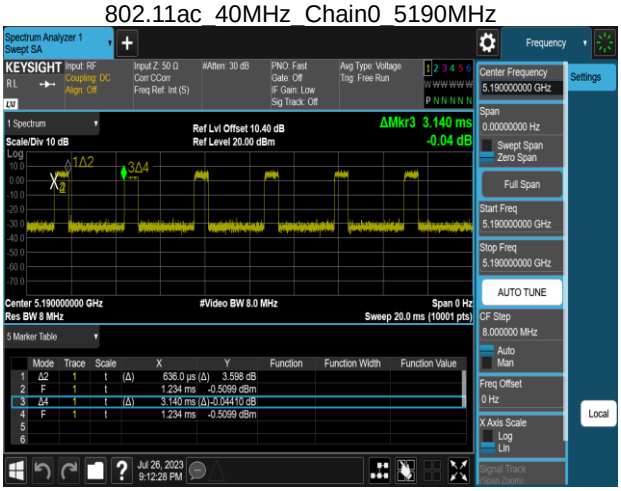
Mode	Duty Cycle (%) =Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11a	35.21	4.53	0.74	1.00
802.11n_20	33.70	4.72	0.79	1.00
802.11ac_20	33.77	4.71	0.78	1.00
802.11n_40	20.17	6.95	1.58	2.00
802.11ac_40	20.25	6.94	1.57	2.00
802.11ac_80	11.21	9.50	3.16	4.00
802.11ax_20	31.75	4.98	0.86	1.00
802.11ax_40	19.76	7.04	1.62	2.00
802.11ax_80	11.71	9.31	3.01	4.00

802.11a_20MHz_Chain0_5180MHz

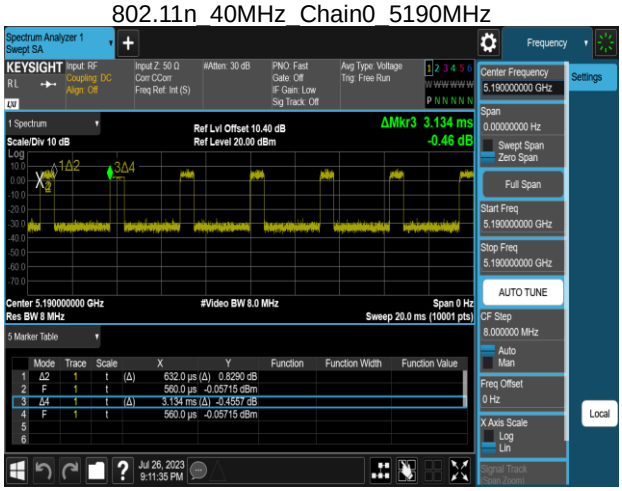
802.11ac_20MHz_Chain0_5180MHz

802.11n_20MHz_Chain0_5180MHz

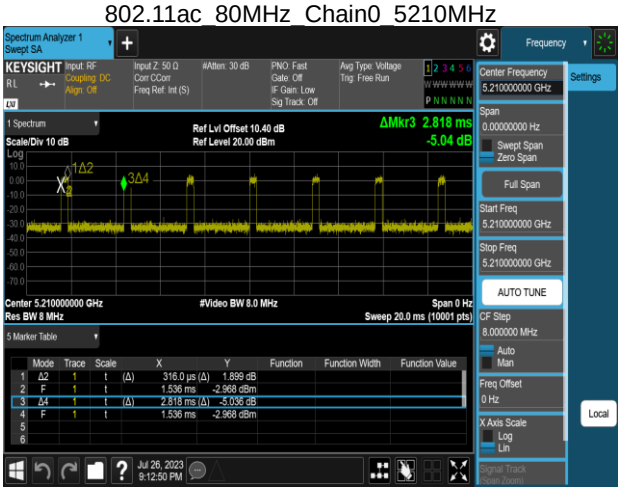
802.11ac_40MHz_Chain0_5190MHz



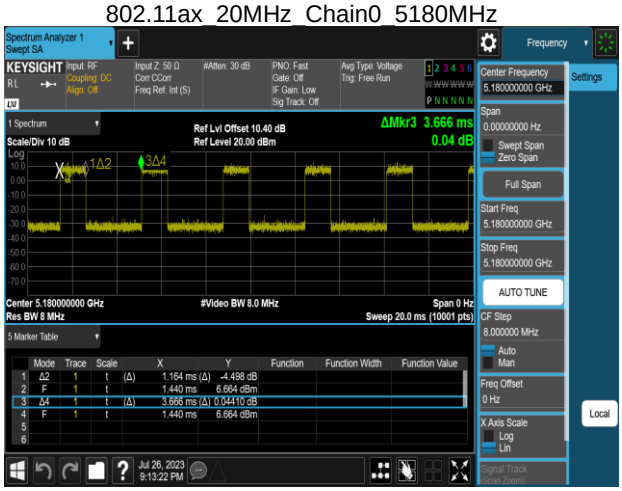
802.11n_40MHz_Chain0_5190MHz



802.11ac_80MHz_Chain0_5210MHz



802.11ax_20MHz_Chain0_5180MHz



802.11ax_40MHz_Chain0_5190MHz

802.11ax_80MHz_Chain0_5210MHz

4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

According to §15.207(a),

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

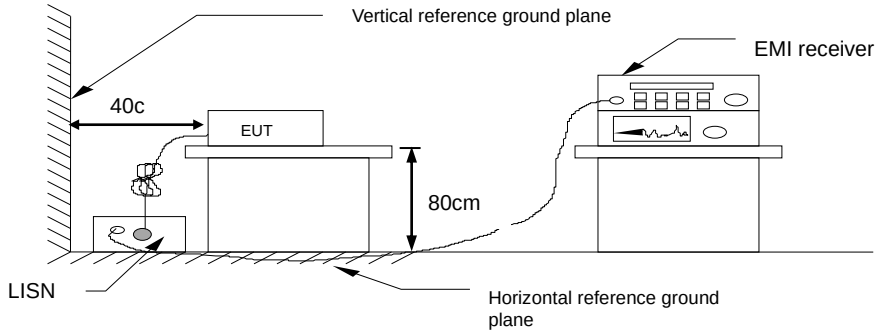
* Decreases with the logarithm of the frequency.

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

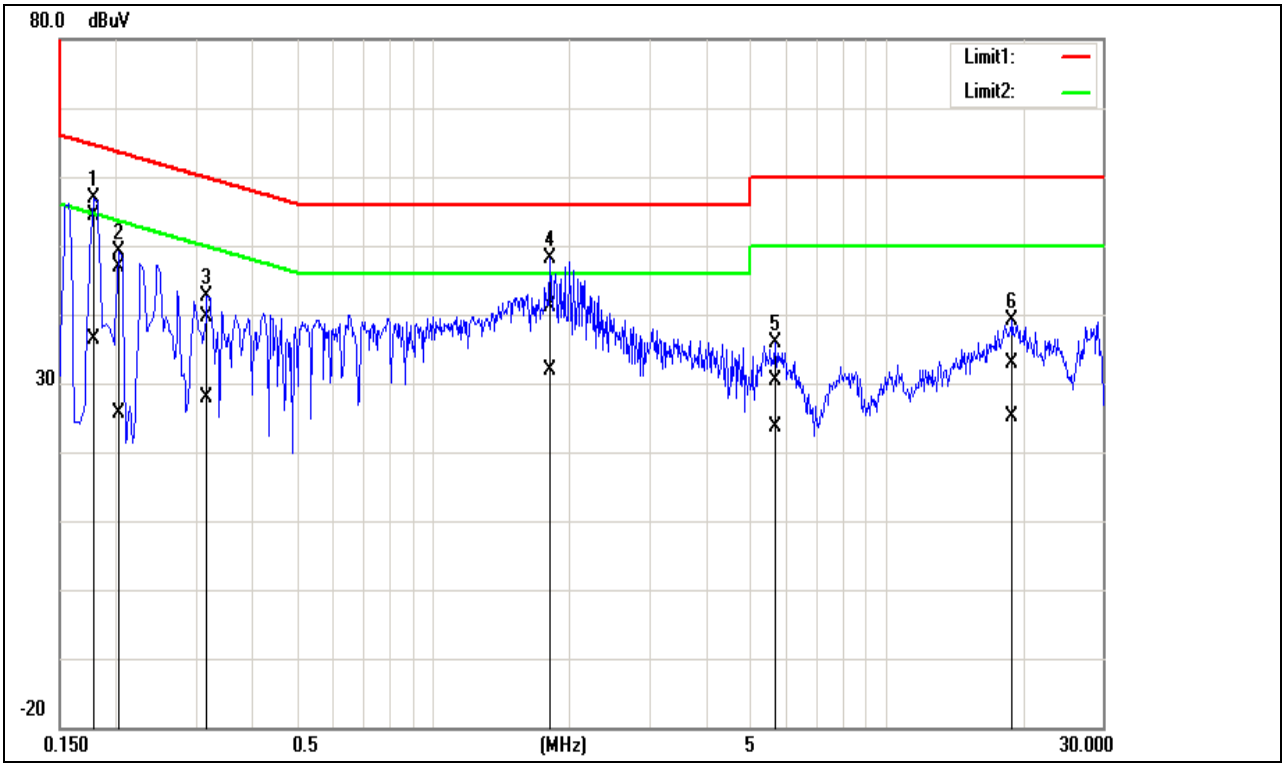


4.1.4 Test Result

Pass.

Test Data

Job No.:	**TMWK2307002437KR**	**Date:**	**2023/8/24**
Company:	**Toshiba Tec Corporation**	**Time:**	**PM 06:08:15**
Standard:	**NCC/FCC/IC QP**	**Temp.(℃)/Hum.(%):**	**25.5(℃)/53%**
Test item:	**Conduction test**	**Test By:**	**Tony Chao**
Line:	**L1**	**Test Voltage:**	**AC 120V/60Hz**
Model:			
Description:			

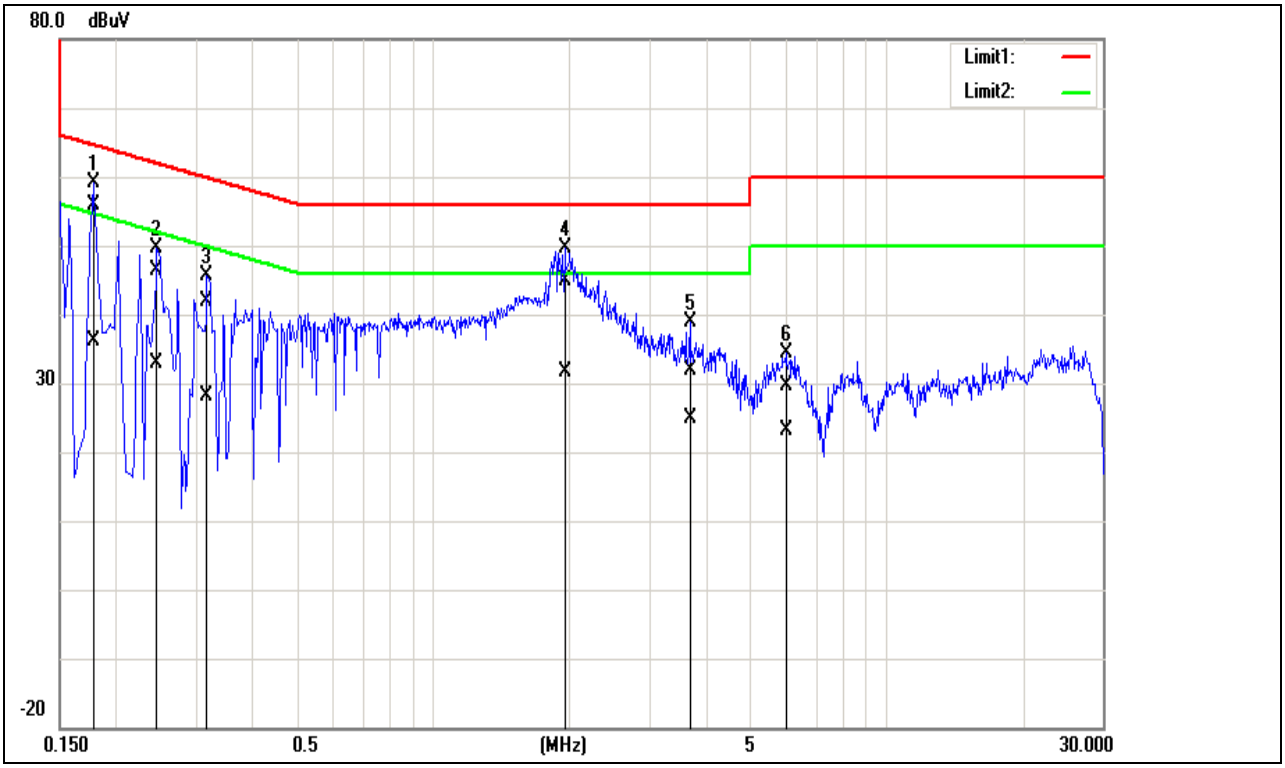


No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.1780	54.21	36.17	0.15	54.36	36.32	64.58	54.58	-10.22	-18.26	Pass
2	0.2020	46.70	25.44	0.15	46.85	25.59	63.53	53.53	-16.68	-27.94	Pass
3	0.3180	39.44	27.84	0.15	39.59	27.99	59.76	49.76	-20.17	-21.77	Pass
4	1.8140	41.04	31.68	0.21	41.25	31.89	56.00	46.00	-14.75	-14.11	Pass
5	5.6980	30.01	23.37	0.29	30.30	23.66	60.00	50.00	-29.70	-26.34	Pass
6	18.9420	32.37	24.75	0.49	32.86	25.24	60.00	50.00	-27.14	-24.76	Pass

Note: 1. Correction factor = LISN loss + Cable loss.

Job No.:	**TMWK2307002437KR**	**Date:**	**2023/8/24**
Company:	**Toshiba Tec Corporation**	**Time:**	**PM 06:01:28**
Standard:	**NCC/FCC/IC QP**	**Temp.(℃)/Hum.(%):**	**25.5(℃)/53%**
Test item:	**Conduction test**	**Test By:**	**Tony Chao**
Line:	**N**	**Test Voltage:**	**AC 120V/60Hz**
Model:			

Description:



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.1780	55.59	35.90	0.20	55.79	36.10	64.58	54.58	-8.79	-18.48	Pass
2	0.2460	46.24	32.81	0.19	46.43	33.00	61.89	51.89	-15.46	-18.89	Pass
3	0.3180	41.69	27.82	0.19	41.88	28.01	59.76	49.76	-17.88	-21.75	Pass
4	1.9580	44.52	31.32	0.26	44.78	31.58	56.00	46.00	-11.22	-14.42	Pass
5	3.6860	31.54	24.58	0.31	31.85	24.89	56.00	46.00	-24.15	-21.11	Pass
6	6.0060	29.37	22.76	0.34	29.71	23.10	60.00	50.00	-30.29	-26.90	Pass

Note: 1. 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.

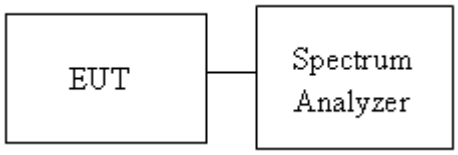
7. Allow the trace to stabilize.

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



4.2.4 Test Result

Temperature: 24.3 ~ 28℃ **Test date:** July 26 ~ September 1, 2023

Humidity: 50 ~ 61% RH **Tested by:** Allen Shen

802.11a_Ch0

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	16.368	12.14
5220	16.377	12.14
5240	16.360	12.14
5260	16.368	12.14
5300	16.355	12.14
5320	16.387	12.14
5500	16.358	12.14
5580	16.353	12.14
5700	16.359	12.14

802.11a_Ch0

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5745	16.349	16.18
5785	16.353	16.29
5825	16.357	16.30

802.11a_Ch1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	16.358	12.14
5220	16.330	12.13
5240	16.347	12.13
5260	16.364	12.14
5300	16.344	12.13
5320	16.375	12.14
5500	16.346	12.13
5580	16.356	12.14
5700	16.387	12.14

802.11a_Ch1

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5745	16.352	16.35
5785	16.340	16.33
5825	16.368	16.36

802.11n_HT20_Ch0

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	17.572	12.45
5220	17.527	12.44
5240	17.548	12.44
5260	17.530	12.44
5300	17.557	12.44
5320	17.576	12.45
5500	17.561	12.45
5580	17.548	12.44
5700	17.544	12.44

802.11n_HT20_Ch0

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5745	17.554	17.22
5785	17.526	17.31
5825	17.556	17.45

802.11n_HT20_Ch1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	17.546	12.44
5220	17.550	12.44
5240	17.527	12.44
5260	17.551	12.44
5300	17.554	12.44
5320	17.545	12.44
5500	17.570	12.45
5580	17.558	12.44
5700	17.554	12.44

802.11n_HT20_Ch1

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5745	17.549	17.35
5785	17.536	17.49
5825	17.558	17.54

802.11n_HT40_Ch0

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5190	35.996	15.56
5230	36.000	15.56
5270	36.023	15.57
5310	35.994	15.56
5510	36.098	15.57
5550	36.059	15.57
5670	35.931	15.55

802.11n_HT40_Ch0

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5755	36.043	35.98
5795	36.049	36.13

802.11n_HT40_Ch1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5190	36.083	15.57
5230	36.053	15.57
5270	36.043	15.57
5310	36.060	15.57
5510	36.081	15.57
5550	36.058	15.57
5670	36.044	15.57

802.11n_HT40_Ch1

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5755	36.001	35.67
5795	35.972	35.92

802.11ac_VHT80_Ch0

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5210	76.084	18.81
5290	75.867	18.80
5530	76.224	18.82
5610	76.181	18.82

802.11ac_VHT80_Ch0

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5775	76.021	76.17

802.11ac_VHT80_Ch1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5210	75.904	18.80
5290	75.674	18.79
5530	75.964	18.81
5610	76.242	18.82

802.11ac_VHT80_Ch1

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5775	75.874	76.04

802.11ax_HE20_Ch0

Frequency (MHz)	RU config	99% BW (MHz)	10 Log (B) (dB)
5180	full	18.900	12.76
5220	full	17.533	12.44
5240	full	17.551	12.44
5260	full	17.567	12.45
5300	full	17.568	12.45
5320	full	17.512	12.43
5500	full	17.555	12.44
5580	full	17.553	12.44
5700	full	17.548	12.44

802.11ax_HE20_Ch0

Frequency (MHz)	RU config	99% BW (MHz)	6dB BW (MHz)
5745	full	18.888	18.93
5785	full	18.899	18.96
5825	full	18.905	18.83

802.11ax_HE20_Ch1

Frequency (MHz)	RU config	99% BW (MHz)	10 Log (B) (dB)
5180	full	18.895	12.76
5220	full	17.555	12.44
5240	full	17.563	12.45
5260	full	17.553	12.44
5300	full	17.550	12.44
5320	full	17.542	12.44
5500	full	17.578	12.45
5580	full	17.562	12.45
5700	full	17.555	12.44

802.11ax_HE20_Ch1

Frequency (MHz)	RU config	99% BW (MHz)	6dB BW (MHz)
5745	full	18.902	18.96
5785	full	18.866	18.91
5825	full	18.873	18.92

802.11ax_HE40_Ch0

Frequency (MHz)	RU config	99% BW (MHz)	10 Log (B) (dB)
5190	full	37.631	15.76
5230	full	37.708	15.76
5270	full	37.765	15.77
5310	full	37.735	15.77
5510	full	37.731	15.77
5550	full	37.722	15.77
5670	full	37.599	15.75

802.11ax_HE40_Ch0

Frequency (MHz)	RU config	99% BW (MHz)	6dB BW (MHz)
5755	full	37.702	37.76
5795	full	37.793	37.61

802.11ax_HE40_Ch1

Frequency (MHz)	RU config	99% BW (MHz)	10 Log (B) (dB)
5190	full	37.627	15.75
5230	full	37.617	15.75
5270	full	37.632	15.76
5310	full	37.629	15.76
5510	full	37.704	15.76
5550	full	37.672	15.76
5670	full	37.740	15.77

802.11ax_HE40_Ch1

Frequency (MHz)	RU config	99% BW (MHz)	6dB BW (MHz)
5755	full	37.745	35.32
5795	full	37.574	37.44

802.11ax_HE80_Ch0

Frequency (MHz)	RU config	99% BW (MHz)	10 Log (B) (dB)
5210	full	77.205	18.88
5290	full	77.091	18.87
5530	full	77.236	18.88
5610	full	76.750	18.85

802.11ax_HE80_Ch0

Frequency (MHz)	RU config	99% BW (MHz)	6dB BW (MHz)
5775	full	**76.976**	77.13

802.11ax_HE80_Ch1

Frequency (MHz)	RU config	99% BW (MHz)	10 Log (B) (dB)
5210	full	77.358	18.89
5290	full	77.485	18.89
5530	full	76.928	18.86
5610	full	77.472	18.89

802.11ax_HE80_Ch1

Frequency (MHz)	RU config	99% BW (MHz)	6dB BW (MHz)
5775	full	**77.382**	77.63

802.11a_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	18.63	12.700
5220	18.14	12.590
5240	18.25	12.610
5260	17.96	12.540
5300	18.50	12.670
5320	18.17	12.590
5500	18.05	12.560
5580	18.34	12.630
5700	18.37	12.640

802.11a_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.28	12.120
5785	15.53	11.910
5825	16.44	12.160

802.11a_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.155950	< 5250
5745	5736.821768	> 5725

802.11a_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	18.10	12.580
5220	18.35	12.640
5240	18.05	12.560
5260	18.19	12.600
5300	18.12	12.580
5320	18.12	12.580
5500	18.15	12.590
5580	18.18	12.600
5700	18.45	12.660

802.11a_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.42	12.150
5785	16.08	12.060
5825	16.14	12.080

802.11a_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.162583	< 5250
5745	5736.813994	> 5725

802.11n_HT20_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	18.99	12.790
5220	19.36	12.870
5240	19.16	12.820
5260	19.51	12.900
5300	19.14	12.820
5320	19.20	12.830
5500	19.27	12.850
5580	19.39	12.880
5700	19.46	12.890

802.11n_HT20_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	17.55	12.440
5785	17.11	12.330
5825	17.14	12.340

802.11n_HT20_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.771543	< 5250
5745	5736.210879	> 5725

802.11n_HT20_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	19.19	12.830
5220	19.12	12.810
5240	19.25	12.840
5260	19.17	12.830
5300	19.20	12.830
5320	19.13	12.820
5500	18.98	12.780
5580	19.25	12.840
5700	19.25	12.840

802.11n_HT20_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	17.02	12.310
5785	17.31	12.380
5825	16.61	12.200

802.11n_HT20_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.763407	< 5250
5745	5736.201655	> 5725

802.11n_HT40_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	38.20	15.820
5230	38.39	15.840
5270	38.43	15.850
5310	38.66	15.870
5510	38.71	15.880
5550	**38.27**	15.830
5670	38.62	15.870

802.11n_HT40_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	35.32	15.480
5795	36.23	15.590

802.11n_HT40_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.007549	< 5250
5755	5736.994025	> 5725

802.11n_HT40_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	38.44	15.850
5230	38.54	15.860
5270	38.16	15.820
5310	38.05	15.800
5510	38.36	15.840
5550	**38.46**	15.850
5670	38.30	15.830

802.11n_HT40_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	35.62	15.520
5795	35.69	15.530

802.11n_HT40_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5247.977459	< 5250
5755	5736.979390	> 5725

802.11ac_VHT80_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	83.45	19.210
5290	83.37	19.210
5530	85.77	19.330
5610	83.07	19.190

802.11ac_VHT80_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	75.45	18.780

802.11ac_VHT80_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5247.887964	< 5250
5775	5737.239585	> 5725

802.11ac_VHT80_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	83.65	19.220
5290	84.19	19.250
5530	83.13	19.200
5610	86.96	19.390

802.11ac_VHT80_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	75.92	18.800

802.11ac_VHT80_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5247.931994	< 5250
5775	5737.070293	> 5725

802.11ax_HE20_Ch0

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5180	full	19.98	13.010
5220	full	19.52	12.900
5240	full	19.53	12.910
5260	full	19.26	12.850
5300	full	19.05	12.800
5320	full	19.43	12.880
5500	full	19.08	12.810
5580	full	19.25	12.840
5700	full	19.36	12.870

802.11ax_HE20_Ch0

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5745	full	18.12	12.580
5785	full	17.01	12.310
5825	full	17.15	12.340

802.11ax_HE20_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.753661	< 5250
5745	5735.541544	> 5725

802.11ax_HE20_Ch1

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5180	full	20.18	13.050
5220	full	19.12	12.810
5240	full	19.04	12.800
5260	full	19.09	12.810
5300	full	19.12	12.810
5320	full	19.35	12.870
5500	full	19.38	12.870
5580	full	19.19	12.830
5700	full	19.42	12.880

802.11ax_HE20_Ch1

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5745	full	17.59	12.450
5785	full	17.56	12.450
5825	full	18.25	12.610

802.11ax_HE20_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.753539	< 5250
5745	5735.570292	> 5725

802.11ax_HE40_Ch0

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5190	full	39.36	15.950
5230	full	39.38	15.950
5270	full	39.53	15.970
5310	full	39.65	15.980
5510	full	39.23	15.940
5550	full	**39.16**	15.930
5670	full	39.41	15.960

802.11ax_HE40_Ch0

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5755	full	36.43	15.610
5795	full	33.96	15.310

802.11ax_HE40_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.758479	< 5250
5755	5736.116865	> 5725

802.11ax_HE40_Ch1

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5190	full	39.32	15.950
5230	full	39.30	15.940
5270	full	39.46	15.960
5310	full	39.25	15.940
5510	full	39.49	15.960
5550	full	**39.42**	15.960
5670	full	39.39	15.950

802.11ax_HE40_Ch1

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5755	full	37.28	15.710
5795	full	35.22	15.470

802.11ax_HE40_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.804095	< 5250
5755	5736.154797	> 5725

802.11ax_HE80_Ch0

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5210	full	80.56	19.060
5290	full	79.82	19.020
5530	full	80.11	19.040
5610	full	80.33	19.050

802.11ax_HE80_Ch0

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5775	full	**76.82**	18.850

802.11ax_HE80_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5248.624654	< 5250
5775	5736.466577	> 5725

802.11ax_HE80_Ch1

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5210	full	80.87	19.080
5290	full	80.77	19.070
5530	full	81.08	19.090
5610	full	80.64	19.070

802.11ax_HE80_Ch1

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5775	full	**77.29**	18.880

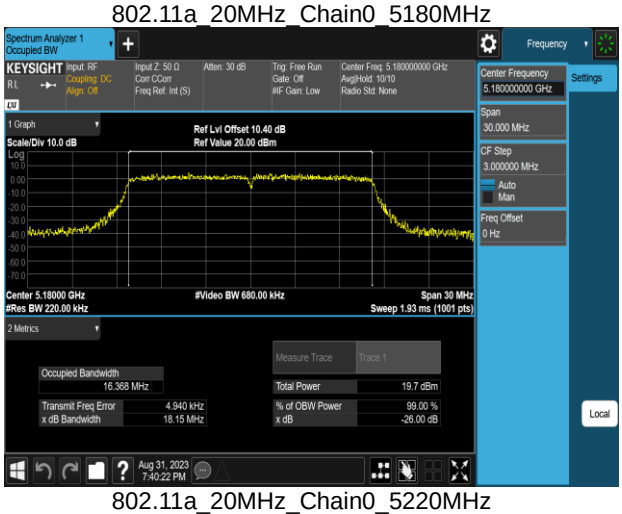
802.11ax_HE80_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5248.539468	< 5250
5775	5736.351226	> 5725

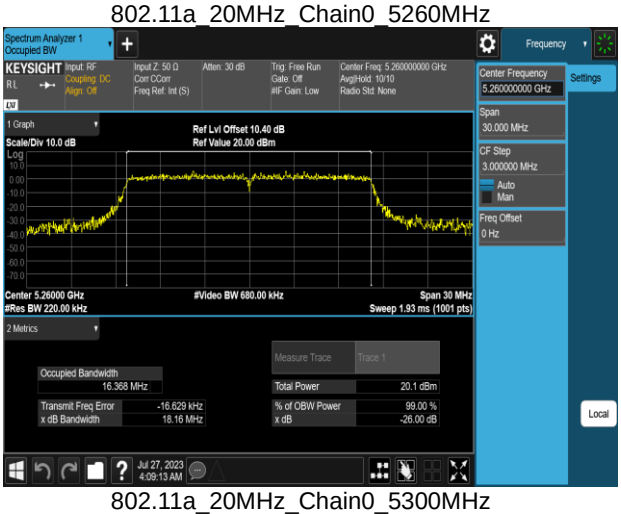
Test Data

Occupied_Bandwidth

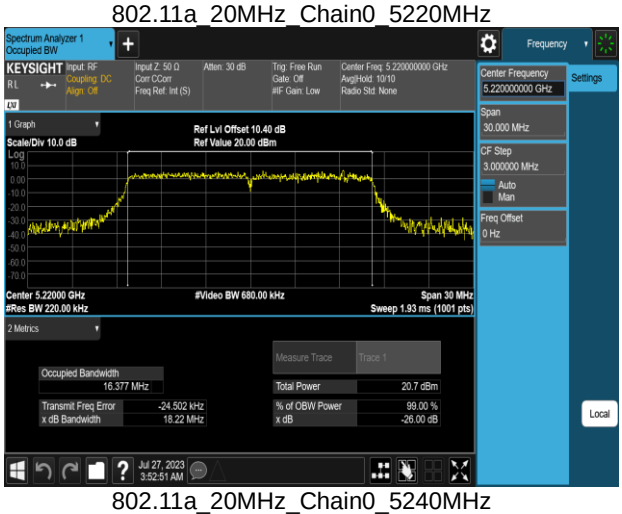
802.11a_20MHz_Chain0_5180MHz



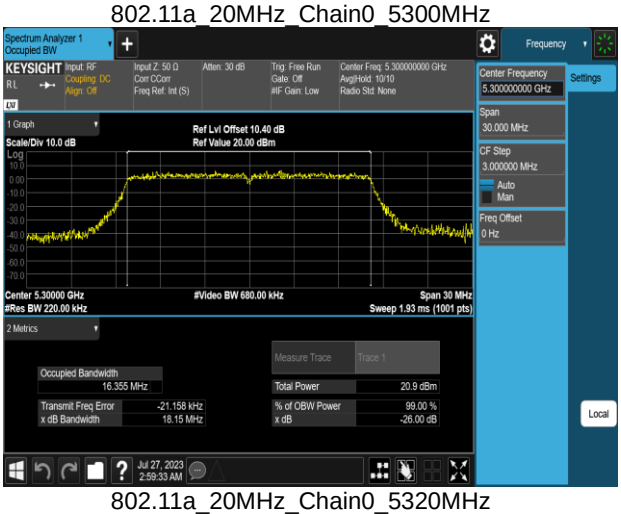
802.11a_20MHz_Chain0_5260MHz



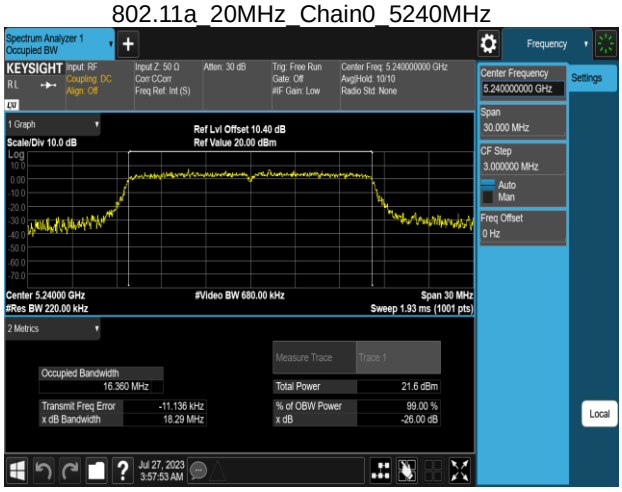
802.11a_20MHz_Chain0_5220MHz



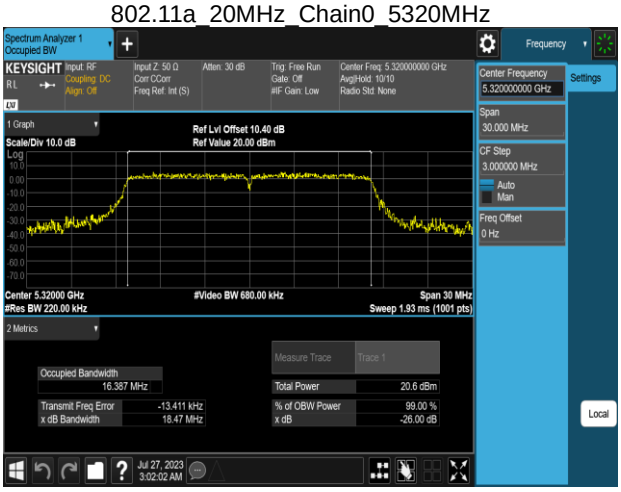
802.11a_20MHz_Chain0_5300MHz



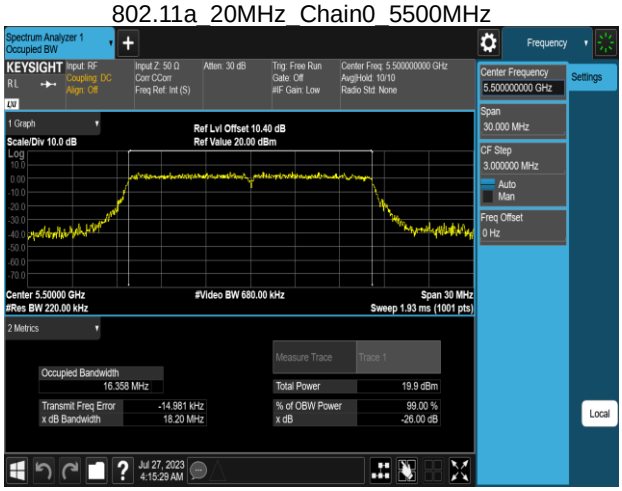
802.11a_20MHz_Chain0_5240MHz



802.11a_20MHz_Chain0_5320MHz

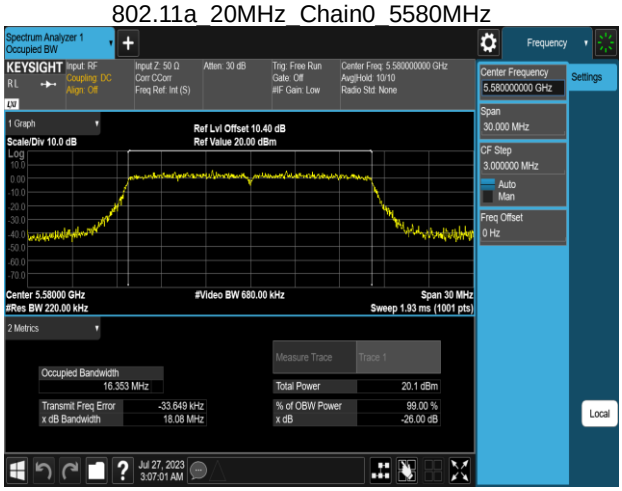


802.11a_20MHz_Chain0_5500MHz



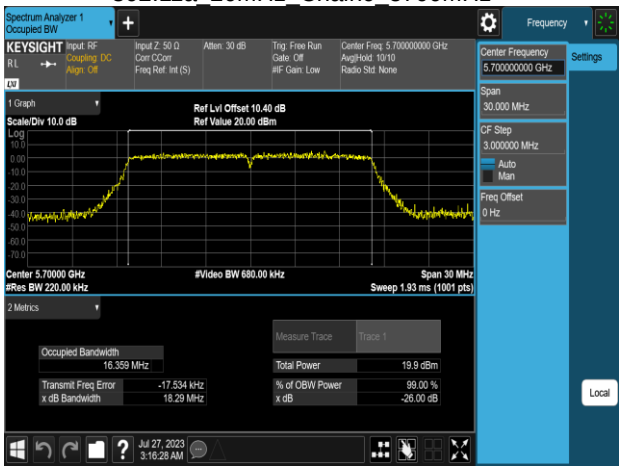
802.11a_20MHz_Chain0_5745MHz

802.11a_20MHz_Chain0_5580MHz

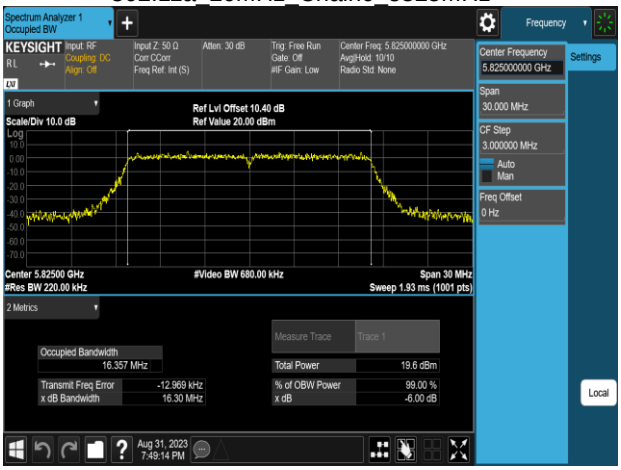


802.11a_20MHz_Chain0_5785MHz

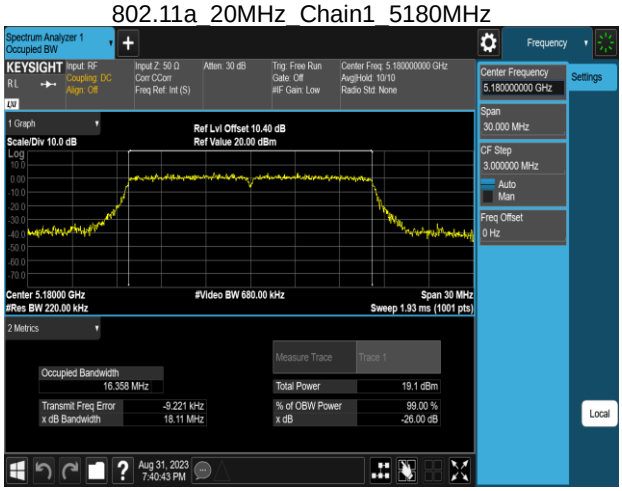
802.11a_20MHz_Chain0_5700MHz



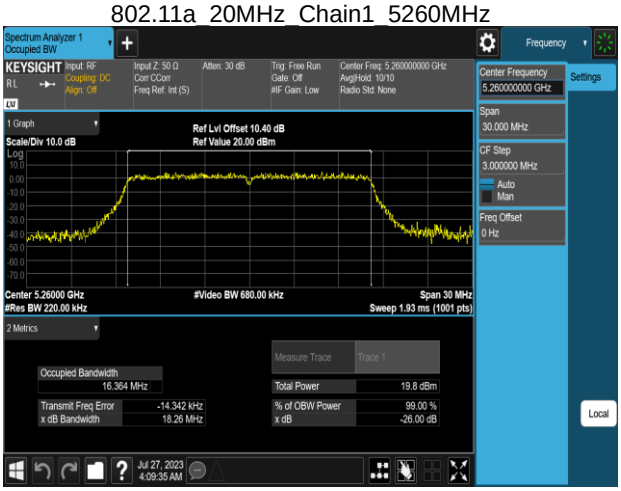
802.11a_20MHz_Chain0_5825MHz



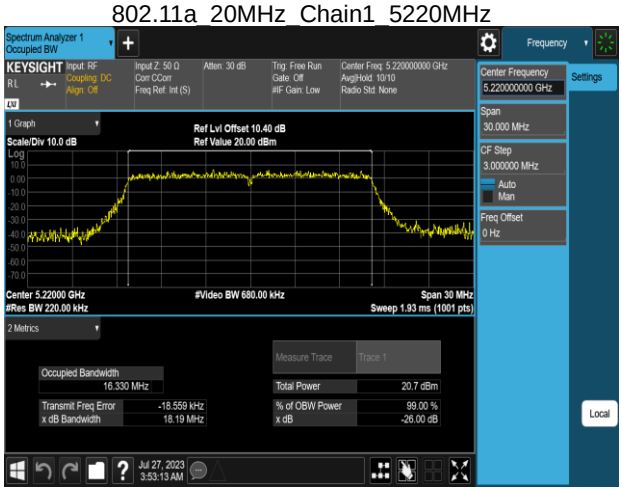
802.11a_20MHz_Chain1_5180MHz



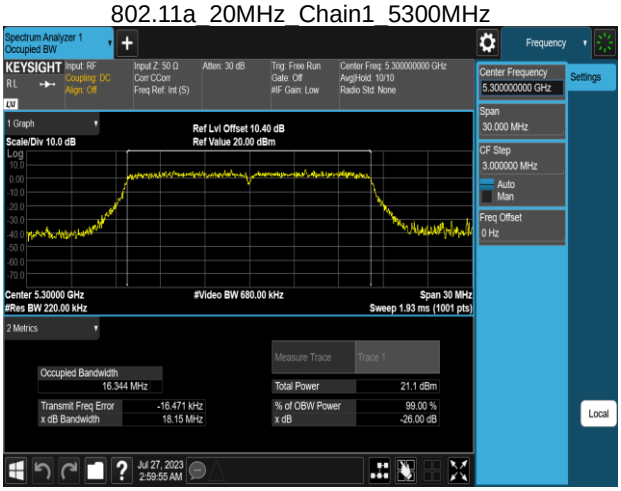
802.11a_20MHz_Chain1_5260MHz



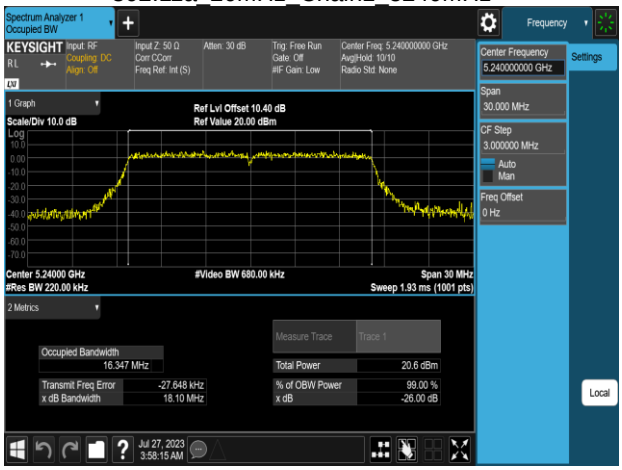
802.11a_20MHz_Chain1_5220MHz



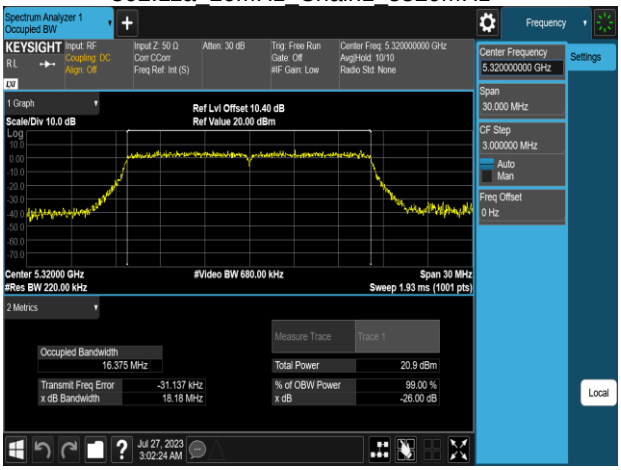
802.11a_20MHz_Chain1_5300MHz



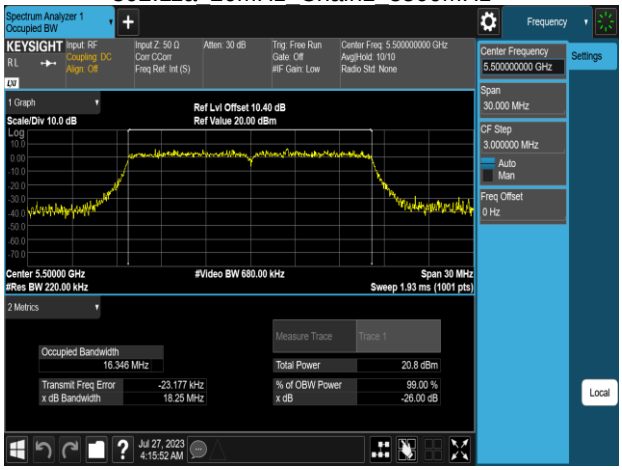
802.11a_20MHz_Chain1_5240MHz



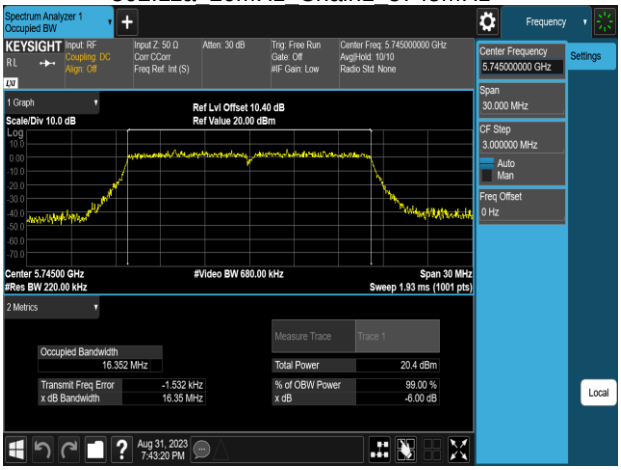
802.11a_20MHz_Chain1_5320MHz



802.11a_20MHz_Chain1_5500MHz

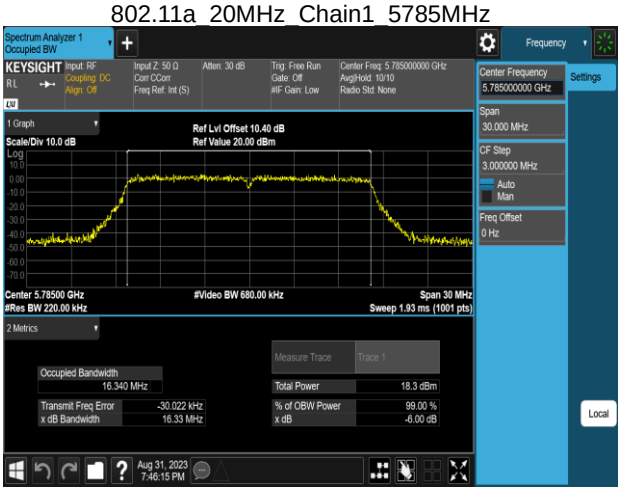


802.11a_20MHz_Chain1_5745MHz

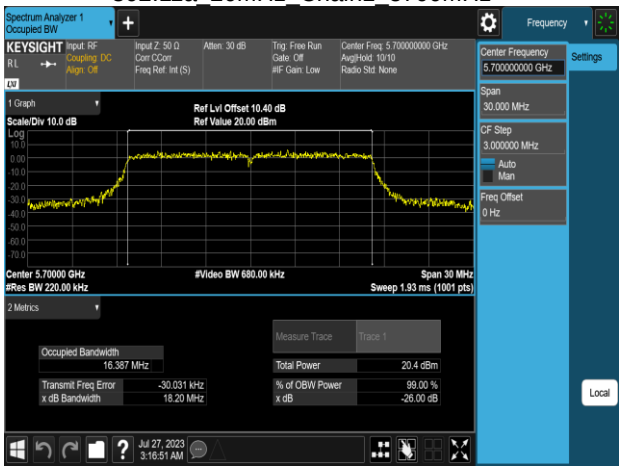


802.11a_20MHz_Chain1_5580MHz

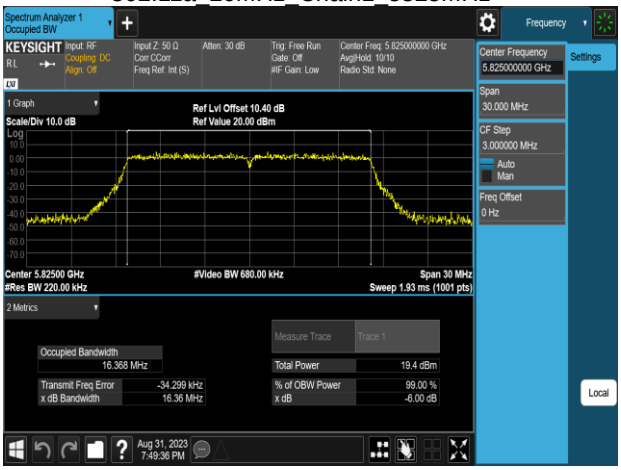
802.11a_20MHz_Chain1_5785MHz



802.11a_20MHz_Chain1_5700MHz

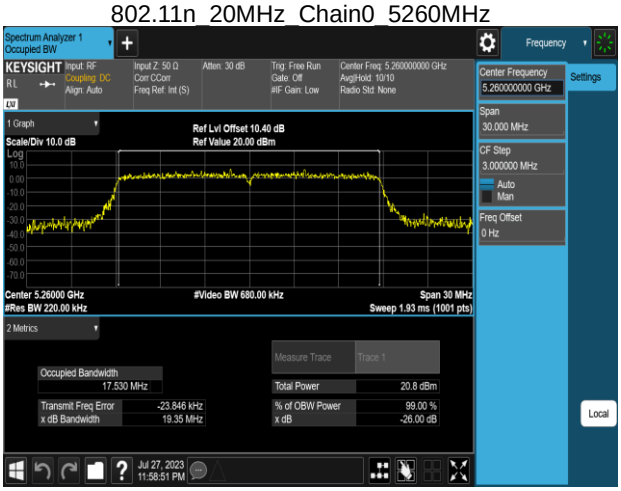


802.11a_20MHz_Chain1_5825MHz

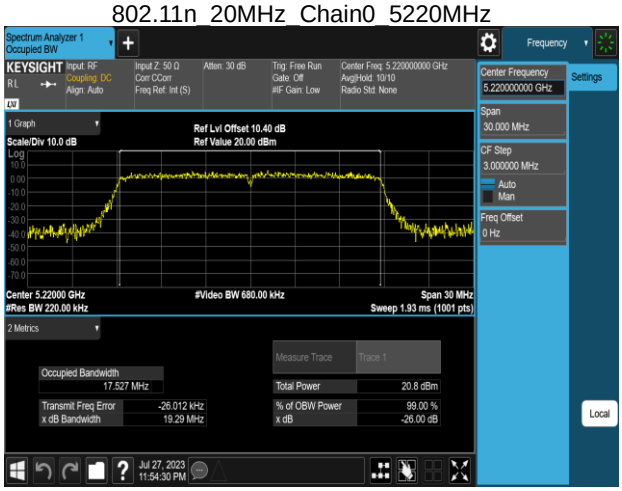


802.11n_20MHz_Chain0_5180MHz

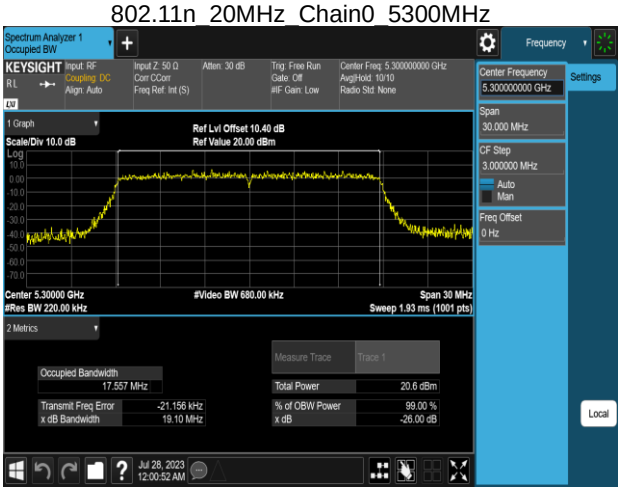
802.11n_20MHz_Chain0_5260MHz



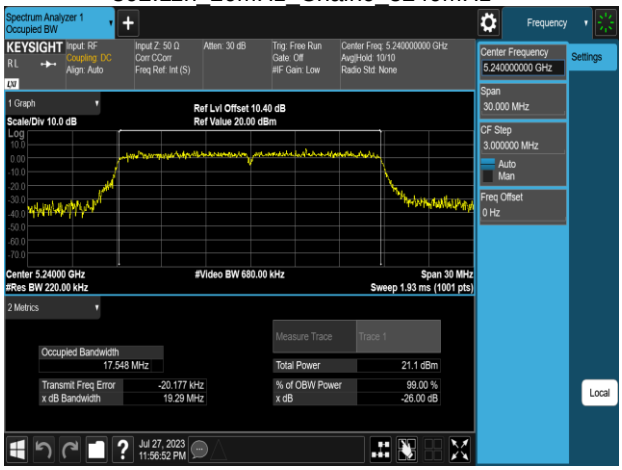
802.11n_20MHz_Chain0_5220MHz



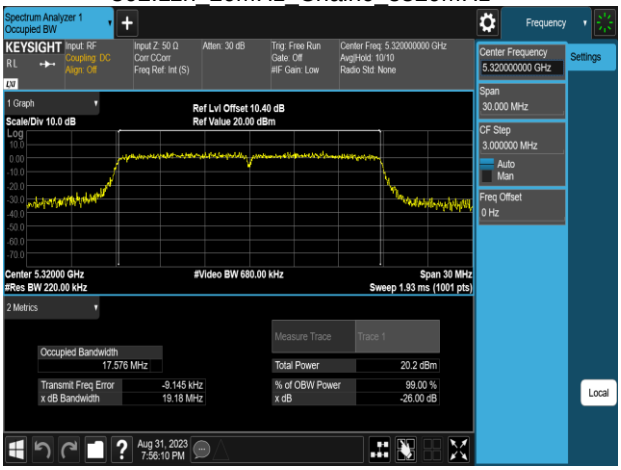
802.11n_20MHz_Chain0_5300MHz



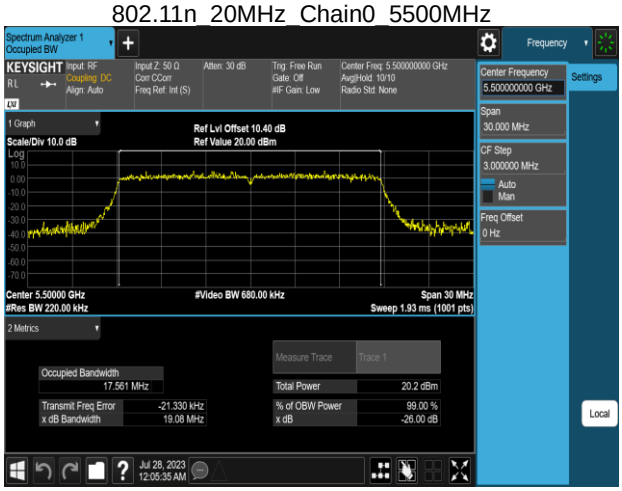
802.11n_20MHz_Chain0_5240MHz



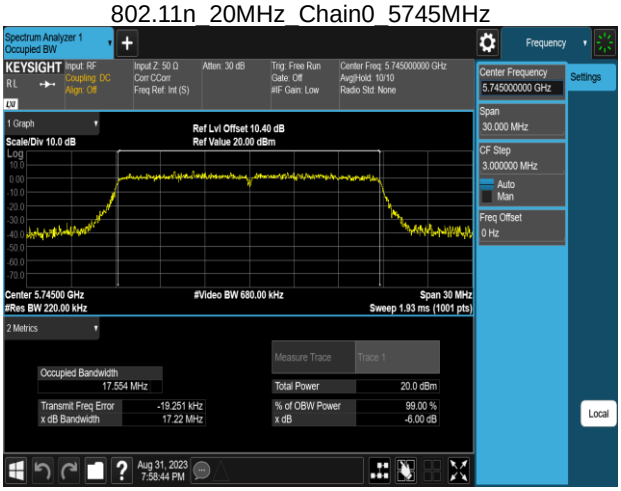
802.11n_20MHz_Chain0_5320MHz



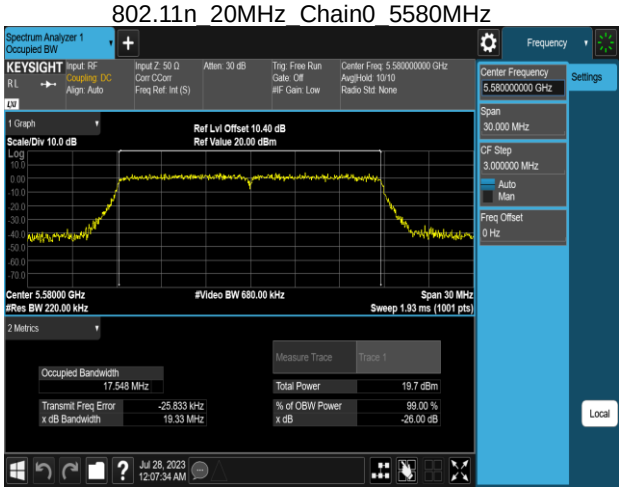
802.11n_20MHz_Chain0_5500MHz



802.11n_20MHz_Chain0_5745MHz

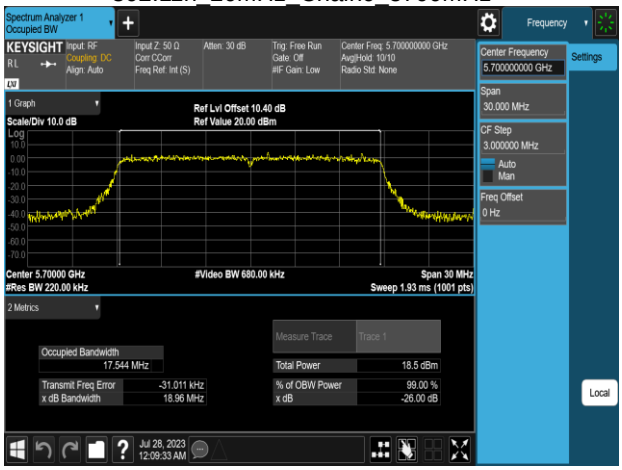


802.11n_20MHz_Chain0_5580MHz

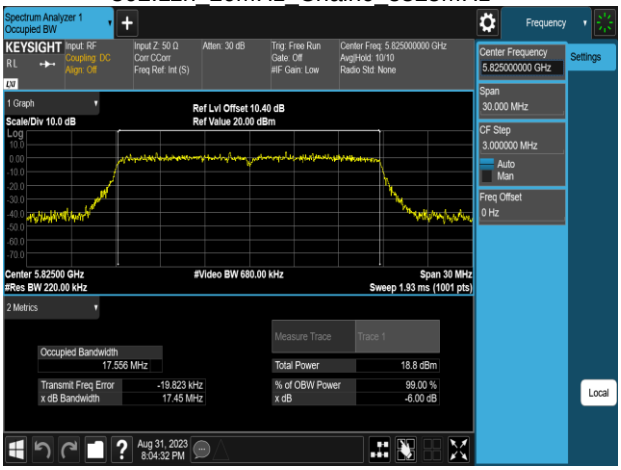


802.11n_20MHz_Chain0_5785MHz

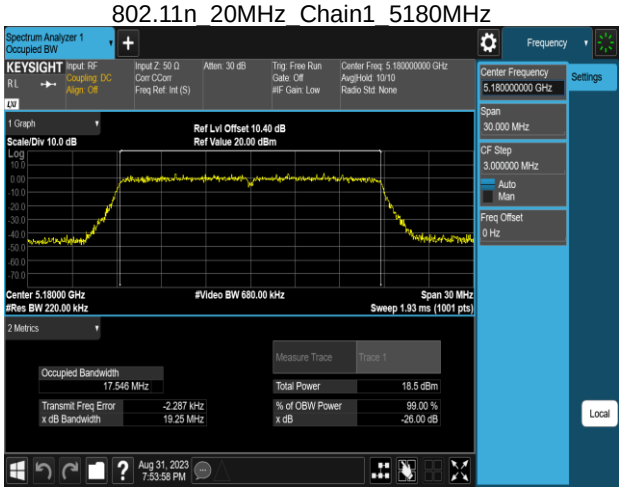
802.11n_20MHz_Chain0_5700MHz



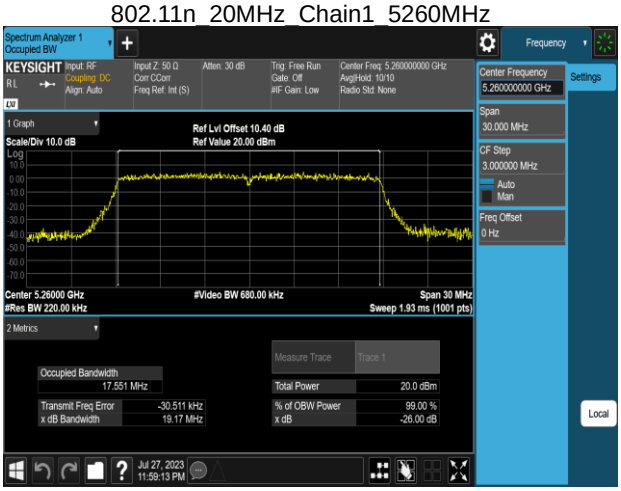
802.11n_20MHz_Chain0_5825MHz



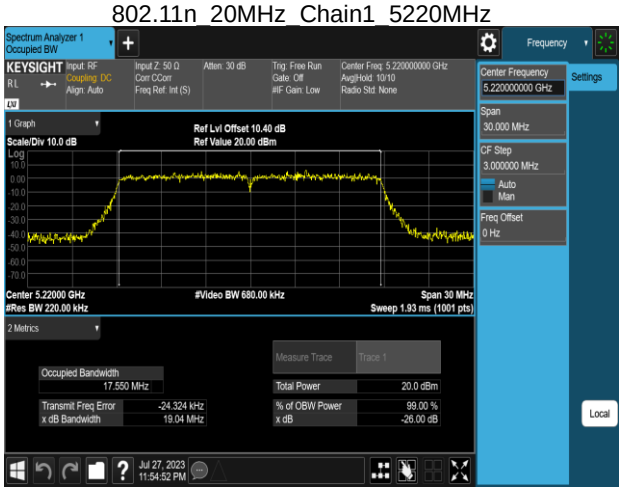
802.11n_20MHz_Chain1_5180MHz



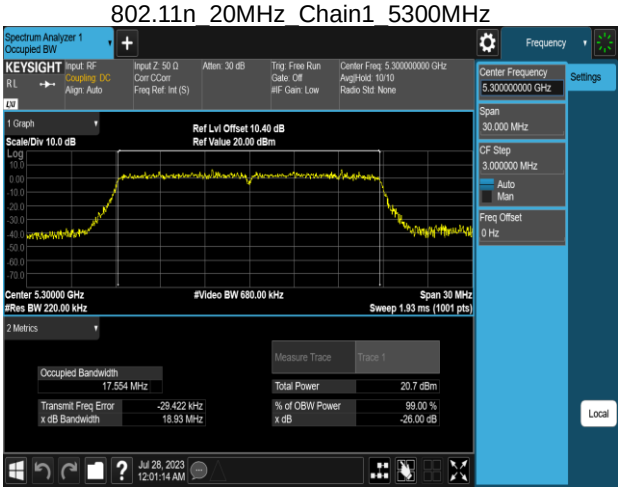
802.11n_20MHz_Chain1_5260MHz



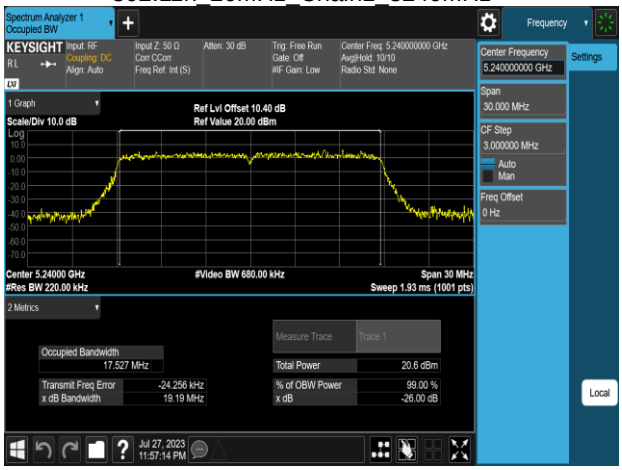
802.11n_20MHz_Chain1_5220MHz



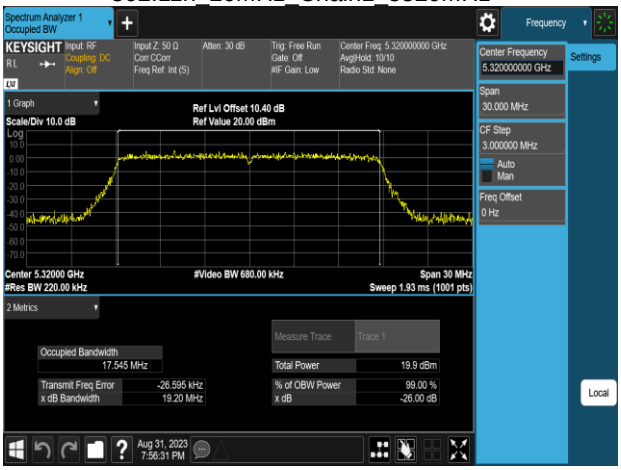
802.11n_20MHz_Chain1_5300MHz



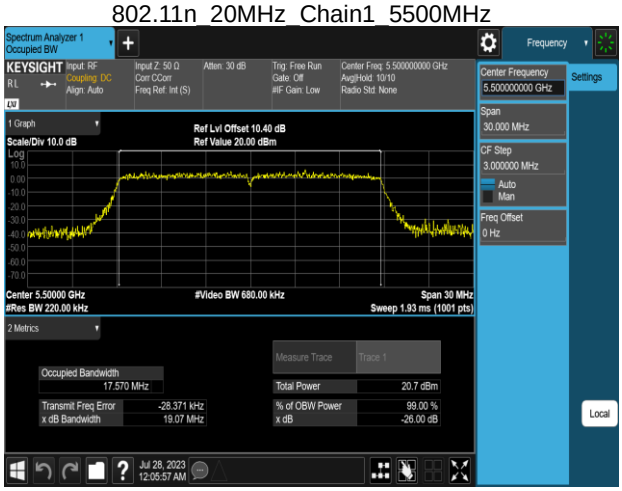
802.11n_20MHz_Chain1_5240MHz



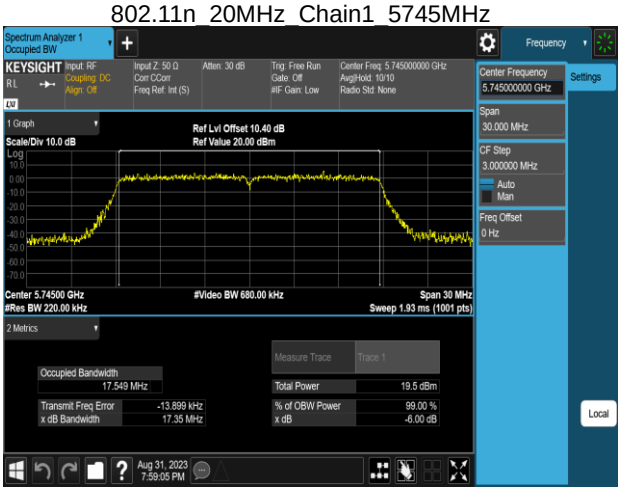
802.11n_20MHz_Chain1_5320MHz



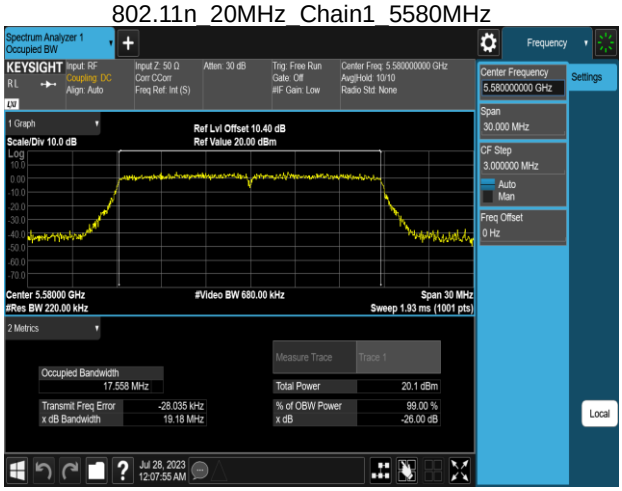
802.11n_20MHz_Chain1_5500MHz



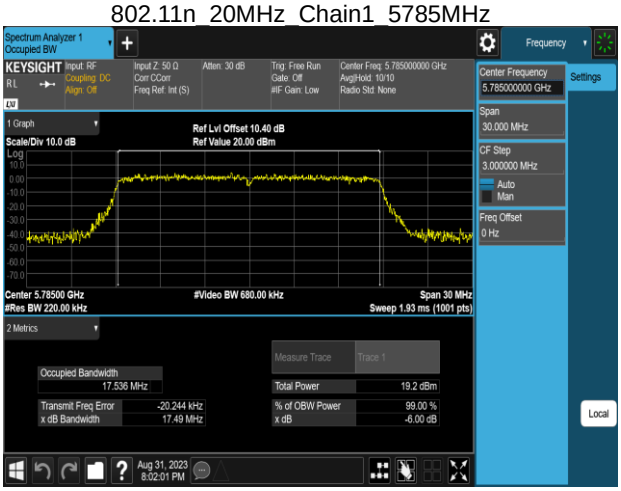
802.11n_20MHz_Chain1_5745MHz



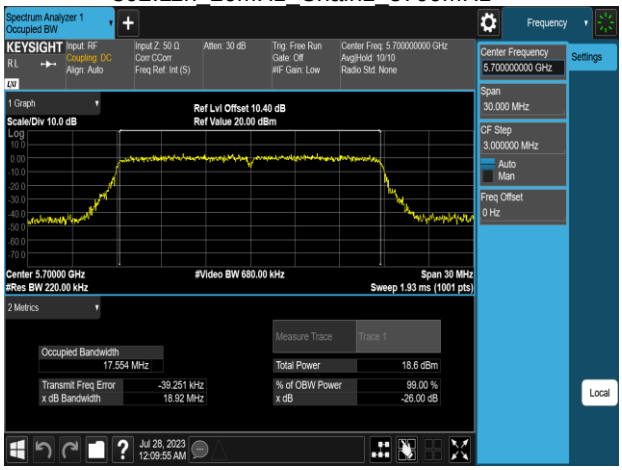
802.11n_20MHz_Chain1_5580MHz



802.11n_20MHz_Chain1_5785MHz



802.11n_20MHz_Chain1_5700MHz



802.11n_20MHz_Chain1_5825MHz