RF TEST REPORT

Applicant	Shanghai Xiangcheng Communication Technology Co., Ltd
FCC ID	2A2UU-PEGASUS1
Product	Pegasus1
Model	Pegasus1
Report No.	EFTA25040240-IE-07-R4V1
Issue Date	June 17, 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*

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TABLE OF CONTENT

Version	Revision Description	Issue Date
Rev.0	Initial issue of report.	June 4, 2025
Rev.1	Updated information.	June 17, 2025
Note: This revised report (Report No.: EFTA25040240-IE-07-R4V1) supersedes and replaces the previously issued report (Report No.: EFTA25040240-IE-07-R4). 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 29, 2025 ~May 13, 2025 Date of Sample Received: April 25, 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
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E-mail:	Kain.Xu@cpt.eurofinscn.com

2. General Description of Equipment under Test

2.1. Applicant and Manufacturer Information

Applicant	Shanghai Xiangcheng Communication Technology Co., Ltd
Applicant address	6th Floor, Building 10, No.3000 Longdong Avenue, Pudong New District, Shanghai, China
Manufacturer	Shanghai Xiangcheng Communication Technology Co., Ltd
Manufacturer address	6th Floor, Building 10, No.3000 Longdong Avenue, Pudong New District, Shanghai, China

2.2. General information

EUT Description		
Model	Pegasus1	
SN	Conducted	K0161A1X253UD20107
	Radiated	K0161A1X253UD20128
Hardware Version	V1.0	
Software Version	V1.0	
Power Supply	AC adapter	
Antenna Type	PCB Antenna	
Antenna Connector	A permanently attached antenna (meet with the standard FCC Part 15.203 requirement)	
Antenna Gain	U-NII-1: 1.91 dBi	U-NII-2A: 2.59 dBi
	U-NII-2C: 2.34 dBi	U-NII-3: 2.34 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	14.74 dBm	
Operating temperature range	0 ° C to 45 ° C	
Operating voltage range	21.6 VDC to 26.4 VDC	
Testing temperature range	-30 ° C to 50° C	
Testing voltage range	21.6 VDC - 24 VDC – 26.4 VDC	
State voltage	24 VDC	
EUT Accessory		
Adapter	Manufacturer: Hunan Dajing Power Technology Co., Ltd. Model: ADP-60D24	
AC Cable	Manufacturer: Zhengyu Electronic Co., Ltd.	

	Model: C393-240909-001

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.

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.

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

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	5180MHz
			40	5200MHz
			44	5220MHz
			48	5240MHz
		40 MHz	38	5190MHz
			46	5230MHz
		80 MHz	42	5210MHz
	U-NII-2A	20 MHz	52	5260MHz
			56	5280MHz
			60	5300MHz
			64	5320MHz
		40 MHz	54	5270MHz
			62	5310MHz
		80 MHz	58	5290MHz
	U-NII-2C	20 MHz	100	5500MHz
			104	5520MHz
			108	5540MHz
			112	5560MHz
			116	5580MHz
			120	5600MHz
			124	5620MHz
			128	5640MHz
			132	5660MHz
			136	5680MHz
			140	5700MHz
			144	5720MHz
		40 MHz	102	5510MHz
			110	5550MHz
			118	5590MHz
			126	5630MHz
			134	5670MHz
			142	5710MHz
		80 MHz	106	5530MHz
			122	5610MHz
			138	5690MHz

	U-NII-3	20 MHz	149	5745MHz
			153	5765MHz
			157	5785MHz
			161	5805MHz
			165	5825MHz
		40 MHz	151	5755MHz
			159	5795MHz
		80 MHz	155	5775MHz
Does this device support TPC Function? ☒Yes ☐No				
Does this device support TDWR Band? ☒Yes ☐No				

5. Test Case Results

5.1. Occupied Bandwidth

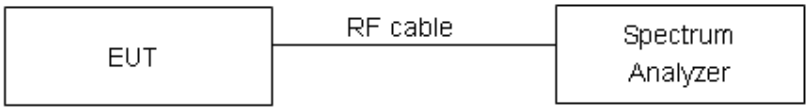
Ambient condition

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 ≈1% OCB kHz, VBW ≥ 3 × 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 ≥ 3 × 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	16.528	20.125	PASS
	5200	16.560	19.998	PASS
	5240	16.537	20.146	PASS
802.11n HT20	5180	17.586	20.196	PASS
	5200	17.593	20.209	PASS
	5240	17.622	20.313	PASS
802.11n HT40	5190	35.933	40.630	PASS
	5230	36.002	40.492	PASS
802.11ac VHT20	5180	17.615	20.315	PASS
	5200	17.598	20.369	PASS
	5240	17.633	20.388	PASS
802.11ac VHT40	5190	35.991	40.827	PASS
	5230	36.020	40.338	PASS
802.11ac VHT80	5210	75.457	81.305	PASS

U-NII-2A

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5260	16.551	19.783	PASS
	5300	16.599	20.081	PASS
	5320	16.520	19.940	PASS
802.11n HT20	5260	17.611	20.202	PASS
	5300	17.603	20.183	PASS
	5320	17.593	20.320	PASS
802.11n HT40	5270	35.983	40.688	PASS
	5310	35.995	40.676	PASS
802.11ac VHT20	5260	17.611	20.327	PASS
	5300	17.626	20.155	PASS
	5320	17.638	20.603	PASS
802.11ac VHT40	5270	36.003	40.544	PASS
	5310	36.072	40.642	PASS
802.11ac VHT80	5290	75.588	81.025	PASS

U-NII-2C

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5500	16.553	20.037	PASS
	5600	16.519	20.001	PASS
	5700	16.508	20.187	PASS
	5720	16.504	19.953	PASS
802.11n HT20	5500	17.612	20.250	PASS
	5600	17.631	20.143	PASS
	5700	17.604	20.521	PASS
	5720	17.603	20.174	PASS
802.11n HT40	5510	36.014	40.757	PASS
	5590	35.968	40.971	PASS
	5670	35.984	40.799	PASS
	5710	36.051	40.606	PASS
802.11ac VHT20	5500	17.602	20.218	PASS
	5600	17.621	20.105	PASS
	5700	17.629	20.130	PASS
	5720	17.596	20.221	PASS
802.11ac VHT40	5510	36.045	40.743	PASS
	5590	36.088	40.602	PASS
	5670	36.055	40.513	PASS
	5710	36.050	40.652	PASS
802.11ac VHT80	5610	75.442	81.052	PASS
	5690	75.444	81.257	PASS

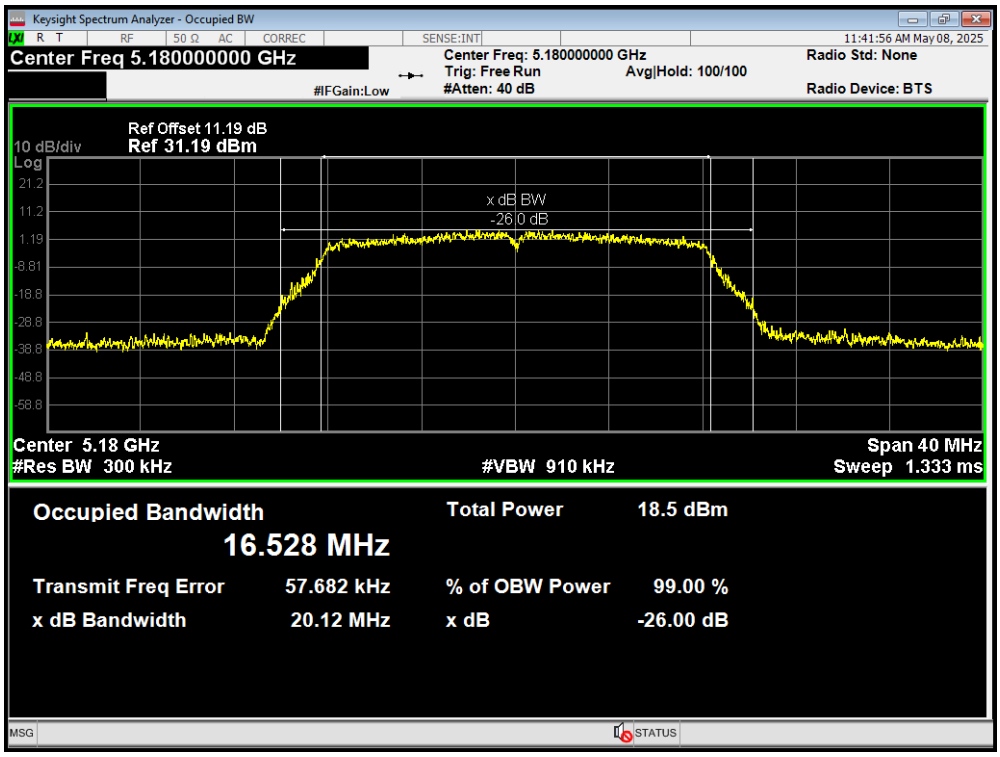
U-NII-3

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11a	5720	16.564	15.798	500	PASS
	5745	16.533	15.119	500	PASS
	5785	16.554	15.458	500	PASS
	5825	16.478	15.675	500	PASS
802.11n HT20	5720	17.641	16.544	500	PASS
	5745	17.632	13.456	500	PASS
	5785	17.621	13.881	500	PASS
	5825	17.637	13.866	500	PASS
802.11n HT40	5710	36.024	35.062	500	PASS
	5755	36.026	35.110	500	PASS
	5795	36.029	35.118	500	PASS
802.11ac VHT20	5720	17.623	13.888	500	PASS
	5745	17.660	13.884	500	PASS
	5785	17.615	15.069	500	PASS
	5825	17.641	14.656	500	PASS
802.11ac VHT40	5710	36.026	35.029	500	PASS
	5755	36.068	35.078	500	PASS
	5795	36.045	33.828	500	PASS
802.11ac VHT80	5690	75.466	75.107	500	PASS
	5775	75.565	75.116	500	PASS

99% bandwidth

U-NII-1

OBW 802.11a 5180MHz



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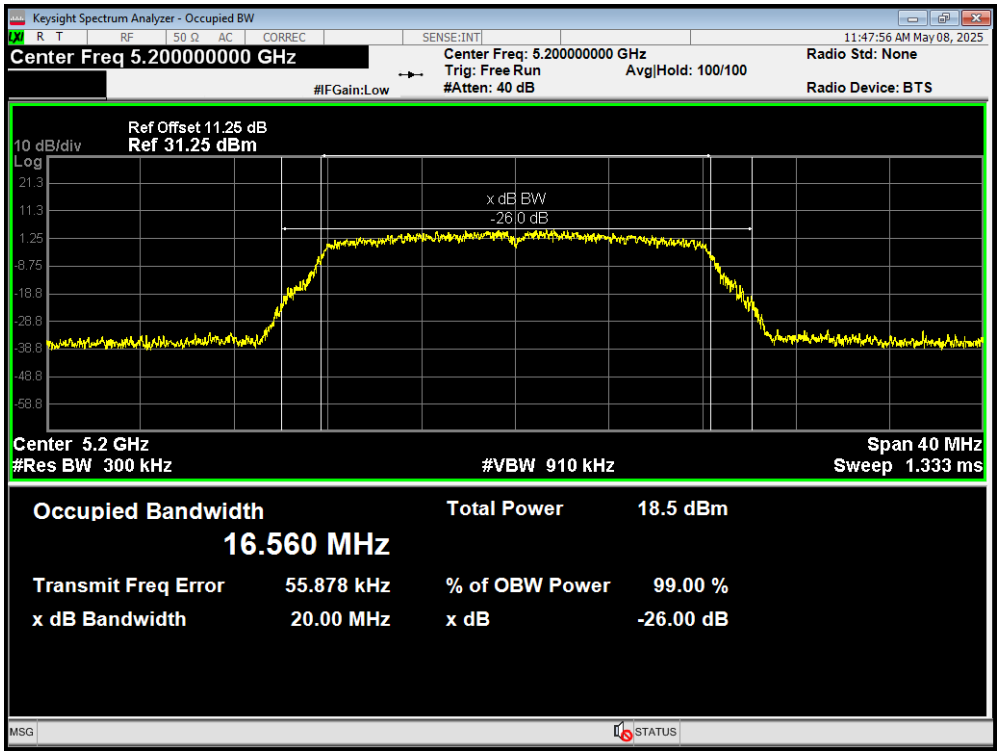

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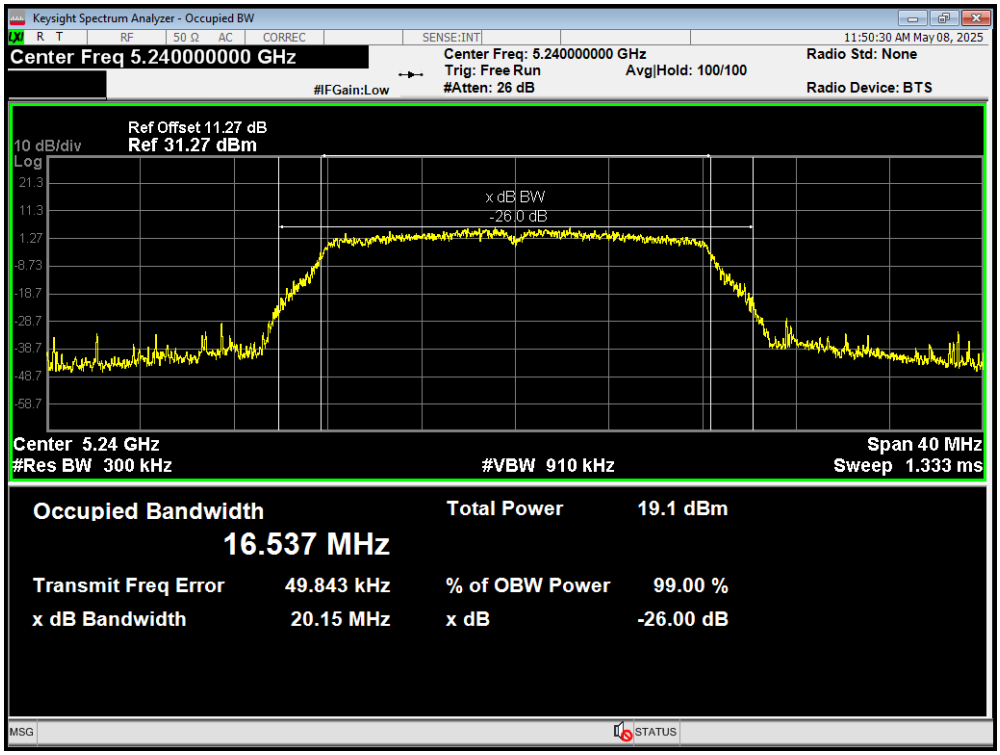

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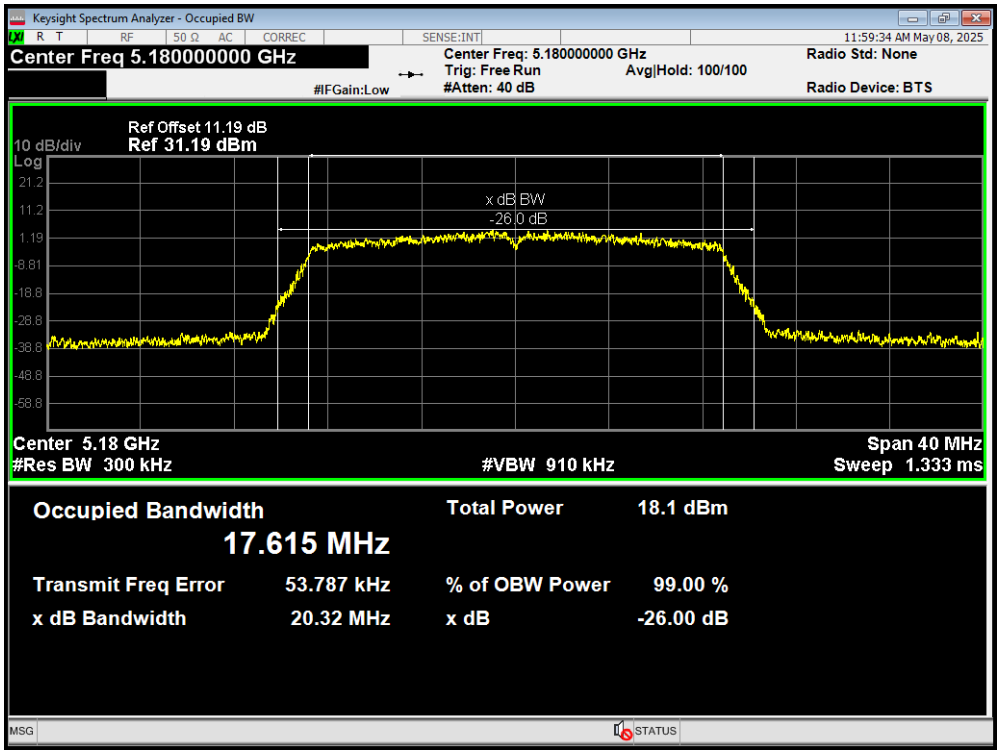

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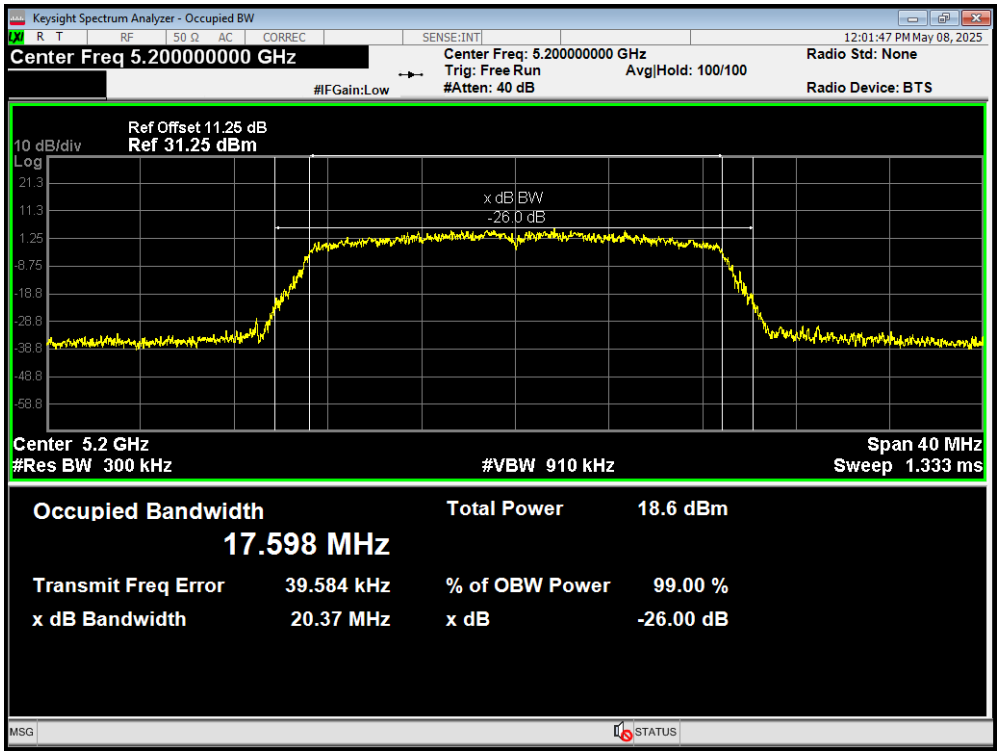

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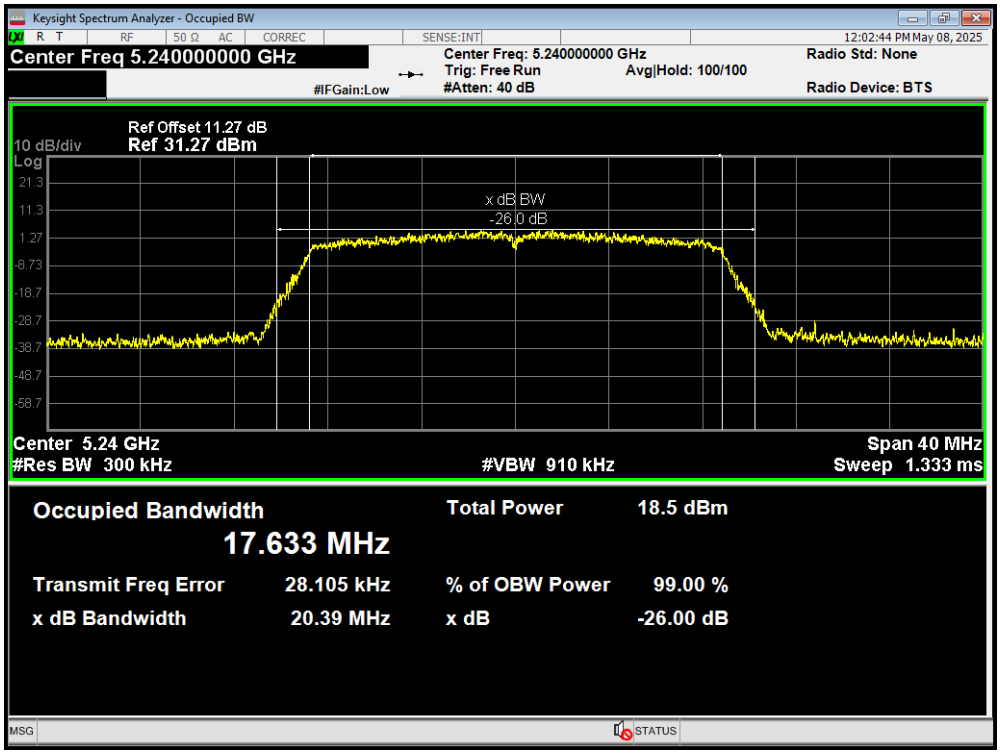

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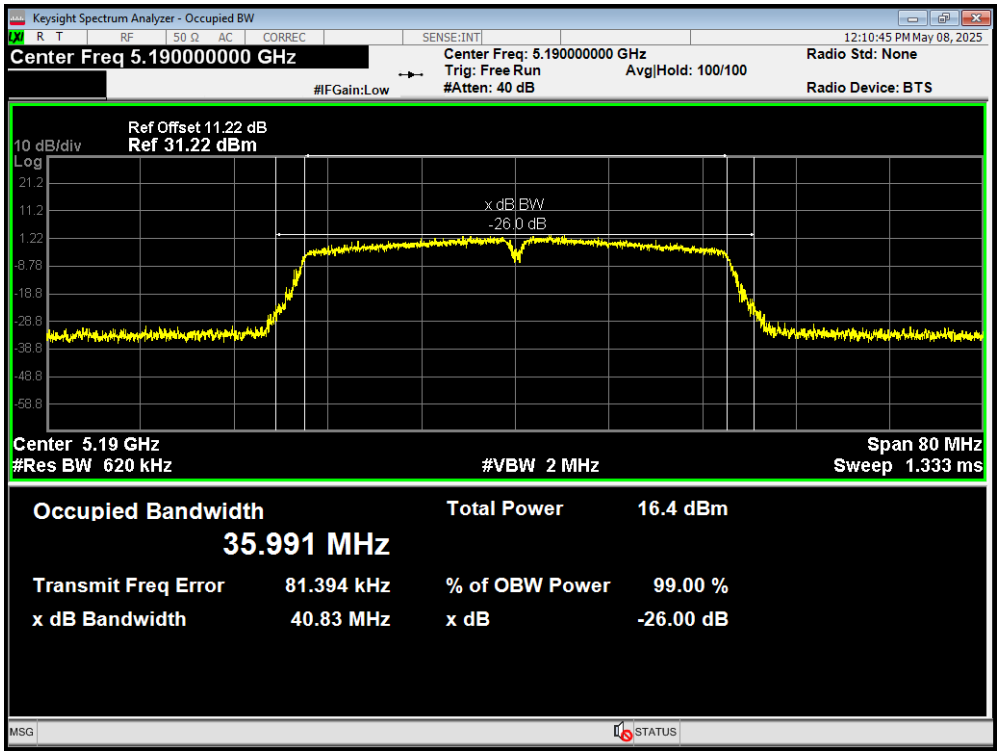

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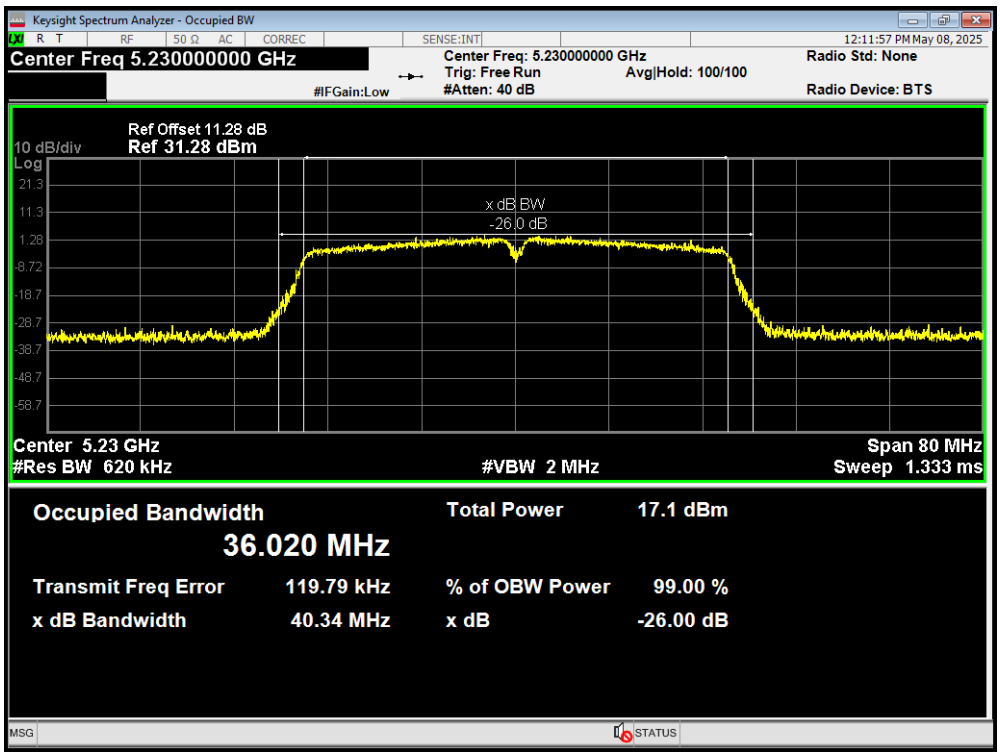

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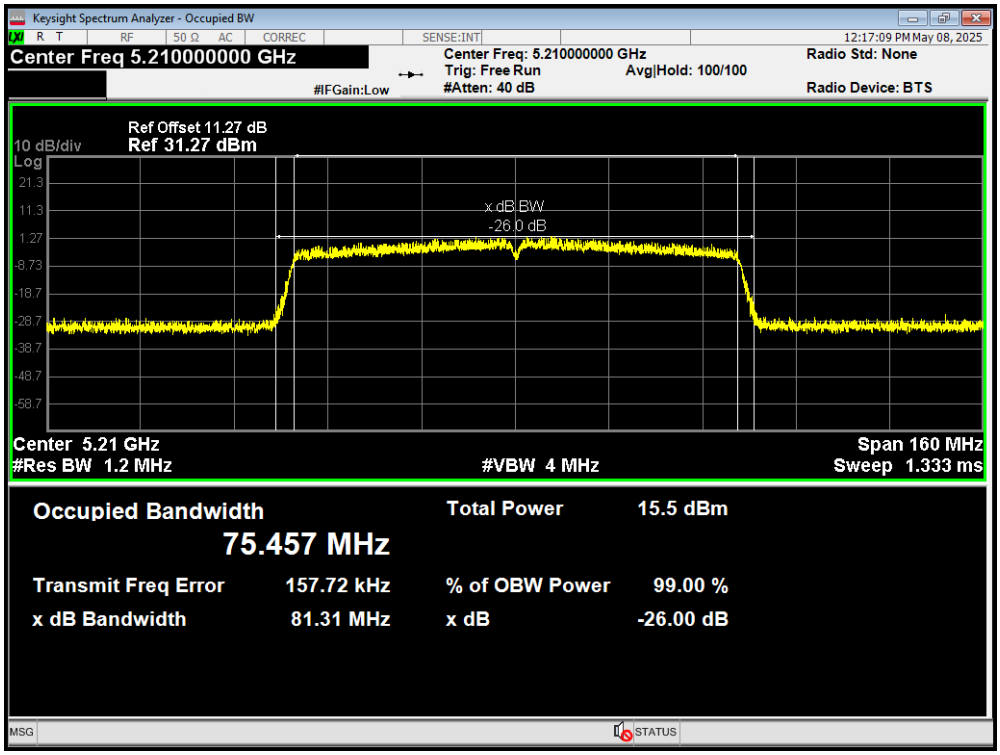
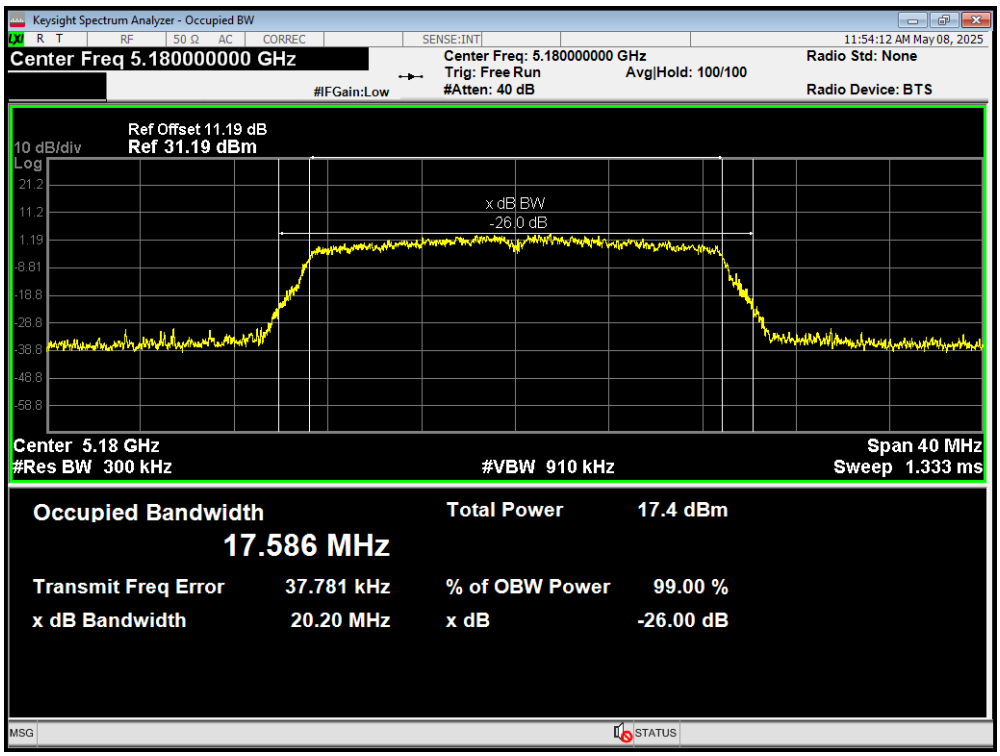


OBW 802.11n(HT20) 5180MHz



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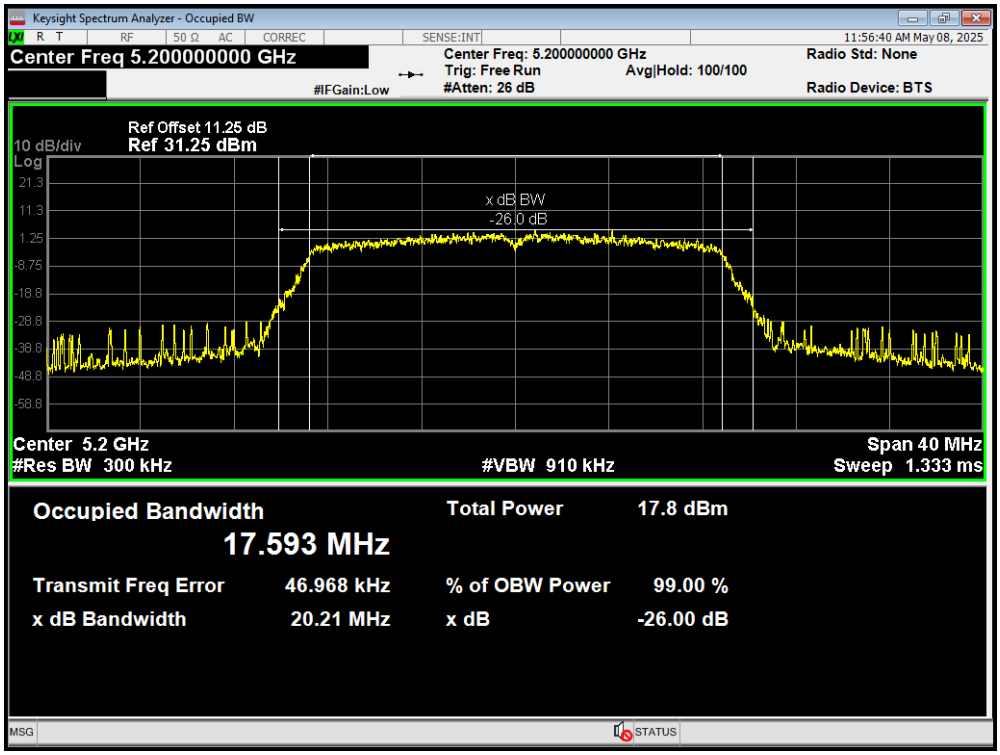

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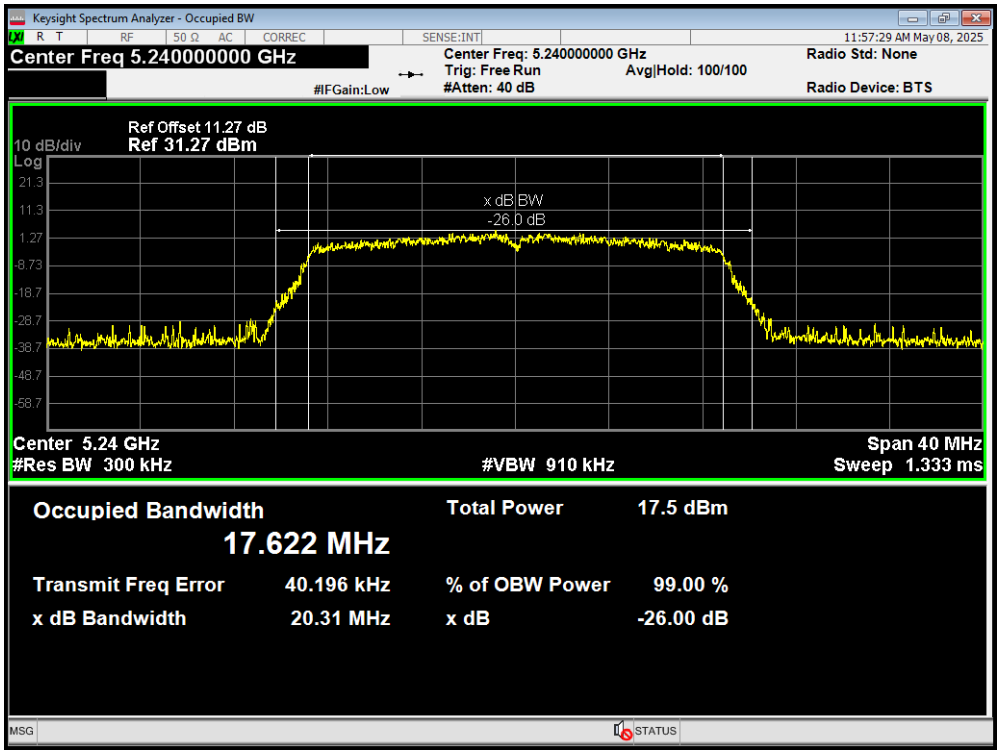

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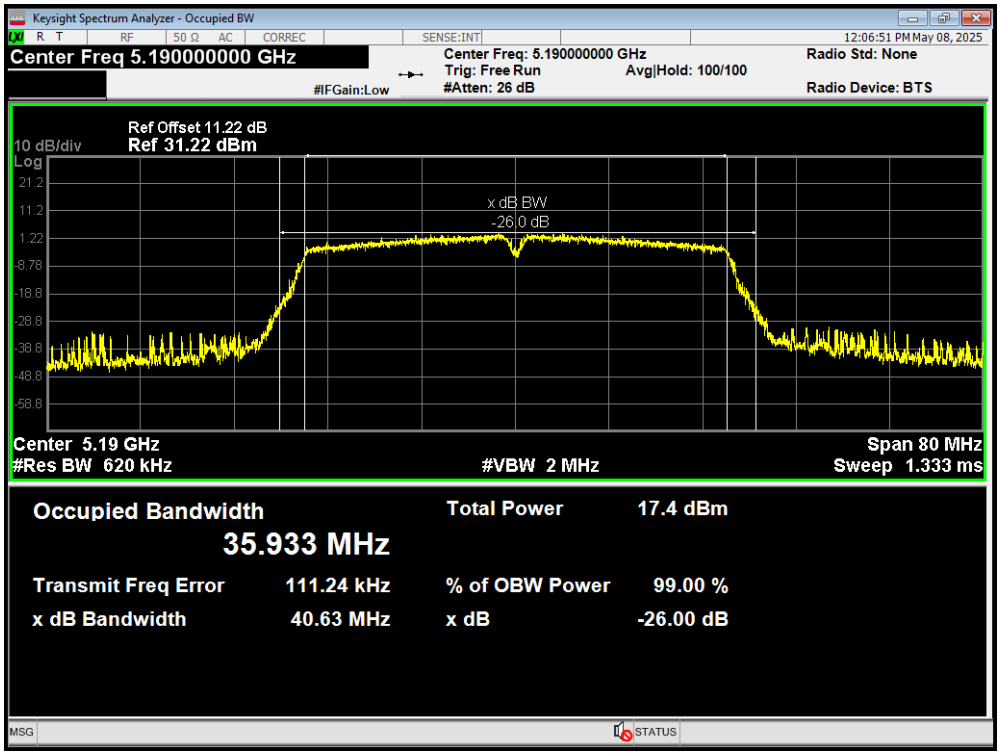

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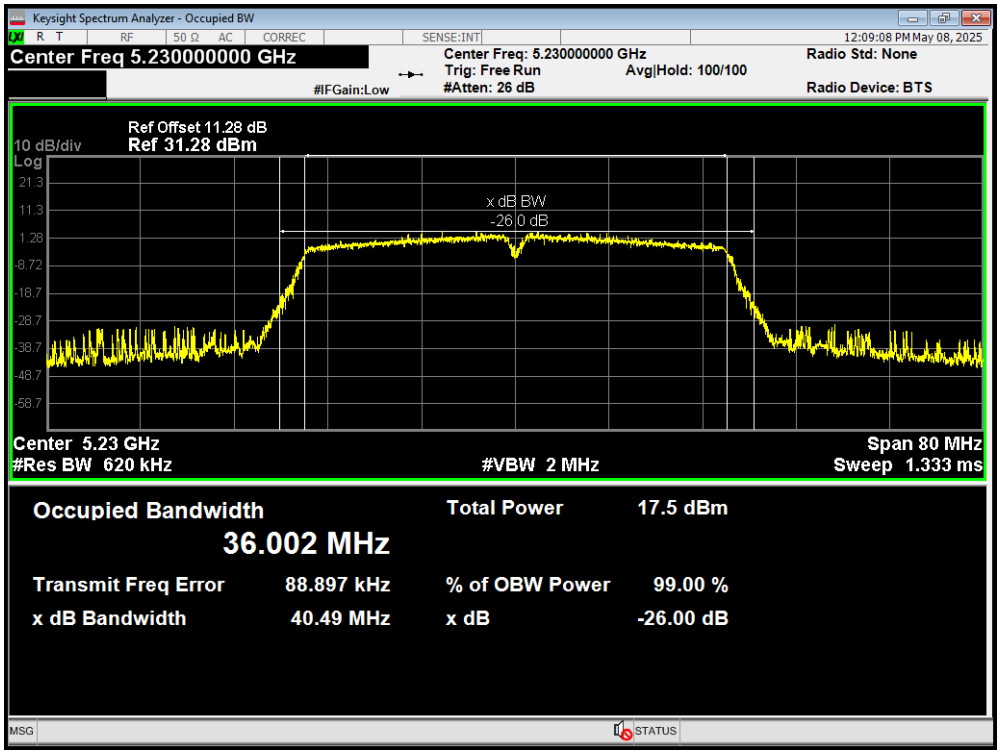
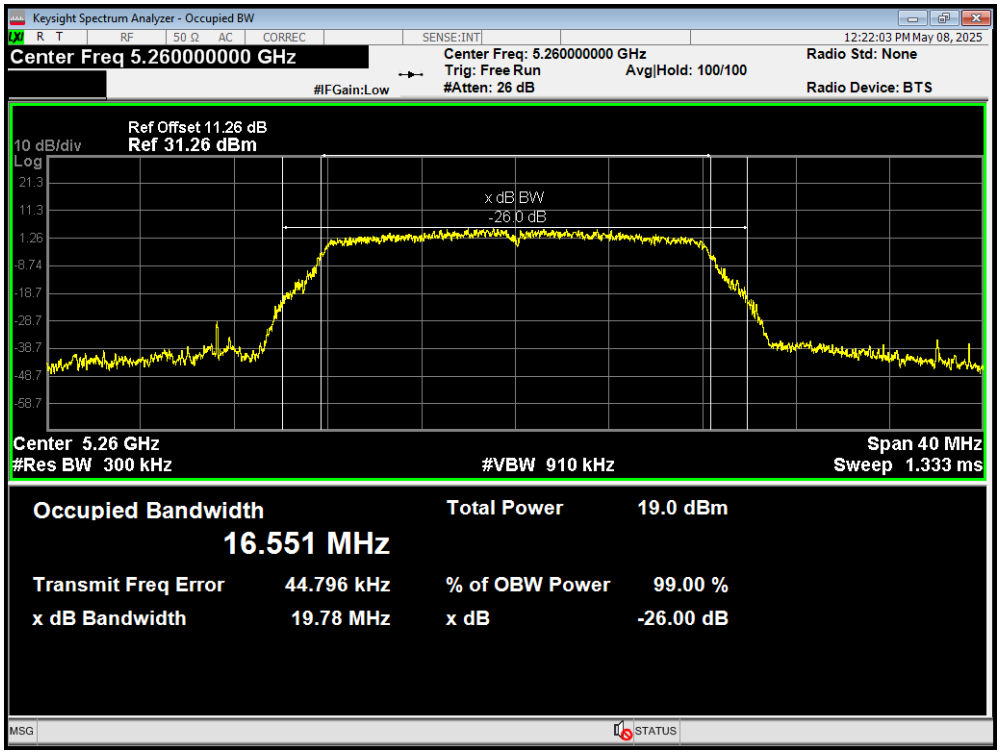


U-NII-2A

OBW 802.11a 5260MHz



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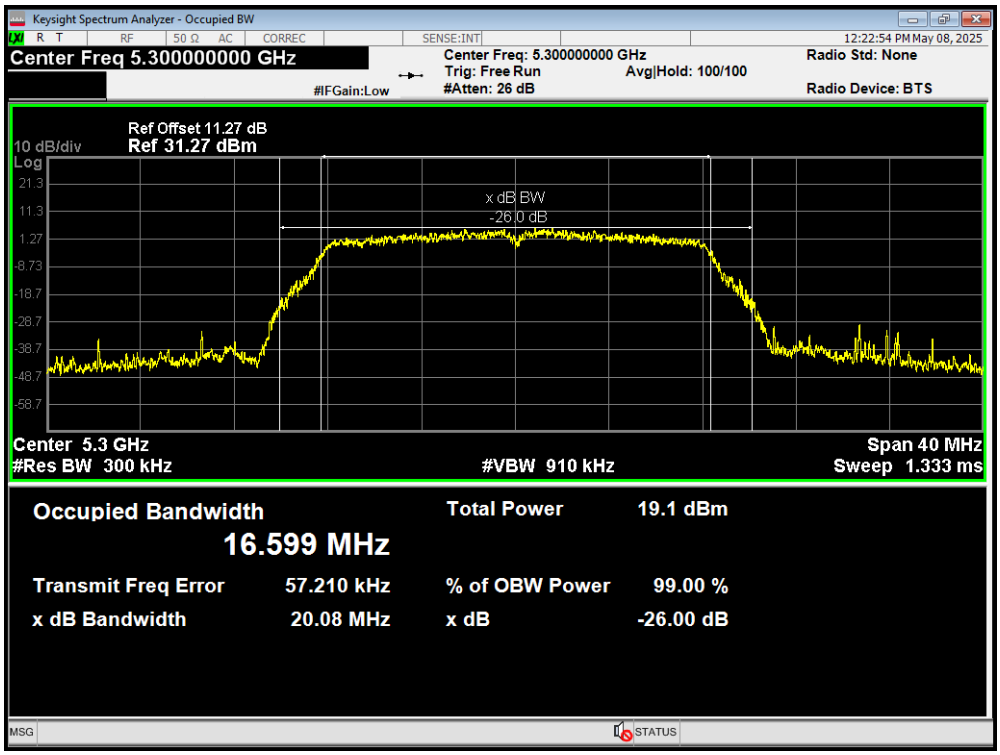

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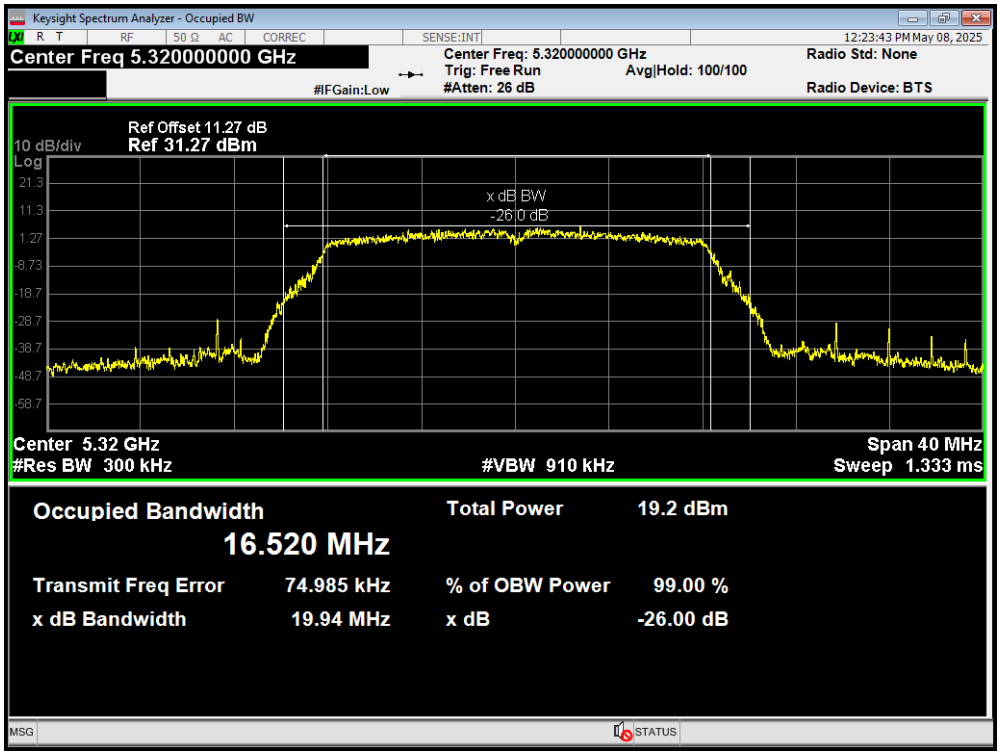

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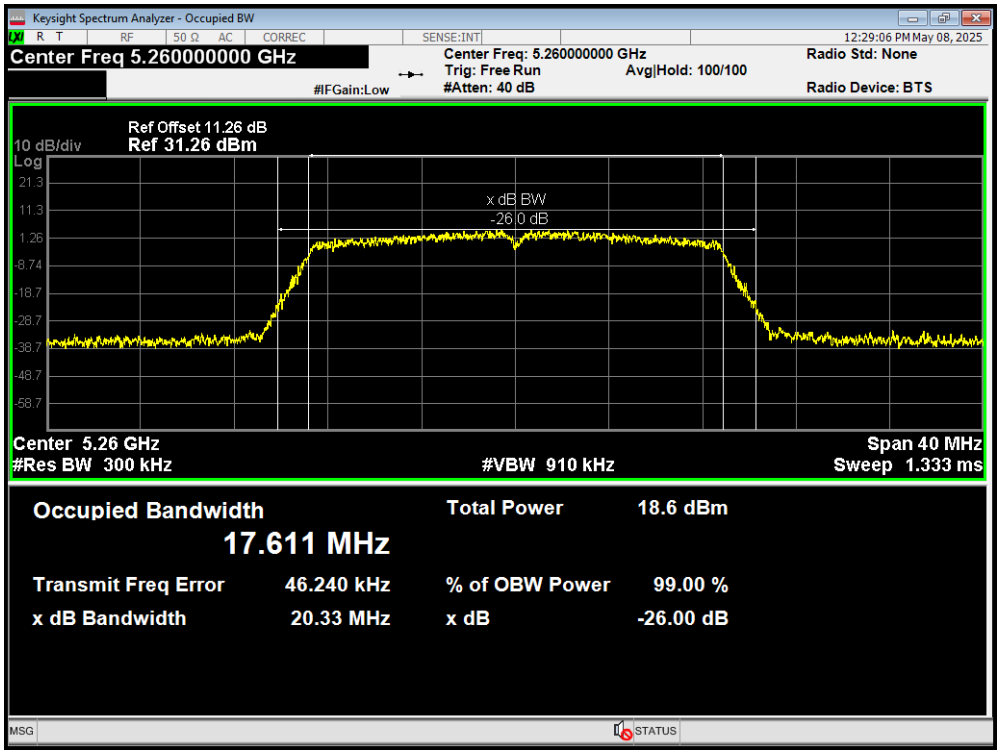

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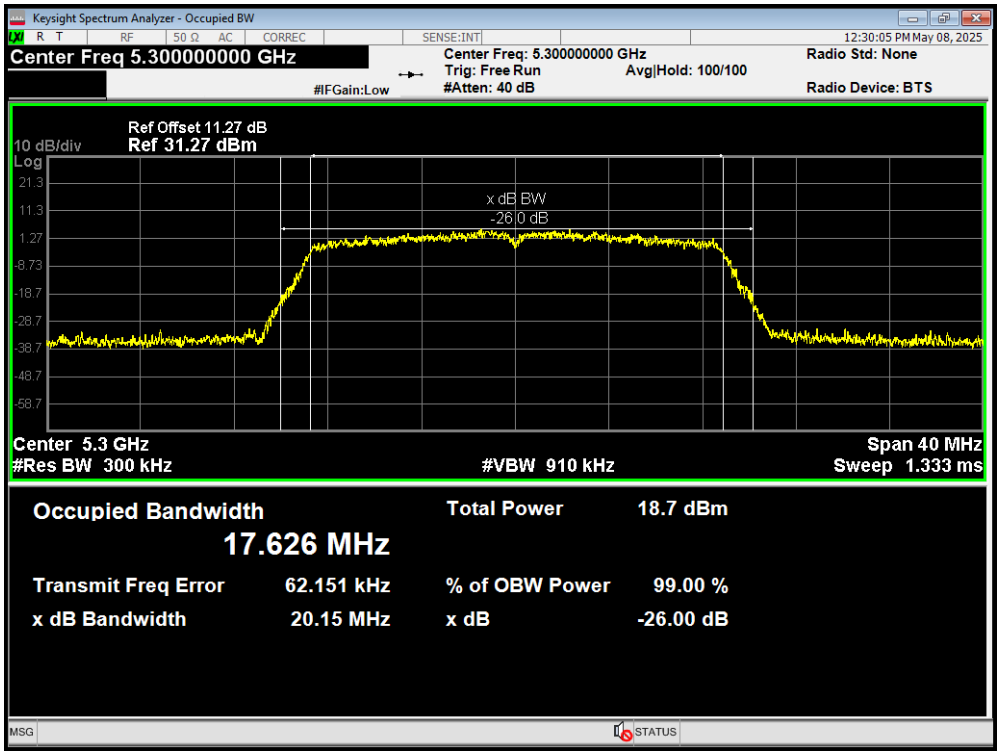

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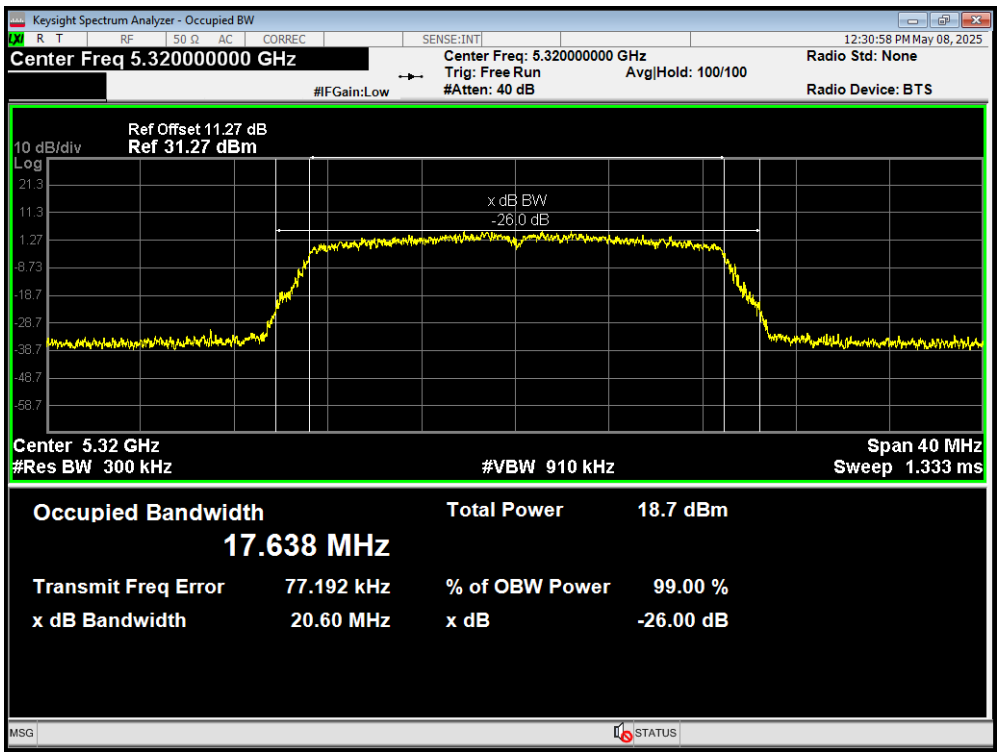

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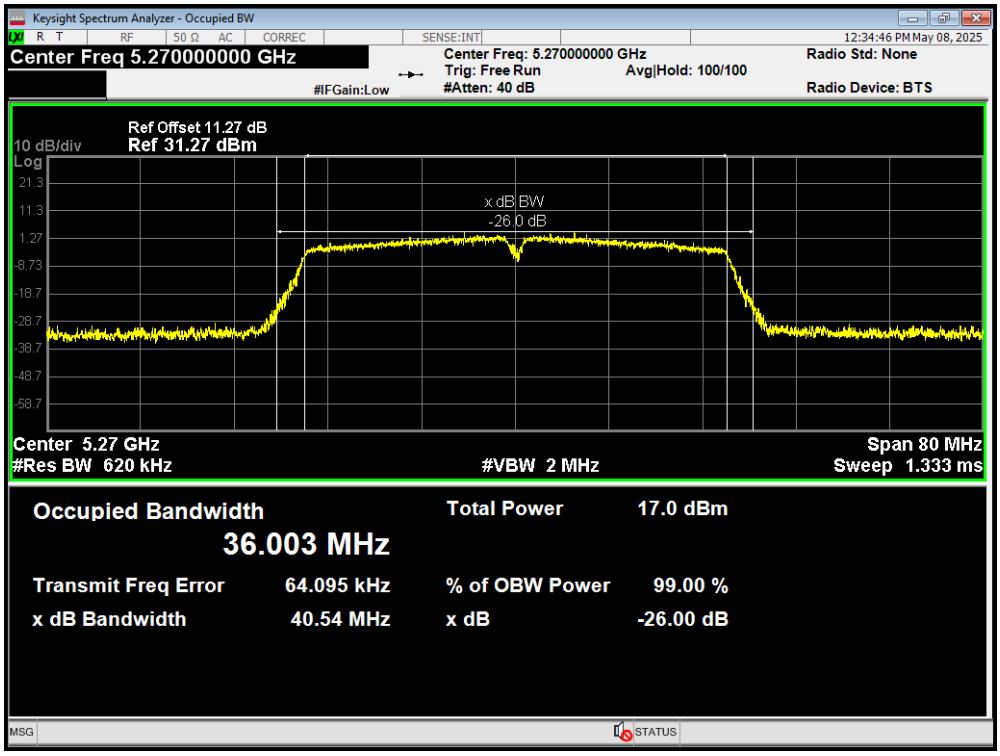
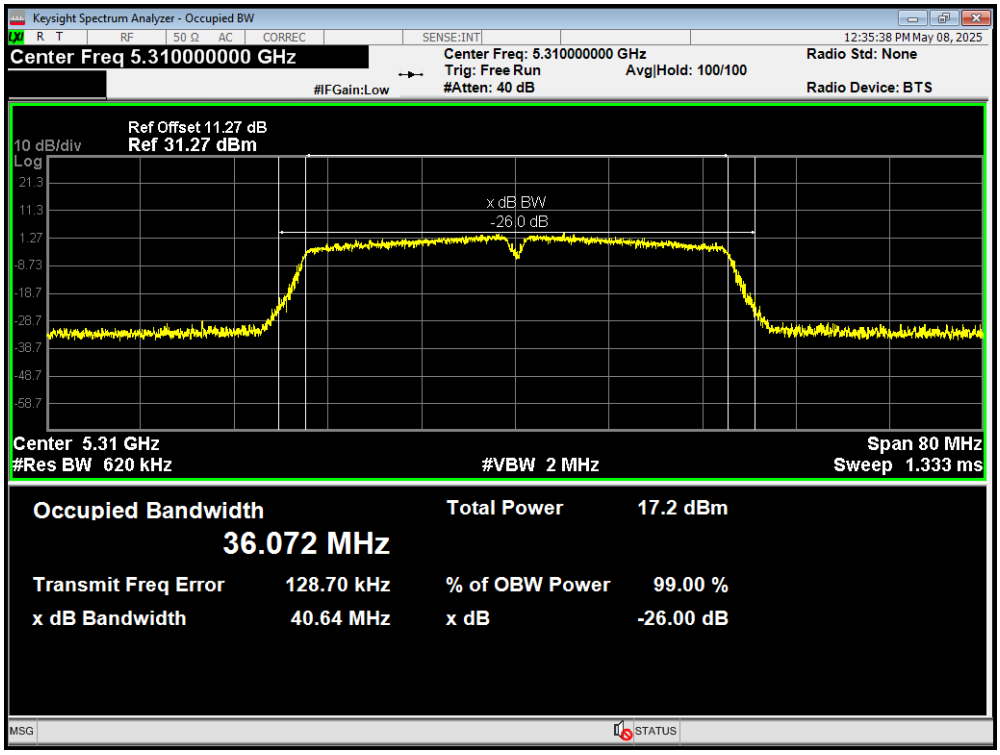


OBW 802.11ac(VHT40) 5310MHz



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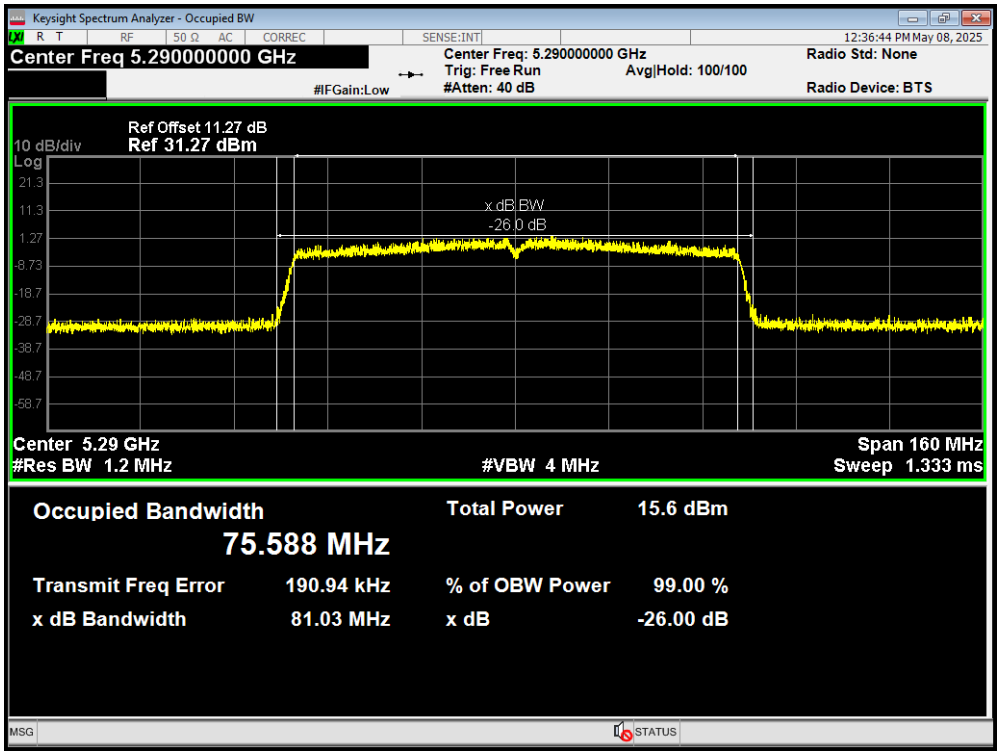

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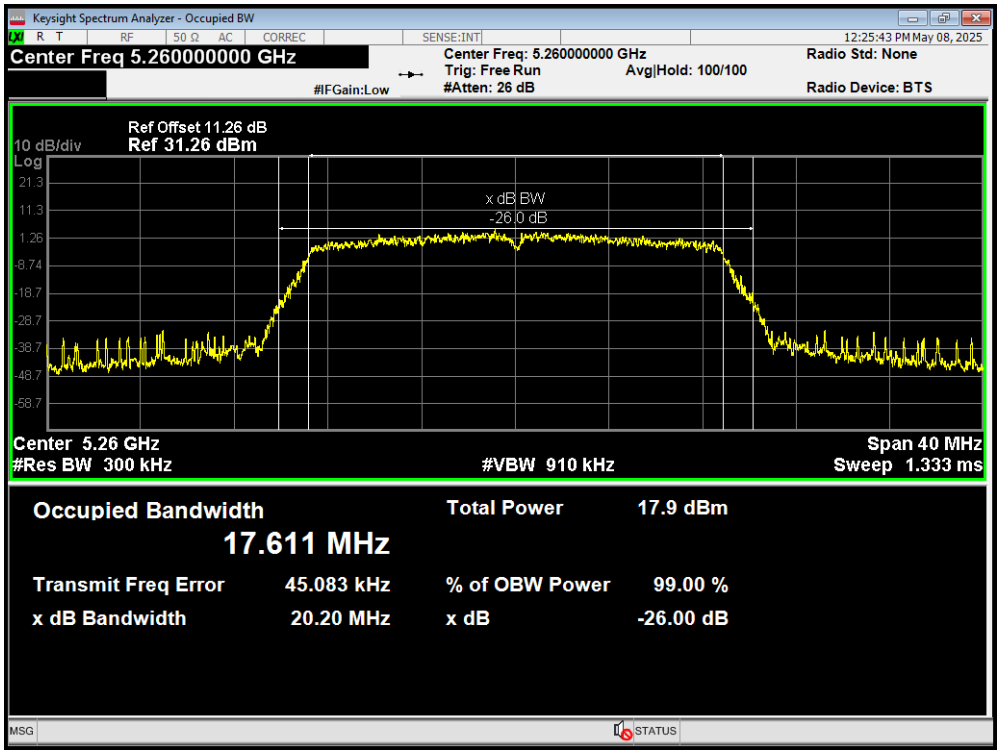
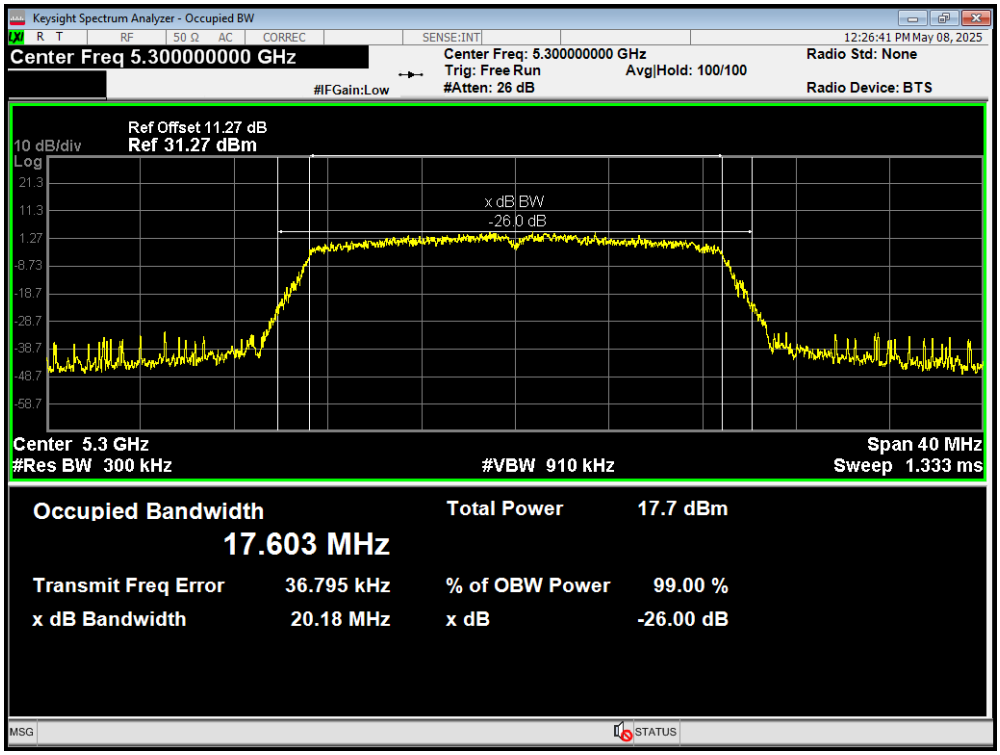
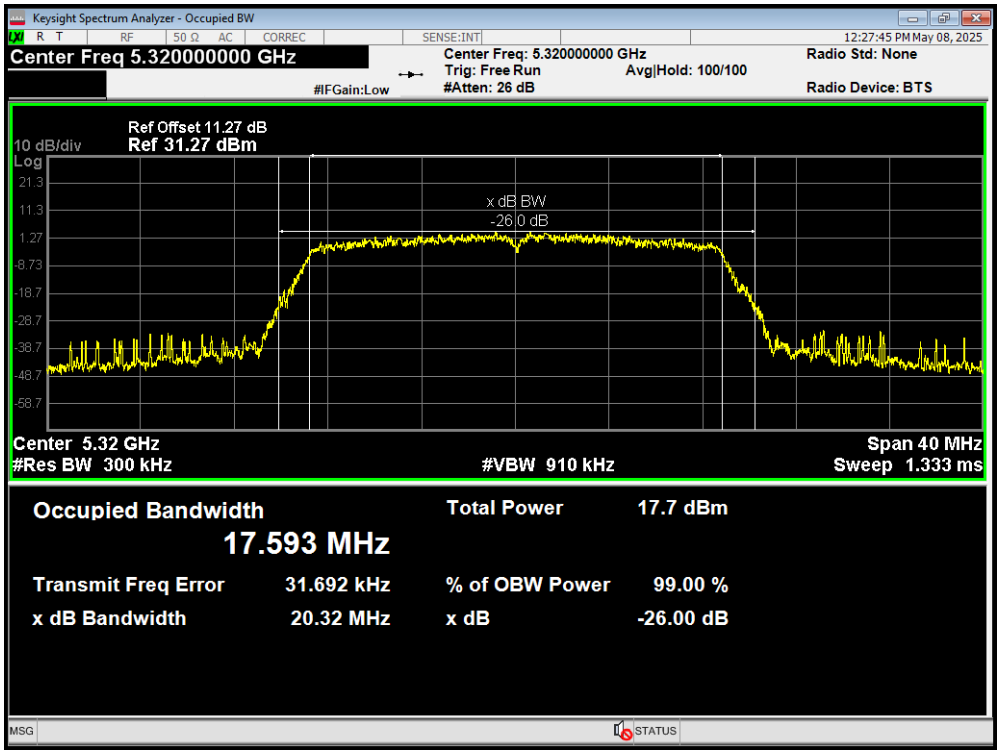


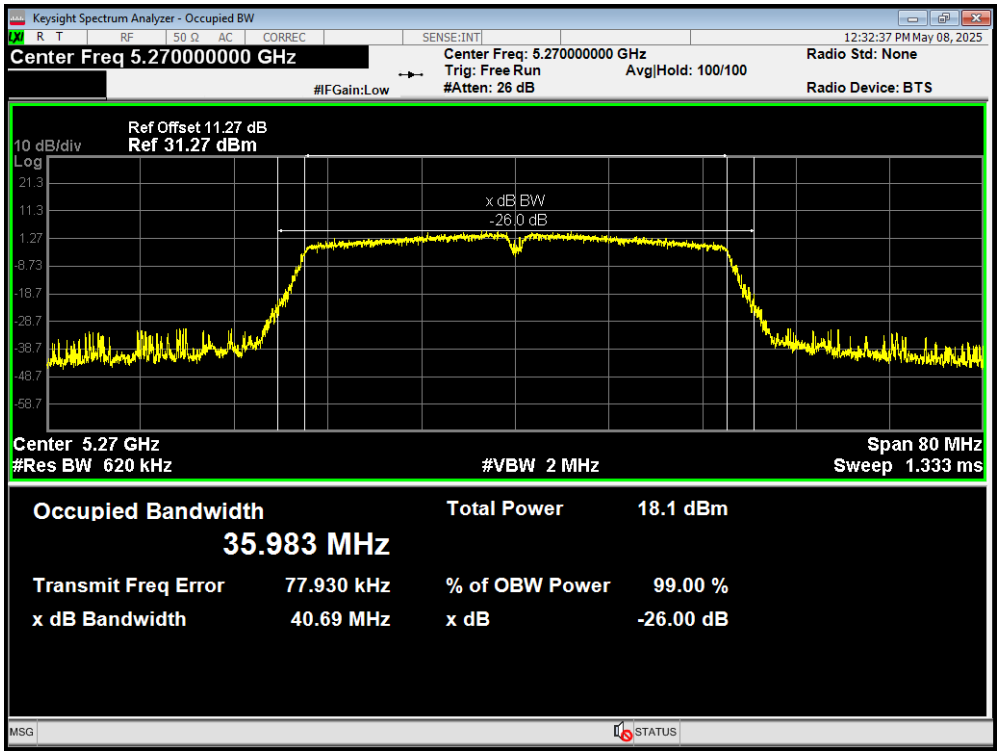
OBW 802.11n(HT20) 5300MHz



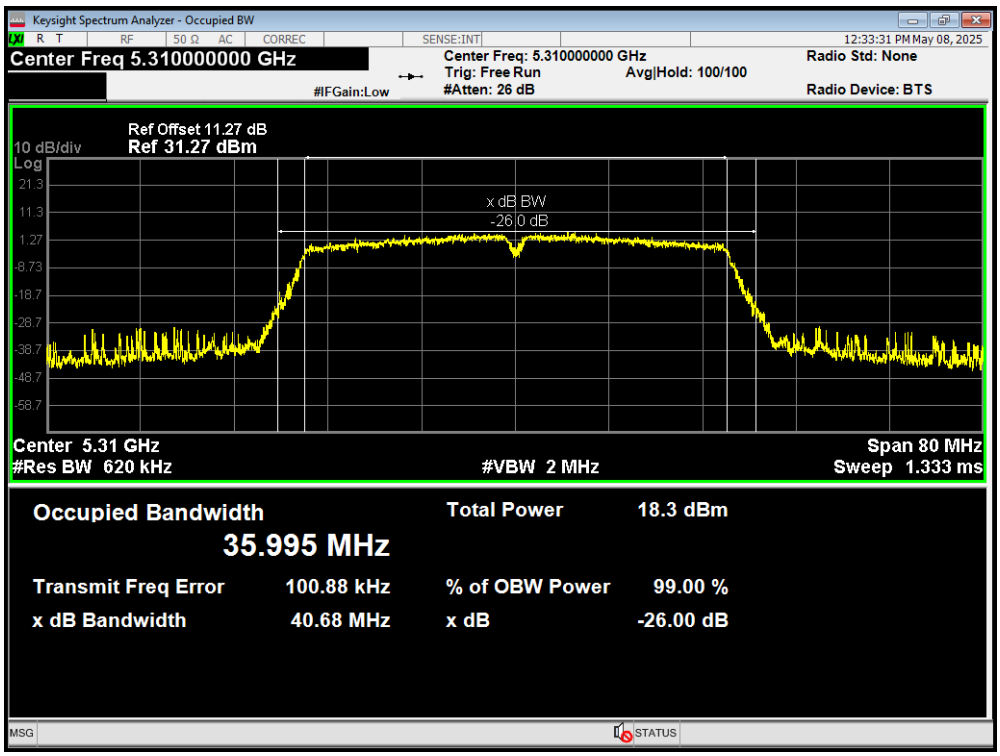
OBW 802.11n(HT20) 5320MHz



OBW 802.11n(HT40) 5270MHz

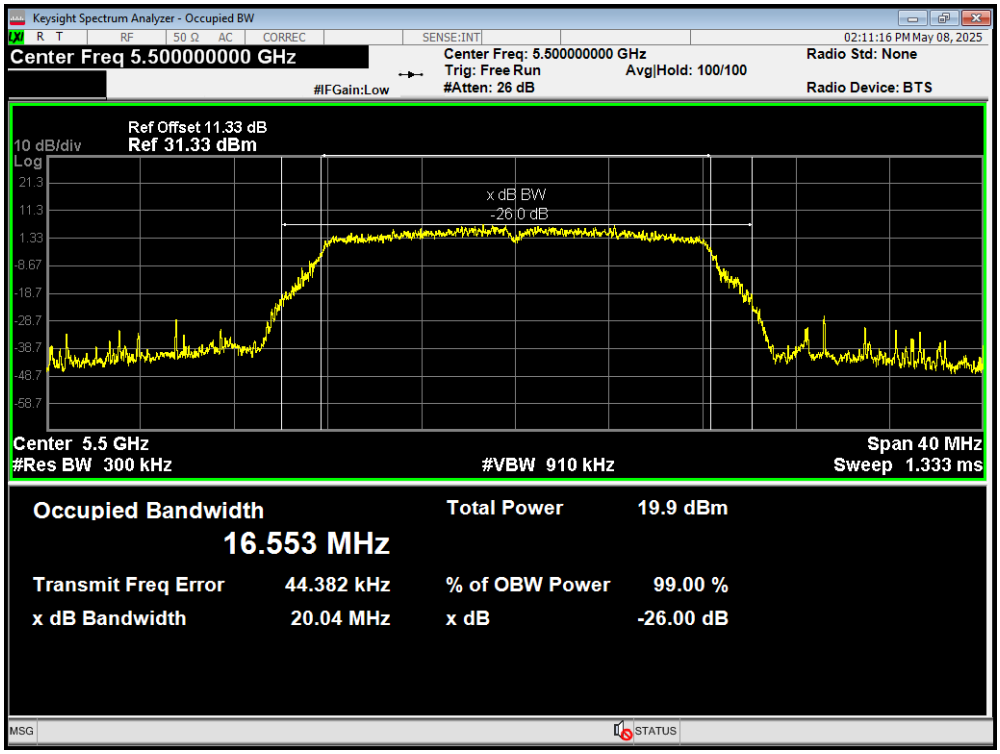


OBW 802.11n(HT40) 5310MHz

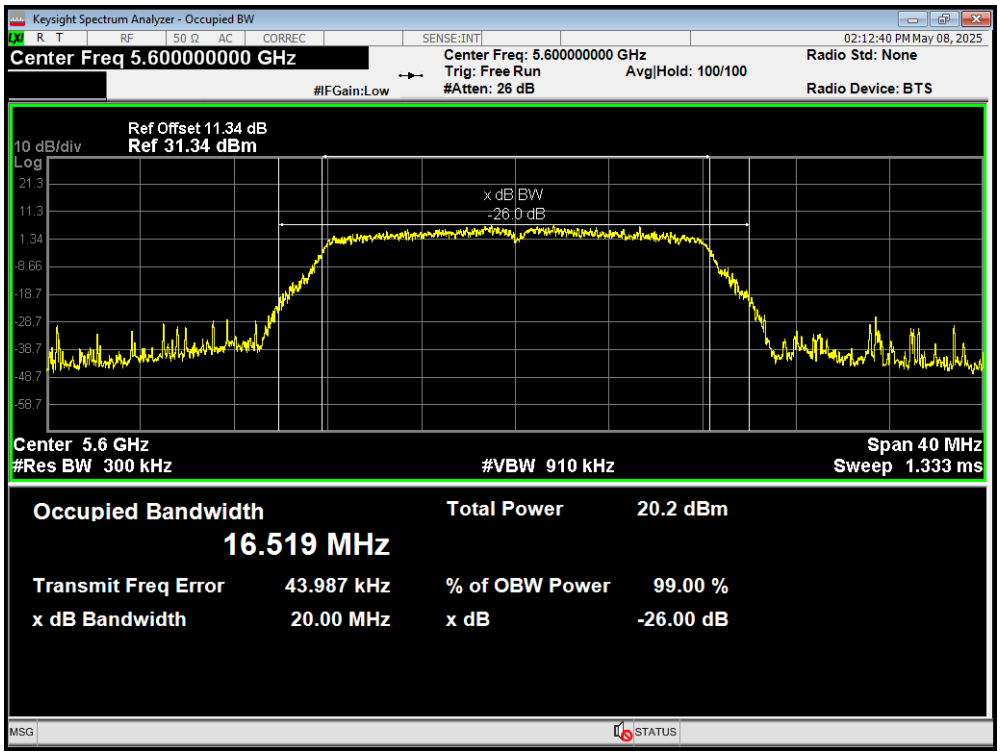


U-NII-2C

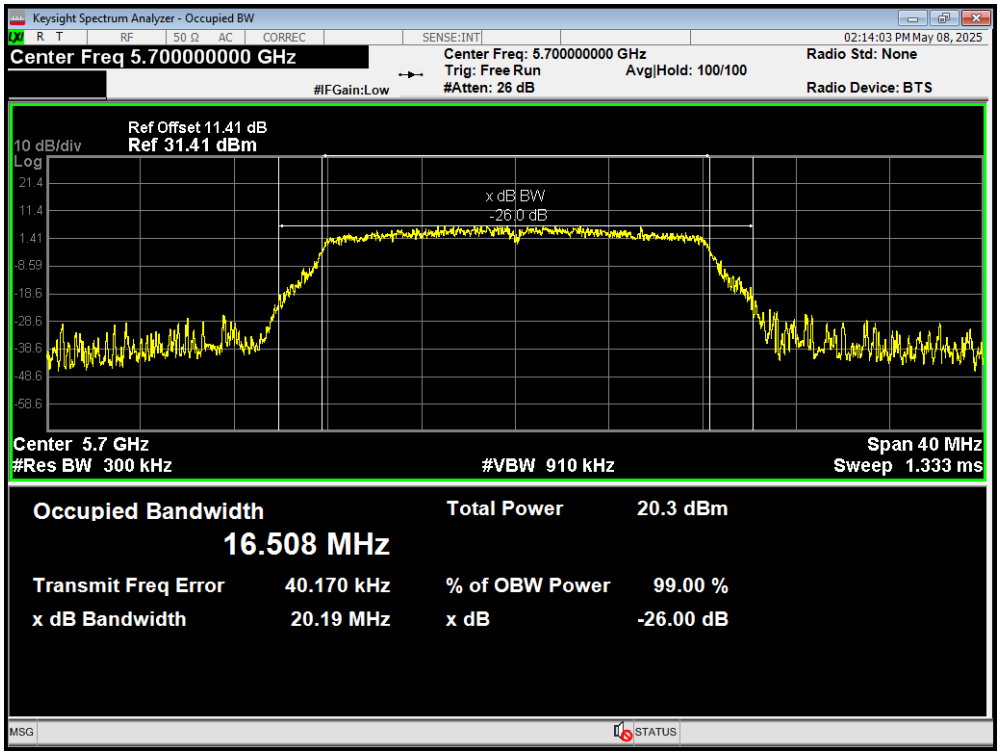
OBW 802.11a 5500MHz



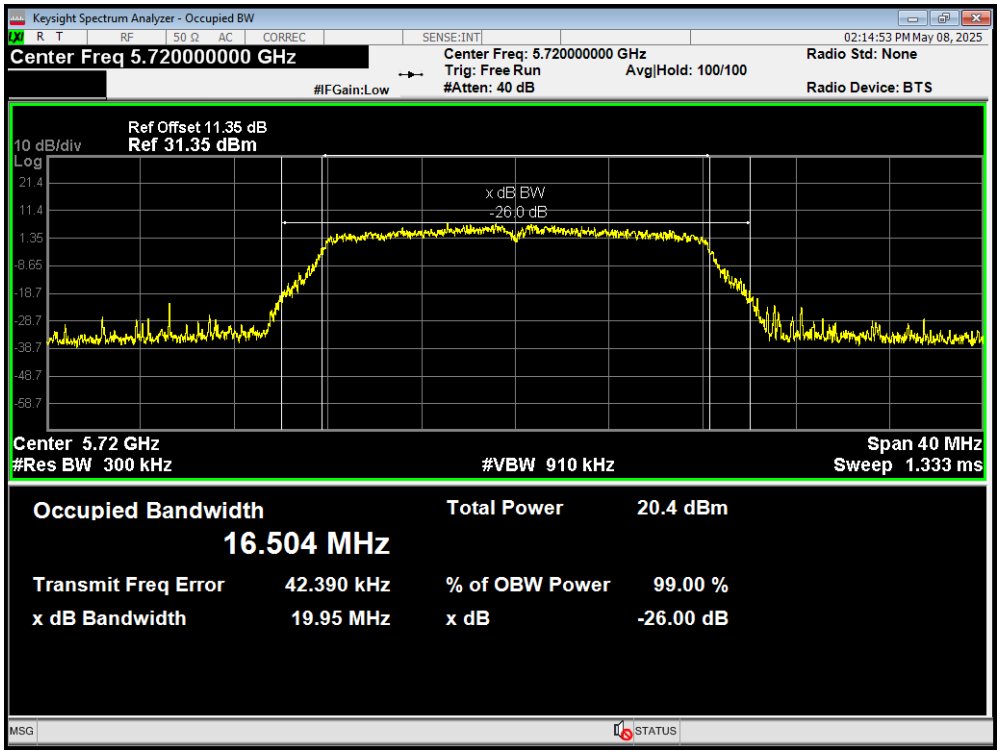
OBW 802.11a 5600MHz



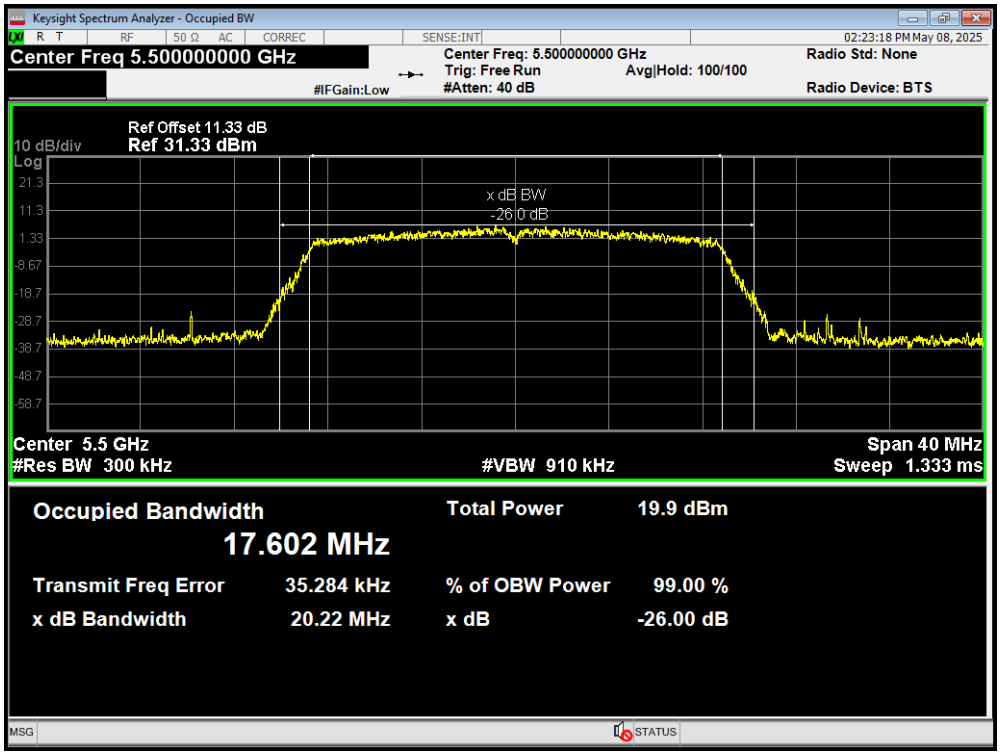
OBW 802.11a 5700MHz



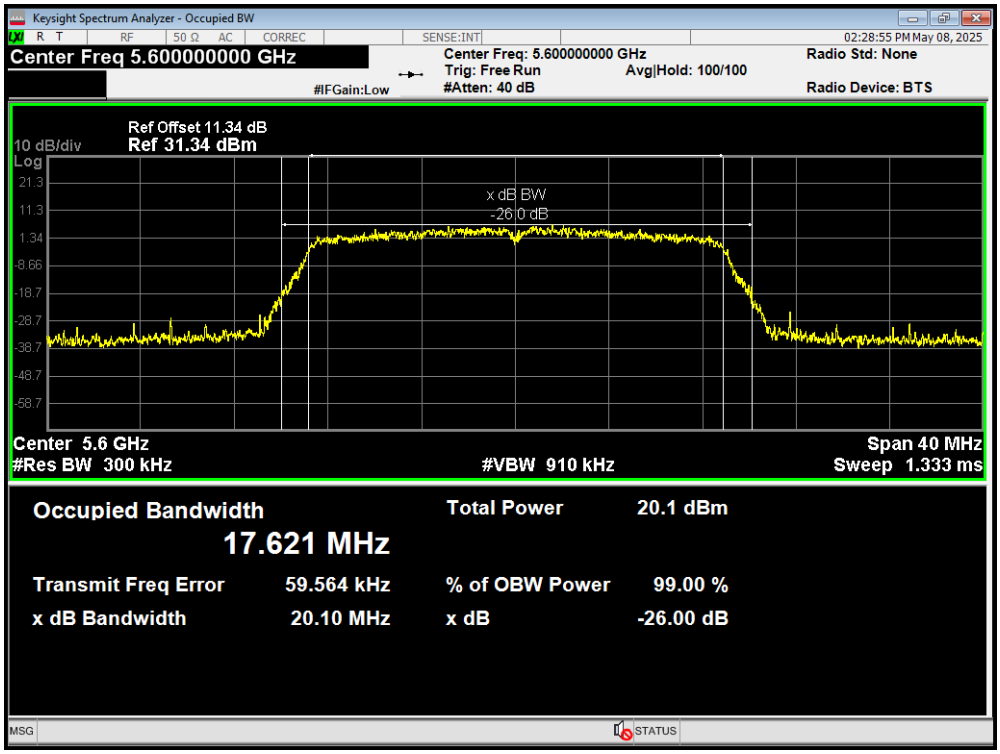
OBW 802.11a 5720MHz



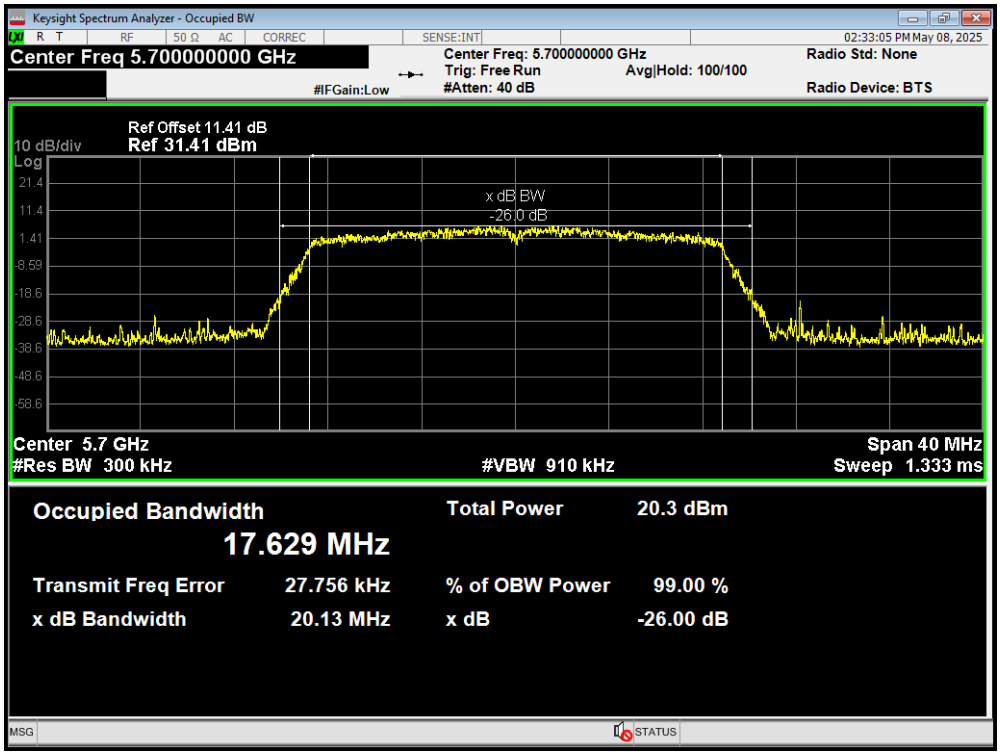
OBW 802.11ac(VHT20) 5500MHz



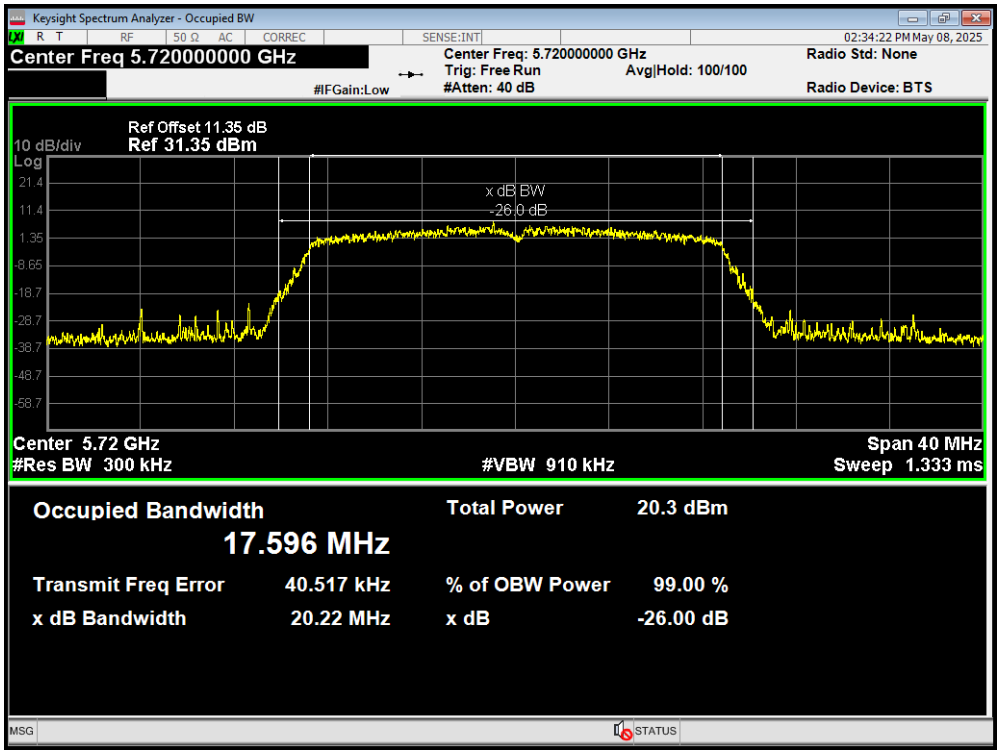
OBW 802.11ac(VHT20) 5600MHz



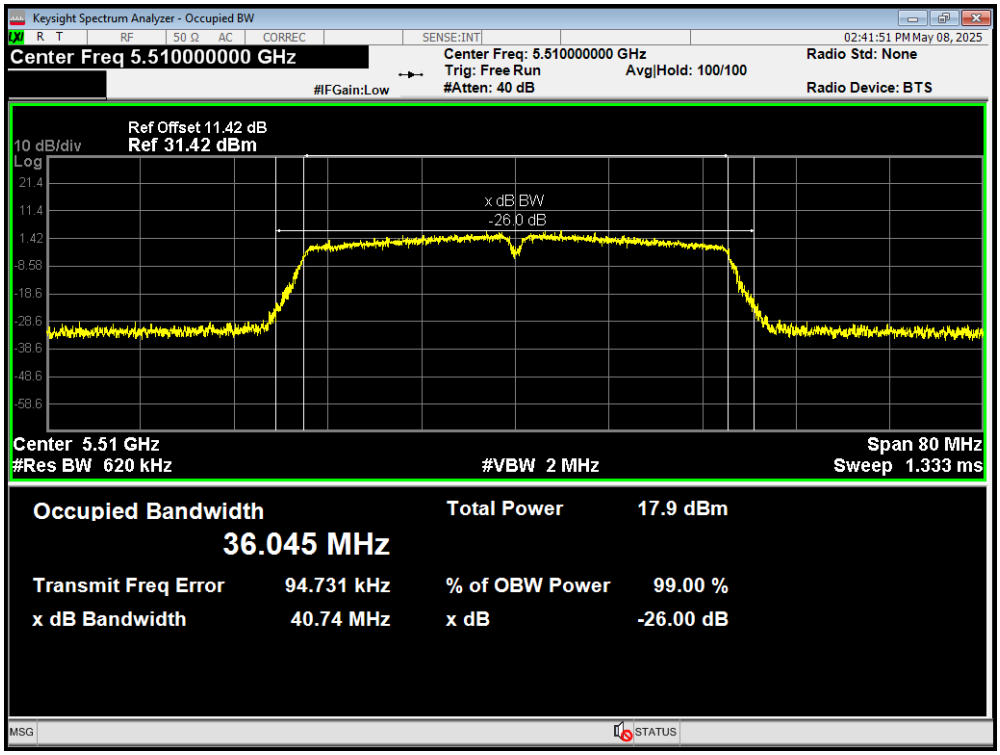
OBW 802.11ac(VHT20) 5700MHz



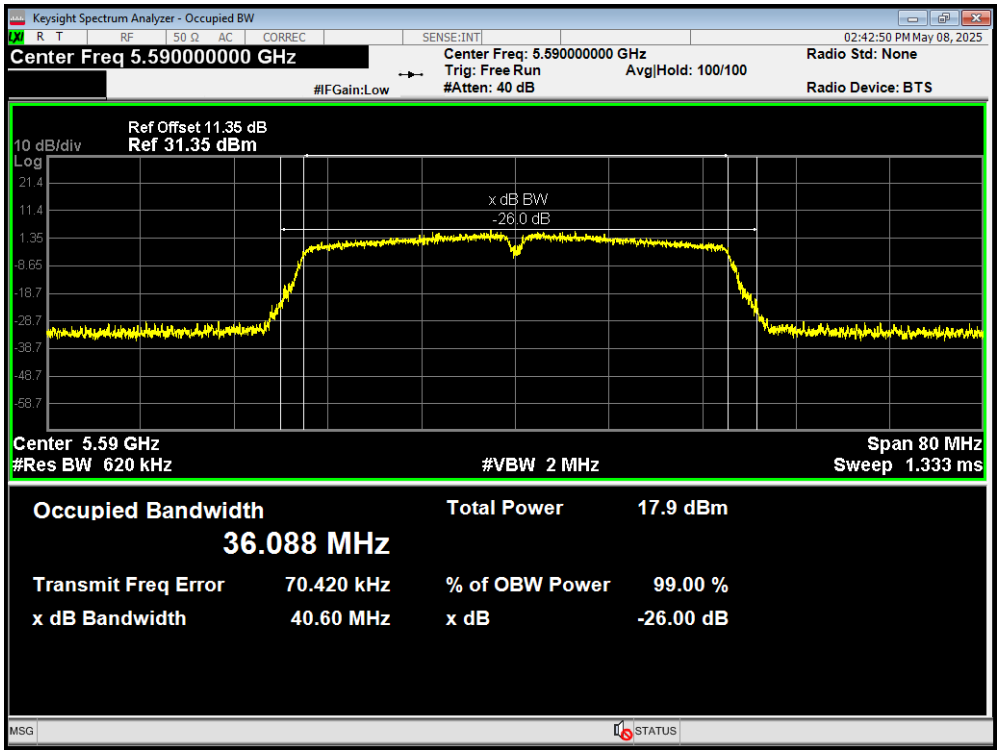
OBW 802.11ac(VHT20) 5720MHz



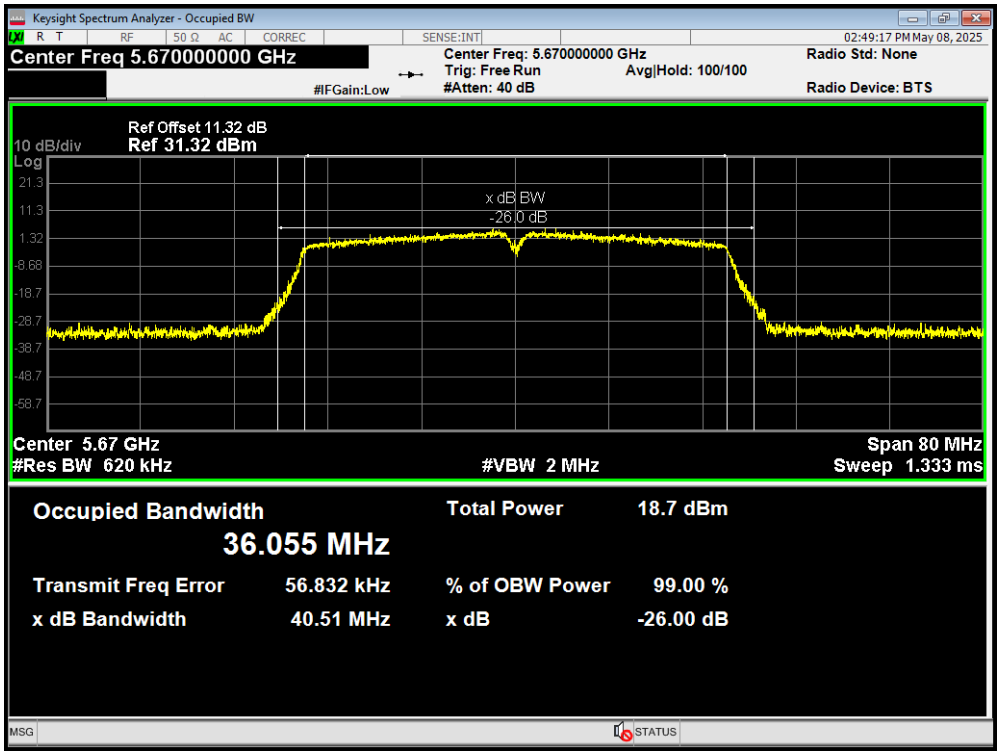
OBW 802.11ac(VHT40) 5510MHz



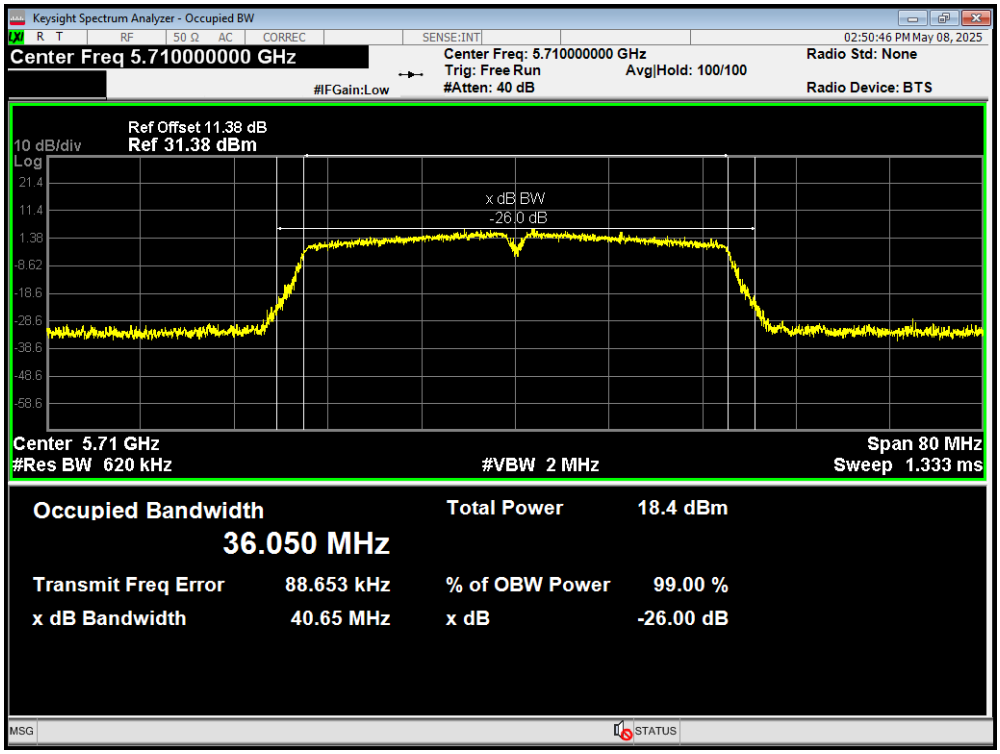
OBW 802.11ac(VHT40) 5590MHz



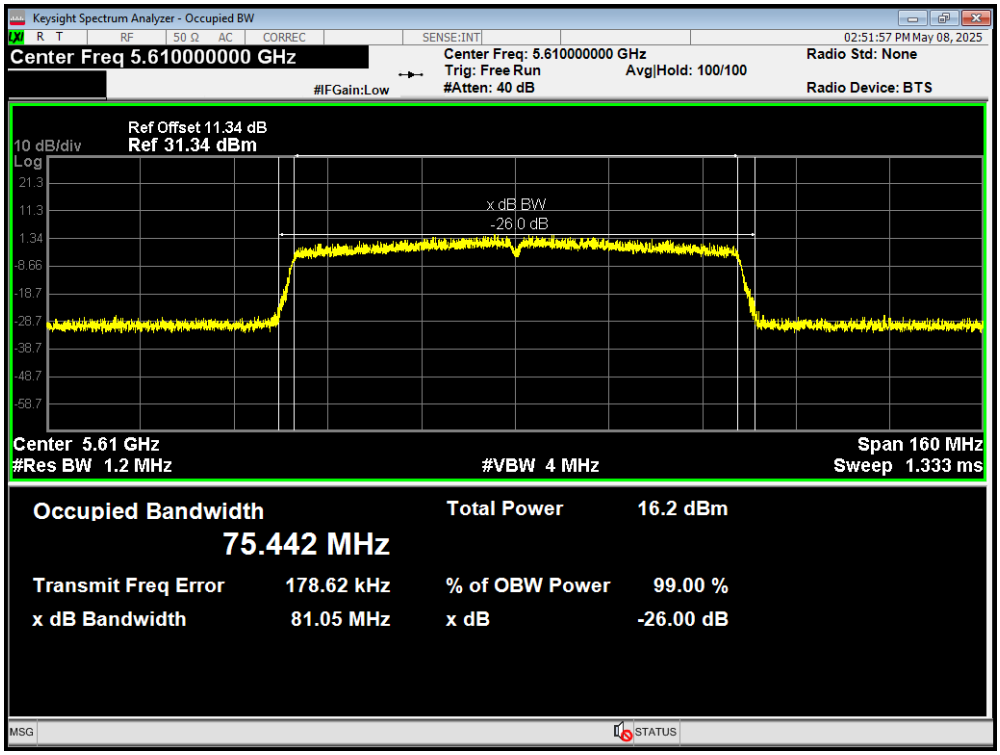
OBW 802.11ac(VHT40) 5670MHz



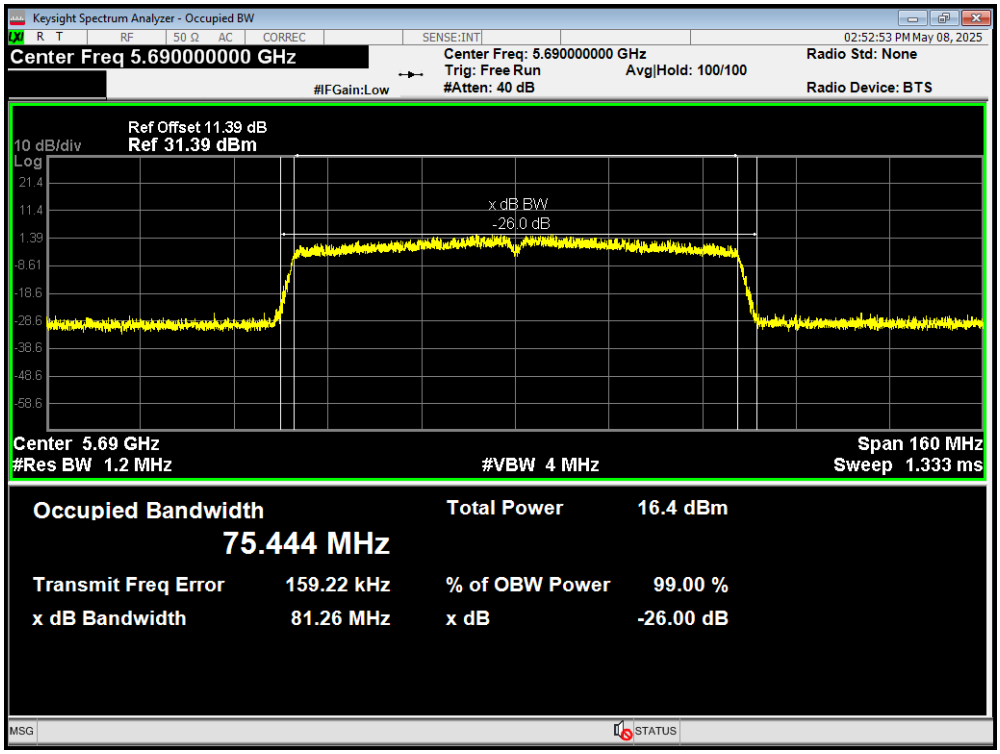
OBW 802.11ac(VHT40) 5710MHz



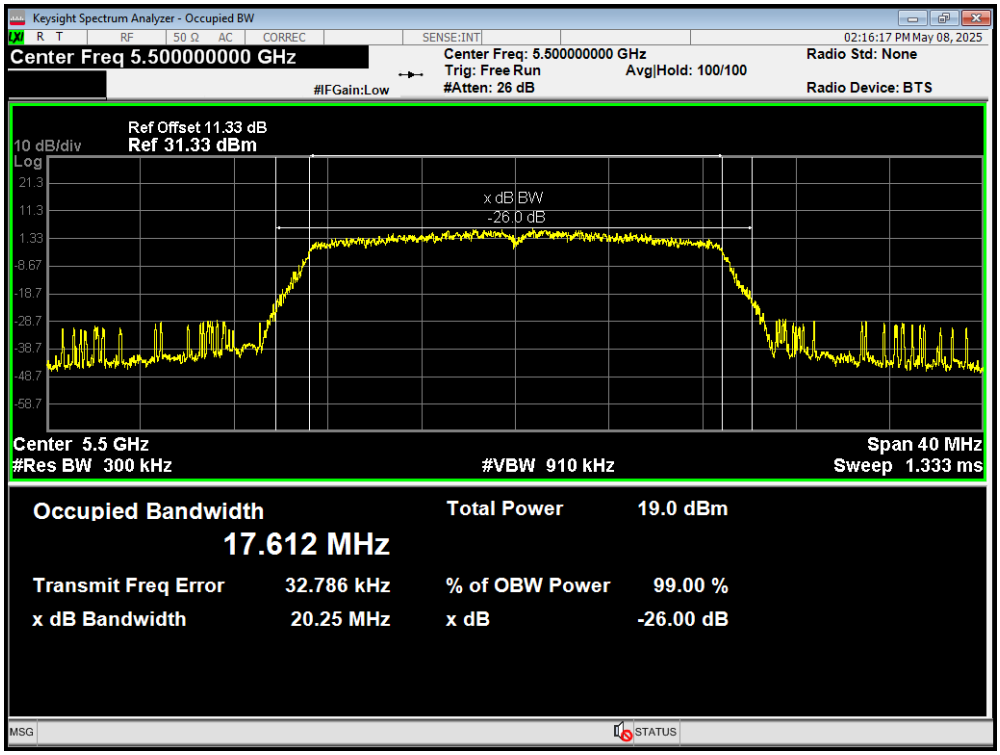
OBW 802.11ac(VHT80) 5610MHz



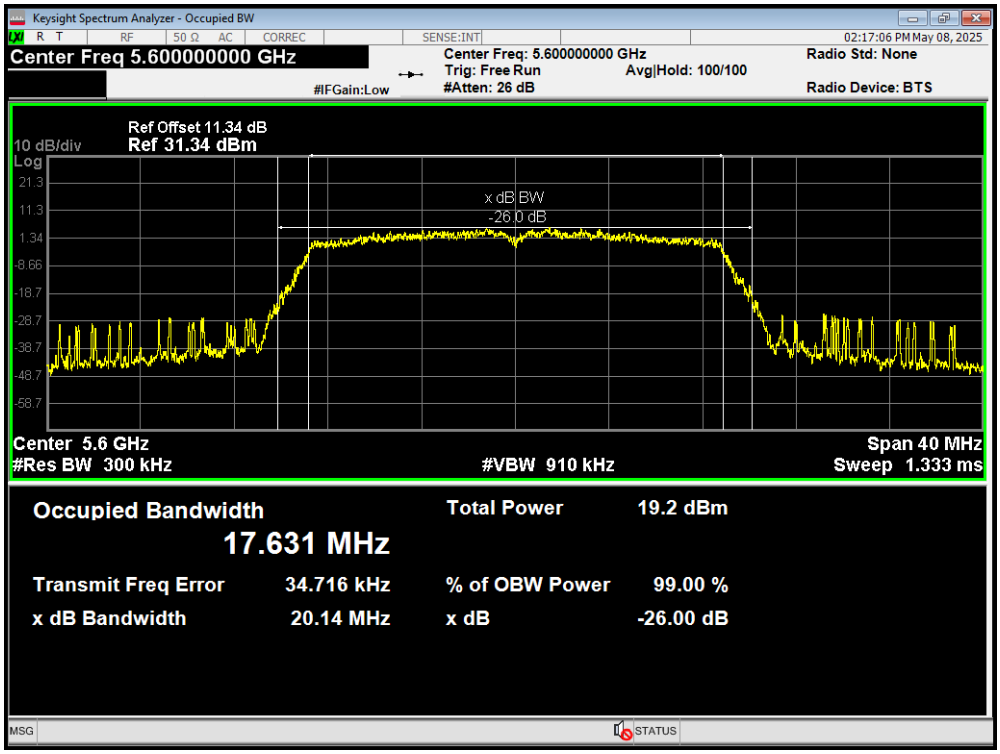
OBW 802.11ac(VHT80) 5690MHz



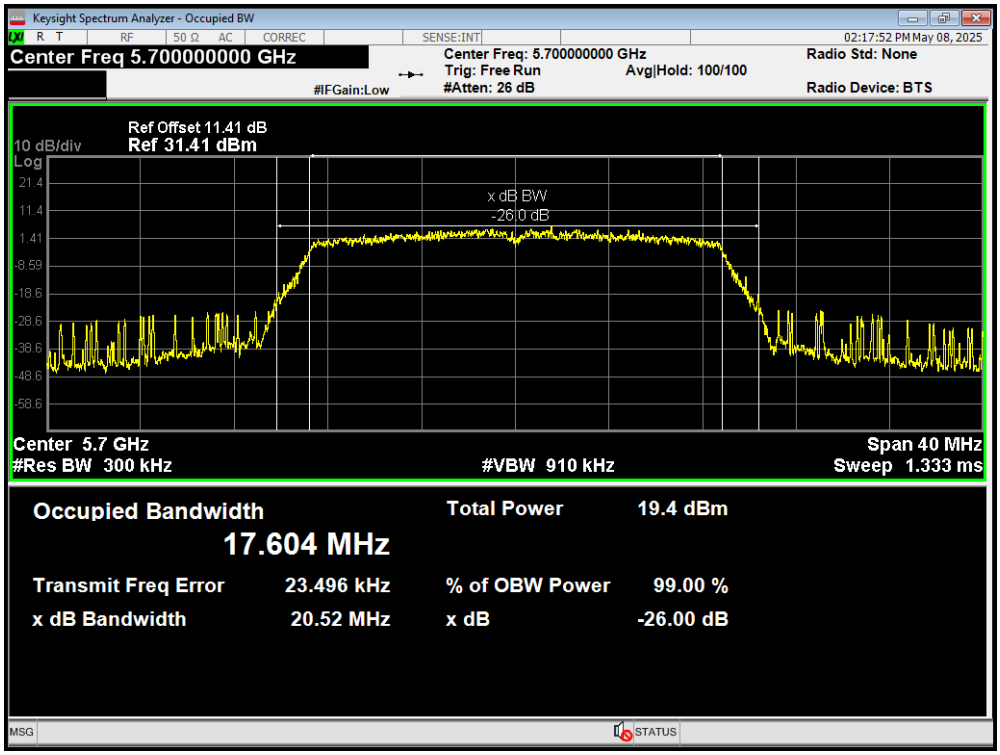
OBW 802.11n(HT20) 5500MHz



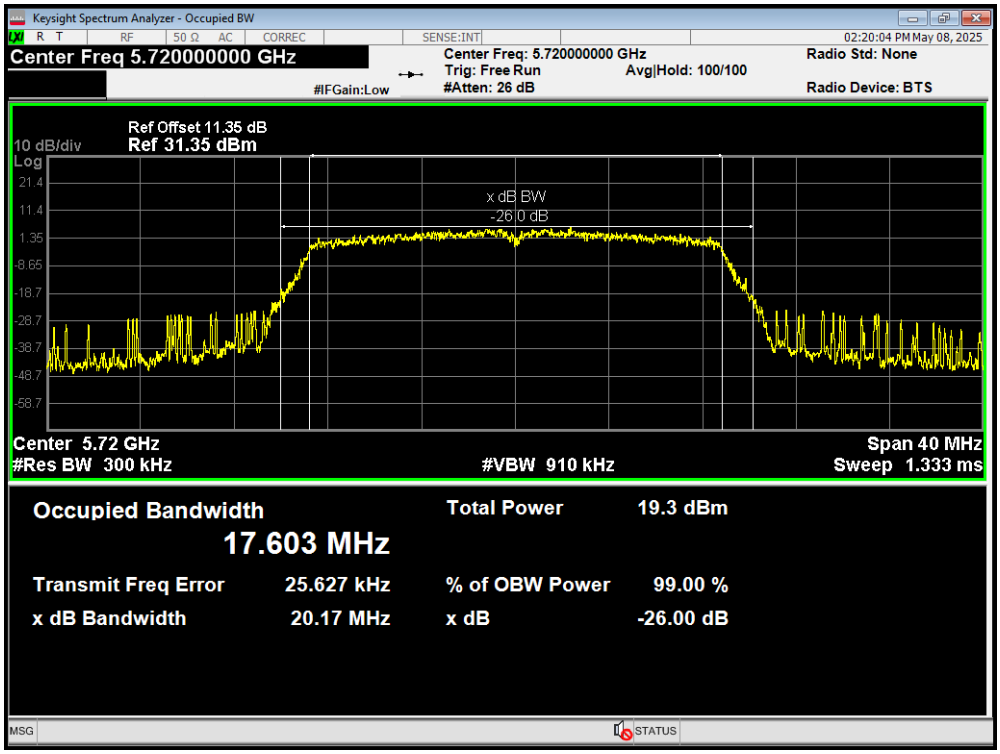
OBW 802.11n(HT20) 5600MHz



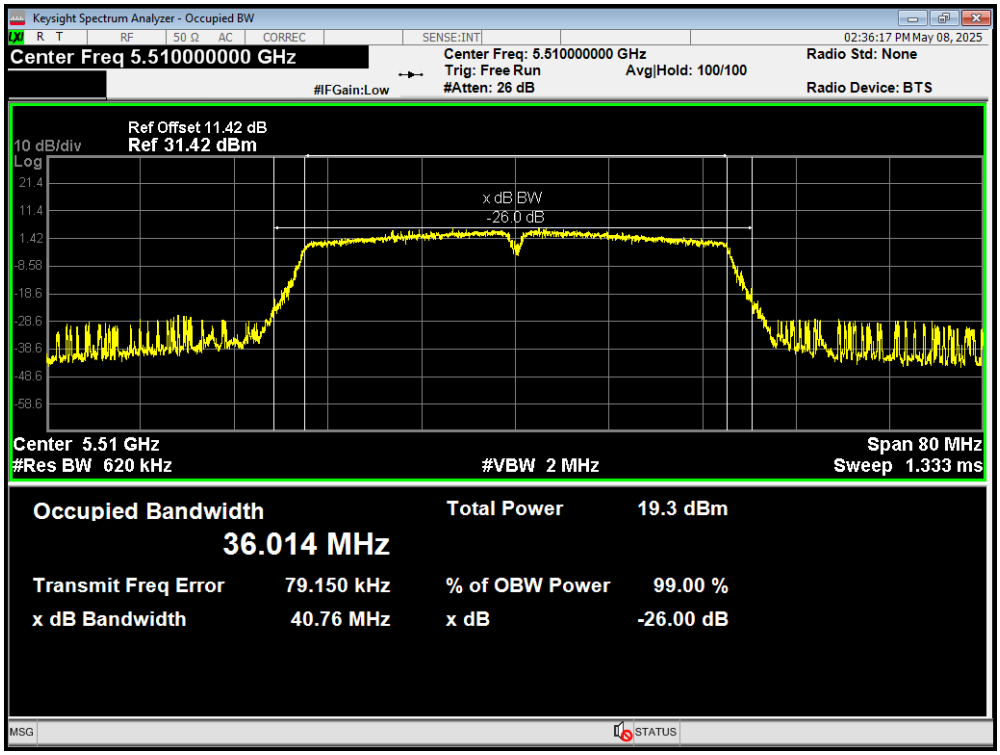
OBW 802.11n(HT20) 5700MHz



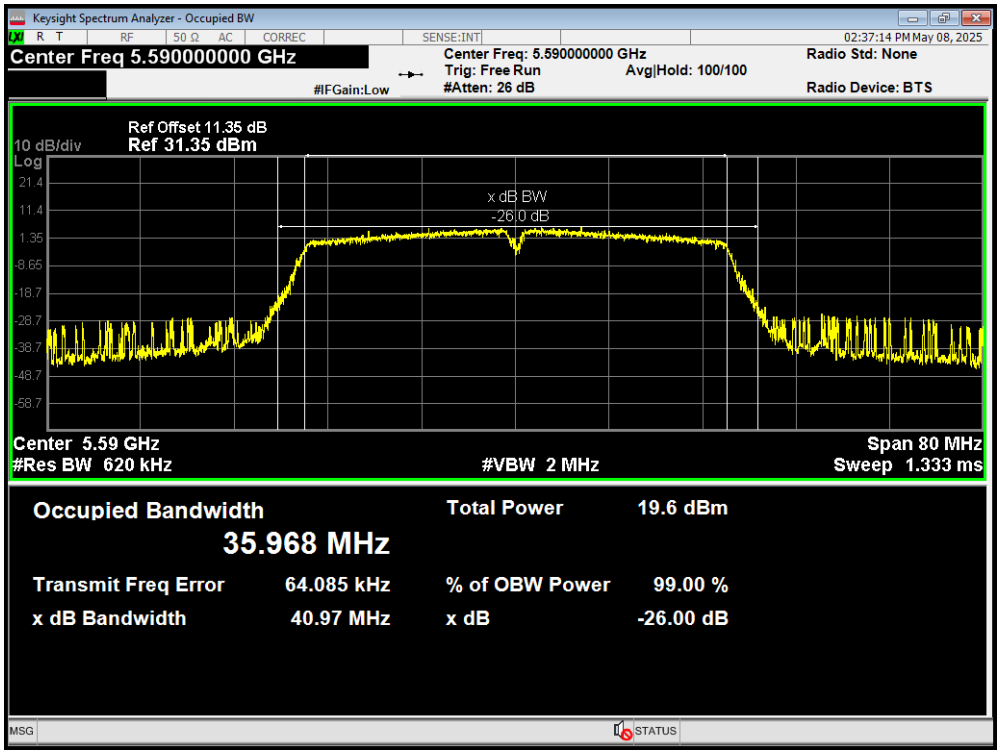
OBW 802.11n(HT20) 5720MHz



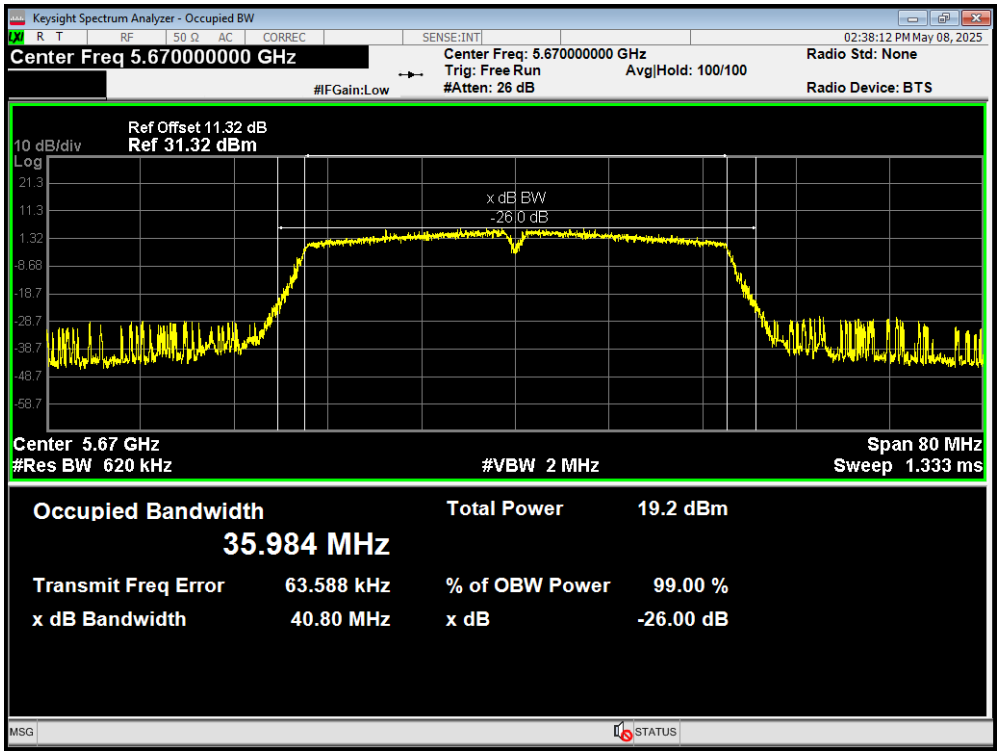
OBW 802.11n(HT40) 5510MHz



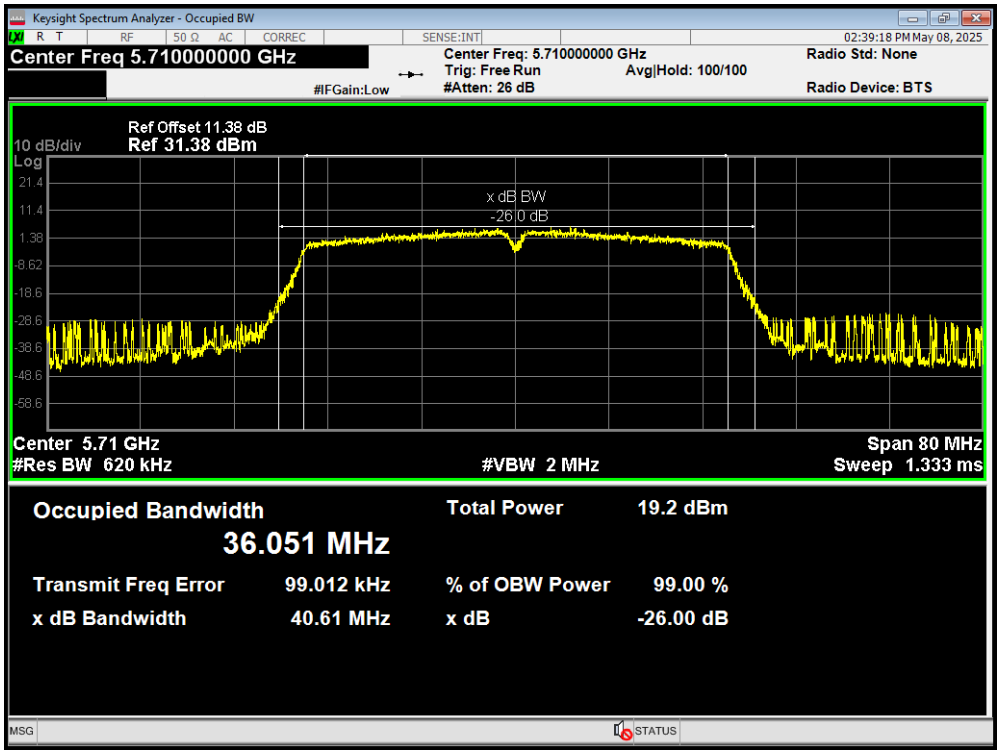
OBW 802.11n(HT40) 5590MHz



OBW 802.11n(HT40) 5670MHz

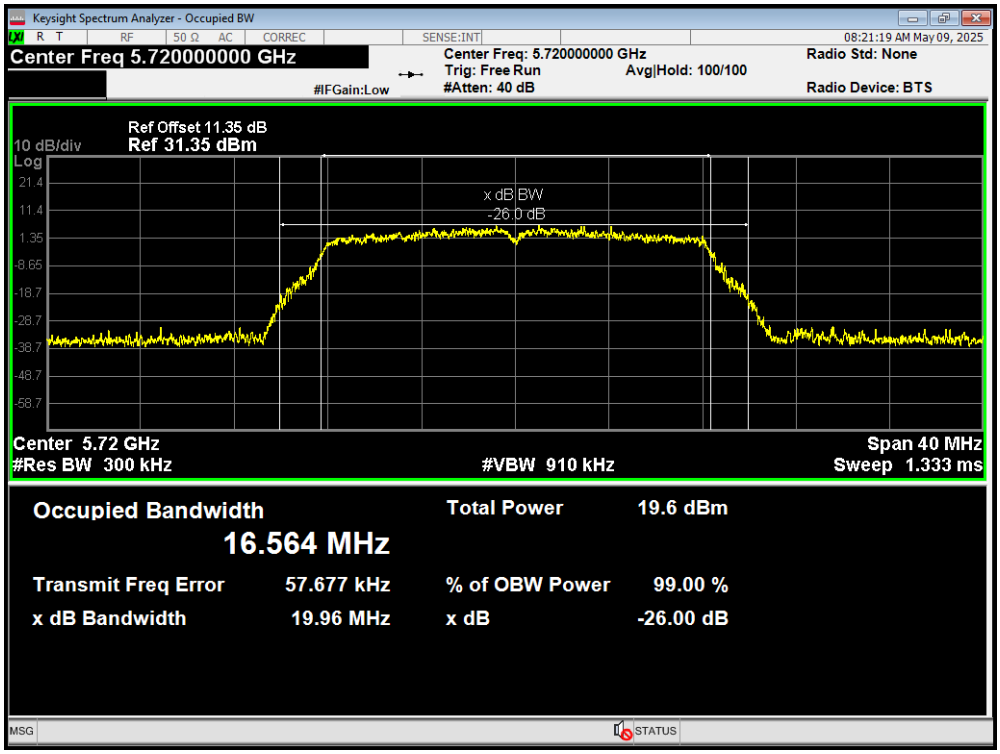


OBW 802.11n(HT40) 5710MHz

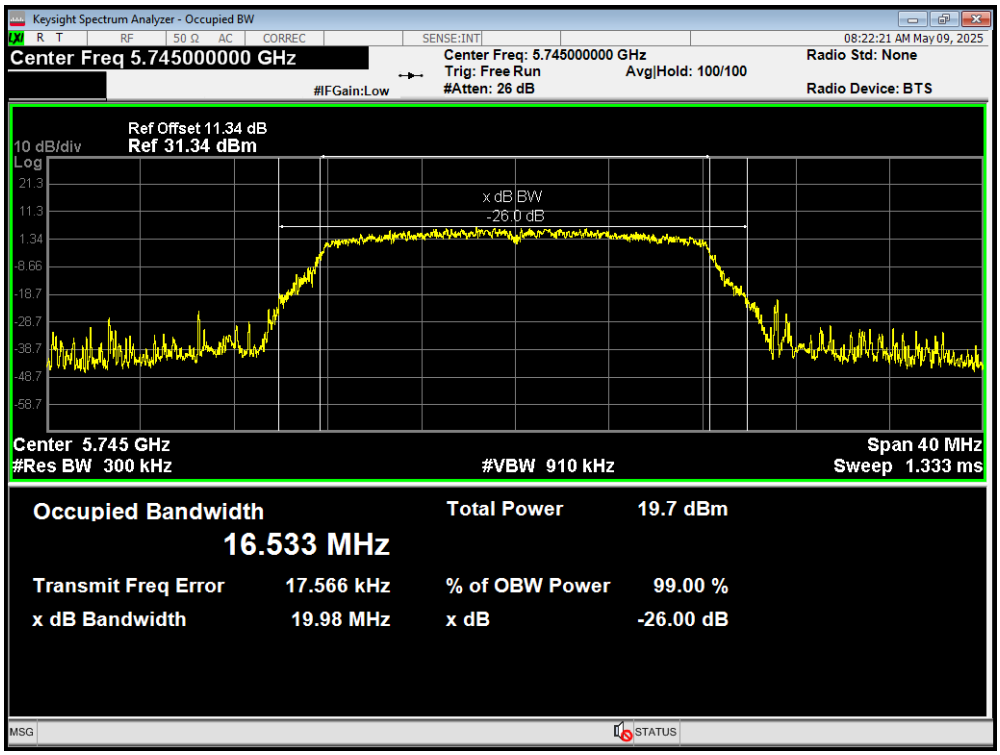


U-NII-3

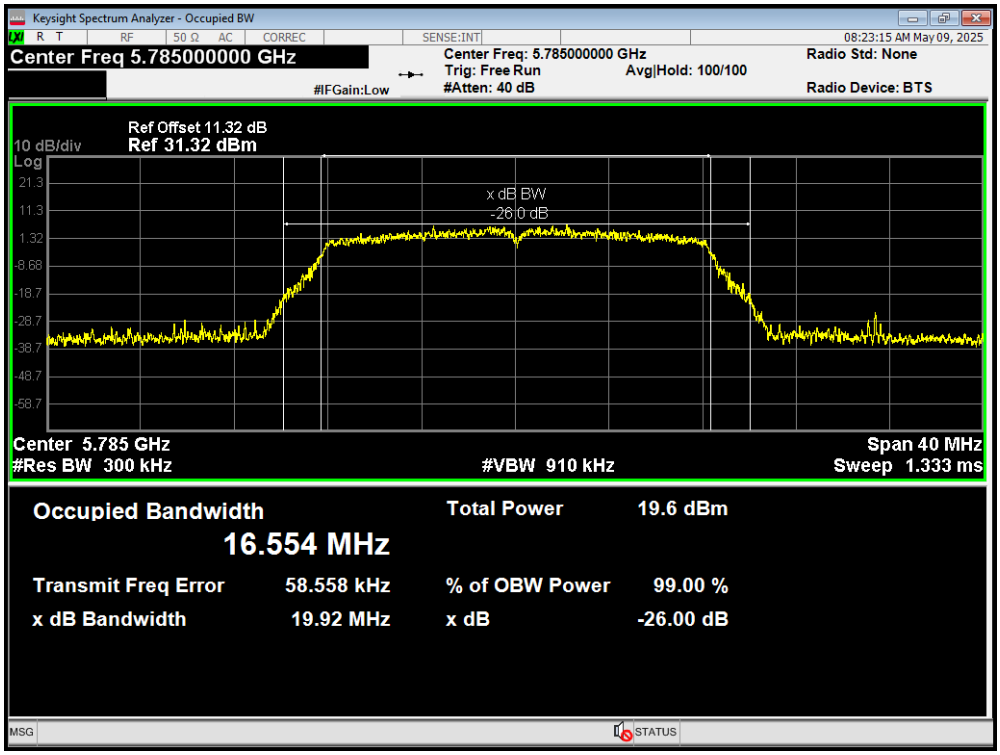
OBW 802.11a 5720MHz



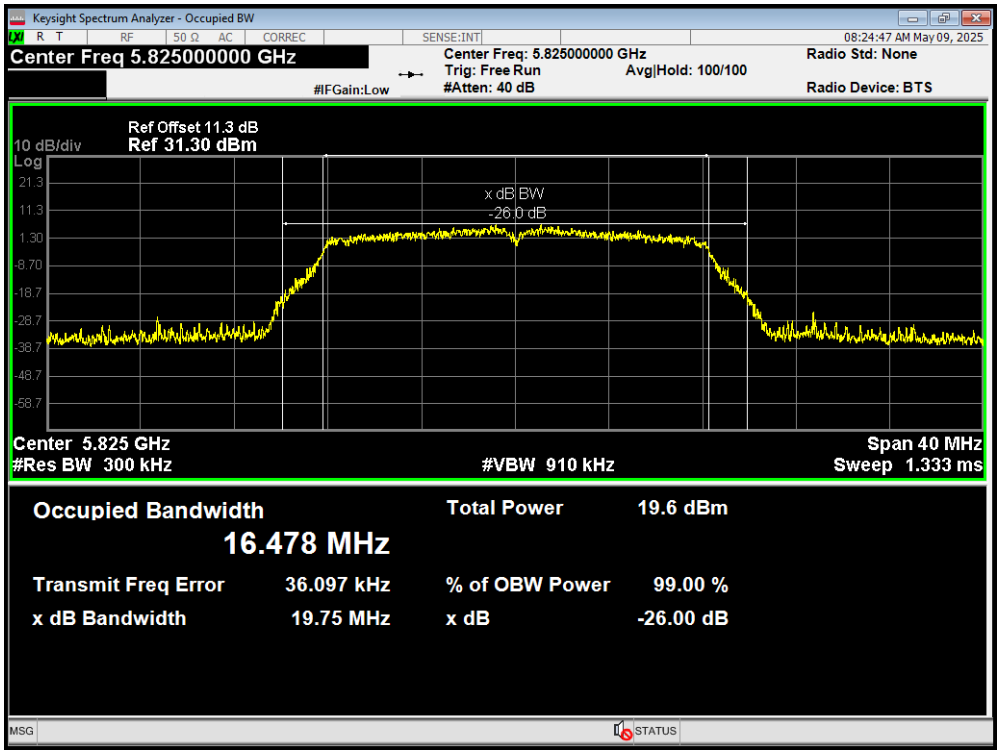
OBW 802.11a 5745MHz



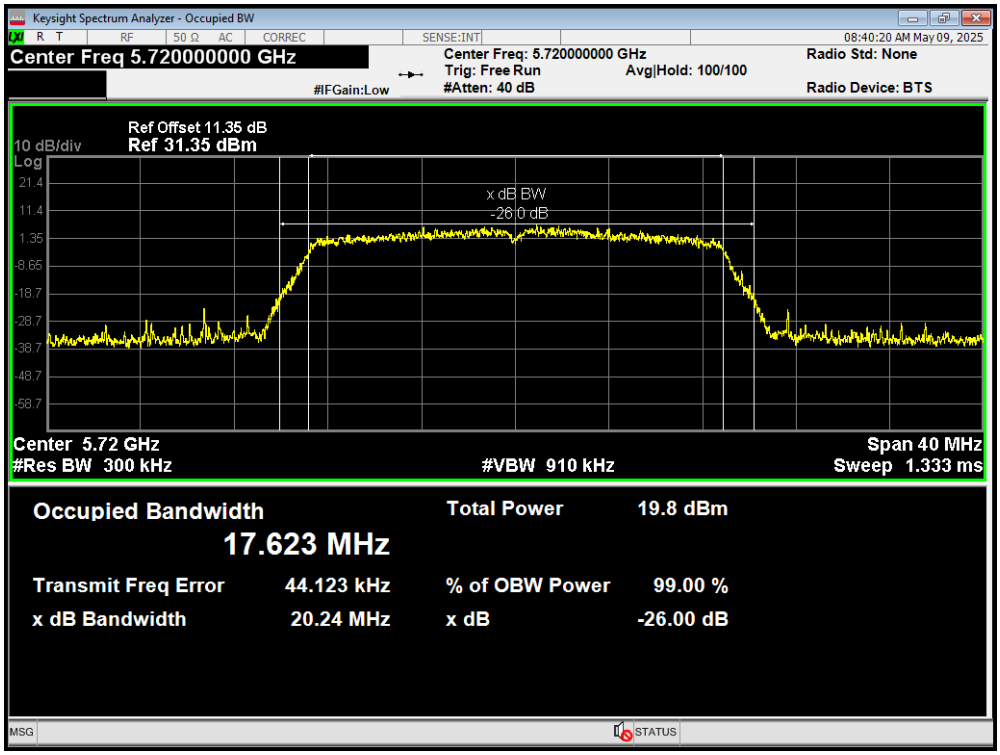
OBW 802.11a 5785MHz



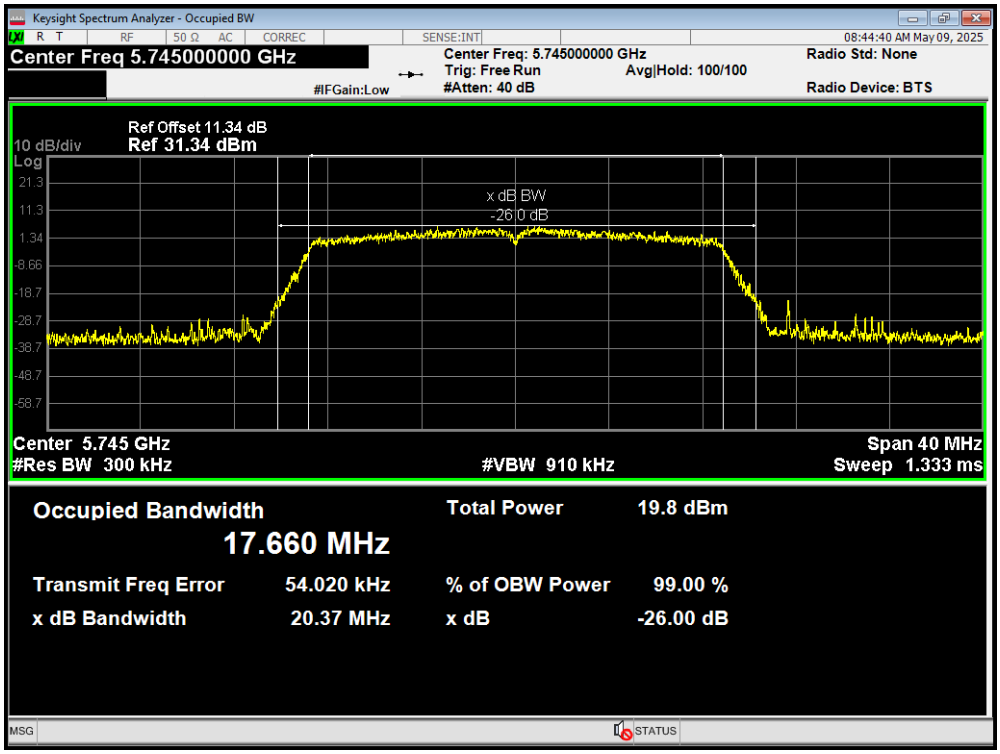
OBW 802.11a 5825MHz



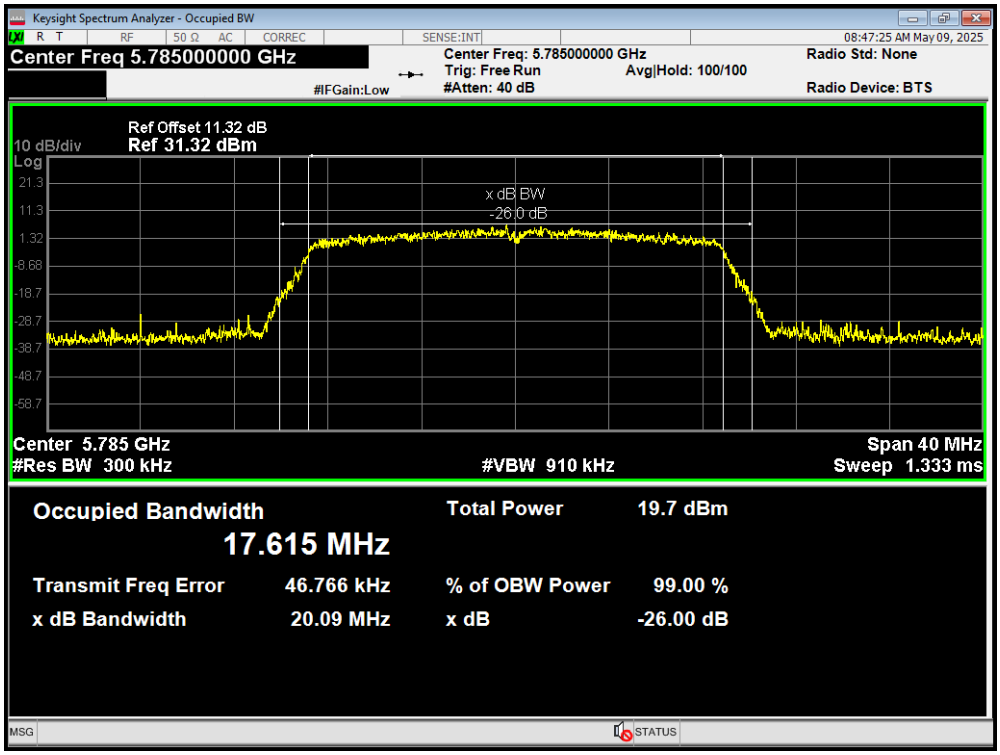
OBW 802.11ac(VHT20) 5720MHz



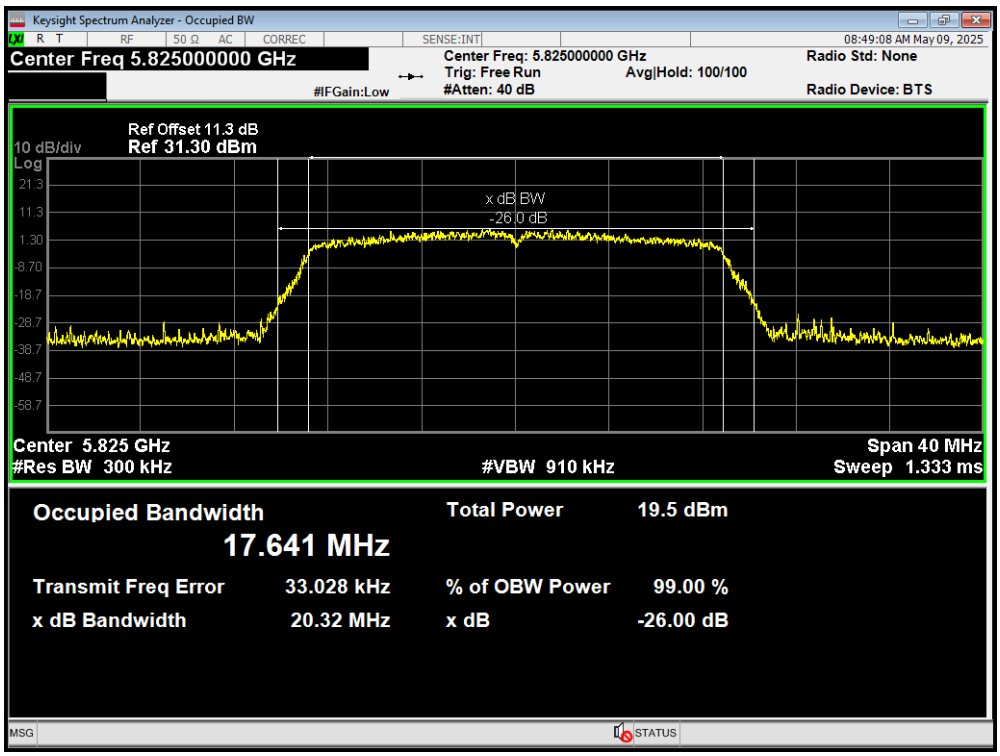
OBW 802.11ac(VHT20) 5745MHz



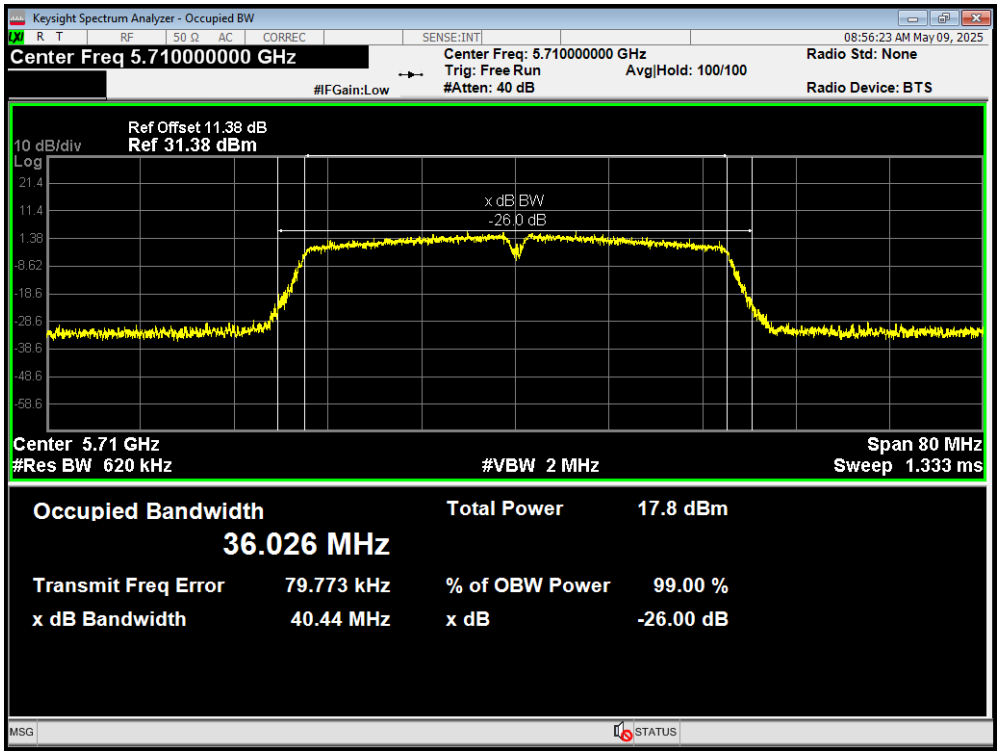
OBW 802.11ac(VHT20) 5785MHz



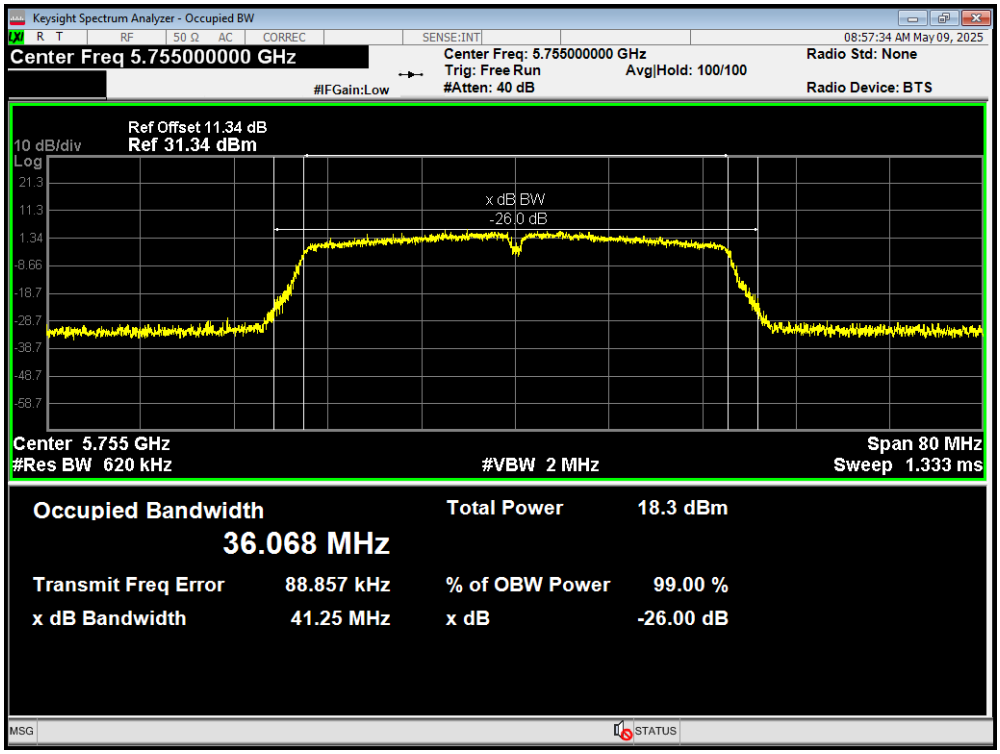
OBW 802.11ac(VHT20) 5825MHz



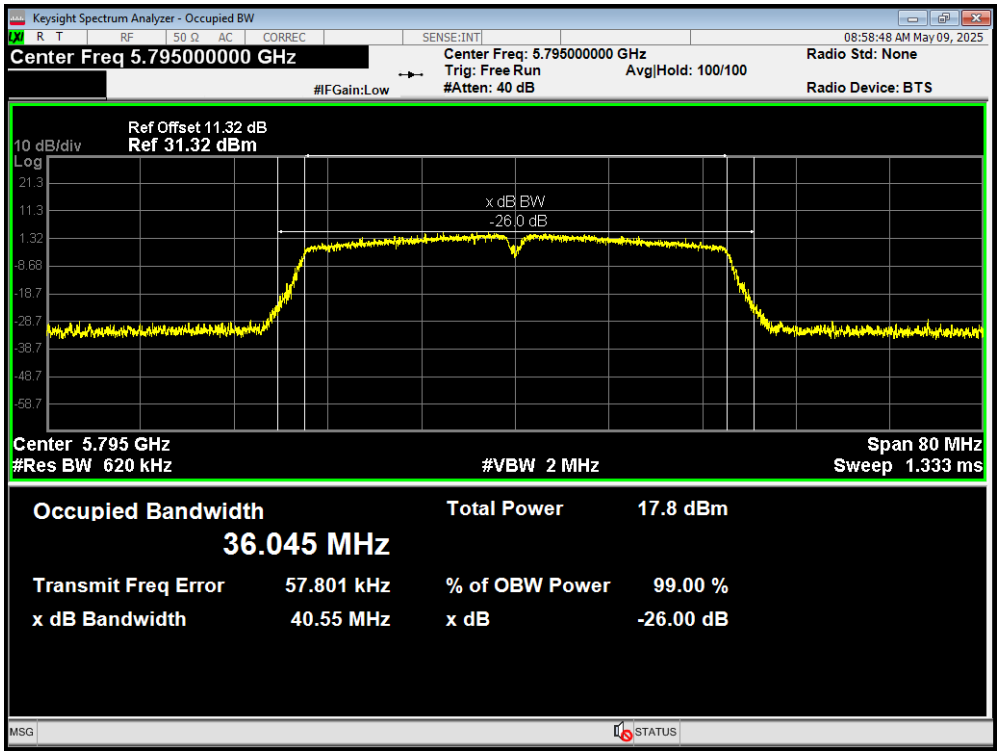
OBW 802.11ac(VHT40) 5710MHz



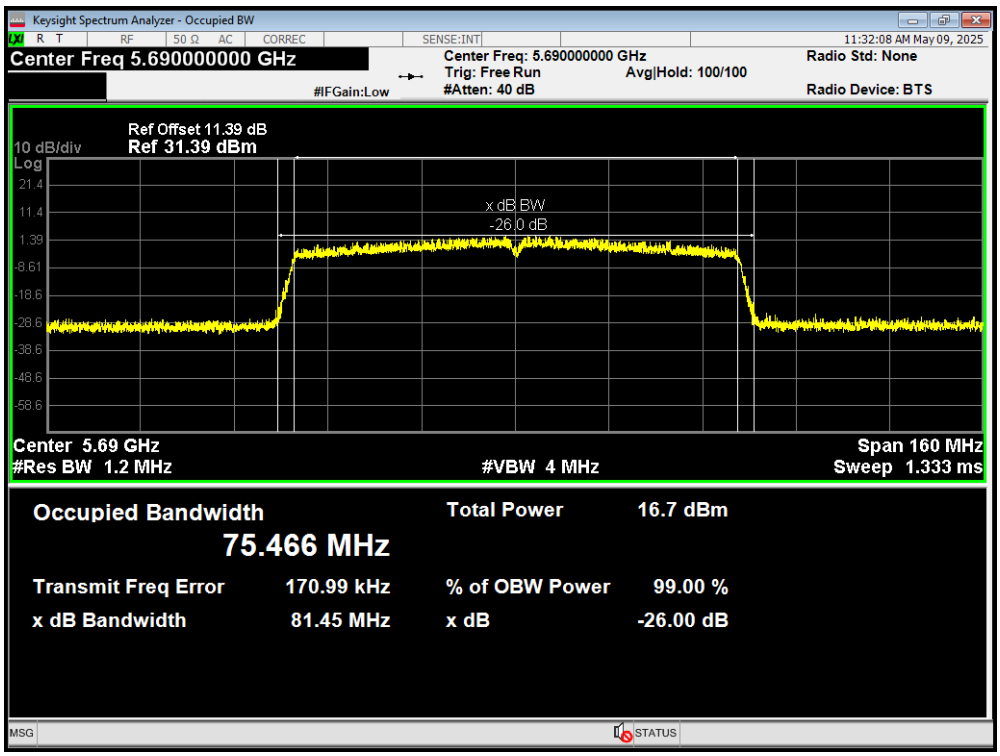
OBW 802.11ac(VHT40) 5755MHz



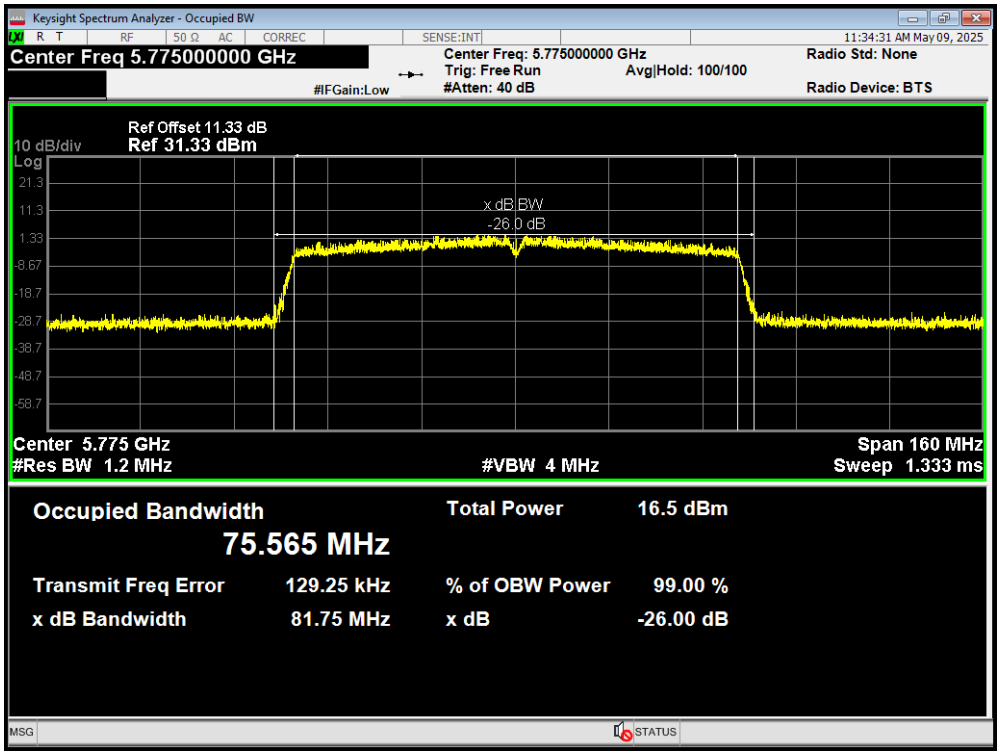
OBW 802.11ac(VHT40) 5795MHz



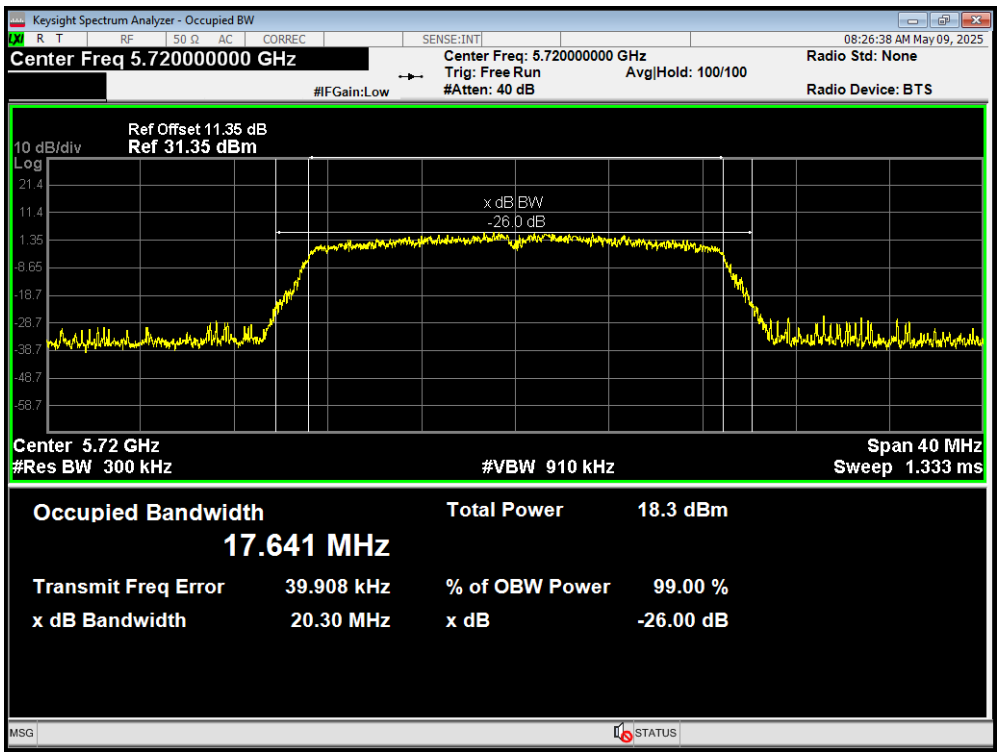
OBW 802.11ac(VHT80) 5690MHz



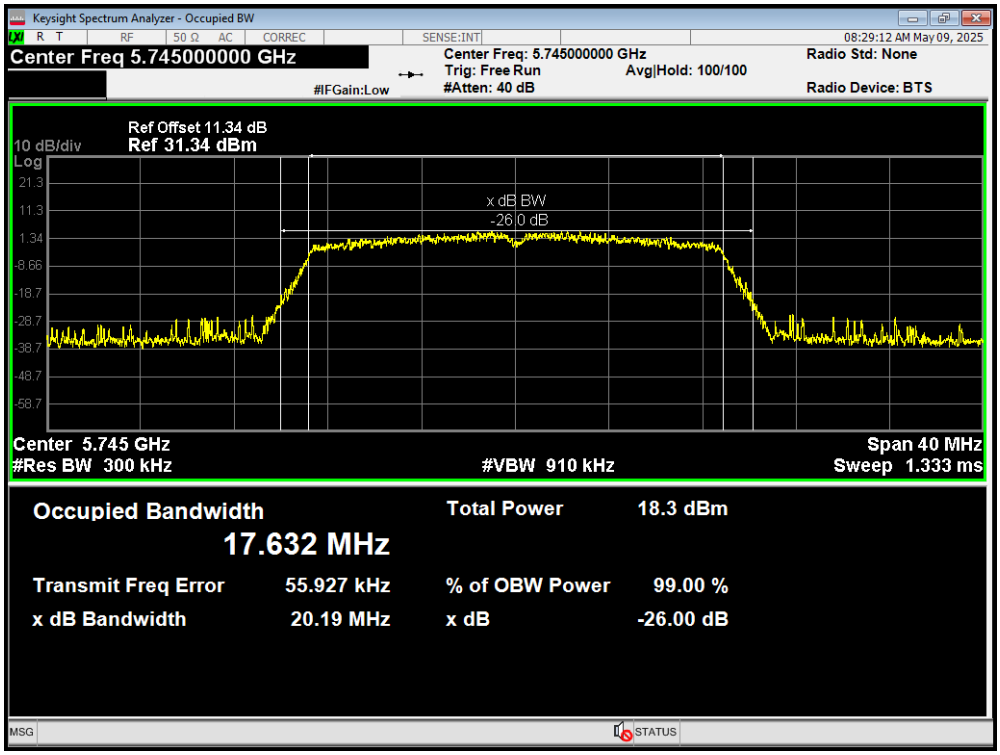
OBW 802.11ac(VHT80) 5775MHz



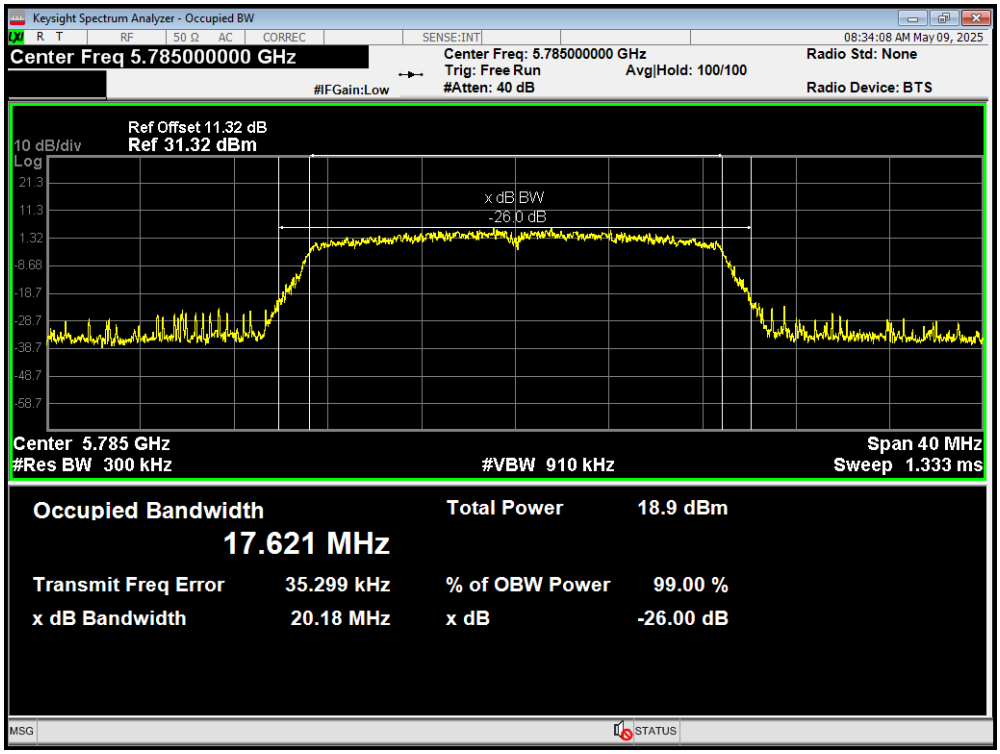
OBW 802.11n(HT20) 5720MHz



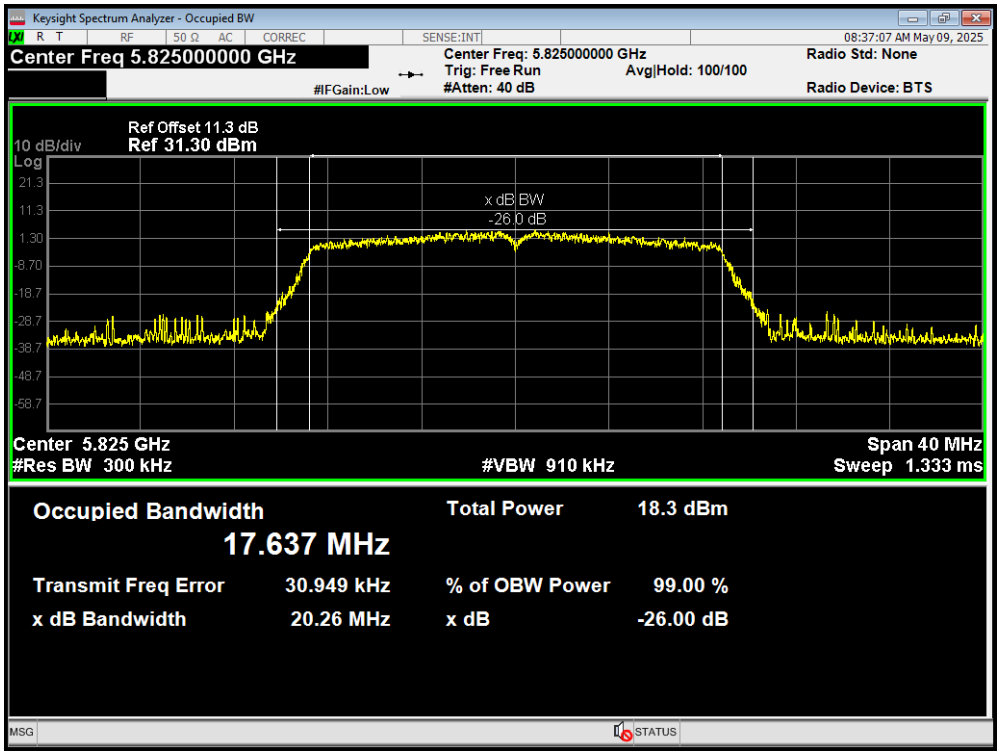
OBW 802.11n(HT20) 5745MHz



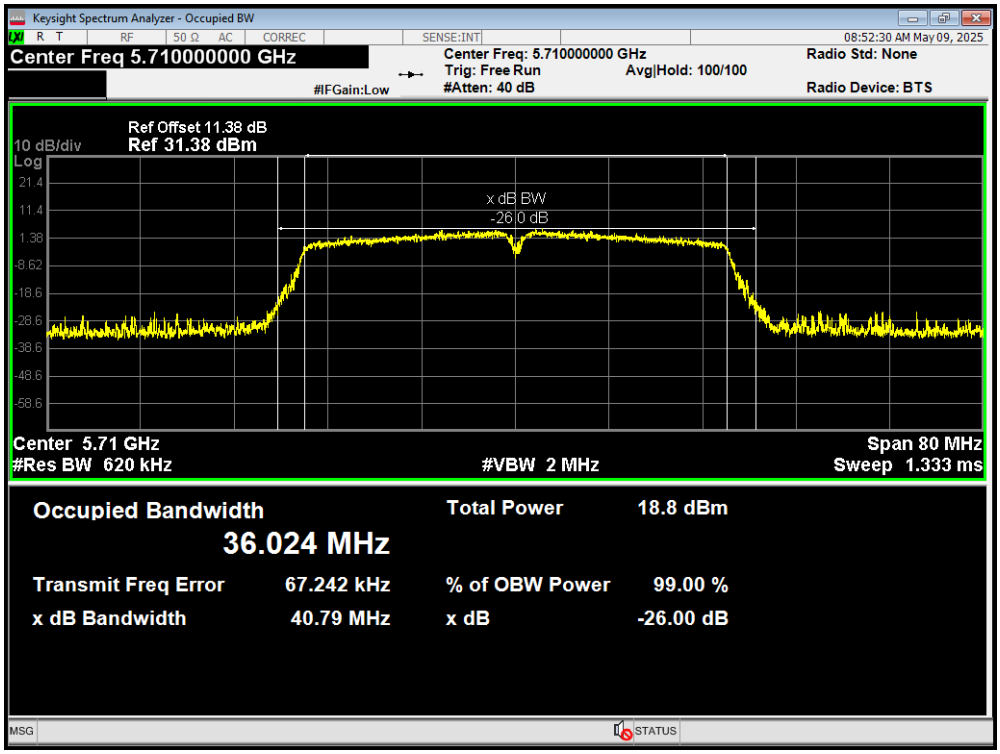
OBW 802.11n(HT20) 5785MHz



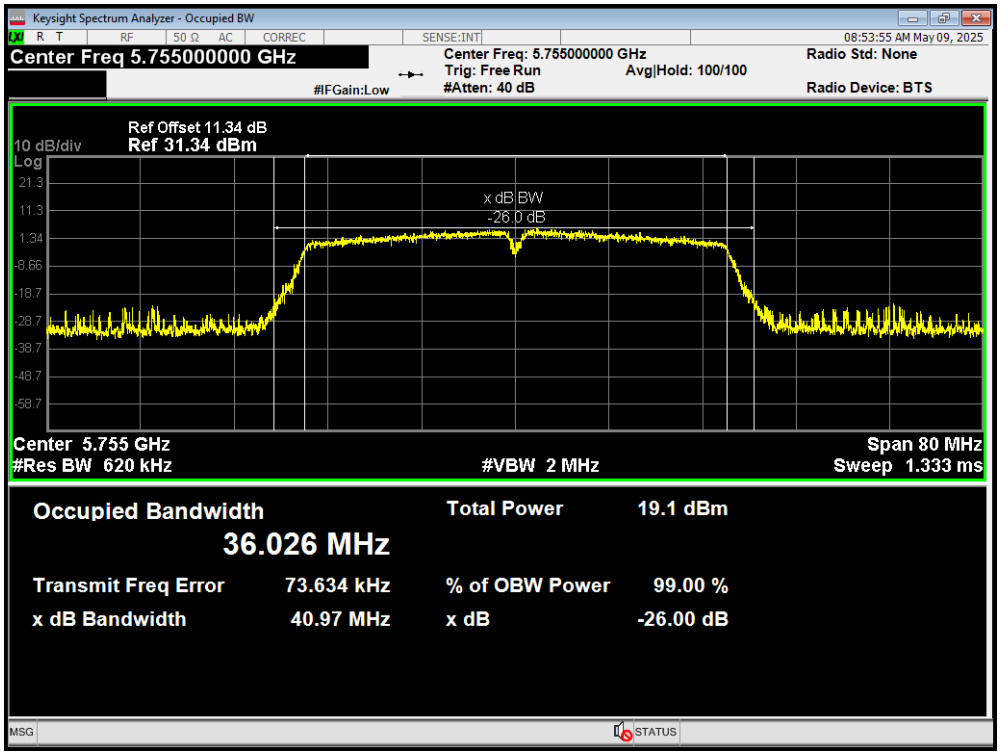
OBW 802.11n(HT20) 5825MHz



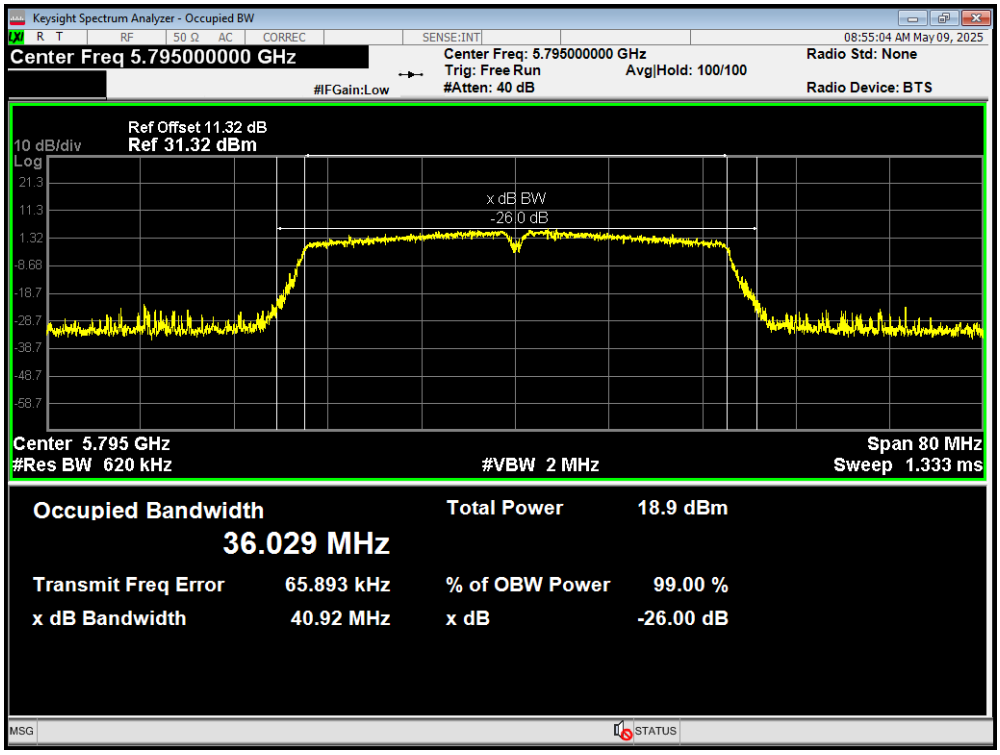
OBW 802.11n(HT40) 5710MHz



OBW 802.11n(HT40) 5755MHz



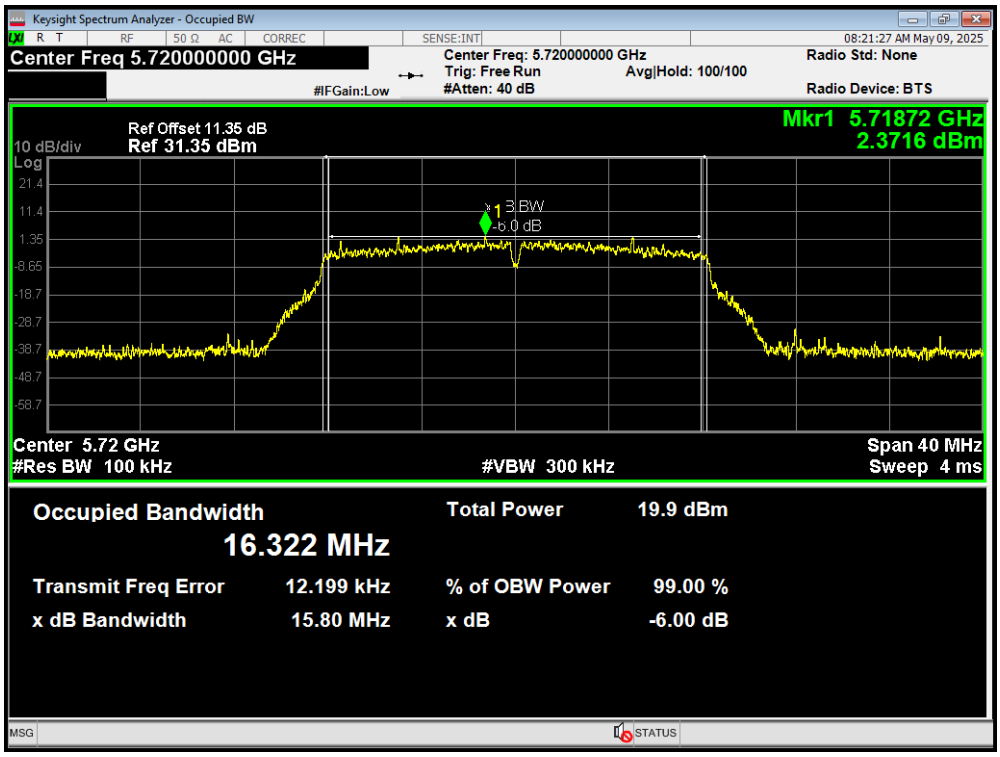
OBW 802.11n(HT40) 5795MHz



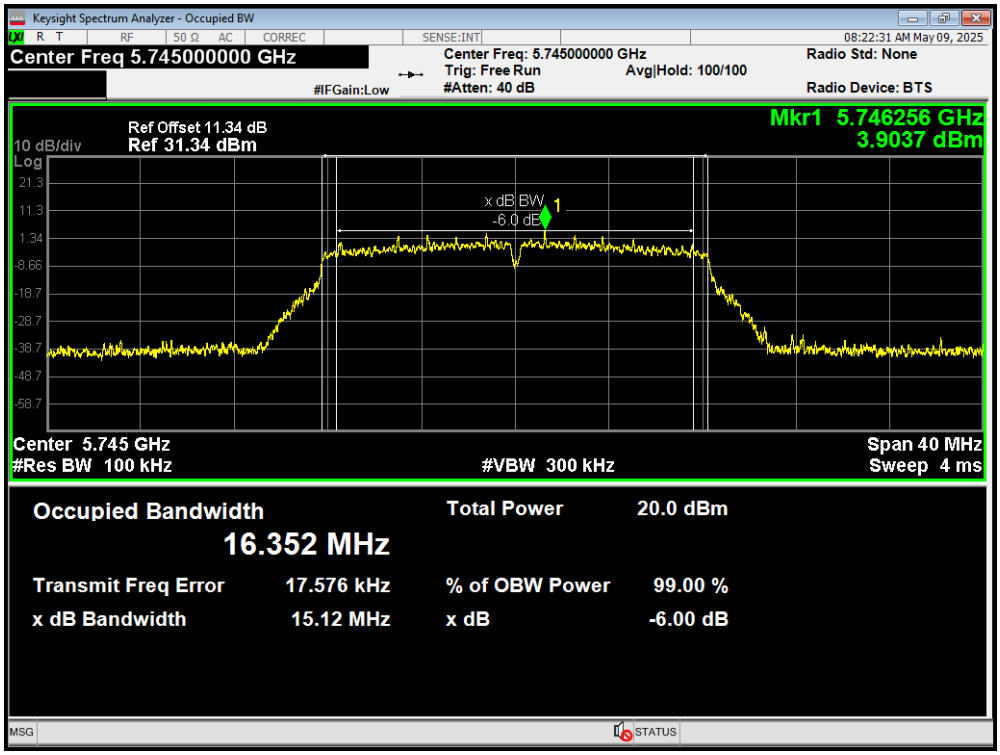
Minimum 6 dB bandwidth

U-NII-3

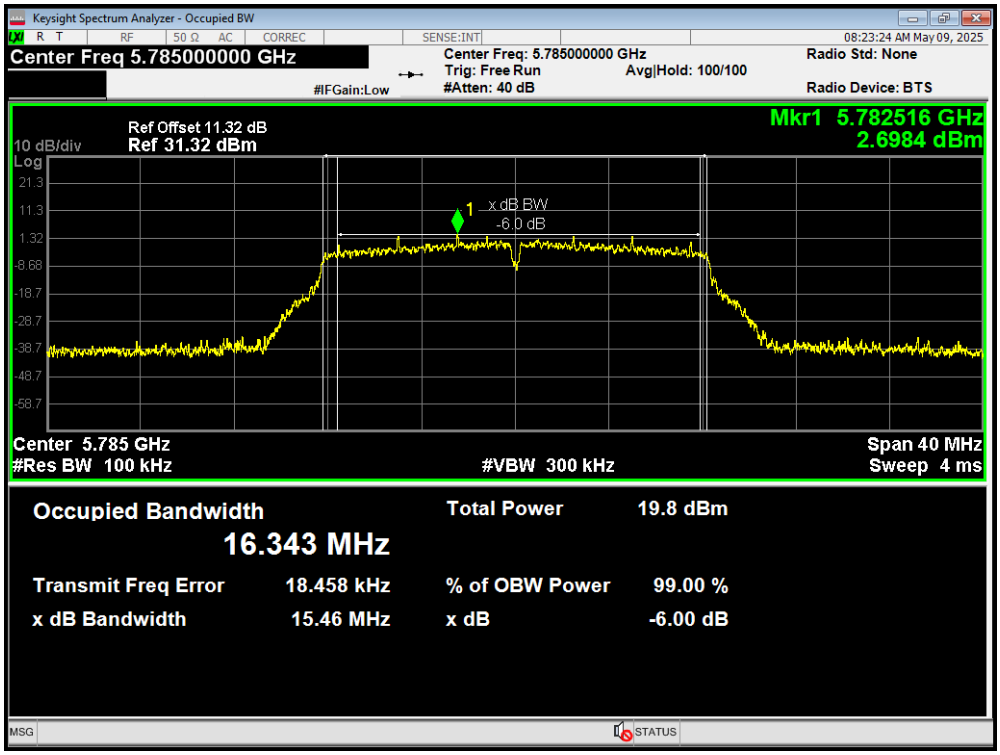
-6dB Bandwidth 802.11a 5720MHz



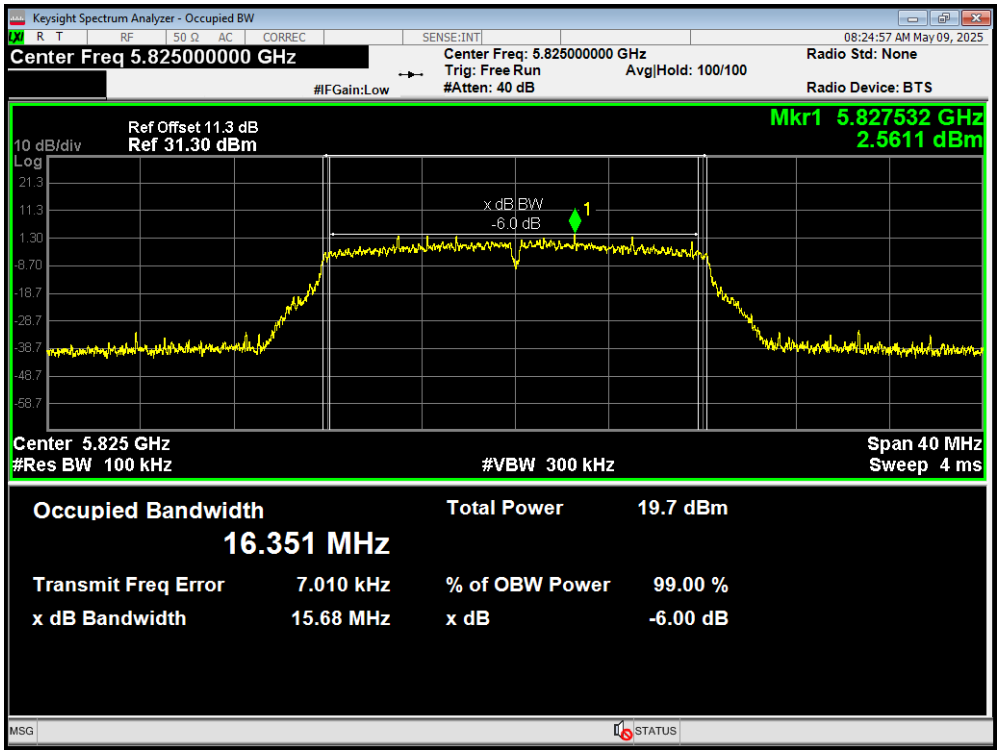
-6dB Bandwidth 802.11a 5745MHz



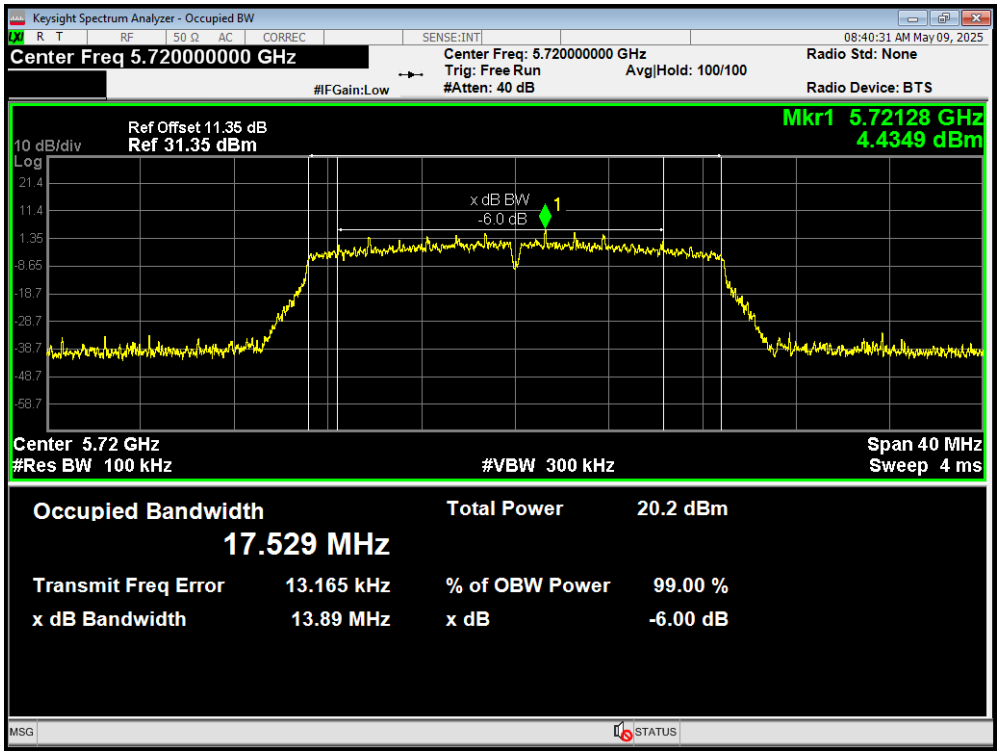
-6dB Bandwidth 802.11a 5785MHz



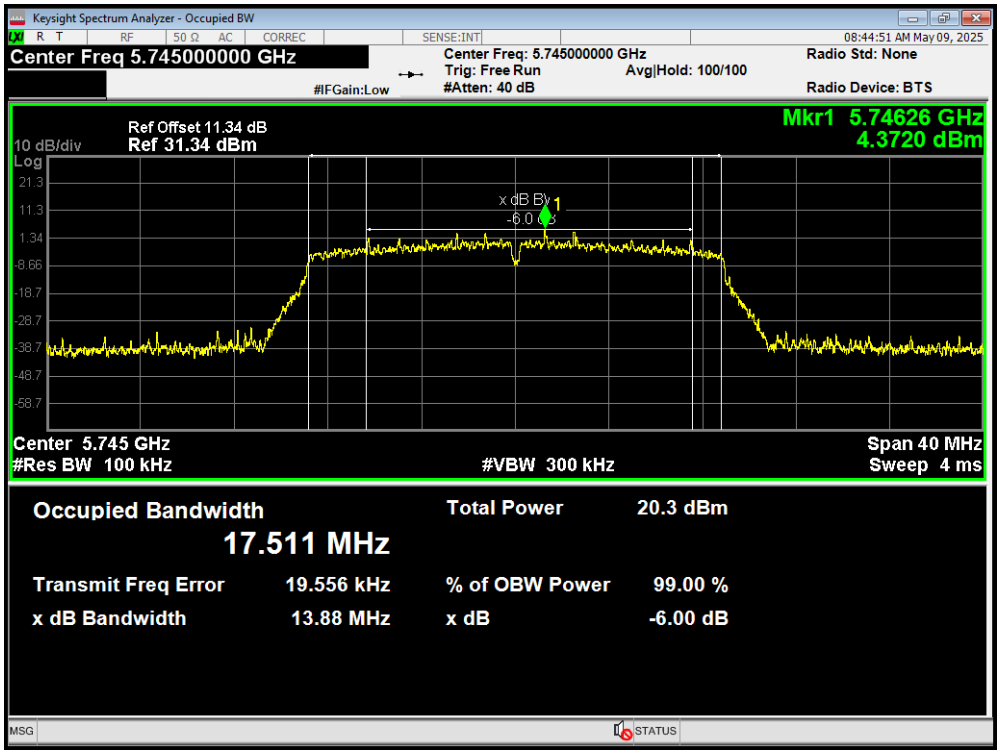
-6dB Bandwidth 802.11a 5825MHz



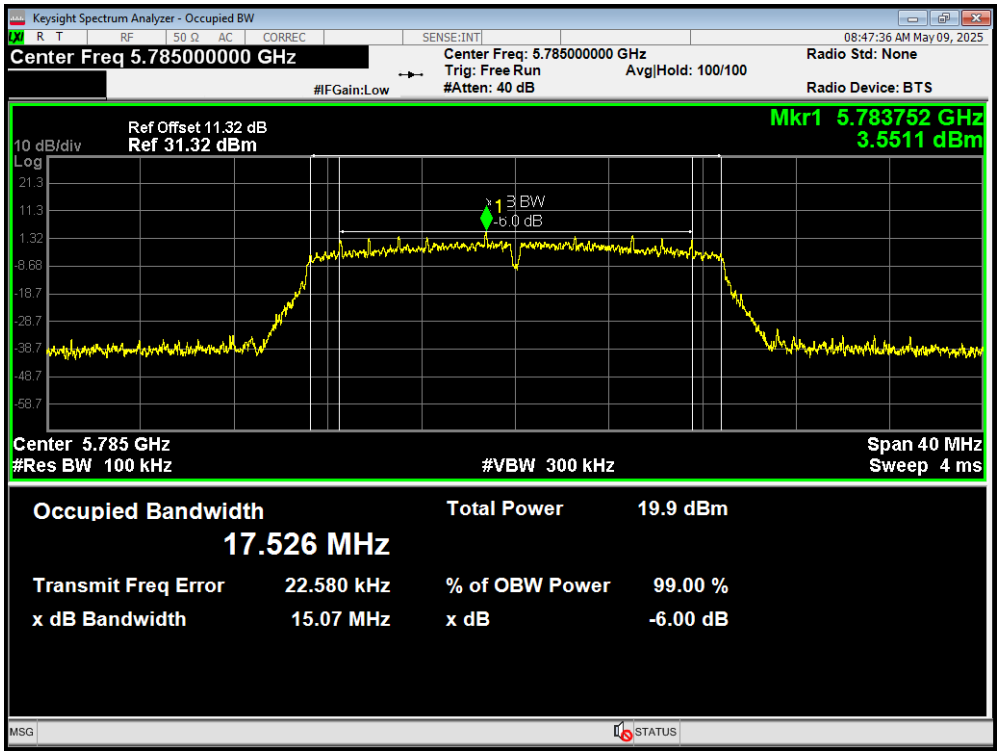
-6dB Bandwidth 802.11ac(VHT20) 5720MHz



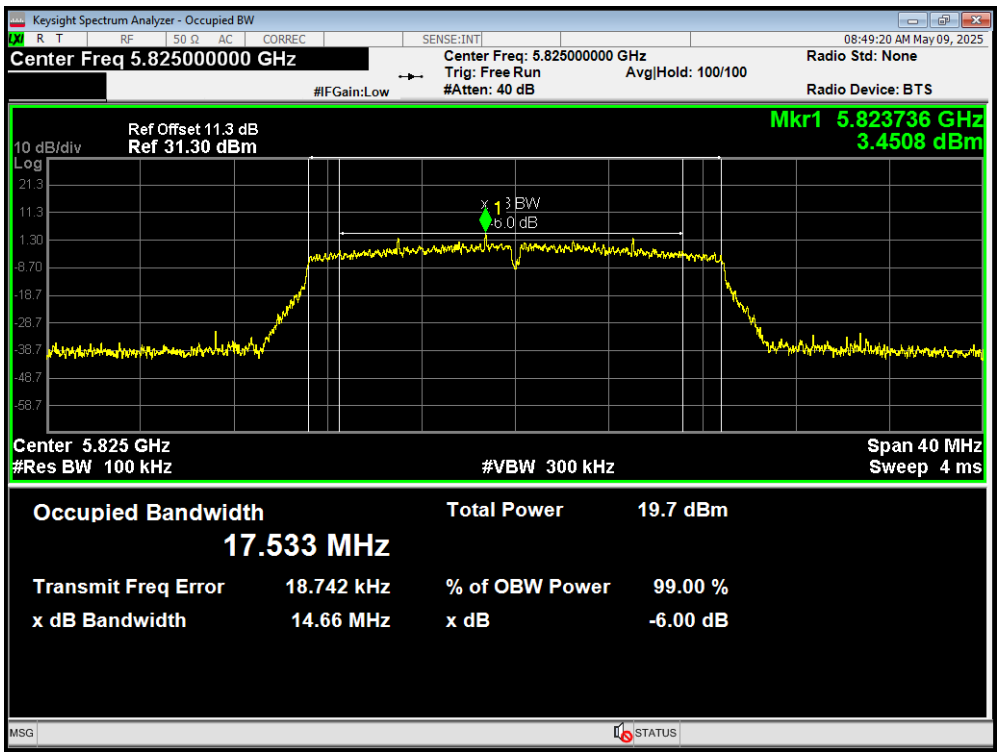
-6dB Bandwidth 802.11ac(VHT20) 5745MHz



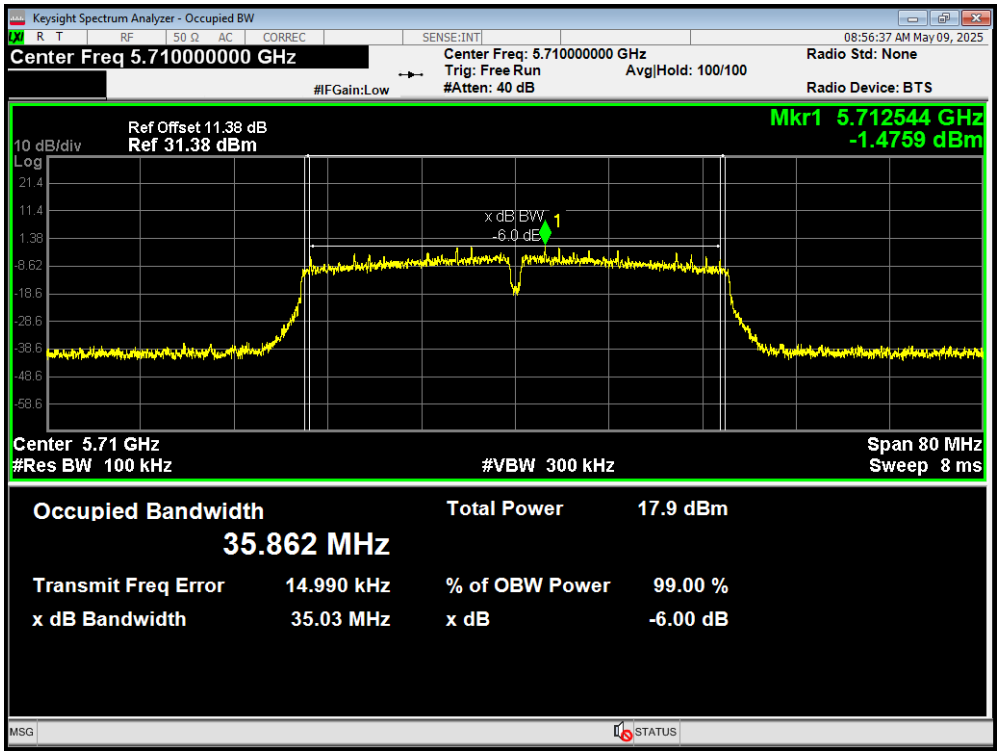
-6dB Bandwidth 802.11ac(VHT20) 5785MHz



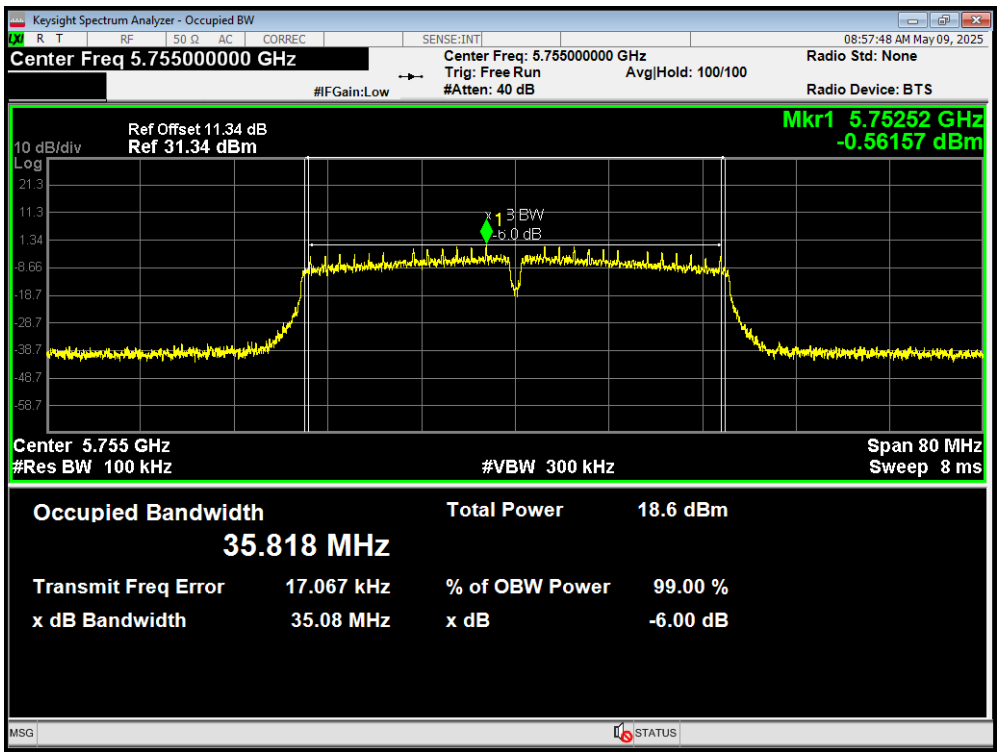
-6dB Bandwidth 802.11ac(VHT20) 5825MHz



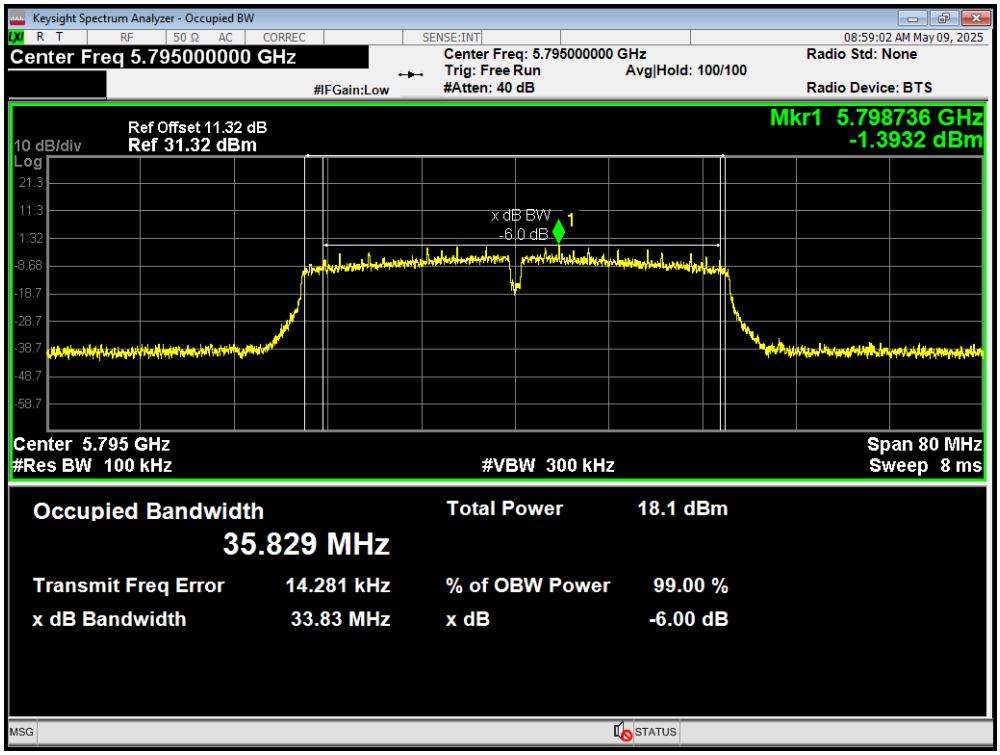
-6dB Bandwidth 802.11ac(VHT40) 5710MHz



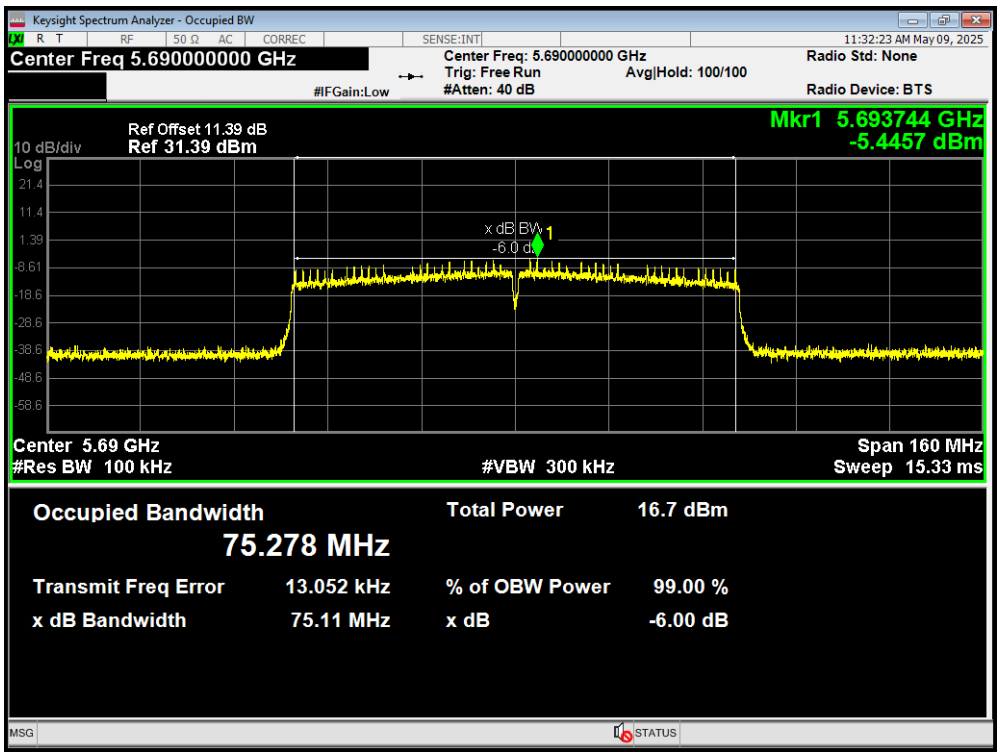
-6dB Bandwidth 802.11ac(VHT40) 5755MHz



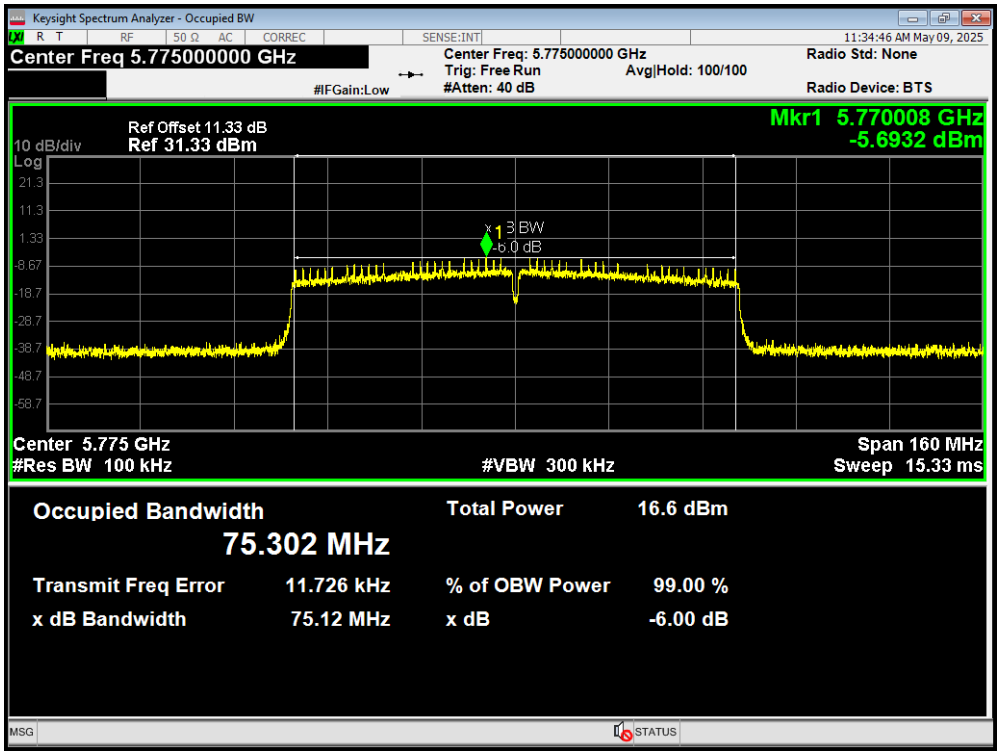
-6dB Bandwidth 802.11ac(VHT40) 5795MHz



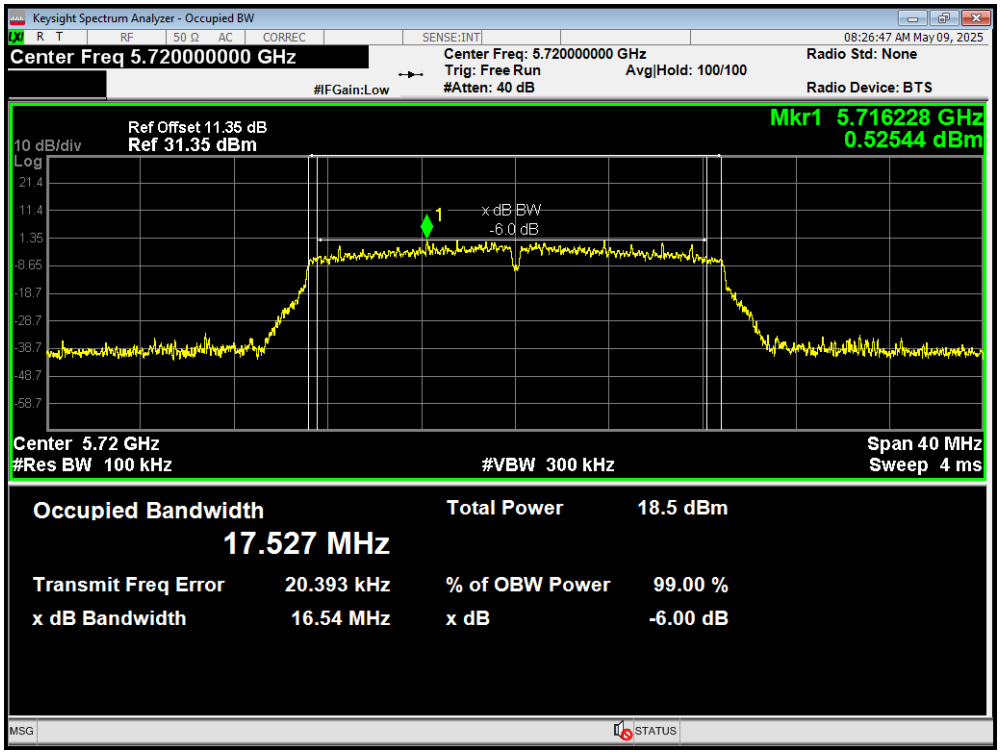
-6dB Bandwidth 802.11ac(VHT80) 5690MHz



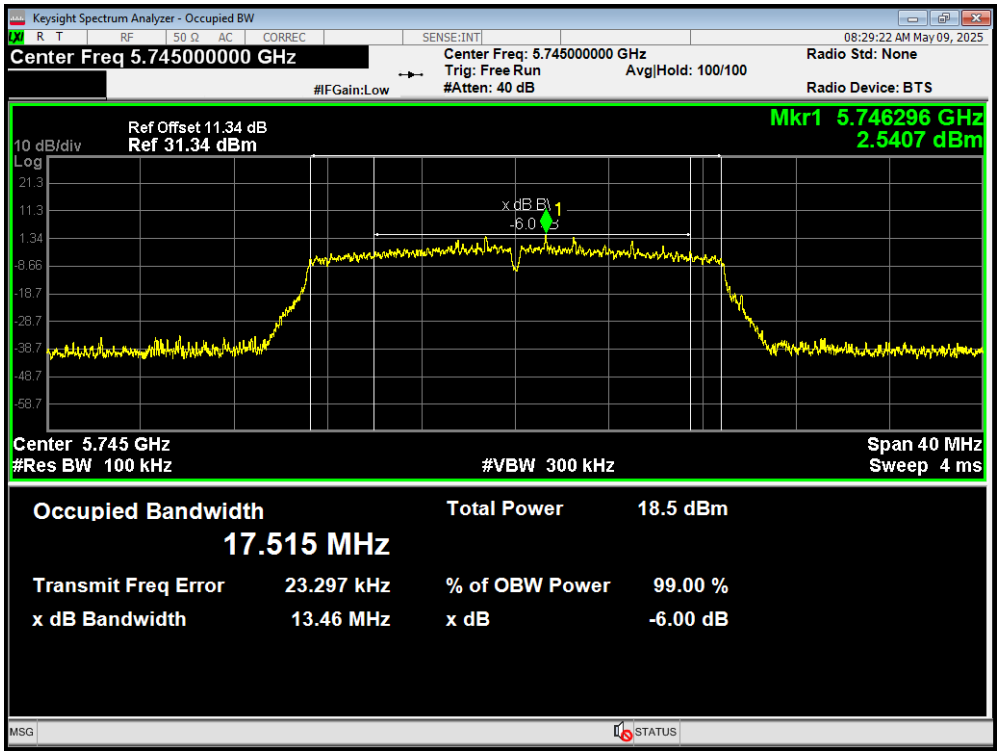
-6dB Bandwidth 802.11ac(VHT80) 5775MHz



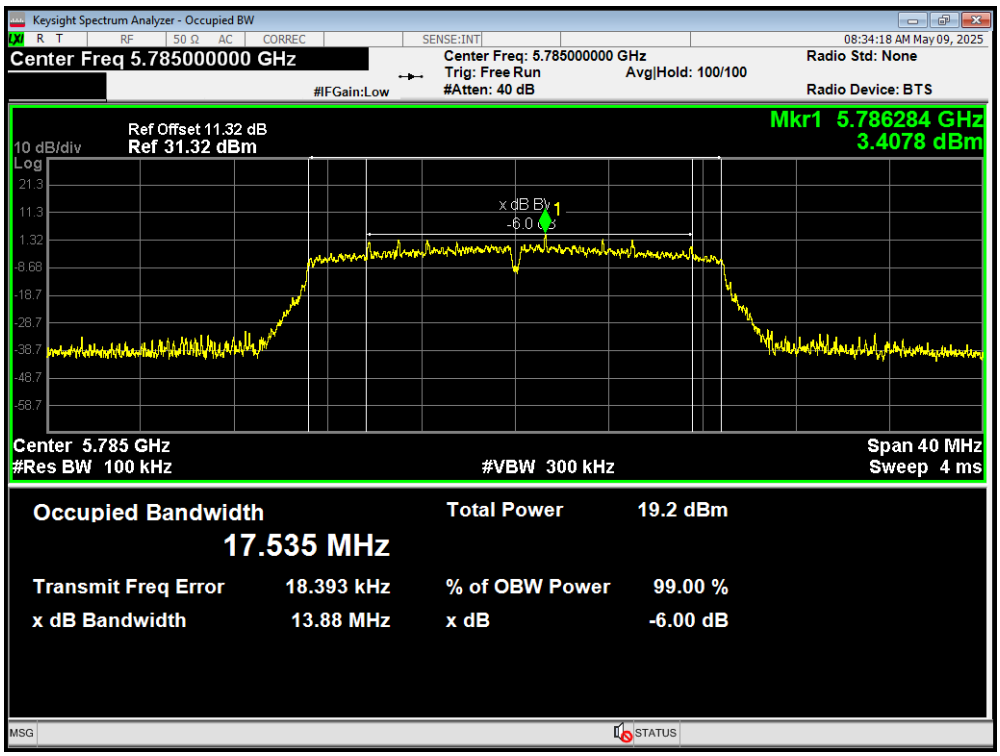
-6dB Bandwidth 802.11n(HT20) 5720MHz



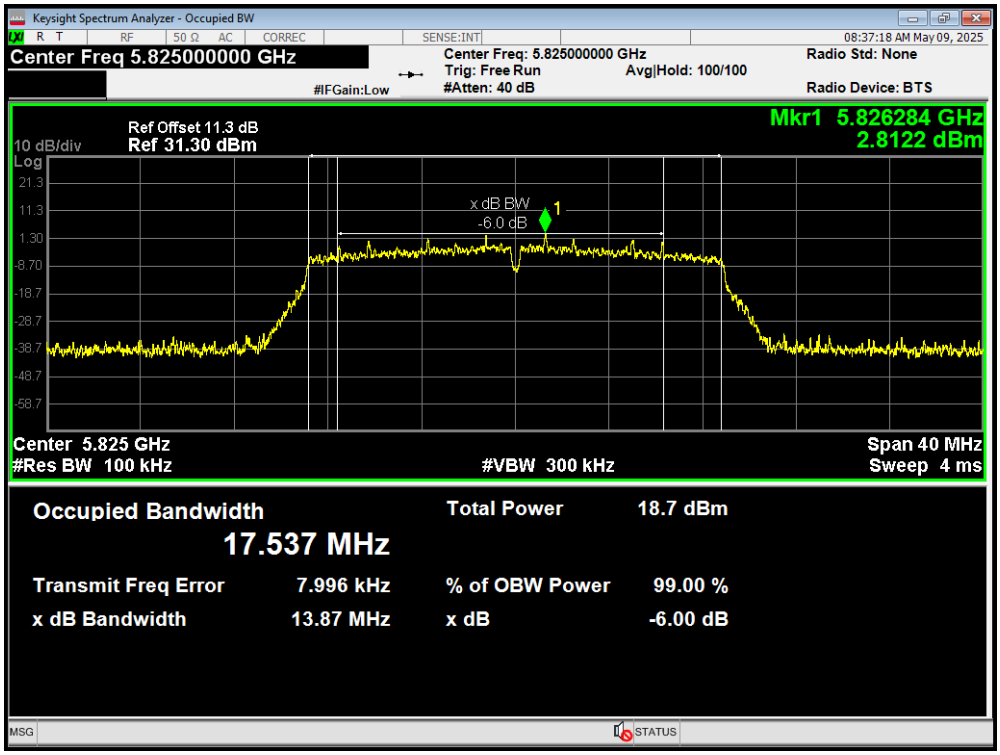
-6dB Bandwidth 802.11n(HT20) 5745MHz



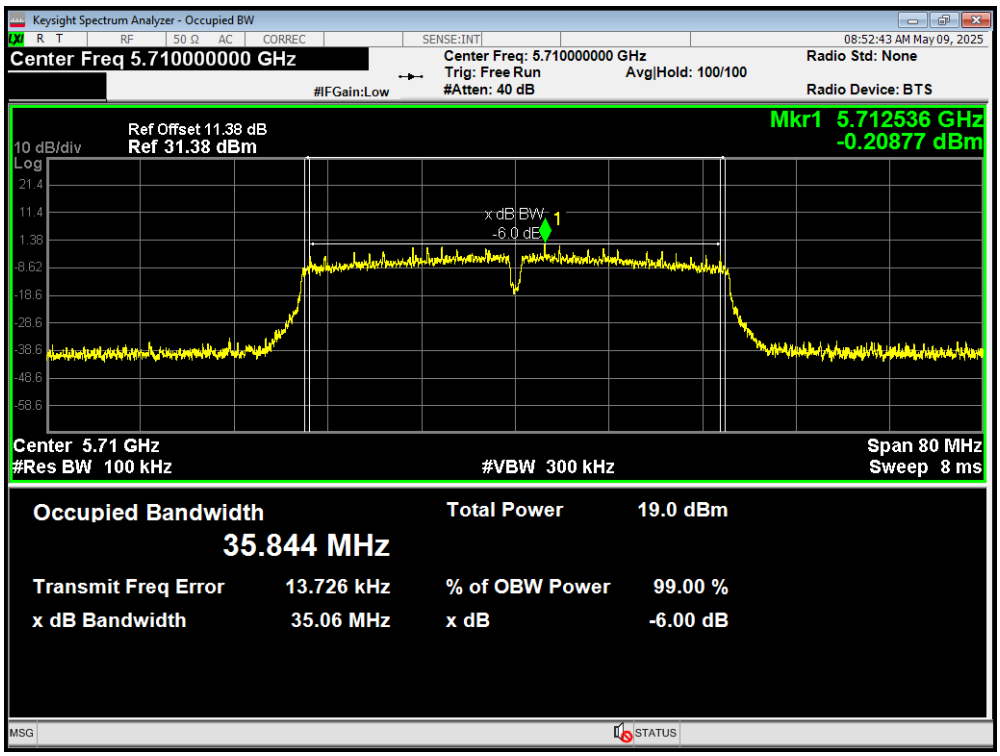
-6dB Bandwidth 802.11n(HT20) 5785MHz



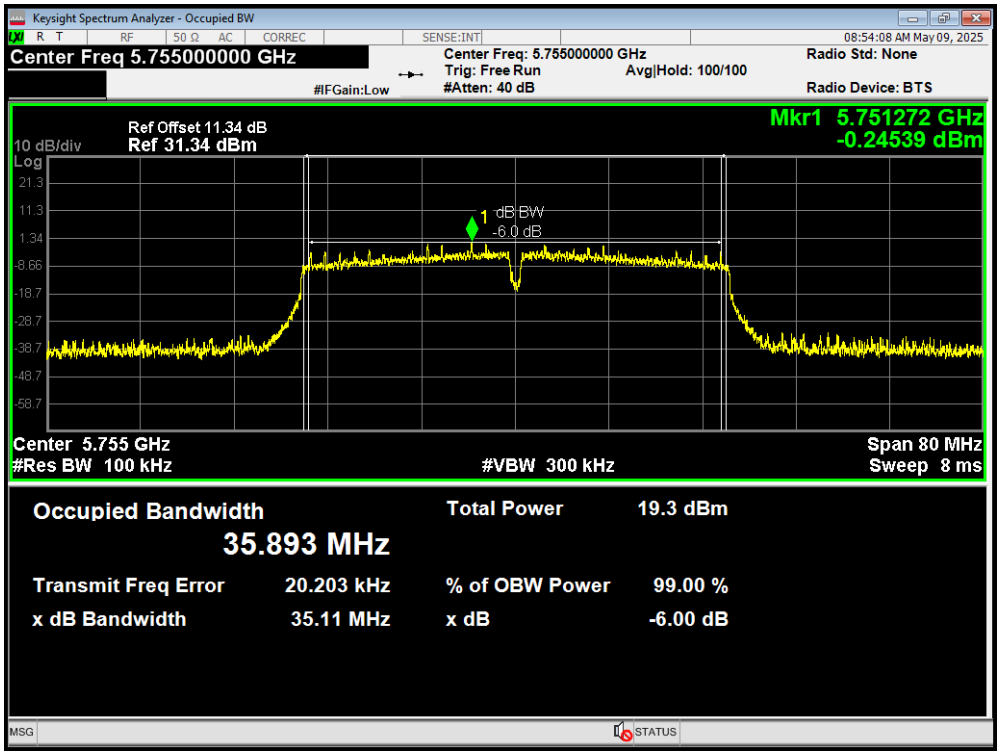
-6dB Bandwidth 802.11n(HT20) 5825MHz



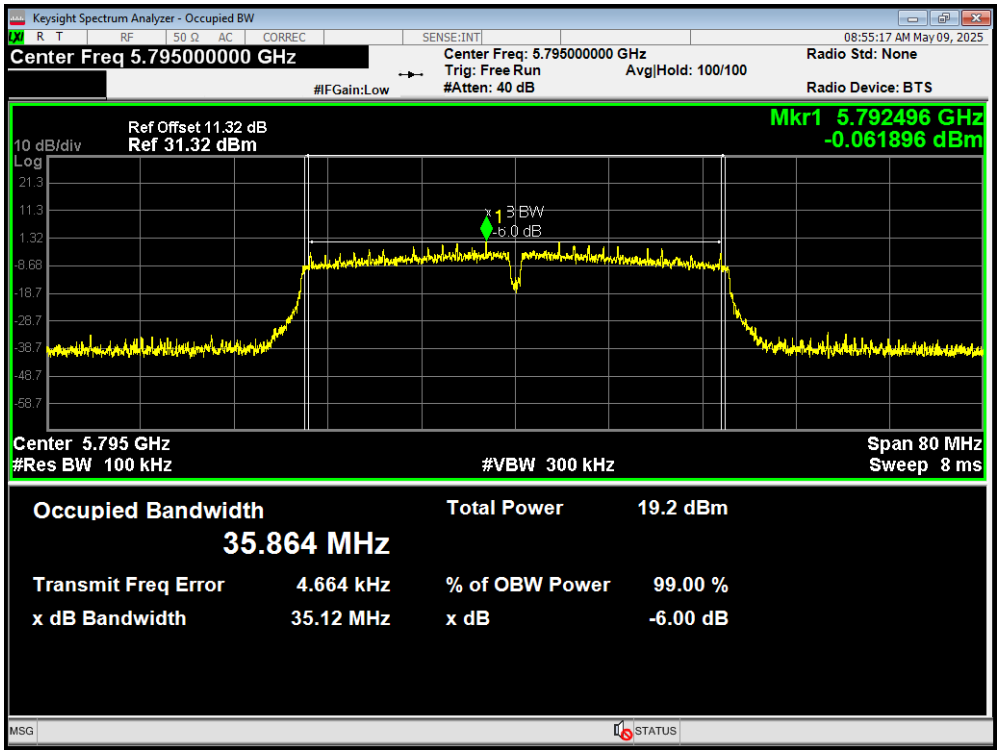
-6dB Bandwidth 802.11n(HT40) 5710MHz



-6dB Bandwidth 802.11n(HT40) 5755MHz



-6dB Bandwidth 802.11n(HT40) 5795MHz



5.2. Average Power Output

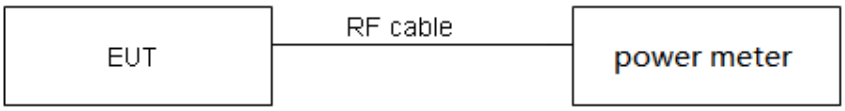
Ambient condition

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 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 dB.

Test Results

Mode	Duty cycle	Duty cycle correction Factor (dB)
802.11a	0.975	0.111
802.11n HT20	0.973	0.118
802.11n HT40	0.947	0.235
802.11ac VHT20	0.973	0.118
802.11ac VHT40	0.948	0.233
802.11ac VHT80	0.900	0.458
Note: when Duty cycle≥0.98, Duty cycle correction Factor not required.		

Power Index								
Channel	802.11a	802.11n HT20	802.11ac VHT20	Channel	802.11n HT40	802.11ac VHT40	Channel	802.11ac VHT80
CH36	15	14	15	CH38	14	13	CH42	11
CH40	15	14	15	CH46	14	13	/	/
CH48	15	14	15	/	/	/	/	/
CH52	15	14	15	CH54	14	13	CH58	11
CH60	15	14	15	CH62	14	13	/	/
CH64	15	14	15	/	/	/	/	/
CH100	15	14	15	CH102	14	13	CH122	11
CH120	15	14	15	CH118	14	13	CH138	11
CH140	15	14	15	CH134	14	13	/	/
CH144	15	14	15	CH142	14	13	/	/
CH149	15	14	15	CH151	14	13	CH155	11
CH157	15	14	15	CH159	14	13	/	/
CH165	15	14	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	19.78	23.96	23.96
		60/5300	20.08	24.03	24.00
		64/5320	19.94	24.00	24.00
	802.11n HT20	52/5260	20.20	24.05	24.00
		60/5300	20.18	24.05	24.00
		64/5320	20.32	24.08	24.00
	802.11n HT40	54/5270	40.69	27.09	24.00
		62/5310	40.68	27.09	24.00
	802.11ac VHT20	52/5260	20.33	24.08	24.00
		60/5300	20.16	24.04	24.00
		64/5320	20.60	24.14	24.00
	802.11ac VHT40	54/5270	40.54	27.08	24.00
		62/5310	40.64	27.09	24.00
	802.11ac VHT80	58/5290	81.03	30.09	24.00
U-NII-2C	802.11a	100/5500	20.04	24.02	24.00
		120/5600	20.00	24.01	24.00
		140/5700	20.19	24.05	24.00
		144/5720	19.95	24.00	24.00
	802.11n HT20	100/5500	20.25	24.06	24.00
		120/5600	20.14	24.04	24.00
		140/5700	20.52	24.12	24.00
		144/5720	20.17	24.05	24.00
	802.11n HT40	102/5510	40.76	27.10	24.00
		118/5590	40.97	27.12	24.00
		134/5670	40.80	27.11	24.00
		142/5710	40.61	27.09	24.00
	802.11ac VHT20	100/5500	20.22	24.06	24.00
		120/5600	20.11	24.03	24.00
		140/5700	20.13	24.04	24.00
		144/5720	20.22	24.06	24.00
	802.11ac VHT40	102/5510	40.74	27.10	24.00
		118/5590	40.60	27.09	24.00
		134/5670	40.51	27.08	24.00
		142/5710	40.65	27.09	24.00
	802.11ac VHT80	122/5610	81.05	30.09	24.00
		138/5690	81.26	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	12.87	12.98	24.00	PASS
	40/5200	12.79	12.90	24.00	PASS
	48/5240	13.35	13.46	24.00	PASS
802.11n HT20	36/5180	11.66	11.77	24.00	PASS
	40/5200	12.02	12.14	24.00	PASS
	48/5240	11.78	11.90	24.00	PASS
802.11n HT40	38/5190	11.23	11.46	24.00	PASS
	46/5230	11.30	11.54	24.00	PASS
802.11ac VHT20	36/5180	12.31	12.43	24.00	PASS
	40/5200	12.87	12.99	24.00	PASS
	48/5240	12.75	12.87	24.00	PASS
802.11ac VHT40	38/5190	10.21	10.44	24.00	PASS
	46/5230	11.00	11.23	24.00	PASS
802.11ac VHT80	42/5210	8.51	8.97	24.00	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	13.21	13.32	23.96	PASS
	60/5300	13.16	13.27	24.00	PASS
	64/5320	13.39	13.50	24.00	PASS
802.11n HT20	52/5260	12.00	12.12	24.00	PASS
	60/5300	11.93	12.05	24.00	PASS
	64/5320	11.92	12.04	24.00	PASS
802.11n HT40	54/5270	11.90	12.13	24.00	PASS
	62/5310	12.02	12.25	24.00	PASS
802.11ac VHT20	52/5260	12.84	12.95	24.00	PASS
	60/5300	12.87	12.99	24.00	PASS
	64/5320	12.99	13.11	24.00	PASS
802.11ac VHT40	54/5270	10.93	11.17	24.00	PASS
	62/5310	11.11	11.34	24.00	PASS
802.11ac VHT80	58/5290	8.54	9.00	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	14.11	14.22	24.00	PASS
	120/5600	14.37	14.48	24.00	PASS
	140/5700	14.51	14.62	24.00	PASS
	144/5720	13.86	13.97	24.00	PASS
802.11n HT20	100/5500	13.09	13.20	24.00	PASS
	120/5600	13.38	13.49	24.00	PASS
	140/5700	13.57	13.69	24.00	PASS
	144/5720	12.63	12.75	24.00	PASS
802.11n HT40	102/5510	13.16	13.40	24.00	PASS
	118/5590	13.34	13.57	24.00	PASS
	134/5670	13.06	13.30	24.00	PASS
	142/5710	12.76	13.00	24.00	PASS
802.11ac VHT20	100/5500	14.16	14.28	24.00	PASS
	120/5600	14.41	14.53	24.00	PASS
	140/5700	14.62	14.74	24.00	PASS
	144/5720	13.67	13.79	24.00	PASS
802.11ac VHT40	102/5510	11.72	11.95	24.00	PASS
	118/5590	11.71	11.95	24.00	PASS
	134/5670	12.51	12.74	24.00	PASS
	142/5710	12.24	12.48	24.00	PASS
802.11ac VHT80	122/5610	9.20	9.66	24.00	PASS
	138/5690	9.19	9.65	24.00	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	5.69	5.80	30.00	PASS
	149/5745	13.94	14.05	30.00	PASS
	157/5785	13.77	13.88	30.00	PASS
	165/5825	13.73	13.84	30.00	PASS
802.11n HT20	144/5720	4.68	4.79	30.00	PASS
	149/5745	12.47	12.59	30.00	PASS
	157/5785	13.18	13.30	30.00	PASS
	165/5825	12.67	12.79	30.00	PASS
802.11n HT40	142/5710	0.13	0.37	30.00	PASS
	151/5755	13.03	13.26	30.00	PASS
	159/5795	12.74	12.97	30.00	PASS
802.11ac VHT20	144/5720	6.12	6.24	30.00	PASS
	149/5745	14.09	14.20	30.00	PASS
	157/5785	13.80	13.92	30.00	PASS
	165/5825	13.77	13.89	30.00	PASS
802.11ac VHT40	142/5710	-0.87	-0.64	30.00	PASS
	151/5755	12.18	12.41	30.00	PASS
	159/5795	11.78	12.01	30.00	PASS
802.11ac VHT80	138/5690	-5.90	-5.44	30.00	PASS
	155/5775	9.53	9.99	30.00	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 that 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= 936Hz

Test Results

Voltage (V)	Temperature (°C)	U-NII-1 Test Results			
		5200MHz			
		1min	2min	5min	10min
24	-30	5199.994186	5199.992167	5199.983913	5199.975035
24	-20	5199.991881	5199.992035	5199.978396	5199.973581
24	-10	5200.001323	5199.989367	5199.970701	5199.964955
24	0	5199.985393	5199.990382	5199.974137	5199.973036
24	10	5199.982320	5199.988154	5199.968956	5199.964703
24	20	5199.980293	5199.979545	5199.959066	5199.961303
24	30	5199.979024	5199.970213	5199.958239	5199.959416
24	40	5199.971241	5199.961504	5199.948558	5199.954945
24	50	5199.968822	5199.957846	5199.940422	5199.947839
21.6	20	5199.962230	5199.957728	5199.933410	5199.940364
26.4	20	5199.959767	5199.952900	5199.924908	5199.931326
Max. ΔMHz		-0.040233	-0.047100	-0.075092	-0.068674
PPM		-7.737115	-9.057692	-14.440769	-13.206538

Voltage (V)	Temperature (°C)	U-NII-2A Test Results			
		5300MHz			
		1min	2min	5min	10min
24	-30	5299.990231	5299.987350	5299.985450	5299.983080
24	-20	5299.985024	5299.984325	5299.978412	5299.973546
24	-10	5299.981143	5299.976070	5299.969605	5299.966035
24	0	5299.977963	5299.979375	5299.970028	5299.967876
24	10	5299.973285	5299.969769	5299.961973	5299.958148
24	20	5299.964805	5299.960872	5299.959356	5299.955069
24	30	5299.964559	5299.952979	5299.956046	5299.950970
24	40	5299.955210	5299.947859	5299.948097	5299.948984
24	50	5299.949644	5299.939767	5299.941777	5299.943778
21.6	20	5299.947781	5299.931479	5299.937822	5299.937914
26.4	20	5299.942538	5299.925832	5299.933608	5299.931835
Max. ΔMHz		-0.057462	-0.074168	-0.066392	-0.068165
PPM		-10.841887	-13.993962	-12.526792	-12.861321