

FCC Test Report

**Test Report
On Behalf of
Dongguan Aika Electronic Technology Co., Ltd.
For
Kids Karaoke Machine - Sparkle
Model No.: Sparkle K1**

FCC ID: 2BCRN-SPARKLEK1

Prepared For: Dongguan Aika Electronic Technology Co., Ltd.
Room 201, Building 2, No. 388, Bihu Road, Fenggang Town Dongguan City,
Guangdong Province, China

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Date of Test: Jan. 12, 2026 ~ Apr. 16, 2026

Date of Report: Apr. 16, 2026

Report Number: HK2601120080-1E

Test Result Certification

Applicant's Name.....: Dongguan Aika Electronic Technology Co., Ltd.
Address: Room 201, Building 2, No. 388, Bihu Road, Fenggang Town
Dongguan City, Guangdong Province, China
Manufacturer's Name: Guangdong Taide Zhilian Technology Co., Ltd.
Address: No. 388, Bihu Avenue, Fenggang Town, Dongguan
City, Guangdong Province, China

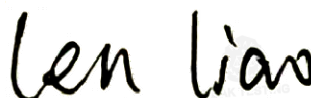
Product Description

Trade Mark: Ikarao
Product Name.....: Kids Karaoke Machine - Sparkle
Model(s) Name: Sparkle K1
Standards: FCC Rules and Regulations Part 15 Subpart C Section 15.247
ANSI C63.10: 2020

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Date of Test.....:
Date (s) of Performance of Tests: **Jan. 12, 2026 ~ Apr. 16, 2026**
Date of Issue.....: **Apr. 16, 2026**
Test Result.....: **Pass**

Testing Engineer



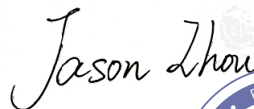
Len Liao

Technical Manager



Sliver Wan

Authorized Signatory



Jason Zhou



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**** Issued History ****

Revision	Description	Issued Date	Remark
Revision 1.0	Initial Test Report Release	Apr. 16, 2026	Jason Zhou



1. Test Result Summary

1.1 Test Procedures and Results

Test Item	Standard Section	Result
Antenna Requirement	§15.203/§15.247(b)(4)	PASS
AC Power Line Conducted Emission	§15.207	PASS
Conducted Peak Output Power	§15.247(b)(3)	PASS
6dB Emission Bandwidth	§15.247(a)(2)/ §15.215	PASS
Power Spectral Density	§15.247(e)	PASS
Band Edge	§15.247(d)	PASS
Spurious Emission	§15.205/§15.209	PASS

Note:

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

1.2 Information of the Test Laboratory

Shenzhen HUAKE Testing Technology Co., Ltd.

Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

1.3 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission 0.15~30MHz	$\pm 2.22\text{dB}$
2	All Emissions, Radiated(<1G)	$\pm 3.60\text{dB}$
3	All Emissions, Radiated(1-18G)	$\pm 3.86\text{dB}$
4	All Emissions, Radiated(18-40G)	$\pm 4.76\text{dB}$
5	Transmitter Power Conducted	$\pm 0.37\text{dB}$
6	Conducted Spurious Emission	$\pm 2.20\text{dB}$
7	Occupied Bandwidth	$\pm 3.68\%$
8	Temperature	$\pm 0.1^{\circ}\text{C}$
9	Humidity	$\pm 1.0\%$



2. EUT Description

2.1 General Description of EUT

Product Name:	Kids Karaoke Machine - Sparkle
Model Name:	Sparkle K1
Series Model(s):	N/A
Model Difference:	N/A
Antenna Type:	FPC Antenna
Antenna Gain:	3.36dBi
Operation Frequency:	802.11b/g/n(HT20)/ax(HE20):2412~2462 MHz 802.11n(HT40)/ax(HE40): 2422~2452MHz
Number of Channels:	802.11b/g/ n(HT20)/ax(HE20): 11CH 802.1n(HT40)/ax(HE40): 7CH
Modulation Type:	DSSS, OFDM, OFDMA
Power Source:	DC 12V, 1A From Adapter with AC 100-240V, 50/60Hz, 0.4MAX
Power Rating:	DC 12V, 1A From Adapter with AC 100-240V, 50/60Hz, 0.4MAX
Hardware Version:	V1.0
Software Version:	V1.0
Note: 1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2. Antenna gain Refer to the antenna specifications. 3. The cable loss data is obtained from the supplier. 4. The test results in the report only apply to the tested sample.	

2.2 Carrier Frequency of Channels

Channel List For 802.11b/802.11g/802.11n(HT20)/802.11ax(HE20)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452	--	--

Channel List For 802.11n(HT40)/802.11ax(HE40)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
--	--	04	2427	07	2442	--	--
--	--	05	2432	08	2447	--	--
03	2422	06	2437	09	2452	--	--

Not

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

2.3 Operation of EUT during Testing

Operating Mode

The mode is used: Transmitting mode for 802.11b/802.11g/802.11n (HT20)/802.11ax (HE20)

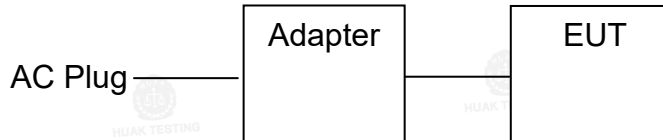
Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

The mode is used: Transmitting mode for 802.11n (HT40)/802.11ax (HE40)

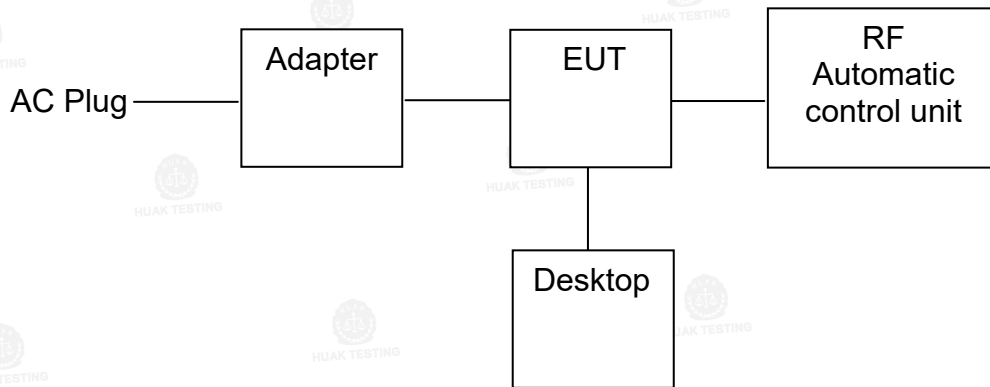
Low Channel: 2422MHz
Middle Channel: 2437MHz
High Channel: 2452MHz

2.4 Description of Test Setup

Operation of EUT during AC Conducted testing and Radiation testing:



Operation of EUT during RF Conducted testing:



The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The report only reflects the worst emission test results. The worst case is X position.

2.5 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Product Name	Trade Mark	Model Name	Specification	Remark
1	Kids Karaoke Machine - Sparkle	Ikarao	Sparkle K1	N/A	EUT
2	Adapter	N/A	CW1201000US	Input: 100-240V, 50/60Hz, 0.4MAX Output: 12V, 1.0A 12.0W	

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.



3. General Information

3.1 Test Environment and Mode

Operating Environment:

Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar

Test Mode:

Engineering Mode:	Keep the EUT in continuous transmitting by select channel and modulations
-------------------	---

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n(HT20)/ 802.11ax(HE20)	6.5Mbps
802.11n(HT40)/ 802.11ax(HE40)	13.5Mbps

Final Test Mode:

Operation Mode:	Keep the EUT in continuous transmitting with modulation
-----------------	---

1. For WIFI function, the engineering test program was provided and enabled to make EUT continuous transmit/receive.

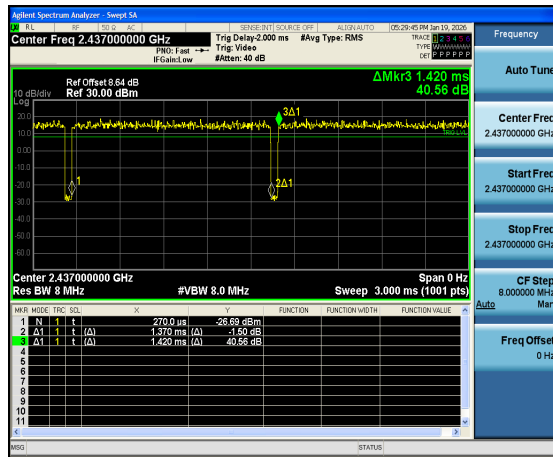
2. According to ANSI C63.10 standards, the test results are both the “worst case” and “worst setup” 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n(HT20)/ ax(HE20), 13.5Mbps for 802.11n(HT40)/ ax(HE40).

3. Mode Test Duty Cycle

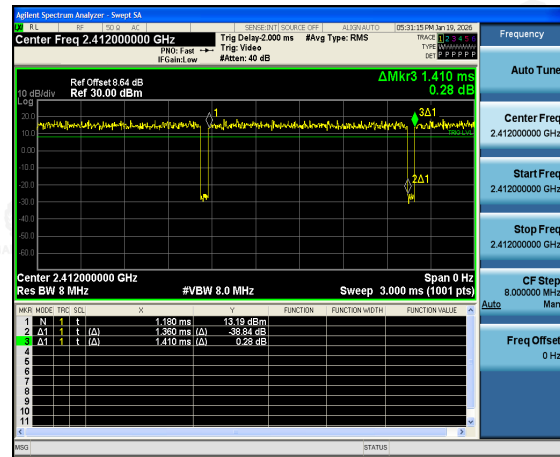
Mode	Duty Cycle
802.11b	0.9648
802.11g	0.9645
802.11n(HT20)	0.9624
802.11n(HT40)	0.9275
802.11ax(HE20)	0.9624
802.11ax(HE40)	0.9265

Test plots as follows:

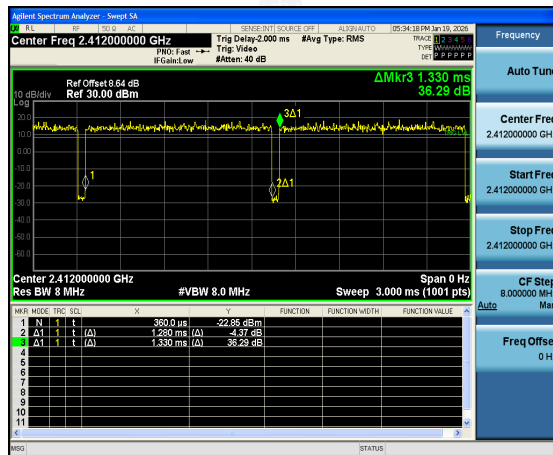
802.11b



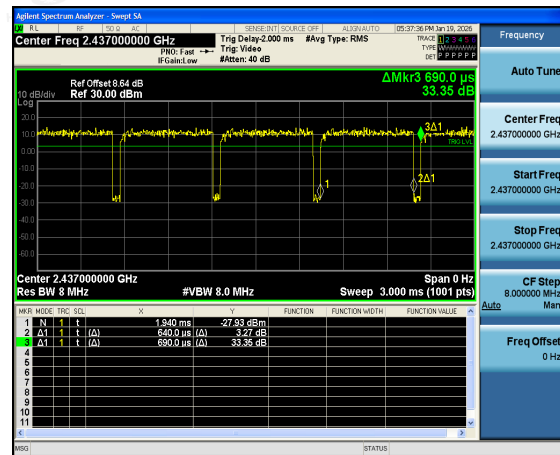
802.11g



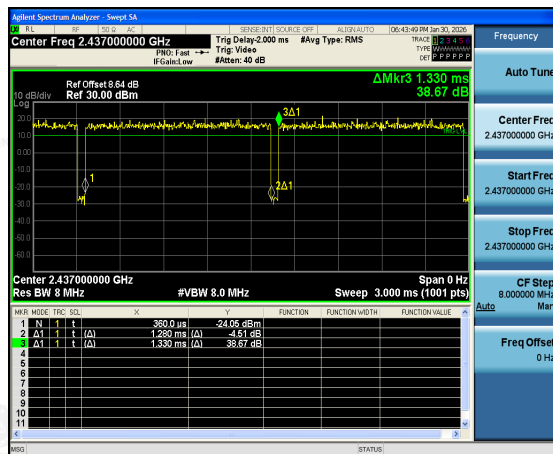
802.11n(HT20)



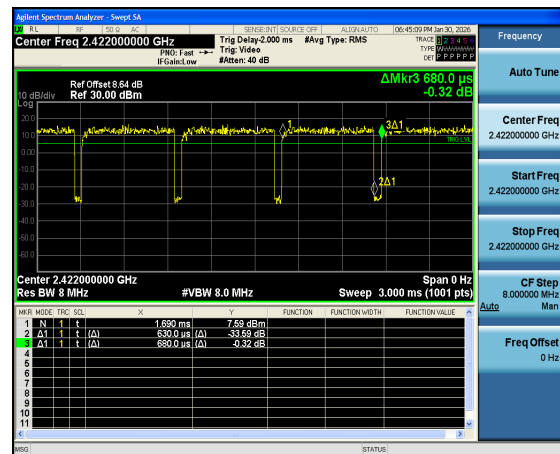
802.11n(HT40)



802.11ax(HE20)



802.11ax(HE40)



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAK Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.



4. Test Results and Measurement Data

4.1 AC Conducted Emission

Test Specification

Test Requirement:	FCC Part15 C Section 15.207														
Test Method:	ANSI C63.10: 2020														
Frequency Range:	150 kHz to 30 MHz														
Receiver Setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto														
Limits:	<table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>5-30</td><td>60</td><td>50</td></tr></table>	Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
5-30	60	50													
Test Setup:	Reference Plane 40cm E.U.T AC power 80cm LISN Filter AC power EMI Receiver Test table/Insulation plane Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m														
Test Mode:	Transmitting with modulation														
Test Procedure:	1. The E.U.T is connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2020 on conducted measurement.														
Test Result:	PASS														

Test Instruments

Conducted Emission Shielding Room Test Site (843)					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Receiver	R&S	ESR-7	HKE-005	Feb. 19, 2025	Feb. 18, 2026
LISN	R&S	ENV216	HKE-002	Feb. 19, 2025	Feb. 18, 2026
LISN	R&S	ENV216	HKE-059	Feb. 19, 2025	Feb. 18, 2026
Coax cable (9KHz-30MHz)	Times	381806-002	/	Feb. 19, 2025	Feb. 18, 2026
EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	/	/
10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	Feb. 19, 2025	Feb. 18, 2026

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

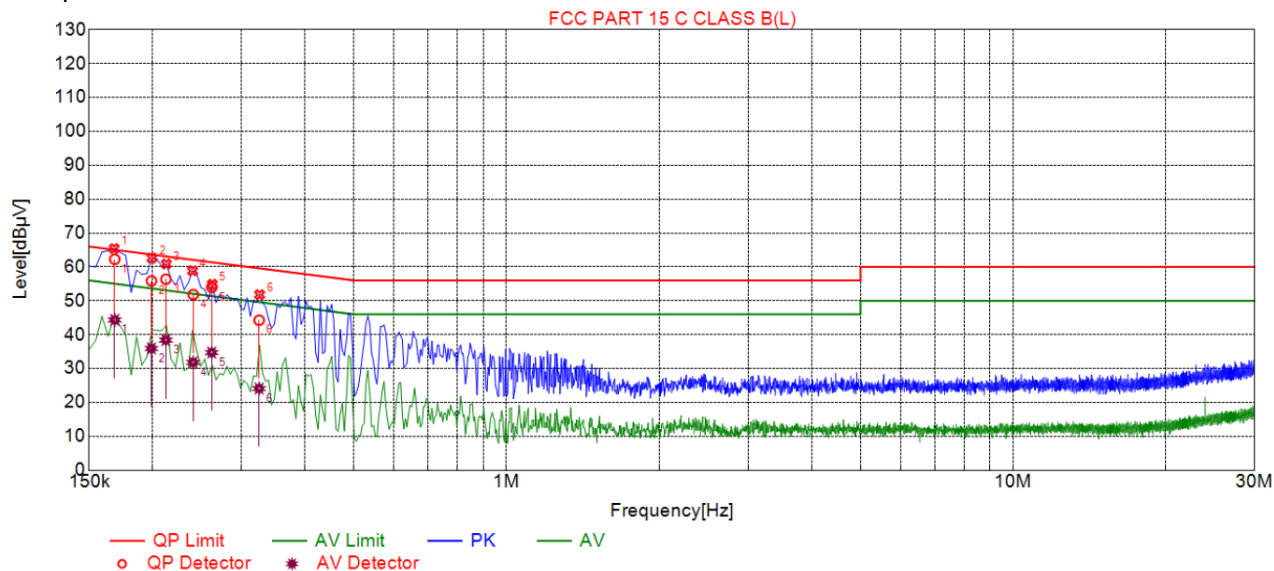
Conducted Emission Shielding Room Test Site (843)					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Receiver	R&S	ESR-7	HKE-005	Feb. 06, 2026	Feb. 05, 2027
LISN	R&S	ENV216	HKE-002	Feb. 11, 2026	Feb. 10, 2027
LISN	R&S	ENV216	HKE-059	Feb. 04, 2026	Feb. 03, 2027
Coax cable (9KHz-30MHz)	Times	381806-002	/	Feb. 04, 2026	Feb. 03, 2027
EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	/	/
10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	Feb. 04, 2026	Feb. 03, 2027

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

Test Result

All the test modes completed for test. Only the worst result was reported as below:

Test Specification: Line



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1680	65.41	19.81	65.06	-0.35	45.60	PK	L
2	0.1995	62.62	19.75	63.63	1.01	42.87	PK	L
3	0.2130	60.87	19.75	63.09	2.22	41.12	PK	L
4	0.2400	58.86	19.76	62.10	3.24	39.10	PK	L
5	0.2625	54.89	19.77	61.35	6.46	35.12	PK	L
6	0.3255	51.81	19.79	59.57	7.76	32.02	PK	L

Final Data List

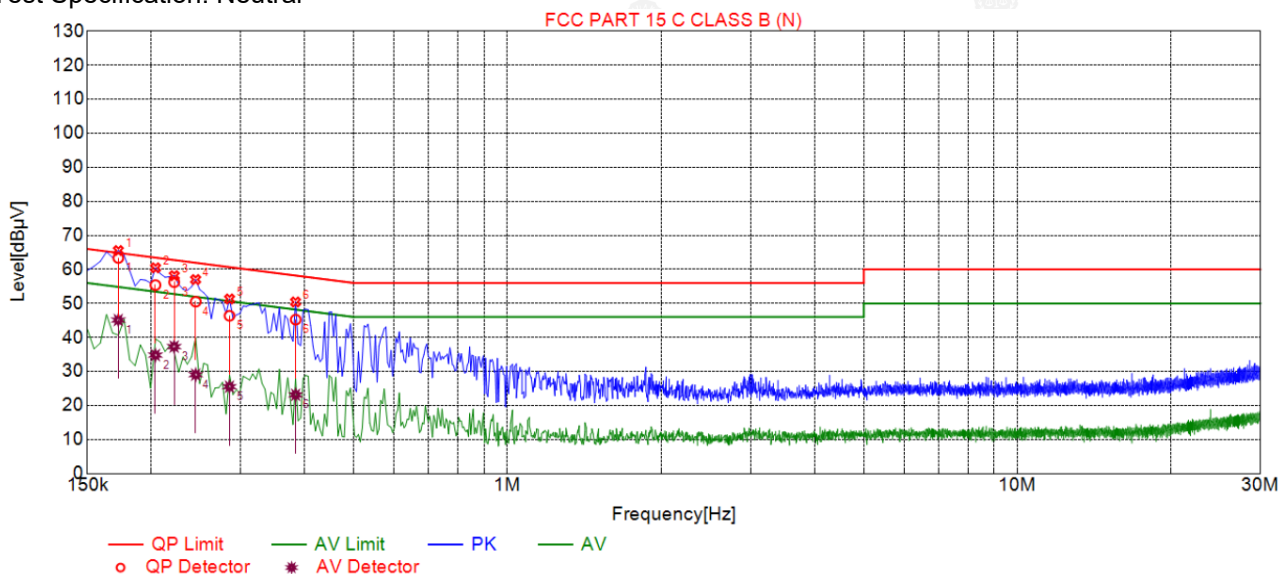
NO.	Freq. [MHz]	Correction factor [dB]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	QP Reading [dBμV]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	AV Reading [dBμV]	Type
1	0.1684	19.81	62.25	65.04	2.79	42.44	44.36	55.04	10.68	24.55	L
2	0.1990	19.75	55.87	63.65	7.78	36.12	35.93	53.65	17.72	16.18	L
3	0.2125	19.75	56.37	63.11	6.74	36.62	38.41	53.11	14.70	18.66	L
4	0.2406	19.76	51.84	62.08	10.24	32.08	31.79	52.08	20.29	12.03	L
5	0.2618	19.77	54.02	61.37	7.35	34.25	34.71	51.37	16.66	14.94	L
6	0.3247	19.79	44.27	59.59	15.32	24.48	24.10	49.59	25.49	4.31	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

Test Specification: Neutral



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1725	65.54	19.86	64.84	-0.70	45.68	PK	N
2	0.2040	60.47	19.75	63.45	2.98	40.72	PK	N
3	0.2220	58.17	19.76	62.74	4.57	38.41	PK	N
4	0.2445	57.01	19.78	61.94	4.93	37.23	PK	N
5	0.2850	51.31	19.81	60.67	9.36	31.50	PK	N
6	0.3840	50.43	19.87	58.19	7.76	30.56	PK	N

Final Data List

NO.	Freq. [MHz]	Correction factor[dB]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	QP Reading [dBμV]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	AV Reading [dBμV]	Type
1	0.1724	19.86	63.35	64.84	1.49	43.49	45.12	54.84	9.72	25.26	N
2	0.2039	19.75	55.40	63.45	8.05	35.65	34.80	53.45	18.65	15.05	N
3	0.2219	19.76	56.26	62.75	6.49	36.50	37.31	52.75	15.44	17.55	N
4	0.2446	19.78	50.52	61.94	11.42	30.74	29.06	51.94	22.88	9.28	N
5	0.2849	19.81	46.37	60.67	14.30	26.56	25.52	50.67	25.15	5.71	N
6	0.3842	19.87	45.25	58.19	12.94	25.38	23.14	48.19	25.05	3.27	N

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor



4.2 Maximum Peak Conducted Output Power

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02
Limit:	30dBm
Test Setup:	 RF automatic control unit EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. The testing follows the Measurement Procedure of FCC KDB 558074 D01 15.247 Meas Guidance v05r02. 2. The RF output of EUT was connected to the RF automatic control unit 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. Measure the Peak output power and record the results in the test report.
Test Result:	PASS

Test Instruments

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 19, 2025	Feb. 18, 2026
Spectrum analyzer	KEYSIGHT	N9020A	HKE-117	Feb. 19, 2025	Feb. 18, 2026
Power meter	KEYSIGHT	E4419B	HKE-144	Feb. 19, 2025	Feb. 18, 2026
Power Sensor	Aglient	E9304A H18	HKE-165	Feb. 19, 2025	Feb. 18, 2026
RF cable	Times	1-40G	/	Feb. 19, 2025	Feb. 18, 2026
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 19, 2025	Feb. 18, 2026
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/

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

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 06, 2026	Feb. 05, 2027
Spectrum analyzer	KEYSIGHT	N9020A	HKE-117	Feb. 06, 2026	Feb. 05, 2027
Power meter	KEYSIGHT	E4419B	HKE-144	Feb. 06, 2026	Feb. 05, 2027
Power Sensor	Aglient	E9304A H18	HKE-165	Feb. 06, 2026	Feb. 05, 2027
RF cable	Times	1-40G	/	Feb. 06, 2026	Feb. 05, 2027
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 06, 2026	Feb. 05, 2027
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/

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

Test Data

Mode	Test Channel	Frequency	Maximum Peak Conducted Output Power	Limit
		(MHz)	(dBm)	dBm
802.11b	CH01	2412	17.41	30
802.11b	CH06	2437	18.38	30
802.11b	CH11	2462	17.90	30
802.11g	CH01	2412	17.15	30
802.11g	CH06	2437	18.03	30
802.11g	CH11	2462	18.26	30
802.11n(HT20)	CH01	2412	17.91	30
802.11n(HT20)	CH06	2437	17.84	30
802.11n(HT20)	CH11	2462	17.49	30
802.11n(HT40)	CH03	2422	17.20	30
802.11n(HT40)	CH06	2437	17.58	30
802.11n(HT40)	CH09	2452	17.11	30
802.11ax(HE20)	CH01	2412	17.17	30
802.11ax(HE20)	CH06	2437	17.18	30
802.11ax(HE20)	CH11	2462	17.49	30
802.11ax(HE40)	CH03	2422	17.27	30
802.11ax(HE40)	CH06	2437	17.91	30
802.11ax(HE40)	CH09	2452	17.05	30

Note: The test results including the cable loss.



4.3 Emission Bandwidth

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02
Limit:	≥500kHz
Test Setup:	 Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. The testing follows FCC KDB Publication 558074 D01 15.247 Meas Guidance v05r02. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 1%~5%OBW. Set the video bandwidth (VBW) ≥ 3 RBW. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz. 4. Measure and record the results in the test report.
Test Result:	PASS

Test Instruments

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 19, 2025	Feb. 18, 2026
Spectrum analyzer	KEYSIGHT	N9020A	HKE-117	Feb. 19, 2025	Feb. 18, 2026
RF cable	Times	1-40G	/	Feb. 19, 2025	Feb. 18, 2026
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 19, 2025	Feb. 18, 2026
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/

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

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 06, 2026	Feb. 05, 2027
Spectrum analyzer	KEYSIGHT	N9020A	HKE-117	Feb. 06, 2026	Feb. 05, 2027
RF cable	Times	1-40G	/	Feb. 06, 2026	Feb. 05, 2027
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 06, 2026	Feb. 05, 2027
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/

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

Test Data

Test channel	6dB Emission Bandwidth (MHz)					
	802.11b	802.11g	802.11n (HT20)	802.11n (HT40)	802.11ax (HE20)	802.11ax (HE40)
Lowest	8.56	16.60	17.76	36.40	19.04	38.16
Middle	8.60	16.52	17.68	36.40	19.08	37.68
Highest	8.52	16.52	17.76	36.40	19.12	37.92
Limit:	≥500KHz					
Test Result:	PASS					

Test plots as follows:

Lowest Channel



Middle Channel

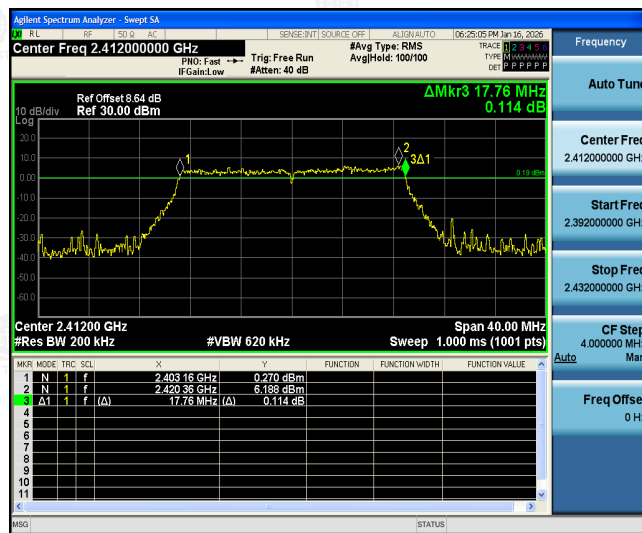


Highest Channel

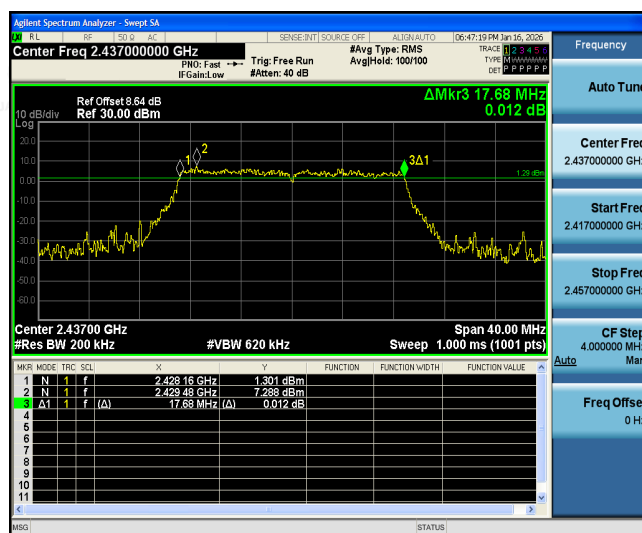


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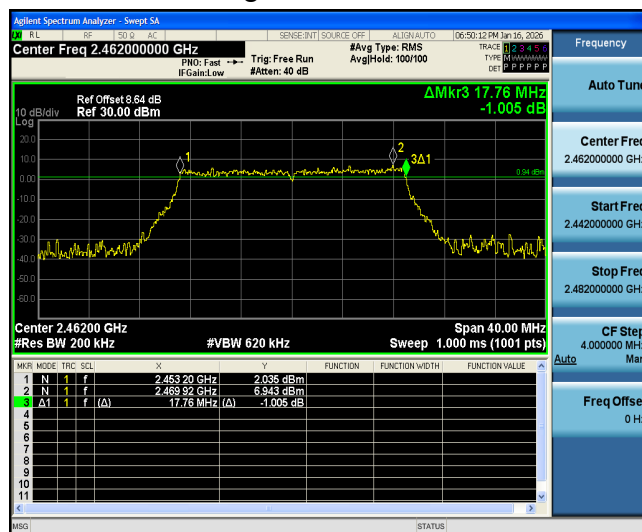
Lowest Channel



Middle Channel



Highest Channel



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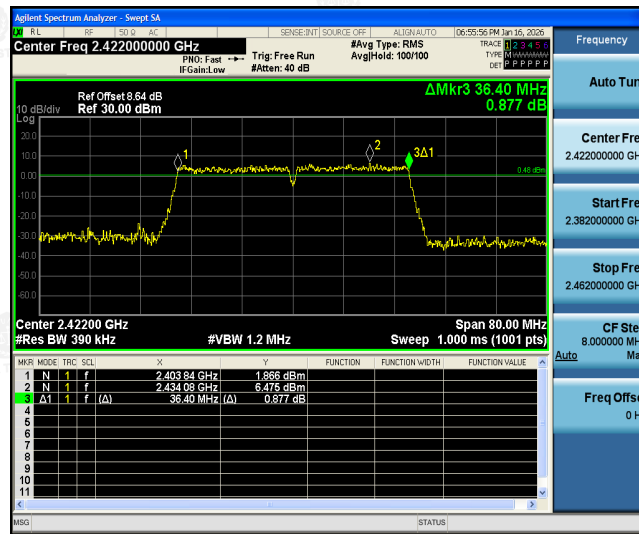
HUAKE TESTING

802.11n (HT40) Modulation

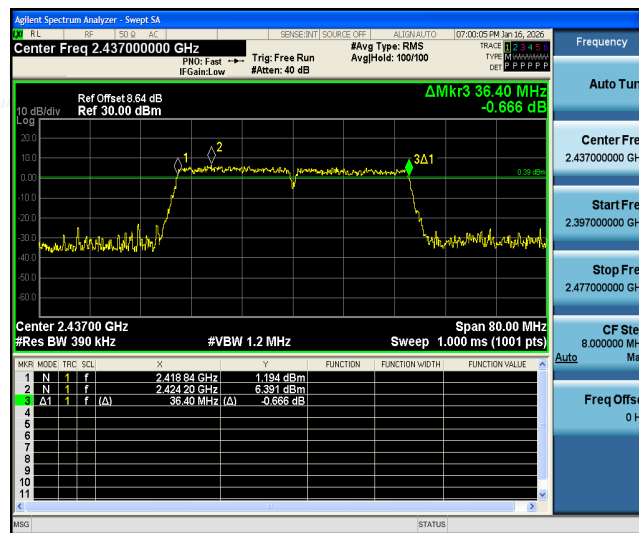
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Report No.: HK2601120080-1E

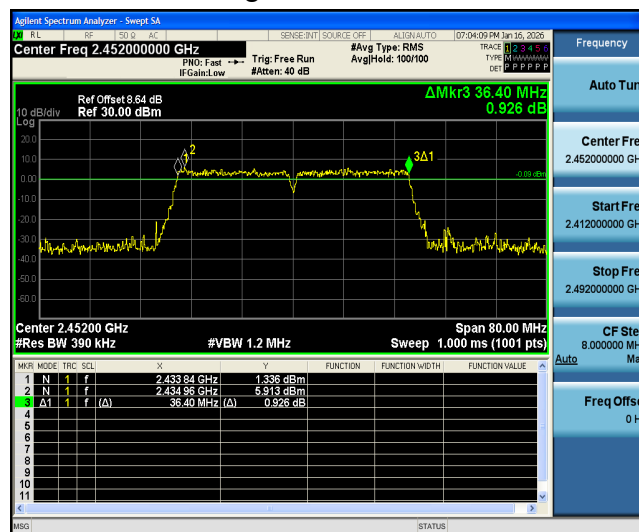
Lowest Channel



Middle Channel



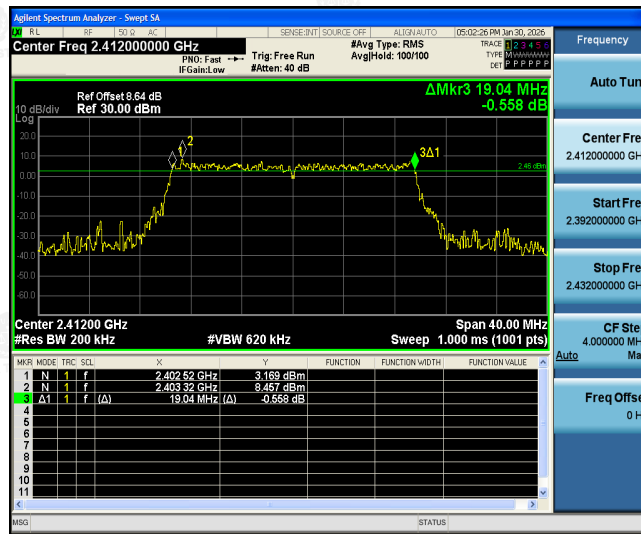
Highest Channel



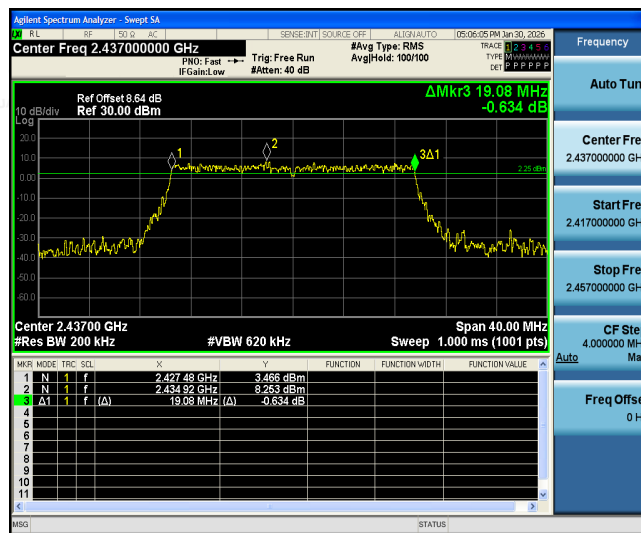
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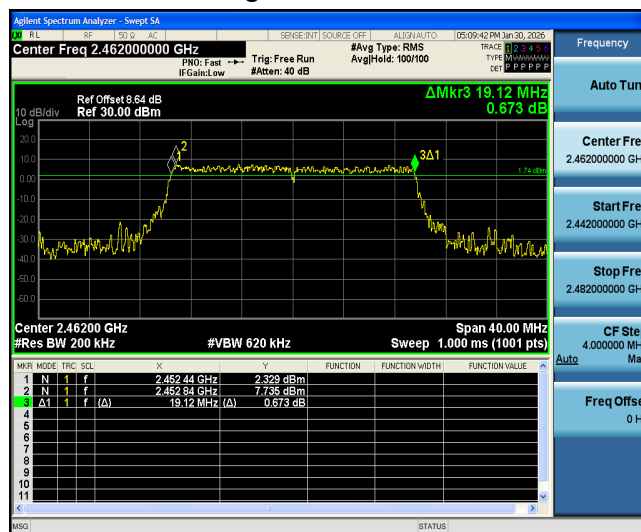
Lowest Channel



Middle Channel



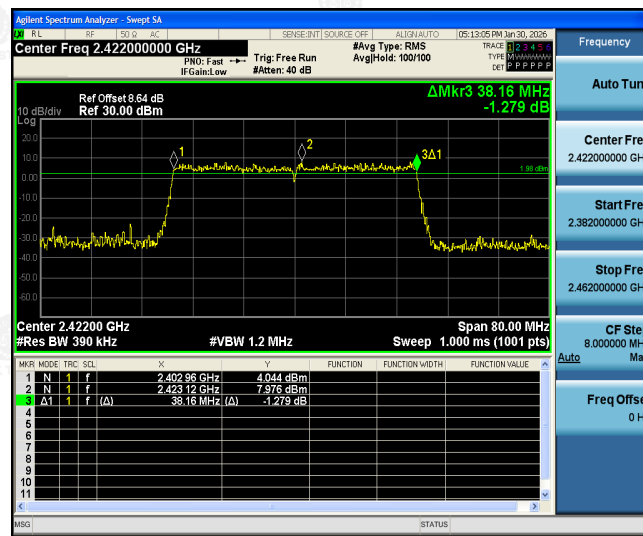
Highest Channel



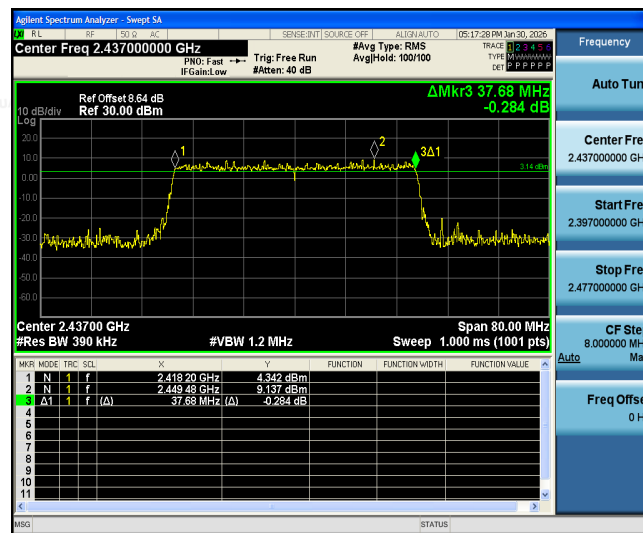
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802.11ax (HE40) Modulation

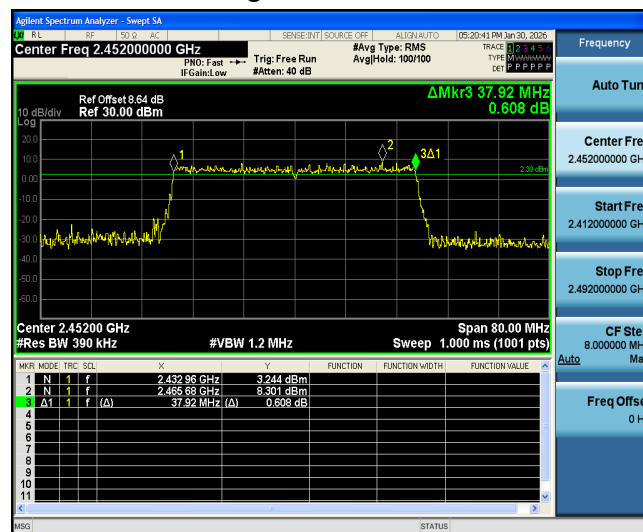
Lowest Channel



Middle Channel



Highest Channel



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4.4 Power Spectral Density

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02
Limit:	The average power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.
Test Setup:	 Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. The testing follows Measurement procedure 10.2 method PKPSD of FCC KDB Publication 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. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW): $3\text{ kHz} \leq \text{RBW} \leq 100\text{ kHz}$. Video bandwidth VBW $\geq 3 \times \text{RBW}$. Set the span to at least 1.5 times the OBW. 5. Detector = Peak, Sweep time = auto couple. 6. Employ trace averaging (Peak) mode over a minimum of 100 traces. Use the peak marker function to determine the maximum power level. 7. Measure and record the results in the test report.
Test Result:	PASS
Remark:	During the test, the "duty cycle factor" has already been added to the testing software.

Test Instruments

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 19, 2025	Feb. 18, 2026
Spectrum analyzer	KEYSIGHT	N9020A	HKE-117	Feb. 19, 2025	Feb. 18, 2026
RF cable	Times	1-40G	/	Feb. 19, 2025	Feb. 18, 2026
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 19, 2025	Feb. 18, 2026
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/

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

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 06, 2026	Feb. 05, 2027
Spectrum analyzer	KEYSIGHT	N9020A	HKE-117	Feb. 06, 2026	Feb. 05, 2027
RF cable	Times	1-40G	/	Feb. 06, 2026	Feb. 05, 2027
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 06, 2026	Feb. 05, 2027
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/

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

Test Data

EUT Set Mode	Channel	Result (dBm/30KHz)	Result (dBm/3kHz)
802.11b	Lowest	5.73	-4.27
	Middle	6.04	-3.96
	Highest	5.68	-4.32
802.11g	Lowest	0.92	-9.08
	Middle	1.81	-8.19
	Highest	2.88	-7.12
802.11n(HT20)	Lowest	1.21	-8.79
	Middle	1.54	-8.46
	Highest	1.21	-8.79
802.11n(HT40)	Lowest	-2.04	-12.04
	Middle	-1.70	-11.7
	Highest	-1.67	-11.67
802.11ax(HE20)	Lowest	0.50	-9.50
	Middle	-0.09	-10.09
	Highest	0.32	-9.68
802.11ax(HE40)	Lowest	-2.93	-12.93
	Middle	-0.75	-10.75
	Highest	-2.17	-12.17
PSD Test Result (dBm/3kHz)= PSD Test Result (dBm/30kHz)-10			
Limit: 8dBm/3kHz			
Test Result:	PASS		

Test plots as follows:

Lowest Channel



Middle Channel

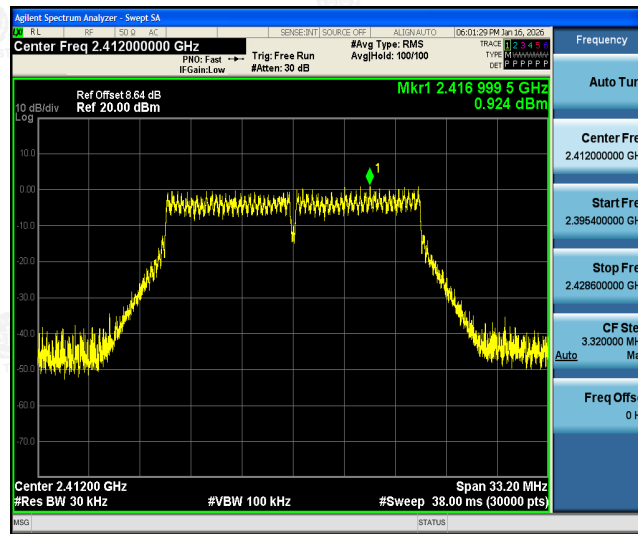


Highest Channel

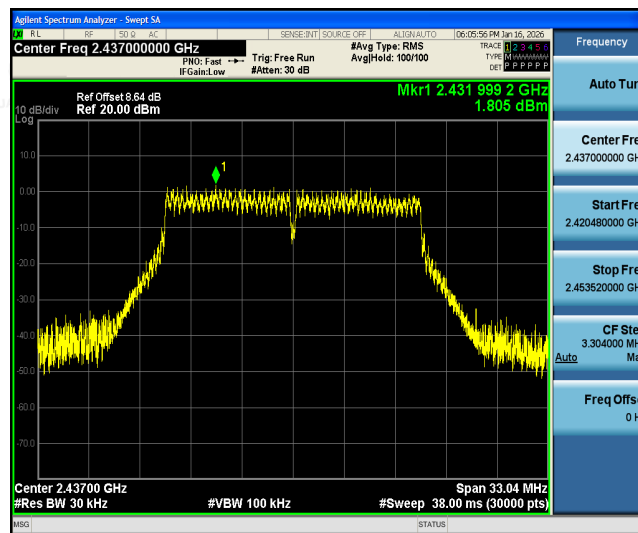


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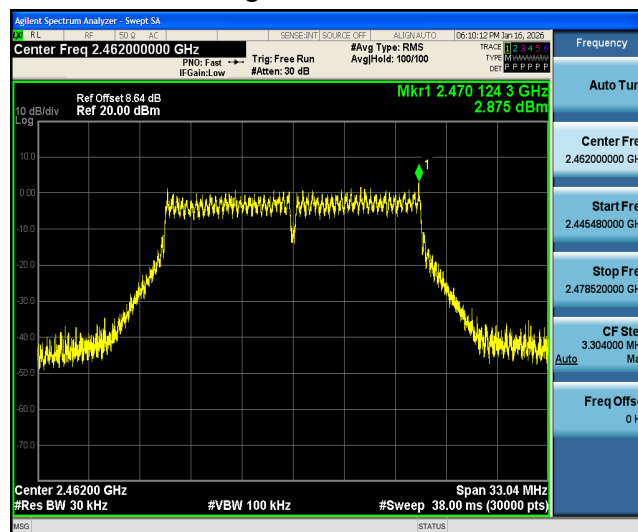
Lowest Channel



Middle Channel



Highest Channel



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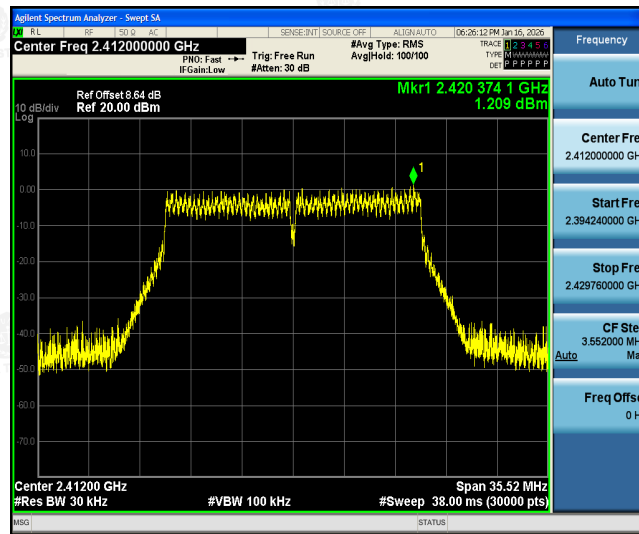
HUAKE TESTING

802.11n (HT20) Modulation

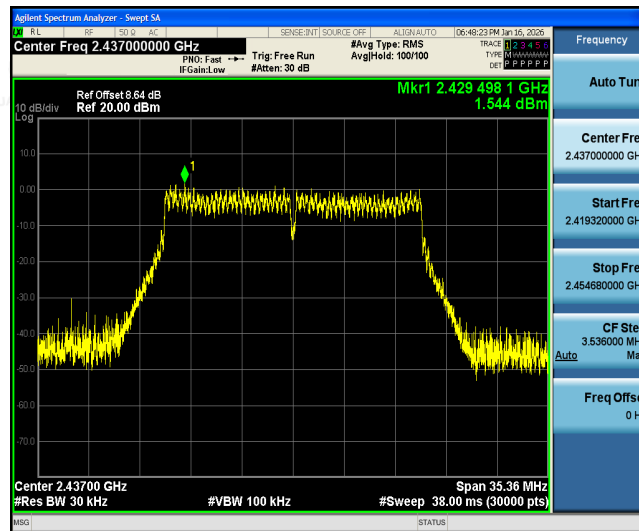
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Report No.: HK2601120080-1E

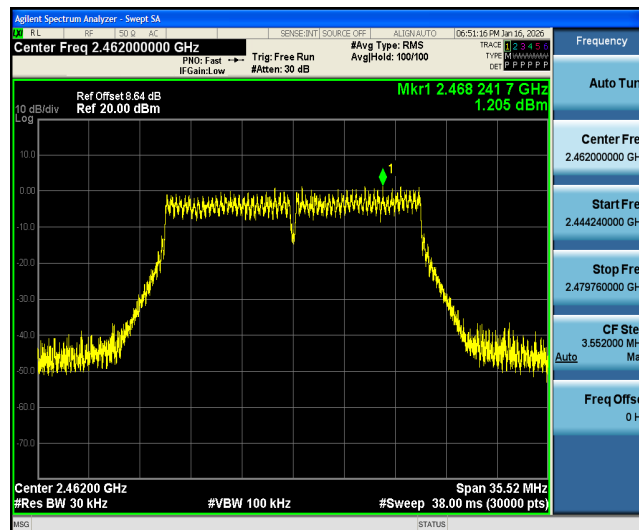
Lowest Channel



Middle Channel



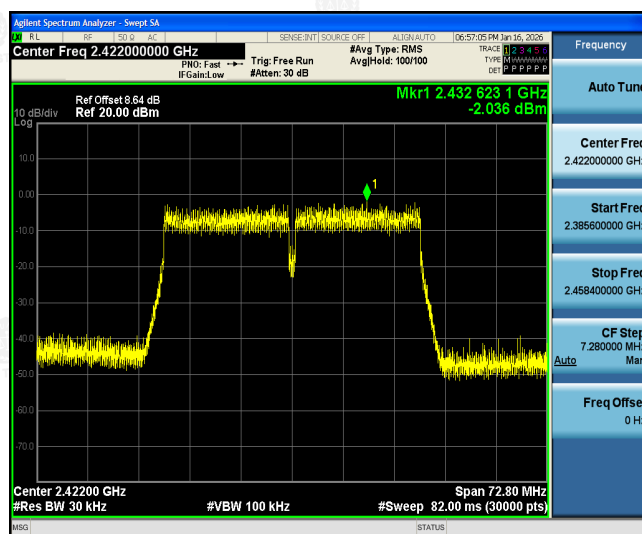
Highest Channel



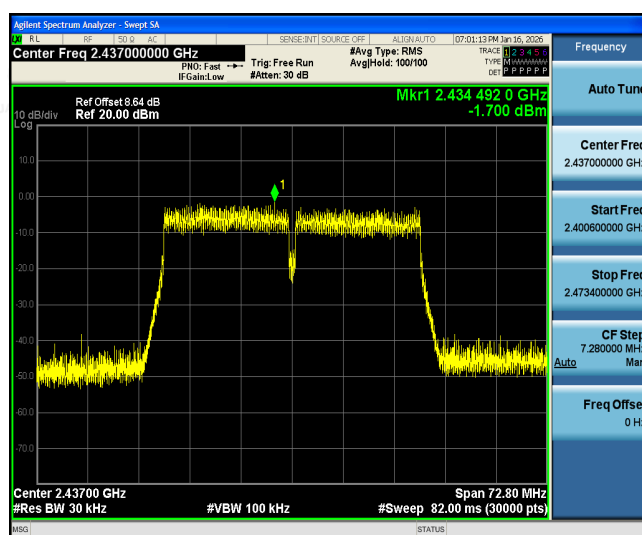
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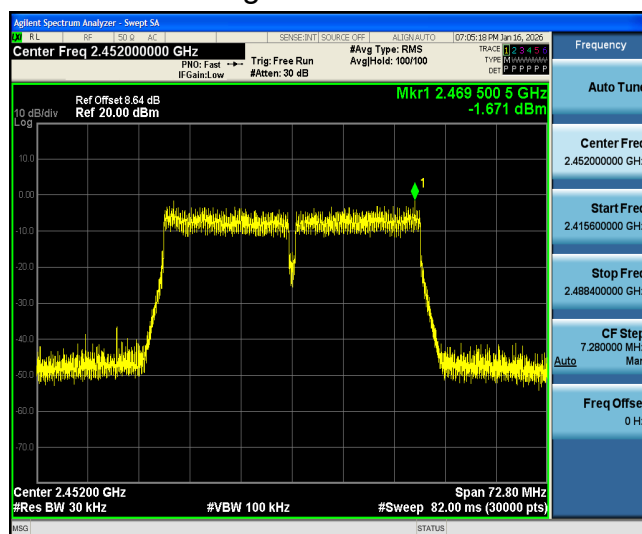
Lowest Channel



Middle Channel



Highest Channel

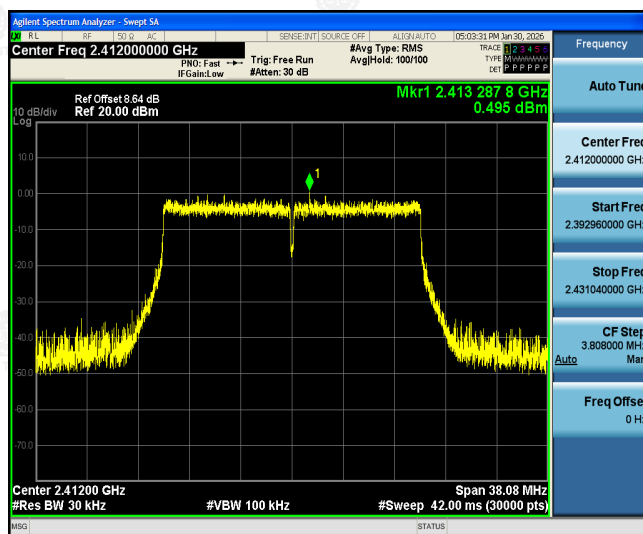


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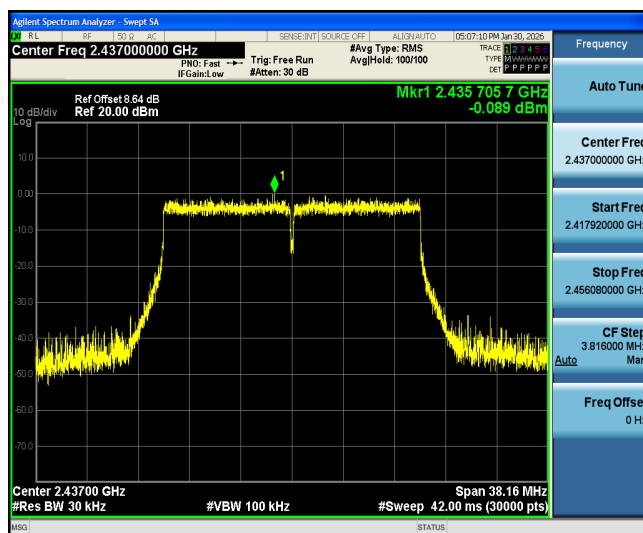
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802.11ax (HE20) Modulation

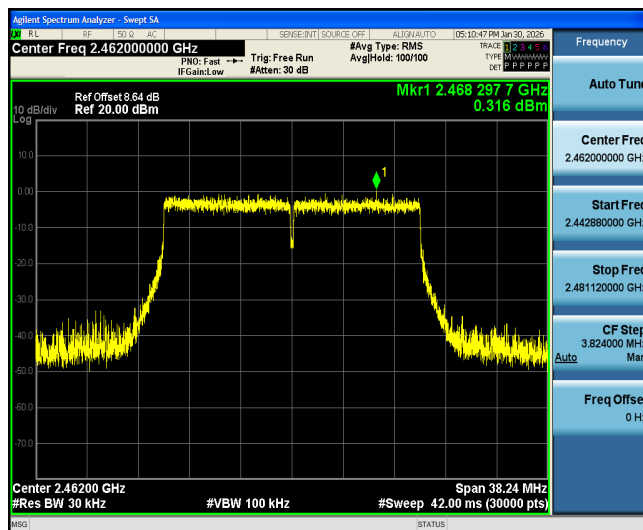
Lowest Channel



Middle Channel



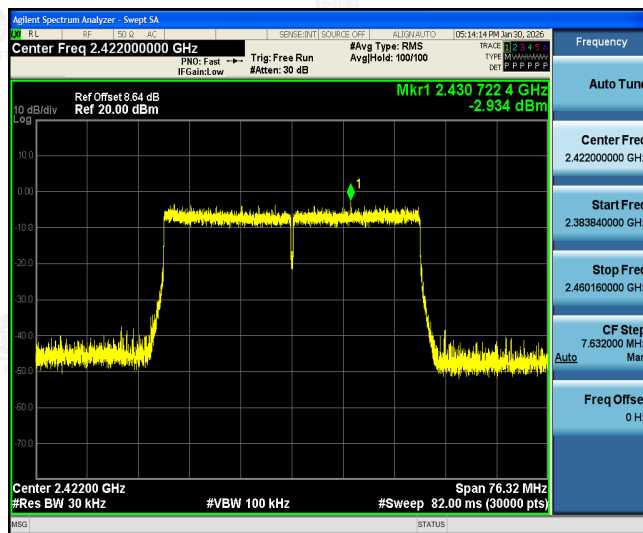
Highest Channel



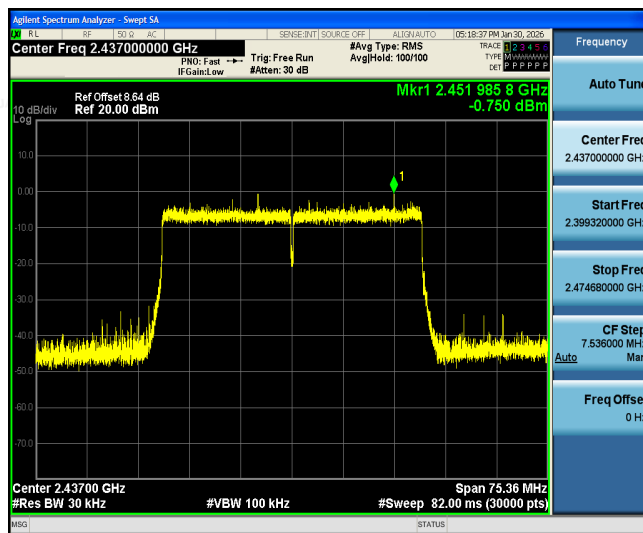
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802.11ax (HE40) Modulation

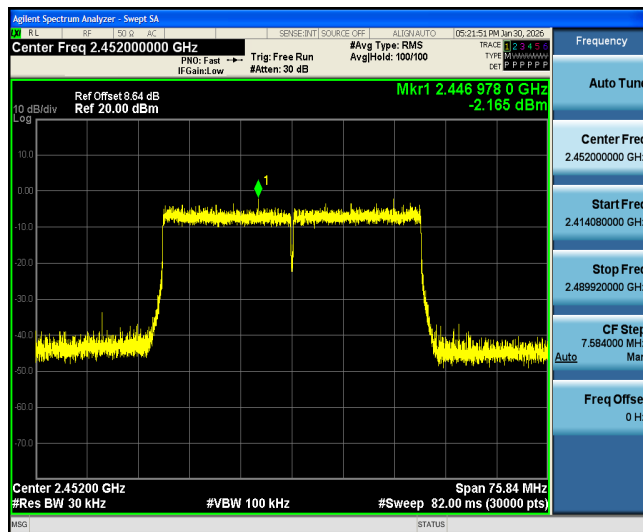
Lowest Channel



Middle Channel



Highest Channel



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4.5 Spurious Emission Measurement

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB 558074 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:	 The diagram illustrates the test setup. On the left is a green rectangular box labeled 'Spectrum Analyzer'. A horizontal line representing an RF cable connects it to a yellow rectangular box on the right labeled 'EUT'.
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. The testing follows FCC KDB Publication 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

Test Instruments

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 19, 2025	Feb. 18, 2026
Spectrum analyzer	KEYSIGHT	N9020A	HKE-117	Feb. 19, 2025	Feb. 18, 2026
RF cable	Times	1-40G	/	Feb. 19, 2025	Feb. 18, 2026
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 19, 2025	Feb. 18, 2026
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/

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

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 06, 2026	Feb. 05, 2027
Spectrum analyzer	KEYSIGHT	N9020A	HKE-117	Feb. 06, 2026	Feb. 05, 2027
RF cable	Times	1-40G	/	Feb. 06, 2026	Feb. 05, 2027
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 06, 2026	Feb. 05, 2027
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/

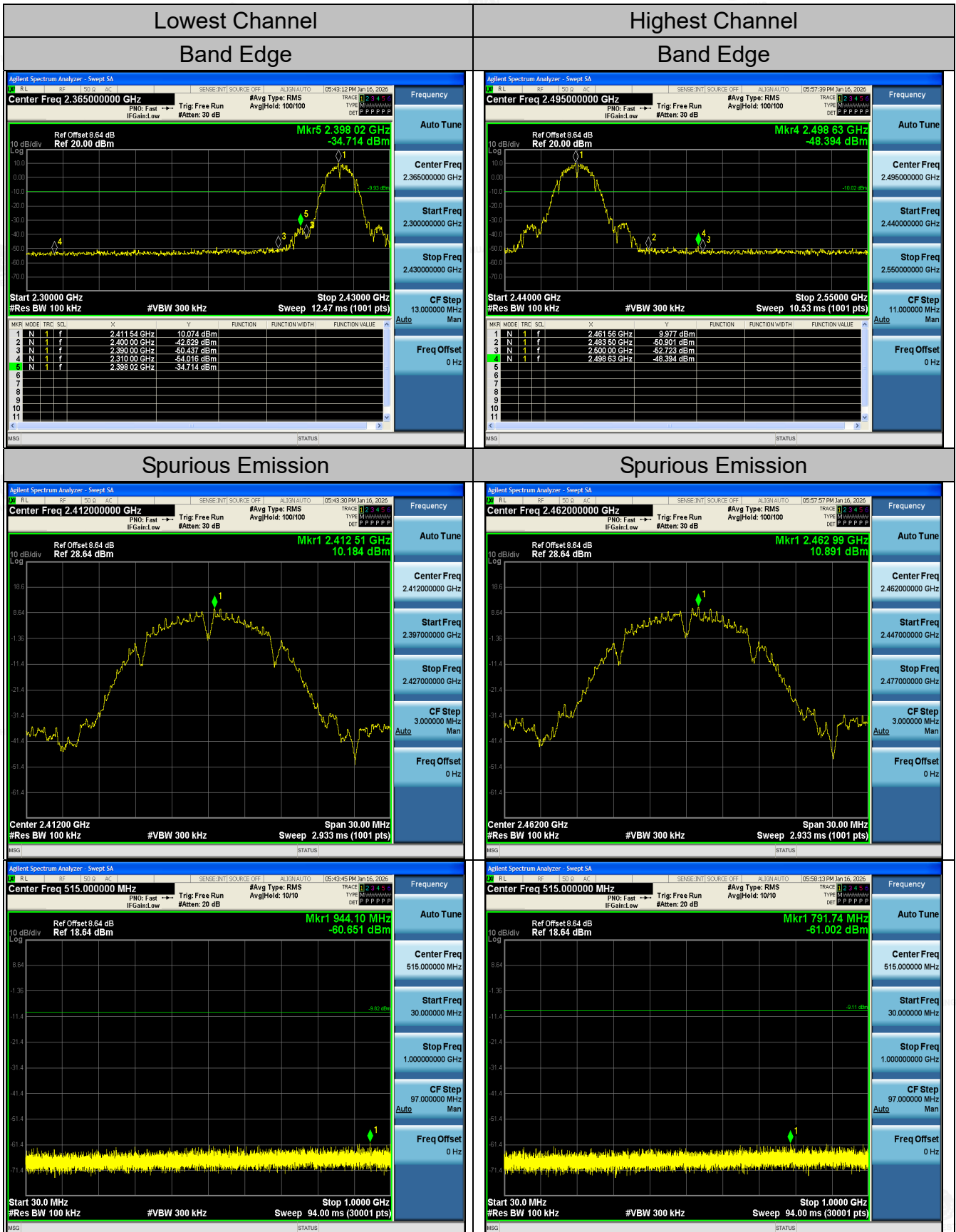
Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



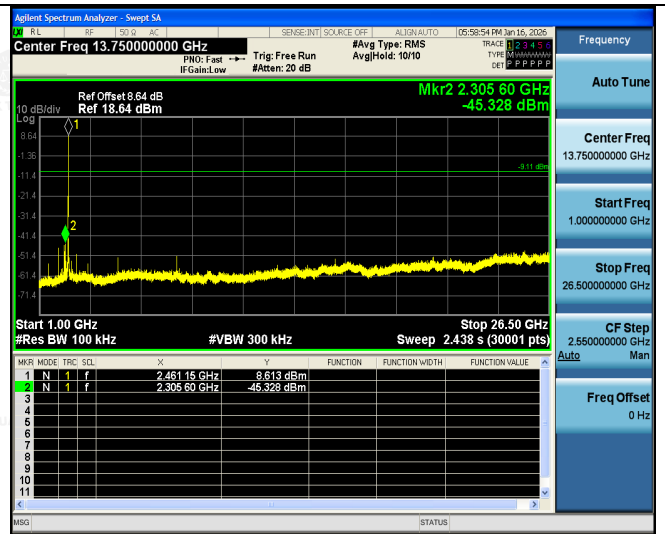
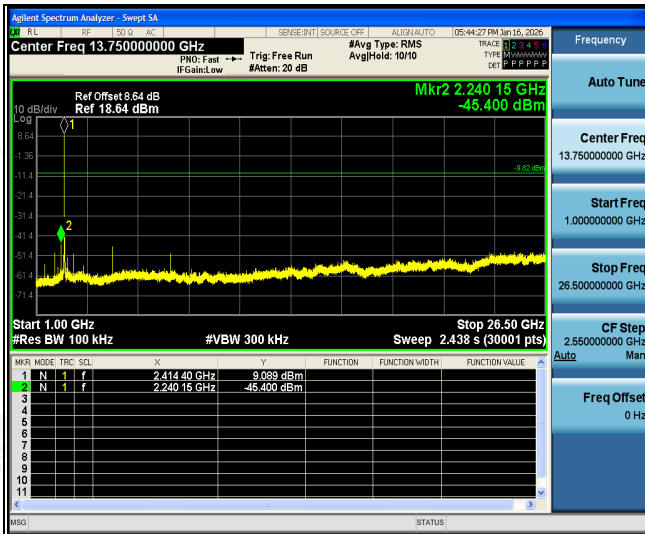
HUAKE TESTING

Test Data

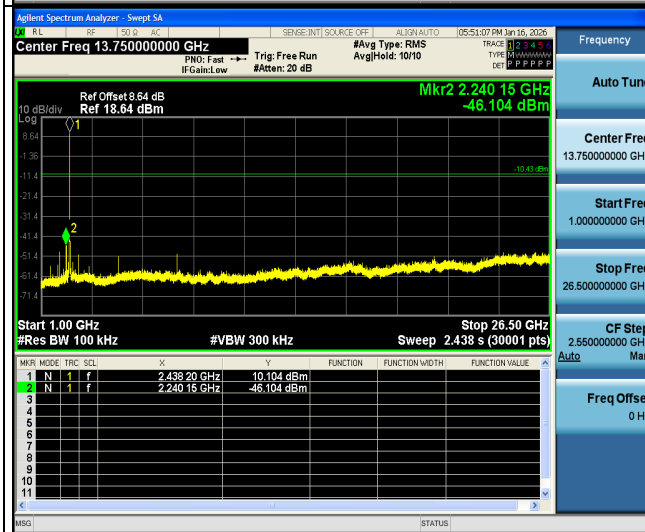
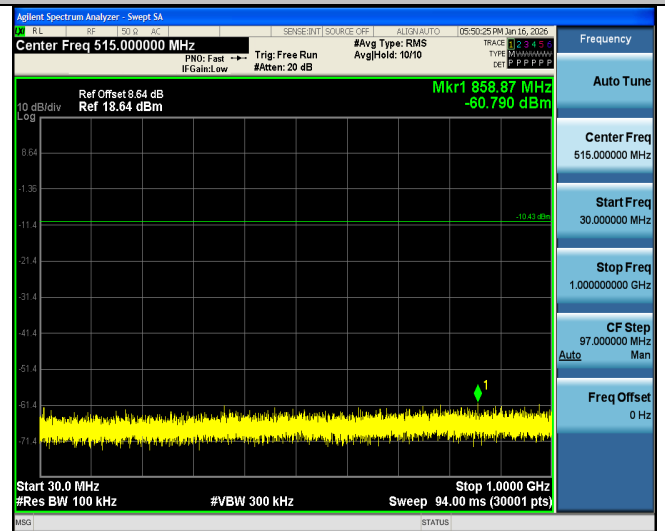
802.11b Modulation



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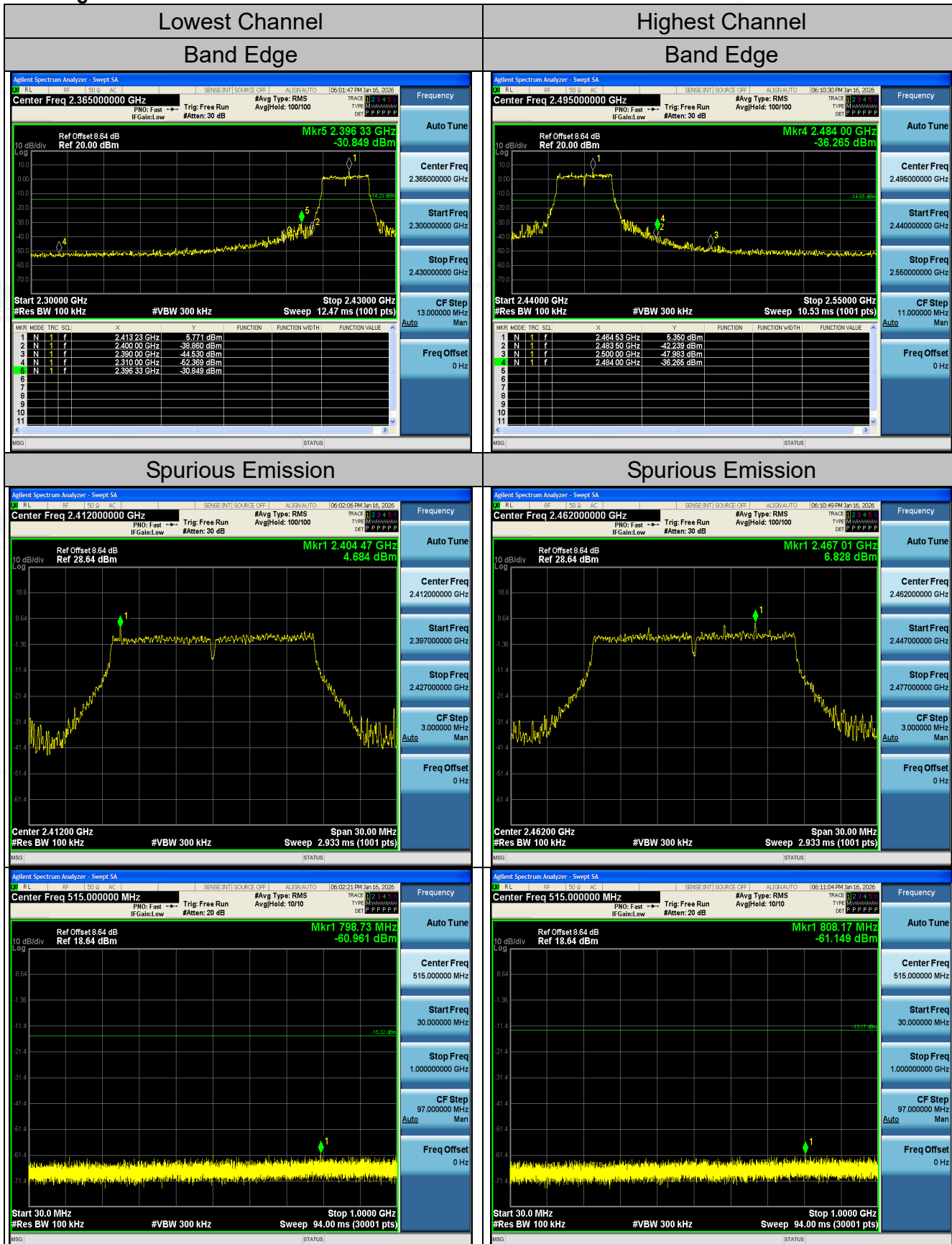
Middle Channel Spurious Emission



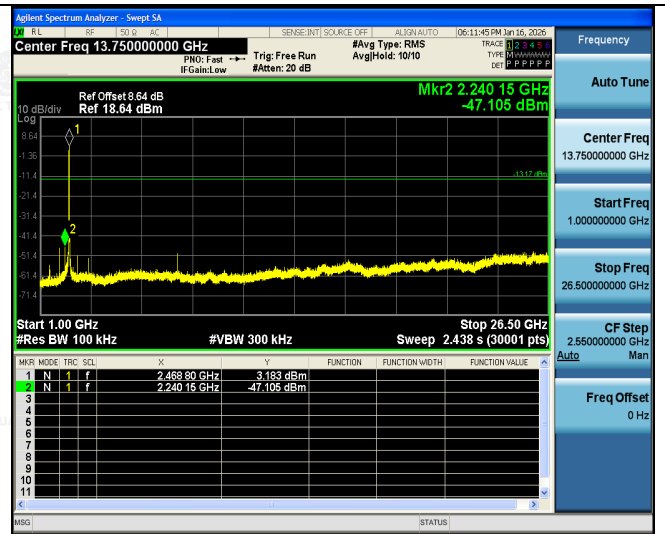
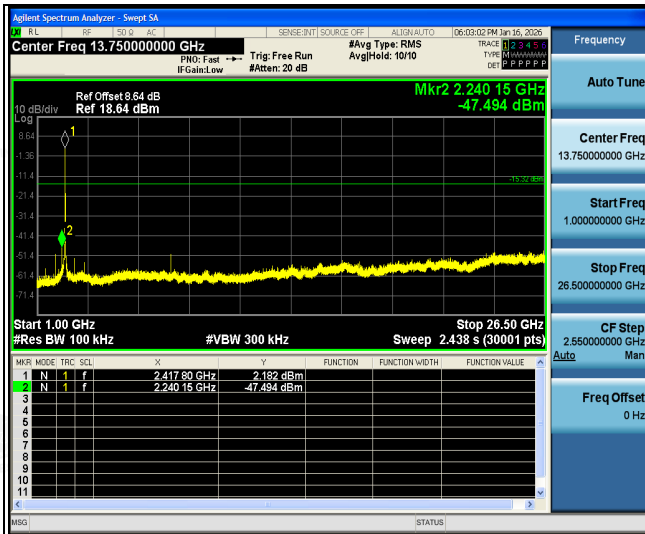
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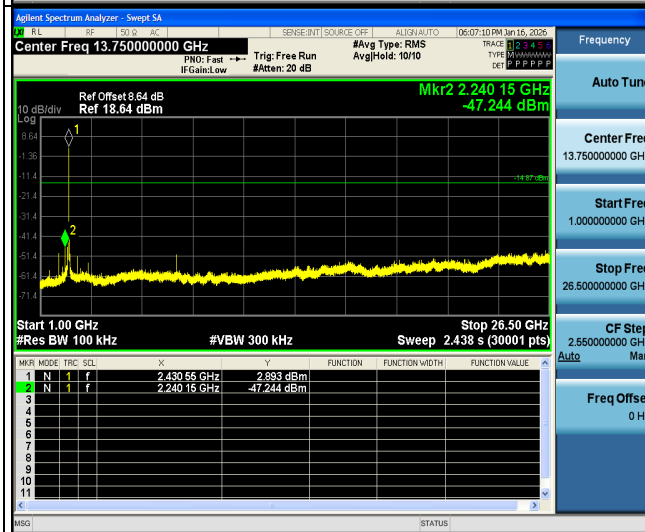
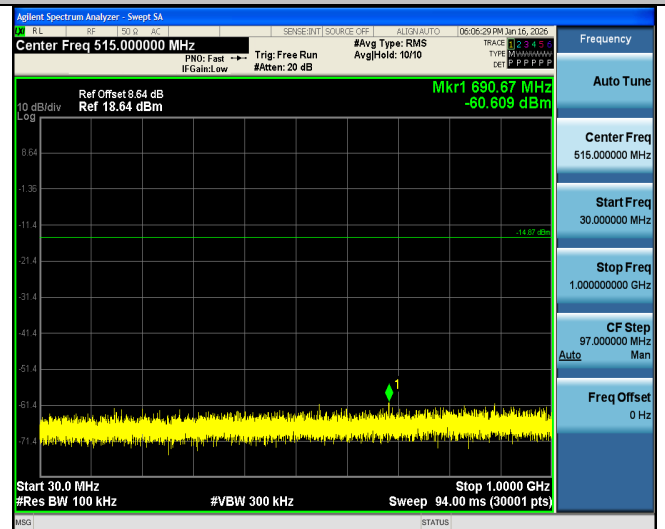
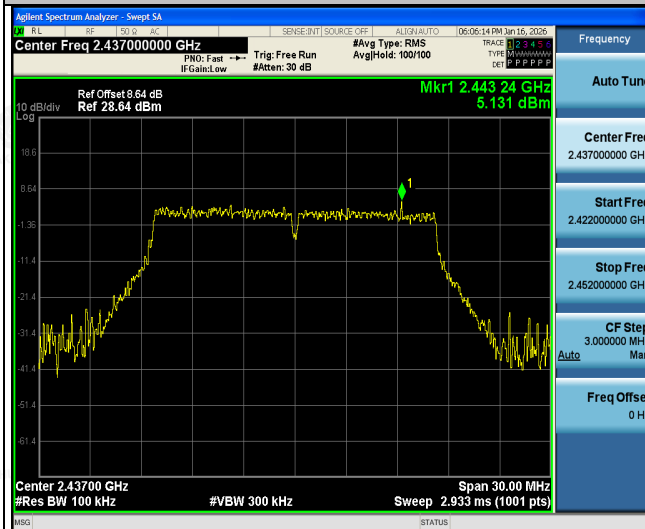
802.11g Modulation



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Middle Channel Spurious Emission



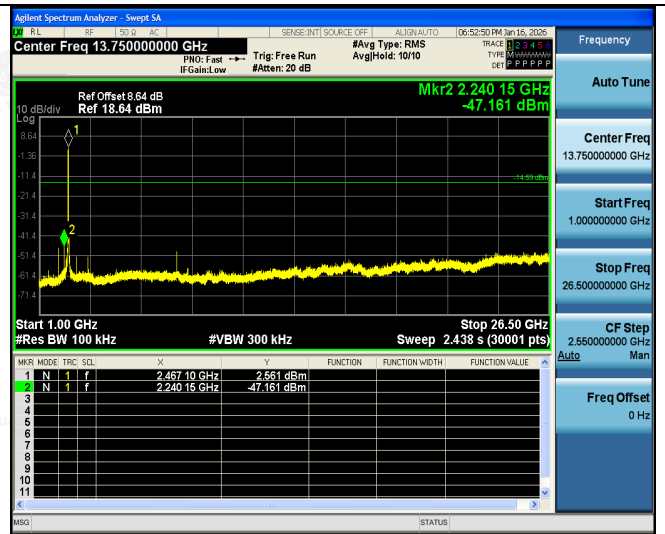
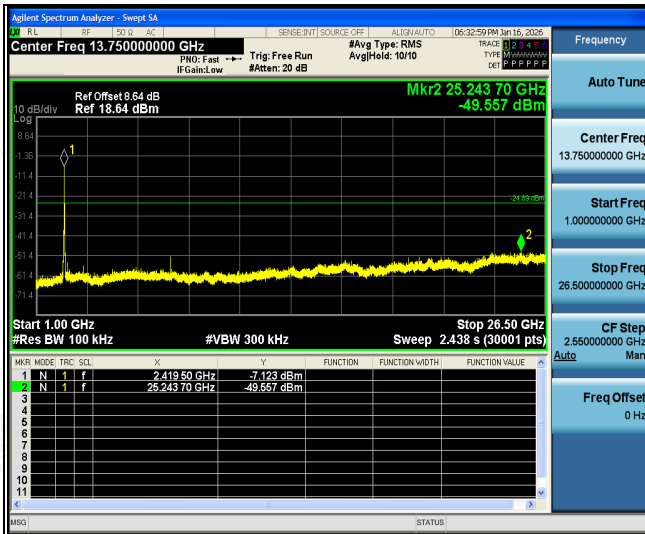
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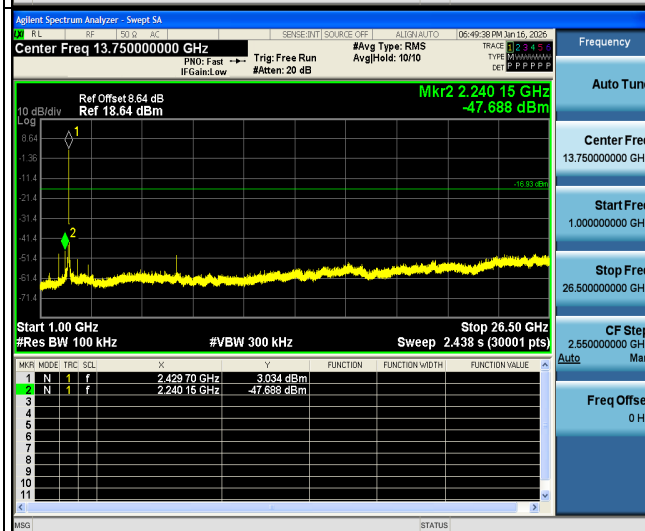
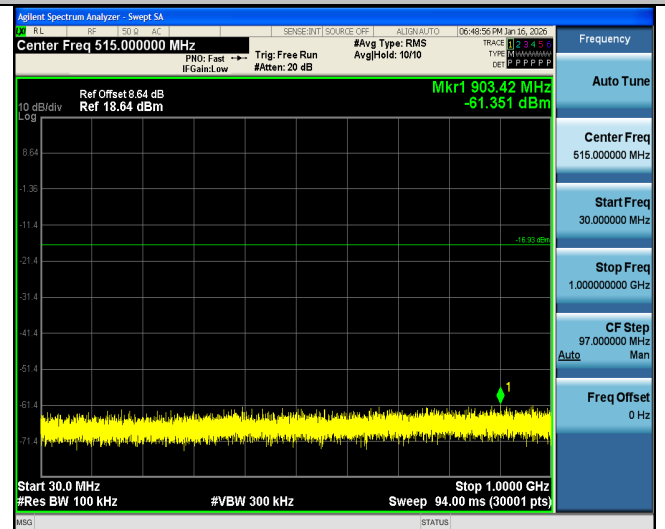
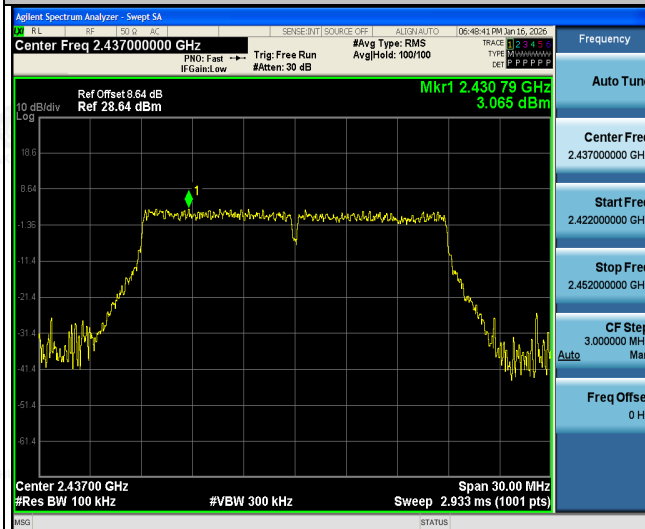
802.11n (HT20) Modulation



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Middle Channel Spurious Emission



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