

# **FCC Test Report**

Report No.: AGC12845230506FE05

FCC ID	:	2AZD3FJ-WF01V
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	WiFi Camera
BRAND NAME	:	FJDYNAMICS
MODEL NAME	:	FJ-WF01
APPLICANT	:	FJ Dynamics Technology Co., Ltd.
DATE OF ISSUE	:	Jul. 05, 2023
STANDARD(S) TEST PROCEDURE(S)	:	FCC Part 15.247
<b>REPORT VERSION</b>	:	V1.0







#### **REPORT REVISE RECORD**

<b>Report Version</b>	Revise Time	Issued Date	Issued Date Valid Version	
V1.0	/	Jul. 05, 2023	Valid	Initial Release



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#### **1. VERIFICATION OF CONFORMITY**

Applicant	FJ Dynamics Technology Co., Ltd.
Address	No.1, Dongfeng-Iseki Road Xiangzhou International Logistic Park, Xiangyang, Hubei, China
manufacturer	FJ Dynamics Technology Co., Ltd.
Address	No.1, Dongfeng-Iseki Road Xiangzhou International Logistic Park, Xiangyang, Hubei, China
Factory	FJ Dynamics Technology Co., Ltd.
Address	No.1, Dongfeng-Iseki Road Xiangzhou International Logistic Park, Xiangyang, Hubei, China
Product Designation	WiFi Camera
Brand Name	FJDYNAMICS
Test Model	FJ-WF01
Date of receipt of test item	May 19, 2023
Date of test	May 24, 2023 to Jul. 05, 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

Cool chen

Cool Cheng Project Engineer

Jul. 05, 2023

in Lin

Calvin Liu Reviewer

Jul. 05, 2023

Approved By

Reviewed By

Max Zhang Authorized Officer

Jul. 05, 2023

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 Attestation of Global Compliance(Shenzhen)Co., Ltd

 Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd

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# 2. GENERAL INFORMATION

### 2.1. PRODUCT DESCRIPTION

The EUT is designed as "WiFi Camera". It is designed by way of utilizing the DSSS and OFDM technology to achieve the system operation.

Equipment Type	WLAN 2.4G			
Frequency Band	2400MHz ~ 2483.5MHz			
Operation Frequency	2412MHz ~ 2462MHz			
Output Dower (Average)	IEEE 802.11b:8.12dBm; IEEE 802.11g:9.04dBm;			
Output Power (Average)	IEEE 802.11n(HT20):10.08dBm			
Output Power (Peak)	IEEE 802.11b:10.91dBm; IEEE 802.11g:16.32dBm;			
	IEEE 802.11n(HT20):17.56dBm			
Modulation	802.11b:DQPSK, DBPSK, CCK			
	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	V3			
Software Version	V1			
Antenna Designation	SMA Plug antenna (Comply with requirements of the FCC part 15.203)			
Antenna Gain	3.44dBi			
Power Supply	DC 12V/24V			

A major technical description of EUT is described as following



#### 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.



#### 2.3. IEEE 802.11N MODULATION SCHEME

MCS	Nss Modulation R		NBPSC	NCBPS		NDBPS		Data rate(Mbps) 800nsGI		
Index					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: 2AZD3FJ-WF01V** 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.

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.

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#### 2.8. ANTENNA REQUIREMENT

This deliberate radiator is designed with a permanent connection terminal for the antenna, and the external antenna is detachable to ensure that no other antennas can be used with the equipment except the antenna provided by the responsible party.

For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.



# **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	$U_{c} = \pm 2.7 \%$
Uncertainty of Occupied Channel Bandwidth	U <sub>c</sub> = ±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)			
Transm Transm				

#### 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.
- 3. The EUT was supplied by DC 12V and DC 24V. Only the worst mode test data(DC 12V) recorded in the test report.

🌇 SSCOM V5.13.1 串口/网络数据调试器,作者:大虾丁丁,2618058@qq.com. QQ群: 52502449(最新版本) × 通讯端口 串口设置 显示 发送 多字符串 小工具 帮助 联系作者 大虾论坛 [atbm\_log]:etf\_channel = 7 etf\_channel\_type 0 # ifconfig wlan0 up /# [17:21:00.737]发→◇iwpriv wlan0 fwcmd set\_rate\_txpower\_mode,-15 ifoonfig wlanO up □ [17:21:00.739]\\$\$<◆iwpriv wlanO fwomd set\_rate\_txpower\_mode,-15 ifconfig wlan0 up # ifconfig wlan0 up **清除窗口** 打开文件 发送文件 停止 青发送区 🗆 最前 🗆 English 保存参数 扩展 — ▼ 「 HEX最示 保存數据 」 接收數据到文件 「 HEX发送 「 定时发送: 1 ● 元 加时间歇和分包显示, 超时时间: 20 mm; 第1 字节 至 末尾 ▼ 加校划 None ms/次 🔽 加回车换行? 端口号 COM6 USB-SERIAL CH340 更多串口设置 ▼ 加时间戳和 美闭串口 👌 iwpriv wlan0 fwcmd set\_rate\_txpower\_mode,-15 RTS DTR 波特率: 115200 -更好地发展SSCOM软件 注册嘉立创F结尾客户 发送 【升级到V5.13.1】★合宙高性价比46模块值得一试、★RT-Thread中国人的开源免费操作系统、★新一代WiFi芯片兼容8266支持RT-Thread ★8800元跟 COM6 已打开 115200bps,8,1,None,None w.daxia.com S:927 R:61818

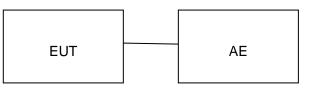
**Test Software** 



# **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 Camera	FJ-WF01	2AZD3FJ-WF01V	EUT
2	DC source	N/A	N/A	AE
3	USB-TTL	N/A	N/A	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	Not applicable

**Note:** The conducted emission tests at AC port are not required for devices which only employ battery power for operation.



# 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	Aug. 04, 2022	Aug. 03, 2023
LISN	R&S	ESH2-Z5	100086	Jun. 03, 2023	Jun. 02, 2024
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	Feb. 18, 2023	Feb. 17, 2024
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023
USB Wideband Power Sensor	Aglient	U2021XA	MY54110007	Mar. 03, 2023	Mar. 02, 2024
2.4GHz Fliter	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	SCHWARZBEC	BBHA9170	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	3117	00034609	Apr. 23, 2023	Apr. 22, 2024
Double-Ridged Waveguide Horn	ETS	3117	00154520	Sep. 06, 2021	Sep. 05, 2023
Preamplifier Assembly	ETS	3117PA	00225134	Sep. 01, 2022	Sep. 02, 2024
Wideband Antenna	SCHWARZBECK	VULB9168	VULB9168-494	Jan. 05, 2023	Jan. 04, 2025
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A



# 7. OUTPUT POWER

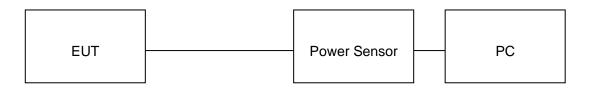
# 7.1. MEASUREMENT PROCEDURE

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)





#### 7.3. LIMITS AND MEASUREMENT RESULT

Test Data of Conducted Output Power					
Test Mode	Test Channel (MHz)	Average Power (dBm)	Peak Power (dBm)	Limits (dBm)	Pass or Fail
	2412	7.53	10.39	≤30	Pass
802.11b	2437	7.31	10.18	≤30	Pass
	2462	8.12	10.91	≤30	Pass
	2412	9.04	16.32	≤30	Pass
802.11g	2437	8.40	15.70	≤30	Pass
	2462	7.90	15.19	≤30	Pass
	2412	9.76	17.29	≤30	Pass
802.11n20	2437	9.46	17.05	≤30	Pass
	2462	10.08	17.56	≤30	Pass



# 8. BANDWIDTH

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

6dB bandwidth:

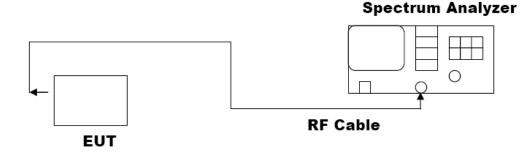
- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 kHz, VBW≥3×RBW.
- 4. Set SPA Trace 1 Max hold, then View.

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)

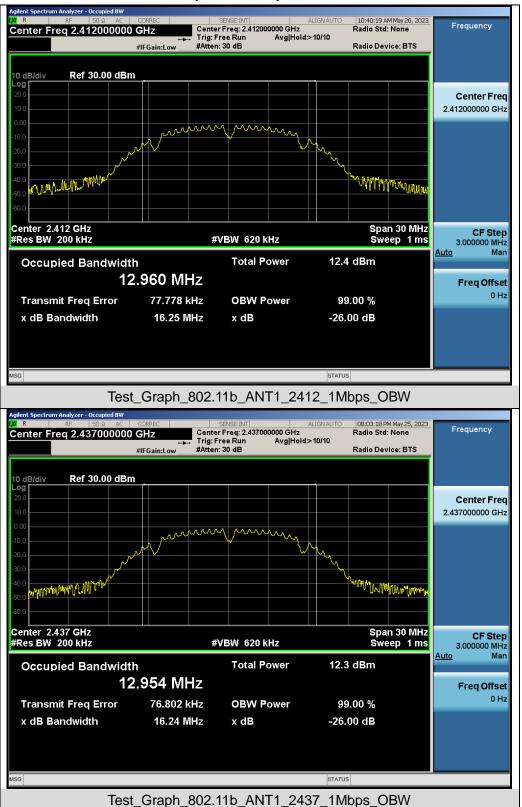




#### **8.3. LIMITS AND MEASUREMENT RESULTS**

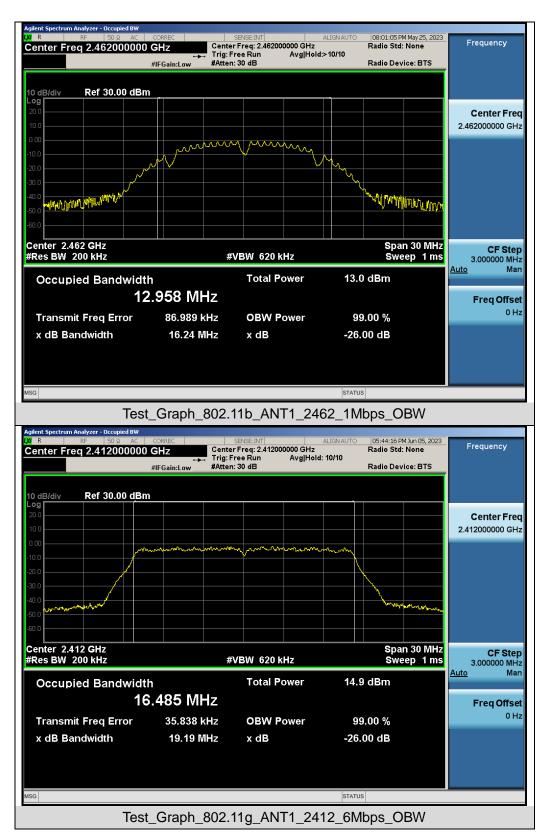
Test Data of Occupied Bandwidth and DTS Bandwidth					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-6dB Bandwidth (MHz)	-6dB Limits (MHz)	Pass or Fail
	2412	12.960	10.03	≥0.5	Pass
802.11b	2437	12.954	10.04	≥0.5	Pass
	2462	12.958	10.04	≥0.5	Pass
	2412	16.485	16.34	≥0.5	Pass
802.11g	2437	16.505	16.34	≥0.5	Pass
	2462	16.408	16.34	≥0.5	Pass
802.11n20	2412	17.442	17.05	≥0.5	Pass
	2437	17.461	17.07	≥0.5	Pass
	2462	17.445	17.04	≥0.5	Pass



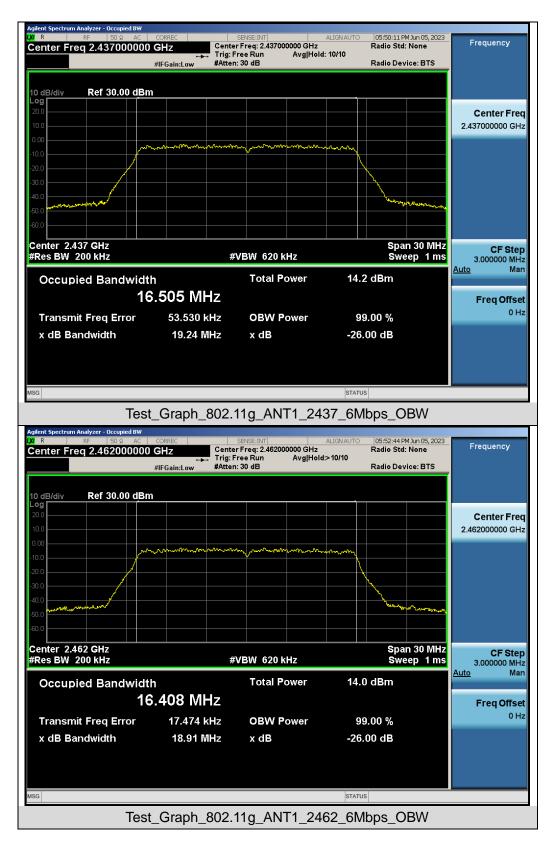


#### Test Graphs of Occupied Bandwidth

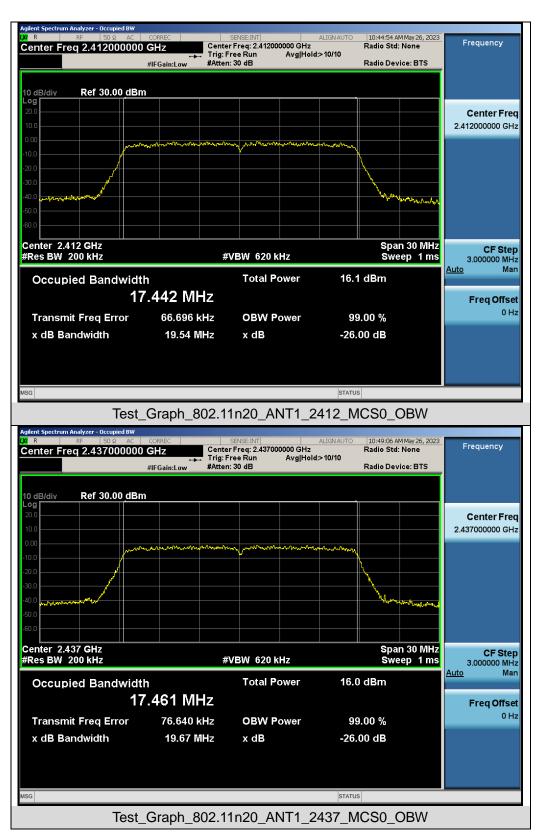




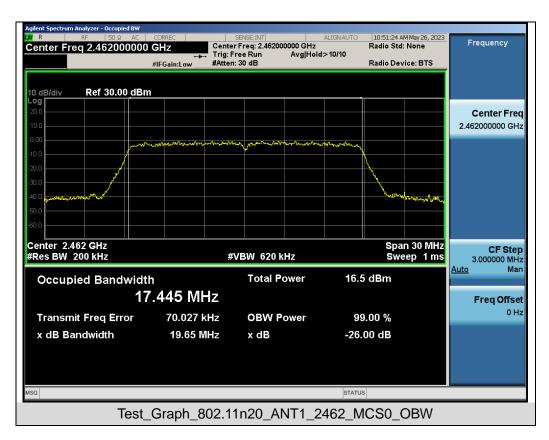




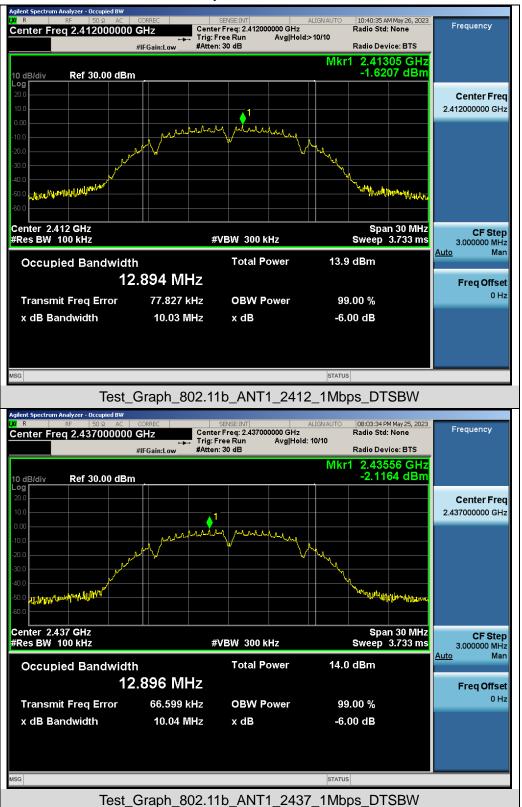






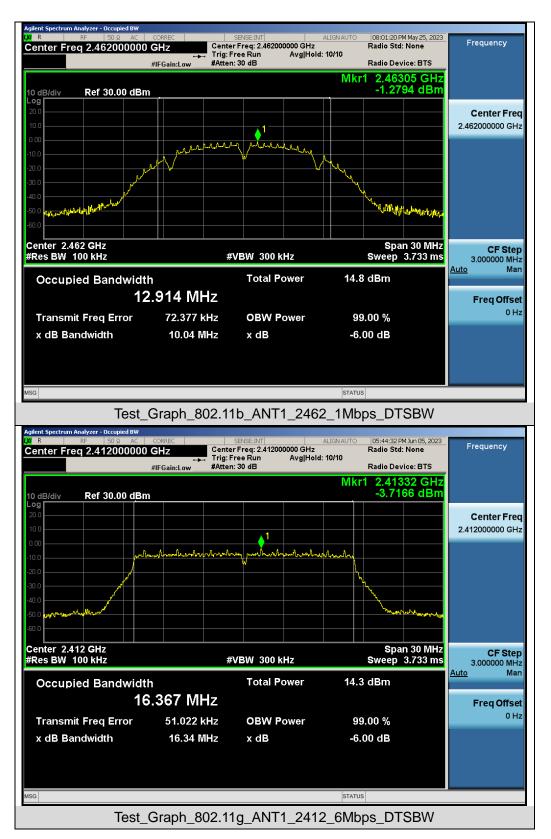




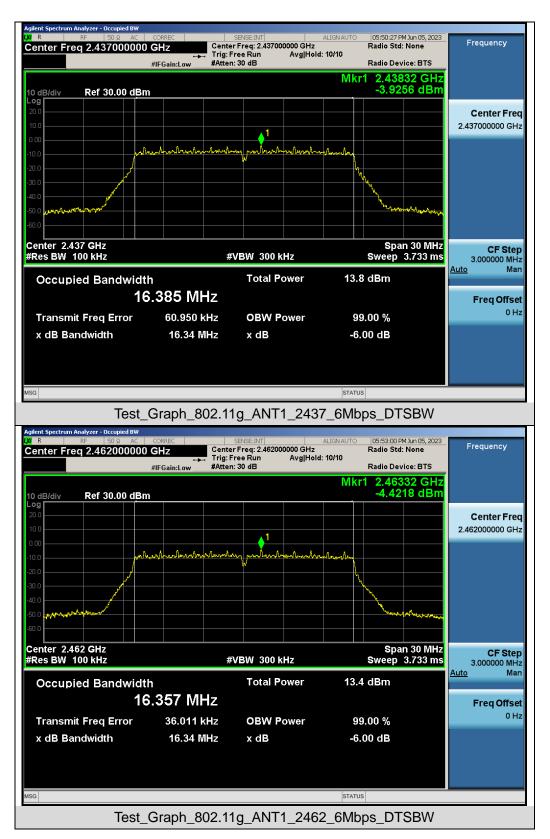


#### Test Graphs of DTS Bandwidth

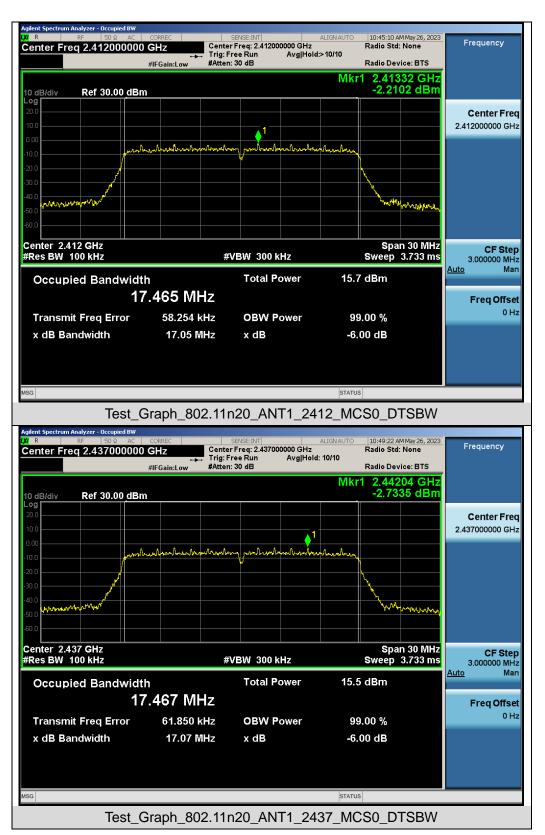




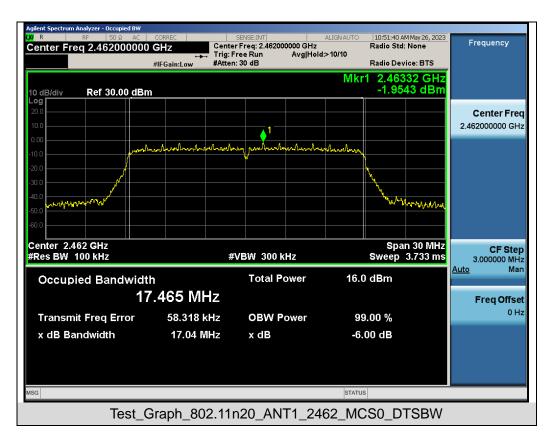














# 9. CONDUCTED SPURIOUS EMISSION

#### 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

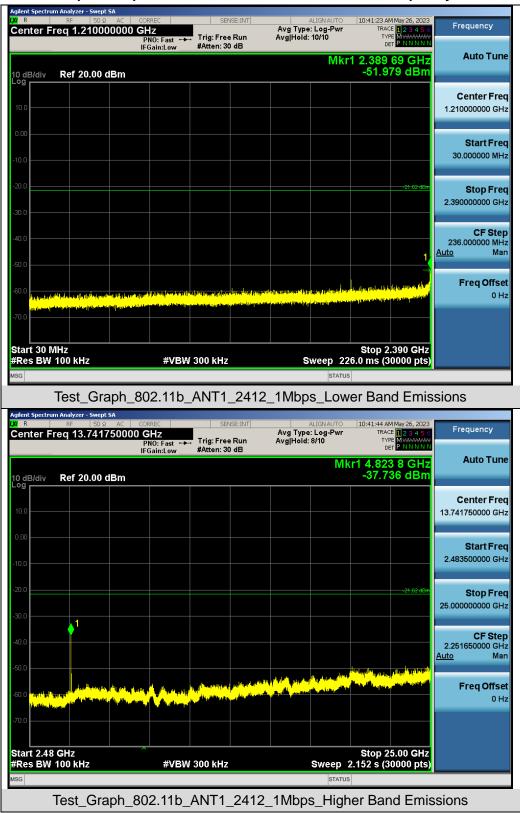
The same as described in section 6.

### 9.4. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT				
Applieghte Limite	Measurement Result			
Applicable Limits	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.	At least -20dBc than the limit	PASS		
In addition, radiation emissions which fall in the	Specified on the TOP Channel	FAGO		
restricted bands, as defined in §15.205(a), must also				
comply with the radiated emission limits specified				
in§15.209(a))				

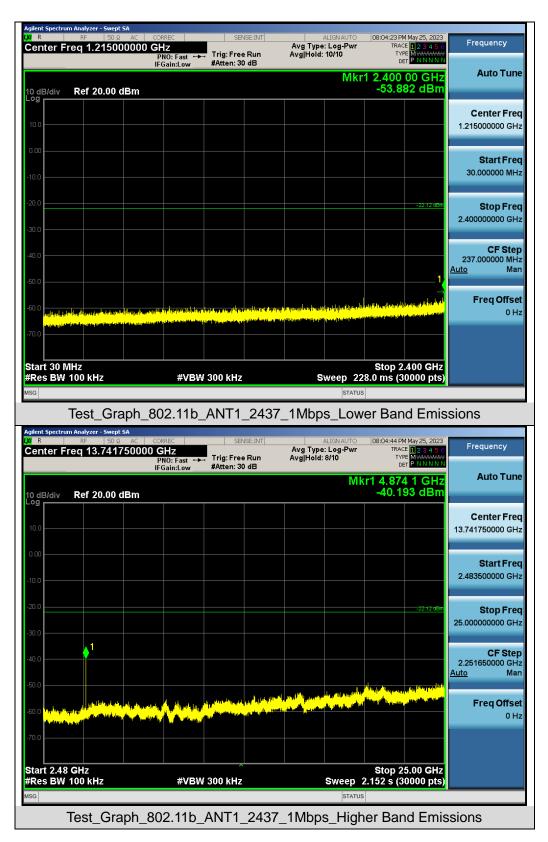
Note: The limits reference level is according to the test plot of -6dB bandwidth.



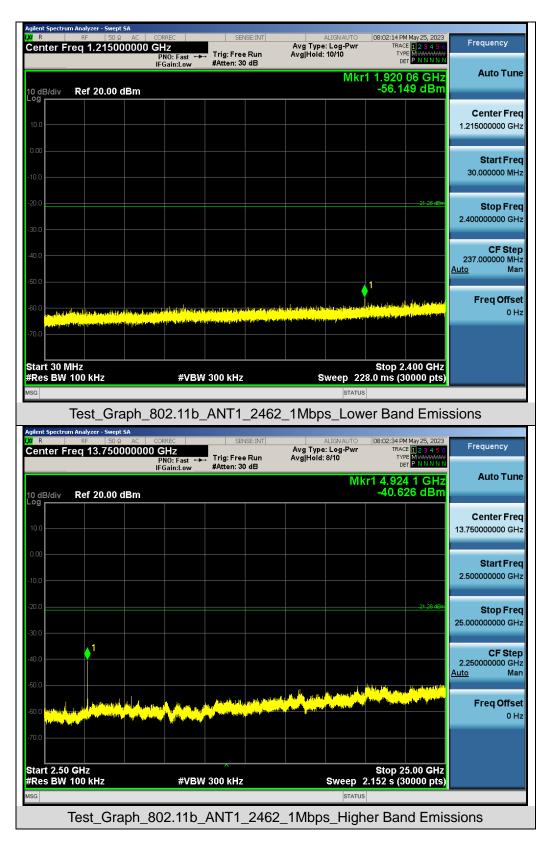


#### Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands

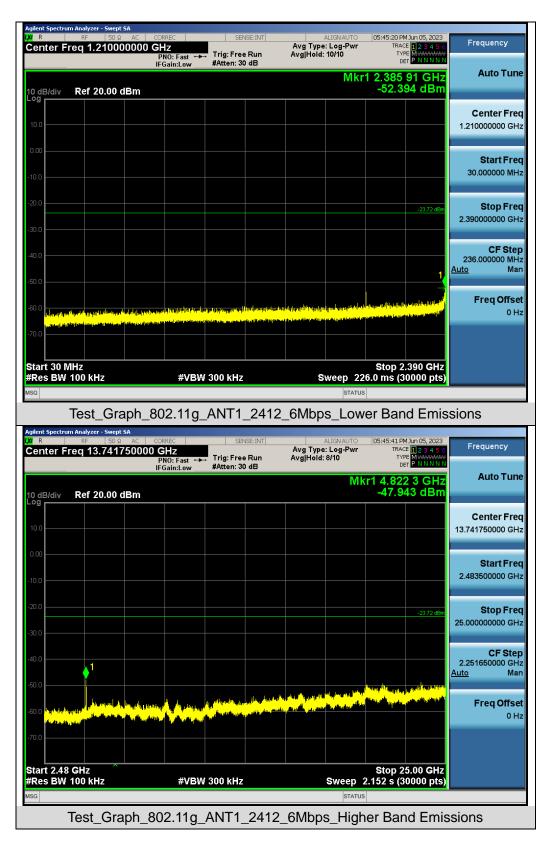




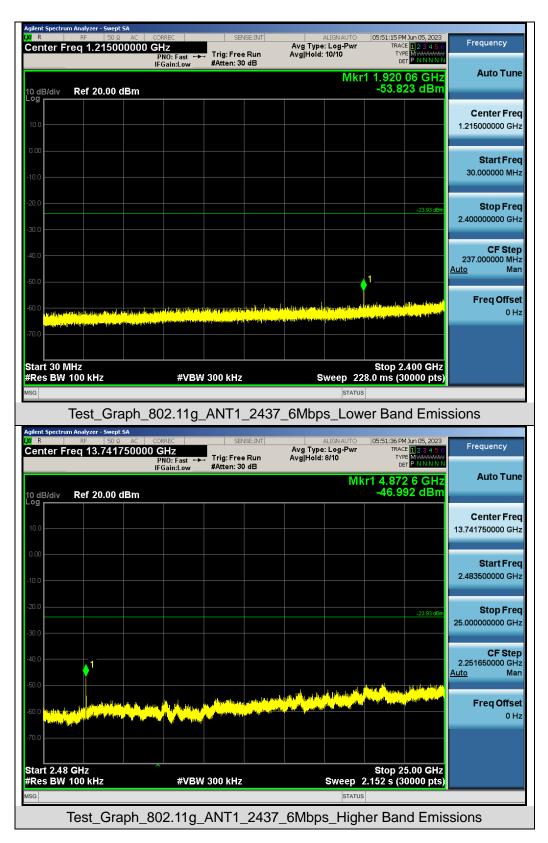




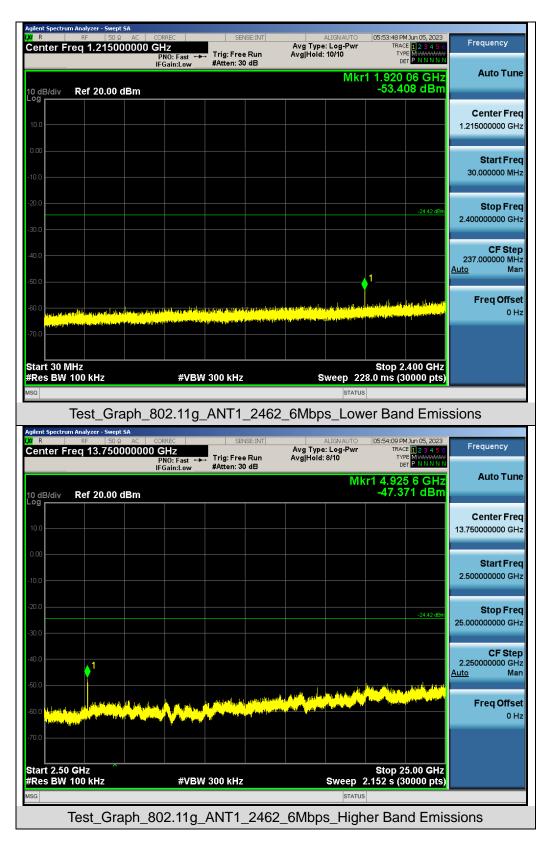




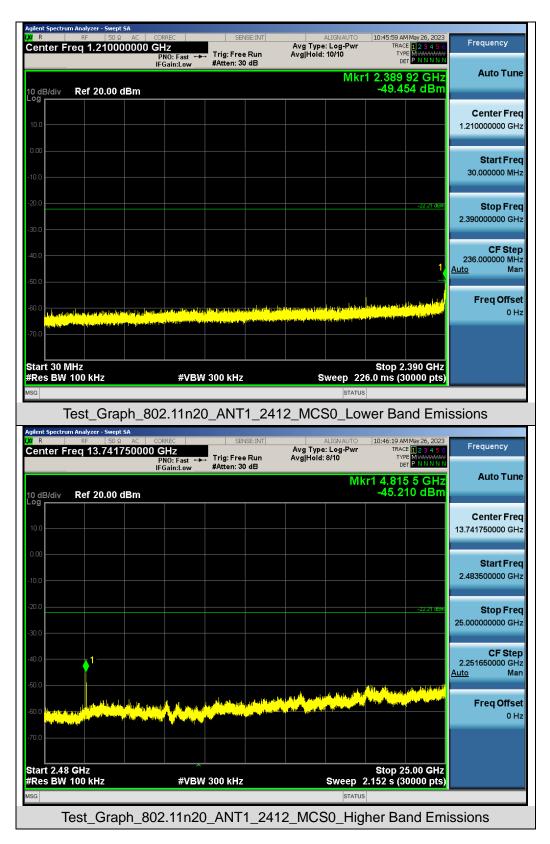




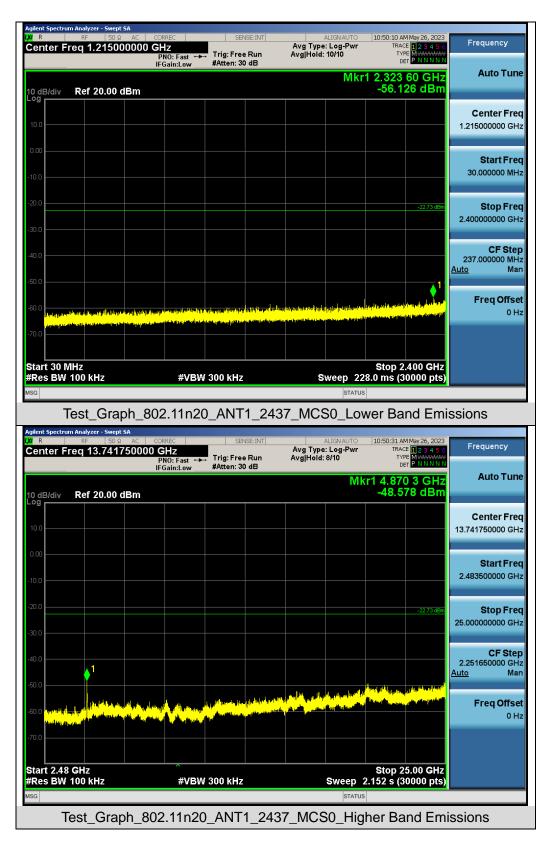




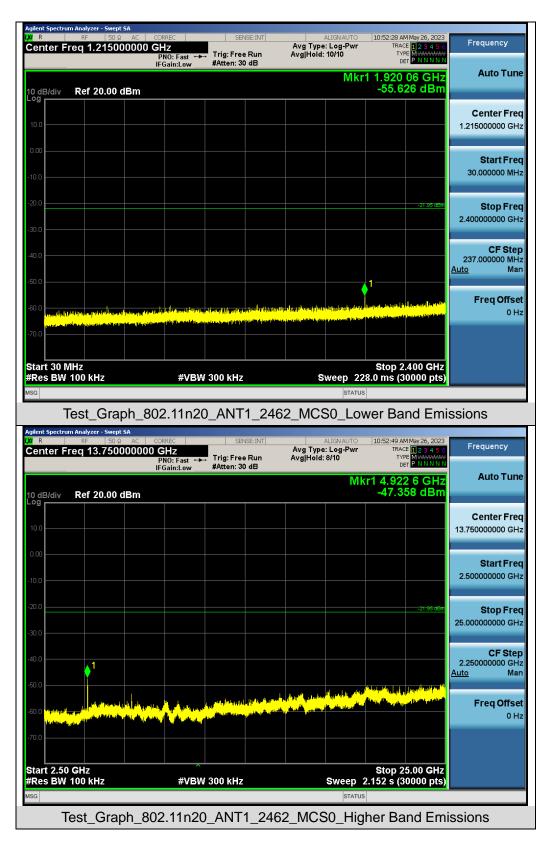










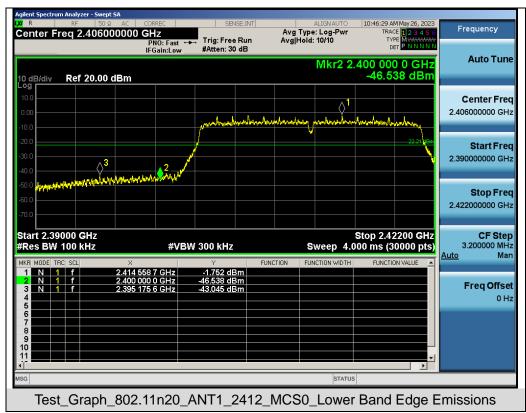






#### Test Graphs of Band Edge Emissions in Non-Restricted Frequency Bands





Note: Emissions from 2483.5-2500MHz which fall in the restricted bands had been considered with the radiated emission limits specified.



### **10. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY**

### **10.1 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 method of PKPSD in the ANSI C63.10 (2013) item 11.10 was used in this testing.

### **10.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)**

Refer to Section 8.2.

### **10.3 MEASUREMENT EQUIPMENT USED**

Refer to Section 6.

### **10.4 LIMITS AND MEASUREMENT RESULT**

	Test Data of Conducted Output Power Spectral Density								
Test Mode	Test Channel (MHz)	Power density (dBm/20kHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail				
	2412	-1.560	-9.799	≤8	Pass				
802.11b	2437	-7.153	-15.392	≤8	Pass				
	2462	-6.637	-14.876	≤8	Pass				
	2412	-8.318	-16.557	≤8	Pass				
802.11g	2437	-8.526	-16.765	≤8	Pass				
	2462	-8.765	-17.004	≤8	Pass				
	2412	-7.716	-15.955	≤8	Pass				
802.11n20	2437	-7.103	-15.342	≤8	Pass				
	2462	-7.670	-15.909	≤8	Pass				

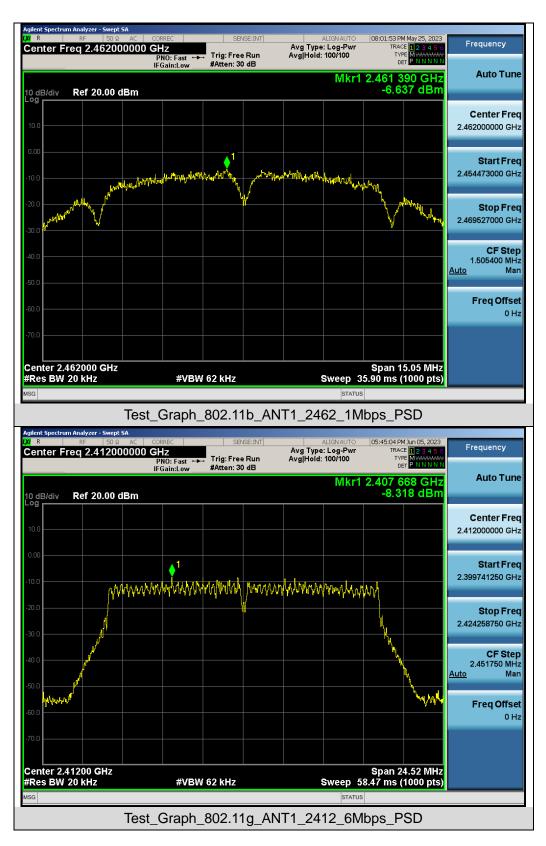
Note: Power density(dBm/3kHz) = Power density(dBm/20kHz) - 10\*log(20/3).



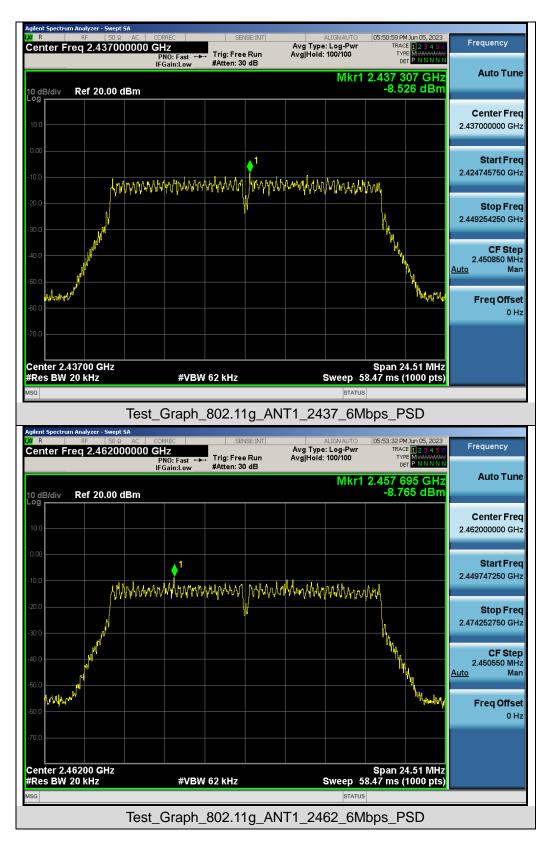


#### Test Graphs of Conducted Output Power Spectral Density

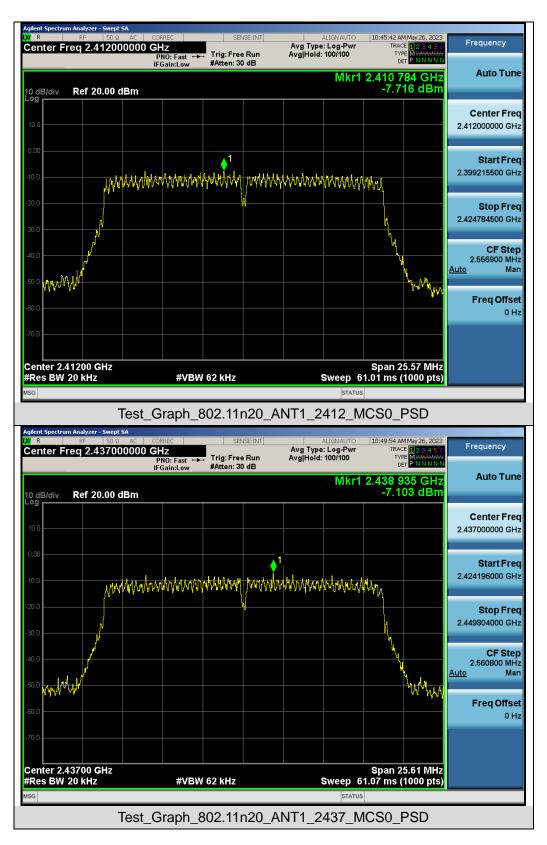


















## **11. RADIATED EMISSION**

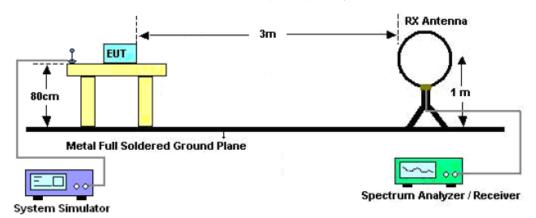
### **11.1. MEASUREMENT PROCEDURE**

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
- 8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.

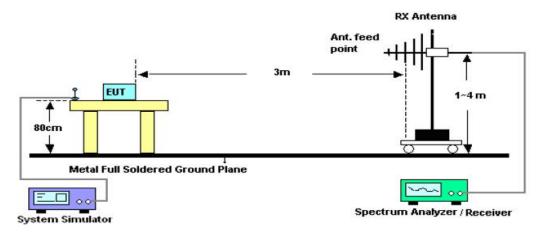


### 11.2. TEST SETUP

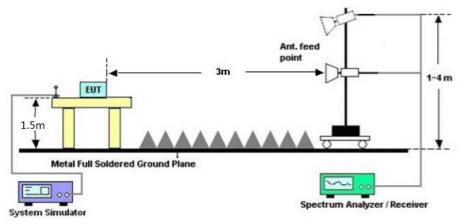
Radiated Emission Test-Setup Frequency Below 30MHz



#### RADIATED EMISSION TEST SETUP 30MHz-1000MHz



## RADIATED EMISSION TEST SETUP ABOVE 1000MHz





### **11.3. LIMITS AND MEASUREMENT RESULT**

15.209(a) Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Note: All modes were tested for restricted band radiated emission,

the test records reported below are the worst result compared to other modes.

#### 11.4. TEST RESULT

### Radiated emission below 30MHz

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with date rate 6.5 2462MHz	Antenna	Horizontal

#### Radiated emission from 30MHz to 1000MHz

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						_		_							_	
).000	40	50 (	50 7	70 8	0		(M)	IZ)			300	400	500	600	700	100

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	1	75.6516	14.57	12.20	26.77	43.50	-16.73	peak
2	2	14.5141	14.97	14.43	29.40	43.50	-14.10	peak
3	2	86.9823	17.04	15.76	32.80	46.00	-13.20	peak
4	4	43.2943	10.49	22.81	33.30	46.00	-12.70	peak
5	6	18.5367	7.23	25.19	32.42	46.00	-13.58	peak
6	* 9	03.3093	5.99	31.34	37.33	46.00	-8.67	peak

#### **RESULT: PASS**



EUT	WiFi Camer	а	Model Name	FJ-WF01
Temperature	25°C		Relative Humidity	58%
Pressure	960hPa		Test Voltage	Normal Voltage
Test Mode	802.11n20 v 2462MHz	vith date rate 6.5	Antenna	Vertical
72.0 dBuV/m				
32 	MM man marked			Linit: — Margin: — S S W <sup>A</sup> W <sup>A</sup>
-8 30.000 40	50 60 70 80	(MHz)	300 400 500	600 700 1000.000
	Re	eading Correct M	Measure-	
No. Mk		evel Factor	ment Limit Over	
	MHz	dBuV dB	dBuV/m dB/m dB	Detector
1	114.1137 1	2.67 16.67	29.34 43.50 -14.1	6 peak
2	155.9100 1	14.90 18.20	33.10 43.50 -10.4	0 peak
3	213.7633 1	15.85 16.87	32.72 43.50 -10.7	8 peak
4	271.3245 1	15.23 18.18	33.41 46.00 -12.5	9 peak
5	440.1963	7.44 26.09	33.53 46.00 -12.4	7 peak
6 *	801.7862 1	1.59 27.79	39.38 46.00 -6.62	peak

#### **RESULT: PASS**

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

3. All test modes had been pre-tested. The 802.11n20 at high channel is the worst case and recorded in the report.



#### Radiated emission above 1GHz

EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with date rate 6.5 2412MHz	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4824.000	56.12	0.08	56.2	74	-17.8	peak
4824.000	45.29	0.08	45.37	54	-8.63	AVG
7236.000	50.24	2.21	52.45	74	-21.55	peak
7236.000	41.33	2.21	43.54	54	-10.46	AVG
Remark:						
actor = Anter	nna Factor + Cab	e Loss – Pre-	amplifier.			

EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with date rate 6.5 2412MHz	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4824.000	55.37	0.08	55.45	74	-18.55	peak
4824.000	46.28	0.08	46.36	54	-7.64	AVG
7236.000	50.24	2.21	52.45	74	-21.55	peak
7236.000	41.37	2.21	43.58	54	-10.42	AVG
Remark:						
actor = Anter	nna Factor + Cabl	e Loss – Pre-	amplifier.			



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with date rate 6.5 2437MHz	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4874.000	56.34	0.14	56.48	74	-17.52	peak
4874.000	46.27	0.14	46.41	54	-7.59	AVG
7311.000	50.24	2.36	52.6	74	-21.4	peak
7311.000	41.35	2.36	43.71	54	-10.29	AVG
Remark:						
actor = Anter	nna Factor + Cabl	e Loss – Pre-a	amplifier.			

EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with date rate 6.5 2437MHz	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4874.000	56.34	0.14	56.48	74	-17.52	peak
4874.000	45.15	0.14	45.29	54	-8.71	AVG
7311.000	50.24	2.36	52.6	74	-21.4	peak
7311.000	41.37	2.36	43.73	54	-10.27	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with date rate 6.5 2462MHz	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4924.000	56.31	0.22	56.53	74	-17.47	peak
4924.000	45.28	0.22	45.5	54	-8.5	AVG
7386.000	50.12	2.64	52.76	74	-21.24	peak
7386.000	42.34	2.64	44.98	54	-9.02	AVG
Remark:						
actor = Anter	nna Factor + Cable	e Loss – Pre-	amplifier.			

EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with date rate 6.5 2462MHz	Antenna	Vertical

Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
56.34	0.22	56.56	74	-17.44	peak
46.21	0.22	46.43	54	-7.57	AVG
50.27	2.64	52.91	74	-21.09	peak
41.36	2.64	44	54	-10	AVG
	56.34 46.21 50.27 41.36	56.34         0.22           46.21         0.22           50.27         2.64           41.36         2.64	56.34         0.22         56.56           46.21         0.22         46.43           50.27         2.64         52.91	56.34         0.22         56.56         74           46.21         0.22         46.43         54           50.27         2.64         52.91         74           41.36         2.64         44         54	56.34         0.22         56.56         74         -17.44           46.21         0.22         46.43         54         -7.57           50.27         2.64         52.91         74         -21.09           41.36         2.64         44         54         -10

### **RESULT: PASS**

#### Note:

The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

The "Factor" value can be calculated automatically by software of measurement system.

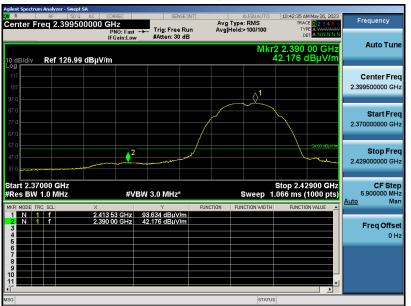
All test modes had been pre-tested. The 802.11n20 mode is the worst case and recorded in the report.



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with data rate 1 2412MHz	Antenna	Horizontal



Test Graph for Average Measurement



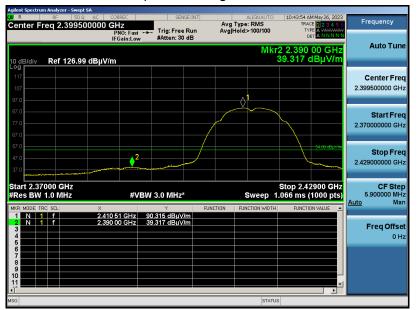
## **RESULT: PASS**



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with data rate 1 2412MHz	Antenna	Vertical



Test Graph for Average Measurement



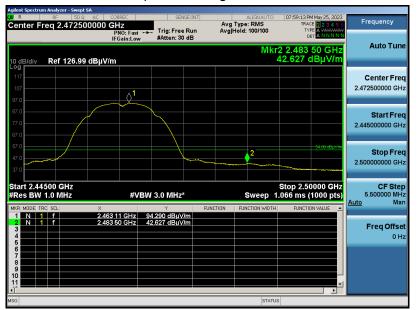
### **RESULT: PASS**



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with data rate 1 2462MHz	Antenna	Horizontal



Test Graph for Average Measurement



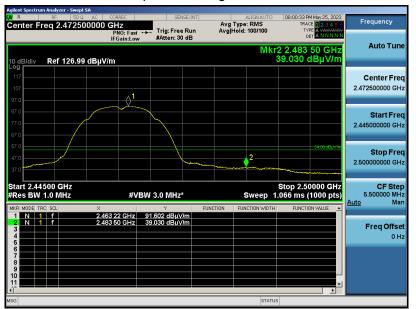
## **RESULT: PASS**



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with data rate 1 2462MHz	Antenna	Vertical



Test Graph for Average Measurement



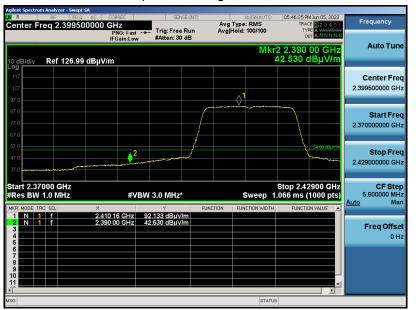
### **RESULT: PASS**



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11g with data rate 6 2412MHz	Antenna	Horizontal



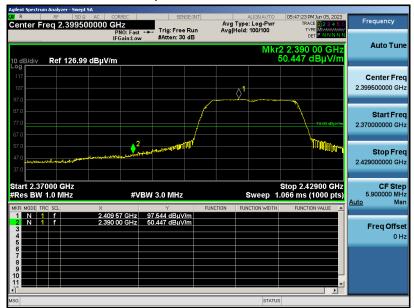
Test Graph for Average Measurement



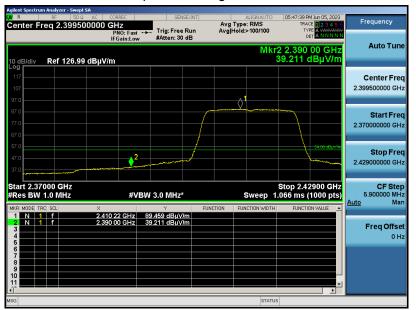
## **RESULT: PASS**



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11g with data rate 6 2412MHz	Antenna	Vertical



Test Graph for Average Measurement



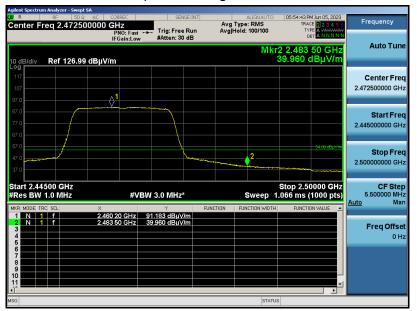
## **RESULT: PASS**



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11g with data rate 6 2462MHz	Antenna	Horizontal



Test Graph for Average Measurement



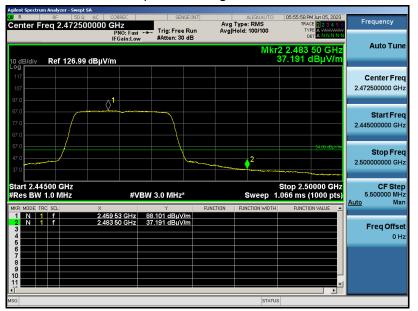
### **RESULT: PASS**



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11g with data rate 6 2462MHz	Antenna	Vertical



Test Graph for Average Measurement



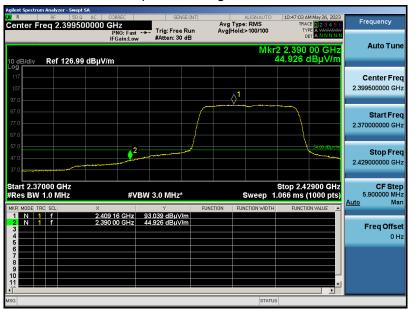
### **RESULT: PASS**



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2412MHz	Antenna	Horizontal



Test Graph for Average Measurement



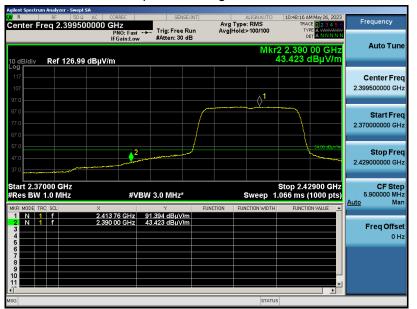
## **RESULT: PASS**



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2412MHz	Antenna	Vertical



Test Graph for Average Measurement



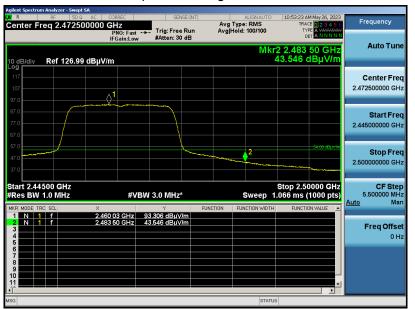
### **RESULT: PASS**



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2462MHz	Antenna	Horizontal



Test Graph for Average Measurement



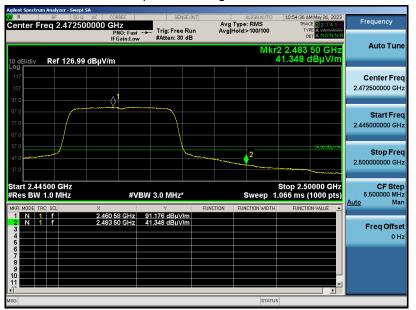
## **RESULT: PASS**



EUT	WiFi Camera	Model Name	FJ-WF01
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2462MHz	Antenna	Vertical



Test Graph for Average Measurement



### **RESULT: PASS**



## **12. LINE CONDUCTED EMISSION TEST**

### 12.1. LIMITS OF LINE CONDUCTED EMISSION TEST

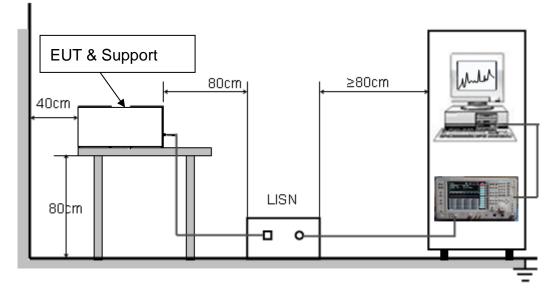
Frequency	Maximum RF Line Voltage		
Frequency	Q.P (dBµV)	Average (dBµV)	
150kHz~500kHz	66-56	56-46	
500kHz~5MHz	56	46	
5MHz~30MHz	60	50	

Note:

1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

### 12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST





### 12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipment received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received DC 12V power from adapter which received AC120V/60Hz power from a LISN.
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 Ohm load; the second scan had Line 1 connected to a 50 Ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

### 12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less – 2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case was reported on the Summary Data page.

### 12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

**Note:** The conducted emission tests at AC port are not required for devices which only employ battery power for operation.



# APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC12845230506AP01

# **APPENDIX B: PHOTOGRAPHS OF EUT**

Refer to the Report No.: AGC12845230506AP02

----END OF REPORT----



## Conditions of Issuance of Test Reports

1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").

2. Any report issued by Company as a result of this application for testing services (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.

3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.

4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.

5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.

6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.

7. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.

8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.

9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.