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EMC TEST REPORT

Application No.: SHEMO060100040RFR

Applicant: JIAXING SHENGTENG R/C MODEL PLANE CO., LTD.

Equipment under Test (EUT)

NOTE: The following sample(s) submitted was/were identified on behalf of the client as

EUT Name: Model plane

Model No.: HOT, COOL, SUPER COOL, CESSNA 182, SKYMASTER, SEA CAPTAIN,

EASY FLY, FLY FUN, BUTTERFLY, P-51, P-38

Serial No.: Not supplied by client CFR 47 part 2: 2004,

CFR 47 Part 95: 2005, ANSI C63.4: 2003

Date of Receipt: 12 January 2006

Date of Test: 16 January 2006 to 30 January 2007

Date of Issue: 05 February 2007

Test Result : PASS *

* In the configuration tested, the EUT detailed in this report complied with the standards specified above. Please refer to section 2 of this report for further details.

Authorized Signature:



Tino Pan E&E Section Head SGS-CSTC Co., Ltd. Parker Liu E&E Project Engineer SGS-CSTC Co., Ltd

This report refers to the General Conditions for Inspection and Testing Services, printed overleaf

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the SGS PRODUCT CERTIFICATION MARK.. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. 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.

All test results in this report can be traceable to National or International Standards.

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1 Test Summary

• The EUT belongs to Radio Control (R/C) Radio Service device. It is a private, one-way, short distance non-voice communication remote device.

Test	Test Requirement	Test Method	Limit / Severity	Result	
Frequency stability	CFR 47 Part 95: 2005 §95.623 (c)	ANSI C63.4: 2003	0.002%	PASS	
Effective Radiated Power	CFR 47 Part 95: 2005 §95.637 (b)(3)	ANSI C63.4: 2003	0.75W (28.75dBm)	PASS	
Occupied bandwidth	CFR 47 Part 95: 2005 §95.635 (b)	ANSI C63.4: 2003	(1)(10)(11)(12)	PASS	
Unwanted Radiation	CFR 47 Part 95: 2005 §95.635 (b)	ANSI C63.4: 2003	(1)(3)(7)(10) (11)(12)	PASS	

RF: In this whole report RF means Radiated Frequency.

Statement: When measuring the ERP for the fundamental and spurious emissions, we used the substitution method of measurement as prescribed under ANSI/TIA-603-B-2002 or C-version sections 2.2.12 and 2.2.17.2.

NOTE: There are eleven models metioned in this report, and they are same in electronic schematic diagram. So we just have one of them tested. The tested model is HOT.

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3 General Information

3.1 Client Information

Applicant: JIAXING SHENGTENG R/C MODEL PLANE CO., LTD. Address of Applicant: 237" QINJIAN ROAD, JIAXING, ZHEJIANG, CHINA

3.2 General Description of E.U.T.

EUT Name: Model plane

Model No.: HOT, COOL, SUPER COOL, CESSNA 182, SKYMASTER, SEA

CAPTAIN, EASY FLY, FLY FUN, BUTTERFLY, P-51, P-38

Frequency Range: 72.210MHz Type of Emission: 8K0F1D

Authorized Bandwidth 8 kHz for RC Transmitter

3.3 Details of E.U.T.

EUT Power Supply: 12V DC (8*1.5 AA BATTERY)

3.4 Description of Support Units

The EUT has been tested independently.

3.5 Standards Applicable for Testing

The customer requested EMC tests for a Model plane.

The standard used was CFR 47 Part 95: 2005.

Table 1 : Tests Carried Out Under CFR 47 Part 95: 2005				
TEST ITEM				
CFR 47 Part 95: 2005 §95.623 (c)	Frequency stability			
CFR 47 Part 95: 2005 §95.637 (b)(3)	Effective Radiated Power			
CFR 47 Part 95: 2005 §95.635 (b)	Occupied bandwidth	$\sqrt{}$		
CFR 47 Part 95: 2005 §95.635 (b)	Unwanted Radiation	√		

×: Indicates that the test is not applicable,

 $\sqrt{}$: Indicates that the test is applicable

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3.6 Test Location

All tests were performed at:

QuieTek Corporation EMC Laboratory, No.716 Yinshan Road, Shanghai, P.R.China

Tel: +86 21 64701390 Fax: +86 21 64514252

3.7 Deviation from Standards

None.

3.8 Abnormalities from Standard Conditions

None.

3.9 Other Information Requested by the Customer

None.

3.10 Test Confident level

Test Confident level is recognized, certified, or accredited by the following organizations:

NVLAP - Lab Code: 200632-0

SIMT EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200632-0. Effective dates: 2006-01-01 through 2006-12-31.

VCCI

The 10m Semi-anechoic chamber and Shielded Room of SIMT have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: 1153.

Date of Registration: May 19, 2004. Valid until May 18, 2007

CNAL - LAB Code: L0134

SIMT EMC Laboratory has been assessed and in compliance with CNAL/AC01:2005 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements for the Competence of Testing Laboratories.)

FCC – Registration No.: 142171

SIMT 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 142171. Effective dates: November 30, 2005 through November 30, 2008. With the above and NVLAP, SIMT is an authorized test laboratory for the DoC process.

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4 Equipments Used during Test

	Frequency stability					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (yy-mm-dd)	Cal.Due date (yy-mm-dd)
1	SPECTRUM ANALYZER	R&S	FSP-30	/	2006.03.26	2007.03.25
2	VHAP PRECISION HALFWAVE DIPOLES	R&S	VHAP	1096+1097	2006.05.18	2007.05.17
3	UHAP PRECISION HALFWAVE DIPOLES	R&S	UHAP	1075+1076	2006.05.18	2007.05.17
4	TEMPERATURE& HUMIDITY BOX	KSON	THS-D2C-	K40723	2006.11.18	2007.11.17
5	DC POWER	GW-instek	GPS2303C	EF832649	/	/
6	Audio Analyzer	R&S	UPL 16	100018	2006.12.24	2007.12.23

	Effective Radiated Power					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (yy-mm-dd)	Cal.Due date (yy-mm-dd)
1	HORN ANTENNA	R&S	HF 906	100023	2006.06.17	2007.06.16
2	BROADBAND ANTENNA	R&S	HL 562	100019	2006.06.17	2007.06.16
3	VHAP PRECISION HALFWAVE DIPOLES	R&S	VHAP	1096+1097	2006.05.18	2007.05.17
4	UHAP PRECISION HALFWAVE DIPOLES	R&S	UHAP	1075+1076	2006.05.18	2007.05.17
5	Audio Analyzer	R&S	UPL 16	100018	2006.12.24	2007.12.23
6	EMI TEST RECEIVER	R&S	ESI 26	838786/011	2006.03.06	2007.03.05
7	10m Semi-Anechoic Chamber	FRANKONIA	/	/	2006.10.15	2007.10.14

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Occupied bandwidth & Unwanted Radiation						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (yy-mm-dd)	Cal.Due date (yy-mm-dd)
1	HORN ANTENNA	R&S	HF 906	100023	2006.06.17	2007.06.16
2	BROADBAND	D 6-C	III 562	100019	2000 00 47	0007.00.40
3	ANTENNA Audio Analyzer	R&S R&S	HL 562 UPL 16	100019	2006.06.17	2007.06.16
4	EMI TEST RECEIVER	R&S	ESI 26	838786/011	2006.03.06	2007.03.05
5	10m Semi-Anechoic Chamber	FRANKONIA	/	/	2006.10.15	2007.10.14

General Equipment

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (yy-mm-dd)	Cal.Due date (yy-mm-dd)
1	Barometer	Chang chun qi	DYM3	0124	2006.06.06	2007.06.05
2	DMM	UNI-T	UT 222	45402866	2006.01.25	2007.01.24
3	Temperature, Humidity	Zhi cheng	ZC1-2	/	2006.07.06	2007.07.05

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5 Radio Technical Requirements Specification in CFR 47 Part 95: 2005

5.1 Transmitter Requirements

The EUT is a private, one-way, short distance non-voice communication remote device.

5.1.1 Frequency stability

Test Date: 10 January 2007
Test Method: ANSI C63.4: 2003

EUT Operation:

Ambient: Temp.: 23 °C, Humid.: 43 % Press.: 1010 mBar

Status: The transmitter was placed in the temperature chamber at 25 degrees

C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were

recorded at 15 second intervals. The worse case number was taken for temperature plotting. The assigned channel frequency was considered to be the reference frequency was considered to be the reference frequency. The temperature was then reduced to -30 degrees C after which the transmitter was again allowed to stabilize for one Hour. The

transmitter was again allowed to stabilize for one Hour. In transmitter was keyed ON for one minute, and again frequency readings were noted at 15 seconds intervals. The worst case Number was recorded for temperature plotting. This procedure was repeated

in 10-degree increments up to + 50 degrees C.

Readings were also taken at the end point of the battery voltage of

12VDC.

5.1.1.1 **Requirements:**

Temperature and voltage tests were performed to verify that the frequency remains within the .002%, 20 ppm specification limit.

5.1.1.2 Measurement Record:

Frequency of crystal: 72.210MHz

Reference Frequency: 72.208400 MHz

FCC ID: UZ6-ST0601A

Uncertainty: ± 3dB

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Temperature	Frequency (MHz)	PPM
-30C	72.207695	-9.76
-20C	72.207862	-7.45
-10C	72.208058	-4.74
0C	72.208286	-1.58
10C	72.208338	-0.86
20C	72.208435	0.48
30C	72.208466	0.91
40C	72.208825	5.89
50C	72.209000	8.30

STATE	Frequency (MHz)	VOLTAGE	PPM
-15% BATTERY END POINT	72.208524	10.2VDC	1.72

RESULTS OF MEASUREMENTS: The maximum frequency variation over the temperature range was -9.76 to +8.30ppm. The maximum frequency variation with voltage was 1.72 ppm.

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5.1.2 Effective Radiated Power

Test Date: 15 January 2007
Test Method: ANSI C63.4: 2003

EUT Operation:

Ambient: Temp.: 24 °C, Humid.: 56 % Press.: 1002 mBar

Status: Keep EUT operating. The EUT is tested when it was placed along three

perpendicular axes.

5.1.2.1 Measurement Record:

Frequency of crystal	Max Level	Limit
72.210MHz	-8.682dBm	28.75dBm (i.e. =0.75W)

FCC ID: UZ6-ST0601A

Uncertainty: ± 3dB

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5.1.3 Occupied bandwidth

Test Date: 15 January 2007 **Test Method:** ANSI C63.4: 2003

EUT Operation:

Ambient: Temp.: 23 °C, Humid.: 56 % Press.: 1010 mBar

Status: Keep EUT operating.

Test Result: PASS

5.1.3.1 **Requirements:**

(1) At least 25 dB (decibels) on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 100% of the authorized bandwidth.

- (10) At least 45 dB on any frequency removed from the center of the authorized bandwidth by more than 100% up to and including 125% of the authorized bandwidth.
- (11) At least 55 dB on any frequency removed from the center of the authorized bandwidth by more than 125% up to and including 250% of the authorized bandwidth.
- (12) At least 56 + 10 log10 (T) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

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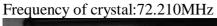
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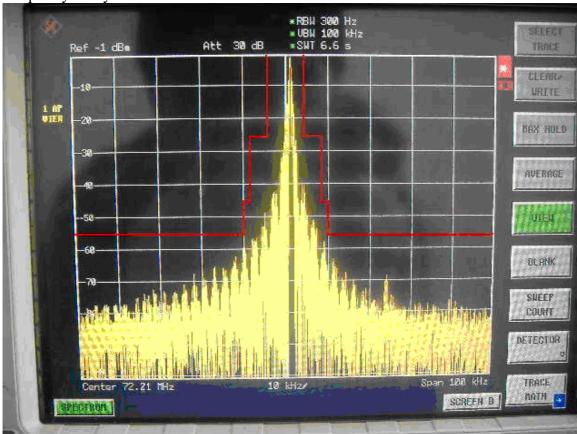
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5.1.3.2 Measurement Record:

Uncertainty: ± 3dB





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5.1.4 Unwanted Radiation

Test Date: 15 January 2007
Test Method: ANSI C63.4: 2003

EUT Operation:

Ambient: Temp.: 24 °C, Humid.: 56 % Press.: 1010 mBar

Status: 1) Test EUT in operation mode, 0.8m high above ground plane; **Test Procedure:** Scan from 30M to 1GHz, find the maximum radiation frequency to

measure.

5.1.4.1 **Requirements:**

At least $56 + 10 \log 10$ (T) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

Frequency of crystal	Requirement
72.210MHz	$56 + 10 \log 10 (0.000135) = 17.3 dB$

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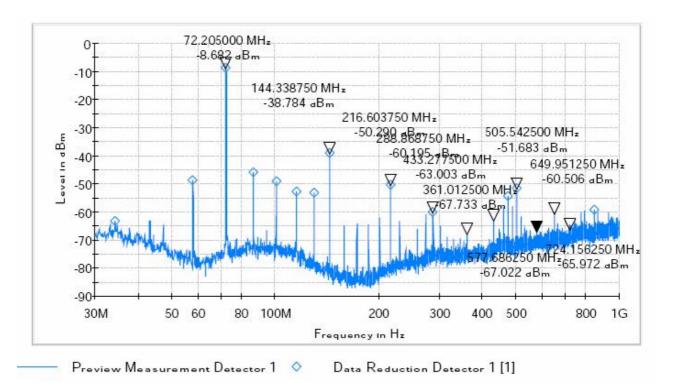
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Uncertainty: ± 3dB

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5.1.4.2 Measurement Record:

Frequency of crystal: 72.210MHz					
Emission Frequency(MHz)	Polarity Antenna	Level(dBm)	dB Below Carrier(dBc)		
72.205000	V	-8.682	0.00		
144.338750	V	-38.784	30.102		
216.603750	V	-50.290	41.608		
288.868750	V	-60.195	51.513		
361.012500	V	-67.733	59.051		
433.277500	V	-63.003	54.321		
505.542500	V	-51.683	43.001		
577.686250	V	-67.022	58.340		
649.951250	V	-60.506	51.824		
724.035000	V	-64.647	55.965		



5.2 Photographs

Frequency stability

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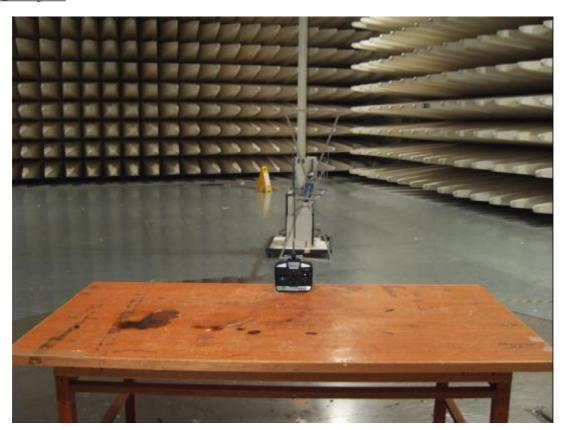


Effective Radiated Power & Occupied bandwidth & Unwanted Radiation

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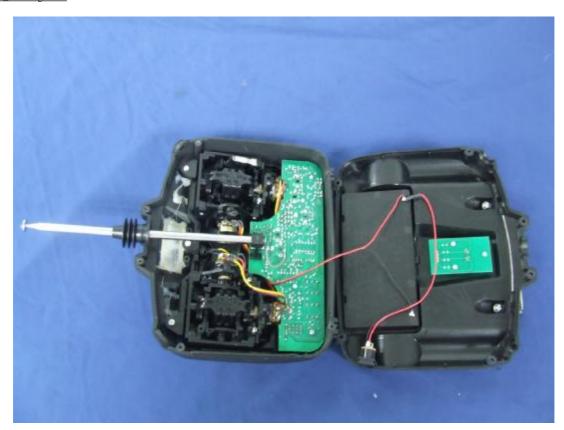
Crystal access panel is permanently glued shut in manufacturing.

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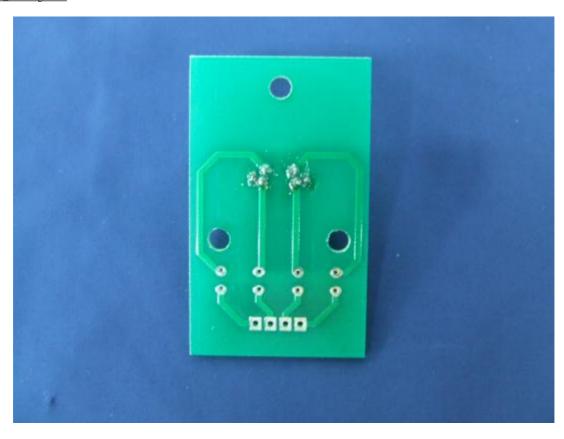
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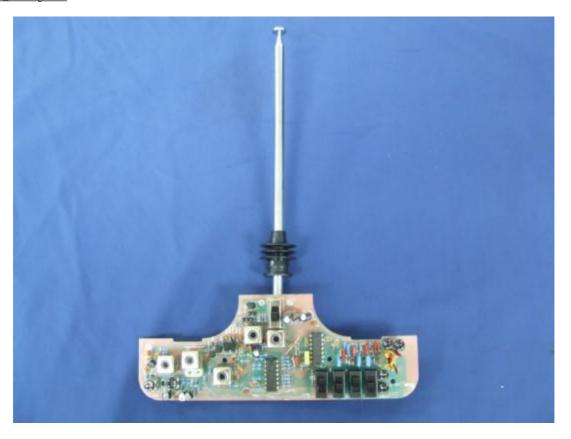
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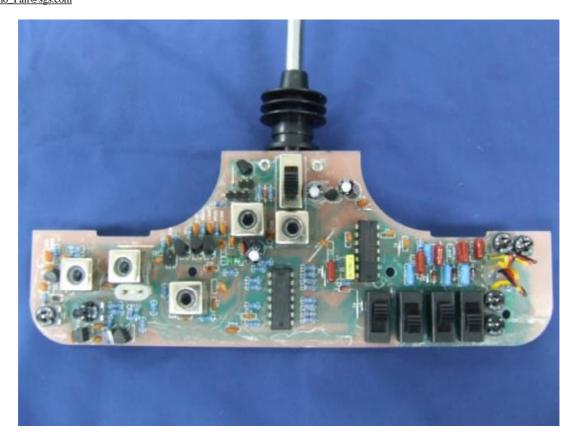
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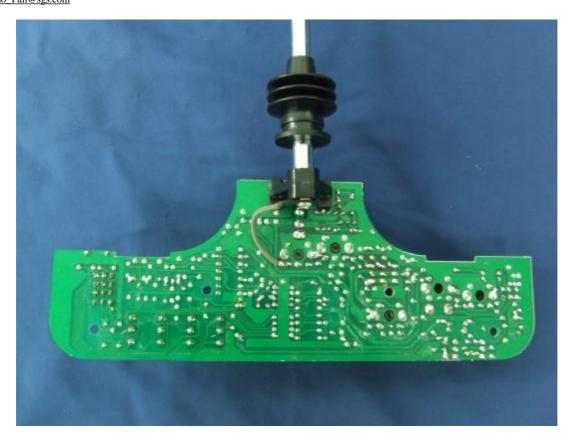


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