

TEST REPORT


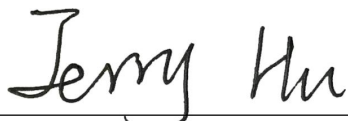

Applicant:	Anker Innovations Limited		
Address:	Unit 56, 8th Floor, Tower 2, Admiralty Centre, 18 Harcourt Road, Hong Kong		
Manufacturer:	Anker Innovations Limited		
Address:	Unit 56, 8th Floor, Tower 2, Admiralty Centre, 18 Harcourt Road, Hong Kong		
E.U.T.:	Anker Prime Charging Station (8-in-1,240W)		
Model Number:	A91B2		
Trade mark:			
FCC ID:	2AOKB-A91B2		
Date of Receipt:	April 28, 2024	Date of Test:	April 28 - June 15, 2024
Test Specification:	FCC 47 CFR Part 15, Subpart C		
Test Result:	The equipment under test was found to be compliance with the requirements of the standards applied.		
Prepared by:	Approved & Authorized Signer:		
			
Jerry Hu/ Engineer	Frank Shen/ Manager		
	Issue Date: June 22, 2024		
This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Dongguan Lepont Service Co., Ltd.			

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1.3. INDEPENDENT OPERATION MODES

The EUT has been tested under its typical operating condition.

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Mode	Date Rate	Test Channel
IEEE 802.11b	1Mbps	Low/Middle/High
IEEE 802.11g	6Mbps	Low/Middle/High
IEEE 802.11n HT20	MCS0	Low/Middle/High
IEEE 802.11n HT40	MCS0	Low/Middle/High

Frequency and Channel list

Channel List			
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2412		
2	2417		
3	2422	3	2422
4	2427	4	2427
5	2432	5	2432
6	2437	6	2437
7	2442	7	2442
8	2447	8	2447
9	2452	9	2452
10	2457	10	2457
11	2462	11	2462
802.11b/g/n(HT20)		802.11n(HT40)	

1.4. TEST SOFTWARE

Software	Description
Esp RF Test Tool_v3.6_Manual.exe	Set the COM Port Test Tool to set the corresponding Test conditions

1.5. GENERAL CONDITION

	Temperature	Humidity
Ambient Condition:	22.4 °C	51.2 %RH

1.6. SUPPORT EQUIPMENT

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
Laptop computer	Lenovo	Xiaoxin Pro IA5HR	PF490VB0

Notes:

- 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.

2. TEST STANDARDS AND SITES

2.1. DESCRIPTION OF STANDARDS AND RESULTS

The EUT have been tested according to the applicable standards as referenced below.

FCC Part Clause	Test Parameter	Verdict	Remark
15.247(a)(2)	DTS (6dB) Bandwidth	PASS	
15.247(b)(3)	Maximum Peak Conducted Output Power	PASS	
15.247(e)	Maximum Power Spectral Density Level	PASS	
15.247(d)	Unwanted Emission Into Non-Restricted Frequency Bands	PASS	
15.247(d) 15.209	Unwanted Emission Into Restricted Frequency Bands (conducted)	PASS	
15.247(d); 15.209	Radiated Spurious Emission	PASS	
15.207	Conducted Emission Test	PASS	
15.203	Antenna Application	PASS	

NOTE1: N/A (Not Applicable)

NOTE2: The report use radiated measurements in the restricted frequency bands. In addition, the radiated test is also performed to ensure the emissions emanating from the device cabinet also comply with the applicable limits.

2.2. LIST OF TEST AND MEASUREMENT INSTRUMENTS

For conducted emission at the mains terminals test(Shielded Room 1)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval	Lab No.	Remark
EMI Test Receiver	Rohde & Schwarz	ESHS30	8290501003	Jan. 24, 2024	1 Year	LEP-E002	<input checked="" type="checkbox"/>
Artificial Mains Network	Baluelec	LSN016	BL0411220501 21	Nov. 15, 2023	1 Year	LEP-E067	<input checked="" type="checkbox"/>
Shielded Room 1	MR	MR-L05	LEP-E053	Nov. 17, 2022	3 Year	LEP-E053	<input checked="" type="checkbox"/>
Test software	EZ-EMC	Fala	LEPONT-03A2	N/A	N/A	N/A	<input checked="" type="checkbox"/>
For radiated(9K-30M) emission test(966 Chamber 1)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval	Lab No.	Remark
EMI Test Receiver	Rohde & Schwarz	ESR 3	101849	Jan. 31, 2024	1 Year	LEP-E006	<input checked="" type="checkbox"/>
Active Loop Antenna	Schwarzbeck	FMZB 1519C	00008	Jan. 24, 2024	3 Year	LEP-E068	<input checked="" type="checkbox"/>
966 Chamber 1	MR	MR-L02	LEP-E051	Nov. 17, 2022	3 Year	LEP-E051	<input checked="" type="checkbox"/>
Test software	EZ-EMC	Fala	EMEC-3A1	N/A	N/A	N/A	<input checked="" type="checkbox"/>
For radiated(30M-1G) emission test(966 Chamber 1)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval	Lab No.	Remark
EMI Test Receiver	Rohde & Schwarz	ESR 3	101849	Jan. 31, 2024	1 Year	LEP-E006	<input checked="" type="checkbox"/>
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	743	Nov. 20, 2022	3 Year	LEP-E005	<input checked="" type="checkbox"/>
Signal Amplifier	HP	8447D	1726A01222	Jan. 24, 2024	1 Year	LEP-E007	<input checked="" type="checkbox"/>
6dB Attenuator	RswTech	5W 6dB	LEP-E084	Jan. 24, 2024	1 Year	LEP-E084	<input checked="" type="checkbox"/>
966 Chamber 1	MR	MR-L02	LEP-E051	Nov. 17, 2022	3 Year	LEP-E051	<input checked="" type="checkbox"/>
Test software	EZ-EMC	Fala	EMEC-3A1	N/A	N/A	N/A	<input checked="" type="checkbox"/>
For radiated(1-18G) emission test(966 Chamber 1)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval	Lab No.	Remark
Spectrum analyzer	Rohde & Schwarz	FSV40	101412	Jan. 24, 2024	1 Year	LEP-E076	<input checked="" type="checkbox"/>
Spectrum analyzer	Agilent	N9020A	MY49100060	Jan. 24, 2024	1 Year	LEP-E020	<input checked="" type="checkbox"/>
Horn antenna	Schwarzbeck	BBHA 9120D	01875	Nov. 20, 2022	3 Year	LEP-E024	<input checked="" type="checkbox"/>
Preamplifier	Schwarzbeck	BBN 9718B	00010	Jan. 24, 2024	1 Year	LEP-E025	<input checked="" type="checkbox"/>
966 Chamber 1	MR	MR-L02	LEP-E051	Nov. 17, 2022	3 Year	LEP-E051	<input checked="" type="checkbox"/>
Test software	EZ-EMC	Fala	EMEC-3A1	N/A	N/A	N/A	<input checked="" type="checkbox"/>
For radiated(18-40G) emission test(966 Chamber 1)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval	Lab No.	Remark
Spectrum analyzer	Rohde & Schwarz	FSV40	101412	Jan. 24, 2024	1 Year	LEP-E076	<input checked="" type="checkbox"/>
Horn antenna+Preamplifier	COM-POWER	AH840	10100020	Sep. 05, 2022	3 Year	LEP-E075	<input checked="" type="checkbox"/>
966 Chamber 1	MR	MR-L02	LEP-E051	Nov. 17, 2022	3 Year	LEP-E051	<input checked="" type="checkbox"/>
Test software	EZ-EMC	Fala	EMEC-3A1	N/A	N/A	N/A	<input checked="" type="checkbox"/>
For RF test							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval	Lab No.	Remark
Spectrum analyzer	Rohde & Schwarz	FSV40	101412	Jan. 24, 2024	1 Year	LEP-E076	<input checked="" type="checkbox"/>
Spectrum analyzer	Agilent	N9020A	MY49100060	Jan. 24, 2024	1 Year	LEP-E020	<input checked="" type="checkbox"/>
Vector source	Agilent	N5182A	MY47420382	Jan. 24, 2024	1 Year	LEP-E021	<input checked="" type="checkbox"/>
Analog signal source	Agilent	N5171B	MY51350292	Jan. 24, 2024	1 Year	LEP-E022	<input checked="" type="checkbox"/>
All instrument	Rohde & Schwarz	CMW 500	1201.002K50	Jan. 24, 2024	1 Year	LEP-E019	<input checked="" type="checkbox"/>
High and low temperature chamber	Math-mart	MT-1202-40	LEP-E041	Jan. 24, 2024	1 Year	LEP-E041	<input checked="" type="checkbox"/>
control unit	Tonscend	JS0806-2	10165	Jan. 24, 2024	1 Year	LEP-E034	<input checked="" type="checkbox"/>
Testing software	Tonscend	JSTS1120-3	Ver 2.6.77.0518	N/A	N/A	N/A	<input checked="" type="checkbox"/>

2.3. MEASUREMENT UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-5}$
Maximum Peak Output Power Test	$\pm 1.0\%$
Conducted Emissions Test	$\pm 3.08\text{dB}$
Radiated Emission Test	$\pm 4.60\text{dB}$
Power Density	$\pm 0.9\%$
Occupied Bandwidth Test	$\pm 2.3\%$
Band Edge Test	$\pm 1.2\%$
Antenna Port Emission	$\pm 3\text{dB}$
Temperature	$\pm 3.2\%$
Humidity	$\pm 2.5\%$
Measurement Uncertainty for a level of Confidence of 95%	

2.4. TEST FACILITY

EMC Lab. : The Laboratory has been assessed and proved to be in compliance with CNAS/CL01
The Certificate Registration Number is L10100.
The Laboratory has been assessed and proved to be in compliance with A2LA
The Certificate Registration Number is 6901.01
FCC Designation No.: CN1351
Test Firm Registration No.: 397428
ISED CAB identifier: CN0151
Test Firm Registration No.: 20133

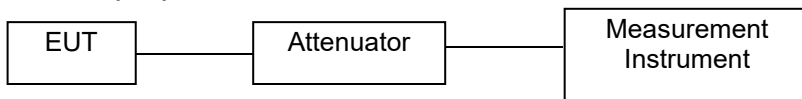
Test Location : Dongguan Lepont Testing Service Co., Ltd.

Address : Room 102, Building 11, No.7, Houjie Science And Technology Avenue, Houjie, Dongguan, Guangdong, China

3. SETUP OF EQUIPMENT UNDER TEST

3.1. RADIO FREQUENCY TEST SETUP 1

The component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



3.2. RADIO FREQUENCY TEST SETUP 2

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 32.

Below 30MHz:

The EUT is placed on a turntable 0.8meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The Antenna should be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground. For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT.

Above 30MHz:

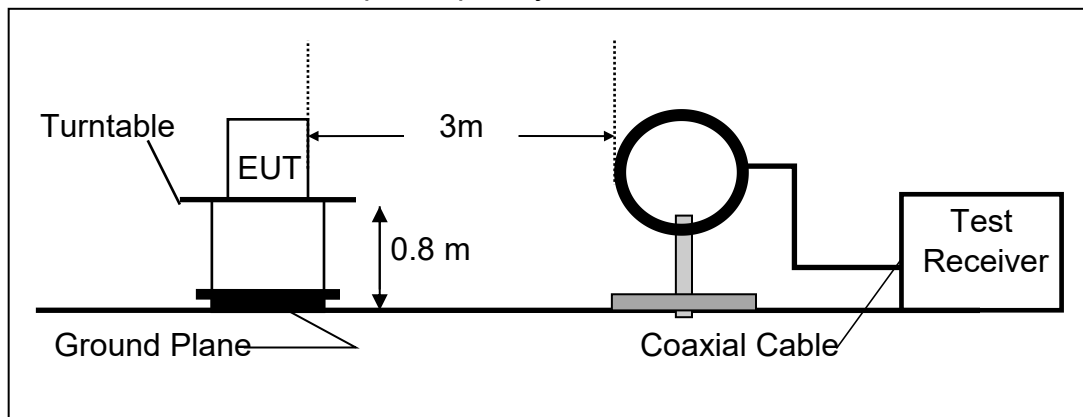
The EUT is placed on a turntable 0.8meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Above 1GHz:

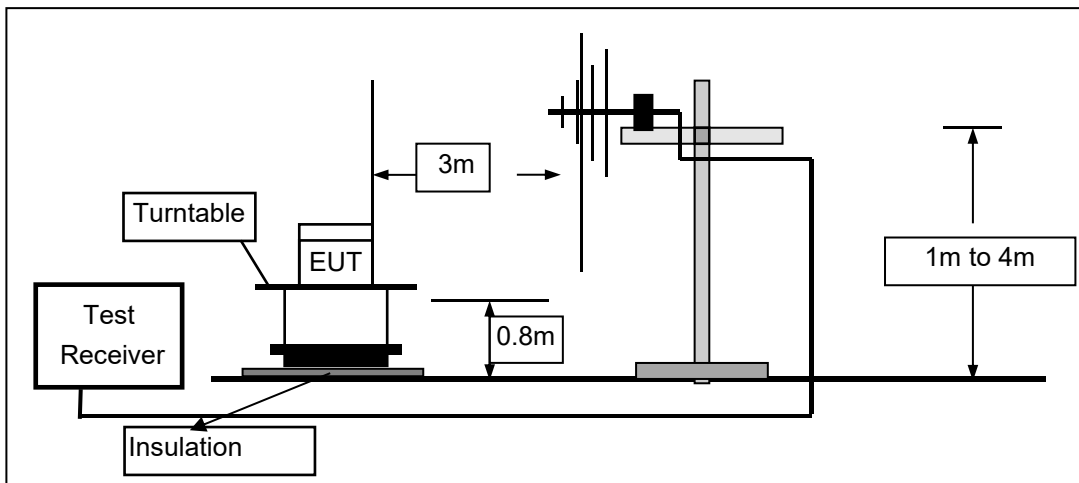
(Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.)

The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

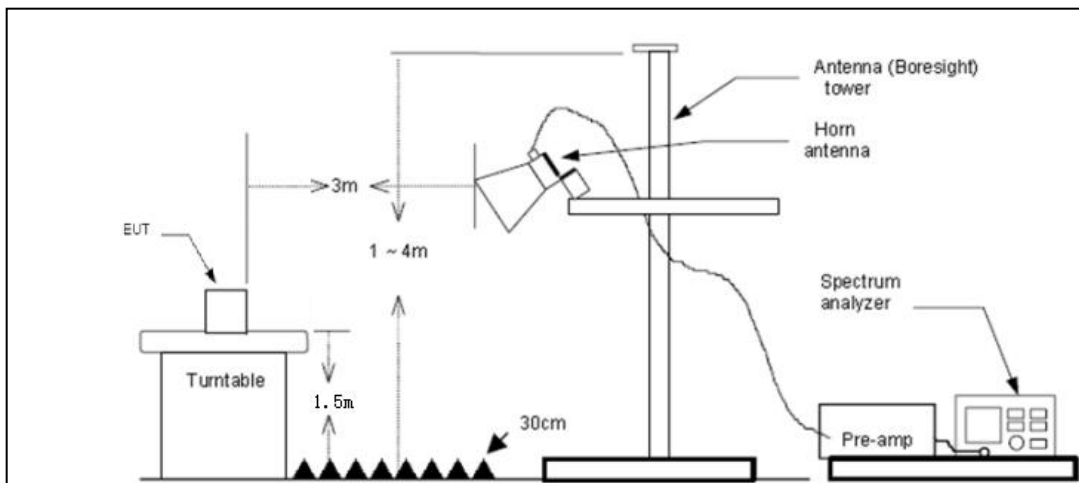
(a) Radiated Emission Test Set-Up, Frequency Below 30MHz



(b) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(c) Radiated Emission Test Set-Up, Frequency above 1000MHz

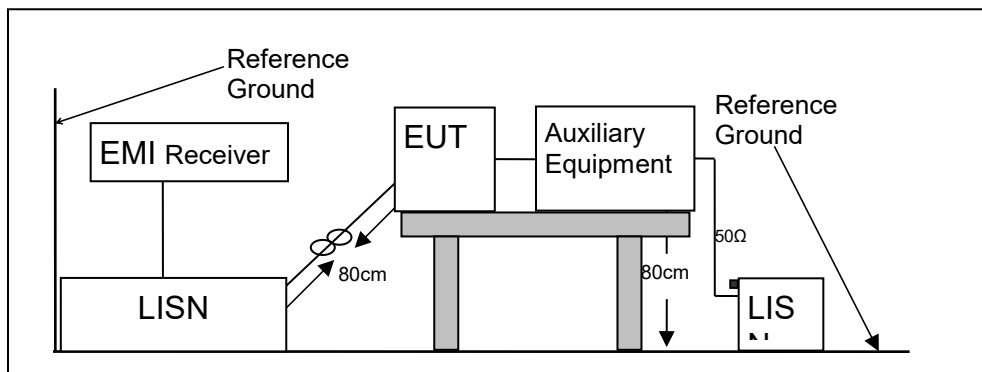


3.3. CONDUCTED EMISSION TEST SETUP

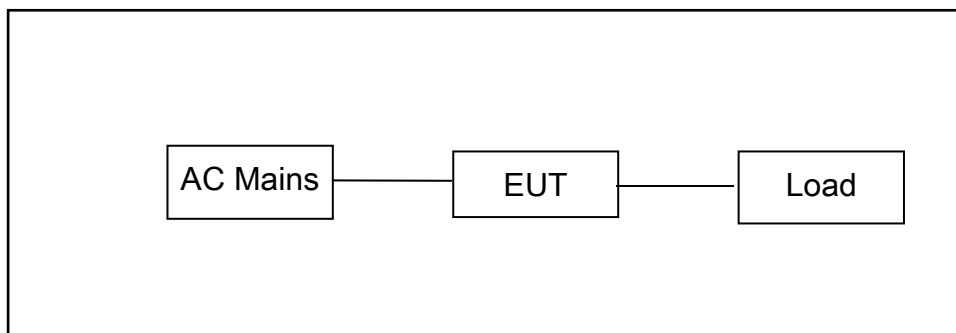
The mains cable of the EUT (Perfect Share Mini) must be connected to LISN. The LISN shall be placed 0.8m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.8m.

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.



3.4. BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM



4. TEST RESULTS AND MEASUREMENT DATA

4.1. DTS (6DB) BANDWIDTH

4.1.1. Applicable Standard

According to FCC Part 15.247(a)(2) and KDB 558074 D01 15.247 Meas Guidance v05r02

4.1.2. Conformance Limit

The minimum -6 dB bandwidth shall be at least 500 kHz.

4.1.3. Test Configuration

Test according to clause 3.1 radio frequency test setup 1

4.1.4. Test Procedure

The EUT was operating in IEEE 802.11b/g/n mode and controlled its channel. Printed out the test result from the spectrum by hard copy function.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously

Set RBW = 100 kHz.

Set the VBW $\geq 3 \times$ RBW (about 300kHz).

Set Span = 2 times OBW

Set Detector = Peak.

Set Trace mode = max hold.

Set Sweep = auto couple.

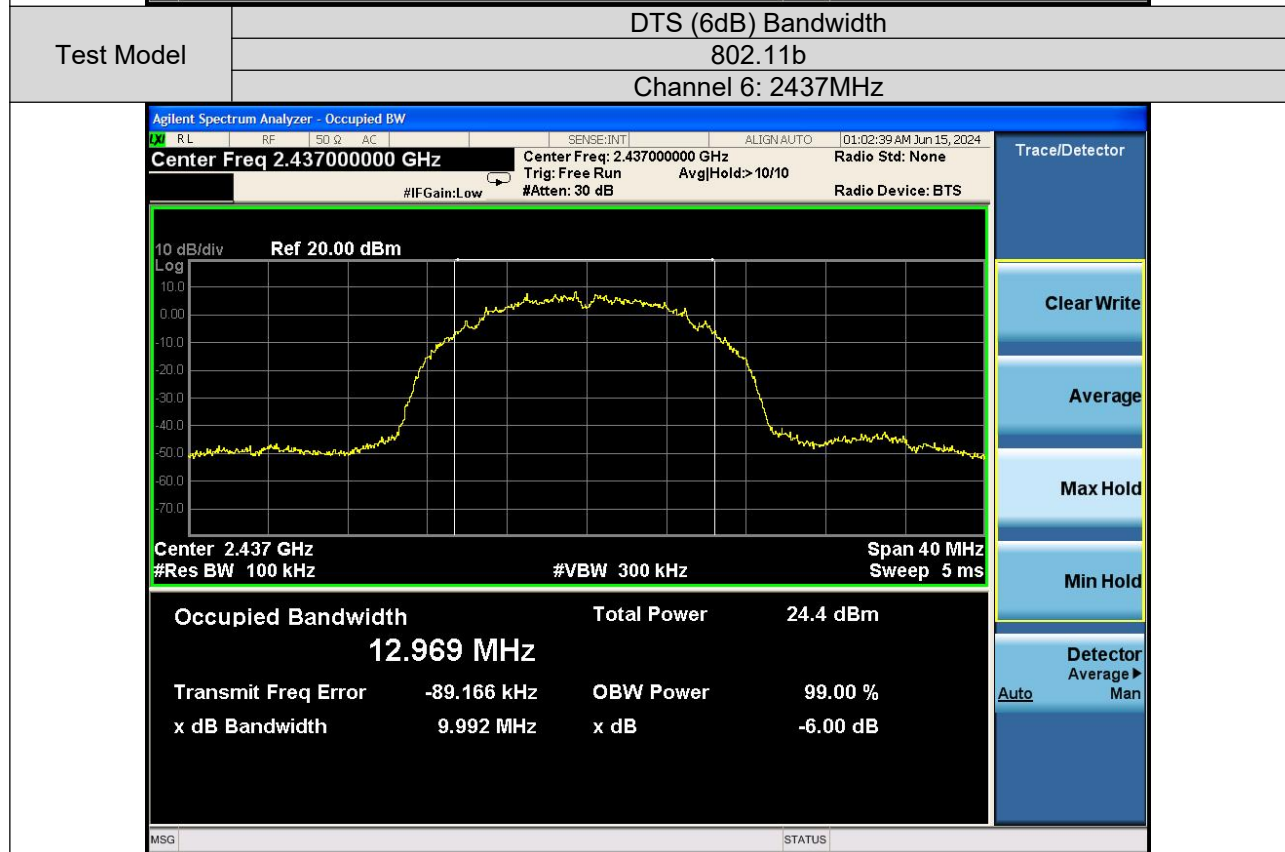
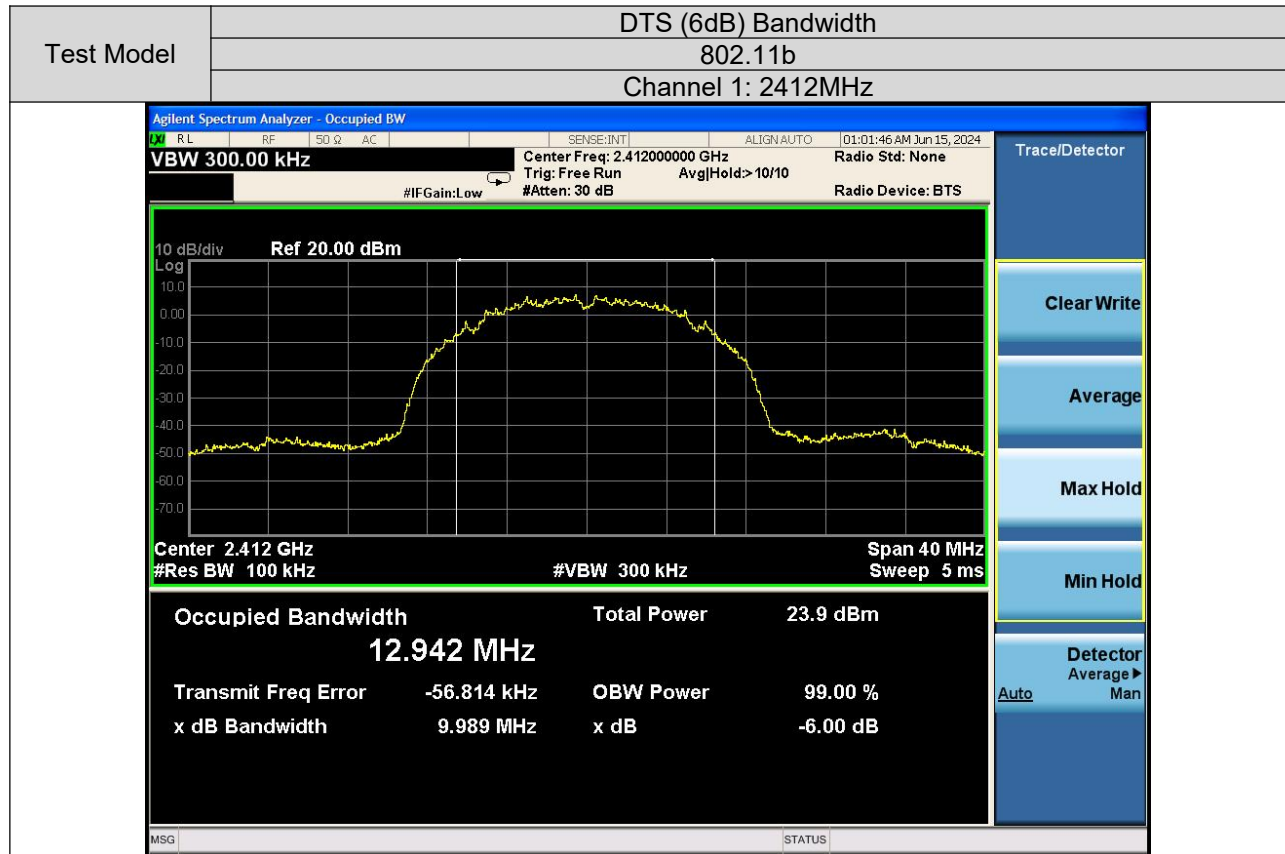
Allow the trace to stabilize.

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.

Measure and record the results in the test report.

Test Results:

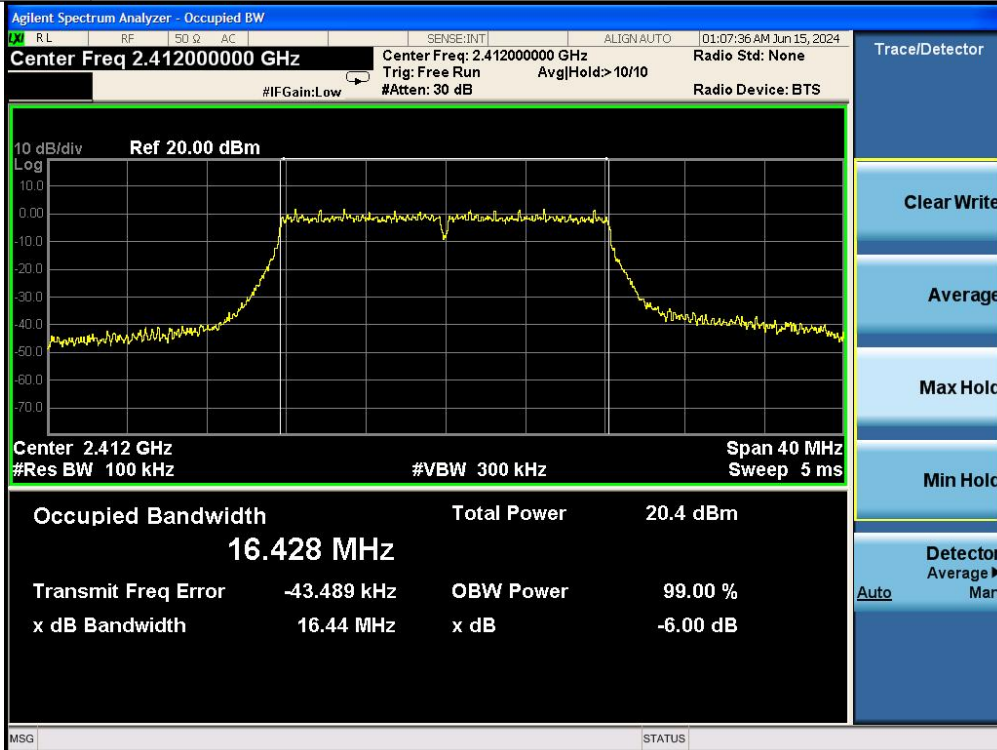
Operation Mode	Channel Number	Channel Frequency (MHz)	Measurement Bandwidth (MHz)	Limit (kHz)	Verdict
802.11b	1	2412	9.989	>500	PASS
	6	2437	9.992	>500	PASS
	11	2462	10.04	>500	PASS
802.11g	1	2412	16.44	>500	PASS
	6	2437	16.44	>500	PASS
	11	2462	16.41	>500	PASS
802.11n (HT20)	1	2412	17.08	>500	PASS
	6	2437	17.15	>500	PASS
	11	2462	17.16	>500	PASS
802.11n (HT40)	3	2422	35.14	>500	PASS
	7	2442	35.13	>500	PASS
	11	2462	35.13	>500	PASS

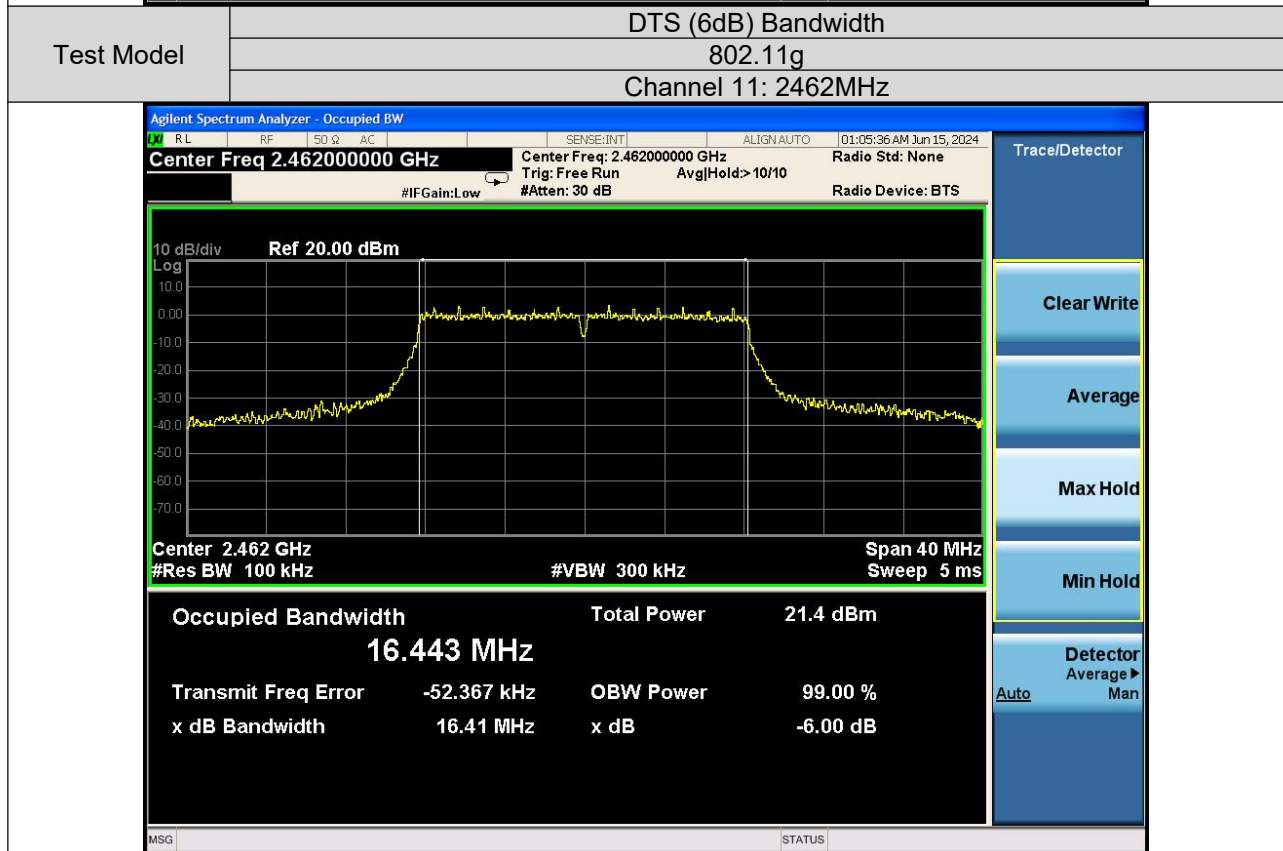
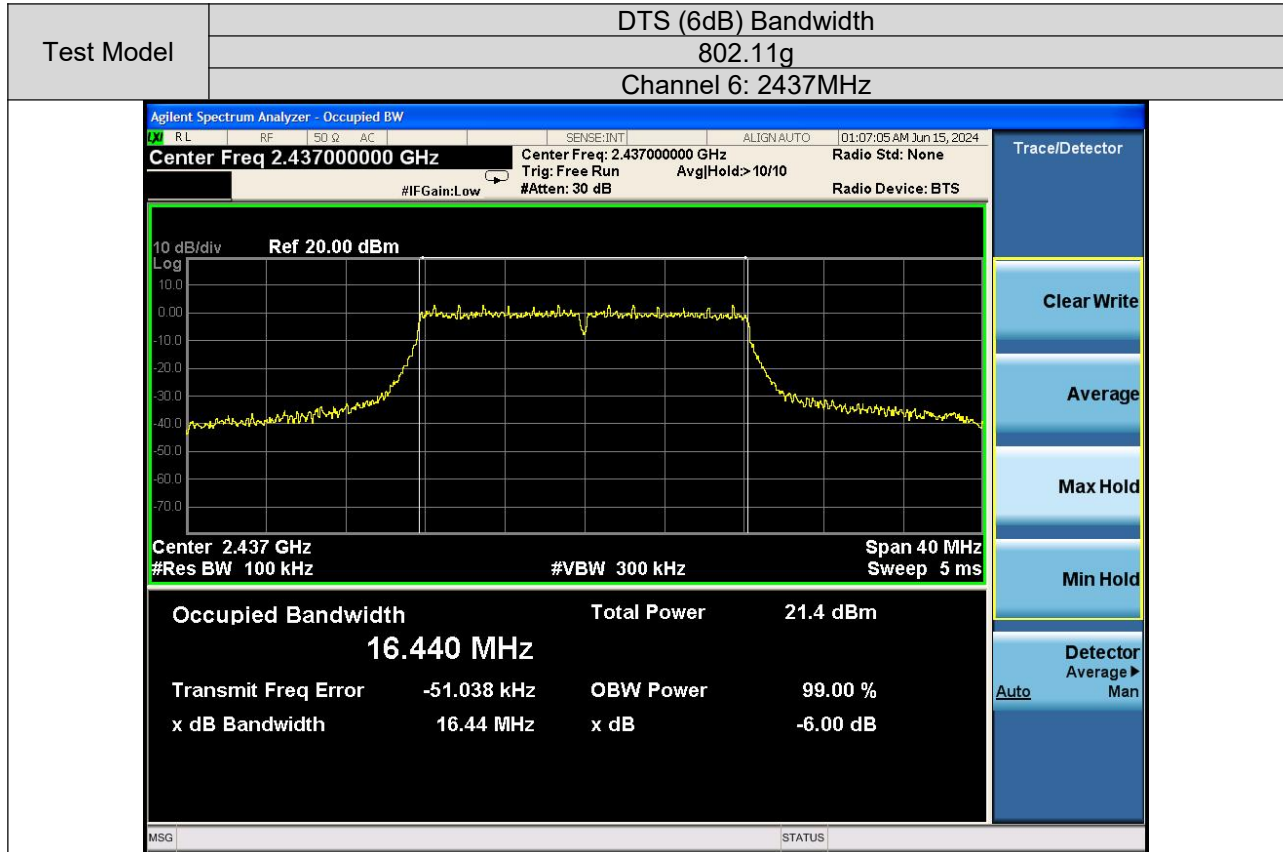


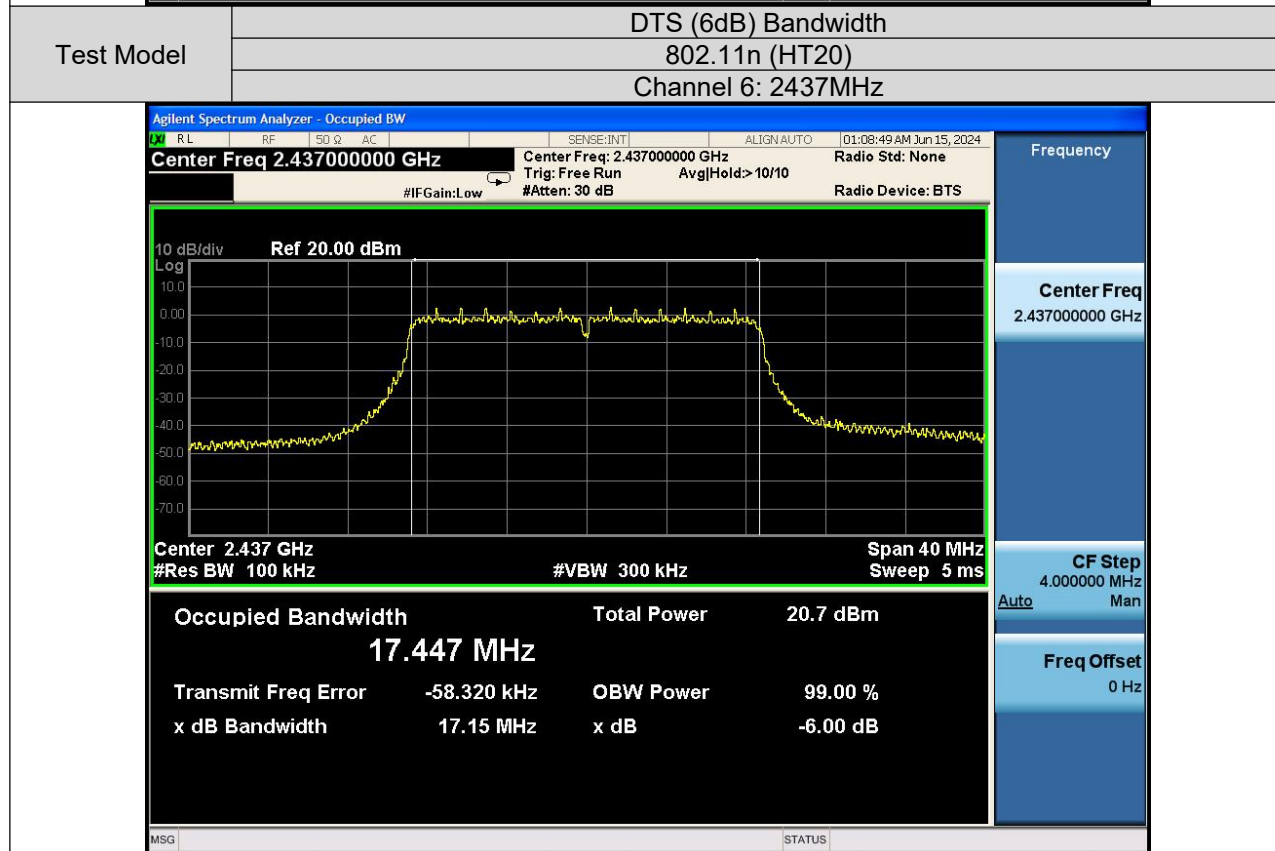
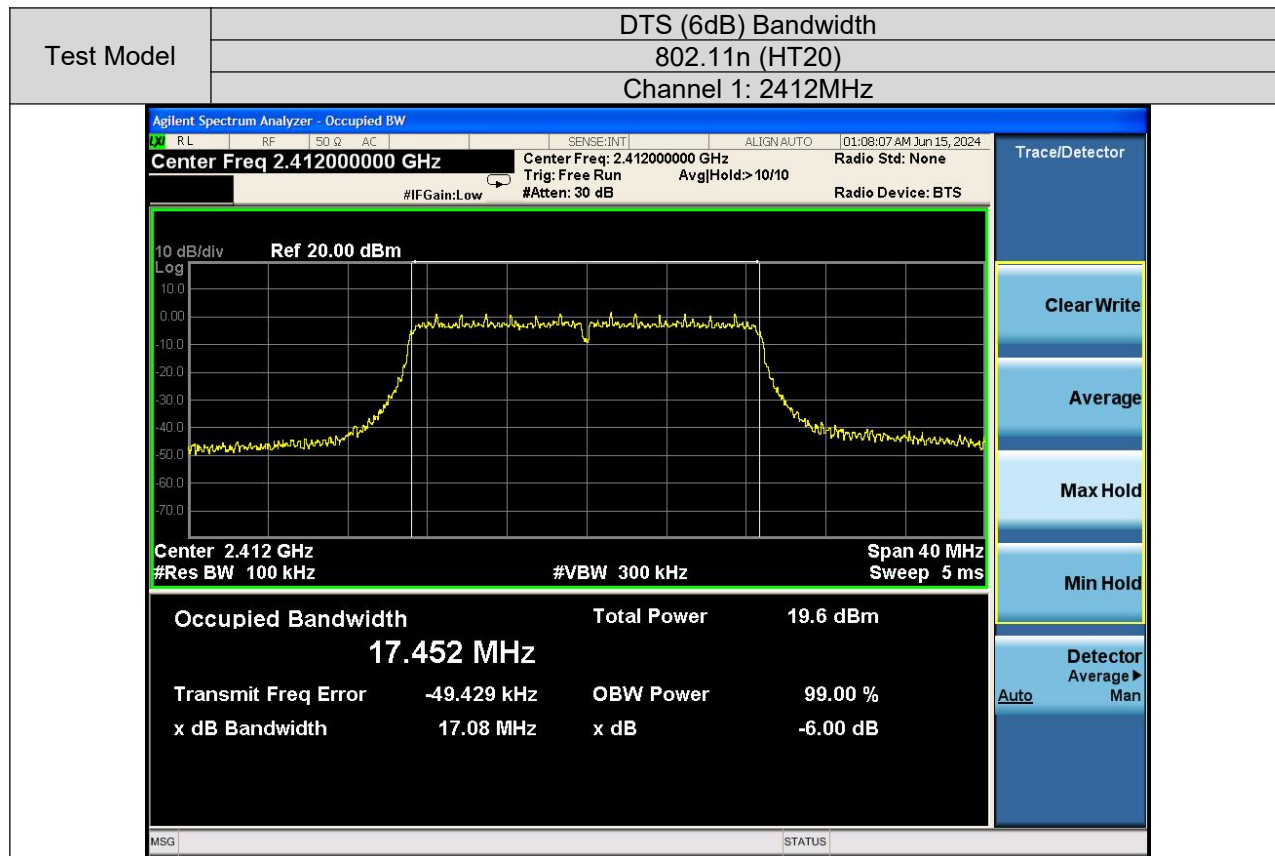
Test Model	DTS (6dB) Bandwidth
	802.11b
	Channel 11: 2462MHz

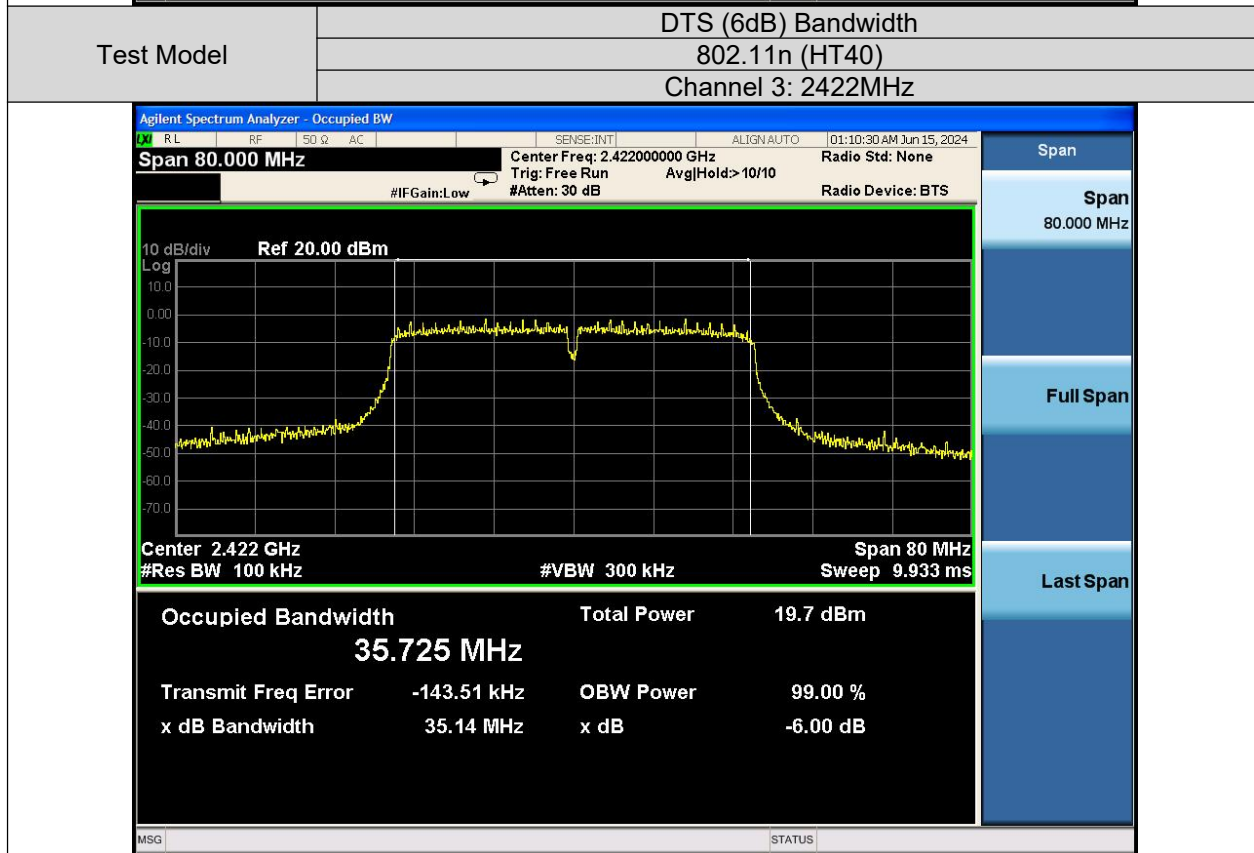
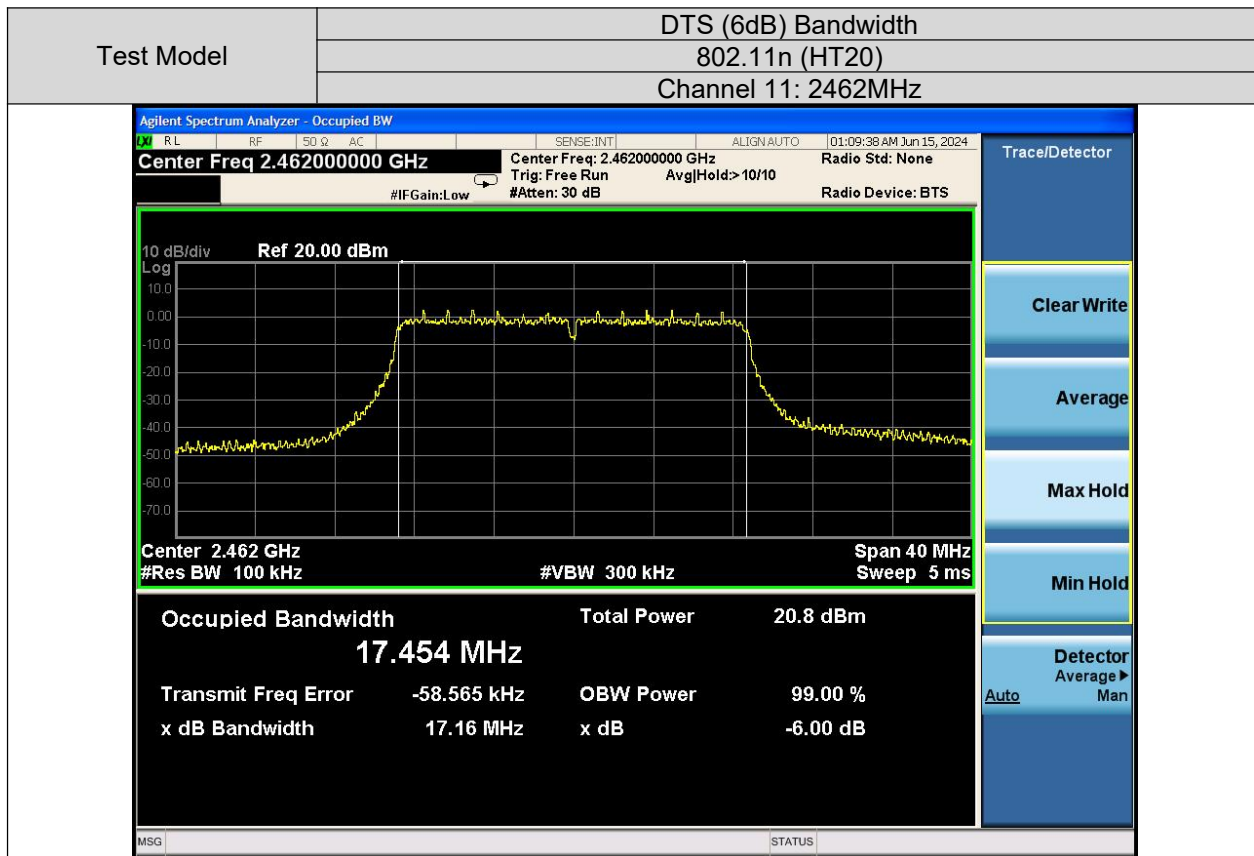


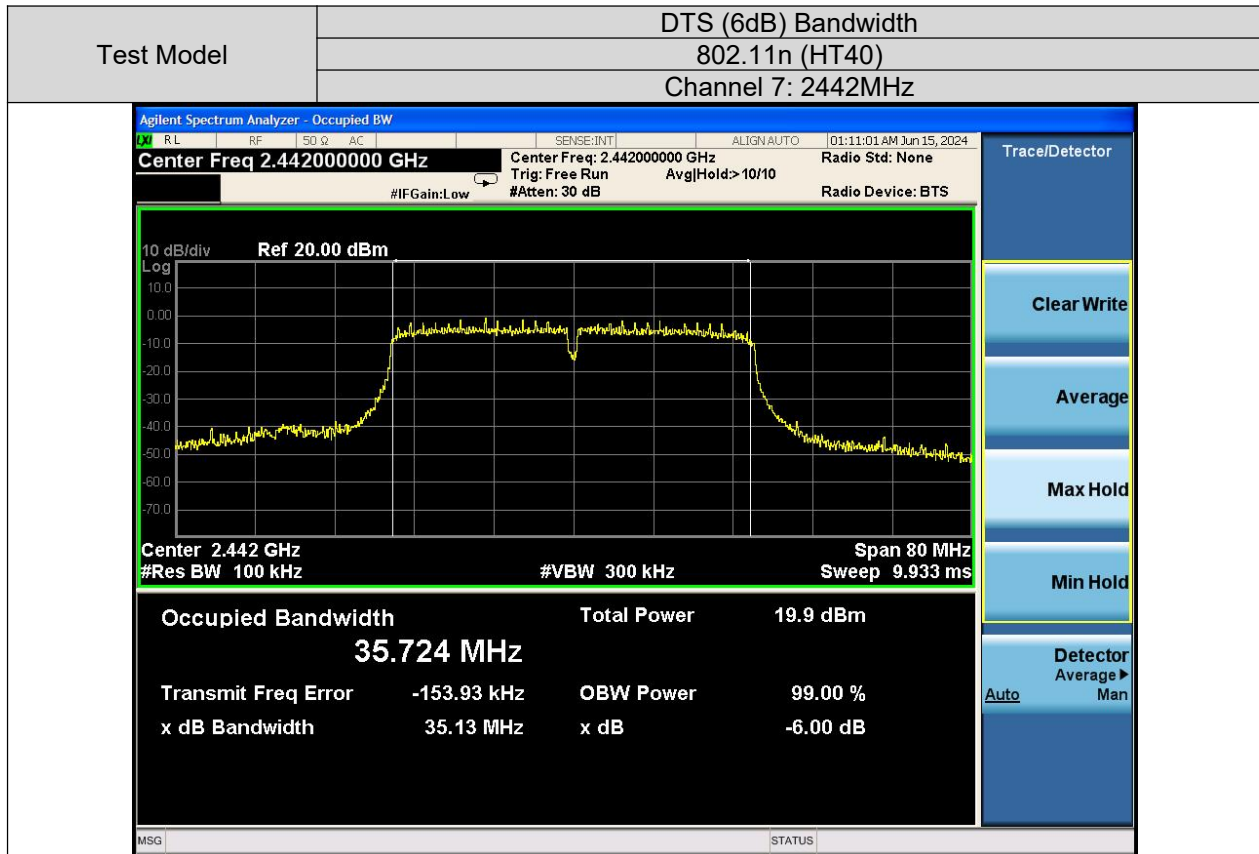
Test Model	DTS (6dB) Bandwidth
	802.11g
	Channel 1: 2412MHz











4.2. MAXIMUM PEAK CONDUCTED OUTPUT POWER

4.2.1. Applicable Standard

According to FCC Part 15.247(b)(1) and KDB 558074 D01 15.247 Meas Guidance v05r02

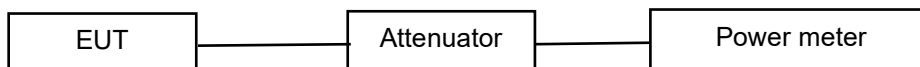
4.2.2. Conformance Limit

The maximum conducted output power of the intentional radiator for systems using digital modulation in the 2400 - 2483.5 MHz bands shall not exceed: 1 Watt (30dBm).

4.2.3. Test Configuration

Test according to clause 4.2.4 radio frequency test setup 1

4.2.4. Test Procedure



■ According to FCC Part 15.247(b)(3)

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. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the *maximum conducted output power* is the highest total transmit power occurring in any mode.

Set the RBW \cong DTS bandwidth (about 1MHz).

Set VBW = 3*RBW (about 3MHz)

Set the span \cong 3*RBW

Set Sweep time = auto couple.

Set Detector = peak.

Set Trace mode = max hold.

Allow trace to fully stabilize.

Use peak marker function to determine the peak amplitude level.

■ According to FCC Part 15.247(b)(4):

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

- Place the EUT on the desktop and set it to launch mode. Remove the antenna from the EUT and connect the low-loss RF cable from the antenna port to the power meter. Measure the peak power of each channel.

Test Results

Operation Mode	Channel Number	Channel Frequency (MHz)	Measurement Level (dBm)	Limit (dBm)	Verdict
802.11b	1	2412	19.66	30	PASS
	6	2437	19.03	30	PASS
	11	2462	20.28	30	PASS
802.11g	1	2412	22.96	30	PASS
	6	2437	21.07	30	PASS
	11	2462	21.26	30	PASS
802.11n (HT20)	1	2412	20.30	30	PASS
	6	2437	20.73	30	PASS
	11	2462	20.79	30	PASS
802.11n (HT40)	3	2422	20.61	30	PASS
	7	2442	20.88	30	PASS
	11	2462	21.07	30	PASS

4.3. MAXIMUM POWER SPECTRAL DENSITY

4.3.1. Applicable Standard

According to FCC Part15.247(e) and KDB 558074 D01 15.247 Meas Guidance v05r02

4.3.2. Conformance Limit

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

4.3.3. Test Configuration

Test according to clause 3.1 radio frequency test setup 1

4.3.4. Test Procedure

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance

The transmitter output (antenna port) was connected to the spectrum analyzer

Set analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS bandwidth.

Set the RBW to: 3 kHz

Set the VBW to:10 kHz.

Set Detector =Peak.

Set Sweep time = auto couple.

Set Trace mode = max hold.

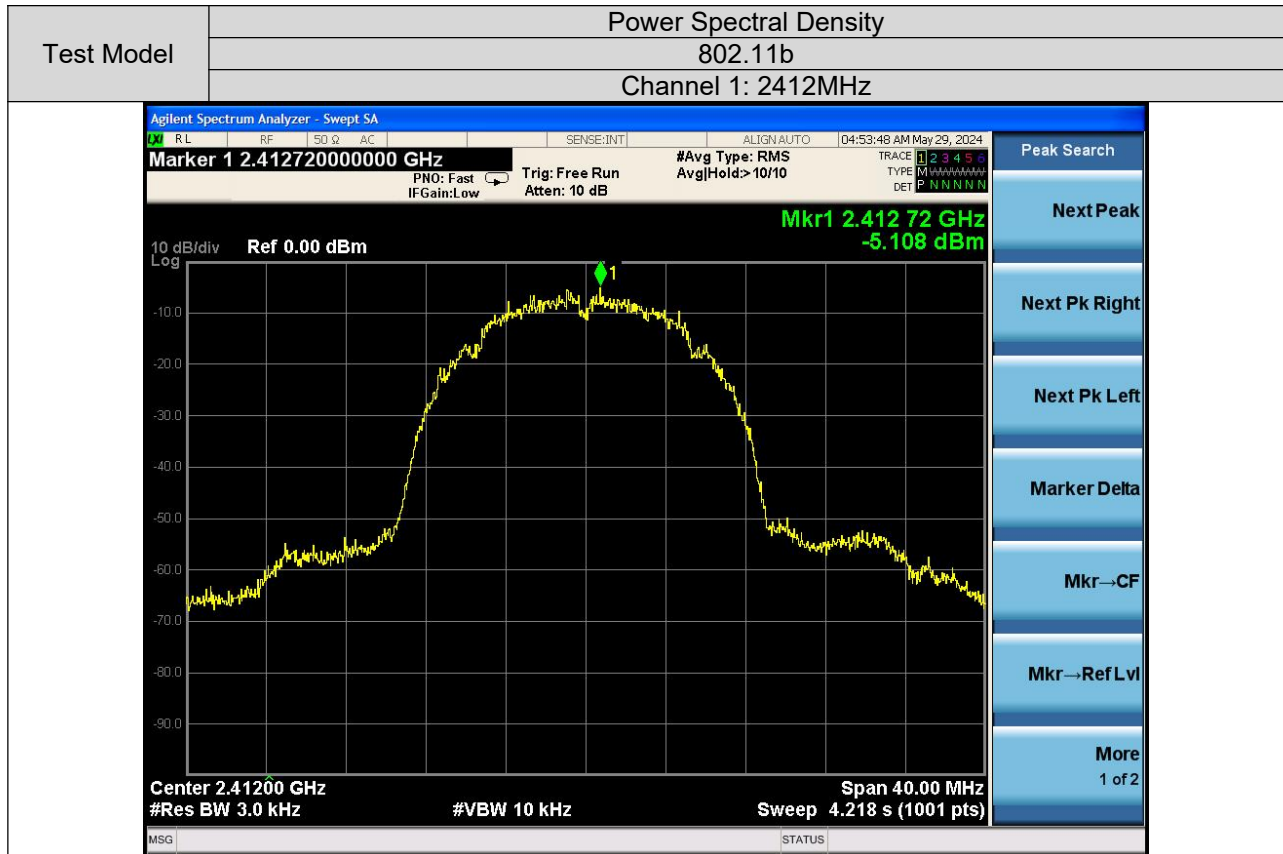
Allow trace to fully stabilize.

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

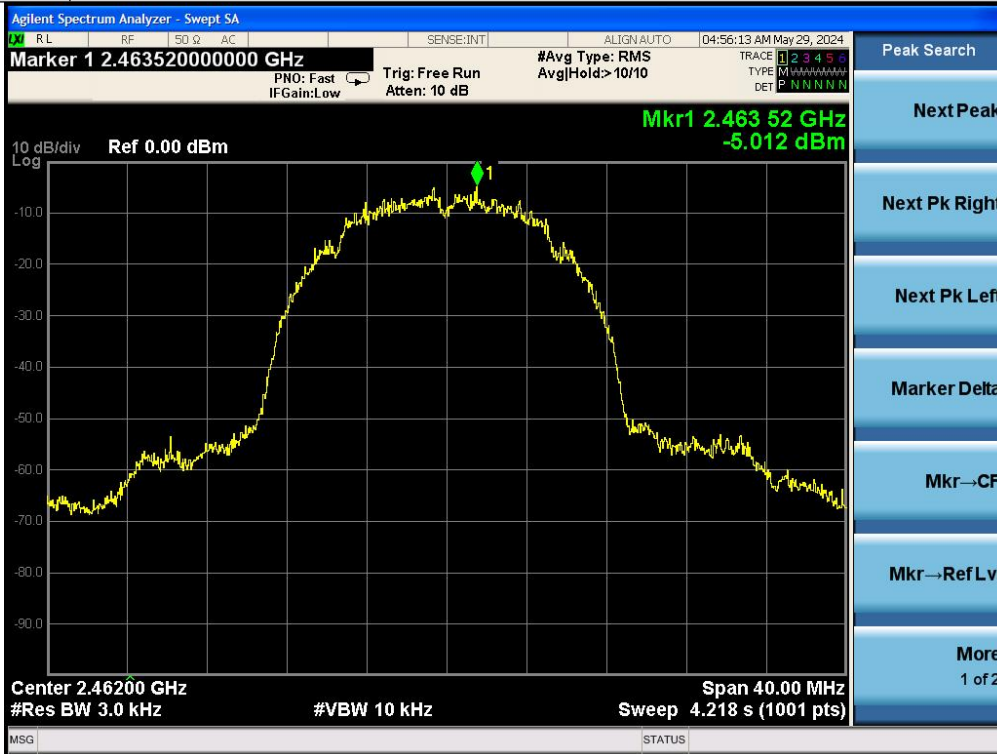
Note: If antenna Gain exceeds 6 dBi, then PSD Limit=8-(Gain- 6)

Operation Mode	Channel Number	Channel Frequency (MHz)	Measurement Level (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11b	1	2412	-4.608	8	PASS
	6	2437	-5.427	8	PASS
	11	2462	-4.512	8	PASS
802.11g	1	2412	-8.364	8	PASS
	6	2437	-7.548	8	PASS
	11	2462	-7.258	8	PASS
802.11n (HT20)	1	2412	-8.845	8	PASS
	6	2437	-8.638	8	PASS
	11	2462	-8.480	8	PASS
802.11n (HT40)	3	2422	-11.841	8	PASS
	7	2442	-12.053	8	PASS
	11	2462	-11.458	8	PASS

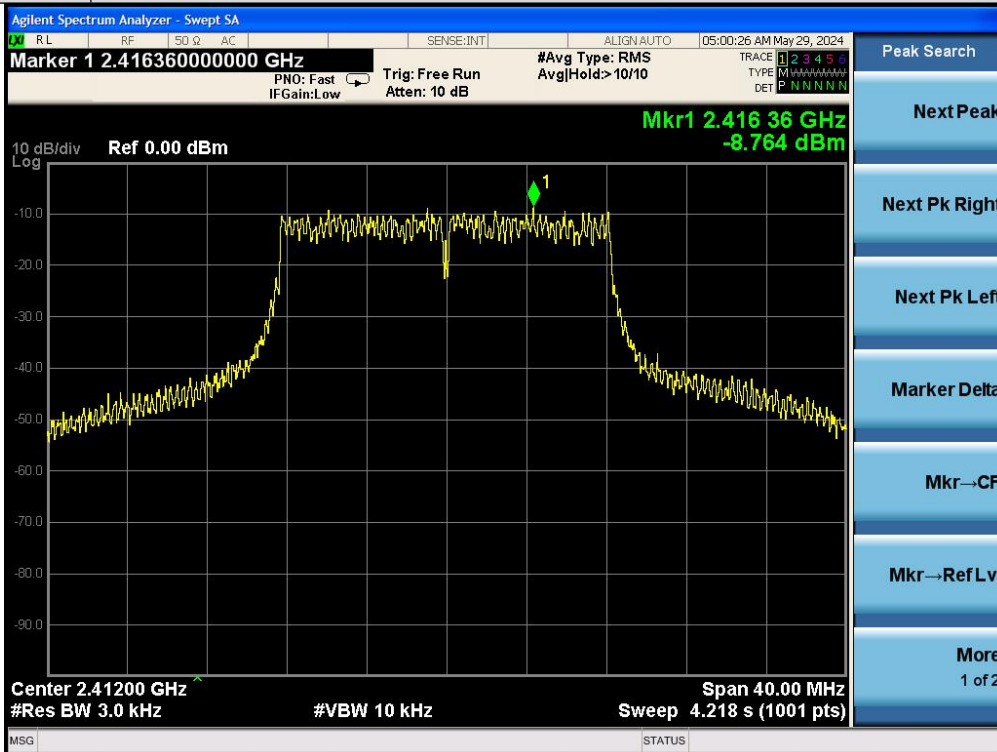
Note: the test RF cable loss is 0.5 dB that had added the result.

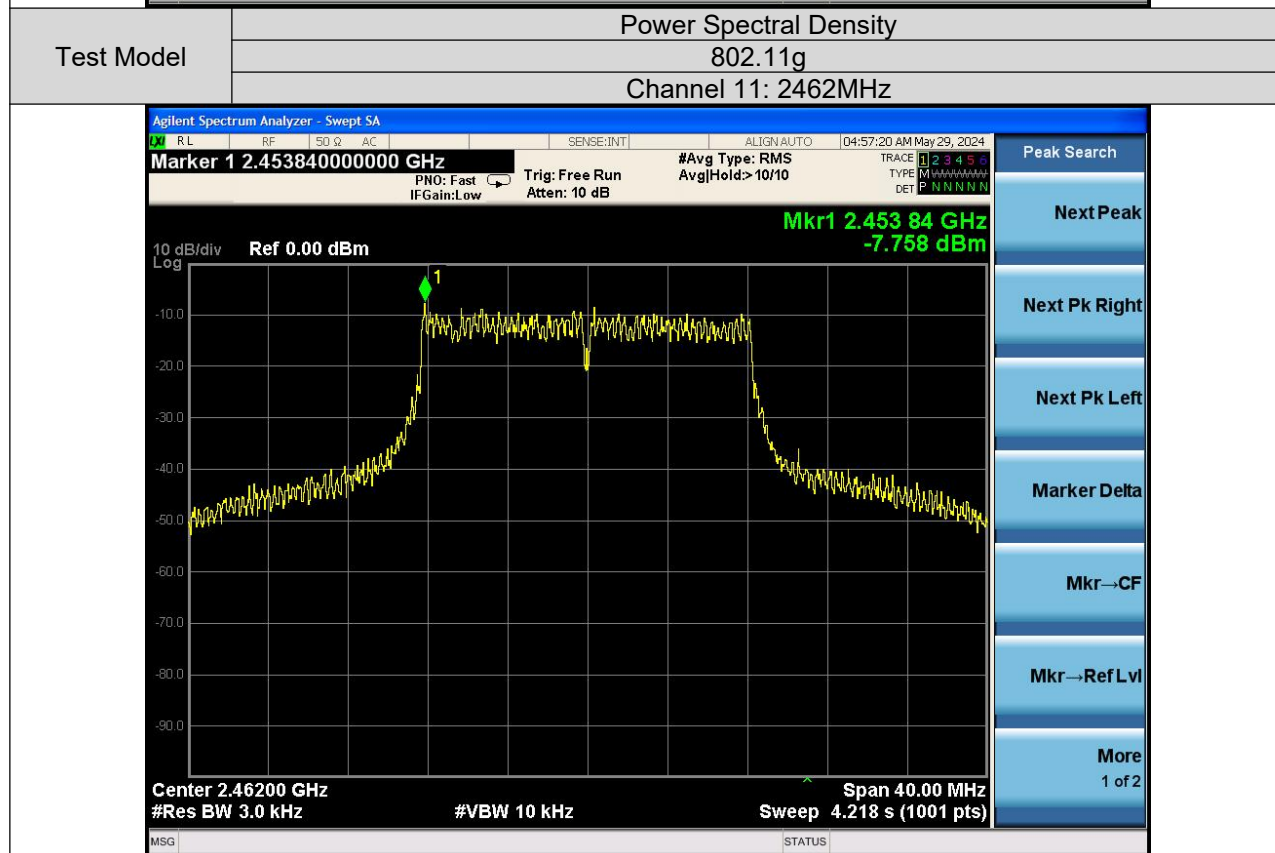
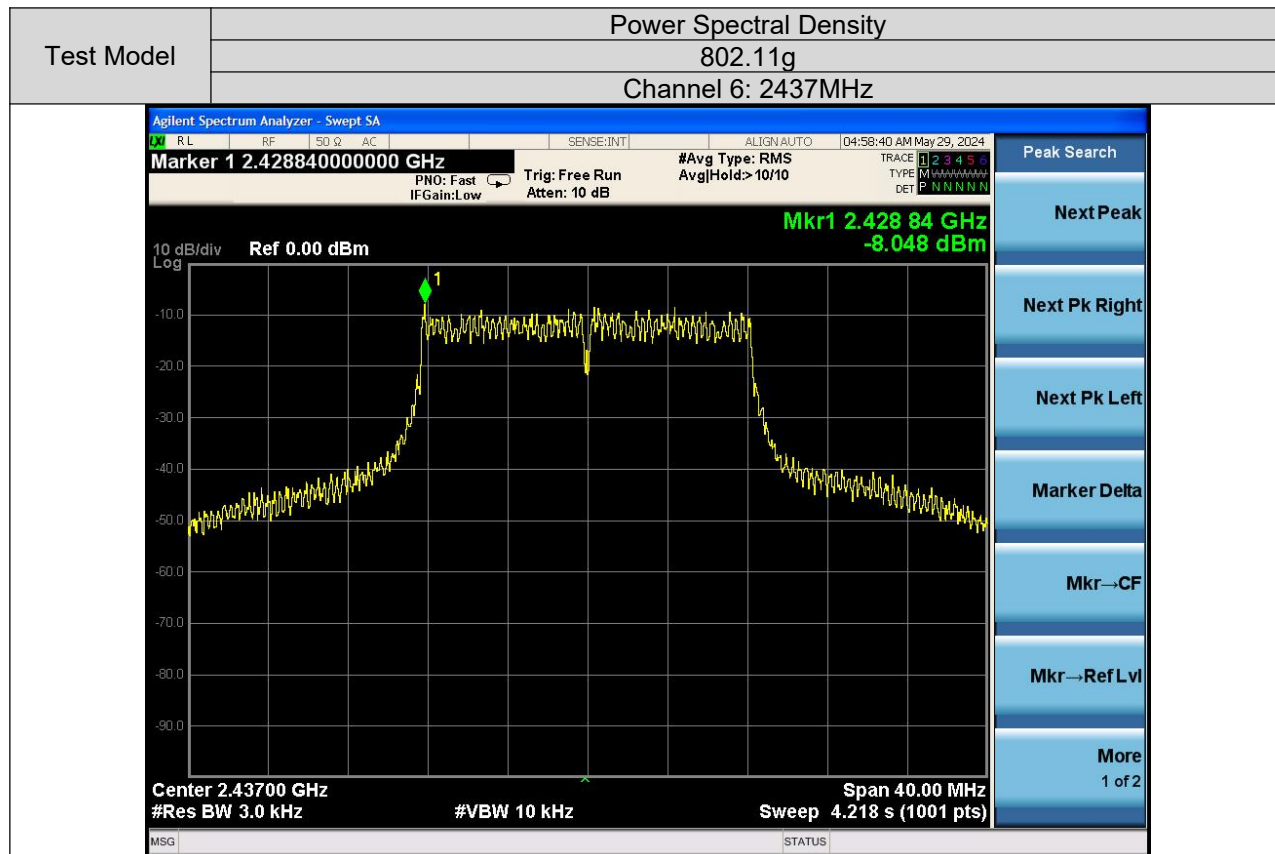


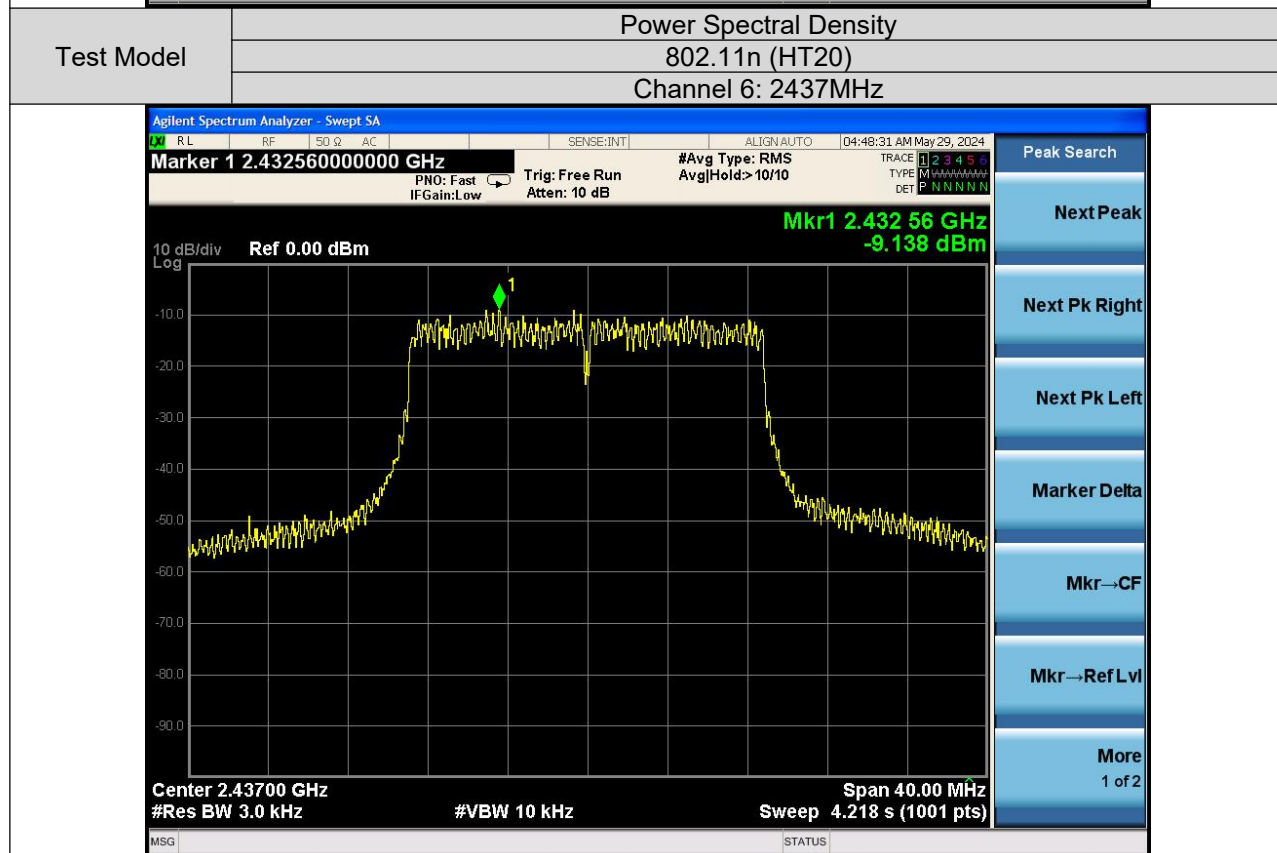
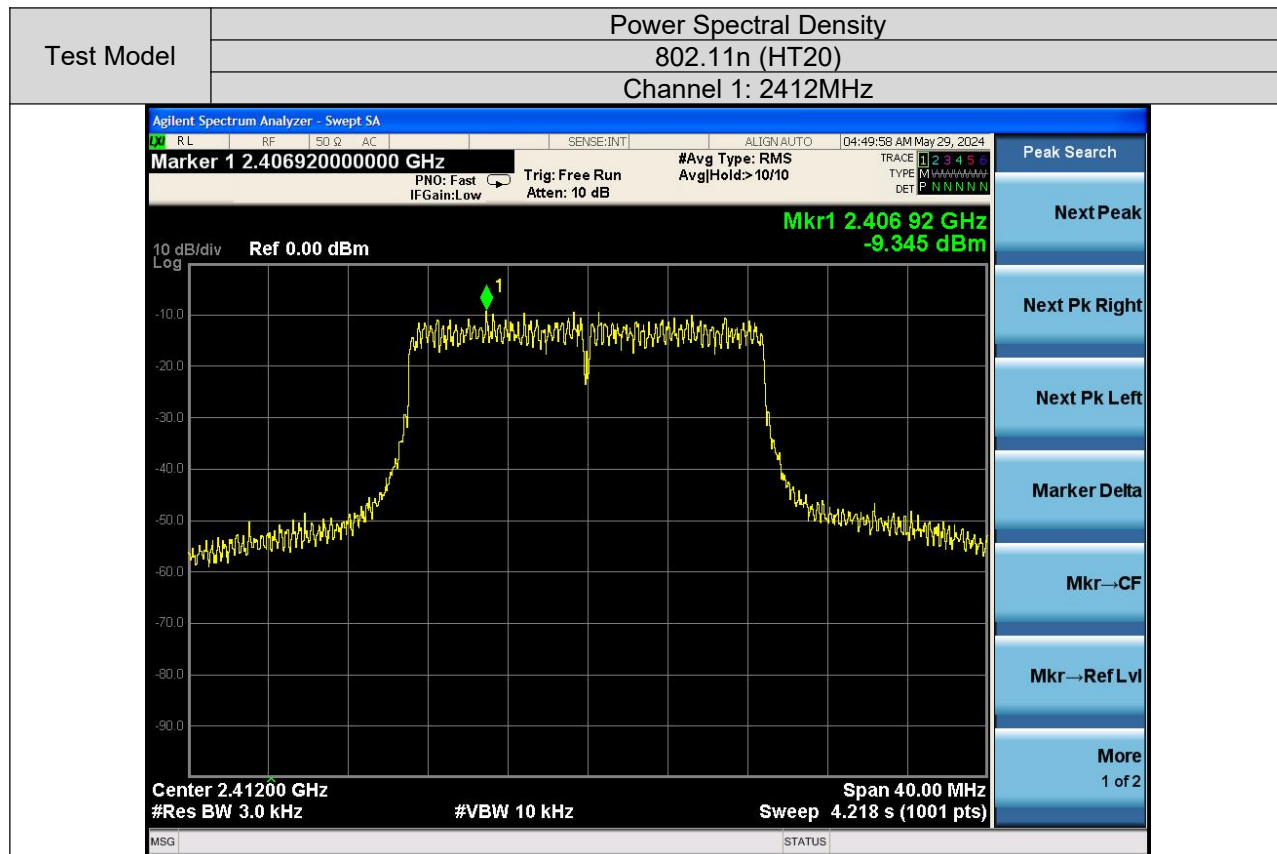
Test Model	Power Spectral Density
	802.11b
	Channel 11: 2462MHz



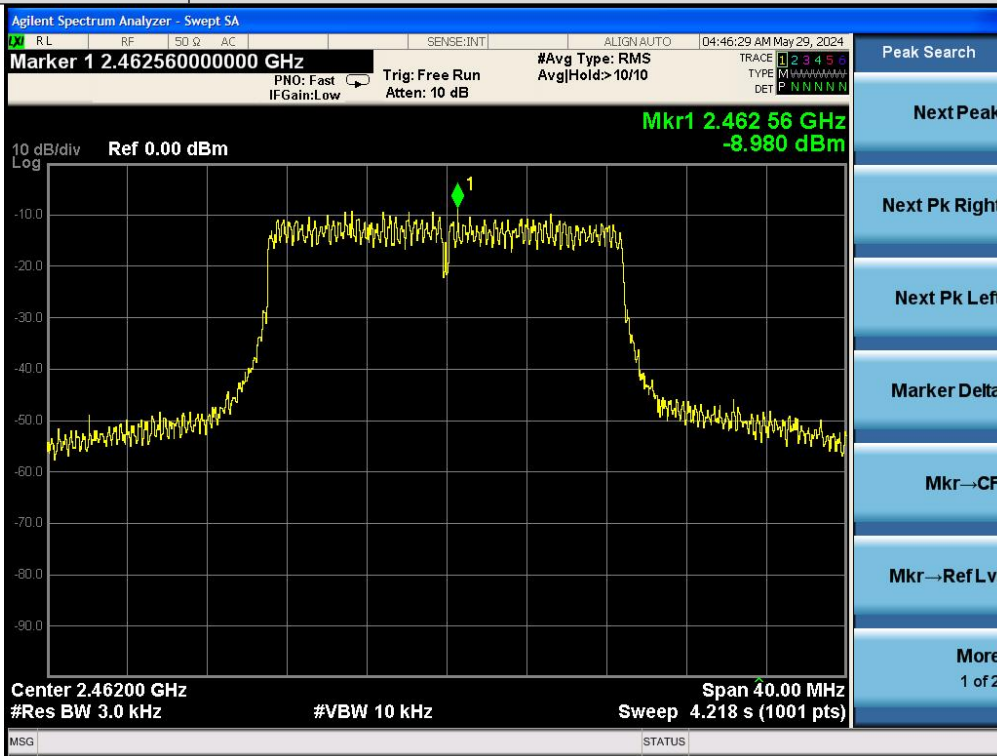
Test Model	Power Spectral Density
	802.11g
	Channel 1: 2412MHz







Test Model	Power Spectral Density
	802.11n (HT20)
	Channel 11: 2462MHz



Test Model	Power Spectral Density
	802.11n (HT40)
	Channel 3: 2422MHz

