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FEDERAL COMMUNICATIONS COMMISSION

Registration number: 556682

Report No.: SZEM110900376501

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FCC REPORT

Application No.: SZEM1109003765RF
Applicant: SMILOR INDUSTRIAL CO., LIMITED
Product Name: RADIO CONTROL FLYING FISH
Operation Frequency: 49.860MHz
FCC ID: Z2P20119841011
Standards: FCC PART 15, SUBPART C Section 15.235: 2010
Date of Receipt: 2011-09-20
Date of Test: 2011-09-20 to 2011-09-21
Date of Issue: 2011-09-22

Test Result :	PASS *
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* 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.

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2 Test Summary

Test Item	Section in CFR 47	Result
Radiated Emission (30MHz to 1GHz)	Section 15.235	Pass
Occupied Bandwidth	Section 15.215	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.



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4 General Information

4.1 Client Information

Applicant:	SMILOR INDUSTRIAL CO., LIMITED
Address of Applicant:	Ximen Industrial Area, Chenghai, Shantou City, Guangdong, China

4.2 General Description of E.U.T.

Product Name:	RADIO CONTROL FLYING FISH
Model No.:	SMB170 SMB170A/B/C/D/E/F 1967A/B/C/D/E/F 1968A/B/C/D/E/F 1969A/B/C/D/E/F 1970A/B/C/D/E/F 1971A/B/C/D/E/F 1972A/B/C/D/E/F 1973A/B/C/D/E/F 1974A/B/C/D/E/F 1975A/B/C/D/E/F 1976A/B/C/D/E/F 1977A/B/C/D/E/F 1978A/B/C/D/E/F 1979A/B/C/D/E/F 1980A/B/C/D/E/F 1981A/B/C/D/E/F 1982A/B/C/D/E/F 1983A/B/C/D/E/F Only the model SMB170 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with only difference being appearance, color and model name.
Operation Frequency:	49.860MHz
Power Supply:	3.0V DC (2 × 1.5V "AA" Size Batteries)

4.3 E.U.T. Environment and test modes

Operating Environment:	
Temperature:	24.0 °C
Humidity:	52% RH
Atmospheric Pressure:	1004mbar
Test mode:	
Transmitting mode:	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 tests were 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, March 16, 2011
- **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	2011-06-10	2012-06-10
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	2011-05-26	2012-05-26
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	2011-05-29	2012-05-29
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	2011-05-26	2012-05-26

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	2011-05-29	2012-05-29

General used equipment						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	Humidity/ Temperature Indicator	Shanghai	ZJ1-2B	SEL0102 to SEL0103	2010-11-04	2011-11-04
2	Humidity/ Temperature Indicator	Shanghai	ZJ1-2B	SEL0101	2011-03-10	2012-03-10
3	Barometer	ChangChun	DYM3	SEL0088	2011-05-18	2012-05-18

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5 Test Result & Measurement Data

5.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203
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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

Test Requirement:	FCC Part15 C Section 15.235
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Test Method:	ANSI C63.10: 2010
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Measurement Distance:	3m (Semi-Anechoic Chamber)
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Requirements:	Average value will not exceed 80dBuV/m@3m. Peak value will not exceed 100dBuV/m@3m.
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Limit:	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 unmodulated carrier or to the general limits in Section 15.209, whichever permits the higher emission levels. the general limits in Section 15.209 as following:
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	40.0 dBμV/m between 30MHz & 88MHz
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	43.5 dBμV/m between 88MHz & 216MHz
--	------------------------------------

	46.0 dBμV/m between 216MHz & 960MHz
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	54.0 dBμV/m between 960MHz & 1000MHz
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Detector:	30MHz to 1000MHz QP: RBW=100kHz VBW=300kHz Peak: RBW=100kHz VBW=300kHz Average: RBW=100kHz VBW=10Hz
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Test Procedure:	<ol style="list-style-type: none"> 1. The EUT is placed on a turntable, which is 0.8m above ground plane. 2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. 3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance. 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. 6. Repeat above procedures until the measurements for all frequencies are complete. 7. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
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Intentional emission

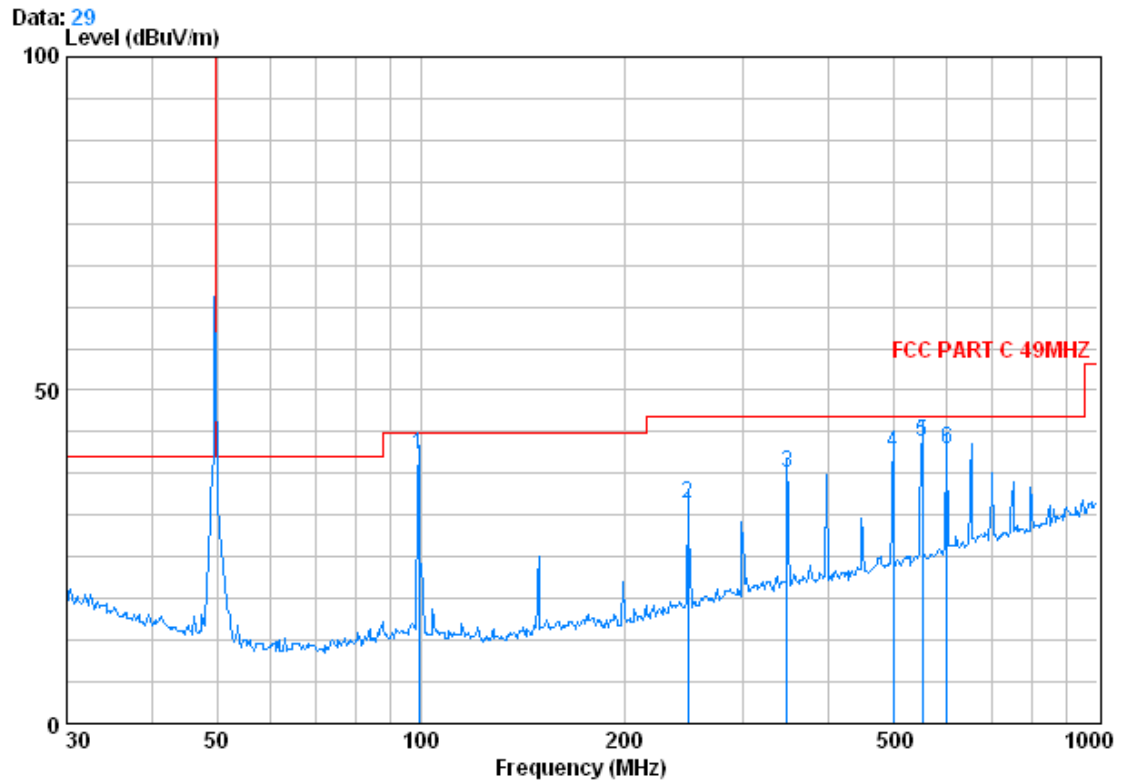
Test Frequency (MHz)	Peak (dB μ V/m)		Limits (dB μ V/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
49.860	64.12	52.33	100.0	-20.44	-47.67

Test Frequency (MHz)	Average (dB μ V/m)		Limits (dB μ V/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
49.860	61.91	51.37	80.0	-18.09	-28.63



Other emissions

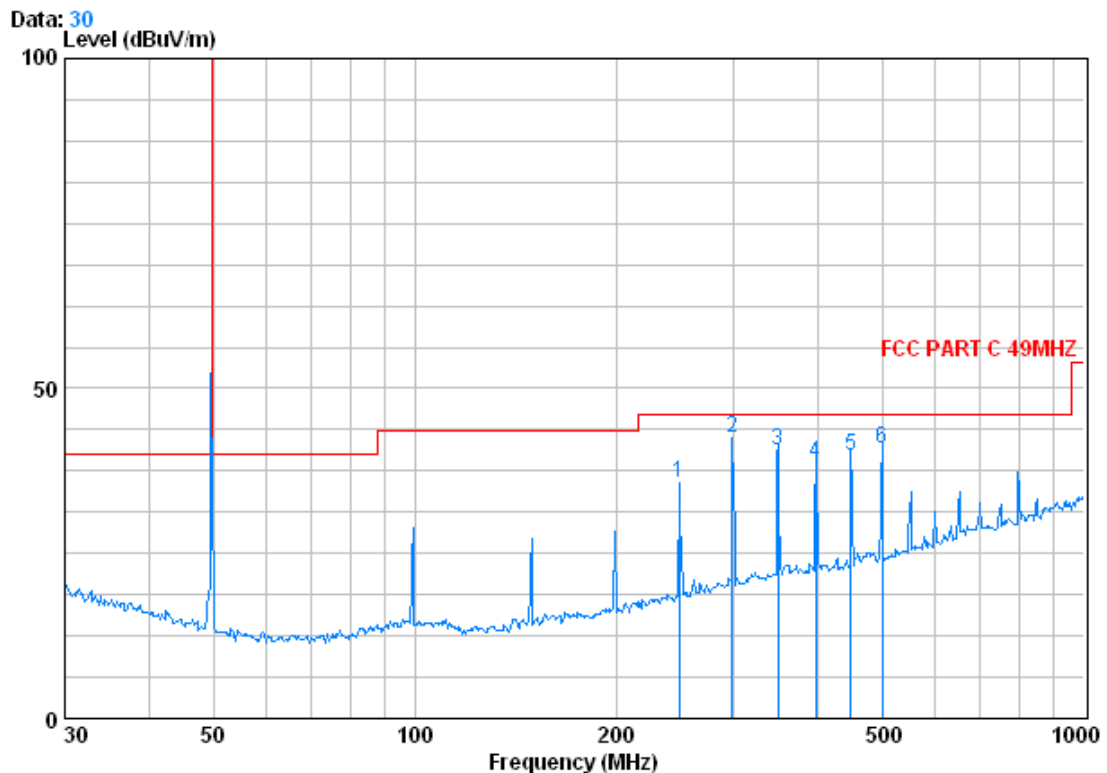
Vertical:



		Cable	Antenna	Preamp	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 0	99.528	1.19	9.09	27.20	57.32	40.40	43.50	-3.10
2	248.552	1.67	12.27	26.54	45.65	33.05	46.00	-12.95
3	348.027	2.05	15.37	26.77	46.88	37.54	46.00	-8.46
4	499.425	2.59	17.80	27.70	47.78	40.47	46.00	-5.53
5	550.948	2.65	18.90	27.61	48.21	42.15	46.00	-3.85
6	599.321	2.70	19.74	27.54	46.38	41.28	46.00	-4.72

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Horizontal:



		CableAntenna		Preamp	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	248.552	1.67	12.27	26.54	48.41	35.81	46.00	-10.19
2	298.268	1.89	13.81	26.41	53.32	42.61	46.00	-3.39
3	349.250	2.06	15.40	26.79	49.93	40.60	46.00	-5.40
4	397.633	2.20	16.27	27.11	47.37	38.73	46.00	-7.27
5	447.982	2.40	16.84	27.44	48.03	39.84	46.00	-6.16
6	499.425	2.59	17.80	27.70	48.05	40.74	46.00	-5.26

Remark:

According to 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.



5.3 Occupied Bandwidth

Test Requirement:	FCC Part15 C Section 15.235
Test Method:	ANSI C63.10: 2010
Frequency range:	Operation within the band 49.82 – 49.90 MHz
Requirements:	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

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

