



RF TEST REPORT

Applicant Dreamtek Intelligent Technology Co., Ltd.

FCC ID 2BOUAD1

Product D1

Brand Dreamtek

Model D1

Report No. EFTA25040106-IE-02-R3V1

Issue Date August 18, 2025

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15E (2024)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Prepared by: Xu Ying

Approved by: Xu Kai

Eurofins TA Technology (Shanghai) Co., Ltd.

Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000

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Version	Revision Description	Issue Date
Rev.0	Initial issue of report.	July 30, 2025
Rev.1	Updated data and description.	August 18, 2025
Note: This revised report (Report No.: EFTA25040106-IE-02-R3V1) supersedes and replaces the previously issued report (Report No.: EFTA25040106-IE-02-R3). Please discard or destroy the previously issued report and dispose of it accordingly.		

Summary of measurement results

Number	Test Case	Clause in FCC rules	Verdict
1	Average output power	15.407(a)	PASS
2	Occupied bandwidth	15.407(e)	PASS
3	Frequency stability	15.407(g)	PASS
4	Power spectral density	15.407(a)	PASS
5	Unwanted Emissions	15.407(b)	PASS
6	Conducted Emissions	15.207	PASS

Date of Testing: April 16, 2025 ~ May 28, 2025 and August 15, 2025 ~ August 18, 2025
Date of Sample Received: April 11, 2025

Note: PASS: The EUT complies with the essential requirements in the standard.
FAIL: The EUT does not comply with the essential requirements in the standard.
All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.

1. Test Laboratory

1.1. Notes of the test report

This report shall not be reproduced in full or partial, without the written approval of **Eurofins TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA (Certificate Number: 3857.01)

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

1.3. Testing Location

Company: Eurofins TA Technology (Shanghai) Co., Ltd.

Address: Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China

City: Shanghai

Post code: 201201

Country: P. R. China

Contact: Xu Kai

Telephone: +86-021-50791141/2/3

Fax: +86-021-50791141/2/3-8000

Website: <https://www.eurofins.com/electrical-and-electronics>

E-mail: Kain.Xu@cpt.eurofinscn.com

2. General Description of Equipment under Test

2.1. Applicant and Manufacturer Information

Applicant	Dreamtek Intelligent Technology Co., Ltd.
Applicant address	Room 508, Building A2, Area one of Zhongan Chuanggu Science Park, No. 900 of Wangjiang West Road, High-tech Zone, Hefei, Anhui, China
Manufacturer	Dreamtek Intelligent Technology Co., Ltd.
Manufacturer address	Room 508, Building A2, Area one of Zhongan Chuanggu Science Park, No. 900 of Wangjiang West Road, High-tech Zone, Hefei, Anhui, China

2.2. General information

EUT Description		
Model	D1	
SN	Conducted	XBBA2FC1700085
	Radiated	DA00000389
Hardware Version	H554-07-DC-0N4-32C-A1 H554-07-DC-0N5-32C-A1	
Software Version	1A.1.3(202503171200 INTL)	
Power Supply	Battery / AC adapter	
Antenna Type	Internal Antenna	
Antenna Connector	A permanently attached antenna (meet with the standard FCC Part 15.203 requirement)	
Antenna Gain	8.0 dBi	
Operating Frequency Range(s)	U-NII-1: 5150MHz-5250MHz U-NII-2A: 5250MHz -5350MHz U-NII-2C: 5470MHz-5725MHz U-NII-3: 5725MHz -5850MHz	
Modulation Type	802.11a: OFDM 802.11n (HT20/HT40): OFDM 802.11ac (VHT20/VHT40/VHT80): OFDM	
Max. Output Power	17.05 dBm	
Operating temperature range	-10 ° C to 50 ° C	
Operating voltage range	7 VDC to 8.4 VDC	
Testing temperature range	-30 ° C to 50° C	
Testing voltage range	7 VDC – 7.6 VDC – 8.4VDC	
State voltage	7.6 VDC	
EUT Accessory		
Adapter 1	Manufacturer: SHENZHEN TIANYIN ELECTRONICS CO.,LTD.	

	Model: TPA-418G050200UU01
Adapter 2	Manufacturer: Chongqing Lianmao Electronics Co.,Ltd. Model: LM-603U-050200U02UL
Adapter 3	Manufacturer: SHENZHEN TIANYIN ELECTRONICS CO.,LTD. Model: TPA-418G050200VU01
Adapter 4	Manufacturer: Chongqing Lianmao Electronics Co.,Ltd. Model: LM-603E-050200U02CE
Battery 1	Manufacturer: Dongguan HongDe Battery Co.,Ltd. Model: BPK550-026-72-A
Battery 2	Manufacturer: Guangdong Fenghua New Energy Co.,Ltd. Model: BPK550-026-74-B
USB cable	Manufacturer: Shanghai Wangxing Electronic Technology Co.,Ltd. Model: 809.001.0010
USB cable	Manufacturer: Chongqing Lianmao Electronics Co.,Ltd. Model: 809.001.0012

Note:

1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant.
2. This device support automatically discontinue transmission, while the device is not transmitting any information, the device can automatically discontinue transmission and become standby mode for power saving. The device can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.
3. (a) Manufacturers implements security features in any digitally modulated devices capable of operating in any of the U-NII bands, so that third parties are not able to reprogram the device to operate outside the parameters for which the device was certified. The software prevents the user from operating the transmitter with operating frequencies, output power, modulation types or other radio frequency parameters outside those that were approved for the device. Manufacturers uses means including, but not limited to the use of a private network that allows only authenticated users to download software, electronic signatures in software or coding in hardware that is decoded by software to verify that new software can be legally loaded into a device to meet these requirements and must describe the methods in their application for equipment authorization.
(b) Manufacturers take steps to ensure that DFS functionality cannot be disabled by the operator of the U-NII device.
4. There is more than one USB cable/Adapter/Battery, each one should be applied throughout the compliance test respectively, and however, only the worst case (USB cable 2/Adapter 4/ Battery 1) will be recorded in this report.

D1	Configurations 1 (D1+ Token Version with the 1st supply of main materials)	Configurations 2 (D1+ Token Version with the 2nd supply of main materials)	Configurations 3 (D1+ Standard Version with the 1st supply of main materials)	Configurations 4 (D1+ Standard Version with the 2nd supply of main materials)	Configurations 5 (D1A Token Version with the 1st supply of main materials)	Configurations 6 (D1A Token Version with the 2nd supply of main materials)	Configurations 7 (D1A Standard Version with the 1st supply of main materials)	Configurations 8 (D1A Standard Version with the 2nd supply of main materials)
Screen	6.517-inch	6.517-inch	6.517-inch	6.517-inch	5-inch	5-inch	5-inch	5-inch
Front Camera	2M FF	2M FF	2M FF	2M FF	0.3M FF	0.3M FF	0.3M FF	0.3M FF
Rear Camera	The 1st supplier	The 2nd supplier	The 1st supplier	The 2nd supplier	The 1st supplier	The 2nd supplier	The 1st supplier	The 2nd supplier
Printer	The 1st supplier	The 2nd supplier	The 1st supplier	The 2nd supplier	The 1st supplier	The 2nd supplier	The 1st supplier	The 2nd supplier
MSR	The 1st supplier	The 2nd supplier	The 1st supplier	The 2nd supplier	The 1st supplier	The 2nd supplier	The 1st supplier	The 2nd supplier
Button Cell CR2032	The 1st supplier	The 2nd supplier	The 1st supplier	The 2nd supplier	The 1st supplier	The 2nd supplier	The 1st supplier	The 2nd supplier
Hardware Version	H554-07-DC-0N5-32C-A1				H554-07-DC-0N4-32C-A1			

Note: This report only tests configurations 1.

3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards:

FCC CFR47 Part 15E (2024) Unlicensed National Information Infrastructure Devices

ANSI C63.10-2013

Reference standard:

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

4. Test Configuration

Test Mode

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Preliminary tests have been done on all the configuration for confirming worst case. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

Mode	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

Wireless Technology and Frequency Range

Wireless Technology	Bandwidth	Channel	Frequency
Wi-Fi	U-NII-1	20 MHz	36
			40
			44
			48
	U-NII-2A	40 MHz	38
			46
		80 MHz	42
		52	
	U-NII-2C	20 MHz	56
			60
			64
		40 MHz	54
			62
		80 MHz	58
	U-NII-3	20 MHz	100
			104
			108
			112
			116
			120
			124
			128
			132
			136
			140
			144
		40 MHz	102
			110
			118
			126
			134
			142
		80 MHz	106
			122
			138
		20 MHz	149
			153
			5745MHz
			5765MHz

			157	5785MHz	
			161	5805MHz	
			165	5825MHz	
		40 MHz	151	5755MHz	
			159	5795MHz	
		80 MHz	155	5775MHz	
Does this device support TPC Function? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Does this device support TDWR Band? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					

5. Test Case Results

5.1. Occupied Bandwidth

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

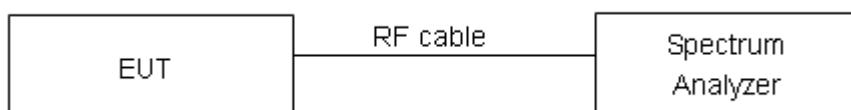
For U-NII-1/U-NII-2A/U-NII-2C, set RBW \approx 1% OCB kHz, VBW $\geq 3 \times$ RBW, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

For U-NII-3, Set RBW = 100 kHz, VBW $\geq 3 \times$ RBW, 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.

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

Use the 99 % power bandwidth function of the instrument

Test Setup



Limits

For U-NII-1/U-NII-2A/U-NII-2C

No specific occupied bandwidth requirements in Part 15.407.

For U-NII-3

Rule FCC Part §15.407(e)

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 936$ Hz.

Test Results:**U-NII-1**

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5180	16.527	19.850	PASS
	5200	16.550	19.784	PASS
	5240	16.521	19.749	PASS
802.11n HT20	5180	17.640	20.367	PASS
	5200	17.617	20.300	PASS
	5240	17.617	20.479	PASS
802.11n HT40	5190	36.018	40.601	PASS
	5230	36.032	40.713	PASS
802.11ac VHT20	5180	17.632	20.458	PASS
	5200	17.623	20.192	PASS
	5240	17.609	20.369	PASS
802.11ac VHT40	5190	36.015	41.092	PASS
	5230	36.027	40.706	PASS
802.11ac VHT80	5210	75.210	80.475	PASS

U-NII-2A

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5260	16.525	21.414	PASS
	5300	16.539	19.956	PASS
	5320	16.550	19.797	PASS
802.11n HT20	5260	17.624	20.264	PASS
	5300	17.616	20.471	PASS
	5320	17.632	20.284	PASS
802.11n HT40	5270	36.020	40.501	PASS
	5310	36.040	40.738	PASS
802.11ac VHT20	5260	17.613	20.276	PASS
	5300	17.624	20.452	PASS
	5320	17.641	20.240	PASS
802.11ac VHT40	5270	36.007	40.804	PASS
	5310	35.997	40.444	PASS
802.11ac VHT80	5290	75.307	81.134	PASS

U-NII-2C

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5500	16.550	19.931	PASS
	5600	16.523	20.198	PASS
	5700	16.546	19.909	PASS
	5720	16.558	21.610	PASS
802.11n HT20	5500	17.676	20.531	PASS
	5600	17.627	21.178	PASS
	5700	17.659	22.560	PASS
	5720	17.641	22.048	PASS
802.11n HT40	5510	36.028	40.339	PASS
	5590	36.071	40.593	PASS
	5670	36.030	40.925	PASS
	5710	36.087	40.645	PASS
802.11ac VHT20	5500	17.606	20.309	PASS
	5600	17.606	20.376	PASS
	5700	17.645	20.236	PASS
	5720	17.646	20.315	PASS
802.11ac VHT40	5510	35.979	40.326	PASS
	5590	36.011	40.238	PASS
	5670	35.976	40.584	PASS
	5710	36.007	40.617	PASS
802.11ac VHT80	5610	75.240	80.802	PASS
	5690	75.295	81.322	PASS

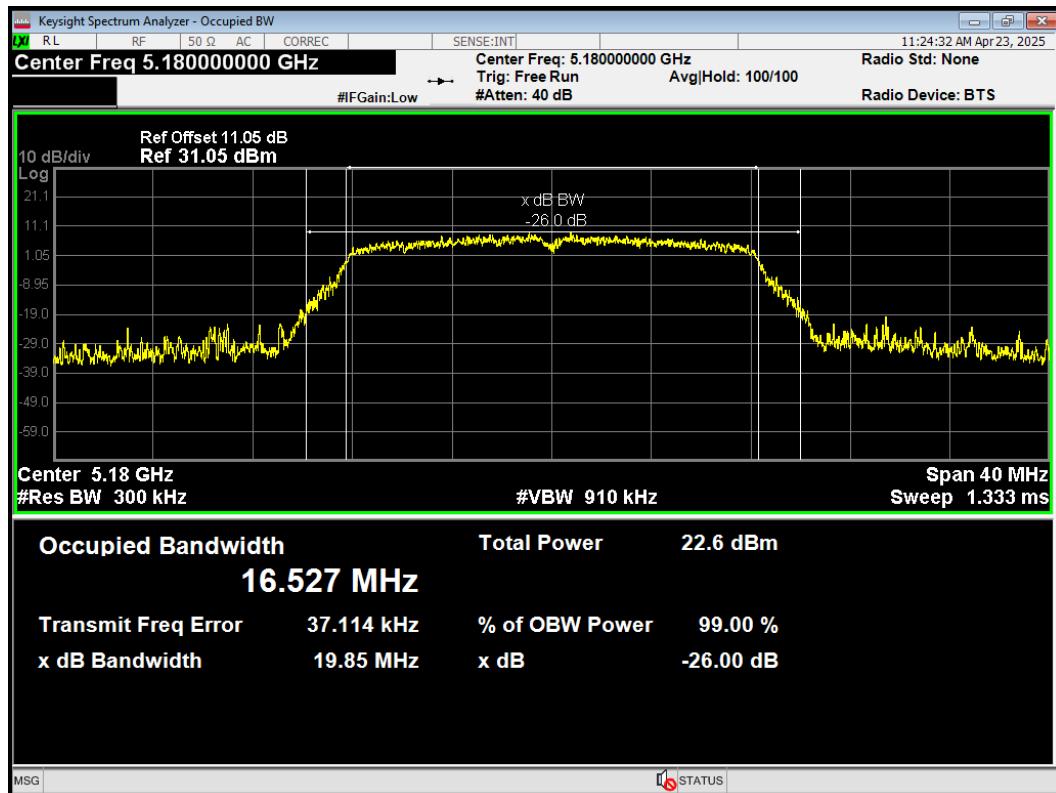
U-NII-3

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11a	5720	16.513	15.646	500	PASS
	5745	16.612	15.786	500	PASS
	5785	16.537	15.312	500	PASS
	5825	16.531	15.091	500	PASS
802.11n HT20	5720	17.641	15.075	500	PASS
	5745	17.628	14.998	500	PASS
	5785	17.626	14.746	500	PASS
	5825	17.638	15.097	500	PASS
802.11n HT40	5710	36.096	35.104	500	PASS
	5755	36.061	35.082	500	PASS
	5795	36.049	35.072	500	PASS
802.11ac VHT20	5720	17.598	16.057	500	PASS
	5745	17.629	16.070	500	PASS
	5785	17.655	16.867	500	PASS
	5825	17.640	16.287	500	PASS
802.11ac VHT40	5710	35.990	35.094	500	PASS
	5755	36.033	35.069	500	PASS
	5795	36.004	35.124	500	PASS
802.11ac VHT80	5690	75.330	75.075	500	PASS
	5775	75.286	75.093	500	PASS

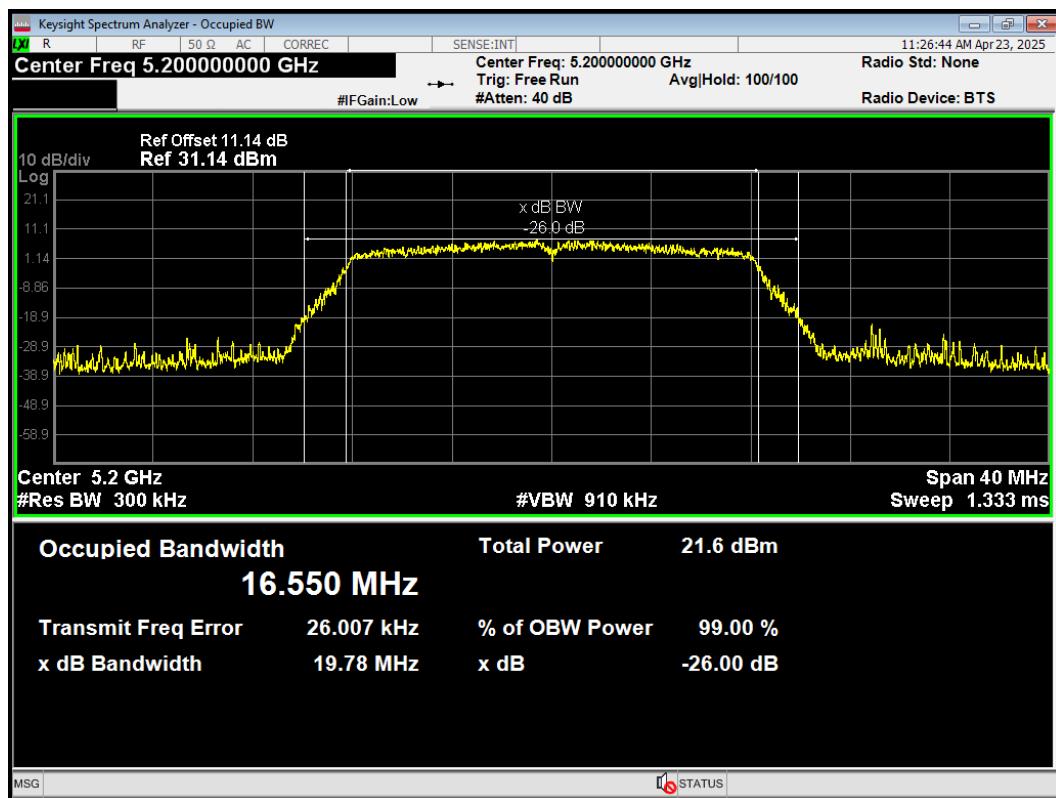
99% bandwidth

U-NII-1

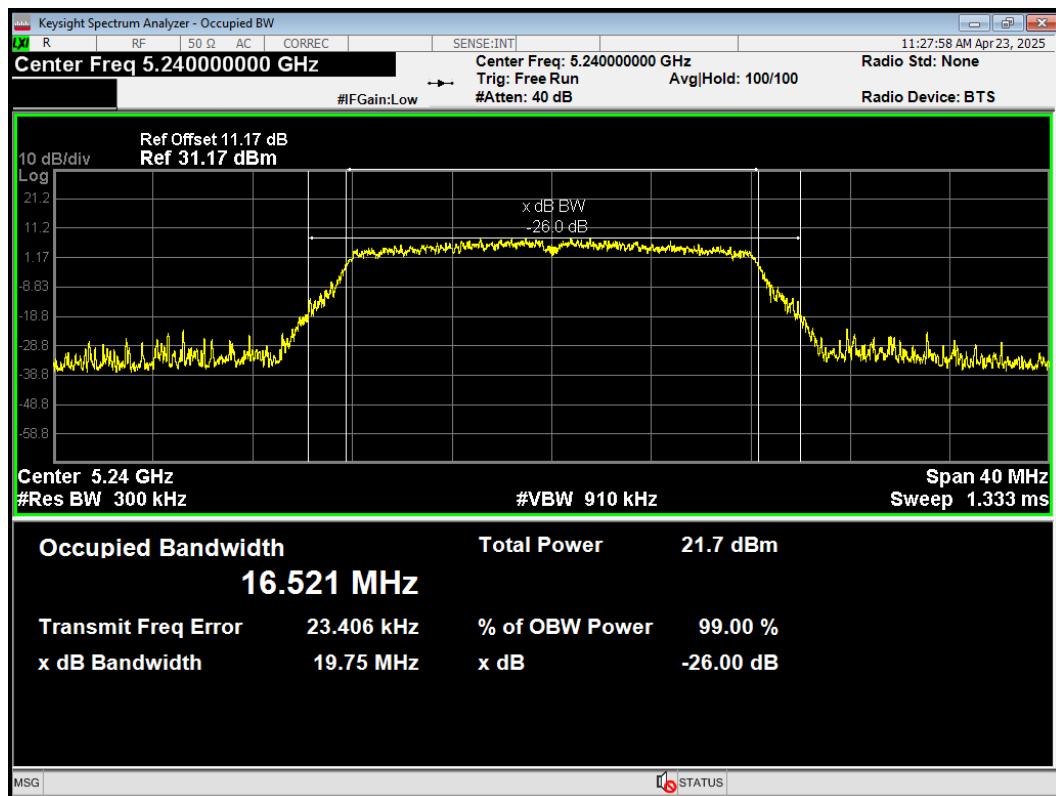
OBW 802.11a 5180MHz



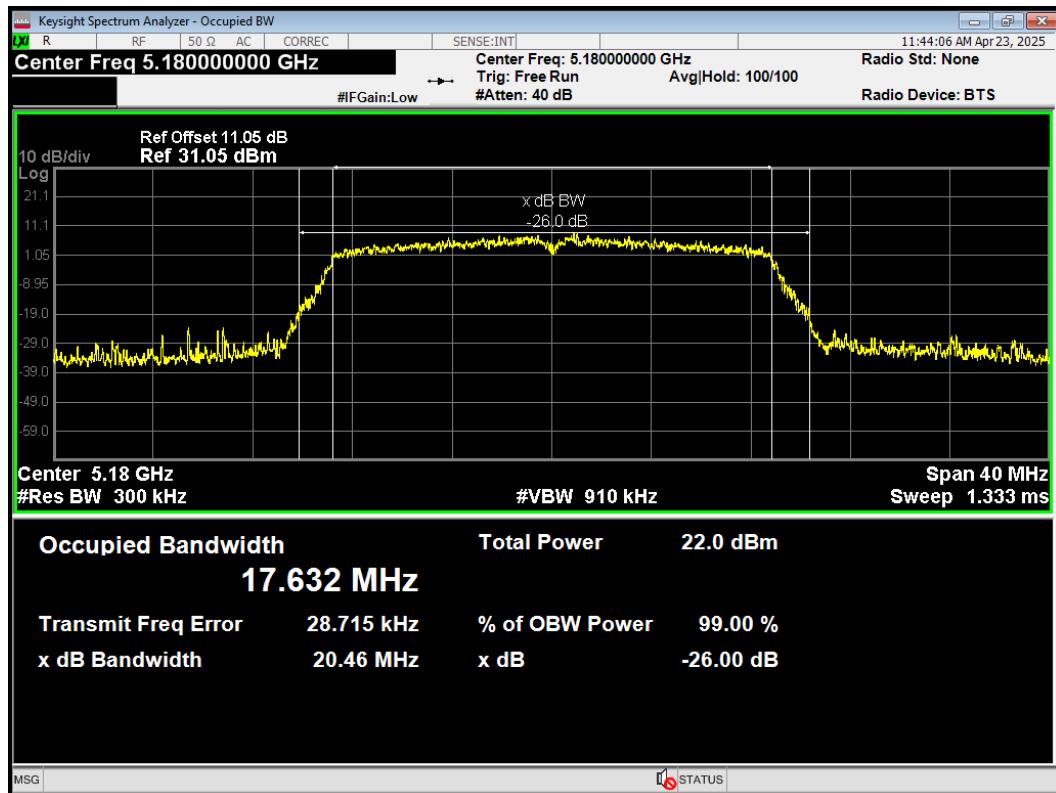
OBW 802.11a 5200MHz



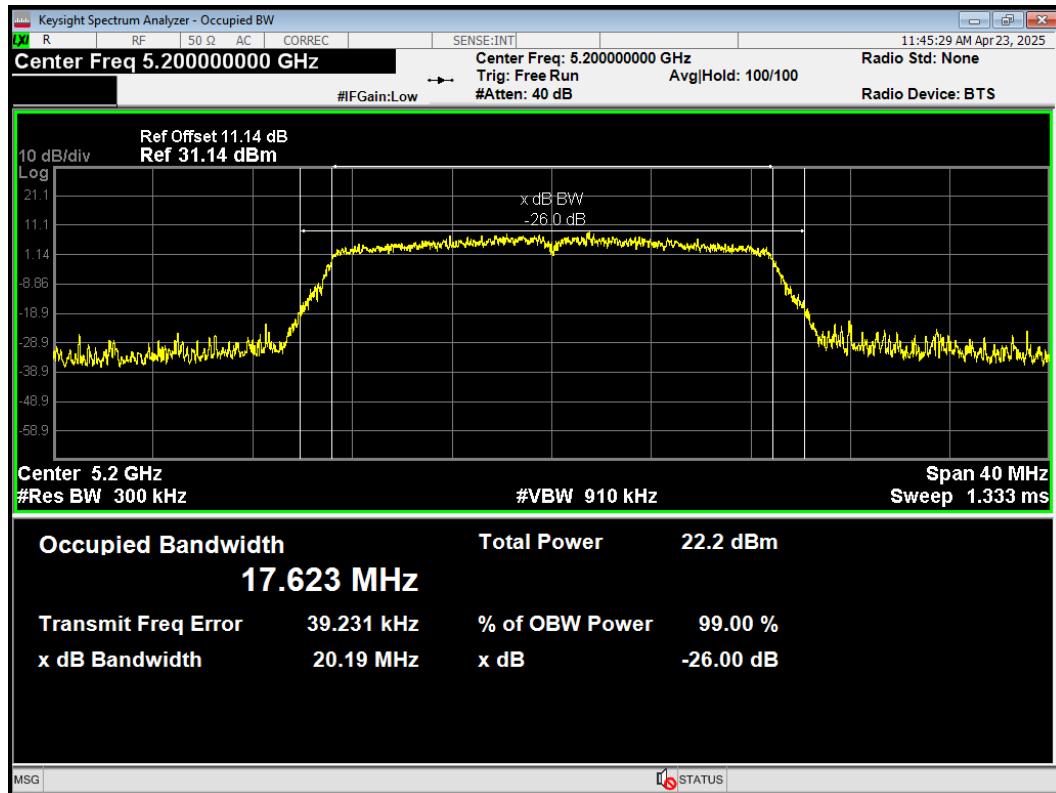
OBW 802.11a 5240MHz



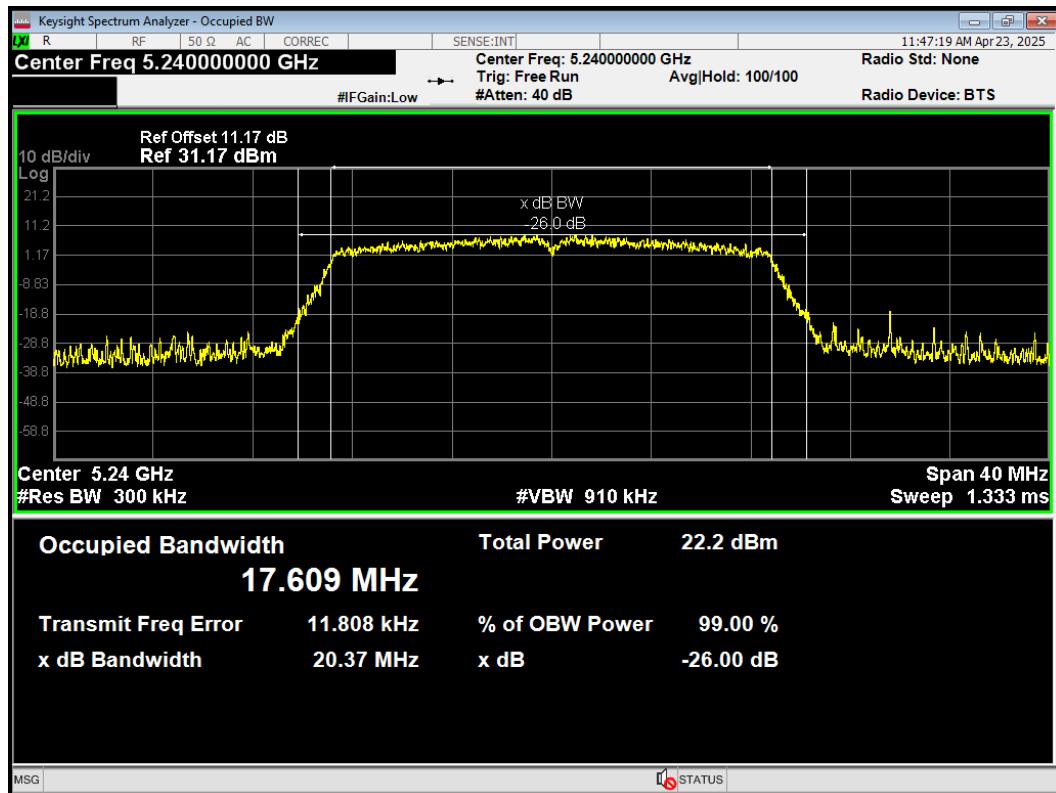
OBW 802.11ac(VHT20) 5180MHz



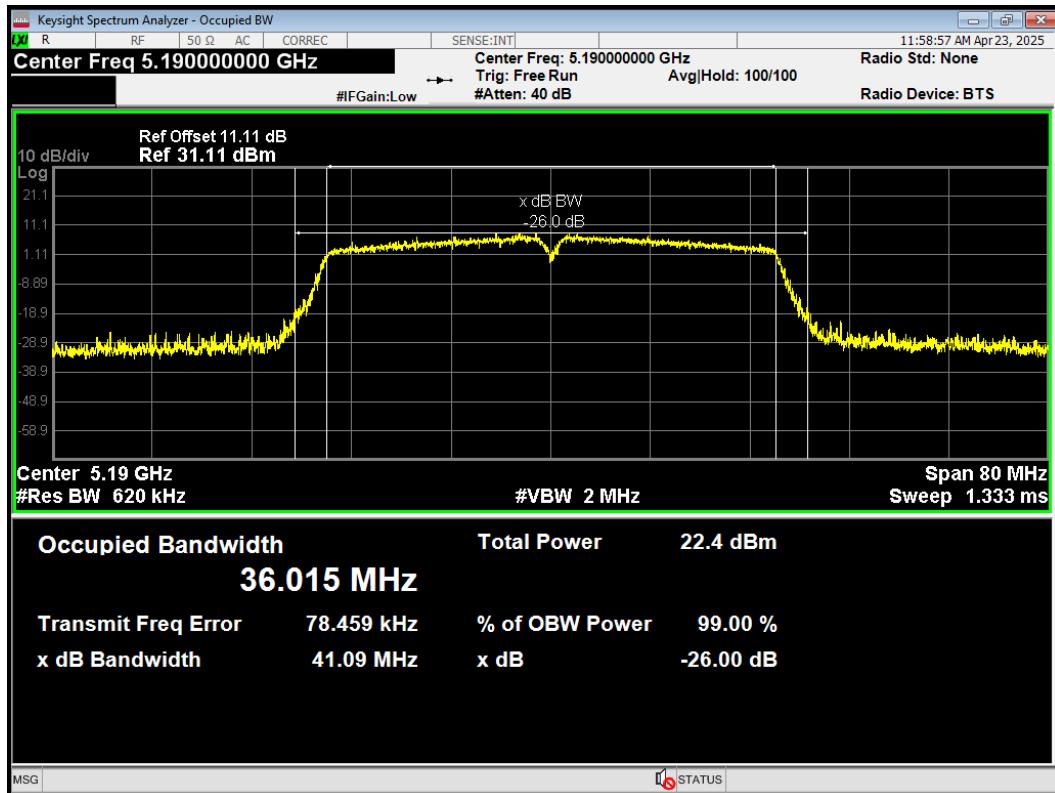
OBW 802.11ac(VHT20) 5200MHz



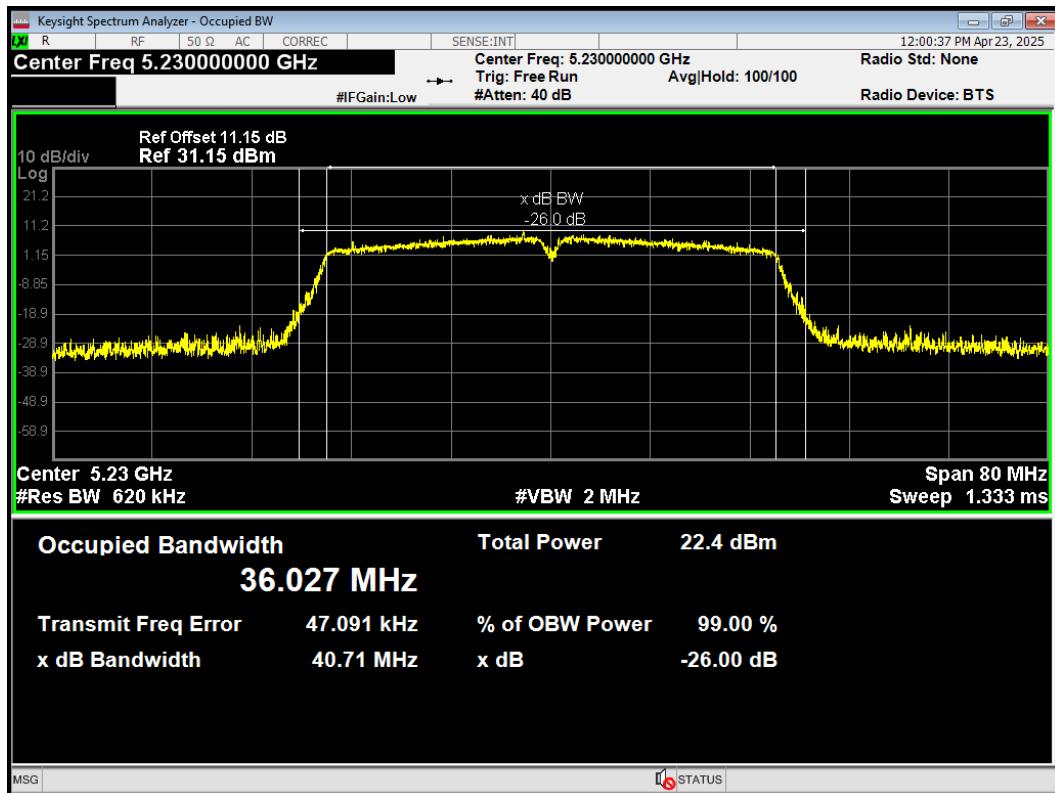
OBW 802.11ac(VHT20) 5240MHz



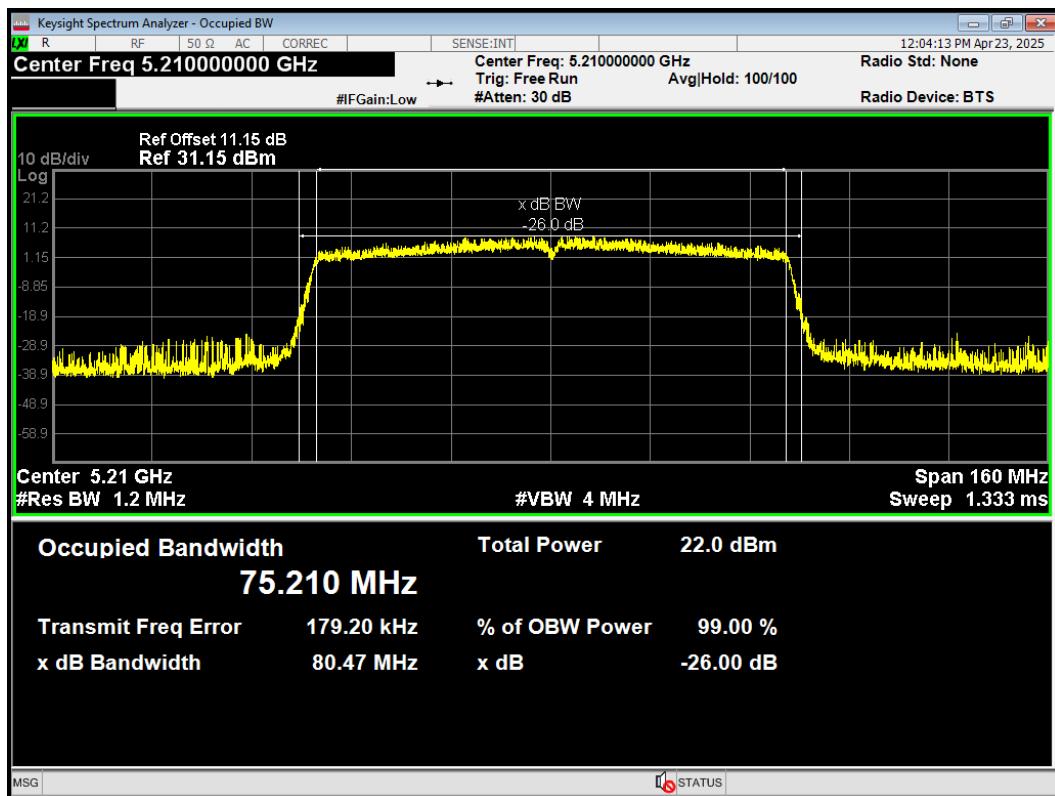
OBW 802.11ac(VHT40) 5190MHz



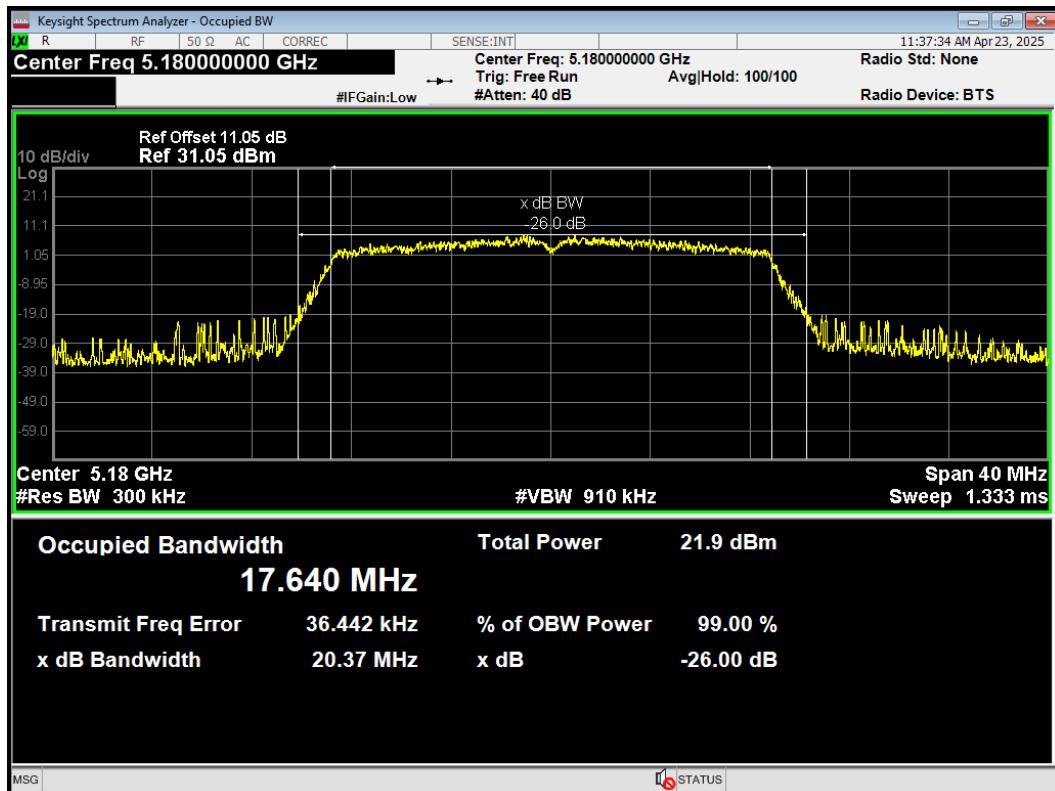
OBW 802.11ac(VHT40) 5230MHz



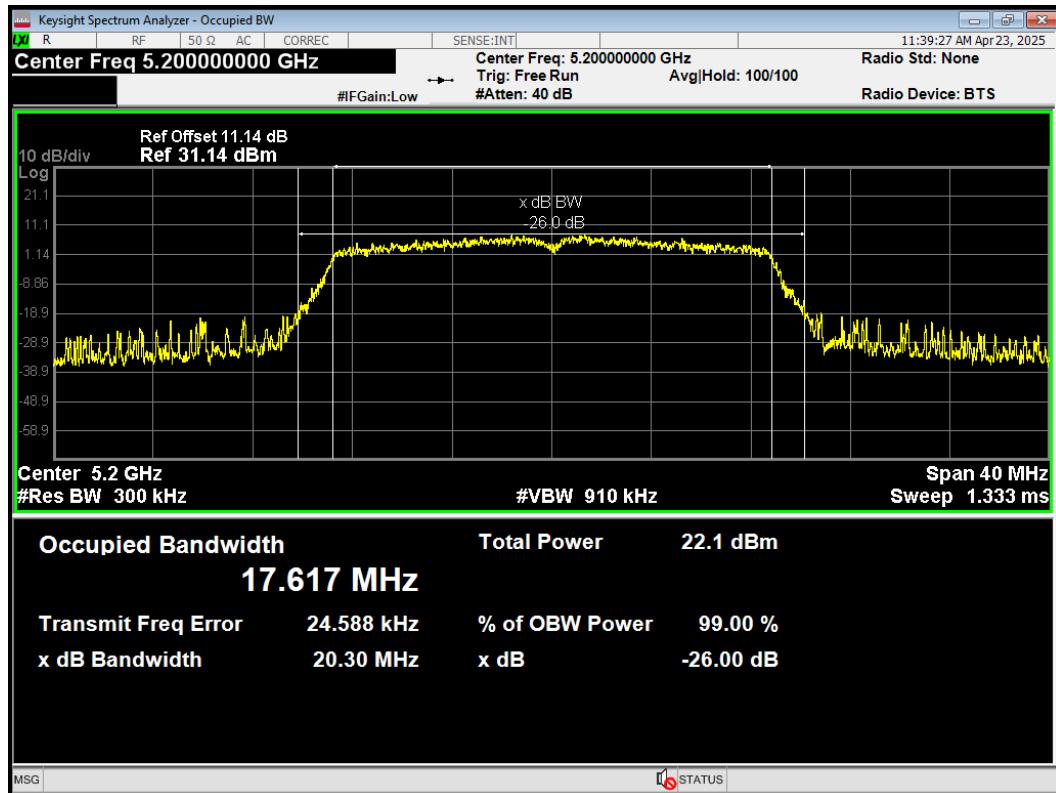
OBW 802.11ac(VHT80) 5210MHz



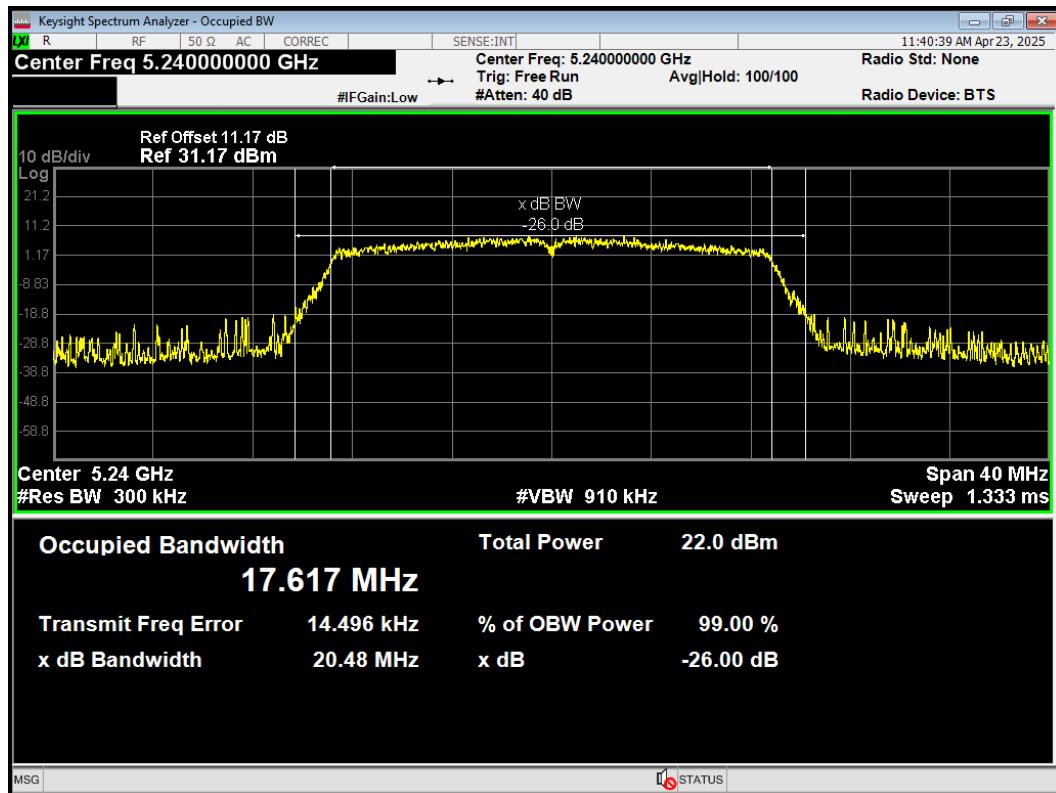
OBW 802.11n(HT20) 5180MHz



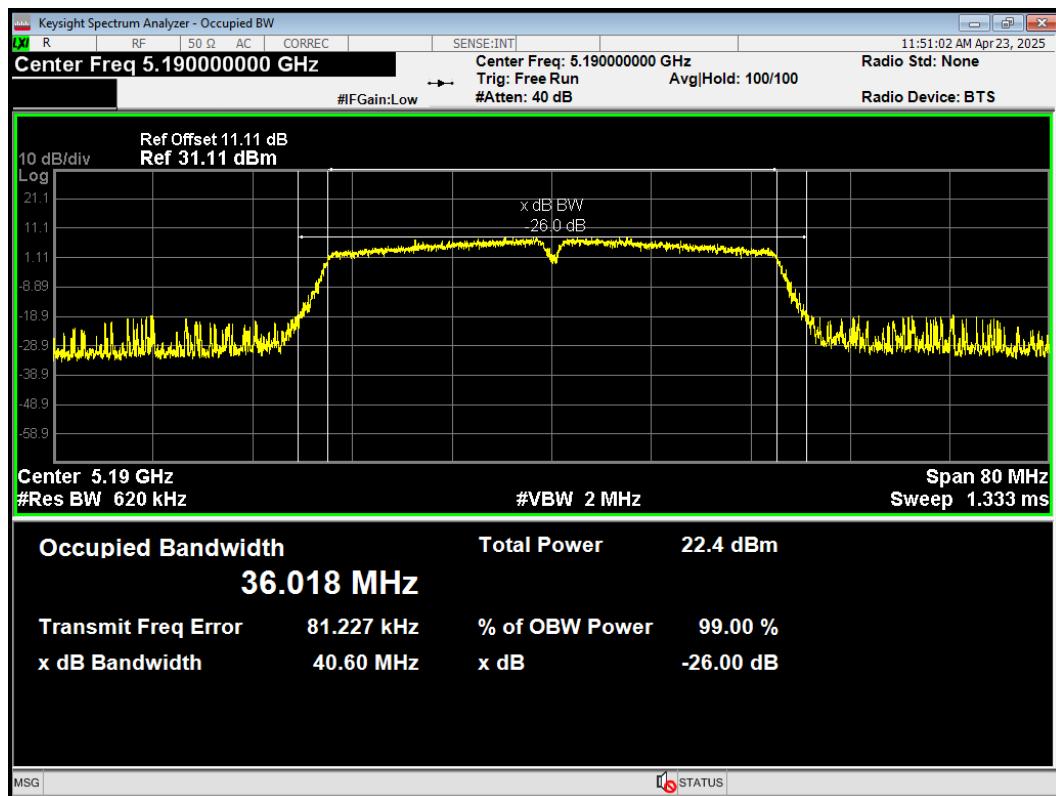
OBW 802.11n(HT20) 5200MHz



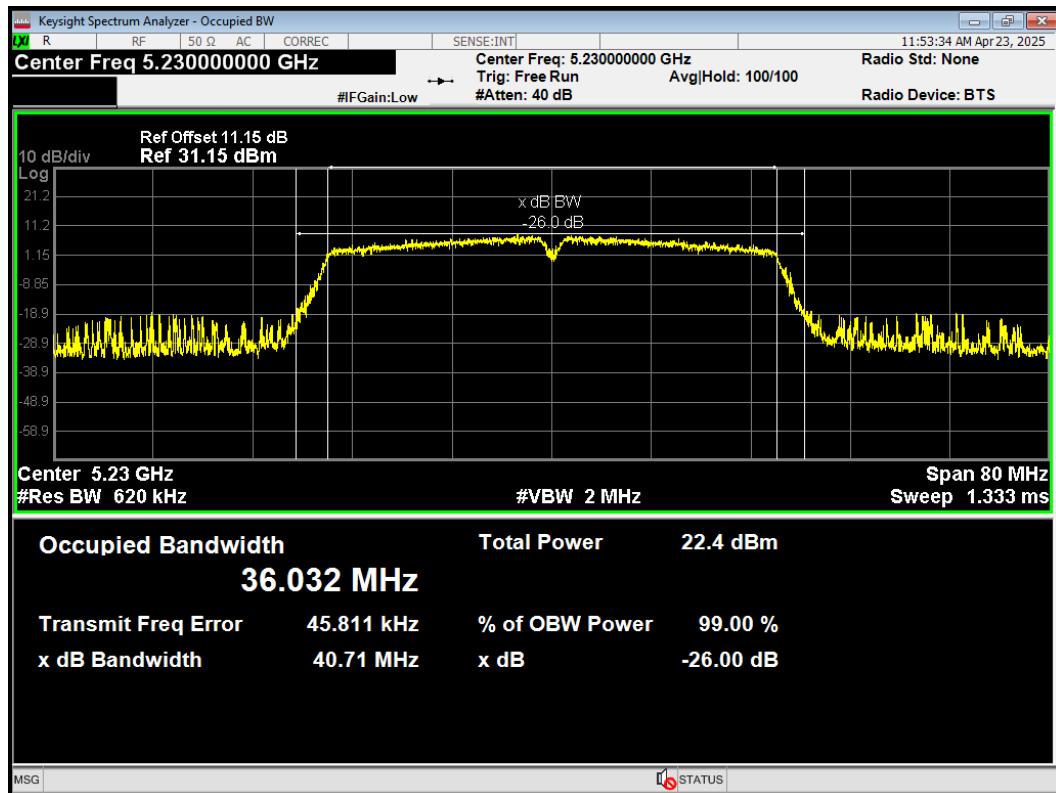
OBW 802.11n(HT20) 5240MHz



OBW 802.11n(HT40) 5190MHz

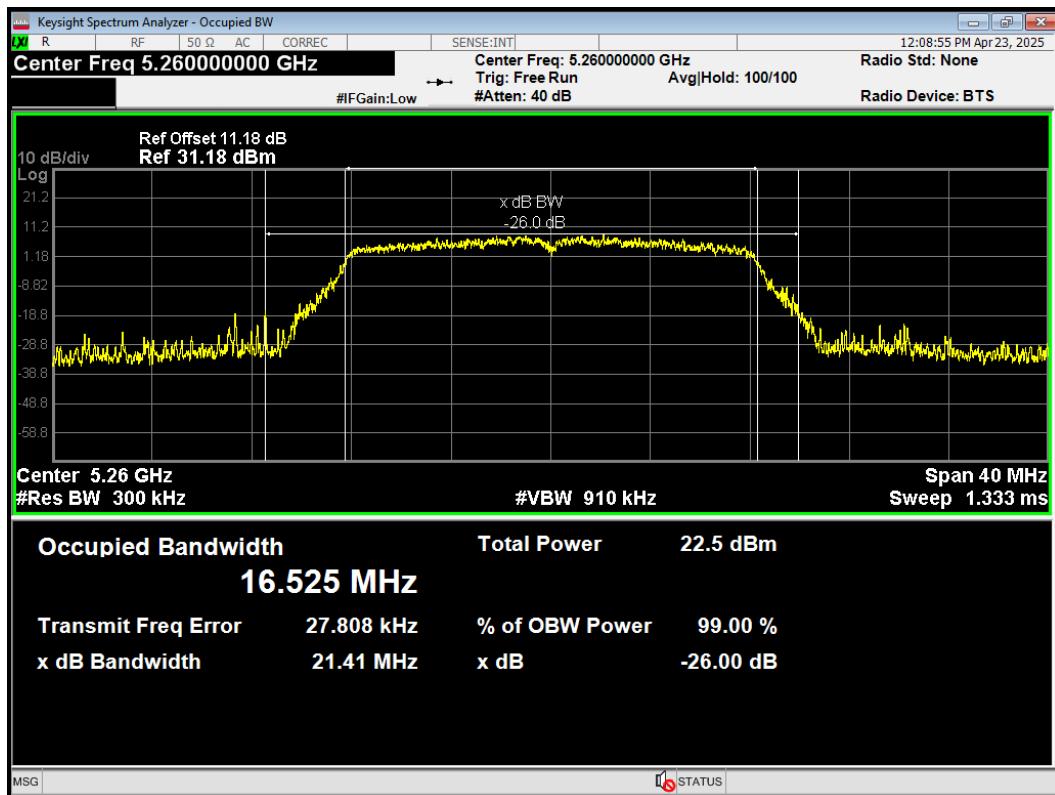


OBW 802.11n(HT40) 5230MHz

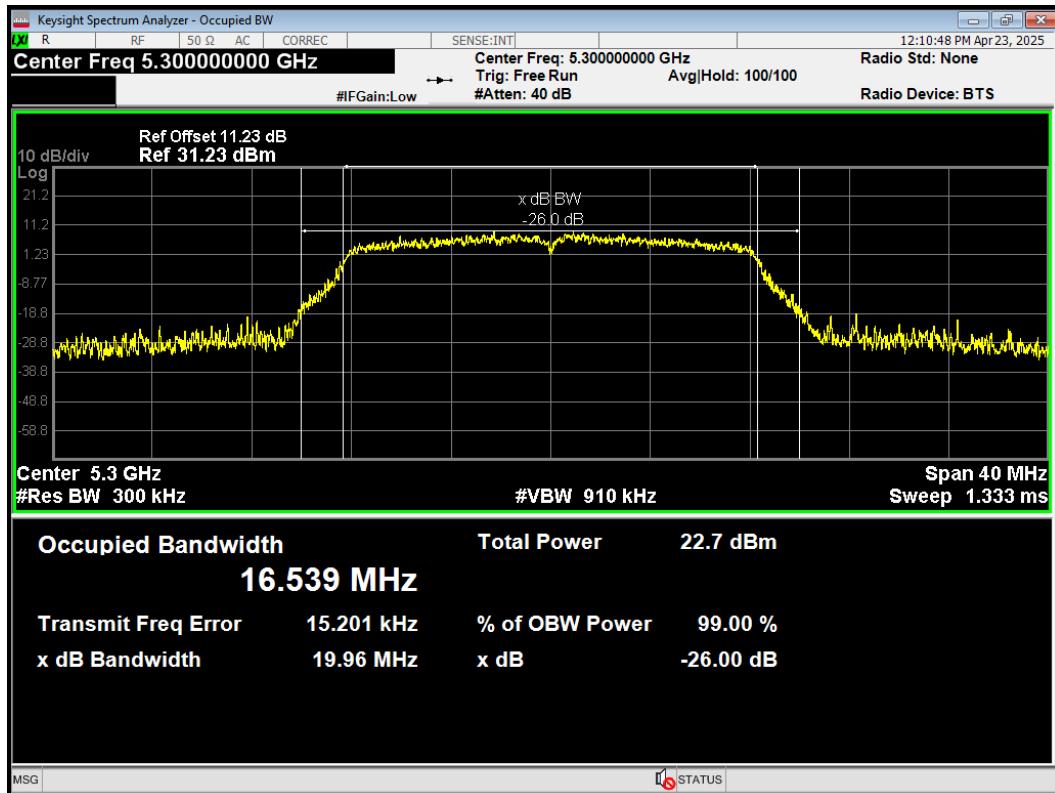


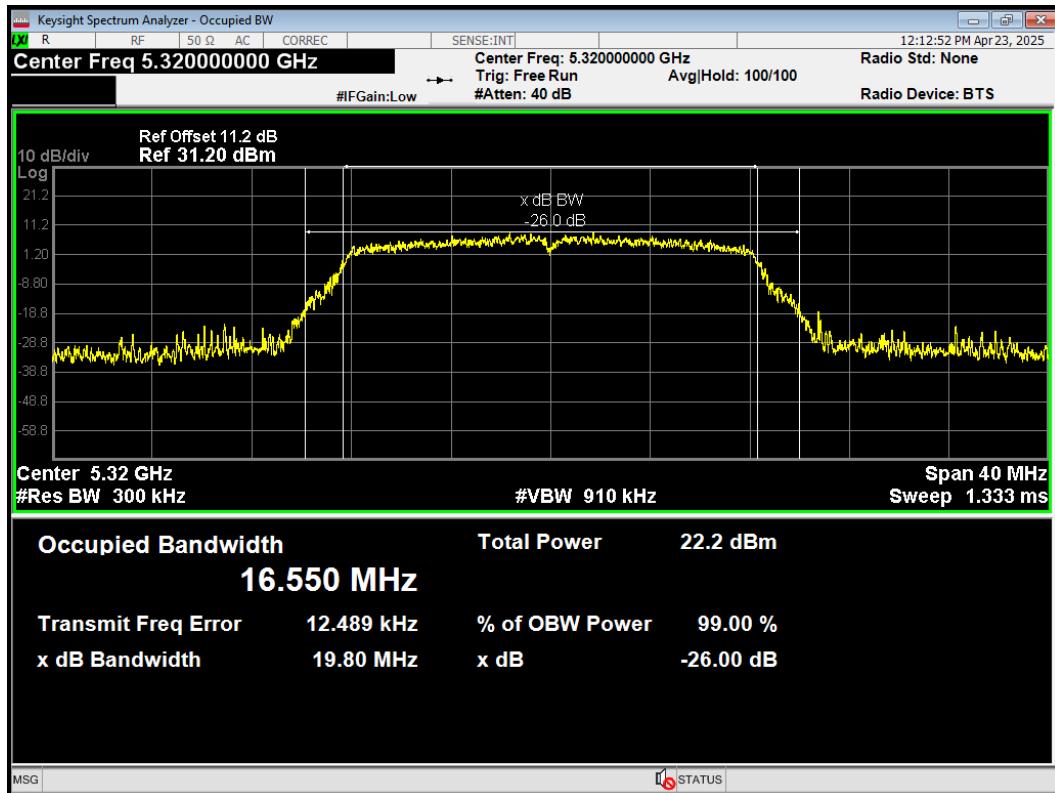
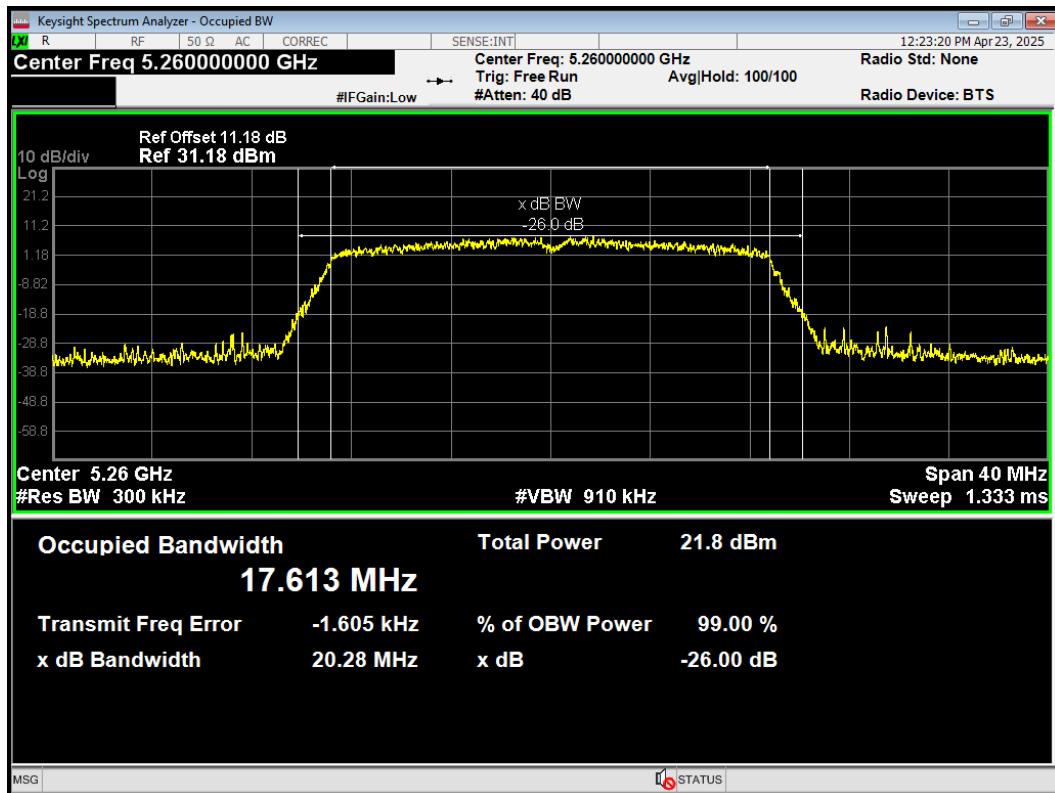
U-NII-2A

OBW 802.11a 5260MHz

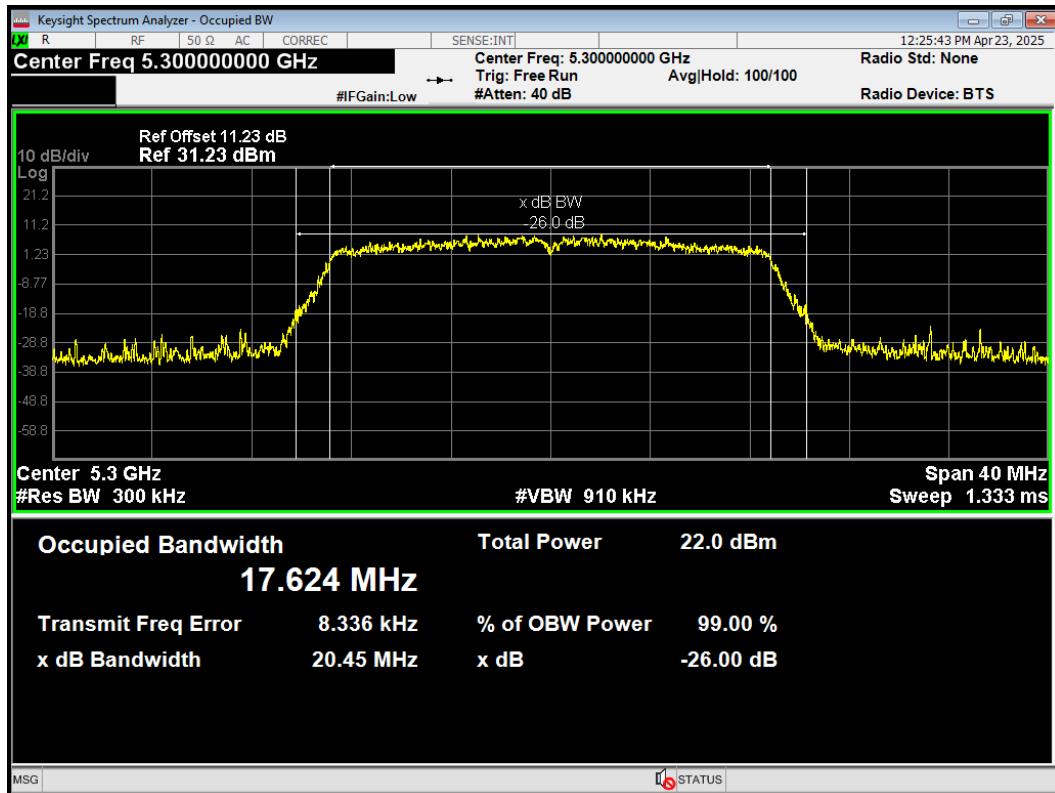


OBW 802.11a 5300MHz

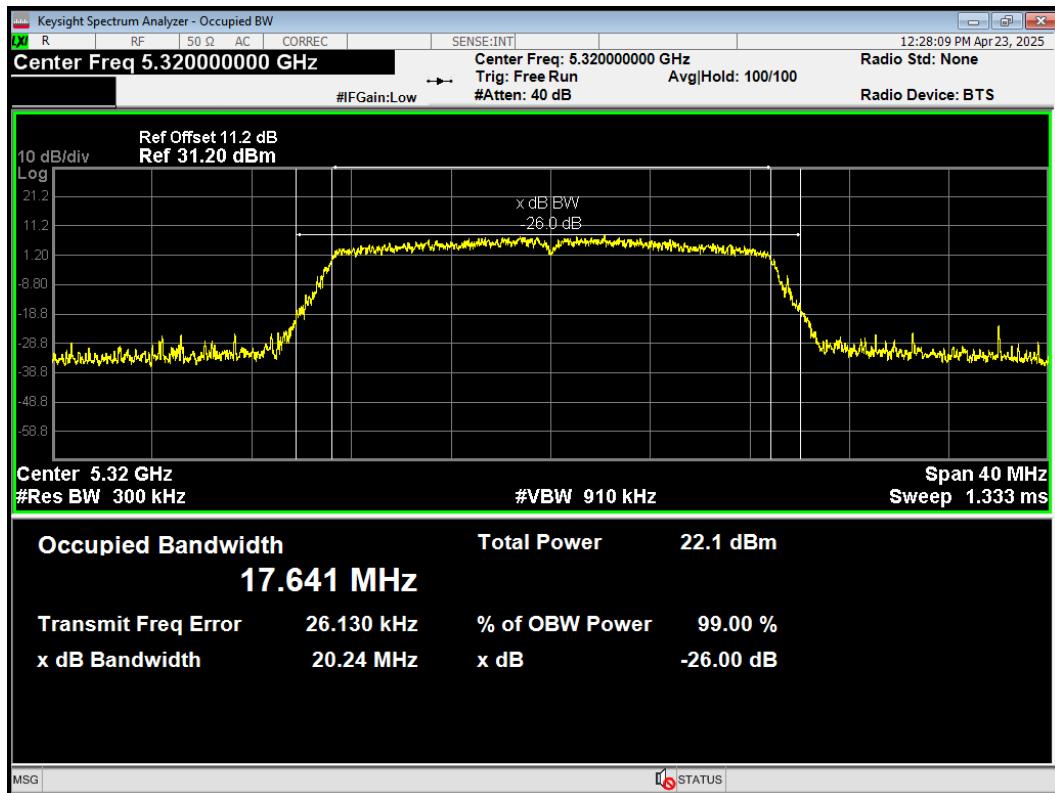


OBW 802.11a 5320MHz

OBW 802.11ac(VHT20) 5260MHz


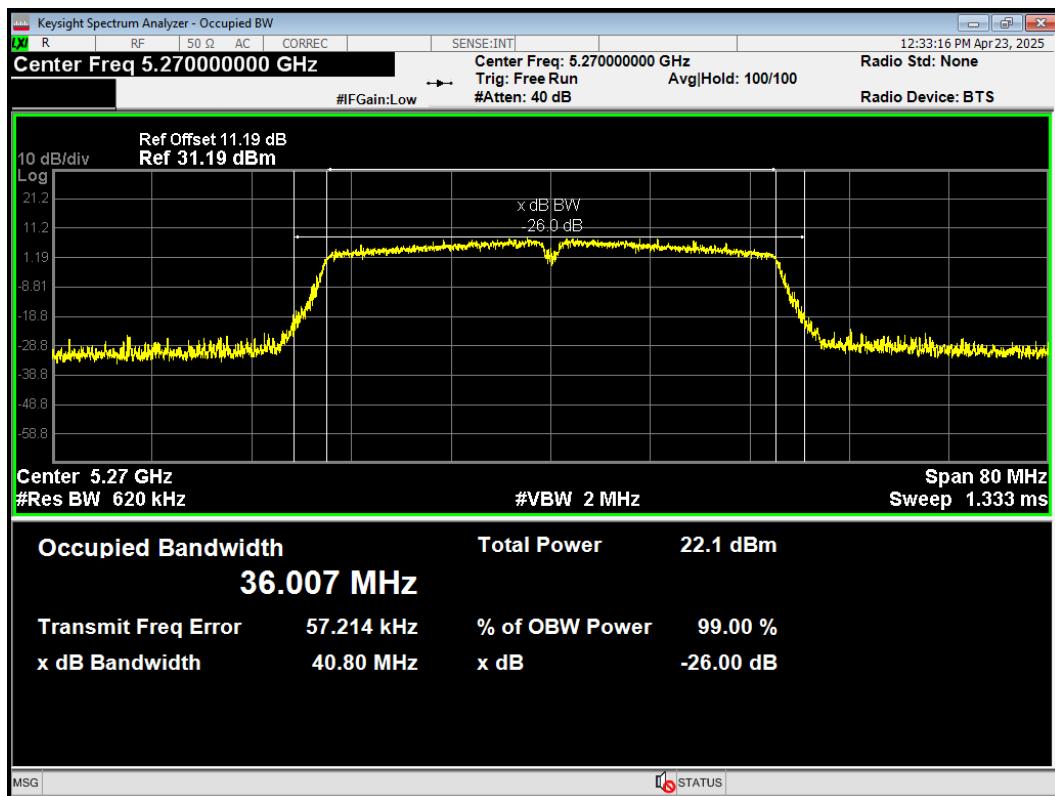
OBW 802.11ac(VHT20) 5300MHz



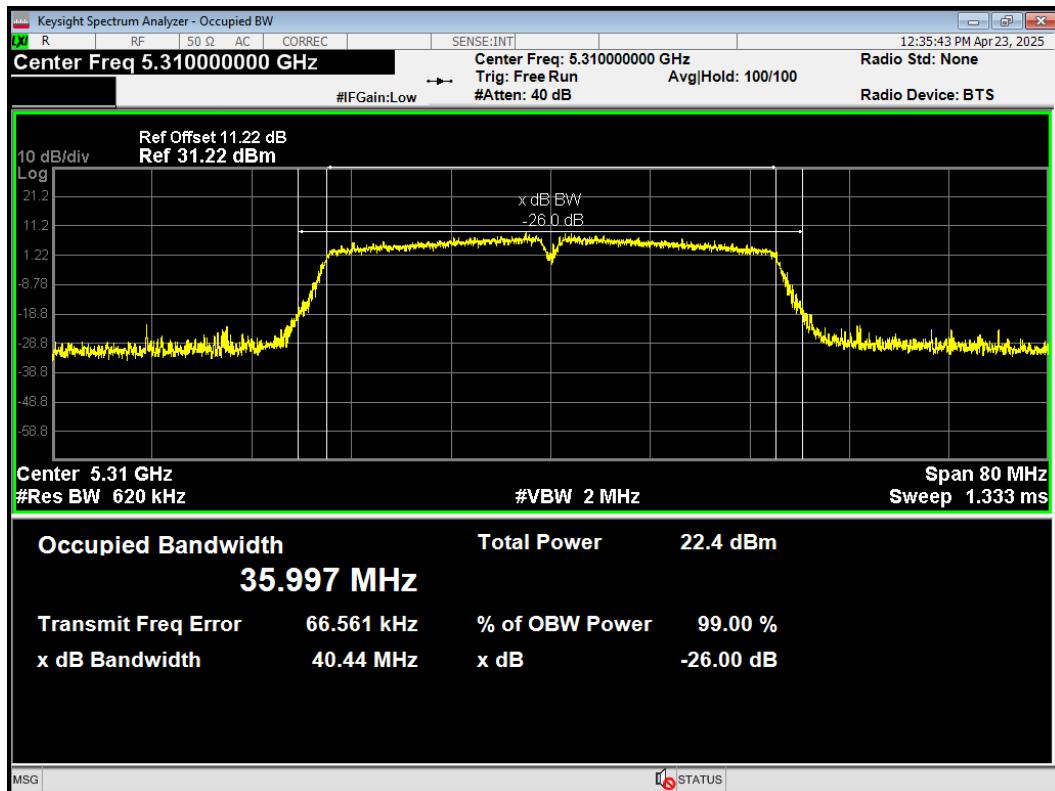
OBW 802.11ac(VHT20) 5320MHz



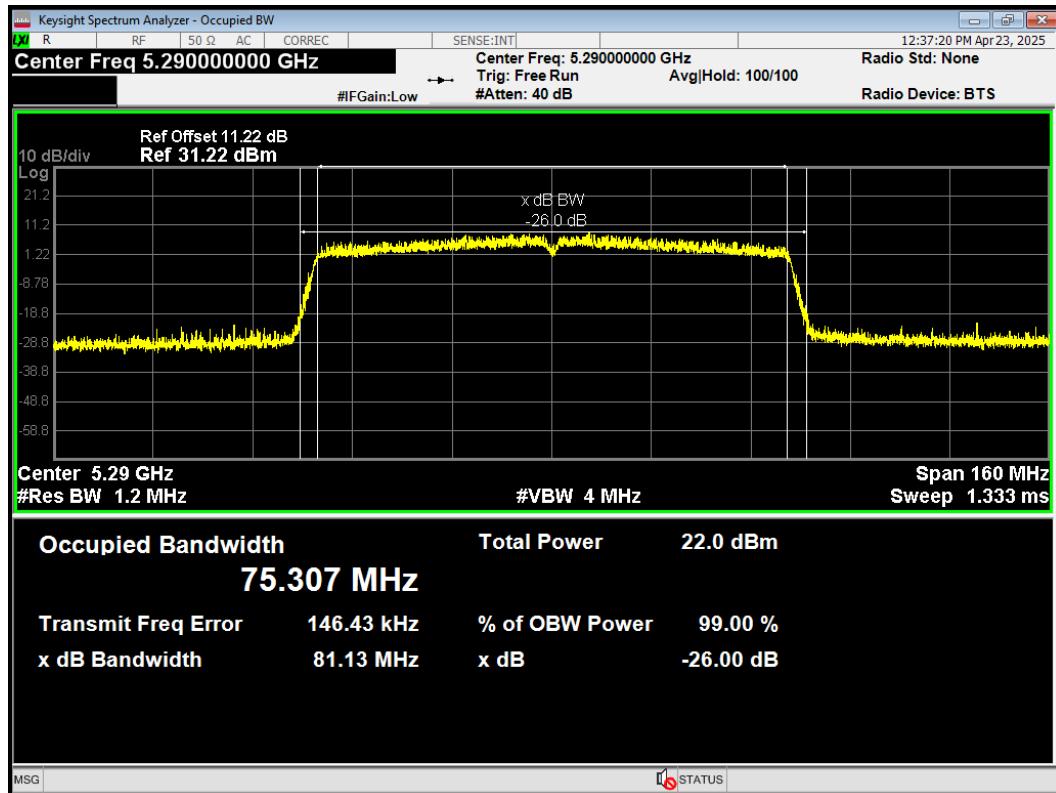
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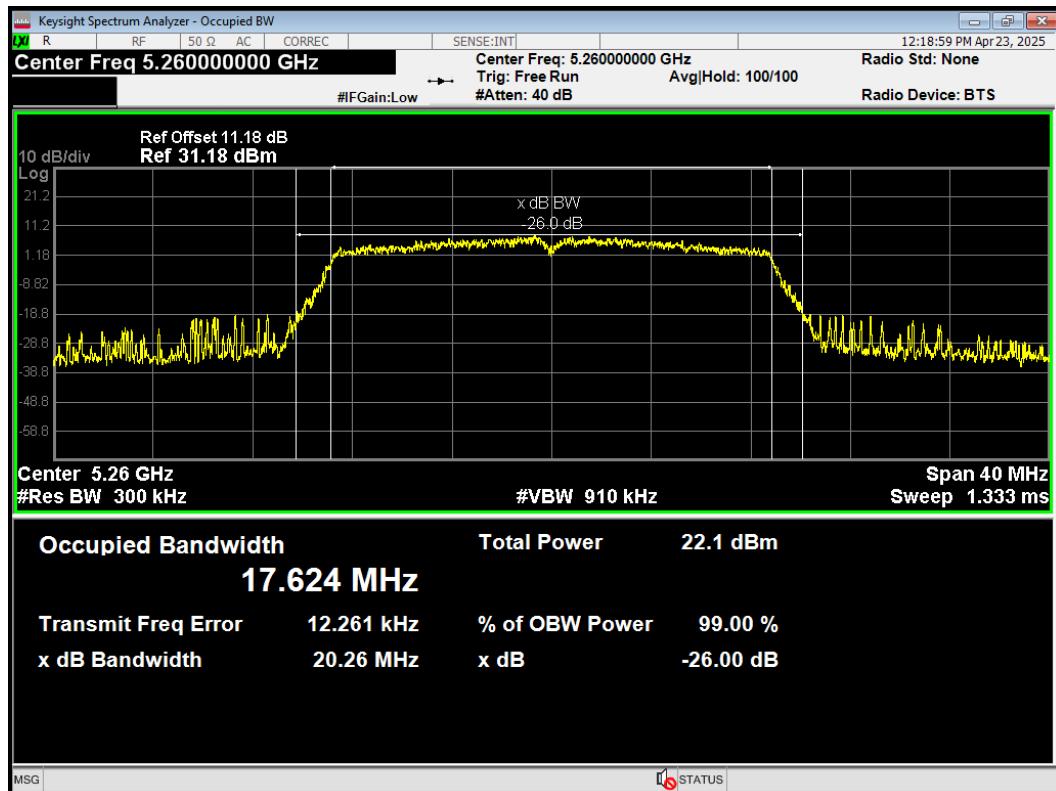
OBW 802.11ac(VHT40) 5310MHz

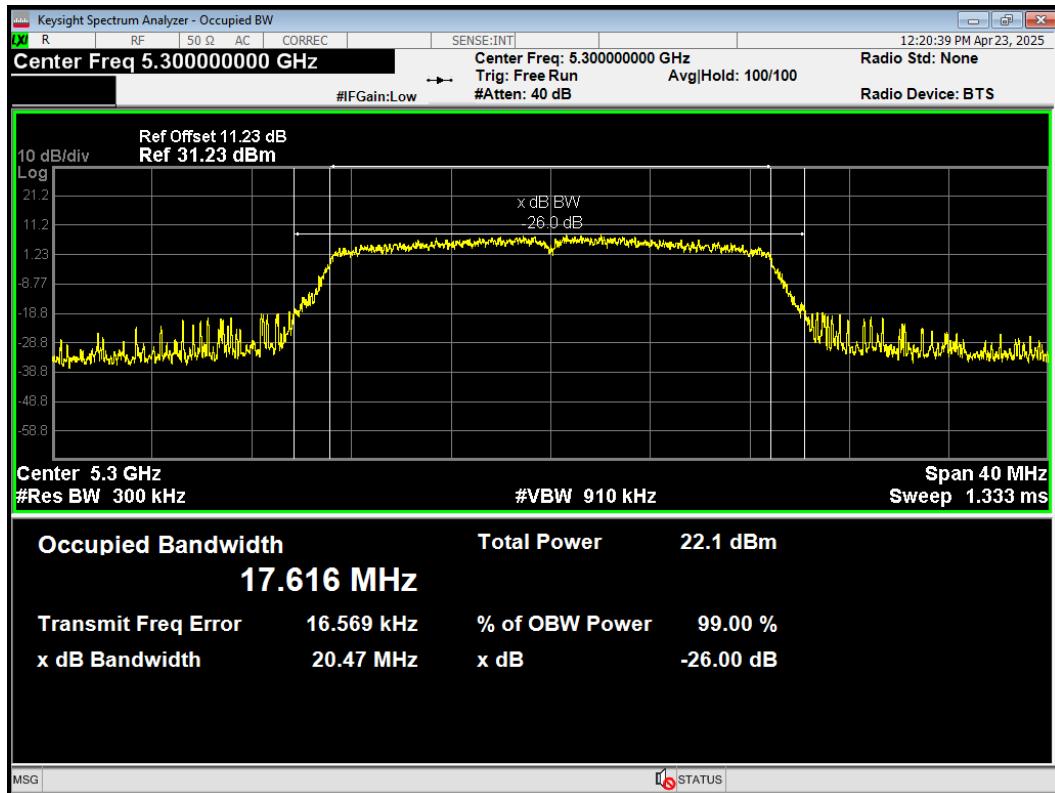
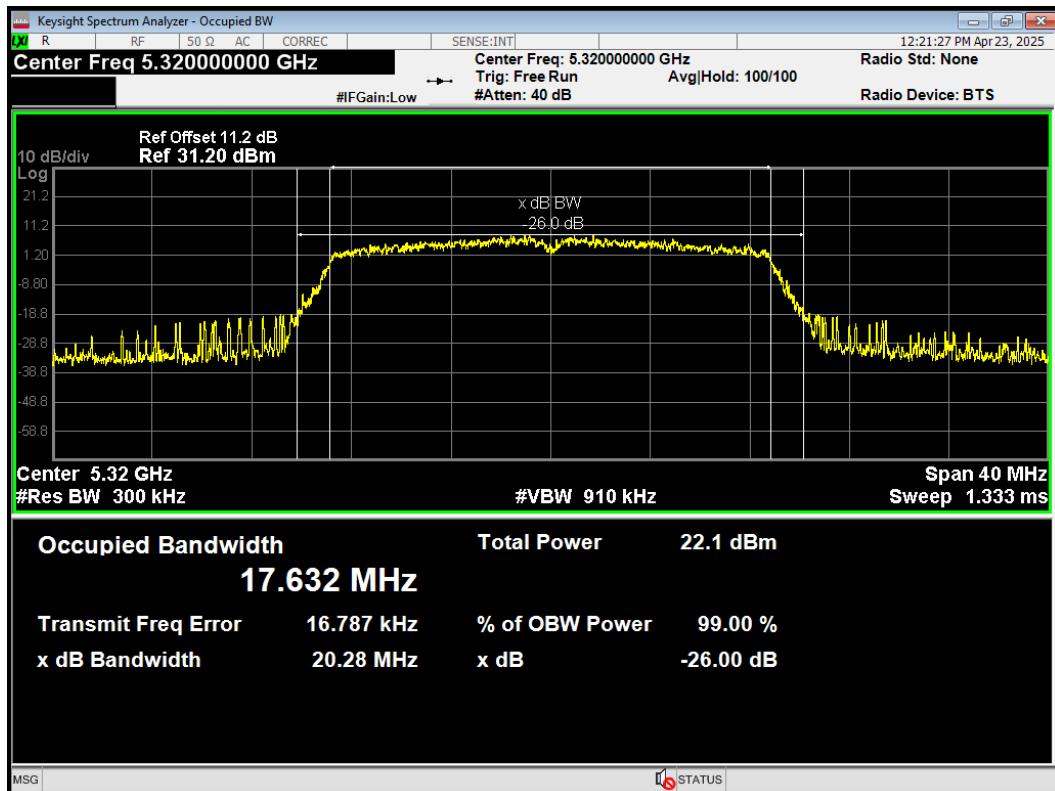


OBW 802.11ac(VHT80) 5290MHz

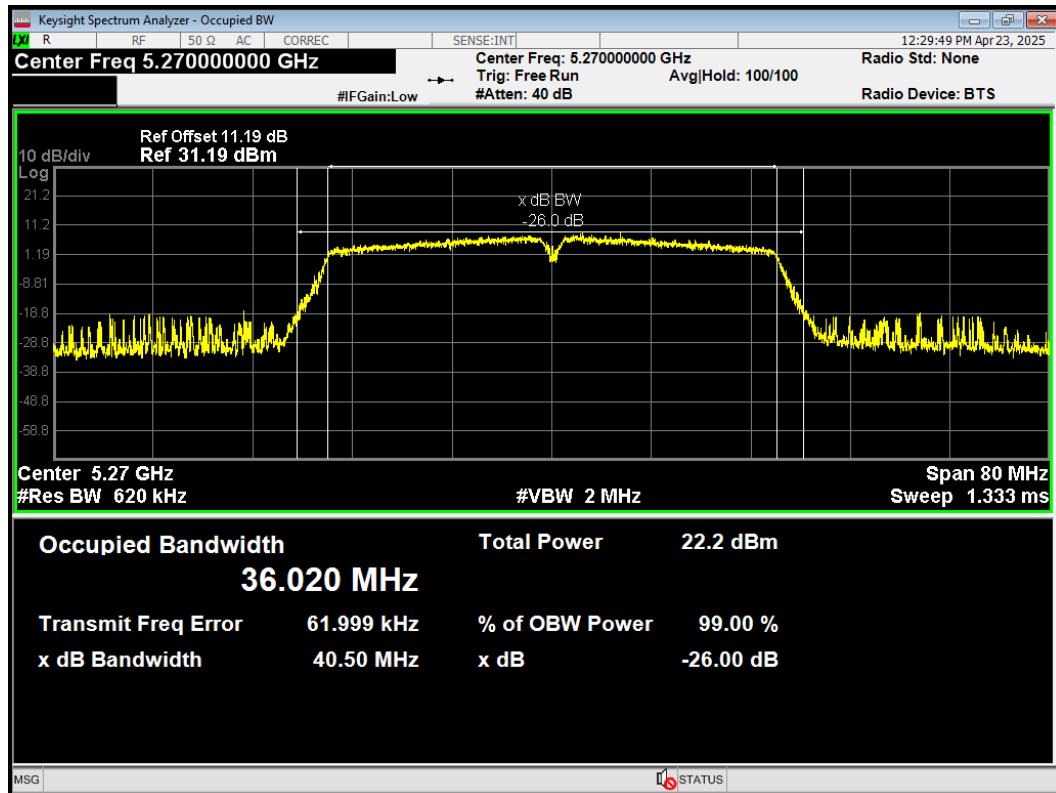


OBW 802.11n(HT20) 5260MHz

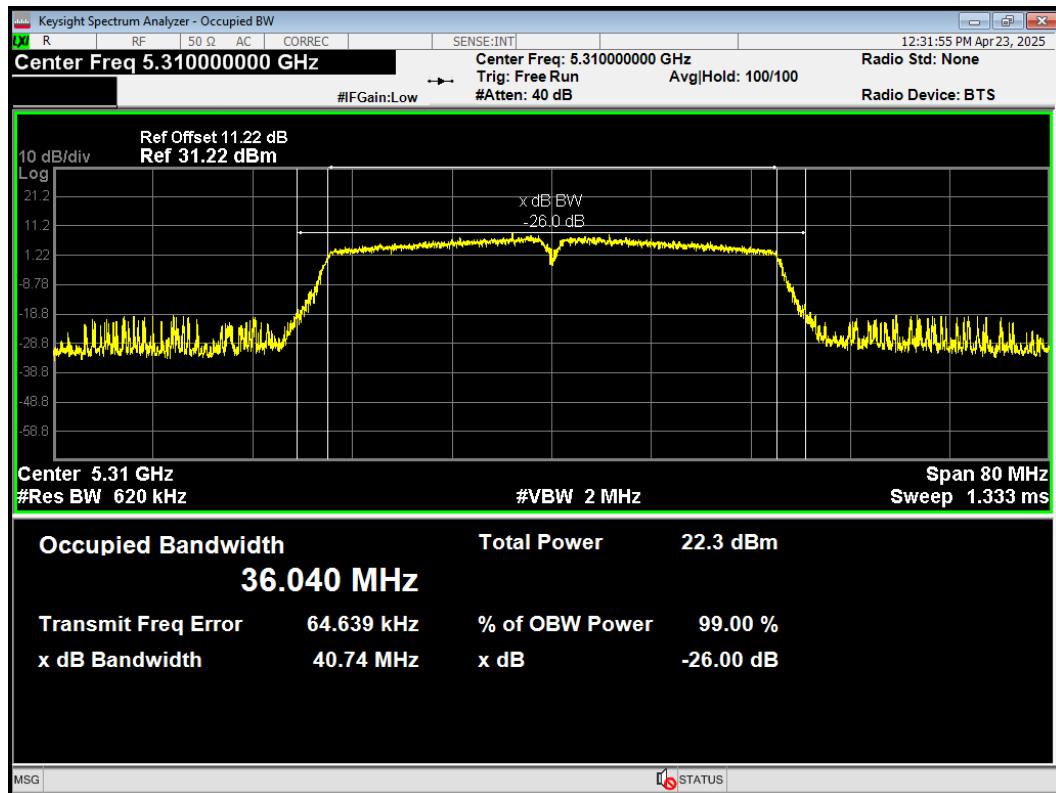


OBW 802.11n(HT20) 5300MHz

OBW 802.11n(HT20) 5320MHz


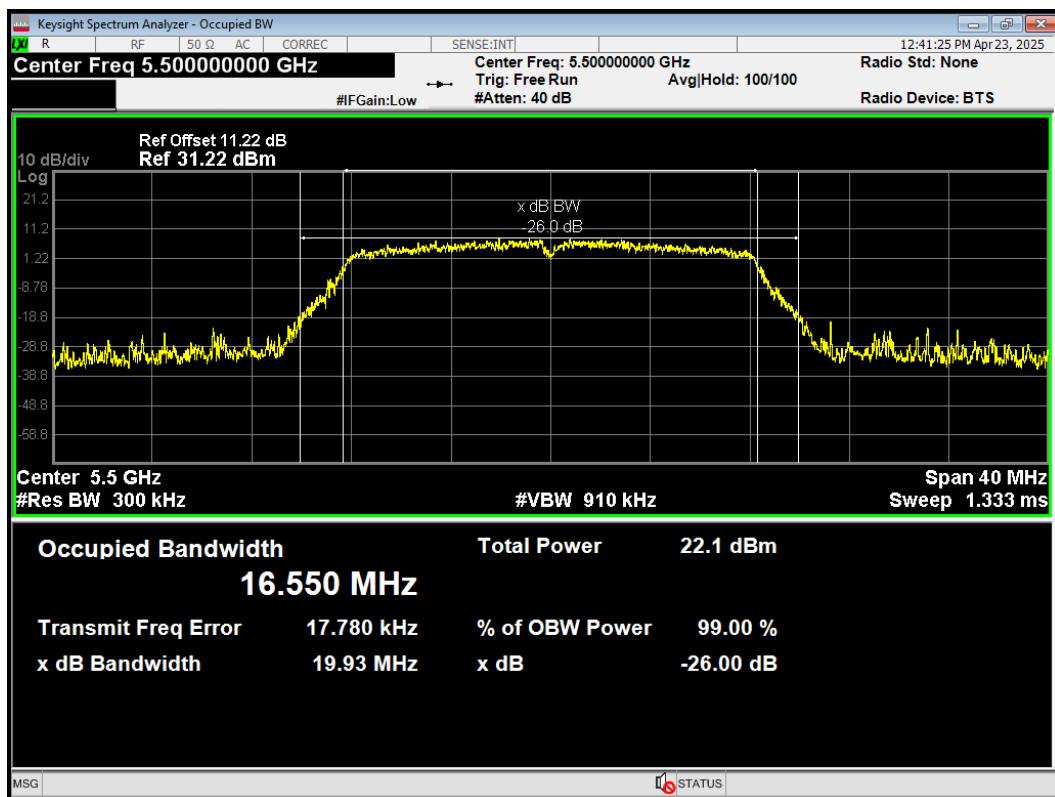
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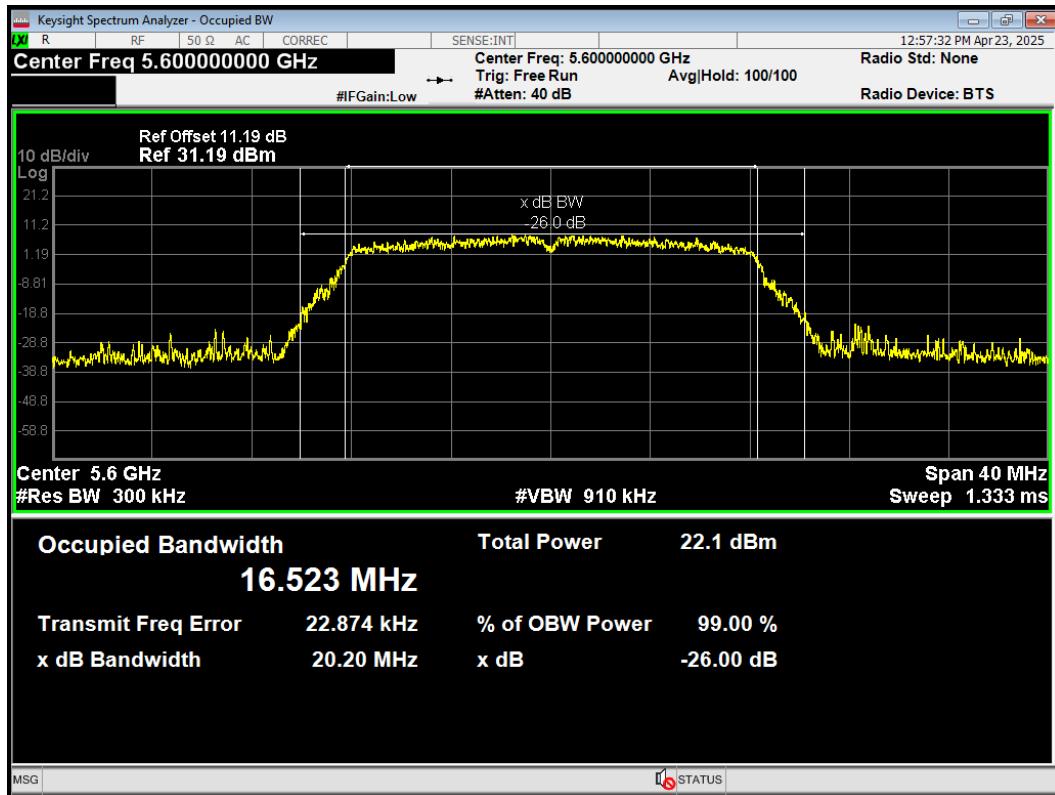
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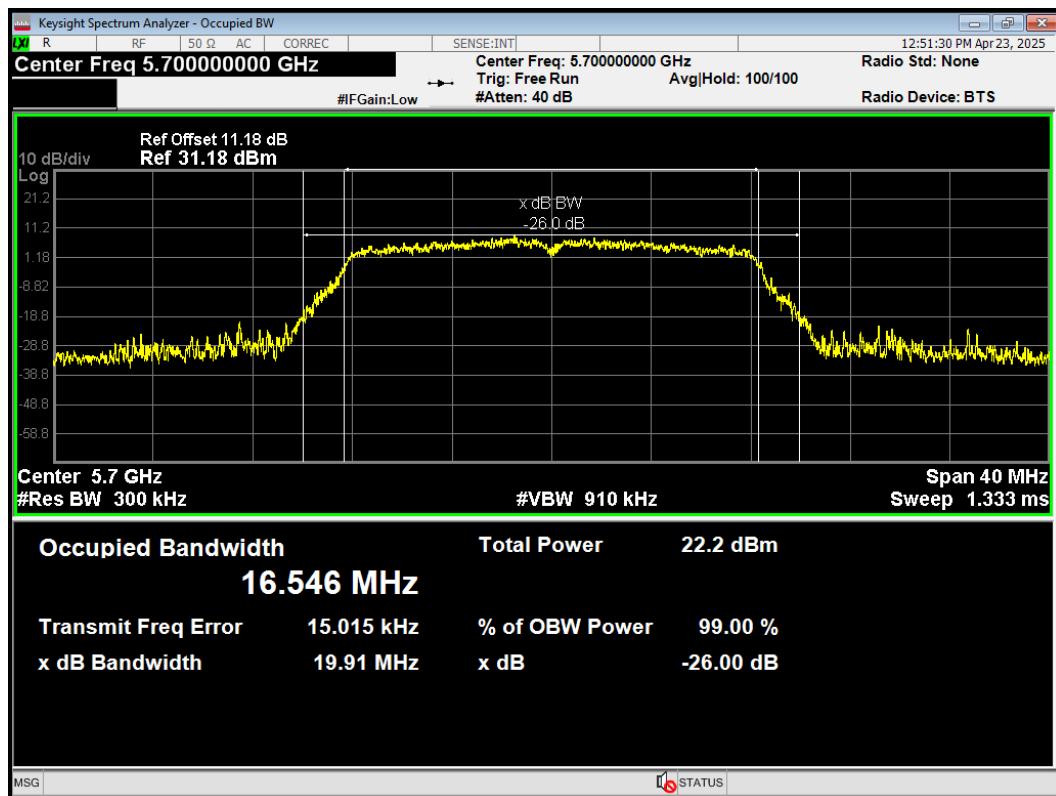
OBW 802.11a 5500MHz



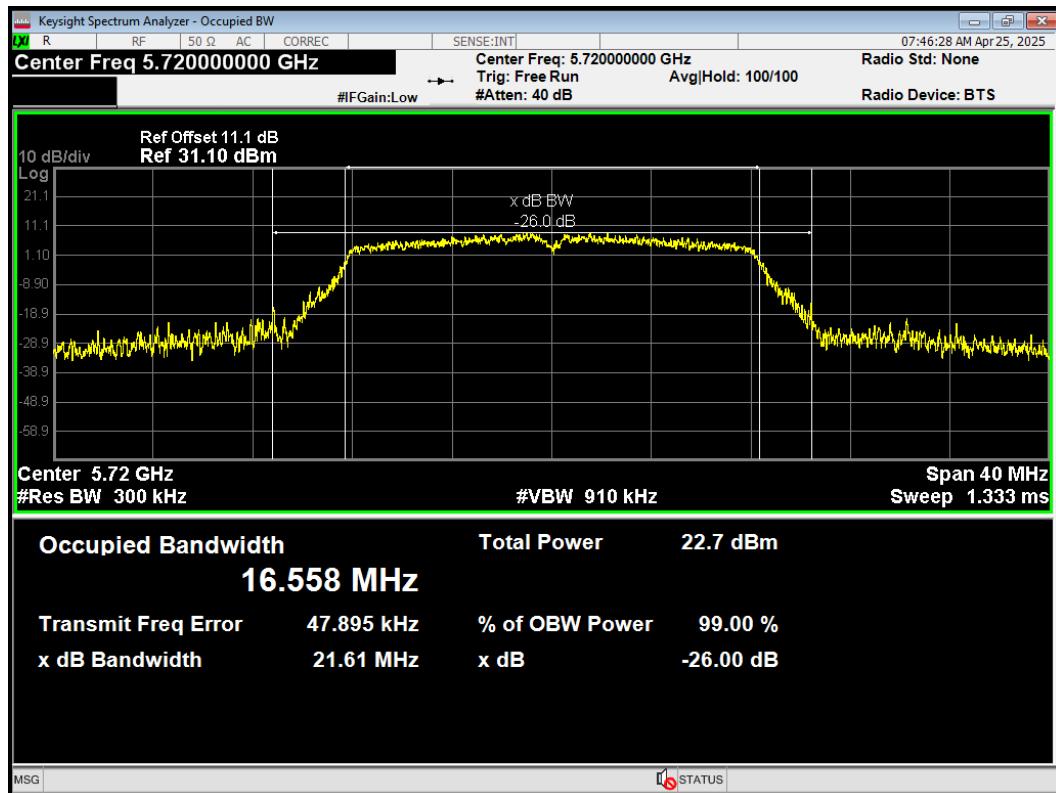
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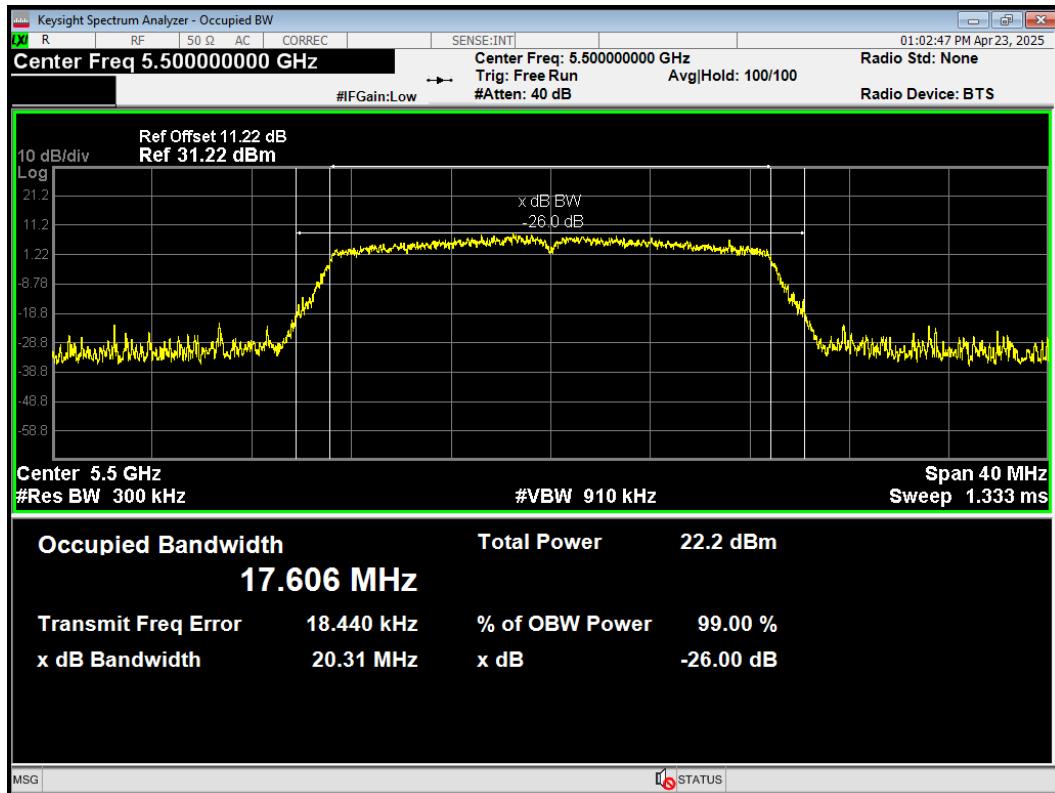
OBW 802.11a 5700MHz



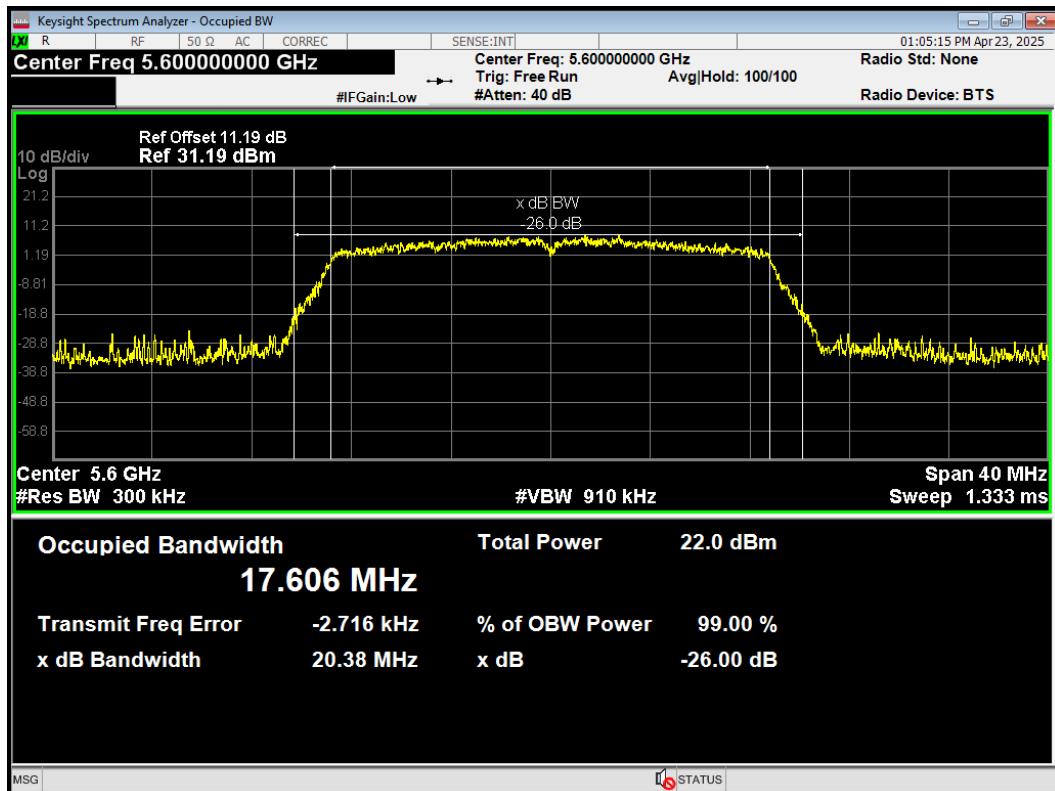
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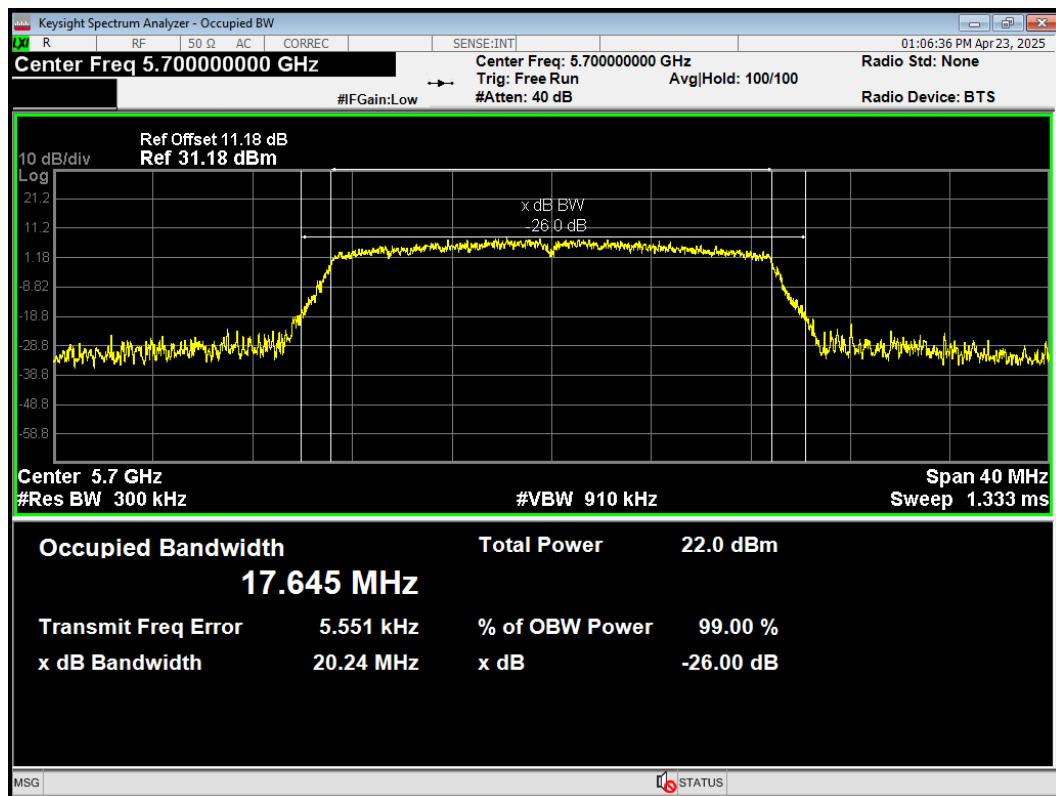
OBW 802.11ac(VHT20) 5500MHz



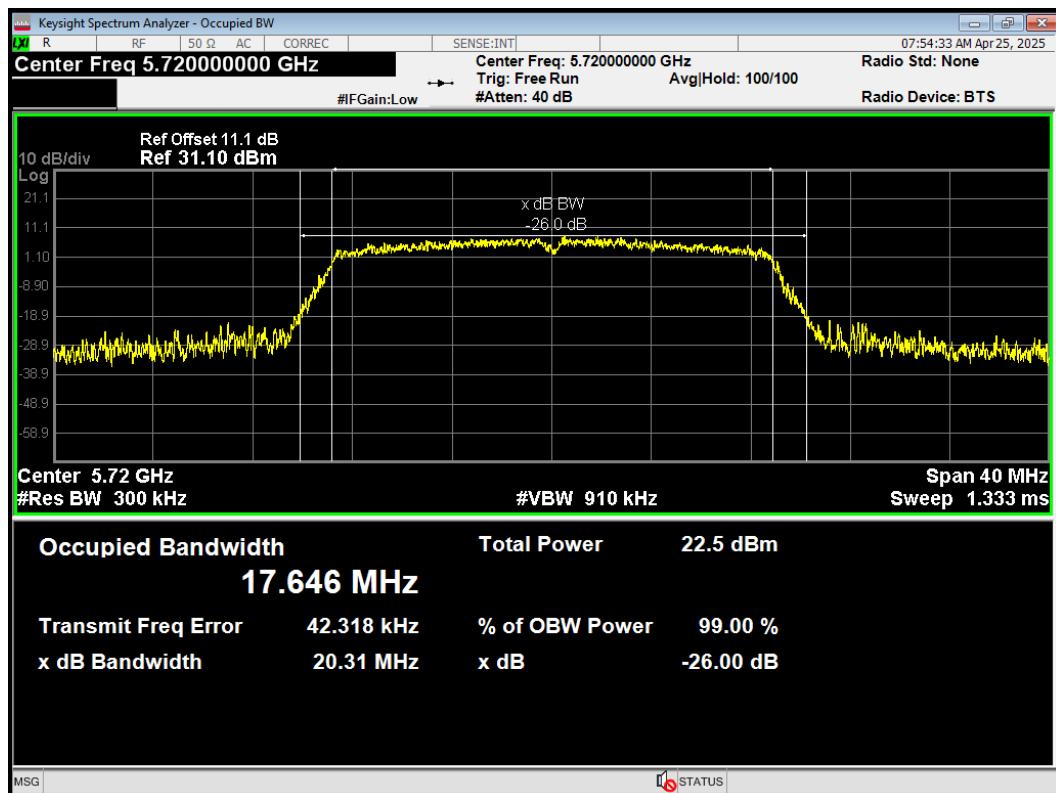
OBW 802.11ac(VHT20) 5600MHz



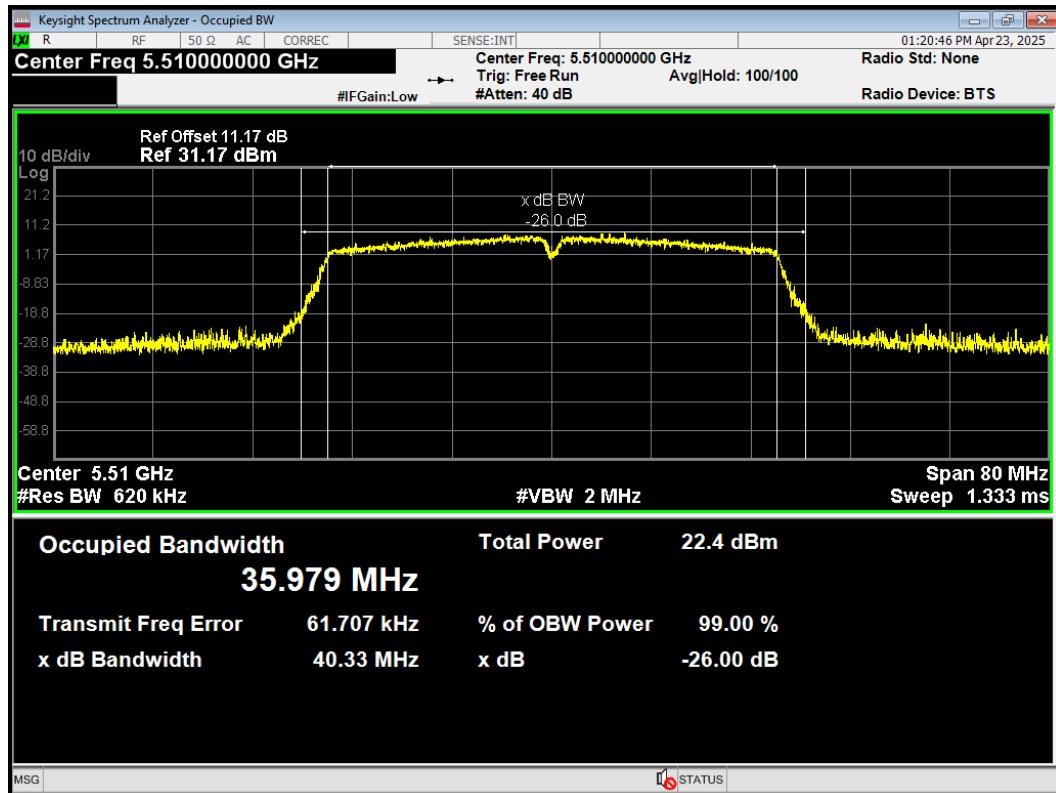
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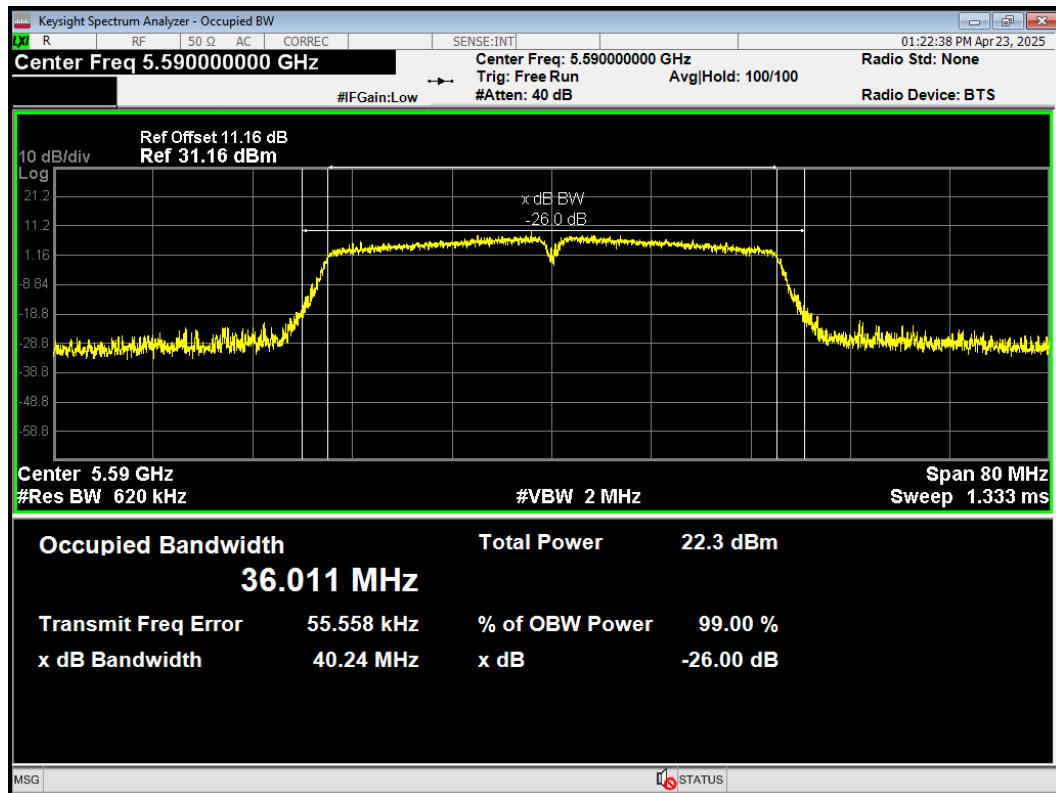
OBW 802.11ac(VHT20) 5720MHz



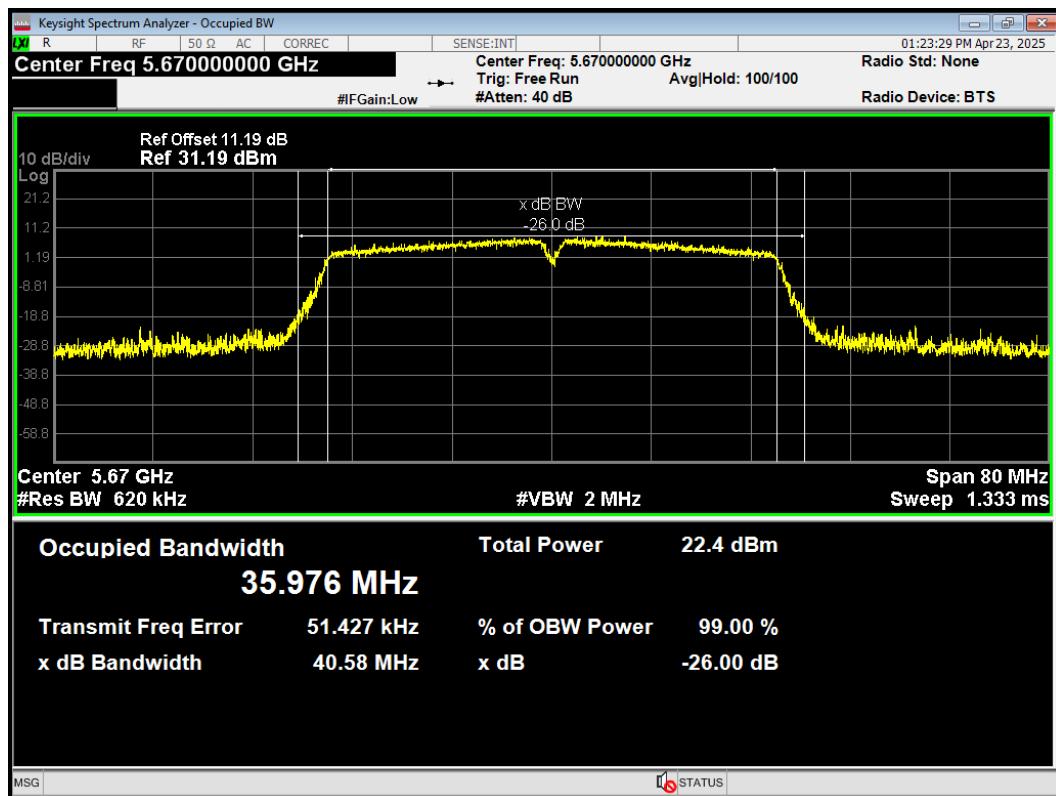
OBW 802.11ac(VHT40) 5510MHz



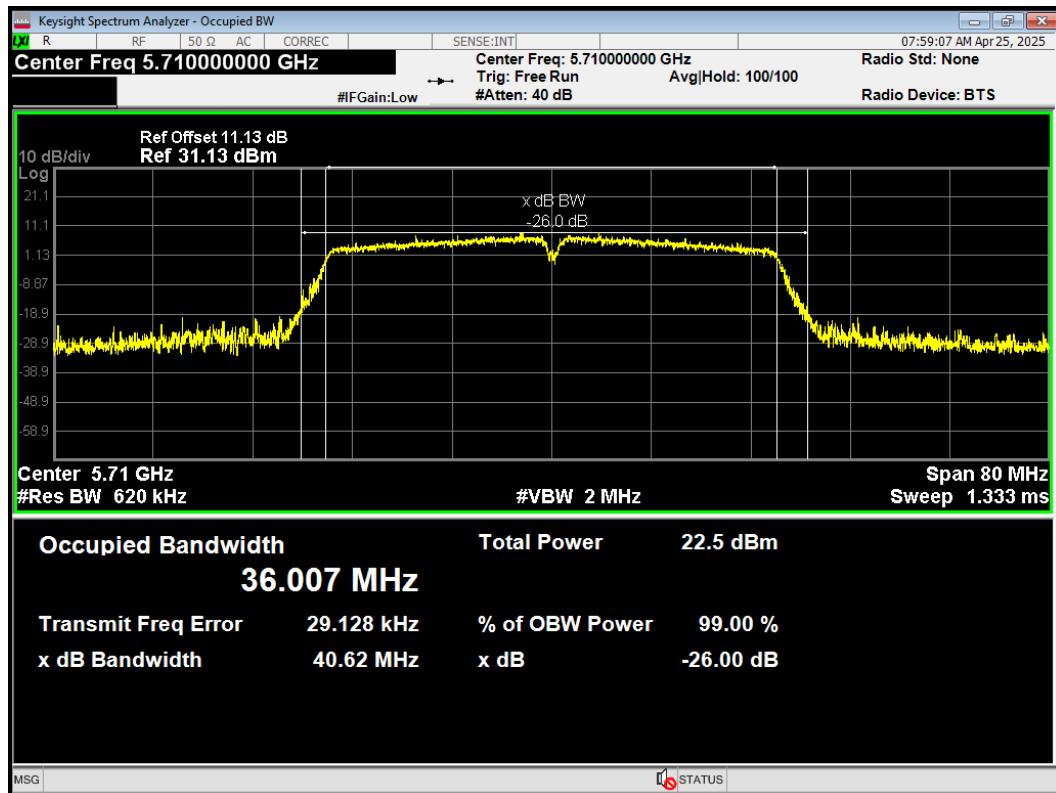
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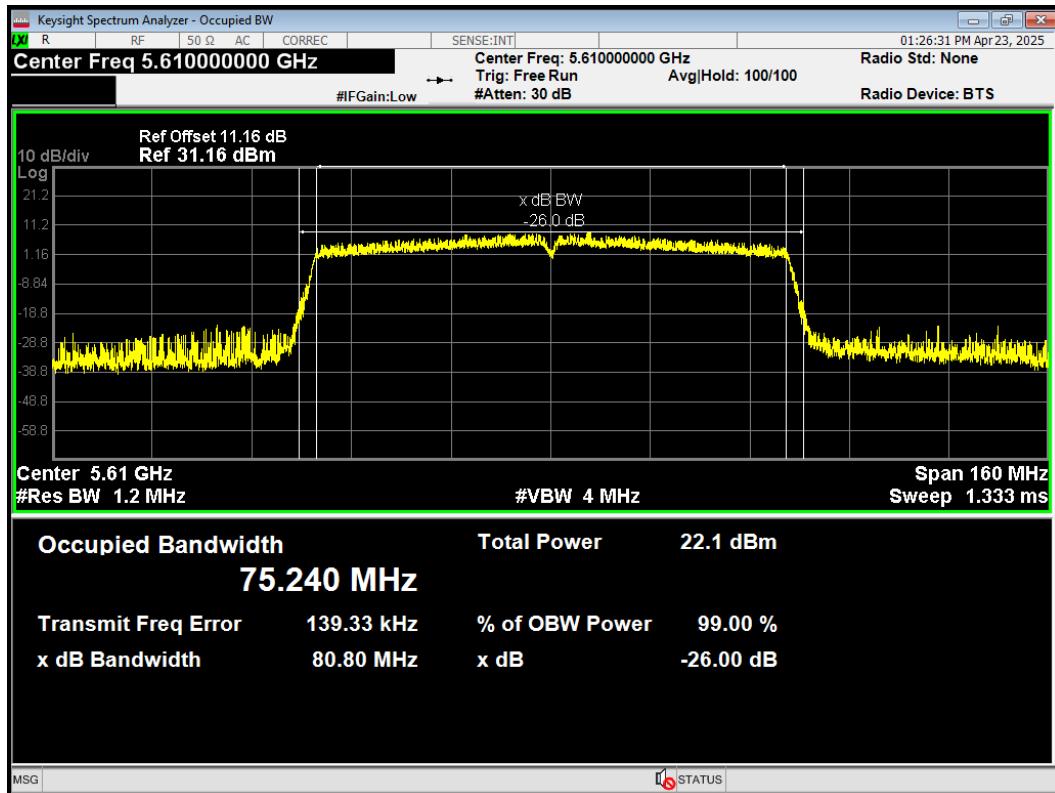
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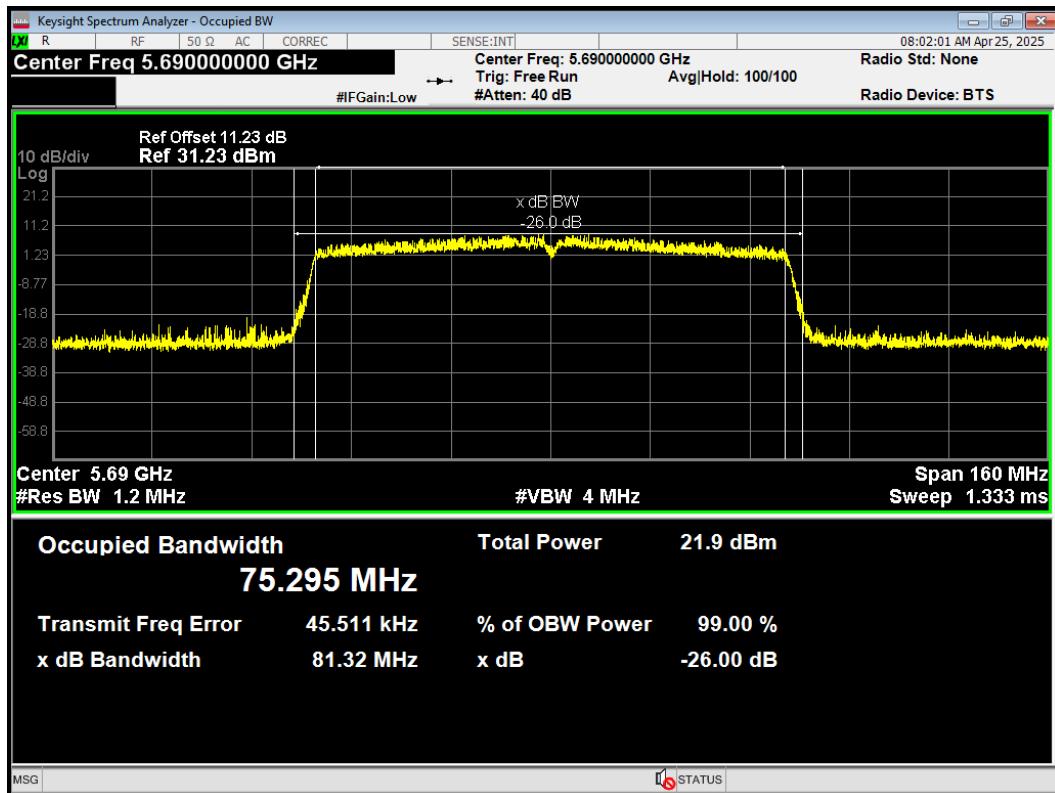
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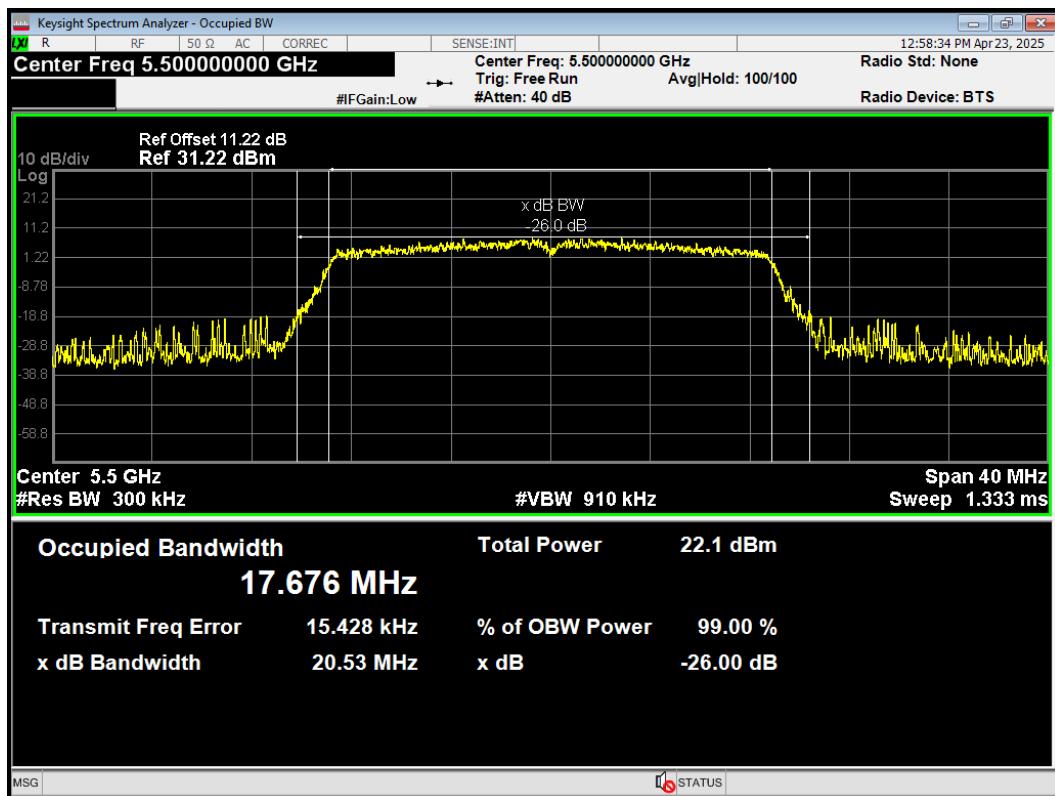
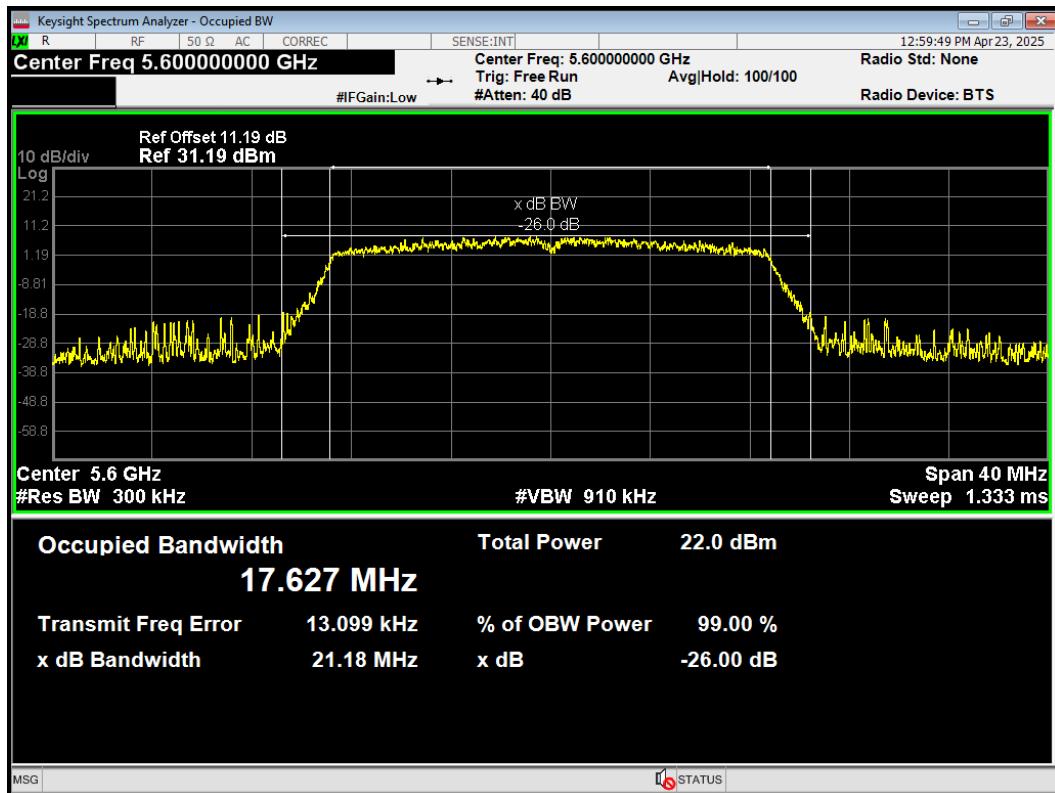


OBW 802.11ac(VHT80) 5610MHz

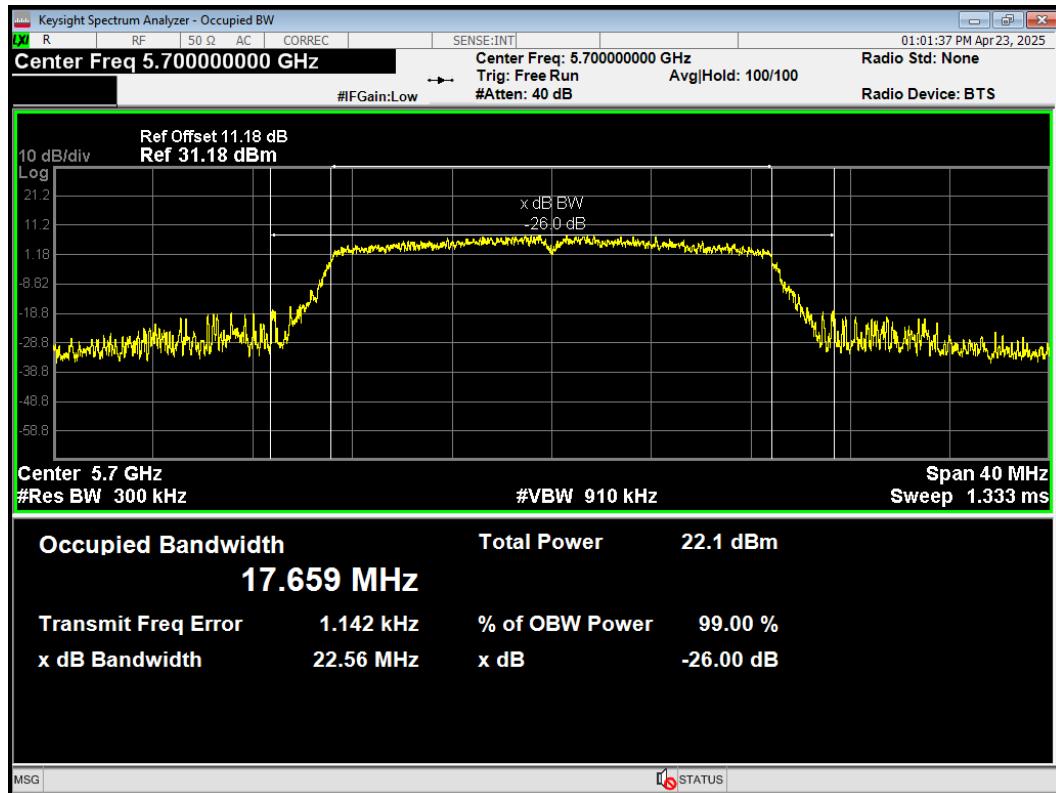


OBW 802.11ac(VHT80) 5690MHz

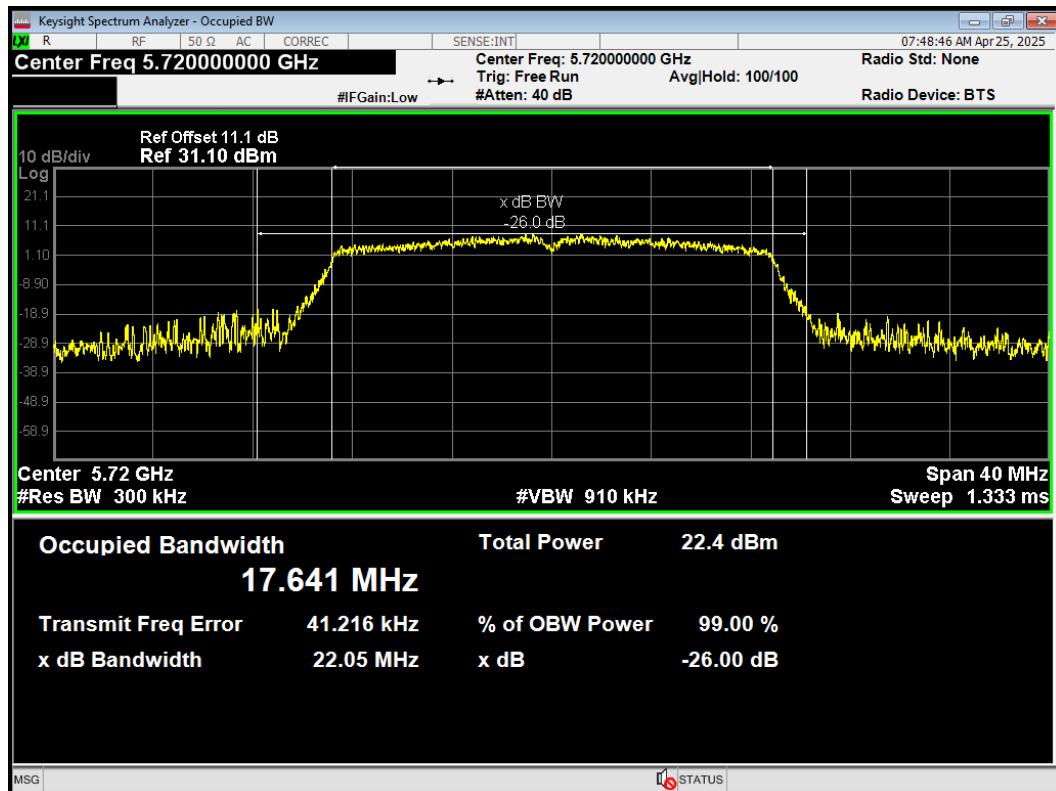


OBW 802.11n(HT20) 5500MHz

OBW 802.11n(HT20) 5600MHz


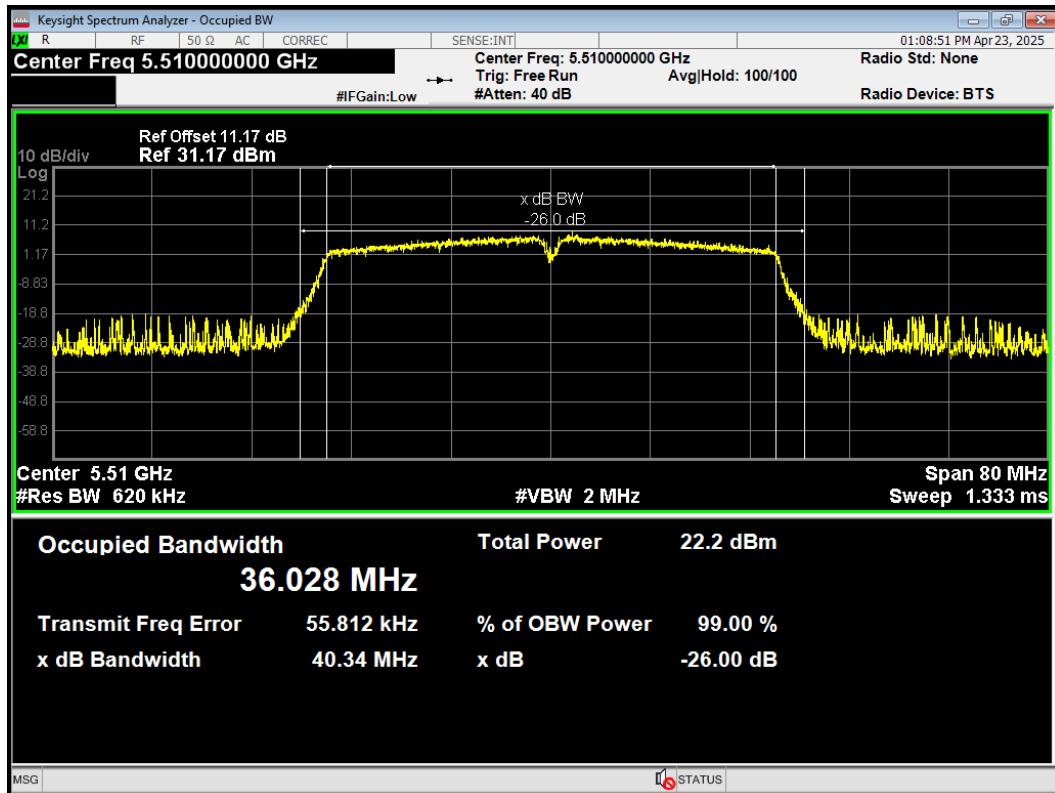
OBW 802.11n(HT20) 5700MHz



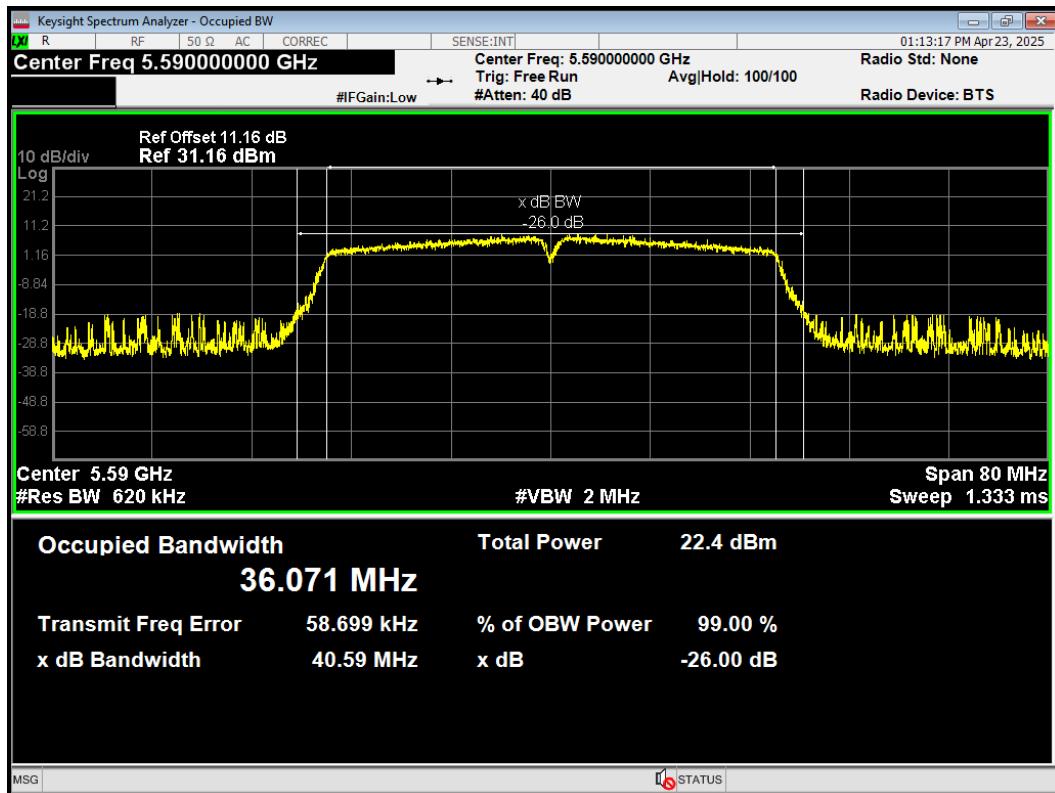
OBW 802.11n(HT20) 5720MHz



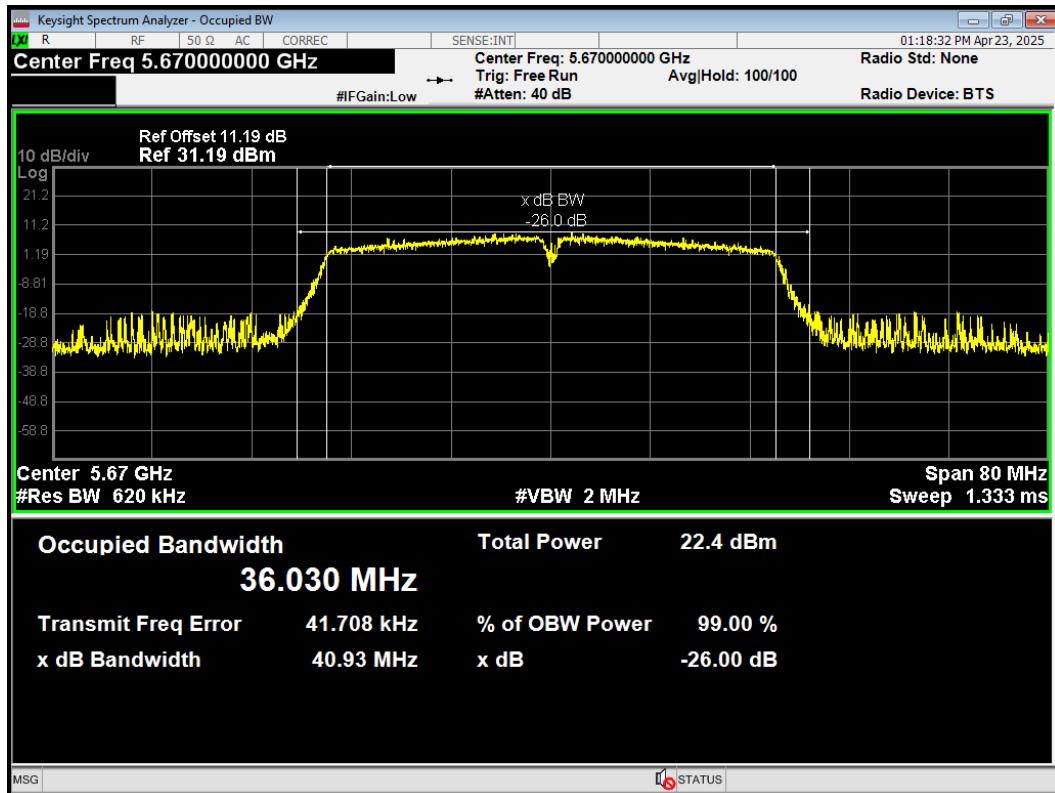
OBW 802.11n(HT40) 5510MHz



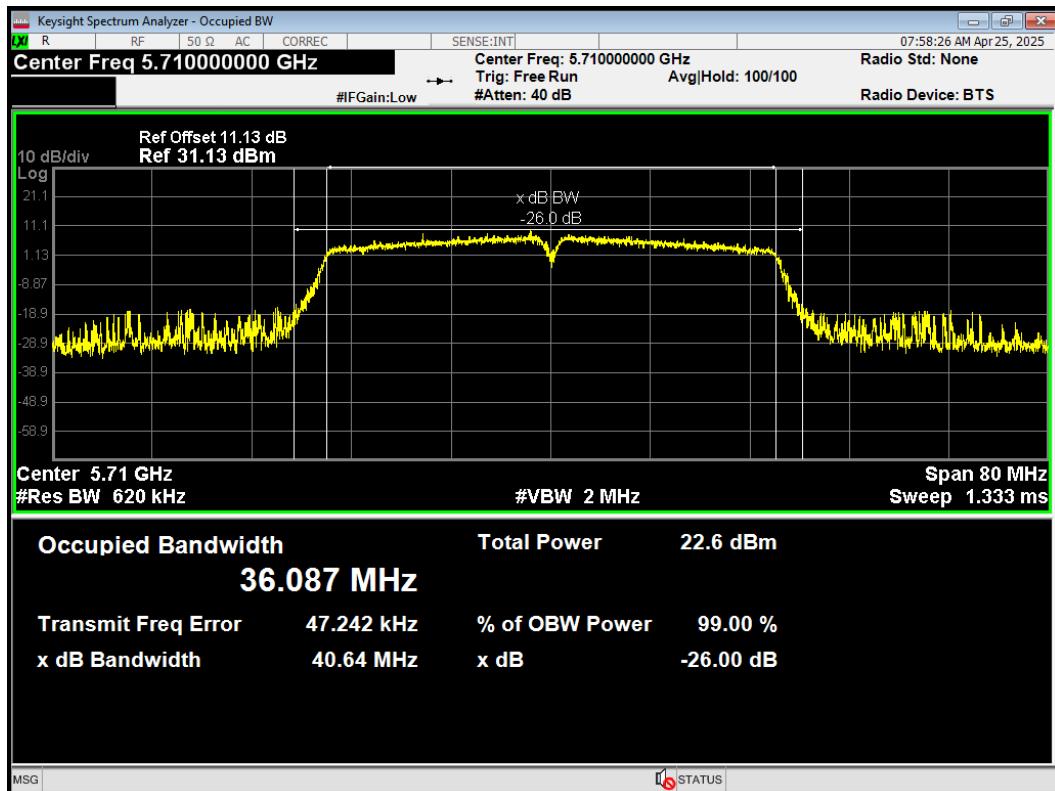
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OBW 802.11n(HT40) 5670MHz

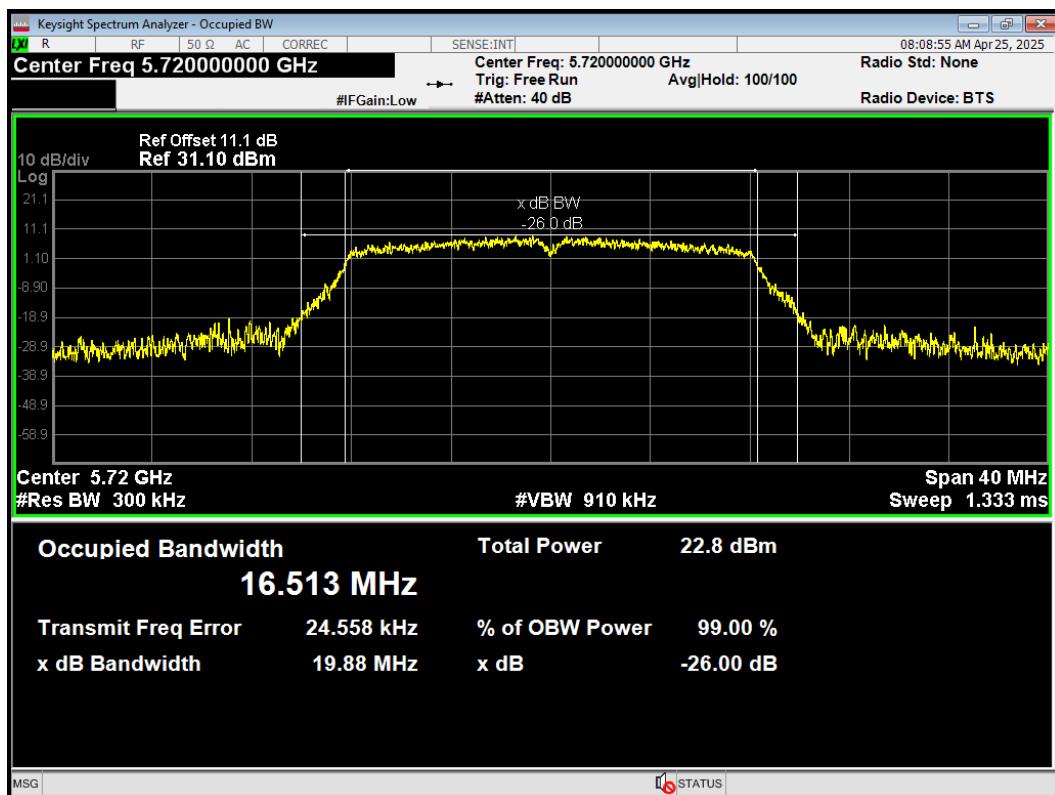


OBW 802.11n(HT40) 5710MHz

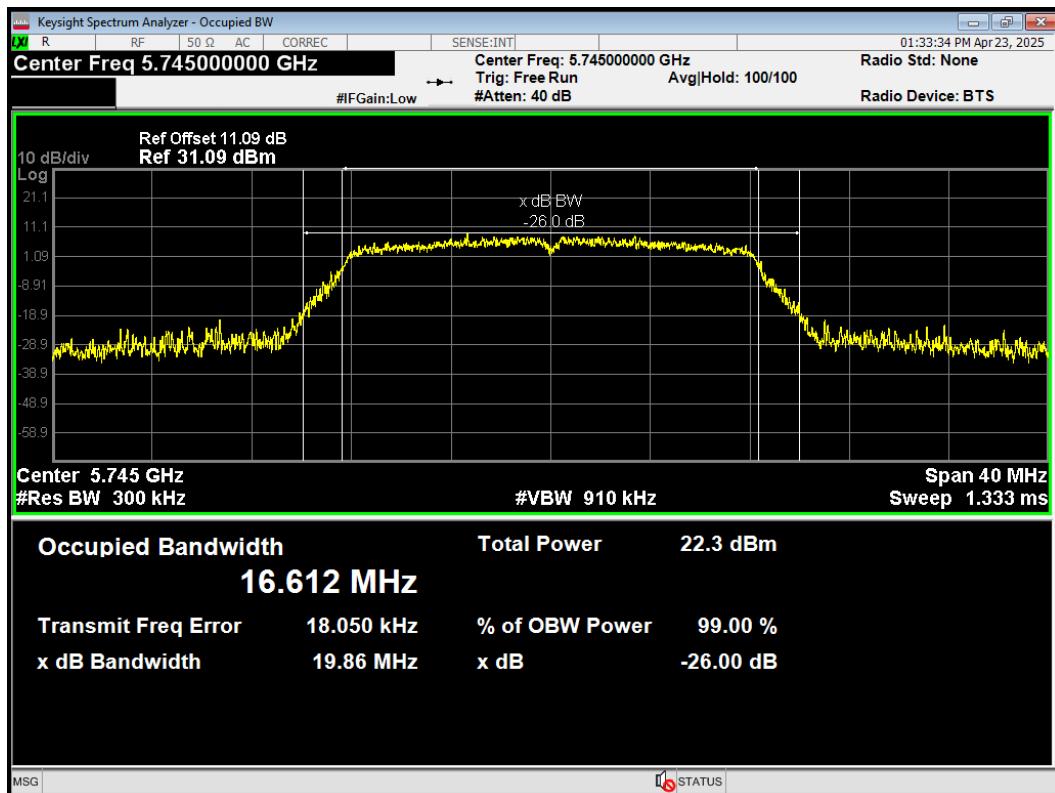


U-NII-3

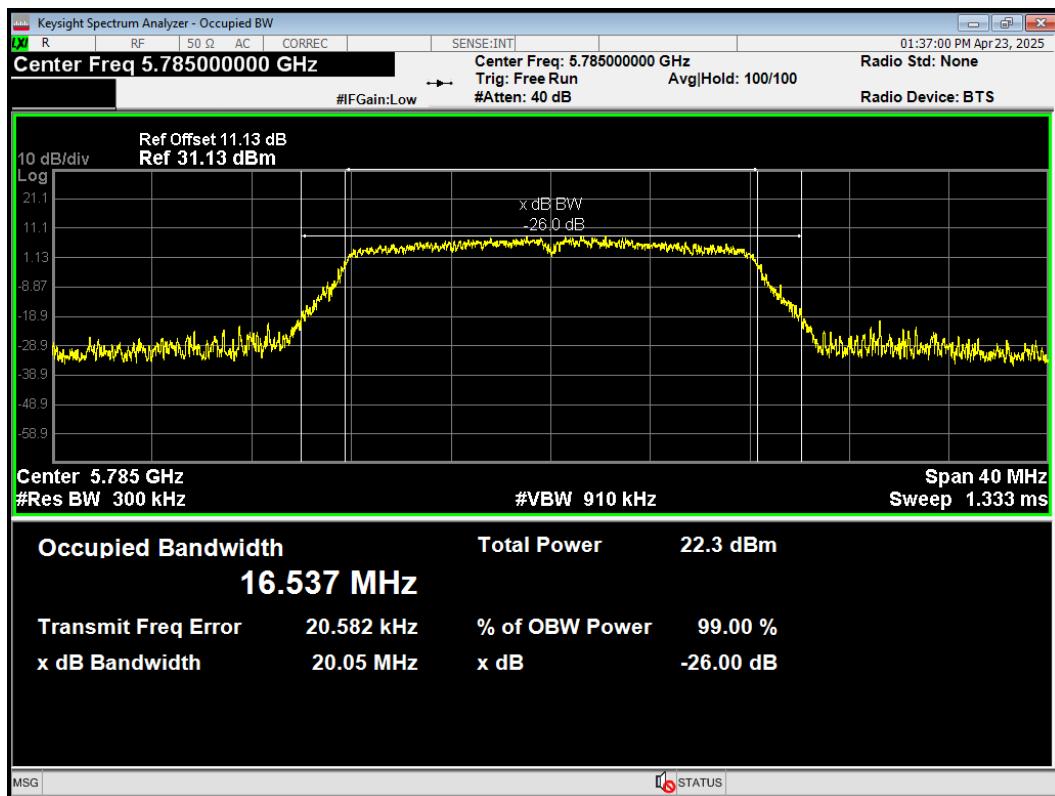
OBW 802.11a 5720MHz



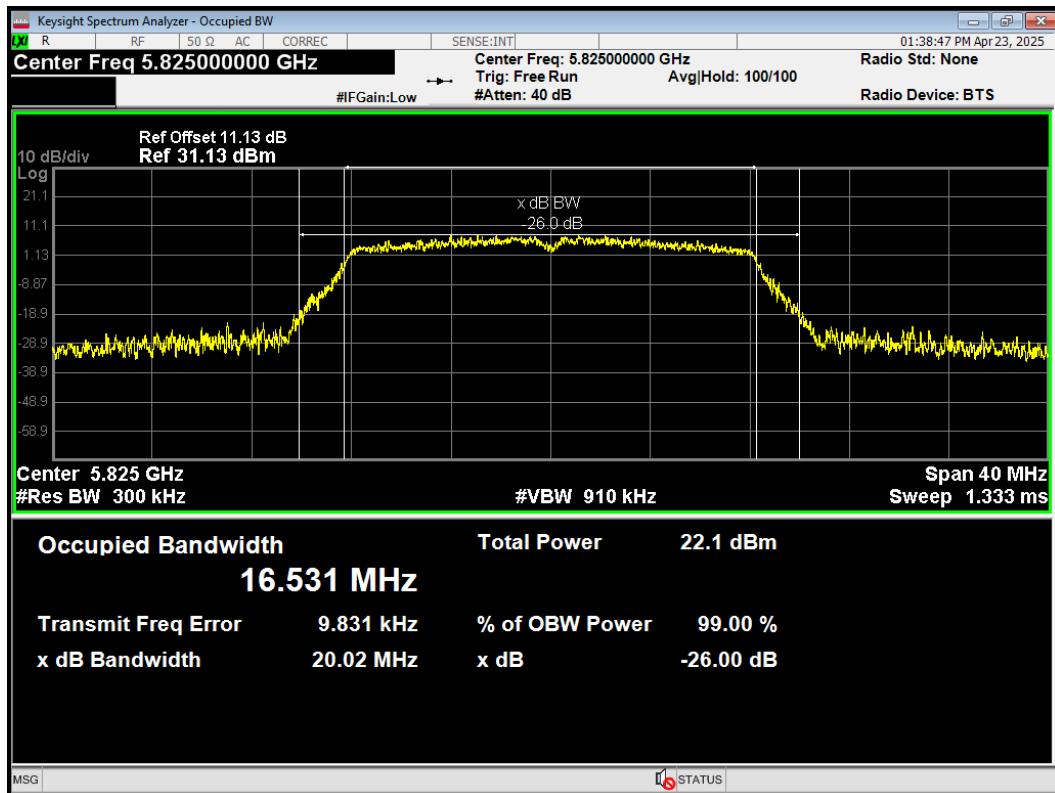
OBW 802.11a 5745MHz



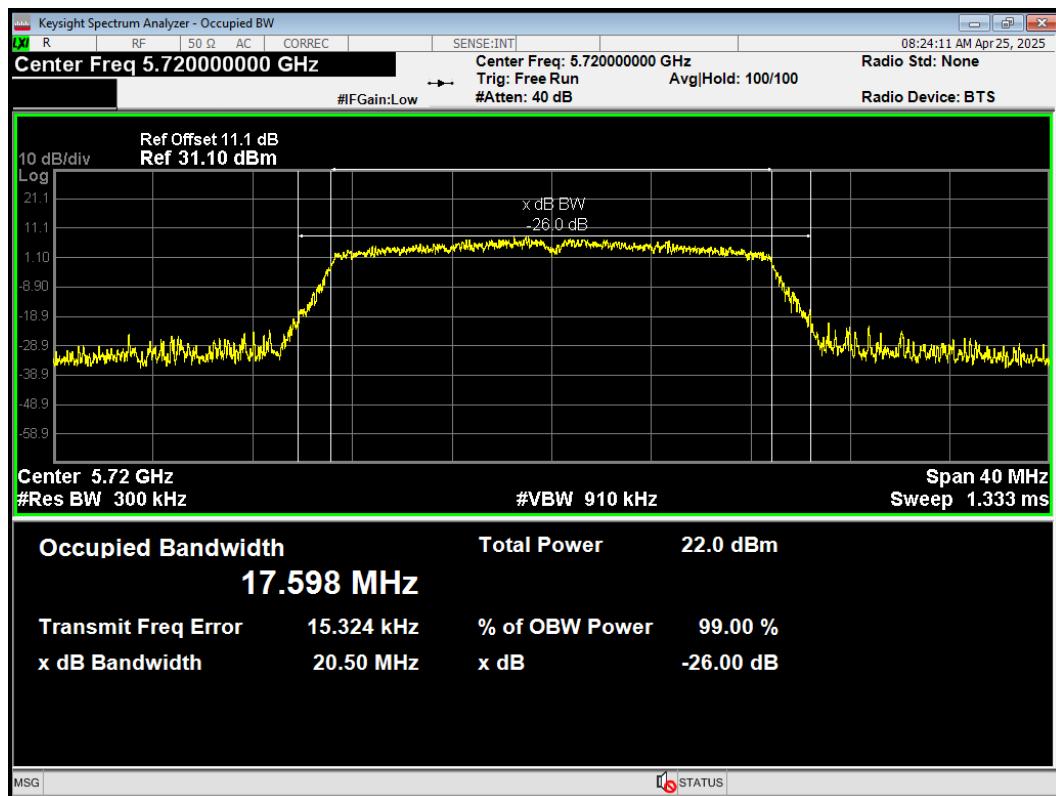
OBW 802.11a 5785MHz



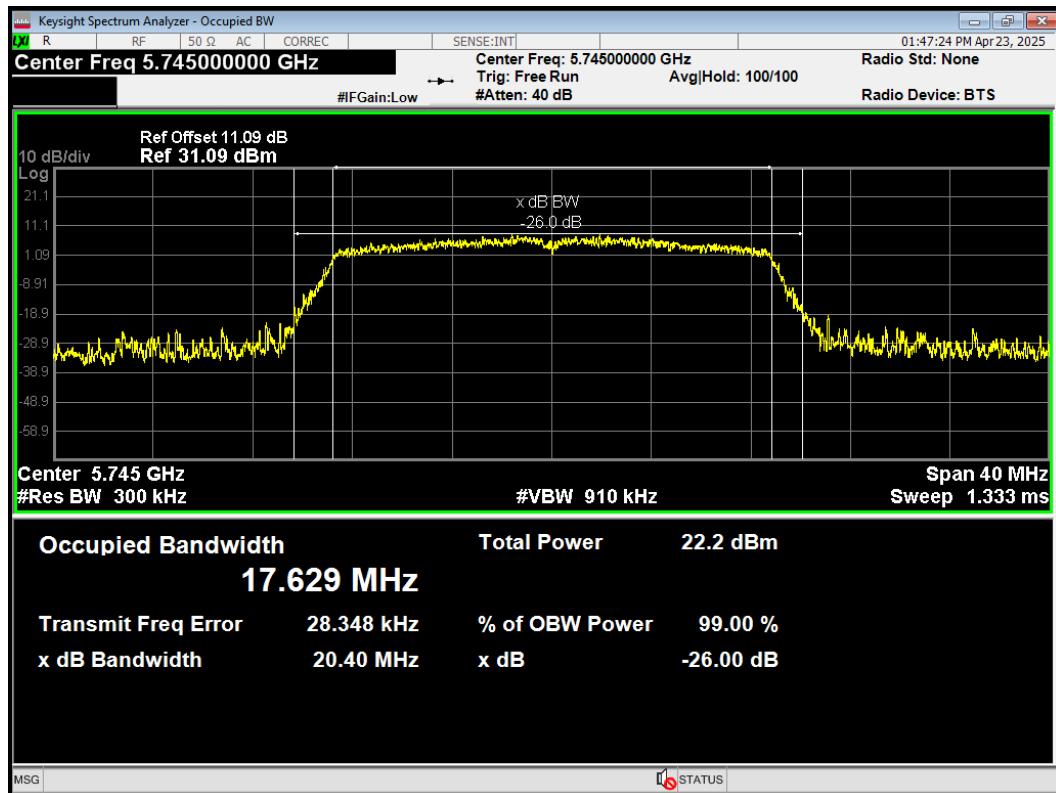
OBW 802.11a 5825MHz



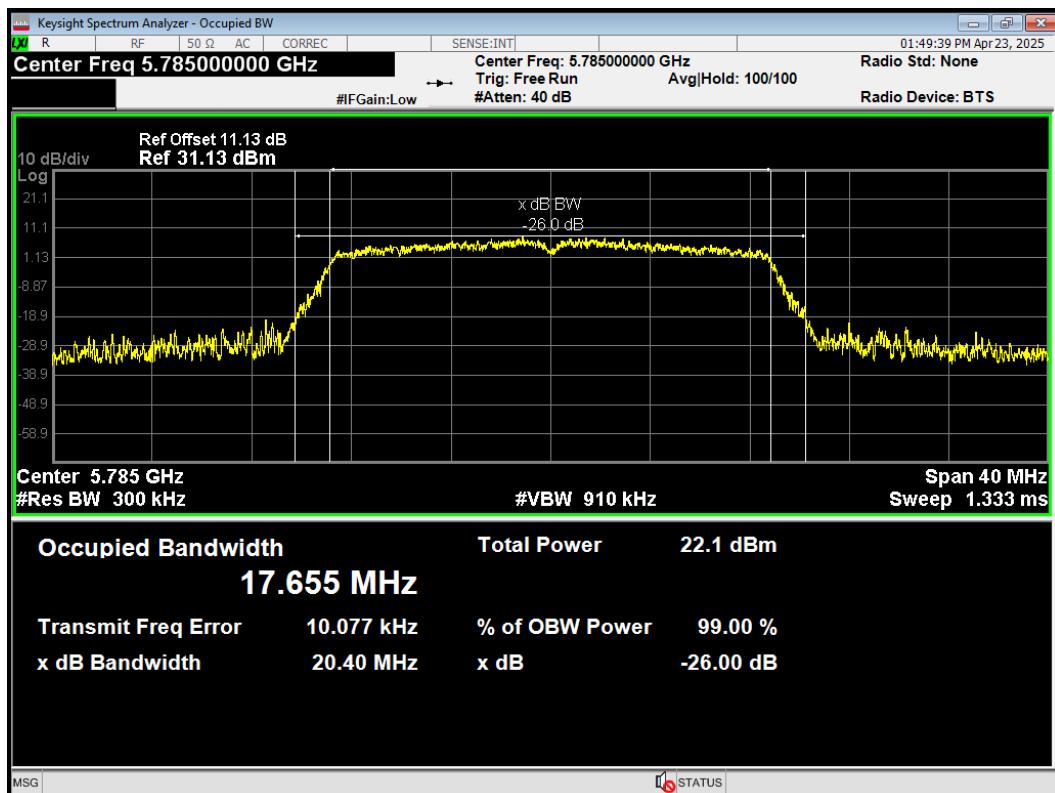
OBW 802.11ac(VHT20) 5720MHz



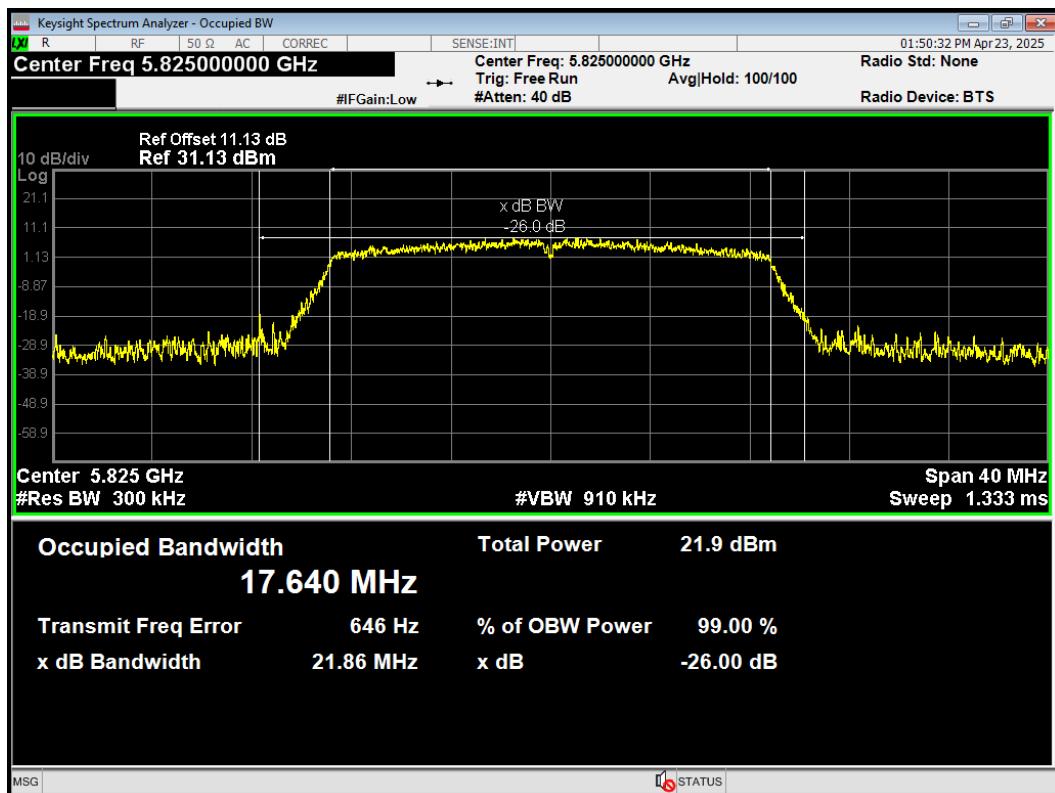
OBW 802.11ac(VHT20) 5745MHz



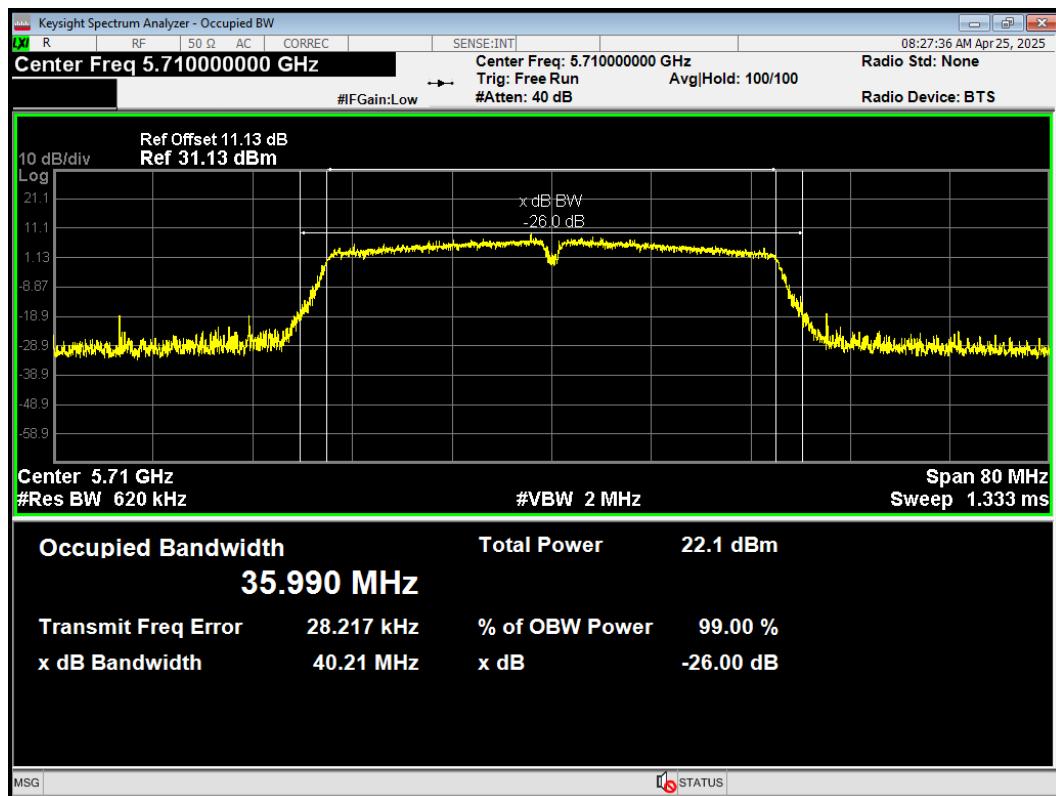
OBW 802.11ac(VHT20) 5785MHz



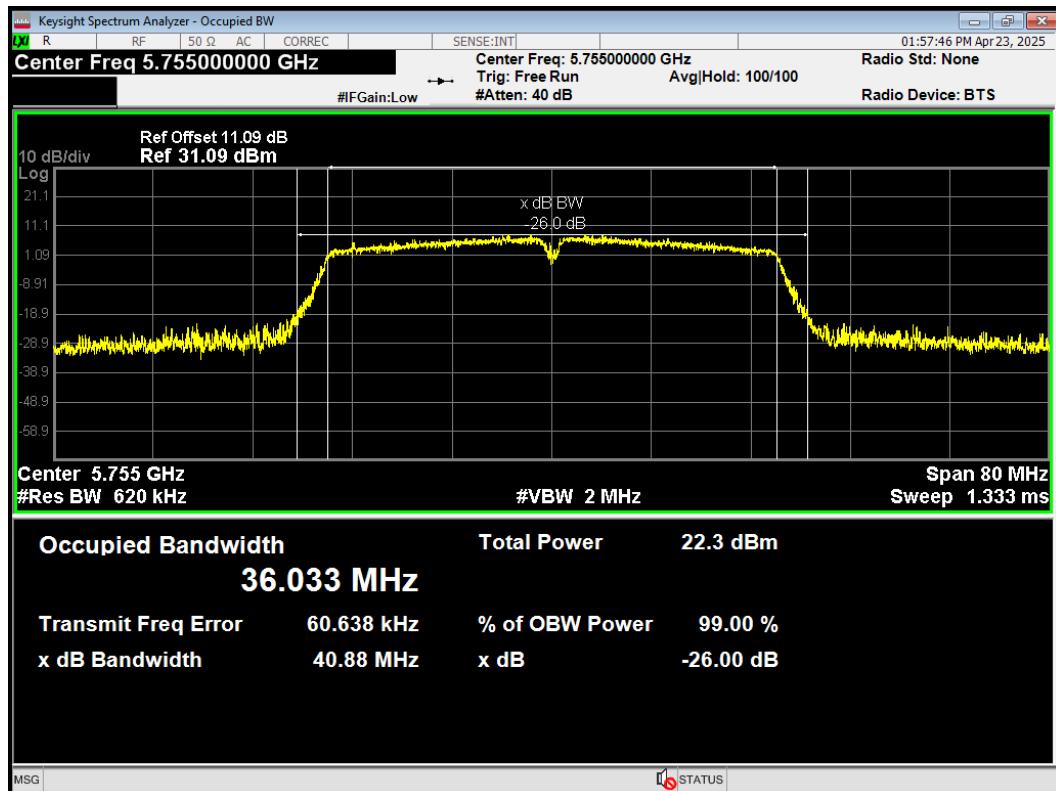
OBW 802.11ac(VHT20) 5825MHz

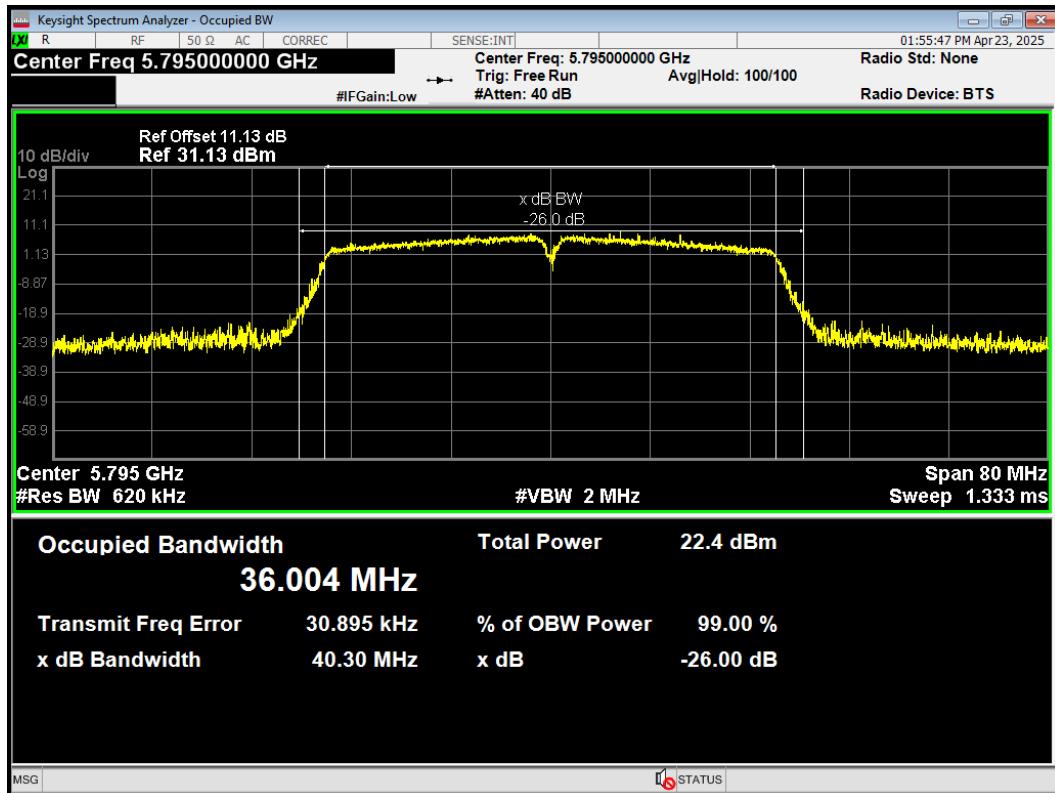
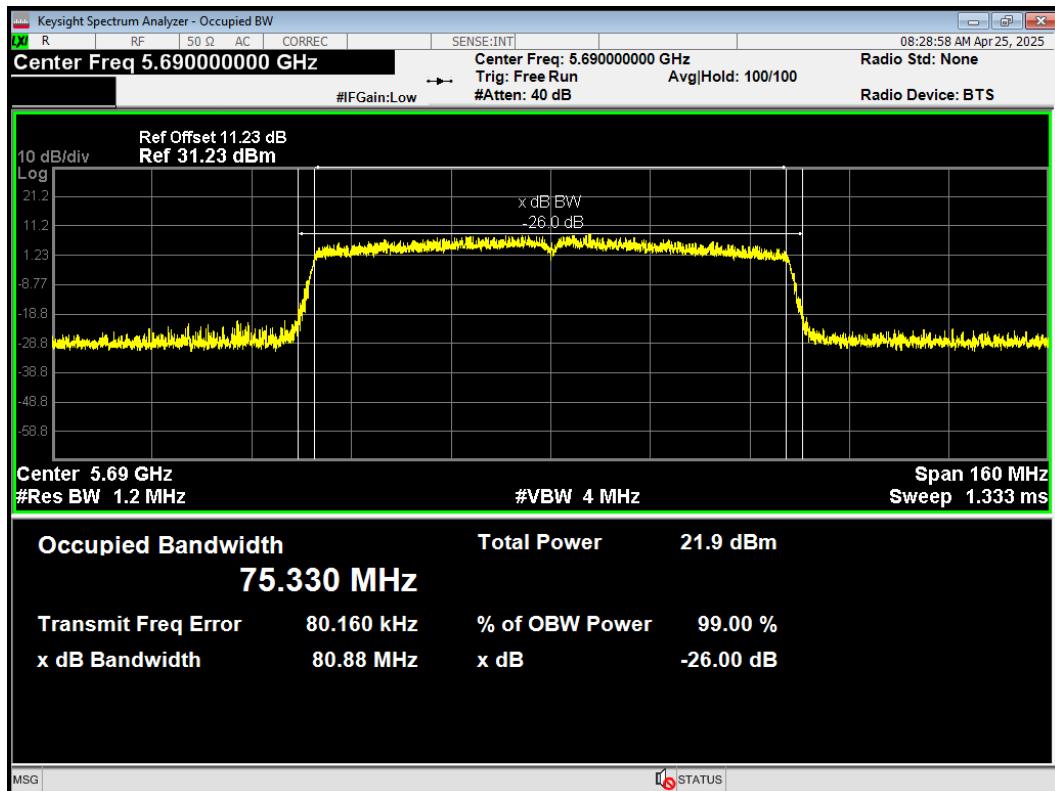


OBW 802.11ac(VHT40) 5710MHz

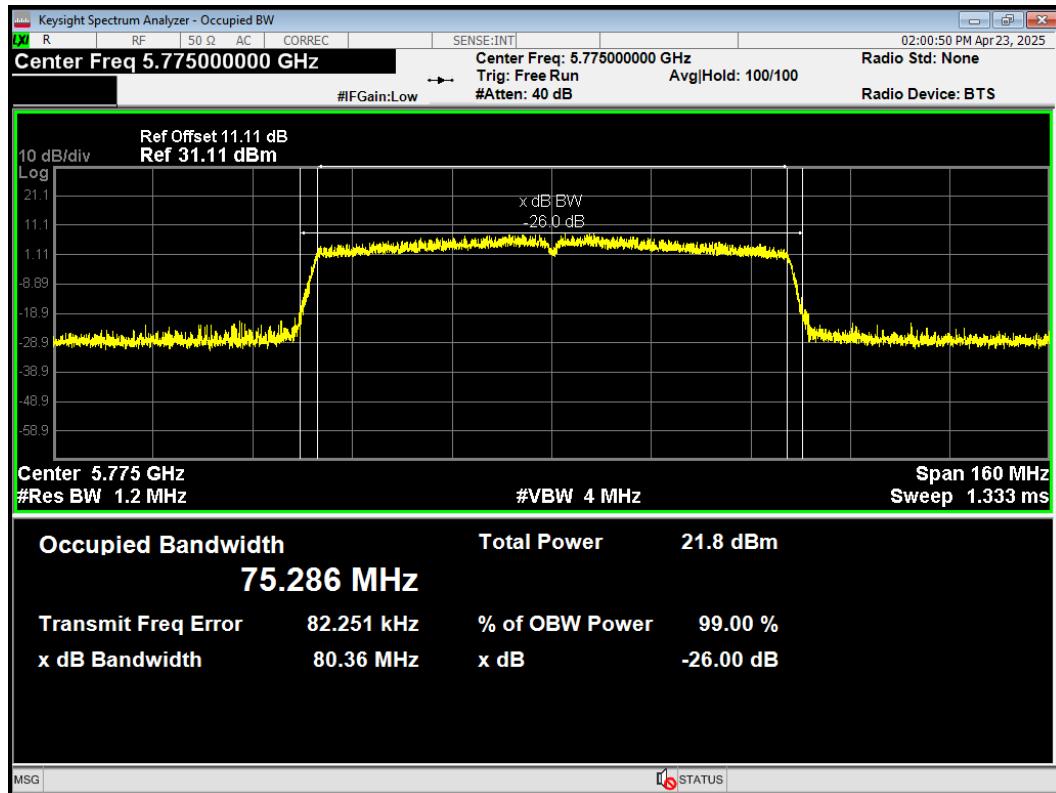


OBW 802.11ac(VHT40) 5755MHz

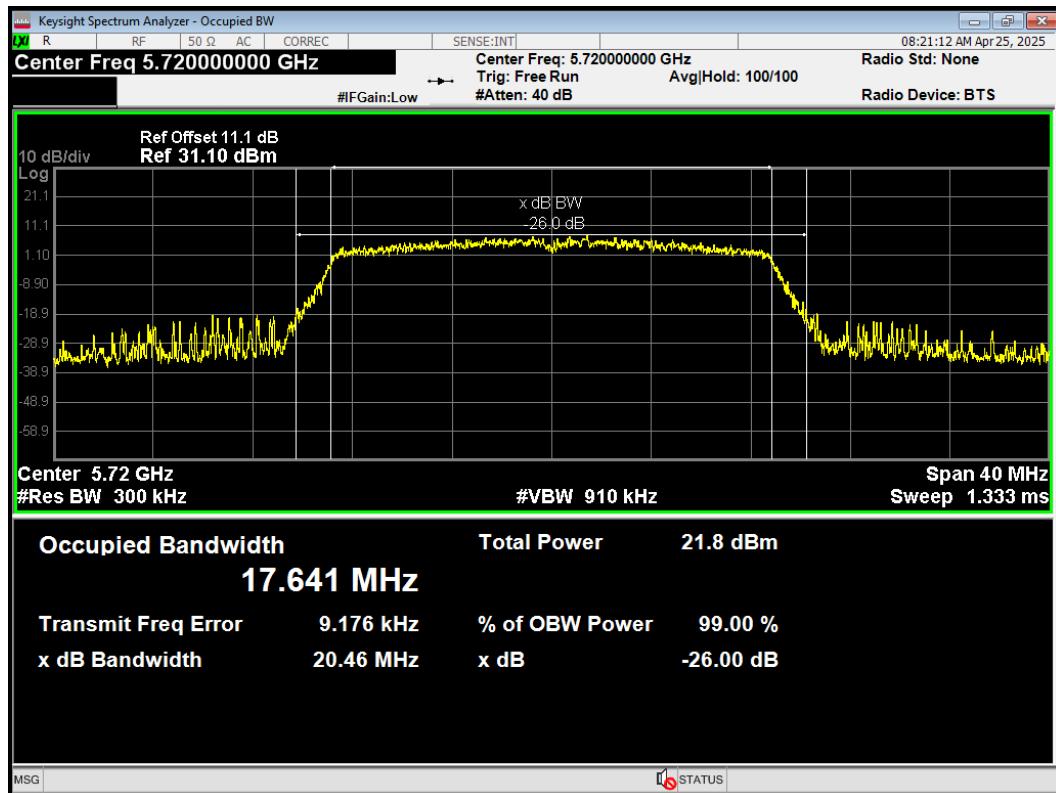


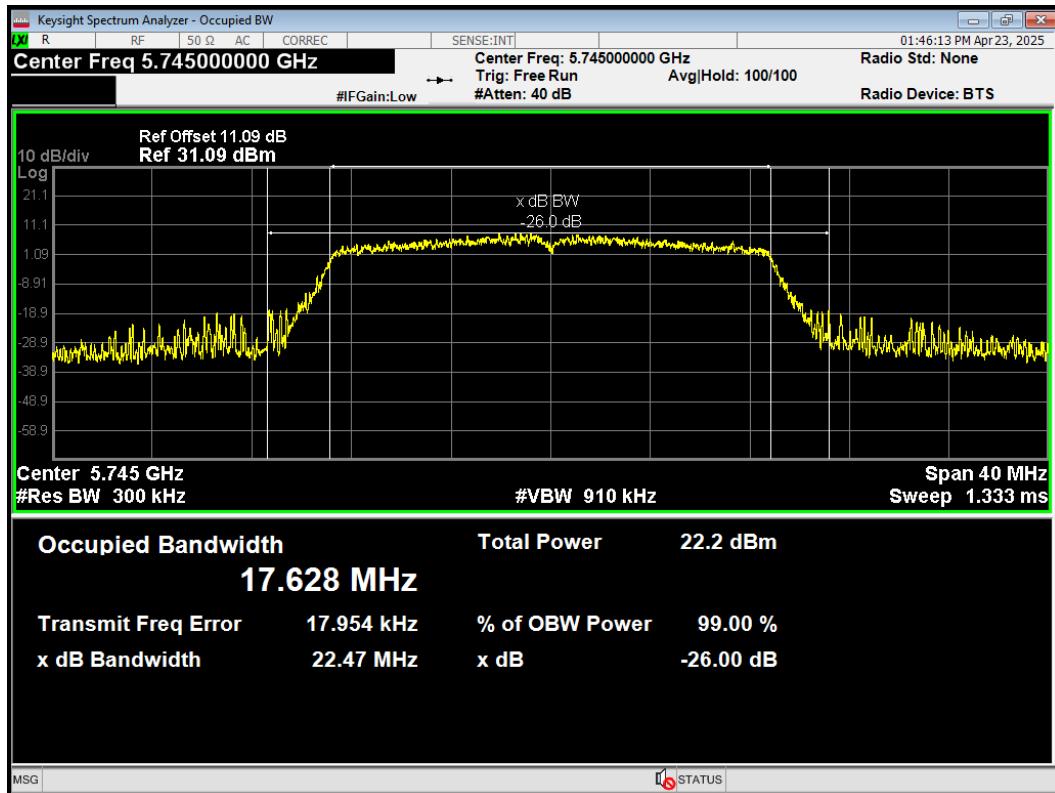
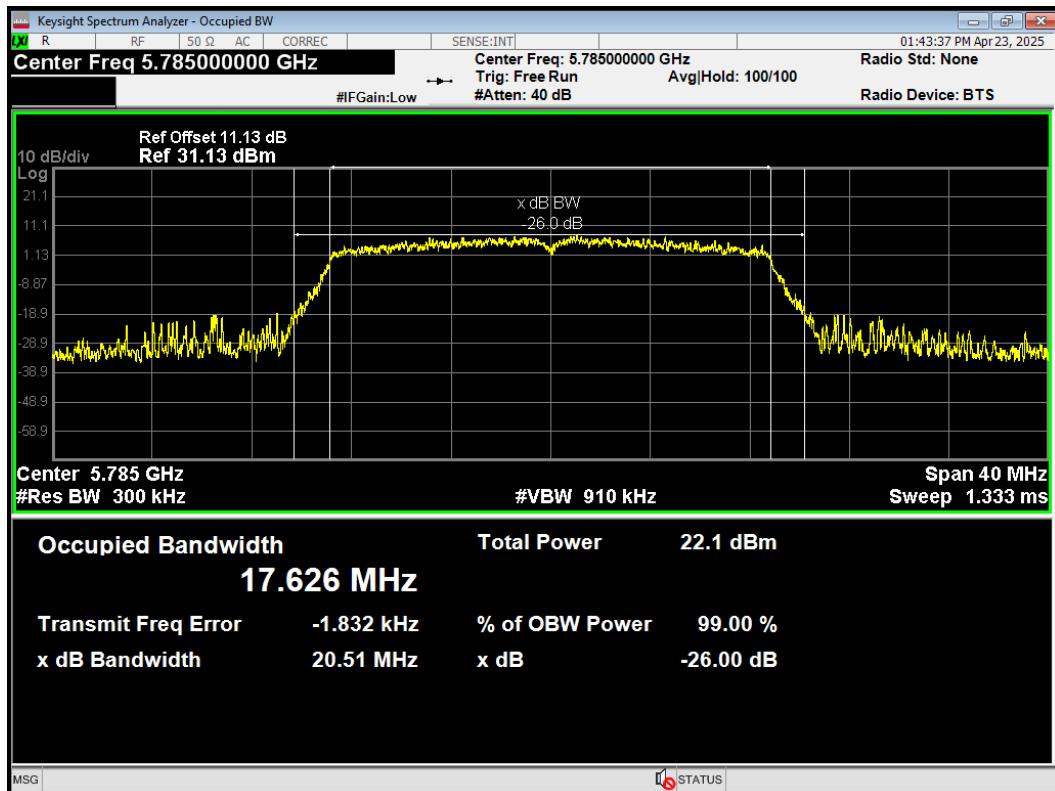
OBW 802.11ac(VHT40) 5795MHz

OBW 802.11ac(VHT80) 5690MHz


OBW 802.11ac(VHT80) 5775MHz

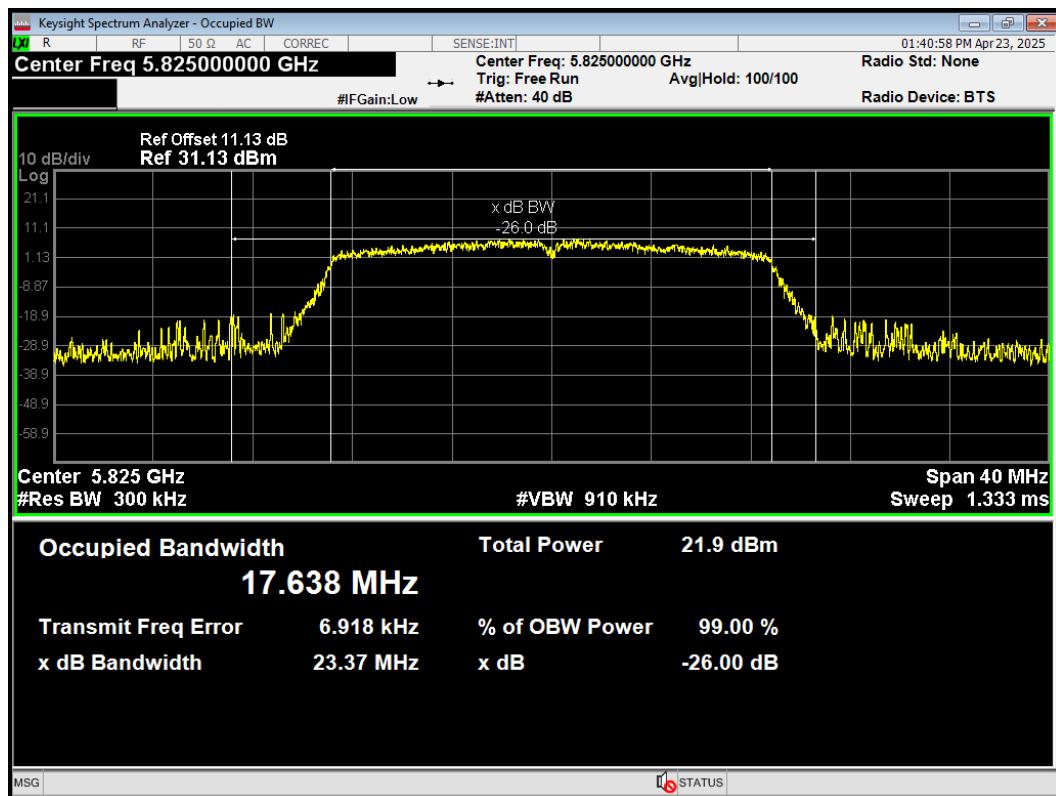


OBW 802.11n(HT20) 5720MHz

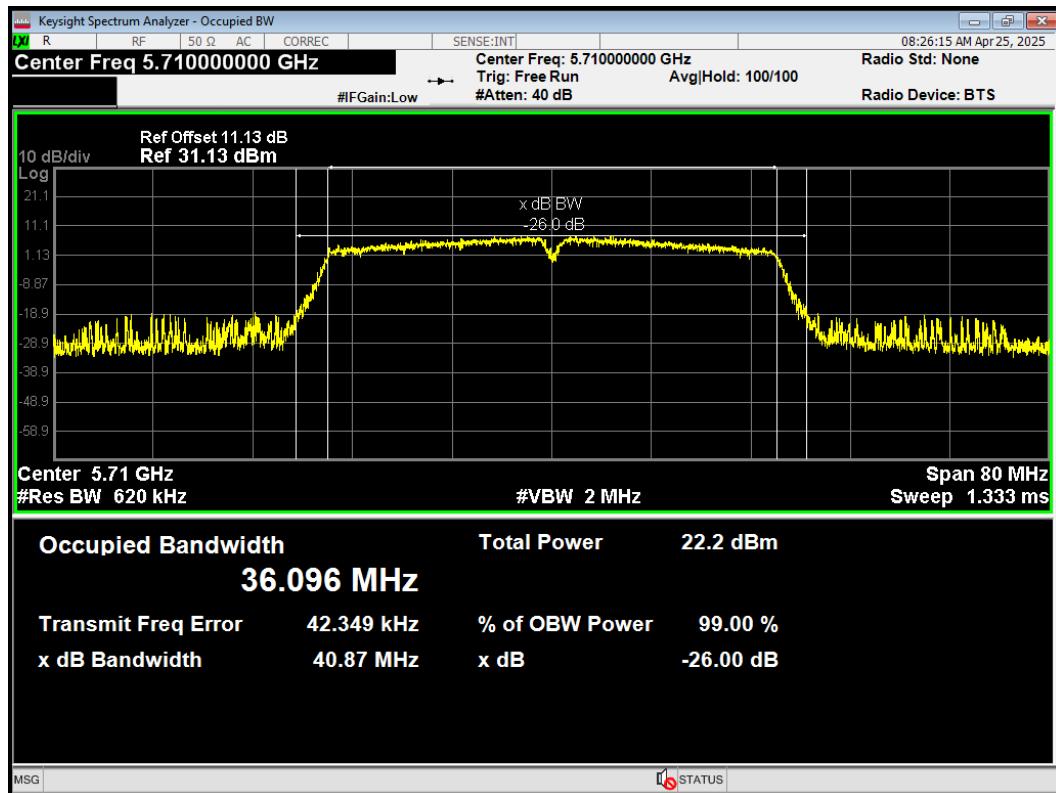


OBW 802.11n(HT20) 5745MHz

OBW 802.11n(HT20) 5785MHz


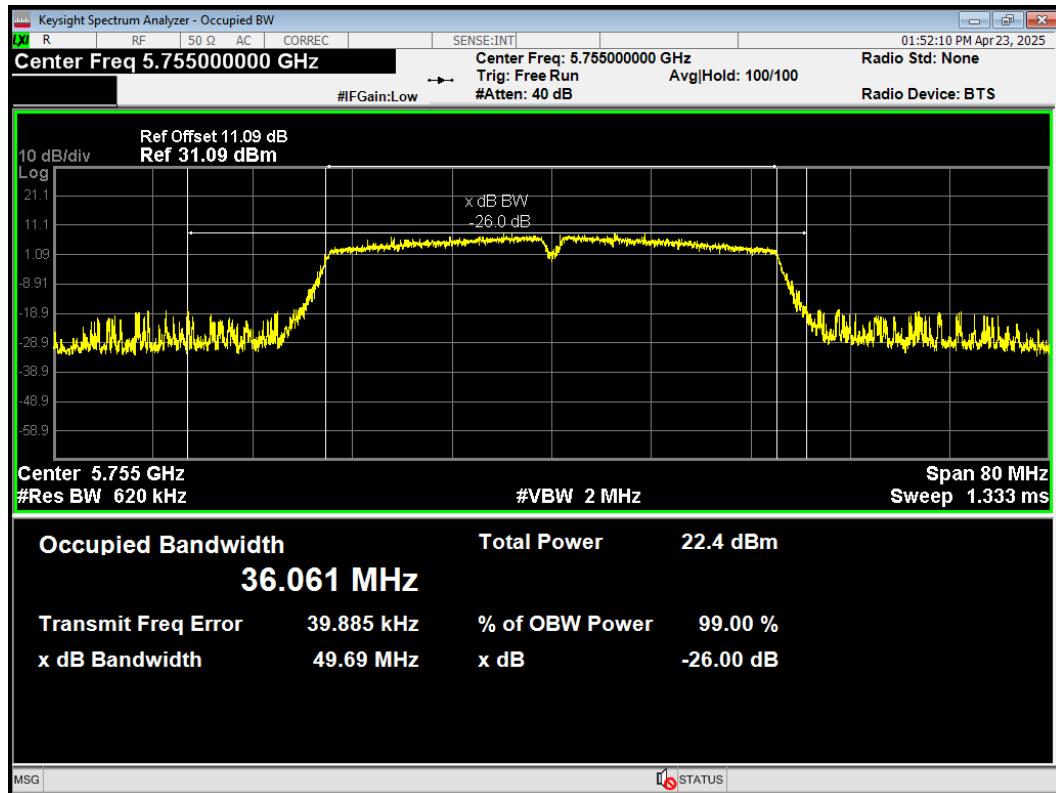
OBW 802.11n(HT20) 5825MHz



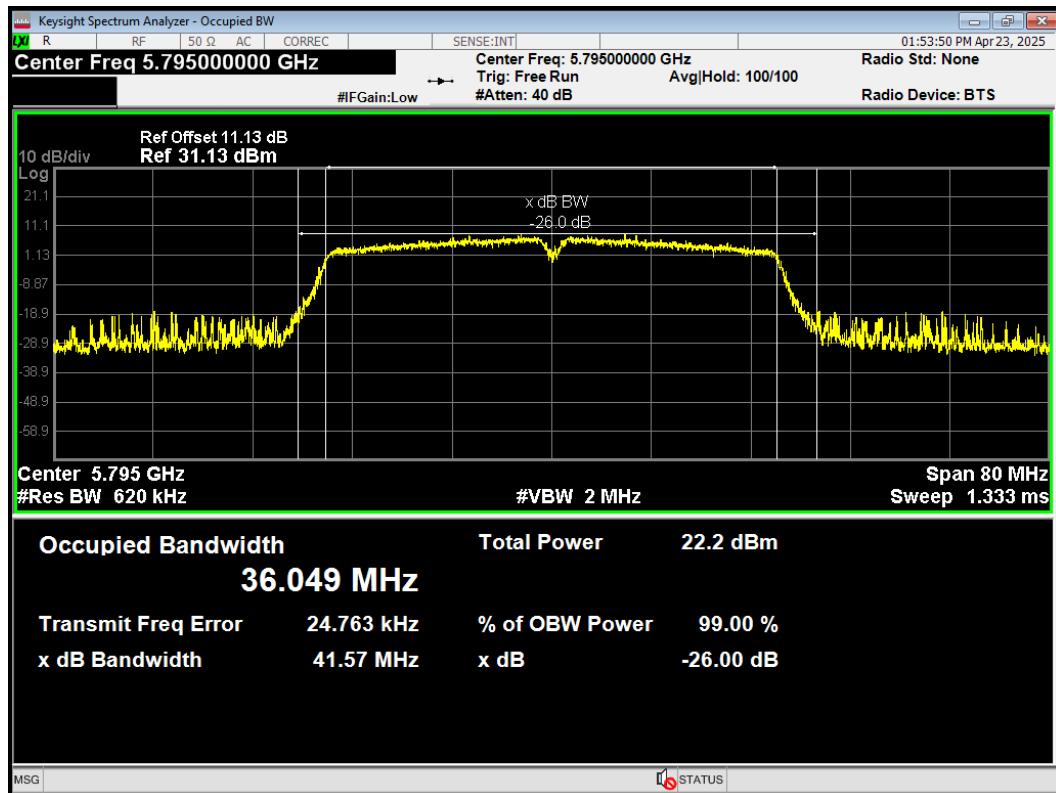
OBW 802.11n(HT40) 5710MHz



OBW 802.11n(HT40) 5755MHz



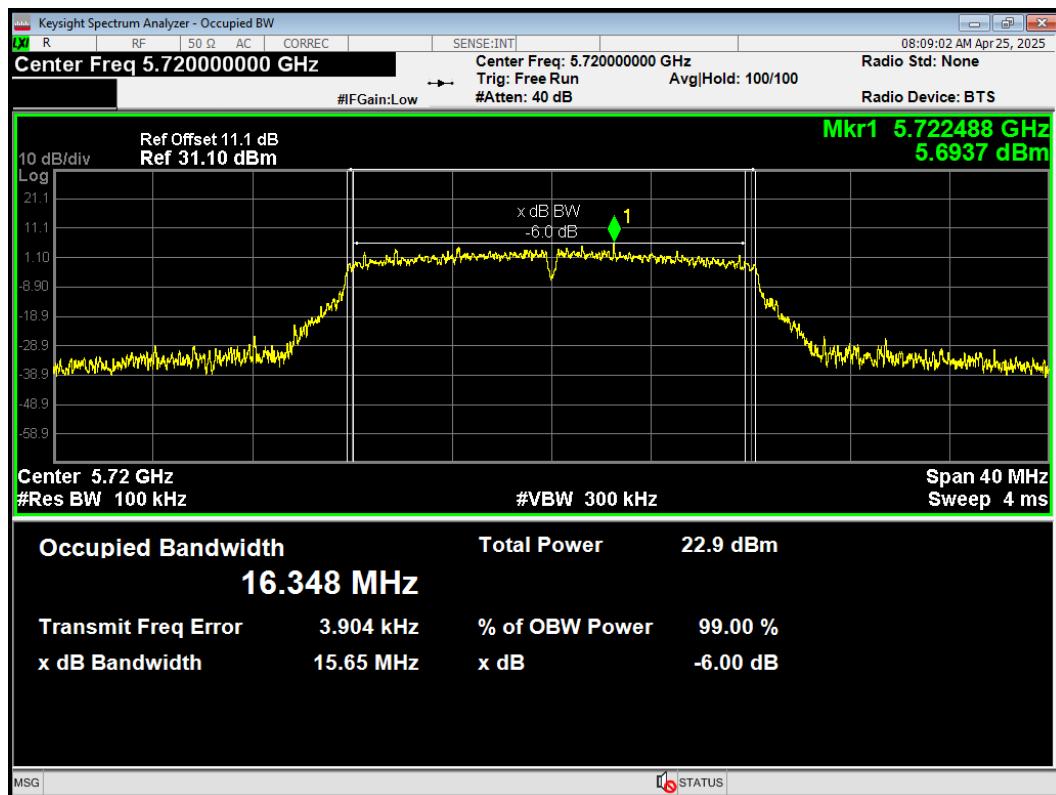
OBW 802.11n(HT40) 5795MHz



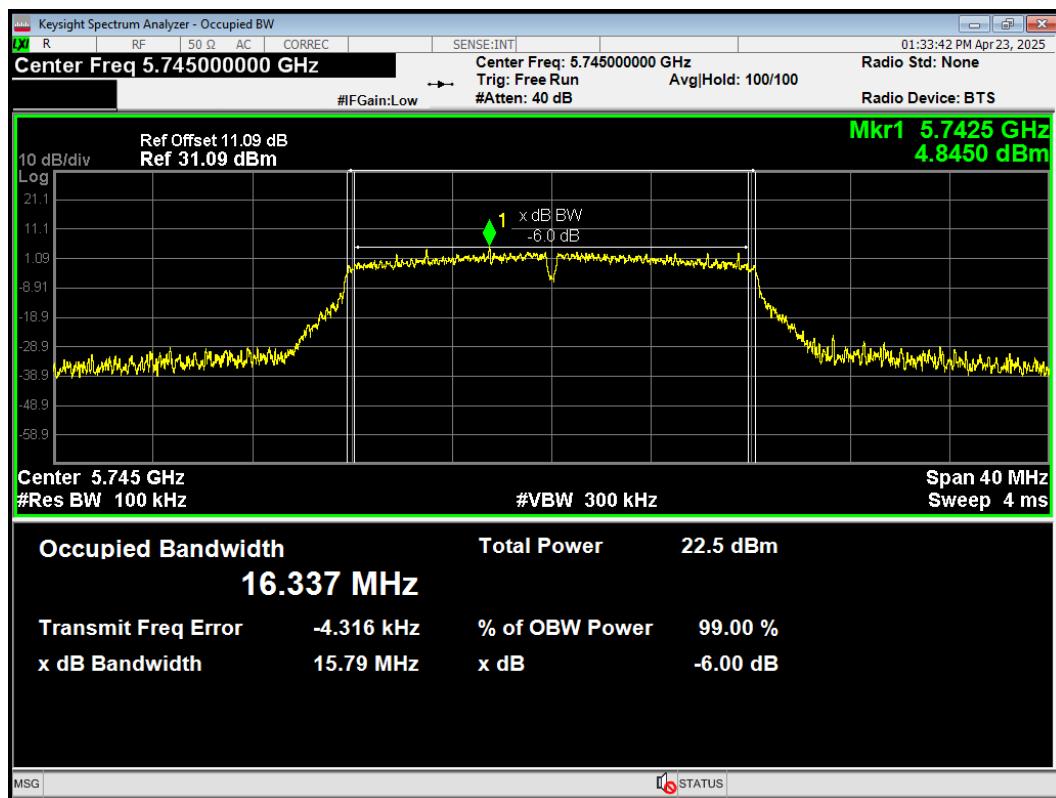
Minimum 6 dB bandwidth

U-NII-3

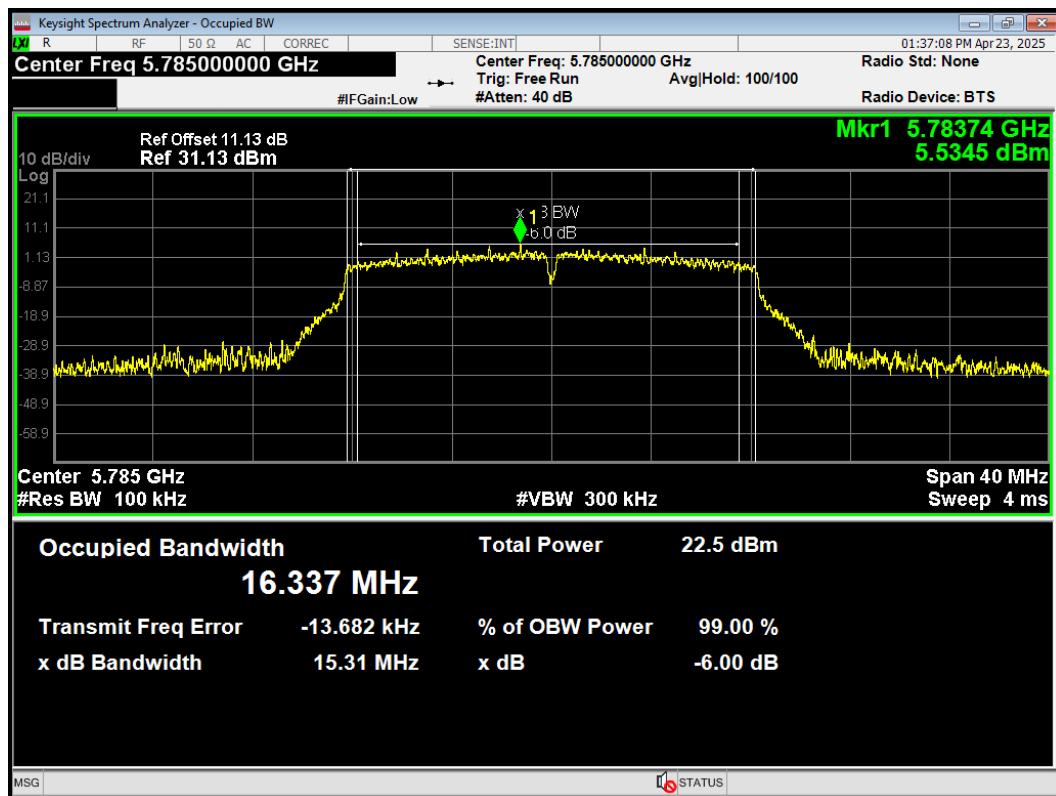
-6dB Bandwidth 802.11a 5720MHz



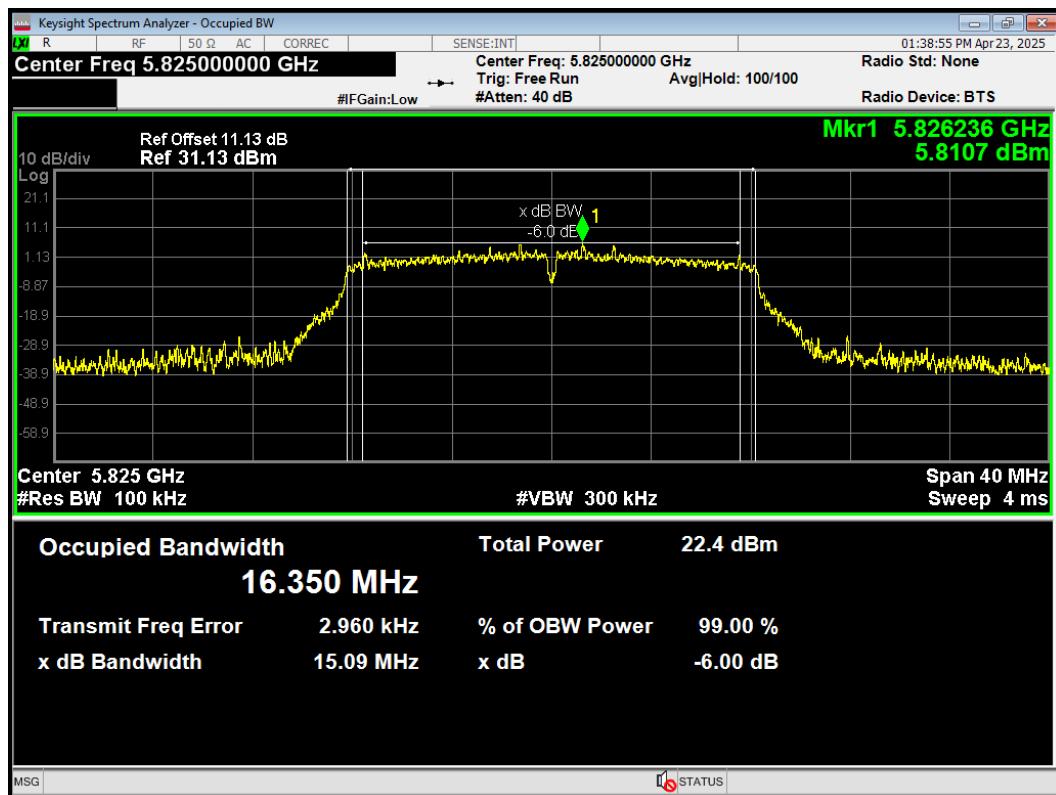
-6dB Bandwidth 802.11a 5745MHz



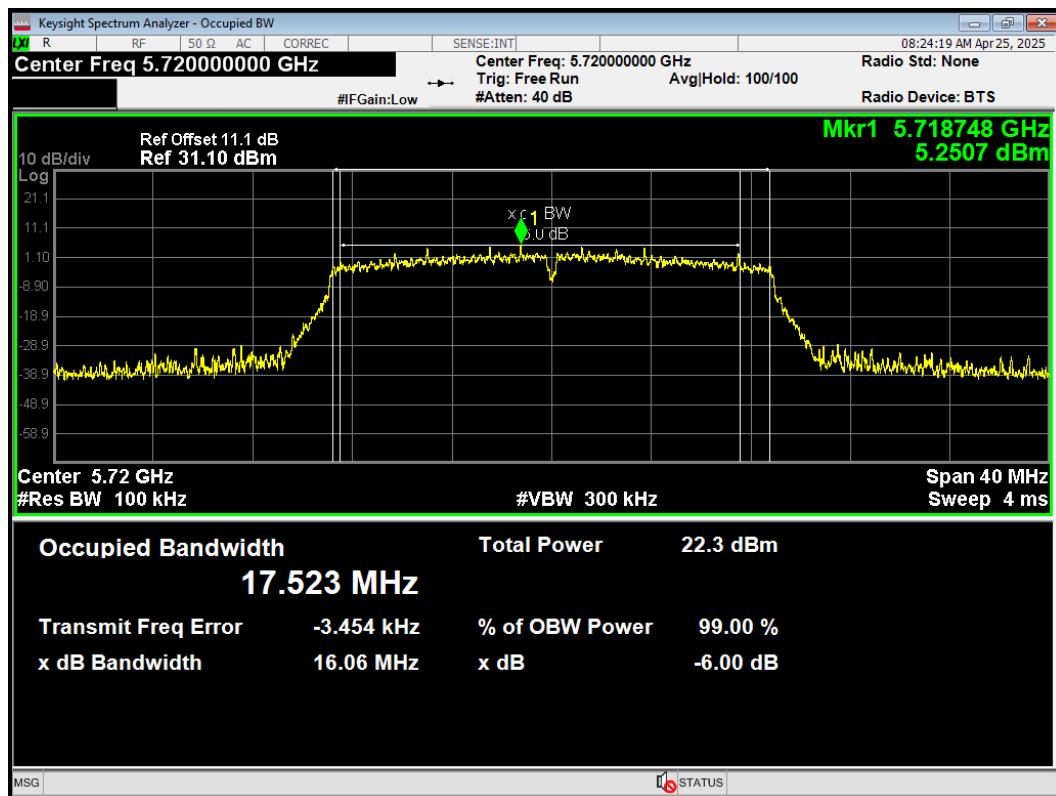
-6dB Bandwidth 802.11a 5785MHz



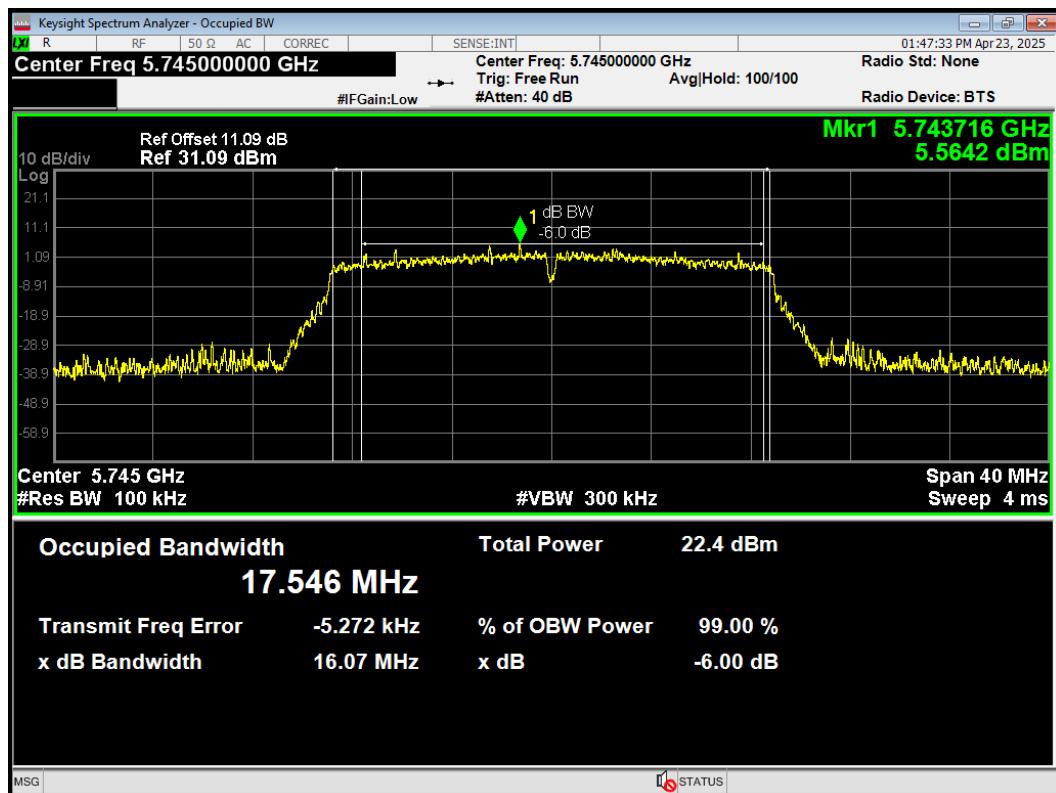
-6dB Bandwidth 802.11a 5825MHz

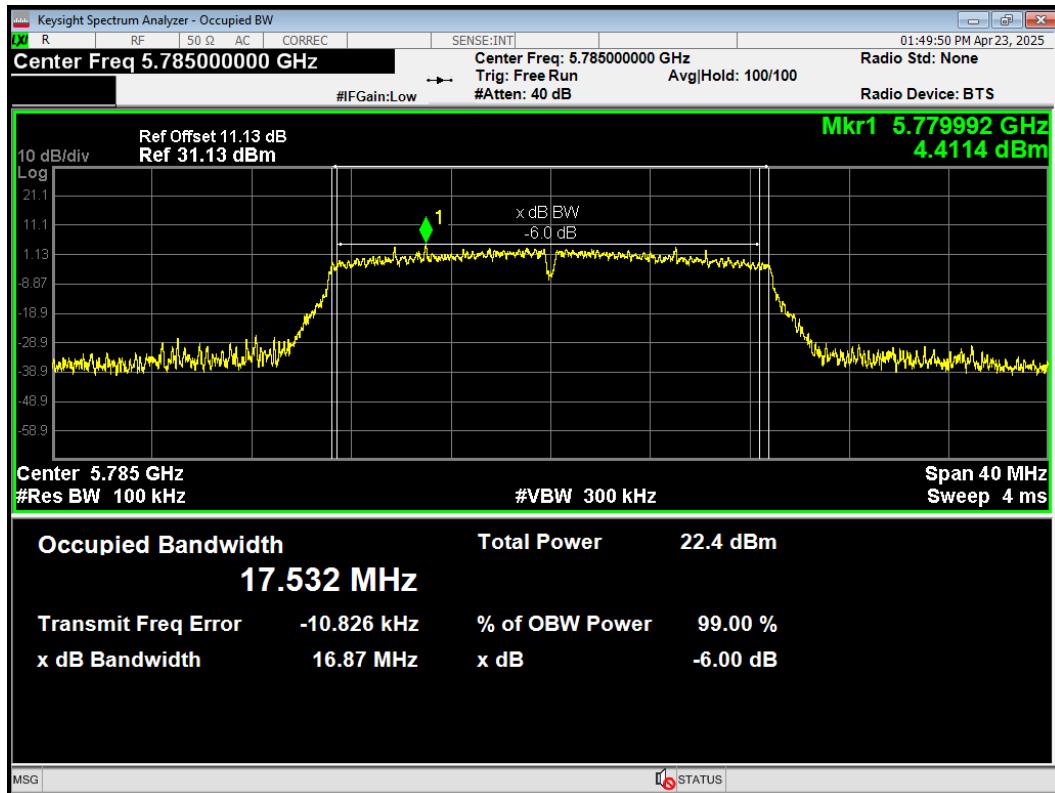
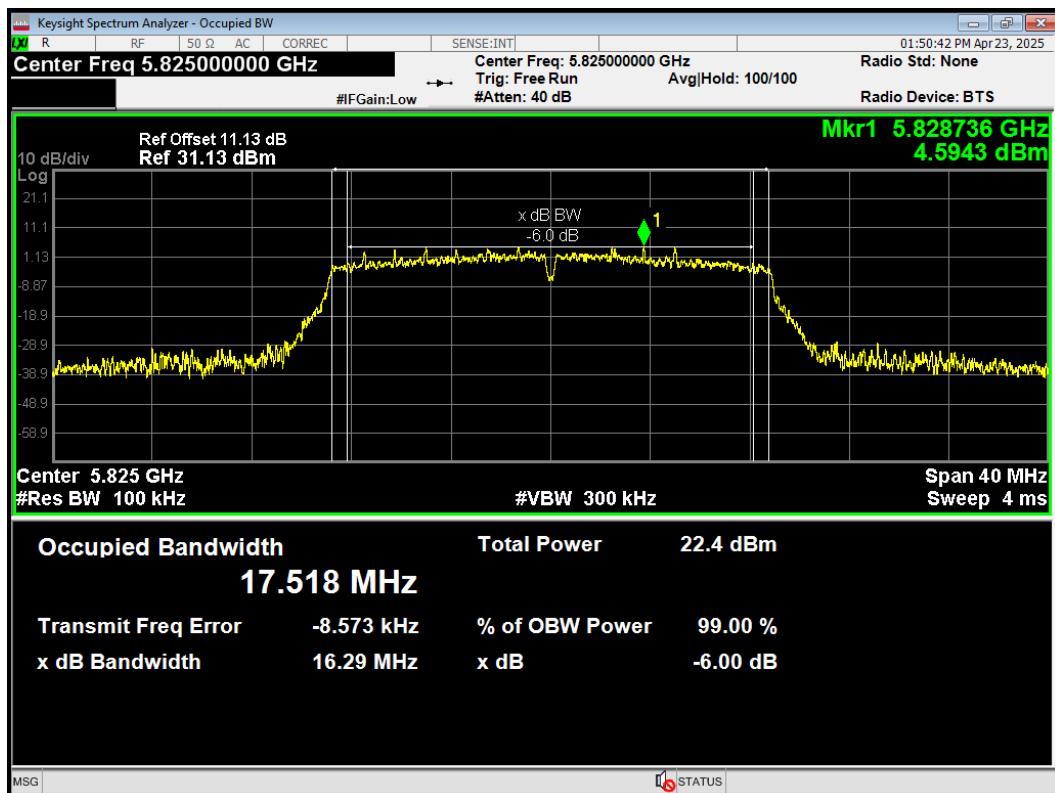


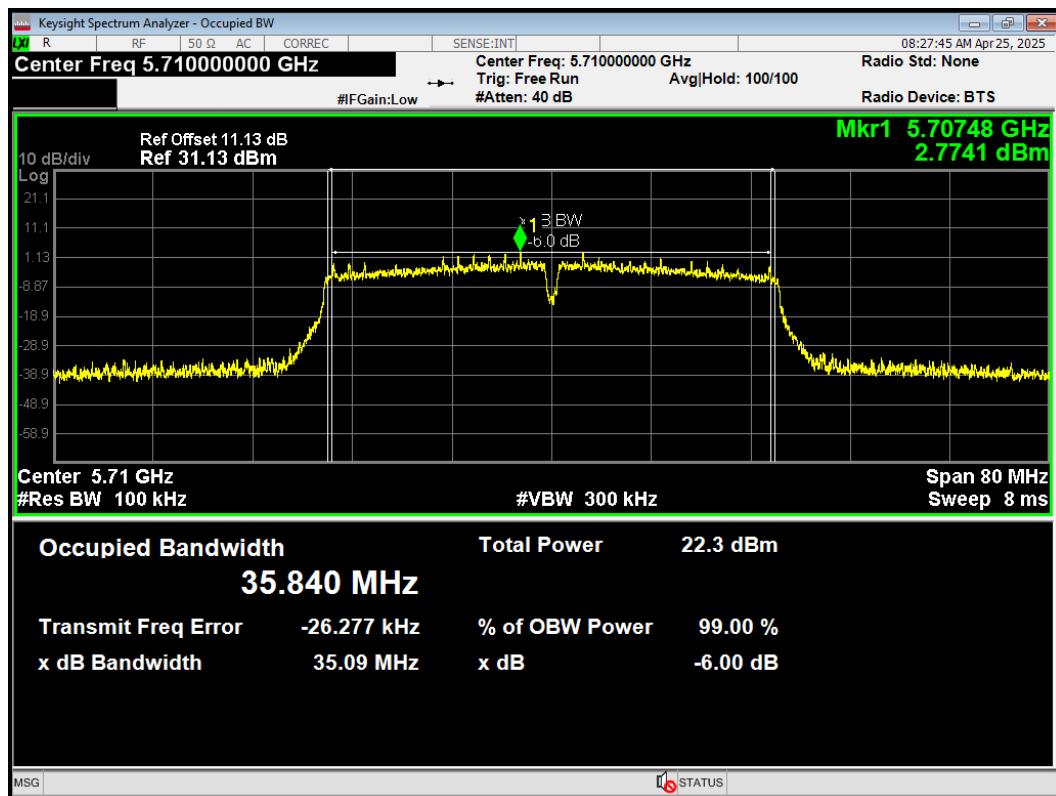
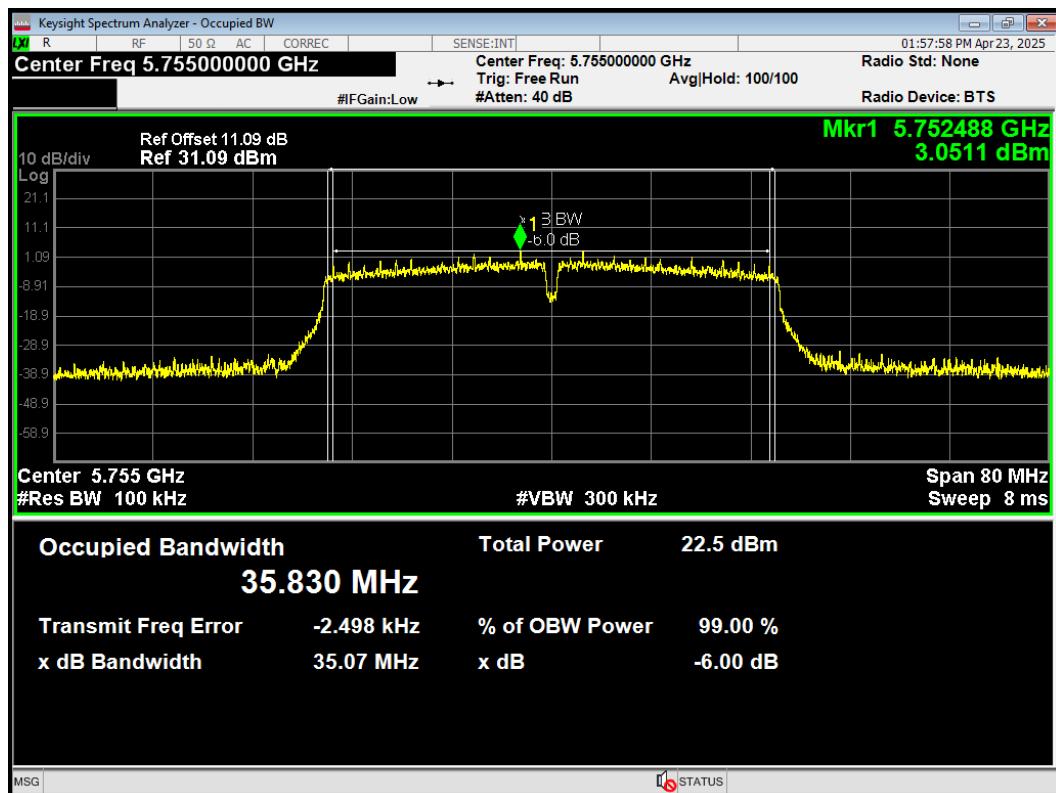
-6dB Bandwidth 802.11ac(VHT20) 5720MHz



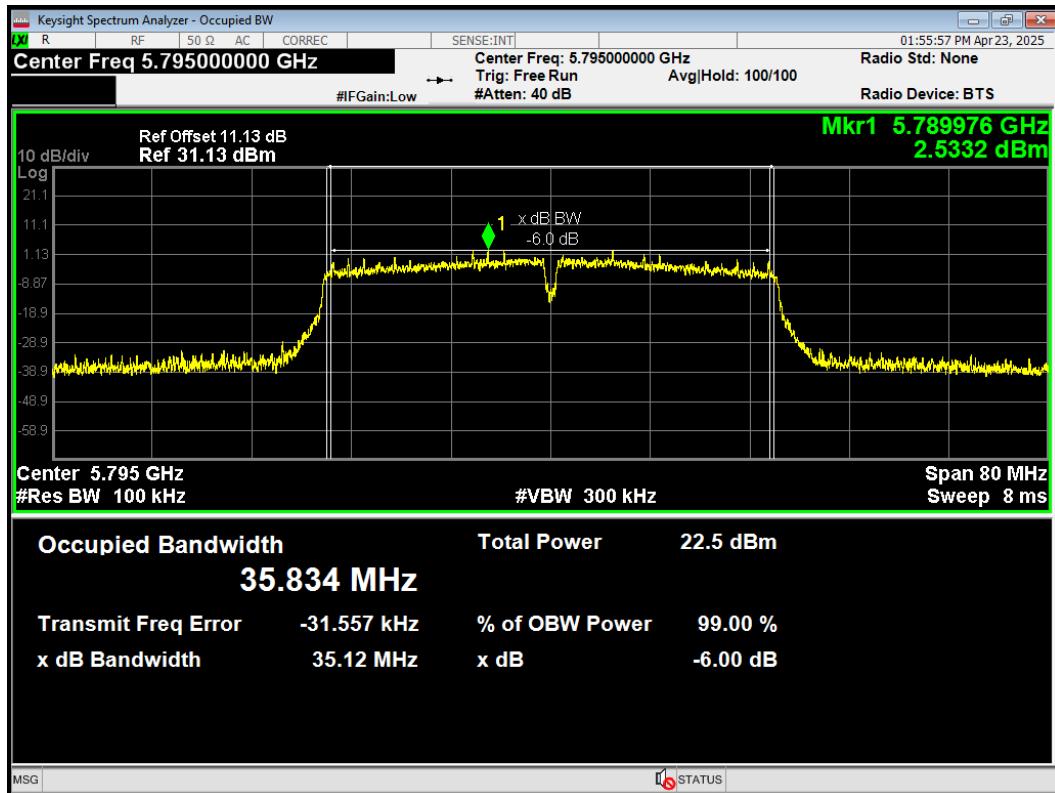
-6dB Bandwidth 802.11ac(VHT20) 5745MHz



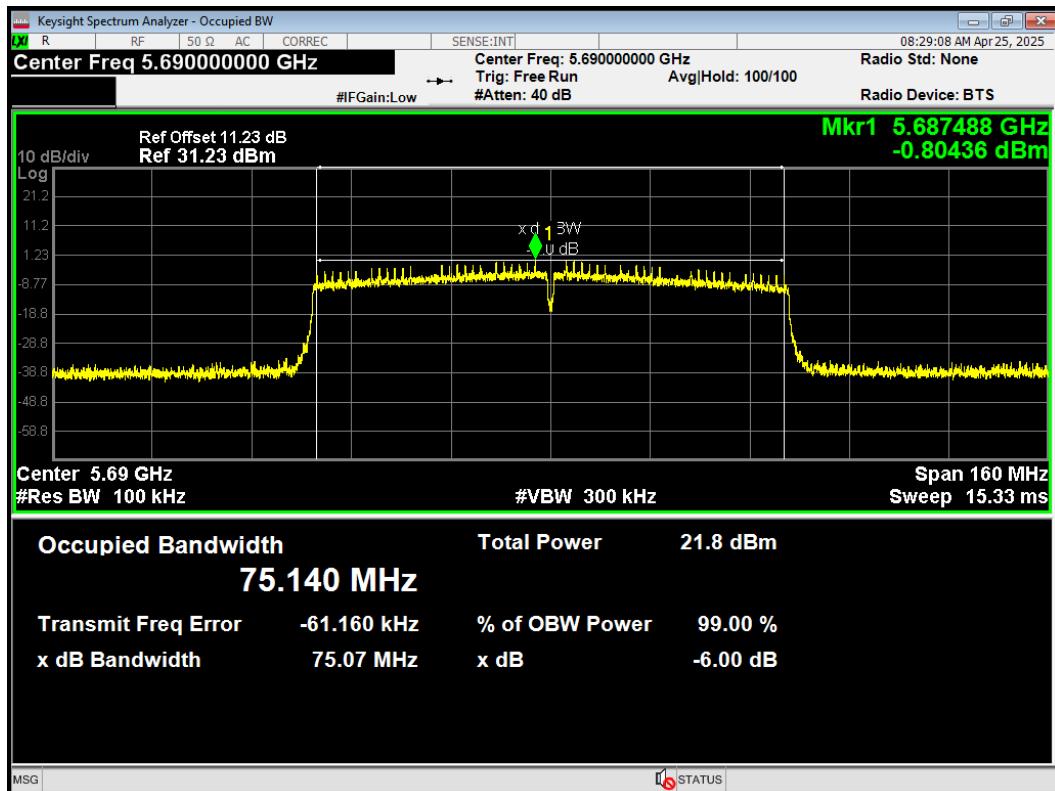
-6dB Bandwidth 802.11ac(VHT20) 5785MHz

-6dB Bandwidth 802.11ac(VHT20) 5825MHz


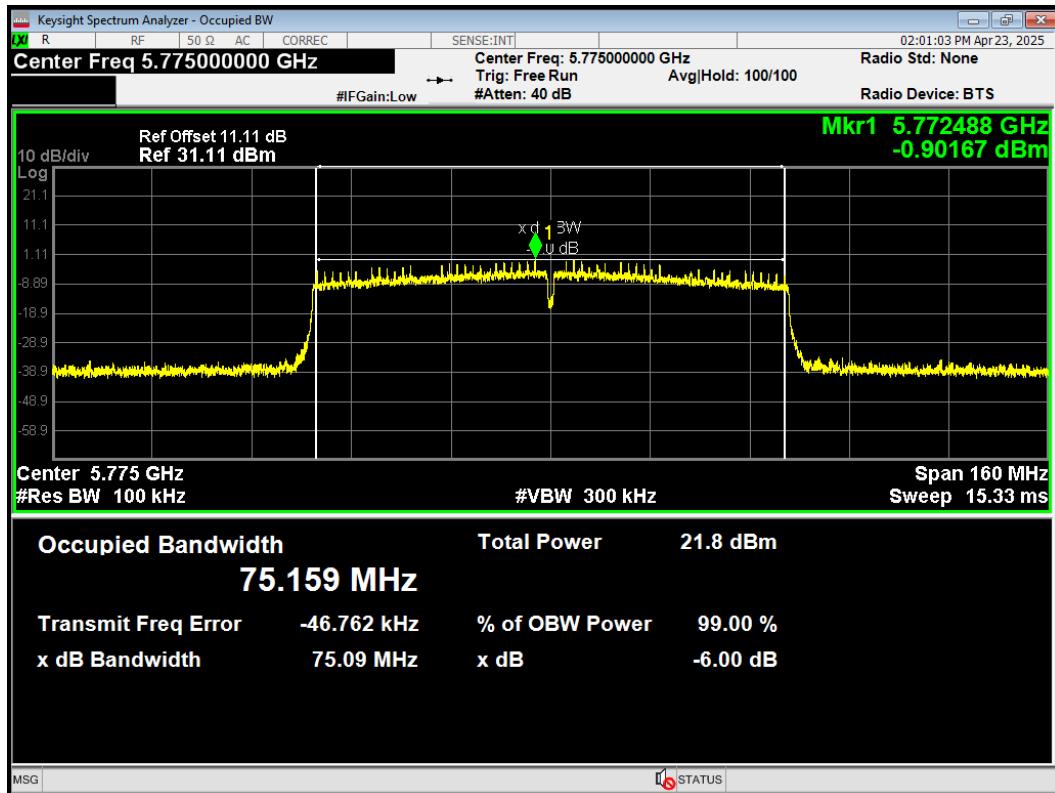
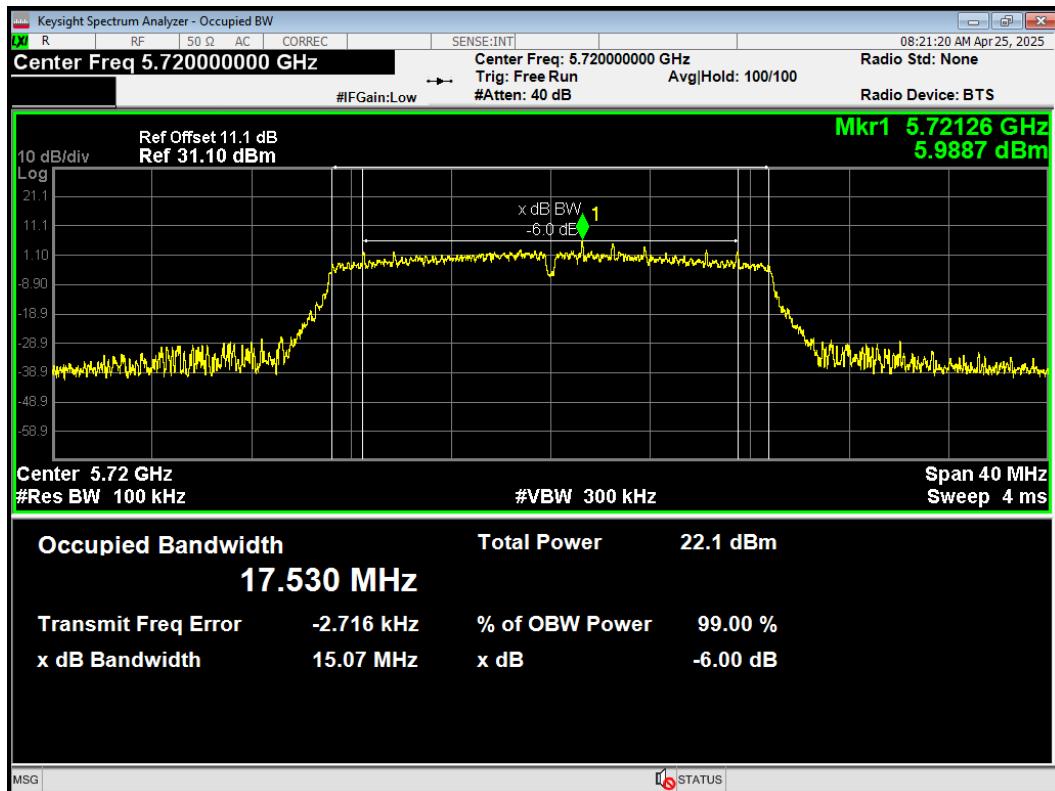
-6dB Bandwidth 802.11ac(VHT40) 5710MHz

-6dB Bandwidth 802.11ac(VHT40) 5755MHz


-6dB Bandwidth 802.11ac(VHT40) 5795MHz

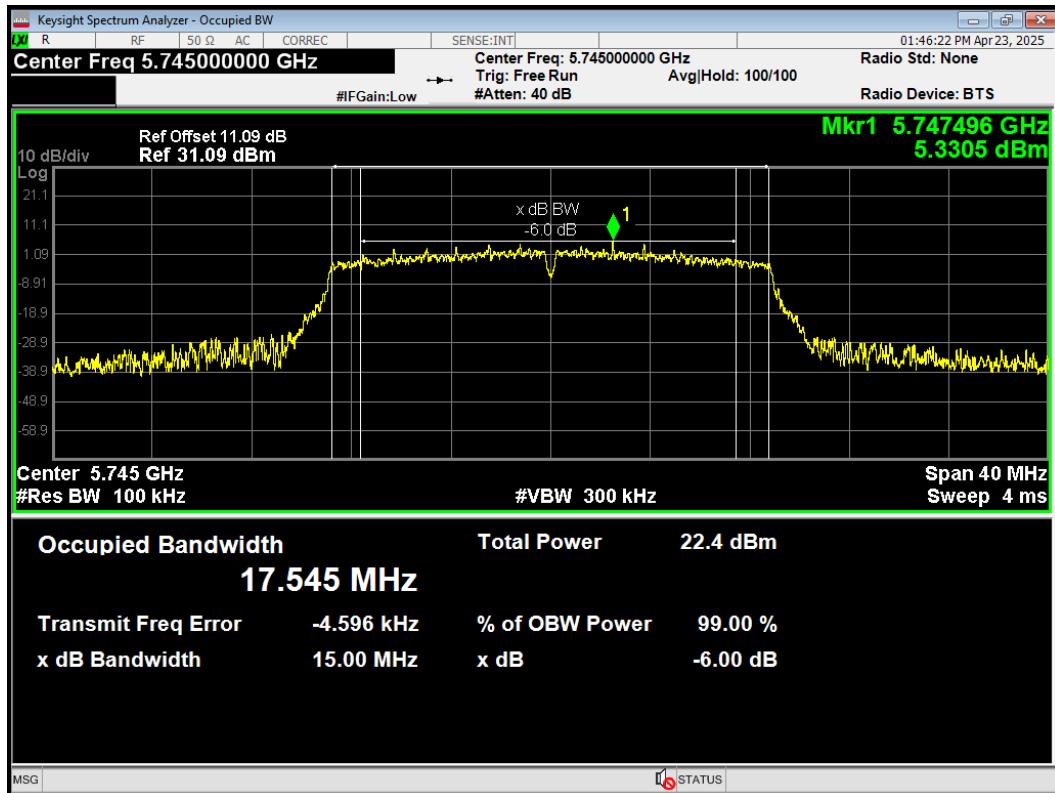


-6dB Bandwidth 802.11ac(VHT80) 5690MHz

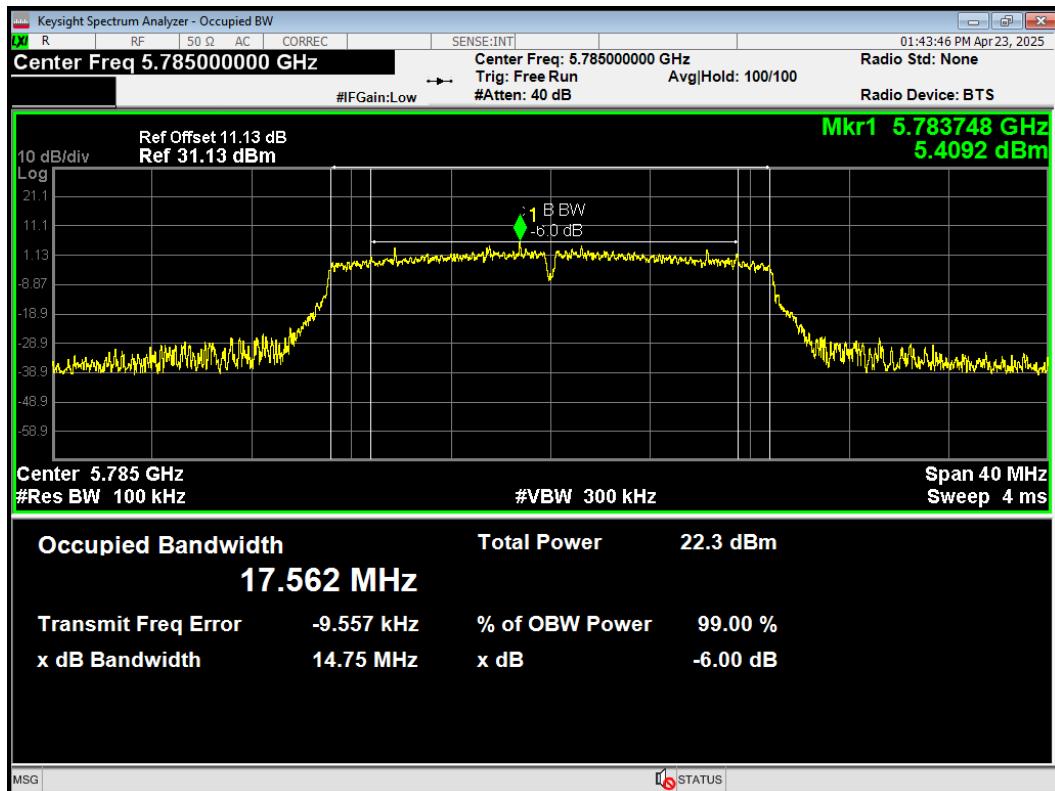


-6dB Bandwidth 802.11ac(VHT80) 5775MHz

-6dB Bandwidth 802.11n(HT20) 5720MHz


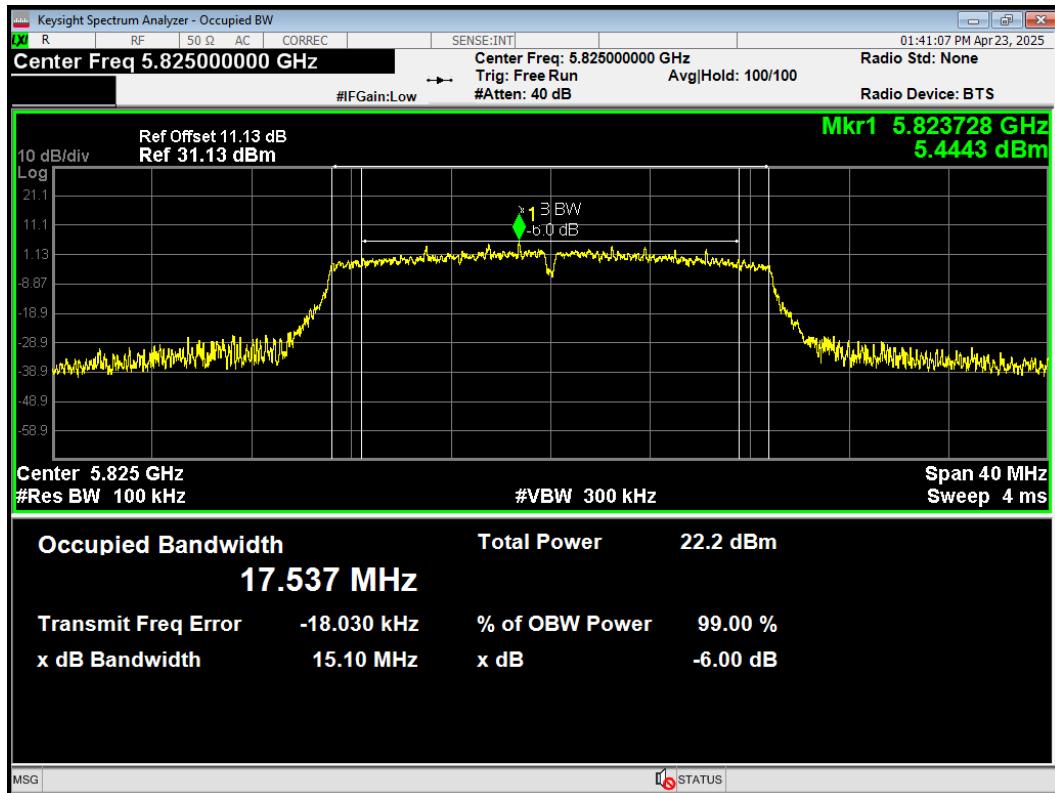
-6dB Bandwidth 802.11n(HT20) 5745MHz



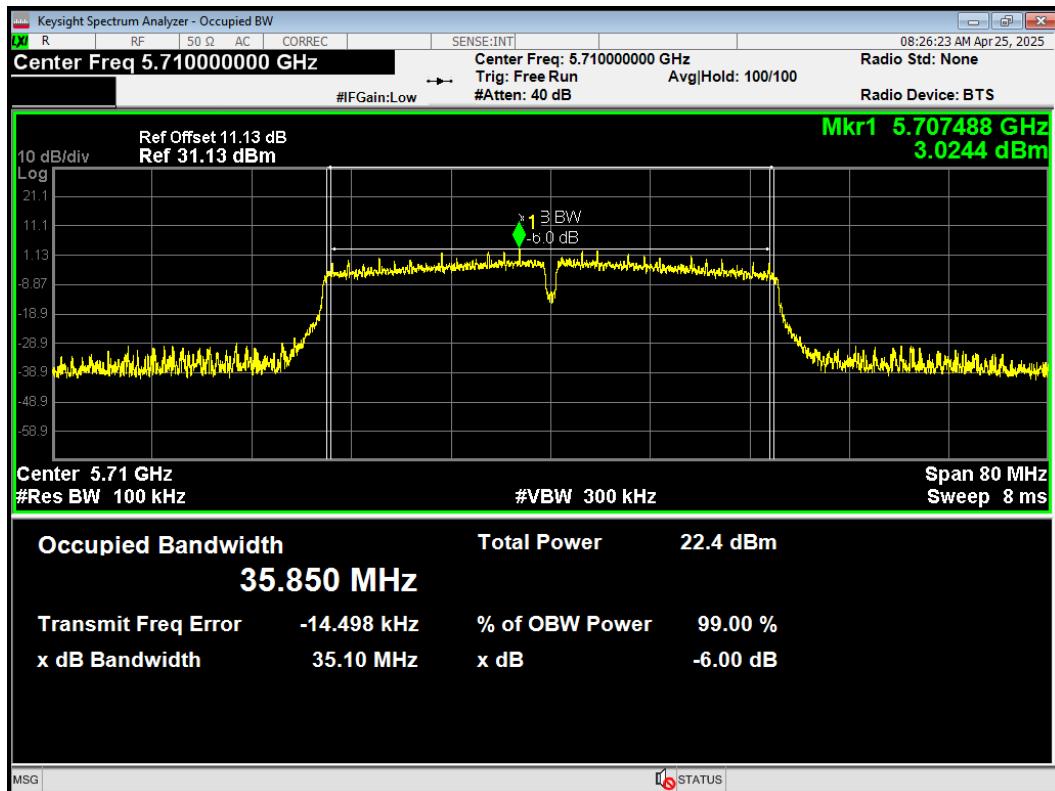
-6dB Bandwidth 802.11n(HT20) 5785MHz



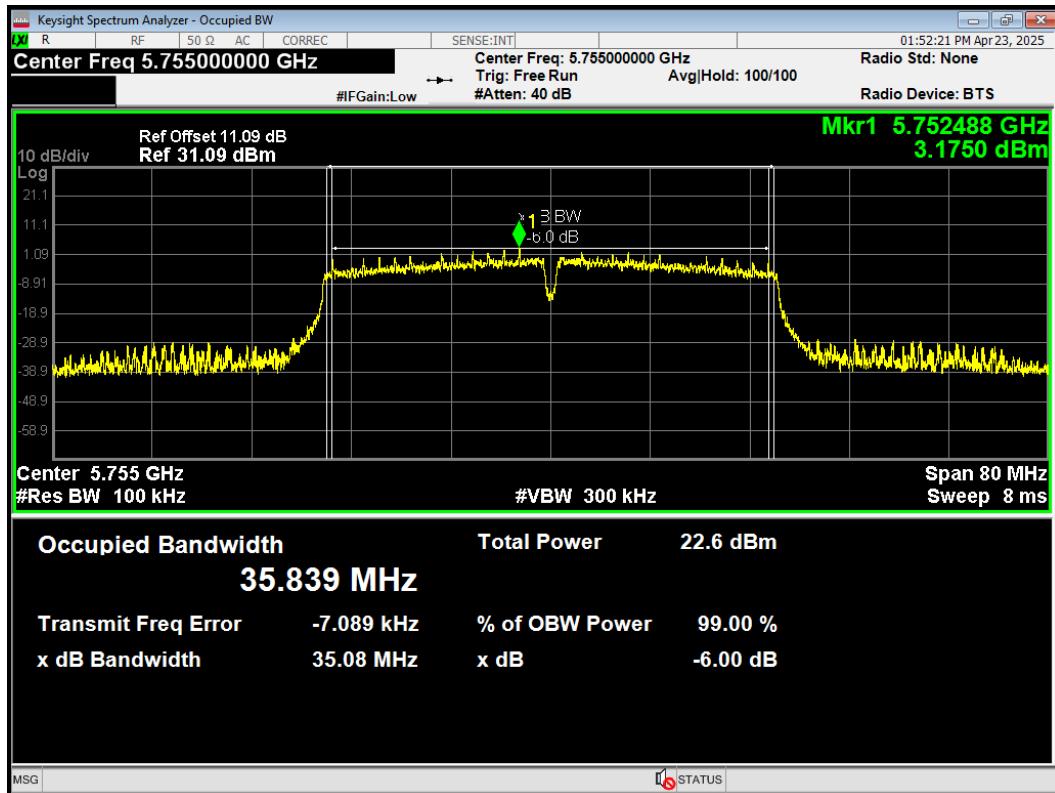
-6dB Bandwidth 802.11n(HT20) 5825MHz



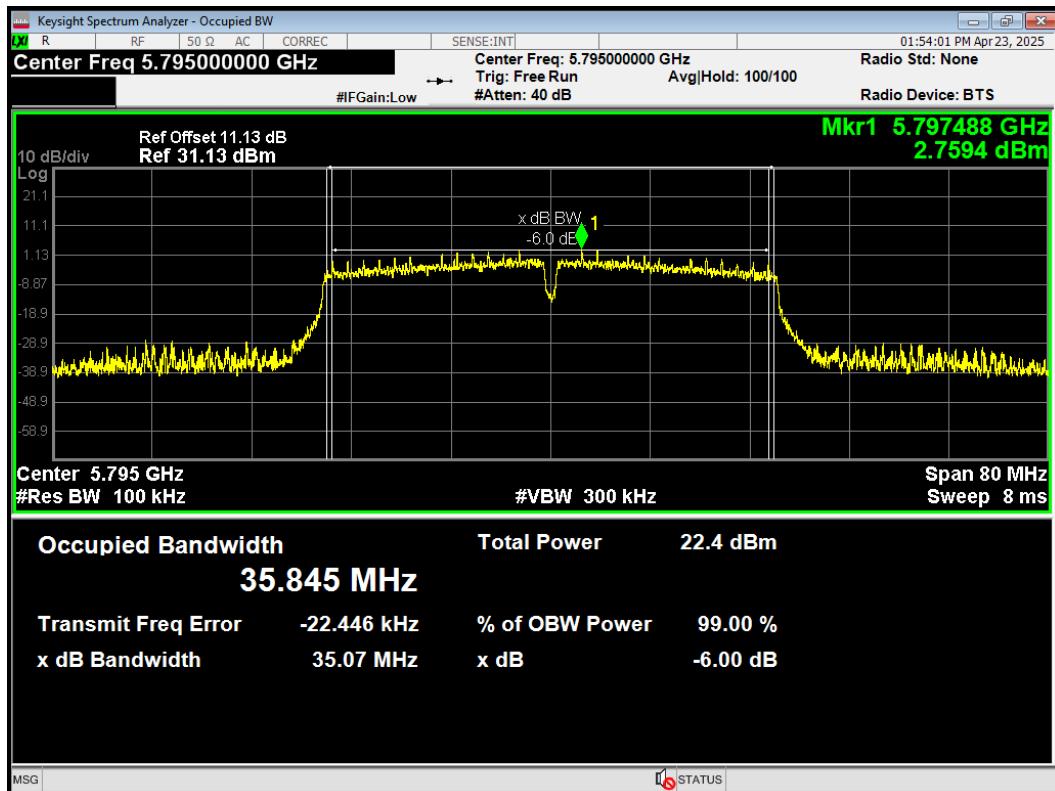
-6dB Bandwidth 802.11n(HT40) 5710MHz



-6dB Bandwidth 802.11n(HT40) 5755MHz



-6dB Bandwidth 802.11n(HT40) 5795MHz



5.2. Average Power Output

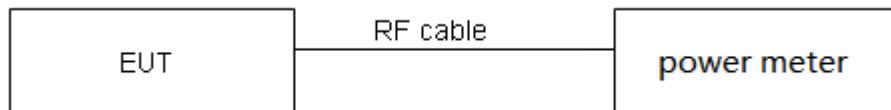
Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Methods of Measurement

During the process of the testing, The EUT was connected to the average power meter through an external attenuator and a known loss cable. The EUT is max power transmission with proper modulation. We use Maximum average Conducted Output Power Level Method in KDB789033 for this test

Test Setup



Limits

Rule FCC Part 15.407(a)(1) / FCC Part 15.407(a) (2) / FCC Part 15.407(a) (3)

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude

the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.44 \text{ dB}$.

Test Results

Mode	Duty cycle	Duty cycle correction Factor (dB)
802.11a	0.970	0.13
802.11n HT20	0.967	0.14
802.11n HT40	0.938	0.28
802.11ac VHT20	0.967	0.14
802.11ac VHT40	0.937	0.28
802.11ac VHT80	0.880	0.55

Note: when Duty cycle ≥ 0.98 , Duty cycle correction Factor not required.

Test Mode	Carrier frequency (MHz)	Power Index
802.11a	36/5180	16
	40/5200	16
	48/5240	16
802.11n HT20	36/5180	16
	40/5200	16
	48/5240	16
802.11n HT40	38/5190	16
	46/5230	16
802.11ac VHT20	36/5180	16
	40/5200	16
	48/5240	16
802.11ac VHT40	38/5190	16
	46/5230	16
802.11ac VHT80	42/5210	15

Test Mode	Carrier frequency (MHz)	Power Index
802.11a	52/5260	16
	60/5300	16
	64/5320	16
802.11n HT20	52/5260	16
	60/5300	16
	64/5320	16
802.11n HT40	54/5270	16
	62/5310	16
802.11ac VHT20	52/5260	16
	60/5300	16
	64/5320	16
802.11ac VHT40	54/5270	16
	62/5310	16
802.11ac VHT80	58/5290	15

Test Mode	Carrier frequency (MHz)	Power Index
802.11a	100/5500	16
	120/5600	16
	140/5700	16
	144/5720	16
802.11n HT20	100/5500	16
	120/5600	16
	140/5700	16
	144/5720	16

802.11n HT40	102/5510	16
	118/5590	16
	134/5670	16
	142/5710	16
802.11ac VHT20	100/5500	16
	120/5600	16
	140/5700	16
	144/5720	16
802.11ac VHT40	102/5510	16
	118/5590	16
	134/5670	16
	142/5710	16
802.11ac VHT80	122/5610	15
	138/5690	15

Test Mode	Carrier frequency (MHz)	Power Index
802.11a	144/5720	16
	149/5745	16
	157/5785	16
	165/5825	16
802.11n HT20	144/5720	16
	149/5745	16
	157/5785	16
	165/5825	16
802.11n HT40	142/5710	16
	151/5755	16
	159/5795	16
802.11ac VHT20	144/5720	16
	149/5745	16
	157/5785	16
	165/5825	16
802.11ac VHT40	142/5710	16
	151/5755	16
	159/5795	16
802.11ac VHT80	138/5690	15
	155/5775	15

Test Mode		Channel/ Frequency (MHz)	B=26 dB bandwidth (MHz)	Limit 11 dBm + 10 log B (dBm)	Final Limit (dBm)
U-NII-2A	802.11a	52/5260	21.41	24.31	24.00
		60/5300	19.96	24.00	24.00
		64/5320	19.80	23.97	23.97
	802.11n HT20	52/5260	20.26	24.07	24.00
		60/5300	20.47	24.11	24.00
		64/5320	20.28	24.07	24.00
	802.11n HT40	54/5270	40.50	27.07	24.00
		62/5310	40.74	27.10	24.00
	802.11ac VHT20	52/5260	20.28	24.07	24.00
		60/5300	20.45	24.11	24.00
		64/5320	20.24	24.06	24.00
	802.11ac VHT40	54/5270	40.80	27.11	24.00
		62/5310	40.44	27.07	24.00
	802.11ac VHT80	58/5290	81.13	30.09	24.00
U-NII-2C	802.11a	100/5500	19.93	24.00	24.00
		120/5600	20.20	24.05	24.00
		140/5700	19.91	23.99	23.99
		144/5720	21.61	24.35	24.00
	802.11n HT20	100/5500	20.53	24.12	24.00
		120/5600	21.18	24.26	24.00
		140/5700	22.56	24.53	24.00
		144/5720	22.05	24.43	24.00
	802.11n HT40	102/5510	40.34	27.06	24.00
		118/5590	40.59	27.08	24.00
		134/5670	40.93	27.12	24.00
		142/5710	40.65	27.09	24.00
	802.11ac VHT20	100/5500	20.31	24.08	24.00
		120/5600	20.38	24.09	24.00
		140/5700	20.24	24.06	24.00
		144/5720	20.32	24.08	24.00
	802.11ac VHT40	102/5510	40.33	27.06	24.00
		118/5590	40.24	27.05	24.00
		134/5670	40.58	27.08	24.00
		142/5710	40.62	27.09	24.00
	802.11ac VHT80	122/5610	80.80	30.07	24.00
		138/5690	81.32	30.10	24.00

Note: 250mW=24dBm

U-NII-1

Test Mode	Channel/ Frequency (MHz)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11a	36/5180	16.29	16.43	22	PASS
	40/5200	16.57	16.71	22	PASS
	48/5240	16.47	16.60	22	PASS
802.11n HT20	36/5180	16.15	16.30	22	PASS
	40/5200	16.33	16.47	22	PASS
	48/5240	16.29	16.43	22	PASS
802.11n HT40	38/5190	16.11	16.39	22	PASS
	46/5230	16.21	16.48	22	PASS
802.11ac VHT20	36/5180	16.28	16.42	22	PASS
	40/5200	16.24	16.38	22	PASS
	48/5240	16.46	16.60	22	PASS
802.11ac VHT40	38/5190	16.22	16.51	22	PASS
	46/5230	16.26	16.54	22	PASS
802.11ac VHT80	42/5210	14.88	15.43	22	PASS

Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor

U-NII-2A

Test Mode	Channel/ Frequency (MHz)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11a	52/5260	16.82	16.95	24.00	PASS
	60/5300	16.92	17.05	24.00	PASS
	64/5320	16.57	16.70	23.97	PASS
802.11n HT20	52/5260	16.34	16.48	24.00	PASS
	60/5300	16.14	16.29	24.00	PASS
	64/5320	16.32	16.46	24.00	PASS
802.11n HT40	54/5270	16.09	16.36	24.00	PASS
	62/5310	16.12	16.40	24.00	PASS
802.11ac VHT20	52/5260	16.11	16.25	24.00	PASS
	60/5300	16.15	16.29	24.00	PASS
	64/5320	16.37	16.51	24.00	PASS
802.11ac VHT40	54/5270	15.97	16.25	24.00	PASS
	62/5310	16.18	16.46	24.00	PASS
802.11ac VHT80	58/5290	14.87	15.43	24.00	PASS

Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor

U-NII-2C

Test Mode	Channel/ Frequency (MHz)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11a	100/5500	16.40	16.53	22.00	PASS
	120/5600	16.35	16.48	22.00	PASS
	140/5700	16.42	16.55	21.99	PASS
	144/5720	16.28	16.41	22.00	PASS
802.11n HT20	100/5500	16.26	16.40	22.00	PASS
	120/5600	16.33	16.47	22.00	PASS
	140/5700	16.41	16.56	22.00	PASS
	144/5720	15.84	15.98	22.00	PASS
802.11n HT40	102/5510	15.96	16.24	22.00	PASS
	118/5590	16.19	16.46	22.00	PASS
	134/5670	16.02	16.30	22.00	PASS
	142/5710	16.33	16.61	22.00	PASS
802.11ac VHT20	100/5500	16.45	16.59	22.00	PASS
	120/5600	16.27	16.41	22.00	PASS
	140/5700	16.33	16.47	22.00	PASS
	144/5720	15.83	15.97	22.00	PASS
802.11ac VHT40	102/5510	16.17	16.45	22.00	PASS

	118/5590	16.14	16.43	22.00	PASS
	134/5670	16.19	16.48	22.00	PASS
	142/5710	16.12	16.40	22.00	PASS
802.11ac VHT80	122/5610	14.64	15.19	22.00	PASS
	138/5690	14.50	15.05	22.00	PASS

Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor

U-NII-3

Test Mode	Channel/ Frequency (MHz)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11a	144/5720	8.61	8.75	28	PASS
	149/5745	16.40	16.53	28	PASS
	157/5785	16.54	16.67	28	PASS
	165/5825	16.41	16.54	28	PASS
802.11n HT20	144/5720	8.12	8.26	28	PASS
	149/5745	16.35	16.50	28	PASS
	157/5785	16.43	16.58	28	PASS
	165/5825	16.22	16.36	28	PASS
802.11n HT40	142/5710	3.04	3.32	28	PASS
	151/5755	16.11	16.39	28	PASS
	159/5795	16.02	16.30	28	PASS
802.11ac VHT20	144/5720	8.24	8.38	28	PASS
	149/5745	16.44	16.58	28	PASS
	157/5785	16.46	16.60	28	PASS
	165/5825	16.12	16.26	28	PASS
802.11ac VHT40	142/5710	3.23	3.51	28	PASS
	151/5755	16.15	16.43	28	PASS
	159/5795	16.18	16.47	28	PASS
802.11ac VHT80	138/5690	-1.64	-1.08	28	PASS
	155/5775	14.80	15.35	28	PASS

Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor

5.3. Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

1. Frequency stability with respect to ambient temperature

- a) Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT. If possible, a dummy load shall be connected to the EUT because an antenna near the metallic walls of an environmental test chamber could affect the output frequency of the EUT. If the EUT is equipped with a permanently attached, adjustable-length antenna, then the EUT shall be placed in the center of the chamber with the antenna adjusted to the shortest length possible. Turn ON the EUT and tune it to one of the number of frequencies shown in 5.6.
- b) Couple the unlicensed wireless device output to the measuring instrument by connecting an antenna to the measuring instrument with a suitable length of coaxial cable and placing the measuring antenna near the EUT (e.g., 15 cm away), or by connecting a dummy load to the measuring instrument, through an attenuator if necessary.
- c) Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).
- d) Turn the EUT OFF and place it inside the environmental temperature chamber. For devices that have oscillator heaters, energize only the heater circuit.
- e) Set the temperature control on the chamber to the highest specified in the regulatory requirements for the type of device and allow the oscillator heater and the chamber temperature to stabilize.
- f) While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.
- g) Measure the frequency at each of frequencies specified in 5.6.
- h) Switch OFF the EUT but do not switch OFF the oscillator heater.
- i) Lower the chamber temperature by not more than 10°C, and allow the temperature inside the chamber to stabilize.
- j) Repeat step f) through step i) down to the lowest specified temperature.

2. Frequency stability when varying supply voltage

Unless otherwise specified, these tests shall be made at ambient room temperature (+15°C to +25 °C). An antenna shall be connected to the antenna output terminals of the EUT if possible. If the EUT is equipped with or uses an adjustable-length antenna, then it shall be fully extended.

- a) Supply the EUT with nominal voltage or install a new or fully charged battery in the EUT. Turn ON the EUT and couple its output to a frequency counter or other frequency-measuring instrument.

- b) Tune the EUT to one of the number of frequencies required in 5.6. Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).
- c) Measure the frequency at each of the frequencies specified in 5.6.
- d) Repeat the above procedure at 85% and 115% of the nominal supply voltage.

Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 936\text{Hz}$

Test Results

Voltage (V)	Temperature (°C)	U-NII-1 Test Results			
		5200MHz			
		1min	2min	5min	10min
7.6	-30	5200.002397	5200.000510	5199.994102	5199.993576
7.6	-20	5199.998962	5199.997786	5199.989634	5199.988379
7.6	-10	5200.001130	5199.991732	5199.980440	5199.983416
7.6	0	5199.995292	5199.996220	5199.983493	5199.987554
7.6	10	5199.989174	5199.994285	5199.976960	5199.981943
7.6	20	5199.985822	5199.990061	5199.969038	5199.981760
7.6	30	5199.981298	5199.986240	5199.965832	5199.981468
7.6	40	5199.979525	5199.979571	5199.964130	5199.972135
7.6	50	5199.970440	5199.978740	5199.957904	5199.971729
7	20	5199.970162	5199.971108	5199.950458	5199.965719
8.4	20	5199.968646	5199.962590	5199.946971	5199.964618
Max. ΔMHz		-0.031354	-0.037410	-0.053029	-0.035382
PPM		-6.029615	-7.194231	-10.197885	-6.804231

Voltage (V)	Temperature (°C)	U-NII-2A Test Results			
		5300MHz			
		1min	2min	5min	10min
7.6	-30	5299.993582	5299.988640	5299.983332	5299.973642
7.6	-20	5299.992384	5299.980132	5299.982954	5299.965940
7.6	-10	5299.983899	5299.971982	5299.978986	5299.956368
7.6	0	5299.988242	5299.971341	5299.978399	5299.958091
7.6	10	5299.984519	5299.963226	5299.972767	5299.956312
7.6	20	5299.983259	5299.956269	5299.963971	5299.954500
7.6	30	5299.976365	5299.949207	5299.956154	5299.948630
7.6	40	5299.973095	5299.946752	5299.948249	5299.944414
7.6	50	5299.969647	5299.944218	5299.947145	5299.939248
7	20	5299.967180	5299.934814	5299.941466	5299.934104
8.4	20	5299.965669	5299.934557	5299.938219	5299.928055
Max. ΔMHz		-0.034331	-0.065443	-0.061781	-0.071945
PPM		-6.477547	-12.347736	-11.656792	-13.574528

Voltage (V)	Temperature (°C)	U-NII-2C Test Results			
		5580MHz			
		1min	2min	5min	10min
7.6	-30	5580.004814	5580.001152	5579.997868	5579.991259
7.6	-20	5580.004599	5579.995817	5579.997004	5579.985574
7.6	-10	5580.001702	5579.991003	5579.987710	5579.982880
7.6	0	5579.998204	5579.994924	5579.996384	5579.983361
7.6	10	5579.989033	5579.989710	5579.990248	5579.982961
7.6	20	5579.983828	5579.980046	5579.987151	5579.982515
7.6	30	5579.974086	5579.971924	5579.978915	5579.979302
7.6	40	5579.965752	5579.963088	5579.970113	5579.969727
7.6	50	5579.963169	5579.962448	5579.967735	5579.960676
7	20	5579.957538	5579.958061	5579.962314	5579.958623
8.4	20	5579.949268	5579.953127	5579.957410	5579.953317
Max. ΔMHz		-0.050732	-0.046873	-0.042590	-0.046683
PPM		-9.091756	-8.400179	-7.632616	-8.366129

Voltage (V)	Temperature (°C)	U-NII-3 Test Results			
		5785MHz			
		1min	2min	5min	10min
7.6	-30	5784.990550	5784.989818	5784.984375	5784.982373
7.6	-20	5784.983881	5784.981129	5784.980650	5784.977262
7.6	-10	5784.981890	5784.973504	5784.971922	5784.968142
7.6	0	5784.979336	5784.972159	5784.977901	5784.968371
7.6	10	5784.977744	5784.971171	5784.977462	5784.960648
7.6	20	5784.969476	5784.970368	5784.970366	5784.958103
7.6	30	5784.964228	5784.964942	5784.961145	5784.951313
7.6	40	5784.955762	5784.961240	5784.960675	5784.943428
7.6	50	5784.951053	5784.956025	5784.960596	5784.937734
7	20	5784.944925	5784.946415	5784.951613	5784.927804
8.4	20	5784.938083	5784.939546	5784.949050	5784.924039
Max. ΔMHz		-0.061917	-0.060454	-0.050950	-0.075961
PPM		-10.703025	-10.450130	-8.807260	-13.130683