

TEST REPORT



CTK Co., Ltd.

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-31-339-9970
Fax: +82-31-624-9501

REPORT No.:
CTK-2025-03707
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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 : 2025-09-12

2. Manufacturer

- Name : Samsung Electronics Co Ltd

3. Use of Report : For FCC Conformance

4. Test sample / Model : Wireless One Connect Receiver / WCHA31M

5. Date(s) of test : 2025-10-21 to 2025-12-19

6. Test Standard (Method) used : FCC 47 CFR part 15 subpart E 15.407

7. Testing Environment : Refer to 12 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)

Remark. This report is not related to KOLAS accreditation and relevant regulation.

2025-12-23

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REPORT REVISION HISTORY

Date	Revision	Page No
2025-12-23	Issued (CTK-2025-03707)	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	Chengdu Xuguang Technology Co., Ltd.
Factory #1 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 #2	XUGUANG TECHNOLOGY (VIETNAM) COMPANY LIMITED
Factory #2 Address	Factory No.4, Lot CN1, An Duong Industrial Park, Hong Phong Commune, An Duong District, Hai Phong City, Vietnam
Factory #3	CHEMTRONICS Co., Ltd
Factory #3 Address	35, Hyeongjero, Namsa-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do, Republic of Korea
Factory #4	CHEMTROVINA COMPANY LIMITED
Factory #4 Address	Nhon Trach 2 - Loc Khang IZ, Hiep Phuoc Town, Nhon Trach District, Dong Nai Province, Vietnam
Factory #5	SJIT CO., LTD.
Factory #5 Address	#54-11, Dongtanhana 1gil, Hwaseong-si, Gyeonggi-Do, Korea
Factory #6	SJIT VINA Co., Ltd
Factory #6 Address	Lot X2, Ho Nai Industrial Zone, Ho Nai 3 Commune, Trang Bom District, Dong Nai Province, Vietnam

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1.3 Product Information

FCC ID	A3LWCHA31M
Product Description	Wireless One Connect Receiver
Model name	WCHA31M
Variant Model name	-
Device Type	6ID: 15E 6 GHz Low-power indoor access point
Operating Frequency	UNII 5: 20 MHz_BW : 5 955 MHz – 6 415 MHz 40 MHz_BW : 5 965 MHz – 6 405 MHz 80 MHz_BW : 5 985 MHz – 6 385 MHz 160 MHz BW : 6 025 MHz – 6 345 MHz UNII 6: 20 MHz_BW : 6 435 MHz – 6 515 MHz 40 MHz_BW : 6 445 MHz – 6 485 MHz 80 MHz_BW : 6 465 MHz 160 MHz BW : 6 505 MHz UNII 7: 20 MHz_BW : 6 535 MHz – 6 855 MHz 40 MHz_BW : 6 525 MHz – 6 845 MHz 80 MHz_BW : 6 545 MHz – 6 865 MHz 160 MHz_BW : 6 665 MHz – 6 825 MHz UNII 8: 20 MHz_BW : 6 875 MHz – 7 115 MHz 40 MHz_BW : 6 885 MHz – 7 085 MHz 80 MHz_BW : 6 945 MHz – 7 025 MHz 160 MHz_BW : 6 985 MHz
RF Output Power	802.11a : 14.13 dBm(25.88 mW) (EIRP) 802.11ax_HE20 : 13.88 dBm(24.43 mW) (EIRP) 802.11ax_HE40 : 16.92 dBm(49.20 mW) (EIRP) 802.11ax_HE80 : 19.39 dBm(86.90 mW) (EIRP) 802.11ax_HE160 : 17.50 dBm(56.23 mW) (EIRP) 802.11be_EHT20 : 13.95 dBm(24.83 mW) (EIRP) 802.11be_EHT40 : 16.48 dBm(24.83 mW) (EIRP) 802.11be_EHT80 : 19.29 dBm(84.92 mW) (EIRP) 802.11be_EHT160 : 17.86 dBm(61.09 mW) (EIRP)
Antenna Specification	Antenna type : Metal Antenna Peak Gain : 1.90 dBi
Antenna Configurations	802.11a : SISO 802.11ax : SISO 802.11be : SISO
Number of channels	802.11a : 15 802.11ax_HE20, 802.11be_EHT20 : 59 802.11ax_HE40, 802.11be_EHT40 : 29 802.11ax_HE80, 802.11be_EHT80 : 14 802.11ax_HE160, 802.11be_EHT160 : 7
Type of Modulation	802.11a/ax/be: OFDM
Data Rate	802.11a : 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6 Mbps 802.11ax : up to 2 402 Mbps 802.11be : up to 2 880 Mbps
Power Source	DC 5 V
Hardware Rev	V1.0
Software Rev	2, FC 1
RF Power setting in Test SW	WIFI_RAM_CODE_MT7925

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RF Power setting in Test SW

Mode		Frequency Band	Power Setting Value
802.11a		UNII 5	10.5
		UNII 6	10.0
		UNII 7	10.0
		UNII 8	10.0
802.11ax _HE20	SU	UNII 5	10.0
		UNII 6	10.0
		UNII 7	10.0
		UNII 8	10.0(Only 7115 : 4.0)
802.11ax _HE40	SU	UNII 5	13.5
		UNII 6	13.5
		UNII 7	13.5
		UNII 8	14.0
802.11ax _HE80	SU	UNII 5	15.0
		UNII 6	15.0
		UNII 7	15.0
		UNII 8	15.0
802.11ax _HE160	SU	UNII 5	15.0
		UNII 6	15.0
		UNII 7	15.0
		UNII 8	15.0
802.11be _EHT20	SU	UNII 5	10.0
		UNII 6	10.0
		UNII 7	10.0
		UNII 8	10.0(Only 7115 : 4.0)
802.11be _EHT40	SU	UNII 5	13.5
		UNII 6	13.5
		UNII 7	13.5
		UNII 8	14.0
802.11be _EHT80	SU	UNII 5	15.0
		UNII 6	15.0
		UNII 7	15.0
		UNII 8	15.0
802.11be _EHT160	SU	UNII 5	15.0
		UNII 6	15.0
		UNII 7	15.0
		UNII 8	15.0

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1.4 Peripheral Devices

Device	Manufacturer	Model No.	Serial No.
Note Computer	HP	15-bs563TU	CND7253R6N
AC/DC Adapter	HP	HSTNN-LA40	-
Note Computer	Samsung Electronics Co., Ltd.	NT-RC530-WS55	HPFG91EC300116B
AC/DC Adapter	Samsung Electronics Co., Ltd.	PA-1600-66	-
Note Computer	Samsung Electronics Co., Ltd.	NT751BBC	4LMA9FGNC00112B
AC/DC Adapter	Samsung Electronics Co., Ltd.	GST40A12	-
AC/DC Adapter	Dong Guan City Gang Qi Electronic Co., Ltd	GQ48-120300-AK	-

1.5 Model Differences

Not applicable

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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(a)(11)	26 dB Bandwidth and 99% Bandwidth	≤ 320 MHz	C	Conducted
15.407(a)(8)	Conducted Output Power	< 30 dBm EIRP	C	
15.407(a)(8)	Power Spectral Density	< 5 dBm/MHz EIRP	C	
15.407(b)(7)	In-Band Emissions	a. Suppressed by 20 dB at 1MHz outside of the channel edge b. Suppressed by 28 dB at one channel bandwidth from the channel center. c. Suppressed by 40 dB at one-and one-half times the channel bandwidth from the channel center.	C	
15.407(g)	Frequency Stability	NA	C	
15.407(d)(6)	Contention Based Protocol	Detect co-channel energy with 90% or greater certainty	C	Radiated
15.407 (b)(6)	Undesirable emission	< -27 dBm/MHz EIRP	C	
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, ANSI C63.10-2020				
Note 4: The tests were performed according to the method of measurements prescribed in KDB No.987594, No.789033, KDB 987594				

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3.2 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.

Test Frequency

- 802.11a

	Lowest channel	Middle channel	Highest channel
UNII-5	5 975 MHz	6 215 MHz	6 375 MHz
UNII-6	6 455 MHz	-	-
UNII-7	6 535 MHz	6 695 MHz	6 855 MHz
UNII-8	6 935 MHz	7 015 MHz	7 095 MHz

- 802.11ax HE20, 802.11be EHT20

	Lowest channel	Middle channel	Highest channel-1	Highest channel-2
UNII-5	5 955 MHz	6 175 MHz	6 415 MHz	-
UNII-6	6 435 MHz	6 475 MHz	6 515 MHz	-
UNII-7	6 535 MHz	6 695 MHz	6 855 MHz	-
UNII-8	6 875 MHz	6 995 MHz	7 095 MHz	7 115 MHz

- 802.11ax HE40, 802.11be EHT40

	Lowest channel	Middle channel	Highest channel
UNII-5	5 965 MHz	6 165 MHz	6 405 MHz
UNII-6	6 445 MHz	-	6 485 MHz
UNII-7	6 525 MHz	6 685 MHz	6 845 MHz
UNII-8	6 885 MHz	7 005 MHz	7 085 MHz

- 802.11ax HE80, 802.11be EHT80

	Lowest channel	Middle channel	Highest channel
UNII-5	5 985 MHz	6 145 MHz	6 385 MHz
UNII-6	6 465 MHz	-	-
UNII-7	6 545 MHz	6 705 MHz	6 865 MHz
UNII-8	6 945 MHz	-	7 025 MHz

- 802.11ax HE160, 802.11be EHT160

	Lowest channel	Middle channel	Highest channel
UNII-5	6 025 MHz	6 185 MHz	6 345 MHz
UNII-6	6 505 MHz	-	-
UNII-7	6 665 MHz	-	6 825 MHz
UNII-8	6 985 MHz	-	-

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Test mode & Worst case

Test mode	Modulation	Data rate	Duty Cycle	Duty Cycle Factor
802.11a	OFDM	6 Mbps	76.40 %	1.17 dB
802.11ax_HE20_SU	OFDM	MCS 0	41.89 %	3.78 dB
802.11ax_HE40_SU			41.89 %	3.78 dB
802.11ax_HE80_SU			40.72%	3.90 dB
802.11ax_HE160_SU			40.93 %	3.88 dB
802.11be_EHT20_SU			45.84 %	3.39 dB
802.11be_EHT40_SU			45.84 %	3.39 dB
802.11be_EHT80_SU			44.67 %	3.50 dB
802.11be_EHT160_SU			44.88 %	3.48 dB

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3.3 Device Modifications

The following modifications were necessary for compliance:

Not applicable

3.4 Maximum 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 %, $k = 2$)
Unwanted Emission(conducted)	3.00 dB (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 %, $k = 2$)

3.5 Test Software

Conducted Test	Ics Pro Ver. 6.0.3
Radiated Test	EP5RE Ver. 6.0.1.0, ES10 Ver. 10.001
Line Conducted Test	EMC32 Ver. 10.50.00

3.6 Testing Environment

Test Item	Test Date	Temperature (°C)	Relative Humidity (%)
26 dB Bandwidth and 99% Bandwidth	2025-11-06 ~ 2025-11-17	(22 ~ 25) ± 1	(36 ~ 37) ± 3
Conducted Output Power			
Power Spectral Density			
In-Band Emissions			
Frequency Stability	2025-11-04 ~ 2025-11-05	(24 ~ 25) ± 1	(36 ~ 37) ± 3
Contention Based Protocol	2025-12-05 ~ 2025-12-15	(23 ~ 25) ± 1	(36 ~ 37) ± 3
Radiated Emissions (Above 1 GHz)	2025-10-21 ~ 2025-11-04	(23 ~ 25) ± 1	(33 ~ 35) ± 3
Radiated Emissions (Below 1 GHz)	2025-12-02 ~ 2025-12-03	21 ± 1	(26~27) ± 3
AC Conducted Emissions	2025-12-18	22 ± 1	25 ± 3

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4. Technical Characteristic Test

4.1 26 dB Bandwidth and 99% Bandwidth

Test Procedures

KDB 987594 – Section C
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 Procedures

KDB 987594 – Section D
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) RBW = approximately 1 % to 5 % of the emission bandwidth
- b) VBW $\geq$ 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 % to 5 %.

Minimum Standard:

≤ 320 MHz

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Test Data

	26 dB Bandwidth and 99 % Bandwidth (MHz)	
Mode	802.11a	
Frequency	26 dB	99 %
5 975 MHz	18.04	16.24
6 215 MHz	18.24	16.25
6 375 MHz	18.06	16.26
6 455 MHz	17.94	16.28
6 535 MHz	18.09	16.24
6 695 MHz	18.10	16.25
6 855 MHz	18.14	16.24
6 935 MHz	18.22	16.25
7 015 MHz	17.95	16.24
7 095 MHz	18.12	16.25

	26 dB Bandwidth and 99 % Bandwidth (MHz)	
Mode	802.11ax_HE20_SU	
Frequency	26 dB	99 %
5 955 MHz	19.79	18.73
6 175 MHz	19.76	18.71
6 415 MHz	19.75	18.75
6 435 MHz	19.79	18.74
6 475 MHz	19.73	18.74
6 515 MHz	19.83	18.78
6 535 MHz	19.79	18.73
6 695 MHz	19.76	18.78
6 855 MHz	19.79	18.71
6 875 MHz	19.71	18.74
6 995 MHz	19.75	18.73
7 095 MHz	19.81	18.74
7 115 MHz	19.69	18.71

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	26 dB Bandwidth and 99 % Bandwidth (MHz)	
Mode	802.11be_EHT20_SU	
Frequency	26 dB	99 %
5 955 MHz	19.73	18.73
6 175 MHz	19.78	18.74
6 415 MHz	19.78	18.75
6 435 MHz	19.78	18.74
6 475 MHz	19.75	18.76
6 515 MHz	19.78	18.75
6 535 MHz	19.77	18.74
6 695 MHz	19.74	18.75
6 855 MHz	19.79	18.74
6 875 MHz	19.73	18.75
6 995 MHz	19.84	18.74
7 095 MHz	19.73	18.75
7 115 MHz	19.76	18.72

	26 dB Bandwidth and 99 % Bandwidth (MHz)	
Mode	802.11ax_HE40_SU	
Frequency	26 dB	99 %
5 965 MHz	39.41	37.51
6 165 MHz	39.35	37.50
6 405 MHz	39.30	37.49
6 445 MHz	39.32	37.51
6 485 MHz	39.28	37.39
6 525 MHz	39.19	37.53
6 685 MHz	39.31	37.51
6 845 MHz	39.45	37.48
6 885 MHz	39.34	37.52
7 005 MHz	39.34	37.60
7 085 MHz	39.21	37.65

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	26 dB Bandwidth and 99 % Bandwidth (MHz)	
Mode	802.11be_EHT40_SU	
Frequency	26 dB	99 %
5 965 MHz	39.41	37.66
6 165 MHz	39.25	37.49
6 405 MHz	39.52	37.57
6 445 MHz	39.37	37.50
6 485 MHz	39.30	37.57
6 525 MHz	39.29	37.66
6 685 MHz	39.52	37.63
6 845 MHz	39.36	37.54
6 885 MHz	39.26	37.57
7 005 MHz	39.36	37.65
7 085 MHz	39.45	37.60

	26 dB Bandwidth and 99 % Bandwidth (MHz)	
Mode	802.11ax_HE80_SU	
Frequency	26 dB	99 %
5 985 MHz	82.93	77.13
6 145 MHz	79.83	76.82
6 385 MHz	94.91	77.21
6 465 MHz	94.36	77.22
6 545 MHz	85.05	77.29
6 705 MHz	84.26	77.22
6 865 MHz	86.32	76.97
6 945 MHz	87.04	77.16
7 025 MHz	85.07	77.08

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	26 dB Bandwidth and 99 % Bandwidth (MHz)	
Mode	802.11be_EHT80_SU	
Frequency	26 dB	99 %
5 985 MHz	82.92	77.11
6 145 MHz	79.89	76.81
6 385 MHz	84.15	77.16
6 465 MHz	85.12	77.07
6 545 MHz	84.07	77.21
6 705 MHz	84.74	77.23
6 865 MHz	86.98	77.05
6 945 MHz	87.07	77.06
7 025 MHz	86.11	77.14

	26 dB Bandwidth and 99 % Bandwidth (MHz)	
Mode	802.11ax_HE160_SU	
Frequency	26 dB	99 %
6 025 MHz	161.24	155.24
6 185 MHz	161.54	156.15
6 345 MHz	160.97	155.54
6 505 MHz	161.33	155.86
6 665 MHz	161.23	155.93
6 825 MHz	161.38	156.11
6 985 MHz	165.43	156.06

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	26 dB Bandwidth and 99 % Bandwidth (MHz)	
Mode	802.11be_EHT160_SU	
Frequency	26 dB	99 %
6 025 MHz	161.24	155.31
6 185 MHz	161.30	155.96
6 345 MHz	166.49	156.02
6 505 MHz	161.17	155.92
6 665 MHz	168.31	155.88
6 825 MHz	167.74	155.69
6 985 MHz	165.13	155.89

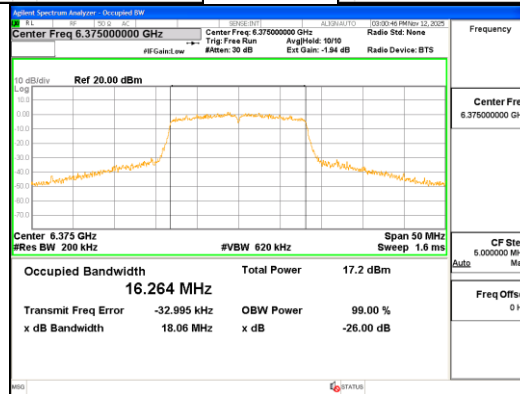
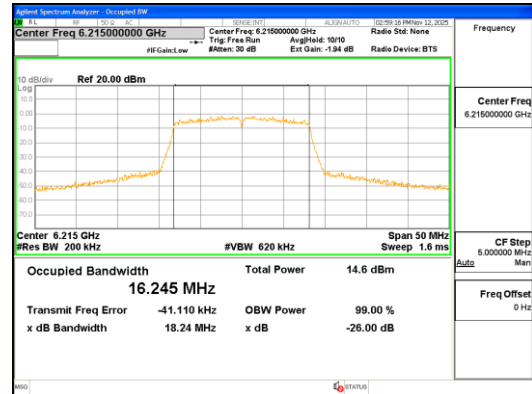
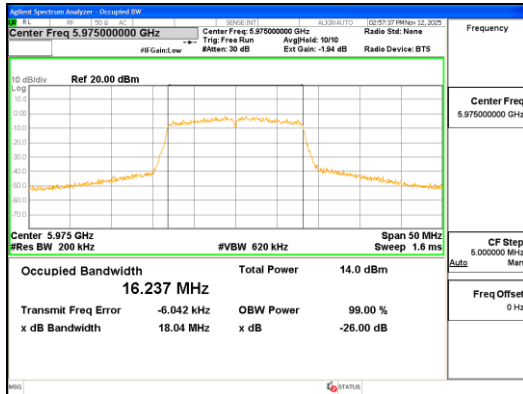
See next pages for actual measured spectrum plots.



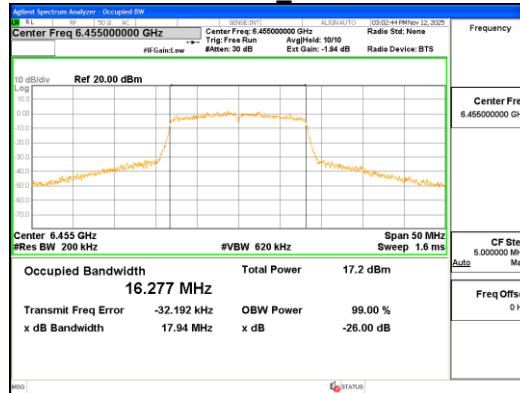
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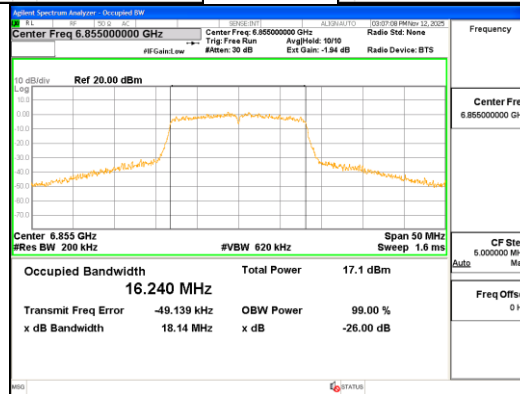
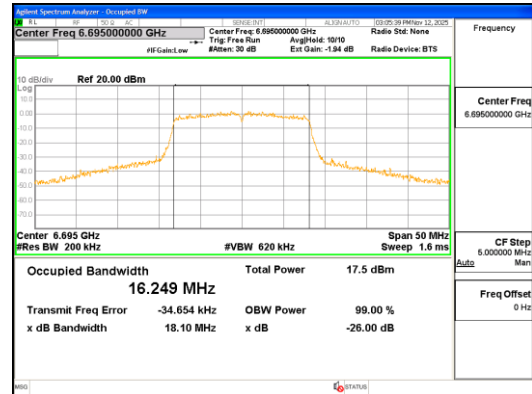
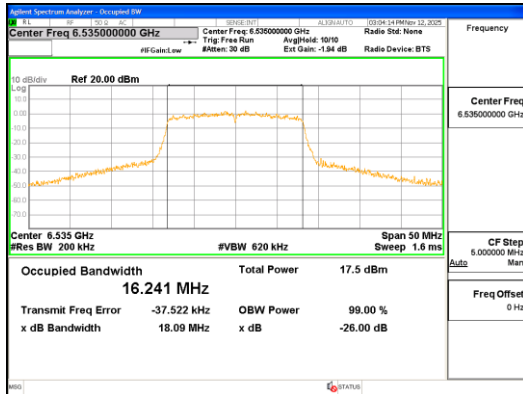
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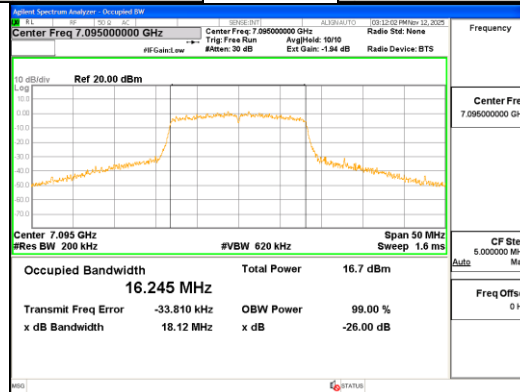
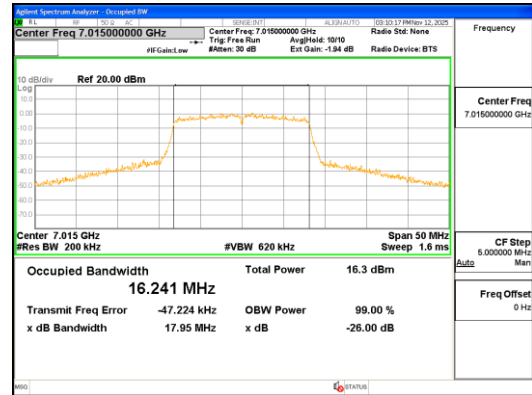
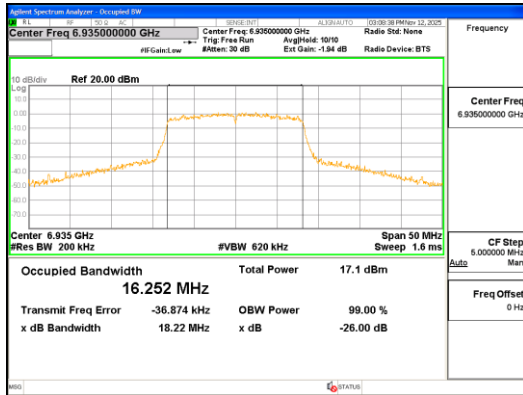
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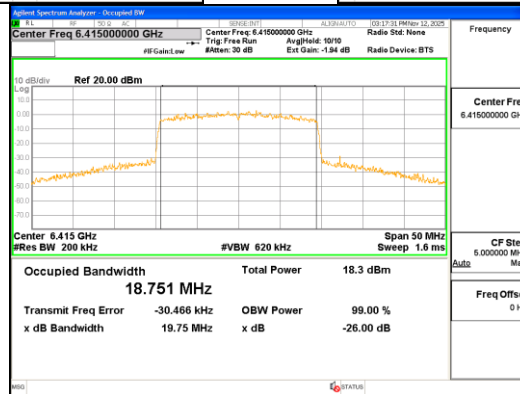
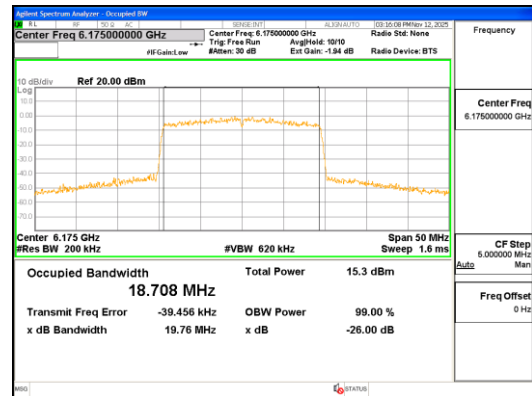
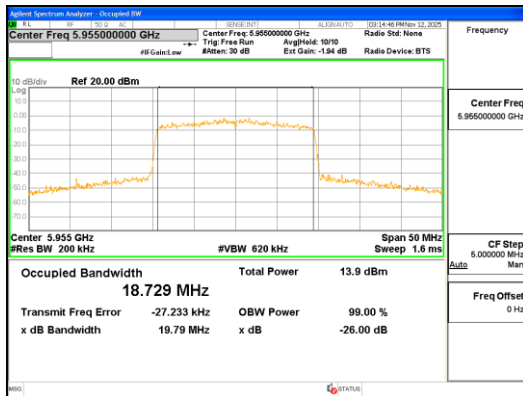
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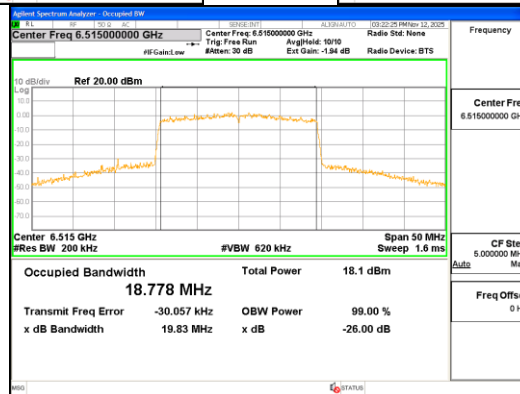
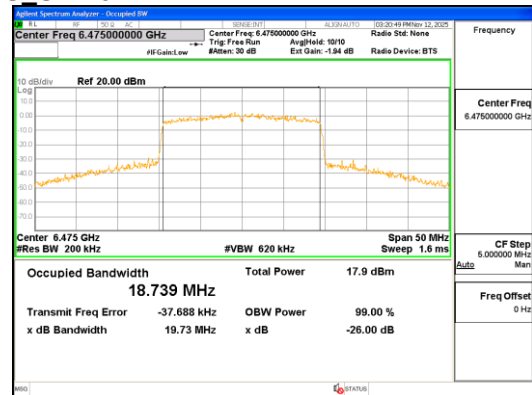
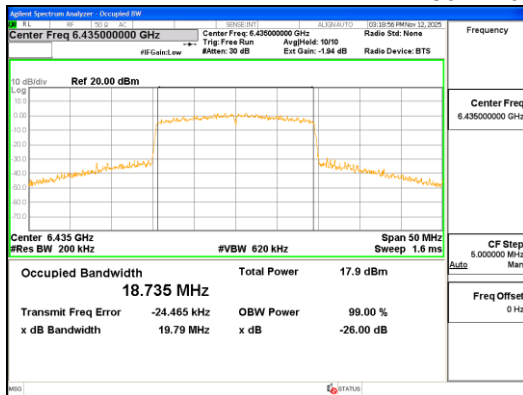
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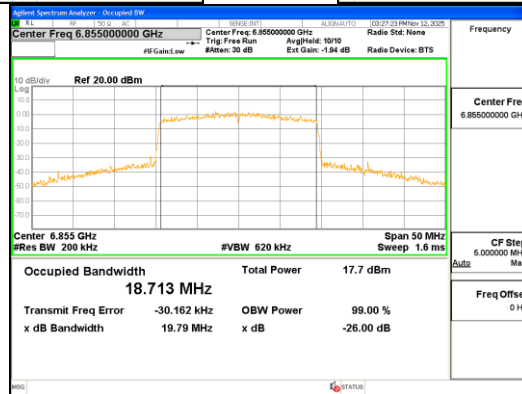
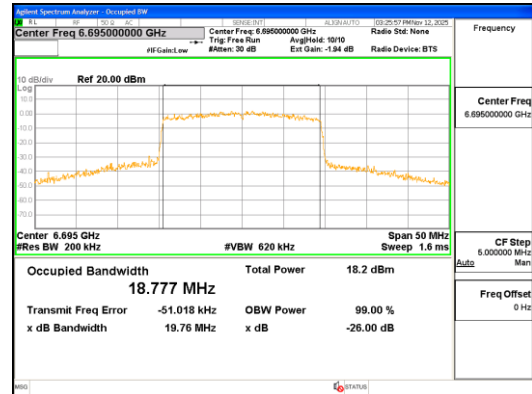
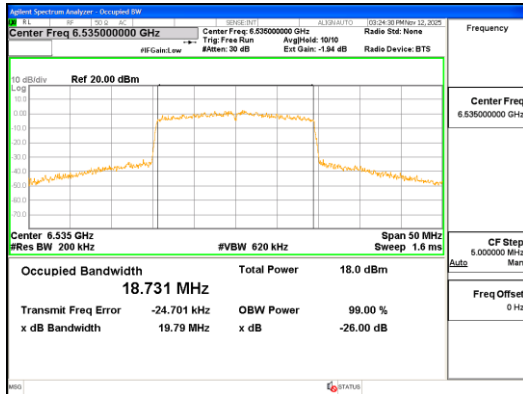
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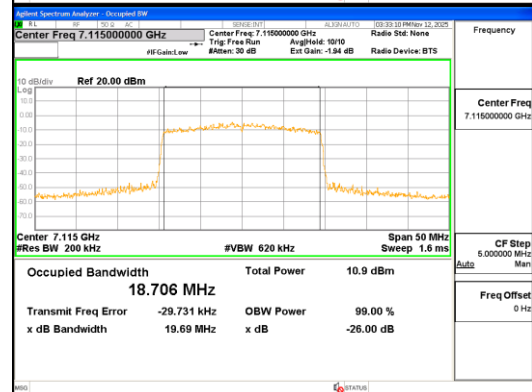
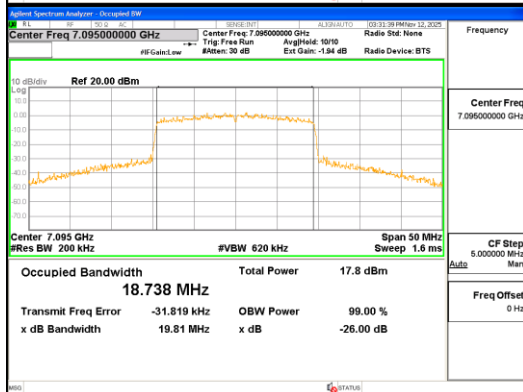
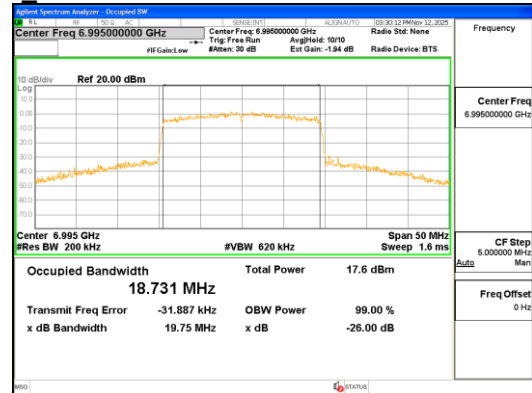
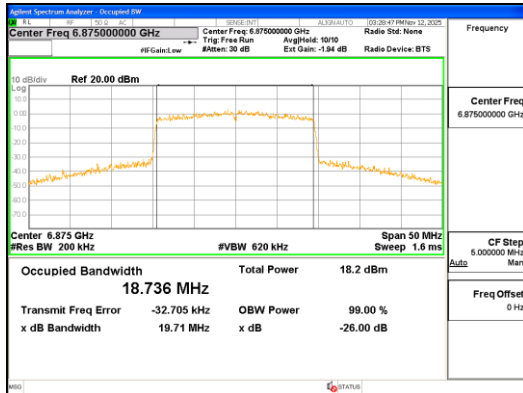
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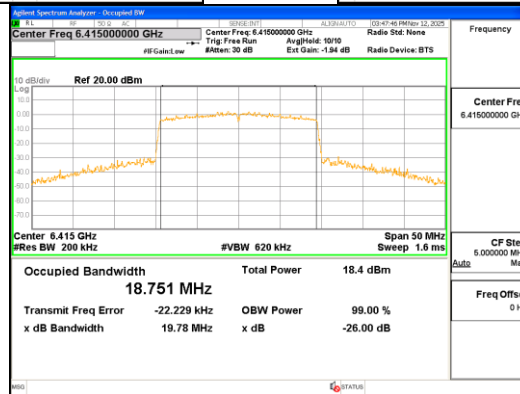
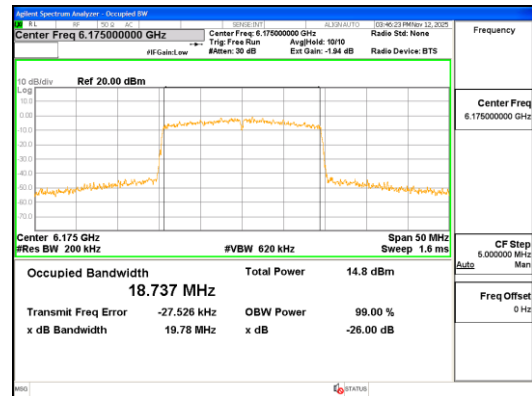
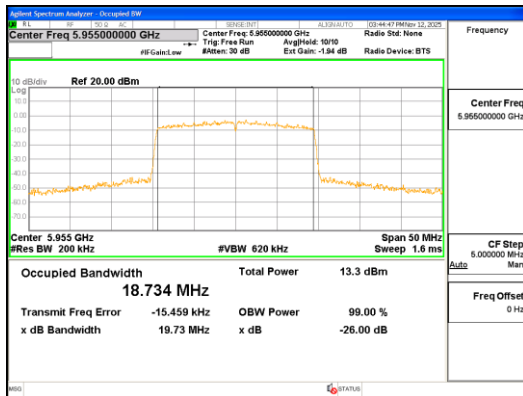
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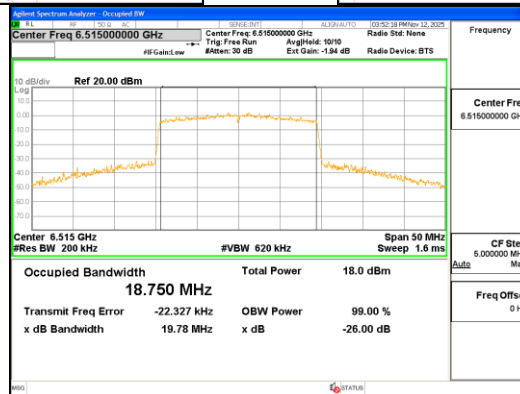
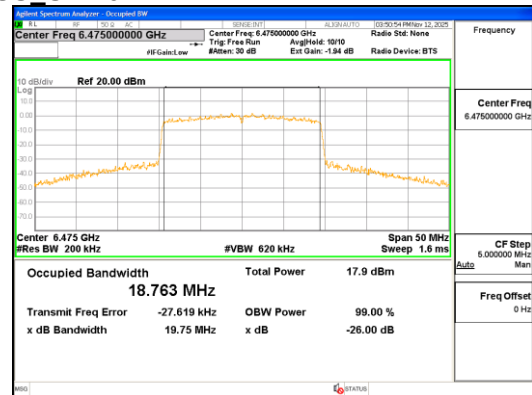
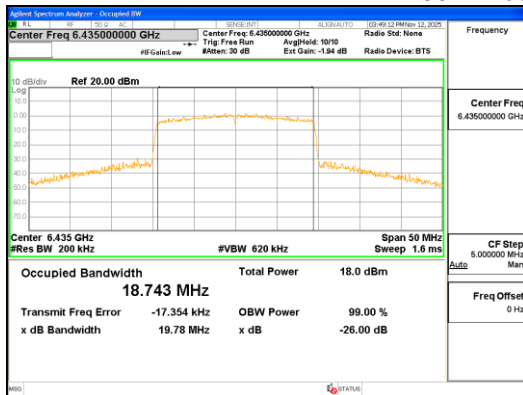
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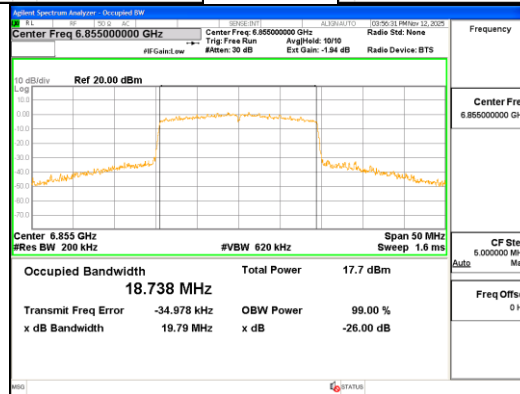
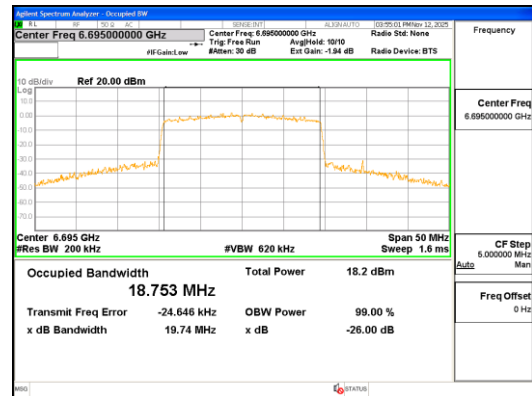
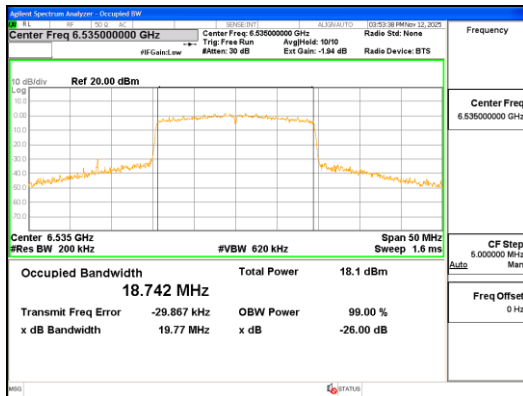
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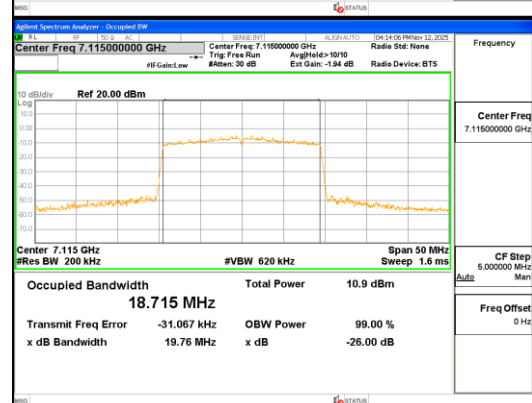
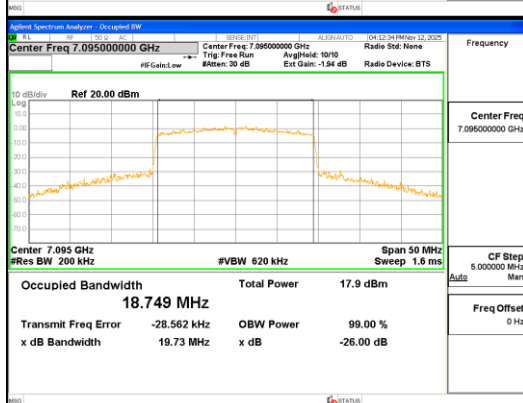
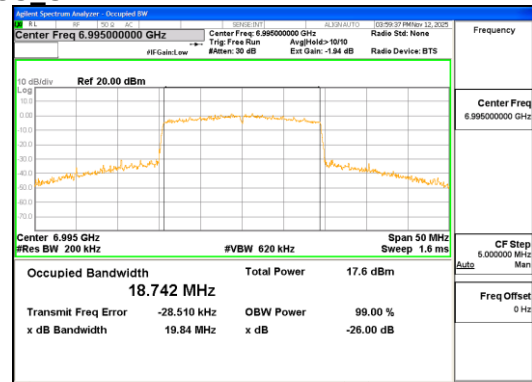
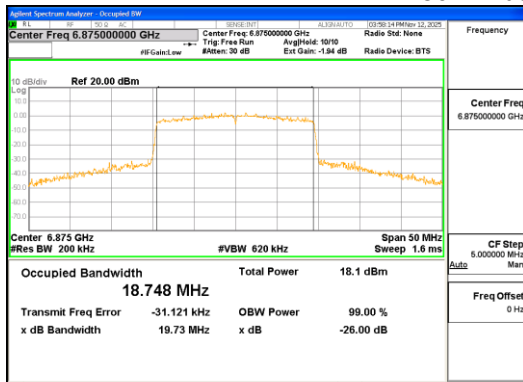
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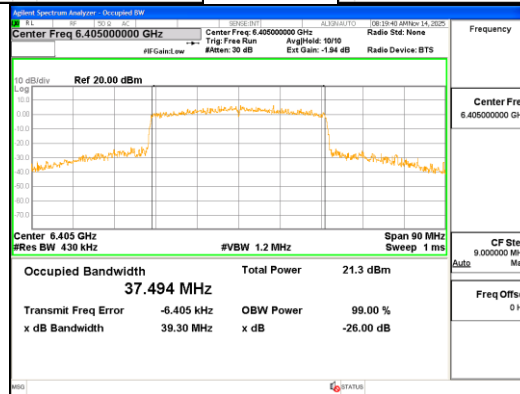
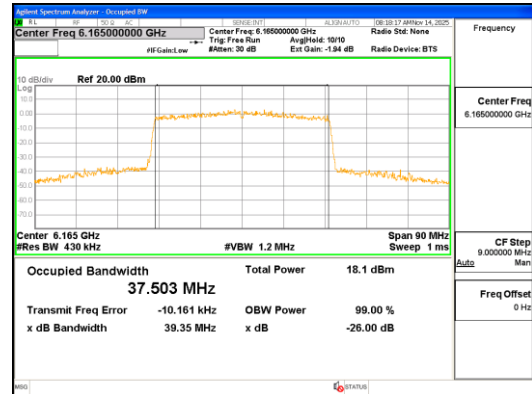
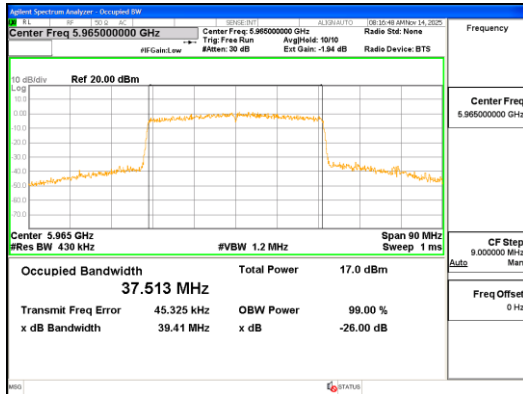
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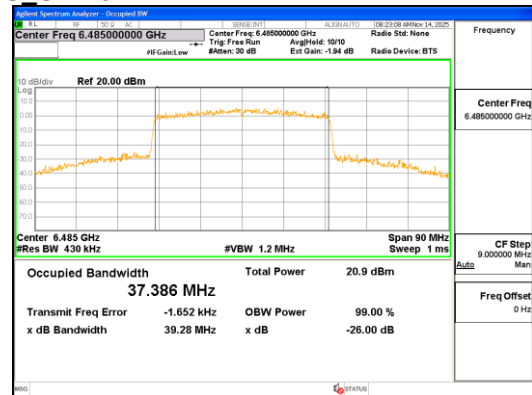
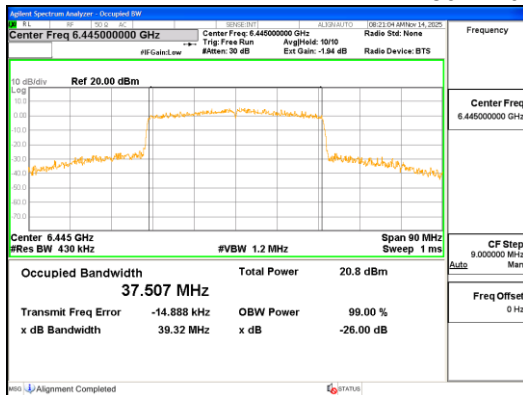
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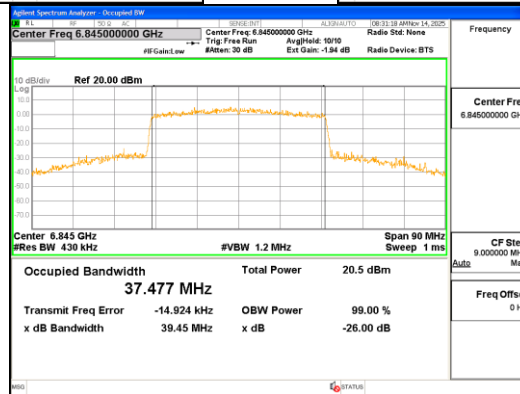
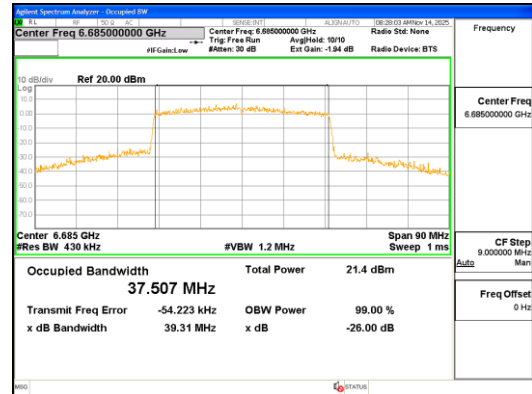
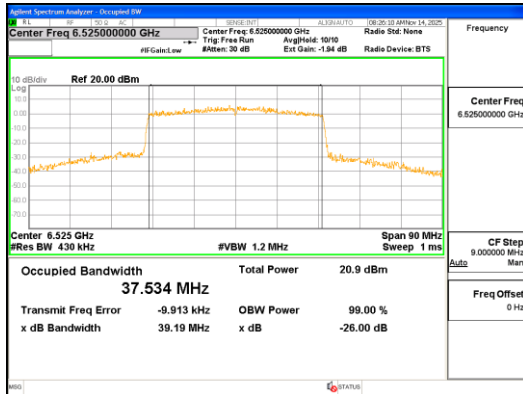
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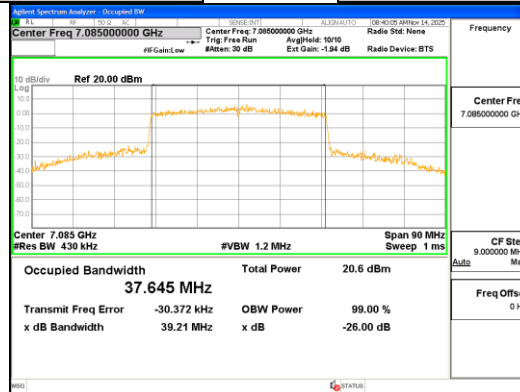
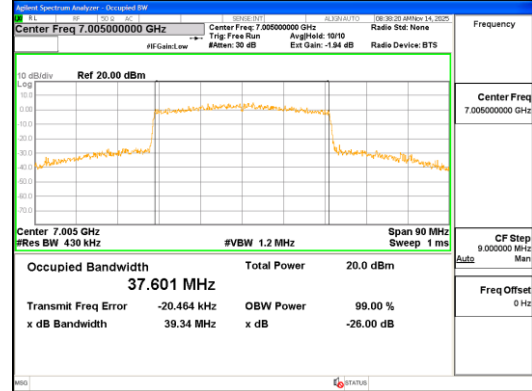
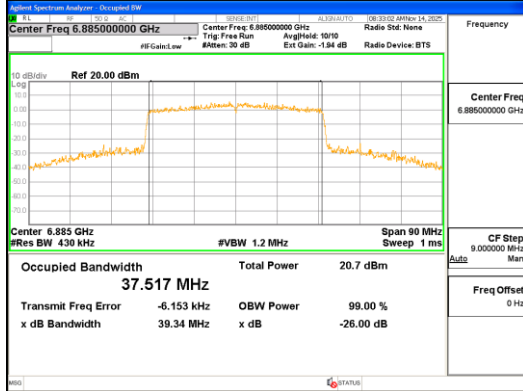
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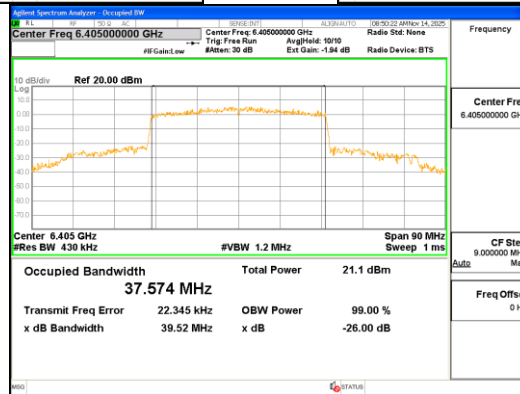
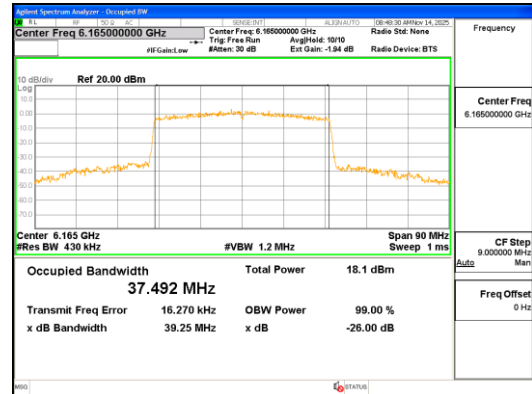
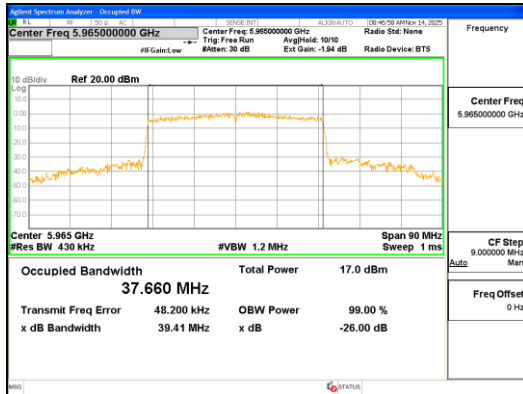
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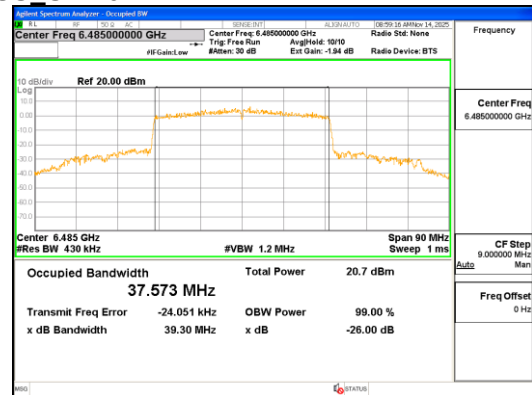
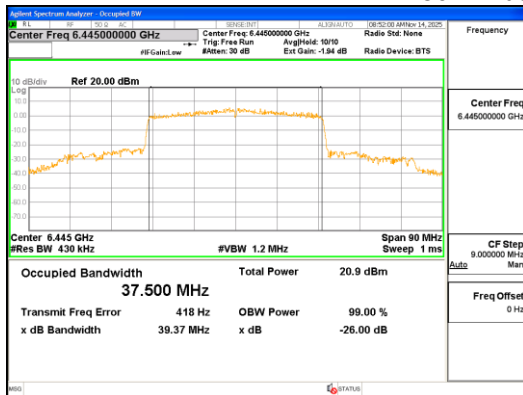
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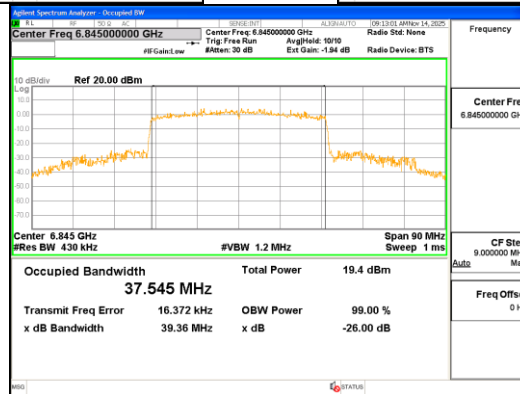
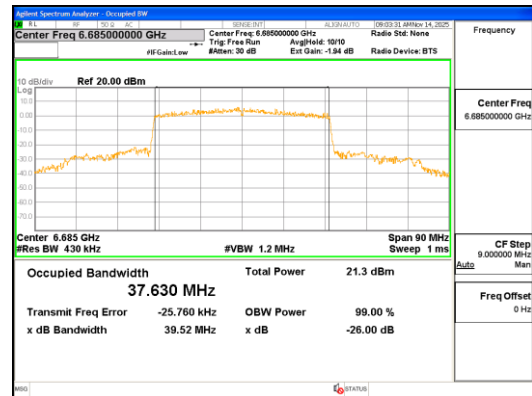
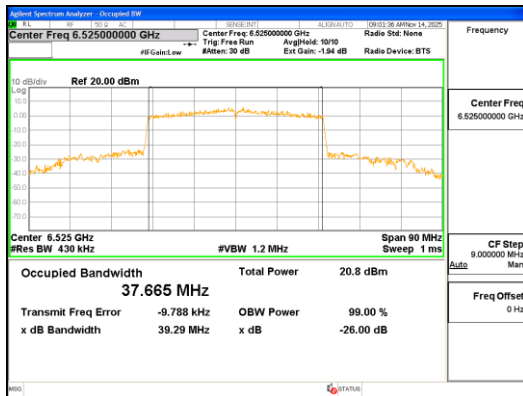
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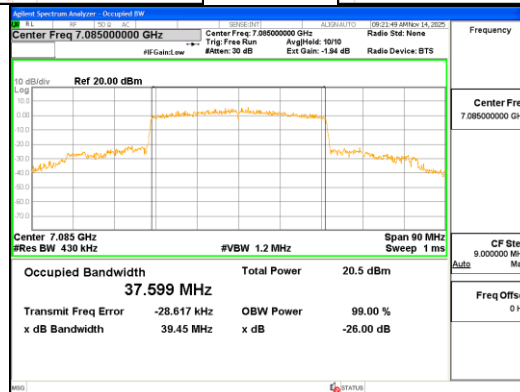
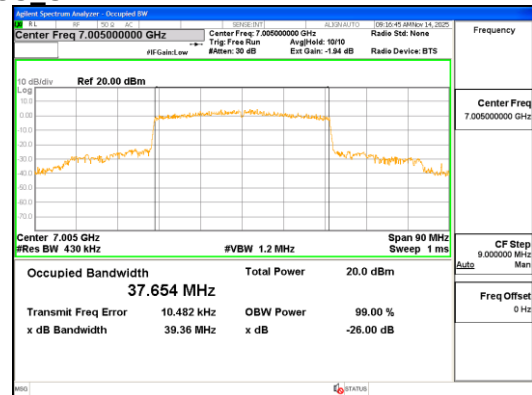
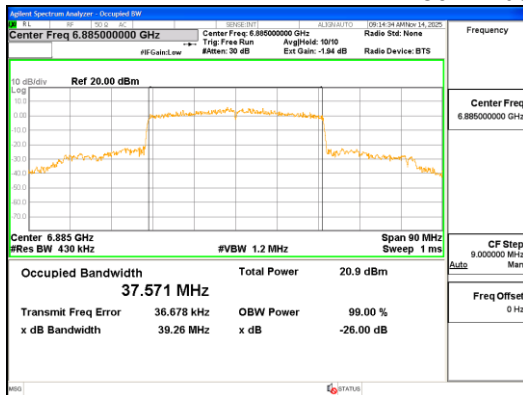
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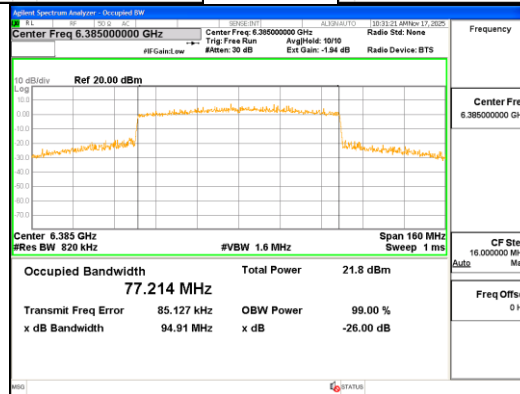
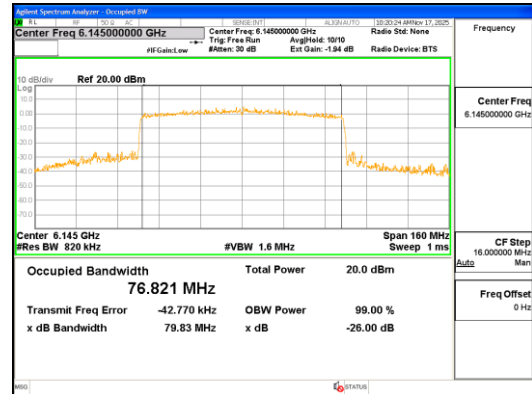
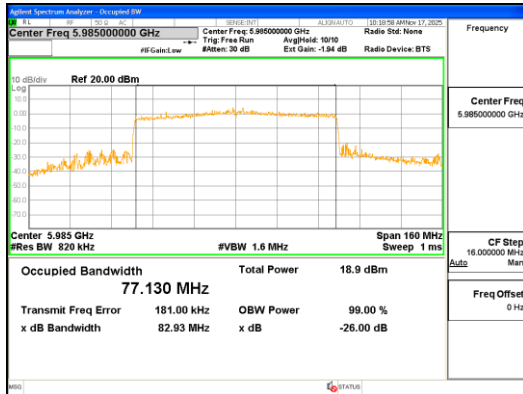
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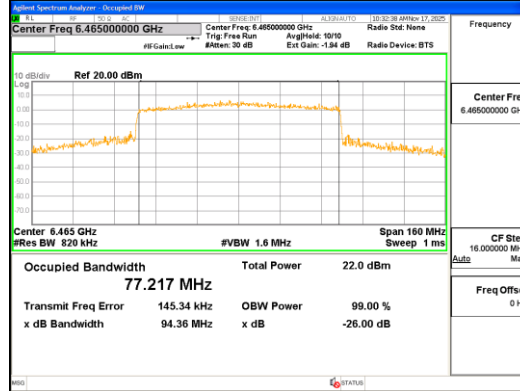
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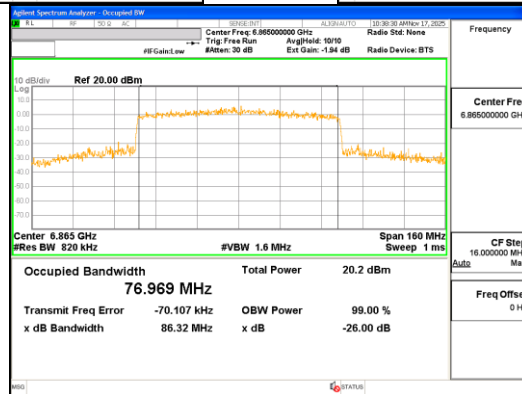
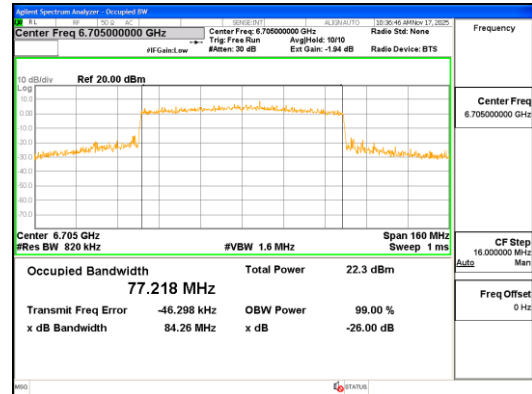
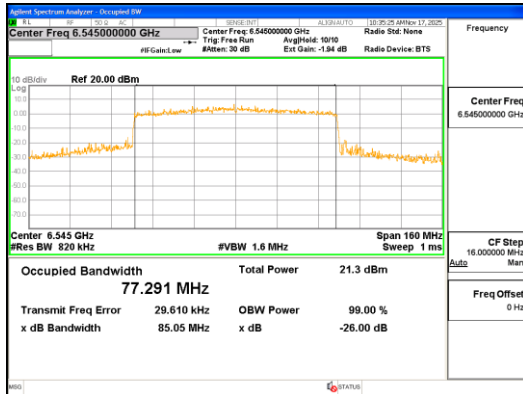
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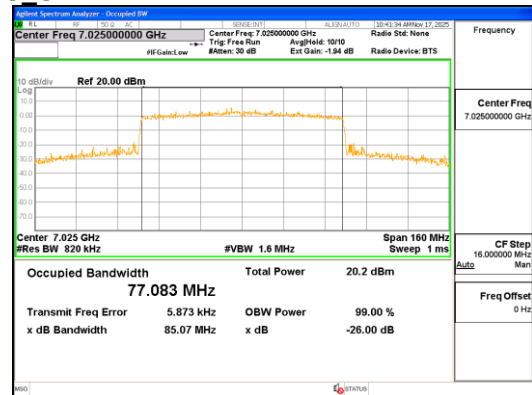
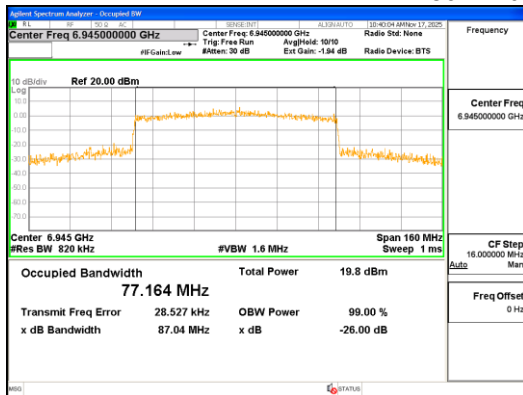
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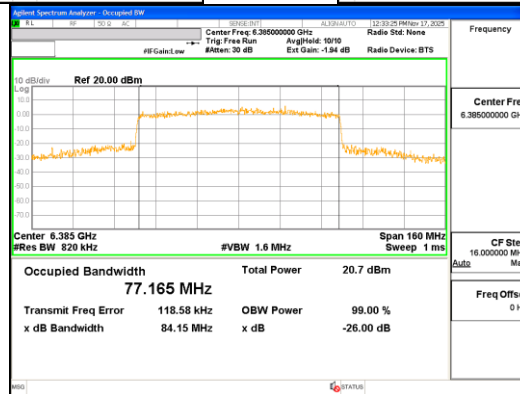
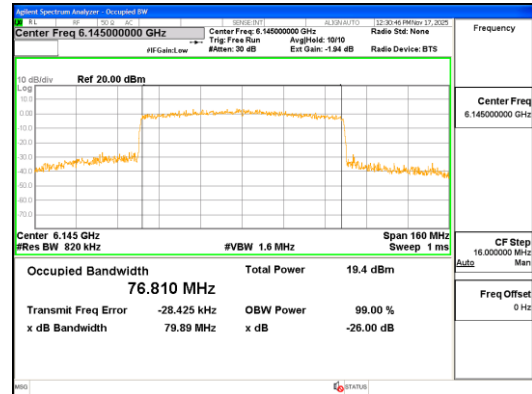
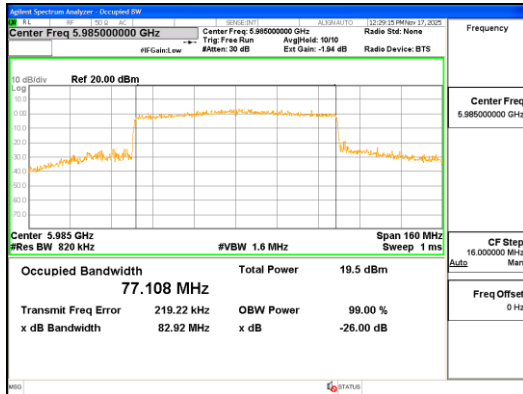
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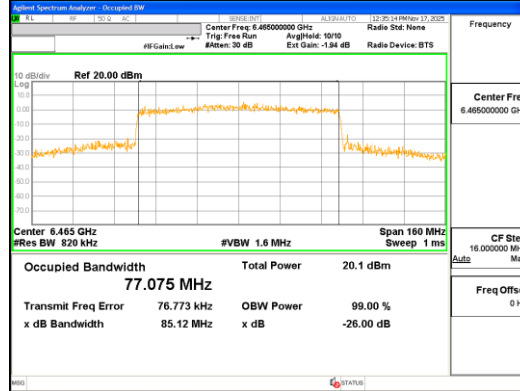
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