

TEST REPORT

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
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Fax: +82-31-624-9501

REPORT No.:
CTK-2026-00063
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1. Applicant

- Name : Samsung Electronics Co Ltd
- Address : 19 Chapin Rd, Building D. Pine Brook, New Jersey, United States
- Date of Receipt : 2025-10-22

2. Manufacturer

- Name : Samsung Electronics Co Ltd

3. Use of Report : For FCC Conformance**4. Test sample / Model : Wi-Fi/BT Transceiver / WCH931M****5. Date(s) of test : 2025-11-14 to 2026-01-03****6. Test Standard (Method) used : FCC 47 CFR part 15 subpart E 15.407****7. Testing Environment : Refer to 9 page****8. Test Results : Compliance****9. Location of Test : ☒ Permanent Testing Lab ☐ On Site Testing**

(Address : (Unhak-Dong) 5, 221 beon-gil, Dongbu-ro, Cheoin-gu, Yongin-si, Gyeonggi-do,
Republic of Korea)

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
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Approval	Tested by:	Technical Manager:
	 Seong-uk Park (Signature)	 Bong-seok Kim (Signature)

2026-01-07

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REPORT REVISION HISTORY

Date	Revision	Page No
2026-01-07	Issued (CTK-2026-00063)	all

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1. General Product Description

1.1 Applicant Information

Company	Samsung Electronics Co Ltd
Contact Point	19 Chapin Rd, Building D. Pine Brook, New Jersey, United States
Contact Person	Name : Minhyung Cho E-mail : mh719.cho@samsung.com Tel : +82-31-277-2688 Fax : -

1.2 Manufacturer Information

Manufacturer	Samsung Electronics Co Ltd
Address	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Republic of Korea
Factory #1	XUGUANG TECHNOLOGY (VIETNAM) COMPANY LIMITED
Address	Factory No.4, Lot CN1, An Duong Industrial Park, Hong Phong Commune, An Duong District, Hai Phong City, Vietnam
Factory #2	Chengdu Xuguang Technology Co., Ltd.
Address	Building 1, Floors 1-2 and Building 2, Wenbai Avenue No.998, Baihe Street, Economic and Technological Development Zone (Longquanyi District), Chengdu City, Sichuan Province, P.R.China
Factory #3	SJIT CO., LTD.
Address	#54-11, Dongtanhana 1gil, Hwaseong-si, Gyeonggi-Do, Korea
Factory #4	SJIT VINA Co., Ltd
Address	Lot X2, Ho Nai Industrial Zone, Ho Nai 3 Commune, Trang Bom District, Dong Nai Province, Vietnam
Factory #5	CHEMTRONICS Co., Ltd
Address	35, Hyeongjero, Namsa-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do, Republic of Korea
Factory #6	CHEMTROVINA COMPANY LIMITED
Address	Nhon Trach 2 - Loc Khang IZ, Hiep Phuoc Town, Nhon Trach District, Dong Nai, Province, Vietnam

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1.3 Product Information

FCC ID	A3LWCH931M	
Product Description	Wi-Fi/BT Transceiver	
Model name	WCH931M	
Variant Model name	-	
Operating Frequency	UNII 1	20 MHz_BW : 5 180 MHz – 5 240 MHz 40 MHz_BW : 5 190 MHz – 5 230 MHz 80 MHz_BW : 5 210 MHz
	UNII 2A	20 MHz_BW : 5 260 MHz – 5 320 MHz 40 MHz_BW : 5 270 MHz – 5 310 MHz 80 MHz_BW : 5 290 MHz
	UNII 2C	20 MHz_BW : 5 500 MHz – 5 720 MHz 40 MHz_BW : 5 510 MHz – 5 710 MHz 80 MHz_BW : 5 530 MHz – 5 690 MHz
	UNII 3	20 MHz_BW : 5 745 MHz – 5 825 MHz 40 MHz_BW : 5 755 MHz – 5 795 MHz 80 MHz_BW : 5 775 MHz
RF Output Power	802.11a : 16.21 dBm(41.78 mW) 802.11n_HT20 : 12.79 dBm(19.01 mW) 802.11n_HT40 : 16.34 dBm(43.05 mW) 802.11ac_VHT20 : 13.68 dBm(23.34 mW) 802.11ac_VHT40 : 16.49 dBm(44.57 mW) 802.11ac_VHT80 : 16.94 dBm(49.43 mW) 802.11ax_HE20 : 16.94 dBm(49.43 mW) 802.11ax_HE40 : 16.56 dBm(45.29 mW) 802.11ax_HE80 : 16.85 dBm(48.42 mW)	
Antenna Specification	Antenna Type	Chip Antenna
	UNII 1, UNII 2A	Peak Gain : 1.71 dBi (ANT0), -0.90 dBi (ANT1)
	UNII 2C, UNII 3	Peak Gain : -0.56 dBi (ANT0), -0.15 dBi (ANT1)
Antenna Configurations	802.11a : SISO (ANT0, ANT1) 802.11n : SISO (ANT0, ANT1), MIMO (ANT0+ANT1) 802.11ac : SISO (ANT0, ANT1), MIMO (ANT0+ANT1) 802.11ax : SISO (ANT0, ANT1), MIMO (ANT0+ANT1)	
Type of modulation	802.11a/n/ac/ax : OFDM 802.11ax : OFDMA	
Data Rate	802.11a : 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6 Mbps 802.11n : up to 300 Mbps 802.11ac : up to 867 Mbps 802.11ax : up to 1 200 Mbps	
Power Source	DC 5 V	
Hardware Rev	V1.0	
Software Rev	FC 3, FC 4	
Dynamic Frequency Selection	Slave without radar detection	
Test Program	QATool_Dbg_FC 3	

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1.4 Peripheral Devices

Device	Manufacturer	Model No.	Serial No.
Note Computer	HP	ProBook 455 G7	5CD0234DWM
AC/DC Adapter	HP	TPN-CA16	-
Note Computer	Samsung Electronics Co., Ltd.	NT-RC530-WS55	HPFG91EC300116B
AC/DC Adapter	Samsung Electronics Co., Ltd.	PA-1600-66	-

1.5 Model Differences

- Option1 : With mic
- Option2 : Without mic and related parts.
(The only difference is the presence of mic; all other circuit is completely identical for between the Basic and Variant options.)
- Test sample : Option1

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2. Accreditations

2.1 Laboratory Accreditations and Listings

Country	Agency	Registration Number
USA	FCC	805871
CANADA	ISED	CN : 8737A CAB ID : KR0025
KOREA	NRRA	KR0025

2.2 Calibration Details of Equipment used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

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3. Test Specifications

3.1 Standards

FCC Part Section(s)	Requirement(s)	Limit	Status (Note 1)	Test Condition
15.407 (e)	6 dB Bandwidth	> 500 kHz (5 725 – 5 850 MHz)	C	Conducted
15.407 (a)	26 dB Bandwidth and 99 % Bandwidth	NA	C	
15.407 (a)(1),(2),(3)	Conducted Output Power	< 250 mW (5 150 – 5 250 MHz) < 250 mW (5 250 – 5 350 MHz, 5 470 – 5 725 MHz) < 1 W (5 725 – 5 850 MHz)	C	
15.407 (a)(1),(2),(3)	Power Spectral Density	< 11 dBm/MHz (5 150 – 5 250 MHz) < 11 dBm/MHz (5 250 – 5 350 MHz, 5 470 – 5 725 MHz) < 30 dBm/500 kHz (5 725 – 5 850 MHz)	C	
15.407 (g)	Frequency Stability	NA	C	
15.407 (b)	Undesirable emission	< -27 dBm/MHz EIRP (5 150 – 5 250 MHz, 5 250 – 5 350 MHz, 5 470 – 5 725 MHz) < -27 dBm/MHz EIRP < 10 dBm/MHz EIRP < 15.6 dBm/MHz EIRP < 27 dBm/MHz EIRP (5 725 – 5 850 MHz)	C	Radiated
15.205, 15.407 (b)(9),(10)	Radiated Spurious Emission	15.209(a)	C	
15.407 (b)(9)	AC Conducted Emissions	15.207(a)	C	Line Conducted
Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable				
Note 2: The data in this test report are traceable to the national or international standards.				
Note 3: The sample was tested according to the following specification: FCC Part 15.407				
Note 4: The tests were performed according to the method of measurements prescribed in KDB No.789033, KDB No.987594, ANSI C63.10-2020				

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3.2 Testing Environment

Test Item		Test Date	Temperature (°C)	Relative Humidity (%)
6 dB Bandwidth		2025-11-14 ~ 2025-12-25	(20~25) ±1	(20~37)±3
26 dB Bandwidth & 99 % Bandwidth				
Conducted Output Power				
Power Spectral Density				
Frequency Stability		2025-12-17	21±1	23±3
Transmitter Emission (Radiated)	(1 GHz Below)	2025-12-28, 2025-12-30	(18~20)±1	23±3
	(1 GHz Above)	2025-11-24 ~ 2025-12-15	(19~26)±1	(21~27)±3
AC Conducted Emission		2026-01-03	19±1	20±3

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3.3 Mode of Operation during the Test

The EUT is operated in a manner representative of the typical of the equipments.

During at testing, system components were manipulated within the confines of typical usage to maximize each emission.

For WLAN function, the engineering test program was provided and enabled to make EUT continuous transmit.

All modulation modes were tests. The results are only attached worst cases.

The Output power and Power Spectral Density for the 802.11 ax mode were investigated between all different tones, and we found that the highest tone had the highest output power and lowest tone had the highest PSD readings. Therefore, full testing was performed on both the highest and lowest tones.

Test Frequency & Bandwidth

- 802.11a / n_HT20 / ac_VHT20 / ax_HE20

Frequency Band	Lowest Channel	Middle Channel	Highest Channel
UNII 1	5 180 MHz	5 200 MHz	5 240 MHz
UNII 2A	5 260 MHz	5 300 MHz	5 320 MHz
UNII 2C	5 500 MHz	5 600 MHz	5 700 MHz, 5 720 MHz
UNII 3	5 745 MHz	5 785 MHz	5 825 MHz

- 802.11n_HT40 / ac_VHT40 / ax_HE40

Frequency Band	Lowest Channel	Middle Channel	Highest Channel
UNII 1	5 190 MHz	-	5 230 MHz
UNII 2A	5 270 MHz	-	5 310 MHz
UNII 2C	5 510 MHz	5 590 MHz	5 670 MHz, 5 710 MHz
UNII 3	5 755 MHz	-	5 795 MHz

- 802.11ac_VHT80 / ax_HE80

Frequency Band	Lowest Channel	Middle Channel	Highest Channel
UNII 1	5 210 MHz	-	-
UNII 2A	5 290 MHz	-	-
UNII 2C	5 530 MHz	5 610 MHz	5 690 MHz
UNII 3	5 775 MHz	-	-



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Test Mode & Worst Case

Test Mode	Modulation	Data Rate	Duty Cycle	Duty Cycle Factor
802.11a	OFDM	6 Mbps	96.9 %	0.14 dB
802.11n_HT20	OFDM	MCS 0	96.7 %	0.14 dB
802.11n_HT40		MCS 0	93.6 %	0.29 dB
802.11ac_VHT20	OFDM	MNSS 0	93.8 %	0.28 dB
802.11ac_VHT40		MNSS 0	88.9 %	0.51 dB
802.11ac_VHT80		MNSS 0	81.0 %	0.91 dB
802.11ax_HE20_26T	OFDMA	MCS 0	95.1 %	0.22 dB
802.11ax_HE20_52T			94.9 %	0.23 dB
802.11ax_HE20_106T			94.5 %	0.25 dB
802.11ax_HE20_242T			93.7 %	0.28 dB
802.11ax_HE40_26T	OFDMA	MCS 0	95.0 %	0.22 dB
802.11ax_HE40_52T			94.8 %	0.23 dB
802.11ax_HE40_106T			94.6 %	0.24 dB
802.11ax_HE40_242T			93.7 %	0.28 dB
802.11ax_HE40_484T	OFDMA	MCS 0	93.8 %	0.28 dB
802.11ax_HE80_26T			95.1 %	0.22 dB
802.11ax_HE80_52T			94.8 %	0.23 dB
802.11ax_HE80_106T			94.4 %	0.25 dB
802.11ax_HE80_242T			93.7 %	0.28 dB
802.11ax_HE80_484T			93.6 %	0.29 dB
802.11ax_HE80_996T			93.6 %	0.29 dB

802.11a



802.11ax RU Locations



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Test RU Index for Tones

Mode	Tones	RU Index	
802.11ax_HE20	26T	Low	0
		Mid	4
		High	8
	52T	Low	37
		Mid	39
		High	40
	106T	Low	53
		Mid	-
		High	54
	242T / SU	61 / NA	61 / NA
802.11ax_HE40	26T	Low	0
		Mid	9
		High	17
	52T	Low	37
		Mid	41
		High	44
	106T	Low	53
		Mid	55
		High	56
	242T	Low	61
		Mid	-
		High	62
	484T / SU	65 / NA	65 / NA
802.11ax_HE80	26T	Low	0
		Mid	18
		High	36
	52T	Low	37
		Mid	45
		High	52
	106T	Low	53
		Mid	57
		High	60
	242T	Low	61
		Mid	63
		High	64
	484T	Low	65
		Mid	-
		High	66
	996T / SU	67 / NA	67 / NA

The output power of the SU(Single Unit) mode is equal to or lower than that of the Full RU(Resource Unit) mode, only the representative worst-case mode was selected and evaluated.

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RF Power Setting in Test SW

Mode		Frequency Band	Power Setting Value
802.11a		UNII 1	8.0
		UNII 2A	10.0
		UNII 2C	10.0
		UNII 3	10.0
802.11n_HT20		UNII 1	6.5
		UNII 2A	6.5
		UNII 2C	5.5
		UNII 3	6.5
802.11n_HT40		UNII 1	10.0
		UNII 2A	10.0
		UNII 2C	11.0
		UNII 3	11.0
802.11ac_VHT20		UNII 1	7.0
		UNII 2A	7.0
		UNII 2C	6.0
		UNII 3	7.5
802.11ac_VHT40		UNII 1	9.0
		UNII 2A	9.0
		UNII 2C	9.0
		UNII 3	11.0
802.11ac_VHT80		UNII 1	11.0
		UNII 2A	11.0
		UNII 2C	9.0
		UNII 3	12.0
802.11ax_HE20	26T	UNII 1	2.5
		UNII 2A	2.5
		UNII 2C	1.5
		UNII 3	2.5
	52T	UNII 1	8.0
		UNII 2A	8.0
		UNII 2C	8.0
		UNII 3	8.0
	106T	UNII 1	10.0
		UNII 2A	10.0
		UNII 2C	10.0
		UNII 3	10.0
	242T	UNII 1	12.0
		UNII 2A	12.0
		UNII 2C	11.0
		UNII 3	12.0
802.11ax_HE40	26T	UNII 1	3.0
		UNII 2A	3.0
		UNII 2C	3.5
		UNII 3	4.5

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Mode		Frequency Band	Power Setting Value
802.11ax _HE40	26T	UNII 1	3.0
		UNII 2A	3.0
		UNII 2C	3.5
		UNII 3	4.5
802.11ax _HE40	52T	UNII 1	8.0
		UNII 2A	8.0
		UNII 2C	8.0
		UNII 3	8.0
	106T	UNII 1	10.0
		UNII 2A	10.0
		UNII 2C	8.0
		UNII 3	10.0
	242T	UNII 1	12.0
		UNII 2A	12.0
		UNII 2C	11.0
		UNII 3	12.0
	484T	UNII 1	12.0
		UNII 2A	12.0
		UNII 2C	12.0
		UNII 3	12.0
802.11ax _HE80	26T	UNII 1	3.0
		UNII 2A	4.0
		UNII 2C	3.0
		UNII 3	4.0
	52T	UNII 1	8.0
		UNII 2A	8.0
		UNII 2C	8.0
		UNII 3	8.0
	106T	UNII 1	10.0
		UNII 2A	10.0
		UNII 2C	10.0
		UNII 3	10.0
	242T	UNII 1	12.0
		UNII 2A	12.0
		UNII 2C	10.0
		UNII 3	12.0
	484T	UNII 1	12.0
		UNII 2A	11.0
		UNII 2C	9.5
		UNII 3	12.0
	996T	UNII 1	12.0
		UNII 2A	11.5
		UNII 2C	10.0
		UNII 3	12.0

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3.4 Device Modifications

The following modifications were necessary for compliance:

Not applicable

3.5 Measurement Uncertainty

The value of the measurement uncertainty for the measurement of each parameter.
Coverage factor $k = 2$, Confidence levels of 95 %

Description	Uncertainty
Conducted RF Output Power	1.50 dB (C.L.: Approx. 95 %, $k = 2$)
Power Spectral Density	1.50 dB (C.L.: Approx. 95 %, $k = 2$)
Occupied Bandwidth	0.10 MHz (C.L.: Approx. 95 %, $k = 2$)
Radiated Emissions ($f \leq 1$ GHz)	4.11 dB (C.L.: Approx. 95 %, $k = 2$)
Radiated Emissions ($f > 1$ GHz)	4.34 dB (C.L.: Approx. 95 %, $k = 2$)
Line Conducted Emission	2.06 dB (C.L.: Approx. 95 %, $k = 2$)

3.6 Test Software

Conducted Test	Ics Pro Ver. 6.0.3
Radiated Test	EP5RE Ver. 6.0.1.0
Line Conducted Test	EMC32 Ver. 10.50.00

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4. Technical Characteristic Test

4.1 6 dB Bandwidth

Test Procedures

KDB 789033 – Section C.2
ANSI C63.10-2020 - Section 12.5.1

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.

Test Settings :

Center frequency = the highest, middle and the lowest channels

- a) RBW = 100 kHz
- b) VBW $\geq 3 \times$ RBW
- c) Detector = peak
- d) Trace mode = max hold
- e) Sweep time = auto couple
- f) Allow the trace to stabilize
- g) 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.

Minimum Standard :

6 dB Bandwidth > 500 kHz

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Test Data :**ANT0**

	6 dB Bandwidth [MHz]			
Test Mode	802.11a			
Frequency [MHz]	802.11a	802.11n_HT20	802.11ac_VHT20	802.11ax_HE20_242T
5 745	16.34	17.61	17.30	18.53
5 785	16.32	17.58	17.27	18.88
5 825	16.30	17.51	17.27	18.82

	6 dB Bandwidth [MHz]		
Test Mode	802.11ax_HE20_26T		
Frequency [MHz]	RU Index_Low	RU Index_Mid	RU Index_High
5 745	2.03	2.70	2.11
5 785	2.09	2.67	2.07
5 825	2.14	2.69	2.09

	6 dB Bandwidth [MHz]		
Test Mode	802.11n_HT40		
Frequency [MHz]	802.11n_HT40	802.11ac_VHT40	802.11ax_HE40_484T
5 755	33.88	35.06	35.13
5 795	32.59	35.05	35.13

	6 dB Bandwidth [MHz]		
Test Mode	802.11ax_HE40_26T		
Frequency [MHz]	RU Index_Low	RU Index_Mid	RU Index_High
5 755	2.02	2.06	2.07
5 795	2.09	2.10	2.10

	6 dB Bandwidth [MHz]	
Test Mode	802.11ac_VHT80	
Frequency [MHz]	802.11ac_VHT80	802.11ax_HE80_996T
5 775	75.14	75.11

	6 dB Bandwidth [MHz]		
Test Mode	802.11ax_HE80_26T		
Frequency [MHz]	RU Index_Low	RU Index_Mid	RU Index_High
5 775	2.11	2.03	2.06

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	6 dB Bandwidth [MHz]			
Test Mode	802.11a			
Frequency [MHz]	802.11a	802.11n_HT20	802.11ac_VHT20	802.11ax_HE20_242T
5 745	16.33	17.61	17.59	18.74
5 785	16.31	17.60	17.57	18.88
5 825	16.31	17.59	17.61	18.83

	6 dB Bandwidth [MHz]		
Test Mode	802.11ax_HE20_26T		
Frequency [MHz]	RU Index_Low	RU Index_Mid	RU Index_High
5 745	32.68	32.68	32.68
5 785	33.89	33.89	33.89
5 825	32.68	32.68	32.68

	6 dB Bandwidth [MHz]		
Test Mode	802.11n_HT40		
Frequency [MHz]	802.11n_HT40	802.11ac_VHT40	802.11ax_HE40_484T
5 755	32.68	32.68	32.68
5 795	33.89	33.89	33.89

	6 dB Bandwidth [MHz]		
Test Mode	802.11ax_HE40_26T		
Frequency [MHz]	RU Index_Low	RU Index_Mid	RU Index_High
5 755	2.09	2.07	2.02
5 795	2.03	2.03	2.05

	6 dB Bandwidth [MHz]	
Test Mode	802.11ac_VHT80	
Frequency [MHz]	802.11ac_VHT80	802.11ax_HE80_996T
5 775	75.13	71.36

	6 dB Bandwidth [MHz]		
Test Mode	802.11ax_HE80_26T		
Frequency [MHz]	RU Index_Low	RU Index_Mid	RU Index_High
5 775	2.21	2.12	2.14

See next pages for actual measured spectrum plots.



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ANT0_802.11a_UNI1 3



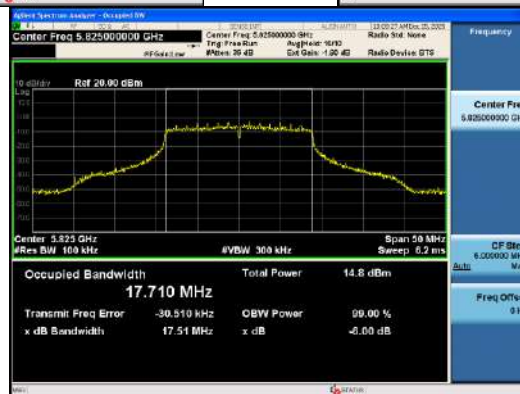
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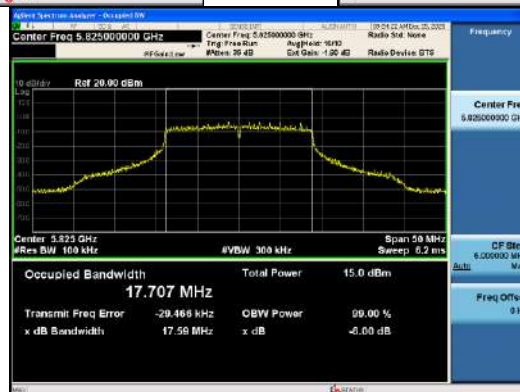
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ANT0_802.11n_HT20_UNII 3



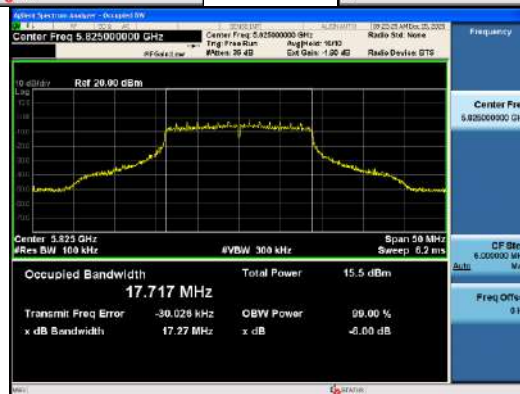
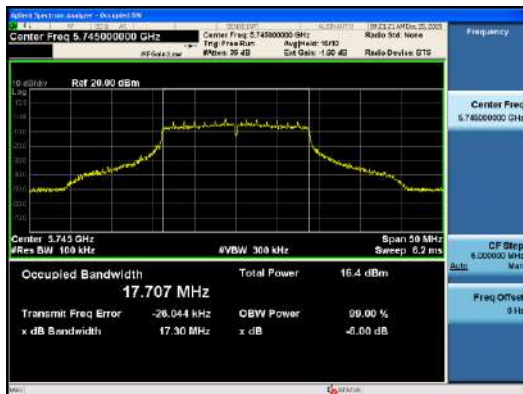
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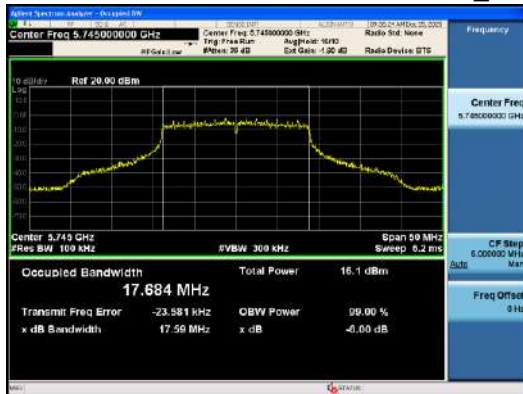
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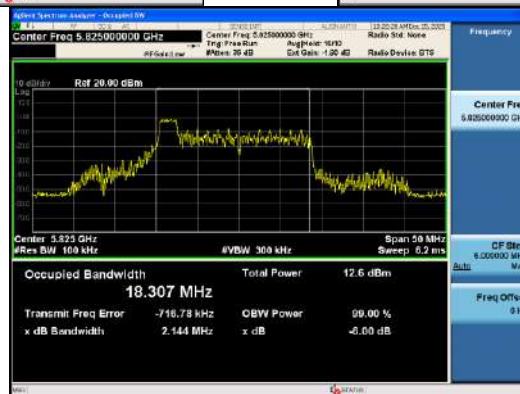
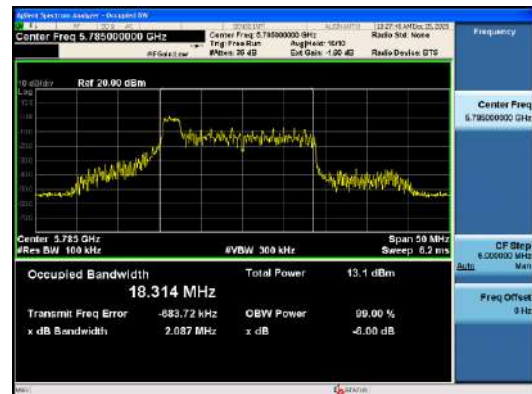
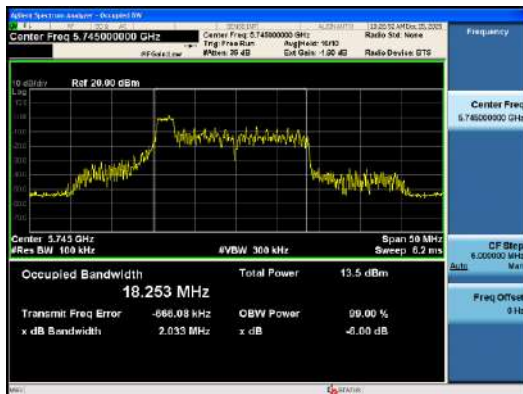
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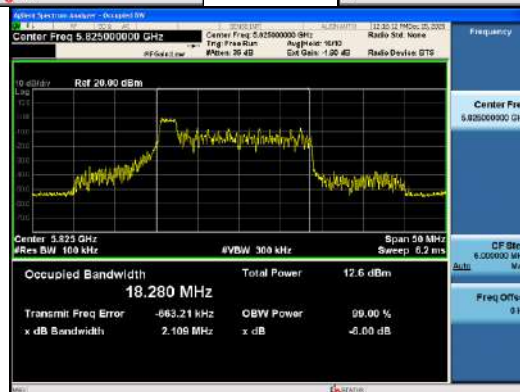
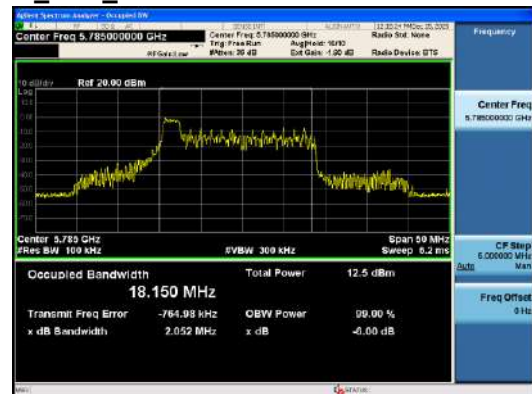
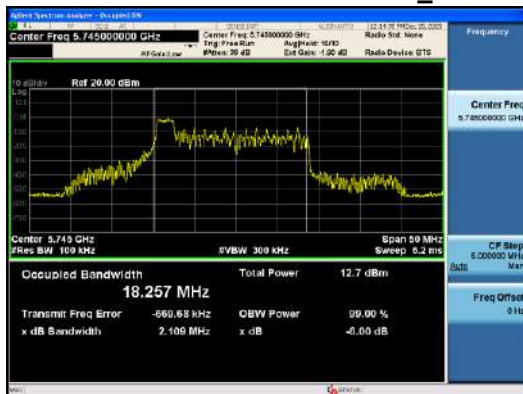
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ANT0_802.11ax_HE20_26T_Low_UNII 3



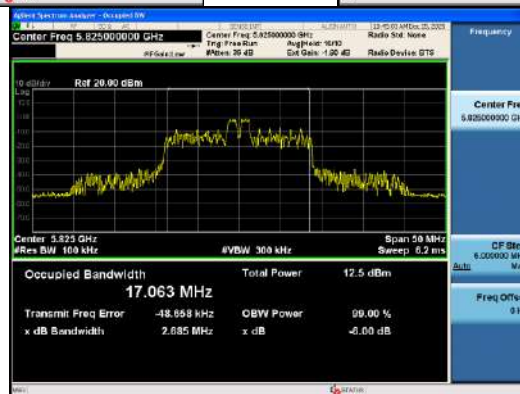
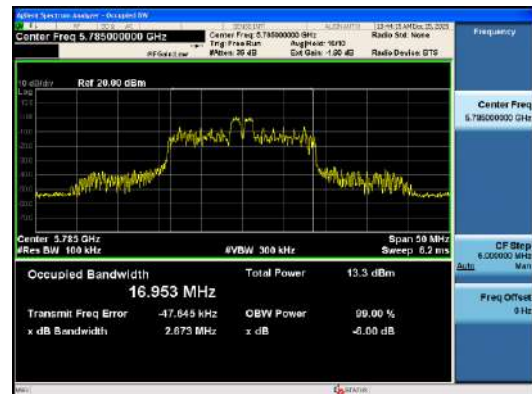
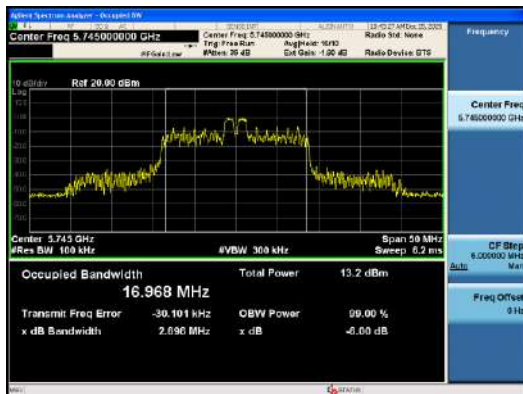
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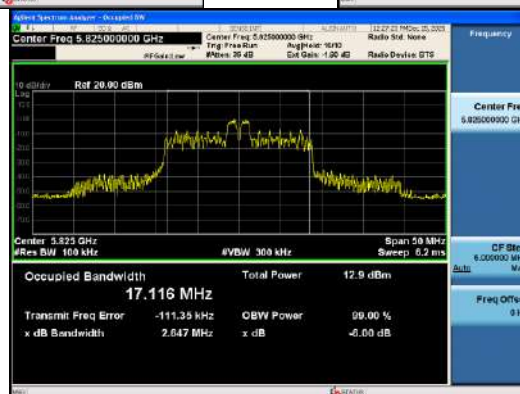
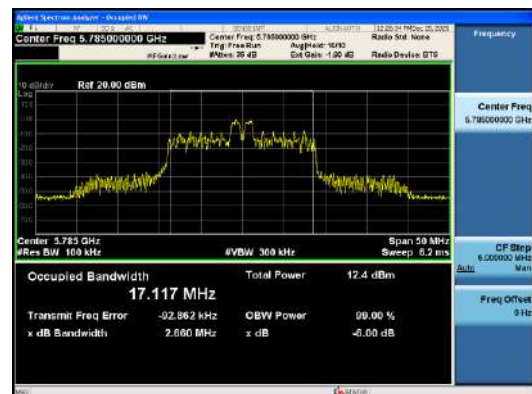
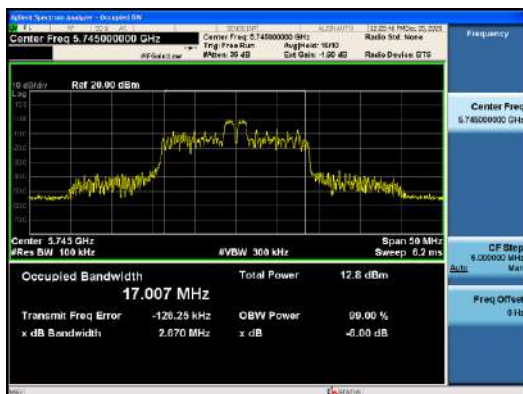
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ANT0_802.11ax_HE20_26T_Mid_UNII 3



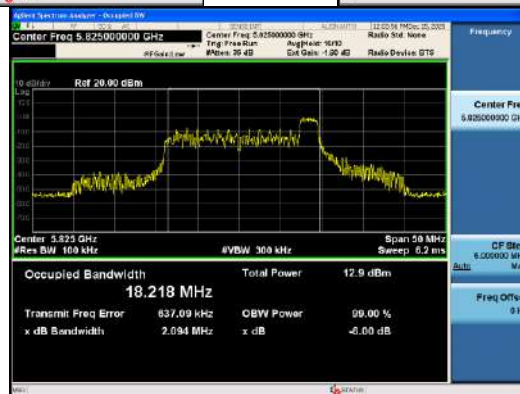
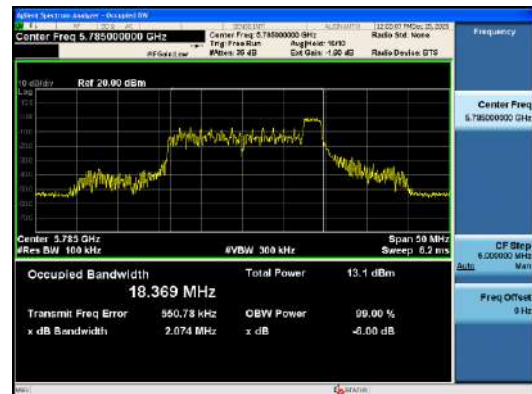
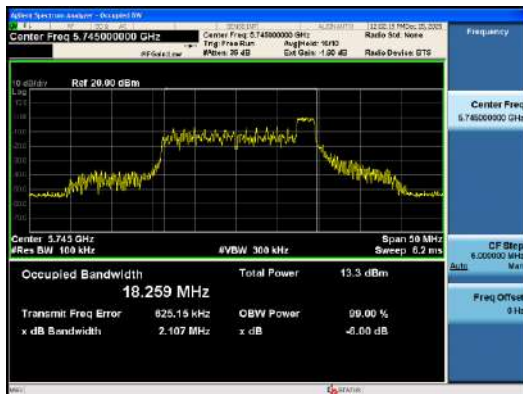
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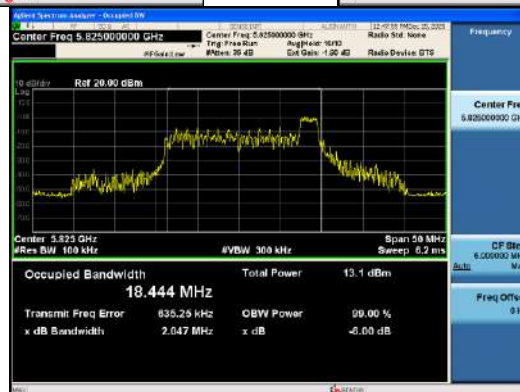
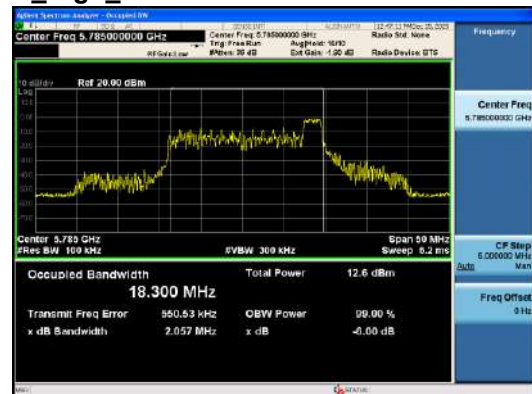
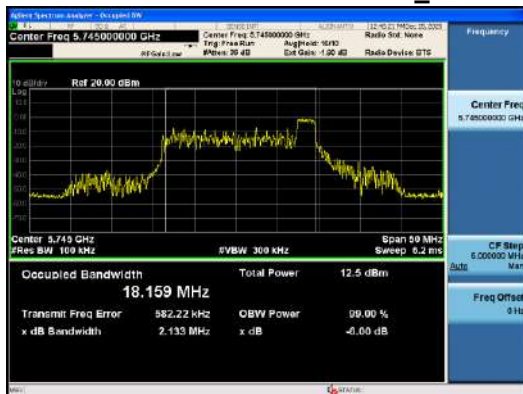
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ANT0_802.11ax_HE20_26T_High_UNII 3



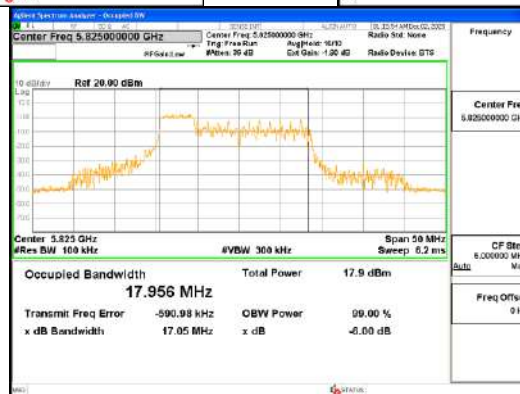
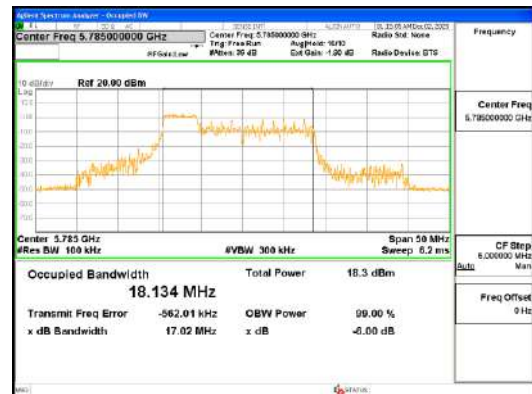
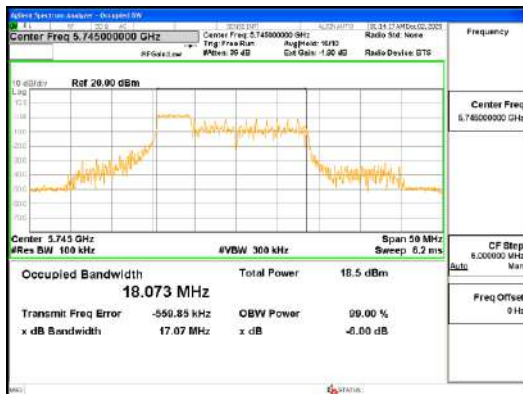
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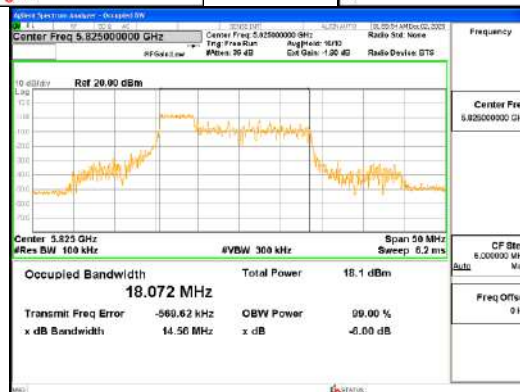
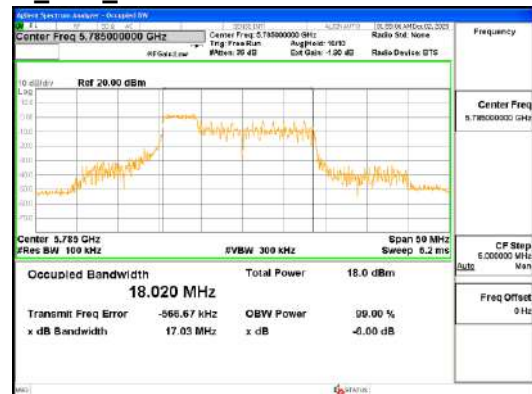
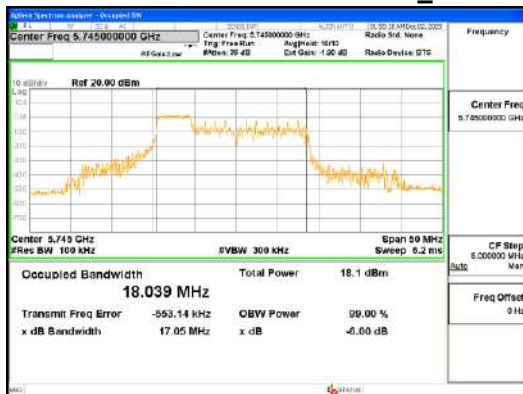
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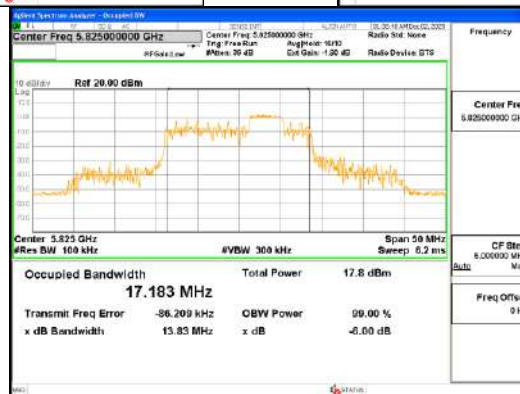
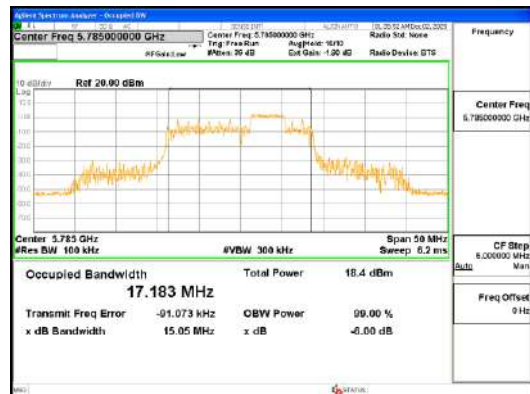
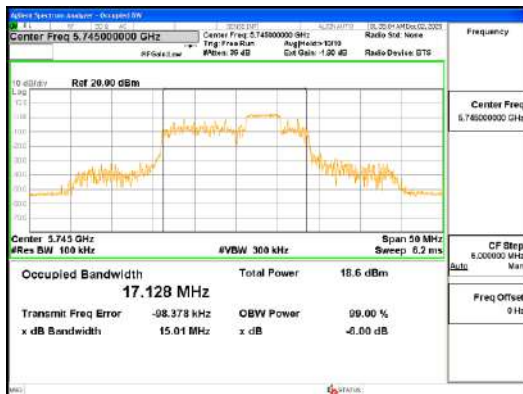
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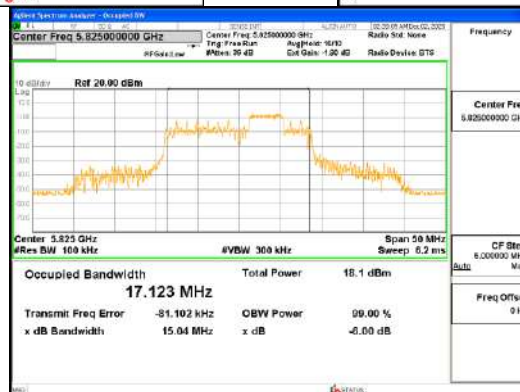
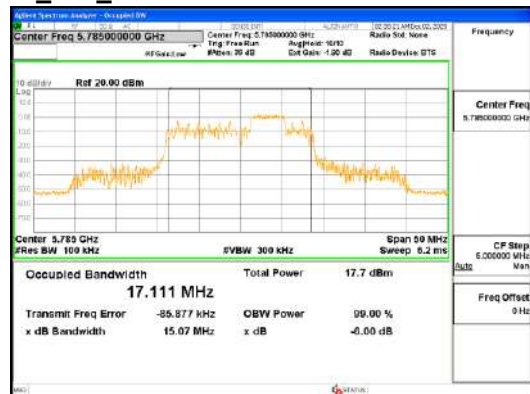
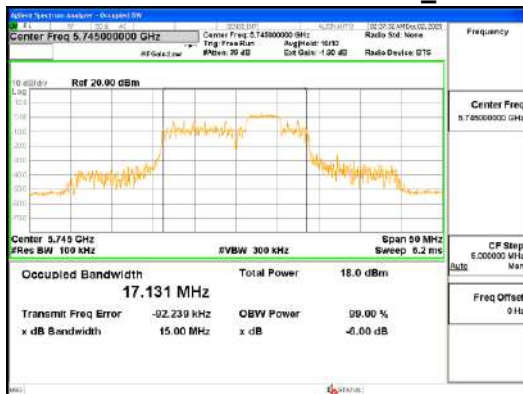
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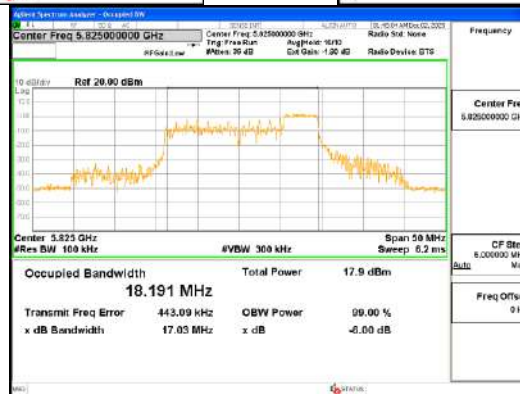
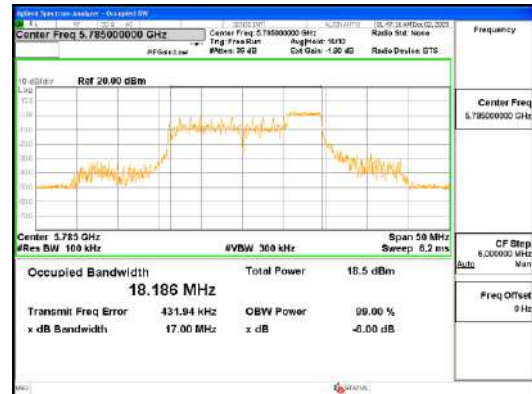
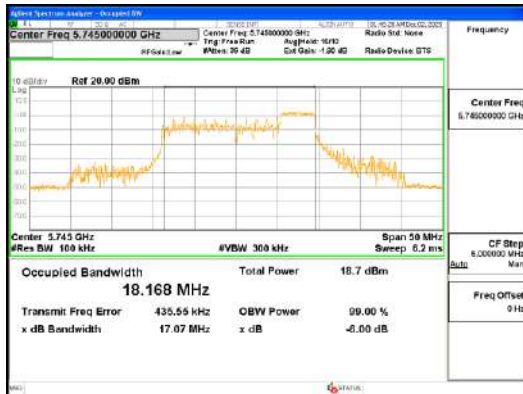
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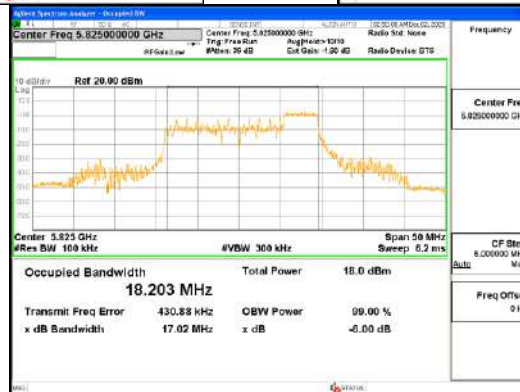
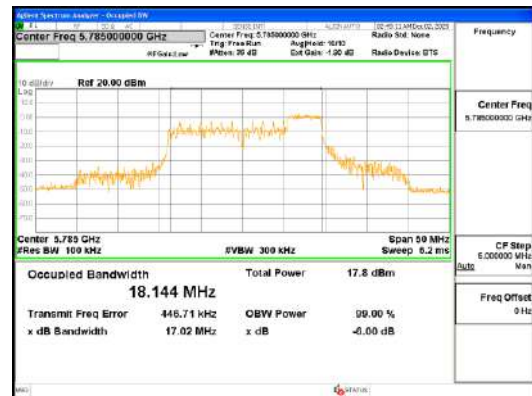
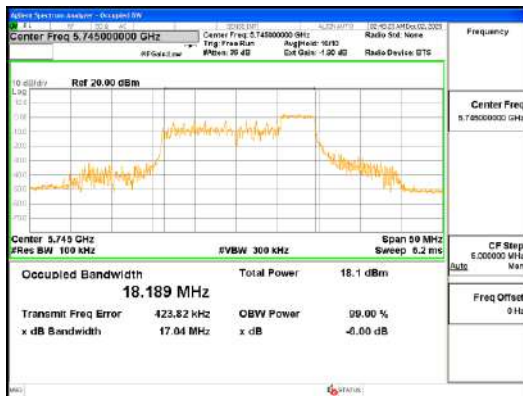
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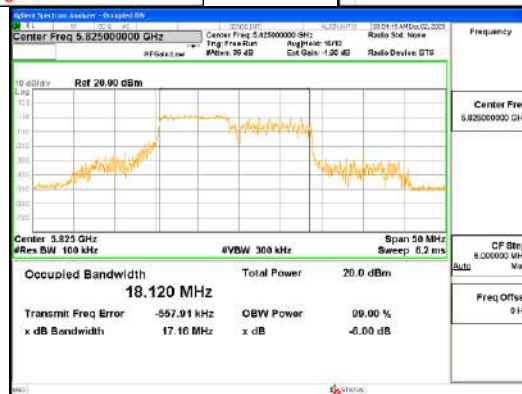
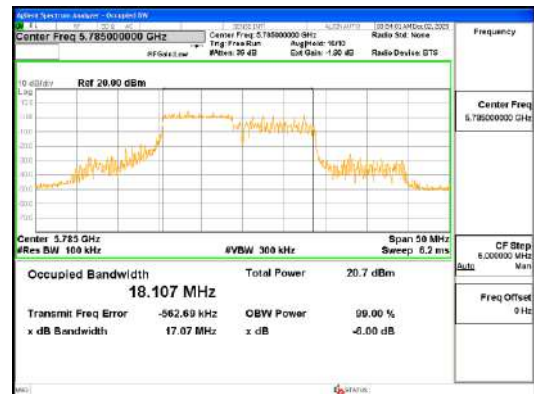
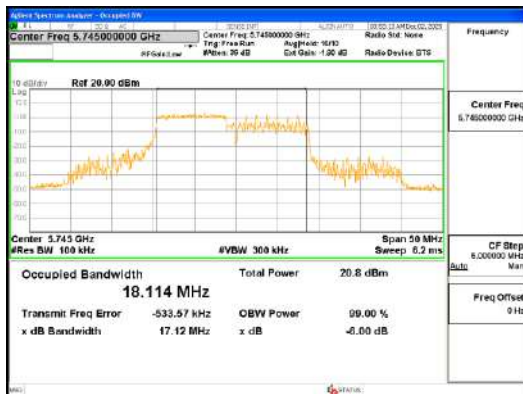
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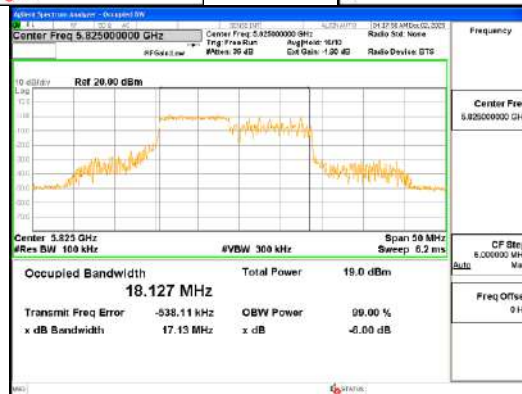
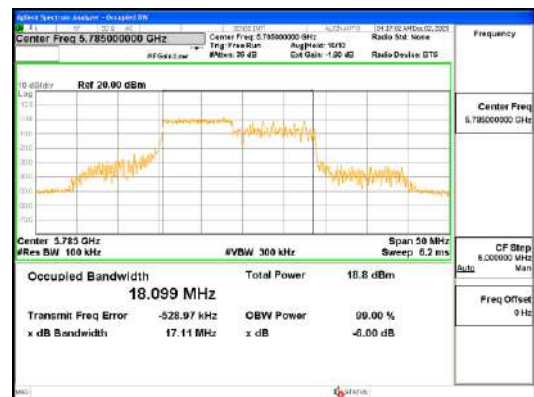
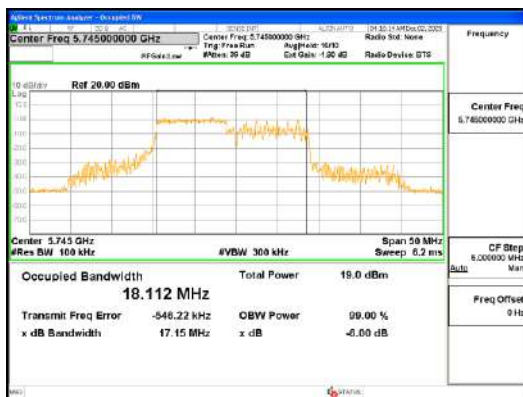
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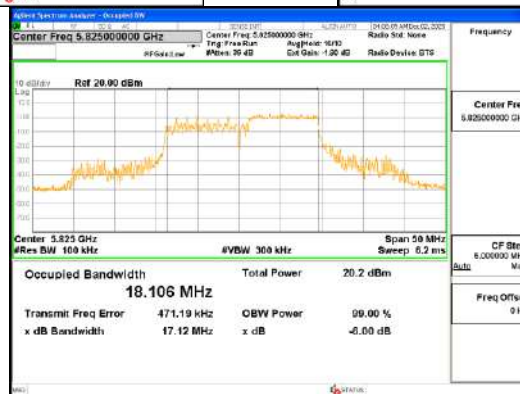
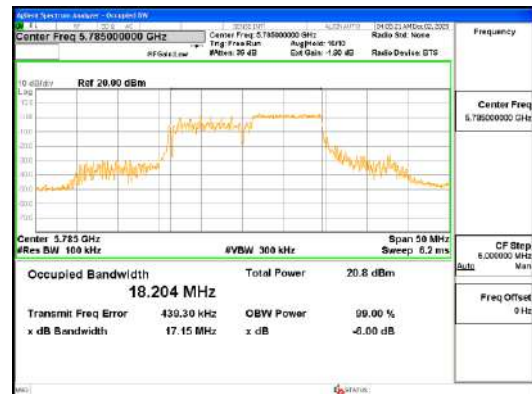
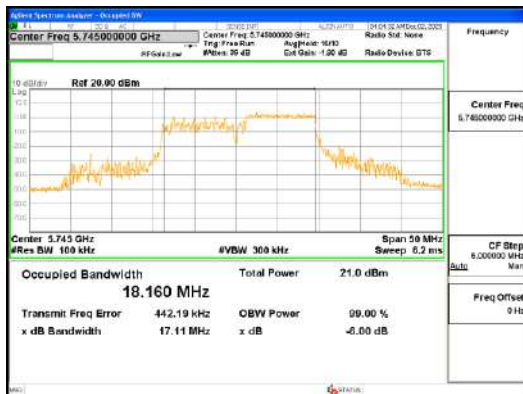
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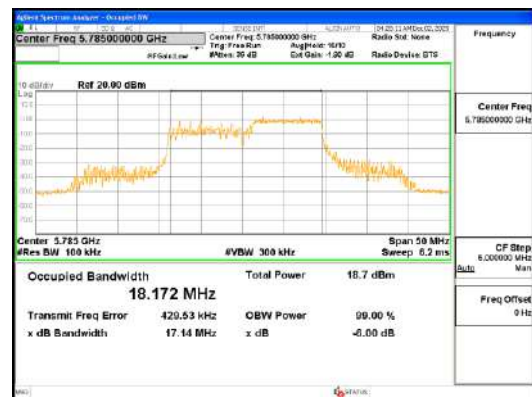
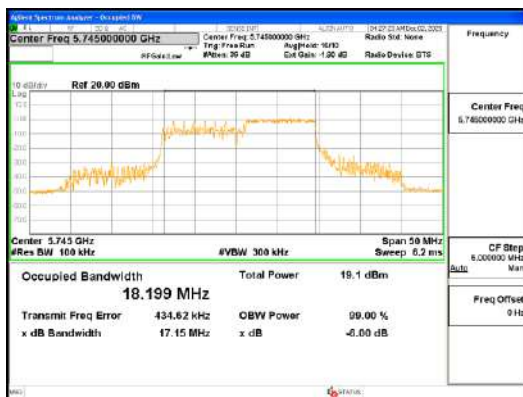
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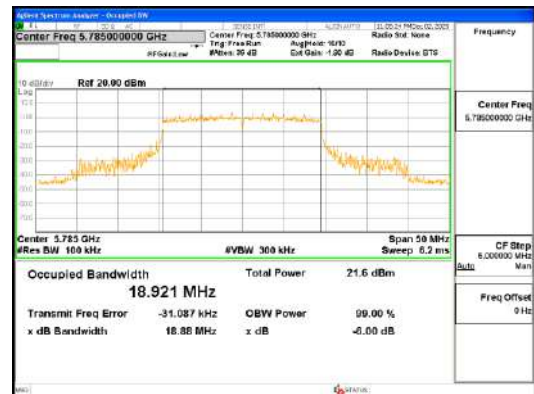
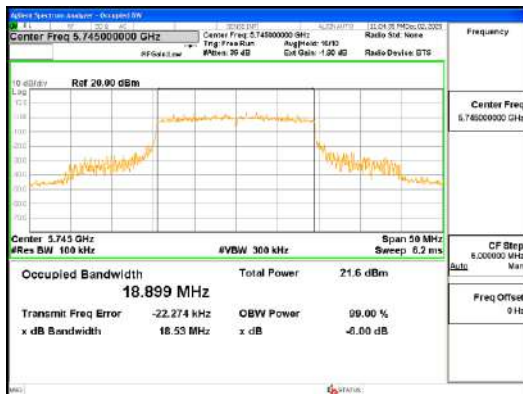
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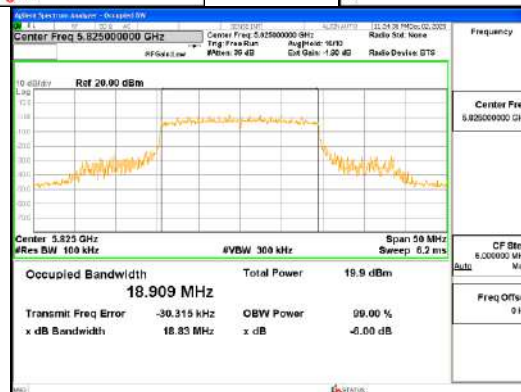
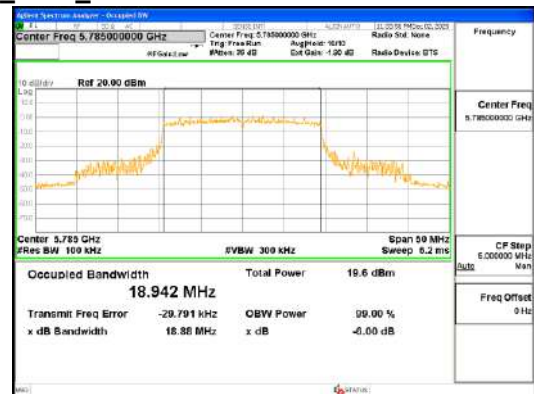
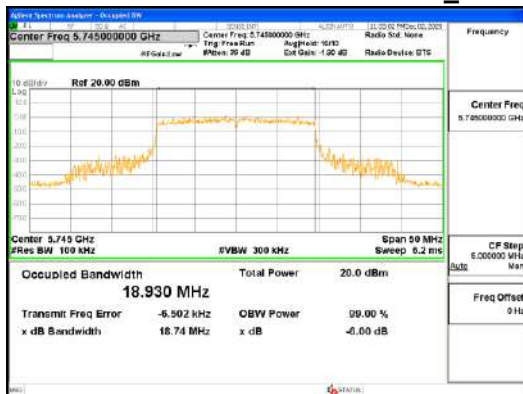
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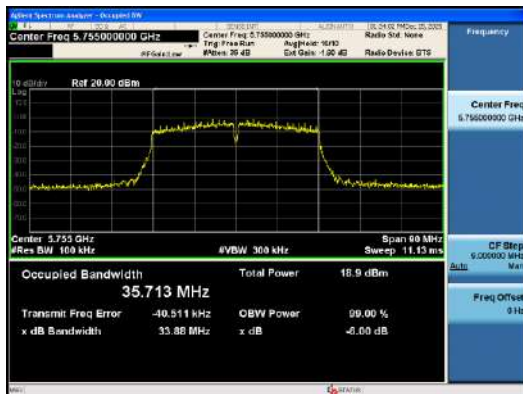
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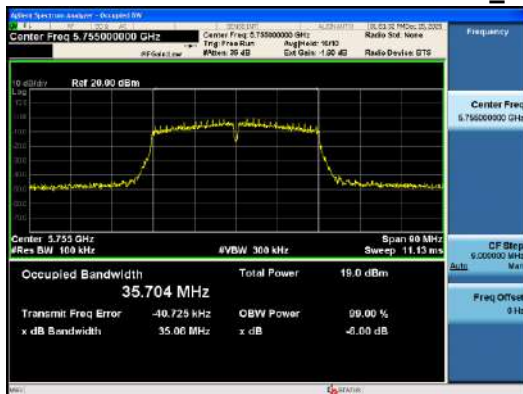
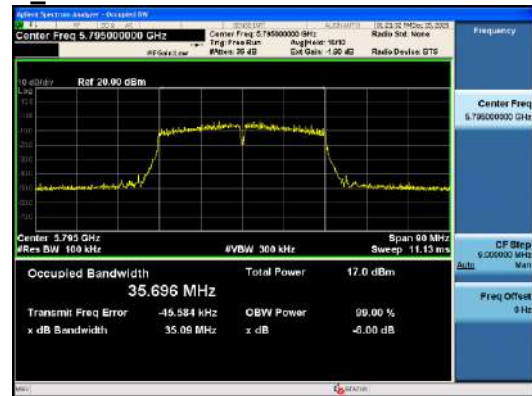
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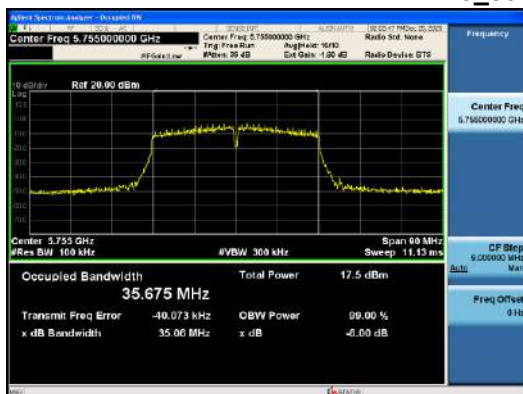
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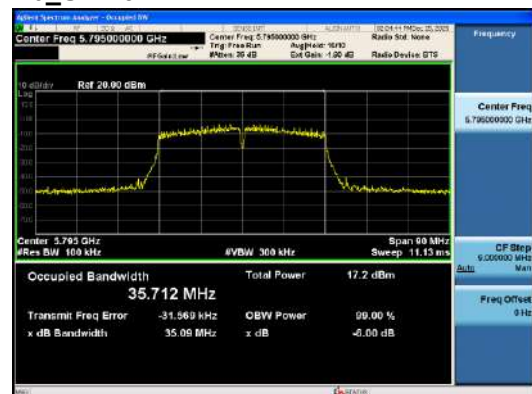
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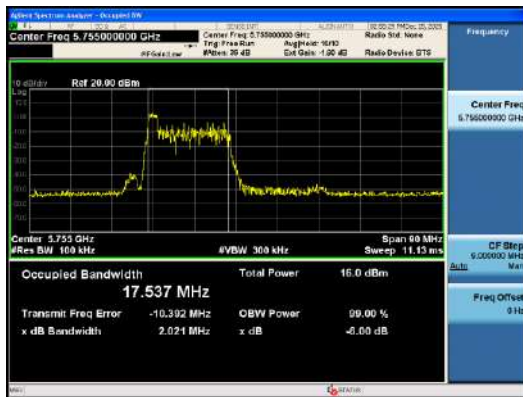




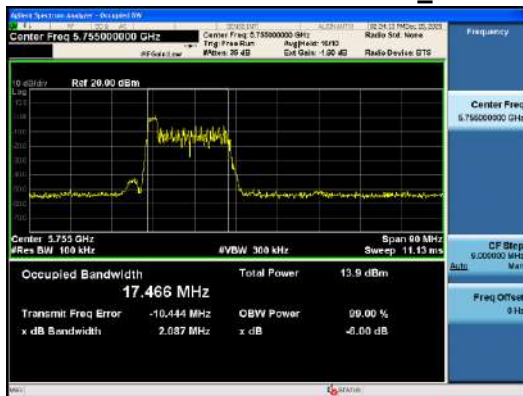
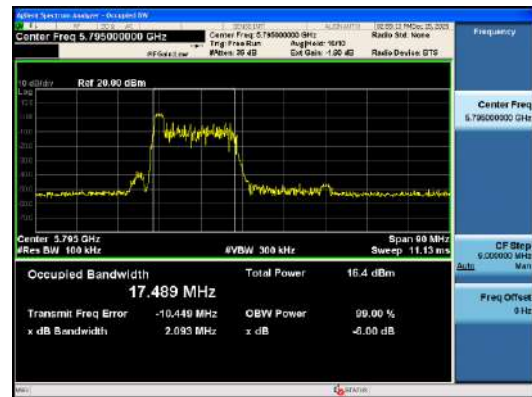
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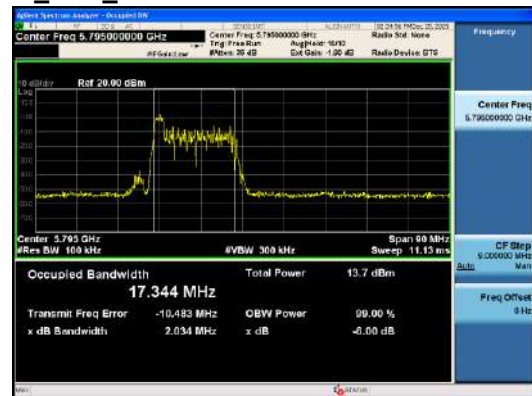
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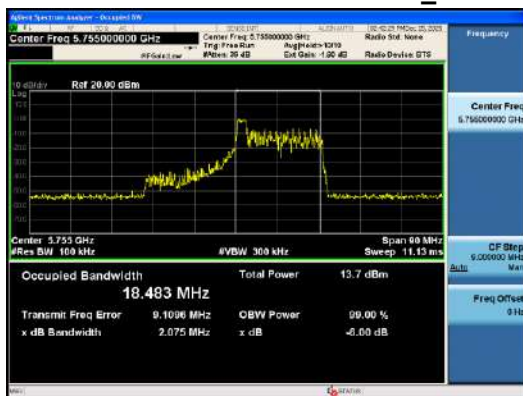
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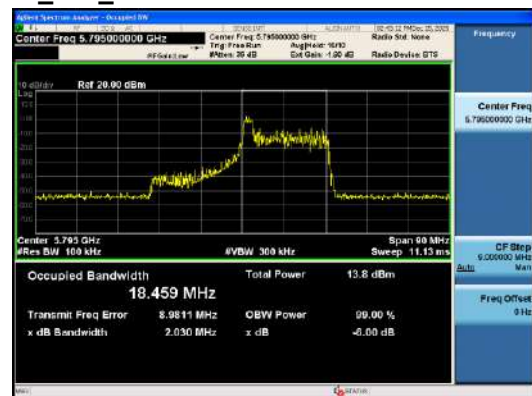
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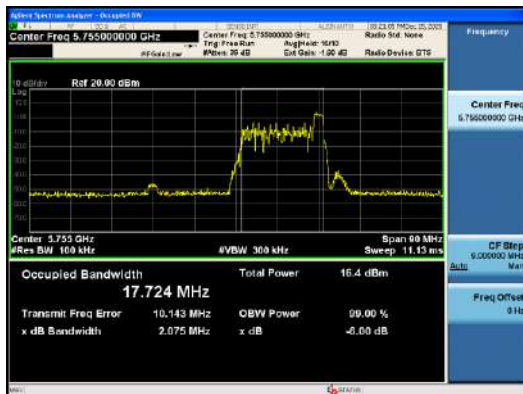




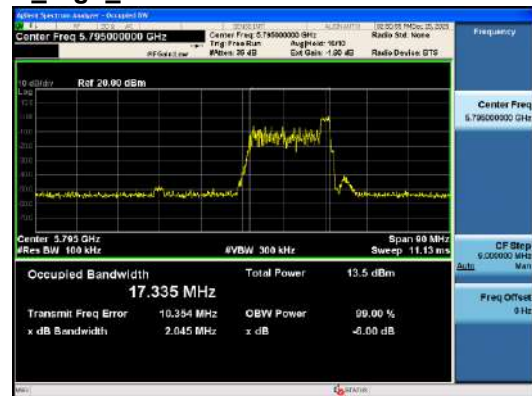
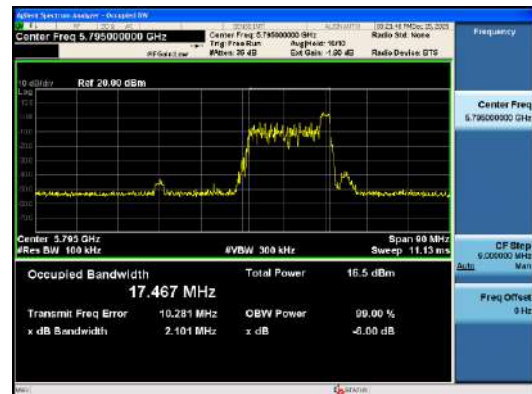
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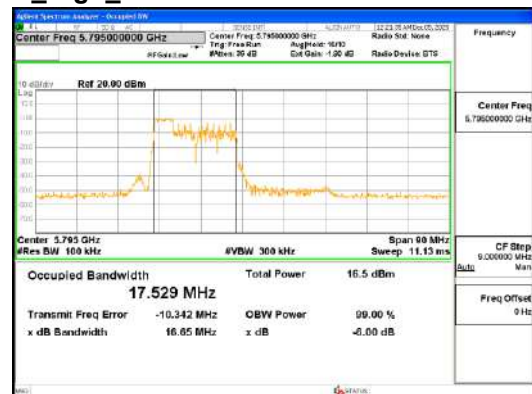
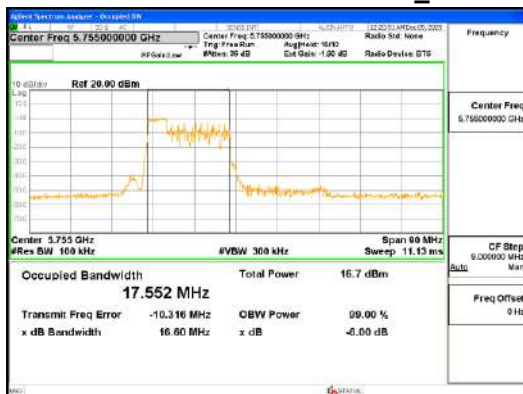
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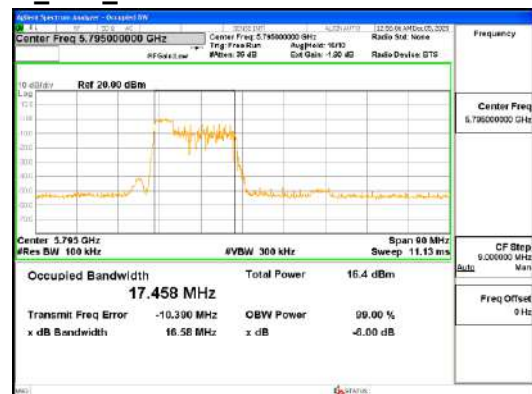
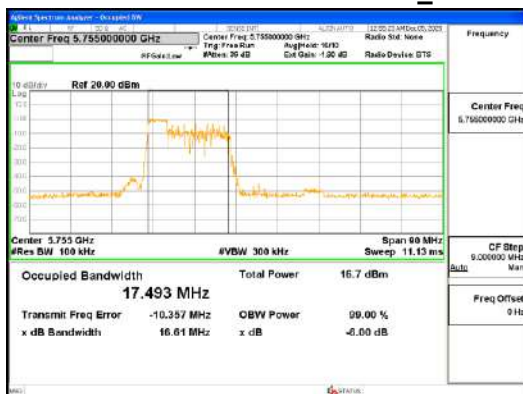
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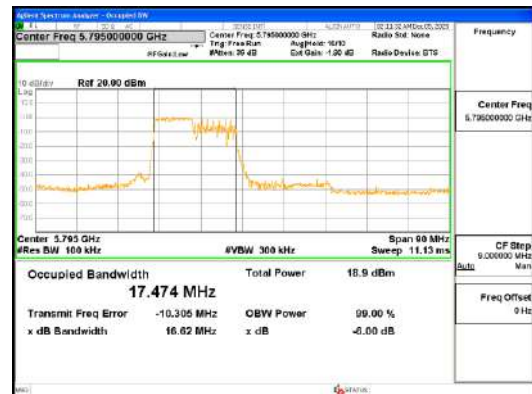
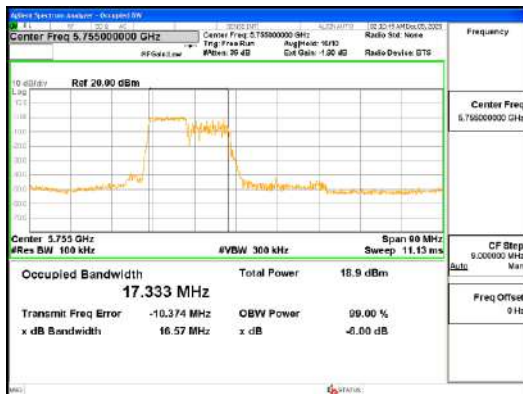
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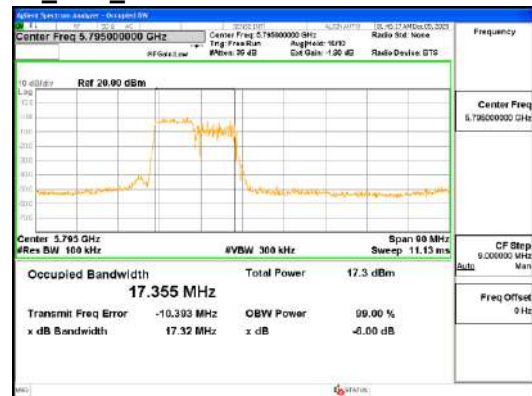
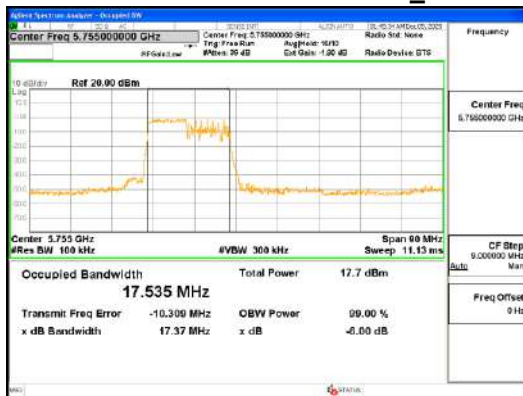
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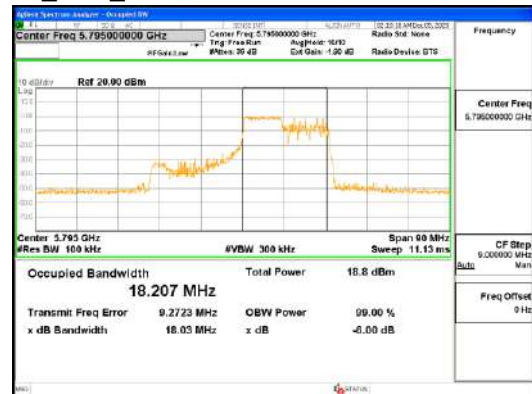
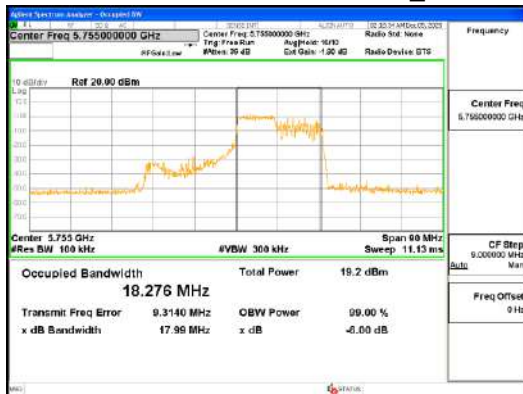
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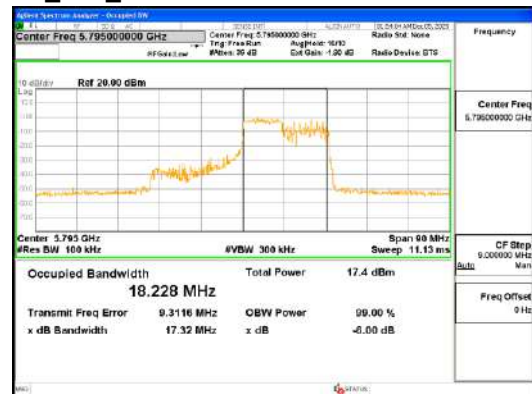
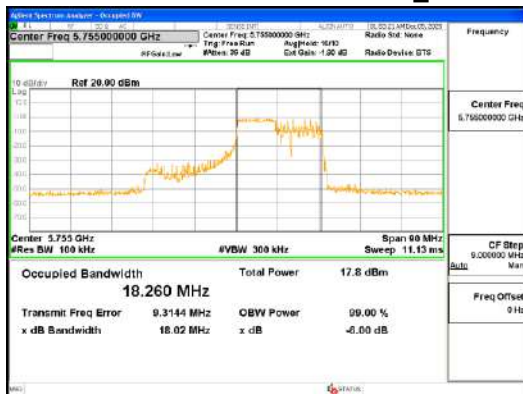
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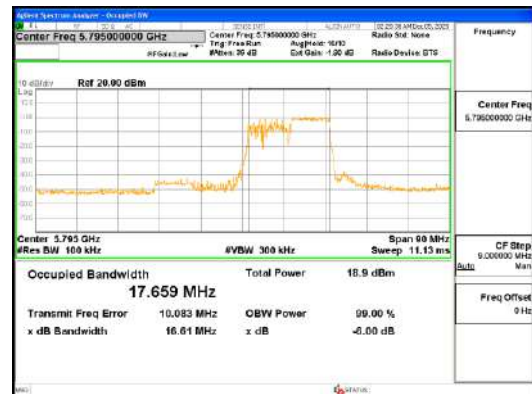
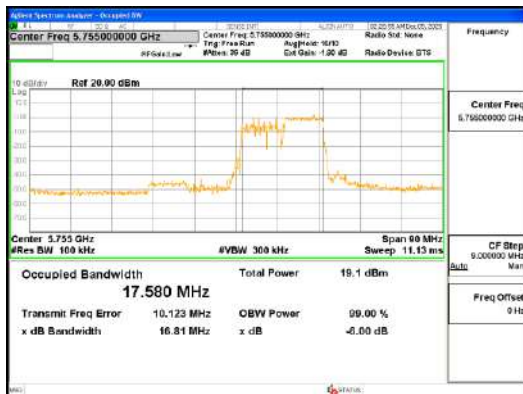
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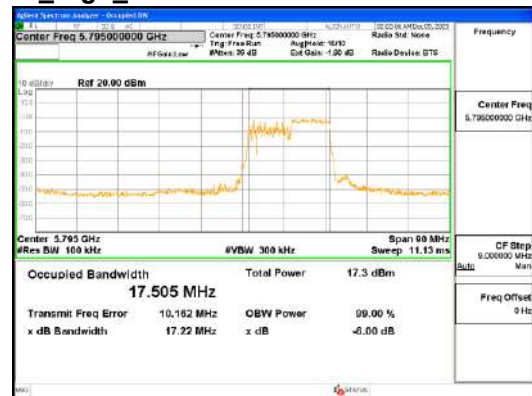
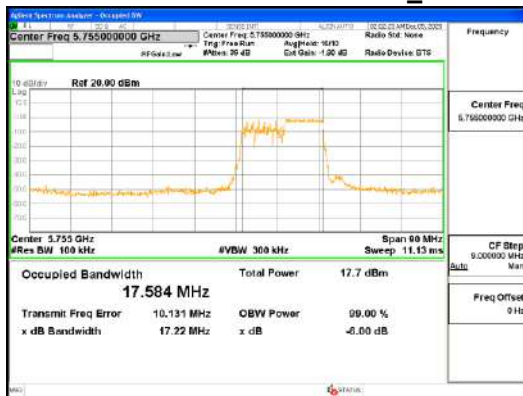
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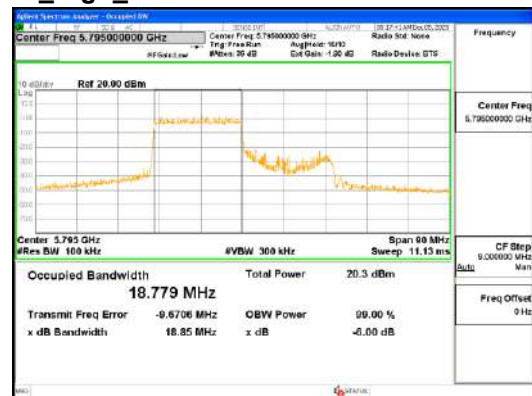
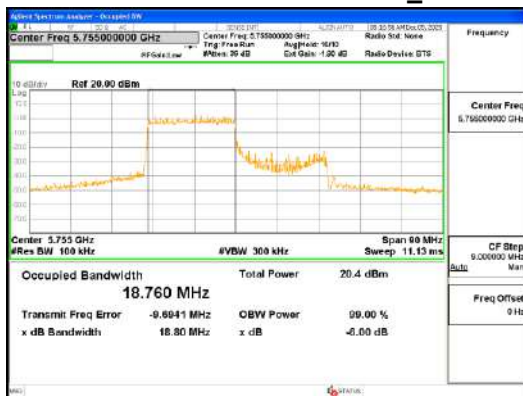
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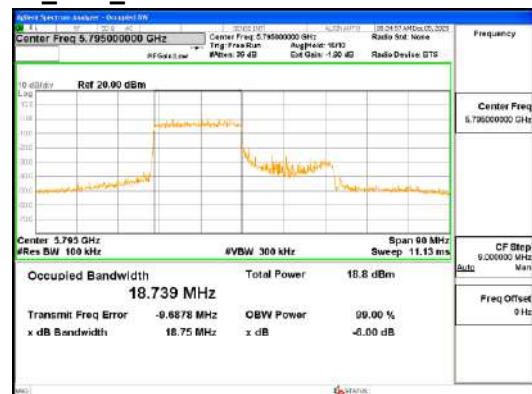
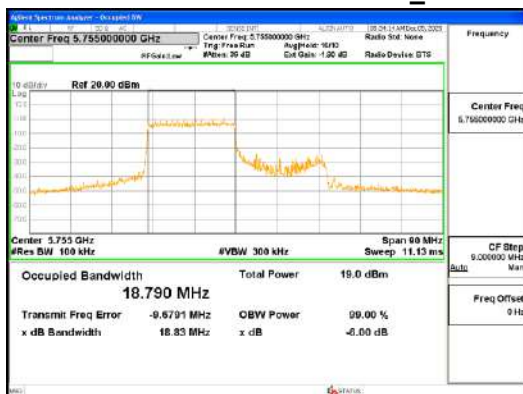
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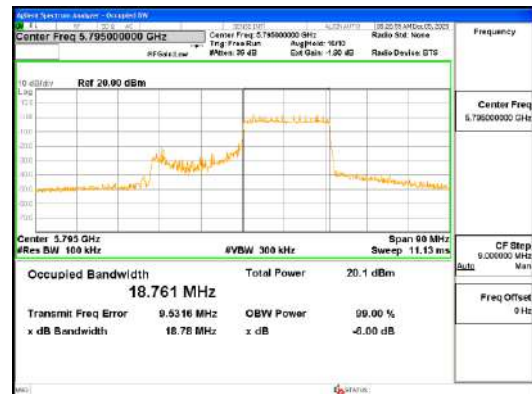
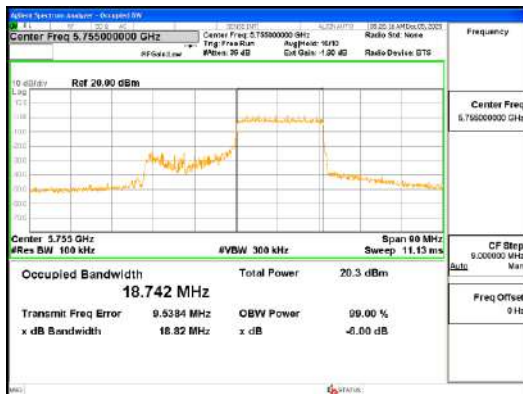
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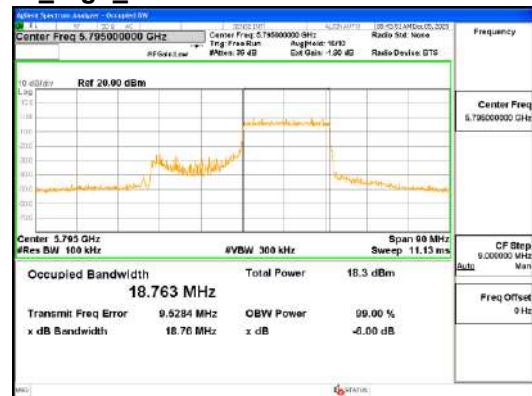
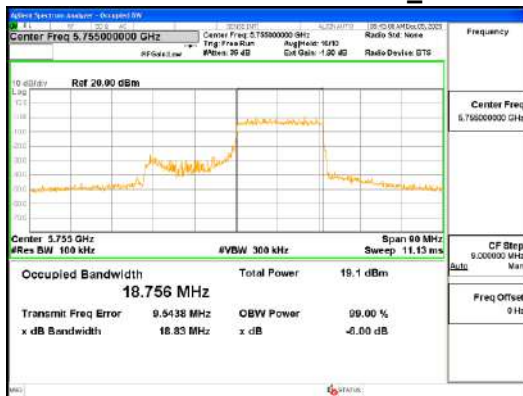
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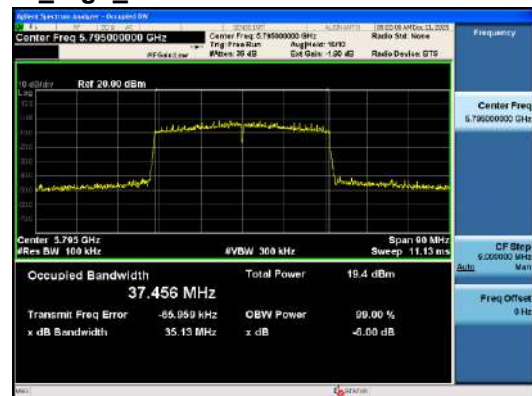
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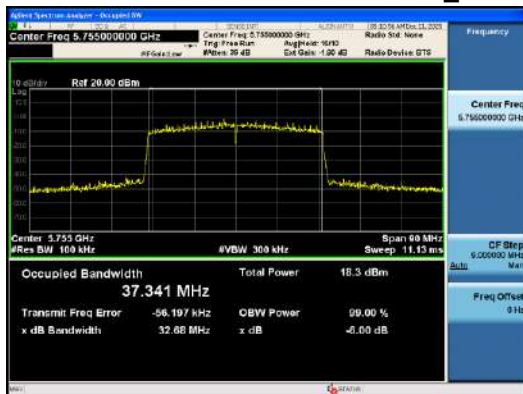
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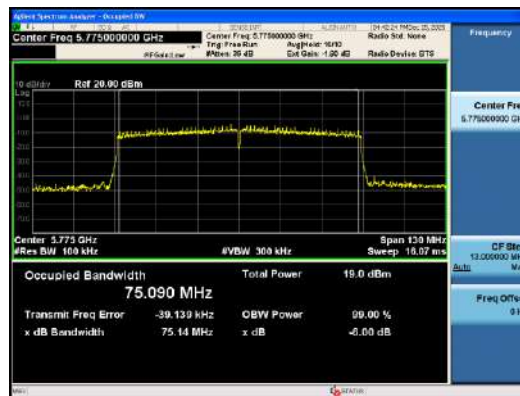
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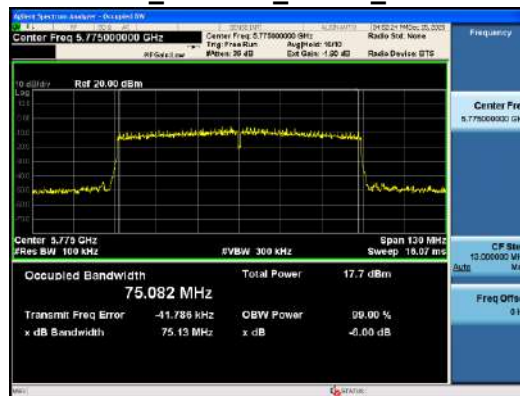
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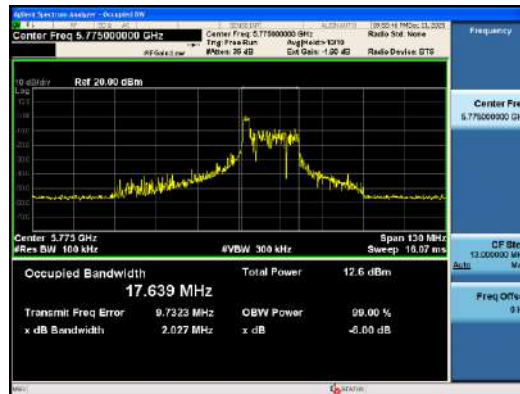
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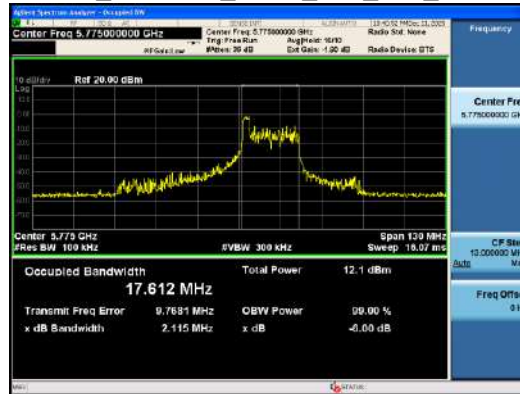
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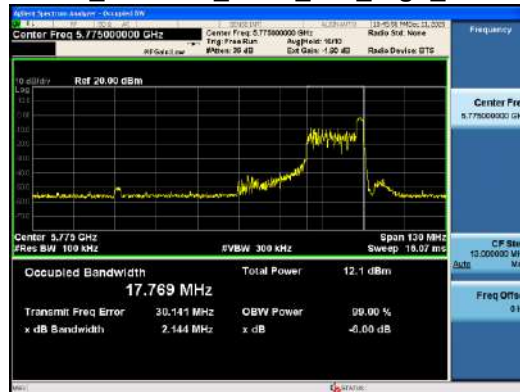
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ANTO_802.11ax_HE80_26T_High_UNII 3



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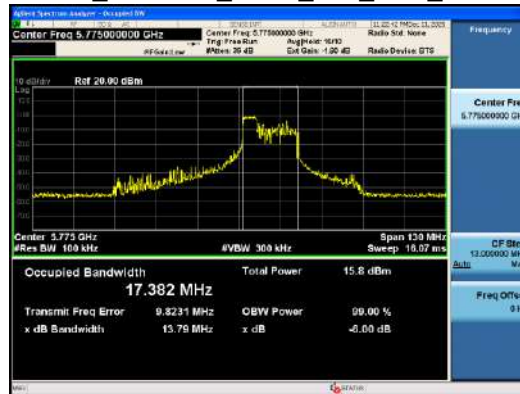
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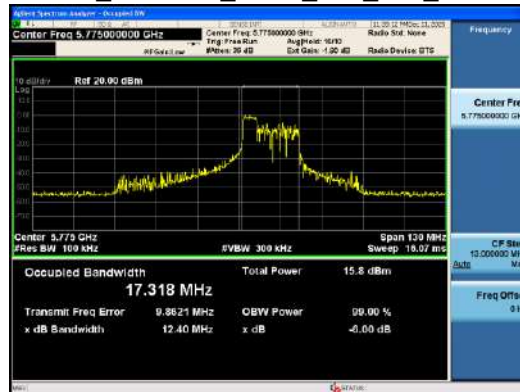
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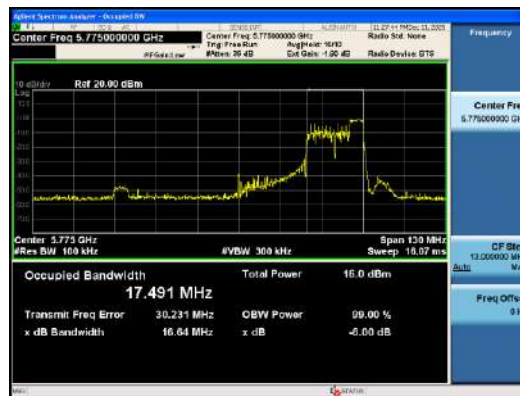
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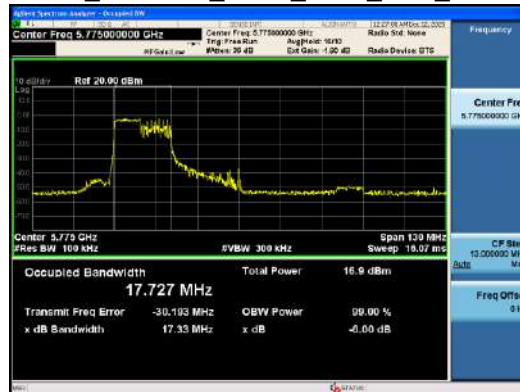
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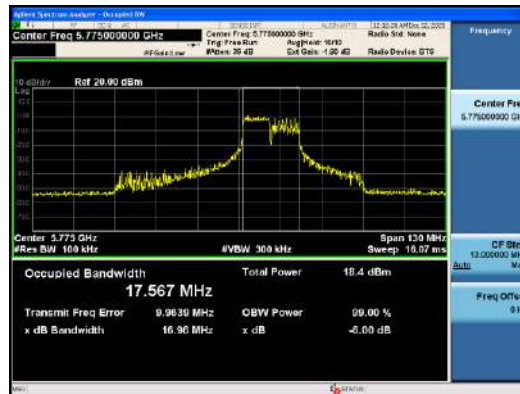
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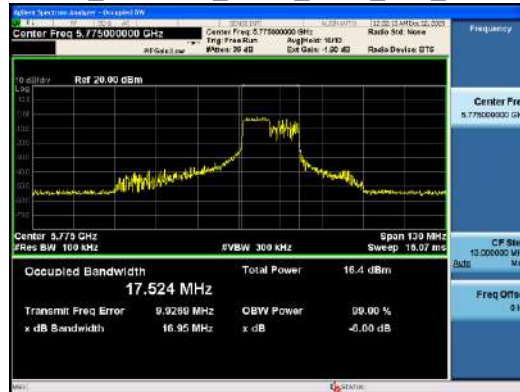
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ANTO_802.11ax_HE80_106T_Mid_UNII 3



ANT1_802.11ax_HE80_106T_Mid_UNII 3



ANTO_802.11ax_HE80_106T_High_UNII 3



ANT1_802.11ax_HE80_106T_High_UNII 3



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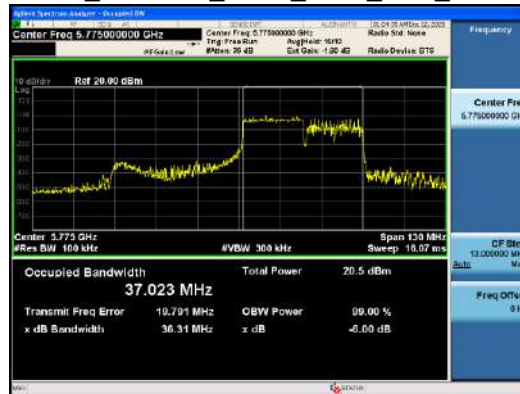
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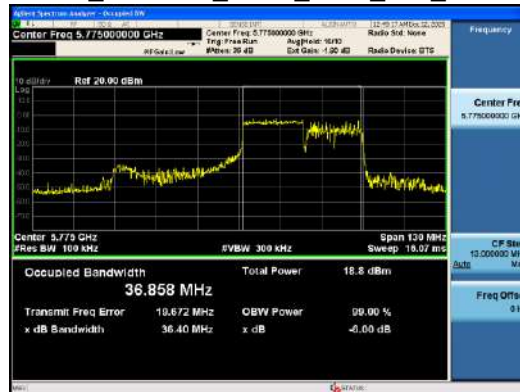
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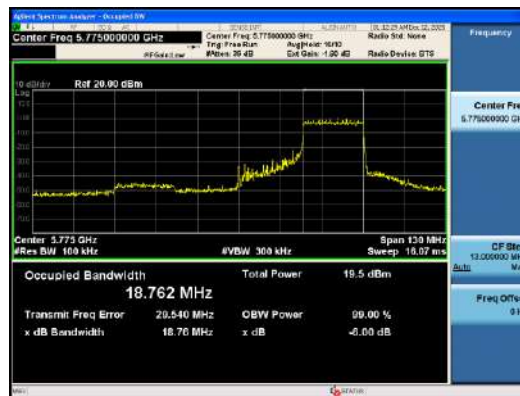
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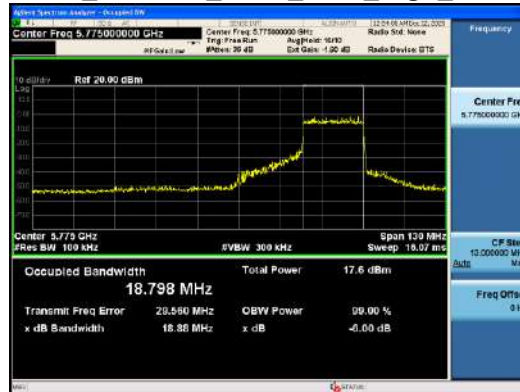
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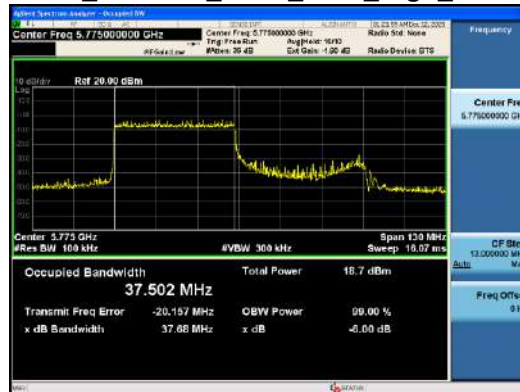
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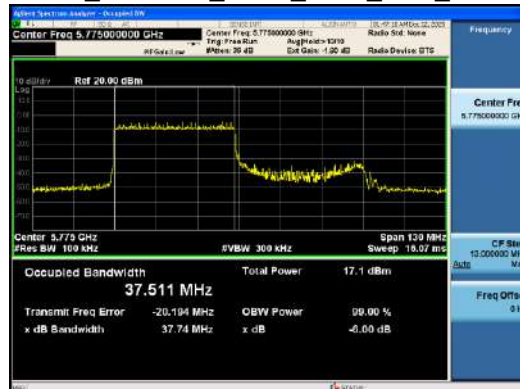
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ANT1_802.11ax_HE80_242T_High_UNII 3



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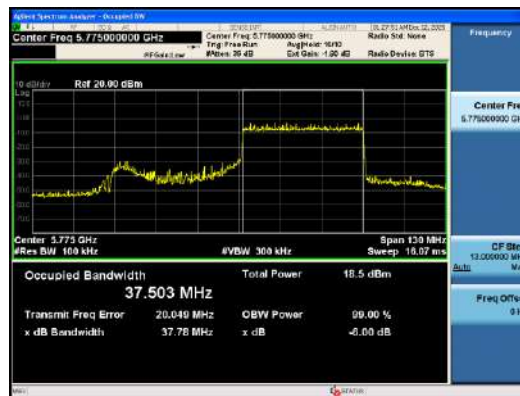
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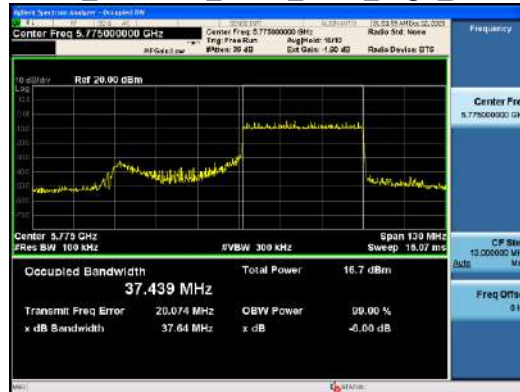
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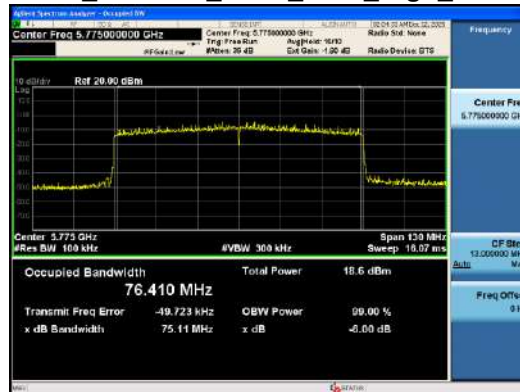
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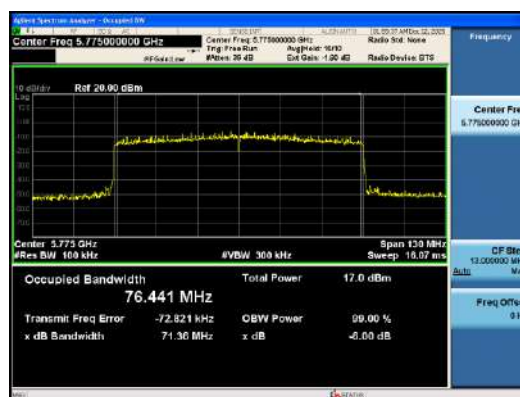
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ANT1_802.11ax_HE80_484T_High_UNII 3



ANT0_802.11ax_HE80_996T_UNII 3



ANT1_802.11ax_HE80_996T_UNII 3

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4.2 26 dB Bandwidth and 99 % Bandwidth

Test Procedures

KDB 789033 – Section C.1
ANSI C63.10-2020 - Section 12.5.2

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

Test Settings :

Center frequency = the highest, middle and the lowest channels

- a) RBW = approximately 1 % to 5 % of the emission bandwidth
- b) VBW > RBW
- c) Detector = peak
- d) Trace mode = Max hold
- e) Measure the maximum width of the emission that is 26 dB down from the maximum 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 %.

Test Procedures

KDB 789033 – Section D
ANSI C63.10-2020 - Section 6.9.3

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5 % of the total mean power of the given emission. Use the 99 % power bandwidth function of the instrument and report the measured bandwidth.

Test Settings :

Center frequency = the highest, middle and the lowest channels

- a) Span = 1.5 times to 5.0 times the OBW.
- b) RBW = 1 % to 5 % of the OBW
- c) VBW $\geq 3 \times$ RBW
- d) Video averaging is not permitted.
Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- e) Use the 99 % power bandwidth function of the instrument (if available).
- f) If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units.
The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99 % occupied bandwidth is the difference between these two frequencies.

Minimum Standard :

NA

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Test Data :**ANT0**

Test Mode	26 dB Bandwidth and 99 % Bandwidth [MHz]							
	802.11a		802.11n_HT20		802.11ac_VHT20		802.11ax_HE20_242T	
Frequency [MHz]	26 dB	99 %	26 dB	99 %	26 dB	99 %	26 dB	99 %
5 180	23.67	16.80	24.56	17.98	25.32	17.94	22.87	19.00
5 200	24.51	16.81	24.57	17.95	24.61	17.92	25.13	18.96
5 240	19.61	16.41	20.03	17.55	19.91	17.54	19.87	18.82
5 260	23.91	16.73	24.87	17.94	24.15	17.93	22.86	19.00
5 300	24.32	16.83	26.3	17.99	24.26	17.93	23.79	18.99
5 320	25.25	16.79	24.89	17.94	24.22	17.95	25.48	18.97
5 500	23.83	16.79	24.00	17.94	23.78	17.92	22.52	18.98
5 600	23.34	16.76	25.01	17.92	25.56	17.90	22.43	18.97
5 700	23.58	16.75	25.26	17.91	24.07	17.85	23.6	18.97
5 720	23.40	16.81	24.34	17.98	23.24	17.90	23.41	19.00
5 745	23.11	16.75	24.98	17.91	24.60	17.88	23.27	18.96
5 785	23.79	16.78	24.76	17.94	25.05	17.94	23.32	19.01
5 825	23.76	16.79	24.82	17.91	23.65	17.89	25.22	18.98

Test Mode	26 dB Bandwidth and 99 % Bandwidth [MHz]					
	802.11ax_HE20_26T					
	RU Index_Low		RU Index_Mid		RU Index_High	
Frequency [MHz]	26 dB	99 %	26 dB	99 %	26 dB	99 %
5 180	20.72	18.52	18.04	16.96	20.22	18.47
5 200	20.36	18.42	18.02	16.99	20.52	18.47
5 240	18.96	18.13	18.11	17.01	19.04	18.08
5 260	20.24	18.55	18.12	17.01	20.52	18.45
5 300	20.45	18.54	18.10	16.97	20.39	18.50
5 320	21.32	18.53	18.07	17.00	20.34	18.51
5 500	20.72	18.59	18.04	17.01	20.38	18.51
5 600	20.67	18.55	18.09	16.99	20.35	18.38
5 700	20.4	18.46	18.05	17.03	20.55	18.45
5 720	20.25	18.49	18.07	17.01	20.78	18.46
5 745	20.59	18.56	18.00	16.99	20.10	18.42
5 785	20.73	18.50	18.10	17.05	20.39	18.45
5 825	20.73	18.51	18.10	17.02	20.19	18.50

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	26 dB Bandwidth and 99 % Bandwidth [MHz]					
Test Mode	802.11n_HT40		802.11ac_VHT40		802.11ax_HE40_484T	
Frequency [MHz]	26 dB	99 %	26 dB	99 %	26 dB	99 %
5 190	39.75	35.87	39.87	35.83	39.45	37.39
5 230	40.06	35.79	40.16	35.80	39.39	37.48
5 270	40.31	35.80	39.65	35.80	39.36	37.38
5 310	39.90	35.86	40.12	35.81	39.42	37.52
5 510	40.21	35.84	39.74	35.79	39.22	37.56
5 590	39.95	35.80	40.13	35.81	39.50	37.46
5 670	39.96	35.85	40.10	35.85	39.60	37.56
5 710	40.10	35.83	40.00	35.81	39.40	37.45
5 755	39.93	35.89	40.31	35.80	39.53	37.47
5 795	39.70	35.87	40.00	35.83	39.50	37.48

	26 dB Bandwidth and 99 % Bandwidth [MHz]					
Test Mode	802.11ax_HE40_26T					
	RU Index_Low		RU Index_Mid		RU Index_High	
Frequency [MHz]	26 dB	99 %	26 dB	99 %	26 dB	99 %
5 190	19.01	17.80	22.07	19.93	19.00	17.79
5 230	19.25	17.91	22.19	19.99	19.26	18.01
5 270	19.05	17.87	22.19	19.93	19.00	17.89
5 310	19.15	17.92	22.30	20.19	19.09	17.87
5 510	19.05	17.89	22.69	20.33	19.16	17.97
5 590	19.16	17.85	22.61	20.12	19.09	17.94
5 670	19.31	17.90	22.14	20.13	19.21	17.90
5 710	19.11	17.89	22.48	20.39	19.09	17.88
5 755	19.19	17.93	22.08	20.03	19.10	17.92
5 795	19.16	17.89	22.90	19.85	19.23	17.98

	26 dB Bandwidth and 99 % Bandwidth [MHz]			
Test Mode	802.11ac_VHT80		802.11ax_HE80_996T	
Frequency [MHz]	26 dB	99 %	26 dB	99 %
5 210	79.61	75.18	79.87	76.69
5 290	79.43	75.18	79.88	76.63
5 530	79.42	75.21	79.92	76.72
5 610	79.36	75.15	79.78	76.69
5 690	79.49	75.24	79.95	76.74
5 775	79.55	75.20	79.87	76.83

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	26 dB Bandwidth and 99 % Bandwidth [MHz]					
Test Mode	802.11ax_HE80_26T					
	RU Index_Low		RU Index_Mid		RU Index_High	
Frequency [MHz]	26 dB	99 %	26 dB	99 %	26 dB	99 %
5 210	20.37	18.45	24.66	20.45	20.75	18.68
5 290	20.46	18.73	25.63	20.88	20.17	18.72
5 530	20.66	18.67	23.27	20.54	19.95	18.65
5 610	20.10	18.60	22.47	20.34	20.42	18.68
5 690	20.34	18.58	22.77	20.56	20.44	19.00
5 775	20.49	18.69	22.37	20.81	20.47	18.83

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	26 dB Bandwidth and 99 % Bandwidth [MHz]							
Test Mode	802.11a		802.11n_HT20		802.11ac_VHT20		802.11ax_HE20_242T	
	26 dB	99 %	26 dB	99 %	26 dB	99 %	26 dB	99 %
5 180	23.71	16.82	23.55	17.85	23.95	17.83	22.74	19.00
5 200	23.60	16.81	24.05	17.89	24.52	17.88	22.68	18.98
5 240	19.65	16.40	19.88	17.56	19.87	17.55	19.79	18.82
5 260	23.73	16.73	23.96	17.85	23.50	17.85	24.16	18.98
5 300	23.73	16.78	24.61	17.88	23.57	17.88	21.92	18.98
5 320	23.70	16.78	23.74	17.88	26.31	17.87	23.33	19.00
5 500	23.83	16.77	23.96	17.90	23.47	17.84	23.70	18.95
5 600	23.45	16.75	23.35	17.82	23.12	17.81	21.94	19.00
5 700	23.77	16.79	24.42	17.85	24.38	17.84	22.09	18.99
5 720	23.68	16.77	23.34	17.85	23.24	17.84	24.36	18.97
5 745	23.63	16.71	22.96	17.83	23.26	17.81	22.11	18.96
5 785	23.55	16.76	24.34	17.86	23.38	17.81	22.72	18.95
5 825	24.09	16.79	23.66	17.83	23.88	17.82	22.72	18.98

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	26 dB Bandwidth and 99 % Bandwidth [MHz]					
Test Mode	802.11ax_HE20_26T					
	RU Index_Low		RU Index_Mid		RU Index_High	
Frequency [MHz]	26 dB	99 %	26 dB	99 %	26 dB	99 %
5 180	20.00	18.47	18.02	17.09	20.17	18.44
5 200	20.17	18.47	17.99	17.08	20.72	18.59
5 240	18.93	18.00	18.05	16.84	19.02	18.05
5 260	20.41	18.47	18.03	17.08	20.16	18.57
5 300	20.31	18.43	18.04	17.07	20.10	18.20
5 320	19.98	18.42	17.99	17.07	20.62	18.49
5 500	19.95	18.33	18.08	17.05	20.10	18.49
5 600	19.95	18.50	18.08	17.06	20.00	18.54
5 700	20.12	18.37	18.07	17.06	20.17	18.47
5 720	20.36	18.52	18.09	17.08	20.41	18.52
5 745	20.22	18.48	18.08	17.04	20.09	18.52
5 785	19.93	18.41	18.06	17.05	20.26	18.44
5 825	20.11	18.43	18.09	17.06	20.27	18.51

	26 dB Bandwidth and 99 % Bandwidth [MHz]					
Test Mode	802.11n_HT40		802.11ac_VHT40		802.11ax_HE40_484T	
	26 dB	99 %	26 dB	99 %	26 dB	99 %
Frequency [MHz]	26 dB	99 %	26 dB	99 %	26 dB	99 %
5 190	39.48	35.89	39.27	35.79	39.41	37.47
5 230	39.29	35.79	39.76	35.76	39.38	37.46
5 270	39.57	35.80	39.65	35.78	39.42	37.50
5 310	39.50	35.74	39.53	35.85	39.31	37.52
5 510	39.65	35.82	39.67	35.80	39.47	37.43
5 590	39.52	35.77	39.23	35.72	39.31	37.50
5 670	39.37	35.87	39.88	35.77	39.36	37.52
5 710	39.42	35.78	39.98	35.80	39.33	37.43
5 755	39.39	35.81	39.48	35.78	39.33	37.53
5 795	39.59	35.86	39.62	35.81	39.40	37.53

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	26 dB Bandwidth and 99 % Bandwidth [MHz]					
Test Mode	802.11ax_HE40_26T					
	RU Index_Low		RU Index_Mid		RU Index_High	
Frequency [MHz]	26 dB	99 %	26 dB	99 %	26 dB	99 %
5 190	19.21	17.81	21.85	19.79	19.10	17.89
5 230	19.16	17.88	21.53	19.80	18.96	17.75
5 270	19.01	17.79	22.83	19.66	19.02	17.83
5 310	19.20	17.87	21.71	19.69	19.16	17.81
5 510	19.09	17.90	21.98	19.68	19.06	17.82
5 590	19.27	17.79	22.28	19.77	18.98	17.85
5 670	19.24	17.89	21.34	19.83	19.12	17.84
5 710	19.16	17.81	22.01	19.67	18.98	17.88
5 755	19.20	17.79	21.68	19.87	18.96	17.73
5 795	19.20	17.81	21.84	19.78	18.94	17.78

	26 dB Bandwidth and 99 % Bandwidth [MHz]			
Test Mode	802.11ac_VHT80		802.11ax_HE80_996T	
	26 dB	99 %	26 dB	99 %
Frequency [MHz]	26 dB	99 %	26 dB	99 %
5 210	79.10	75.06	79.86	76.75
5 290	79.02	75.08	79.91	76.70
5 530	78.89	75.19	79.86	76.72
5 610	78.89	75.00	79.82	76.82
5 690	79.11	75.10	79.90	76.80
5 775	78.90	75.17	79.76	76.79

	26 dB Bandwidth and 99 % Bandwidth [MHz]					
Test Mode	802.11ax_HE80_26T					
	RU Index_Low		RU Index_Mid		RU Index_High	
Frequency [MHz]	26 dB	99 %	26 dB	99 %	26 dB	99 %
5 210	19.73	18.26	22.75	20.05	19.54	18.25
5 290	19.74	18.32	22.66	20.32	19.52	18.24
5 530	19.97	18.26	23.10	20.29	19.54	18.19
5 610	20.02	18.36	21.91	20.23	19.68	18.35
5 690	19.79	18.26	22.51	20.18	19.55	18.31
5 775	19.83	18.28	22.69	20.41	19.73	18.29

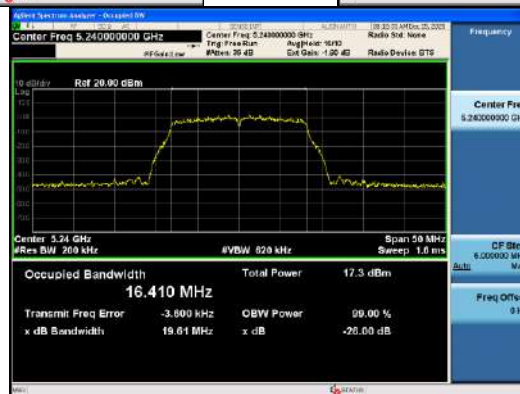
See next pages for actual measured spectrum plots.



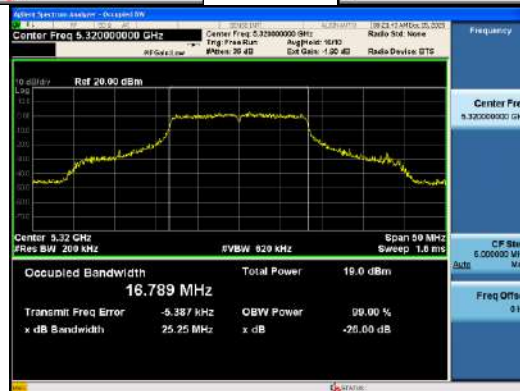
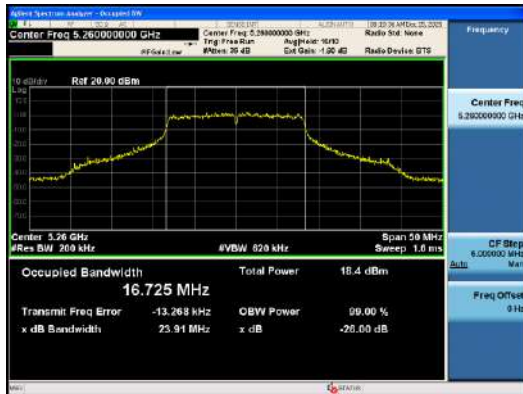
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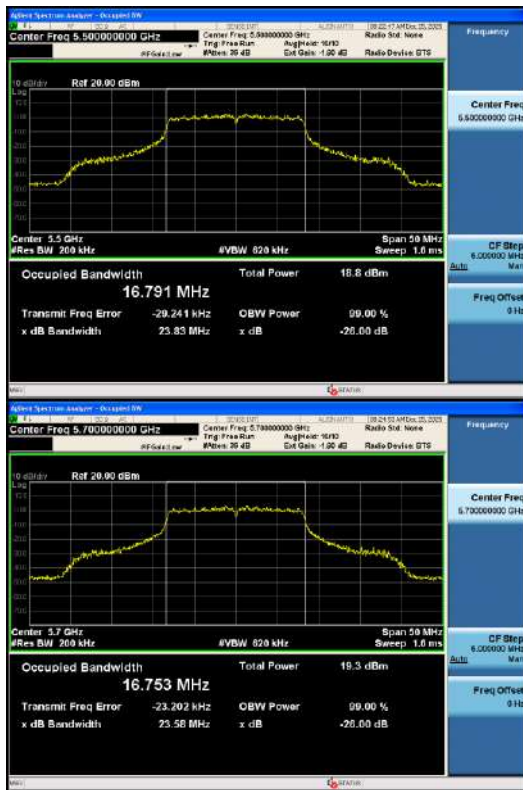
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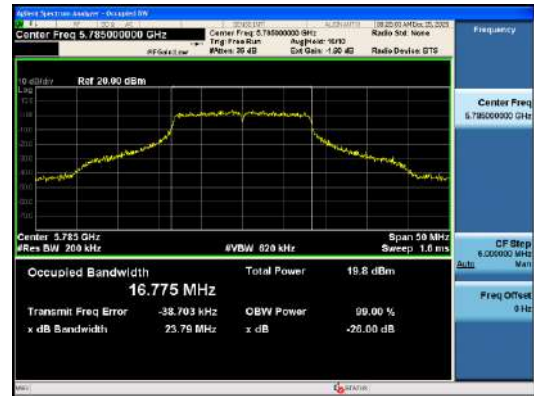
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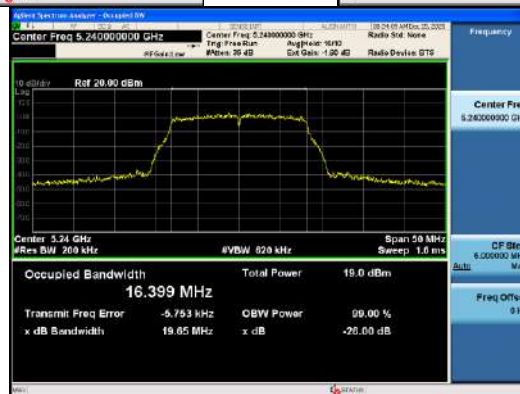
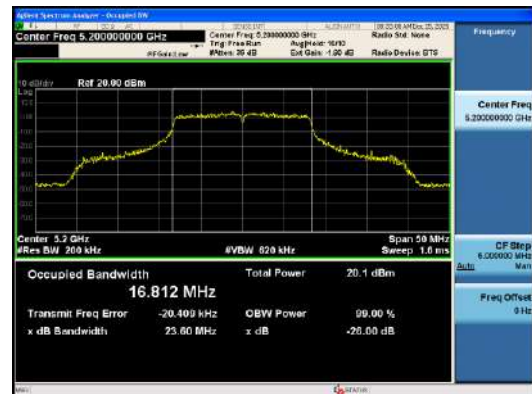




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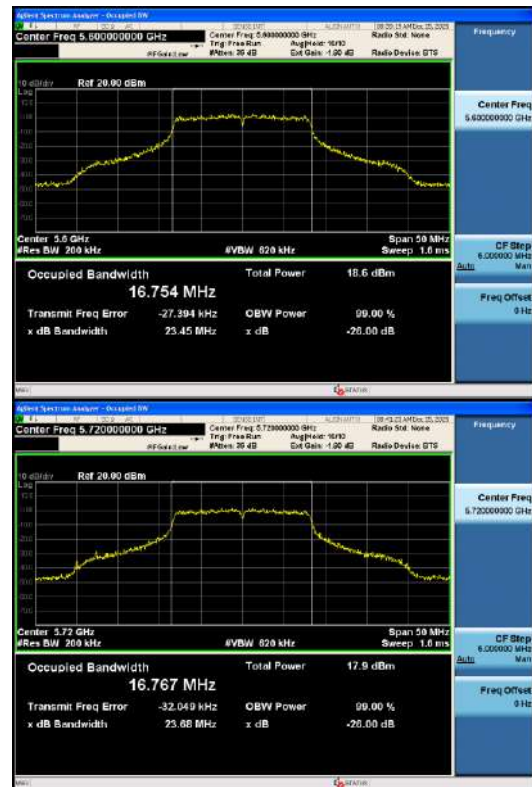
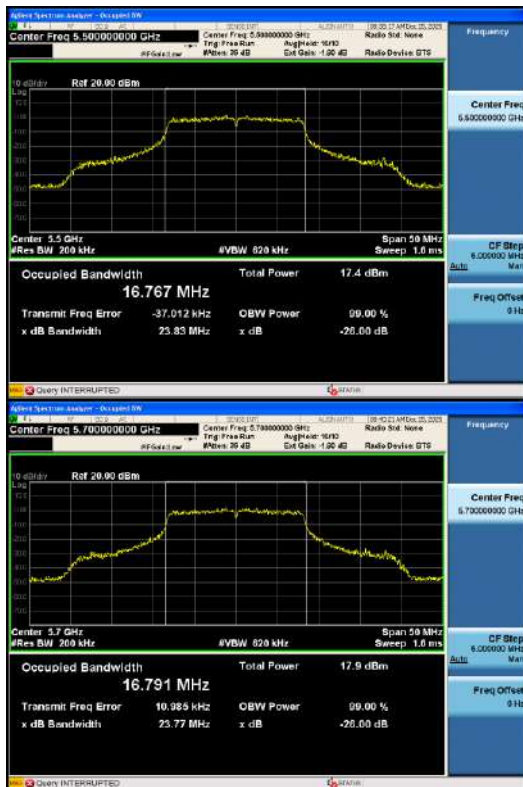
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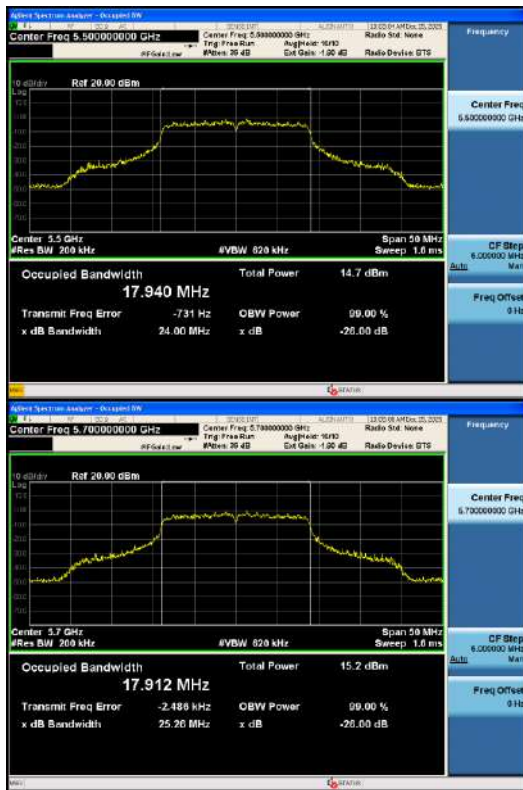
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