FCC Test Report

Report No.: AGC11034230801FR01

FCC ID	:	2AYHE-2307A
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Network Video Recorder
BRAND NAME	:	Reolink
MODEL NAME	:	RLN12W
APPLICANT	:	Reolink Innovation Limited
DATE OF ISSUE	:	Aug. 29, 2023
STANDARD(S)	:	FCC Part 15 Subpart C §15.247
REPORT VERSION	:	V1.0

***A**ttestation of **G**lobal **C**ompliance (Shenzhen) Co., Ltd*

REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Aug. 29, 2023	Valid	Initial Release

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1. VERIFICATION OF CONFORMITY

Applicant	Reolink Innovation Limited
Address	FLAT/RM 705 7/F FA YUEN COMMERCIAL BUILDING 75-77 FA YUEN STREET MONG KOK KL HONG KONG
manufacturer	Reolink Innovation Limited
Address	FLAT/RM 705 7/F FA YUEN COMMERCIAL BUILDING 75-77 FA YUEN STREET MONG KOK KL HONG KONG
Factory	Shenzhen Reolink Technology Co., Ltd
Address	2-4th Floor, Building 2, Yuanling Industrial Park, ShangWu, Shiyan Street, Bao’an District, Shenzhen, China
Product Designation	Network Video Recorder
Brand Name	Reolink
Test Model	RLN12W
Date of receipt of test item	Aug. 08, 2023
Date of Test	Aug. 10, 2023~ Aug. 28, 2023
Deviation	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-BGN/RF

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rules Part 15.247.

Prepared By	Bibo Zhang (Project Engineer)	Aug. 29, 2023
Reviewed By	Calvin Liu (Reviewer)	Aug. 29, 2023
Approved By	Max Zhang Authorized Officer	Aug. 29, 2023

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is designed as “Network Video Recorder”. It is designed by way of utilizing the DSSS and OFDM technology to achieve the system operation.

A major technical description of EUT is described as following

Equipment Type	WLAN 2.4G
Frequency Band	2400MHz ~ 2483.5MHz
Operation Frequency	2412MHz ~ 2462MHz
Output Power (Average)	IEEE 802.11b:14.12dBm; IEEE 802.11g:13.13dBm; IEEE 802.11n(HT20):12.13dBm; IEEE 802.11n(HT40):12.01dBm
Output Power (Peak)	IEEE 802.11b:18.39dBm; IEEE 802.11g: 21.28dBm; IEEE 802.11n(HT20): 21.66dBm; IEEE 802.11n(HT40): 20.97dBm
Output Power (MIMO-Average)	IEEE 802.11n(HT20): 14.84dBm; IEEE 802.11n(HT40): 14.87dBm
Output Power (MIMO-Peak)	IEEE 802.11n(HT20): 24.44dBm; IEEE 802.11n(HT40): 23.85dBm
Modulation	802.11b:DSSS(DQPSK, DBPSK, CCK) 802.11g/n: OFDM(64-QAM, 16-QAM, QPSK, BPSK)
Data Rate	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps
Number of channels	11
Hardware Version	V110
Software Version	v3.3.0.256_23082520
Antenna Designation	SMA Antenna (Comply with requirements of the FCC part 15.203)
Antenna Gain	Refer to Chapter 2.9 of the report.
Number of transmit chain	2(802.11b/g/n all used two antennas, 802.11b/g support SISO, and 802.11n support MIMO)
Power Supply	DC 12V

2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency
2400~2483.5MHz	1	2412 MHz
	2	2417 MHz
	3	2422 MHz
	4	2427 MHz
	5	2432 MHz
	6	2437 MHz
	7	2442 MHz
	8	2447 MHz
	9	2452 MHz
	10	2457 MHz
	11	2462 MHz

Note: For 20MHz bandwidth system use Channel 1 to Channel 11. For 40MHz bandwidth system use Channel 3 to Channel 9

2.3. IEEE 802.11N MODULATION SCHEME

MCS Index	Nss	Modulation	R	NBPSC	NCBPS		NDBPS		Data rate(Mbps)	
									800nsGI	
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0
6	1	64-QAM	3/4	6	312	648	234	489	58.5	121.5
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0

Symbol	Explanation
NSS	Number of spatial streams
R	Code rate
NBPSC	Number of coded bits per single carrier
NCBPS	Number of coded bits per symbol
NDBPS	Number of data bits per symbol
GI	Guard interval

2.4. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AYHE-2307A** filing to comply with the FCC Part 15 requirements.

2.5. TEST METHODOLOGY

KDB 558074 D01 15.247 Meas Guidance v05: Guidance for compliance measurements on Digital transmissio n system, frequency hopping spread spectrum system, and hybrid system devices operating under section 15.247 of the FCC rules
ANSI C63.10:2013: American National Standard for Testing Unlicensed Wireless Devices

2.6. SPECIAL ACCESSORIES

Refer to section 5.2.

2.7. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2.8. ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.

2.9. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna Type	Frequency Band (MHz)	TX Paths	Bandwidth (MHz)	Max Peak Gain (dBi)		Max Directional Gain (dBi)
				Ant 1	Ant 2	
2.4GWIFI SMA Antenna List (2.4GHz 2*2 MIMO)						
SMA Antenna	2400~2483.5	2	20, 40	3.95	3.95	6.96

Note 1: The EUT supports Cyclic Delay Diversity (CDD) technology for 802.11n/ax mode.

Note 2: The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

If all antennas have the same gain, G_{ANT}, Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on devices:

  Array Gain = 10 log (N_{ANT}/ N_{SS}) dB = 3.01;

- For power measurements on IEEE 802.1devices:

  Array Gain = 0 dB for $N_{ANT} \leq 4$;

  Array Gain = 0 dB (i.e., no array gain) for channel widths ≥40 MHz for any N_{ANT};

  Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less, for 20 MHz channel widths with $N_{ANT} \geq 5$.

If antenna gains are not equal, Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain..

2.10. DUTY CYCLE

2.4GHz WLAN (DTS) operation is possible in 20MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = Peak. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

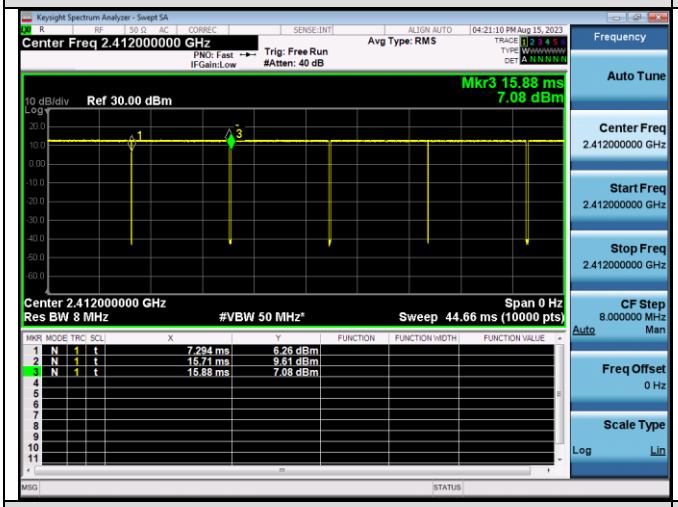
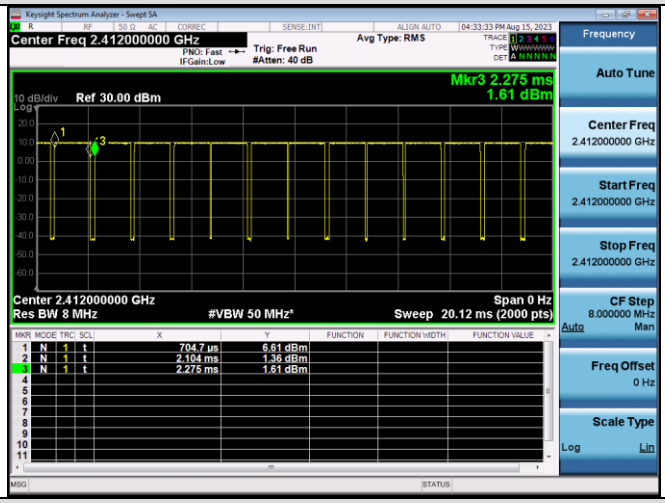
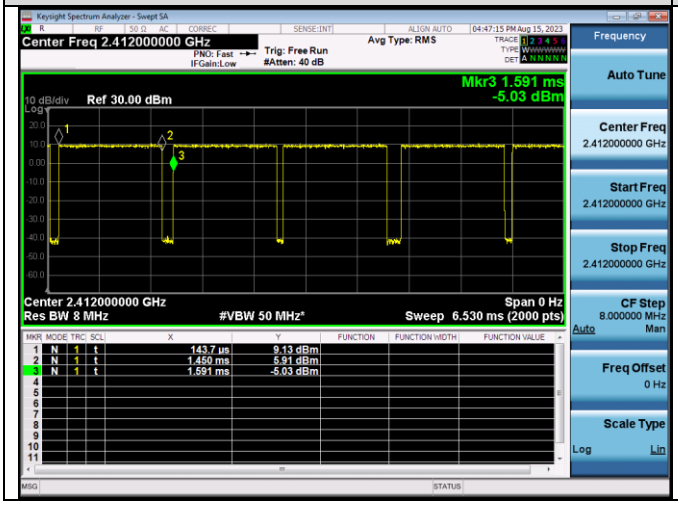
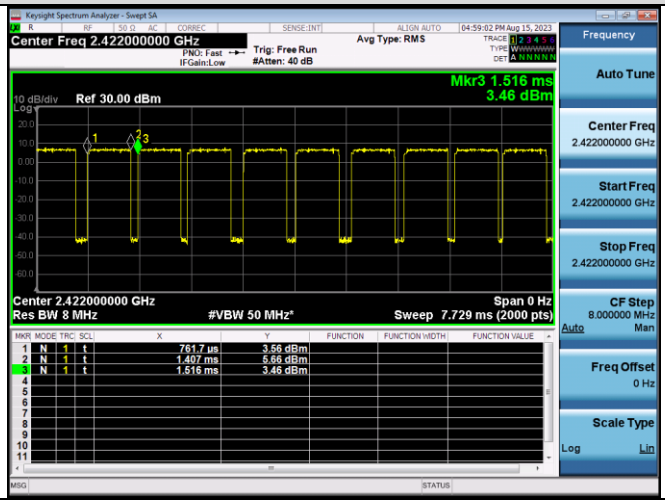
Operating mode	Data rates (Mbps)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/ T Minimum VBW (kHz)	Average Factor (dB)
IEEE 802.11b	1	98	0.09	0.12	-0.17
IEEE 802.11g	6	89	0.50	0.71	-1.00
IEEE 802.11n-HT20	MCS0	90	0.44	0.76	-0.89
IEEE 802.11n-HT40	MCS0	85	0.67	1.55	-1.34

Remark:

1. Duty Cycle factor = 10 * log (1/ Duty cycle) 2. Average factor = 20 log10 Duty Cycle

The duty cycle of each frequency band mode reflects the determination requirements of the low channel measurement value

The test plots as follows:

IEEE 802.11b	IEEE 802.11g
	
IEEE 802.11n-HT20	**IEEE 802.11n-HT40**
	

3. MEASUREMENT UNCERTAINTY

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%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	U_c = ±2.9 dB
Uncertainty of Radiated Emission below 1GHz	U_c = ±4.0 dB
Uncertainty of Radiated Emission above 1GHz	U_c = ±4.8 dB
Uncertainty of total RF power, conducted	U_c = ±0.8 dB
Uncertainty of RF power density, conducted	U_c = ±2.6 dB
Uncertainty of spurious emissions, conducted	U_c = ±2 %
Uncertainty of Occupied Channel Bandwidth	U_c = ±2 %

4. DESCRIPTION OF TEST MODES

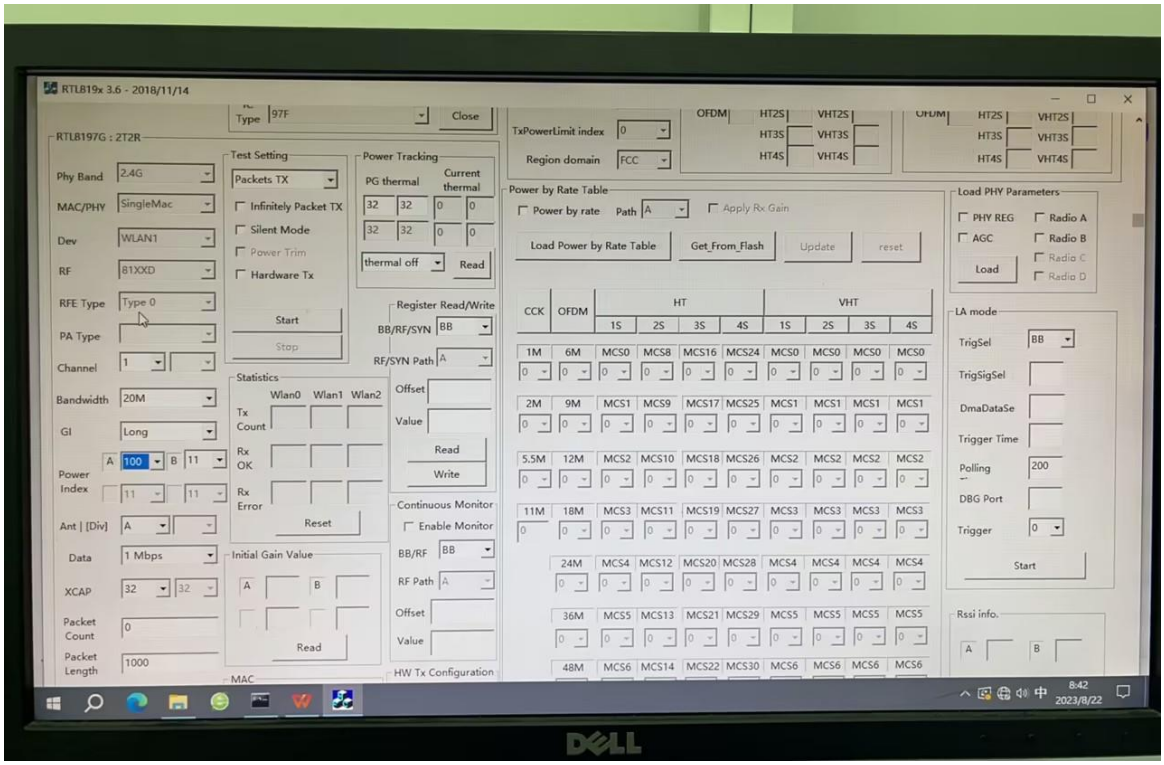
NO.	TEST MODE DESCRIPTION
1	Low channel transmitting (TX)
2	Middle channel transmitting (TX)
3	High channel transmitting (TX)

Note:
Transmit by 802.11b with Date rate (1/2/5.5/11)
Transmit by 802.11g with Date rate (6/9/12/18/24/36/48/54)
Transmit by 802.11n (20MHz) with Date rate (6.5/13/19.5/26/39/52/58.5/65)
Transmit by 802.11n (40MHz) with Date rate (13.5/27/40.5/54/81/108/121.5/135)
The test channel for 20MHz bandwidth system is channel 1, 6 and 11.
The test channel for 40MHz bandwidth system is channel 3, 6 and 9.

Note:

1. The EUT has been set to operate continuously on the lowest, middle and highest operation frequency Individually, and the EUT is operating at its maximum duty cycle.
   All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.
2. All radiated spurious emission and conducted interference modes have been pre scanned, and the report only records that antenna 1+antenna 2 work in the worst mode.

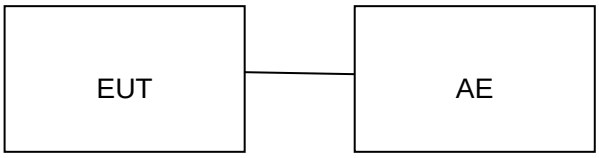
Software Setting



5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure:



5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Network Video Recorder	RLN12W	2AYHE-2307A	EUT
2	Adapter	DCT24W120200US-A0	Input: AC 100-240V 50/60Hz, 0.7A Max Output: DC 12V 2.0A	AE

5.3. SUMMARY OF TEST RESULTS

Item	FCC Rules	Description Of Test	Result
1	§15.203&15.247(b)(4)	Antenna Equipment	Pass
2	§15.247 (b)(1)	RF Output Power	Pass
3	§15.247 (a)(1)	6 dB Bandwidth	Pass
4	§15.247 (e)	Power Spectral Density	Pass
4	§15.247 (d)	Conducted Spurious Emission	Pass
5	§15.209	Radiated Emission& Band Edge	Pass
6	§15.207	AC Power Line Conducted Emission	Pass

6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Designation Number	CN1259
FCC Test Firm Registration Number	975832
A2LA Cert. No.	5054.02
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by A2LA

TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	Jun. 03, 2023	Jun. 02, 2024
LISN	R&S	ESH2-Z5	100086	Jun. 03, 2023	Jun. 02, 2024
Attenuator	Dongfang Xupu	LM-XX-6-5W	N/A	Jun. 09, 2023	Jun. 08, 2024
Test software	R&S	Ver.V1.71	N/A	N/A	N/A

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Feb. 18, 2023	Feb. 17, 2024
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Jun. 01, 2023	May 31, 2024
Power meter	R&S	NRVD	8323781027	Mar. 24 2023	Mar. 23 2025
2.4GHz Filter	EM Electronics	N/A	N/A	Mar. 18, 2022	Mar. 19, 2024
Attenuator	ZHINAN	E-002	N/A	Aug. 04, 2022	Aug. 03, 2024
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Oct. 31, 2021	Oct. 30, 2023
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	Mar. 12, 2022	Mar. 11, 2024
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2023	Apr. 22, 2024
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Sep. 01, 2022	Sep. 02, 2024
ANTENNA	SCHWARZBECK	VULB9168	VULB9168-494	Jan. 05, 2023	Jan. 04, 2025
Test software	Tonscend	Ver.2.5	N/A	N/A	N/A

7. RF OUTPUT POWER MEASUREMENT

7.1 Provisions Applicable

For DTSs employing digital modulation techniques operating in the bands 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W.

7.2 Measurement Procedure

☒Method PM is Measurement using an RF Peak power meter. The procedure for this method is as follows:

1. The testing follows the ANSI C63.10 Section 11.9.1.3
2. 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 use a fast-responding diode detector.

☒Method PM is Measurement using an RF average power meter. The procedure for this method is as follows:

1. The testing follows the ANSI C63.10 Section 11.9.2.3
2. Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:
3. The EUT is configured to transmit continuously, or to transmit with a constant duty cycle.
4. At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
5. The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
6. Determine according to the duty cycle of the equipment: when it is less than 98%, follow the steps below.
7. Measure the average power of the transmitter. This measurement is an average over both the ON and OFF periods of the transmitter.
8. Adjust the measurement in dBm by adding [10 log (1 / D)], where D is the duty cycle {e.g., [10 log (1 / 0.25)], if the duty cycle is 25%}.
9. Record the test results in the report.

7.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)

7.4. LIMITS AND MEASUREMENT RESULT

Test Data of Conducted Output Power-ANT 1					
Test Mode	Test Channel (MHz)	Average Power (dBm)	Peak Power (dBm)	Limits (dBm)	Pass or Fail
802.11b	2412	12.42	17.73	≤30	Pass
	2437	12.81	18.03	≤30	Pass
	2462	**14.12**	18.39	≤30	Pass
802.11g	2412	11.80	20.73	≤30	Pass
	2437	11.31	21.02	≤30	Pass
	2462	12.03	21.70	≤30	Pass
802.11n20	2412	11.55	20.65	≤30	Pass
	2437	11.40	20.94	≤30	Pass
	2462	11.94	21.66	≤30	Pass
802.11n40	2422	11.21	20.44	≤30	Pass
	2437	11.90	20.65	≤30	Pass
	2452	12.00	20.97	≤30	Pass

Test Data of Conducted Output Power-ANT 2					
Test Mode	Test Channel (MHz)	Average Power (dBm)	Peak Power (dBm)	Limits (dBm)	Pass or Fail
802.11b	2412	12.99	17.96	≤30	Pass
	2437	12.71	17.83	≤30	Pass
	2462	**13.95**	17.76	≤30	Pass
802.11g	2412	12.26	21.28	≤30	Pass
	2437	12.25	21.19	≤30	Pass
	2462	13.13	21.06	≤30	Pass
802.11n20	2412	12.10	21.21	≤30	Pass
	2437	12.13	21.14	≤30	Pass
	2462	11.62	21.18	≤30	Pass
802.11n40	2422	12.01	20.90	≤30	Pass
	2437	11.33	20.85	≤30	Pass
	2452	11.71	20.71	≤30	Pass

Test Data of Conducted Output Power-MIMO					
Test Mode	Test Channel (MHz)	Average Power (dBm)	Peak Power (dBm)	Limits (dBm)	Pass or Fail
802.11n20	2412	14.84	23.95	⩽30	Pass
	2437	14.79	24.05	⩽30	Pass
	2462	14.79	24.44	⩽30	Pass
802.11n40	2422	14.64	23.69	⩽30	Pass
	2437	14.63	23.76	⩽30	Pass
	2452	**14.87**	23.85	⩽30	Pass

8. 6DB BANDWIDTH MEASUREMENT

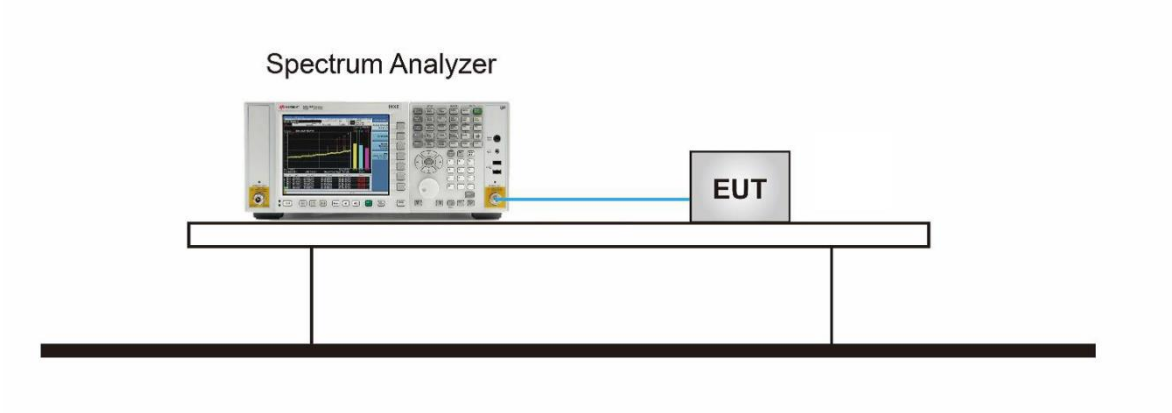
8.1 MEASUREMENT LIMITS

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

8.2 MEASUREMENT PROCEDURE

1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. For 6dB Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW) ≥ 3 * RBW.
6. Detector = peak
7. Trace mode = max hold.
8. Sweep = auto couple.
9. Allow the trace to stabilize.
10. Measure and record the results in the test report.

8.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)

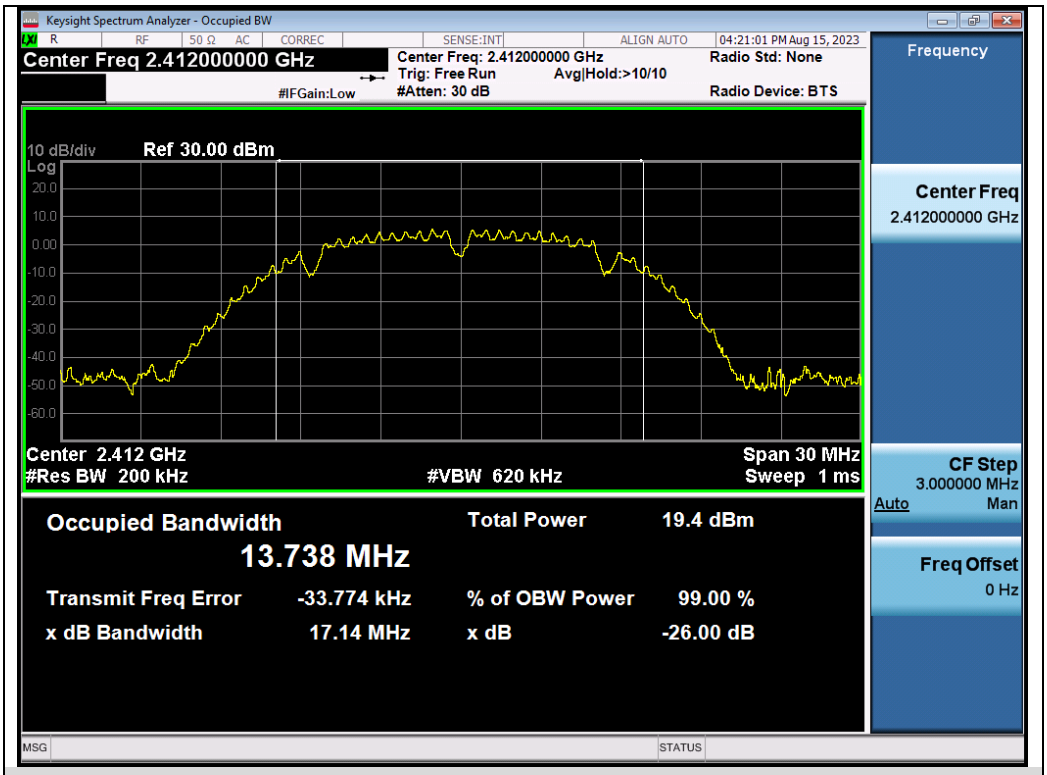


8.4. MEASUREMENT RESULTS

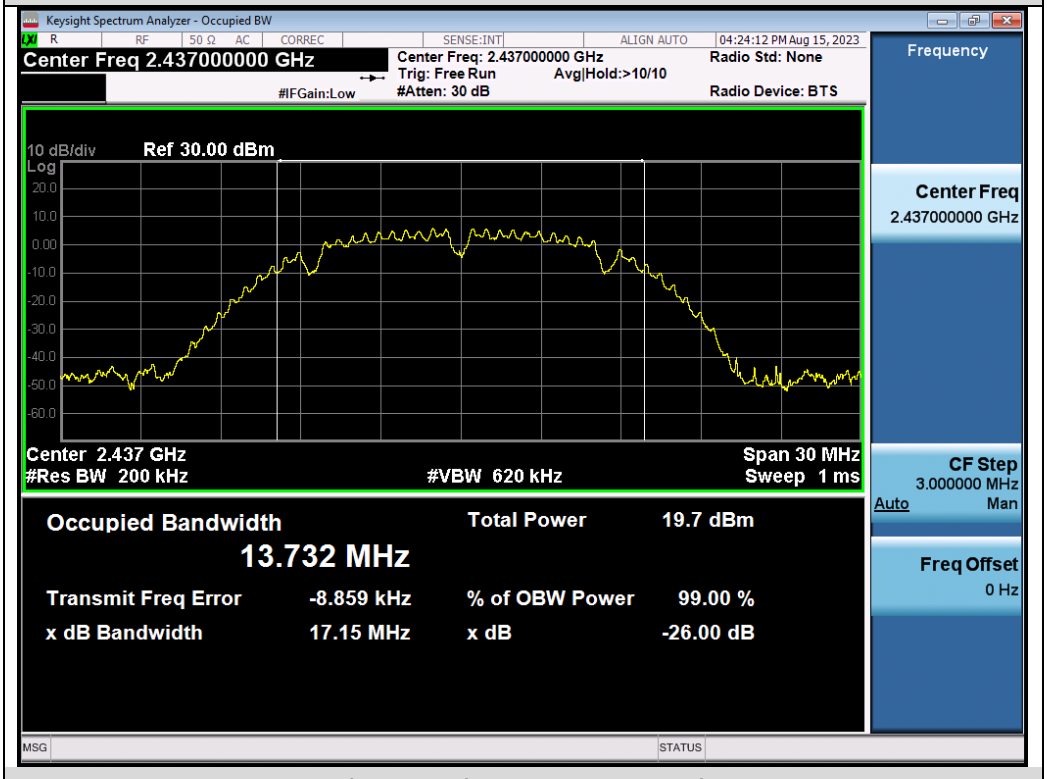
Test Data of Occupied Bandwidth and DTS Bandwidth-ANT 1					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	DTS Limits (MHz)	Pass or Fail
802.11b	2412	13.738	10.076	≥0.5	Pass
	2437	13.732	10.066	≥0.5	Pass
	2462	13.732	10.085	≥0.5	Pass
802.11g	2412	16.538	16.032	≥0.5	Pass
	2437	16.525	16.044	≥0.5	Pass
	2462	16.509	16.343	≥0.5	Pass
802.11n20	2412	17.662	17.271	≥0.5	Pass
	2437	17.686	17.557	≥0.5	Pass
	2462	17.669	17.294	≥0.5	Pass
802.11n40	2422	35.671	35.112	≥0.5	Pass
	2437	35.685	35.098	≥0.5	Pass
	2452	35.662	35.098	≥0.5	Pass

Test Data of Occupied Bandwidth and DTS Bandwidth-ANT 2					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	DTS Limits (MHz)	Pass or Fail
802.11b	2412	13.714	10.045	≥0.5	Pass
	2437	13.716	10.068	≥0.5	Pass
	2462	13.691	10.015	≥0.5	Pass
802.11g	2412	16.547	16.294	≥0.5	Pass
	2437	16.561	16.343	≥0.5	Pass
	2462	16.554	16.176	≥0.5	Pass
802.11n20	2412	17.653	17.267	≥0.5	Pass
	2437	17.656	17.547	≥0.5	Pass
	2462	17.658	17.300	≥0.5	Pass
802.11n40	2422	35.662	35.086	≥0.5	Pass
	2437	35.683	35.095	≥0.5	Pass
	2452	35.716	35.099	≥0.5	Pass

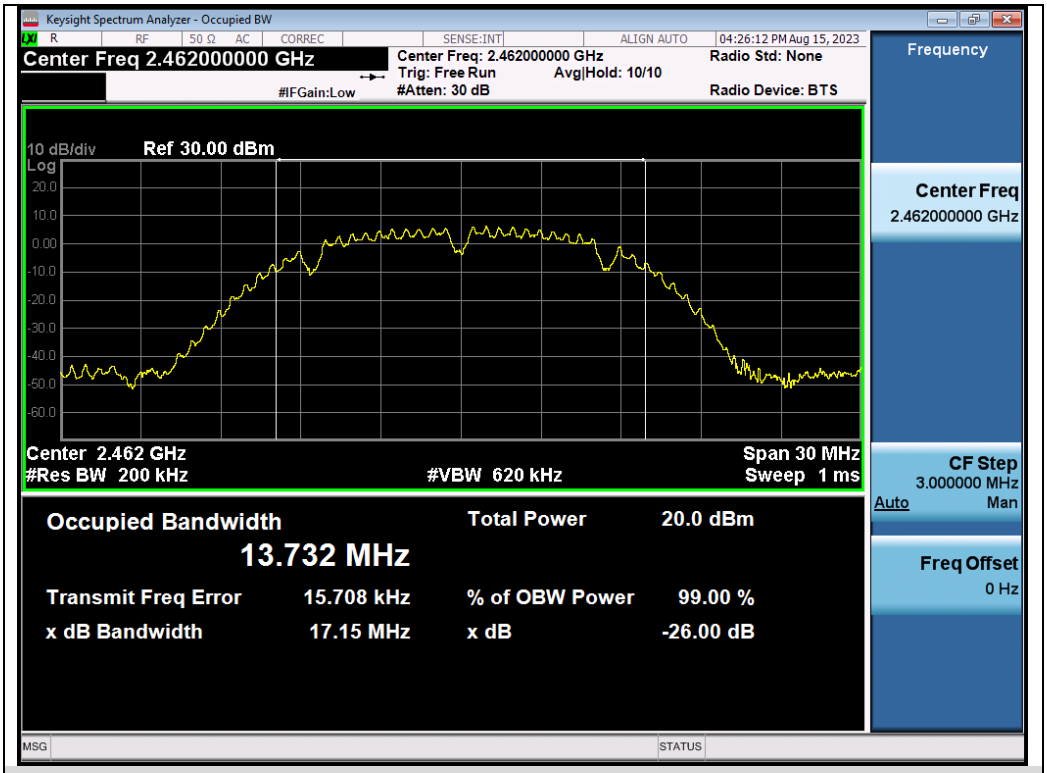
Test Graphs of Occupied Bandwidth



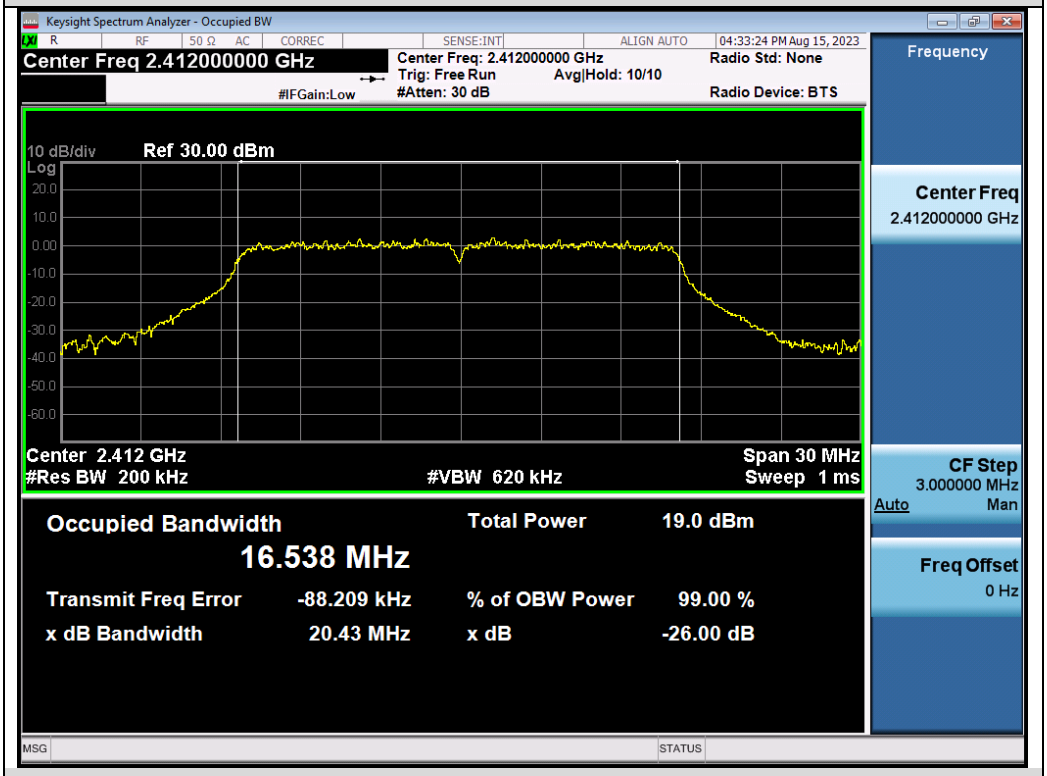
Test_Graph_802.11b_ANT1_2412_1Mbps_OBW



Test_Graph_802.11b_ANT1_2437_1Mbps_OBW



Test_Graph_802.11b_ANT1_2462_1Mbps_OBW



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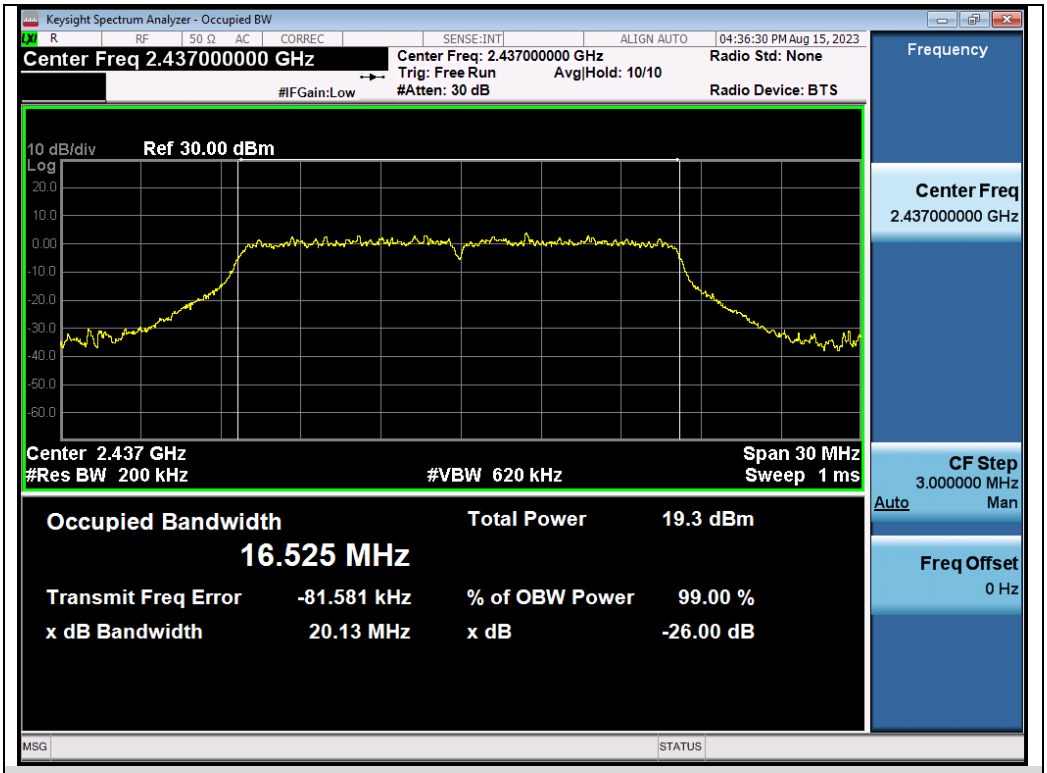
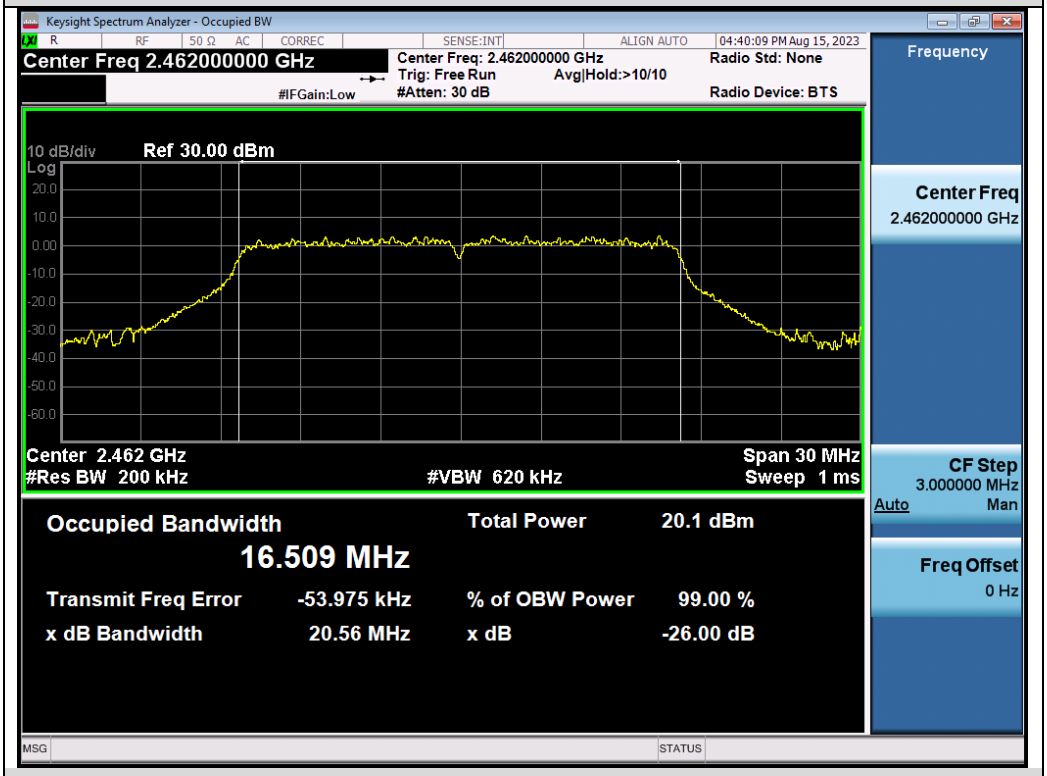
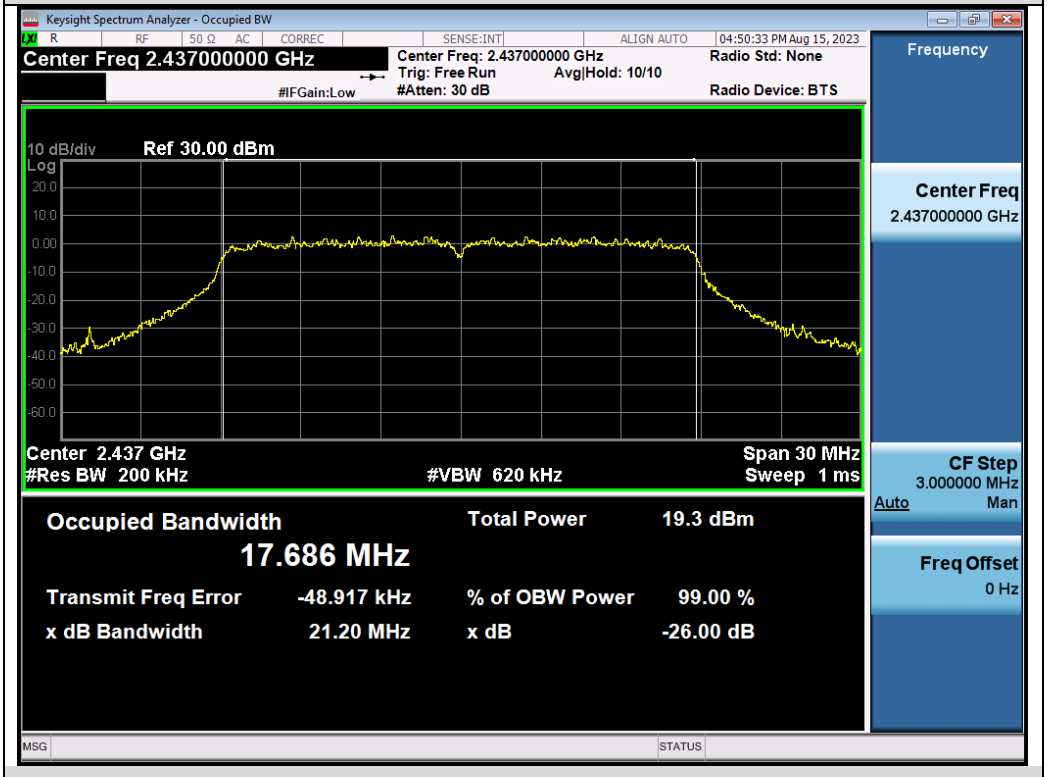


Test_Graph_802.11g_ANT1_2437_6Mbps_OBW

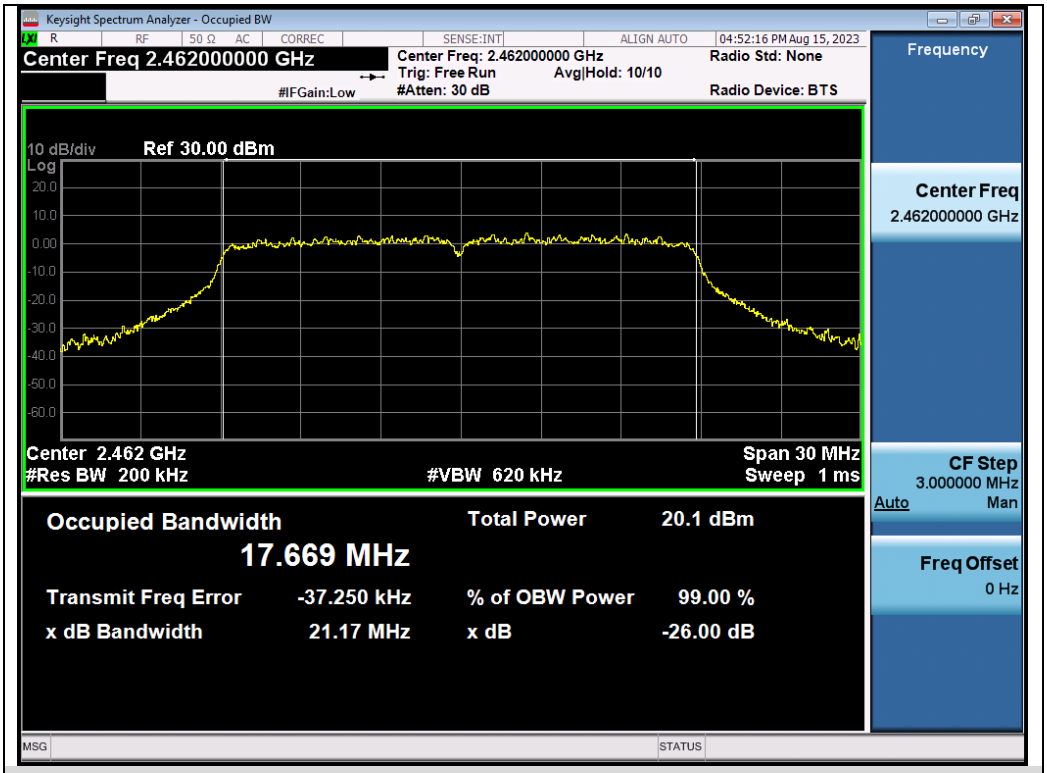


Test_Graph_802.11g_ANT1_2462_6Mbps_OBW

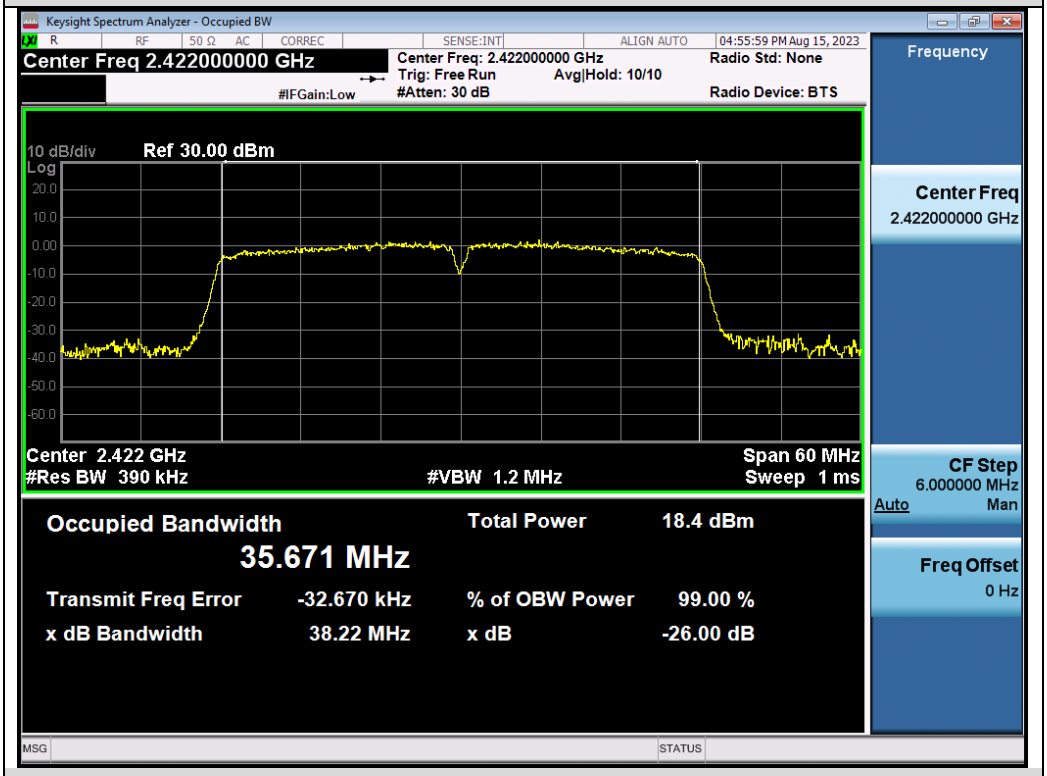
Test_Graph_802.11n20_ANT1_2412_MCS0_OBW



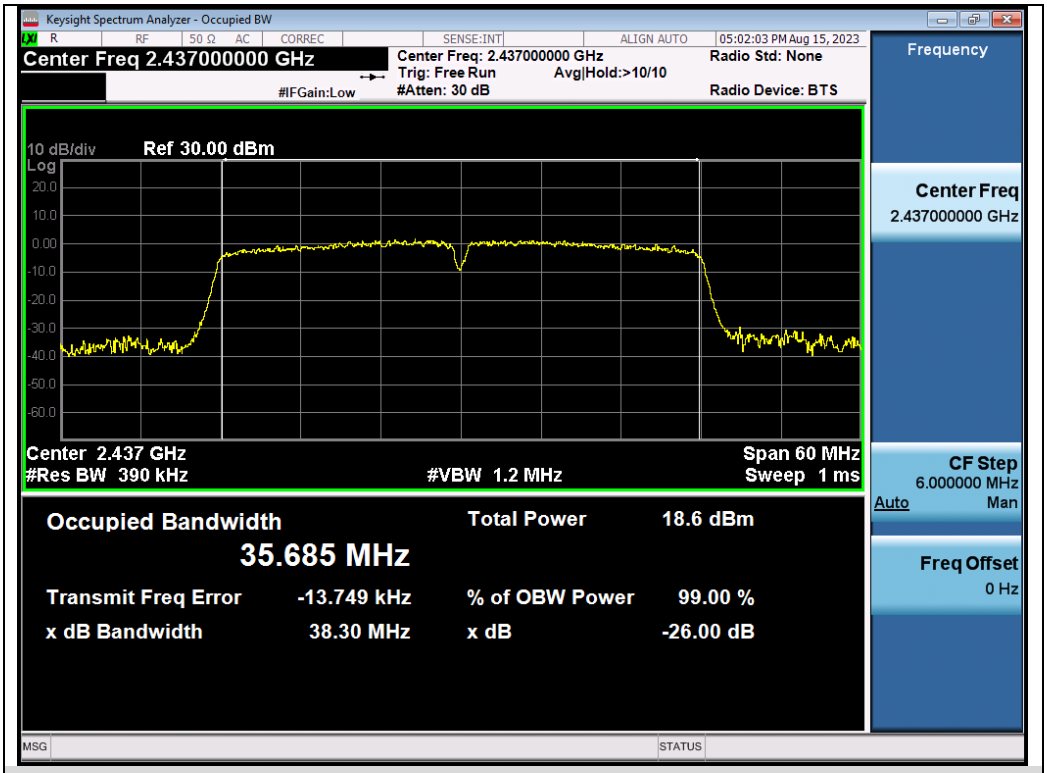
Test_Graph_802.11n20_ANT1_2437_MCS0_OBW



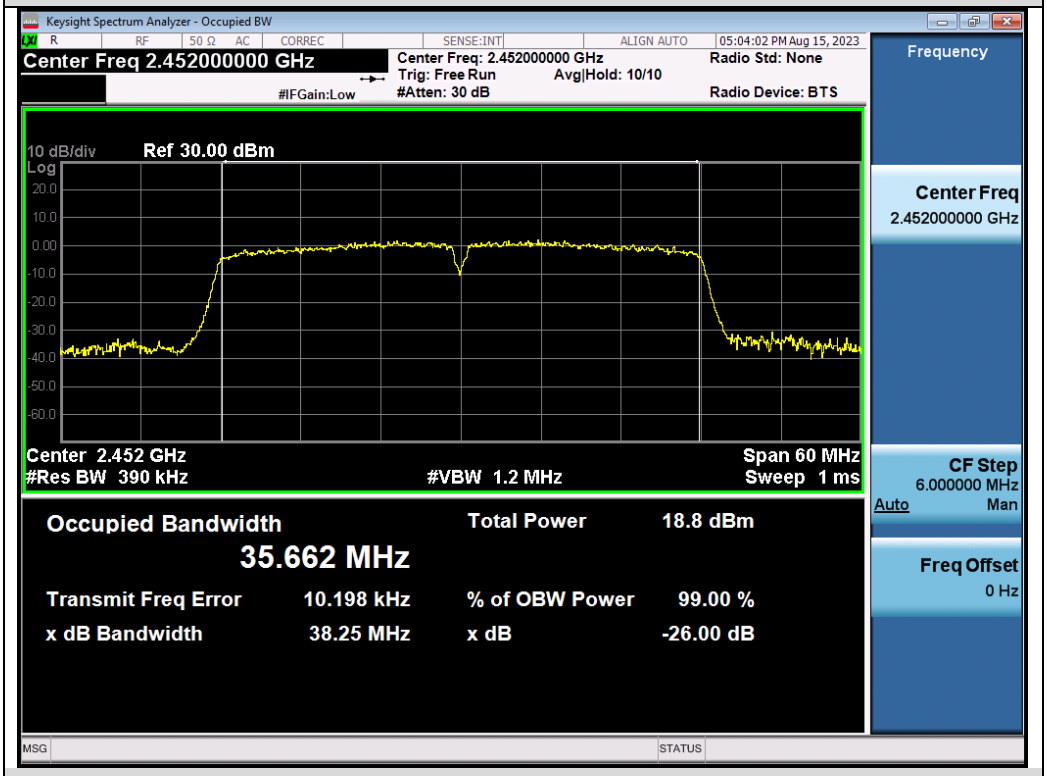
Test_Graph_802.11n20_ANT1_2462_MCS0_OBW



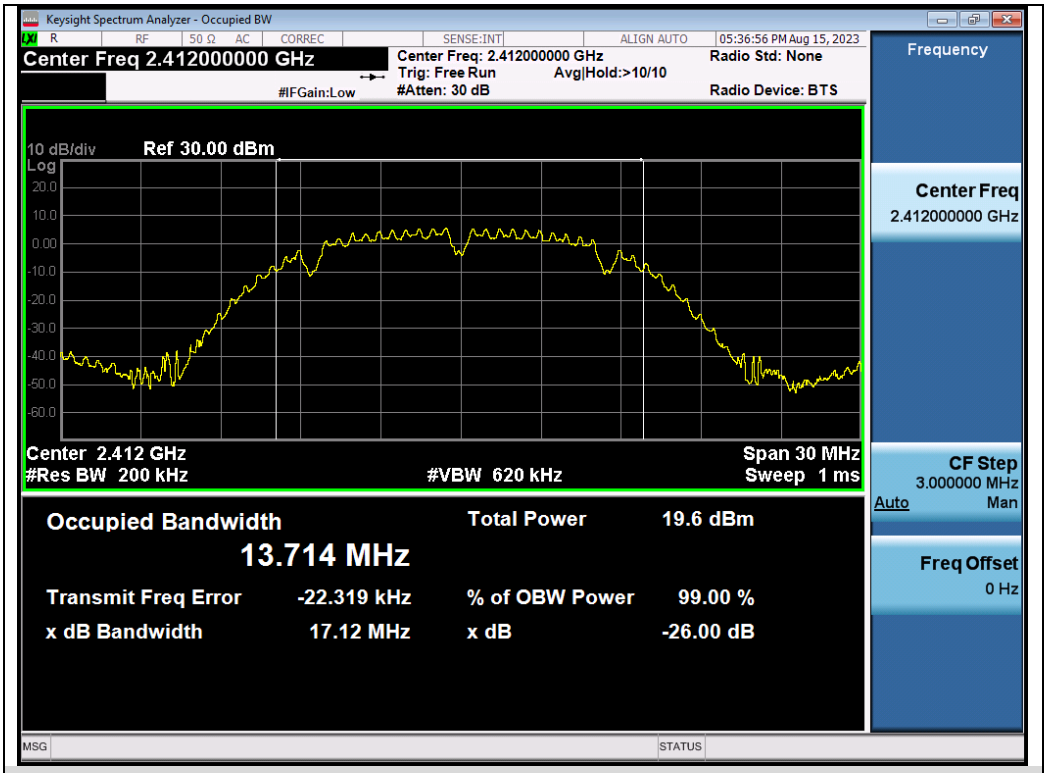
Test_Graph_802.11n40_ANT1_2422_MCS0_OBW



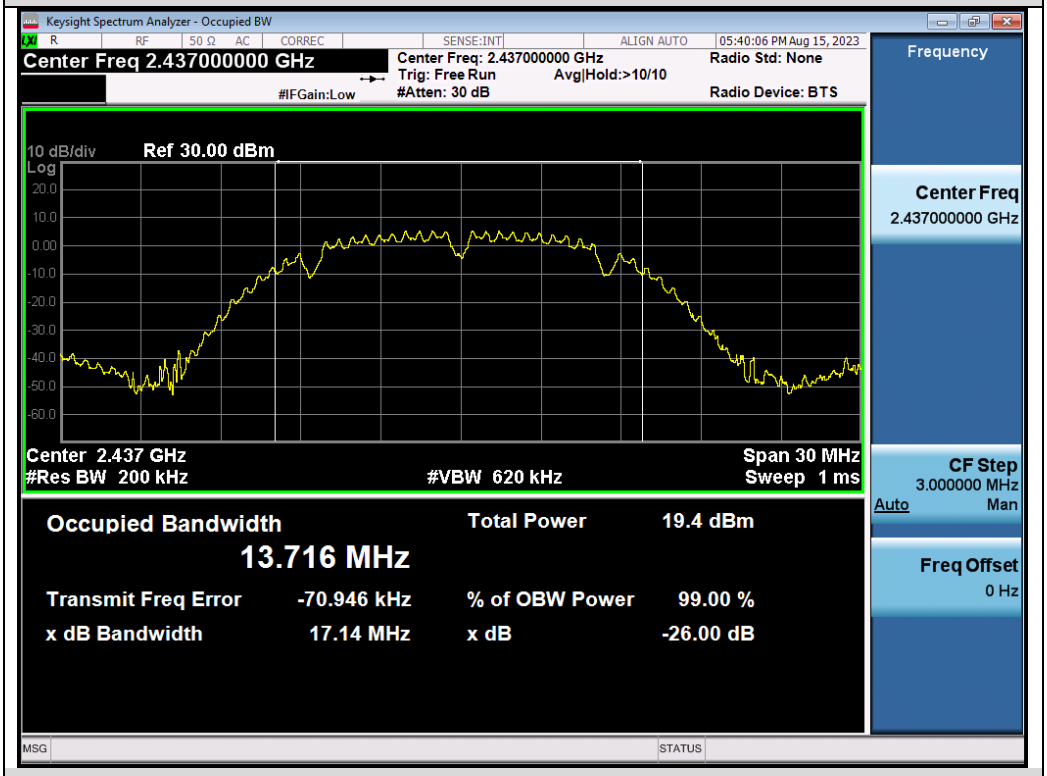
Test_Graph_802.11n40_ANT1_2437_MCS0_OBW



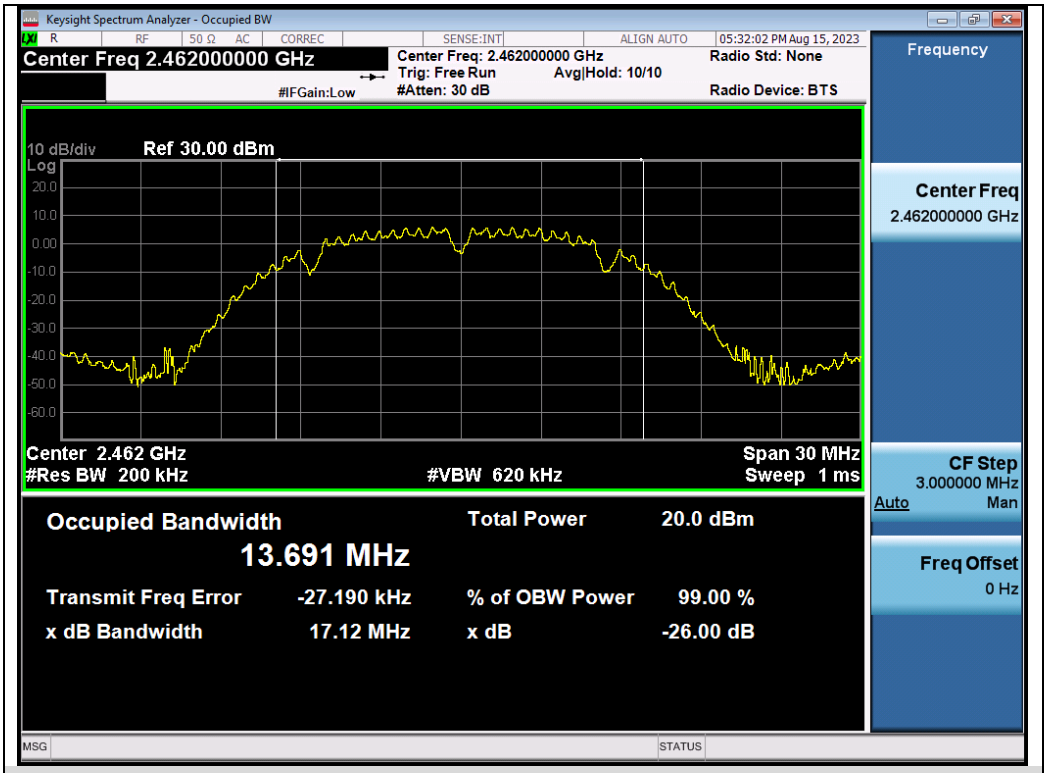
Test_Graph_802.11n40_ANT1_2452_MCS0_OBW



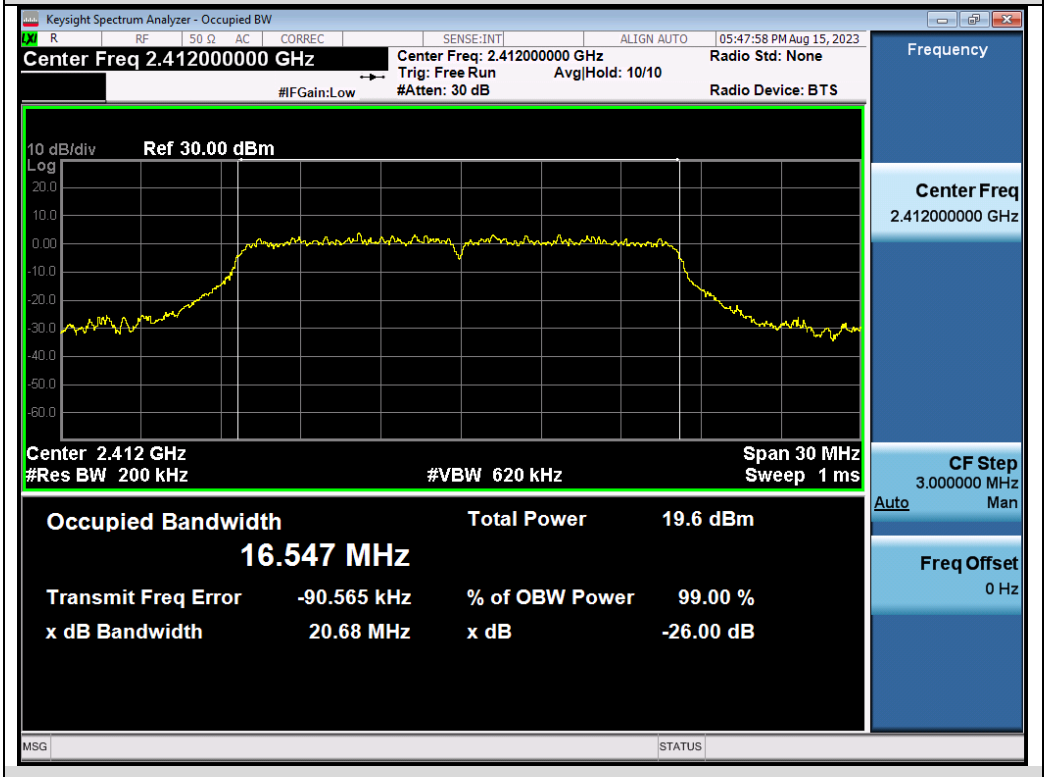
Test_Graph_802.11b_ANT2_2412_1Mbps_OBW



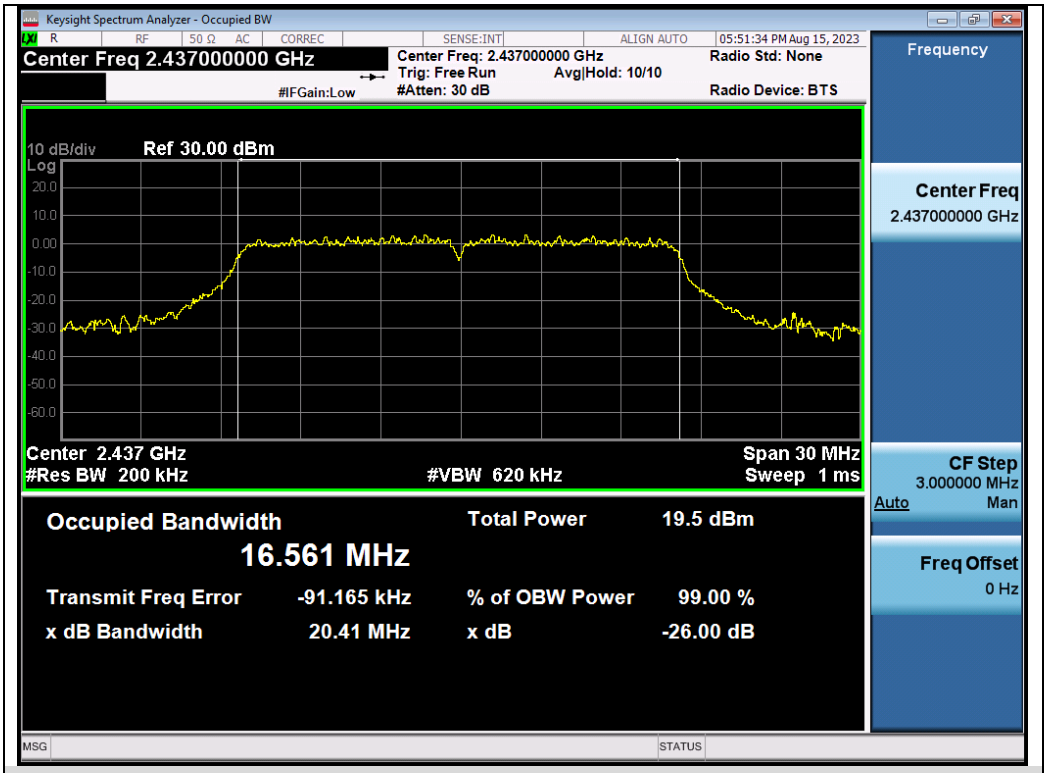
Test_Graph_802.11b_ANT2_2437_1Mbps_OBW



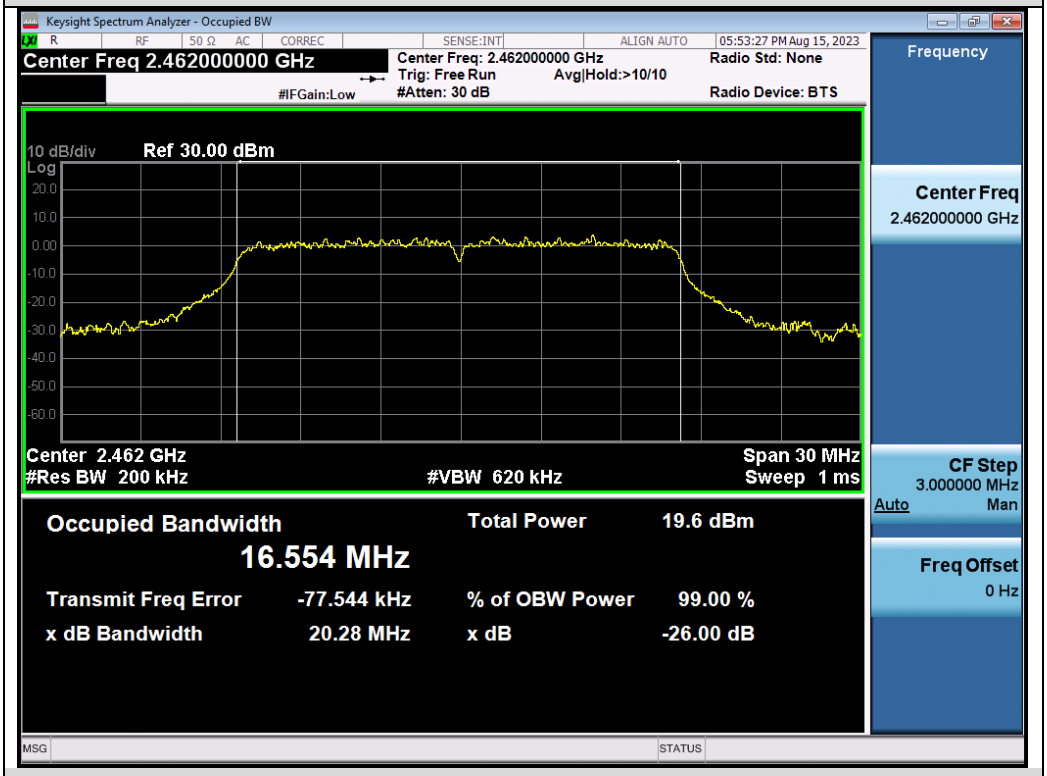
Test_Graph_802.11b_ANT2_2462_1Mbps_OBW



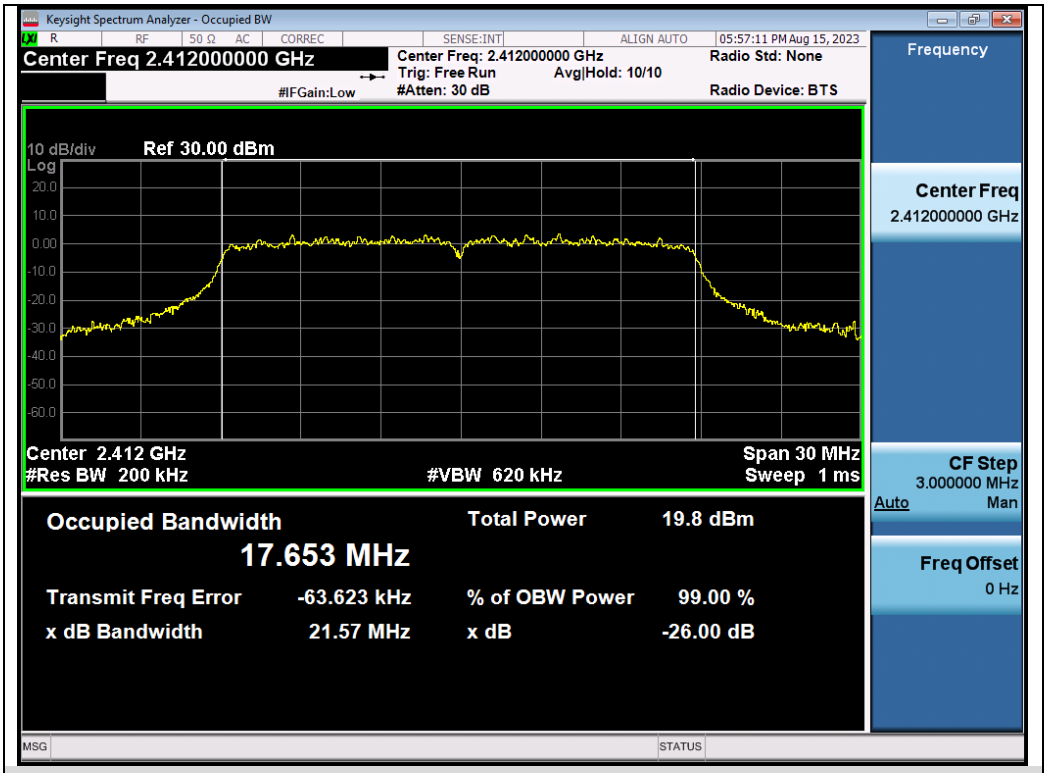
Test_Graph_802.11g_ANT2_2412_6Mbps_OBW



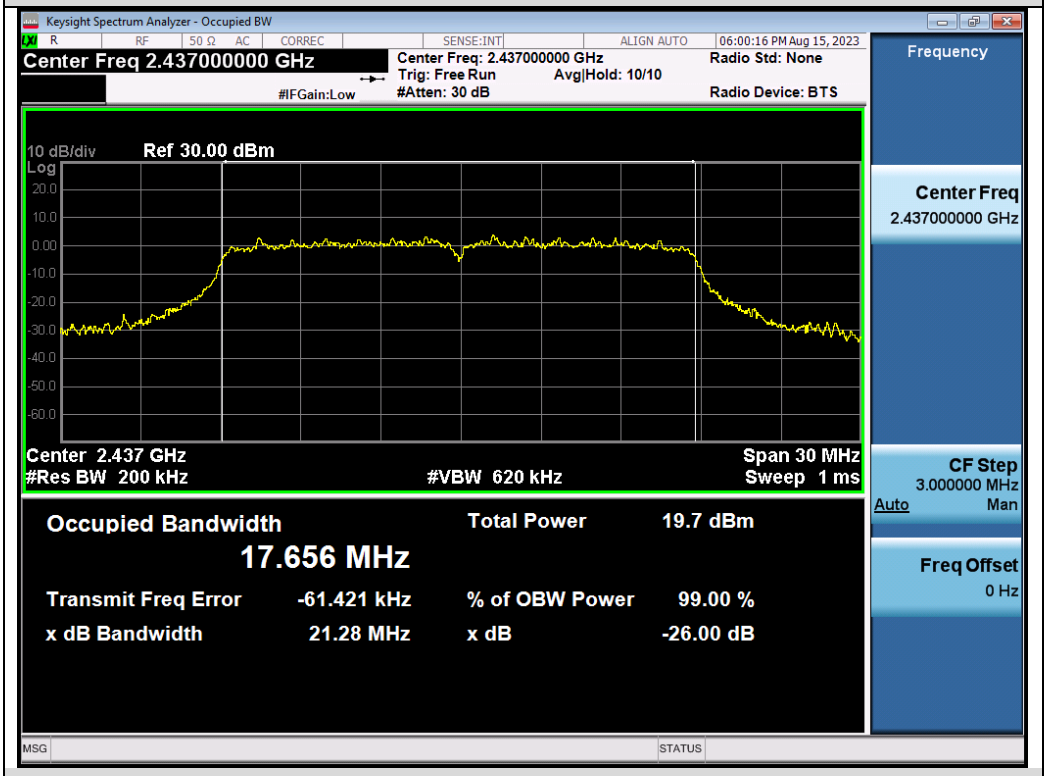
Test_Graph_802.11g_ANT2_2437_6Mbps_OBW



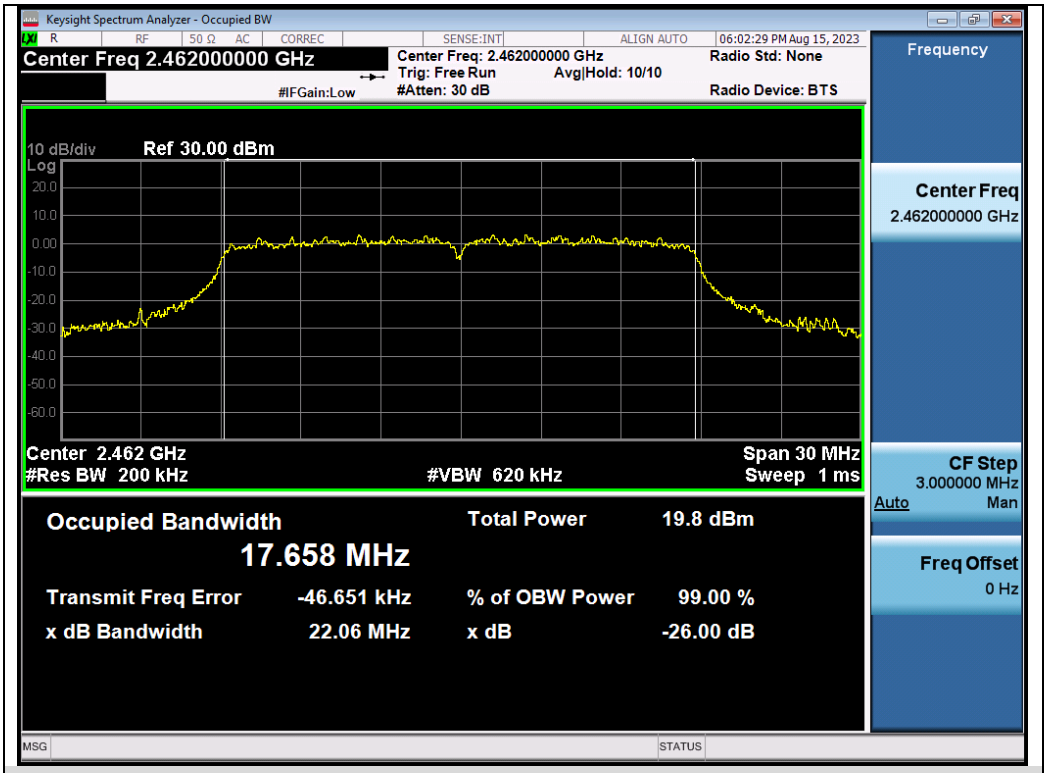
Test_Graph_802.11g_ANT2_2462_6Mbps_OBW



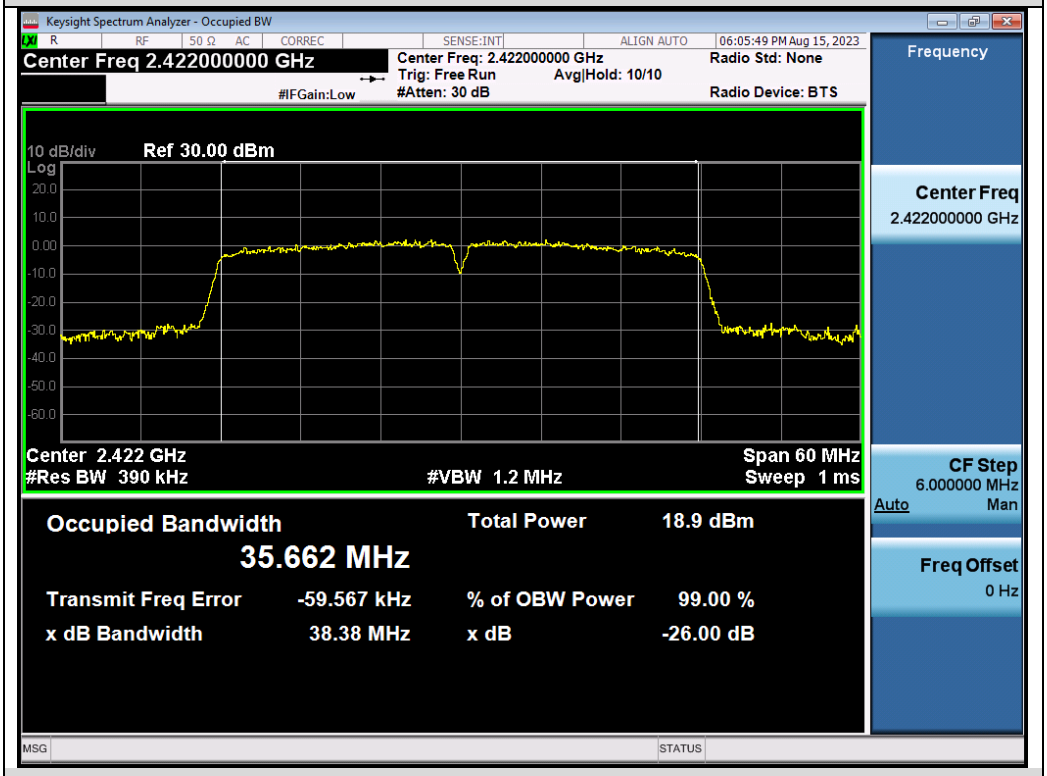
Test_Graph_802.11n20_ANT2_2412_MCS0_OBW



Test_Graph_802.11n20_ANT2_2437_MCS0_OBW

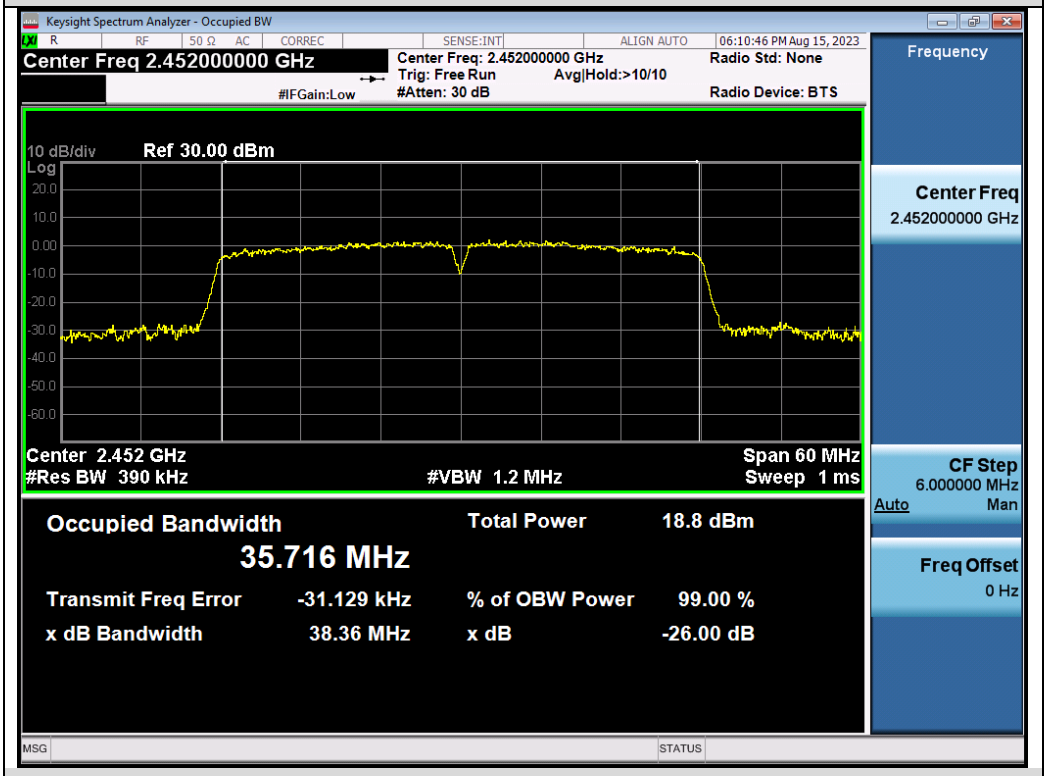


Test_Graph_802.11n20_ANT2_2462_MCS0_OBW



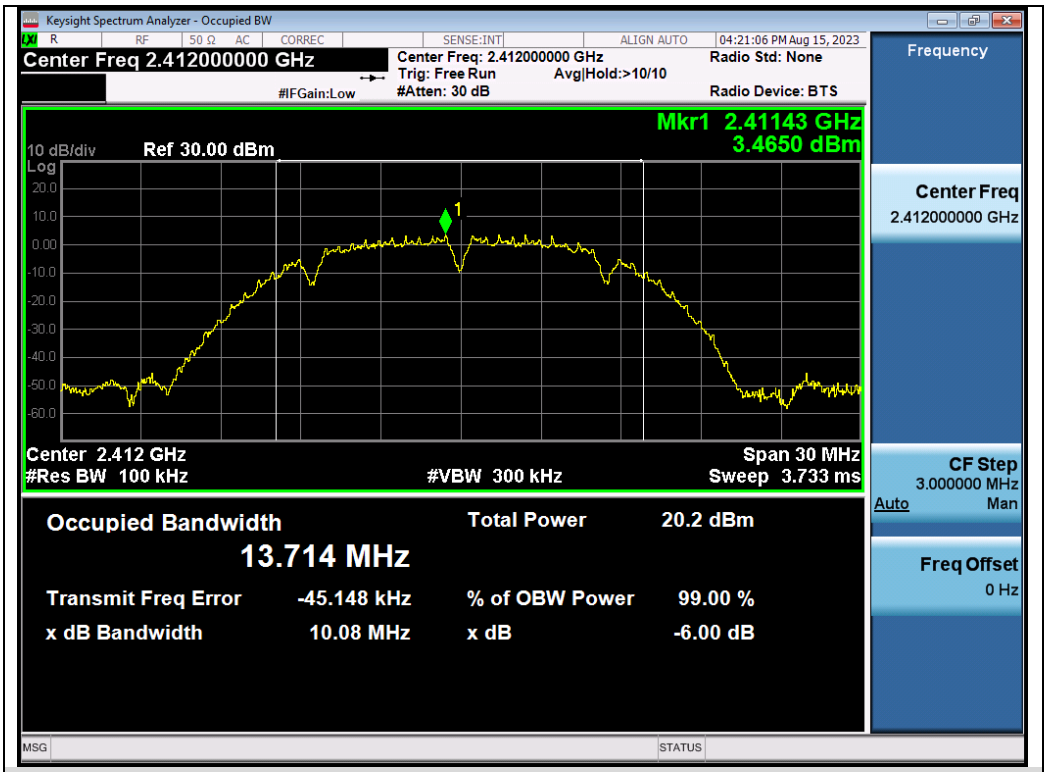
Test_Graph_802.11n40_ANT2_2422_MCS0_OBW

Test_Graph_802.11n40_ANT2_2437_MCS0_OBW

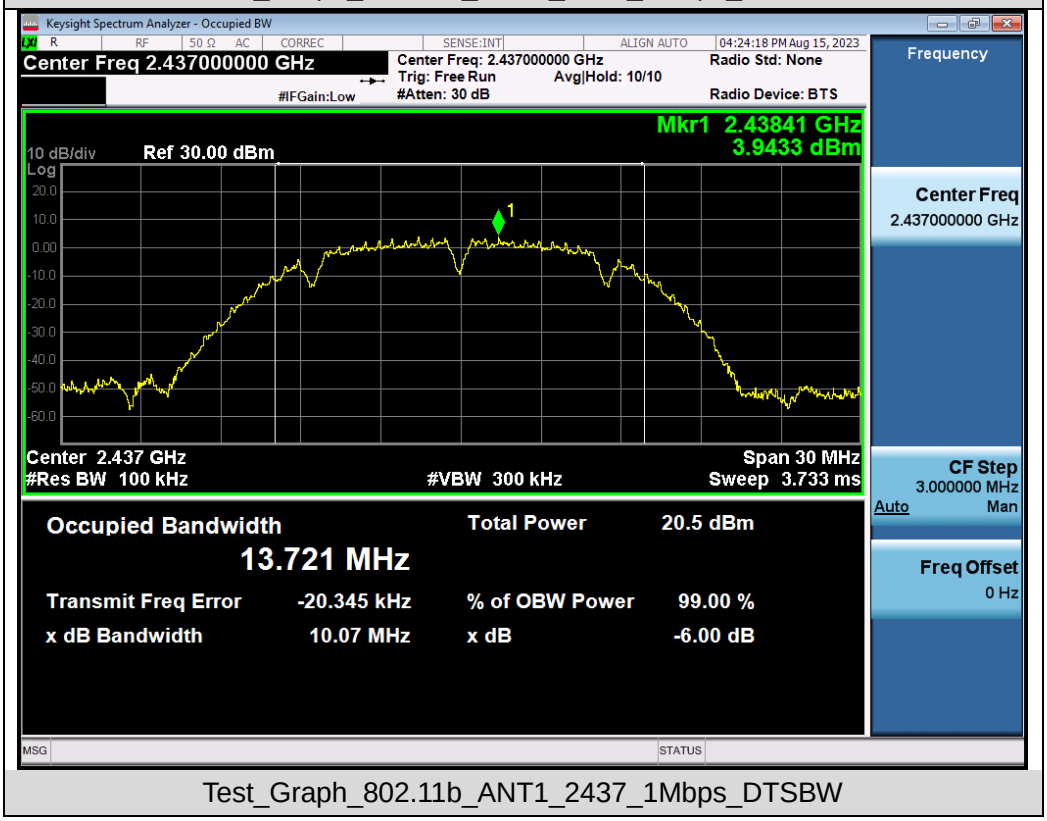


Test_Graph_802.11n40_ANT2_2452_MCS0_OBW

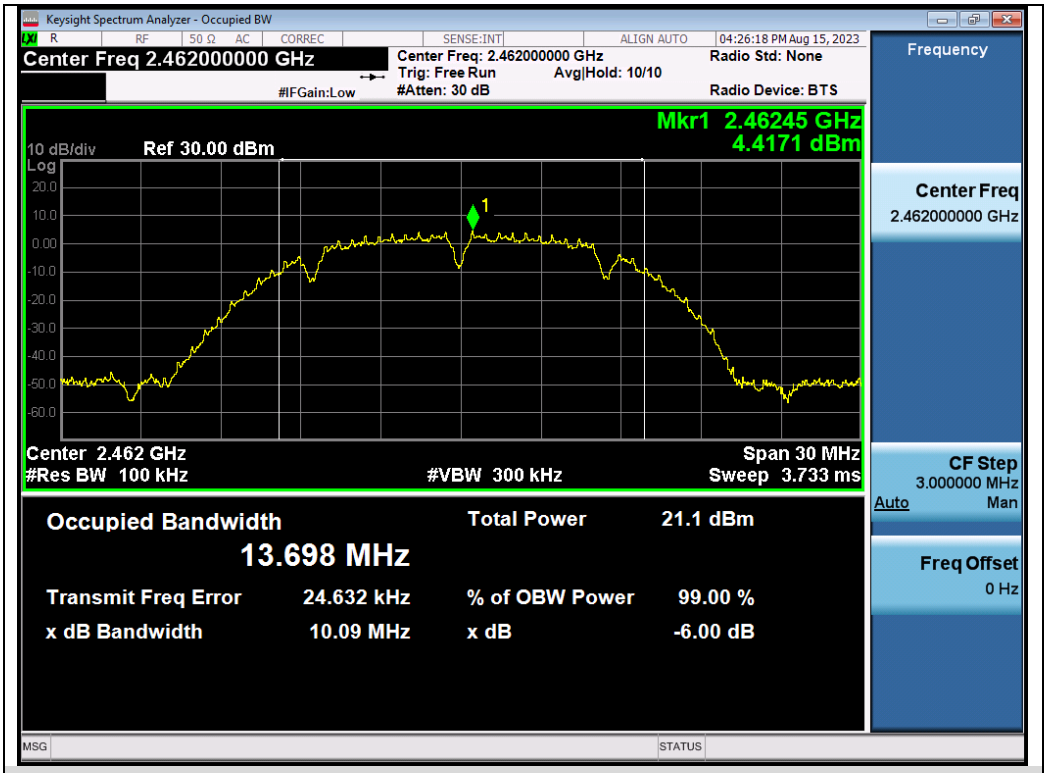
Test Graphs of DTS Bandwidth



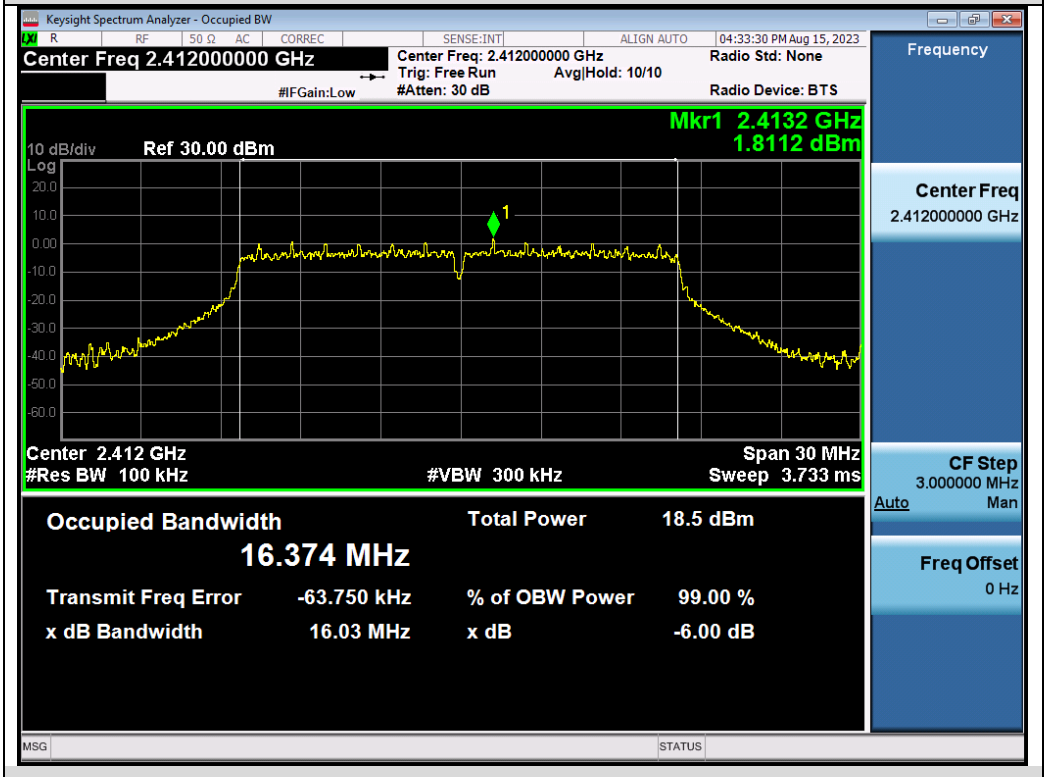
Test_Graph_802.11b_ANT1_2412_1Mbps_DTSBW



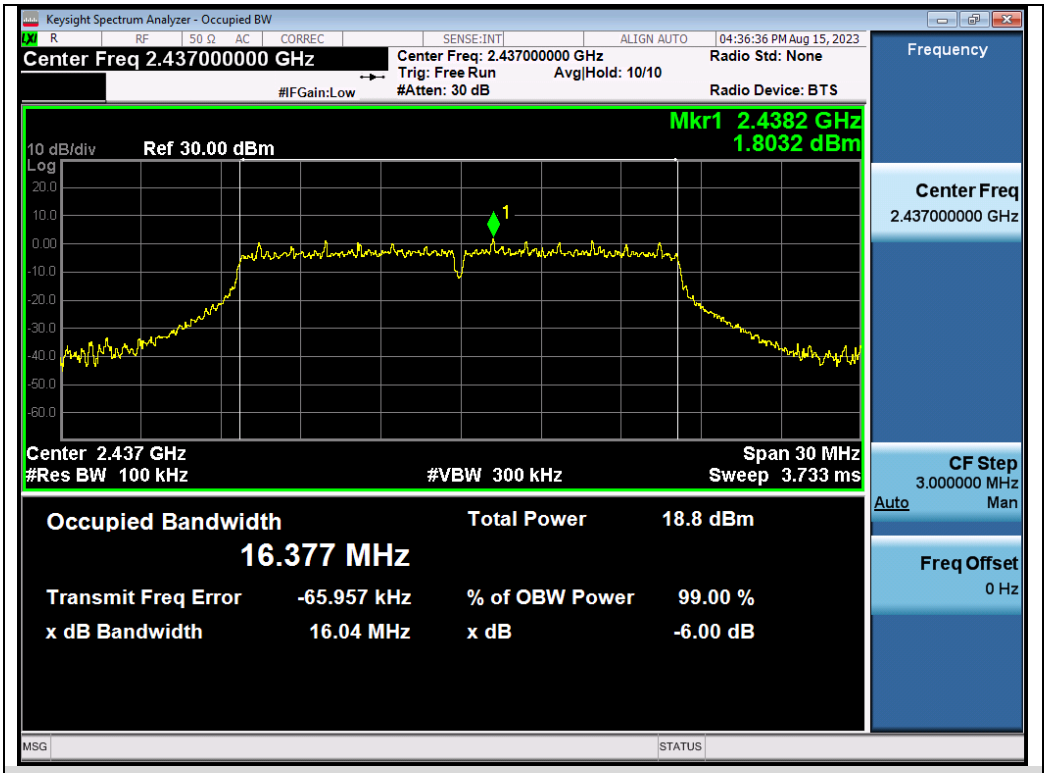
Test_Graph_802.11b_ANT1_2437_1Mbps_DTSBW



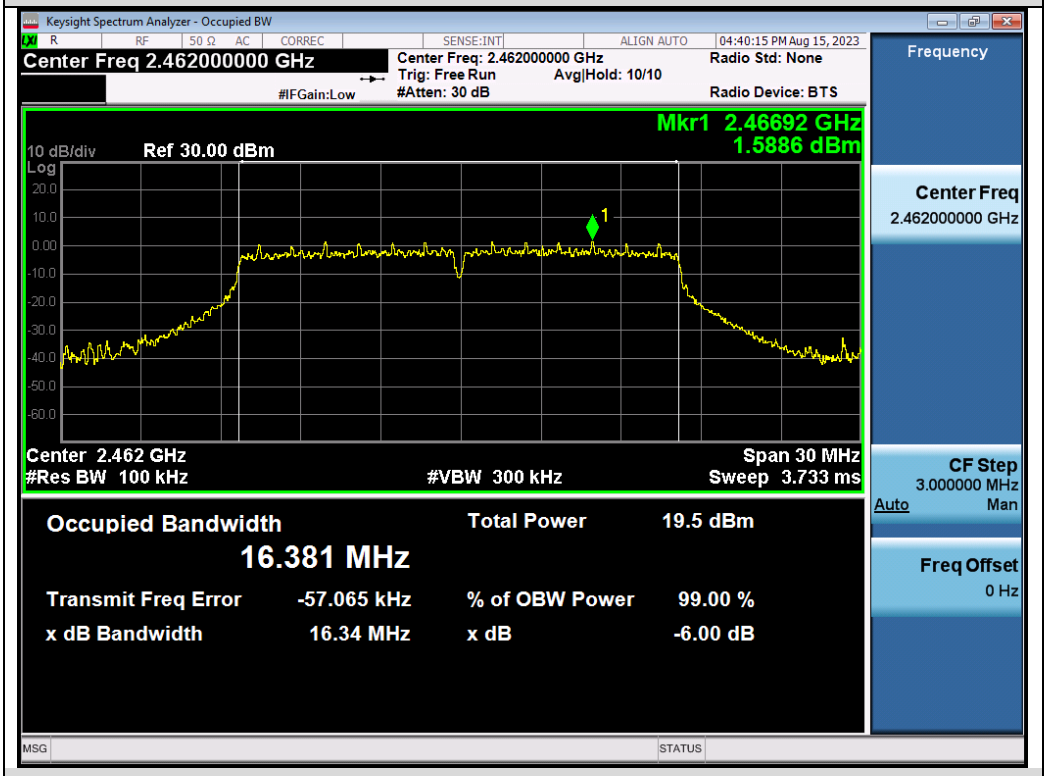
Test_Graph_802.11b_ANT1_2462_1Mbps_DTSBW



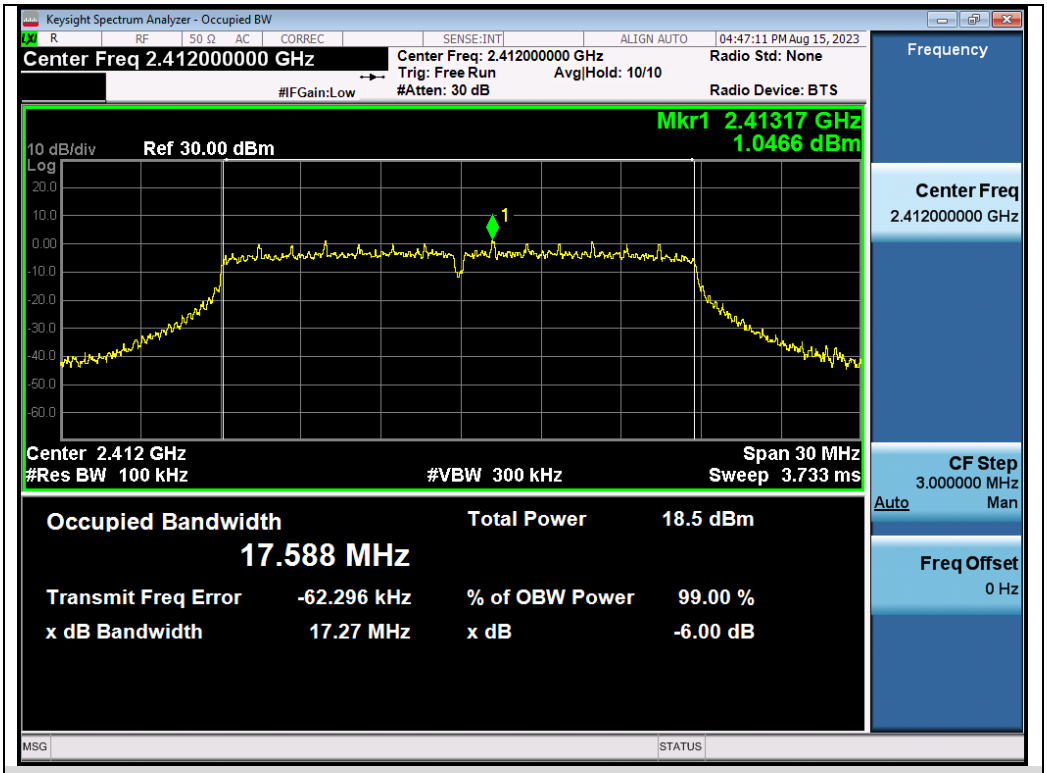
Test_Graph_802.11g_ANT1_2412_6Mbps_DTSBW



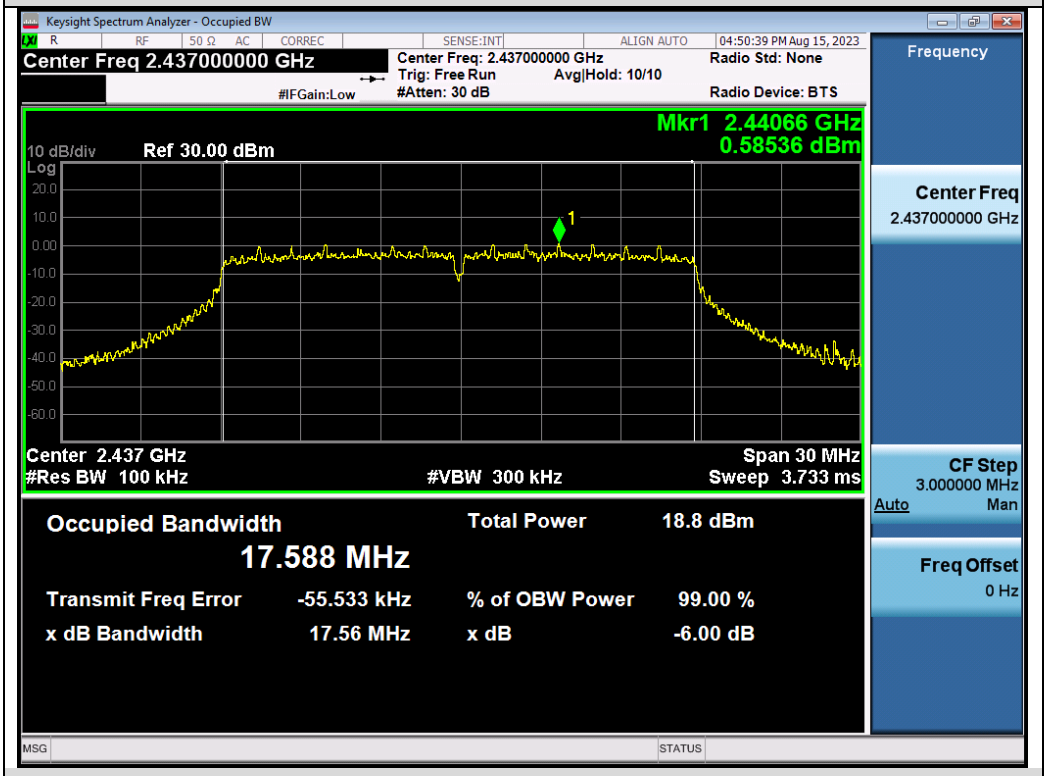
Test_Graph_802.11g_ANT1_2437_6Mbps_DTSBW



Test_Graph_802.11g_ANT1_2462_6Mbps_DTSBW

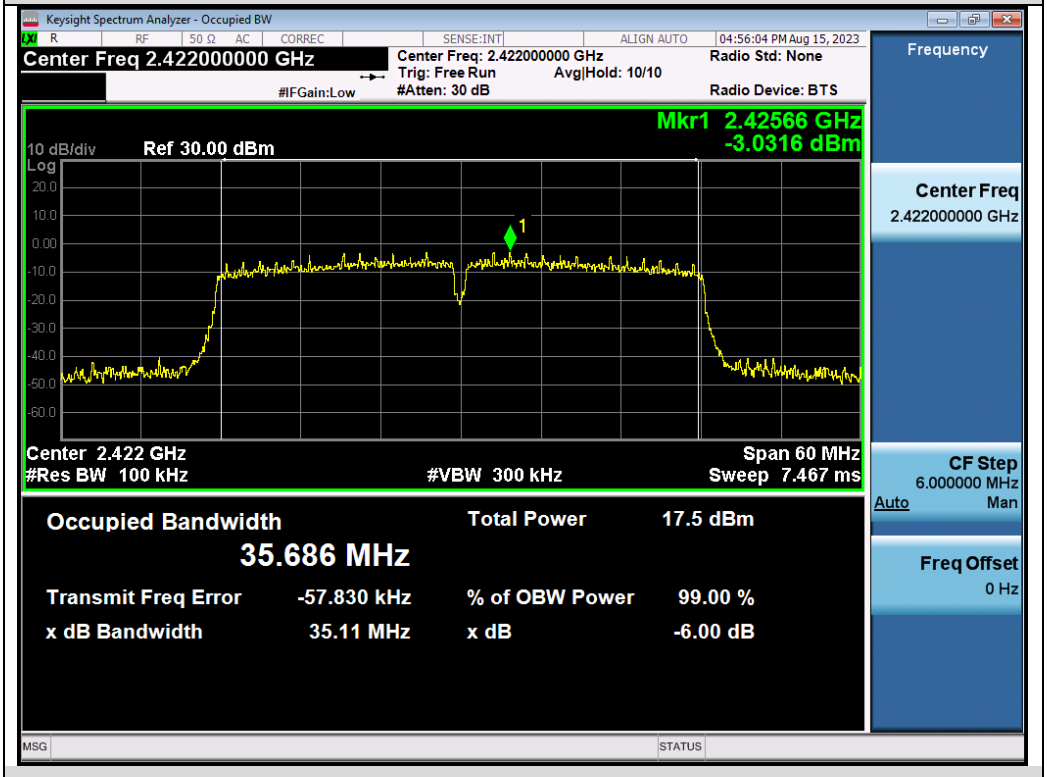


Test_Graph_802.11n20_ANT1_2412_MCS0_DTSBW

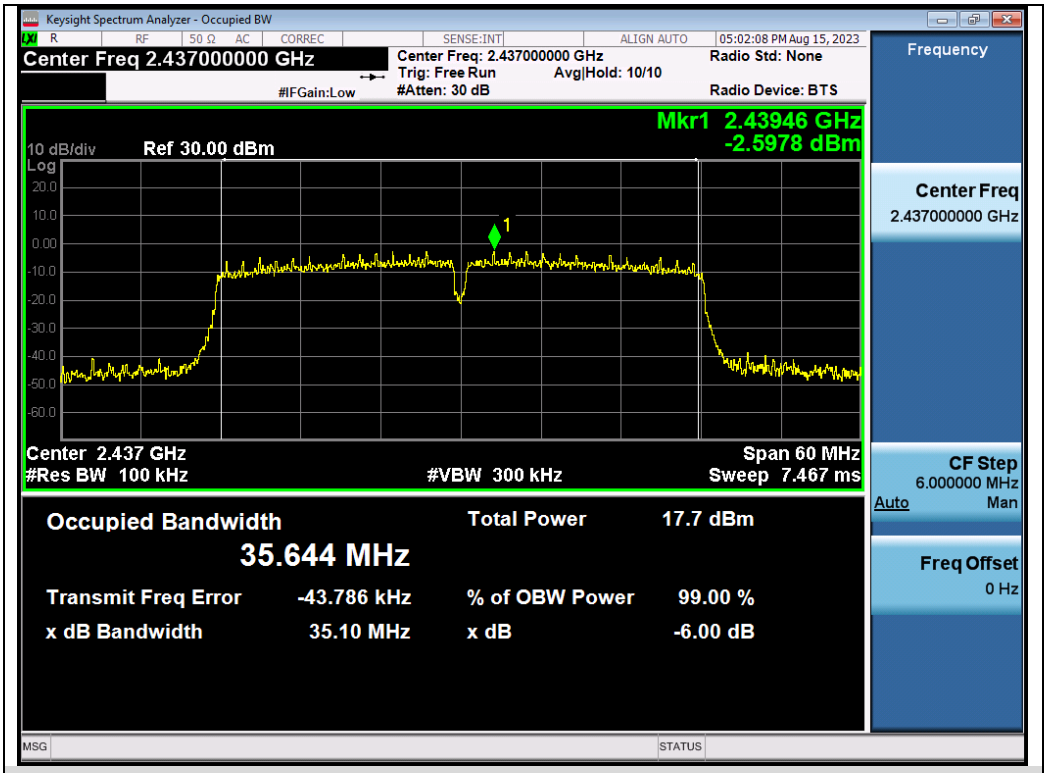


Test_Graph_802.11n20_ANT1_2437_MCS0_DTSBW

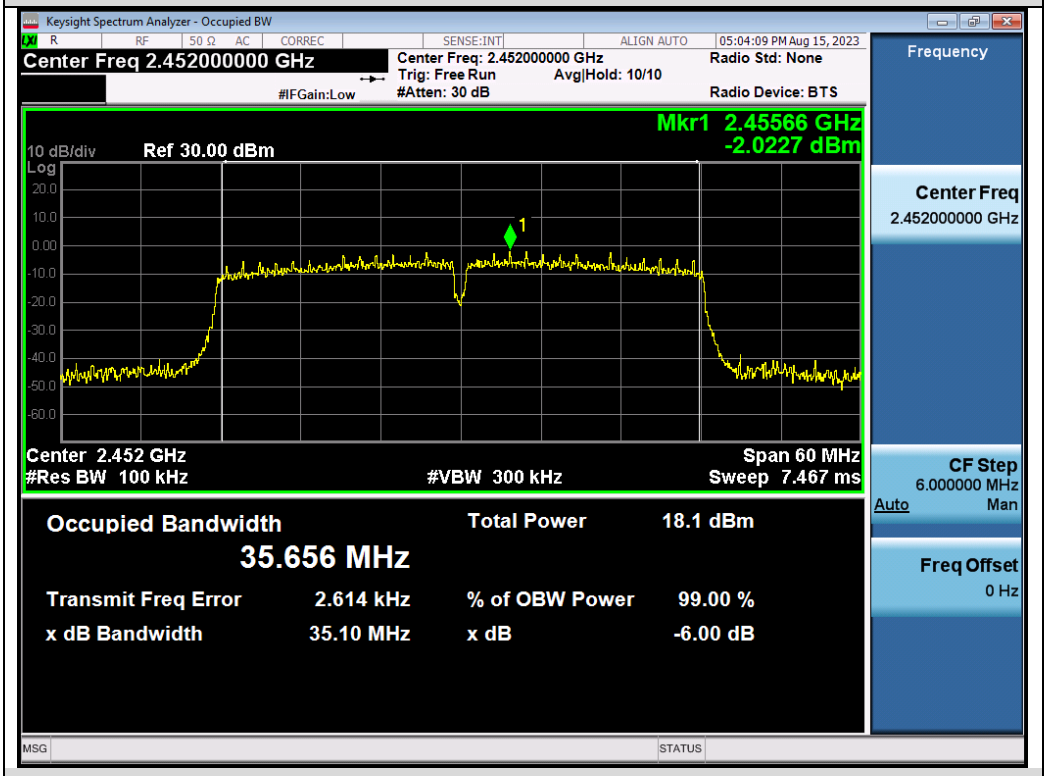
Test_Graph_802.11n20_ANT1_2462_MCS0_DTSBW



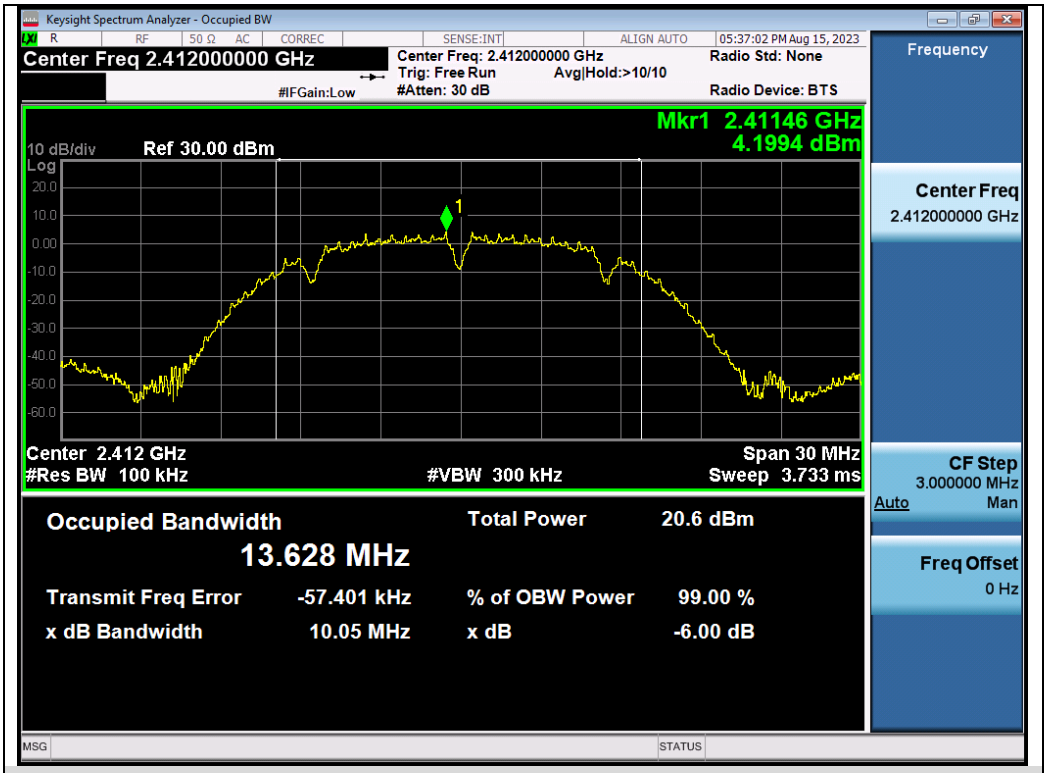
Test_Graph_802.11n40_ANT1_2422_MCS0_DTSBW



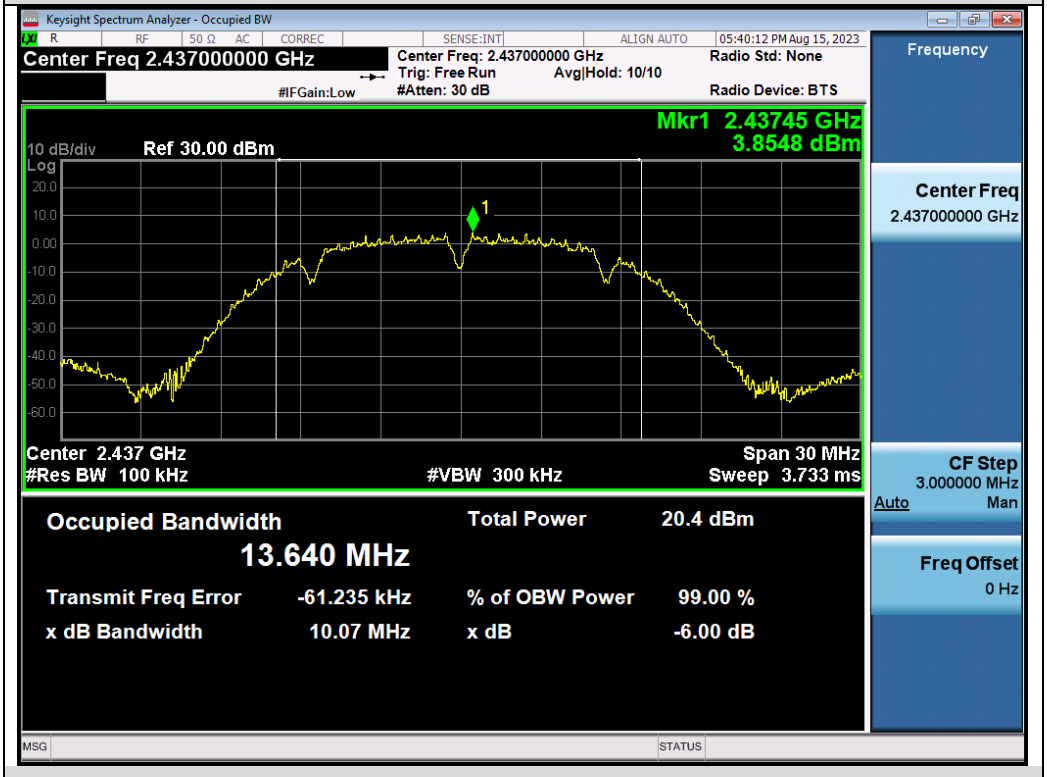
Test_Graph_802.11n40_ANT1_2437_MCS0_DTSBW



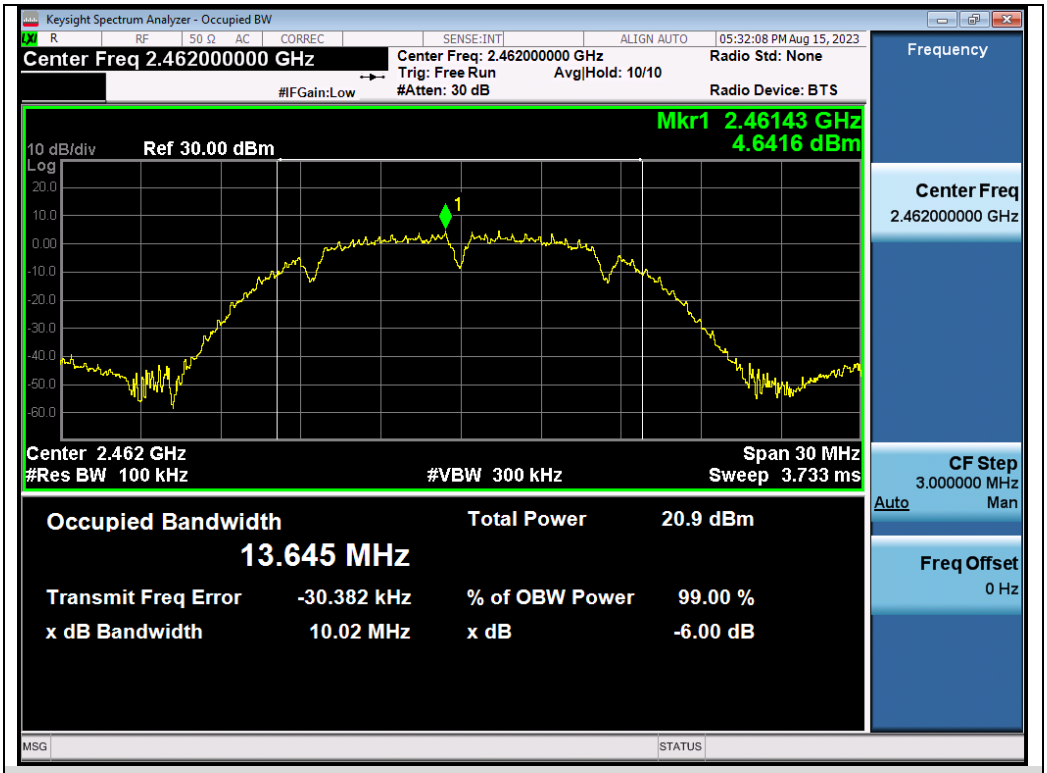
Test_Graph_802.11n40_ANT1_2452_MCS0_DTSBW



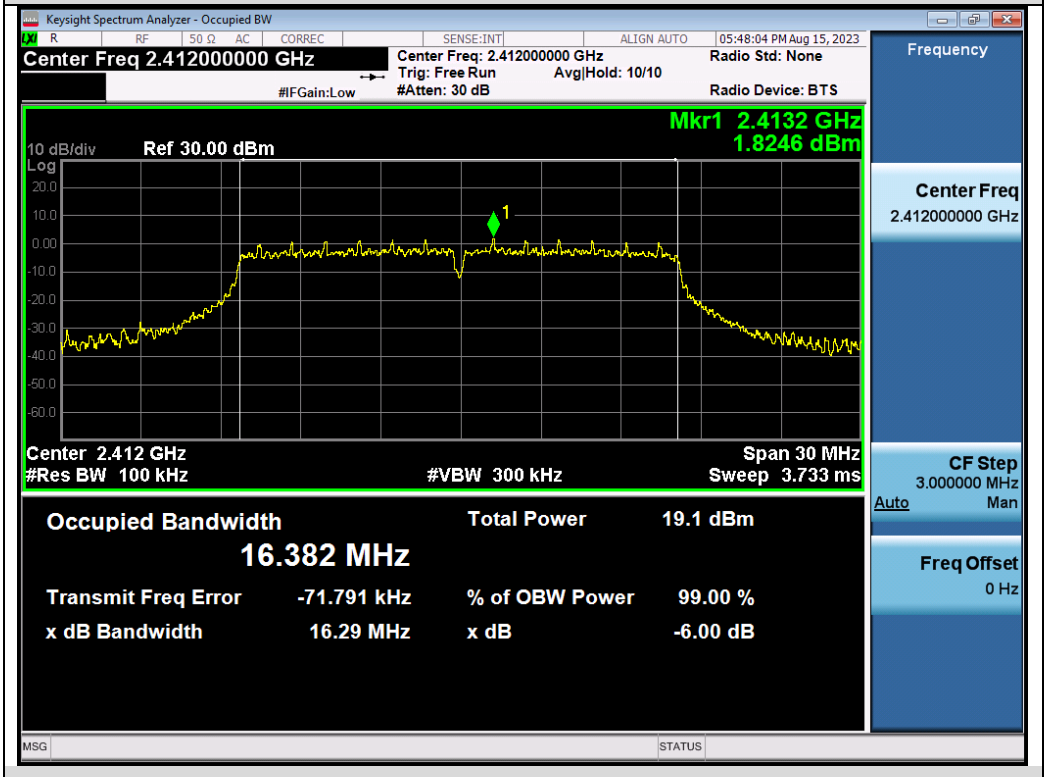
Test_Graph_802.11b_ANT2_2412_1Mbps_DTSBW



Test_Graph_802.11b_ANT2_2437_1Mbps_DTSBW

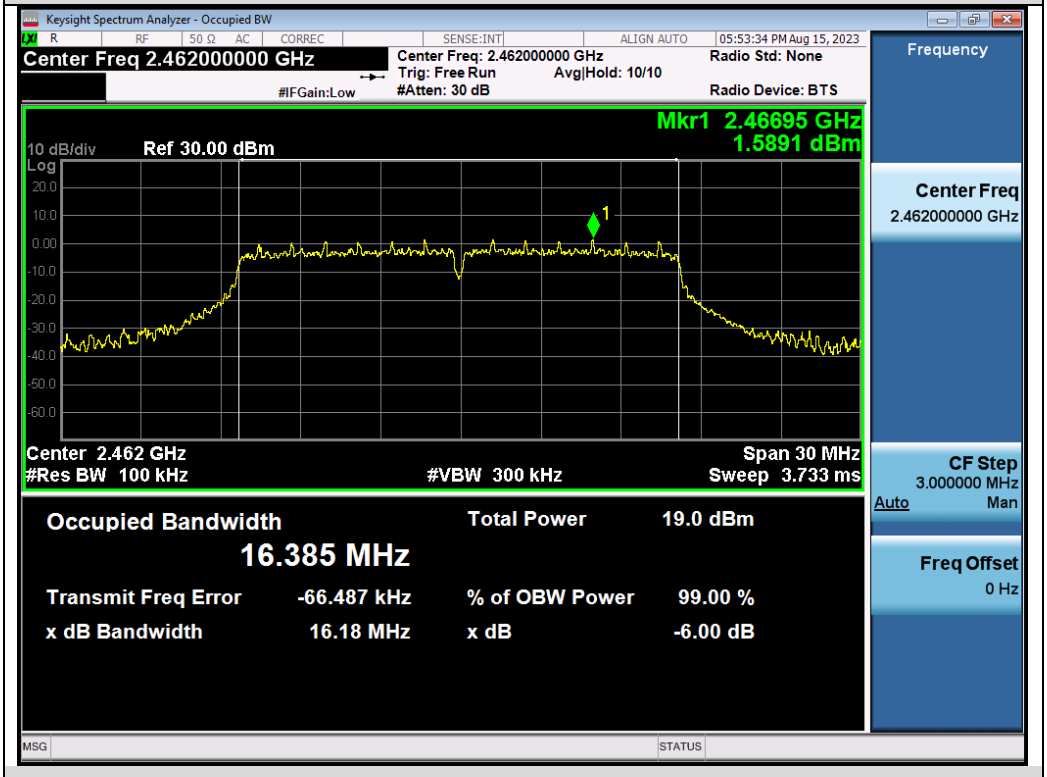


Test_Graph_802.11b_ANT2_2462_1Mbps_DTSBW



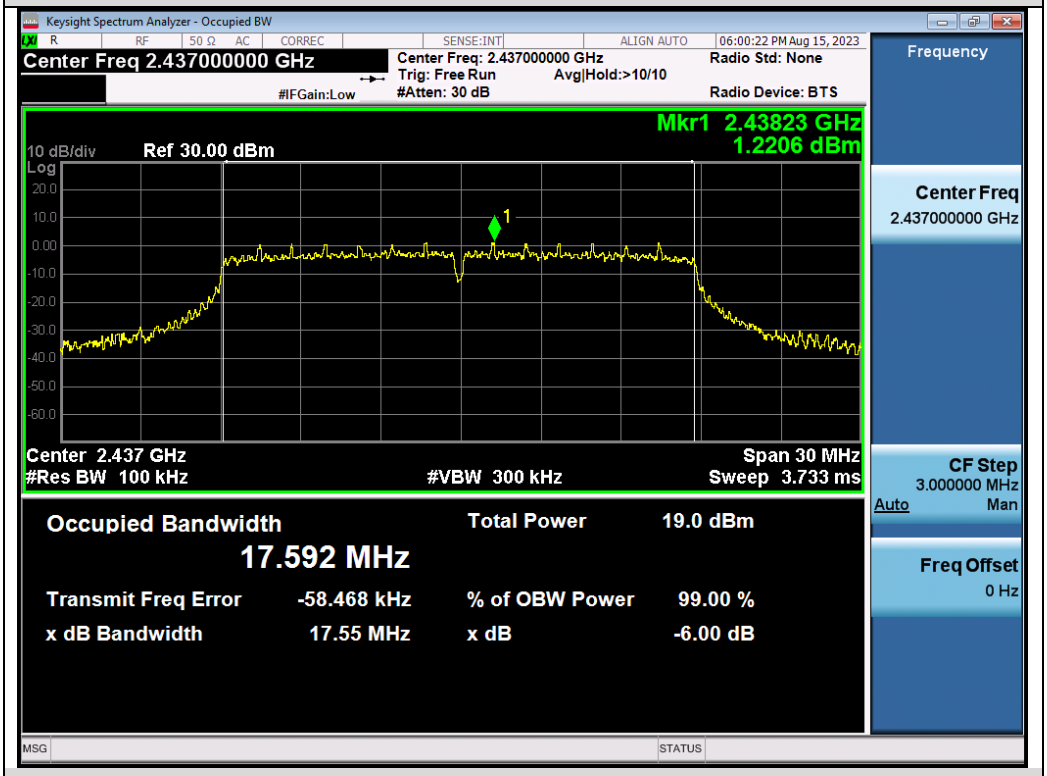
Test_Graph_802.11g_ANT2_2412_6Mbps_DTSBW

Test_Graph_802.11g_ANT2_2437_6Mbps_DTSBW



Test_Graph_802.11g_ANT2_2462_6Mbps_DTSBW

Test_Graph_802.11n20_ANT2_2412_MCS0_DTSBW



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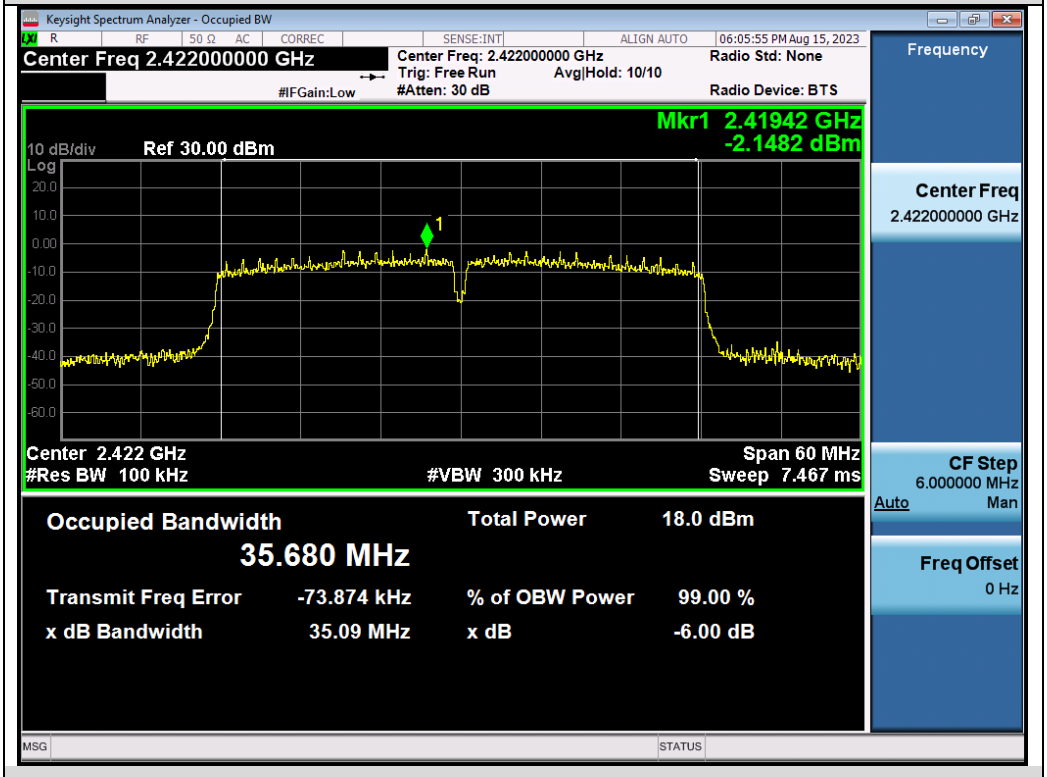
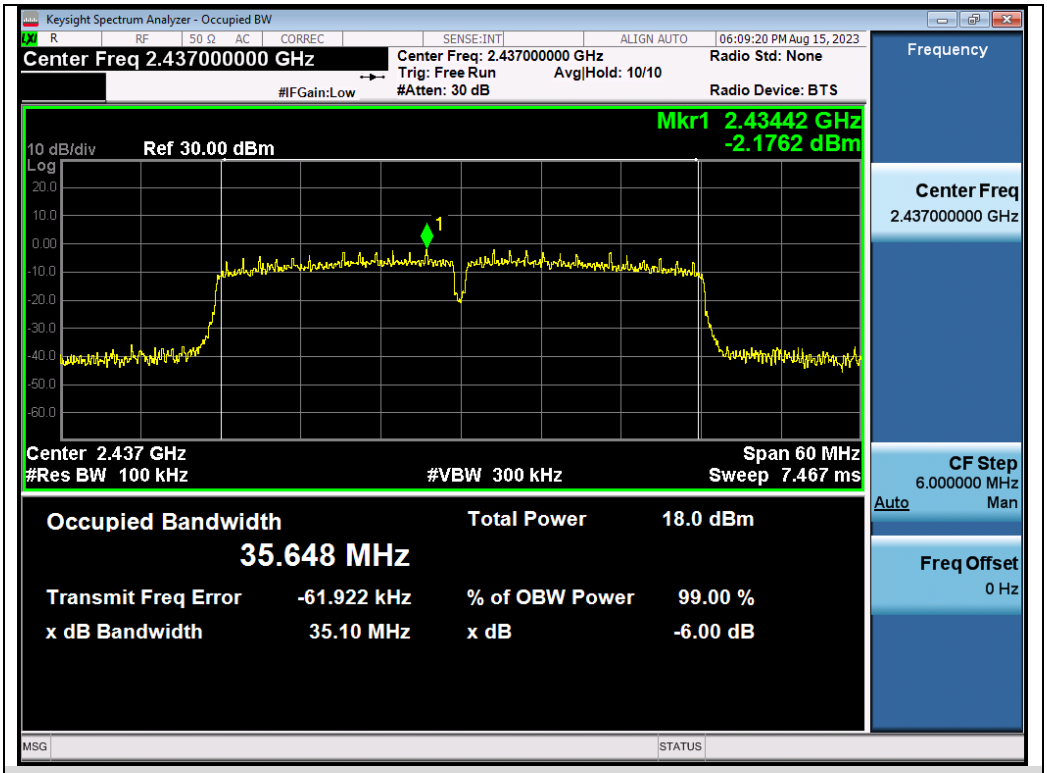
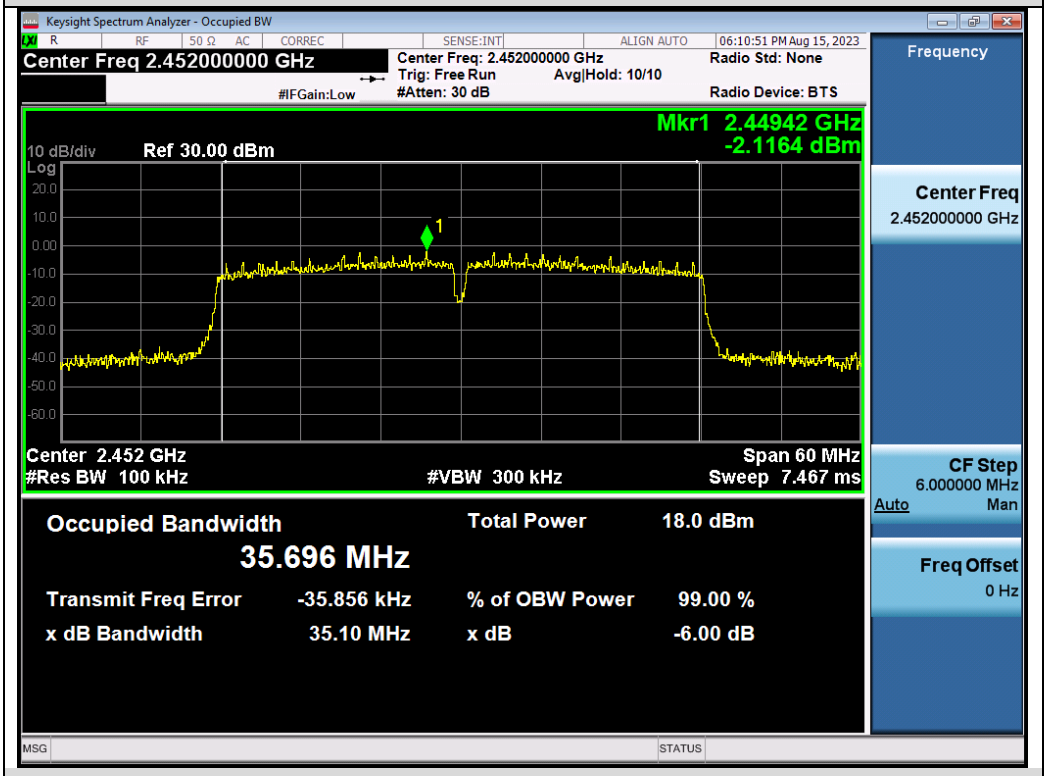
Test_Graph_802.11n20_ANT2_2462_MCS0_DTSBW



Test_Graph_802.11n40_ANT2_2422_MCS0_DTSBW



Test_Graph_802.11n40_ANT2_2437_MCS0_DTSBW



Test_Graph_802.11n40_ANT2_2452_MCS0_DTSBW

9. CONDUCTED SPURIOUS EMISSION

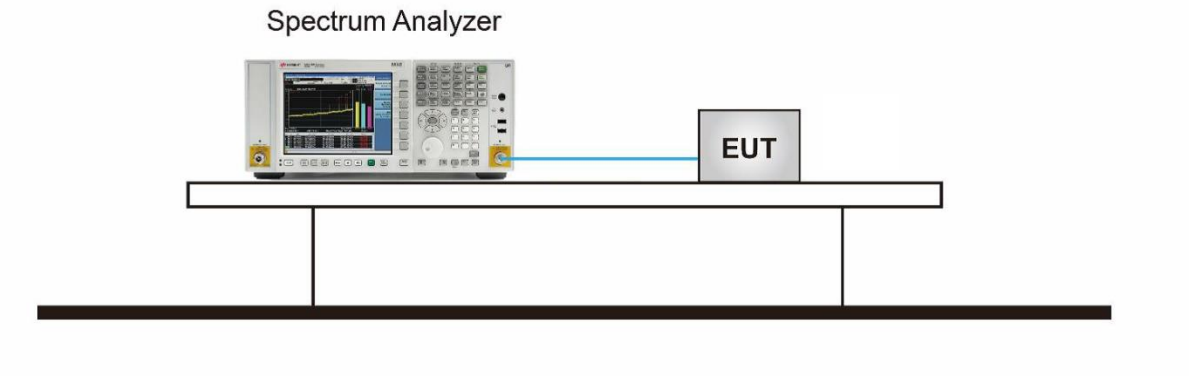
9.1 MEASUREMENT LIMIT

LIMITS AND MEASUREMENT RESULT		
Applicable Limits	**Measurement Result**	
	Test Data	**Criteria**
In any 100 KHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power. In addition, radiation emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in§15.209(a))	At least -20dBc than the limit Specified on the BOTTOM Channel	PASS
	At least -20dBc than the limit Specified on the TOP Channel	PASS

9.2 MEASUREMENT PROCEDURE

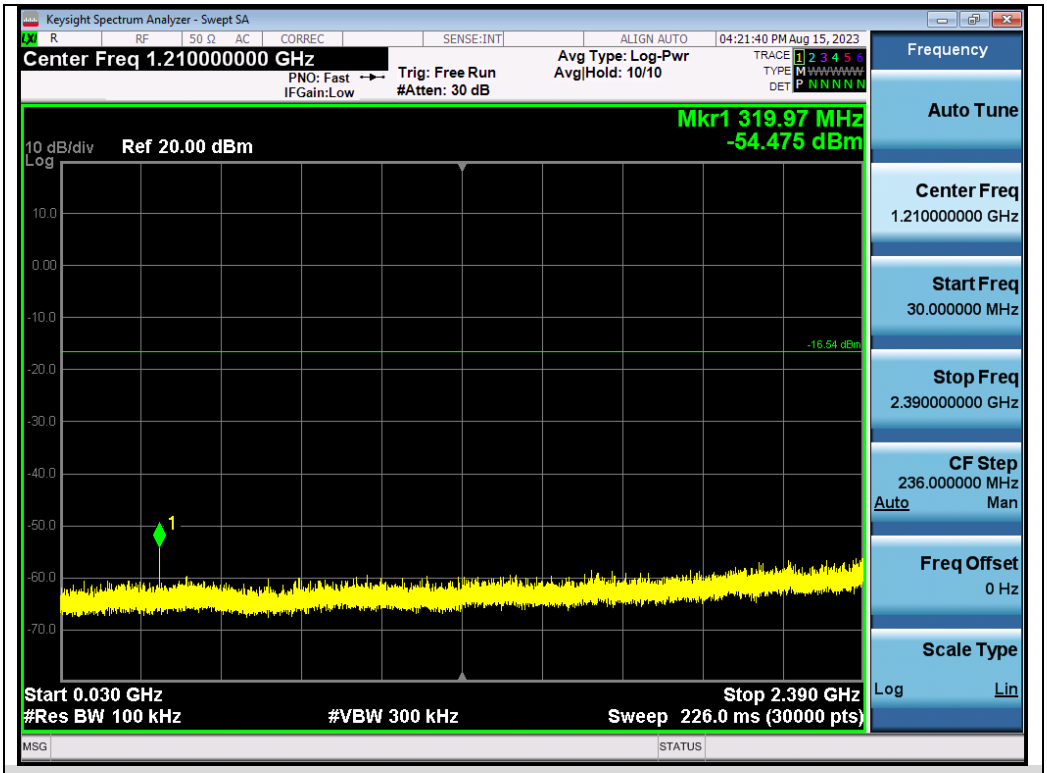
1. Connect EUT RF output port to the Spectrum Analyzer
2. Set the EUT Work on the top, the Middle and the bottom operation frequency individually.
3. Set the Span = wide enough to capture the peak level of the in-band emission and all spurious emissions from the lowest frequency generated in the EUT up through the 10th harmonic.
4. RBW = 100 kHz; VBW= 300 kHz; Sweep = auto; Detector function = peak.(Test frequency below 1GHz)
5. RBW = 1 MHz; VBW= 3 MHz; Sweep = auto; Detector function = peak.(Test frequency Above 1GHz)
6. Set SPA Trace 1 Max hold, then View.
7. Mark the maximum useless stray point and compare it with the limit value to record the result.

9.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)

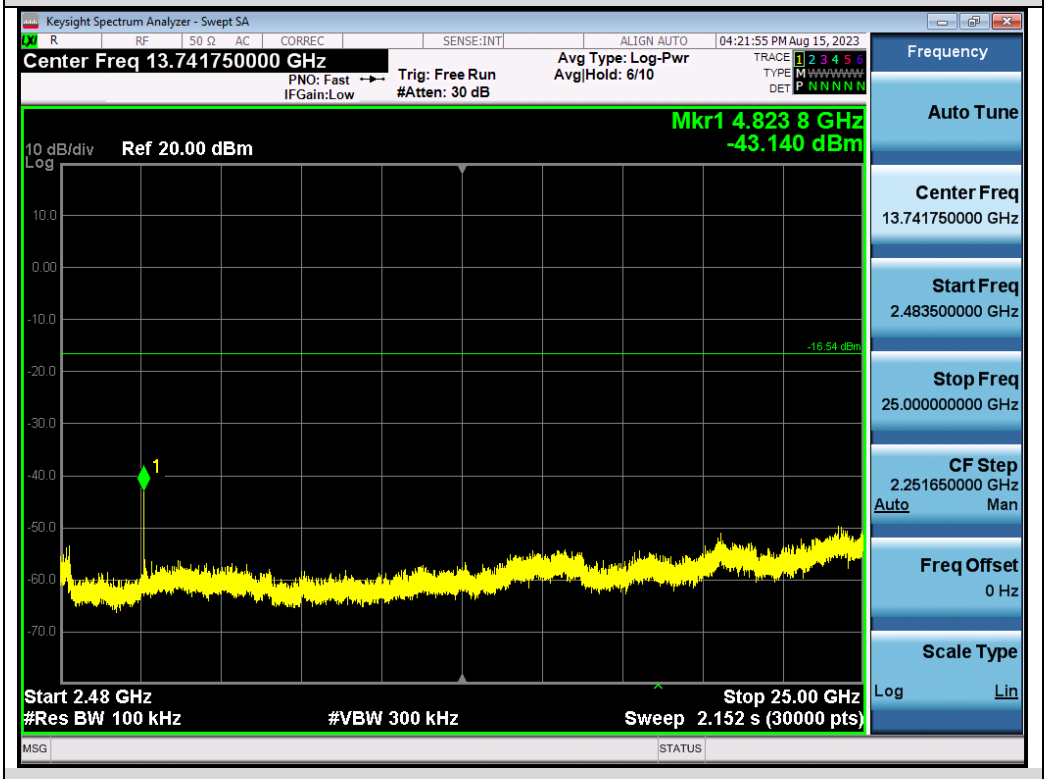


9.4 MEASUREMENT RESULTS

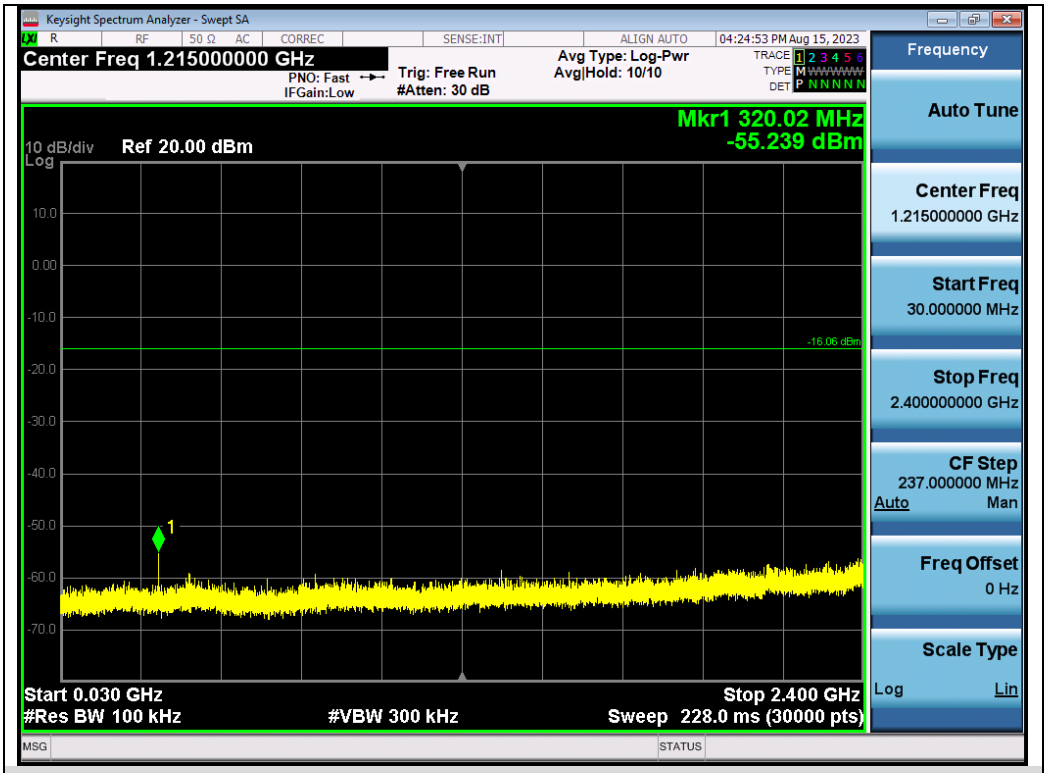
Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands



Test_Graph_802.11b_ANT1_2412_1Mbps_Lower Band Emissions

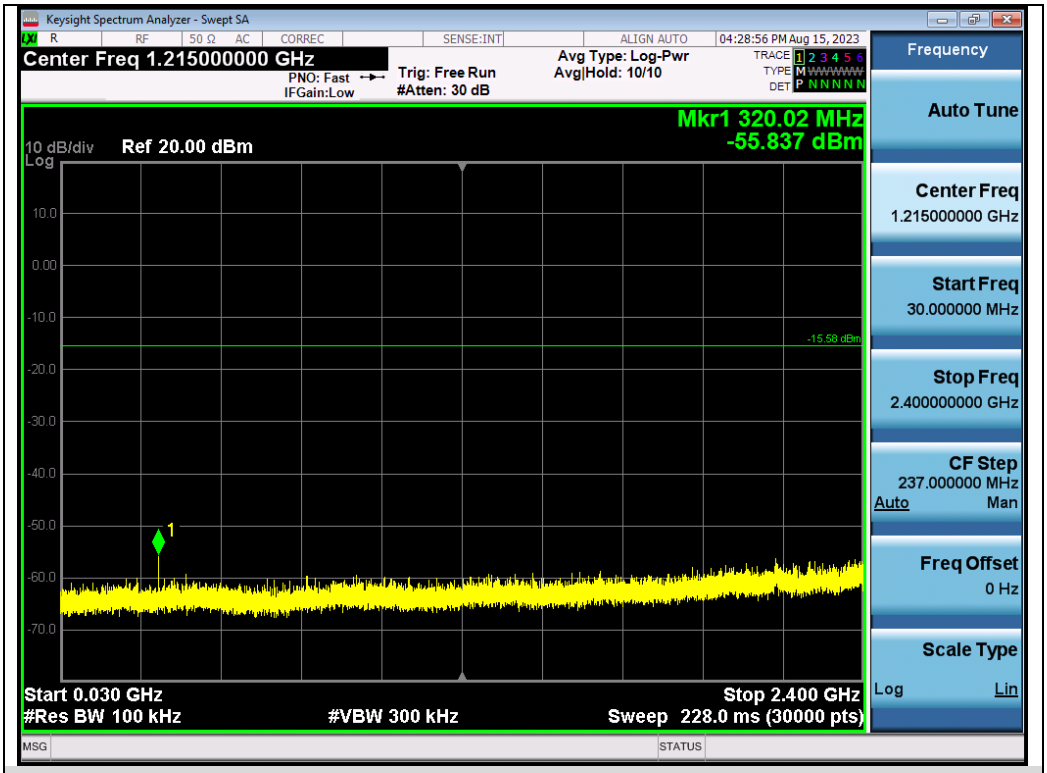


Test_Graph_802.11b_ANT1_2412_1Mbps_Higher Band Emissions

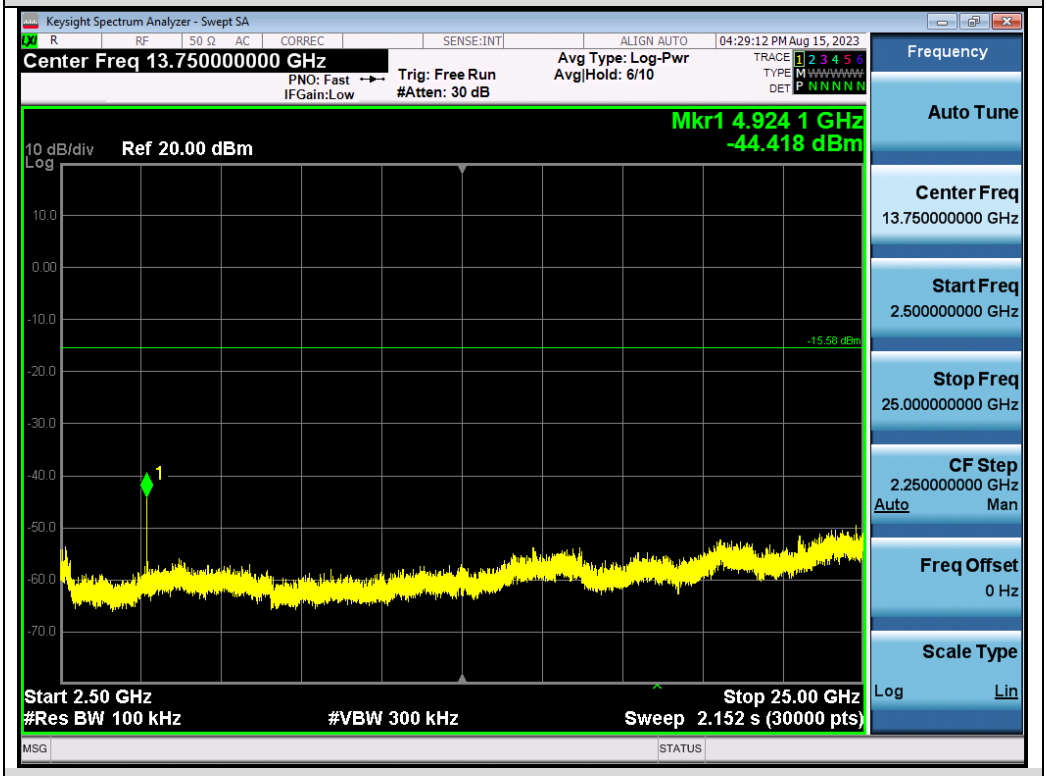


Test_Graph_802.11b_ANT1_2437_1Mbps_Lower Band Emissions

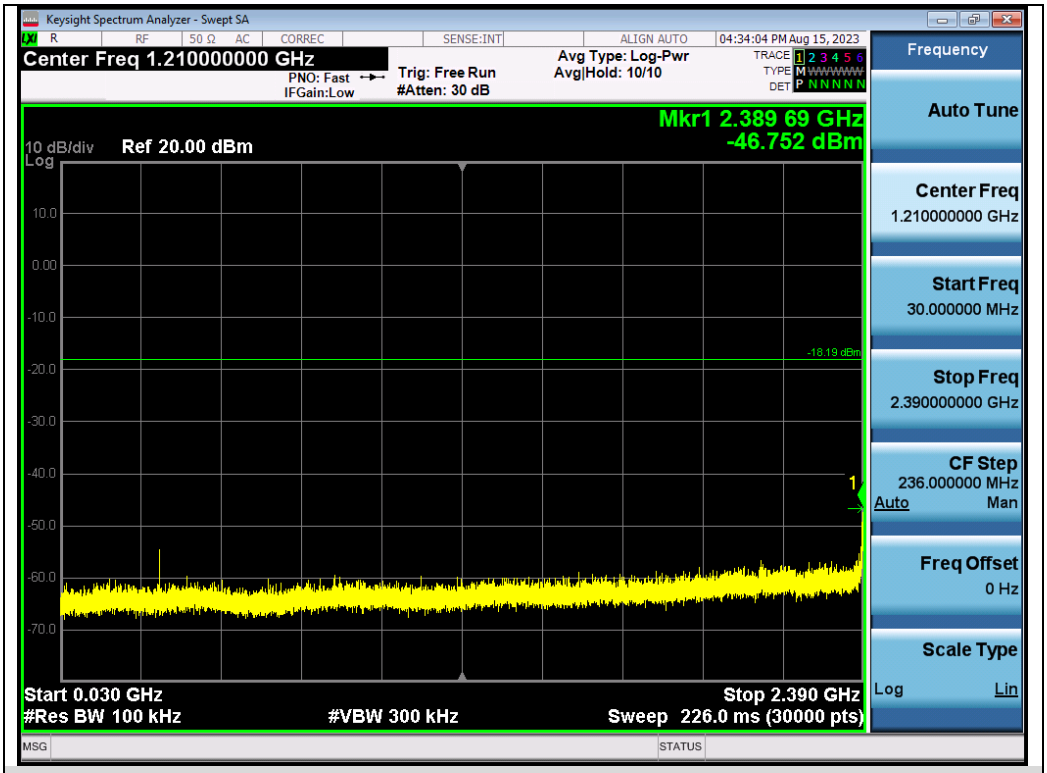
Test_Graph_802.11b_ANT1_2437_1Mbps_Higher Band Emissions



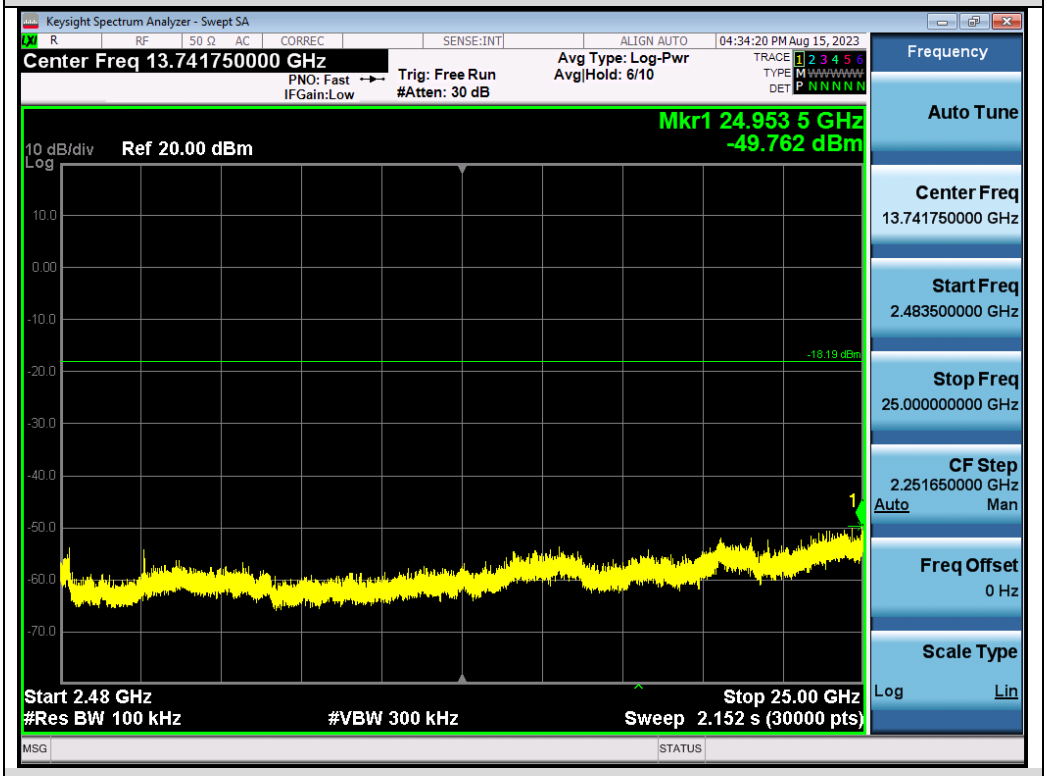
Test_Graph_802.11b_ANT1_2462_1Mbps_Lower Band Emissions



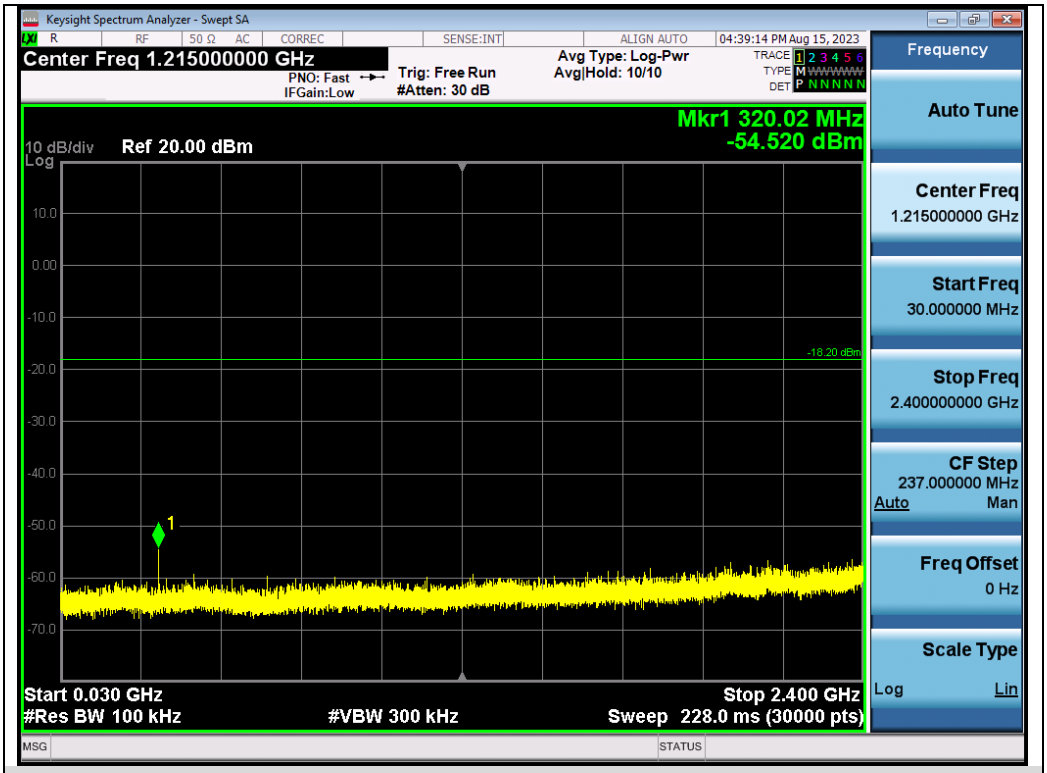
Test_Graph_802.11b_ANT1_2462_1Mbps_Higher Band Emissions



Test_Graph_802.11g_ANT1_2412_6Mbps_Lower Band Emissions

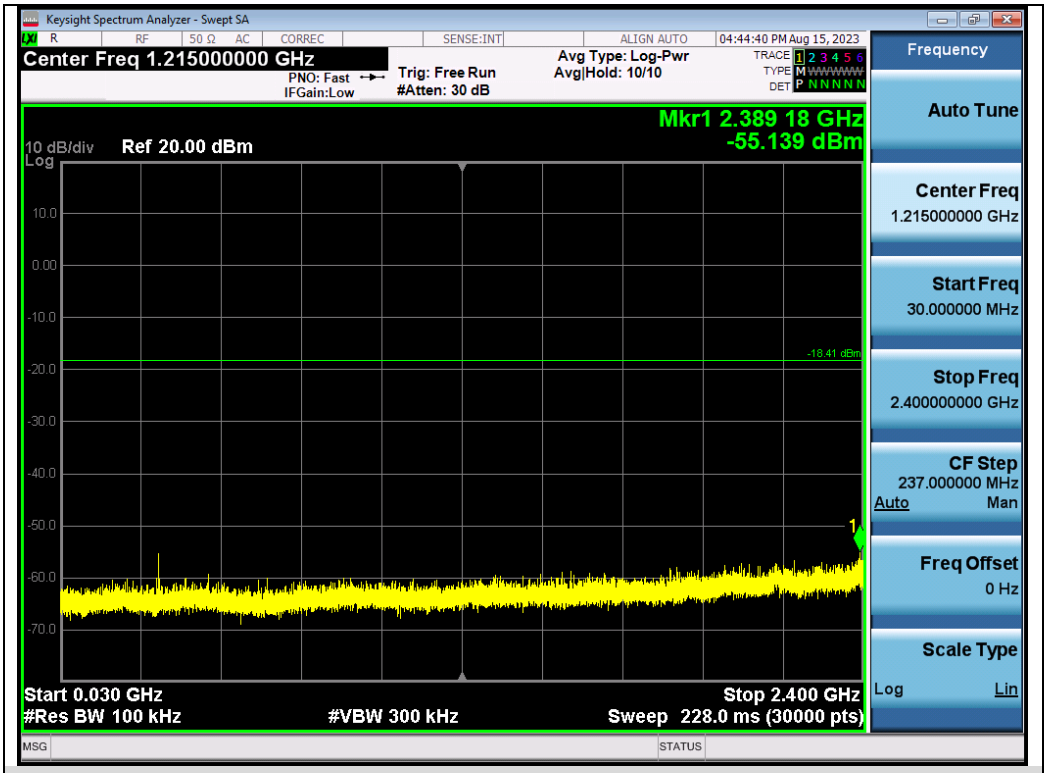


Test_Graph_802.11g_ANT1_2412_6Mbps_Higher Band Emissions

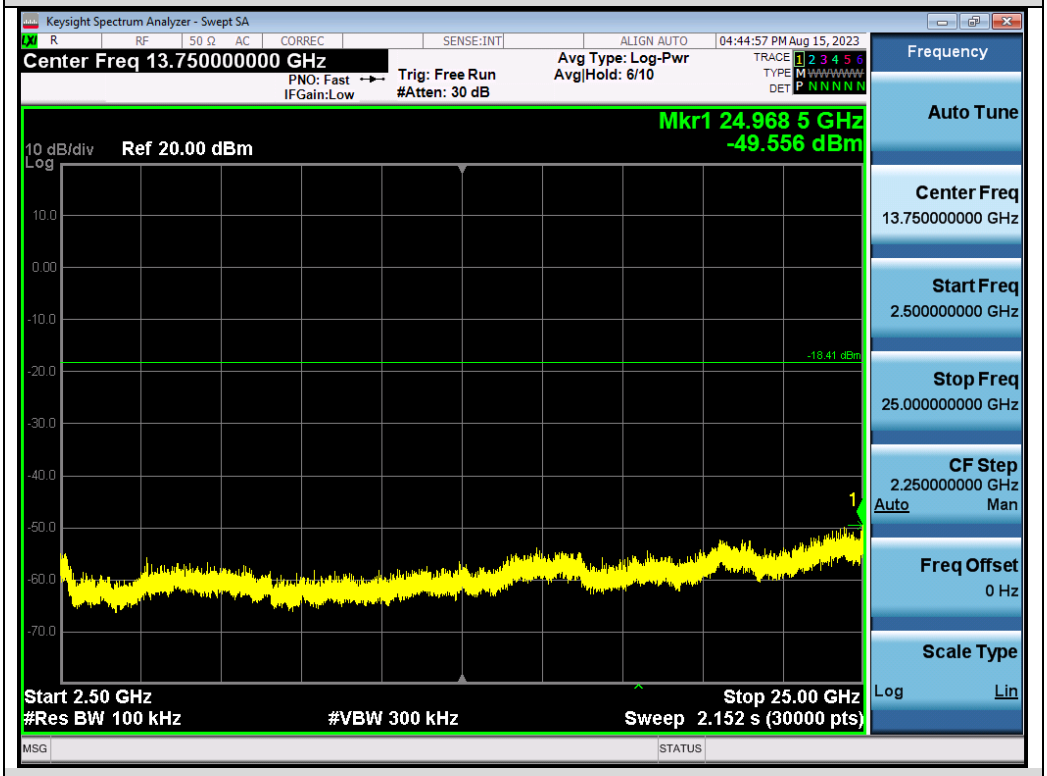


Test_Graph_802.11g_ANT1_2437_6Mbps_Lower Band Emissions

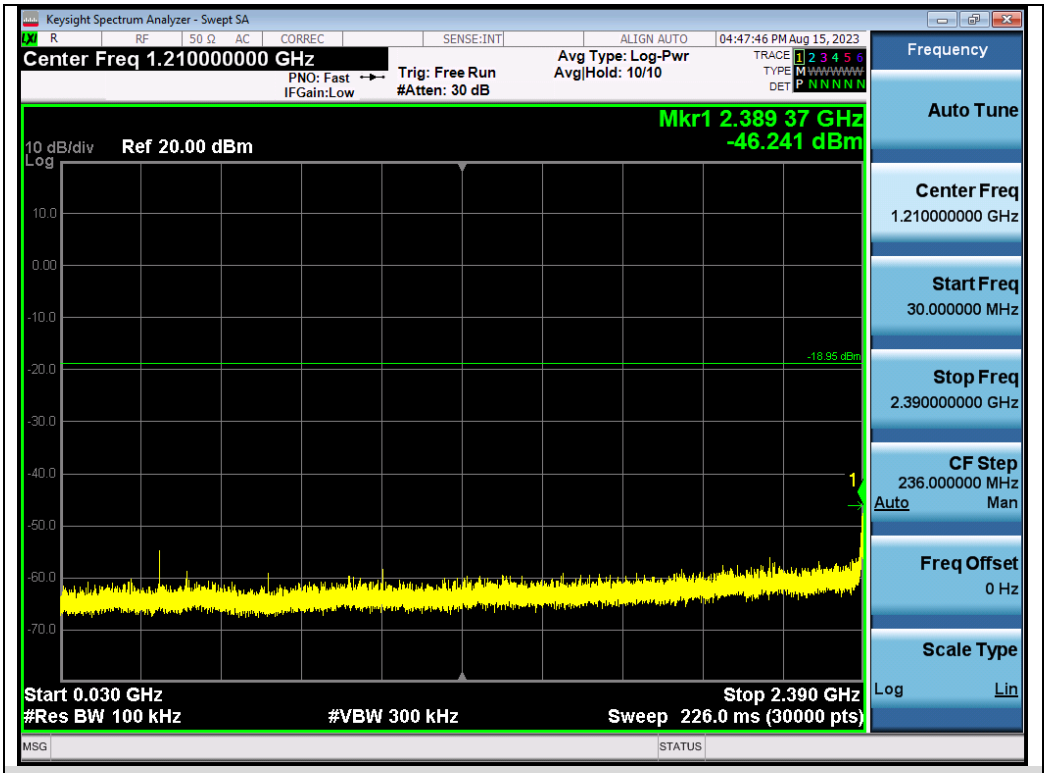
Test_Graph_802.11g_ANT1_2437_6Mbps_Higher Band Emissions



Test_Graph_802.11g_ANT1_2462_6Mbps_Lower Band Emissions

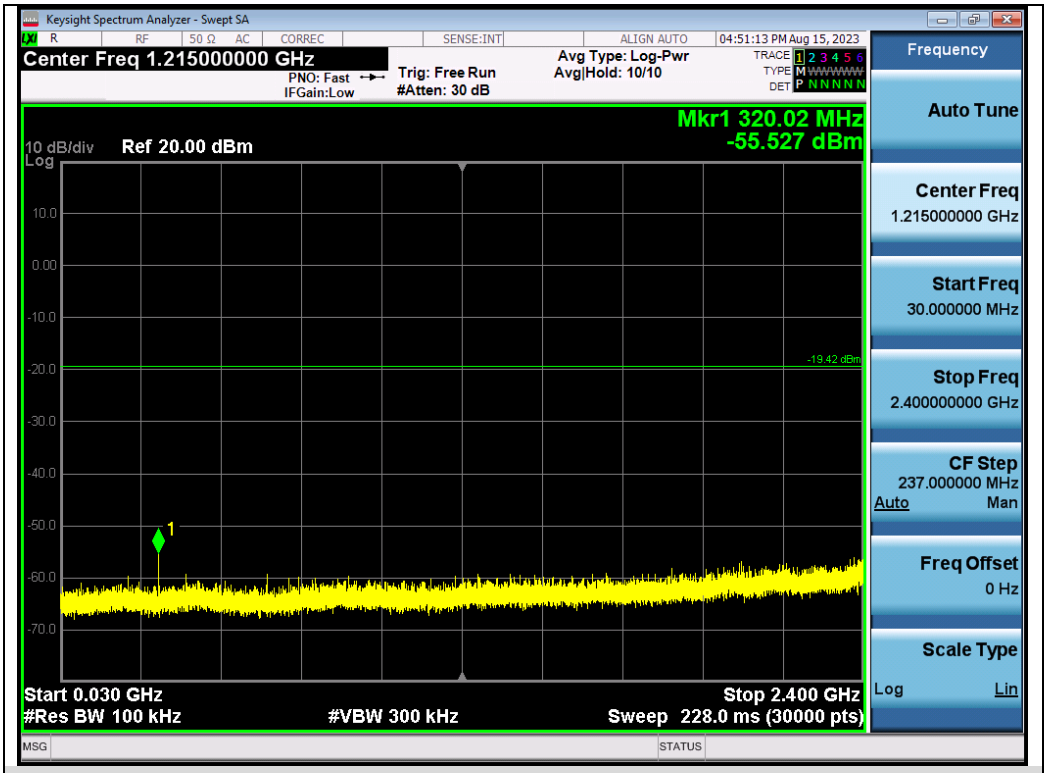


Test_Graph_802.11g_ANT1_2462_6Mbps_Higher Band Emissions

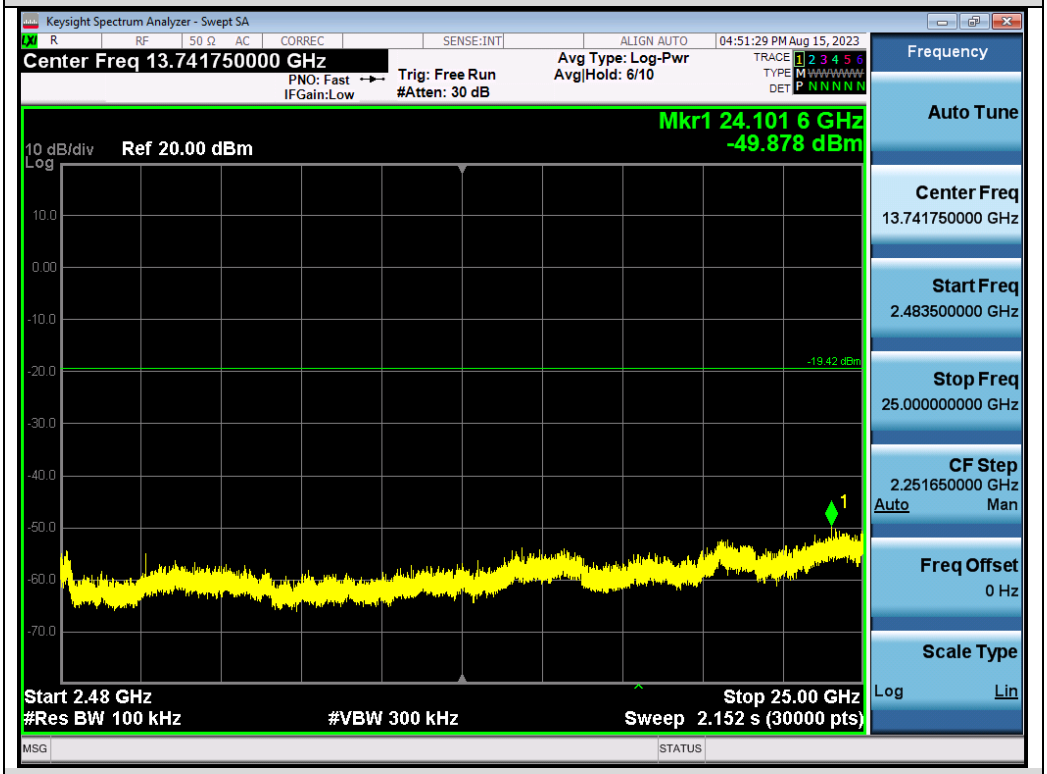


Test_Graph_802.11n20_ANT1_2412_MCS0_Lower Band Emissions

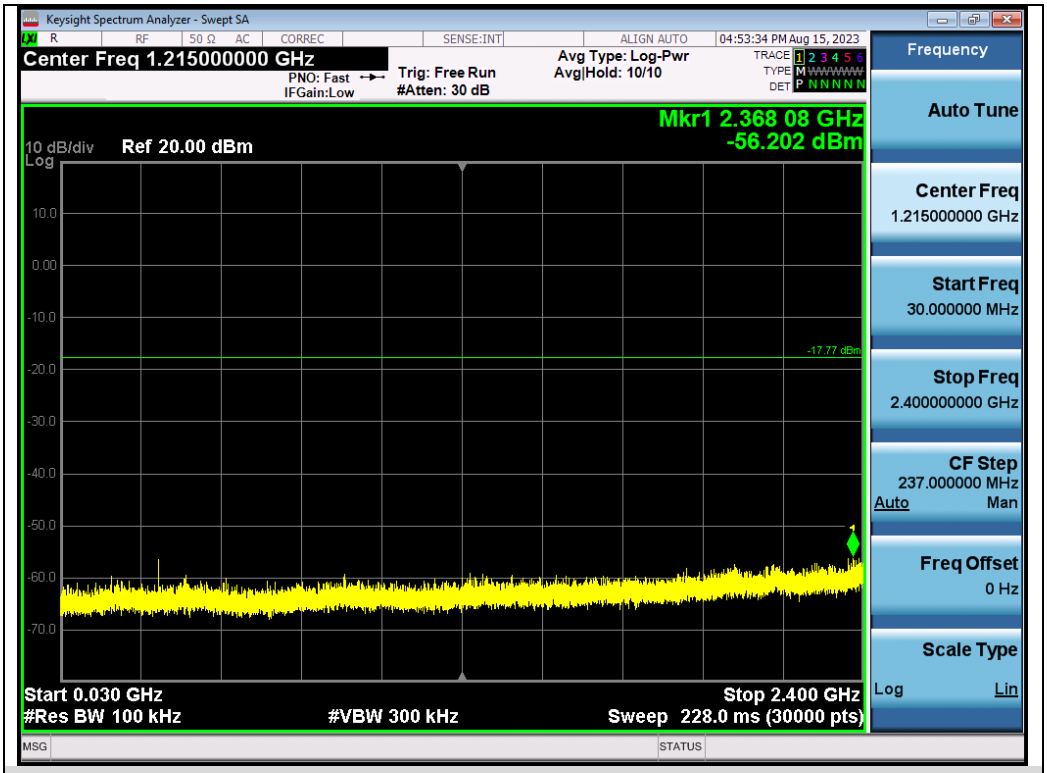
Test_Graph_802.11n20_ANT1_2412_MCS0_Higher Band Emissions



Test_Graph_802.11n20_ANT1_2437_MCS0_Lower Band Emissions

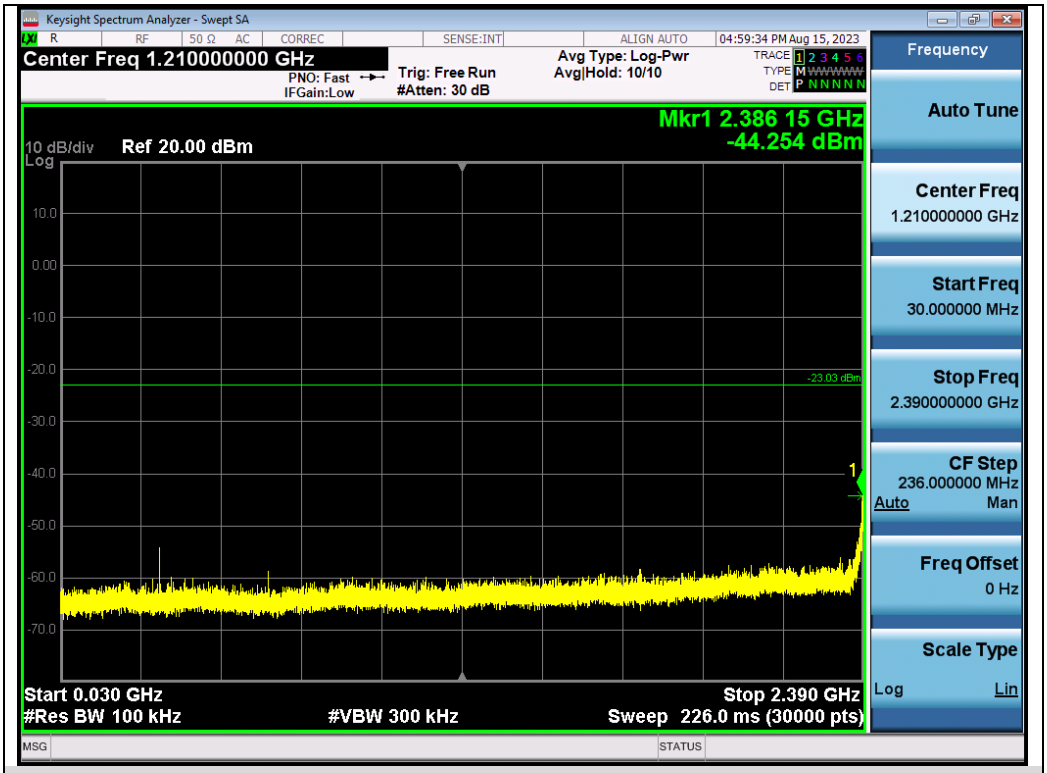


Test_Graph_802.11n20_ANT1_2437_MCS0_Higher Band Emissions



Test_Graph_802.11n20_ANT1_2462_MCS0_Lower Band Emissions

Test_Graph_802.11n20_ANT1_2462_MCS0_Higher Band Emissions



Test_Graph_802.11n40_ANT1_2422_MCS0_Lower Band Emissions

Test_Graph_802.11n40_ANT1_2422_MCS0_Higher Band Emissions