TEST REPORT

Applicant	:	PETKIT Network Technology (Shanghai) Co., Ltd.
Address of Applicant	:	Room 4139, Building 2, 588 Zixing Road, Minhang District, Shanghai
Product Name	:	PETKIT PUROBOT ULTRA WITH CAMERA SELF-CLEANING CAT LITTER BOX
Brand Name	:	PETKIT
Model Name	:	P9903
Sample Acquisition Method	:	Sent by Client
Sample No.	:	E24060074-01#08 E24060074-01#12
FCC ID	:	2A72NP9903
Standards	:	FCC CFR47 Part 15.247, Subpart C
Date of Receipt	:	2024-07-04(E24060074-01#08) 2024-08-06(E24060074-01#12)
Date of Test	:	2024-08-14~ 2024-08-16
Date of Issue	:	2024-08-21

Remark:

This report details the results of the testing carried out on one sample, the results contained in this report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

Prepared by: Erik Yang (Erik Yang) Reviewed by: Jennifer Zhou (Jennifer Zhou) Approved by: Echo Mu (Authorized signatory: Echo Mu)

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1 General Information

1.1 Testing Laboratory

Company Name	ICAS Testing Technology Service (Shanghai) Co., Ltd
Address	No.1298, Pingan Road, Minhang District, Shanghai, China
Telephone	0086 21-51682999
Fax	0086 21-54711112
Homepage	www.icasiso.com

1.2 Details of Application

Applicant Company Name	PETKIT Network Technology (Shanghai) Co., Ltd.
Address	Room 4139, Building 2, 588 Zixing Road, Minhang District, Shanghai
Contact Person	TingHe
Telephone	13916991059
Email	ting.he@petkit.com
Manufacturer Company Name	Dongguan Zhihang Electronic Technology Co., LTD.
Address	Room 701, Building 15, No.1, Pushi Road I, Qiaotou Town, Dongguan City,Guangdong Province, China.
Factory Company Name	Dongguan Zhihang Electronic Technology Co., LTD.
Address	Room 701, Building 15, No.1, Pushi Road I, Qiaotou Town, Dongguan City,Guangdong Province, China.

1.3 Details of EUT

Product Name	PETKIT PUROBOT ULTRA WITH CAMERA SELF-CLEANING CAT LITTER BOX
Brand Name	PETKIT
Test Model Name	P9903
FCC ID	2A72NP9903
Mode of Operation	WLAN 802.11b/g/n(HT20)
Max RF Output Power	IEEE 802.11b: 15.08dBm IEEE 802.11g: 12.59dBm IEEE 802.11n(20): 12.69dBm
Frequency Range	2400MHz ~ 2483.5MHz
Channel Separation	5 MHz
Number of channels	11
Modulation Type	DSSS, OFDM
Antenna Type	Internal Antenna
Antenna Gain	3.70dBi

Extreme Temperature Range	0℃~ +40℃
Test Voltage	DC 12V 4A Supply by AC Adapter (Model:GQ48-120400-AX)
Hardware Version	V1.0
Software Version	2.49
RF power setting in TEST SW	SecureCRT Version 7.0.4 and rtwpriv command_Power setting_patha=63

Note:

1. The above information was declared by the manufacture.

2. For more details, please refer to the User's manual of the EUT.

Channel List

Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2.412GHz	5	2.432GHz	9	2.452GHz
2	2.417GHz	6	2.437GHz	10	2.457GHz
3	2.422GHz	7	2.442GHz	11	2.462GHz
4	2.427GHz	8	2.447GHz		

Note: For 20MHz bandwidth system use Channel 1 to Channel 11

1.4 Test Methodology

47 CFR Part 15, Subpart C	Telecommunication-Radio Frequency Devices-Intentional Radiators
KDB Publication 558074 D01 v05r02	15.247 Meas Guidance.
ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

Note(s):

All test items were verified and recorded according to the standards and without any addition/deviation/exclusion during the test.

1.5 Test Summary

Test Item	FCC Rules	Result
Antenna Requirement	FCC Part 15.247(b)(4), Part 15.203	PASS
Maximum conducted (average) output power	FCC Part 15.247(b)(3)	PASS
6dB Bandwidth	FCC Part 15.247(a)(2)	PASS
Maximum conducted output power spectral density	FCC Part 15.247(e)	PASS
Conducted Spurious Emission & Authorized-band band-edge	FCC Part 15.247(d)	PASS
Radiated Emission	FCC Part 15.247(d), 15.205, 15.209	PASS
Band Edge (Restricted-band band-edge)	FCC Part 15.247(d), 15.205, 15.209	PASS
Conducted Emission on AC Mains	FCC Part 15.207(a)	PASS

2 Test Condition

2.1 Environmental conditions

Temperature (°C)	18-25
Humidity (%RH)	40-65
Barometric Pressure (mbar)	960-1060

2.2 Equipment List

Name of Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	Keysight	N9020B	MY59260184	2024-06-26	2025-06-25
Spectrum Analyzer	Rohde & Schwarz	FSV40N	101450	2024-06-04	2025-06-03
Signal Generator	Rohde & Schwarz	SMR27	100184	2024-06-26	2025-06-25
EMI Test Receiver	Rohde & Schwarz	ESPI3	100173	2024-06-05	2025-06-04
EMI Test Receiver	Rohde & Schwarz	ESR 7	101911	2024-06-04	2025-06-03
V-network	SCHWARZBECK	NSLK 8127	8127-902	2024-06-05	2025-06-04
Attenuator	SCHWARZBECK	VTSD 9561-FN	/	2024-06-05	2025-06-04
Broadband Antenna	SCHWARZBECK	VULB9163	9163-1037	2023-03-22	2025-03-21
Horn Antenna-18G	SCHWARZBECK	BBHA9120D	9120D-1775	2023-06-13	2025-06-12
Loop Antenna	SCHWARZBECK	FMZB 1513	/	2023-06-09	2025-06-08
Horn Antenna-40G	YINGLIAN	LB-180400-KF	N/A	2023-06-18	2025-06-17
Broadband Preamplifier	SCHWARZBECK	BBV 9718	346	2024-06-04	2025-06-03
EMC chamber 9*6*6(L*W*H)	CHANGNING	966	N/A	2023-06-09	2025-06-08
Shielded Enclosure 8*5*4(L*W*H)	CHANGNING	854	N/A	2023-06-09	2025-06-08
Test Software	BL	BL410_E	Version:2.1.1.436	N/A	N/A
Test Software	BL	BL410_R	Version:2.1.1.409	N/A	N/A

2.3 Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in measurement” (GUM) published by CISPR and ANSI. The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95.45%.

Parameter		Uncertainty
Antenna Port Conducted Emission	< 1GHz	± 1.5 dB
	> 1GHz	± 1.5 dB
Radiated Emission	9KHz – 30MHz	± 3.42 dB
	30 MHz – 1GHz	± 5.01 dB
	> 1GHz	± 5.21 dB
Conducted Emission on AC Mains	150kHz-30MHz	± 2.68 dB
Occupied Channel Bandwidth		±5 %
Maximum Conducted Output Power		±0.64 dB
Maximum Conducted Output Power Spectral Density		±1.18 dB

3 Test Set-up and Operation Modes

3.1 Details of Test Mode

Using test software (SecureCRT Version 7.0.4 and rtwpriv command) was control EUT work in continuous transmitter and receiver mode. Select test channel as below:

For 802.11b/g/n (HT20)

Channel	Frequency
The lowest channel (CH1)	2412MHz
The middle channel (CH6)	2437MHz
The highest channel (CH11)	2462MHz

Through Pre-scan under all rate at lowest channel, the data rate as below table described is the worst case, so we choose these data rate for test.

Type	Data rate
802.11b	11Mbps
802.11g	54Mbps
802.11n(20M)	MCS7

The basic operation modes are:

A. On
   1. WLAN mode
      a. Transmitting
         i. Low Channel
         ii. Middle Channel
         iii. High Channel
      b. Receiving

B. Standby

C. Off

3.2 Special Accessories and Auxiliary Equipment

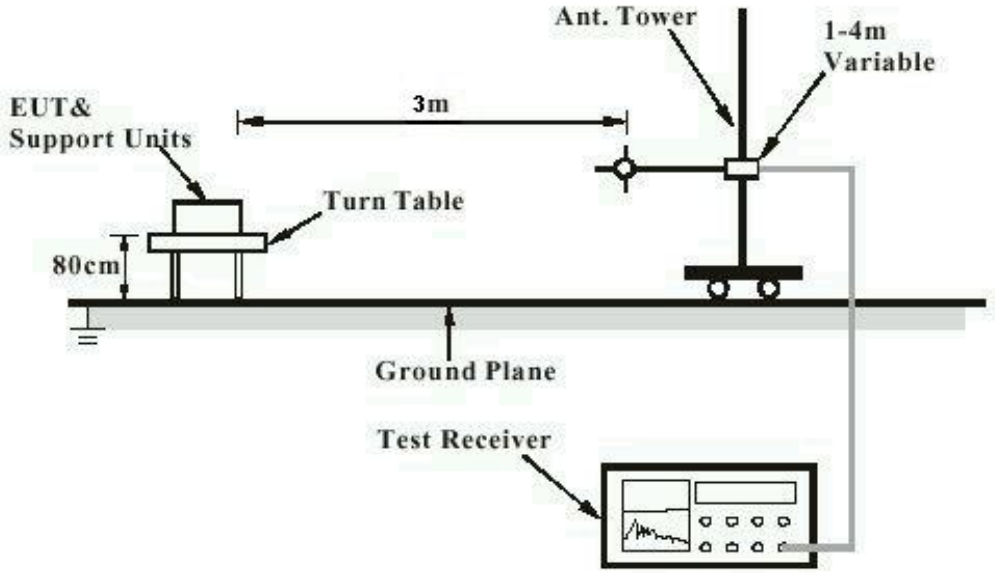
Description	Manufacturer	Model Name	Serial No.
AC ADAPTER	N/A	GQ48-120400-AX	Input: AC 100-240V 50/60Hz 1.5A Max; Output: DC 12V 4A
Laptop 1	HP	HP ZHAN 66 Pro G1	5CD7438R1J
Laptop 2	Lenovo	TP00083A	PF-0PRDGN
USB Cable	N/A	N/A	1.00m Unshielded

3.3 Support Software

Description	Manufacturer	Software Name
Software	N/A	SecureCRT Version 7.0.4 and rtwpriv command

3.4 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test



Note: Measurements above 1GHz are done with a table height of 1.5m. In addition, there is RF absorbing material on the floor of the test site for above 1GHz measurement.

Diagram of Measurement Equipment Configuration for Conduction Measurement

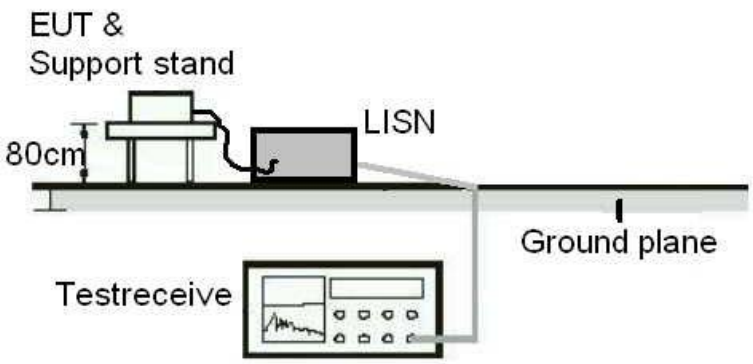
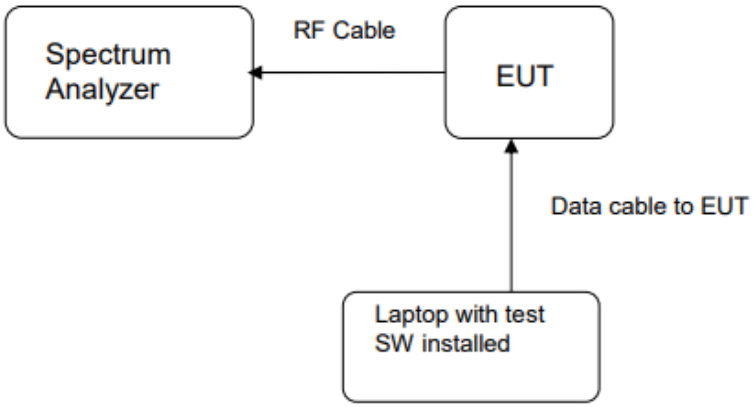


Diagram of Measurement Equipment Configuration for Transmitter Measurement



4 Test Results

4.1 Transmitter Requirement & Test Suites

4.1.1 Antenna Requirement

RESULT: **PASS**

Test standard	:	FCC Part 15.247(b)(4), Part 15.203
Requirement	:	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. In addition, If transmitting antennas of directional gain greater than 6dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

According to the manufacturer declaration, the EUT has an antenna with a directional gain of 3.70dBi. The antenna is an Internal antenna with no possibility of replacement with a non-approved antenna by the end-user.

Therefore, the EUT is considered to comply with this provision.

4.1.2 Maximum conducted (average) output power

RESULT: **PASS**

Test standard : FCC Part 15.247(b)(3)
Requirement : ANSI C63.10-2013, Clause 11.9.2
KDB 558074 D01 v05r02, Clause 8.3.2
Kind of test site : Shielded room

Test setup

Test Channel : Low/Middle/High
Operation Mode : A.1.a
Ambient temperature : 24.8℃
Relative humidity : 43%

Table 1: Maximum conducted (average) output power

Test Mode	Duty Cycle (%)	Test Channel (MHz)	Maximum conducted (average) output power		Limit (W)
			(dBm)	(mW)	
802.11b	77.51	2412	13.76	23.77	≤1
		2437	15.08	32.21	
		2462	13.97	24.95	
802.11g	63.65	2412	12.59	18.16	
		2437	12.17	16.48	
		2462	11.81	15.17	
802.11n(HT20)	61.62	2412	12.69	18.58	
		2437	12.20	16.60	
		2462	11.84	15.28	

Notes:

1. Add [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

4.1.3 6dB Bandwidth

RESULT: **PASS**

Test standard : FCC Part 15.247(a)(2)
Requirement : ANSI C63.10-2013, Clause 11.8.1
KDB 558074 D01 v05r02, Clause 8.2
Kind of test site : Shielded room

Test setup

Test Channel : Low/Middle/High
Operation Mode : A.1.a
Ambient temperature : 24.8°C
Relative humidity : 43%

Table 2: 6dB Bandwidth

Test Mode	Test Channel (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Applicable Limit (MHz)
802.11b	2412	9.71	≥0.5
	2437	9.82	
	2462	9.17	
802.11g	2412	16.43	
	2437	16.37	
	2462	16.30	
802.11n(HT20)	2412	17.53	
	2437	16.85	
	2462	17.59	

Figure 1: 6dB Bandwidth, 802.11b, 2412MHz

Figure 2: 6dB Bandwidth, 802.11b, 2437MHz

Figure 3: 6dB Bandwidth, 802.11b, 2462MHz

Figure 4: 6dB Bandwidth, 802.11g, 2412MHz

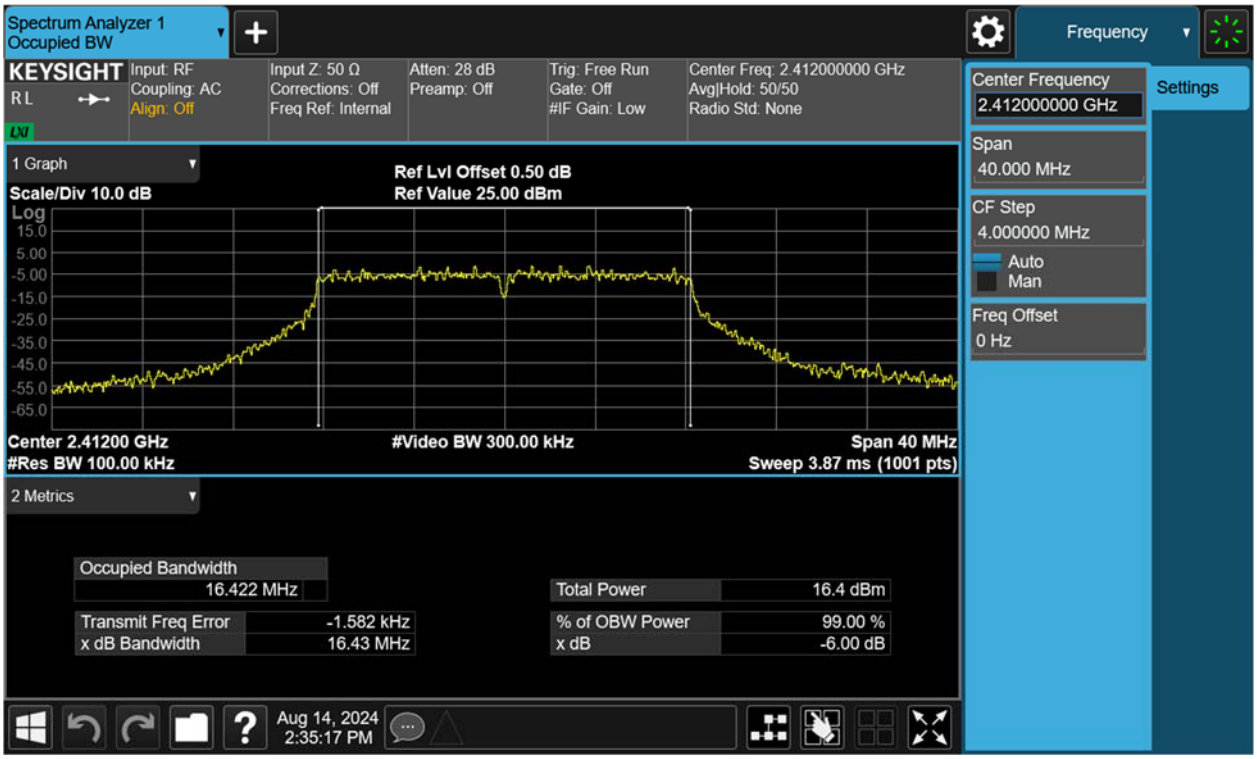


Figure 5: 6dB Bandwidth, 802.11g, 2437MHz

Figure 6: 6dB Bandwidth, 802.11g, 2462MHz

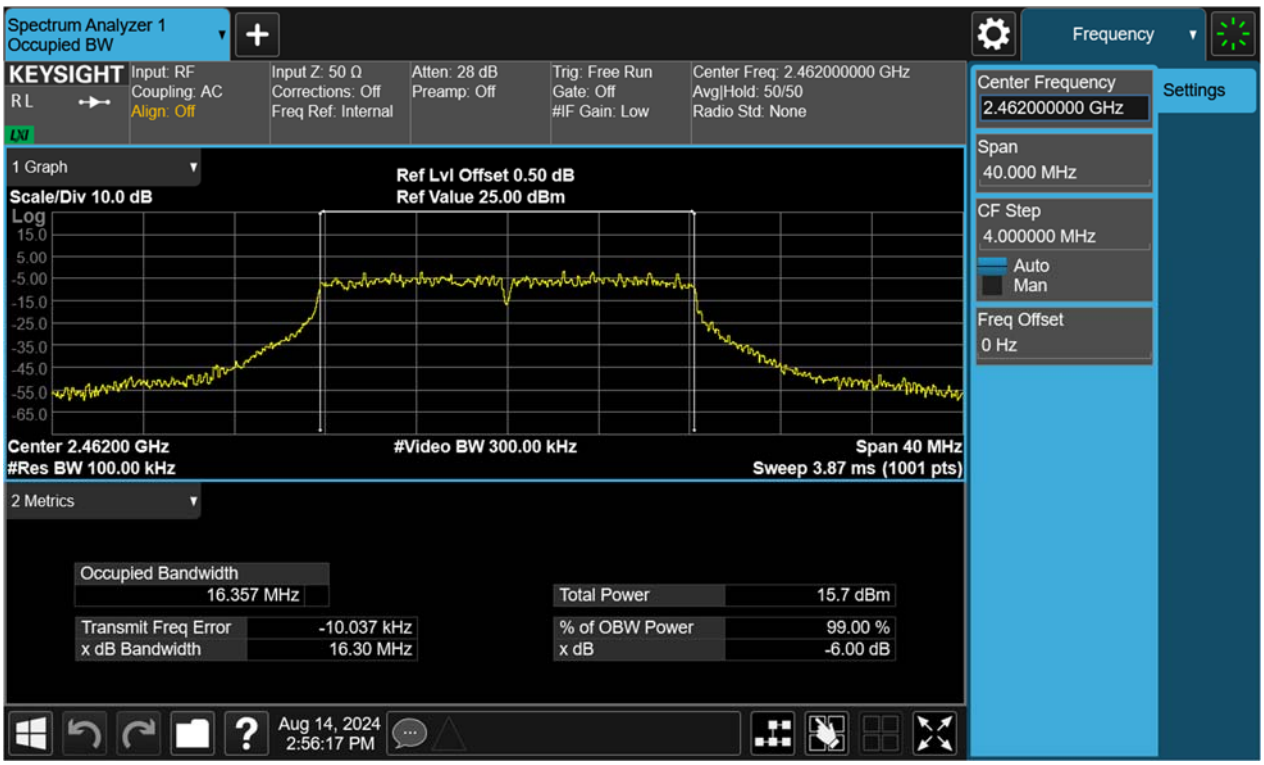


Figure 7: 6dB Bandwidth, 802.11n(HT20), 2412MHz

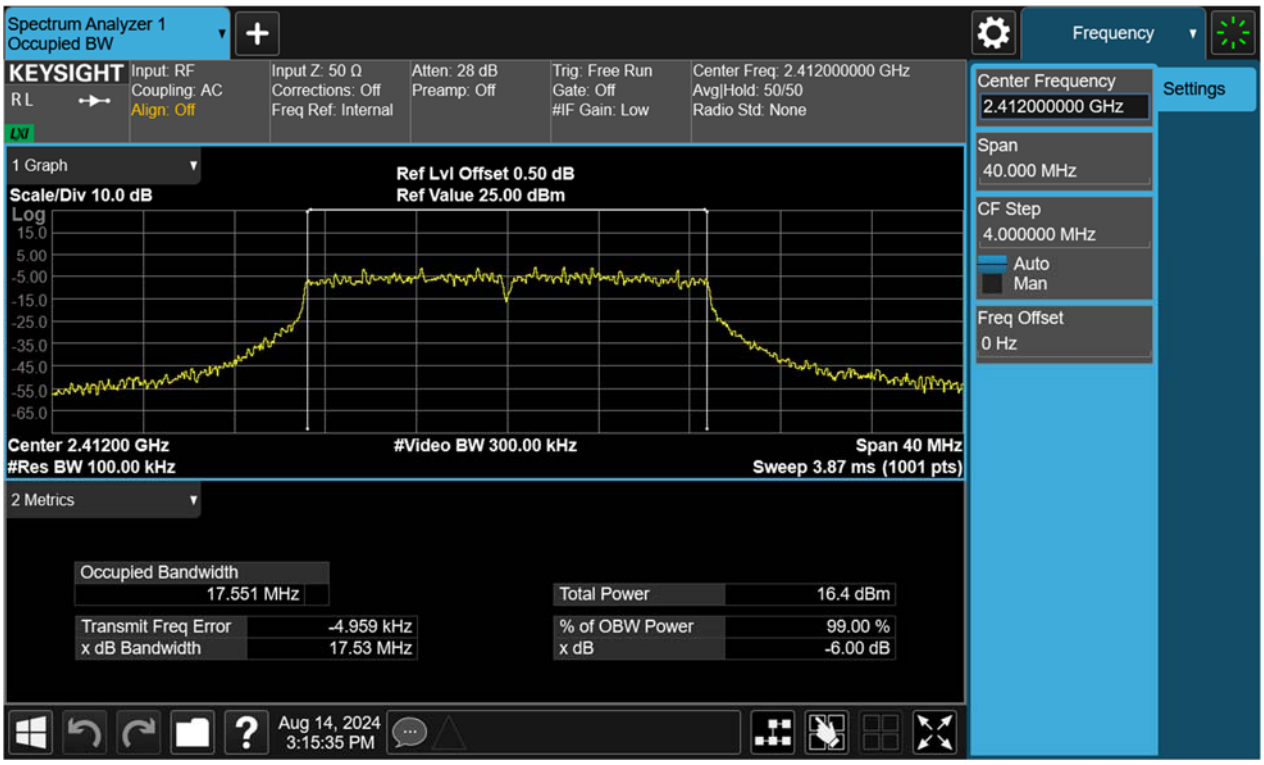


Figure 8: 6dB Bandwidth, 802.11n(HT20), 2437MHz

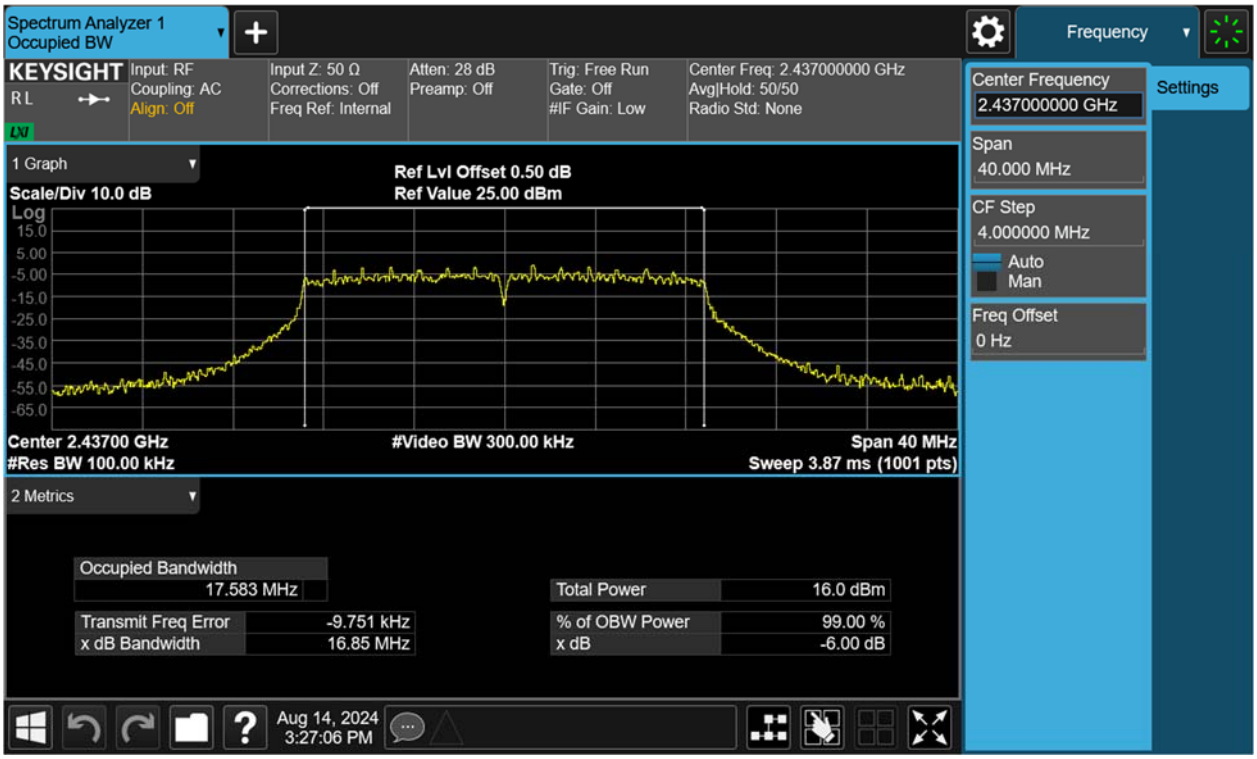
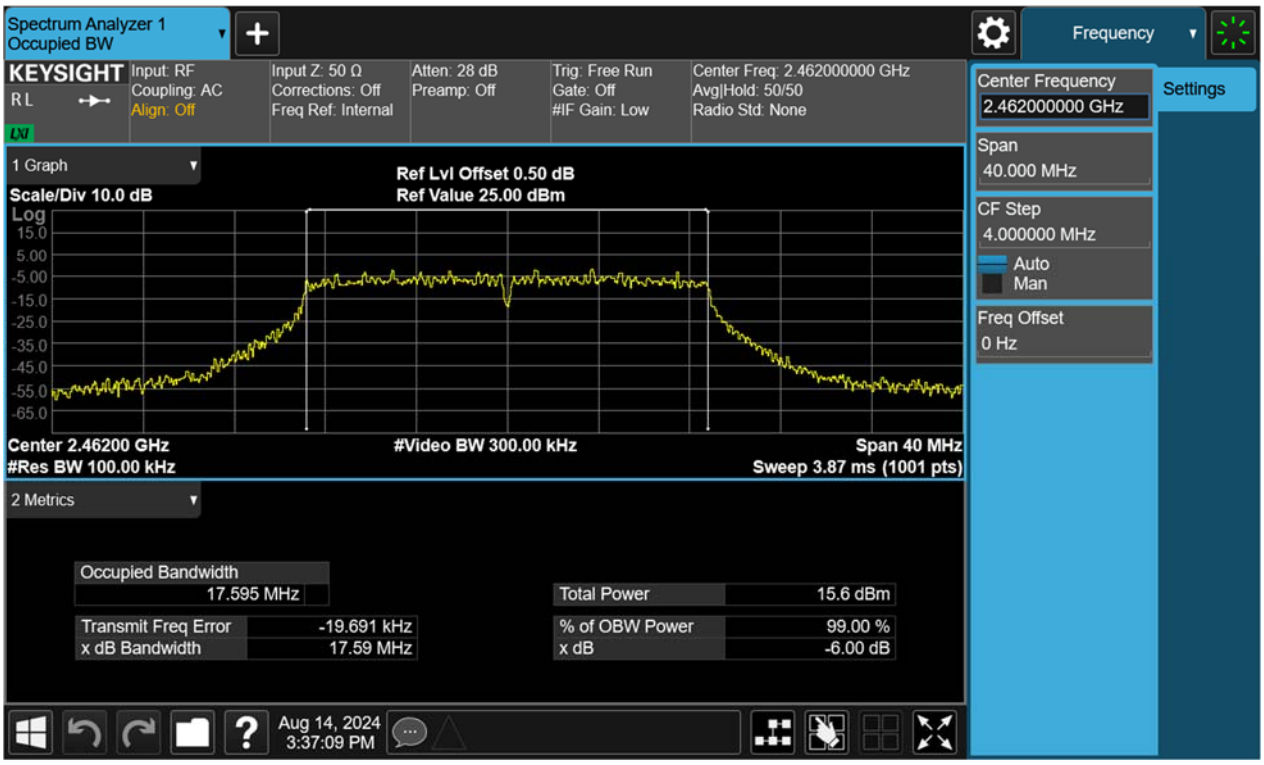


Figure 9: 6dB Bandwidth, 802.11n(HT20), 2462MHz



4.1.4 Maximum conducted output power spectral density

RESULT: **PASS**

Test standard : FCC Part 15.247(e)
Requirement : ANSI C63.10-2013, Clause 11.10.4
KDB 558074 D01 v05r02, Clause 8.4
Kind of test site : Shielded room

Test setup
Test Channel : Low/Middle/High
Operation Mode : A.1.a
Ambient temperature : 24.8°C
Relative humidity : 43%

Table 3: Maximum (average) conducted output power spectral density

Test Mode	Test Channel (MHz)	Maximum (average) conducted output power spectral density (dBm/3kHz)	Limit (dBm/3kHz)
802.11b	2412	-12.70	≤8
	2437	-10.81	
	2462	-11.96	
802.11g	2412	-17.35	
	2437	-17.34	
	2462	-18.00	
802.11n(HT20)	2412	-16.82	
	2437	-18.26	
	2462	-18.24	

Figure 10: Power Spectral Density, 802.11b, 2412MHz

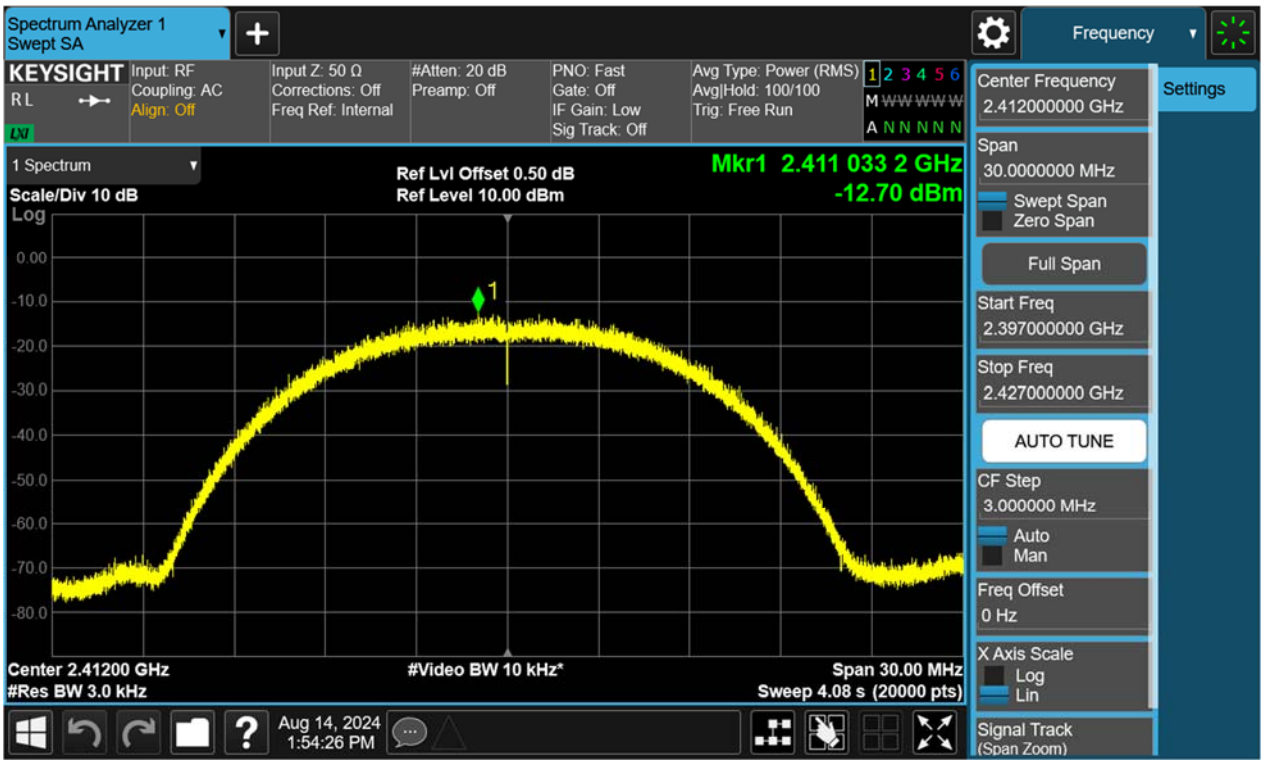


Figure 11: Power Spectral Density, 802.11b, 2437MHz

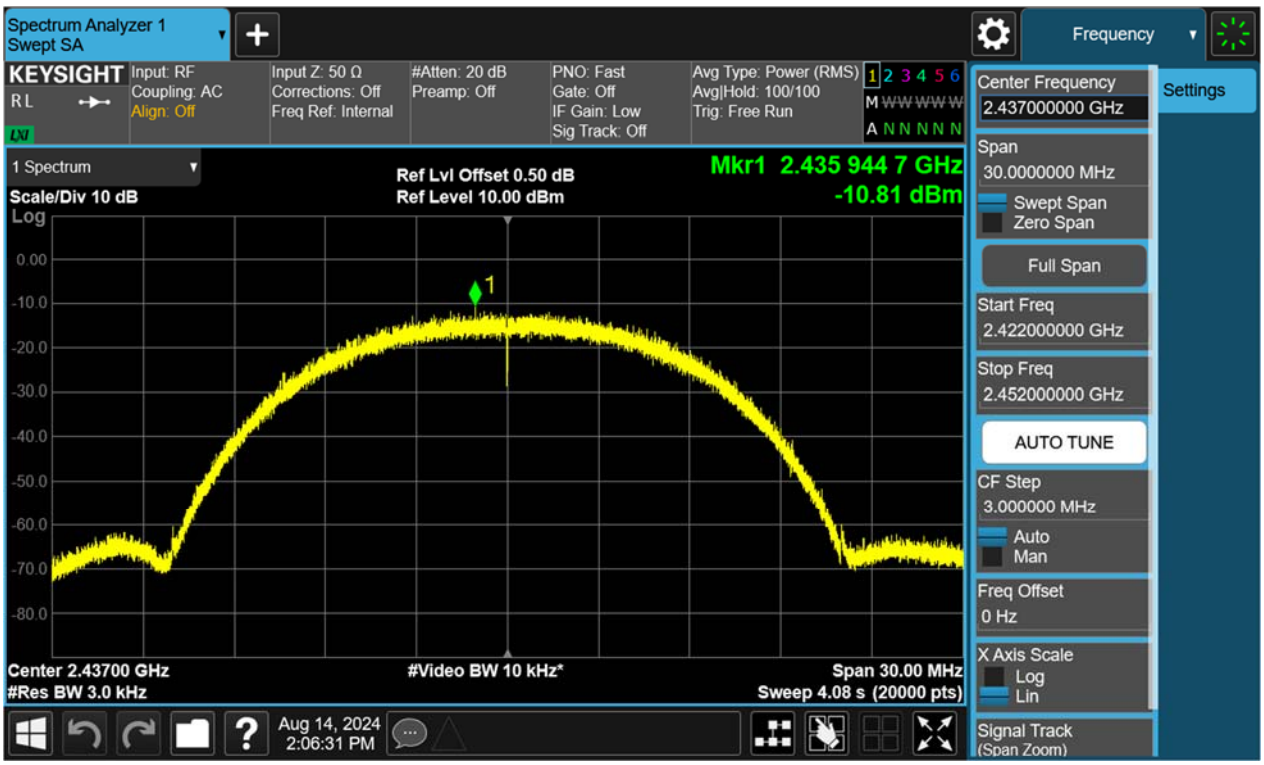


Figure 12: Power Spectral Density, 802.11b, 2462MHz

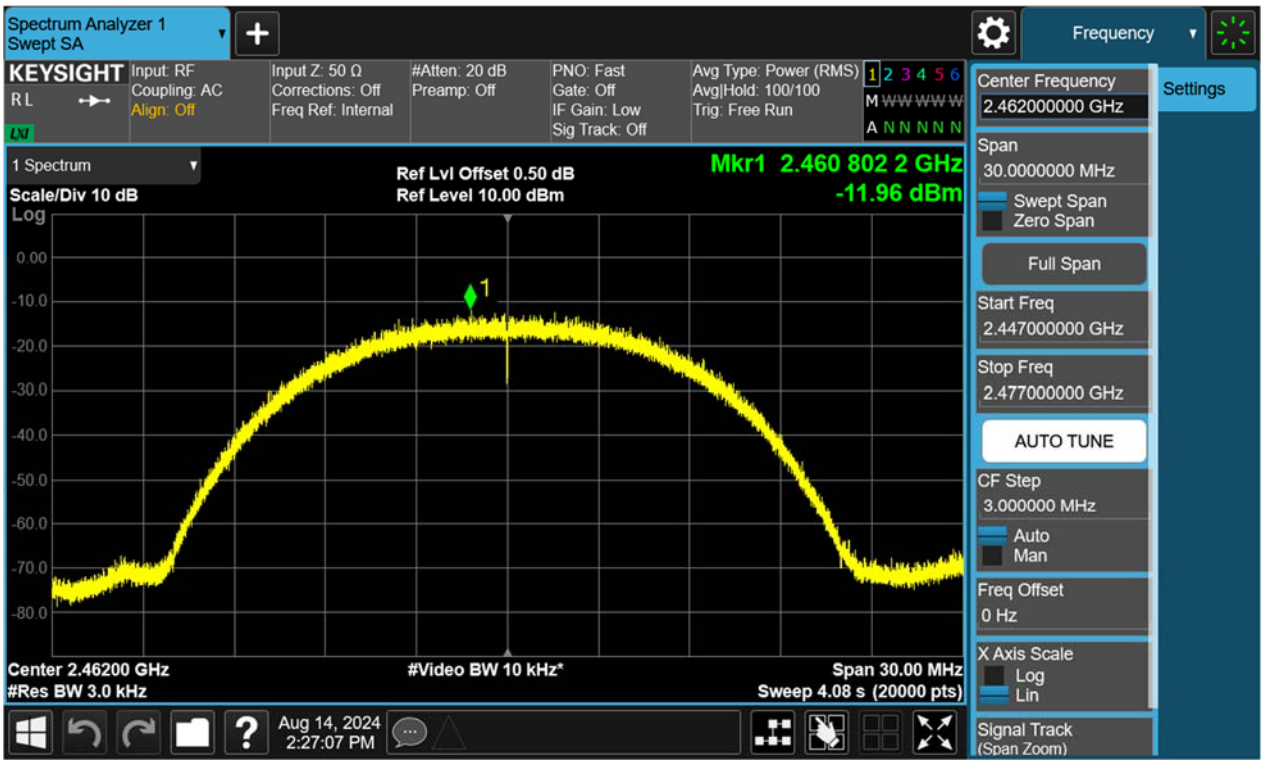


Figure 13: Power Spectral Density, 802.11g, 2412MHz

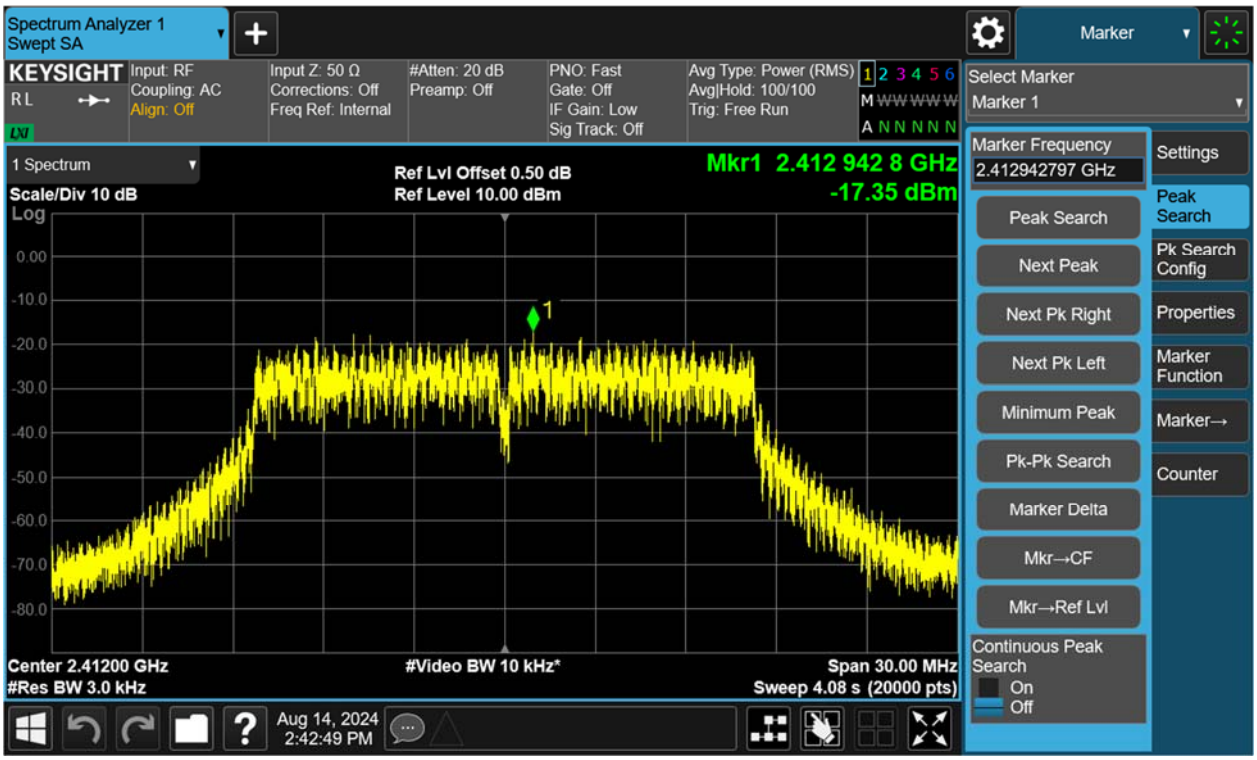


Figure 14: Power Spectral Density, 802.11g, 2437MHz

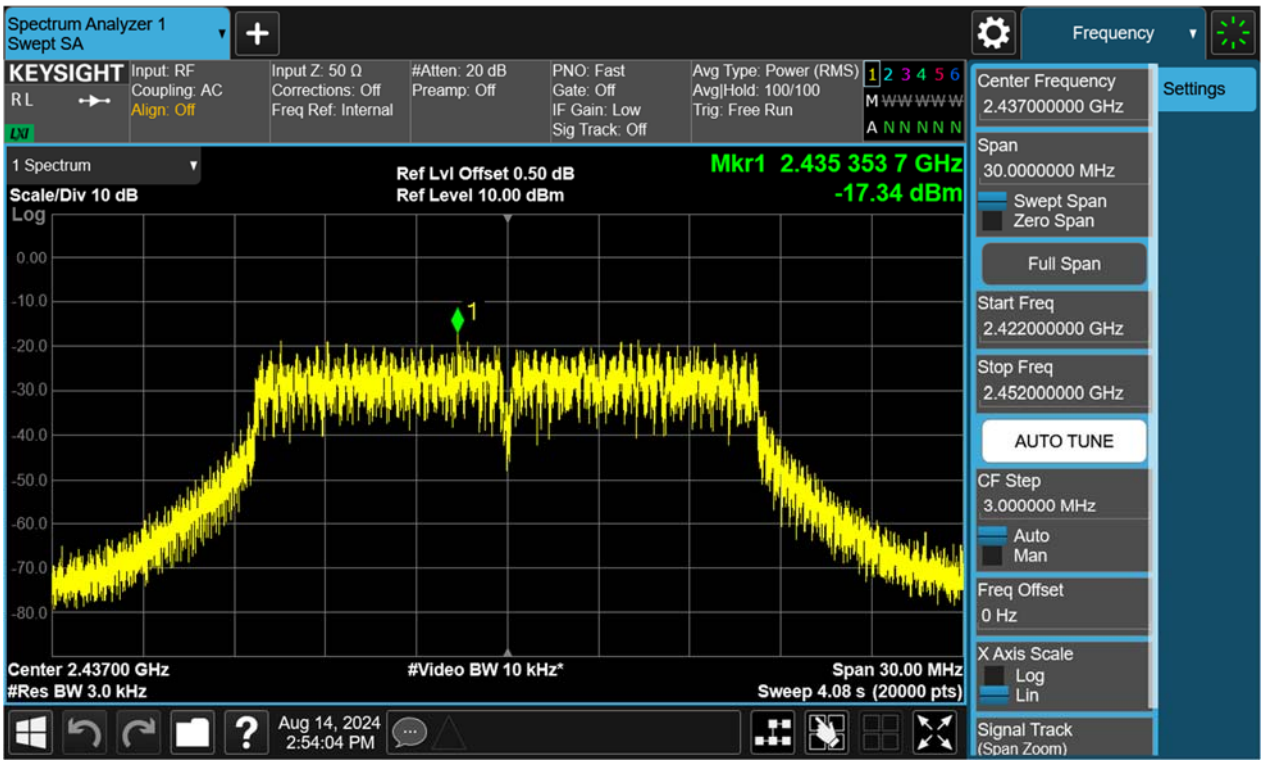


Figure 15: Power Spectral Density, 802.11g, 2462MHz

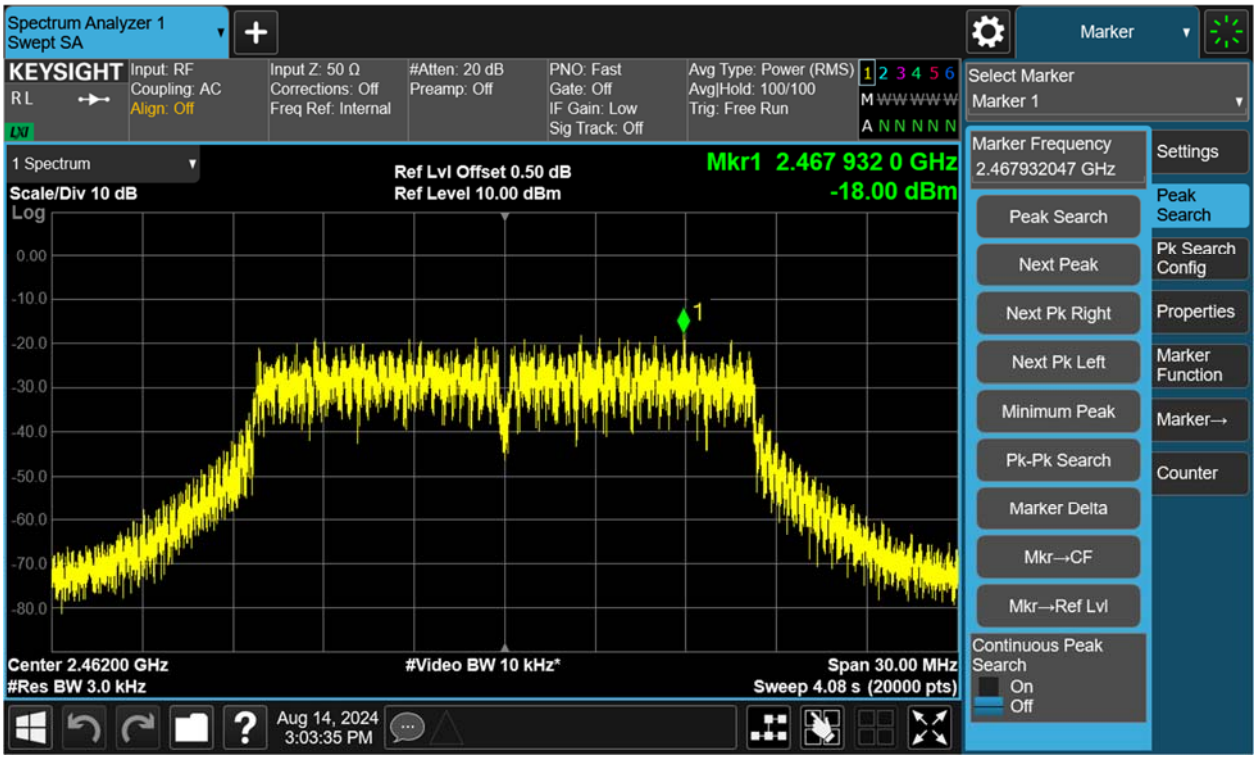


Figure 16: Power Spectral Density, 802.11n(HT20), 2412MHz

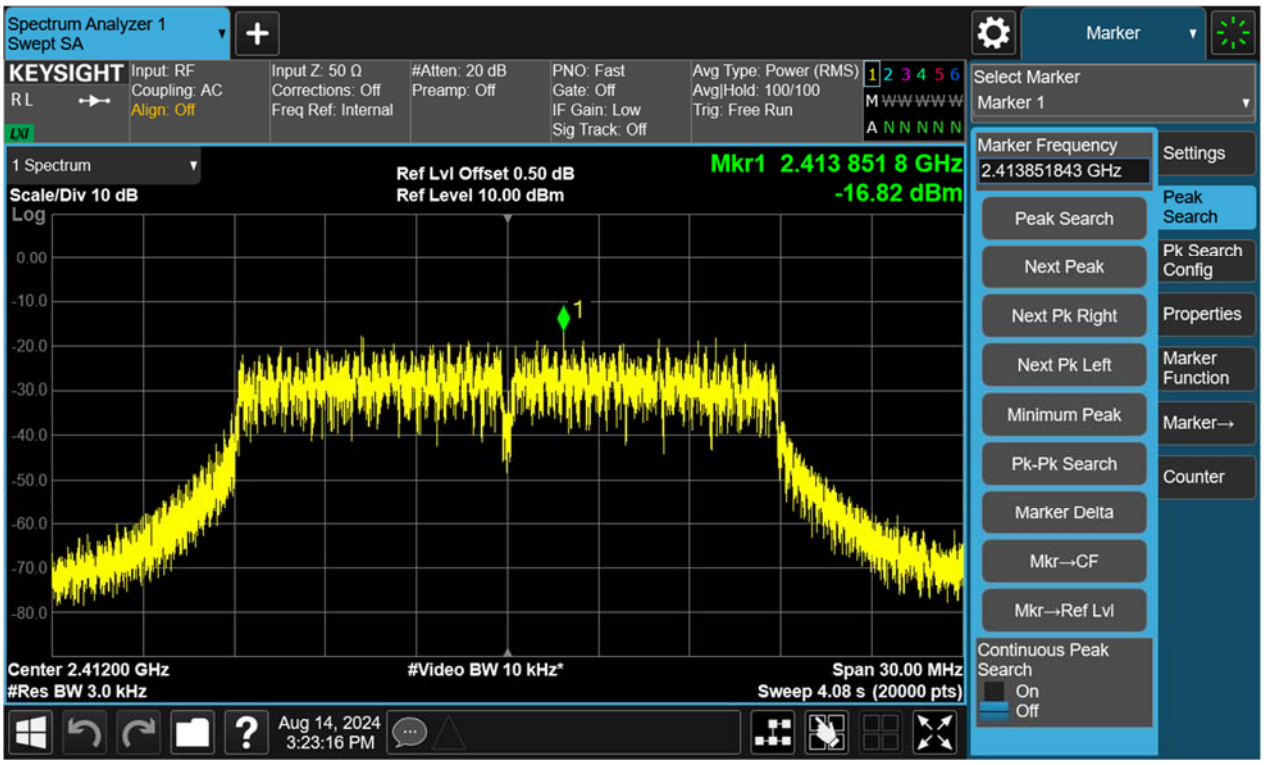


Figure 17: Power Spectral Density, 802.11n(HT20), 2437MHz

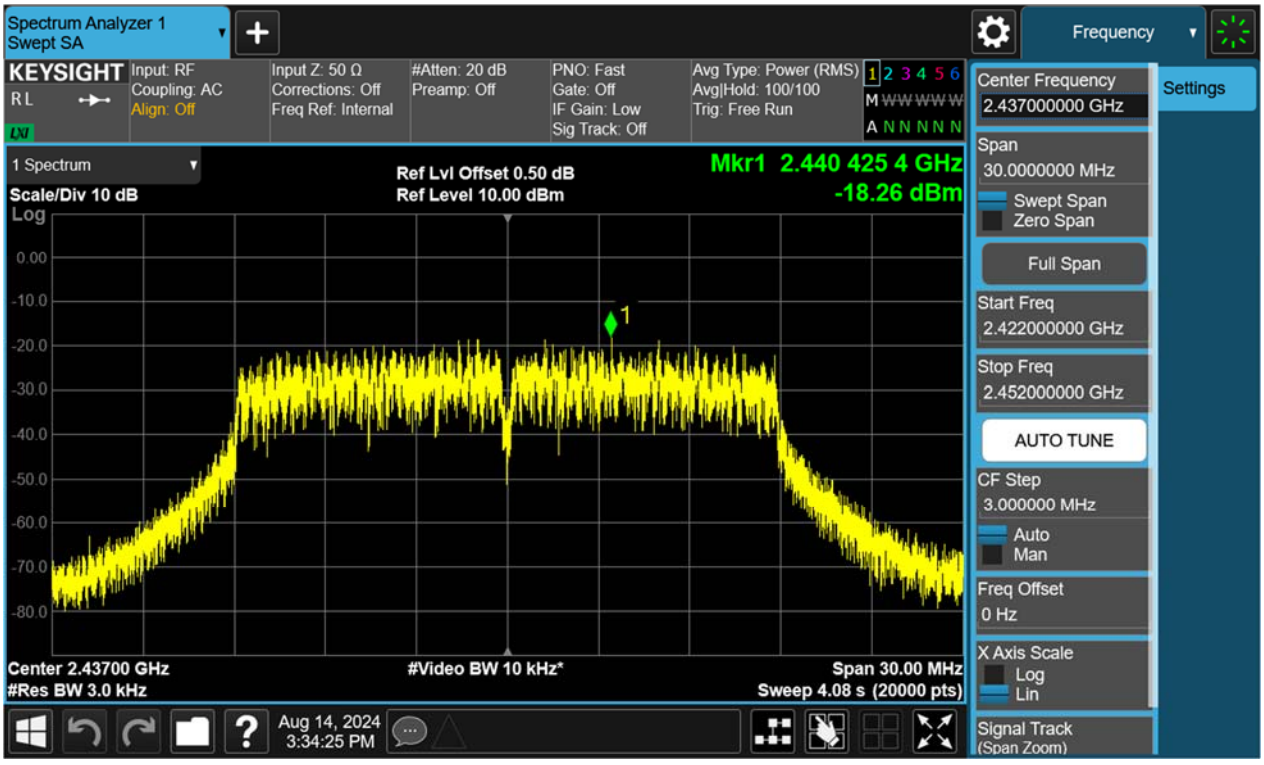
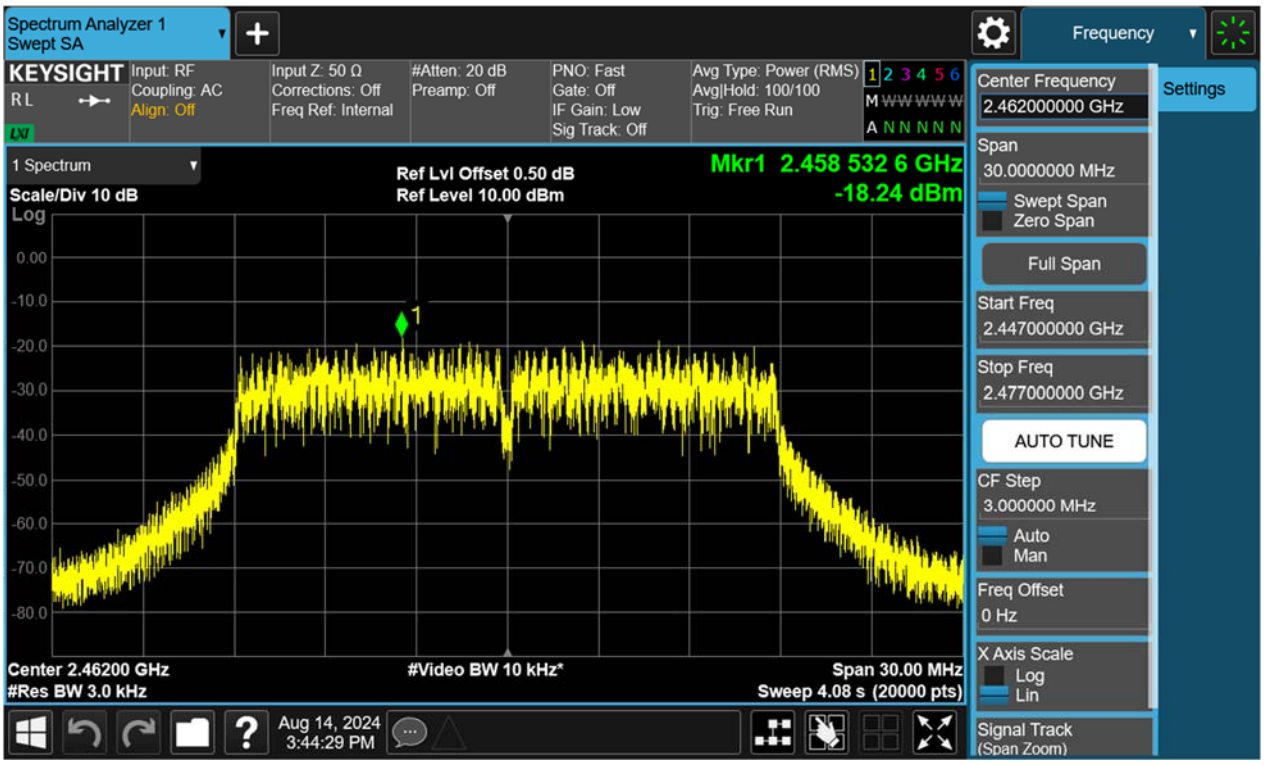


Figure 18: Power Spectral Density, 802.11n(HT20), 2462MHz



4.1.5 Conducted Spurious Emission & Authorized-band band-edge

RESULT: **PASS**

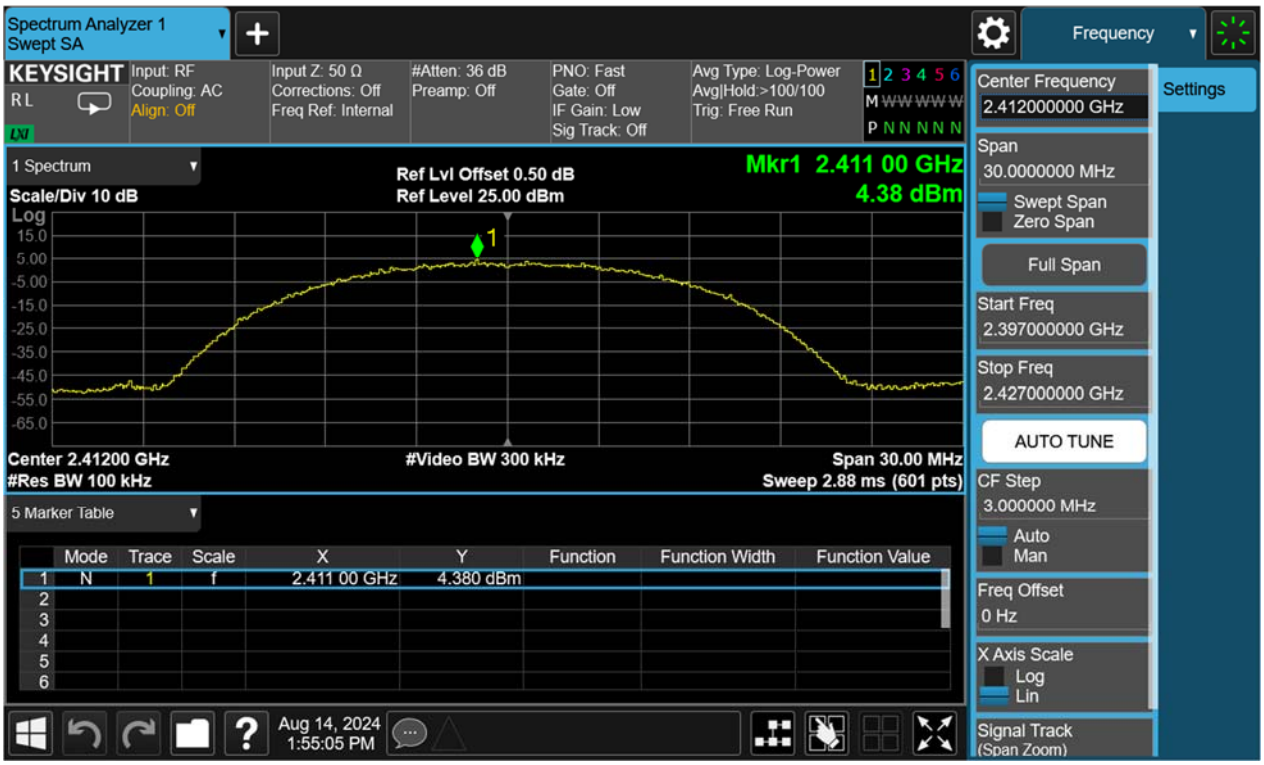
Test standard	:	FCC Part 15.247(d), 15.209
Requirement	:	ANSI C63.10-2013, Clause 11.11.1(b) KDB 558074 D01 v05r02, Clause 8.5
Kind of test site	:	Shielded room

Test setup

Test Channel	:	Low/Middle/High for spurious, Low/High for Band Edge
Operation Mode	:	A.1.a
Ambient temperature	:	24.8°C
Relative humidity	:	43%

For details refer to following test plot.

Figure 19: Conducted Spurious Emission & Authorized-band band-edge, 802.11b, 2412MHz Carrier Level



Band Edge

Conducted spurious emissions 30MHz-25GHz

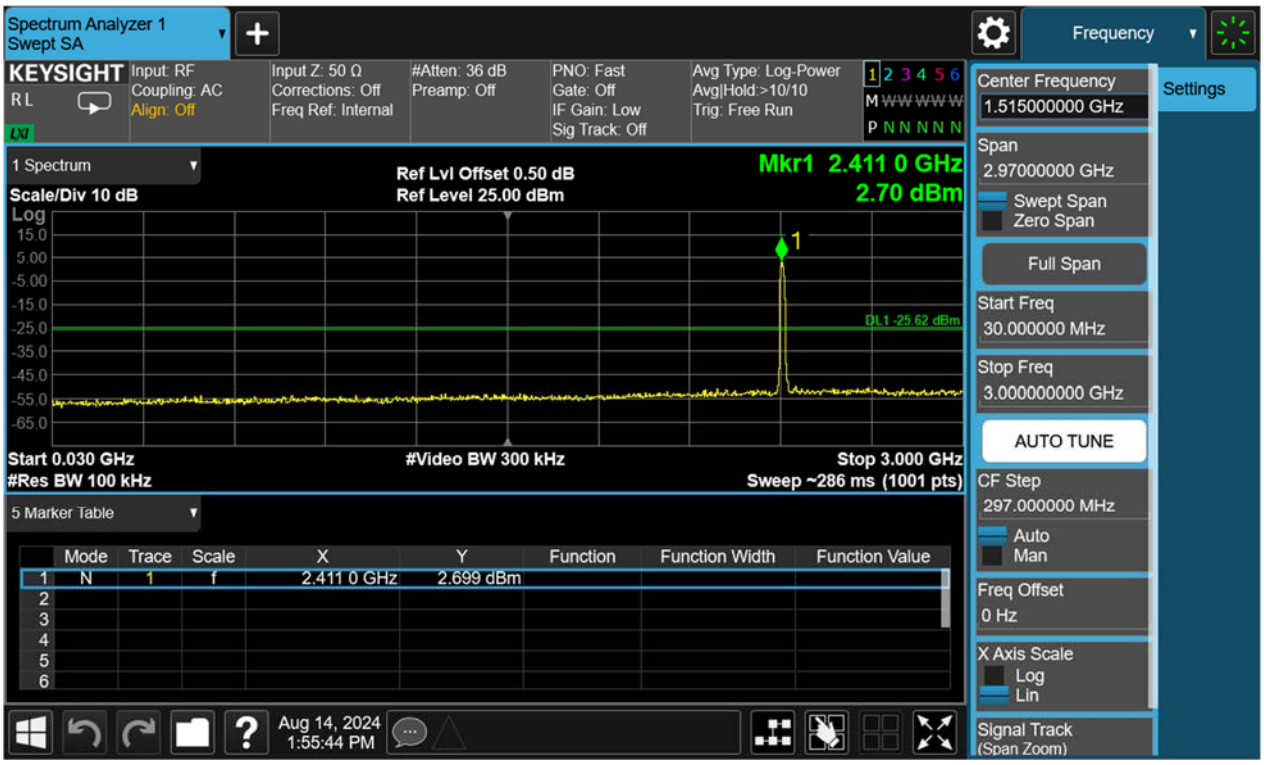
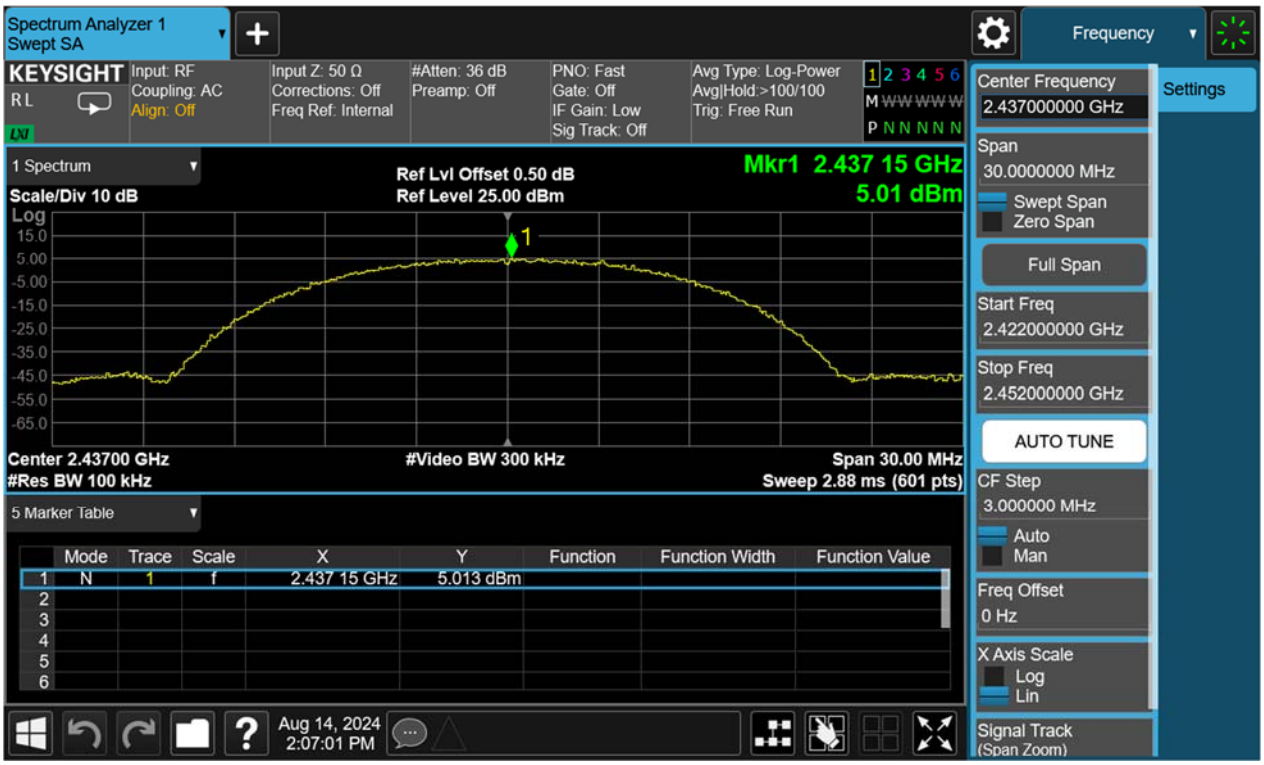


Figure 20: Conducted Spurious Emission & Authorized-band band-edge, 802.11b, 2437MHz Carrier Level



Conducted spurious emissions 30MHz-25GHz

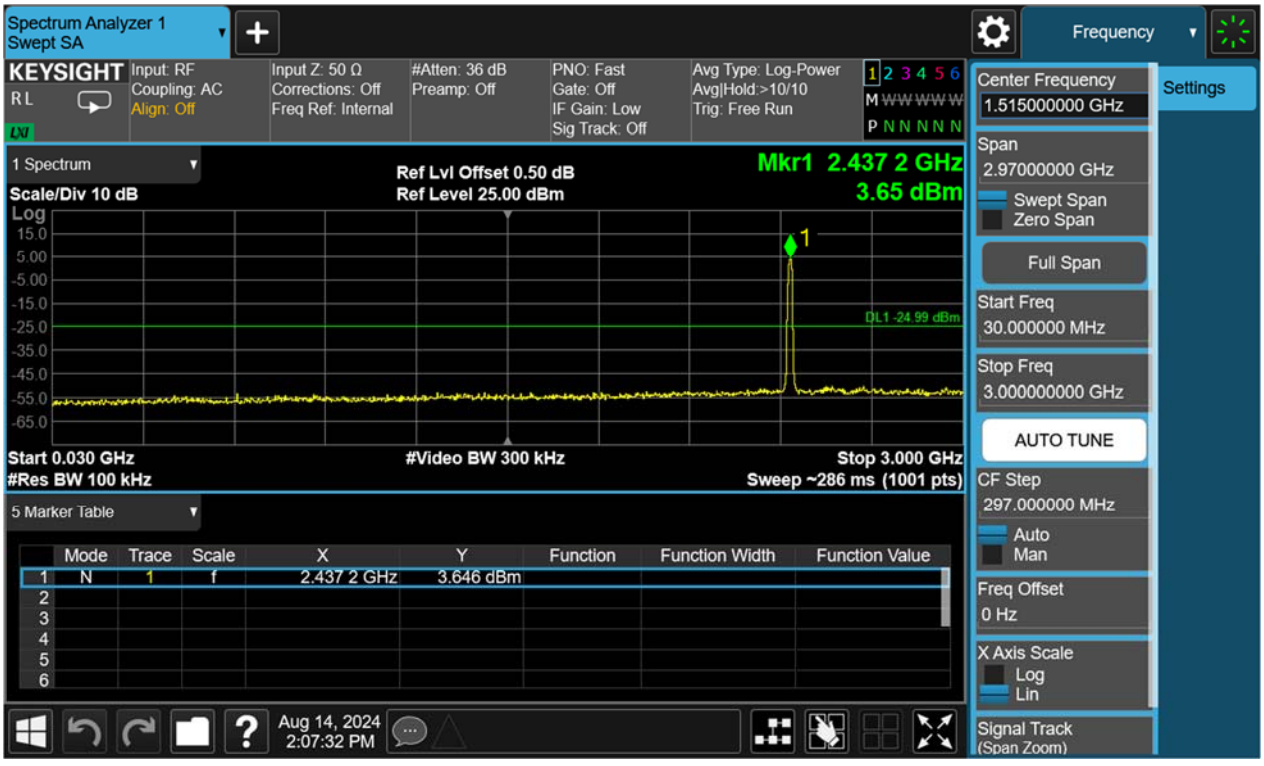
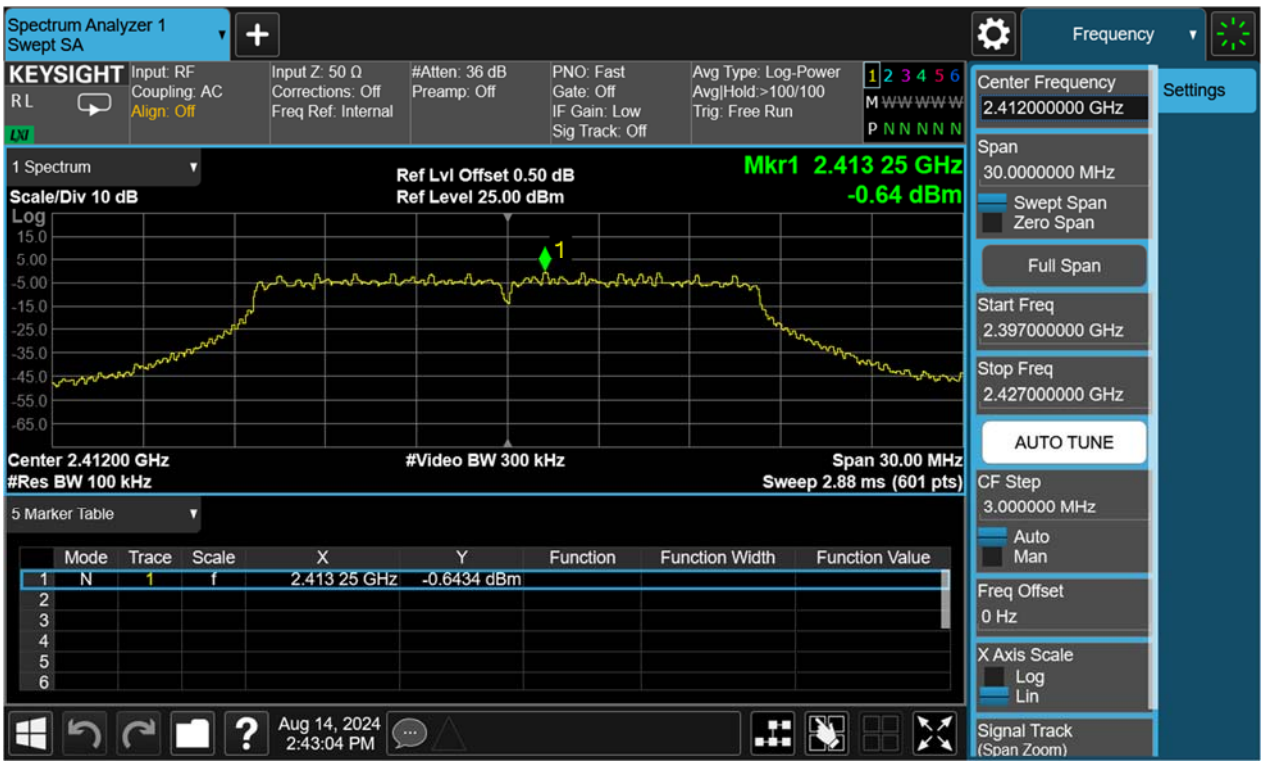


Figure 21: Conducted Spurious Emission & Authorized-band band-edge, 802.11b, 2462MHz Carrier Level

Band Edge

Conducted spurious emissions 30MHz-25GHz

Figure 22: Conducted Spurious Emission & Authorized-band band-edge, 802.11g, 2412MHz Carrier Level



Band Edge

Conducted spurious emissions 30MHz-25GHz

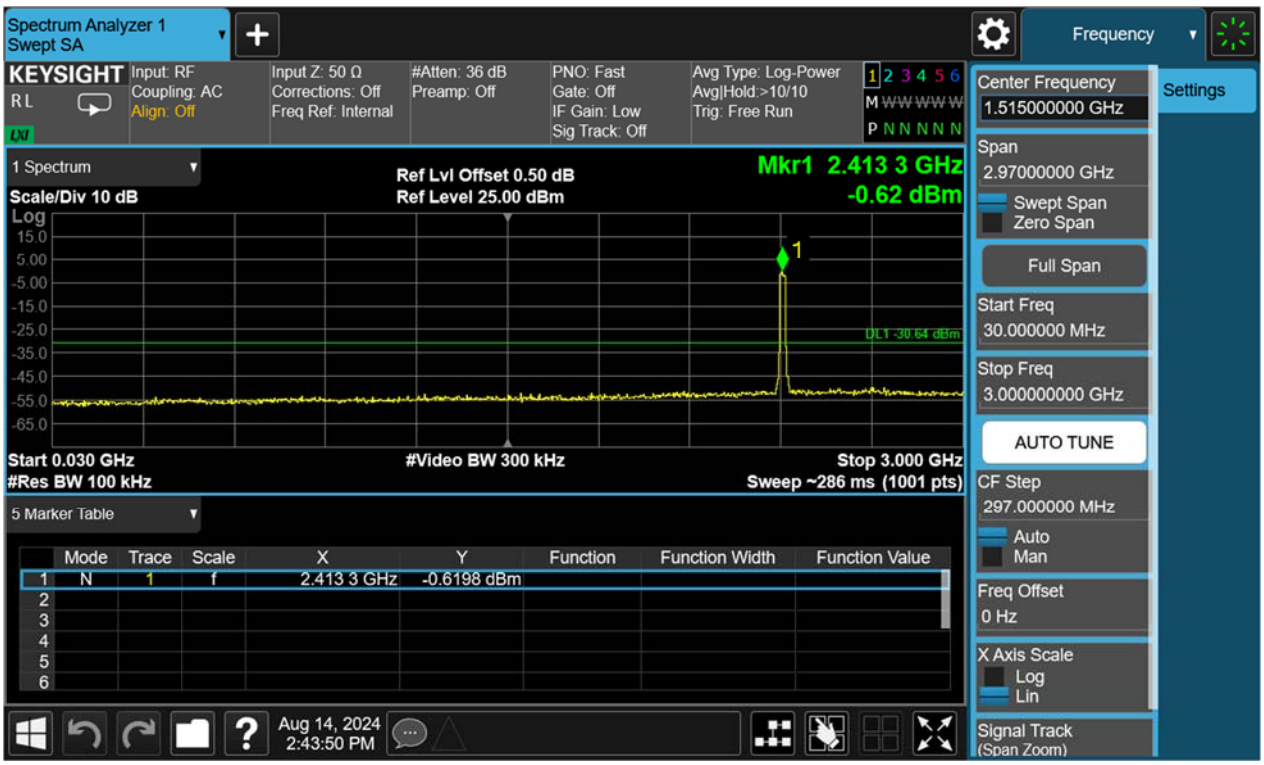
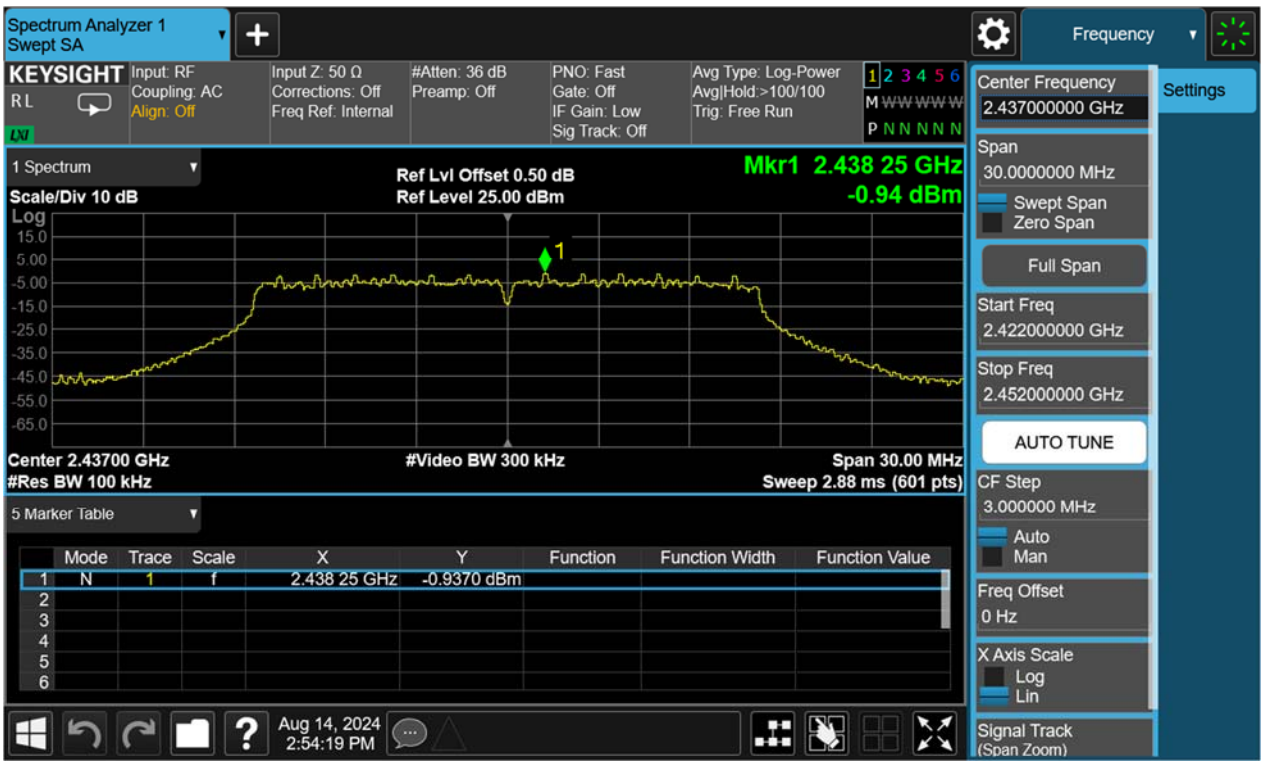


Figure 23: Conducted Spurious Emission & Authorized-band band-edge, 802.11g, 2437MHz Carrier Level



Conducted spurious emissions 30MHz-25GHz

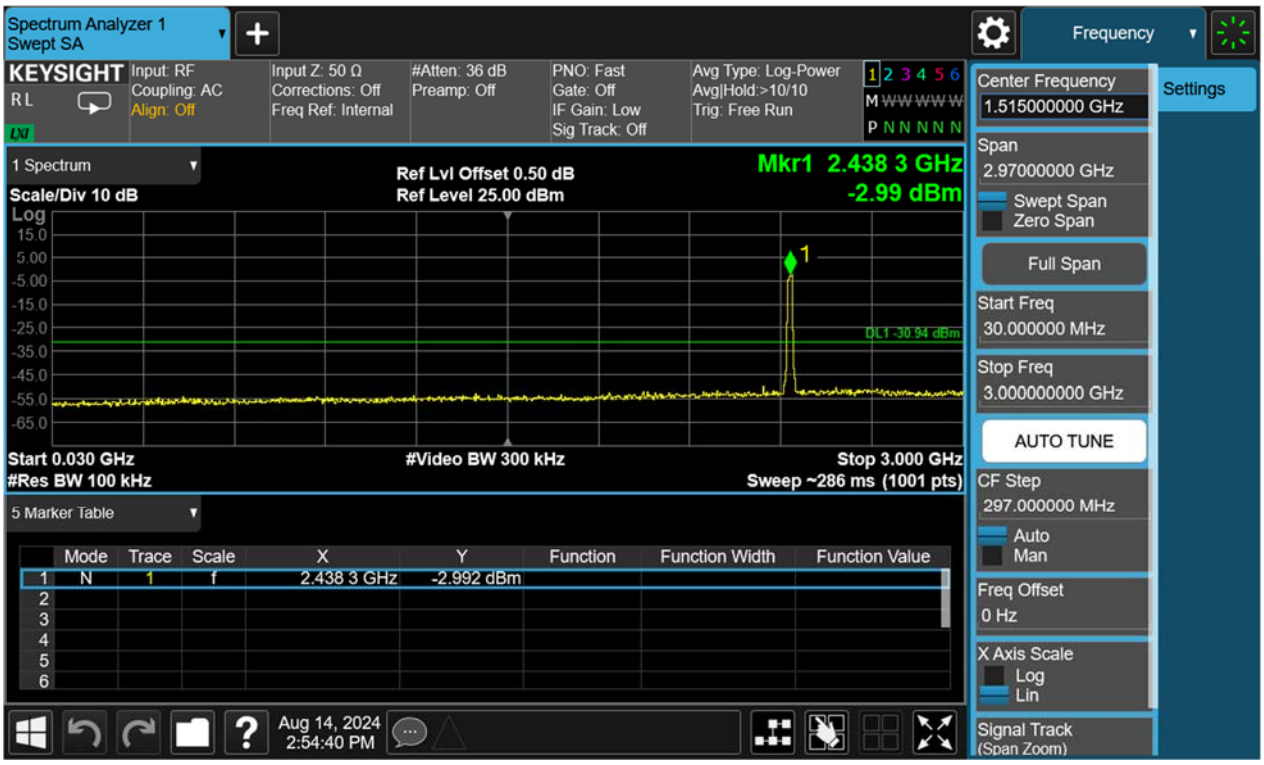
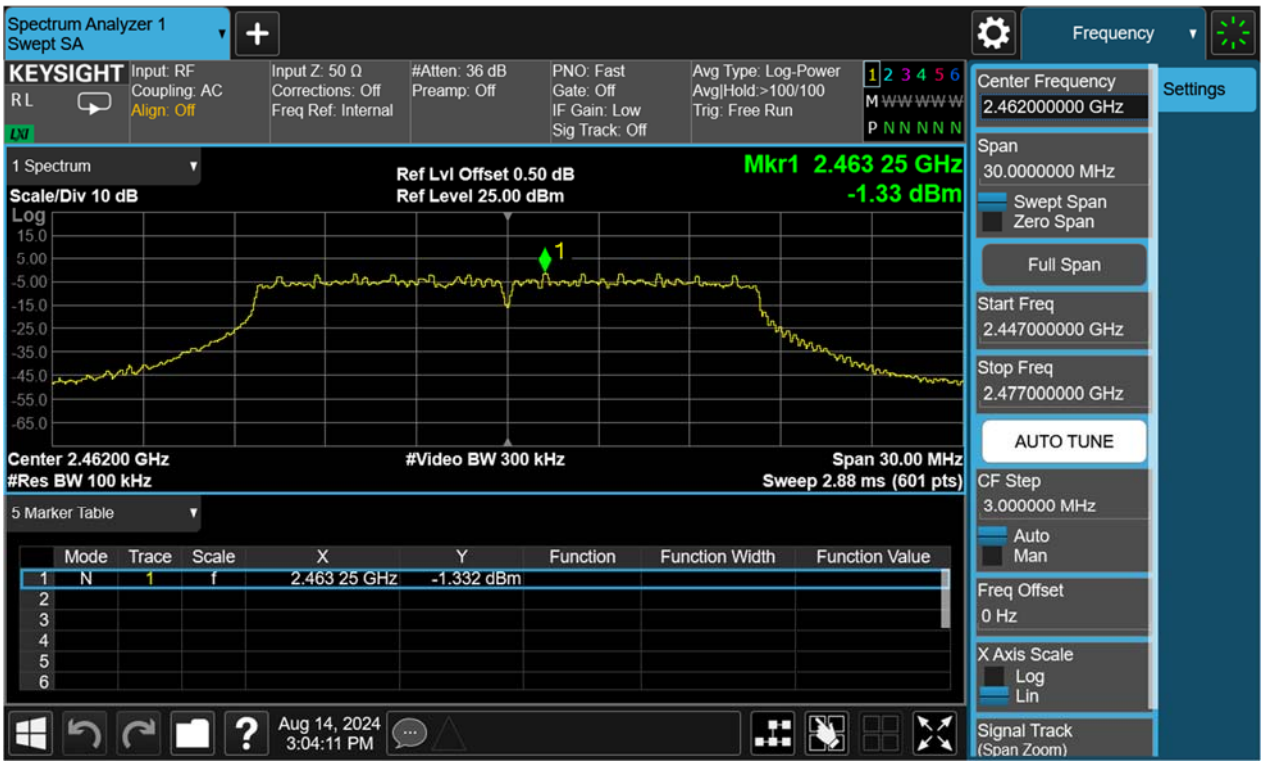


Figure 24: Conducted Spurious Emission & Authorized-band band-edge, 802.11g, 2462MHz

Carrier Level



Band Edge

Conducted spurious emissions 30MHz-25GHz