

# **FCC Test Report**

Report No.: AGC04363200901FE02

FCC ID : 2AFDJFX-36A

**APPLICATION PURPOSE**: Original Equipment

**PRODUCT DESIGNATION**: DRONE

**BRAND NAME** : N/A

**MODEL NAME** : FX-36A(Series model name please see page 6)

**APPLICANT**: HK TECH SCIENCE & TECHNOLOGY CO.,LTD

**DATE OF ISSUE** : Oct. 19,2020

**STANDARD(S)** : FCC Part 15.247

**REPORT VERSION**: V1.0

# Attestation of Global Compliance (Shenzhen) Co., Ltd



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# REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Oct. 19,2020	Valid	Initial Release

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# 1. VERIFICATION OF COMPLIANCE

Applicant	HK TECH SCIENCE & TECHNOLOGY CO.,LTD	
Address	Xiehe Industrial B Zone, Laimei Road, Chenghai District, Shantou, Guangdong, China	
Manufacturer	HK TECH SCIENCE & TECHNOLOGY CO.,LTD	
Address	Xiehe Industrial B Zone, Laimei Road, Chenghai District, Shantou, Guangdong, China	
Factory	HK TECH SCIENCE & TECHNOLOGY CO.,LTD	
Address	Xiehe Industrial B Zone, Laimei Road, Chenghai District, Shantou, Guangdong, China	
Product Designation	DRONE	
Brand Name	N/A	
Test Model	FX-36A	
Date of test	Sep. 27,2020 to Oct. 19,2020	
Deviation	No any deviation from the test method	
Condition of Test Sample	Normal	
Test Result	Pass	
Report Template	AGCRT-US-BLE/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 part 15.247.

Prepared By	ZNK. Jang	
	Erik Yang Project Engineer	Oct. 19,2020
Reviewed By	Max Zhang	
30° 30°	Max Zhang Reviewer	Oct. 19,2020
Approved By	Formascie	
• 100	Forrest Lei Authorized Officer	Oct. 19,2020

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# 2. GENERAL INFORMATION

#### 2.1. PRODUCT DESCRIPTION

The EUT is designed as a "DRONE". It is designed by way of utilizing the GFSK technology to achieve the system operation.

A major technical description of EUT is described as following

Operation Frequency	2.402 GHz to 2.480GHz	
RF Output Power	-0.528dBm (Max)	
Bluetooth Version	V5.0	
Modulation	BLE ⊠GFSK 1Mbps □GFSK 2Mbps	
Number of channels	40 Channel	
Antenna Designation	Integral Antenna (Comply with requirements of the FCC part 15.203)	
Antenna Gain	-0.58dBi	
Hardware Version	V1.0	
Software Version	V1.0	
Power Supply	DC 3.7V by battery or DC 5V by adapter	
Series Model	FX-1,FX-2, FX-3, FX-3V, FX-4, FX-4VCI, FX-4V, FX-5, FX-5W, FX-6, FX-6C, FX-6CI, FX-7, FX-7C, FX-7CI, FX-7S, FX-8, FX-8A, FX-8E, FX-8C, FX-8G, FX-9, FX-9A, FX-9E, FX-9C, FX-9G, FX-11, FX-12V, FX-12, FX-13, FX-14, FX-15, FX-15C, FX-15CI, FX-16, FX-16C, FX-16CI, FX-17, FX-18, FX-19, FX-20, FX-21, FX-22, FX-22A, FX-22E, FX-22C, FX-22G, FX-23, FX-24, FX-25, FX-25CI, FX-26, FX-26CI, FX-27A, FX-27E, FX-27C, FX-28, FX-29, FX-29CI, FX-29A, FX-29E, FX-30, FX-31, FX-32, FX-32A, FX-32B, FX-32E, FX-33, FX-34, FX-35A, FX-35E, FX-35C, FX-36, FX-36B, FX-36C, FX-36E, FX-37, FX-38, FX-39, FX-40, FX-41, FX-42, FX-43, FX-44, FX-45, FX-46, FX-47, FX-48, FX-49, FX-50, FX-103, FX-103A, FX-101, FX-102, FX-105, FX-106, FX-107, FX-108	
Difference Description All the same except for the model name and packaging.		

Note: The EUT doesn't support BR&EDR.

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#### 2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency
	0	2402 MHz
20 °	1	2404 MHz
2400~2483.5MHz	0 2: 5	100 20 2°
0	38	2478 MHz
GO CO	39	2480 MHz

#### 2.3. RELATED SUBMITTAL(S)/GRANT(S)

This submittal(s) (test report) is intended for **FCC ID:** 2AFDJFX-36A filing to comply with the FCC Part 15.247 requirements.

#### 2.4. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

#### 2.5. SPECIAL ACCESSORIES

Refer to section 5.2.

#### 2.6. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

#### 2.7. 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.

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#### 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%.

- Uncertainty of Conducted Emission, Uc = ±3.2 dB
- Uncertainty of Radiated Emission below 1GHz, Uc = ±3.9 dB
- Uncertainty of Radiated Emission above 1GHz, Uc = ±4.8 dB
- Uncertainty of total RF power, conducted,  $Uc = \pm 0.8 \text{ dB}$
- Uncertainty of RF power density, conducted, Uc = ±2.6 dB
- Uncertainty of spurious emissions, conducted,  $Uc = \pm 2.7 dB$
- Uncertainty of Occupied Channel Bandwidth: Uc = ±2 %

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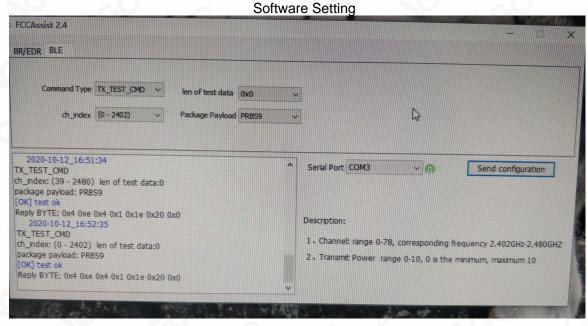
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#### 4. DESCRIPTION OF TEST MODES

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

#### Note:

- 1. Only the result of the worst case was recorded in the report, if no other cases.
- 2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- 3. For Conducted Test method, a temporary antenna connector is provided by the manufacture.



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# 5. SYSTEM TEST CONFIGURATION

#### **5.1. CONFIGURATION OF TESTED SYSTEM**

Radiated Emission Configure:

EUT	

Conducted Emission Configure:

EUT	AE

#### **5.2. EQUIPMENT USED IN TESTED SYSTEM**

Item	Equipment	Model No.	ID or Specification	Remark
1	DRONE	FX-36A	2AFDJFX-36A	EUT
2	Adapter	TY0500100E1MN	N/A	AE
3	Charger line	G258	N/A	AE
4	control board	EPS-35-3.3	DC 3.3V	AE

# **5.3. SUMMARY OF TEST RESULTS**

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

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# 6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd					
Location	-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, 2020	May 14, 2021
LISN	R&S	ESH2-Z5	100086	Jul. 03,2020	Jul. 02,2021
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, 2020	May 14, 2021
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 12, 2019	Dec. 11, 2020
2.4GHz Filter	EM Electronics	2400-2500MHz	N/A	Mar. 23, 2020	Mar. 22, 2022
Attenuator	ZHINAN	E-002	N/A	N/A	N/A
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Sep. 09, 2019	Sep. 08, 2021
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	May 17, 2019	May 16, 2021
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Sep. 03,2020	Sep. 02,2022
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 09, 2019	Jan. 08, 2021
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A

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#### 7. PEAK OUTPUT POWER

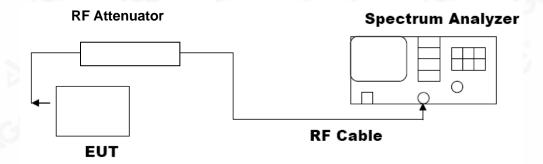
#### 7.1. MEASUREMENT PROCEDURE

For peak power test:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. RBW≥DTS bandwidth
- 3. VBW≥3\*RBW.
- 4. SPAN≥VBW.
- 5. Sweep: Auto.
- 6. Detector function: Peak.
- 7. Trace: Max hold.

Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power, after any corrections for external attenuators and cables.

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



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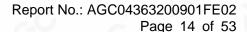
#### 7.3. LIMITS AND MEASUREMENT RESULT

	PEAK OUTPUT POWER MEASUREMENT RESULT						
	FOR GFSK MOUD	DULATION					
Frequency (GHz)  Peak Power (dBm)  Applicable Limits (dBm)  Pass or Fail							
2.402	-1.580	30	Pass				
2.440	-0.528	30	Pass				
2.480	-0.591	30	Pass				

CH<sub>0</sub>



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#### 8. 6 DB BANDWIDTH

#### **8.1. 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 Centre Frequency = Operation Frequency, RBW= 100 kHz, VBW ≥ 3×RBW.
- 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)

The same as described in section 7.2.

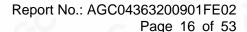
#### 8.3. LIMITS AND MEASUREMENT RESULTS

LIMITS AND MEASUREMENT RESULT						
Applicable Limite	Applicable Limits					
Applicable Limits	Test Data	Criteria				
>500KHZ	Low Channel	505.2	PASS			
	Middle Channel	503.7	PASS			
	High Channel	502.7	PASS			

#### TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



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#### TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



#### TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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# 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 for compliance to FCC PART 15.247 requirements.

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

The same as described in section 7.2.

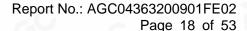
#### 9.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6.

#### 9.4. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT					
Annikashia Limita	Measurement Result				
Applicable Limits	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.	At least -20dBc than the reference level	PASS			

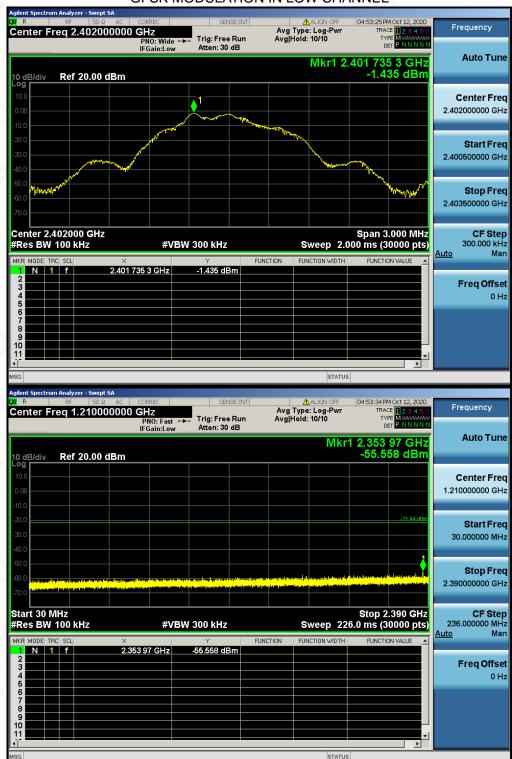
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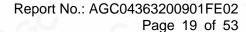


TEST RESULT FOR ENTIRE FREQUENCY RANGE

GFSK MODULATION IN LOW CHANNEL



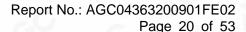
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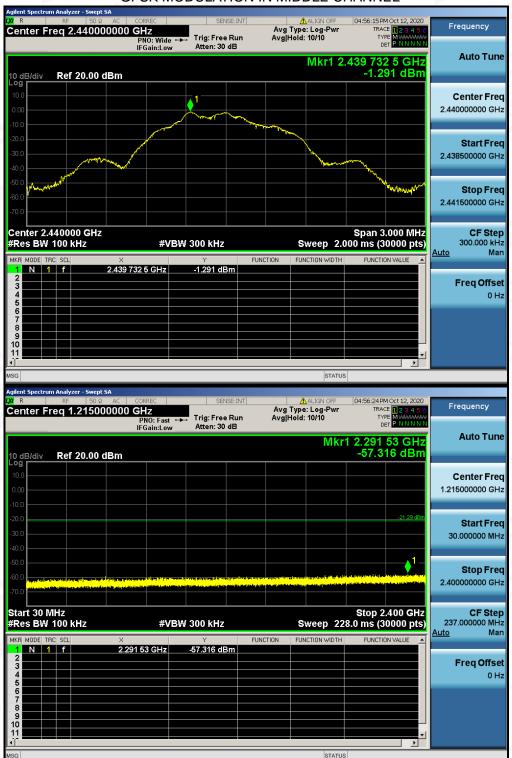


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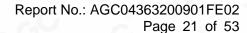




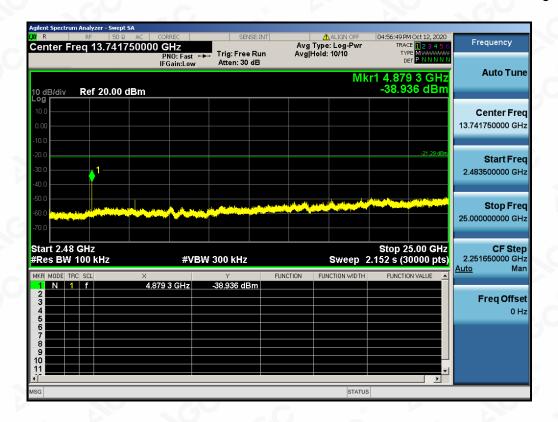
#### GFSK MODULATION IN MIDDLE CHANNEL



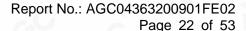
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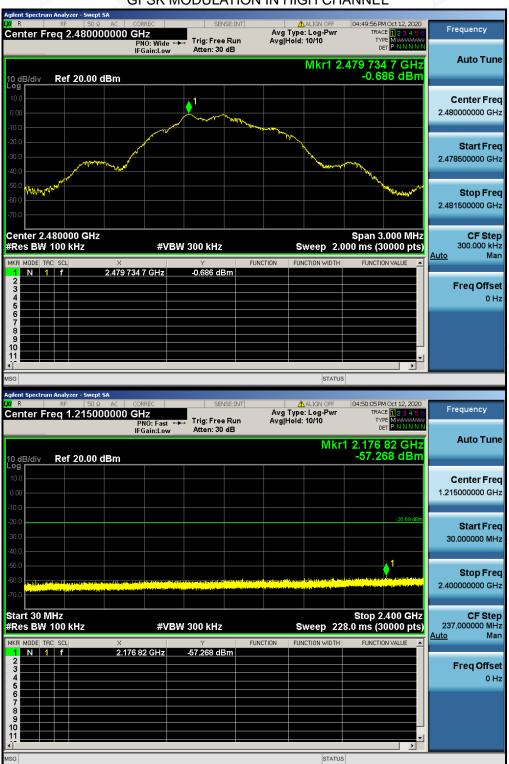


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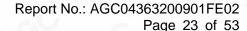




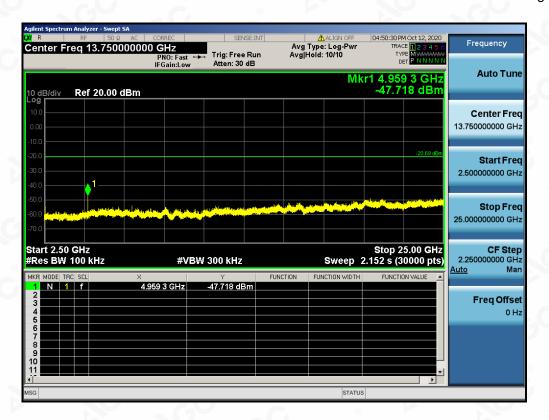
#### GFSK MODULATION IN HIGH CHANNEL



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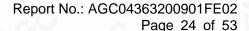






Note: The peak emissions without marker on the above plots are fundamental wave and need not to compare with the limit.

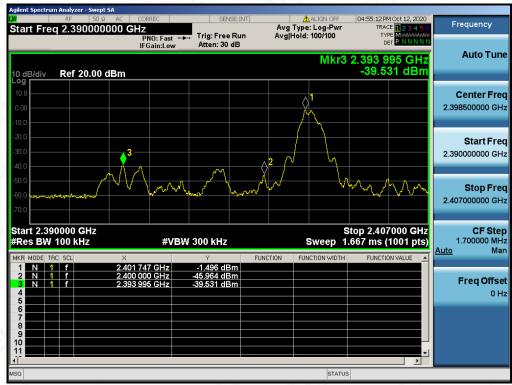
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### **TEST RESULT FOR BAND EDGE**

#### GFSK MODULATION IN LOW CHANNEL



#### GFSK MODULATION IN HIGH CHANNEL



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#### 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 the SPA Trace 1 Max hold, then View.

Note: The method of PKPSD in the KDB 558074 item 10.2 was used in this testing.

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

Refer to Section 7.2.

#### 10.3. MEASUREMENT EQUIPMENT USED

Refer to Section 6.

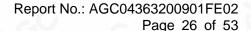
#### 10.4. LIMITS AND MEASUREMENT RESULT

Channel No.	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low Channel	-20.033	8	Pass
Middle Channel	-18.928	8	Pass
High Channel	-19.006	8	Pass



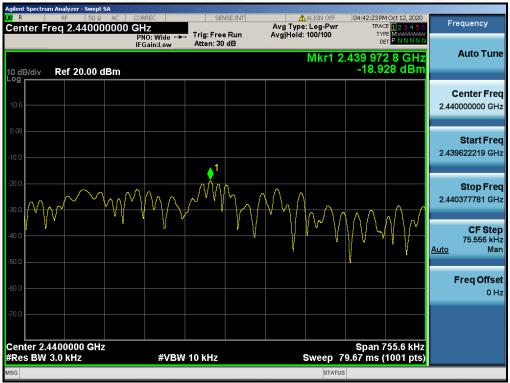


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TEST PLOT OF SPECTRAL DENSITY FOR MIDDLE CHANNEL



#### TEST PLOT OF SPECTRAL DENSITY FOR HIGH CHANNEL



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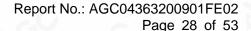
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#### 11. RADIATED EMISSION

#### 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.
- 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.

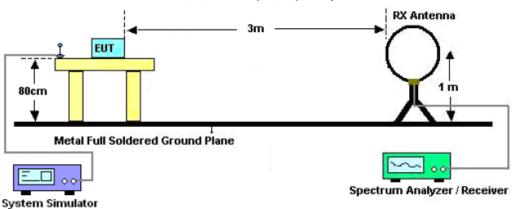
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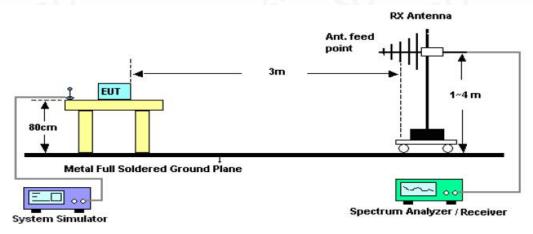


#### 11.2. TEST SETUP

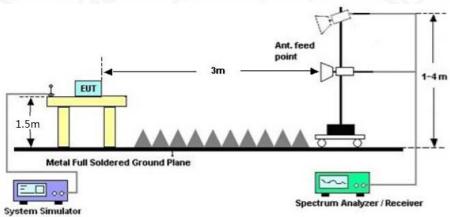
# Radiated Emission Test-Setup Frequency Below 30MHz



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



# RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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#### 11.3. LIMITS AND MEASUREMENT RESULT

15.209 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.

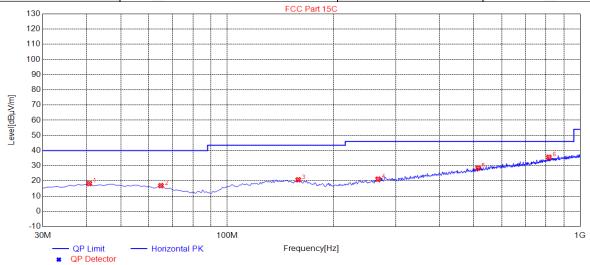
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# **RADIATED EMISSION BELOW 1GHZ**

EUT	DRONE	Model Name	FX-36A
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	40.6700	18.28	11.91	40.00	21.72	150	160	Horizontal
2	64.9200	16.92	10.09	40.00	23.08	150	47	Horizontal
3	159.010	20.75	14.94	43.50	22.75	150	314	Horizontal
4	267.650	21.19	15.21	46.00	24.81	150	68	Horizontal
5	514.030	28.41	22.46	46.00	17.59	150	7	Horizontal
6	815.700	35.63	28.76	46.00	10.37	150	95	Horizontal

**RESULT: PASS** 

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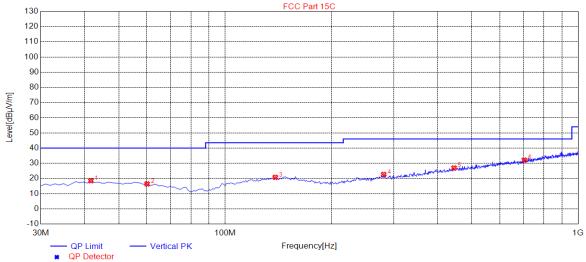


Report No.: AGC04363200901FE02 Page 31 of 53

> /Inspection The test results

he test report.

EUT	DRONE	Model Name	FX-36A
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	41.6400	18.49	11.89	40.00	21.51	150	3	Vertical
2	60.0700	16.39	10.90	40.00	23.61	150	161	Vertical
3	138.640	20.72	14.78	43.50	22.78	150	196	Vertical
4	281.230	22.64	16.28	46.00	23.36	150	147	Vertical
5	445.160	26.90	20.89	46.00	19.10	150	83	Vertical
6	704.150	32.12	26.04	46.00	13.88	150	358	Vertical

# RESULT: PASS Note:

1. Factor=Antenna Factor + Cable loss, Margin= Limit –Level.

2. All test modes had been tested. The mode 2 is the worst case and recorded in the report.

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g/Inspection The test results

# **RADIATED EMISSION ABOVE 1GHZ**

EUT	DRONE	Model Name	FX-36A
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4804.000	46.56	0.08	46.64	74	27.36	peak
4804.000	36.48	0.08	36.56	54	17.44	AVG
7206.000	39.23	2.21	41.44	74	32.56	peak
7206.000	32.37	2.21	34.58	54	19.42	AVG
-,0		0		- 60	8	0
emark:						2.0
actor = Anter	nna Factor + Cab	le Loss – Pre-	amplifier.	(Q)		

EUT	DRONE	Model Name	FX-36A
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

Frequency	Meter Reading	Factor	<b>Emission Level</b>	Limits	Margin	Value Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4804.000	45.66	0.08	45.74	74	28.26	peak
4804.000	35.54	0.08	35.62	54	18.38	AVG
7206.000	39.27	2.21	41.48	74	32.52	peak
7206.000	31.31	2.21	33.52	54	20.48	AVG
		<b>10</b>	0	®		
emark:					8	
actor = Anter	nna Factor + Cab	le Loss – Pre-	amplifier.			8

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g/Inspection
The test results
the test report.

EUT	DRONE	Model Name	FX-36A
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4880.000	47.84	0.14	47.98	74	26.02	peak
4880.000	36.75	0.14	36.89	54	17.11	AVG
7320.000	40.62	2.36	42.98	74	31.02	peak
7320.000	33.49	2.36	35.85	54	18.15	AVG
8				· · · · · · · · · · · · · · · · · · ·		
	0				8	
emark:	- Ci	®			- 0	8
actor = Anter	na Factor + Cable	Loss – Pre-	amplifier.			

			<u>(8)</u>
EUT	DRONE	Model Name F	X-36A
Temperature	25° C	Relative Humidity 5	5.4%
Pressure	960hPa	Test Voltage	lormal Voltage
Test Mode	Mode 2	Antenna V	/ertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4880.000	47.76	0.14	47.9	74	26.1	peak
4880.000	39.42	0.14	39.56	54	14.44	AVG
7320.000	41.54	2.36	43.9	74	30.1	peak
7320.000	33.49	2.36	35.85	54	18.15	AVG
		<del>GO</del>	(8)			
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EUT	DRONE	Model Name	FX-36A
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Fraguenay	Motor Dooding	Contor	Emission Level	Limits	Morgin	
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4960.000	45.57	0.22	45.79	74	28.21	peak
4960.000	36.63	0.22	36.85	54	17.15	AVG
7440.000	39.45	2.64	42.09	74	31.91	peak
7440.000	30.32	2.64	32.96	54	21.04	AVG
			- 0	©		
	(8)				(8)	
emark:	- C	(8)			- 0	(8)
actor = Anter	nna Factor + Cable	Loss – Pre-	amplifier.			

EUT	DRONE	Model Name	FX-36A
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
45.66	0.22	45.88	74	28.12	peak
35.53	0.22	35.75	54	18.25	AVG
39.51	2.64	42.15	74	31.85	peak
30.85	2.64	33.49	54	20.51	AVG
	<u> </u>			64	-6
	CO	0	8		
	(dBµV) 45.66 35.53 39.51	(dBμV) (dB) 45.66 0.22 35.53 0.22 39.51 2.64	(dBμV)     (dB)     (dBμV/m)       45.66     0.22     45.88       35.53     0.22     35.75       39.51     2.64     42.15	(dBμV)     (dB)     (dBμV/m)     (dBμV/m)       45.66     0.22     45.88     74       35.53     0.22     35.75     54       39.51     2.64     42.15     74	(dBμV)     (dB)     (dBμV/m)     (dBμV/m)     (dBμV/m)       45.66     0.22     45.88     74     28.12       35.53     0.22     35.75     54     18.25       39.51     2.64     42.15     74     31.85

# **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, Margin= Limit –Level.

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

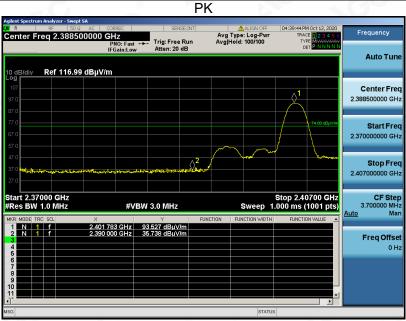
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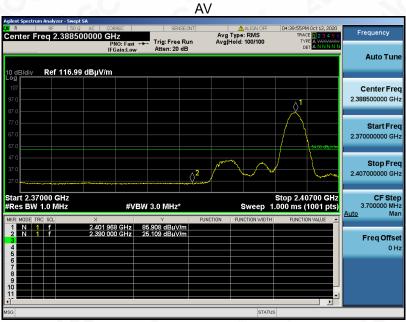


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#### TEST RESULT FOR RESTRICTED BANDS REQUIREMENTS

EUT	DRONE	Model Name	FX-36A
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

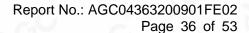




**RESULT: PASS** 

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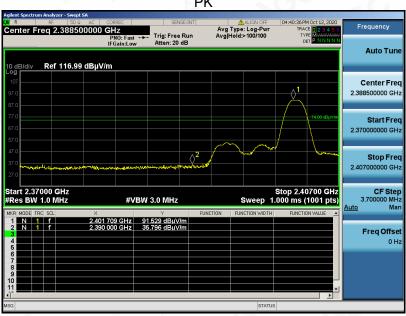
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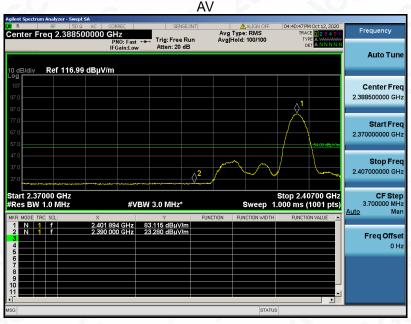




EUT	DRONE	Model Name	FX-36A
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

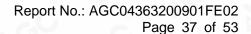






**RESULT: PASS** 

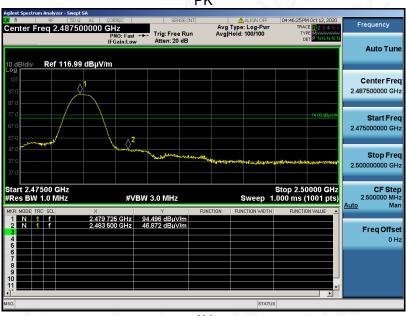
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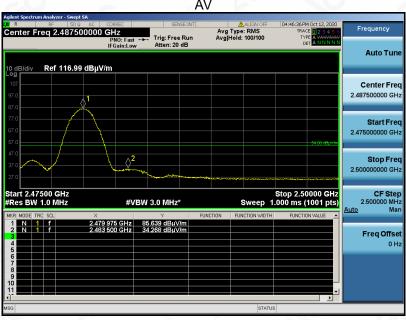




EUT	DRONE	Model Name	FX-36A
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

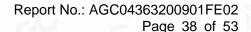






**RESULT: PASS** 

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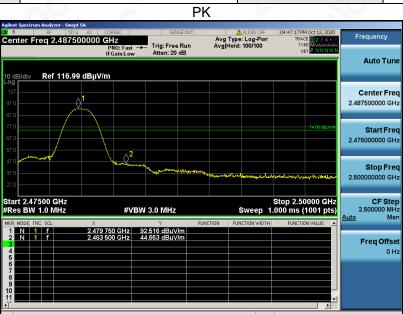


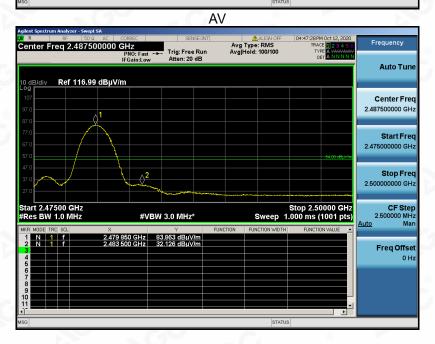
g/Inspection The test results

the test report.



EUT	DRONE	Model Name	FX-36A
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical





**RESULT: PASS** 

Note: The factor had been edited in the "Input Correction" of the Spectrum Analyzer.

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# 12. FCC LINE CONDUCTED EMISSION TEST

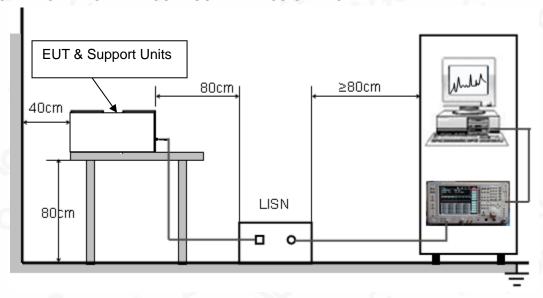
#### 12.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Francis	Maximum RF Line Voltage		
Frequency	Q.P.( dBuV)	Average( dBuV)	
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



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

- 1. 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 3.3V power from control board 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.
- 2. 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 condition(s) was reported on the Summary Data page.

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