



No. 1 Workshop, M-10, Middle section, Science & Technology Park,  
Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053

Fax: +86 (0) 755 2671 0594

Email: sgs\_internet\_operations@sgs.com

**FEDERAL COMMUNICATIONS COMMISSION**

Registration number: 556682

Report No.: SZEMO11040164901  
Page : 1 of 11

**1 Cover Page**

# FCC REPORT

<b>Application No.:</b>	SZEMO110401649RF
<b>Applicant:</b>	GUANGDONG SHANTOU CHENGHAI LINGTING YONGDA PLASTIC FACTORY
<b>Product Name:</b>	HELICOPTER SERIES
<b>Operation Frequency:</b>	49.860MHz
<b>FCC ID:</b>	XJH20110472515
<b>Standards:</b>	FCC PART 15, SUBPART-C Section 15.235:2009
<b>Date of Receipt:</b>	2011-04-13
<b>Date of Test:</b>	2011-04-15 to 2011-04-25
<b>Date of Issue:</b>	2011-04-25

<b>Test Result:</b>	PASS *
---------------------	--------

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Jack Zhang  
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."

## 2 Test Summary

Test Item	Section in CFR 47	Result
Radiated Emission	Section 15.235	Pass
Occupied Bandwidth	Section 15.235	Pass

Remark: Pass: The EUT complies with the essential requirements in the standard.

Fail: The EUT does not comply with the essential requirements in the standard.

### 3 Contents

	Page
1 COVER PAGE.....	1
2 TEST SUMMARY .....	2
3 CONTENTS .....	3
4 GENERAL INFORMATION.....	4
4.1 CLIENT INFORMATION .....	4
4.2 GENERAL DESCRIPTION OF E.U.T .....	4
4.3 E.U.T. ENVIRONMENT AND TEST MODES .....	4
4.4 TEST LOCATION .....	5
4.5 OTHER INFORMATION REQUESTED BY THE CUSTOMER.....	5
4.6 TEST FACILITY.....	5
4.7 TEST INSTRUMENTS LIST.....	6
5 TEST RESULT & MEASUREMENT DATA.....	7
5.1 ANTENNA REQUIREMENT.....	7
5.2 RADIATED EMISSIONS.....	7
5.3 OCCUPIED BAND EDGE .....	11

## 4 General Information

### 4.1 Client Information

Applicant:	GUANGDONG SHANTOU CHENGHAI LINGTING YONGDA PLASTIC FACTORY
Address of Applicant:	NanQiao Outside, LinTing Industrial Park, Chenghua Shantou, Guangdong, 515800 China

### 4.2 General Description of E.U.T.

Product Name:	HELICOPTER SERIES
Model No.:	3319, 3319A, 3319B, 3320, 3310, 3311, 3312, 3313, 3315, 3317
	Only the model No.3319 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, only the different on model number, packaging and colors.
Product type:	Remote control toys
Operation Frequency:	49.860MHz
Power supply:	9.0V DC (1.5V x 6 "AA" Size Batteries)

### 4.3 E.U.T. Environment and test modes

<b>Operating Environment:</b>	
Temperature:	24.0 °C
Humidity:	52 % RH
Atmospheric Pressure:	1010 mBar
<b>Test mode:</b>	
Transmitting (TX ON):	Keep the EUT in transmitting mode.

#### **4.4 Test Location**

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China  
518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No test was sub-contracted.

#### **4.5 Other Information Requested by the Customer**

None.

#### **4.6 Test Facility**

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **VCCI**

The 3m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197 and C-2383 respectively.

Date of Registration: September 29, 2008. Valid until September 28, 2011.

- **FCC – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 556682, June 27, 2008.

- **Industry Canada (IC)**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1.

#### 4.7 Test Instruments List

RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2010-06-17	2011-06-17
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	2010-11-05	2011-11-05
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	2008-06-18	2011-06-18
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2010-11-09	2011-11-09
6	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2010-11-09	2011-11-09
7	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2010-06-02	2011-06-02

RF conducted						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	Spectrum Analyzer	Rohde & Schwarz	FSP 30	SEL0154	2010-10-27	2011-10-27
2	Coaxial cable	SGS	N/A	SEL0028	2008-06-18	2011-06-18

## 5 Test Result & Measurement Data

### 5.1 Antenna requirement

<b>Standard requirement:</b>	FCC Part15-C Section 15.203
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	

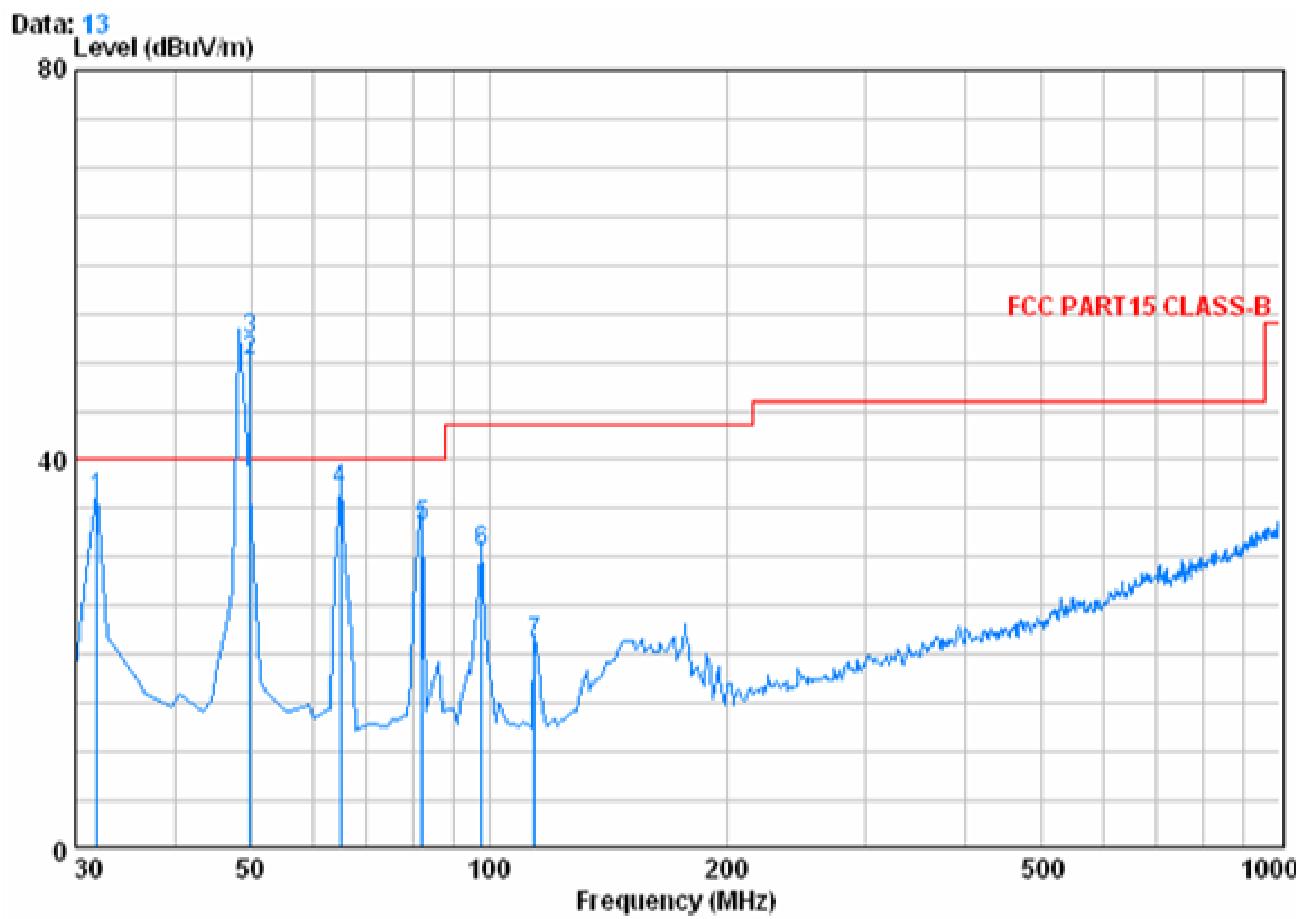
### 5.2 Radiated Emissions

<b>Test Requirement:</b>	FCC Part15-C Section 15.235
<b>Test Method:</b>	ANSI C63.10: 2009
<b>Measurement Distance:</b>	3m (Semi-Anechoic Chamber)
<b>Requirements:</b>	Fundamental carrier signal level should not exceed 80dB $\mu$ V/m at 3m distance
	Out of band emissions shall not exceed:
	40.0 dB $\mu$ V/m between 30MHz & 88MHz
	43.5 dB $\mu$ V/m between 88MHz & 216MHz
	46.0 dB $\mu$ V/m between 216MHz & 960MHz
	54.0 dB $\mu$ V/m between 960MHz & 1000MHz
<b>Scanning Frequency range for spurious emission test :</b>	30MHz to 1000MHz: Setting: RBW=120kHz & VBW=300kHz
<b>Test Procedure:</b>	<p>The equipment under test (EUT) was placed at the middle of the 80 cm height turntable, and the turntable is 3 meters far from the measuring antenna. During the testing, the EUT was operated standalone and arranged for maximum emissions. The EUT was tested in three orthogonal planes.</p> <p>The measurement was performed with the EUT rotated 360 °, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained.</p>

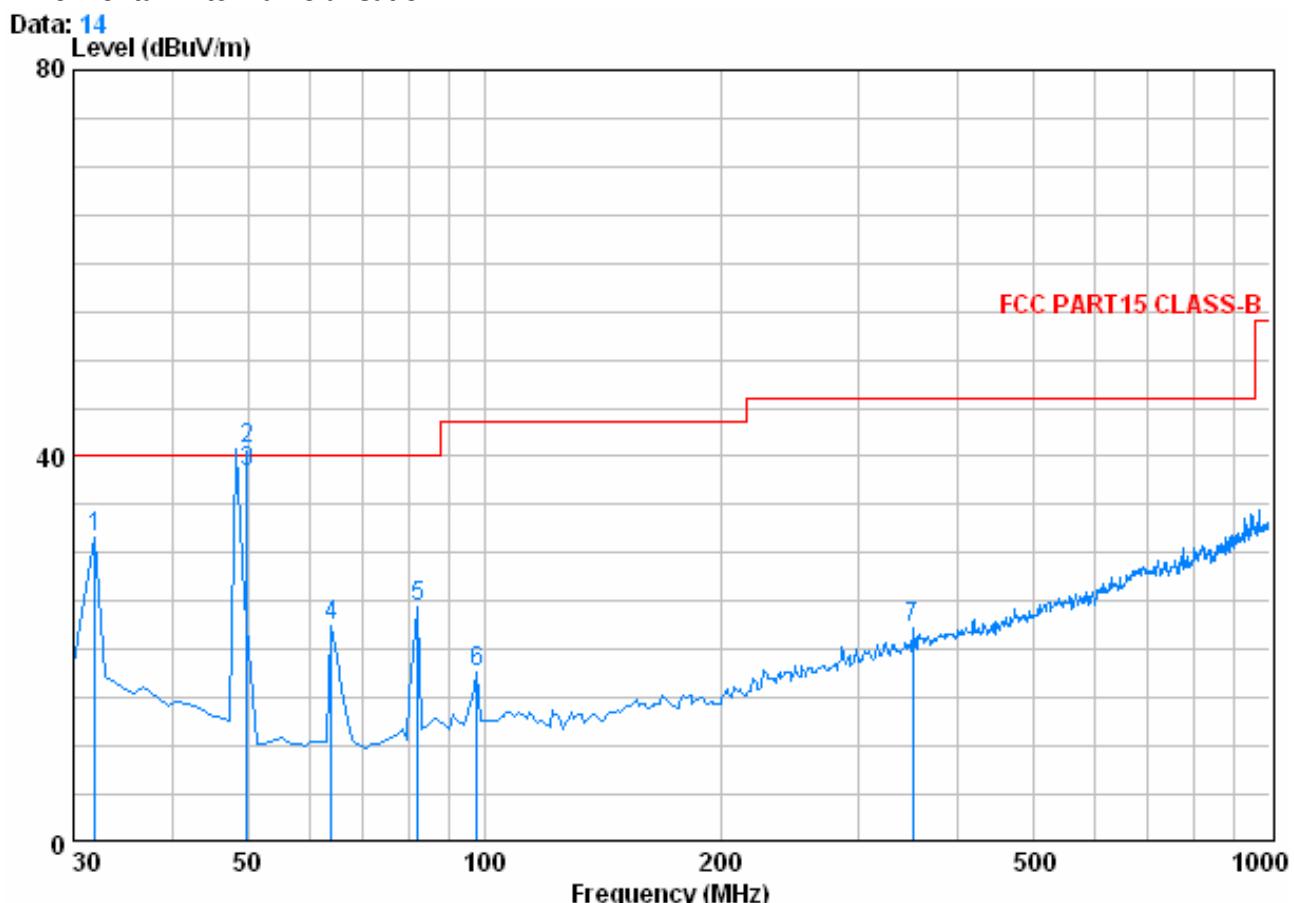
**Fundamental Signal Emission:**

Test Frequency (MHz)	Peak Detection (dB $\mu$ V/m)		Limit (dB $\mu$ V/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
49.860	52.40	40.73	100.0	47.60	59.27

Test Frequency (MHz)	Average Detection (dB $\mu$ V/m)		Limit (dB $\mu$ V/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
49.860	50.17	38.31	80.0	29.83	41.69

**Spurious Emission Test (QP):**
**Vertical Antenna Polarisation:**


Frequency of Emission (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dB $\mu$ V)	Quasi-Peak Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Over Limit (dB)
31.940	0.60	14.43	27.35	48.19	35.87	40.00	-4.13
64.920	0.80	7.04	27.26	56.30	36.88	40.00	-3.12
82.380	1.10	7.95	27.23	51.40	33.22	40.00	-6.78
97.900	1.18	9.02	27.20	47.54	30.54	43.50	-12.96
114.390	1.24	8.30	27.10	38.62	21.06	43.50	-22.44

**Horizontal Antenna Polarisation:**


Frequency of Emission (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dB $\mu$ V)	Quasi-Peak Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Over Limit (dB)
31.940	0.60	14.31	27.35	44.08	31.64	40.00	-8.36
63.950	0.80	7.07	27.26	41.89	22.50	40.00	-17.50
82.380	1.10	7.95	27.23	42.61	24.43	40.00	-15.57
97.900	1.18	9.02	27.20	34.63	17.63	43.50	-25.87
351.070	2.06	15.43	26.81	31.55	22.23	46.00	-23.77

**Remark:**

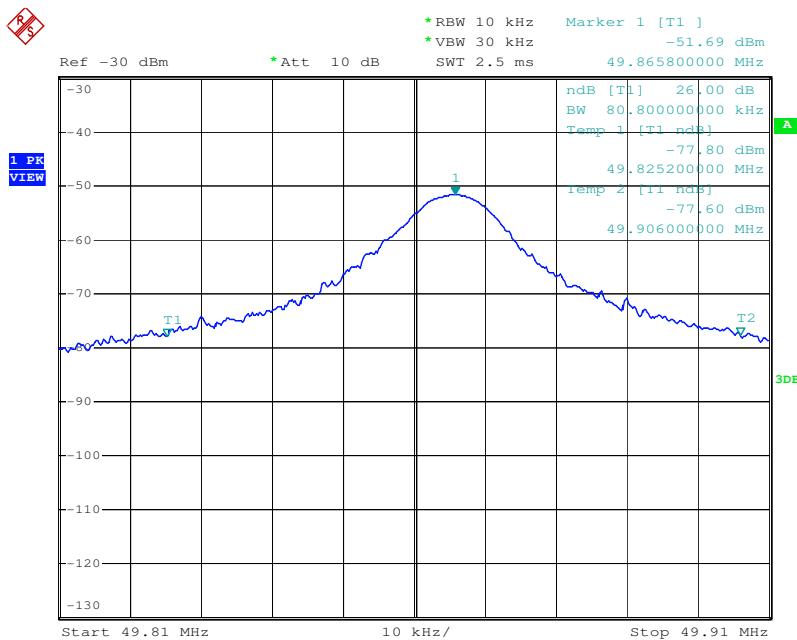
According to Part-15.35 (b) when average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

**Test Results: The EUT complies with the requirements FCC Part 15-C Section 15.235**

### 5.3 Occupied Band edge

<b>Test Requirement:</b>	FCC Part15-C Section 15.235
<b>Test Method:</b>	ANSI C63.10: 2009
<b>Frequency range:</b>	Operation within the band 49.82 – 49.90 MHz
<b>Requirements:</b>	The field strength of any emissions appearing between the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 26 dB below the level of the un-modulated carrier or to the general limits in Section 15.209, whichever permits the higher emission levels. The field strength of any emissions removed by more than 10 kHz from the band edges shall not exceed the general radiated emission limits in Section 15.209
<b>Method of measurement:</b>	The fundamental signal from the EUT was measured by the spectrum analyzer with peak detector.

The graph as below: represents the emissions take for this device.



**The results:** The unit does meet the FCC Part 15 C Section 15.235 requirements.