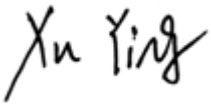
RF TEST REPORT

Applicant	Thunder Software Technology Co., Ltd.
FCC ID	2BA4NTX11010401
Product	Hyliion Drive Processor
Brand	HDP
Model	HDP
Report No.	R2306A0615-R2
Issue Date	July 7, 2023

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15E (2022)**. 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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Approved by: Xu Kai

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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	NA
Date of Testing: June 6, 2023 ~ June 29, 2023 Date of Sample Received: June 1, 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 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 **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)

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)

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

1.3. Testing Location

Company:	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
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Website:	http://www.ta-shanghai.com
E-mail:	xukai@ta-shanghai.com

2. General Description of Equipment under Test

2.1. Applicant and Manufacturer Information

Applicant	Thunder Software Technology Co., Ltd.
Applicant address	ThunderSoft Building, Building 3, No.9 Qinghua Dong Road, Haidian District, Beijing, China
Manufacturer	Thunder Software Technology Co., Ltd.
Manufacturer address	ThunderSoft Building, Building 3, No.9 Qinghua Dong Road, Haidian District, Beijing, China

2.2. General information

EUT Description	
Model	HDP
SN	B000210
Hardware Version	0.3
Software Version	HDP-1212-1218-R3
Power Supply	External power supply
Antenna Type	External Antenna
Antenna Connector	A permanently attached antenna (meet with the standard FCC Part 15.203 requirement)
Antenna Gain	Antenna 1: 2.80 dBi Antenna 2: 2.80 dBi
Directional Gain	For Power: 2.80 dBi For PSD: 5.81 dBi
Operating Frequency Range(s)	U-NII-1: 5150MHz-5250MHz U-NII-2C:5470MHz-5725MHz U-NII-3: 5725MHz -5850MHz
Modulation Type	802.11a/n (HT20/HT40) : OFDM 802.11ac (VHT20/VHT40/VHT80): OFDM
Max. Output Power	13.03 dBm
Testing temperature range	-20 ° C to 50° C
Operating temperature range	-30 ° C to 70 ° C
Operating voltage range	9 V to 16 V
State DC voltage	13.5 V
Note: 1. The EUT is sent from the applicant to 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 (2022) 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 lie-down position (X 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.

The test software is used MTS8310 V2.0.0.0

Worst-case data rates are shown as following table.

Mode	Data Rate		
	Antenna 1	Antenna 2	MIMO
802.11a	6 Mbps	6 Mbps	6 Mbps
802.11n HT20	MCS0	MCS0	MCS8
802.11n HT40	MCS0	MCS0	MCS8
802.11ac VHT20	MCS0	MCS0	MCS0
802.11ac VHT40	MCS0	MCS0	MCS0
802.11ac VHT80	MCS0	MCS0	MCS0

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

Test Cases	Antenna 1	Antenna 2	MIMO
Average conducted output power	O	O	O
Occupied bandwidth	--	--	O
Frequency stability	--	--	802.11a
Power Spectral Density	O	O	O
Unwanted Emissions	--	--	O
Conducted Emissions	--	--	--
Note：“O”: test all bands			

According to RF Output power results in chapter 5.2, MIMO was selected as the worst antenna.

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-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

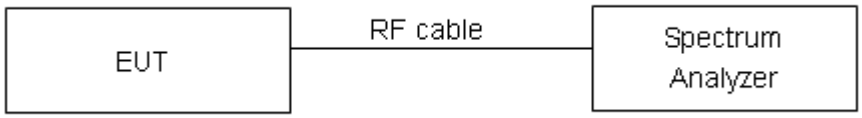
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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-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

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	16.801	21.435	PASS
	5200	16.841	21.164	PASS
	5240	16.833	21.566	PASS
802.11n HT20	5180	17.934	21.348	PASS
	5200	17.988	21.638	PASS
	5240	17.897	21.388	PASS
802.11n HT40	5190	36.301	39.786	PASS
	5230	36.186	40.087	PASS
802.11ac VHT20	5180	17.955	21.429	PASS
	5200	17.980	21.642	PASS
	5240	17.886	21.763	PASS
802.11ac VHT40	5190	36.269	39.603	PASS
	5230	36.159	39.655	PASS
802.11ac VHT80	5210	75.829	81.092	PASS

U-NII-2C

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5500	16.869	21.295	PASS
	5600	16.839	21.401	PASS
	5700	16.903	21.503	PASS
	5720	16.894	21.295	PASS
802.11n HT20	5500	17.930	21.502	PASS
	5600	17.904	21.340	PASS
	5700	17.937	21.650	PASS
	5720	17.937	21.552	PASS
802.11n HT40	5510	36.152	40.041	PASS
	5590	36.259	40.100	PASS
	5670	36.135	39.865	PASS
	5710	36.250	39.784	PASS
802.11ac VHT20	5500	17.951	21.404	PASS
	5600	17.940	21.665	PASS
	5700	17.960	21.519	PASS
	5720	17.935	21.596	PASS
802.11ac VHT40	5510	36.201	40.296	PASS

	5590	36.230	39.822	PASS
	5670	36.190	39.892	PASS
	5710	36.187	39.902	PASS
802.11ac VHT80	5530	75.930	81.733	PASS
	5610	75.989	81.710	PASS
	5690	75.991	82.608	PASS

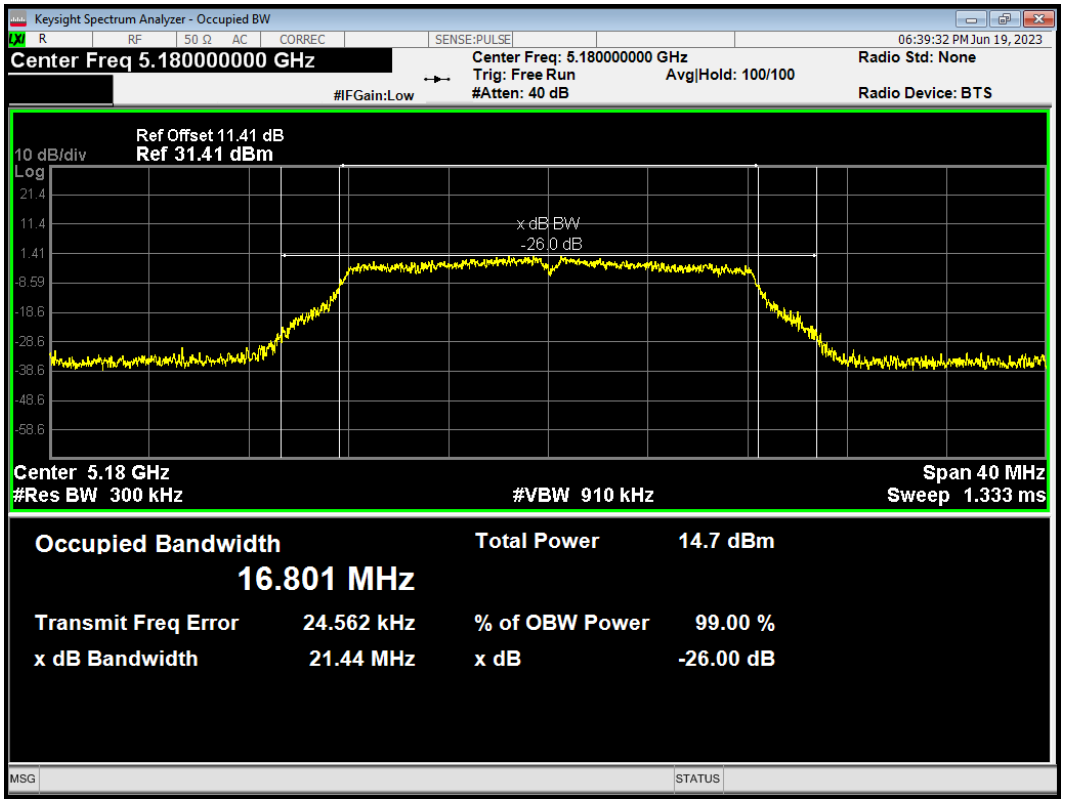
U-NII-3

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11a	5720	16.840	16.315	500	PASS
	5745	16.890	16.319	500	PASS
	5785	16.860	16.307	500	PASS
	5825	16.867	16.335	500	PASS
802.11n HT20	5720	17.924	17.569	500	PASS
	5745	17.951	17.291	500	PASS
	5785	17.908	16.889	500	PASS
	5825	17.990	17.549	500	PASS
802.11n HT40	5710	36.272	35.163	500	PASS
	5755	36.271	35.341	500	PASS
	5795	36.340	35.195	500	PASS
802.11ac VHT20	5720	17.962	17.550	500	PASS
	5745	18.000	17.253	500	PASS
	5785	17.969	17.585	500	PASS
	5825	17.962	17.556	500	PASS
802.11ac VHT40	5710	36.208	35.245	500	PASS
	5755	36.243	35.468	500	PASS
	5795	36.246	35.352	500	PASS
802.11ac VHT80	5690	75.998	75.367	500	PASS
	5775	75.975	75.180	500	PASS

99% bandwidth

U-NII-1

OBW 802.11a 5180MHz



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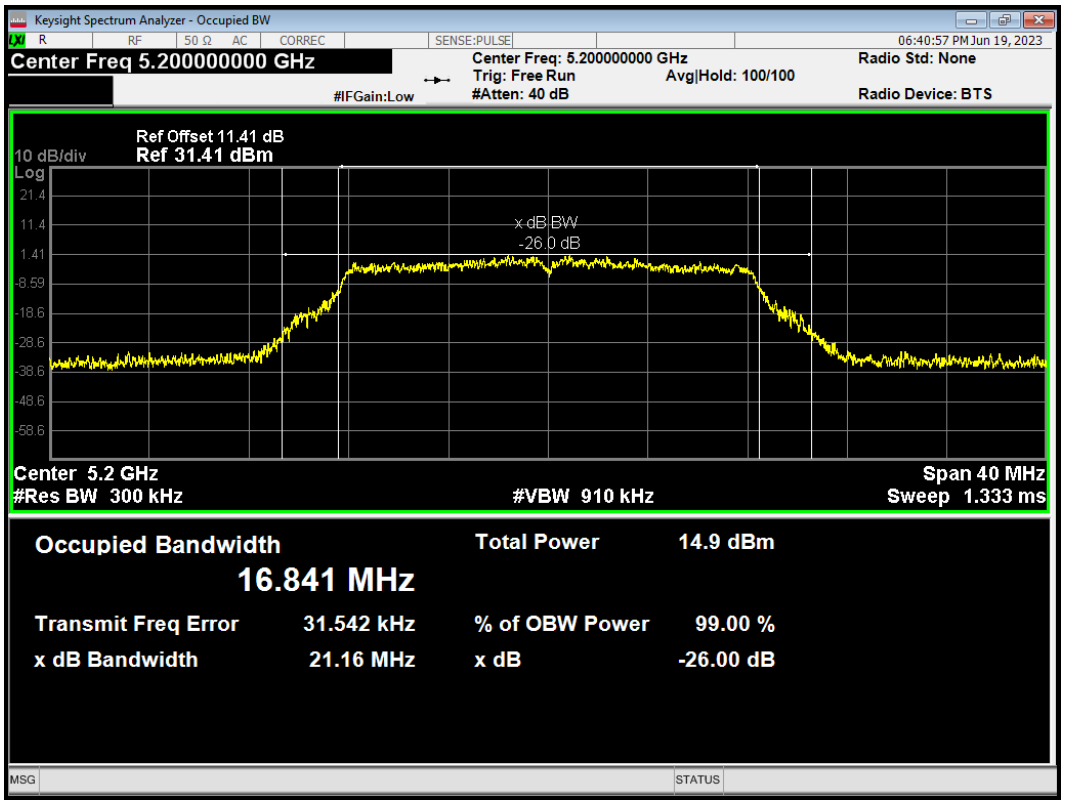

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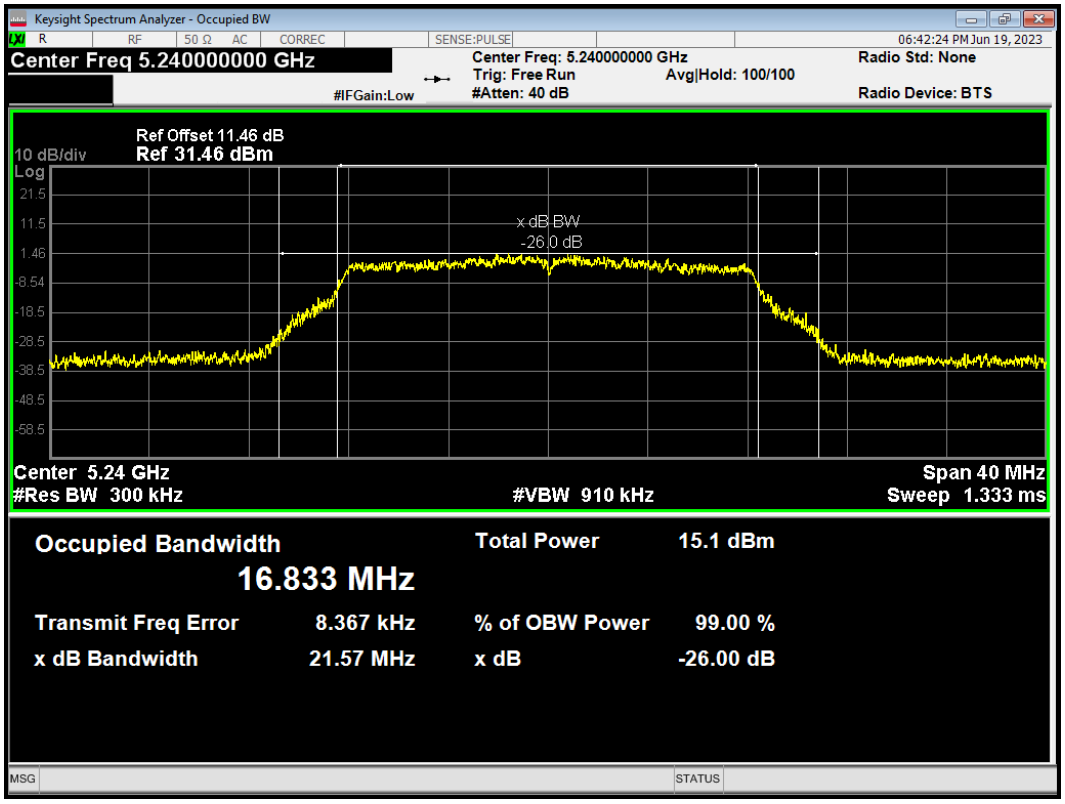

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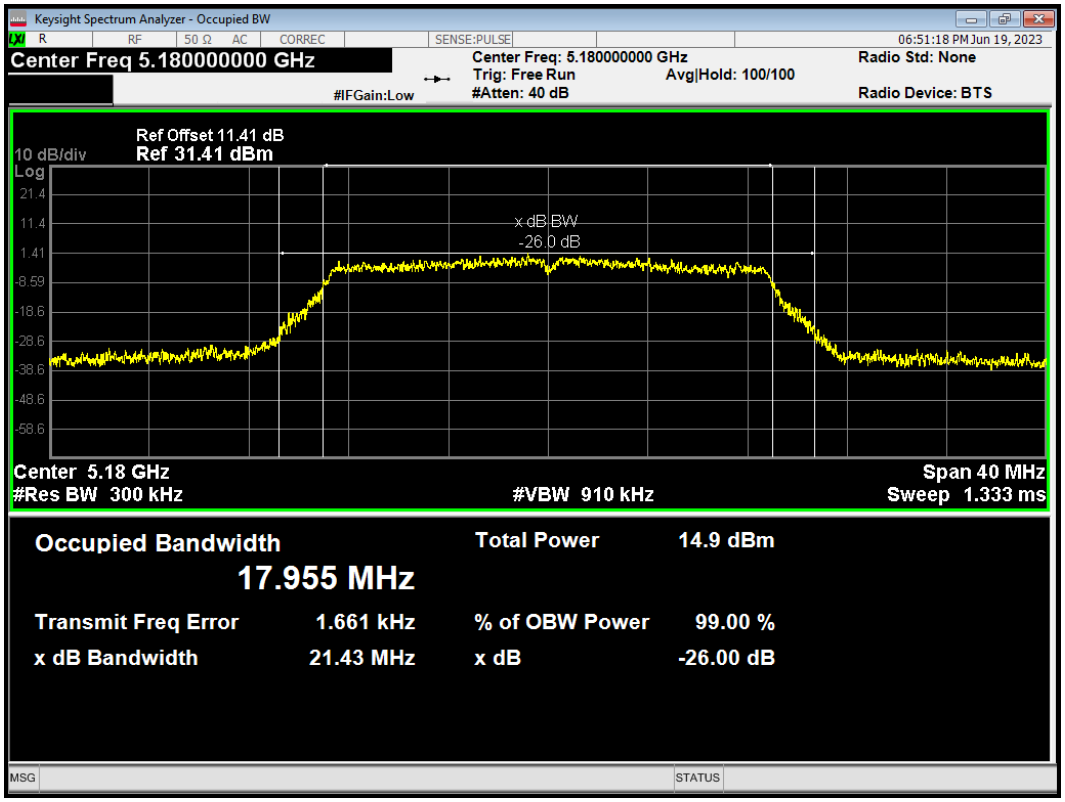

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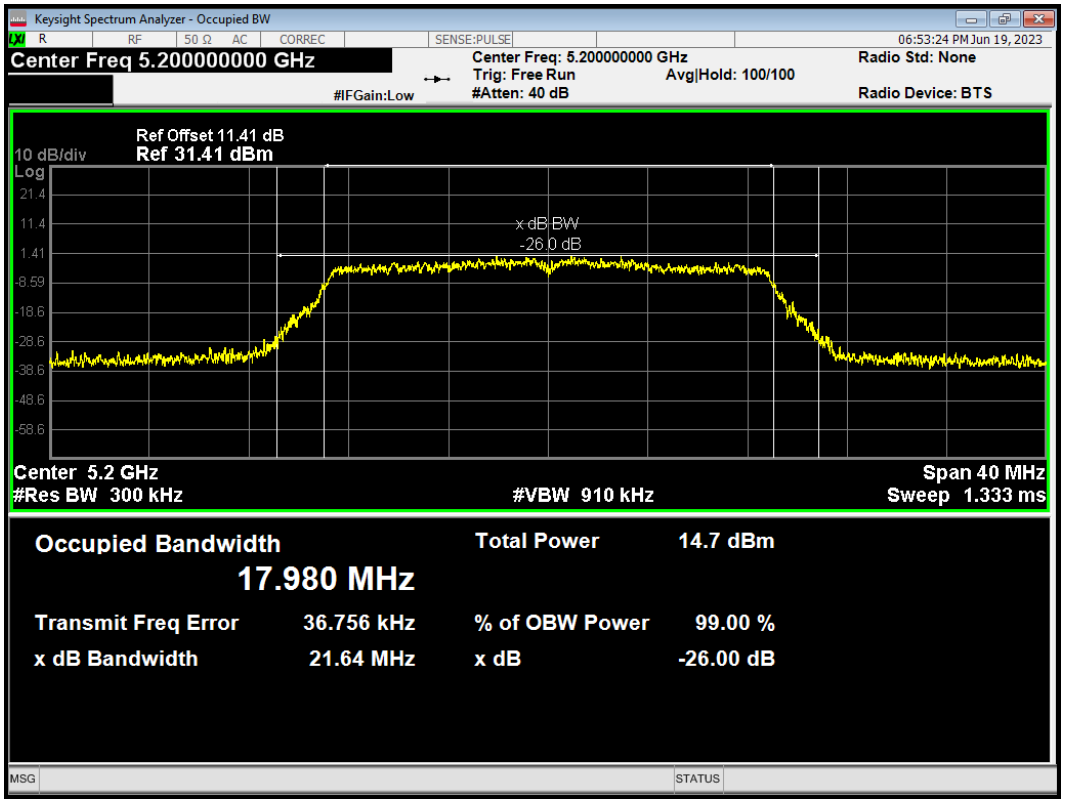

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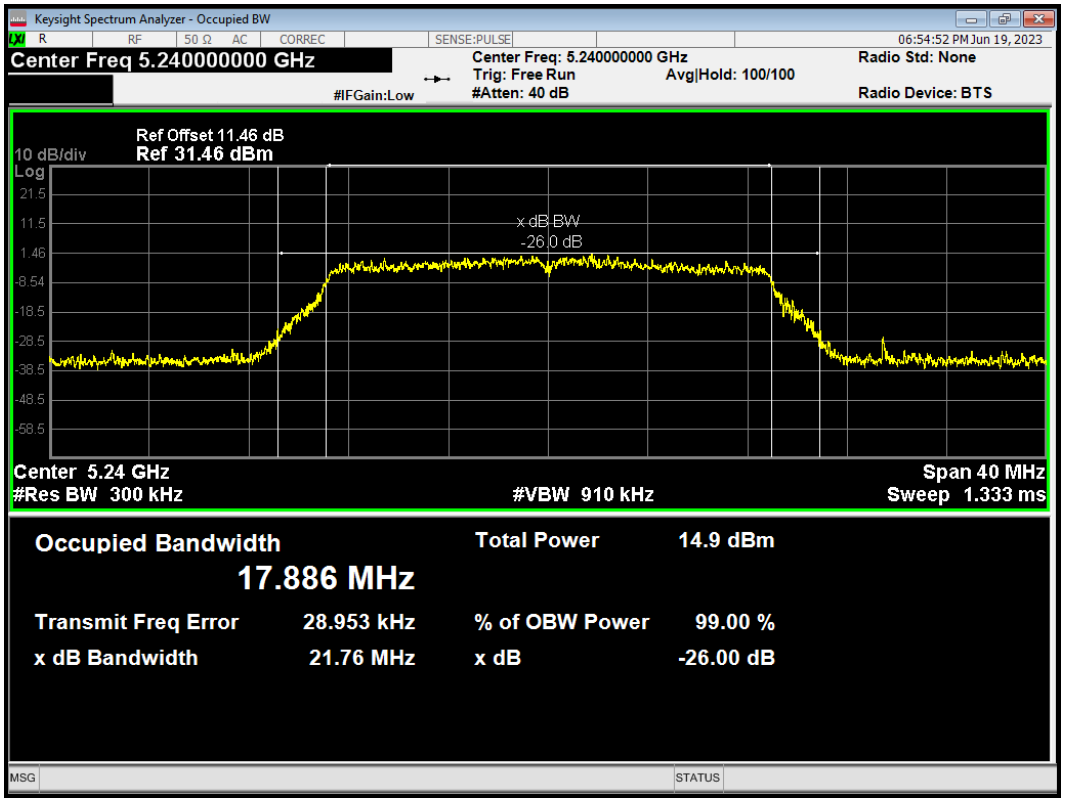

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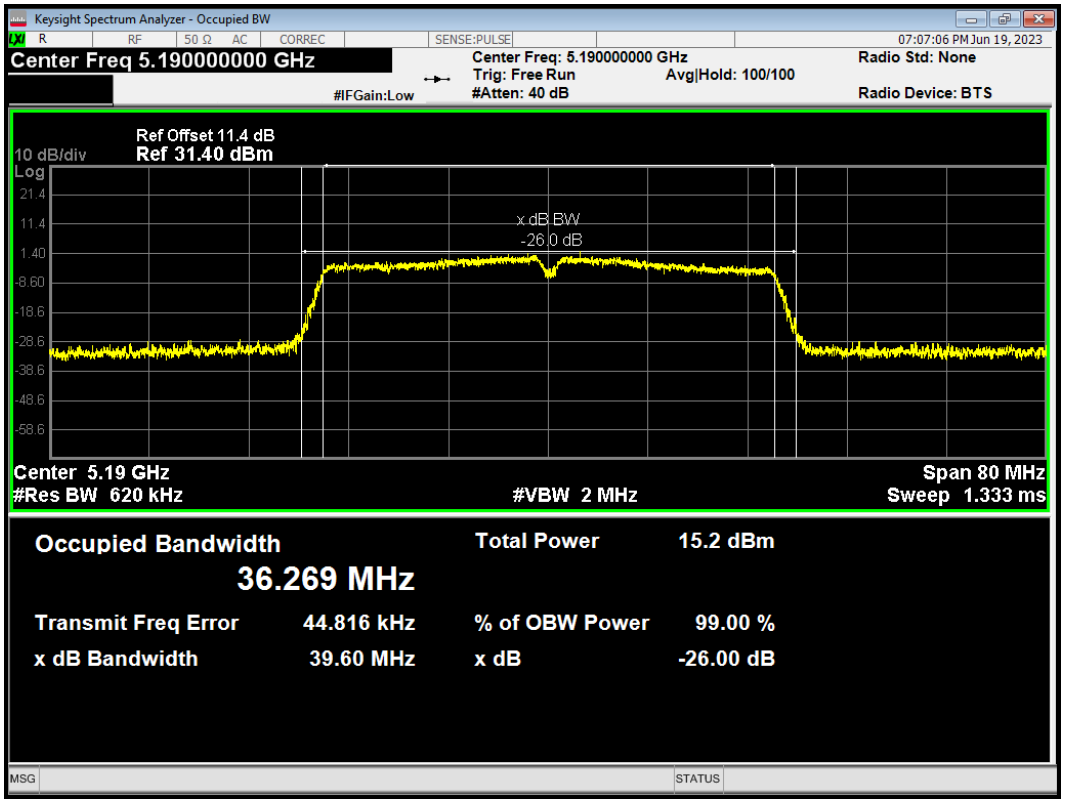

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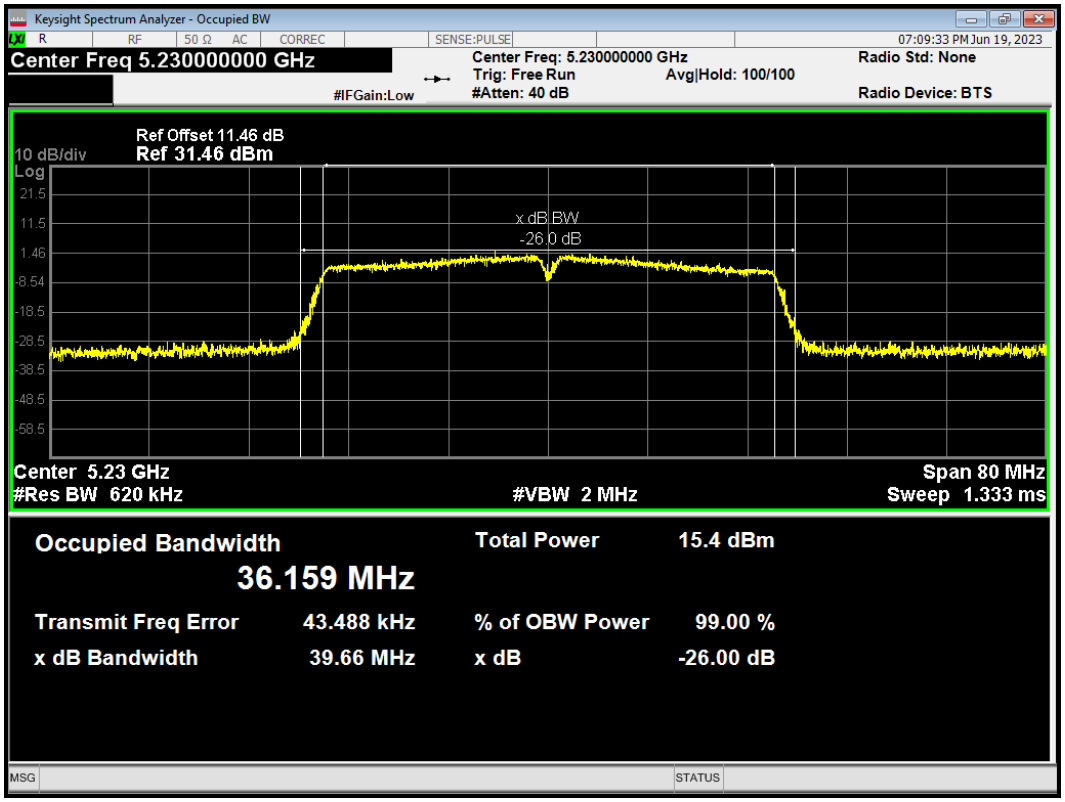

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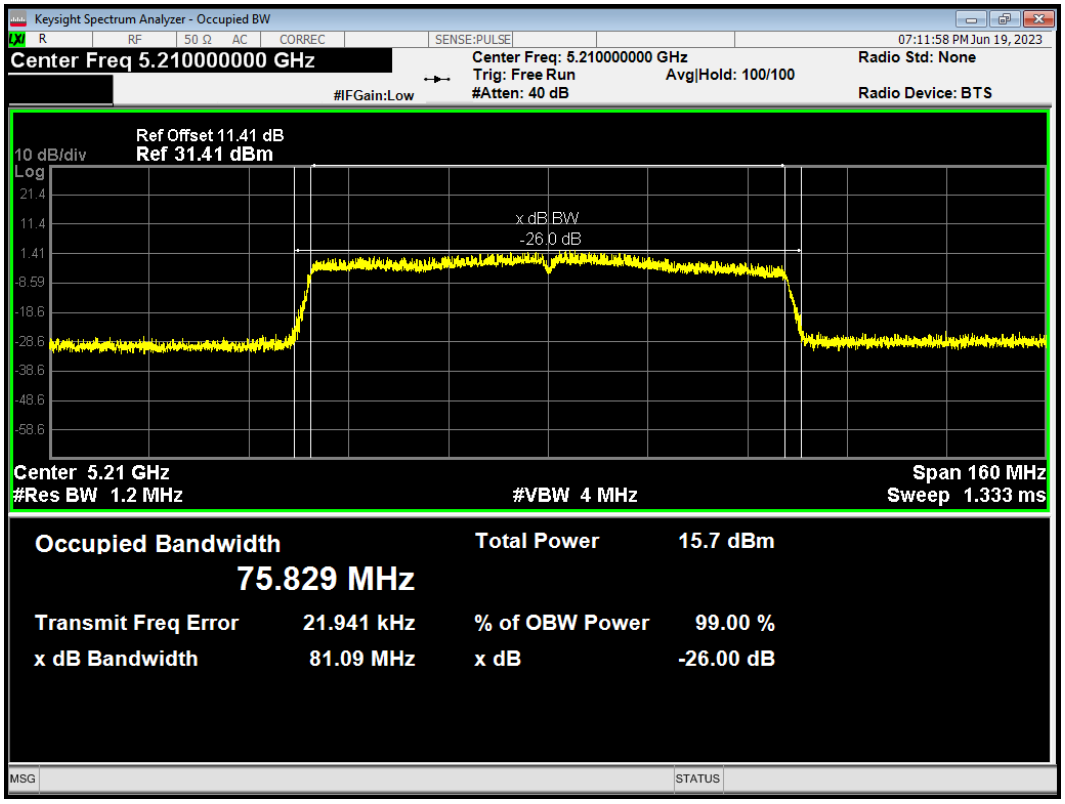

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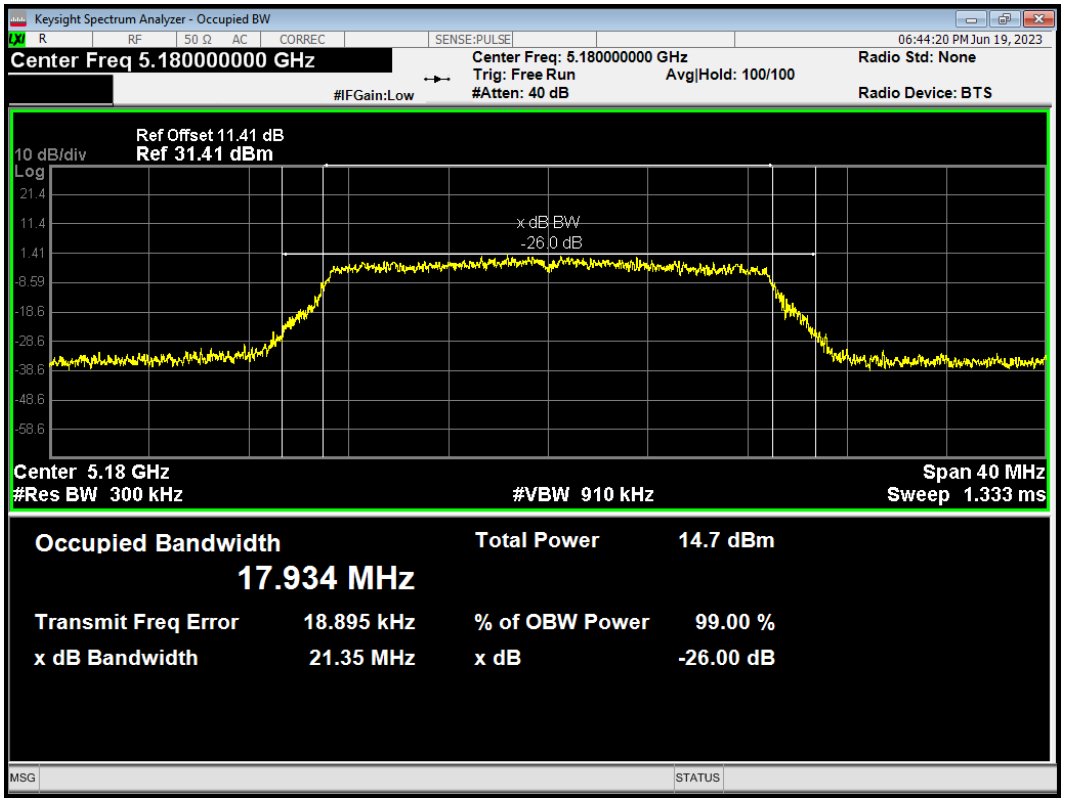

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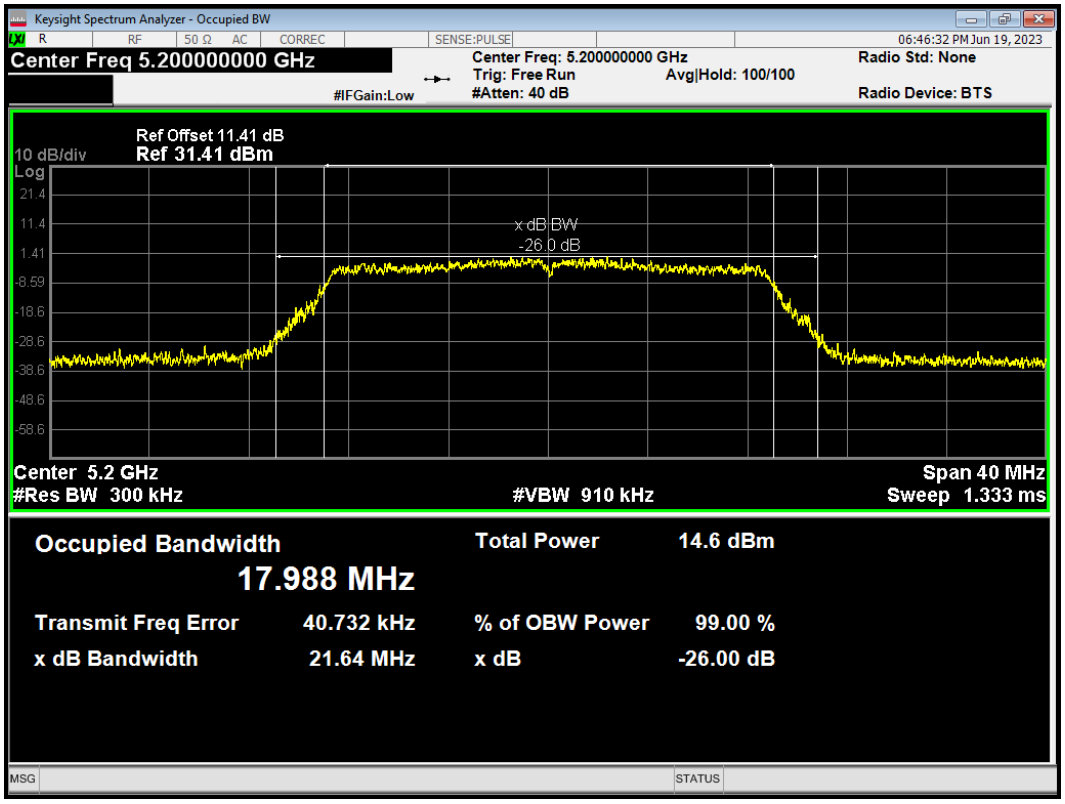

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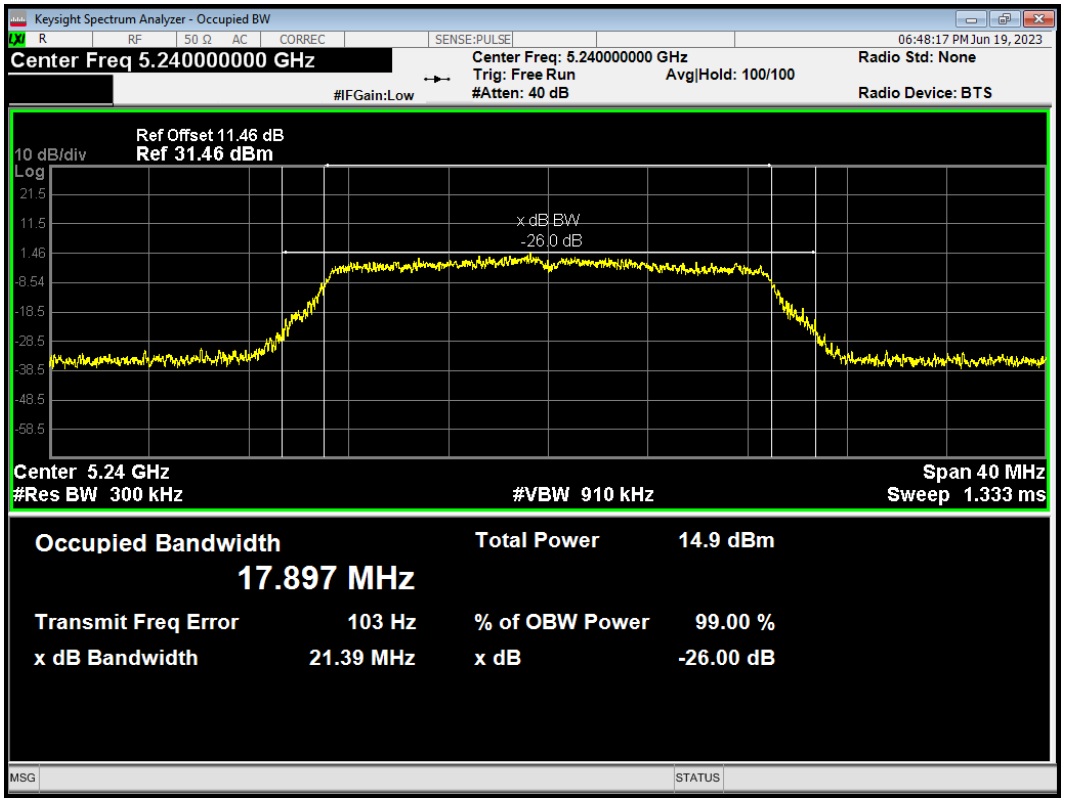

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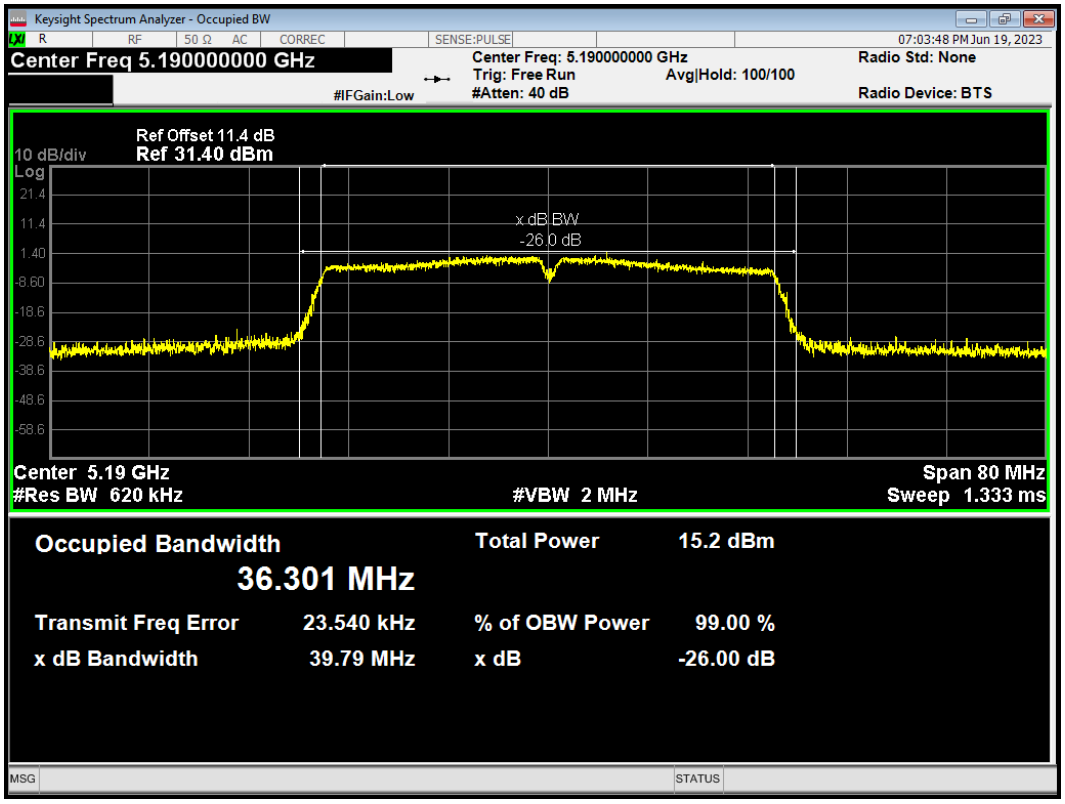

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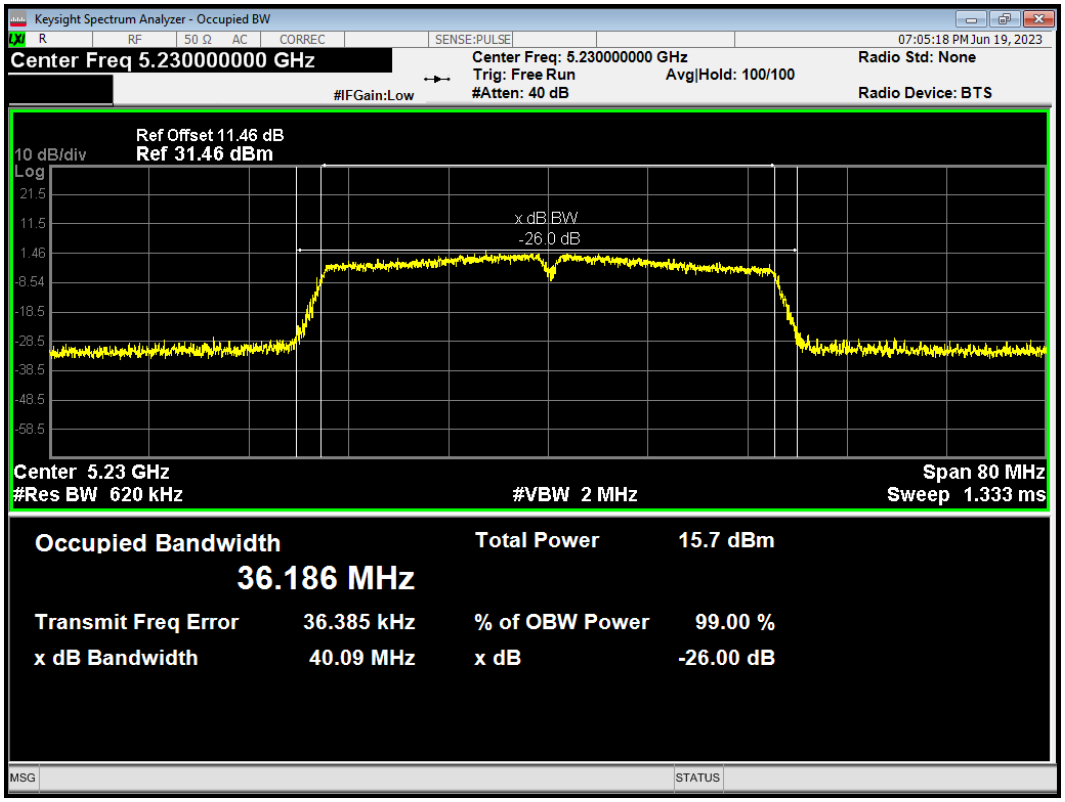
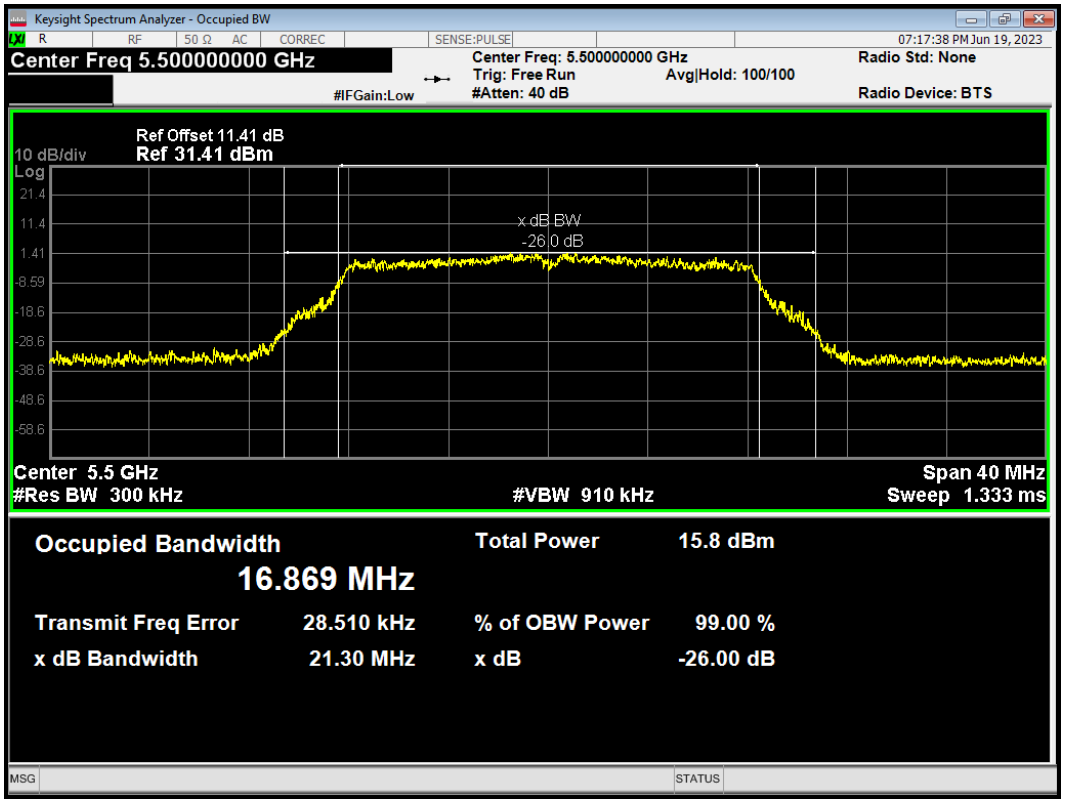


U-NII-2C

OBW 802.11a 5500MHz



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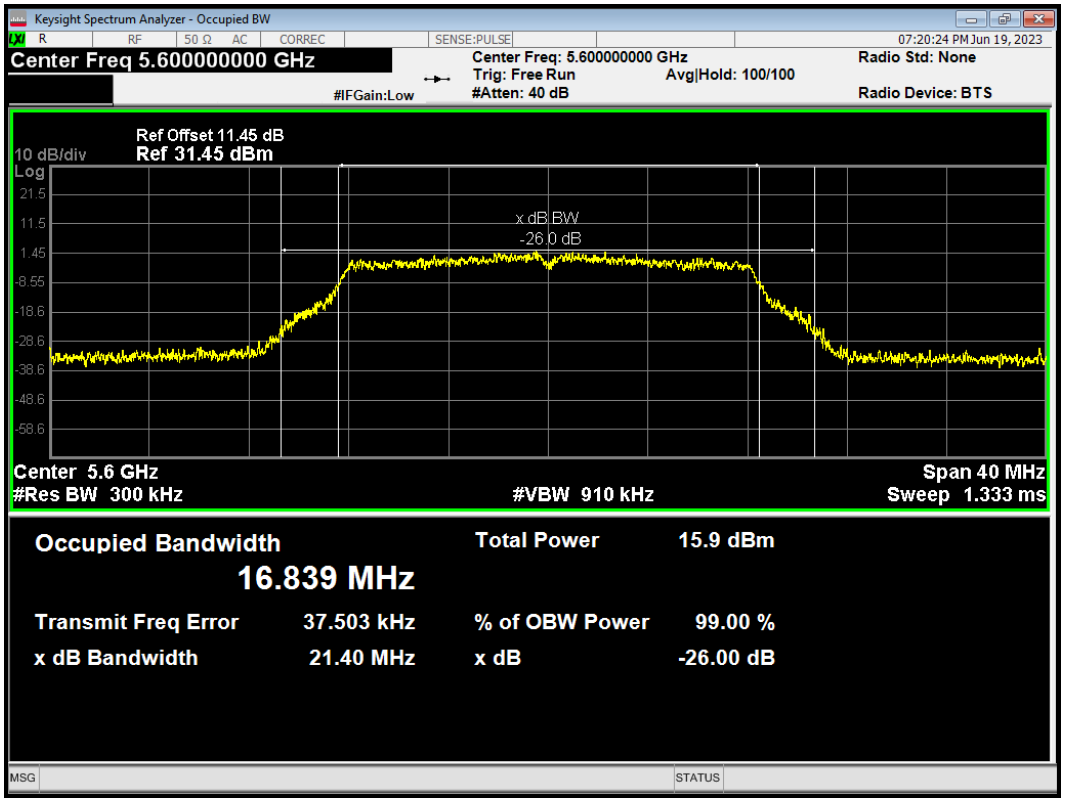

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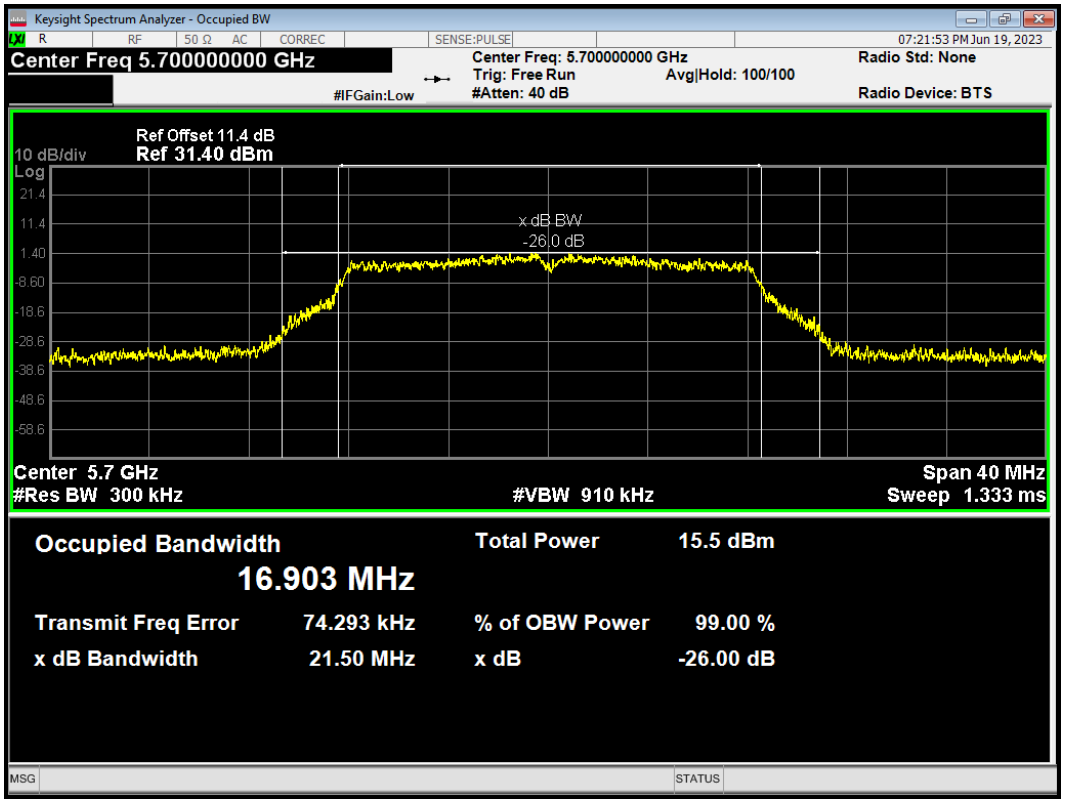

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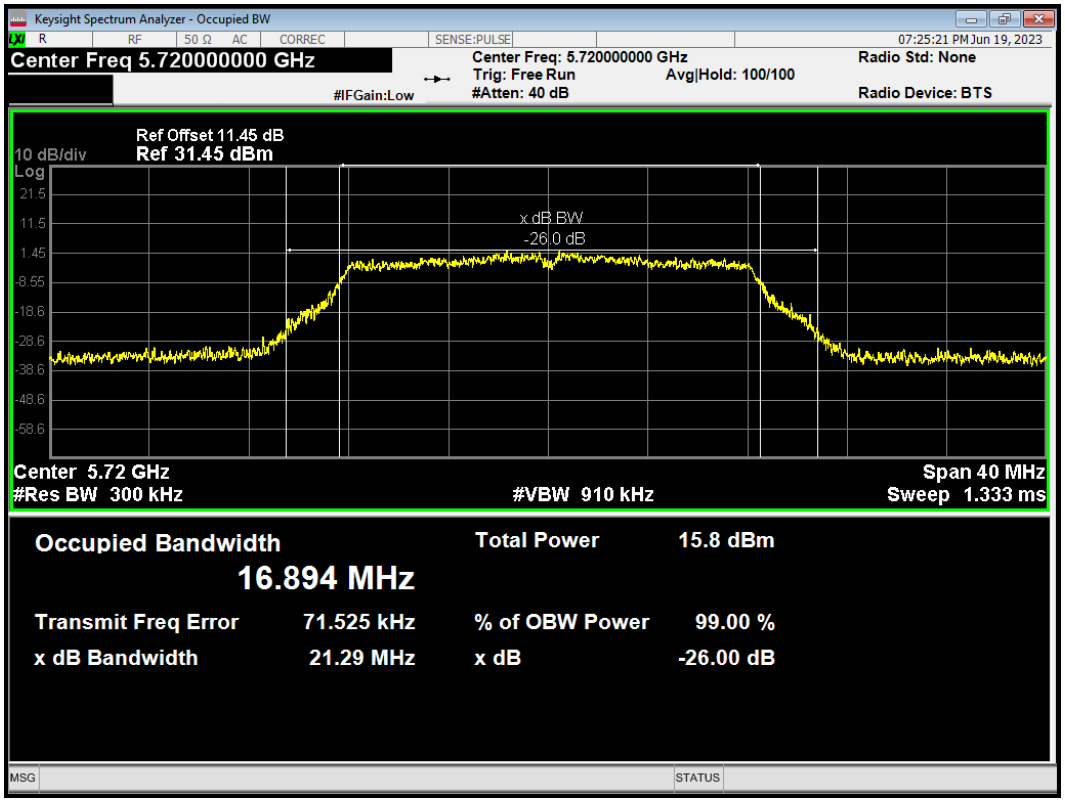
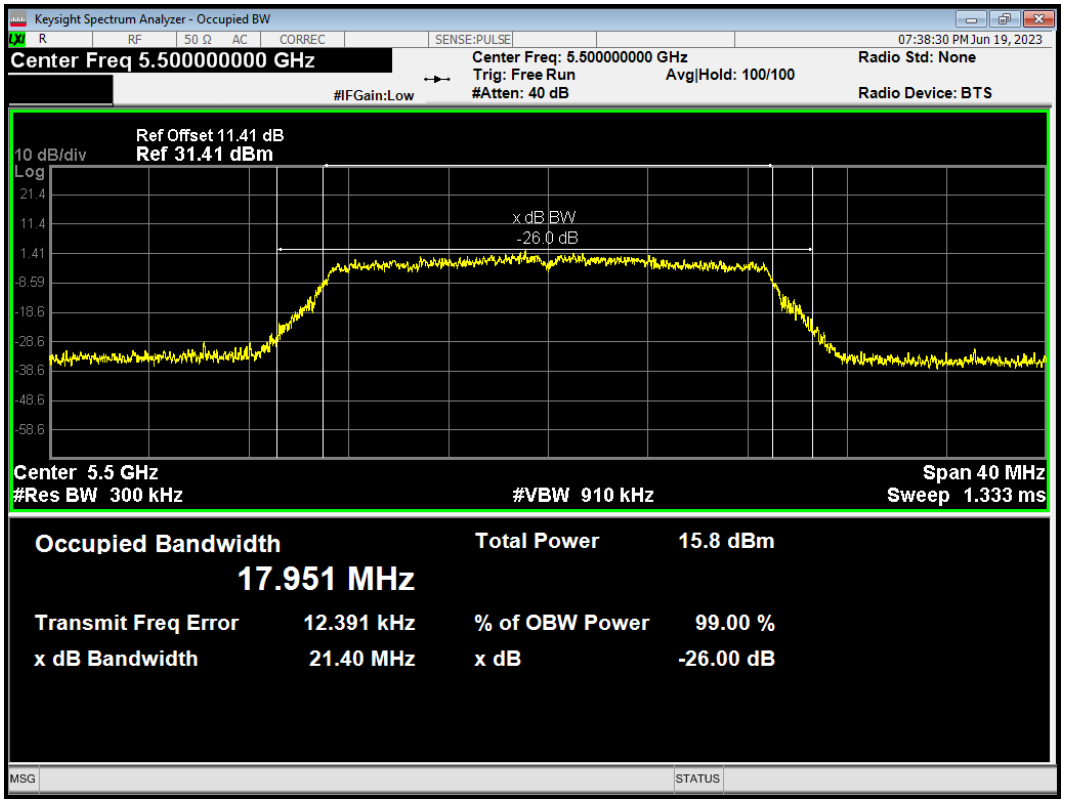


OBW 802.11ac(VHT20) 5500MHz



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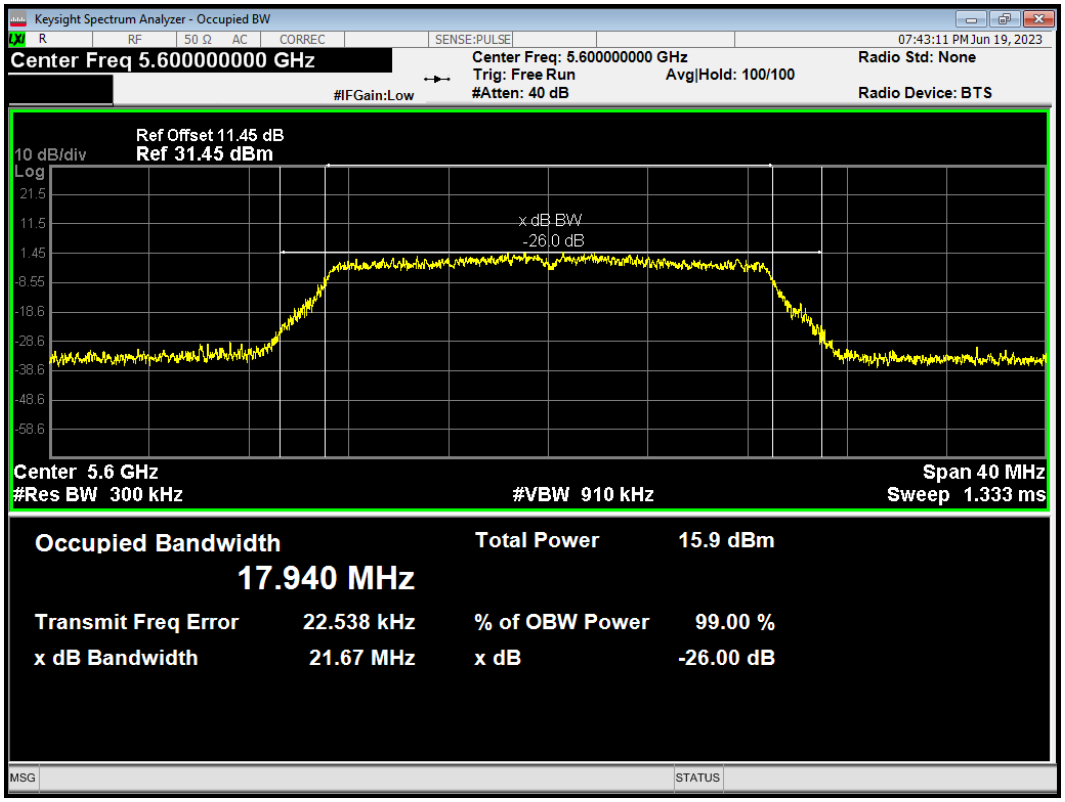

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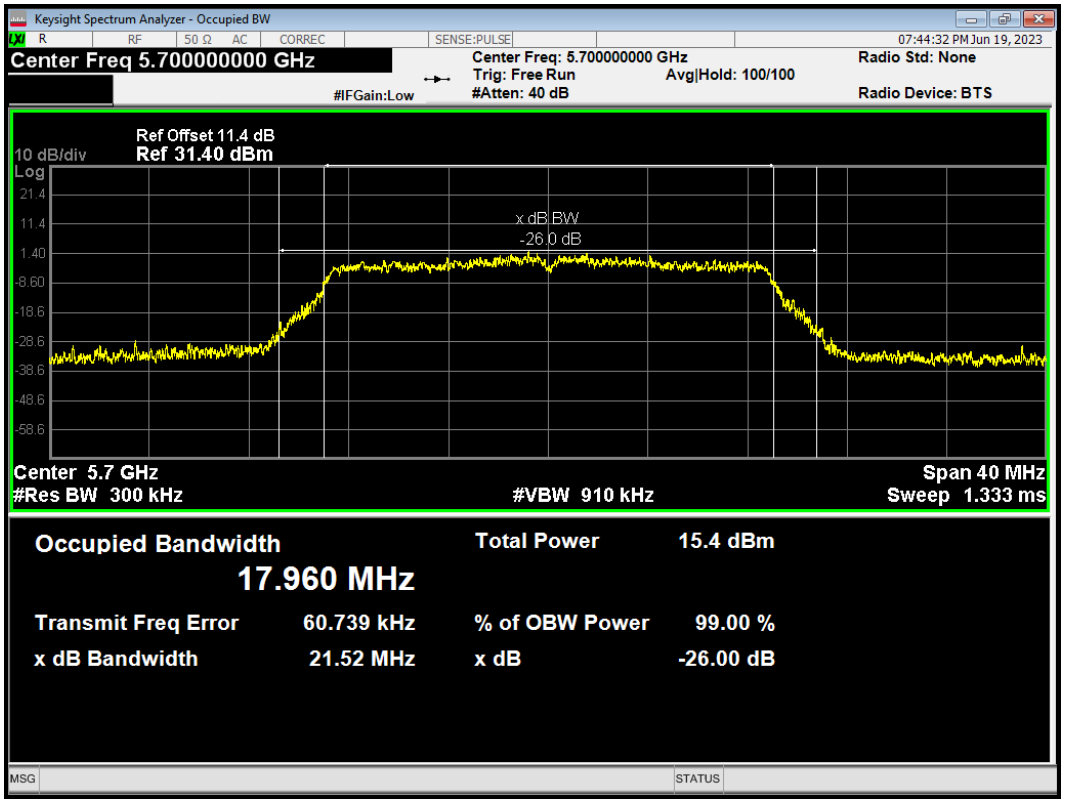

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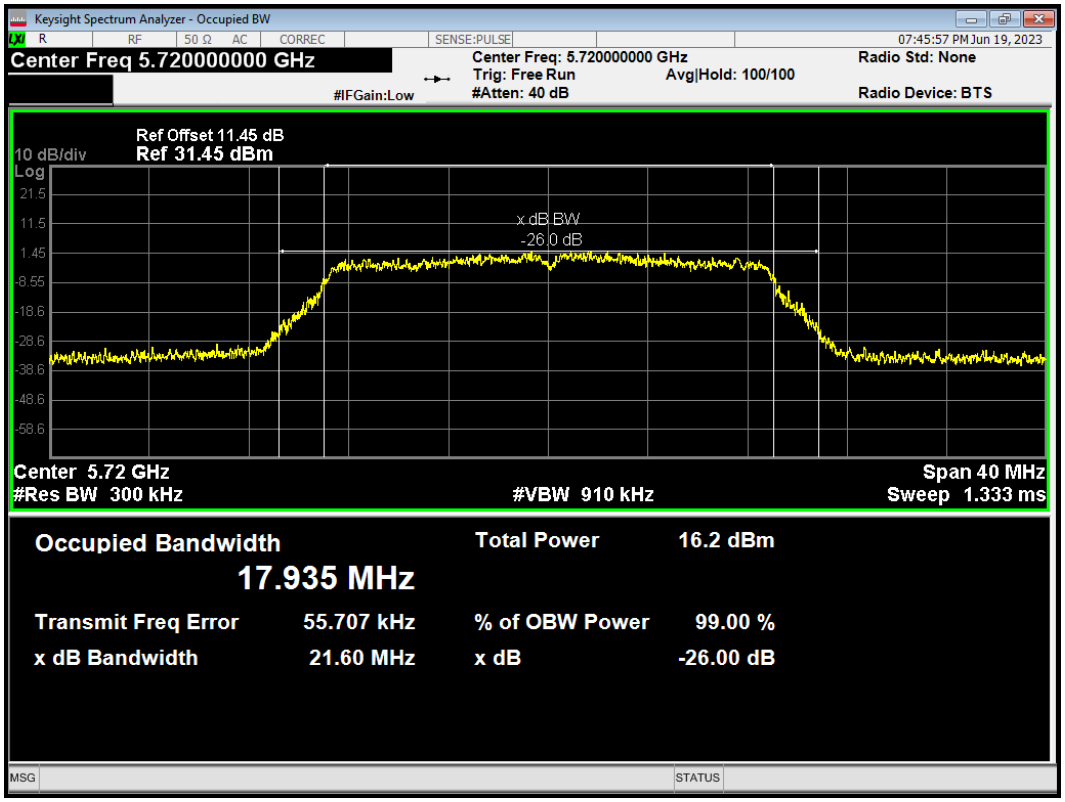

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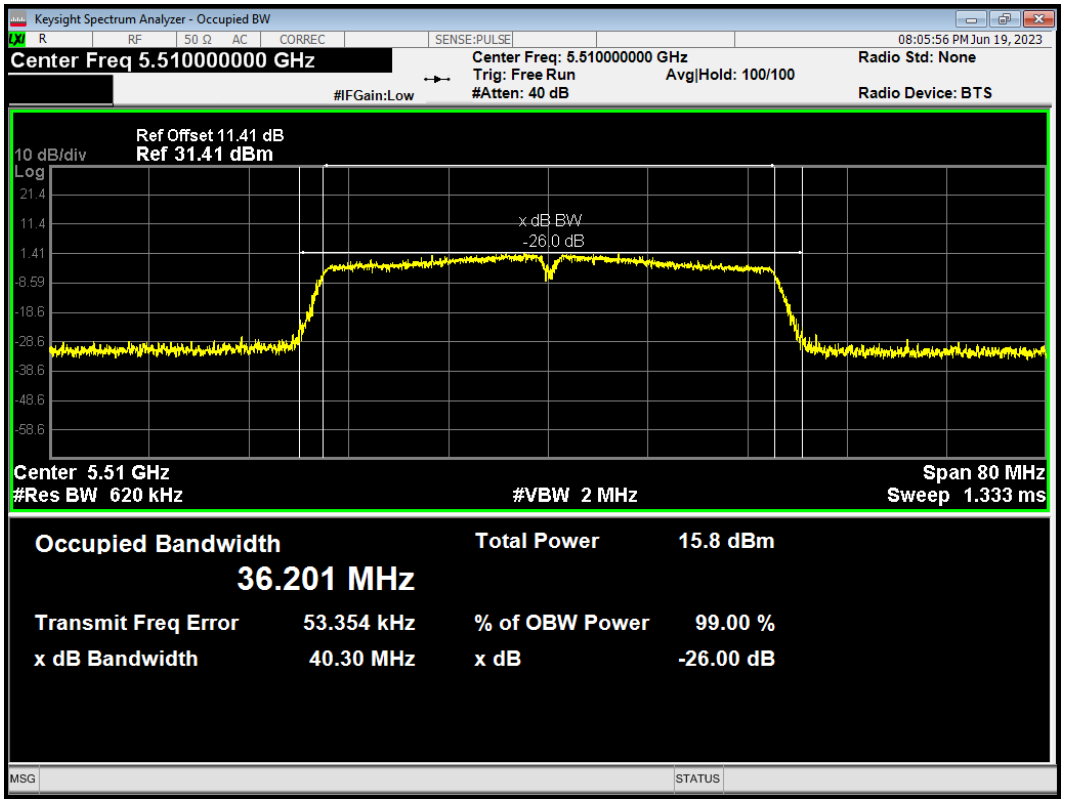

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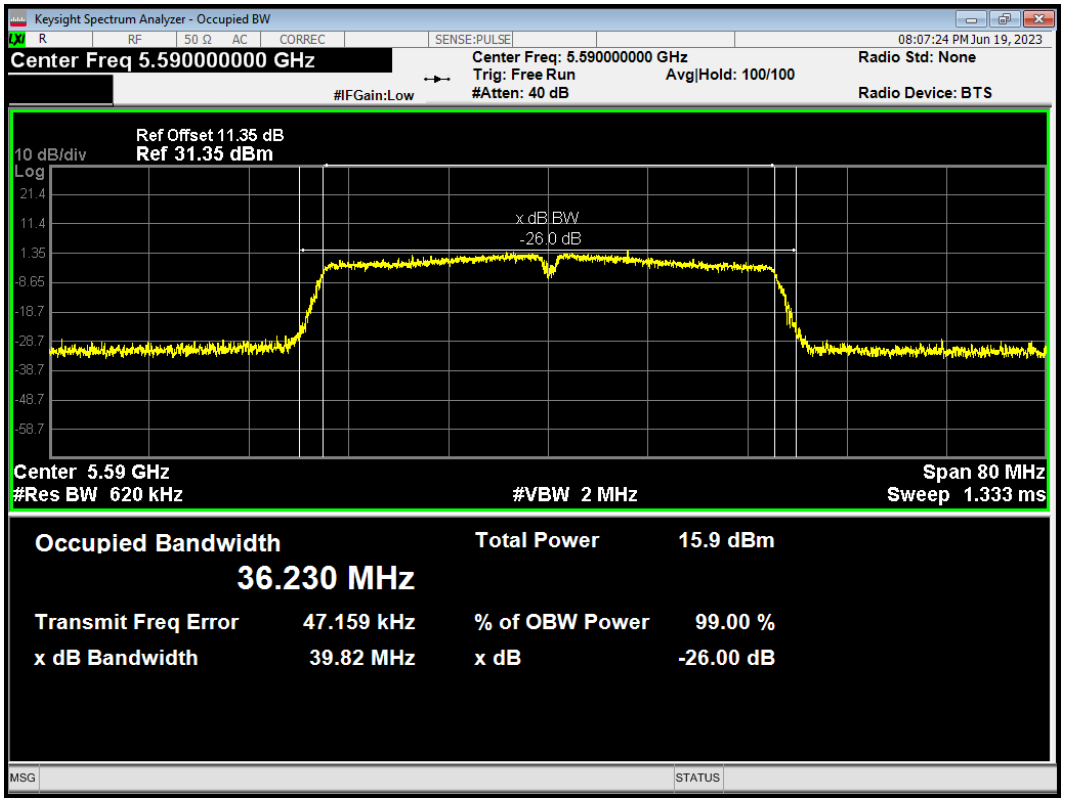

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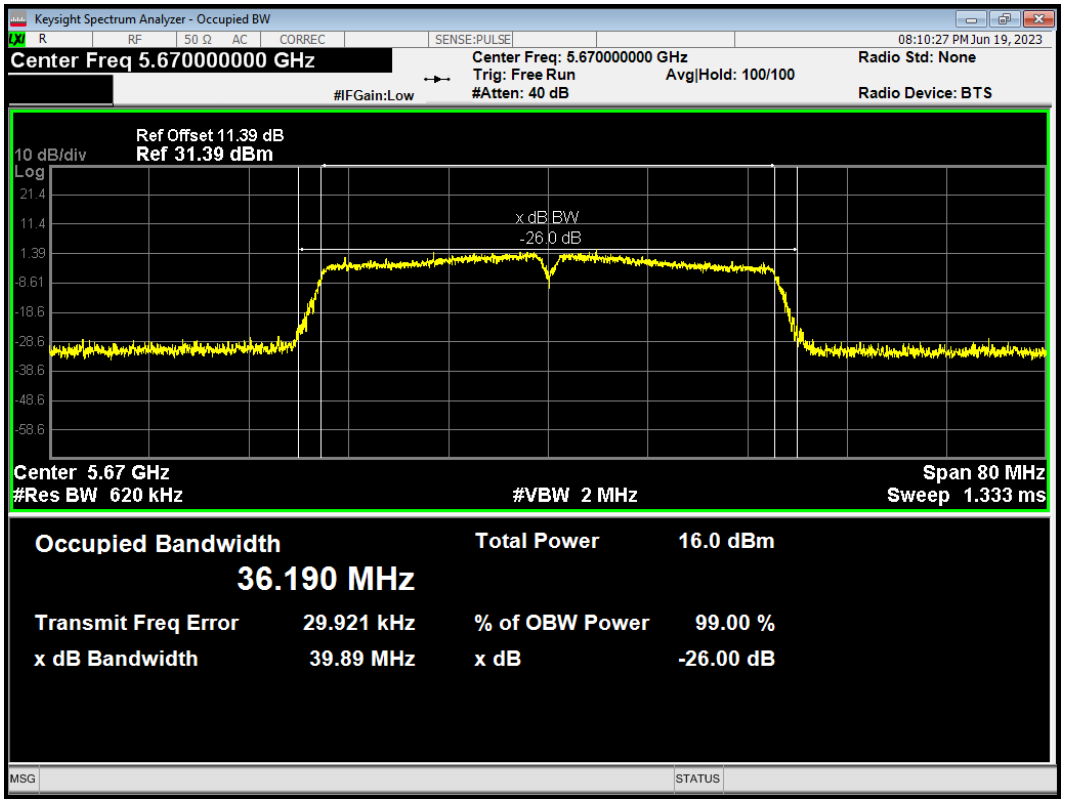

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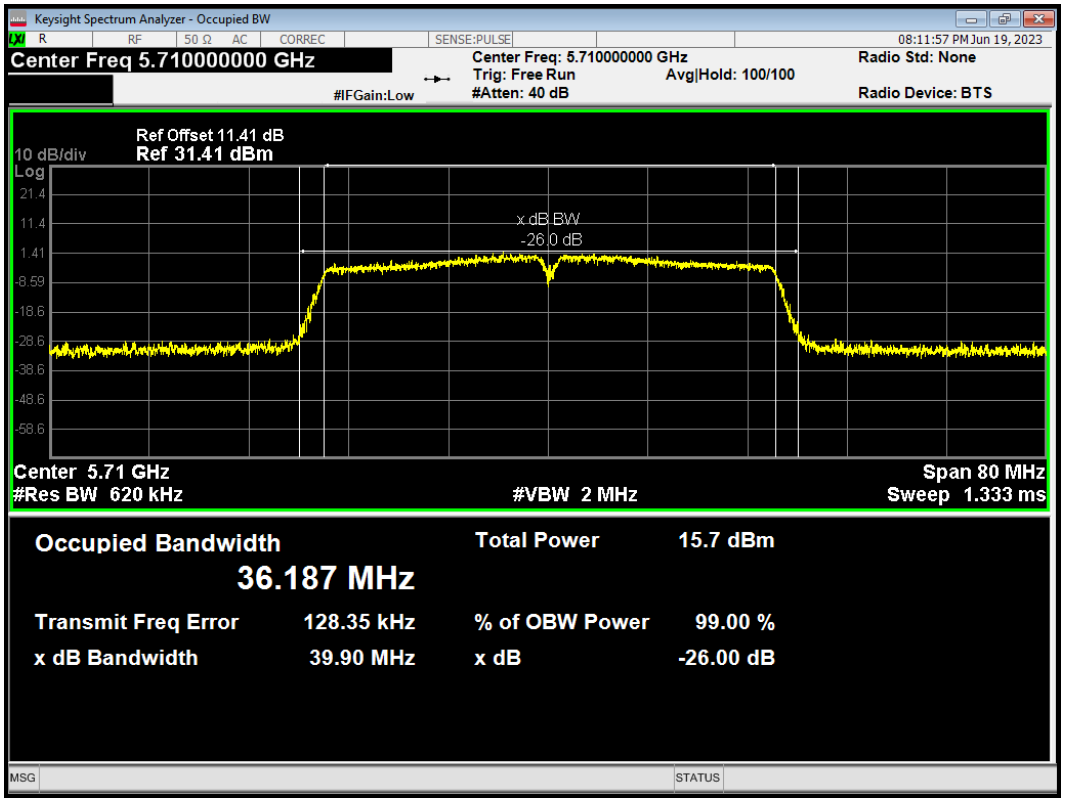
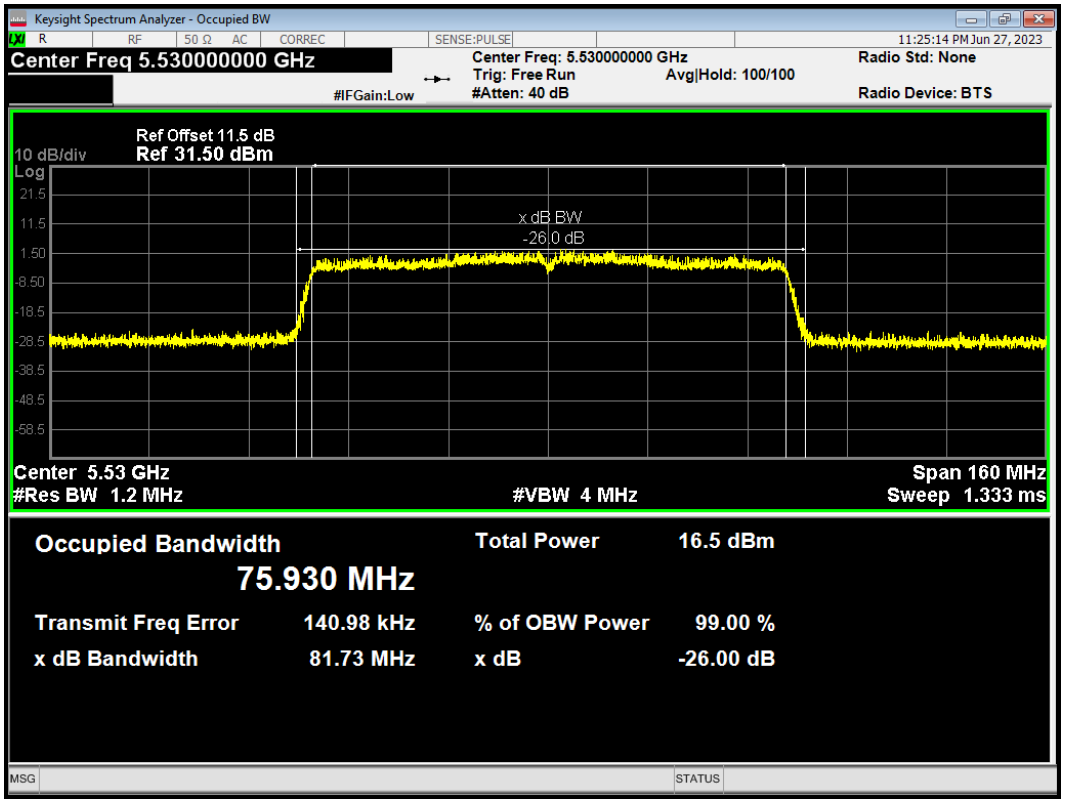
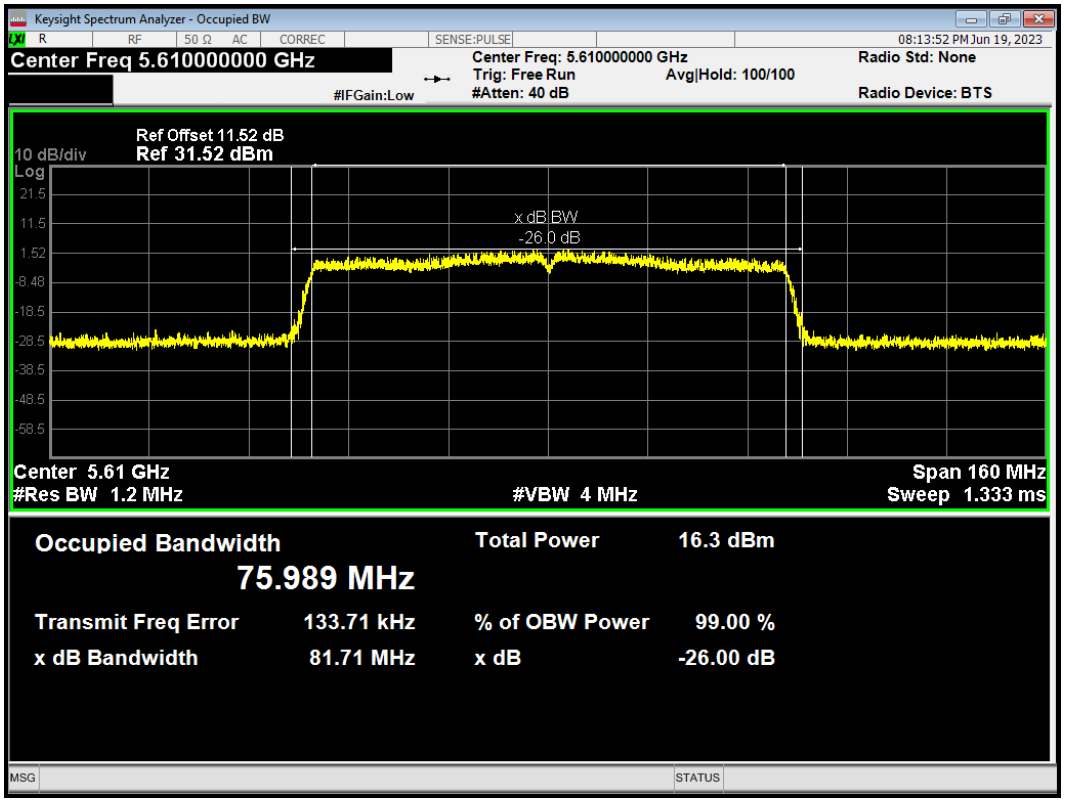


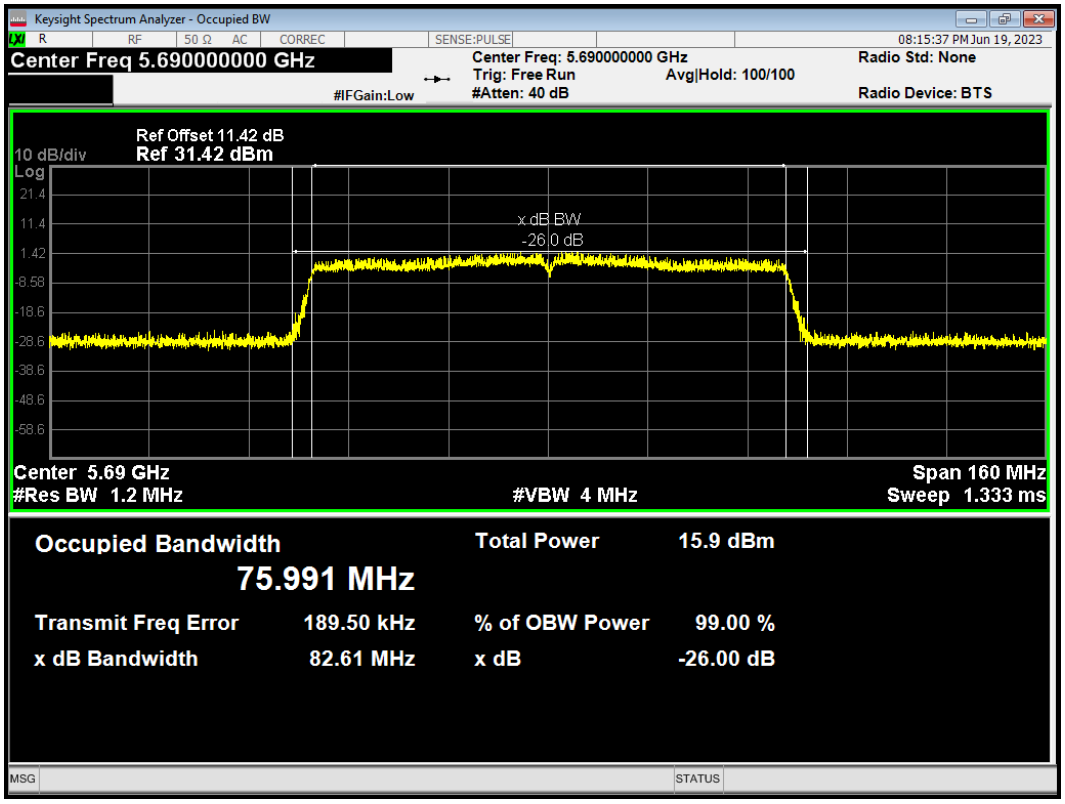
OBW 802.11ac(VHT80) 5530MHz



OBW 802.11ac(VHT80) 5610MHz



OBW 802.11ac(VHT80) 5690MHz



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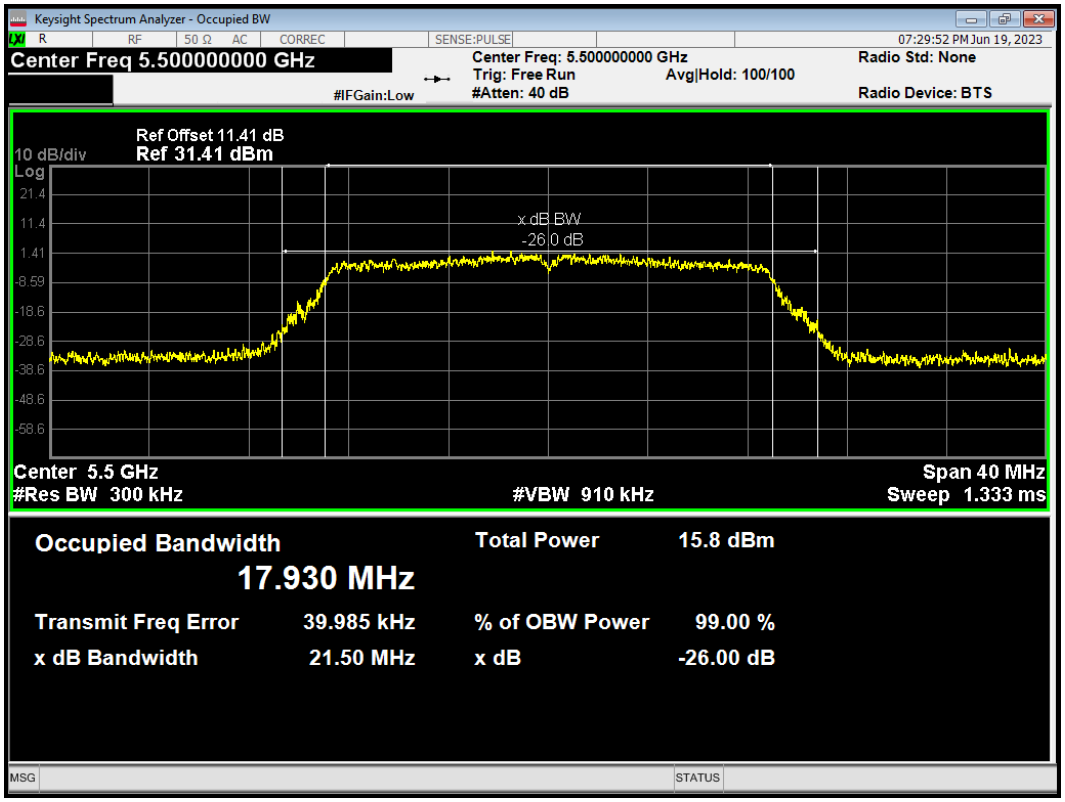

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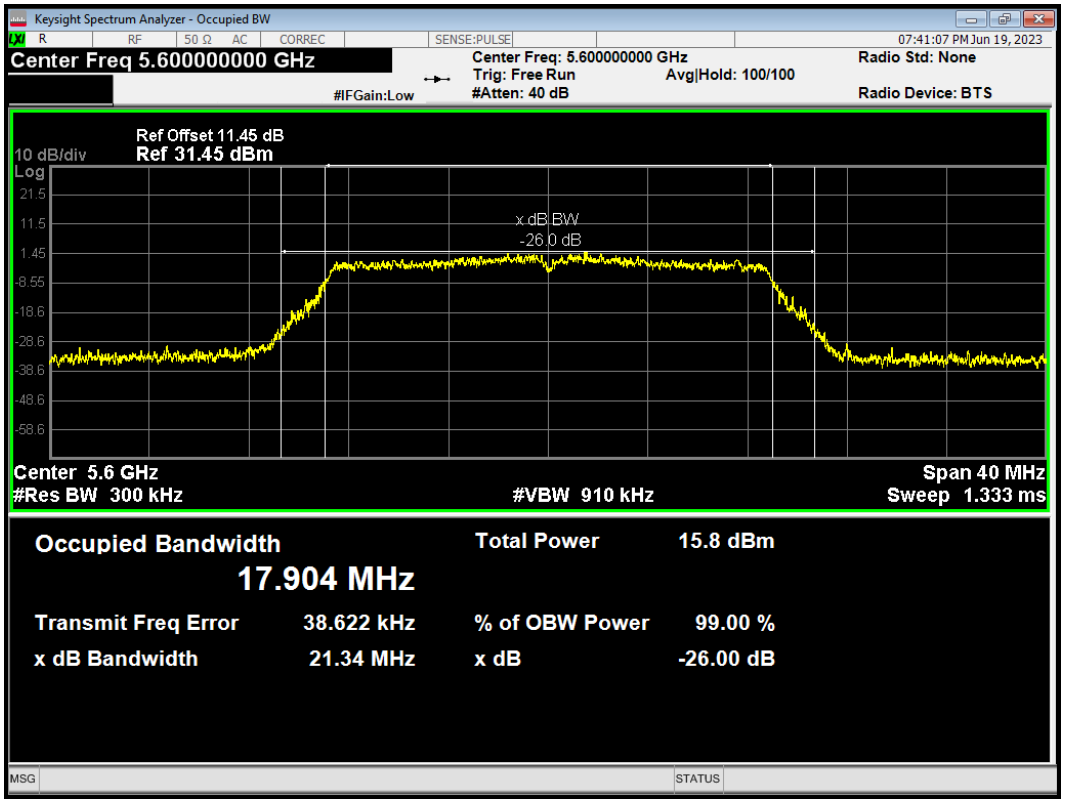

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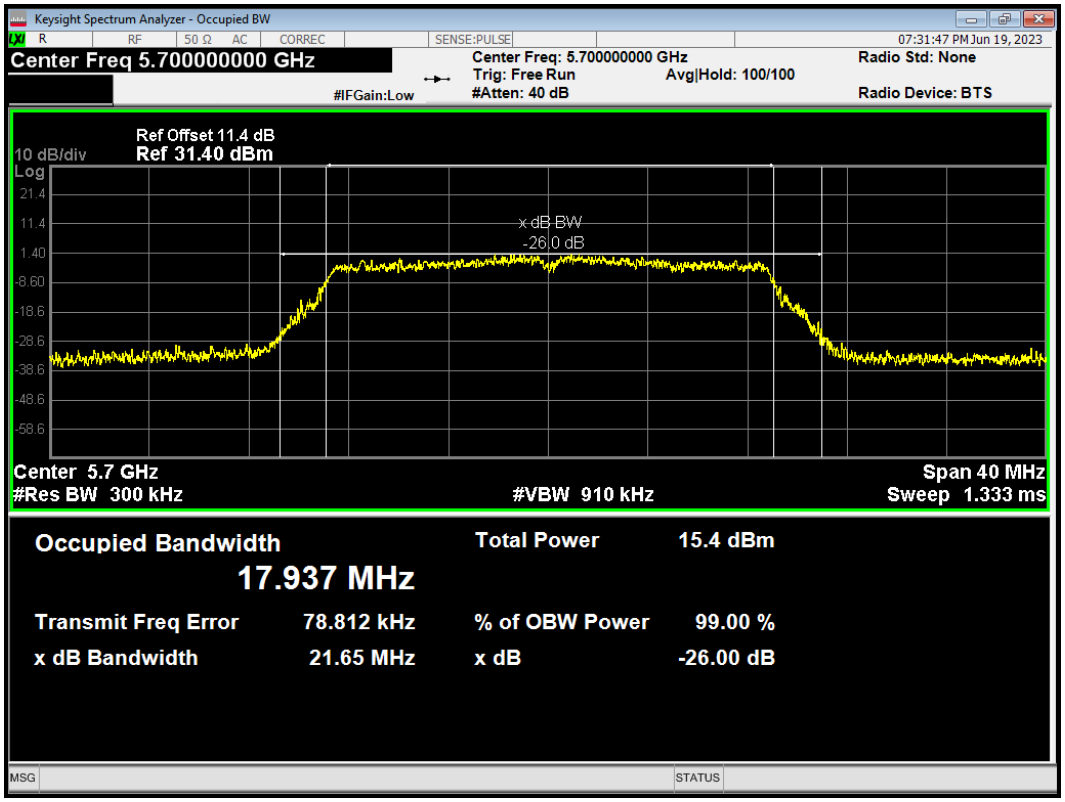
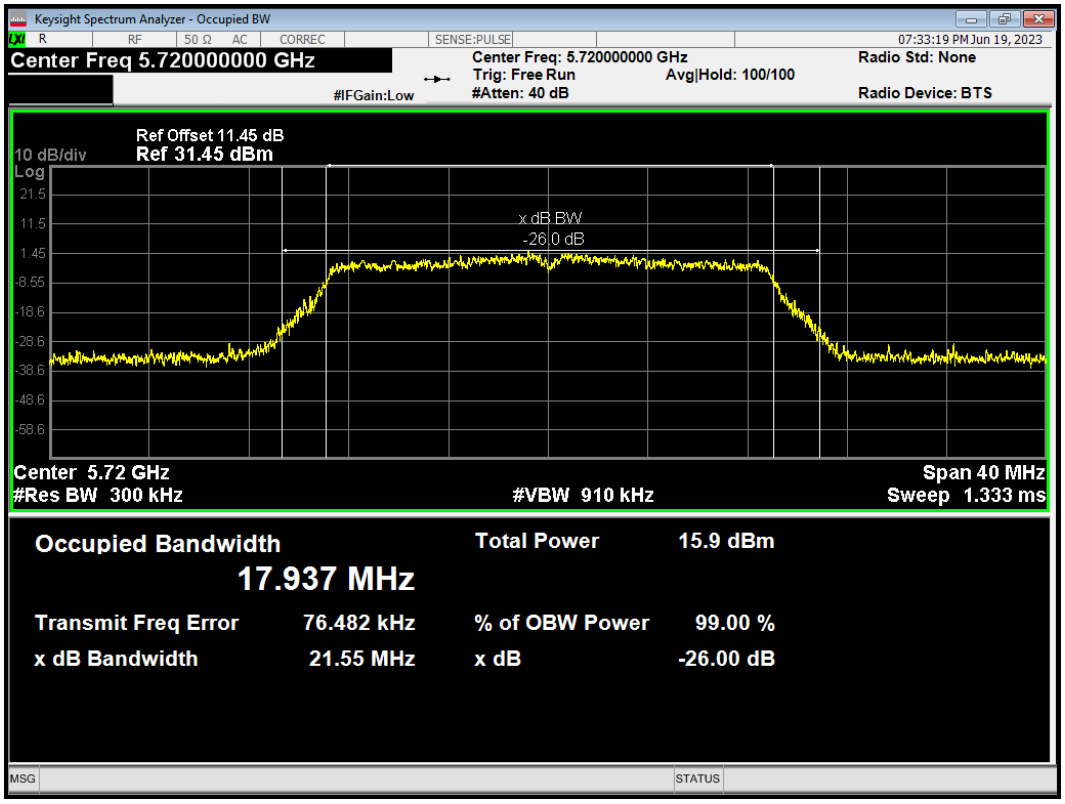
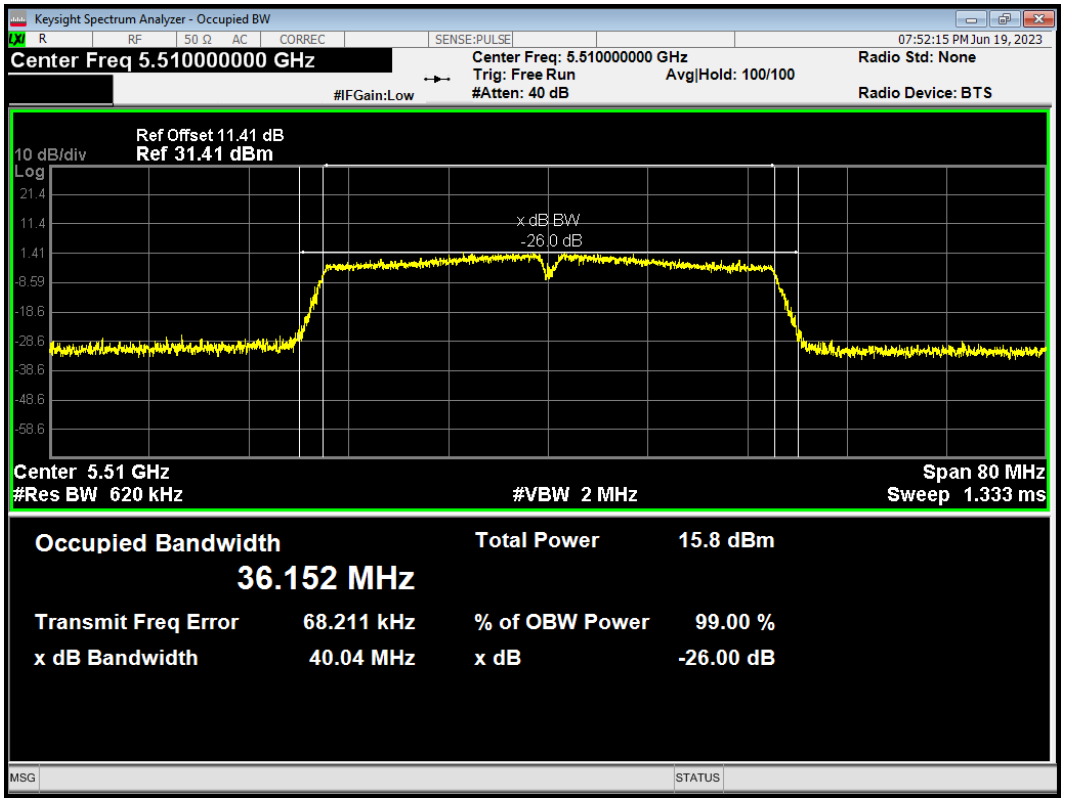


OBW 802.11n(HT20) 5720MHz



OBW 802.11n(HT40) 5510MHz



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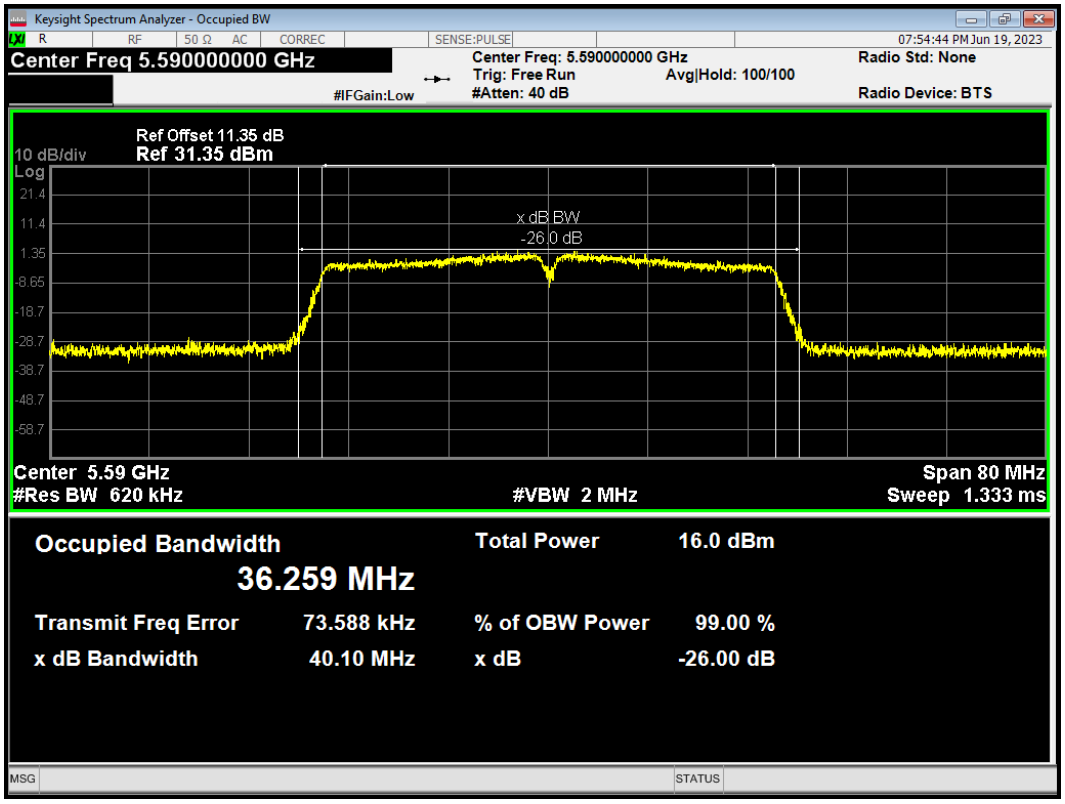

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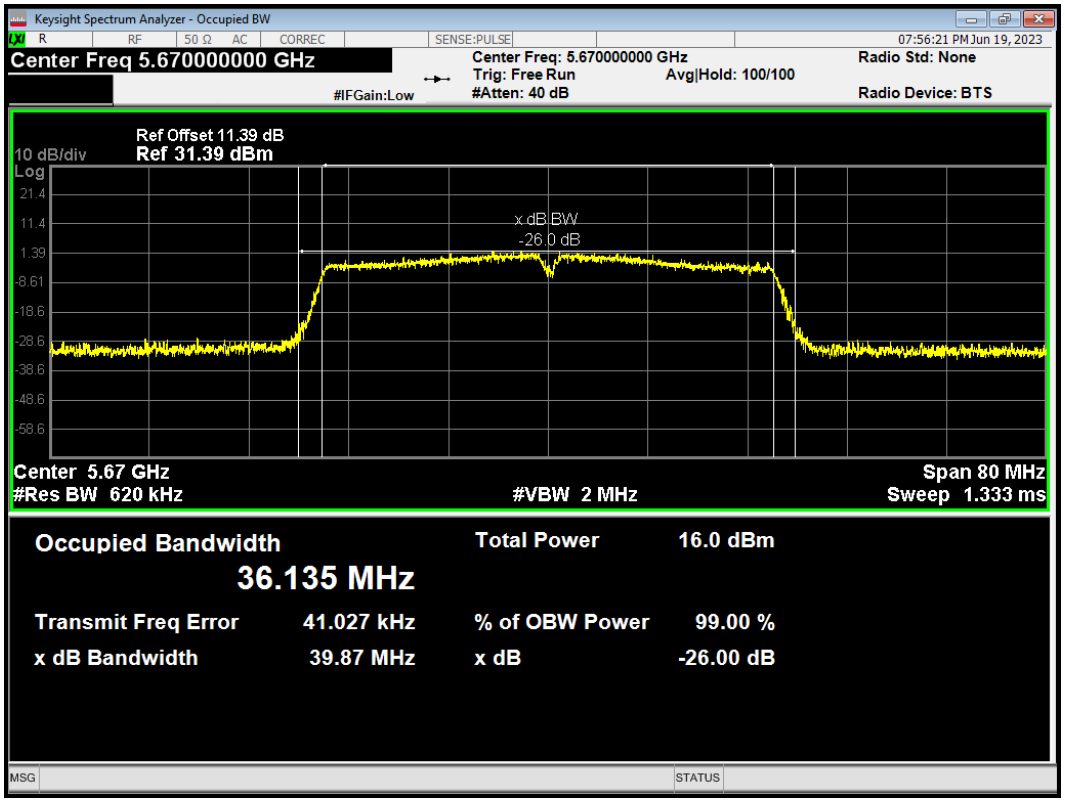
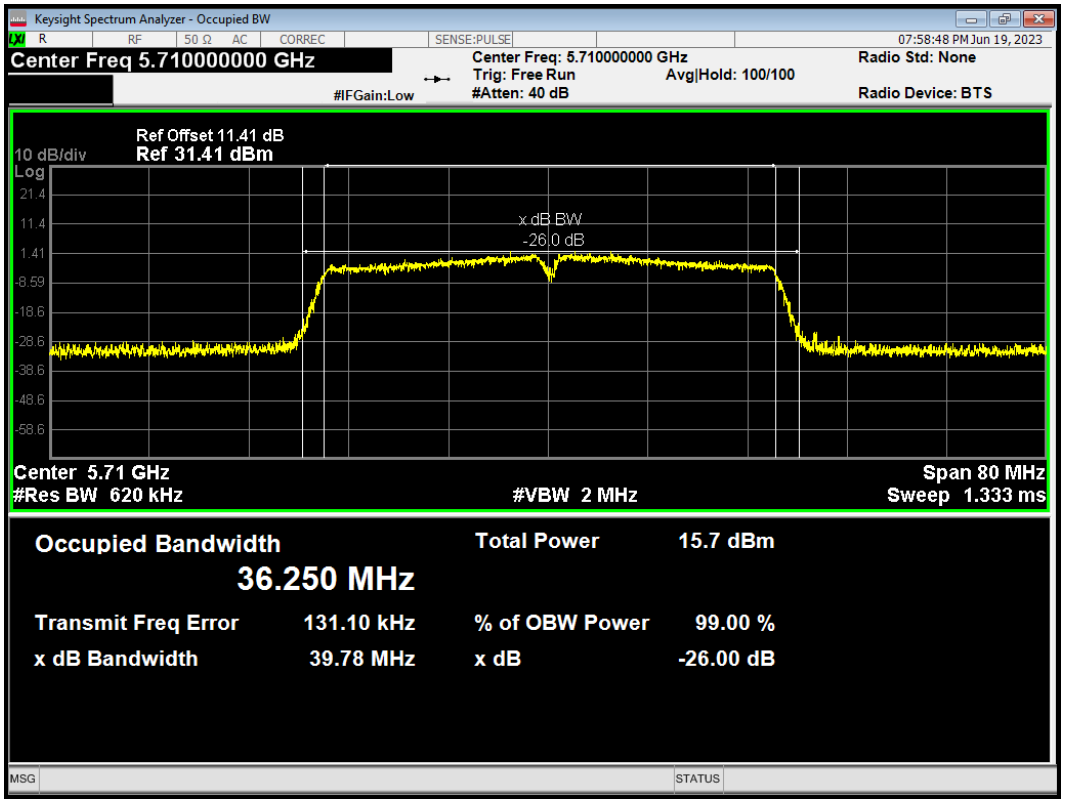
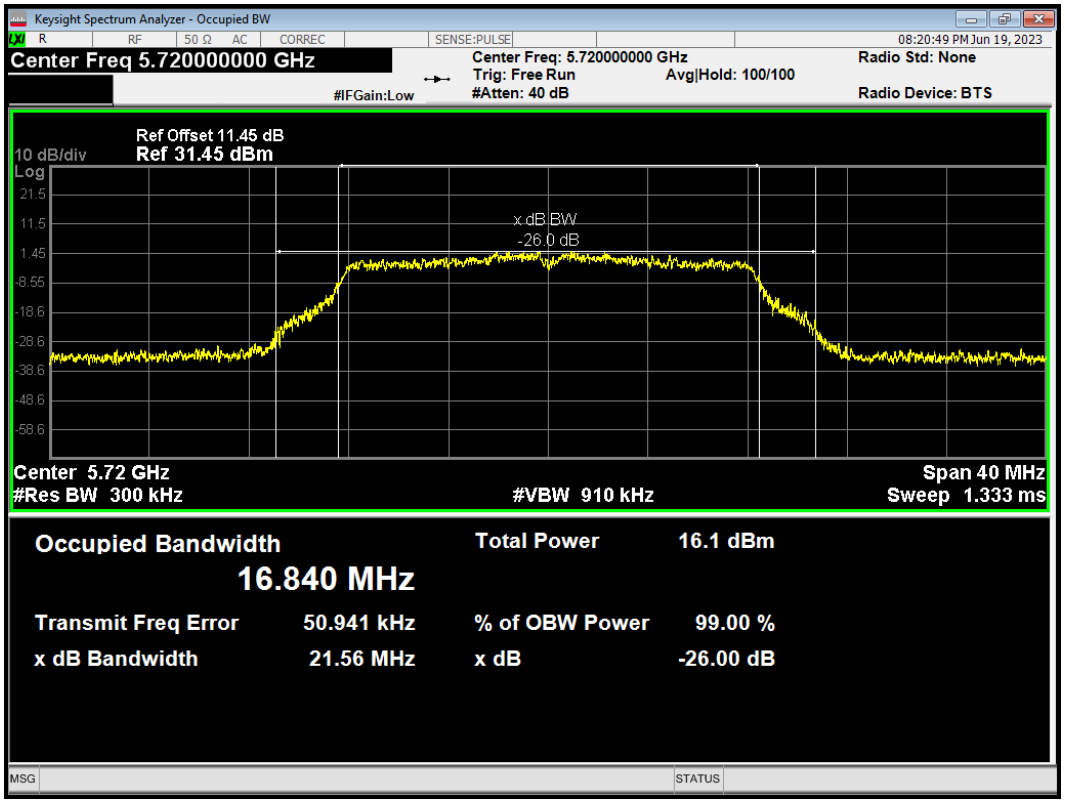


OBW 802.11n(HT40) 5710MHz

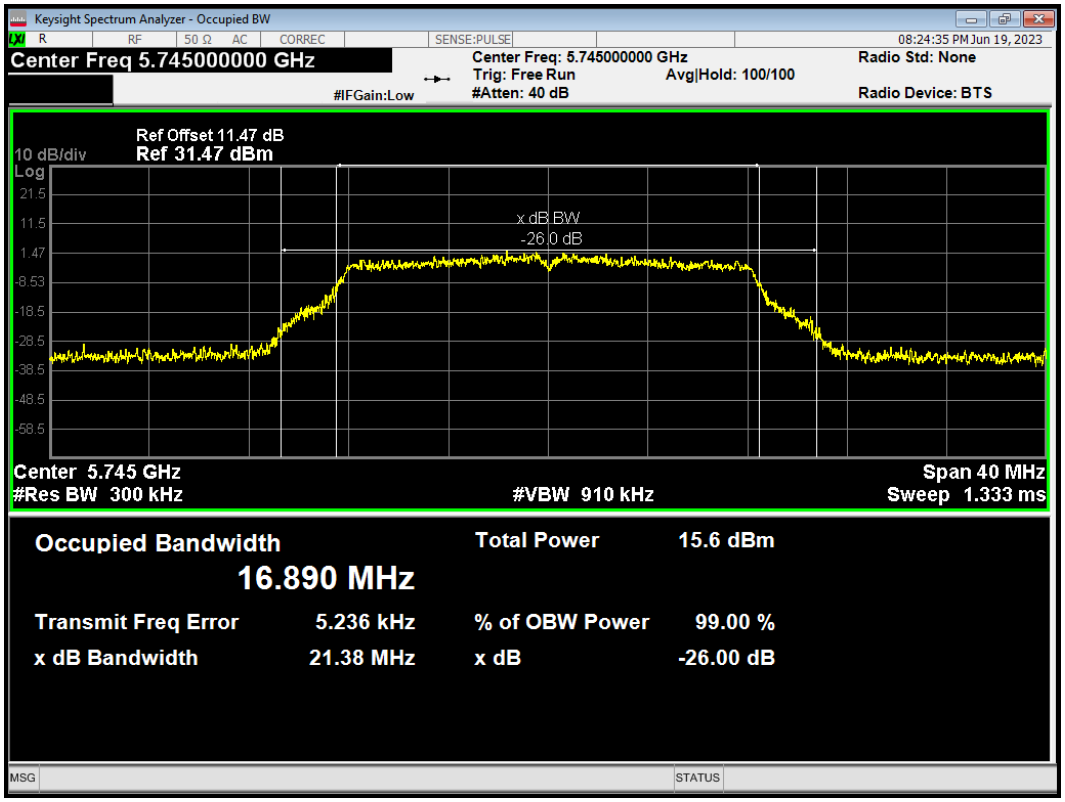


U-NII-3

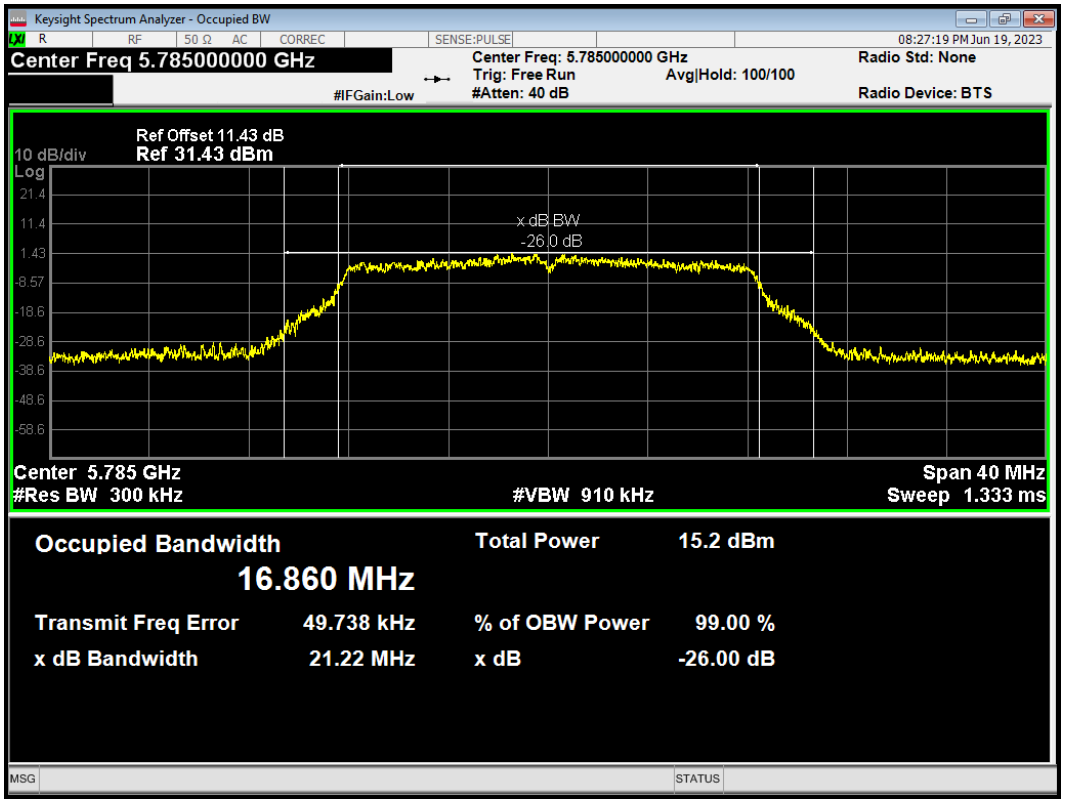
OBW 802.11a 5720MHz



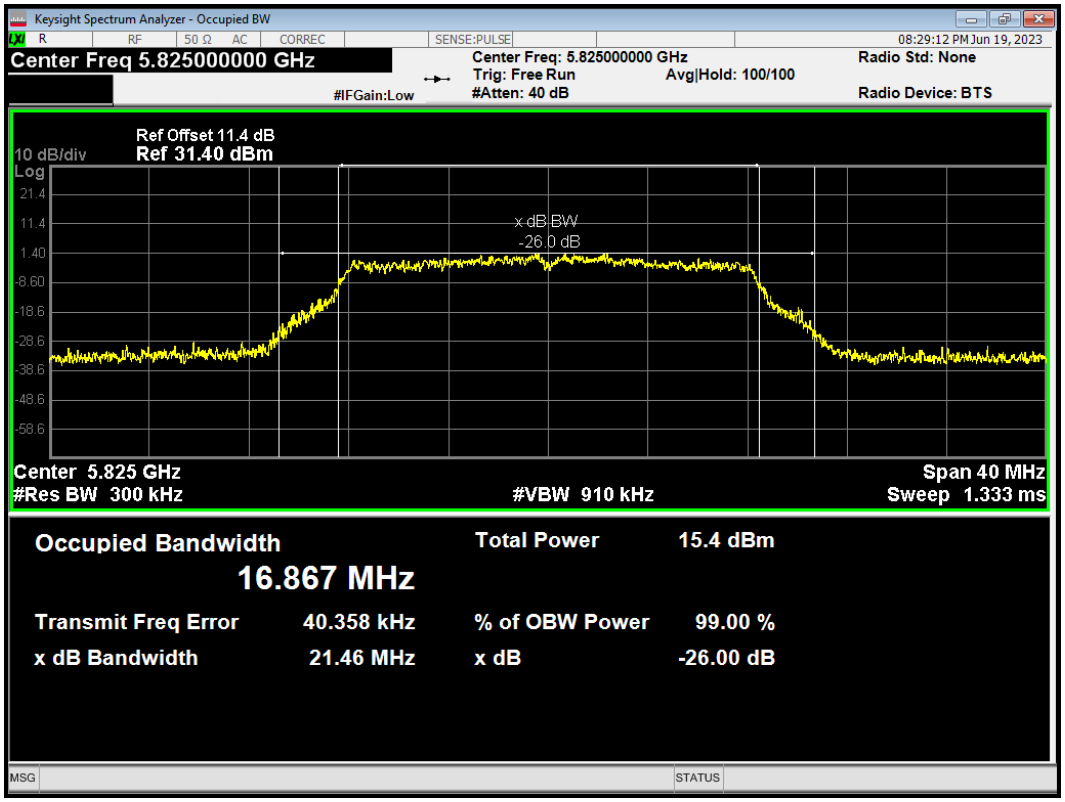
OBW 802.11a 5745MHz



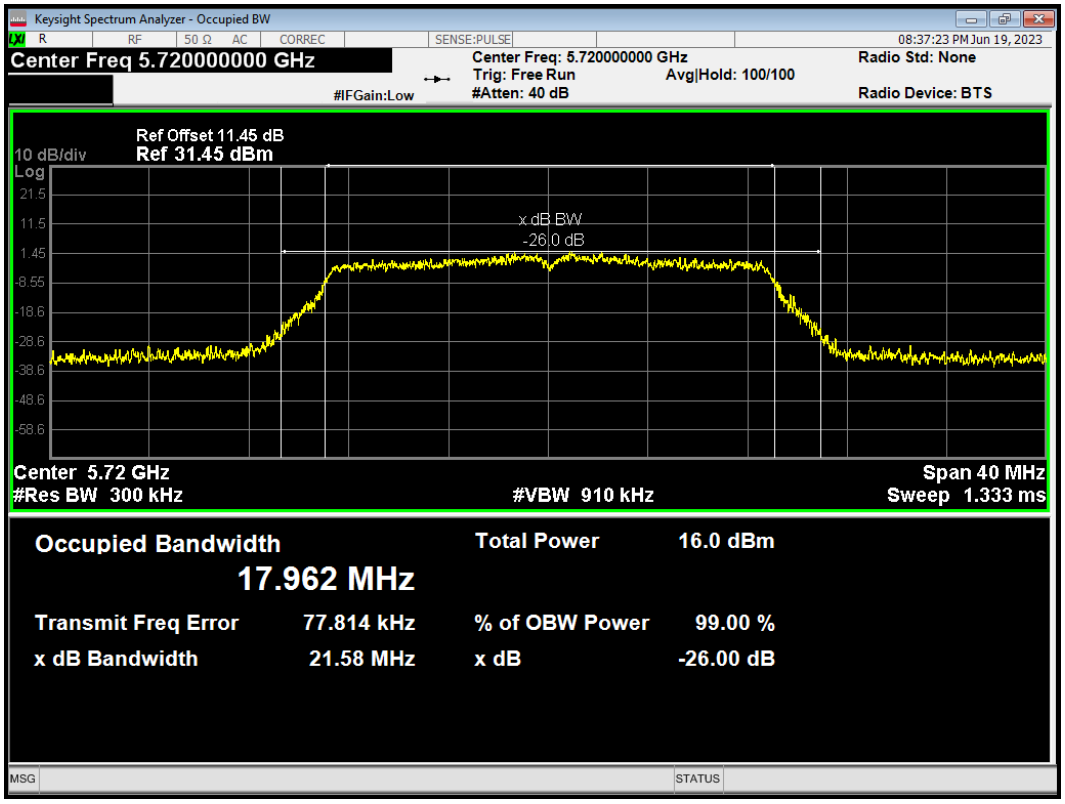
OBW 802.11a 5785MHz



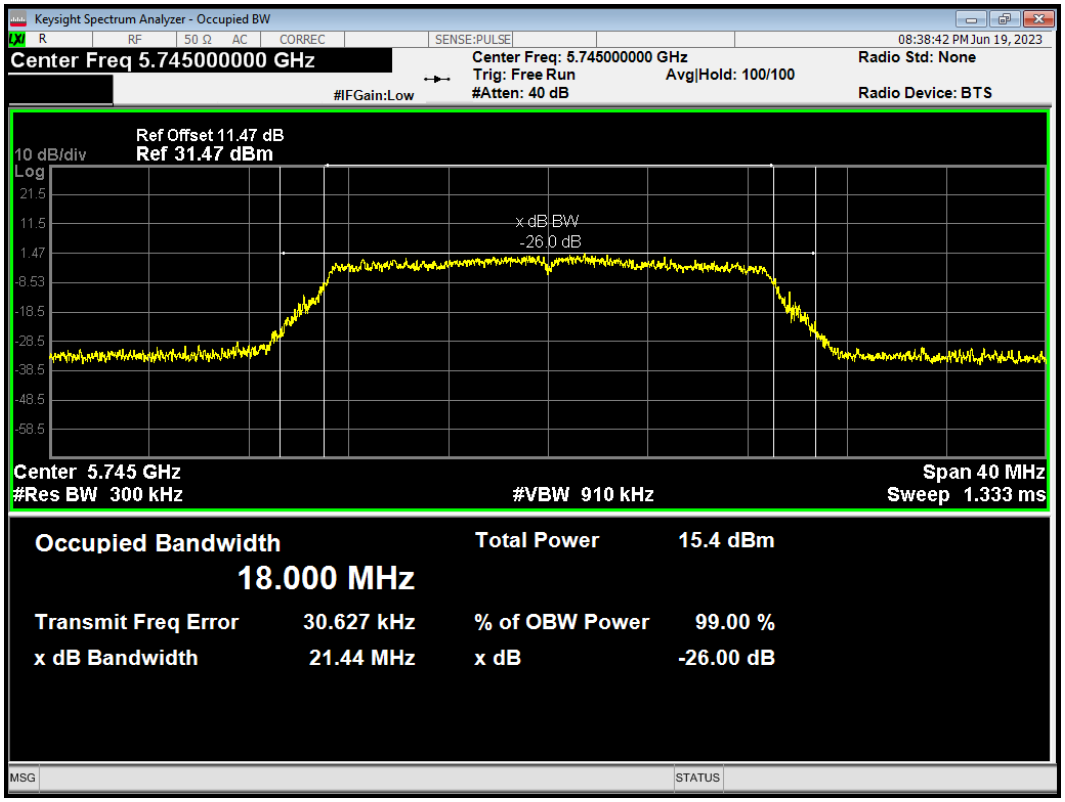
OBW 802.11a 5825MHz



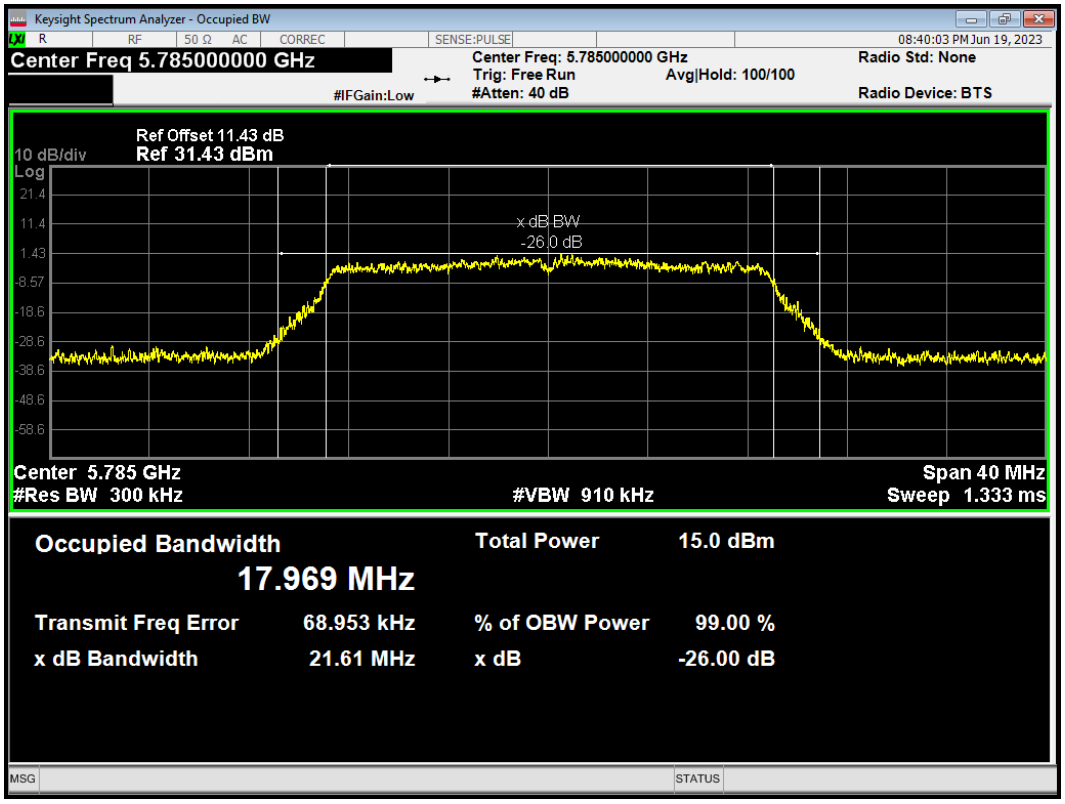
OBW 802.11ac(VHT20) 5720MHz



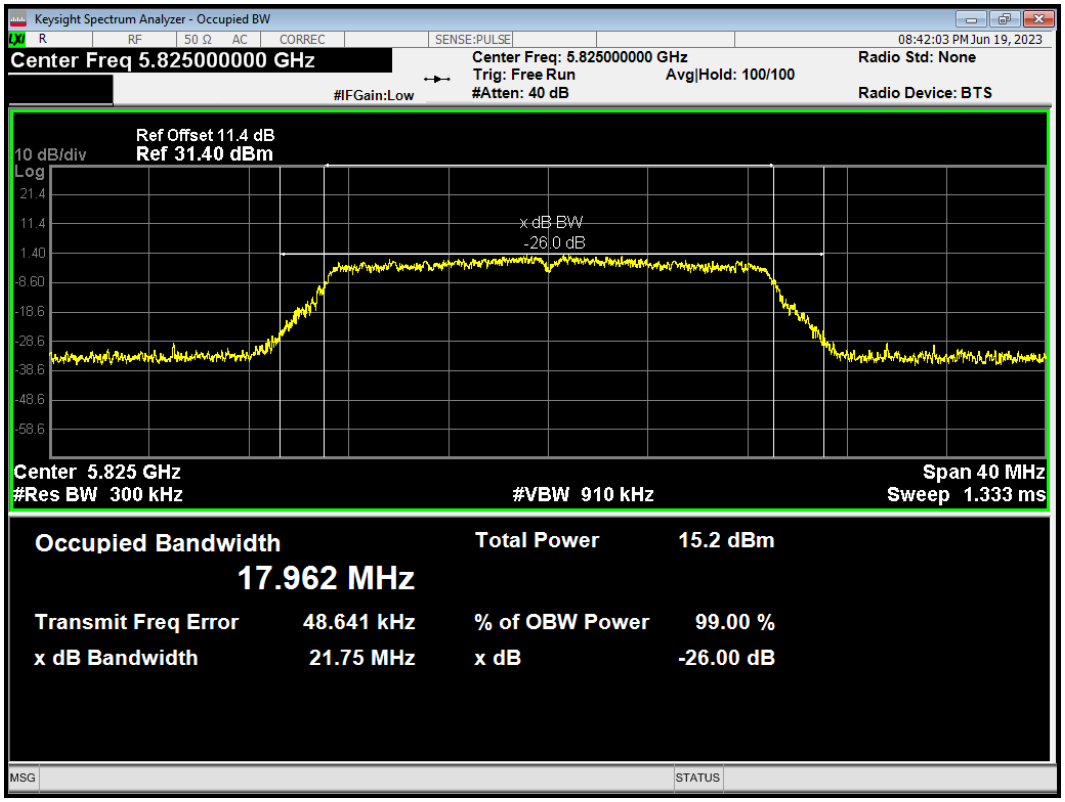
OBW 802.11ac(VHT20) 5745MHz



OBW 802.11ac(VHT20) 5785MHz



OBW 802.11ac(VHT20) 5825MHz



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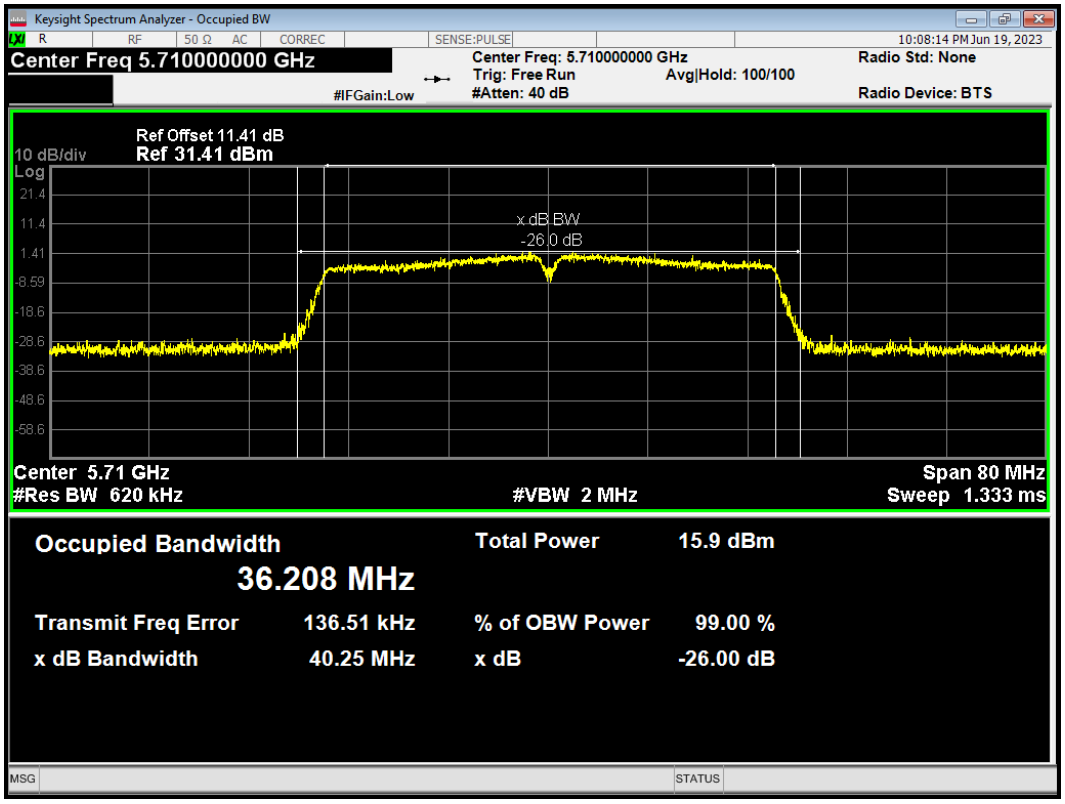
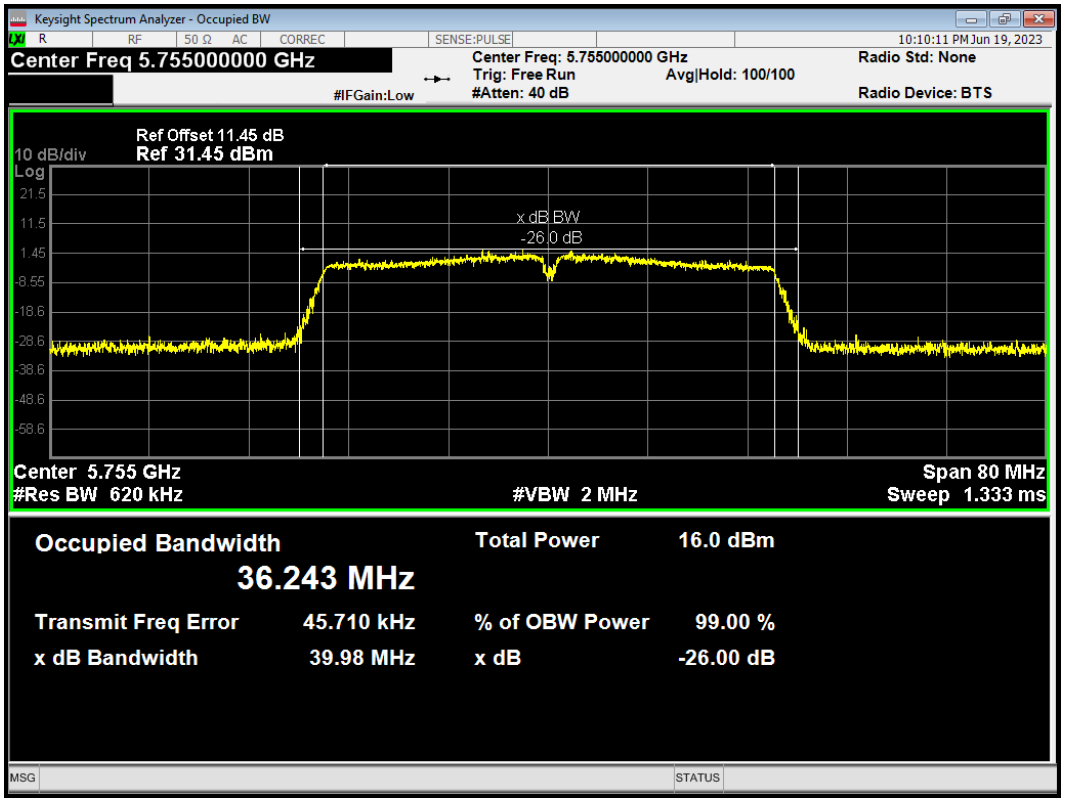
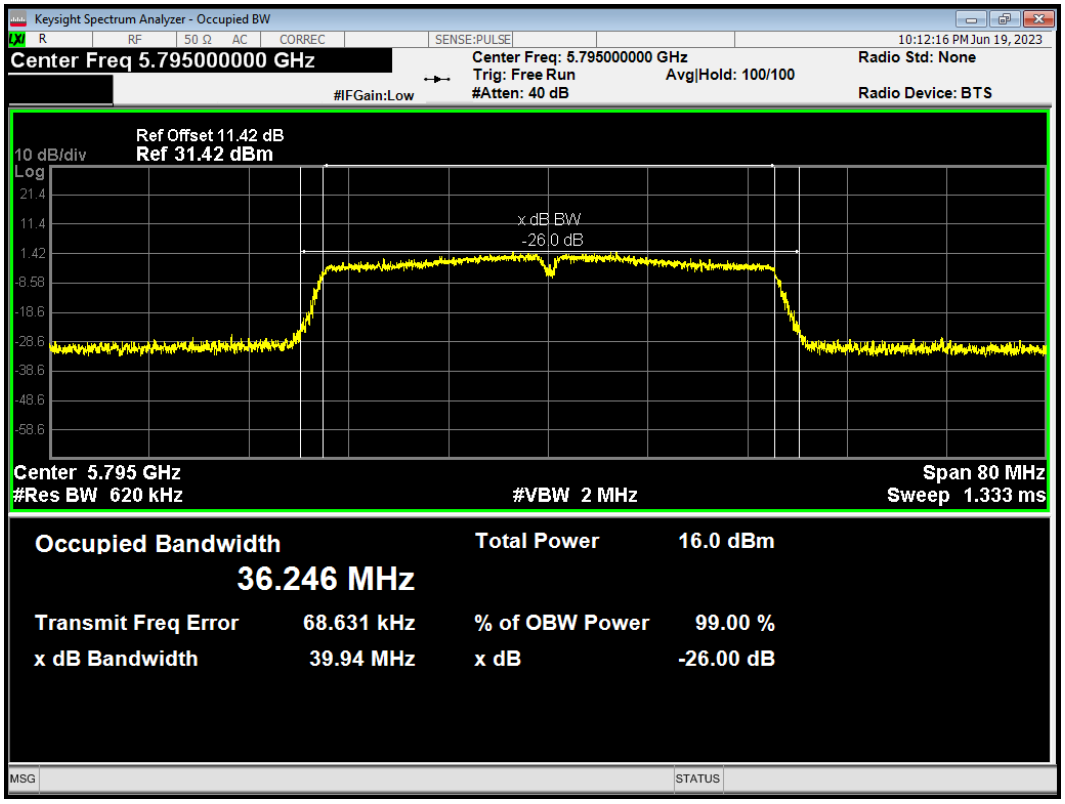


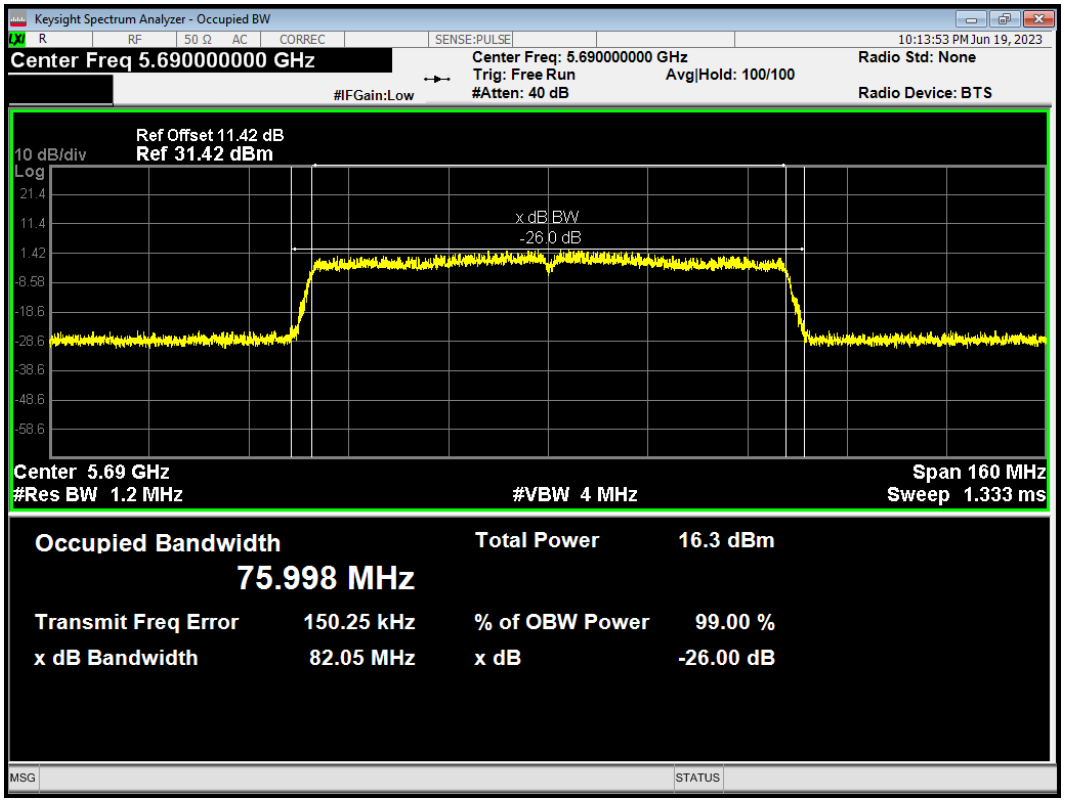
OBW 802.11ac(VHT40) 5755MHz



OBW 802.11ac(VHT40) 5795MHz



OBW 802.11ac(VHT80) 5690MHz



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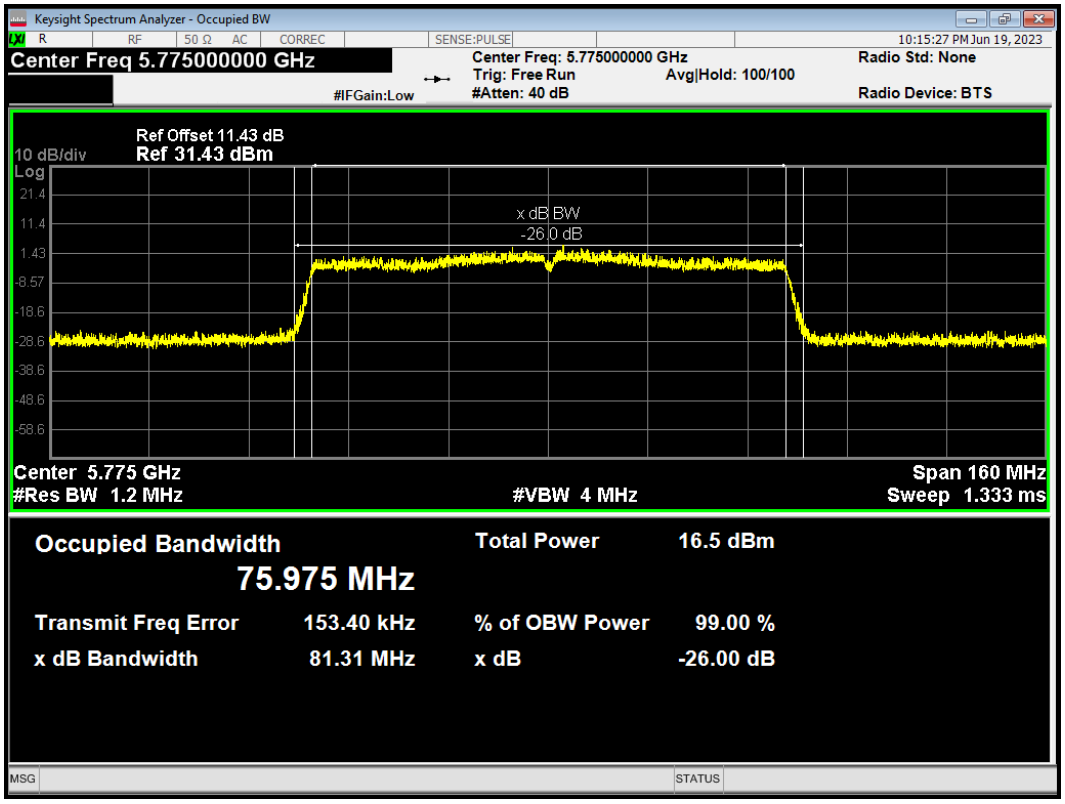

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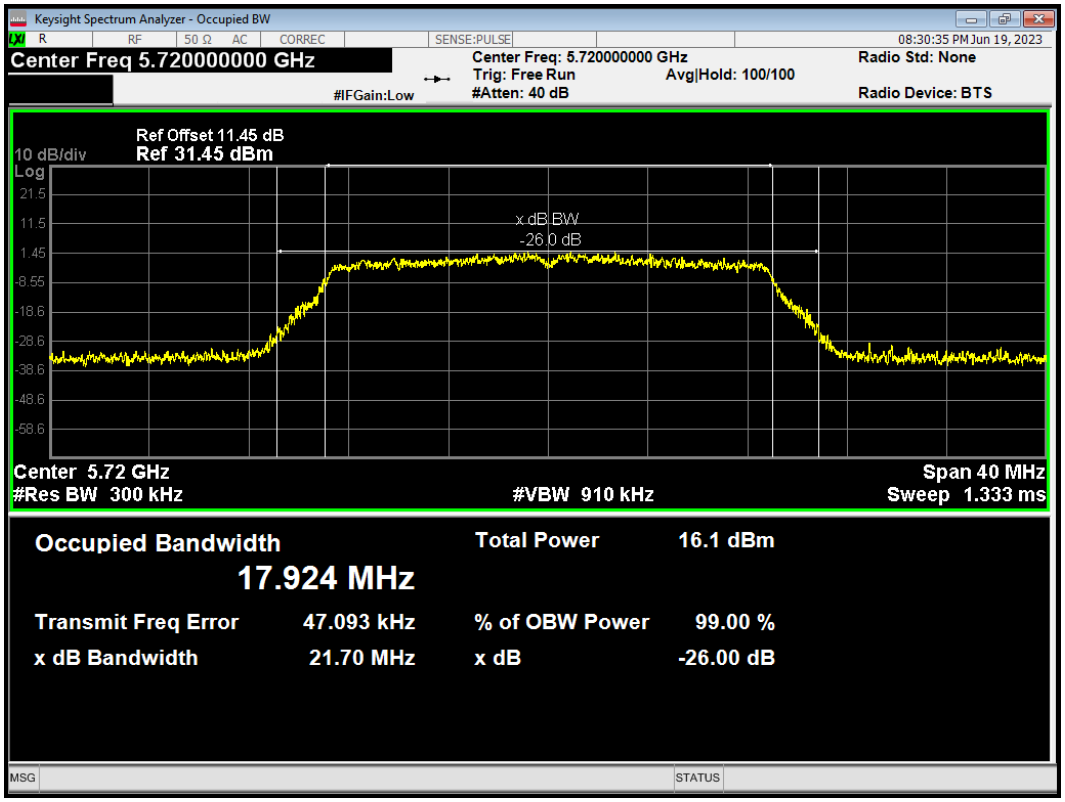
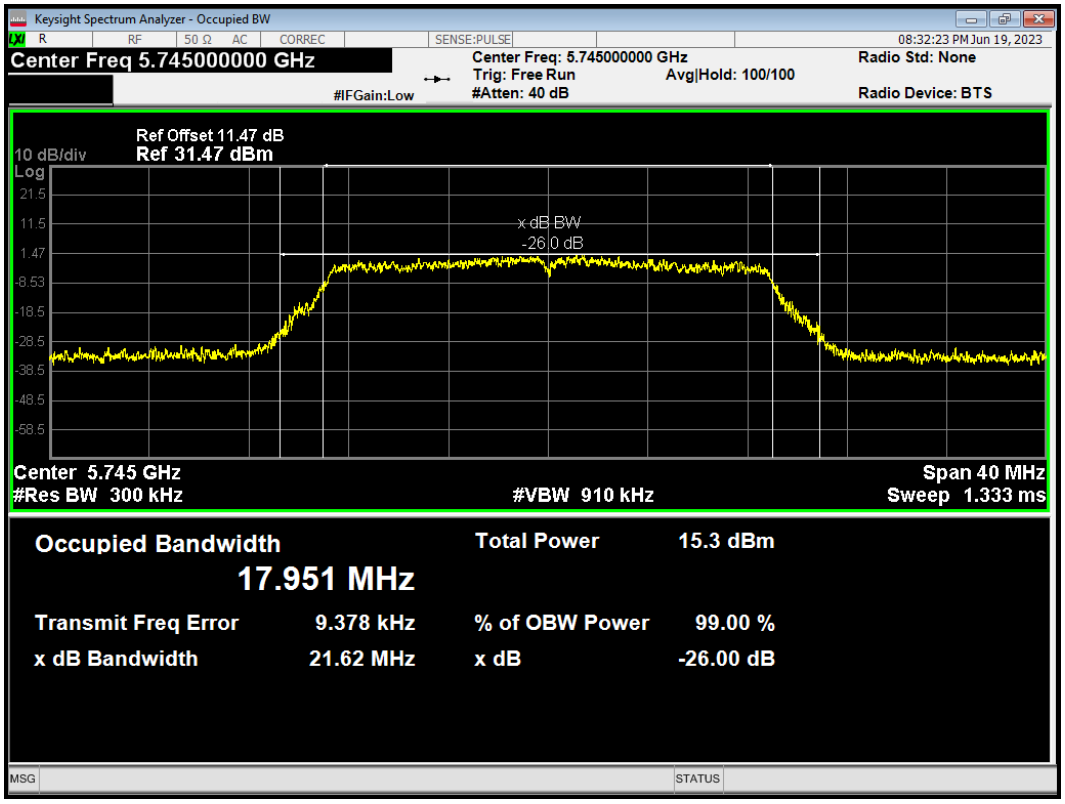
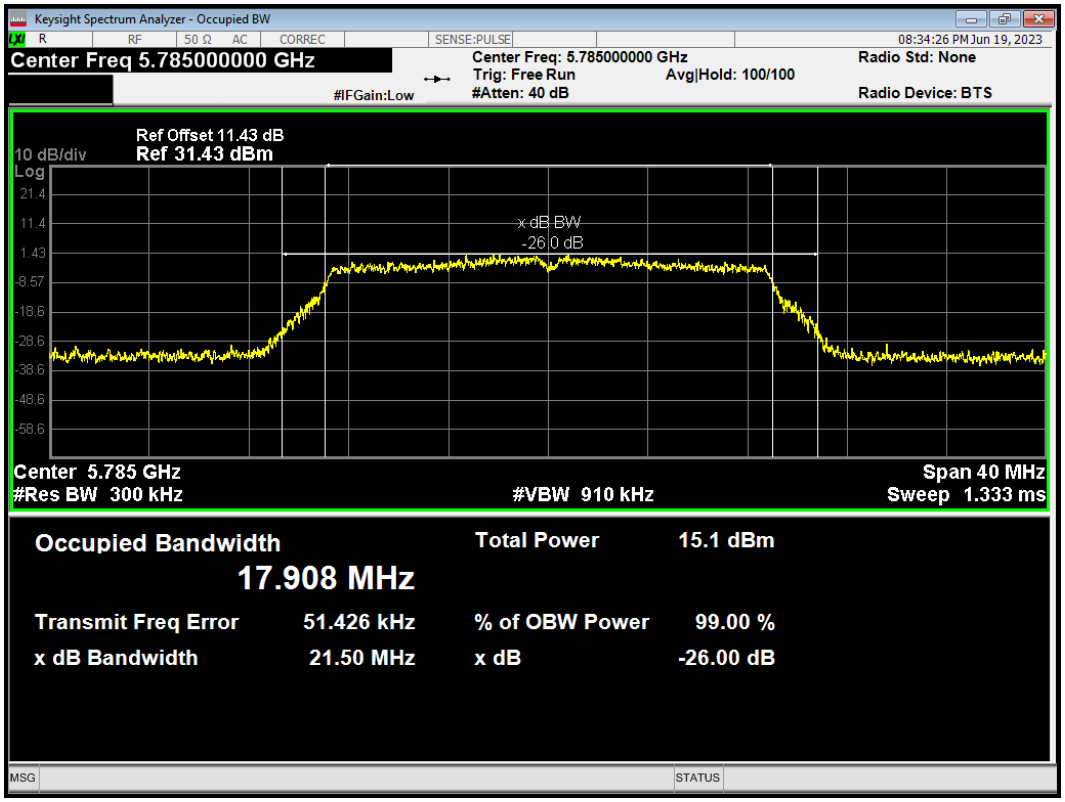


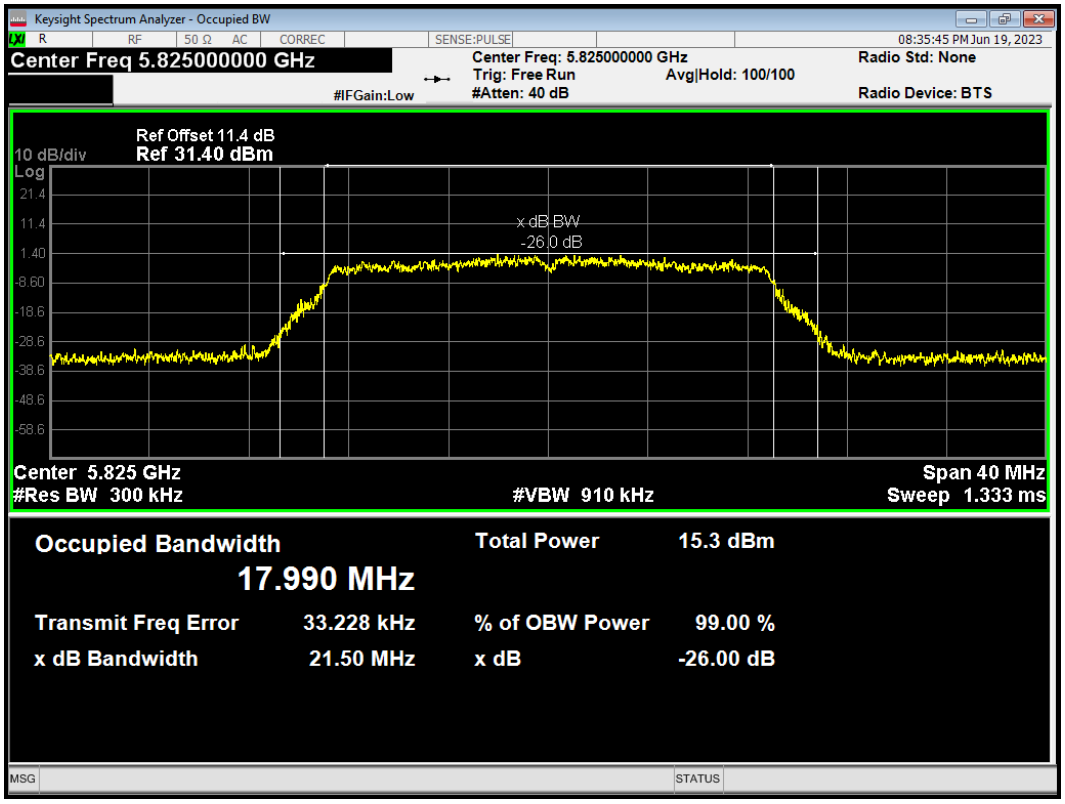
OBW 802.11n(HT20) 5745MHz



OBW 802.11n(HT20) 5785MHz



OBW 802.11n(HT20) 5825MHz



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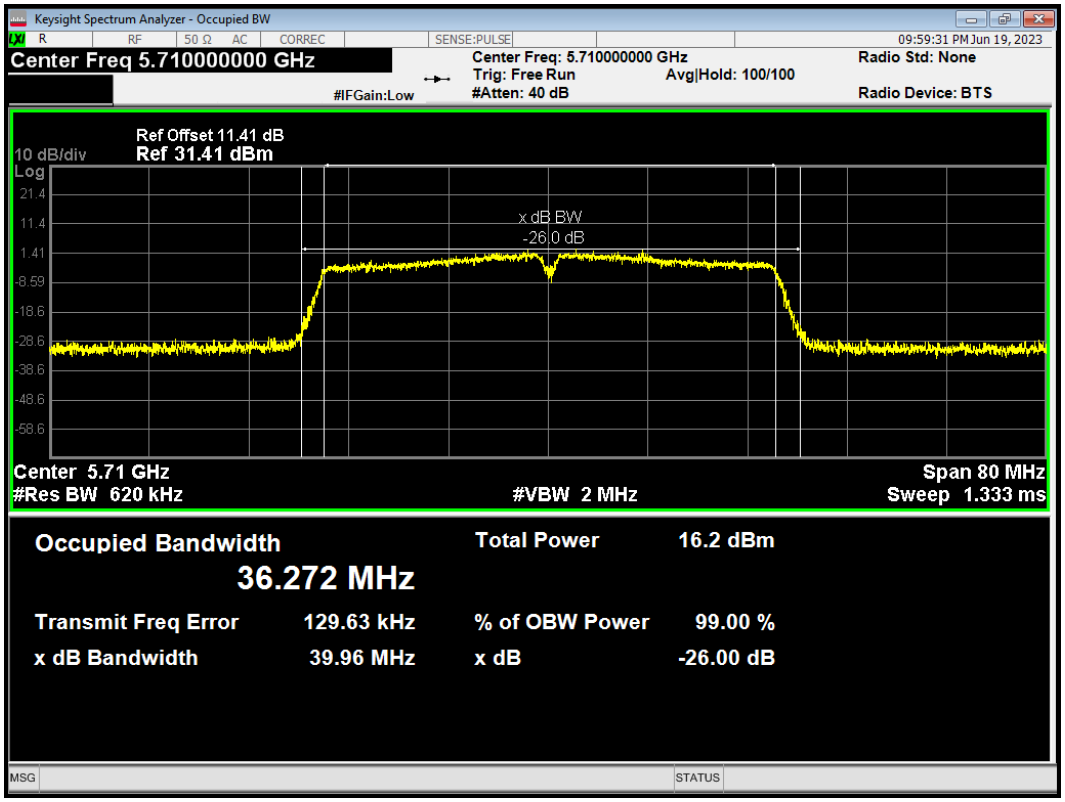
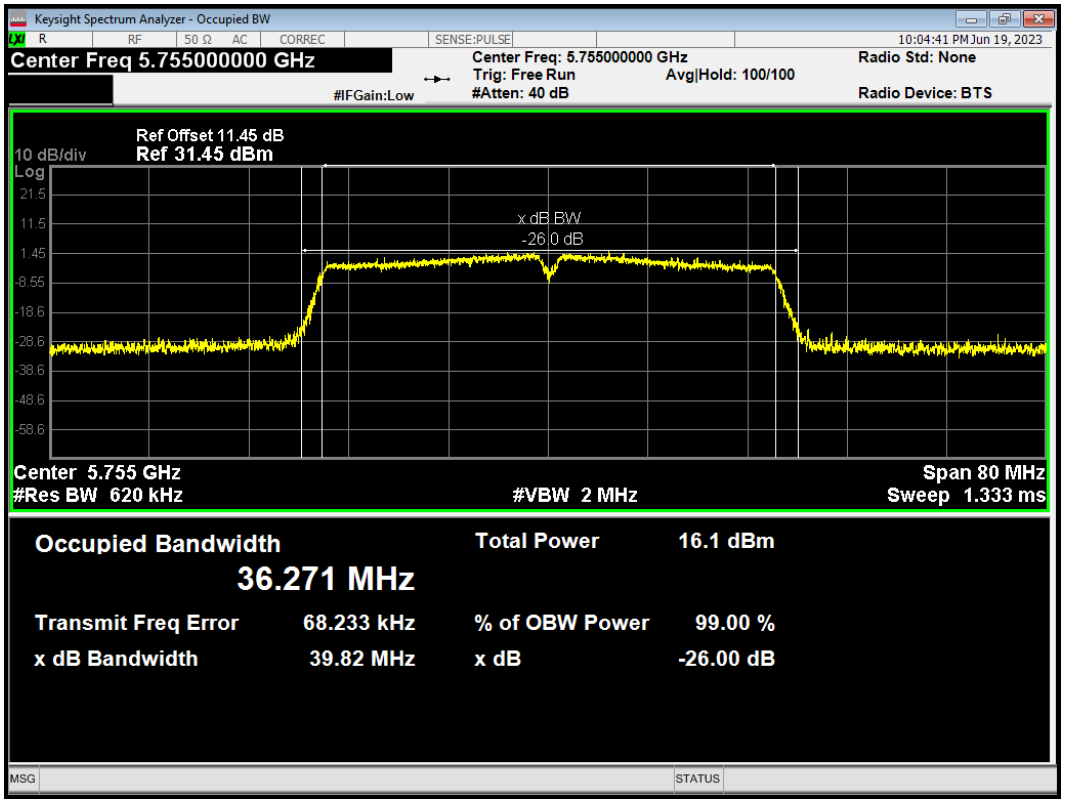
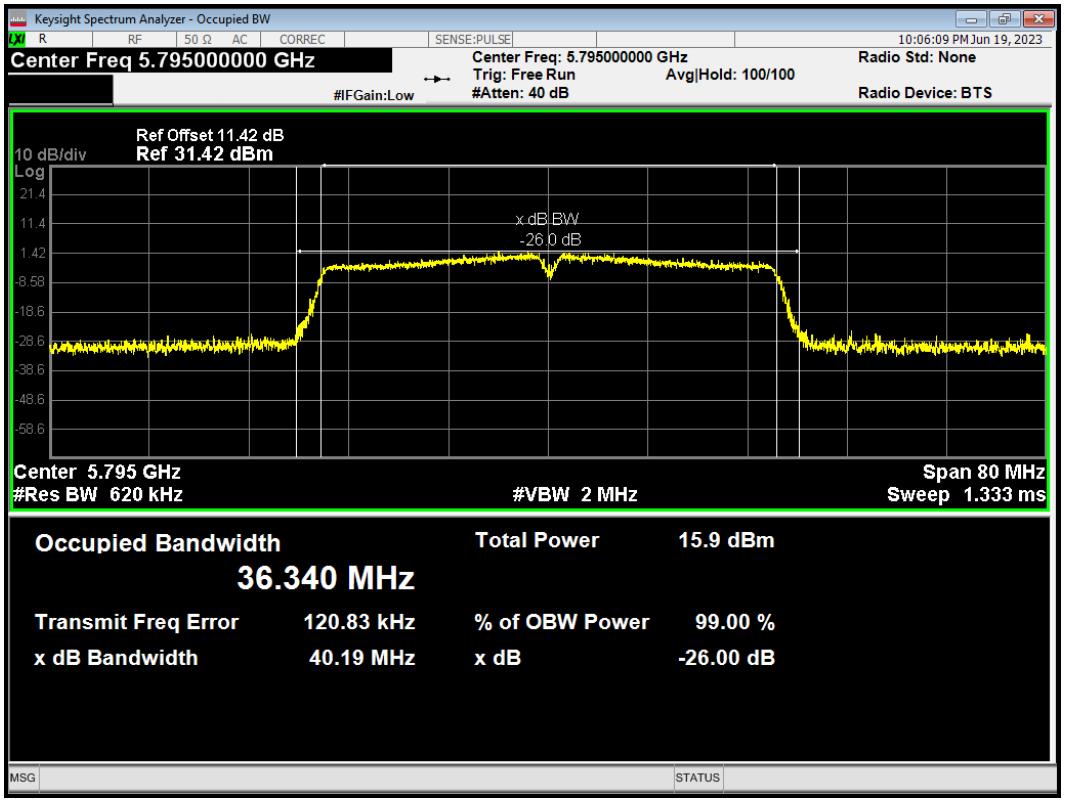


OBW 802.11n(HT40) 5755MHz



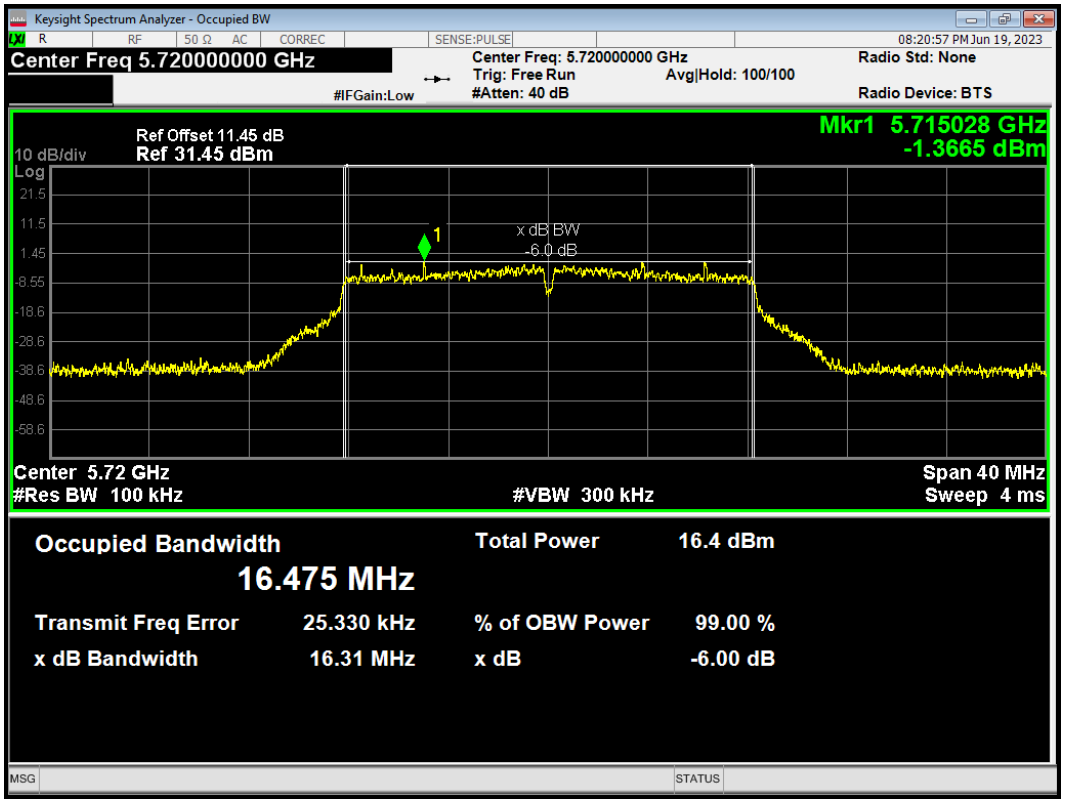
OBW 802.11n(HT40) 5795MHz



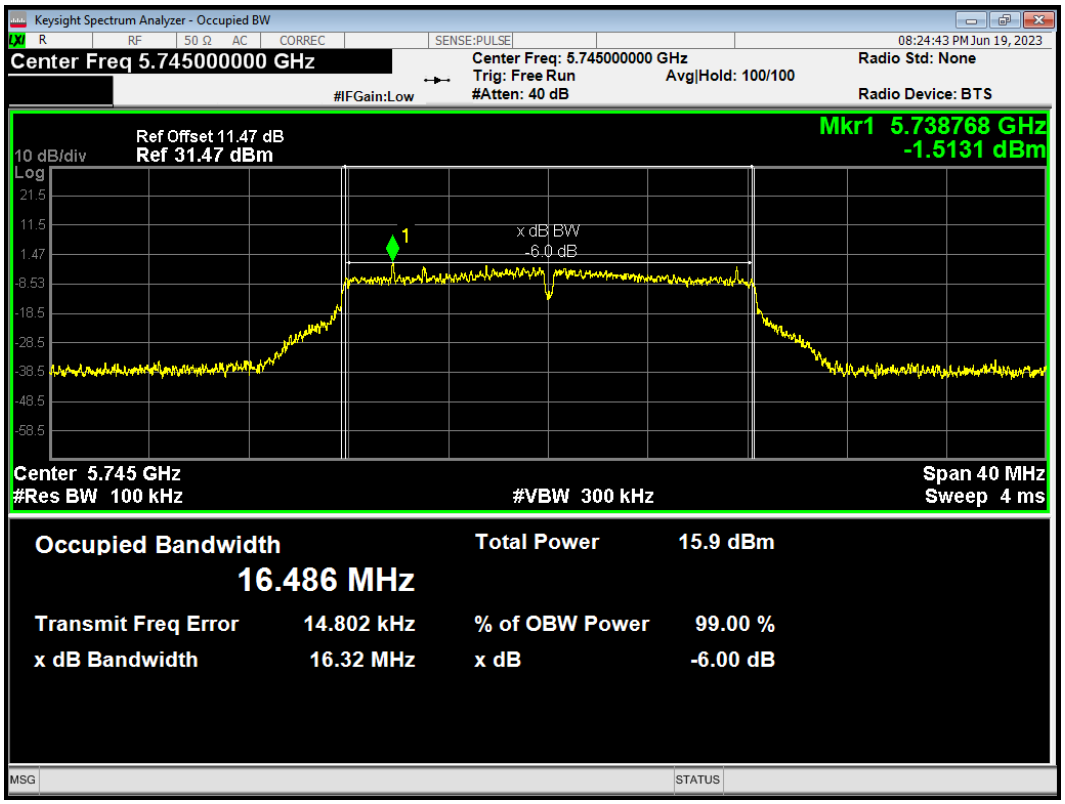
Minimum 6 dB bandwidth

U-NII-3

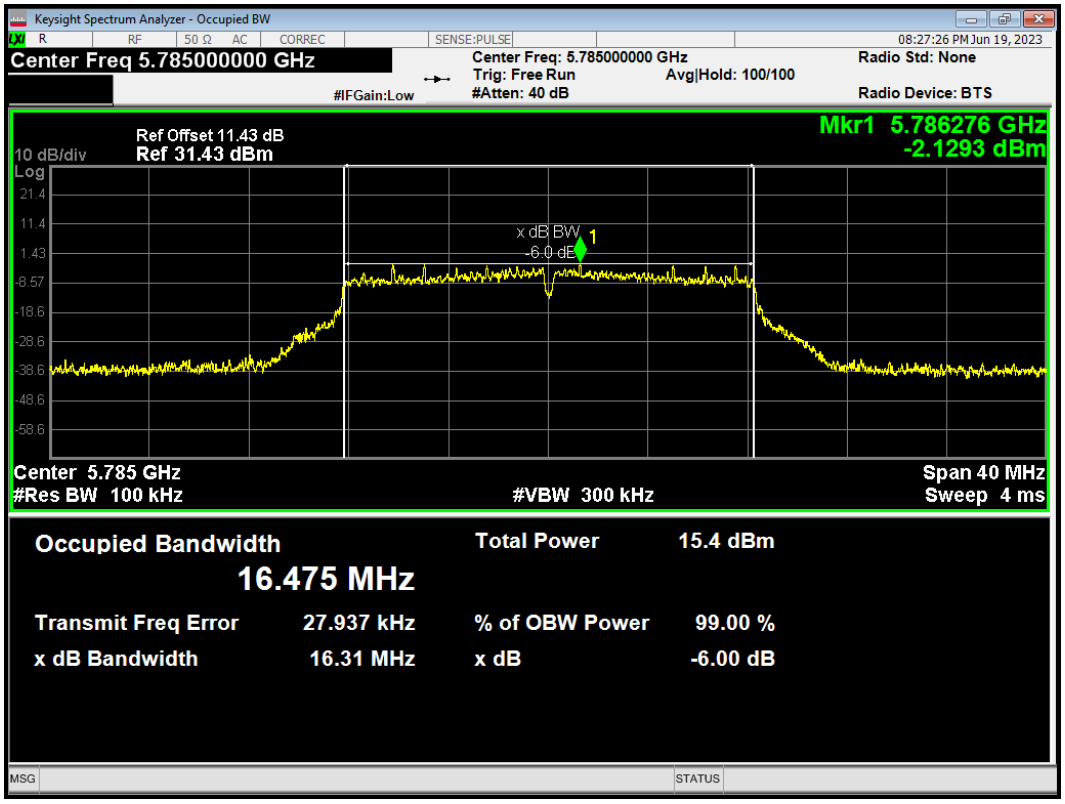
-6dB Bandwidth 802.11a 5720MHz



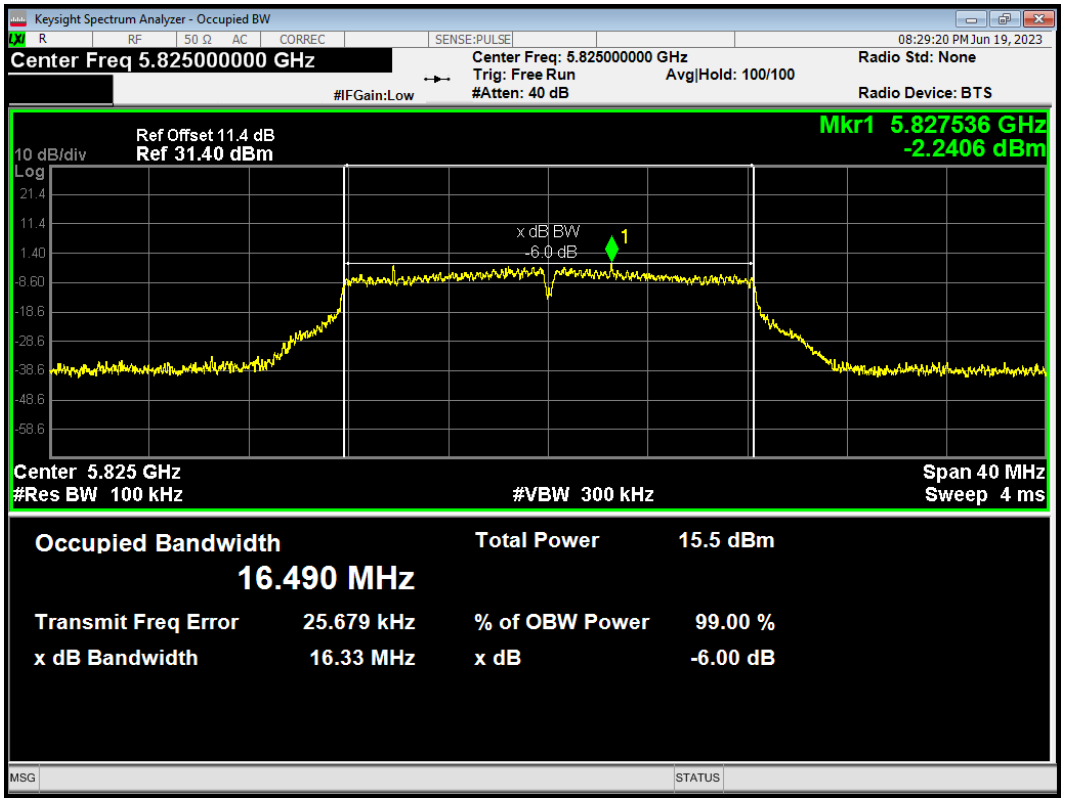
-6dB Bandwidth 802.11a 5745MHz



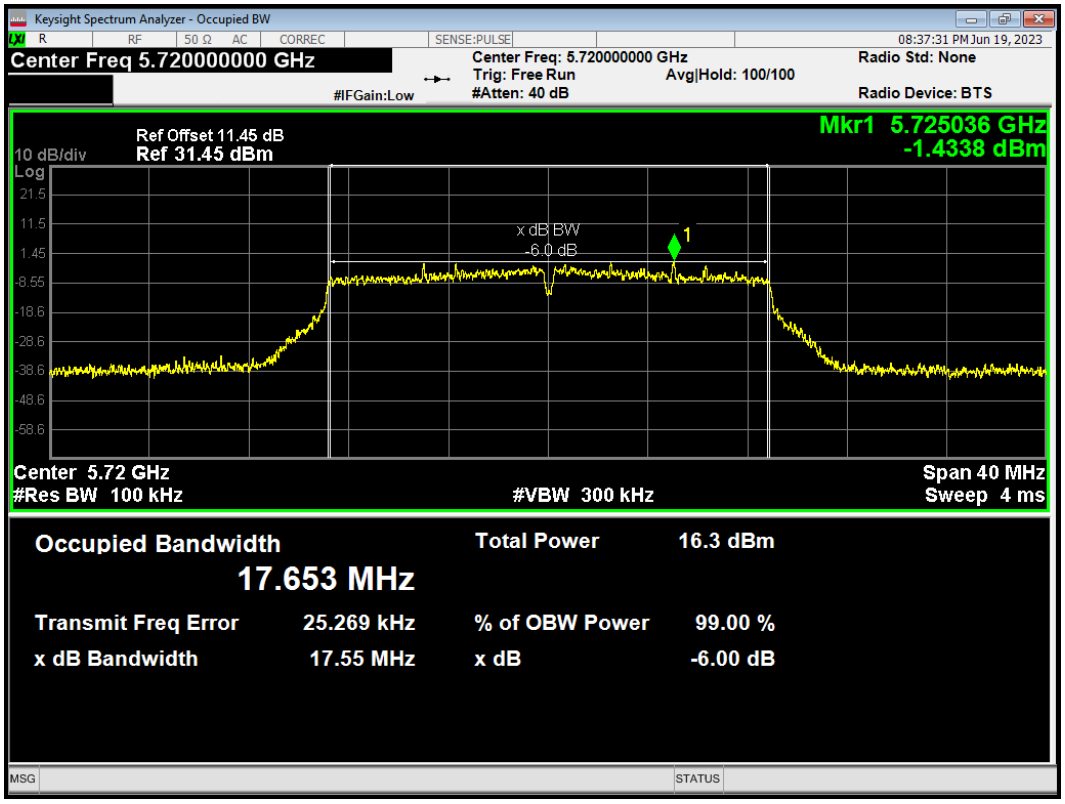
-6dB Bandwidth 802.11a 5785MHz



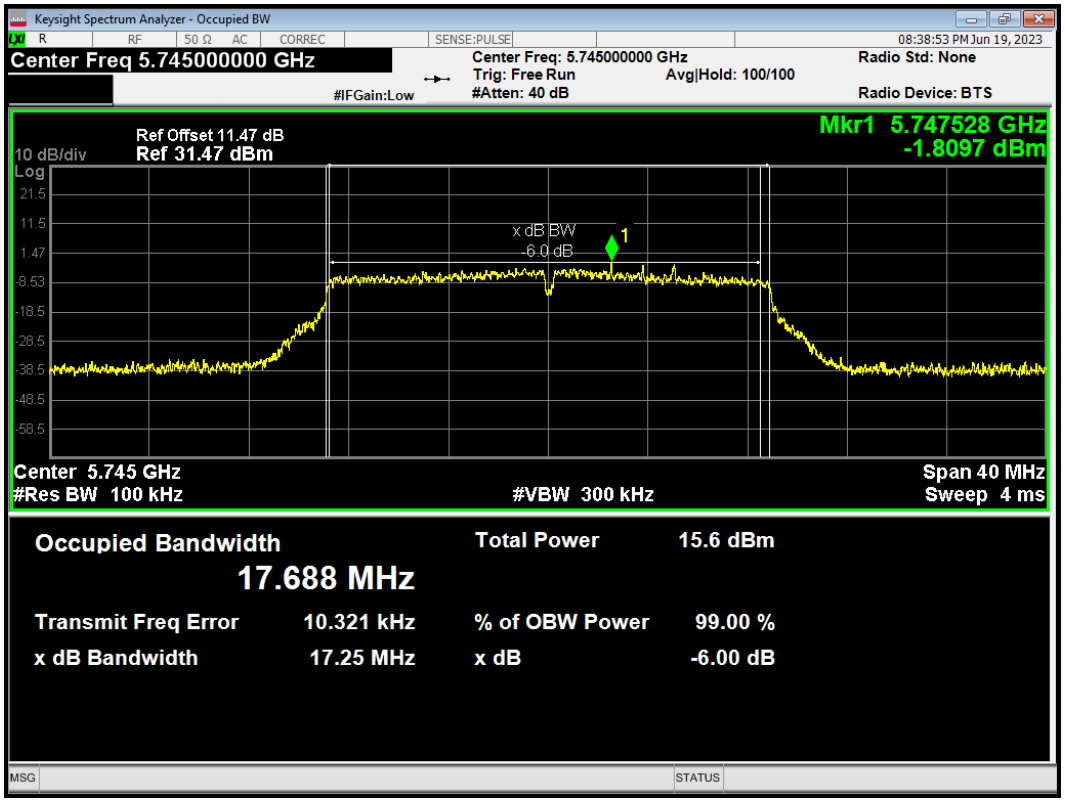
-6dB Bandwidth 802.11a 5825MHz



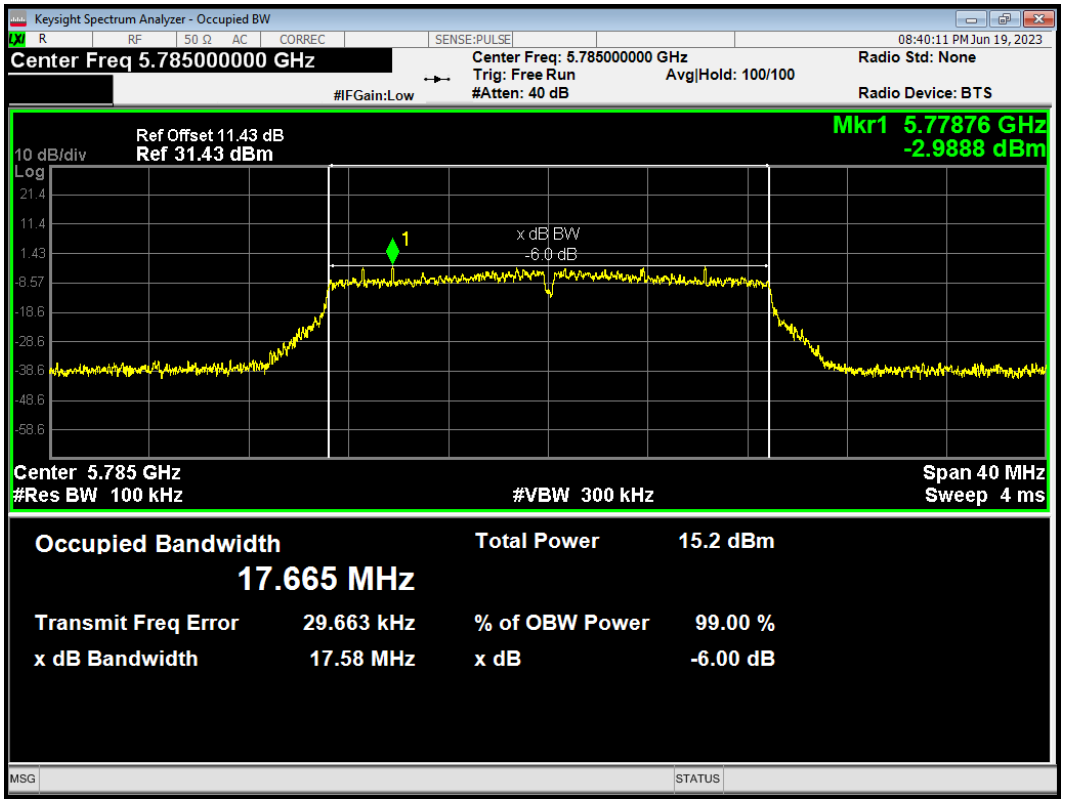
-6dB Bandwidth 802.11ac(VHT20) 5720MHz



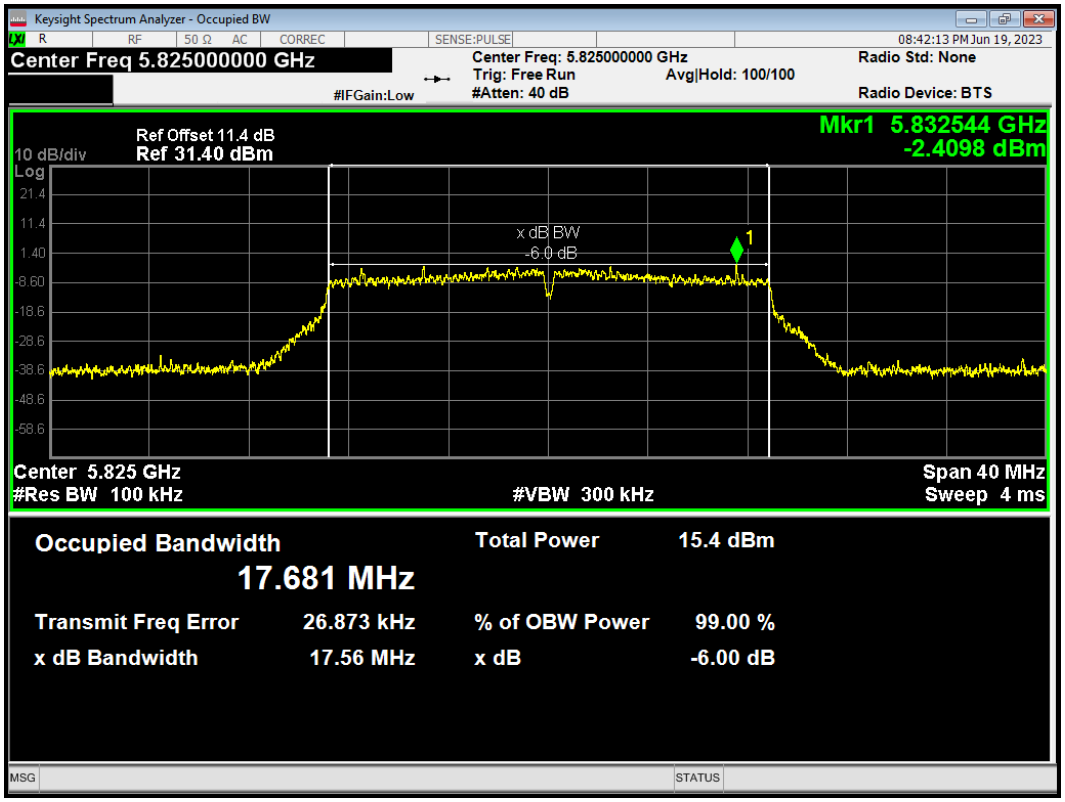
-6dB Bandwidth 802.11ac(VHT20) 5745MHz



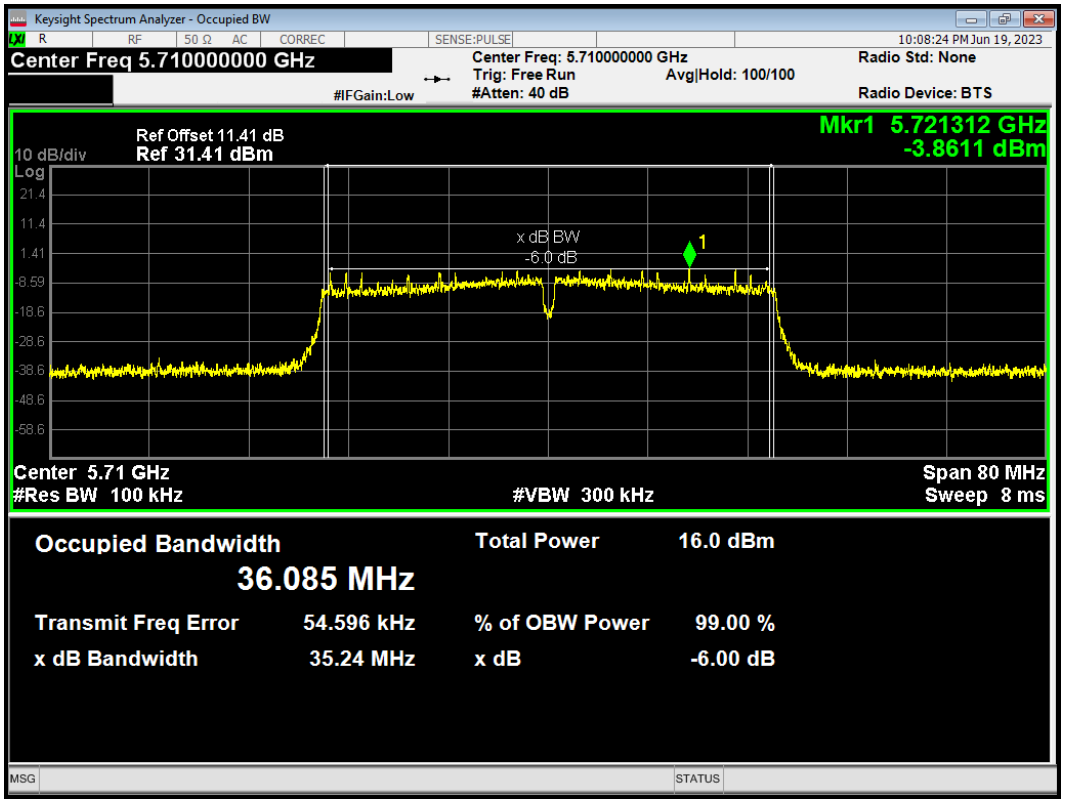
-6dB Bandwidth 802.11ac(VHT20) 5785MHz



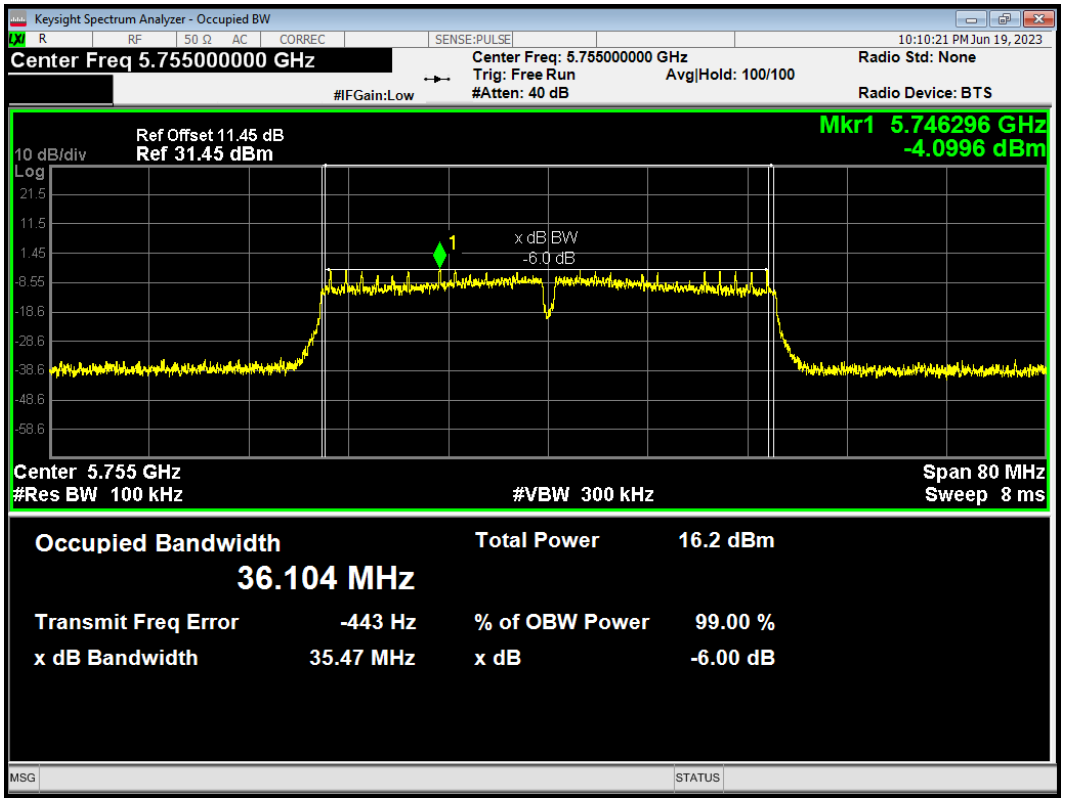
-6dB Bandwidth 802.11ac(VHT20) 5825MHz



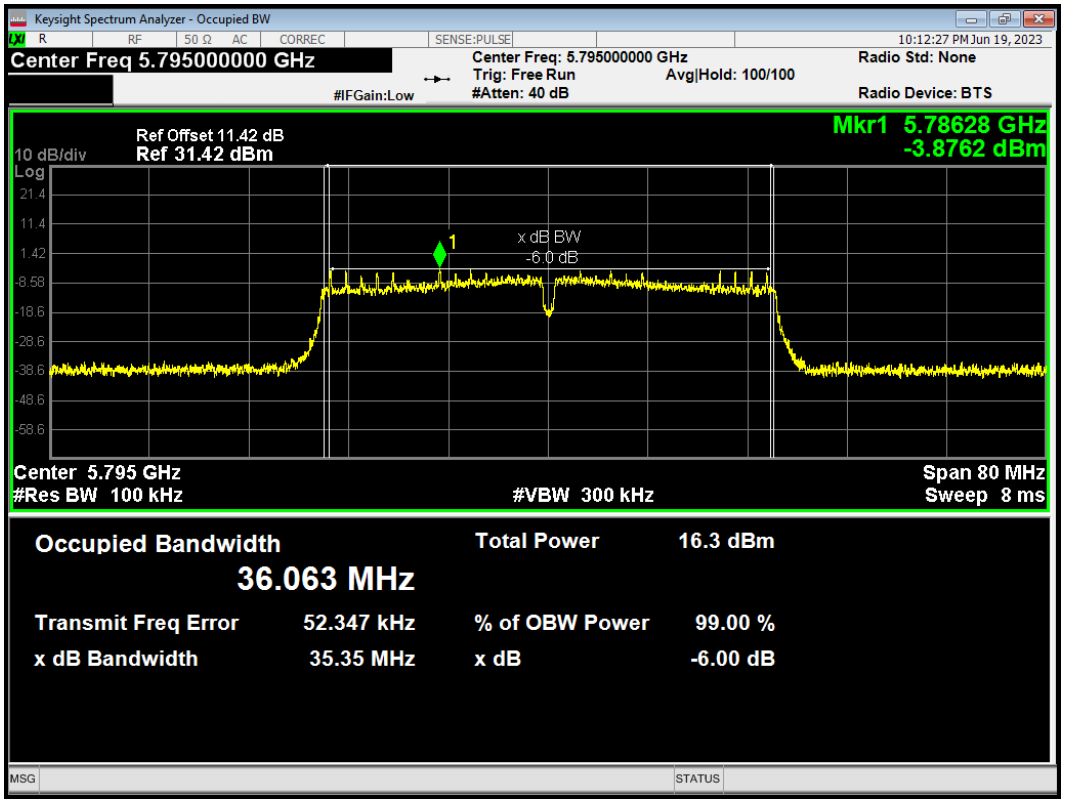
-6dB Bandwidth 802.11ac(VHT40) 5710MHz



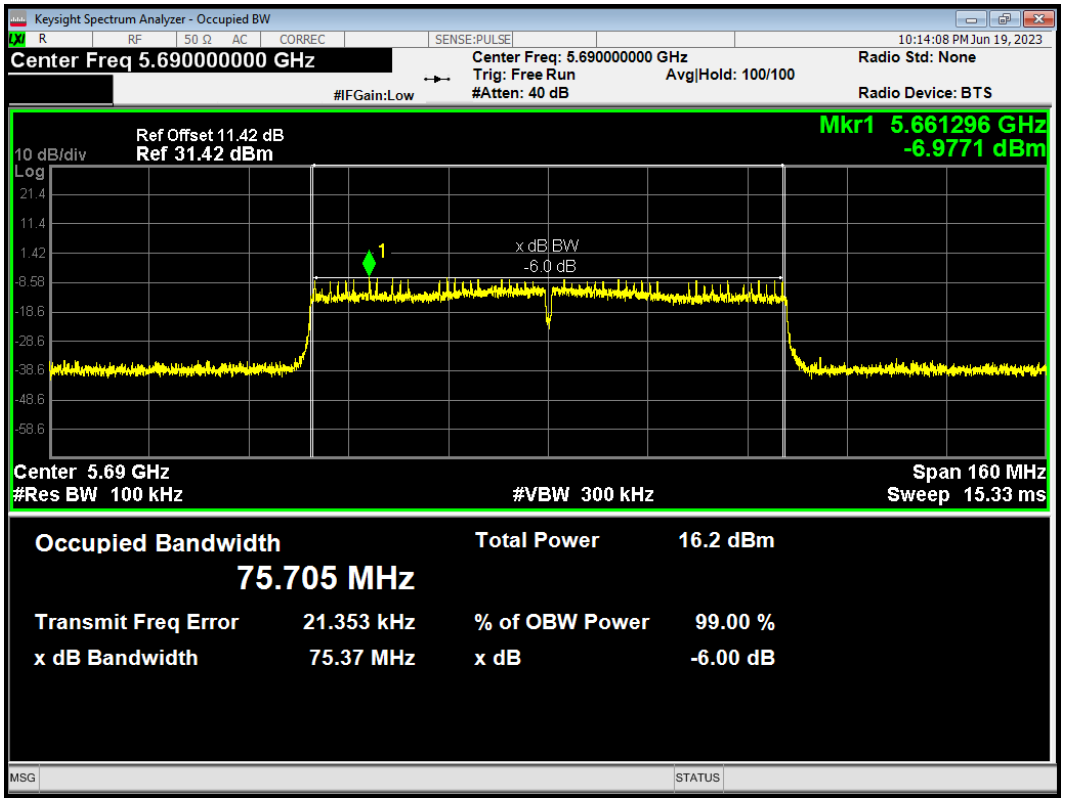
-6dB Bandwidth 802.11ac(VHT40) 5755MHz



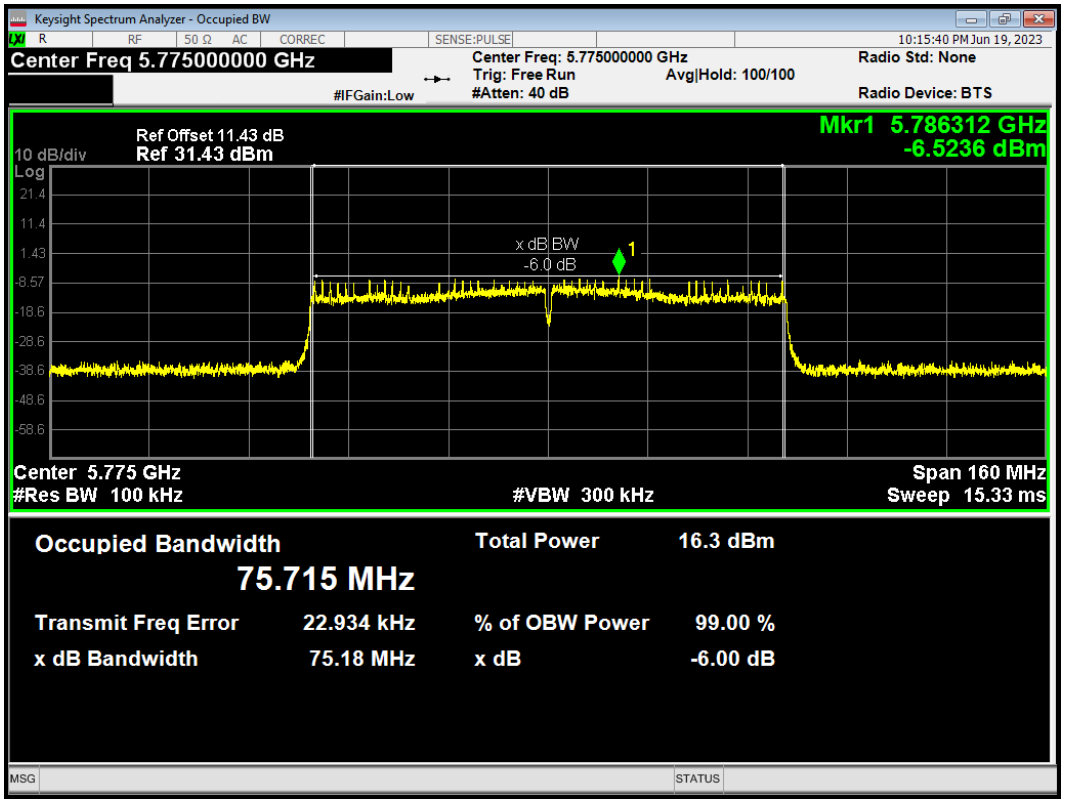
-6dB Bandwidth 802.11ac(VHT40) 5795MHz



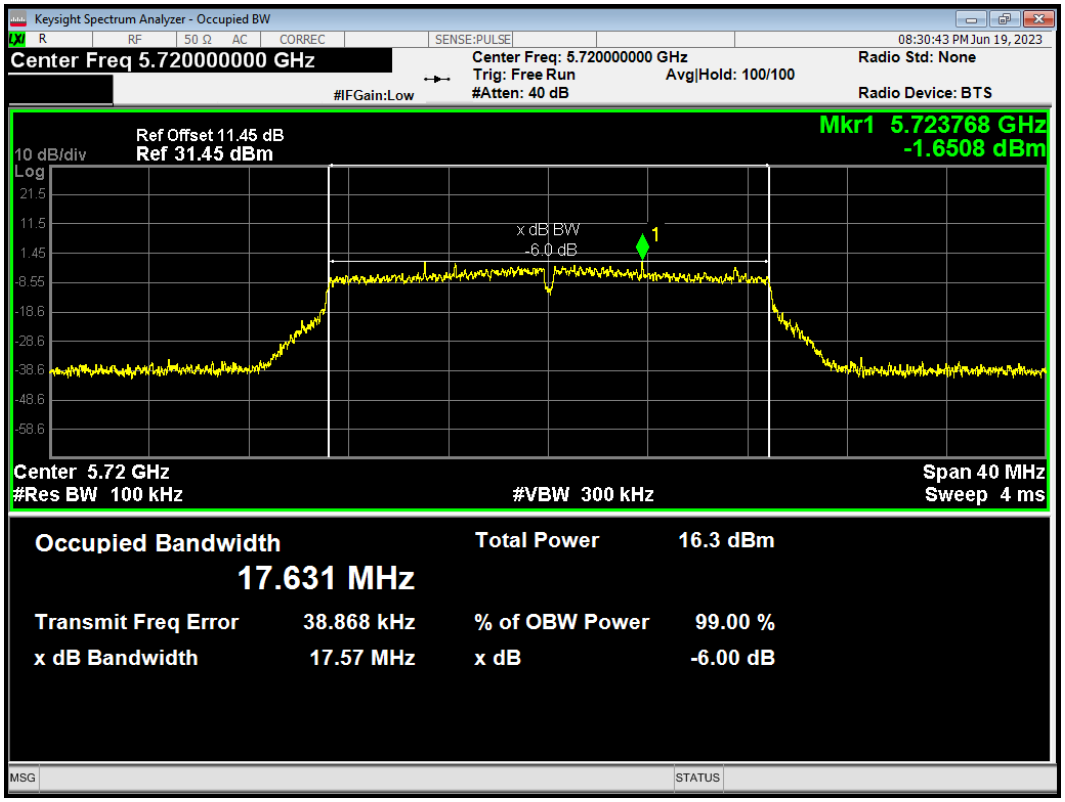
-6dB Bandwidth 802.11ac(VHT80) 5690MHz



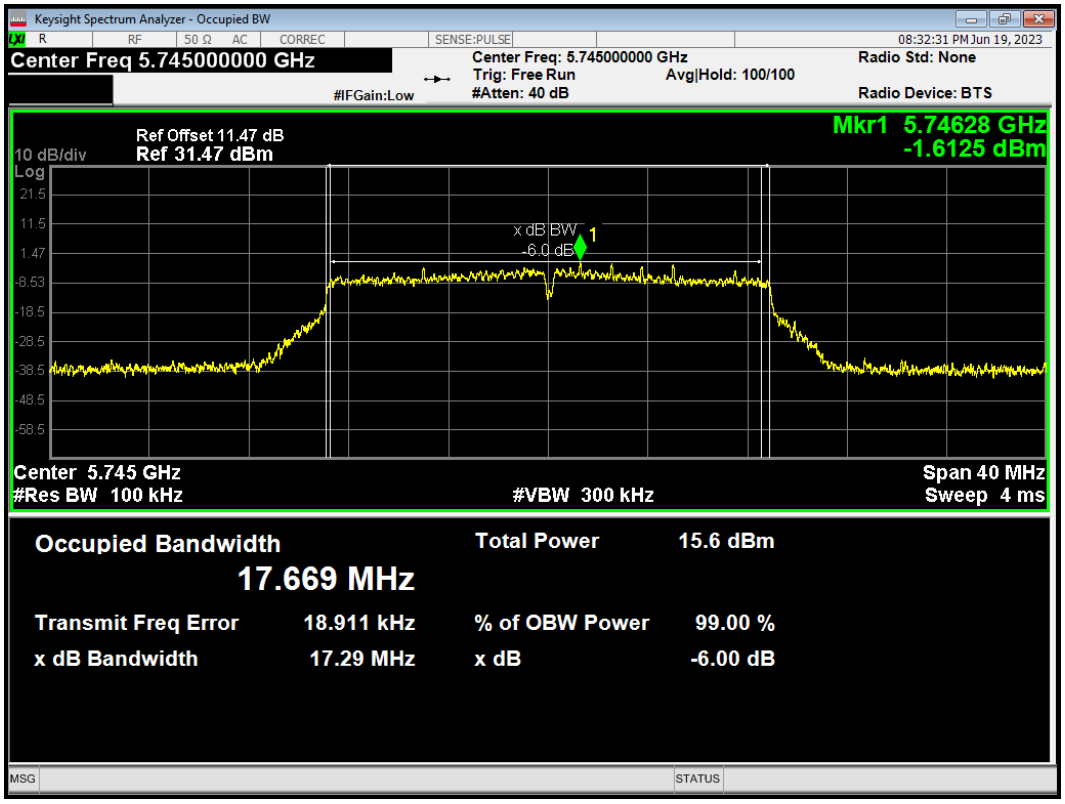
-6dB Bandwidth 802.11ac(VHT80) 5775MHz



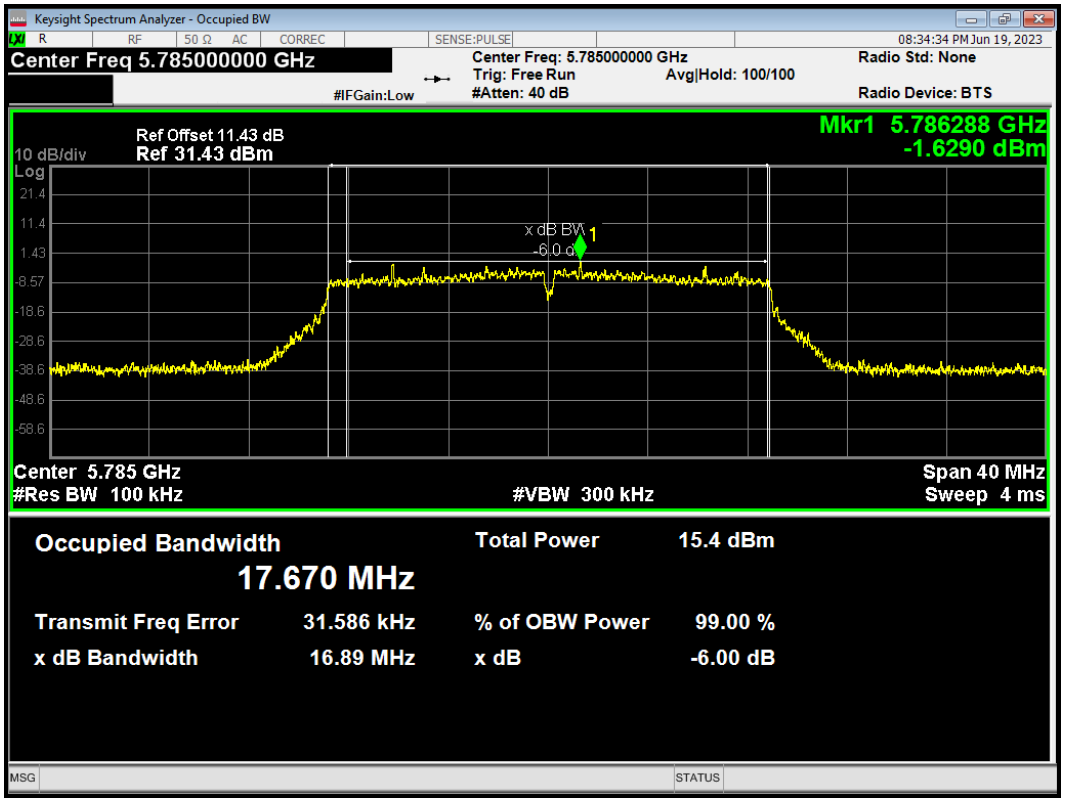
-6dB Bandwidth 802.11n(HT20) 5720MHz



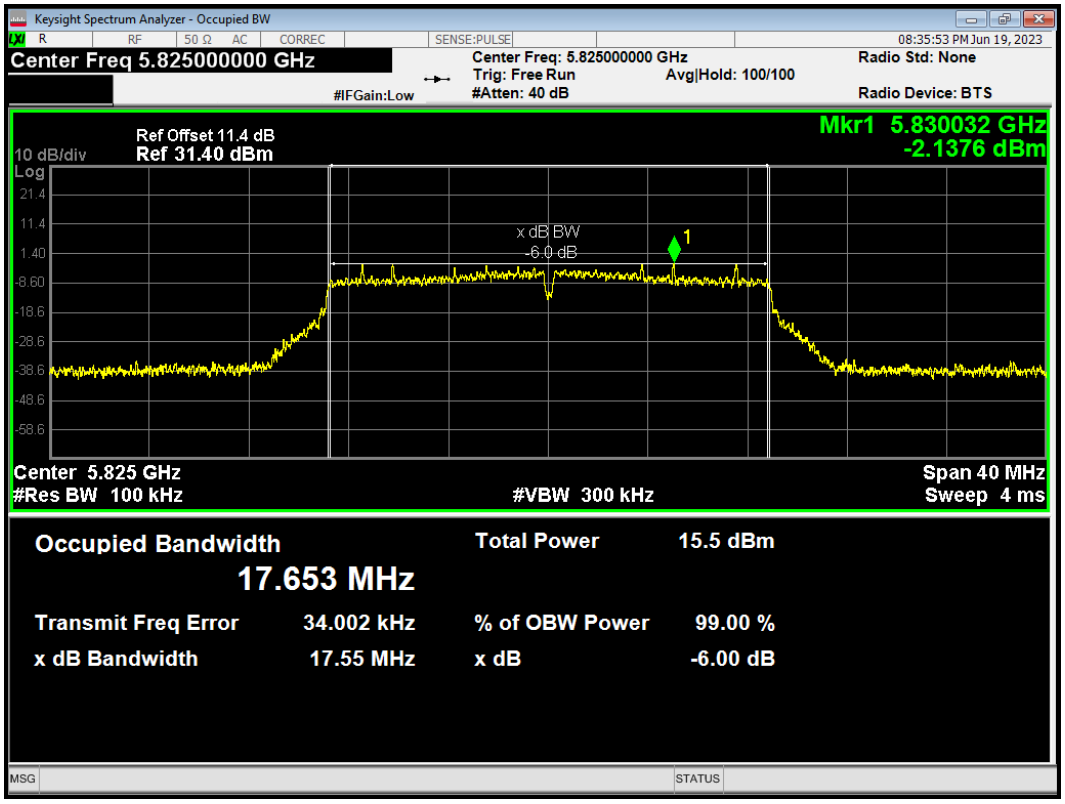
-6dB Bandwidth 802.11n(HT20) 5745MHz



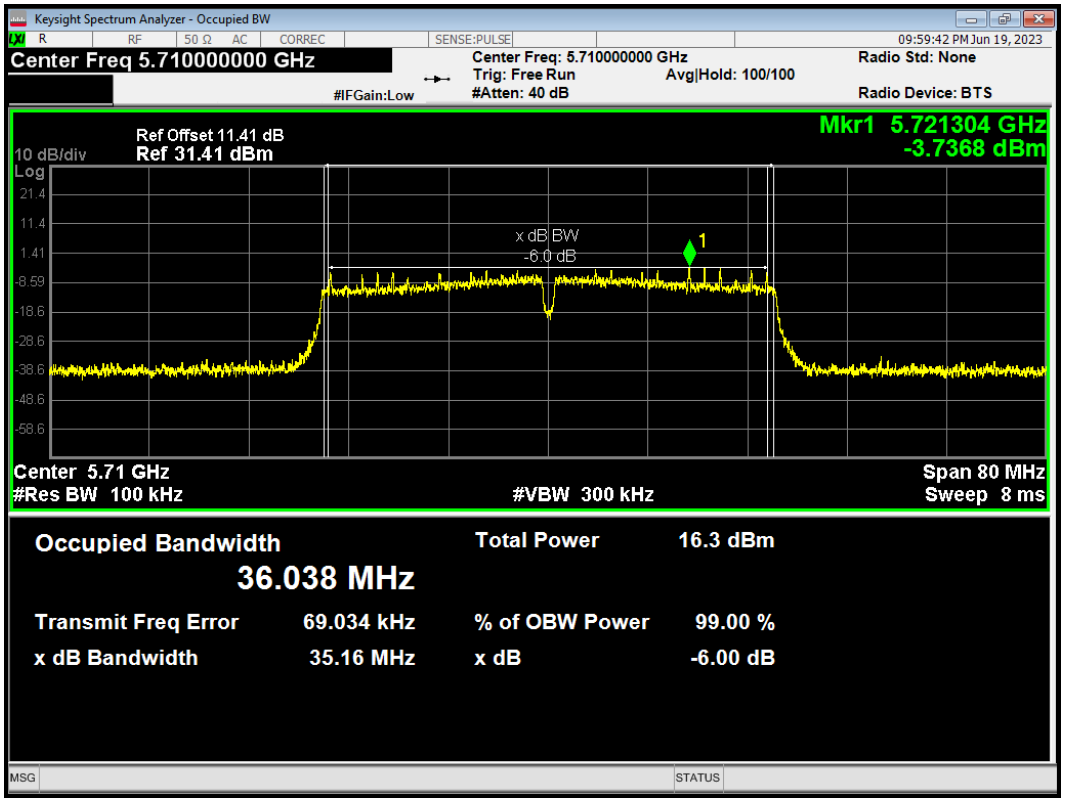
-6dB Bandwidth 802.11n(HT20) 5785MHz



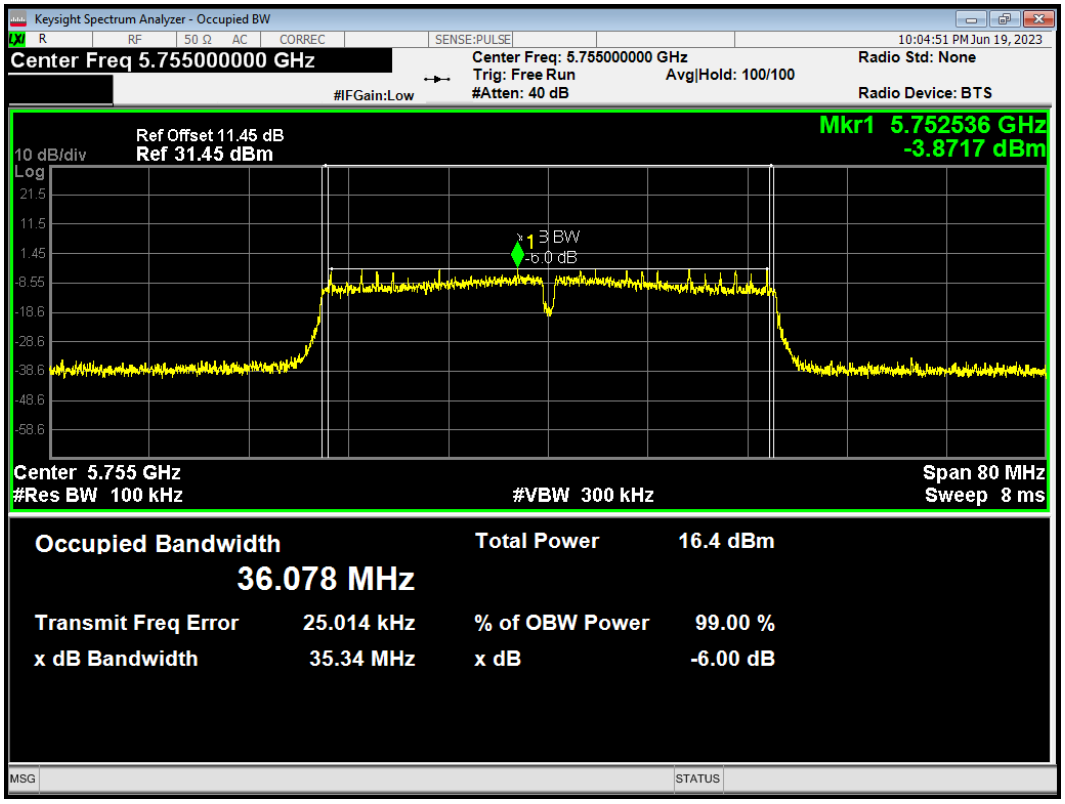
-6dB Bandwidth 802.11n(HT20) 5825MHz



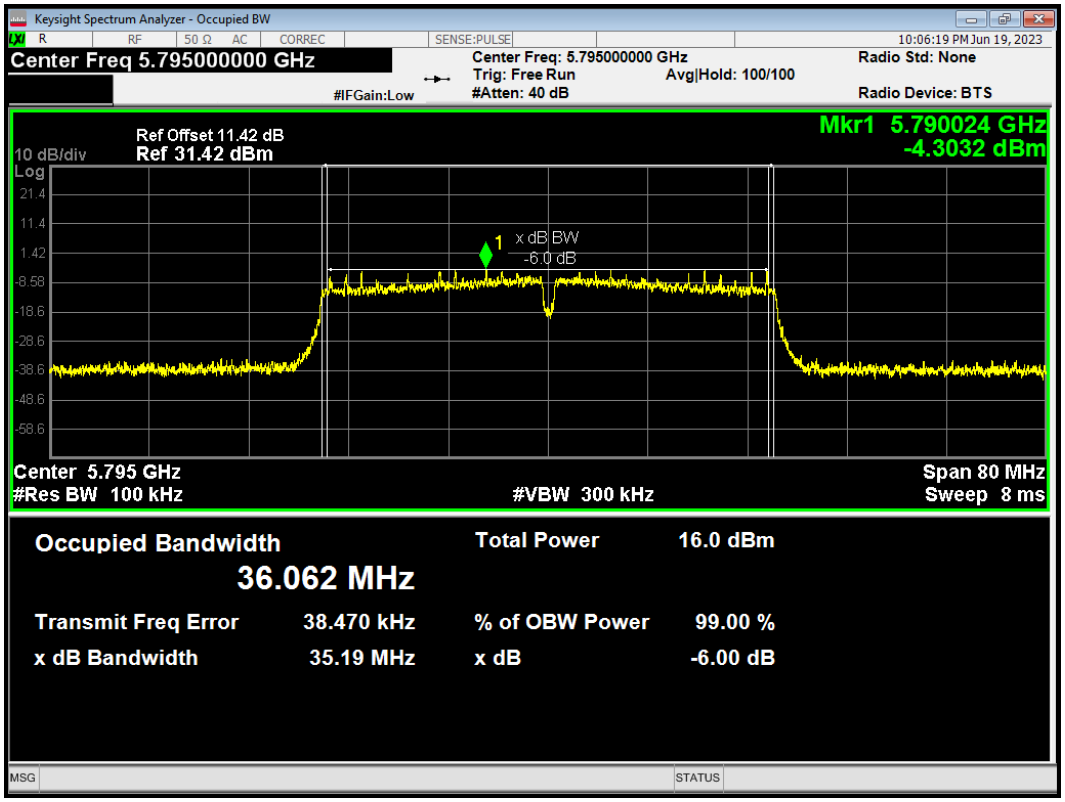
-6dB Bandwidth 802.11n(HT40) 5710MHz



-6dB Bandwidth 802.11n(HT40) 5755MHz



-6dB Bandwidth 802.11n(HT40) 5795MHz



5.2. Average Power Output

Ambient condition

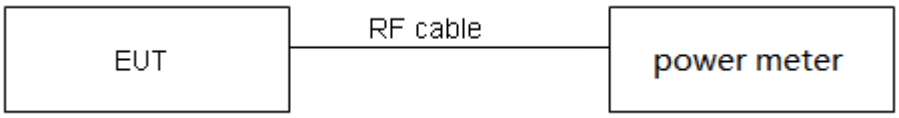
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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)(2)(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 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	0.934	0.30
802.11n HT20	0.930	0.32
802.11n HT40	0.867	0.62
802.11ac VHT20	0.931	0.31
802.11ac VHT40	0.868	0.61
802.11ac VHT80	0.766	1.16
Note: when Duty cycle≥0.98, Duty cycle correction Factor not required.		

SISO Power Index								
Channel	802.11a	802.11n HT20	802.11ac VHT20	Channel	802.11n HT40	802.11ac VHT40	Channel	802.11ac VHT80
CH36	12	12	12	CH38	12	12	CH42	12
CH40	12	12	12	CH46	12	12	/	/
CH48	12	12	12	/	/	/	/	/
CH100	12	12	12	CH102	11	12	CH106	12
CH120	12	12	12	CH118	12	12	CH122	12
CH140	12	12	12	CH134	12	12	CH138	12
CH144	12	12	12	CH142	12	12	/	/
CH149	12	12	12	CH151	12	12	CH155	12
CH157	12	12	12	CH159	12	12	/	/
CH165	12	12	12	/	/	/	/	/
MIMO Power Index								
Channel	802.11a	802.11n HT20	802.11ac VHT20	Channel	802.11n HT40	802.11ac VHT40	Channel	802.11ac VHT80
CH36	12	12	12	CH38	12	12	CH42	10
CH40	12	12	12	CH46	12	12	/	/
CH48	12	12	12	/	/	/	/	/
CH100	10	12	12	CH102	9	12	CH106	10
CH120	12	12	12	CH118	12	12	CH122	12
CH140	12	12	12	CH134	12	12	CH138	12
CH144	12	12	12	CH142	12	12	/	/
CH149	12	12	12	CH151	12	12	CH155	12
CH157	12	12	12	CH159	12	12	/	/
CH165	12	12	12	/	/	/	/	/

Test Mode		Channel/Frequency (MHz)	B=26 dB bandwidth (MHz)	Limit 11 dBm + 10 log B (dBm)	Final Limit (dBm)
U-NII-2C	802.11a	100/5500	21.295	24.28 > 24	24.00
		120/5600	21.401	24.30 > 24	24.00
		140/5700	21.503	24.32 > 24	24.00
		144/5720	21.295	24.28 > 24	24.00
	802.11n HT20	100/5500	21.502	24.32 > 24	24.00
		120/5600	21.340	24.29 > 24	24.00
		140/5700	21.650	24.35 > 24	24.00
		144/5720	21.552	24.33 > 24	24.00
	802.11n HT40	102/5510	40.041	27.03 > 24	24.00
		118/5590	40.100	27.03 > 24	24.00
		134/5670	39.865	27.01 > 24	24.00
		142/5710	39.784	27.00 > 24	24.00
	802.11ac VHT20	100/5500	21.404	24.30 > 24	24.00
		120/5600	21.665	24.36 > 24	24.00
		140/5700	21.519	24.33 > 24	24.00
		144/5720	21.596	24.34 > 24	24.00
	802.11ac VHT40	102/5510	40.296	27.05 > 24	24.00
		118/5590	39.822	27.00 > 24	24.00
		134/5670	39.892	27.01 > 24	24.00
		142/5710	39.902	27.01 > 24	24.00
	802.11ac VHT80	106/5530	81.733	30.12 > 24	24.00
		122/5610	81.710	30.12 > 24	24.00
		138/5690	82.608	30.17 > 24	24.00
Note: 250mW=24dBm					

SISO Antenna 1

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	8.77	9.07	24.00	PASS
	40/5200	8.96	9.26	24.00	PASS
	48/5240	9.02	9.32	24.00	PASS
802.11n HT20	36/5180	8.77	9.09	24.00	PASS
	40/5200	8.72	9.04	24.00	PASS
	48/5240	8.81	9.13	24.00	PASS
802.11n HT40	38/5190	8.61	9.23	24.00	PASS
	46/5230	9.02	9.64	24.00	PASS
802.11ac VHT20	36/5180	8.86	9.17	24.00	PASS
	40/5200	8.66	8.97	24.00	PASS
	48/5240	8.75	9.06	24.00	PASS
802.11ac VHT40	38/5190	8.59	9.20	24.00	PASS
	46/5230	8.82	9.43	24.00	PASS
802.11ac VHT80	42/5210	8.10	9.26	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	9.98	10.28	24.00	PASS
	120/5600	10.06	10.36	24.00	PASS
	140/5700	9.61	9.91	24.00	PASS
	144/5720	9.20	9.50	24.00	PASS
802.11n HT20	100/5500	9.89	10.21	24.00	PASS
	120/5600	9.87	10.19	24.00	PASS
	140/5700	9.59	9.91	24.00	PASS
	144/5720	8.79	9.11	24.00	PASS
802.11n HT40	102/5510	8.54	9.16	24.00	PASS
	118/5590	9.48	10.10	24.00	PASS
	134/5670	9.44	10.06	24.00	PASS
	142/5710	8.95	9.57	24.00	PASS
802.11ac VHT20	100/5500	9.72	10.03	24.00	PASS
	120/5600	9.95	10.26	24.00	PASS
	140/5700	9.28	9.59	24.00	PASS
	144/5720	9.09	9.40	24.00	PASS
802.11ac VHT40	102/5510	9.38	9.99	24.00	PASS
	118/5590	9.50	10.11	24.00	PASS
	134/5670	9.48	10.09	24.00	PASS
	142/5710	8.90	9.51	24.00	PASS
802.11ac VHT80	106/5530	8.77	9.93	24.00	PASS
	122/5610	8.75	9.91	24.00	PASS
	138/5690	8.22	9.38	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	2.39	2.69	30.00	PASS
	149/5745	9.73	10.03	30.00	PASS
	157/5785	9.31	9.61	30.00	PASS
	165/5825	9.54	9.84	30.00	PASS
802.11n HT20	144/5720	2.61	2.93	30.00	PASS
	149/5745	9.37	9.69	30.00	PASS
	157/5785	9.08	9.40	30.00	PASS
	165/5825	9.34	9.66	30.00	PASS
802.11n HT40	142/5710	-1.72	-1.10	30.00	PASS
	151/5755	9.59	10.21	30.00	PASS
	159/5795	9.38	10.00	30.00	PASS
802.11ac VHT20	144/5720	2.54	2.85	30.00	PASS
	149/5745	9.51	9.82	30.00	PASS
	157/5785	9.05	9.36	30.00	PASS
	165/5825	9.31	9.62	30.00	PASS
802.11ac VHT40	142/5710	-2.04	-1.43	30.00	PASS
	151/5755	9.50	10.11	30.00	PASS
	159/5795	9.35	9.96	30.00	PASS
802.11ac VHT80	138/5690	-5.45	-4.29	30.00	PASS
	155/5775	8.88	10.04	30.00	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					

SISO Antenna 2

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	6.86	7.16	24.00	PASS
	40/5200	6.88	7.18	24.00	PASS
	48/5240	7.02	7.32	24.00	PASS
802.11n HT20	36/5180	6.75	7.07	24.00	PASS
	40/5200	6.77	7.09	24.00	PASS
	48/5240	6.87	7.19	24.00	PASS
802.11n HT40	38/5190	6.75	7.37	24.00	PASS
	46/5230	6.98	7.60	24.00	PASS
802.11ac VHT20	36/5180	6.83	7.14	24.00	PASS
	40/5200	6.90	7.21	24.00	PASS
	48/5240	6.64	6.95	24.00	PASS
802.11ac VHT40	38/5190	6.58	7.19	24.00	PASS
	46/5230	6.95	7.56	24.00	PASS
802.11ac VHT80	42/5210	6.30	7.46	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	7.55	7.85	24.00	PASS
	120/5600	7.73	8.03	24.00	PASS
	140/5700	7.42	7.72	24.00	PASS
	144/5720	7.49	7.79	24.00	PASS
802.11n HT20	100/5500	7.45	7.77	24.00	PASS
	120/5600	7.63	7.95	24.00	PASS
	140/5700	7.44	7.76	24.00	PASS
	144/5720	7.46	7.78	24.00	PASS
802.11n HT40	102/5510	6.25	6.87	24.00	PASS
	118/5590	7.22	7.84	24.00	PASS
	134/5670	7.34	7.96	24.00	PASS
	142/5710	7.26	7.88	24.00	PASS
802.11ac VHT20	100/5500	7.56	7.87	24.00	PASS
	120/5600	7.71	8.02	24.00	PASS
	140/5700	7.42	7.73	24.00	PASS
	144/5720	7.21	7.52	24.00	PASS
802.11ac VHT40	102/5510	6.97	7.58	24.00	PASS
	118/5590	7.02	7.63	24.00	PASS
	134/5670	7.40	8.01	24.00	PASS
	142/5710	7.18	7.79	24.00	PASS
802.11ac VHT80	106/5530	6.83	7.99	24.00	PASS
	122/5610	6.82	7.98	24.00	PASS
	138/5690	6.48	7.64	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	0.81	1.11	30.00	PASS
	149/5745	7.81	8.11	30.00	PASS
	157/5785	7.67	7.97	30.00	PASS
	165/5825	8.17	8.47	30.00	PASS
802.11n HT20	144/5720	-1.32	-1.00	30.00	PASS
	149/5745	5.05	5.37	30.00	PASS
	157/5785	4.93	5.25	30.00	PASS
	165/5825	5.39	5.71	30.00	PASS
802.11n HT40	142/5710	-6.05	-5.43	30.00	PASS
	151/5755	5.43	6.05	30.00	PASS
	159/5795	5.84	6.46	30.00	PASS
802.11ac VHT20	144/5720	-1.60	-1.29	30.00	PASS
	149/5745	5.47	5.78	30.00	PASS
	157/5785	5.23	5.54	30.00	PASS
	165/5825	5.54	5.85	30.00	PASS
802.11ac VHT40	142/5710	-6.32	-5.71	30.00	PASS
	151/5755	5.52	6.13	30.00	PASS
	159/5795	5.74	6.35	30.00	PASS
802.11ac VHT80	138/5690	-9.54	-8.38	30.00	PASS
	155/5775	4.73	5.89	30.00	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					

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)			
U-NII-1 802.11a	36/5180	8.87	9.17	7.33	7.63	11.48	24.00	PASS
	40/5200	8.83	9.13	7.36	7.66	11.46	24.00	PASS
	48/5240	9.15	9.45	6.91	7.21	11.48	24.00	PASS
802.11n HT20	36/5180	8.81	9.13	6.85	7.17	11.27	24.00	PASS
	40/5200	8.80	9.12	7.22	7.54	11.41	24.00	PASS
	48/5240	8.60	8.92	6.40	6.72	10.97	24.00	PASS
802.11n HT40	38/5190	8.64	9.26	6.99	7.61	11.52	24.00	PASS
	46/5230	8.63	9.25	6.77	7.39	11.43	24.00	PASS
802.11ac VHT20	36/5180	9.01	9.32	6.95	7.26	11.42	24.00	PASS
	40/5200	8.92	9.23	7.24	7.55	11.48	24.00	PASS
	48/5240	8.95	9.26	6.79	7.10	11.32	24.00	PASS
802.11ac VHT40	38/5190	8.55	9.16	6.91	7.52	11.43	24.00	PASS
	46/5230	8.58	9.19	6.57	7.18	11.31	24.00	PASS
802.11ac VHT80	42/5210	5.84	7.00	3.97	5.13	9.17	24.00	PASS

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

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

2. The manufacturer declared the transmitter output signals is CDD mode And $N_{ss}=1$. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f)(i): If all antennas have the same gain, Directional gain = G_{ANT} + Array Gain,

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};

Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

So directional gain = G_{ANT} + Array Gain =2.8+0=2.8 dBi<6dBi. So the power limit is 30dBm.

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)			
U-NII-1 802.11a	100/5500	7.89	8.19	5.06	5.36	10.01	24.00	PASS
	120/5600	10.67	10.97	8.32	8.62	12.96	24.00	PASS
	140/5700	10.64	10.94	8.55	8.85	13.03	24.00	PASS
	144/5720	9.34	9.64	7.97	8.27	12.02	24.00	PASS
802.11n HT20	100/5500	9.84	10.16	7.07	7.39	12.00	24.00	PASS
	120/5600	10.53	10.85	8.13	8.45	12.82	24.00	PASS
	140/5700	10.54	10.86	8.40	8.72	12.93	24.00	PASS
	144/5720	9.18	9.50	7.70	8.02	11.83	24.00	PASS
802.11n HT40	102/5510	6.90	7.52	3.82	4.44	9.25	24.00	PASS
	118/5590	9.66	10.28	7.56	8.18	12.37	24.00	PASS
	134/5670	9.36	9.98	7.44	8.06	12.14	24.00	PASS
	142/5710	9.69	10.31	7.62	8.24	12.41	24.00	PASS
802.11ac VHT20	100/5500	9.86	10.17	7.12	7.43	12.02	24.00	PASS
	120/5600	10.55	10.86	8.24	8.55	12.87	24.00	PASS
	140/5700	10.42	10.73	8.22	8.53	12.78	24.00	PASS
	144/5720	8.94	9.25	7.72	8.03	11.69	24.00	PASS
802.11ac VHT40	102/5510	9.54	10.15	6.77	7.38	11.99	24.00	PASS
	118/5590	9.66	10.27	7.68	8.29	12.40	24.00	PASS
	134/5670	9.39	10.00	7.56	8.17	12.19	24.00	PASS
	142/5710	9.62	10.23	7.72	8.33	12.39	24.00	PASS
802.11ac VHT80	106/5530	7.53	8.69	5.21	6.37	10.69	24.00	PASS
	122/5610	9.22	10.38	7.12	8.28	12.47	24.00	PASS
	138/5690	8.77	9.93	6.92	8.08	12.11	24.00	PASS

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

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

2. The manufacturer declared the transmitter output signals is CDD mode And $N_{ss}=1$. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f)(i): If all antennas have the same gain, Directional gain = G_{ANT} + Array Gain,

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};

Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

So directional gain = G_{ANT} + Array Gain =2.8+0=2.8 dBi<6dBi. So the power limit is 30dBm.

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)			
U-NII-1 802.11a	144/5720	2.08	2.38	0.17	0.47	4.54	30.00	PASS
	149/5745	9.74	10.04	7.80	8.10	12.19	30.00	PASS
	157/5785	10.40	10.70	8.10	8.40	12.71	30.00	PASS
	165/5825	9.64	9.94	8.50	8.80	12.41	30.00	PASS
802.11n HT20	144/5720	2.45	2.77	0.95	1.27	5.09	30.00	PASS
	149/5745	9.78	10.10	7.72	8.04	12.20	30.00	PASS
	157/5785	10.01	10.33	7.80	8.12	12.37	30.00	PASS
	165/5825	9.59	9.91	8.31	8.63	12.33	30.00	PASS
802.11n HT40	142/5710	-2.05	-1.43	-4.29	-3.67	0.60	30.00	PASS
	151/5755	10.05	10.67	8.08	8.70	12.80	30.00	PASS
	159/5795	9.93	10.55	8.21	8.83	12.78	30.00	PASS
802.11ac VHT20	144/5720	2.47	2.78	0.97	1.28	5.10	30.00	PASS
	149/5745	9.81	10.12	7.67	7.98	12.19	30.00	PASS
	157/5785	9.90	10.21	7.78	8.09	12.29	30.00	PASS
	165/5825	9.67	9.98	8.50	8.81	12.44	30.00	PASS
802.11ac VHT40	142/5710	-2.24	-1.63	-4.27	-3.66	0.48	30.00	PASS
	151/5755	10.05	10.66	7.97	8.58	12.75	30.00	PASS
	159/5795	9.74	10.35	8.35	8.96	12.72	30.00	PASS
802.11ac VHT80	138/5690	-5.84	-4.68	-7.19	-6.03	-2.29	30.00	PASS
	155/5775	9.41	10.57	7.38	8.54	12.68	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 the transmitter output signals is CDD mode And $N_{ss}=1$. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f)(i): If all antennas have the same gain, Directional gain = G_{ANT} + Array Gain,

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};

Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

So directional gain = G_{ANT} + Array Gain =2.8+0=2.8 dBi<6dBi. So the power limit is 30dBm.

5.3. Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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
13.5	-20	5199.998070	5199.994850	5199.990027	5199.980827
13.5	-10	5200.001626	5199.986185	5199.987737	5199.973922
13.5	0	5199.999663	5199.985534	5199.980965	5199.968116
13.5	10	5199.992498	5199.978676	5199.980013	5199.963256
13.5	20	5199.986733	5199.971484	5199.973882	5199.962412
13.5	30	5199.978498	5199.971238	5199.969930	5199.960804
13.5	40	5199.968716	5199.964871	5199.969347	5199.957806
13.5	50	5199.966524	5199.964365	5199.961244	5199.957700
9	20	5199.960955	5199.955315	5199.959696	5199.955382
16	20	5199.953320	5199.954650	5199.953456	5199.952748
Max. ΔMHz		-0.046680	-0.045350	-0.046544	-0.047252
PPM		-8.976956	-8.721113	-8.950850	-9.086918

Voltage (V)	Temperature (°C)	U-NII-2C Test Results			
		5580MHz			
		1min	2min	5min	10min
13.5	-20	5579.996785	5579.996046	5579.993571	5579.992344
13.5	-10	5579.994755	5579.996045	5579.991697	5579.987378
13.5	0	5579.992246	5579.987271	5579.982946	5579.979694
13.5	10	5579.983196	5579.982224	5579.973914	5579.977828
13.5	20	5579.975666	5579.977671	5579.968422	5579.975631
13.5	30	5579.974926	5579.971392	5579.960692	5579.968725
13.5	40	5579.968048	5579.967291	5579.956807	5579.967145
13.5	50	5579.967172	5579.965362	5579.955054	5579.963770
9	20	5579.960525	5579.958994	5579.949454	5579.954047
16	20	5579.958557	5579.950226	5579.942498	5579.953615
Max. ΔMHz		-0.041443	-0.049774	-0.057502	-0.046385
PPM		-7.427032	-8.920082	-10.305023	-8.312813

Voltage (V)	Temperature (°C)	U-NII-3 Test Results			
		5785MHz			
		1min	2min	5min	10min
13.5	-20	5784.999875	5784.992909	5784.983829	5784.977442
13.5	-10	5784.999819	5784.987514	5784.976932	5784.971350
13.5	0	5784.990762	5784.981867	5784.975597	5784.964268
13.5	10	5784.983960	5784.973570	5784.968367	5784.963200
13.5	20	5784.976975	5784.967255	5784.961251	5784.961590
13.5	30	5784.975048	5784.963949	5784.960416	5784.953722
13.5	40	5784.966065	5784.956462	5784.950637	5784.953432
13.5	50	5784.965345	5784.955874	5784.945666	5784.951160
9	20	5784.955967	5784.950028	5784.941069	5784.941484
16	20	5784.951699	5784.947078	5784.940959	5784.939130
Max. ΔMHz		-0.048301	-0.052922	-0.059041	-0.060870
PPM		-8.349394	-9.148080	-10.205882	-10.522075

5.4. Power Spectral Density

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

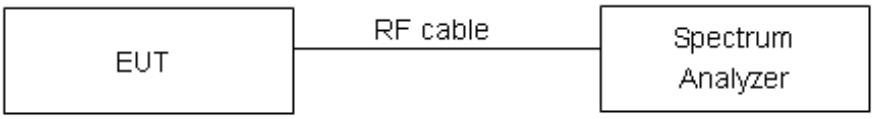
Method of Measurement

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, 5.470-5.725GHz.
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)/ Part 15.407(a)(2) / Part 15.407(a)(3)
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 5.47-5.725 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/MHz	Limits
5150-5250	11dBm/MHz
5.47-5.725 GHz	11dBm/MHz
5725-5850	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:

SISO Antenna 1

U-NII-1

Mode	Channel/ Frequency (MHz)	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	36/5180	-0.69	-0.39	11	PASS
	40/5200	-0.29	0.01	11	PASS
	48/5240	-0.20	0.10	11	PASS
802.11n HT20	36/5180	-0.82	-0.50	11	PASS
	40/5200	-1.02	-0.70	11	PASS
	48/5240	-0.78	-0.46	11	PASS
802.11n HT40	38/5190	-3.61	-2.99	11	PASS
	46/5230	-3.46	-2.84	11	PASS
802.11ac VHT20	36/5180	-0.92	-0.61	11	PASS
	40/5200	-0.85	-0.54	11	PASS
	48/5240	-0.81	-0.50	11	PASS
802.11ac VHT40	38/5190	-3.89	-3.28	11	PASS
	46/5230	-3.27	-2.66	11	PASS
802.11ac VHT80	42/5210	-7.73	-6.57	11	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

U-NII-2C

Mode	Channel/ Frequency (MHz)	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	100/5500	0.51	0.81	11	PASS
	120/5600	0.58	0.88	11	PASS
	140/5700	-0.07	0.23	11	PASS
	144/5720	0.61	0.91	11	PASS
802.11n HT20	100/5500	-0.13	0.19	11	PASS
	120/5600	0.14	0.46	11	PASS
	140/5700	-0.33	-0.01	11	PASS
	144/5720	-0.24	0.08	11	PASS
802.11n HT40	102/5510	-3.55	-2.93	11	PASS
	118/5590	-3.15	-2.53	11	PASS
	134/5670	-3.07	-2.45	11	PASS
	142/5710	-3.31	-2.69	11	PASS
802.11ac VHT20	100/5500	-0.04	0.27	11	PASS
	120/5600	0.37	0.68	11	PASS

	140/5700	-0.52	-0.21	11	PASS
	144/5720	0.21	0.52	11	PASS
802.11ac VHT40	102/5510	-2.99	-2.38	11	PASS
	118/5590	-2.82	-2.21	11	PASS
	134/5670	-2.63	-2.02	11	PASS
	142/5710	-3.12	-2.51	11	PASS
802.11ac VHT80	106/5530	-6.72	-5.56	11	PASS
	122/5610	-7.06	-5.90	11	PASS
	138/5690	-7.81	-6.65	11	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

U-NII-3

Mode	Channel/ Frequency (MHz)	Read Value (dBm/470kHz)	Power Spectral Density (dBm/500kHz)	Limit (dBm/500kHz)	Conclusion
802.11a	144/5720	-4.80	-4.23	30	PASS
	149/5745	-3.13	-2.56	30	PASS
	157/5785	-3.44	-2.87	30	PASS
	165/5825	-3.05	-2.48	30	PASS
802.11n HT20	144/5720	-5.30	-4.71	30	PASS
	149/5745	-3.64	-3.05	30	PASS
	157/5785	-3.65	-3.06	30	PASS
	165/5825	-3.61	-3.02	30	PASS
802.11n HT40	142/5710	-9.38	-8.49	30	PASS
	151/5755	-5.98	-5.09	30	PASS
	159/5795	-6.43	-5.54	30	PASS
802.11ac VHT20	144/5720	-5.29	-4.71	30	PASS
	149/5745	-3.49	-2.91	30	PASS
	157/5785	-3.24	-2.66	30	PASS
	165/5825	-3.60	-3.02	30	PASS
802.11ac VHT40	142/5710	-9.46	-8.58	30	PASS
	151/5755	-6.56	-5.68	30	PASS
	159/5795	-6.09	-5.21	30	PASS
802.11ac VHT80	138/5690	-13.04	-11.61	30	PASS
	155/5775	-10.16	-8.73	30	PASS
Note: PSD=Read Value+Duty cycle correction factor +10*log(500/470)					

SISO Antenna 2

U-NII-1

Mode	Channel/ Frequency (MHz)	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	36/5180	-2.44	-2.14	11	PASS
	40/5200	-2.88	-2.58	11	PASS
	48/5240	-2.59	-2.29	11	PASS
802.11n HT20	36/5180	-3.22	-2.90	11	PASS
	40/5200	-2.75	-2.43	11	PASS
	48/5240	-2.47	-2.15	11	PASS
802.11n HT40	38/5190	-5.62	-5.00	11	PASS
	46/5230	-5.42	-4.80	11	PASS
802.11ac VHT20	36/5180	-3.08	-2.77	11	PASS
	40/5200	-2.86	-2.55	11	PASS
	48/5240	-2.97	-2.66	11	PASS
802.11ac VHT40	38/5190	-5.94	-5.33	11	PASS
	46/5230	-5.30	-4.69	11	PASS
802.11ac VHT80	42/5210	-9.18	-8.02	11	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

U-NII-2C

Mode	Channel/ Frequency (MHz)	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	100/5500	-2.09	-1.79	11	PASS
	120/5600	-1.84	-1.54	11	PASS
	140/5700	-1.87	-1.57	11	PASS
	144/5720	-0.91	-0.61	11	PASS
802.11n HT20	100/5500	-2.24	-1.92	11	PASS
	120/5600	-2.24	-1.92	11	PASS
	140/5700	-2.53	-2.21	11	PASS
	144/5720	-1.29	-0.97	11	PASS
802.11n HT40	102/5510	-6.04	-5.42	11	PASS
	118/5590	-5.18	-4.56	11	PASS
	134/5670	-4.53	-3.91	11	PASS
	142/5710	-4.81	-4.19	11	PASS
802.11ac VHT20	100/5500	-2.13	-1.82	11	PASS
	120/5600	-2.41	-2.10	11	PASS
	140/5700	-2.27	-1.96	11	PASS

	144/5720	-1.51	-1.20	11	PASS
802.11ac VHT40	102/5510	-5.39	-4.78	11	PASS
	118/5590	-5.54	-4.93	11	PASS
	134/5670	-5.13	-4.52	11	PASS
	142/5710	-5.02	-4.41	11	PASS
802.11ac VHT80	106/5530	-9.07	-7.91	11	PASS
	122/5610	-8.97	-7.81	11	PASS
	138/5690	-9.30	-8.14	11	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

U-NII-3

Mode	Channel/ Frequency (MHz)	Read Value (dBm/470kHz)	Power Spectral Density (dBm/500kHz)	Limit (dBm/500kHz)	Conclusion
802.11a	144/5720	-6.38	-5.81	30	PASS
	149/5745	-5.29	-4.72	30	PASS
	157/5785	-4.87	-4.30	30	PASS
	165/5825	-4.51	-3.94	30	PASS
802.11n HT20	144/5720	-9.31	-8.72	30	PASS
	149/5745	-8.02	-7.43	30	PASS
	157/5785	-8.06	-7.47	30	PASS
	165/5825	-7.47	-6.88	30	PASS
802.11n HT40	142/5710	-13.46	-12.57	30	PASS
	151/5755	-10.55	-9.66	30	PASS
	159/5795	-10.16	-9.27	30	PASS
802.11ac VHT20	144/5720	-9.53	-8.95	30	PASS
	149/5745	-7.77	-7.19	30	PASS
	157/5785	-7.45	-6.87	30	PASS
	165/5825	-7.34	-6.76	30	PASS
802.11ac VHT40	142/5710	-12.31	-11.43	30	PASS
	151/5755	-10.16	-9.28	30	PASS
	159/5795	-9.80	-8.92	30	PASS
802.11ac VHT80	138/5690	-16.90	-15.47	30	PASS
	155/5775	-13.92	-12.49	30	PASS
Note: PSD=Read Value+Duty cycle correction factor +10*log(500/470).					

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	-0.75	-0.45	-2.05	-1.75	1.96	11	PASS
	40/5200	-0.64	-0.34	-2.06	-1.76	2.02	11	PASS
	48/5240	-0.19	0.11	-2.46	-2.16	2.13	11	PASS
802.11n HT20	36/5180	-0.95	-0.63	-2.95	-2.63	1.49	11	PASS
	40/5200	-0.73	-0.41	-2.17	-1.85	1.94	11	PASS
	48/5240	-1.14	-0.82	-3.17	-2.85	1.29	11	PASS
802.11n HT40	38/5190	-4.04	-3.42	-5.42	-4.80	-1.05	11	PASS
	46/5230	-3.51	-2.89	-5.58	-4.96	-0.79	11	PASS
802.11ac VHT20	36/5180	-0.85	-0.54	-2.81	-2.50	1.60	11	PASS
	40/5200	-0.72	-0.41	-2.26	-1.95	1.90	11	PASS
	48/5240	-0.60	-0.29	-2.72	-2.41	1.79	11	PASS
802.11ac VHT40	38/5190	-3.77	-3.16	-5.13	-4.52	-0.78	11	PASS
	46/5230	-3.52	-2.91	-6.01	-5.40	-0.97	11	PASS
802.11ac VHT80	42/5210	-9.51	-8.35	-10.92	-9.76	-5.99	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 the transmitter output signals is CDD mode And Nss=1. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f)(i): If all antennas have the same gain, Directional gain = G_{ANT} + Array Gain, For PSD measurements on all devices, Array Gain=10log(Nant/Nss)dB,

so directional gain=G_{ANT}+Array Gain=2.80+10log(2/1) = 5.81 < 6 dBi.

So the PSD limit is 11 dBm.

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	-1.62	-1.32	-4.54	-4.24	0.47	11	PASS
	120/5600	1.20	1.50	-1.08	-0.78	3.52	11	PASS
	140/5700	1.60	1.90	-1.05	-0.75	3.78	11	PASS
	144/5720	0.34	0.64	-0.67	-0.37	3.17	11	PASS
802.11n HT20	100/5500	0.02	0.34	-2.48	-2.16	2.28	11	PASS
	120/5600	1.04	1.36	-1.14	-0.82	3.42	11	PASS
	140/5700	1.16	1.48	-1.29	-0.97	3.44	11	PASS
	144/5720	0.34	0.66	-1.15	-0.83	2.99	11	PASS
802.11n HT40	102/5510	-5.73	-5.11	-8.58	-7.96	-3.29	11	PASS
	118/5590	-2.69	-2.07	-4.80	-4.18	0.01	11	PASS
	134/5670	-3.47	-2.85	-4.93	-4.31	-0.51	11	PASS
	142/5710	-2.55	-1.93	-4.42	-3.80	0.25	11	PASS
802.11ac VHT20	100/5500	0.07	0.38	-2.58	-2.27	2.26	11	PASS
	120/5600	0.75	1.06	-1.56	-1.25	3.07	11	PASS
	140/5700	0.53	0.84	-1.84	-1.53	2.83	11	PASS
	144/5720	0.20	0.51	-1.41	-1.10	2.79	11	PASS
802.11ac VHT40	102/5510	-3.05	-2.44	-5.82	-5.21	-0.60	11	PASS
	118/5590	-2.70	-2.09	-4.87	-4.26	-0.03	11	PASS
	134/5670	-3.01	-2.40	-5.02	-4.41	-0.28	11	PASS
	142/5710	-2.45	-1.84	-4.37	-3.76	0.32	11	PASS
802.11ac VHT80	106/5530	-8.39	-7.23	-10.63	-9.47	-5.20	11	PASS
	122/5610	-5.81	-4.65	-8.53	-7.37	-2.79	11	PASS
	138/5690	-6.52	-5.36	-8.92	-7.76	-3.39	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 the transmitter output signals is CDD mode And Nss=1. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f)(i): If all antennas have the same gain, Directional gain = G_{ANT} + Array Gain, For PSD measurements on all devices, Array Gain=10log(Nant/Nss)dB,

so directional gain=G_{ANT}+Array Gain=2.80+10log(2/1) = 5.81 < 6 dBi.

So the PSD limit is 11dBm

U-NII-3

Mode	Channel/ Frequency (MHz)	Power Spectral Density					Limit (dBm/ 500kHz)	Conclusion
		Antenna 1		Antenna 2		Total Power (dBm/ 500kHz)		
		Read Value (dBm/470kHz)	PSD (dBm/500kHz)	Read Value (dBm/470kHz)	PSD (dBm/500kHz)			
U-NII-3 802.11a	144/5720	-5.01	-4.44	-6.42	-5.85	-2.08	30	PASS
	149/5745	-2.97	-2.40	-4.81	-4.24	-0.21	30	PASS
	157/5785	-2.59	-2.02	-4.91	-4.34	-0.02	30	PASS
	165/5825	-2.93	-2.36	-4.23	-3.66	0.05	30	PASS
802.11n HT20	144/5720	-5.37	-4.78	-6.88	-6.29	-2.46	30	PASS
	149/5745	-3.39	-2.80	-5.11	-4.52	-0.57	30	PASS
	157/5785	-2.75	-2.16	-5.09	-4.50	-0.16	30	PASS
	165/5825	-3.23	-2.64	-4.34	-3.75	-0.15	30	PASS
802.11n HT40	142/5710	-9.30	-8.41	-10.77	-9.88	-6.07	30	PASS
	151/5755	-5.32	-4.43	-7.66	-6.77	-2.43	30	PASS
	159/5795	-5.56	-4.67	-7.19	-6.30	-2.40	30	PASS
802.11ac VHT20	144/5720	-5.33	-4.75	-6.72	-6.14	-2.38	30	PASS
	149/5745	-3.39	-2.81	-5.59	-5.01	-0.76	30	PASS
	157/5785	-2.93	-2.35	-5.00	-4.42	-0.25	30	PASS
	165/5825	-3.02	-2.44	-4.50	-3.92	-0.11	30	PASS
802.11ac VHT40	142/5710	-9.29	-8.41	-10.88	-10.00	-6.12	30	PASS
	151/5755	-5.91	-5.03	-7.90	-7.02	-2.90	30	PASS
	159/5795	-5.89	-5.01	-7.40	-6.52	-2.69	30	PASS
802.11ac VHT80	138/5690	-12.79	-11.36	-15.37	-13.94	-9.45	30	PASS
	155/5775	-9.62	-8.19	-11.77	-10.34	-6.12	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 the transmitter output signals is CDD mode And Nss=1. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f)(i): If all antennas have the same gain, Directional gain = G_{ANT} + Array Gain, For PSD measurements on all devices, Array Gain=10log(Nant/Nss)dB,

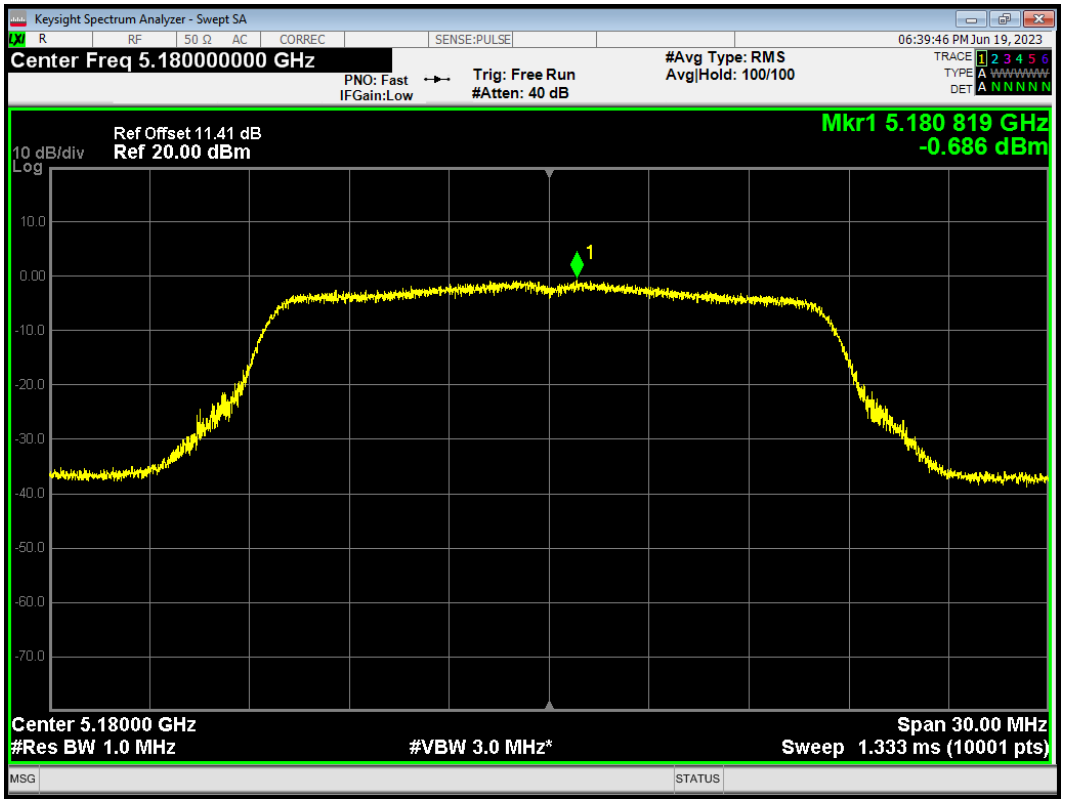
so directional gain=G_{ANT}+Array Gain=2.80+10log(2/1) = 5.81 < 6 dBi.

So the PSD limit is 30 dBm.

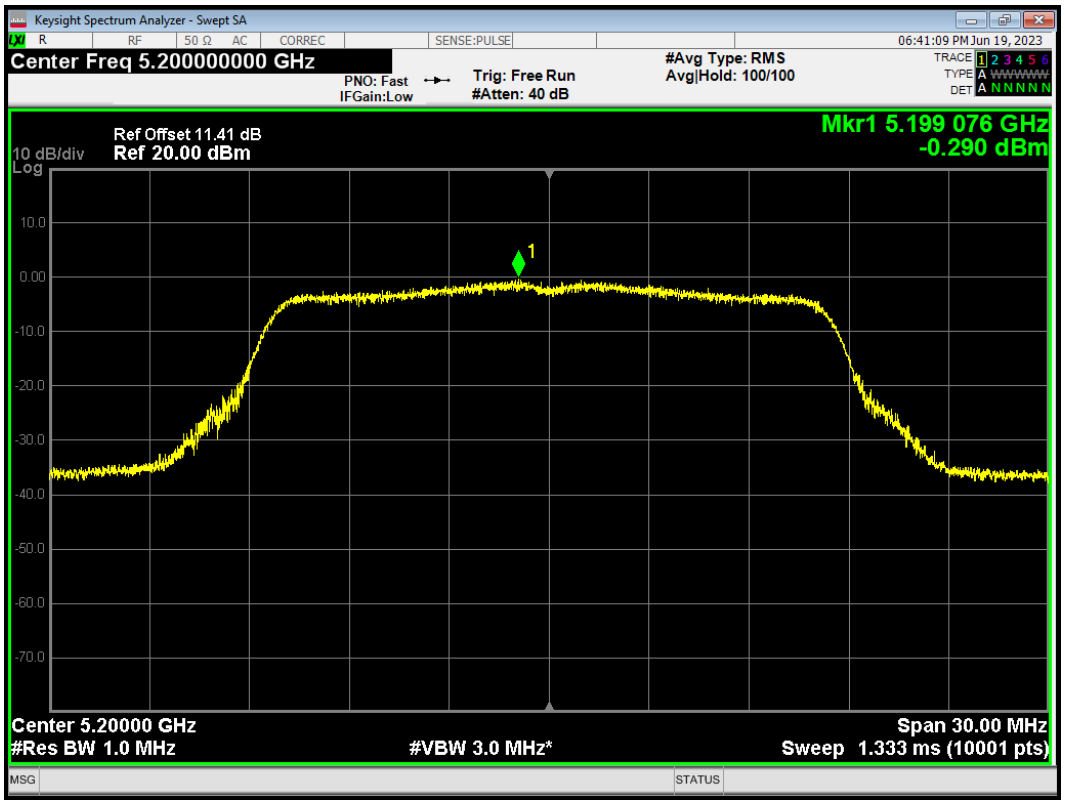
SISO Antenna 1

U-NII-1

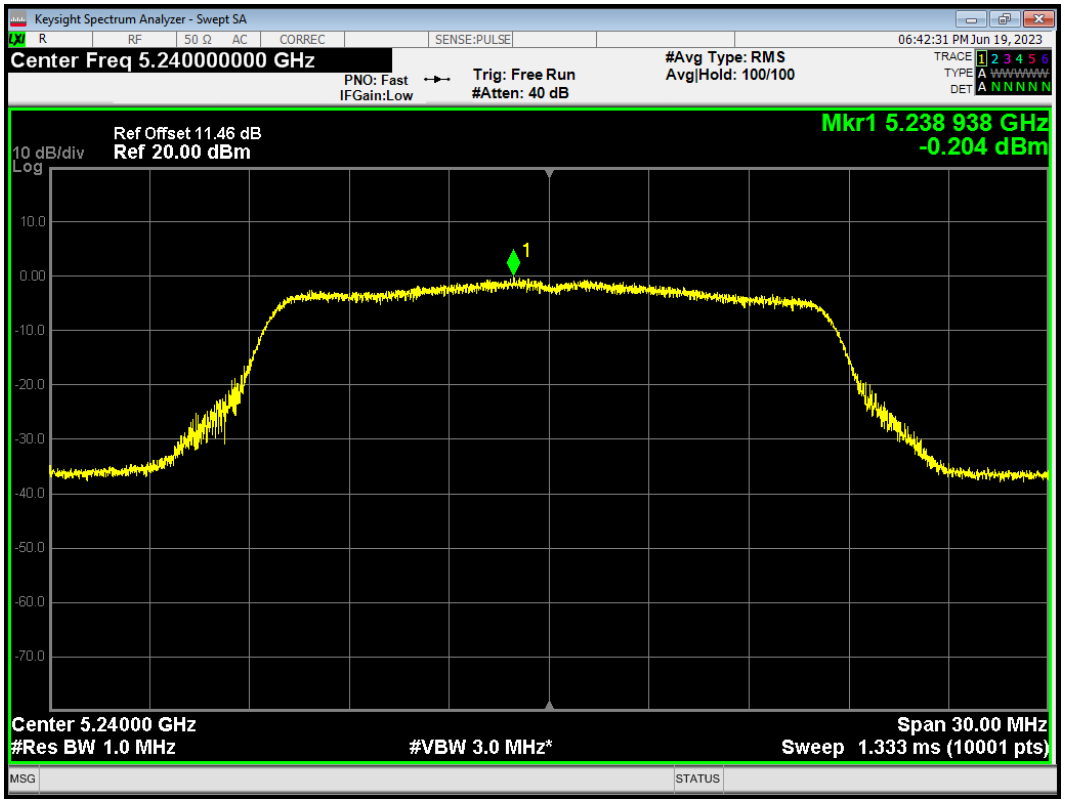
PSD 802.11a 5180MHz



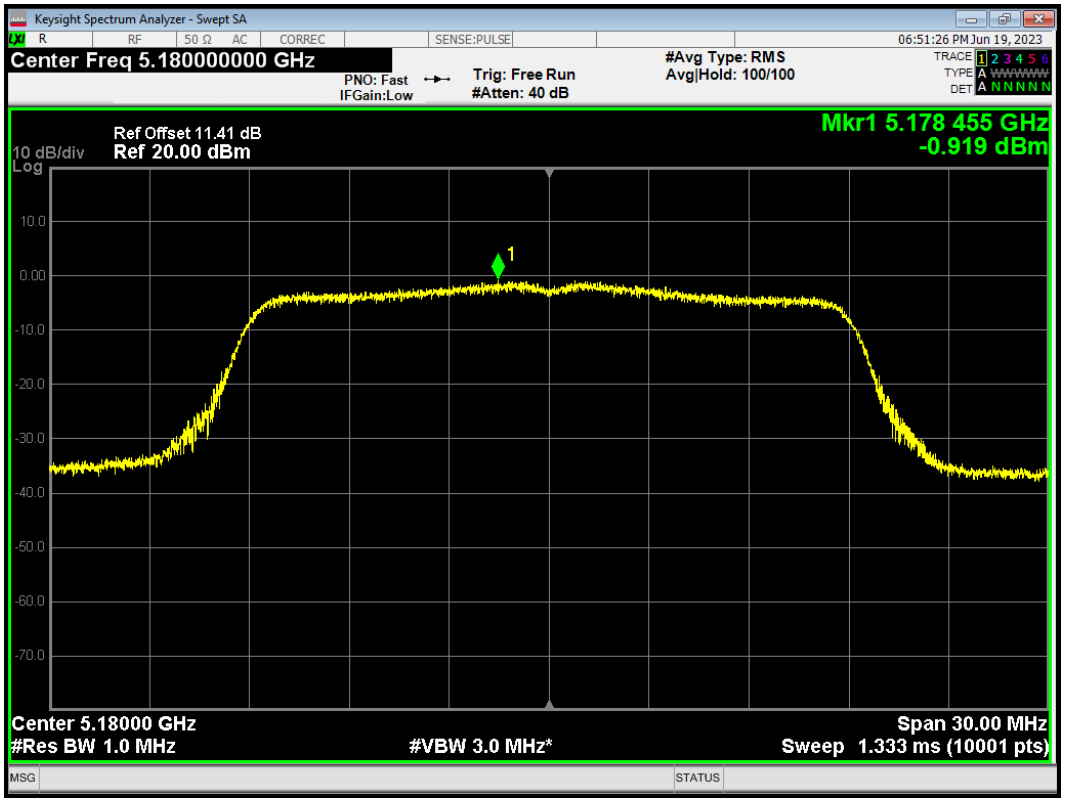
PSD 802.11a 5200MHz



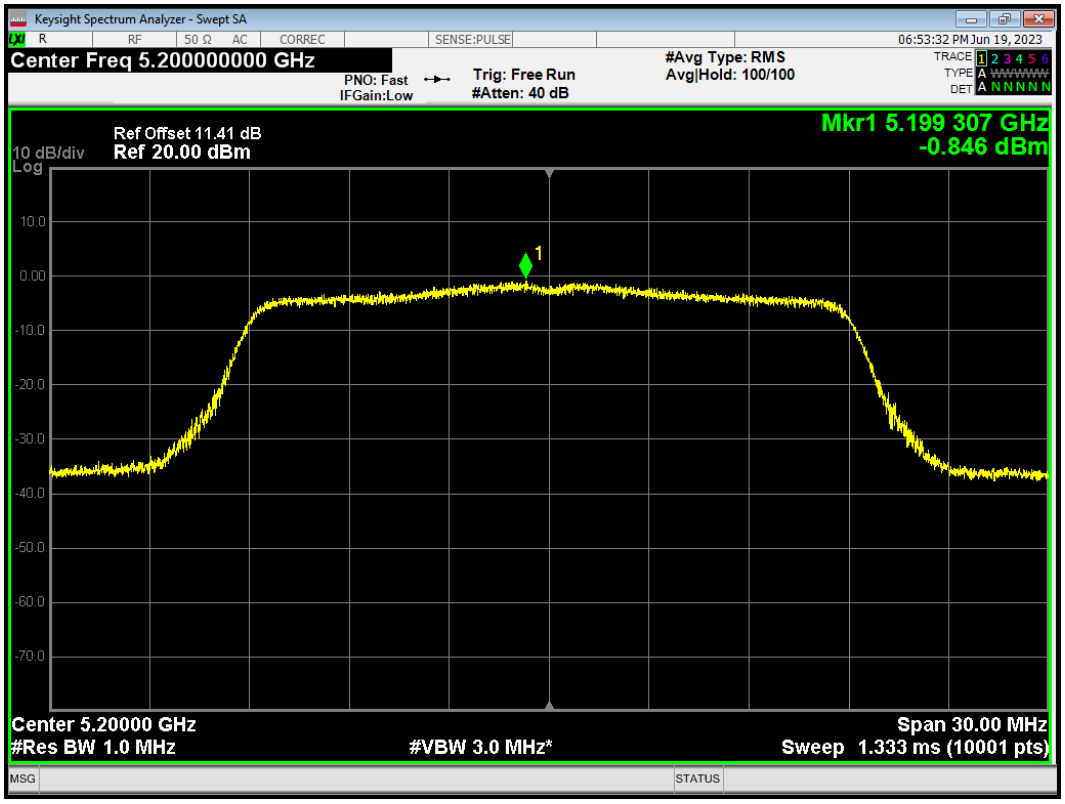
PSD 802.11a 5240MHz



PSD 802.11ac(VHT20) 5180MHz



PSD 802.11ac(VHT20) 5200MHz



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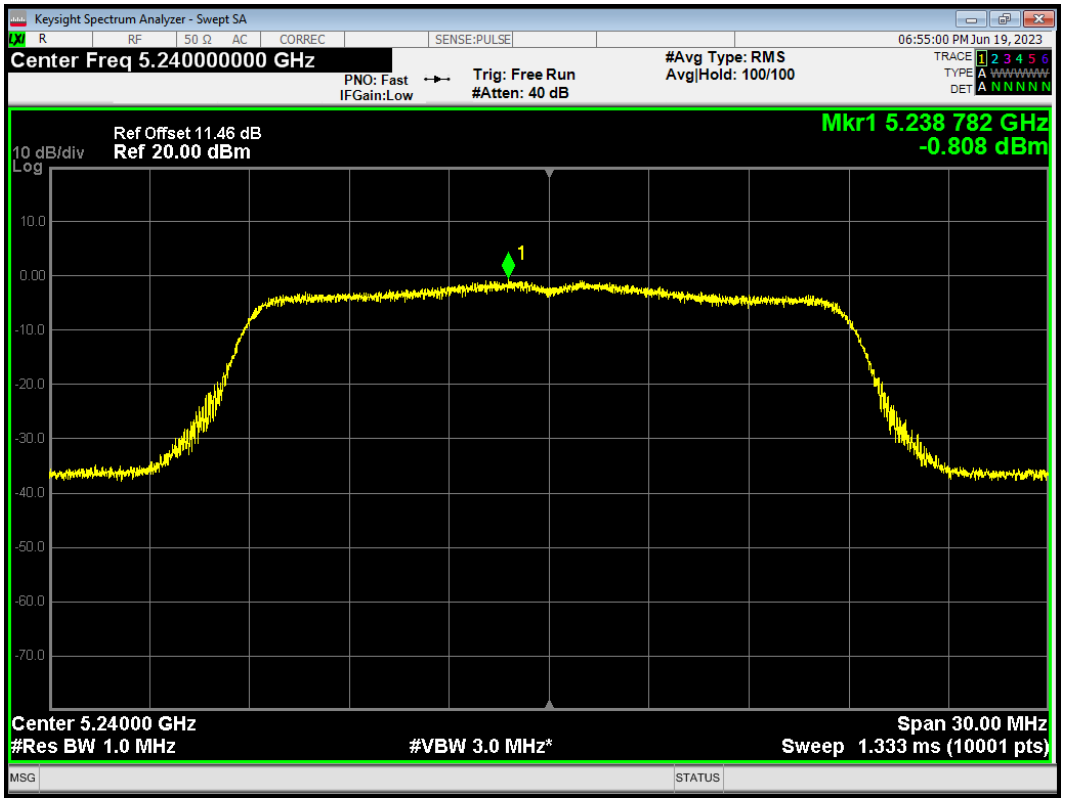
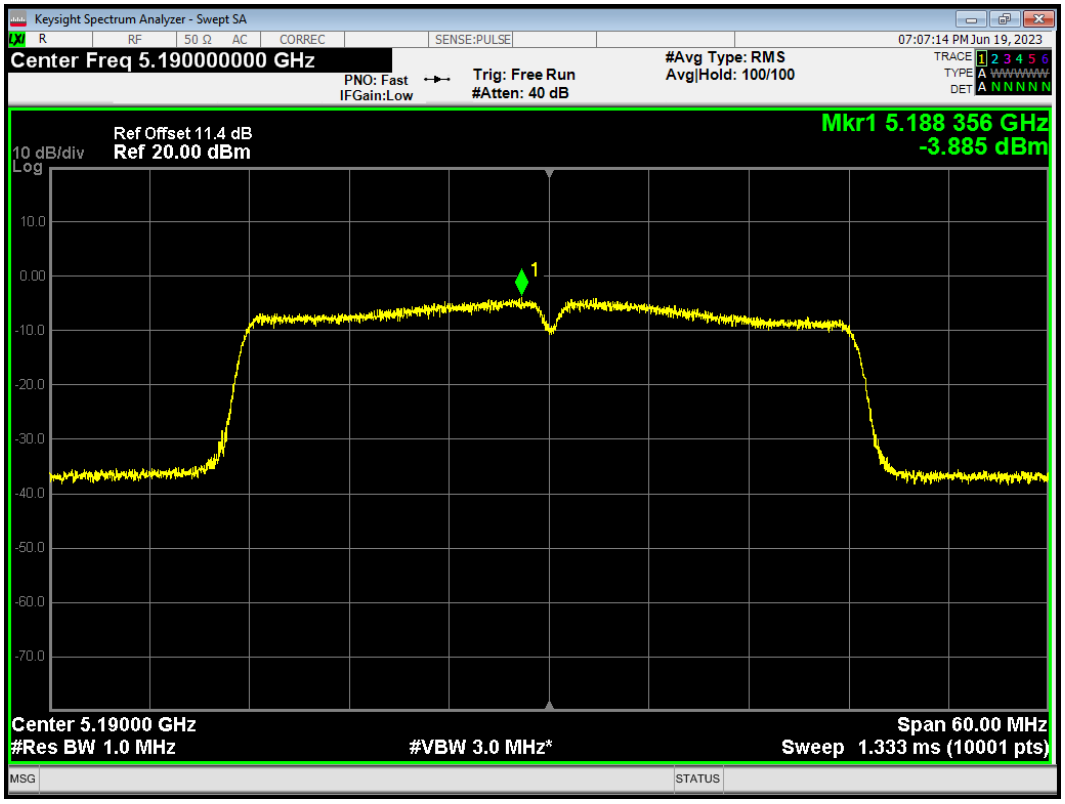
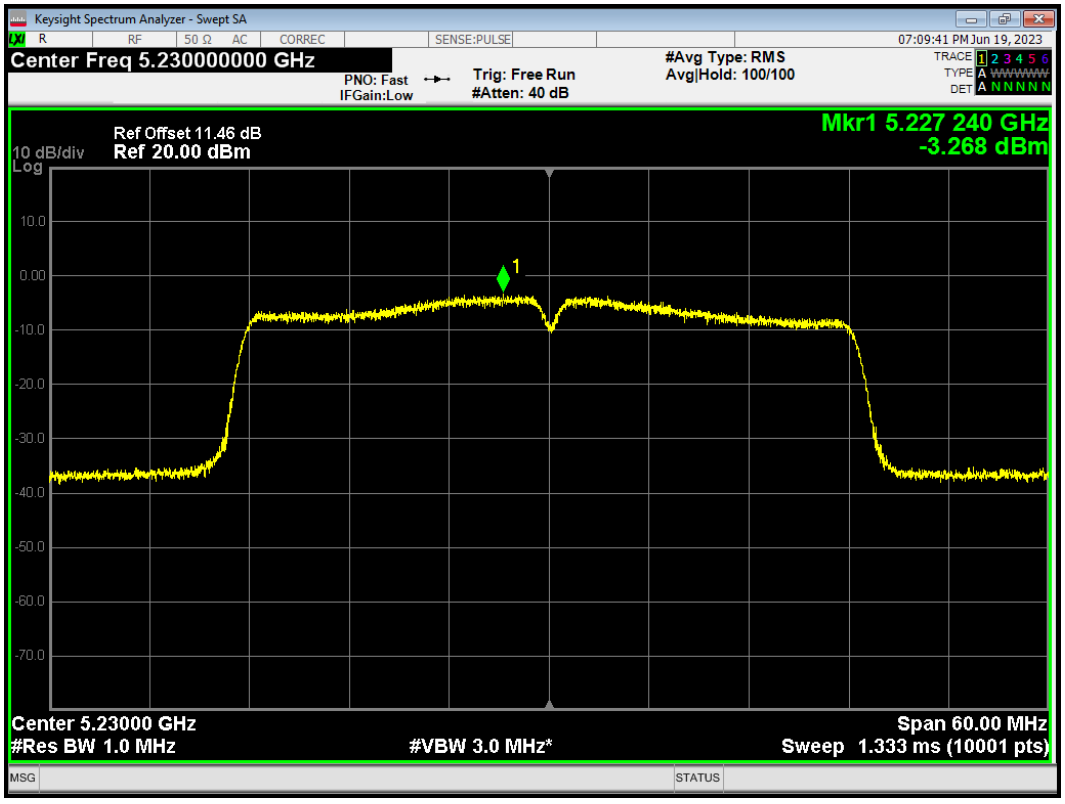


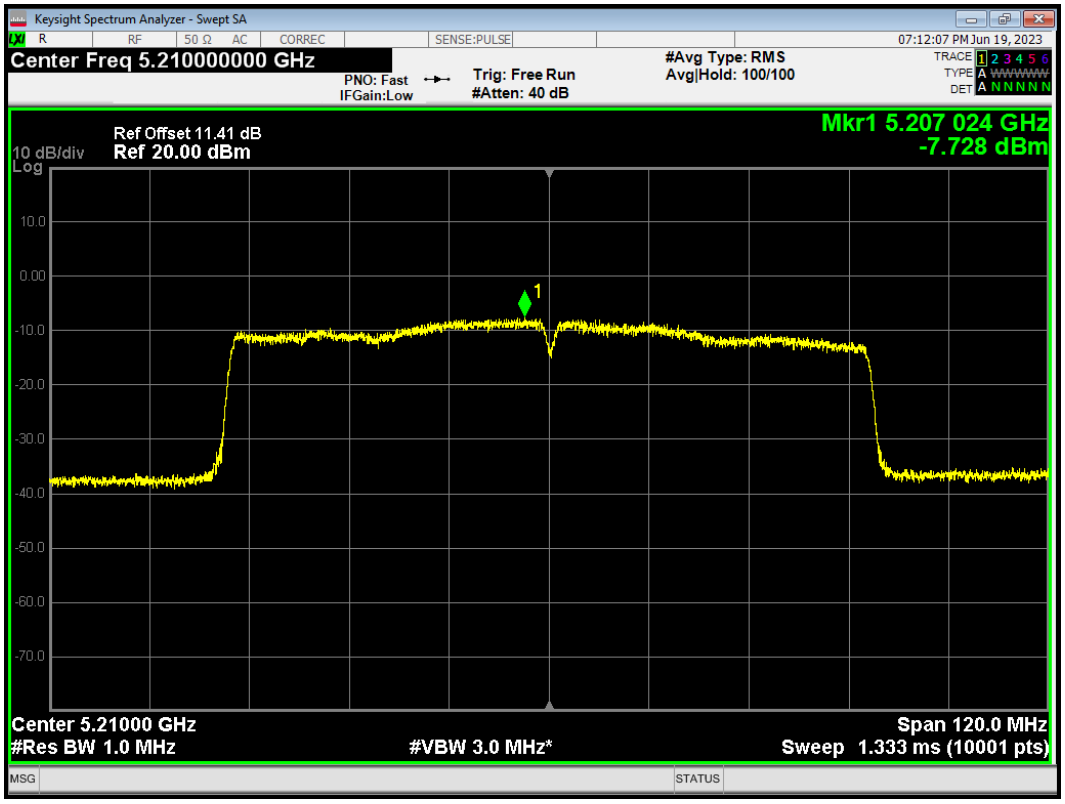
PSD 802.11ac(VHT40) 5190MHz



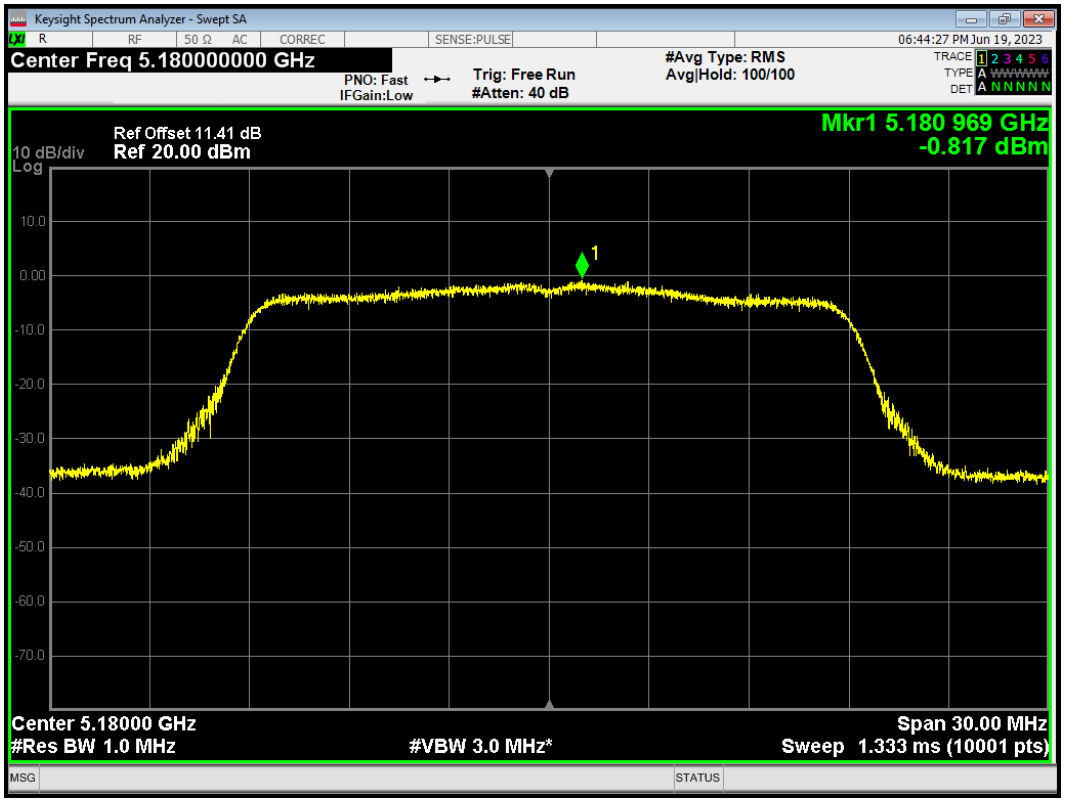
PSD 802.11ac(VHT40) 5230MHz



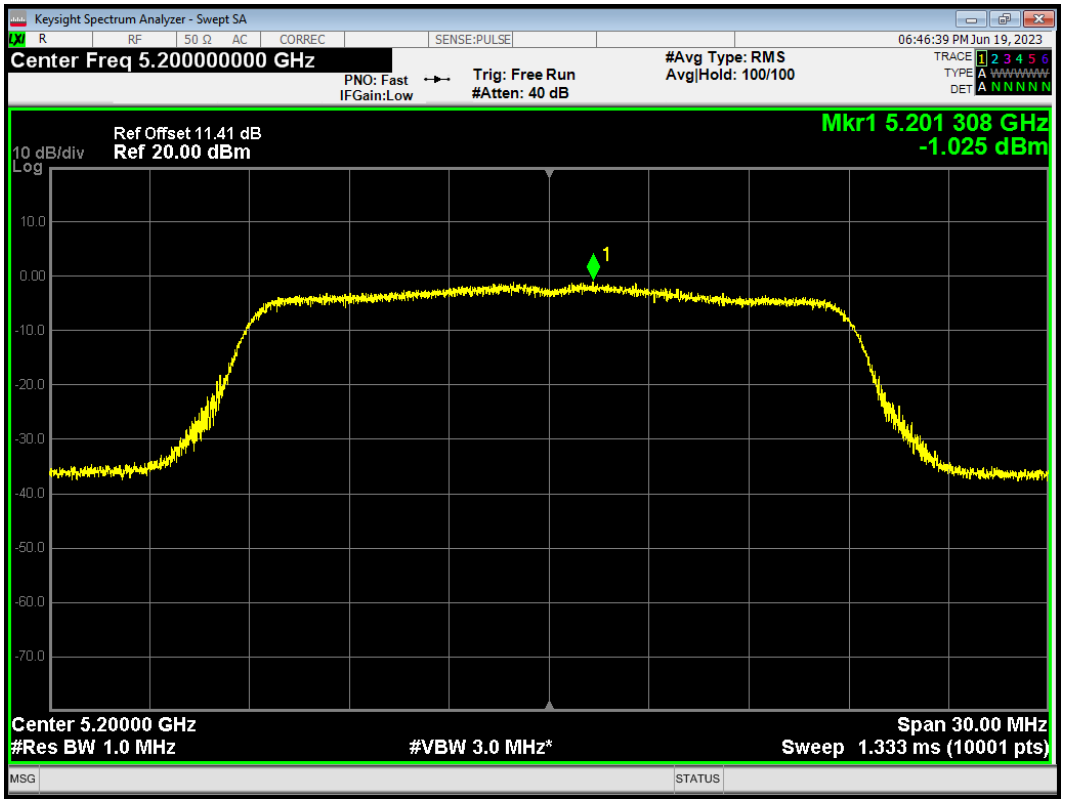
PSD 802.11ac(VHT80) 5210MHz



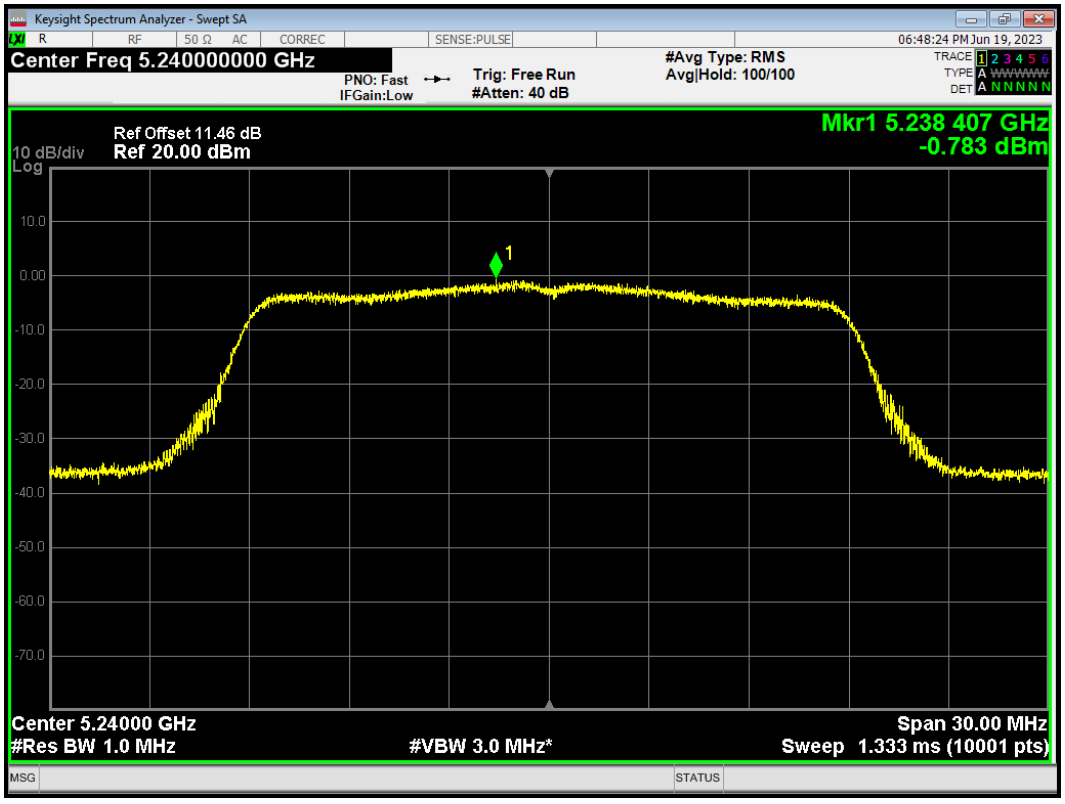
PSD 802.11n(HT20) 5180MHz



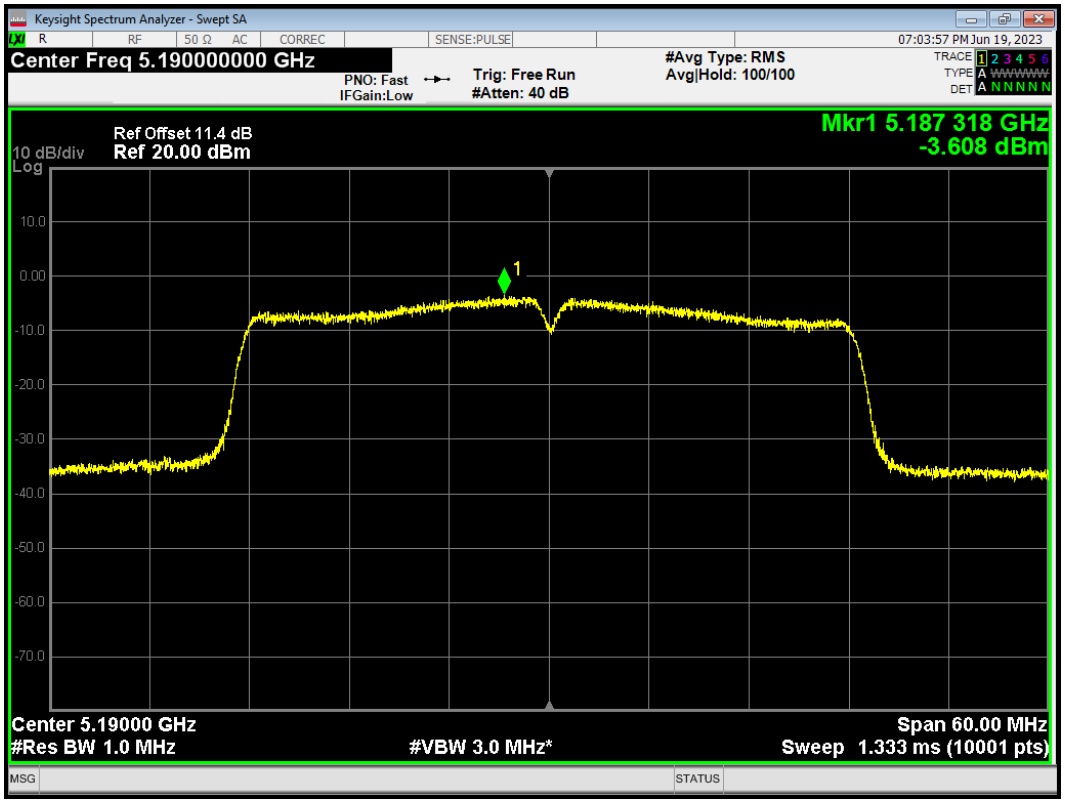
PSD 802.11n(HT20) 5200MHz



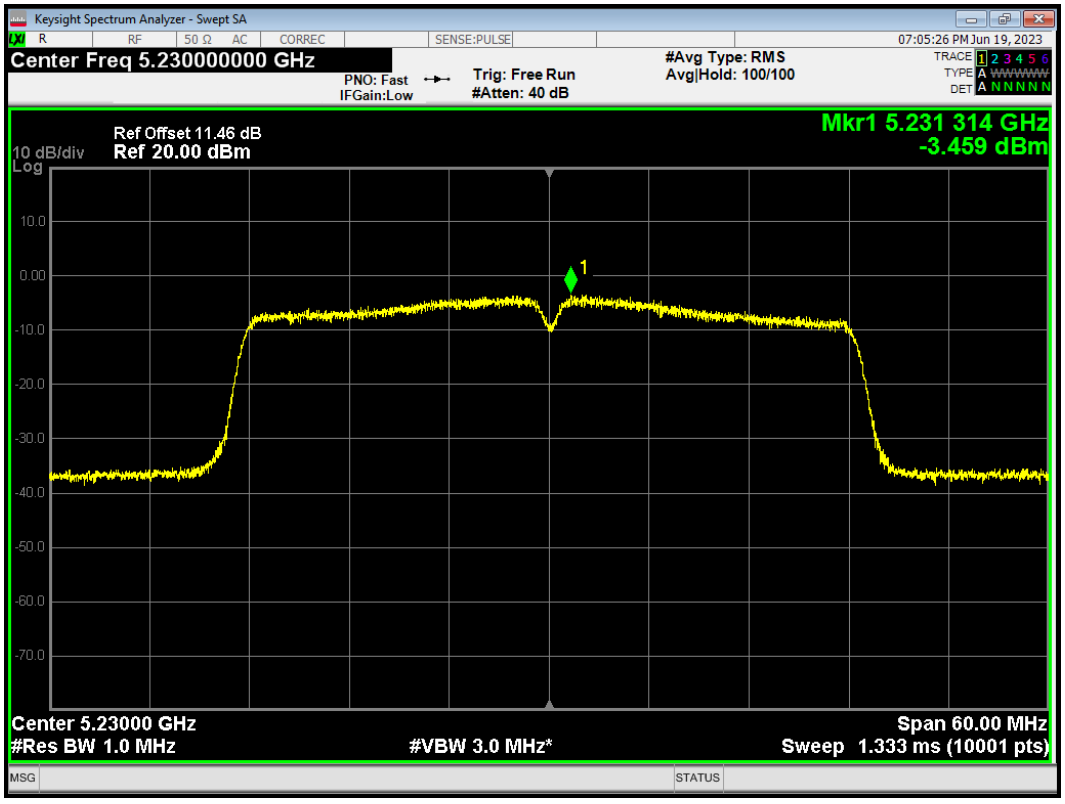
PSD 802.11n(HT20) 5240MHz



PSD 802.11n(HT40) 5190MHz

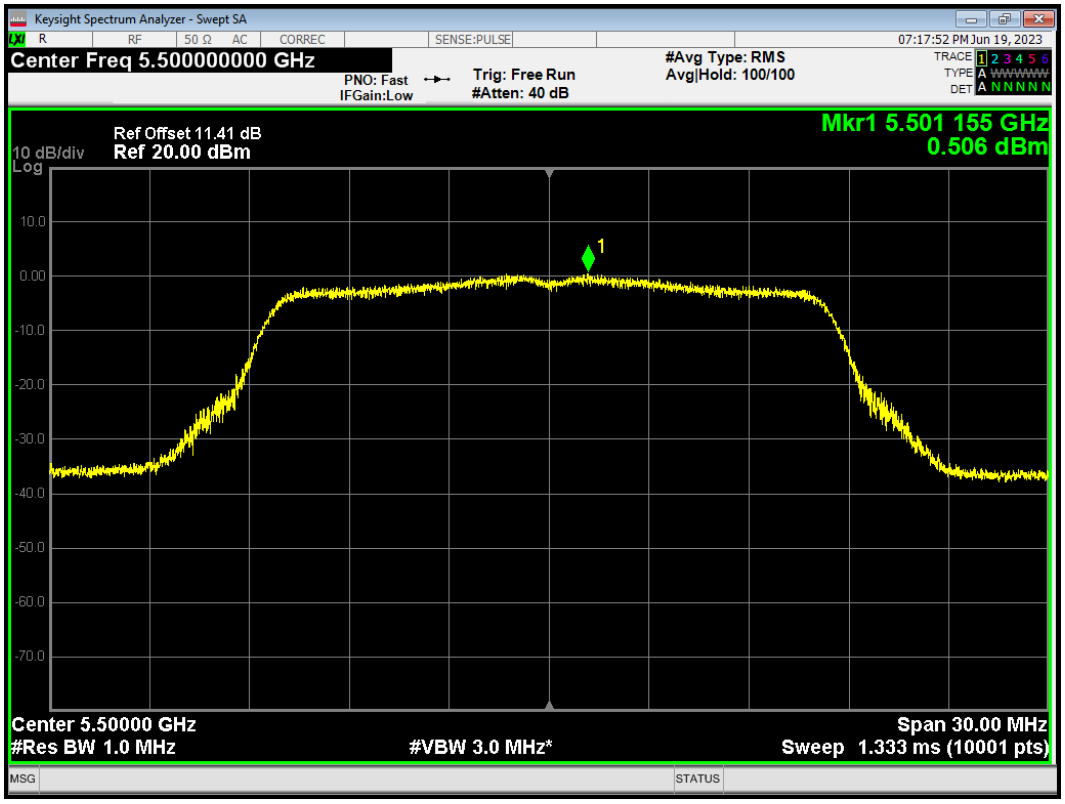


PSD 802.11n(HT40) 5230MHz

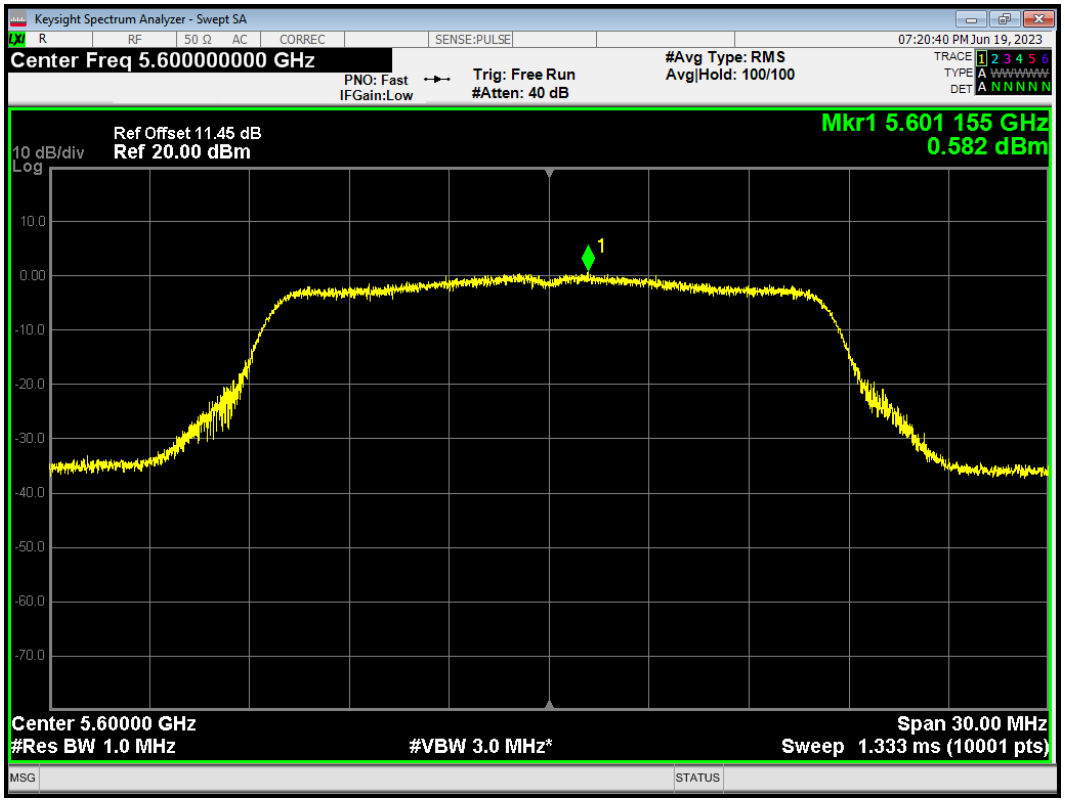


U-NII-2C

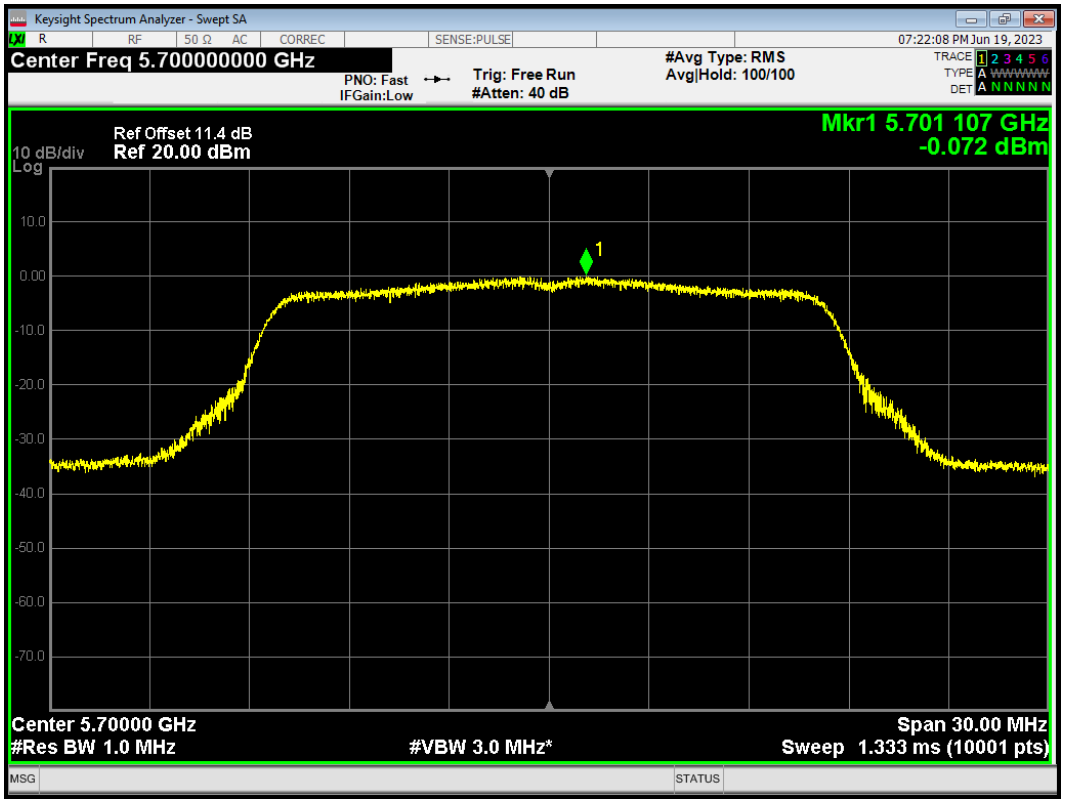
PSD 802.11a 5500MHz



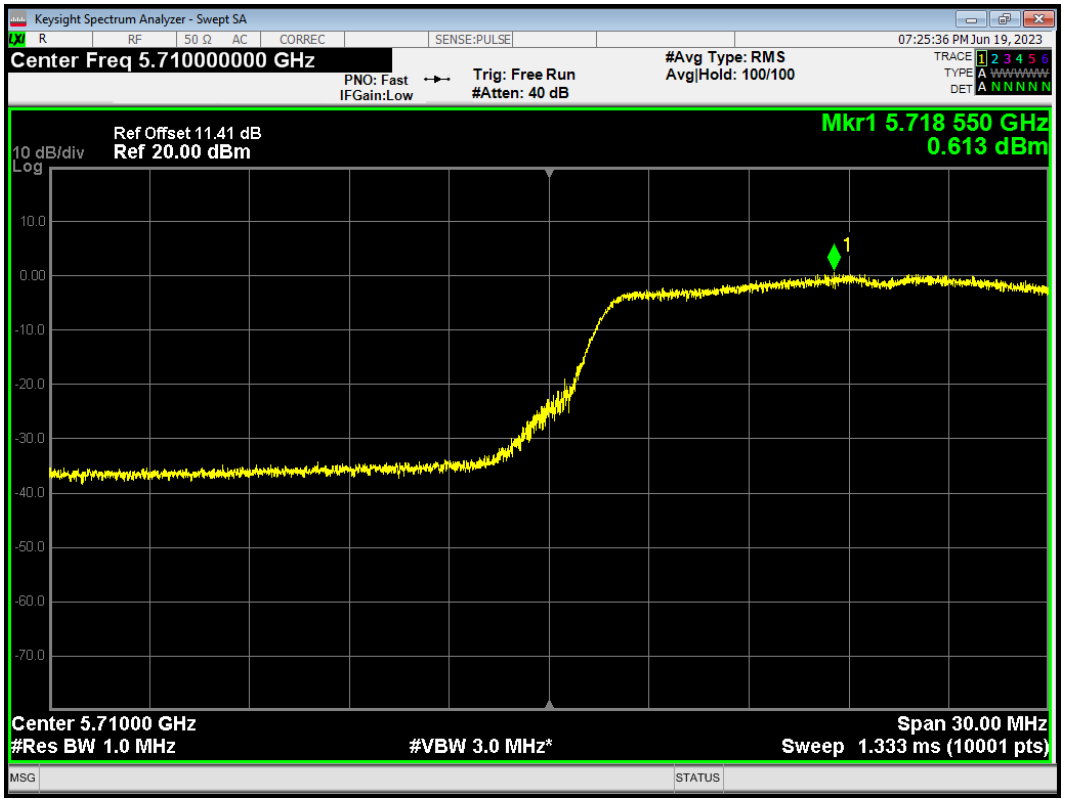
PSD 802.11a 5600MHz



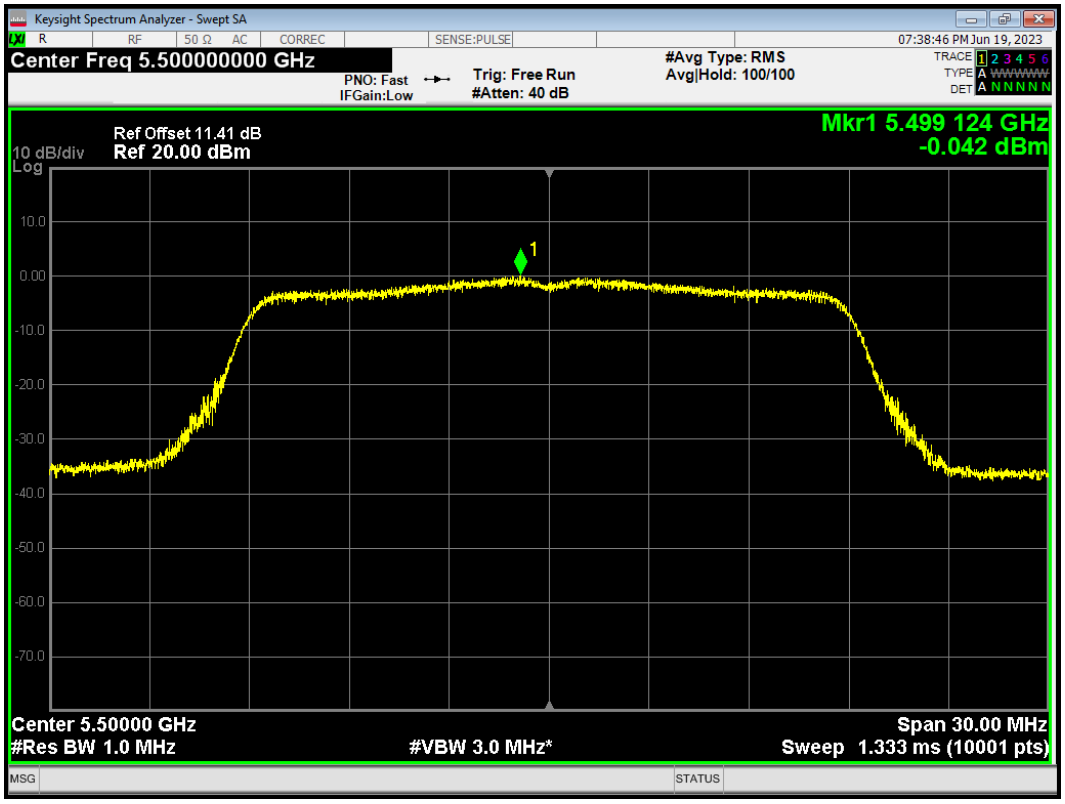
PSD 802.11a 5700MHz



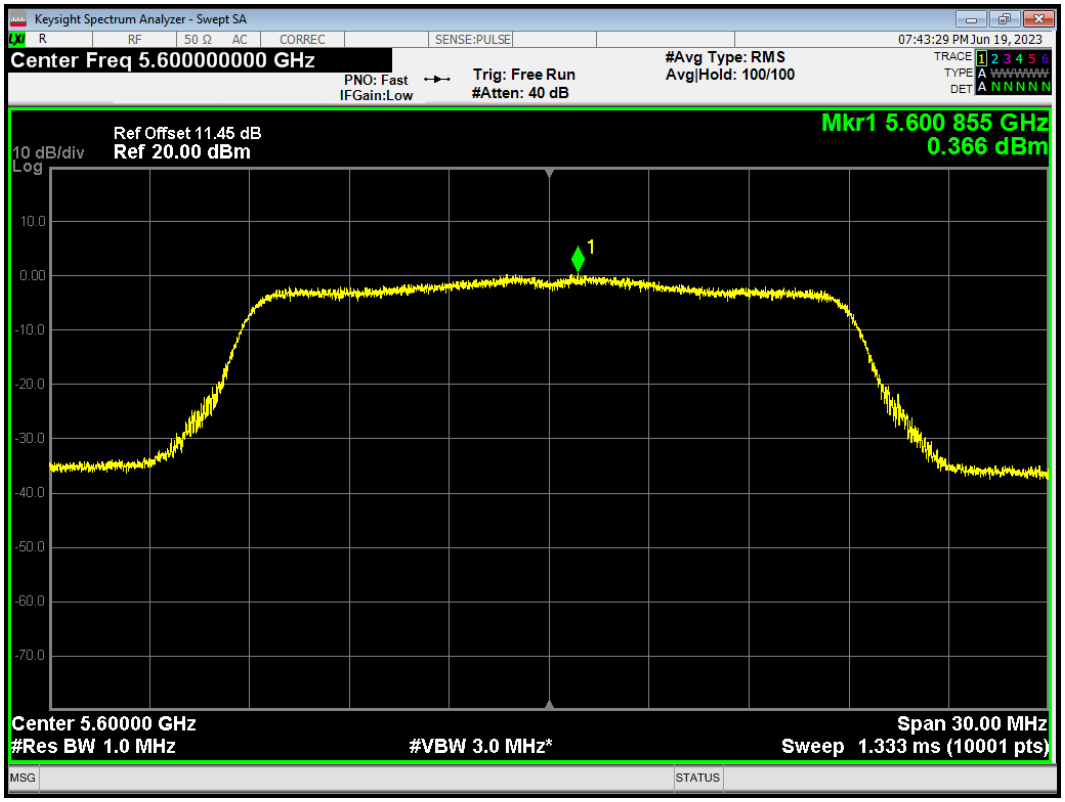
PSD 802.11a 5720MHz



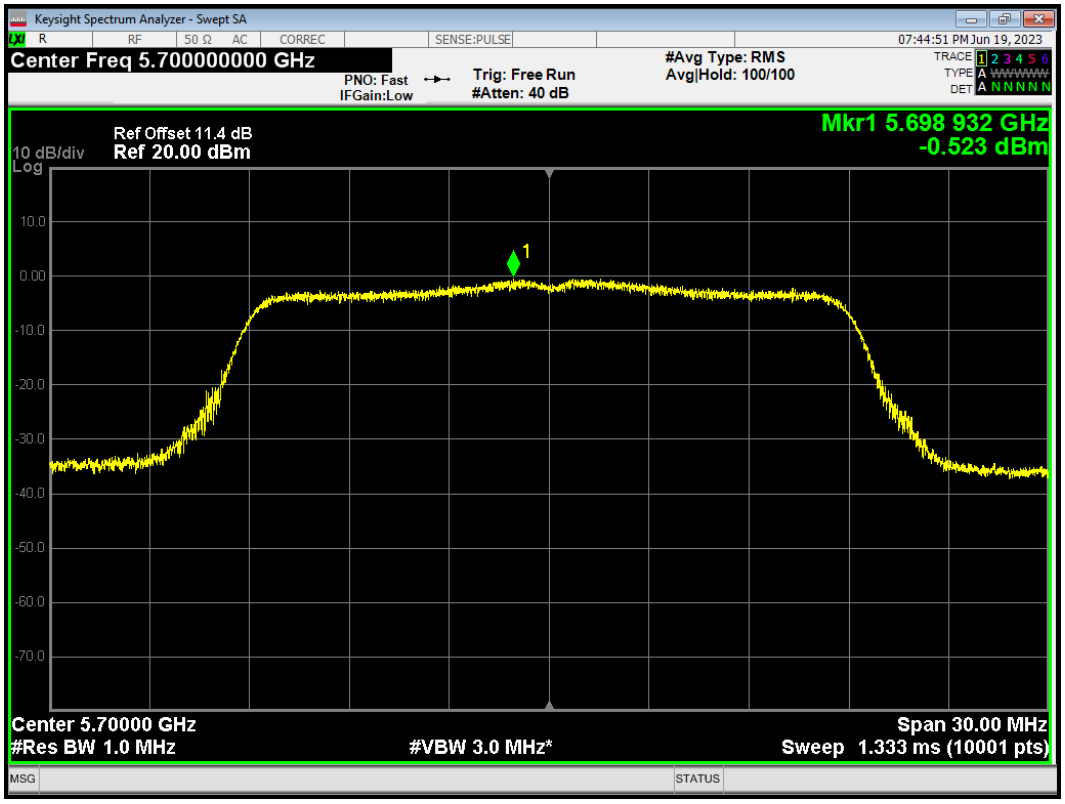
PSD 802.11ac(VHT20) 5500MHz



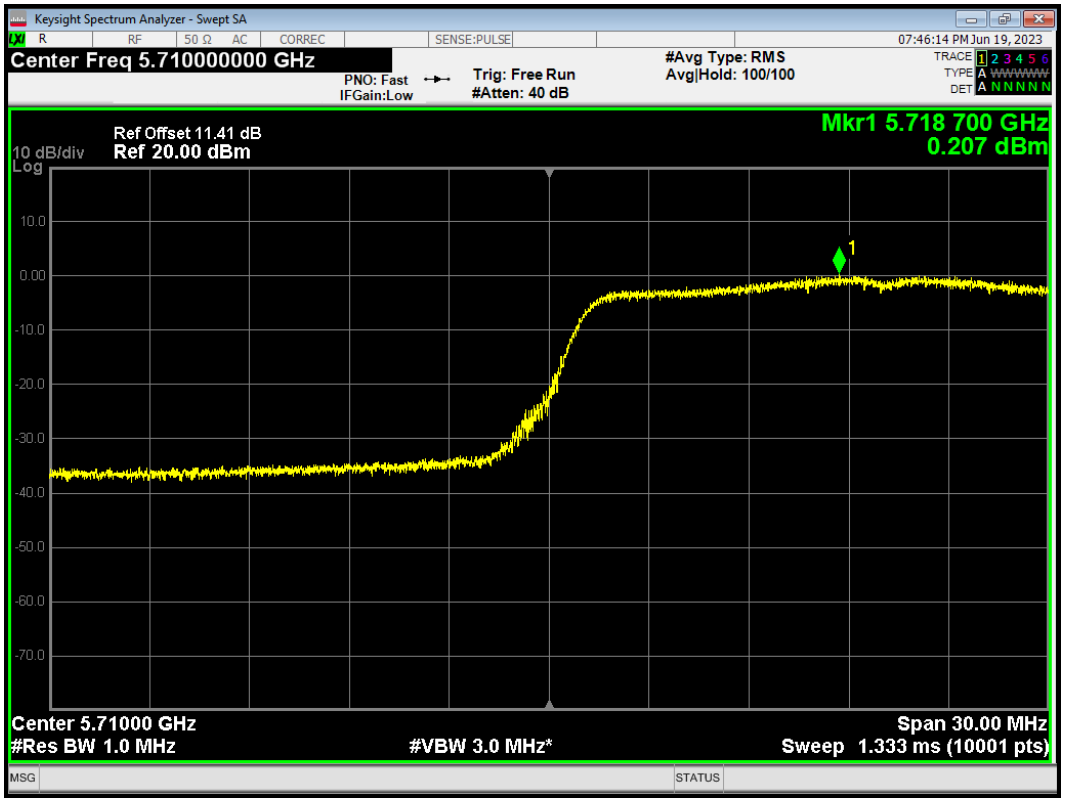
PSD 802.11ac(VHT20) 5600MHz



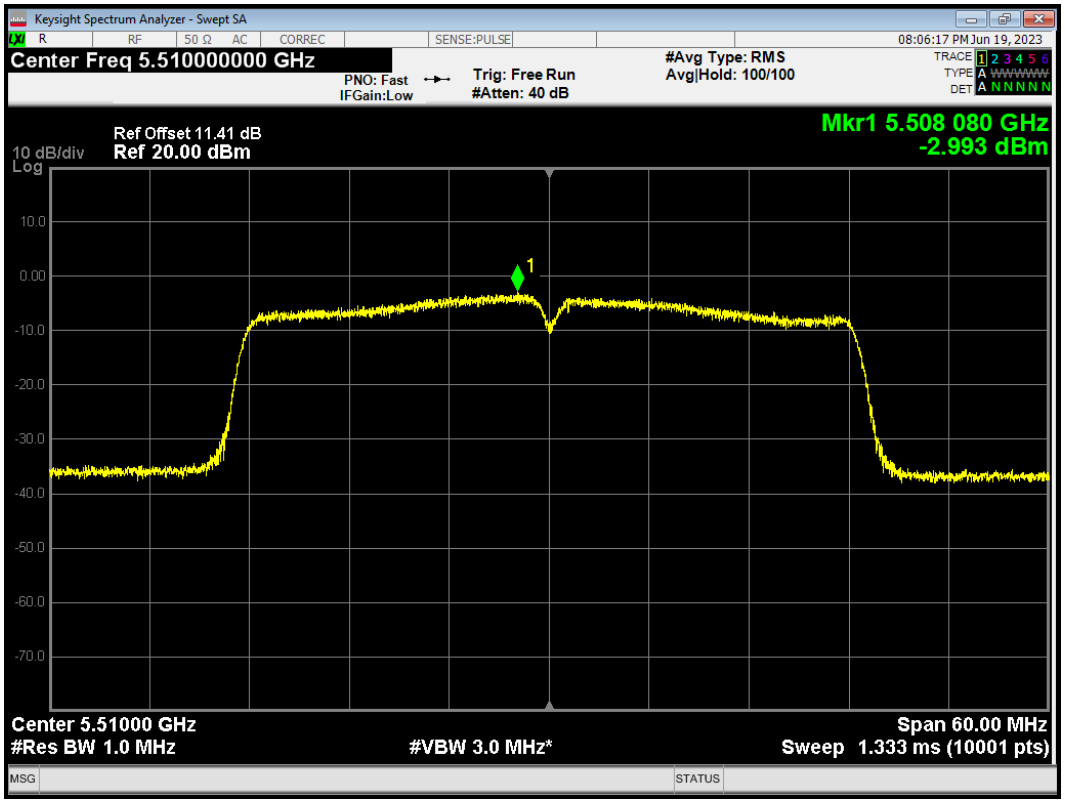
PSD 802.11ac(VHT20) 5700MHz



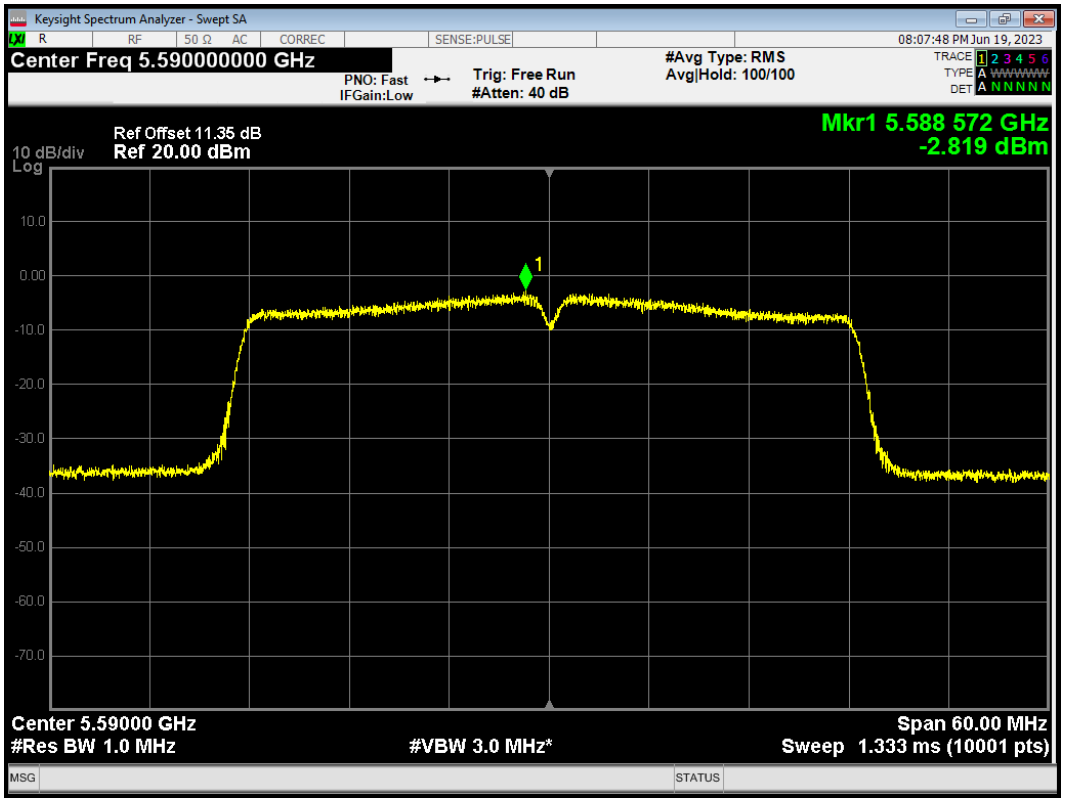
PSD 802.11ac(VHT20) 5720MHz



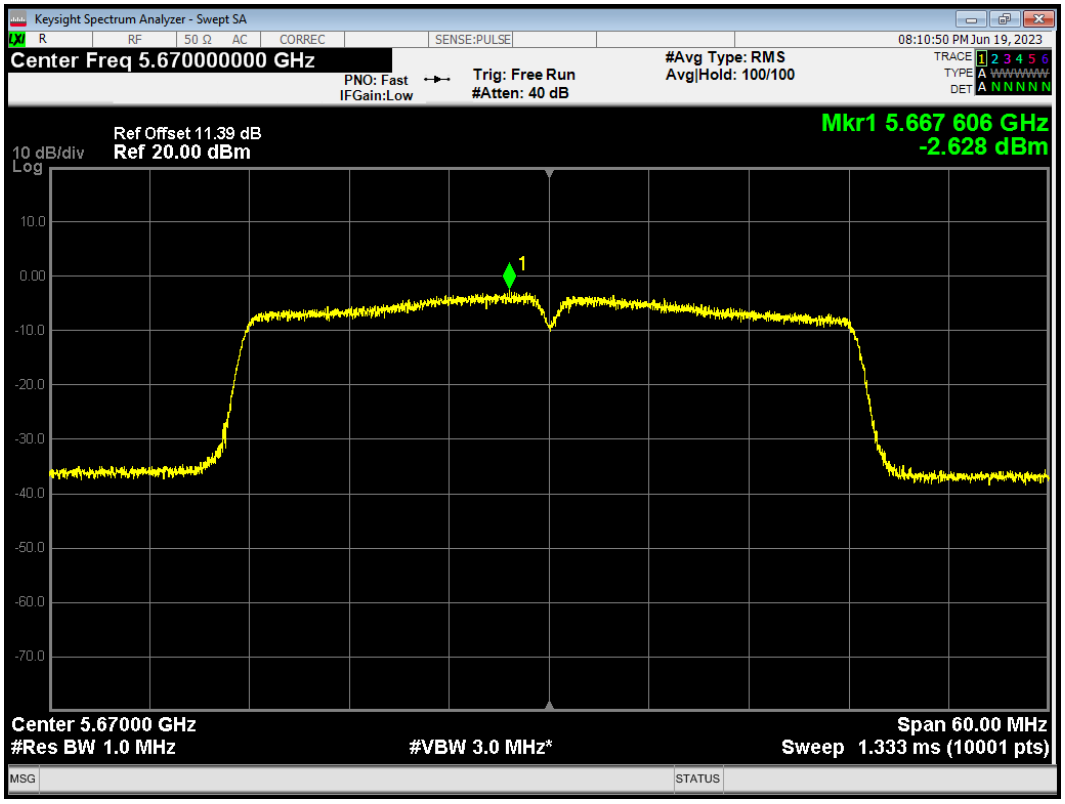
PSD 802.11ac(VHT40) 5510MHz



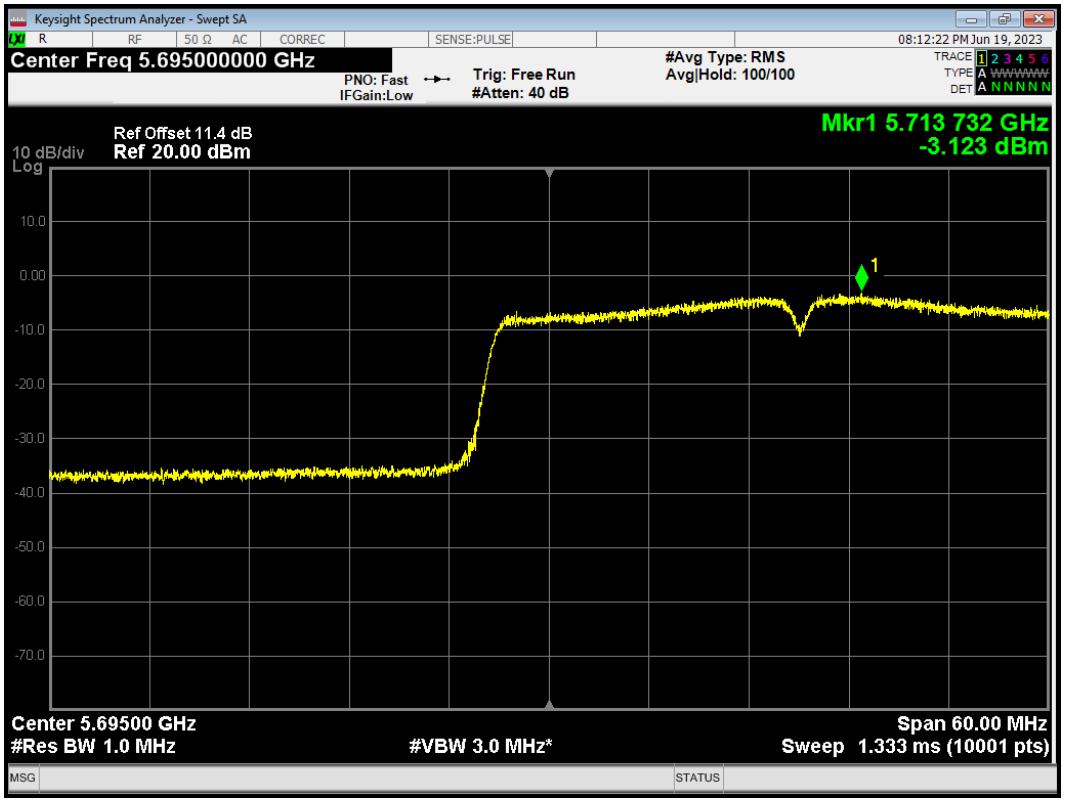
PSD 802.11ac(VHT40) 5590MHz



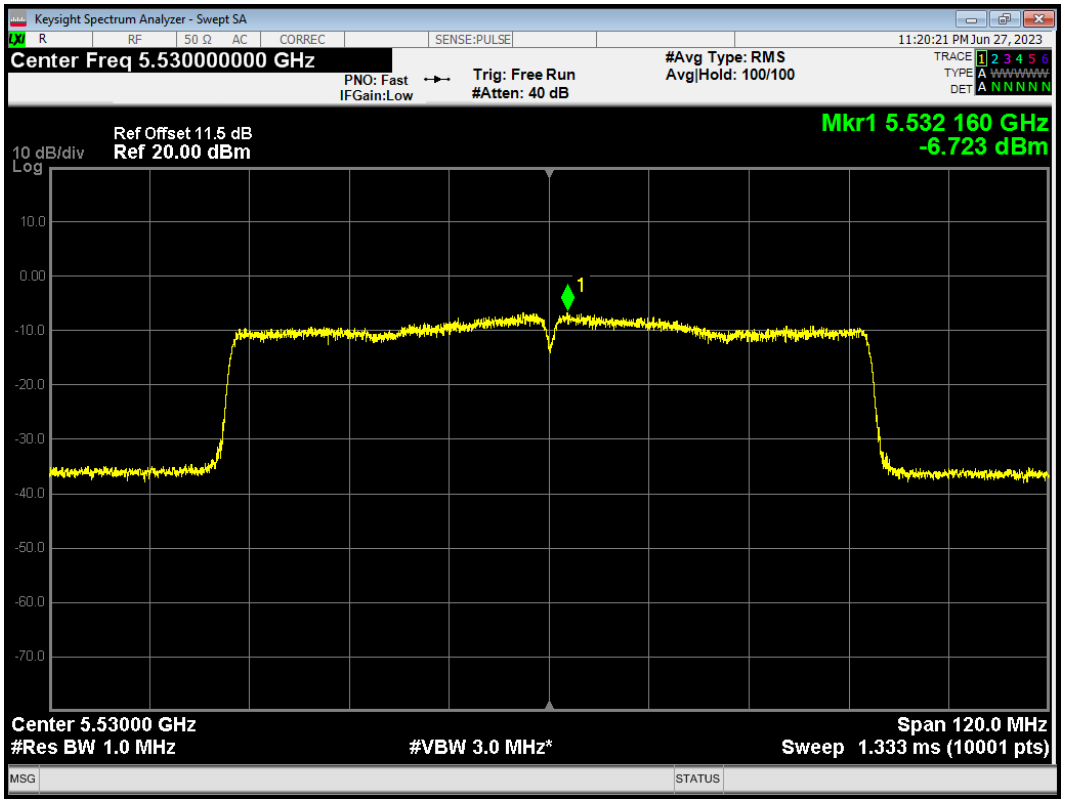
PSD 802.11ac(VHT40) 5670MHz



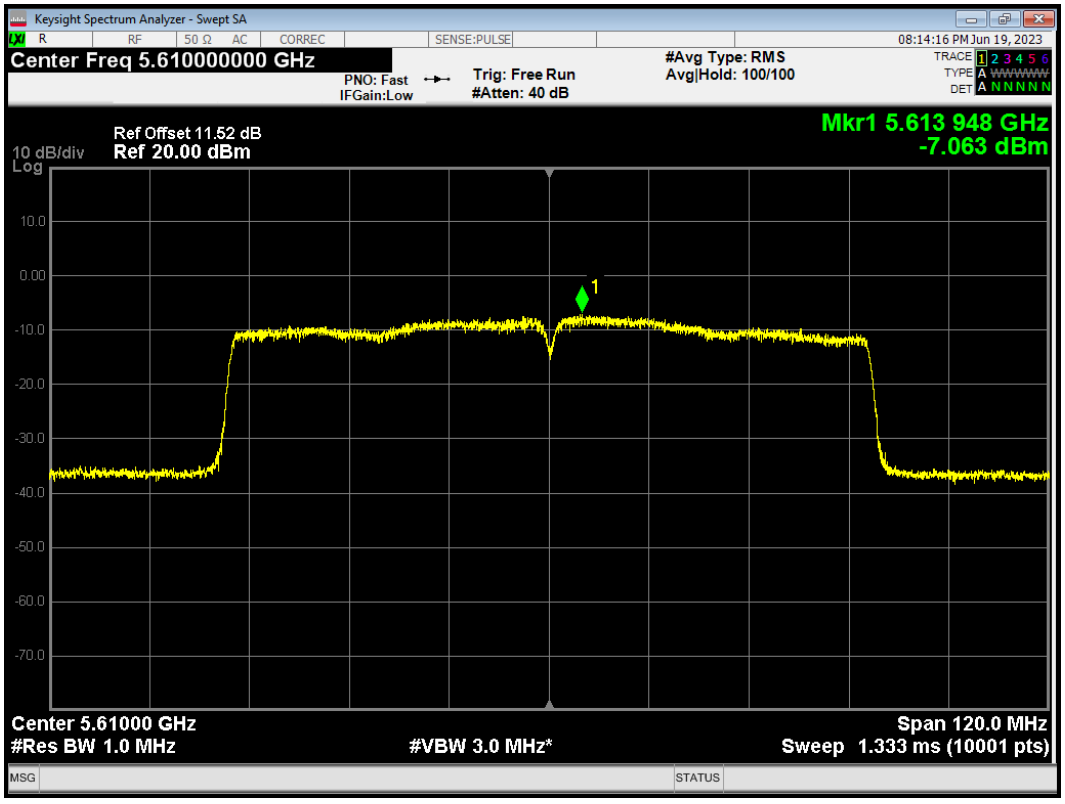
PSD 802.11ac(VHT40) 5710MHz



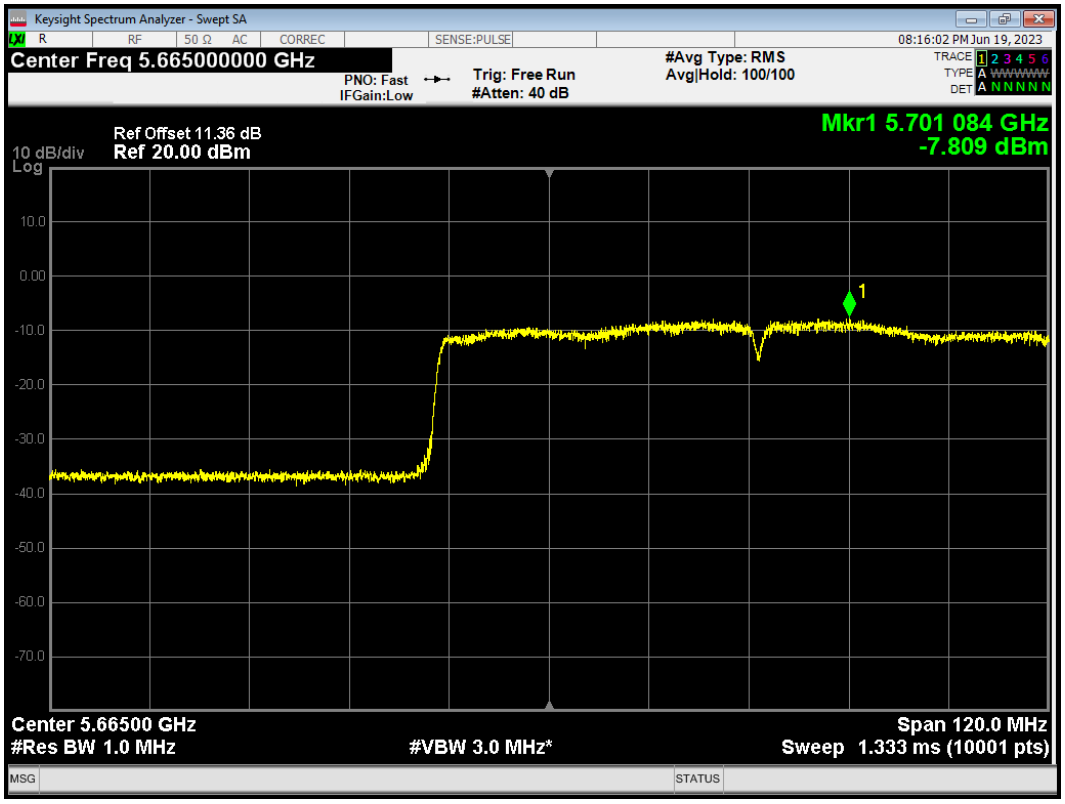
PSD 802.11ac(VHT80) 5530MHz



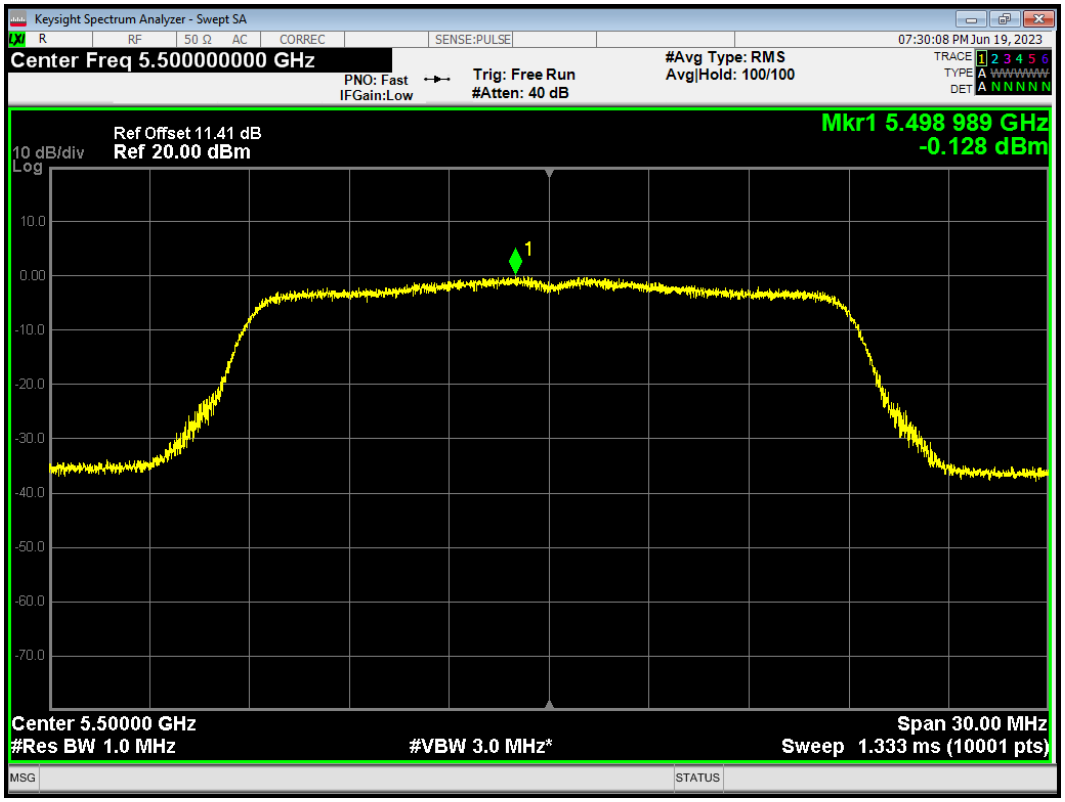
PSD 802.11ac(VHT80) 5610MHz



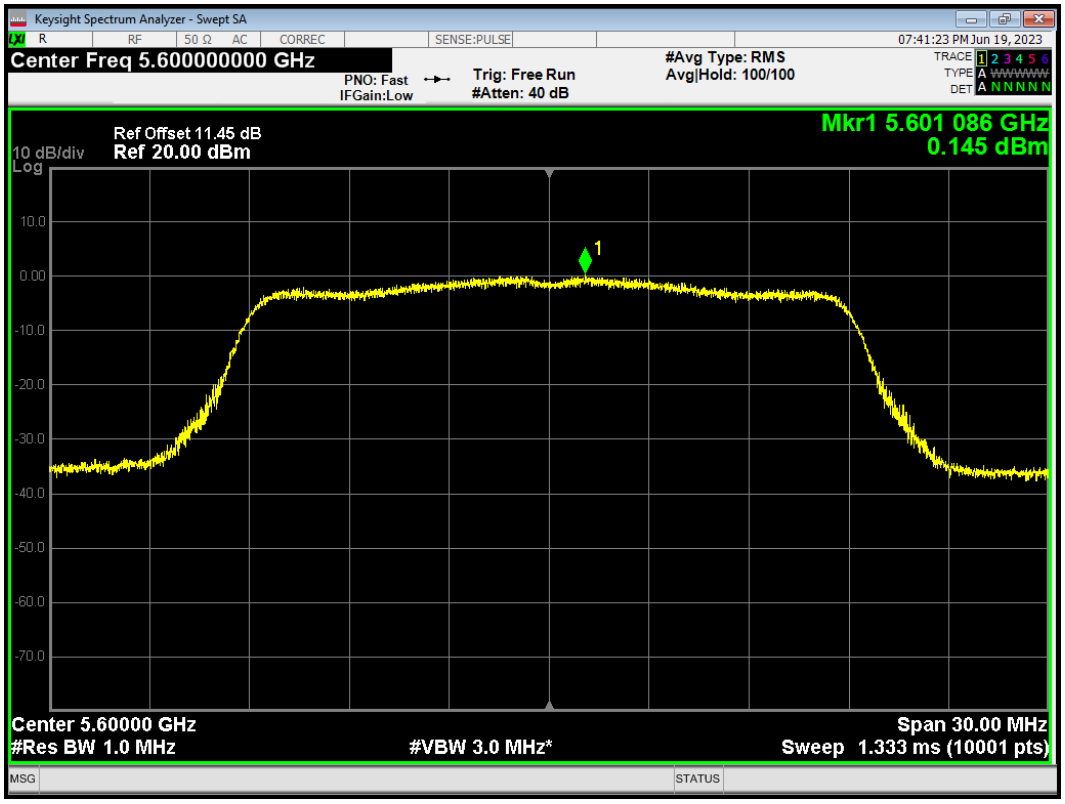
PSD 802.11ac(VHT80) 5690MHz



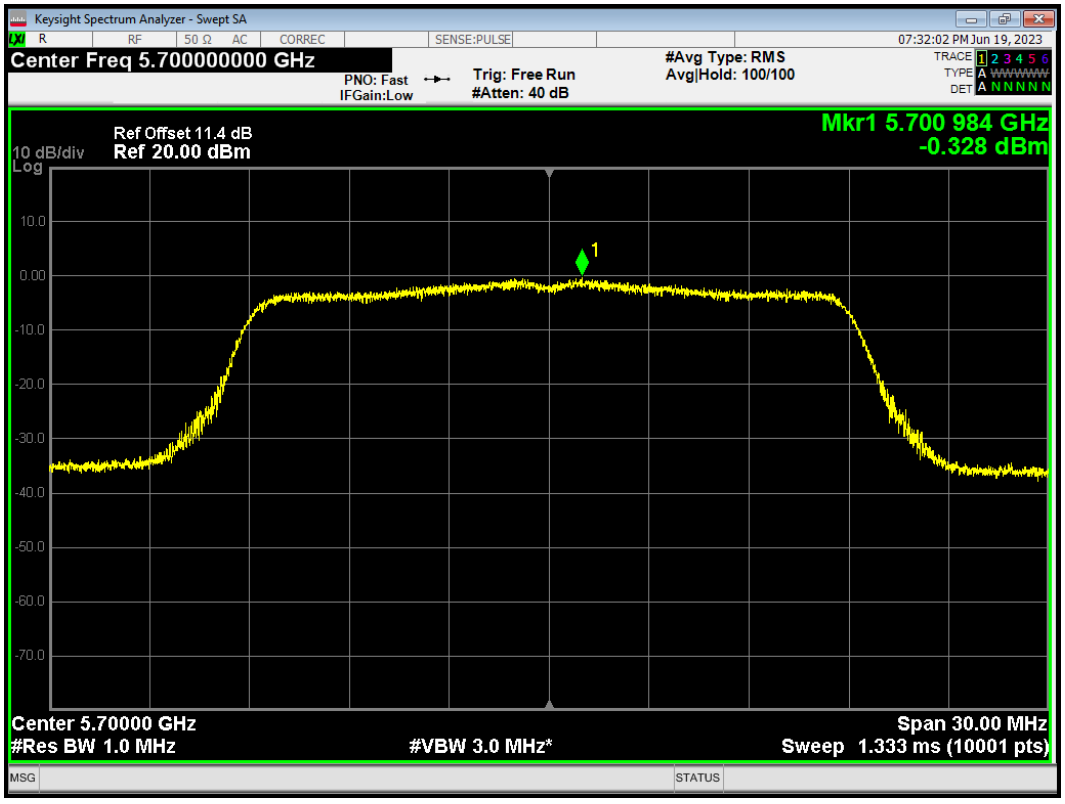
PSD 802.11n(HT20) 5500MHz



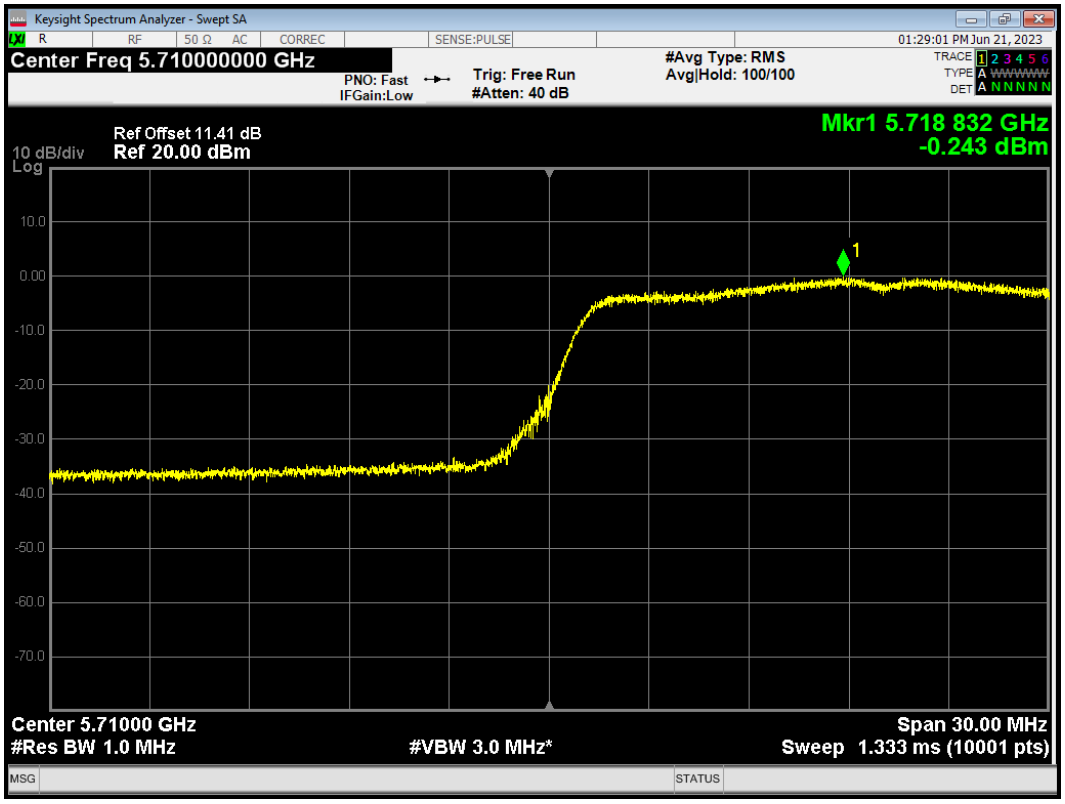
PSD 802.11n(HT20) 5600MHz



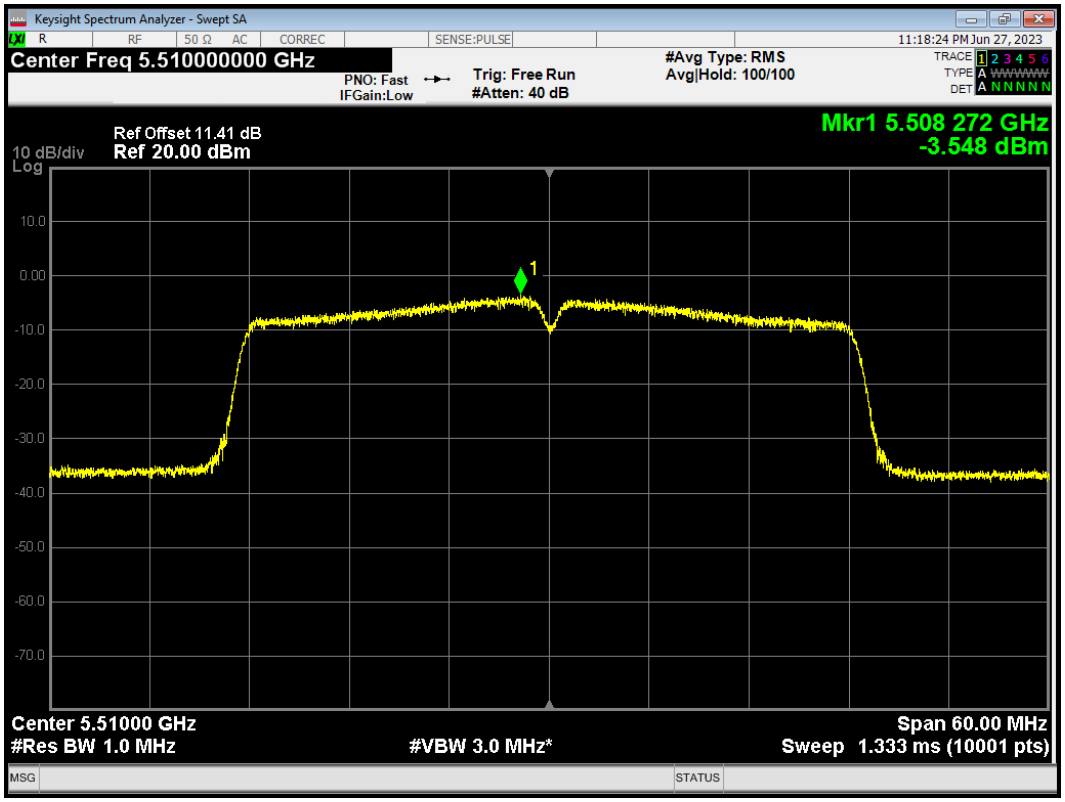
PSD 802.11n(HT20) 5700MHz



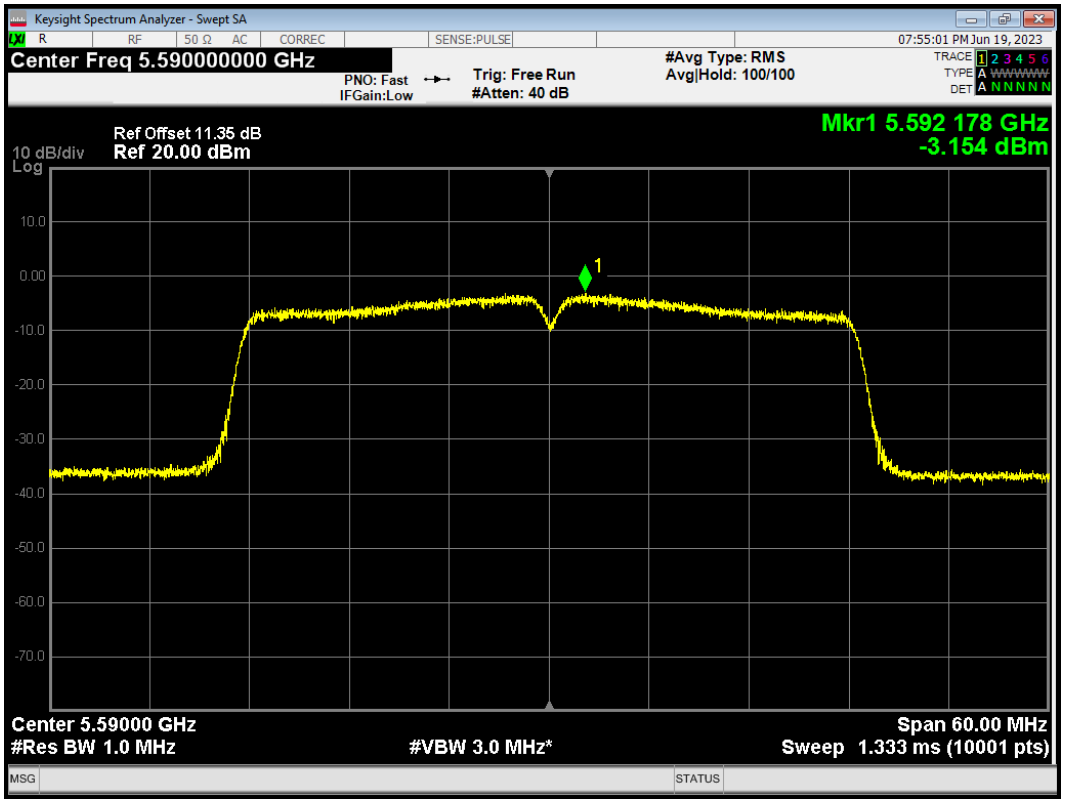
PSD 802.11n(HT20) 5720MHz



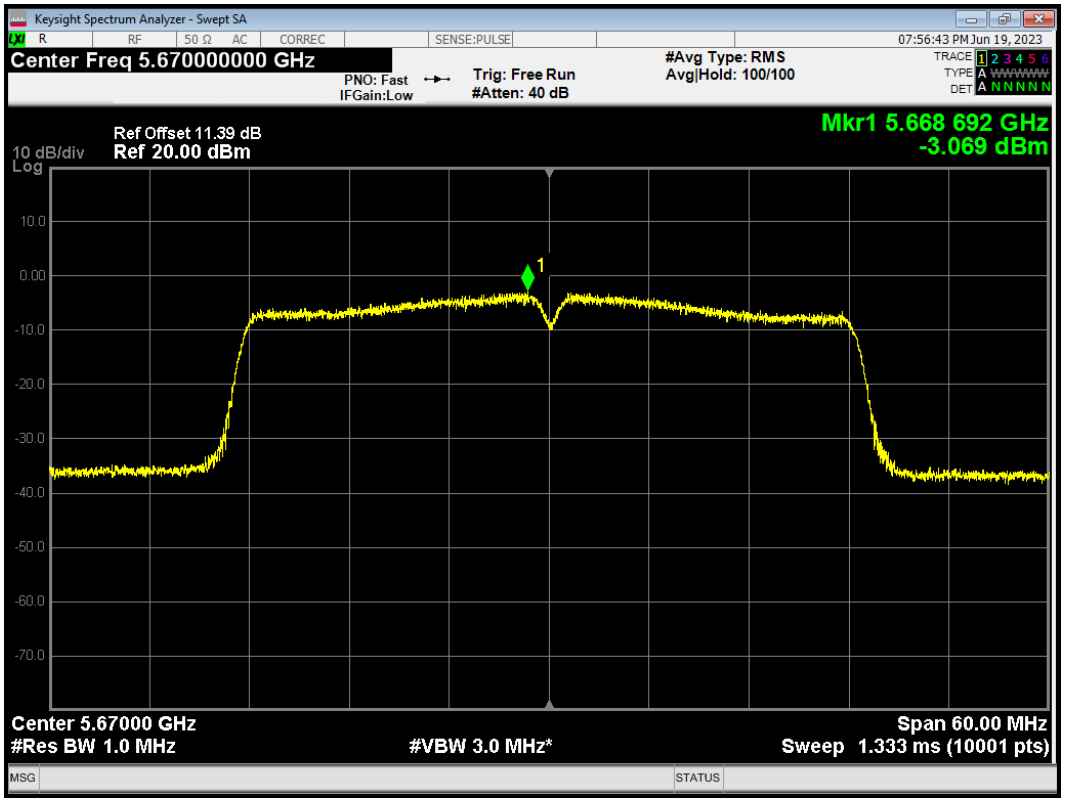
PSD 802.11n(HT40) 5510MHz



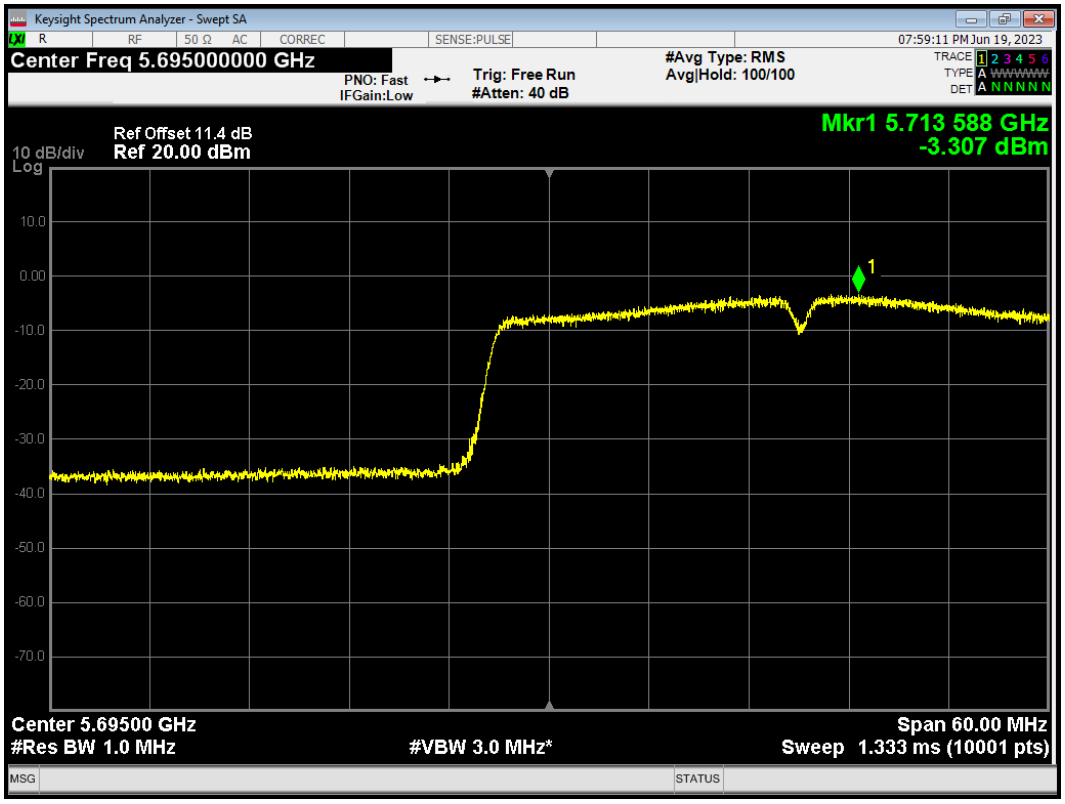
PSD 802.11n(HT40) 5590MHz



PSD 802.11n(HT40) 5670MHz

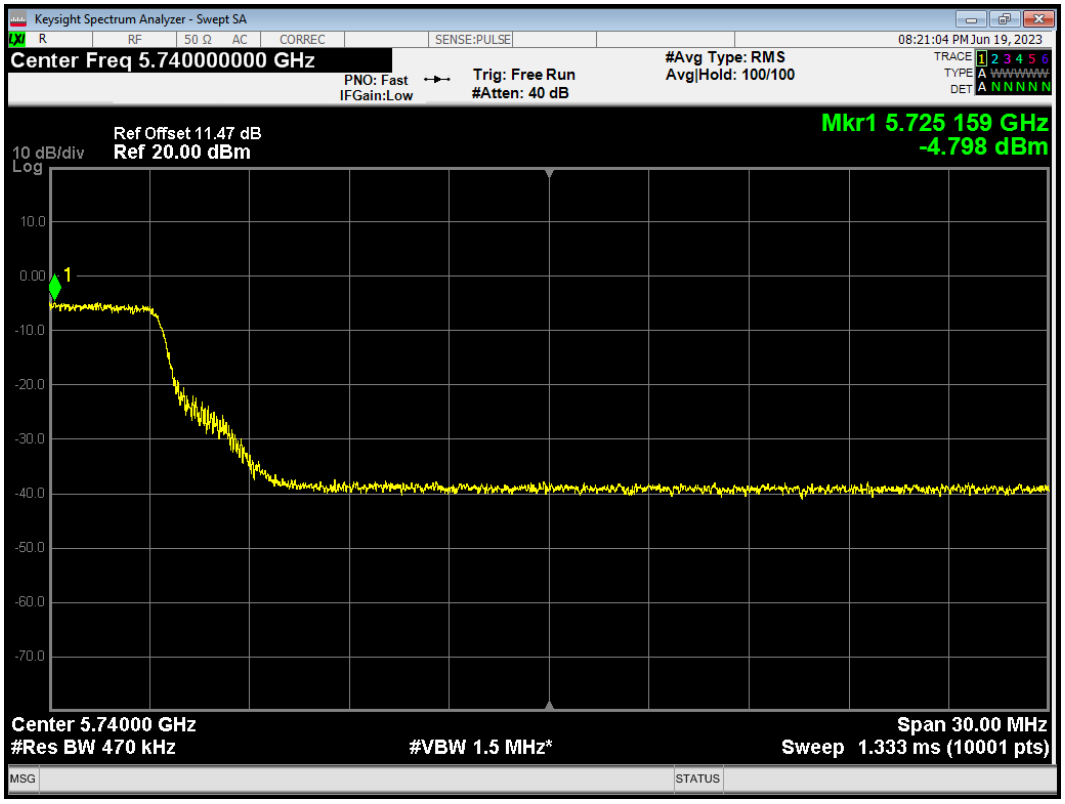


PSD 802.11n(HT40) 5710MHz

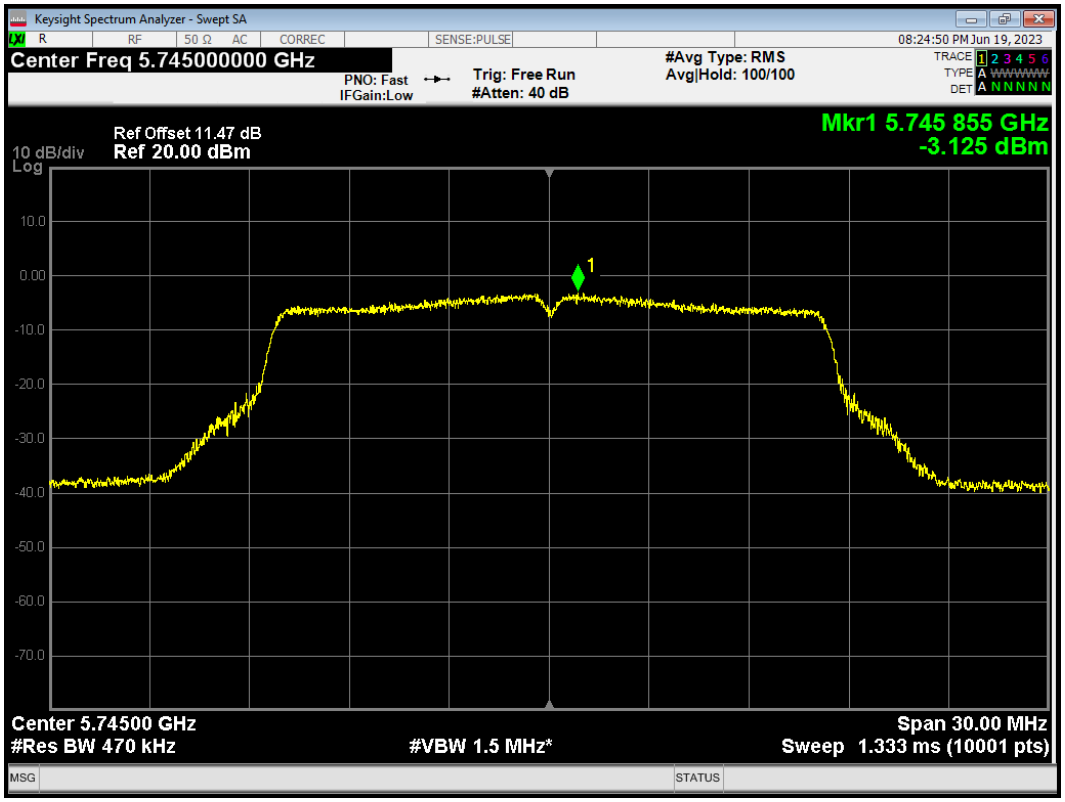


U-NII-3

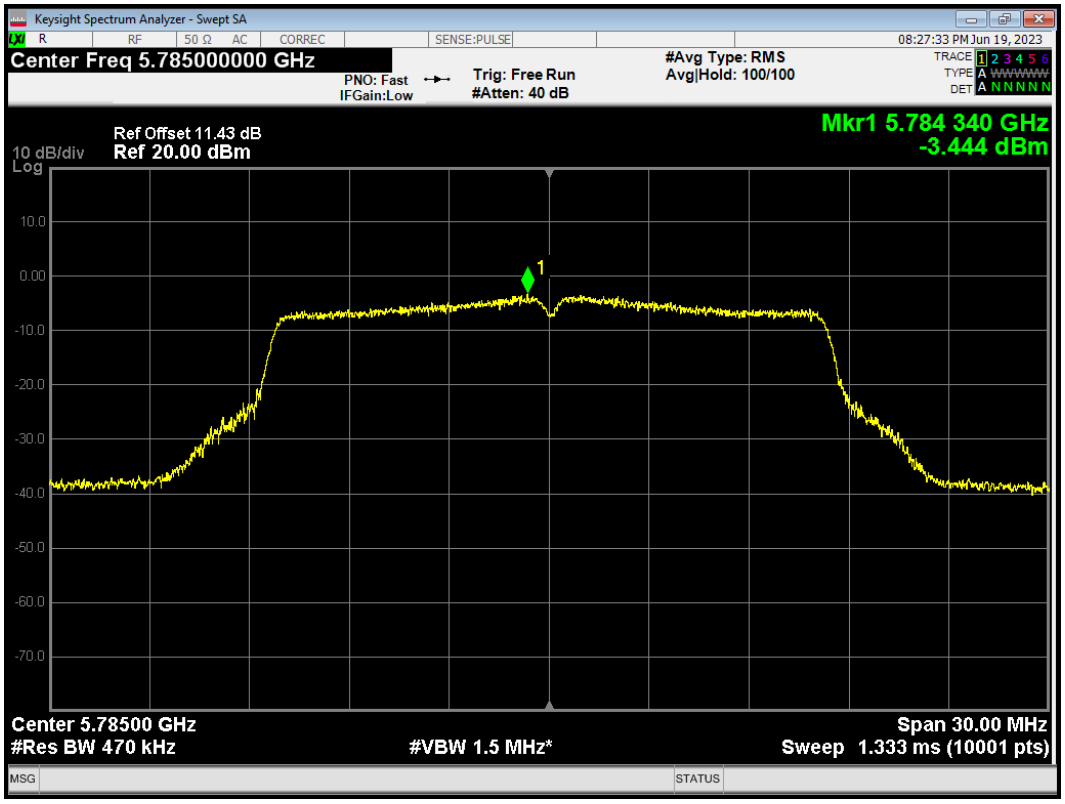
PSD 802.11a 5720MHz



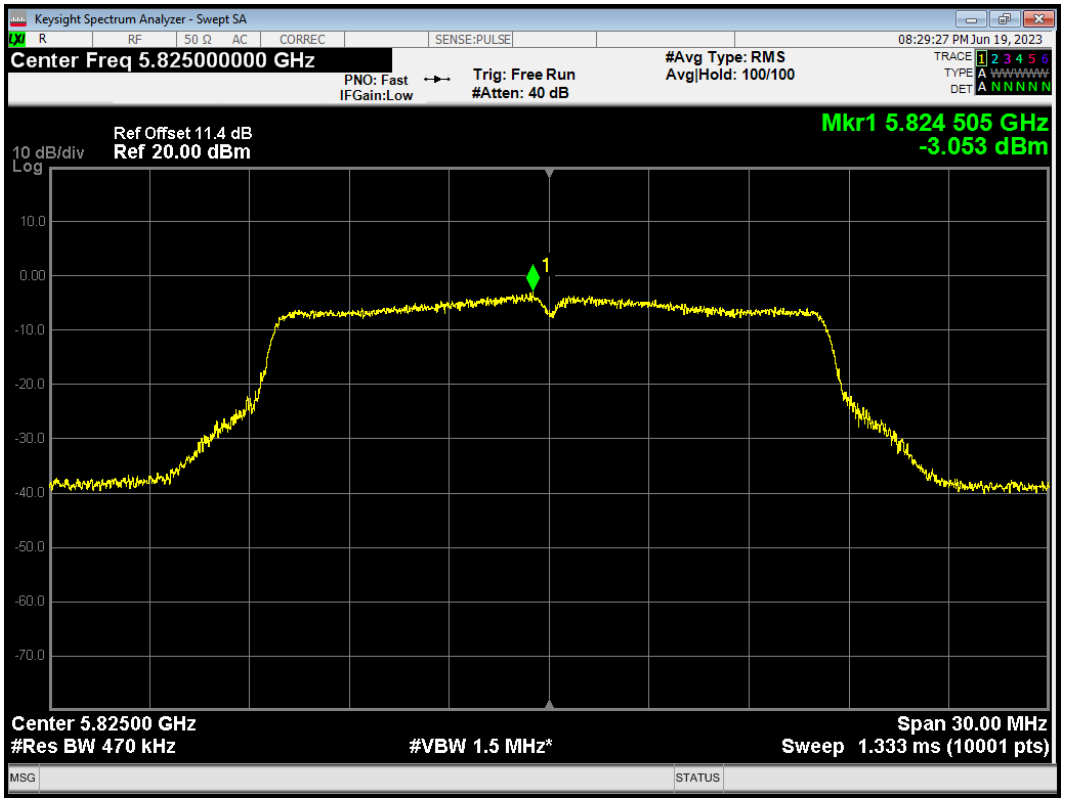
PSD 802.11a 5745MHz



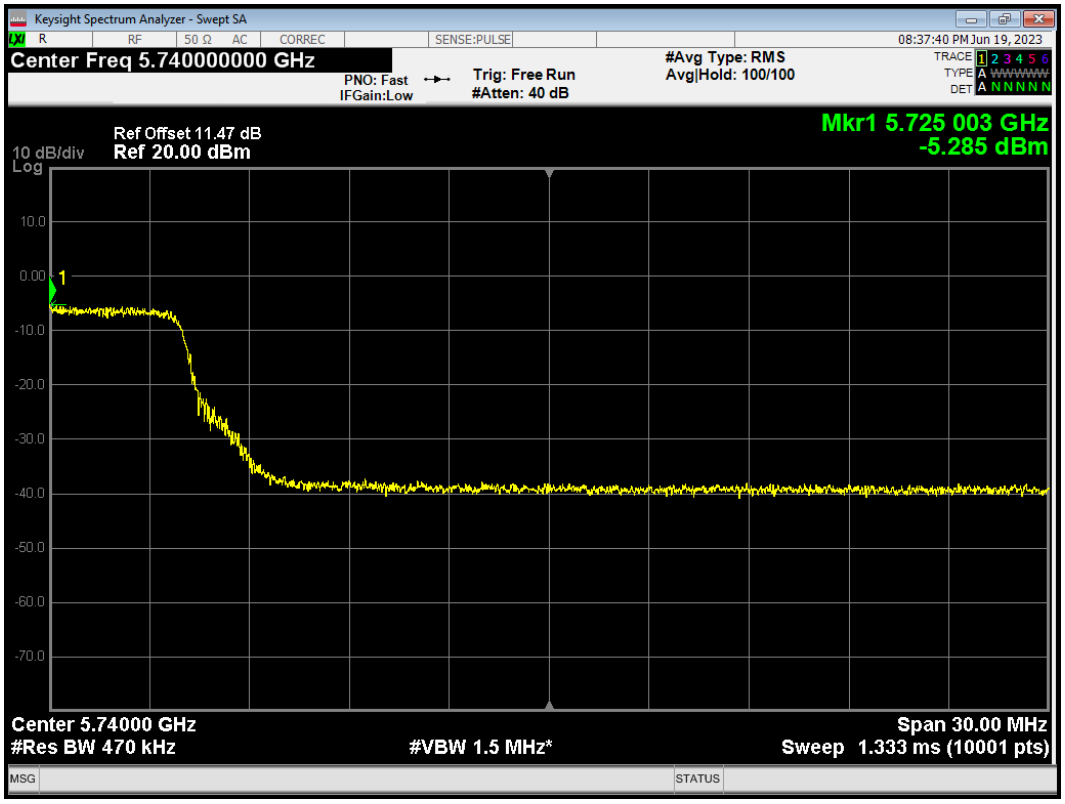
PSD 802.11a 5785MHz



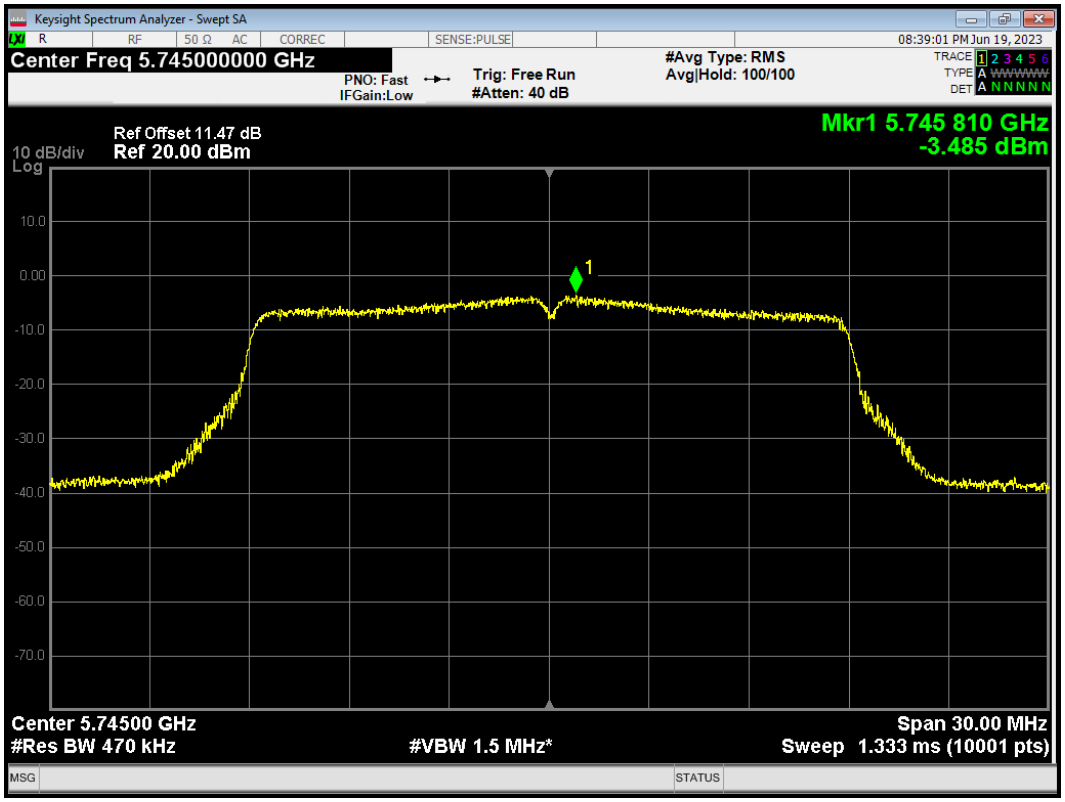
PSD 802.11a 5825MHz



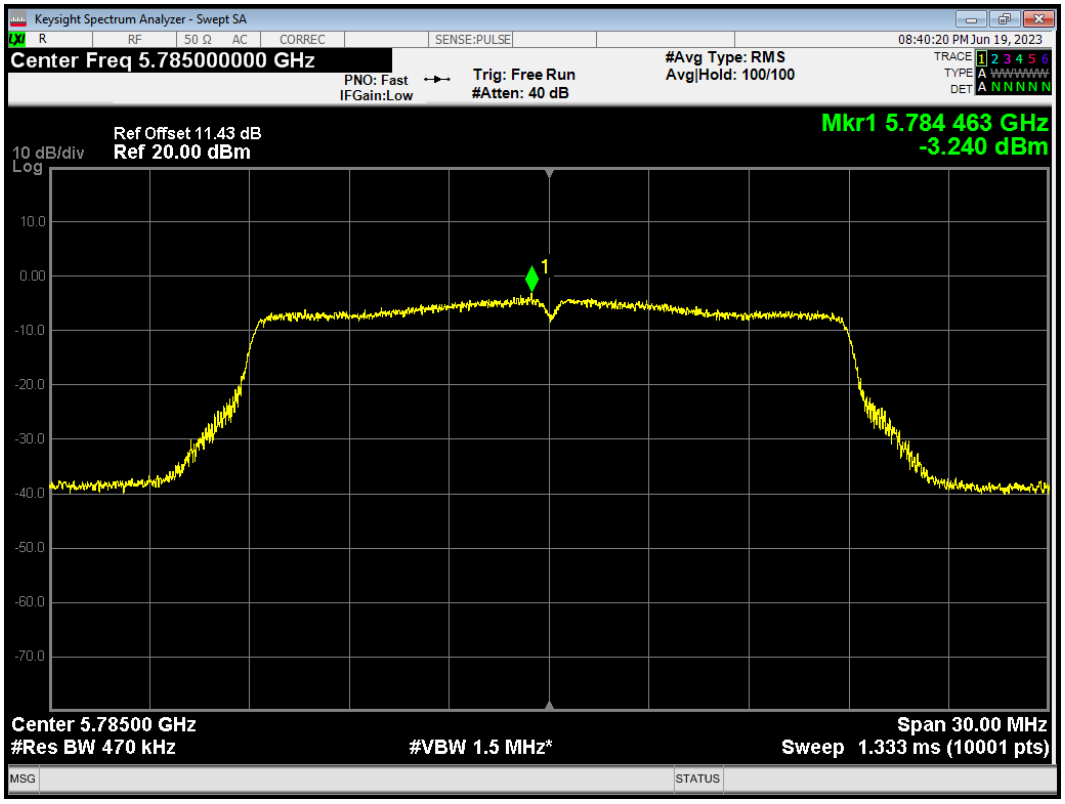
PSD 802.11ac(VHT20) 5720MHz



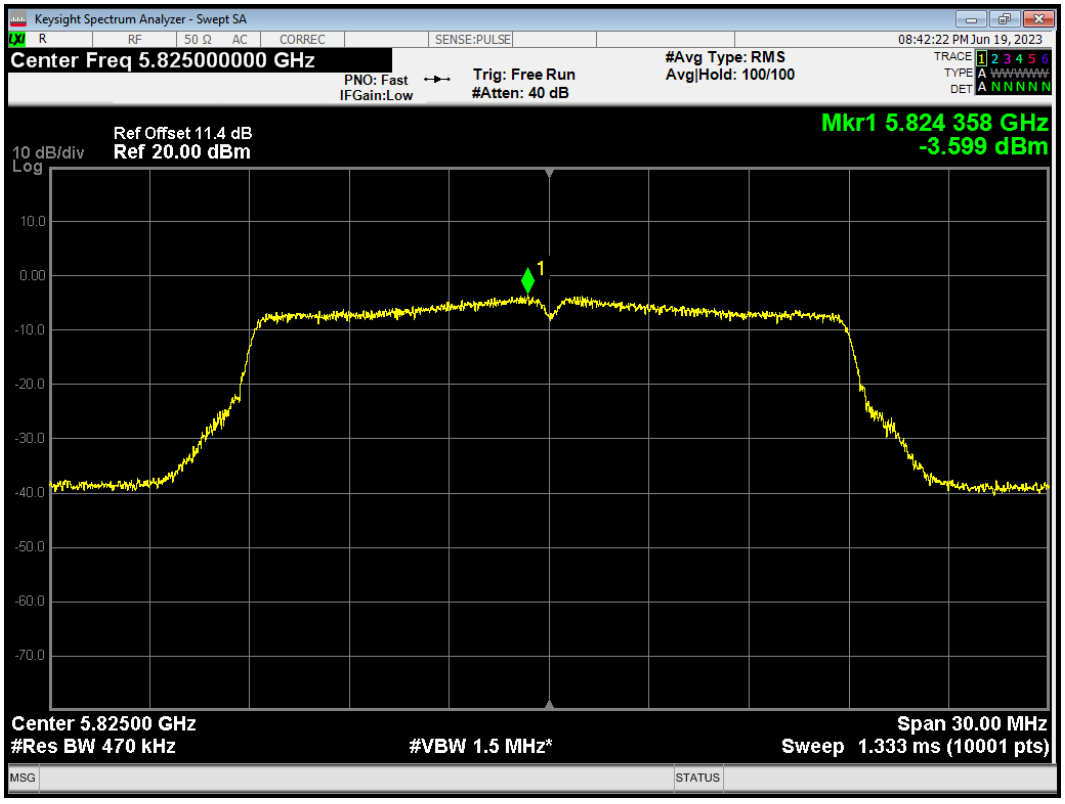
PSD 802.11ac(VHT20) 5745MHz



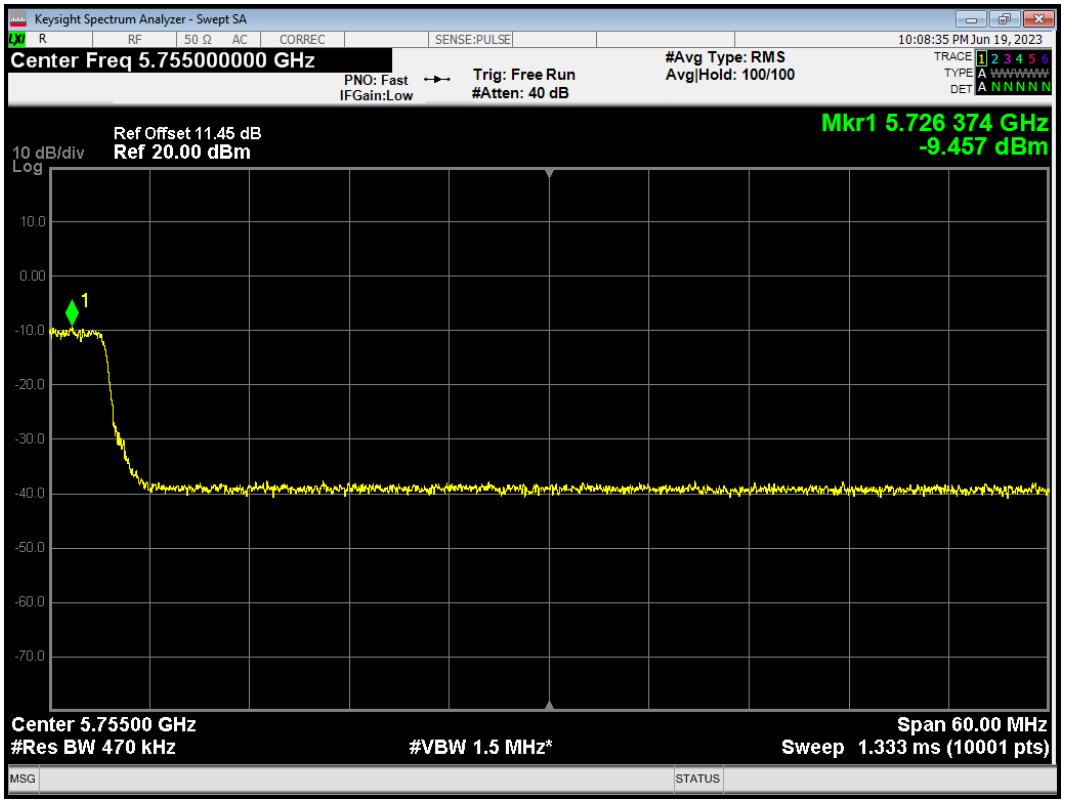
PSD 802.11ac(VHT20) 5785MHz



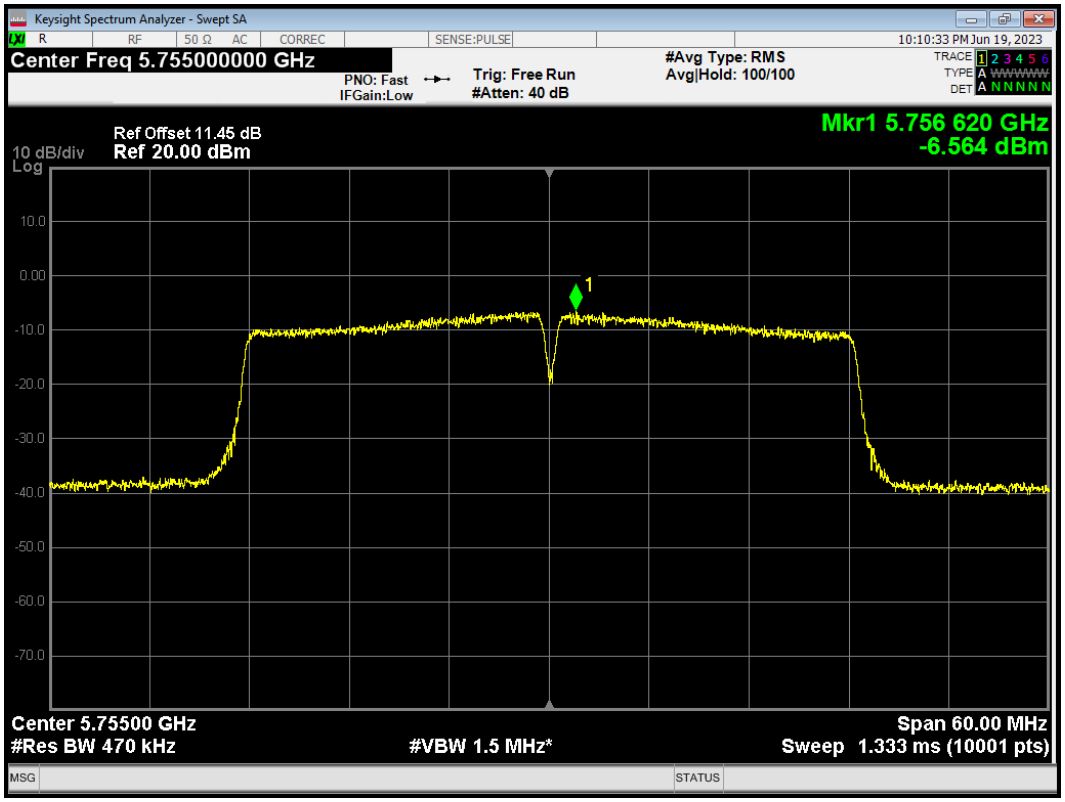
PSD 802.11ac(VHT20) 5825MHz



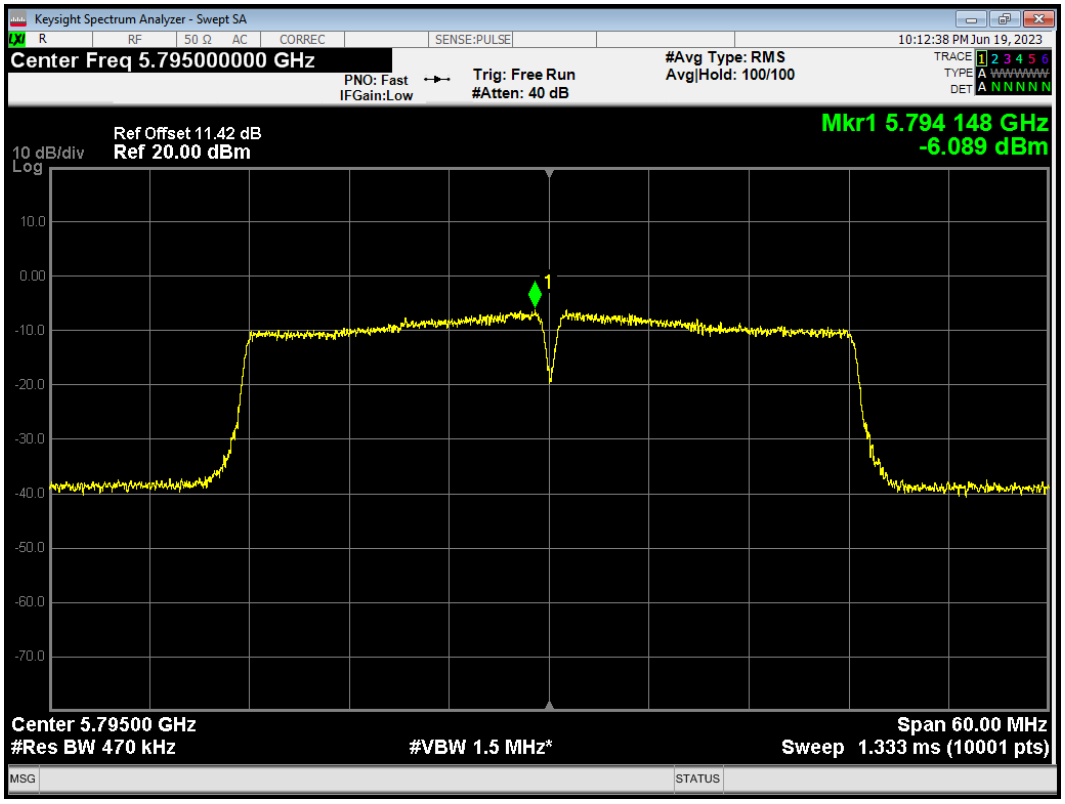
PSD 802.11ac(VHT40) 5710MHz



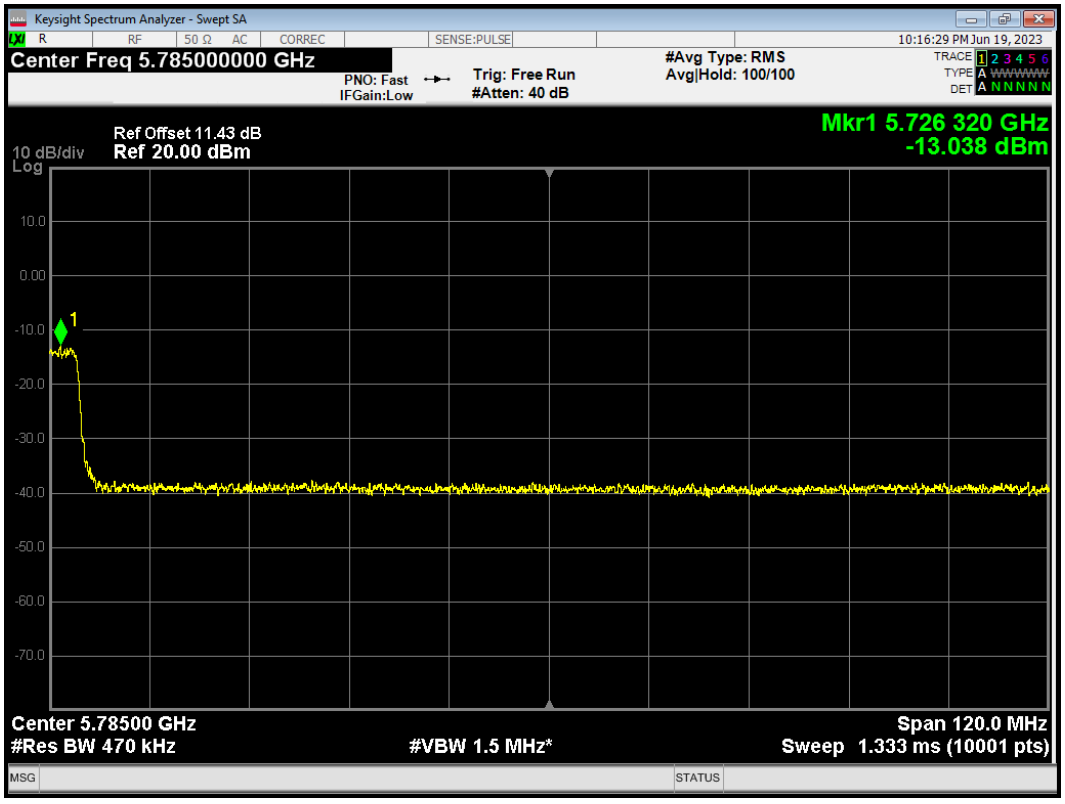
PSD 802.11ac(VHT40) 5755MHz



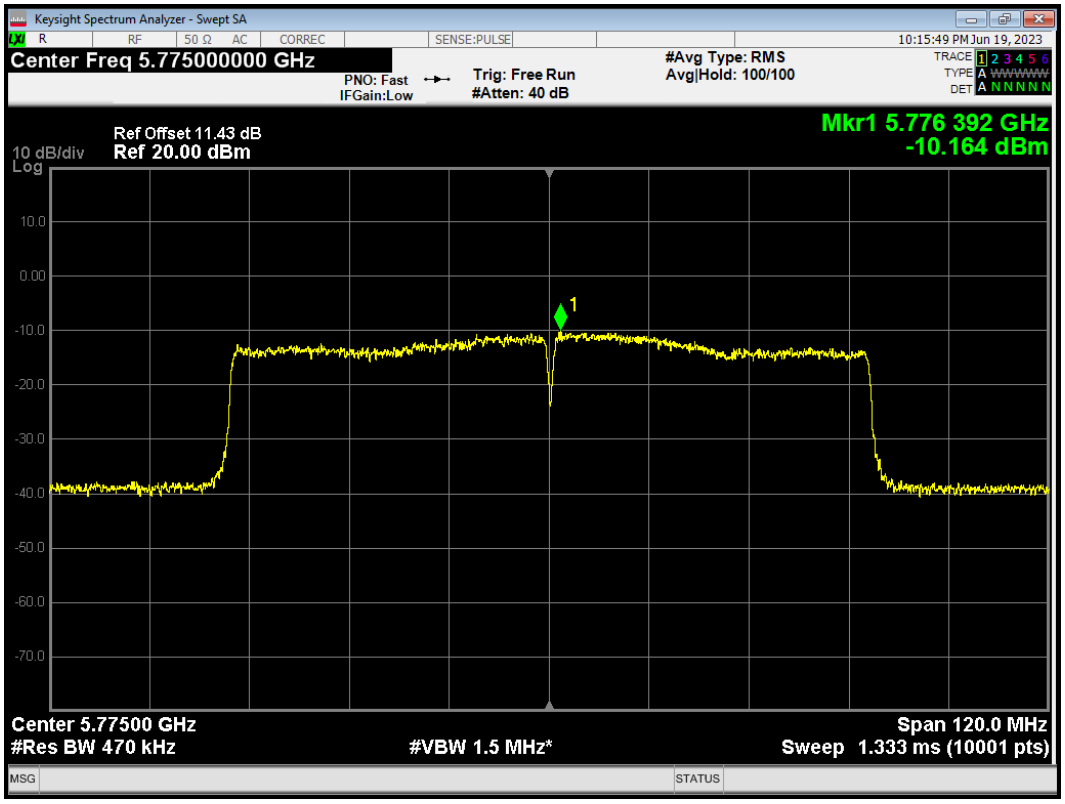
PSD 802.11ac(VHT40) 5795MHz



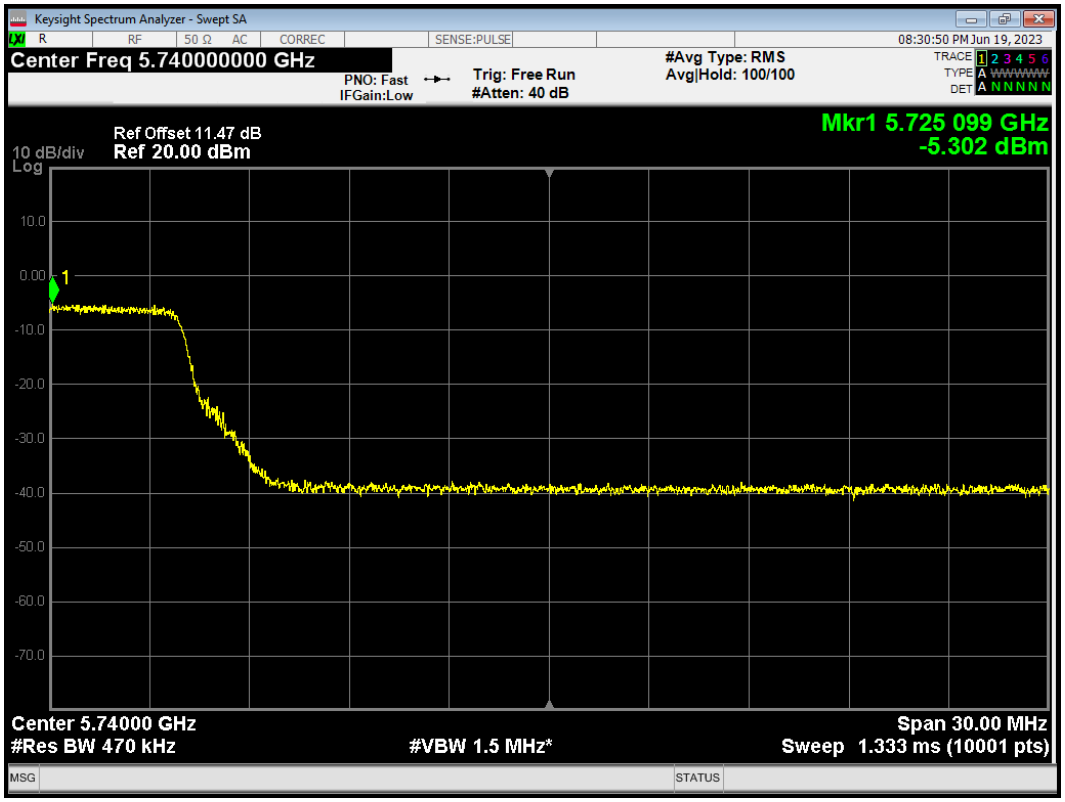
PSD 802.11ac(VHT80) 5690MHz



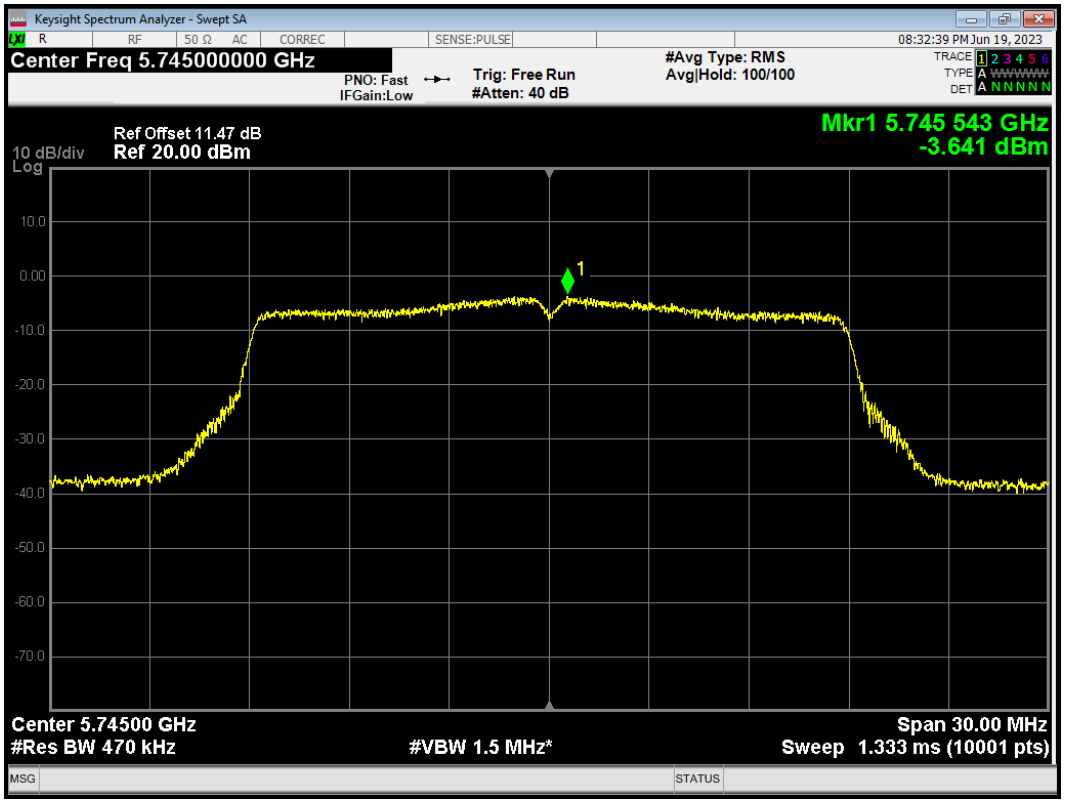
PSD 802.11ac(VHT80) 5775MHz



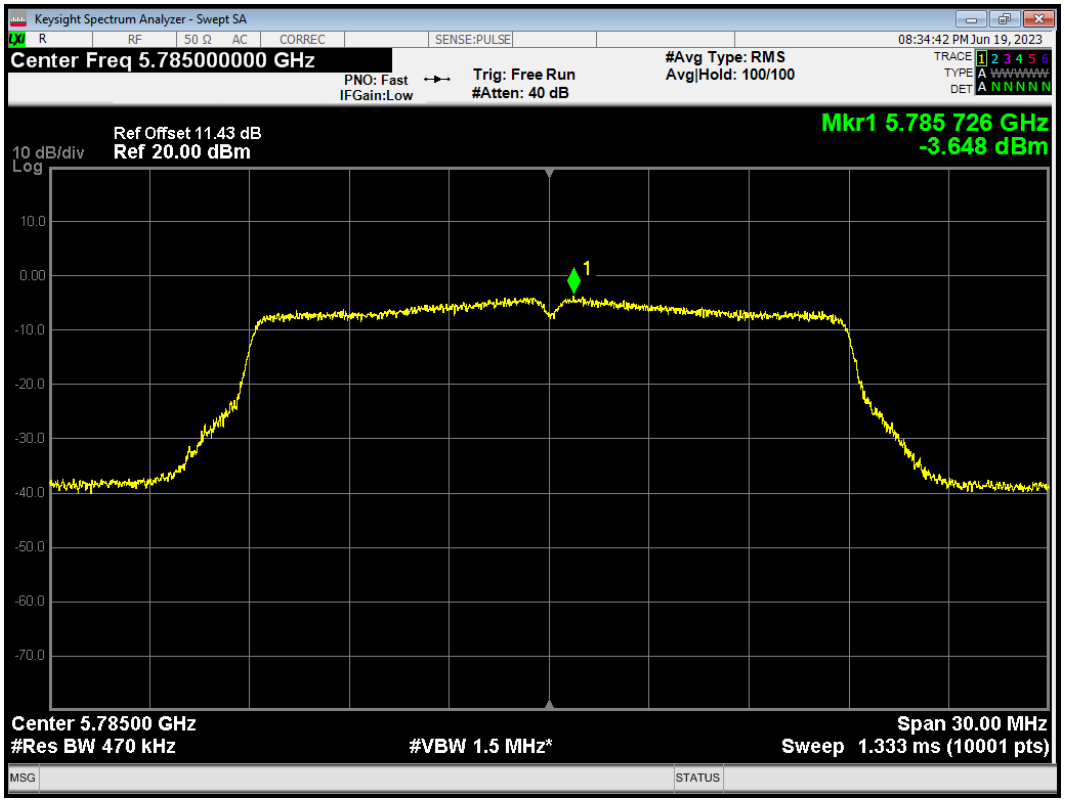
PSD 802.11n(HT20) 5720MHz



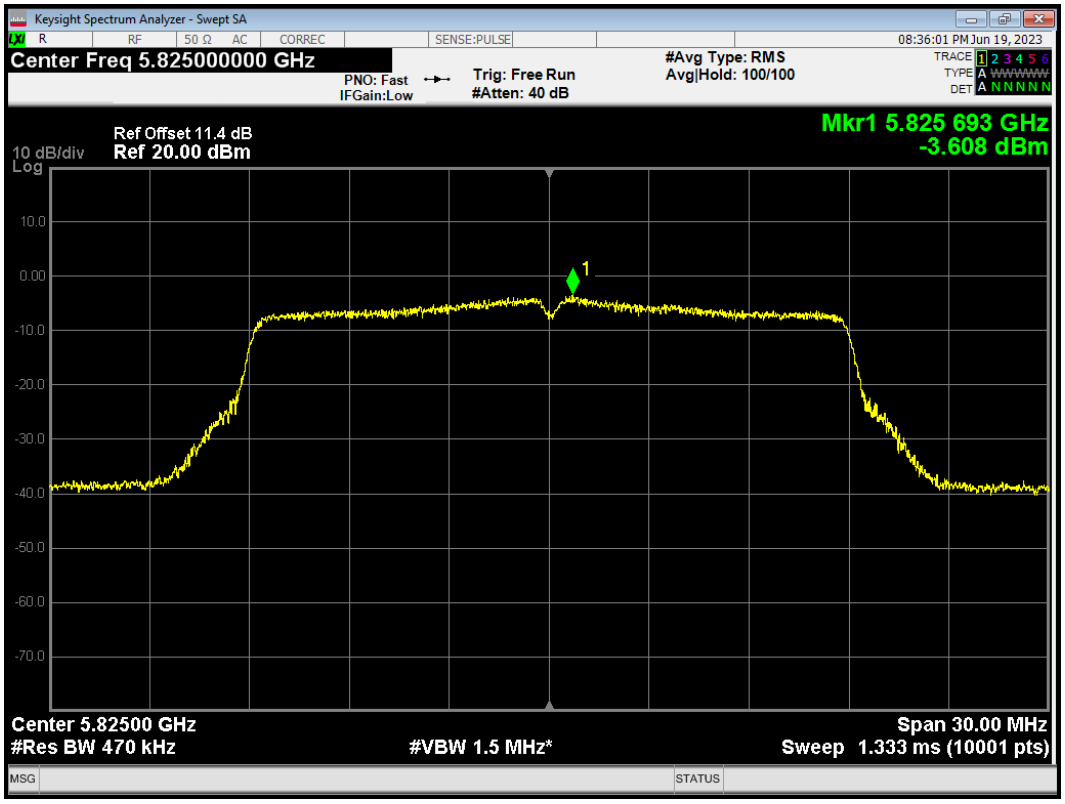
PSD 802.11n(HT20) 5745MHz



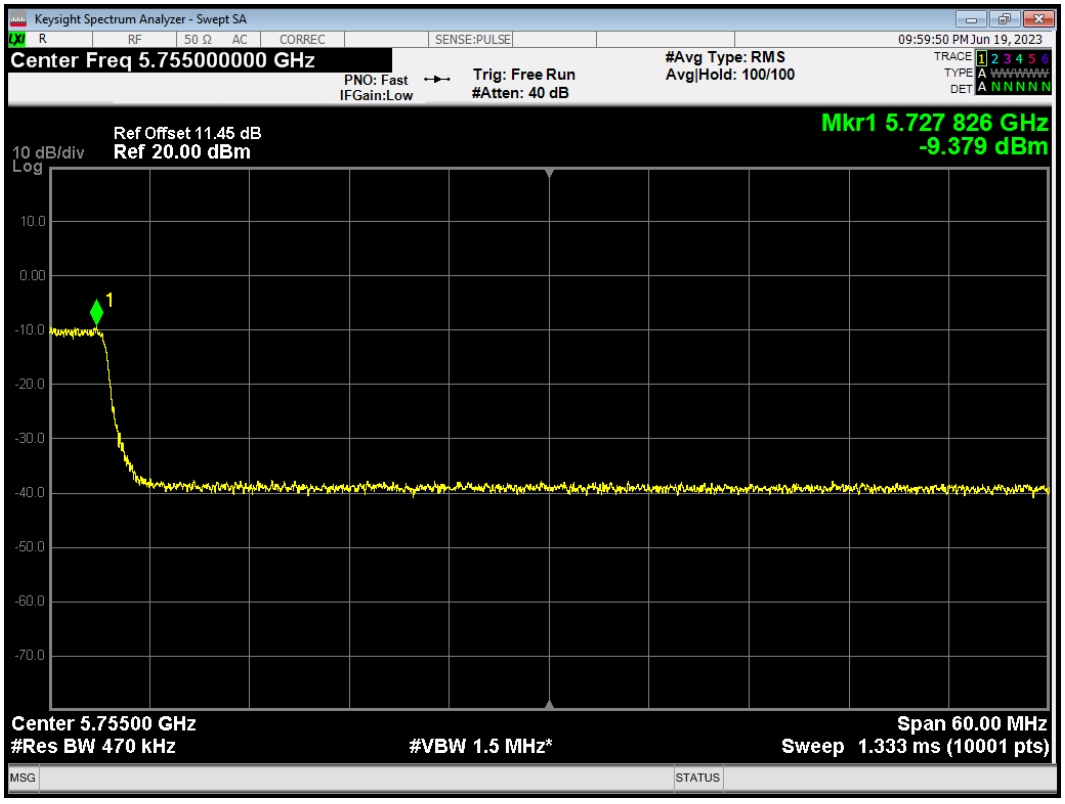
PSD 802.11n(HT20) 5785MHz



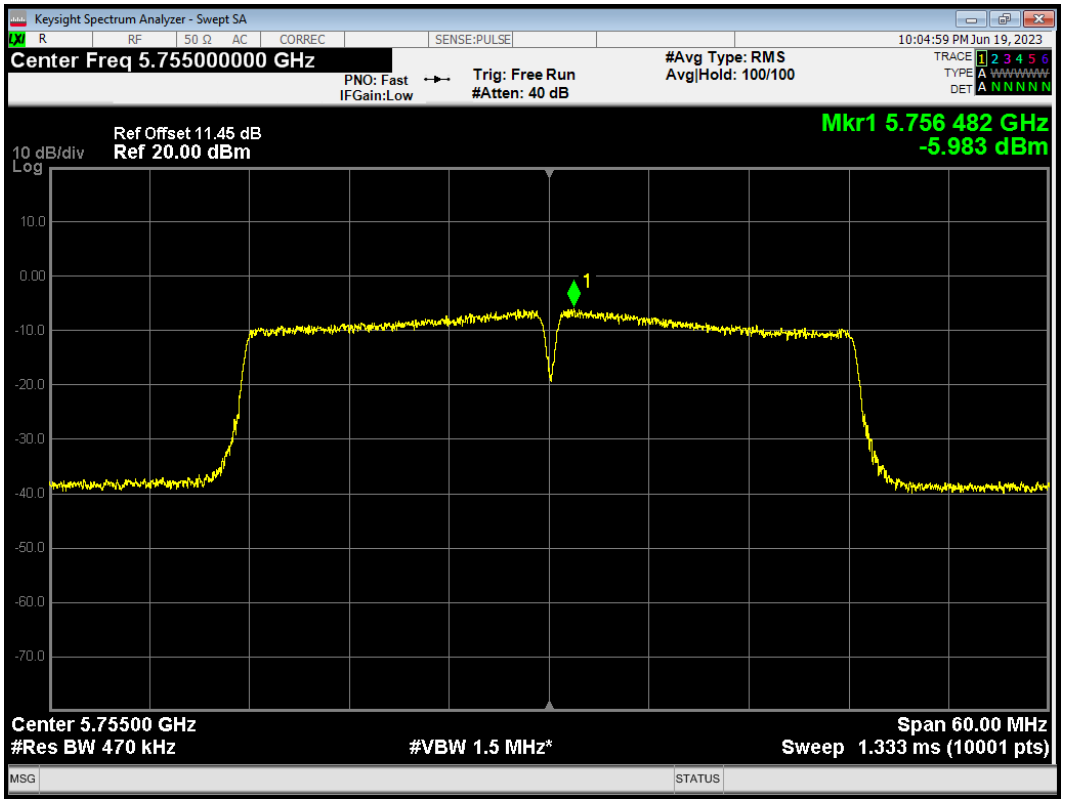
PSD 802.11n(HT20) 5825MHz



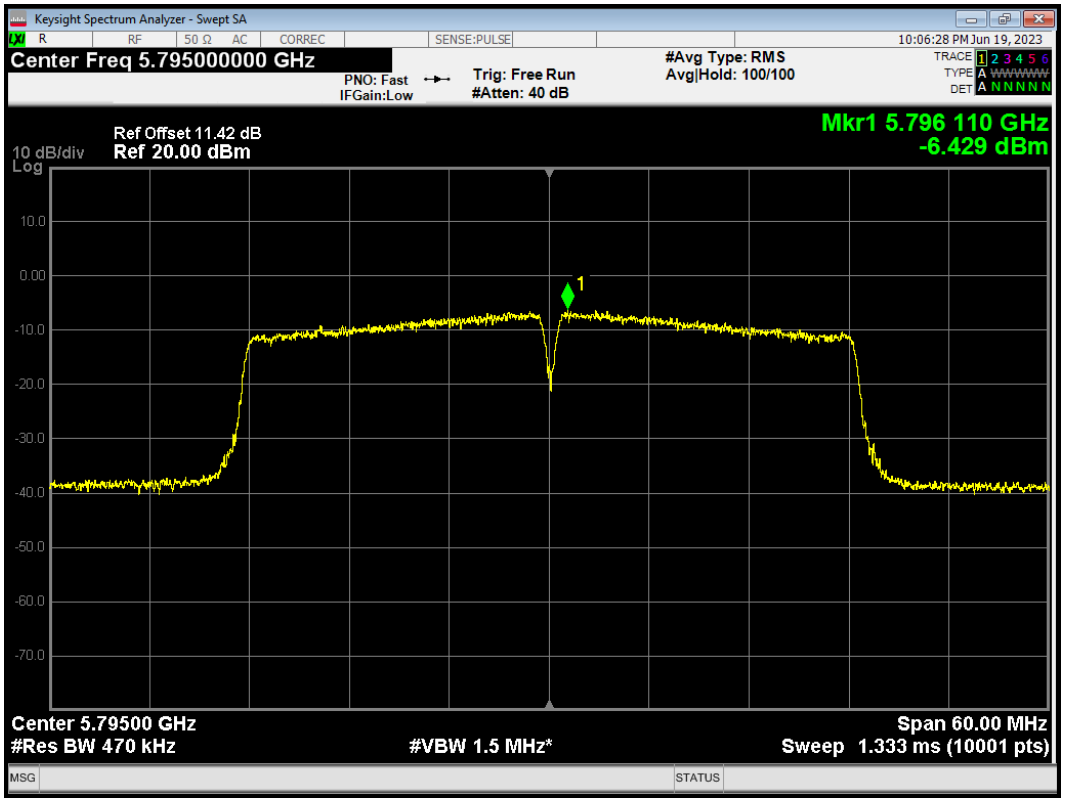
PSD 802.11n(HT40) 5710MHz



PSD 802.11n(HT40) 5755MHz



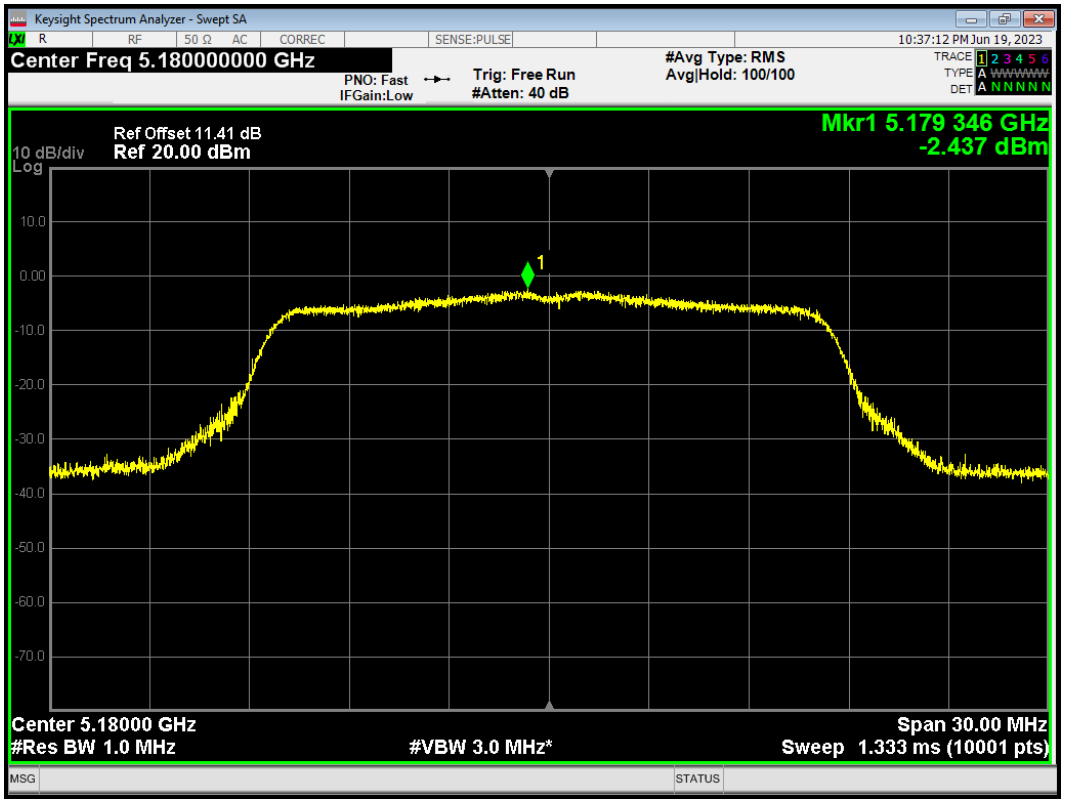
PSD 802.11n(HT40) 5795MHz



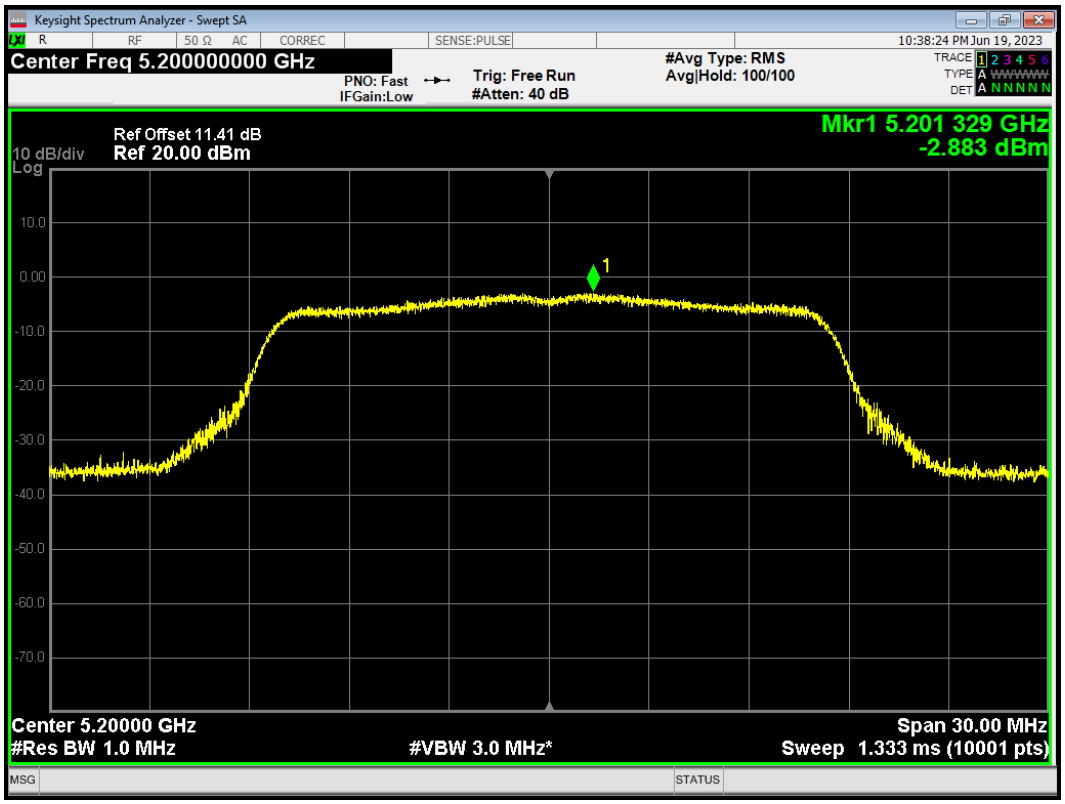
SISO Antenna 2

U-NII-1

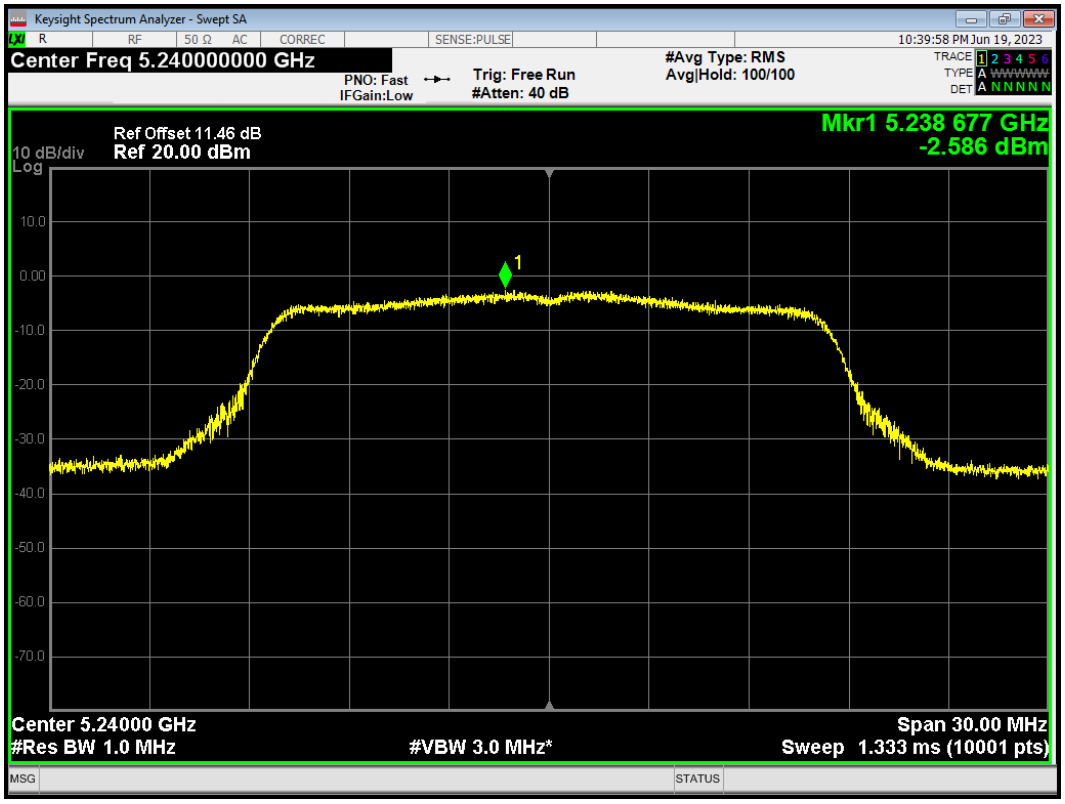
PSD 802.11a 5180MHz



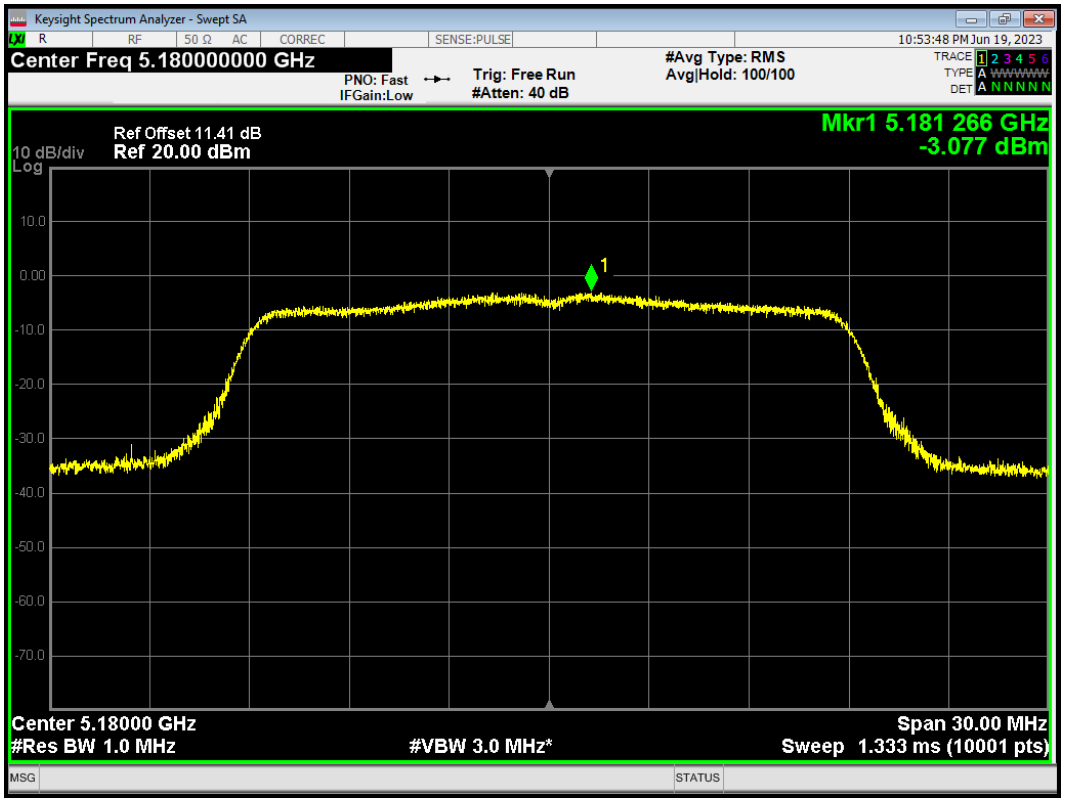
PSD 802.11a 5200MHz



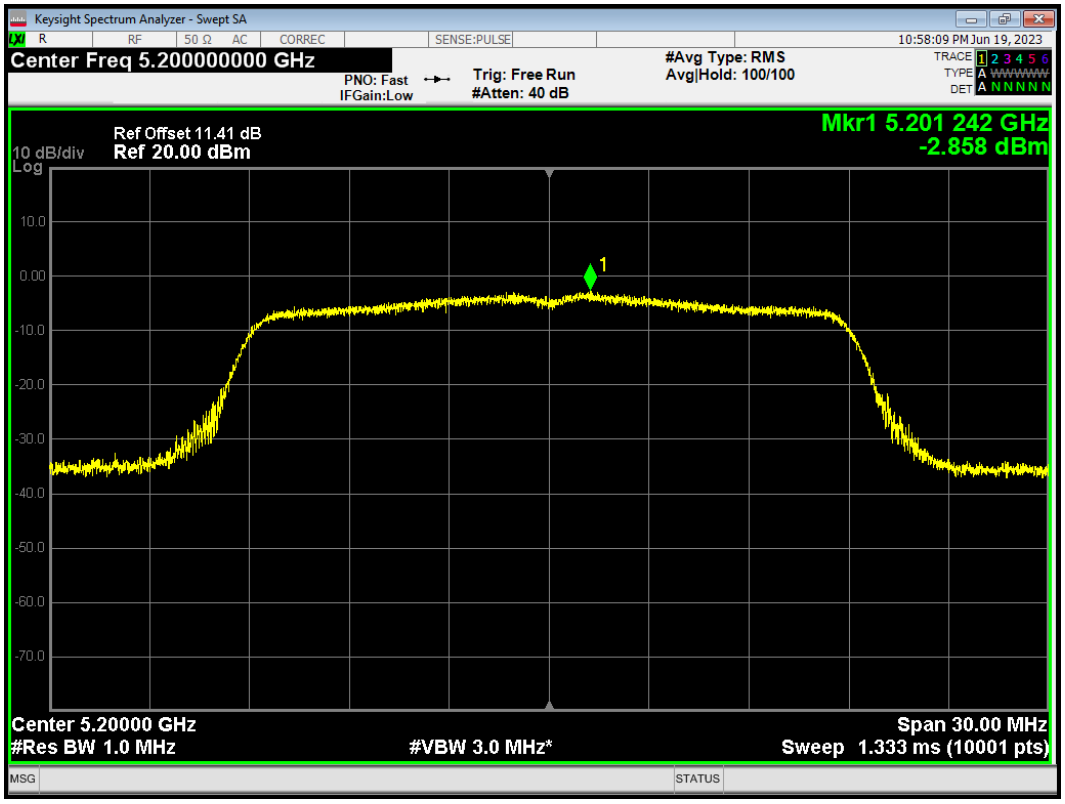
PSD 802.11a 5240MHz



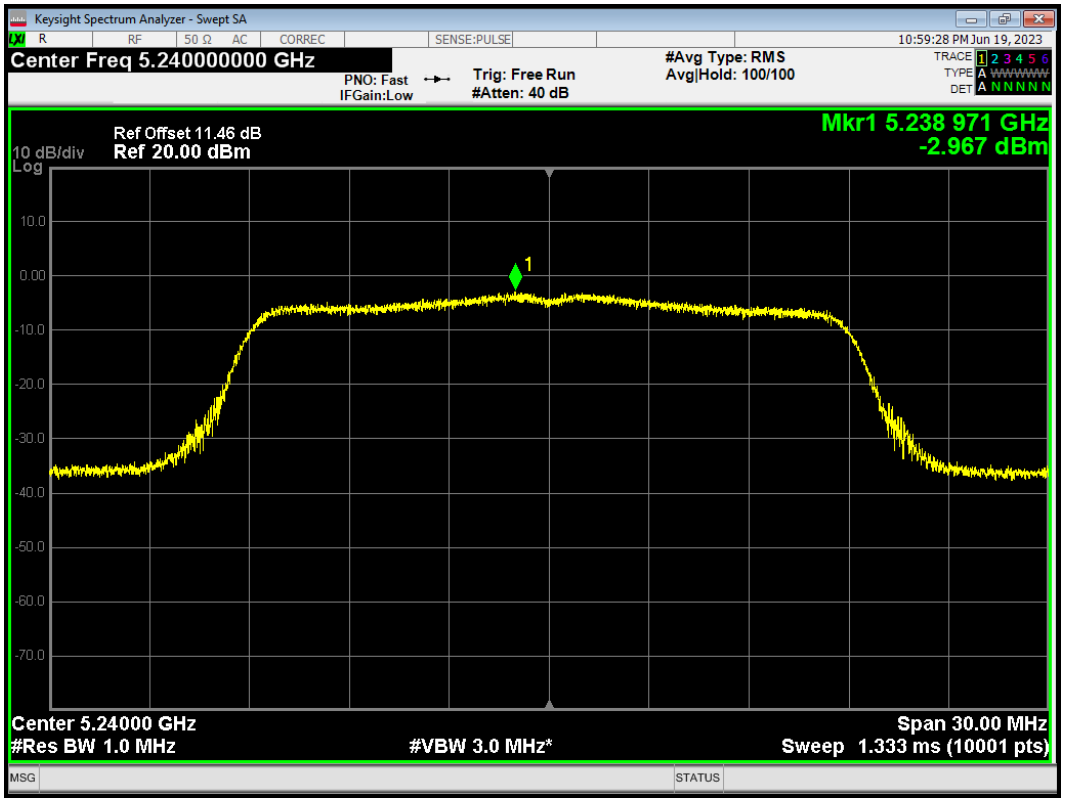
PSD 802.11ac(VHT20) 5180MHz



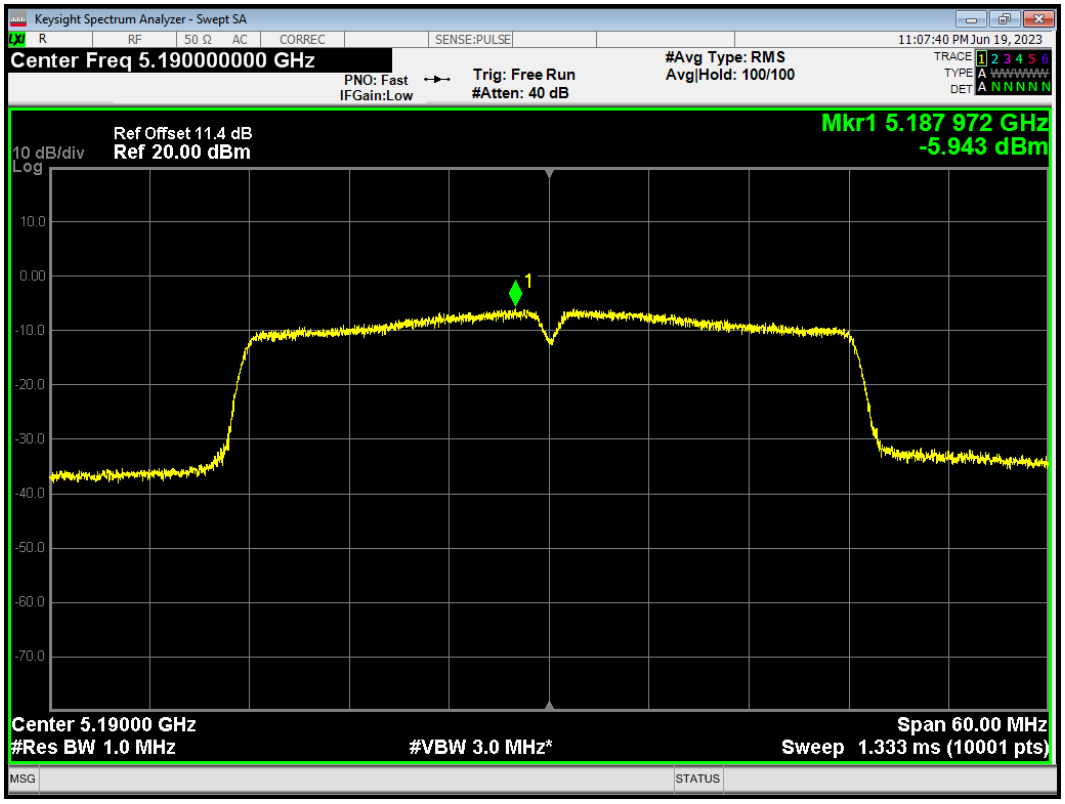
PSD 802.11ac(VHT20) 5200MHz



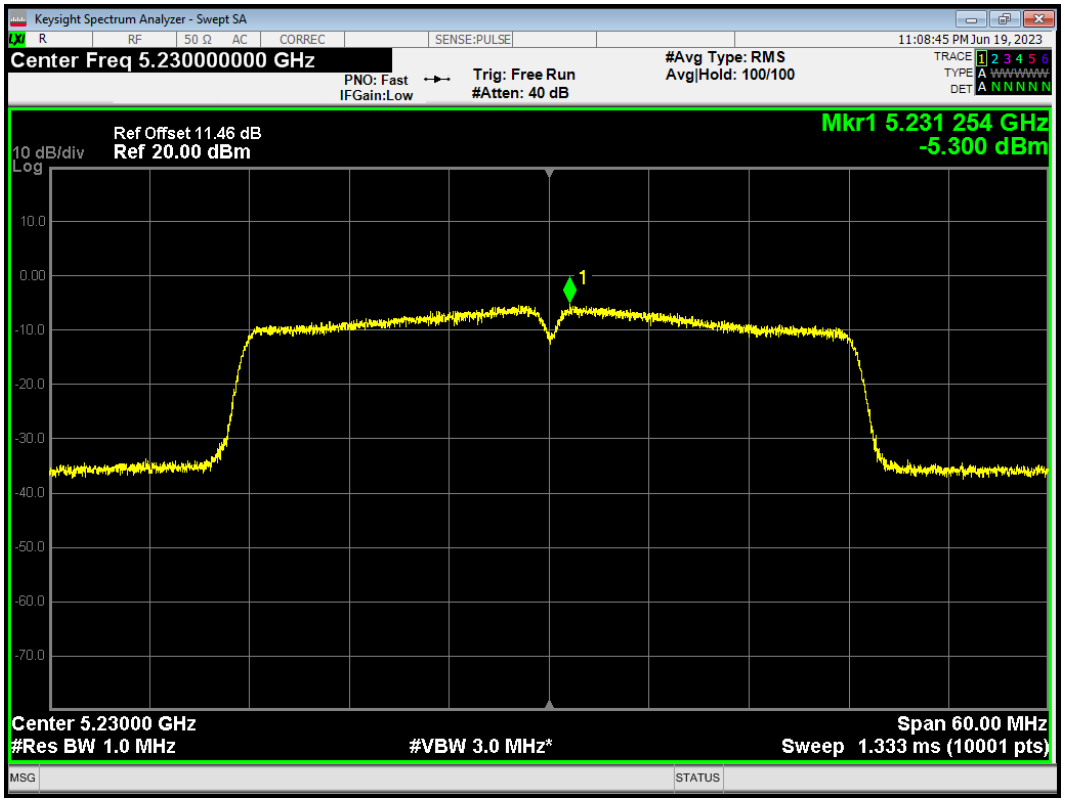
PSD 802.11ac(VHT20) 5240MHz



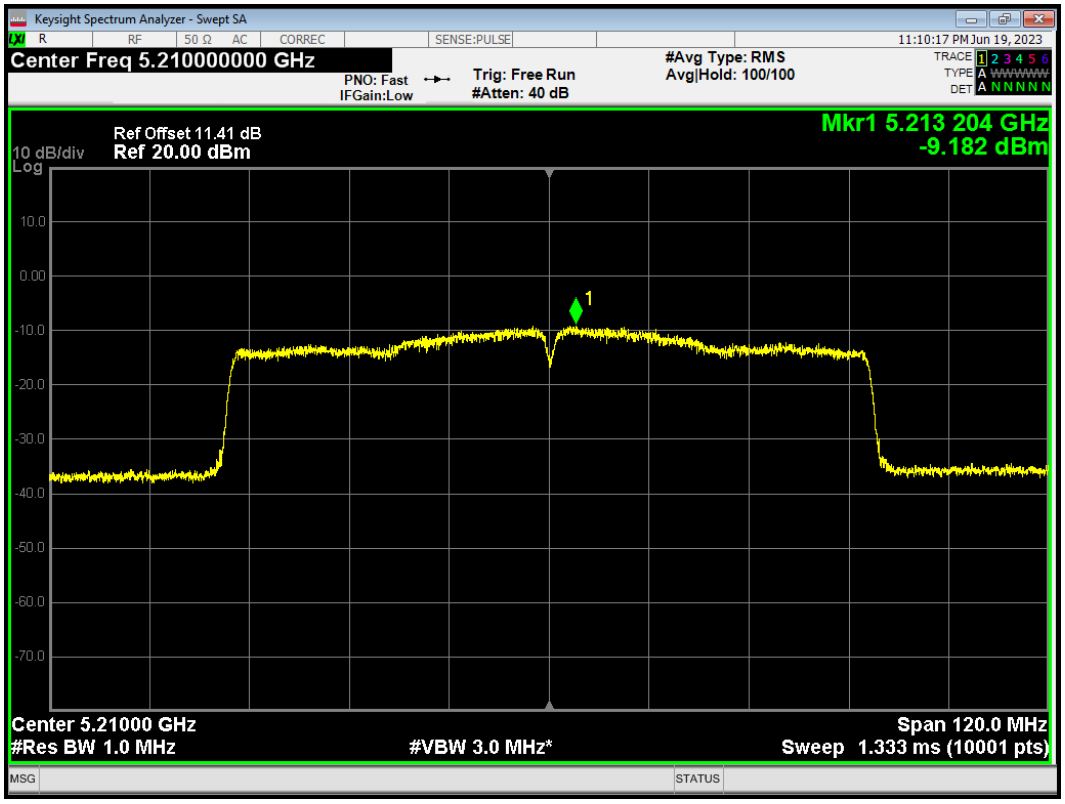
PSD 802.11ac(VHT40) 5190MHz



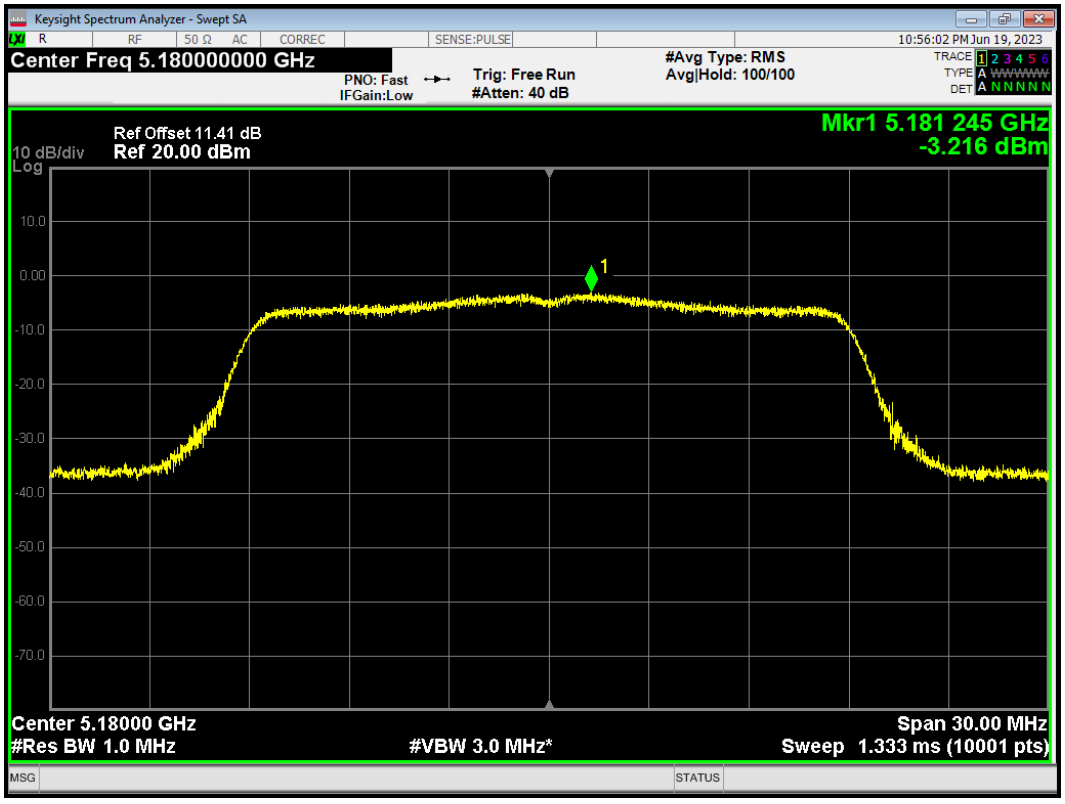
PSD 802.11ac(VHT40) 5230MHz



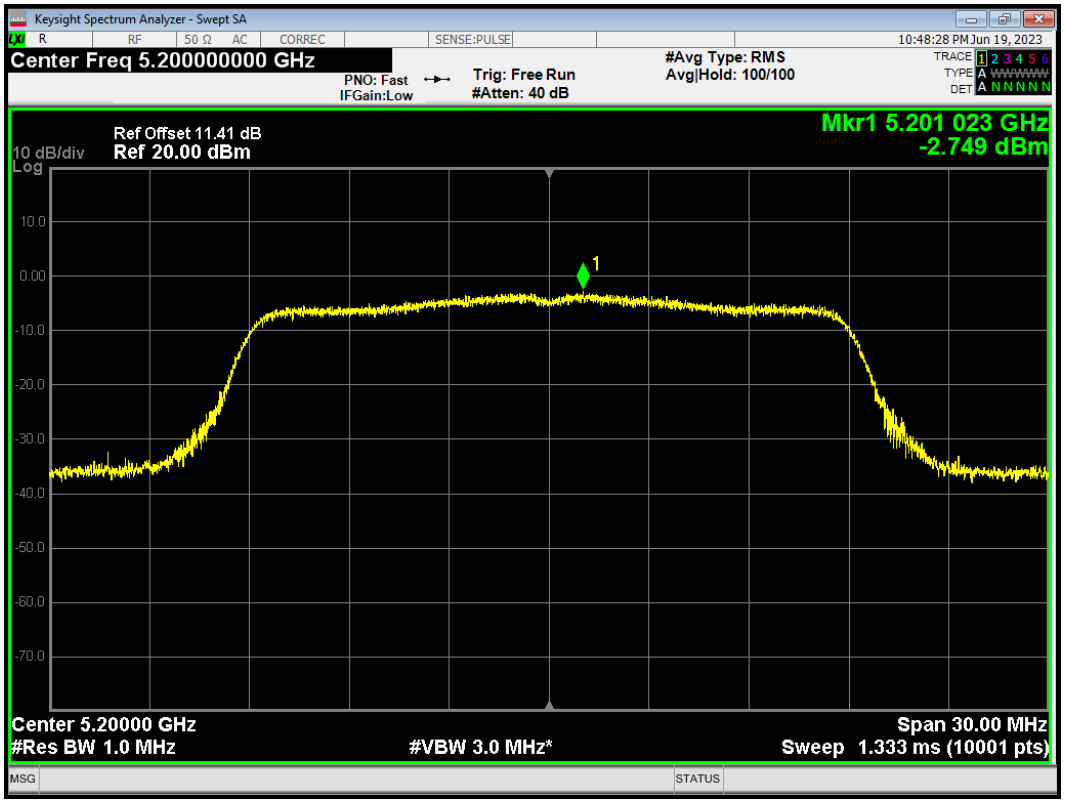
PSD 802.11ac(VHT80) 5210MHz



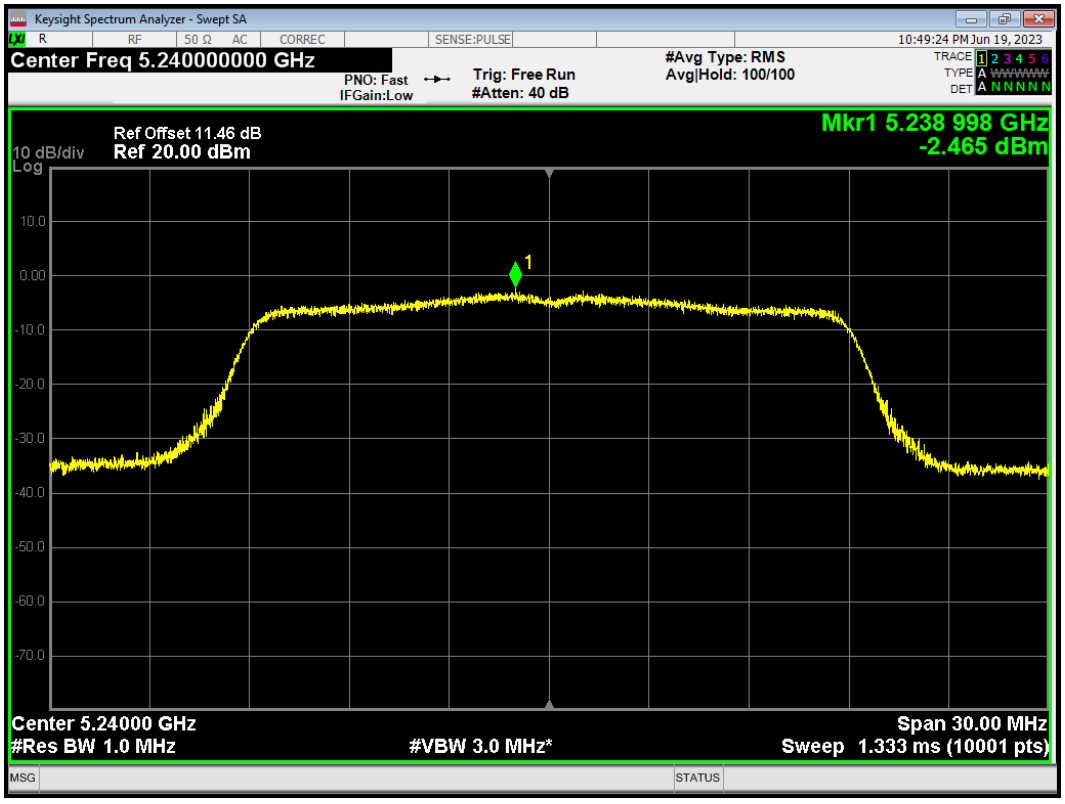
PSD 802.11n(HT20) 5180MHz



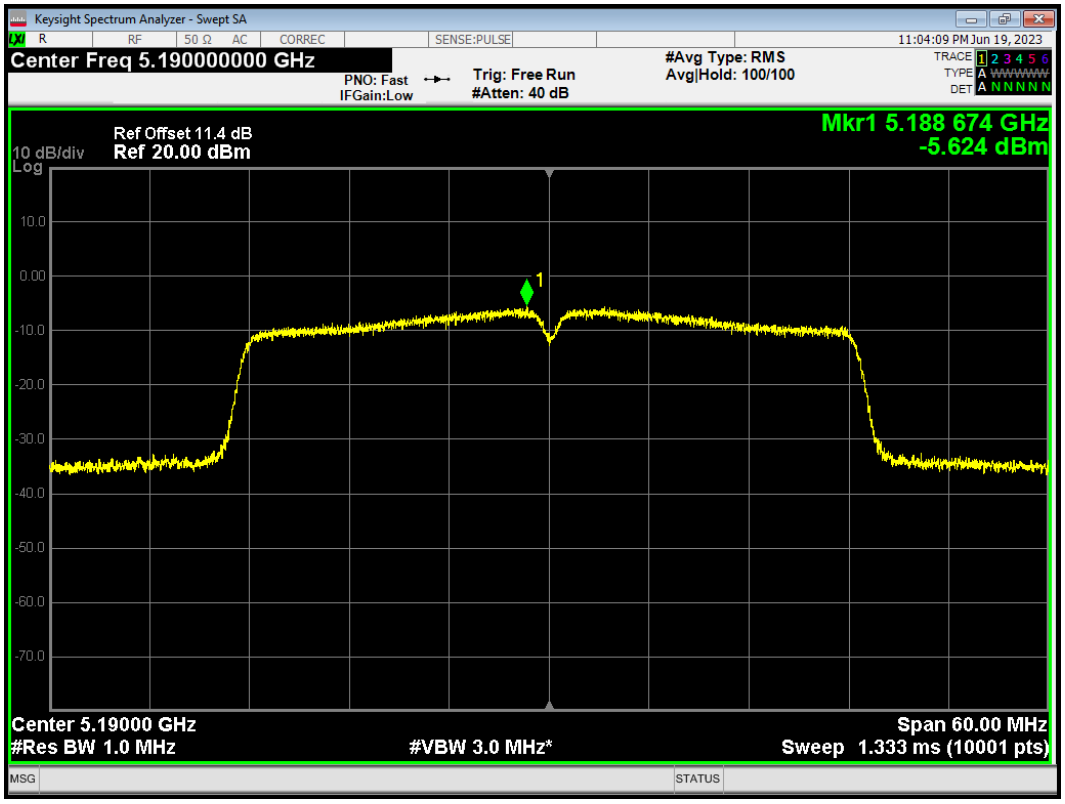
PSD 802.11n(HT20) 5200MHz



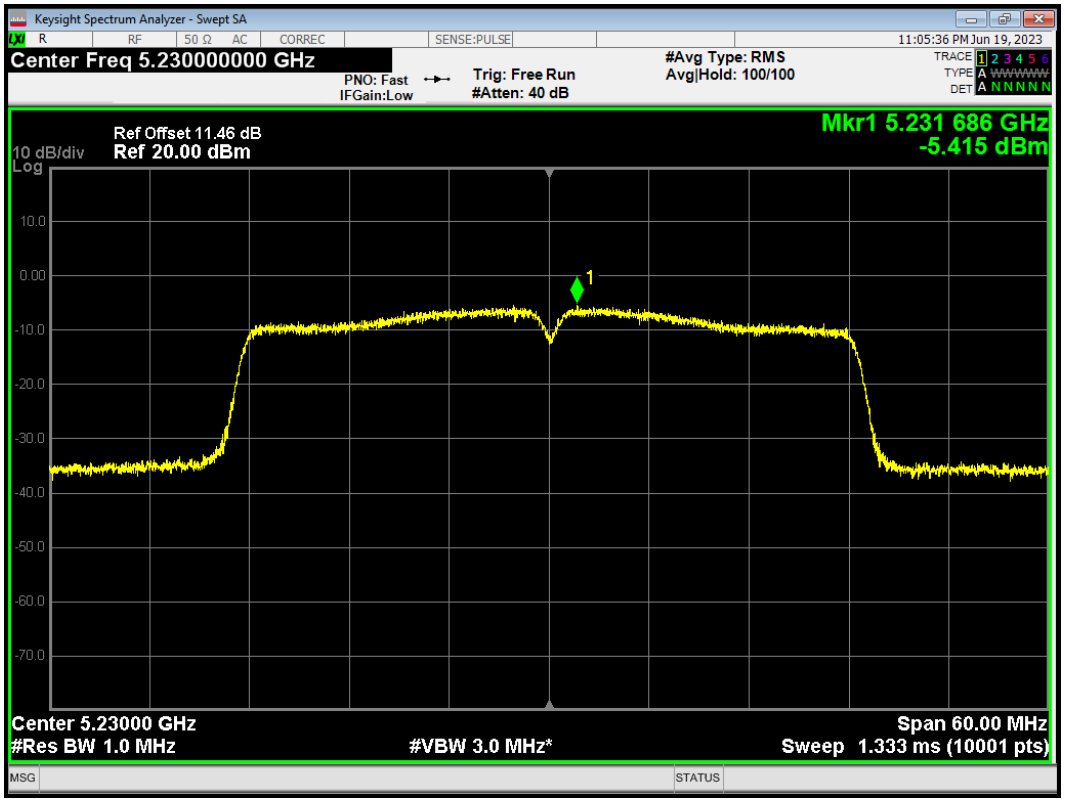
PSD 802.11n(HT20) 5240MHz



PSD 802.11n(HT40) 5190MHz

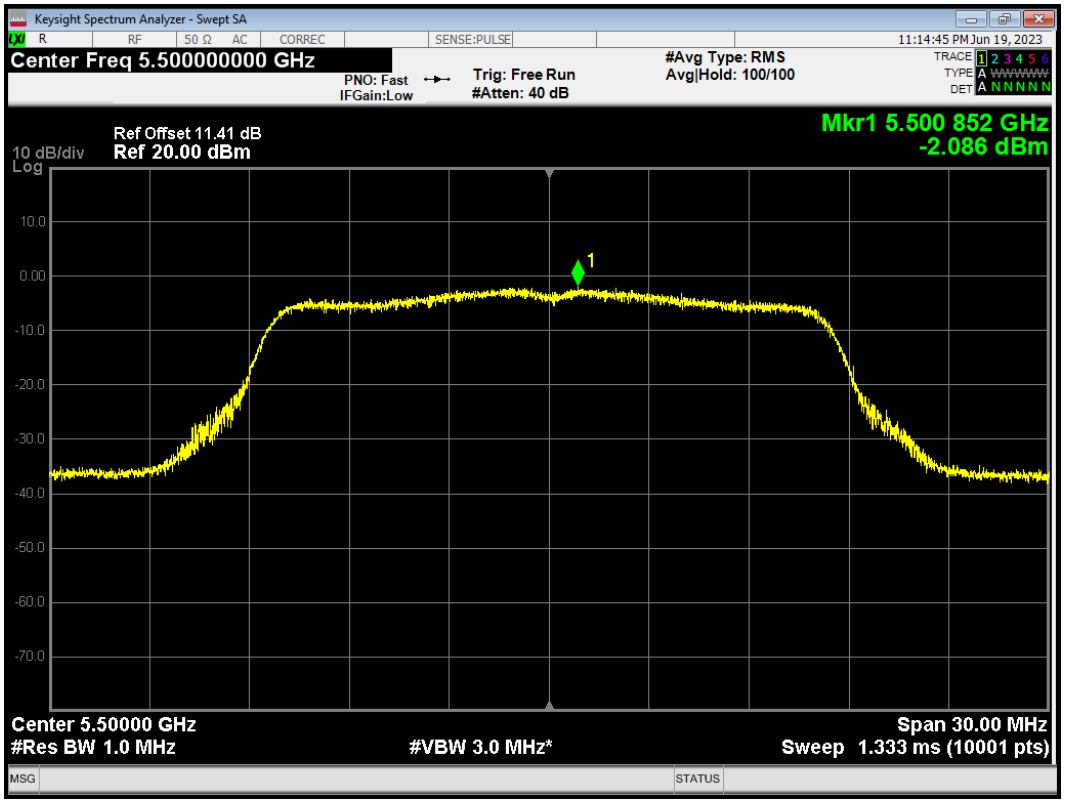


PSD 802.11n(HT40) 5230MHz

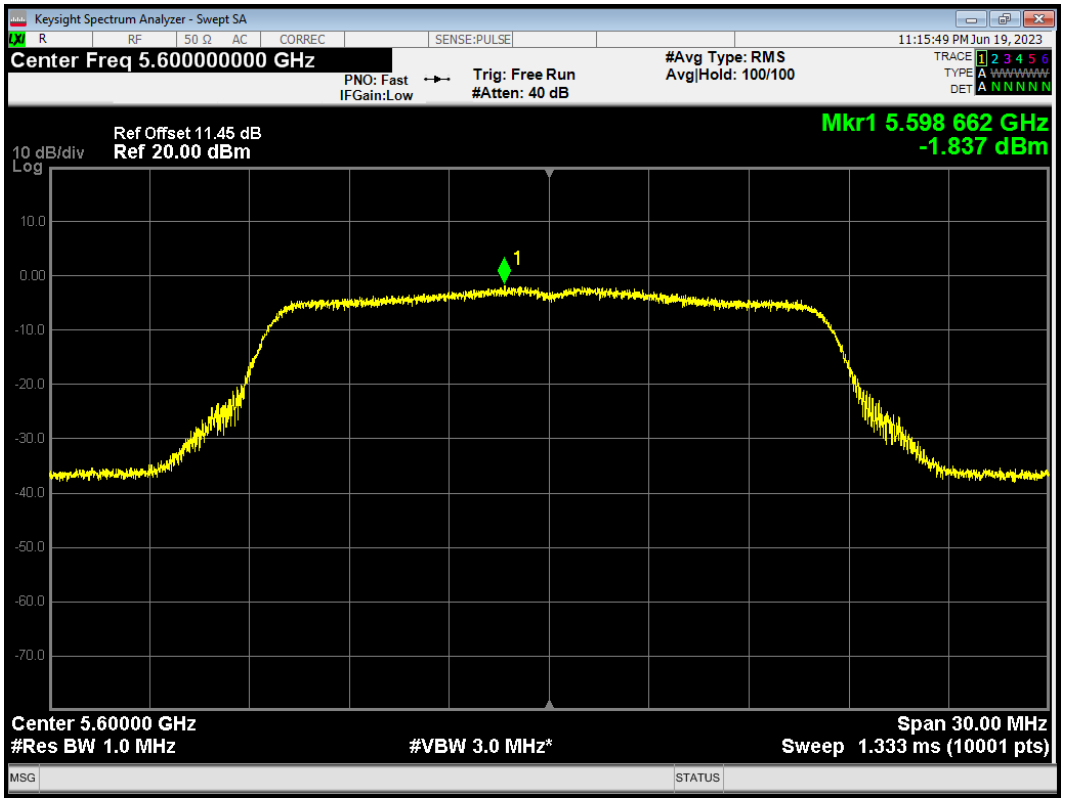


U-NII-2C

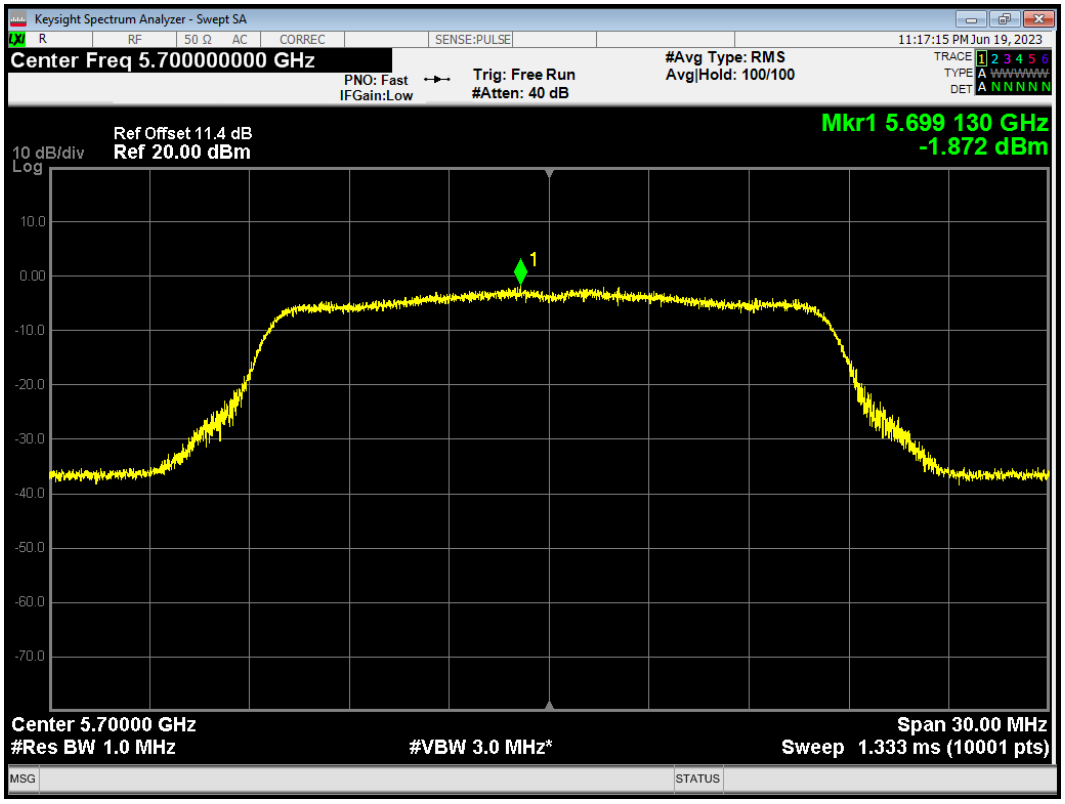
PSD 802.11a 5500MHz



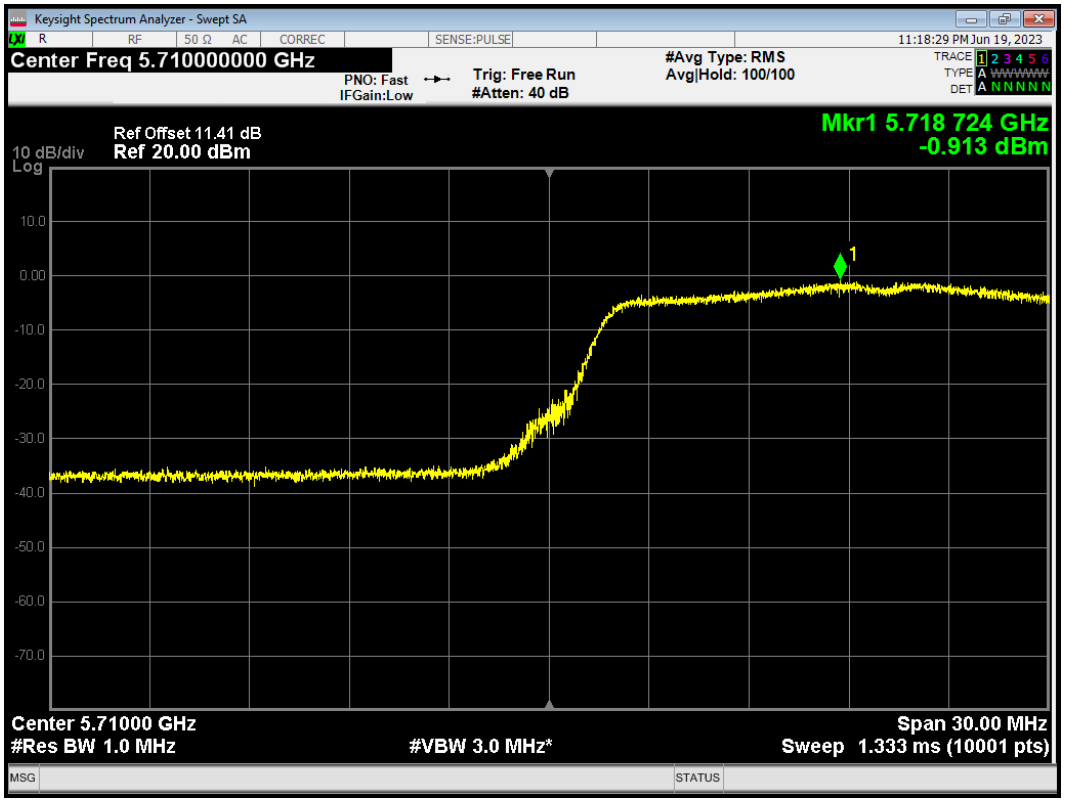
PSD 802.11a 5600MHz



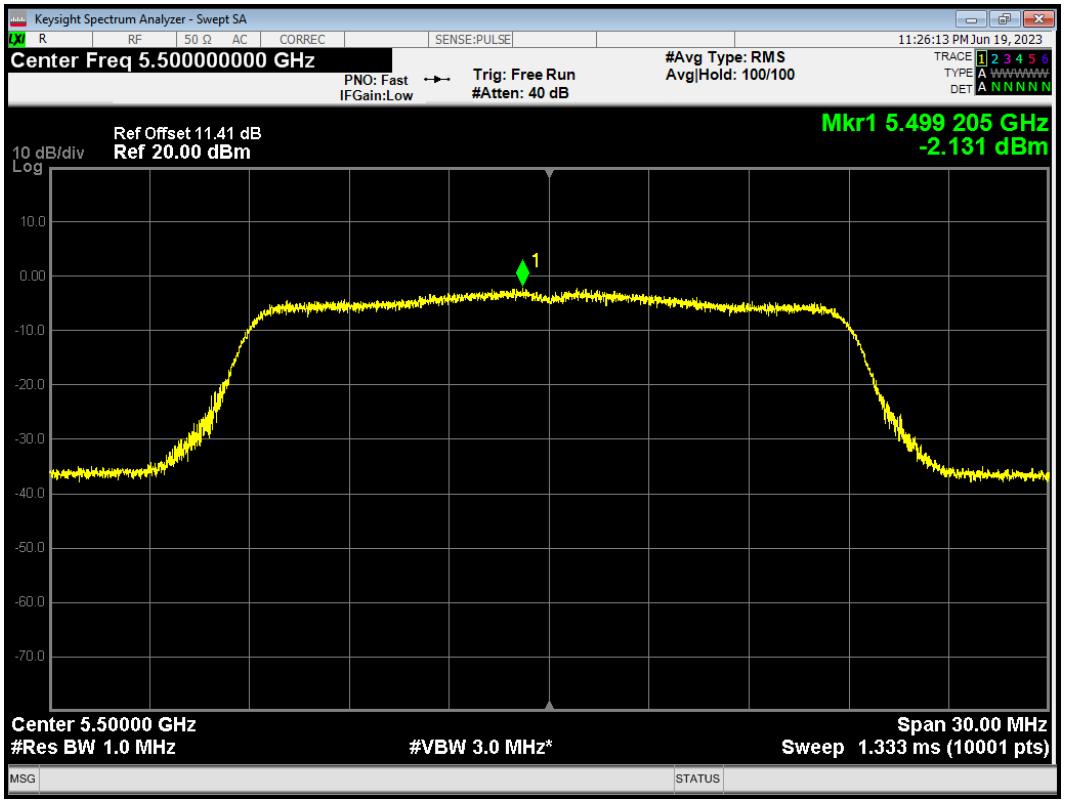
PSD 802.11a 5700MHz



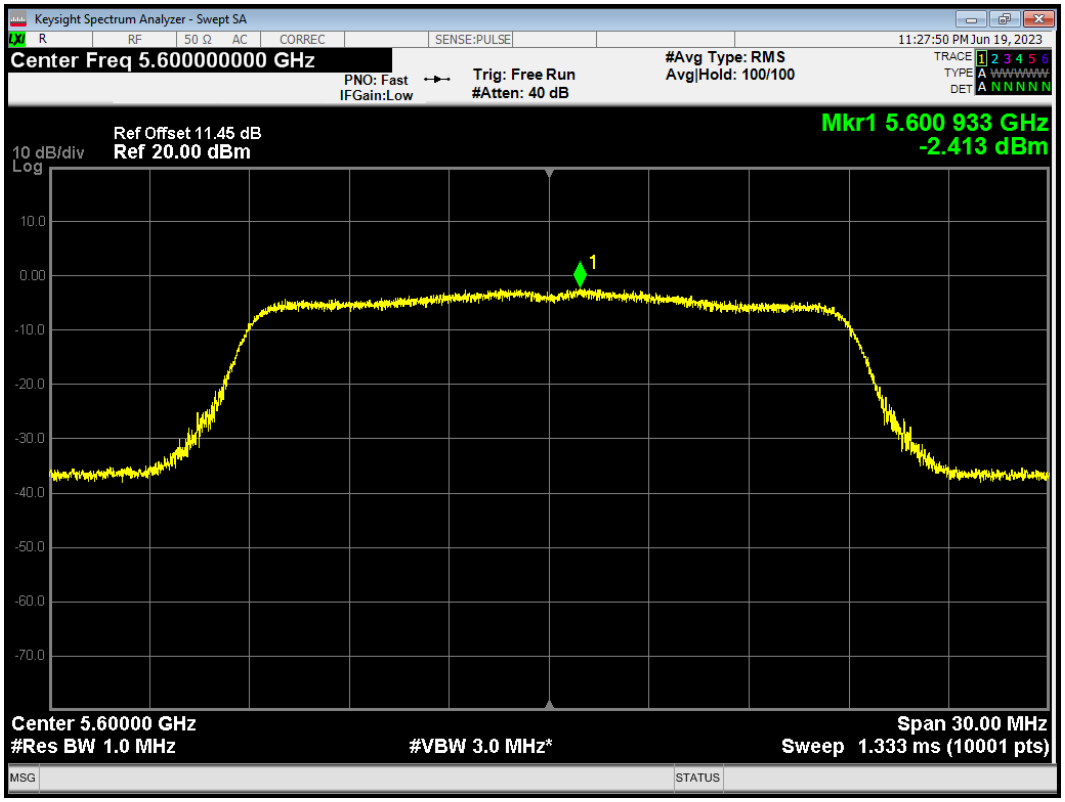
PSD 802.11a 5720MHz



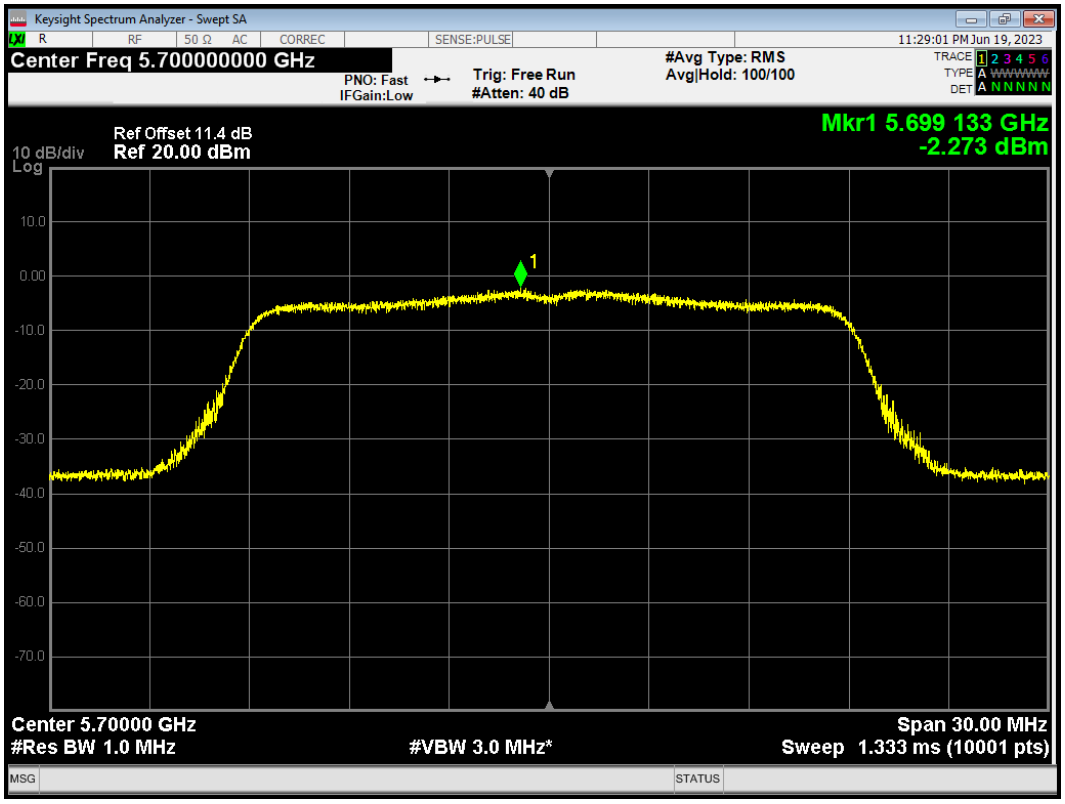
PSD 802.11ac(VHT20) 5500MHz



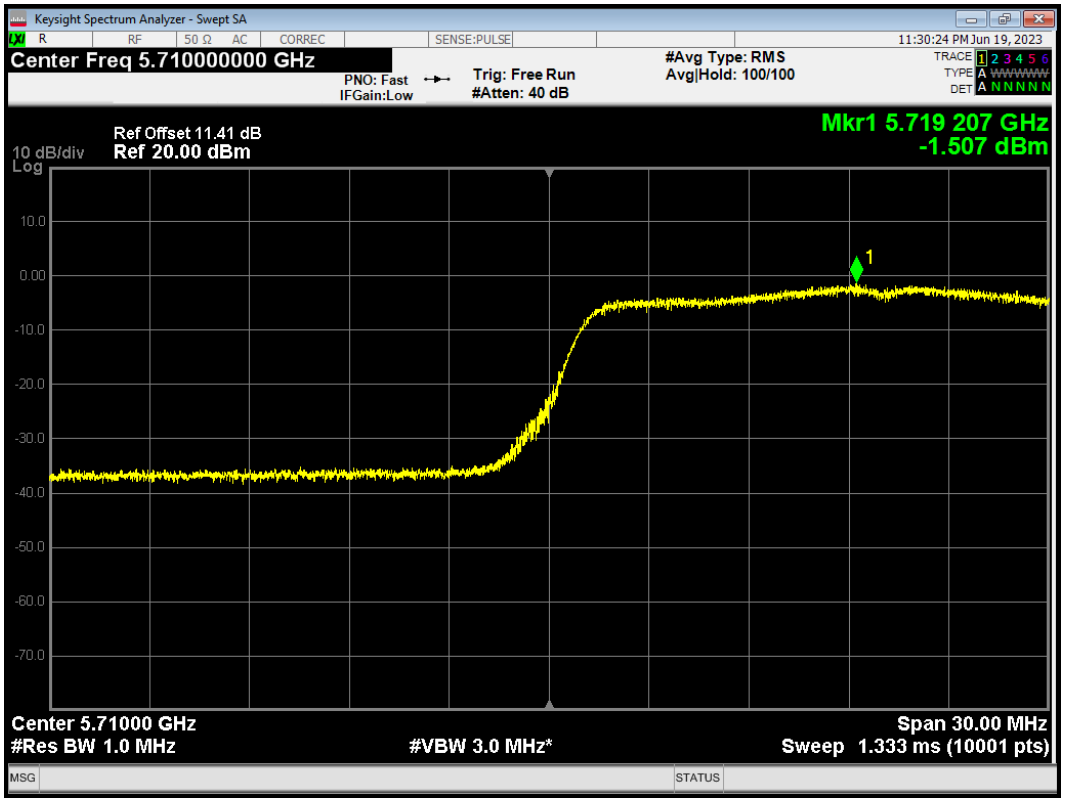
PSD 802.11ac(VHT20) 5600MHz



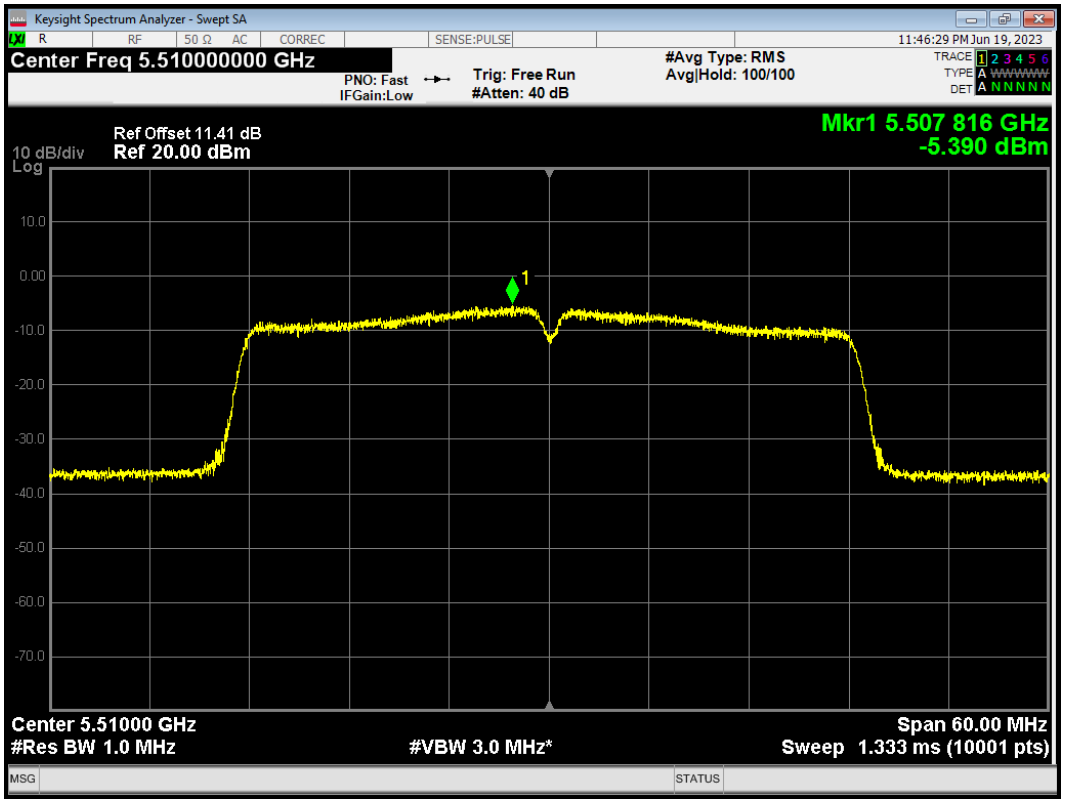
PSD 802.11ac(VHT20) 5700MHz



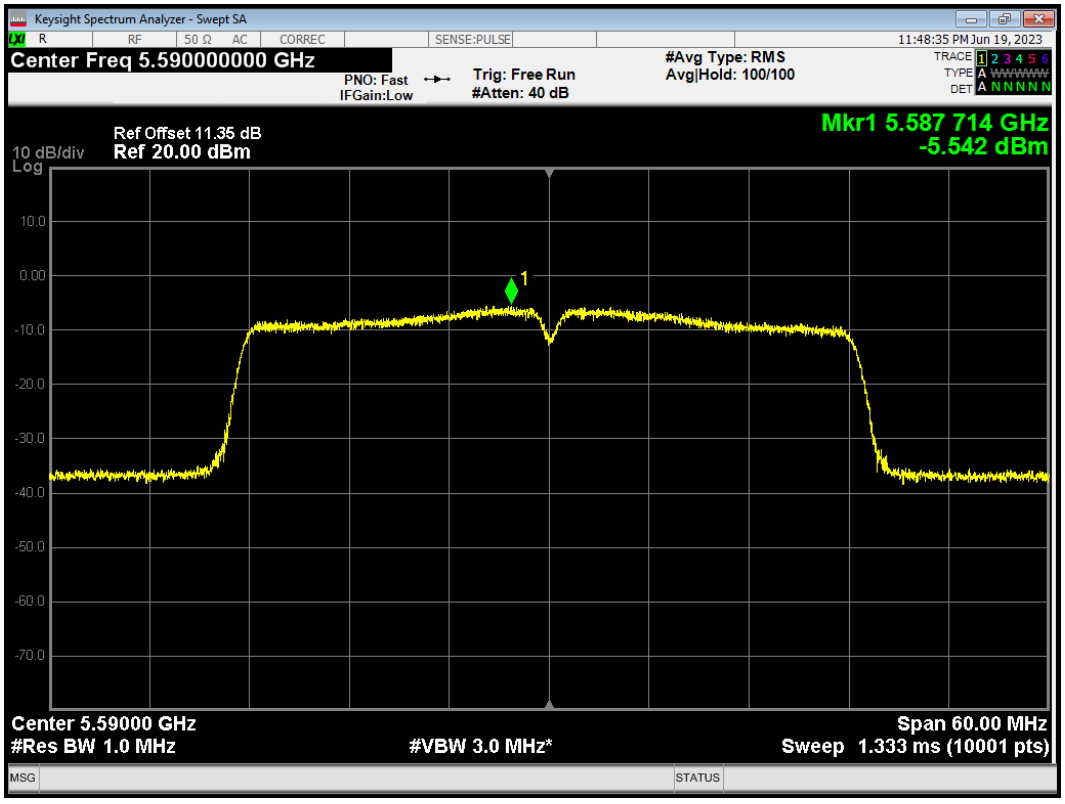
PSD 802.11ac(VHT20) 5720MHz



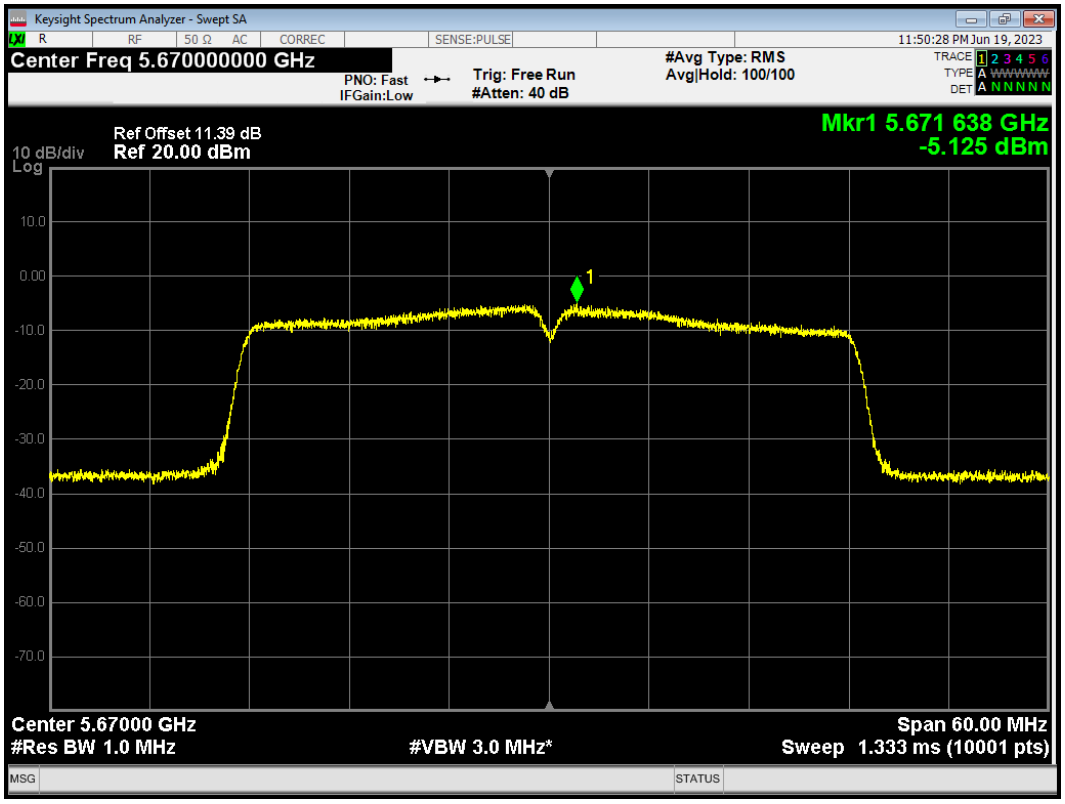
PSD 802.11ac(VHT40) 5510MHz



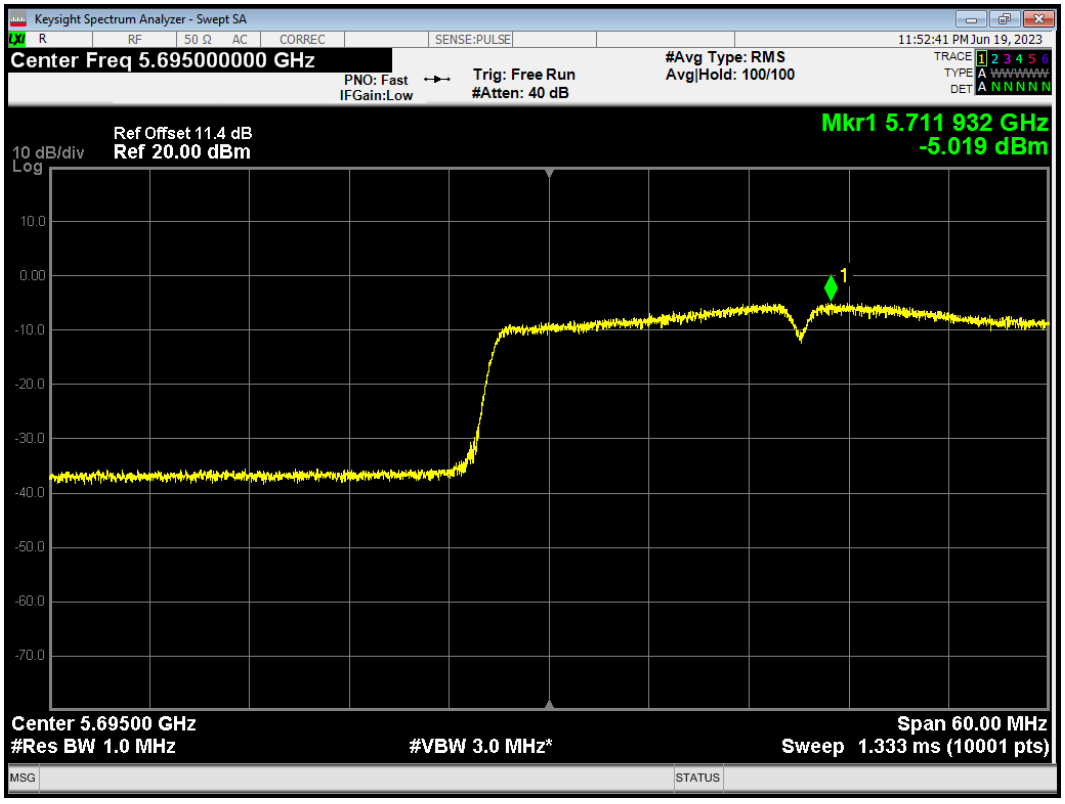
PSD 802.11ac(VHT40) 5590MHz



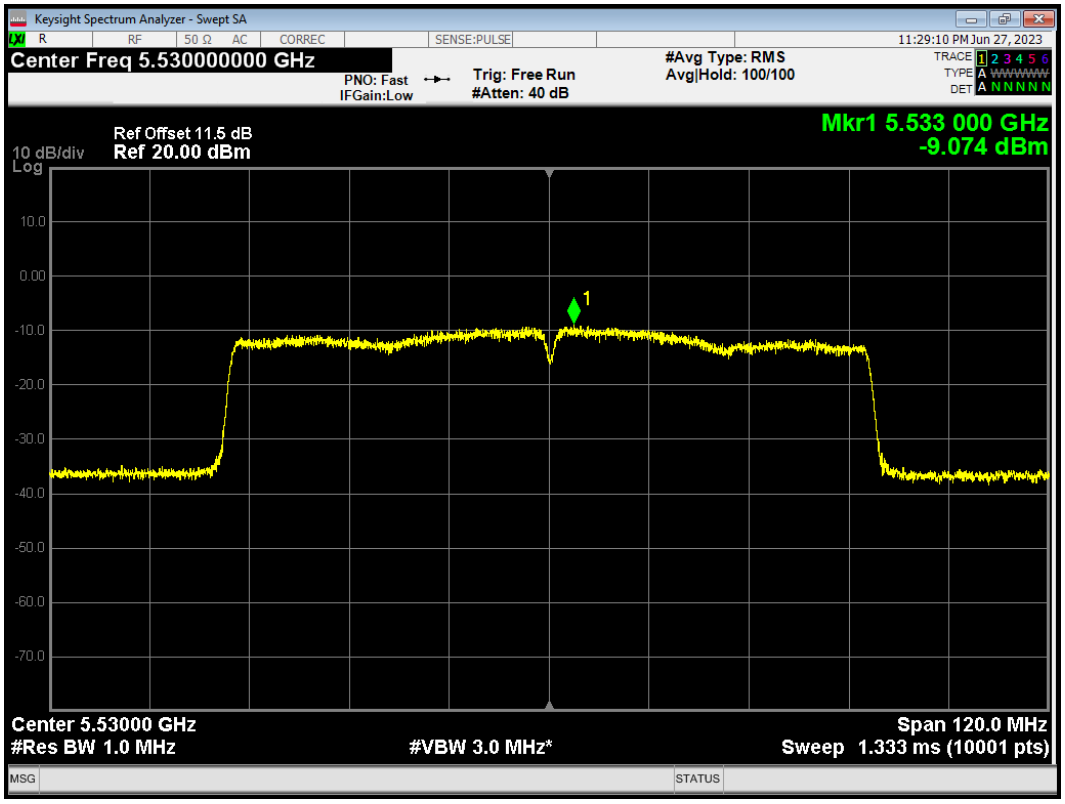
PSD 802.11ac(VHT40) 5670MHz



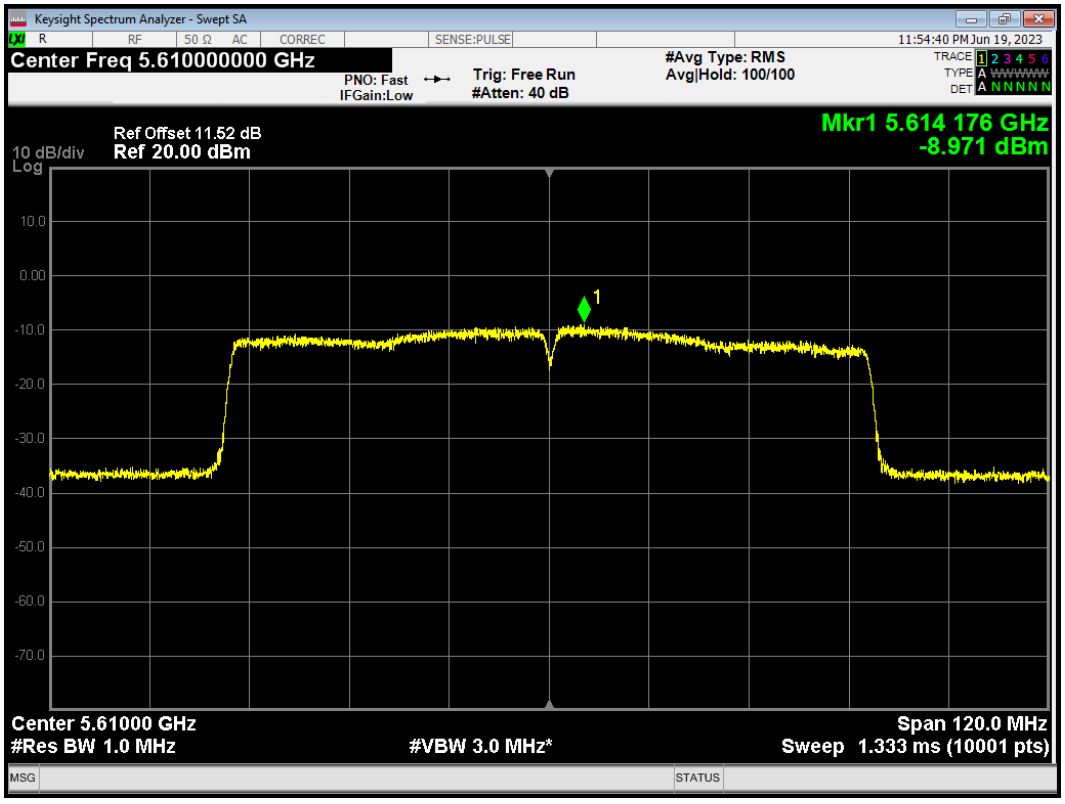
PSD 802.11ac(VHT40) 5710MHz



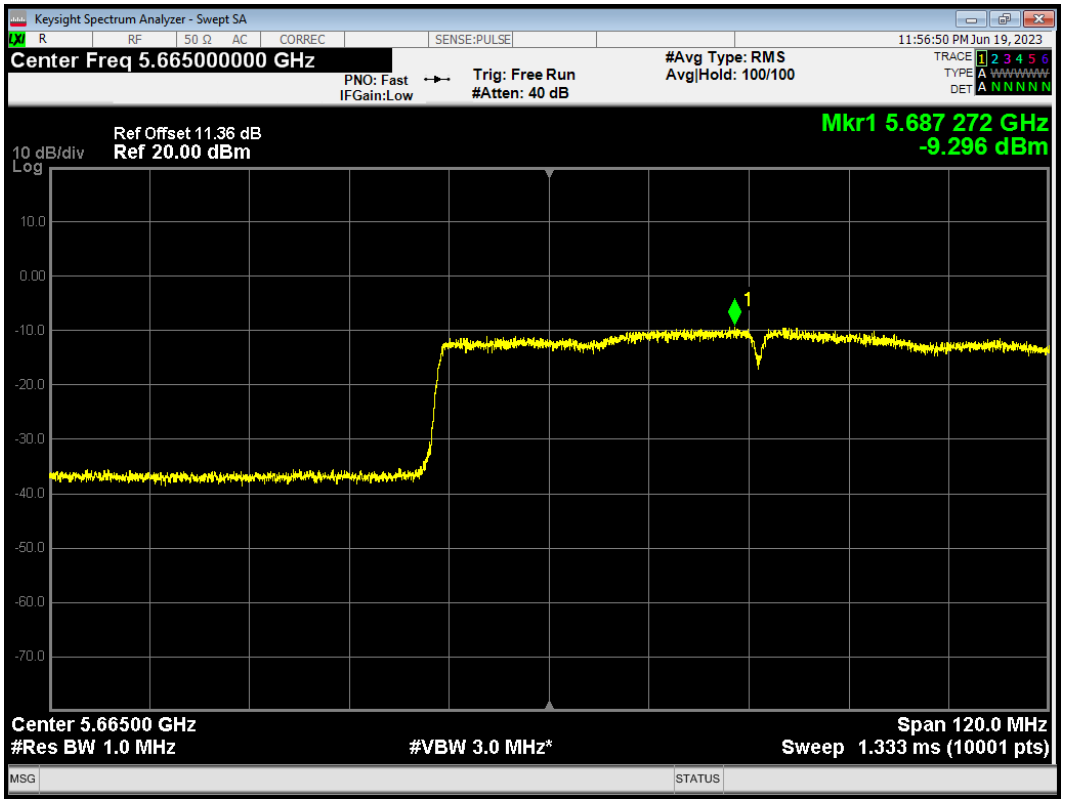
PSD 802.11ac(VHT80) 5530MHz



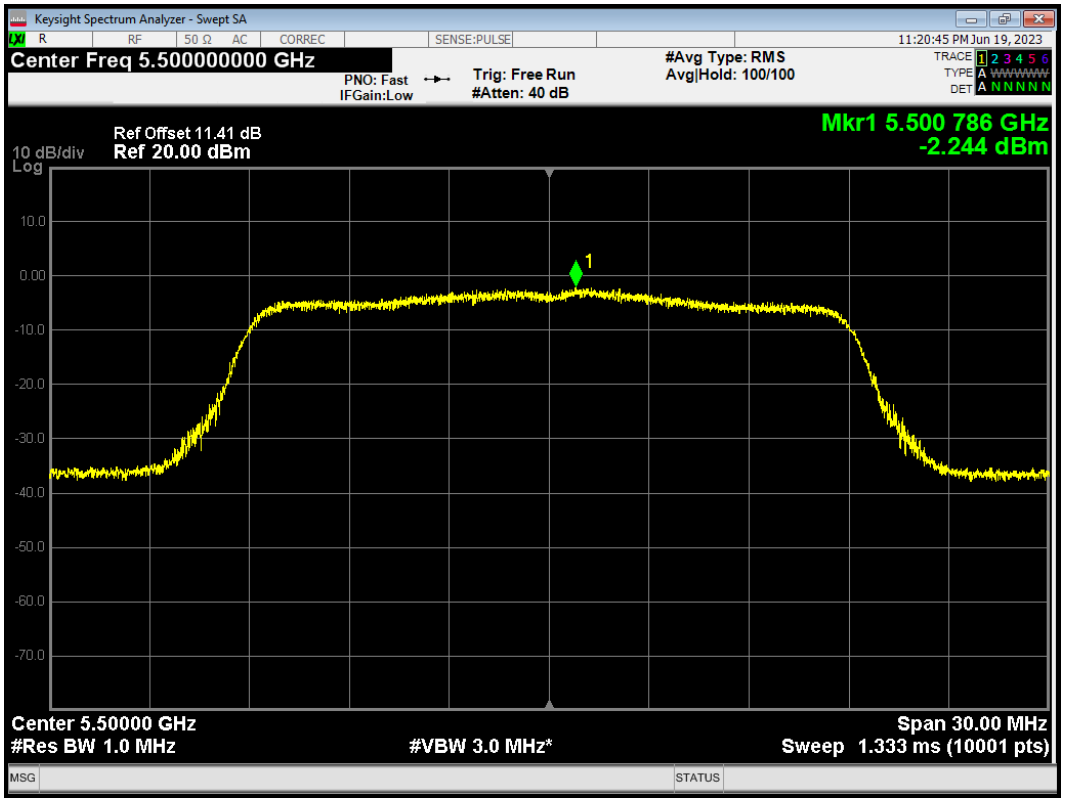
PSD 802.11ac(VHT80) 5610MHz



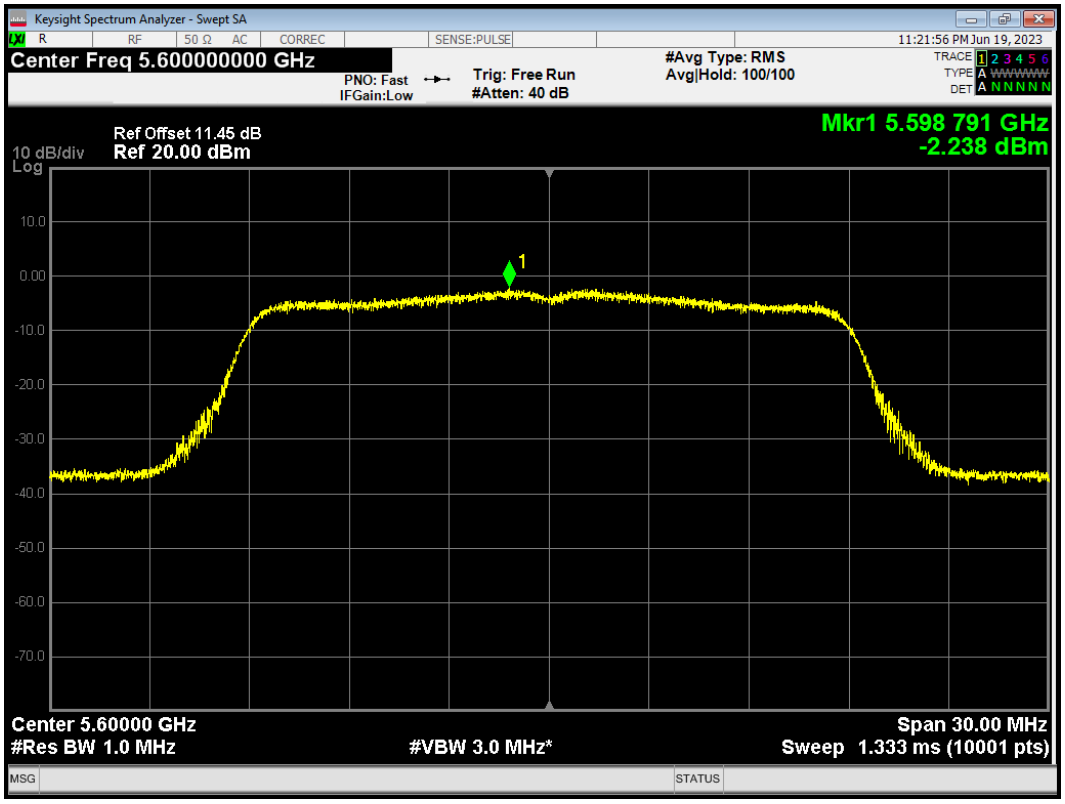
PSD 802.11ac(VHT80) 5690MHz



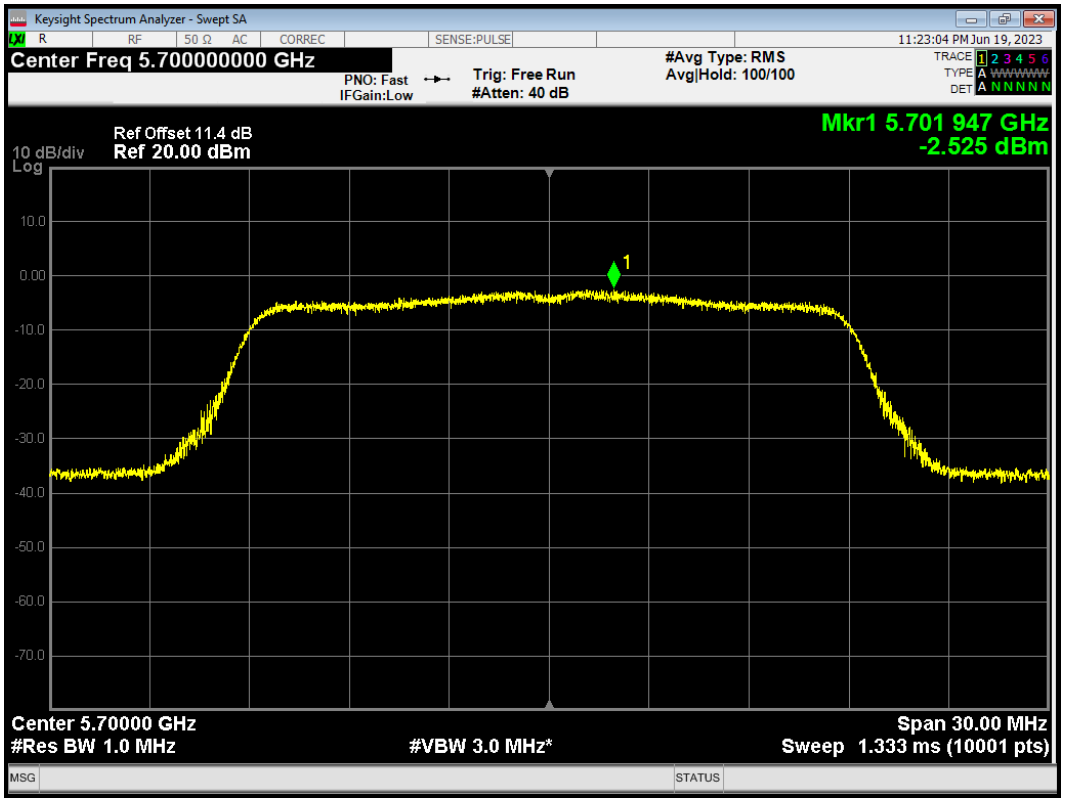
PSD 802.11n(HT20) 5500MHz



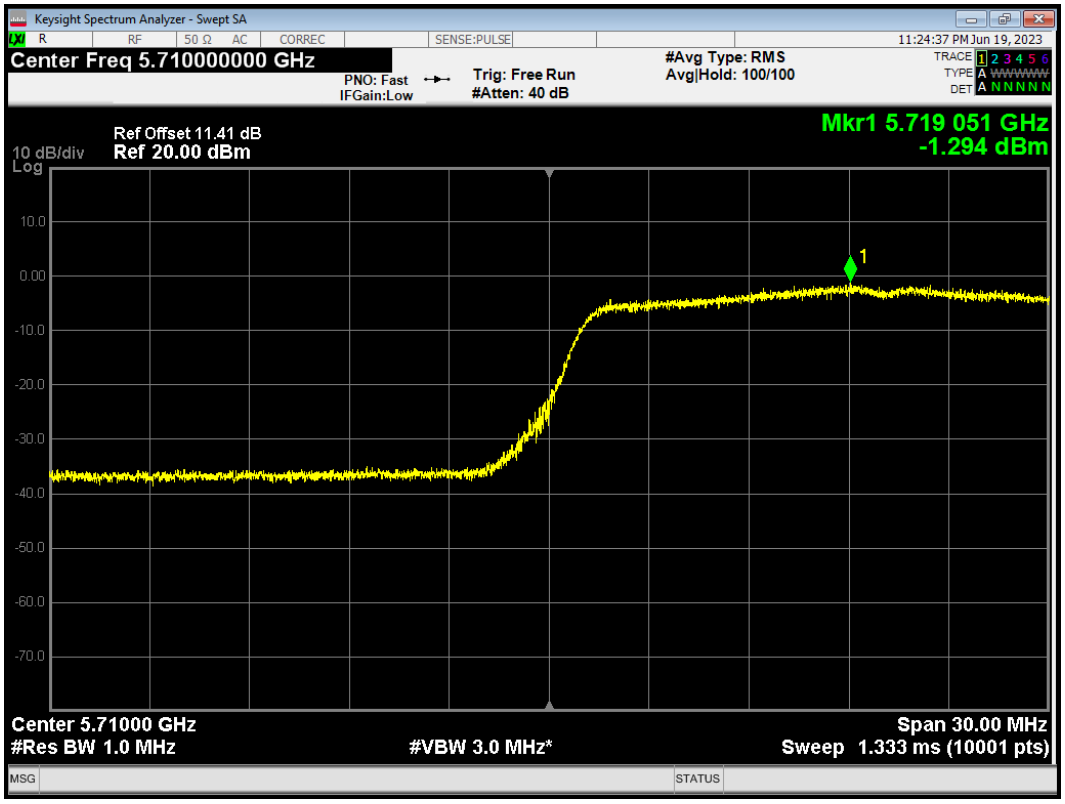
PSD 802.11n(HT20) 5600MHz



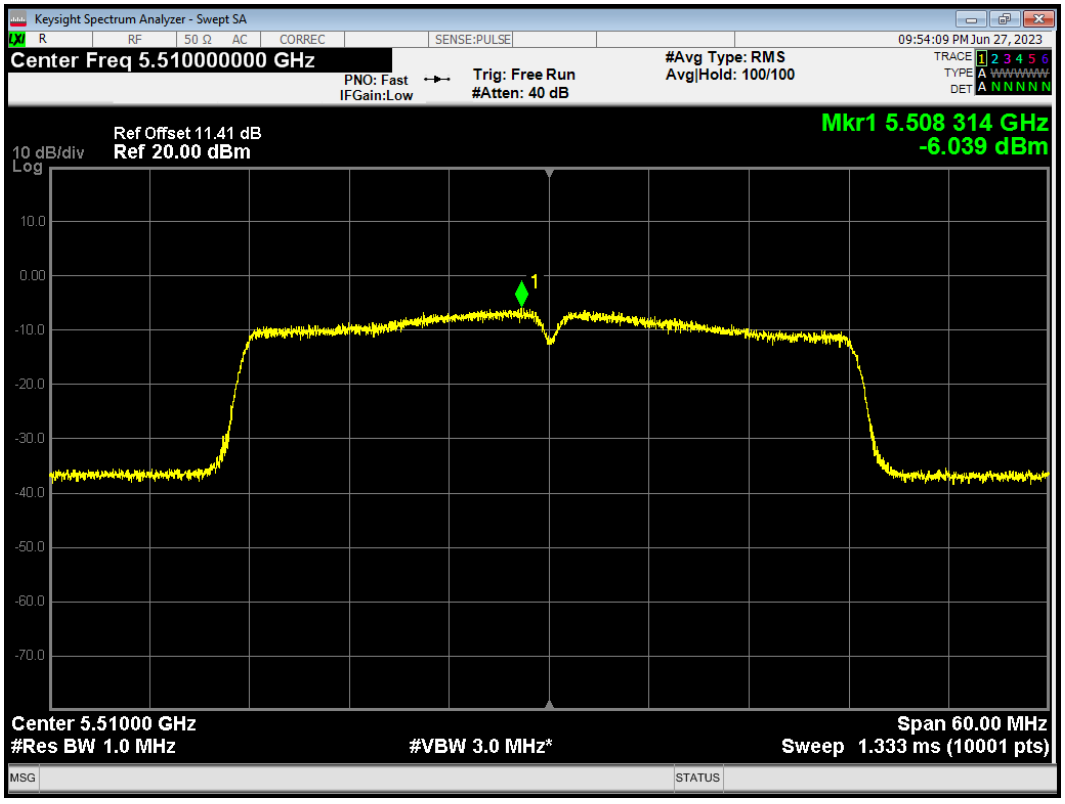
PSD 802.11n(HT20) 5700MHz



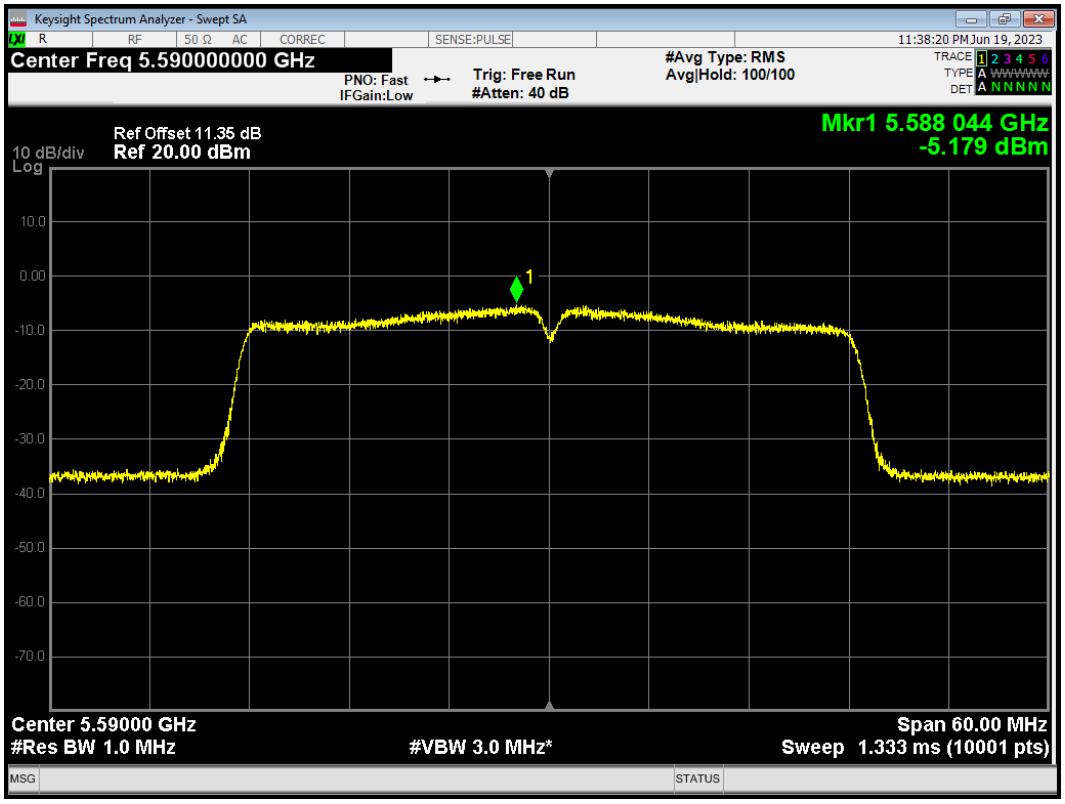
PSD 802.11n(HT20) 5720MHz



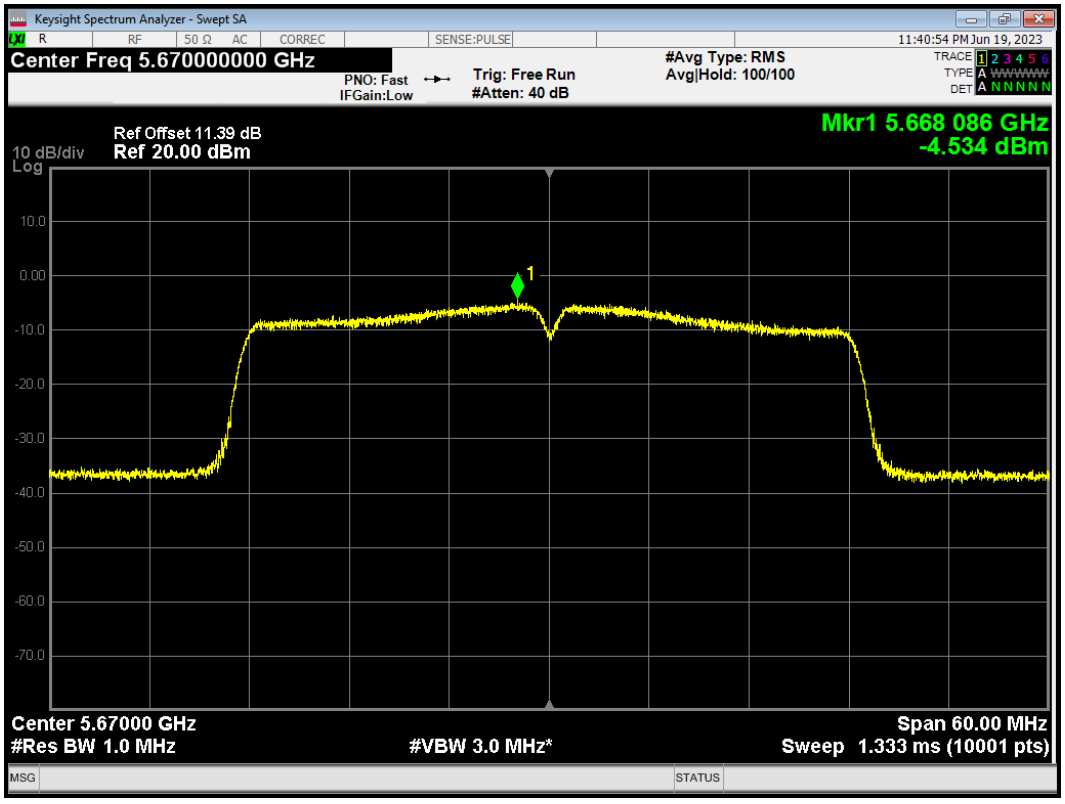
PSD 802.11n(HT40) 5510MHz



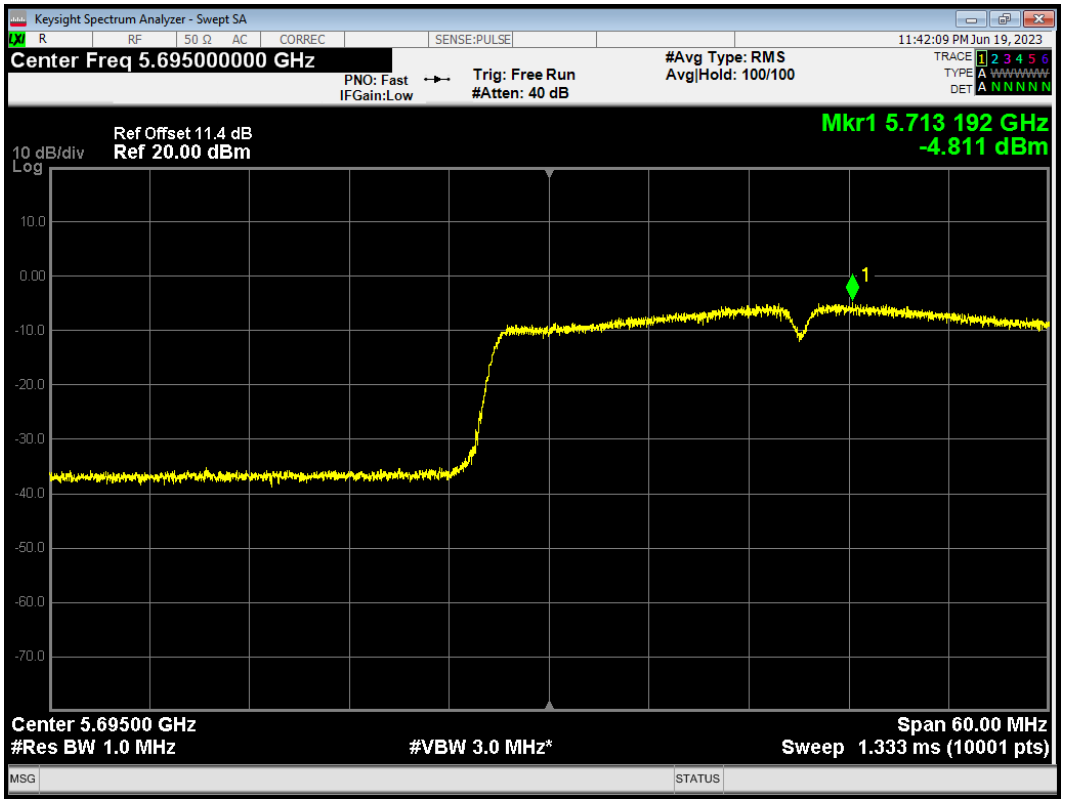
PSD 802.11n(HT40) 5590MHz



PSD 802.11n(HT40) 5670MHz

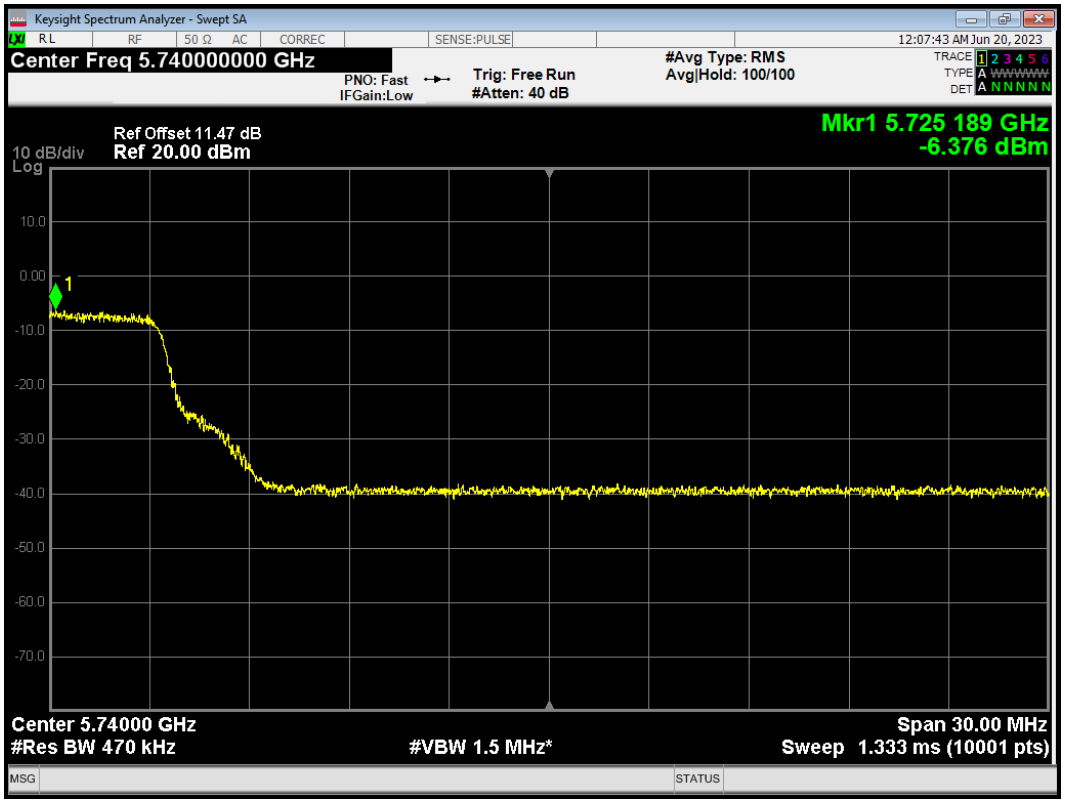


PSD 802.11n(HT40) 5710MHz

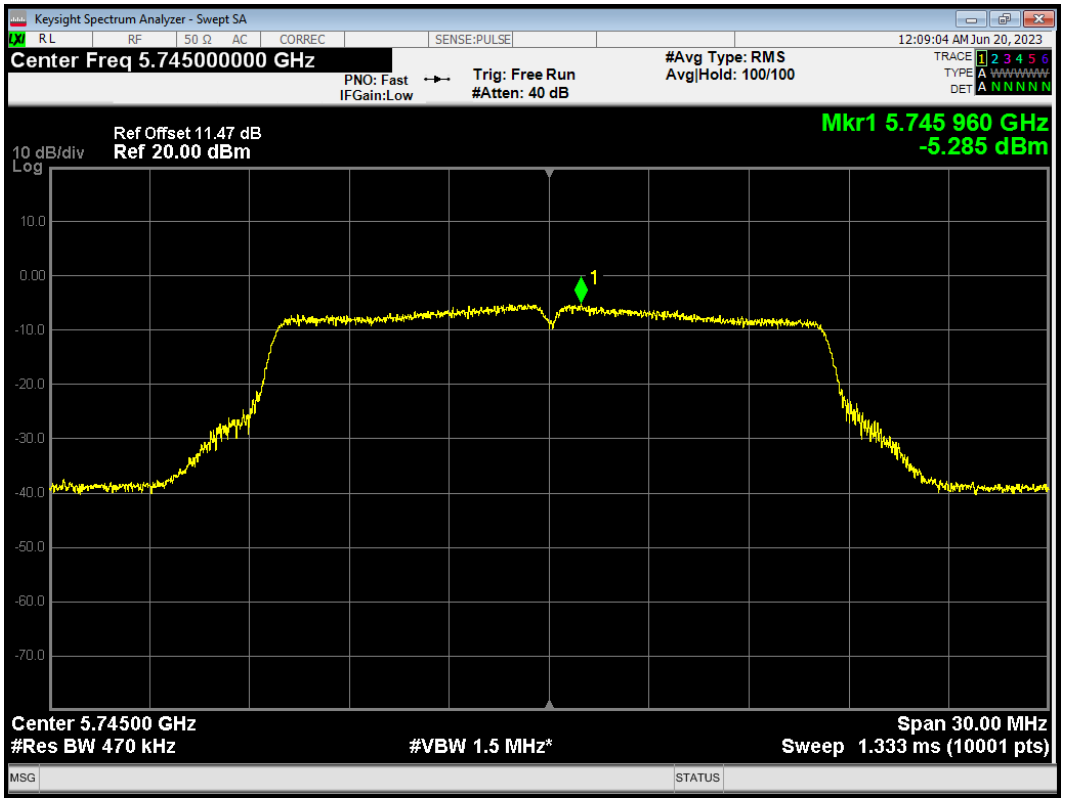


U-NII-3

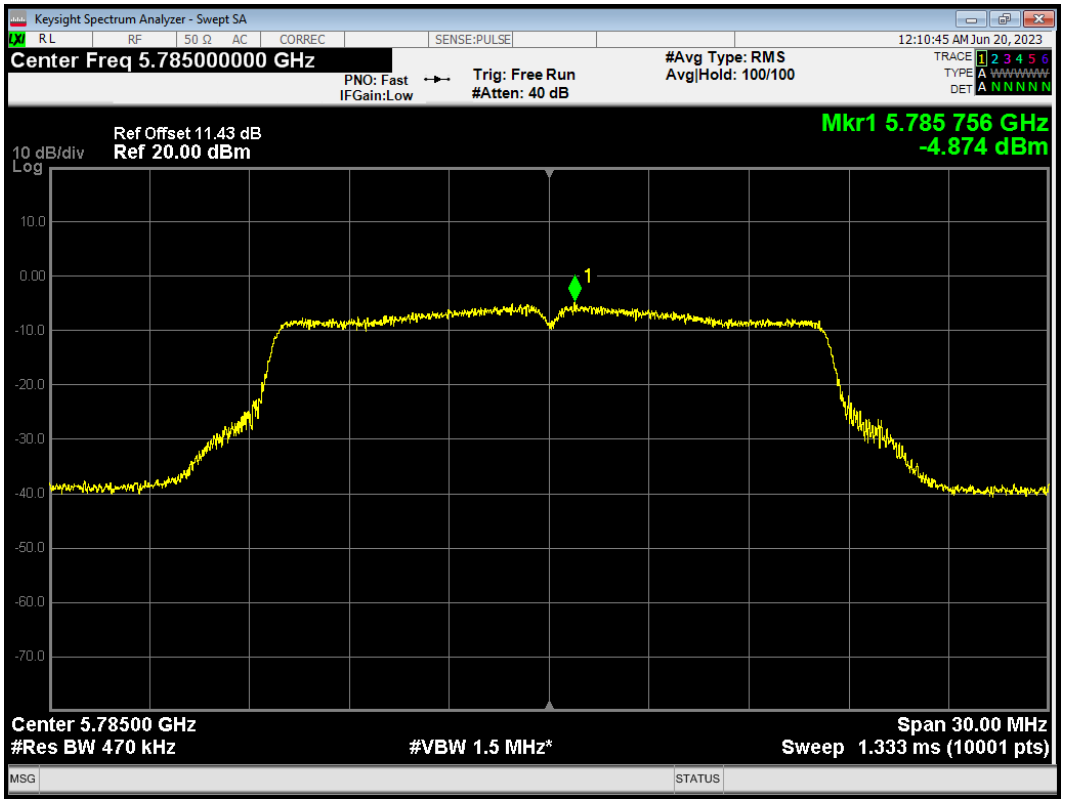
PSD 802.11a 5720MHz



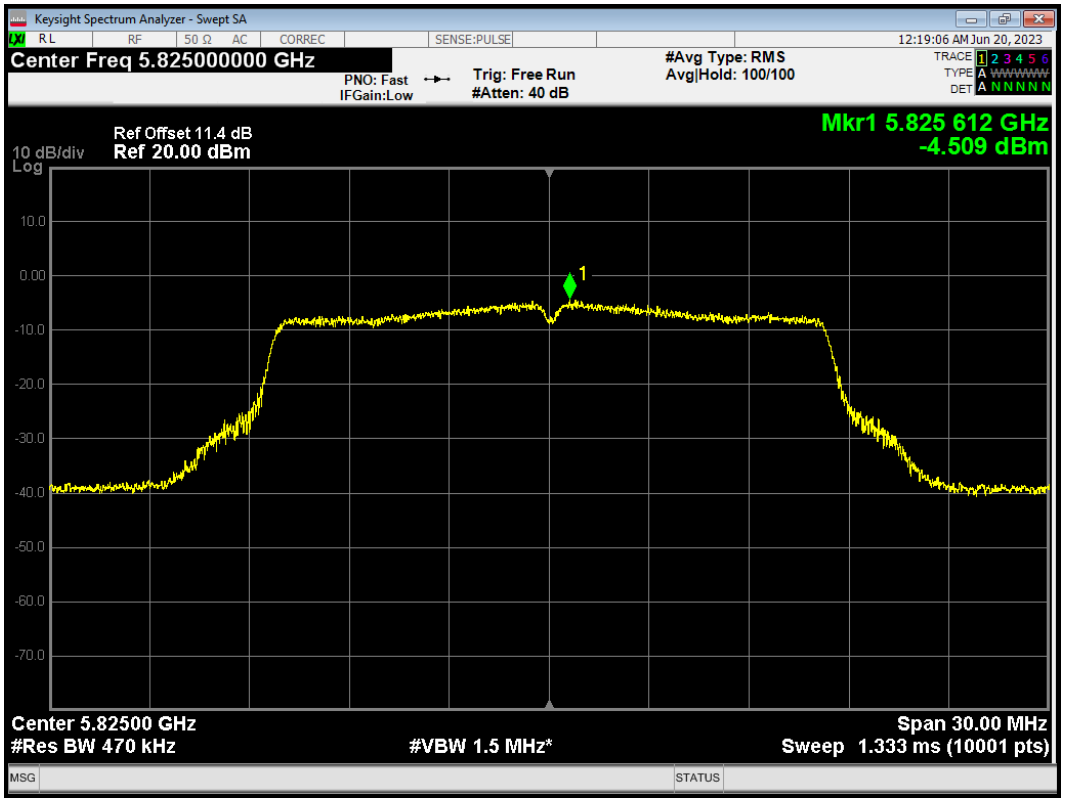
PSD 802.11a 5745MHz



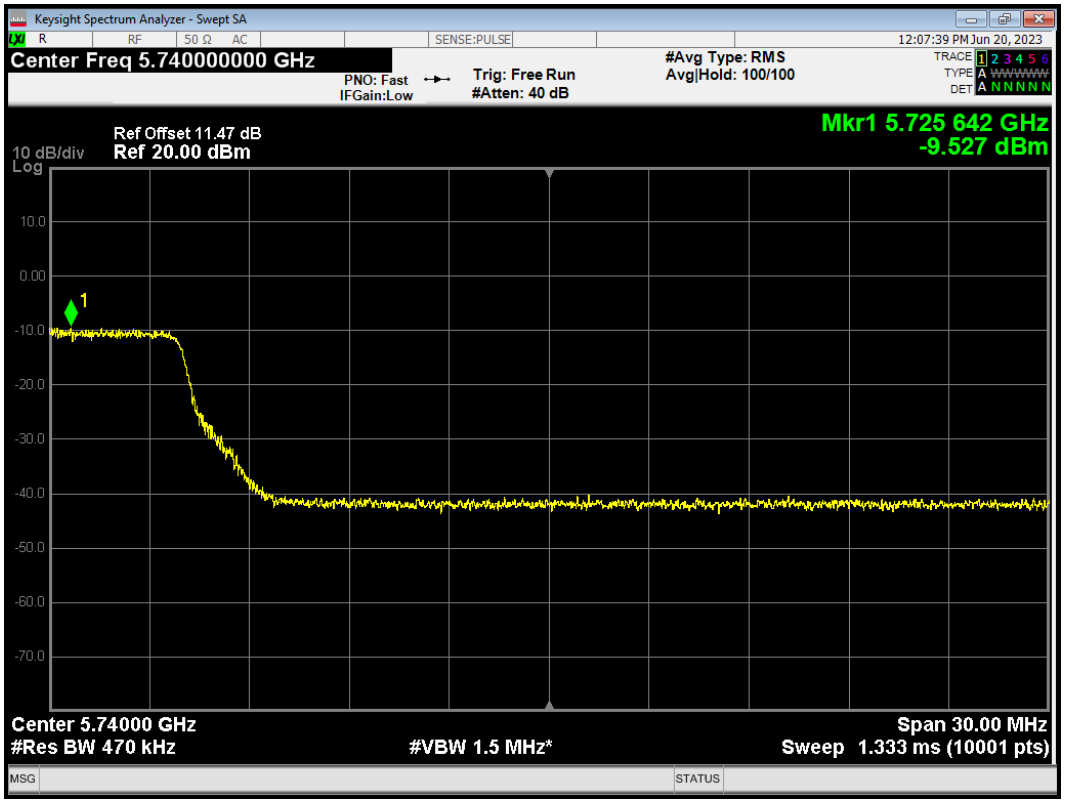
PSD 802.11a 5785MHz



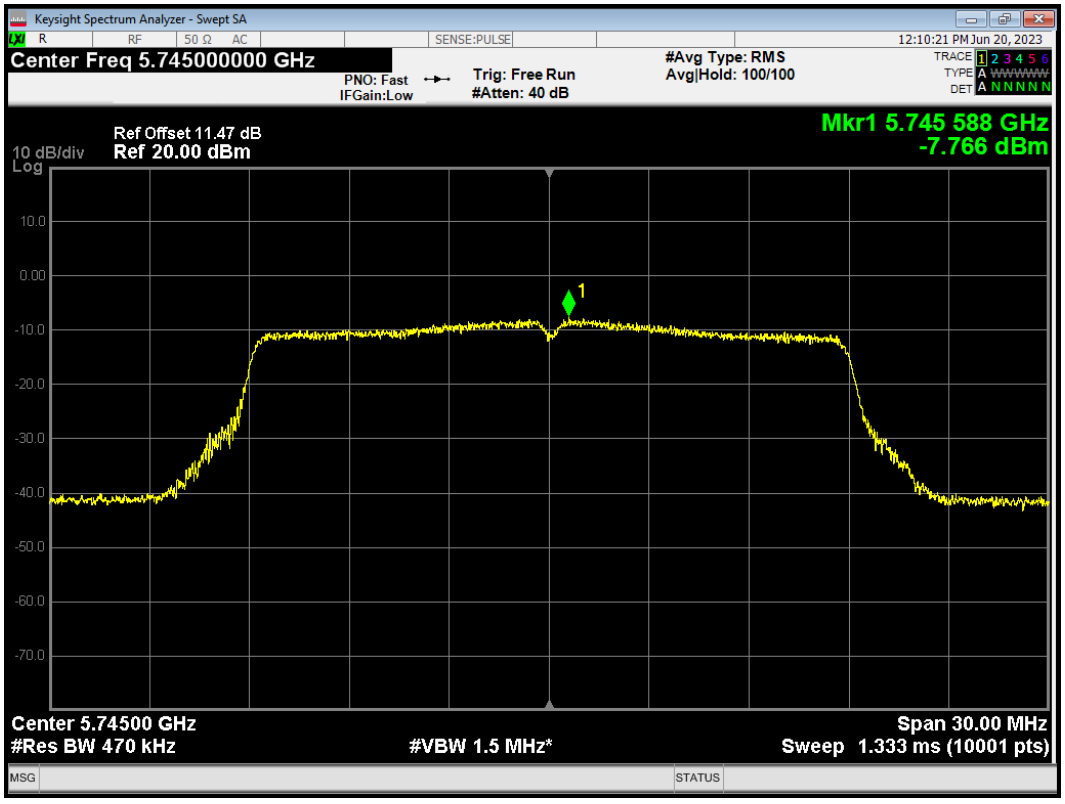
PSD 802.11a 5825MHz



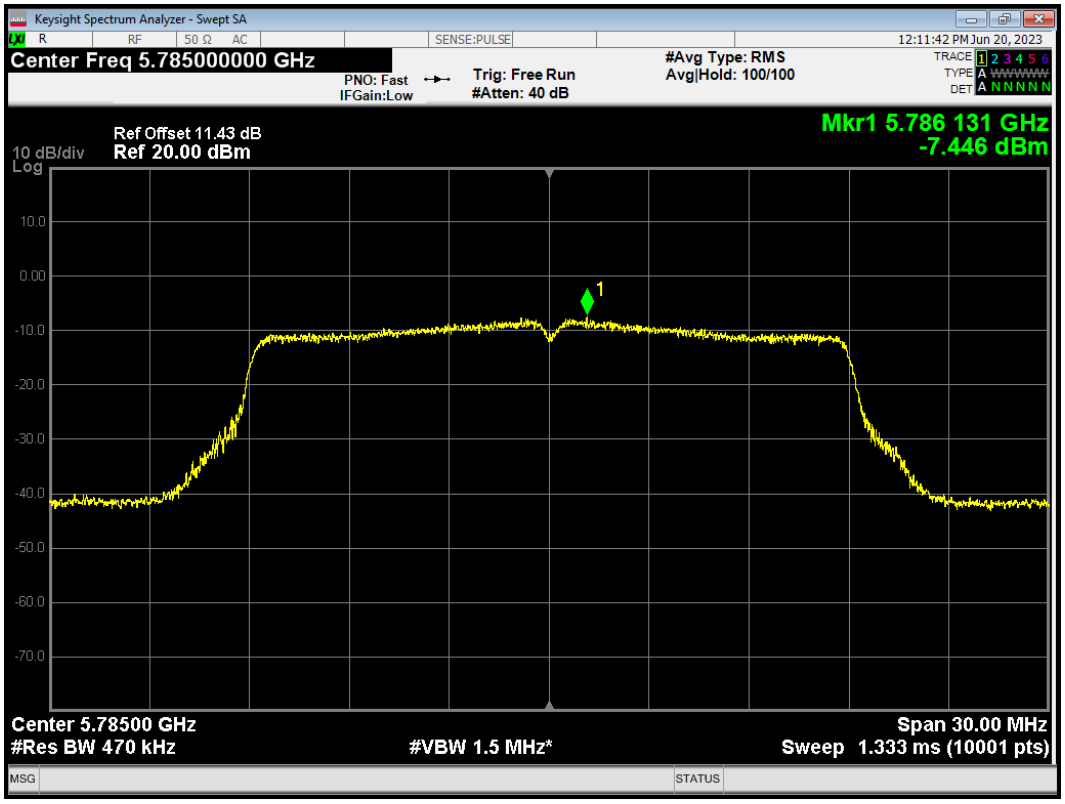
PSD 802.11ac(VHT20) 5720MHz



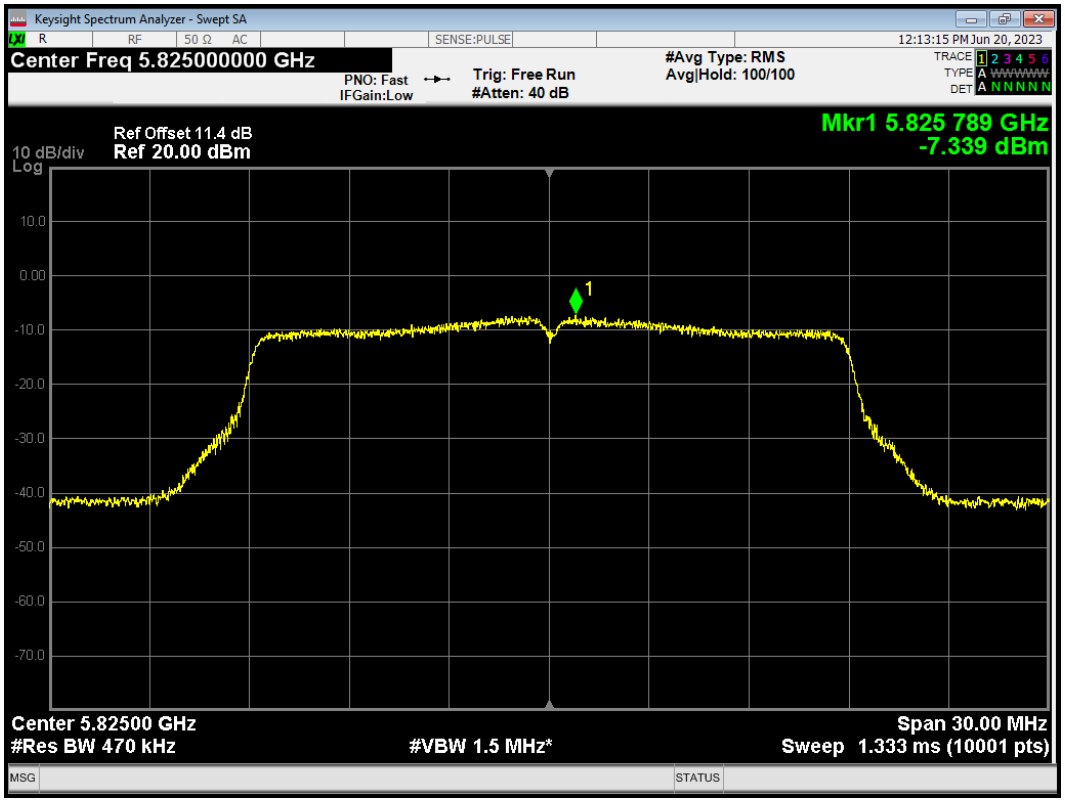
PSD 802.11ac(VHT20) 5745MHz



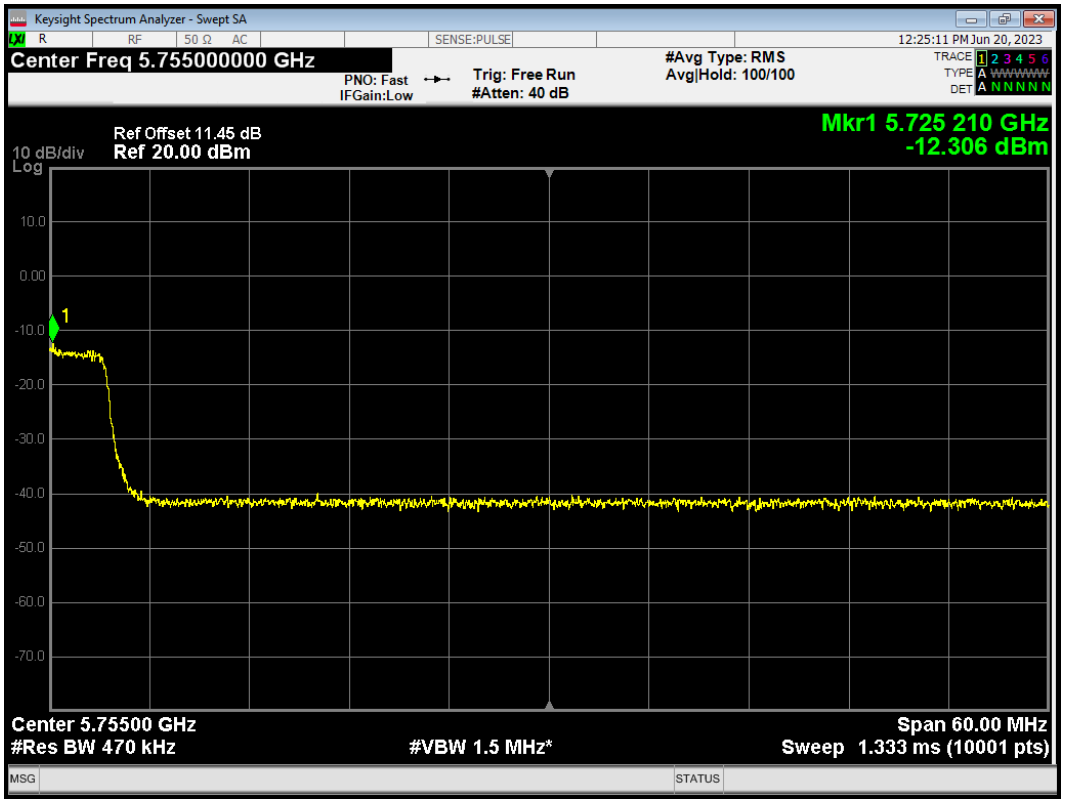
PSD 802.11ac(VHT20) 5785MHz



PSD 802.11ac(VHT20) 5825MHz



PSD 802.11ac(VHT40) 5710MHz



PSD 802.11ac(VHT40) 5755MHz