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检测
TESTING
CNAS L6791

TEST REPORT

Applicant: Ugreen Group Limited
Address: URGEEN Building, Longcheng Industrial Park, Longguanxi Road, Longhua, ShenZhen, China
Equipment Type: AX900 USB Dual Band Wi-Fi Adapter
Model Name: CM762
Brand Name: **UGREEN**
FCC ID: 2AQI5-CM762
Test Standard: 47 CFR Part 15 Subpart C (refer to section 3.1)
Sample Arrival Date: Jun. 21, 2024
Test Date: Jun. 24, 2024 - Jul. 14, 2024
Date of Issue: Aug. 06, 2024

ISSUED BY:

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Revision History		
Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Aug. 06, 2024</u>	<u>Initial Issue</u>

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	<input checked="" type="checkbox"/> Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	<input type="checkbox"/> 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Ugreen Group Limited
Address	URGEEN Building, Longcheng Industrial Park, Longguanxi Road, Longhua, ShenZhen, China

2.2 Manufacturer Information

Manufacturer	Ugreen Group Limited
Address	URGEEN Building, Longcheng Industrial Park, Longguanxi Road, Longhua, ShenZhen, China

2.3 Factory Information

Factory	SHENZHEN TENDA TECHNOLOGY CO., LTD. DONGGUAN BRANCH
Address	No.3 Gongye West Road II, Songshanhu Park, Dongguan City, Guangdong Province, China

2.4 General Description for Equipment under Test (EUT)

EUT Name	AX900 USB Dual Band Wi-Fi Adapter
Model Name Under Test	CM762
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	10056083 V3.1
Software Version	6.40.60.192
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

Remark:

- Product Number (P/N) code in the below table, for marketing purpose, will be marked on the marking plate.

35264	35264P	35264X	35264A	35264B	35264C
35264U	35264JP	35264EU	35264UK	35264US	

2.5 Technical Information

Network and Wireless connectivity	2.4G WIFI 802.11b, 802.11g, 802.11n(HT20/40) and 802.11ax(HE20/40) 5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80) and 802.11ax(HE20/40/80), U-NII-1/3
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The requirement for the following technical information of the EUT was tested in this report:

Frequency Range	802.11b/g/n/ax(20 MHz): 2.412 GHz - 2.462 GHz $f_c = 2412 \text{ MHz} + (N-1)*5 \text{ MHz}$, where - f_c = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 1 to 11. 802.11n/ax(40 MHz): 2.422 GHz - 2.452 GHz $f_c = 2412 \text{ MHz} + (N-1)*5 \text{ MHz}$, where - f_c = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 3 to 9.
Modulation Type	DSSS, OFDM, OFDMA
Product Type	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Antenna System (eg., MIMO, Smart Antenna)	N/A
Categorization as Correlated or Completely Uncorrelated	N/A
Antenna Type	Internal Antenna
Antenna Gain	1.4 dBi
About the Product	Only the WIFI 802.11b, 802.11g, 802.11n (HT20/40) and 802.11ax (HE20/40) was tested in this report.

Modulation technology	Modulation Type	Transfer Rate (Mbps)(Single RF path)
DSSS (802.11b)	DBPSK	1
	DQPSK	2
	CCK	5.5/11
OFDM (802.11g)	BPSK	6/9
	QPSK	12/18
	16QAM	24/36
	64QAM	48/54
OFDM (802.11n-20 MHz)	BPSK	6.5/7.2
	QPSK	13/19.5/14.4/21.7
	16QAM	26/39/28.9/43.3
	64QAM	52/58.5/65/57.8/65/72.2
OFDM (802.11n-40 MHz)	BPSK	13.5/15
	QPSK	27/40.5/30/45
	16QAM	54/81/60/90

	64QAM	108/121.5/135/120/150
OFDMA (802.11ax-20 MHz)	BPSK	4
	QPSK	16/24/17/26
	16QAM	33/49/34/52
	64QAM	65/73/81/69/77/86
	256QAM	98/108/103/115
	1024QAM	122/135/129/143
OFDMA (802.11ax-40 MHz)	BPSK	8/9
	QPSK	33/49/34/52
	16QAM	65/98/69/103
	64QAM	130/146/163/138/155/172
	256QAM	195/217/207/229
	1024QAM	244/271/258/287

Note: Preliminary tests were performed in different data rate in above table to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel	
Output Power	11b/11g/11n20/11n40 /ax20/ax40	1/6/6.5/13.5/4/8 Mbps	1/6/11	3/6/9
Occupied Bandwidth	11b/11g/11n20/11n40 /ax20/ax40	1/6/6.5/13.5/4/8 Mbps	1/6/11	3/6/9
Conducted Spurious Emission	11b/11g/11n20/11n40 /ax20/ax40	1/6/6.5/13.5/4/8 Mbps	1/6/11	3/6/9
Conducted Emission	11b/11g/11n20/11n40 /ax20/ax40	1/6/6.5/13.5/4/8 Mbps	1/6/11	3/6/9
Radiated Spurious Emission	11b/11g/11n20/11n40 /ax20/ax40	1/6/6.5/13.5/4/8 Mbps	1/6/11	3/6/9
Band Edge	11b/11g/11n20/11n40 /ax20/ax40	1/6/6.5/13.5/4/8 Mbps	1/6/11	3/6/9
Power spectral density (PSD)	11b/11g/11n20/11n40 /ax20/ax40	1/6/6.5/13.5/4/8 Mbps	1/6/11	3/6/9

Note: The above EUT information in section 2.5 was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C	Intentional radiators of radio frequency equipment
2	ANSI C63.10-2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
3 ☆	KDB Publication 558074 D01v05r02	GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES

3.2 Test Verdict

No.	Description	FCC Part No.	Test Result	Verdict
1	Antenna Requirement	15.203	N/A	Pass ^{Note}
2	Output Power	15.247 (b)	5.2.4	Pass
3	Occupied Bandwidth	15.247 (a)	5.3.4	Pass
4	Conducted Spurious Emission	15.247 (d)	5.4.4	Pass
5	Band Edge(Authorized-band band-edge)	15.247 (d)	5.5.4	Pass
6	Conducted Emission	15.207	5.6.4	Pass
7	Radiated Spurious Emission	15.209; 15.247 (d)	5.7.4	Pass
8	Band Edge(Restricted-band band-edge)	15.209; 15.247 (d)	5.8.4	Pass
9	Power spectral density (PSD)	15.247 (e)	5.9.4	Pass

Note: The EUT has a permanently and irreplaceable attached antenna, which complies with the requirement FCC 15.203.

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	48% to 63%	
Atmospheric Pressure	100 kPa to 102 kPa	
Temperature	NT (Normal Temperature)	+22.1°C to +24.6°C
Working Voltage of the EUT	NV (Normal Voltage)	5.0 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	KEYSIGHT	N9020A	MY46471071	2023.07.25	2024.07.24
Power Sensor	KEYSIGHT	U2063XA	MY58000251	2023.07.12	2024.07.11
				2024.07.04	2025.07.03
Spectrum Analyzer	KEYSIGHT	N9020A	MY50531259	2023.09.05	2024.09.04
Test Antenna-Horn	SCHWARZBECK	BBHA 9120D	02460	2024.05.16	2027.05.15
Test Antenna-Horn	A-INFO	LB-180400KF	J211060273	2021.07.02	2024.07.01
				2024.06.15	2027.06.14
Anechoic Chamber	RAINFORD	9m*6m*6m	140	2022.02.19	2024.08.15
Amplifier	COM-MV	LSCX_LNA1-12G-01	7210214	2023.09.05	2024.09.04
Amplifier	COM-MV	XKu_LNA7-18G-01	7210209	2023.09.05	2024.09.04
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2023.09.05	2024.09.04
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9168	9168-01162	2023.08.04	2024.08.03
Test Antenna-Loop	SCHWARZBECK	FMZB 1519	1519-037	2024.01.23	2025.01.22
Amplifier	COM-MV	ZT30-1000M	B2018054558	2023.12.05	2024.12.04
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60*7.35m	130	2021.08.15	2024.08.14
EMI Receiver	KEYSIGHT	N9010B	MY57110309	2023.09.05	2024.09.04
LISN	SCHWARZBECK	NSLK 8127	8127-687	2024.05.09	2025.05.08
Shielded Enclosure	YiHeng Electronic Co., Ltd	3.5m*3.1m*2.8m	112	2022.02.19	2025.02.18

4.3 Test Software List

Description	Manufacturer	Software Version	Serial No.	Applicable test Setup
BL410R	BALUN	V2.1.1.488	N/A	The section 4.5.1
BL410E	BALUN	V22.930	N/A	The section 4.5.2&4.5.3&4.5.4&4.5.5

4.4 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Parameters	Uncertainty
Occupied Channel Bandwidth	2.8%
RF output power, conducted	1.28 dB
Power Spectral Density, conducted	1.30 dB
Unwanted Emissions, conducted	1.84 dB
All emissions, radiated	5.36 dB
Temperature	0.8°C
Humidity	4%

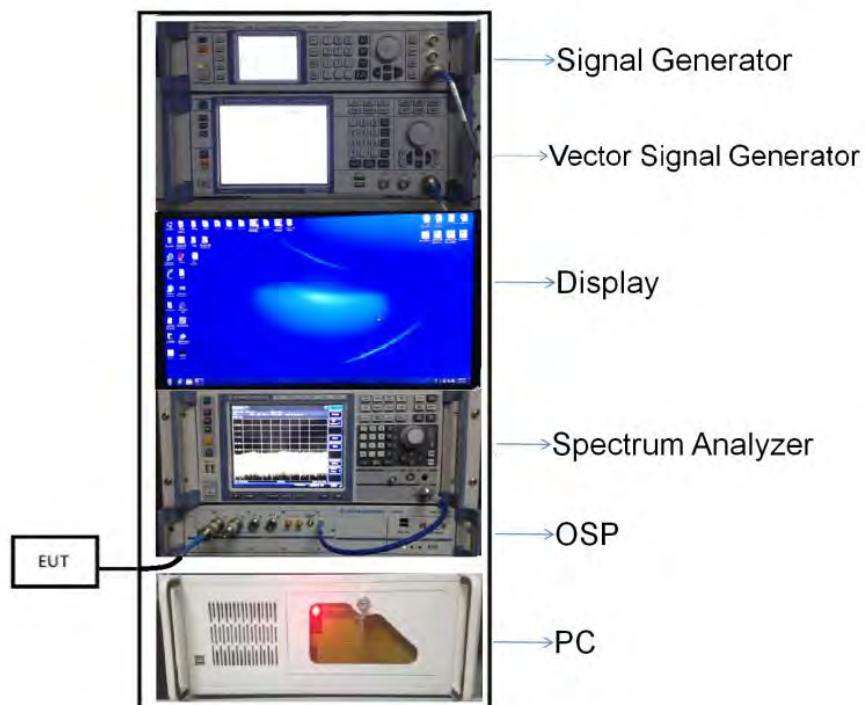
4.5 Description of Test Setup

4.5.1 For Antenna Port Test

$$\text{Conducted value (dBm)} = \text{Measurement value (dBm)} + \text{cable loss (dB)}$$

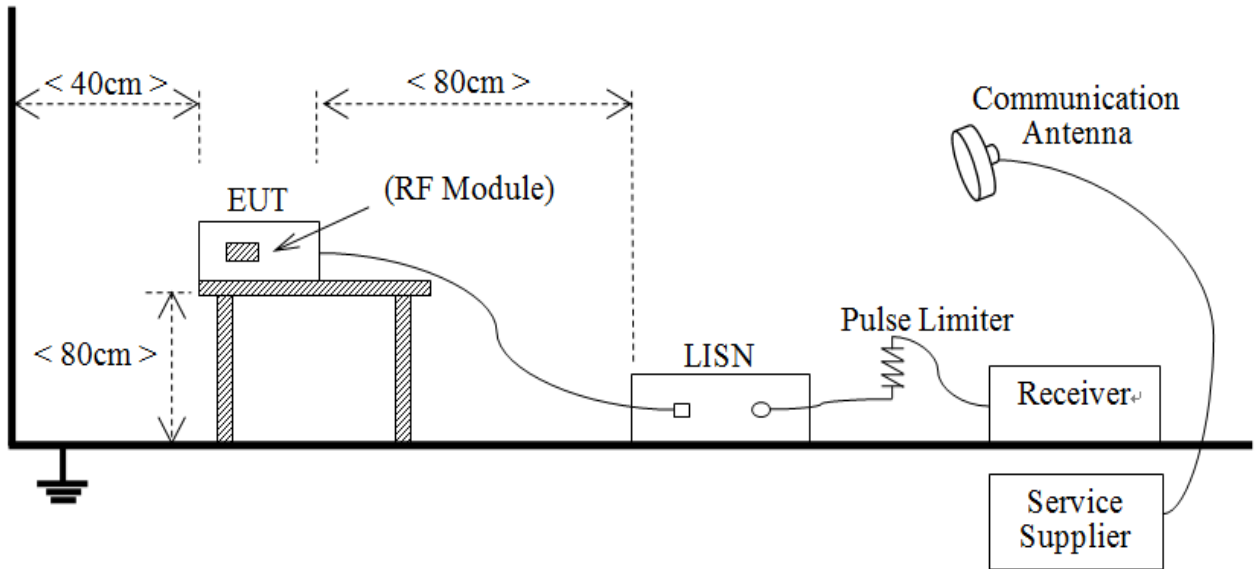
For example: the measurement value is 10 dBm and the cable 0.5dBm used, then the final result of EUT:

$$\text{Conducted value (dBm)} = 10 \text{ dBm} + 0.5 \text{ dB} = 10.5 \text{ dBm}$$



(Diagram 1)

4.5.2 For AC Power Supply Port Test



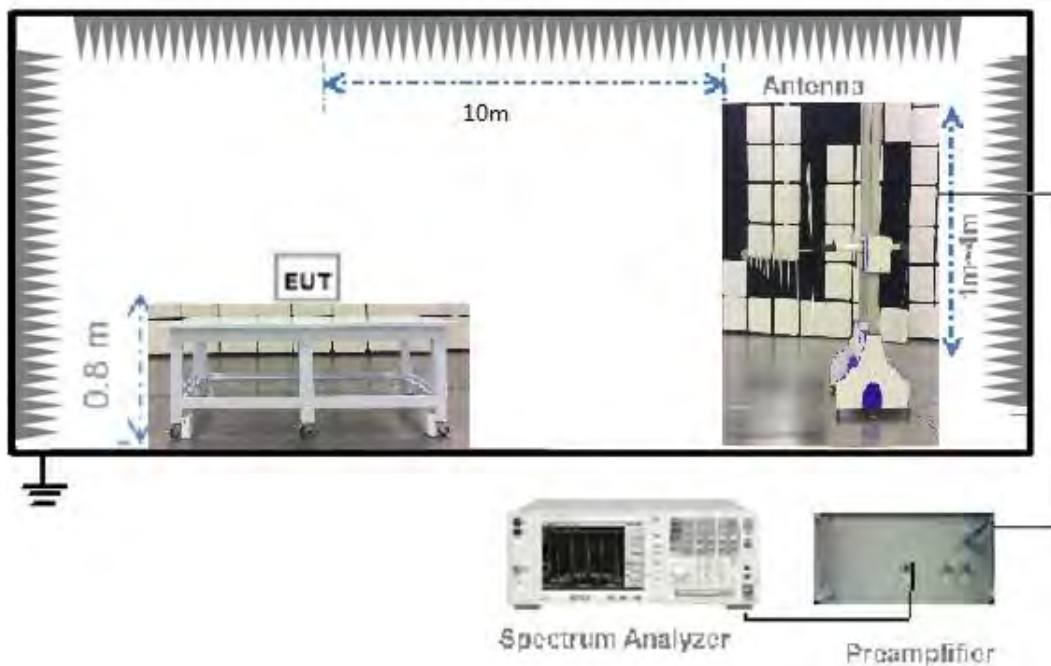
(Diagram 2)

4.5.3 For Radiated Test (Below 30 MHz)



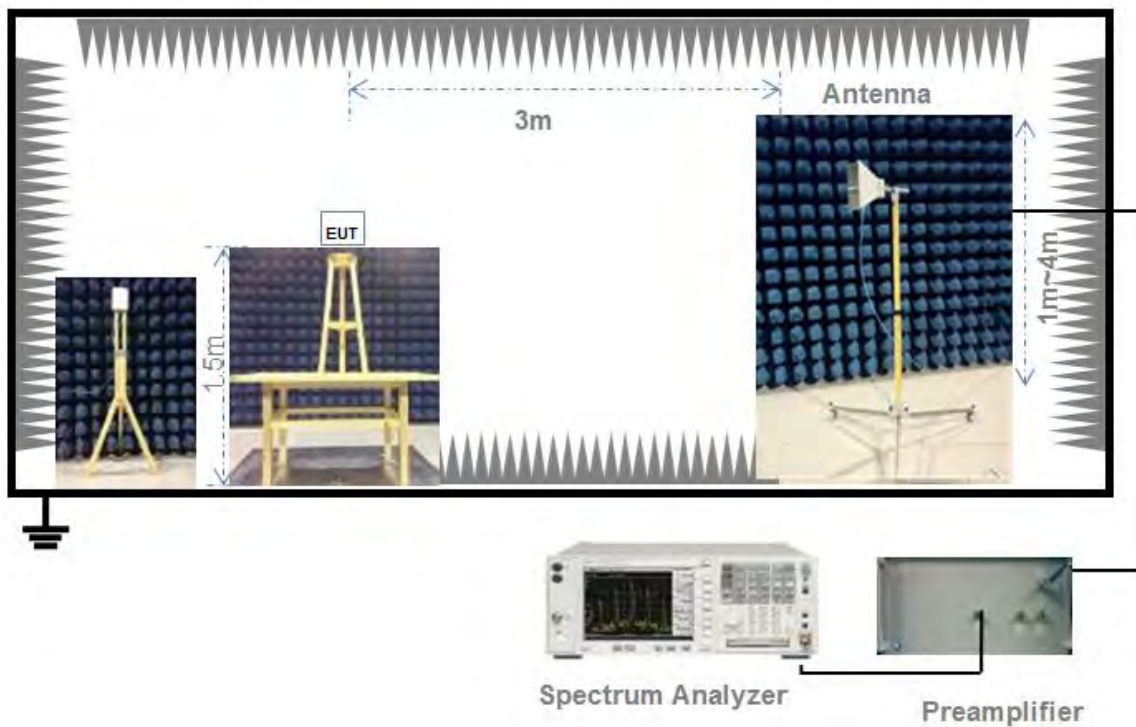
(Diagram 3)

4.5.4 For Radiated Test (30 MHz-1 GHz)



(Diagram 4)

4.5.5 For Radiated Test (Above 1 GHz)



(Diagram 5)

4.6 Measurement Results Explanation Example

4.6.1 For conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

4.6.2 For radiated band edges and spurious emission test:

$$E = \text{EIRP} - 20 \log D + 104.8$$

where:

E = electric field strength in dB μ V/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

EIRP = Measure Conducted output power Value (dBm) + Maximum transmit antenna gain (dBi) + the appropriate maximum ground reflection factor (dB)

5 TEST ITEMS

5.1 Antenna Requirements

5.1.1 Relevant Standards

FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

5.1.2 Antenna Anti-Replacement Construction

The Antenna Anti-Replacement as following method:

Protected Method	Description
The antenna is embedded in the product.	An embedded-in antenna design is used.

Reference Documents	Item
Photo	Please refer to the EUT Photo documents.

5.1.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

5.2 Output Power

5.2.1 Test Limit

FCC § 15.247(b)

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements.

5.2.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.2.3 Test Procedure

Maximum peak conducted output power

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

The EUT shall be transmitted at its maximum power control level.

Maximum conducted (average) output power (Reporting Only)

a) As an alternative to spectrum analyzer or EMI receiver measurements, measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.

- 1) The EUT is configured to transmit continuously, or to transmit with a constant duty factor.
- 2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
- 3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

b) If the transmitter does not transmit continuously, measure the duty cycle (x) of the transmitter output signal.

c) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.

d) Adjust the measurement in dBm by adding $10\log(1/x)$, where x is the duty cycle.

Measurements of duty cycle

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal.

Set the center frequency of the instrument to the center frequency of the transmission.

Set RBW \geq OBW if possible; otherwise, set RBW to the largest available value.

Set VBW \geq RBW. Set detector = peak or average.

The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$ and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if $T \leq 16.7$ microseconds.)

5.2.4 Test Result

Duty Cycle

Test Mode	On Time (ms)	On+Off time (ms)	Duty Cycle	Duty Factor
802.11b	8.40	8.56	98.21%	0.08
802.11g	1.39	1.55	89.70%	0.47
802.11n-20 MHz	5.08	5.33	95.42%	0.20
802.11n-40 MHz	4.88	5.08	96.22%	0.17
802.11ax-20 MHz(SU)	3.87	4.05	95.53%	0.20
802.11ax-40 MHz(SU)	3.86	4.00	96.53%	0.15

Peak Power Test Data**802.11b Mode:**

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	18.78	75.51	30	1000	Pass
Middle	19.34	85.90			Pass
High	17.86	61.09			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	22.48	177.01	30	1000	Pass
Middle	22.51	178.24			Pass
High	21.66	146.55			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	20.41	109.90	30	1000	Pass
Middle	21.09	128.53			Pass
High	20.63	115.61			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	20.04	100.93	30	1000	Pass
Middle	19.86	96.83			Pass
High	20.56	113.76			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	22.94	196.79	30	1000	Pass
Middle	22.57	180.72			Pass
High	22.64	183.65			Pass

802.11ax-40 MHz(SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	21.16	130.62	30	1000	Pass
Middle	21.43	139.00			Pass
High	21.69	147.57			Pass

Average Power Test Data

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.09	40.64	30	1000	Pass
Middle	16.01	39.90			Pass
High	14.80	30.20			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.26	42.27	30	1000	Pass
Middle	16.23	41.98			Pass
High	15.34	34.20			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	14.81	30.27	30	1000	Pass
Middle	15.53	35.73			Pass
High	14.62	28.97			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	13.85	24.27	30	1000	Pass
Middle	13.65	23.17			Pass
High	14.49	28.12			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	15.27	33.65	30	1000	Pass
Middle	14.92	31.05			Pass
High	15.28	33.73			Pass

802.11ax-40 MHz(SU) Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	13.84	24.21	30	1000	Pass
Middle	13.57	22.75			Pass
High	14.32	27.04			Pass

5.3 Occupied Bandwidth

5.3.1 Limit

FCC §15.247(a)

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.

5.3.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.3.3 Test Procedure

Use the following spectrum analyzer settings:

Set RBW = 100 kHz.

Set the video bandwidth (VBW) \geq 3 RBW.

Detector = Peak.

Trace mode = max hold.

Sweep = auto couple.

Allow the trace to stabilize.

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.3.4 Test Result

Test Data

802.11b Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	9.200000	13.748000	≥500
Middle	9.200000	14.924000	≥500
High	9.200000	13.710000	≥500

802.11g Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	15.200000	16.574000	≥500
Middle	15.200000	16.569000	≥500
High	15.200000	16.475000	≥500

802.11n-20MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	14.000000	17.419000	≥500
Middle	15.200000	17.440000	≥500
High	15.200000	17.409000	≥500

802.11n-40MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	31.500000	35.301000	≥500
Middle	31.500000	35.355000	≥500
High	29.000000	35.389000	≥500

802.11ax-20 MHz(SU) Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	14.500000	18.359000	≥500
Middle	15.200000	18.369000	≥500
High	15.200000	18.340000	≥500

802.11ax-40 MHz(SU) Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	30.200000	36.589000	≥500
Middle	31.500000	36.467000	≥500
High	32.800000	36.504000	≥500

Test Plots

6 dB Bandwidth

802.11b LOW CHANNEL



802.11b MIDDLE CHANNEL



802.11b HIGH CHANNEL



802.11g LOW CHANNEL



802.11g MIDDLE CHANNEL



802.11g HIGH CHANNEL



802.11n-20 MHz LOW CHANNEL



802.11n-20 MHz MIDDLE CHANNEL



802.11n-20 MHz HIGH CHANNEL



802.11n-40 MHz LOW CHANNEL



802.11n-40 MHz MIDDLE CHANNEL



802.11n-40 MHz HIGH CHANNEL



802.11ax-20 MHz(SU) LOW CHANNEL



802.11ax-20 MHz(SU) MIDDLE CHANNEL



802.11ax-20 MHz(SU) HIGH CHANNEL



802.11ax-40 MHz(SU) LOW CHANNEL



802.11ax-40 MHz(SU) MIDDLE CHANNEL

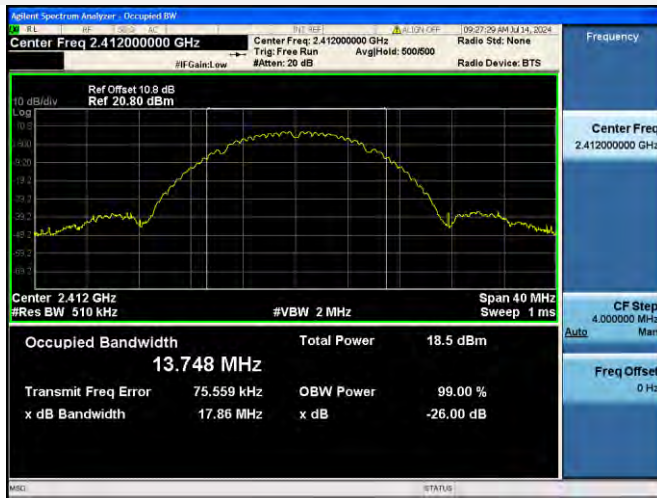


802.11ax-40 MHz(SU) HIGH CHANNEL

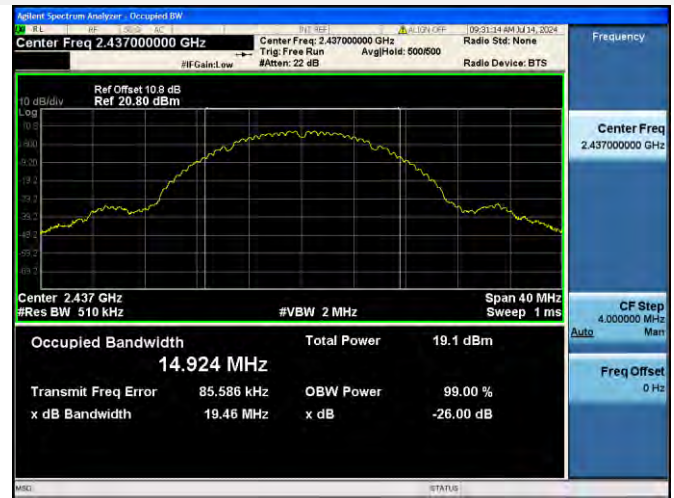


99% Bandwidth

802.11b LOW CHANNEL



802.11b MIDDLE CHANNEL



802.11b HIGH CHANNEL



802.11g LOW CHANNEL



802.11g MIDDLE CHANNEL



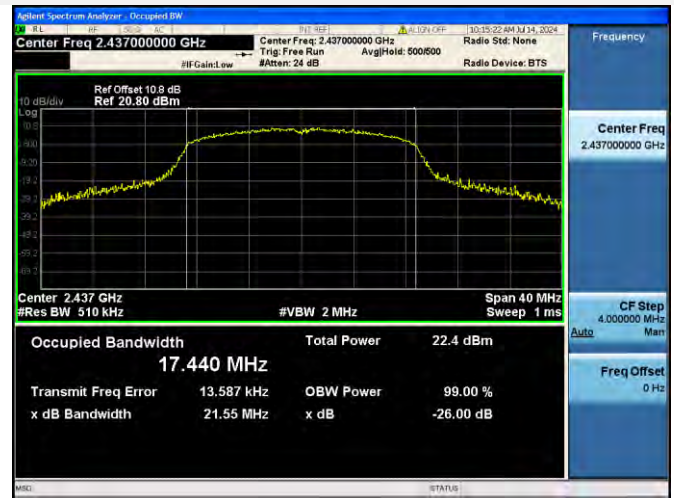
802.11g HIGH CHANNEL



802.11n-20 MHz LOW CHANNEL



802.11n-20 MHz MIDDLE CHANNEL



802.11n-20 MHz HIGH CHANNEL



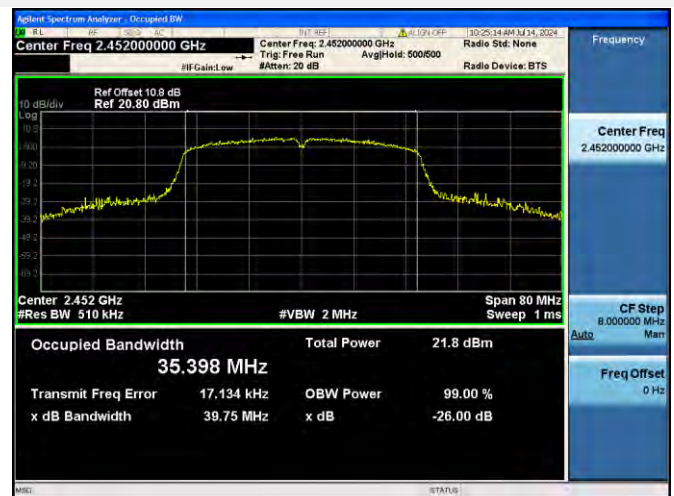
802.11n-40 MHz LOW CHANNEL



802.11n-40 MHz MIDDLE CHANNEL



802.11n-40 MHz HIGH CHANNEL



802.11ax-20 MHz(SU) LOW CHANNEL



802.11ax-20 MHz(SU) MIDDLE CHANNEL



802.11ax-20 MHz(SU) HIGH CHANNEL



802.11ax-40 MHz(SU) LOW CHANNEL



802.11ax-40 MHz(SU) MIDDLE CHANNEL



802.11ax-40 MHz(SU) HIGH CHANNEL



5.4 Conducted Spurious Emission

5.4.1 Limit

FCC §15.247(d)

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.

5.4.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.4.3 Test Procedure

The DTS rules specify that in any 100 kHz bandwidth outside of the authorized frequency band, the power shall be attenuated according to the following conditions:

- a) If the maximum peak conducted output power procedure was used to demonstrate compliance as described in 9.1, then the peak output power 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 (i.e., 20 dBc).
- b) If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).
- c) In either case, attenuation to levels below the 15.209 general radiated emissions limits is not required.

The following procedures shall be used to demonstrate compliance to these limits. Note that these procedures can be used in either an antenna-port conducted or radiated test set-up. Radiated tests must conform to the test site requirements and utilize maximization procedures defined herein.

Reference level measurement

Establish a reference level by using the following procedure:

Set instrument center frequency to DTS channel center frequency.

Set the span to ≥ 1.5 times the DTS bandwidth.

Set the RBW = 100 kHz.

Set the VBW $\geq 3 \times$ RBW.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum PSD level.

Emission level measurement

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.

Set the RBW = 100 kHz.

Set the VBW $\geq 3 \times$ RBW.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in 11.1 a) or 11.1 b). Report the three highest emissions relative to the limit.

5.4.4 Test Result

Test Data

802.11b Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-40.51	7.41	-12.59	Pass
Middle	-41.45	7.92	-12.08	Pass
High	-41.03	6.64	-13.36	Pass

802.11g Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-40.75	7.20	-12.80	Pass
Middle	-40.14	7.28	-12.72	Pass
High	-41.03	6.41	-13.59	Pass

802.11n-20MHz Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-39.75	5.15	-14.85	Pass
Middle	-41.02	5.39	-14.61	Pass
High	-39.87	5.50	-14.50	Pass

802.11n-40MHz Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-40.38	1.18	-18.83	Pass
Middle	-40.00	1.19	-18.81	Pass
High	-39.80	1.93	-18.07	Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-40.59	5.53	-14.47	Pass
Middle	-38.93	6.01	-13.99	Pass
High	-40.64	5.39	-14.61	Pass

802.11ax-40 MHz(SU) Mode:

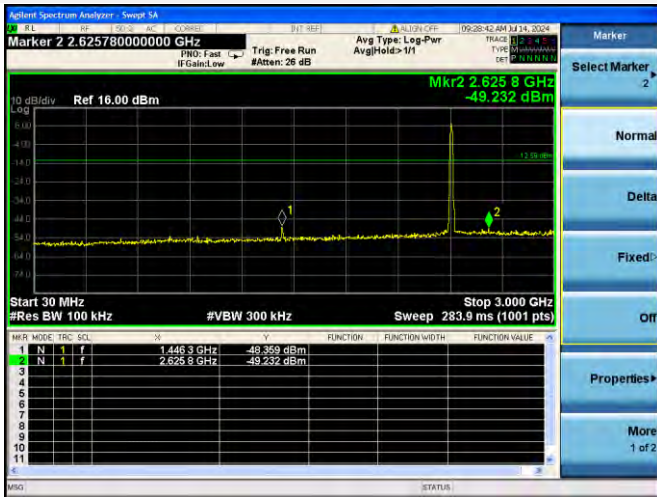
Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-39.71	0.64	-19.36	Pass
Middle	-40.30	0.89	-19.11	Pass
High	-40.20	1.10	-18.90	Pass

Test Plots

802.11b LOW CHANNEL CARRIER LEVEL



802.11b LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



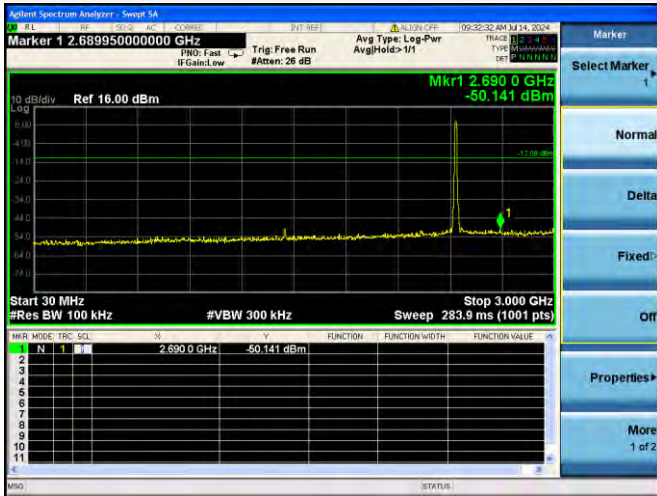
802.11b LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



802.11b MIDDLE CHANNEL CARRIER LEVEL



802.11b MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



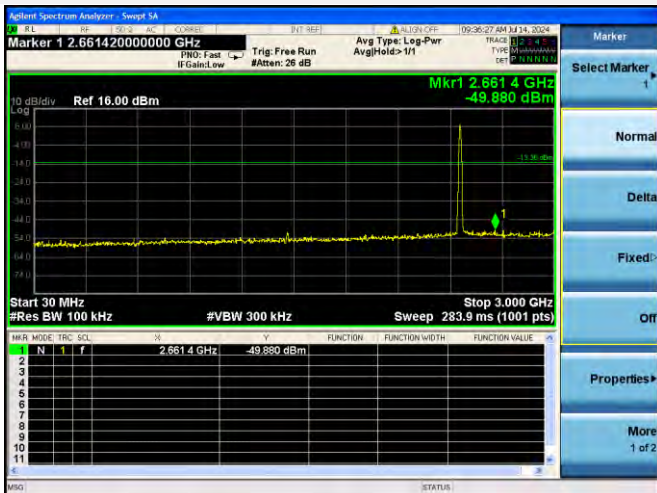
802.11b MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



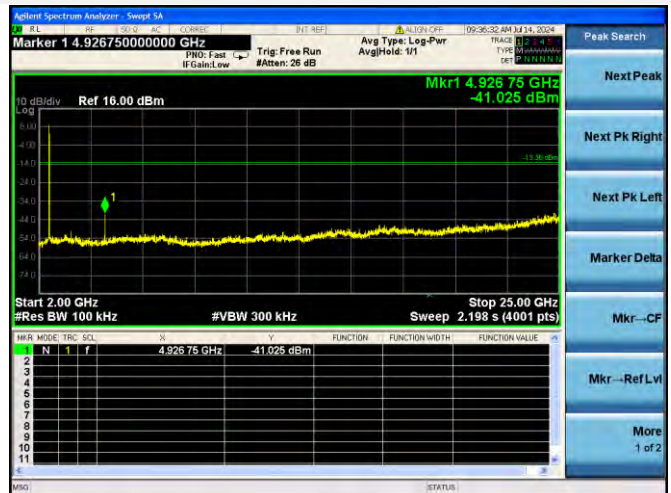
802.11b HIGH CHANNEL CARRIER LEVEL



802.11b HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



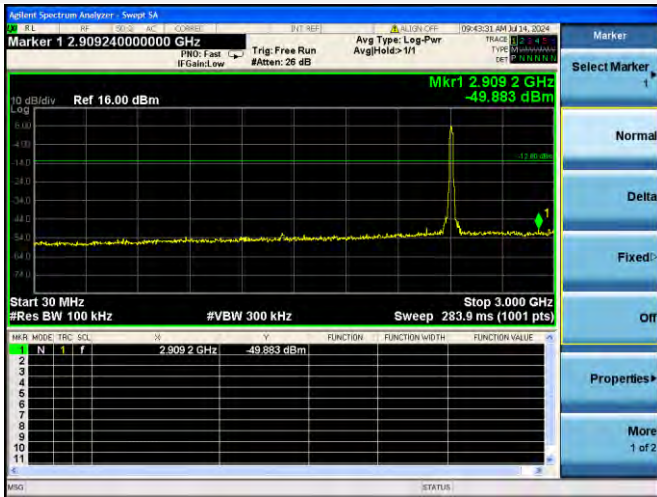
802.11b HIGH CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



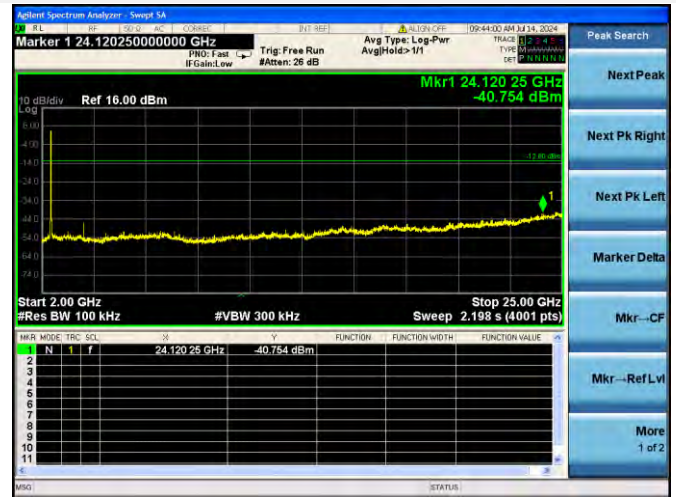
802.11g LOW CHANNEL CARRIER LEVEL



802.11g LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



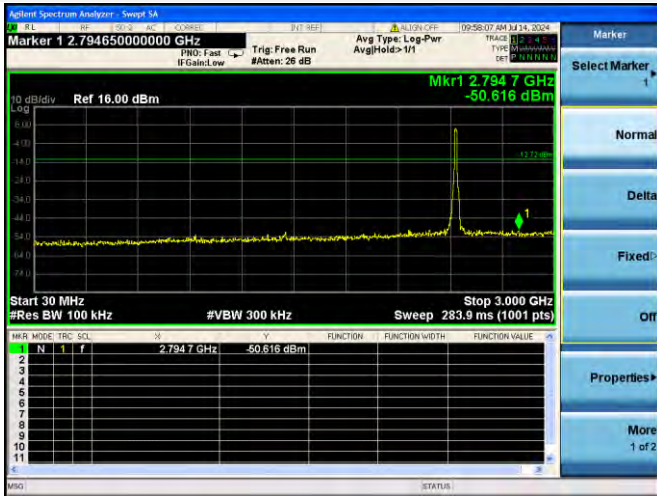
802.11g LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



802.11g MIDDLE CHANNEL CARRIER LEVEL



802.11g MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



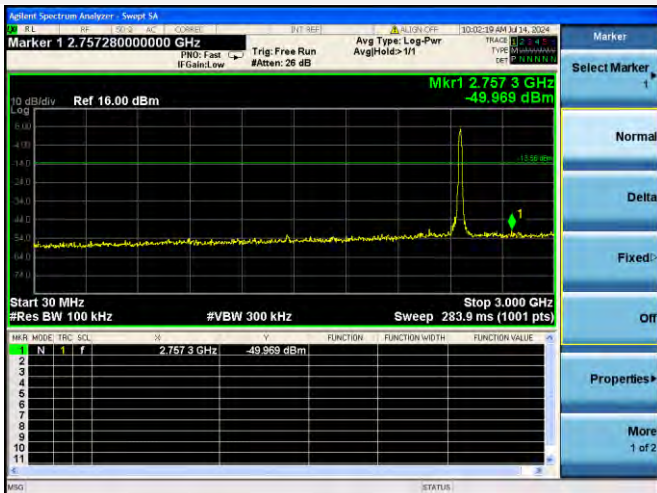
802.11g MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



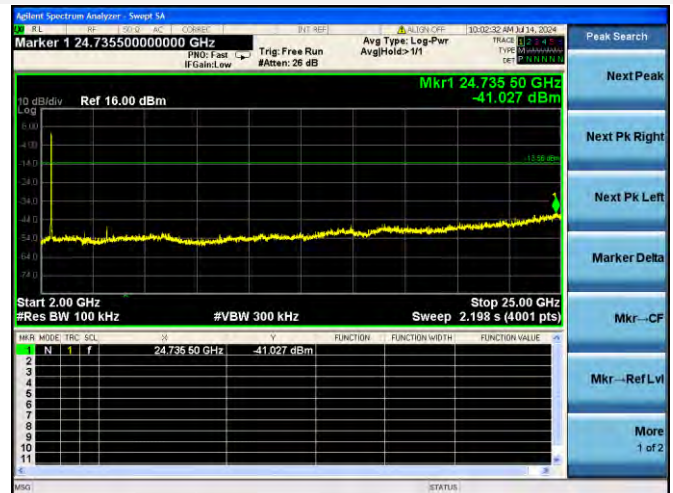
802.11g HIGH CHANNEL CARRIER LEVEL



802.11g HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



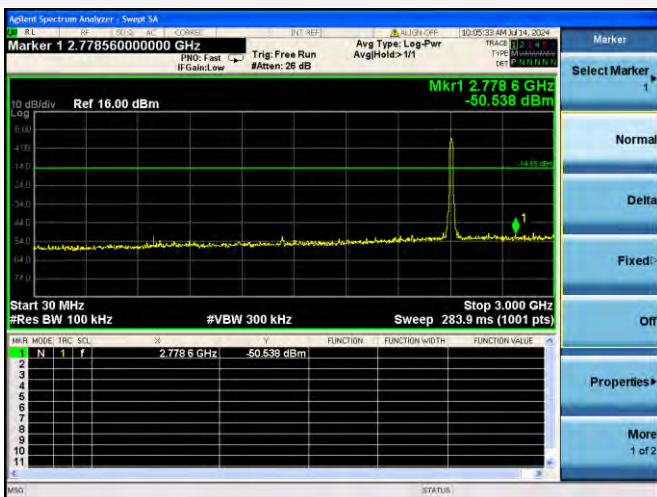
802.11g HIGH CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



802.11n-20 MHz LOW CHANNEL CARRIER LEVEL



802.11n-20 MHz LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



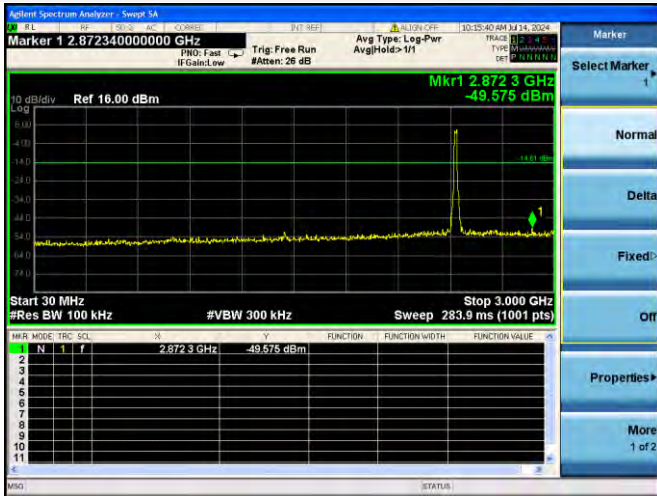
802.11n-20 MHz LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



802.11n-20 MHz MIDDLE CHANNEL CARRIER LEVEL



802.11n-20 MHz MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



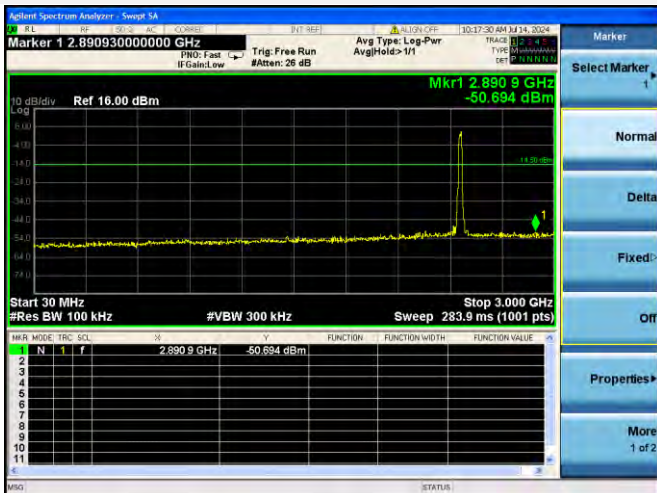
802.11n-20 MHz MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



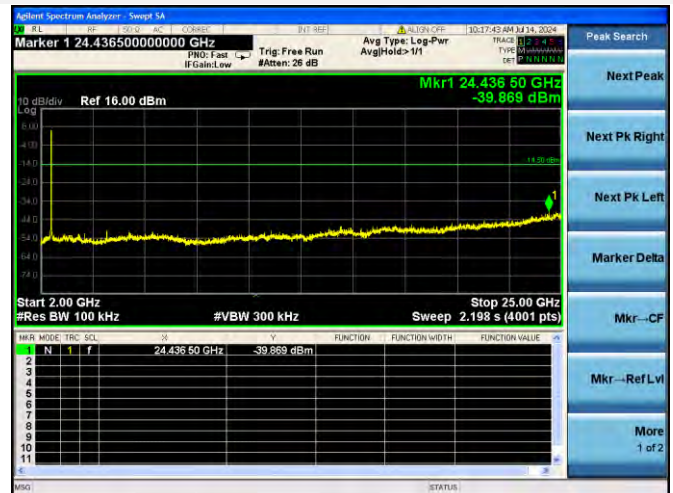
802.11n-20 MHz HIGH CHANNEL CARRIER LEVEL



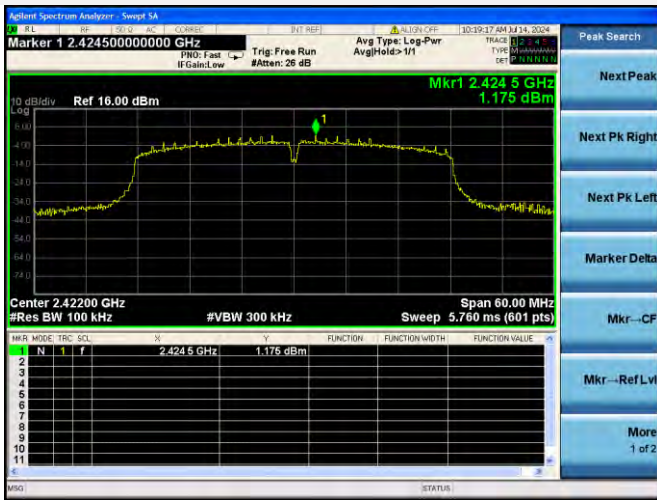
802.11n-20 MHz HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



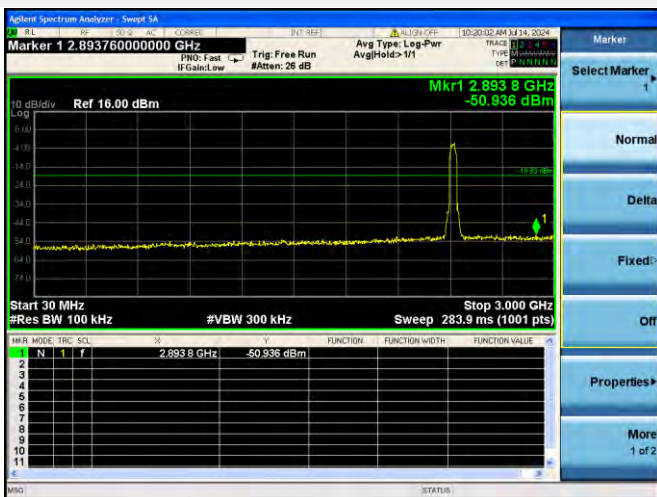
802.11n-20 MHz HIGH CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



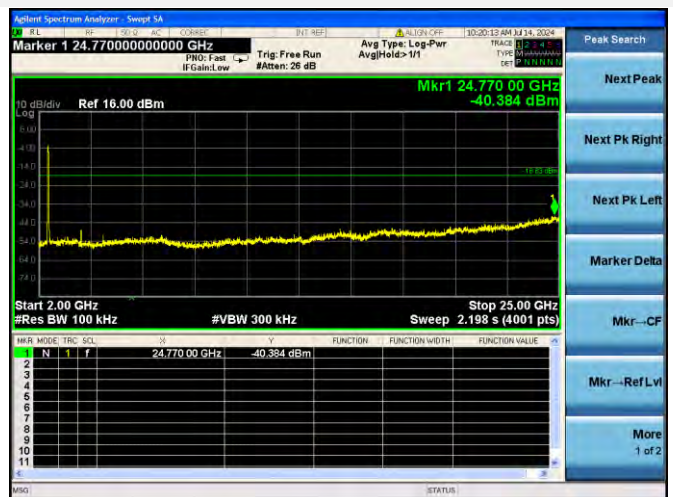
802.11n-40 MHz LOW CHANNEL CARRIER LEVEL



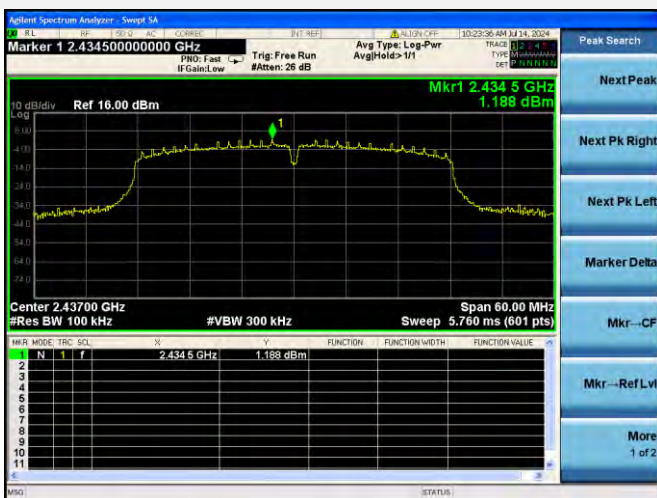
802.11n-40 MHz LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



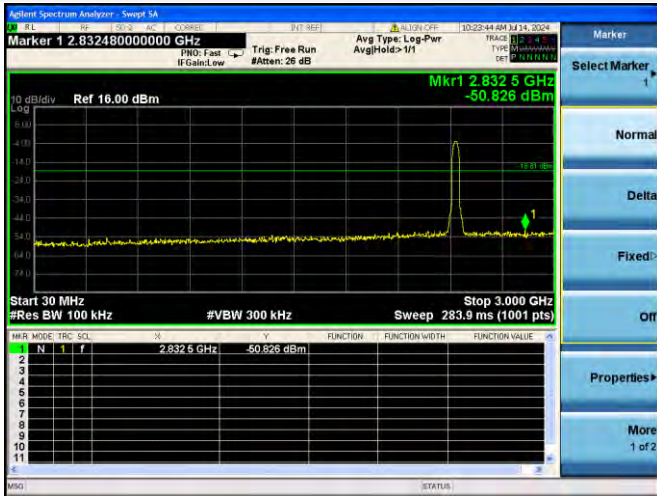
802.11n-40 MHz LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



802.11n-40 MHz MIDDLE CHANNEL CARRIER LEVEL



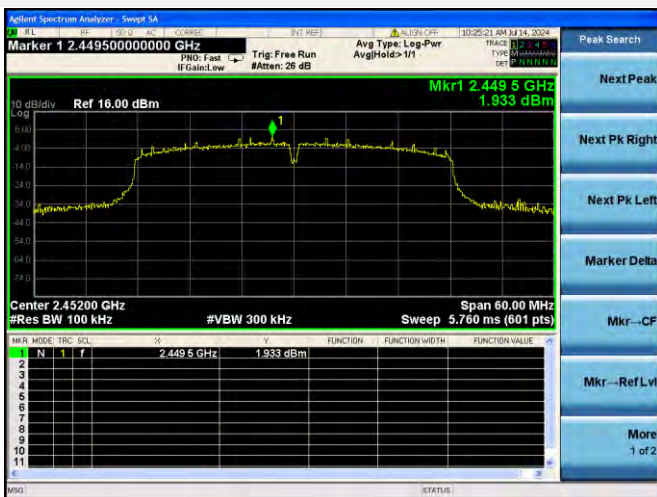
802.11n-40 MHz MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



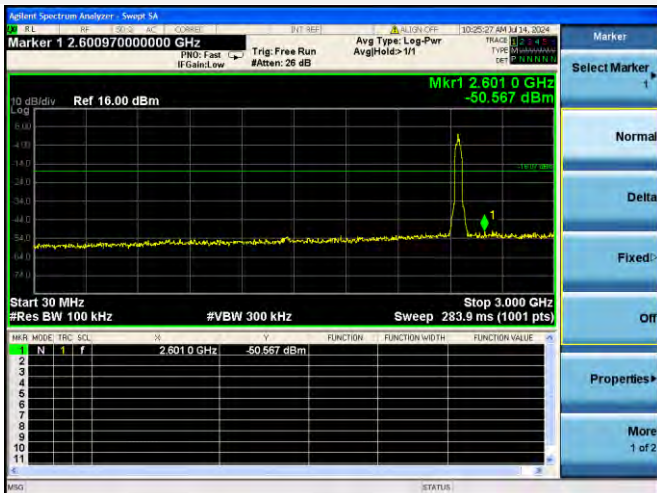
802.11n-40 MHz MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



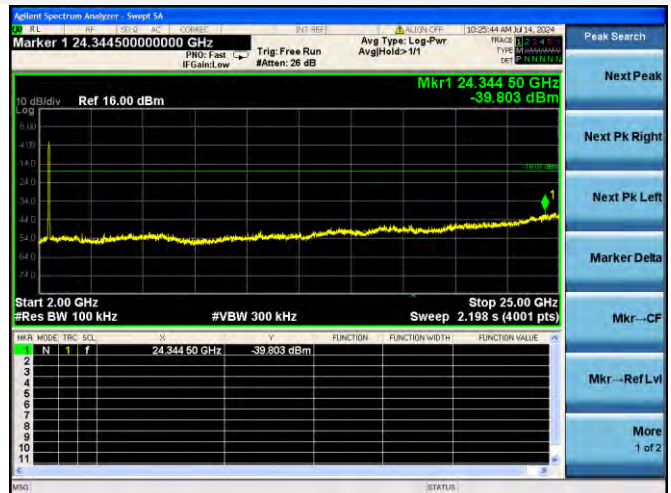
802.11n-40 MHz HIGH CHANNEL CARRIER LEVEL



802.11n-40 MHz HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



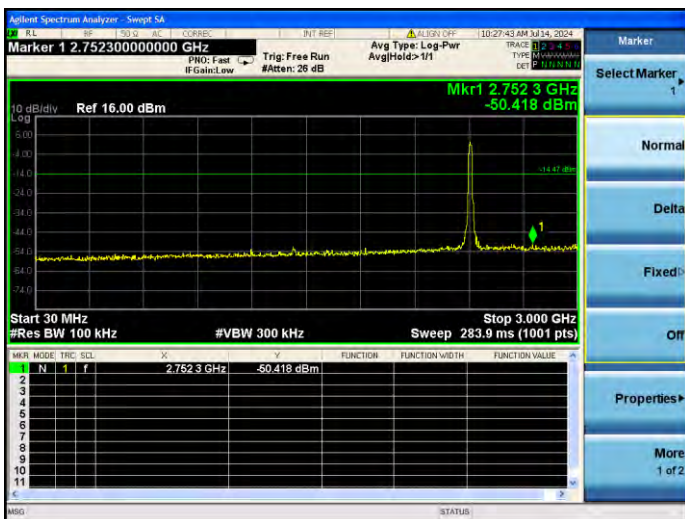
802.11n-40 MHz HIGH CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



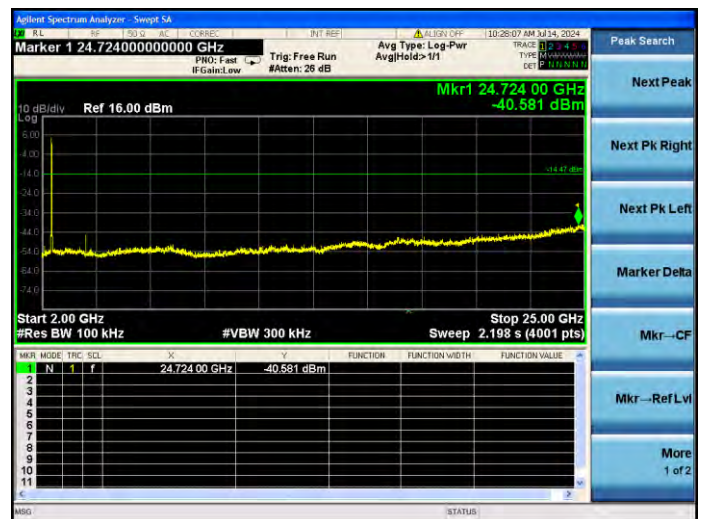
802.11ax-20 MHz(SU) LOW CHANNEL CARRIER LEVEL



802.11ax-20 MHz(SU) LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



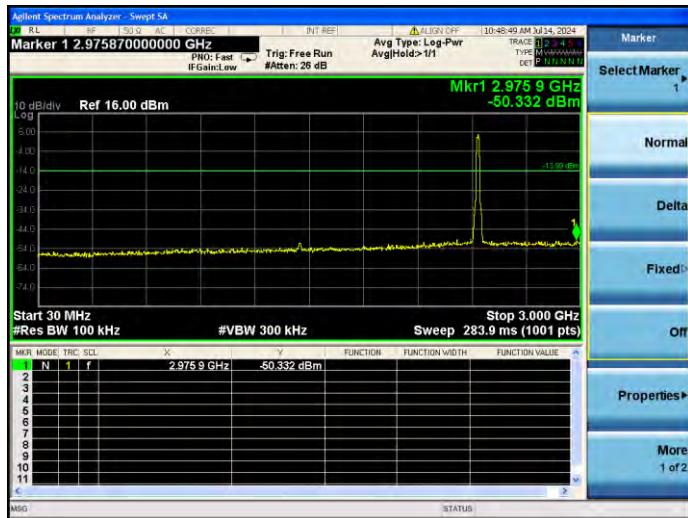
802.11ax-20 MHz(SU) LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



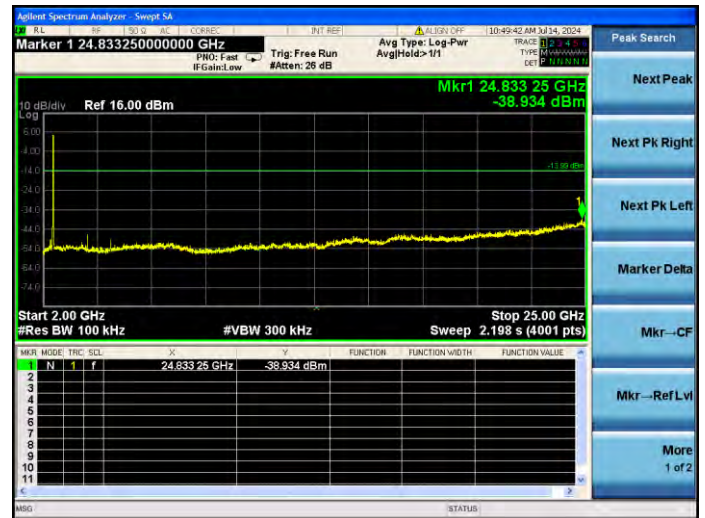
802.11ax-20 MHz(SU) MIDDLE CHANNEL CARRIER LEVEL



802.11ax-20 MHz(SU) MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



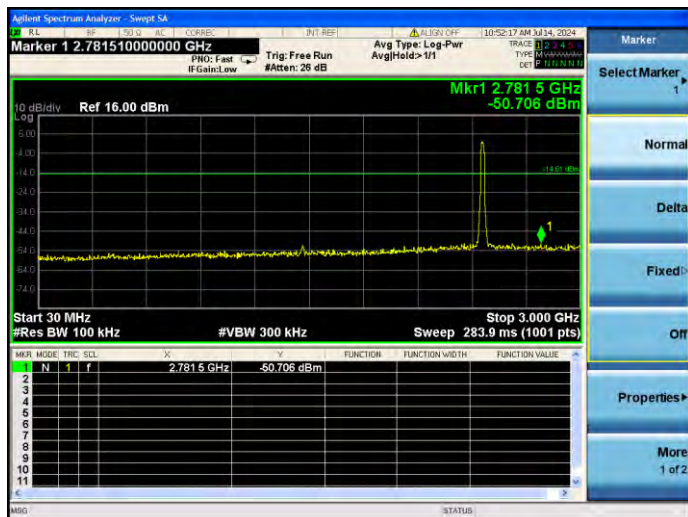
802.11ax-20 MHz(SU) MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



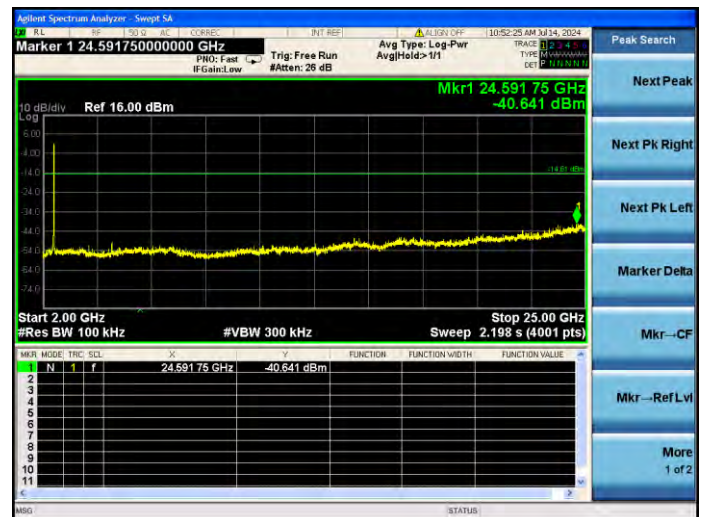
802.11ax-20 MHz(SU) HIGH CHANNEL CARRIER
LEVEL



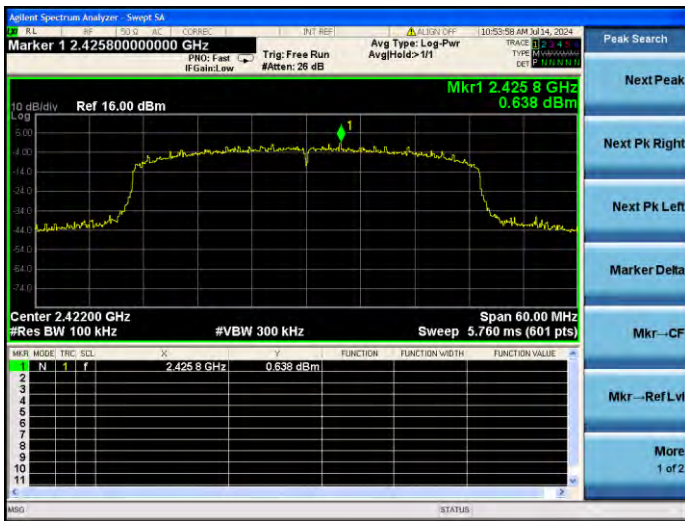
802.11ax-20 MHz(SU) HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



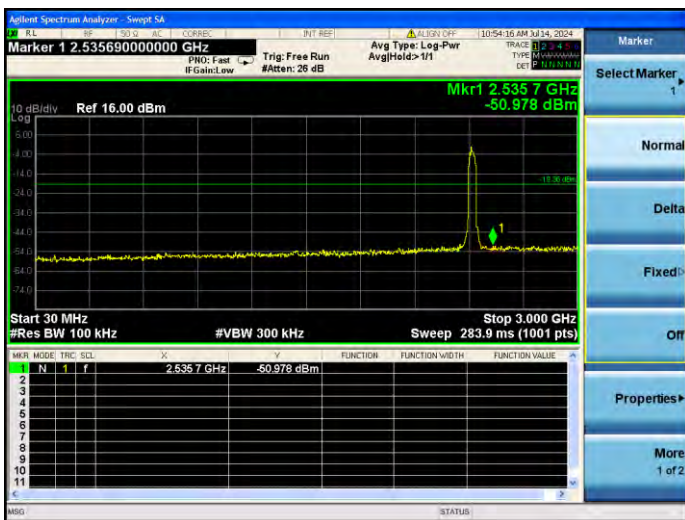
802.11ax-20 MHz(SU) HIGH CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



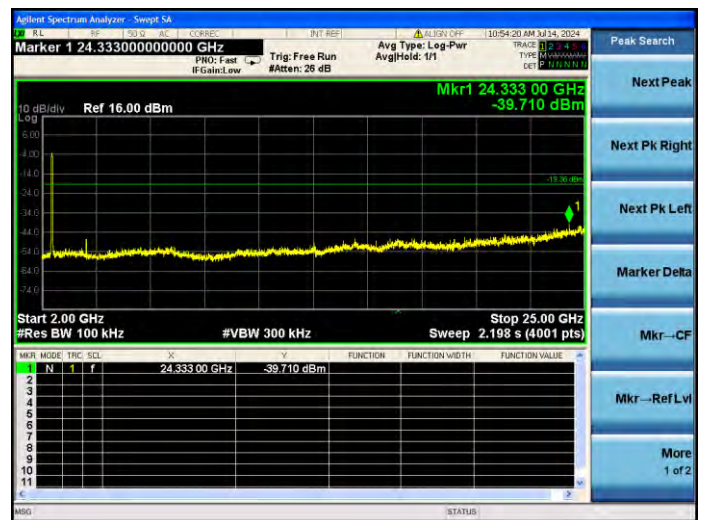
802.11ax-40 MHz(SU) LOW CHANNEL CARRIER LEVEL



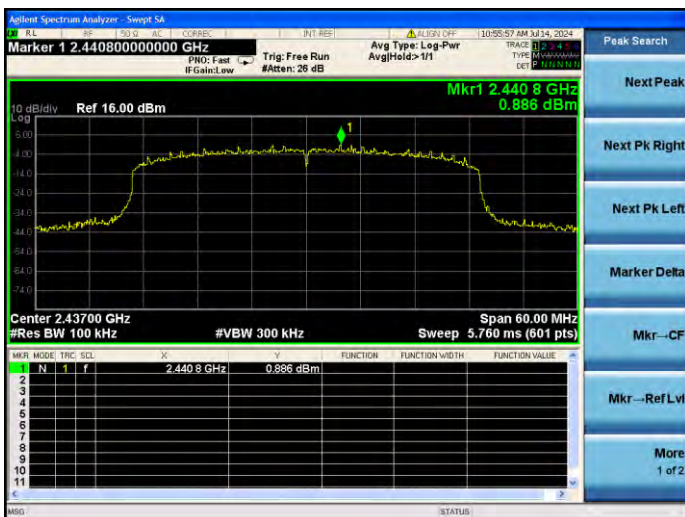
802.11ax-40 MHz(SU) LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



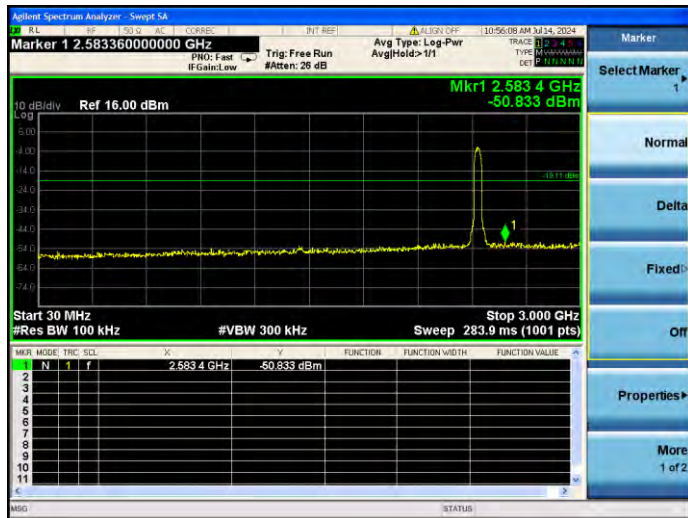
802.11ax-40 MHz(SU) LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



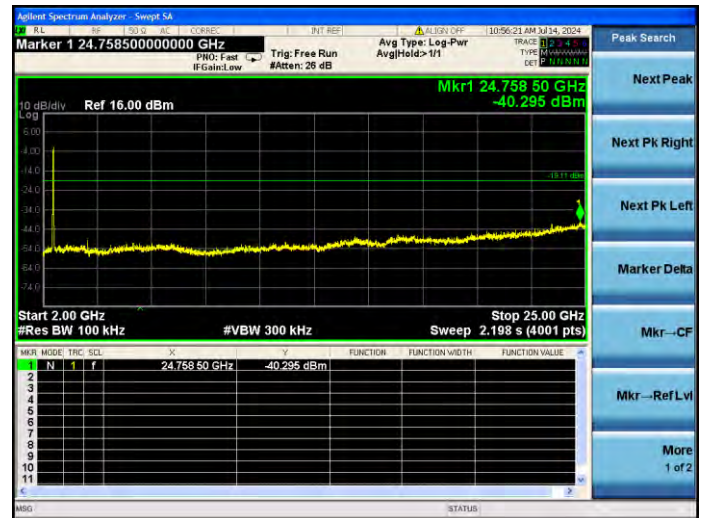
802.11ax-40 MHz(SU) MIDDLE CHANNEL CARRIER LEVEL



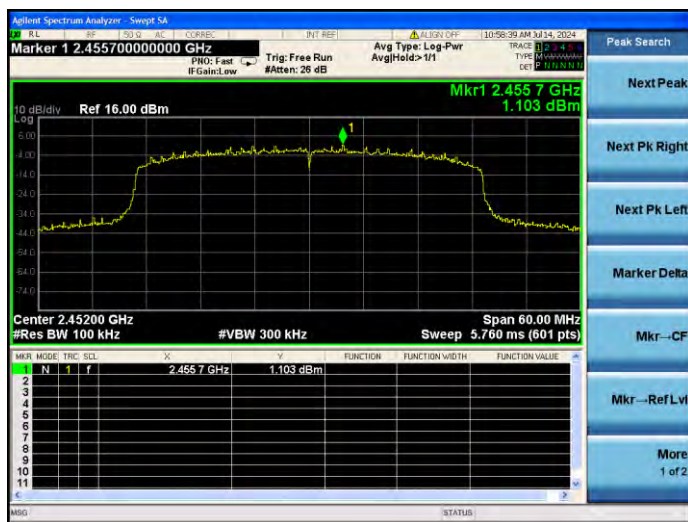
802.11ax-40 MHz(SU) MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



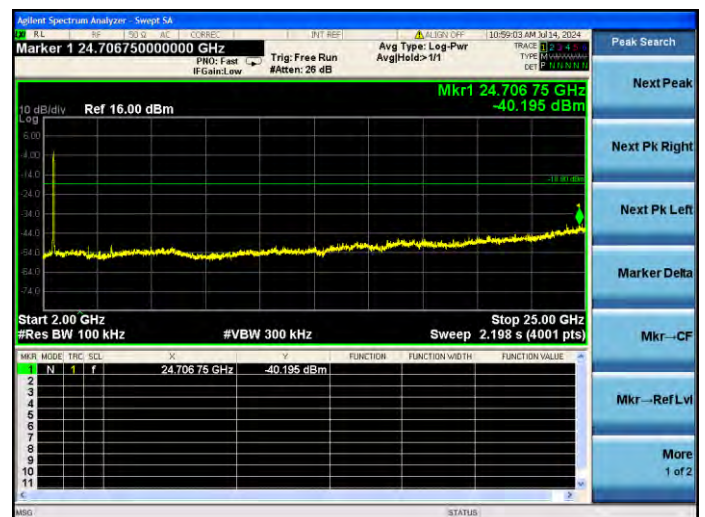
802.11ax-40 MHz(SU) MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



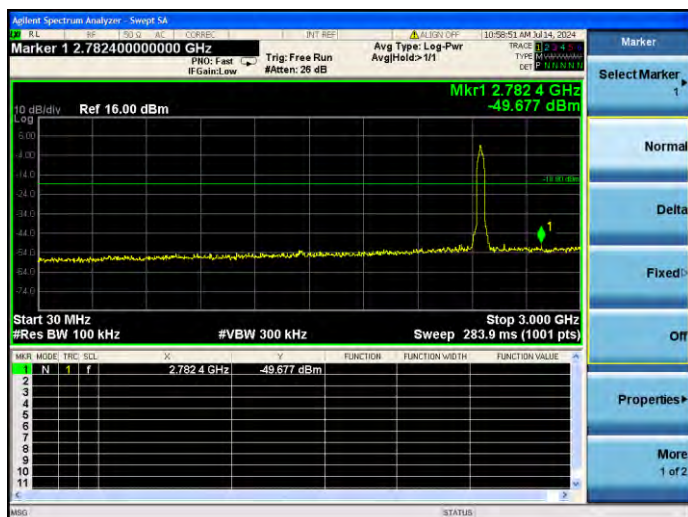
802.11ax-40 MHz(SU) HIGH CHANNEL CARRIER
LEVEL



802.11ax-40 MHz(SU) HIGH CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



802.11ax-40 MHz(SU) HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



5.5 Band Edge (Authorized-band band-edge)

5.5.1 Limit

FCC §15.247(d)

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.

5.5.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.5.3 Test Procedure

The following procedures may be used to determine the peak or average field strength or power of an unwanted emission that is within 2 MHz of the authorized band edge. If a peak detector is utilized, use the procedure described in 13.2.1. Use the procedure described in 13.2.2 when using an average detector and the EUT can be configured to transmit continuously (i.e., duty cycle $\geq 98\%$). Use the procedure described in 13.2.3 when using an average detector and the EUT cannot be configured to transmit continuously but the duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent). Use the procedure described in 13.2.4 when using an average detector for those cases where the EUT cannot be configured to transmit continuously and the duty cycle is not constant (duty cycle variations equal or exceed 2 percent).

When using a peak detector to measure unwanted emissions at or near the band edge (within 2 MHz of the authorized band), the following integration procedure can be used.

Set instrument center frequency to the frequency of the emission to be measured (must be within 2 MHz of the authorized band edge).

Set span to 2 MHz

RBW = 100 kHz.

VBW $\geq 3 \times$ RBW.

Detector = peak.

Sweep time = auto.

Trace mode = max hold.

Allow sweep to continue until the trace stabilizes (required measurement time may increase for low duty cycle applications)

Compute the power by integrating the spectrum over 1 MHz using the analyzer's band power measurement function with band limits set equal to the emission frequency (femission) ± 0.5 MHz. If the instrument does not have a band power function, then sum the amplitude levels (in power units) at 100 kHz intervals extending across the 1 MHz spectrum defined by femission ± 0.5 MHz.

Standard method(The 99% OBW of the fundamental emission is without 2 MHz of the authorized band):

Span: Wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products that fall outside of the authorized band of operation.

Reference level: As required to keep the signal from exceeding the maximum instrument input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (\text{OBW}/\text{RBW})]$ below the reference level. Specific guidance is given in 4.1.5.2.

Attenuation: Auto (at least 10 dB preferred).

Sweep time: Coupled.

Resolution bandwidth: 100 kHz.

Video bandwidth: 300 kHz.

Detector: Peak.

Trace: Max hold.

5.5.4 Test Result

Note: The 99% OBW of the fundamental emission is without 2 MHz of the authorized band.

Test Data

802.11b Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-37.72	7.41	-12.59	Pass
High Channel	-49.43	6.64	-13.36	Pass

802.11g Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-22.68	7.20	-12.80	Pass
High Channel	-41.78	6.41	-13.59	Pass

802.11n-20 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-28.01	5.15	-14.85	Pass
High Channel	-42.69	5.50	-14.50	Pass

802.11n-40 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-33.72	1.18	-18.83	Pass
High Channel	-36.41	1.93	-18.07	Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-27.01	5.53	-14.47	Pass
High Channel	-42.47	5.39	-14.61	Pass

802.11ax-40 MHz(SU) Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-37.57	0.64	-19.36	Pass
High Channel	-39.70	1.10	-18.90	Pass

Test Plots

802.11b LOW CHANNEL, CARRIER LEVEL



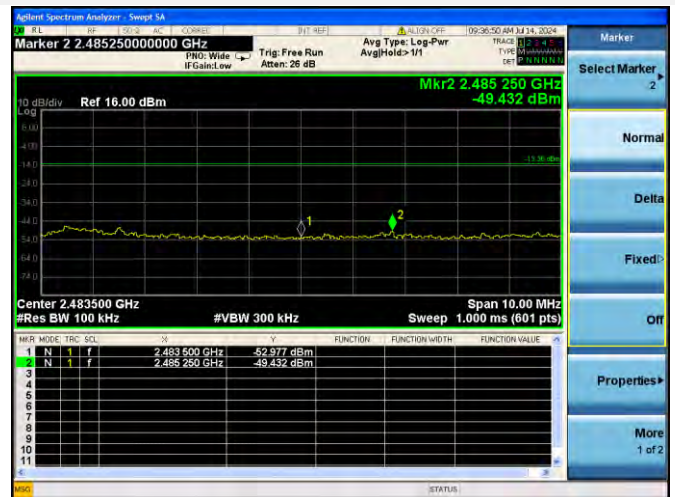
802.11b LOW CHANNEL, BAND EDGE



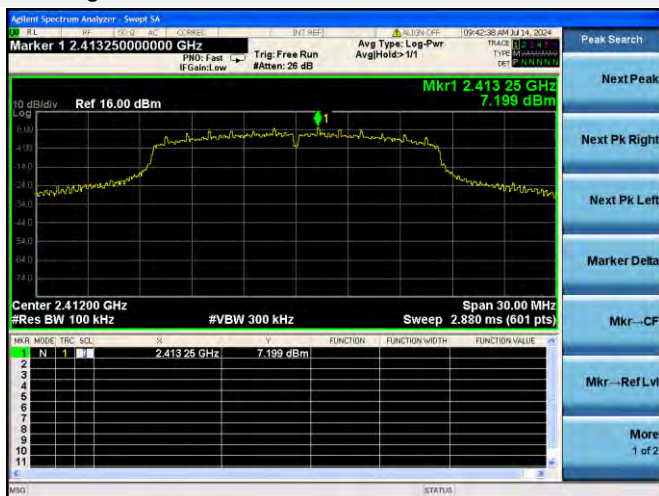
802.11b HIGH CHANNEL, CARRIER LEVEL



802.11b HIGH CHANNEL, BAND EDGE



802.11g LOW CHANNEL, CARRIER LEVEL



802.11g LOW CHANNEL, BAND EDGE



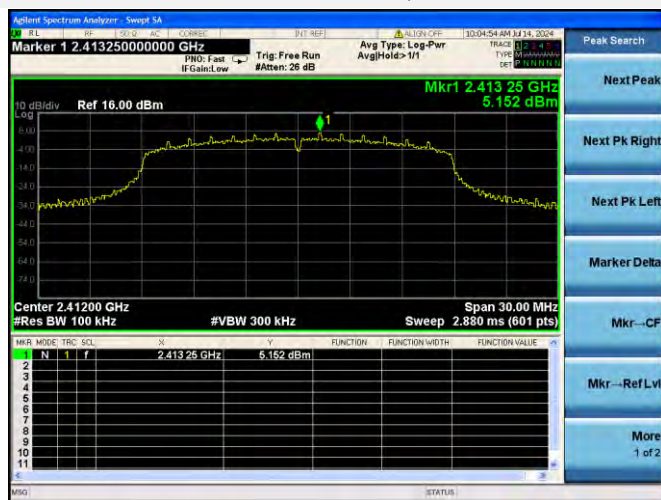
802.11g HIGH CHANNEL, CARRIER LEVEL



802.11g HIGH CHANNEL, BAND EDGE



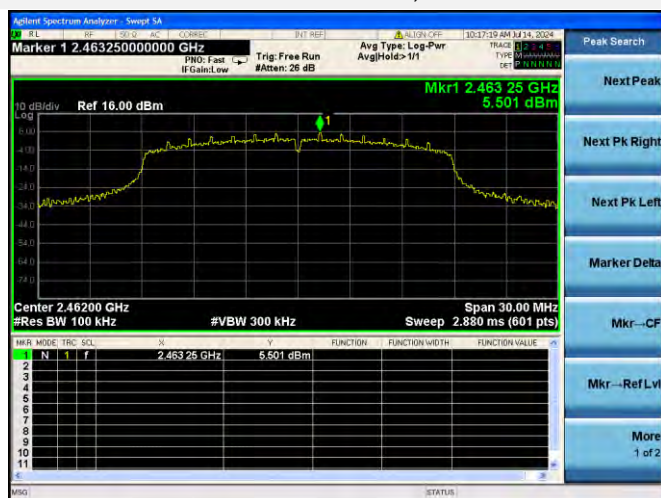
802.11n-20 MHz LOW CHANNEL, CARRIER LEVEL



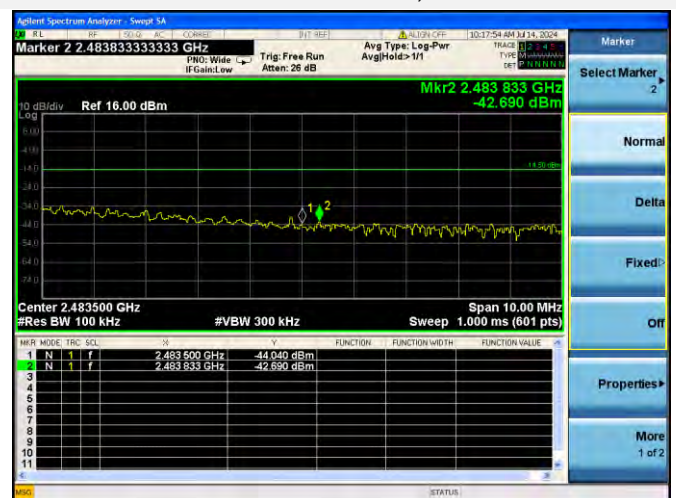
802.11n-20 MHz LOW CHANNEL, BAND EDGE



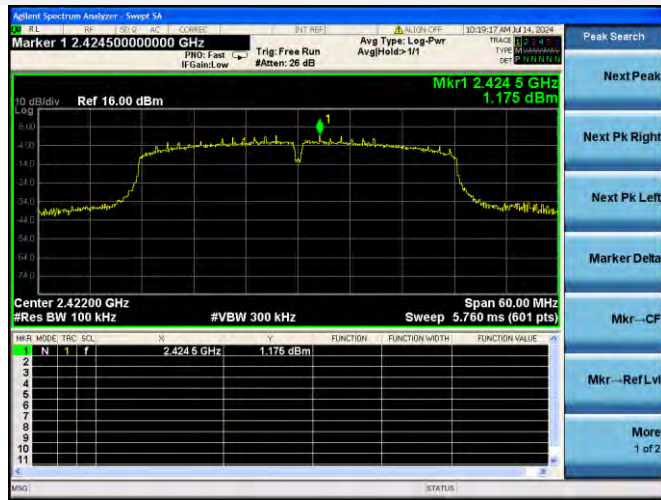
802.11n-20 MHz HIGH CHANNEL, CARRIER LEVEL



802.11n-20 MHz HIGH CHANNEL, BAND EDGE



802.11n-40 MHz LOW CHANNEL, CARRIER LEVEL



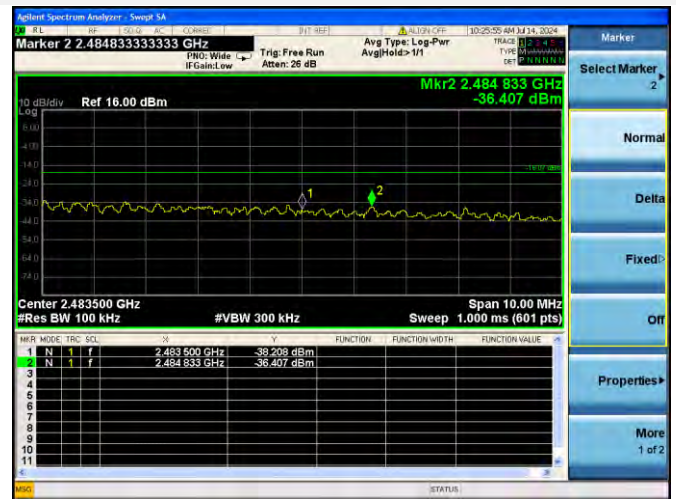
802.11n-40 MHz LOW CHANNEL, BAND EDGE



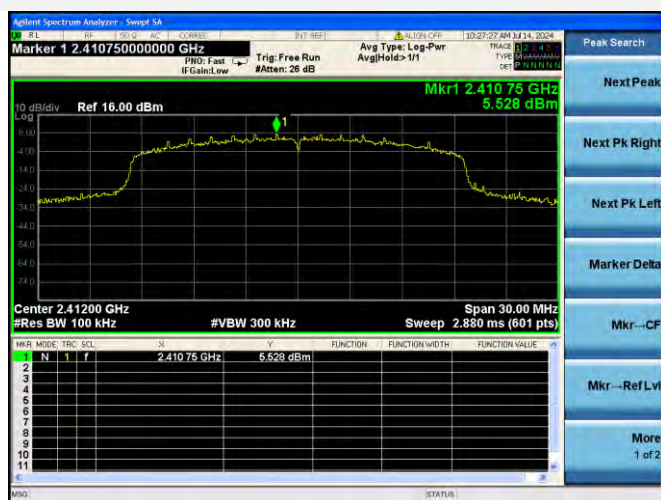
802.11n-40 MHz HIGH CHANNEL, CARRIER LEVEL



802.11n-40 MHz HIGH CHANNEL, BAND EDGE



802.11ax-20 MHz(SU) LOW CHANNEL, CARRIER LEVEL



802.11ax-20 MHz(SU) LOW CHANNEL, BAND EDGE



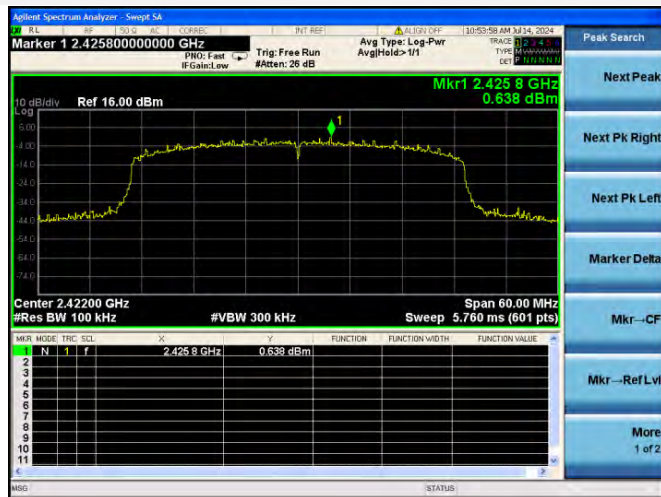
802.11ax-20 MHz(SU) HIGH CHANNEL, CARRIER LEVEL



802.11ax-20 MHz(SU) HIGH CHANNEL, BAND EDGE



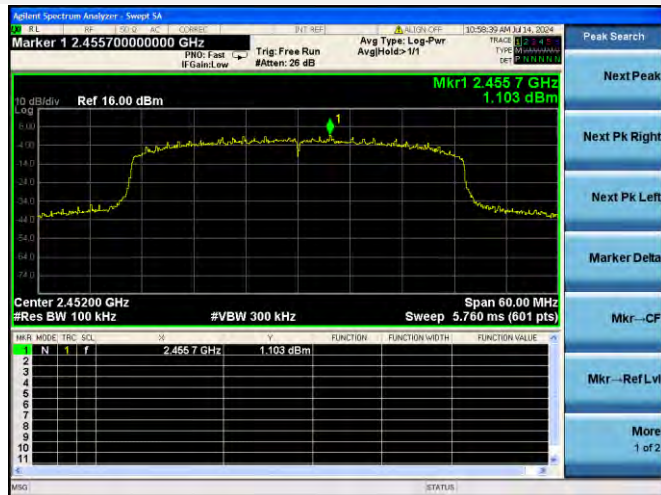
802.11ax-40 MHz(SU) LOW CHANNEL, CARRIER LEVEL



802.11ax-40 MHz(SU) LOW CHANNEL, BAND EDGE



802.11ax-40 MHz(SU) HIGH CHANNEL, CARRIER LEVEL



802.11ax-40 MHz(SU) HIGH CHANNEL, BAND EDGE



5.6 Conducted Emission

5.6.1 Limit

FCC §15.207

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

5.6.2 Test Setup

See section 4.5.2 for test setup description for the AC power supply port. The photo of test setup please refer to ANNEX A.

5.6.3 Test Procedure

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.6.4 Test Result

Note ¹: The EUT was tested in charging mode.

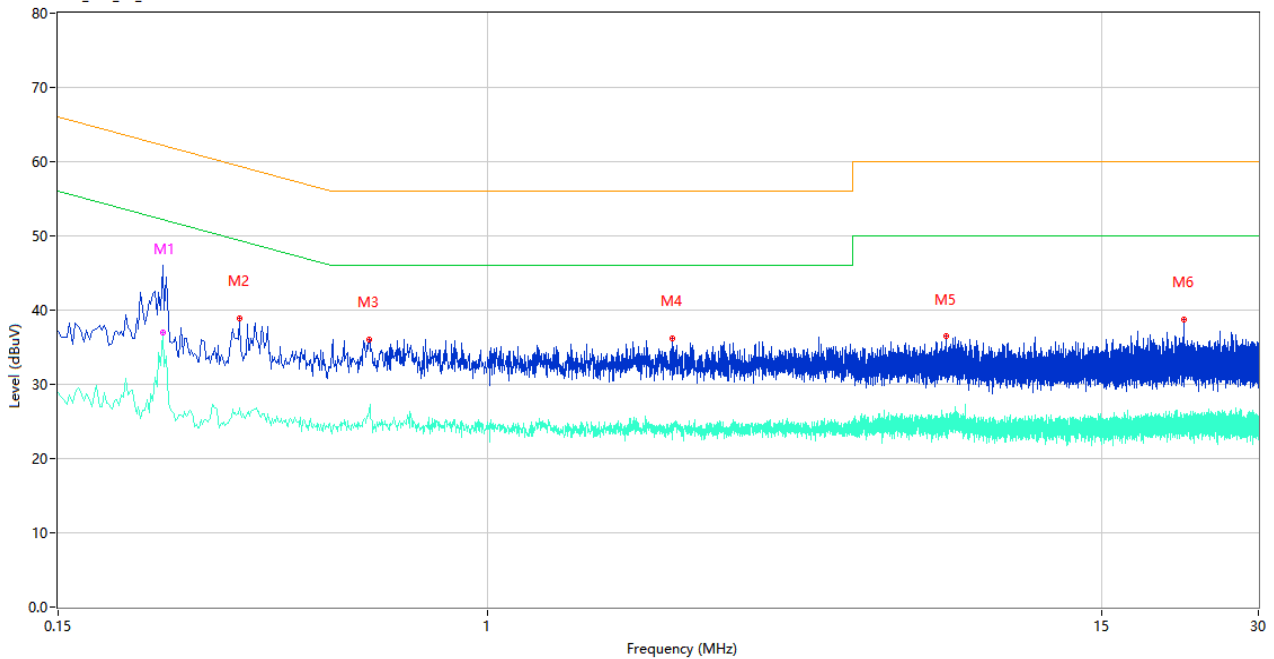
Note ²: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

Note ³: Results (dBuV) = Original reading level of Spectrum Analyzer (dBuV) + Factor (dB)

Test Data and Plots

PHASE L

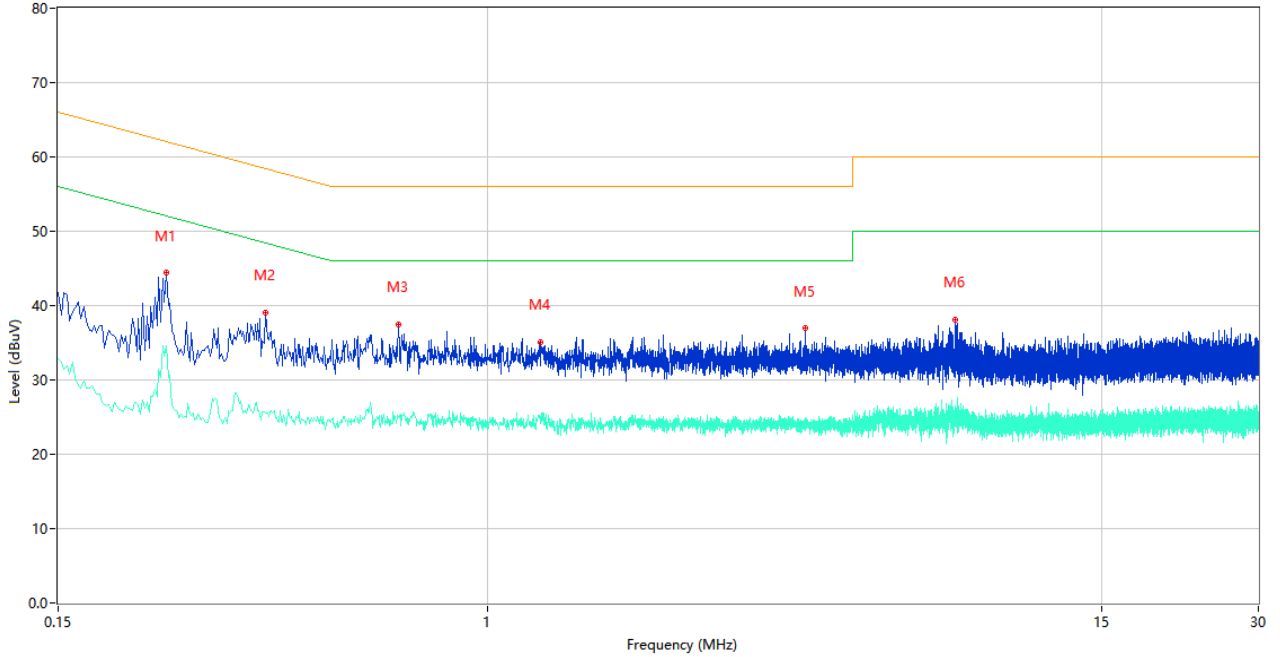
CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.238	46.03	9.77	62.17	16.14	Peak	L	Pass
1**	0.238	37.06	9.77	52.17	15.11	AV	L	Pass
2	0.334	38.95	10.44	59.35	20.40	Peak	L	Pass
2**	0.334	26.89	10.44	49.35	22.46	AV	L	Pass
3	0.592	36.07	10.14	56.00	19.93	Peak	L	Pass
3**	0.592	26.43	10.14	46.00	19.57	AV	L	Pass
4	2.252	36.24	10.11	56.00	19.76	Peak	L	Pass
4**	2.252	24.51	10.11	46.00	21.49	AV	L	Pass
5	7.566	36.47	10.22	60.00	23.53	Peak	L	Pass
5**	7.566	24.67	10.22	50.00	25.33	AV	L	Pass
6	21.592	38.78	10.90	60.00	21.22	Peak	L	Pass
6**	21.592	26.02	10.90	50.00	23.98	AV	L	Pass

PHASE N

CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.242	44.42	9.77	62.03	17.61	Peak	N	Pass
1**	0.242	34.66	9.77	52.03	17.37	AV	N	Pass
2	0.374	39.11	10.66	58.41	19.30	Peak	N	Pass
2**	0.374	25.50	10.66	48.41	22.91	AV	N	Pass
3	0.674	37.52	10.43	56.00	18.48	Peak	N	Pass
3**	0.674	25.01	10.43	46.00	20.99	AV	N	Pass
4	1.264	35.13	10.47	56.00	20.87	Peak	N	Pass
4**	1.264	24.78	10.47	46.00	21.22	AV	N	Pass
5	4.060	36.91	10.37	56.00	19.09	Peak	N	Pass
5**	4.060	24.03	10.37	46.00	21.97	AV	N	Pass
6	7.874	38.10	10.22	60.00	21.90	Peak	N	Pass
6**	7.874	24.68	10.22	50.00	25.32	AV	N	Pass

5.7 Radiated Spurious Emission

5.7.1 Limit

FCC §15.209&15.247(d)

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Note:

- For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
- For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).

5.7.2 Test Setup

See section 4.5.3 to 4.5.5 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.7.3 Test Procedure

Since the emission limits are specified in terms of radiated field strength levels, measurements performed to demonstrate compliance have traditionally relied on a radiated test configuration. Radiated measurements remain the principal method for demonstrating compliance to the specified limits; however antenna-port conducted measurements are also now acceptable to demonstrate compliance (see below for details). When radiated measurements are utilized, test site requirements and procedures for maximizing and measuring radiated emissions that are described in ANSI C63.10 shall be followed.

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.