RF TEST REPORT

Applicant	Nokia Shanghai Bell Co., Ltd.
FCC ID	2ADZRG1425GE
Product	Nokia ONT
Brand	NOKIA
Model	G-1425G-E
Report No.	R2312A1383-R2V1
Issue Date	August 16, 2024

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15E (2023)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

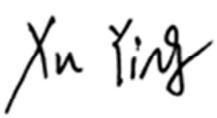

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TABLE OF CONTENT

1. Test Laboratory 5
1.1. Notes of the test report 5
1.2. Test facility 5
1.3. Testing Location 5
2. General Description of Equipment under Test 6
2.1. Applicant and Manufacturer Information 6
2.2. General information 6
3. Applied Standards 10
4. Test Configuration 11
5. Test Case Results 14
5.1. Occupied Bandwidth 14
5.2. Average Power Output 64
5.3. Frequency Stability 77
5.4. Power Spectral Density 81
5.5. Unwanted Emission 233
5.6. Conducted Emission 332
6. Main Test Instruments 335
ANNEX A: The EUT Appearance 336
ANNEX B: Test Setup Photos 337

Version	Revision Description	Issue Date
Rev.0	Initial issue of report.	March 21, 2024
Rev.1	Update information.	August 16, 2024
Note: This revised report (Report No.: R2312A1383-R2V1) supersedes and replaces the previously issued report (Report No.: R2312A1383-R2). 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: January 4, 2024 ~ March 15, 2024 Date of Sample Received: December 14, 2023			
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
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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	Nokia Shanghai Bell Co., Ltd.
Applicant address	No.388, Ningqiao Rd, Pilot Free Trade Zone, Shanghai, 201206 P.R. China
Manufacturer	Nokia of America Corporation
Manufacturer address	2301 Sugar Bush Rd. Raleigh, NC 27612

2.2. General information

EUT Description			
Model	G-1425G-E		
SN	Conducted: ALCLB43F4492 Radiated: ALCLB43F44B1		
Hardware Version	3TN 00674 AAAA		
Software Version	3TN00702FJLI48		
Power Supply	AC adapter		
Antenna Type	External Antenna		
Antenna Connector	I-PEX (meet with the standard FCC Part 15.203 requirement)		
Directional Gain	MIMO/ Beamforming		
	Band	Power (dBi)	PSD (dBi)
	U-NII-1 & U-NII-2A	5.01	5.01
	U-NII-2C	4.98	4.98
	U-NII-3	5.12	5.12
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	29.29 dBm		
Testing temperature range	-30 ° C to 50° C		
Operating temperature range	-5 ° C to 45 ° C		
Operating voltage range	10 V to 14 V		
State DC voltage	12 V		
EUT Accessory			
Adapter 1	Manufacturer: Ruide Model: RD1201000-C55-35MGD		
Adapter 2	Manufacturer: Keli Model: KL-WA120100-E		

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 Adapters, each one should be applied throughout the compliance test respectively, and however, only the worst case (Adapter 1) will be recorded in this report.

Hardware code information

ONT Mnemonic	Kit Code	EMA Code	Part Description
1	3TN 00683 XXXX (Code can be any capital letter from A to Z)	3TN 00673 XXXX (Code can be any capital letter from A to Z)	GPON ONT,4XGE UNI,1POTS, WIFI 5,2x2 11n + 2x2 11ac

Information of configuration

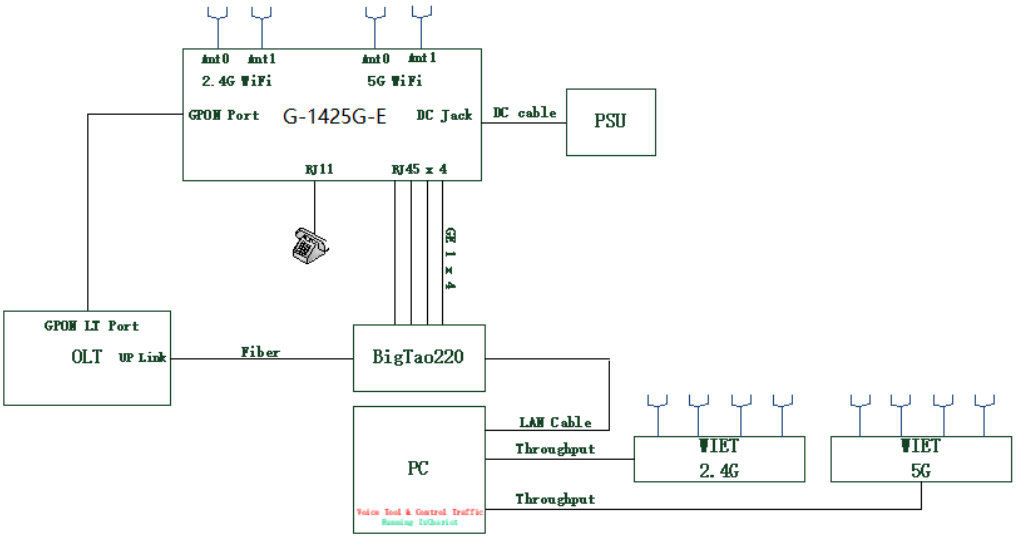
No.	Name	Model/Code No.	Edition	Serial No.
1	G-1425G-E	3TN 00673 AAAA	PEM2	PEM
2	G-1425G-E	3TN 00673 BAAA	PEM2	PEM
3	Power adapter	RD1201000-C55-35MGD	-	PEM
4	Power adapter	RD1201000-C55-35OGD	-	PEM
5	Power adapter	RD1201000-C55 -35YGD	-	PEM
6	Power adapter	KL-WA120100-E	-	PEM
7	Power adapter	KL-WE120100-B	-	PEM
8	Power adapter	KL-WB120100-B	-	PEM

Auxiliary equipment details

No.	Name	Brand name	Model	NSB code	Valid Until
1	BigTao	XINERTEL	BigTao220	DE8708	No Cal. Required
2	PC	Lenovo	T61	7661MC4L3KW965	No Cal. Required
3	PC	Lenovo	T61	7661MC4L3KW959	No Cal. Required
5	7362 ISAM DF-16	NOKIA	3FE45632AAAA	YP1747F403F	No Cal. Required

Information of ports

No.	Port name	Test Number	Shielded or unshielded	Cable type (optic, twisted pair, etc.)	Max. Cable length
1	AC Power Port	1	unshielded	-	-
2	GE	4	unshielded	-	-
1	POTS	1	unshielded	-	-



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 (2023) Unlicensed National Information Infrastructure Devices

ANSI C63.10-2013

Reference standard:

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

KDB 662911 D01 Multiple Transmitter Output 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	
	MIMO	Beamforming
802.11a	6 Mbps	6 Mbps
802.11n HT20	MCS8	MCS8
802.11n HT40	MCS8	MCS8
802.11ac VHT20	MCS0	MCS0
802.11ac VHT40	MCS0	MCS0
802.11ac VHT80	MCS0	MCS0
The device supports non-beamforming and beamforming function in 802.11n/ac, after pre-testing, beamforming mode has the worst emission value, so the worst case was recorded.		

The worst-case Antenna mode for each of the following tests for Wi-Fi:

Test Cases	MIMO	Beamforming
Average conducted output power	O	O
Occupied bandwidth	O	--
Frequency stability	802.11a	--
Power Spectral Density	O	O
Unwanted Emissions	802.11a 802.11n HT20/40 802.11ac VHT80	--
Conducted Emissions	802.11a	--
Note：“O”: test all bands		

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.

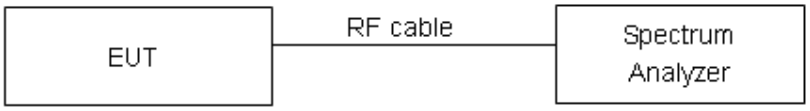
For U-NII-1/U-NII-2A/U-NII-2C, set RBW ≈1% OCB kHz, VBW ≥ 3 × RBW, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the 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	16.560	19.953	PASS
	5200	16.544	19.978	PASS
	5240	16.575	19.902	PASS
802.11n HT20	5180	17.620	20.086	PASS
	5200	17.609	20.016	PASS
	5240	17.602	20.017	PASS
802.11n HT40	5190	35.987	40.530	PASS
	5230	35.914	40.641	PASS
802.11ac VHT20	5180	17.583	20.162	PASS
	5200	17.634	20.116	PASS
	5240	17.619	20.244	PASS
802.11ac VHT40	5190	36.105	39.870	PASS
	5230	36.147	39.927	PASS
802.11ac VHT80	5210	75.915	84.062	PASS

U-NII-2A

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5260	16.580	19.789	PASS
	5300	16.584	19.895	PASS
	5320	16.592	19.982	PASS
802.11n HT20	5260	17.596	20.226	PASS
	5300	17.594	20.181	PASS
	5320	17.616	19.900	PASS
802.11n HT40	5270	35.976	40.606	PASS
	5310	36.018	39.474	PASS
802.11ac VHT20	5260	17.561	20.118	PASS
	5300	17.608	19.926	PASS
	5320	17.634	20.051	PASS
802.11ac VHT40	5270	36.138	40.263	PASS
	5310	36.151	40.468	PASS
802.11ac VHT80	5290	75.768	82.095	PASS

U-NII-2C

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5500	16.490	19.865	PASS
	5580	16.655	20.783	PASS
	5700	16.663	19.844	PASS
	5720	20.968	37.837	PASS
802.11n HT20	5500	17.624	20.268	PASS
	5580	17.652	20.315	PASS
	5700	17.559	20.132	PASS
	5720	18.022	30.609	PASS
802.11n HT40	5510	35.961	40.612	PASS
	5550	36.106	50.435	PASS
	5670	36.032	40.651	PASS
	5710	36.324	67.708	PASS
802.11ac VHT20	5500	17.626	20.239	PASS
	5580	17.649	20.390	PASS
	5700	17.613	19.931	PASS
	5720	23.779	39.655	PASS
802.11ac VHT40	5510	36.069	39.850	PASS
	5550	36.252	43.182	PASS
	5670	36.140	40.544	PASS
	5710	36.617	56.298	PASS
802.11ac VHT80	5530	75.676	81.323	PASS
	5610	75.587	81.068	PASS
	5690	75.500	81.111	PASS

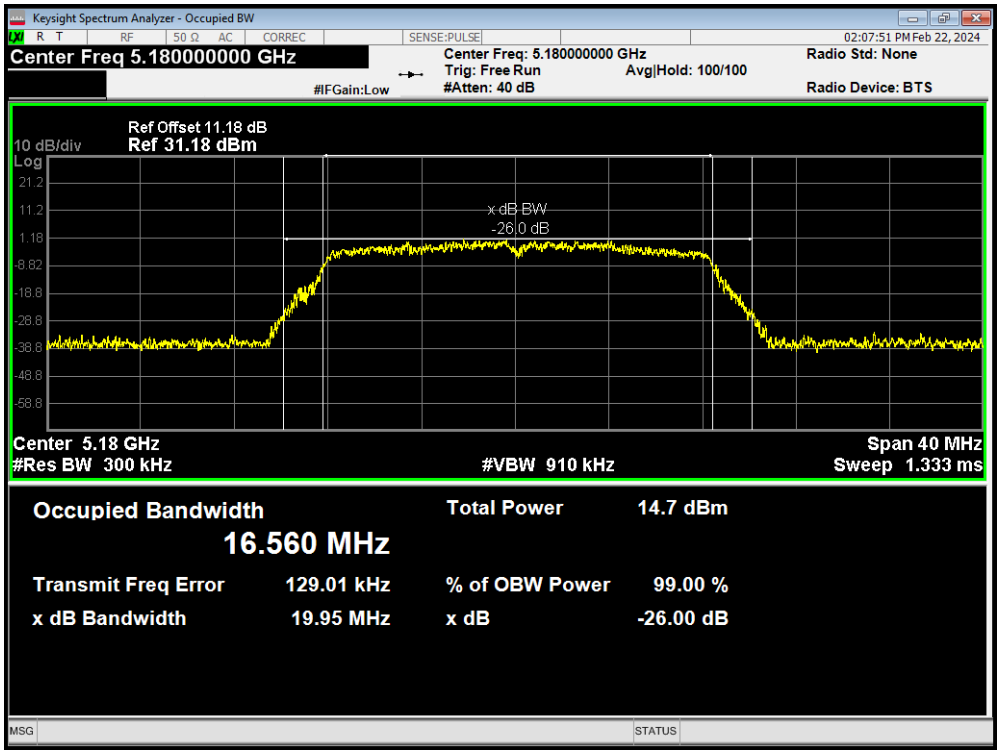
U-NII-3

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11a	5720	16.876	15.609	500	PASS
	5745	18.841	13.884	500	PASS
	5785	18.964	12.644	500	PASS
	5825	20.372	15.028	500	PASS
802.11n HT20	5720	18.095	14.381	500	PASS
	5745	18.933	13.304	500	PASS
	5785	20.814	15.001	500	PASS
	5825	20.903	15.603	500	PASS
802.11n HT40	5710	36.777	35.142	500	PASS
	5755	36.057	35.060	500	PASS
	5795	44.649	32.599	500	PASS
802.11ac VHT20	5720	19.326	16.587	500	PASS
	5745	19.502	14.993	500	PASS
	5785	20.780	15.750	500	PASS
	5825	20.654	14.205	500	PASS
802.11ac VHT40	5710	37.160	35.029	500	PASS
	5755	47.295	35.048	500	PASS
	5795	44.924	33.878	500	PASS
802.11ac VHT80	5690	80.088	62.586	500	PASS
	5775	79.004	65.089	500	PASS

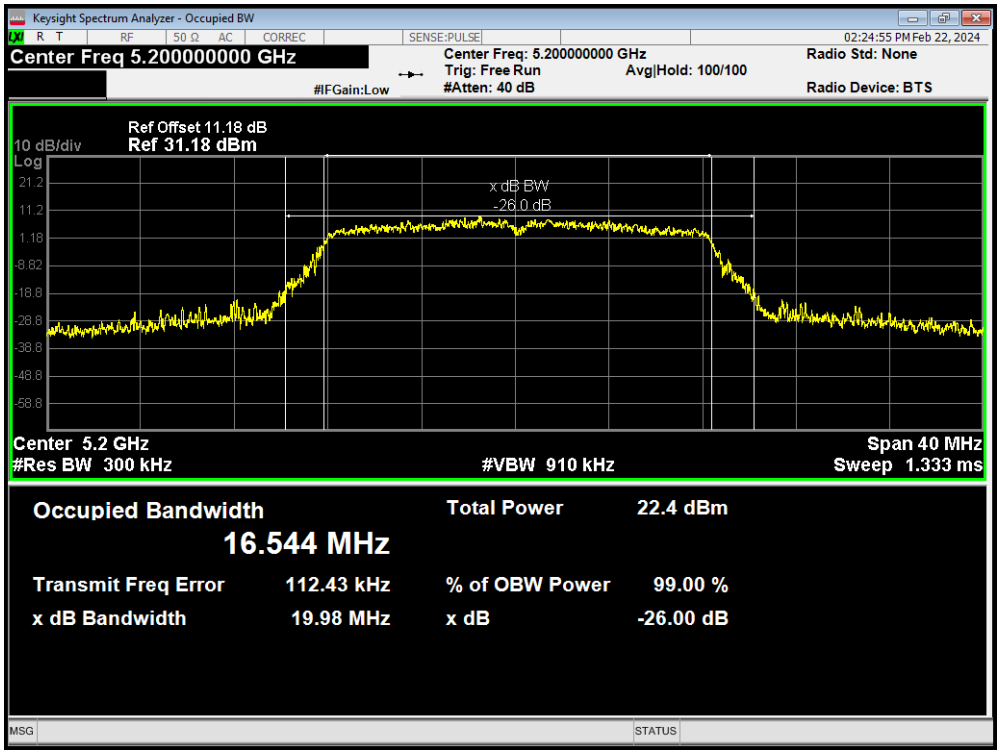
99% bandwidth

U-NII-1

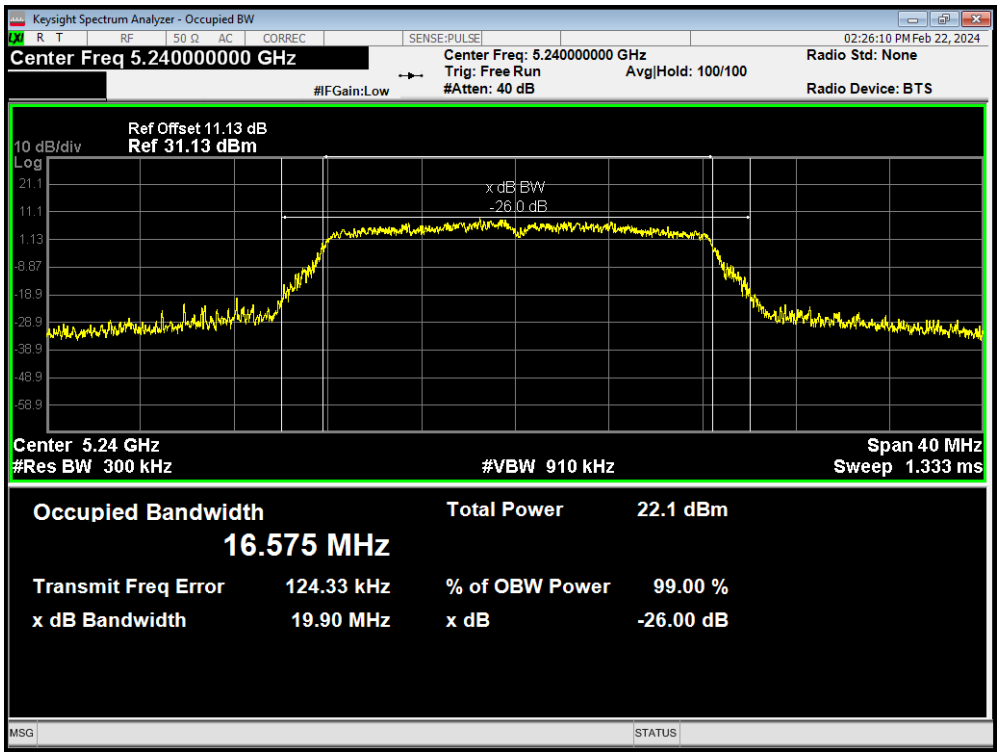
OBW 802.11a 5180MHz



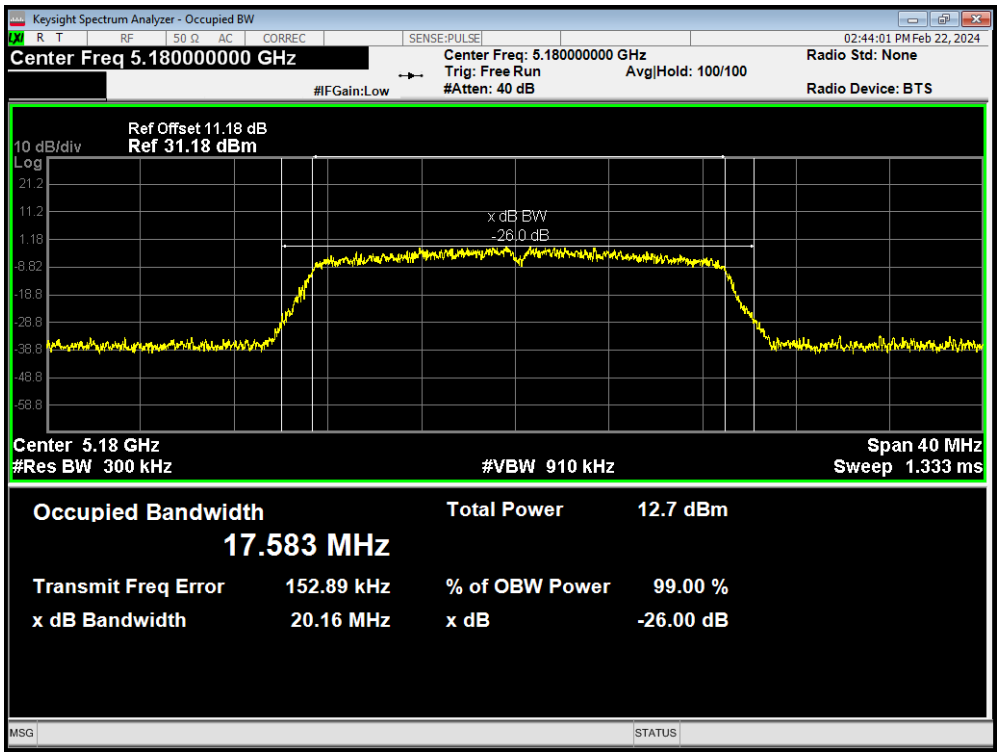
OBW 802.11a 5200MHz



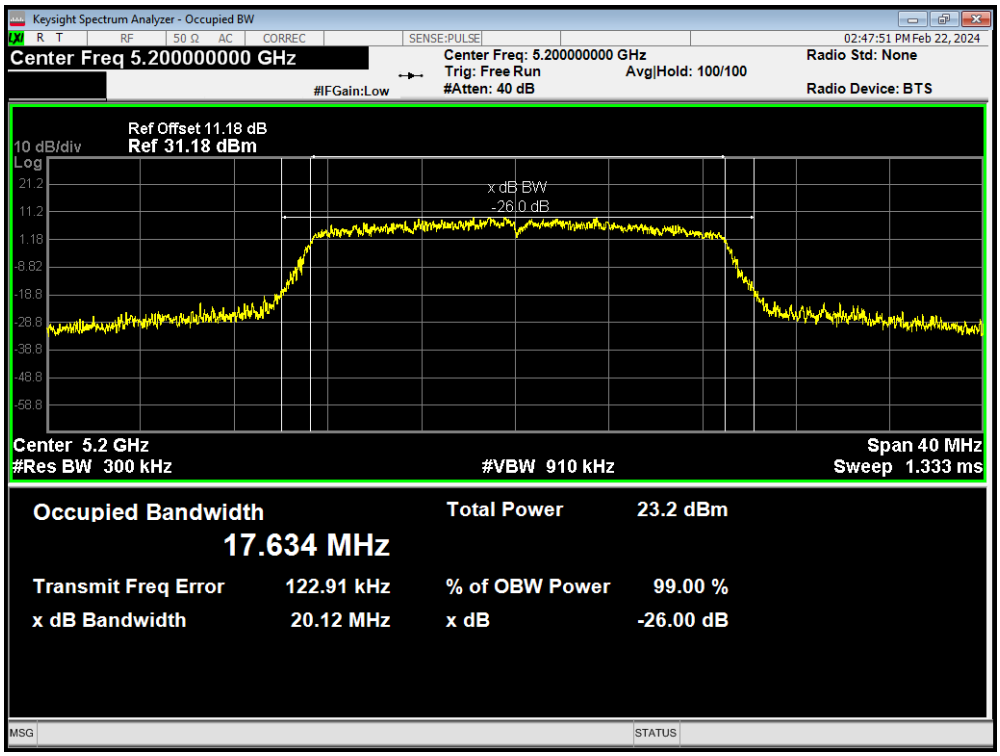
OBW 802.11a 5240MHz



OBW 802.11ac(VHT20) 5180MHz



OBW 802.11ac(VHT20) 5200MHz



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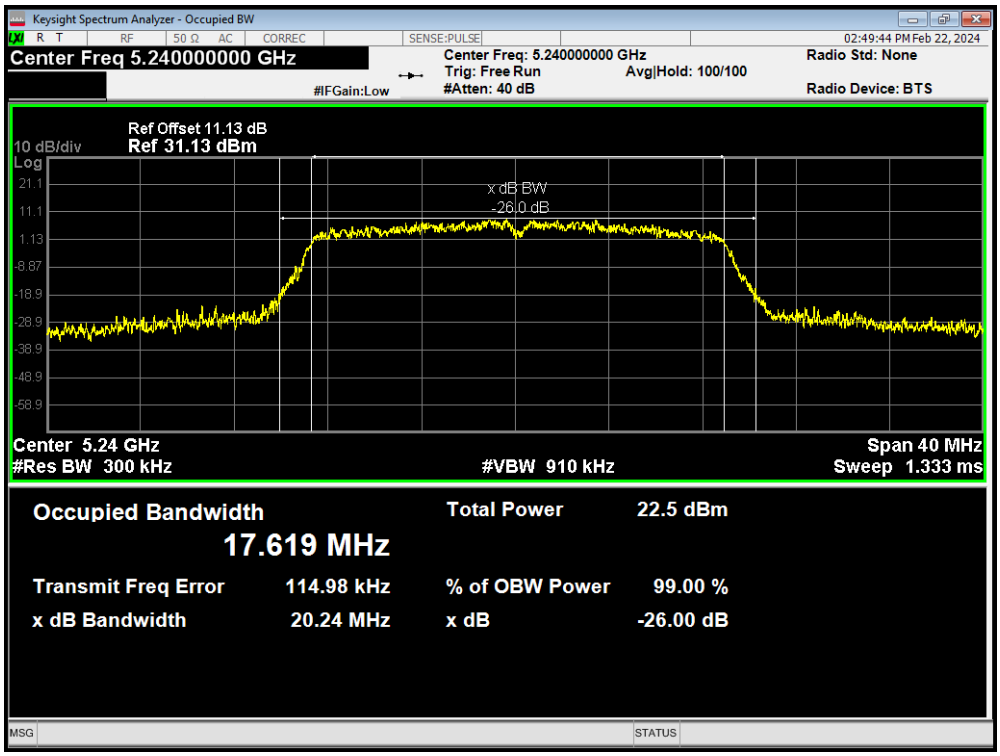
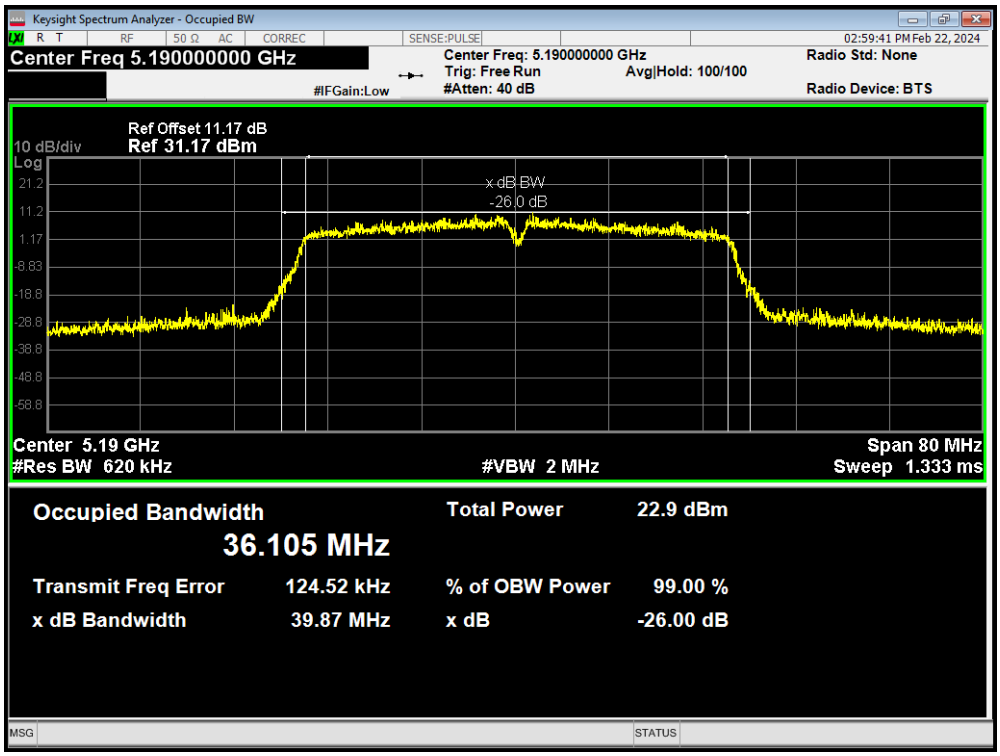
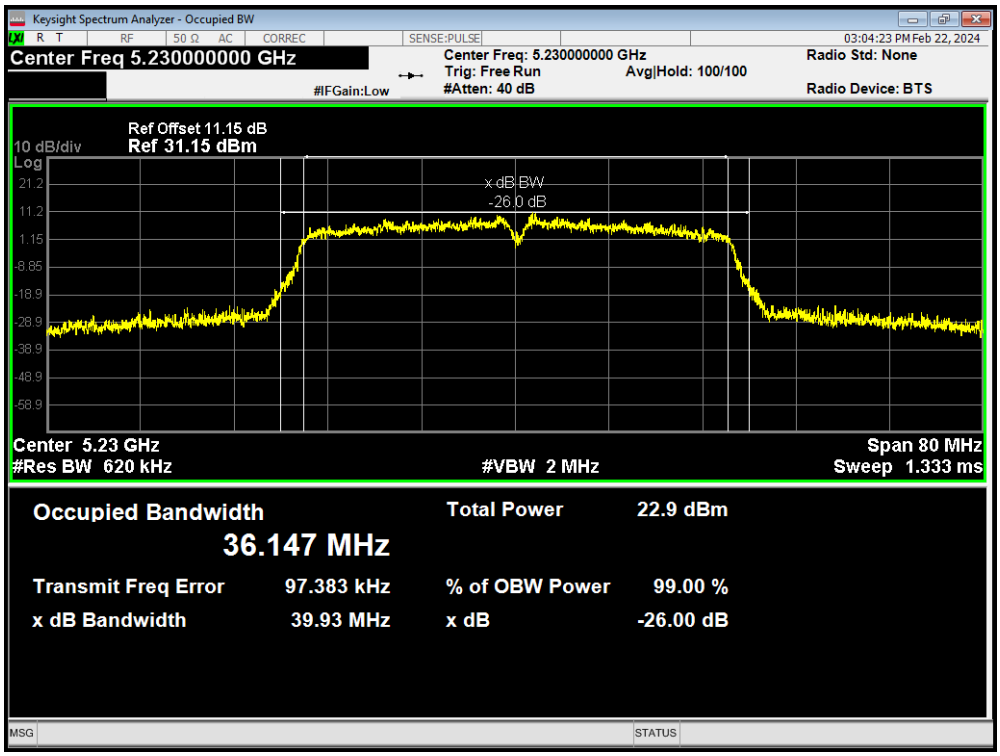


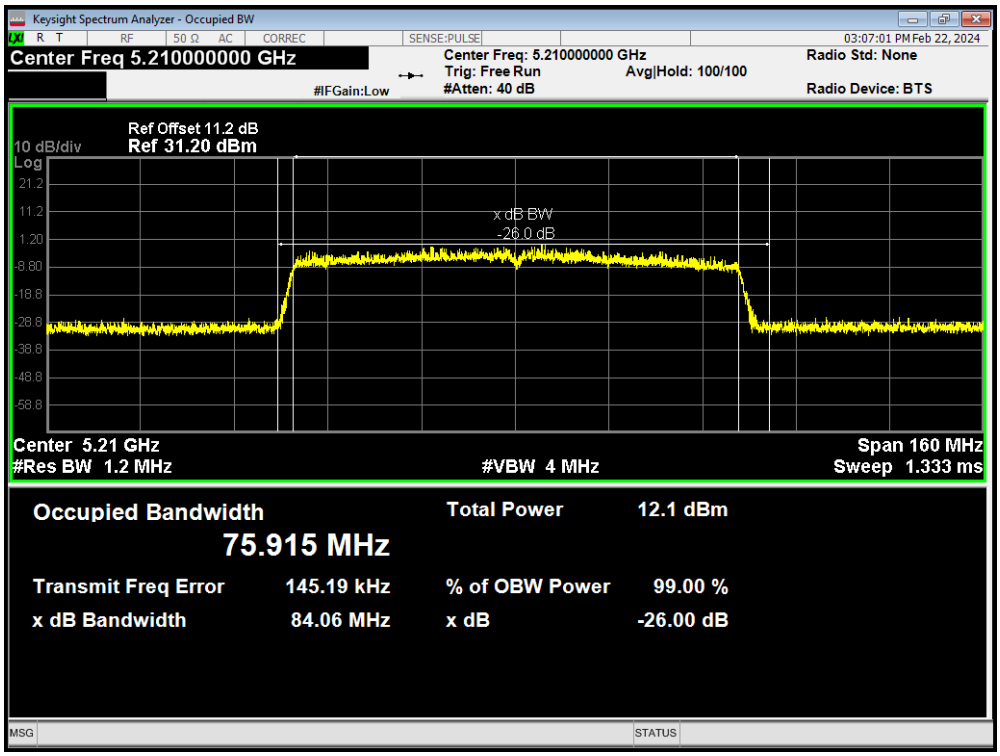
OBW 802.11ac(VHT40) 5190MHz



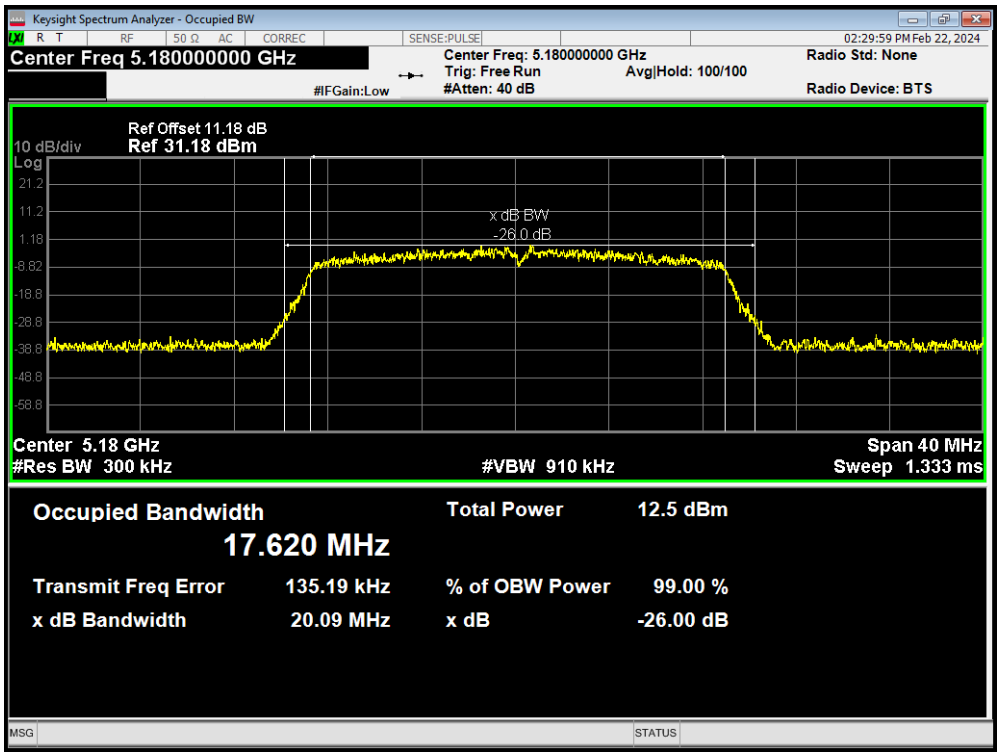
OBW 802.11ac(VHT40) 5230MHz



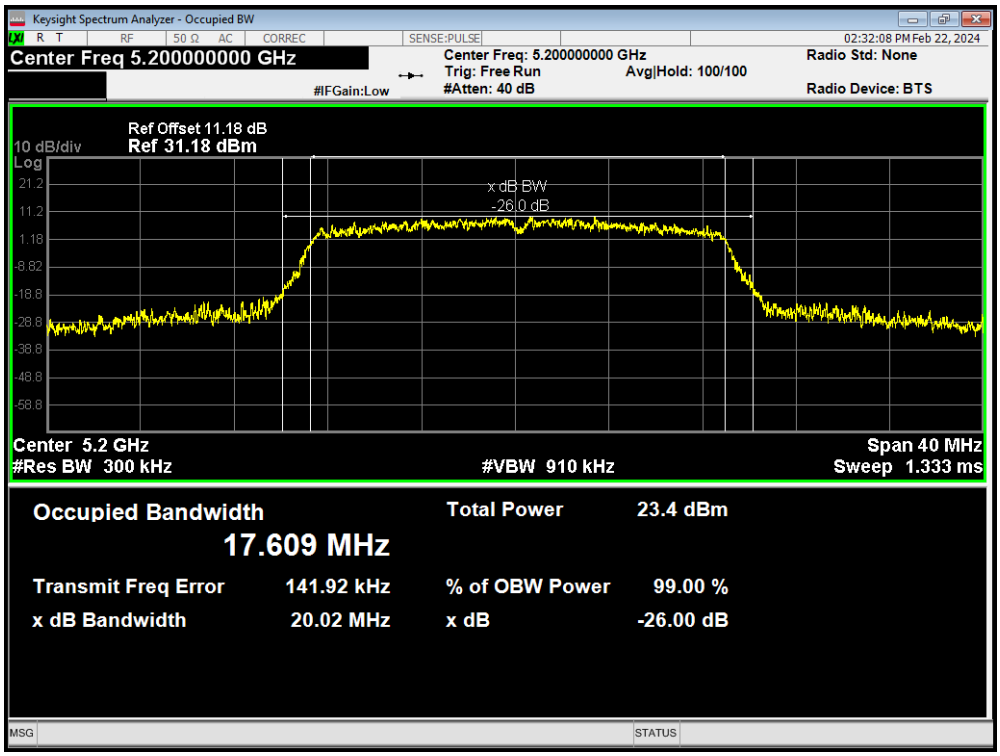
OBW 802.11ac(VHT80) 5210MHz



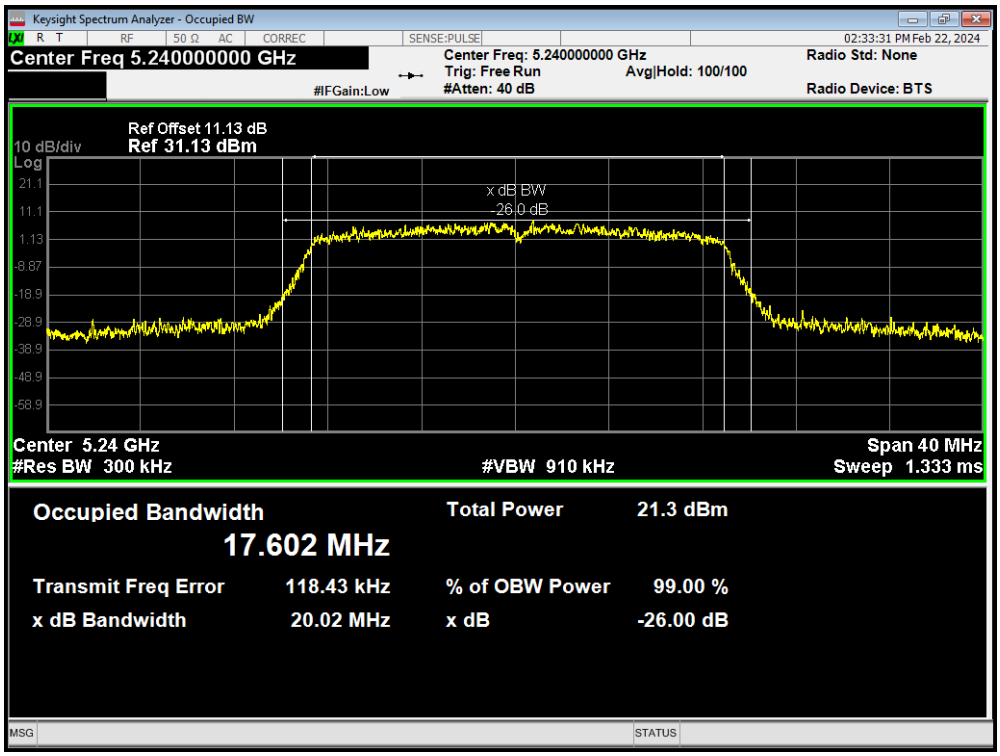
OBW 802.11n(HT20) 5180MHz



OBW 802.11n(HT20) 5200MHz



OBW 802.11n(HT20) 5240MHz



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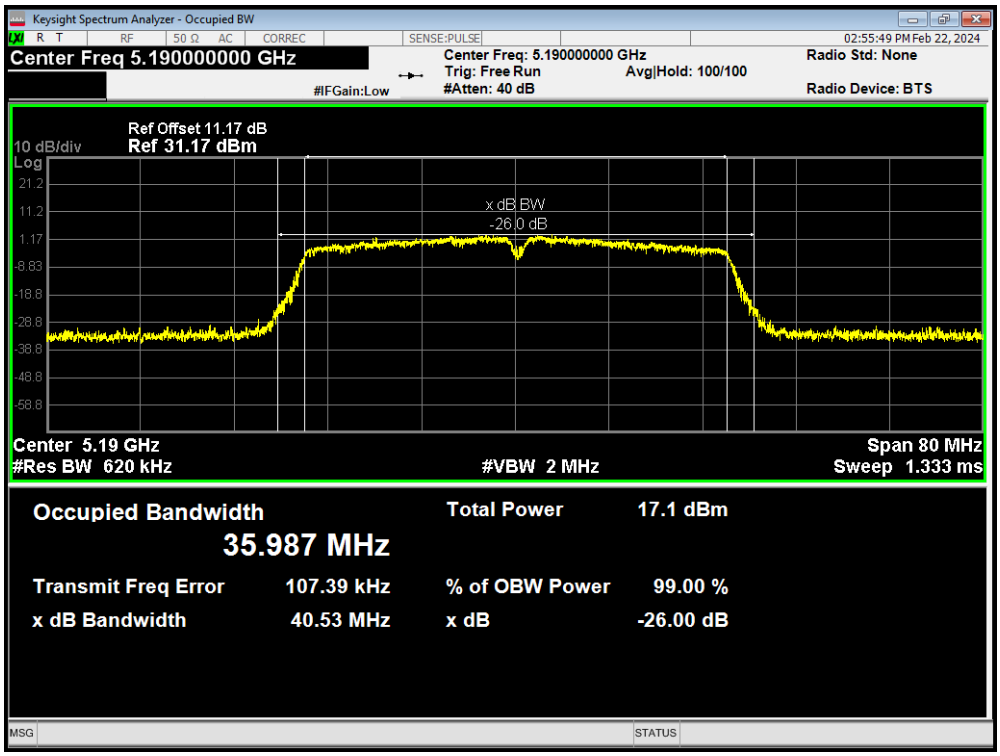
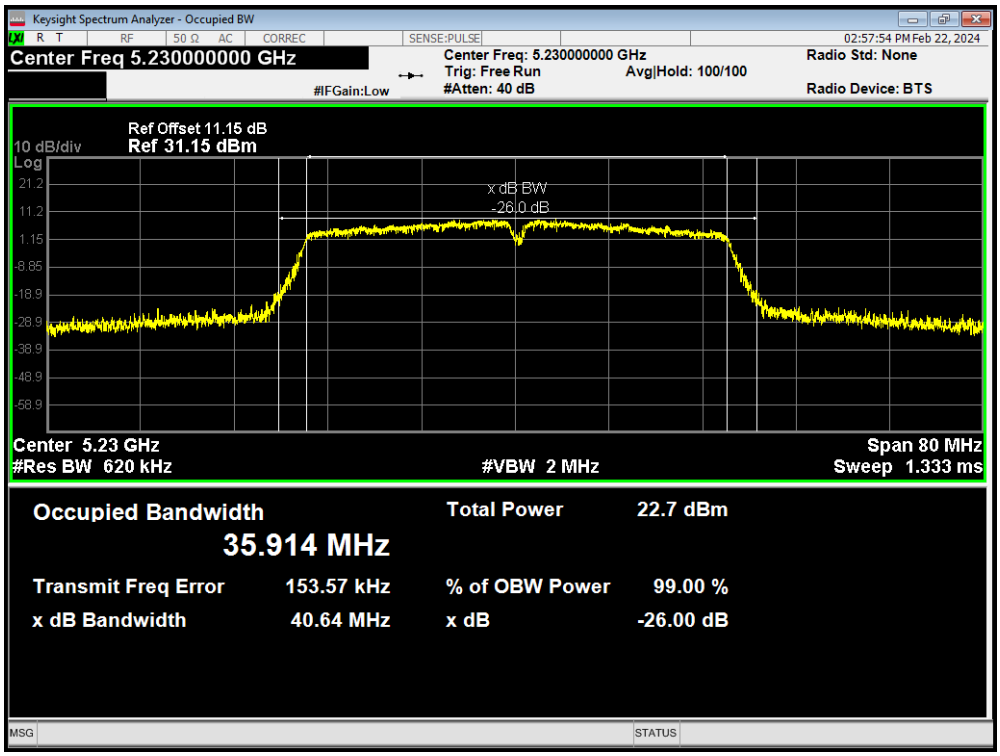
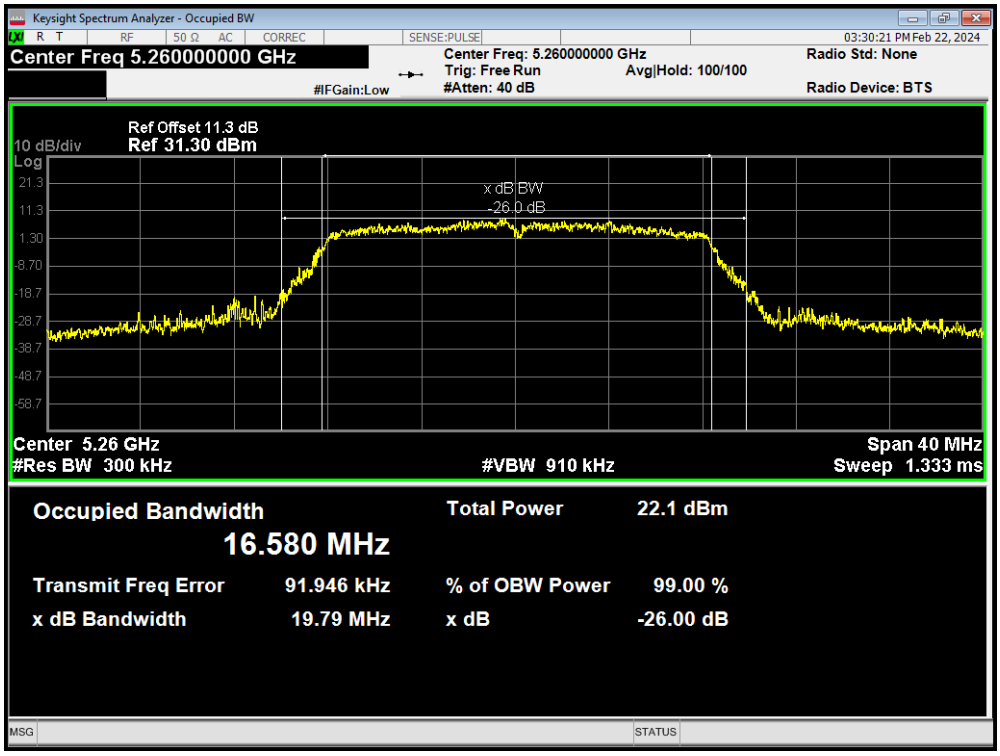


OBW 802.11n(HT40) 5230MHz

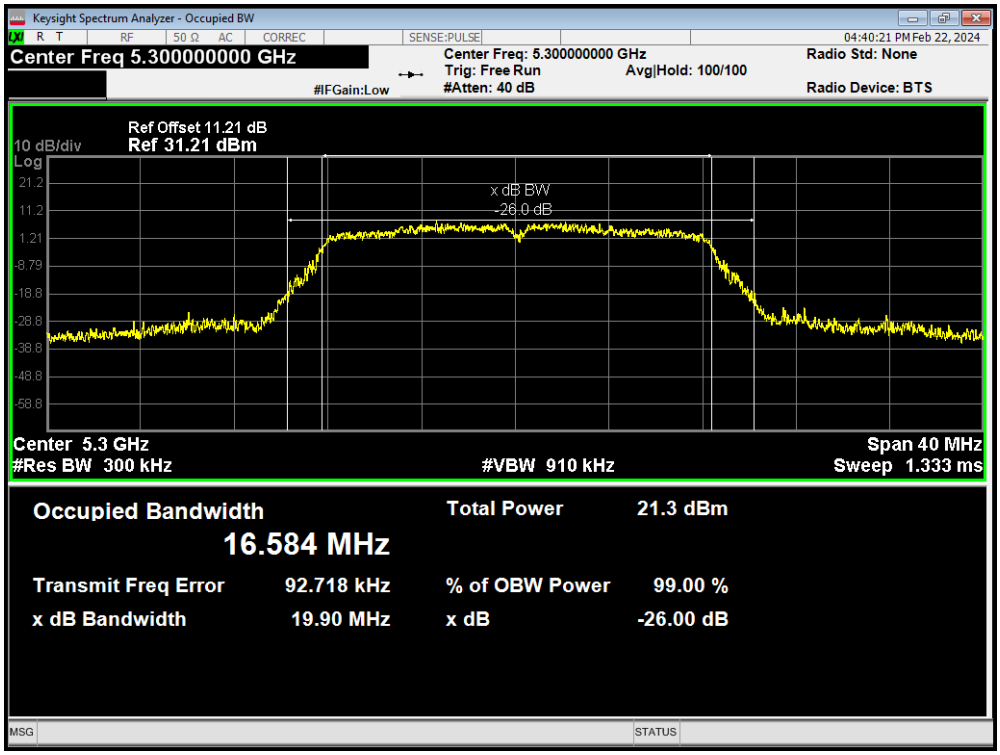


U-NII-2A

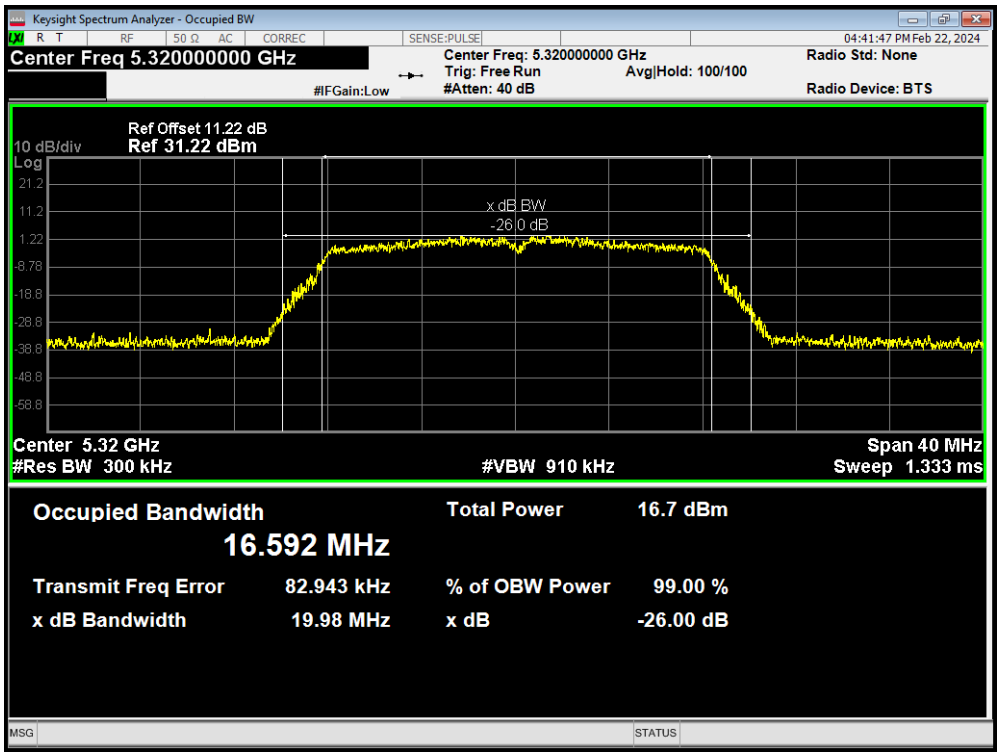
OBW 802.11a 5260MHz



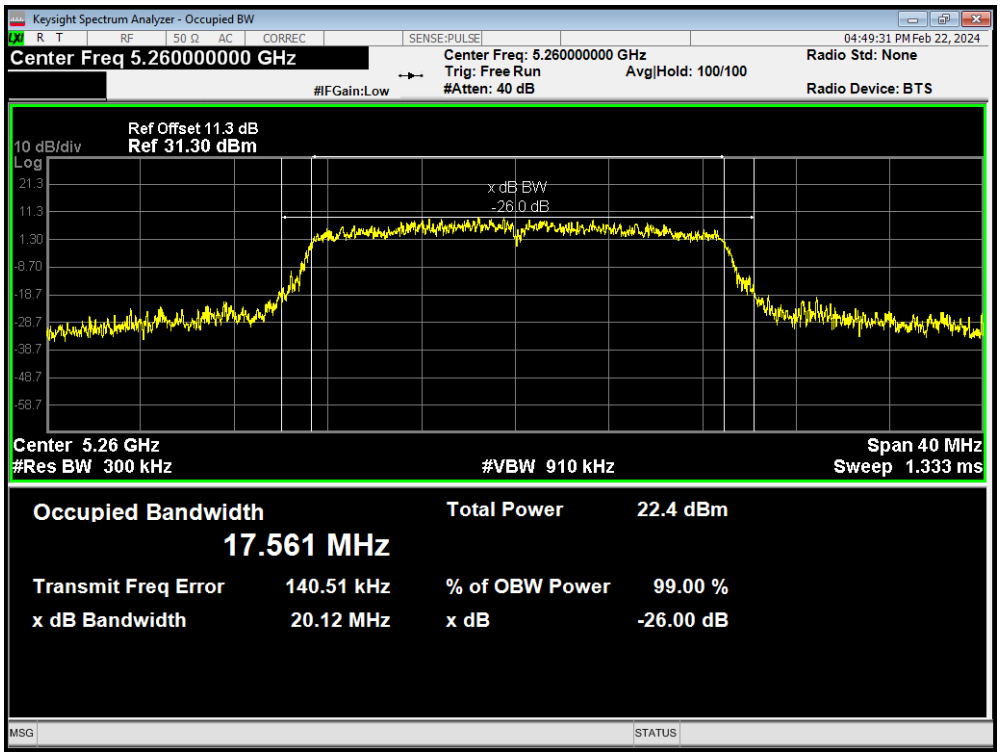
OBW 802.11a 5300MHz



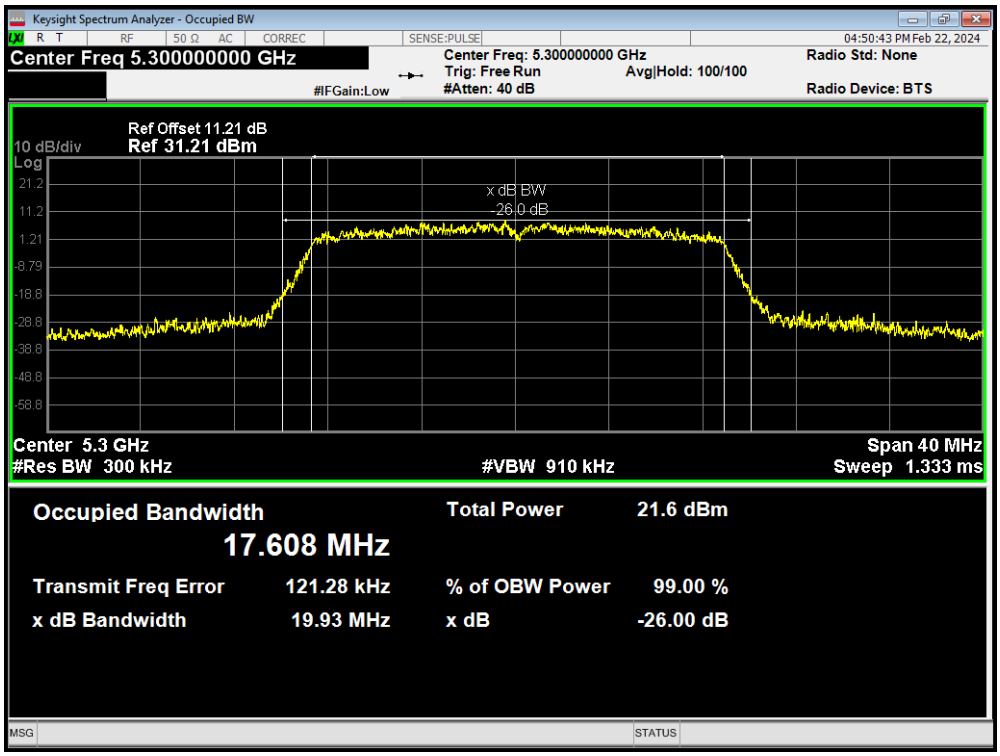
OBW 802.11a 5320MHz



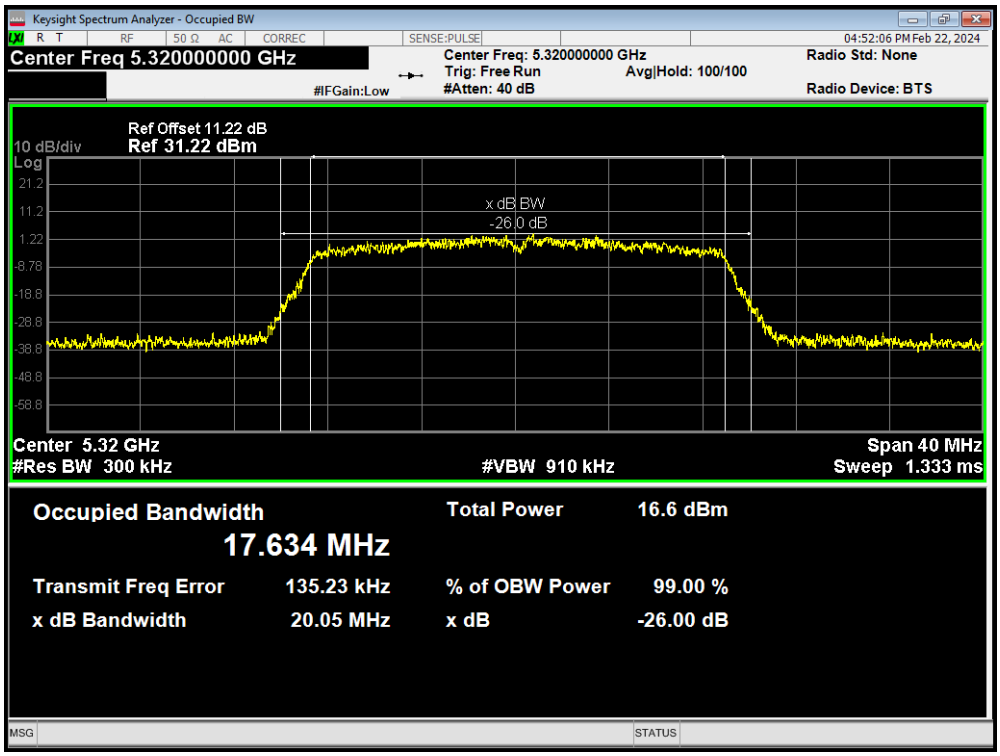
OBW 802.11ac(VHT20) 5260MHz



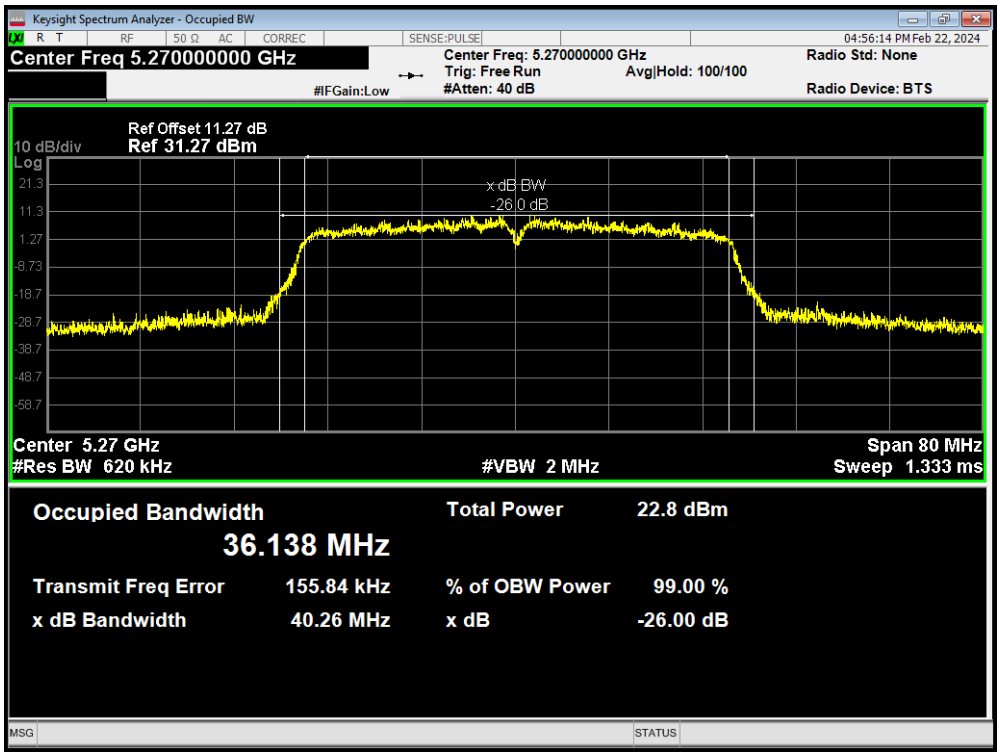
OBW 802.11ac(VHT20) 5300MHz



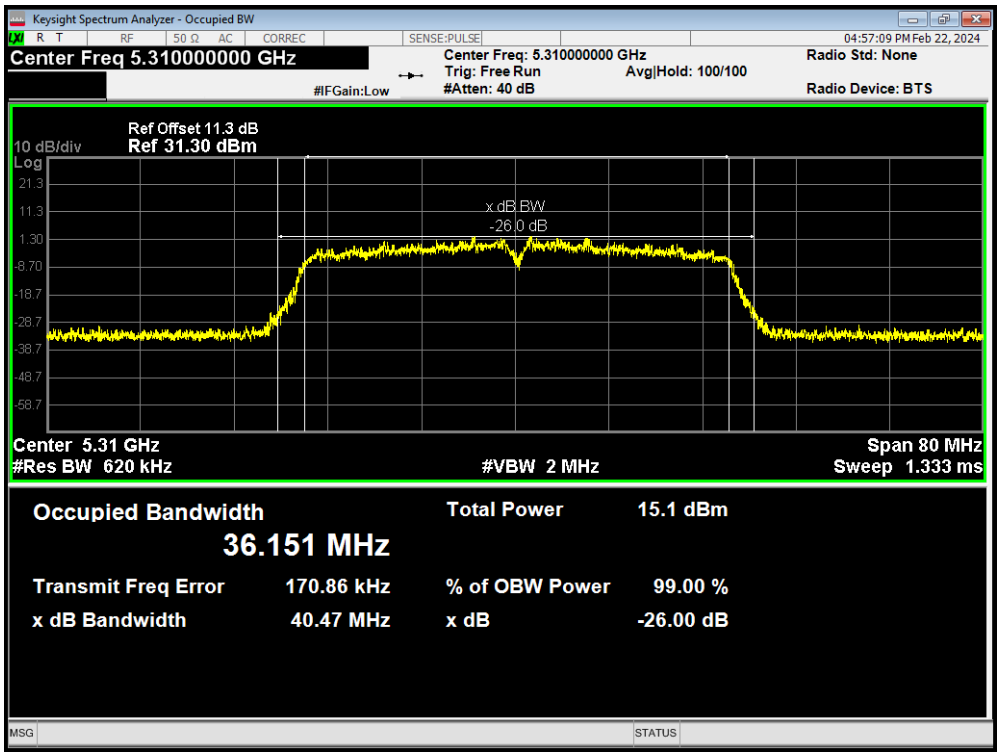
OBW 802.11ac(VHT20) 5320MHz



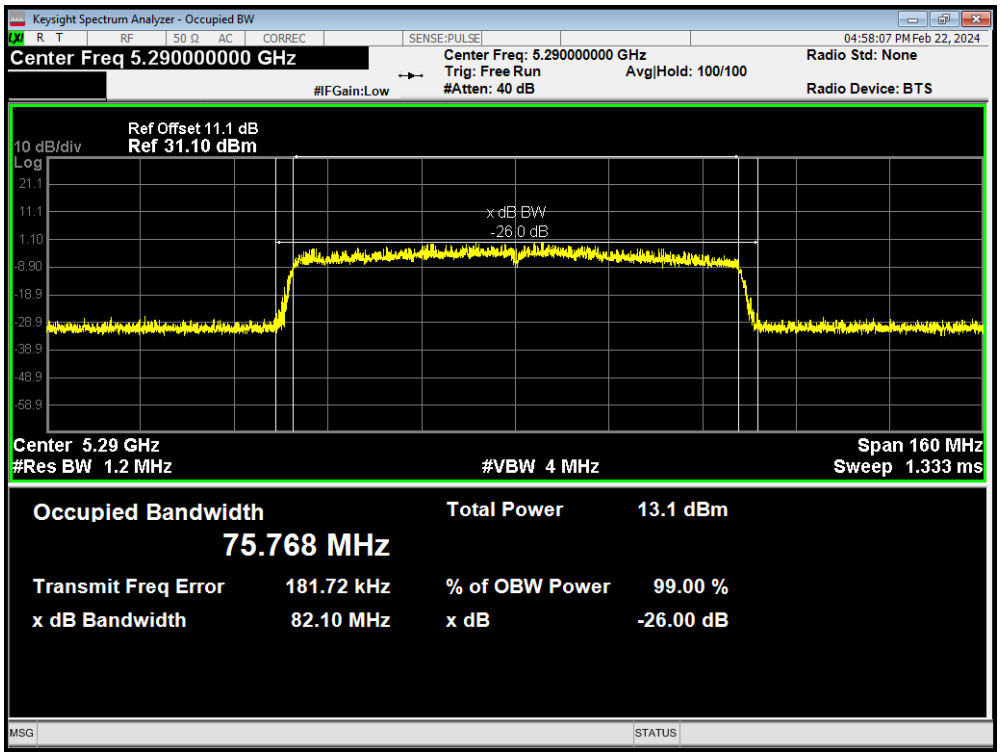
OBW 802.11ac(VHT40) 5270MHz



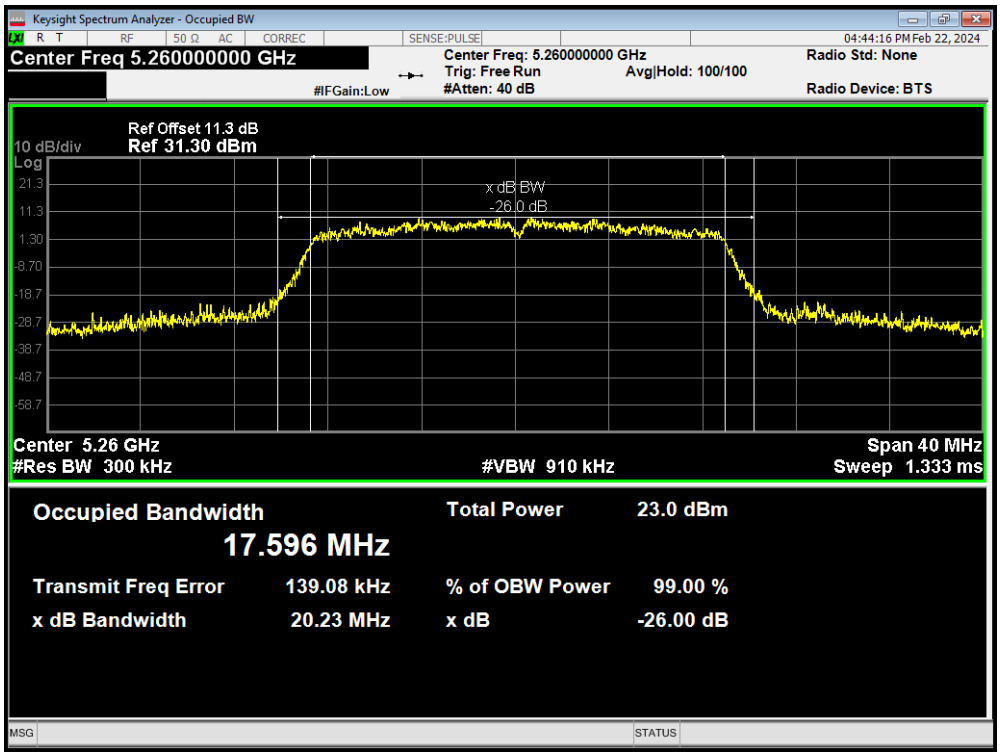
OBW 802.11ac(VHT40) 5310MHz



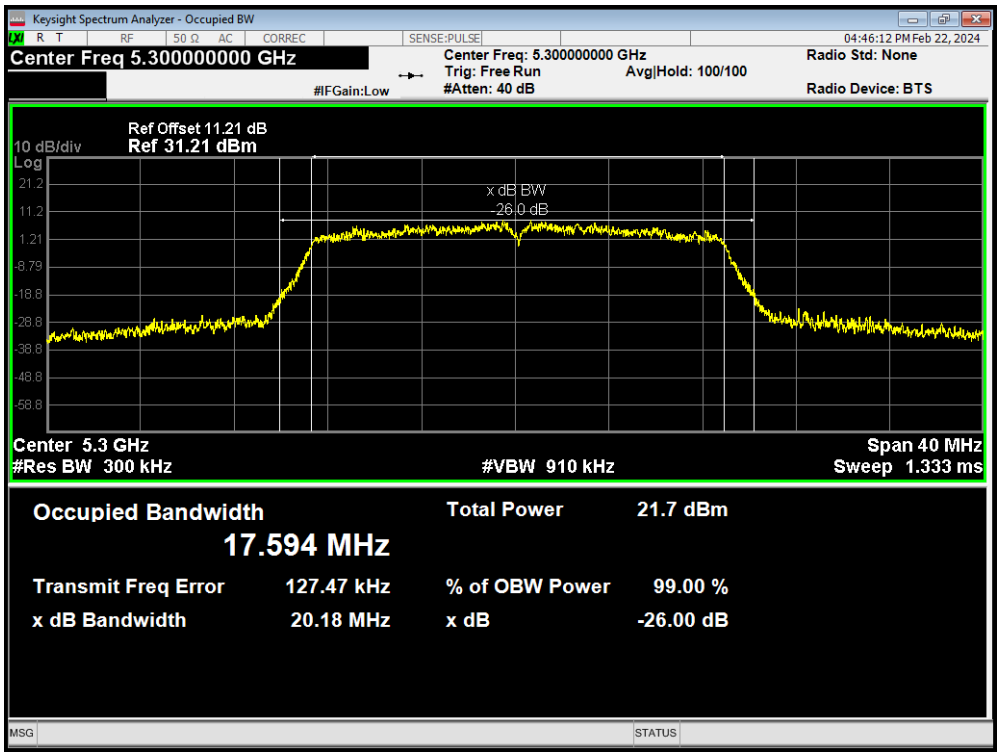
OBW 802.11ac(VHT80) 5290MHz



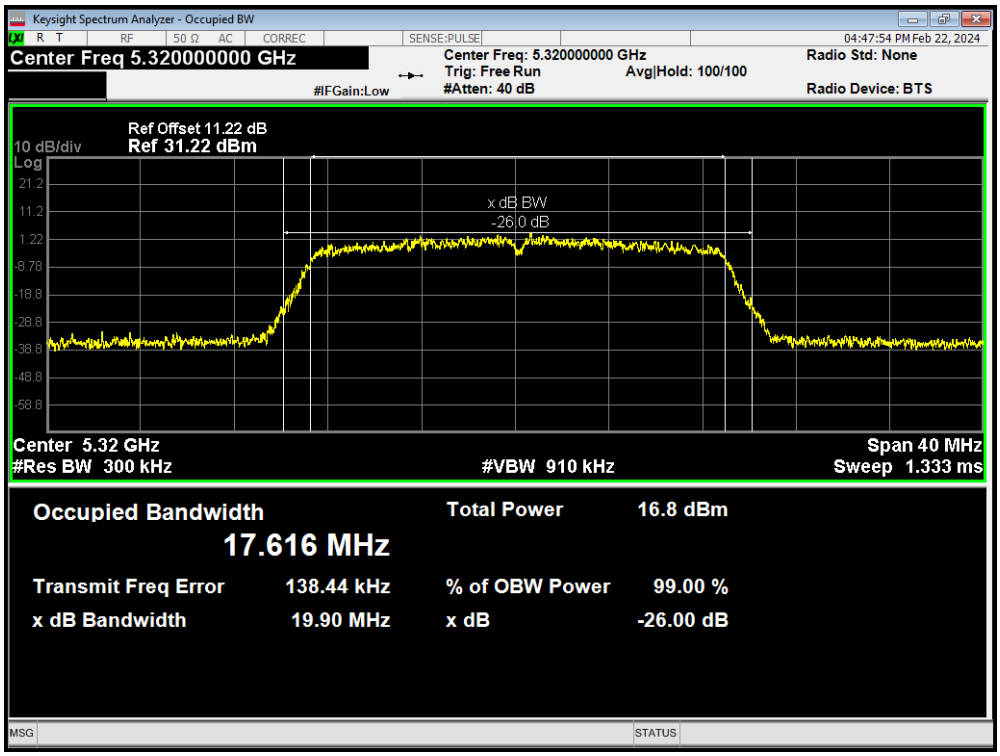
OBW 802.11n(HT20) 5260MHz



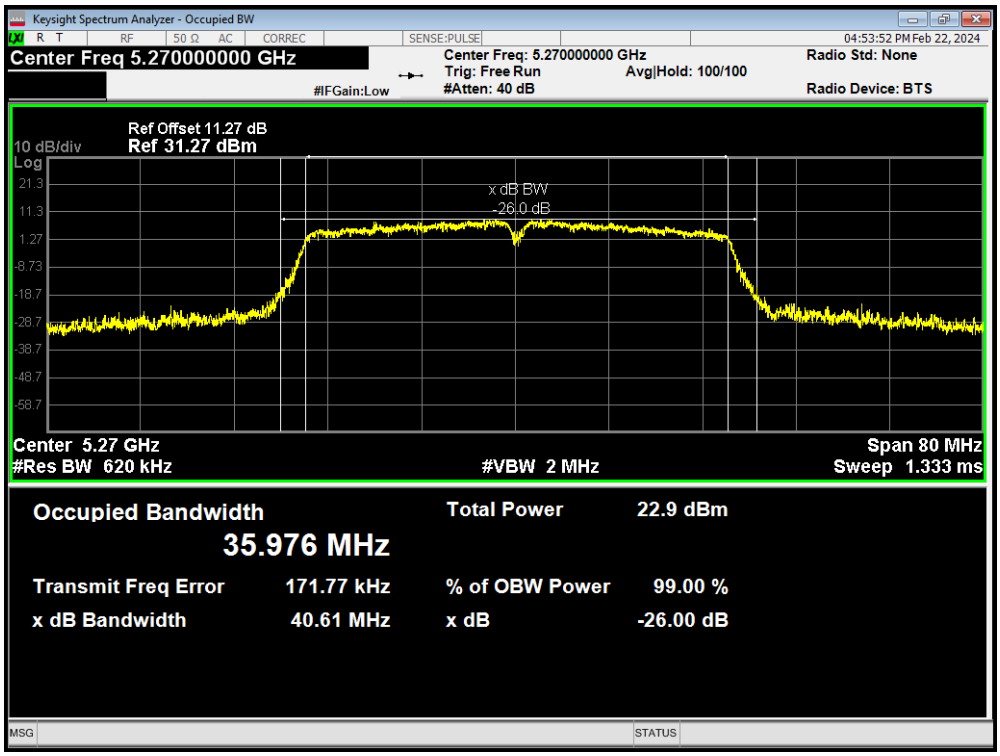
OBW 802.11n(HT20) 5300MHz



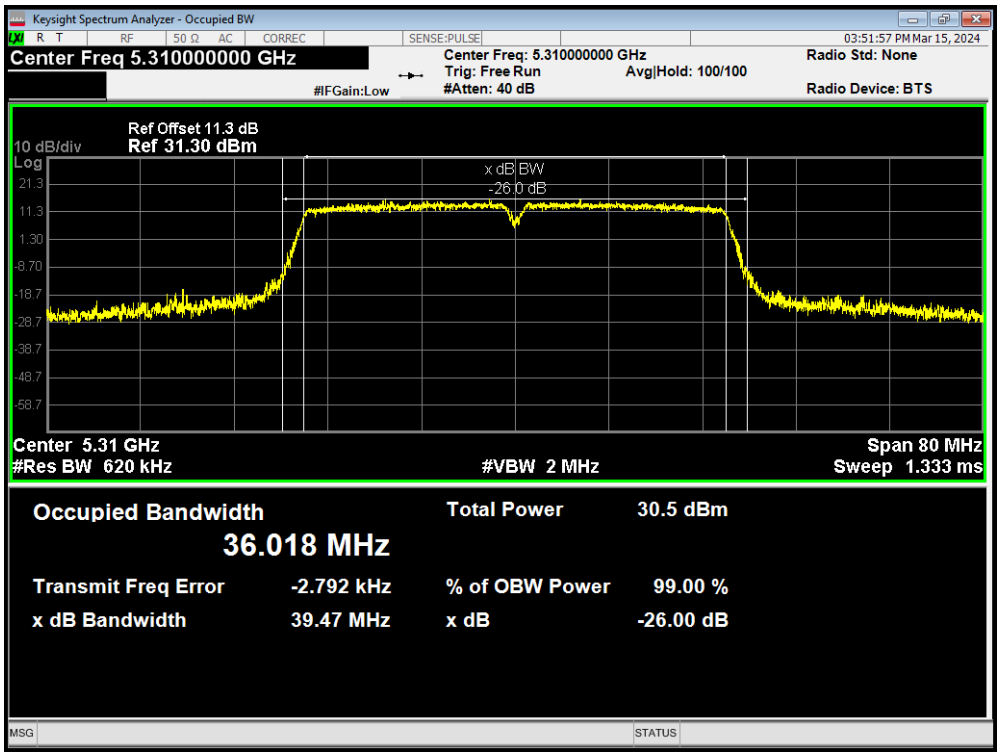
OBW 802.11n(HT20) 5320MHz



OBW 802.11n(HT40) 5270MHz

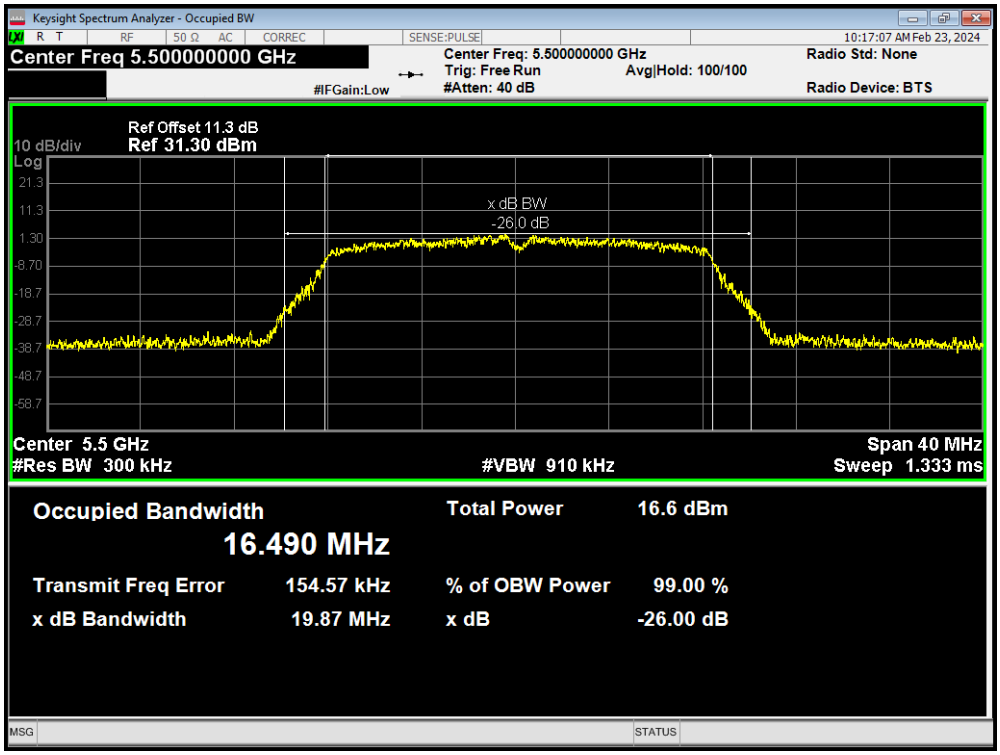


OBW 802.11n(HT40) 5310MHz

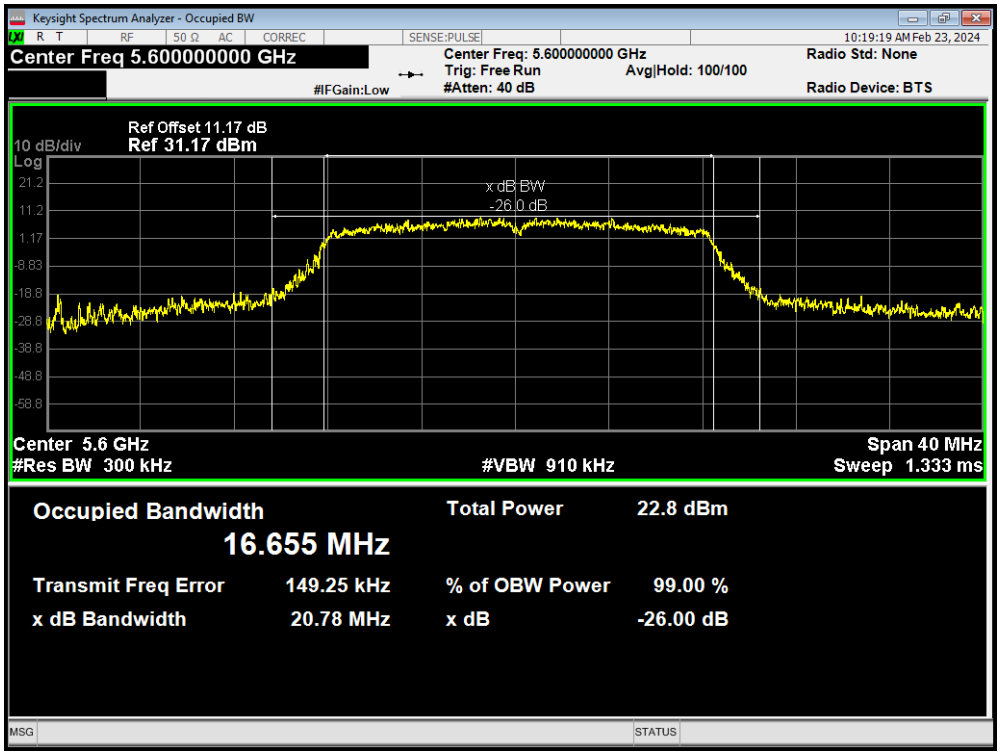


U-NII-2C

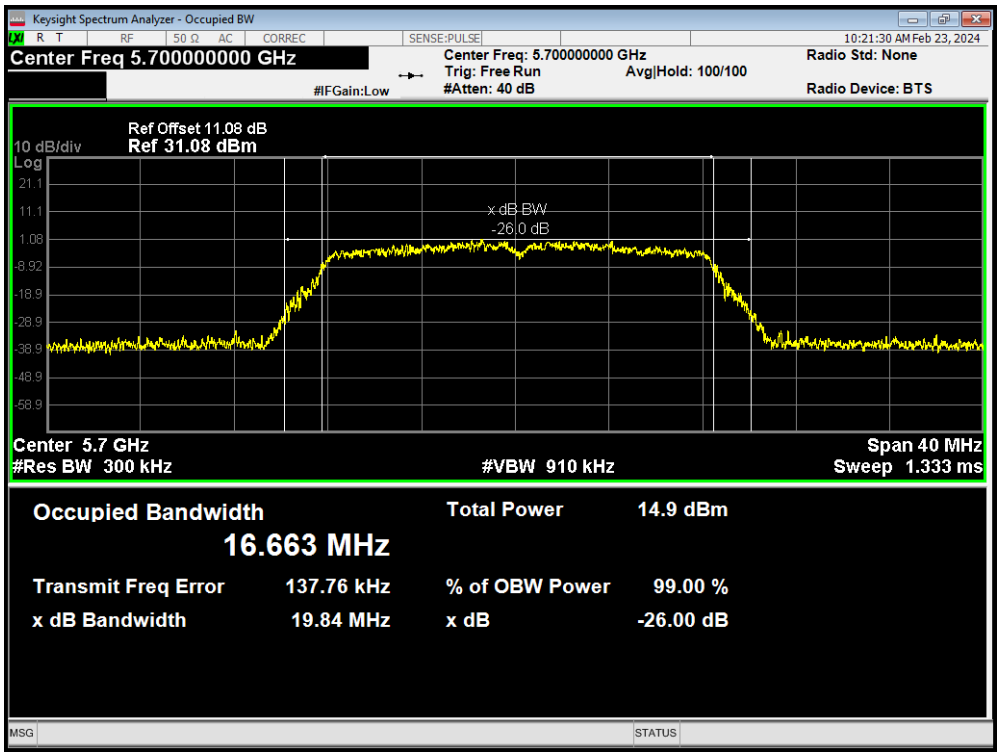
OBW 802.11a 5500MHz



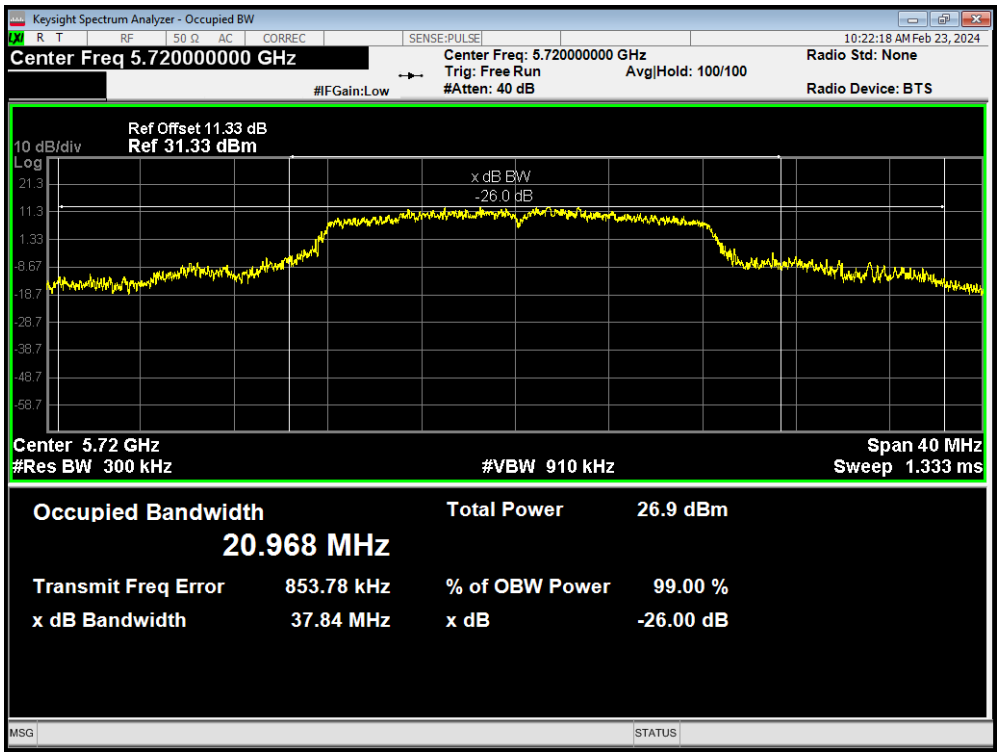
OBW 802.11a 5600MHz



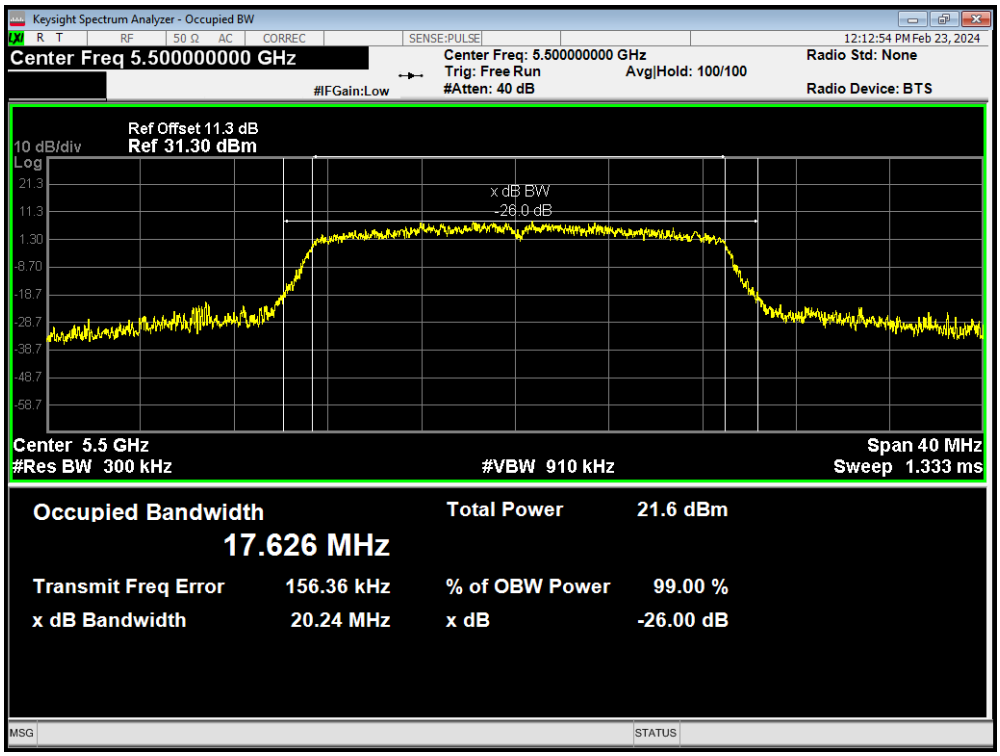
OBW 802.11a 5700MHz



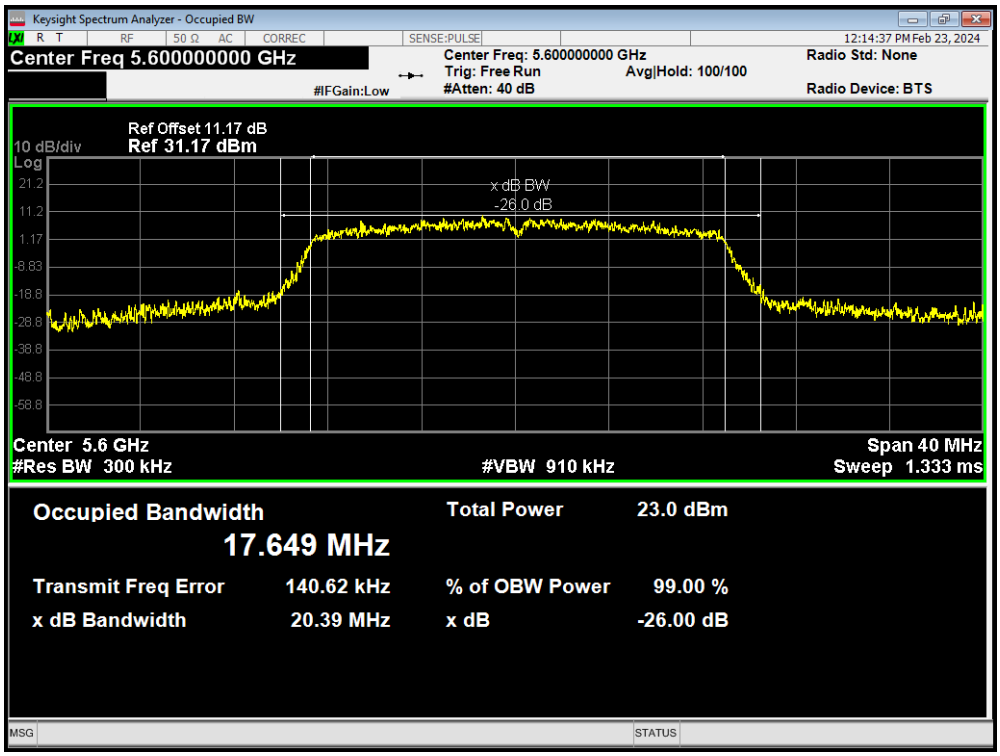
OBW 802.11a 5720MHz



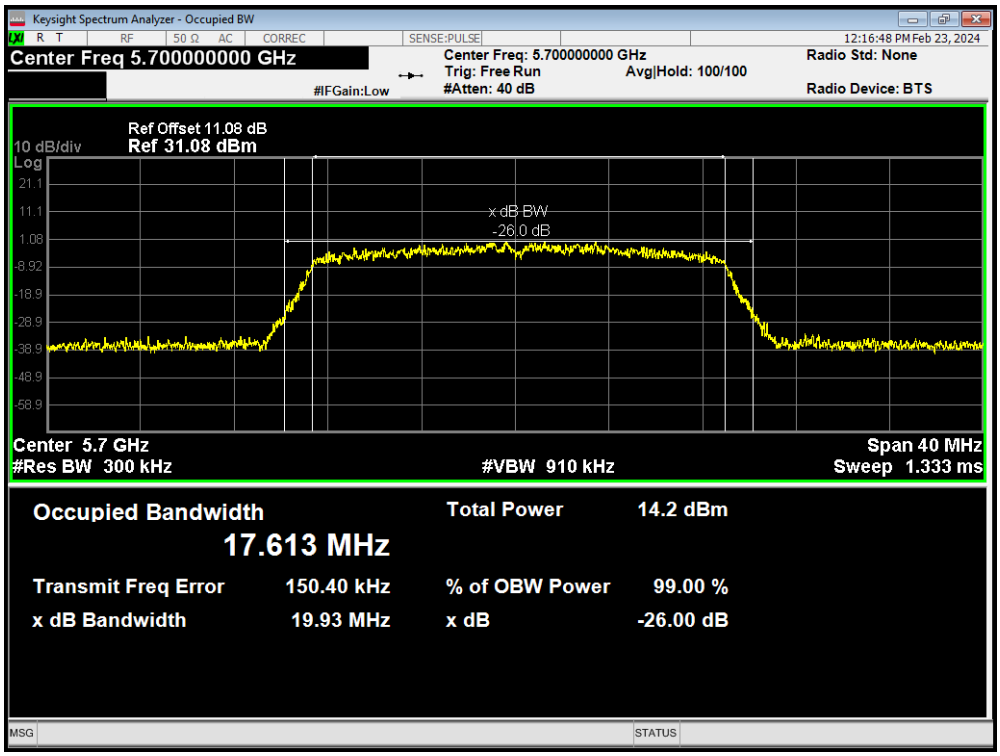
OBW 802.11ac(VHT20) 5500MHz



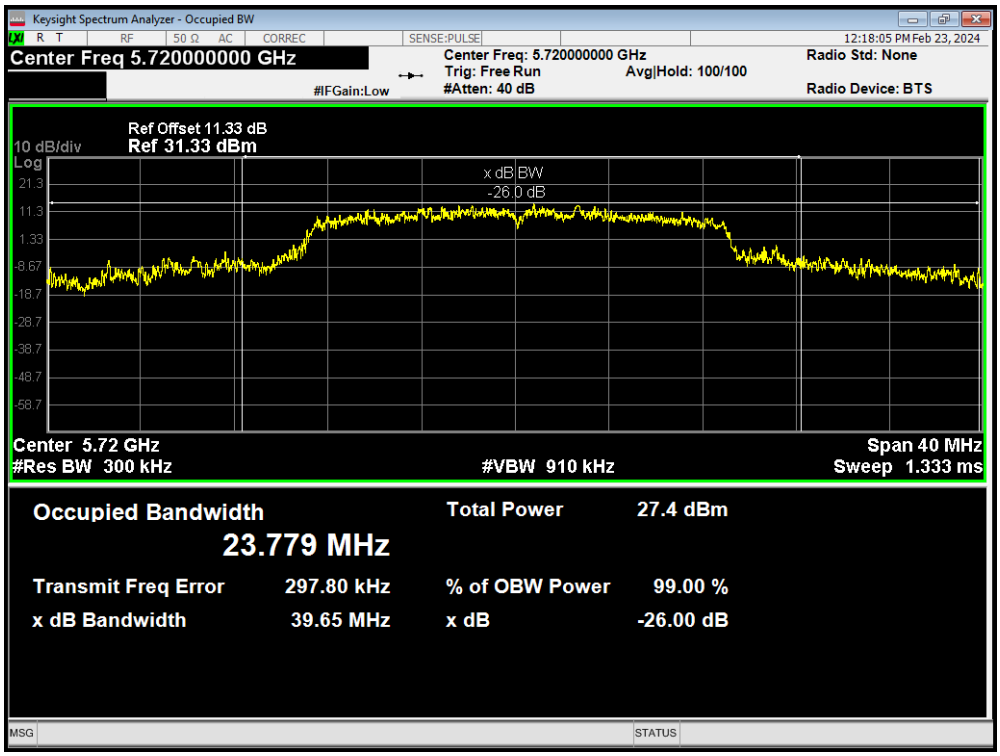
OBW 802.11ac(VHT20) 5600MHz



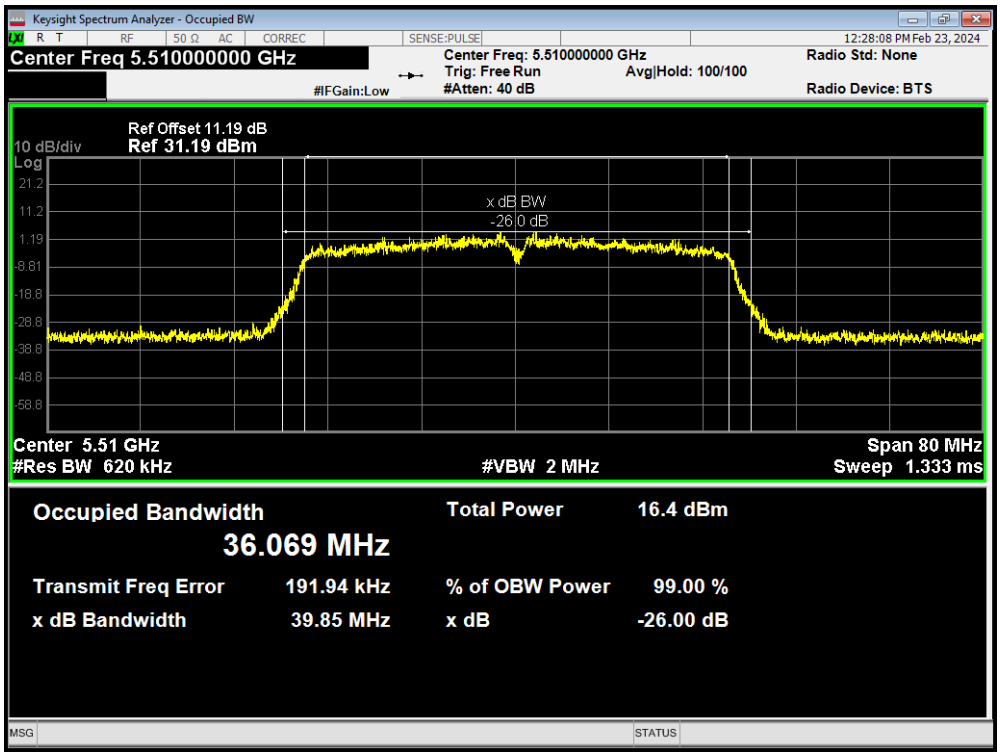
OBW 802.11ac(VHT20) 5700MHz



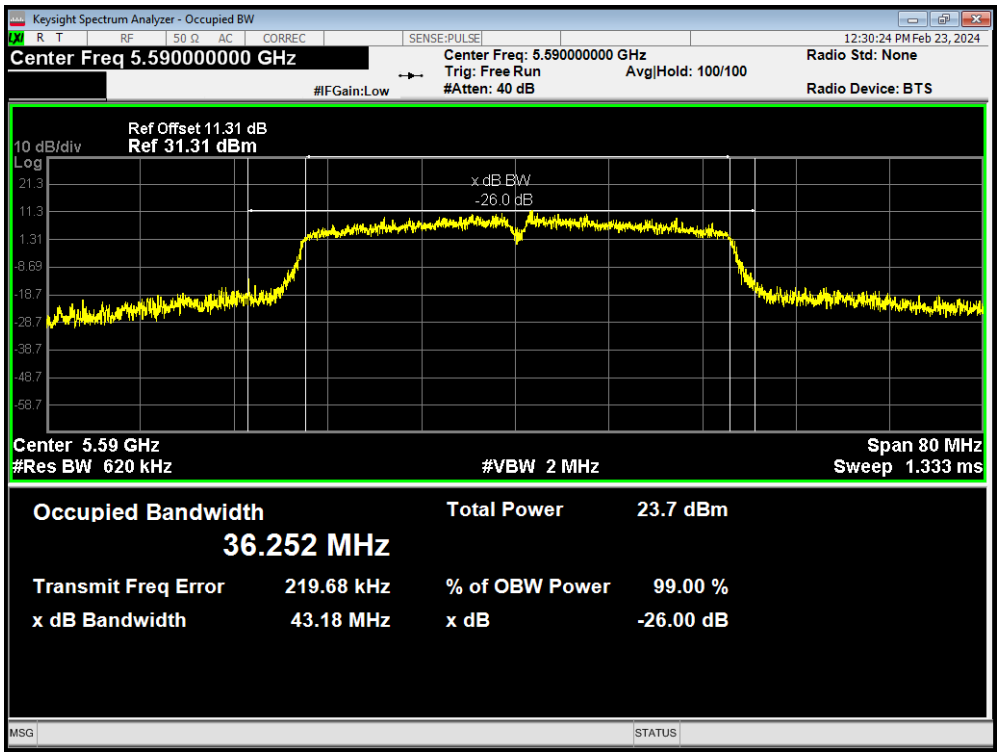
OBW 802.11ac(VHT20) 5720MHz



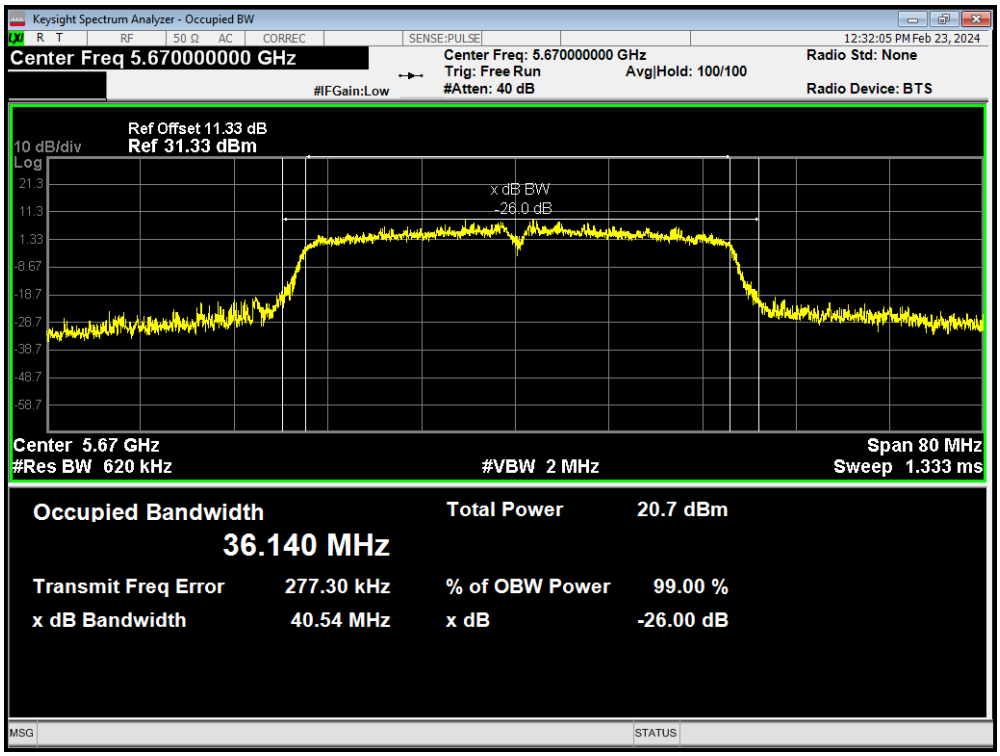
OBW 802.11ac(VHT40) 5510MHz



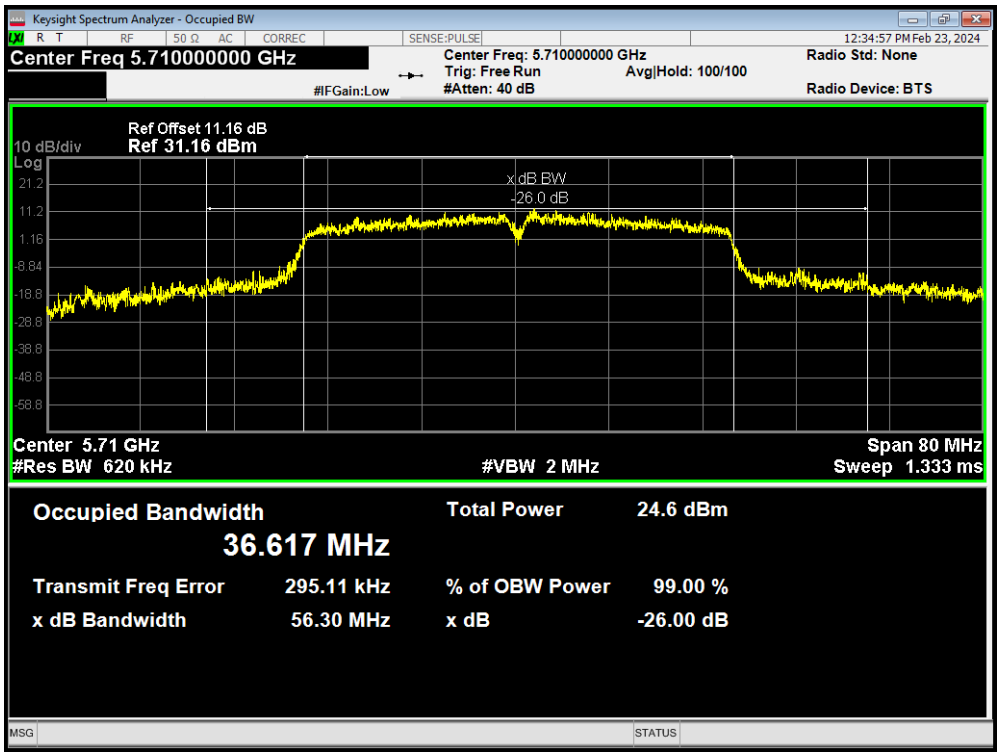
OBW 802.11ac(VHT40) 5590MHz



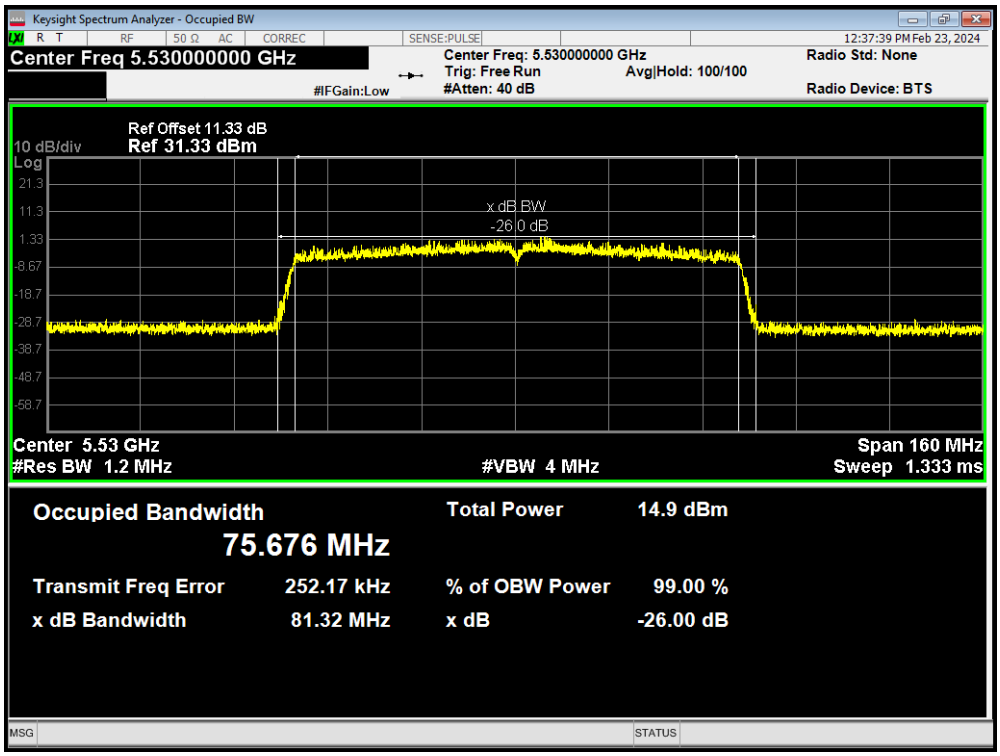
OBW 802.11ac(VHT40) 5670MHz



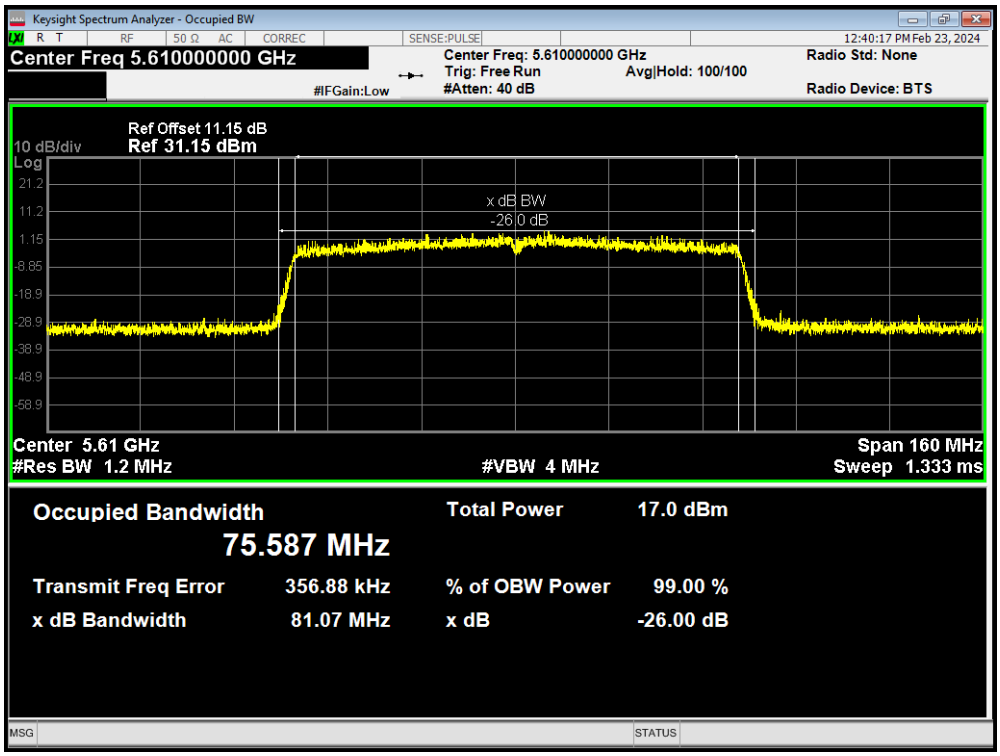
OBW 802.11ac(VHT40) 5710MHz



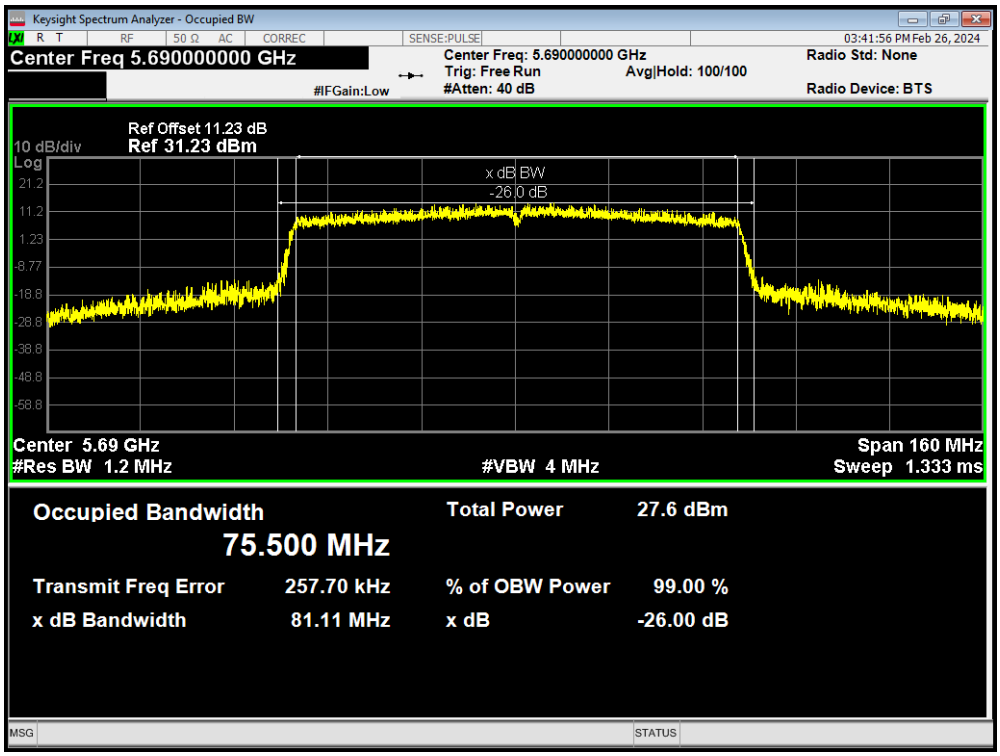
OBW 802.11ac(VHT80) 5530MHz



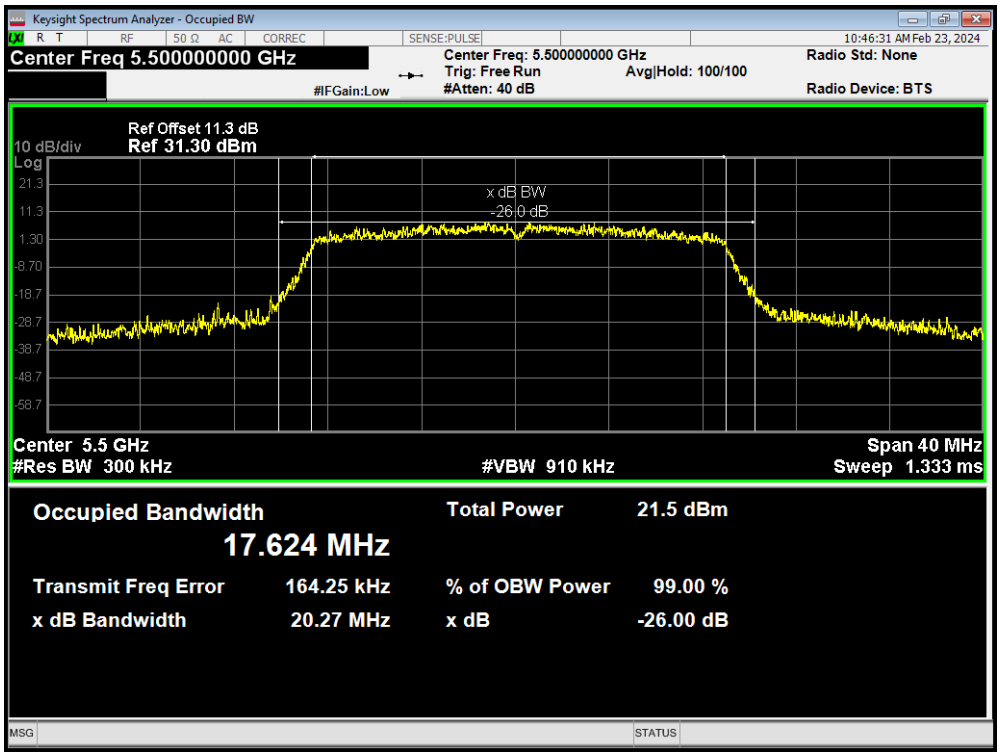
OBW 802.11ac(VHT80) 5610MHz



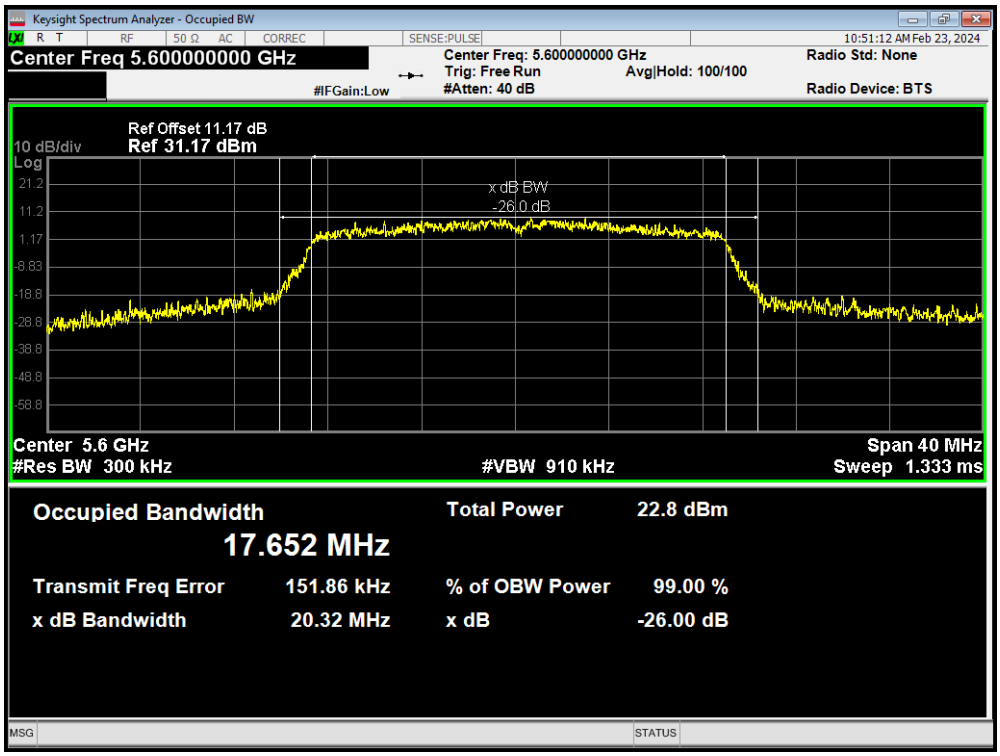
OBW 802.11ac(VHT80) 5690MHz



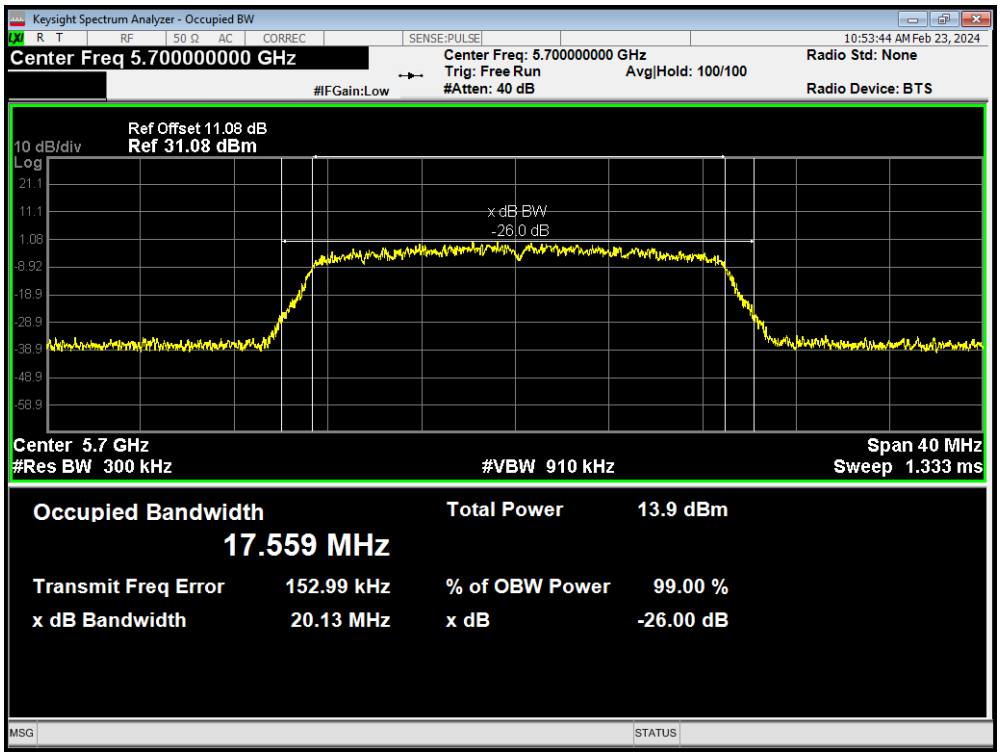
OBW 802.11n(HT20) 5500MHz



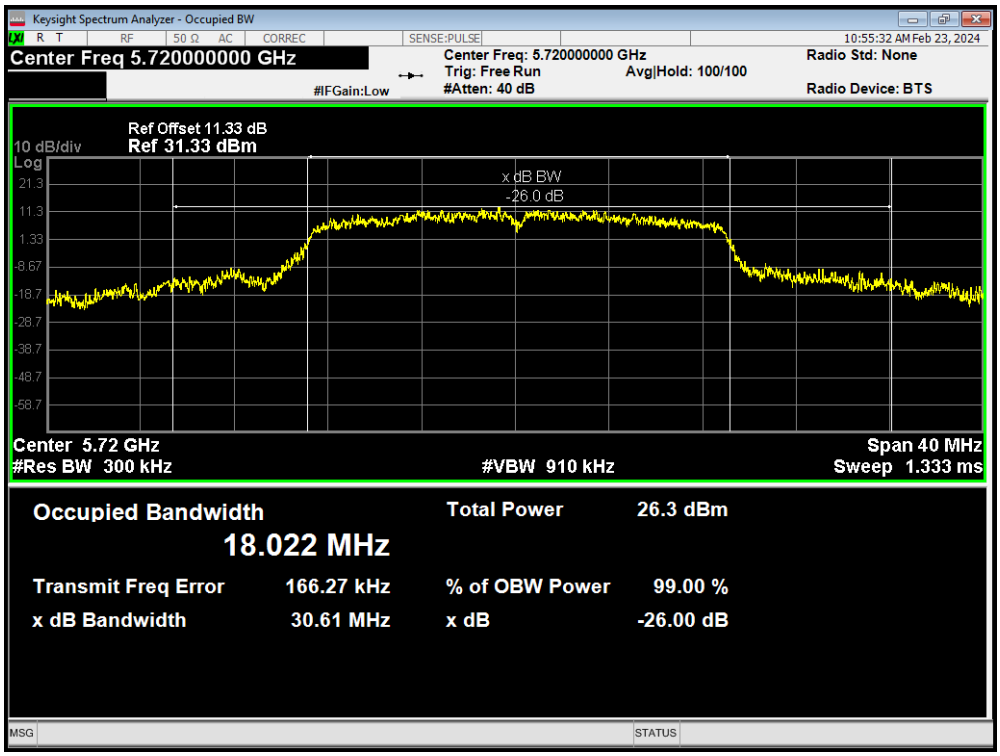
OBW 802.11n(HT20) 5600MHz



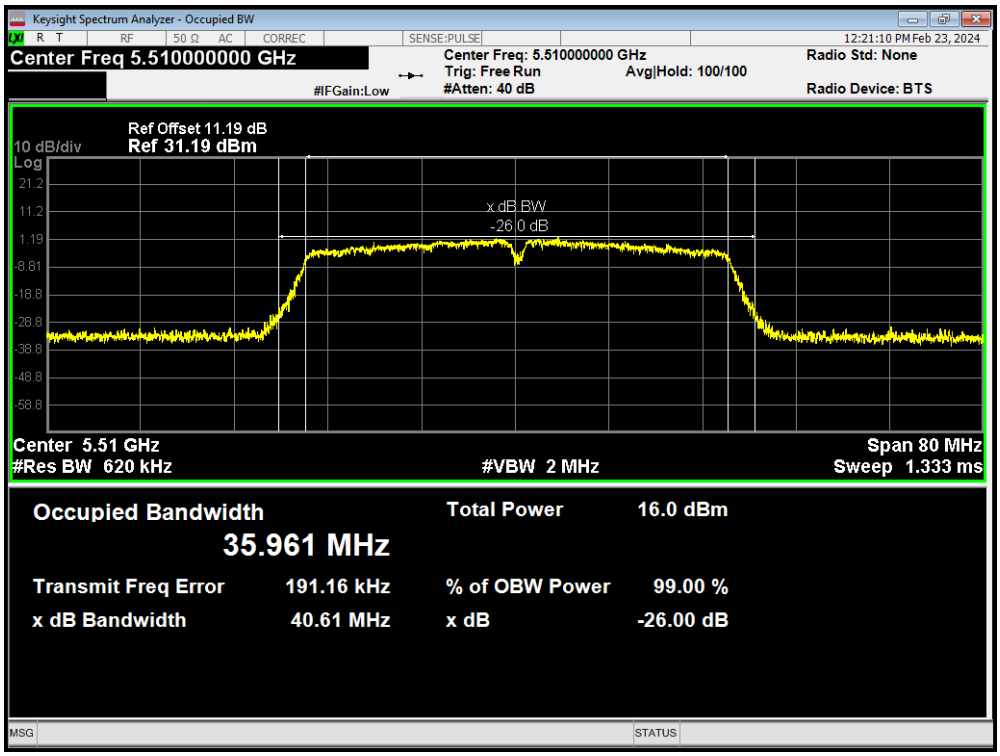
OBW 802.11n(HT20) 5700MHz



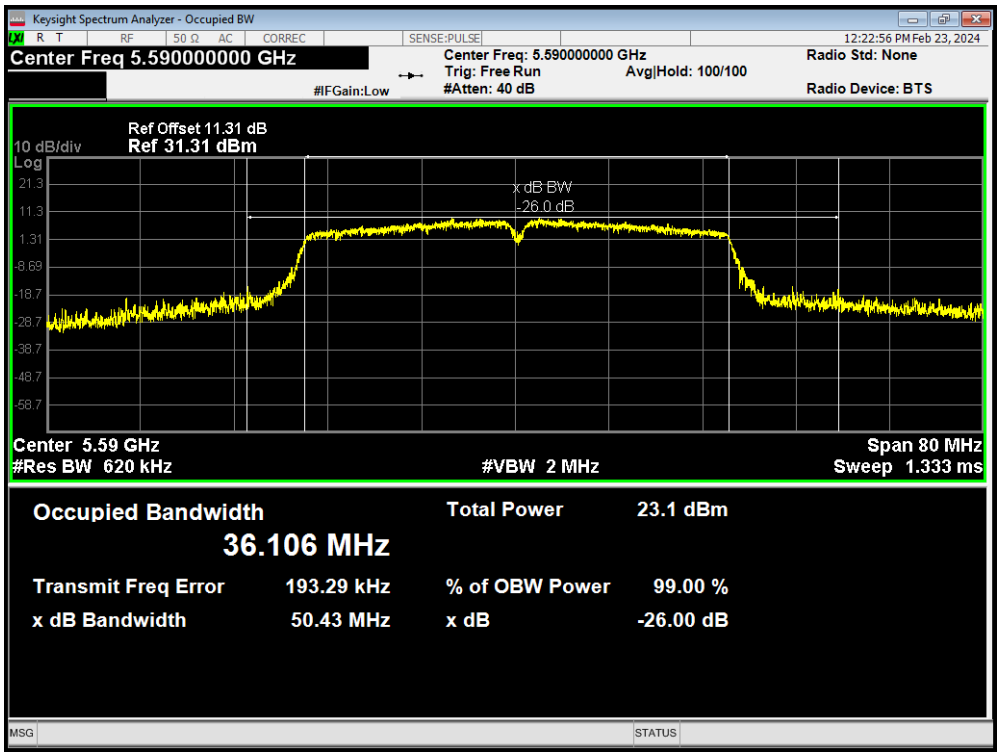
OBW 802.11n(HT20) 5720MHz



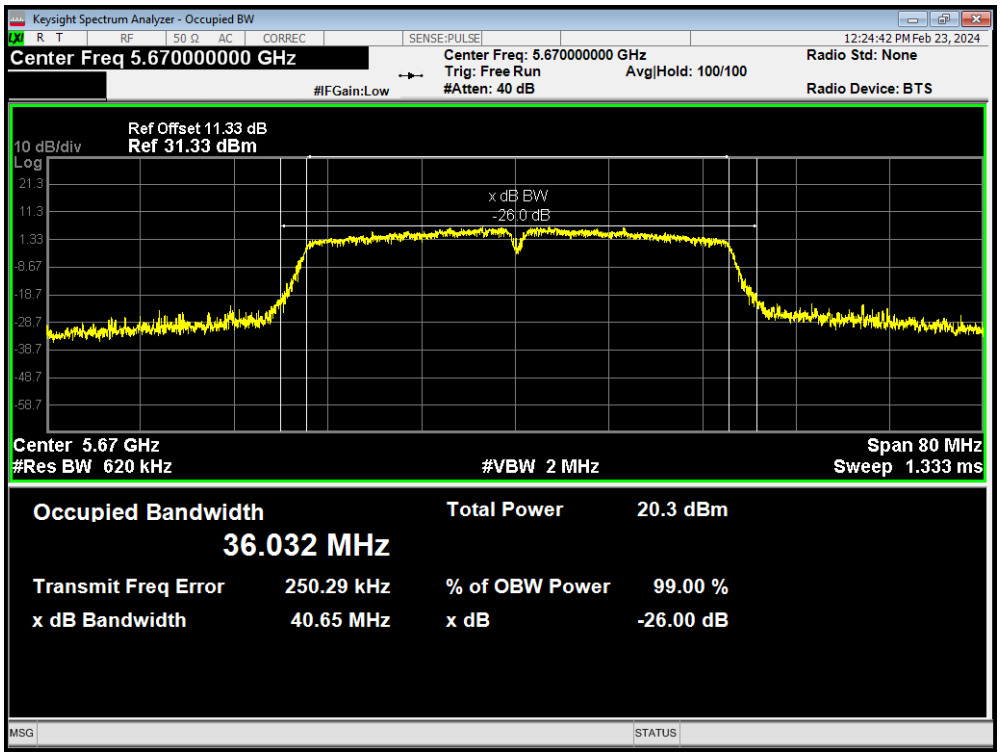
OBW 802.11n(HT40) 5510MHz



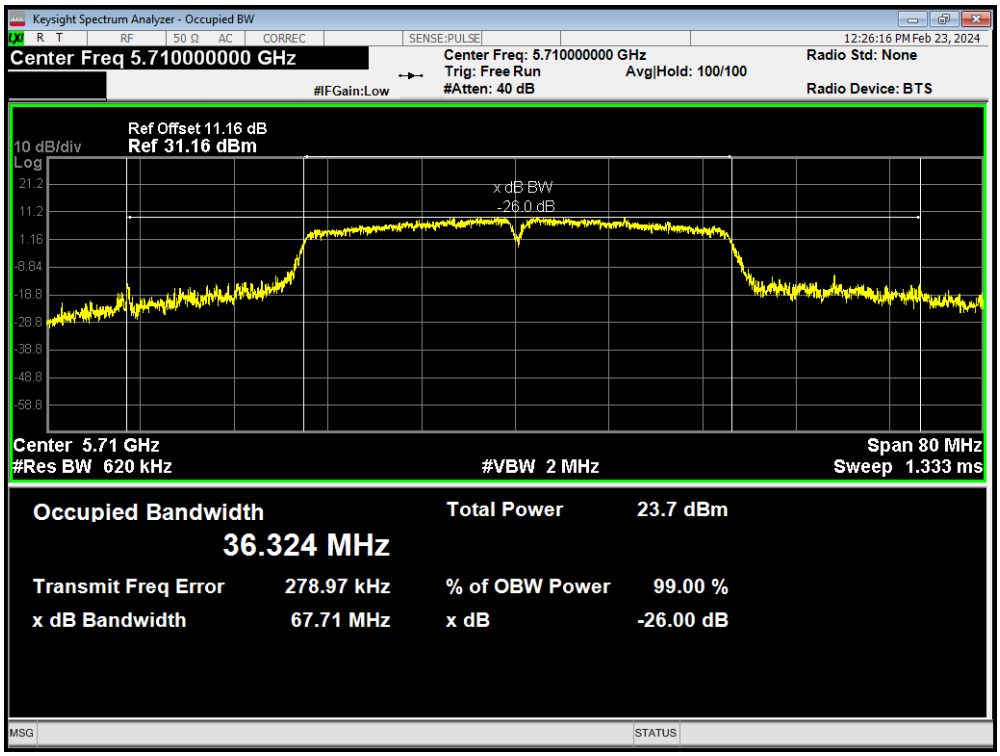
OBW 802.11n(HT40) 5590MHz



OBW 802.11n(HT40) 5670MHz

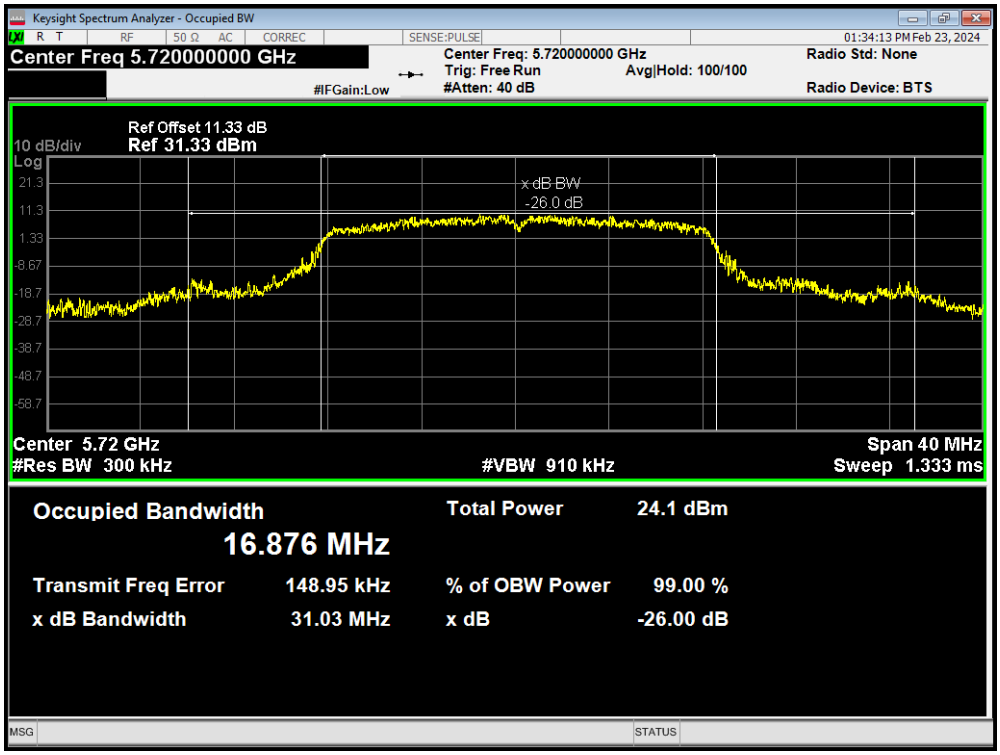


OBW 802.11n(HT40) 5710MHz

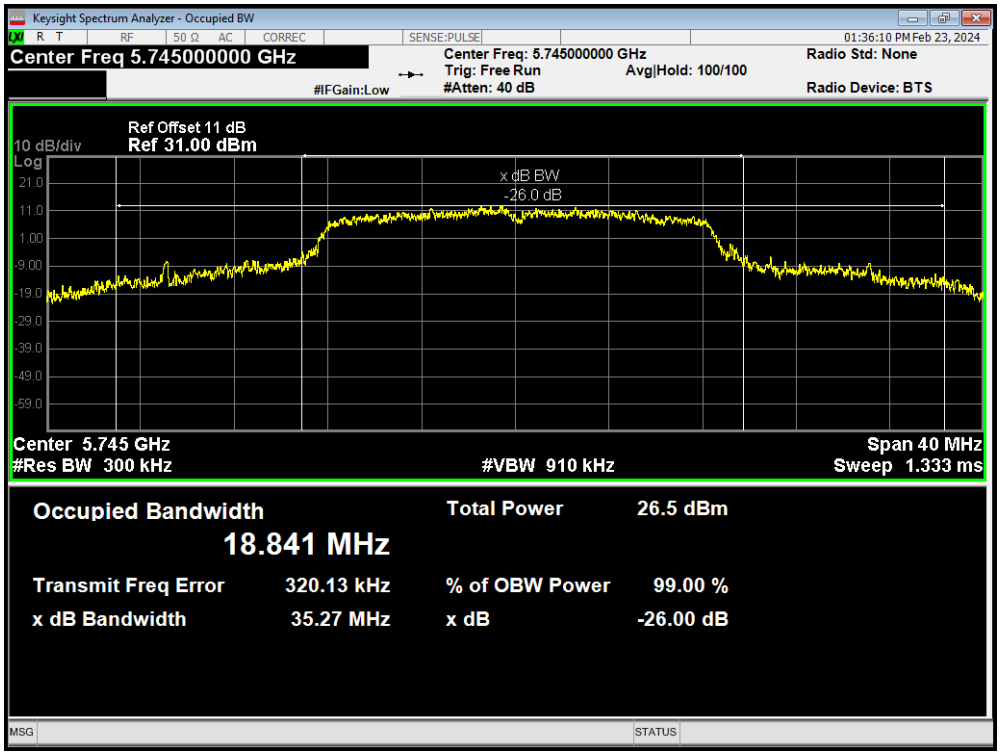


U-NII-3

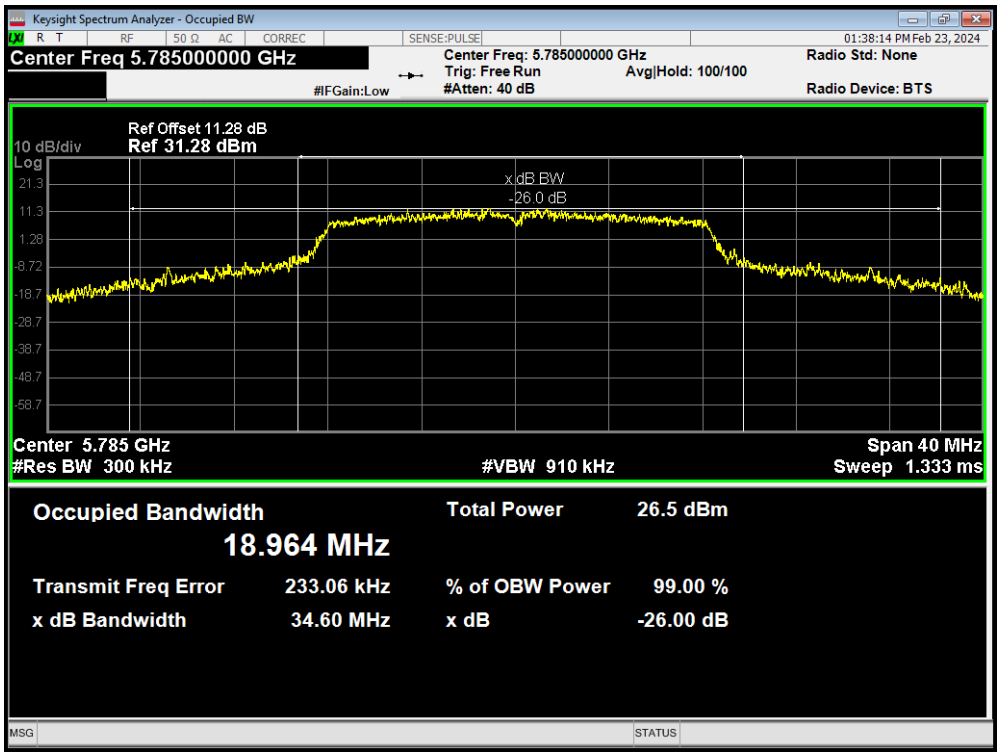
OBW 802.11a 5720MHz



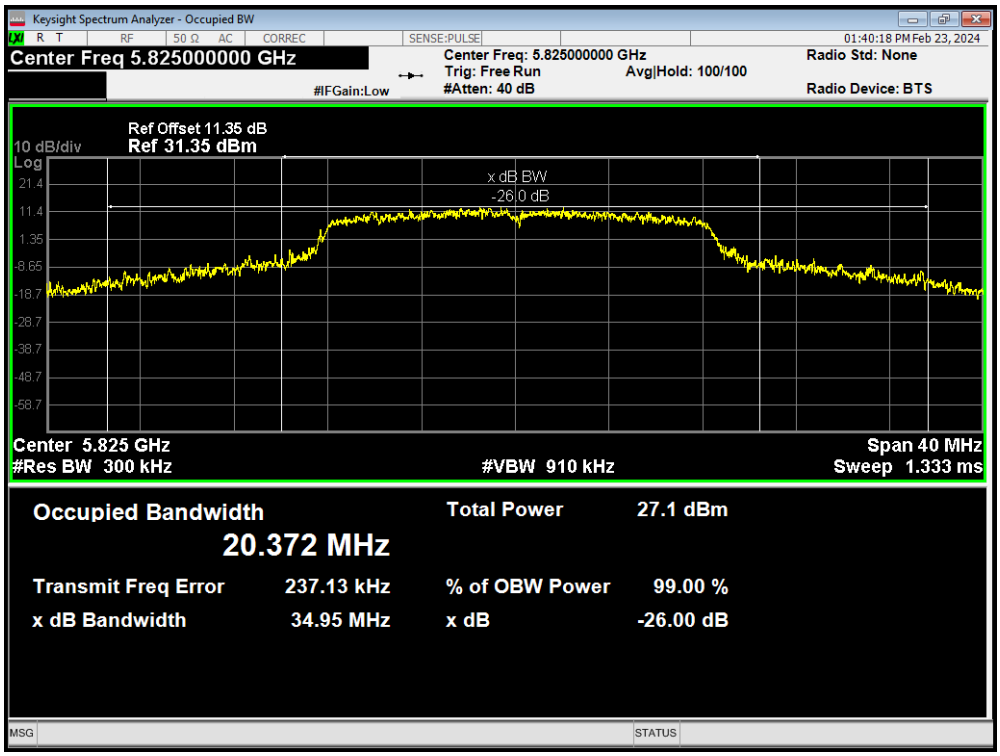
OBW 802.11a 5745MHz



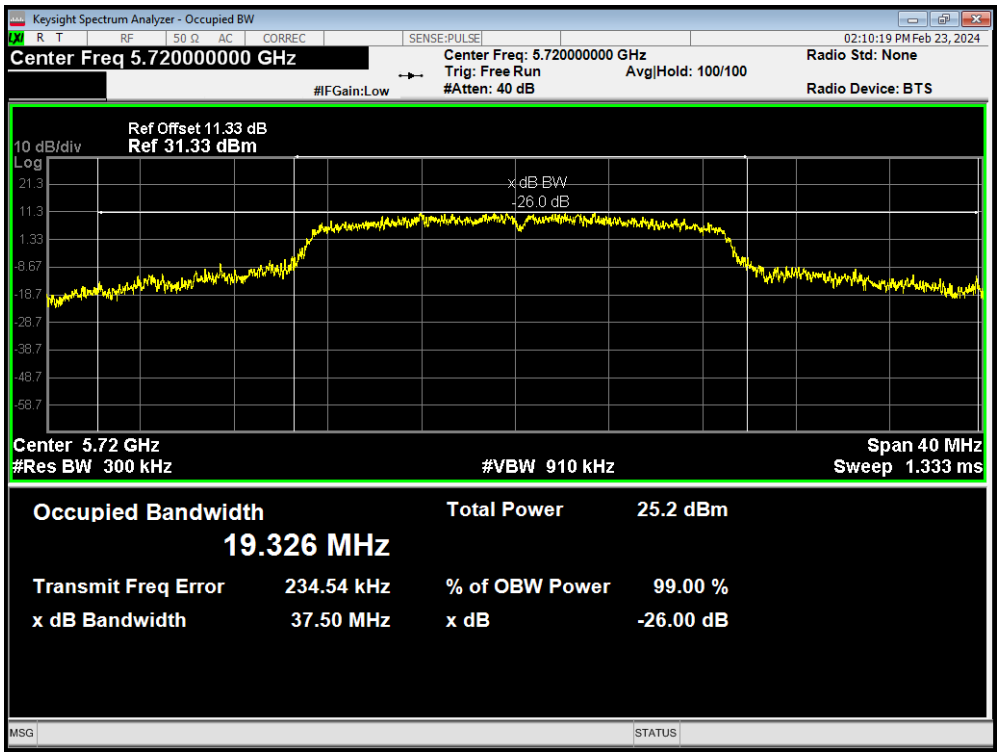
OBW 802.11a 5785MHz



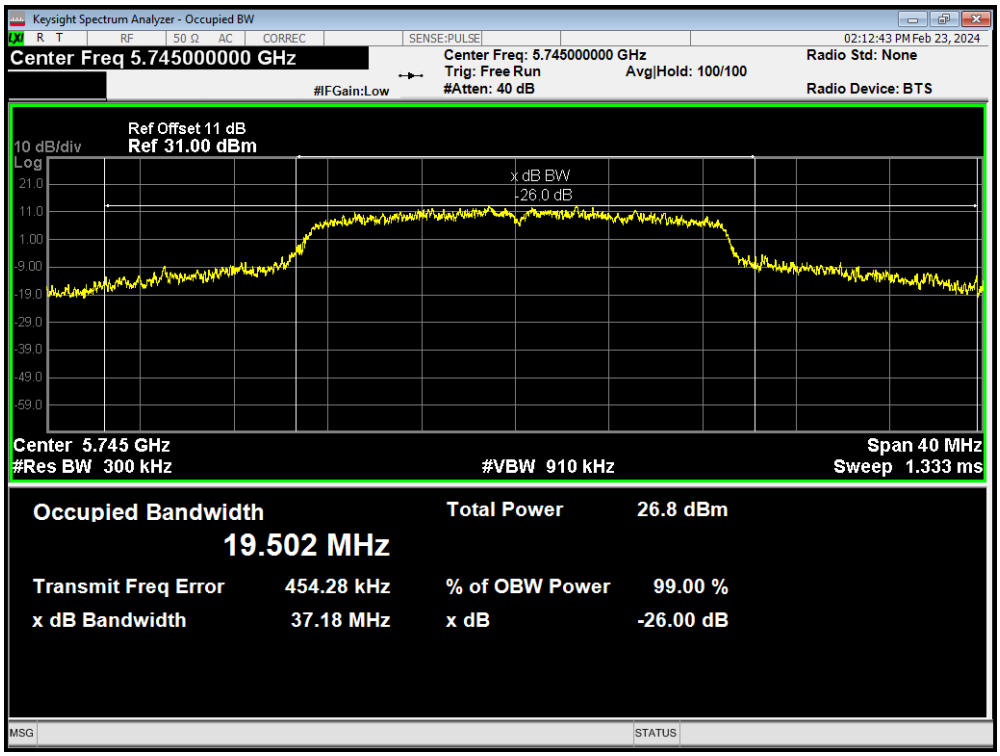
OBW 802.11a 5825MHz



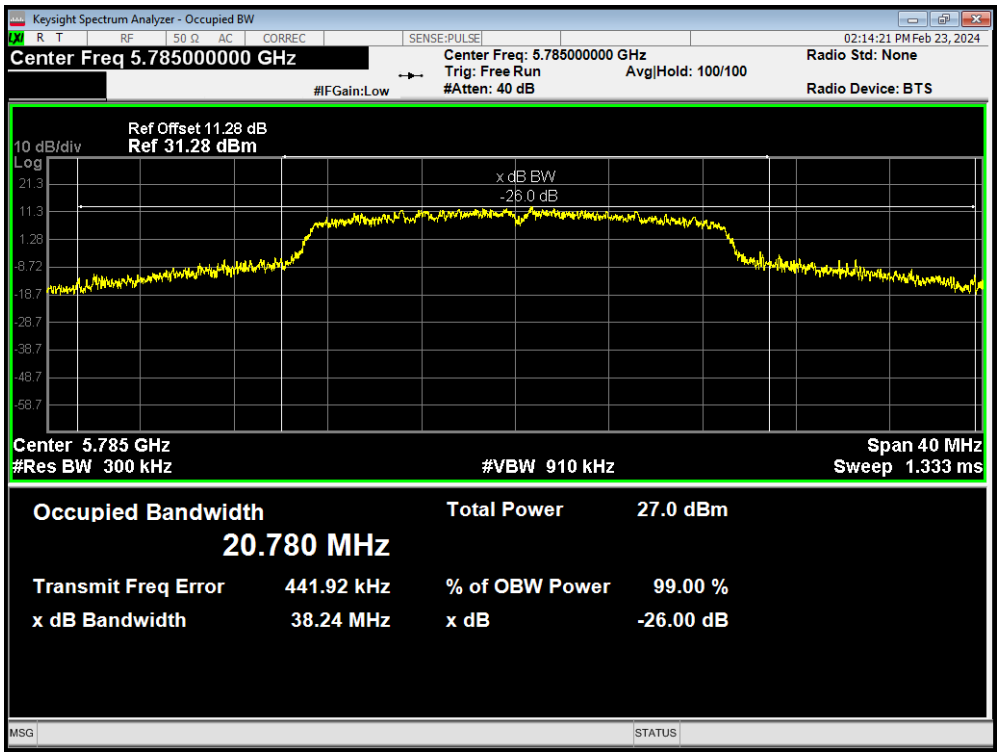
OBW 802.11ac(VHT20) 5720MHz



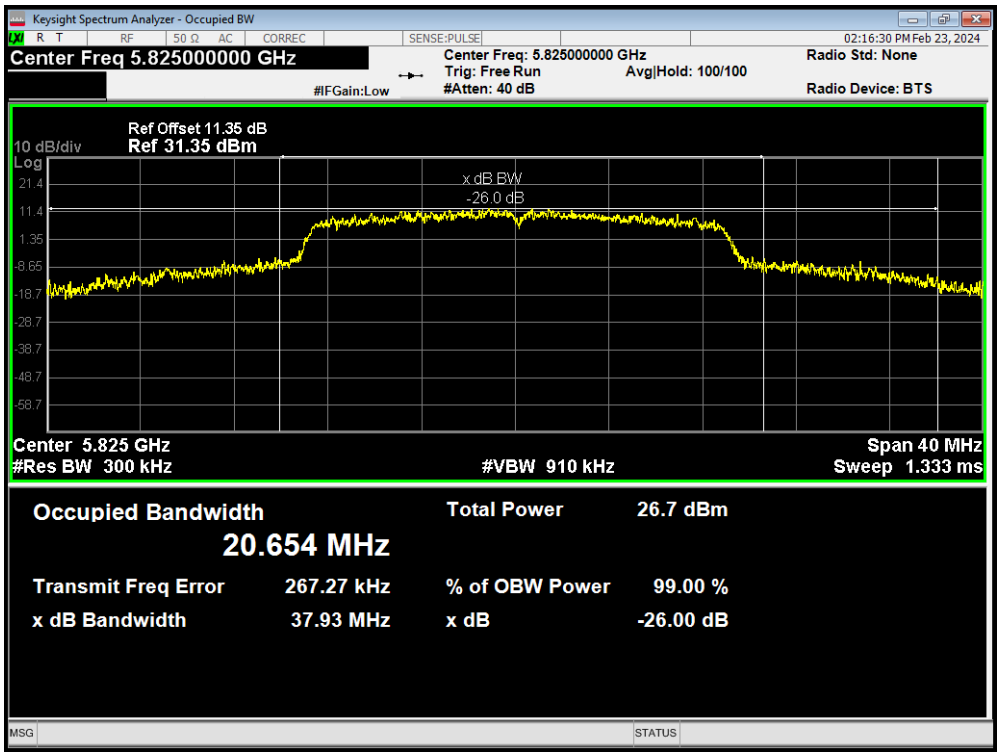
OBW 802.11ac(VHT20) 5745MHz



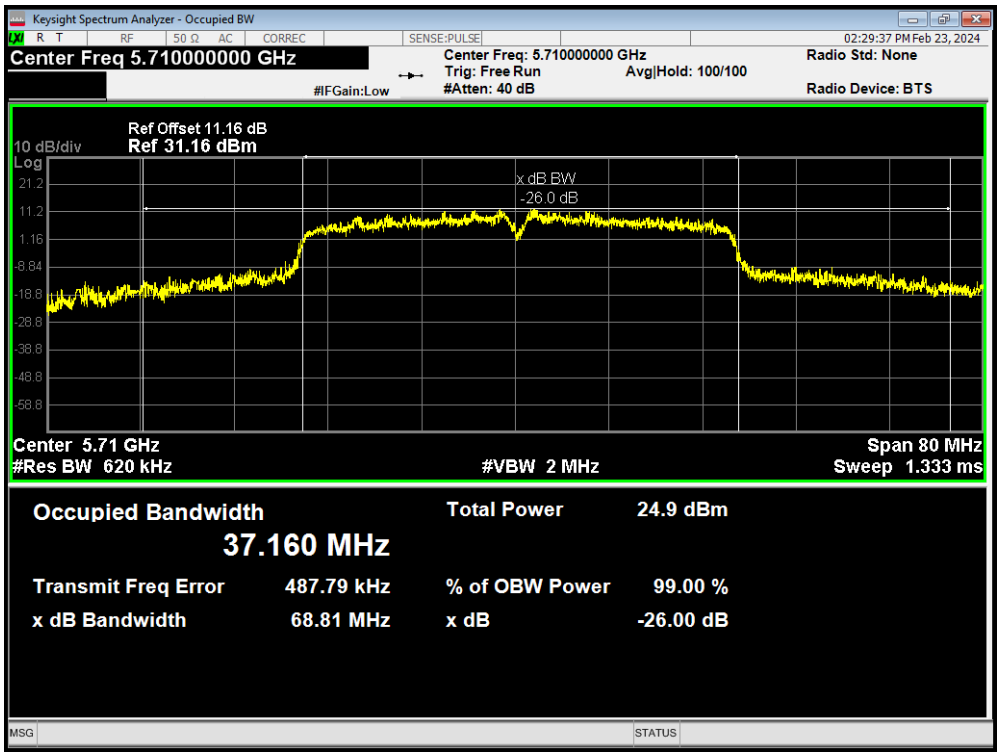
OBW 802.11ac(VHT20) 5785MHz



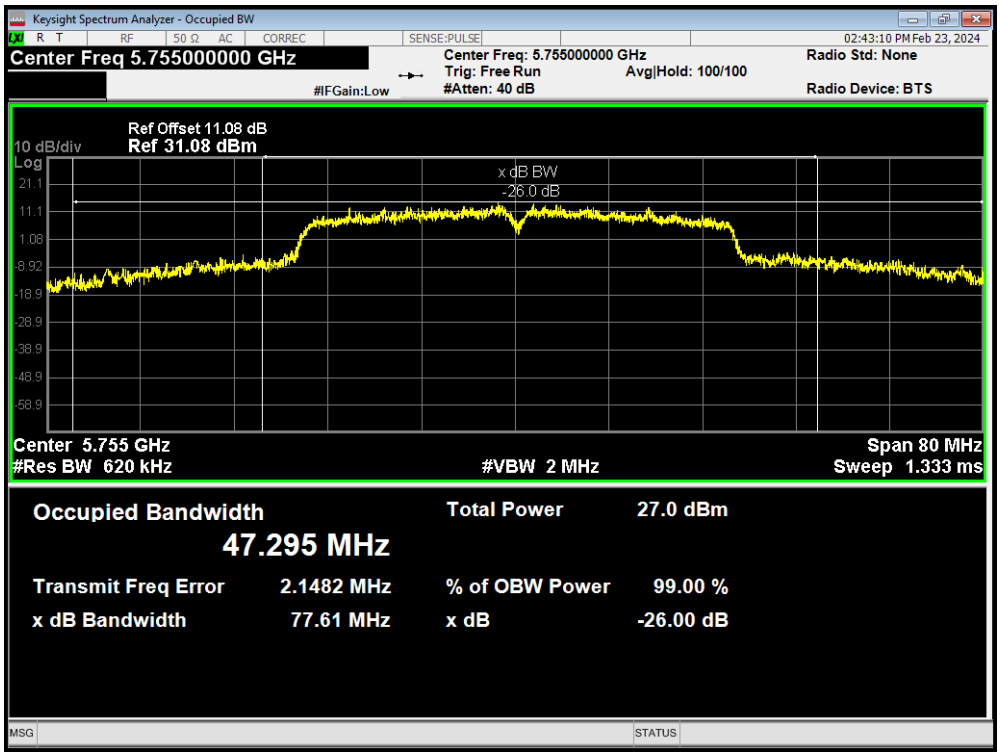
OBW 802.11ac(VHT20) 5825MHz



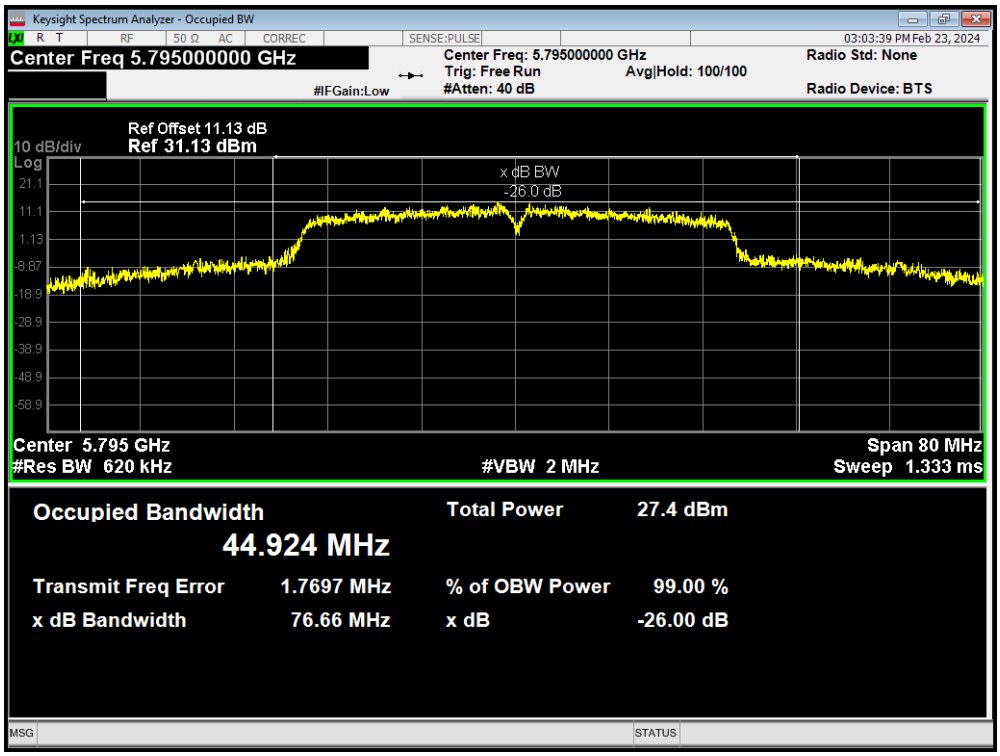
OBW 802.11ac(VHT40) 5710MHz



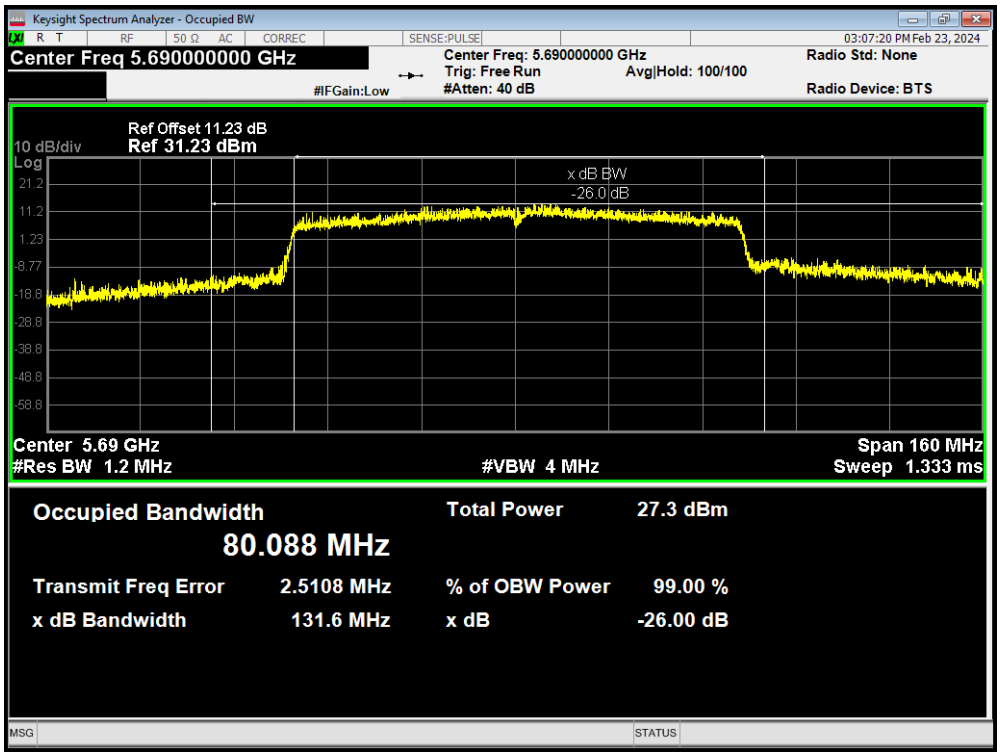
OBW 802.11ac(VHT40) 5755MHz



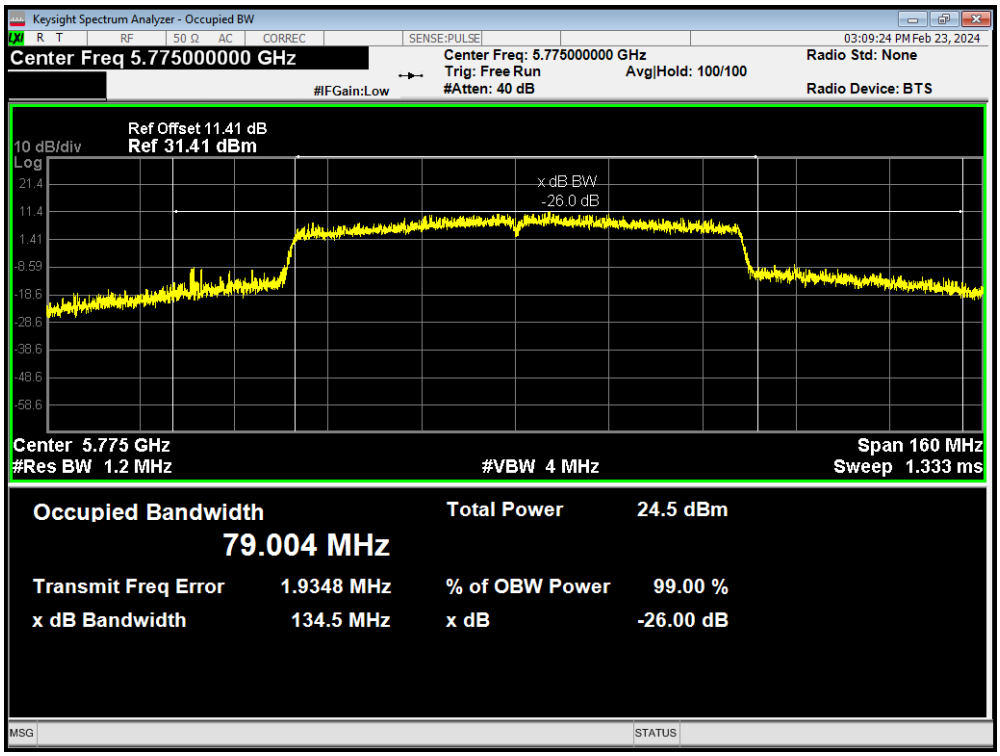
OBW 802.11ac(VHT40) 5795MHz



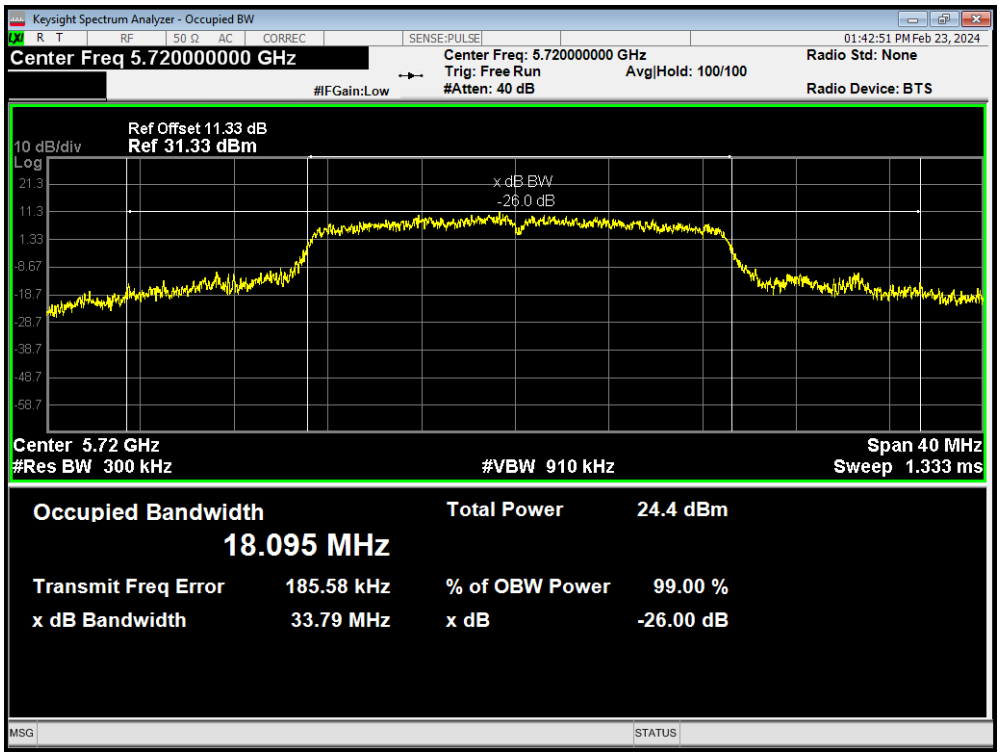
OBW 802.11ac(VHT80) 5690MHz



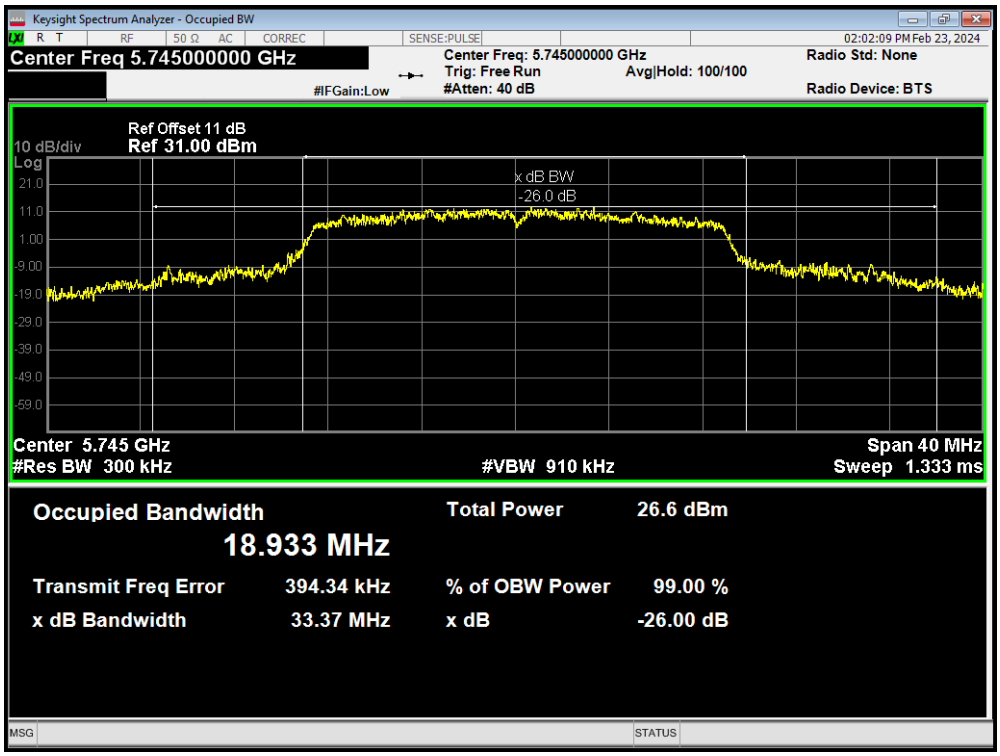
OBW 802.11ac(VHT80) 5775MHz



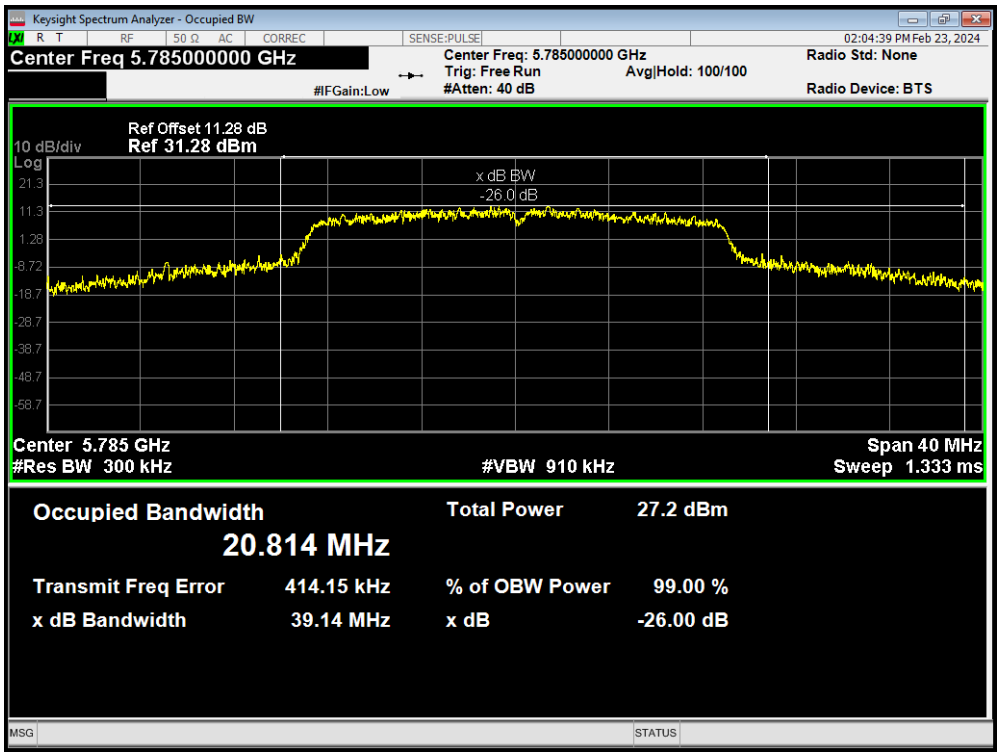
OBW 802.11n(HT20) 5720MHz



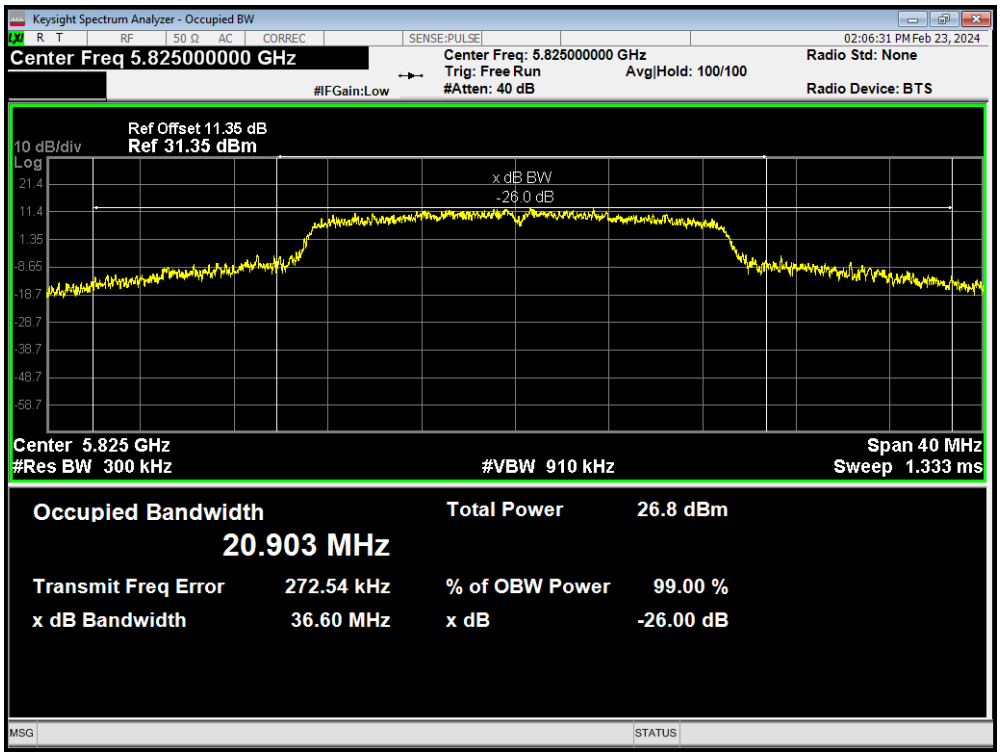
OBW 802.11n(HT20) 5745MHz



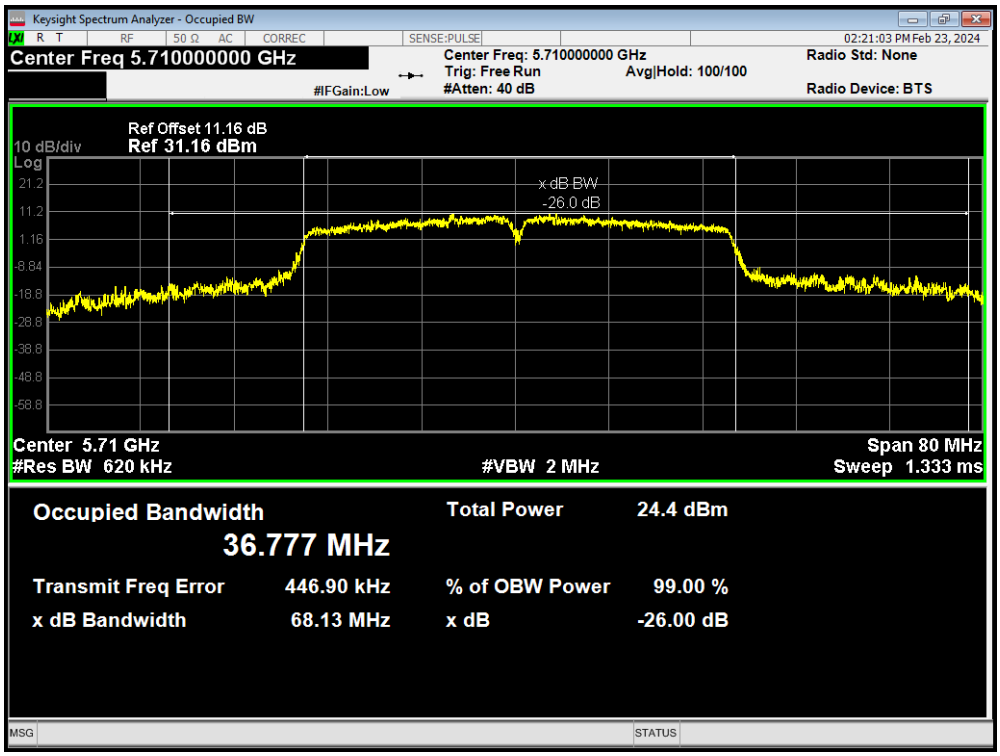
OBW 802.11n(HT20) 5785MHz



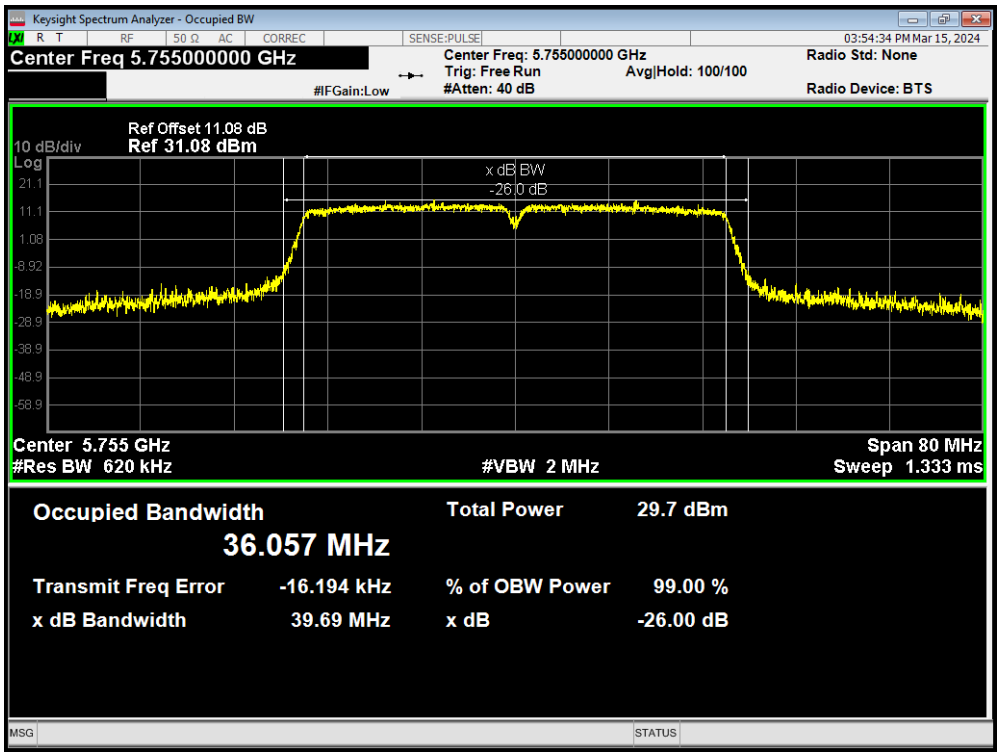
OBW 802.11n(HT20) 5825MHz



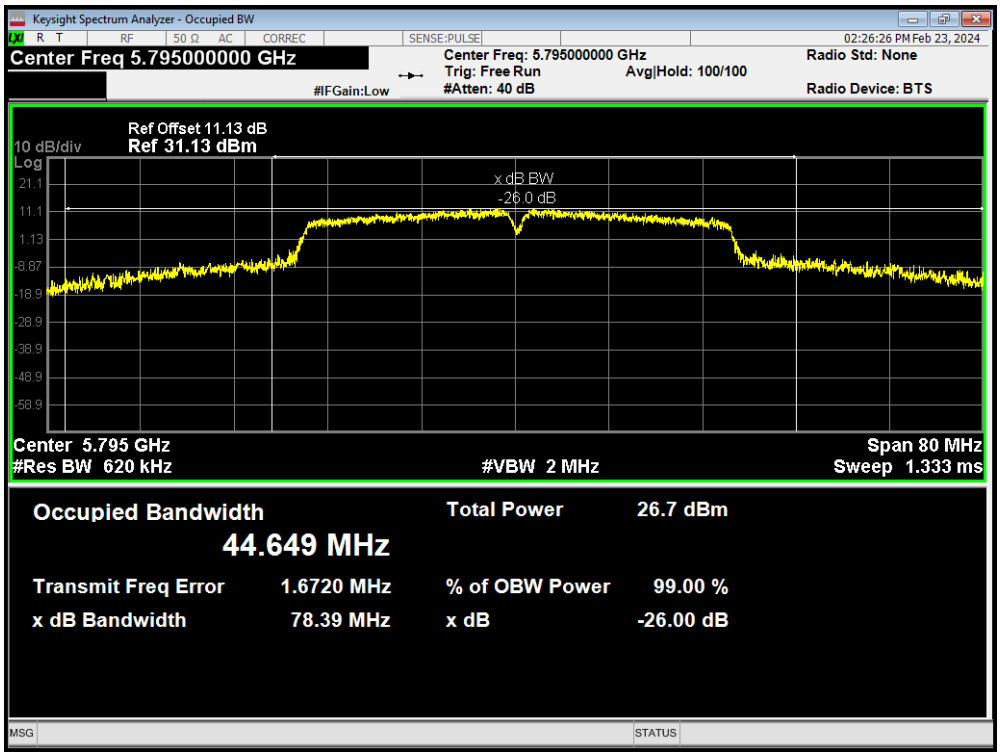
OBW 802.11n(HT40) 5710MHz



OBW 802.11n(HT40) 5755MHz



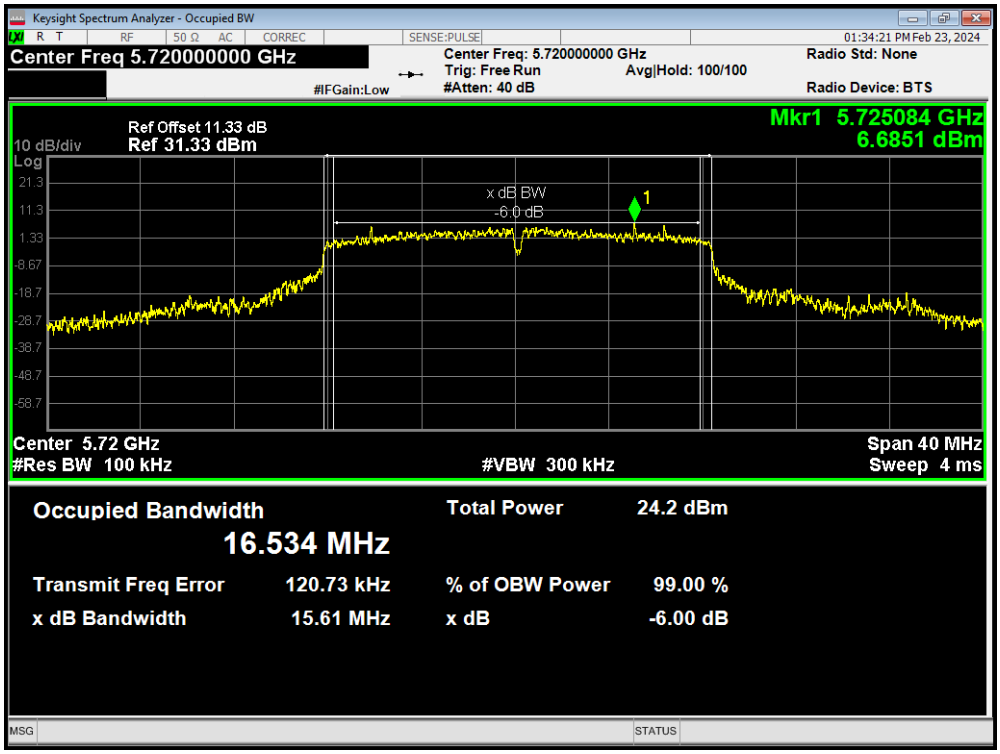
OBW 802.11n(HT40) 5795MHz



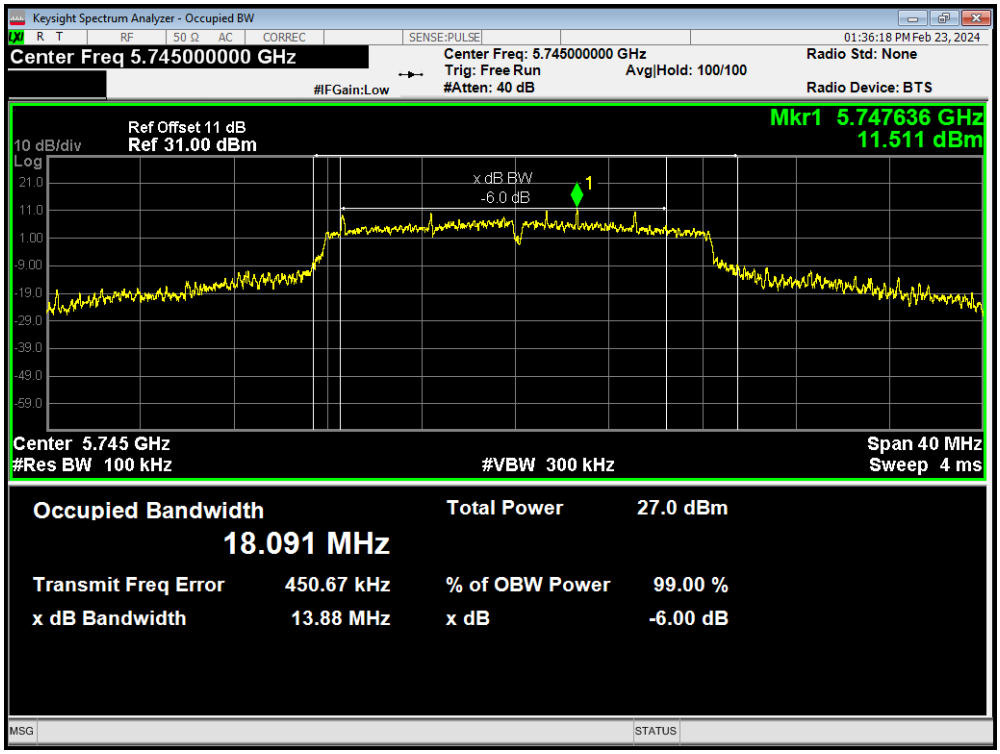
Minimum 6 dB bandwidth

U-NII-3

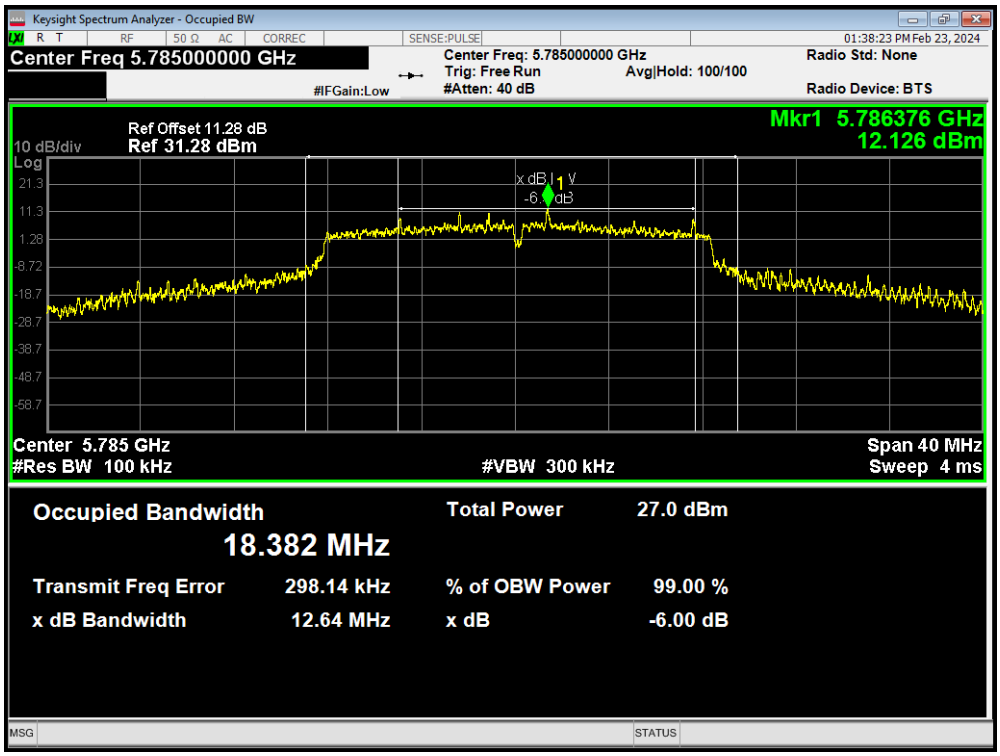
-6dB Bandwidth 802.11a 5720MHz



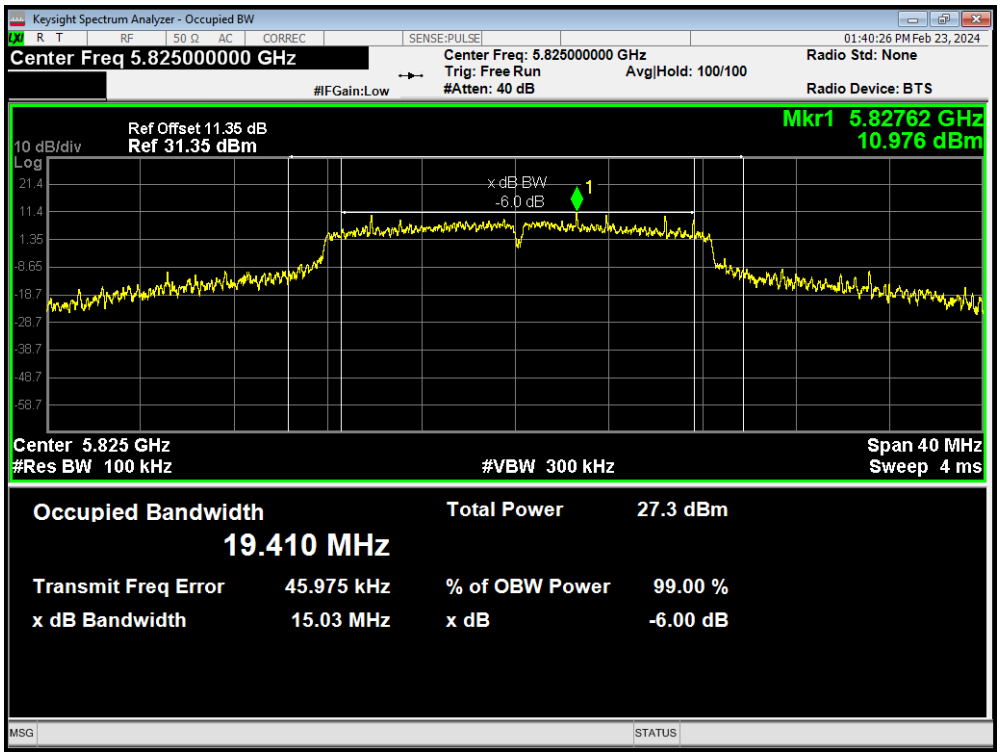
-6dB Bandwidth 802.11a 5745MHz



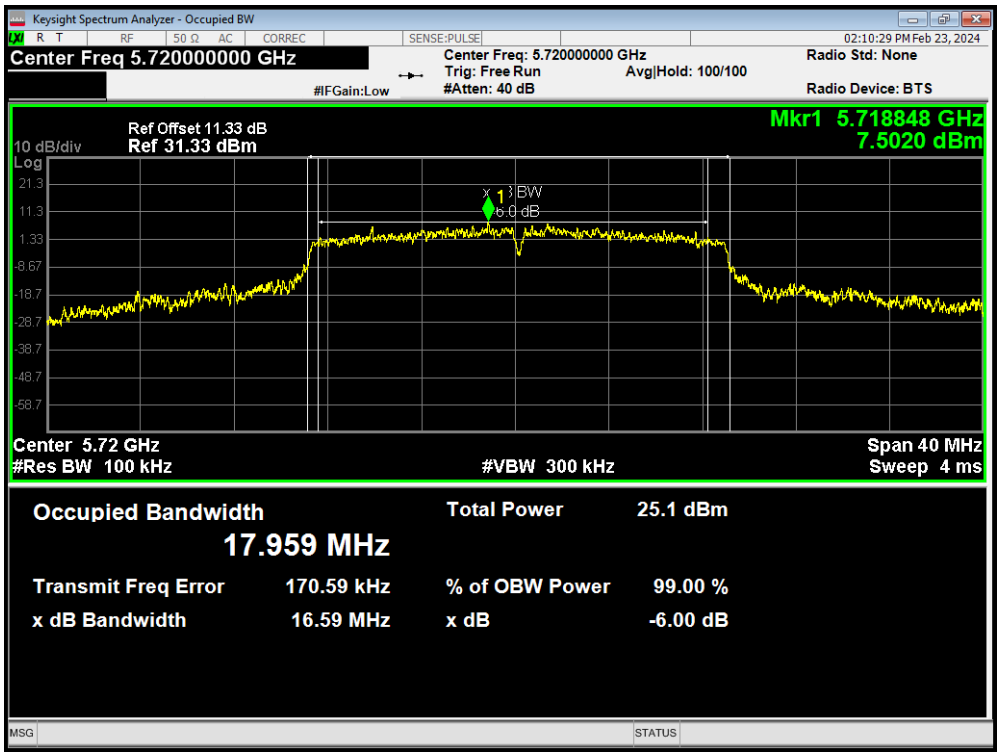
-6dB Bandwidth 802.11a 5785MHz



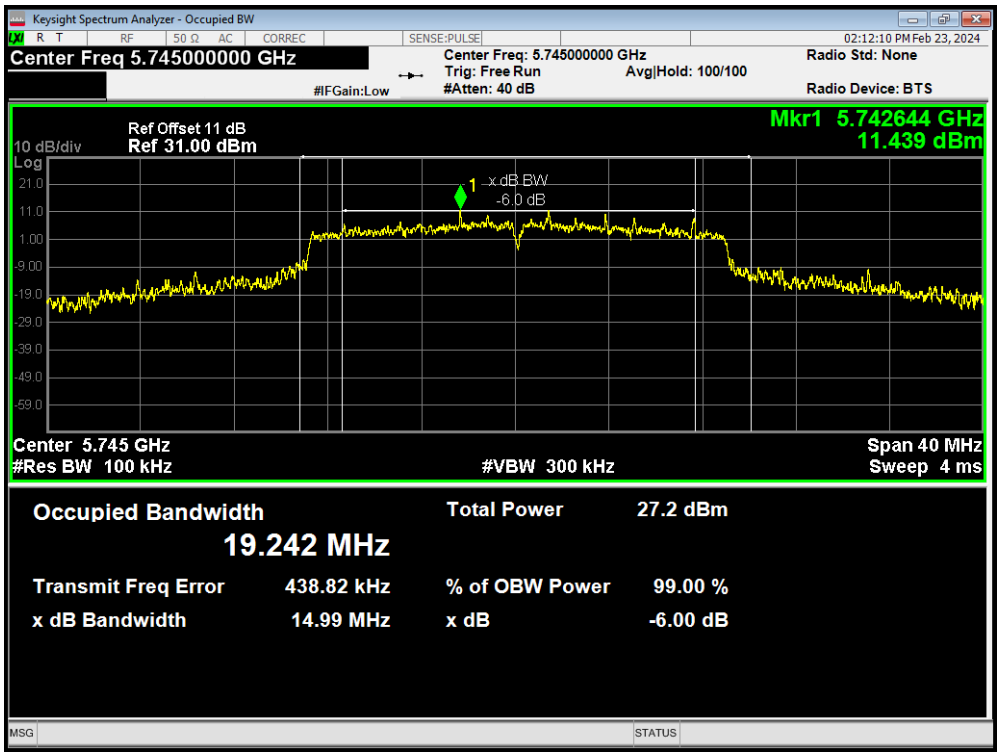
-6dB Bandwidth 802.11a 5825MHz



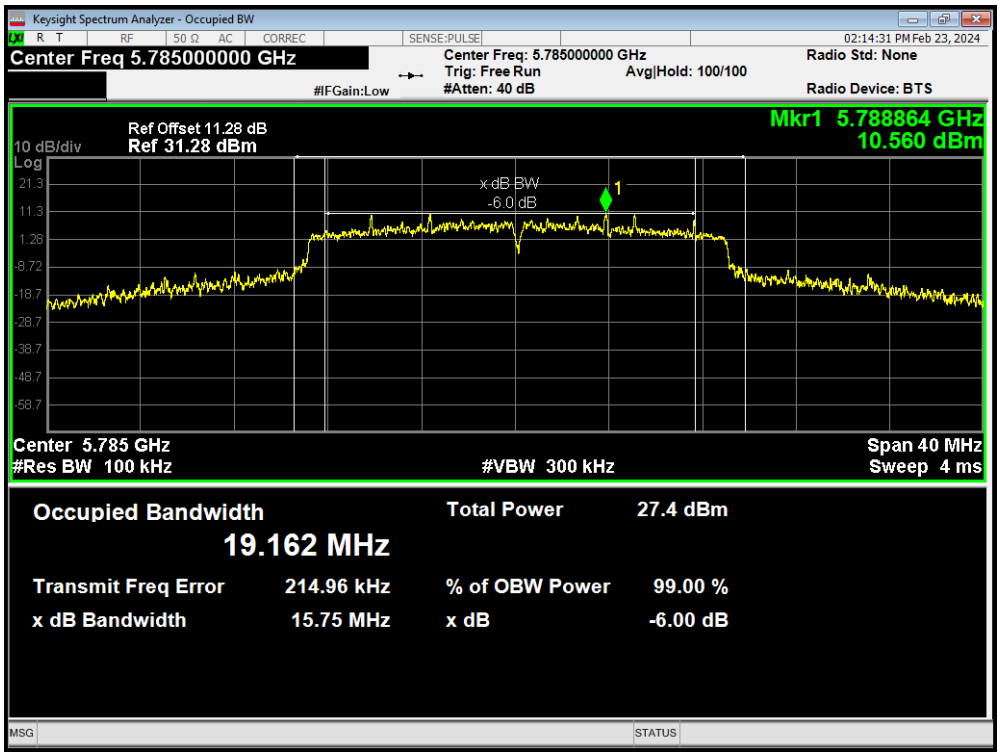
-6dB Bandwidth 802.11ac(VHT20) 5720MHz



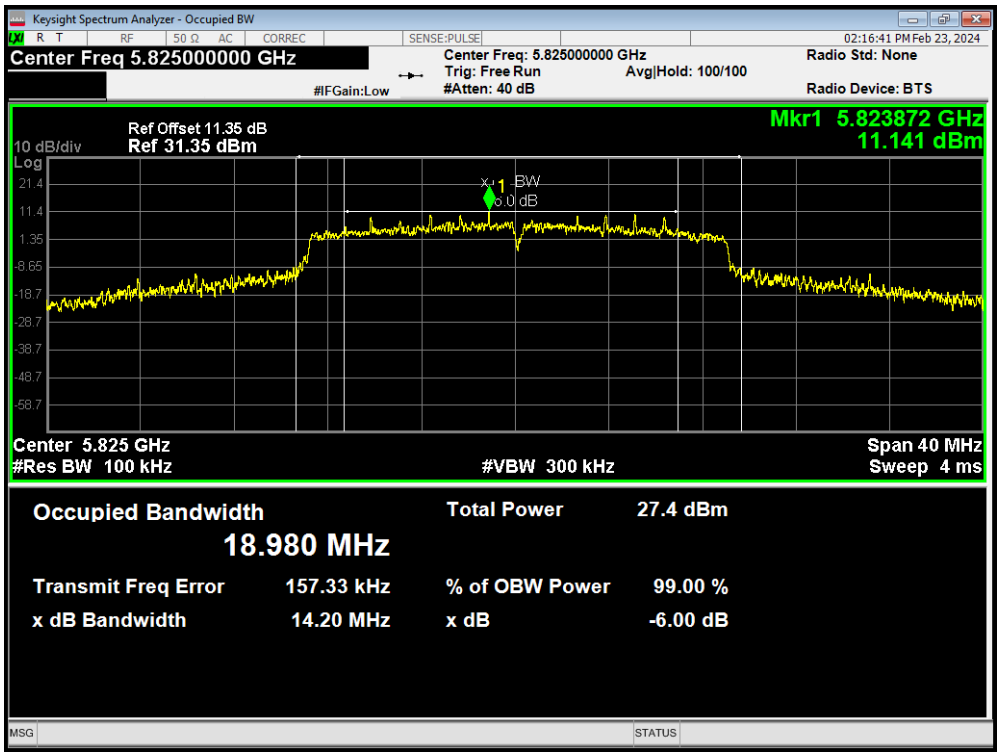
-6dB Bandwidth 802.11ac(VHT20) 5745MHz



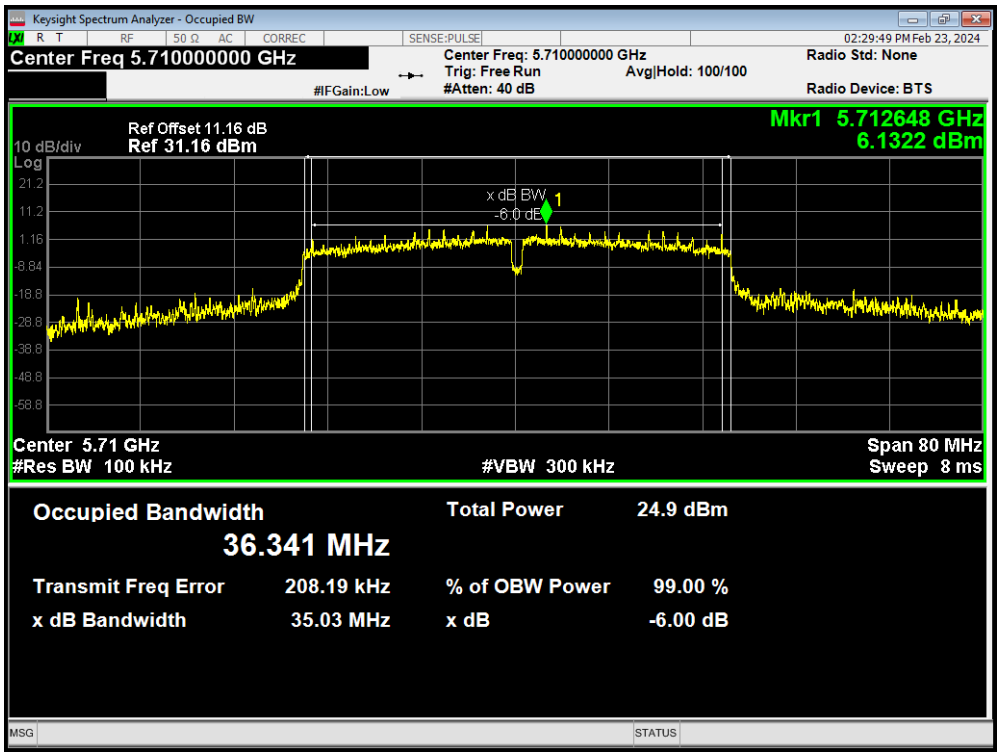
-6dB Bandwidth 802.11ac(VHT20) 5785MHz



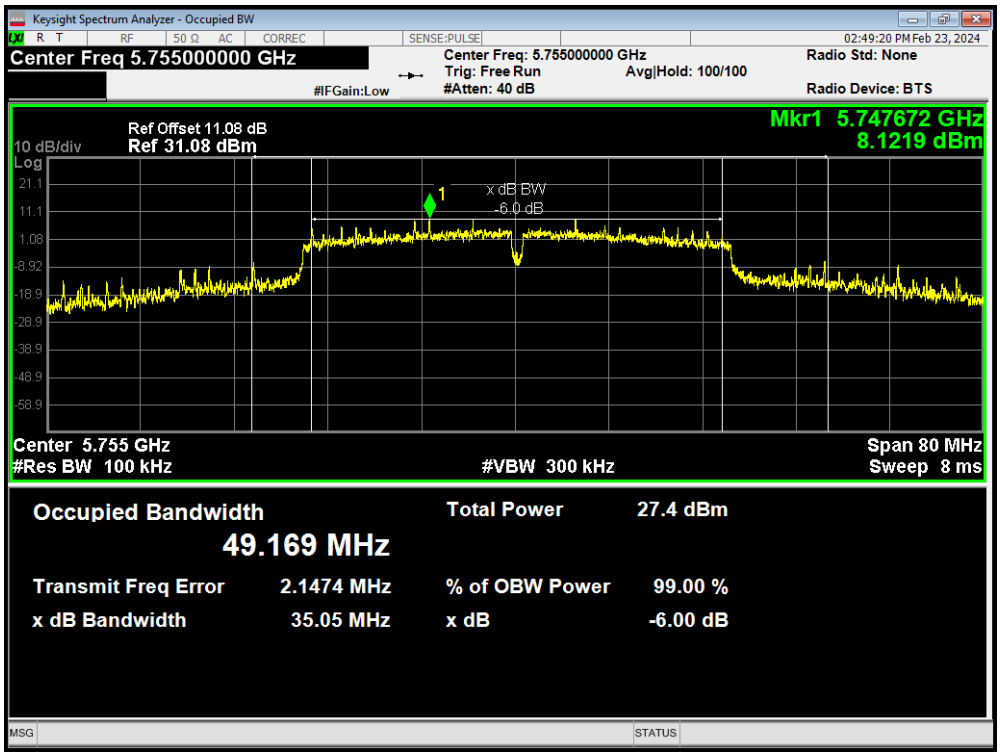
-6dB Bandwidth 802.11ac(VHT20) 5825MHz



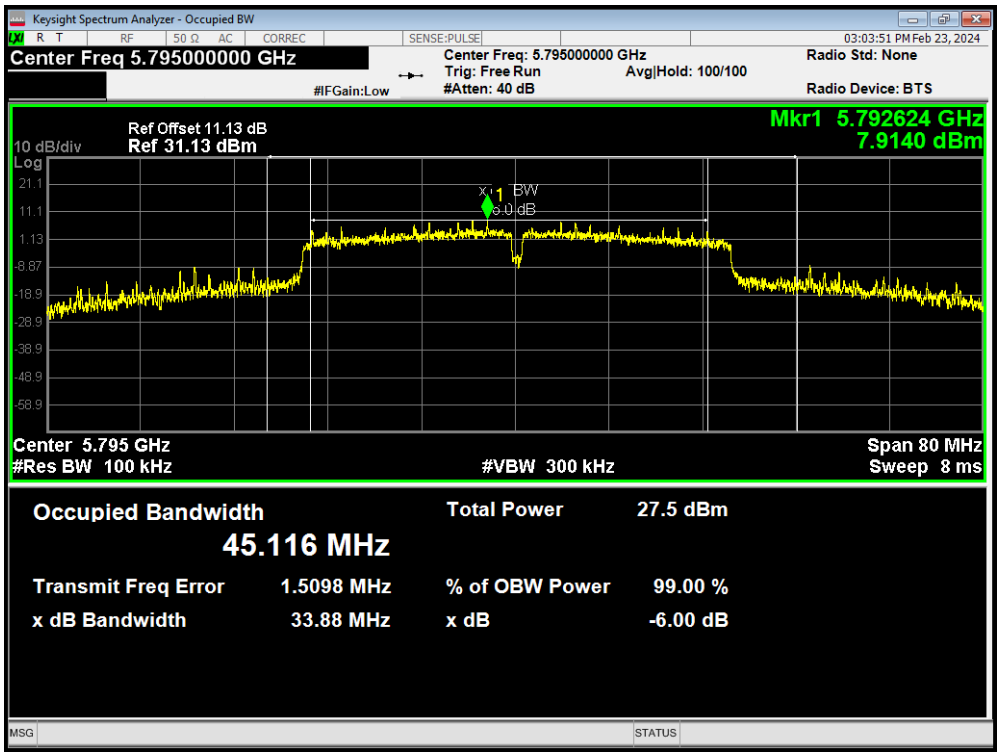
-6dB Bandwidth 802.11ac(VHT40) 5710MHz



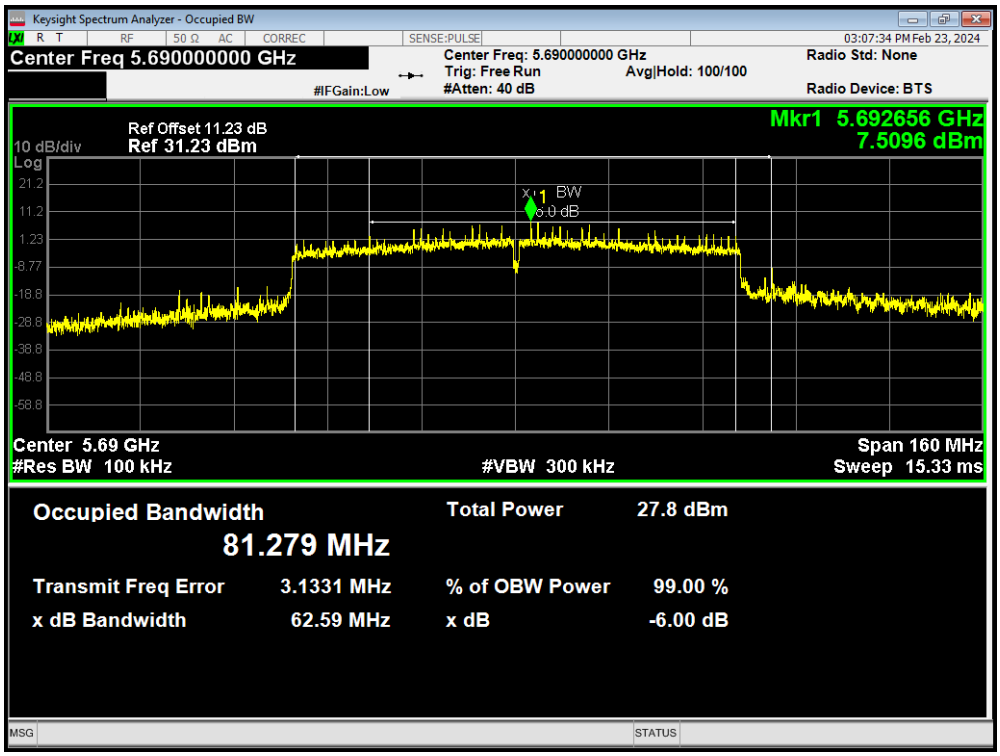
-6dB Bandwidth 802.11ac(VHT40) 5755MHz



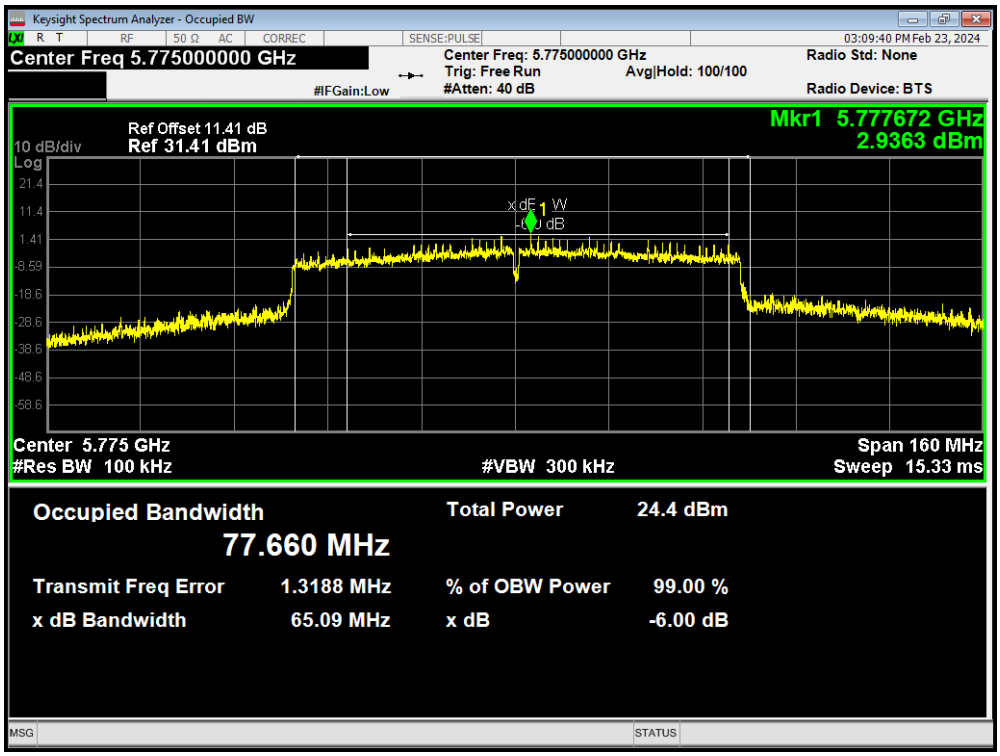
-6dB Bandwidth 802.11ac(VHT40) 5795MHz



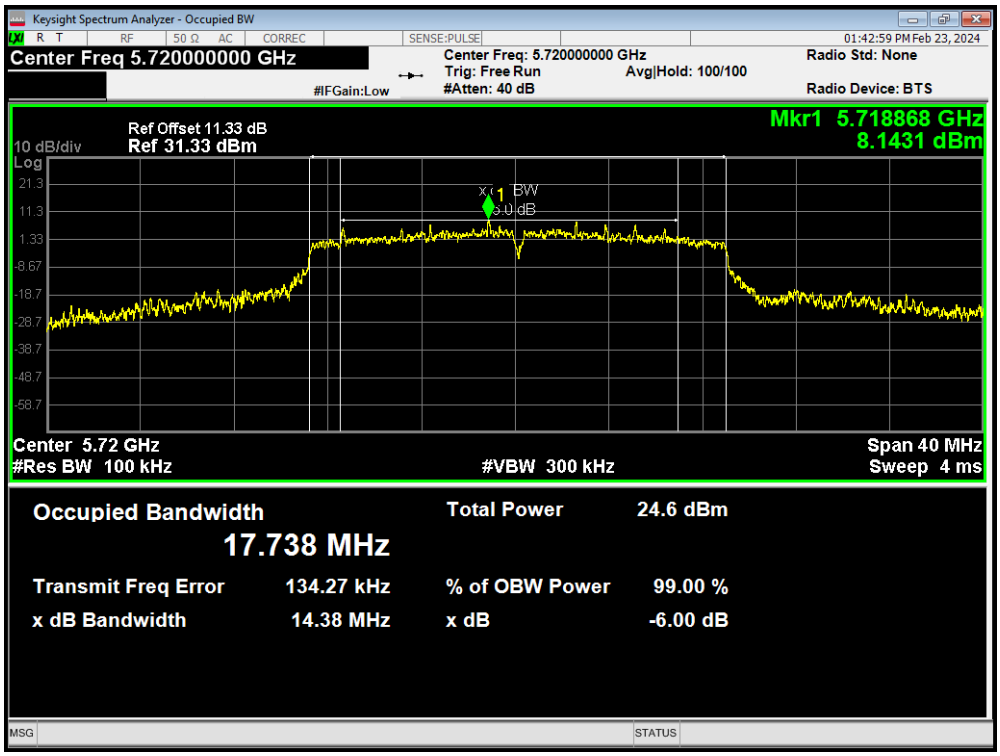
-6dB Bandwidth 802.11ac(VHT80) 5690MHz



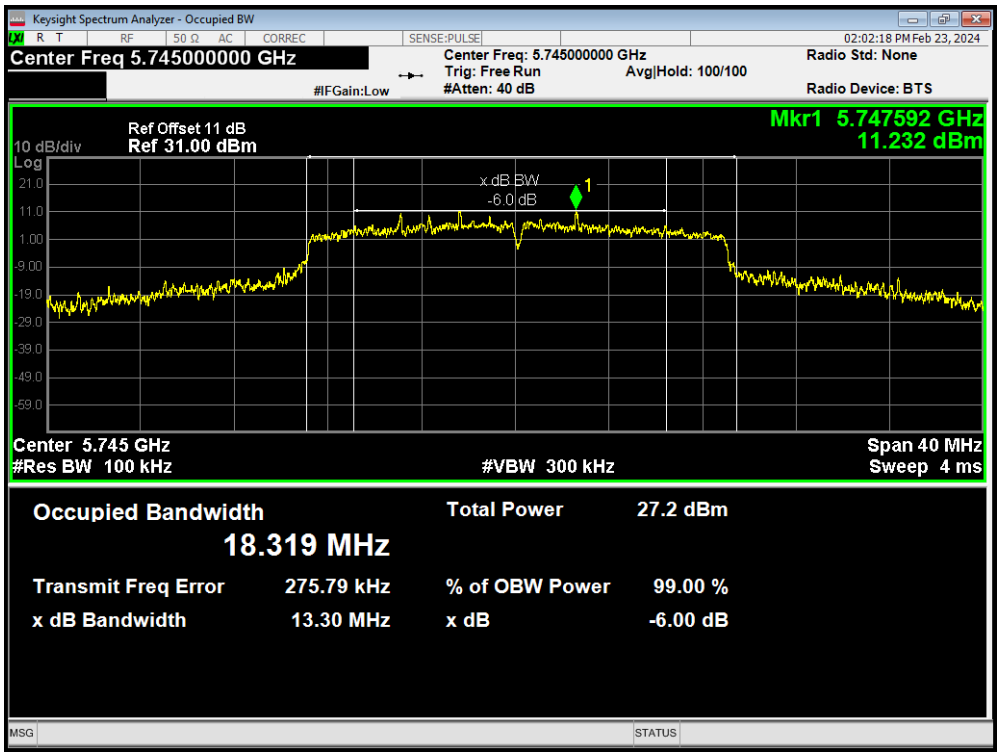
-6dB Bandwidth 802.11ac(VHT80) 5775MHz



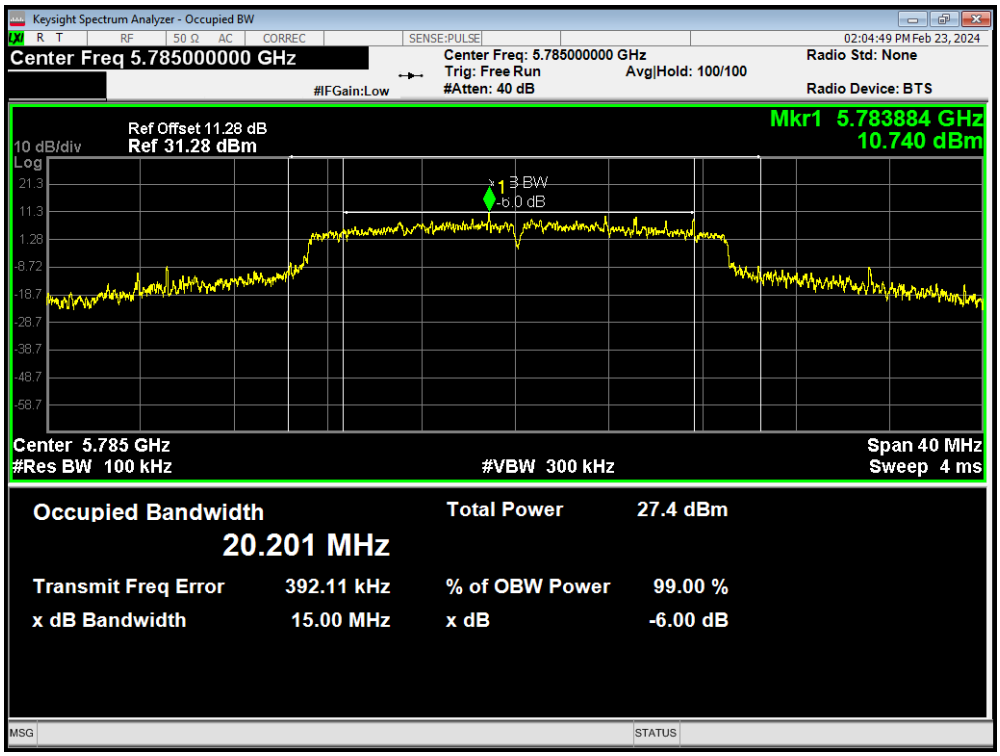
-6dB Bandwidth 802.11n(HT20) 5720MHz



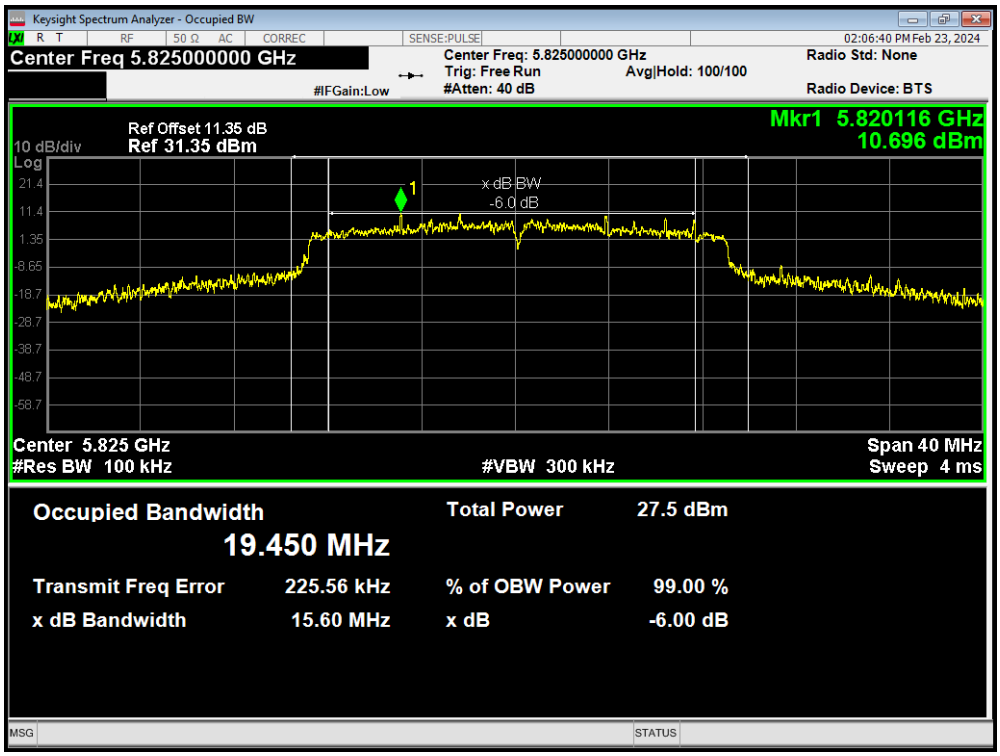
-6dB Bandwidth 802.11n(HT20) 5745MHz



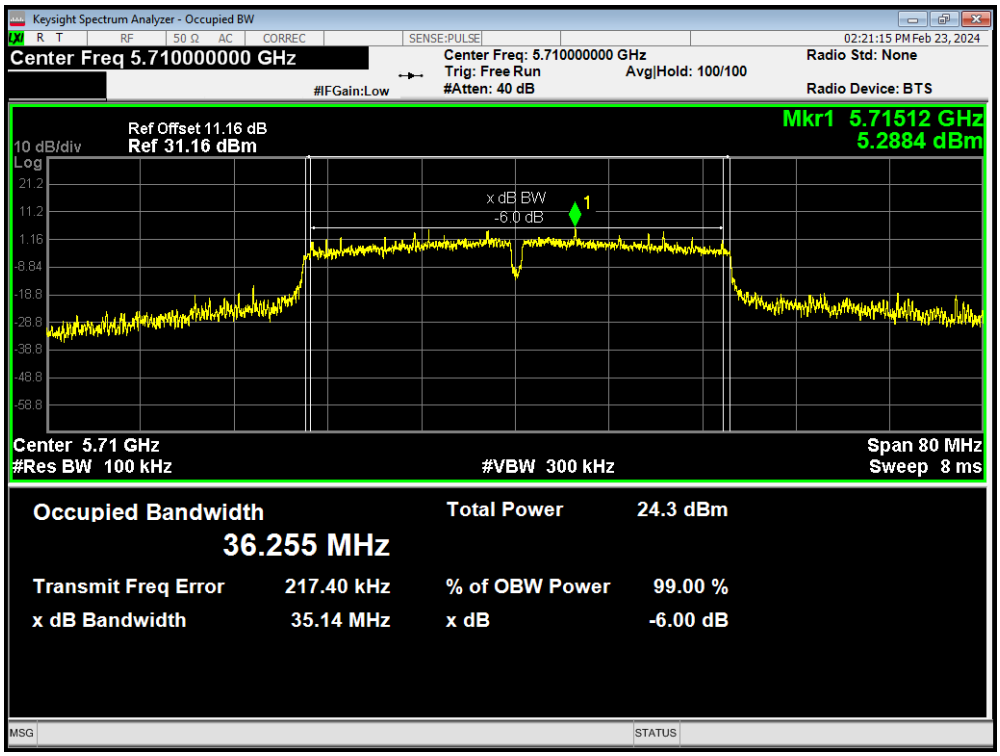
-6dB Bandwidth 802.11n(HT20) 5785MHz



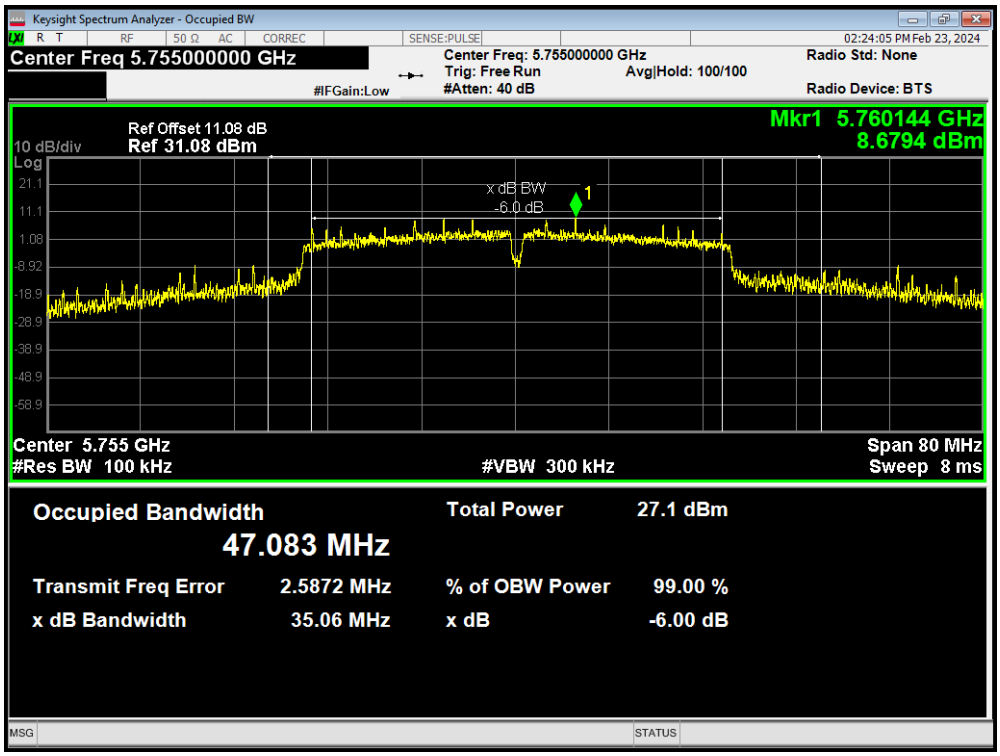
-6dB Bandwidth 802.11n(HT20) 5825MHz



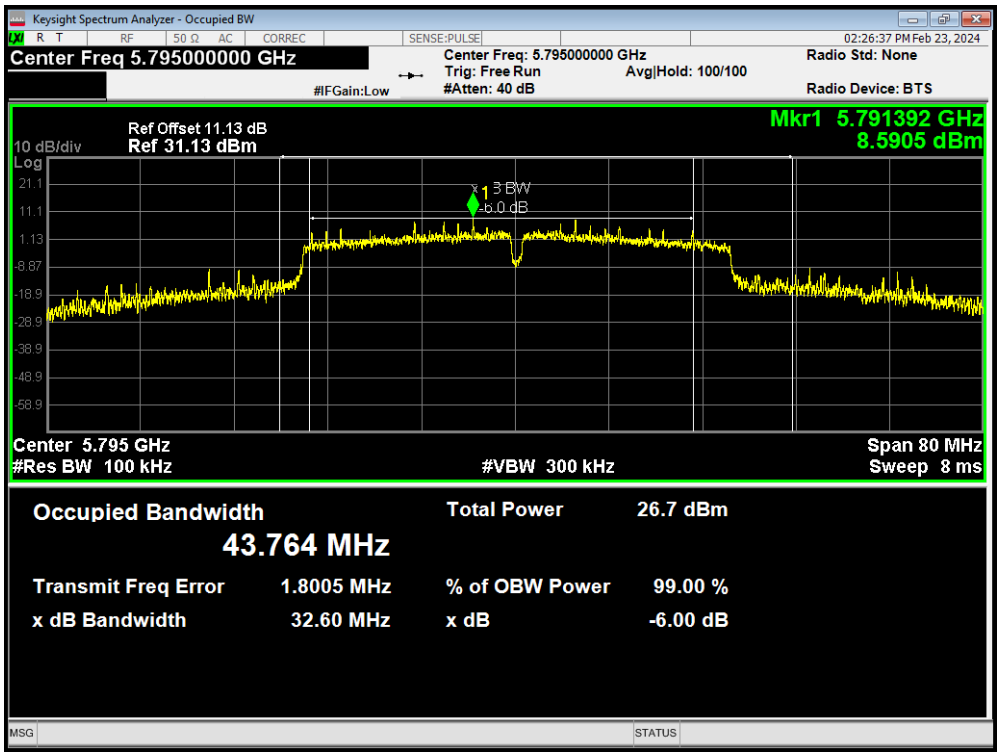
-6dB Bandwidth 802.11n(HT40) 5710MHz



-6dB Bandwidth 802.11n(HT40) 5755MHz



-6dB Bandwidth 802.11n(HT40) 5795MHz



5.2. Average Power Output

Ambient condition

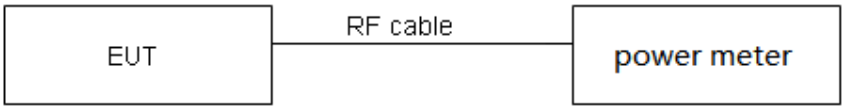
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

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

The conducted Power is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

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	0.516	2.88
802.11n HT20	0.512	2.91
802.11n HT40	0.328	4.85
802.11ac VHT20	0.481	3.18
802.11ac VHT40	0.342	4.66
802.11ac VHT80	0.259	5.86
Note: when Duty cycle⩾0.98, Duty cycle correction Factor not required.		

MIMO Power Index								
Channel	802.11a	802.11n HT20	802.11ac VHT20	Channel	802.11n HT40	802.11ac VHT40	Channel	802.11ac VHT80
CH36	29.00	28.00	28.00	CH38	25.00	25.00	CH42	24.00
CH40	34.00	37.00	37.00	CH46	43.00	43.00	/	/
CH48	36.00	37.00	37.00	/	/	/	/	/
CH52	23.00	24.00	24.00	CH54	29.00	29.00	CH58	23.00
CH60	24.00	24.00	24.00	CH62	25.00	25.00	/	/
CH64	24.00	24.00	24.00	/	/	/	/	/
CH100	25.00	25.00	25.00	CH102	27.00	27.00	CH106	27.00
CH120	25.00	25.00	25.00	CH118	28.00	28.00	CH122	35.00
CH140	23.00	23.00	23.00	CH134	28.00	28.00	CH138	34.00
CH144	24.00	24.00	24.00	CH142	29.00	29.00	/	/
CH149	46.00	46.00	46.00	CH151	42.00	42.00	CH155	33.00
CH157	46.00	46.00	46.00	CH159	46.00	46.00	/	/
CH165	46.00	46.00	46.00	/	/	/	/	/

Beamforming Power Index								
Channel	802.11a	802.11n HT20	802.11ac VHT20	Channel	802.11n HT40	802.11ac VHT40	Channel	802.11ac VHT80
CH36	29.00	28.00	28.00	CH38	25.00	25.00	CH42	24.00
CH40	34.00	37.00	37.00	CH46	43.00	43.00	/	/
CH48	36.00	37.00	37.00	/	/	/	/	/
CH52	23.00	24.00	24.00	CH54	29.00	29.00	CH58	23.00
CH60	24.00	24.00	24.00	CH62	25.00	25.00	/	/
CH64	24.00	24.00	24.00	/	/	/	/	/
CH100	25.00	25.00	25.00	CH102	27.00	27.00	CH106	27.00
CH120	25.00	25.00	25.00	CH118	28.00	28.00	CH122	35.00
CH140	23.00	23.00	23.00	CH134	28.00	28.00	CH138	34.00
CH144	24.00	24.00	24.00	CH142	29.00	29.00	/	/
CH149	46.00	46.00	46.00	CH151	42.00	42.00	CH155	33.00
CH157	46.00	46.00	46.00	CH159	46.00	46.00	/	/
CH165	46.00	46.00	46.00	/	/	/	/	/

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	19.79	23.96<24	23.96
		60/5300	19.90	23.99<24	23.99
		64/5320	19.98	24.01>24	24.00
	802.11n HT20	52/5260	20.23	24.06>24	24.00
		60/5300	20.18	24.05>24	24.00
		64/5320	19.90	23.99<24	23.99
	802.11n HT40	54/5270	40.61	27.09>24	24.00
		62/5310	80.00	30.03>24	24.00
	802.11ac VHT20	52/5260	20.12	24.04>24	24.00
		60/5300	19.93	23.99<24	23.99
		64/5320	20.05	24.02>24	24.00
	802.11ac VHT40	54/5270	40.26	27.05>24	24.00
		62/5310	40.47	27.07>24	24.00
	802.11ac VHT80	58/5290	82.10	30.14>24	24.00
U-NII-2C	802.11a	100/5500	19.87	23.98<24	23.98
		116/5580	20.78	24.18>24	24.00
		140/5700	19.84	23.98<24	23.98
		144/5720	37.84	26.78>24	24.00
	802.11n HT20	100/5500	20.27	24.07>24	24.00
		116/5580	20.32	24.08>24	24.00
		140/5700	20.13	24.04>24	24.00
		144/5720	30.61	25.86>24	24.00
	802.11n HT40	102/5510	40.61	27.09>24	24.00
		110/5550	50.44	28.03>24	24.00
		134/5670	40.65	27.09>24	24.00
		142/5710	67.71	29.31>24	24.00
	802.11ac VHT20	100/5500	20.24	24.06>24	24.00
		116/5580	20.39	24.09>24	24.00
		140/5700	19.93	24.00>24	24.00
		144/5720	39.66	26.98>24	24.00
	802.11ac VHT40	102/5510	39.85	27.00>24	24.00
		110/5550	43.18	27.35>24	24.00
		134/5670	40.54	27.08>24	24.00
		142/5710	56.30	28.50>24	24.00
	802.11ac VHT80	106/5530	81.32	30.10>24	24.00
		122/5610	81.07	30.09>24	24.00
		138/5690	81.11	30.09>24	24.00
Note: 250mW=24dBm					

MIMO

U-NII-1

Test Mode	Channel/ Frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11a	36/5180	16.98	19.86	16.56	19.44	22.67	30.00	PASS
	40/5200	19.12	22.00	18.81	21.69	24.86	30.00	PASS
	48/5240	19.62	22.50	19.67	22.55	25.54	30.00	PASS
802.11n HT20	36/5180	16.36	19.27	16.06	18.97	22.13	30.00	PASS
	40/5200	20.09	23.00	19.55	22.46	25.75	30.00	PASS
	48/5240	19.64	22.55	19.71	22.62	25.59	30.00	PASS
802.11n HT40	38/5190	13.21	18.06	13.01	17.86	20.97	30.00	PASS
	46/5230	20.46	25.31	20.72	25.57	28.45	30.00	PASS
802.11ac VHT20	36/5180	16.26	19.44	15.88	19.06	22.26	30.00	PASS
	40/5200	20.33	23.51	19.77	22.95	26.25	30.00	PASS
	48/5240	20.20	23.38	19.93	23.11	26.26	30.00	PASS
802.11ac VHT40	38/5190	13.06	17.72	12.60	17.26	20.51	30.00	PASS
	46/5230	20.76	25.42	20.75	25.41	28.43	30.00	PASS
802.11ac VHT80	42/5210	10.26	16.12	10.29	16.15	19.15	30.00	PASS

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power $=10\log(10^{(\text{Power antenna1 in dBm}/10)}+10^{(\text{Power antenna2 in dBm}/10)})$.

2. The manufacturer declared that the directional gain =5.01 dBi<6dBi.

U-NII-2A

Test Mode	Channel/ Frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11a	52/5260	13.82	16.70	13.93	16.81	19.77	23.96	PASS
	60/5300	14.18	17.06	13.50	16.38	19.74	23.99	PASS
	64/5320	13.77	16.65	14.35	17.23	19.96	24.00	PASS
802.11n HT20	52/5260	14.21	17.12	14.47	17.38	20.26	24.00	PASS
	60/5300	14.09	17.00	13.27	16.18	19.62	24.00	PASS
	64/5320	13.60	16.51	14.32	17.23	19.89	23.99	PASS
802.11n HT40	54/5270	15.05	19.90	15.03	19.88	22.90	24.00	PASS
	62/5310	12.33	17.18	12.81	17.66	20.44	24.00	PASS
802.11ac VHT20	52/5260	14.36	17.54	13.90	17.08	20.33	24.00	PASS
	60/5300	13.74	16.92	12.87	16.05	19.52	23.99	PASS
	64/5320	14.25	17.43	13.30	16.48	19.99	24.00	PASS
802.11ac VHT40	54/5270	14.69	19.35	14.76	19.42	22.40	24.00	PASS
	62/5310	13.11	17.77	12.27	16.93	20.38	24.00	PASS
802.11ac VHT80	58/5290	9.52	15.38	9.88	15.74	18.58	24.00	PASS

Note: Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power $=10\log(10^{(\text{Power antenna1 in dBm}/10)}+10^{(\text{Power antenna2 in dBm}/10)})$.

2. The manufacturer declared that the directional gain =5.01 dBi<6dBi.

U-NII-2C

Test Mode	Channel/ Frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11a	100/5500	13.42	16.30	13.66	16.54	19.43	23.98	PASS
	120/5600	13.47	16.35	14.05	16.93	19.66	24.00	PASS
	140/5700	12.91	15.79	13.60	16.48	19.16	23.98	PASS
	144/5720	13.26	16.14	13.58	16.46	19.31	24.00	PASS
802.11n HT20	100/5500	13.77	16.68	14.17	17.08	19.89	24.00	PASS
	120/5600	13.37	16.28	13.62	16.53	19.42	24.00	PASS
	140/5700	12.63	15.54	13.47	16.38	18.99	24.00	PASS
	144/5720	13.10	16.01	13.42	16.33	19.18	24.00	PASS
802.11n HT40	102/5510	13.07	17.92	13.39	18.24	21.09	24.00	PASS
	118/5590	12.96	17.81	13.23	18.08	20.96	24.00	PASS
	134/5670	13.80	18.65	13.68	18.53	21.60	24.00	PASS
	142/5710	13.71	18.56	14.03	18.88	21.73	24.00	PASS
802.11ac VHT20	100/5500	13.70	16.88	14.01	17.19	20.05	24.00	PASS
	120/5600	13.44	16.62	13.80	16.98	19.81	24.00	PASS
	140/5700	13.70	16.88	13.21	16.39	19.65	24.00	PASS
	144/5720	13.69	16.87	12.71	15.89	19.42	24.00	PASS
802.11ac VHT40	102/5510	12.69	17.35	13.13	17.79	20.59	24.00	PASS
	118/5590	13.51	18.17	13.73	18.39	21.29	24.00	PASS
	134/5670	14.18	18.84	14.36	19.02	21.94	24.00	PASS
	142/5710	14.37	19.03	14.30	18.96	22.01	24.00	PASS
802.11ac VHT80	106/5530	10.96	16.82	10.85	16.71	19.77	24.00	PASS
	122/5610	15.00	20.86	14.67	20.53	23.71	24.00	PASS
	138/5690	15.04	20.90	15.14	21.00	23.96	24.00	PASS

Note: Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power $=10\log(10^{(\text{Power antenna1 in dBm}/10)}+10^{(\text{Power antenna2 in dBm}/10)})$.

2. The manufacturer declared that the directional gain =4.98 dBi<6dBi.

U-NII-3

Test Mode	Channel/ Frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11a	144/5720	5.64	8.52	4.94	7.82	11.19	30.00	PASS
	149/5745	22.73	25.61	23.01	25.89	28.76	30.00	PASS
	157/5785	22.83	25.71	23.08	25.96	28.85	30.00	PASS
	165/5825	23.25	26.13	23.12	26.00	29.08	30.00	PASS
802.11n HT20	144/5720	6.49	9.40	4.22	7.13	11.42	30.00	PASS
	149/5745	22.70	25.61	22.80	25.71	28.67	30.00	PASS
	157/5785	22.67	25.58	23.05	25.96	28.78	30.00	PASS
	165/5825	23.21	26.12	22.79	25.70	28.93	30.00	PASS
802.11n HT40	142/5710	0.03	4.88	-0.19	4.66	7.78	30.00	PASS
	151/5755	20.05	24.90	20.10	24.95	27.94	30.00	PASS
	159/5795	20.92	25.77	21.28	26.13	28.96	30.00	PASS
802.11ac VHT20	144/5720	6.13	9.31	5.23	8.41	11.89	30.00	PASS
	149/5745	22.71	25.89	22.93	26.11	29.01	30.00	PASS
	157/5785	23.04	26.22	23.11	26.29	29.27	30.00	PASS
	165/5825	23.22	26.40	22.97	26.15	29.29	30.00	PASS
802.11ac VHT40	142/5710	1.92	6.58	1.61	6.27	9.44	30.00	PASS
	151/5755	20.67	25.33	20.47	25.13	28.24	30.00	PASS
	159/5795	21.29	25.95	21.42	26.08	29.03	30.00	PASS
802.11ac VHT80	138/5690	-0.31	5.55	-0.66	5.20	8.39	30.00	PASS
	155/5775	14.49	20.35	14.72	20.58	23.48	30.00	PASS

Note: Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power $=10\log(10^{(\text{Power antenna1 in dBm}/10)}+10^{(\text{Power antenna2 in dBm}/10)})$.

2. The manufacturer declared that the directional gain =5.12 dBi<6dBi.

Beamforming

U-NII-1

Test Mode	Channel/ Frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11a	36/5180	16.67	19.55	16.36	19.24	22.41	30.00	PASS
	40/5200	18.88	21.76	18.73	21.61	24.70	30.00	PASS
	48/5240	19.47	22.35	19.60	22.48	25.42	30.00	PASS
802.11n HT20	36/5180	15.95	18.86	15.92	18.83	21.86	30.00	PASS
	40/5200	19.74	22.65	19.74	22.65	25.66	30.00	PASS
	48/5240	19.66	22.57	20.05	22.96	25.78	30.00	PASS
802.11n HT40	38/5190	12.48	17.33	12.64	17.49	20.42	30.00	PASS
	46/5230	20.22	25.07	20.83	25.68	28.40	30.00	PASS
802.11ac VHT20	36/5180	15.25	18.43	15.49	18.67	21.56	30.00	PASS
	40/5200	19.76	22.94	19.33	22.51	25.74	30.00	PASS
	48/5240	20.05	23.23	19.60	22.78	26.02	30.00	PASS
802.11ac VHT40	38/5190	12.88	17.54	13.07	17.73	20.64	30.00	PASS
	46/5230	20.62	25.28	20.85	25.51	28.41	30.00	PASS
802.11ac VHT80	42/5210	9.97	15.83	10.38	16.24	19.05	30.00	PASS

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power $=10\log(10^{(\text{Power antenna 1 in dBm}/10)}+10^{(\text{Power antenna 2 in dBm}/10)})$.

2. The manufacturer declared that the directional gain =5.01 dBi<6dBi.

U-NII-2A

Test Mode	Channel/ Frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11a	52/5260	13.56	16.44	13.96	16.84	19.65	23.96	PASS
	60/5300	13.36	16.24	14.15	17.03	19.66	23.99	PASS
	64/5320	13.52	16.40	14.14	17.02	19.73	24.00	PASS
802.11n HT20	52/5260	13.56	16.47	14.07	16.98	19.74	24.00	PASS
	60/5300	13.34	16.25	14.26	17.17	19.74	24.00	PASS
	64/5320	13.32	16.23	14.12	17.03	19.66	23.99	PASS
802.11n HT40	54/5270	14.83	19.68	15.08	19.93	22.82	24.00	PASS
	62/5310	12.47	17.32	13.26	18.11	20.74	24.00	PASS
802.11ac VHT20	52/5260	13.89	17.07	13.66	16.84	19.97	24.00	PASS
	60/5300	13.28	16.46	14.39	17.57	20.06	23.99	PASS
	64/5320	14.05	17.23	13.34	16.52	19.90	24.00	PASS
802.11ac VHT40	54/5270	15.01	19.67	15.26	19.92	22.81	24.00	PASS
	62/5310	12.45	17.11	13.23	17.89	20.53	24.00	PASS
802.11ac VHT80	58/5290	9.42	15.28	9.88	15.74	18.52	24.00	PASS

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power $=10\log(10^{(\text{Power antenna 1 in dBm}/10)}+10^{(\text{Power antenna 2 in dBm}/10)})$.

2. The manufacturer declared that the directional gain =5.01 dBi<6dBi.

U-NII-2C

Test Mode	Channel/ Frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11a	100/5500	13.21	16.09	13.71	16.59	19.36	23.98	PASS
	120/5600	13.34	16.22	13.46	16.34	19.29	24.00	PASS
	140/5700	13.19	16.07	13.93	16.81	19.46	23.98	PASS
	144/5720	13.15	16.03	13.39	16.27	19.17	24.00	PASS
802.11n HT20	100/5500	13.19	16.10	13.77	16.68	19.41	24.00	PASS
	120/5600	13.08	15.99	13.24	16.15	19.08	24.00	PASS
	140/5700	12.62	15.53	13.46	16.37	18.98	24.00	PASS
	144/5720	12.57	15.48	13.02	15.93	18.72	24.00	PASS
802.11n HT40	102/5510	12.57	17.42	13.07	17.92	20.69	24.00	PASS
	118/5590	13.54	18.39	13.20	18.05	21.23	24.00	PASS
	134/5670	13.59	18.44	13.98	18.83	21.65	24.00	PASS
	142/5710	13.36	18.21	13.66	18.51	21.37	24.00	PASS
802.11ac VHT20	100/5500	13.21	16.39	13.84	17.02	19.73	24.00	PASS
	120/5600	13.21	16.39	13.45	16.63	19.52	24.00	PASS
	140/5700	12.63	15.81	13.60	16.78	19.33	24.00	PASS
	144/5720	12.16	15.34	13.54	16.72	19.09	24.00	PASS
802.11ac VHT40	102/5510	13.01	17.67	13.56	18.22	20.96	24.00	PASS
	118/5590	13.89	18.55	13.62	18.28	21.43	24.00	PASS
	134/5670	14.14	18.80	14.29	18.95	21.89	24.00	PASS
	142/5710	14.17	18.83	14.74	19.40	22.14	24.00	PASS
802.11ac VHT80	106/5530	10.78	16.64	10.87	16.73	19.70	24.00	PASS
	122/5610	14.10	19.96	14.22	20.08	23.03	24.00	PASS
	138/5690	14.35	20.21	14.77	20.63	23.43	24.00	PASS

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power $=10\log(10^{(\text{Power antenna 1 in dBm}/10)}+10^{(\text{Power antenna 2 in dBm}/10)})$.

2. The manufacturer declared that the directional gain =4.98 dBi<6dBi.

U-NII-3

Test Mode	Channel/ Frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11a	144/5720	5.72	8.60	5.85	8.73	11.68	30.00	PASS
	149/5745	22.82	25.70	23.24	26.12	28.93	30.00	PASS
	157/5785	23.08	25.96	23.00	25.88	28.93	30.00	PASS
	165/5825	23.17	26.05	22.98	25.86	28.97	30.00	PASS
802.11n HT20	144/5720	7.11	10.02	5.60	8.51	12.34	30.00	PASS
	149/5745	22.52	25.43	22.51	25.42	28.44	30.00	PASS
	157/5785	22.74	25.65	22.86	25.77	28.72	30.00	PASS
	165/5825	22.93	25.84	22.58	25.49	28.68	30.00	PASS
802.11n HT40	142/5710	2.22	7.07	2.54	7.39	10.24	30.00	PASS
	151/5755	20.28	25.13	20.06	24.91	28.03	30.00	PASS
	159/5795	20.73	25.58	20.10	24.95	28.29	30.00	PASS
802.11ac VHT20	144/5720	5.84	9.02	5.66	8.84	11.94	30.00	PASS
	149/5745	22.85	26.03	22.90	26.08	29.07	30.00	PASS
	157/5785	22.57	25.75	22.91	26.09	28.93	30.00	PASS
	165/5825	22.94	26.12	22.90	26.08	29.11	30.00	PASS
802.11ac VHT40	142/5710	2.53	7.19	2.49	7.15	10.18	30.00	PASS
	151/5755	20.48	25.14	20.27	24.93	28.05	30.00	PASS
	159/5795	21.30	25.96	21.90	26.56	29.28	30.00	PASS
802.11ac VHT80	138/5690	-0.40	5.46	-1.59	4.27	7.92	30.00	PASS
	155/5775	14.77	20.63	14.94	20.80	23.73	30.00	PASS

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power $=10\log(10^{(\text{Power antenna 1 in dBm}/10)}+10^{(\text{Power antenna 2 in dBm}/10)})$.

2. The manufacturer declared that the directional gain =5.12 dBi<6dBi.

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
12	-30	5200.004747	5200.002622	5199.999920	5199.995467
12	-20	5199.999216	5199.998821	5199.994465	5199.989092
12	-10	5199.997829	5199.990078	5199.993957	5199.988751
12	0	5199.994204	5199.984210	5199.993809	5199.979643
12	10	5199.989837	5199.983614	5199.988393	5199.970306
12	20	5199.989497	5199.978078	5199.982947	5199.961017
12	30	5199.981883	5199.972357	5199.982260	5199.959159
12	40	5199.980095	5199.967614	5199.975680	5199.950739
12	50	5199.977741	5199.965511	5199.969206	5199.942626
10	20	5199.973108	5199.956885	5199.967445	5199.932987
14	20	5199.966573	5199.949487	5199.960078	5199.932535
Max. ΔMHz		-0.033427	-0.050513	-0.039922	-0.067465
PPM		-6.428269	-9.714038	-7.677308	-12.974038

Voltage (V)	Temperature (°C)	U-NII-2A Test Results			
		5300MHz			
		1min	2min	5min	10min
12	-30	5299.998509	5299.992644	5299.991049	5299.987668
12	-20	5299.992566	5299.986124	5299.985702	5299.982427
12	-10	5299.990855	5299.978582	5299.984739	5299.975025
12	0	5299.981505	5299.975293	5299.982801	5299.967070
12	10	5299.981190	5299.974350	5299.977903	5299.967042
12	20	5299.974364	5299.973857	5299.968361	5299.964202
12	30	5299.968561	5299.965550	5299.959735	5299.961426
12	40	5299.960427	5299.956394	5299.957230	5299.960162
12	50	5299.959408	5299.946841	5299.947745	5299.957901
10	20	5299.959285	5299.943602	5299.940268	5299.954608
14	20	5299.953776	5299.943303	5299.932449	5299.946349
Max. ΔMHz		-0.046224	-0.056697	-0.067551	-0.053651
PPM		-8.721509	-10.697547	-12.745472	-10.122830

Voltage (V)	Temperature (°C)	U-NII-2C Test Results			
		5580MHz			
		1min	2min	5min	10min
12	-30	5580.003026	5579.999710	5579.991067	5579.983508
12	-20	5579.998111	5579.990164	5579.989426	5579.980722
12	-10	5579.991854	5579.986589	5579.985172	5579.974871
12	0	5579.981928	5579.982875	5579.982660	5579.969688
12	10	5579.979828	5579.981896	5579.981686	5579.960120
12	20	5579.975914	5579.974651	5579.976409	5579.959092
12	30	5579.969172	5579.972317	5579.973306	5579.957871
12	40	5579.965105	5579.966684	5579.969222	5579.957225
12	50	5579.956067	5579.957062	5579.968933	5579.952991
10	20	5579.954705	5579.950875	5579.962301	5579.943843
14	20	5579.946660	5579.944330	5579.953332	5579.941032
Max. ΔMHz		-0.053340	-0.055670	-0.046668	-0.058968
PPM		-9.559140	-9.976703	-8.363441	-10.567742

Voltage (V)	Temperature (°C)	U-NII-3 Test Results			
		5785MHz			
		1min	2min	5min	10min
12	-30	5785.000009	5784.998443	5784.992983	5784.987401
12	-20	5784.992246	5784.997627	5784.991510	5784.984198
12	-10	5784.983826	5784.991012	5784.985587	5784.975318
12	0	5784.983072	5784.981715	5784.978370	5784.970611
12	10	5784.981380	5784.972218	5784.975530	5784.965371
12	20	5784.980766	5784.964909	5784.971524	5784.964026
12	30	5784.977914	5784.959729	5784.965423	5784.955319
12	40	5784.975006	5784.952740	5784.955555	5784.948963
12	50	5784.974849	5784.946740	5784.954343	5784.948325
10	20	5784.972428	5784.945207	5784.947200	5784.943815
14	20	5784.968360	5784.941439	5784.941258	5784.935062
Max. ΔMHz		-0.031640	-0.058561	-0.058742	-0.064938
PPM		-5.469317	-10.122904	-10.154192	-11.225238

5.4. Power Spectral Density

Ambient condition

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

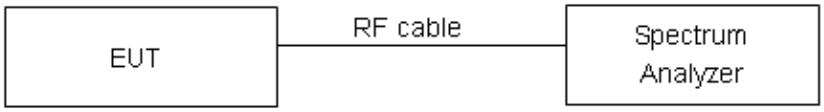
Method of Measurement

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

Set RBW = 1MHz, VBW =3MHz for the band 5.150-5.250GHz, 5.250-5.350GHz, 5.470-5.725GHz.
Set RBW = 470kHz, VBW =1.5MHz for the band 5.725-5.850GHz

The conducted PSD is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

Test setup



Limits

Rule FCC Part 15.407(a)(1)/ FCC Part 15.407(a)(2) / FCC Part 15.407(a)(3)
For an indoor access point operating in the band 5.15-5.25 GHz, 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.
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.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, 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.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500kHz band. If transmittingantennas 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.

Frequency Bands/GHz	Limits
5.15-5.25	17MHz
5.25-5.35 and 5.47-5.725	11dBm/MHz
5.725-5.85	30dBm/500kHz

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.75dB.

Test Results:

MIMO

U-NII-1

Mode	Channel/ Frequency (MHz)	Power Spectral Density					Limit (dBm /MHz)	Conclusion
		Antenna 1		Antenna 2		Total PSD (dBm/MHz)		
		Read Value (dBm/MHz)	PSD (dBm/MHz)	Read Value (dBm/MHz)	PSD (dBm/MHz)			
802.11a	36/5180	7.31	10.19	7.10	9.98	13.10	17	PASS
	40/5200	10.51	13.39	10.13	13.01	16.21	17	PASS
	48/5240	10.31	13.19	10.43	13.31	16.26	17	PASS
802.11n HT20	36/5180	7.51	10.42	7.24	10.15	13.30	17	PASS
	40/5200	10.94	13.85	10.26	13.17	16.53	17	PASS
	48/5240	10.59	13.50	10.51	13.42	16.47	17	PASS
802.11n HT40	38/5190	1.47	6.32	1.15	6.00	9.17	17	PASS
	46/5230	8.86	13.71	8.73	13.58	16.66	17	PASS
802.11ac VHT20	36/5180	7.71	10.89	6.19	9.37	13.21	17	PASS
	40/5200	10.50	13.68	9.91	13.09	16.41	17	PASS
	48/5240	10.48	13.66	10.75	13.93	16.81	17	PASS
802.11ac VHT40	38/5190	1.16	5.82	1.15	5.81	8.83	17	PASS
	46/5230	8.93	13.59	8.67	13.33	16.47	17	PASS
802.11ac VHT80	42/5210	-3.62	2.24	-4.32	1.54	4.91	17	PASS

Note: 1. Power Spectral Density =Read Value+Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectral density=$10\log(10^{(\text{PSD antenna 1 in dBm/10})}+10^{(\text{PSD antenna 2 in dBm/10})})$

3. The manufacturer declared that the directional gain=5.01<6 dBi.

U-NII-2A

Mode	Channel /Frequency (MHz)	Power Spectral Density					Limit (dBm /MHz)	Conclusion
		Antenna 1		Antenna 2		Total PSD (dBm/MHz)		
		Read Value (dBm/MHz)	PSD (dBm/MHz)	Read Value (dBm/MHz)	PSD (dBm/MHz)			
802.11a	52/5260	5.24	8.12	4.89	7.77	10.96	11	PASS
	60/5300	5.44	8.32	3.97	6.85	10.66	11	PASS
	64/5320	4.82	7.70	4.79	7.67	10.70	11	PASS
802.11n HT20	52/5260	4.63	7.54	5.02	7.93	10.75	11	PASS
	60/5300	5.32	8.23	4.01	6.92	10.63	11	PASS
	64/5320	4.75	7.66	5.35	8.26	10.98	11	PASS
802.11n HT40	54/5270	2.86	7.71	2.95	7.80	10.77	11	PASS
	62/5310	0.84	5.69	1.05	5.90	8.81	11	PASS
802.11ac VHT20	52/5260	4.86	8.04	4.74	7.92	10.99	11	PASS
	60/5300	4.86	8.04	3.89	7.07	10.59	11	PASS
	64/5320	5.43	8.61	3.73	6.91	10.85	11	PASS
802.11ac VHT40	54/5270	2.82	7.48	3.60	8.26	10.90	11	PASS
	62/5310	1.82	6.48	0.48	5.14	8.87	11	PASS
802.11ac VHT80	58/5290	-4.78	1.08	-4.99	0.87	3.99	11	PASS

Note: 1. Power Spectral Density =Read Value+Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectral density=$10\log(10^{(\text{PSD antenna 1 in dBm/10})}+10^{(\text{PSD antenna 2 in dBm/10})})$

3. The manufacturer declared that the directional gain=5.01<6 dBi.

U-NII-2C

Mode	Channel /Frequency (MHz)	Power Spectral Density					Limit (dBm /MHz)	Conclusion
		Antenna 1		Antenna 2		Total PSD (dBm/MHz)		
		Read Value (dBm/MHz)	PSD (dBm/MHz)	Read Value (dBm/MHz)	PSD (dBm/MHz)			
802.11a	100/5500	4.75	7.63	4.46	7.34	10.50	11	PASS
	120/5600	4.16	7.04	5.13	8.01	10.56	11	PASS
	140/5700	3.65	6.53	4.39	7.27	9.93	11	PASS
	144/5720	4.51	7.39	4.72	7.60	10.51	11	PASS
802.11n HT20	100/5500	4.64	7.55	5.26	8.17	10.88	11	PASS
	120/5600	4.17	7.08	4.53	7.44	10.27	11	PASS
	140/5700	3.87	6.78	4.65	7.56	10.20	11	PASS
	144/5720	4.37	7.28	4.93	7.84	10.58	11	PASS
802.11n HT40	102/5510	1.35	6.20	1.90	6.75	9.49	11	PASS
	118/5590	1.54	6.39	1.40	6.25	9.33	11	PASS
	134/5670	2.95	7.80	2.49	7.34	10.59	11	PASS
	142/5710	2.28	7.13	2.75	7.60	10.38	11	PASS
802.11ac VHT20	100/5500	4.28	7.46	4.88	8.06	10.78	11	PASS
	120/5600	3.99	7.17	4.50	7.68	10.44	11	PASS
	140/5700	5.15	8.33	3.90	7.08	10.76	11	PASS
	144/5720	4.90	8.08	4.48	7.66	10.88	11	PASS
802.11ac VHT40	102/5510	1.05	5.71	1.29	5.95	8.84	11	PASS
	118/5590	2.05	6.71	2.10	6.76	9.75	11	PASS
	134/5670	2.76	7.42	2.63	7.29	10.37	11	PASS
	142/5710	3.52	8.18	2.70	7.36	10.80	11	PASS
802.11ac VHT80	106/5530	-3.36	2.50	-3.40	2.46	5.49	11	PASS
	122/5610	0.56	6.42	-0.07	5.79	9.13	11	PASS
	138/5690	0.35	6.21	0.90	6.76	9.50	11	PASS

Note: 1. Power Spectral Density =Read Value+Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectral density=$10\log(10^{(\text{PSD antenna 1 in dBm/10})}+10^{(\text{PSD antenna 2 in dBm/10})})$

3. The manufacturer declared that the directional gain= 4.98<6 dBi.

U-NII-3

Mode	Channel /Frequency (MHz)	Power Spectral Density					Limit (dBm /500kHz)	Conclusion
		Antenna 1		Antenna 2		Total PSD (dBm/500kHz)		
		Read Value (dBm/470kHz)	PSD (dBm/500kHz)	Read Value (dBm/470kHz)	PSD (dBm/500kHz)			
802.11a	144/5720	-0.59	2.56	-0.38	2.77	5.68	30	PASS
	149/5745	10.62	13.77	11.01	14.16	16.98	30	PASS
	157/5785	10.56	13.71	11.46	14.61	17.19	30	PASS
	165/5825	10.72	13.87	11.04	14.19	17.04	30	PASS
802.11n HT20	144/5720	-0.39	2.79	-0.97	2.21	5.52	30	PASS
	149/5745	10.17	13.35	10.89	14.07	16.74	30	PASS
	157/5785	10.78	13.96	10.55	13.73	16.86	30	PASS
	165/5825	10.32	13.50	10.53	13.71	16.62	30	PASS
802.11n HT40	142/5710	-5.48	-0.36	-7.73	-2.61	1.67	30	PASS
	151/5755	4.75	9.87	4.75	9.87	12.88	30	PASS
	159/5795	6.19	11.31	7.00	12.12	14.74	30	PASS
802.11ac VHT20	144/5720	-0.96	2.49	-0.42	3.03	5.78	30	PASS
	149/5745	10.56	14.01	10.36	13.81	16.92	30	PASS
	157/5785	11.04	14.49	10.76	14.21	17.36	30	PASS
	165/5825	10.57	14.02	10.37	13.82	16.93	30	PASS
802.11ac VHT40	142/5710	-4.36	0.58	-4.95	-0.02	3.30	30	PASS
	151/5755	5.00	9.93	5.26	10.19	13.08	30	PASS
	159/5795	5.58	10.51	6.09	11.02	13.78	30	PASS
802.11ac VHT80	138/5690	-6.27	-0.14	-6.59	-0.46	2.71	30	PASS
	155/5775	-3.03	3.10	-3.04	3.09	6.10	30	PASS

Note: 1. Power Spectral Density =Read Value+Duty cycle correction factor+10*log(500/470)

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectraldensity=$10\log(10^{(\text{PSD antenna 1 in dBm}/10)}+10^{(\text{PSD antenna 2 in dBm}/10)})$

3. The manufacturer declared that the directional gain=5.12<6 dBi.

Beamforming

U-NII-1

Mode	Channel/ Frequency (MHz)	Power Spectral Density					Limit (dBm /MHz)	Conclusion
		Antenna 1		Antenna 2		Total PSD (dBm/MHz)		
		Read Value (dBm/MHz)	PSD (dBm/MHz)	Read Value (dBm/MHz)	PSD (dBm/MHz)			
802.11a	36/5180	7.55	10.43	7.51	10.39	13.42	17	PASS
	40/5200	9.79	12.67	10.05	12.93	15.81	17	PASS
	48/5240	10.34	13.22	10.82	13.70	16.48	17	PASS
802.11n HT20	36/5180	6.57	9.48	7.15	10.06	12.79	17	PASS
	40/5200	10.77	13.68	10.56	13.47	16.59	17	PASS
	48/5240	10.29	13.20	10.82	13.73	16.48	17	PASS
802.11n HT40	38/5190	1.24	6.09	1.27	6.12	9.12	17	PASS
	46/5230	8.32	13.17	8.99	13.84	16.53	17	PASS
802.11ac VHT20	36/5180	5.95	9.13	6.23	9.41	12.28	17	PASS
	40/5200	10.18	13.36	10.03	13.21	16.30	17	PASS
	48/5240	10.42	13.60	11.11	14.29	16.97	17	PASS
802.11ac VHT40	38/5190	1.11	5.77	0.95	5.61	8.70	17	PASS
	46/5230	8.65	13.31	8.99	13.65	16.49	17	PASS
802.11ac VHT80	42/5210	-4.79	1.07	-4.26	1.60	4.35	17	PASS

Note: 1. Power Spectral Density =Read Value + Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectral density=$10\log(10^{(\text{PSD antenna 1 in dBm}/10)}+10^{(\text{PSD antenna 2 in dBm}/10)})$

3. The manufacturer declared that the directional gain=5.01<6 dBi.

U-NII-2A

Mode	Channel /Frequency (MHz)	Power Spectral Density					Limit (dBm /MHz)	Conclusion
		Antenna 1		Antenna 2		Total PSD (dBm/MHz)		
		Read Value (dBm/MHz)	PSD (dBm/MHz)	Read Value (dBm/MHz)	PSD (dBm/MHz)			
802.11a	52/5260	4.59	7.47	4.75	7.63	10.56	11	PASS
	60/5300	3.91	6.79	5.03	7.91	10.40	11	PASS
	64/5320	4.32	7.20	5.21	8.09	10.68	11	PASS
802.11n HT20	52/5260	4.53	7.44	5.39	8.30	10.90	11	PASS
	60/5300	3.83	6.74	5.42	8.33	10.62	11	PASS
	64/5320	4.24	7.15	5.63	8.54	10.91	11	PASS
802.11n HT40	54/5270	2.46	7.31	1.99	6.84	10.09	11	PASS
	62/5310	1.08	5.93	1.44	6.29	9.12	11	PASS
802.11ac VHT20	52/5260	4.23	7.41	4.74	7.92	10.68	11	PASS
	60/5300	4.13	7.31	5.10	8.28	10.83	11	PASS
	64/5320	4.03	7.21	5.19	8.37	10.84	11	PASS
802.11ac VHT40	54/5270	3.49	8.15	2.99	7.65	10.92	11	PASS
	62/5310	1.14	5.80	1.62	6.28	9.06	11	PASS
802.11ac VHT80	58/5290	-5.07	0.79	-3.88	1.98	4.44	11	PASS

Note: 1. Power Spectral Density =Read Value + Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectral density=$10\log(10^{(\text{PSD antenna 1 in dBm/10})}+10^{(\text{PSD antenna 2 in dBm/10})})$

3. The manufacturer declared that the directional gain=5.01<6 dBi.

U-NII-2C

Mode	Channel /Frequency (MHz)	Power Spectral Density					Limit (dBm /MHz)	Conclusion
		Antenna 1		Antenna 2		Total PSD (dBm/MHz)		
		Read Value (dBm/MHz)	PSD (dBm/MHz)	Read Value (dBm/MHz)	PSD (dBm/MHz)			
802.11a	100/5500	3.98	6.86	4.38	7.26	10.07	11	PASS
	120/5600	3.60	6.48	4.62	7.50	10.03	11	PASS
	140/5700	4.82	7.70	5.09	7.97	10.85	11	PASS
	144/5720	4.47	7.35	4.94	7.82	10.60	11	PASS
802.11n HT20	100/5500	3.98	6.89	4.94	7.85	10.41	11	PASS
	120/5600	3.44	6.35	4.09	7.00	9.70	11	PASS
	140/5700	3.85	6.76	4.03	6.94	9.86	11	PASS
	144/5720	4.94	7.85	4.67	7.58	10.73	11	PASS
802.11n HT40	102/5510	0.67	5.52	1.33	6.18	8.87	11	PASS
	118/5590	2.38	7.23	1.78	6.63	9.95	11	PASS
	134/5670	1.63	6.48	2.14	6.99	9.75	11	PASS
	142/5710	2.12	6.97	3.05	7.90	10.47	11	PASS
802.11ac VHT20	100/5500	4.54	7.72	4.96	8.14	10.95	11	PASS
	120/5600	4.33	7.51	4.79	7.97	10.76	11	PASS
	140/5700	3.45	6.63	4.36	7.54	10.12	11	PASS
	144/5720	3.81	6.99	4.23	7.41	10.22	11	PASS
802.11ac VHT40	102/5510	0.58	5.24	1.55	6.21	8.76	11	PASS
	118/5590	2.25	6.91	1.90	6.56	9.75	11	PASS
	134/5670	2.35	7.01	2.64	7.30	10.17	11	PASS
	142/5710	2.53	7.19	3.61	8.27	10.77	11	PASS
802.11ac VHT80	106/5530	-3.18	2.68	-3.36	2.50	5.60	11	PASS
	122/5610	-0.42	5.44	0.11	5.97	8.72	11	PASS
	138/5690	0.25	6.11	-0.06	5.80	8.97	11	PASS

Note: 1. Power Spectral Density =Read Value+Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectral density=$10\log(10^{(\text{PSD antenna 1 in dBm/10})}+10^{(\text{PSD antenna 2 in dBm/10})})$

3. The manufacturer declared that the directional gain=4.98<6 dBi.

U-NII-3

Mode	Channel /Frequency (MHz)	Power Spectral Density					Limit (dBm /500kHz)	Conclusion
		Antenna 1		Antenna 2		Total PSD (dBm/500kHz)		
		Read Value (dBm/470kHz)	PSD (dBm/500kHz)	Read Value (dBm/470kHz)	PSD (dBm/500kHz)			
802.11a	144/5720	-0.42	2.73	-1.30	1.85	5.33	30	PASS
	149/5745	10.40	13.55	11.07	14.22	16.91	30	PASS
	157/5785	10.42	13.57	11.24	14.39	17.01	30	PASS
	165/5825	10.68	13.83	11.01	14.16	17.01	30	PASS
802.11n HT20	144/5720	0.31	3.49	-1.65	1.53	5.63	30	PASS
	149/5745	10.25	13.43	10.12	13.30	16.38	30	PASS
	157/5785	10.48	13.66	9.88	13.06	16.38	30	PASS
	165/5825	10.69	13.87	10.46	13.64	16.77	30	PASS
802.11n HT40	142/5710	-3.51	1.61	-4.40	0.72	4.20	30	PASS
	151/5755	5.20	10.32	5.41	10.53	13.44	30	PASS
	159/5795	6.33	11.45	5.91	11.03	14.25	30	PASS
802.11ac VHT20	144/5720	-1.14	2.31	-1.48	1.97	5.15	30	PASS
	149/5745	10.43	13.88	10.22	13.67	16.78	30	PASS
	157/5785	10.61	14.06	10.32	13.77	16.93	30	PASS
	165/5825	10.22	13.67	10.41	13.86	16.78	30	PASS
802.11ac VHT40	142/5710	-5.42	-0.49	-5.22	-0.29	2.62	30	PASS
	151/5755	5.22	10.15	5.77	10.70	13.44	30	PASS
	159/5795	6.20	11.13	6.86	11.79	14.48	30	PASS
802.11ac VHT80	138/5690	-6.97	-0.84	-6.20	-0.07	2.57	30	PASS
	155/5775	-2.64	3.49	-2.68	3.45	6.48	30	PASS

Note: 1. Power Spectral Density =Read Value + Duty cycle correction factor+10*log(500/470)

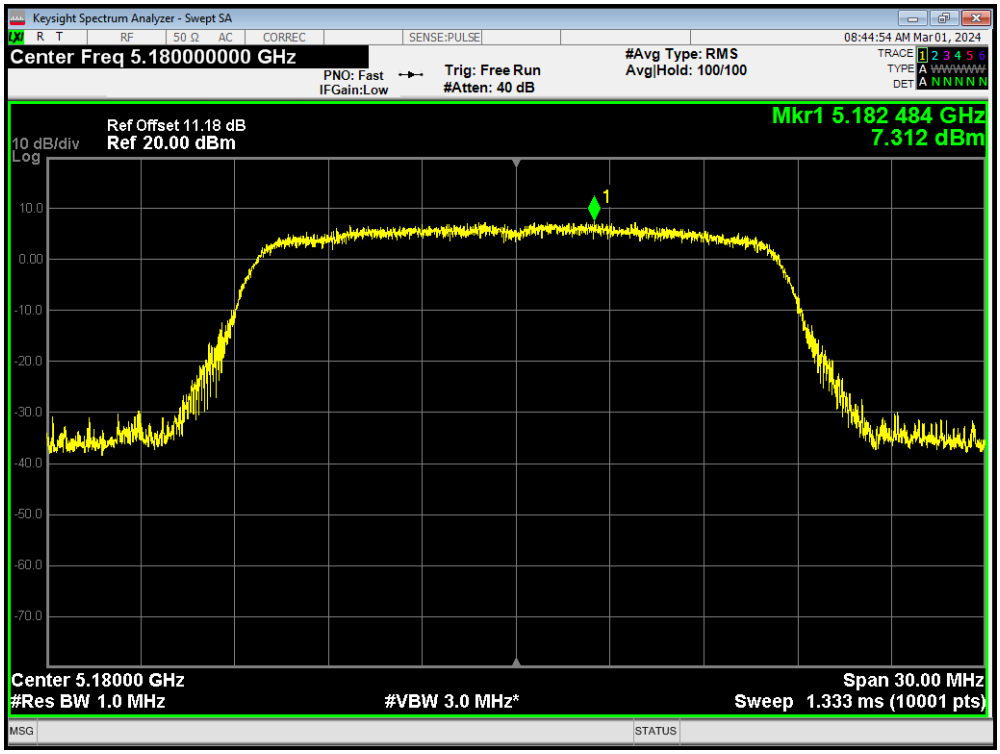
2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectral density=$10\log(10^{(\text{PSD antenna 1 in dBm}/10)}+10^{(\text{PSD antenna 2 in dBm}/10)})$

3. The manufacturer declared that the directional gain=5.12<6 dBi.

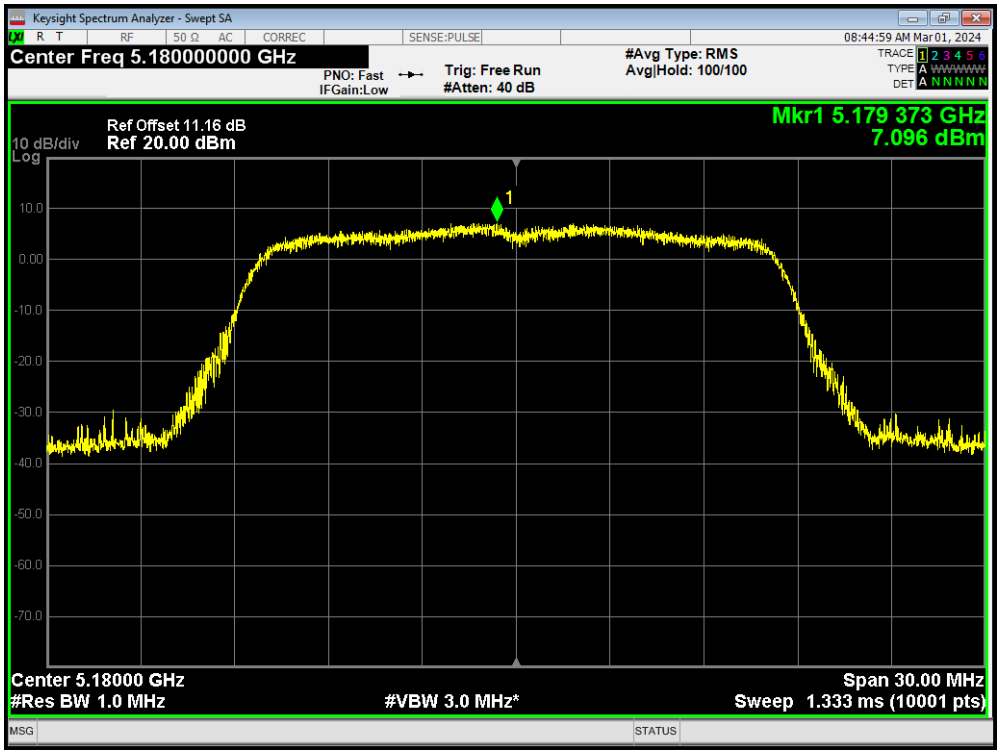
MIMO

U-NII-1

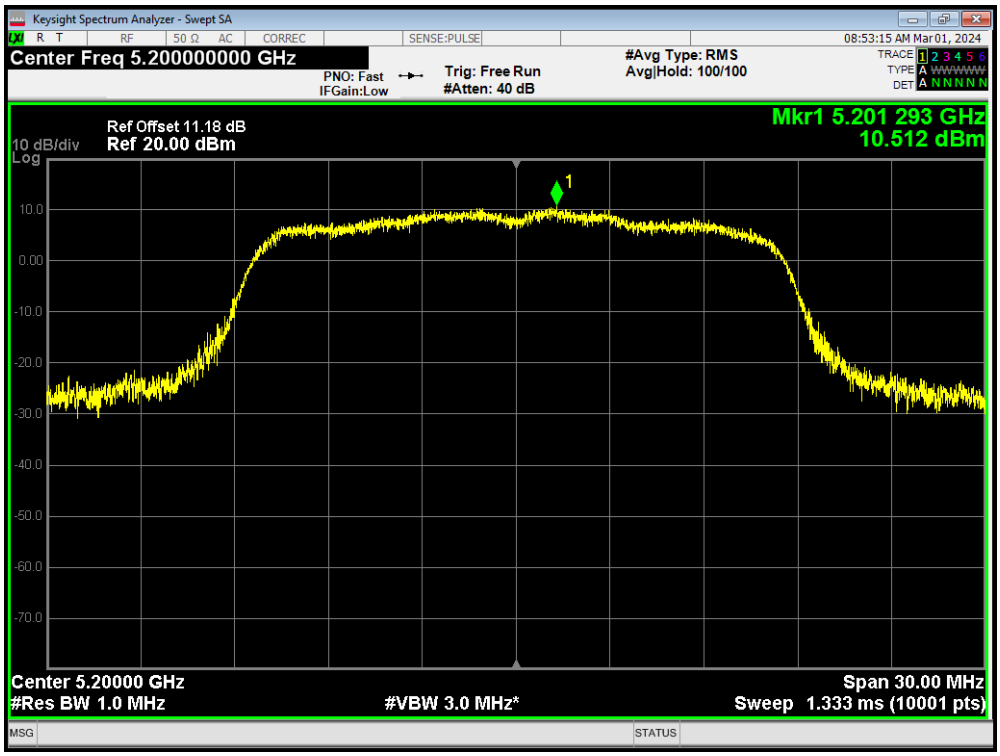
PSD 802.11a 5180MHz Ant1



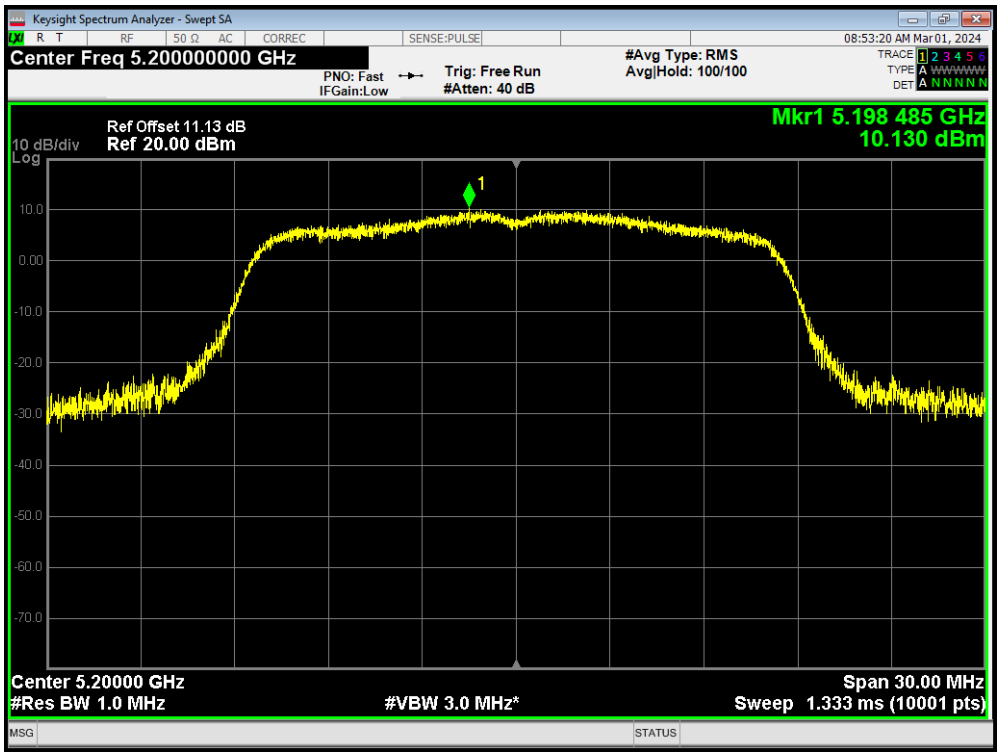
PSD 802.11a 5180MHz Ant2



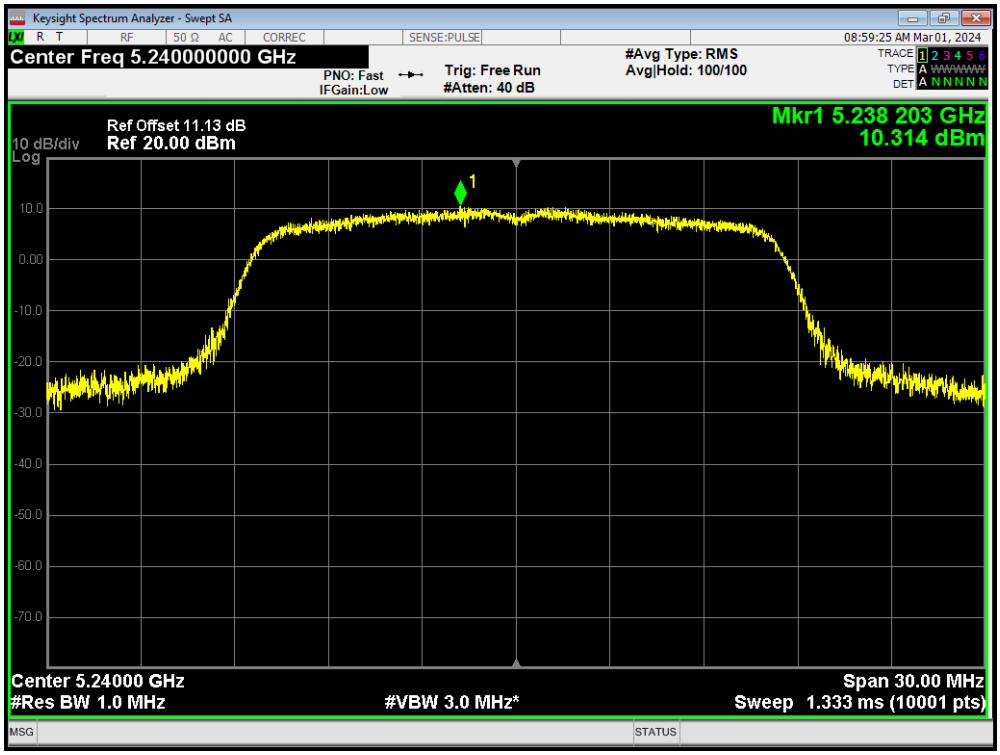
PSD 802.11a 5200MHz Ant1



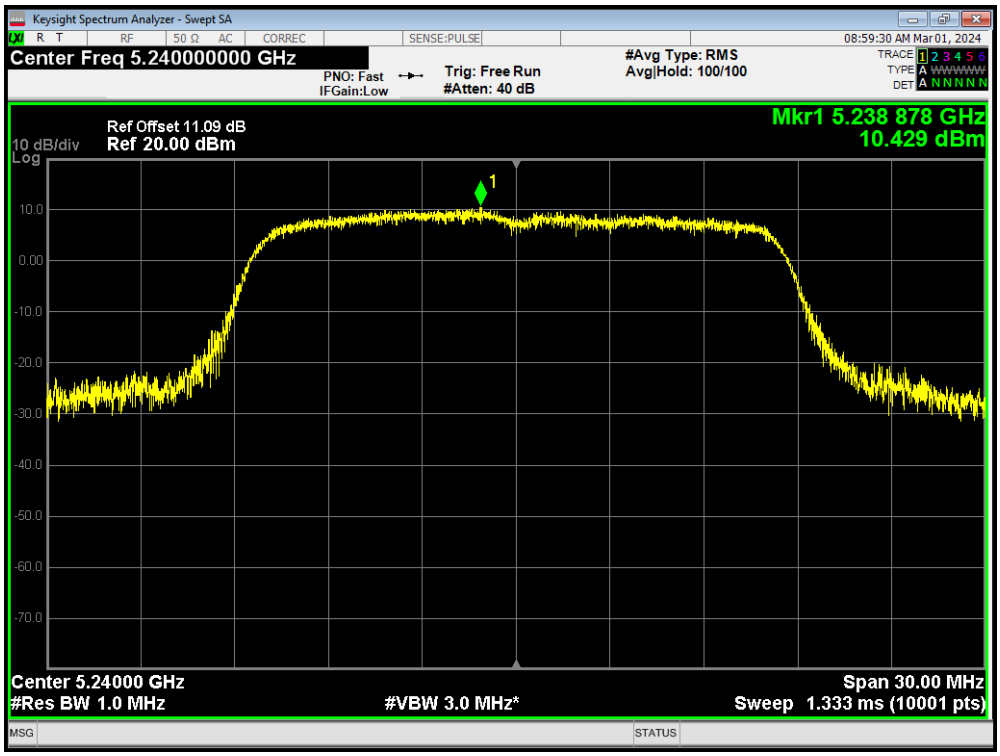
PSD 802.11a 5200MHz Ant2



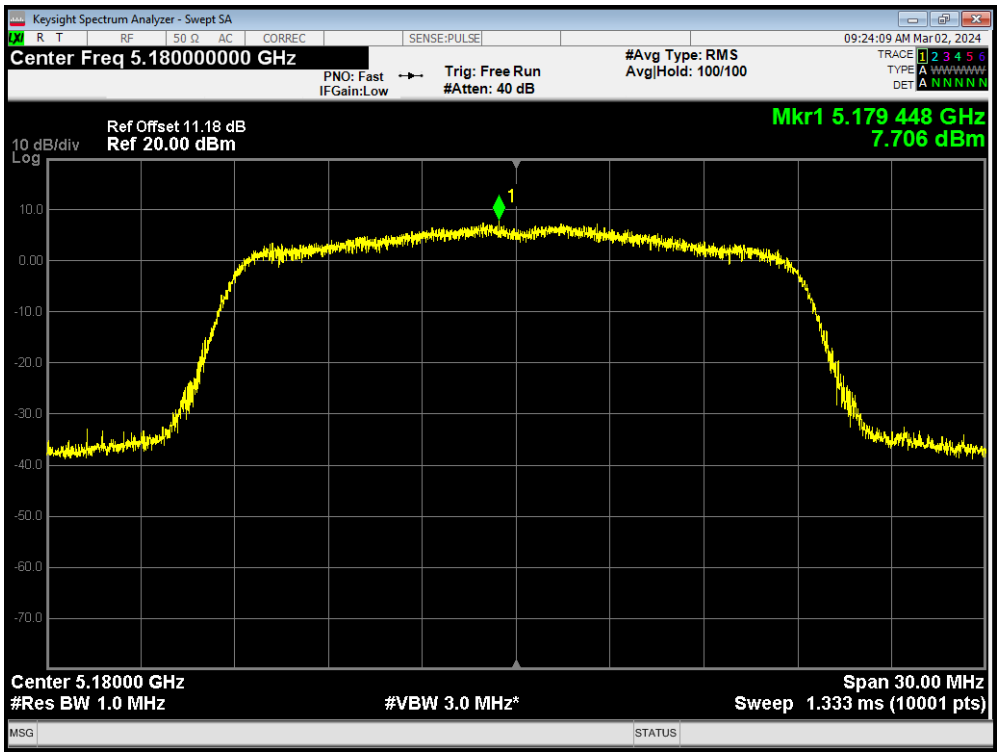
PSD 802.11a 5240MHz Ant1



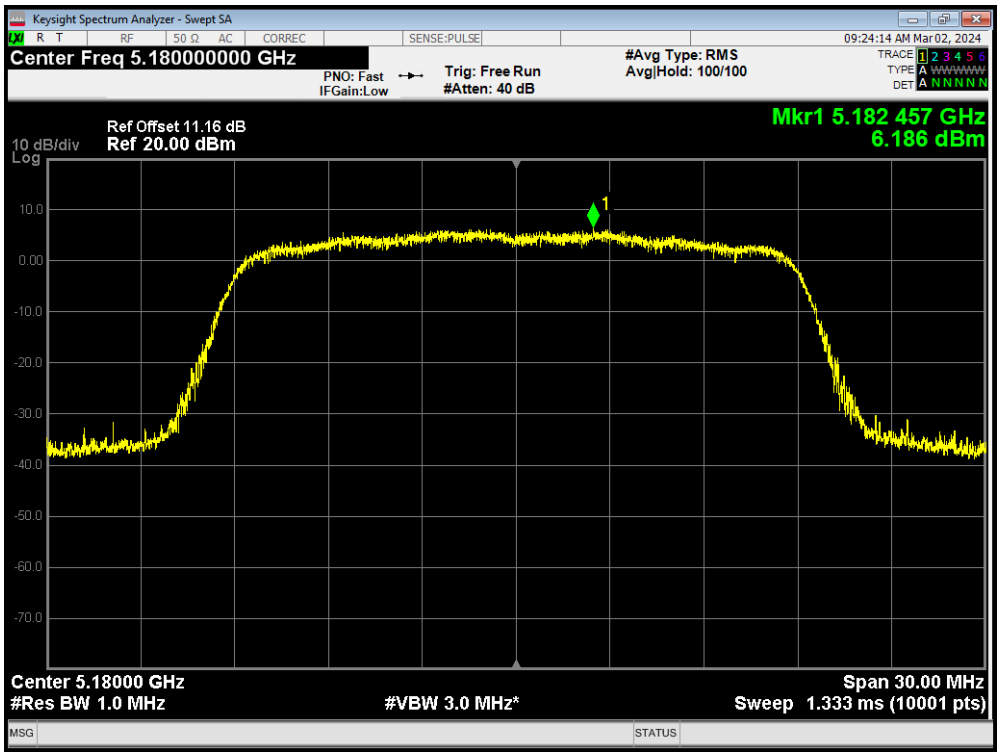
PSD 802.11a 5240MHz Ant2



PSD 802.11ac(VHT20) 5180MHz Ant1



PSD 802.11ac(VHT20) 5180MHz Ant2



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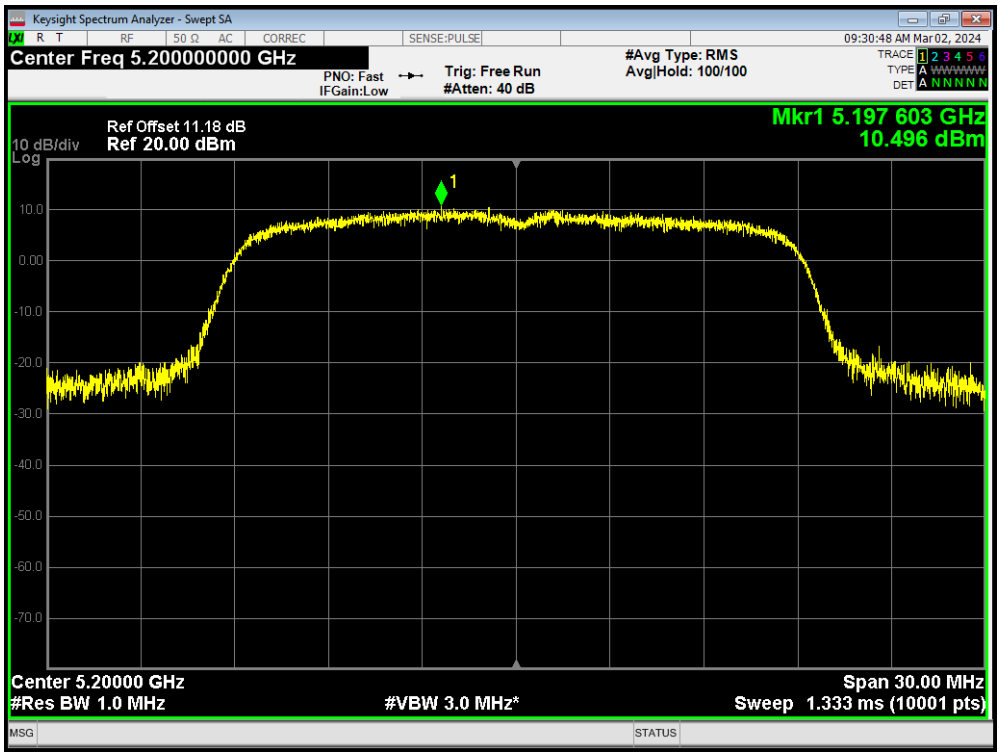
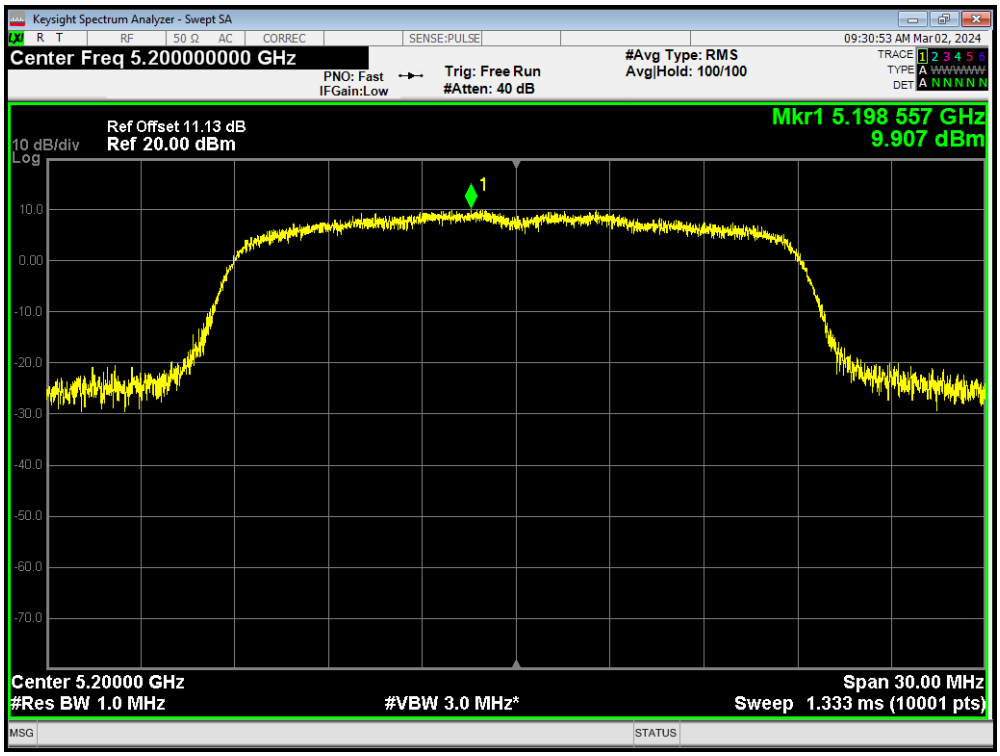
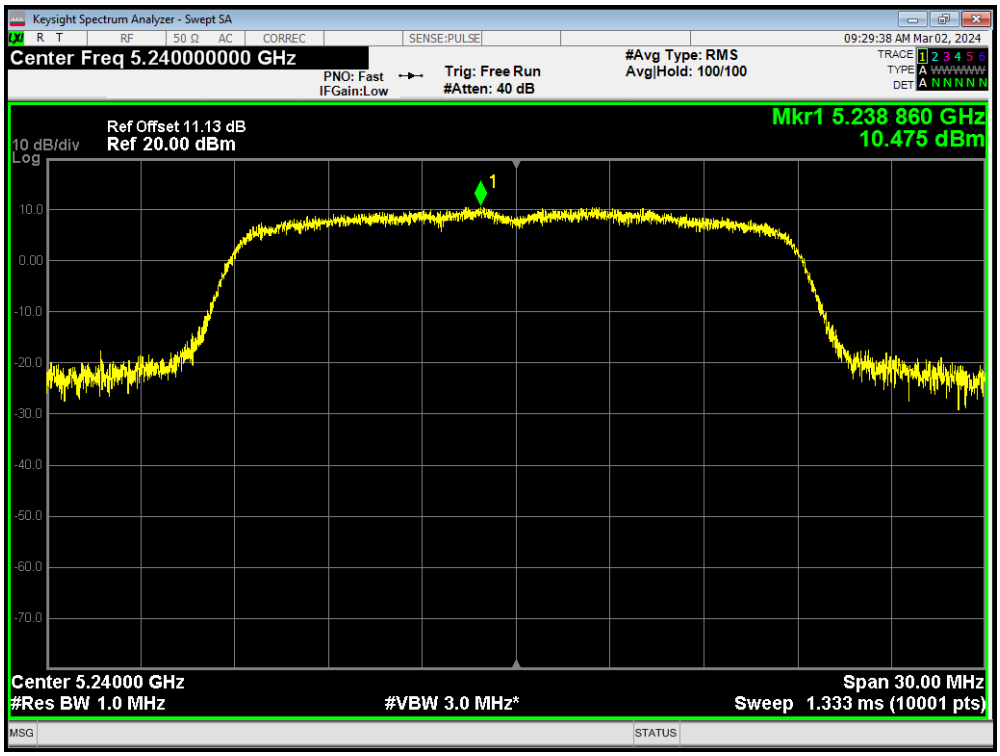


PSD 802.11ac(VHT20) 5200MHz Ant2



PSD 802.11ac(VHT20) 5240MHz Ant1



PSD 802.11ac(VHT20) 5240MHz Ant2