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FEDERAL COMMUNICATIONS COMMISSION
Registration number: 556682

Report No.: SZEMO070501245RFF
Page: 1 of 8
FCC ID: VDYAE20003

TEST REPORT

Application No. : SZEMO070501245RF(SGS SZ NO.: SZTYR070501415/EL)
Applicant: Syma Toys Factory
FCC ID: VDYAE20003
Fundamental Frequency : 27.145MHz
Equipment Under Test (EUT):
EUT Name: R/C Helicopter
Model No.: AE20003
Labelled Age Grading: 14 or above
Country of Origin: China
Standards: FCC PART 15, SUBPART C : 2006
Section 15.227
Date of Receipt: 28 May 2007
Date of Test: 09 May to 31 July 2007
Date of Issue: 06 August 2007

Test Result :	PASS *
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
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.

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2 Test Summary

Test	Test Requirement	Standard Paragraph	Result
Radiated Emission (30MHz to 1000MHz)	FCC PART 15 :2006	Section 15.227	PASS*
Occupied Bandwidth	FCC PART 15 :2006	Section 15.215	PASS

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radiated Frequency.

* The EUT passed the RE test after modification:

(1) Change the L3 to 3.9uH

(2) Move off the C19

(3) Change the R21 to 560ohm

(4) Add a C=104pF capacitance to the C26

(5) Add a capacitance C=104pF between the R13 and GND



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4 General Information

4.1 Client Information

Applicant Name: Syma Toys Factory
Applicant Address: Donghu Industrial park.Chenghai,Shantou City

4.2 Details of E.U.T.

EUT Name: R/C Helicopter
Item No.: AE20003
Power Supply: 12.0V DC (8 * 1.5V 'AA' Size Batteries) for Tx.
Power Cord: N/A-

4.3 Description of Support Units

The EUT was tested as an independent unit: 27MHz radio transmitter.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory, No.198
Kezhu Road, Science Town Economic & Technology Development District Guangzhou, China
510663

Tel: +86 20 8215 5555 Fax: +86 20 8207 5059

4.5 Other Information Requested by the Customer

None.



5 Test Results

5.1 Test Instruments

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	16-06-2007	15-06-2008
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	100249	14-12-2006	13-12-2007
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	01-06-2007	31-05-2008
5	Coaxial cable	SGS	N/A	SEL0027	01-06-2007	31-05-2008
6	BiConiLog Antenna	ETS-LINDGREN	3142C	00042673	03-03-2007	02-03-2008
7	EMI Test Receiver	Rohde & Schwarz	ESCI	100119	27-06-2007	26-06-2008
8	Loop Antenna	Emco	6502	00042963	30-05-2006	29-05-2008

5.2 E.U.T. Operation

Input voltage: 12.0V DC (8 * 1.5V 'AA' Size Batteries)
Operating Environment:
Temperature: 26.0 °C
Humidity: 51% RH
Atmospheric Pressure: 1010mbar
EUT Operation: Test the EUT in transmitting mode.

5.3 Test Procedure & Measurement Data

5.3.1 Radiated Emissions

Test Requirement: FCC Part15 C Section 15.227
Test Method: ANSI C63.4
Test Date: 29 May 2007(Initial Test)
31 July 2007(Test after Modification)
Measurement Distance: 3m (Semi-Anechoic Chamber)
Requirements: Carrier frequency will not exceed 80dBuV/m AT 3m.
Out of band emissions shall not exceed:
40.0 dB μ V/m between 30MHz & 88MHz
43.5 dB μ V/m between 88MHz & 216MHz
46.0 dB μ V/m between 216MHz & 960MHz
54.0 dB μ V/m above 960MHz
Detector: Peak Scan (9kHz resolution bandwidth for 9kHz to 30MHz;
120kHz resolution bandwidth for 30MHz to 1000MHz)



27.145MHz Mode.

Test Procedure: For testing performed with the loop antenna, testing was performed in accordance to ANSI C63.4 section 8.2.1. The center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

Horizontal.

Test Frequency (MHz)	Peak (dB μ V/m)			Limits (dB μ V/m)	Margin (dB)		
	X	Y	Z		X	Y	Z
27.145	48.7	45.3	47.9	100.0	51.3	54.7	52.1

Test Frequency (MHz)	Average (dB μ V/m)			Limits (dB μ V/m)	Margin (dB)		
	X	Y	Z		X	Y	Z
27.145	44.6	41.9	44.3	80.0	35.4	38.1	35.7

Vertical.

Test Frequency (MHz)	Peak (dB μ V/m)			Limits (dB μ V/m)	Margin (dB)		
	X	Y	Z		X	Y	Z
27.145	46.2	43.4	46.1	100.0	53.8	56.6	53.9

Test Frequency (MHz)	Average (dB μ V/m)			Limits (dB μ V/m)	Margin (dB)		
	X	Y	Z		X	Y	Z
27.145	41.2	39.2	41.3	80.0	38.8	40.8	38.7

Y: EUT as per photograph in section 5.3.3 of this report.

X: As Y, but rotate EUT by 90° clockwise.

Z: As X, but rotate EUT by 90° vertically.

Other emissions

Test Procedure: The procedure used was ANSI Standard C63.4-2003. The receiver was scanned from 30MHz to 1000MHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. The worst case emissions were reported.

An initial pre-scan was performed in the 3m chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bilog antenna with 2 orthogonal polarities

Test the EUT in transmitting mode.



Horizontal.

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Read Level (dBuV)	Quasi-peak Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
54.250	0.80	7.92	28.08	44.37	25.01	40.0	-14.99
78.625	1.06	7.61	28.00	37.20	17.87	40.0	-22.13
105.925	1.22	8.81	27.82	35.46	17.67	43.5	-25.83
133.225	1.29	7.84	27.58	40.41	21.96	43.5	-21.54
160.525	1.34	9.59	27.38	38.34	21.89	43.5	-21.61
187.825	1.38	10.06	27.22	34.99	19.21	43.5	-24.29

Vertical.

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Read Level (dBuV)	Quasi-peak Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
54.250	0.8	7.64	28.08	56.38	36.74	40.0	-3.26
78.625	1.06	7.61	28.00	52.85	33.52	40.0	-6.48
105.925	1.22	8.81	27.82	51.93	34.14	43.5	-9.36
133.225	1.29	7.84	27.58	53.38	34.93	43.5	-8.57
160.525	1.34	9.59	27.38	49.44	32.99	43.5	-10.51
187.825	1.38	10.06	27.22	42.75	26.97	43.5	-16.53

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.

Test Results: The unit does meet the FCC Part 15 C Section 15.227 requirements.

5.3.2 Occupied Bandwidth

Test Requirement: FCC Part 15 C Section 15.215 (C) and Section 15.227.

Test Method: ANSI C63.4

Operation within the band 26.960 – 27.280 MHz .

Test Date: 05 July 2007

26.960–27.280MHz Mode.

Requirements:

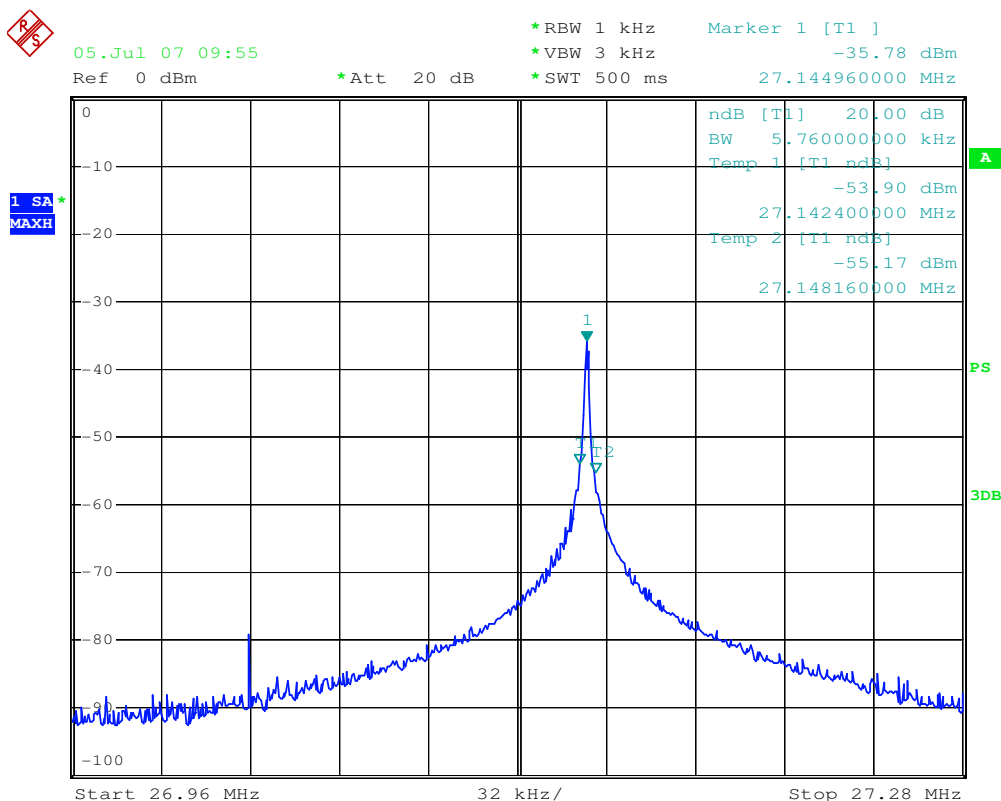
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the 20 dB bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency



stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Method of measurement:

The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector. The vertical Scale is set to 10dB per division. The horizontal scale is set to 32KHz per division.



N

Date: 5.JUL.2007 09:55:15

The results: The unit does meet the FCC Part 15 C Section 15.215 requirements