TEST REPORT

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Tel : 031-321-2664, Fax : 031-321-1664

1. Report No : DRTFCC2307-0104(1)

2. Customer

- Name (FCC) : Point Mobile Co., LTD. / Name (IC) : POINTMOBILE CO.,LTD
- Address (FCC) : B-9F Kabul Great Valley, 32, Digital-ro 9-gil, Geumcheon-gu, Seoul, South Korea, 08512
  Address (IC) : B-9F Kabul Great Valley, 32, Digital-ro 9-gil, Geumcheon-gu Seoul Korea (Republic Of)

3. Use of Report : FCC & IC Certification

4. Product Name / Model Name : MOBILE COMPUTER / PM86W
   FCC ID : V2X-PM86W
   IC : 10664A-PM86W

5. FCC Regulation(s): Part 15.407
   IC Standard(s): RSS-247 Issue 2, RSS-Gen Issue 5
   Test Method used: ANSI C63.10-2013, KDB789033 D02v02r01, KDB662911 D01v02r01

6. Date of Test : 2023.05.08 ~ 2023.06.21, 2023.07.03

7. Location of Test : ☒ Permanent Testing Lab ☐ On Site Testing

8. Testing Environment : See appended test report.

9. Test Result : Refer to the attached test result.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
This test report is not related to KOLAS accreditation.

Affirmation	Tested by Name : SeungMin Gil (Signature)	Technical Manager Name : JaeJin Lee (Signature)

2023 . 07 . 27 .

Dt&C Co., Ltd.

If this report is required to confirmation of authenticity, please contact to report@dtnc.net

Test Report Version

Test Report No.	Date	Description	Revised by	Reviewed by
DRTFCC2307-0104	Jul. 20, 2023	Initial issue	SeungMin Gil	JaeJin Lee
DRTFCC2307-0104(1)	Jul. 27, 2023	Revised the section 1.1	SeungMin Gil	JaeJin Lee

CONTENTS

1. General Information

1.1 Explanations for Reference Test Data

1.1.1. Introduction

This report includes the WLAN test data of FCC ID: V2X-PM86 / IC: 10664A-PM86 with reference to KDB 484596 D01v01. The applicant takes full responsibility that the test data as reference section below represents compliance for FCC ID: V2X-PM86W / IC: 10664A-PM86W.

Reference FCC ID / IC	Exhibit type	Separated FCC ID / IC
FCC ID: V2X-PM86 / IC: 10664A-PM86	Original Grant / New Single Certification	FCC ID: V2X-PM86W / IC: 10664A-PM86W

1.1.2. Explain the Differences

FCC ID: V2X-PM86W / IC: 10664A-PM86W is same the internal printed circuit board with FCC ID: V2X-PM86 / IC: 10664A-PM86. For FCC ID: V2X-PM86W / IC: 10664-PM86W, WWAN transmitter has been removed.
(It does not changed the SW/HW component of WLAN.)

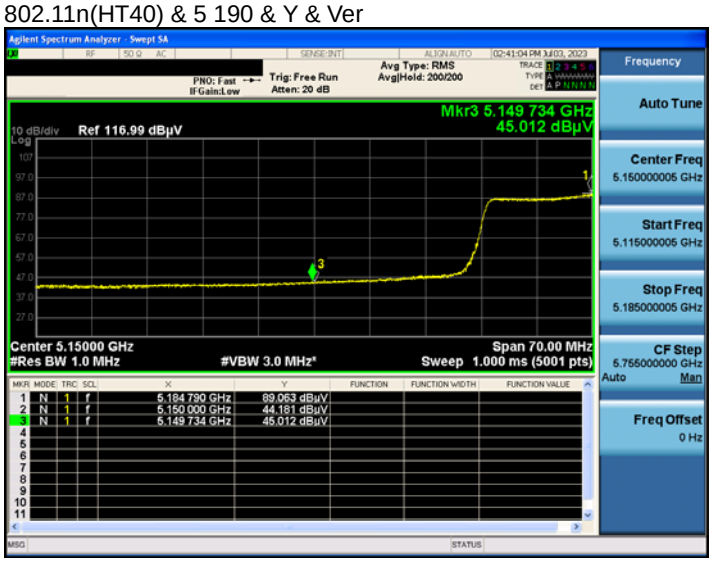
1.1.3. Spot Check Verification Data

Test data from the variant device(FCC ID: V2X-PM86W / IC: 10664A-PM86W)

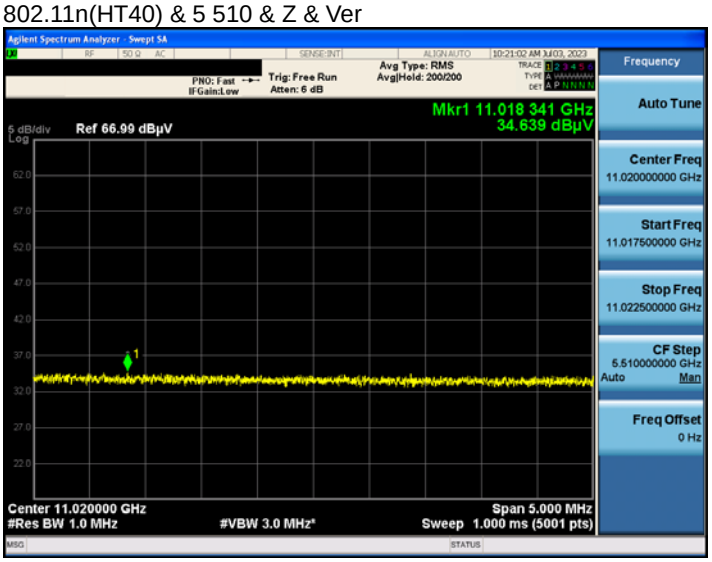
Test item	Mode	TX Freq. (MHz)	Detector Mode	Frequency (MHz)	Reading (dBuV)	TF (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
Radiated Band edge	802.11n (HT40)	5 190	Average	5 149.73	45.01	3.39	0.43	N/A	48.83	54.00	5.17
Radiated Spurious emission	802.11n (HT40)	5 510	Average	11 018.34	34.64	11.36	0.43	N/A	46.43	54.00	7.57

Note: Sample Calculation.
Margin = Limit – Result / Result = Reading + TF+ DCCF + DCF / TF = AF + CL + HL + AL – AG
Where, TF = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain, HL = High pass filter Loss,
AL = Attenuator Loss, DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor

Radiated Band edge (Plot: Reading Value)
802.11n(HT40) & 5 190 & Y & Ver



Radiated Spurious emission (Plot: Reading Value)
802.11n(HT40) & 5 510 & Z & Ver



Comparison results between reference device and variant device

Equipment Class (capability)	FCC Part/ RSS Std.	Mode	TX Freq. (MHz)	Test item	Detector Mode	Reference FCC ID: V2X-PM86 / IC: 10664A-PM86		Separated FCC ID: V2X-PM86W / IC: 10664A-PM86W		Limit (dBuV/m)	Deviation (dB)
						Frequency (MHz)	Result (dBuV/m)	Frequency (MHz)	Result (dBuV/m)		
NII (WLAN)	15.407 / RSS-247	802.11n (HT40)	5 190	Radiated Band edge	Average	5 149.64	49.86	5 149.73	48.83	54.00	-1.03
		802.11n (HT40)	5 510	Radiated Spurious emission	Average	11 018.39	46.61	11 018.34	46.43	54.00	-0.18

Note1: The spot check were performed based on worst-case results reported in the original test report.
The spot check test results show good correlation between two products.

1.1.4. Reference Section

Reference FCC ID: V2X-PM86 / IC: 10664A-PM86

Equipment Class	FCC Part/ RSS Std.	Capability	Band(MHz)	Exhibit type	Report title	Reference Sections
NII	15.407 / RSS-247	WLAN	5 180 ~ 5 240 5 260 ~ 5 320 5 500 ~ 5 720 5 745 ~ 5 825	Original Grant/ New Single Certification	NII	All

1.2. Description of EUT

Equipment Class	Unlicensed National Information Infrastructure TX(NII)
Product Name	MOBILE COMPUTER
Model Name	PM86W
Add Model Name	-
Firmware Version Identification Number	86.00
EUT Serial Number (Reference product) Note1	Conducted: 23070A0067, Radiated: 23070A0126
EUT Serial Number (Separated product) Note2	Conducted: 23070A0070, Radiated: 23070A0070
Power Supply	DC 3.8 V
Modulation Technique	OFDM
Antenna Specification	Antenna Type: LDS Antenna Antenna Gain: Refer to the clause 3 in test report

Note1: Reference FCC ID: V2X-PM86 / IC: 10664A-PM86
Note2: Separated FCC ID: V2X-PM86W / IC: 10664A-PM86W

Band	Mode	Tx. frequency(MHz)	Max. conducted power(dBm)	Antenna gain(dBi)	Max. e.i.r.p (dBm)
U-NII 1	802.11a	5 180 ~ 5 240	14.70	3.28	17.98
	802.11n(HT20)	5 180 ~ 5 240	14.11	3.28	17.39
	802.11ac(VHT20)	5 180 ~ 5 240	14.09	3.28	17.37
	802.11n(HT40)	5 190 ~ 5 230	17.45	3.28	20.73
	802.11ac(VHT40)	5 190 ~ 5 230	17.36	3.28	20.64
	802.11ac(VHT80)	5 210	16.25	3.28	19.53
U-NII 2A	802.11a	5 260 ~ 5 320	**18.49**	2.24	20.73
	802.11n(HT20)	5 260 ~ 5 320	18.13	2.24	20.37
	802.11ac(VHT20)	5 260 ~ 5 320	18.09	2.24	20.33
	802.11n(HT40)	5 270 ~ 5 310	17.43	2.24	19.67
	802.11ac(VHT40)	5 270 ~ 5 310	17.48	2.24	19.72
	802.11ac(VHT80)	5 290	16.22	2.24	18.46
U-NII 2C	802.11a	5 500 ~ 5 720	**18.46**	3.54	22.00
	802.11n(HT20)	5 500 ~ 5 720	18.22	3.54	21.76
	802.11ac(VHT20)	5 500 ~ 5 720	18.25	3.54	21.79
	802.11n(HT40)	5 510 ~ 5 710	17.56	3.54	21.10
	802.11ac(VHT40)	5 510 ~ 5 710	17.54	3.54	21.08
	802.11ac(VHT80)	5 530 ~ 5 690	16.45	3.54	19.99
U-NII 3	802.11a	5 745 ~ 5 825	**18.90**	2.75	21.65
	802.11n(HT20)	5 745 ~ 5 825	18.36	2.75	21.11
	802.11ac(VHT20)	5 745 ~ 5 825	18.34	2.75	21.09
	802.11n(HT40)	5 755 ~ 5 795	17.14	2.75	19.89
	802.11ac(VHT40)	5 755 ~ 5 795	17.17	2.75	19.92
	802.11ac(VHT80)	5 775	16.49	2.75	19.24

1.3. Declaration by the applicant / manufacturer

N/A

1.4. Testing Laboratory

Dt&C Co., Ltd.		
The 3 m test site and conducted measurement facility used to collect the radiated data are located at the 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042. The test site complies with the requirements of Part 2.948 according to ANSI C63.4-2014. **- FCC & IC MRA Designation No. : KR0034** **- ISED#: 5740A**		
www.dtnc.net		
Telephone	:	+ 82-31-321-2664
FAX	:	+ 82-31-321-1664

1.5. Testing Environment

Ambient Condition	
▪ Temperature	+21 ℃ ~ +24 ℃
▪ Relative Humidity	+40 % ~ +43 %

1.6. Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with requirements of ANSI C63.4-2014 and ANSI C63.10-2013. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95 % level of confidence.

Parameter	Measurement uncertainty
Antenna-port conducted emission	1.0 dB (The confidence level is about 95 %, k = 2)
AC power-line conducted emission	3.4 dB (The confidence level is about 95 %, k = 2)
Radiated emission (1 GHz Below)	4.8 dB (The confidence level is about 95 %, k = 2)
Radiated emission (1 GHz ~ 18 GHz)	5.0 dB (The confidence level is about 95 %, k = 2)
Radiated emission (18 GHz Above)	5.2 dB (The confidence level is about 95 %, k = 2)

1.7. Test Equipment List

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	22/06/24	23/06/24	MY46471622
			23/06/23	24/06/24	
Spectrum Analyzer	KEYSIGHT	N9020A	22/12/16	23/12/16	MY53290984
Spectrum Analyzer	Agilent Technologies	N9020A	22/12/16	23/12/16	MY48011700
Spectrum Analyzer	Agilent Technologies	N9020A	22/06/24	23/06/24	US47360812
			23/06/23	24/06/24	
Spectrum Analyzer	KEYSIGHT	N9030B	22/12/16	23/12/16	MY55480168
DC Power Supply	Agilent Technologies	66332A	22/06/24	23/06/24	US37474125
			23/06/23	24/06/24	
Multimeter	FLUKE	17B+	22/12/16	23/12/16	36390701WS
Signal Generator	Rohde Schwarz	SMBV100A	22/12/16	23/12/16	255571
Signal Generator	ANRITSU	MG3695C	22/12/16	23/12/16	173501
Thermohygrometer	BODYCOM	BJ5478	22/12/16	23/12/16	120612-1
Thermohygrometer	BODYCOM	BJ5478	22/12/16	23/12/16	120612-2
Thermohygrometer	BODYCOM	BJ5478	22/06/24	23/06/24	N/A
			23/06/22	24/06/22	
Loop Antenna	ETS-Lindgren	6502	22/04/22	24/04/22	00203480
Hybrid Antenna	Schwarzbeck	VULB 9160	22/12/16	23/12/16	3362
Horn Antenna	ETS-Lindgren	3117	22/06/24	23/06/24	00143278
			23/06/23	24/06/23	
Horn Antenna	A.H.Systems Inc.	SAS-574	22/06/24	23/06/24	155
			23/06/23	24/06/23	
PreAmplifier	tsj	MLA-0118-B01-40	22/12/16	23/12/16	1852267
PreAmplifier	tsj	MLA-1840-J02-45	22/06/24	23/06/24	16966-10728
			23/06/23	24/06/23	
PreAmplifier	H.P	8447D	22/12/16	23/12/16	2944A07774
High Pass Filter	Wainwright Instruments	WHKX12-935-1000-15000-40SS	22/06/24	23/06/24	8
			23/06/23	24/06/23	
High Pass Filter	Wainwright Instruments	WHKX10-2838-3300-18000-60SS	22/06/24	23/06/24	1
			23/06/23	24/06/23	
High Pass Filter	Wainwright Instruments	WHNX8.0/26.5-6SS	22/06/24	23/06/24	3
			23/06/23	24/06/23	
Attenuator	Hefei Shunze	SS5T2.92-10-40	22/06/24	23/06/24	16012202
			23/06/23	24/06/23	
Attenuator	Aeroflex/Weinschel	56-3	22/06/24	23/06/24	Y2370
			23/06/23	24/06/23	
Attenuator	SMAJK	SMAJK-2-3	22/06/24	23/06/24	3
			23/06/23	24/06/23	
Attenuator	SMAJK	SMAJK-2-3	22/06/24	23/06/24	2
			23/06/23	24/06/23	
Attenuator	Aeroflex/Weinschel	86-10-11	22/06/24	23/06/24	408
			23/06/23	24/06/23	
Power Meter & Wide Bandwidth Sensor	Anritsu	ML2496A MA2411B	22/12/16	23/12/16	1338004 1911481
EMI Test Receiver	ROHDE&SCHWARZ	ESCI7	23/01/31	24/01/31	100910
PULSE LIMITER	Rohde Schwarz	ESH3-Z2	22/08/22	23/08/22	101333
LISN	SCHWARZBECK	NSLK 8128 RC	22/10/26	23/10/26	8128 RC-387
Thermo Hygro Meter	TESTO	608-H1	23/01/13	24/01/13	45084791
Cable	Dt&C	Cable	23/01/04	24/01/04	G-2
Cable	HUBER+SUHNER	SUCOFLEX 100	23/01/04	24/01/04	G-3
Cable	Dt&C	Cable	23/01/04	24/01/04	G-4
Cable	OMT	YSS21S	23/01/04	24/01/04	G-5
Cable	Junkosha	MWX241	23/01/03	24/01/03	mmW-1
Cable	Junkosha	MWX241	23/01/03	24/01/03	mmW-4
Cable	HUBER+SUHNER	SUCOFLEX100	23/01/04	24/01/04	M-01
Cable	HUBER+SUHNER	SUCOFLEX100	23/01/04	24/01/04	M-02
Cable	JUNKOSHA	MWX241/B	23/01/04	24/01/04	M-03
Cable	JUNKOSHA	J12J101757-00	23/01/04	24/01/04	M-07
Cable	HUBER+SUHNER	SUCOFLEX106	23/01/04	24/01/04	M-09
Cable	Radiall	TESTPRO3	23/01/04	24/01/04	RFC-70
Test Software	tsj	Radiated Emission Measurement	NA	NA	Version 2.00.0147
Test Software	tsj	Noise Terminal Measurement	NA	NA	Version 2.00.0185

Note1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017.
Note2: The cable is not a regular calibration item, so it has been calibrated by Dt&C itself.

2. Test Methodology

The measurement procedures described in the ANSI C63.10-2013 and the guidance provided in KDB789033 D02v02r01 were used in measurement of the EUT.

The EUT was tested per the guidance of KDB789033 D02v02r01. And ANSI C63.10-2013 was used to reference appropriate EUT setup and maximizing procedures of radiated spurious emission and AC line conducted emission testing.

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

2.2. EUT Exercise

The EUT was operated in the test mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.407 under the FCC Rules Part 15 Subpart E.

2.3. General Test Procedures

Conducted Emissions

The power-line conducted emission test procedure is not described on the KDB789033 D02v02r01.

So this test was fulfilled with the requirements in Section 6.2 of ANSI C63.10-2013.

The EUT is placed on the wooden table, which is 0.8 m above ground plane and the conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-peak and Average detector.

Radiated Emissions

Basically the radiated tests were performed with KDB789033 D02v02r01. But some requirements and procedures like test site requirements, EUT setup and maximizing procedure were fulfilled with the requirements in Section 5 and 6 of the ANSI C63.10-2013 as stated on KDB789033 D02v02r01.

The EUT is placed on a non-conductive table, which is 0.8 m above ground plane. For emission measurements above 1 GHz, the table height is 1.5 m. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 1 m or 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the highest emission, the relative positions of the EUT were rotated through three orthogonal axis.

2.4. Instrument Calibration

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

2.5. Description of Test Modes

The EUT has been tested with the operating condition for maximizing the emission characteristics. A test program is used to control the EUT for staying in continuous transmitting.

Transmitting Configuration of EUT

Mode	SISO		MIMO (CDD)	MIMO (SDM)
	Ant 1	Ant 2	Ant 1 & 2	Ant 1 & 2
	Data rate			
802.11a	6 ~ 54 Mbps	6 ~ 54 Mbps	6 ~ 54 Mbps	-
802.11n(HT20)	MCS 0 ~ 7	MCS 0 ~ 7	MCS 0 ~ 7	MCS 8 ~ 15
802.11ac(VHT20)	MCS 0 ~ 8(1SS)	MCS 0 ~ 8(1SS)	MCS 0 ~ 8(1SS)	MCS 0 ~ 8(2SS)
802.11n(HT40)	MCS 0 ~ 7	MCS 0 ~ 7	MCS 0 ~ 7	MCS 8 ~ 15
802.11ac(VHT40)	MCS 0 ~ 9(1SS)	MCS 0 ~ 9(1SS)	MCS 0 ~ 9(1SS)	MCS 0 ~ 9(2SS)
802.11ac(VHT80)	MCS 0 ~ 9(1SS)	MCS 0 ~ 9(1SS)	MCS 0 ~ 9(1SS)	MCS 0 ~ 9(2SS)

Note1: SDM = Spatial Diversity Multiplexing, CDD = Cycle Delay Diversity, SS = Spatial Streams

EUT Operation test setup

- Test Software: PM86_Script_Tool

- Power setting: Refer to the table below.

Tested frequency and power setting

Band	Channel	Frequency (MHz)	802.11a
			Power Setting
U-NII 1	36	5 180	11
	40	5 200	11
	48	5 240	11
U-NII 2A	52	5 260	15
	60	5 300	15
	64	5 320	15
U-NII 2C	100	5 500	15
	116	5 580	15
	144	5 720	15
U-NII 3	149	5 745	15
	157	5 785	15
	165	5 825	15

Band	Channel	Frequency (MHz)	802.11n(HT20), 802.11ac(VHT20)
			Power Setting
U-NII 1	36	5 180	11
	40	5 200	11
	48	5 240	11
U-NII 2A	52	5 260	15
	60	5 300	15
	64	5 320	15
U-NII 2C	100	5 500	15
	116	5 580	15
	144	5 720	15
U-NII 3	149	5 745	15
	157	5 785	15
	165	5 825	15

Band	Channel	Frequency (MHz)	802.11n(HT40), 802.11ac(VHT40)
			Power Setting
U-NII 1	38	5 190	15
	46	5 230	15
U-NII 2A	54	5 270	15
	62	5 310	15
U-NII 2C	102	5 510	15
	110	5 550	15
	142	5 710	15
U-NII 3	151	5 755	14
	159	5 795	14

Band	Channel	Frequency (MHz)	802.11ac(VHT80)
			Power Setting
U-NII 1	42	5 210	14
U-NII 2A	58	5 290	14
U-NII 2C	106	5 530	14
	138	5 690	14
U-NII 3	155	5 775	14

Tested Mode

Test Mode		ANT configuration	Worst data rate
TM 1	802.11a	CDD Multiple transmitting	6Mbps
TM 2	802.11n(HT20)	CDD Multiple transmitting	MCS0
TM 3	802.11n(HT40)	CDD Multiple transmitting	MCS0
TM 4	802.11ac(VHT80)	CDD Multiple transmitting	MCS0

Note 1: The worst case data rate is determined as above test mode according to the power measurements.

3. Antenna Requirements

▣ **According to Part 15.203**

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

The antenna is attached on the device by means of unique coupling method.
Therefore this E.U.T complies with the requirement of Part 15.203

Directional antenna gain:

Bands	SISO		MIMO (CDD) Note 1.	MIMO (SDM) Note 2
	ANT 1 [dBi]	ANT 2 [dBi]	Directional Gain[dBi]	Directional Gain[dBi]
U-NII 1	-0.24	0.75	**3.28**	0.28
U-NII 2A	-1.43	-0.15	**2.24**	-0.74
U-NII 2C	-0.07	1.09	**3.54**	0.55
U-NII 3	-0.70	0.15	**2.75**	-0.25

Note 1. Directional gain(correlated signal with unequal antenna gain and equal transmit power)
$10 \log [(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N^{ANT}]$ dBi
Note 2. Directional gain(completely uncorrelated signal with unequal antenna gain and equal transmit power)
$10 \log [(10^{G1/10} + 10^{G2/10} + \ldots + 10^{GN/10}) / N^{ANT}]$ dBi

4. Summary of Test Result

FCC Part Section(s)	RSS Section(s)	Test Description	Limit	Test Condition	Status Note 1
15.407(a)	RSS-247[6.2]	Emission Bandwidth (26 dB Bandwidth)	N/A	Conducted	C
15.407(e)	RSS-247[6.2]	Minimum Emission Bandwidth (6 dB Bandwidth)	> 500 kHz in 5 725 ~ 5 850 MHz		C
15.407(a)	RSS-247[6.2]	Maximum Conducted Output Power	Part 15.407(a) (Refer to section 5.3)		C
15.407(a)	RSS-247[6.2]	Peak Power Spectral Density	Part 15.407(a) (Refer to section 5.4)		C
-	RSS-Gen[6.7]	Occupied Bandwidth (99 %)	N/A		C
15.407(h)	RSS-247[6.3]	Dynamic Frequency Selection	Part 15.407(h) (Refer to the DFS test report)		C Note 4
15.205 15.209 15.407(b)	RSS-Gen[8.9] RSS-Gen[8.10] RSS-247[6.2]	Unwanted Emissions	Part 15.209, 15.407(b) (Refer to section 5.5)	Radiated	C Note 3
15.207	RSS-Gen[8.8]	AC Conducted Emissions	Part 15.207 (Refer to section 5.6)	AC Line Conducted	C
15.203	-	Antenna Requirements	Part 15.203 (Refer to section 3)	-	C

Note 1: **C** = Comply **NC** = Not Comply **NT** = Not Tested **NA** = Not Applicable
Note 2: For radiated emission tests below 30 MHz were performed on semi-anechoic chamber which is correlated with OATS.
Note 3: This test item was performed in three orthogonal EUT positions and the worst case data was reported.
Note 4: Refer to the DFS test report.

5. TEST RESULT

5.1 Emission Bandwidth (26 dB Bandwidth) & Occupied BW (99 %)

▣ Test Requirements

- Emission Bandwidth (26 dB Bandwidth)

The bandwidth at 26 dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.
The 26 dB bandwidth is used to determine the conducted output power limit.

- Occupied BW (99 %)

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99 % emission bandwidth, as calculated or measured

▣ Test Configuration

Refer to the APPENDIX I.

▣ Test Procedure

- Emission Bandwidth (26 dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer and used following test procedure of **KDB789033 D02v02r01**.

1. Set resolution bandwidth (RBW) = approximately **1 %** of the EBW.
2. Set the video bandwidth **(VBW) > RBW**.
3. Detector = **Peak**.
4. Trace mode = **max hold**.

Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1 %.

- Occupied BW (99 %): RSS-Gen[6.7]

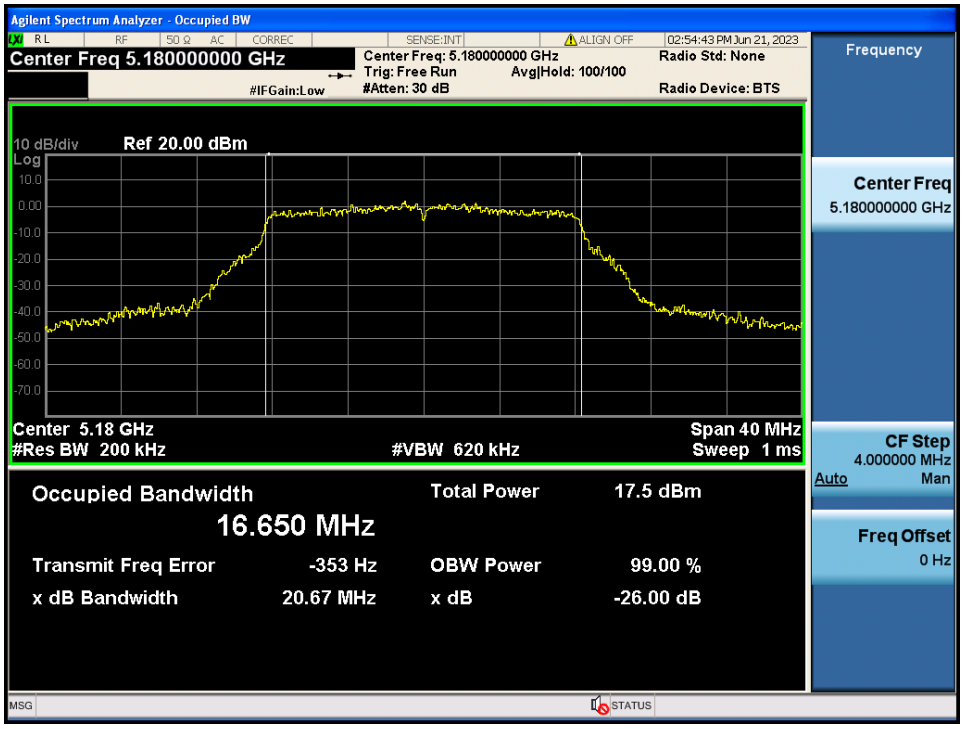
1. The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
2. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
3. The resolution bandwidth (RBW) shall be in the range of 1 % to 5 % of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3x RBW.

▣ **Test Results: Comply**

Test Mode	Band	Channel	Frequency(MHz)	26 dB BW(MHz)		99 % BW(MHz)	
				ANT 1	ANT 2	ANT 1	ANT 2
TM 1	U-NII 1	36	5 180	20.67	20.89	16.65	16.57
		40	5 200	21.01	20.88	16.63	16.55
		48	5 240	21.05	20.98	16.60	16.60
	U-NII 2A	52	5 260	21.42	21.20	16.63	16.62
		60	5 300	20.79	21.00	16.69	16.58
		64	5 320	21.49	21.21	16.70	16.61
	U-NII 2C	100	5 500	21.09	20.93	16.65	16.60
		116	5 580	20.91	20.78	16.63	16.55
		144	5 720	21.15	21.02	16.67	16.55
TM 2	U-NII 1	36	5 180	21.10	21.13	17.74	17.72
		40	5 200	21.47	21.05	17.80	17.76
		48	5 240	21.25	21.07	17.78	17.71
	U-NII 2A	52	5 260	21.42	21.22	17.76	17.77
		60	5 300	21.52	21.28	17.76	17.82
		64	5 320	21.27	21.25	17.79	17.76
	U-NII 2C	100	5 500	21.30	21.17	17.83	17.74
		116	5 580	21.35	21.25	17.79	17.73
		144	5 720	21.73	21.22	17.77	17.72
TM 3	U-NII 1	38	5 190	39.60	39.30	36.23	36.20
		46	5 230	39.46	39.50	36.24	36.20
	U-NII 2A	54	5 270	39.77	39.20	36.24	36.22
		62	5 310	39.40	39.09	36.23	36.25
	U-NII 2C	102	5 510	39.84	38.91	36.20	36.25
		110	5 550	39.77	39.23	36.17	36.20
		142	5 710	39.29	39.09	36.22	36.21
TM 4	U-NII 1	42	5 210	81.25	80.14	75.54	75.48
	U-NII 2A	58	5 290	81.59	80.22	75.59	75.50
	U-NII 2C	106	5 530	80.93	80.69	75.44	75.55
		138	5 690	81.36	80.19	75.53	75.46

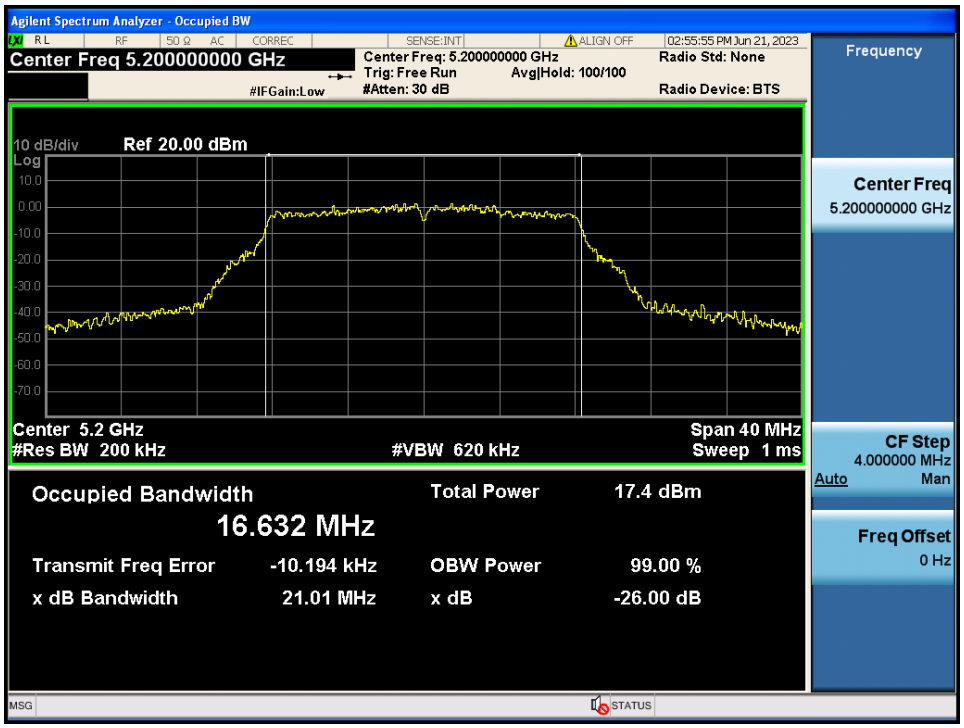
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 1 & Ch.36



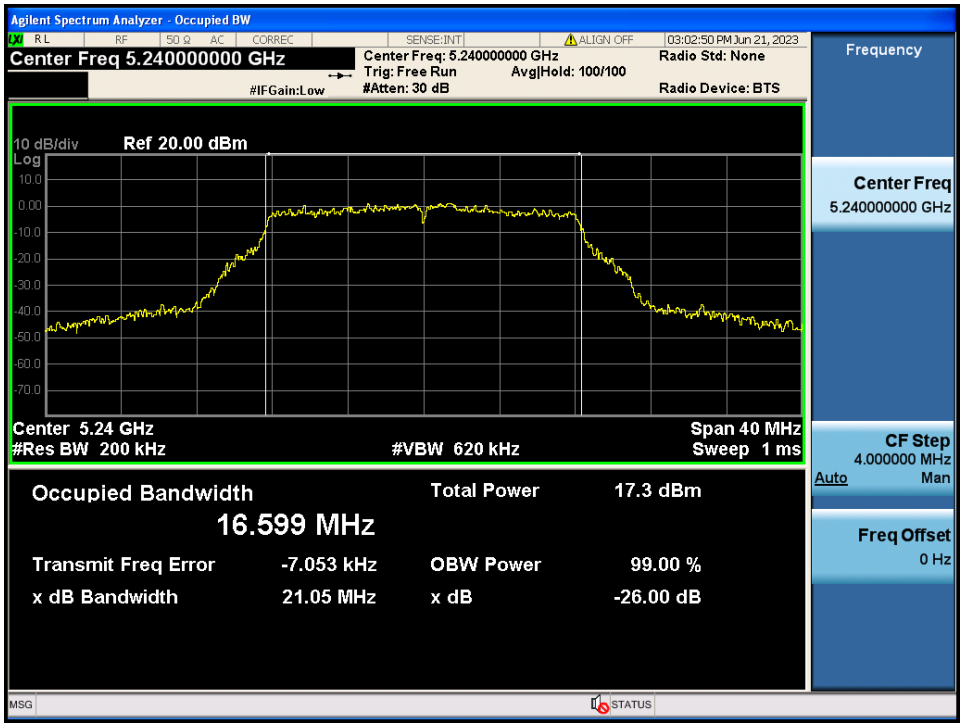
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 1 & Ch.40



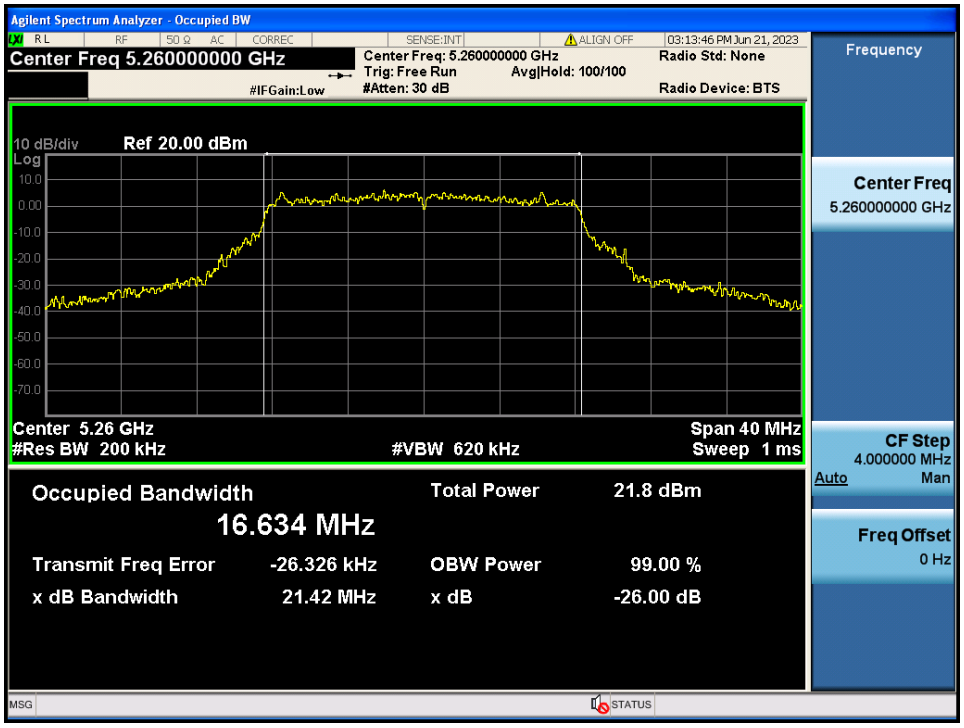
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 1 & Ch.48



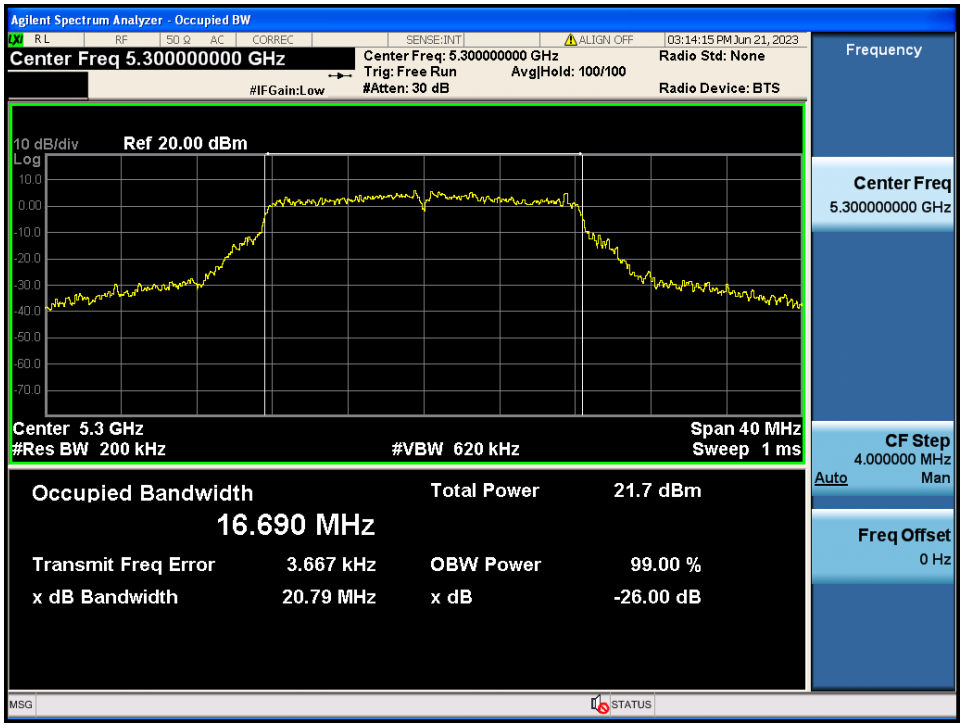
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 1 & Ch.52



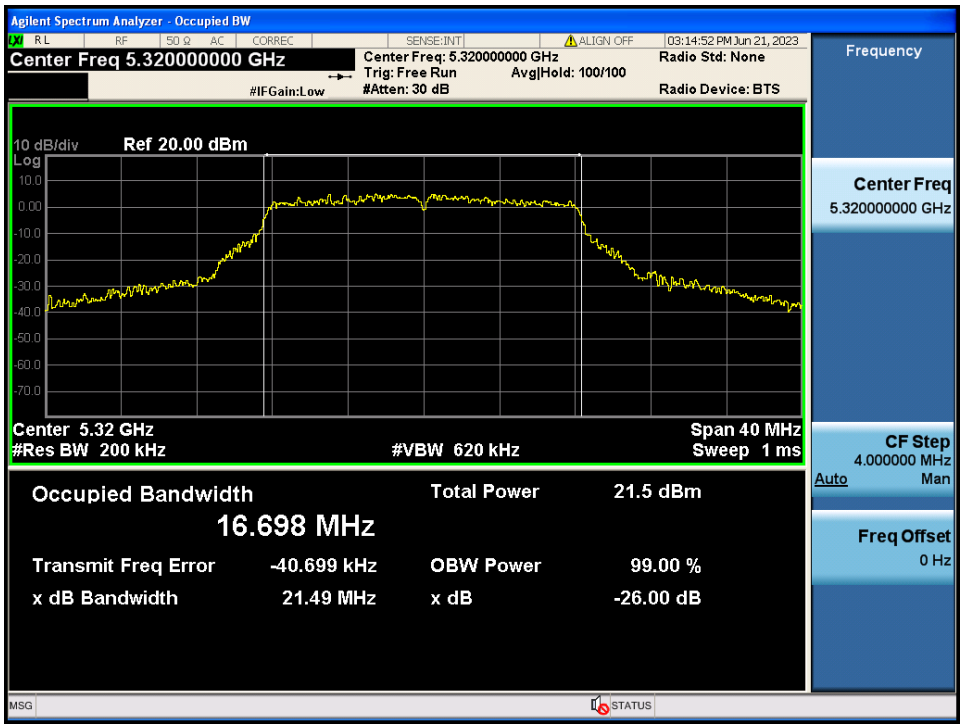
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 1 & Ch.60



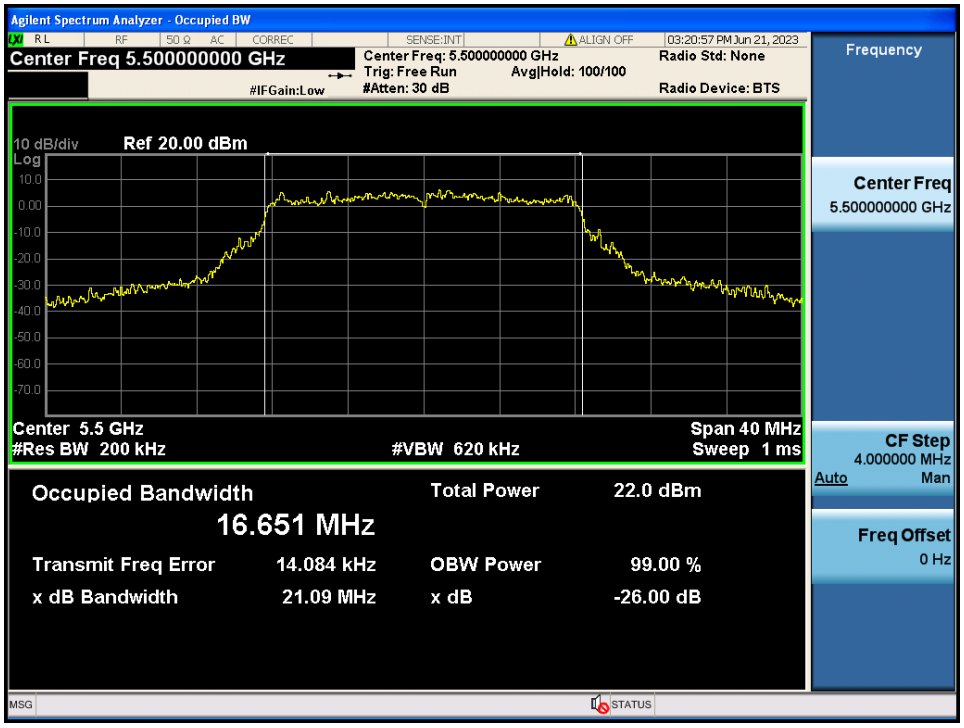
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 1 & Ch.64



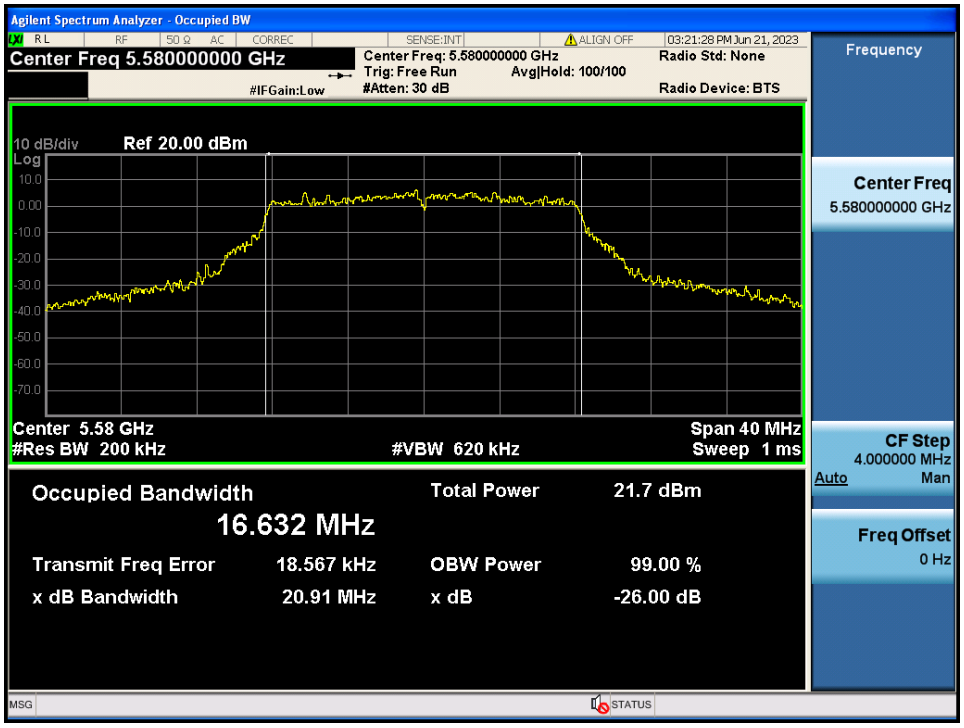
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 1 & Ch.100



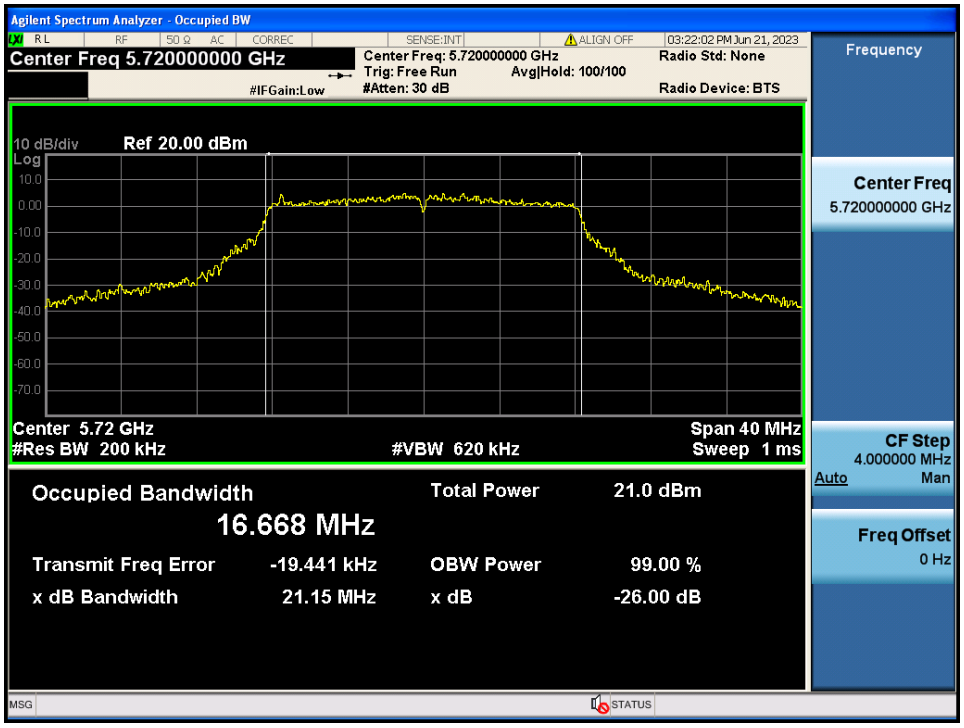
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 1 & Ch.116



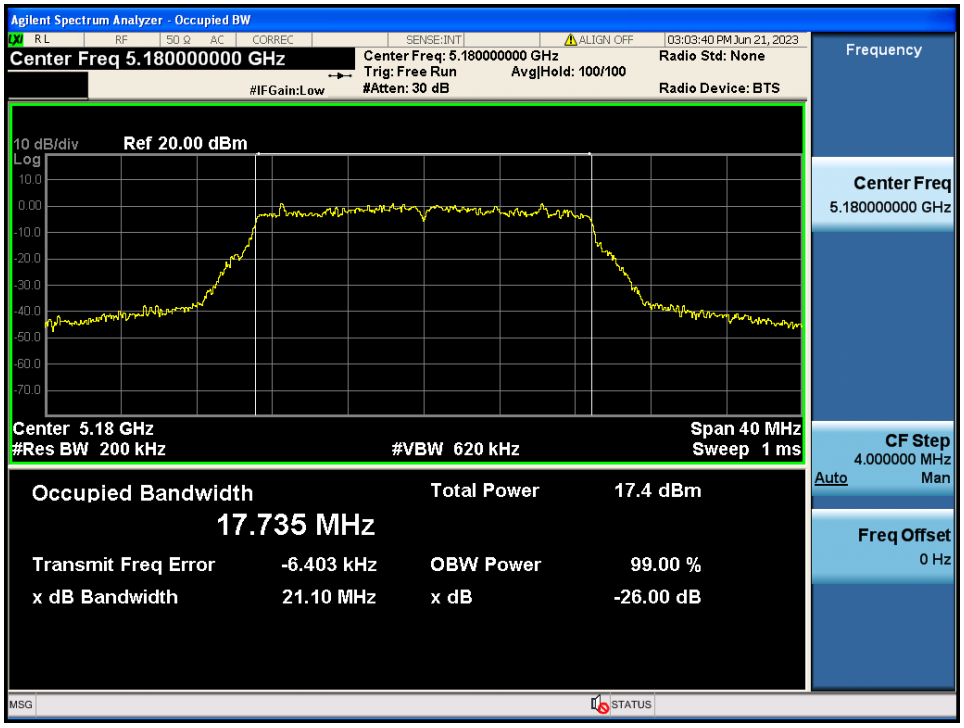
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 1 & Ch.144



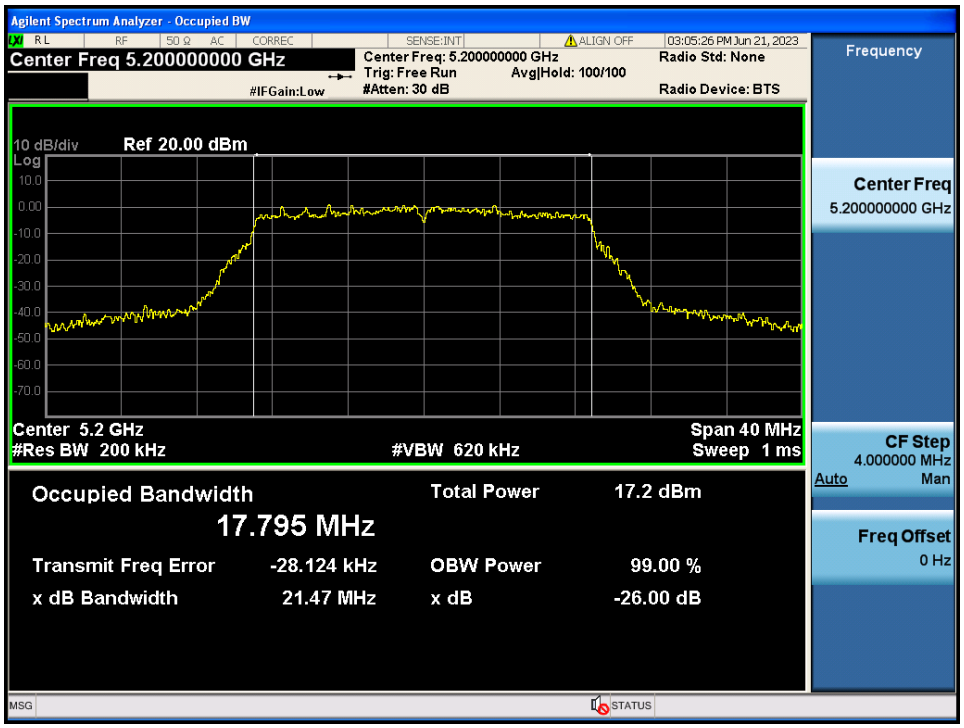
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 1 & Ch.36



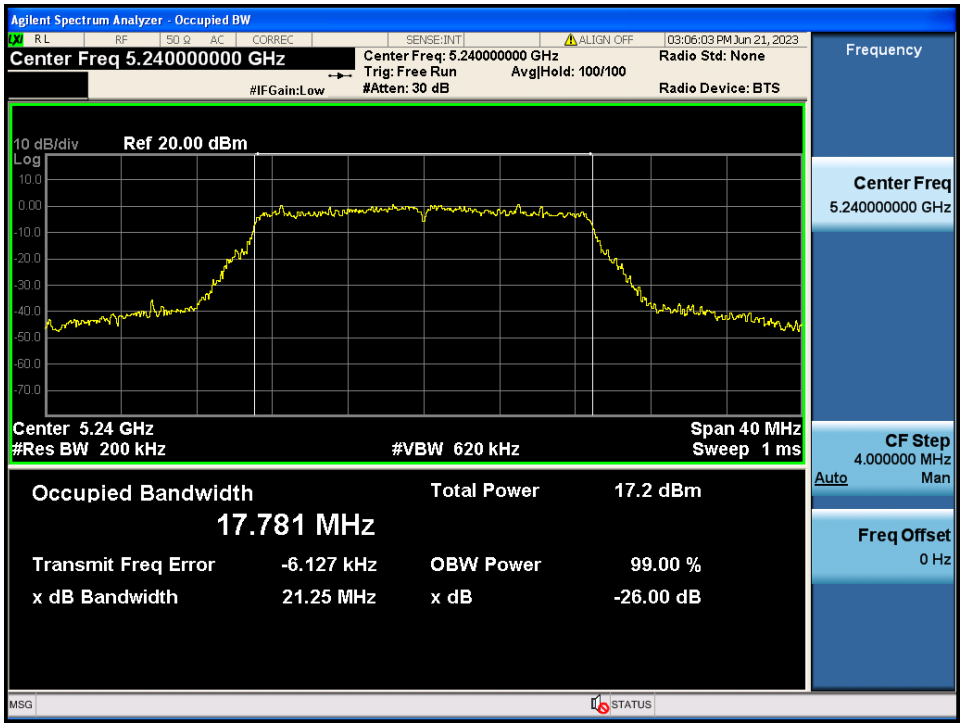
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 1 & Ch.40



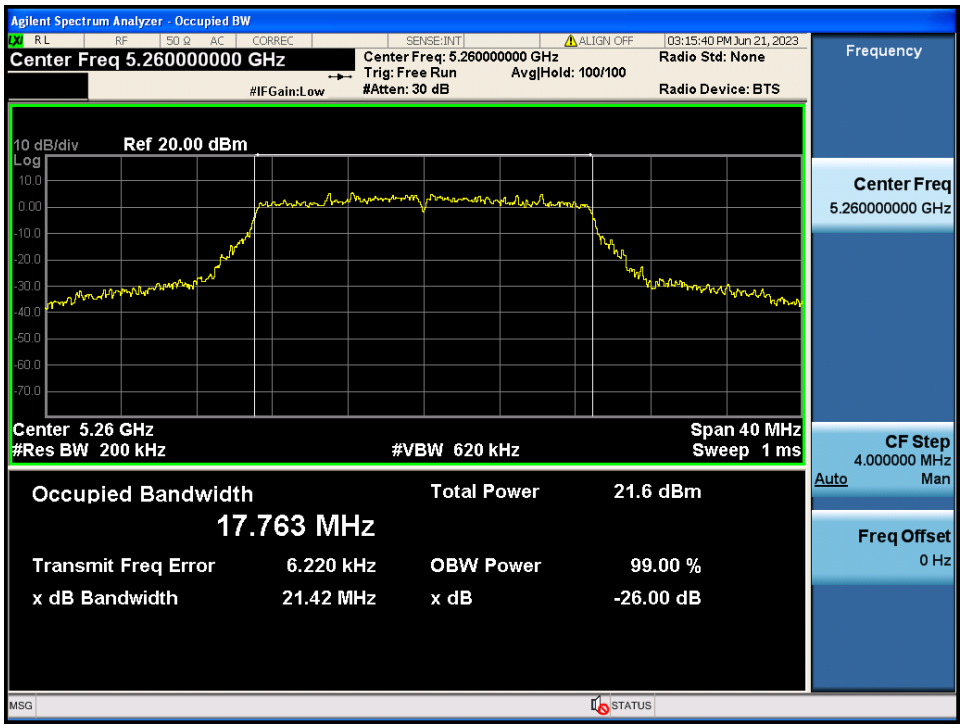
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 1 & Ch.48



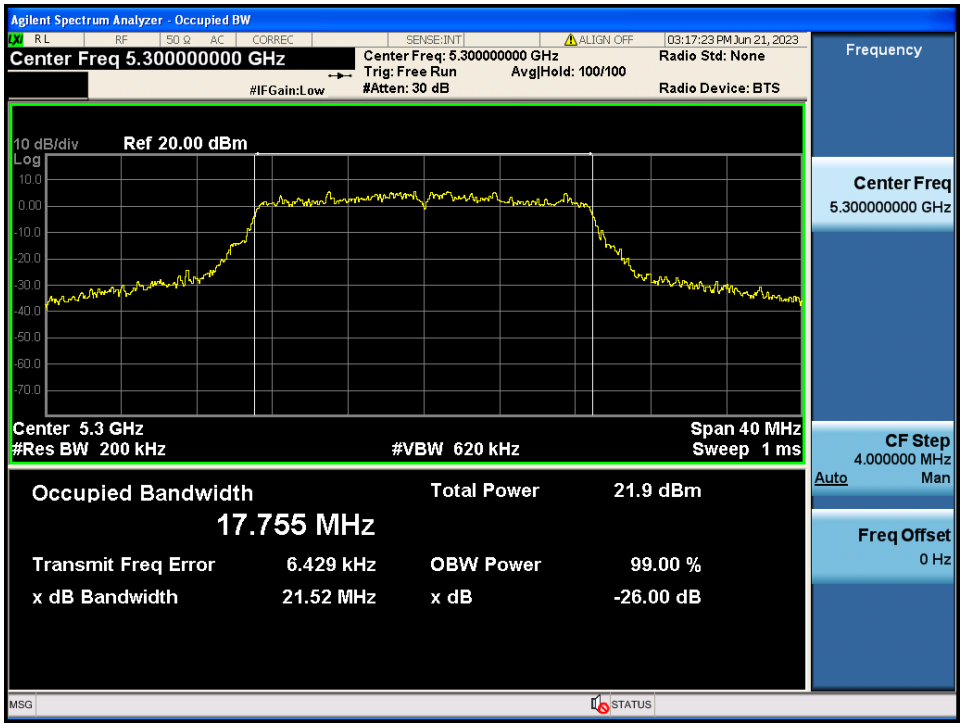
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 1 & Ch.52



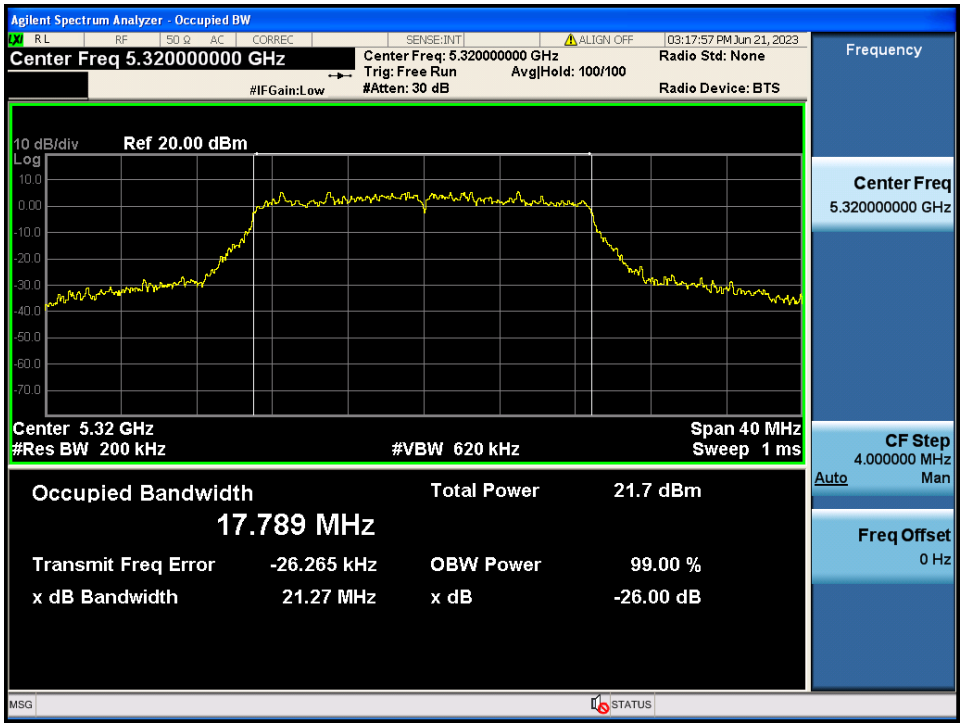
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 1 & Ch.60



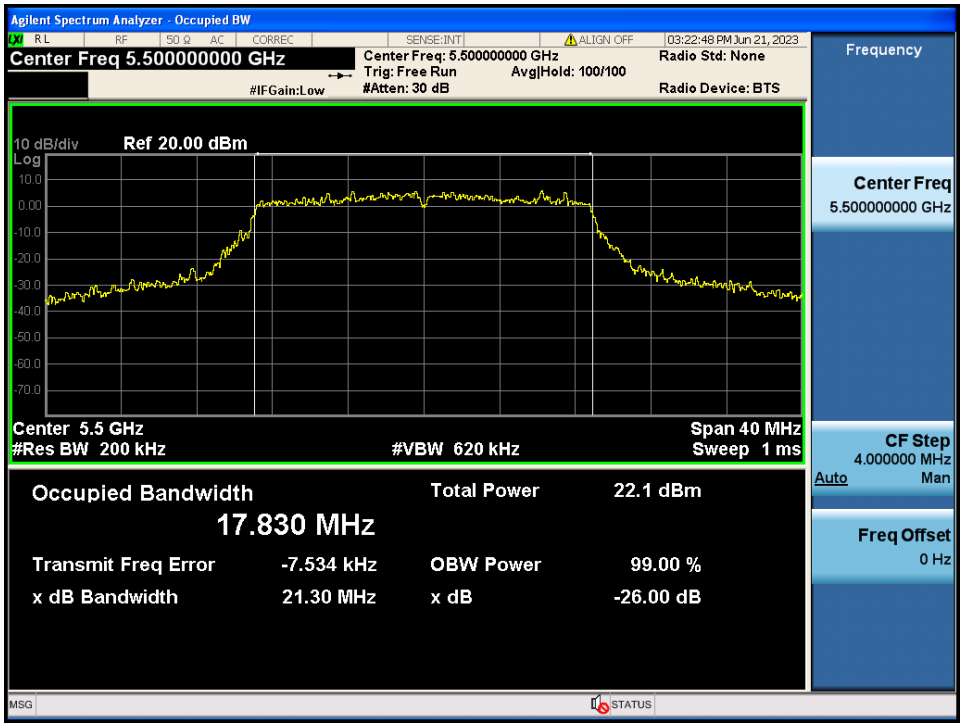
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 1 & Ch.64



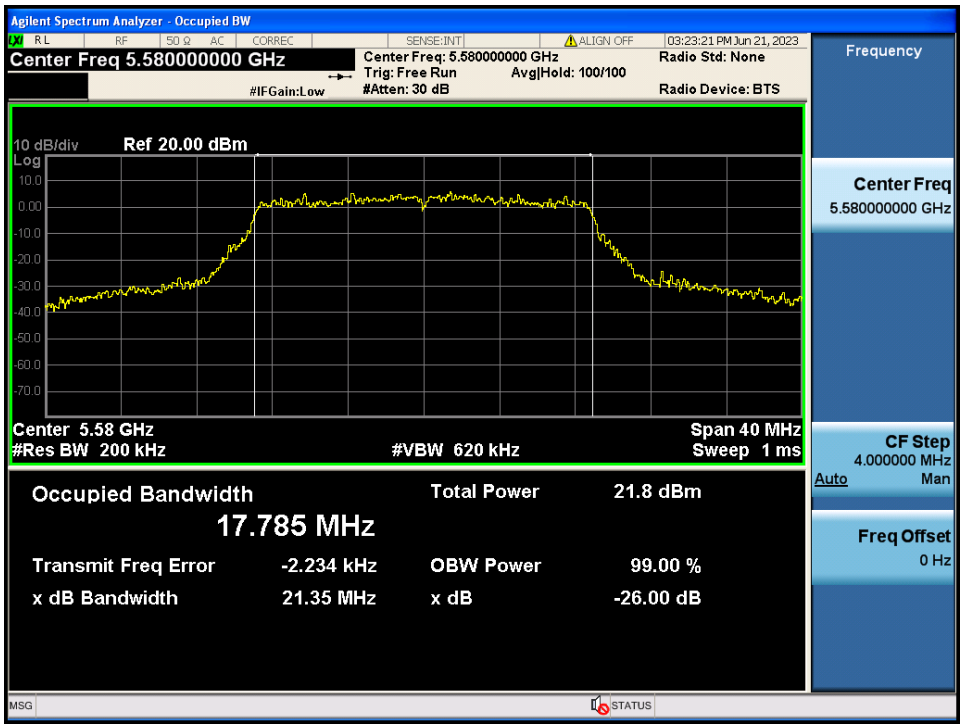
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 1 & Ch.100



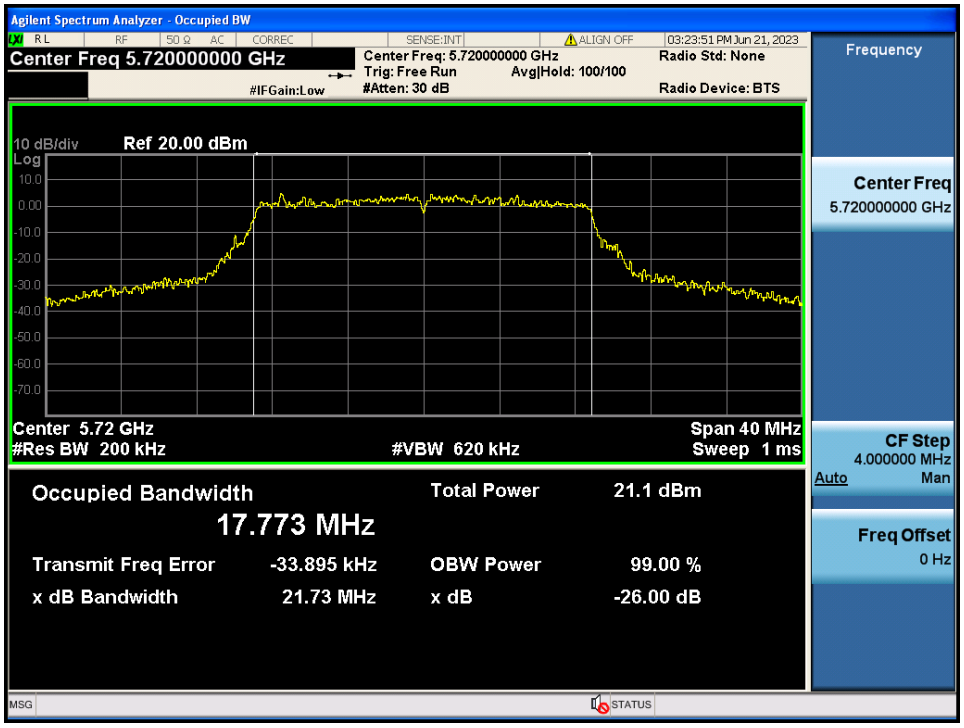
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 1 & Ch.116



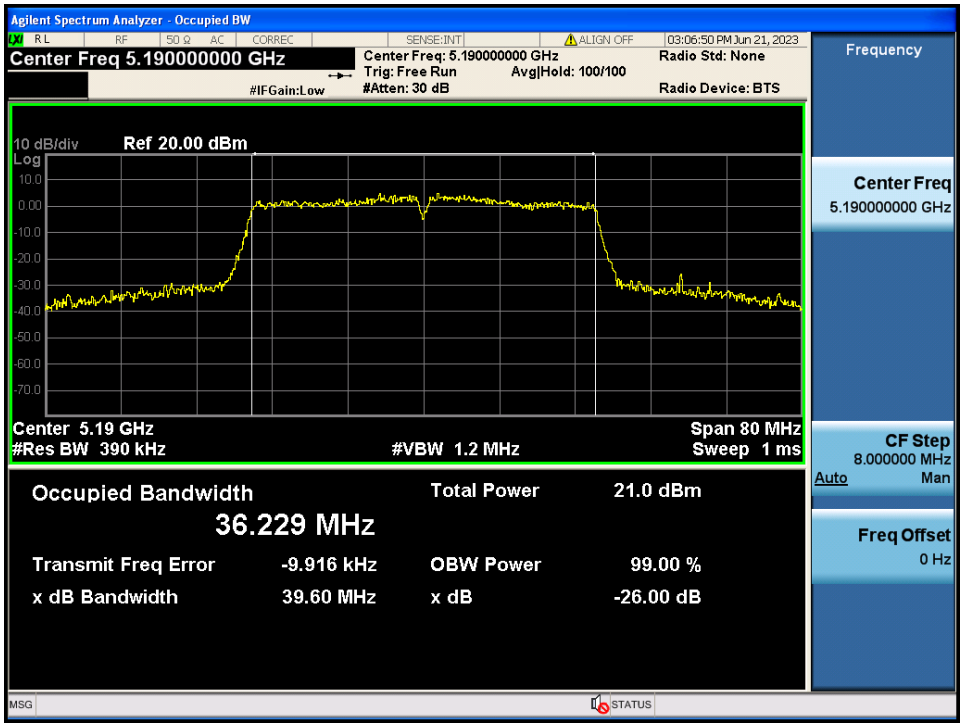
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 1 & Ch.144



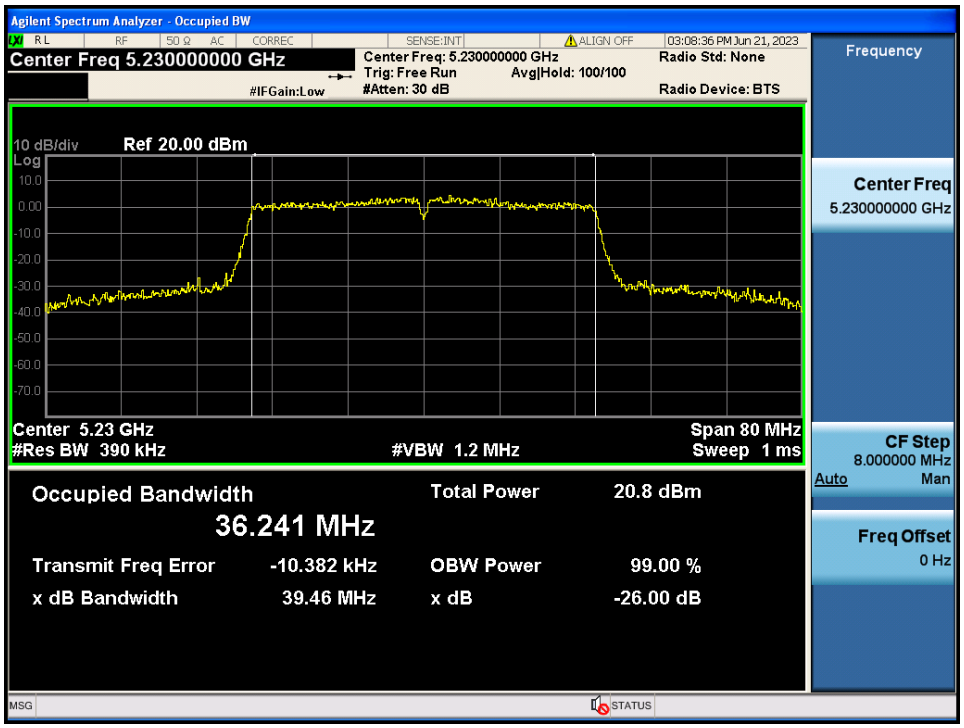
26 dB Bandwidth & Occupied BW

Test Mode: TM 3 & ANT 1 & Ch.38



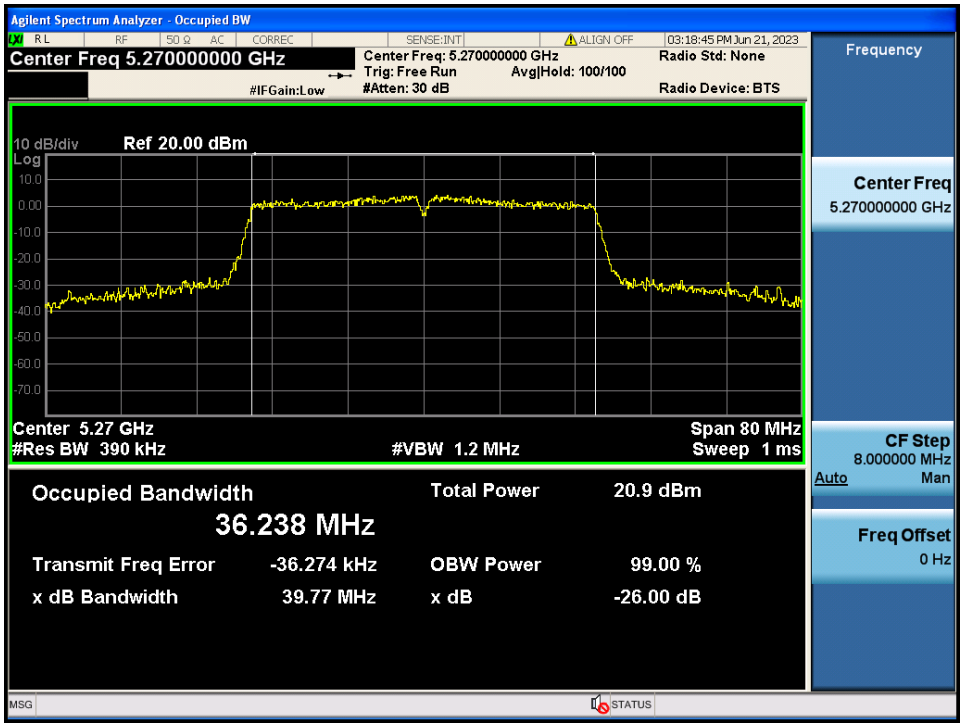
26 dB Bandwidth & Occupied BW

Test Mode: TM 3 & ANT 1 & Ch.46



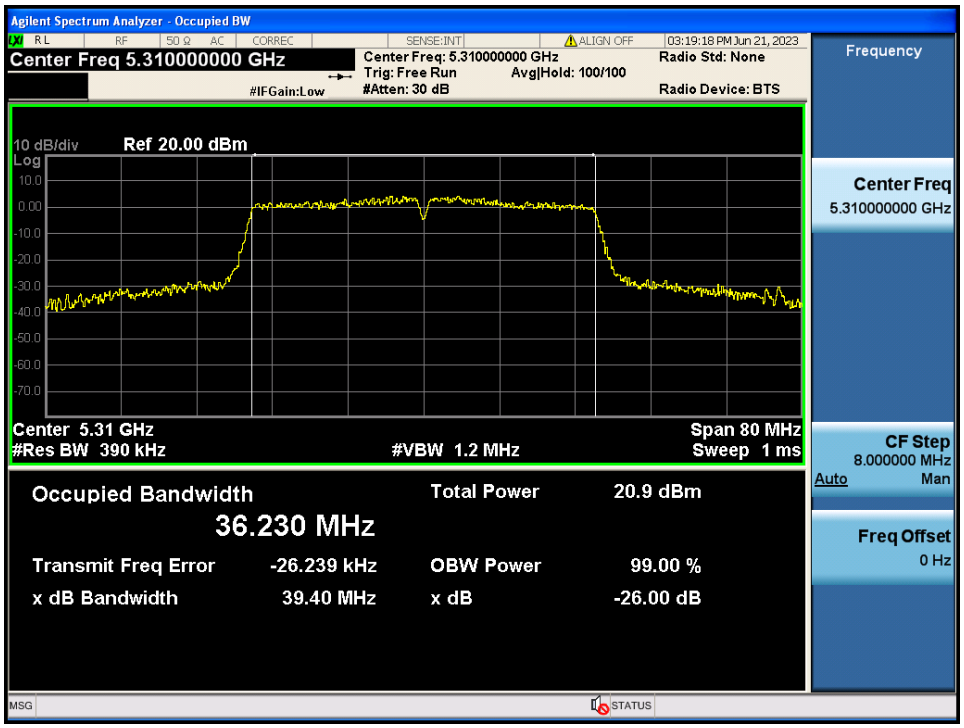
26 dB Bandwidth & Occupied BW

Test Mode: TM 3 & ANT 1 & Ch.54



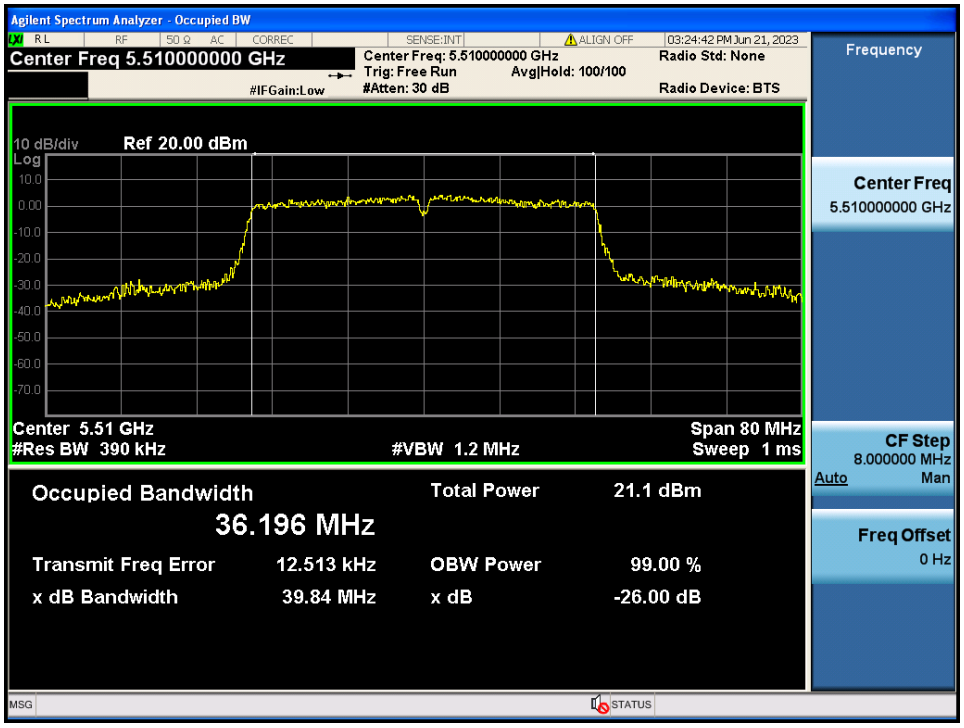
26 dB Bandwidth & Occupied BW

Test Mode: TM 3 & ANT 1 & Ch.62



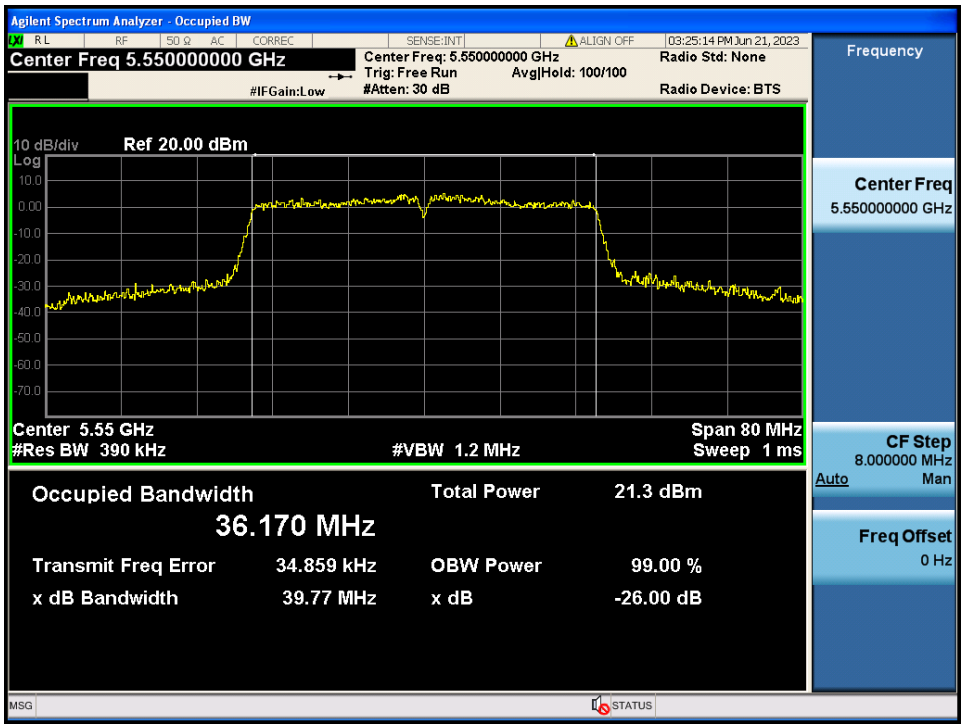
26 dB Bandwidth & Occupied BW

Test Mode: TM 3 & ANT 1 & Ch.102



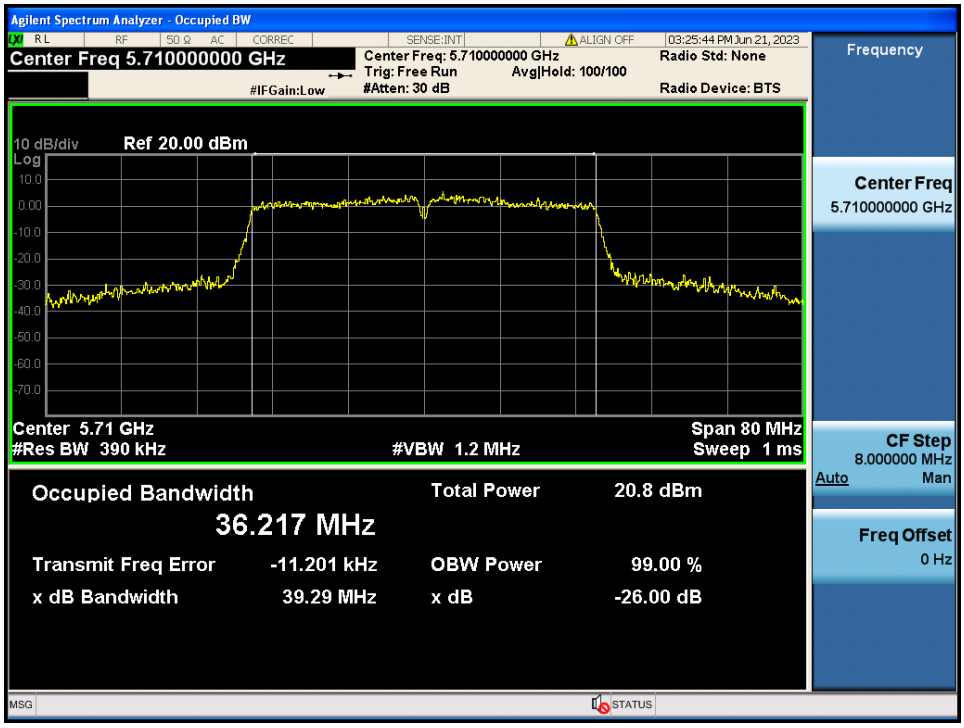
26 dB Bandwidth & Occupied BW

Test Mode: TM 3 & ANT 1 & Ch.110



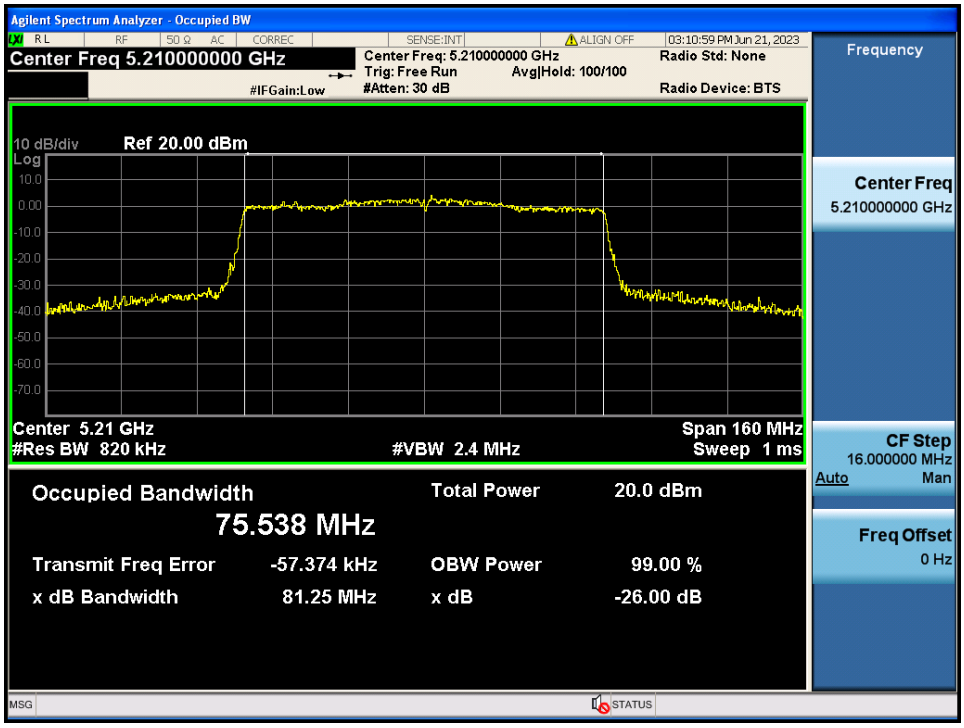
26 dB Bandwidth & Occupied BW

Test Mode: TM 3 & ANT 1 & Ch.142



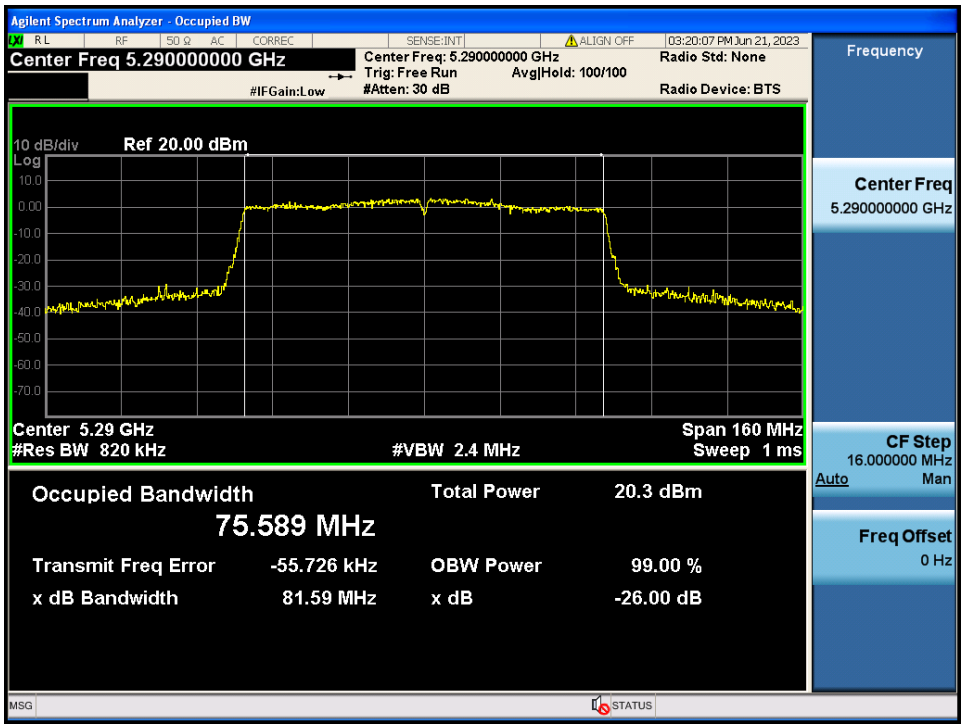
26 dB Bandwidth & Occupied BW

Test Mode: TM 4 & ANT 1 & Ch.42



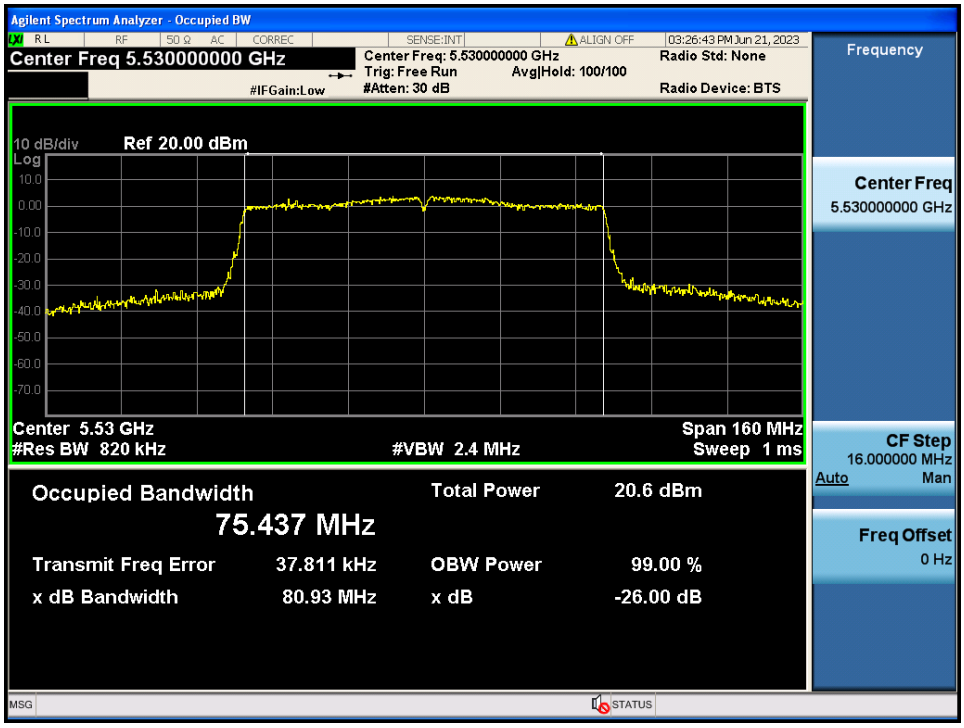
26 dB Bandwidth & Occupied BW

Test Mode: TM 4 & ANT 1 & Ch.58



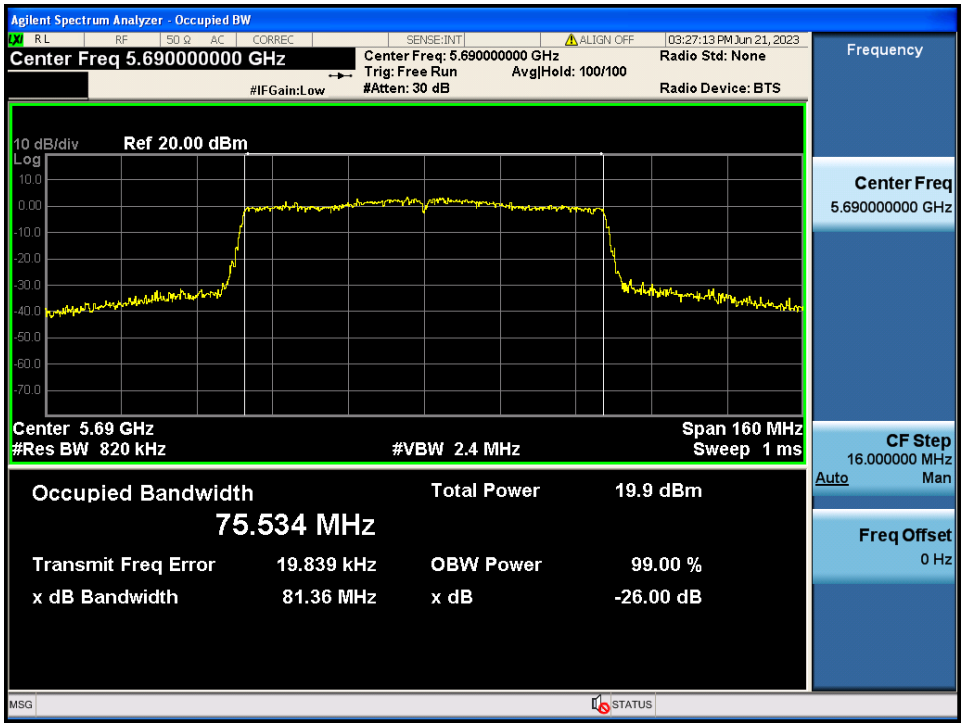
26 dB Bandwidth & Occupied BW

Test Mode: TM 4 & ANT 1 & Ch.106



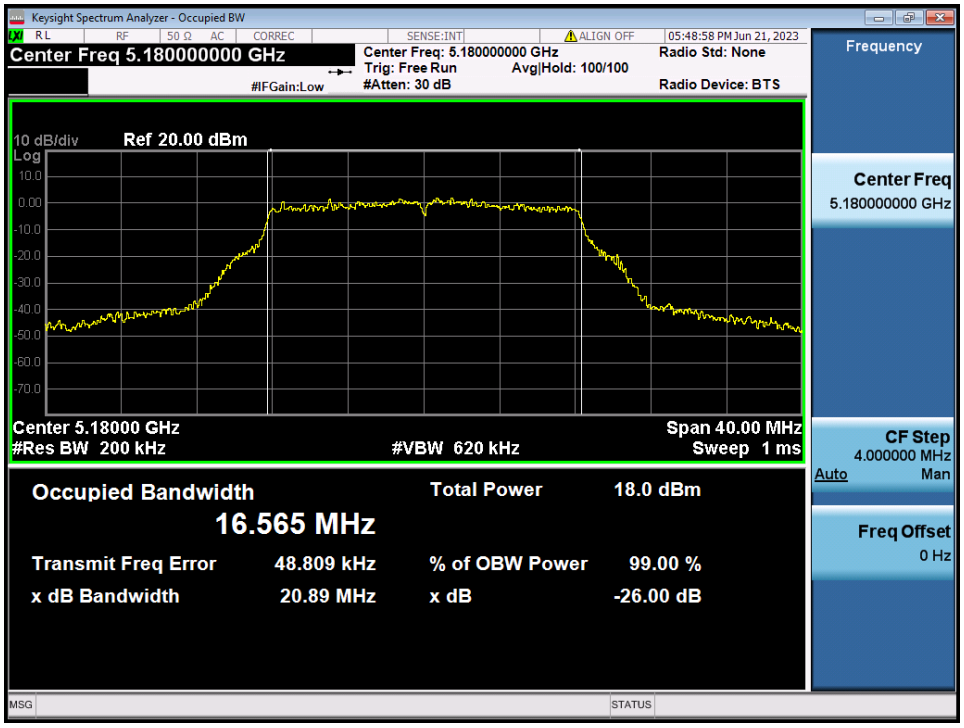
26 dB Bandwidth & Occupied BW

Test Mode: TM 4 & ANT 1 & Ch.138



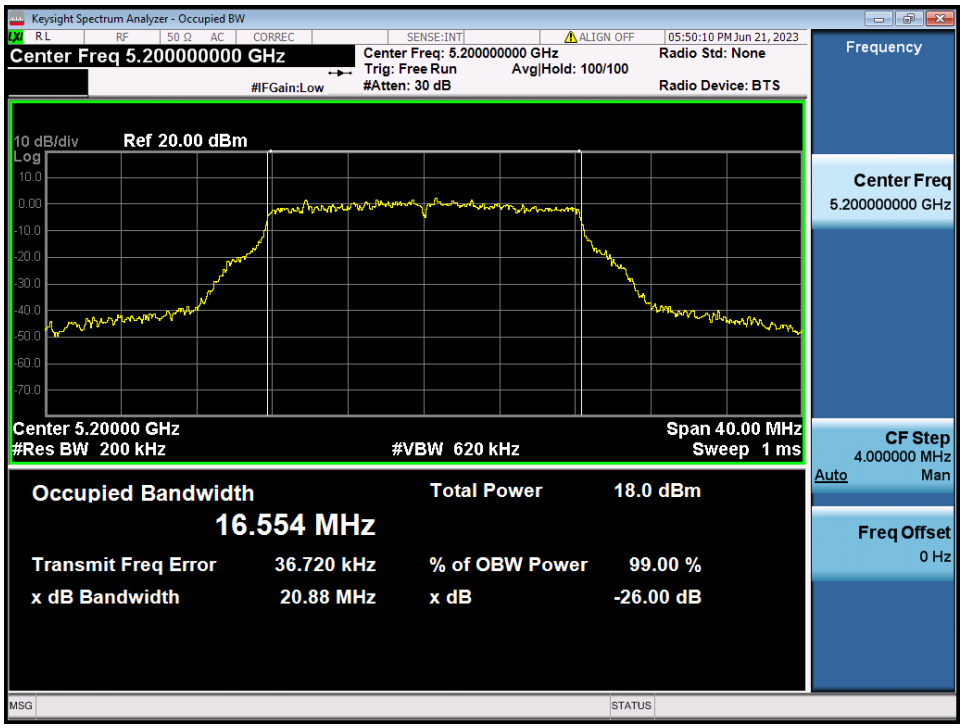
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 2 & Ch.36



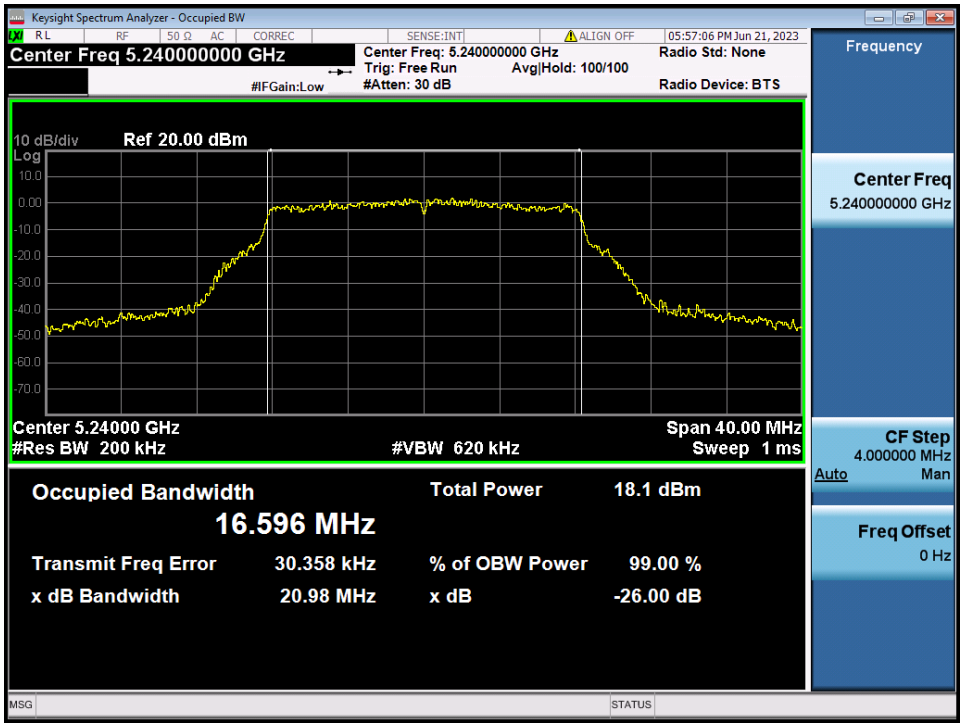
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 2 & Ch.40



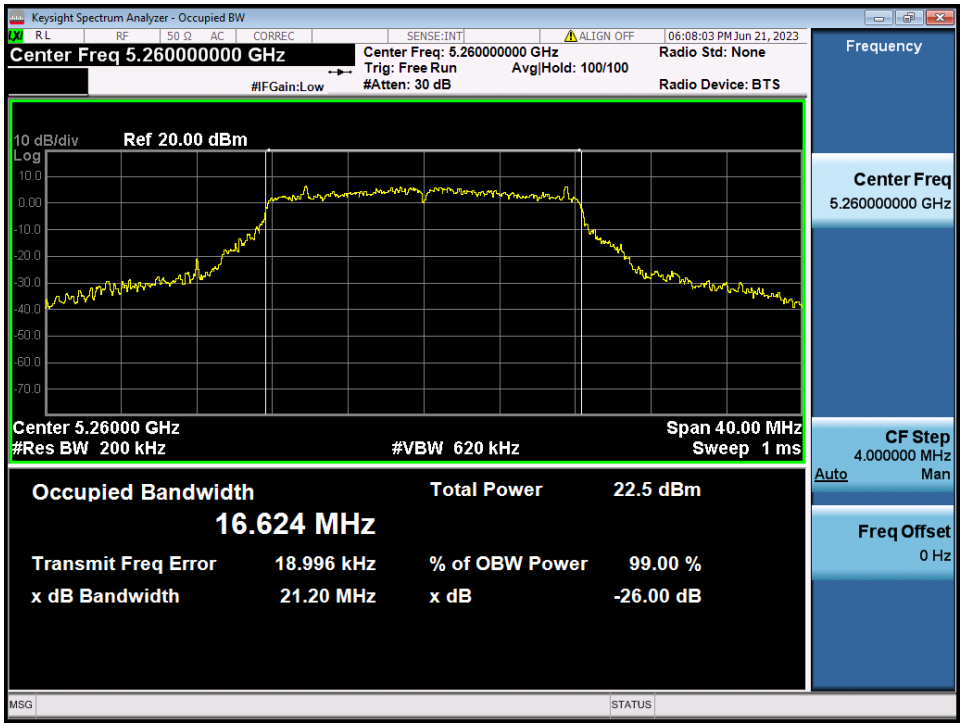
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 2 & Ch.48



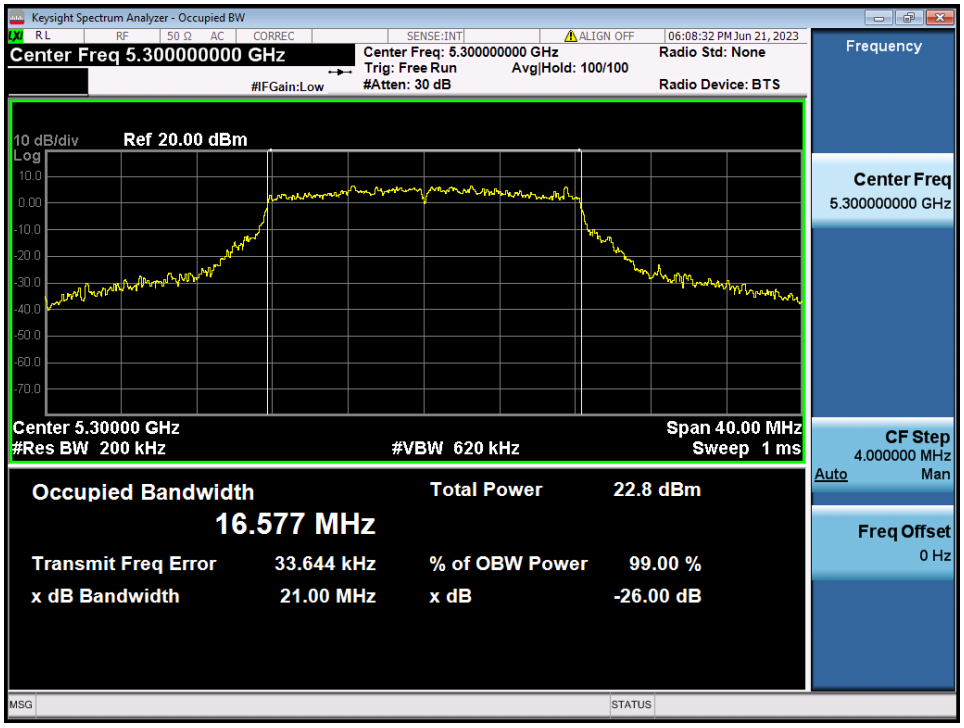
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 2 & Ch.52



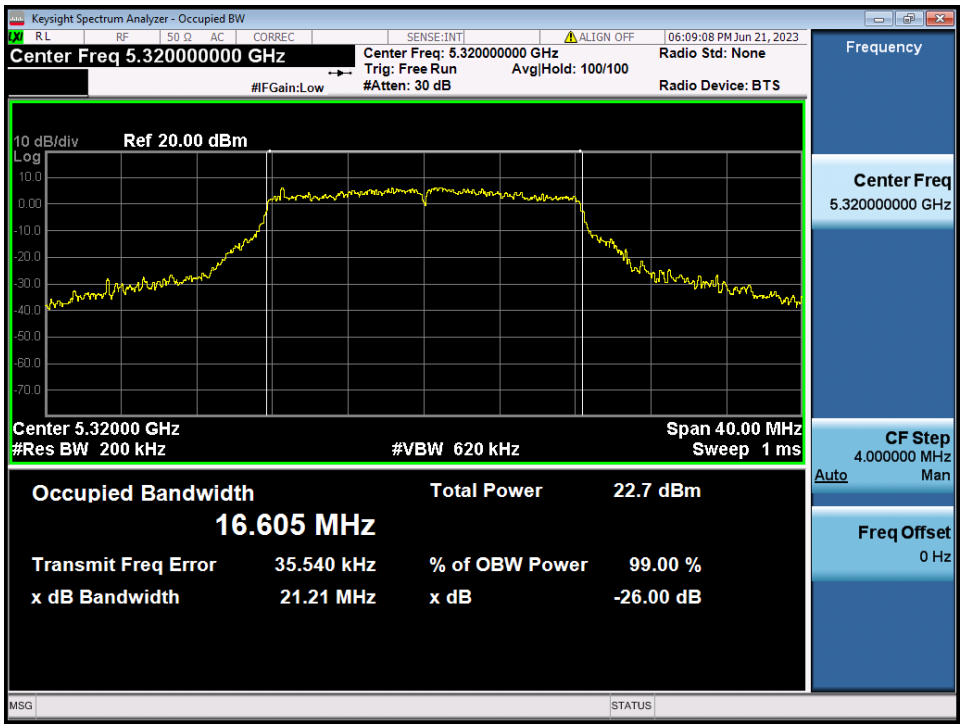
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 2 & Ch.60



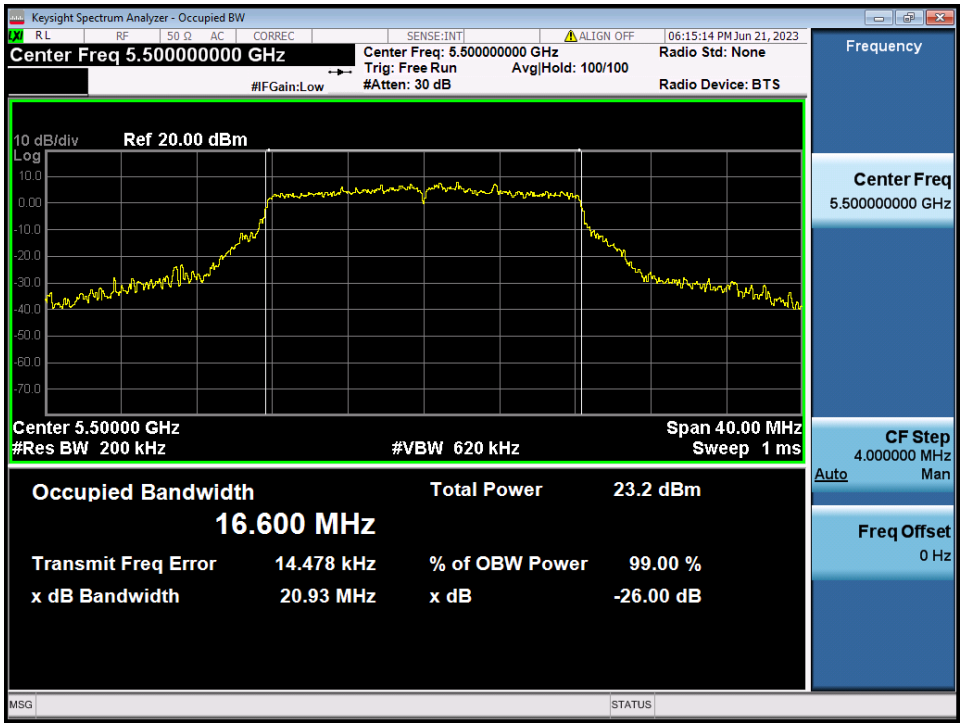
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 2 & Ch.64



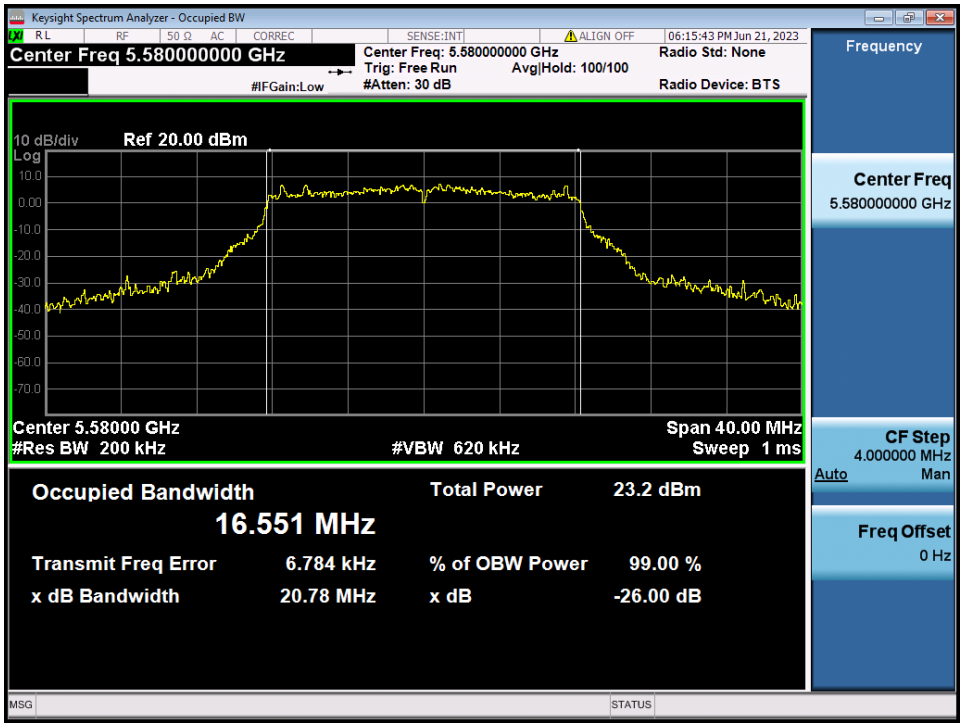
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 2 & Ch.100



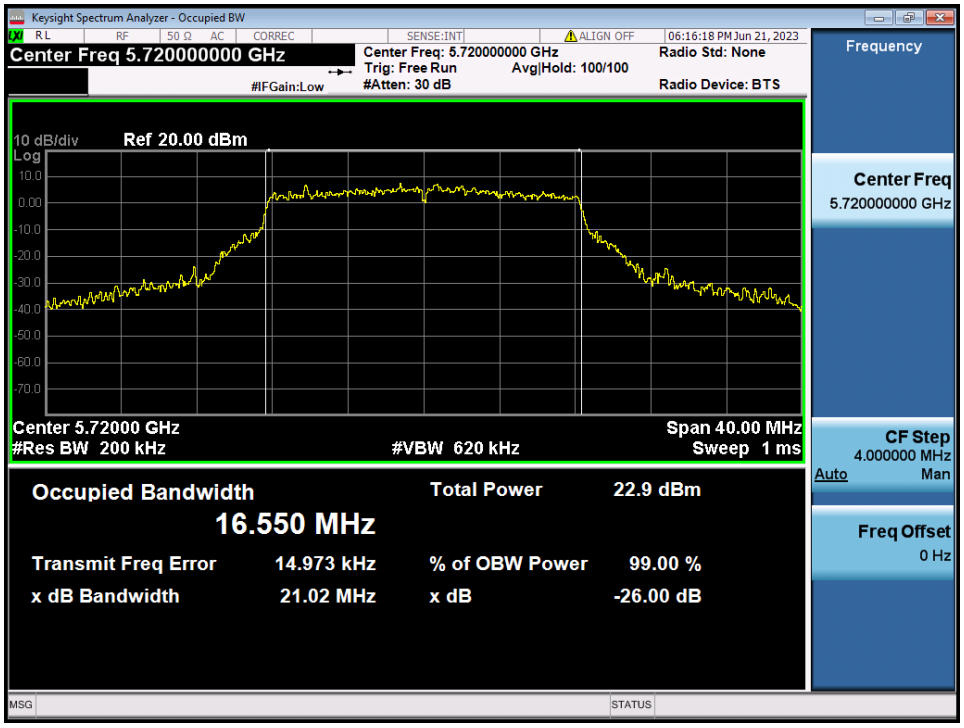
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 2 & Ch.116



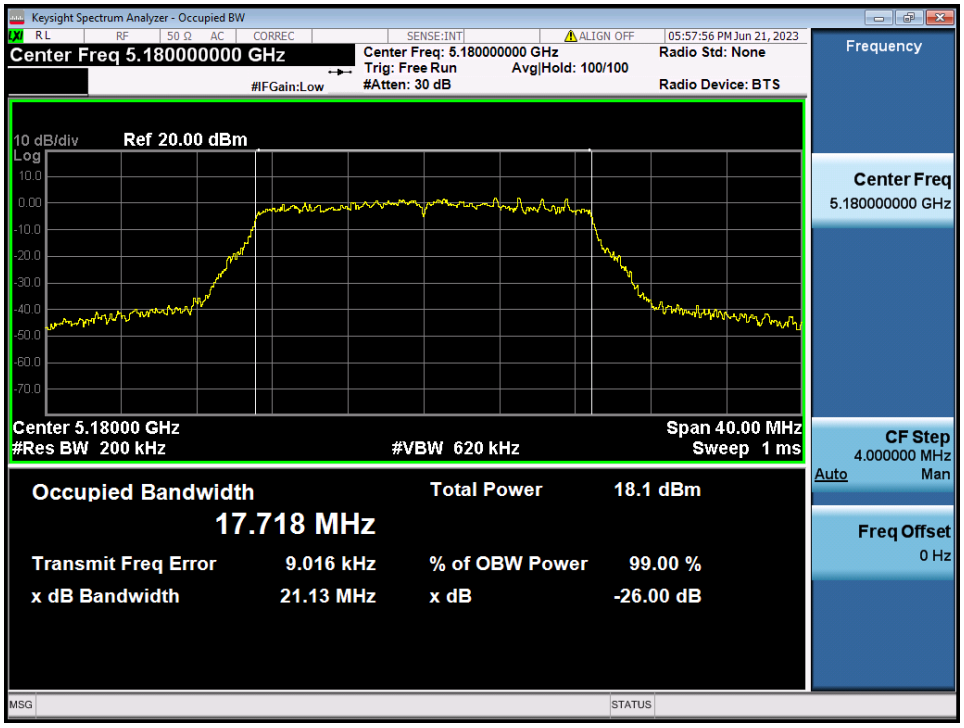
26 dB Bandwidth & Occupied BW

Test Mode: TM 1 & ANT 2 & Ch.144



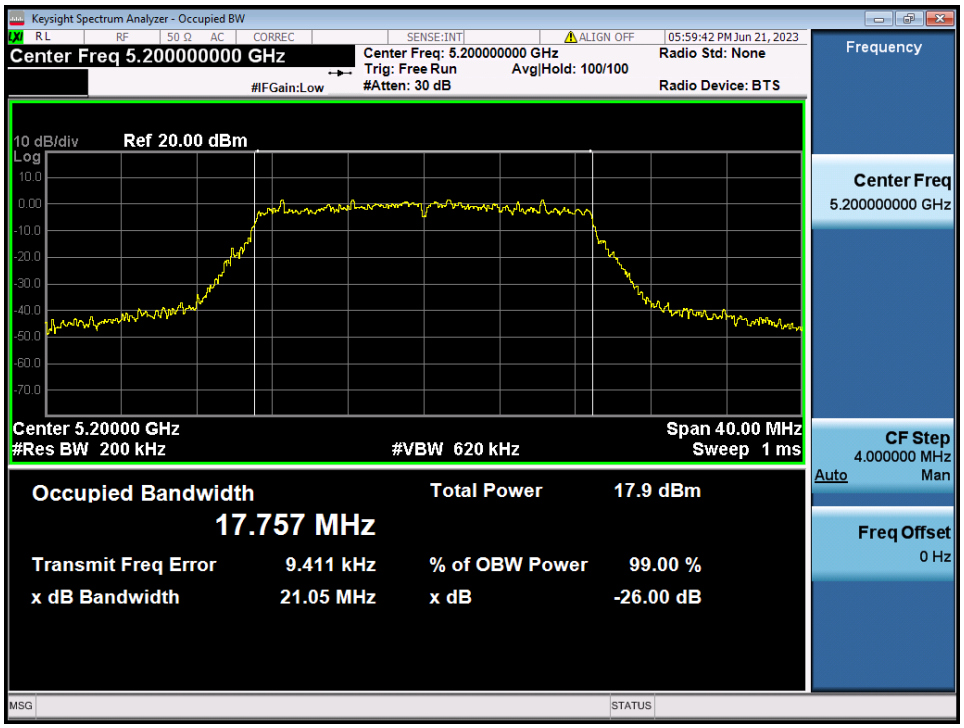
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 2 & Ch.36



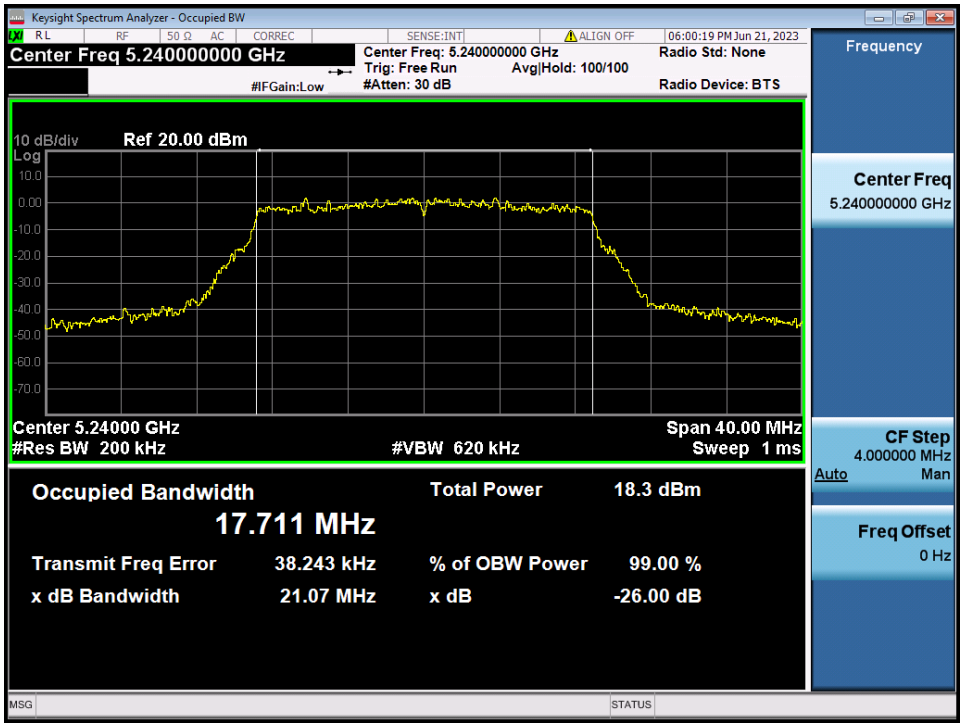
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 2 & Ch.40



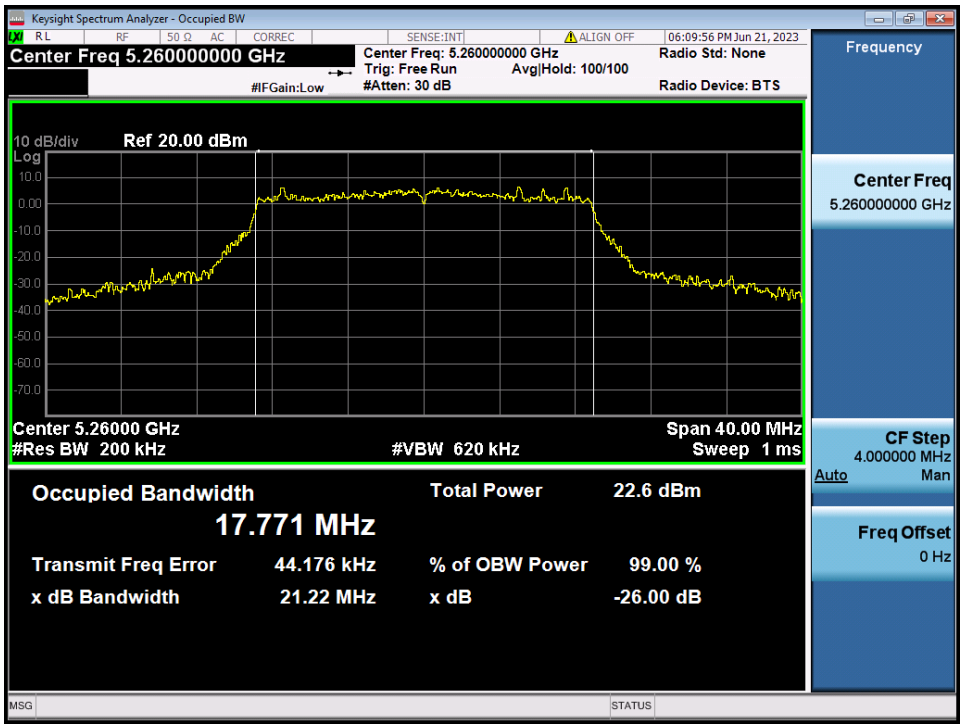
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 2 & Ch.48



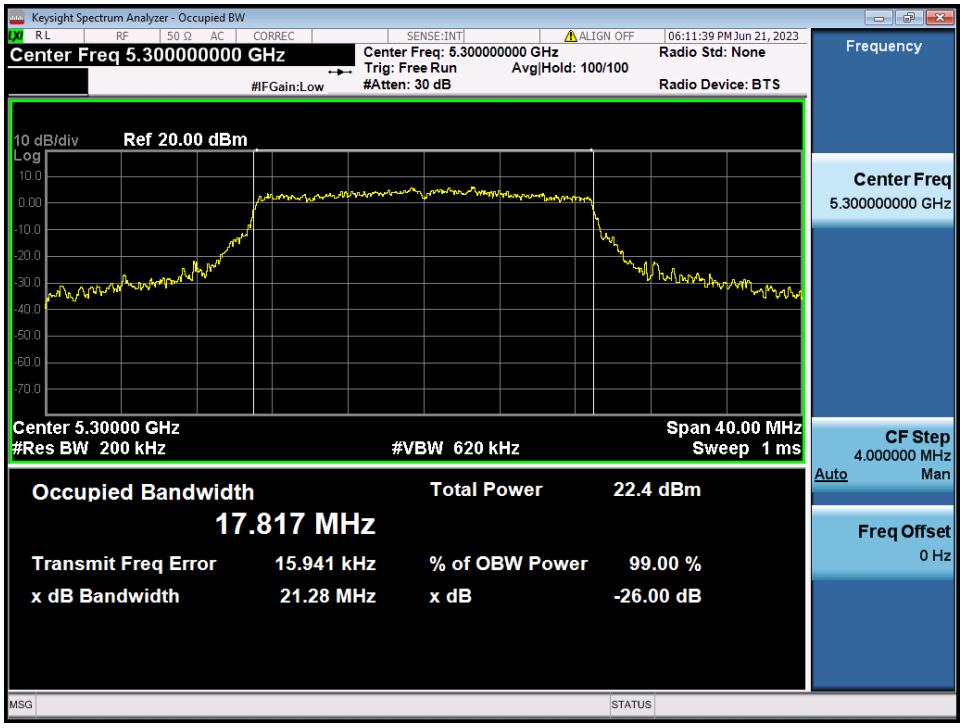
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 2 & Ch.52



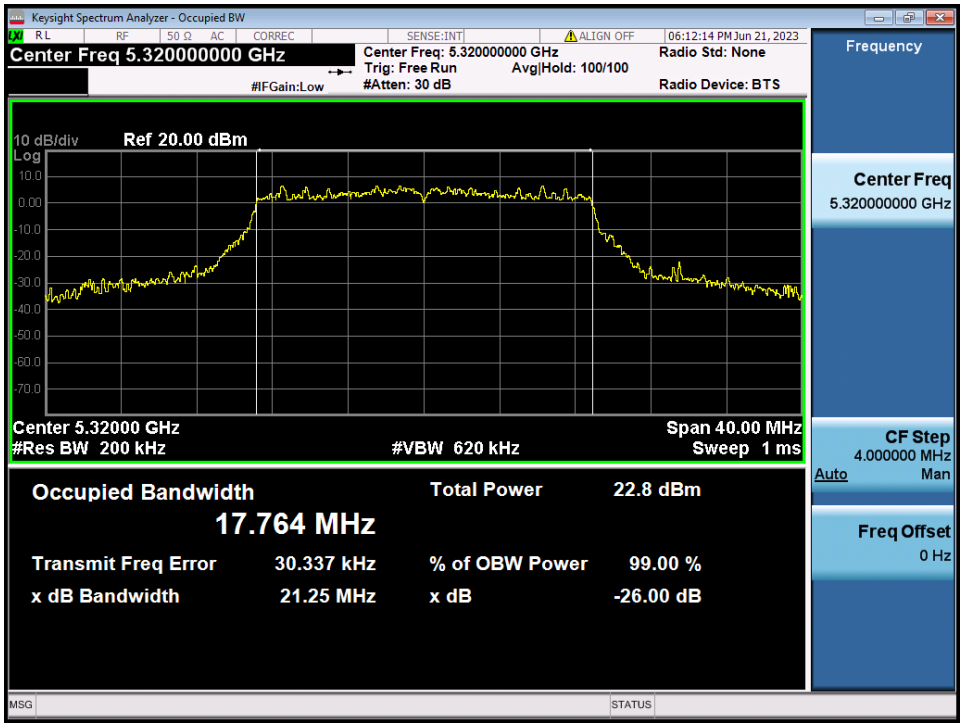
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 2 & Ch.60



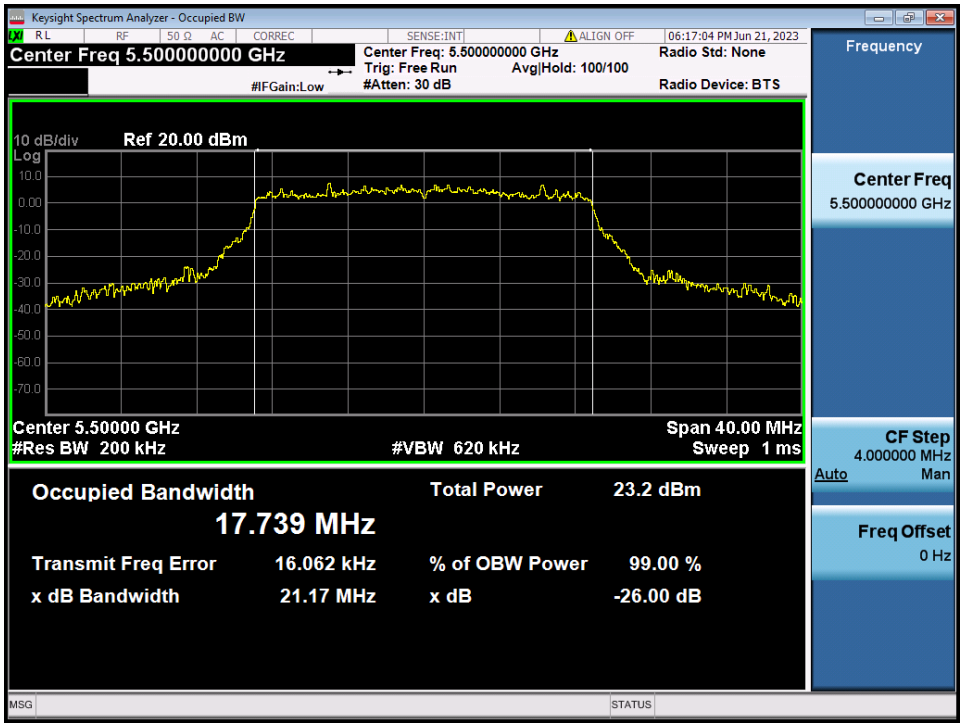
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 2 & Ch.64



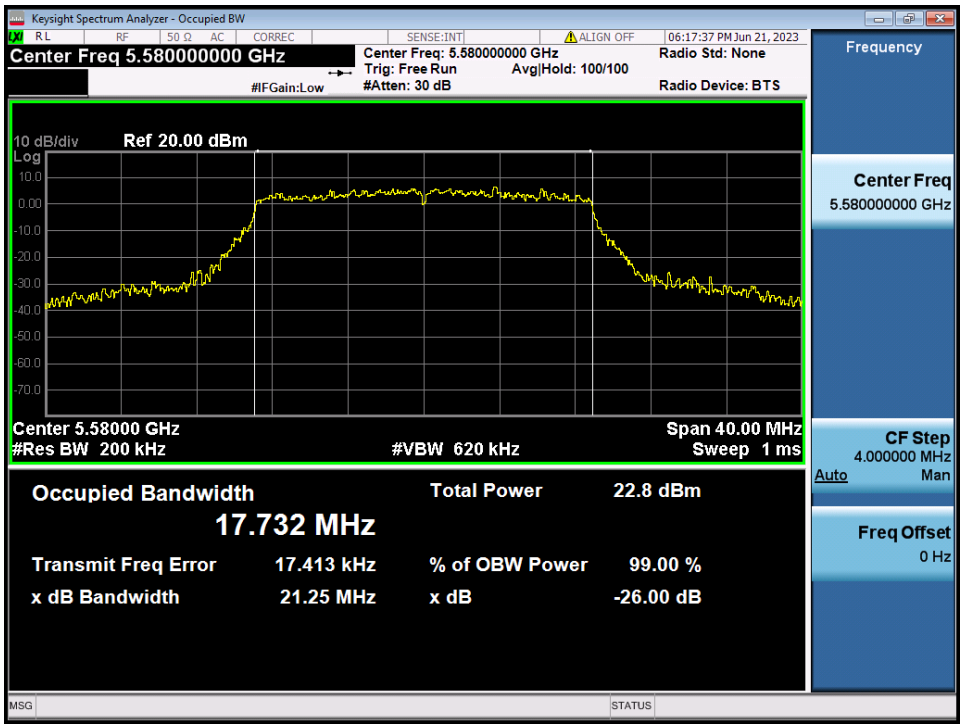
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 2 & Ch.100



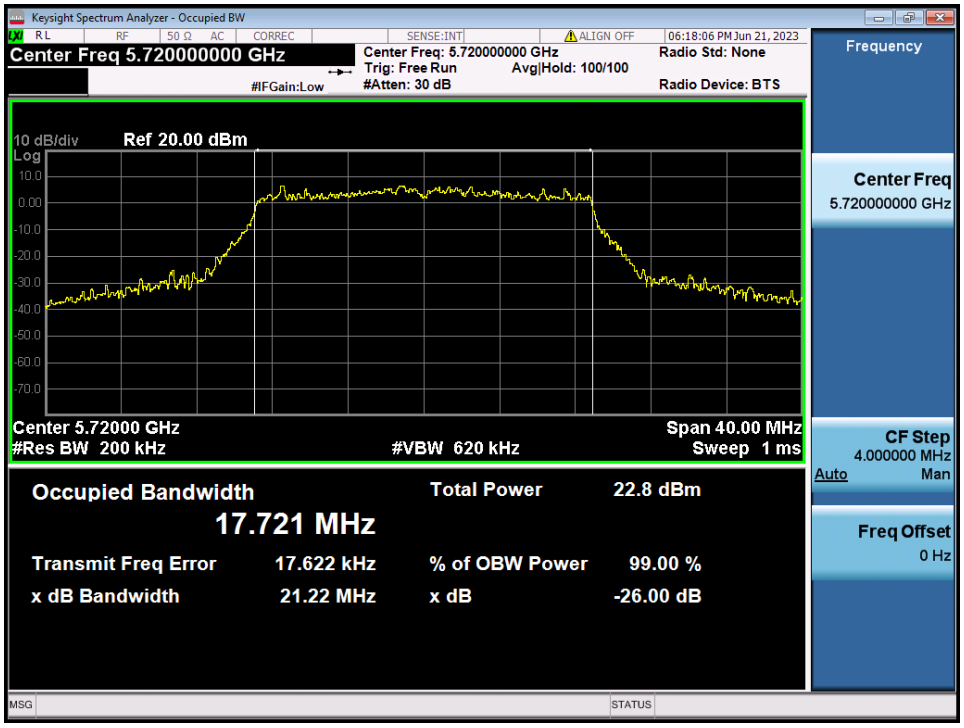
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 2 & Ch.116



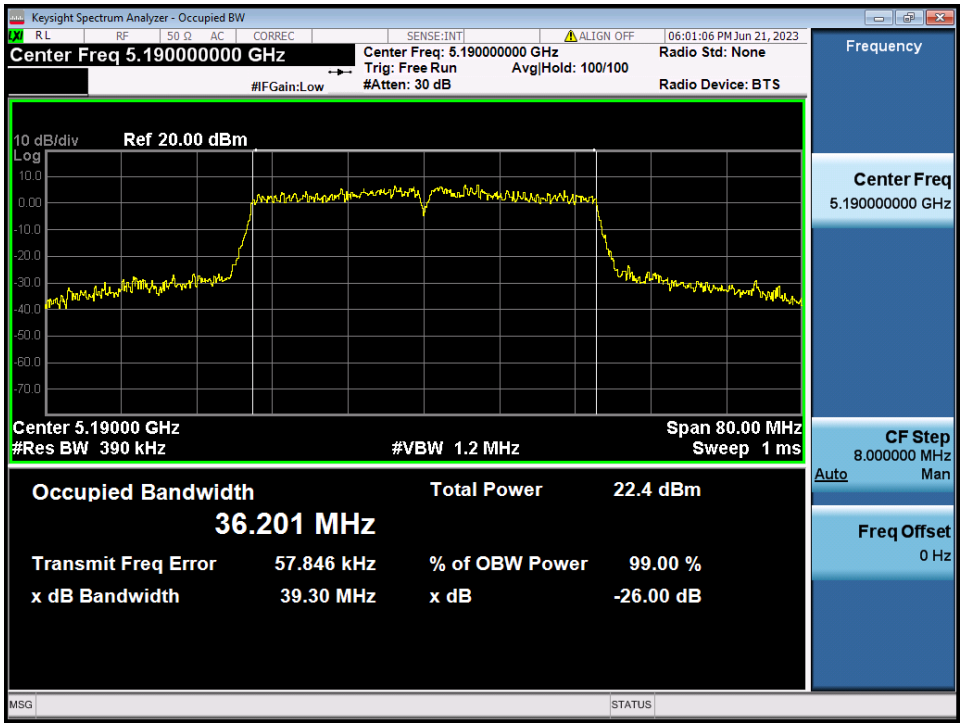
26 dB Bandwidth & Occupied BW

Test Mode: TM 2 & ANT 2 & Ch.144



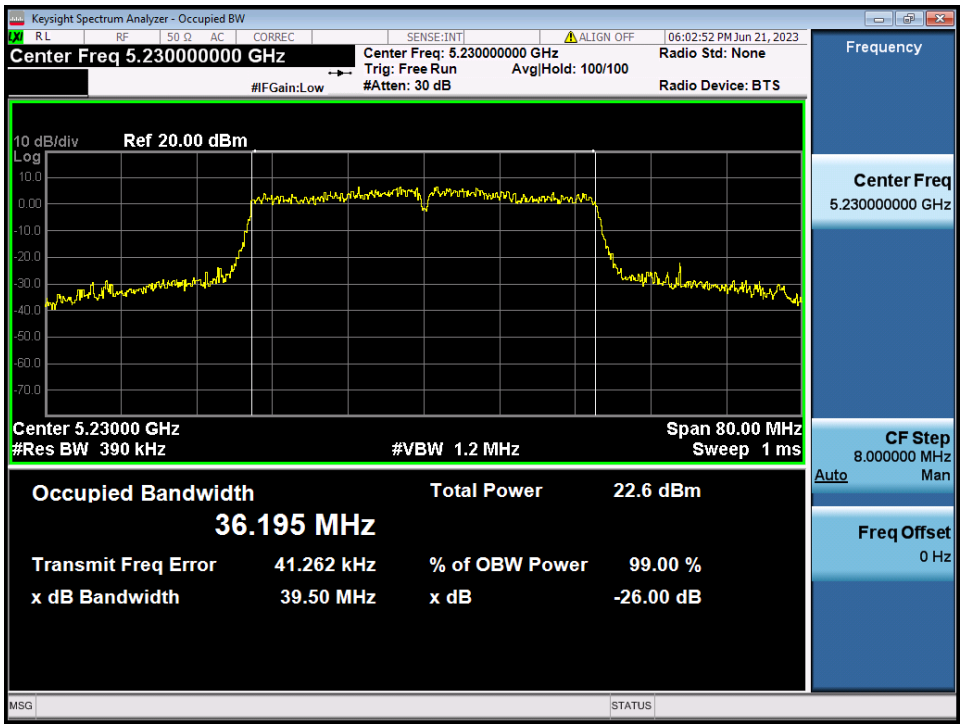
26 dB Bandwidth & Occupied BW

Test Mode: TM 3 & ANT 2 & Ch.38



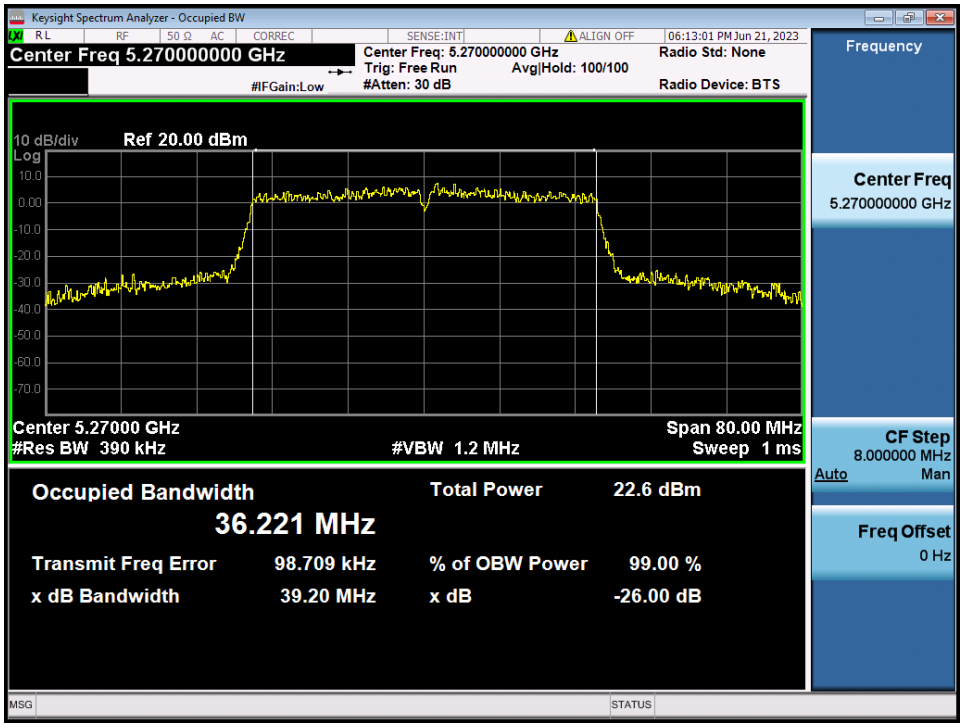
26 dB Bandwidth & Occupied BW

Test Mode: TM 3 & ANT 2 & Ch.46



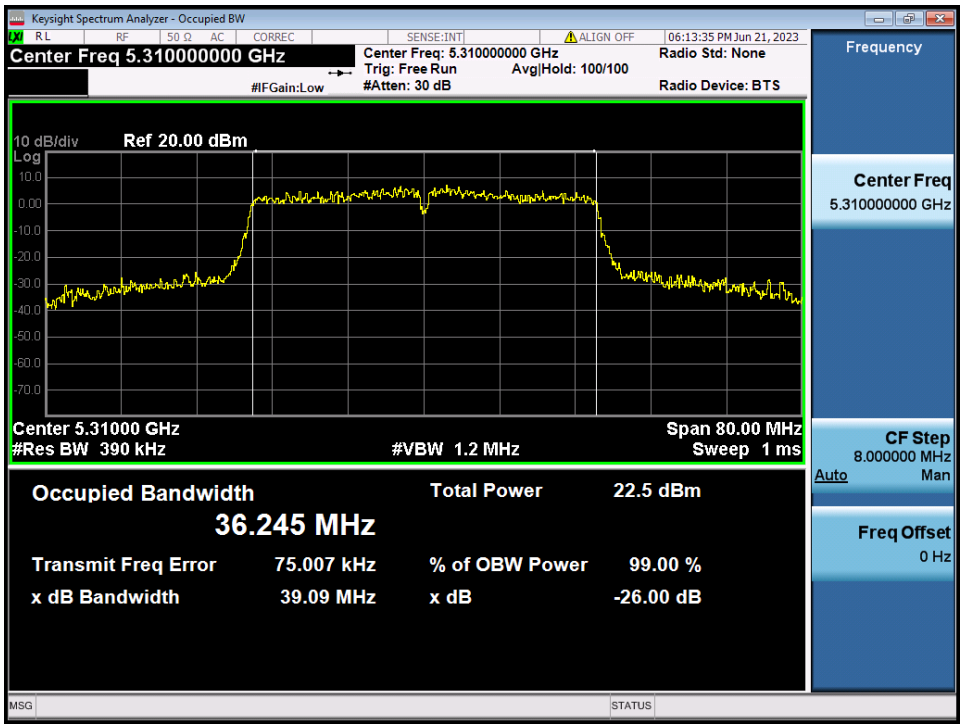
26 dB Bandwidth & Occupied BW

Test Mode: TM 3 & ANT 2 & Ch.54



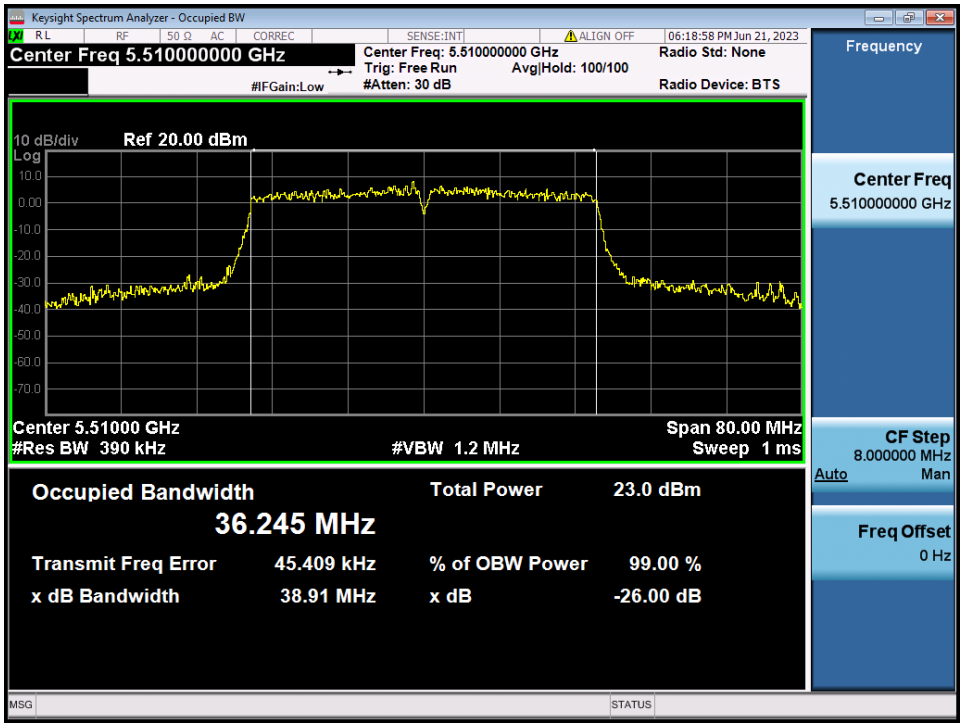
26 dB Bandwidth & Occupied BW

Test Mode: TM 3 & ANT 2 & Ch.62



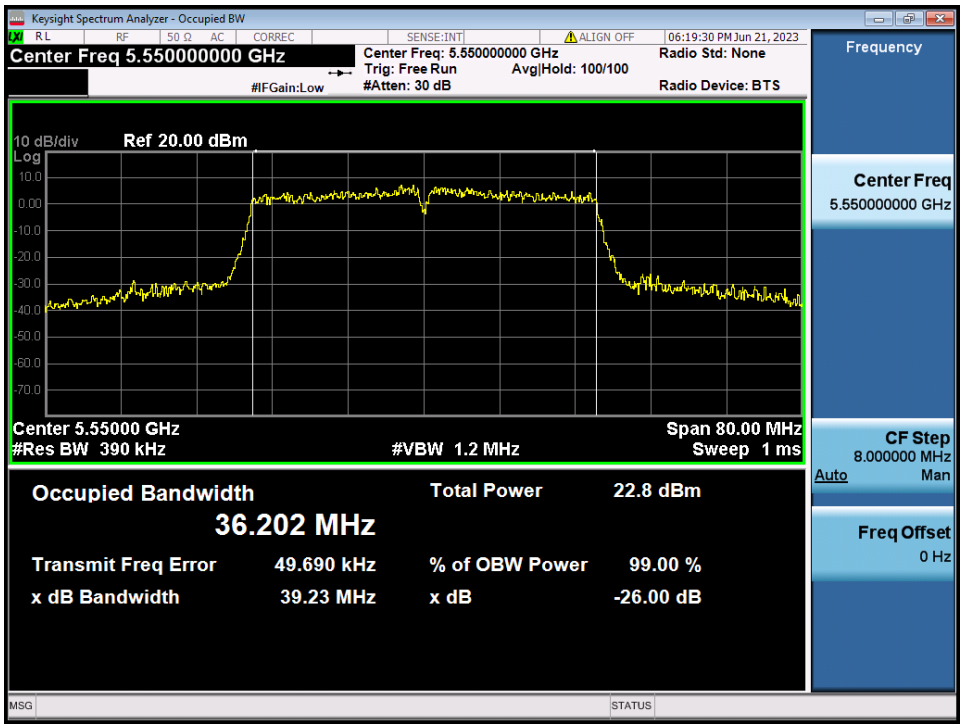
26 dB Bandwidth & Occupied BW

Test Mode: TM 3 & ANT 2 & Ch.102



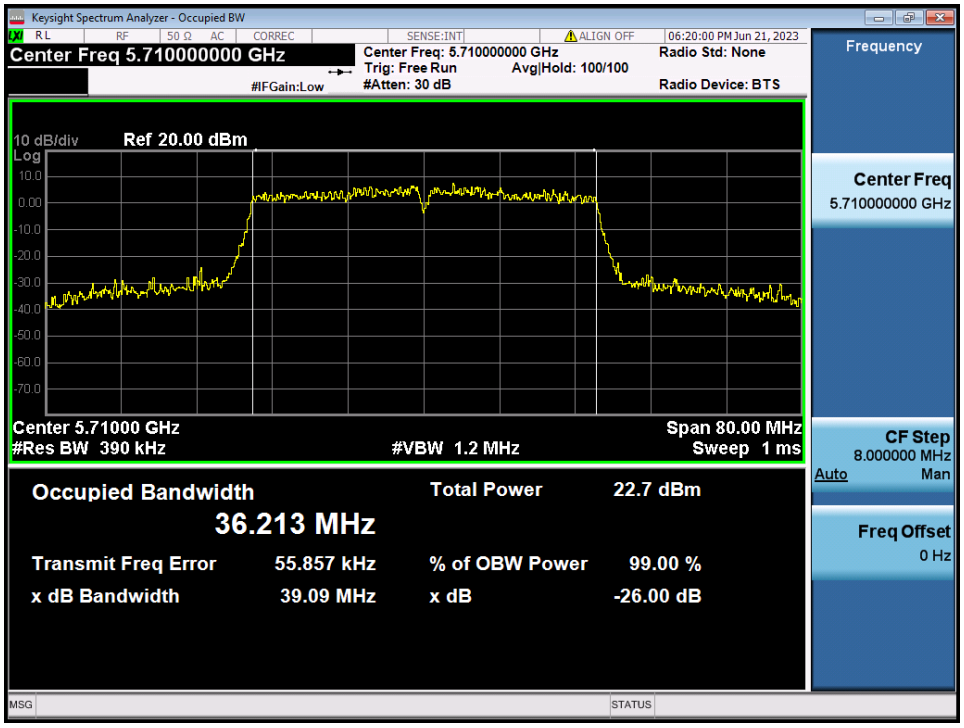
26 dB Bandwidth & Occupied BW

Test Mode: TM 3 & ANT 2 & Ch.110



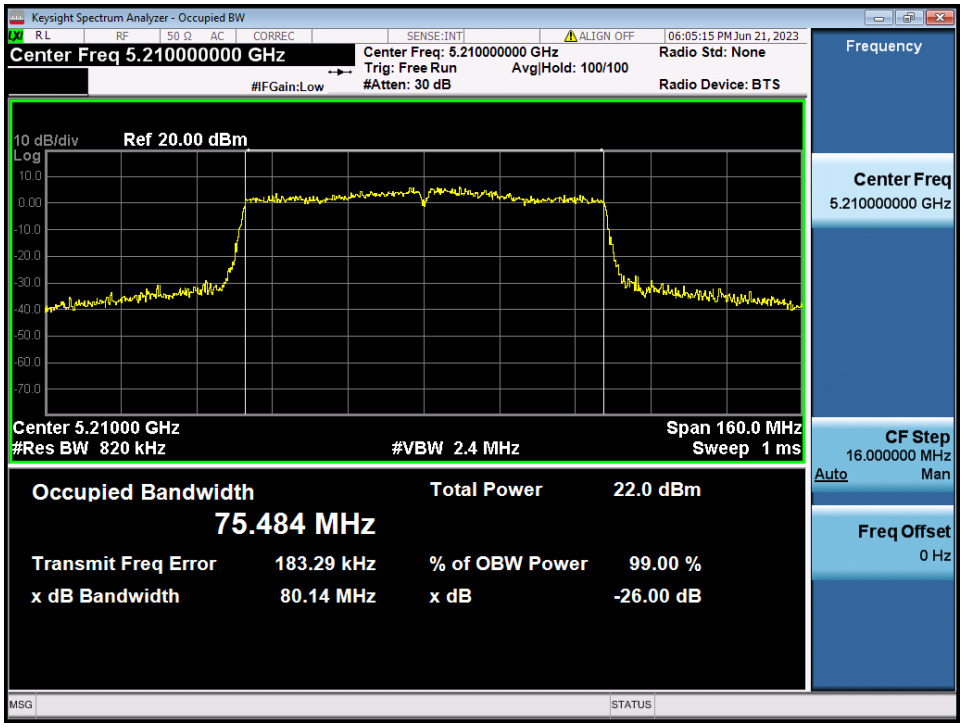
26 dB Bandwidth & Occupied BW

Test Mode: TM 3 & ANT 2 & Ch.142



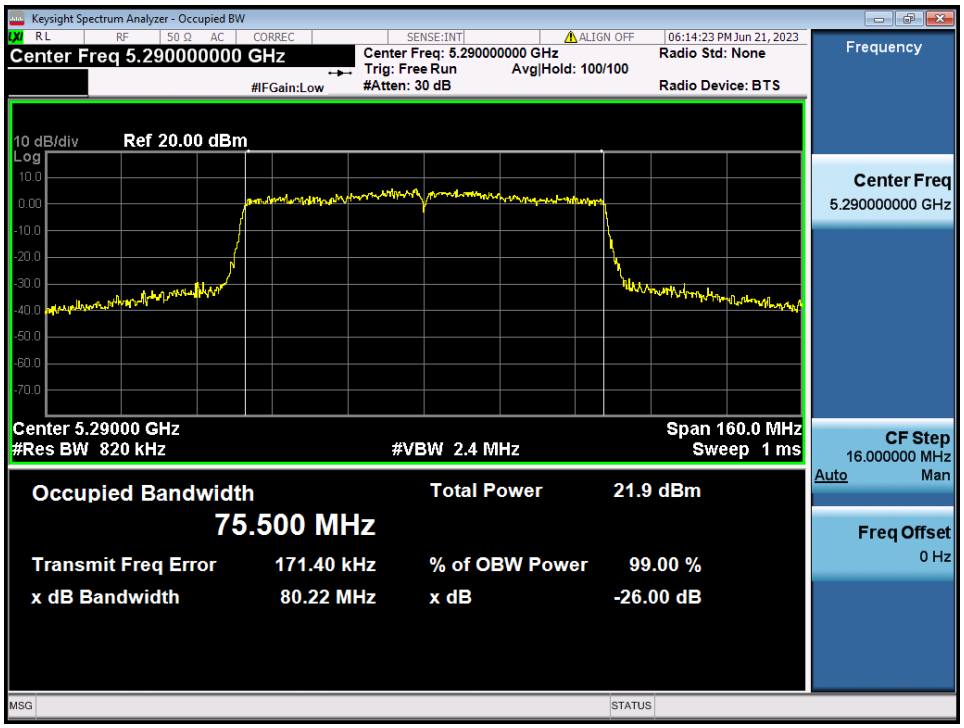
26 dB Bandwidth & Occupied BW

Test Mode: TM 4 & ANT 2 & Ch.42



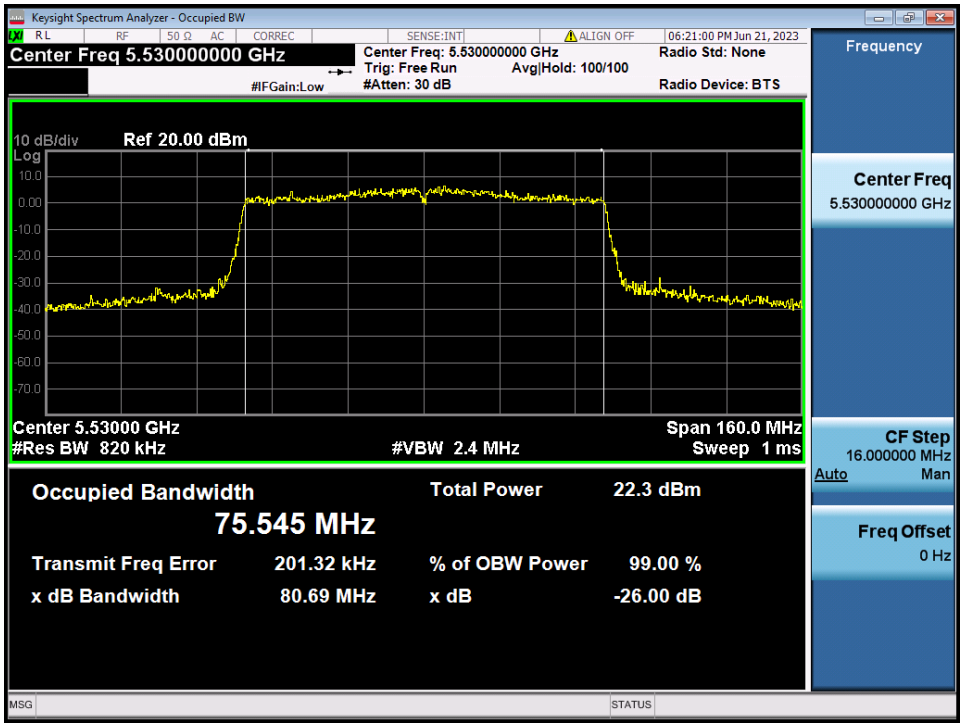
26 dB Bandwidth & Occupied BW

Test Mode: TM 4 & ANT 2 & Ch.58



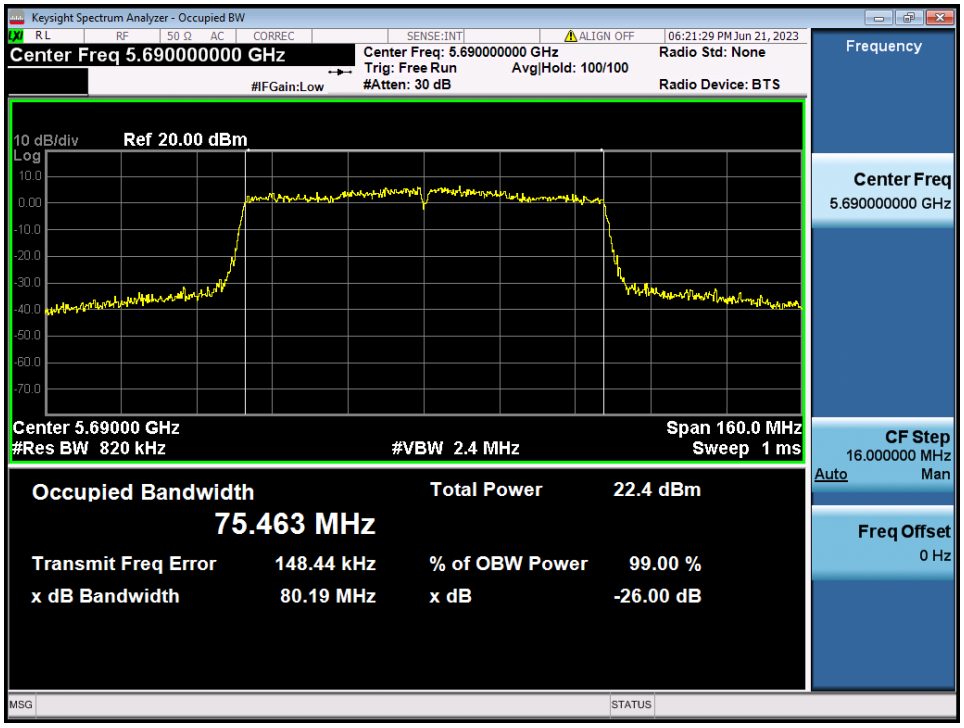
26 dB Bandwidth & Occupied BW

Test Mode: TM 4 & ANT 2 & Ch.106



26 dB Bandwidth & Occupied BW

Test Mode: TM 4 & ANT 2 & Ch.138



5.2 Minimum Emission Bandwidth (6 dB Bandwidth) & Occupied BW (99 %)

▣ Test Requirements

- Emission Bandwidth (6 dB Bandwidth)

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

- Occupied BW (99 %)

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99 % emission bandwidth, as calculated or measured.

▣ Test Configuration

Refer to the APPENDIX I.

▣ Test Procedure

- Emission Bandwidth (6 dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer and used following test procedure of **KDB789033 D02v02r01**.

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth **≥ 3 x RBW**.
3. Detector = **Peak**.
4. 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.

- Occupied BW (99 %) : RSS-Gen[6.7]

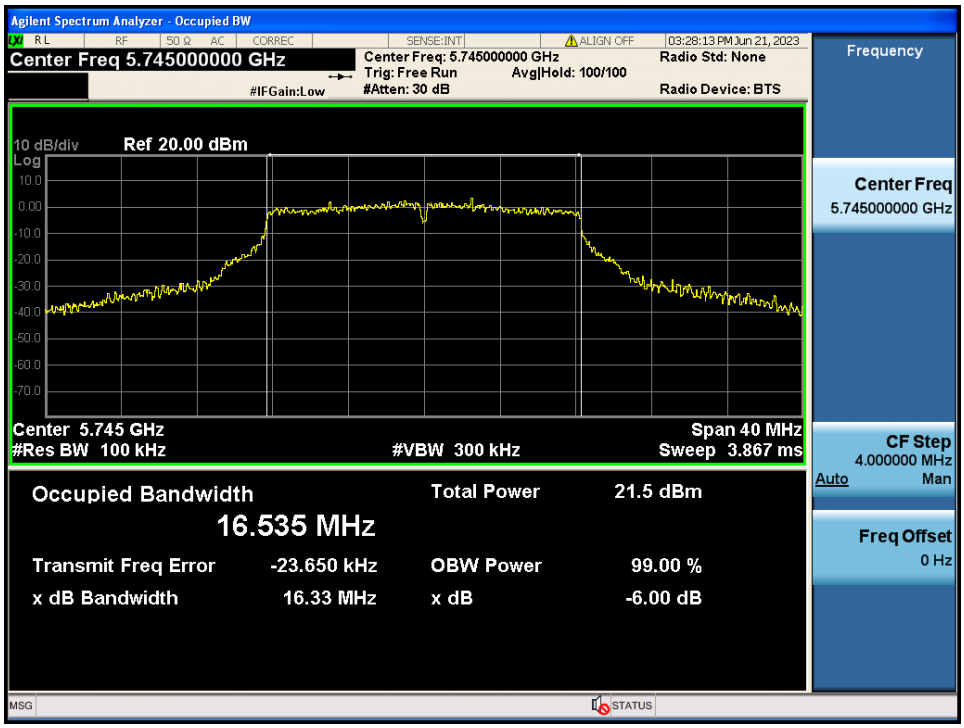
1. The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
2. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
3. The resolution bandwidth (RBW) shall be in the range of 1 % to 5 % of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3 x RBW.

▣ **Test Results: Comply**

Test Mode	Band	Channel	Frequency(MHz)	6 dB BW(MHz)		99 % BW(MHz)	
				ANT 1	ANT 2	ANT 1	ANT 2
TM 1	U-NII 3	149	5 745	16.33	16.36	16.69	16.60
		157	5 785	16.02	16.31	16.66	16.62
		165	5 825	16.01	16.32	16.69	16.62
TM 2	U-NII 3	149	5 745	17.21	17.60	17.80	17.75
		157	5 785	16.25	16.71	17.84	17.75
		165	5 825	17.48	17.19	17.86	17.73
TM 3	U-NII 3	151	5 755	35.17	35.30	36.23	36.17
		159	5 795	35.27	35.16	36.17	36.10
TM 4	U-NII 3	155	5 775	75.49	75.49	75.69	75.52

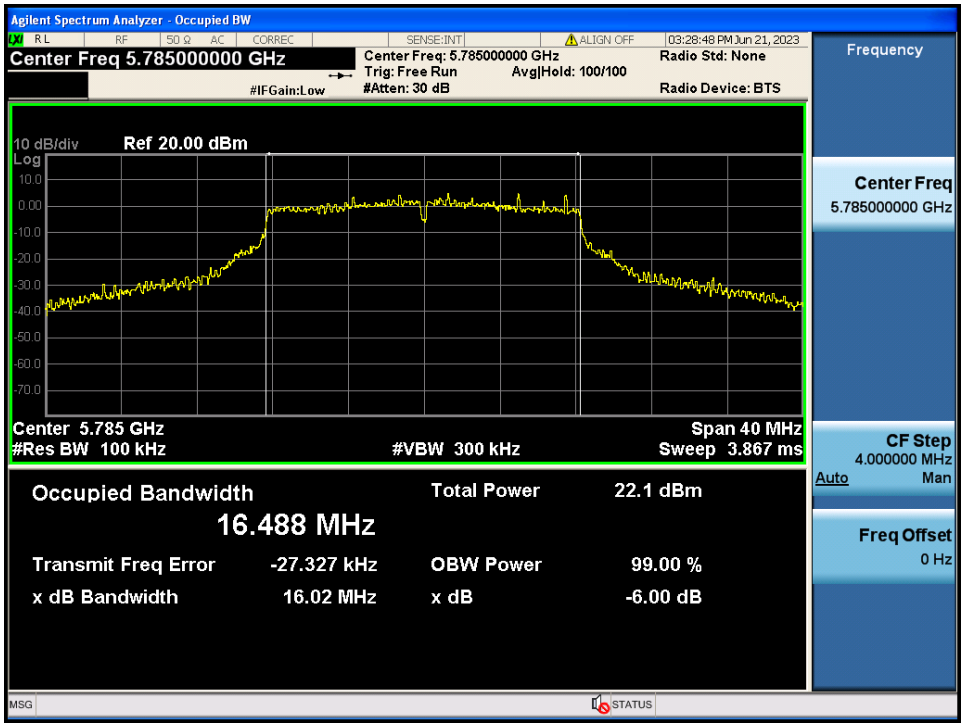
6 dB Bandwidth

Test Mode: TM 1 & ANT 1 & Ch.149



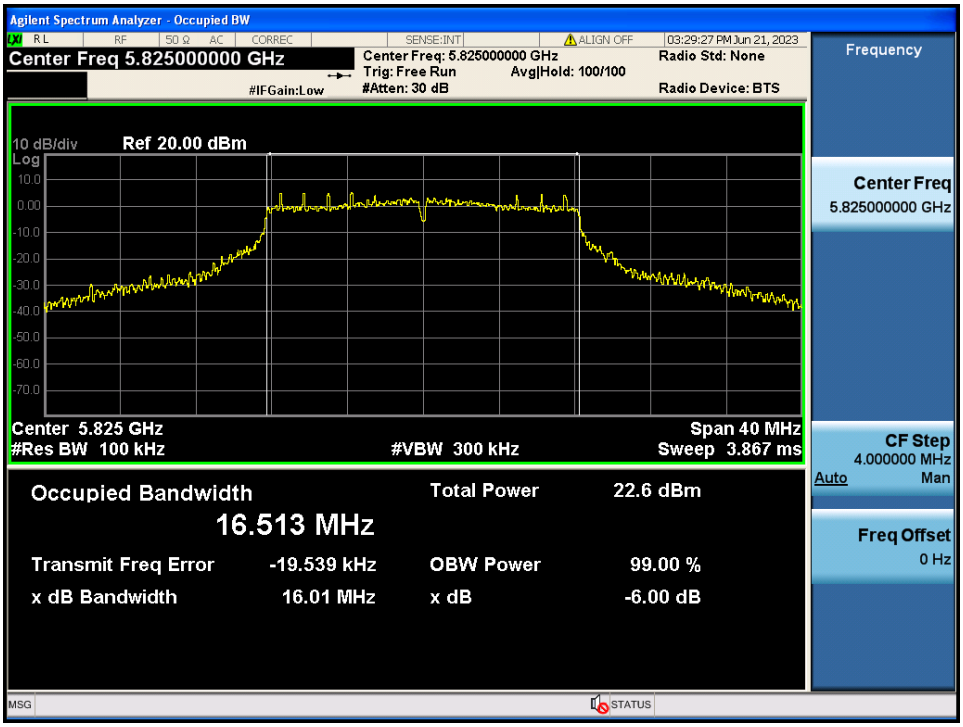
6 dB Bandwidth

Test Mode: TM 1 & ANT 1 & Ch.157



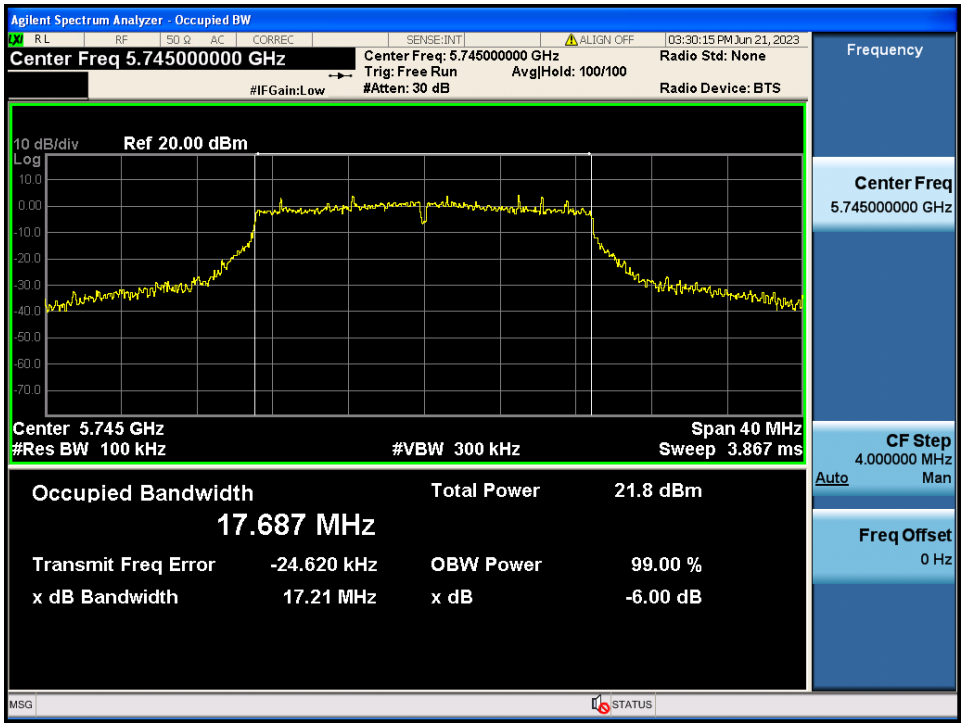
6 dB Bandwidth

Test Mode: TM 1 & ANT 1 & Ch.165



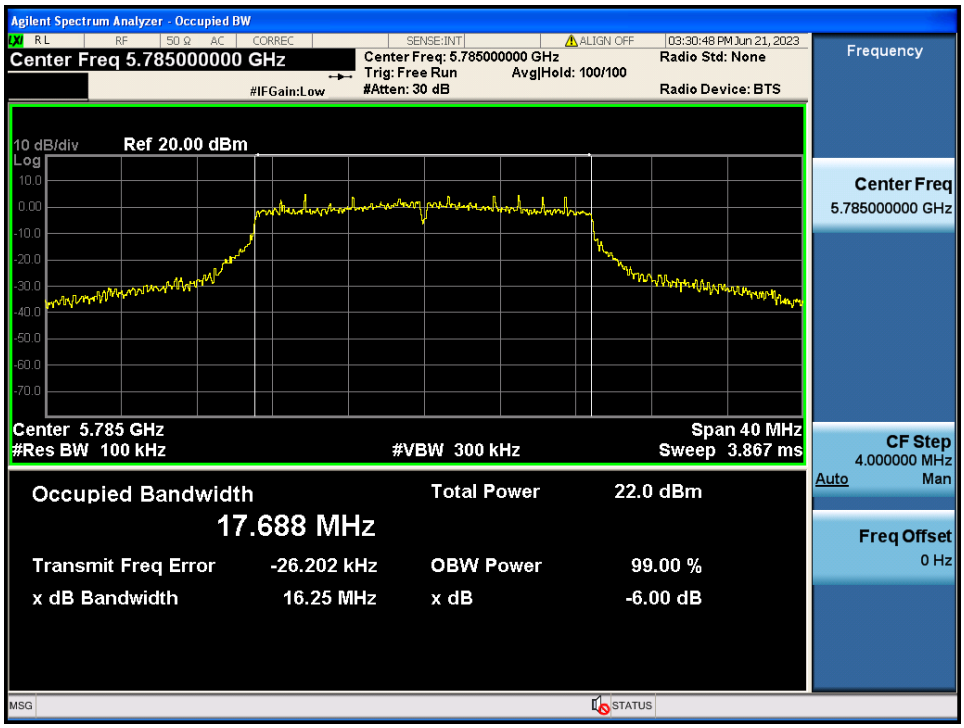
6 dB Bandwidth

Test Mode: TM 2 & ANT 1 & Ch.149



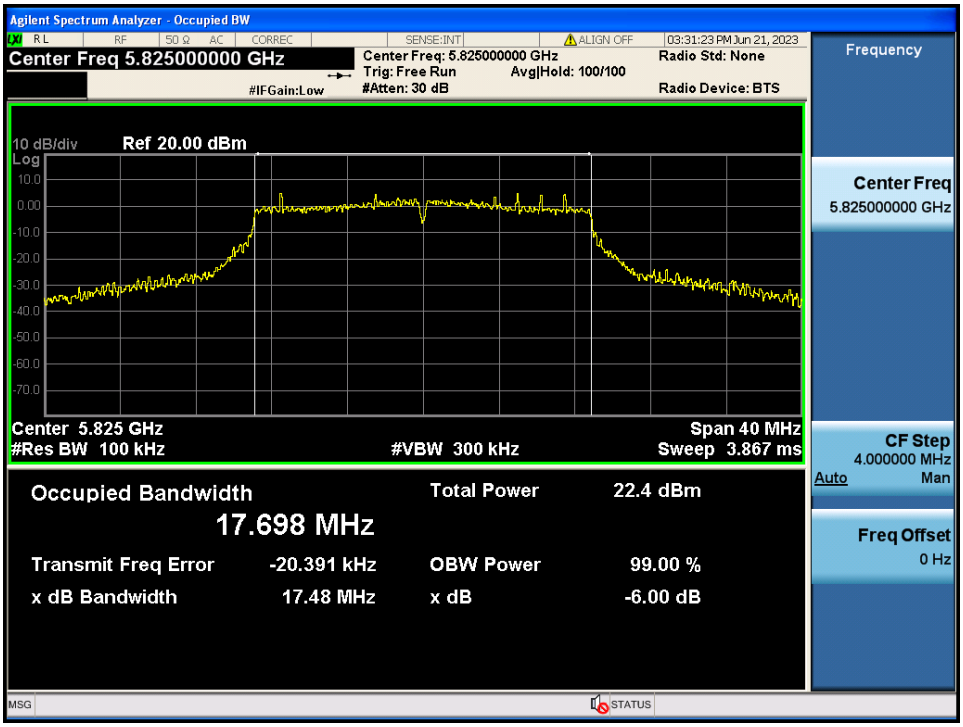
6 dB Bandwidth

Test Mode: TM 2 & ANT 1 & Ch.157



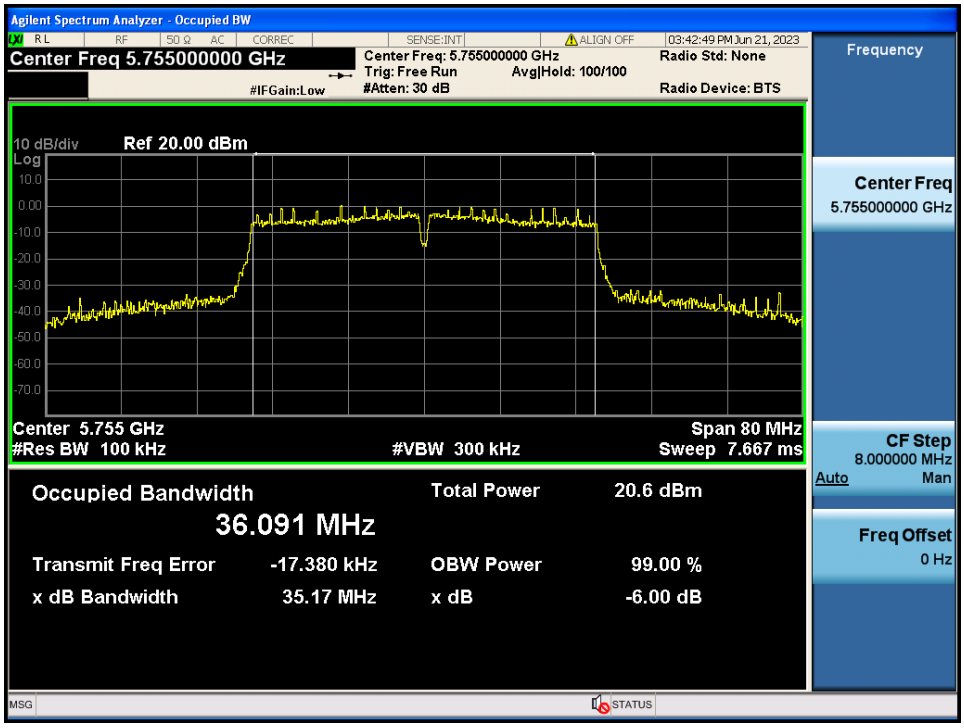
6 dB Bandwidth

Test Mode: TM 2 & ANT 1 & Ch.165



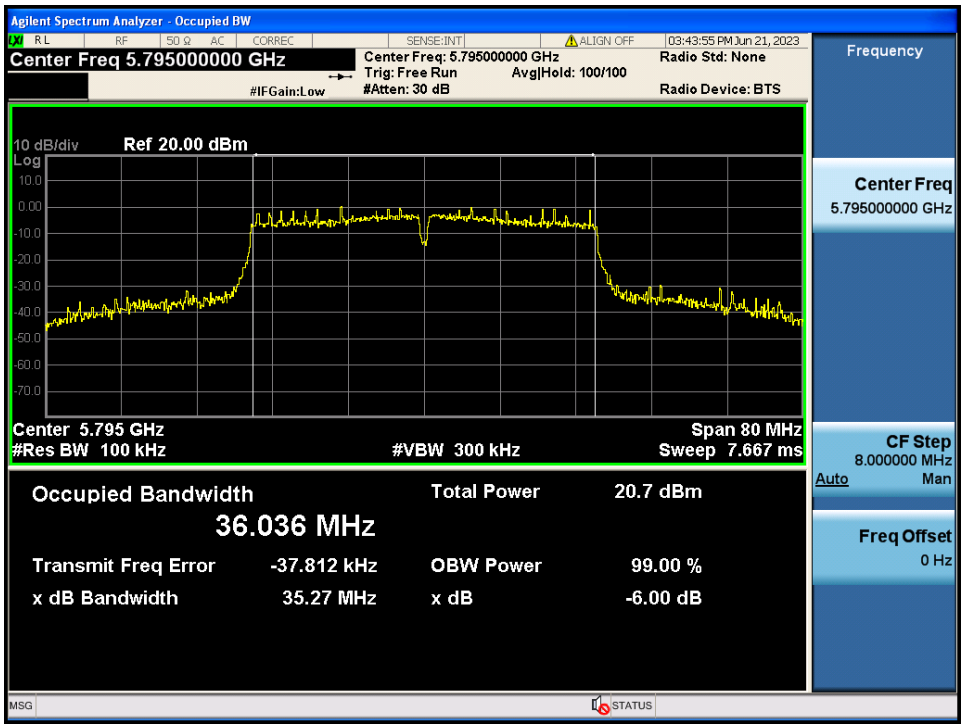
6 dB Bandwidth

Test Mode: TM 3 & ANT 1 & Ch.151



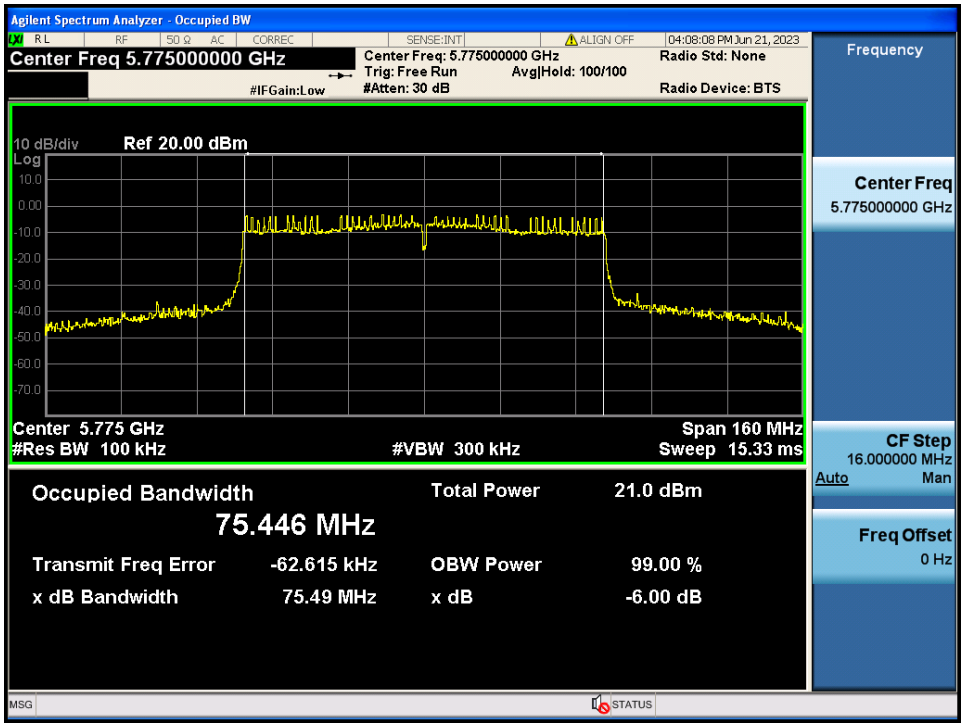
6 dB Bandwidth

Test Mode: TM 3 & ANT 1 & Ch.159



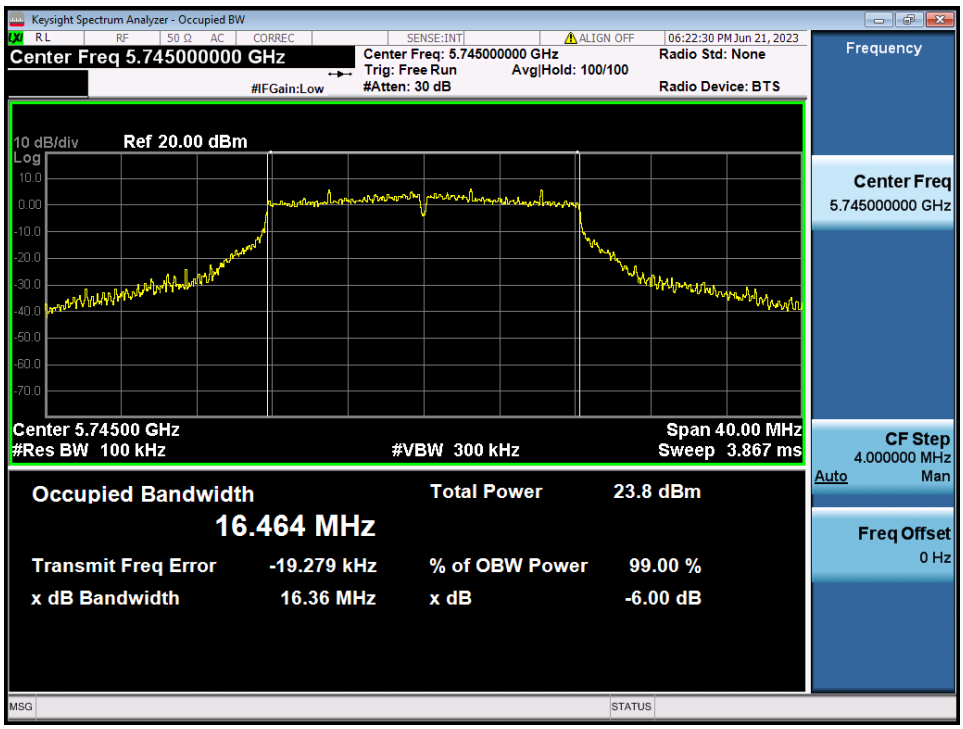
6 dB Bandwidth

Test Mode: TM 4 & ANT 1 & Ch.155



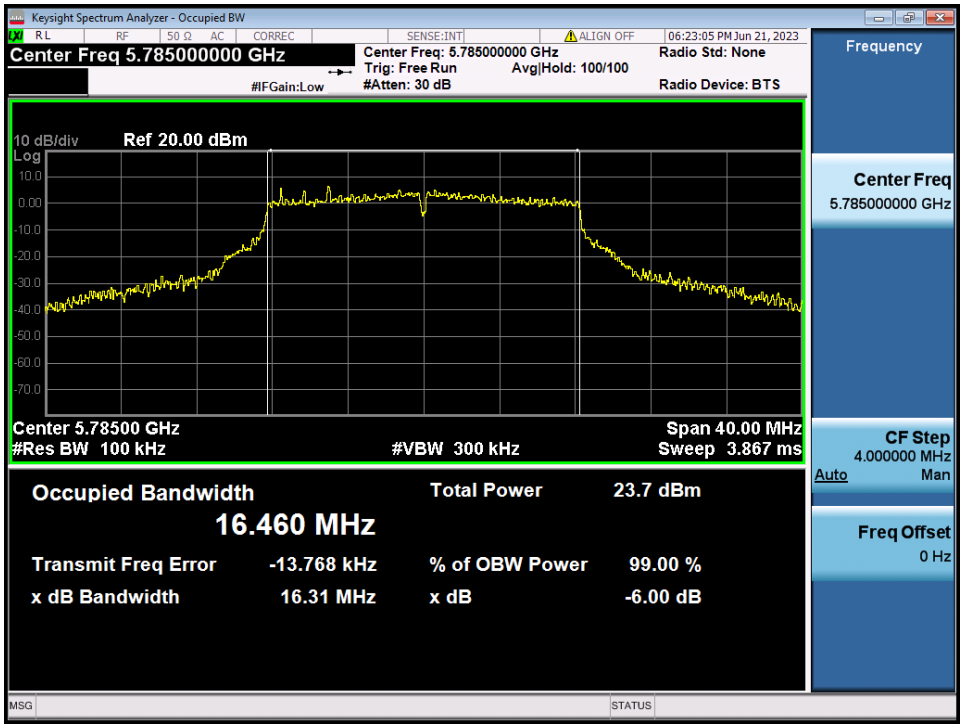
6 dB Bandwidth

Test Mode: TM 1 & ANT 2 & Ch.149



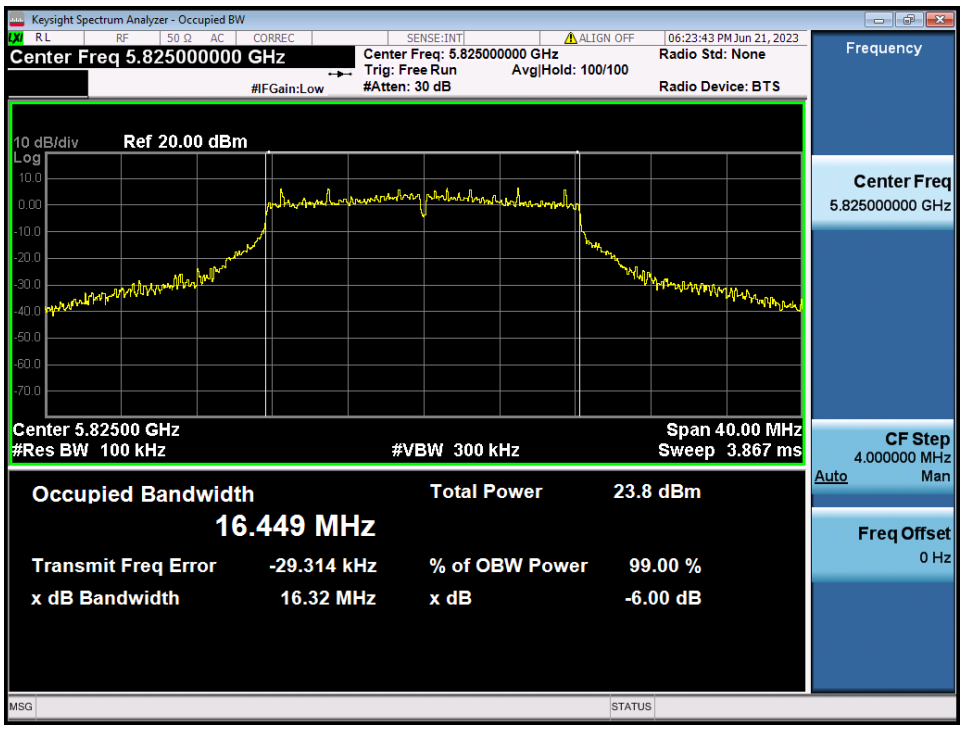
6 dB Bandwidth

Test Mode: TM 1 & ANT 2 & Ch.157



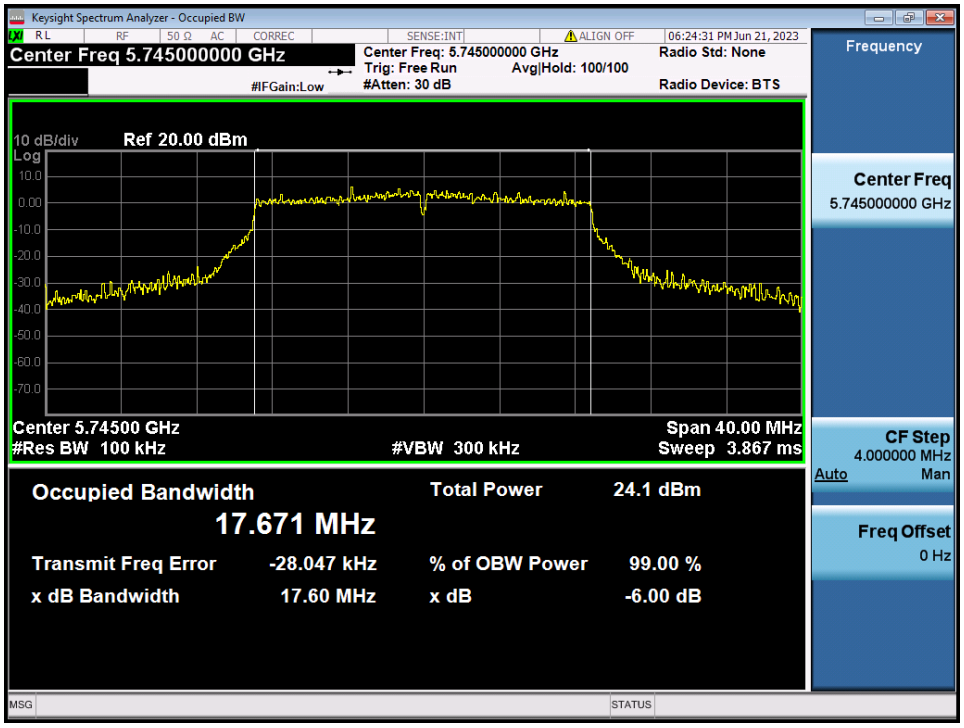
6 dB Bandwidth

Test Mode: TM 1 & ANT 2 & Ch.165



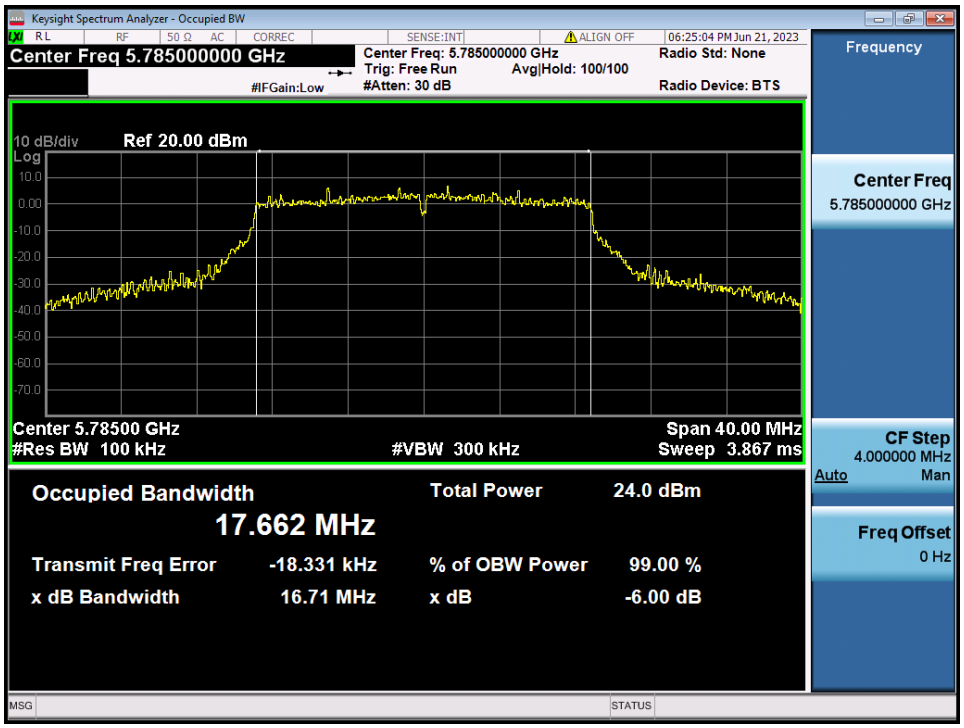
6 dB Bandwidth

Test Mode: TM 2 & ANT 2 & Ch.149



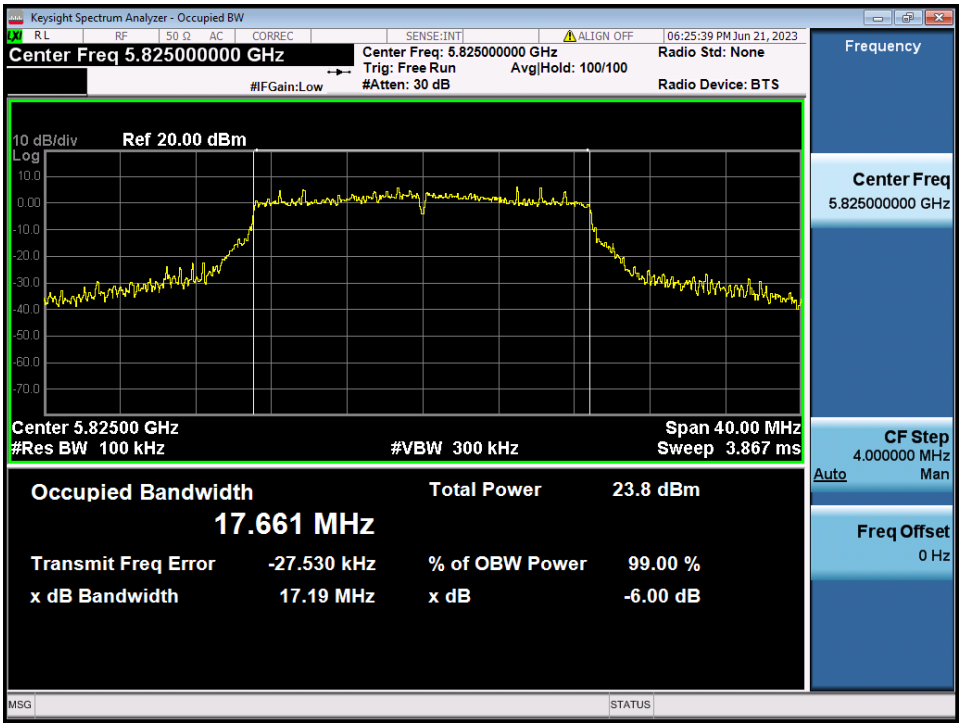
6 dB Bandwidth

Test Mode: TM 2 & ANT 2 & Ch.157



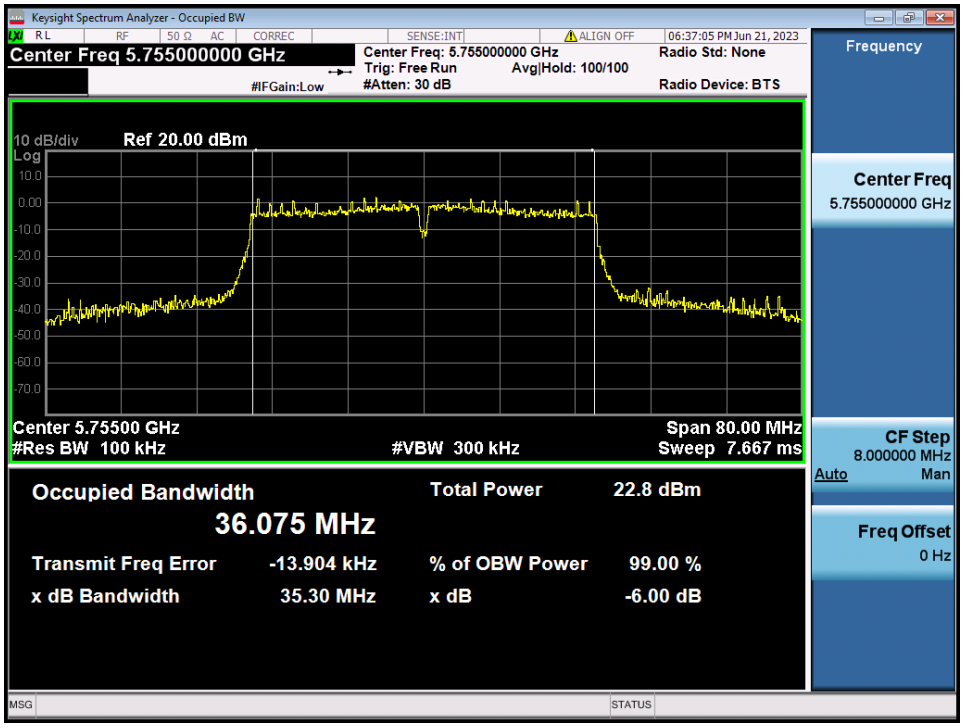
6 dB Bandwidth

Test Mode: TM 2 & ANT 2 & Ch.165



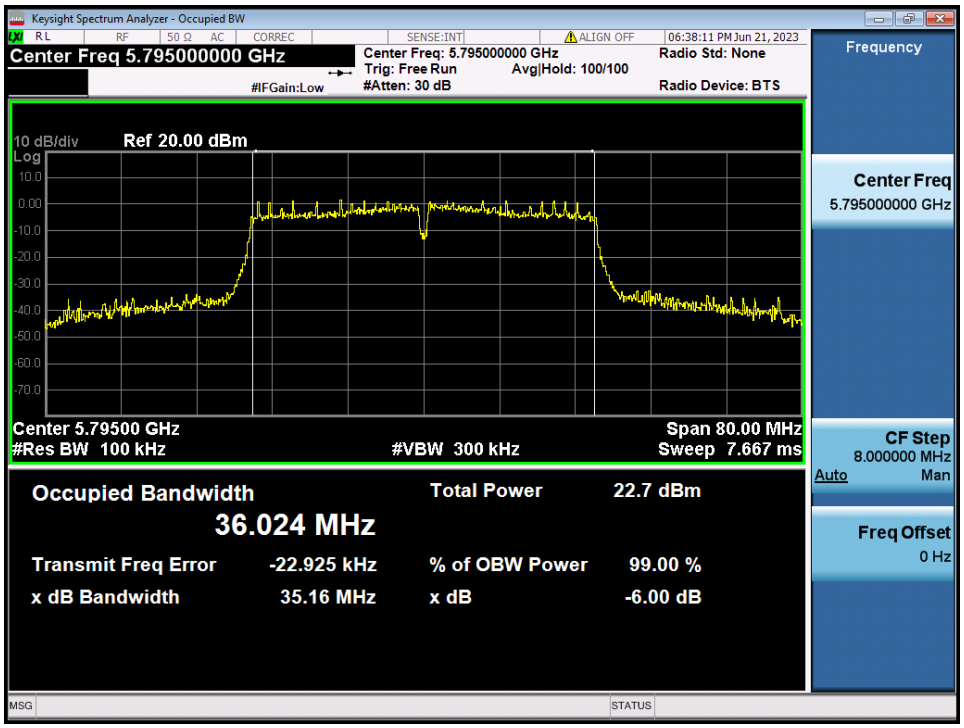
6 dB Bandwidth

Test Mode: TM 3 & ANT 2 & Ch.151



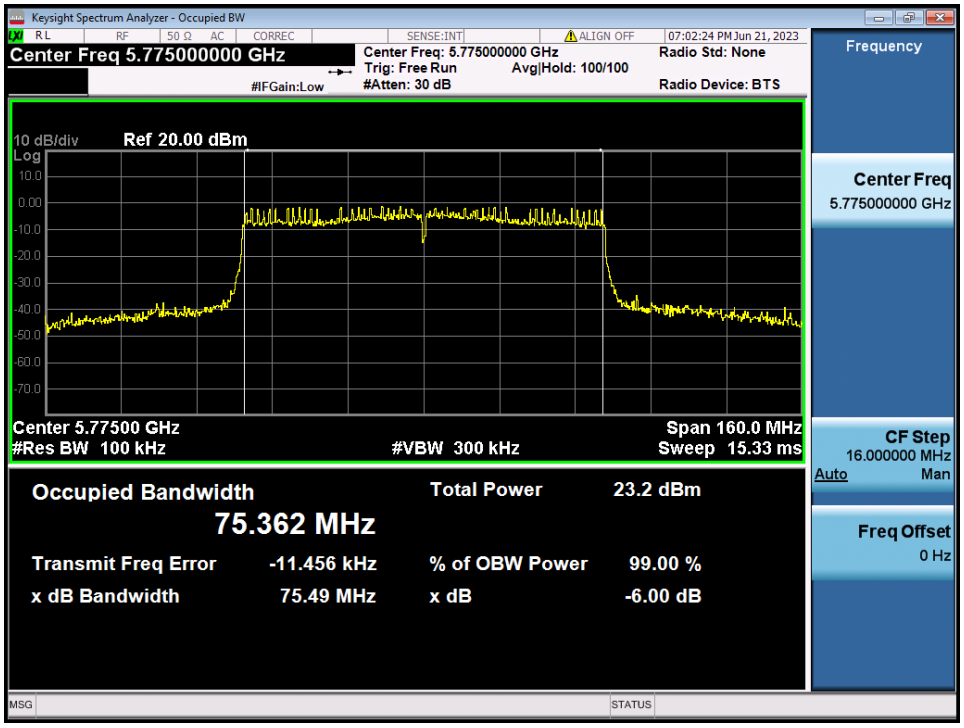
6 dB Bandwidth

Test Mode: TM 3 & ANT 2 & Ch.159



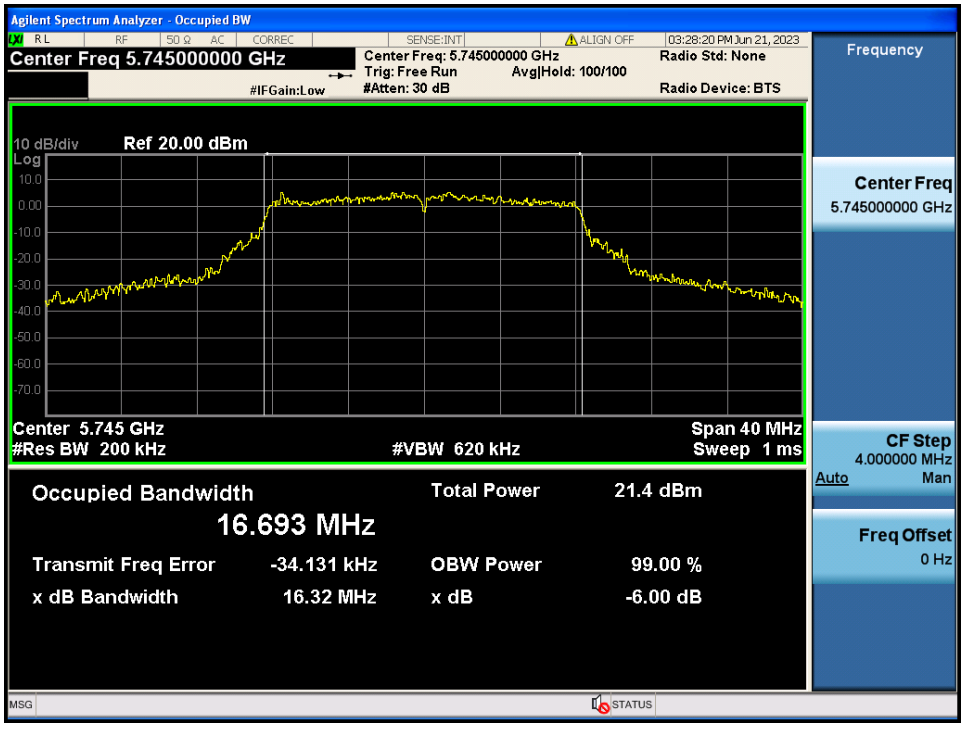
6 dB Bandwidth

Test Mode: TM 4 & ANT 2 & Ch.155



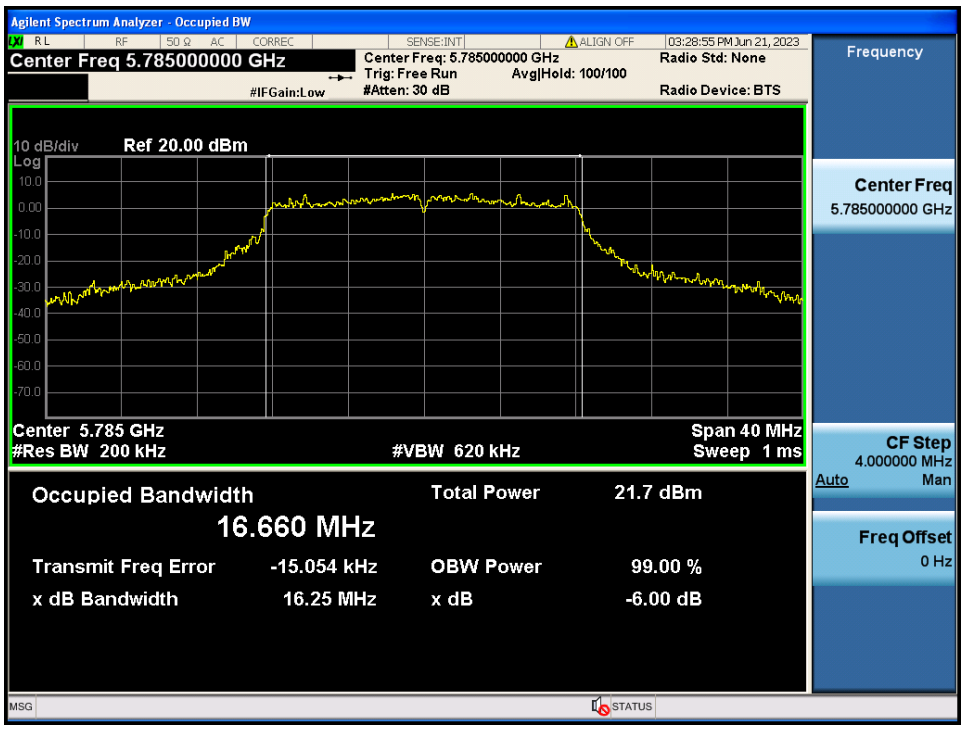
Occupied Bandwidth

Test Mode: TM 1 & ANT 1 & Ch.149



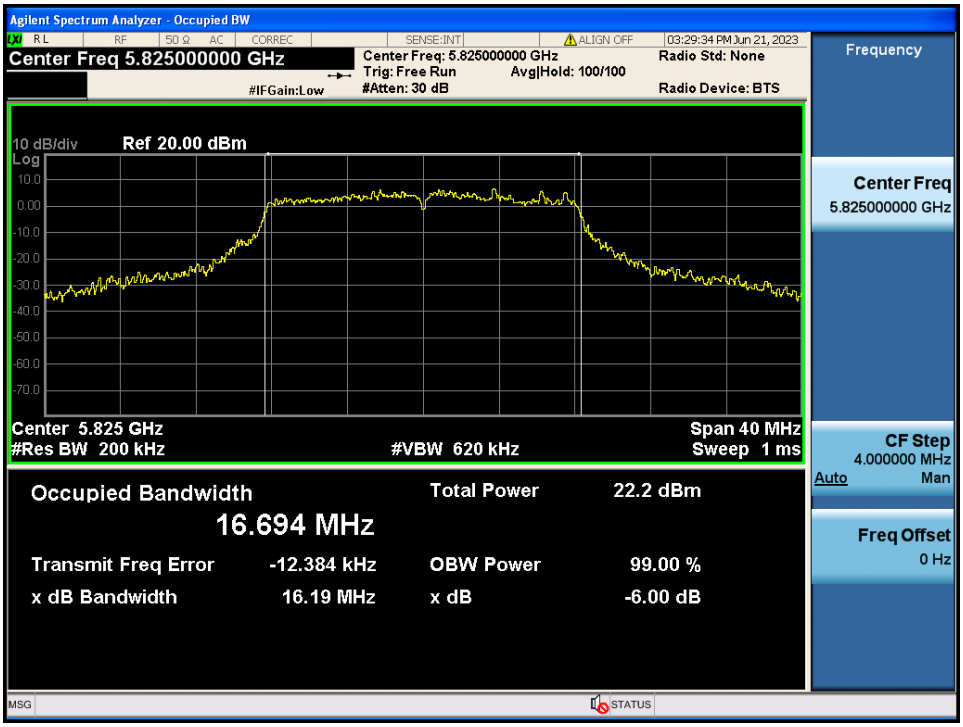
Occupied Bandwidth

Test Mode: TM 1 & ANT 1 & Ch.157



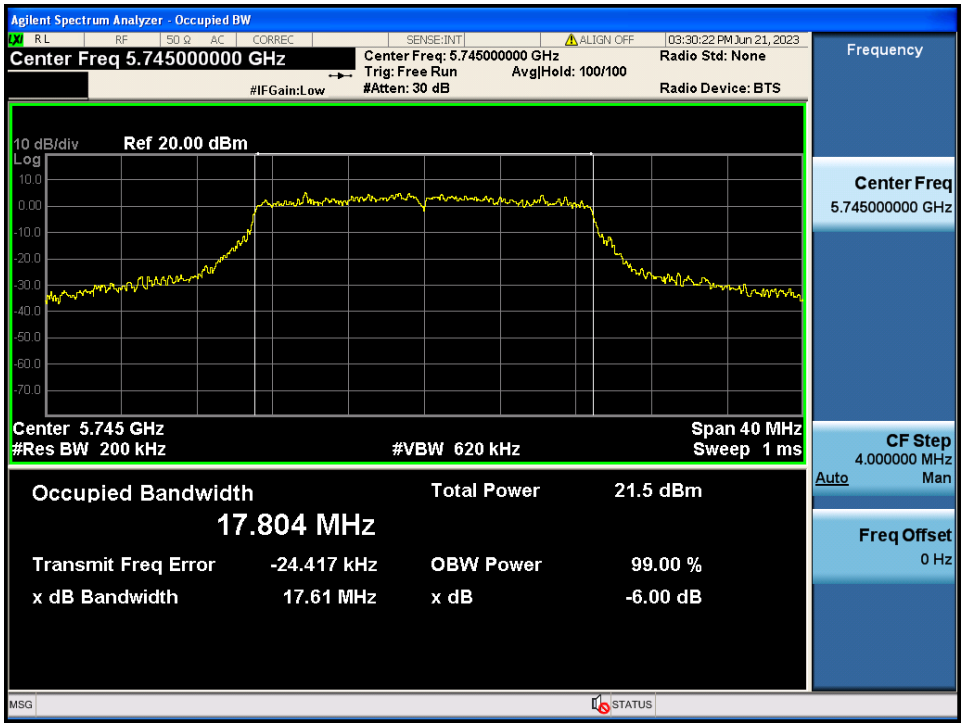
Occupied Bandwidth

Test Mode: TM 1 & ANT 1 & Ch.165



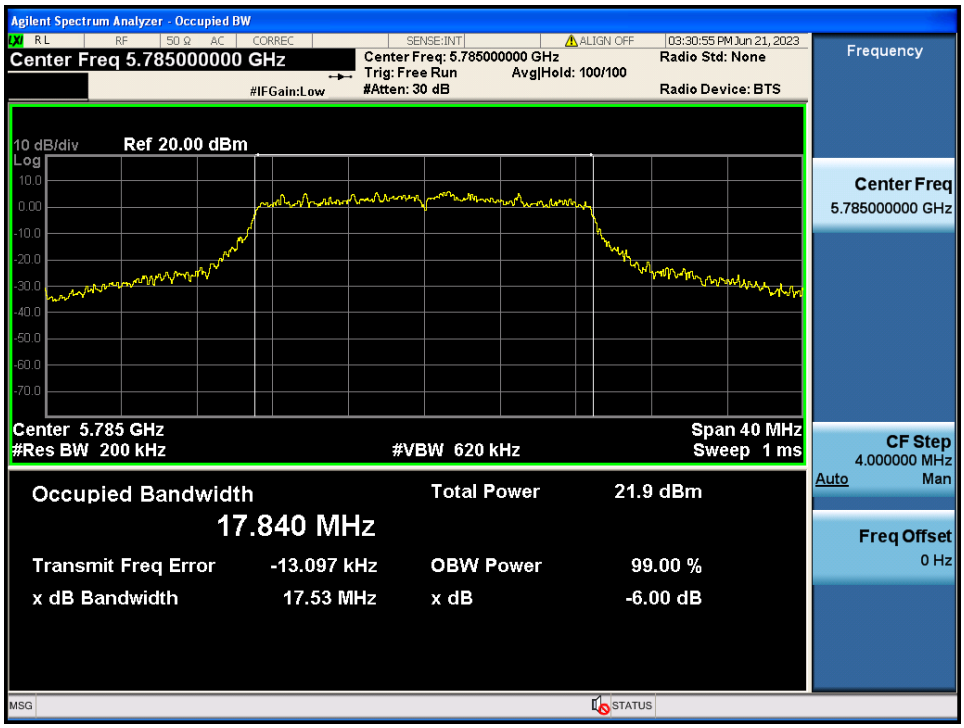
Occupied Bandwidth

Test Mode: TM 2 & ANT 1 & Ch.149



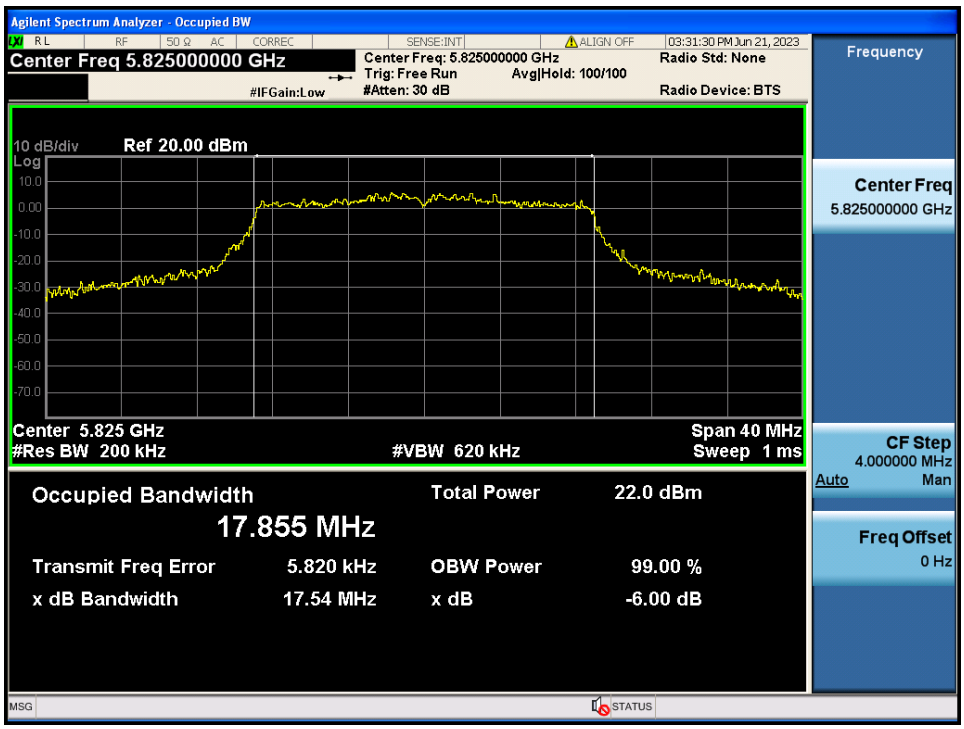
Occupied Bandwidth

Test Mode: TM 2 & ANT 1 & Ch.157



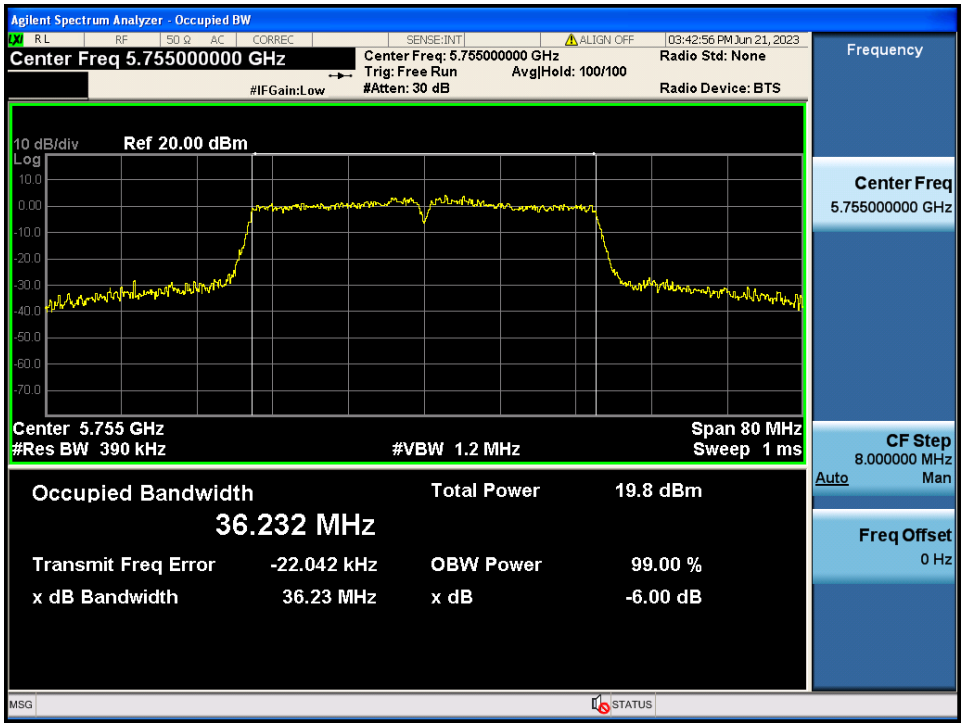
Occupied Bandwidth

Test Mode: TM 2 & ANT 1 & Ch.165



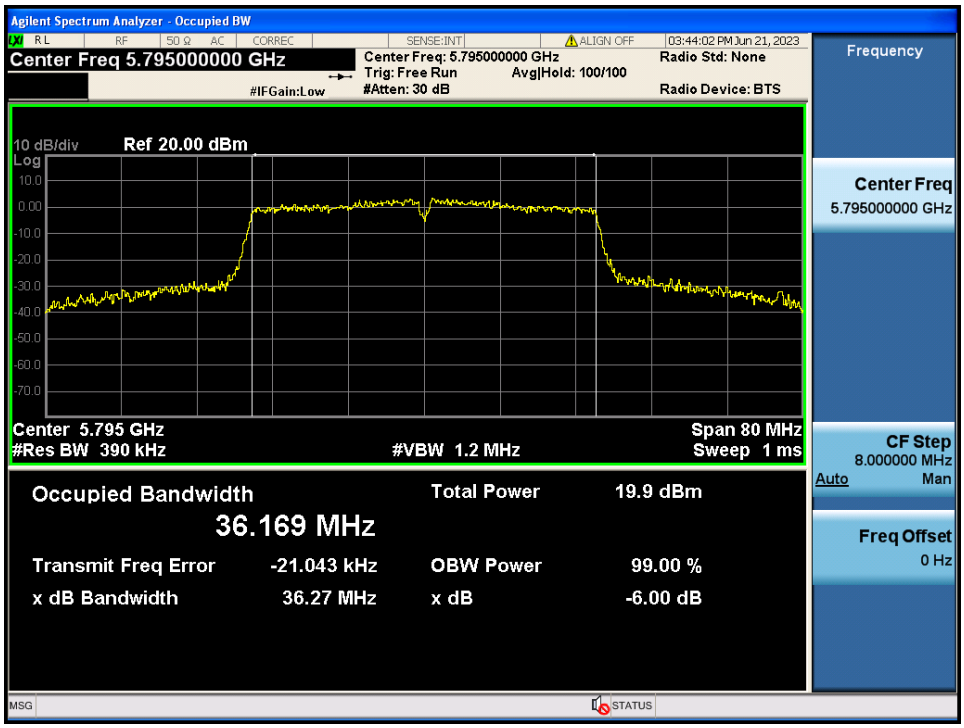
Occupied Bandwidth

Test Mode: TM 3 & ANT 1 & Ch.151



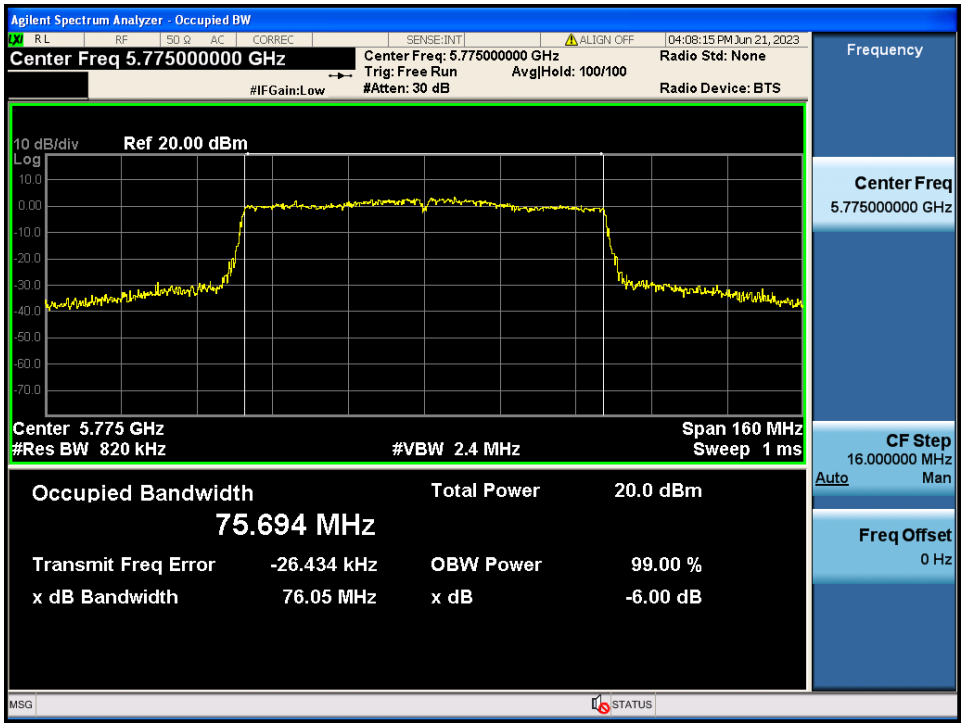
Occupied Bandwidth

Test Mode: TM 3 & ANT 1 & Ch.159



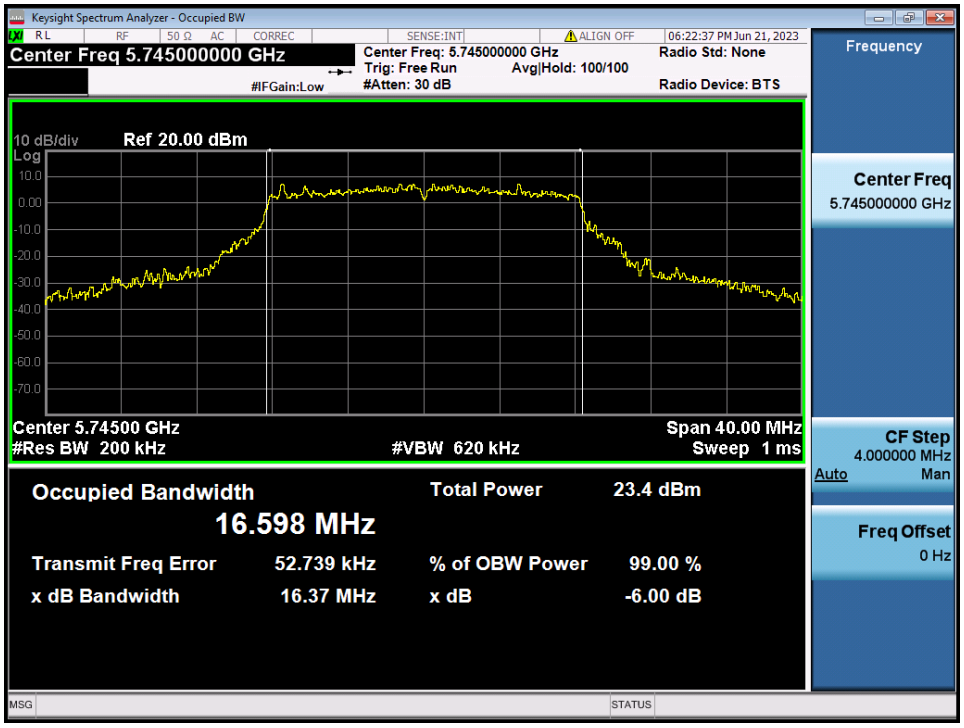
Occupied Bandwidth

Test Mode: TM 4 & ANT 1 & Ch.155



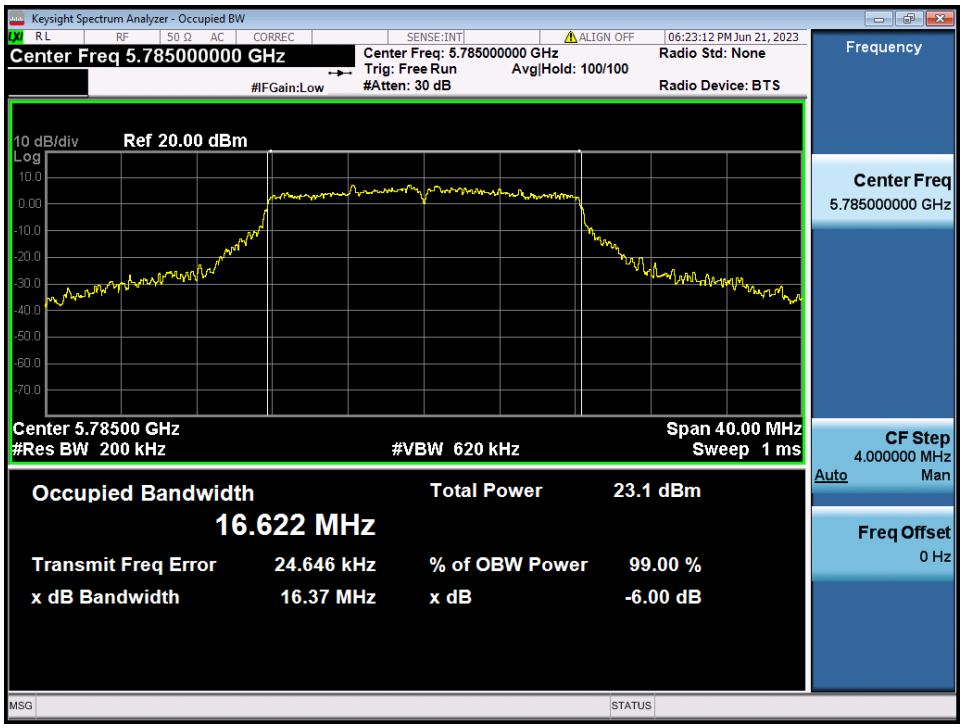
Occupied Bandwidth

Test Mode: TM 1 & ANT 2 & Ch.149



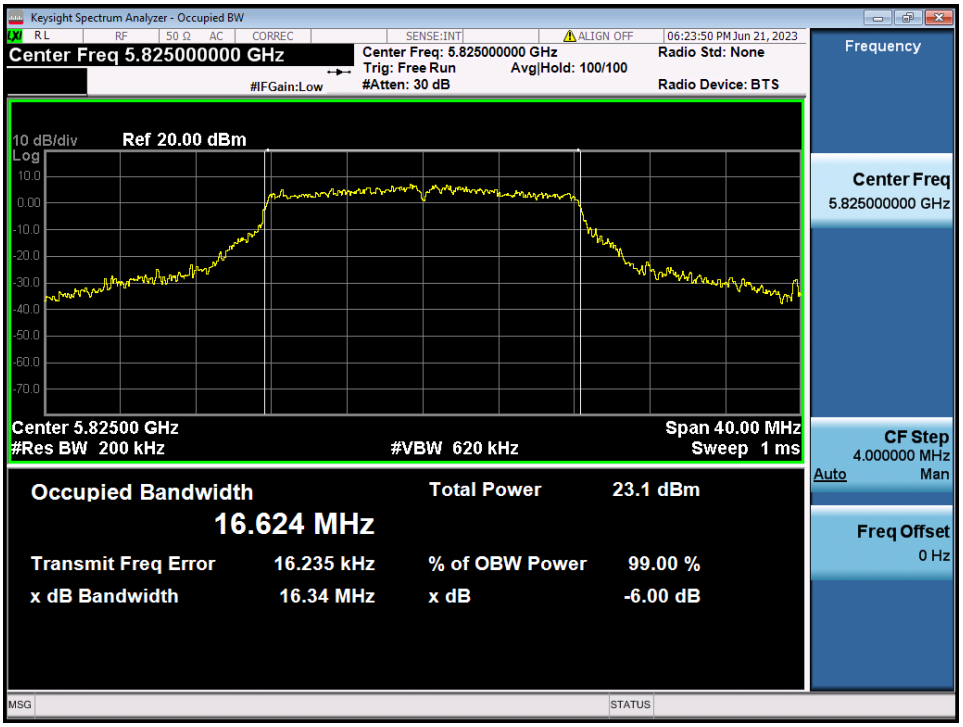
Occupied Bandwidth

Test Mode: TM 1 & ANT 2 & Ch.157



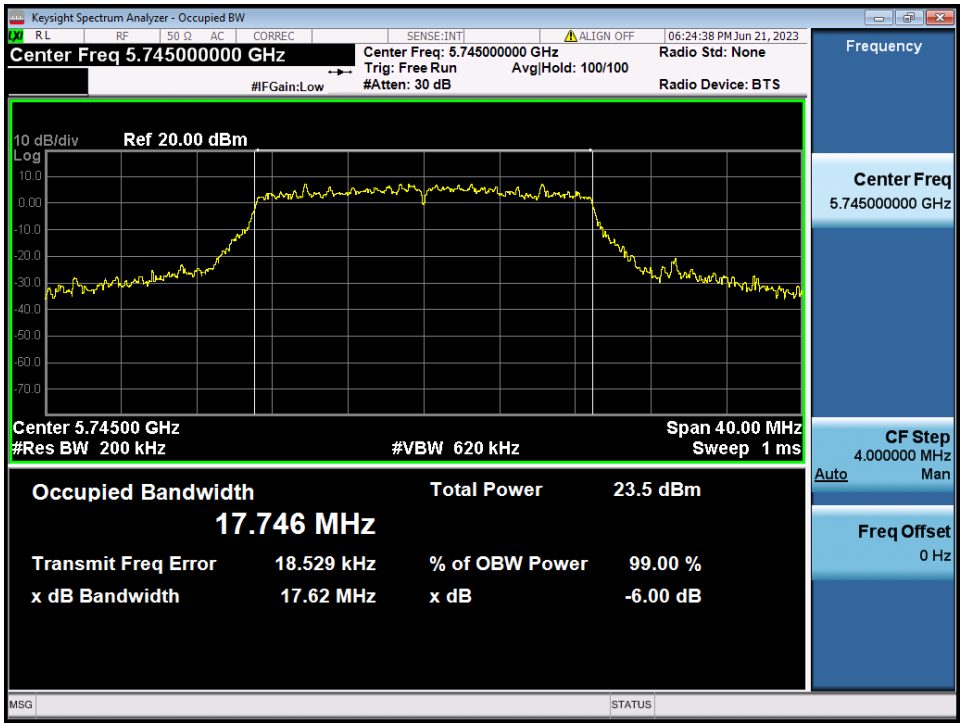
Occupied Bandwidth

Test Mode: TM 1 & ANT 2 & Ch.165



Occupied Bandwidth

Test Mode: TM 2 & ANT 2 & Ch.149



Occupied Bandwidth

Test Mode: TM 2 & ANT 2 & Ch.157