

FCC Certification Test Report

For the
Guangdong Meijiixin Innovative Technology Co., Ltd
RC Drone

**Model: X900, X901, X902, X903, X904, X905, X906T,
X916H, X909T, X919H, X910T, X911H, X908T, X918H**

FCC ID: 2AHV3GR902

REPORT# 16WS0328012F. Rev 0
Apr.06, 2016

Prepared for:
Guangdong Meijiixin Innovative Technology Co., Ltd
Xingye South Road, Laimei Industrial Park, Chenghai,
Shantou, Guangdong, China

Prepared by:
WASHINGTON TECHNOLOGY INTERNATIONAL LIMITED

This report applies only to the sample evaluated prior to the preparation date stated above.

This report must be copied in its entirety, including all technical documents.

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For the
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**Model: X900, X901, X902, X903, X904, X905, X906T,
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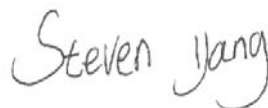
WLL REPORT# 16WS0328012F. Rev 0
Apr.06, 2016

Prepared by:



Henry guo

Reviewed by:



Steven yang

Abstract

This report has been prepared on behalf of Guangdong Meijiixin Innovative Technology Co., Ltd to support the attached Application for Equipment Authorization. The test report and application are submitted for a Spread Spectrum Transceiver under Part 15.249 of the FCC Rules and Regulations. This Federal Communication Commission (FCC) Certification Test Report documents the test configuration and test results for Guangdong Meijiixin Innovative Technology Co., Ltd RC Drone.

And Testing was performed by Compliance Certification Services (Shenzhen) Inc. has been accepted by the FCC, the FCC Registration Number is 441872.

RC Drone is a RF device and complies with the limits for a Direct Sequence Spread Spectrum Transmitter device under Part 15.249 of the FCC Rules and Regulations.

Revision History	Reason	Date
Rev 0	Initial Release	Apr.06, 2016

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1 Introduction

1.1 Compliance Statement

After the modifications listed in Section 2.6 were installed:

The Guangdong Meijiixin Innovative Technology Co., Ltd RC Drone complies with the limits for a Spread Spectrum Transceiver device under Part 15.249 of the FCC Rules and Regulations.

1.2 Test Scope Summary

Tests for radiated and conducted emissions were performed. All measurements were performed according to the 2013 version of ANSI C63.10

Test Specification	Specific Description	Result	Modifications (Y/N)	Test Location
CFR47 Part 15.207	Conducted Emissions – AC Power Ports	Not Applicable	Not Applicable	Not Applicable
CFR47 Part 15.249(a)	Field Strength of the Fundamental Signal	Complied	No	Compliance Certification Services (Shenzhen) Inc.
CFR47 Part 15.249 (a)/15.209	Radiated Emission	Complied	No	Compliance Certification Services (Shenzhen) Inc.
CFR47 Part 15.249(a)/15.205	Band Edge Measurement (Radiated)	Complied	No	Compliance Certification Services (Shenzhen) Inc.
CFR47 Part 15.215 (c)	20dB Bandwidth	Complied	No	Compliance Certification Services (Shenzhen) Inc.

1.3 Contract Information

Customer: Guangdong Meijiixin Innovative Technology Co., Ltd
Xingye South Road, Laimei Industrial Park, Chenghai,
Shantou, Guangdong, China

1.4 Test and Support Personnel

Ad Gan Compliance Certification Services (Shenzhen) Inc.
No.10-1 Mingkeda Logistics Park, No.18 Huanguan
South RD. Guan lan Town, Baoan Distr, Shenzhen,
Guangdong, China
Test Engineer

1.5 Abbreviations

A	Ampere
ac	alternating current
AM	Amplitude Modulation
Amps	Amperes
b/s	bits per second
BW	BandWidth
CE	Conducted Emission
cm	centimeter
CW	Continuous Wave
dB	deciBel
dc	direct current
EMI	Electromagnetic Interference
EUT	Equipment Under Test
FM	Frequency Modulation
G	giga - prefix for 10⁹ multiplier
Hz	Hertz
IF	Intermediate Frequency
k	kilo - prefix for 10³ multiplier
LISN	Line Impedance Stabilization Network
M	Mega - prefix for 10⁶ multiplier
m	meter
μ	micro - prefix for 10⁻⁶ multiplier
NB	Narrowband
QP	Quasi-Peak
RE	Radiated Emissions
RF	Radio Frequency
rms	root-mean-square
SN	Serial Number
S/A	Spectrum Analyzer
V	Volt

2 Equipment Under Test

2.1 EUT Identification

The results obtained relate only to the item(s) tested.

Table 1: Overview of RC Drone, Equipment Under Test

ITEM	DESCRIPTION
FCC ID Number	2AHV3GR902
EUT Name:	RC Drone
Test Model:	X902
FCC Rule Parts:	§15.249
Frequency Range:	2410MHz – 2478MHz
Maximum Field Strength:	90.51 dBµV/m
Modulation Technology:	GFSK
Necessary Bandwidth:	N/A
Keying:	Automatic
Type of Information:	General 2.4GHz: GFSK
Number of Channels:	69
Antenna Type	Whip
Antenna Gain	2dBi±0.5
Frequency Tolerance:	N/A
Emission Type(s):	N/A
Interface Cables:	None
Power Source & Voltage:	DC 4.5V (3 X AAA Battery)

2.2 EUT Description

Product Name: RC Drone

Model No. : X900, X901, X902, X903, X904, X905, X906T, X916H, X909T, X919H,
X910T, X911H, X908T, X918H

Test Model: X902

EUT Rated Voltage: DC 4.5V (3 X AAA Battery)

Declaration on model difference 产品差异声明

We the undersigned hereby confirm that any of our production units bearing the following model numbers are identical in circuitry and electrical, mechanical and physical construction; the only differences are the appearance, trade name and model no. for trading purpose.
我们在下面签名并据此确认:以下产品型号之间的差异仅为外观、商标及型号不同,其它设计完全相同。

- The above appearance is for color and silk-screen only.
上述所说外观仅指产品的颜色及丝印。

Production name 产品名称	Trade name 商标	Model no. 型号
RC Drone	MJX	X902
RC Drone	MJX	X900
RC Drone	MJX	X901
RC Drone	MJX	X903
RC Drone	MJX	X904
RC Drone	MJX	X905
RC Drone	MJX	X906T
RC Drone	MJX	X916H
RC Drone	MJX	X909T
RC Drone	MJX	X919H
RC Drone	MJX	X910T
RC Drone	MJX	X911H
RC Drone	MJX	X908T
RC Drone	MJX	X918H

- Please provide at least 1 sample with difference except specified as above for further evaluation.
如有以下所述差异,需提供1个样板做进一步评估。

Production name 产品名称	Trade name 商标	Model no. 型号	Description 差异描述

Confirmed by _____

Authorized Signature: Hellen Lin
授权人签字

Company Stamp: 
公司盖章

Date: 2016.3.31
日期

2.3 Test Configuration

The Guangdong Meijiixin Innovative Technology Co., Ltd RC Drone, Equipment Under Test (EUT), was operated from 4.5VDC (3 X AAA Battery).

The EUT firmware/software was set up to control power, bit rate, and channel selection.

Conducted test setup:

Not Applicable

Radiated Emissions test setup:

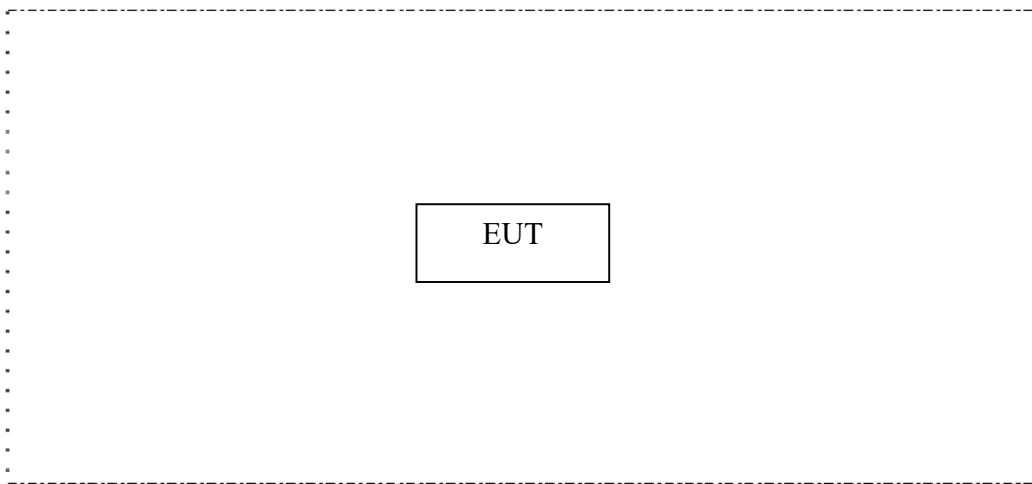


Figure 1: Test Configuration

2.4 Equipment Configuration

The EUT was set up as outlined in Figure 1. The EUT was comprised of the following equipment. (All Modules, PCBs, etc. listed were considered as part of the EUT, as tested.)

Table 2: Equipment Configuration

Name / Description	Model Number	Part Number	Serial Number	Revision
RC Drone	X902	/	/	/

2.5 Support Equipment

The following support equipment was used during testing:

No.	Description	ACS No.	Manufacturer	Model	Serial Number
1.	--	--	--	--	--

2.6 EUT Modifications

N/A

2.7 Testing Algorithm

RC Drone was operated continuously by normal operating conditions.

2.8 Test Location

And Testing was performed by Compliance Certification Services (Shenzhen) Inc. has been accepted by the FCC, the FCC Registration Number is 441872.

2.9 Measurements

2.9.1 Measurement Method

All measurements were performed according to the 2013 version of ANSI C63.10 for testing compliance of a wide variety of unlicensed wireless devices

2.9.2 Measurement Uncertainty

All results reported herein relate only to the equipment tested. The basis for uncertainty calculation uses ANSI/NCSL Z540-2-1997 with a type B evaluation of the standard uncertainty. Elements contributing to the standard uncertainty are combined using the method described in Equation 1 to arrive at the total standard uncertainty. The standard uncertainty is multiplied by the coverage factor to determine the expanded uncertainty which is generally accepted for use in commercial, industrial, and regulatory applications and when health and safety are concerned (see Equation 2). A coverage factor was selected to yield a 95% confidence in the uncertainty estimation.

Equation 1: Standard Uncertainty

$$u_c = \pm \sqrt{\frac{a^2}{div_a^2} + \frac{b^2}{div_b^2} + \frac{c^2}{div_c^2} + \dots}$$

where u_c = standard uncertainty
 a, b, c, \dots = individual uncertainty elements
 $div_{a, b, c}$ = the individual uncertainty element divisor based on the probability distribution
divisor = 1.732 for rectangular distribution
divisor = 2 for normal distribution
divisor = 1.414 for trapezoid distribution

Equation 2: Expanded Uncertainty

$$U = ku_c$$

where U = expanded uncertainty
k = coverage factor
k ≤ 2 for 95% coverage (ANSI/NCSL Z540-2
Annex G)
u_c = standard uncertainty

The measurement uncertainty complies with the maximum allowed uncertainty from CISPR 16-4-2. Measurement uncertainty is not used to adjust the measurements to determine compliance. The expanded uncertainty values for the various scopes in the WLL accreditation are provided in Table 3 below

Table 3: Expanded Uncertainty List

Scope	Expanded Uncertainty
Uncertainty for Radiation Emission test in 3m chamber	2.6dB(30~200MHz, Polarize: H)
	2.6dB(30~200MHz, Polarize: V)
	3.0dB(200M~1GHz, Polarize: H)
	2.8dB(200M~1GHz, Polarize: V)
Uncertainty for Radiation Emission test in 3m chamber (1GHz-18GHz)	6.3dB (1~6GHz, Distance: 3m)
	5.7dB (6~18GHz, Distance: 3m)
Uncertainty for Radiated Spurious Emission test in RF chamber	3.6dB
Uncertainty for Conduction Spurious emission test	2.0dB
Uncertainty for Output power test	0.8dB
Uncertainty for Power density test	2.0dB
Uncertainty for Frequency range test	7×10^{-8}
Uncertainty for Bandwidth test	83 kHz
Uncertainty for DC power test	0.1%
Uncertainty for test site temperature and humidity	0.6°C
	3%

3 Test Equipment

Table 4 shows a list of the test equipment used for measurements along with the calibration information.

Table 4: Test Equipment List

Frequency range: 30~1000MHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	R&S	ESCI	100088	Feb.22,16	1Year
2.	Pre-Amplifier	MITEQ	AM-1604-3000	1093583	Feb.22,16	1Year
3.	Bi-log Antenna	TESEQ	CBL6143A	26039	Feb.22,16	1Year
4.	System-Controller	CCS	CC-C-F	N/A	/	/
5.	Turntable	CCS	CC-T-1F	N/A	/	/
6.	Antenna Tower	CCS	CC-A-1F	N/A	/	/
7.	System Software	FARAD	EZ-EMC	CCS-3A1-CE	/	/

Frequency range: above 1000MHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PSA Series Spectrum Analyzer	Agilent	E4446A	US44300399	Feb.21,16	1 Year
2.	Turn Table	N/A	N/A	N/A	N.C.R	N.C.R
3.	Controller	Sunol Sciences	SC104V	022310-1	N.C.R	N.C.R
4.	Controller	CT	N/A	N/A	N.C.R	N.C.R
5.	High Noise Amplifier	Agilent	8449B	3008A01838	Feb.22,16	1 Year
6.	Horn Antenna	Schwarzbeck	BBHA9120	D286	Feb.22,16	1 Year
7.	Temp. / Humidity Meter	Anymetre	JR913	N/A	Feb.22,16	1 Year
8.	Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
9.	Test S/W	FARAO	LZ-RF / CCS-SZ-3A2			

4 System Test Configuration

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions. It was powered by a 4.5V DC (3 X AAA Battery). Only the worst case data were recorded in this test report.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

5 Test Results

5.1 Radiated Emissions:

Radiated emissions that fall in the restricted bands must comply with the general emissions limits in 15.209(a).

The emissions were measured using the following resolution bandwidths:

Frequency Range	Resolution Bandwidth	Video Bandwidth
30MHz-1000 MHz	120kHz	>30 kHz
>1000 MHz	1 MHz	<30 Hz

Harmonic and Spurious emissions that were identified as coming from the EUT were checked in Peak and in Average Mode. The high frequency, which started from 18 to 26.5GHz, was pre-scan and the test result which was 20dB lower than the limit was not reported.

Peak measurements and average measurements are made. All emissions were determined to have a peak-to-average ratio of less than 20 dB.

5.1.1 Limit

Field strength of the fundamental signal (FCC Part 15.249a)

Frequency	Limit (dB μ V/m @3m)	Remark
2400MHz-2483.5MHz	94.0	Average Value
	114.0	Peak Value

Radiated Emission (FCC Part 15.249a/15.209)

Frequency	Field strength (microvolt/meter)	Limit (dB μ V/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

5.1.2 Test Procedure

The EUT was placed on motorized turntable for radiated testing on a 3-meter open field test site. The emissions from the EUT were measured continuously at every azimuth by rotating the turntable. Receiving antennas were mounted on an antenna mast to determine the height of maximum emissions. The height of the antenna was varied between 1 and 4 meters. The peripherals were placed on the table in accordance with ANSI C63.10-2013. Cables were varied in position to produce maximum emissions. Both the horizontal and vertical field components were measured.

5.1.3 Test Data

The EUT RC Drone complied with the FCC Part 15.249 Field strength of the fundamental signal and Spurious Emissions requirements.

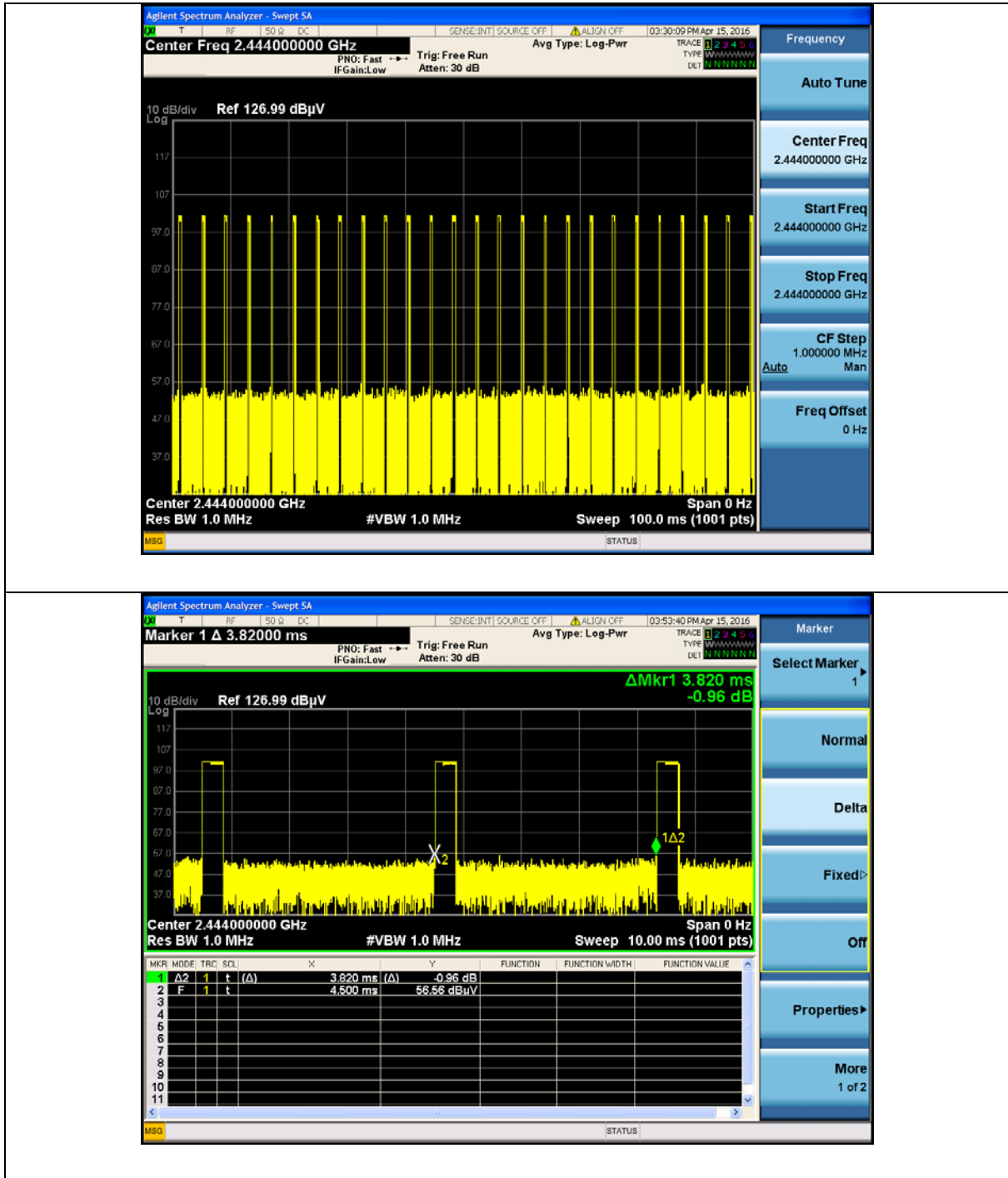
Table 5~7 Provides the test results for Field strength of the fundamental signal and Spurious Emissions.

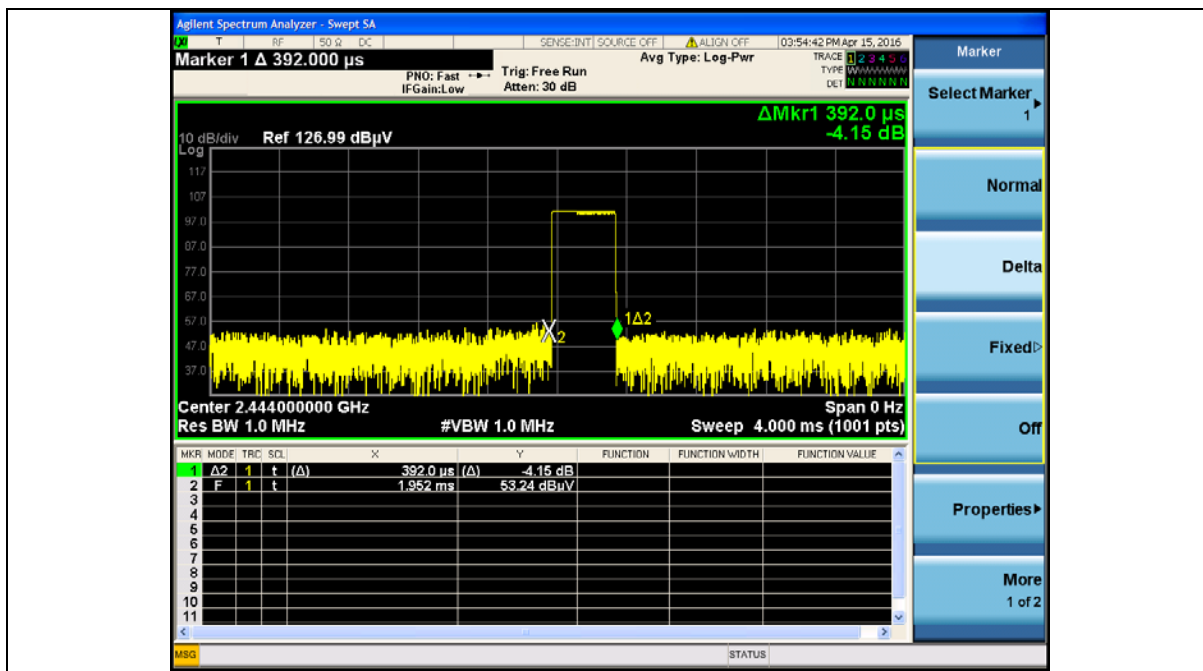
Note: Only the worst case data (the EUT is place in X axis) were recorded in this test report.

5.1.4 Areas of Concern

None.

The plots of duty cycle:





Note: The duty cycle is simply the on-time divided by the period:

The duration of one cycle = 3.82ms

Effective period of the cycle = 392μs = 0.392ms

Duty cycle = 0.392ms / 3.82ms = 0.1026

Therefore, the averaging factor is found by $20 \log_{10} 0.1026 = -19.78 \text{ dB}$

Table 5: Field strength of the fundamental signal

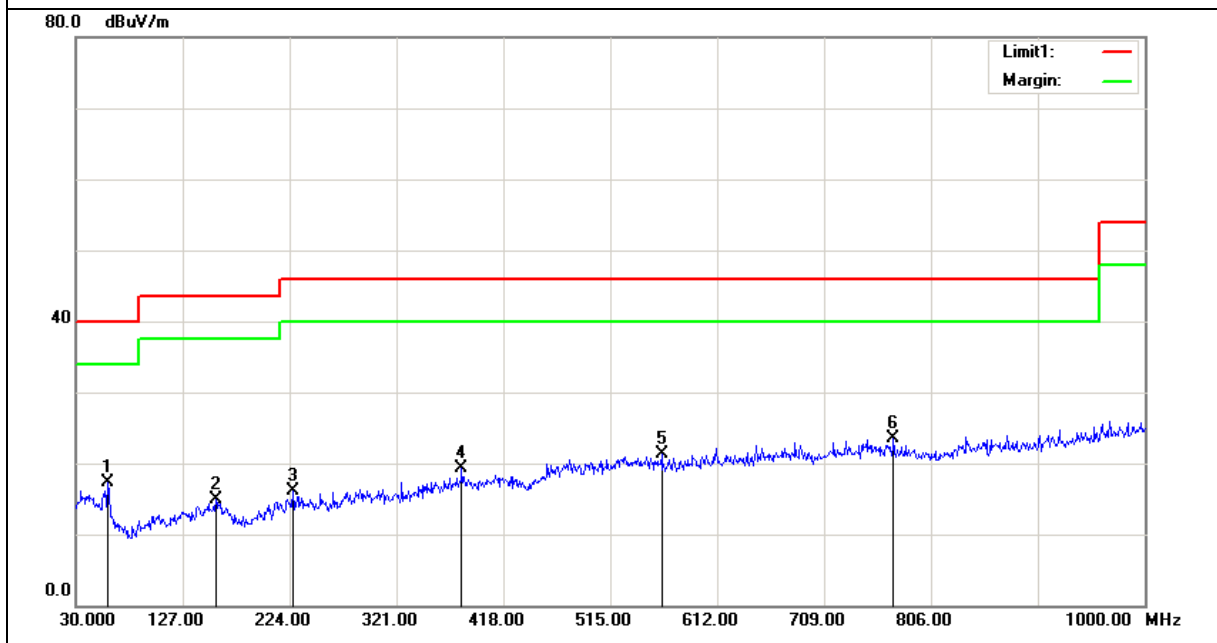
EUT: RC Drone					
M/N: X902					
Test date: 2016-04-06		Pressure:99.54 ± 1.0kPa		Humidity:57 ± 3.0%	
Tested by: Ad Gan		Test site: RE site		Temperature:25.6 ± 0.6 °C	
Test Mode	Frequency (MHz)	Field Strength Of The Fundamental Signal (dBμV/m)	Limit (dBμV/m)	Detector	Antenna Polaxis
Tx	2410	88.21	114.00	Peak	H
		68.43	94.00	Average	H
		85.40	114.00	Peak	V
		65.62	94.00	Average	V
	2444	89.46	114.00	Peak	H
		69.68	94.00	Average	H
		86.33	114.00	Peak	V
		66.55	94.00	Average	V
	2478	90.51	114.00	Peak	H
		70.73	94.00	Average	H
		85.83	114.00	Peak	V
		66.05	94.00	Average	V
Conclusion: PASS					

Table 6: Radiated Emission Test Data (Below 1GHz)

Test Mode: Tx-2410MHz

Job No.: 1603281040	Probe : Horizontal
Standard: FCC Class B 3M Radiation	Tested Distance: 3m
Test item: Radiation Test	Power Source: DC 4.5V
Temp.(C)/Hum.(%RH):25.6 (C) / 57 %RH	Date: 2016-4-6 Time: 11:52:17
Company: Guangdong Meijiixin Innovative Technology Co., Ltd	EUT: RC Drone
Model: X902	Test By : Ad Gan

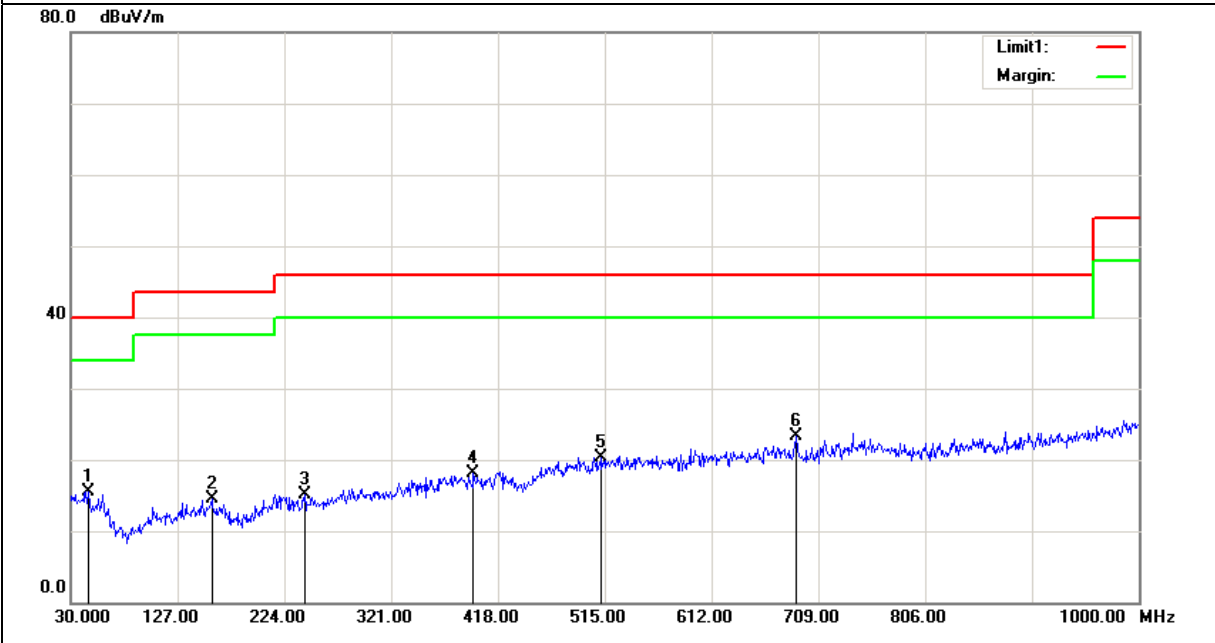
Test Mode: Tx-2410MHz



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	59.1000	30.49	-13.18	17.31	40.00	-22.69	QP
2	157.0700	26.61	-11.79	14.82	43.50	-28.68	QP
3	226.9100	26.91	-10.82	16.09	46.00	-29.91	QP
4	380.1700	27.55	-8.32	19.23	46.00	-26.77	QP
5	561.5600	27.74	-6.39	21.35	46.00	-24.65	QP
6*	772.0500	27.17	-3.66	23.51	46.00	-22.49	QP

Job No.: 1603281040	Probe : Vertical
Standard: FCC Class B 3M Radiation	Tested Distance: 3m
Test item: Radiation Test	Power Source: DC 4.5V
Temp.(C)/Hum.(%RH):25.6 (C) / 57 %RH	Date: 2016-4-6 Time: 11:54:13
Company: Guangdong Meijiixin Innovative Technology Co., Ltd	EUT: RC Drone
Model: X902	Test By : Ad Gan

Test Mode: Tx-2410MHz

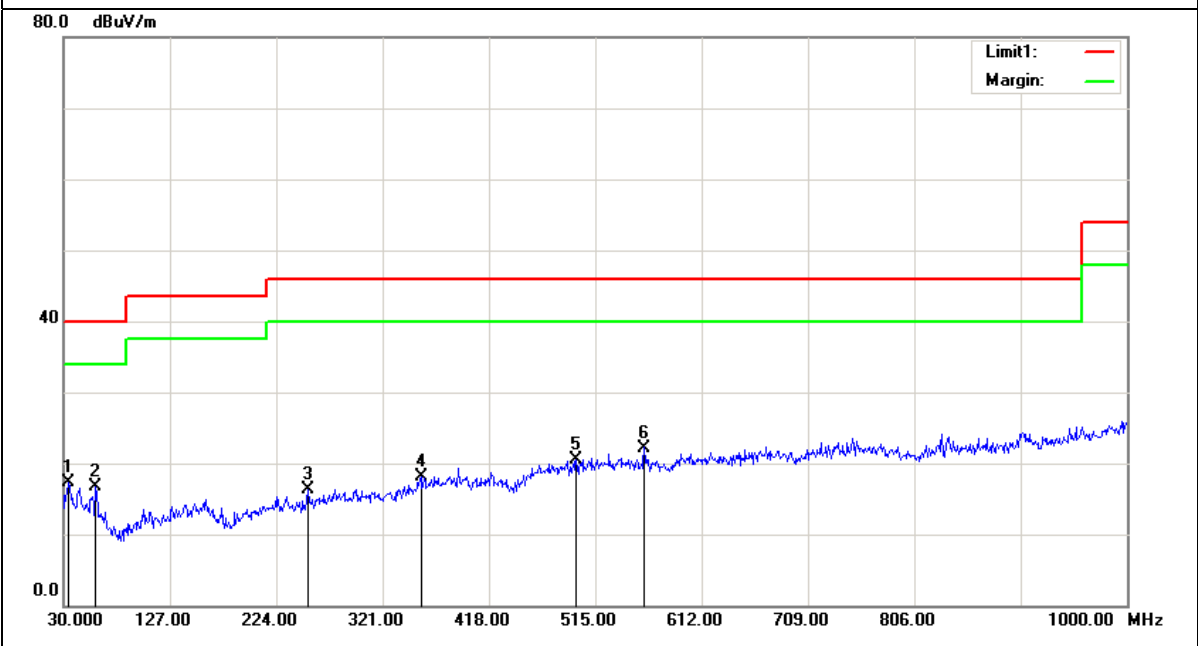


No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	45.5200	27.42	-11.83	15.59	40.00	-24.41	QP
2	158.0400	26.32	-11.78	14.54	43.50	-28.96	QP
3	242.4300	26.06	-10.87	15.19	46.00	-30.81	QP
4	395.6900	26.72	-8.53	18.19	46.00	-27.81	QP
5	512.0900	27.13	-6.80	20.33	46.00	-25.67	QP
6*	688.6300	27.92	-4.68	23.24	46.00	-22.76	QP

Test Mode: Tx-2444MHz

Job No.: 1603281040	Probe : Horizontal
Standard: FCC Class B 3M Radiation	Tested Distance: 3m
Test item: Radiation Test	Power Source: DC 4.5V
Temp.(C)/Hum.(%RH):25.6 (C) / 57 %RH	Date: 2016-4-6 Time: 12:00:37
Company: Guangdong Meijiixin Innovative Technology Co., Ltd	EUT: RC Drone
Model: X902	Test By : Ad Gan

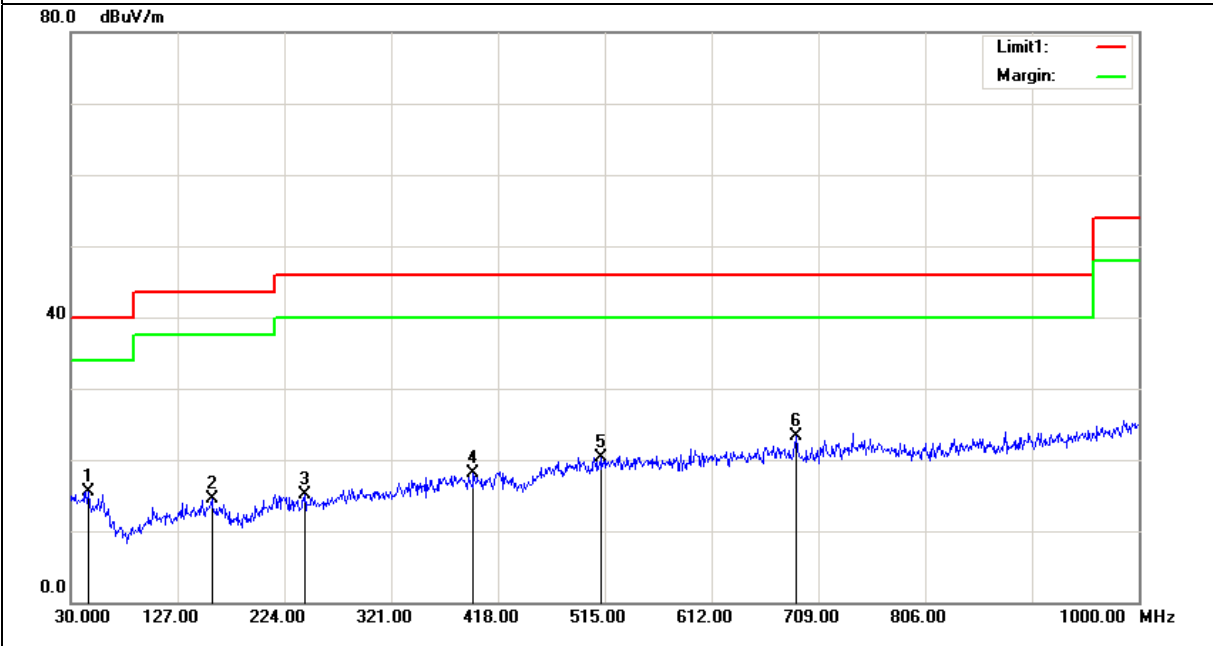
Test Mode: Tx-2444MHz



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	34.8500	28.59	-11.37	17.22	40.00	-22.78	QP
2	59.1000	29.94	-13.18	16.76	40.00	-23.24	QP
3	253.1000	27.09	-10.77	16.32	46.00	-29.68	QP
4	355.9200	27.39	-9.27	18.12	46.00	-27.88	QP
5	497.5400	27.41	-6.94	20.47	46.00	-25.53	QP
6*	559.6200	28.58	-6.38	22.20	46.00	-23.80	QP

Job No.: 1603281040	Probe : Vertical
Standard: FCC Class B 3M Radiation	Tested Distance: 3m
Test item: Radiation Test	Power Source: DC 4.5V
Temp.(C)/Hum.(%RH):25.6 (C) / 57 %RH	Date: 2016-4-6 Time: 11:57:03
Company: Guangdong Meijiixin Innovative Technology Co., Ltd	EUT: RC Drone
Model: X902	Test By : Ad Gan

Test Mode: Tx-2444MHz

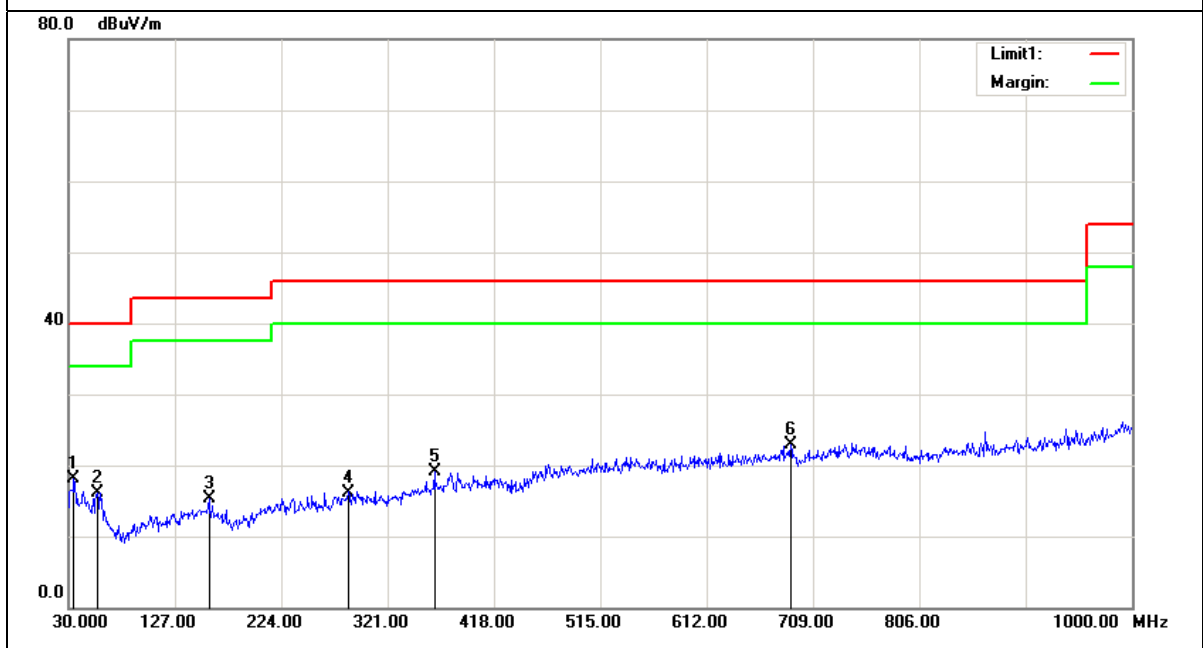


No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	34.8500	29.15	-11.37	17.78	40.00	-22.22	QP
2	59.1000	29.70	-13.18	16.52	40.00	-23.48	QP
3	159.0100	26.39	-11.77	14.62	43.50	-28.88	QP
4	465.5300	26.95	-7.45	19.50	46.00	-26.50	QP
5	650.8000	28.30	-5.19	23.11	46.00	-22.89	QP
6*	955.3800	26.23	-0.98	25.25	46.00	-20.75	QP

Test Mode: Tx-2478MHz

Job No.: 1603281040	Probe : Horizontal
Standard: FCC Class B 3M Radiation	Tested Distance: 3m
Test item: Radiation Test	Power Source: DC 4.5V
Temp.(C)/Hum.(%RH):25.6 (C) / 57 %RH	Date: 2016-4-6 Time: 12:04:14
Company: Guangdong Meijiixin Innovative Technology Co., Ltd	EUT: RC Drone
Model: X902	Test By : Ad Gan

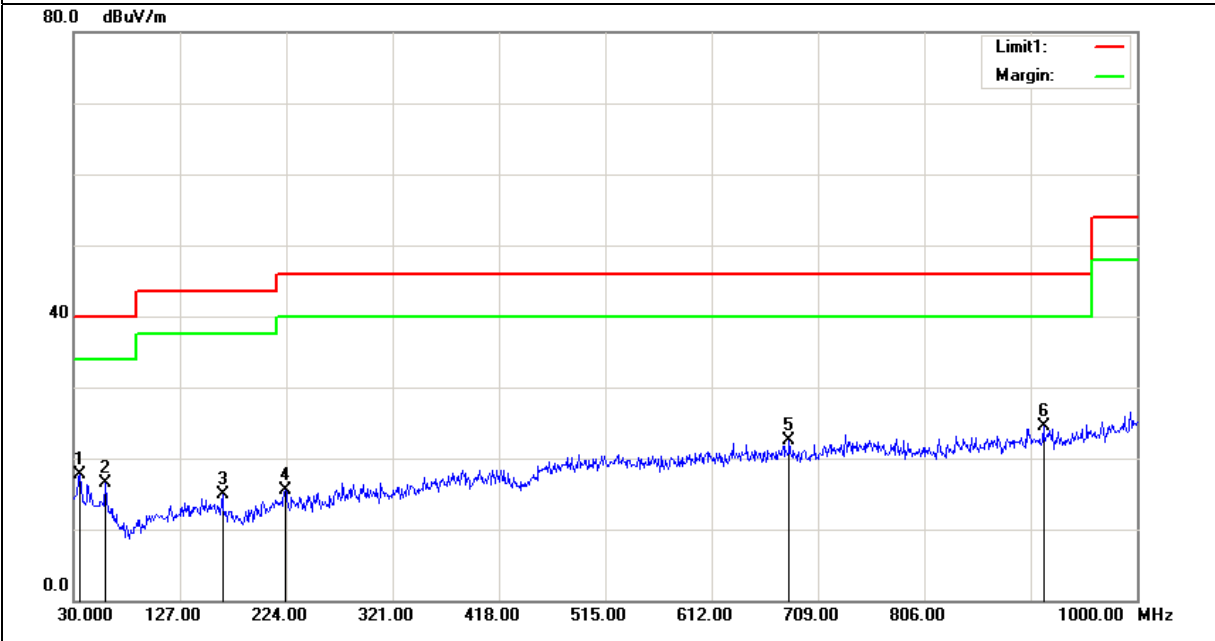
Test Mode: Tx-2478MHz



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	34.8500	29.45	-11.37	18.08	40.00	-21.92	QP
2	56.1900	29.05	-12.89	16.16	40.00	-23.84	QP
3	158.0400	27.14	-11.78	15.36	43.50	-28.14	QP
4	285.1100	25.97	-9.77	16.20	46.00	-29.80	QP
5	363.6800	28.22	-9.04	19.18	46.00	-26.82	QP
6*	688.6300	27.50	-4.68	22.82	46.00	-23.18	QP

Job No.: 1603281040	Probe : Vertical
Standard: FCC Class B 3M Radiation	Tested Distance: 3m
Test item: Radiation Test	Power Source: DC 4.5V
Temp.(C)/Hum.(%RH):25.6 (C) / 57 %RH	Date: 2016-4-6 Time: 12:05:53
Company: Guangdong Meijiixin Innovative Technology Co., Ltd	EUT: RC Drone
Model: X902	Test By : Ad Gan

Test Mode: Tx-2478MHz



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	35.8200	29.14	-11.35	17.79	40.00	-22.21	QP
2	59.1000	29.71	-13.18	16.53	40.00	-23.47	QP
3	165.8000	27.17	-12.34	14.83	43.50	-28.67	QP
4	223.0300	26.32	-10.80	15.52	46.00	-30.48	QP
5	682.8100	27.18	-4.63	22.55	46.00	-23.45	QP
6*	914.6400	26.49	-2.02	24.47	46.00	-21.53	QP

Table 7: Radiated Emission Test Data (Above 1GHz)

Above 1GHz					
Test mode:	Transmitting	Test Mode:	Tx-2410MHz	Remark:	Peak

Frequency (MHz)	Height (cm)	Azimuth (deg)	Correct Factor (dB)	Level (dB μ V/m)	Limit (dB μ V/m)	Over Limit (dB)	Antenna Polaxis
4820.000	150	37	4.41	63.87	74.00	-10.13	H
4820.000	150	0	4.41	56.11	74.00	-17.89	V
7230.000	150	37	8.13	52.19	74.00	-21.81	H
7230.000	150	0	8.13	55.50	74.00	-18.50	V

Test mode:	Transmitting	Test Mode:	Tx-2410MHz	Remark:	Average
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Frequency (MHz)	Peak level (dB μ v/m)	Duty cycle factor (dB)	AV level (dB μ v/m)	Limit(dB μ v/m)	Over Limit (dB)	Antenna Polaxis
4820.000	63.87	19.78	44.09	54	-9.91	H
4820.000	56.11	19.78	36.33	54	-17.67	V
7230.000	52.19	19.78	32.41	54	-21.59	H
7230.000	55.50	19.78	35.72	54	-18.28	V

Above 1GHz							
Test mode:	Transmitting	Test Mode:	Tx-2444MHz	Remark:	Peak		
Frequency (MHz)	Height (cm)	Azimuth (deg)	Correct Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Antenna Polaxis
4888.000	150	25	4.63	62.47	74.00	-11.53	H
4888.000	150	18	4.63	55.23	74.00	-18.77	V
7332.000	150	25	8.33	51.66	74.00	-22.34	H
7332.000	150	18	8.33	52.26	74.00	-21.74	V

Test mode:	Transmitting	Test Mode:	Tx-2444MHz	Remark:	Average		
Frequency (MHz)	Peak level (dBuv/m)	Duty cycle factor (dB)	AV level (dBuv/m)	Limit(dBuv/m)	Over Limit (dB)	Antenna Polaxis	
4888.000	62.47	19.78	42.69	54	-11.31	H	
4888.000	55.23	19.78	35.45	54	-18.55	V	
7332.000	51.66	19.78	31.88	54	-22.12	H	
7332.000	52.26	19.78	32.48	54	-21.52	V	

Above 1GHz							
Test mode:	Transmitting	Test Mode:	Tx-2478MHz	Remark:	Peak		
Frequency (MHz)	Height (cm)	Azimuth (deg)	Correct Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Antenna Polaxis
4956.000	150	41	4.85	63.73	74.00	-10.27	H
4956.000	150	0	4.85	57.35	74.00	-16.65	V
7434.000	150	41	8.53	52.02	74.00	-21.98	H
7434.000	150	0	8.53	53.63	74.00	-20.37	V

Test mode:	Transmitting	Test Mode:	Tx-2478MHz	Remark:	Average		
Frequency (MHz)	Peak level (dBuv/m)	Duty cycle factor (dB)	AV level (dBuv/m)	Limit(dBuv/m)	Over Limit (dB)	Antenna Polaxis	
4956.000	63.73	19.78	43.95	54	-10.05	H	
4956.000	57.35	19.78	37.57	54	-16.43	V	
7434.000	52.02	19.78	32.24	54	-21.76	H	
7434.000	53.63	19.78	33.85	54	-20.15	V	

Remark:

- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic

equation with a sample calculation is as follows:

Final Test Level = Receiver Reading - Correct Factor

Correct Factor = Preamplifier Factor – Antenna Factor – Cable Factor

- 2) Scan from 9KHz to 26.5GHz, The disturbance above 18GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported

5.2 Band Edge Measurement (Radiated)

Radiated band edge measurements at 2390MHz and 2483MHz were made with the unit transmitting in the low end of the channel range and the high end closest to the restricted bands respectively. The emissions were made on the 966 Semi-Chamber. Use (resolution bandwidth (RBW) = 1 MHz, video bandwidth (VBW) = 1 MHz for peak levels and RBW = 1 MHz and VBW = 10 Hz for average levels).

5.2.1 Test Data

The EUT RC Drone complied with the FCC Part 15.249 Radiated band edge emissions requirements.

Table 8 provides the test results for Radiated band edge emissions.

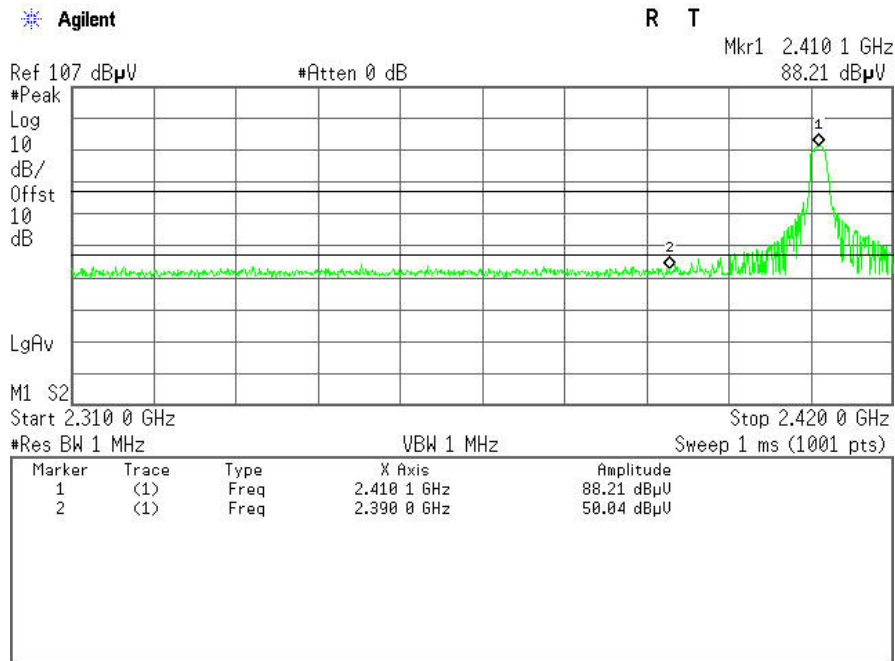
5.2.2 Areas of Concern

None.

Table 8: Band Edge Measurements (Radiated)

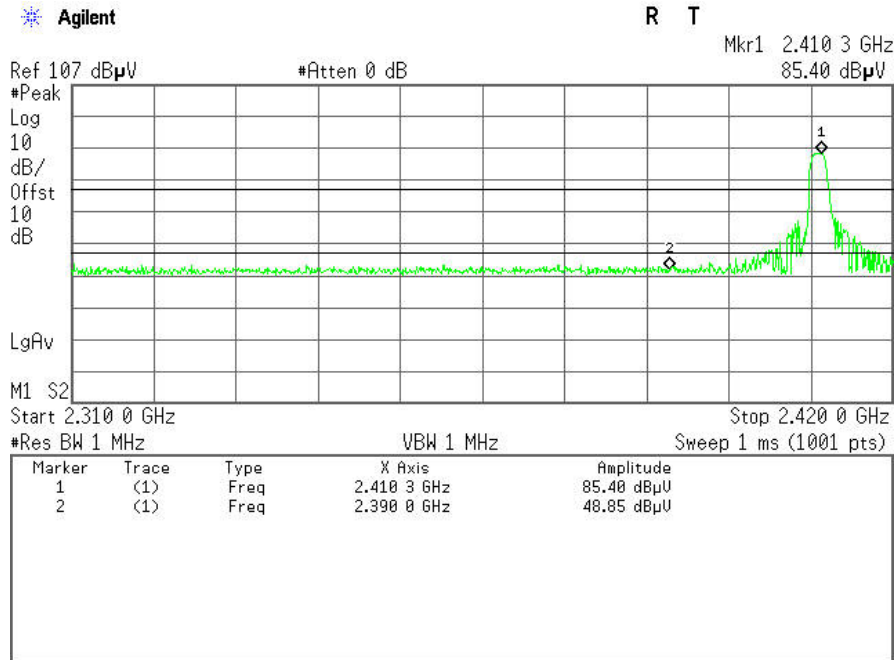
Test Mode: Tx-2410MHz

Antenna Polarity: Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	Duty cycle factor (dB)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
2390.000	50.04	74	19.78	30.26	54	Pass

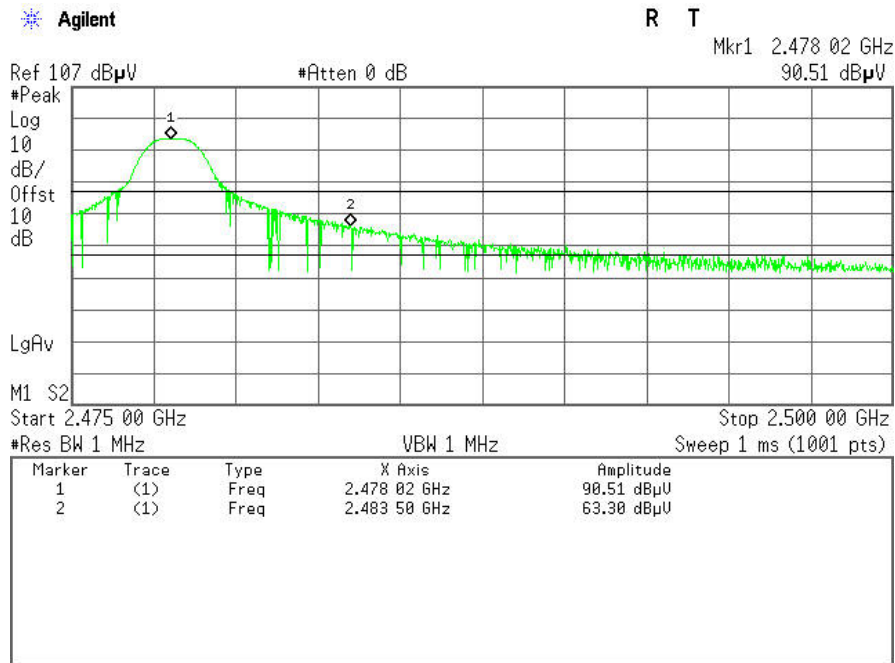
Antenna Polarity: Vertical



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	Duty cycle factor (dB)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
2390.000	48.85	74	19.78	29.07	54	Pass

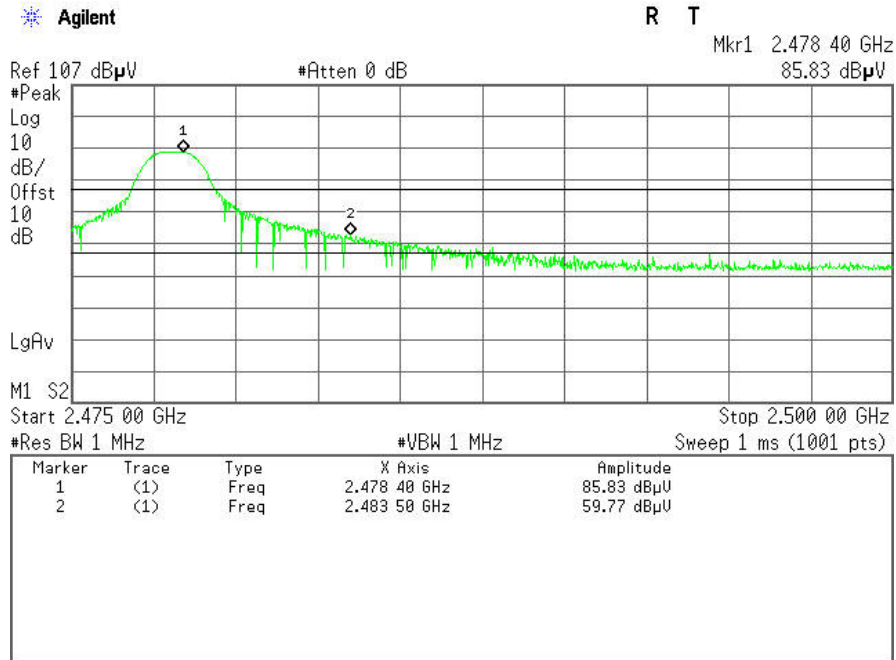
Test Mode: Tx-2478MHz

Antenna Polarity: Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	Duty cycle factor (dB)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
2483.500	63.30	74	19.78	43.52	54	Pass

Antenna Polarity: Vertical



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	Duty cycle factor (dB)	AV level (dBuv/m)	Limit (dBuv/m)	Conclusion
2483.500	59.77	74	19.78	39.99	54	Pass

5.3 20dB Bandwidth

20dB bandwidth was performed by coupling the output of the EUT to the input of a spectrum analyzer.

5.3.1 Limit

Within 2400-2483.5MHz.

5.3.2 Test Procedure

The transmitter output was connected to a spectrum analyzer, The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100KHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

5.3.3 Test Data

Table 9 provides the test results for 20dB bandwidth.

5.3.4 Areas of Concern

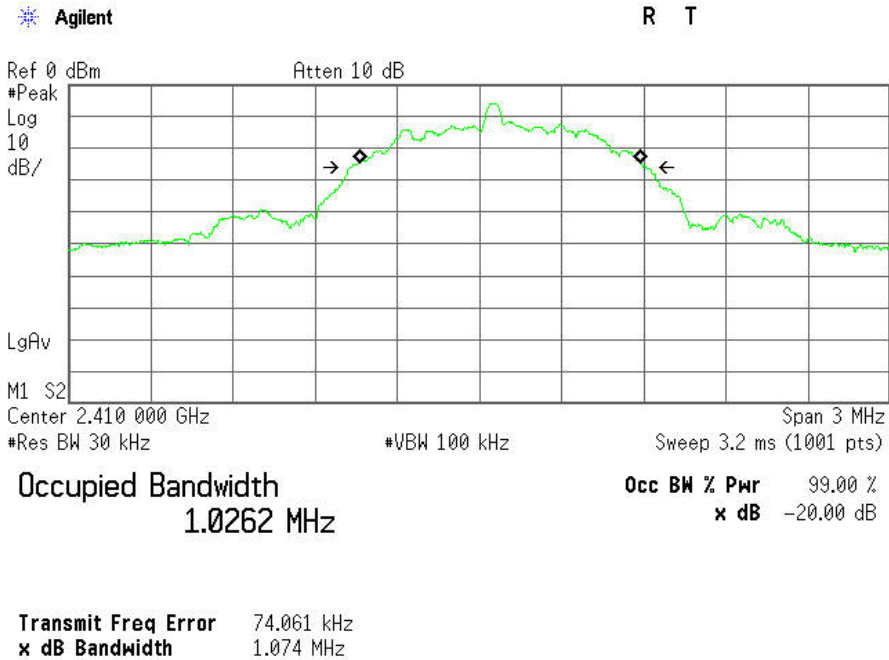
None.

Table 9: 20dB Bandwidth Results

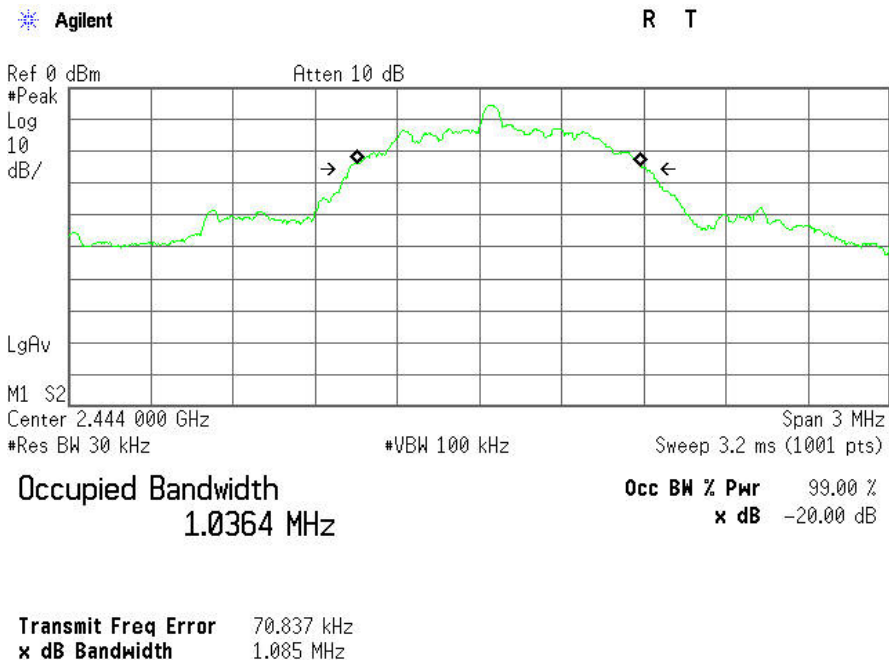
EUT: RC Drone		
M/N: X902		
Test date: 2016-04-06	Pressure: 99.54 ± 1.0 kPa	Humidity: 57 ± 3.0 %
Tested by: Ad Gan	Test site: RF site	Temperature: 25.6 ± 0.6 °C

Test Mode	Frequency (MHz)	20dB bandwidth (MHz)	Limit (MHz)
Tx	2410	1.074	Within 2400-2483.5MHz
	2444	1.085	Within 2400-2483.5MHz
	2478	1.118	Within 2400-2483.5MHz
Conclusion: Pass			

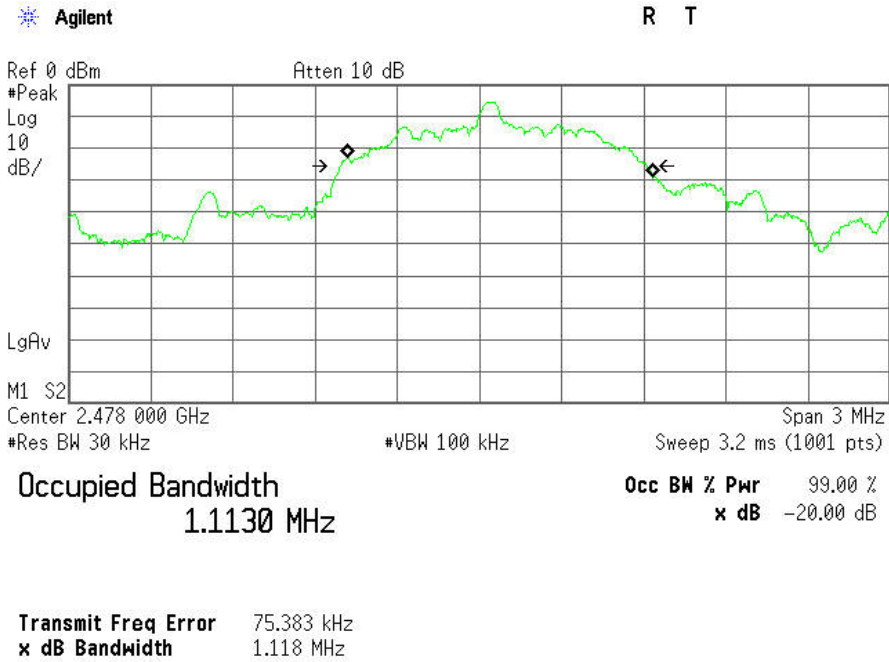
Test Mode: Tx-2410MHz



Test Mode: Tx-2444MHz



Test Mode: Tx-2478MHz



5.4 AC Powerline Conducted Emissions: (FCC Part §15.207)

According to Paragraph (c) of FCC Part 15 section 15.207, Tests to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

Photograph 1: Radiated Emission Test Configuration, (Below 1GHz) Front



Photograph 2: Radiated Emission Test Configuration, (Below 1GHz) Back



Photograph 3: Radiated Emission Test Configuration, (Above 1GHz) Front



6 Attachment (EUT Photograph)

EUT Photo #1- Front View



EUT Photo #2- Front View



EUT Photo #3- Front View



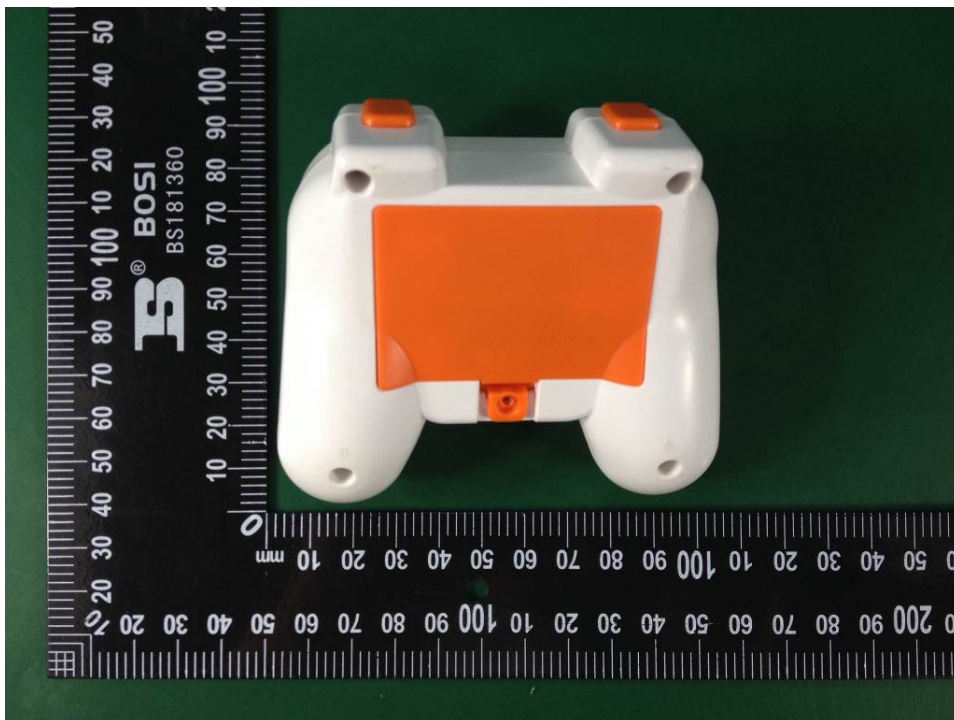
EUT Photo #4- Front View



EUT Photo #5- Front View



EUT Photo #6- Rear View

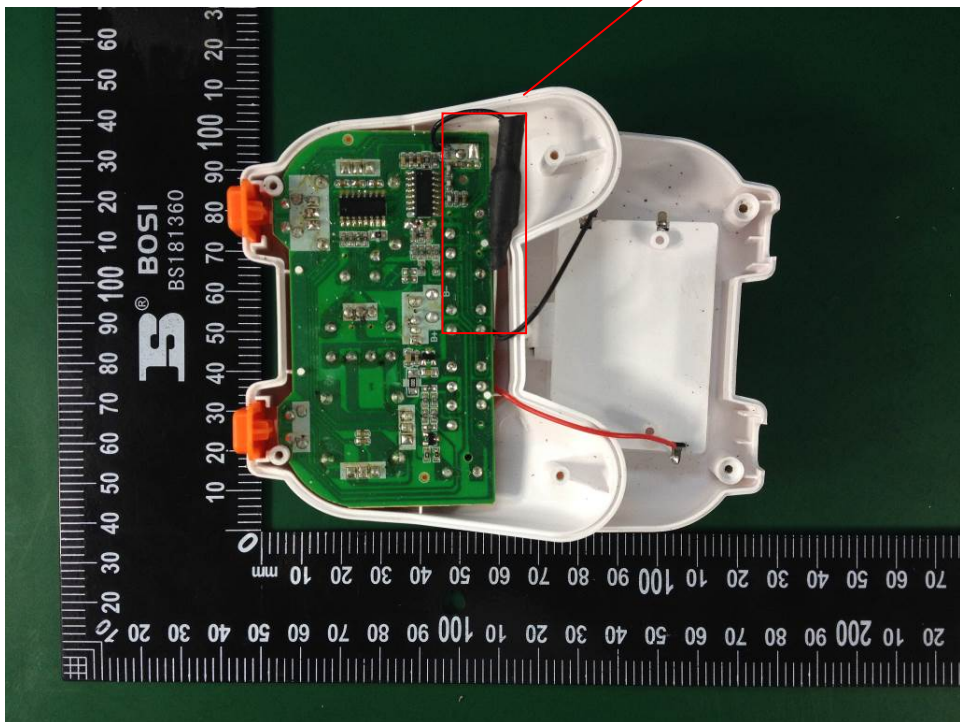


EUT Photo #7- Inside View

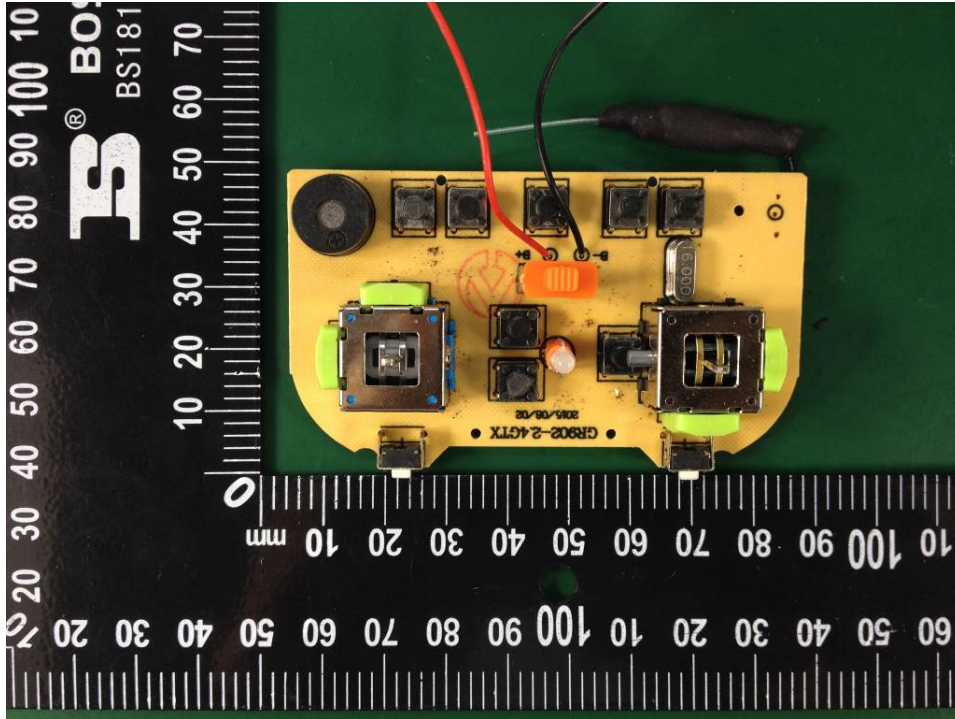


EUT Photo #8- Inside View

2.4GHz Antenna



EUT Photo #9- Inside View



EUT Photo #10- Inside View

