

RF TEST REPORT

Applicant Suzhou MobyData Smart System Co., Ltd.

FCC ID 2A398-M16

Product Barcord Reader

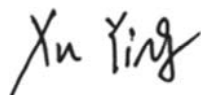
Brand MobyData

Model M93; M93S; M93 5G; OA96; OA98; OA89;
OA99; MB98; MB89; MB99; MB96; SA98; SA89;
SA96; SA99; V53; TP96; ER98; UT78; MS96;
PDX50; PDX50L

Report No. EFTA26040218-IE-02-R5V1

Issue Date July 31, 2026

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



Prepared by: Xu Ying



Approved by: Xu Kai

Eurofins TA Technology (Shanghai) Co., Ltd.

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

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

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

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Version	Revision Description	Issue Date
Rev.0	Initial issue of report.	July 17, 2026
Rev.1	Updated information.	July 31, 2026
Note: This revised report (Report No.: EFTA26040218-IE-02-R5V1) supersedes and replaces the previously issued report (Report No.: EFTA26040218-IE-02-R5). Please discard or destroy the previously issued report and dispose of it accordingly.		

Summary of measurement results

Number	Test Case	Clause in FCC rules	Verdict
1	Average output power	15.407(a)	PASS
2	Occupied bandwidth	15.407(e)	PASS
3	Frequency stability	15.407(g)	PASS
4	Power spectral density	15.407(a)	PASS
5	Unwanted Emissions	15.407(b), 15.205, 15.209	PASS
6	Conducted Emissions	15.207	PASS
Date of Testing: April 22, 2026 ~ July 10, 2026			
Date of Sample Received: April 16, 2026			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard. All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

1. Test Laboratory

1.1. Notes of the test report

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

1.2. Test facility

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

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

A2LA (Certificate Number: 3857.01)

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

1.3. Testing Location

Company: Eurofins TA Technology (Shanghai) Co., Ltd.
Address: Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City: Shanghai
Post code: 201201
Country: P. R. China
Contact: Xu Kai
Telephone: +86-021-50791141/2/3
Fax: +86-021-50791141/2/3-8000
Website: <https://www.eurofins.com/electrical-and-electronics>
E-mail: Kain.Xu@cpt.eurofinscn.com

2. General Description of Equipment under Test

2.1. Applicant and Manufacturer Information

Applicant	Suzhou MobyData Smart System Co., Ltd.
Applicant address	3f, building E, Yida Science Park, No.11 Jinpu Road, SIP, Suzhou, Jiangsu Province, China.
Manufacturer	Suzhou MobyData Smart System Co., Ltd.
Manufacturer address	3f, building E, Yida Science Park, No.11 Jinpu Road, SIP, Suzhou, Jiangsu Province, China.

2.2. General information

EUT Description			
Model	M93; M93S; M93 5G; OA96; OA98; OA89; OA99; MB98; MB89; MB99; MB96; SA98; SA89; SA96; SA99; V53; TP96; ER98; UT78; MS96; PDX50; PDX50L		
IMEI	Conducted	IMEI 1: 865940070207338 IMEI 2: 865940070207346	
	Radiated	IMEI 1: 865940070207270 IMEI 2: 865940070207288	
Hardware Version	V01		
Software Version	M16.01.01.20260309		
Power Supply	Battery		
Antenna Type	Internal Antenna		
Antenna Connector	A permanently attached antenna (meet with the standard FCC Part 15.203 requirement)		
Antenna Gain		Antenna 1 (dBi)	Antenna 2 (dBi)
	U-NII-1	3.00	1.80
	U-NII-2A	2.94	1.32
	U-NII-2C	2.53	1.54
	U-NII-3	3.00	1.85
Directional Gain		For Power (dBi)	For PSD (dBi)
	U-NII-1	3.00	6.01
	U-NII-2A	2.94	5.95
	U-NII-2C	2.53	5.54
	U-NII-3	3.00	6.01
Operating Frequency Range(s)	U-NII-1: 5150MHz-5250MHz U-NII-2A: 5250MHz -5350MHz U-NII-2C: 5470MHz-5600MHz, 5650MHz-5725MHz U-NII-3: 5725MHz -5850MHz		
Modulation Type	802.11a: OFDM		

	802.11n (HT20/HT40): OFDM 802.11ac (VHT20/VHT40/VHT80): OFDM
Max. Output Power	U-NII-1: 13.59 dBm (0.023 W)
	U-NII-2A: 14.12 dBm (0.026 W)
	U-NII-2C: 13.59 dBm (0.023 W)
	U-NII-3: 13.92 dBm (0.025 W)
Operating temperature range	-20 ° C to 50 ° C
Operating voltage range	3.60 VDC to 4.35 VDC
Testing temperature range	-30 ° C to 50° C
Testing voltage range	3.60VDC – 3.85 VDC – 4.35 VDC
State voltage	3.85 VDC
EUT Accessory	
Battery	Manufacturer: SHEN ZHEN UTILITY ENERGY CO., LTD. Model: BATM15 3.85 VDC
Note: 1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant. 2. This device support automatically discontinue transmission, while the device is not transmitting any information, the device can automatically discontinue transmission and become standby mode for power saving. The device can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission. 3. (a) Manufacturers implements security features in any digitally modulated devices capable of operating in any of the U-NII bands, so that third parties are not able to reprogram the device to operate outside the parameters for which the device was certified. The software prevents the user from operating the transmitter with operating frequencies, output power, modulation types or other radio frequency parameters outside those that were approved for the device. Manufacturers uses means including, but not limited to the use of a private network that allows only authenticated users to download software, electronic signatures in software or coding in hardware that is decoded by software to verify that new software can be legally loaded into a device to meet these requirements and must describe the methods in their application for equipment authorization. (b) Manufacturers take steps to ensure that DFS functionality cannot be disabled by the operator of the U-NII device. 4. The customer declares that all models differ only in model name and otherwise identical. 5. This report only tests M93.	

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 Unlicensed National Information Infrastructure Devices

ANSI C63.10-2020+Cor.1-2023

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.

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 EUT Support WLAN SISO and MIMO mode, the power setting for MIMO mode is equal or higher than SISO Mode, So only MIMO mode has been assessed.

The test software is used QRCT

Worst-case data rates are shown as following table.

Mode	Data Rate		
	Antenna 1	Antenna 2	CDD\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
Occupied bandwidth	--	--	O
Frequency stability	--	--	802.11a
Power Spectral Density	--	--	O
Unwanted Emissions	--	--	O
Conducted Emissions	--	--	O
Note: "O": test all bands			

Wireless Technology and Frequency Range

Wireless Technology		Bandwidth	Channel	Frequency
Wi-Fi	U-NII-1	20 MHz	36	5180MHz
			40	5200MHz
			44	5220MHz
			48	5240MHz
		40 MHz	38	5190MHz
			46	5230MHz
		80 MHz	42	5210MHz
	U-NII-2A	20 MHz	52	5260MHz
			56	5280MHz
			60	5300MHz
			64	5320MHz
		40 MHz	54	5270MHz
			62	5310MHz
		80 MHz	58	5290MHz
	U-NII-2C	20 MHz	100	5500MHz
			104	5520MHz
			108	5540MHz
			112	5560MHz
			116	5580MHz
			132	5660MHz
			136	5680MHz
			140	5700MHz
			144	5720MHz
		40 MHz	102	5510MHz
			110	5550MHz
			134	5670MHz
			142	5710MHz
		80 MHz	106	5530MHz
			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

5.1. Occupied Bandwidth

Ambient condition

Temperature	Relative humidity	Pressure
25°C	57%	101.3 kPa

Method of Measurement

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

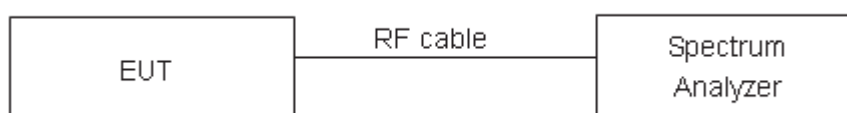
For U-NII-1/U-NII-2A/U-NII-2C, set RBW = 1% to 5% of the emission bandwidth, VBW > RBW, Detector = peak, Trace mode = max hold, measure the maximum width of the emission that is 26 dB down from the peak of emission. Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is in the range of 1% to 5%.

For U-NII-3, Set RBW = 100 kHz, $VBW \geq 3 \times RBW$, Detector = peak, Trace mode = max hold, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

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

Use the 99 % power bandwidth function of the instrument.

Test Setup



Limits

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

No specific occupied bandwidth requirements in Part 15.407.

For U-NII-3

Rule FCC Part §15.407(e)

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

Measurement Uncertainty

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

5.2. Average Power Output

Ambient condition

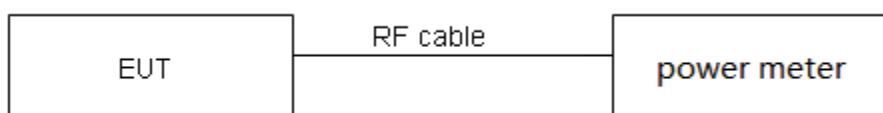
Temperature	Relative humidity	Pressure
25°C	57%	101.3 kPa

Methods of Measurement

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

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

Test Setup



Limits

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

(1) For the band 5.15-5.25 GHz.

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

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

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

dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

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

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

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

Measurement Uncertainty

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

5.3. Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
25°C	57%	101.3 kPa

Method of Measurement

1. Frequency stability with respect to ambient temperature

- 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.
- 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.
- 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).
- Turn the EUT OFF and place it inside the environmental temperature chamber. For devices that have oscillator heaters, energize only the heater circuit.
- 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.
- 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.
- Measure the frequency at each of frequencies specified in 5.6.
- Switch OFF the EUT but do not switch OFF the oscillator heater.
- Lower the chamber temperature by not more than 10°C, and allow the temperature inside the chamber to stabilize.
- 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.

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

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

Limit

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

Measurement Uncertainty

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

5.4. Power Spectral Density

Ambient condition

Temperature	Relative humidity	Pressure
25°C	57%	101.3 kPa

Method of Measurement

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

For U-NII 1/2A/2C

Set span to encompass the entire 99% OBW of the signal

RBW = 1MHz

VBW =3MHz

Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$

Sweep time = auto

Detector = RMS

For U-NII 3

Set span to encompass the entire 99% OBW of the signal

RBW = 500kHz (510kHz if the SA can not set 500kHz, add $10 \log (500 \text{ kHz} / \text{RBW})$ to the test result)

VBW =2MHz

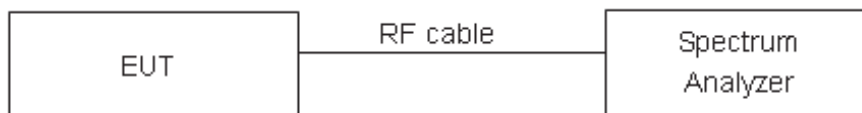
Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$

Sweep time = auto

Detector = RMS

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

Test setup



Limits

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

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

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the

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

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

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

Measurement Uncertainty

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

5.5. Unwanted Emission

Ambient condition

Temperature	Relative humidity	Pressure
25°C	57%	101.3 kPa

Method of Measurement

The test set-up was made in accordance to the general provisions of ANSI C63.10. The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m/10m below 1GHz, 3m above 1GHz between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration.

Sweep the whole frequency band range from 9kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.

During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

Set the spectrum analyzer in the following:

9kHz~150 kHz

RBW=200Hz, VBW=1kHz/ Sweep=AUTO

150 kHz~30MHz

RBW=9kHz, VBW=30kHz,/ Sweep=AUTO

Below 1GHz

RBW=100kHz / VBW=300kHz / Sweep=AUTO

a) Peak emission levels are measured by setting the instrument as follows:

Above 1GHz

PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO

b) Average emission levels are measured by setting the instrument as follows:

Above 1GHz

AVERAGE: RBW=1MHz / VBW=3MHz / Sweep=AUTO

c) Detector: The measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

d) Averaging type = power (i.e., rms) (As an alternative, the detector and averaging type may be set for linear voltage averaging. Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.)

e) Sweep time = auto.

f) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, then the number of traces shall be increased by a factor of 1 / D, where D is the duty cycle. For example, with 50% duty cycle, at least 200 traces shall be averaged. (If a specific

emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 100 traces shall be averaged.)

g) If tests are performed with the EUT transmitting at a duty cycle less than 98%, then a correction factor shall be added to the measurement results prior to comparing with the emission limit, to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:

1) If power averaging (rms) mode was used in the preceding step e), then the correction factor is $[10 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB shall be added to the measured emission levels.

2) If linear voltage averaging mode was used in the preceding step e), then the correction factor is $[20 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 6 dB shall be added to the measured emission levels.

3) If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

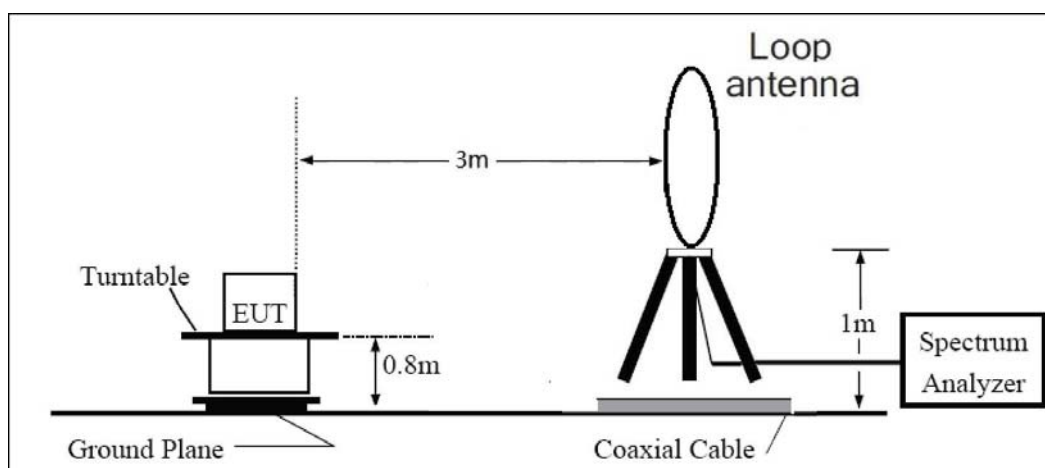
Reduce the video bandwidth until no significant variations in the displayed signal are observed in subsequent traces, provided the video bandwidth is no less than 1 Hz. For regulatory requirements that specify averaging only over the transmit duration (e.g., digital transmission system [DTS] and Unlicensed National Information Infrastructure [U-NII]), the video bandwidth shall be greater than $[1 / (\text{minimum transmitter on time})]$ and no less than 1 Hz.

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the loop antenna is vertical, others antenna are vertical and horizontal.

The test is in transmitting mode.

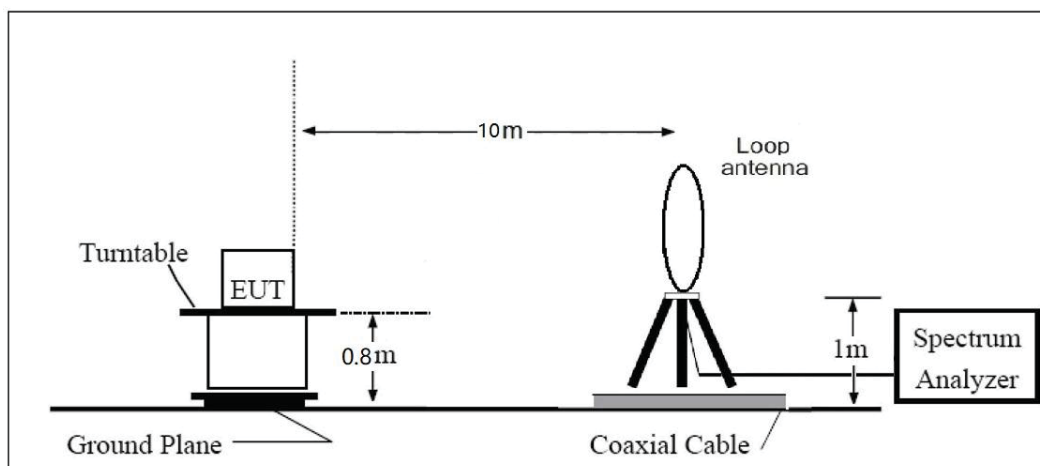
Test setup

9kHz~ 30MHz



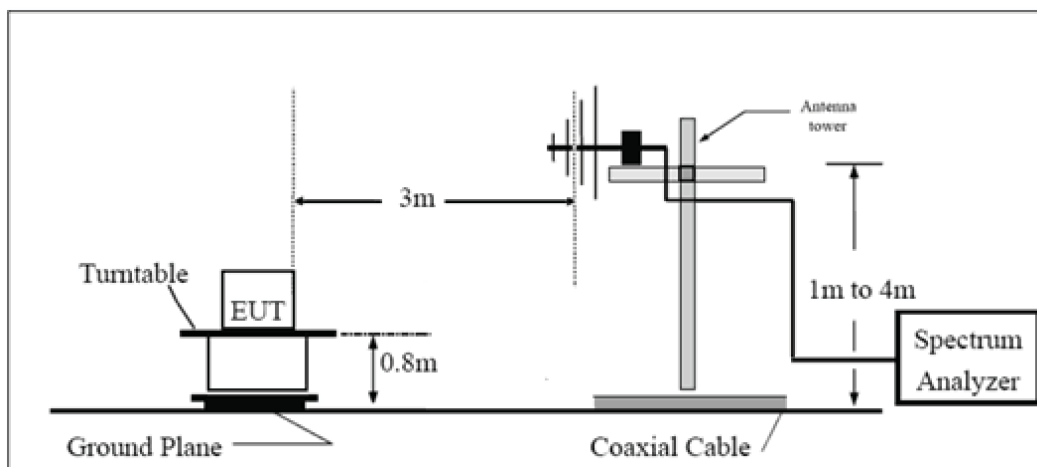
Note: Area side:2.4mX3.6m

Distance 10m



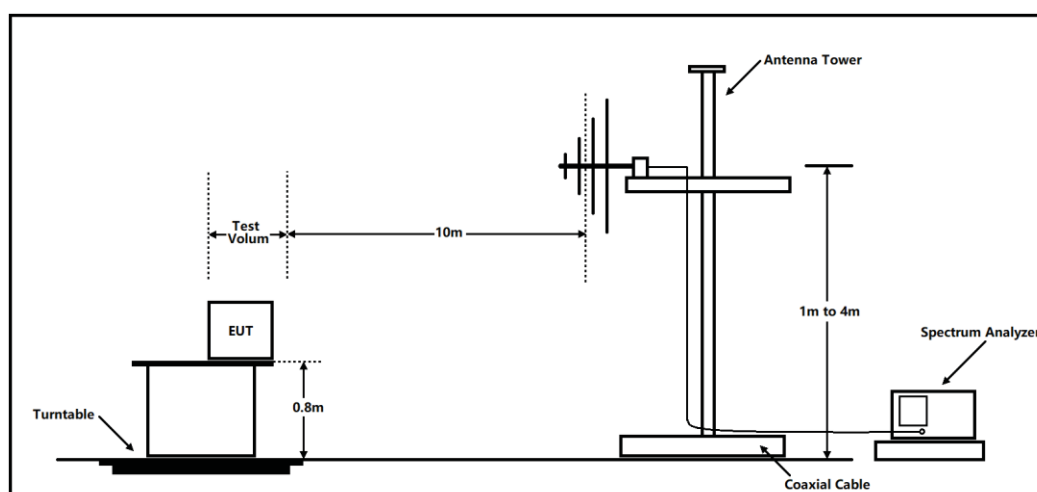
Note: Area side: 21m x 12m

30MHz~ 1GHz



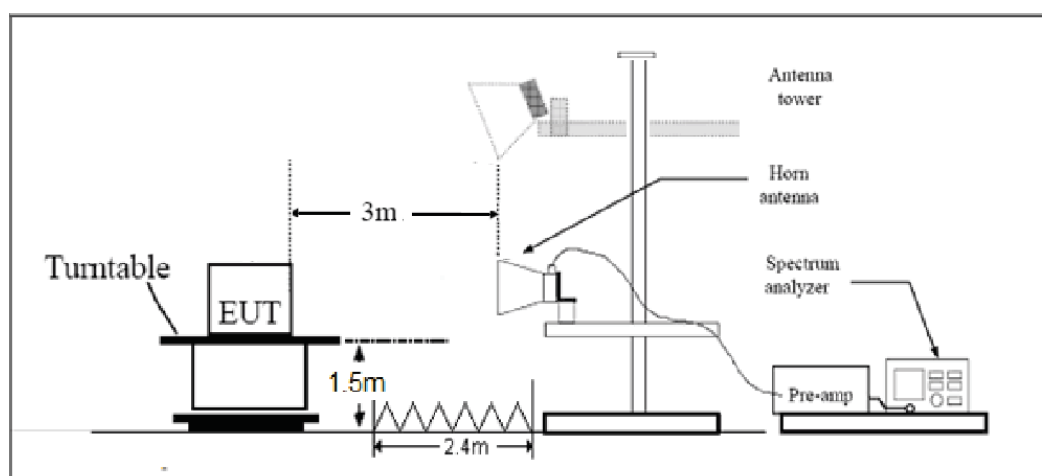
Note: Area side:2.4mX3.6m

Distance 10m



Note: Area side: 21m x 12m

Above 1GHz



Note: Area side:2.4mX3.6m

Limits

- (1) For transmitters operating in the 5725-5850 MHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
- (2) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz(68.2dBμV/m).
- (3) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz(68.2dBμV/m).
- (4) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz(68.2dBμV/m).

Note: the following formula is used to convert the EIRP to field strength

§1、 $E[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] - 20 \log(d[\text{meters}]) + 104.77$, where E = field strength and

d = distance at which field strength limit is specified in the rules;

§2、 $E[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] + 95.2$, for d = 3 meters

- (5) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table.

Frequency of emission (MHz)	Field strength(μV/m)	Field strength(dBμV/m)
0.009–0.490	2400/F(kHz)	/
0.490–1.705	24000/F(kHz)	/
1.705–30.0	30	/
30-88	100	40
88-216	150	43.5
216-960	200	46
Above960	500	54

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty for 3m
9kHz-30MHz	3.55 dB
30MHz-200MHz	4.17 dB
200MHz-1GHz	4.84 dB
1-18GHz	4.35 dB
18-26.5GHz	5.90 dB
26.5GHz~40GHz	5.92 dB
Frequency	Uncertainty for 10m
30MHz – 200MHz	3.39 dB
200MHz – 1GHz	3.82 dB
1GHz – 18GHz	6.51 dB
18GHz – 40GHz	6.31 dB

5.6. Conducted Emission

Ambient condition

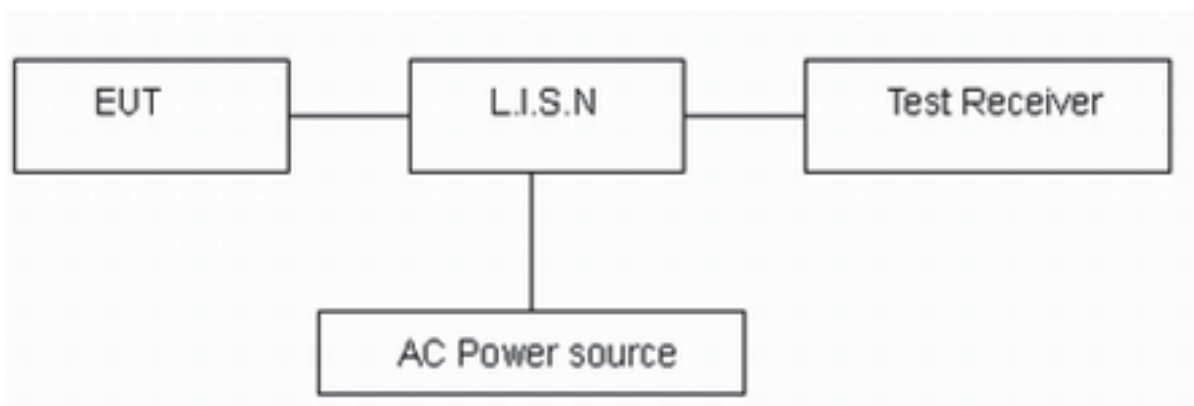
Temperature	Relative humidity	Pressure
25°C	57%	101.3 kPa

Methods of Measurement

The EUT IS placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.10. Connect the AC power line of the EUT to the LISN Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9kHz, VBW is set to 30kHz The measurement result should include both L line and N line.

The test is in transmitting mode.

Test Setup



Note: AC Power source is used to change the voltage 110V/60Hz.

Limits

Frequency (MHz)	Conducted Limits(dB μ V)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50
*: Decreases with the logarithm of the frequency.		

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U = 2.69$ dB.

6. Test Results

6.1. Occupied Bandwidth

U-NII-1

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5180	16.636	21.718	Pass
802.11a	5200	16.665	21.985	Pass
802.11a	5240	16.674	21.909	Pass
802.11ac(VHT20)	5180	17.804	23.021	Pass
802.11ac(VHT20)	5200	17.895	24.408	Pass
802.11ac(VHT20)	5240	17.987	24.571	Pass
802.11ac(VHT40)	5190	36.350	40.967	Pass
802.11ac(VHT40)	5230	36.270	41.661	Pass
802.11ac(VHT80)	5210	76.147	86.754	Pass
802.11n(HT20)	5180	17.905	24.145	Pass
802.11n(HT20)	5200	17.904	24.101	Pass
802.11n(HT20)	5240	17.975	23.941	Pass
802.11n(HT40)	5190	36.304	41.187	Pass
802.11n(HT40)	5230	36.235	41.060	Pass

U-NII-2A

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5260	16.638	23.269	Pass
802.11a	5300	16.617	22.265	Pass
802.11a	5320	16.633	22.783	Pass
802.11ac(VHT20)	5260	17.912	23.881	Pass
802.11ac(VHT20)	5300	17.845	23.148	Pass
802.11ac(VHT20)	5320	17.871	24.056	Pass
802.11ac(VHT40)	5270	36.273	40.964	Pass
802.11ac(VHT40)	5310	36.260	41.288	Pass
802.11ac(VHT80)	5290	76.080	85.405	Pass
802.11n(HT20)	5260	17.902	22.935	Pass
802.11n(HT20)	5300	17.865	23.261	Pass
802.11n(HT20)	5320	17.848	23.543	Pass
802.11n(HT40)	5270	36.257	41.339	Pass
802.11n(HT40)	5310	36.283	40.569	Pass

U-NII-2C

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5500	16.642	22.763	Pass
802.11a	5580	16.703	22.698	Pass
802.11a	5700	16.560	22.711	Pass
802.11a	5720	16.613	22.255	Pass
802.11ac(VHT20)	5500	17.807	23.180	Pass
802.11ac(VHT20)	5580	17.980	24.024	Pass
802.11ac(VHT20)	5700	18.026	24.595	Pass
802.11ac(VHT20)	5720	17.802	22.832	Pass
802.11ac(VHT40)	5510	36.398	41.188	Pass
802.11ac(VHT40)	5550	36.340	41.113	Pass
802.11ac(VHT40)	5670	36.182	41.357	Pass
802.11ac(VHT40)	5710	36.407	41.107	Pass
802.11ac(VHT80)	5530	76.215	86.002	Pass
802.11ac(VHT80)	5690	76.112	83.620	Pass
802.11n(HT20)	5500	17.839	23.138	Pass
802.11n(HT20)	5580	17.961	24.177	Pass
802.11n(HT20)	5700	17.979	23.853	Pass
802.11n(HT20)	5720	17.817	22.607	Pass
802.11n(HT40)	5510	36.345	41.375	Pass
802.11n(HT40)	5550	36.317	40.741	Pass
802.11n(HT40)	5670	36.232	41.108	Pass
802.11n(HT40)	5710	36.321	40.729	Pass

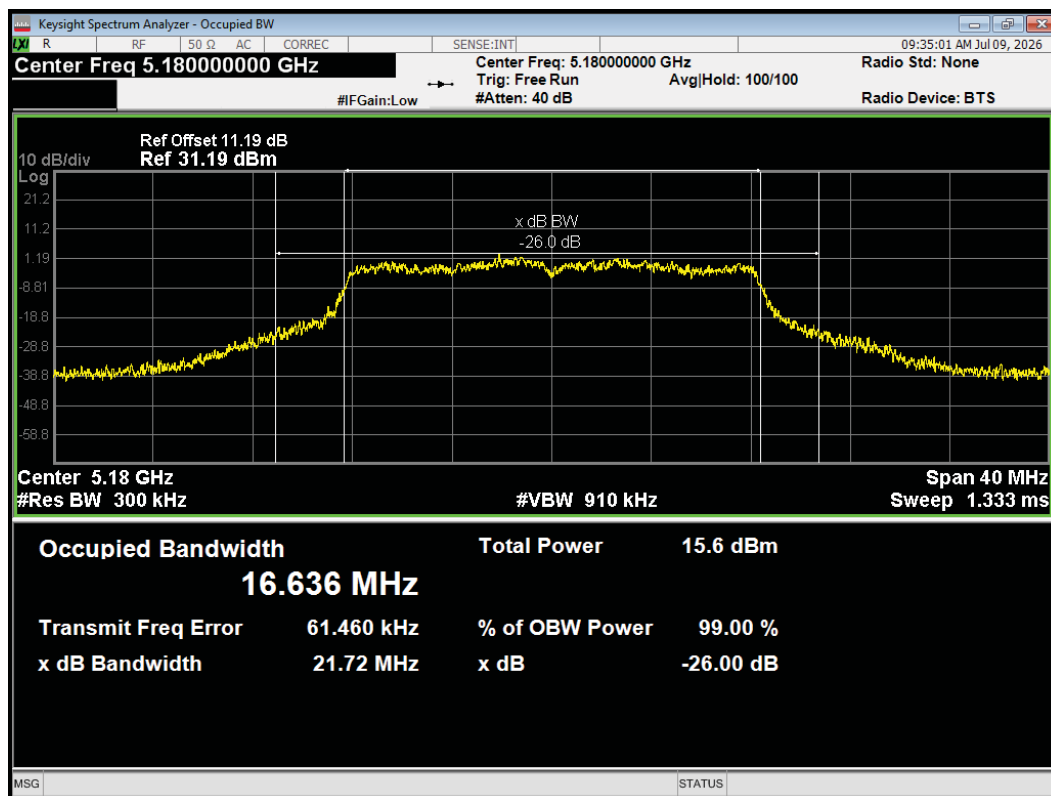
U-NII-3

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11a	5720	16.584	16.092	500	Pass
802.11a	5745	16.619	15.908	500	Pass
802.11a	5785	16.582	13.869	500	Pass
802.11a	5825	16.597	16.081	500	Pass
802.11ac(VHT20)	5720	17.823	15.596	500	Pass
802.11ac(VHT20)	5745	17.824	17.017	500	Pass
802.11ac(VHT20)	5785	17.884	16.137	500	Pass
802.11ac(VHT20)	5825	17.912	16.977	500	Pass
802.11ac(VHT40)	5710	36.374	35.124	500	Pass
802.11ac(VHT40)	5755	36.343	35.190	500	Pass
802.11ac(VHT40)	5795	36.377	35.382	500	Pass
802.11ac(VHT80)	5690	76.205	75.234	500	Pass
802.11ac(VHT80)	5775	75.756	75.091	500	Pass
802.11n(HT20)	5720	17.780	15.040	500	Pass
802.11n(HT20)	5745	17.831	15.085	500	Pass
802.11n(HT20)	5785	17.816	17.265	500	Pass
802.11n(HT20)	5825	17.865	17.267	500	Pass
802.11n(HT40)	5710	36.393	35.098	500	Pass
802.11n(HT40)	5755	36.372	35.082	500	Pass
802.11n(HT40)	5795	36.319	35.685	500	Pass

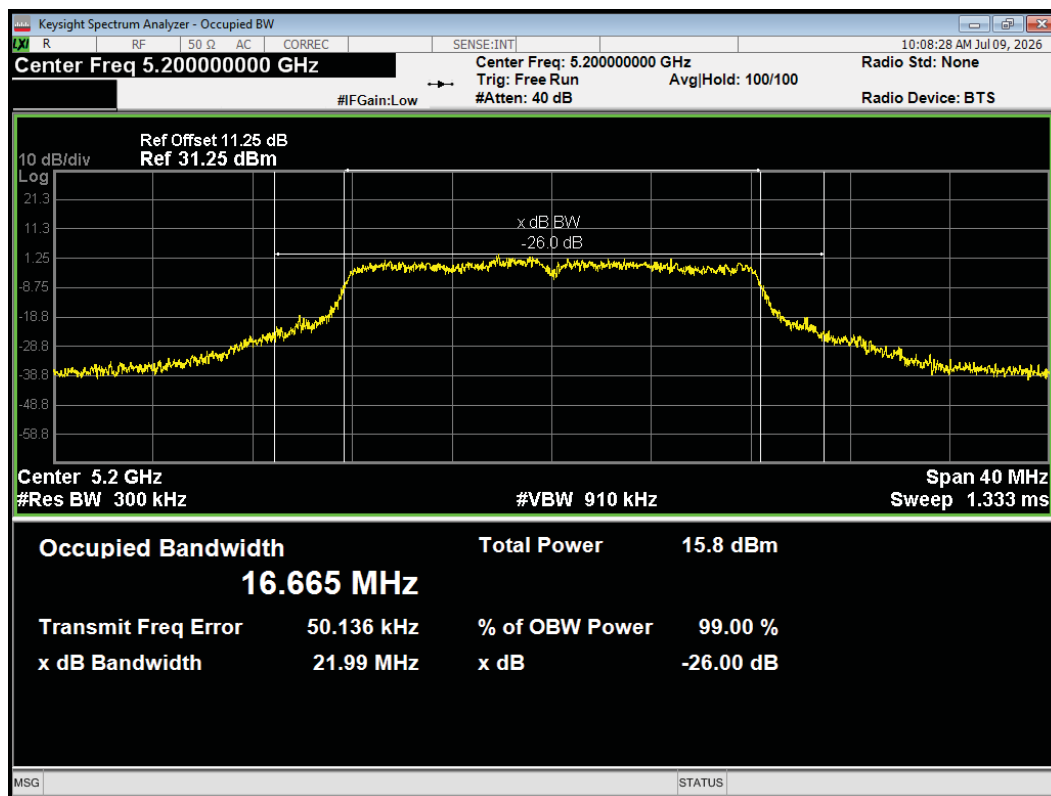
99% bandwidth

U-NII-1

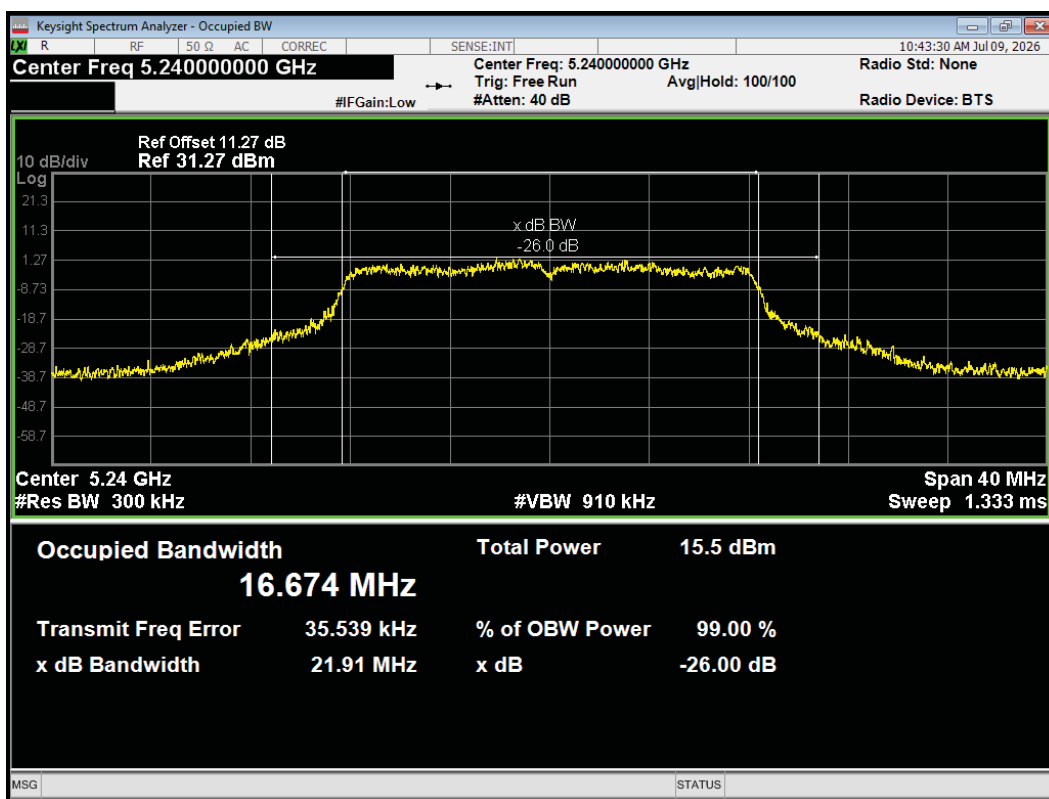
OBW 802.11a 5180MHz



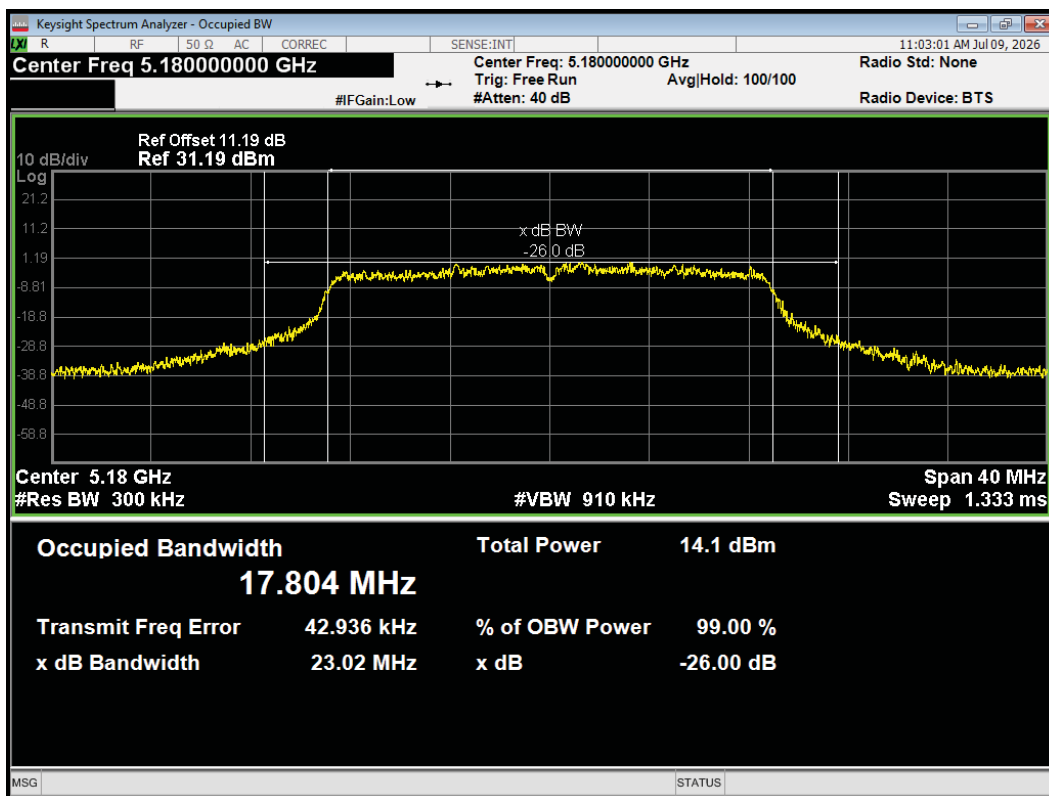
OBW 802.11a 5200MHz



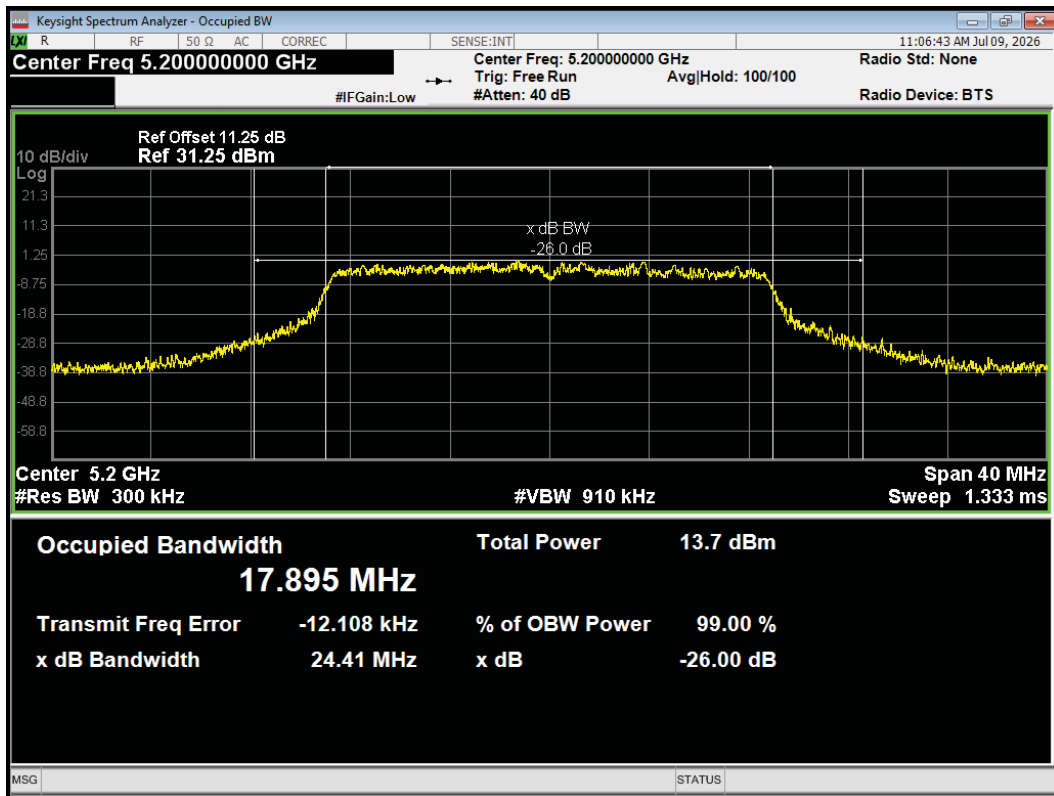
OBW 802.11a 5240MHz



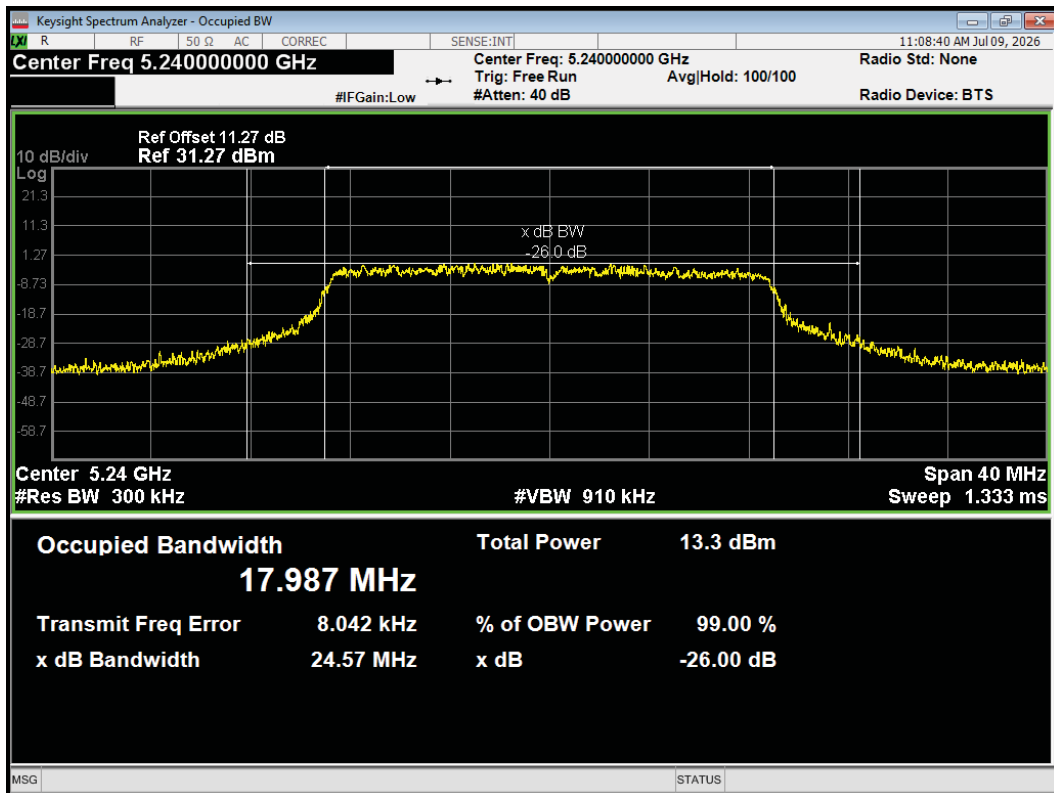
OBW 802.11ac(VHT20) 5180MHz



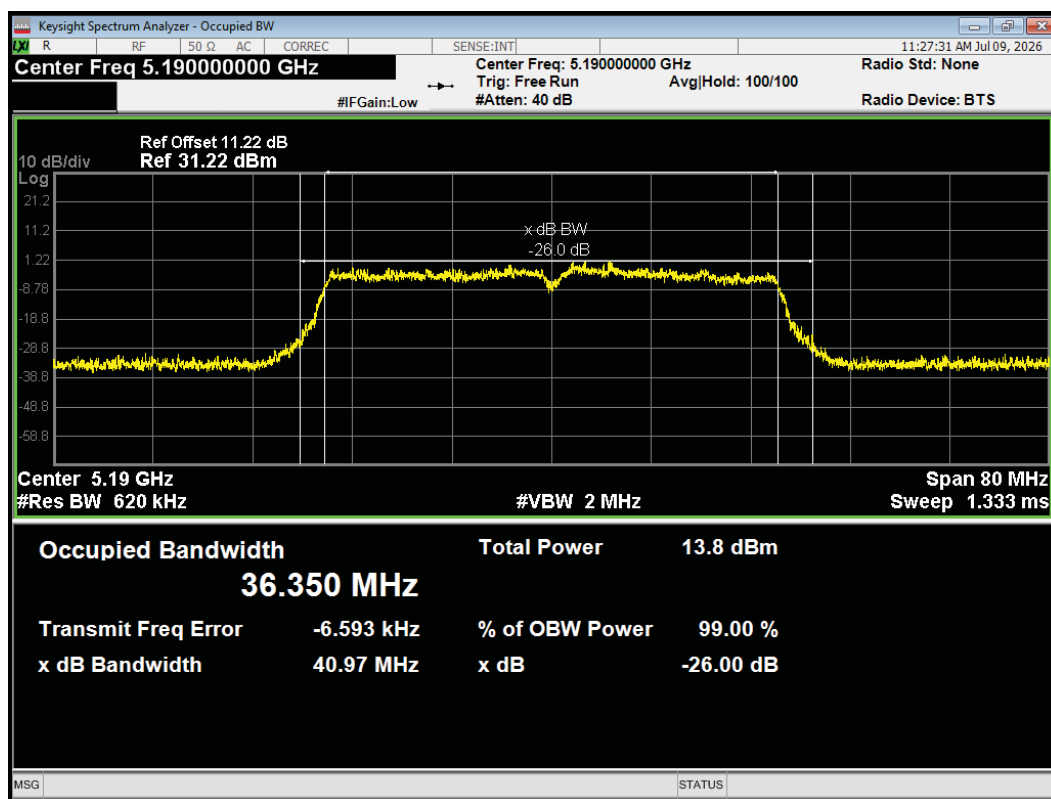
OBW 802.11ac(VHT20) 5200MHz



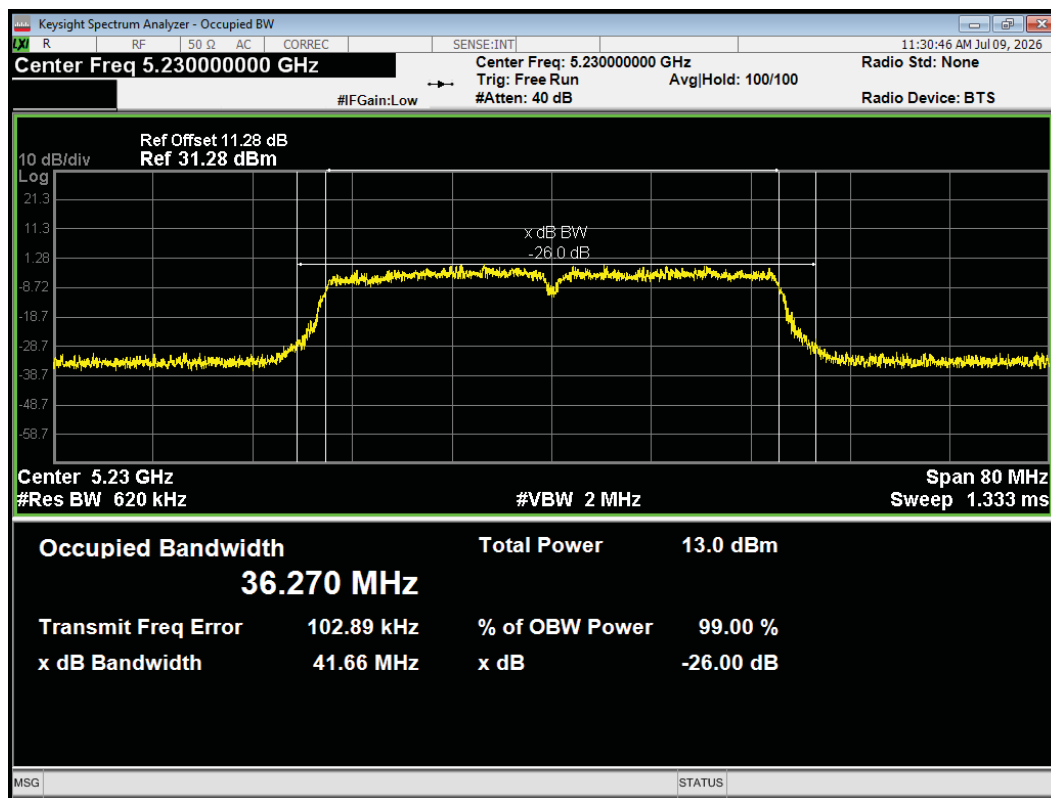
OBW 802.11ac(VHT20) 5240MHz



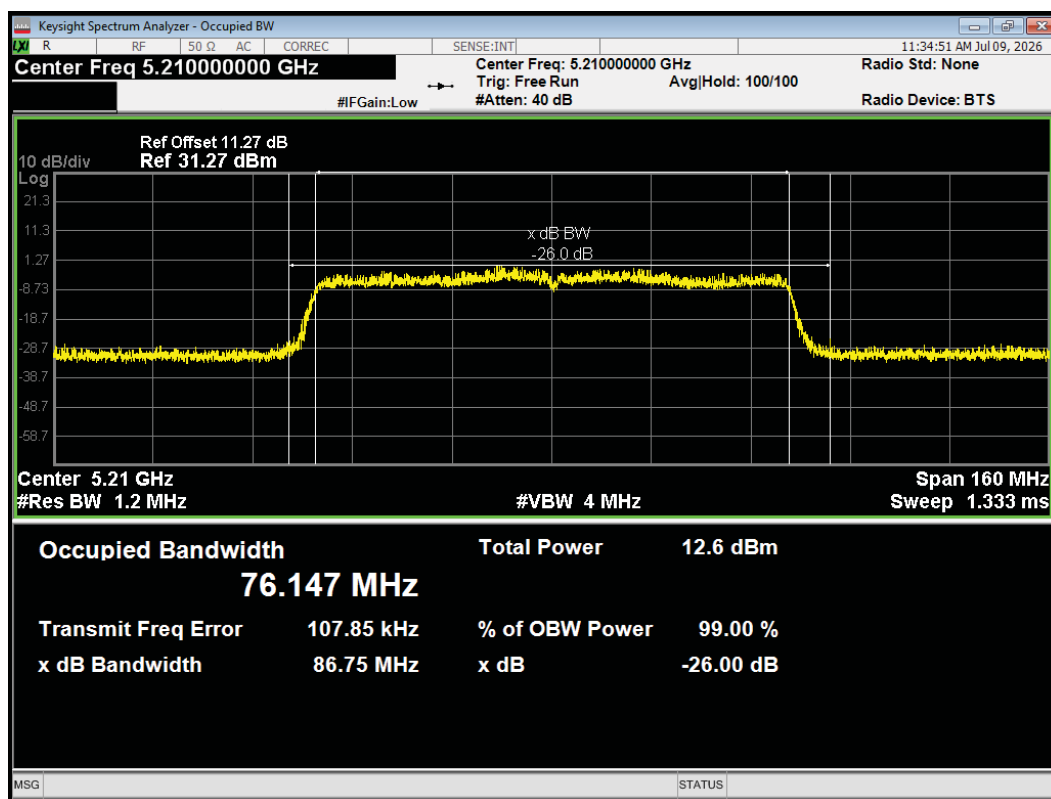
OBW 802.11ac(VHT40) 5190MHz



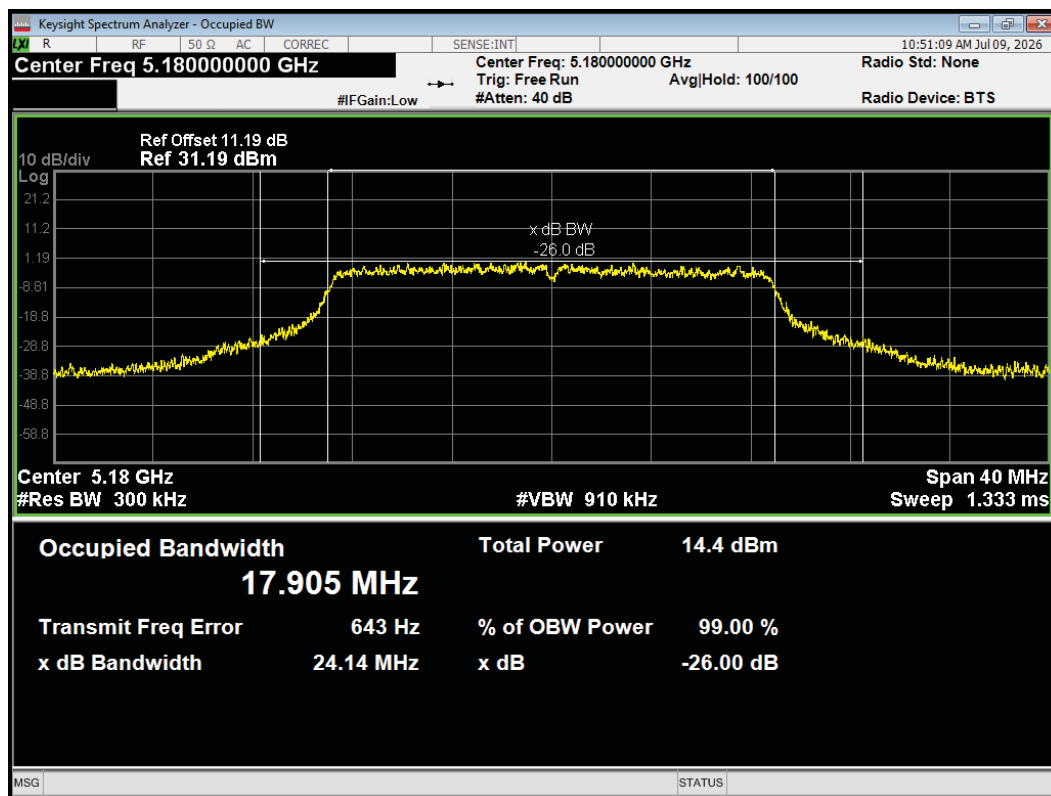
OBW 802.11ac(VHT40) 5230MHz



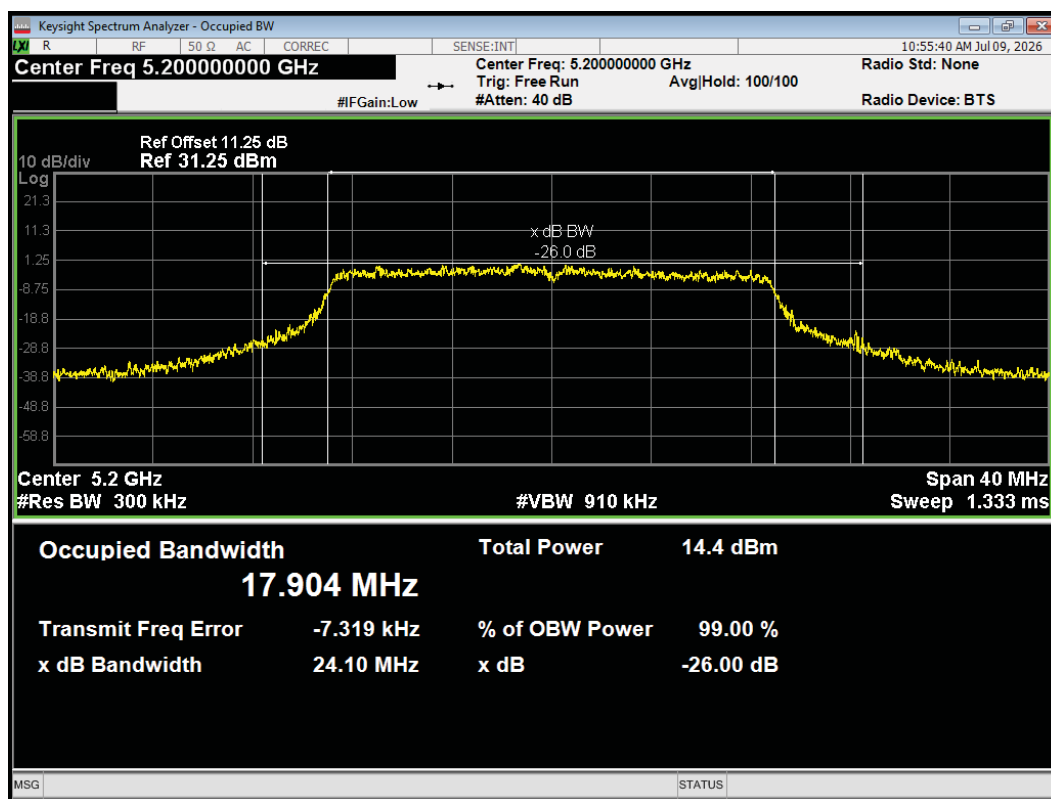
OBW 802.11ac(VHT80) 5210MHz



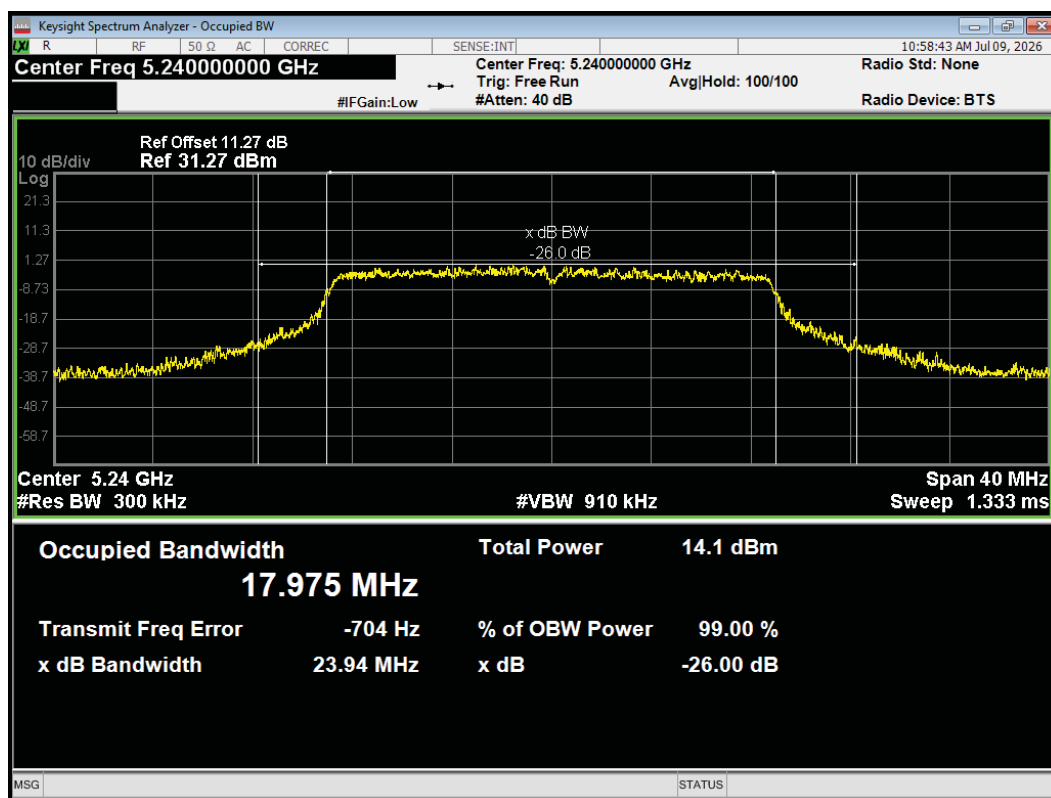
OBW 802.11n(HT20) 5180MHz



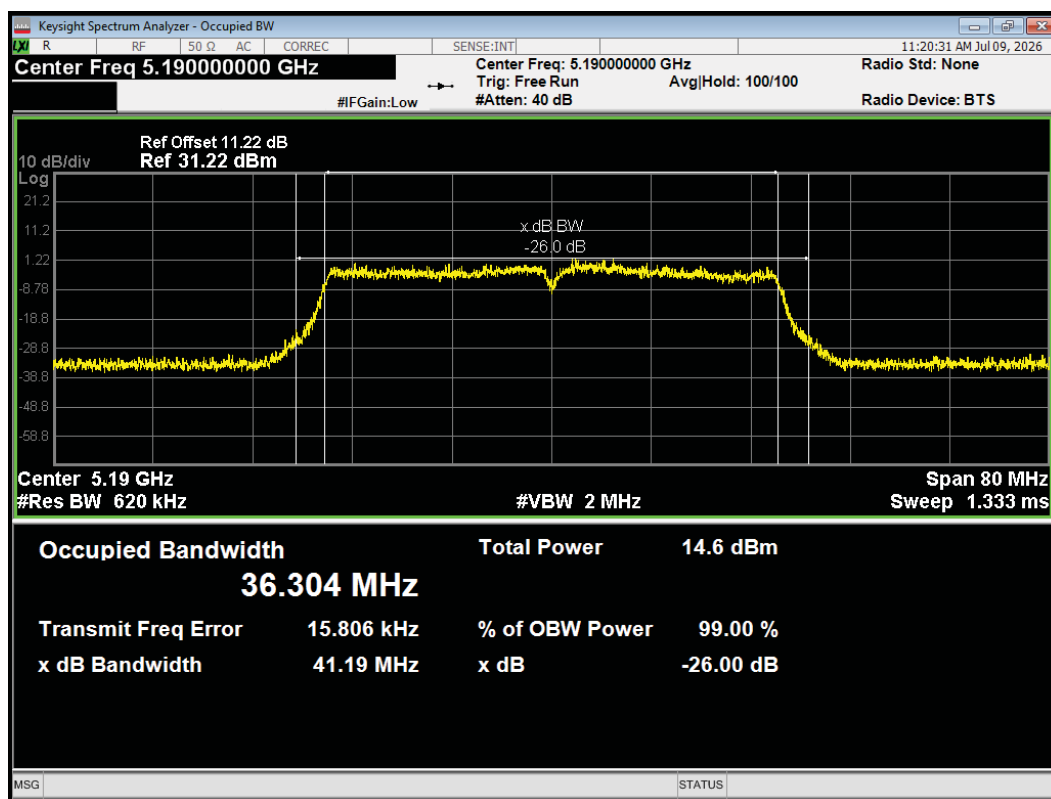
OBW 802.11n(HT20) 5200MHz



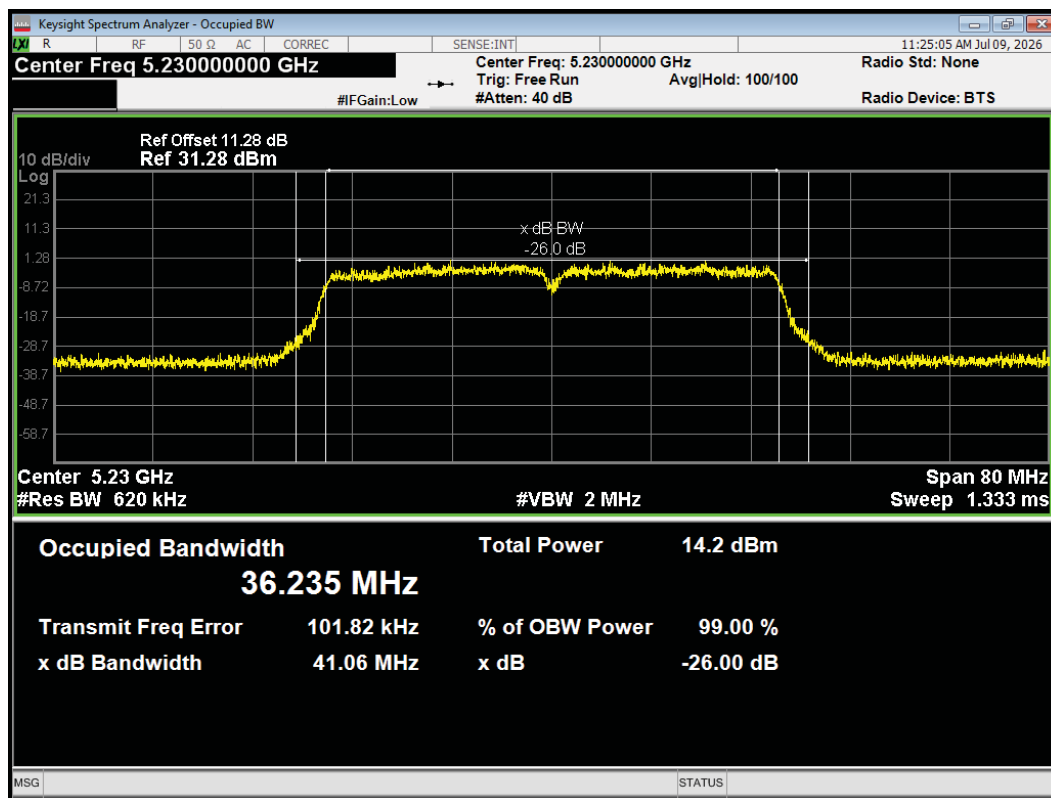
OBW 802.11n(HT20) 5240MHz



OBW 802.11n(HT40) 5190MHz

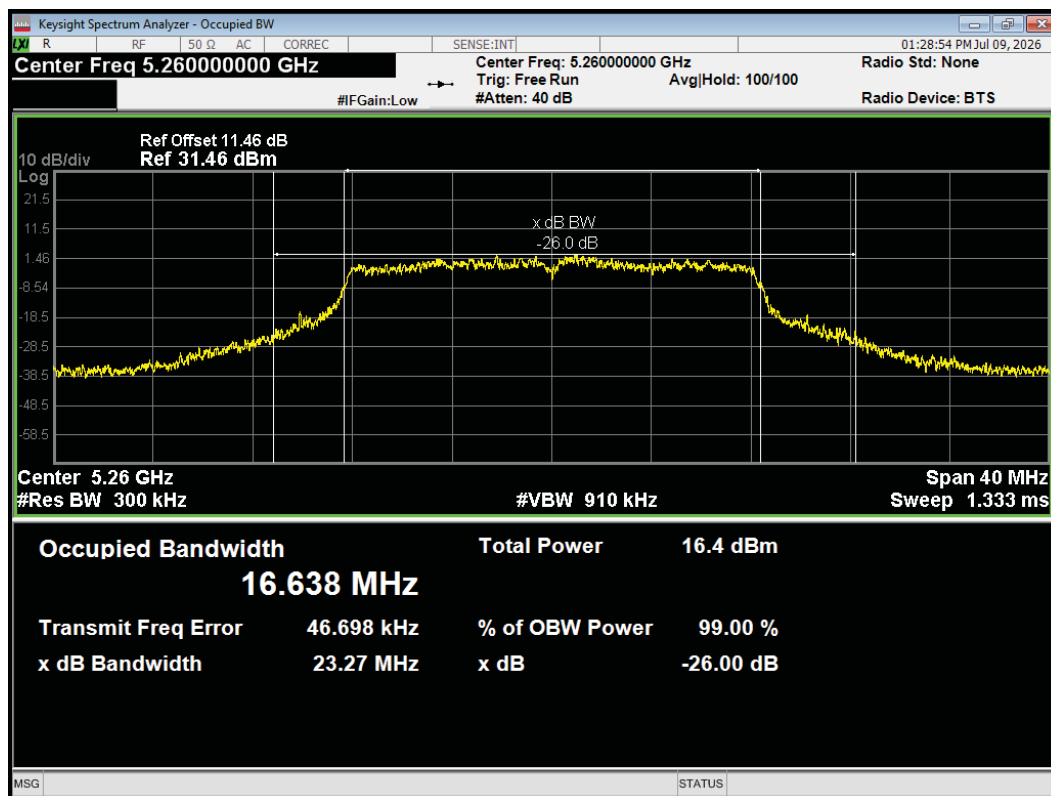


OBW 802.11n(HT40) 5230MHz

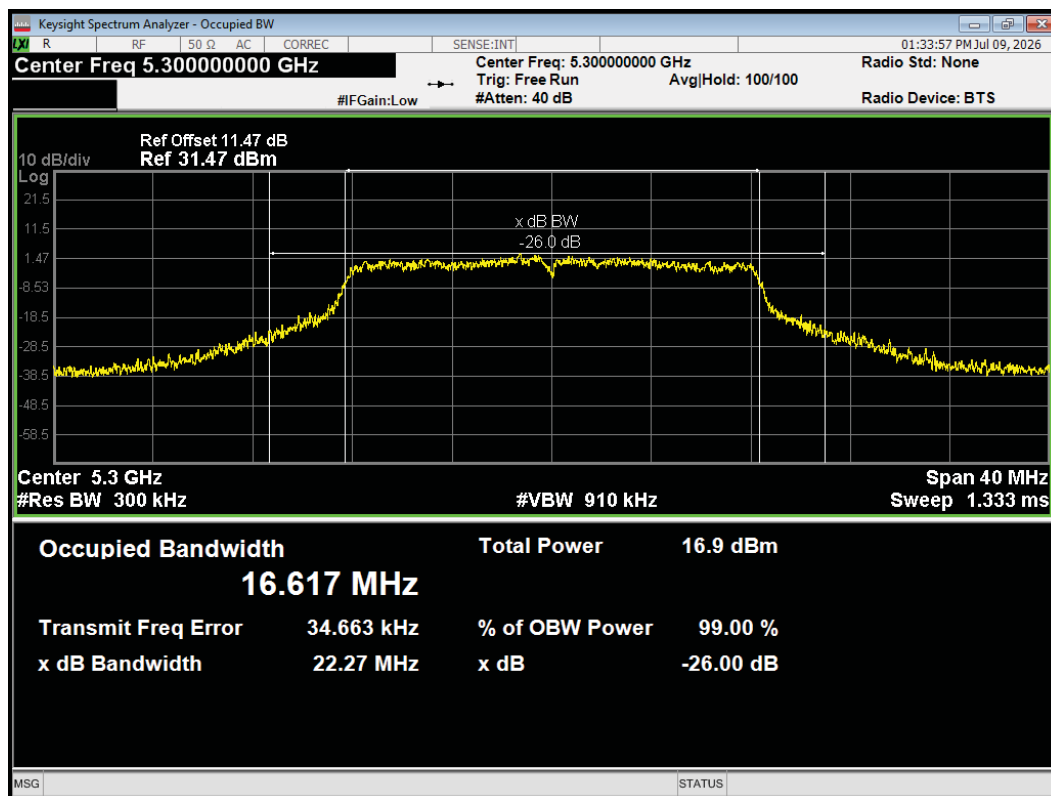


U-NII-2A

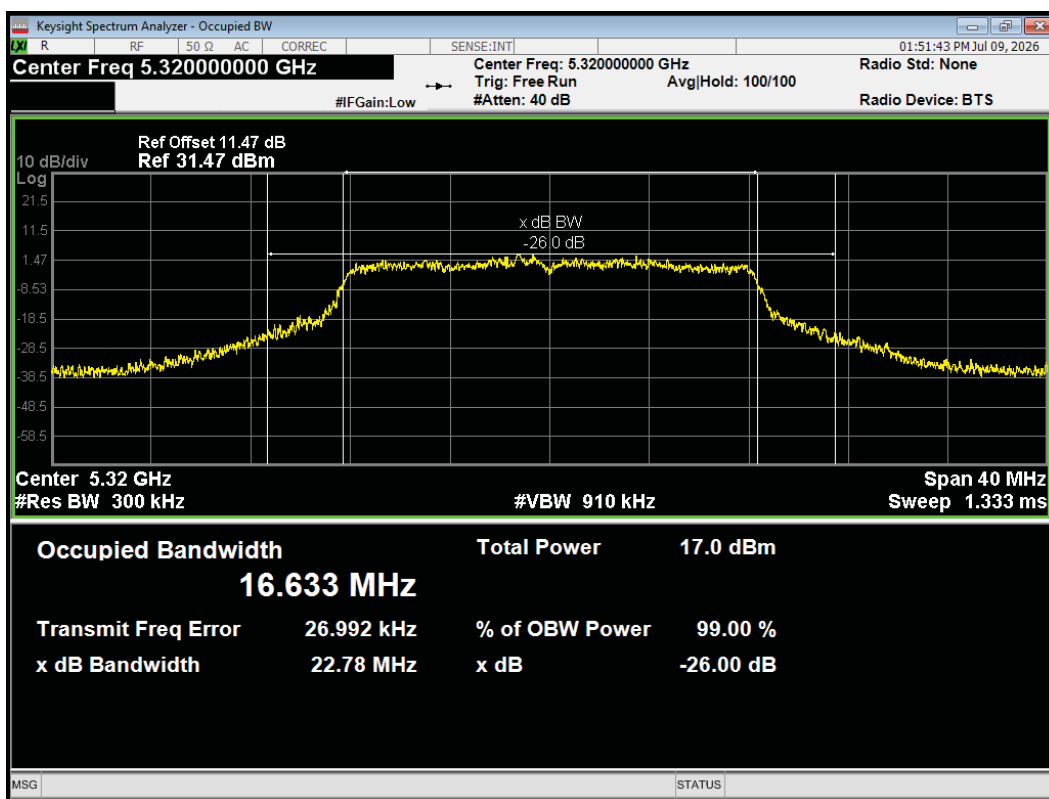
OBW 802.11a 5260MHz



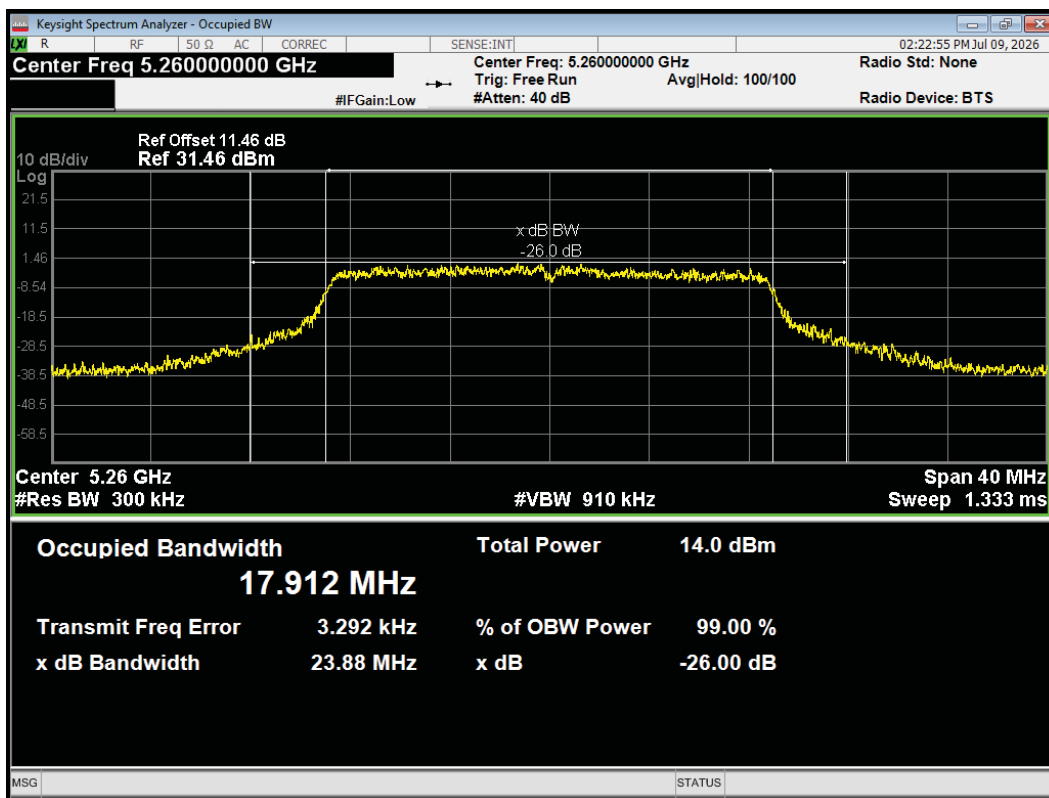
OBW 802.11a 5300MHz



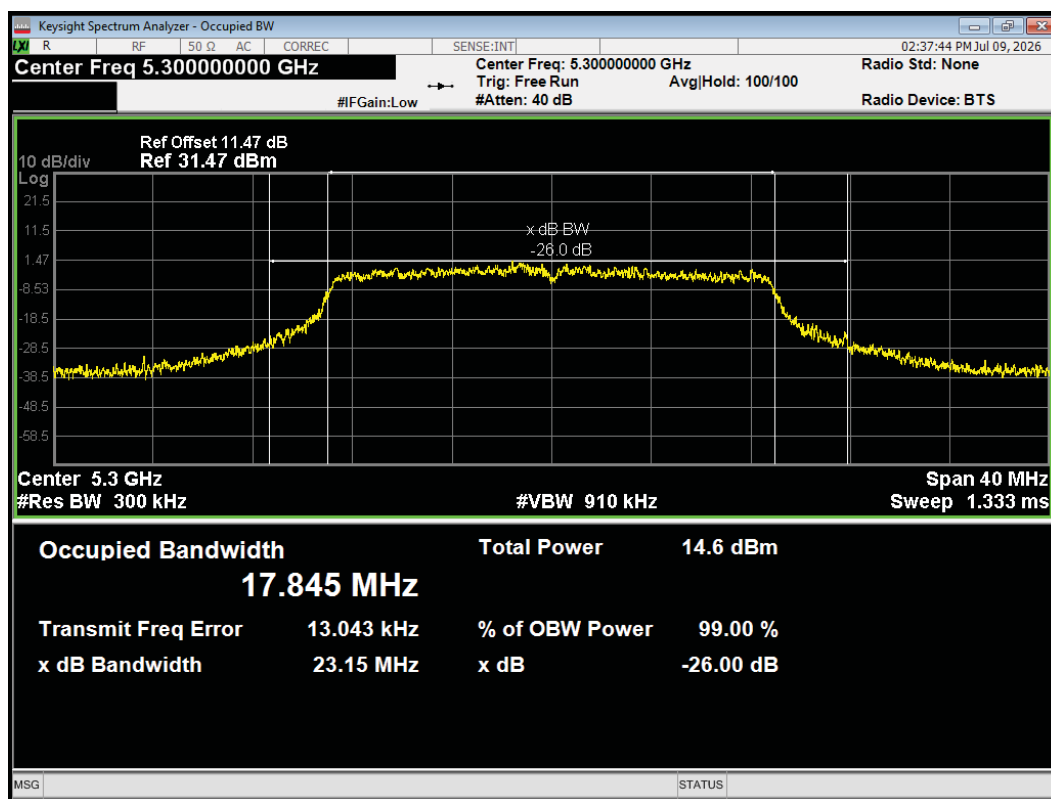
OBW 802.11a 5320MHz



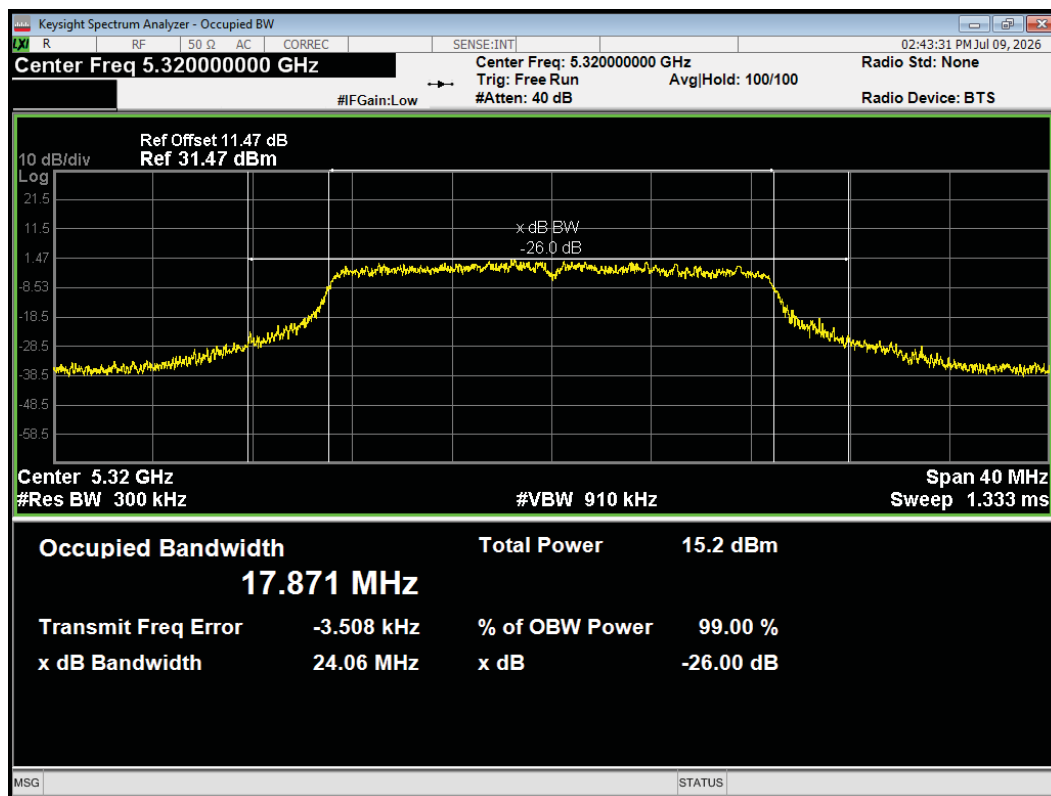
OBW 802.11ac(VHT20) 5260MHz



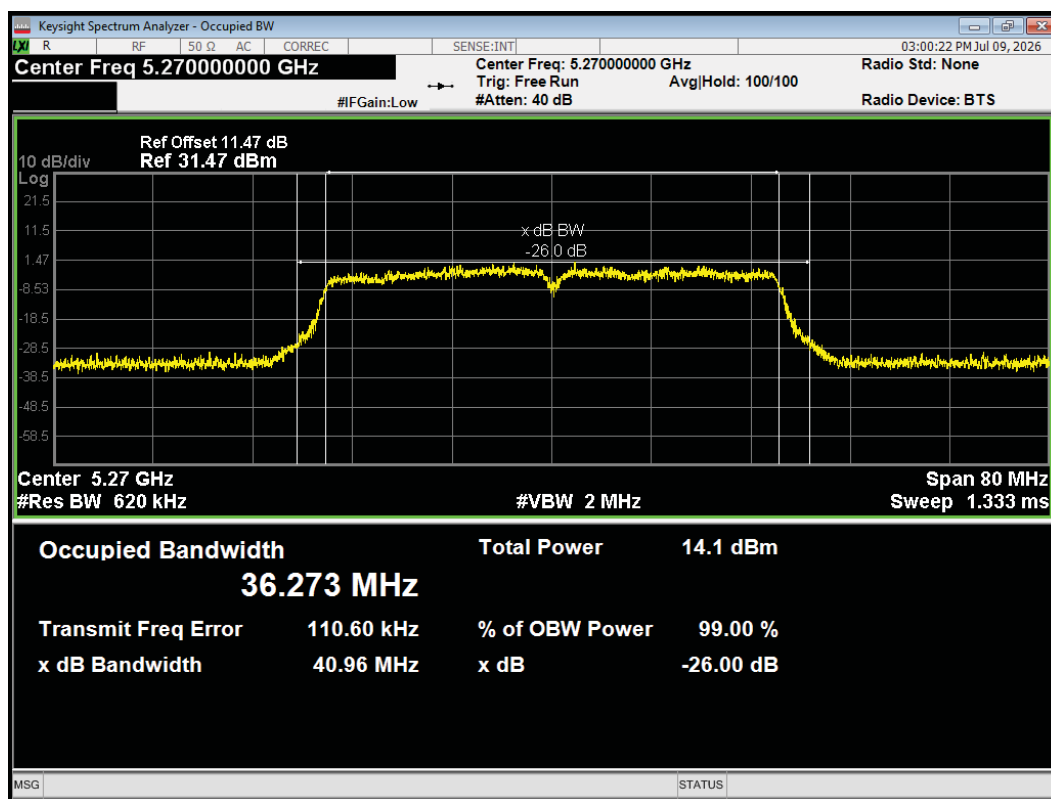
OBW 802.11ac(VHT20) 5300MHz



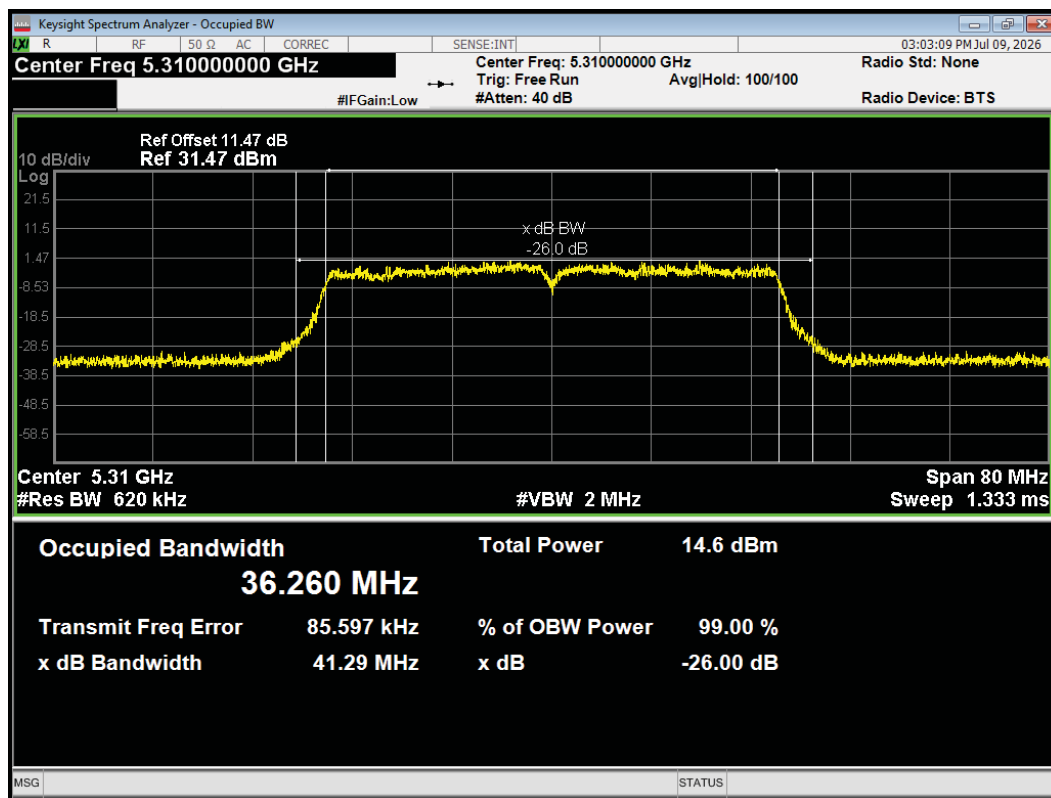
OBW 802.11ac(VHT20) 5320MHz



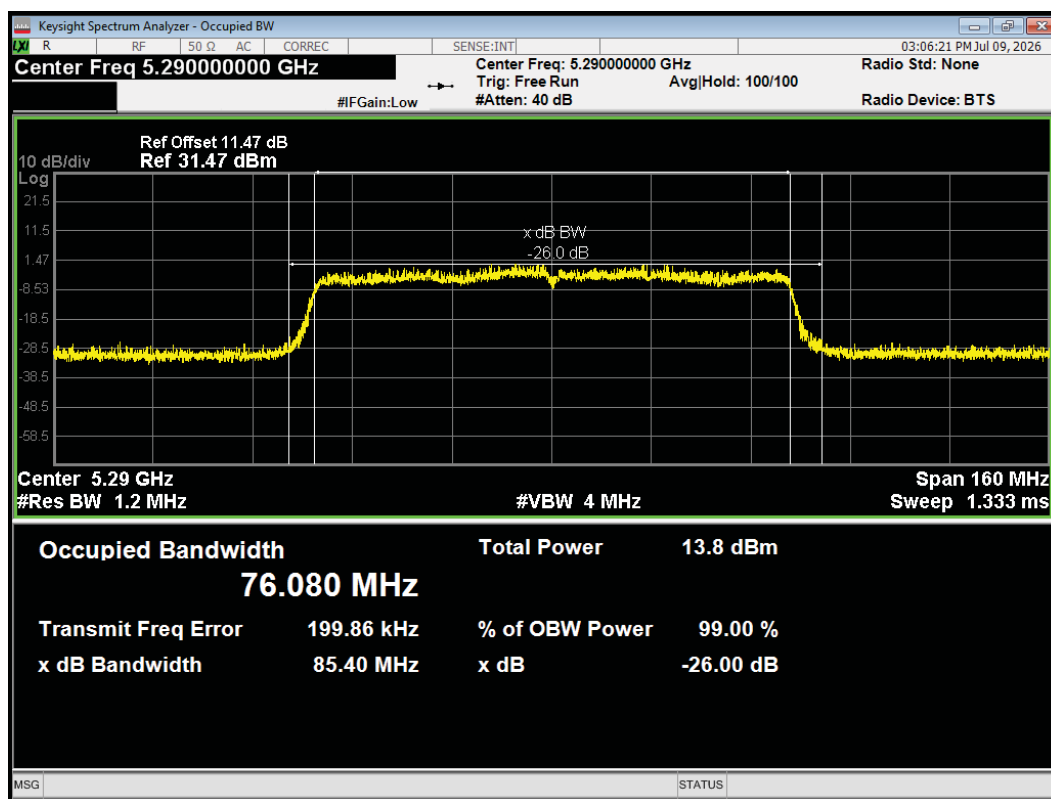
OBW 802.11ac(VHT40) 5270MHz



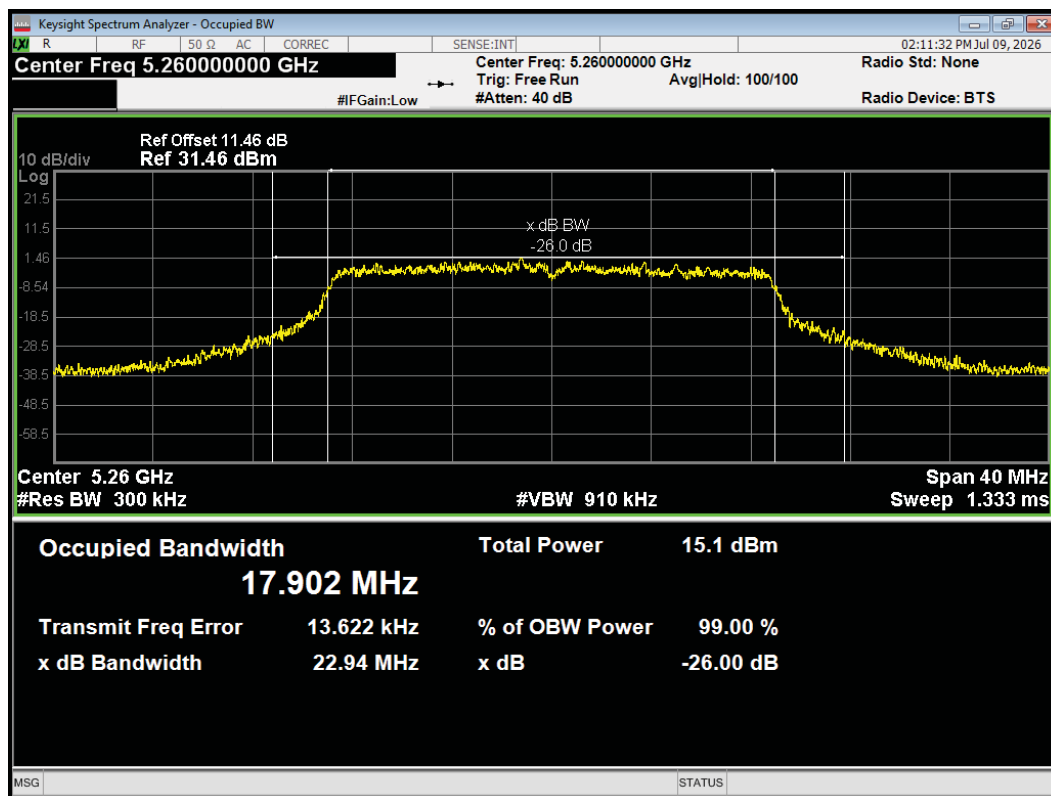
OBW 802.11ac(VHT40) 5310MHz



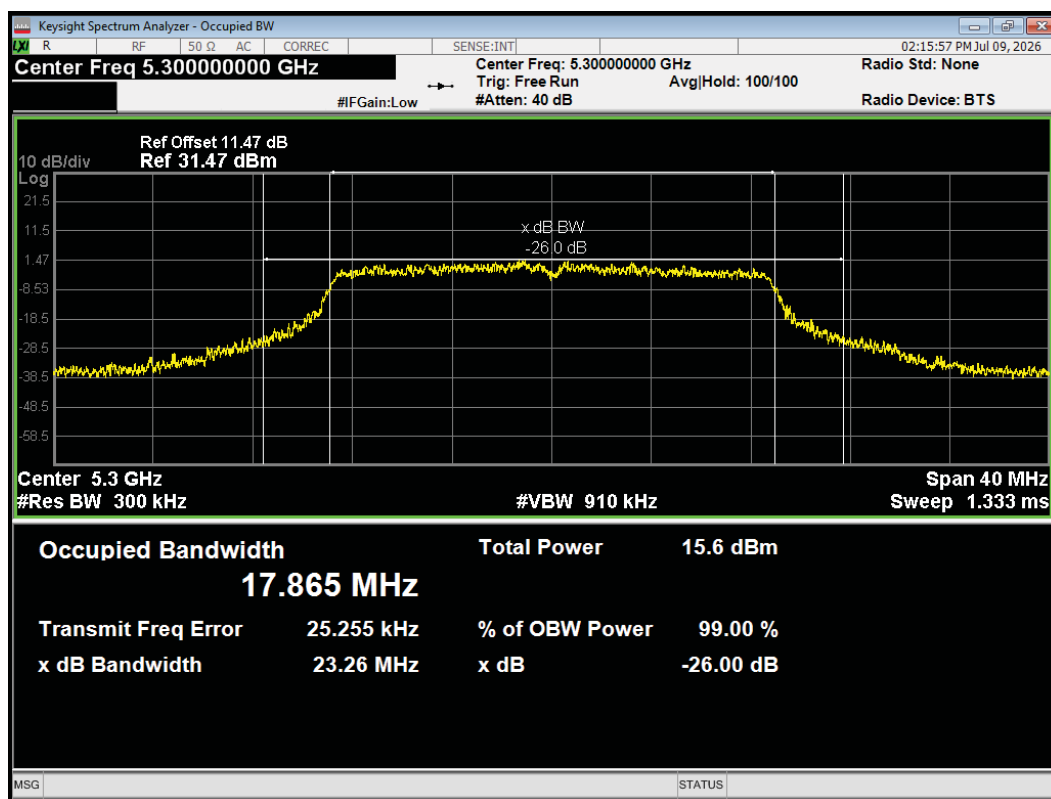
OBW 802.11ac(VHT80) 5290MHz



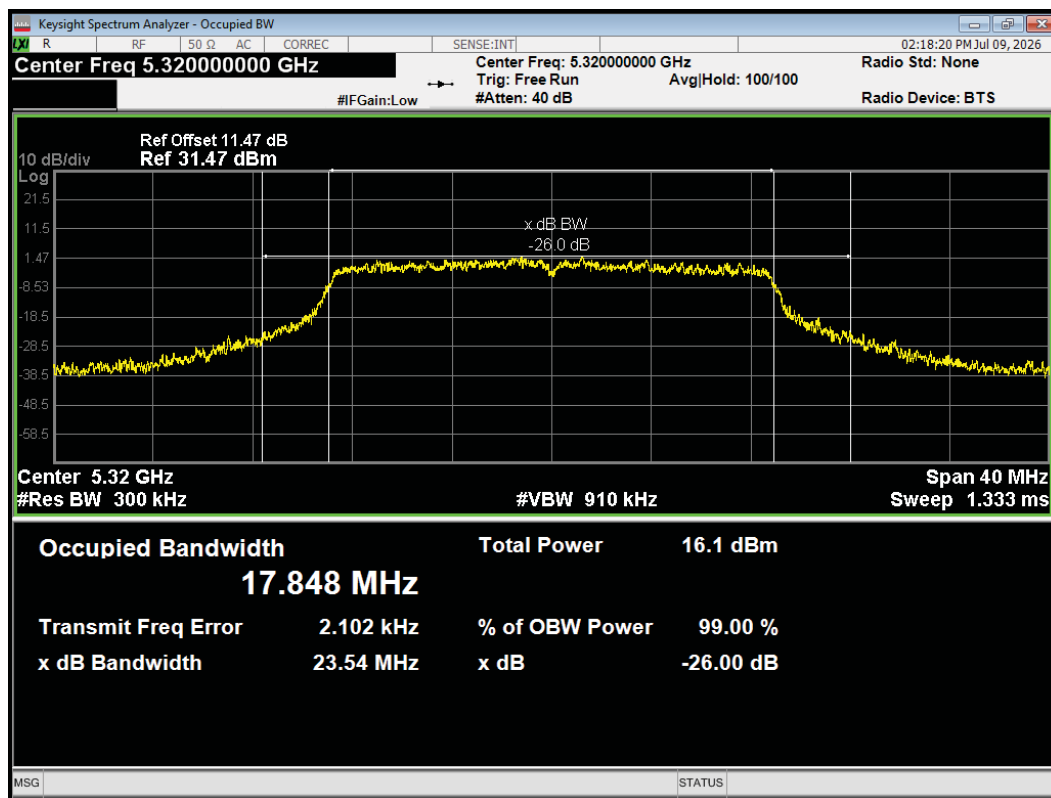
OBW 802.11n(HT20) 5260MHz



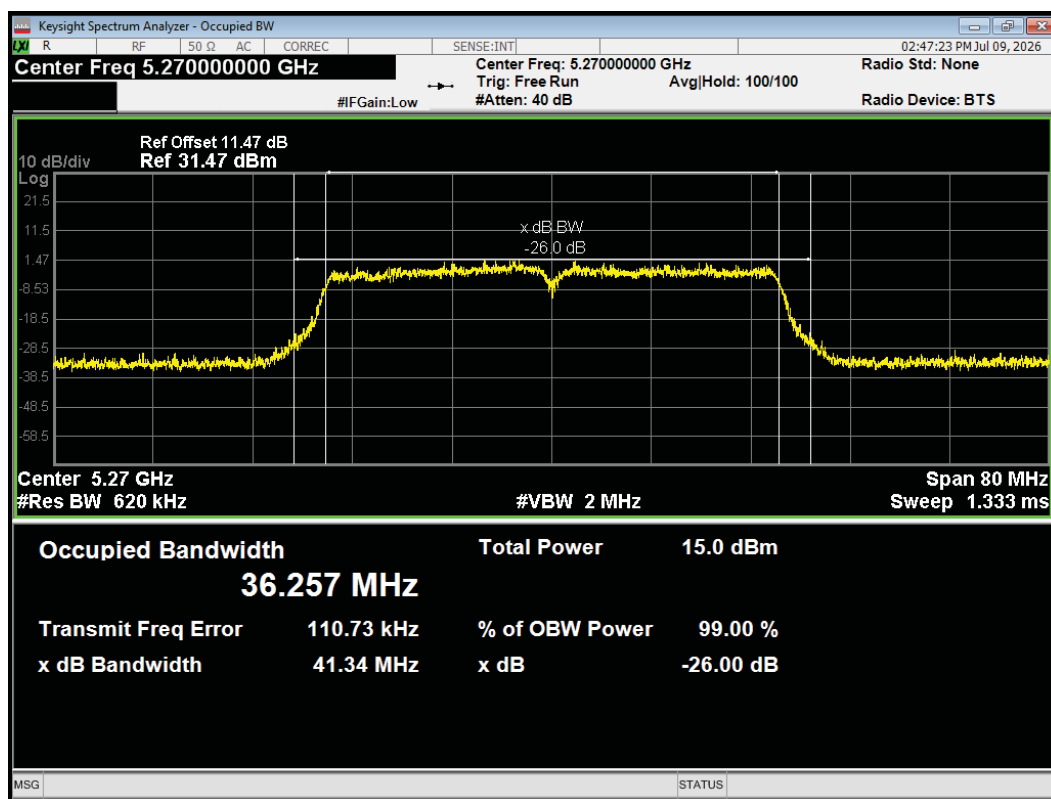
OBW 802.11n(HT20) 5300MHz



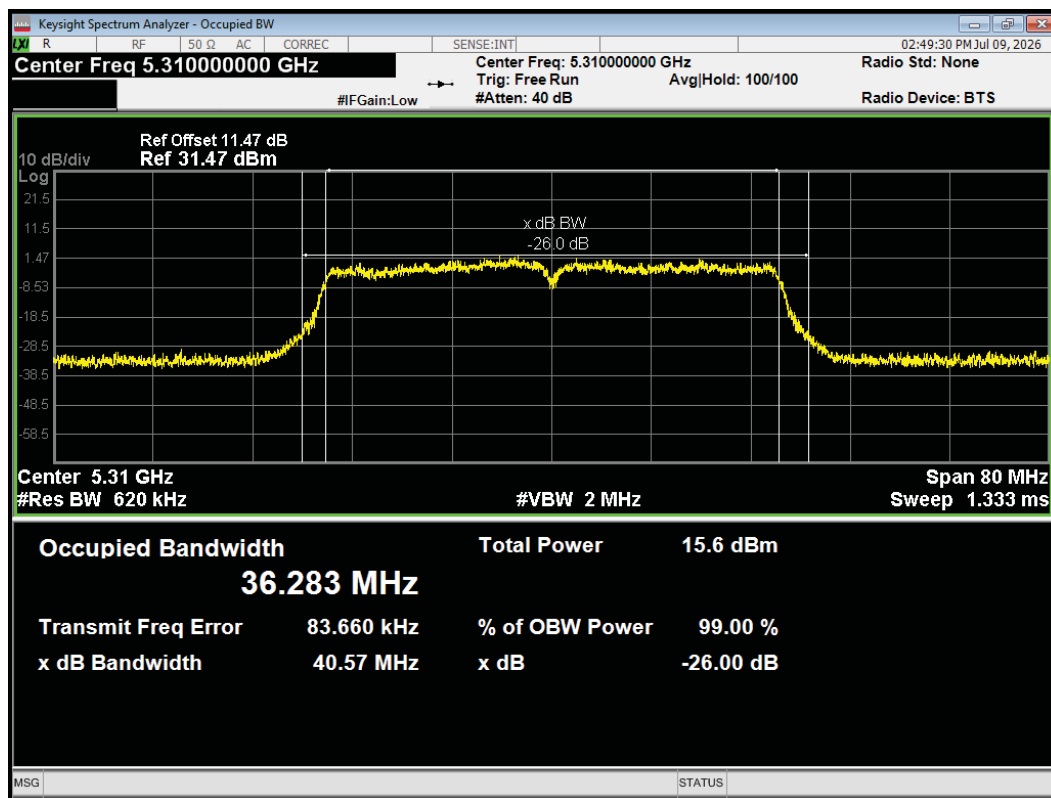
OBW 802.11n(HT20) 5320MHz



OBW 802.11n(HT40) 5270MHz

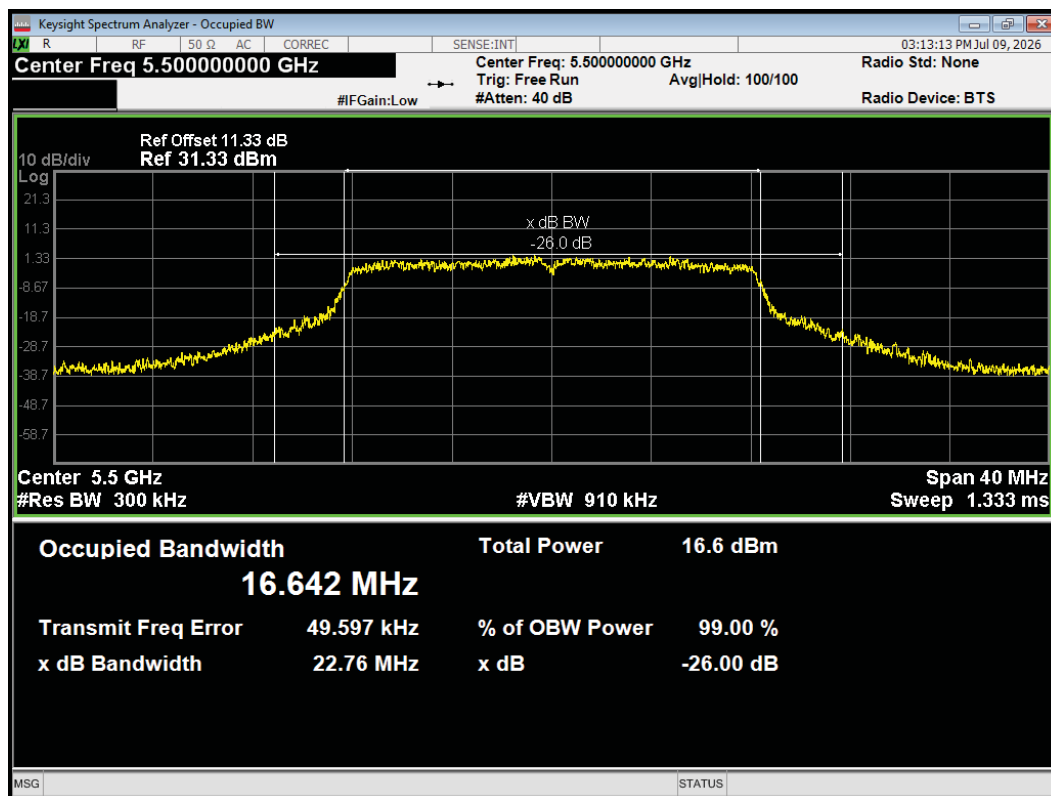


OBW 802.11n(HT40) 5310MHz

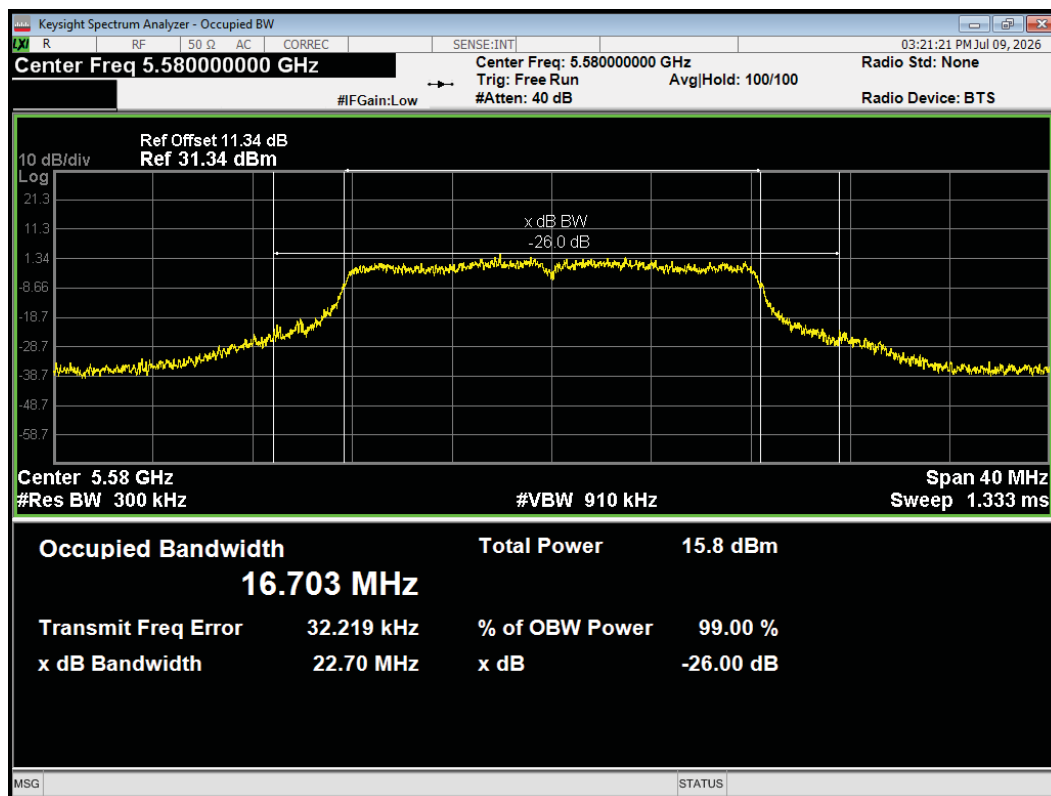


U-NII-2C

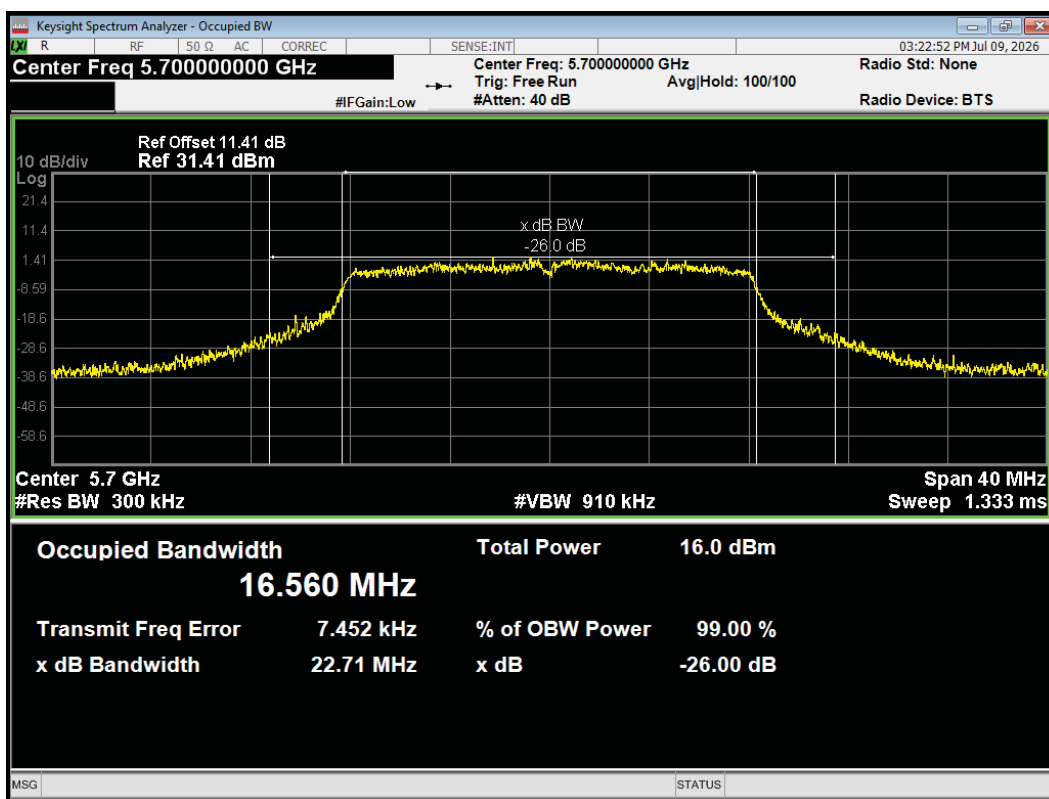
OBW 802.11a 5500MHz



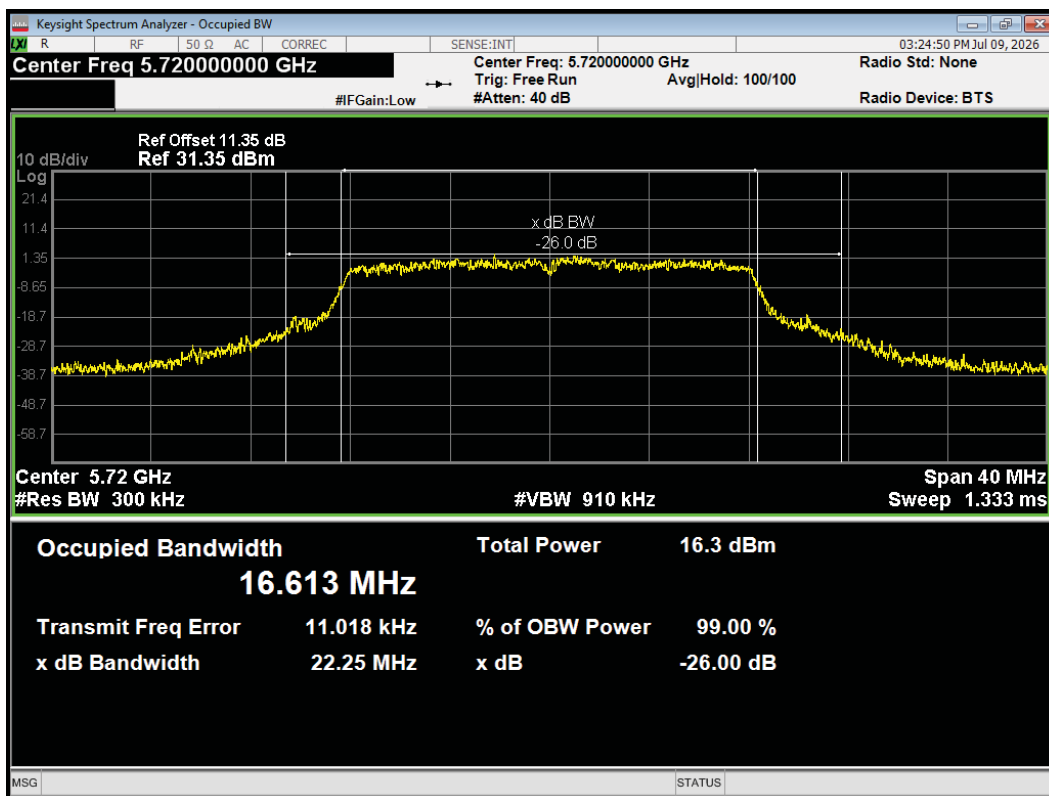
OBW 802.11a 5580MHz



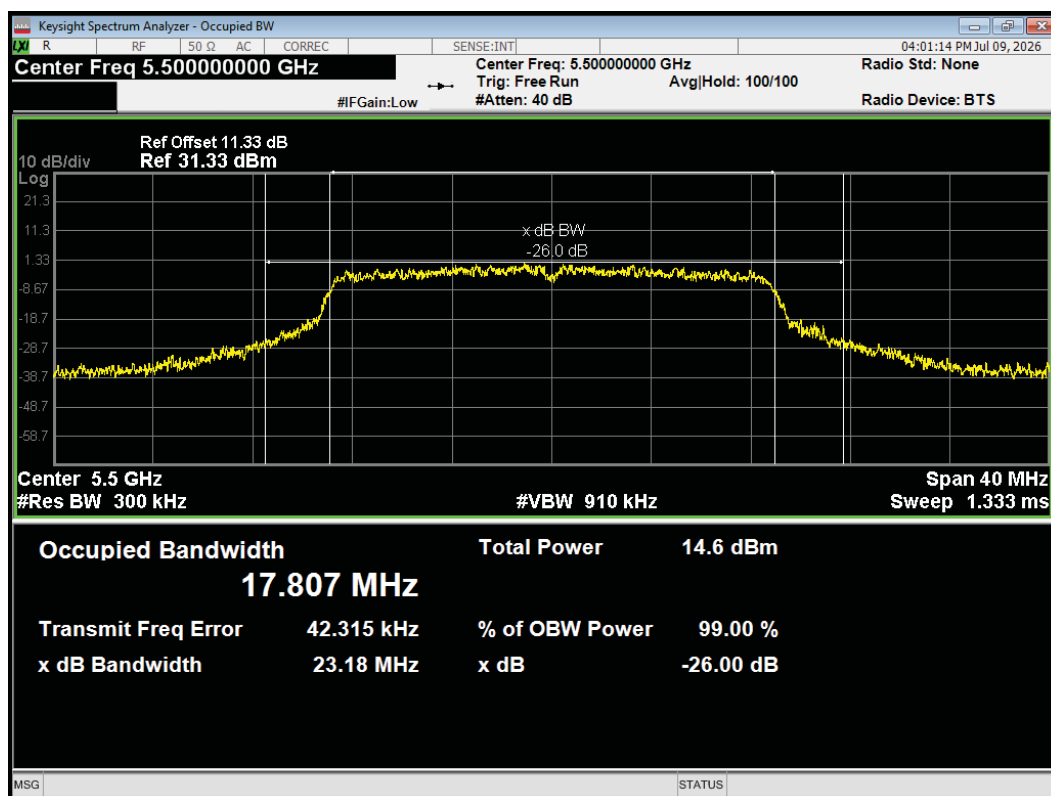
OBW 802.11a 5700MHz



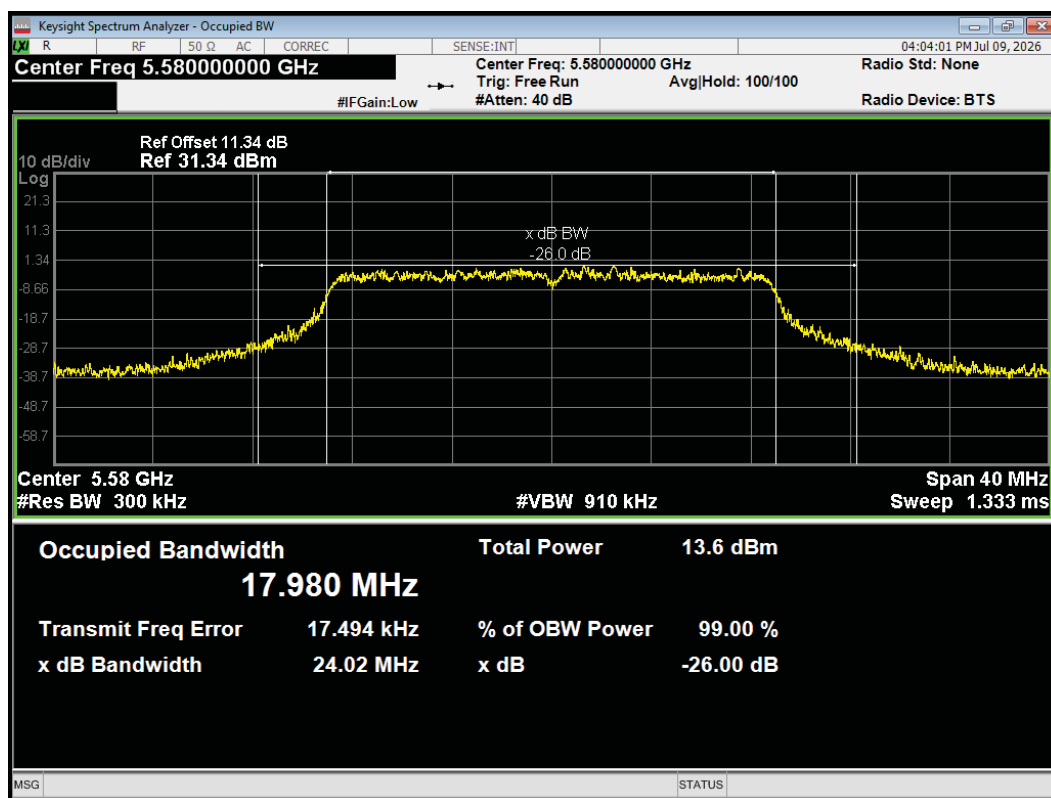
OBW 802.11a 5720MHz



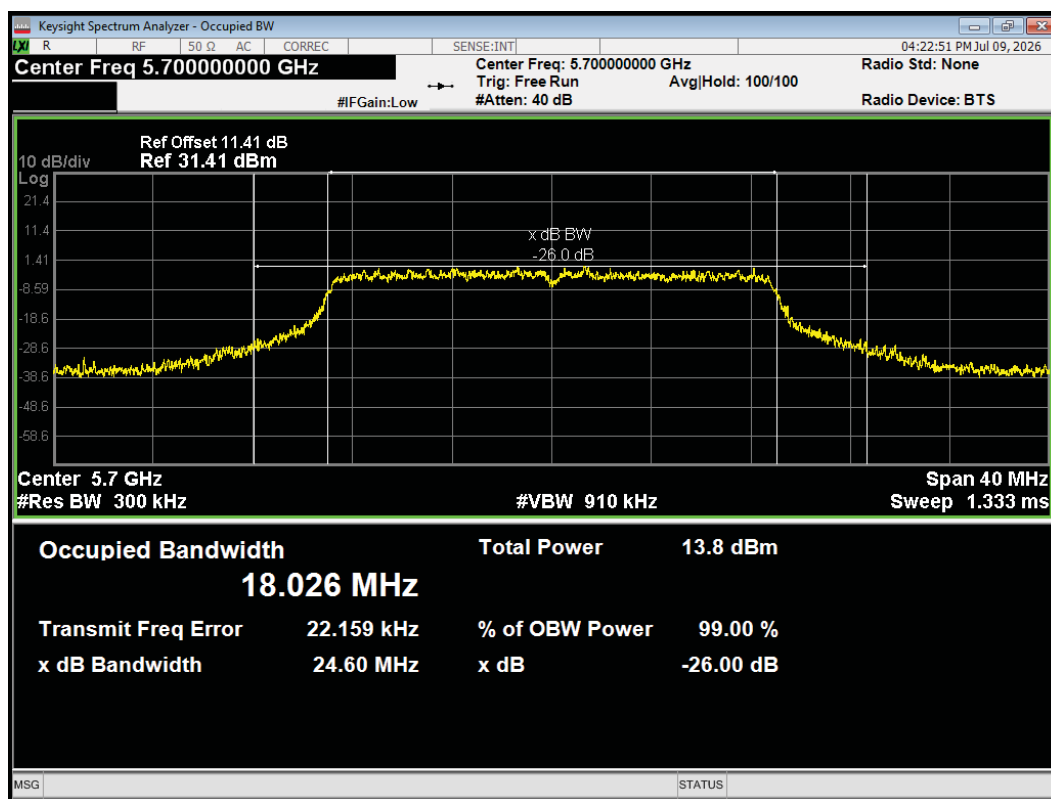
OBW 802.11ac(VHT20) 5500MHz



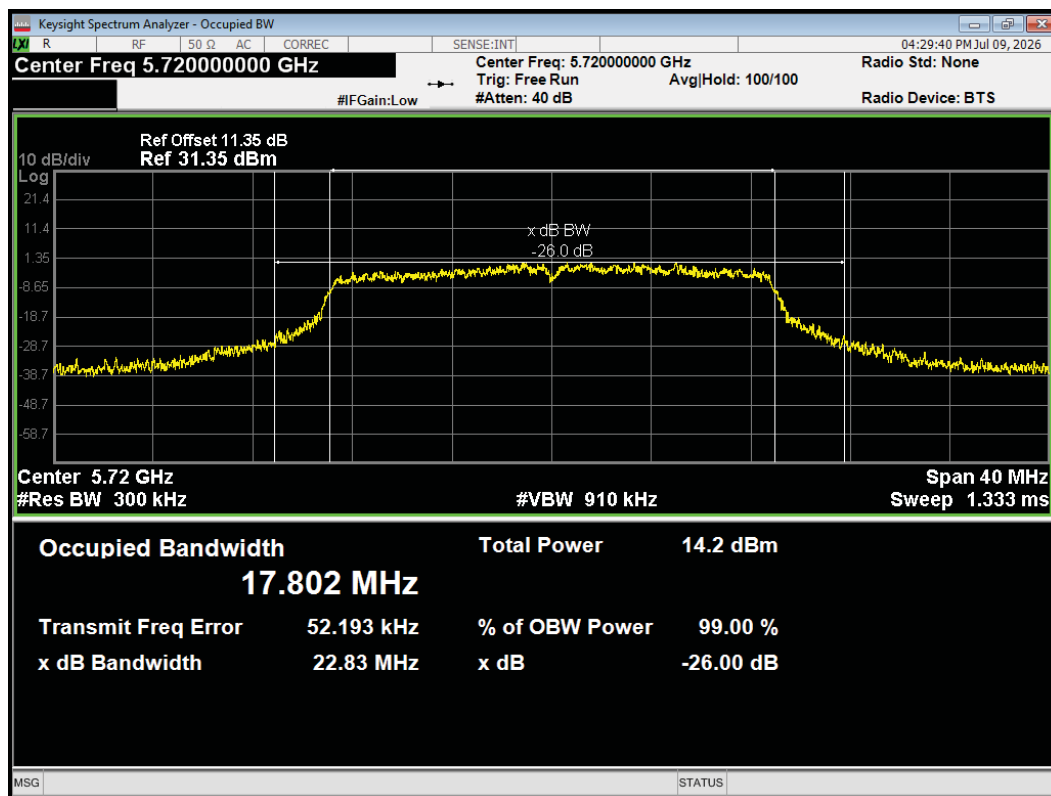
OBW 802.11ac(VHT20) 5580MHz



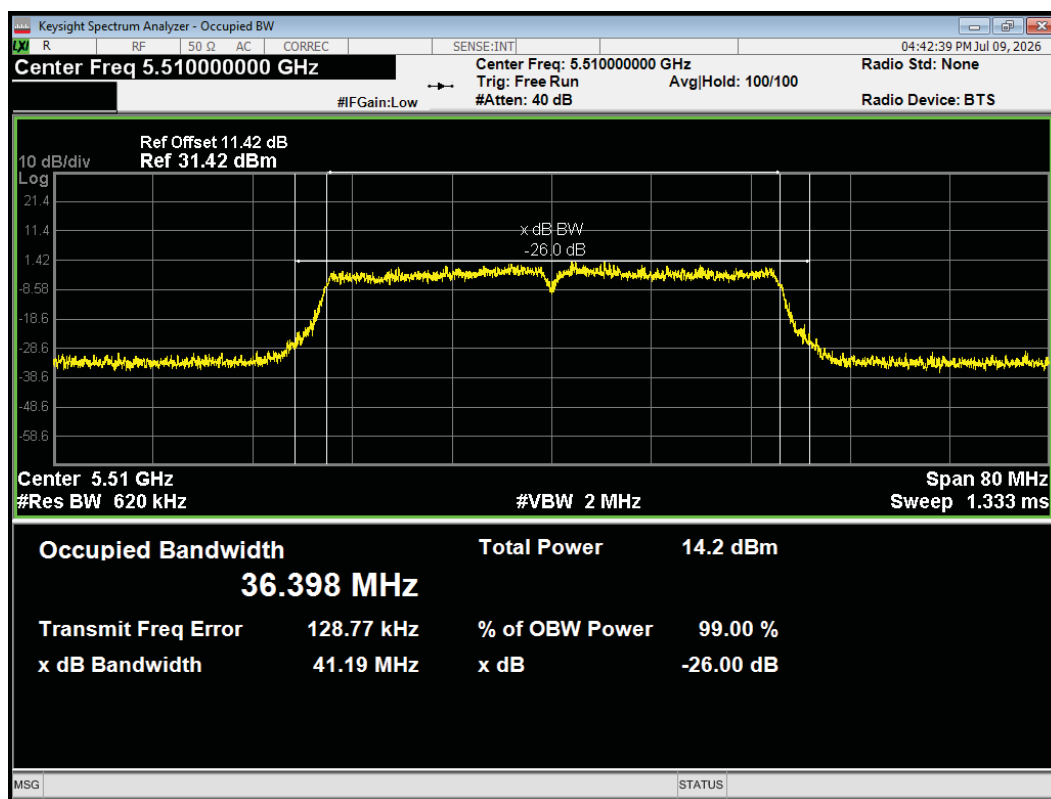
OBW 802.11ac(VHT20) 5700MHz



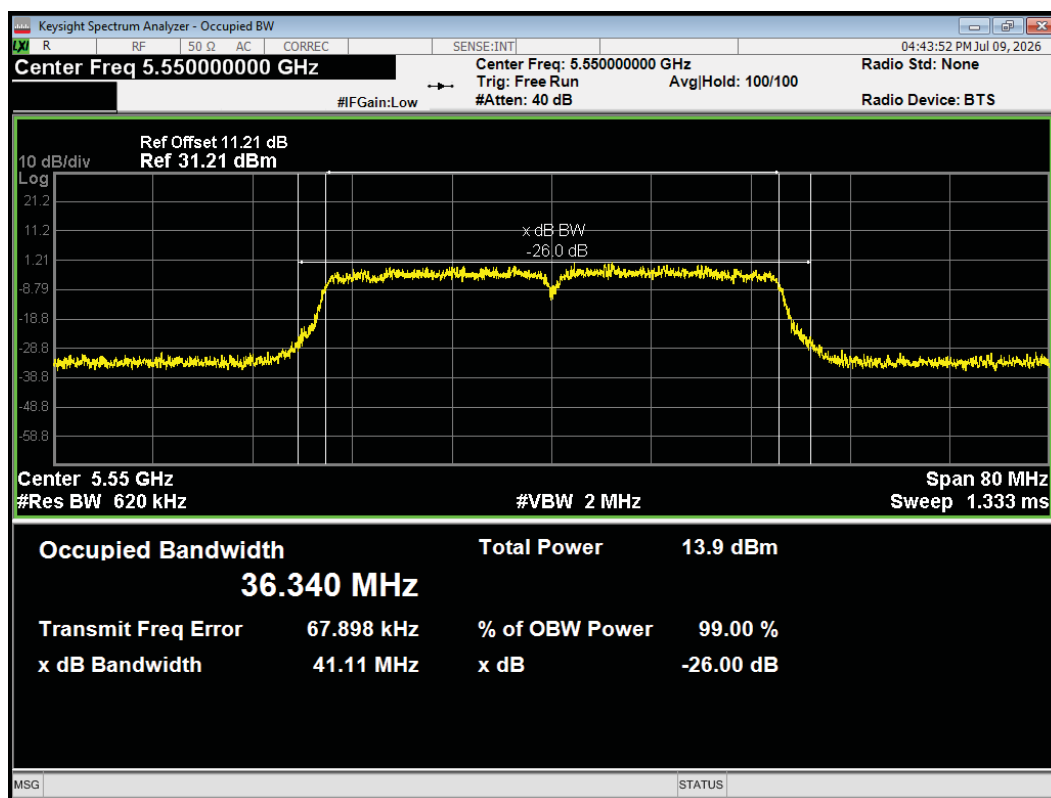
OBW 802.11ac(VHT20) 5720MHz



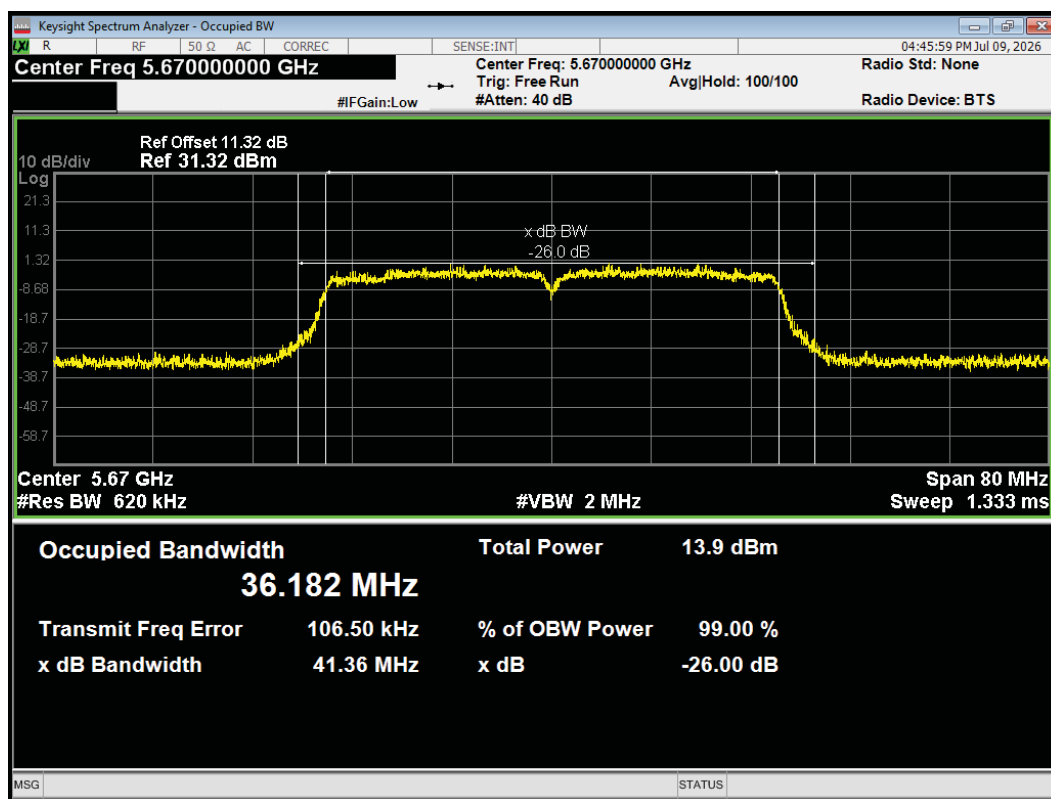
OBW 802.11ac(VHT40) 5510MHz



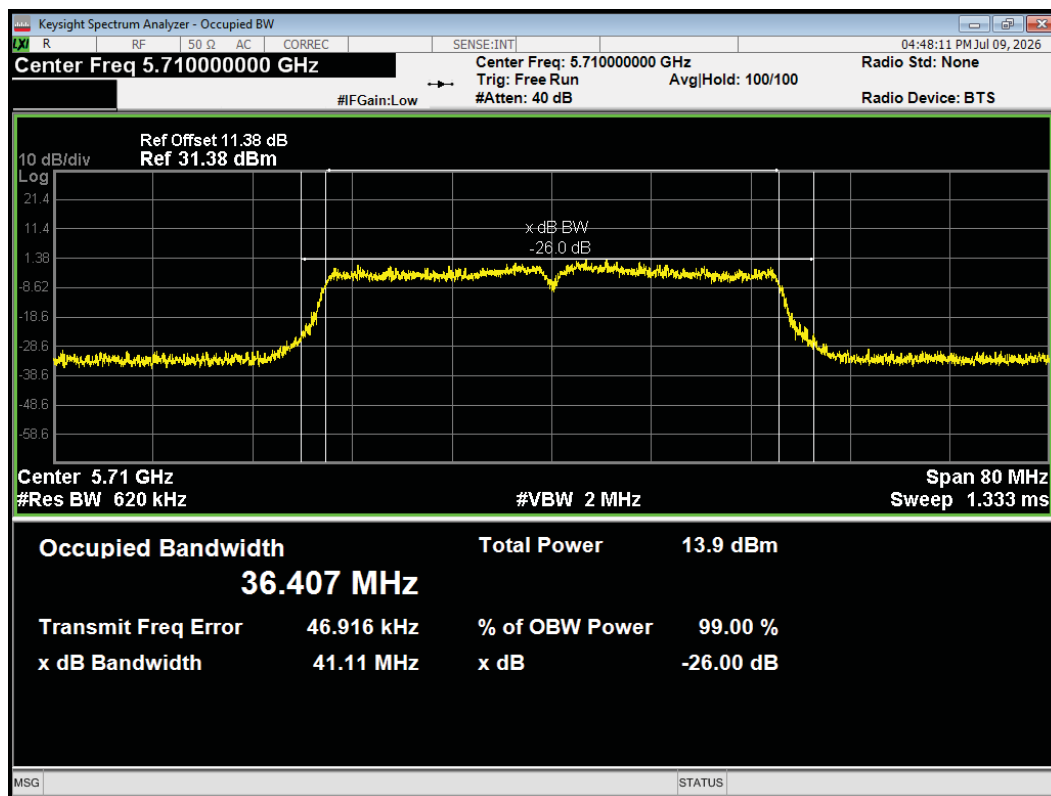
OBW 802.11ac(VHT40) 5550MHz



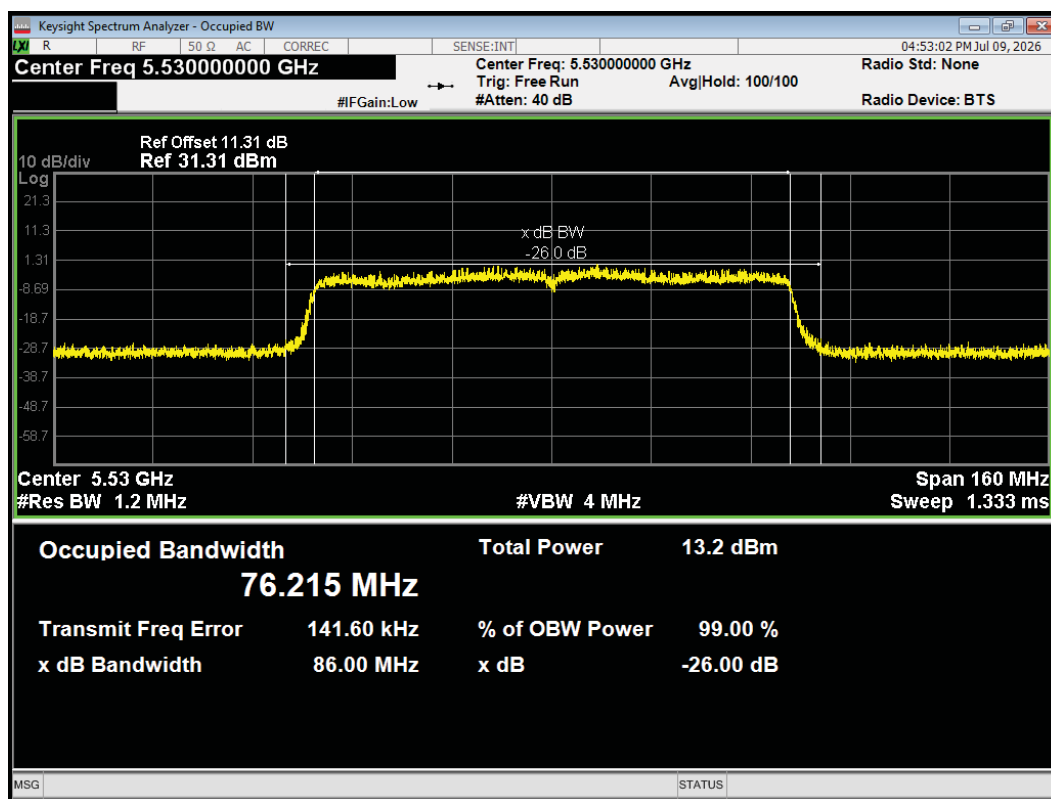
OBW 802.11ac(VHT40) 5670MHz



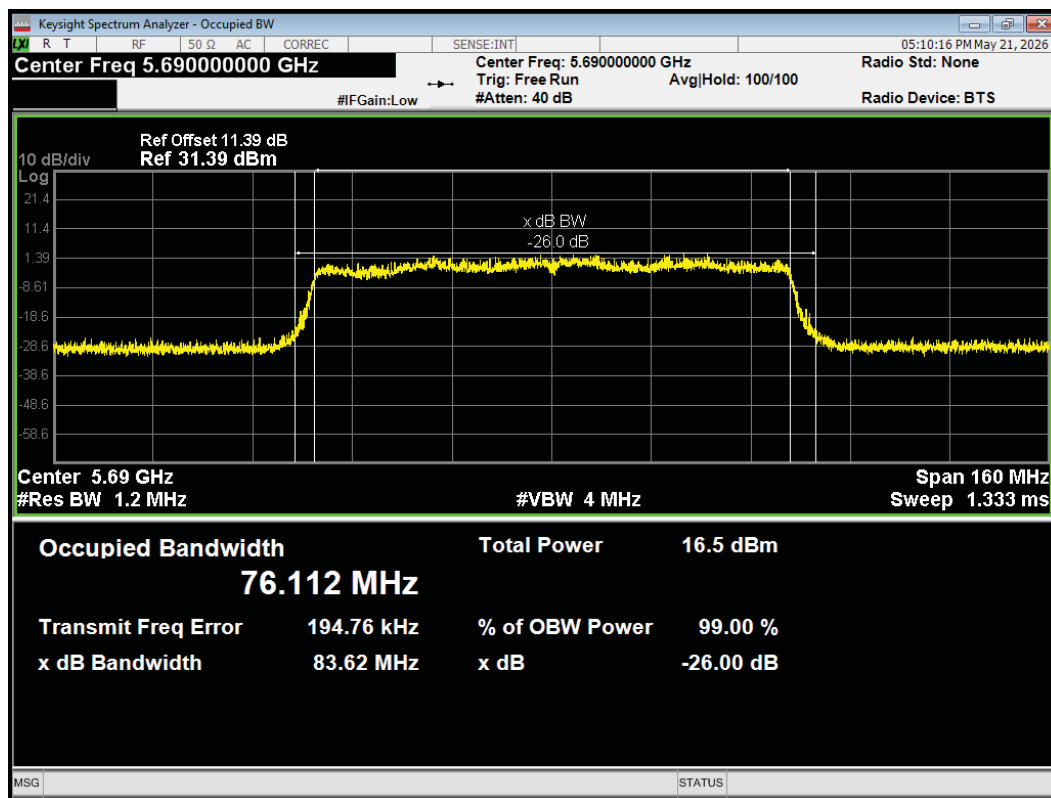
OBW 802.11ac(VHT40) 5710MHz



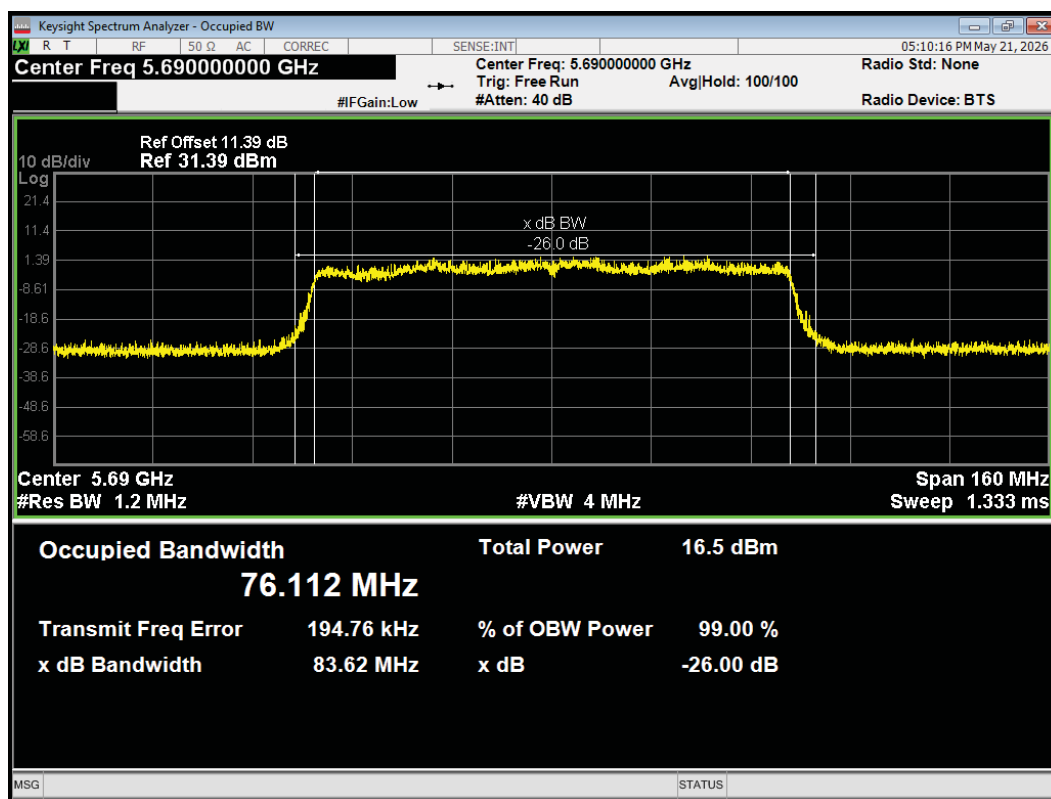
OBW 802.11ac(VHT80) 5530MHz



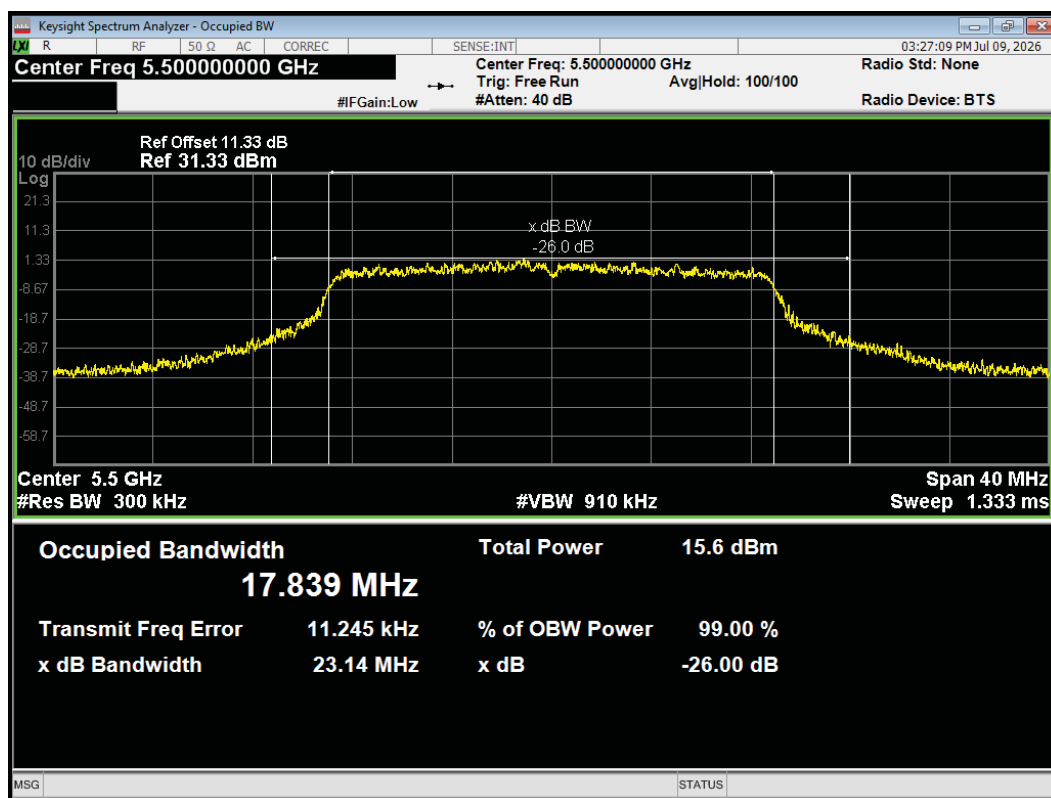
OBW 802.11ac(VHT80) 5690MHz



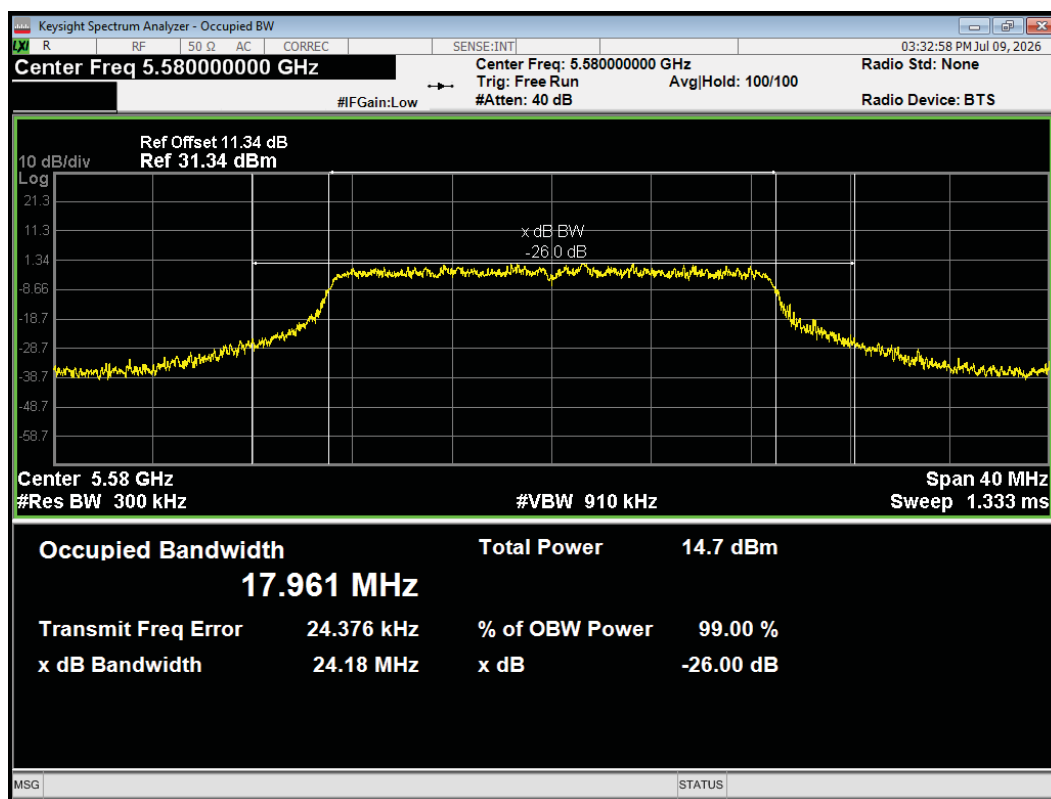
OBW 802.11ac(VHT80) 5690MHz



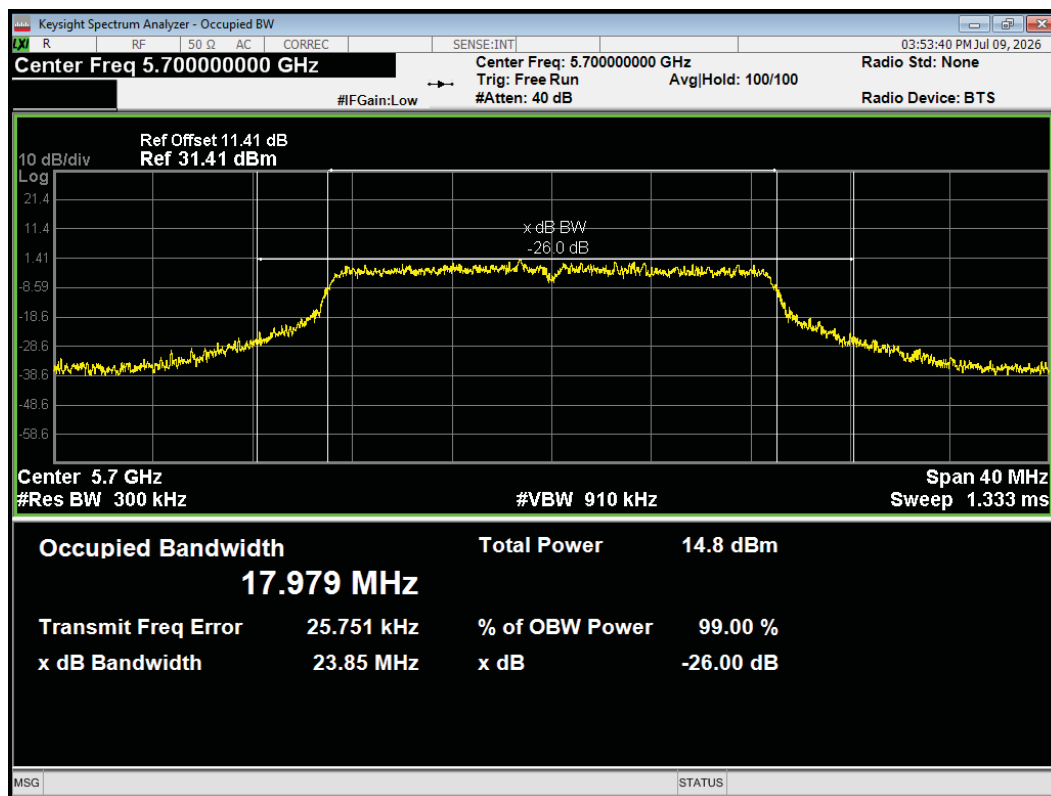
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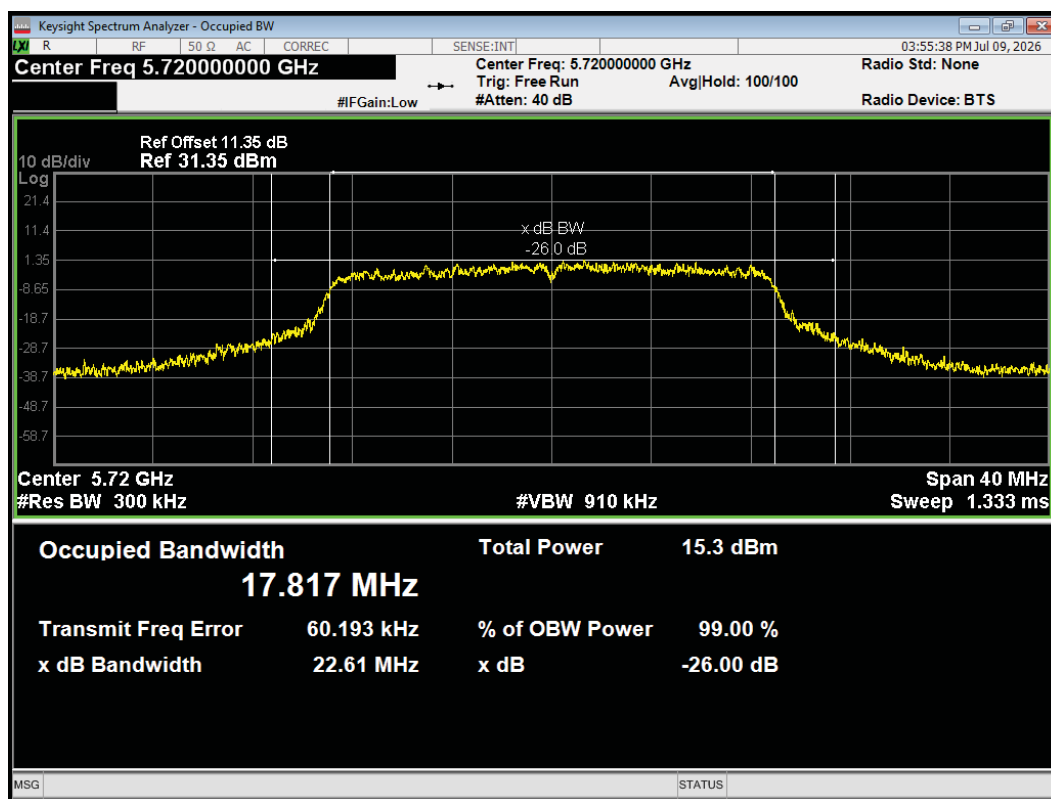
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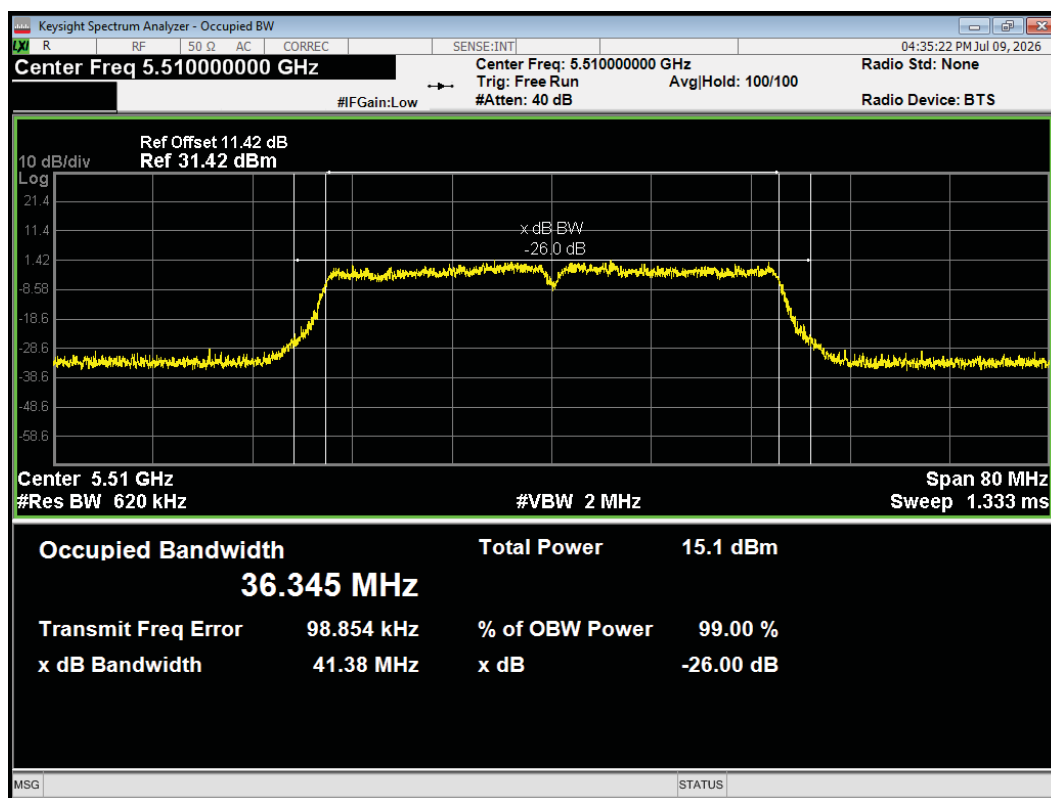
OBW 802.11n(HT20) 5700MHz



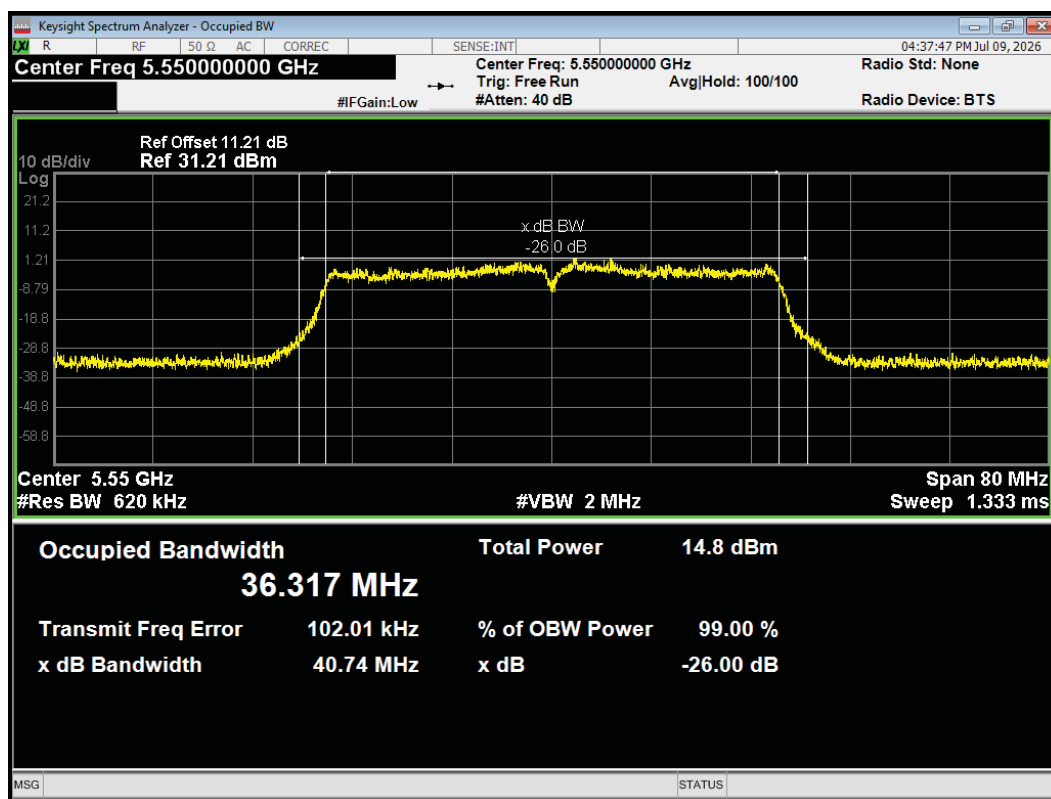
OBW 802.11n(HT20) 5720MHz



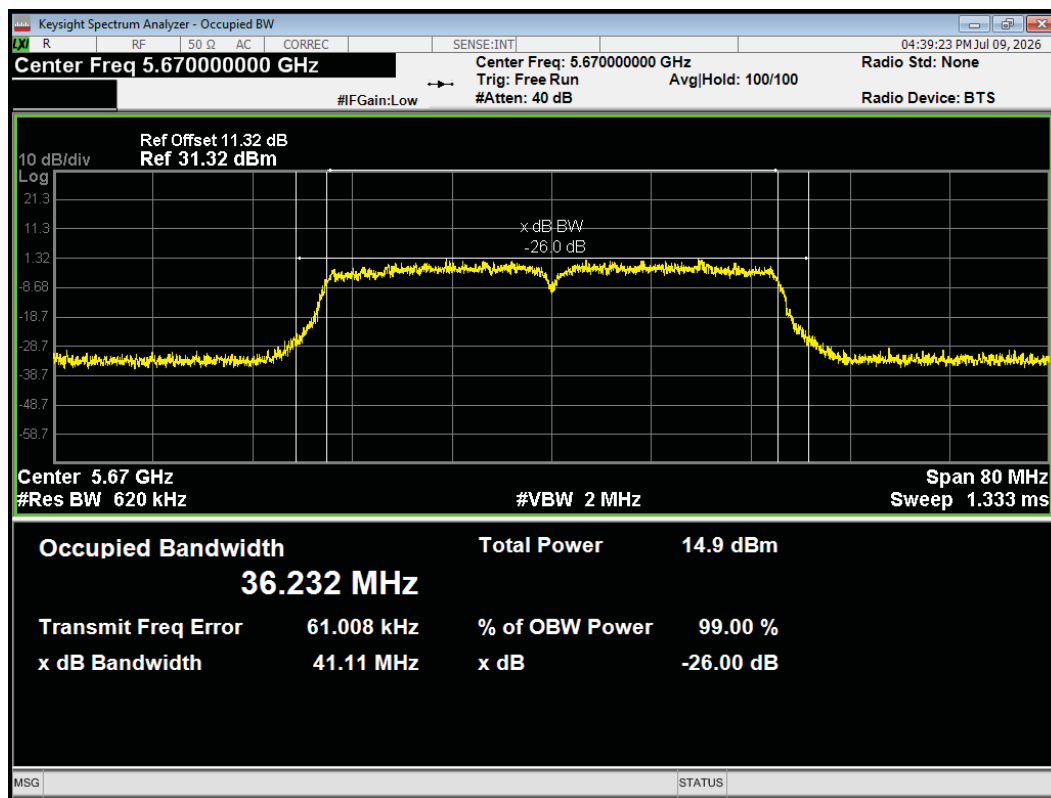
OBW 802.11n(HT40) 5510MHz



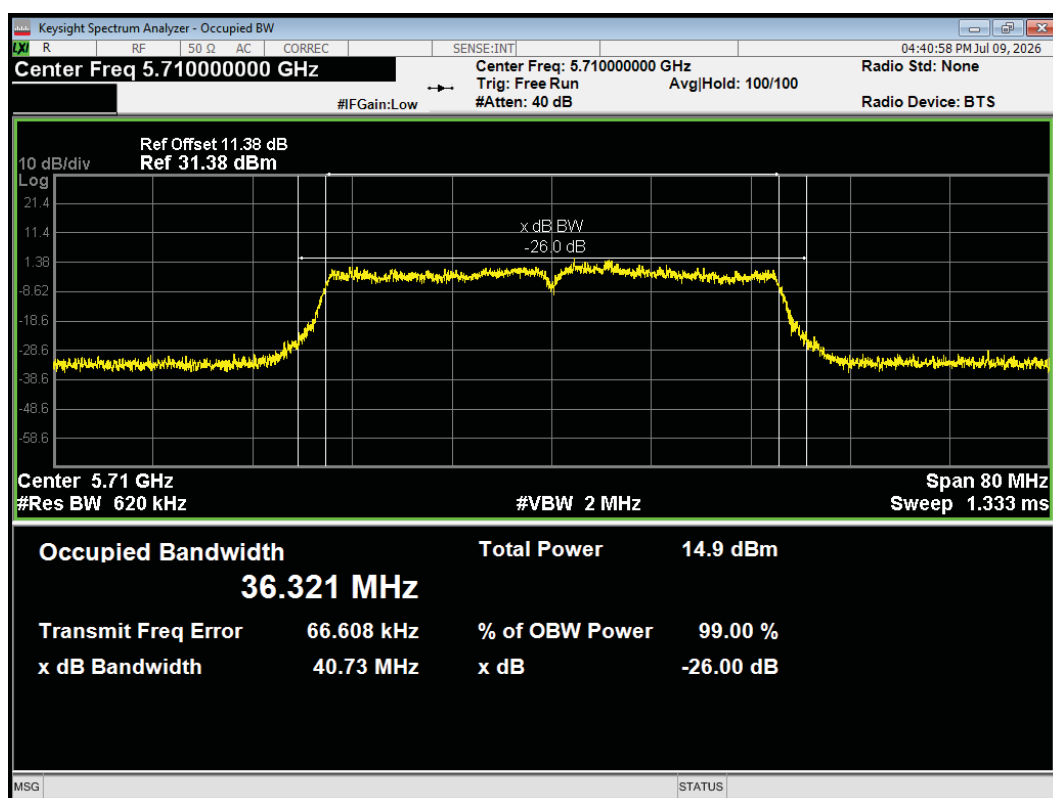
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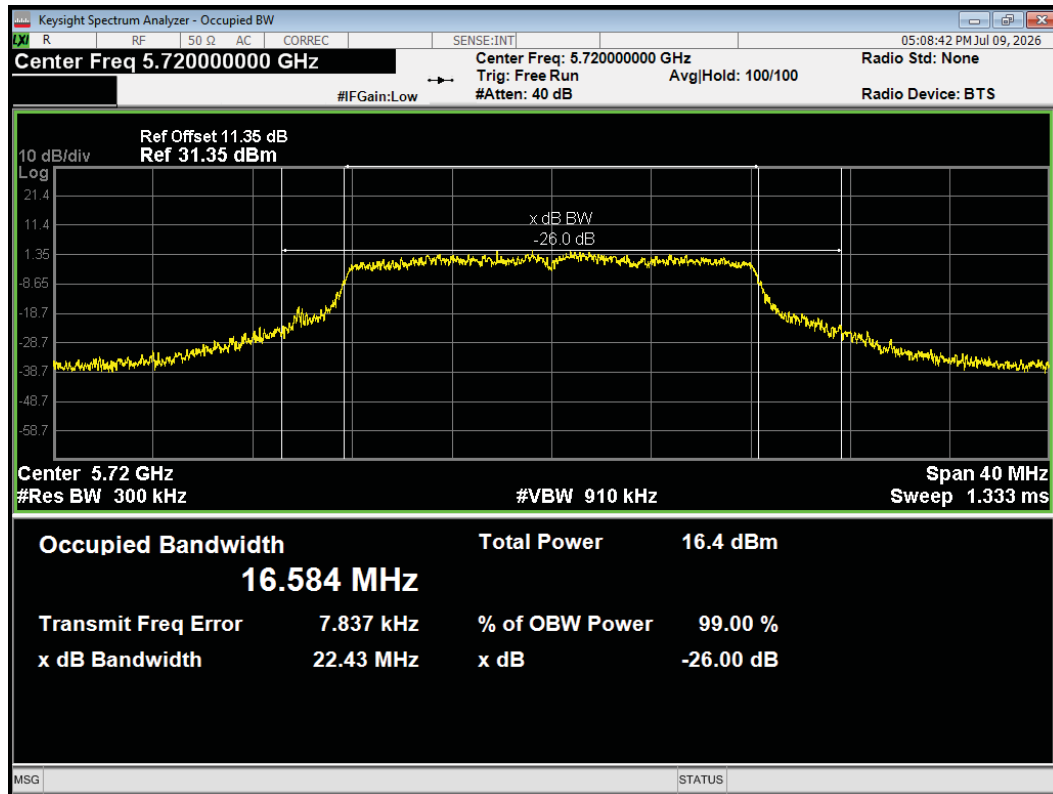
OBW 802.11n(HT40) 5670MHz



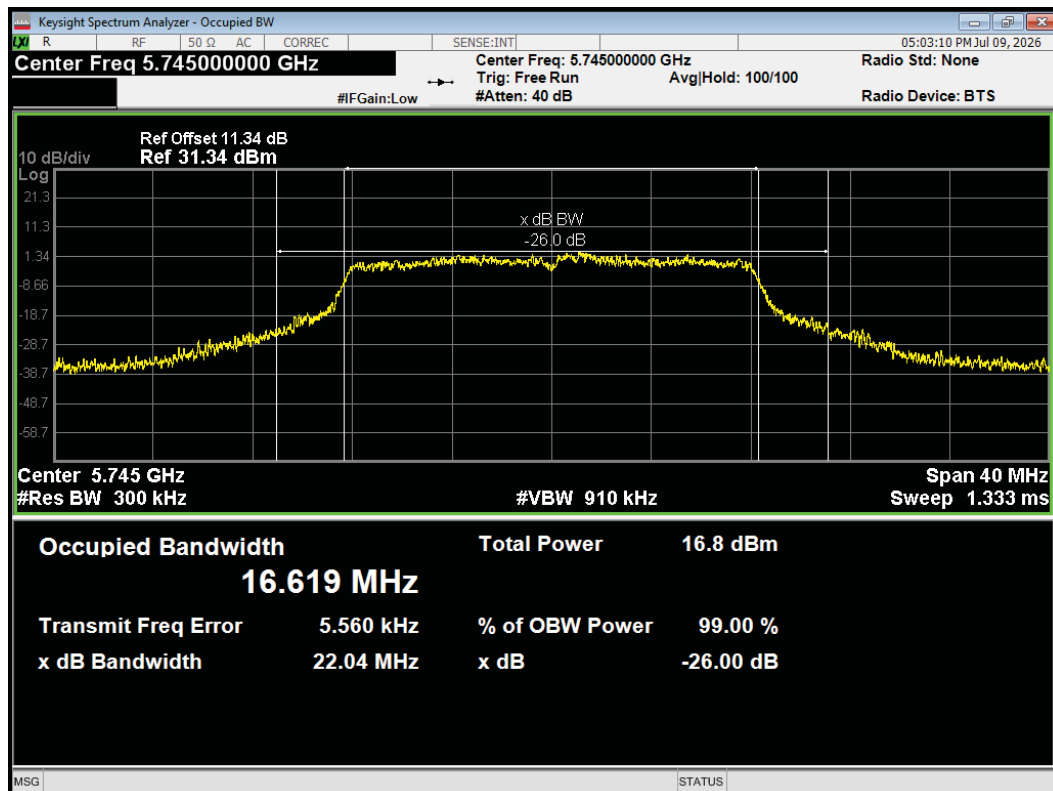
OBW 802.11n(HT40) 5710MHz



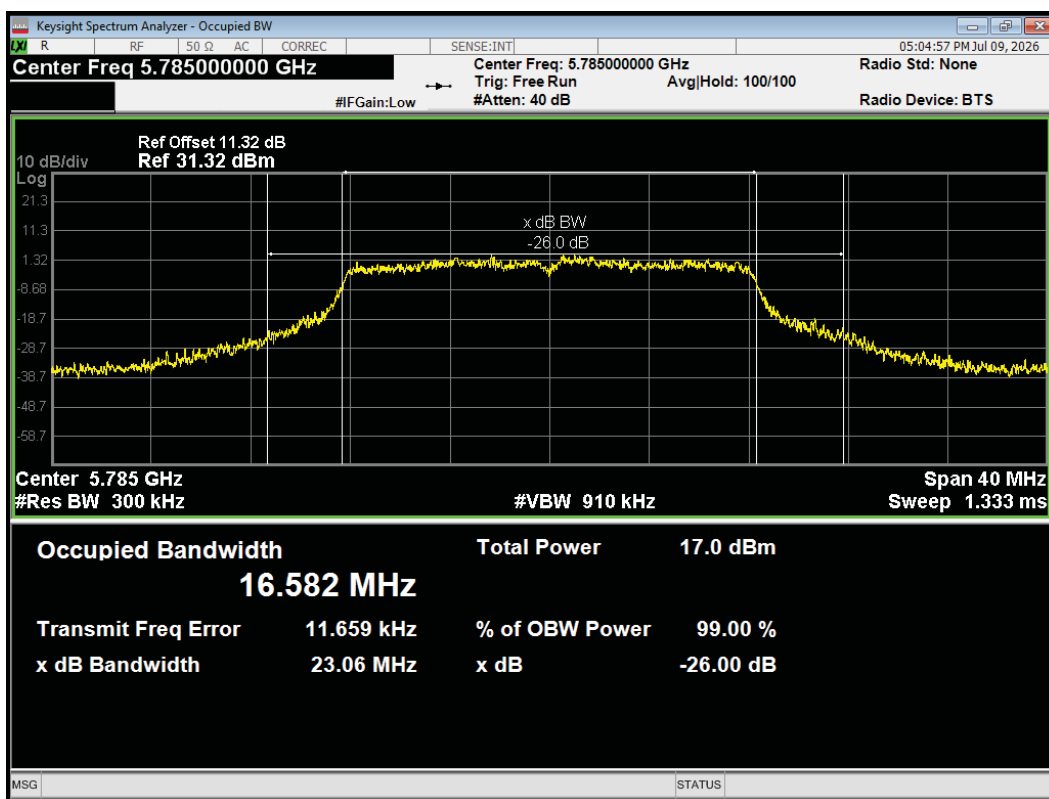
OBW 802.11a 5720MHz



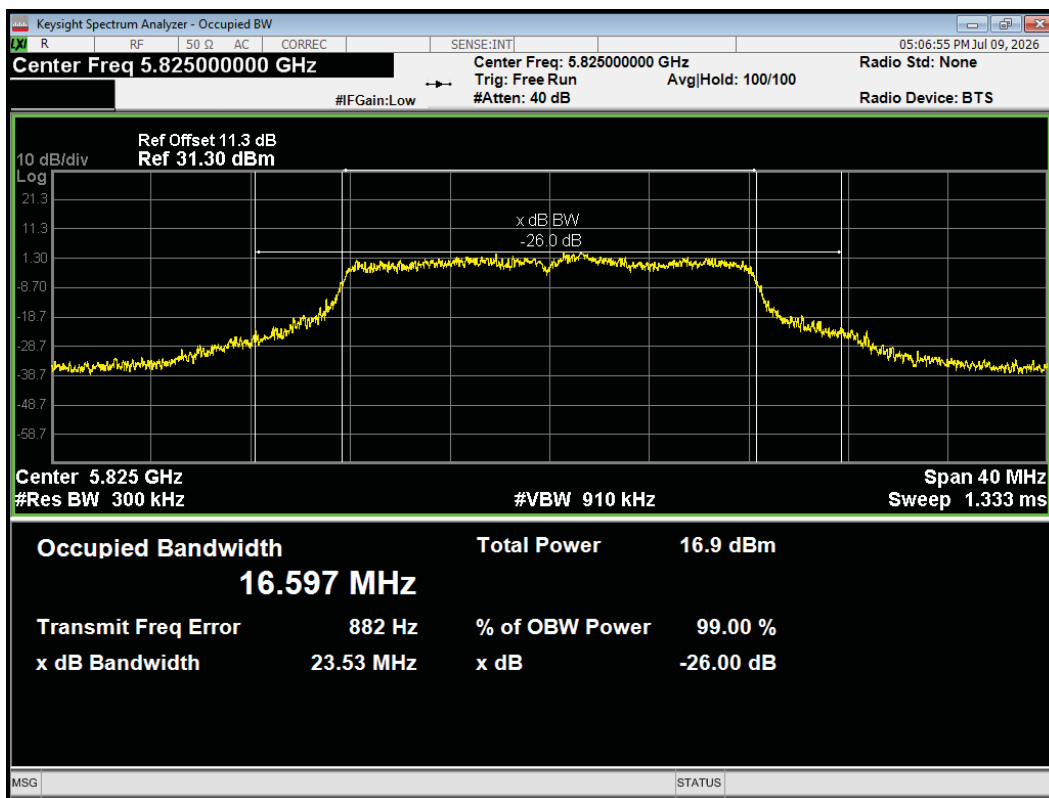
OBW 802.11a 5745MHz



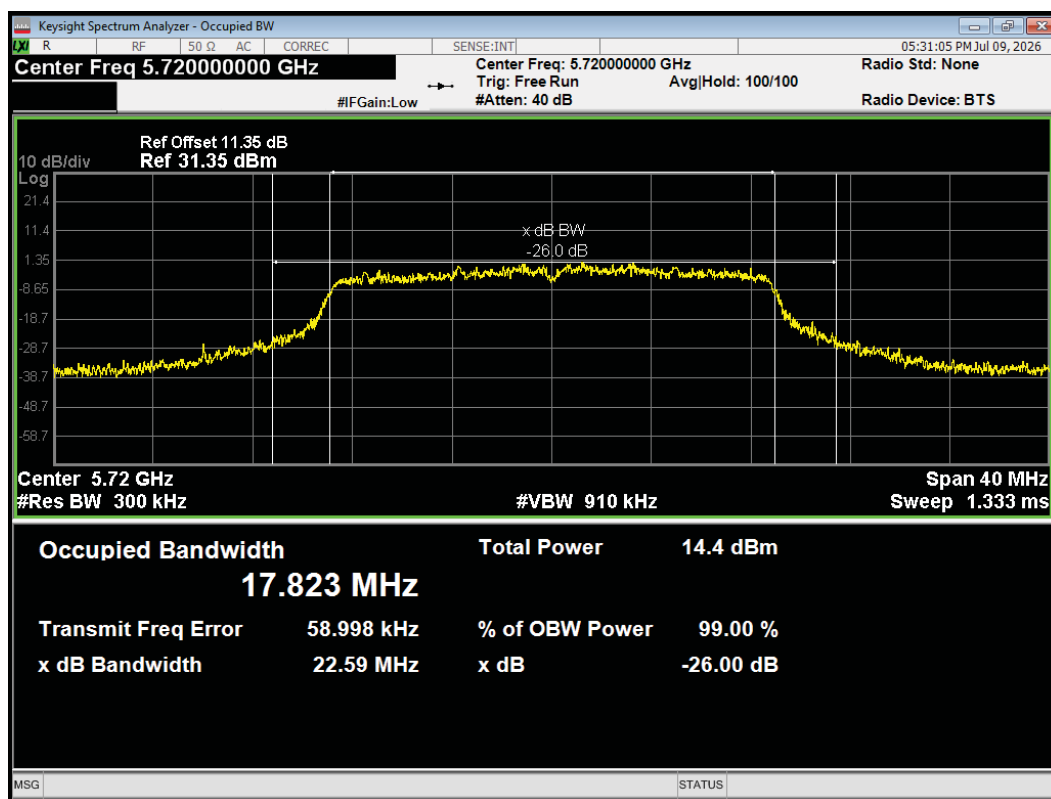
OBW 802.11a 5785MHz



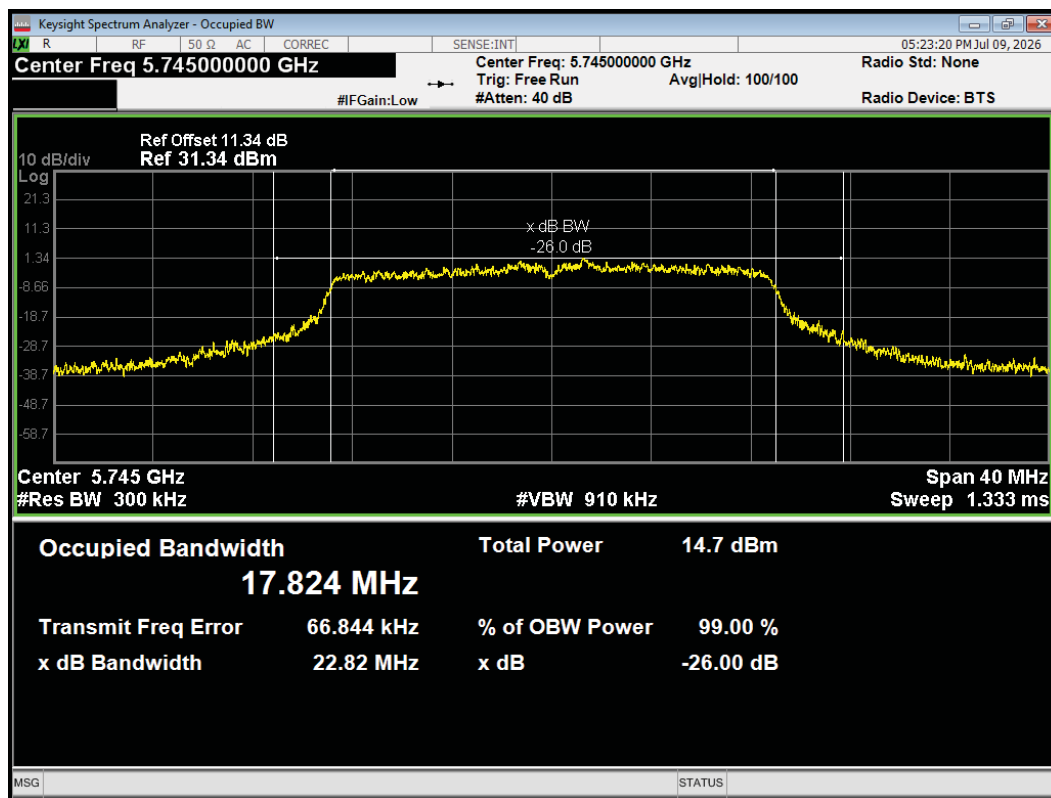
OBW 802.11a 5825MHz



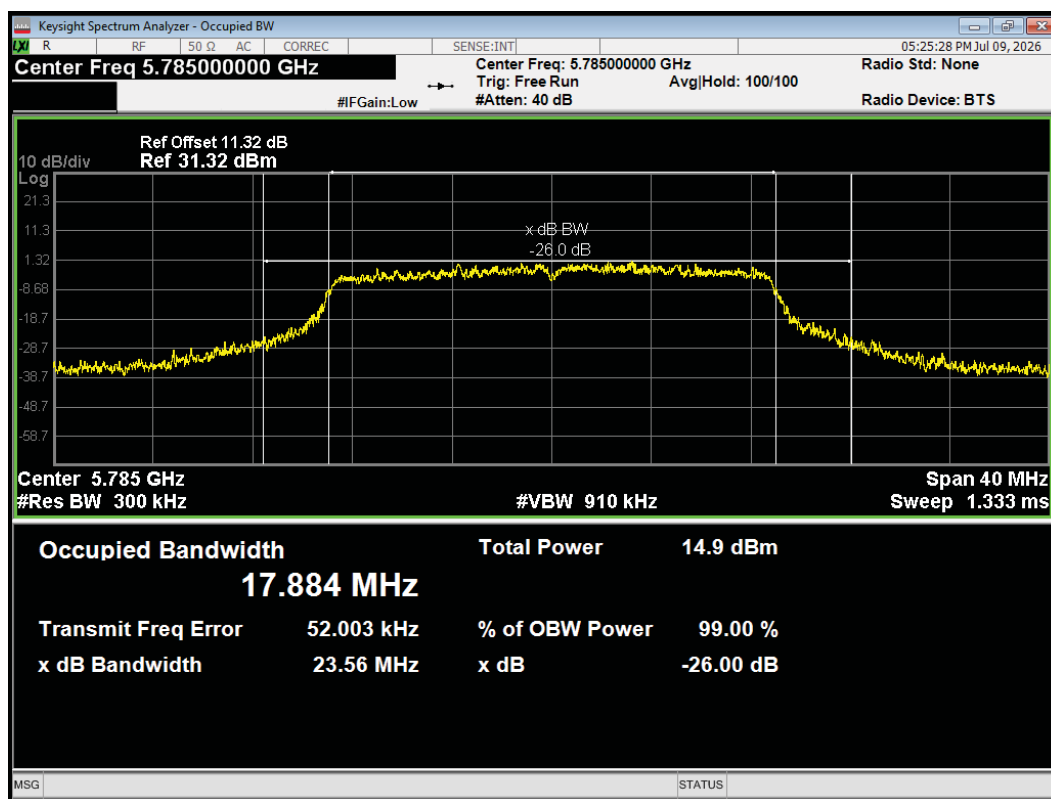
OBW 802.11ac(VHT20) 5720MHz



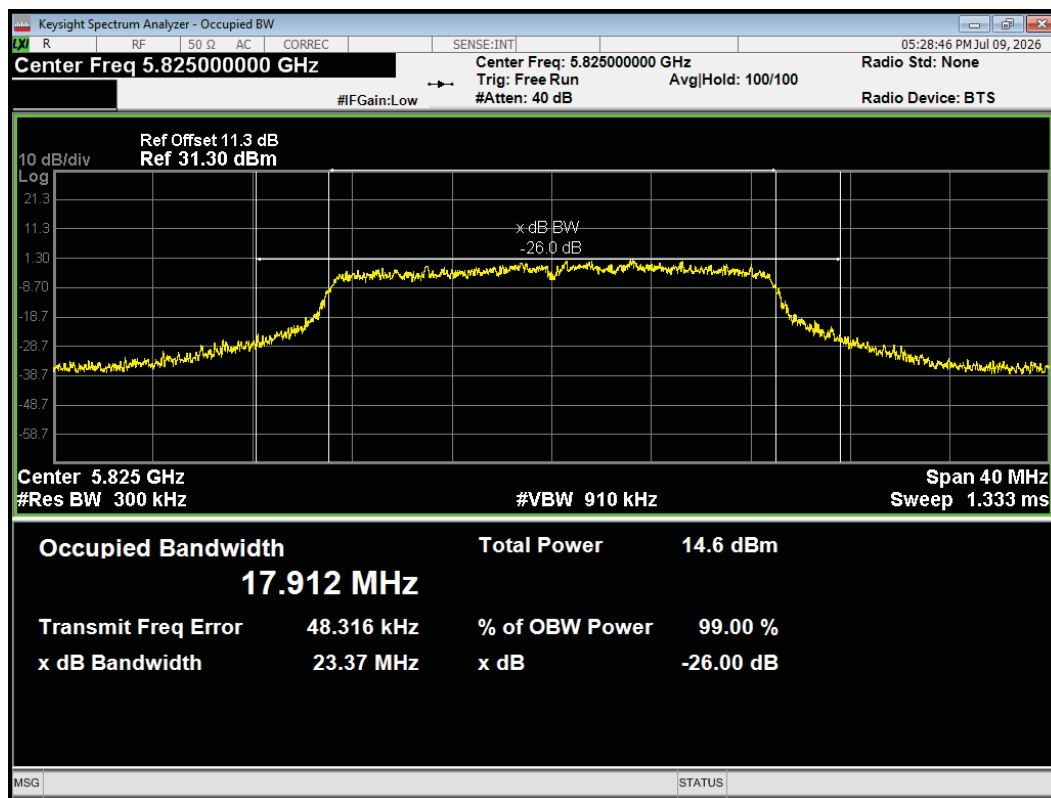
OBW 802.11ac(VHT20) 5745MHz



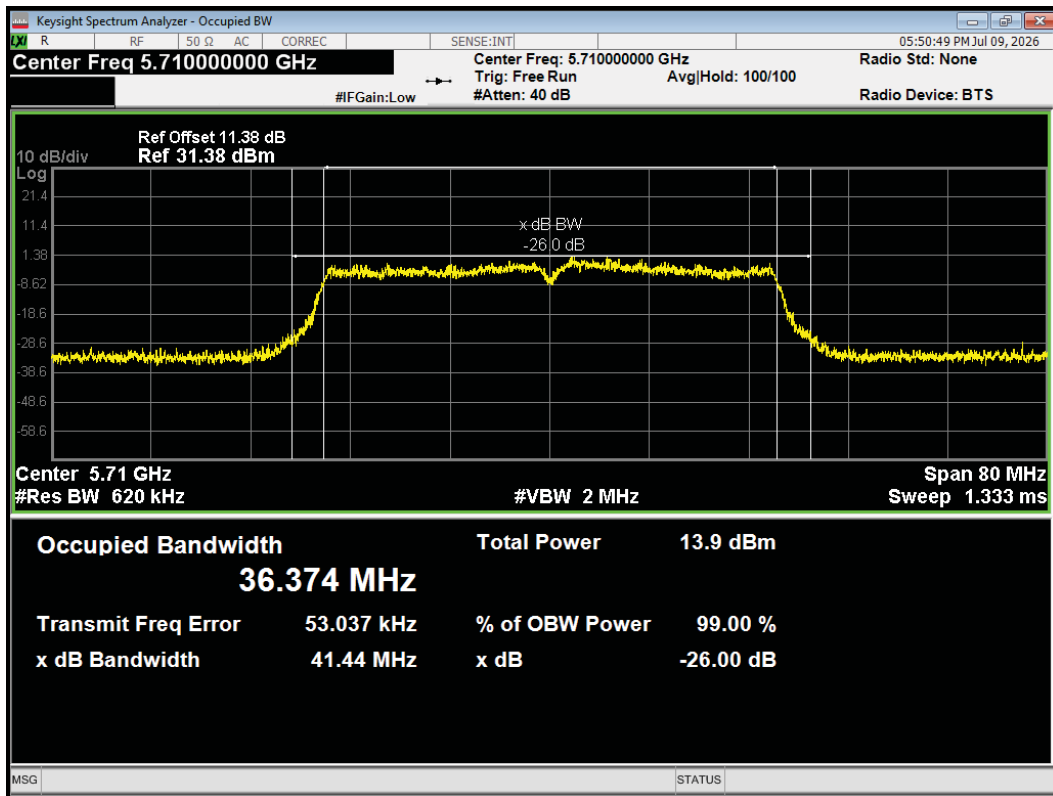
OBW 802.11ac(VHT20) 5785MHz



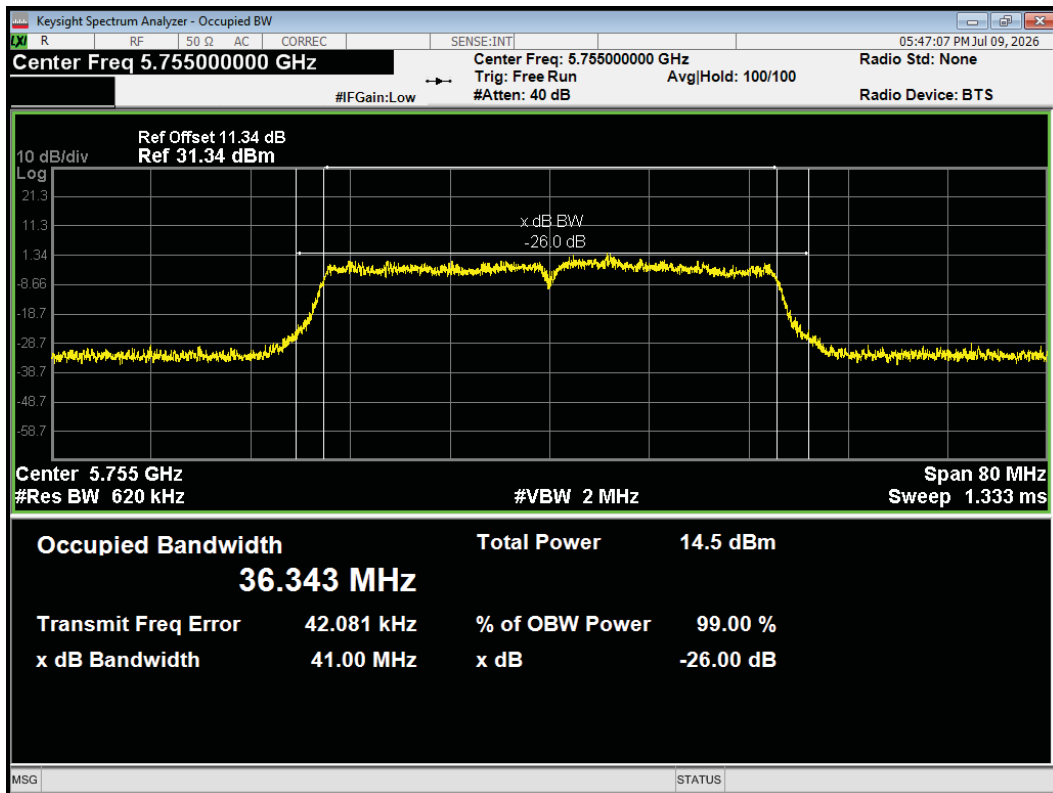
OBW 802.11ac(VHT20) 5825MHz



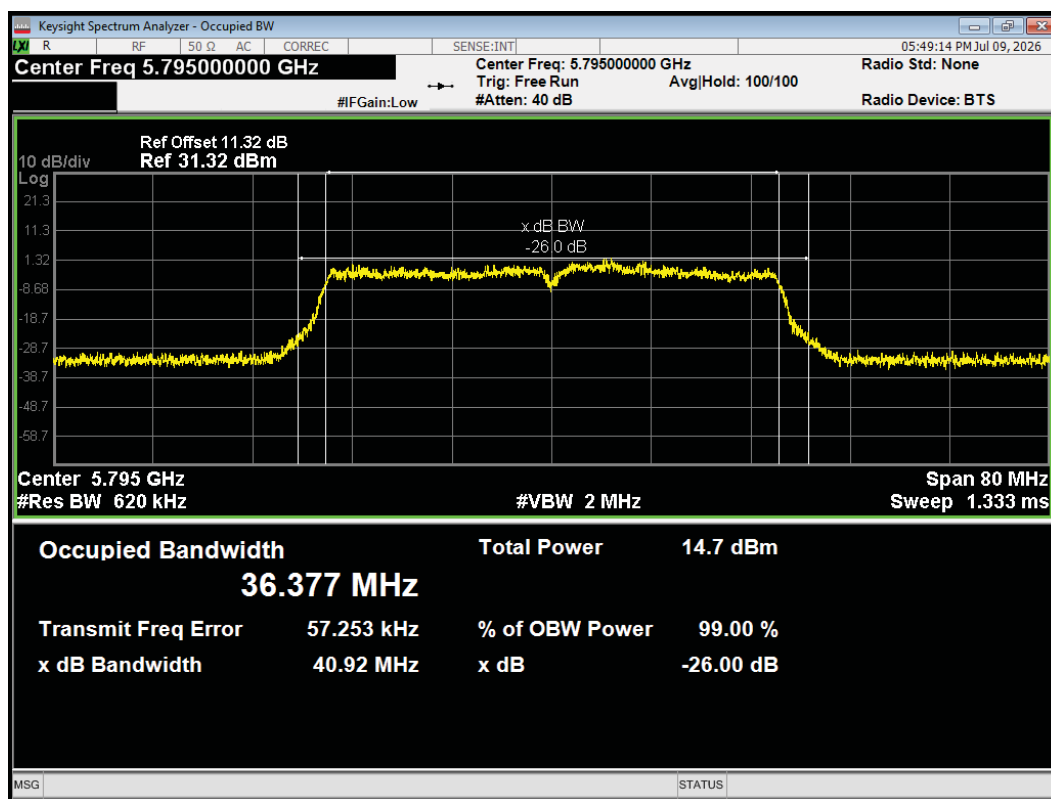
OBW 802.11ac(VHT40) 5710MHz



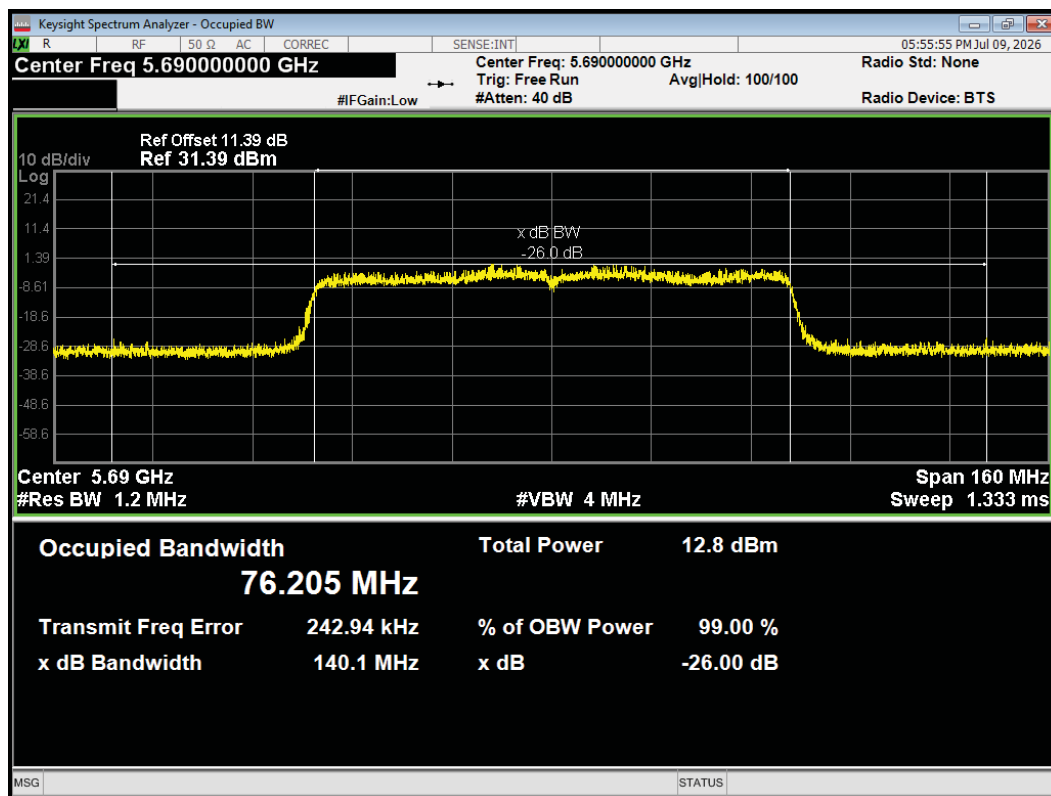
OBW 802.11ac(VHT40) 5755MHz



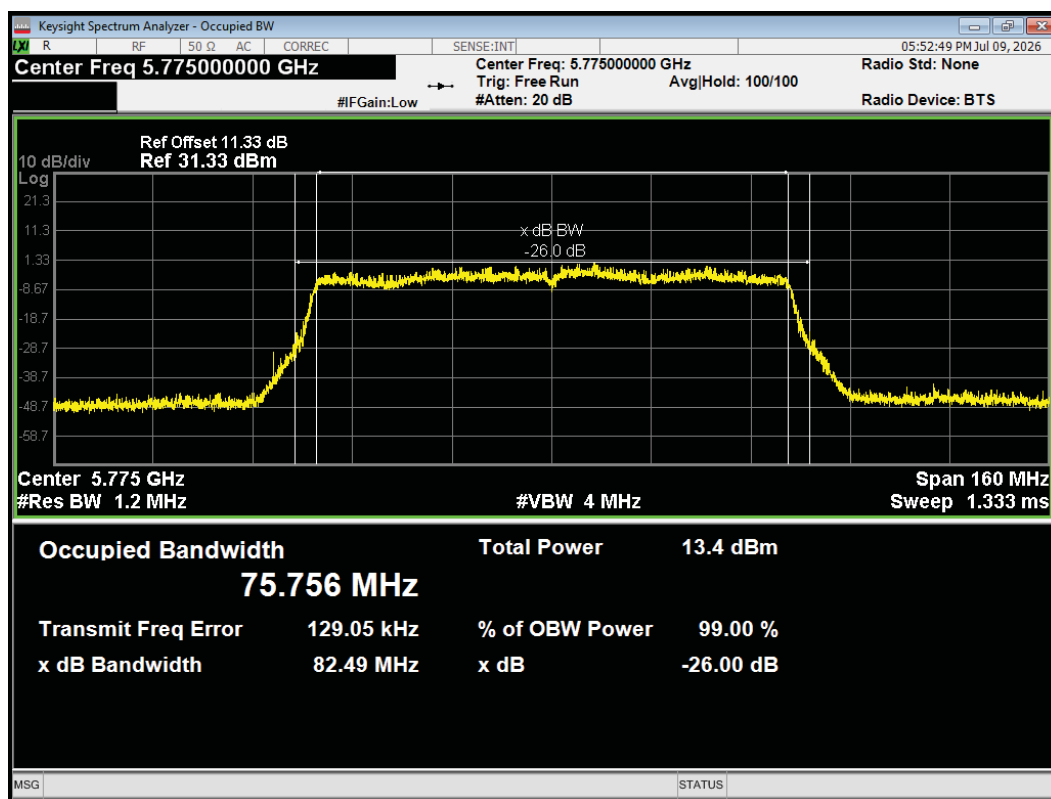
OBW 802.11ac(VHT40) 5795MHz



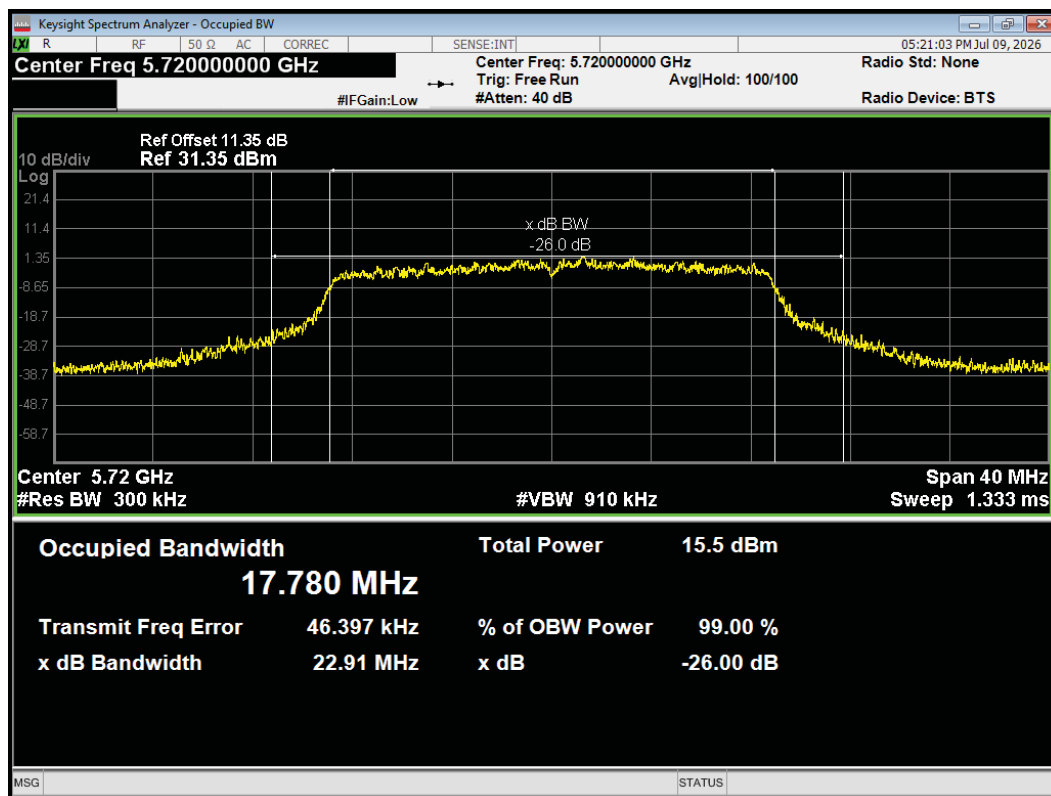
OBW 802.11ac(VHT80) 5690MHz



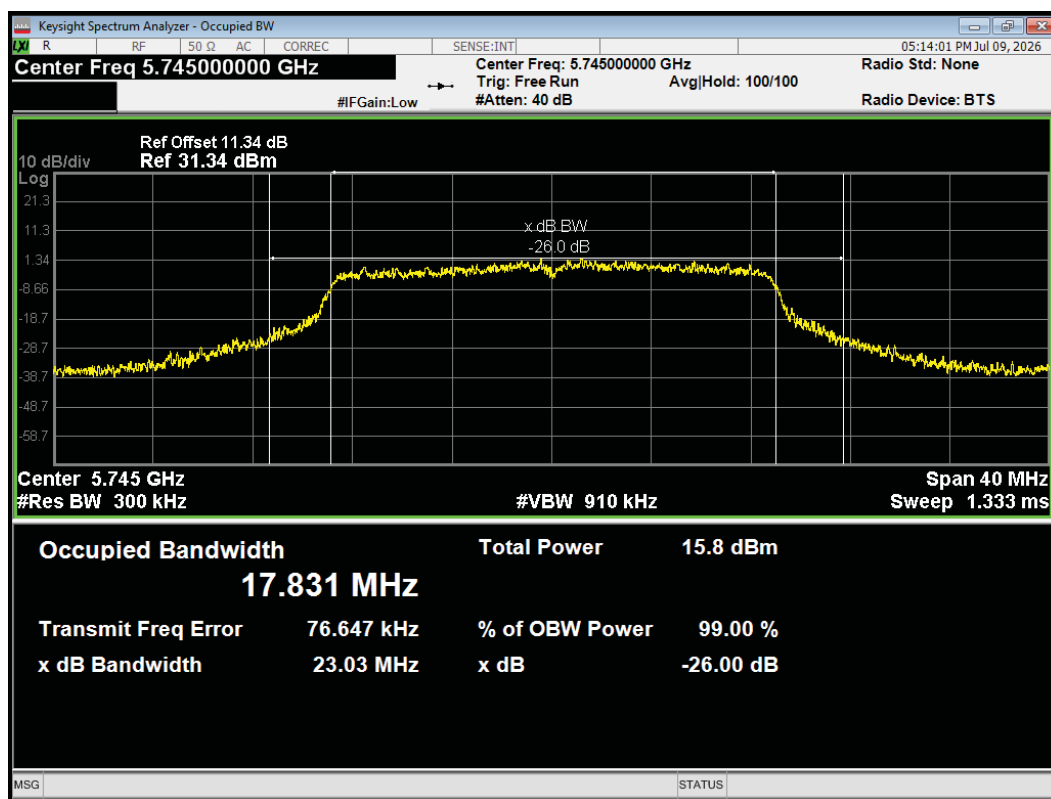
OBW 802.11ac(VHT80) 5775MHz



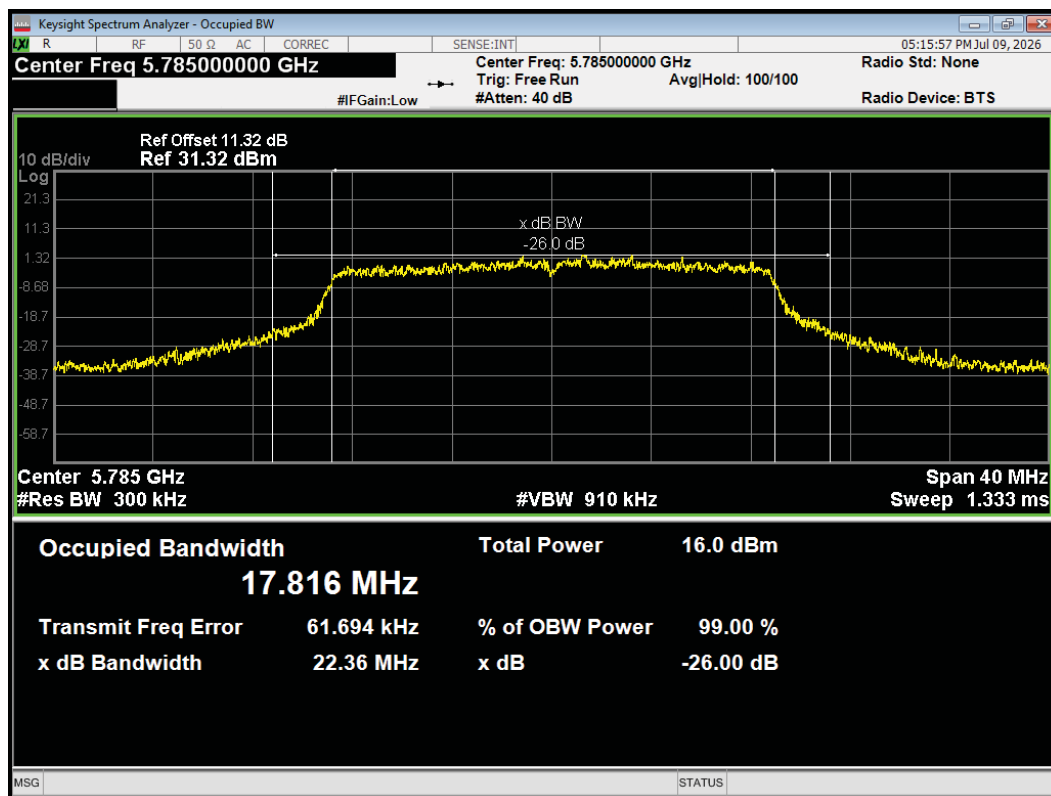
OBW 802.11n(HT20) 5720MHz



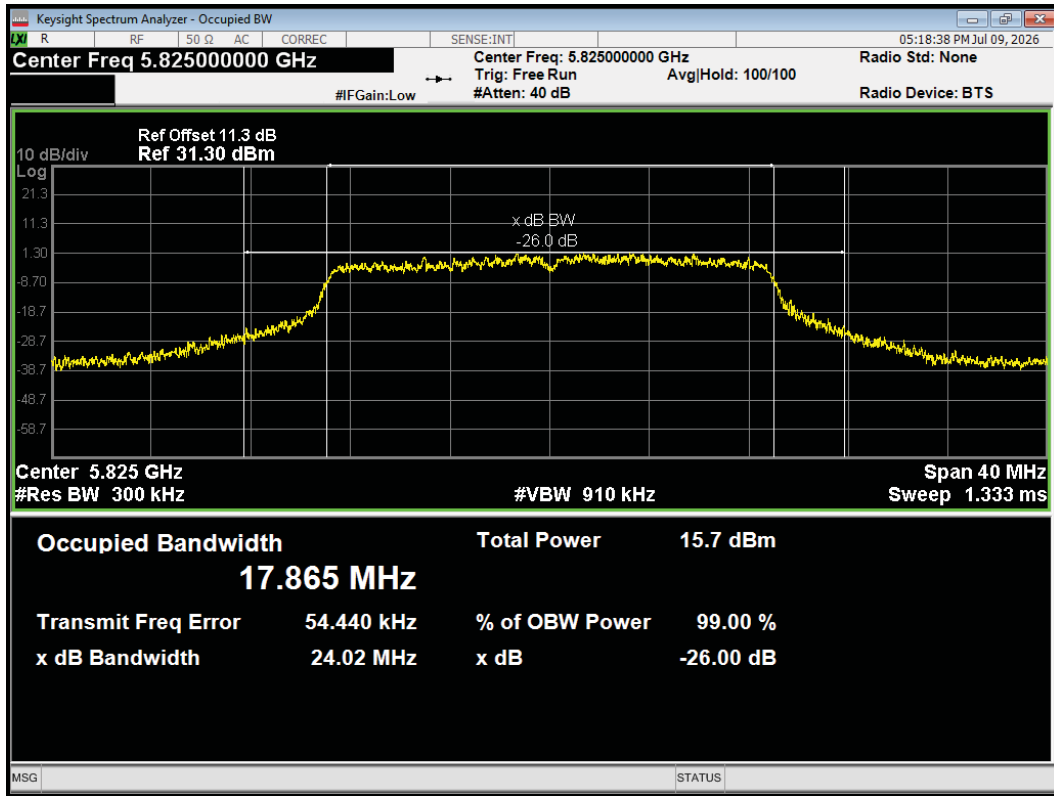
OBW 802.11n(HT20) 5745MHz



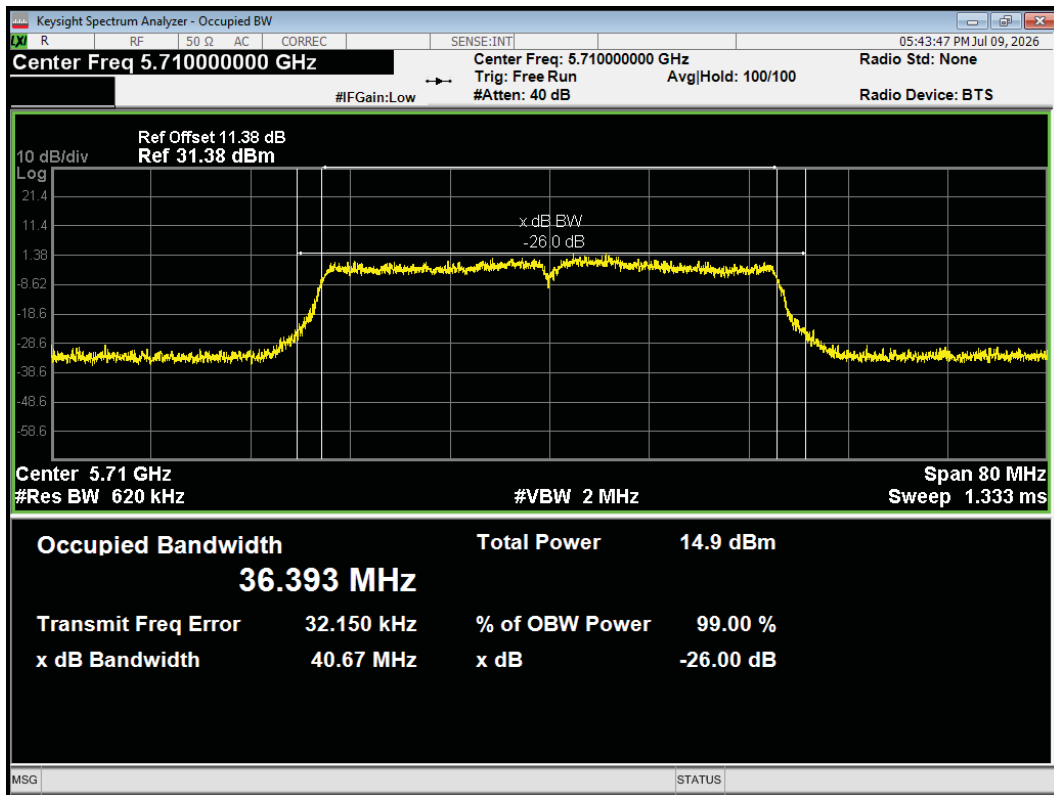
OBW 802.11n(HT20) 5785MHz



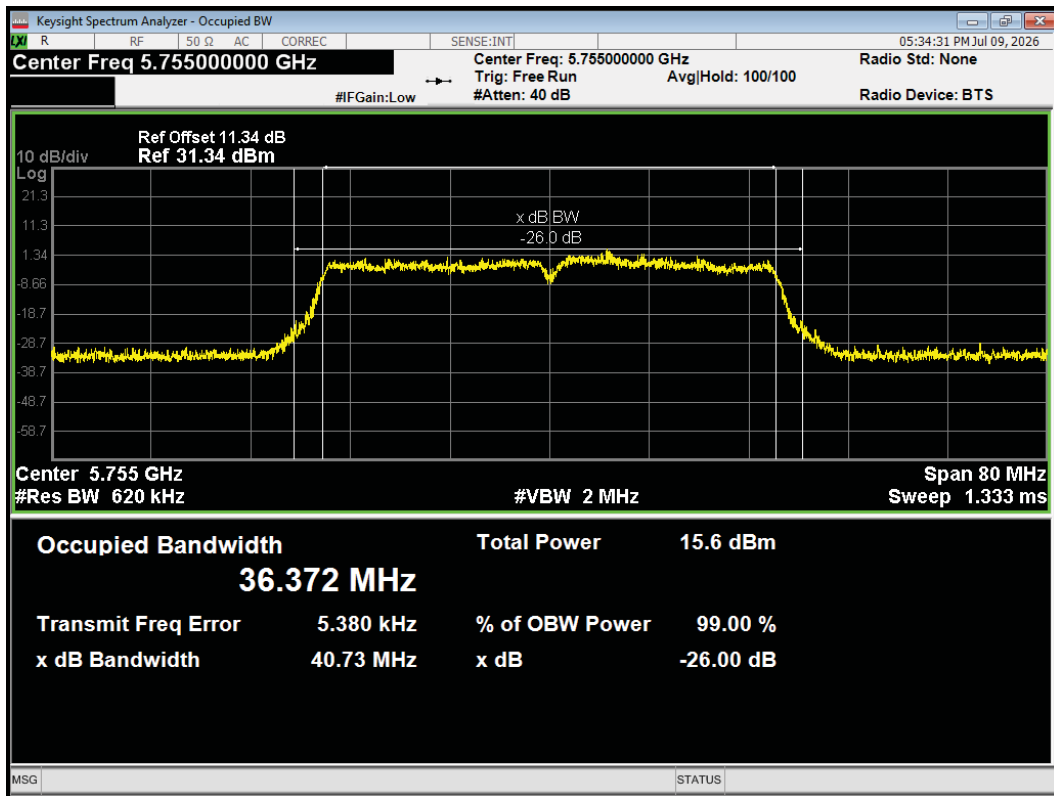
OBW 802.11n(HT20) 5825MHz



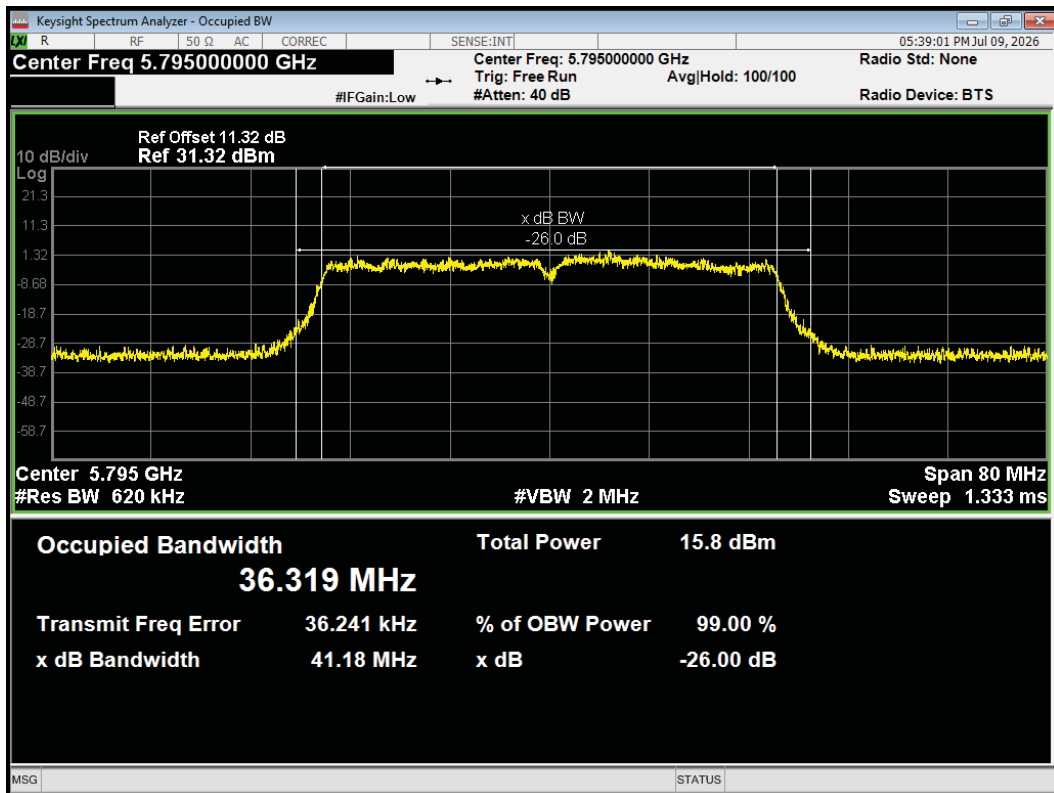
OBW 802.11n(HT40) 5710MHz



OBW 802.11n(HT40) 5755MHz



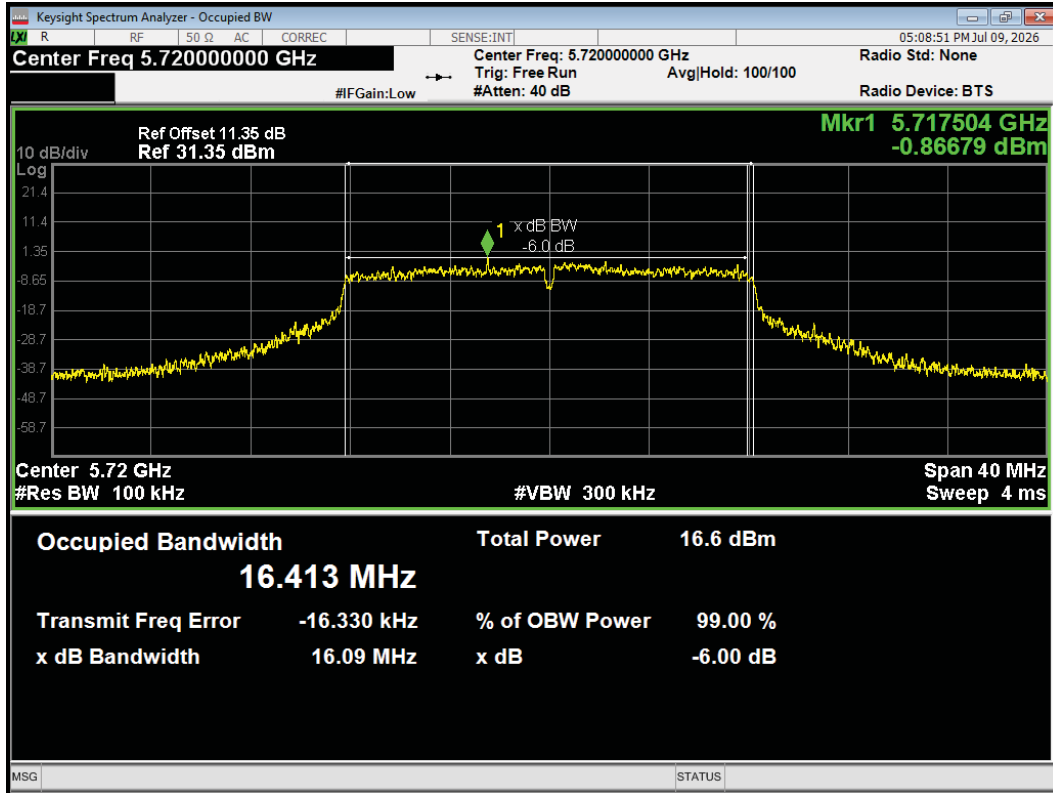
OBW 802.11n(HT40) 5795MHz



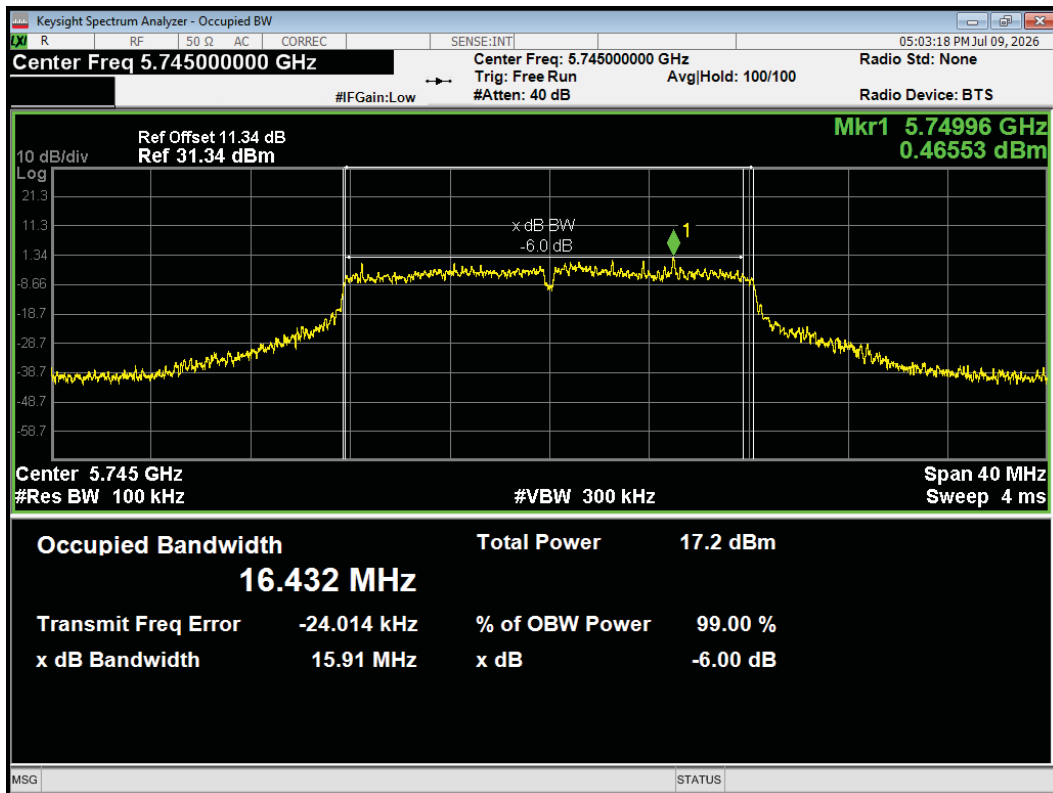
Minimum 6 dB bandwidth

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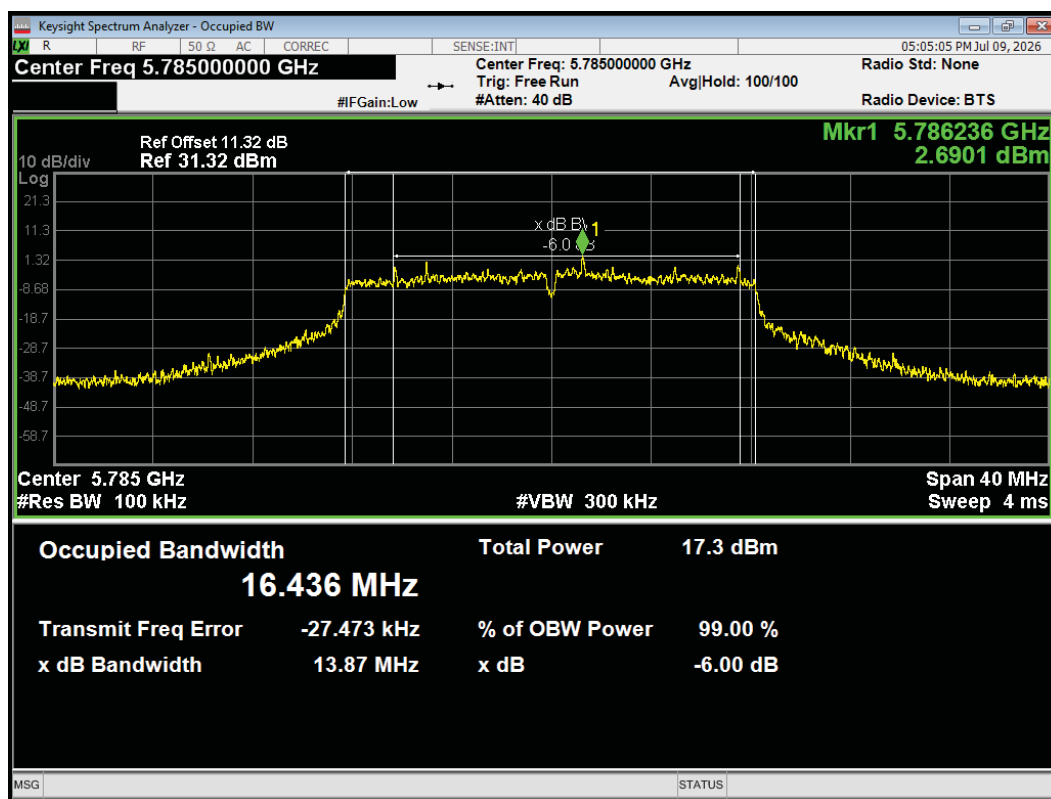
-6dB Bandwidth 802.11a 5720MHz



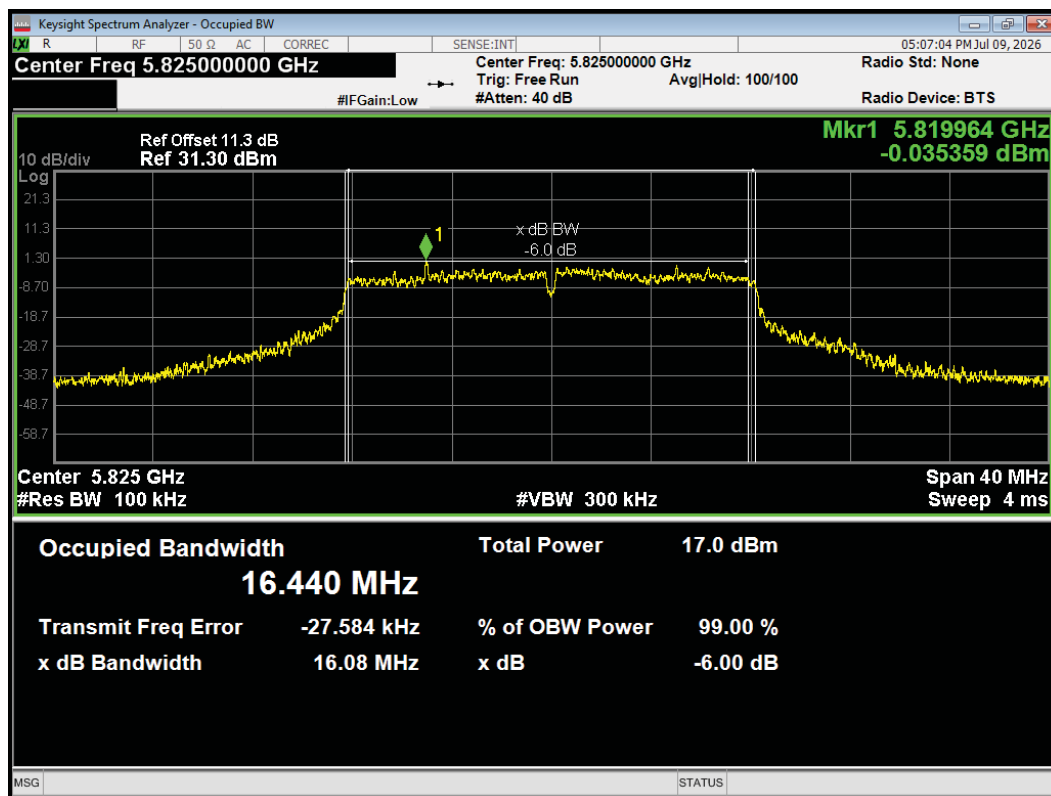
-6dB Bandwidth 802.11a 5745MHz



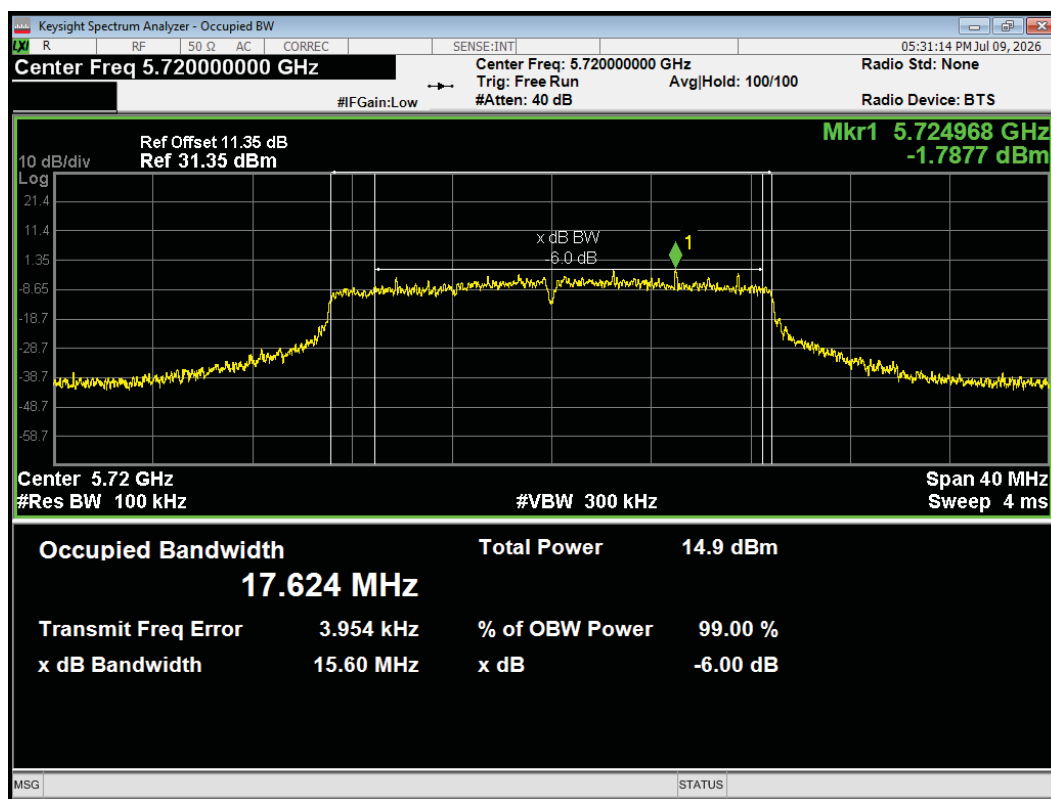
-6dB Bandwidth 802.11a 5785MHz



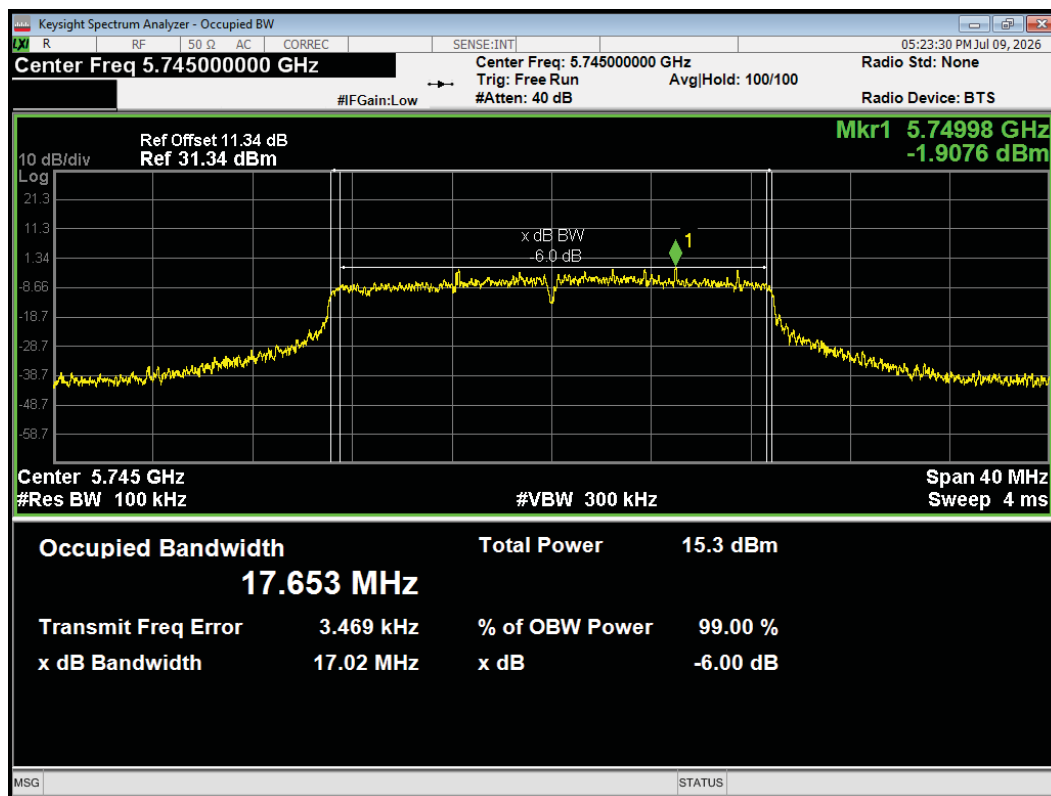
-6dB Bandwidth 802.11a 5825MHz



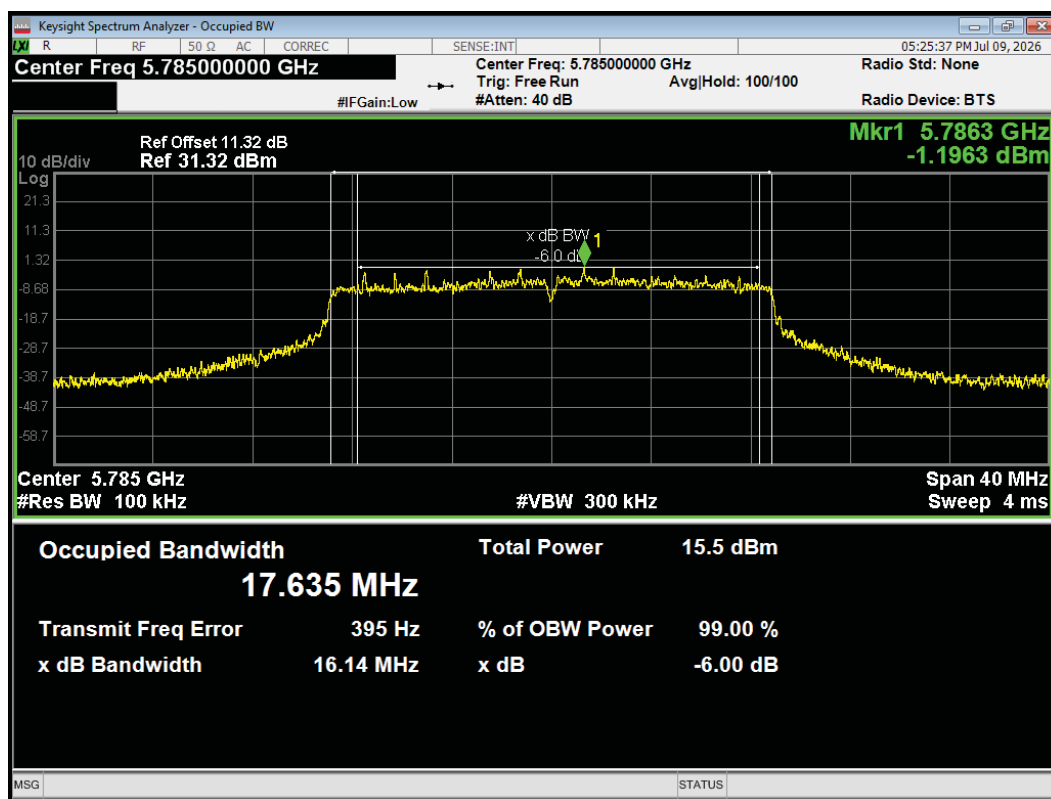
-6dB Bandwidth 802.11ac(VHT20) 5720MHz



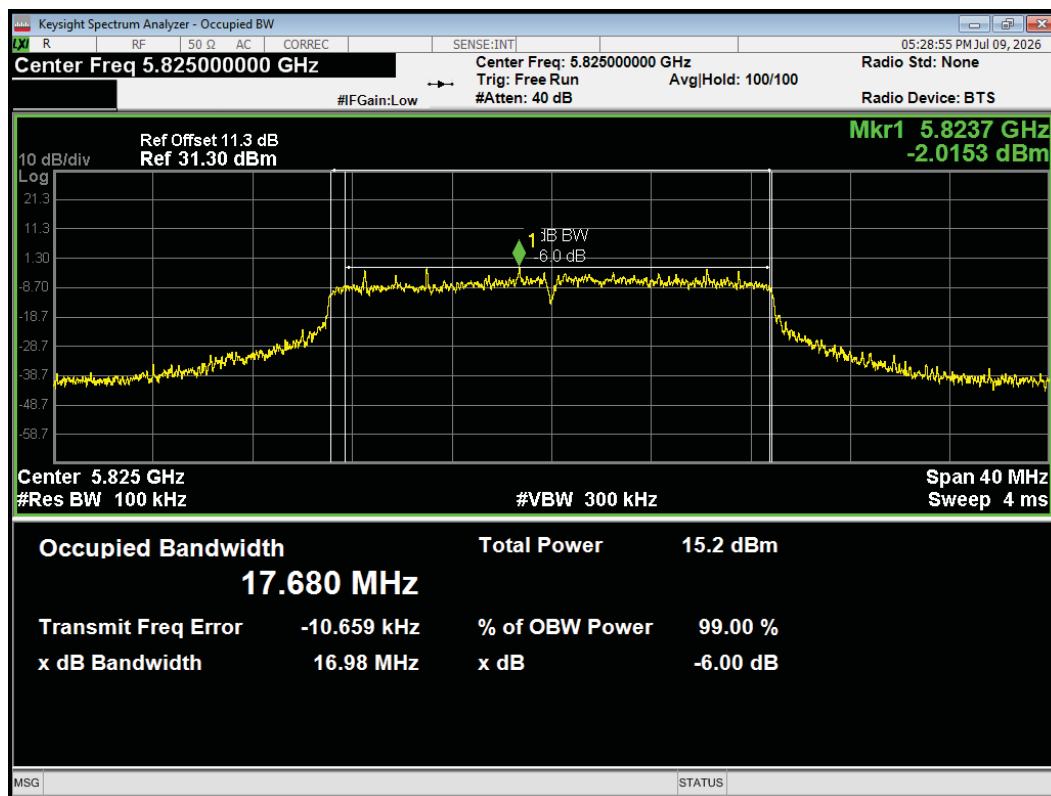
-6dB Bandwidth 802.11ac(VHT20) 5745MHz



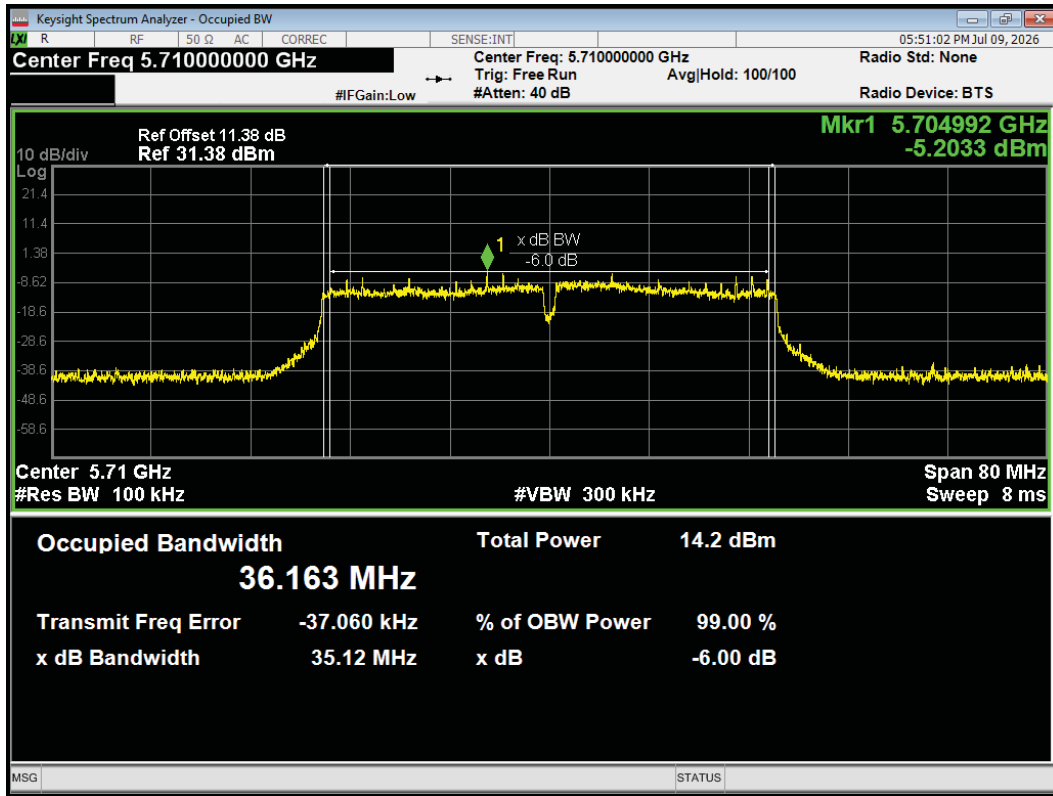
-6dB Bandwidth 802.11ac(VHT20) 5785MHz



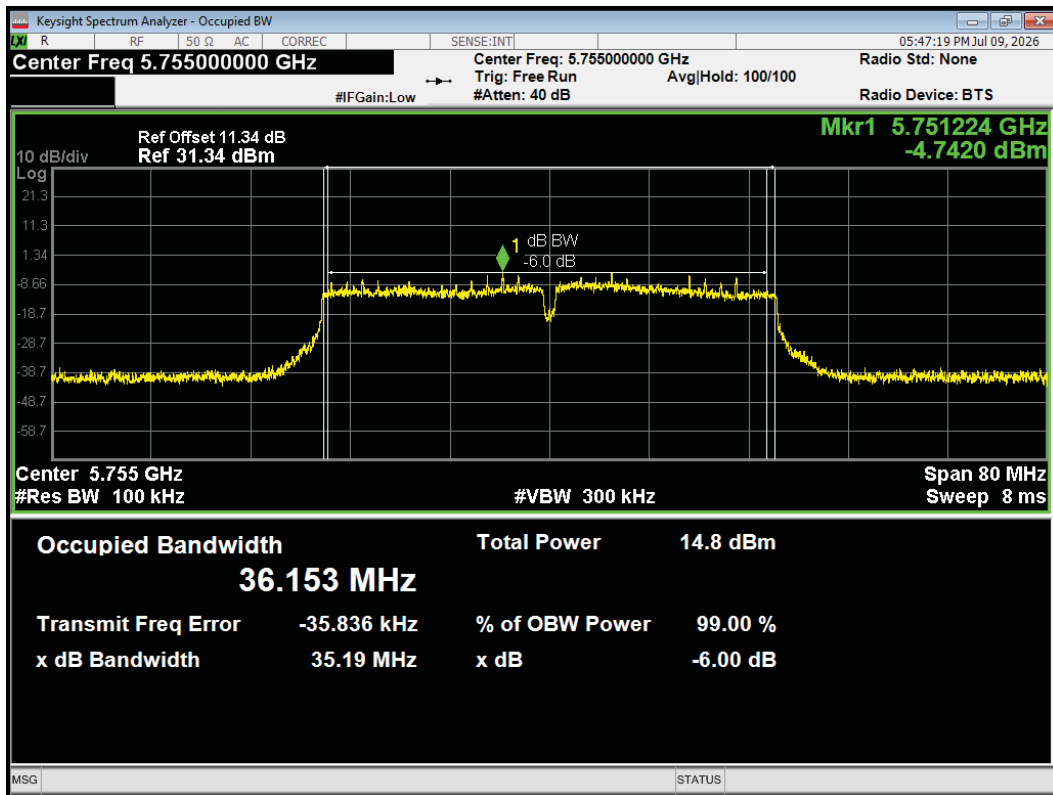
-6dB Bandwidth 802.11ac(VHT20) 5825MHz



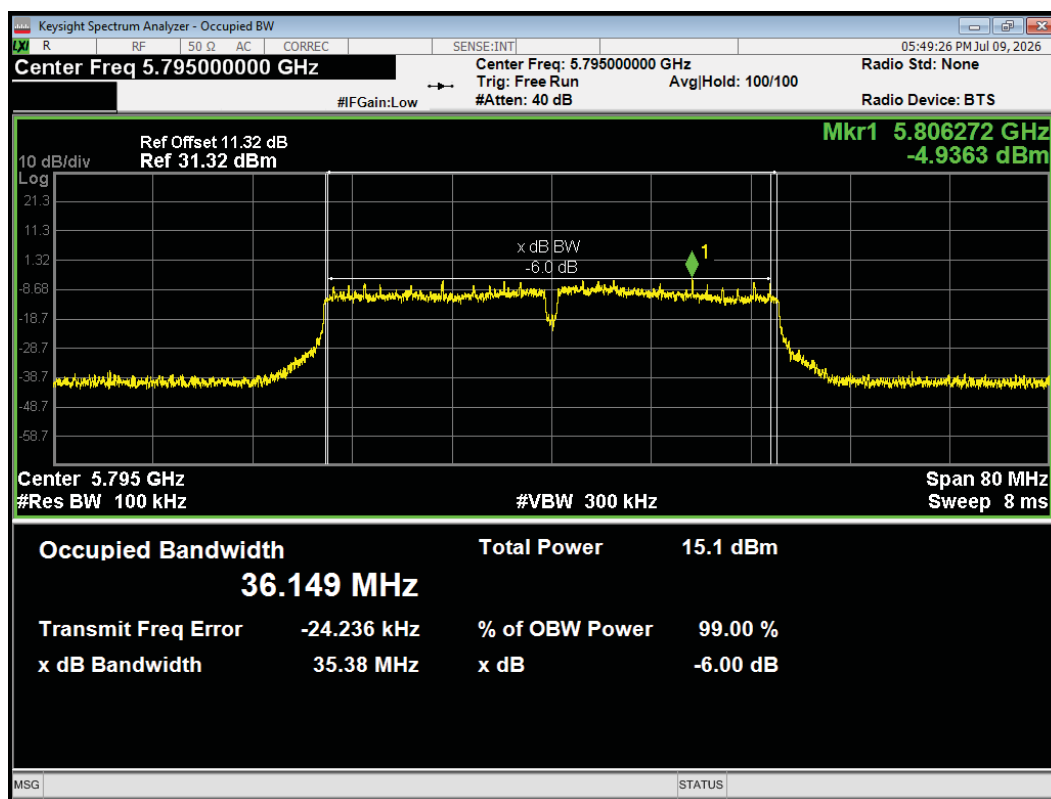
-6dB Bandwidth 802.11ac(VHT40) 5710MHz



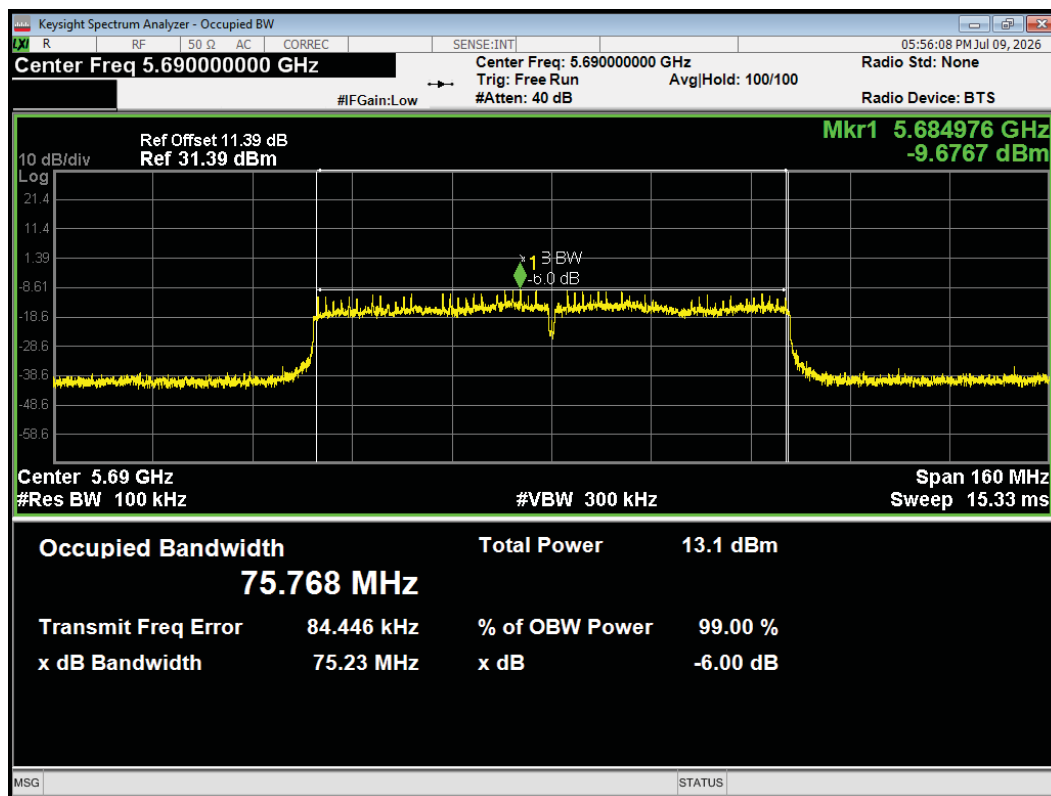
-6dB Bandwidth 802.11ac(VHT40) 5755MHz



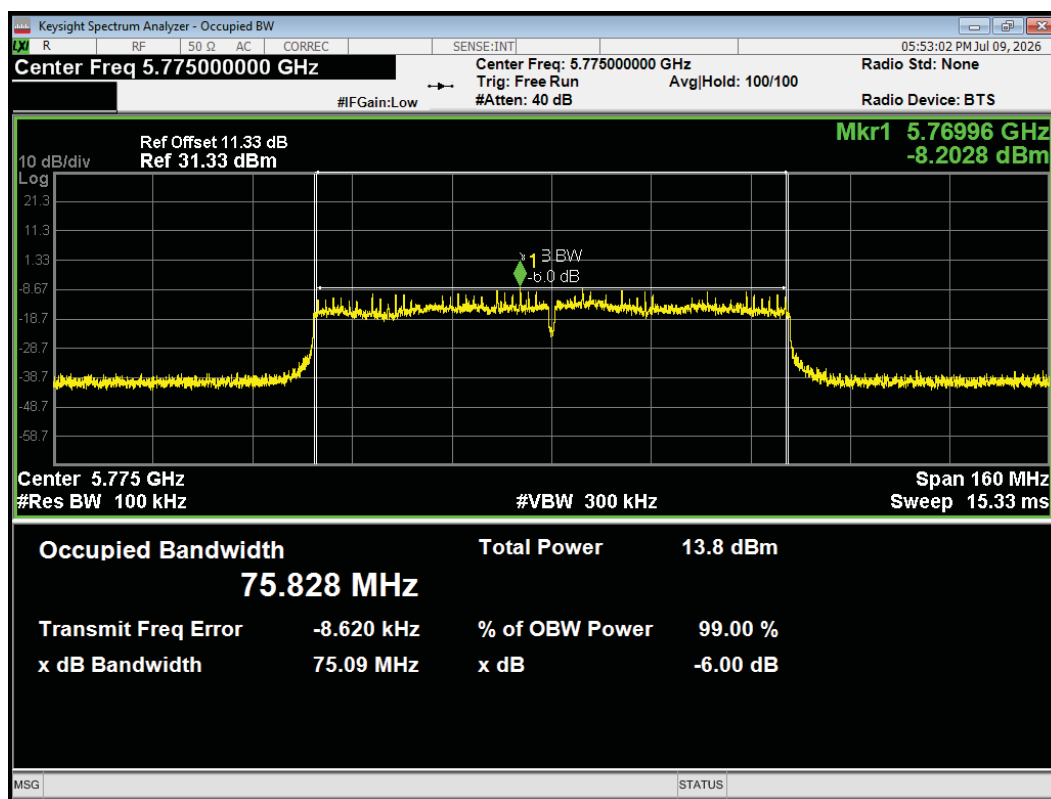
-6dB Bandwidth 802.11ac(VHT40) 5795MHz



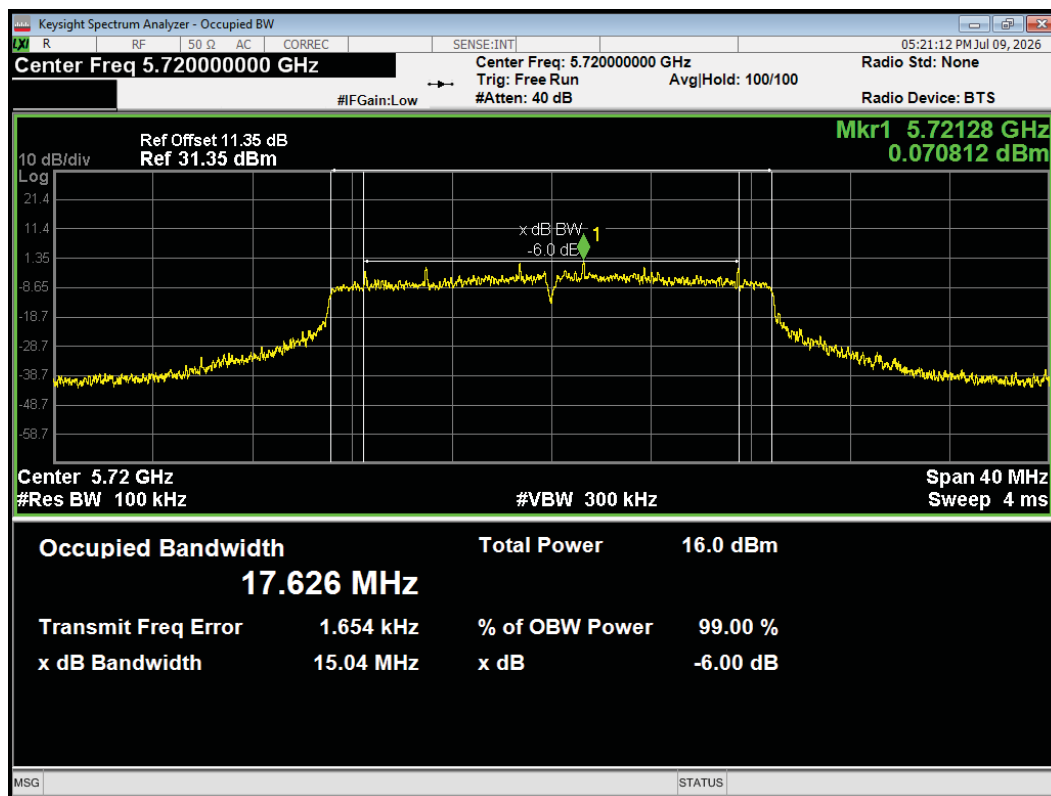
-6dB Bandwidth 802.11ac(VHT80) 5690MHz



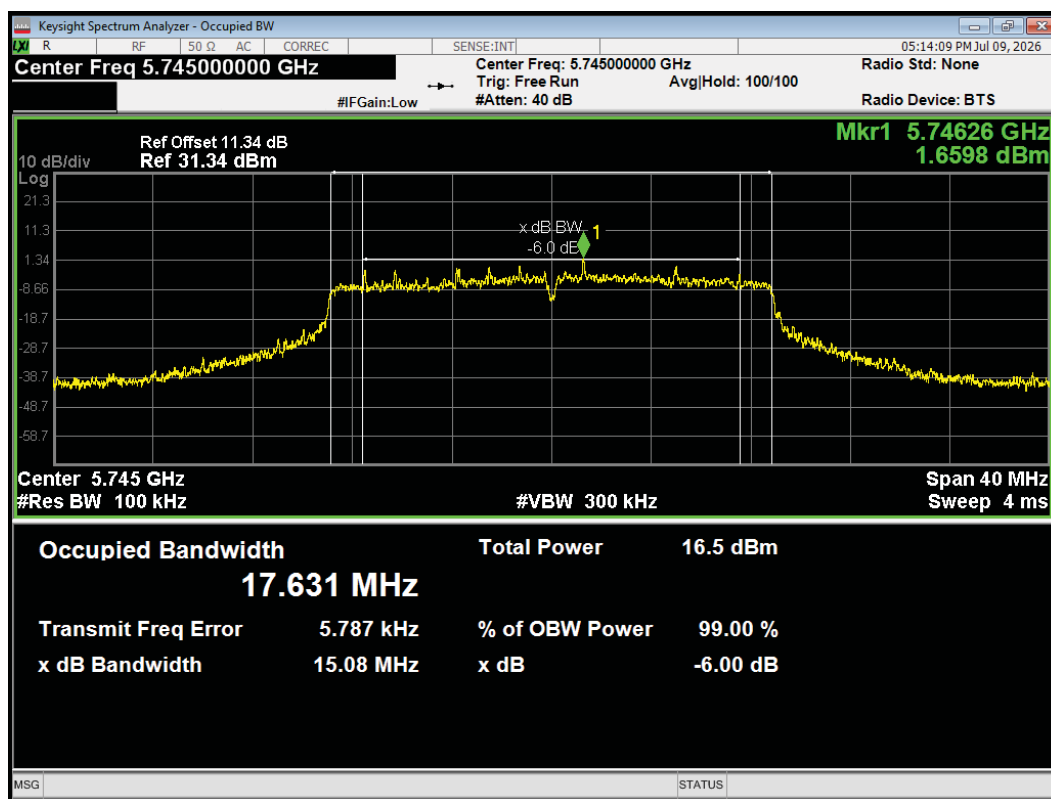
-6dB Bandwidth 802.11ac(VHT80) 5775MHz



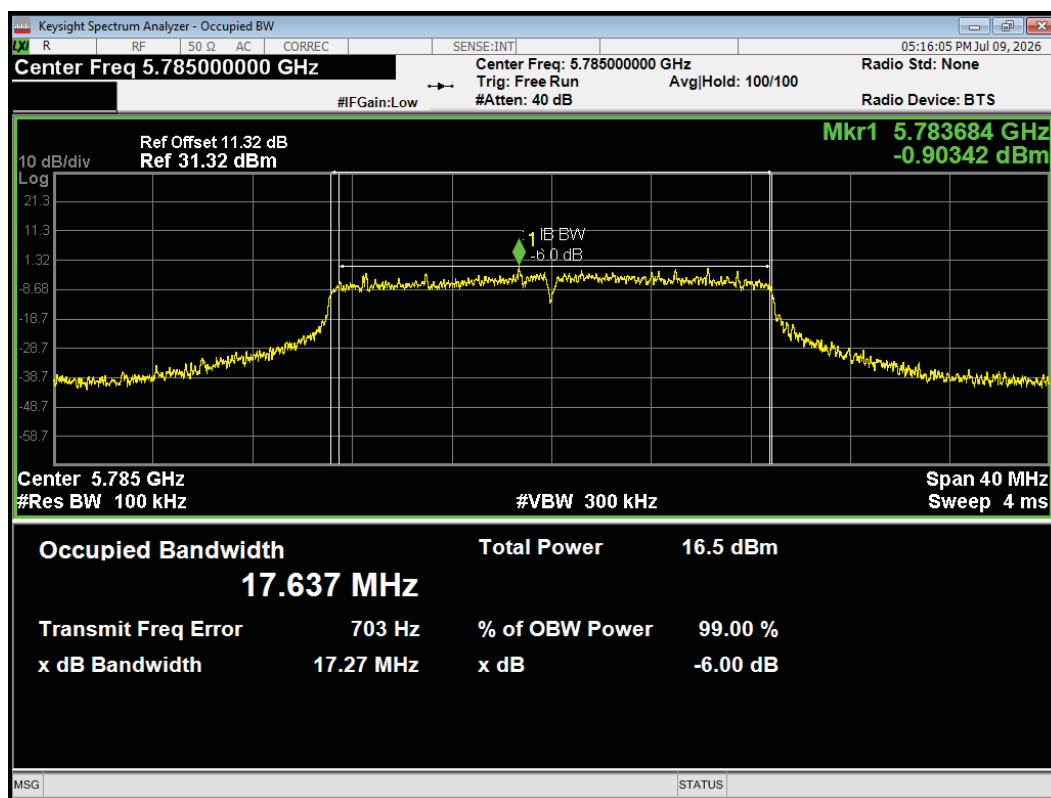
-6dB Bandwidth 802.11n(HT20) 5720MHz



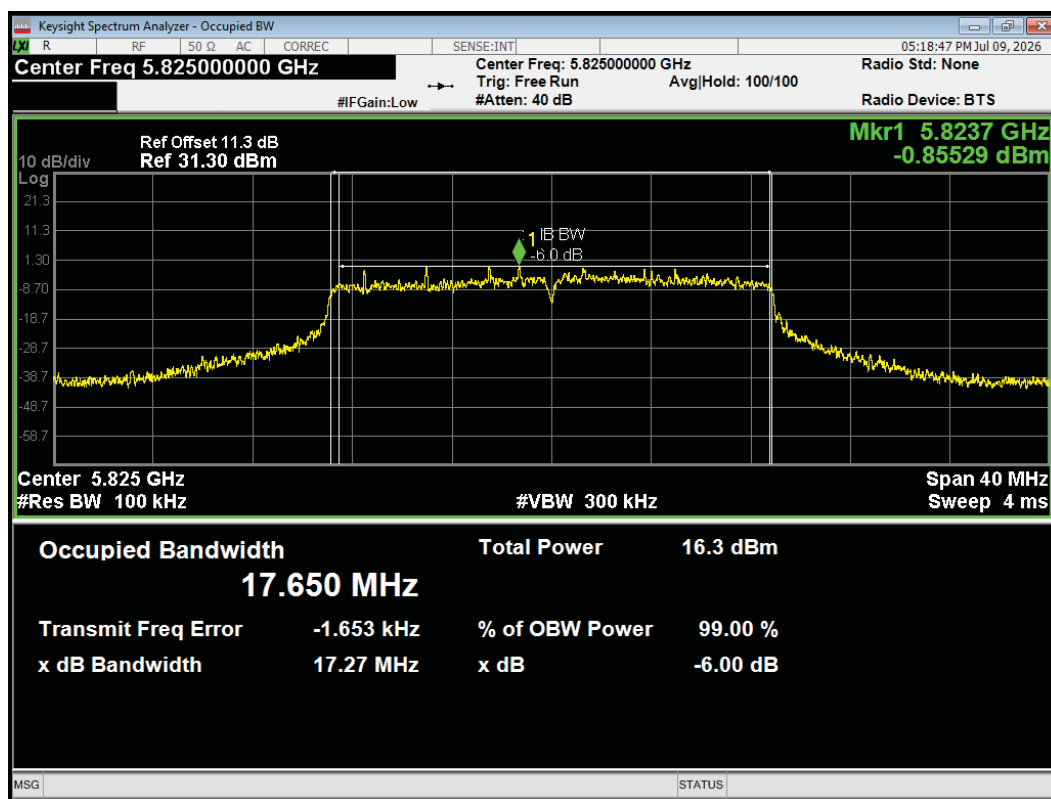
-6dB Bandwidth 802.11n(HT20) 5745MHz



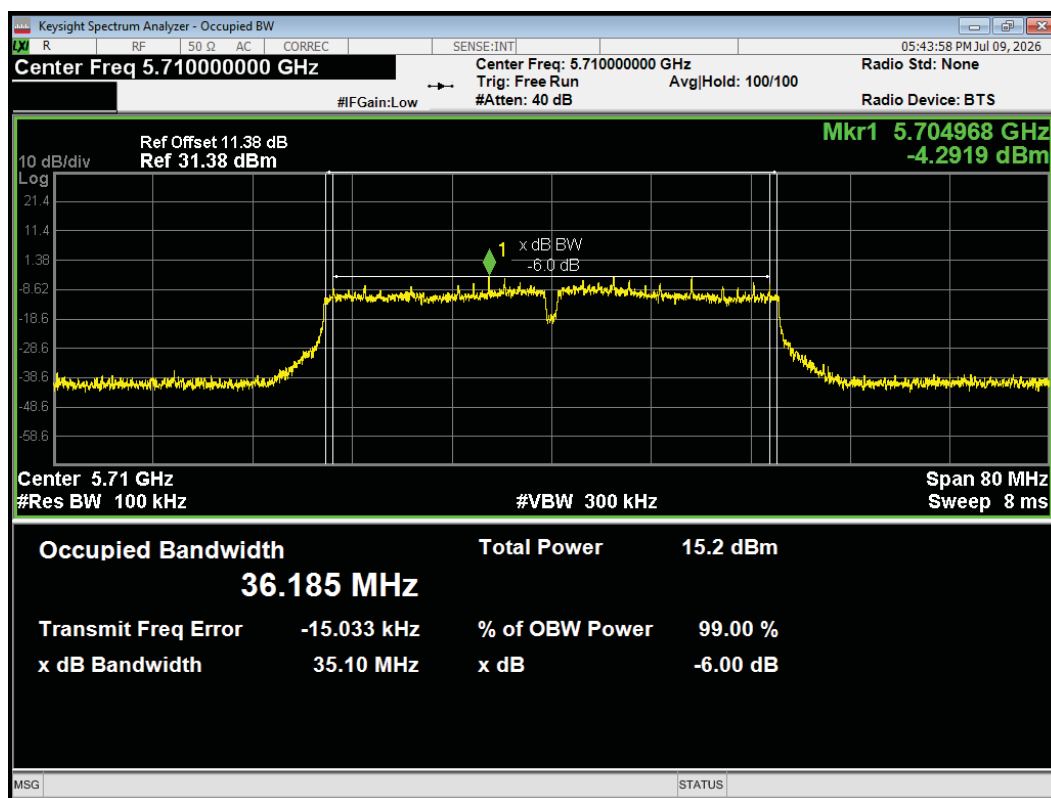
-6dB Bandwidth 802.11n(HT20) 5785MHz



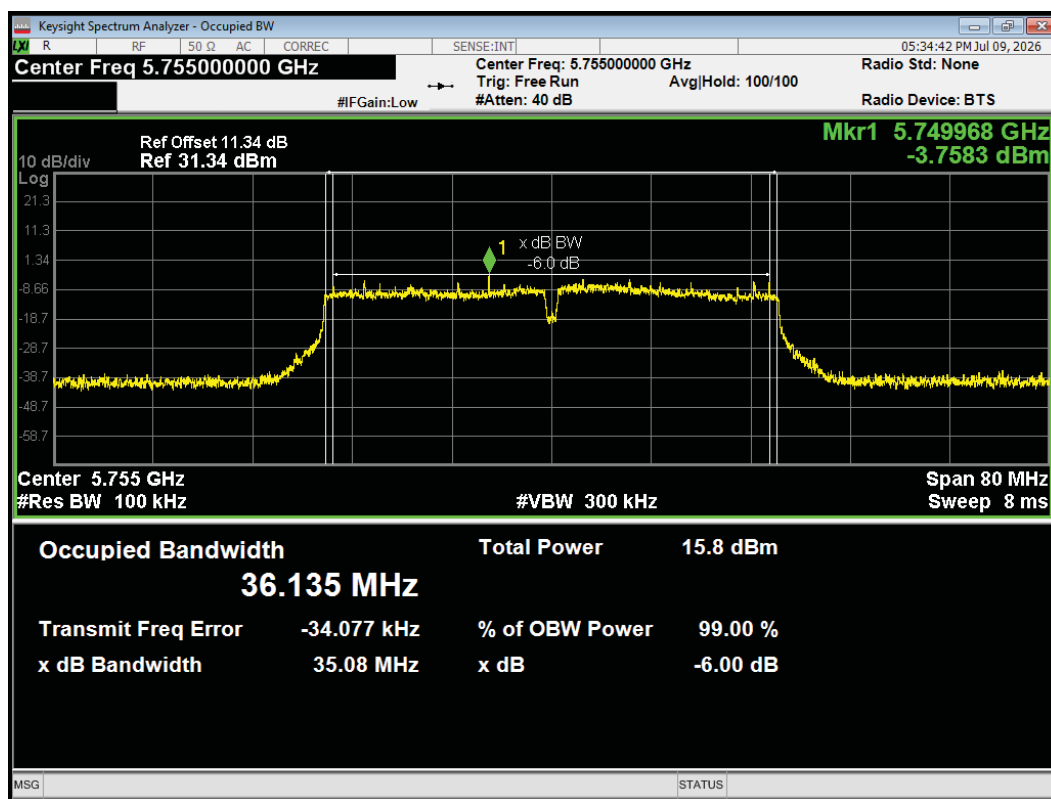
-6dB Bandwidth 802.11n(HT20) 5825MHz



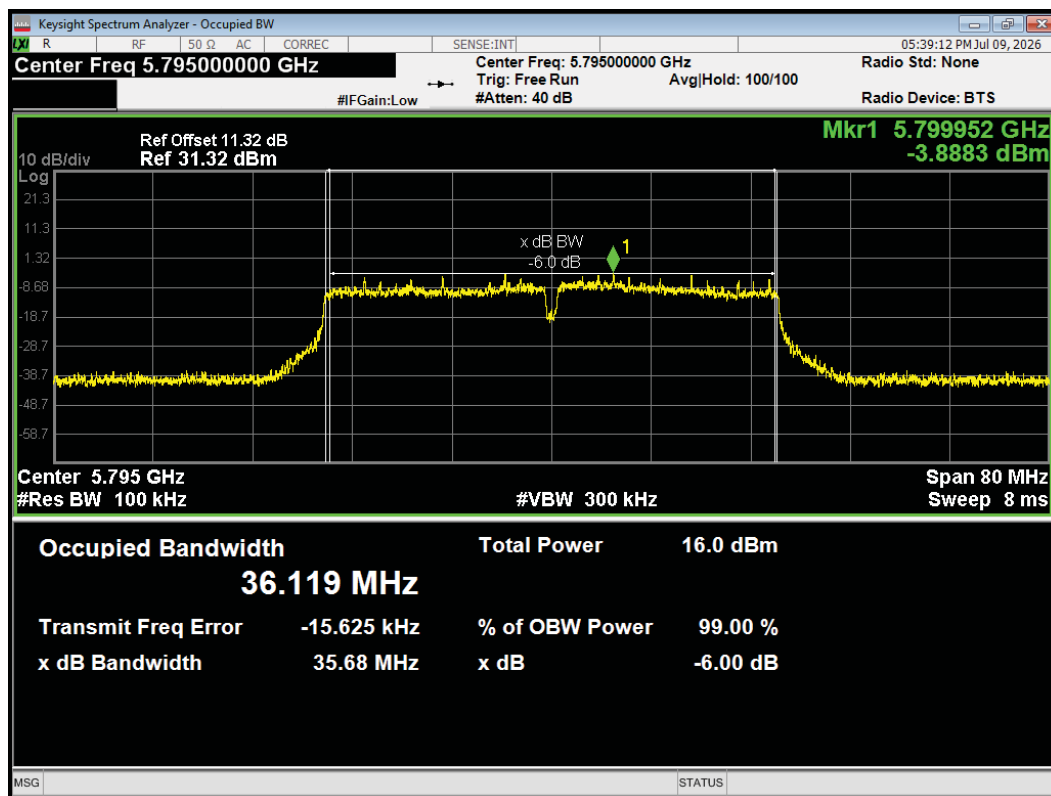
-6dB Bandwidth 802.11n(HT40) 5710MHz



-6dB Bandwidth 802.11n(HT40) 5755MHz



-6dB Bandwidth 802.11n(HT40) 5795MHz



6.2. Average Power Output

Mode	Duty cycle	Duty cycle correction Factor (dB)
802.11a	1.000	0.00
802.11n HT20	0.979	0.09
802.11n HT40	0.960	0.18
802.11ac VHT20	1.000	0.00
802.11ac VHT40	0.961	0.17
802.11ac VHT80	0.921	0.36
Note: when Duty cycle ≥ 0.98 , Duty cycle correction Factor not required.		

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Test Mode	Channel/ Frequency (MHz)	Power Index
802.11a	36/5180	12
	40/5200	12
	48/5240	12
802.11n HT20	36/5180	11
	40/5200	11
	48/5240	11
802.11n HT40	38/5190	10
	46/5230	10
802.11ac VHT20	36/5180	10
	40/5200	10
	48/5240	10
802.11ac VHT40	38/5190	9
	46/5230	9
802.11ac VHT80	42/5210	8

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Test Mode	Channel/ Frequency (MHz)	Power Index
802.11a	52/5260	12
	60/5300	12
	64/5320	12
802.11n HT20	52/5260	11
	60/5300	11
	64/5320	11
802.11n HT40	54/5270	10
	62/5310	10
802.11ac VHT20	52/5260	10
	60/5300	10
	64/5320	10
802.11ac VHT40	54/5270	9
	62/5310	9
802.11ac VHT80	58/5290	8

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Test Mode	Channel/ Frequency (MHz)	Power Index
802.11a	100/5500	12
	116/5580	12
	140/5700	12
	144/5720	12
802.11n HT20	100/5500	11
	116/5580	11
	140/5700	11
	144/5720	11
802.11n HT40	102/5510	10
	110/5550	10
	134/5670	10
	142/5710	10
802.11ac VHT20	100/5500	10
	116/5580	10
	140/5700	10
	144/5720	10
802.11ac VHT40	102/5510	9
	110/5550	9
	134/5670	9
	142/5710	9
802.11ac VHT80	106/5530	8
	138/5690	8

U-NII-3

Test Mode	Channel/ Frequency (MHz)	Power Index
802.11a	144/5720	12
	149/5745	12
	157/5785	12
	165/5825	12
802.11n HT20	144/5720	11
	149/5745	11
	157/5785	11
	165/5825	11
802.11n HT40	142/5710	10
	151/5755	10
	159/5795	10
802.11ac VHT20	144/5720	10
	149/5745	10
	157/5785	10
	165/5825	10
802.11ac VHT40	142/5710	9
	151/5755	9
	159/5795	9
802.11ac VHT80	138/5690	8
	155/5775	8

Test Mode		Channel/ Frequency (MHz)	B=26 dB bandwidth (MHz)	Limit 11 dBm + 10 log B (dBm)	Final Limit (dBm)	
U-NII-2A	802.11a	52/5260	23.27	24.67	24.00	
		60/5300	22.27	24.48	24.00	
		64/5320	22.78	24.58	24.00	
	802.11n HT20	52/5260	22.94	24.60	24.00	
		60/5300	23.26	24.67	24.00	
		64/5320	23.54	24.72	24.00	
	802.11n HT40	54/5270	41.34	27.16	24.00	
		62/5310	40.57	27.08	24.00	
	802.11ac VHT20	52/5260	23.88	24.78	24.00	
		60/5300	23.15	24.65	24.00	
		64/5320	24.06	24.81	24.00	
	802.11ac VHT40	54/5270	40.96	27.12	24.00	
		62/5310	41.29	27.16	24.00	
802.11ac VHT80	58/5290	85.41	30.31	24.00		
U-NII-2C	802.11a	100/5500	22.76	24.57	24.00	
		116/5580	22.70	24.56	24.00	
		140/5700	22.71	24.56	24.00	
		144/5720	22.26	24.47	24.00	
	802.11n HT20	100/5500	23.14	24.64	24.00	
		116/5580	24.18	24.83	24.00	
		140/5700	23.85	24.78	24.00	
		144/5720	22.61	24.54	24.00	
	802.11n HT40	102/5510	41.38	27.17	24.00	
		110/5550	40.74	27.10	24.00	
		134/5670	41.11	27.14	24.00	
		142/5710	40.73	27.10	24.00	
	802.11ac VHT20	100/5500	23.18	24.65	24.00	
		116/5580	24.02	24.81	24.00	
		140/5700	24.60	24.91	24.00	
		144/5720	22.83	24.59	24.00	
	802.11ac VHT40	102/5510	41.19	27.15	24.00	
		110/5550	41.11	27.14	24.00	
		134/5670	41.36	27.17	24.00	
		142/5710	41.11	27.14	24.00	
	802.11ac VHT80	106/5530	86.00	30.35	24.00	
		138/5690	83.62	30.22	24.00	
	Note: 250mW=24dBm					

MIMO

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Test Mode	Channel/ Frequency (MHz)	MIMO Antenna 1		MIMO Antenna 1		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11a	36/5180	9.72	9.72	11.08	11.08	13.46	24.00	PASS
	40/5200	9.87	9.87	11.18	11.18	13.59	24.00	PASS
	48/5240	9.56	9.56	11.08	11.08	13.40	24.00	PASS
802.11n HT20	36/5180	8.49	8.58	10.12	10.21	12.48	24.00	PASS
	40/5200	8.52	8.61	10.01	10.10	12.43	24.00	PASS
	48/5240	8.27	8.36	9.84	9.93	12.22	24.00	PASS
802.11n HT40	38/5190	8.12	8.30	9.57	9.75	12.10	24.00	PASS
	46/5230	7.67	7.85	9.03	9.21	11.59	24.00	PASS
802.11ac VHT20	36/5180	8.02	8.02	9.37	9.37	11.76	24.00	PASS
	40/5200	7.65	7.65	9.10	9.10	11.45	24.00	PASS
	48/5240	7.33	7.33	8.77	8.77	11.12	24.00	PASS
802.11ac VHT40	38/5190	7.28	7.45	8.62	8.79	11.18	24.00	PASS
	46/5230	6.57	6.74	8.06	8.23	10.56	24.00	PASS
802.11ac VHT80	42/5210	5.89	6.25	7.07	7.43	9.89	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. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f(ii): If antenna gains are not equal, the user may use either of the following methods to calculate Directional gain, provided that each transmit antenna is driven by only one spatial stream:

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

Directional gain = $G_{\text{ANT MAX}} + \text{Array Gain}$,

For power measurements on IEEE 802.11 devices,

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

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

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

So Directional gain = $G_{\text{ANT}} + \text{Array Gain} = 3 + 0 = 3 \text{ dB} < 6 \text{ dB}$. So the power limit is 24dBm.

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Test Mode	Channel/ Frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11a	52/5260	10.28	10.28	11.06	11.06	13.70	24.00	PASS
	60/5300	10.91	10.91	10.81	10.81	13.87	24.00	PASS
	64/5320	11.26	11.26	10.94	10.94	14.12	24.00	PASS
802.11n HT20	52/5260	9.09	9.18	9.90	9.99	12.61	24.00	PASS
	60/5300	9.71	9.80	9.68	9.77	12.80	24.00	PASS
	64/5320	10.18	10.27	9.74	9.83	13.06	24.00	PASS
802.11n HT40	54/5270	8.42	8.60	9.18	9.36	12.01	24.00	PASS
	62/5310	9.15	9.33	9.01	9.19	12.27	24.00	PASS
802.11ac VHT20	52/5260	8.05	8.05	8.85	8.85	11.48	24.00	PASS
	60/5300	8.80	8.80	8.55	8.55	11.68	24.00	PASS
	64/5320	9.34	9.34	8.74	8.74	12.06	24.00	PASS
802.11ac VHT40	54/5270	7.77	7.94	8.21	8.38	11.18	24.00	PASS
	62/5310	8.15	8.32	8.08	8.25	11.30	24.00	PASS
802.11ac VHT80	58/5290	6.59	6.95	6.76	7.12	10.05	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. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f(ii): If antenna gains are not equal, the user may use either of the following methods to calculate Directional gain, provided that each transmit antenna is driven by only one spatial stream: Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

Directional gain = $G_{\text{ANT MAX}} + \text{Array Gain}$,

For power measurements on IEEE 802.11 devices,

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

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

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

So Directional gain = $G_{\text{ANT}} + \text{Array Gain} = 2.94 + 0 = 2.94 \text{ dBi} < 6 \text{ dBi}$. So the power limit is 24dBm.

U-NII-2C

Test Mode	Channel/ Frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11a	100/5500	10.72	10.72	10.43	10.43	13.59	24.00	PASS
	116/5580	10.05	10.05	10.76	10.76	13.43	24.00	PASS
	140/5700	10.04	10.04	10.94	10.94	13.52	24.00	PASS
	144/5720	9.53	9.53	9.76	9.76	12.65	24.00	PASS
802.11n HT20	100/5500	9.66	9.75	9.30	9.39	12.58	24.00	PASS
	116/5580	8.72	8.81	9.61	9.70	12.29	24.00	PASS
	140/5700	8.84	8.93	9.50	9.59	12.28	24.00	PASS
	144/5720	9.45	9.54	9.63	9.72	12.64	24.00	PASS
802.11n HT40	102/5510	8.65	8.83	8.58	8.76	11.81	24.00	PASS
	110/5550	8.29	8.47	8.93	9.11	11.81	24.00	PASS
	134/5670	8.33	8.51	9.17	9.35	11.96	24.00	PASS
	142/5710	8.06	8.24	8.80	8.98	11.63	24.00	PASS
802.11ac VHT20	100/5500	8.49	8.49	8.15	8.15	11.33	24.00	PASS
	116/5580	7.63	7.63	8.70	8.70	11.21	24.00	PASS
	140/5700	8.25	8.25	8.93	8.93	11.61	24.00	PASS
	144/5720	7.45	7.45	7.75	7.75	10.61	24.00	PASS
802.11ac VHT40	102/5510	7.80	7.97	7.69	7.86	10.92	24.00	PASS
	110/5550	7.47	7.64	7.80	7.97	10.82	24.00	PASS
	134/5670	7.43	7.60	8.26	8.43	11.05	24.00	PASS
	142/5710	7.14	7.31	7.76	7.93	10.64	24.00	PASS
802.11ac VHT80	106/5530	6.04	6.40	6.18	6.54	9.48	24.00	PASS
	138/5690	5.58	5.94	6.50	6.86	9.44	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. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f(ii): If antenna gains are not equal, the user may use either of the following methods to calculate Directional gain, provided that each transmit antenna is driven by only one spatial stream: Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

Directional gain = $G_{\text{ANT MAX}} + \text{Array Gain}$,

For power measurements on IEEE 802.11 devices,

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

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

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

So Directional gain = $G_{\text{ANT}} + \text{Array Gain} = 2.53 + 0 = 2.53 \text{ dBi} < 6 \text{ dBi}$. So the power limit is 24dBm.

U-NII-3

Test Mode	Channel/ Frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11a	144/5720	3.17	3.17	3.47	3.47	6.34	30.00	PASS
	149/5745	10.92	10.92	10.89	10.89	13.91	30.00	PASS
	157/5785	11.02	11.02	10.81	10.81	13.92	30.00	PASS
	165/5825	10.92	10.92	10.79	10.79	13.86	30.00	PASS
802.11n HT20	144/5720	2.61	2.70	2.34	2.43	5.57	30.00	PASS
	149/5745	9.94	10.03	9.56	9.65	12.86	30.00	PASS
	157/5785	9.98	10.07	9.52	9.61	12.85	30.00	PASS
	165/5825	9.75	9.84	9.62	9.71	12.79	30.00	PASS
802.11n HT40	142/5710	-2.92	-2.74	-1.86	-1.68	0.83	30.00	PASS
	151/5755	9.07	9.25	8.71	8.89	12.08	30.00	PASS
	159/5795	9.18	9.36	8.62	8.80	12.10	30.00	PASS
802.11ac VHT20	144/5720	1.56	1.56	1.31	1.31	4.45	30.00	PASS
	149/5745	8.80	8.80	8.56	8.56	11.69	30.00	PASS
	157/5785	8.94	8.94	8.50	8.50	11.74	30.00	PASS
	165/5825	8.65	8.65	8.55	8.55	11.61	30.00	PASS
802.11ac VHT40	142/5710	-3.71	-3.54	-2.88	-2.71	-0.10	30.00	PASS
	151/5755	7.94	8.11	7.64	7.81	10.97	30.00	PASS
	159/5795	8.12	8.29	7.86	8.03	11.17	30.00	PASS
802.11ac VHT80	138/5690	-7.56	-7.20	-7.69	-7.33	-4.25	30.00	PASS
	155/5775	6.29	6.65	6.04	6.40	9.53	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. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f(ii): If antenna gains are not equal, the user may use either of the following methods to calculate Directional gain, provided that each transmit antenna is driven by only one spatial stream: Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

Directional gain = $G_{\text{ANT MAX}} + \text{Array Gain}$,

For power measurements on IEEE 802.11 devices,

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

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

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

So Directional gain = $G_{\text{ANT}} + \text{Array Gain} = -3 + 0 = 3 \text{ dBi} < 6 \text{ dBi}$. So the power limit is 30dBm.

6.3. Frequency Stability

Voltage (V)	Temperature (°C)	U-NII-1 Test Results			
		5200MHz			
		1min	2min	5min	10min
3.85	-30	5199.991855	5199.984873	5199.977936	5199.971101
3.85	-20	5199.994632	5199.979415	5199.972259	5199.964011
3.85	-10	5199.990515	5199.978784	5199.965881	5199.956779
3.85	0	5199.985072	5199.973414	5199.962768	5199.956580
3.85	10	5199.978161	5199.967832	5199.962189	5199.952400
3.85	20	5199.973717	5199.961229	5199.952414	5199.944580
3.85	30	5199.972644	5199.952986	5199.950703	5199.944200
3.85	40	5199.967227	5199.951614	5199.942976	5199.942030
3.85	50	5199.960543	5199.949605	5199.942767	5199.939000
3.6	20	5199.959766	5199.949583	5199.933565	5199.929617
4.35	20	5199.954021	5199.948230	5199.926194	5199.923483
Max. ΔMHz		-0.045979	-0.051770	-0.073806	-0.076517
PPM		-8.842115	-9.955769	-14.193462	-14.714808

Voltage (V)	Temperature (°C)	U-NII-2A Test Results			
		5300MHz			
		1min	2min	5min	10min
3.85	-30	5300.006720	5299.999102	5299.990033	5299.986576
3.85	-20	5300.001716	5299.989137	5299.989820	5299.976719
3.85	-10	5299.994905	5299.985931	5299.989803	5299.972539
3.85	0	5299.992249	5299.984715	5299.981317	5299.974375
3.85	10	5299.984358	5299.978309	5299.975978	5299.972345
3.85	20	5299.984123	5299.968970	5299.969928	5299.964470
3.85	30	5299.980369	5299.961316	5299.966090	5299.958360
3.85	40	5299.976682	5299.959722	5299.961730	5299.954372
3.85	50	5299.976588	5299.959562	5299.961542	5299.950892
3.6	20	5299.972754	5299.958260	5299.958217	5299.940994
4.35	20	5299.968264	5299.956132	5299.950888	5299.937739
Max. ΔMHz		-0.031736	-0.043868	-0.049112	-0.062261
PPM		-5.987925	-8.276981	-9.266415	-11.747358

Voltage (V)	Temperature (°C)	U-NII-2C Test Results			
		5580MHz			
		1min	2min	5min	10min
3.85	-30	5580.004513	5580.002737	5579.995245	5579.989960
3.85	-20	5579.999558	5579.996144	5579.992576	5579.987084
3.85	-10	5579.995437	5579.993100	5579.987986	5579.983906
3.85	0	5579.995286	5579.987693	5579.982822	5579.979554
3.85	10	5579.989507	5579.982930	5579.974396	5579.970676
3.85	20	5579.987171	5579.982018	5579.968629	5579.961874
3.85	30	5579.981718	5579.977357	5579.964610	5579.952752
3.85	40	5579.972136	5579.976318	5579.955977	5579.950851
3.85	50	5579.962577	5579.970176	5579.951204	5579.940931
3.6	20	5579.960181	5579.961368	5579.944581	5579.934244
4.35	20	5579.953900	5579.957845	5579.934853	5579.924820
Max. ΔMHz		-0.046100	-0.042155	-0.065147	-0.075180
PPM		-8.261649	-7.554659	-11.675090	-13.473118

Voltage (V)	Temperature (°C)	U-NII-3 Test Results			
		5785MHz			
		1min	2min	5min	10min
3.85	-30	5785.000053	5784.999401	5784.992326	5784.990596
3.85	-20	5784.992829	5784.997314	5784.989698	5784.983628
3.85	-10	5784.988890	5784.994797	5784.988327	5784.979190
3.85	0	5784.991303	5784.991632	5784.988447	5784.981973
3.85	10	5784.986066	5784.987579	5784.982219	5784.979956
3.85	20	5784.979115	5784.985659	5784.979555	5784.979289
3.85	30	5784.977219	5784.985075	5784.974945	5784.975939
3.85	40	5784.973183	5784.980759	5784.968151	5784.974417
3.85	50	5784.969040	5784.972329	5784.961029	5784.966941
3.6	20	5784.964422	5784.966696	5784.952802	5784.965590
4.35	20	5784.964255	5784.960081	5784.946044	5784.960410
Max. ΔMHz		-0.035745	-0.039919	-0.053956	-0.039590
PPM		-6.178911	-6.900432	-9.326880	-6.843561

6.4. Power Spectral Density

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	0.34	0.34	1.28	1.28	3.85	10.99	PASS
	40/5200	0.31	0.31	1.47	1.47	3.94	10.99	PASS
	48/5240	-0.05	-0.05	1.24	1.24	3.65	10.99	PASS
802.11n HT20	36/5180	-1.72	-1.63	0.10	0.19	2.38	10.99	PASS
	40/5200	-1.30	-1.21	-0.35	-0.26	2.30	10.99	PASS
	48/5240	-1.81	-1.72	-0.71	-0.62	1.88	10.99	PASS
802.11n HT40	38/5190	-4.84	-4.66	-3.69	-3.51	-1.04	10.99	PASS
	46/5230	-5.48	-5.30	-4.15	-3.97	-1.57	10.99	PASS
802.11ac VHT20	36/5180	-1.86	-1.86	-0.84	-0.84	1.69	10.99	PASS
	40/5200	-2.48	-2.48	-1.08	-1.08	1.29	10.99	PASS
	48/5240	-2.79	-2.79	-1.54	-1.54	0.89	10.99	PASS
802.11ac VHT40	38/5190	-5.35	-5.18	-4.64	-4.47	-1.80	10.99	PASS
	46/5230	-6.69	-6.52	-5.18	-5.01	-2.69	10.99	PASS
802.11ac VHT80	42/5210	-10.46	-10.10	-8.96	-8.60	-6.28	10.99	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. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f)(ii): If antenna gains are not equal, the user may use either of the following methods to calculate Directional gain, provided that each transmit antenna is driven by only one spatial stream: Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

Directional gain = $G_{\text{ANT MAX}} + \text{Array Gain}$, For PSD measurements on all devices, Array Gain= $10\log(N_{\text{ant}}/N_{\text{ss}})$ dB,

So Directional gain= $G_{\text{ANT MAX}} + \text{Array Gain}=3+10\log(2/1)=6.01>6$ dBi.

So the PSD limit is $11-(\text{Directional gain}-6 \text{ dBi})=11-(6.01-6)=10.99$ dBm.

U-NII-2A

Mode	Channel /Frequency (MHz)	Power Spectral Density					Limit (dBm /MHz)	Conclusion
		Antenna 1		Antenna 2		Total PSD (dBm/MHz)		
		Read Value (dBm/MHz)	PSD (dBm/MHz)	Read Value (dBm/MHz)	PSD (dBm/MHz)			
802.11a	52/5260	0.53	0.53	1.21	1.21	3.89	11.00	PASS
	60/5300	1.14	1.14	1.15	1.15	4.16	11.00	PASS
	64/5320	1.73	1.73	1.10	1.10	4.44	11.00	PASS
802.11n HT20	52/5260	-1.22	-1.13	-0.57	-0.48	2.22	11.00	PASS
	60/5300	-0.11	-0.02	-0.98	-0.89	2.58	11.00	PASS
	64/5320	0.32	0.41	-0.44	-0.35	3.06	11.00	PASS
802.11n HT40	54/5270	-4.43	-4.25	-4.11	-3.93	-1.08	11.00	PASS
	62/5310	-3.81	-3.63	-3.76	-3.58	-0.59	11.00	PASS
802.11ac VHT20	52/5260	-1.94	-1.94	-1.44	-1.44	1.33	11.00	PASS
	60/5300	-1.46	-1.46	-1.90	-1.90	1.34	11.00	PASS
	64/5320	-0.77	-0.77	-1.67	-1.67	1.81	11.00	PASS
802.11ac VHT40	54/5270	-4.64	-4.47	-5.08	-4.91	-1.67	11.00	PASS
	62/5310	-4.83	-4.66	-4.96	-4.79	-1.71	11.00	PASS
802.11ac VHT80	58/5290	-9.43	-9.07	-9.11	-8.75	-5.90	11.00	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. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f)(ii): If antenna gains are not equal, the user may use either of the following methods to calculate Directional gain, provided that each transmit antenna is driven by only one spatial stream: Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

Directional gain = $G_{\text{ANT MAX}} + \text{Array Gain}$, For PSD measurements on all devices, Array Gain= $10\log(\text{Nant}/\text{Nss})\text{dB}$,

So Directional gain= $G_{\text{ANT MAX}} + \text{Array Gain}=2.94+10\log(2/1)=5.95<6\text{ dB}$. 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	1.00	1.00	0.67	0.67	3.85	11.00	PASS
	116/5580	0.03	0.03	0.94	0.94	3.52	11.00	PASS
	140/5700	0.13	0.13	1.43	1.43	3.84	11.00	PASS
	144/5720	0.82	0.82	0.87	0.87	3.86	11.00	PASS
802.11n HT20	100/5500	0.03	0.12	-0.95	-0.86	2.67	11.00	PASS
	116/5580	-1.73	-1.64	-0.38	-0.29	2.10	11.00	PASS
	140/5700	-1.48	-1.39	-0.71	-0.62	2.02	11.00	PASS
	144/5720	-0.24	-0.15	-0.37	-0.28	2.80	11.00	PASS
802.11n HT40	102/5510	-4.26	-4.08	-4.51	-4.33	-1.19	11.00	PASS
	110/5550	-4.50	-4.32	-4.13	-3.95	-1.12	11.00	PASS
	134/5670	-4.96	-4.78	-4.05	-3.87	-1.29	11.00	PASS
	142/5710	-4.04	-3.86	-3.53	-3.35	-0.59	11.00	PASS
802.11ac VHT20	100/5500	-1.41	-1.41	-1.77	-1.77	1.42	11.00	PASS
	116/5580	-2.82	-2.82	-1.36	-1.36	0.98	11.00	PASS
	140/5700	-1.60	-1.60	-0.98	-0.98	1.73	11.00	PASS
	144/5720	-1.31	-1.31	-1.30	-1.30	1.71	11.00	PASS
802.11ac VHT40	102/5510	-4.96	-4.79	-5.38	-5.21	-1.98	11.00	PASS
	110/5550	-6.09	-5.92	-5.02	-4.85	-2.34	11.00	PASS
	134/5670	-6.08	-5.91	-4.82	-4.65	-2.22	11.00	PASS
	142/5710	-4.71	-4.54	-4.58	-4.41	-1.46	11.00	PASS
802.11ac VHT80	106/5530	-9.73	-9.37	-9.86	-9.50	-6.42	11.00	PASS
	138/5690	-10.36	-10.00	-9.52	-9.16	-6.55	11.00	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. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f)(ii): If antenna gains are not equal, the user may use either of the following methods to calculate Directional gain, provided that each transmit antenna is driven by only one spatial stream: Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

Directional gain = $G_{\text{ANT MAX}} + \text{Array Gain}$, For PSD measurements on all devices, Array Gain= $10\log(N_{\text{ant}}/N_{\text{ss}})$ dB,

So Directional gain= $G_{\text{ANT MAX}} + \text{Array Gain}=2.53+10\log(2/1)=5.54<6$ dBi. So the PSD limit is 11 dBm.

U-NII-3

Mode	Channel /Frequency (MHz)	Power Spectral Density					Limit (dBm/ 500kHz)	Conclusion
		Antenna 1		Antenna 2		Total PSD (dBm/ 510kHz)		
		Read Value (dBm/ 510kHz)	PSD (dBm/ 510kHz)	Read Value (dBm/ 510kHz)	PSD (dBm/ 510kHz)			
802.11a	144/5720	-3.28	-3.28	-3.11	-3.11	-0.18	29.99	PASS
	149/5745	-0.94	-0.94	-1.62	-1.62	1.74	29.99	PASS
	157/5785	-1.35	-1.35	-1.47	-1.47	1.60	29.99	PASS
	165/5825	-1.10	-1.10	-1.71	-1.71	1.62	29.99	PASS
802.11n HT20	144/5720	-4.61	-4.52	-5.01	-4.92	-1.71	29.99	PASS
	149/5745	-3.00	-2.91	-3.31	-3.22	-0.05	29.99	PASS
	157/5785	-2.69	-2.60	-2.97	-2.88	0.27	29.99	PASS
	165/5825	-2.52	-2.43	-3.24	-3.15	0.24	29.99	PASS
802.11n HT40	142/5710	-9.93	-9.75	-9.12	-8.94	-6.32	29.99	PASS
	151/5755	-6.61	-6.43	-7.26	-7.08	-3.73	29.99	PASS
	159/5795	-6.35	-6.17	-7.12	-6.94	-3.53	29.99	PASS
802.11ac VHT20	144/5720	-5.61	-5.61	-5.39	-5.39	-2.49	29.99	PASS
	149/5745	-4.18	-4.18	-4.22	-4.22	-1.19	29.99	PASS
	157/5785	-3.69	-3.69	-4.16	-4.16	-0.91	29.99	PASS
	165/5825	-3.68	-3.68	-4.38	-4.38	-1.01	29.99	PASS
802.11ac VHT40	142/5710	-10.45	-10.28	-9.45	-9.28	-6.74	29.99	PASS
	151/5755	-7.63	-7.46	-8.31	-8.14	-4.78	29.99	PASS
	159/5795	-7.39	-7.22	-8.12	-7.95	-4.56	29.99	PASS
802.11ac VHT80	138/5690	-14.16	-13.80	-14.13	-13.77	-10.77	29.99	PASS
	155/5775	-11.93	-11.57	-13.23	-12.87	-9.16	29.99	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. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F2)f)(ii): If antenna gains are not equal, the user may use either of the following methods to calculate Directional gain, provided that each transmit antenna is driven by only one spatial stream: Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

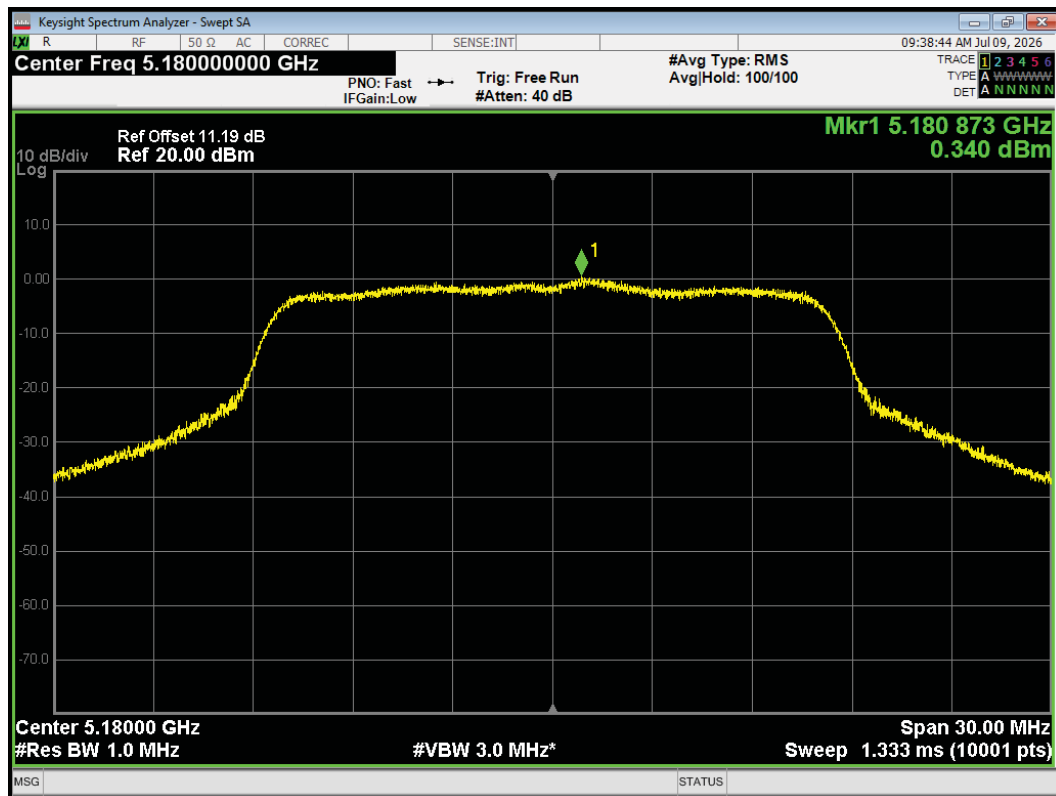
Directional gain = $G_{\text{ANT MAX}} + \text{Array Gain}$, For PSD measurements on all devices, Array Gain= $10\log(N_{\text{ant}}/N_{\text{ss}})$ dB,

So Directional gain= $G_{\text{ANT MAX}} + \text{Array Gain}=3+10\log(2/1)=6.01>6$ dBi.

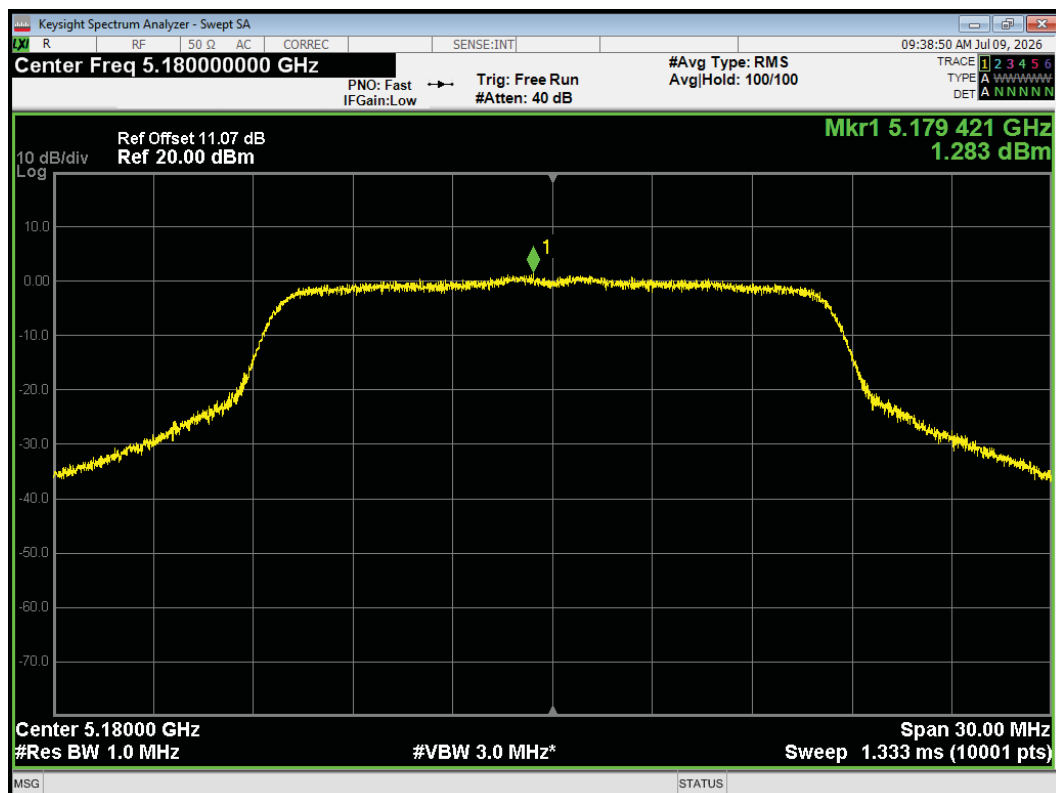
So the PSD limit is $30-(\text{Directional gain}-6 \text{ dBi})=30-(6.01-6)=29.99$ dBm.

U-NII-1

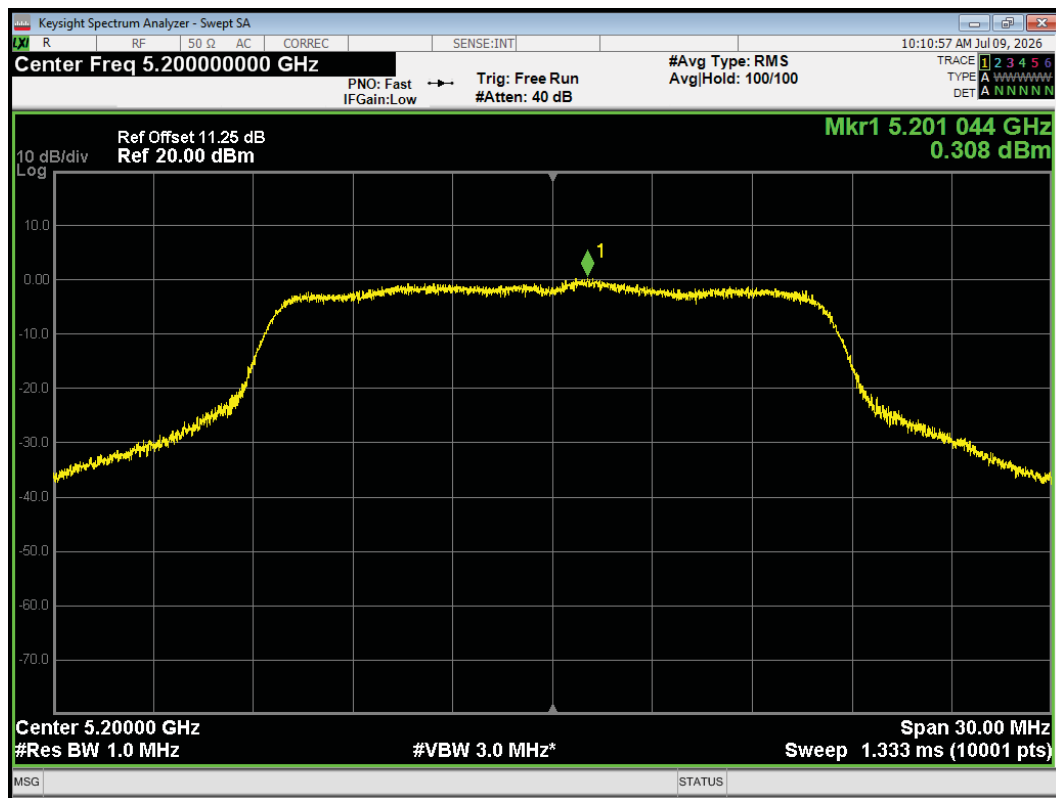
PSD 802.11a 5180MHz Ant1



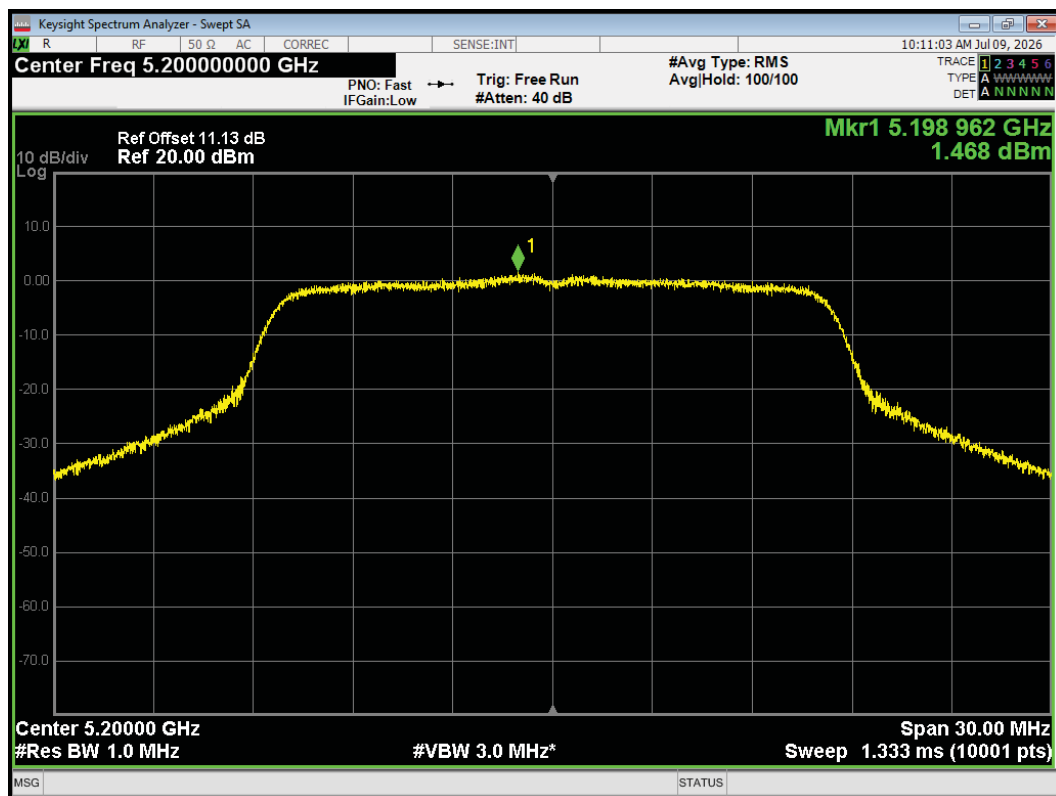
PSD 802.11a 5180MHz Ant2



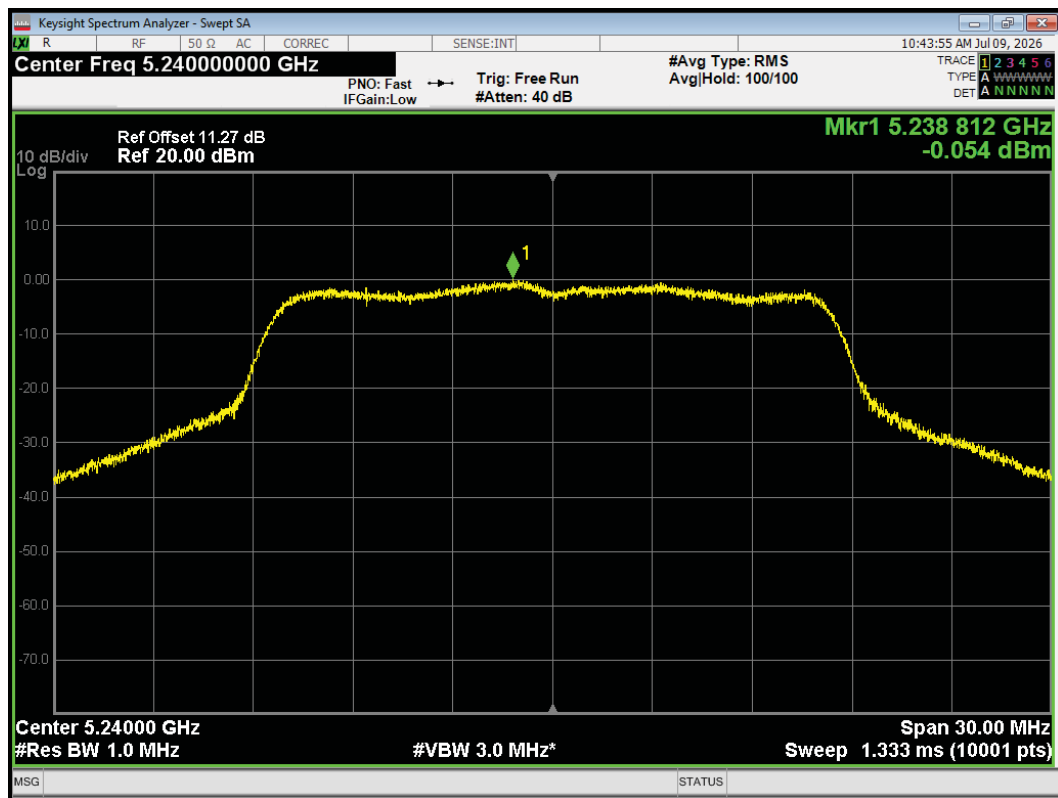
PSD 802.11a 5200MHz Ant1



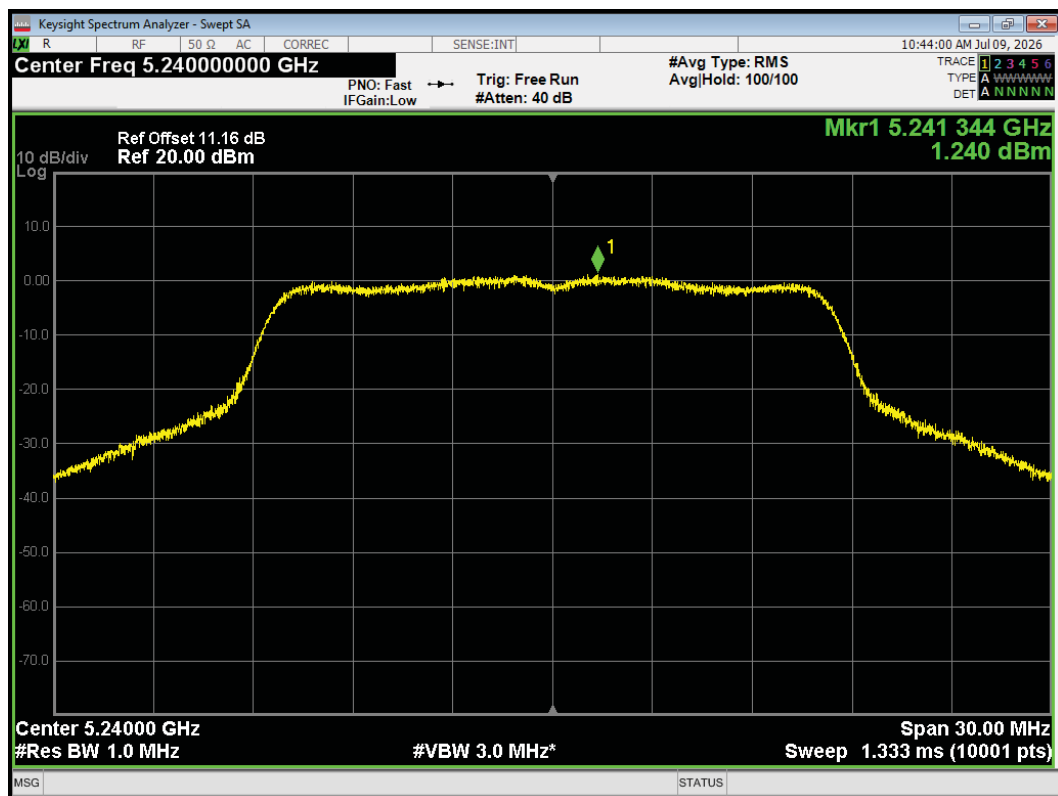
PSD 802.11a 5200MHz Ant2



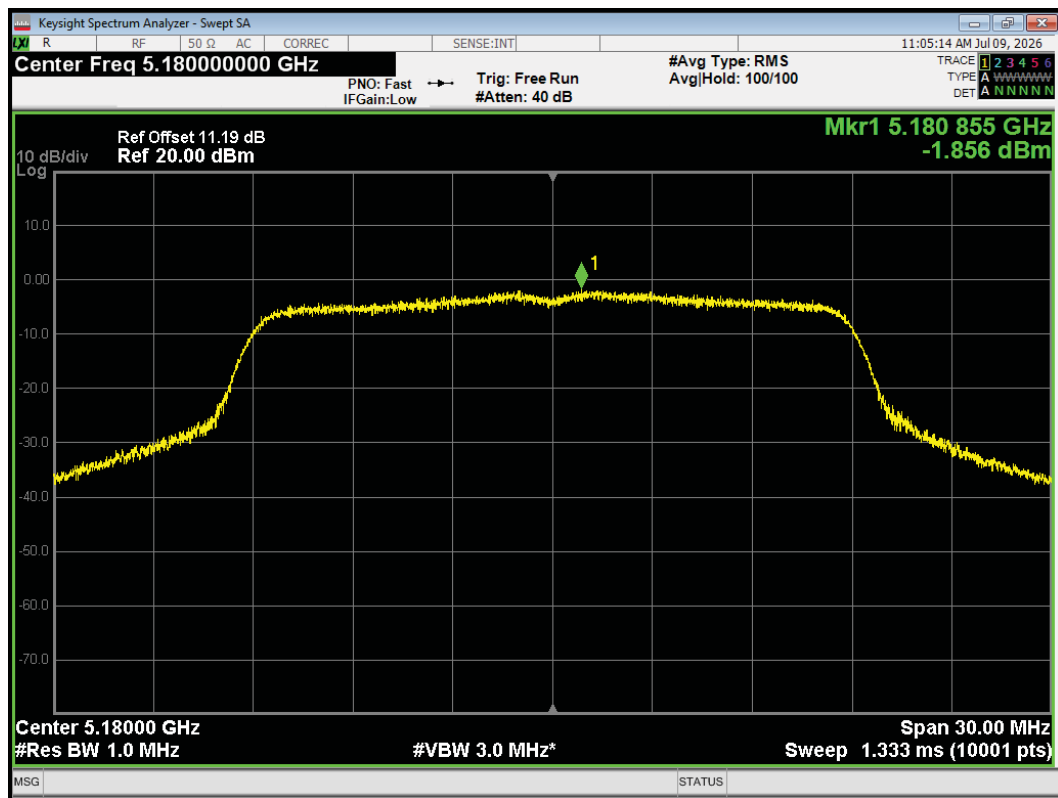
PSD 802.11a 5240MHz Ant1



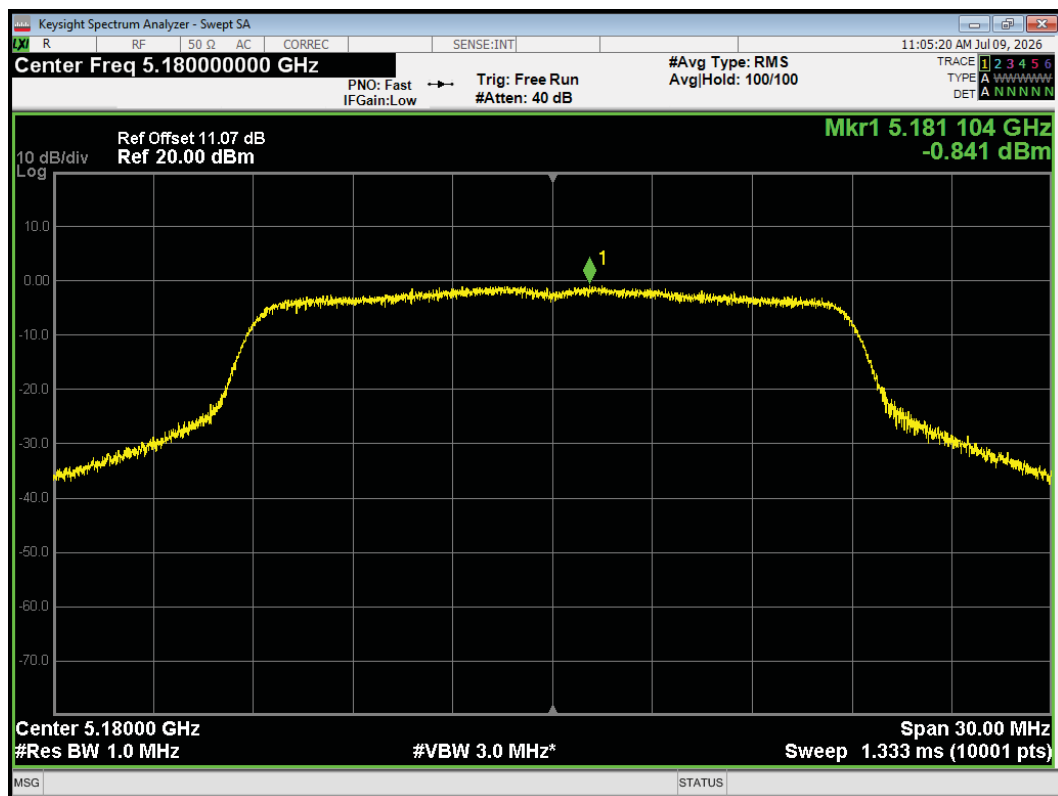
PSD 802.11a 5240MHz Ant2



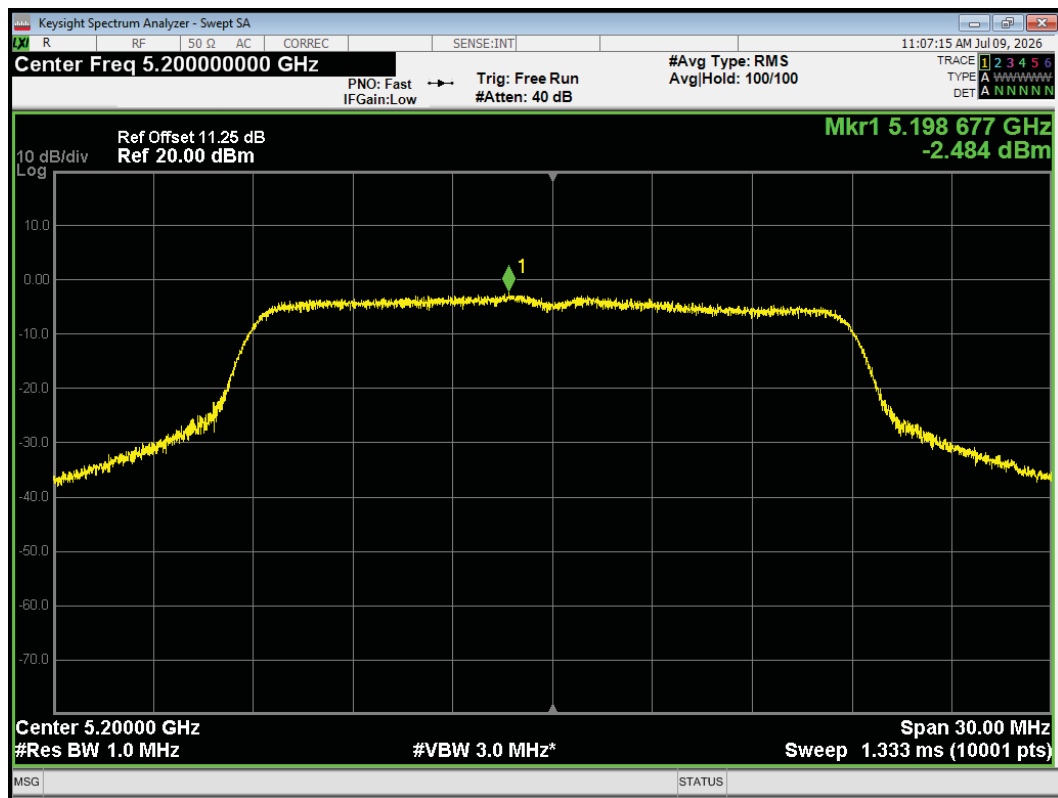
PSD 802.11ac(VHT20) 5180MHz Ant1



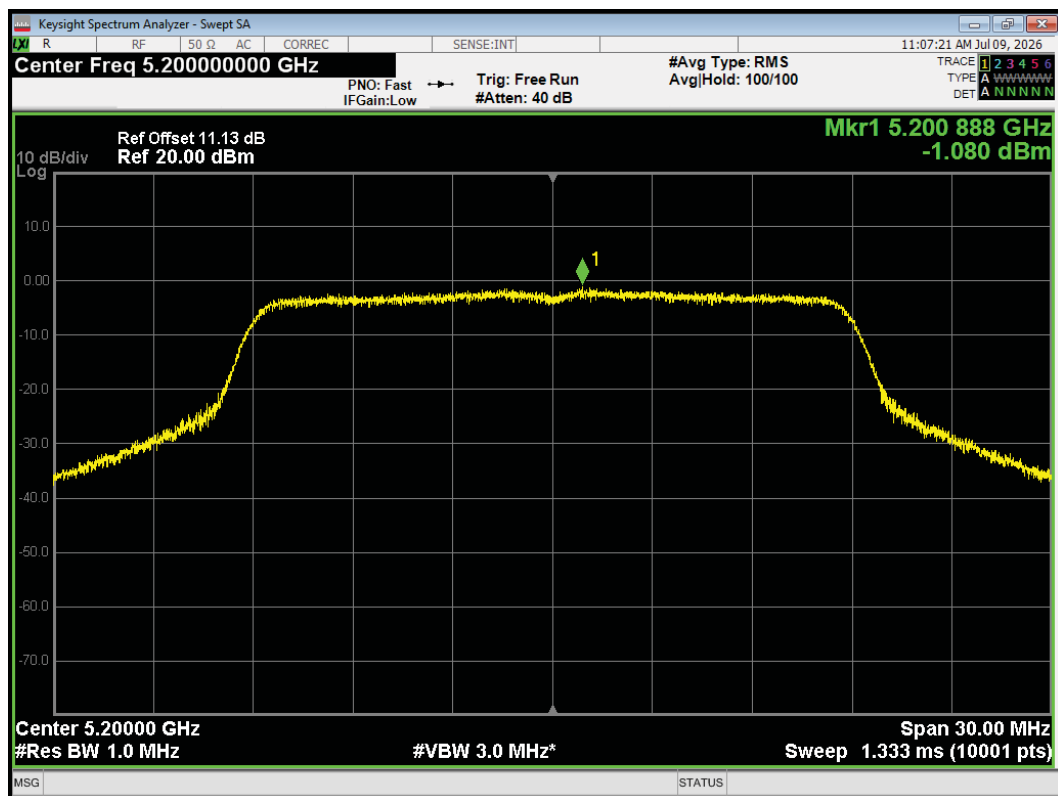
PSD 802.11ac(VHT20) 5180MHz Ant2



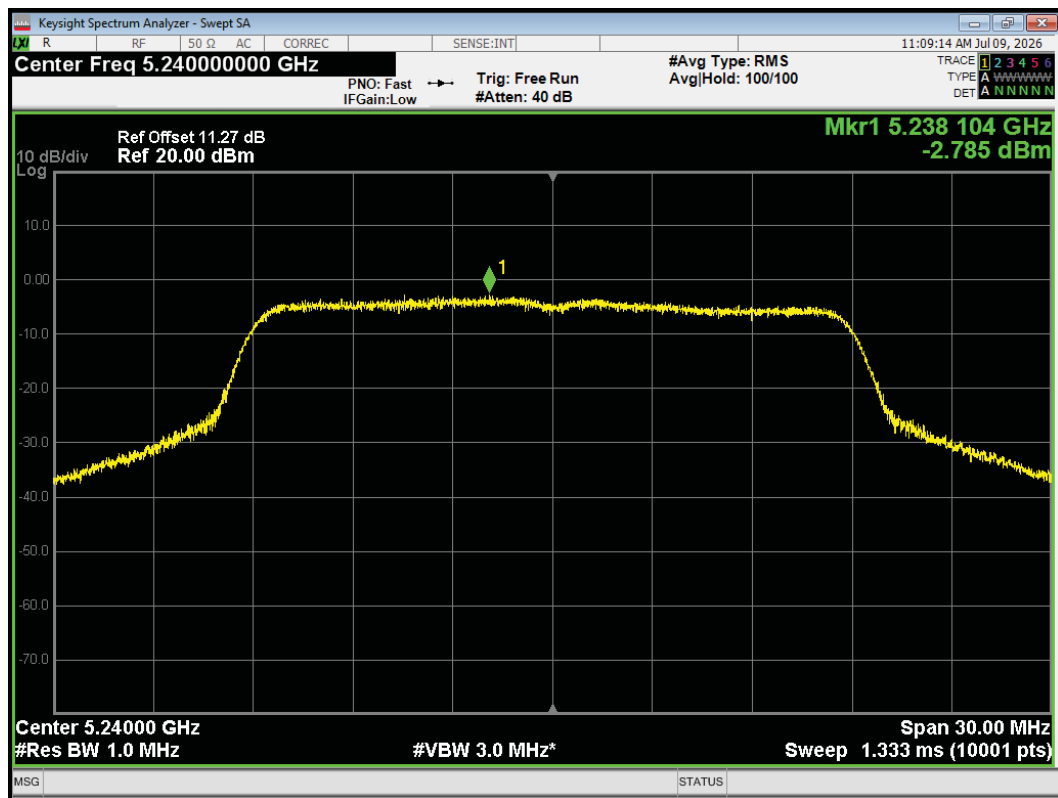
PSD 802.11ac(VHT20) 5200MHz Ant1



PSD 802.11ac(VHT20) 5200MHz Ant2



PSD 802.11ac(VHT20) 5240MHz Ant1



PSD 802.11ac(VHT20) 5240MHz Ant2

