

# **FCC Test Report**

Report No.: AGC11034220105FE05

**FCC ID** : 2AYHE-2201D

**APPLICATION PURPOSE**: Original Equipment

**PRODUCT DESIGNATION**: WiFi IP Camera

BRAND NAME : Reolink

**MODEL NAME** : RLC-410W

**APPLICANT**: Reolink Innovation Limited

**DATE OF ISSUE** : Mar. 10, 2022

STANDARD(S)

TEST PROCEDURE(S) : FCC Part 15.247

**REPORT VERSION**: V1.0

Attestation of Global compnance (Shenzhen) Co., Ltd





Page 2 of 130

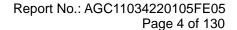
#### REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes	
V1.0	/	Mar. 10, 2022	Valid	Initial Release	



# **TABLE OF CONTENTS**

1. VERIFICATION OF CONFORMITY	5
2. GENERAL INFORMATION	6
2.1. PRODUCT DESCRIPTION	6
2.2. TABLE OF CARRIER FREQUENCYS	
2.3. IEEE 802.11N MODULATION SCHEME	8
2.4. RELATED SUBMITTAL(S) / GRANT (S)	3
2.5. TEST METHODOLOGY	8
2.6. SPECIAL ACCESSORIES	8
2.7. EQUIPMENT MODIFICATIONS	8
2.8. ANTENNA REQUIREMENT	
2.9. DESCRIPTION OF AVAILABLE ANTENNAS	9
3. MEASUREMENT UNCERTAINTY	10
4. DESCRIPTION OF TEST MODES	11
5. SYSTEM TEST CONFIGURATION	12
5.1. CONFIGURATION OF EUT SYSTEM	12
5.2. EQUIPMENT USED IN EUT SYSTEM	12
5.3. SUMMARY OF TEST RESULTS	12
6. TEST FACILITY	13
7. OUTPUT POWER	14
7.1. MEASUREMENT PROCEDURE	14
7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	
7.3. LIMITS AND MEASUREMENT RESULT	15
8. BANDWIDTH	17
8.1. MEASUREMENT PROCEDURE	17
8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	17
8.3. LIMITS AND MEASUREMENT RESULTS	18
9. CONDUCTED SPURIOUS EMISSION	43
9.1. MEASUREMENT PROCEDURE	43
9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	43
9.3 MEASUREMENT FOLIPMENT LISED IN	43





9.4. LIMITS AND MEASUREMENT RESULT	43
10. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY	72
10.1 MEASUREMENT PROCEDURE	72
10.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	72
10.3 MEASUREMENT EQUIPMENT USED	72
10.4 LIMITS AND MEASUREMENT RESULT	72
11. RADIATED EMISSION	86
11.1. MEASUREMENT PROCEDURE	86
11.2. TEST SETUP	87
11.3. LIMITS AND MEASUREMENT RESULT	88
11.4. TEST RESULT	88
12. LINE CONDUCTED EMISSION TEST	126
12.1. LIMITS OF LINE CONDUCTED EMISSION TEST	126
12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST	126
12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST	127
12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST	127
12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST	128
APPENDIX A: PHOTOGRAPHS OF TEST SETUP	130
APPENDIX B: PHOTOGRAPHS OF EUT	130



Page 5 of 130

# 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	WiFi IP Camera
Brand Name	Reolink
Test Model	RLC-410W
Date of test	Feb. 17, 2022 to Mar. 10, 2022
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	Cool cheny	
	Cool Cheng (Project Engineer)	Mar. 10, 2022
Reviewed By	Calin Lin	
	Calvin Liu (Reviewer)	Mar. 10, 2022
Approved By	Max Zhang	
	Max Zhang (Authorized Officer)	Mar. 10, 2022

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.



Page 6 of 130

# 2. GENERAL INFORMATION

#### 2.1. PRODUCT DESCRIPTION

The EUT is designed as "WiFi IP Camera". 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:15.63dBm; IEEE 802.11g:14.54dBm;					
Output Fower (Average)	IEEE 802.11n(HT20):12.87dBm; IEEE 802.11n(HT40):12.61dBm					
Output Power (Peak)	IEEE 802.11b:18.13dBm; IEEE 802.11g:21.93dBm;					
Output Fower (Feak)	IEEE 802.11n(HT20):20.02dBm; IEEE 802.11n(HT40):19.90dBm					
Output Power (MIMO- Average)	IEEE 802.11n(HT20):15.66dBm; IEEE 802.11n(HT40):14.97dBm					
Modulation	802.11b:DQPSK, DBPSK, CCK					
Wiodulation	802.11g/n: 64-QAM, 16-QAM, QPSK, BPSK					
	802.11b: 1/2/5.5/11Mbps					
Data Rate	802.11g: 6/9/12/18/24/36/48/54Mbps					
	802.11n: up to 300Mbps					
Number of channels	11					
Hardware Version	M30C01					
Software Version	802_22011303					
Antenna Designation	omnidirectional 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/n support MIMO)					
Power Supply	DC 12V by adapter					



Page 7 of 130

#### 2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency
	1	2412 MHZ
	2	2417 MHZ
	3	2422 MHZ
	4	2427 MHZ
	5	2432 MHZ
2400~2483.5MHZ	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



Page 8 of 130

#### 2.3. IEEE 802.11N MODULATION SCHEME

MCS Index	Nss Modulation		R N	NBPSC	NCBPS		NDBPS		Data rate(Mbps) 800nsGl	
					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-2201D** 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 transmission 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.



Page 9 of 130

#### 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 Frequency T		TX	TX Bandwidth	Max Peal	k Gain (dBi)	Max Directional Gain	
Туре	Band (MHz)	Paths	(MHz)	Ant 1	Ant 2	(dBi)	
2.4GWIFI omr	nidirectional Ante	enna List	(2.4GHz 2*	2 MIMO)			
omnidirectional Antenna	2400~2483.5	2	20, 40	2.89	2.89	5.9	

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

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

If all antennas have the same gain, Gant, Directional gain = Gant + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on devices:

Array Gain = 10 log (Nant/ Nss) dB = 3.01;

For power measurements on IEEE 802.1devices:

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

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

Array Gain = 5 log(Nant/Nss) dB or 3 dB, whichever is less, for 20 MHz channel widths with Nant ≥ 5.

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

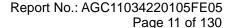


Page 10 of 130

# 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	$U_c = \pm 3.1 \text{ dB}$
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 4.0 \text{ dB}$
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.8 \text{ dB}$
Uncertainty of total RF power, conducted	$U_c = \pm 0.8 \text{ dB}$
Uncertainty of RF power density, conducted	$U_c = \pm 2.6 \text{ dB}$
Uncertainty of spurious emissions, conducted	U <sub>c</sub> = ±2 %
Uncertainty of Occupied Channel Bandwidth	$U_c = \pm 2 \%$





#### 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)

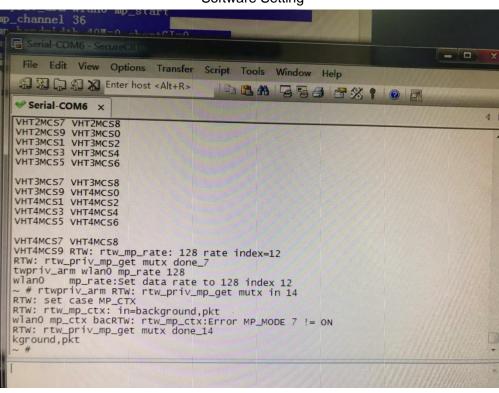
Transmit by 802.11n (40MHz) with Date rate (13.5/27/40.5/54/81/108/121.5/135)

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>or equal 98%
- 2. 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.



# Software Setting

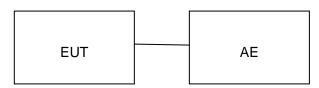


Page 12 of 130

# **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	WiFi IP Camera	RLC-410W	2AYHE-2201D	EUT
2	Adapter	DCT12W120100US-B0	Input:100-240V, 50/60Hz, 0.3A Output:12.0V, 1.0A	AE

#### 5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.247(b)(3)	Output Power	Compliant
§15.247(a)(2)	6 dB Bandwidth	Compliant
§15.247	Conducted Spurious Emission	Compliant
§15.247(e)	Maximum Conducted Output Power Spectral Density	Compliant
§15.209	Radiated Emission	Compliant
§15.247(d)	Band Edges	Compliant
§15.207	Line Conduction Emission	Compliant



Page 13 of 130

# 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	May 15, 2021	May 14, 2022
LISN	R&S	ESH2-Z5	100086	Jun. 09, 2021	Jun. 08, 2022
Test software	R&S	ES-K1(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	May 15, 2021	May 14, 2022
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Nov. 17, 2021	Nov. 16, 2022
Power sensor	Aglient	U2021XA	MY54110007	Jun. 06, 2021	Jun. 05, 2022
2.4GHz Fliter	Micro-tronics	087	N/A	Mar. 23, 2020	Mar. 22, 2022
Attenuator	Weinachel Corp	58-30-33	N/A	Sep. 03, 2020	Sep. 02, 2022
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Oct. 31, 2021	Oct. 30, 2023
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	00034609	May 22, 2020	May 21, 2022
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2022
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Sep. 03, 2020	Sep. 02, 2022
ANTENNA	SCHWARZBECK	VULB9168	D69250	Jan. 08, 2020	Jan. 07, 2023
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A



Page 14 of 130

# 7. OUTPUT POWER

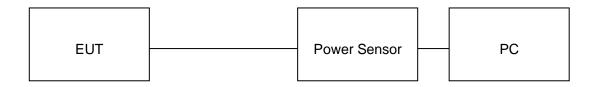
# 7.1. MEASUREMENT PROCEDURE

For average power test:

- 1. Connect EUT RF output port to power sensor through an RF attenuator.
- 2. Connect the power sensor to the PC.
- 3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 4. Record the maximum power from the software.

**Note**: The EUT was tested according to ANSI C63.10 (2013) for compliance to FCC 47CFR 15.247 requirements.

# 7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)





Page 15 of 130

#### 7.3. LIMITS AND MEASUREMENT RESULT

Test Data of Conducted Output Power-antenna 1						
Test Mode	Test Channel (MHz)	Average Power (dBm)	Peak Power (dBm)	Limits (dBm)	Pass or Fail	
	2412	14.92	17.34	≤30	Pass	
802.11b	2437	15.63	18.13	≤30	Pass	
	2462	15.53	17.98	≤30	Pass	
	2412	12.41	19.67	≤30	Pass	
802.11g	2437	12.94	20.41	≤30	Pass	
	2462	12.08	19.74	≤30	Pass	
	2412	11.73	19.48	≤30	Pass	
802.11n20	2437	12.87	20.02	≤30	Pass	
	2462	12.26	20.01	≤30	Pass	
	2422	12.61	19.90	≤30	Pass	
802.11n40	2437	12.07	19.44	≤30	Pass	
	2452	12.32	19.17	≤30	Pass	

Test Data of Conducted Output Power-antenna 2						
Test Mode	Test Channel (MHz)	Average Power (dBm)	Peak Power (dBm)	Limits (dBm)	Pass or Fail	
	2412	15.07	17.57	≤30	Pass	
802.11b	2437	14.57	17.11	≤30	Pass	
	2462	14.61	17.24	≤30	Pass	
	2412	13.47	21.19	≤30	Pass	
802.11g	2437	14.32	21.93	≤30	Pass	
	2462	14.54	21.88	≤30	Pass	
	2412	12.42	19.89	≤30	Pass	
802.11n20	2437	12.42	19.61	≤30	Pass	
	2462	12.31	19.67	≤30	Pass	
	2422	11.20	18.45	≤30	Pass	
802.11n40	2437	11.76	18.98	≤30	Pass	
	2452	11.39	18.69	≤30	Pass	



Page 16 of 130

Test Data of Conducted Output Power-antenna 1+2						
Test Mode	Test Channel (MHz)	Average Power (dBm)	Peak Power (dBm)	Limits (dBm)	Pass or Fail	
	2412	15.10	22.70	≤30	Pass	
802.11n20	2437	15.66	22.83	≤30	Pass	
	2462	15.30	22.85	≤30	Pass	
	2422	14.97	22.25	≤30	Pass	
802.11n40	2437	14.93	22.23	≤30	Pass	
	2452	14.89	21.95	≤30	Pass	



Page 17 of 130

#### 8. BANDWIDTH

#### **8.1. MEASUREMENT PROCEDURE**

#### 6dB bandwidth:

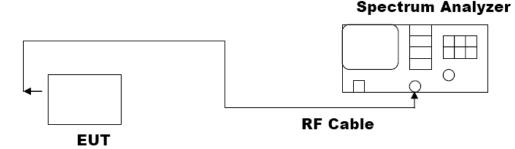
- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 kHz, VBW≥3×RBW.
- 4. Set SPA Trace 1 Max hold, then View.

#### Occupied bandwidth:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hoping channel
  The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video
  bandwidth (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
- 4. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

# 8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



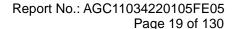


Page 18 of 130

#### 8.3. LIMITS AND MEASUREMENT RESULTS

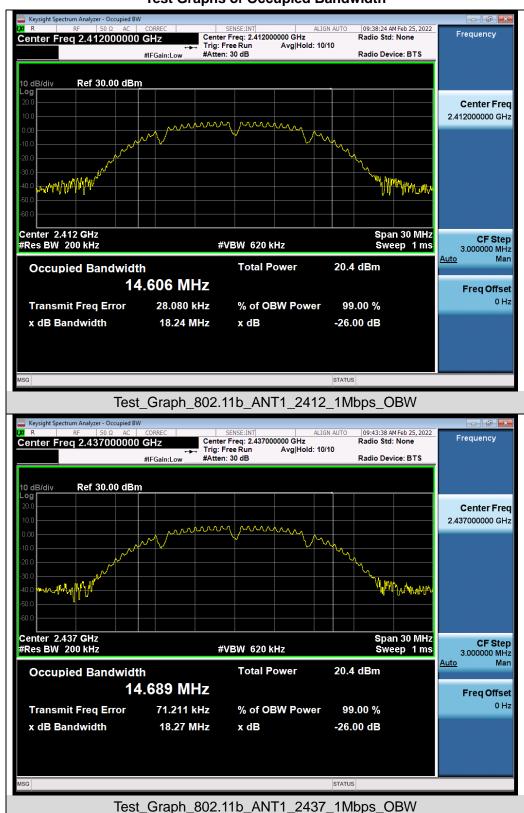
Test Data of Occupied Bandwidth and DTS Bandwidth-antenna 1							
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-6dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail		
	2412	14.606	10.10	≥0.5	Pass		
802.11b	2437	14.689	10.10	≥0.5	Pass		
	2462	14.666	10.10	≥0.5	Pass		
	2412	16.417	15.91	≥0.5	Pass		
802.11g	2437	16.413	16.28	≥0.5	Pass		
	2462	16.402	15.35	≥0.5	Pass		
	2412	17.649	16.91	≥0.5	Pass		
802.11n20	2437	17.650	16.13	≥0.5	Pass		
	2462	17.647	16.24	≥0.5	Pass		
	2422	36.098	35.32	≥0.5	Pass		
802.11n40	2437	36.083	35.32	≥0.5	Pass		
	2452	36.075	35.31	≥0.5	Pass		

Test Data of Occupied Bandwidth and DTS Bandwidth-antenna 2							
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-6dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail		
	2412	14.584	10.11	≥0.5	Pass		
802.11b	2437	14.694	10.11	≥0.5	Pass		
	2462	14.677	10.11	≥0.5	Pass		
	2412	16.458	16.27	≥0.5	Pass		
802.11g	2437	16.467	15.68	≥0.5	Pass		
	2462	16.457	15.68	≥0.5	Pass		
	2412	17.593	16.00	≥0.5	Pass		
802.11n20	2437	17.582	16.01	≥0.5	Pass		
	2462	17.586	16.51	≥0.5	Pass		
	2422	36.133	35.33	≥0.5	Pass		
802.11n40	2437	36.128	35.34	≥0.5	Pass		
	2452	36.110	35.34	≥0.5	Pass		

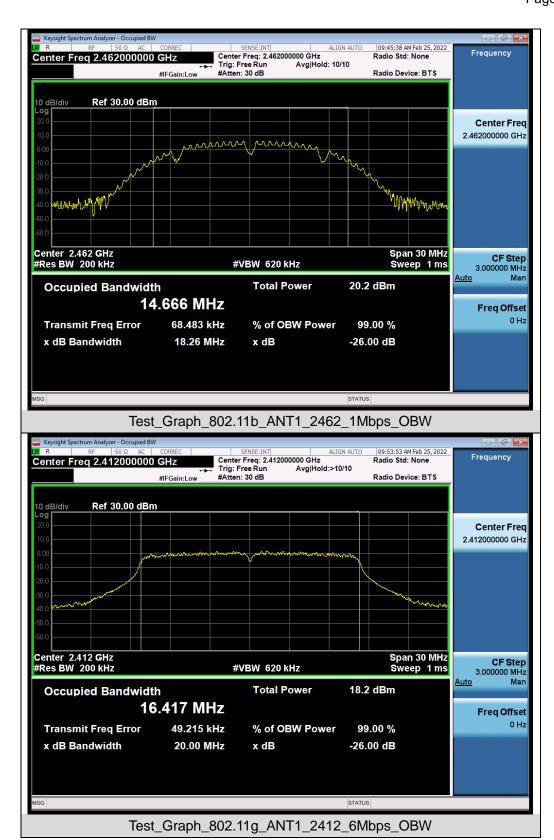




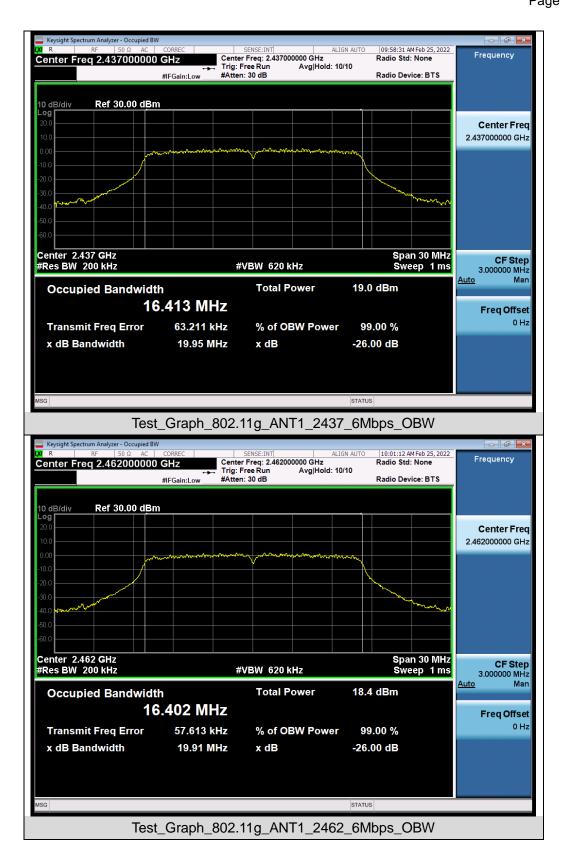
#### Test Graphs of Occupied Bandwidth



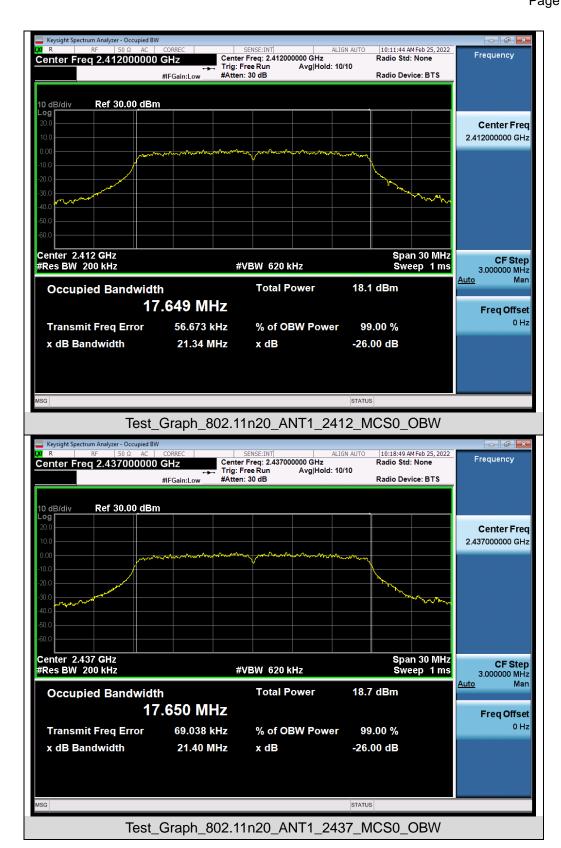




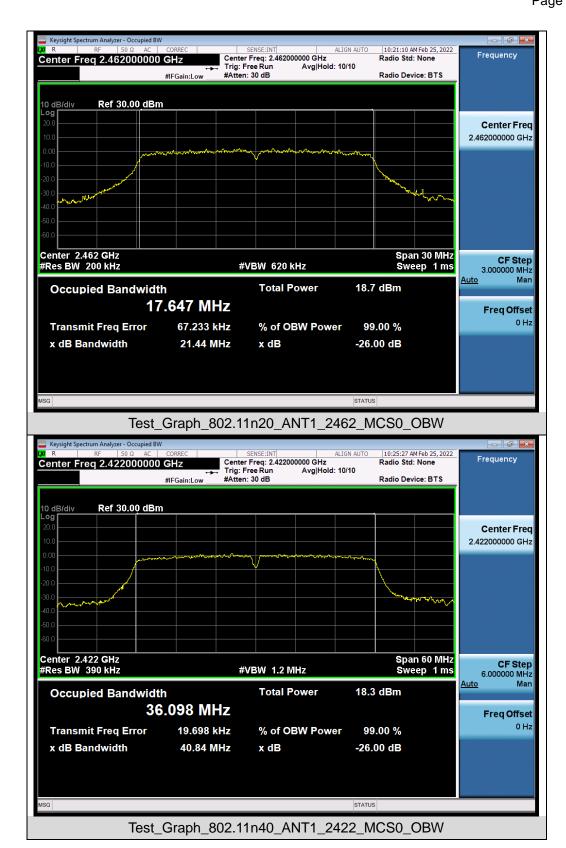




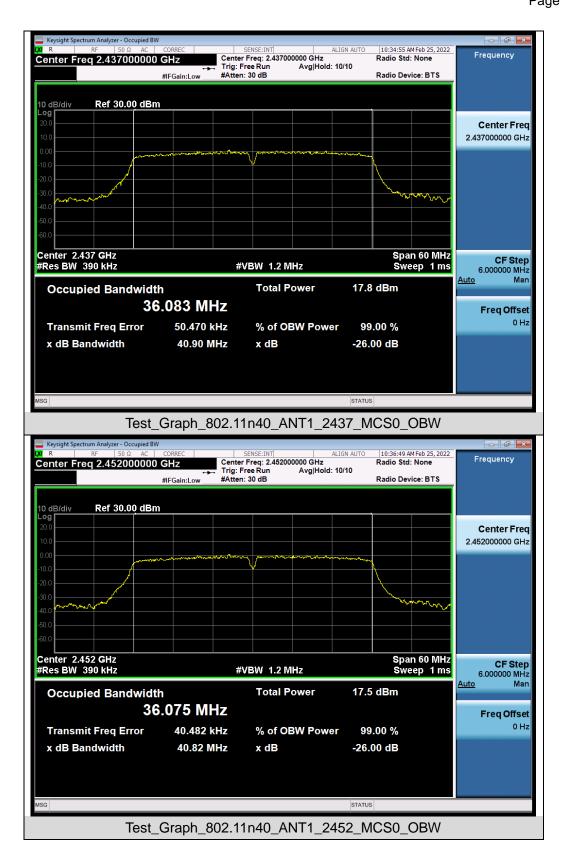




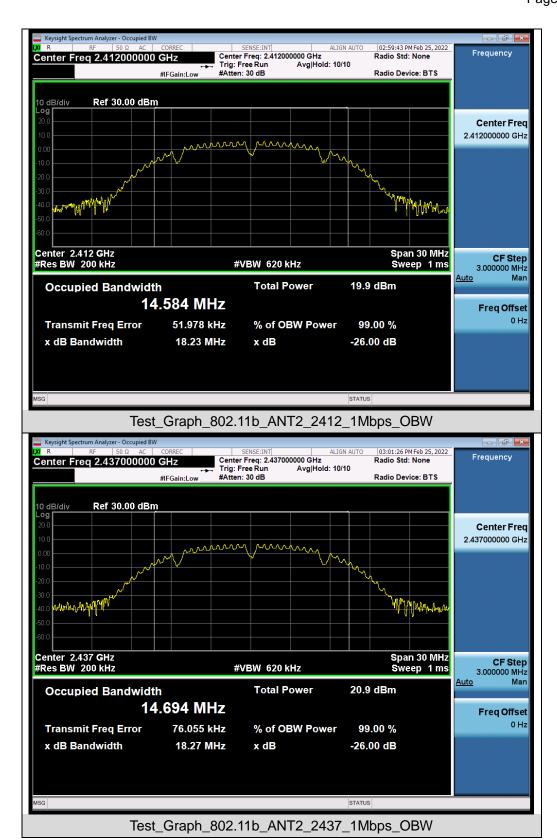




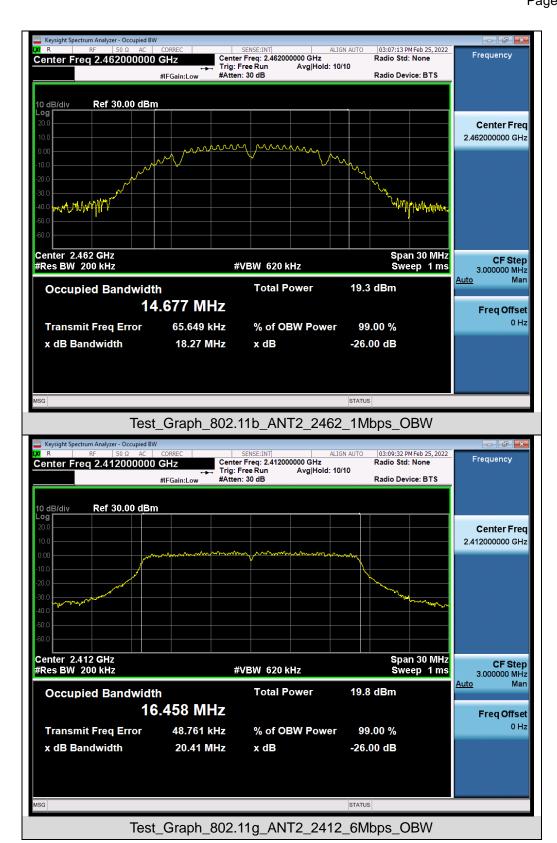




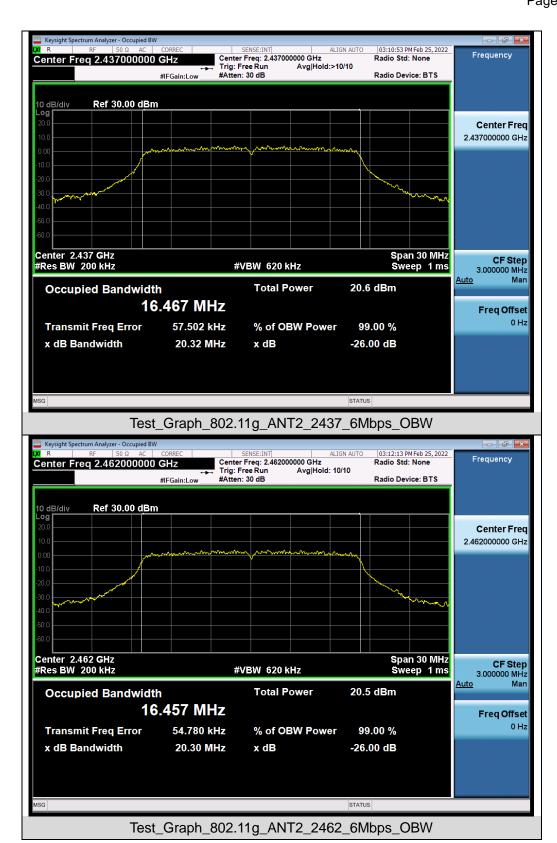




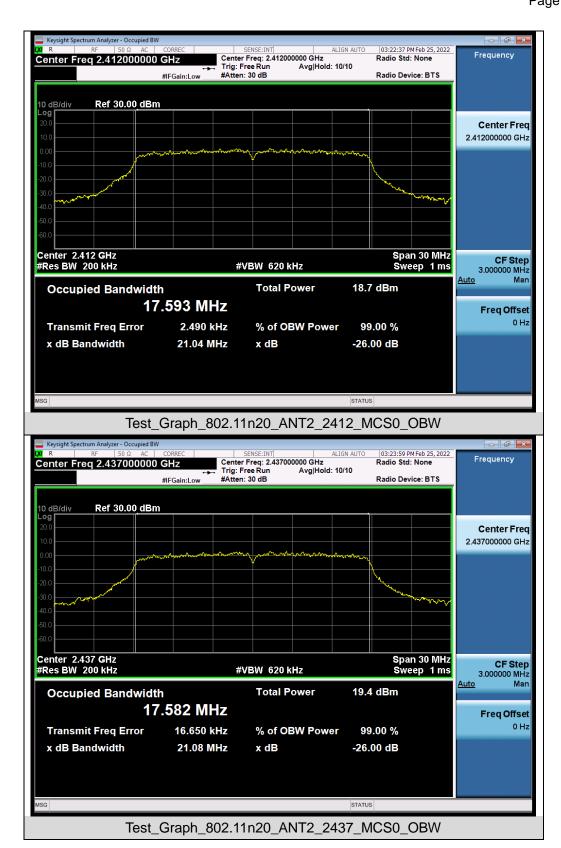




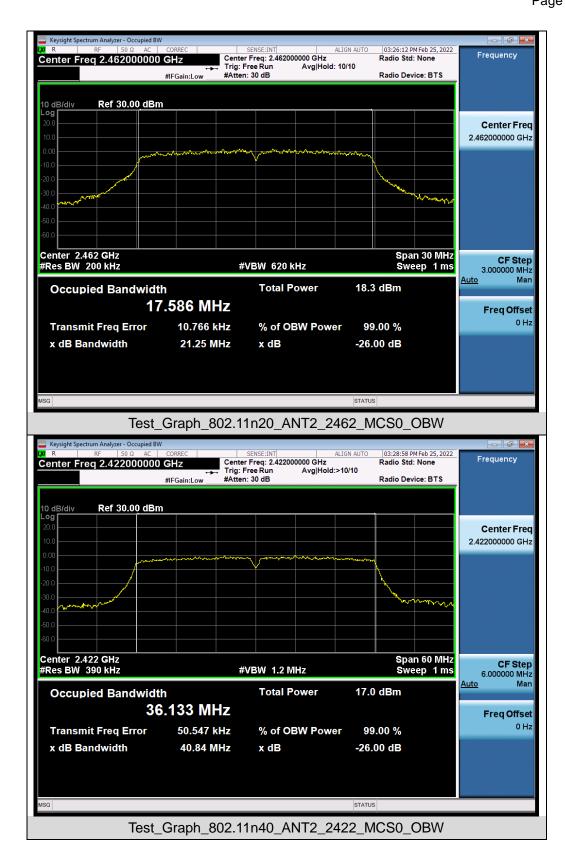




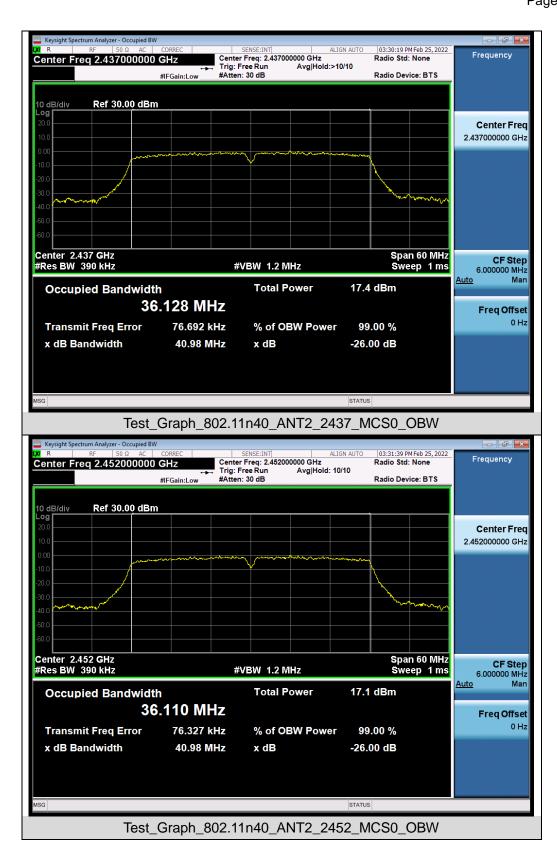






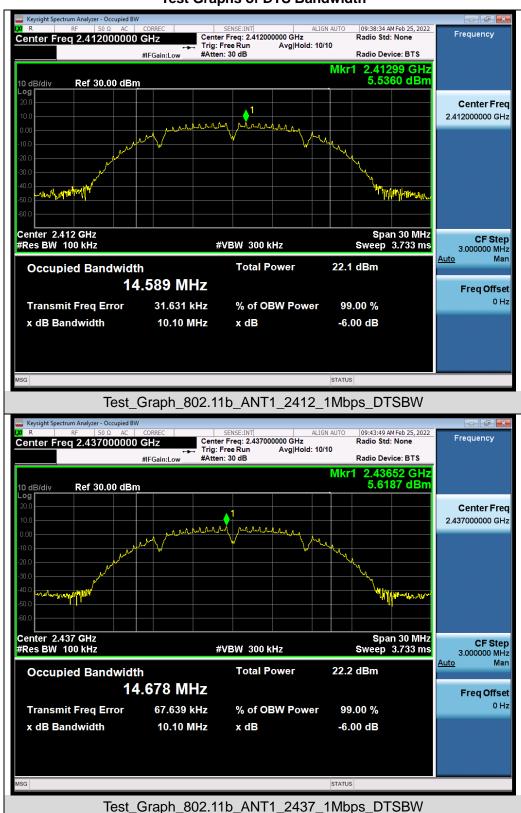




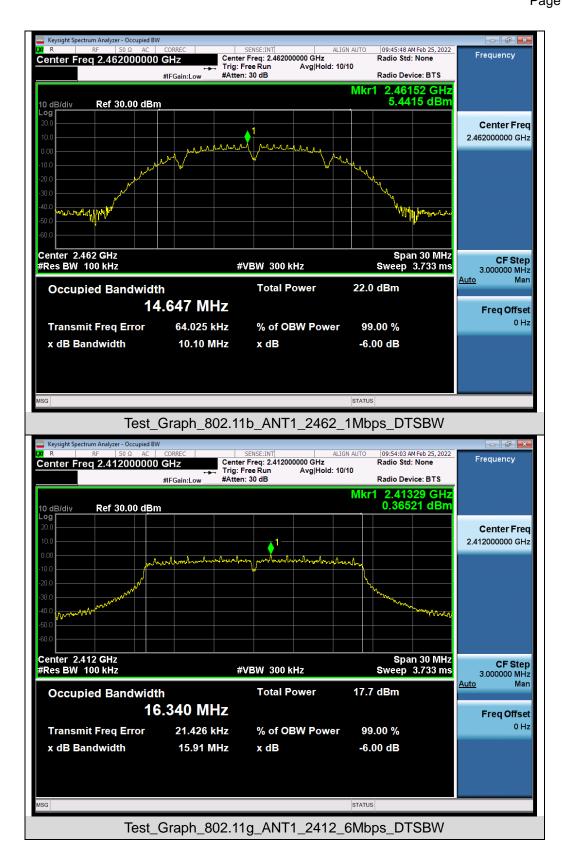




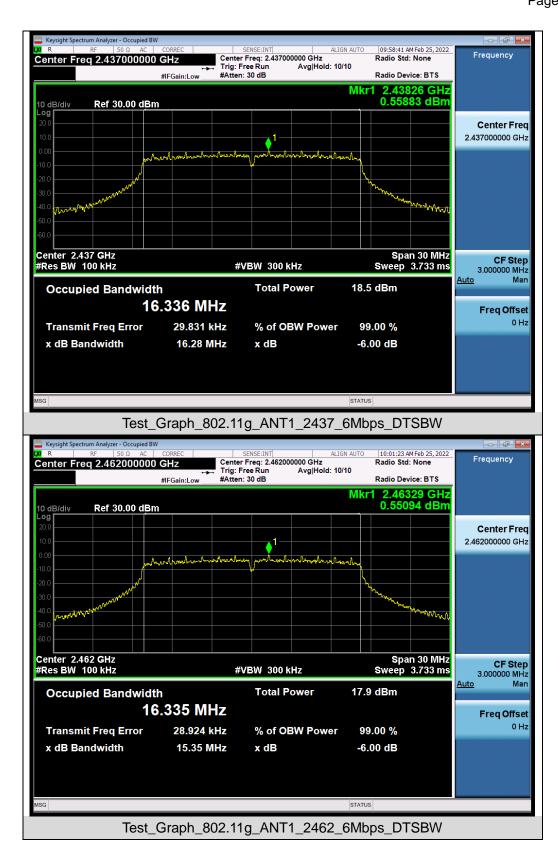
#### **Test Graphs of DTS Bandwidth**



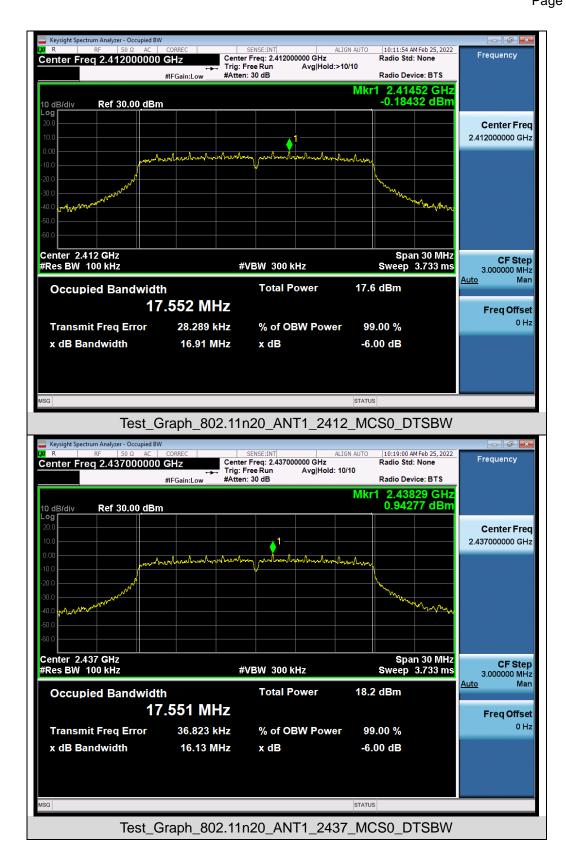




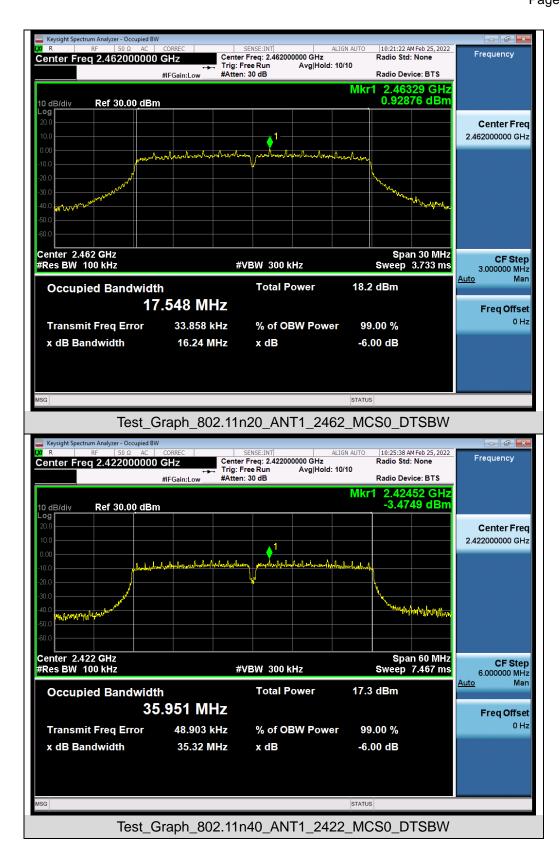




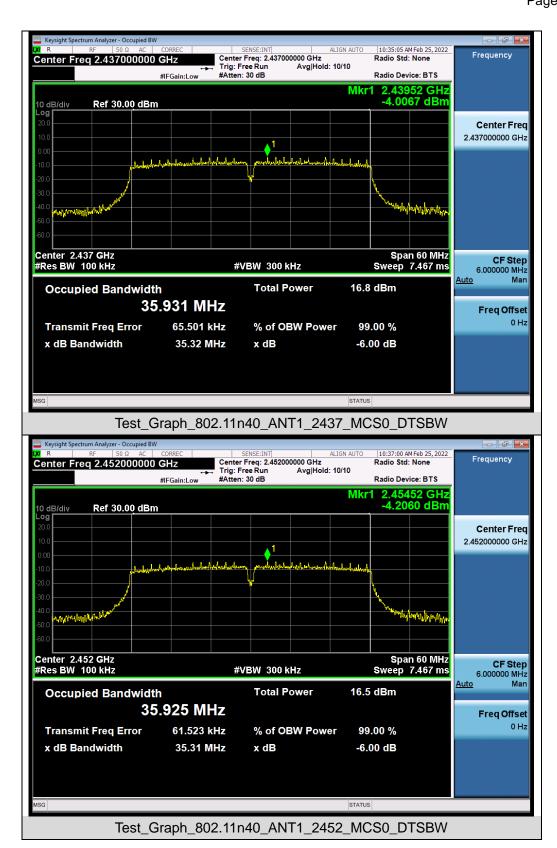








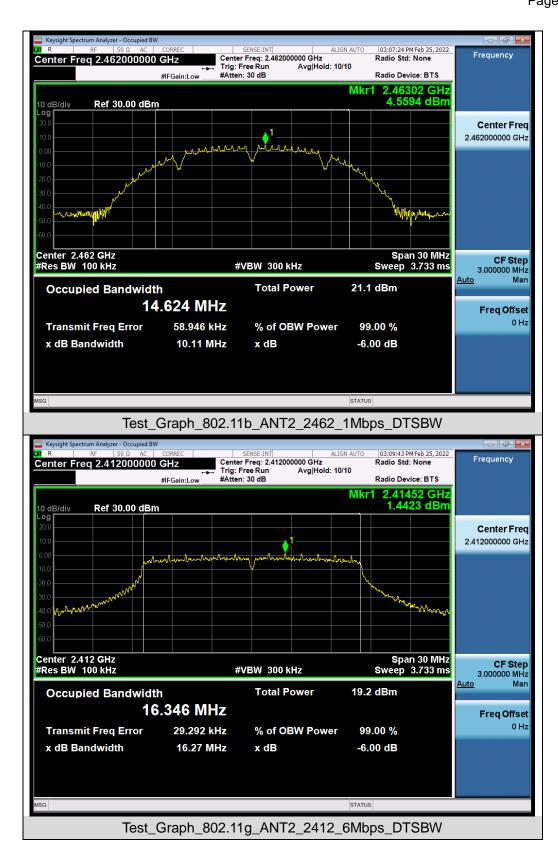




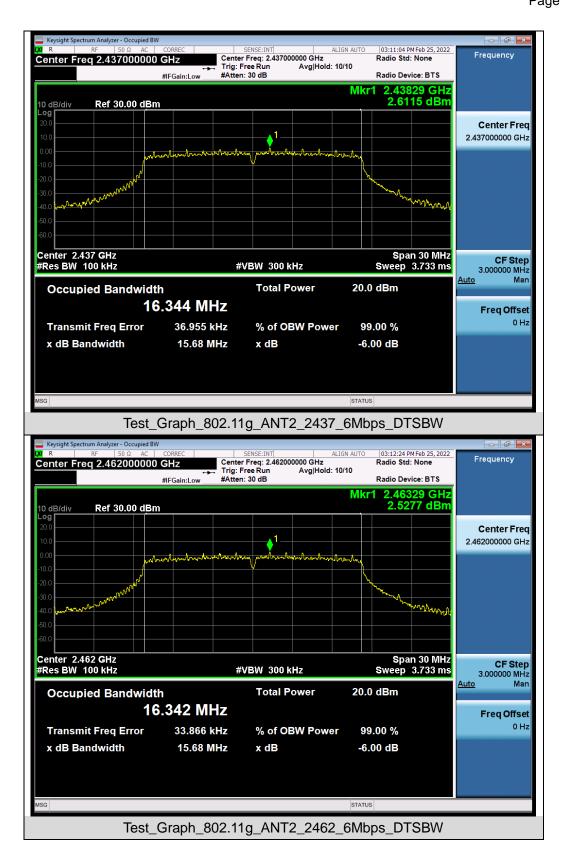




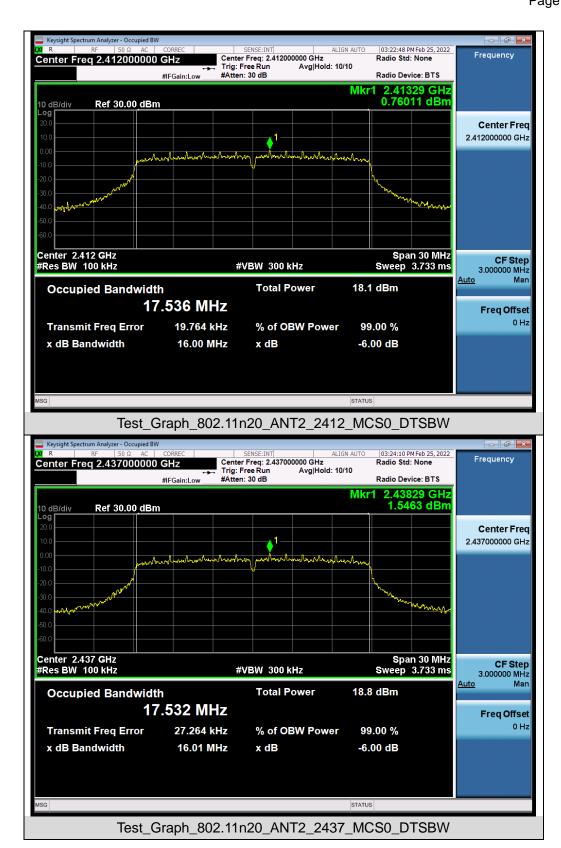




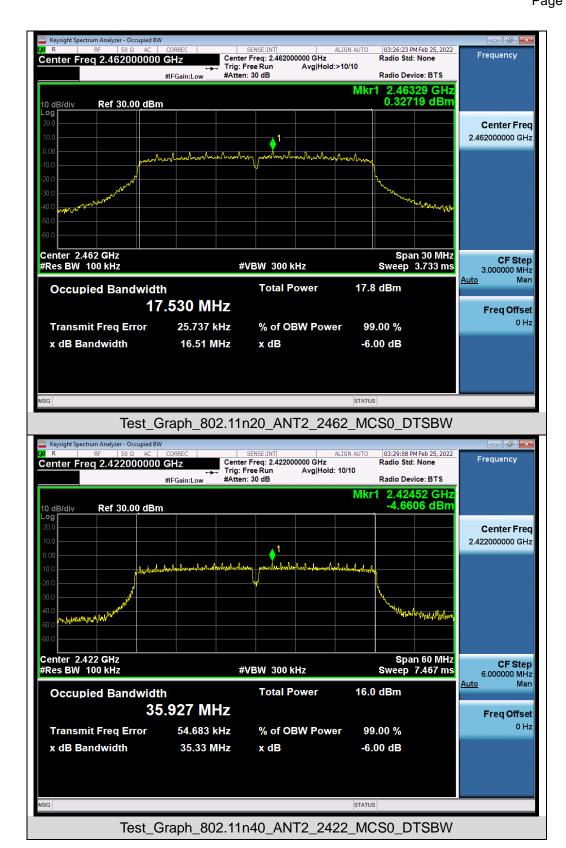




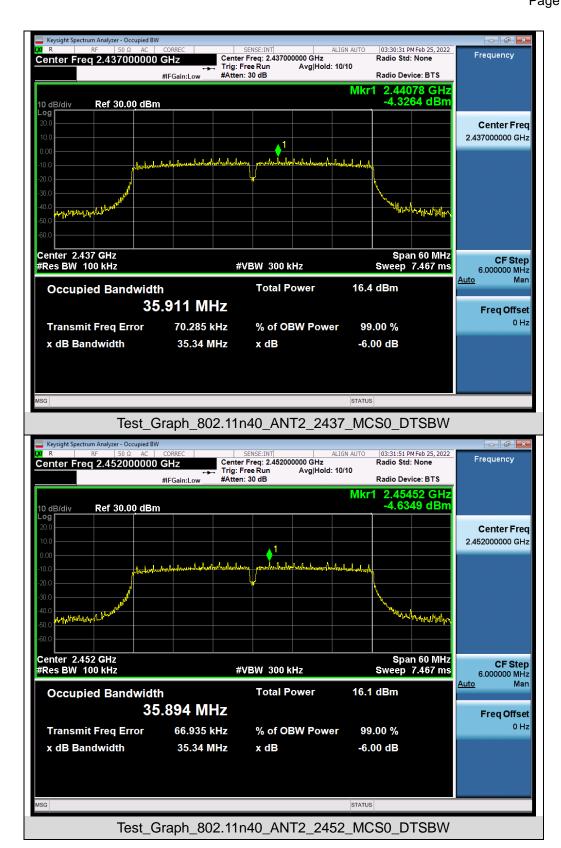














Report No.: AGC11034220105FE05

Page 43 of 130

### 9. CONDUCTED SPURIOUS EMISSION

### 9.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Trace 1 Max hold, then View.

**Note:** The EUT was tested according to ANSI C63.10 (2013) for compliance to FCC 47CFR 15.247 requirements. Owing to satisfy the requirements of the number of measurement points, we set the RBW=1MHz, VBW>RBW, scan up through 10th harmonic, and consider the tested results as the worst case, if the tested results conform to the requirement, we can deem that the real tested results(set the RBW=100KHz, VBW>RBW) are conform to the requirement.

# 9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 8.2.

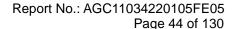
#### 9.3. MEASUREMENT EQUIPMENT USEDJN

The same as described in section 6.

#### 9.4. LIMITS AND MEASUREMENT RESULT

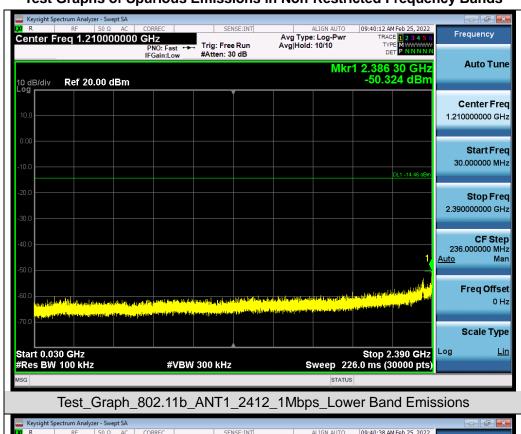
LIMITS AND MEASUREMENT RESULT		
Applicable Limits	Measurement Result	
	Test Data	Criteria
In any 100 KHz Bandwidth Outside the	At least -20dBc than the limit	
frequency band in which the spread spectrum	Specified on the BOTTOM	PASS
intentional radiator is operating, the radio frequency	Channel	
power 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 TOP Channel	PASS

Note: The limits reference level is according to the test plot of -6dB bandwidth.





## Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands

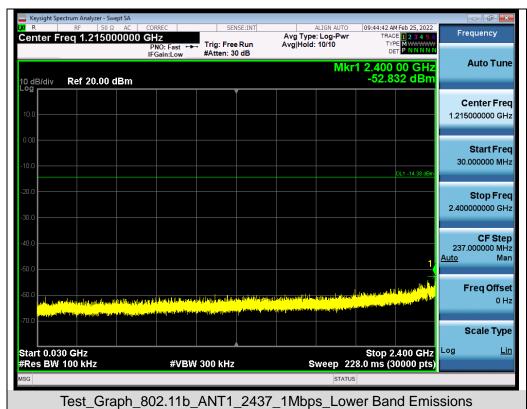




Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test\_Graph\_802.11b\_ANT1\_2412\_1Mbps\_Higher Band Emissions







Stop Freq 25 000000000 GHz

CF Step 2.250000000 GHz

> Freq Offset 0 Hz

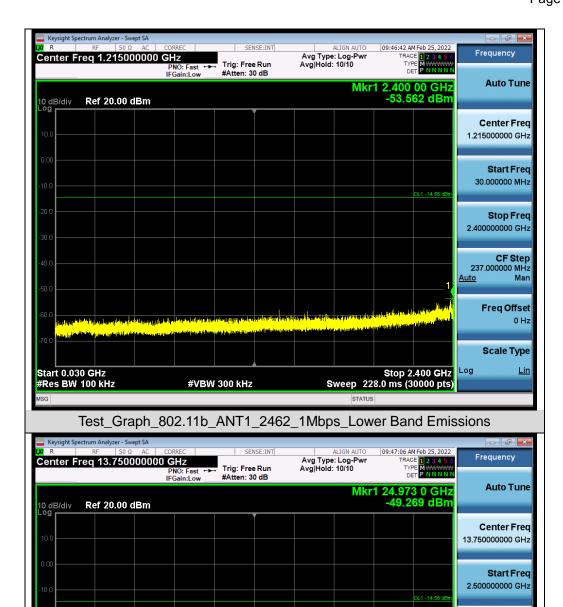
Scale Type

<u>Lin</u>

Log

Stop 25.00 GHz Sweep 2.152 s (30000 pts)





Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report.

Test\_Graph\_802.11b\_ANT1\_2462\_1Mbps\_Higher Band Emissions

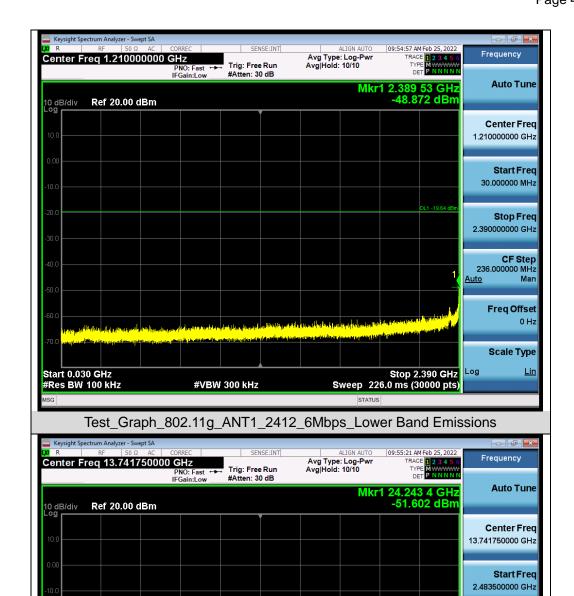
**#VBW** 300 kHz

Start 2.50 GHz #Res BW 100 kHz

Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: http://www.agccert.com/

Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.





Stop Freq 25.000000000 GHz

CF Step 2.251650000 GHz

Auto Man

Freq Offset 0 Hz

#Res BW 100 kHz #VBW 300 kHz Sweep 2.152 s (30000 pts)

Test\_Graph\_802.11g\_ANT1\_2412\_6Mbps\_Higher Band Emissions

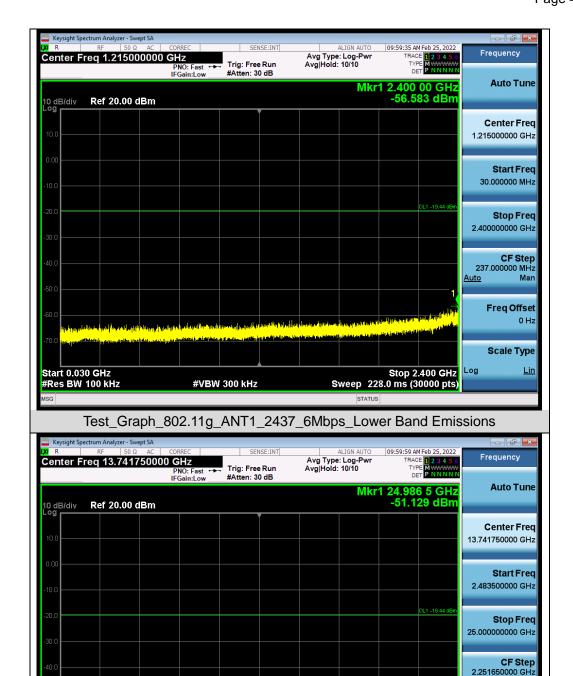
<u>Auto</u>

Log

Stop 25.00 GHz Sweep 2.152 s (30000 pts) Freq Offset 0 Hz

Scale Type





Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test\_Graph\_802.11g\_ANT1\_2437\_6Mbps\_Higher Band Emissions

**#VBW** 300 kHz

Start 2.48 GHz #Res BW 100 kHz

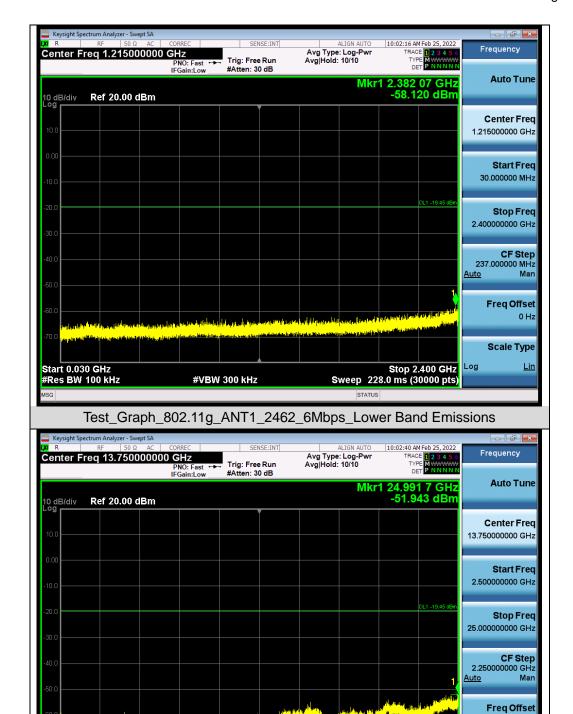
0 Hz

Scale Type

Log

Stop 25.00 GHz Sweep 2.152 s (30000 pts)





Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test\_Graph\_802.11g\_ANT1\_2462\_6Mbps\_Higher Band Emissions

**#VBW** 300 kHz

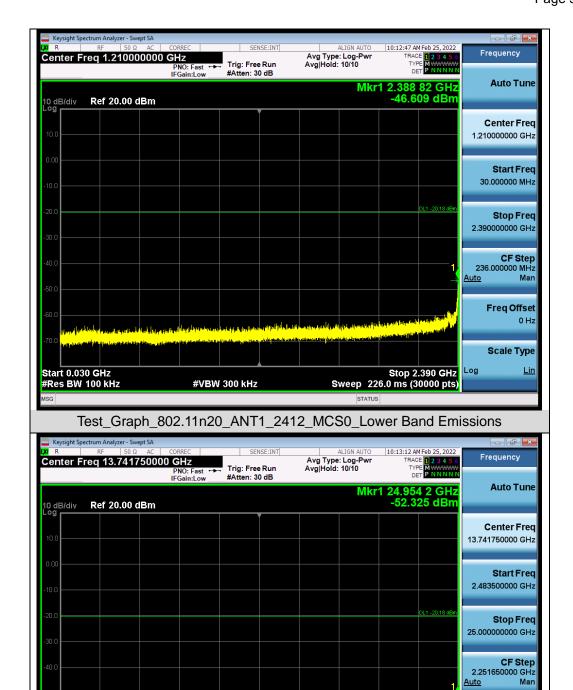
Start 2.50 GHz #Res BW 100 kHz

Freq Offset 0 Hz

Scale Type

Stop 25.00 GHz Sweep 2.152 s (30000 pts)





Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test\_Graph\_802.11n20\_ANT1\_2412\_MCS0\_Higher Band Emissions

**#VBW** 300 kHz

Start 2.48 GHz #Res BW 100 kHz

CF Step 2.251650000 GHz

> Freq Offset 0 Hz

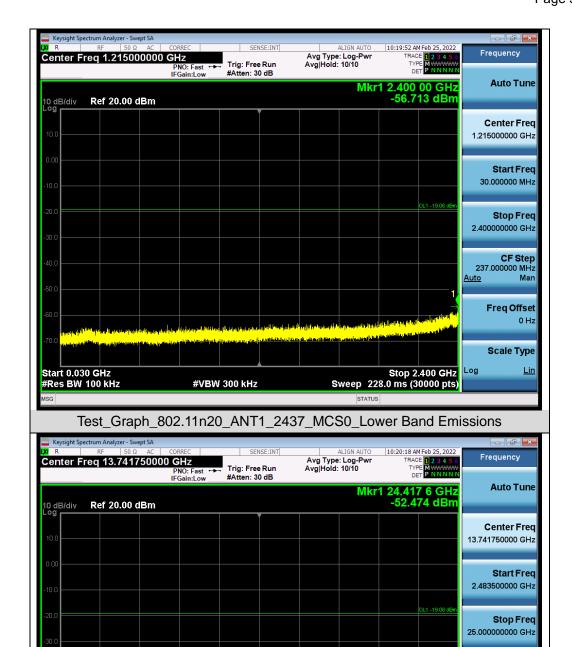
Scale Type

<u>Lin</u>

<u>Auto</u>

Stop 25.00 GHz Sweep 2.152 s (30000 pts)





Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test\_Graph\_802.11n20\_ANT1\_2437\_MCS0\_Higher Band Emissions

**#VBW** 300 kHz

Start 2.48 GHz #Res BW 100 kHz

CF Step 2.250000000 GHz

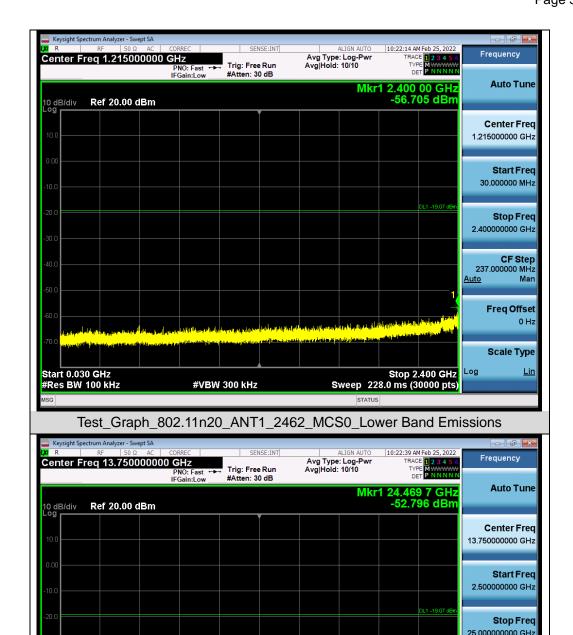
> Freq Offset 0 Hz

Scale Type

<u>Auto</u>

Stop 25.00 GHz Sweep 2.152 s (30000 pts)





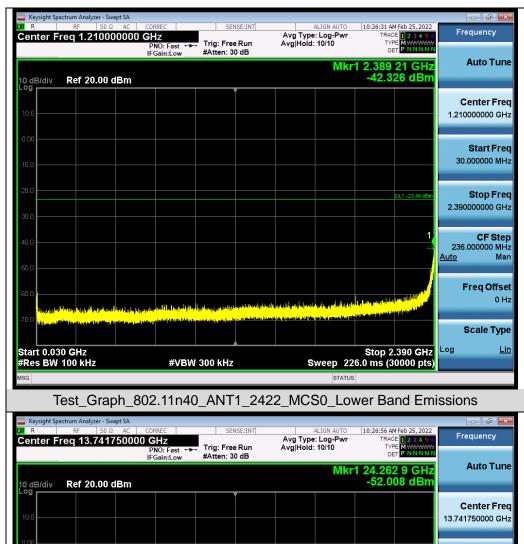
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

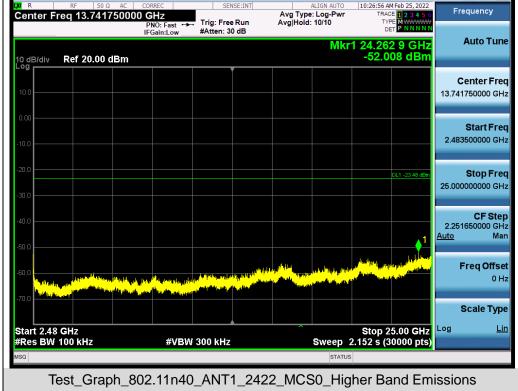
Test\_Graph\_802.11n20\_ANT1\_2462\_MCS0\_Higher Band Emissions

**#VBW** 300 kHz

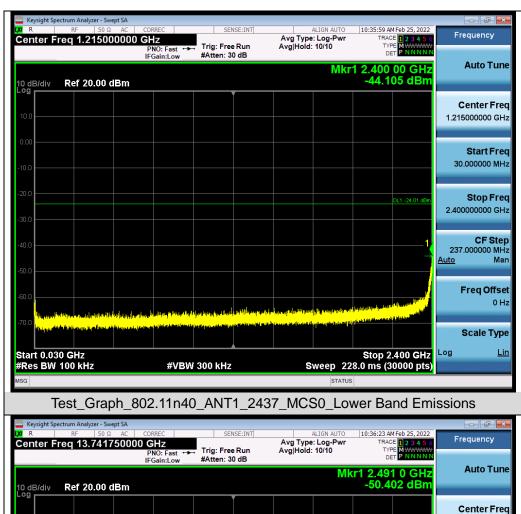
Start 2.50 GHz #Res BW 100 kHz

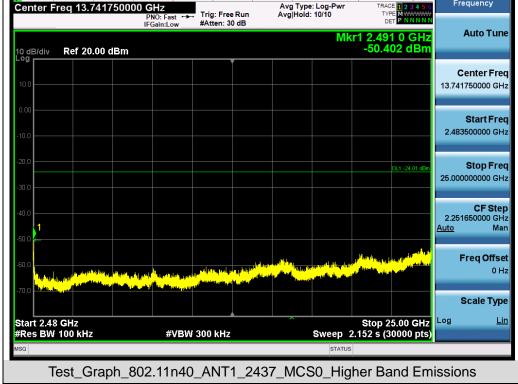








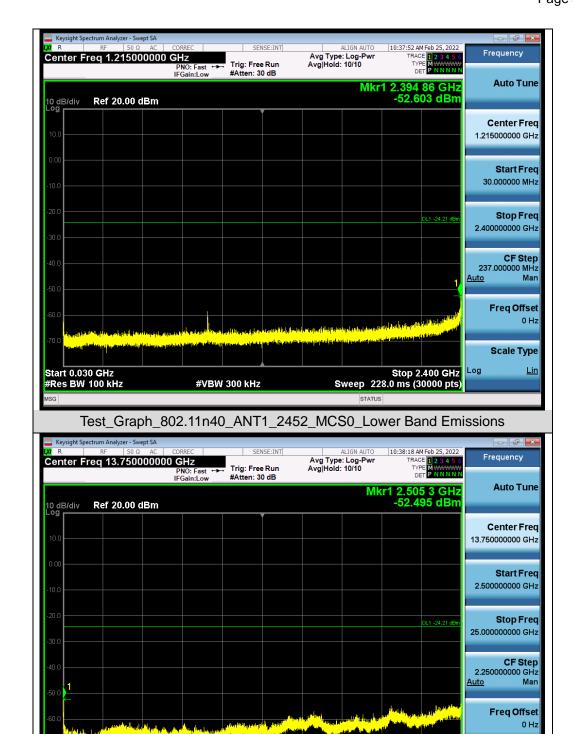




Scale Type

Stop 25.00 GHz Sweep 2.152 s (30000 pts)





Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test\_Graph\_802.11n40\_ANT1\_2452\_MCS0\_Higher Band Emissions

**#VBW** 300 kHz

Start 2.50 GHz #Res BW 100 kHz

25 000000000 GHz

CF Step 2.251650000 GHz

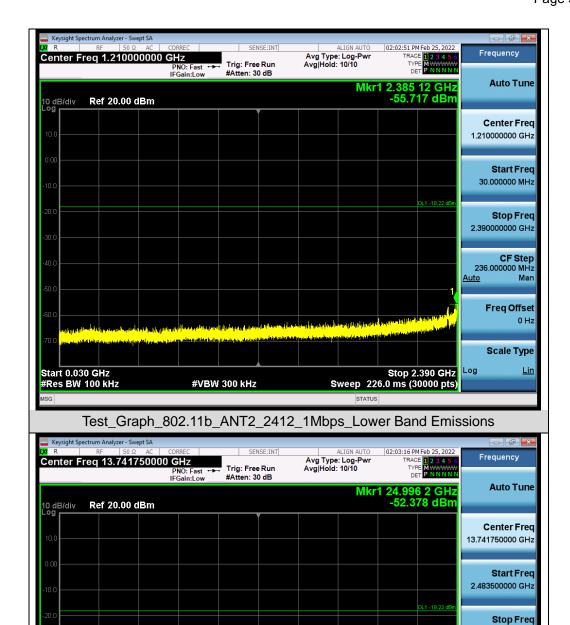
> Freq Offset 0 Hz

Scale Type

Log

Stop 25.00 GHz Sweep 2.152 s (30000 pts)





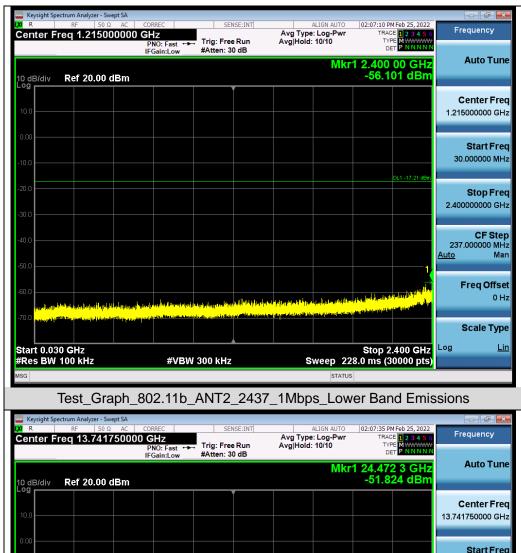
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test\_Graph\_802.11b\_ANT2\_2412\_1Mbps\_Higher Band Emissions

**#VBW** 300 kHz

Start 2.48 GHz #Res BW 100 kHz





Center Freq
13.741750000 GHz

Start Freq
2.483500000 GHz

Stop Freq
25.000000000 GHz

CF Step
2.251650000 GHz

CF Step
2.251650000 GHz

Auto Man

Freq Offset
0 Hz

#Res BW 100 kHz #VBW 300 kHz Sweep 2.152 s (30000 pts)

Test\_Graph\_802.11b\_ANT2\_2437\_1Mbps\_Higher Band Emissions