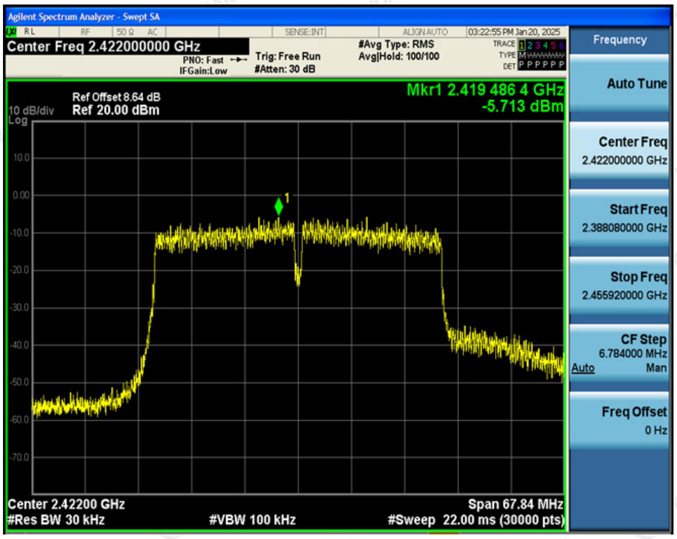
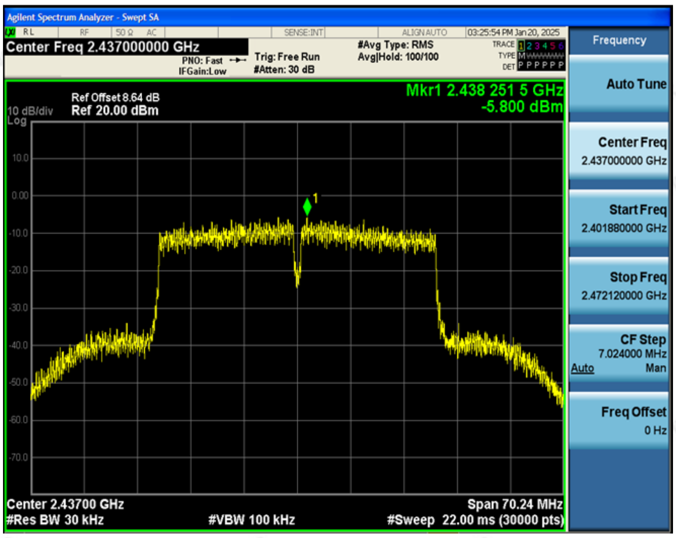
802.11n(HT40) Modulation

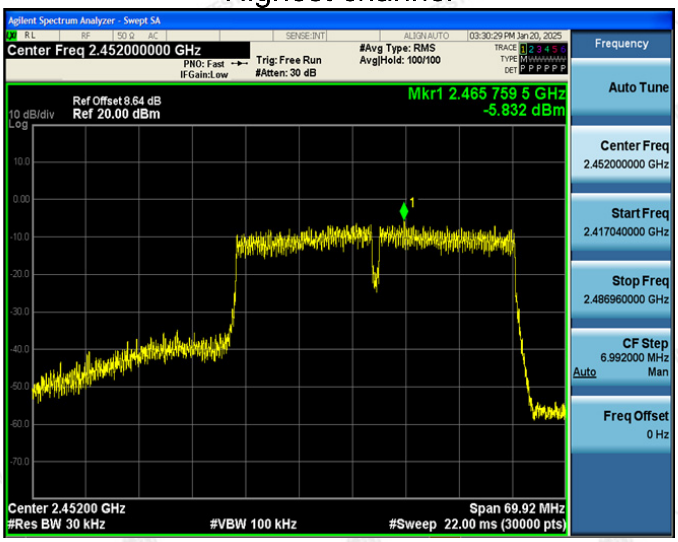
Lowest channel



Middle channel

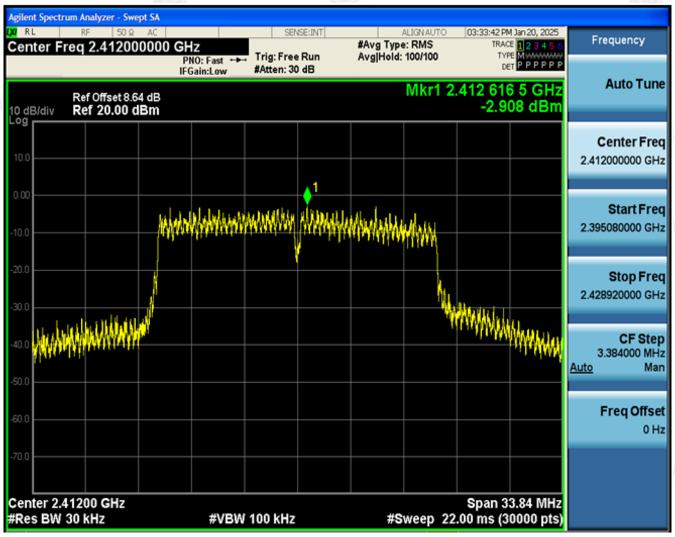


Highest channel

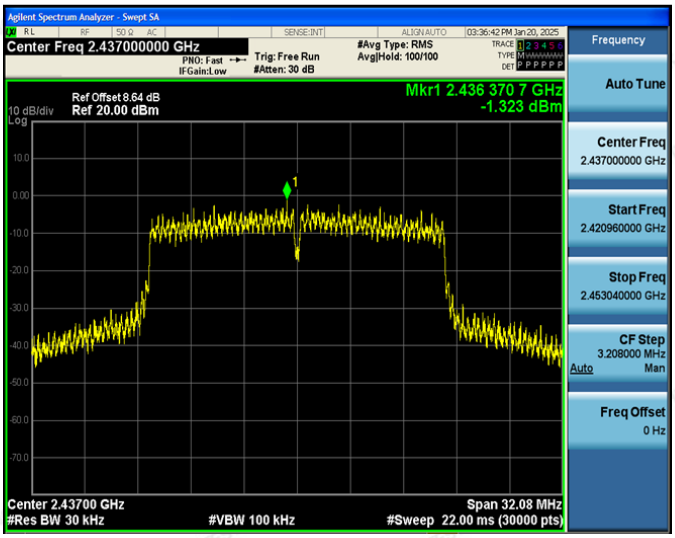


802.11ac(HT20) Modulation

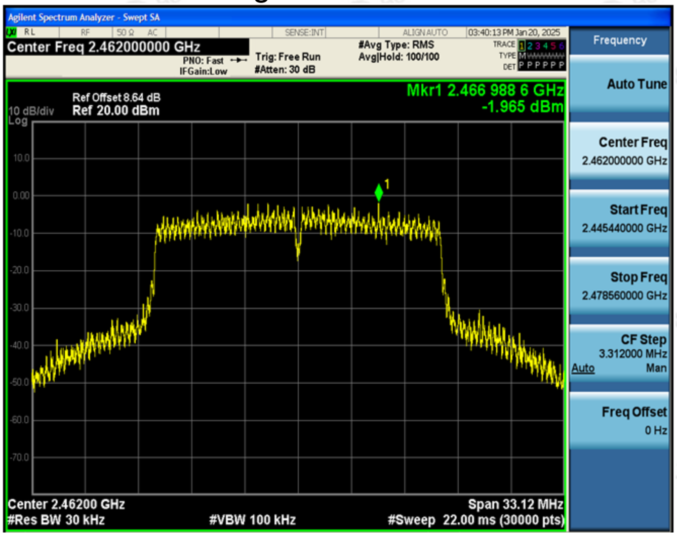
Lowest channel



Middle channel

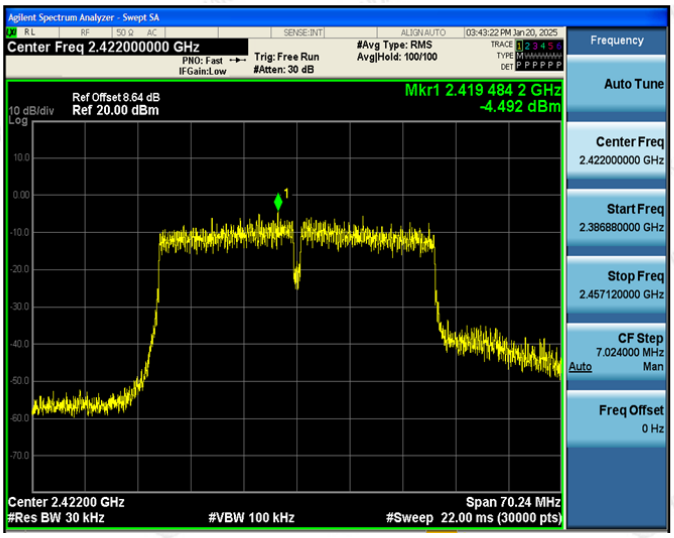


Highest channel

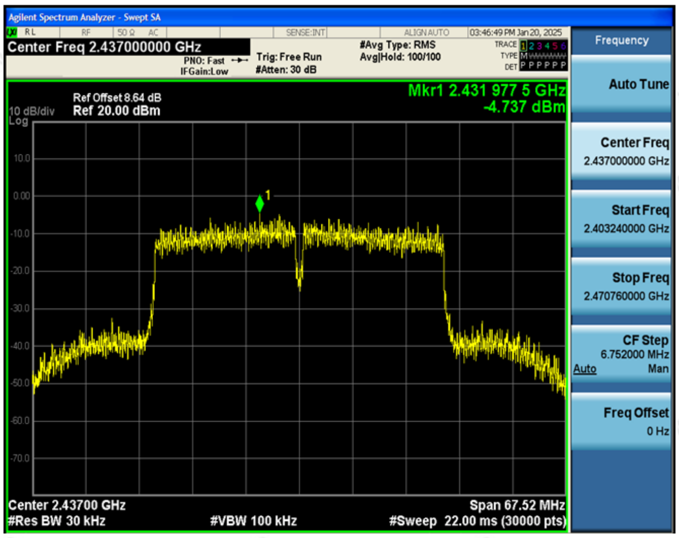


802.11ac(HT40) Modulation

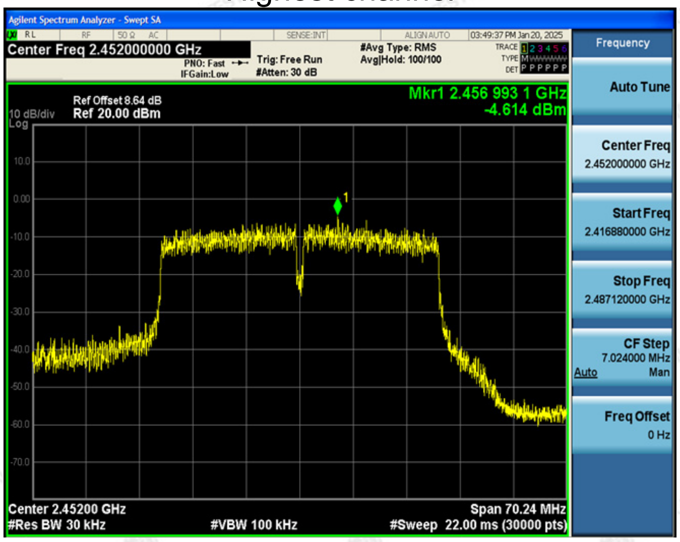
Lowest channel



Middle channel

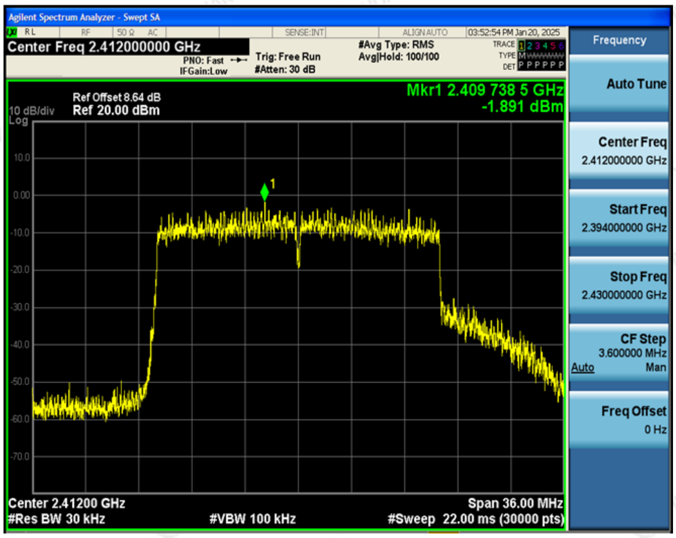


Highest channel

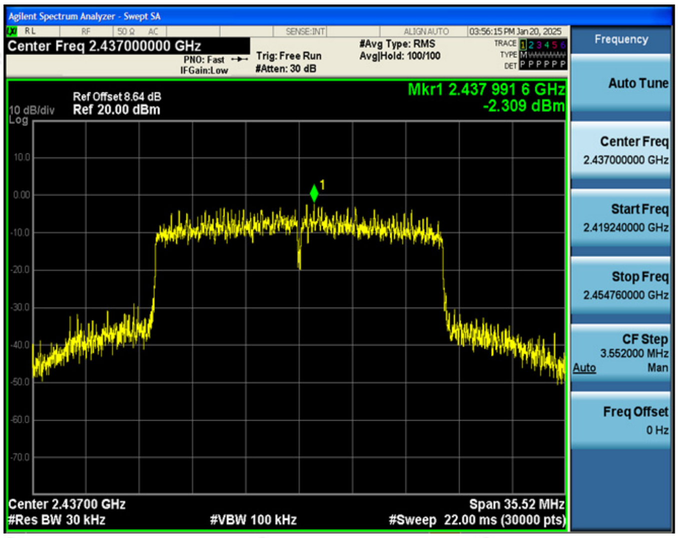


802.11ax(HE20) Modulation

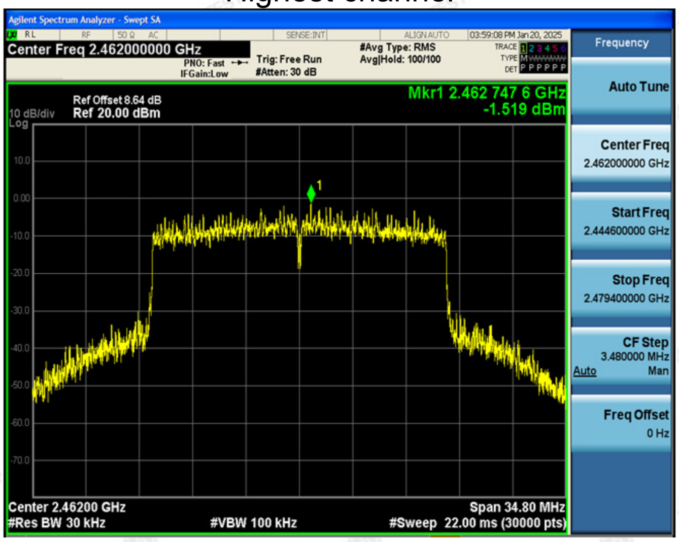
Lowest channel



Middle channel

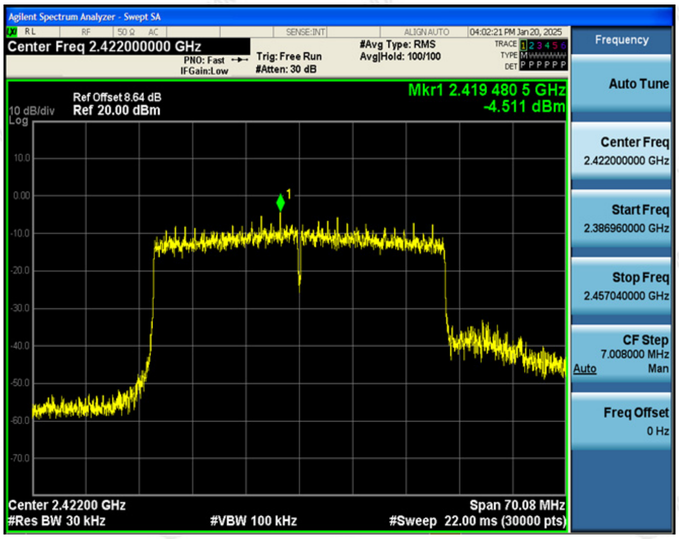


Highest channel

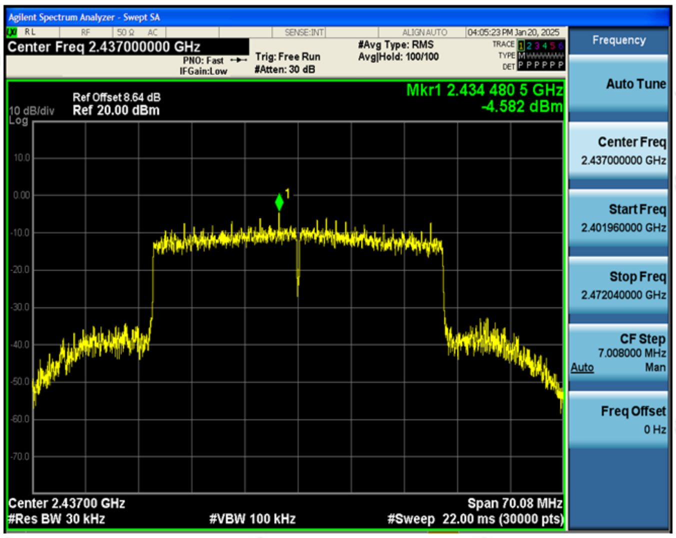


802.11ax(HE40) Modulation

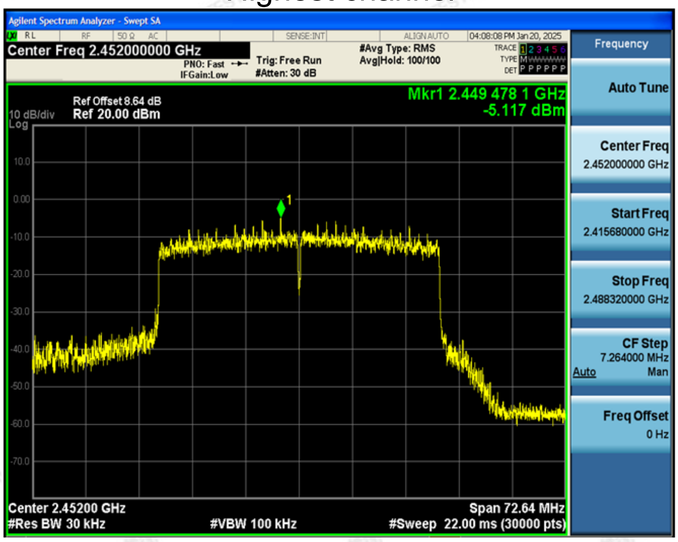
Lowest channel



Middle channel

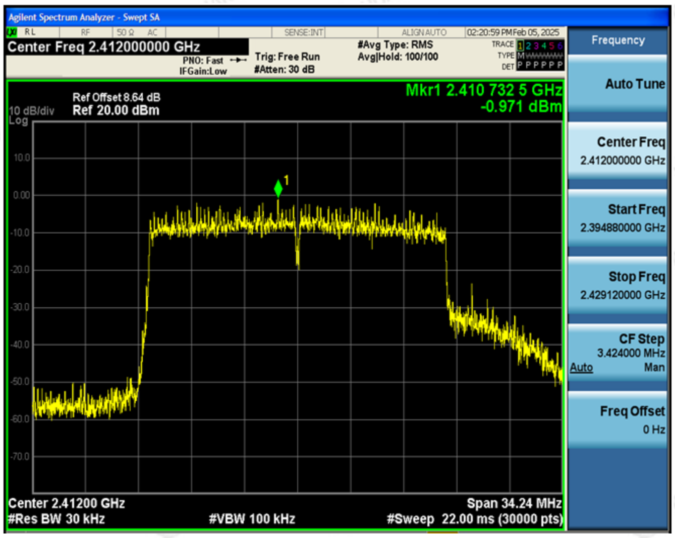


Highest channel

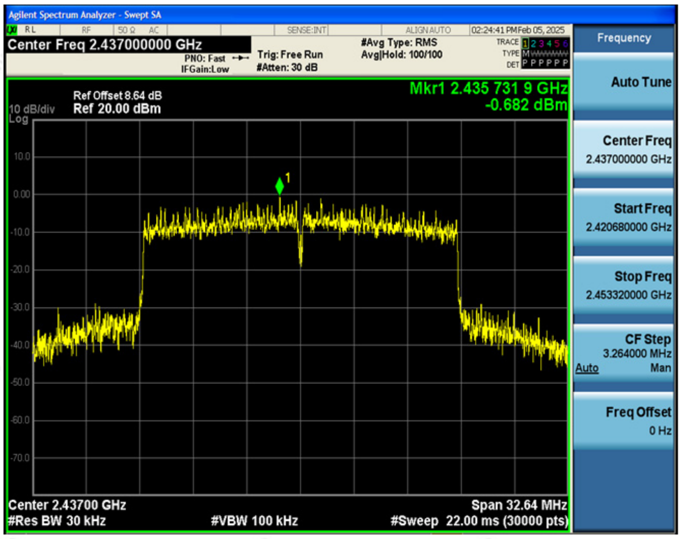


802.11be(EHT20) Modulation

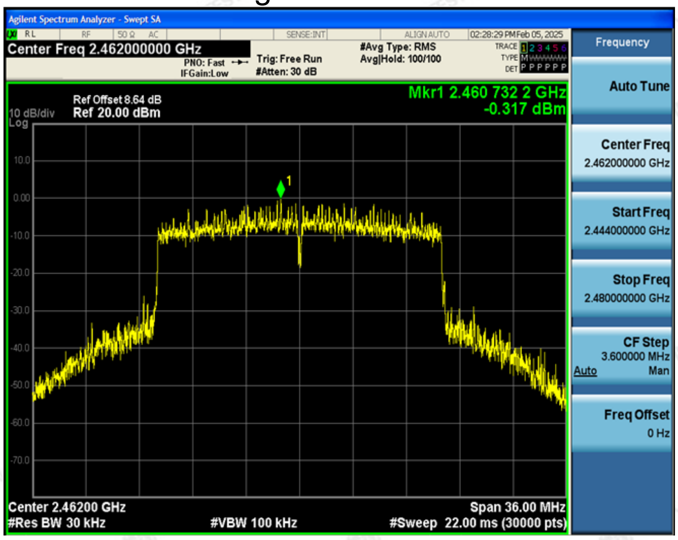
Lowest channel



Middle channel

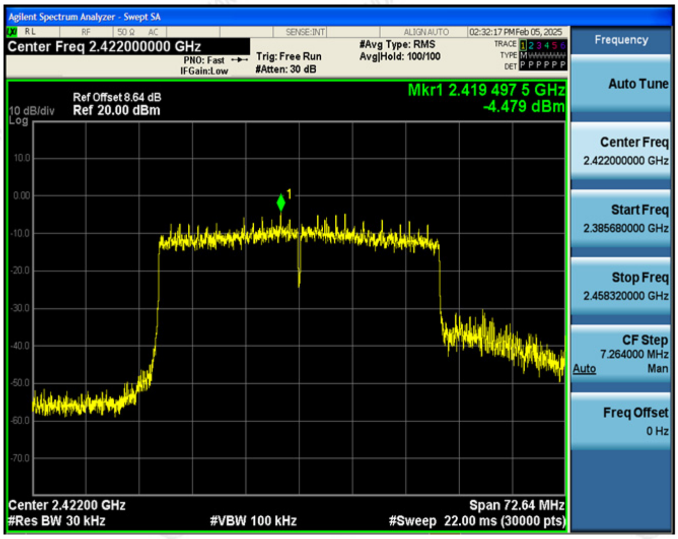


Highest channel

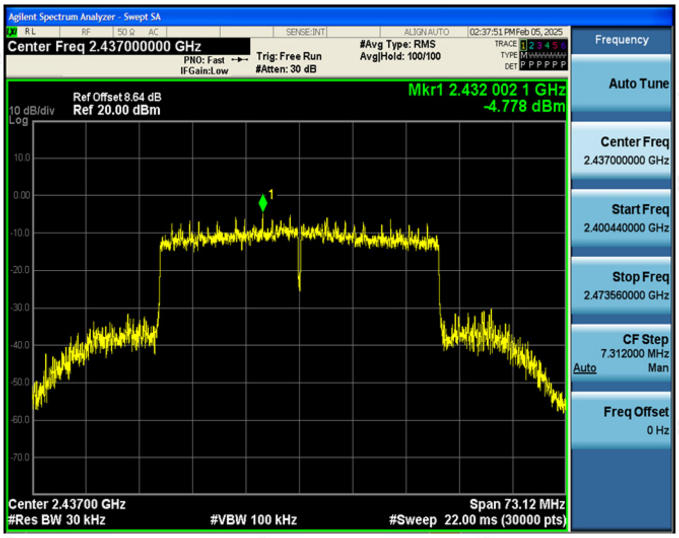


802.11be(EHT40) Modulation

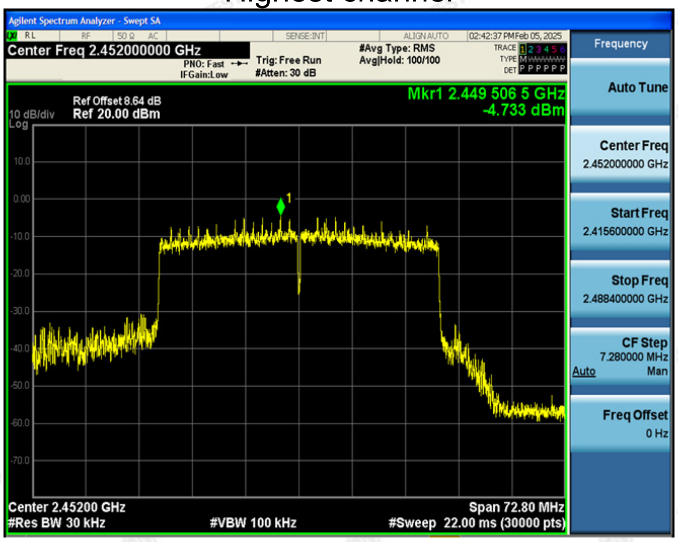
Lowest channel



Middle channel



Highest channel



For MIMO antenna port 1+antenna port 2			
Frequency	**Power Density (dBm)**	**Limit (dBm)**	**Result**
TX 802.11n/HT20 Mode			
2412 MHz	-9.79	8	PASS
2437 MHz	-9.24	8	PASS
2462 MHz	-9.14	8	PASS
TX 802.11n/HT40 Mode			
2422 MHz	-13.00	8	PASS
2437 MHz	-12.66	8	PASS
2452 MHz	-12.53	8	PASS
TX 802.11ac/HT20 Mode			
2412 MHz	-9.39	8	PASS
2437 MHz	-8.71	8	PASS
2462 MHz	-8.75	8	PASS
TX 802.11ac/HT40 Mode			
2422 MHz	-11.79	8	PASS
2437 MHz	-11.32	8	PASS
2452 MHz	-11.45	8	PASS

TX 802.11ax/HT20 Mode			
2412 MHz	-8.41	8	PASS
2437 MHz	-8.35	8	PASS
2462 MHz	-7.78	8	PASS
TX 802.11ax/HT40 Mode			
2422 MHz	-11.18	8	PASS
2437 MHz	-11.22	8	PASS
2452 MHz	-12.23	8	PASS
TX 802.11be/EHT20 Mode			
2412 MHz	-8.08	8	PASS
2437 MHz	-7.77	8	PASS
2462 MHz	-7.51	8	PASS
TX 802.11be/EHT40 Mode			
2422 MHz	-11.85	8	PASS
2437 MHz	-11.92	8	PASS
2452 MHz	-11.83	8	PASS

Note: 1. According to KDB 662911, Result power = 10log($10^{(ant1/10)}$+$10^{(ant2/10)}$).
2. Result unit: W, The end result is converted to units of dBm.
limit=8dBm-(direction gain-6dBi)= 8dBm
3. This product supports antenna 1, and antenna 2 launch, but only support 802.11n/802.11ac/802.11ax/802.11be for MIMO mode, not support 802.11b and 802.11g for MIMO mode.

4.5 Conducted Band Edge and Spurious Emission Measurement

4.5.1 Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D01 15.247 Meas Guidance v05r02
Limit:	In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).
Test Setup:	
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. The testing follows FCC KDB Publication No. 558074 D01 15.247 Meas Guidance v05r02. 2. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement. 3. Set to the maximum power setting and enable the EUT transmit continuously. 4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d). 5. Measure and record the results in the test report. 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
Test Result:	PASS

4.5.2 Test Instruments

RF Test Room					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 20, 2024	Feb. 19, 2025
RF cable	Times	1-40G	HKE-034	Feb. 20, 2024	Feb. 19, 2025
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 20, 2024	Feb. 19, 2025
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	N/A	N/A

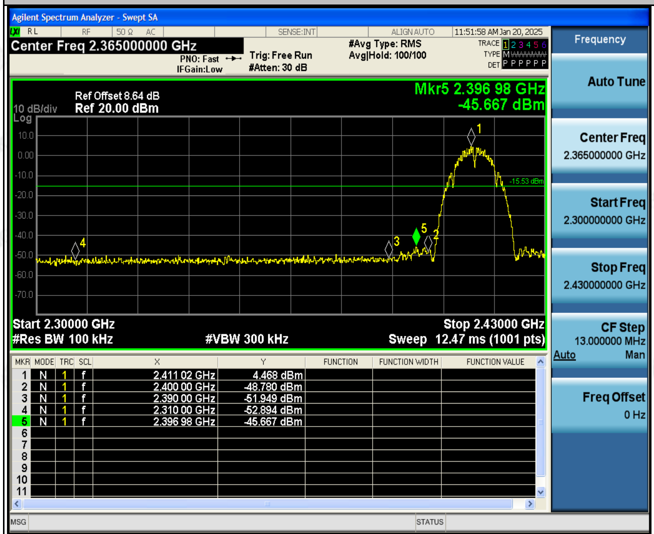
Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : service@cer-mark.com
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

4.5.3 Test Data

Chain 1

802.11b Modulation

<table>
<tr><th>Lowest Channel</th><th>Highest Channel</th></tr>
<tr><th>Band Edge</th><th>Band Edge</th></tr>
<tr><td>
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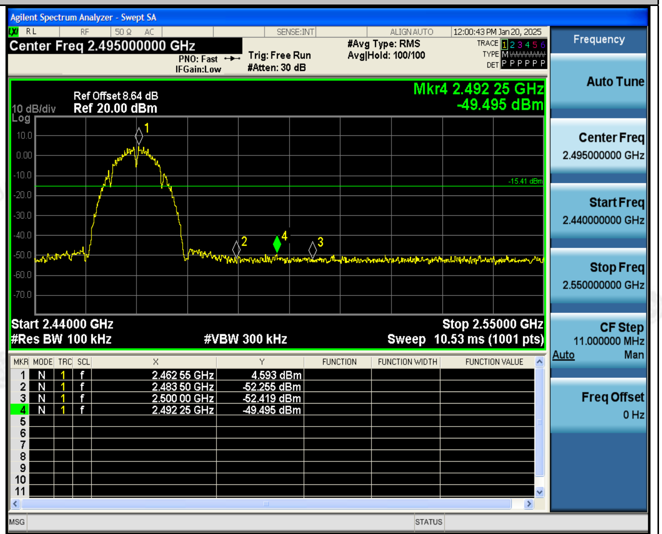
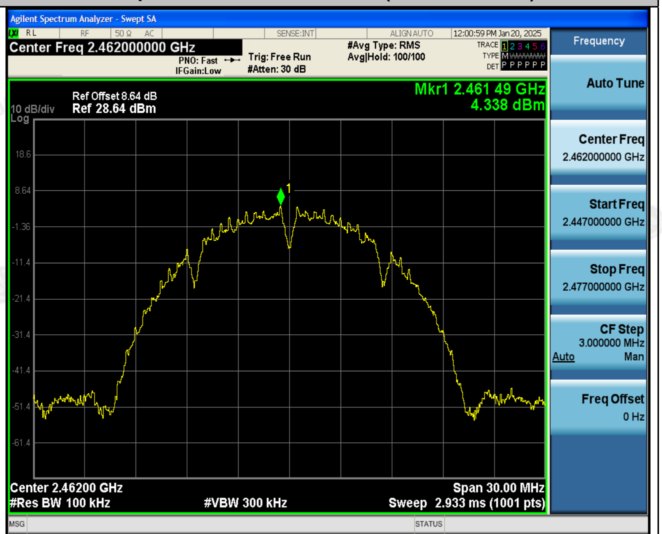
<td>
</td></tr>
<tr><th>Spurious Emission(2412MHz)</th><th>Spurious Emission(2462MHz)</th></tr>
<tr><td>
</td>
<td>
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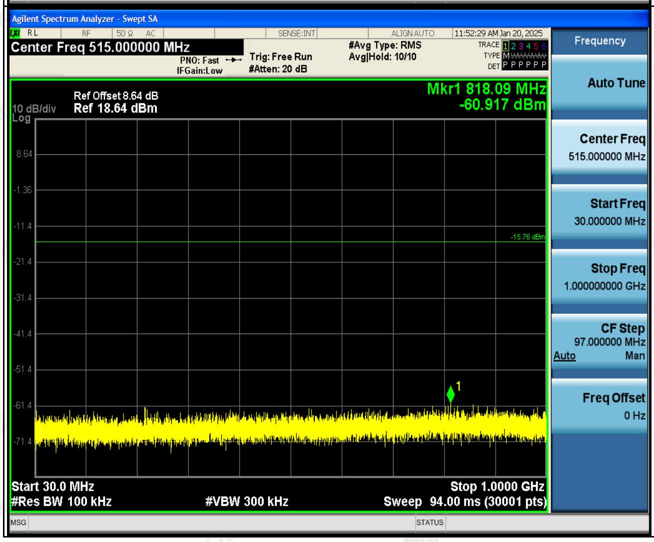
<tr><td>
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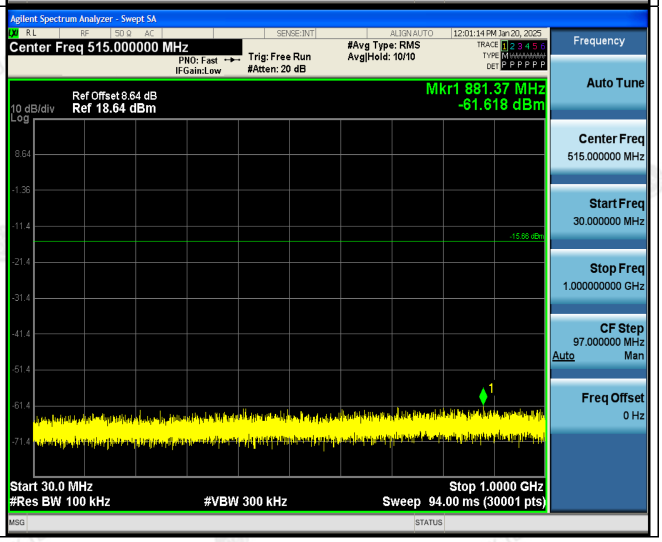
<td>
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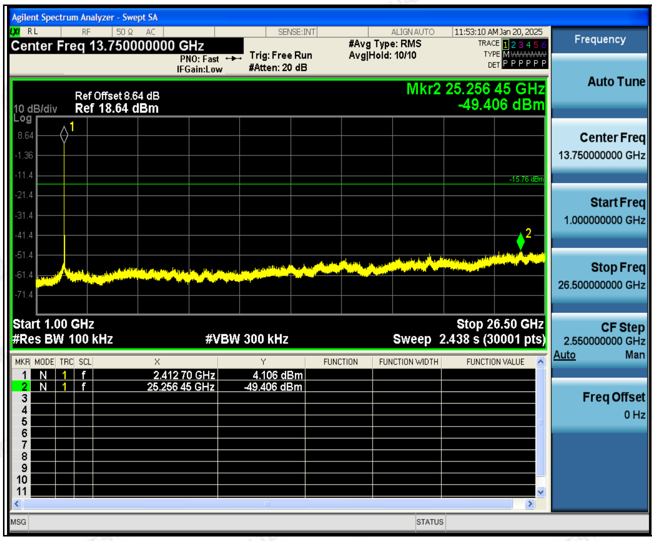
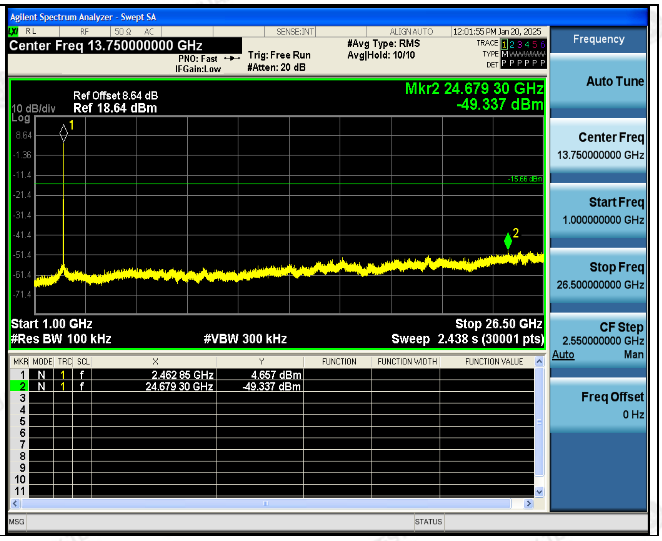
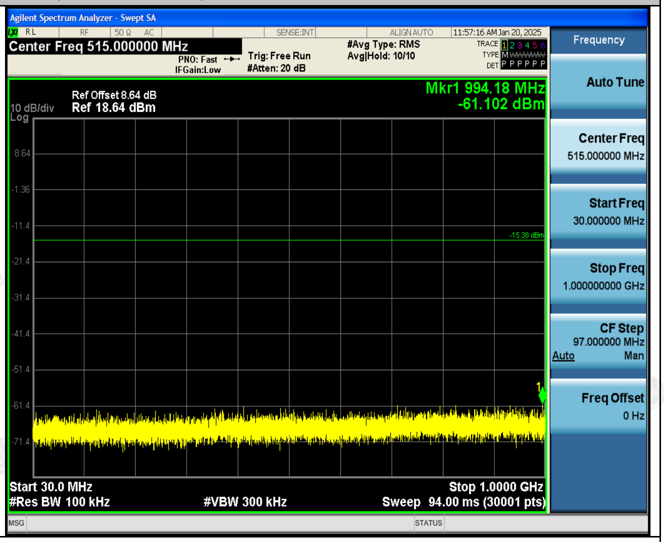
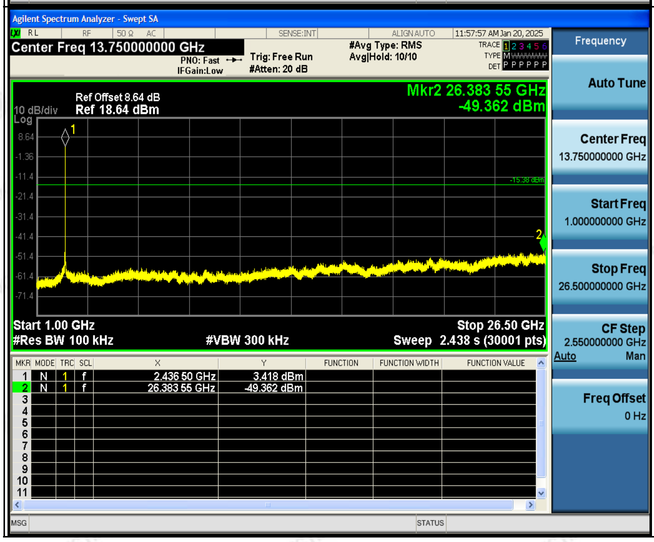




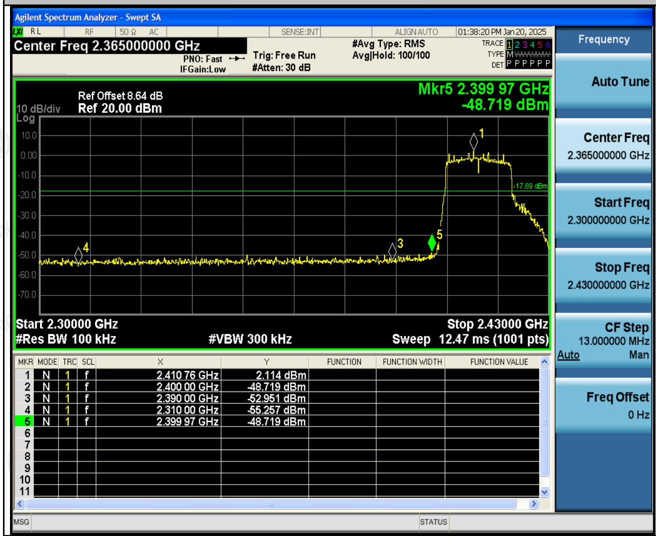
Spurious Emission(2437MHz)

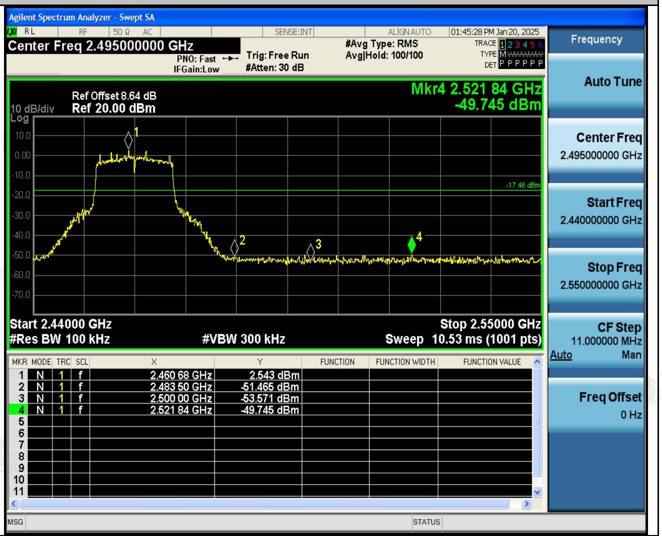




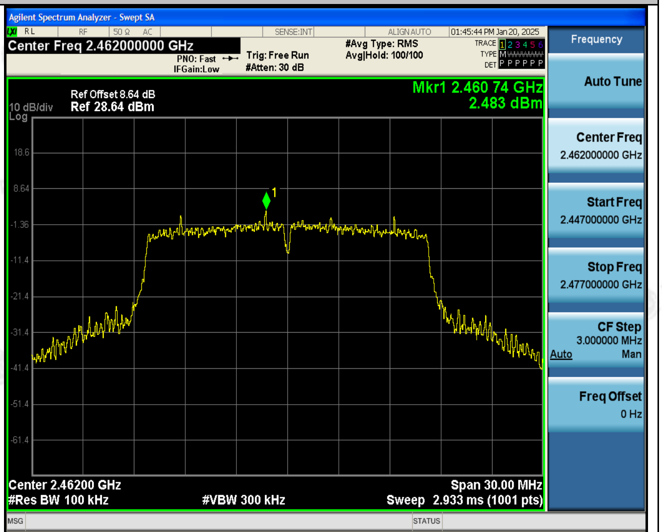
802.11g Modulation

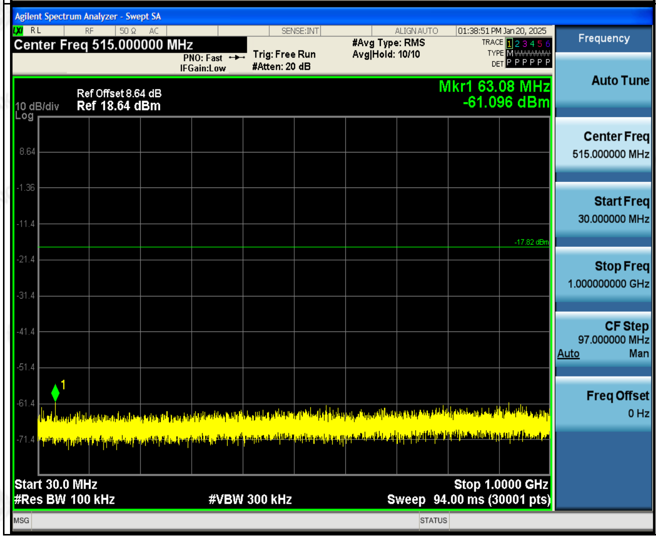
Lowest Channel	Highest Channel
Band Edge	Band Edge

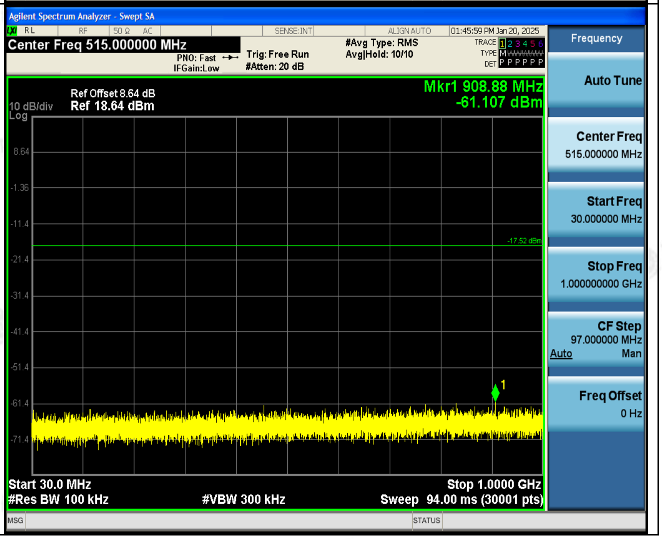


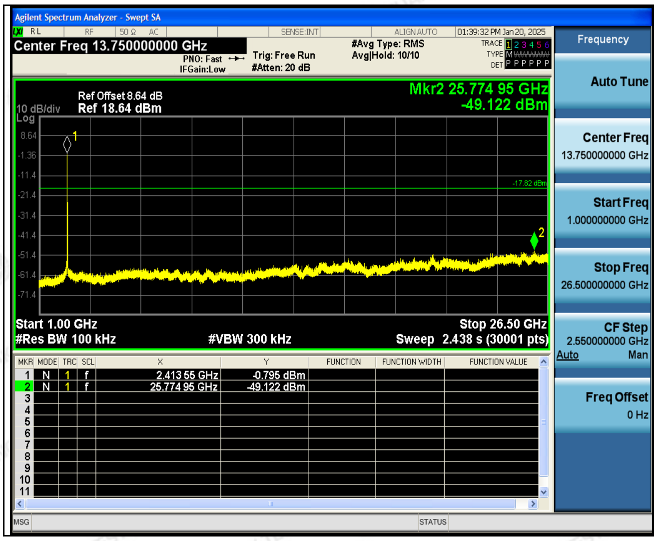


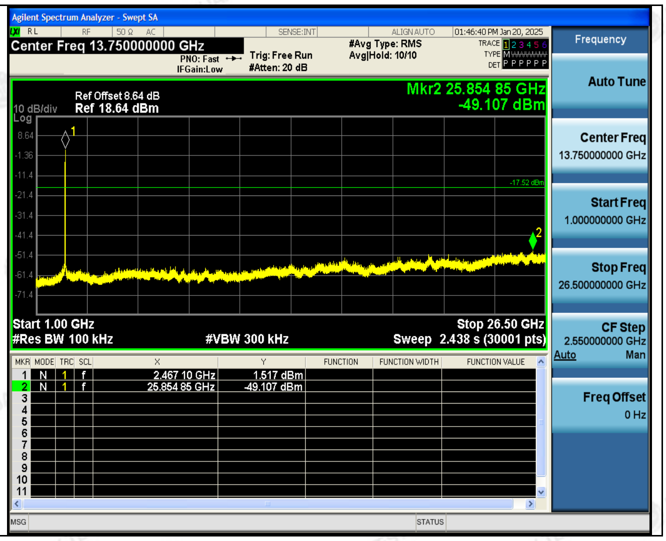
Spurious Emission(2412MHz)	Spurious Emission(2462MHz)



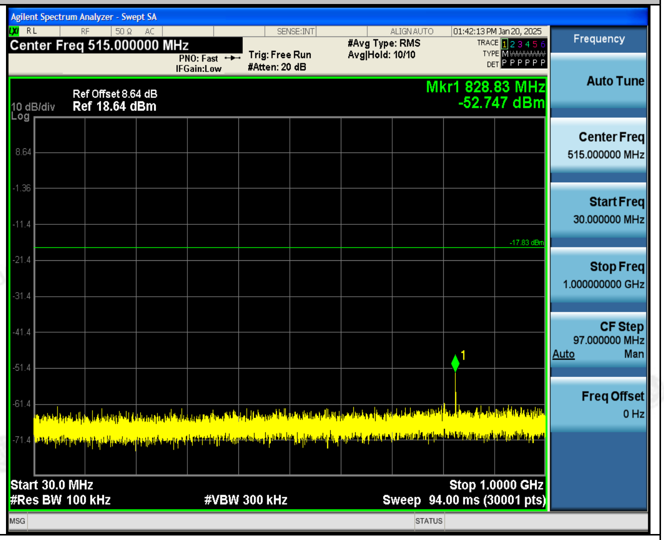


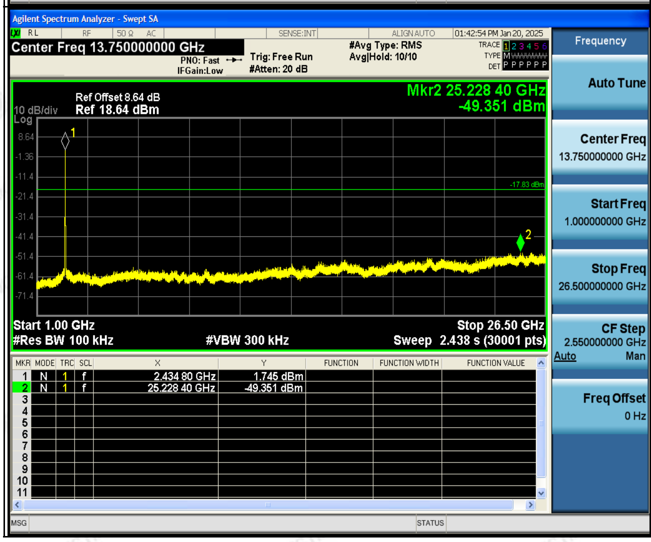






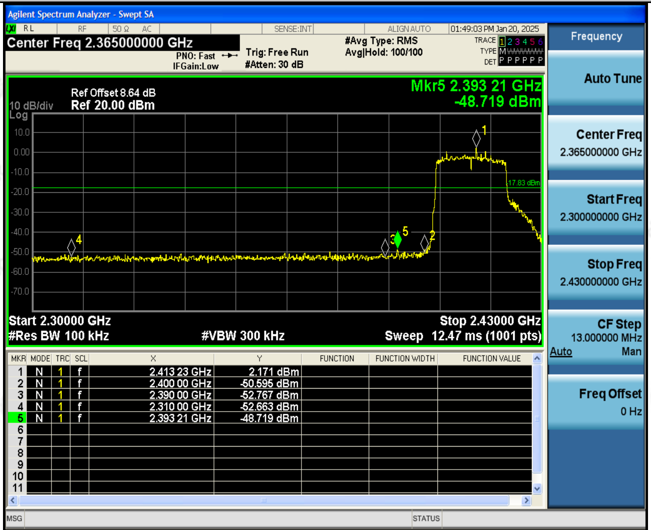
Spurious Emission(2437MHz)

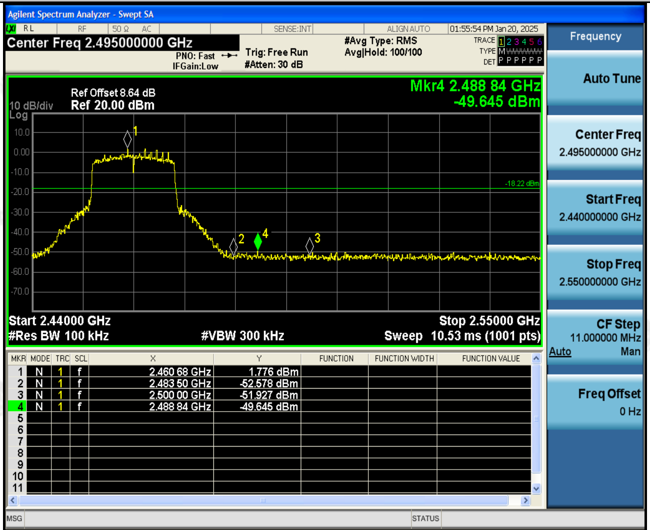




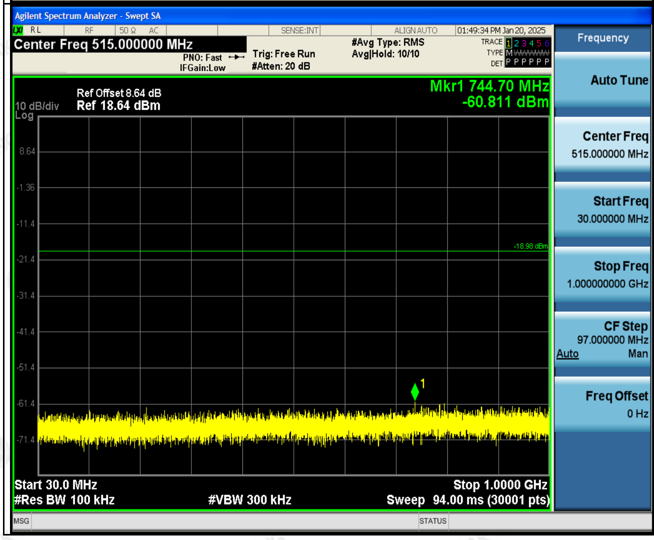
802.11n(HT20) Modulation

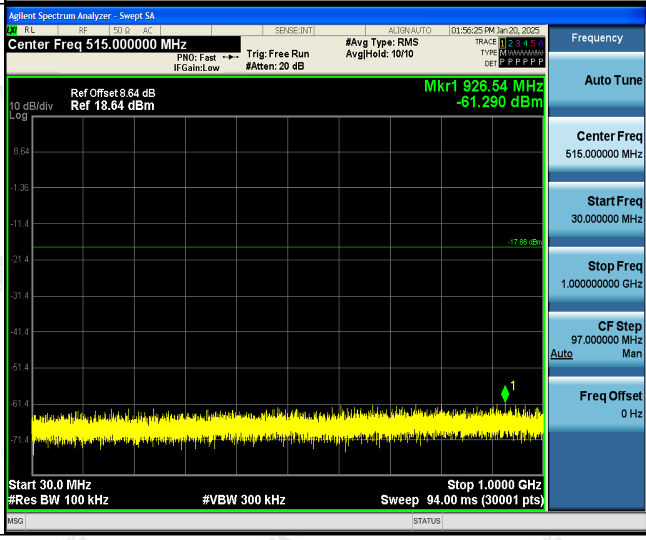
Lowest Channel	Highest Channel
Band Edge	Band Edge

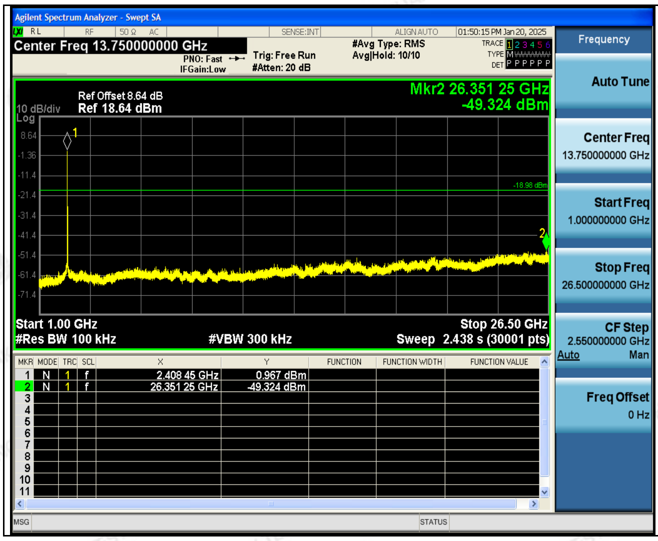


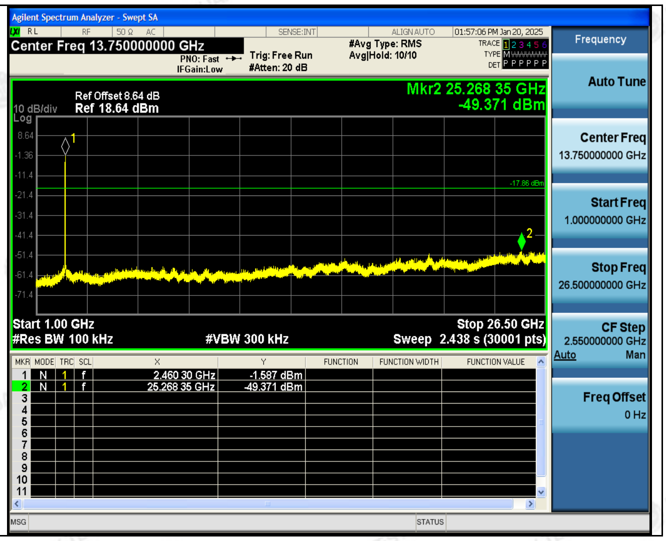


Spurious Emission(2412MHz)	Spurious Emission(2462MHz)

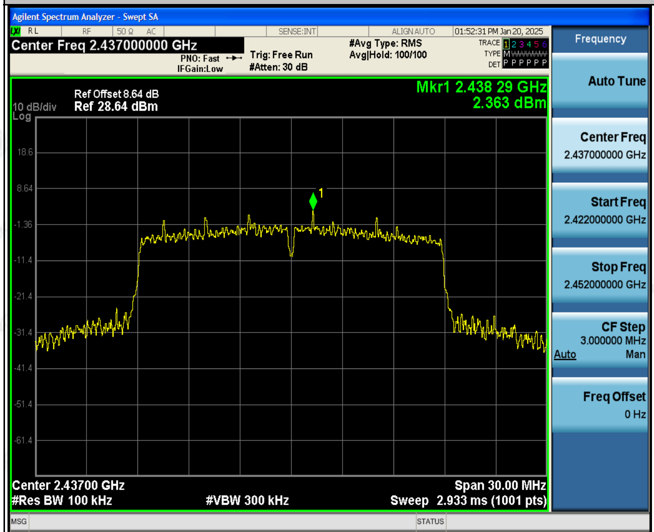


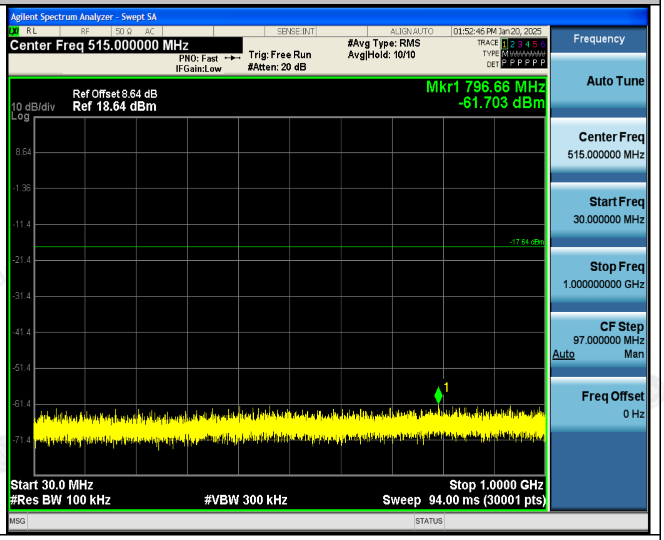


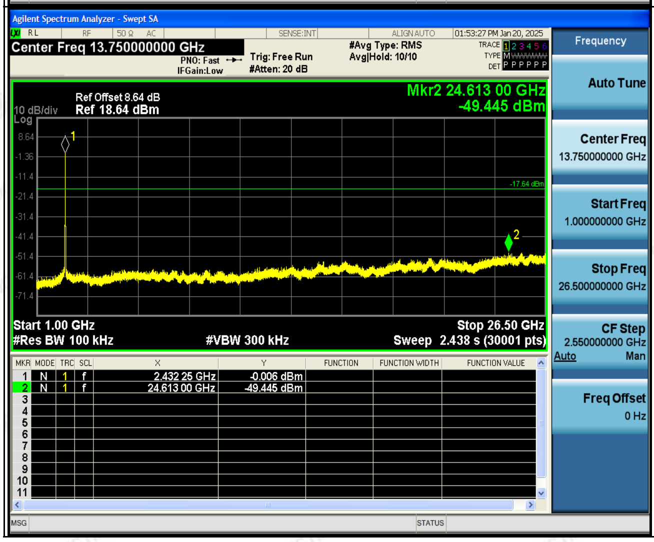




Spurious Emission(2437MHz)







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