RF TEST REPORT

Applicant	Hangzhou Zhaotong Microelectronics Co., Ltd.
FCC ID	2BOBE-ZT9612UV10
Product	ZT9612UV10
Brand	ZTOP
Model	ZT9612UV10
Report No.	R2412A1668-R1V2
Issue Date	May 13, 2025

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15C (2024)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Prepared by: Xu Ying *Approved by: Xu Kai*

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Version	Revision Description	Issue Date
Rev.0	Initial issue of report.	March 25, 2025
Rev.1	Updated information.	April 22, 2025
Rev.2	Updated information.	May 13, 2025
Note: This revised report (Report No.: R2412A1668-R1V2) supersedes and replaces the previously issued report (Report No.: R2412A1668-R1V1). Please discard or destroy the previously issued report and dispose of it accordingly.		

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Summary of Measurement Results

Number	Test Case	Clause in FCC rules	Verdict
1	Maximum output power	15.247(b)(3)	PASS
2	99% Bandwidth and 6dB Bandwidth	15.247(a)(2) C63.10 6.9	PASS
3	Power spectral density	15.247(e)	PASS
4	Band Edge	15.247(d)	PASS
5	Spurious RF Conducted Emissions	15.247(d)	PASS
Date of Testing: December 2, 2024 ~ March 21, 2025 Date of Sample Received: December 2, 2024			
Note: All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

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1. Test Laboratory

1.1. Notes of the Test Report

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1.2. Test Facility

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

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

A2LA (Certificate Number: 3857.01)

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

1.3. Testing Location

Company:	Eurofins TA Technology (Shanghai) Co., Ltd.
Address:	Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City:	Shanghai
Post code:	201201
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2. General Description of Equipment Under Test

2.1. Applicant and Manufacturer Information

Applicant	Hangzhou Zhaotong Microelectronics Co., Ltd.
Applicant address	Room 113-11, Building D, Integrated Circuit Design Industrial Park, No. 858, Jianshe 2nd Road, Xiaoshan Economic and Technological Development Zone, Xiaoshan District, Hangzhou City, Zhejiang Province
Manufacturer	Hangzhou Zhaotong Microelectronics Co., Ltd.
Manufacturer address	Room 113-11, Building D, Integrated Circuit Design Industrial Park, No. 858, Jianshe 2nd Road, Xiaoshan Economic and Technological Development Zone, Xiaoshan District, Hangzhou City, Zhejiang Province

2.2. General Information

EUT Description	
Model	ZT9612UV10
Lab internal SN	R2412A1668/S01
Hardware Version	V1.0
Software Version	C01B190
Power Supply	External power supply
Antenna Type	External Antenna
Antenna Connector	RPSMA-K (meet with the standard FCC Part 15.203 requirement)
Antenna Gain	4.44 dBi
Additional Beamforming Gain	NA
Direction Gain	Power: 4.44dBi PSD: 7.45dBi
Operating Frequency Range(s)	802.11b/g/n(HT20)/ax(HE20): 2412 ~ 2462 MHz 802.11n(HT40)/ax(HE40): 2422 ~ 2452 MHz Bluetooth LE V5.2: 2402 ~2480 MHz
Modulation Type	802.11b: DSSS 802.11g/n: OFDM 802.11ax: OFDMA Bluetooth LE: GFSK
Max. Output Power	Wi-Fi 2.4GHz: 20.23 dBm Bluetooth LE: 19.88 dBm
EUT Accessory	
USB Cable	Manufacturer: UGREEN Model: USB3.0 100cm
Note: 1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is	

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declared by the applicant.

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3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards:

FCC CFR47 Part 15C (2024) Radio Frequency Devices

ANSI C63.10-2013

Reference standard:

KDB 558074 D01 15.247 Meas Guidance v05r02

KDB 662911 D01 Multiple Transmitter Output v02r01

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4. Test Configuration

Test Mode

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Preliminary tests have been done on all the configuration for confirming worst case. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

Test Mode	Data Rate
Bluetooth (Low Energy)	1Mbps; 2Mbps
Bluetooth (Low Energy) (S=2)	500kbps
Bluetooth (Low Energy) (S=8)	125kbps

Test Mode	Data Rate
	CDD/MIMO
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20	MCS8
802.11n HT40	MCS8
802.11ax HE20	MCS0
802.11ax HE40	MCS0

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

Test Cases	Antenna 1	Antenna 2	MIMO
Maximum output power	802.11b/g	802.11b/g	802.11n HT20 802.11n HT40 802.11ax HE20 802.11ax HE40
6dB Bandwidth	--	802.11b/g	802.11n HT20 802.11n HT40 802.11ax HE20 802.11ax HE40
Band Edge	--	802.11b/g	802.11n HT20 802.11n HT40 802.11ax HE20 802.11ax HE40
Power Spectral Density	802.11b/g	802.11b/g	802.11n HT20 802.11n HT40 802.11ax HE20 802.11ax HE40
Spurious RF Conducted Emissions	--	802.11b/g	802.11n HT20 802.11n HT40 802.11ax HE20 802.11ax HE40
Note: Only the worst data was recorded in this report.			

ERSU Mode

Test Cases	Antenna 1	Antenna 2	MIMO
Maximum output power	802.11ax HE20 242-Tones	802.11ax HE20 242-Tones	802.11ax HE20 242-Tones
6dB Bandwidth	--	--	802.11ax HE20 242-Tones
Band Edge	--	--	802.11ax HE20 242-Tones
Power Spectral Density	802.11ax HE20 242-Tones	802.11ax HE20 242-Tones	802.11ax HE20 242-Tones
Spurious RF Conducted Emissions	--	--	802.11ax HE20 242-Tones
Note: Only the worst data was recorded in this report.			

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5. Test Case Results

5.1. Maximum output power

Ambient Condition

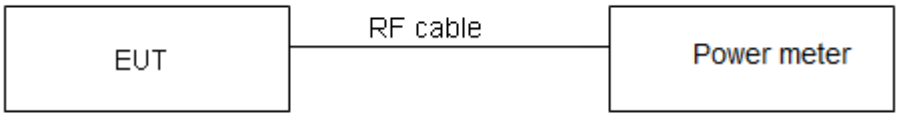
Temperature	Relative humidity
15°C ~ 35°C	20% ~ 80%

Methods of Measurement

During the process of the testing, The EUT was connected to Power meter with a known loss. The EUT is max power transmission with proper modulation.

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

Test Setup



Limits

Rule Part 15.247 (b) (3) specifies that " For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz: 1 Watt."

Average Output Power	≤ 1W (30dBm)

Measurement Uncertainty

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

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Test Results

Power Index				
Bluetooth (Low Energy)				
Channel	1M	2M	S=2	S=8
CH0	NA	NA	NA	NA
CH19	NA	NA	NA	NA
CH39	NA	NA	NA	NA

SISO Antenna Power Index								
Antenna	Channel	802.11b	802.11g	802.11n HT20	802.11ax HE20	Channel	802.11n HT40	802.11ax HE40
Antenna 1	CH1	10	16	--	--	CH3	--	--
	CH6	10	10	--	--	CH6	--	--
	CH11	10	10	--	--	CH9	--	--
Antenna 2	CH1	10	16	--	--	CH3	--	--
	CH6	10	10	--	--	CH6	--	--
	CH11	10	10	--	--	CH9	--	--
MIMO	CH1	--	--	20	25	CH3	25	25
	CH6	--	--	20	25	CH6	25	25
	CH10	--	--	20	25	CH8	25	--
	CH11	--	--	25	35	CH9	35	25

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Test Mode	Duty cycle	Duty cycle correction Factor (dB)
802.11b	0.992	0.00
802.11g	0.952	0.21
802.11n HT20	0.824	0.84
802.11n HT40	0.881	0.55
802.11ax HE20	0.922	0.35
802.11ax HE40	0.770	1.14
Bluetooth LE (1M)	0.852	0.70
Bluetooth LE (2M)	0.573	2.42
Bluetooth LE (S=2)	0.600	2.22
Bluetooth LE (S=8)	0.957	0.19
Note: when Duty cycle⩾0.98, Duty cycle correction Factor not required.		

Test Mode	Carrier frequency (MHz)/ Channel	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
Bluetooth (Low Energy) (1M)	2402/CH0	17.29	17.99	30	PASS
	2440/CH19	17.26	17.95	30	PASS
	2480/CH39	17.33	18.03	30	PASS
Bluetooth (Low Energy) (2M)	2402/CH0	15.44	17.86	30	PASS
	2440/CH19	15.70	18.12	30	PASS
	2480/CH39	15.36	17.77	30	PASS
Bluetooth (Low Energy) (S=2)	2402/CH0	17.66	19.88	30	PASS
	2440/CH19	17.44	19.66	30	PASS
	2480/CH39	17.56	19.78	30	PASS
Bluetooth (Low Energy) (S=8)	2402/CH0	14.96	15.15	30	PASS
	2440/CH19	14.80	14.99	30	PASS
	2480/CH39	14.53	14.72	30	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					

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Antenna 1

Test Mode	Carrier frequency (MHz)/ Channel	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11b	2412/CH 1	19.88	19.88	30	PASS
	2437/CH 6	19.94	19.94	30	PASS
	2462/CH11	19.32	19.32	30	PASS
802.11g	2412/CH 1	17.56	17.78	30	PASS
	2437/CH 6	19.66	19.87	30	PASS
	2462/CH11	18.90	19.12	30	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					

Antenna 2

Test Mode	Carrier frequency (MHz)/ Channel	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11b	2412/CH 1	19.68	19.68	30	PASS
	2437/CH 6	19.57	19.57	30	PASS
	2462/CH11	19.01	19.01	30	PASS
802.11g	2412/CH 1	18.14	18.35	30	PASS
	2437/CH 6	19.92	20.13	30	PASS
	2462/CH11	19.16	19.37	30	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					

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MIMO

Test Mode	Carrier frequency (MHz) / Channel	MIMO Antenna 1		MIMO Antenna 2		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11n HT20	2412/CH 1	16.47	17.31	16.29	17.13	20.23	30	PASS
	2437/CH 6	16.21	17.05	16.44	17.28	20.18	30	PASS
	2457/CH 10	16.56	17.40	15.94	16.78	20.11	30	PASS
	2462/CH 11	14.04	14.88	13.89	14.73	17.82	30	PASS
802.11n HT40	2422/CH 3	14.28	14.83	14.33	14.88	17.86	30	PASS
	2437/CH 6	14.20	14.75	14.38	14.93	17.85	30	PASS
	2447/CH 8	14.08	15.22	13.75	14.30	17.79	30	PASS
	2452/CH 9	9.82	10.37	10.00	10.55	13.47	30	PASS
802.11ax HE20	2412/CH 1	14.39	14.74	14.13	14.48	17.62	30	PASS
	2437/CH 6	13.97	14.32	14.18	14.53	17.43	30	PASS
	2457/CH 10	13.64	13.99	13.09	13.44	16.73	30	PASS
	2462/CH 11	9.98	10.33	9.42	9.77	13.07	30	PASS
802.11ax HE40	2422/CH 3	13.85	14.99	13.98	15.12	18.07	30	PASS
	2437/CH 6	13.56	14.70	13.84	14.98	17.85	30	PASS
	2452/CH 9	13.58	14.72	13.38	14.52	17.63	30	PASS

Note: 1. Average Power with duty factor = Average Power Measured +Duty cycle correction factor

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

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

3. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f)(i): If all antennas have the same gain, Directional gain = G_{ANT} + Array Gain,

For power measurements on IEEE 802.11 devices,

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

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

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

So directional gain = G_{ANT} + Array Gain =4.44+0=4.44 dBi<6dBi. So the power limit is 30dBm

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ERSU Mode

Power Index				
Test Mode	**Channel/ Frequency (MHz)**	**Antenna 1**	**Antenna 2**	**MIMO**
802.11ax HE20 242-Tones:RU Index 61	2412/CH 1	10	10	10
	2437/CH 6	10	10	10
	2462/CH11	14	16	10

Test Mode	Duty cycle	Duty cycle correction Factor (dB)
802.11ax HE20 242-Tones:RU Index 61	0.691	1.61
Note: when Duty cycle⩾0.98, Duty cycle correction Factor not required.		

Antenna 1

Test Mode	Carrier frequency (MHz) / Channel	RU Index	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11ax HE20 242-Tones: RU Index 61	2412/CH 1	61	15.52	17.13	30	PASS
	2437/CH 6	61	15.62	17.23	30	PASS
	2462/CH11	61	17.37	18.98	30	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor						

Antenna 2

Test Mode	Carrier frequency (MHz) / Channel	RU Index	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11ax HE20 242-Tones: RU Index 61	2412/CH 1	61	15.27	16.88	30	PASS
	2437/CH 6	61	15.50	17.11	30	PASS
	2462/CH11	61	16.35	17.96	30	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor						

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MIMO

Test Mode	Carrier frequency (MHz) / Channel	RU Index	MIMO ANT5		MIMO ANT10		Total Power (dBm)	Limit (dBm)	Conclusion
			Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11ax HE20 242-Tones	2412/CH 1	61	19.62	21.23	18.94	20.55	23.91	30	PASS
	2437/CH 6	61	19.43	21.04	18.79	20.40	23.74	30	PASS
	2462/CH11	61	18.81	20.42	18.21	19.82	23.14	30	PASS

Note: 1.Average Power with duty factor = Average Power Measured +Duty cycle correction factor

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

The Total Power $=10\log(10^{(\text{Power ANT1 in dBm/10})}+10^{(\text{Power ANT2 in dBm/10})})$.

3. According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f)(i): If all antennas have the same gain,

Directional gain = G_{ANT} + Array Gain,

For power measurements on IEEE 802.11 devices,

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

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

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

So directional gain = G_{ANT} + Array Gain =4.44+0=4.44 dBi<6dBi. So the power limit is 30dBm

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5.2. 99% Bandwidth and 6dB Bandwidth

Ambient Condition

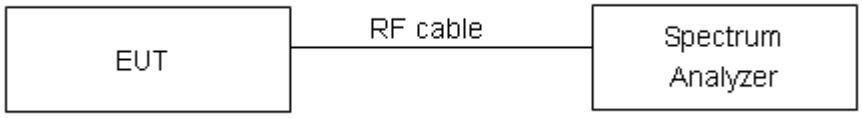
Temperature	Relative humidity
15°C ~ 35°C	20% ~ 80%

Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable. RBW is set to 100 kHz; VBW is set to 300 kHz on spectrum analyzer. Dector=Peak, Trace mode=max hold.

The EUT was connected to the spectrum analyzer through a known loss cable. The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value.

Test Setup



Limits

Rule Part 15.247 (a) (2) specifies that “Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.”

minimum 6 dB bandwidth	≥ 500 kHz

Measurement Uncertainty

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

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Test Results:

Test Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
Bluetooth (Low Energy) (1M)	2402	1.016	0.648	500	PASS
	2440	1.011	0.664	500	PASS
	2480	1.012	0.661	500	PASS
Bluetooth (Low Energy) (2M)	2402	2.000	1.137	500	PASS
	2440	2.023	1.134	500	PASS
	2480	1.991	1.148	500	PASS
Bluetooth (Low Energy) (S=2)	2402	1.002	0.652	500	PASS
	2440	1.003	0.658	500	PASS
	2480	1.001	0.655	500	PASS
Bluetooth (Low Energy) (S=8)	2402	1.032	0.668	500	PASS
	2440	1.028	0.632	500	PASS
	2480	1.031	0.669	500	PASS

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Test Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11b	2412	16.713	14.017	500	PASS
	2437	16.718	12.554	500	PASS
	2462	16.714	12.578	500	PASS
802.11g	2412	17.035	16.358	500	PASS
	2437	17.271	16.338	500	PASS
	2462	17.178	16.338	500	PASS
802.11n HT20	2412	18.200	17.589	500	PASS
	2437	18.083	17.593	500	PASS
	2457	18.058	17.602	500	PASS
	2462	18.095	17.610	500	PASS
802.11n HT40	2422	36.681	36.322	500	PASS
	2437	36.706	36.339	500	PASS
	2447	36.773	36.332	500	PASS
	2452	36.727	36.342	500	PASS
802.11ax HE20	2412	19.217	18.908	500	PASS
	2437	19.178	18.849	500	PASS
	2457	19.175	18.843	500	PASS
	2462	19.147	18.851	500	PASS
802.11ax HE40	2422	38.069	37.644	500	PASS
	2437	38.086	37.992	500	PASS
	2452	38.049	37.532	500	PASS

ERSU Mode

Test Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11ax HE20 242-Tones: RU Index 61	2412	19.193	17.459	500	PASS
	2437	19.201	18.806	500	PASS
	2462	19.134	17.641	500	PASS

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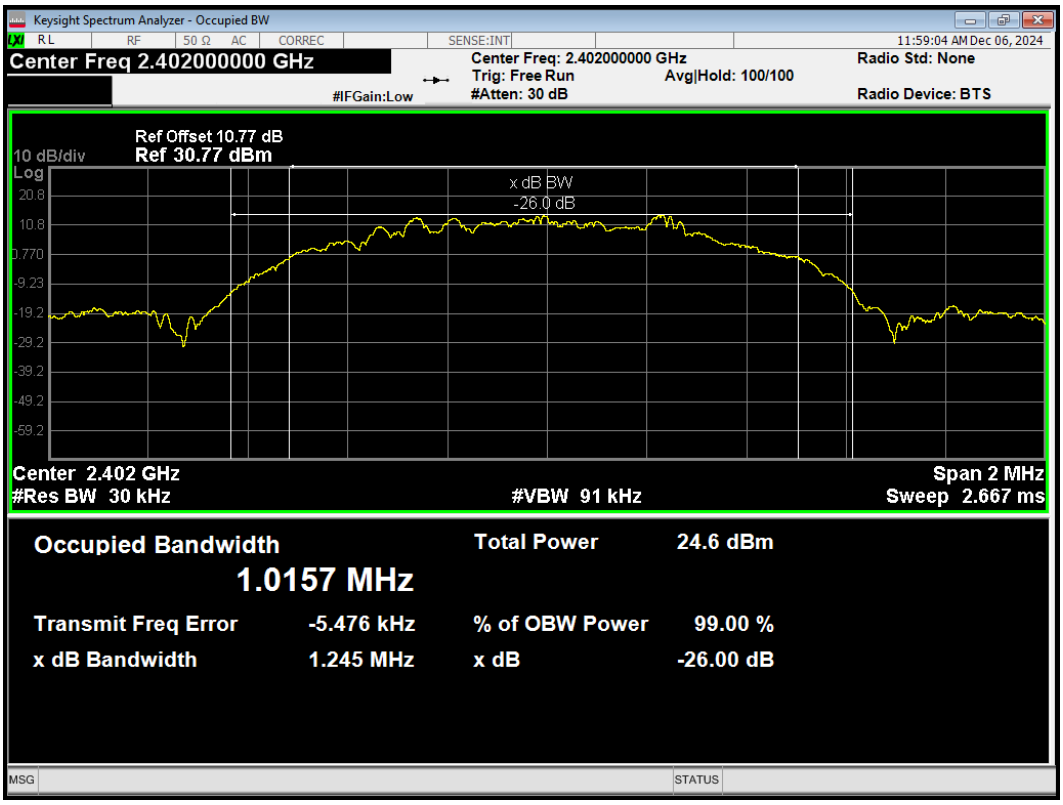
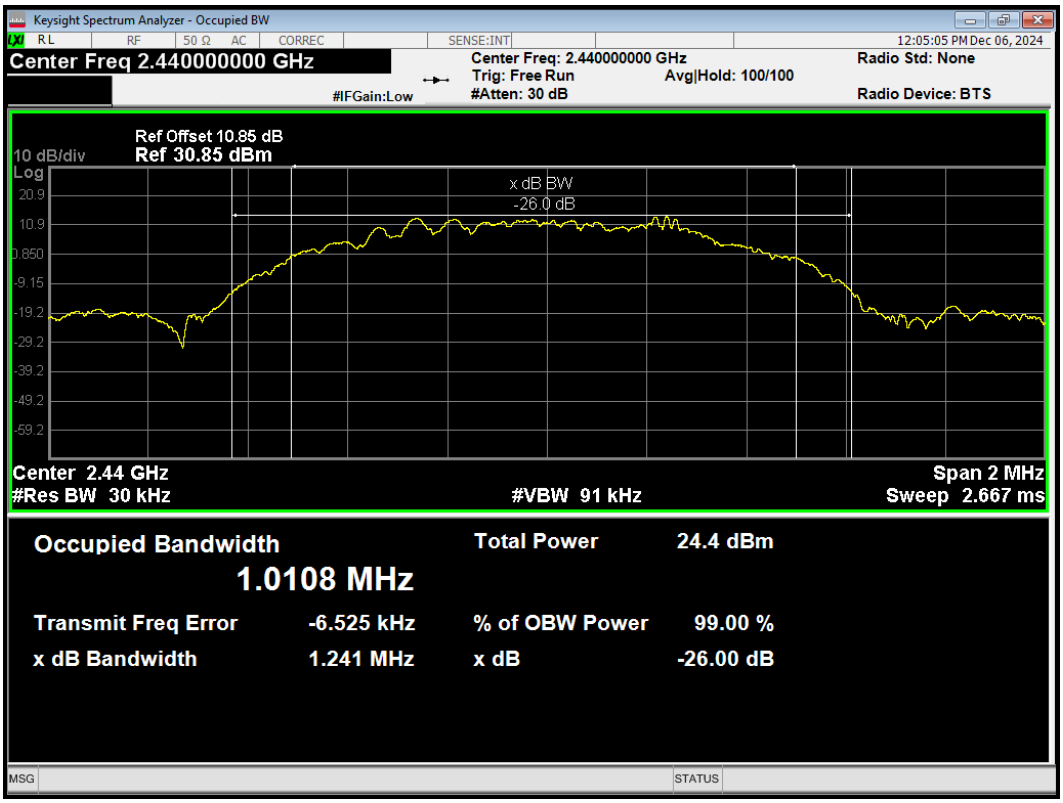
99%bandwidth

OBW Bluetooth LE (1M) 2402MHz



OBW Bluetooth LE (1M) 2440MHz



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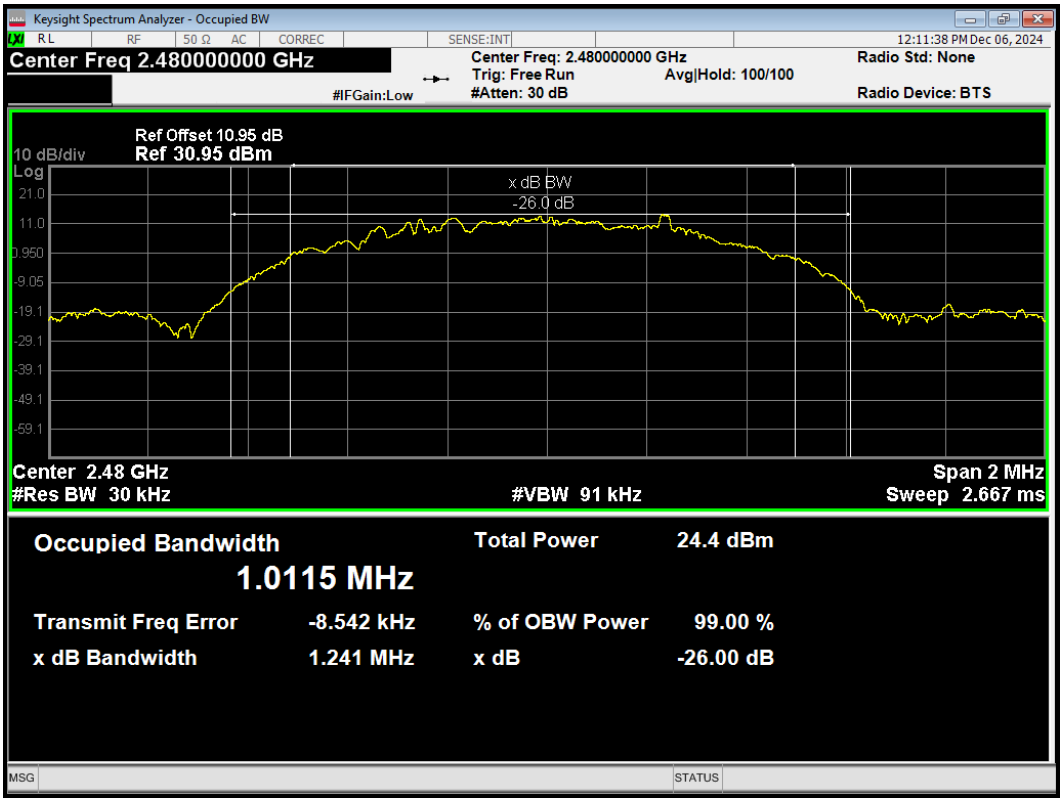
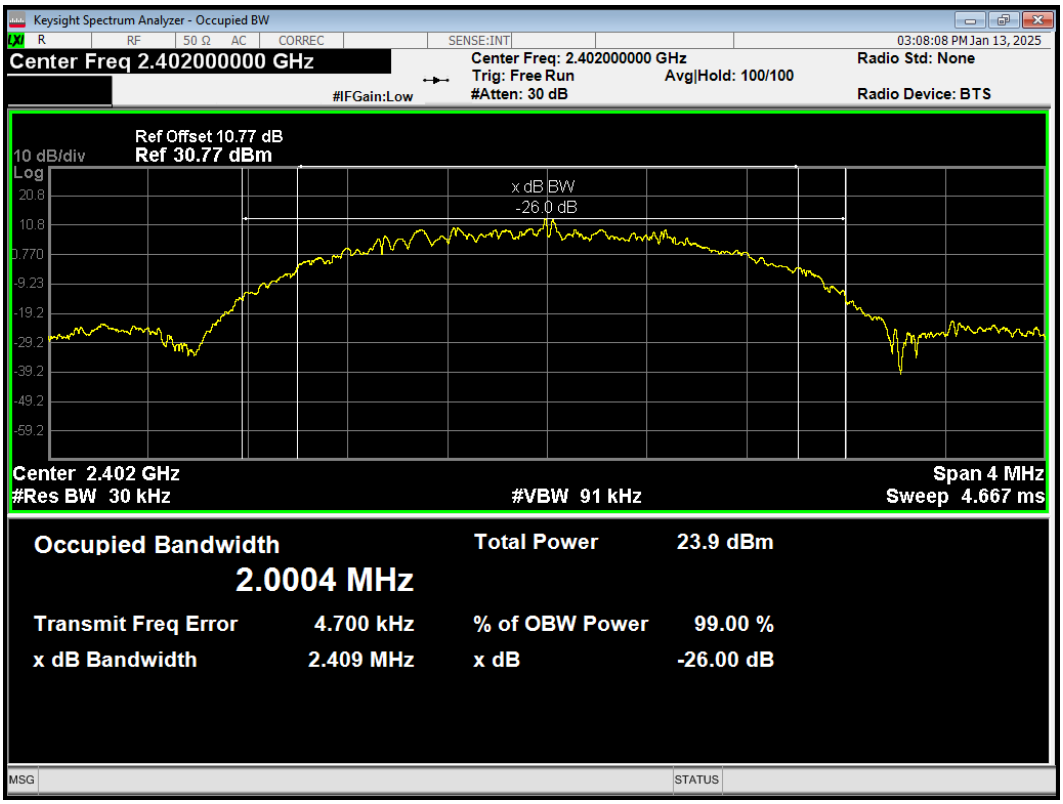
OBW Bluetooth LE (1M) 2480MHz



OBW Bluetooth LE (2M) 2402MHz



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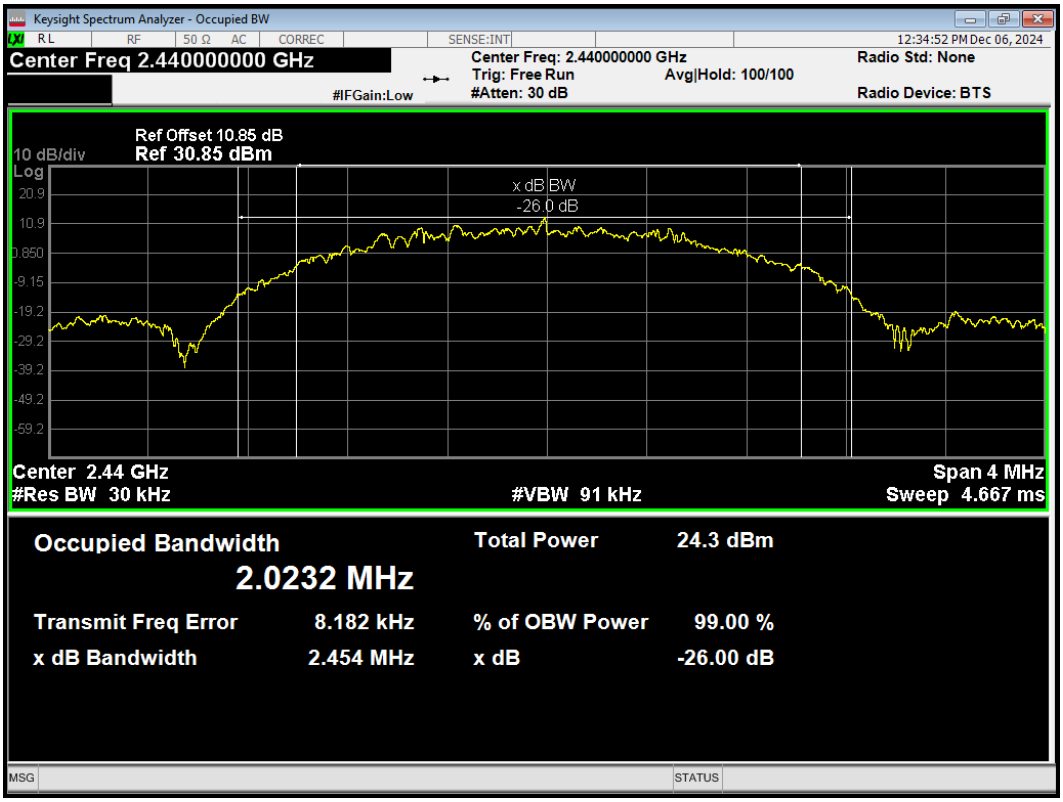
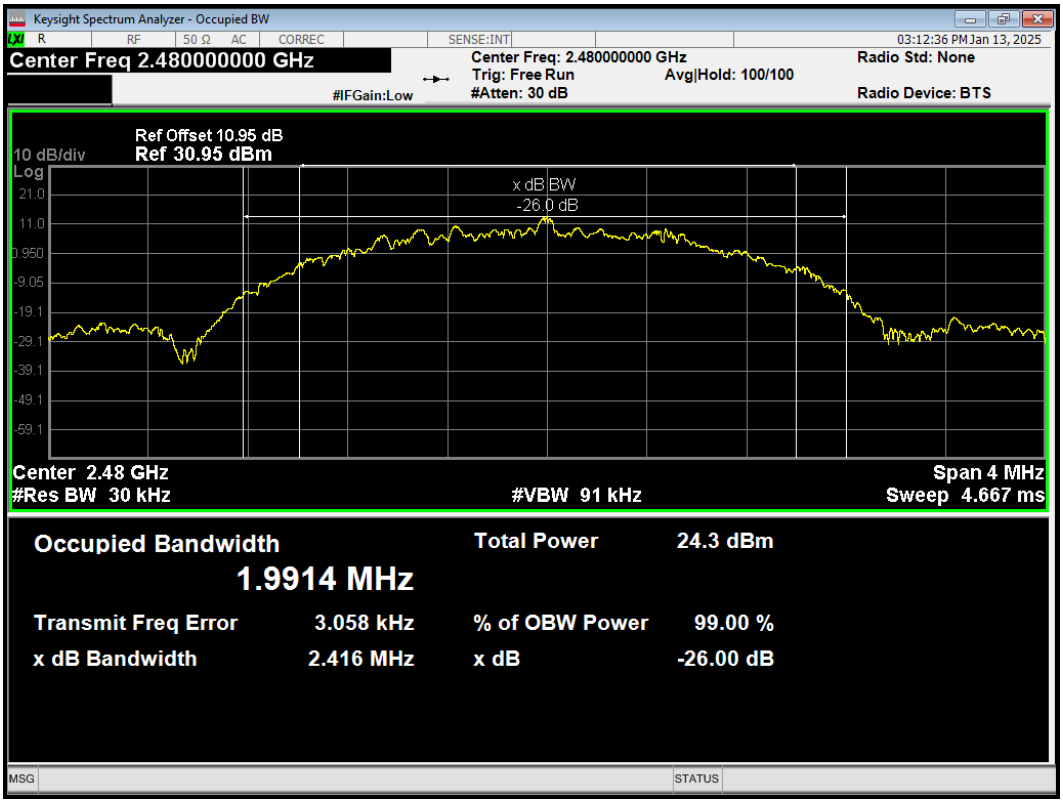
OBW Bluetooth LE (2M) 2440MHz



OBW Bluetooth LE (2M) 2480MHz



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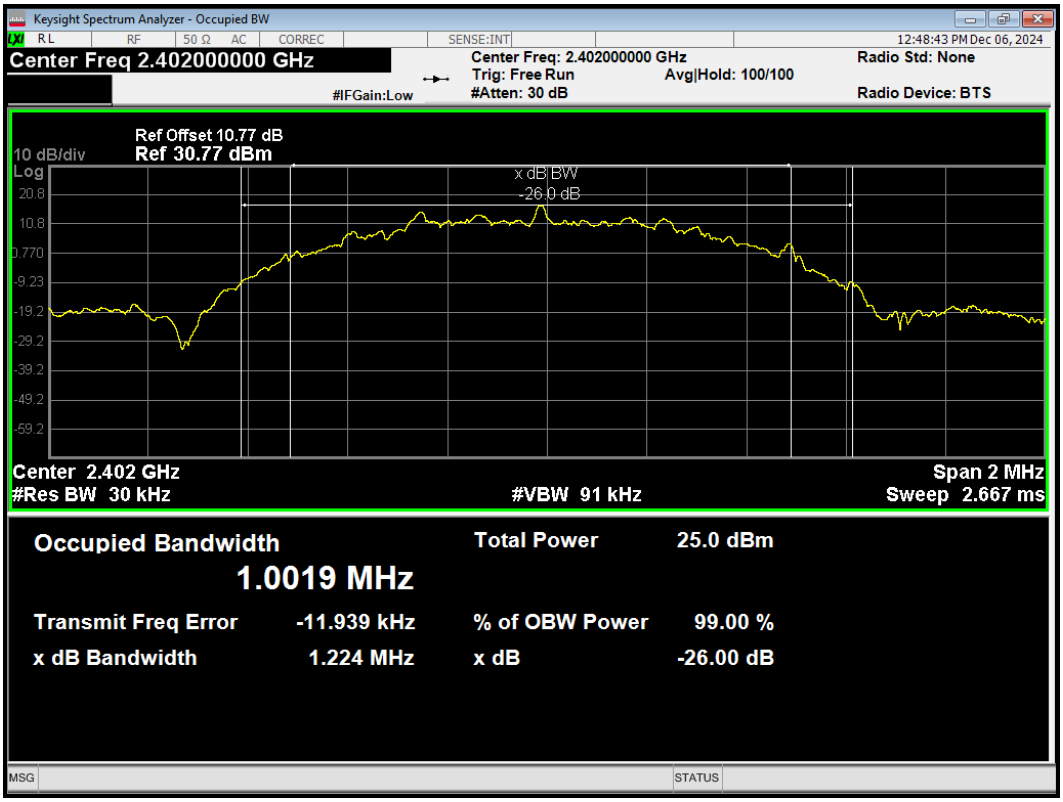
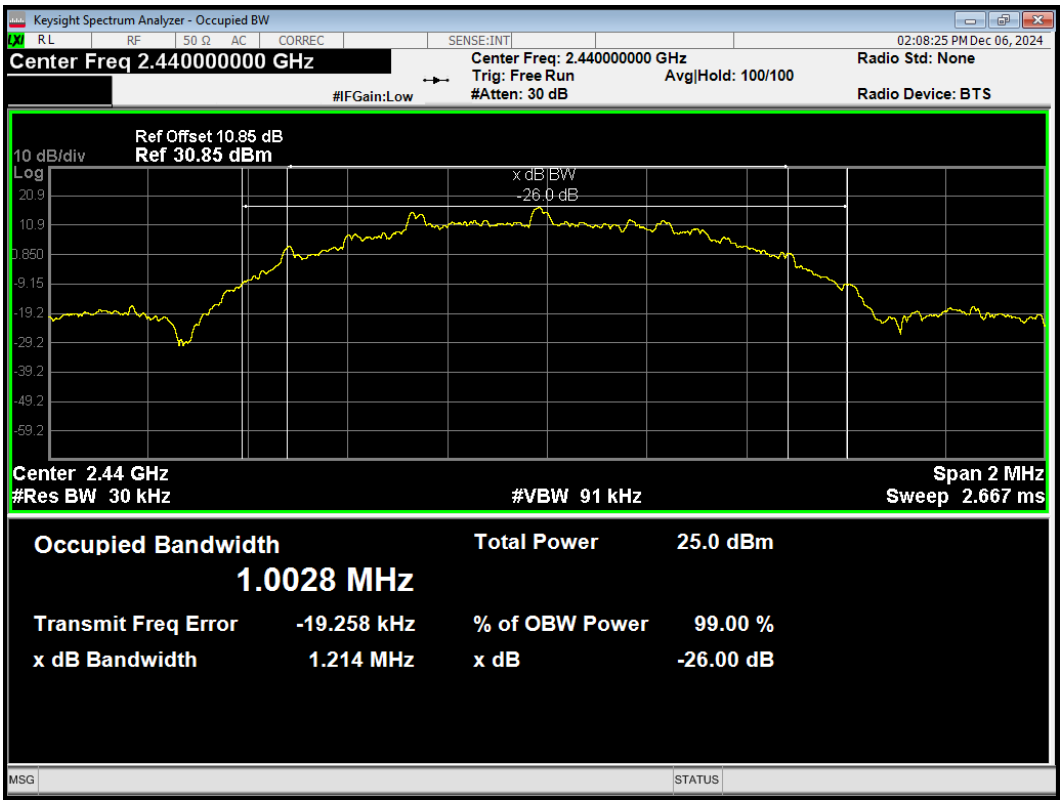
OBW Bluetooth LE (S=2) 2402MHz



OBW Bluetooth LE (S=2) 2440MHz



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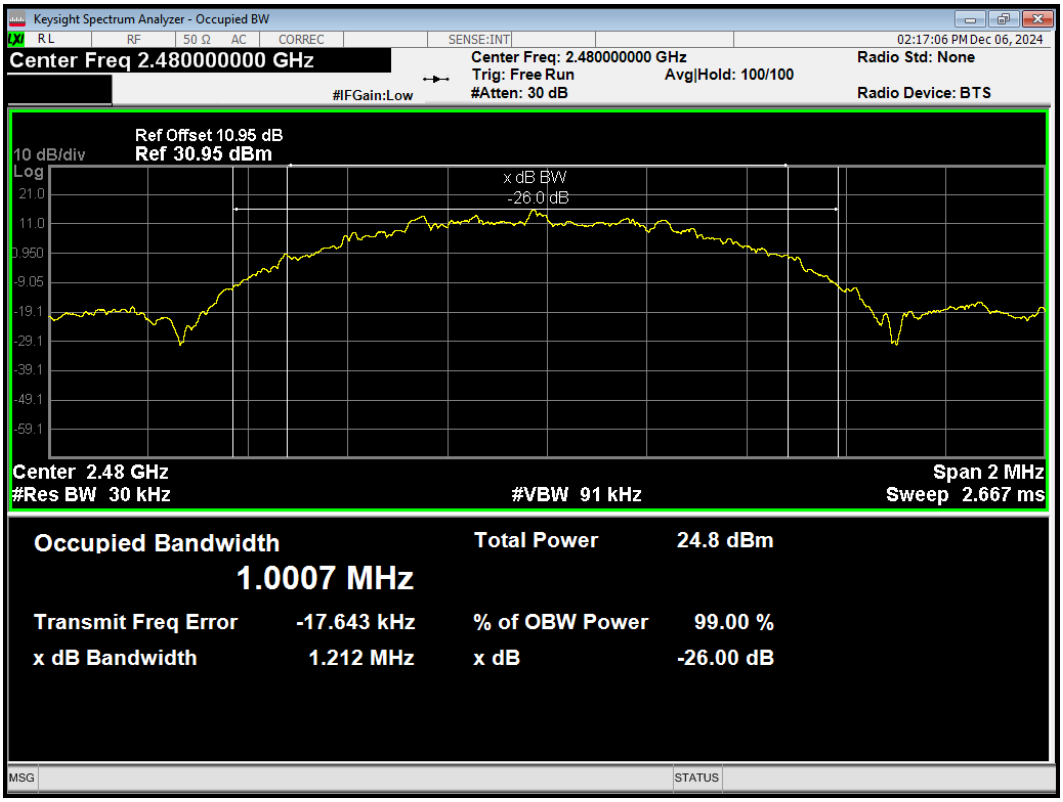
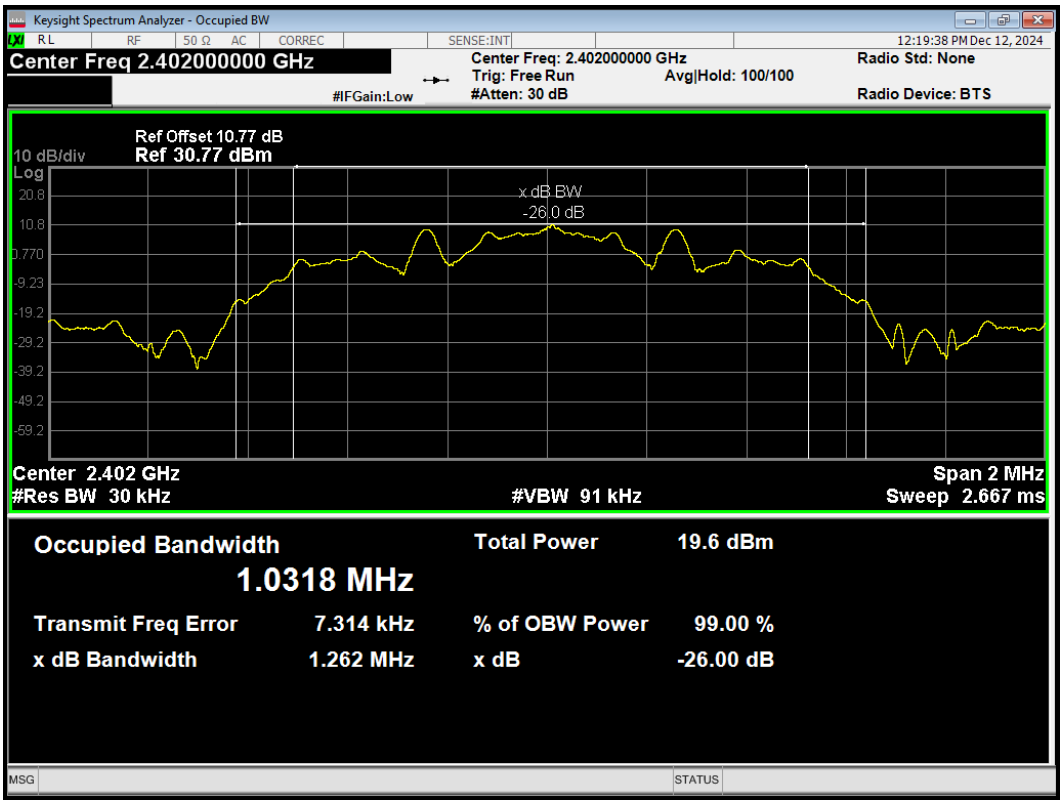
OBW Bluetooth LE (S=2) 2480MHz



OBW Bluetooth LE (S=8) 2402MHz



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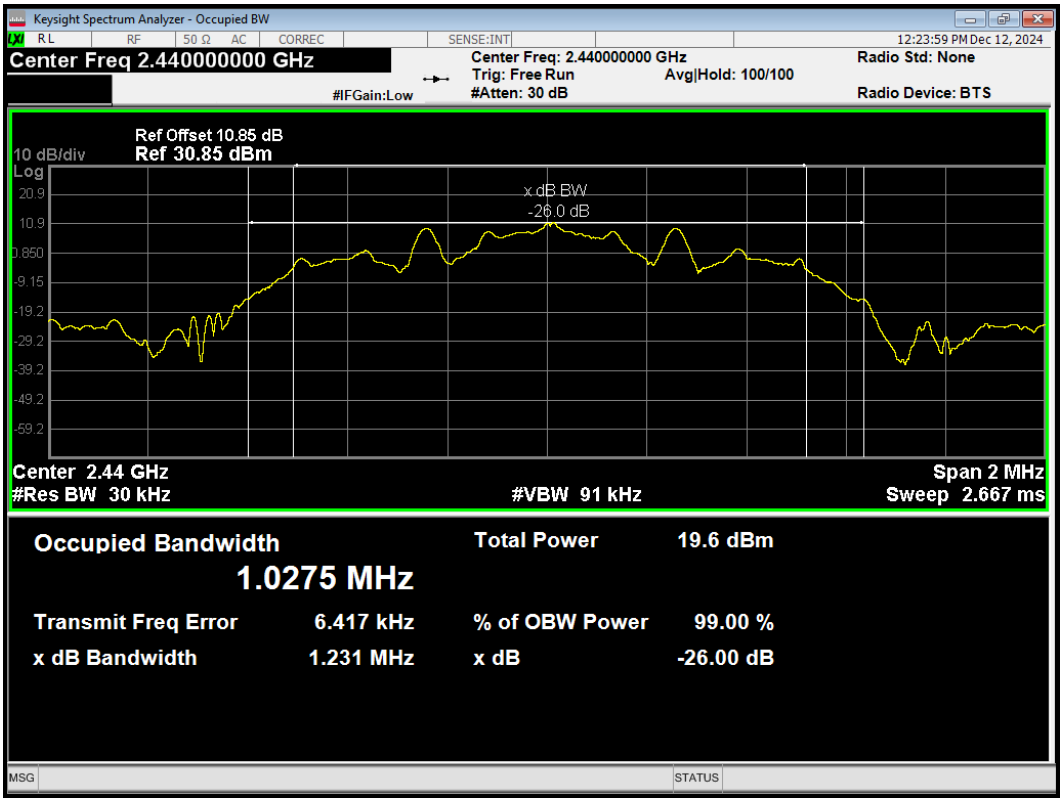
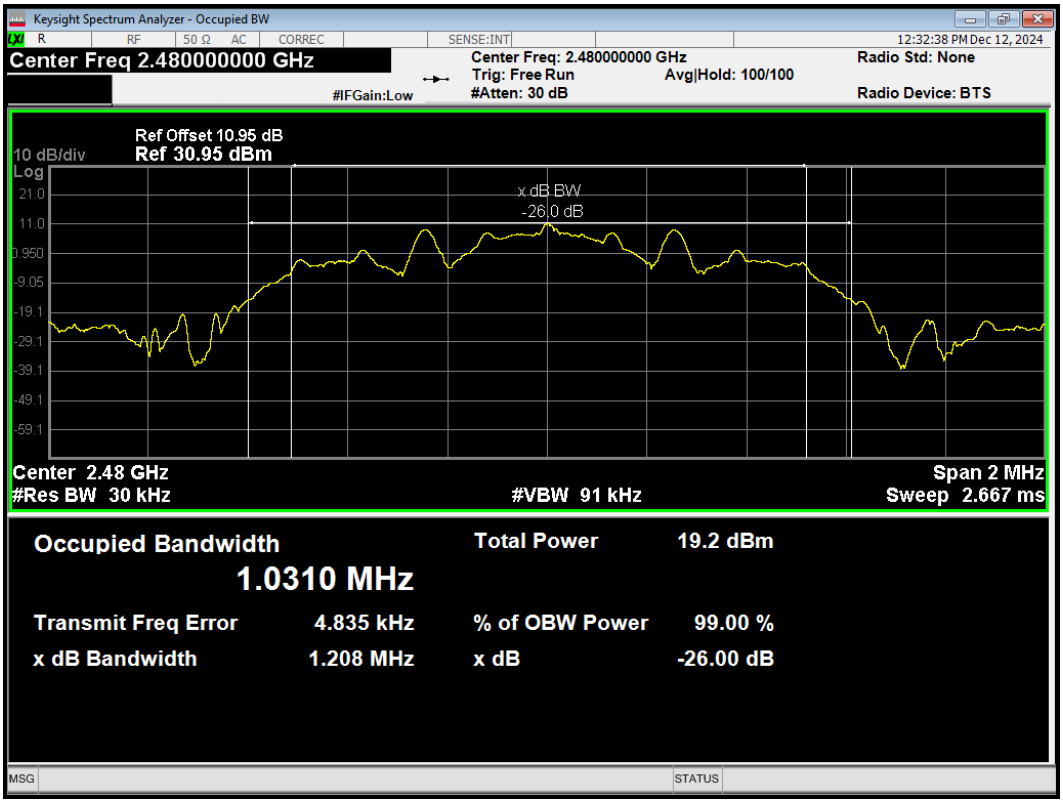
OBW Bluetooth LE (S=8) 2440MHz



OBW Bluetooth LE (S=8) 2480MHz



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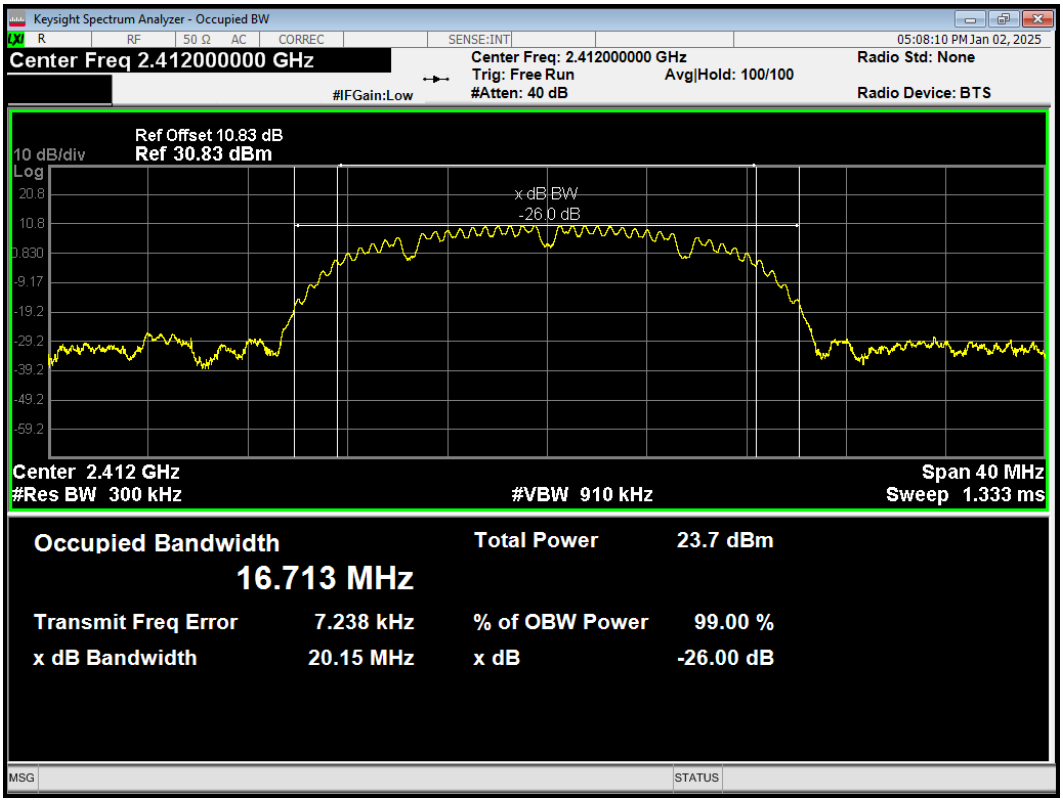
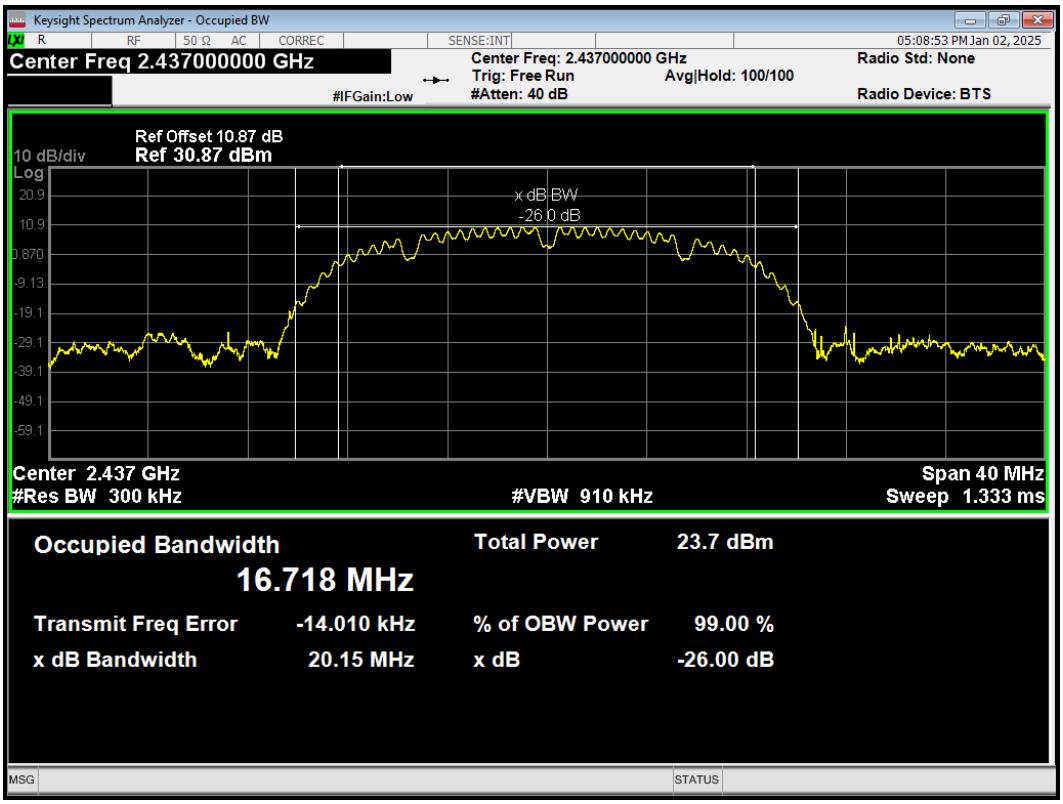
OBW 802.11b 2412MHz



OBW 802.11b 2437MHz



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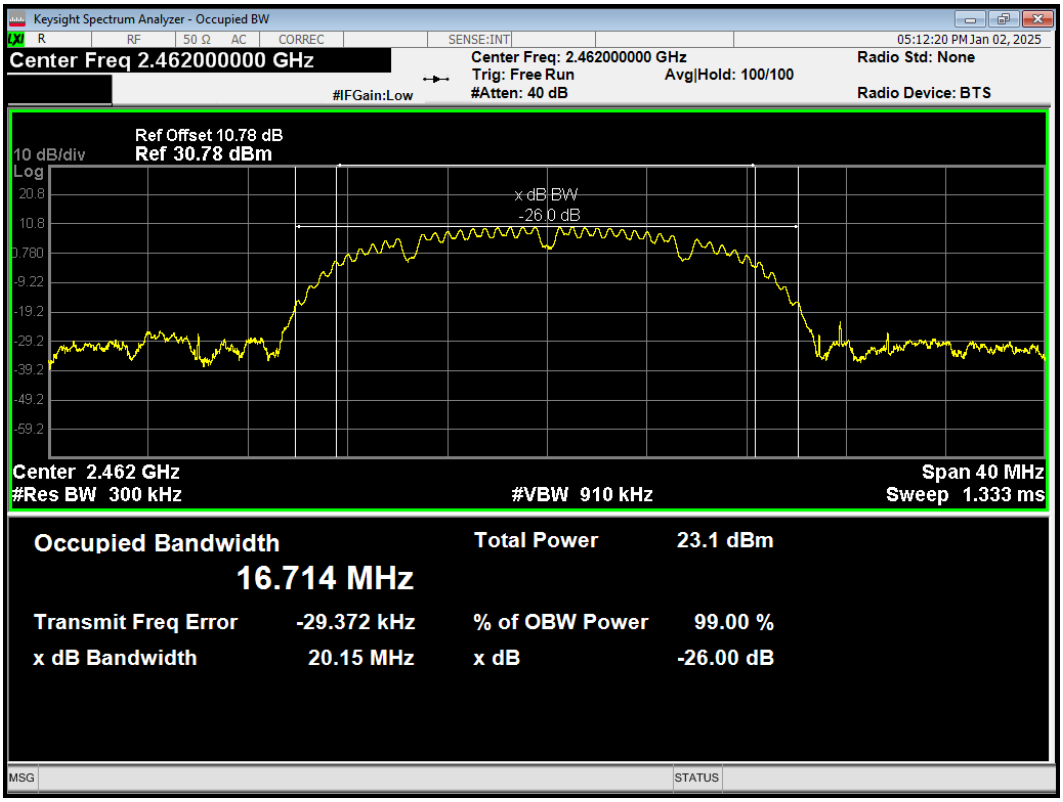
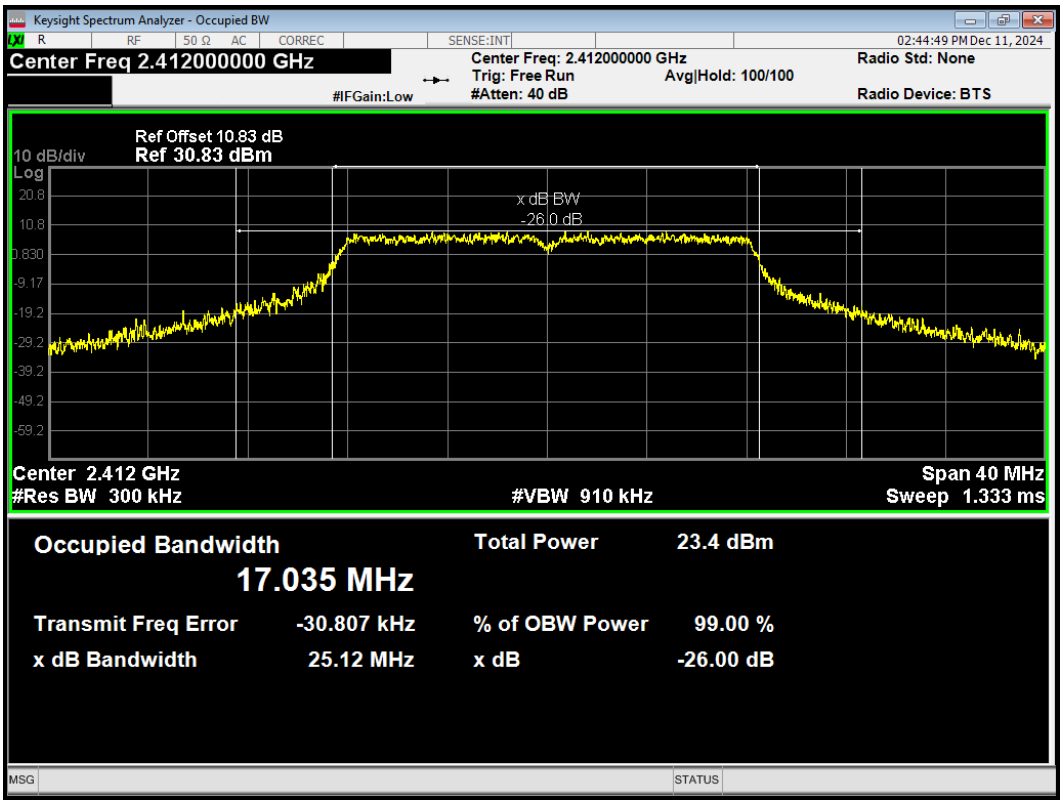
OBW 802.11b 2462MHz



OBW 802.11g 2412MHz



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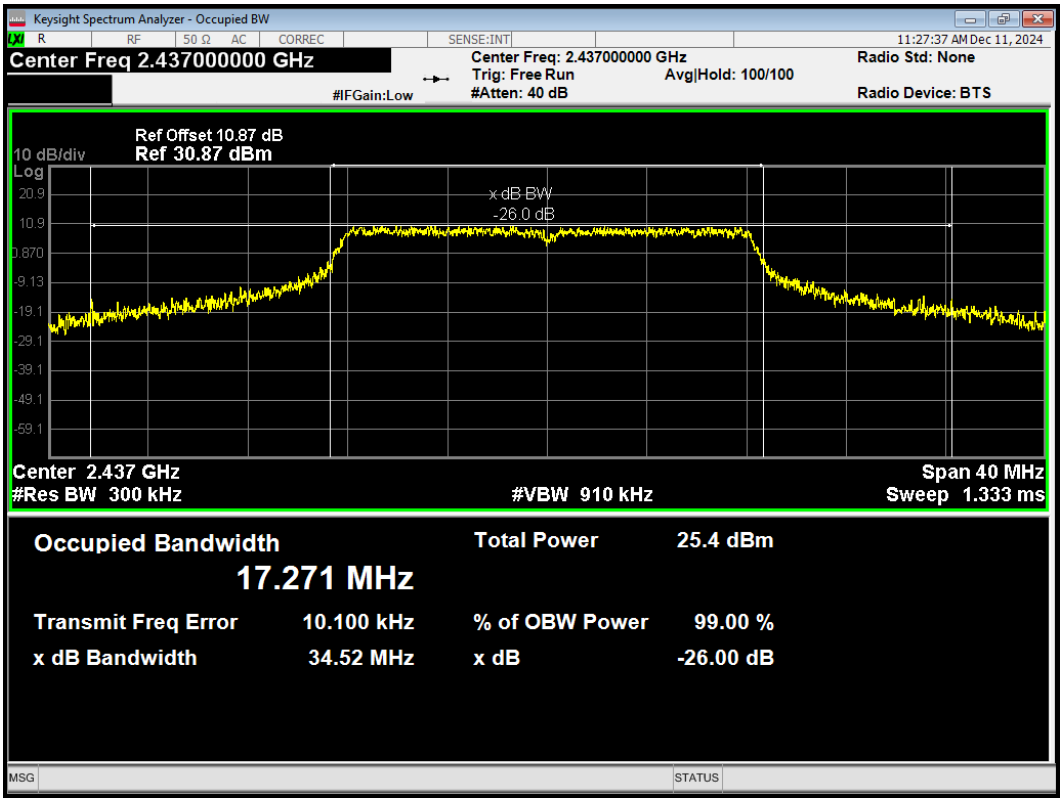
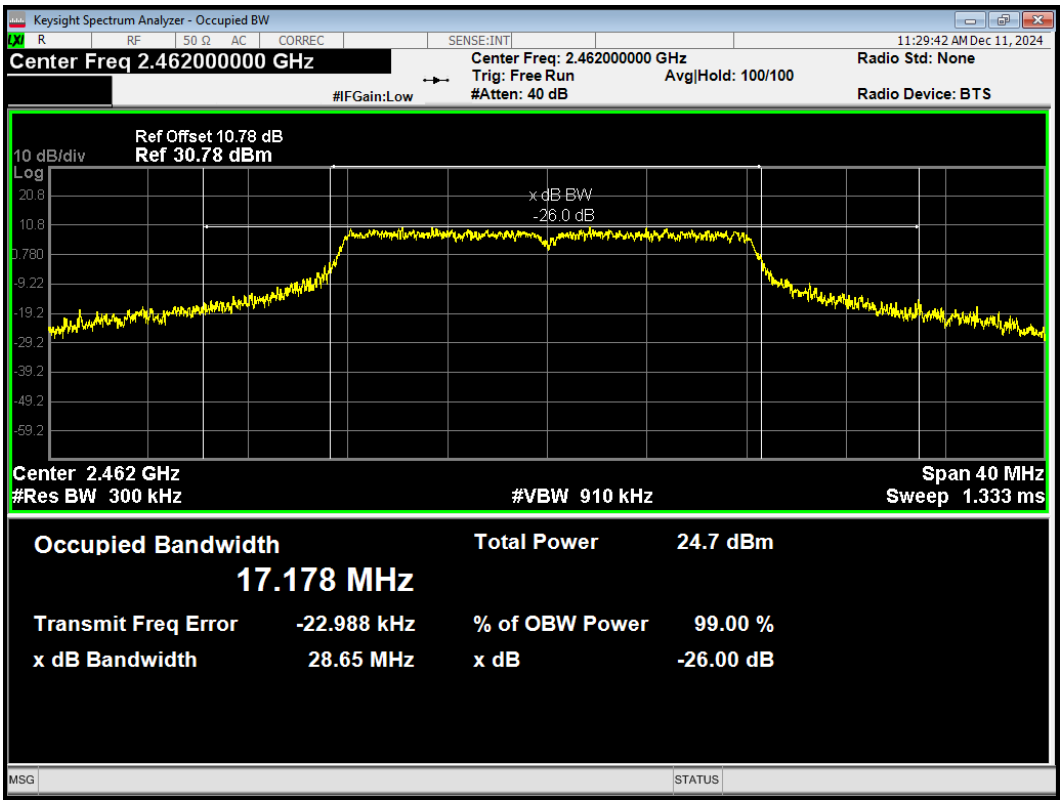
OBW 802.11g 2437MHz



OBW 802.11g 2462MHz



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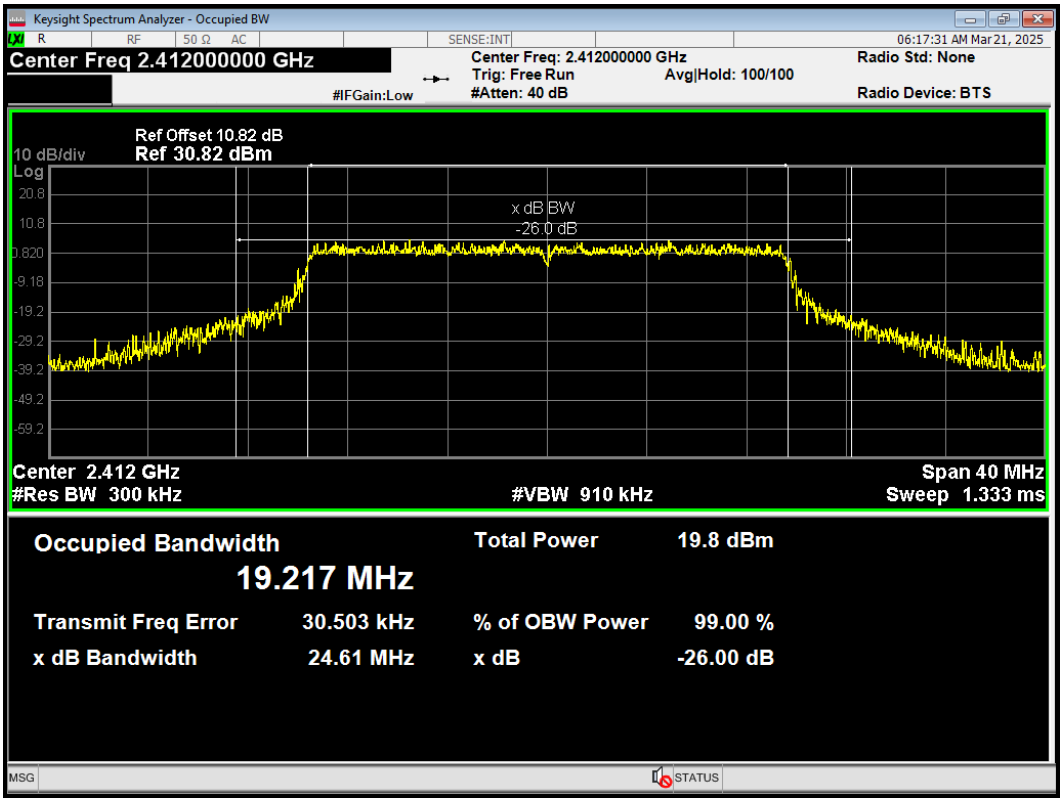
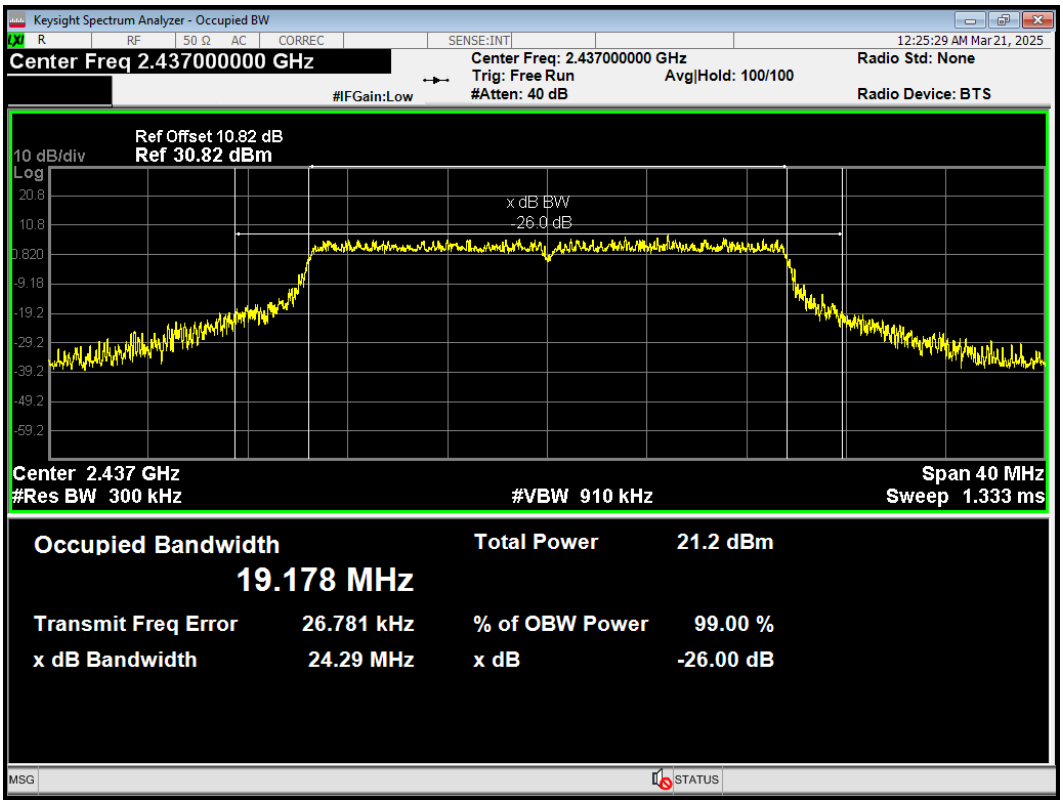
OBW 802.11ax(HE20) 2412MHz



OBW 802.11ax(HE20) 2437MHz



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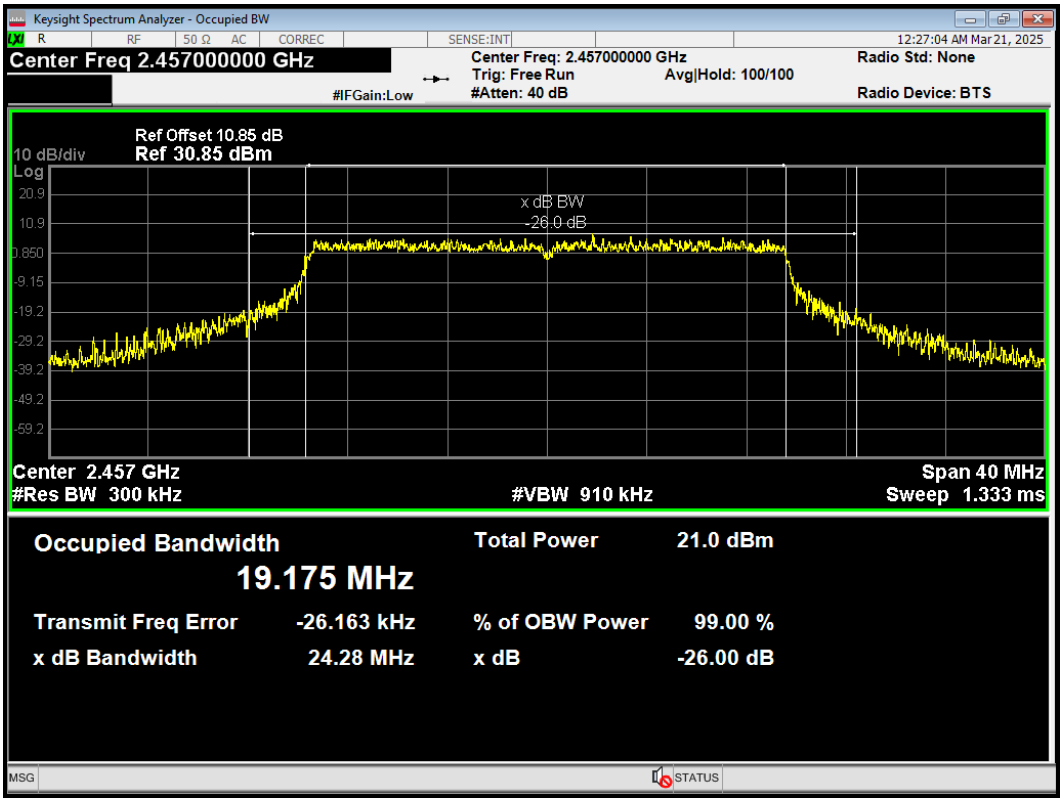
OBW 802.11ax(HE20) 2457MHz



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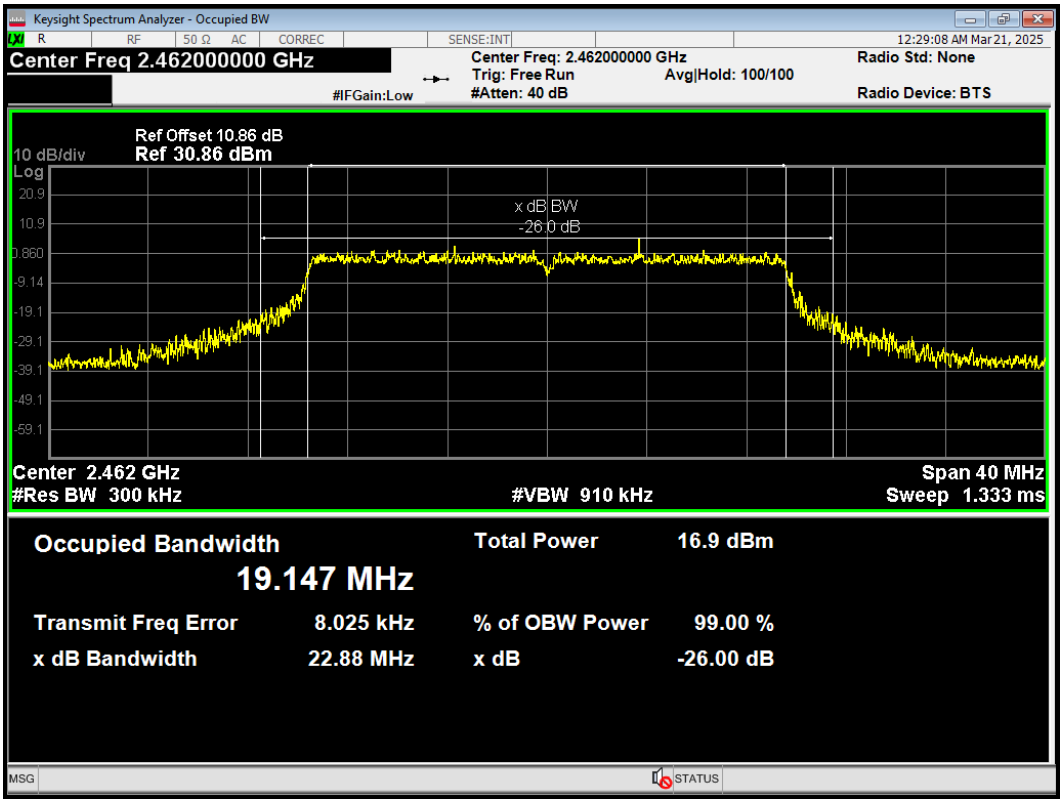

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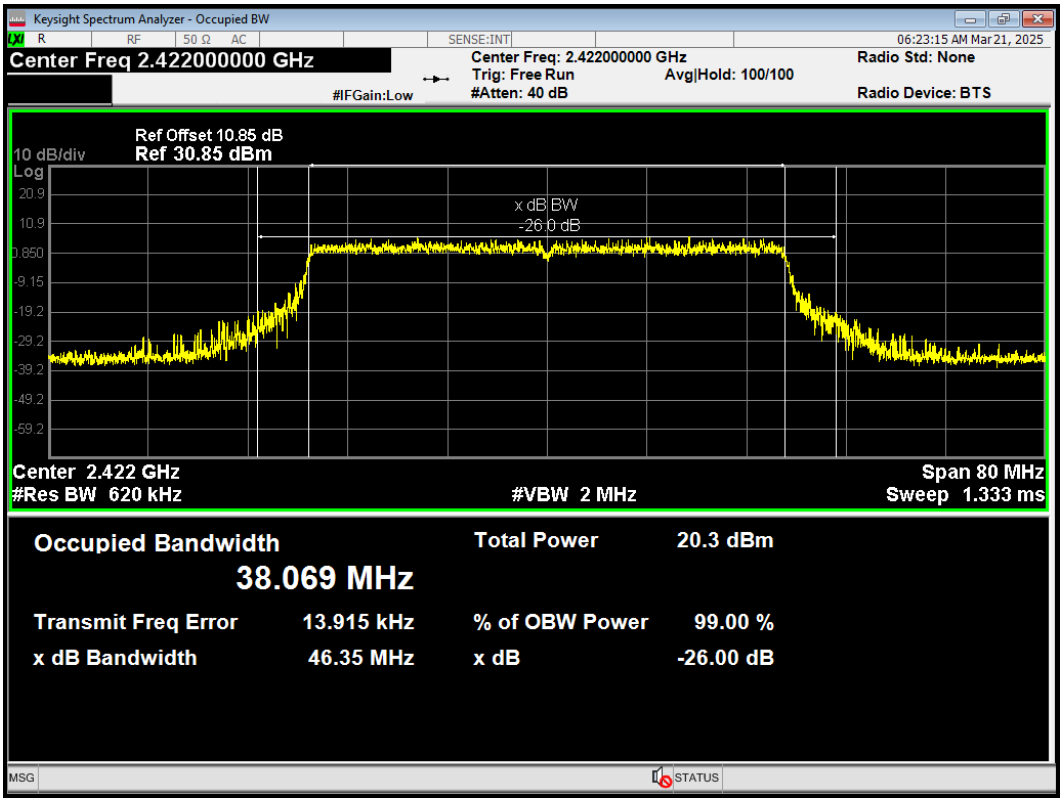
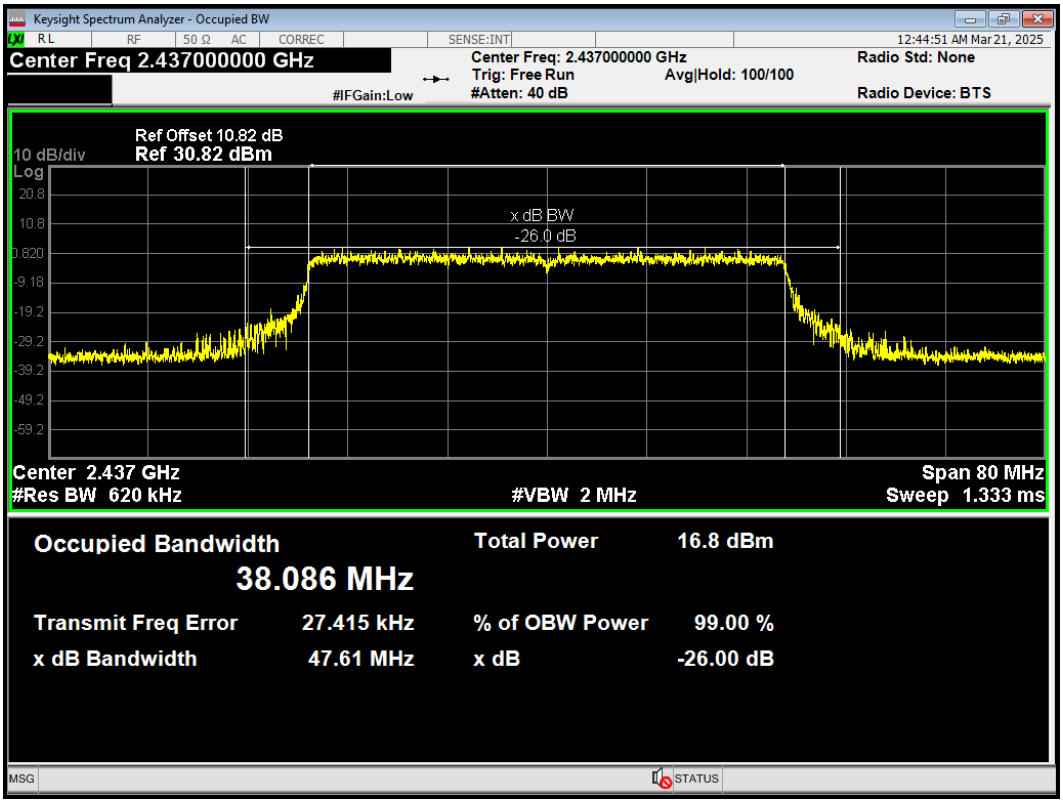
OBW 802.11ax(HE40) 2422MHz



OBW 802.11ax(HE40) 2437MHz



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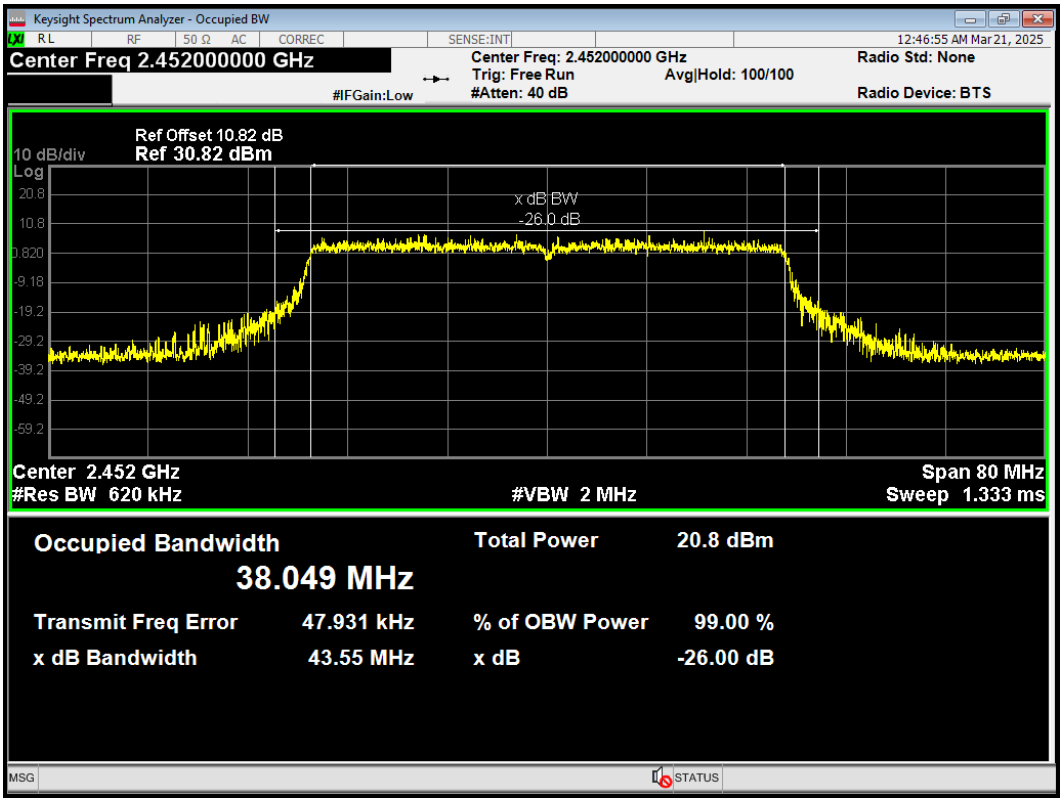
OBW 802.11ax(HE40) 2452MHz



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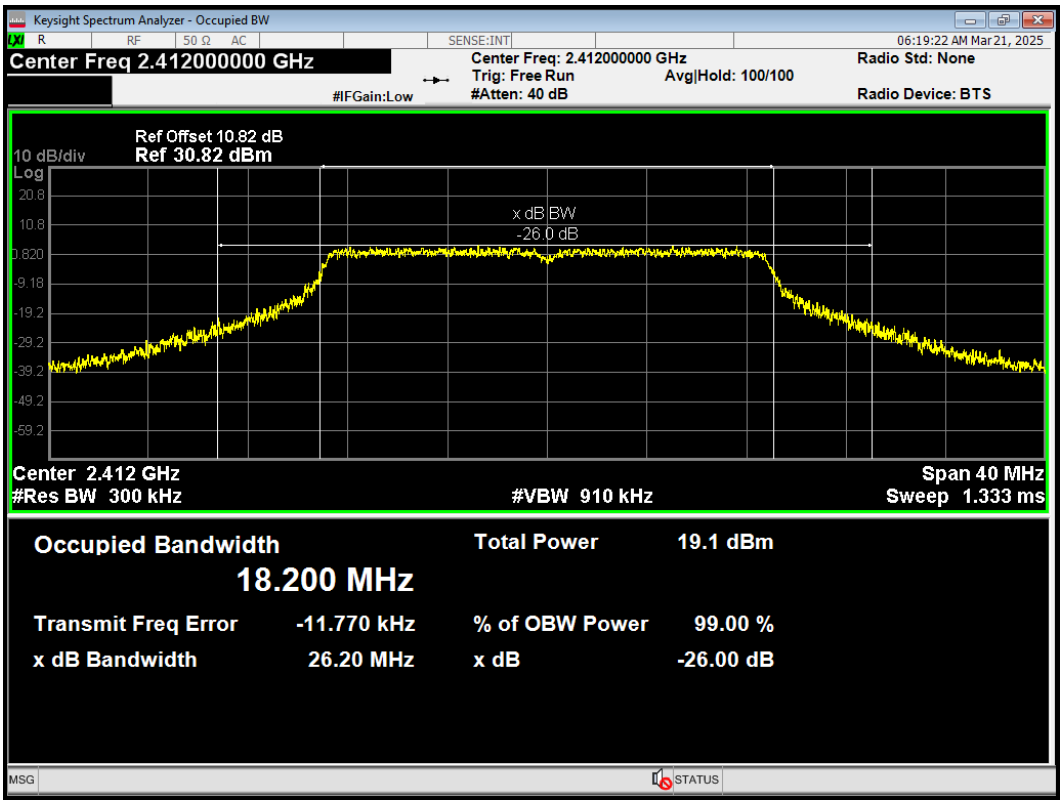

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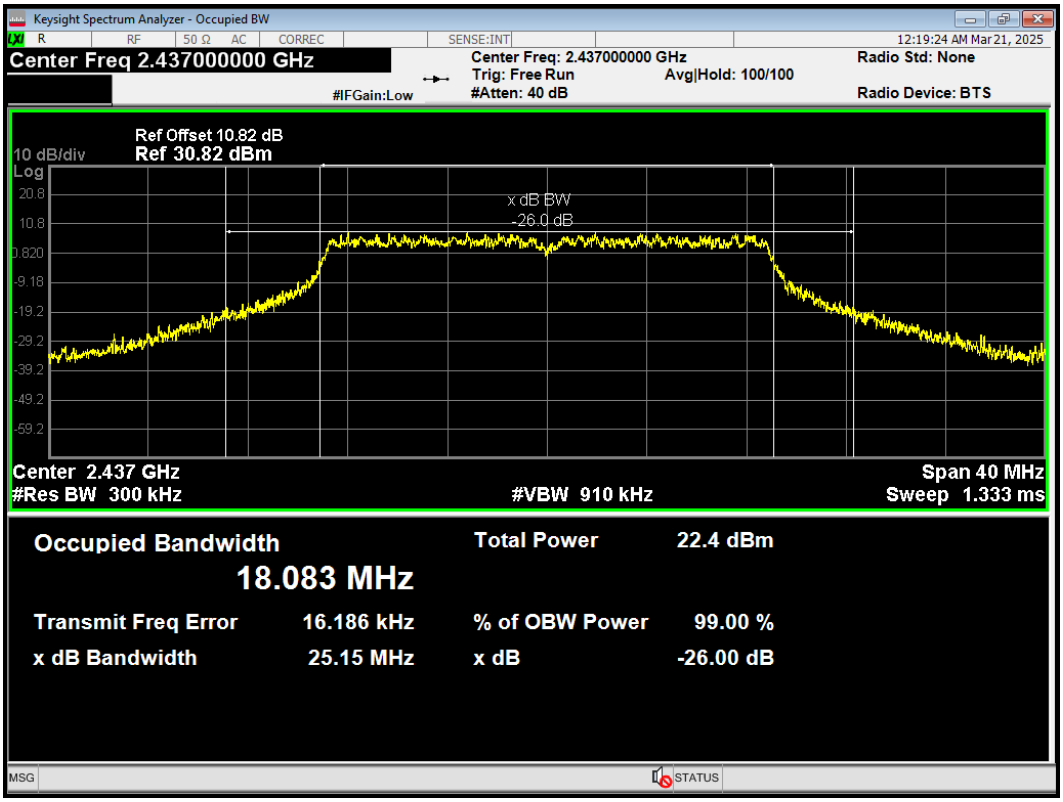
OBW 802.11n(HT20) 2437MHz



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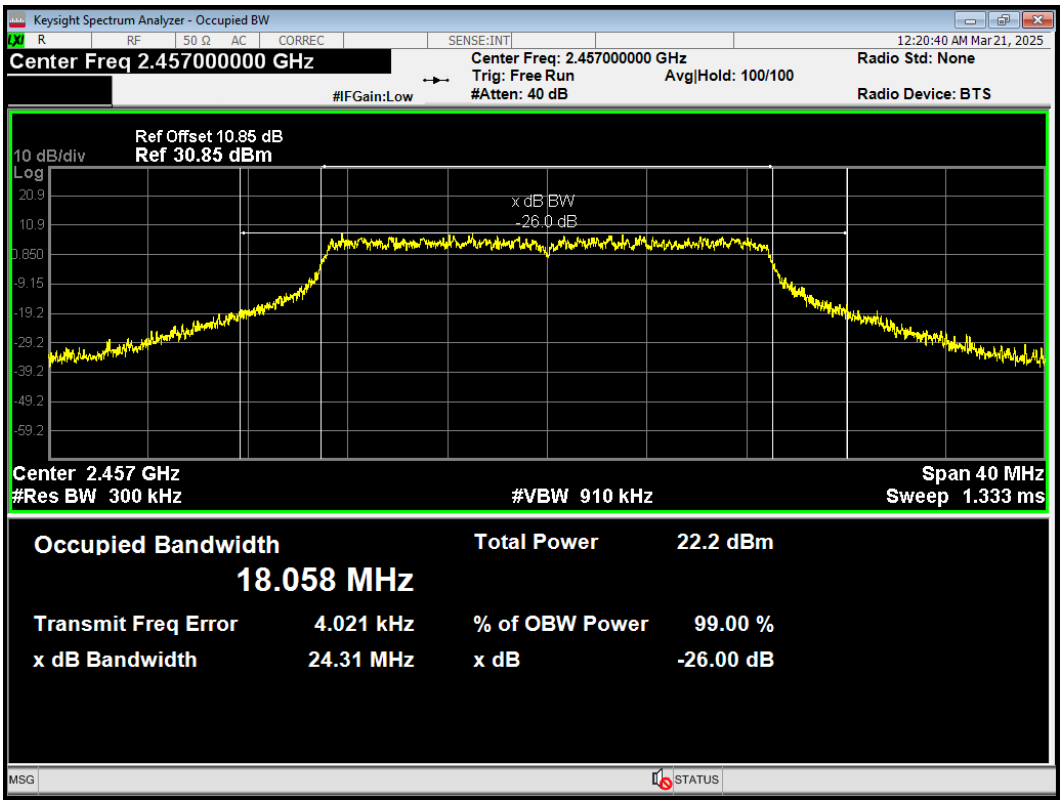

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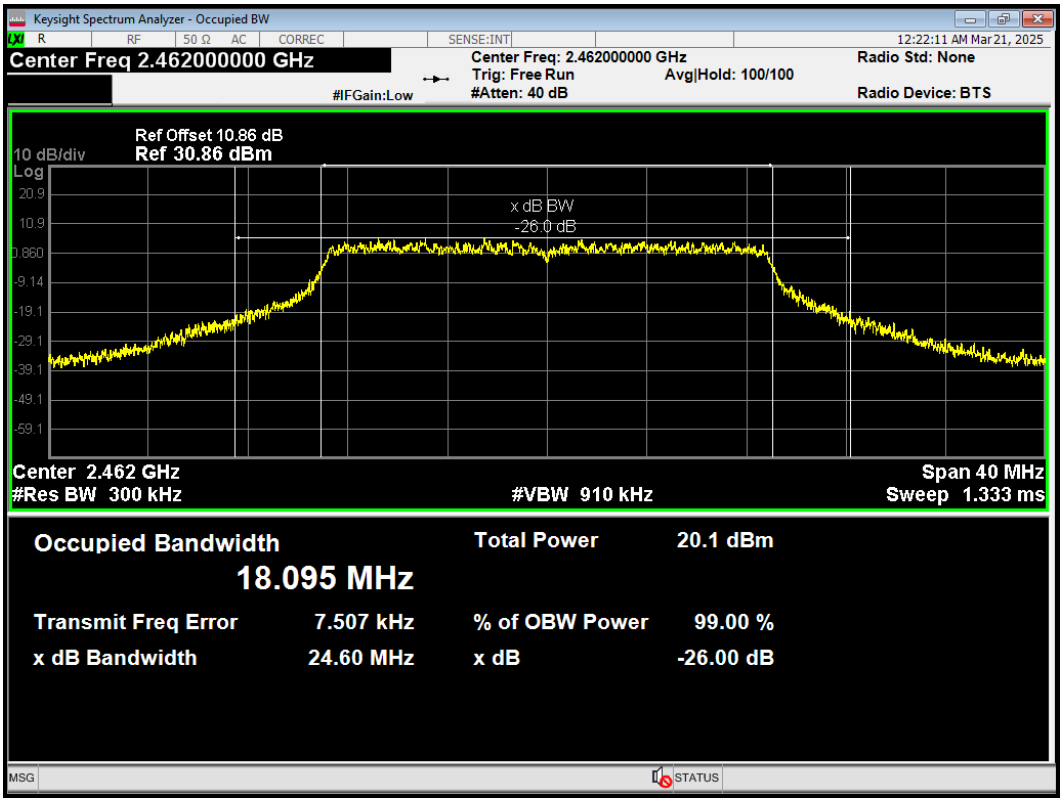
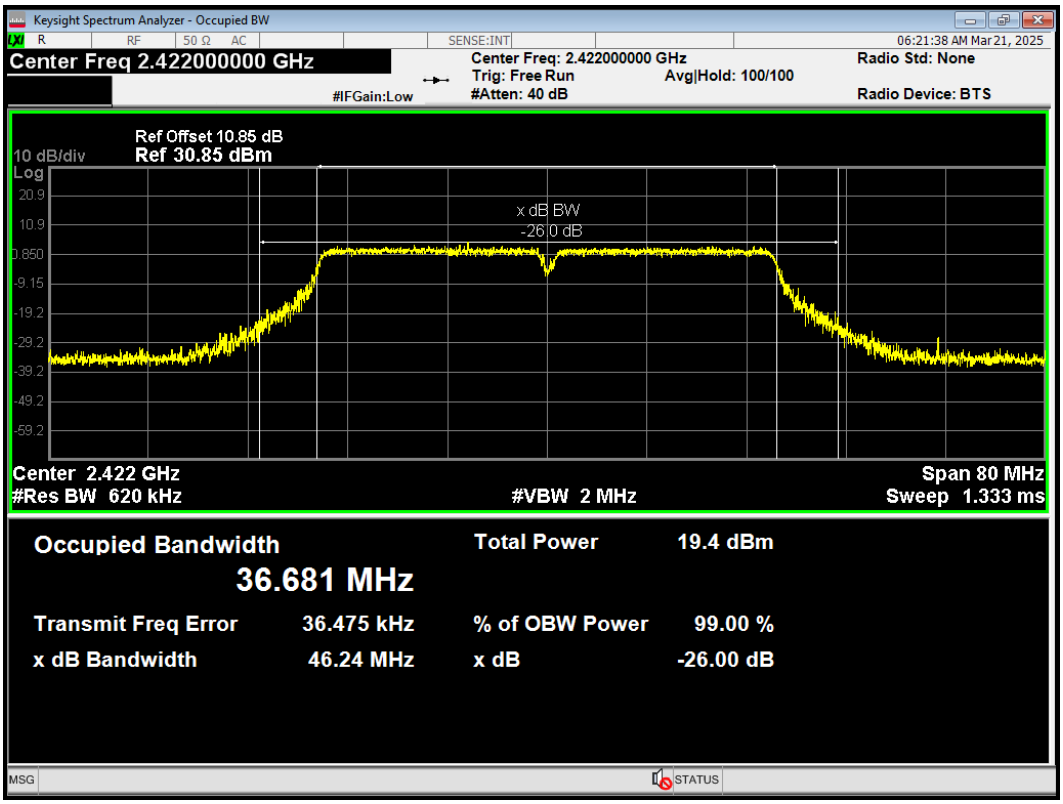
OBW 802.11n(HT20) 2462MHz



OBW 802.11n(HT40) 2422MHz



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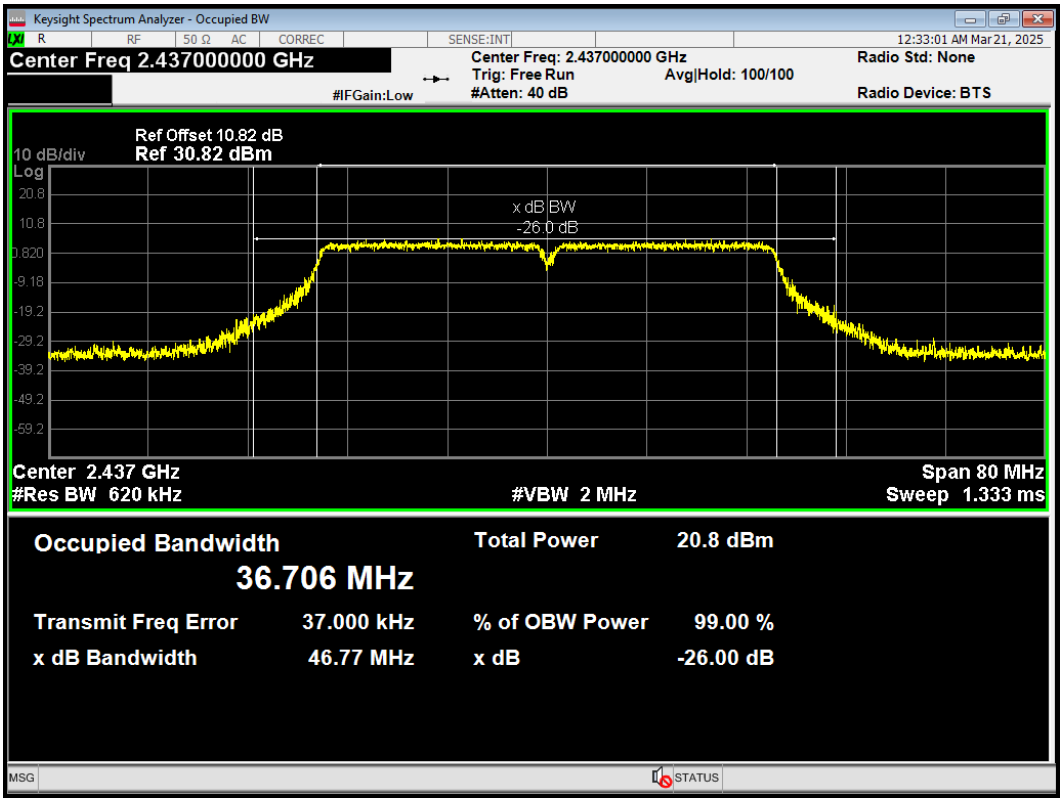
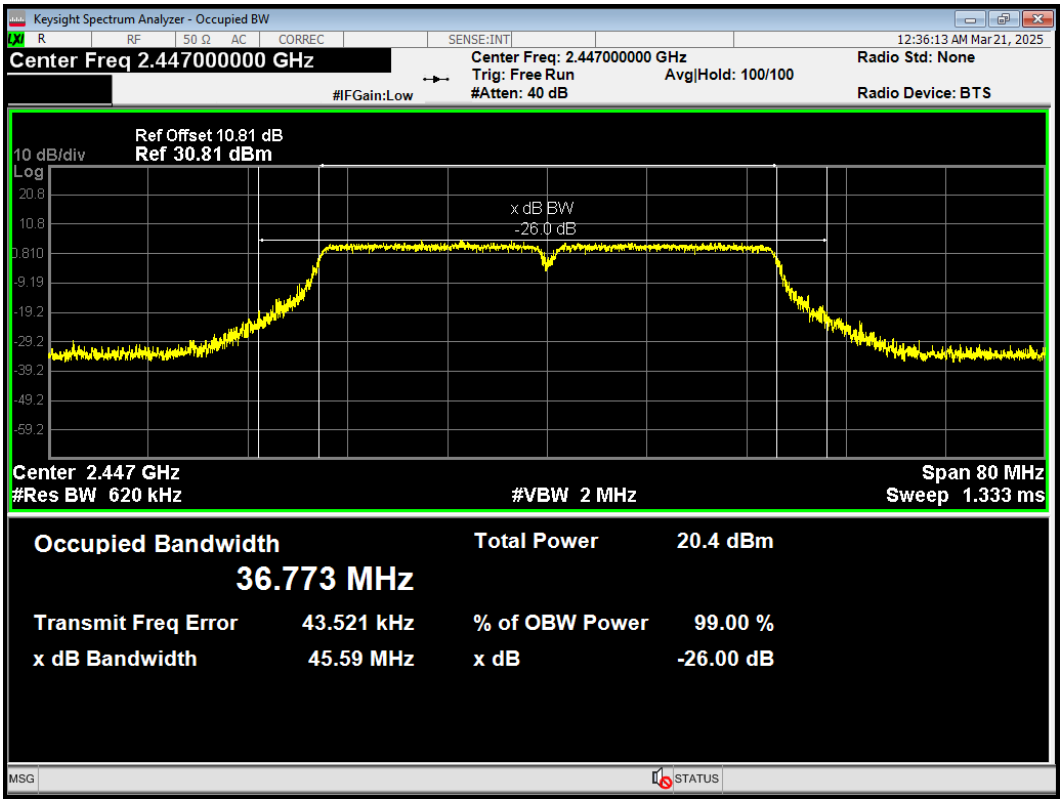
OBW 802.11n(HT40) 2437MHz



OBW 802.11n(HT40) 2447MHz



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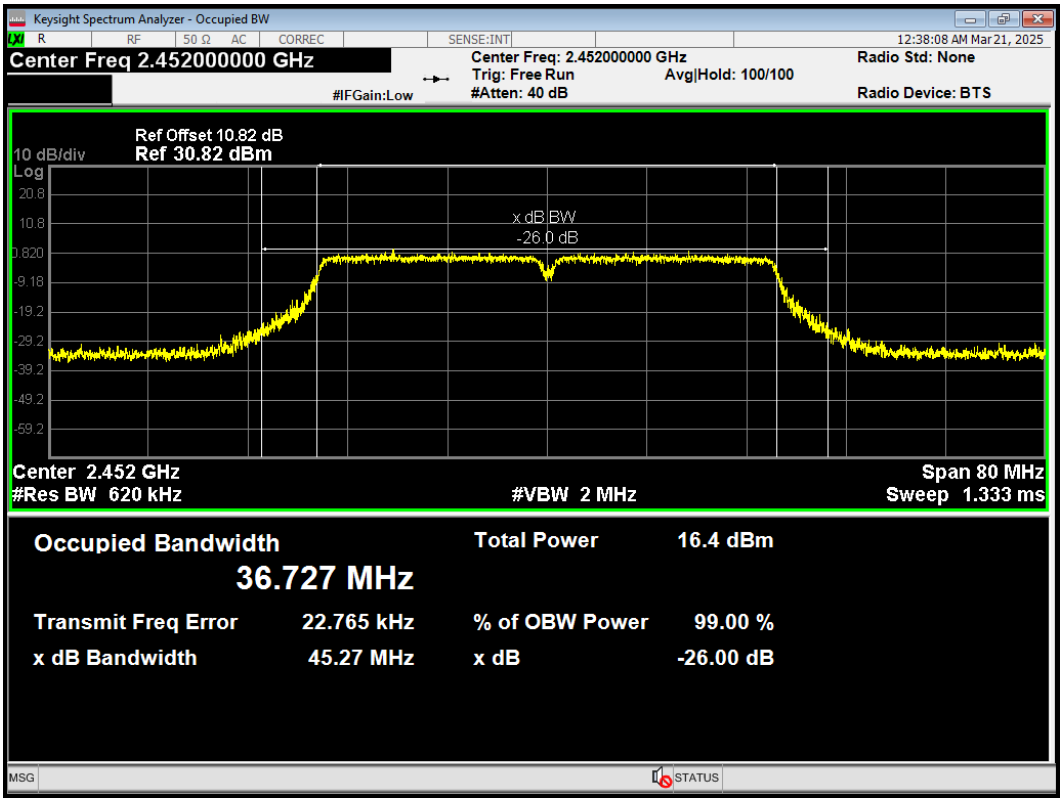
OBW 802.11n(HT40) 2452MHz



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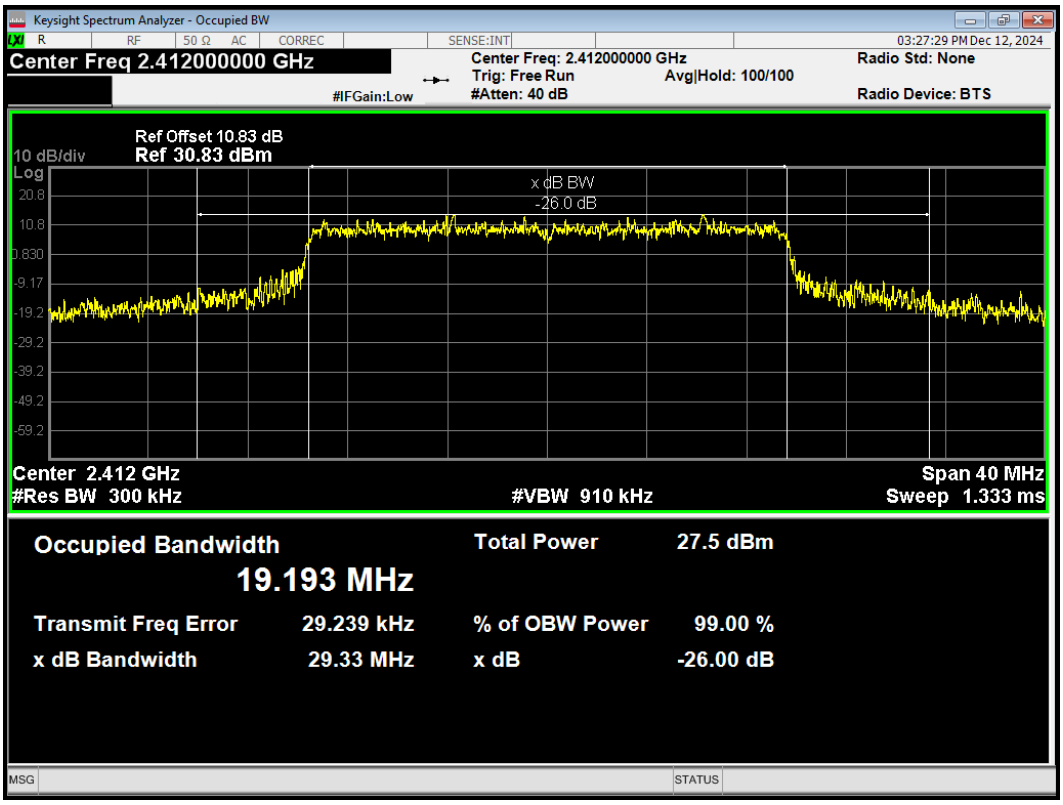
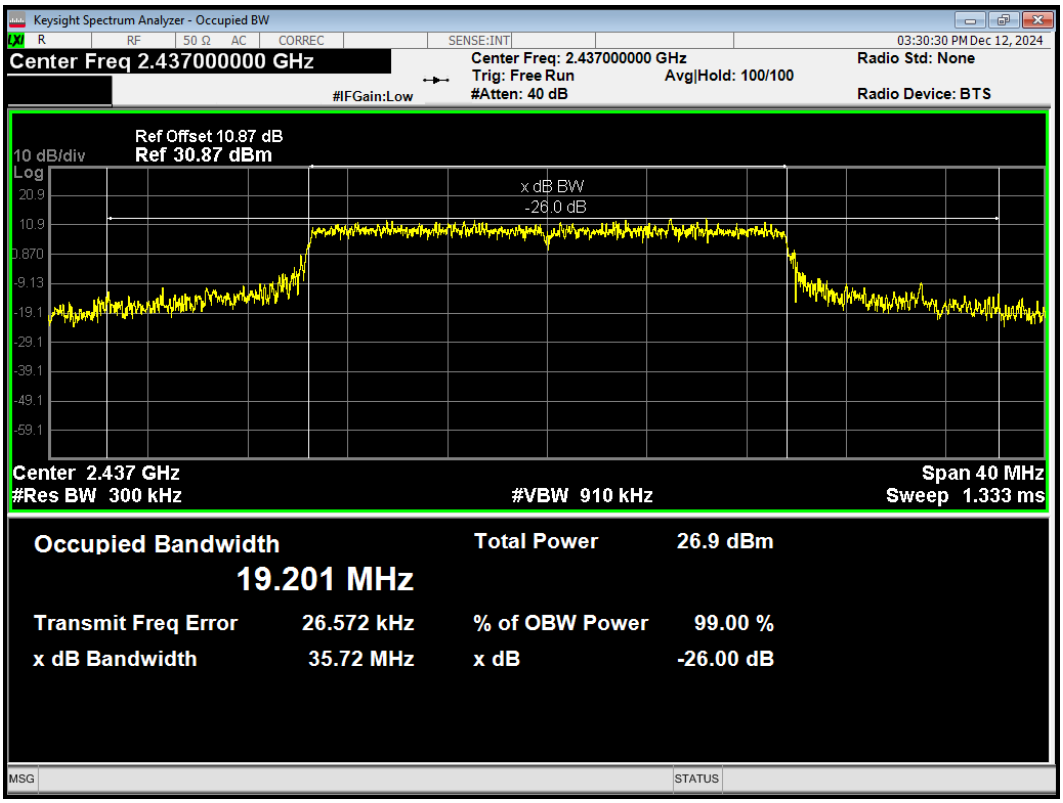
ERSU Mode

OBW 802.11ax(HE20) 242-Tones 2412MHz



OBW 802.11ax(HE20) 242-Tones 2437MHz



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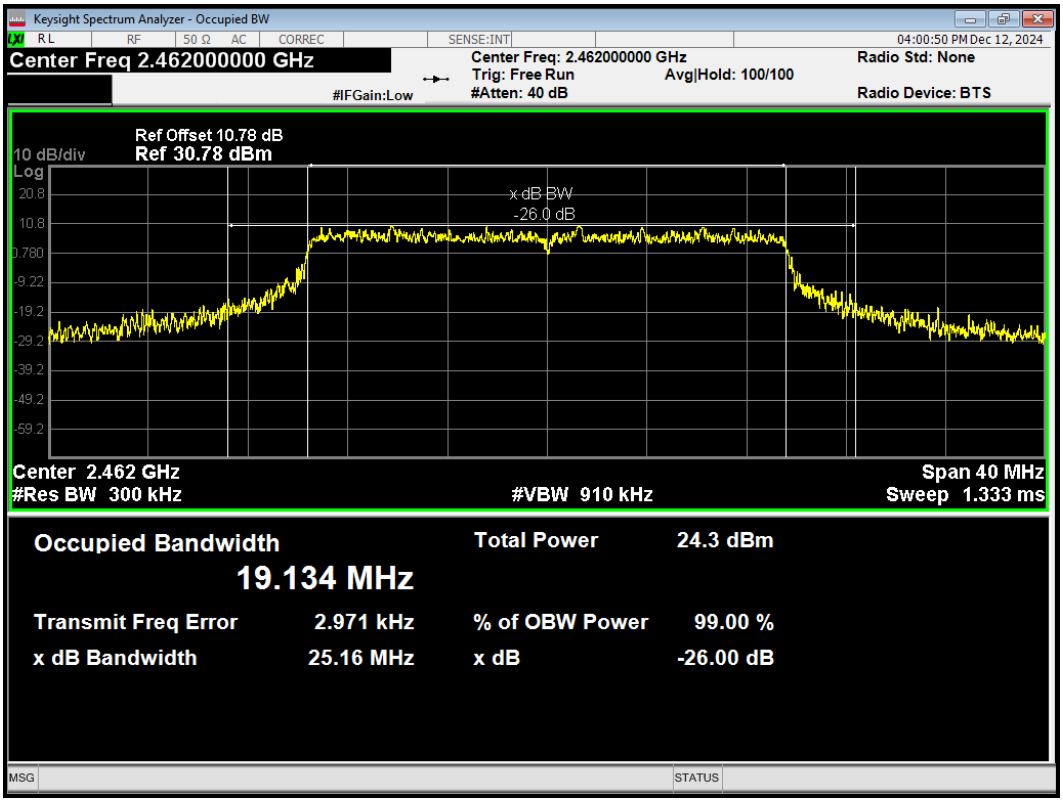
OBW 802.11ax(HE20) 242-Tones 2462MHz



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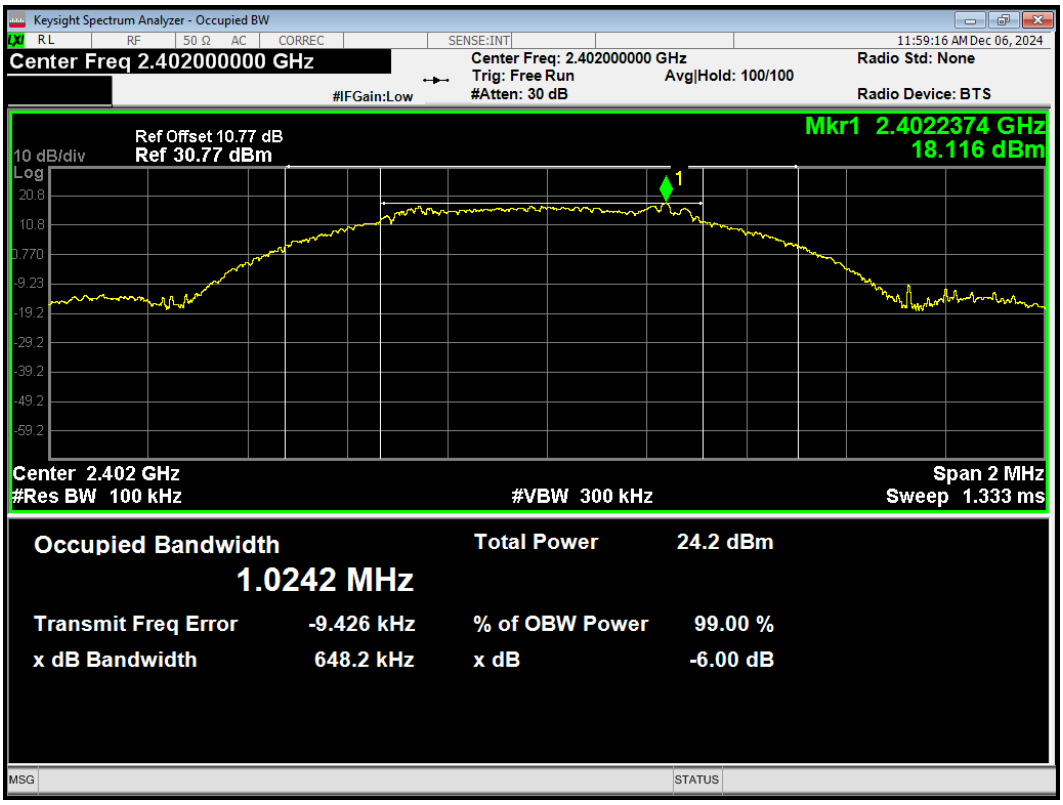
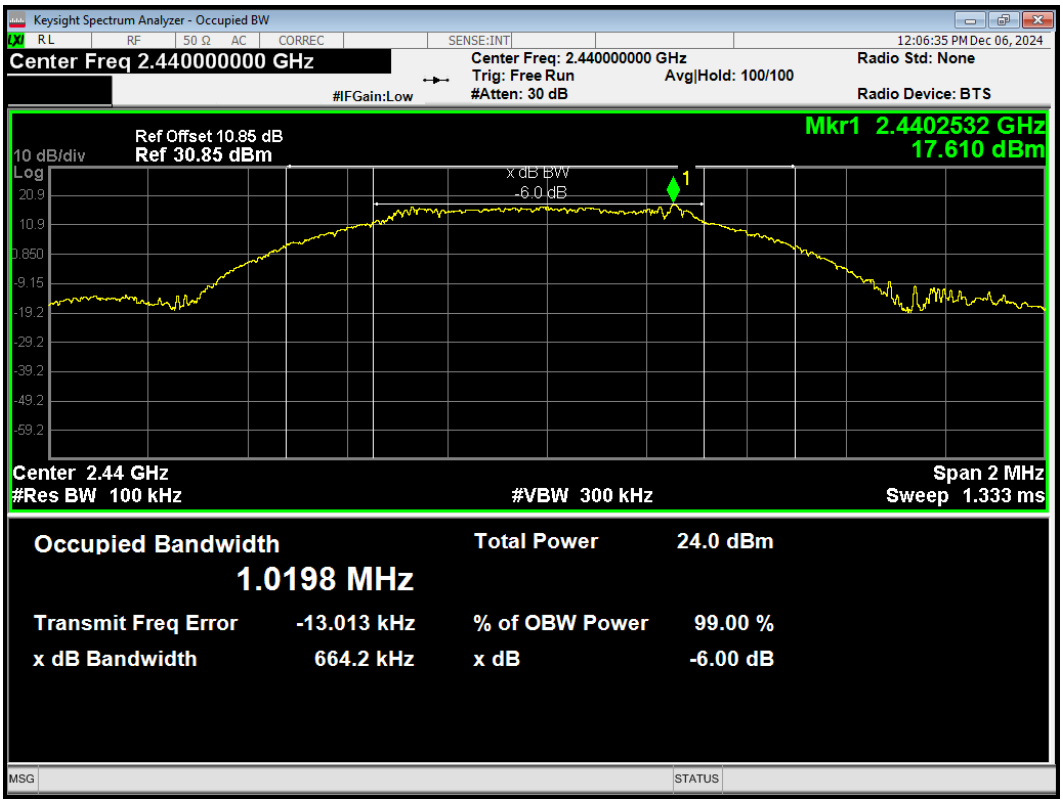
6 dB bandwidth

-6dB Bandwidth Bluetooth LE (1M) 2402MHz



-6dB Bandwidth Bluetooth LE (1M) 2440MHz



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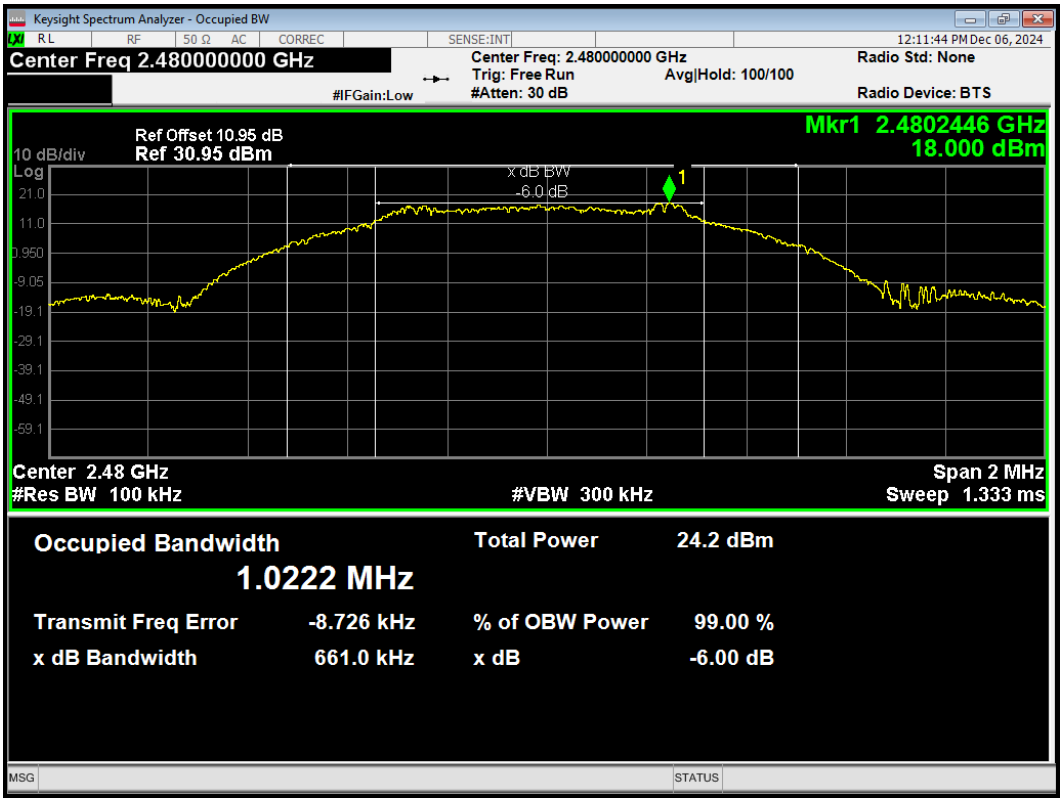
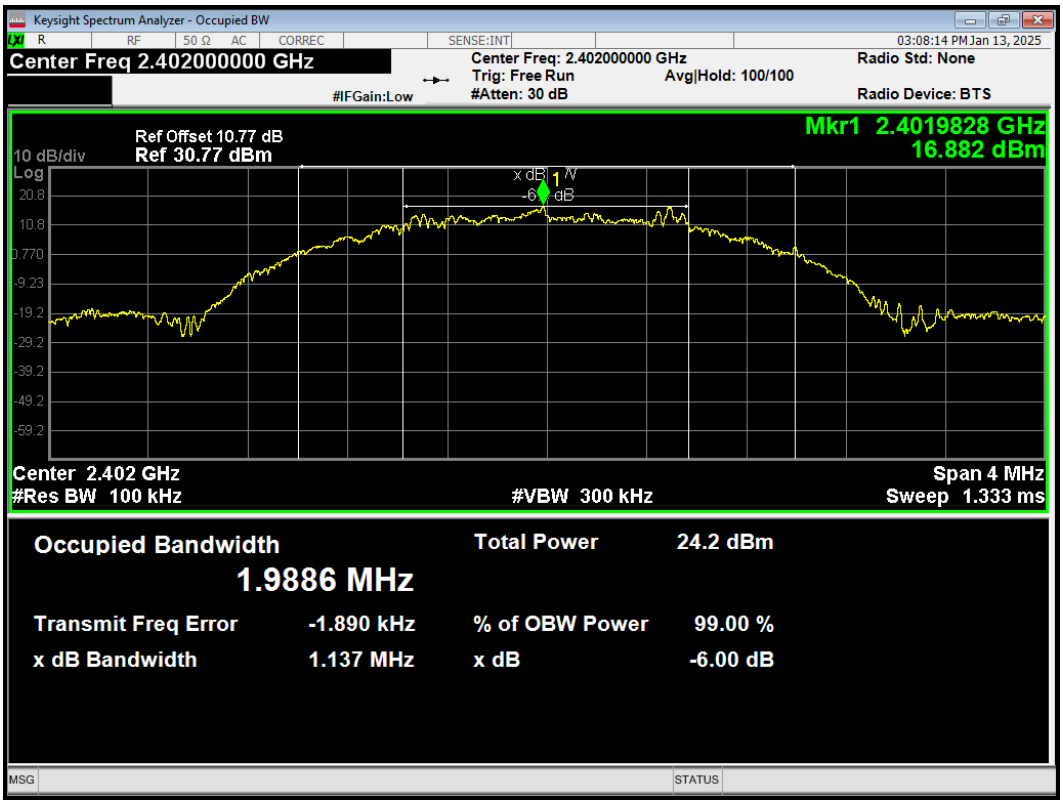
-6dB Bandwidth Bluetooth LE (1M) 2480MHz



-6dB Bandwidth Bluetooth LE (2M) 2402MHz



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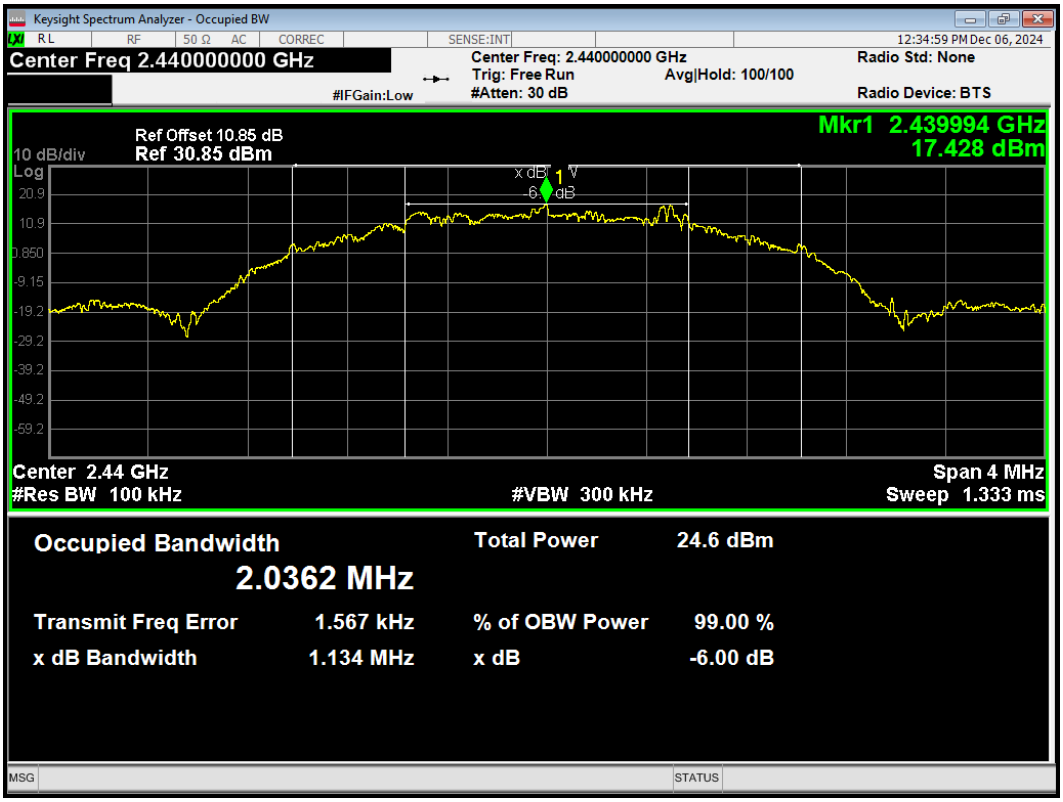
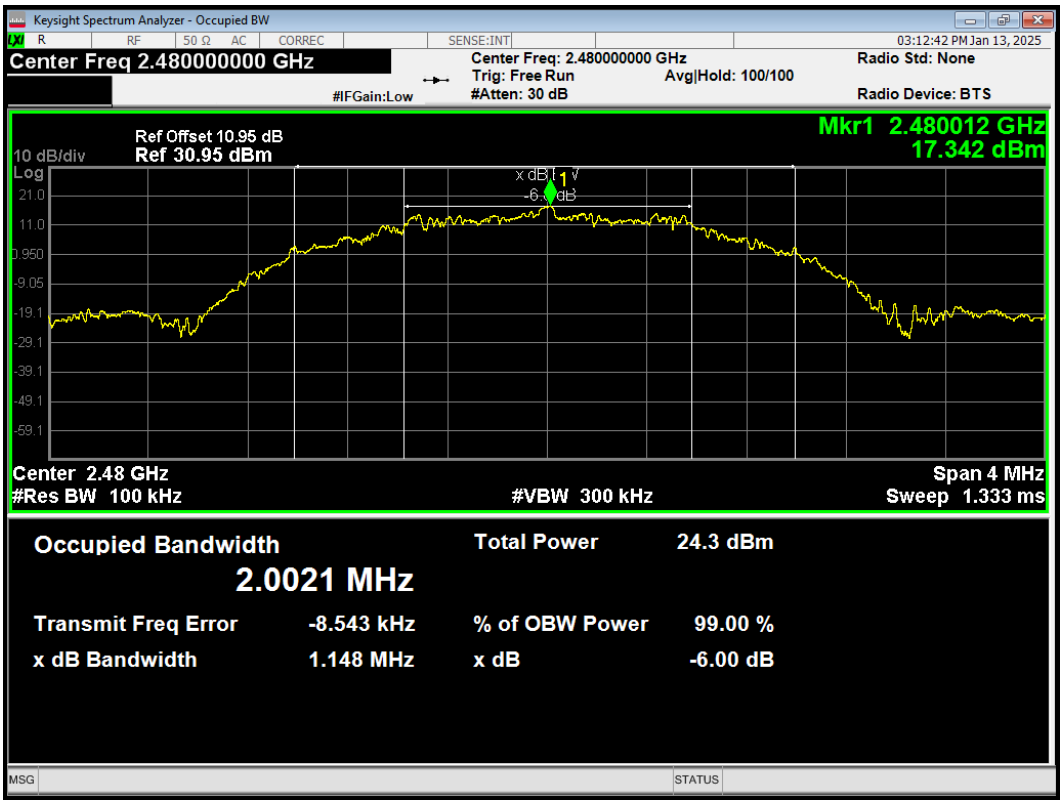
-6dB Bandwidth Bluetooth LE (2M) 2440MHz



-6dB Bandwidth Bluetooth LE (2M) 2480MHz



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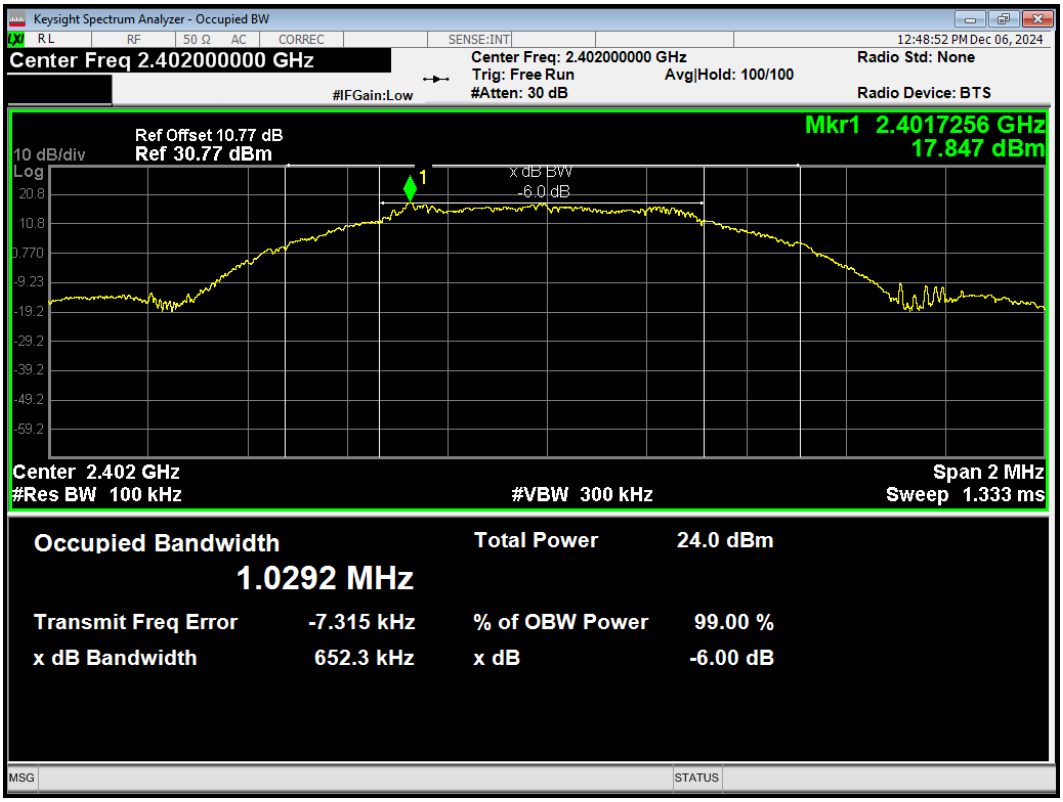
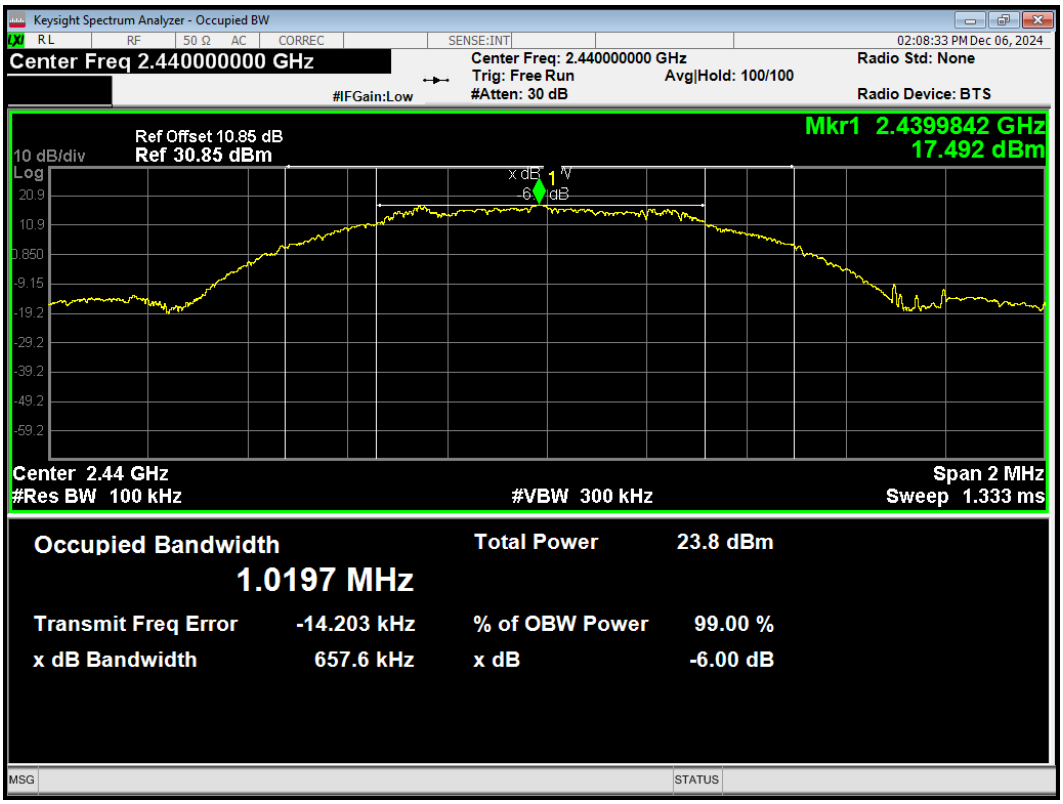
-6dB Bandwidth Bluetooth LE (S=2) 2402MHz



-6dB Bandwidth Bluetooth LE (S=2) 2440MHz



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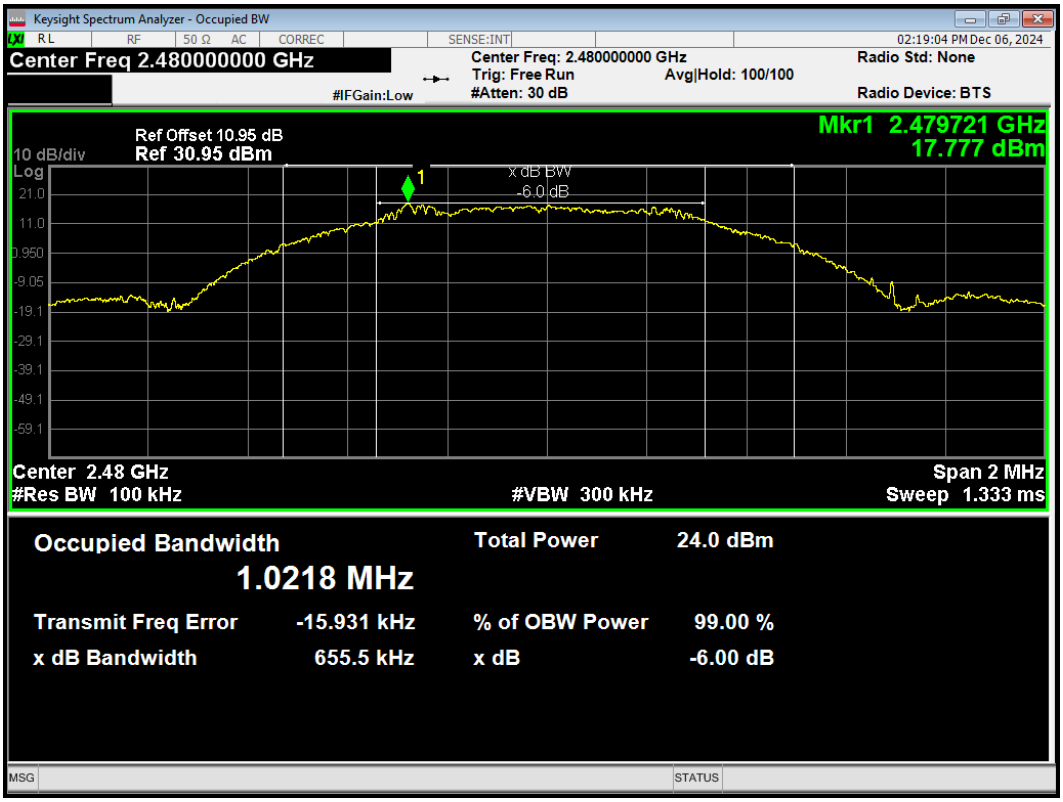
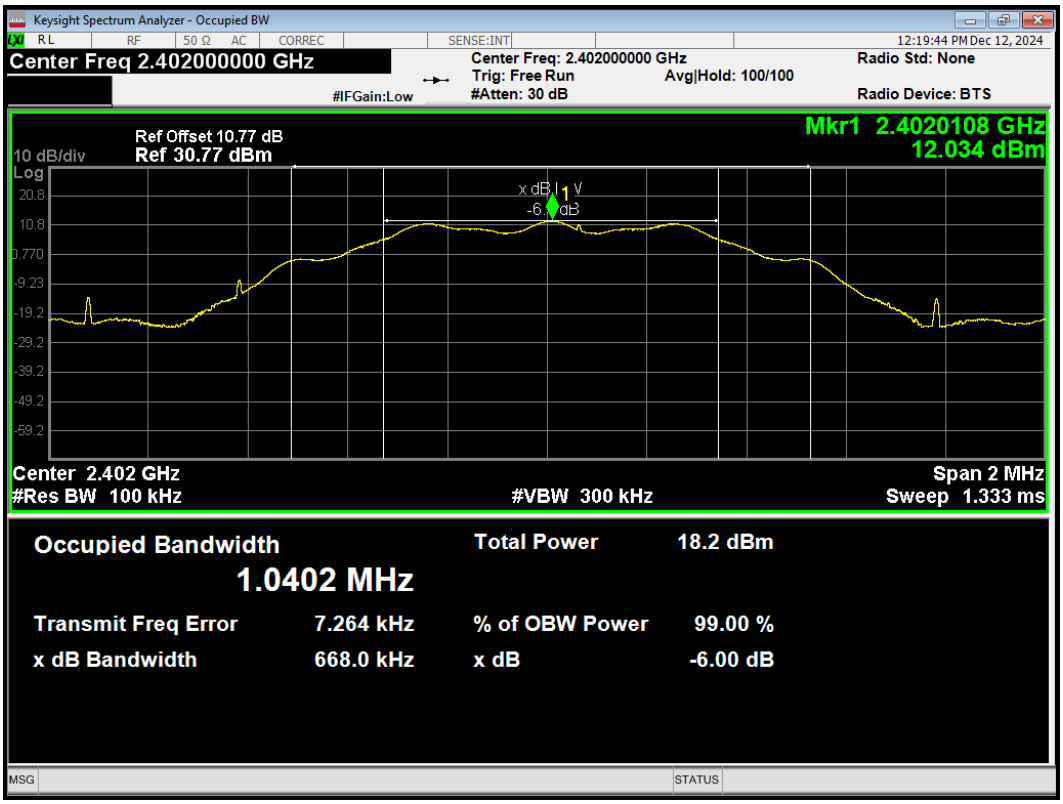
-6dB Bandwidth Bluetooth LE (S=2) 2480MHz



-6dB Bandwidth Bluetooth LE (S=8) 2402MHz



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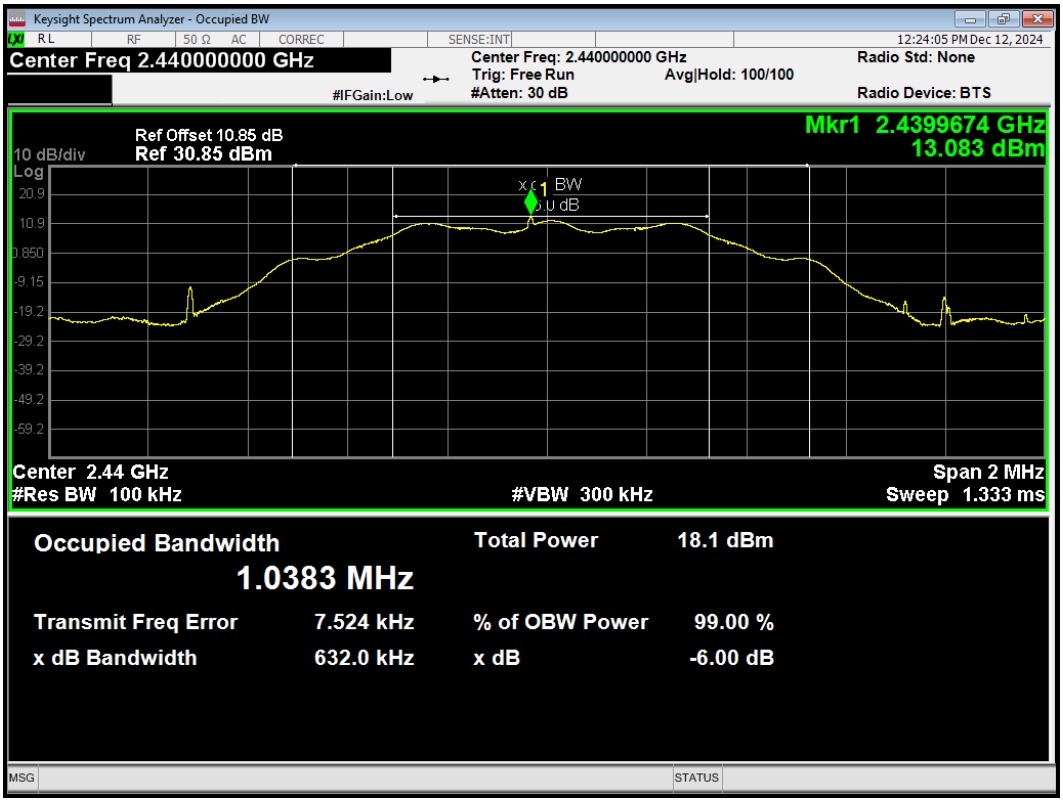
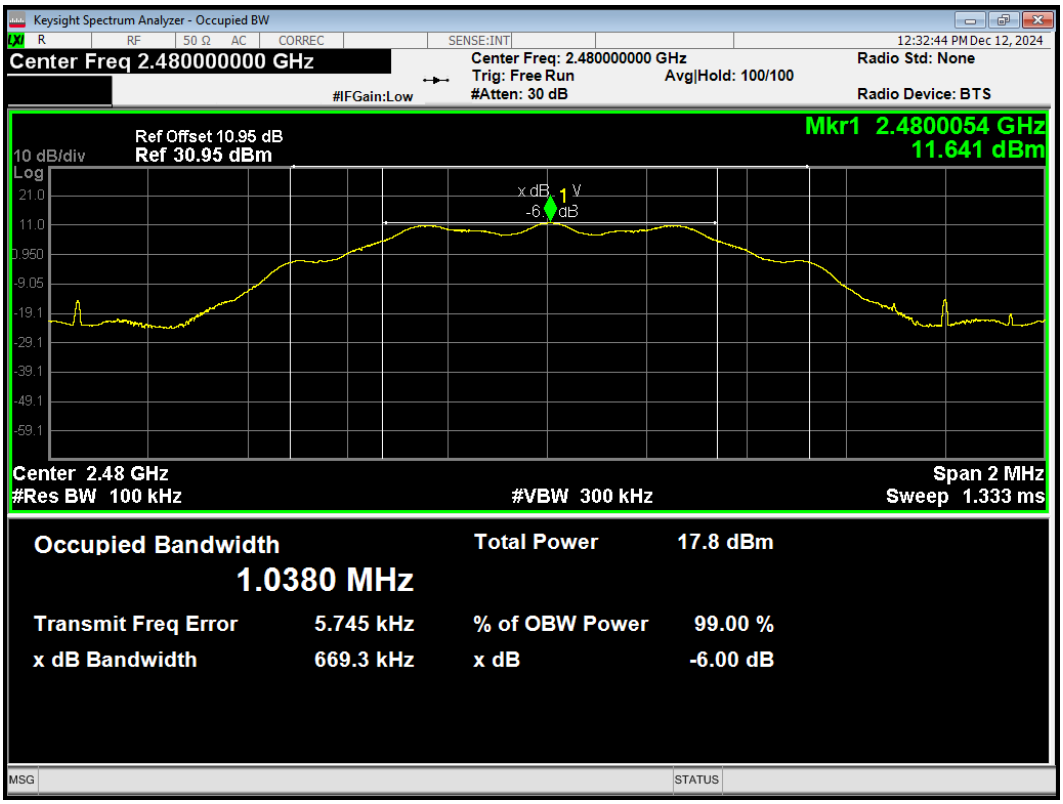
-6dB Bandwidth Bluetooth LE (S=8) 2440MHz



-6dB Bandwidth Bluetooth LE (S=8) 2480MHz



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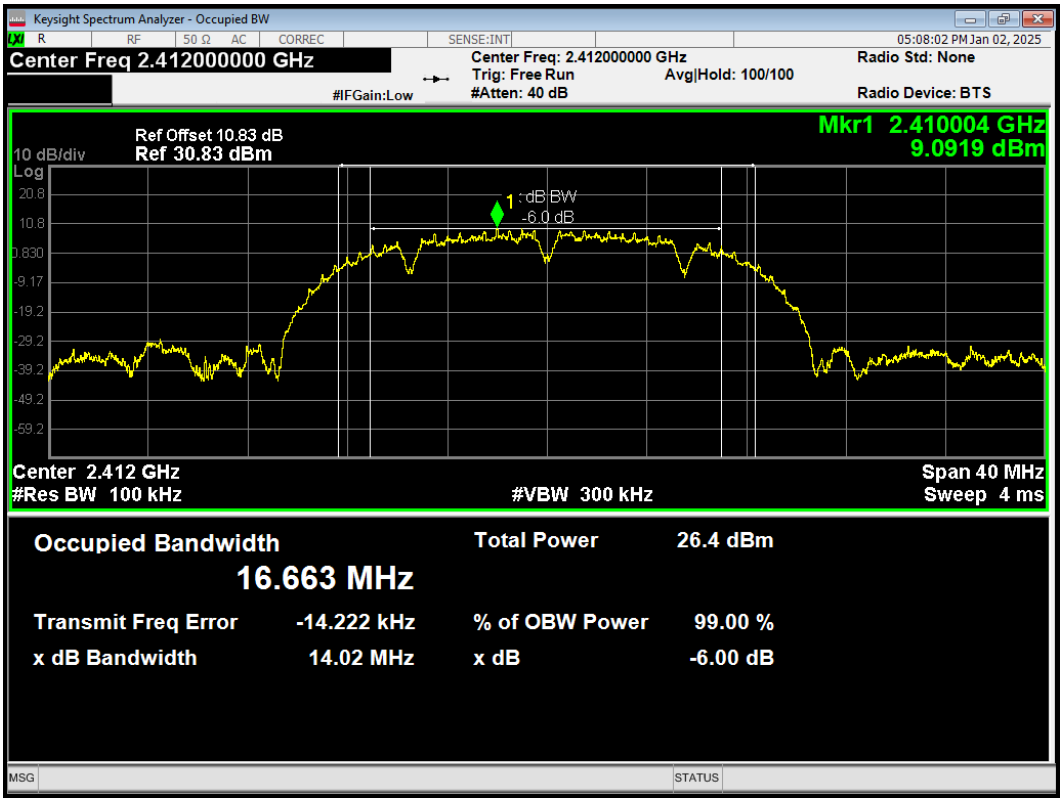
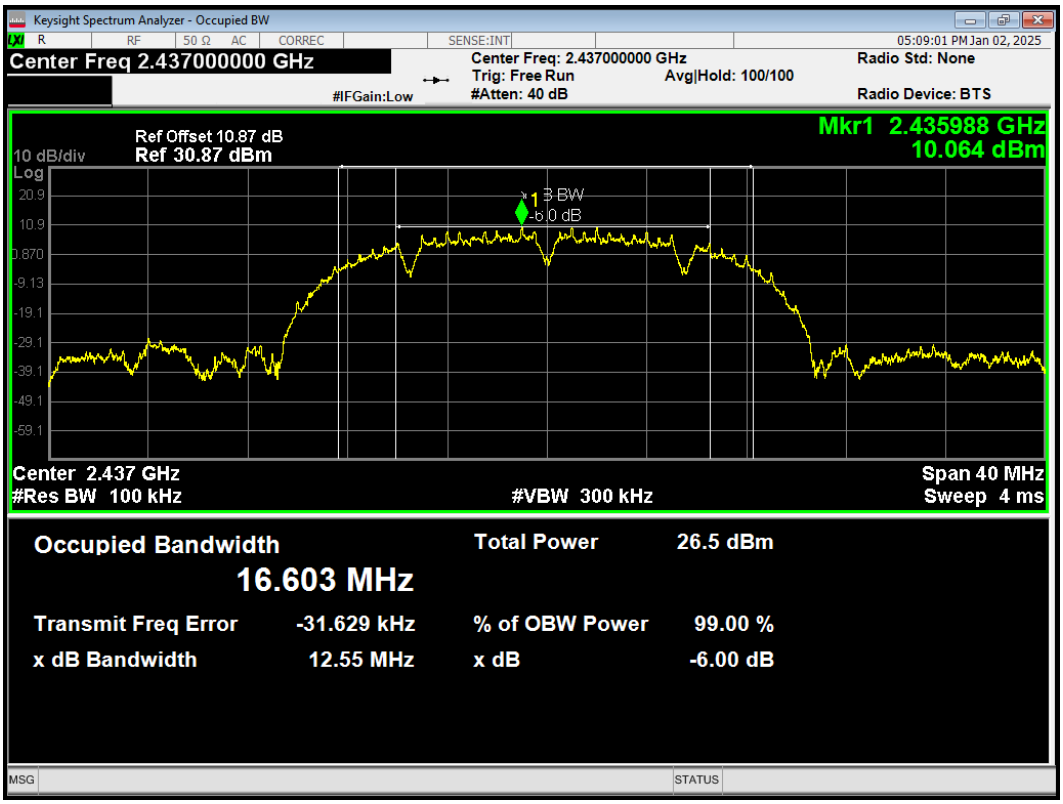
-6dB Bandwidth 802.11b 2412MHz



-6dB Bandwidth 802.11b 2437MHz



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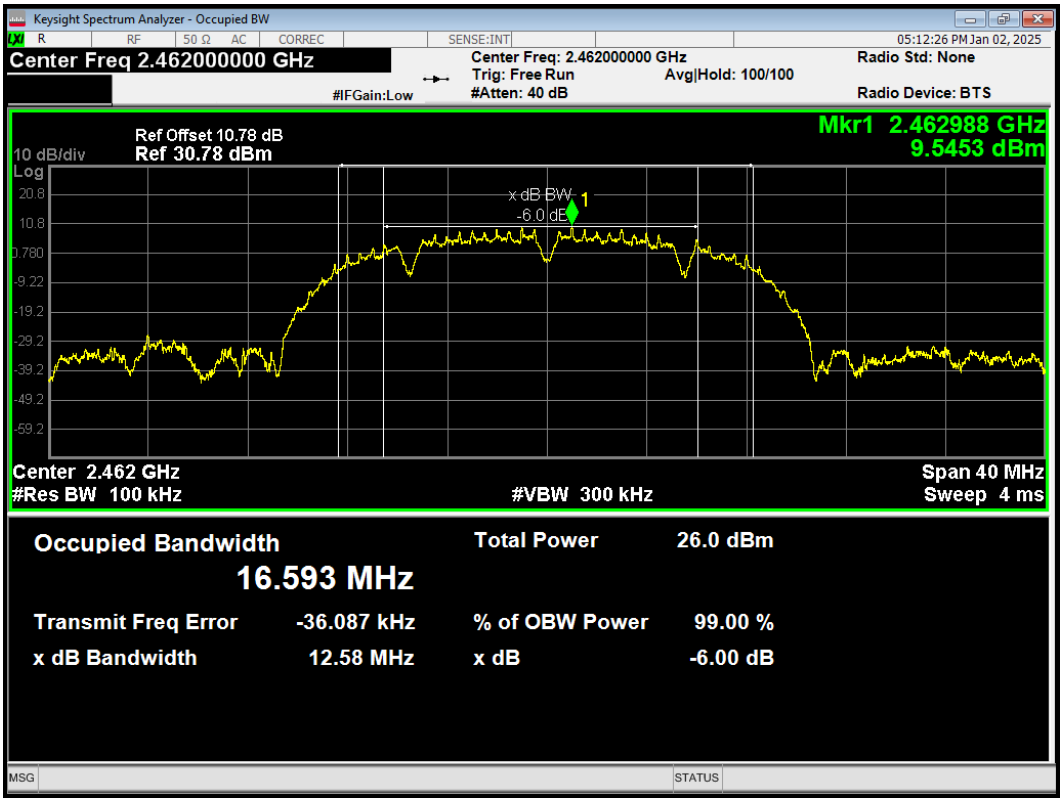
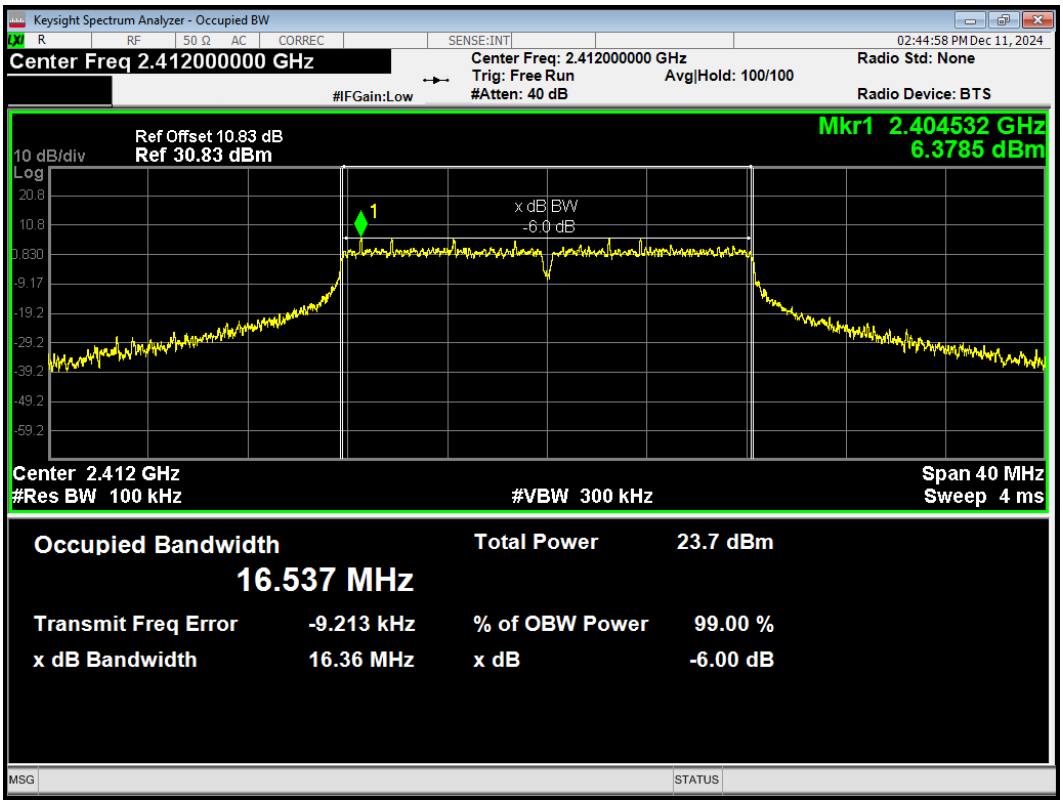
-6dB Bandwidth 802.11b 2462MHz



-6dB Bandwidth 802.11g 2412MHz



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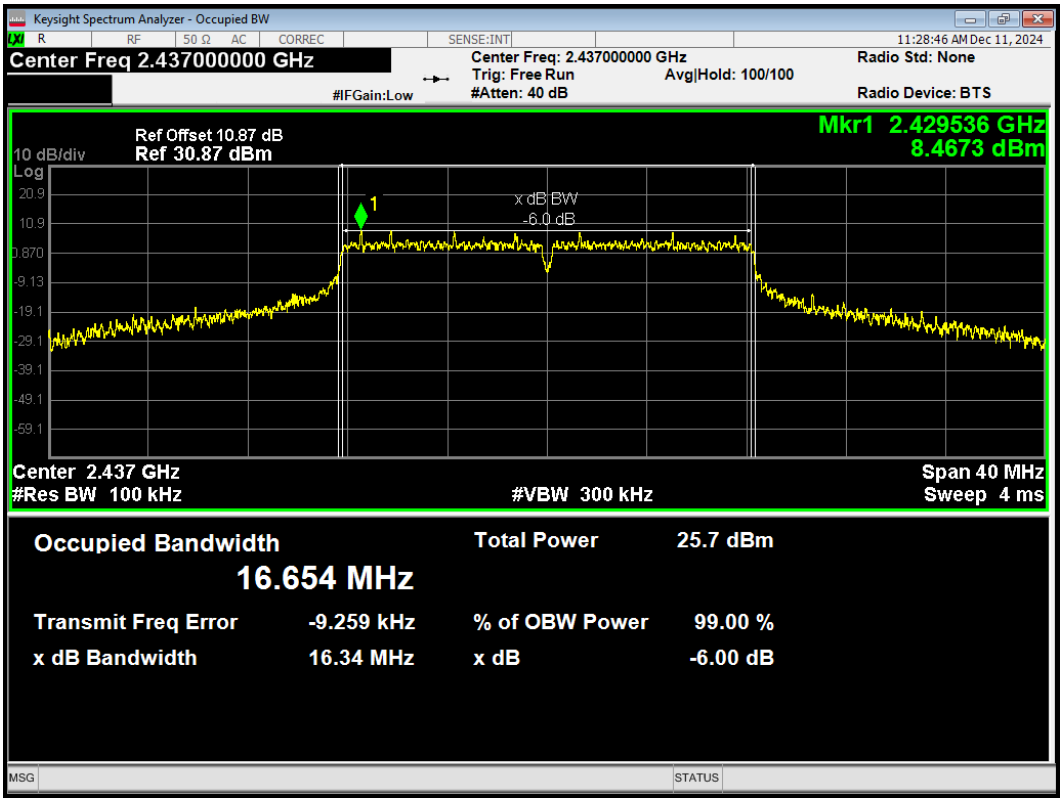
-6dB Bandwidth 802.11g 2437MHz



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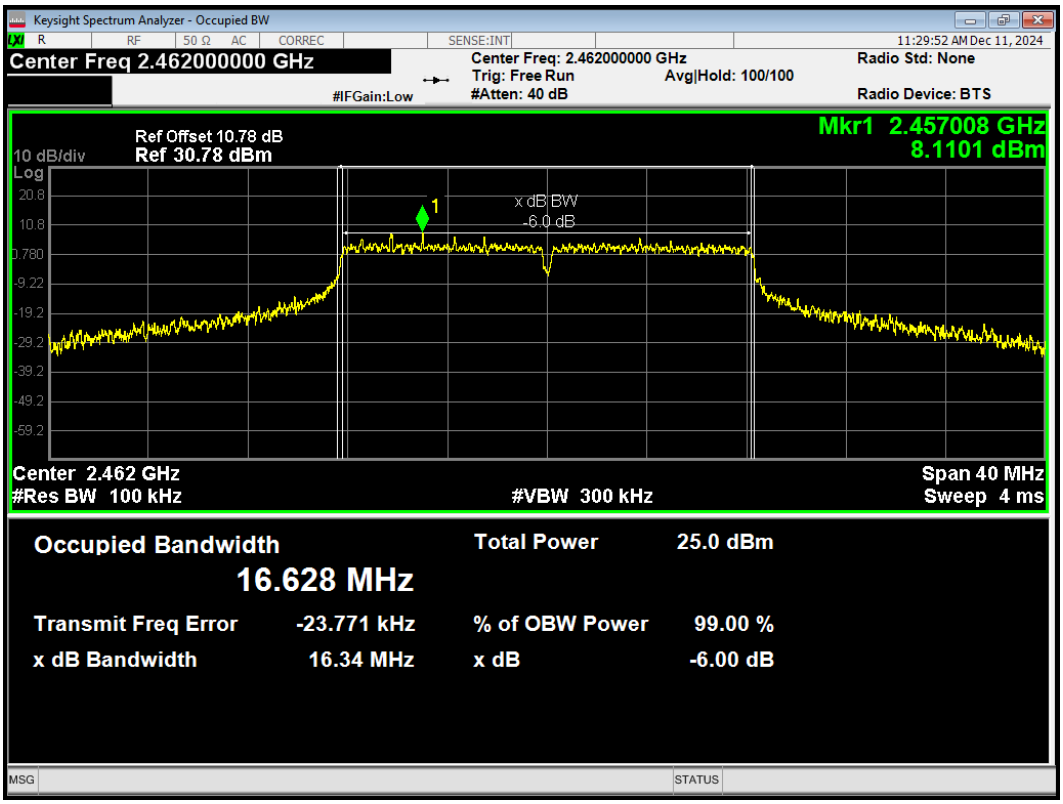

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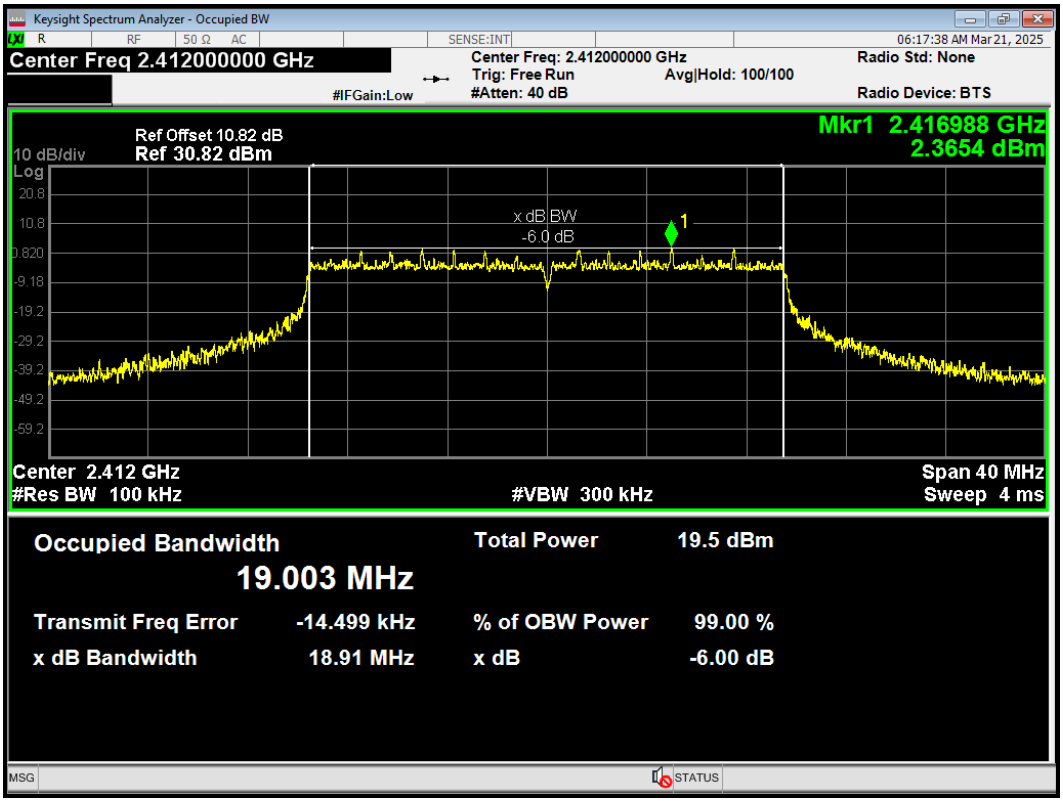
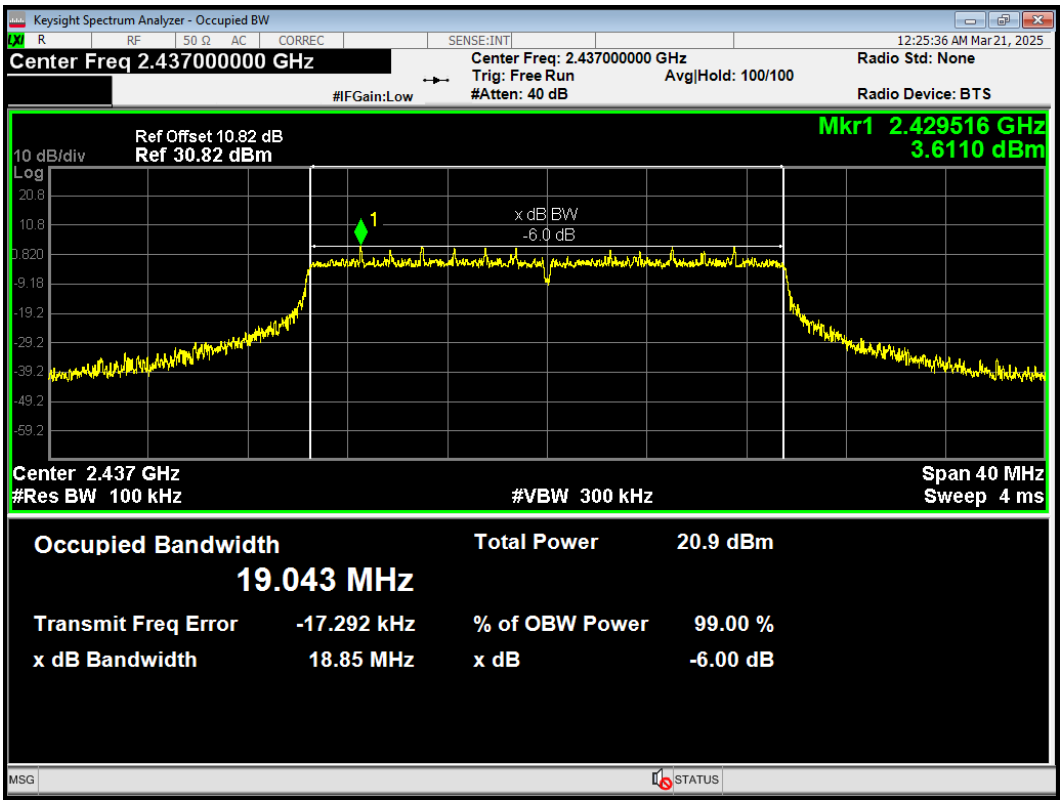
-6dB Bandwidth 802.11ax(HE20) 2412MHz



-6dB Bandwidth 802.11ax(HE20) 2437MHz



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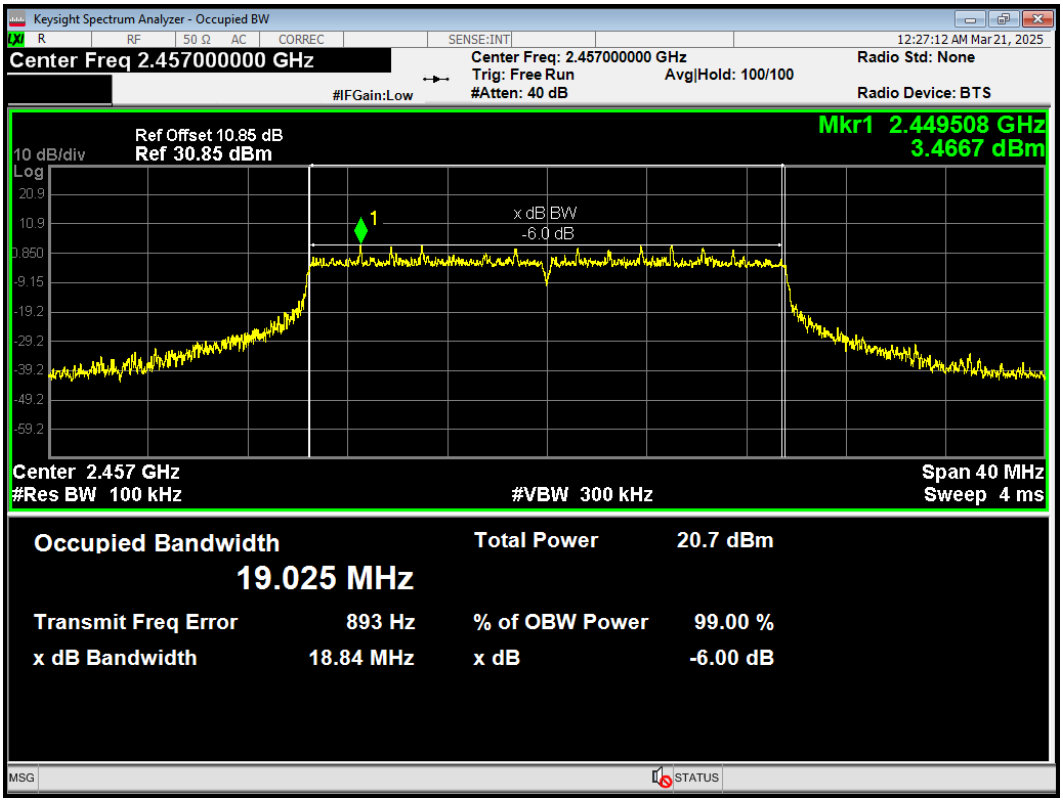
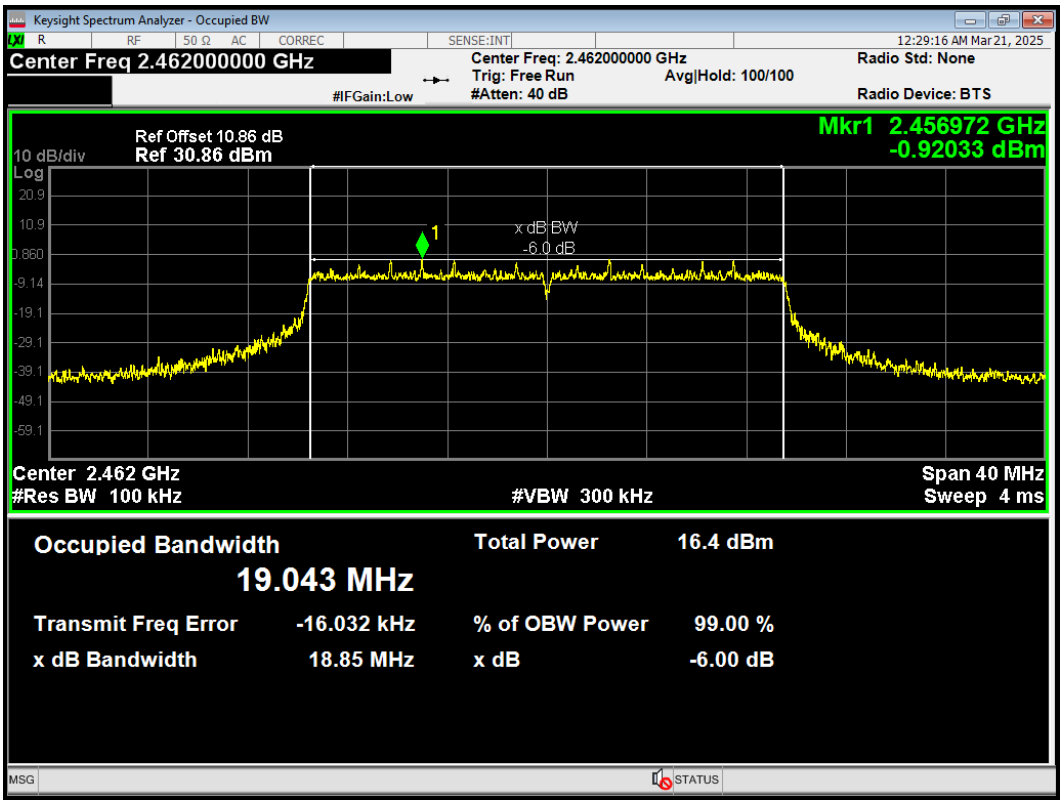
-6dB Bandwidth 802.11ax(HE20) 2457MHz



-6dB Bandwidth 802.11ax(HE20) 2462MHz



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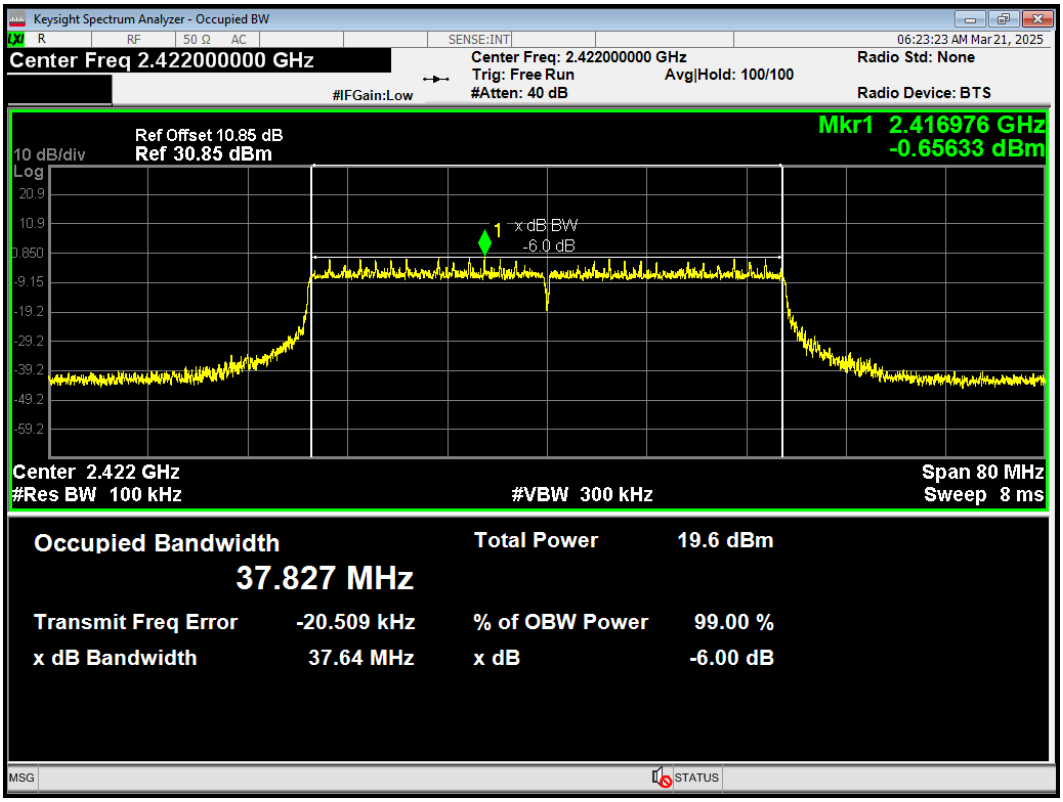
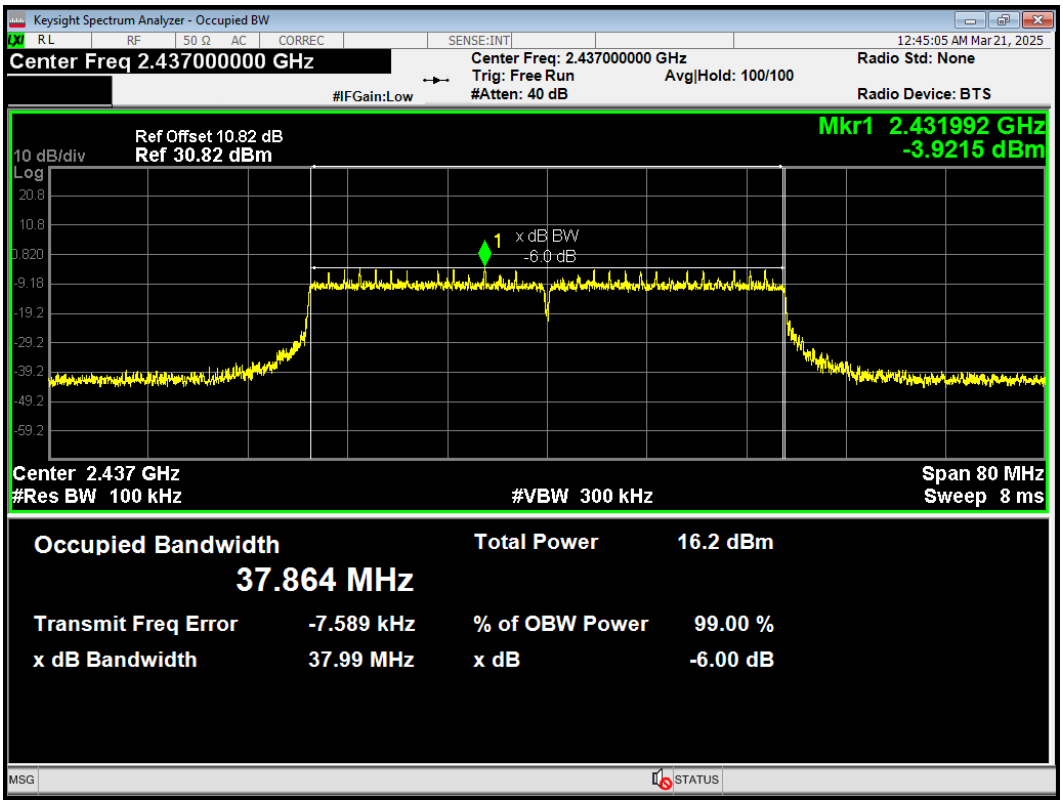
-6dB Bandwidth 802.11ax(HE40) 2422MHz



-6dB Bandwidth 802.11ax(HE40) 2437MHz



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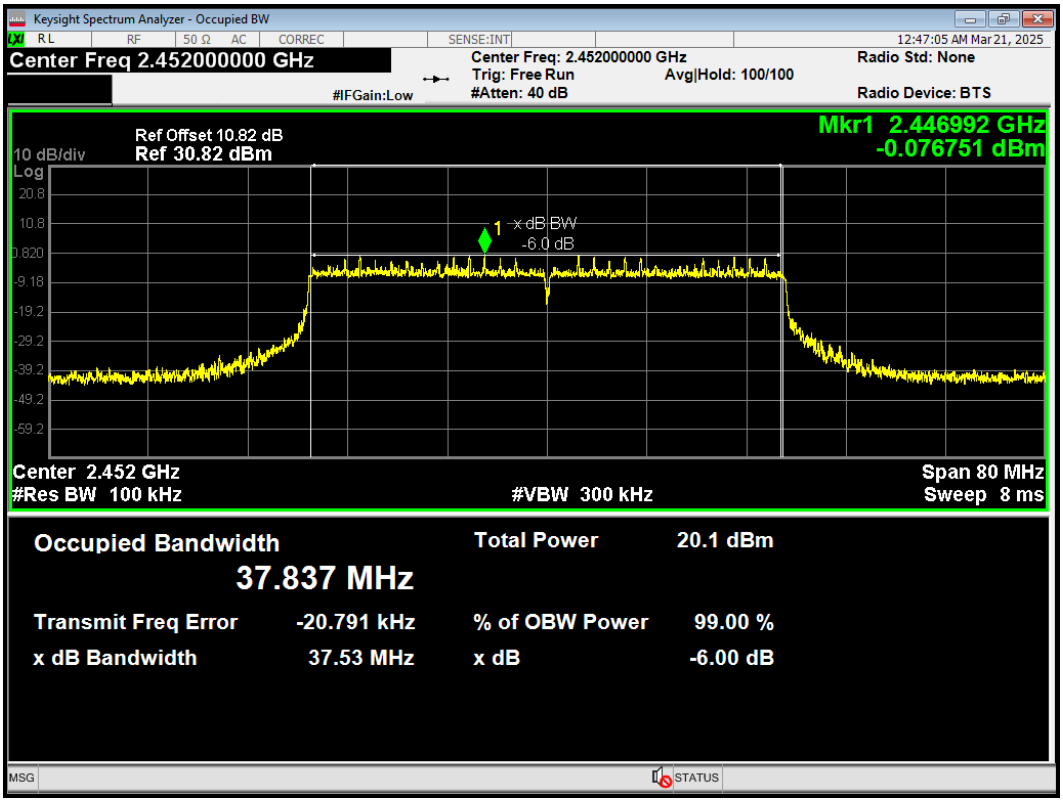
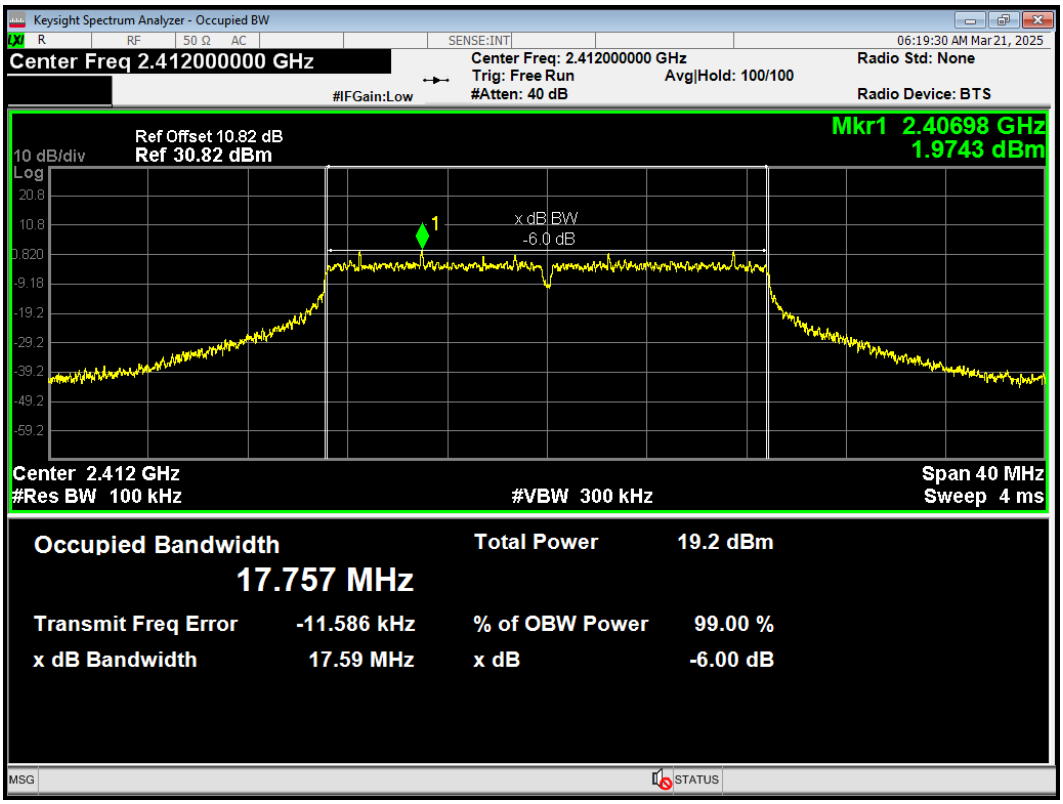
-6dB Bandwidth 802.11ax(HE40) 2452MHz



-6dB Bandwidth 802.11n(HT20) 2412MHz



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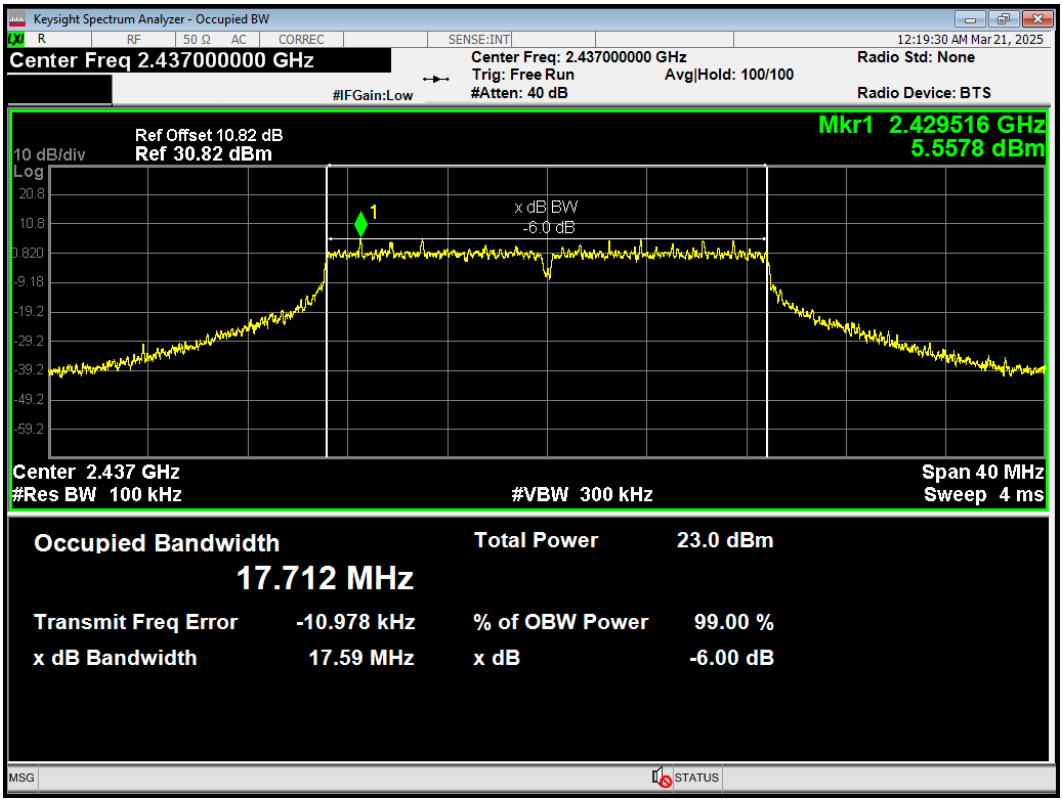
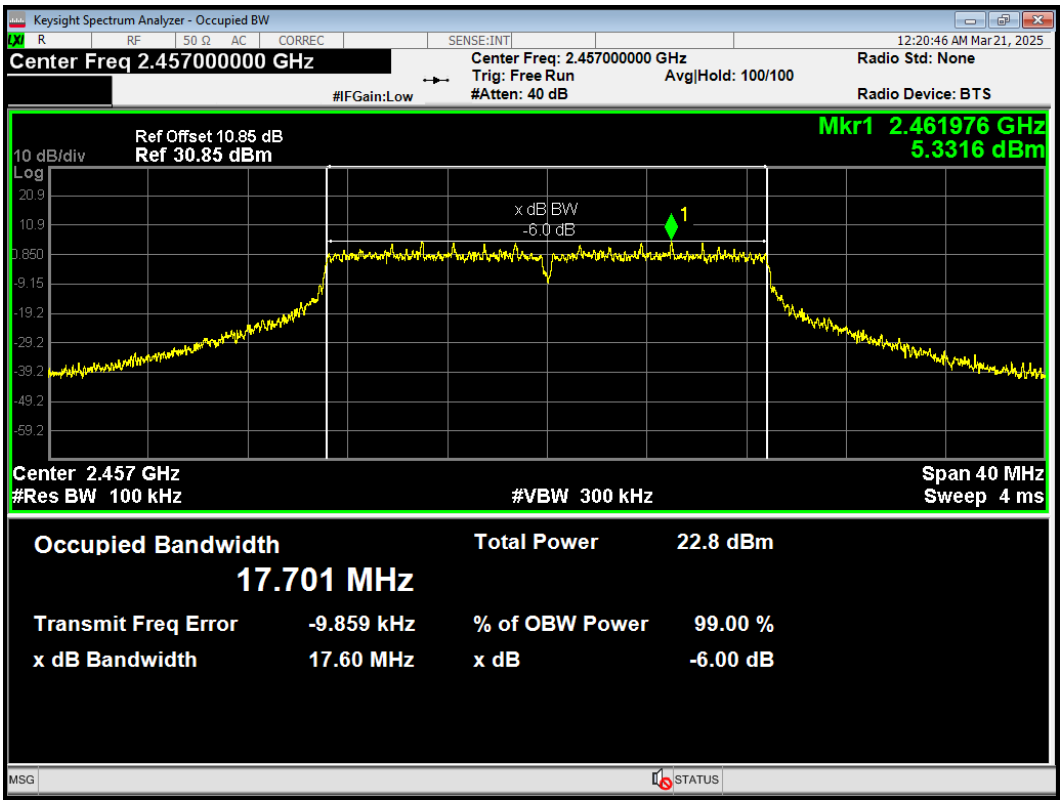
-6dB Bandwidth 802.11n(HT20) 2437MHz



-6dB Bandwidth 802.11n(HT20) 2457MHz



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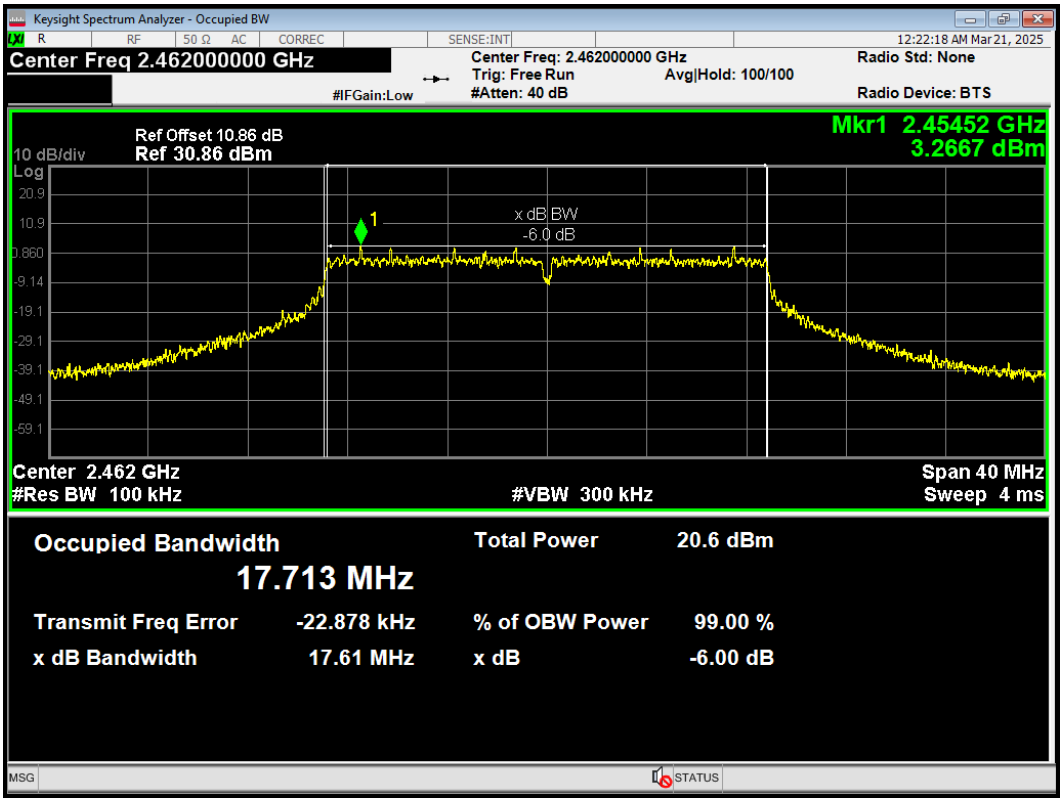
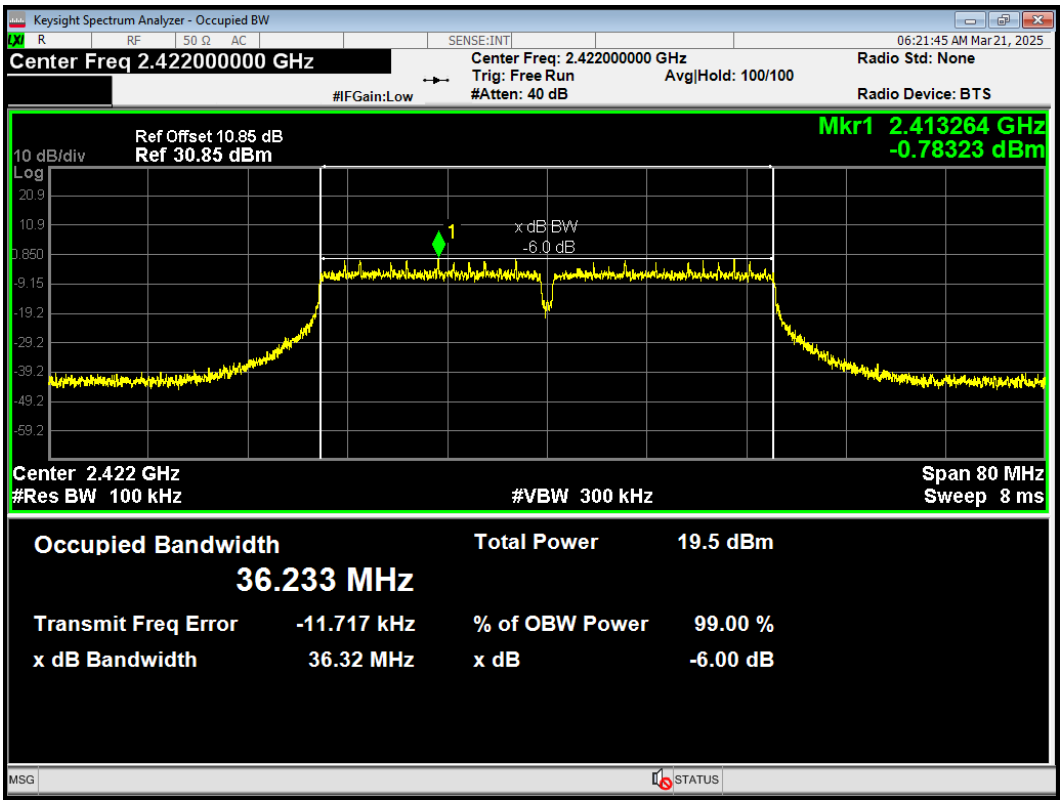
-6dB Bandwidth 802.11n(HT20) 2462MHz



-6dB Bandwidth 802.11n(HT40) 2422MHz



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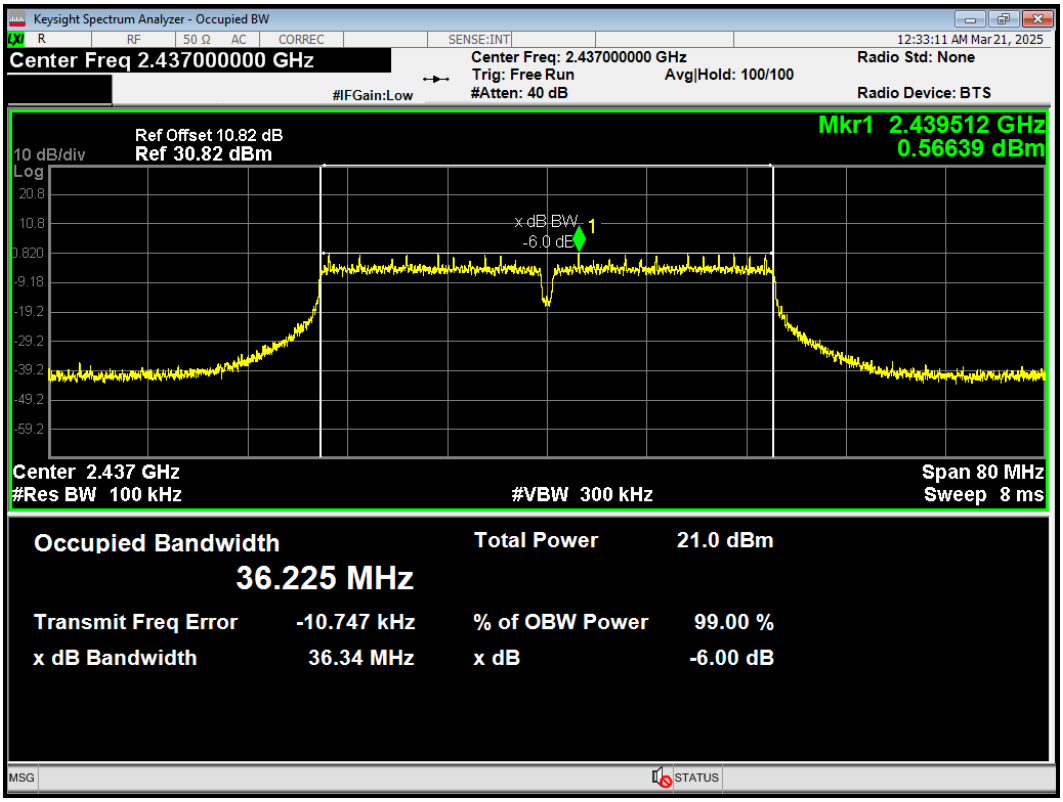
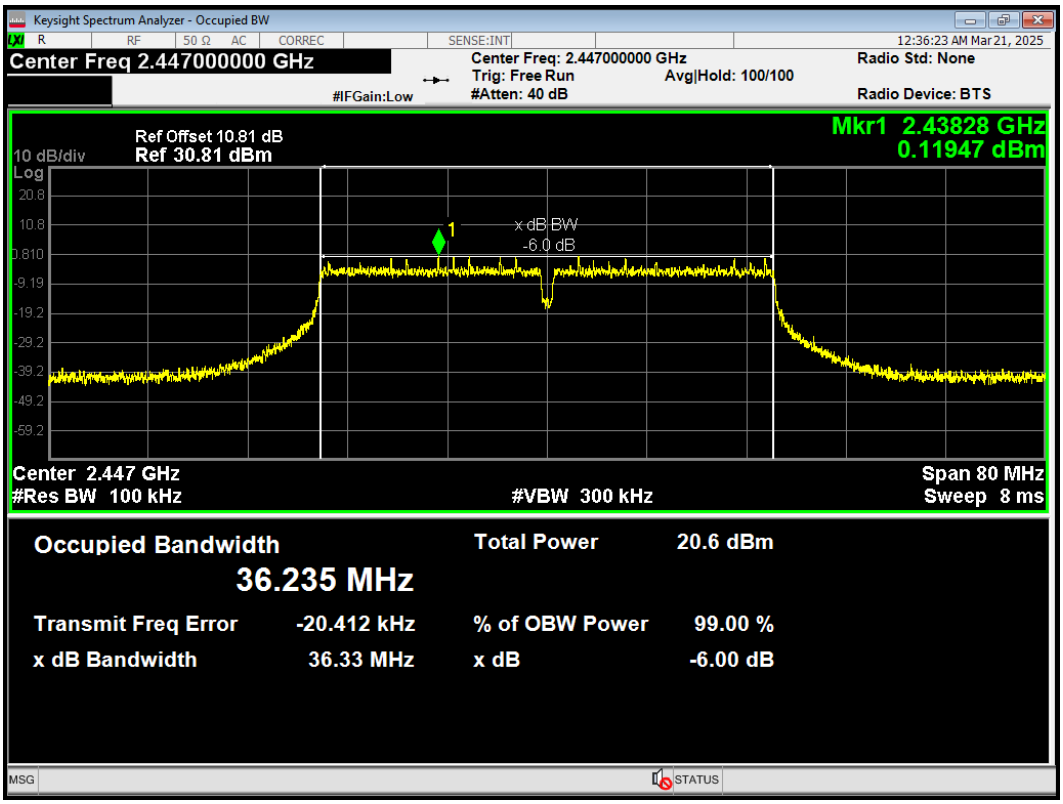
-6dB Bandwidth 802.11n(HT40) 2437MHz



-6dB Bandwidth 802.11n(HT40) 2447MHz



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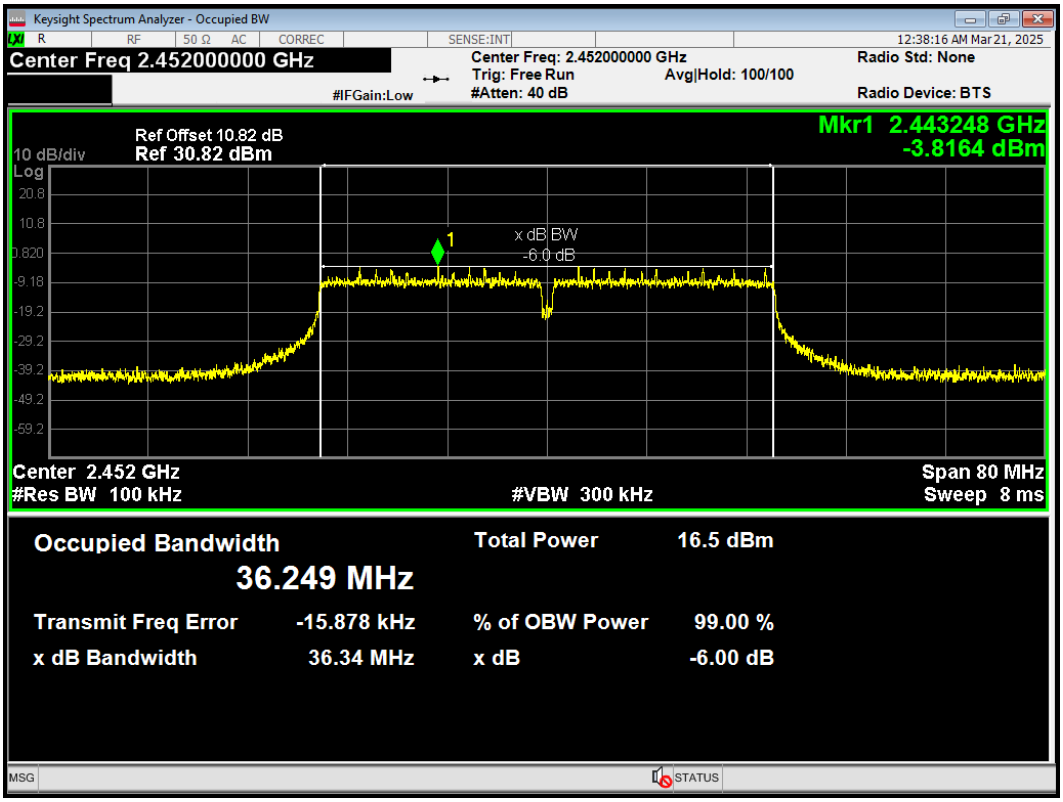
-6dB Bandwidth 802.11n(HT40) 2452MHz



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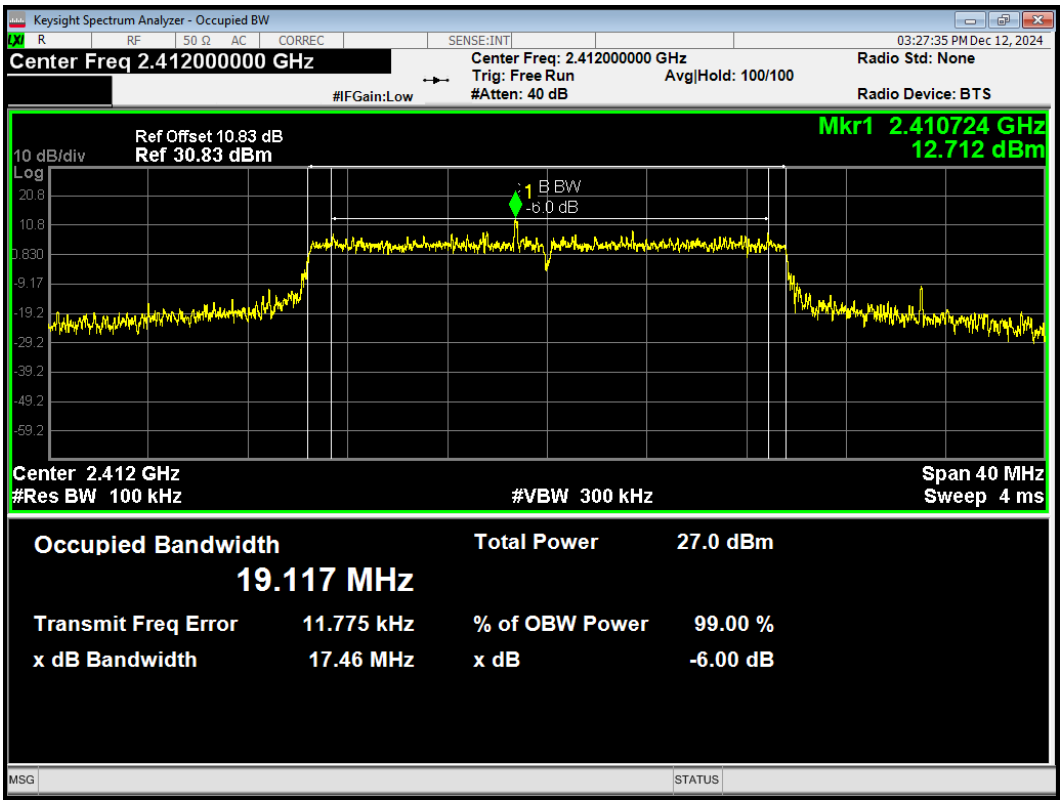
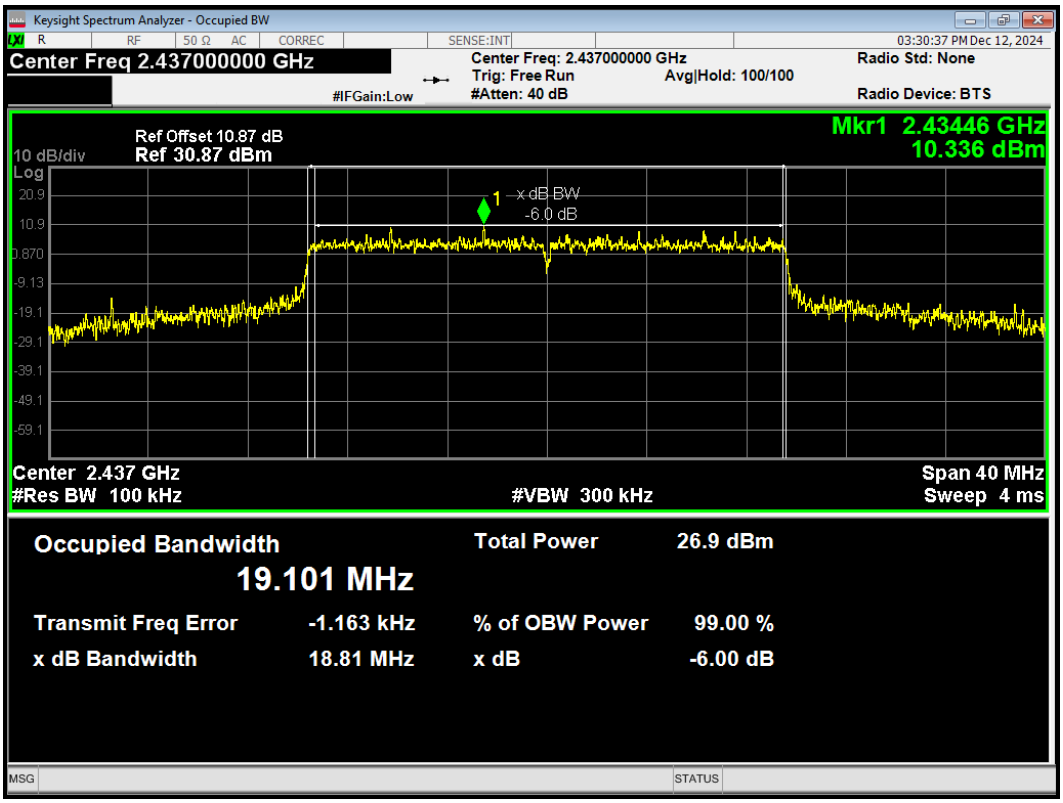
ERSU Mode

-6dB Bandwidth 802.11ax(HE20) 242-Tones 2412MHz



-6dB Bandwidth 802.11ax(HE20) 242-Tones 2437MHz



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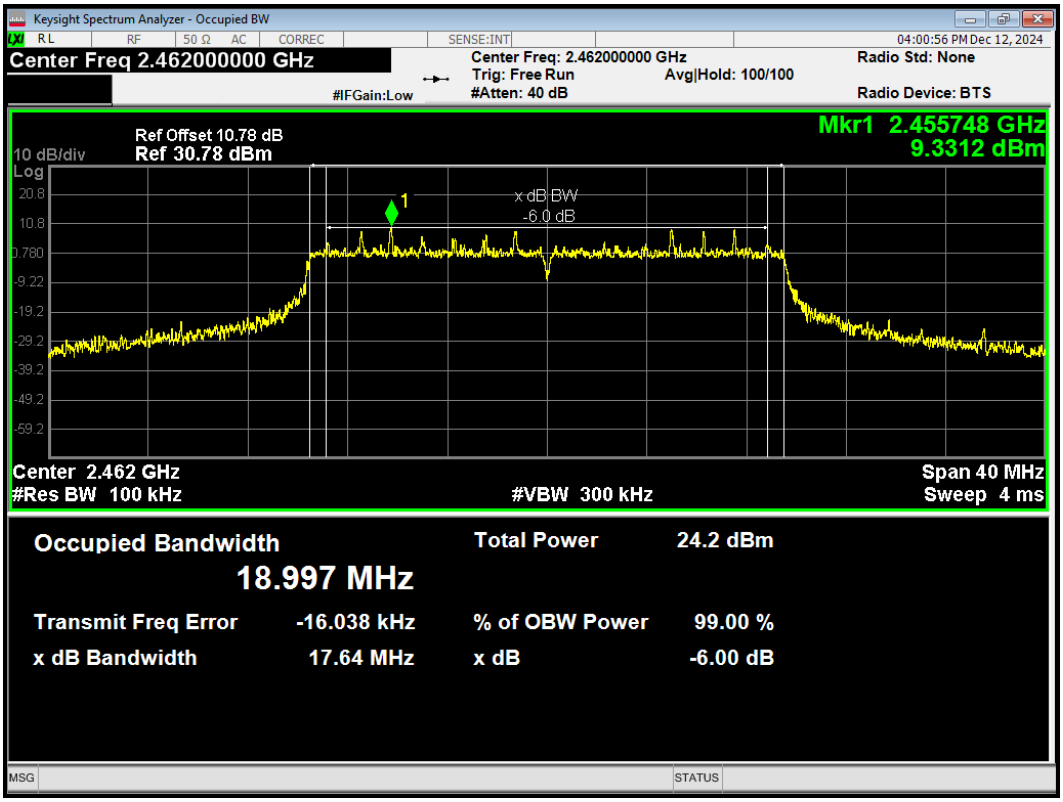
-6dB Bandwidth 802.11ax(HE20) 242-Tones 2462MHz



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5.3. Band Edge

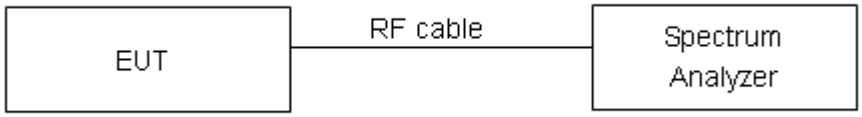
Ambient Condition

Temperature	Relative humidity
15°C ~ 35°C	20% ~ 80%

Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable the band edge of the lowest and highest channels were measured. The peak detector is used and RBW is set to 100 kHz and VBW is set to 300 kHz on spectrum analyzer. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 15.247(d) specifies that “In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.” If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.”

Measurement Uncertainty

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

Frequency	Uncertainty
2GHz-3GHz	1.407 dB

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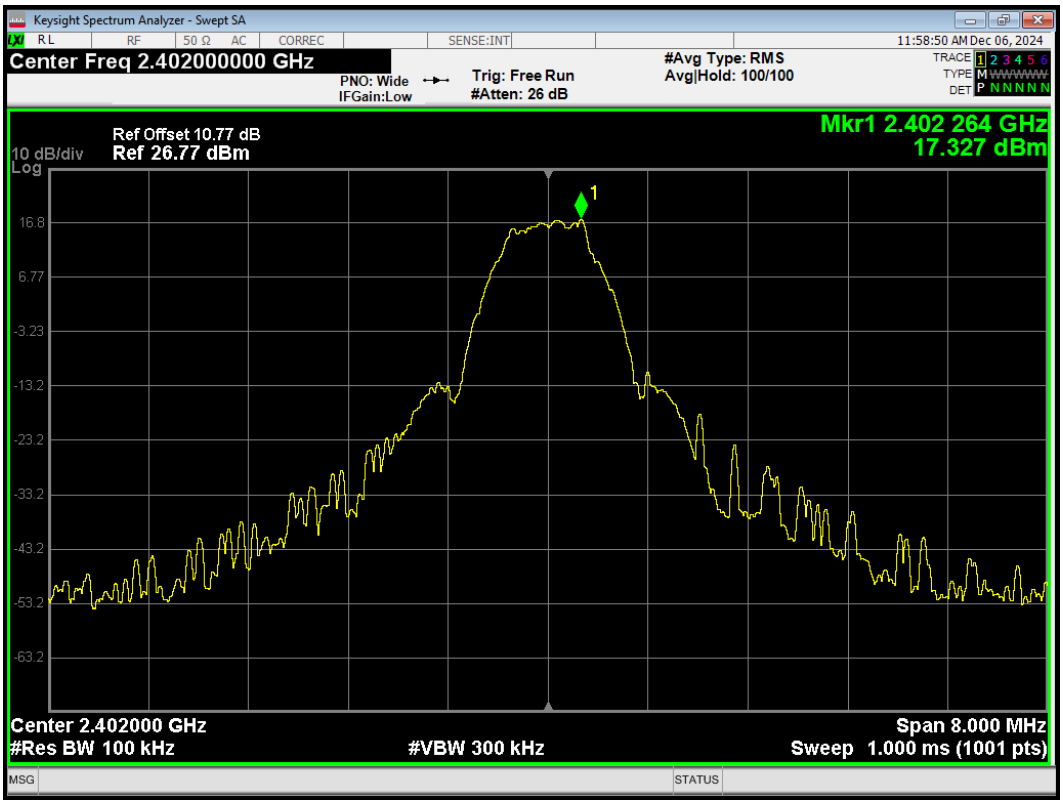
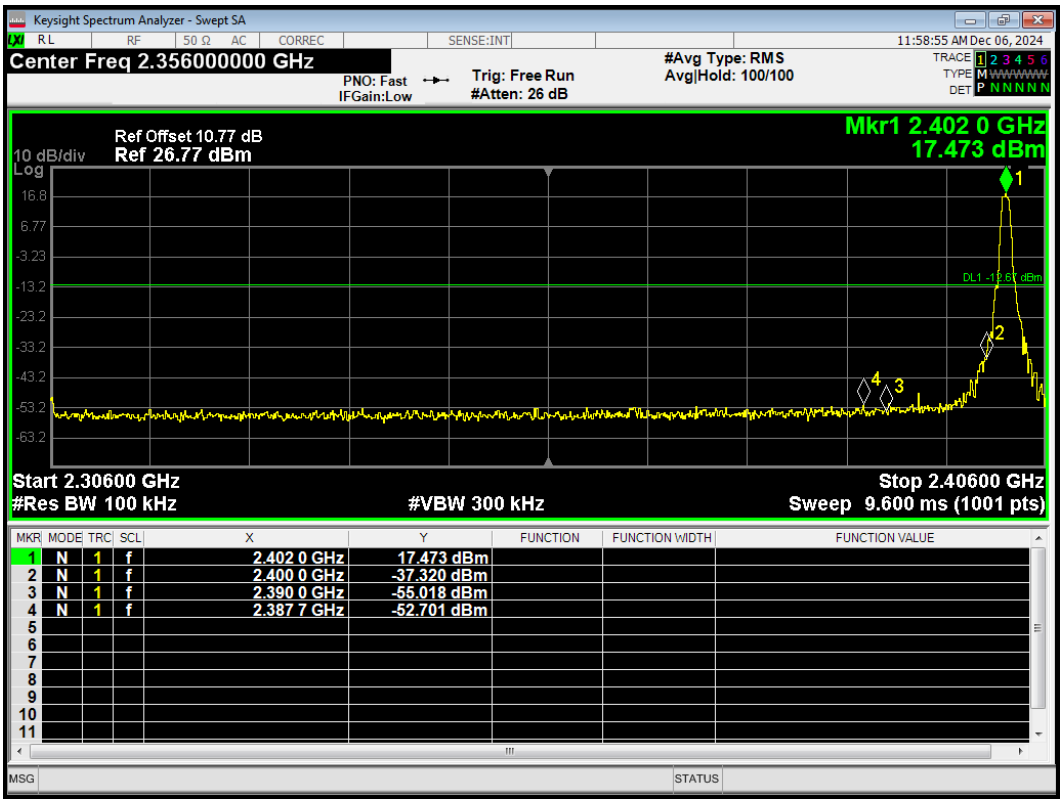
Test Results:

Band Edge Bluetooth LE (1M) 2402MHz Ref



Band Edge Bluetooth LE (1M) 2402MHz Emission



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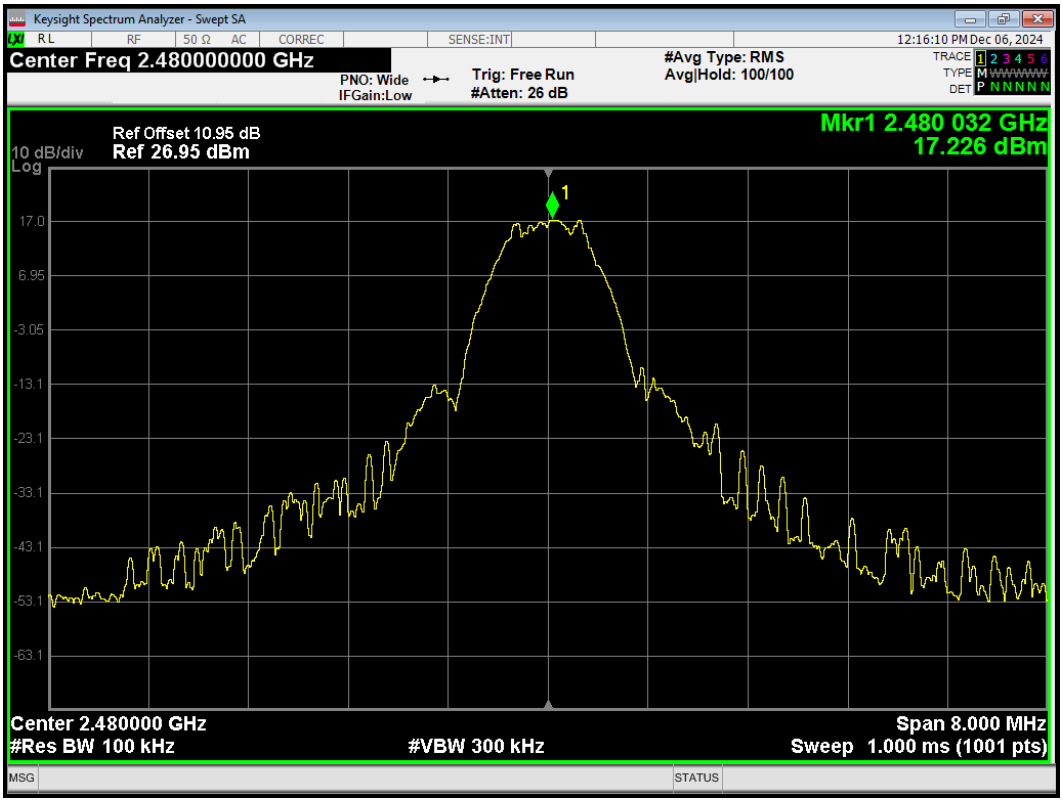
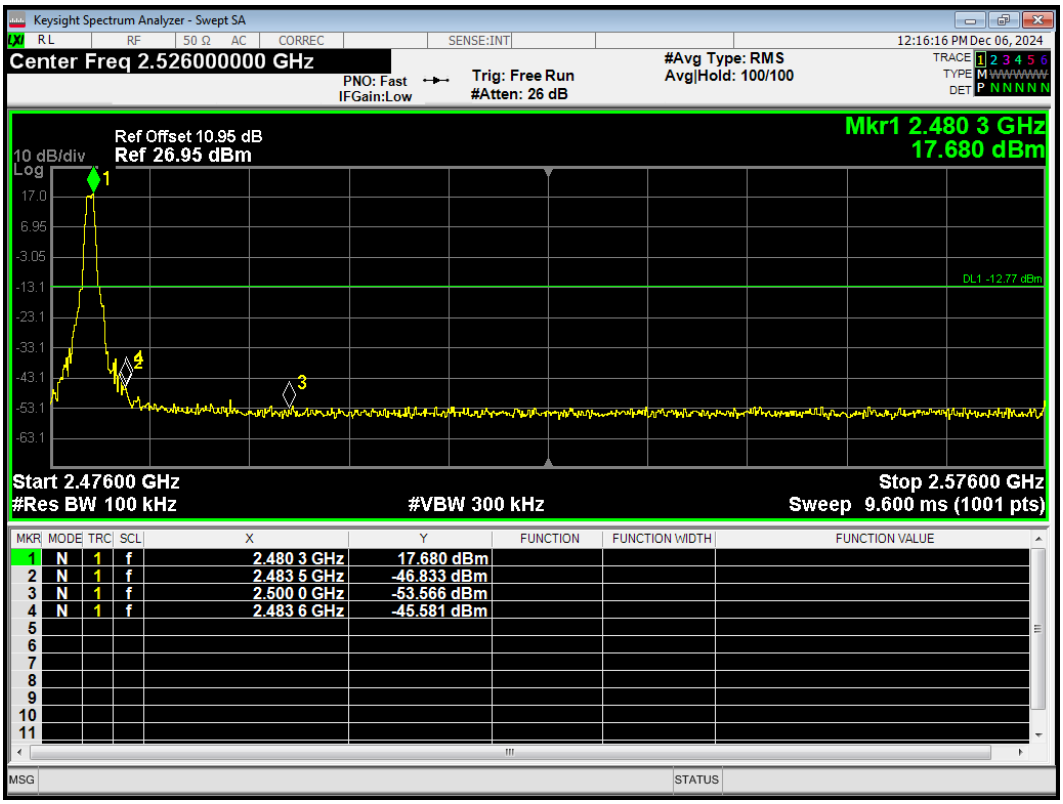
Band Edge Bluetooth LE (1M) 2480MHz Ref



Band Edge Bluetooth LE (1M) 2480MHz Emission



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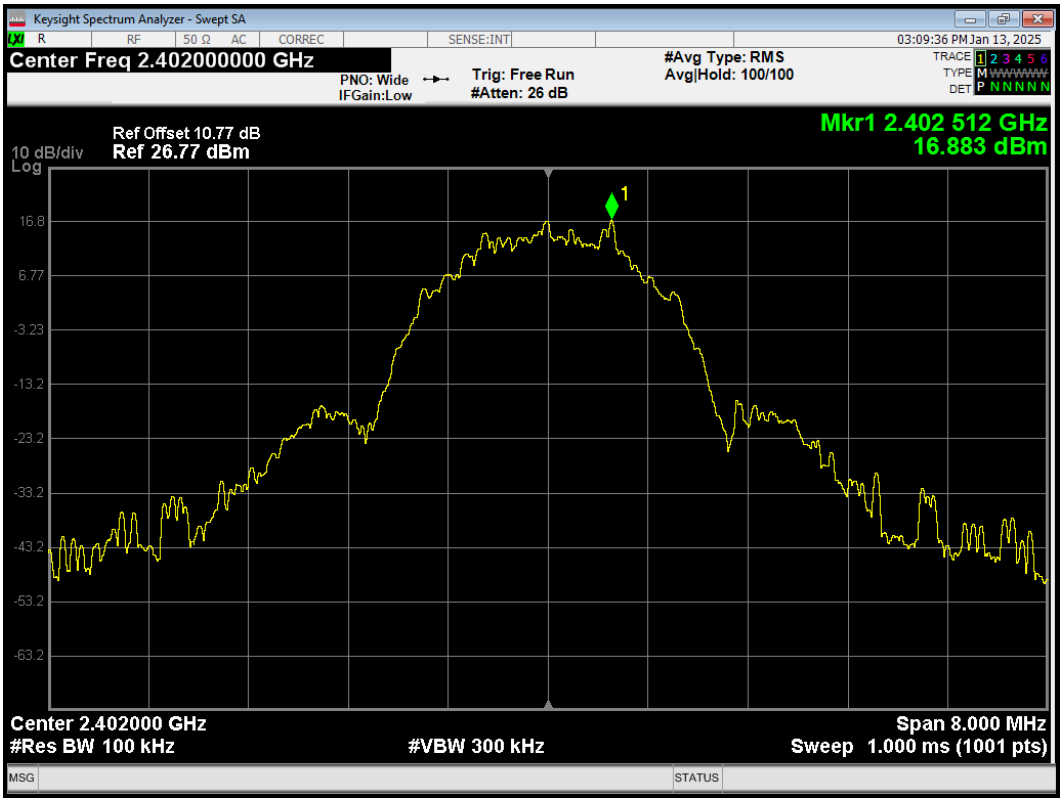
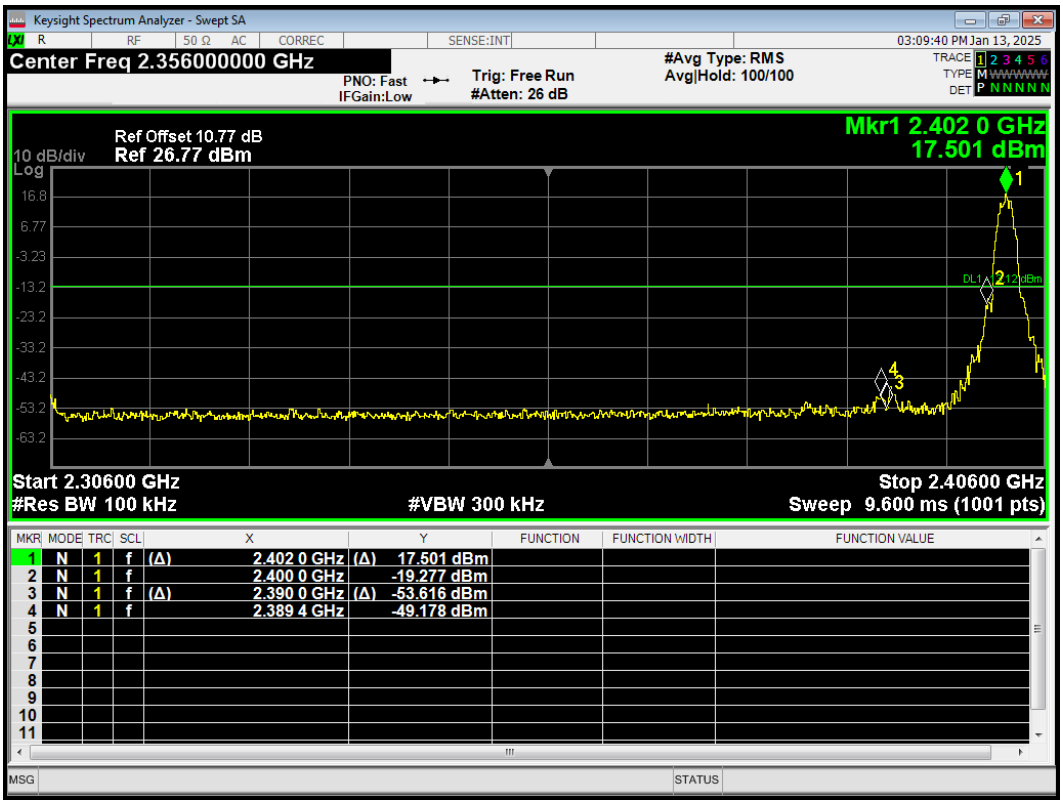
Band Edge Bluetooth LE (2M) 2402MHz Ref



Band Edge Bluetooth LE (2M) 2402MHz Emission



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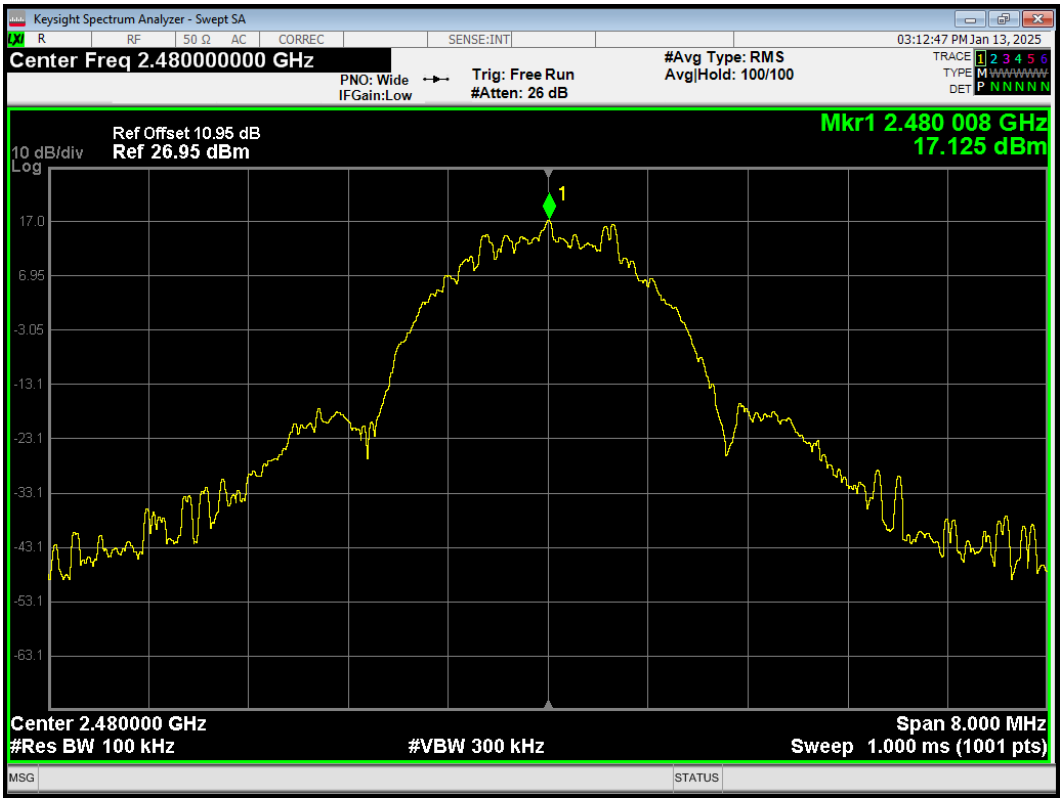
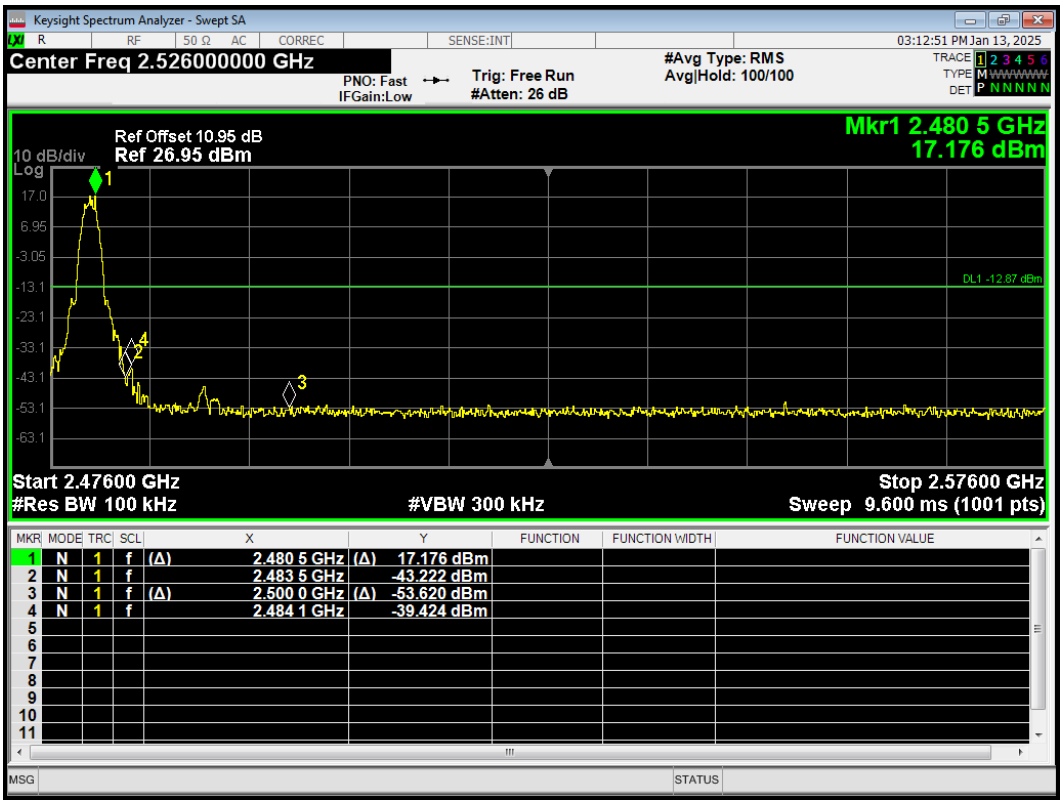
Band Edge Bluetooth LE (2M) 2480MHz Ref



Band Edge Bluetooth LE (2M) 2480MHz Emission



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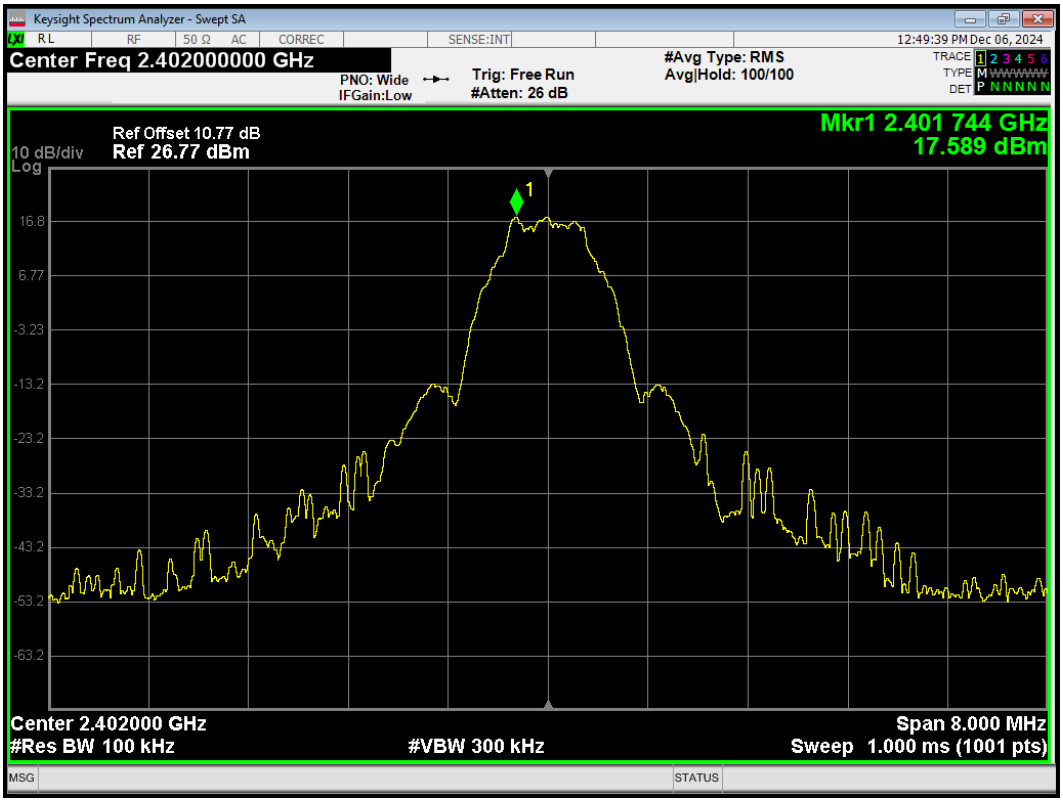
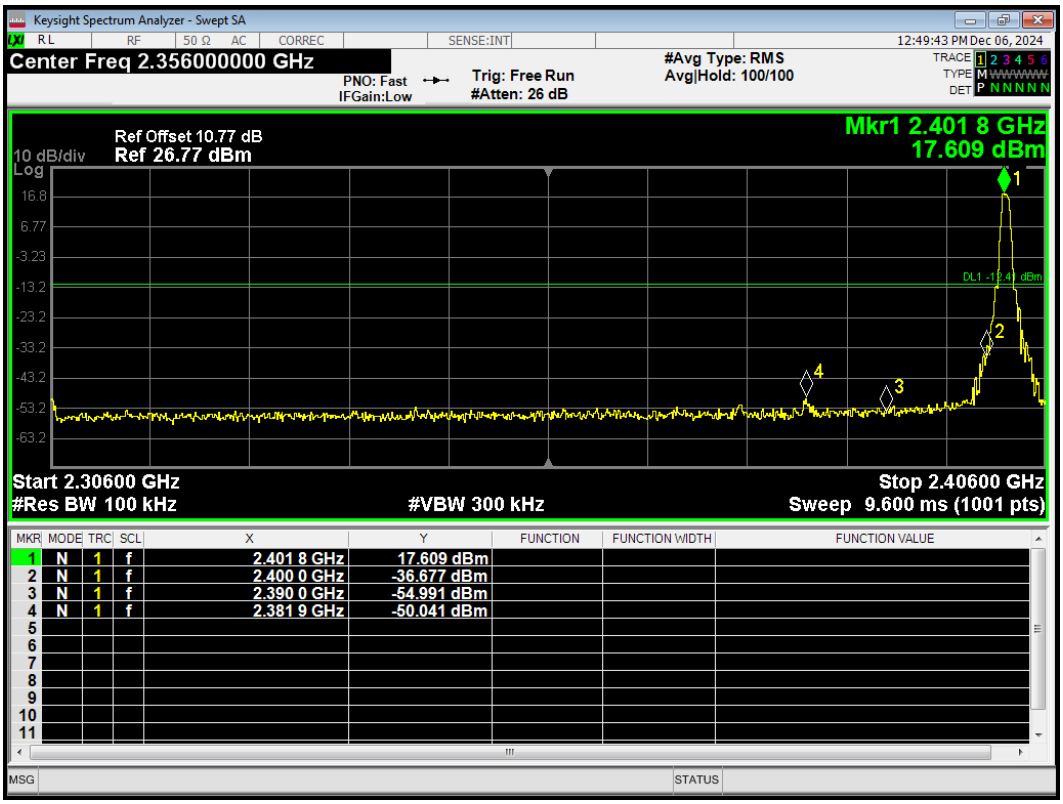
Band Edge Bluetooth LE (S=2) 2402MHz Ref



Band Edge Bluetooth LE (S=2) 2402MHz Emission



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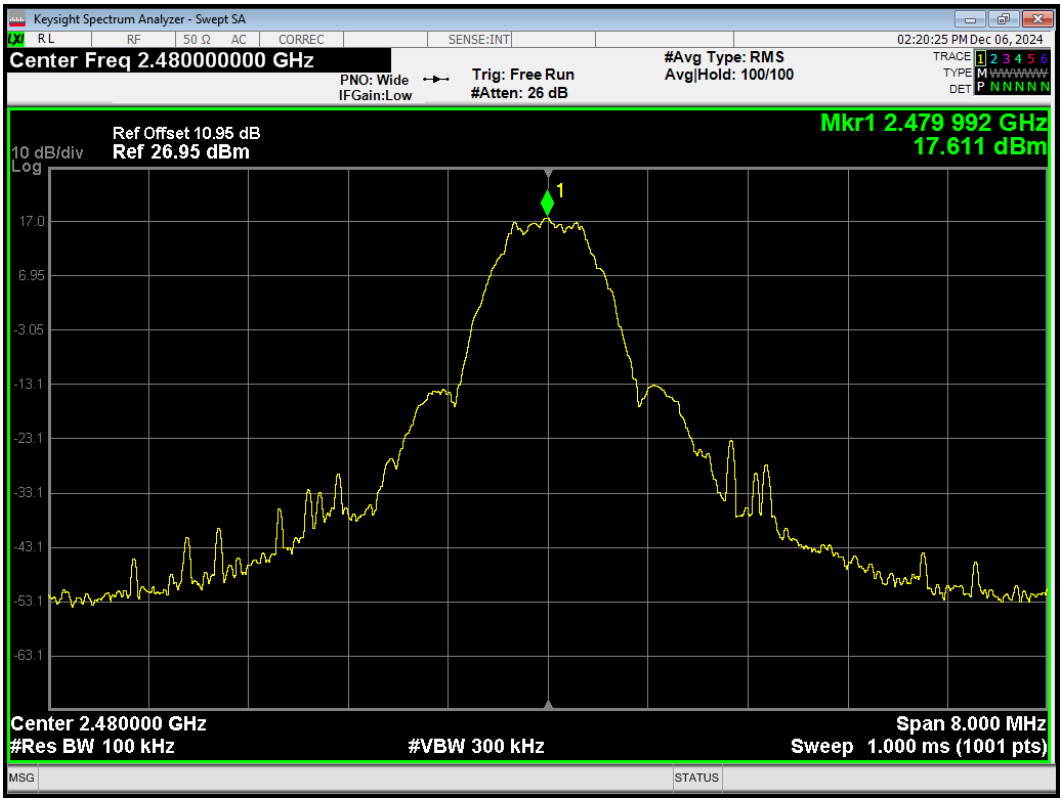
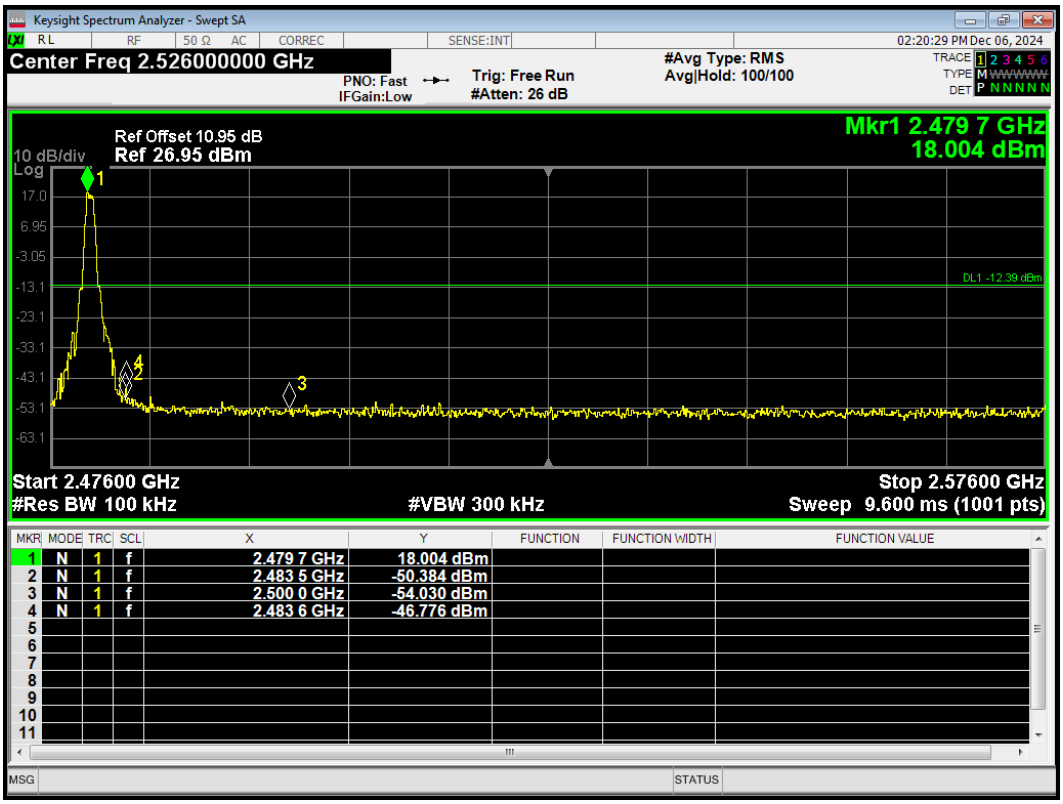
Band Edge Bluetooth LE (S=2) 2480MHz Ref



Band Edge Bluetooth LE (S=2) 2480MHz Emission



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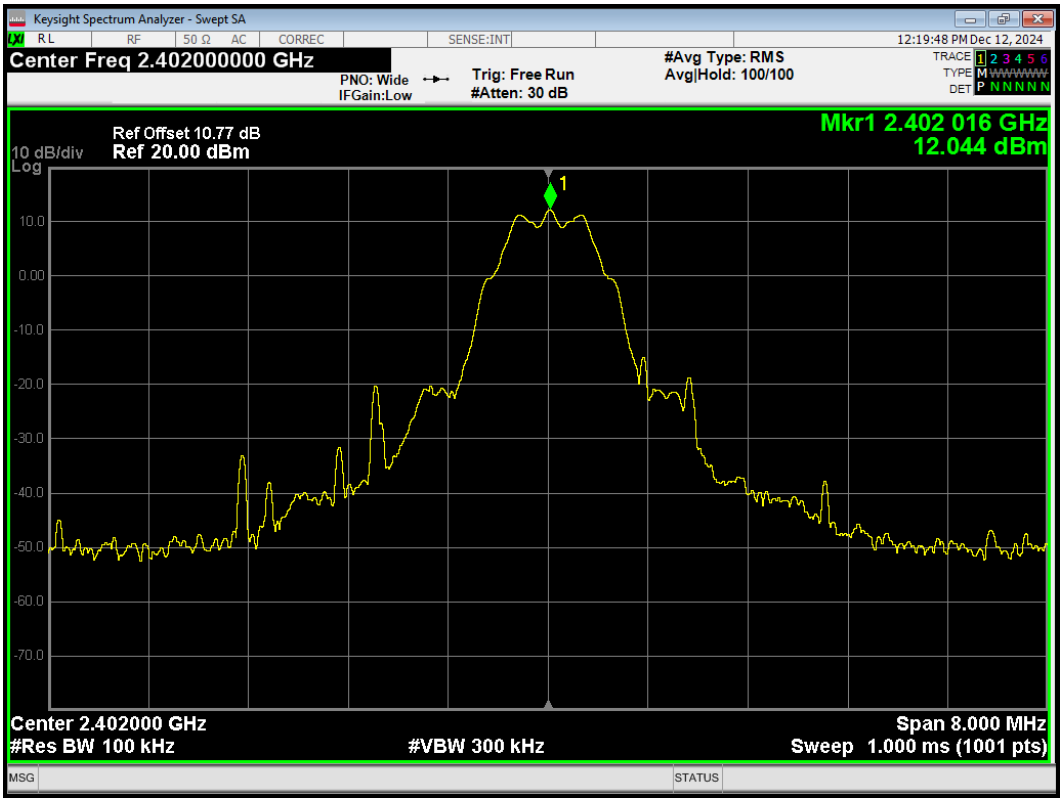
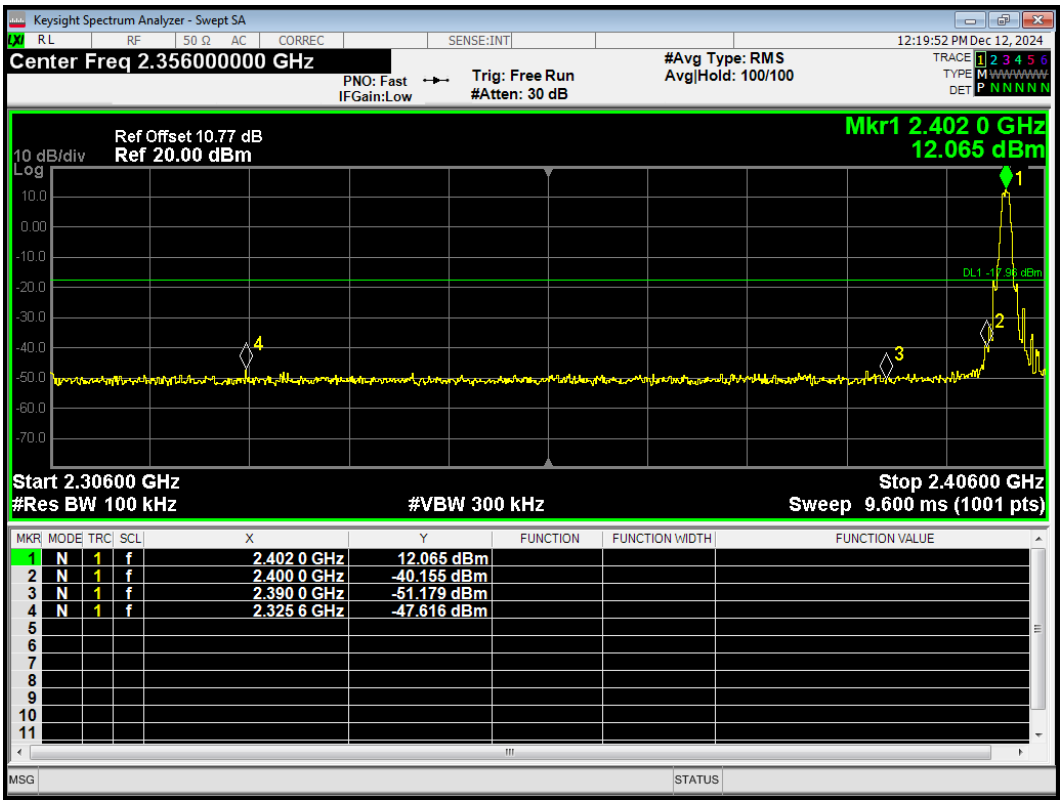
Band Edge Bluetooth LE (S=8) 2402MHz Ref



Band Edge Bluetooth LE (S=8) 2402MHz Emission



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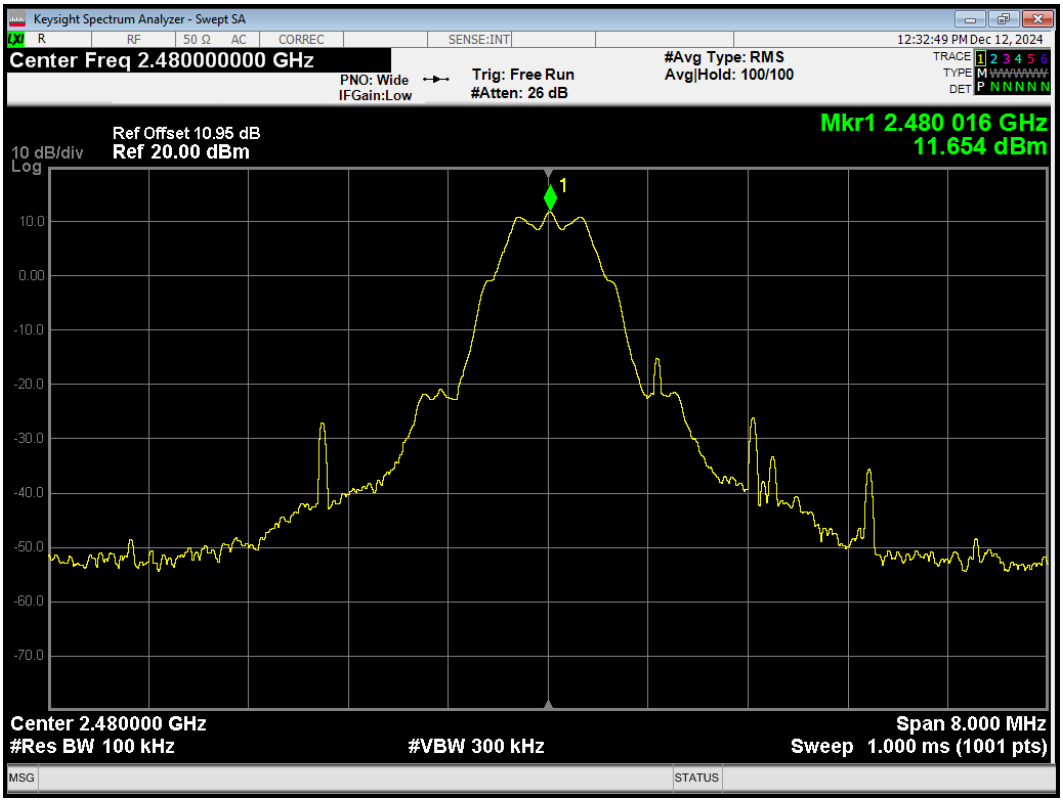
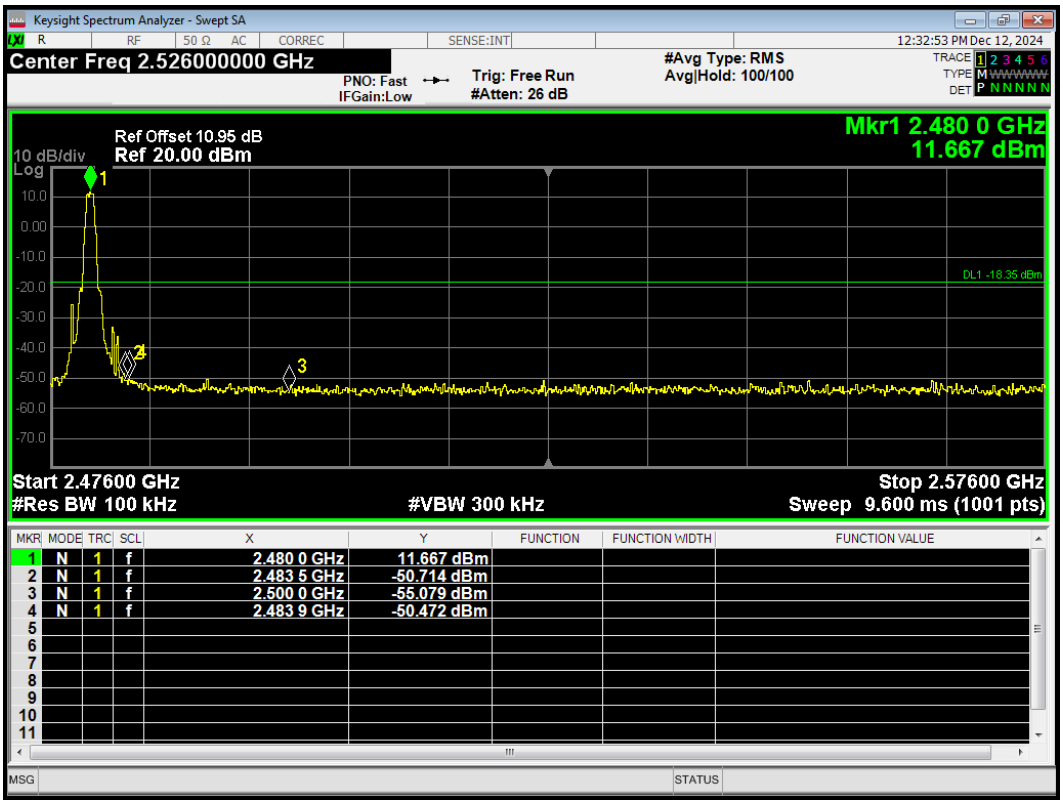
Band Edge Bluetooth LE (S=8) 2480MHz Ref



Band Edge Bluetooth LE (S=8) 2480MHz Emission



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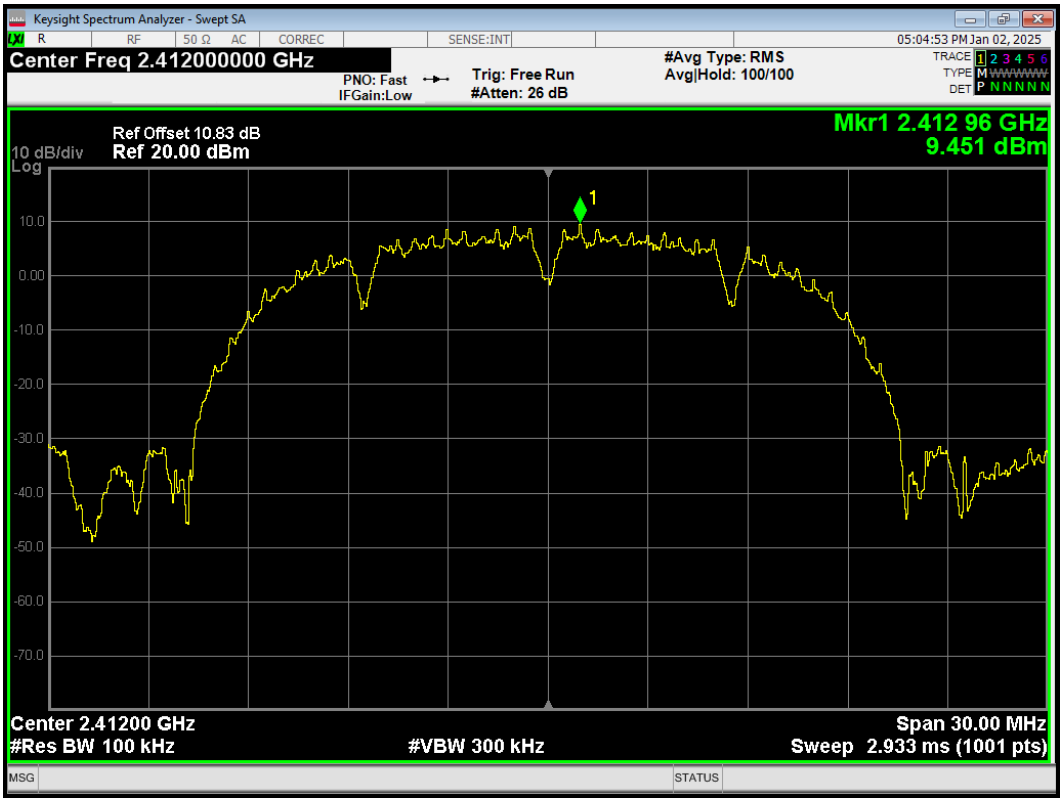
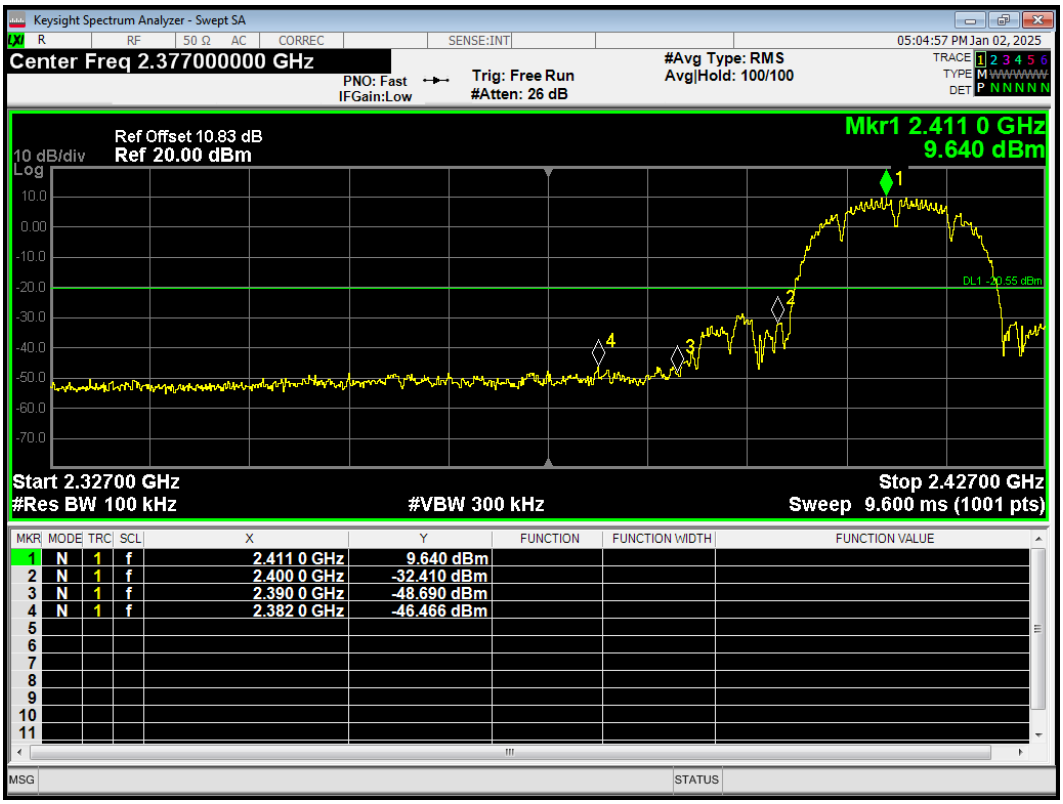
Band Edge 802.11b 2412MHz Ref



Band Edge 802.11b 2412MHz Emission



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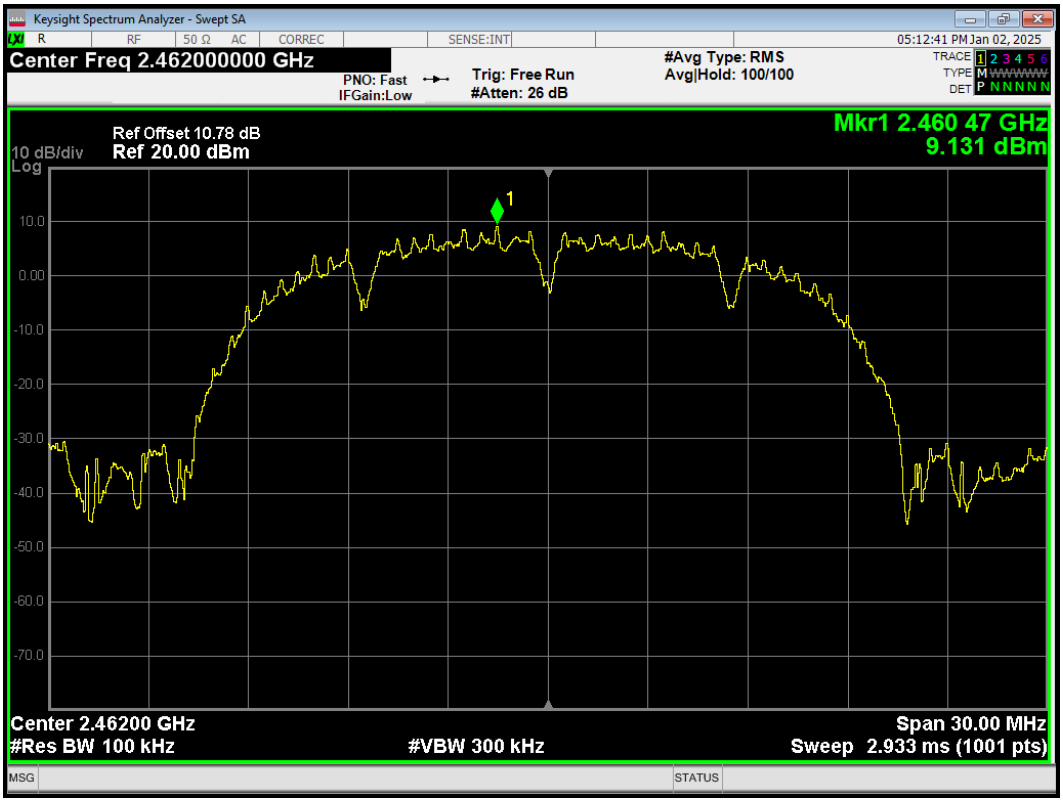
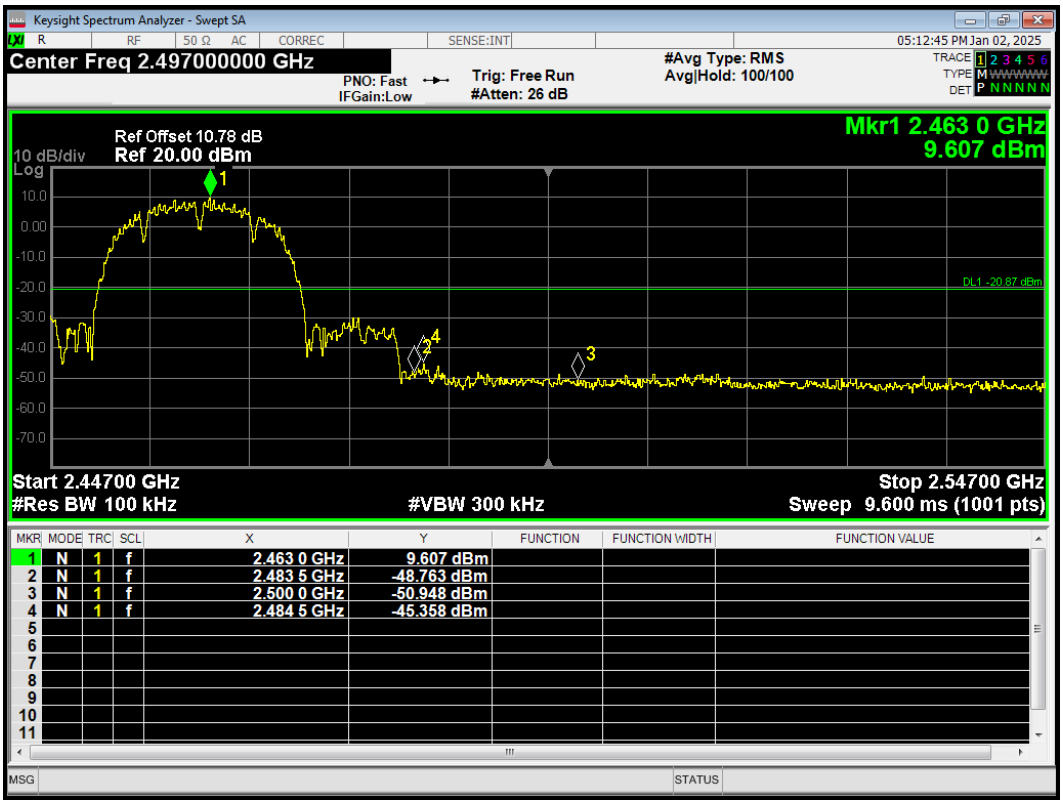
Band Edge 802.11b 2462MHz Ref



Band Edge 802.11b 2462MHz Emission



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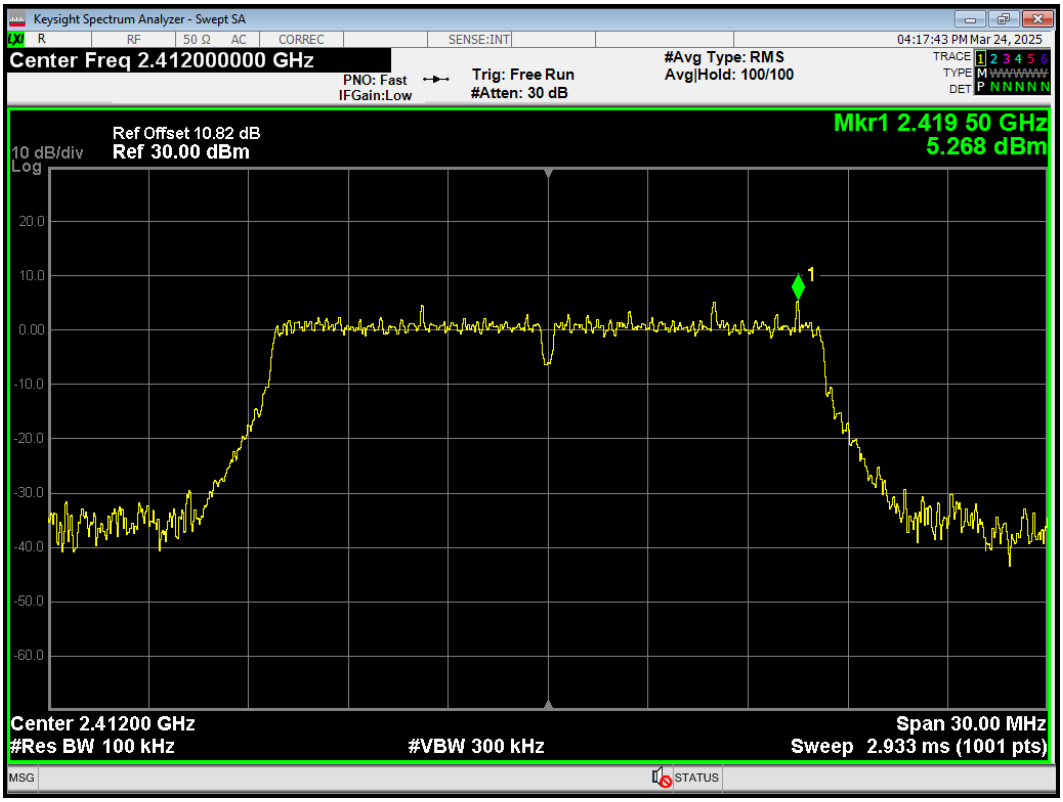
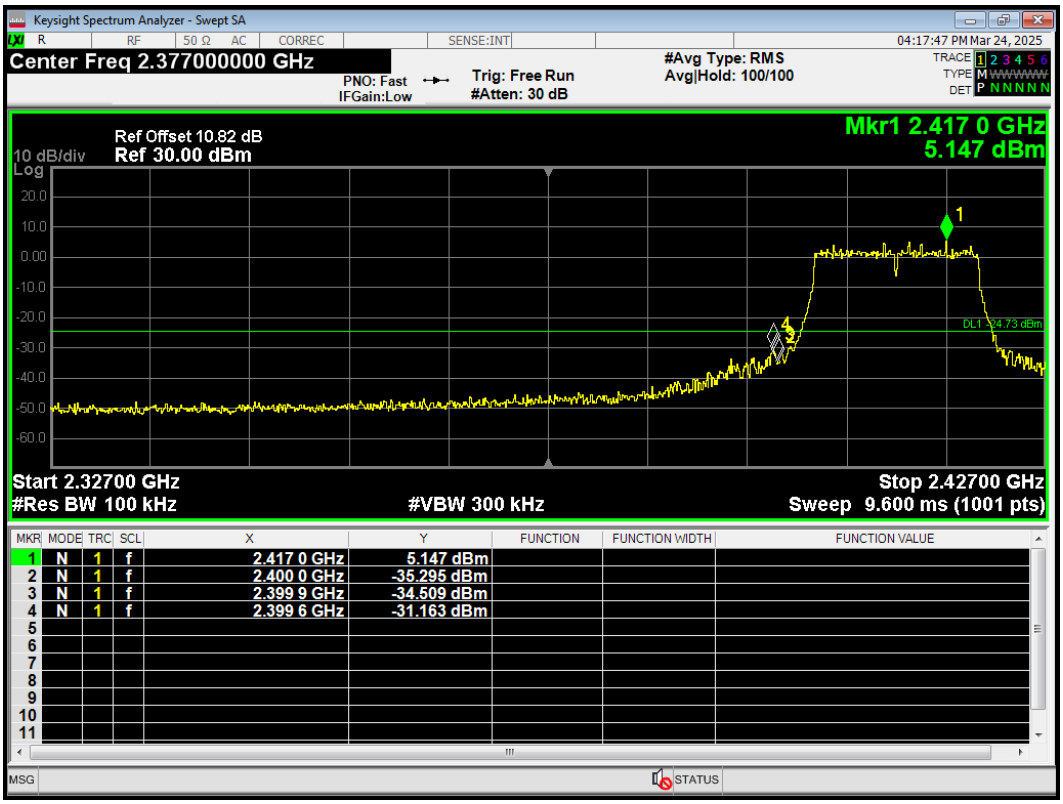
Band Edge 802.11g 2412MHz Ref



Band Edge 802.11g 2412MHz Emission



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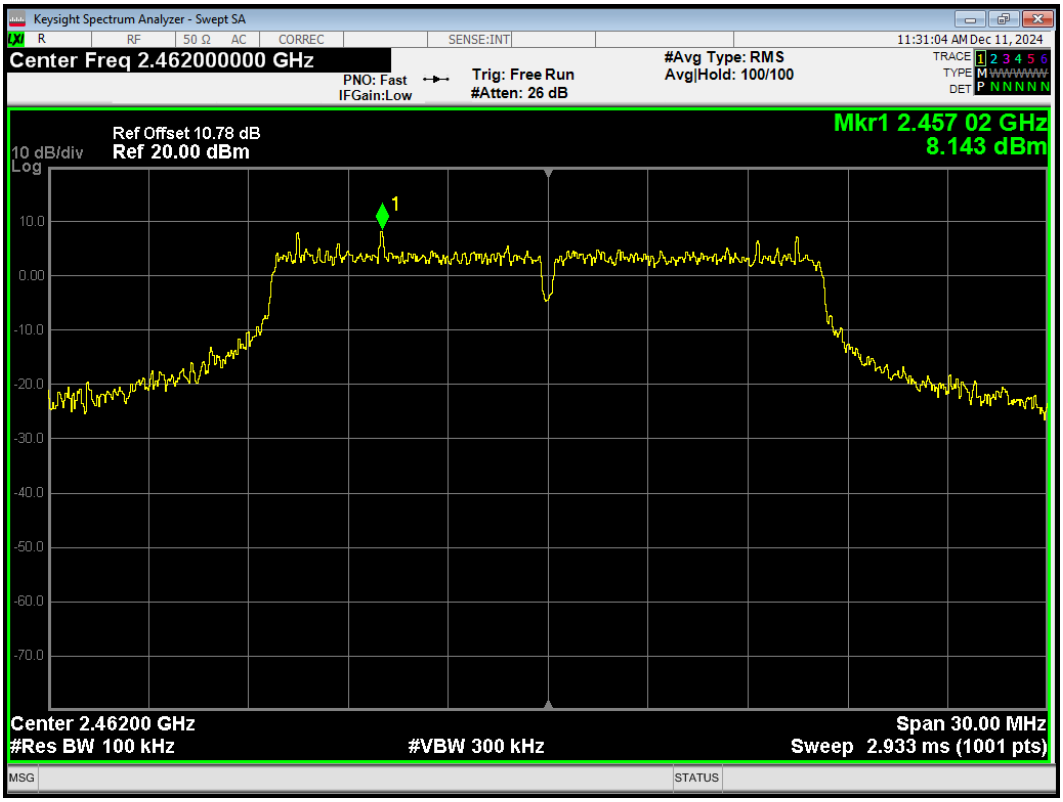
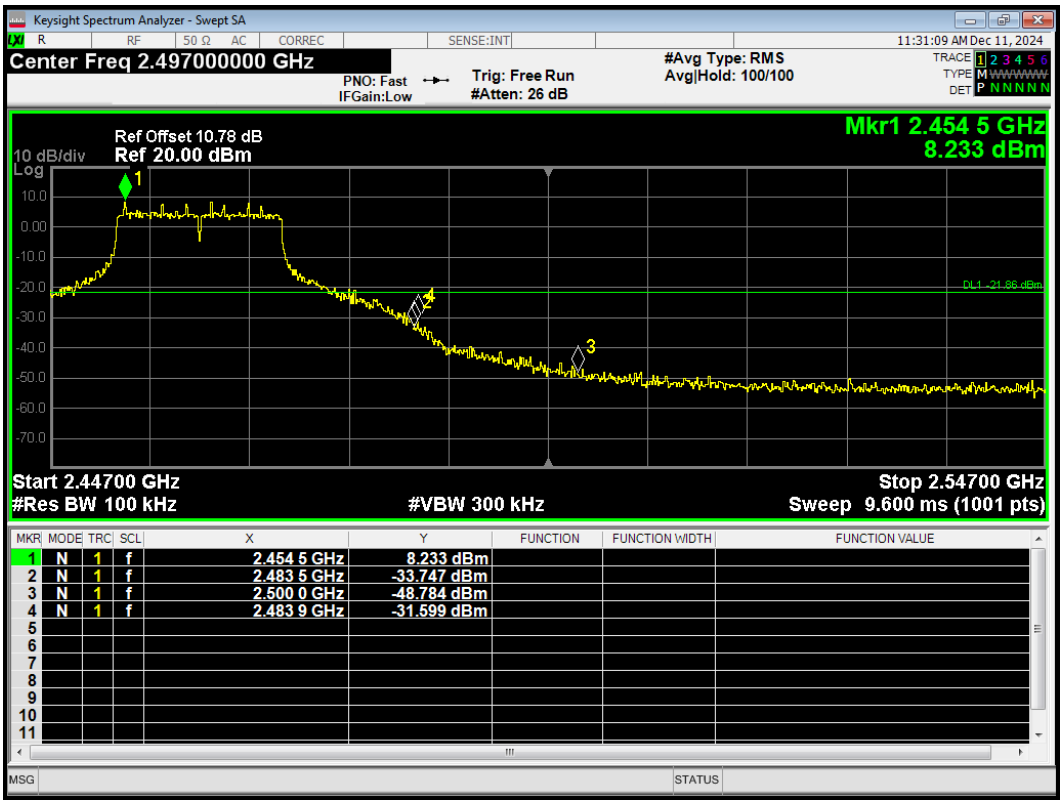
Band Edge 802.11g 2462MHz Ref



Band Edge 802.11g 2462MHz Emission



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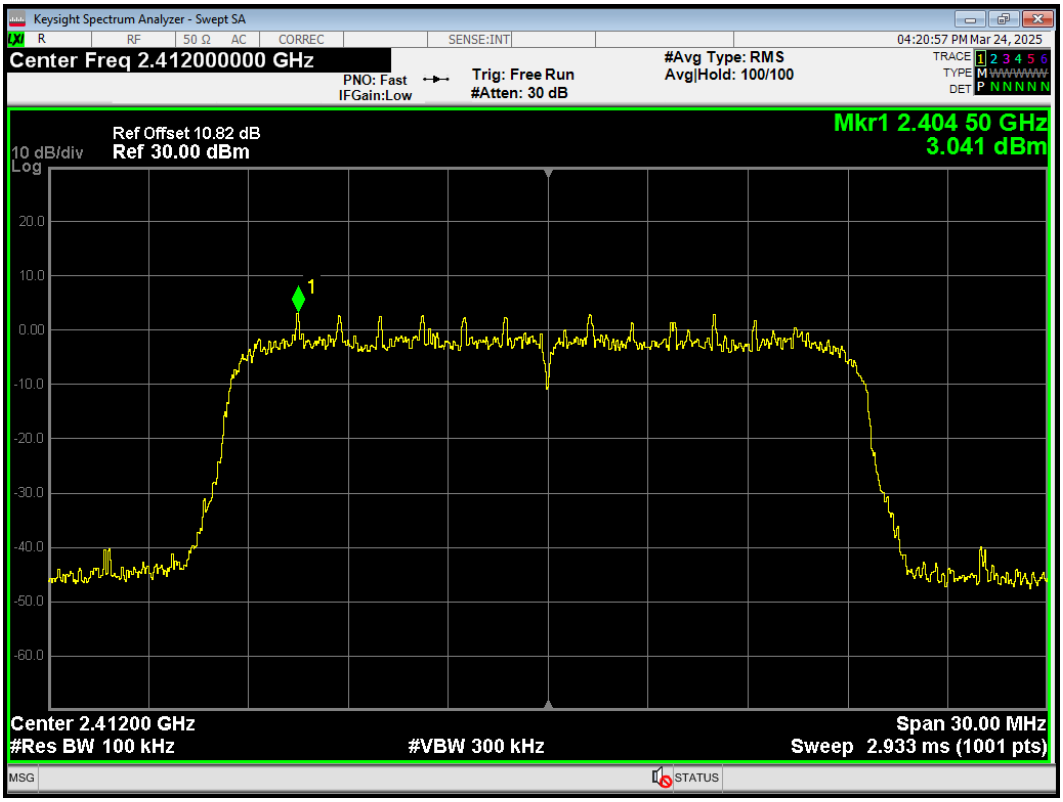
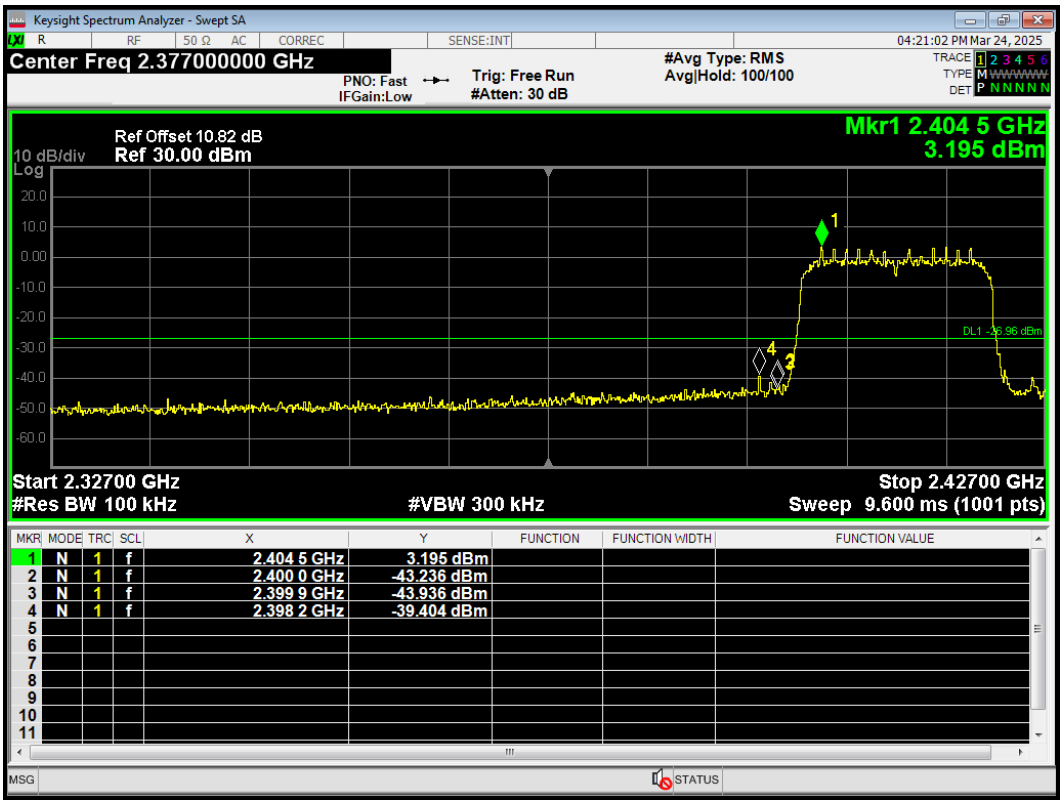
Band Edge 802.11ax(HE20) 2412MHz Ref



Band Edge 802.11ax(HE20) 2412MHz Emission



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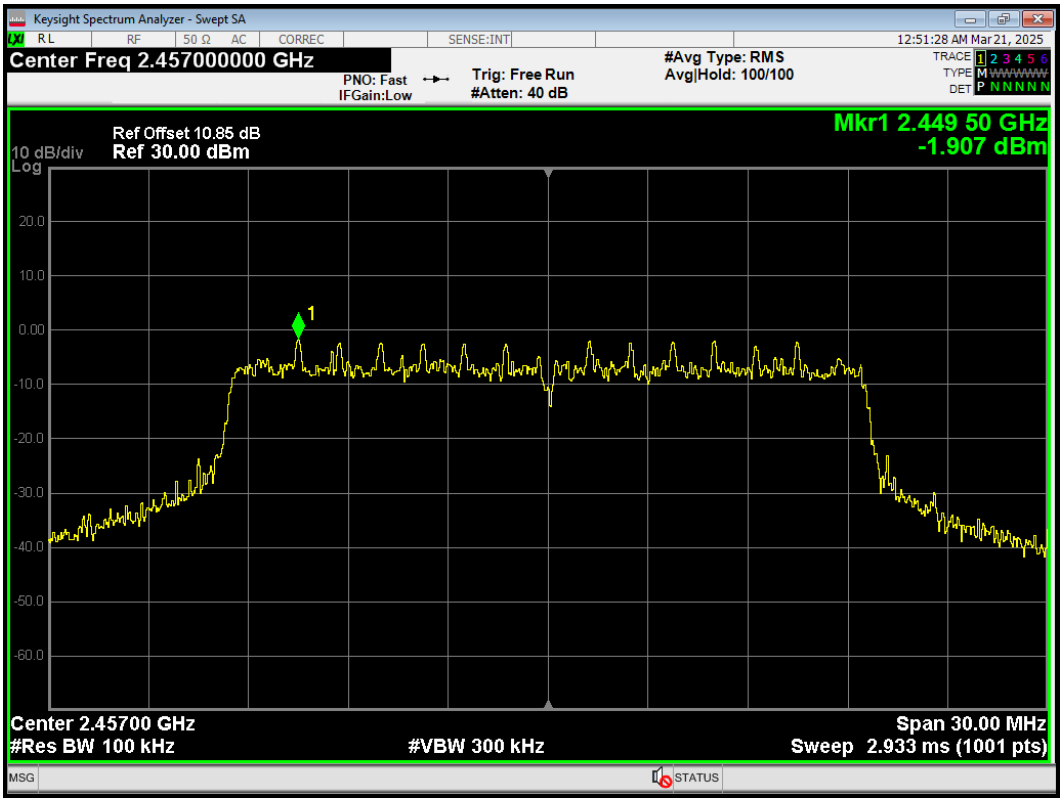
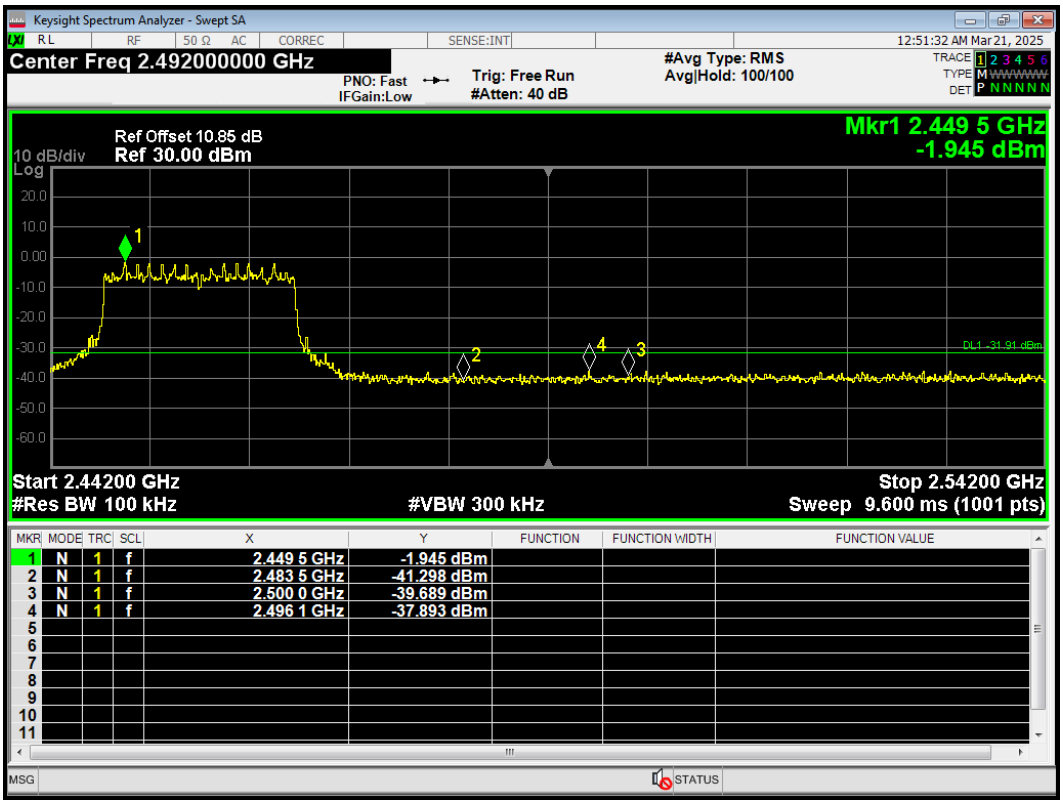
Band Edge 802.11ax(HE20) 2457MHz Ref



Band Edge 802.11ax(HE20) 2457MHz Emission



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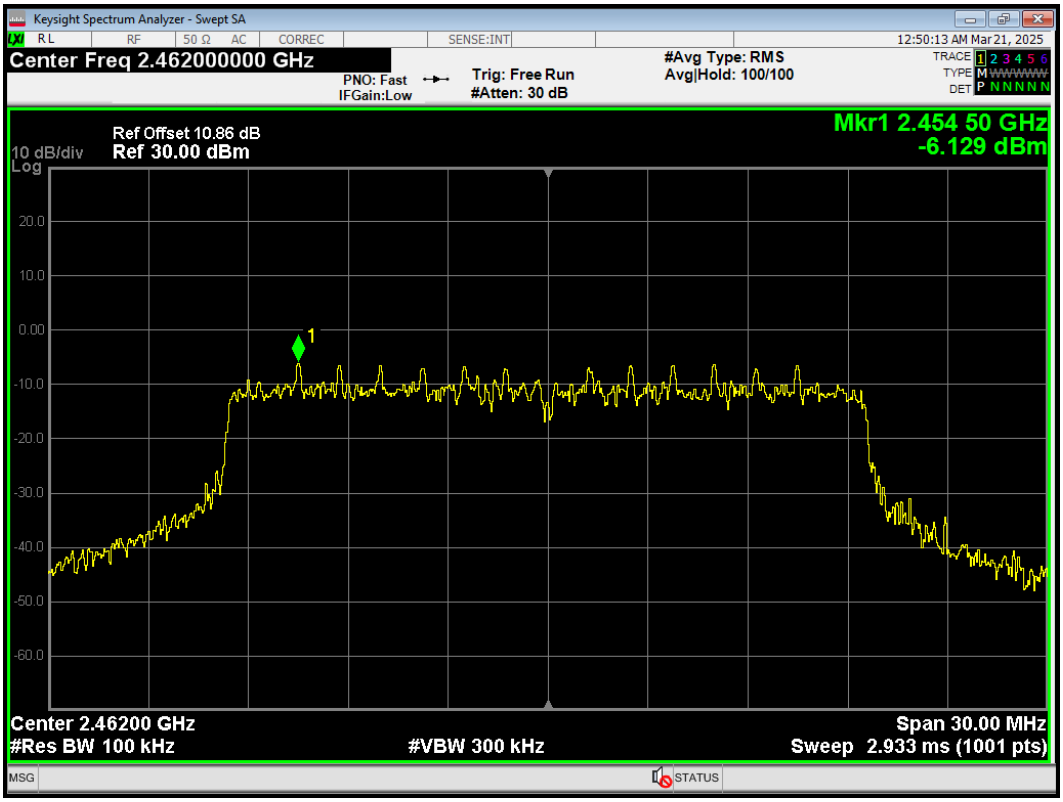
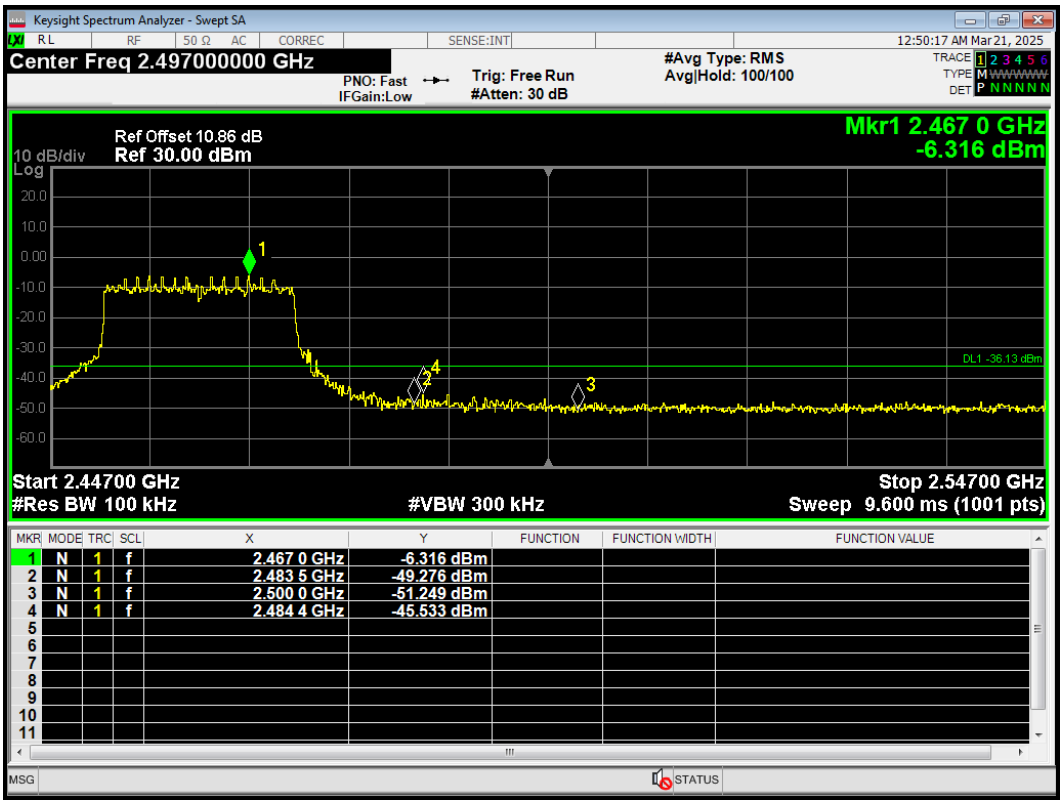
Band Edge 802.11ax(HE20) 2462MHz Ref



Band Edge 802.11ax(HE20) 2462MHz Emission



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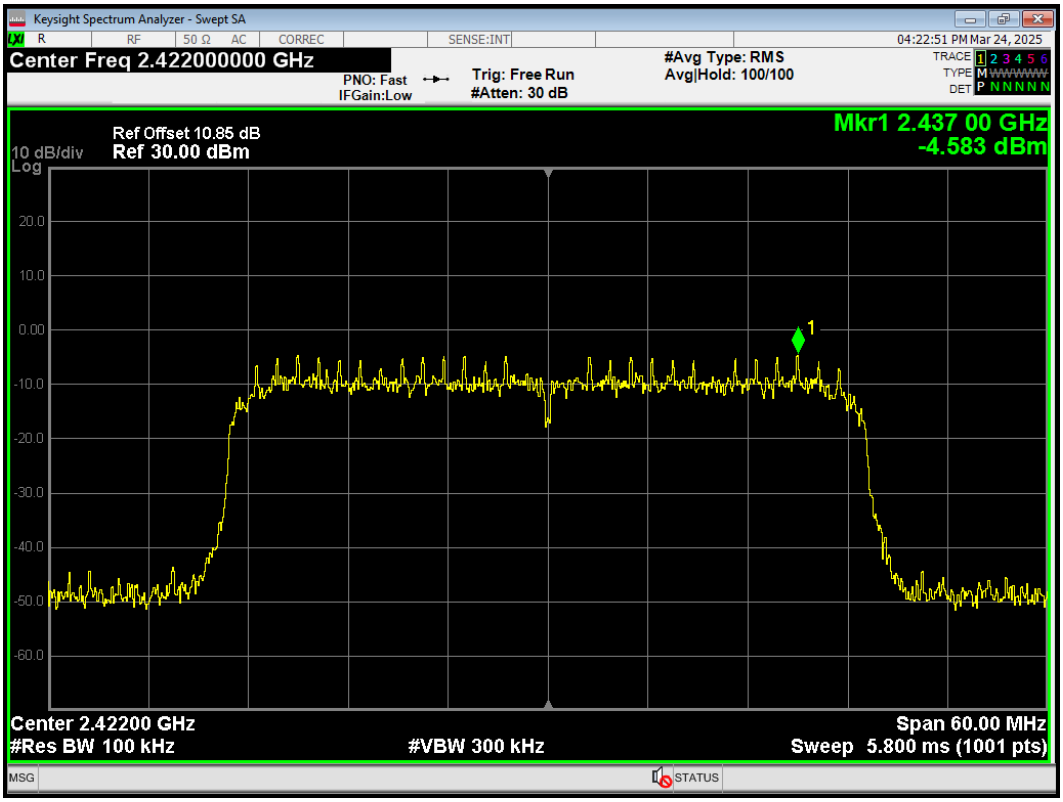
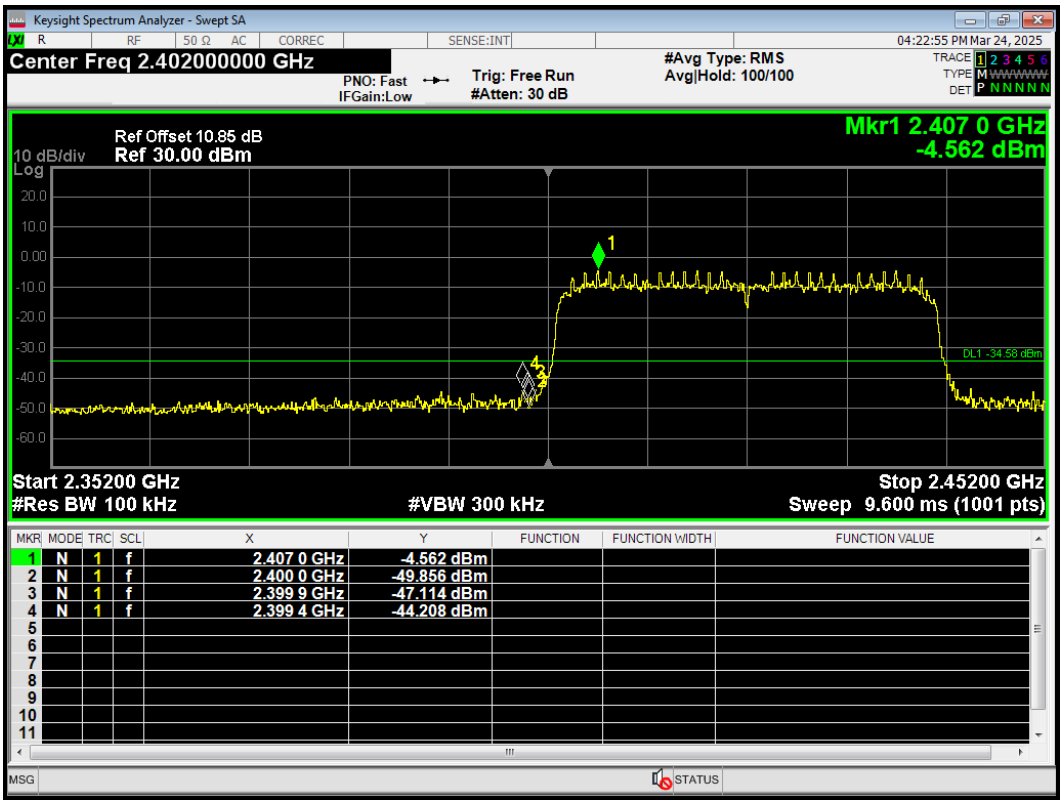
Band Edge 802.11ax(HE40) 2422MHz Ref



Band Edge 802.11ax(HE40) 2422MHz Emission



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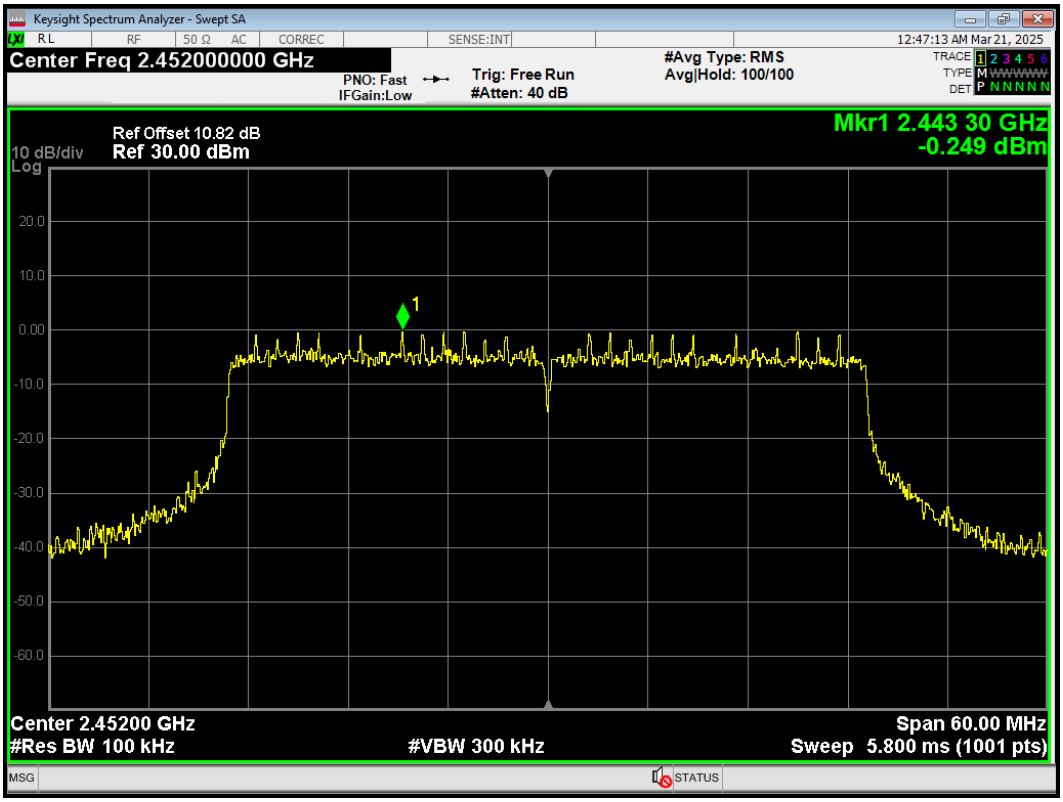
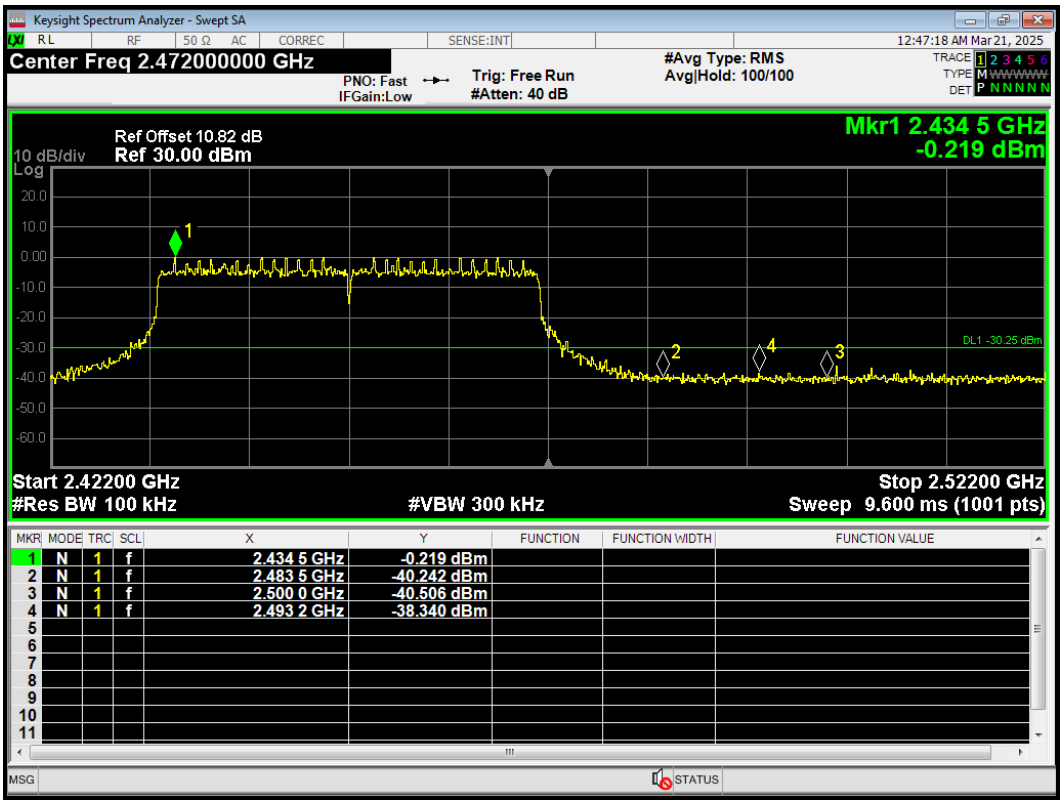
Band Edge 802.11ax(HE40) 2452MHz Ref



Band Edge 802.11ax(HE40) 2452MHz Emission



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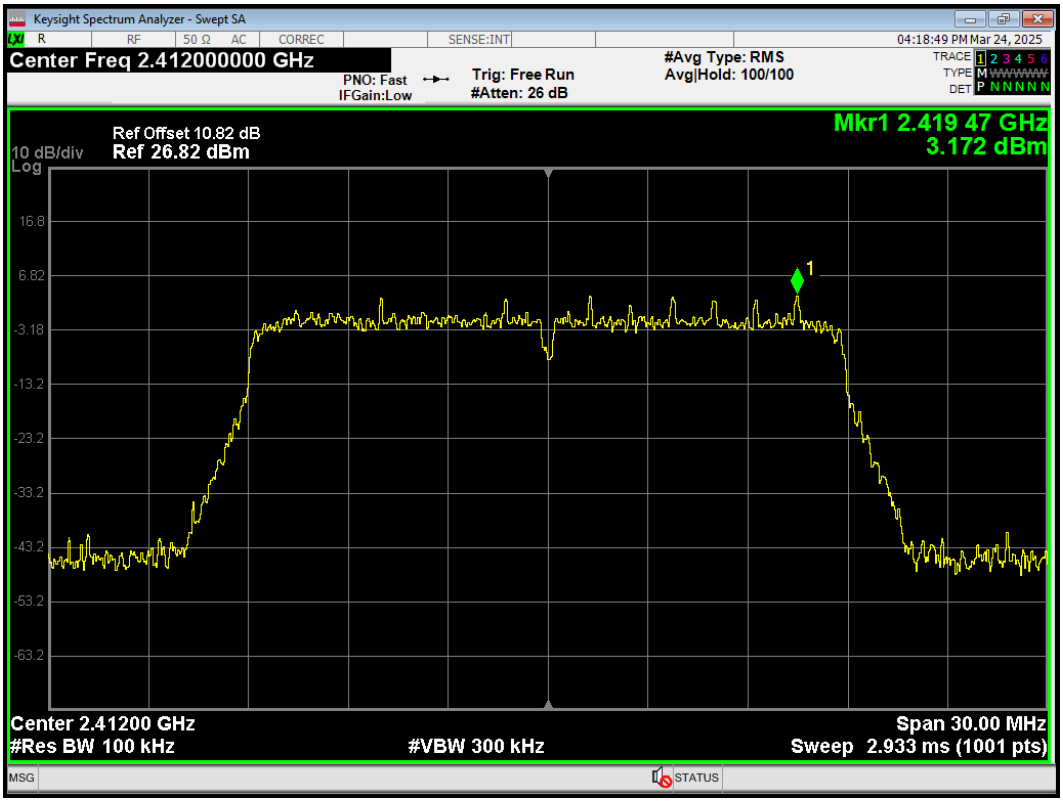
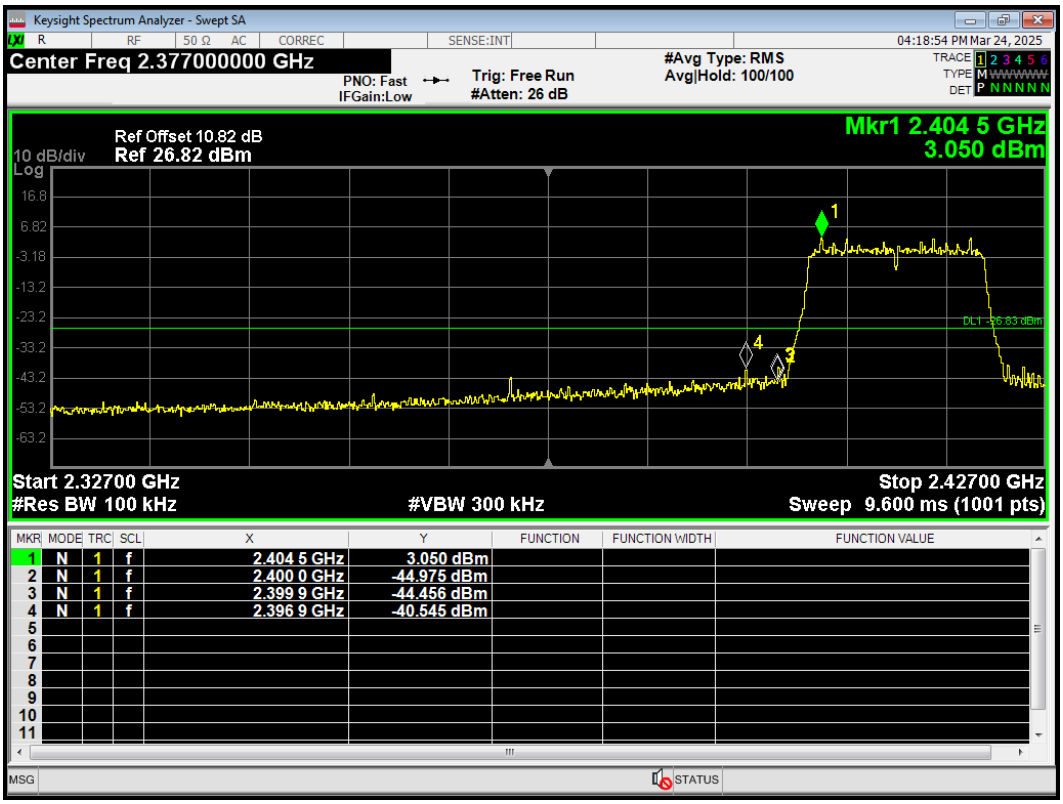
Band Edge 802.11n(HT20) 2412MHz Ref



Band Edge 802.11n(HT20) 2412MHz Emission



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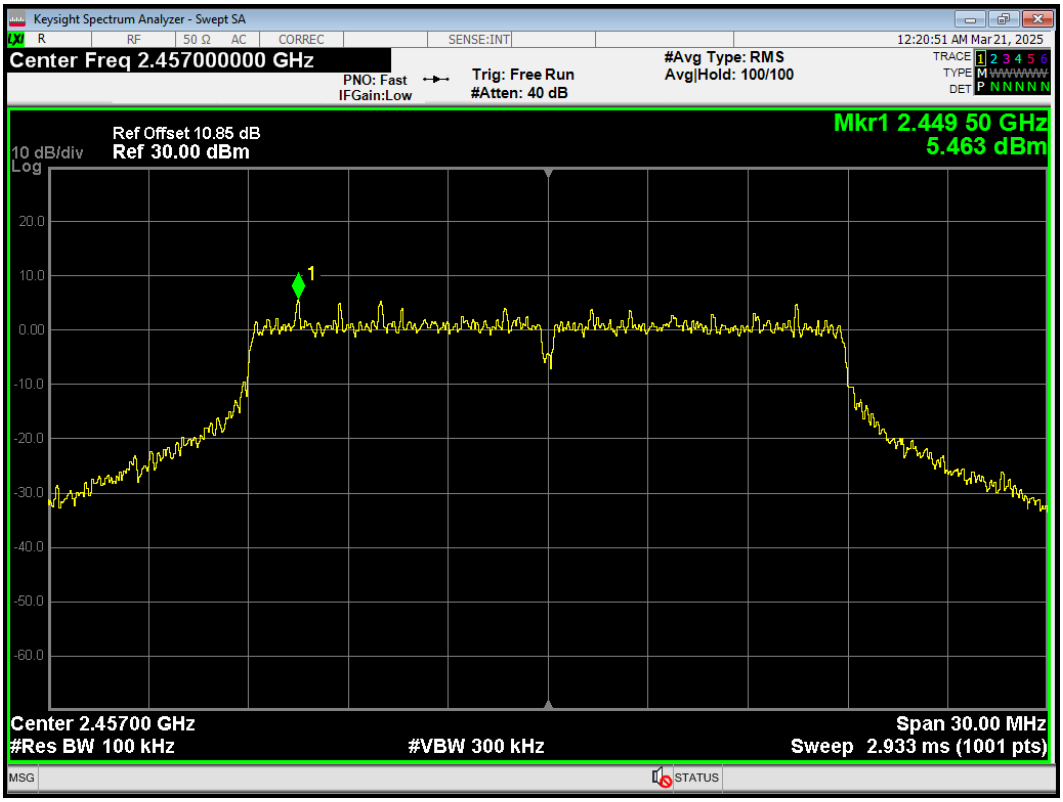
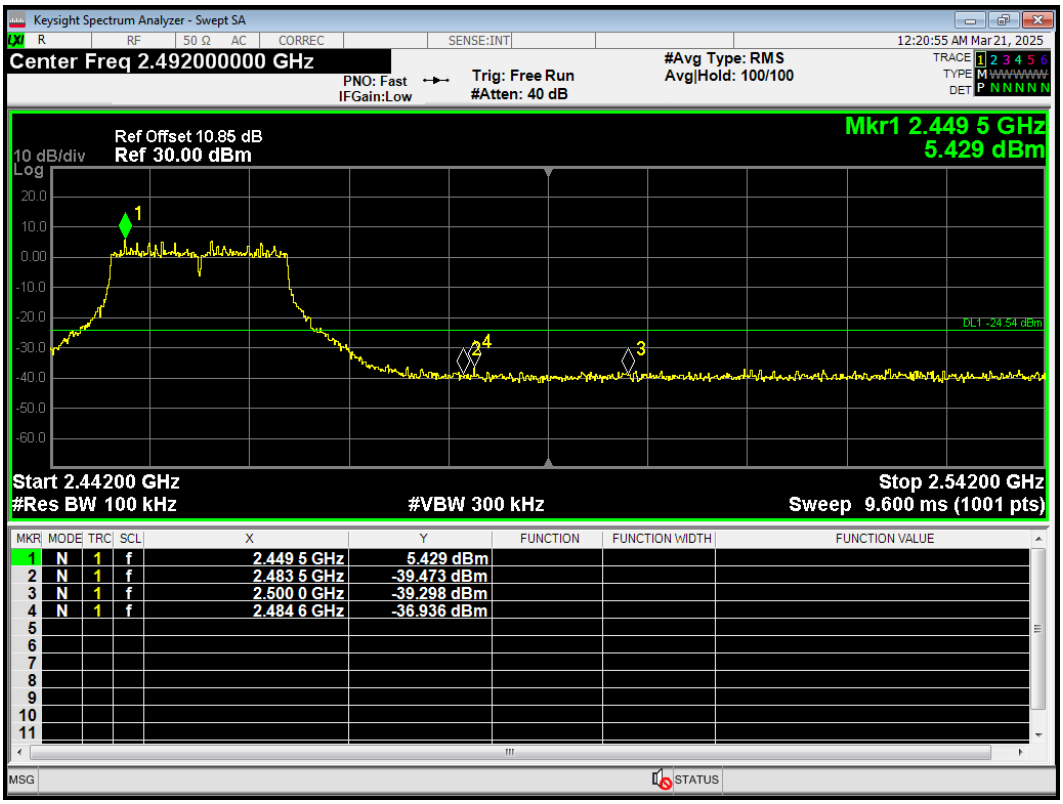
Band Edge 802.11n(HT20) 2457MHz Ref



Band Edge 802.11n(HT20) 2457MHz Emission



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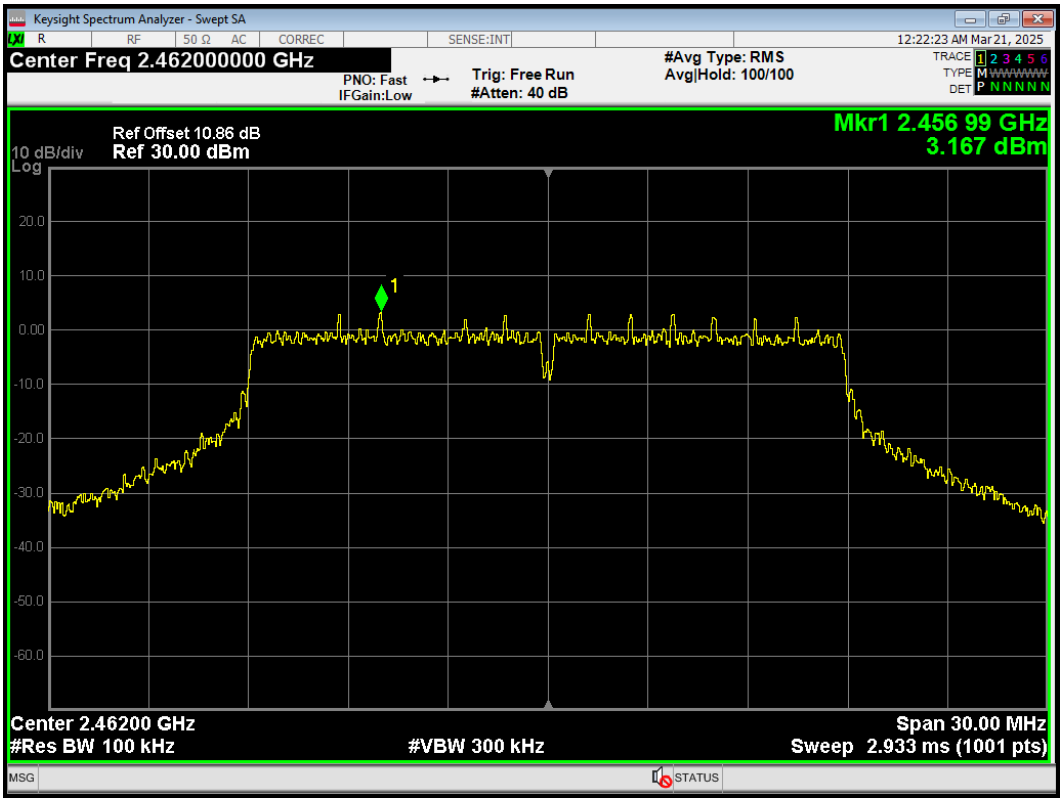
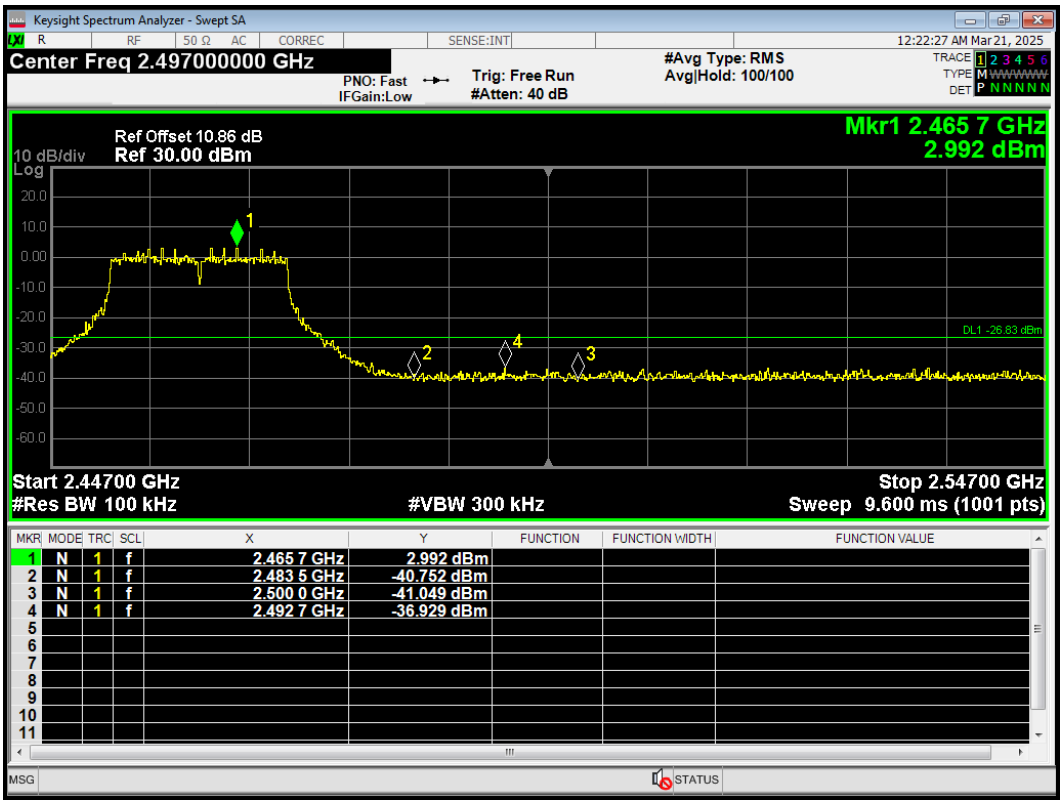
Band Edge 802.11n(HT20) 2462MHz Ref



Band Edge 802.11n(HT20) 2462MHz Emission



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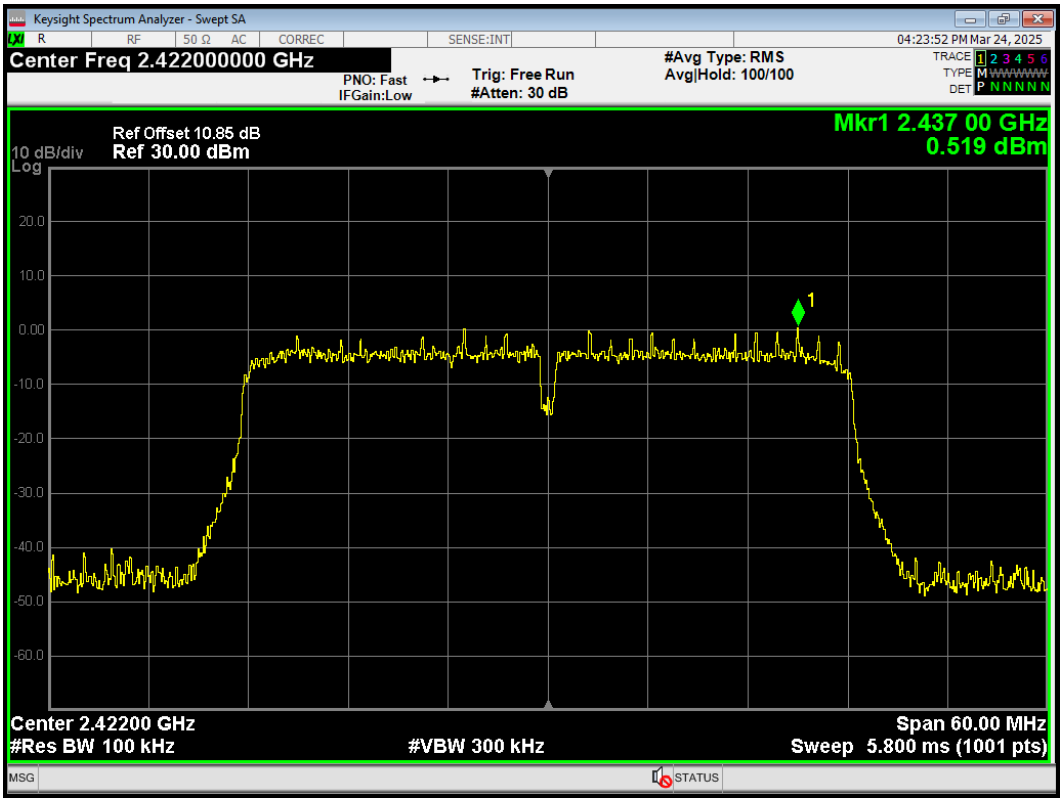
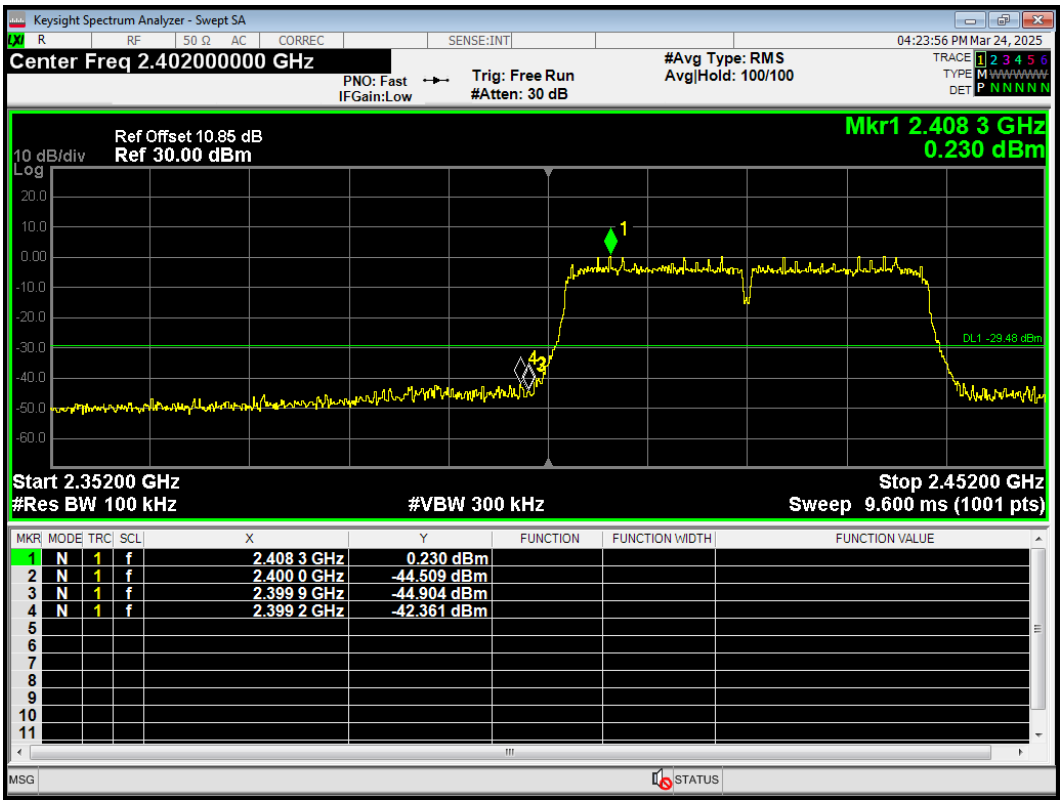
Band Edge 802.11n(HT40) 2422MHz Ref



Band Edge 802.11n(HT40) 2422MHz Emission



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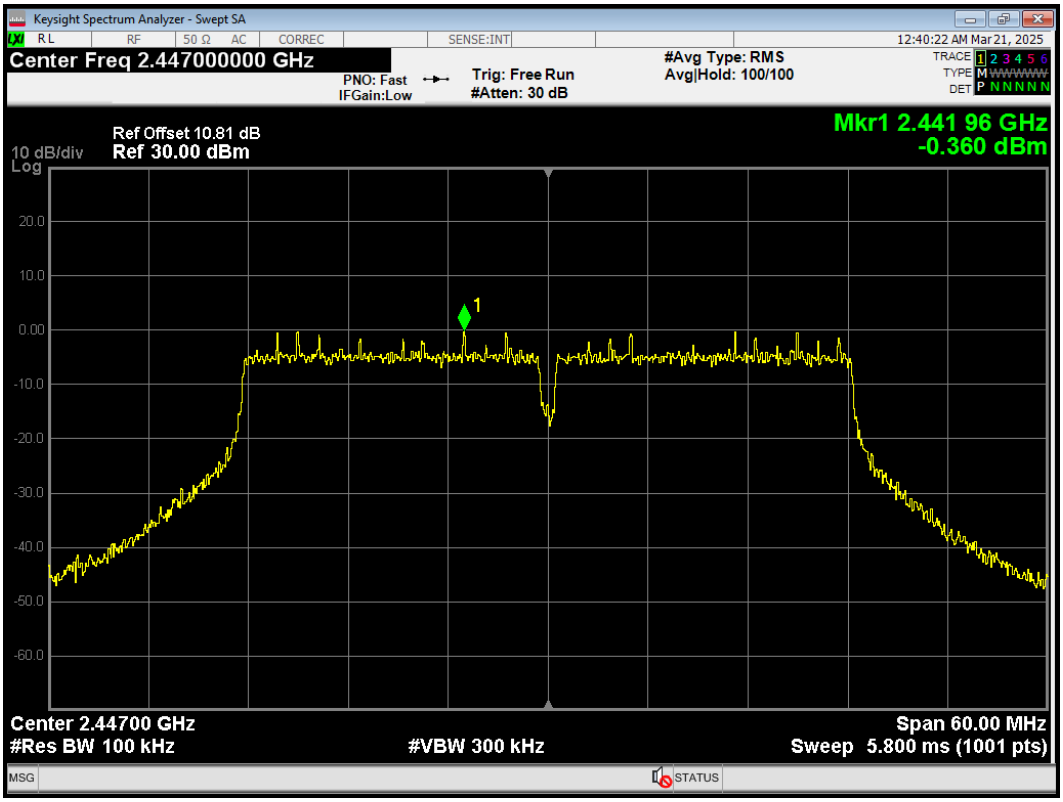
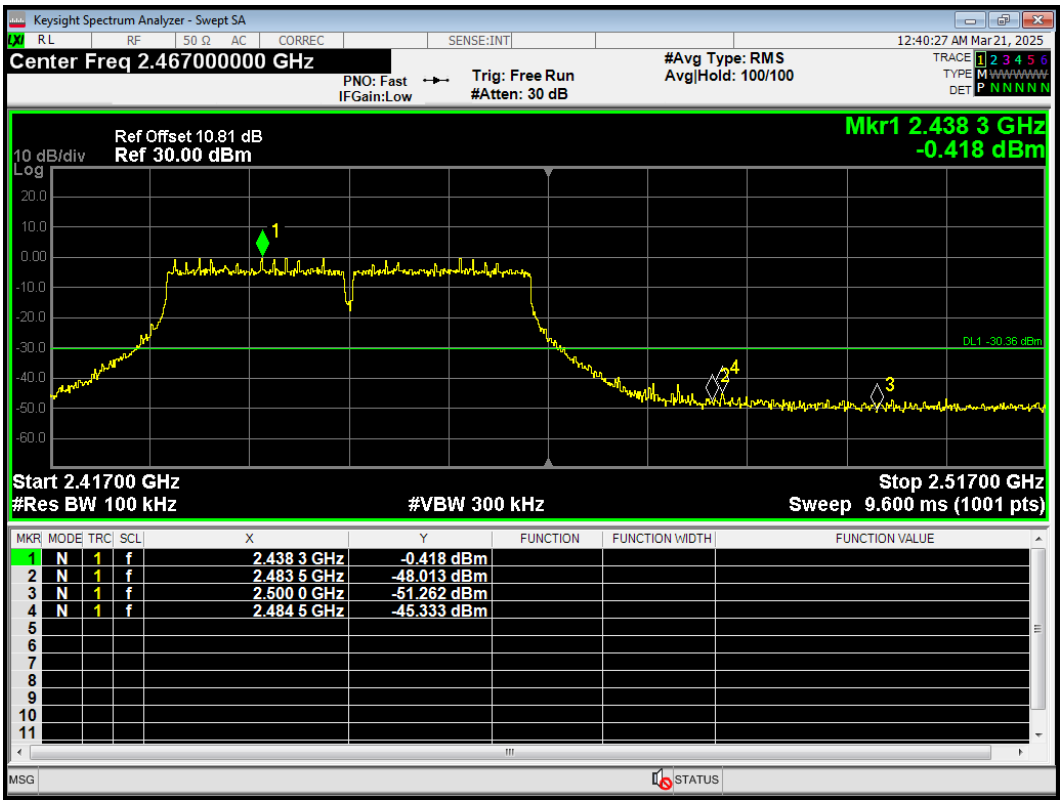
Band Edge 802.11n(HT40) 2447MHz Ref



Band Edge 802.11n(HT40) 2447MHz Emission



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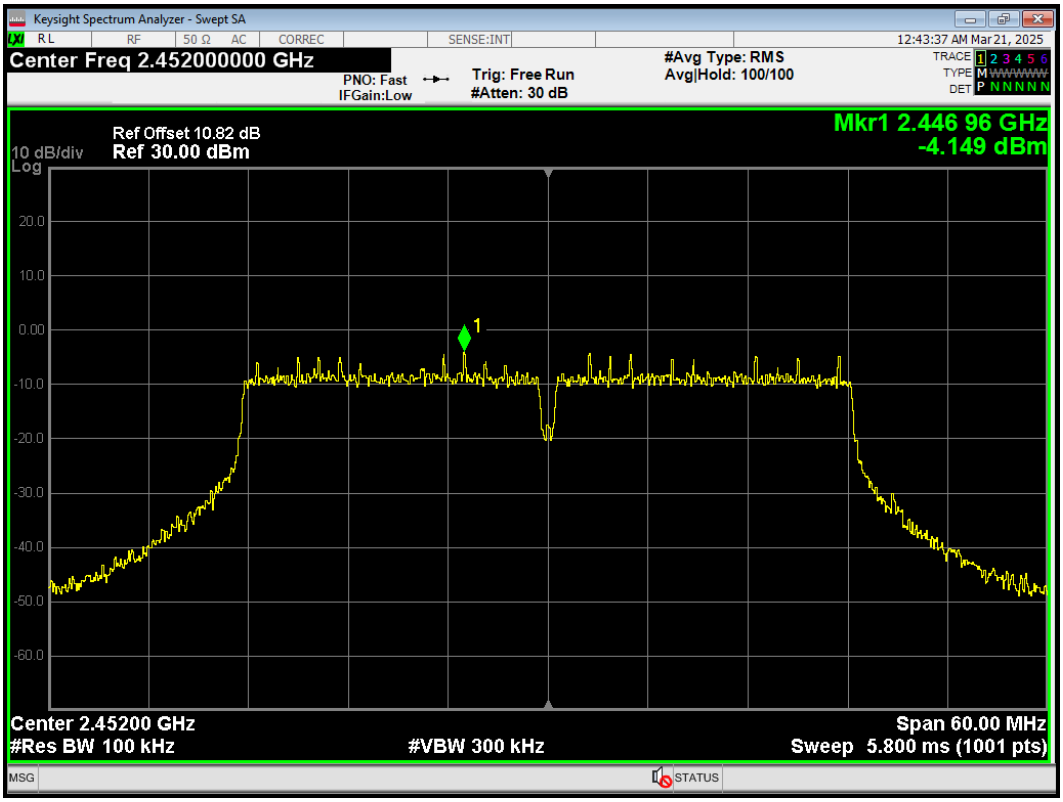
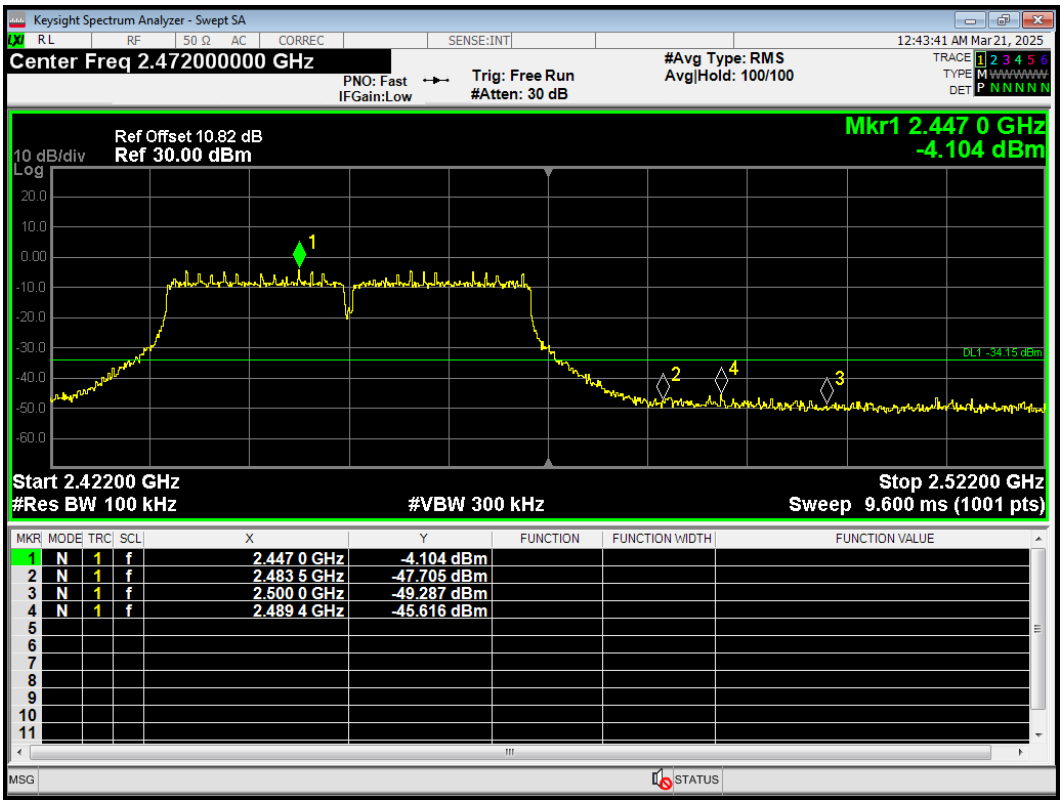
Band Edge 802.11n(HT40) 2452MHz Ref



Band Edge 802.11n(HT40) 2452MHz Emission



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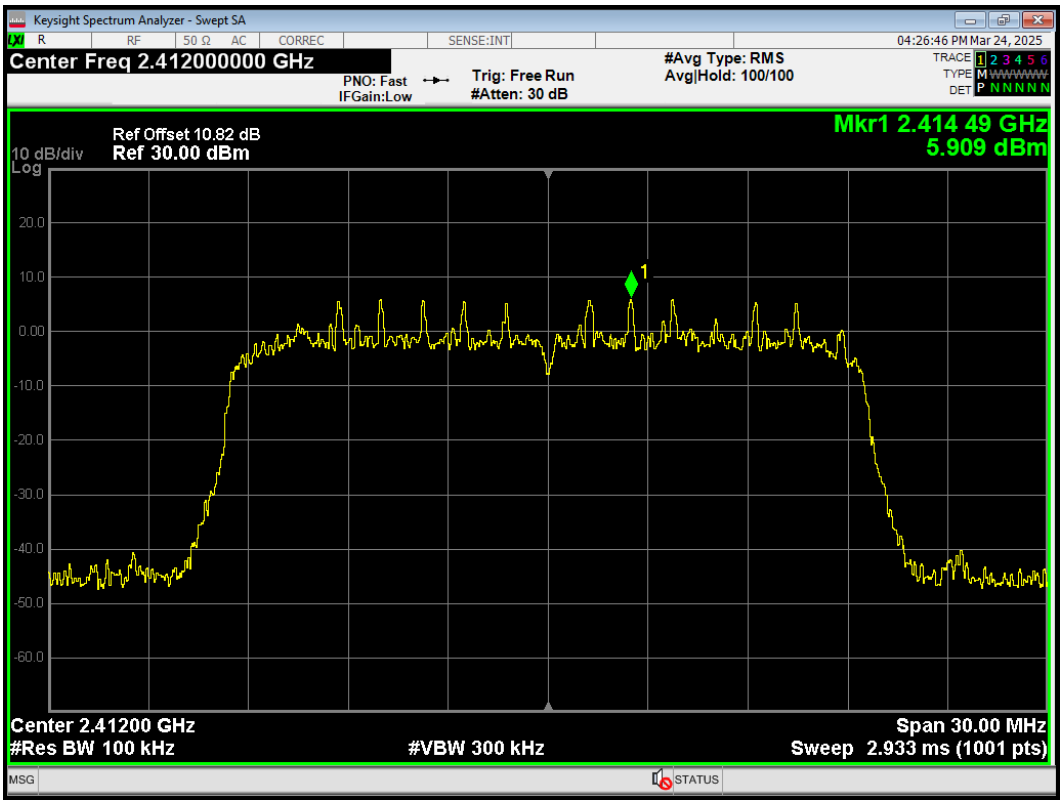
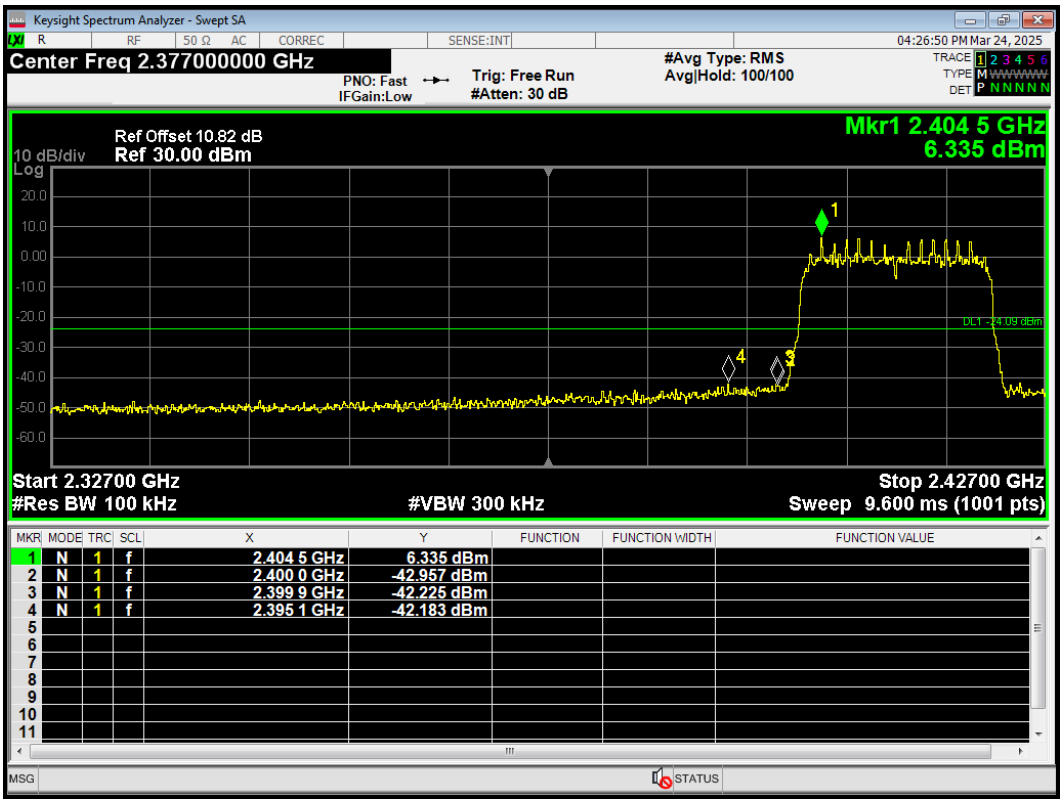
Band Edge 802.11ax HE20 242-Tones 2412MHz Ref



Band Edge 802.11ax HE20 242-Tones 2412MHz Emission



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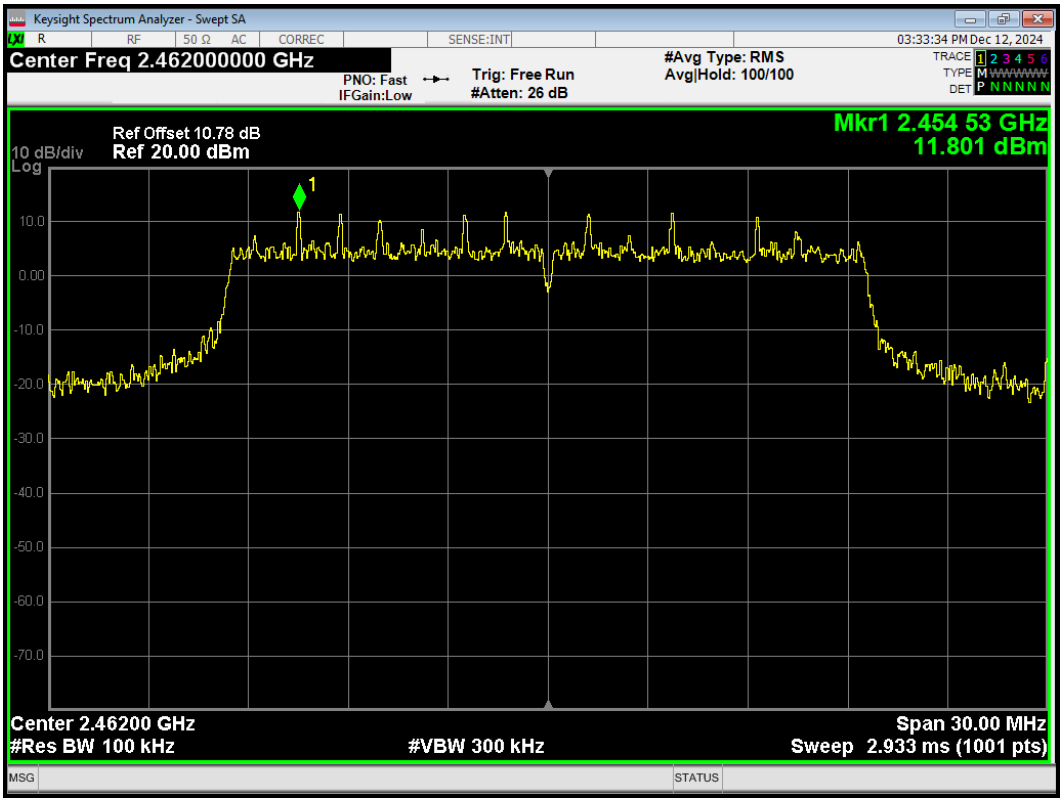
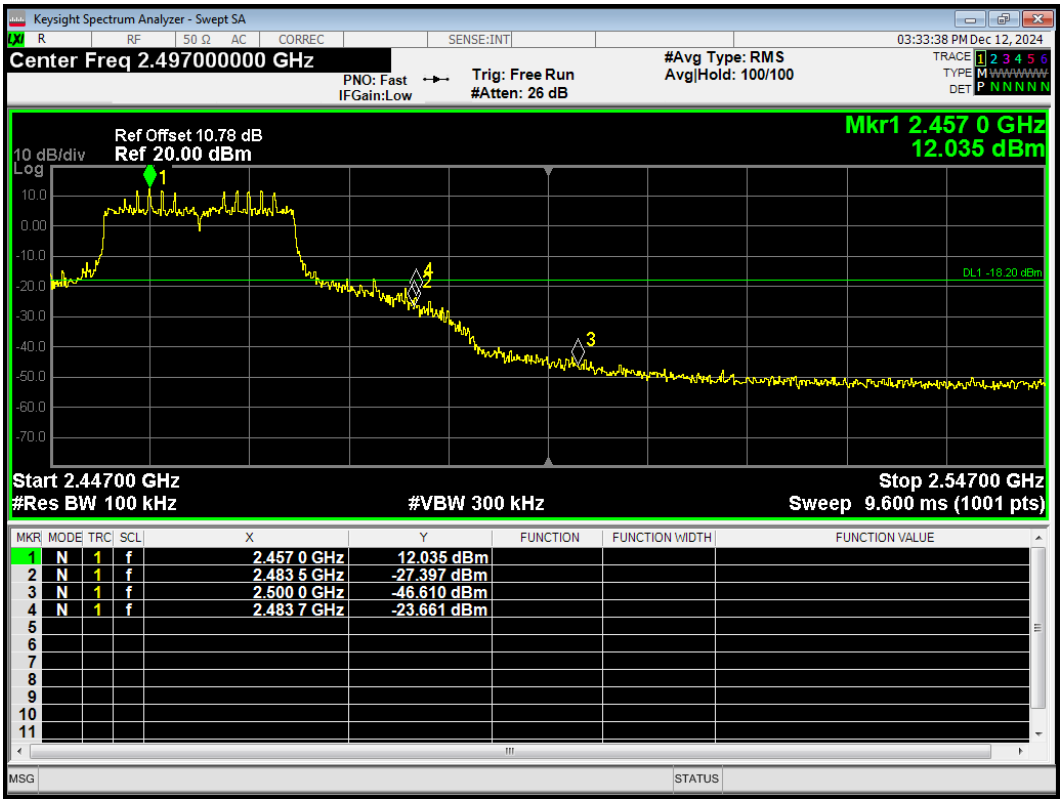
Band Edge 802.11ax(HE20) 242-Tones 2462MHz Ref



Band Edge 802.11ax(HE20) 242-Tones 2462MHz Emission



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