

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

Applicant: CastleNet Technology Inc.
No. 14, Ln. 141, Sec. 3, Beishen Rd., Shenkeng Dist.,
New Taipei City 22244, Taiwan (R.O.C.)

Product Name: Wireless Cable Gateway

Brand Name: Castlenet

Model No.: CBV384Z4

Model Difference: N/A

Report Number: E2/2020/B0037-02

FCC ID RK9-CBV384Z4

FCC Rule Part: §15.407, Cat: U-NII

Issue Date: Mar. 31, 2021

Date of Test: Nov. 23, 2020 - Jan. 08, 2021

Date of EUT Received: Nov. 23, 2020

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.

The test results of this report relate only to the tested sample identified in this report.

Approved By:

Vito Pei
Vito Pei / Asst. Supervisor



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Revision History

Report Number	Revision	Description	Issue Date	Remark
E2/2020/B0037	Rev.00	Original.	Feb. 22, 2021	Revised By: Yuri Tsai
E2/2020/B0037-01	Rev.01	B2 & B3 disabled via software	Feb. 22, 2021	Revised By: Yuri Tsai
E2/2020/B0037-02	Rev.02	B2 & B3 enabled via software	Mar. 31, 2021	Revised By: Yuri Tsai

Note:

1、Addendum to the original test report

This test report is an addendum to the original test report **E2/2020/B0037**, EUTs represent the original test report and this test report are assessed as identical in hardware and software, measurement results in the original report are fully leveraged in this test report without further verification test.

2、Disclaimer

Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

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Contents

1	GENERAL INFORMATION	4
2	SYSTEM TEST CONFIGURATION.....	7
3	SUMMARY OF TEST RESULT	10
4	DESCRIPTION OF TEST MODES.....	11
5	MEASUREMENT UNCERTAINTY	14
6	CONDUCTED EMISSION TEST	15
7	DUTY CYCLE TEST SIGNAL	19
8	26dB &6dB EMISSION BANDWIDTH MEASUREMENT	22
9	MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT	40
10	MAXIMUM POWER SPECTRAL DENSITY	43
11	UNDESIRABLE RADIATED EMISSION MEASUREMENT	62
12	TRANSMISSION IN THE ABSENCE OF DATA.....	142
13	ANTENNA REQUIREMENT.....	143

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1 GENERAL INFORMATION

1.1 Product Description

Product Name:	Wireless Cable Gateway	
Brand Name:	Castlenet	
Model No.:	CBV384Z4	
Model Difference:	N/A	
Hardware Version:	N/A	
Software Version:	N/A	
EUT Series No.:	PJ20B158002	
Power Supply:	12Vdc from AC/DC Adapter	
Modulation type:	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 802.11ac only	
Transition Rate:	802.11 a: 6.5 - 54 Mbps 802.11 n_20MHz: 6.5 – 346.8Mbps 802.11 n_40MHz: 13.5 – 720Mbps	802.11 ac_20MHz: 6.5 – 346.8Mbps 802.11 ac_40MHz: 13.5 – 800.0Mbps 802.11 ac_80MHz: 29.3 – 1733.2Mbps

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1.2 Antenna Designation

Ant. Type	Ch0/Ch1/Ch2/Ch3	Supplier	Part No.	Freq.(MHz)	Peak Gain (dBi)	Worst Antenna Gain
PCB	Ch0	AnJie	CBV384Z4-AC2800	5250~5350	2.86	
				5470~5725	2.73	
PCB	Ch1	AnJie	CBV384Z4-AC2800	5250~5350	2.86	
				5470~5725	2.82	
PCB	Ch2	AnJie	CBV384Z4-AC2800	5250~5350	2.95	
				5470~5725	2.73	
PCB	Ch3	AnJie	CBV384Z4-AC2800	5250~5350	2.97	V
				5470~5725	2.96	V

Note: Investigation has been done to determine the worst case scenario for the above antennas demonstrated with measurements in this report.

1.3 Worst power

Wi-Fi 802.11	Frequency Range	Channels	Rated Power (Avg.) (dBm) (Worst case)		Modulation Technology
a	5250~5350	4	21.94		OFDM
	5470~5725	12	21.98		
n_HT ac_VHT 20M	5250~5350	4	HT:	20.29	OFDM
	5470~5725	12	HT:	20.34	
n_HT ac_VHT 40M	5250~5350	2	HT:	20.39	OFDM
	5470~5725	6	HT:	20.55	
ac_VHT 80M	5250~5350	1	20.37		OFDM
	5470~5725	3	20.41		

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1.4 Test Methodology of Applied Standards

FCC Part 15, Subpart E §15.407
FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01
FCC KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10:2013

1.5 Test Facility

SGS Taiwan Ltd. Central RF Lab (TAF code 3702)
No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333
FCC Designation number: TW0028

1.6 Special Accessories

There are no special accessories used while test was conducted.

1.7 Equipment Modifications

There was no modification incorporated into the EUT.

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2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is placed on a table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz. The CISPR Quasi-Peak and Average detector mode is employed. The two LISNs provide 50uH/50 ohm of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

2.3.2 Conducted Test (RF)

The active antenna port of the unlicensed wireless device is connected to the spectrum analyzer with attenuator to protect the instrumentation. If a second antenna port is available, it is tested at one operating frequency, with other port(s) appropriately terminated, to verify it has similar output characteristics as the fully tested port.

2.3.3 Radiated Emissions

The EUT is placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

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2.4 Measurement Results Explanation Example

2.4.1 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

Radiated emission below 30MHz is measured in a 9m*9m*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

2.4.2 For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

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2.5 Configuration of Tested System

Fig. 2-1 Radiated Emission Configuration

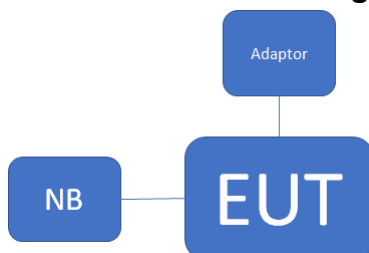


Fig. 2-2 Conducted (Antenna Port) Emission Configuration

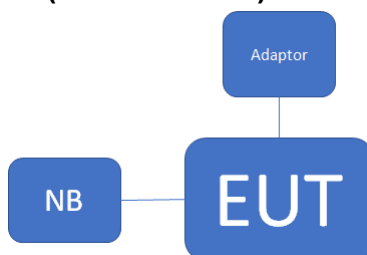


Fig. 2-3 Conducted (AC powerline) Emission Configuration

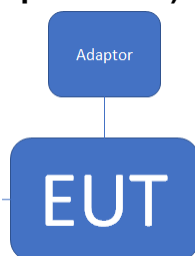


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	WLAN Test Software	N/A	N/A	N/A	N/A	N/A
2.	Notebook	Lenovo	L420	S0011721	N/A	N/A

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3 SUMMARY OF TEST RESULT

FCC Rules	Description Of Test	Result
§15.207	AC Power Line Conducted Emission	Compliant
§15.403(i) §15.407(e)	26 dB & 6dB Emission Bandwidth	Compliant
§15.407(a)	Maximum Conducted Output Power	Compliant
§15.407(a)	Power Spectral Density	Compliant
§15.205 §15.209 §15.407(b)	Undesirable Radiated Emissions	Compliant
§15.407(c)	Transmission in case of Absence of Information	Compliant
§15.203 §15.407(a)	Antenna Requirement	Compliant

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4 DESCRIPTION OF TEST MODES

4.1 802.11a/n/ac operated in U-NII Bands

Operated band in 5250 MHz ~5350 MHz:

20 M		40 M		80 M	
CH	Freq (MHz)	CH	Freq (MHz)	CH	Freq (MHz)
52	5260	54	5270	58	5290
56	5280	62	5310		
60	5300				
64	5320				

Operated band in 5470 MHz ~5725 MHz:

20 M		40 M		80 M	
CH	Freq (MHz)	CH	Freq (MHz)	CH	Freq (MHz)
100	5500	102	5510	106	5530
104	5520	110	5550	122	5610
108	5540	118	5590	138	5690
112	5560	126	5630		
116	5580	134	5670		
120	5600	142	5710		
124	5620				
128	5640				
132	5660				
136	5680				
140	5700				
144	5720				

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4.2 The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. Test program used to control the EUT for staying in continuous transmitting mode is programmed.
3. Investigation has been done on all the possible configurations for searching the worst case. The given UE is pre-scanned among below modes.

Modulation	Transmission Chain				Single Transmission Spatial	Multiple Transmission Spatial
☒ 802.11 a	☒ Ch0	☒ Ch1	☒ Ch2	☒ Ch3	☐ 1TX	☐ 4TX
☒ 802.11 n	☒ Ch0	☒ Ch1	☒ Ch2	☒ Ch3	☐ SISO	☒ 4TX MIMO
☒ 802.11 ac	☒ Ch0	☒ Ch1	☒ Ch2	☒ Ch3	☐ SISO	☒ 4TX MIMO

4. Therefore, below summary is the modes of test configuration that yield the highest reading and generate the highest emission chosen to carry out the relevantly mandatory test items.

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4.2.1 RADIATED EMISSION TEST:

RADIATED EMISSION TEST (BELOW 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5260~5320	52 to 64	60	OFDM	6	ch1
	5500~5720	100 to 144	116			
802.11ac_VHT80	5270~5310	58	58	OFDM	MCS0	
	5530~5690	106 to 138	122			

RADIATED EMISSION TEST (ABOVE 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	ch1
	5500~5720	100 to 144	100,116,140,144			
802.11n_HT20	5260~5320	52 to 64	52,60,64	OFDM	MCS0	MIMO
	5500~5720	100 to 144	100,116,140,144			
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS0	MIMO
	5510~5670	102 to 142	102,110,134,142			
802.11ac_VHT80	5290	58	58	OFDM	MCS0	MIMO
	5530~5610	106 to 138	106,122,138			

Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11a/n/ac WLAN Transmitter for channel Low, Mid and High, the worst case H position was reported.

4.2.2 ANTENNA PORT CONDUCTED MEASUREMENT:

CONDUCTED TEST						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	ch1
	5500~5720	100 to 144	100,116,140,144			
802.11n_HT20	5260~5320	52 to 64	52,60,64	OFDM	MCS0	MIMO
	5500~5720	100 to 144	100,116,140,144			
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS0	MIMO
	5510~5670	102 to 142	102,110,134,142			
802.11ac_VHT80	5290	58	58	OFDM	MCS0	MIMO
	5530~5610	106 to 138	106,122,138			

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5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.34 dB
26dB & 6dB Emission Bandwidth	+/- 1.54 Hz
The Maximum Output Power Measurement	+/- 1 dB
Peak Power Spectral Density Measurement	+/- 1.54 dB
Frequency Stability	+/- 1.54 Hz
Temperature	+/- 0.4 °C
Humidity	+/- 3.5 %
DC / AC Power Source	DC= +/- 1%, AC=+/- 1%

Radiated Spurious Emission Measurement Uncertainty			
Polarization: Vertical	+/- 2.64 dB	9kHz~30MHz: +/-2.3dB	
	+/- 4.93 dB	30MHz - 1000MHz: +/- 3.37dB	
	+/- 4.81 dB	1GHz - 18GHz: +/- 4.04dB	
	+/- 4.52 dB	18GHz - 40GHz: +/- 4.04dB	
Polarization: Horizontal	+/- 2.64 dB	9kHz~30MHz: +/-2.3dB	
	+/- 4.45 dB	30MHz - 1000MHz: +/- 4.22dB	
	+/- 4.81 dB	1GHz - 18GHz: +/- 4.08dB	
	+/- 4.52 dB	18GHz - 40GHz: +/- 4.08dB	

Note:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

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6 CONDUCTED EMISSION TEST

6.1 Standard Applicable

Frequency range within 150 kHz to 30 MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits dB(μV)	
	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

Note

- 1.The lower limit shall apply at the transition frequencies
- 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

6.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
LISN	SCHWARZBECK Mess-Elektronik	NSLK8127	974	03/25/2020	03/24/2021
EMI Test Receiver	R&S	ESCI	101342	04/28/2020	04/27/2021

6.3 EUT Setup

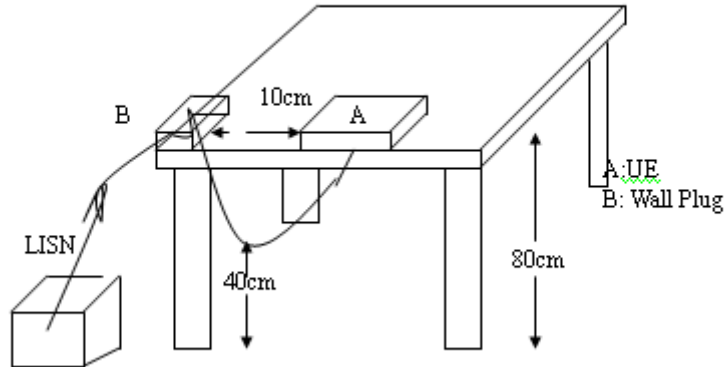
1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The LISN was connected with 120Vac/60Hz power source.

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6.4 Test SET-UP



6.5 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all phases of power being supplied by given UE are completed.

6.6 Measurement Result

Note: Refer to next page for measurement data and plots.

Note2: The * reveals the worst-case results that closet to the limit.

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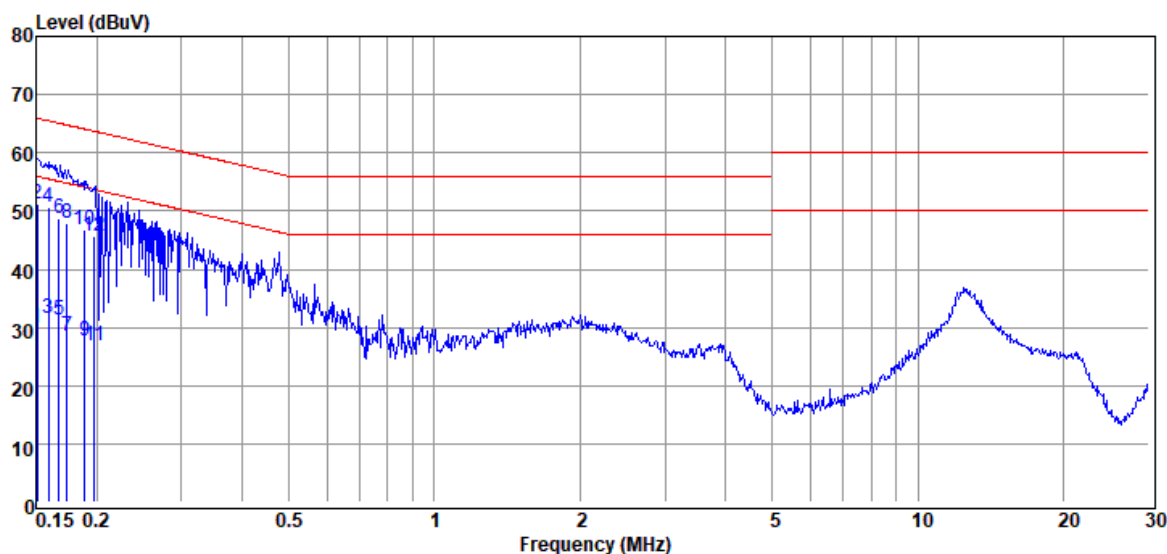
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AC POWER LINE CONDUCTED EMISSION TEST DATA

Report Number	:E2-2020-B0037	Test Site	:Conduction Room C
Test Mode	:WLAN 5G	Test Date	:2020-12-23
Power	:120V/60Hz	Temp./Humi.	:25.4/62
Probe	:L1	Engineer	:Ashton Chiu
Note:	: MS-V300R120-036H0-US		



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV	Limit dBuV	Margin dB
0.15	Average	19.75	10.22	29.97	55.95	-25.98
0.15	QP	40.88	10.22	51.10	65.95	-14.85
0.16	Average	21.25	10.22	31.47	55.52	-24.05
0.16	QP	40.41	10.22	50.63	65.52	-14.89
0.17	Average	21.17	10.22	31.39	55.08	-23.69
0.17	QP	38.61	10.22	48.83	65.08	-16.25
0.17	Average	18.27	10.22	28.49	54.77	-26.28
0.17	QP	37.80	10.22	48.02	64.77	-16.75
0.19	Average	17.41	10.22	27.63	54.07	-26.44
0.19	QP	36.58	10.22	46.80	64.07	-17.27
0.20	Average	16.52	10.22	26.74	53.69	-26.95
0.20	QP	35.46	10.22	45.68	63.69	-18.01

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Report Number :E2-2020-B0037

Test Site :Conduction Room C

Test Mode :WLAN 5G

Test Date :2020-12-23

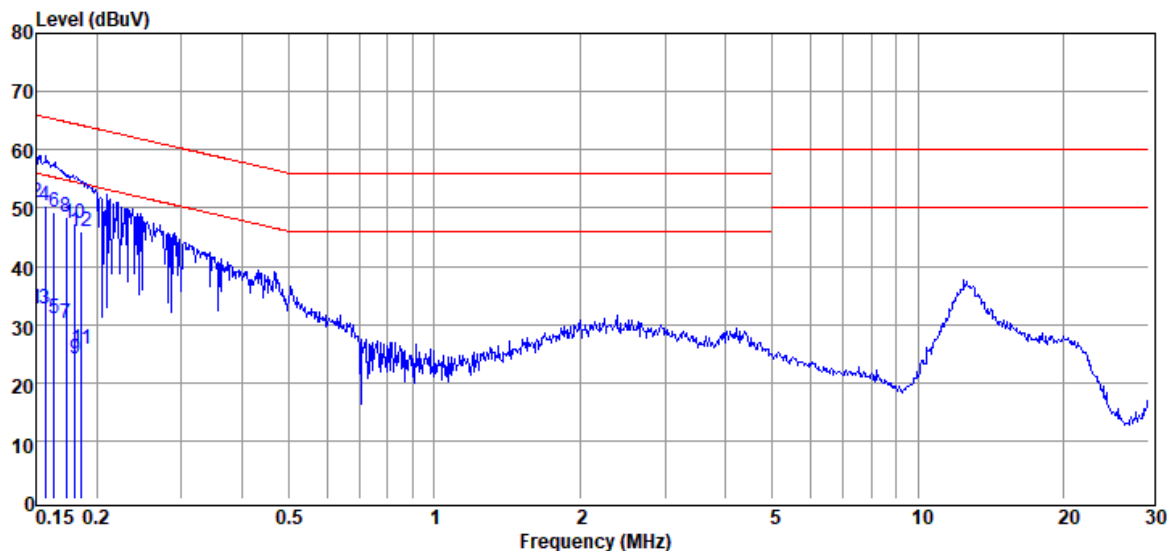
Power :120V/60Hz

Temp./Humi. :25.4/62

Probe :N

Engineer :Ashton Chiu

Note: : MS-V300R120-036H0-US



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV	Limit dBμV	Margin dB
0.15	Average	22.54	10.21	32.75	56.00	-23.25
0.15	QP	40.70	10.21	50.91	66.00	-15.09
0.16	Average	22.38	10.21	32.59	55.65	-23.06
0.16	QP	40.18	10.21	50.39	65.65	-15.26
0.16	Average	20.67	10.21	30.88	55.30	-24.42
0.16	QP	39.14	10.21	49.35	65.30	-15.95
0.17	Average	20.03	10.21	30.24	54.81	-24.57
0.17	QP	38.31	10.21	48.52	64.81	-16.29
0.18	Average	13.96	10.21	24.17	54.45	-30.28
0.18	QP	37.13	10.21	47.34	64.45	-17.11
0.19	Average	15.46	10.21	25.67	54.19	-28.52
0.19	QP	35.87	10.21	46.08	64.19	-18.11

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7 DUTY CYCLE TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

7.1 Measurement Procedure:

1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

Duty Cycle:

Mode	Duty Cycle (%) =Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11a	95.00	0.22	0.48	1.00
802.11n_20	95.00	0.22	0.52	1.00
802.11ac_20	98.00	0.09	0.52	0.01
802.11n_40	91.00	0.41	1.06	2.00
802.11ac_40	97.00	0.13	1.05	2.00
802.11ac_80	94.00	0.27	2.17	3.00

■ Duty Cycle Factor: $10 * \log(1/0.95) = 0.22$

■ Duty Cycle Factor: $10 * \log(1/0.95) = 0.22$

■ Duty Cycle Factor: $10 * \log(1/0.98) = 0.09$

■ Duty Cycle Factor: $10 * \log(1/0.91) = 0.41$

■ Duty Cycle Factor: $10 * \log(1/0.97) = 0.13$

■ Duty Cycle Factor: $10 * \log(1/0.94) = 0.27$

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7.2 DUTY CYCLE TEST SIGNAL MEASUREMENT RESULT

802.11a_20MHz



802.11ac_20MHz



802.11n_20MHz



802.11n_40MHz



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802.11ac_40MHz



802.11ac_80MHz



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8 26DB & 6DB EMISSION BANDWIDTH MEASUREMENT

8.1 Standard Applicable

There is no limit bandwidth for U-NII-1, U-NII-2-A and U-NII-2-C.

The minimum of 6dB Bandwidth measurement is 0.5 MHz for U-NII-3

8.2 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the Antenna port to the spectrum analyzer.
 - 3.a. 26dB Band width Measurement: Set the spectrum analyzer as 1% of emission BW
Sweep=auto,
Detector = Peak,
Trace Mode = Max Hold,
Manually readjust RBW until the RBW/EBW ratio is 1% based on EBW as observed on the result of pre-sequence measurement.
 - 3.b. Mark the peak frequency and -26dB (upper and lower) frequency.
4. Repeat the procedures as list above until all test default channels (low, middle, and high) are completed.
5. Minimum Emission Bandwidth for the band 5.725-5.850GHz.
 - a. Set the spectrum analyzer as
RBW = 100 kHz,
VBW = 3*RBW,
Span = 30M/50MHz,
Detector=Peak,
Sweep=auto
 - b. Mark the peak frequency and -6dB (upper and lower) frequency.
6. Repeat above procedures until all frequency of interest measured was complete.

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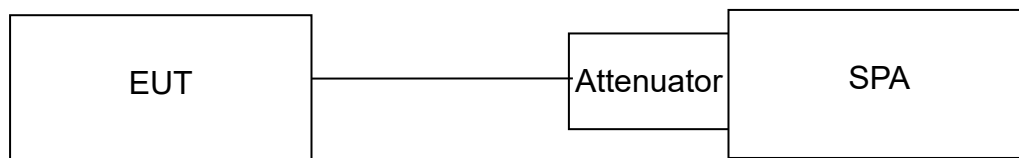
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8.3 Measurement Equipment Used

SGS Conducted Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071574	06/24/2020	06/23/2021
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021
DC Block	PASTERNAK	PE8210	RF151	11/19/2020	11/18/2021

8.4 Test Set-up



8.5 Measurement Result

8.5.1 FCC 26dB Bandwidth

802.11a_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5260	21.69	13.360
5300	21.80	13.380
5320	21.38	13.300
5500	20.97	13.220
5580	21.40	13.300
5700	21.32	13.290
5720(U-NII 2C)	15.85	12.000
5720(U-NII 3)	5.85	7.670

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802.11n_HT20_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5260	21.13	13.250	5260	21.20	13.260
5300	21.21	13.270	5300	21.40	13.300
5320	21.12	13.250	5320	21.17	13.260
5500	21.29	13.280	5500	21.20	13.260
5580	21.28	13.280	5580	21.28	13.280
5700	21.11	13.240	5700	21.19	13.260
5720(U-NII 2C)	15.93	12.020	5720(U-NII 2C)	15.98	12.040
5720(U-NII 3)	5.93	7.730	5720(U-NII 3)	5.98	7.770

802.11n_HT20_Ch1

802.11n_HT20_Ch2

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5260	21.56	13.340	5260	21.27	13.280
5300	21.21	13.270	5300	21.28	13.280
5320	21.22	13.270	5320	21.28	13.280
5500	21.30	13.280	5500	21.37	13.300
5580	21.15	13.250	5580	21.34	13.290
5700	21.30	13.280	5700	21.16	13.260
5720(U-NII 2C)	15.88	12.010	5720(U-NII 2C)	15.85	12.000
5720(U-NII 3)	5.88	7.690	5720(U-NII 3)	5.85	7.670

802.11n_HT20_Ch3

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802.11n_HT40_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5270	39.60	15.980	5270	39.98	16.020
5310	39.45	15.960	5310	39.55	15.970
5510	40.17	16.040	5510	39.85	16.000
5550	40.33	16.060	5550	40.40	16.060
5670	40.14	16.040	5670	40.22	16.040
5710(U-NII 2C)	35.44	15.500	5710(U-NII 2C)	36.88	15.670
5710(U-NII 3)	5.44	7.360	5710(U-NII 3)	6.88	8.370

802.11n_HT40_Ch1

802.11n_HT40_Ch2

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5270	40.15	16.040	5270	40.02	16.020
5310	39.85	16.000	5310	40.67	16.090
5510	40.51	16.080	5510	39.50	15.970
5550	41.26	16.160	5550	40.07	16.030
5670	39.72	15.990	5670	40.27	16.050
5710(U-NII 2C)	36.00	15.560	5710(U-NII 2C)	35.35	15.480
5710(U-NII 3)	6.00	7.780	5710(U-NII 3)	5.35	7.290

802.11n_HT40_Ch3

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802.11ac_VHT80_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5290	81.44	19.110	5290	81.00	19.080
5530	81.83	19.130	5530	85.91	19.340
5610	81.34	19.100	5610	80.86	19.080
5690(U-NII 2C)	86.58	19.370	5690(U-NII 2C)	83.17	19.200
5690(U-NII 3)	8.29	9.190	5690(U-NII 3)	6.59	8.190

802.11ac_VHT80_Ch1

802.11ac_VHT80_Ch2

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5290	85.81	19.340	5290	82.84	19.180
5530	85.38	19.310	5530	87.92	19.440
5610	81.24	19.100	5610	84.92	19.290
5690(U-NII 2C)	81.66	19.120	5690(U-NII 2C)	82.45	19.160
5690(U-NII 3)	5.83	7.660	5690(U-NII 3)	6.23	7.940

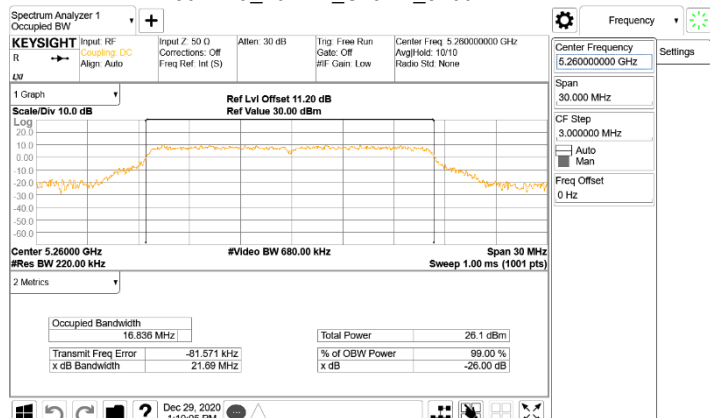
802.11ac_VHT80_Ch3

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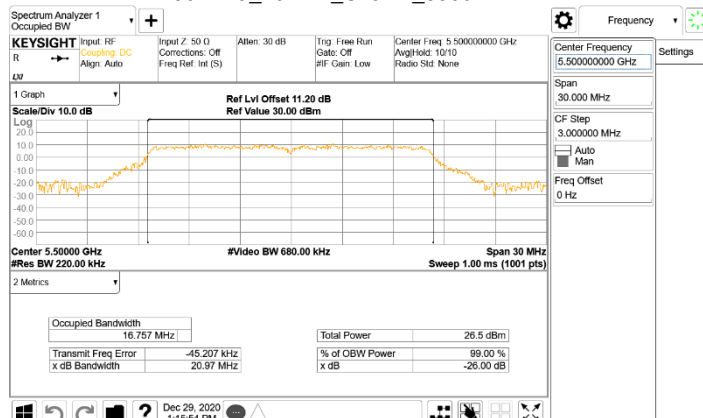
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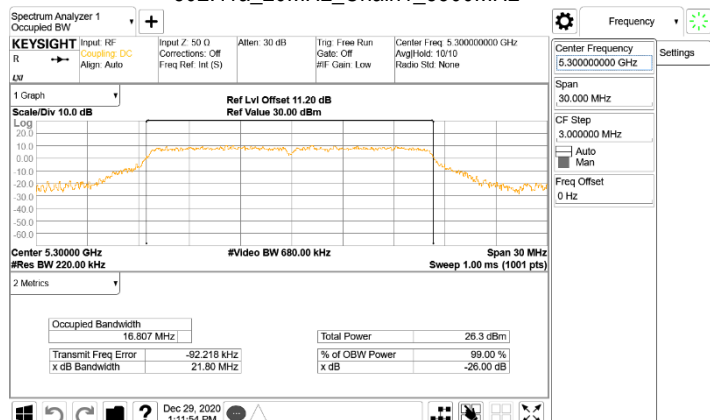
802.11a_20MHz_Chain1_5260MHz



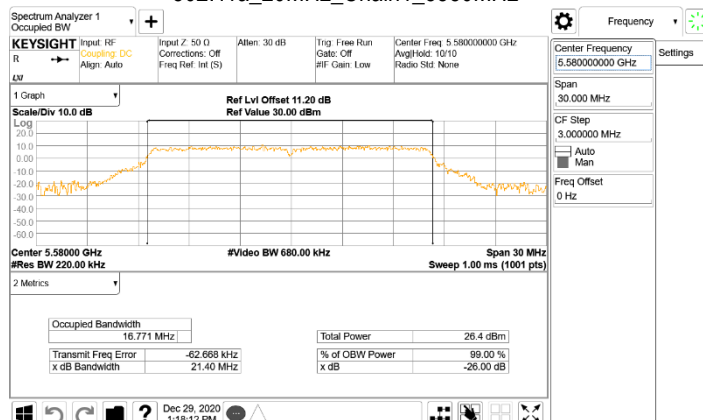
802.11a_20MHz_Chain1_5500MHz



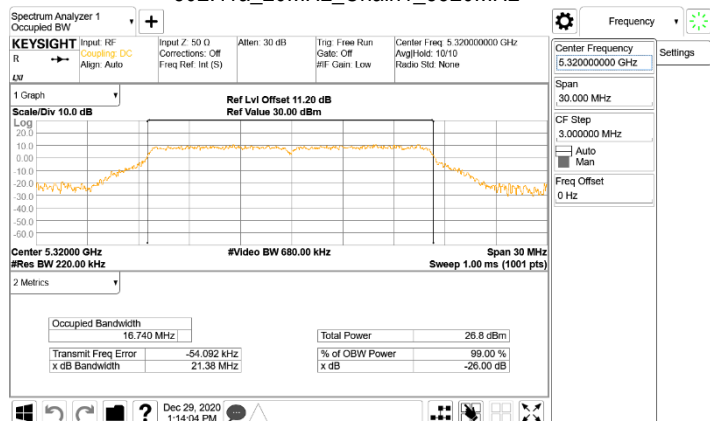
802.11a_20MHz_Chain1_53000MHz



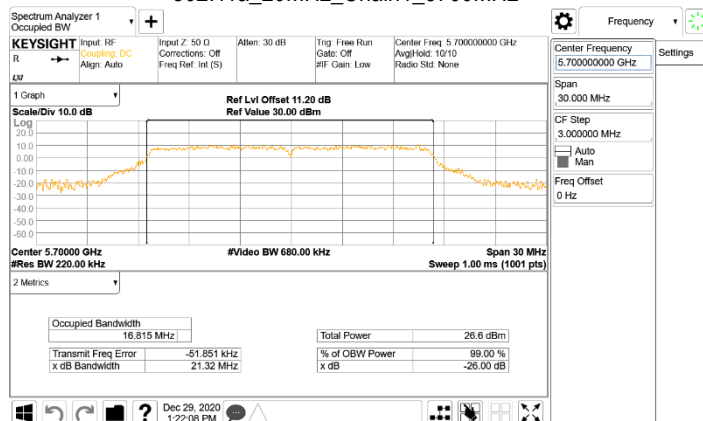
802.11a_20MHz_Chain1_5580MHz



802.11a_20MHz_Chain1_5320MHz



802.11a_20MHz_Chain1_5700MHz

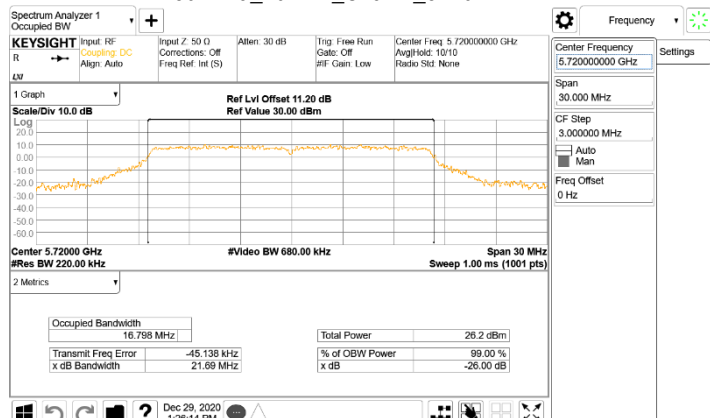


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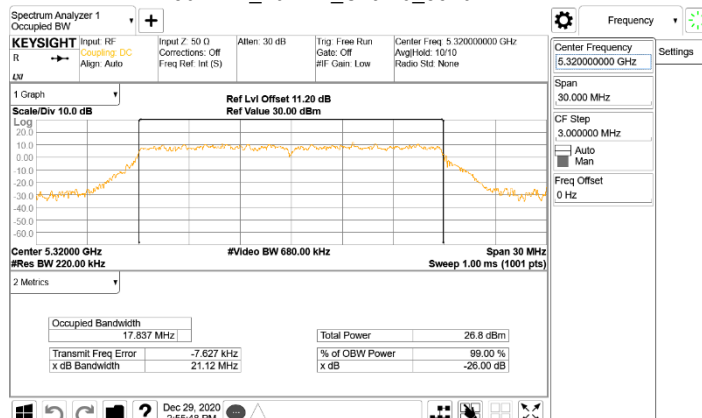
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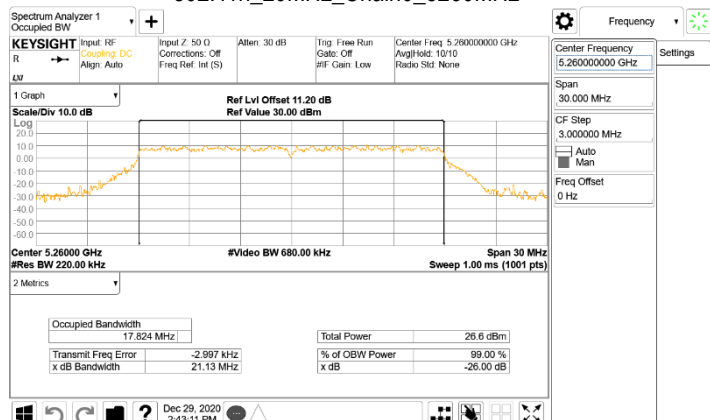
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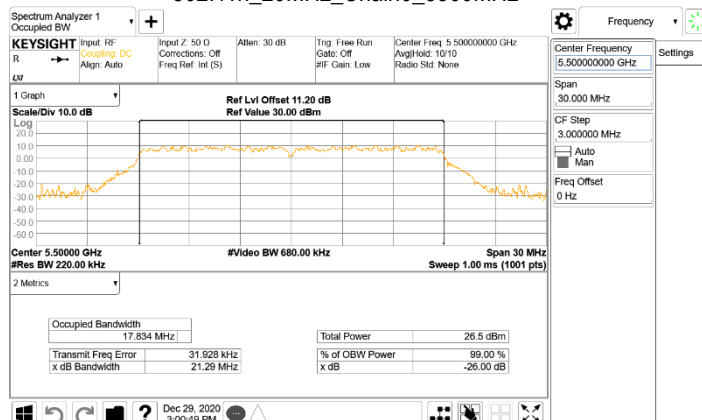
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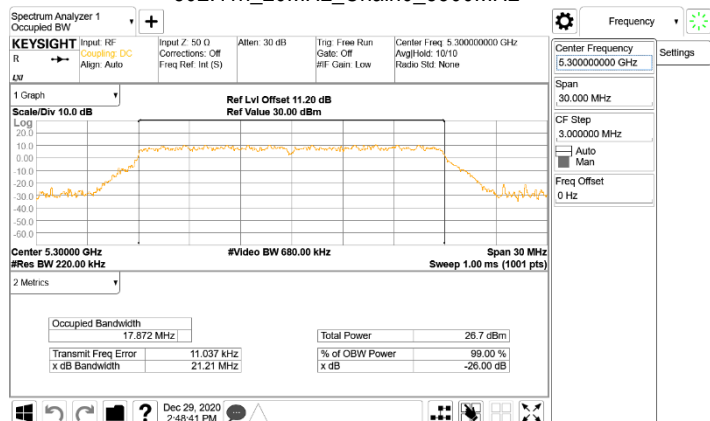
802.11n_20MHz_Chain0_5260MHz



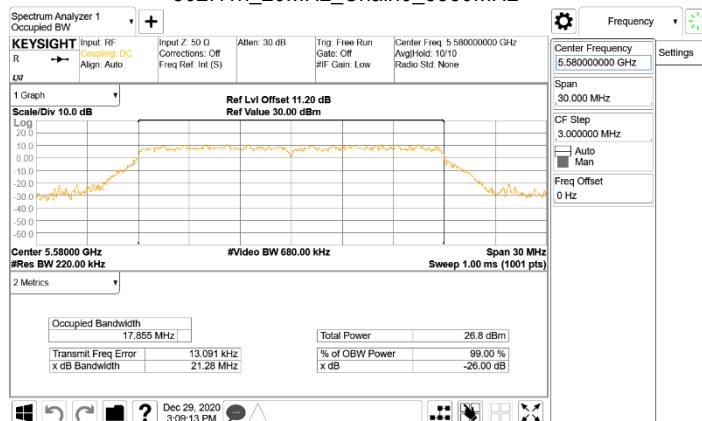
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802.11n_20MHz_Chain0_5300MHz



802.11n_20MHz_Chain0_5580MHz

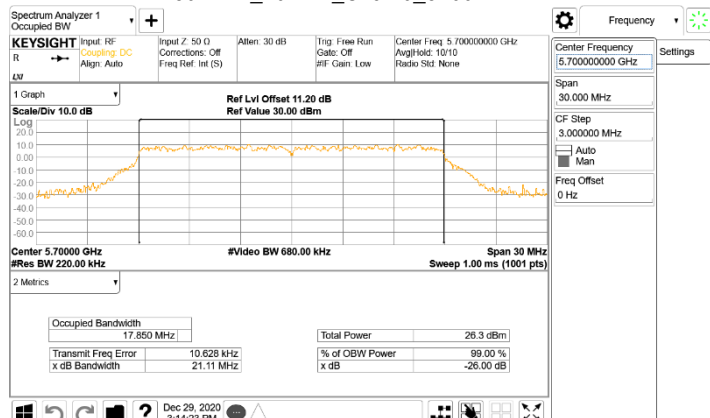


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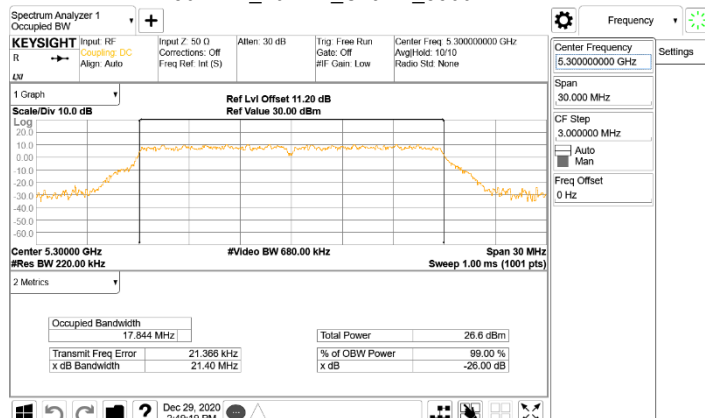
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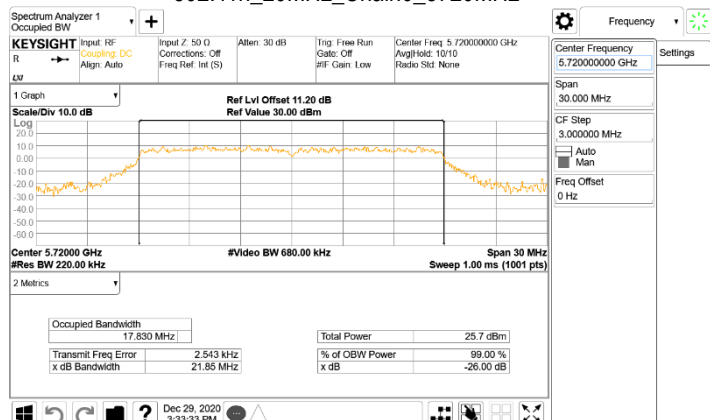
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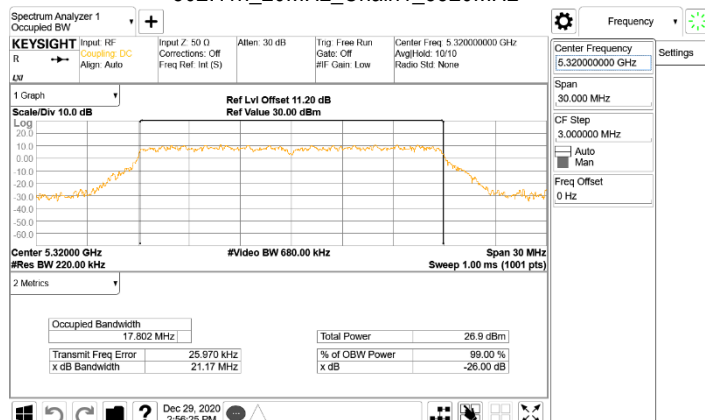
802.11n_20MHz_Chain1_5300MHz



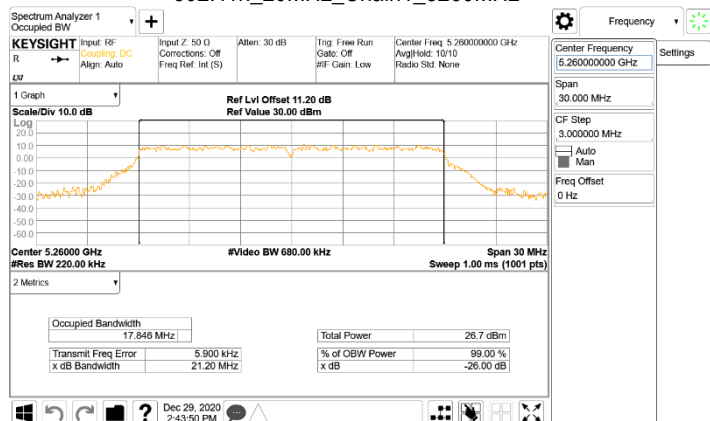
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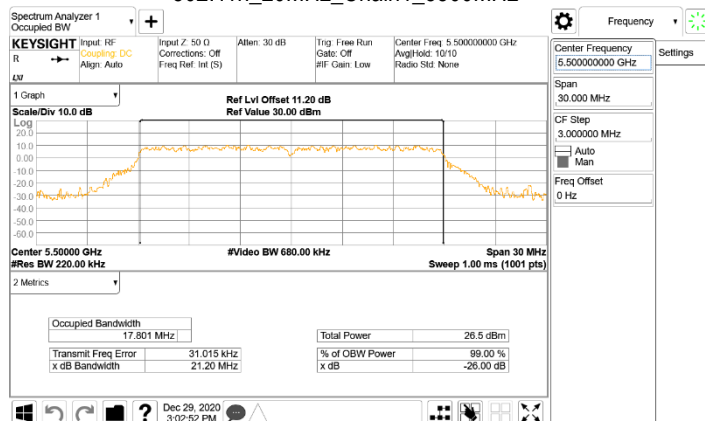
802.11n_20MHz_Chain1_5320MHz



802.11n_20MHz_Chain1_5260MHz



802.11n_20MHz_Chain1_5500MHz

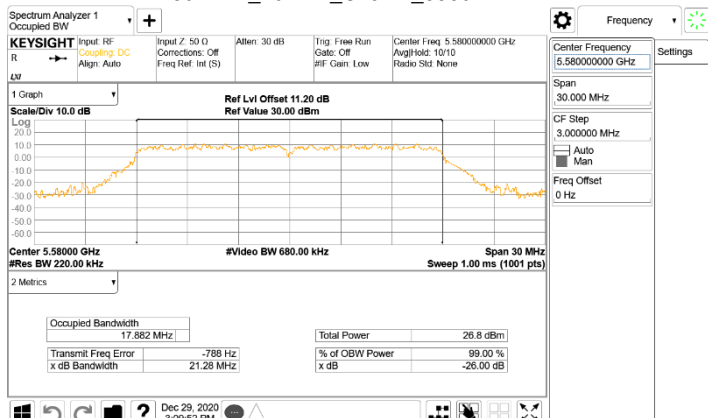


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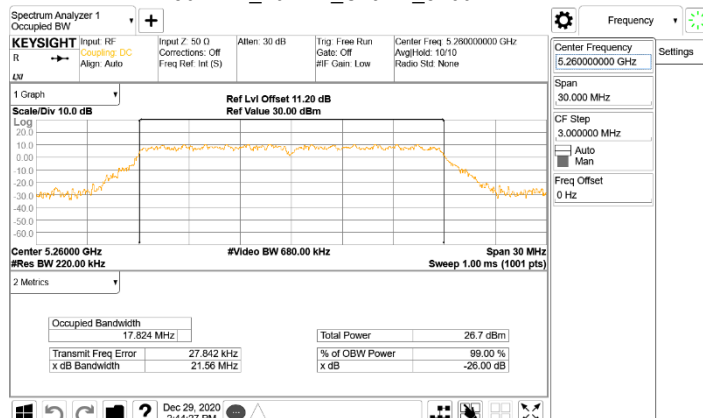
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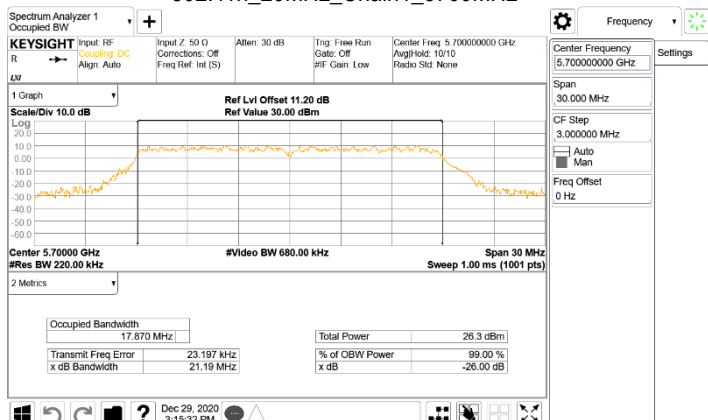
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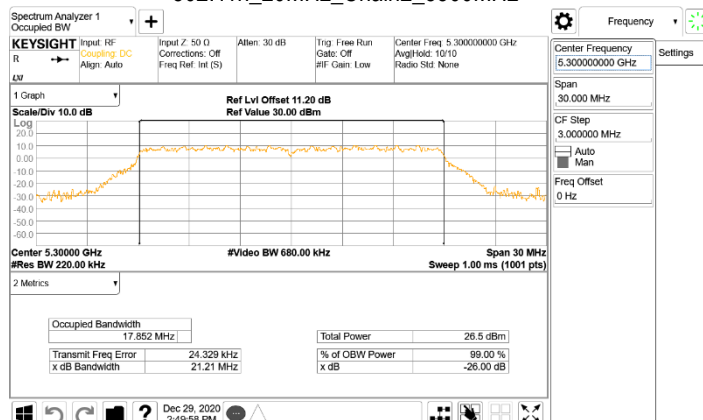
802.11n_20MHz_Chain2_5260MHz



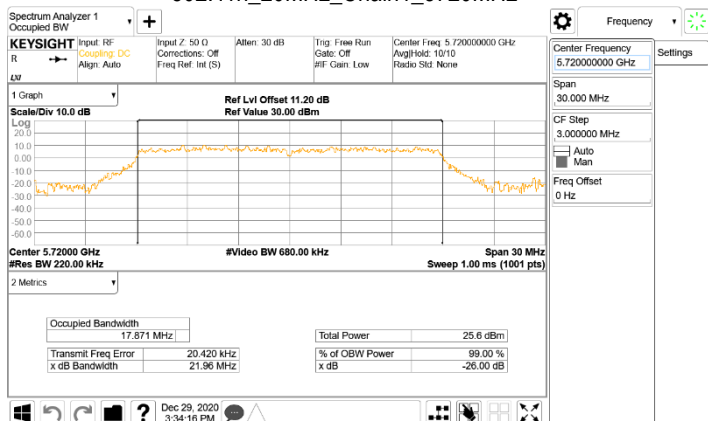
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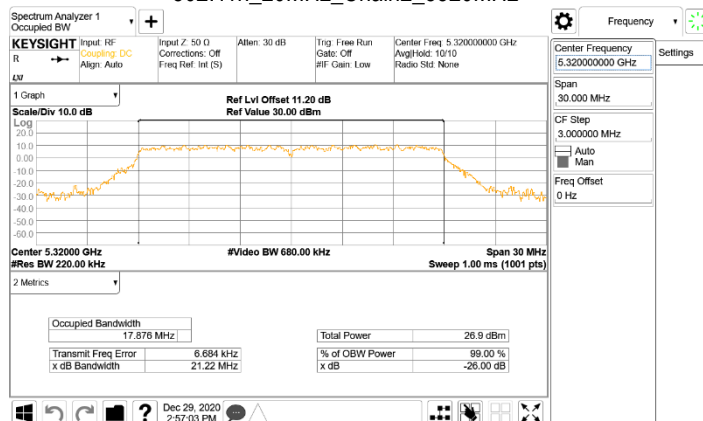
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802.11n_20MHz_Chain1_5720MHz



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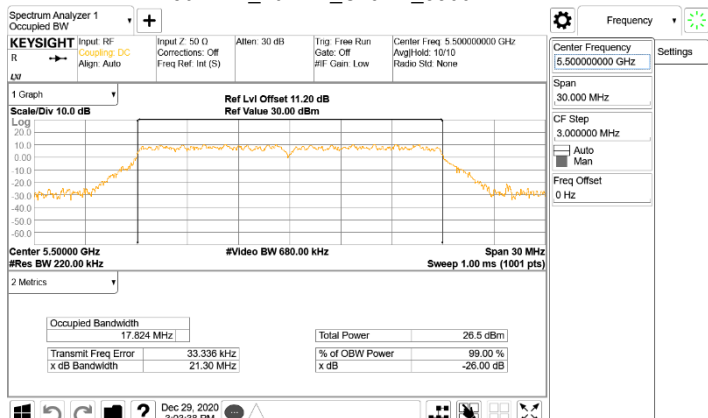


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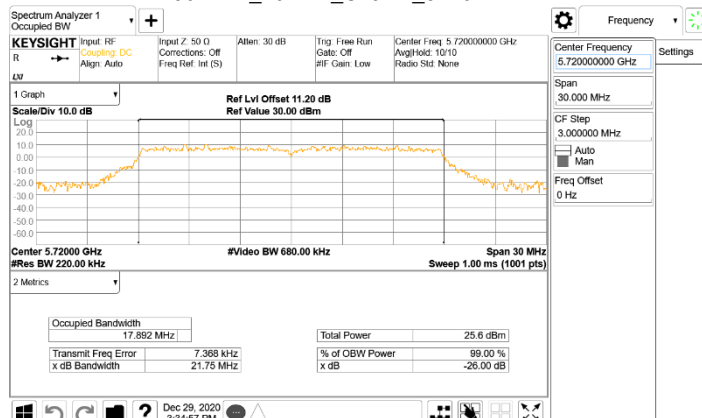
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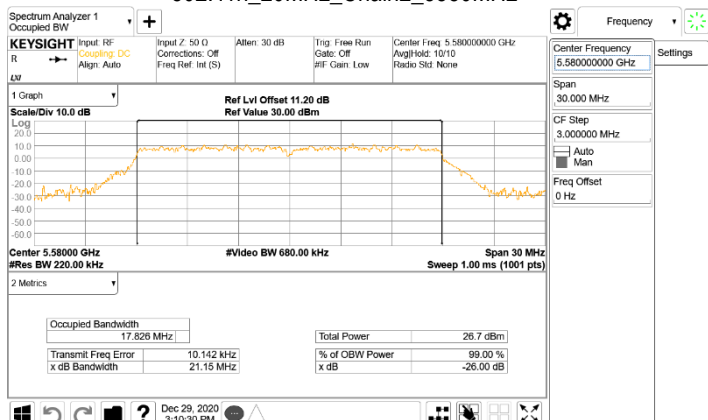
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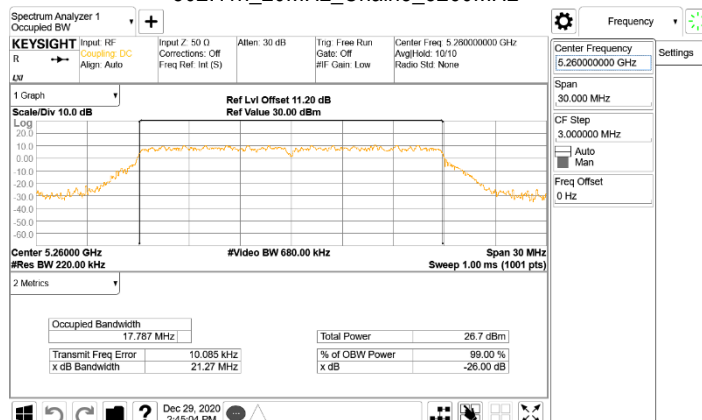
802.11n_20MHz_Chain2_5720MHz



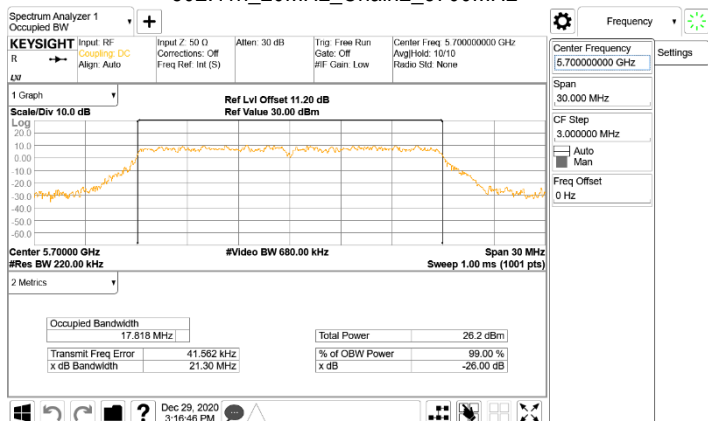
802.11n_20MHz_Chain2_5580MHz



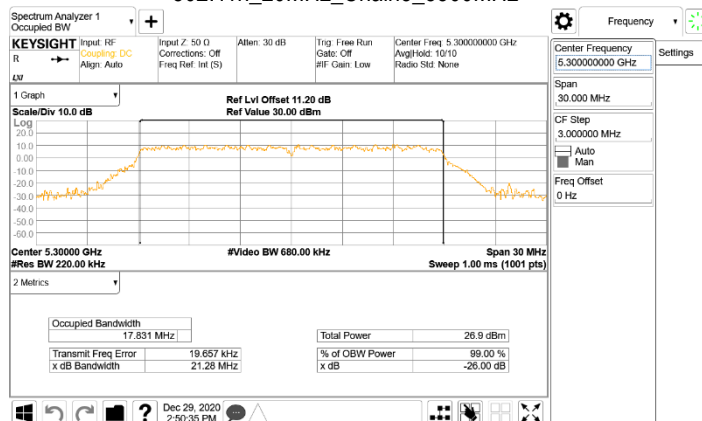
802.11n_20MHz_Chain3_5260MHz



802.11n_20MHz_Chain2_5700MHz



802.11n_20MHz_Chain3_5300MHz

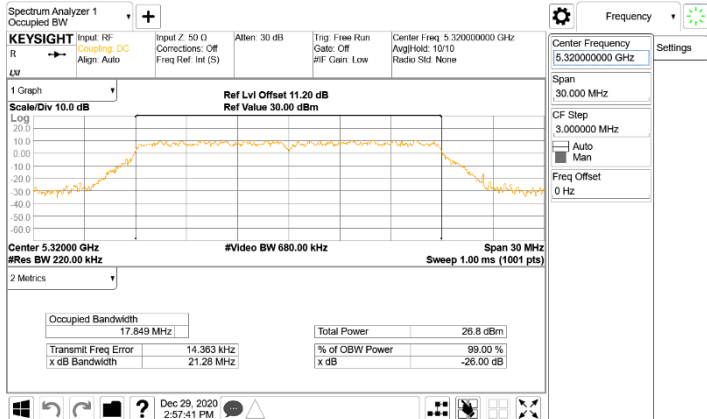


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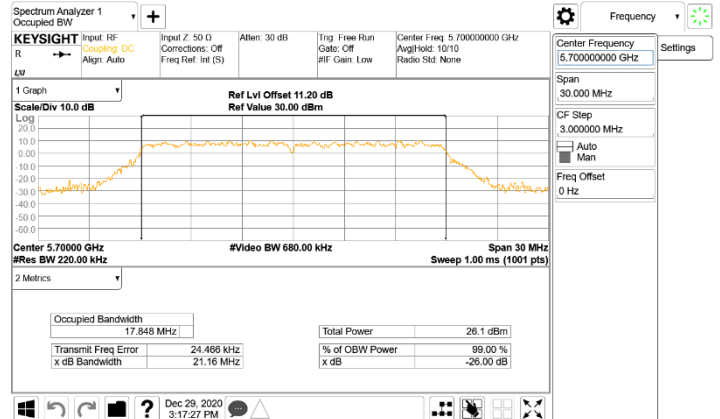
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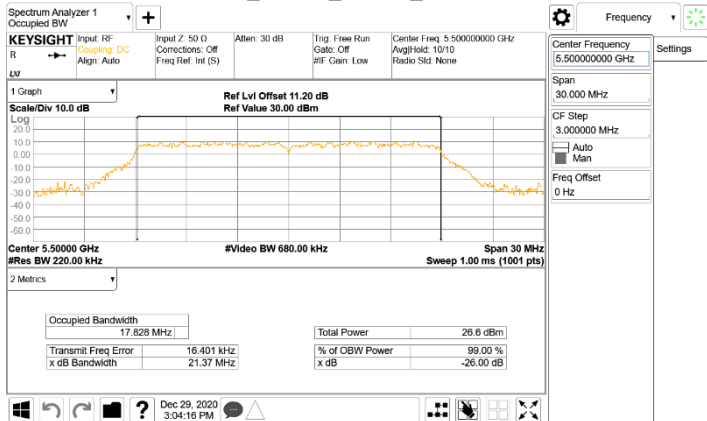
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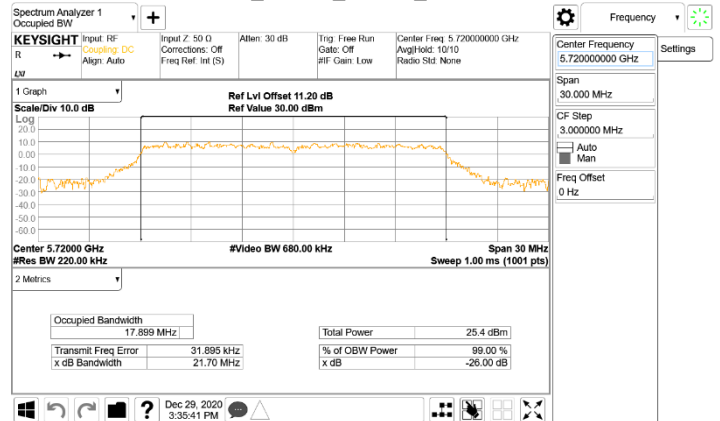
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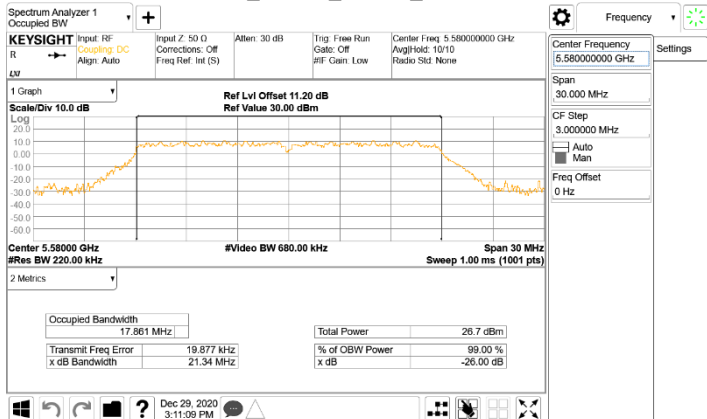
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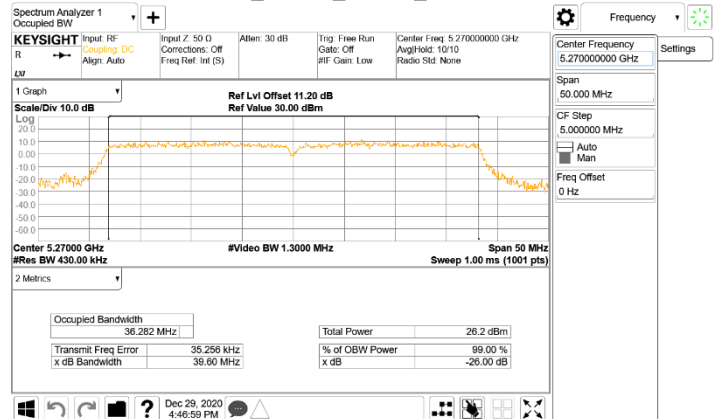
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802.11n_20MHz_Chain3_5580MHz



802.11n_40MHz_Chain0_5270MHz

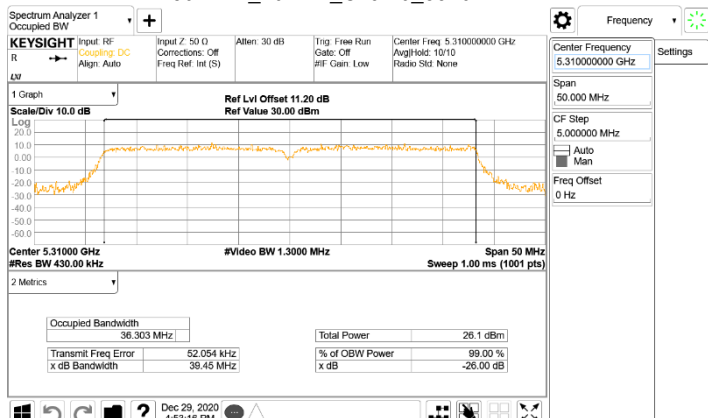


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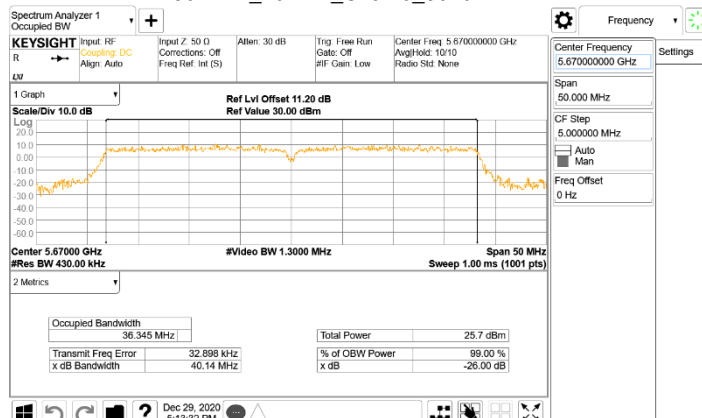
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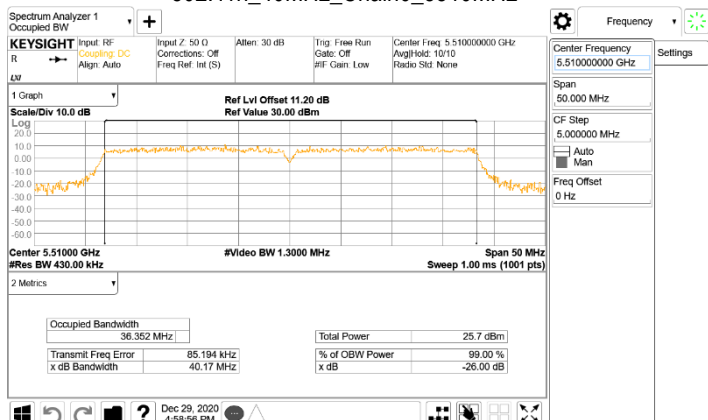
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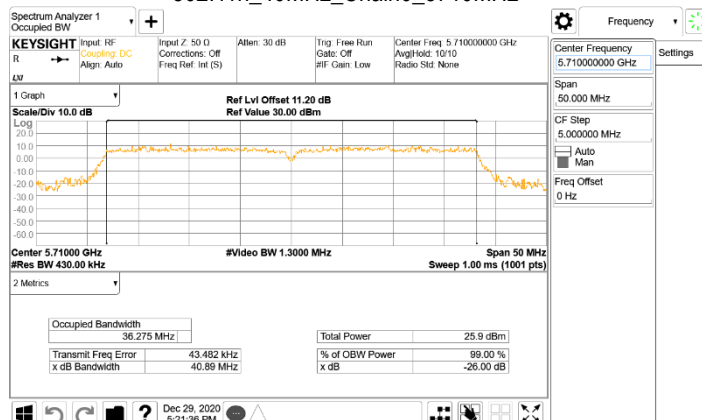
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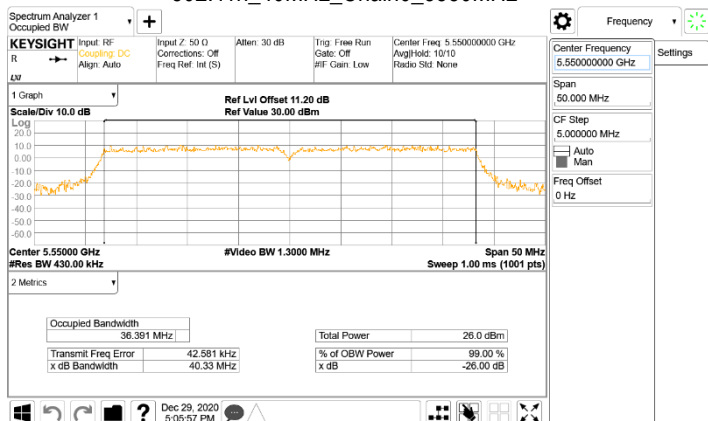
802.11n_40MHz_Chain0_5510MHz



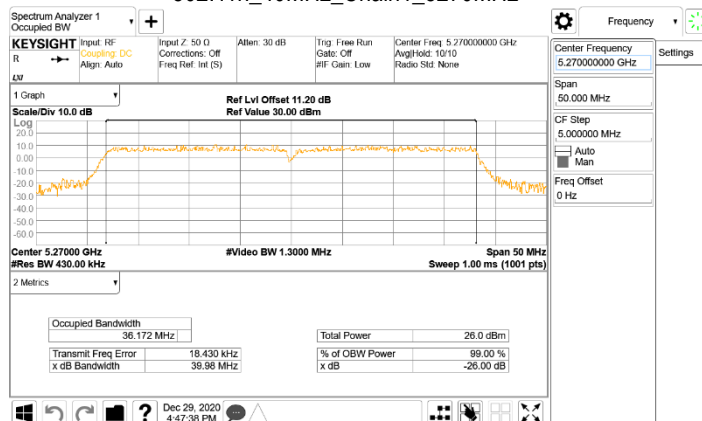
802.11n_40MHz_Chain0_5710MHz



802.11n_40MHz_Chain0_5550MHz



802.11n_40MHz_Chain1_5270MHz

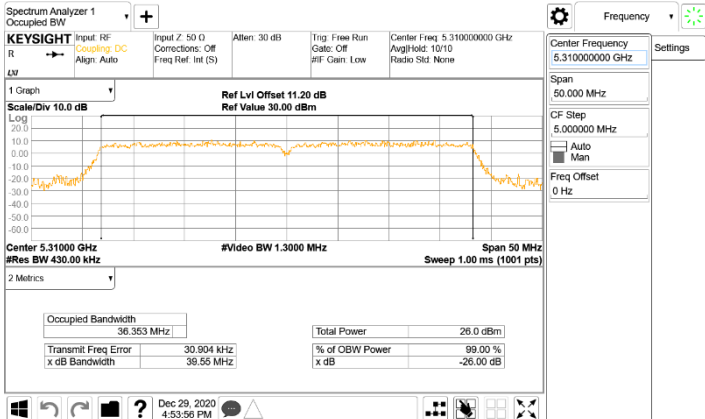


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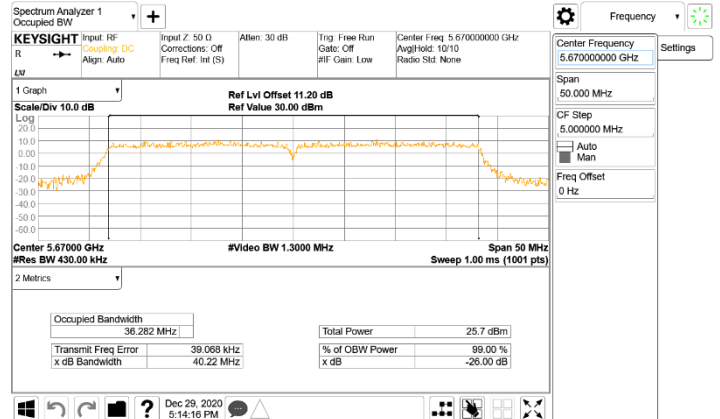
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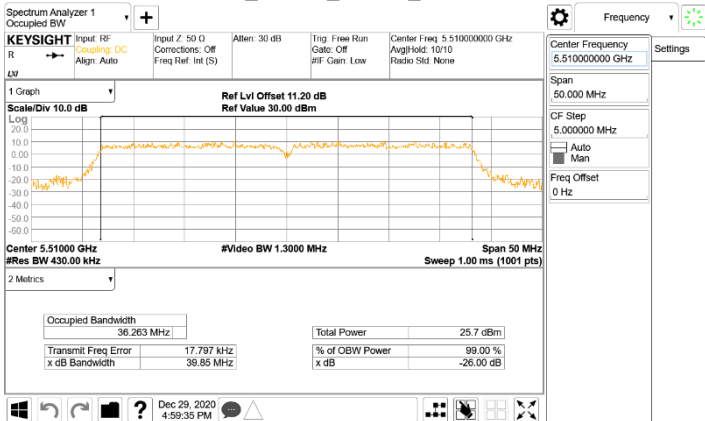
802.11n_40MHz_Chain1_5310MHz



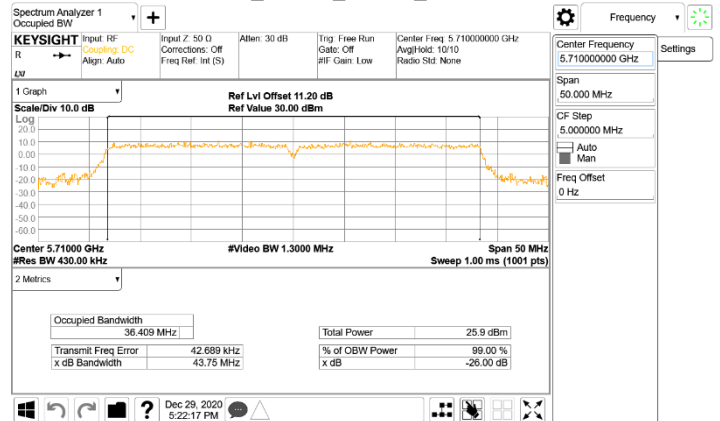
802.11n_40MHz_Chain1_5670MHz



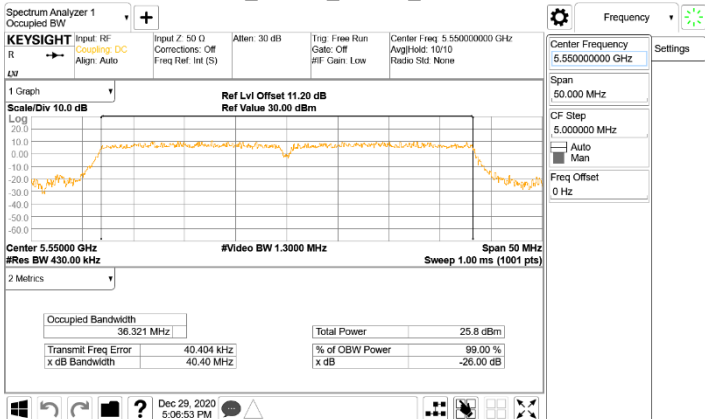
802.11n_40MHz_Chain1_5510MHz



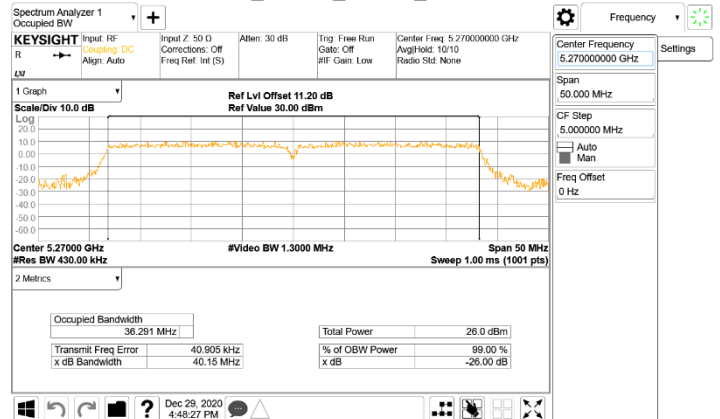
802.11n_40MHz_Chain1_5710MHz



802.11n_40MHz_Chain1_5550MHz



802.11n_40MHz_Chain2_5270MHz

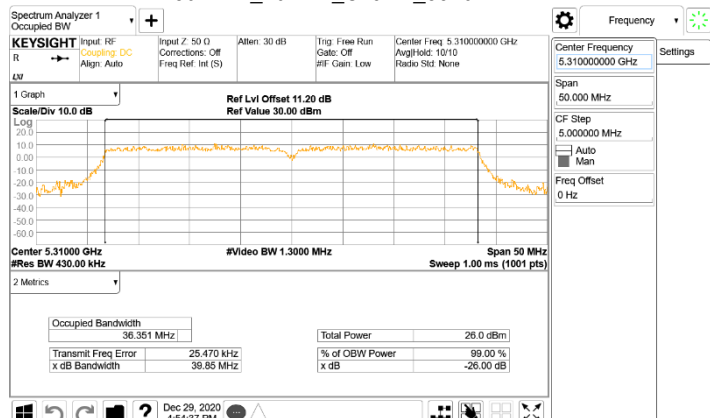


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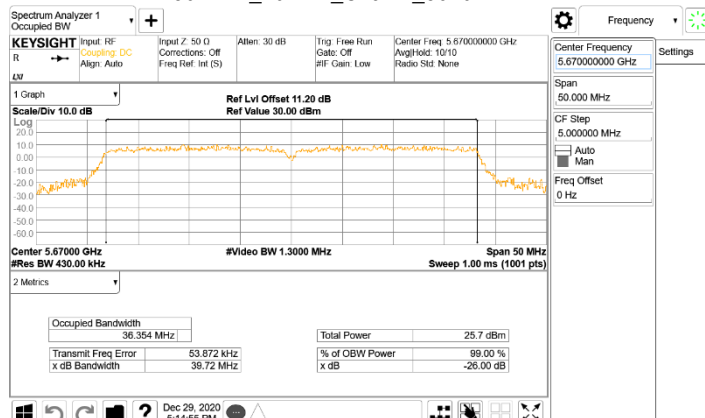
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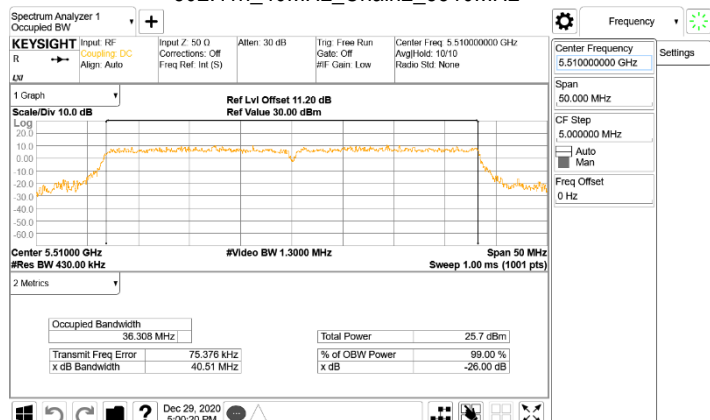
802.11n_40MHz_Chain2_5310MHz



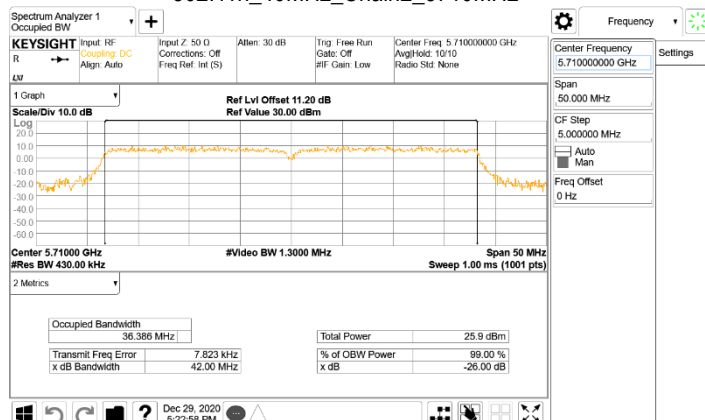
802.11n_40MHz_Chain2_5670MHz



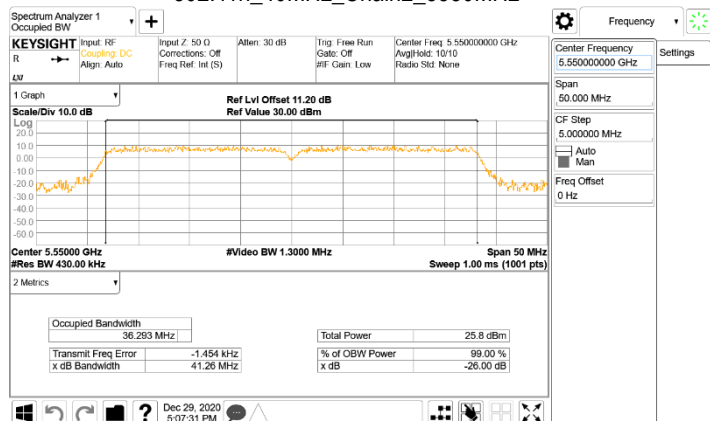
802.11n_40MHz_Chain2_5510MHz



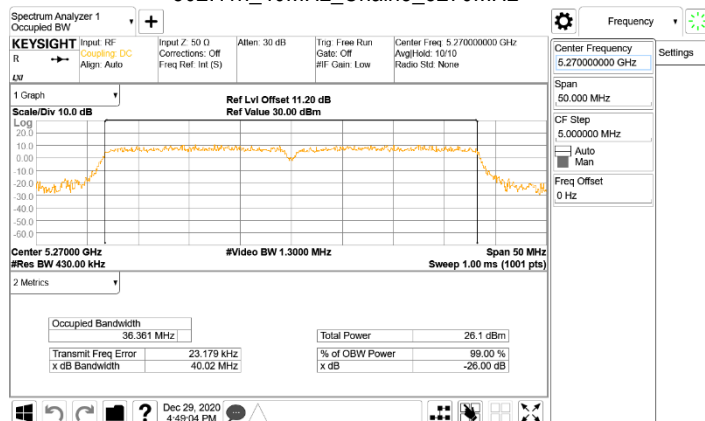
802.11n_40MHz_Chain2_5710MHz



802.11n_40MHz_Chain2_5550MHz



802.11n_40MHz_Chain3_5270MHz

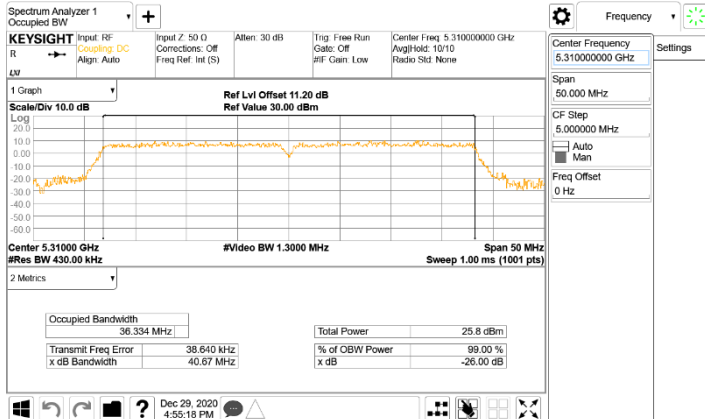


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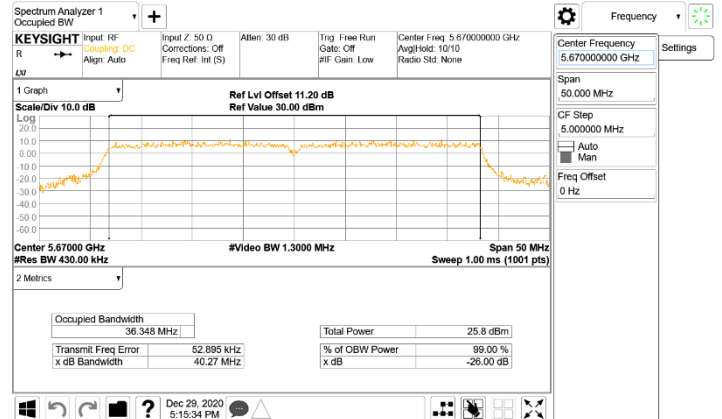
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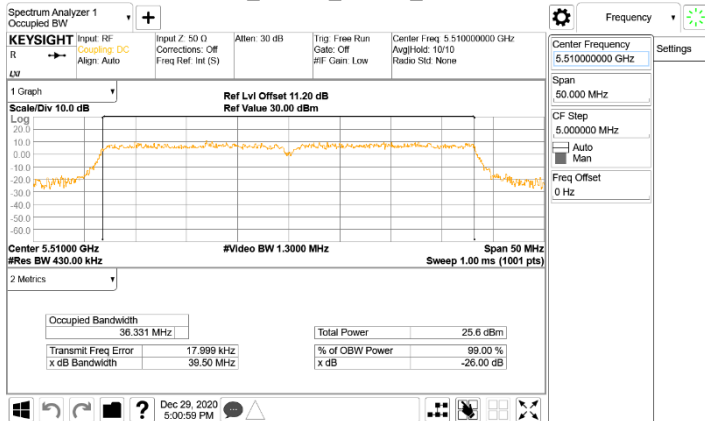
802.11n_40MHz_Chain3_5310MHz



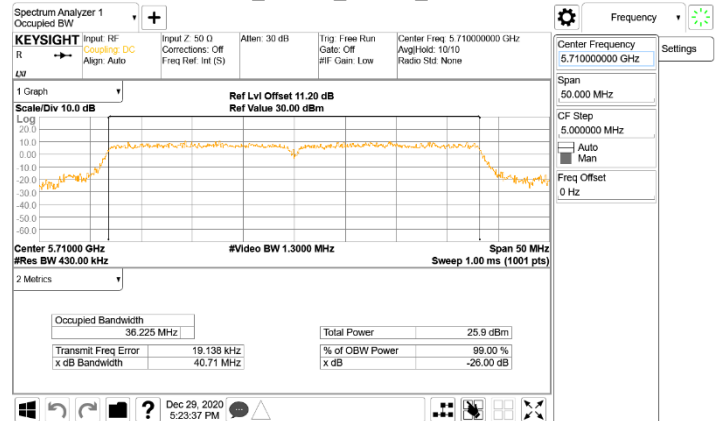
802.11n_40MHz_Chain3_5670MHz



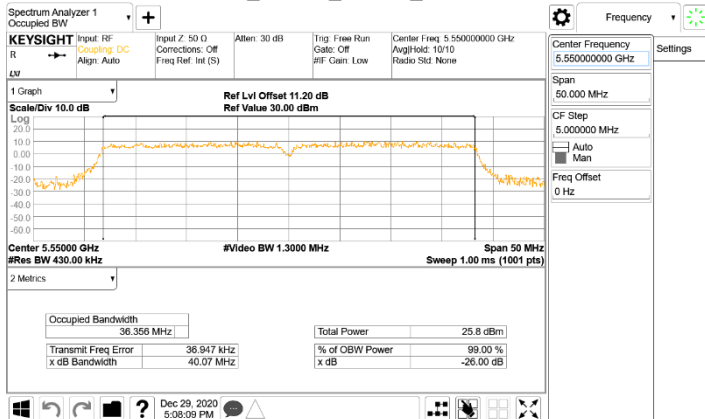
802.11n_40MHz_Chain3_5510MHz



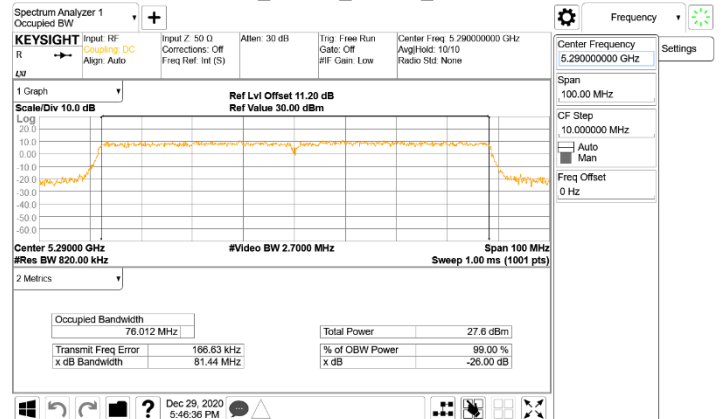
802.11n_40MHz_Chain3_5710MHz



802.11n_40MHz_Chain3_5550MHz



802.11ac_80MHz_Chain0_5290MHz

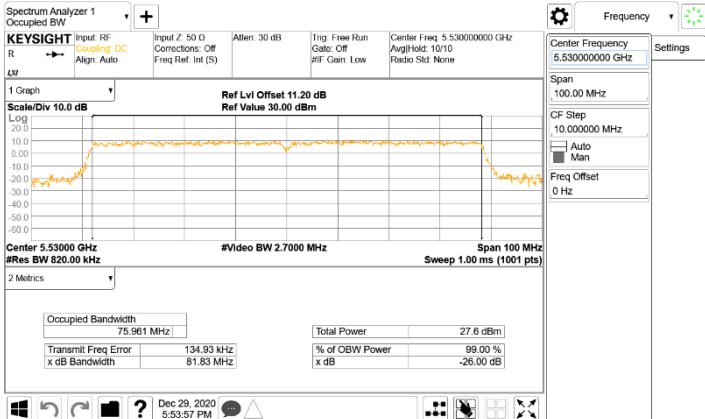


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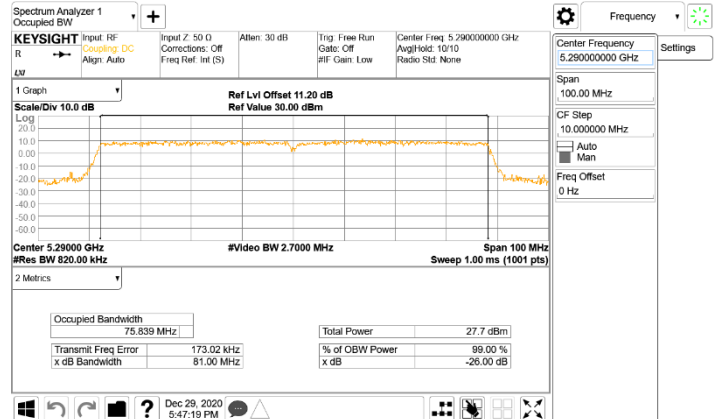
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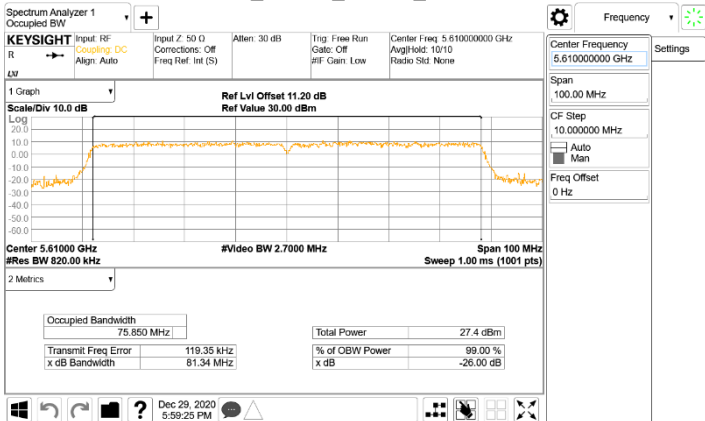
802.11ac_80MHz_Chain0_5530MHz



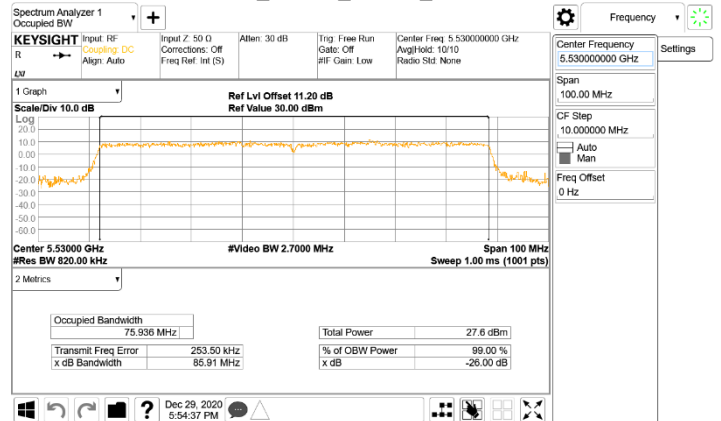
802.11ac_80MHz_Chain1_5290MHz



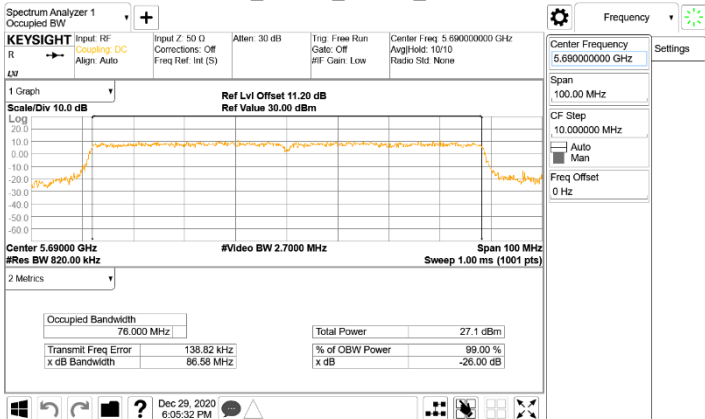
802.11ac_80MHz_Chain0_5610MHz



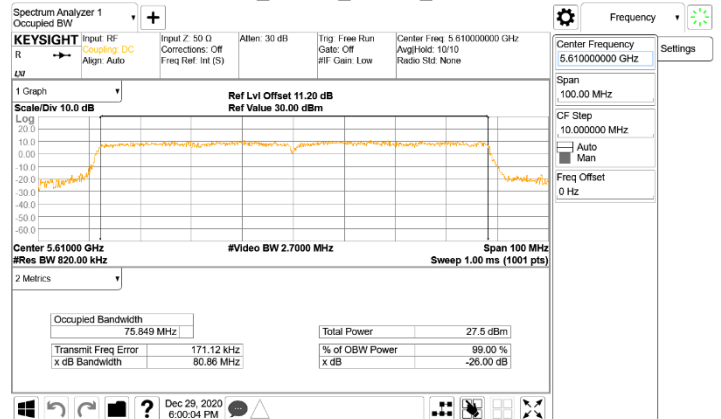
802.11ac_80MHz_Chain1_5530MHz



802.11ac_80MHz_Chain0_5690MHz



802.11ac_80MHz_Chain1_5610MHz



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