

Advanced  
Compliance Laboratory

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## ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

of

RADIO CONTROL HELICOPTER

MODEL: 9088

FCC ID: QKX9088

March 26, 2004

This report concerns (check one): Original grant ☒ Class II change ☐  
Equipment type: LOW POWER TRANSMITTER

Deferred grant requested per 47 CF 0.457(d)(1)(ii)? yes ☐ no ☒  
If yes, defer until: \_\_\_\_\_ (date)  
Company agrees to notify the Commission by \_\_\_\_\_ (date)  
of the intended date of announcement of the product so that the grant can be  
issued on that date.

Transition Rules Request per 15.37? yes ☐ no ☒  
If no, assumed Part 15, Subpart B for unintentional radiators - the new 47 CFR  
[10-1-90 Edition] provision.

Report prepared for: Golden Technology Electronic Toys Co., Ltd.  
Report prepared by: Advanced Compliance Lab  
Report number: 0048-040224-01



The test result in this report IS supported and covered by the NVLAP accreditation

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## 1. GENERAL INFORMATION

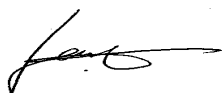
### 1.1 Verification of Compliance

EUT: RADIO CONTROL HELICOPTER  
 Model: 9088  
 Applicant: GOLDEN TECHNOLOGY ELECTRONIC TOYS CO., LTD.  
 CHENSENG ROAD, PUMEI DISTRICT  
 CHENGHAI CITY, GUANGDONG, CHINA  
 Test Type: FCC Part 15C CERTIFICATION  
 Result: PASS  
 Tested by: ADVANCED COMPLIANCE LAB  
 Test Date: March 26, 2004  
 Report Number: 0048-040224-01

The above equipment was tested by Advanced Compliance Laboratory for compliance with the requirement set forth in the FCC rules and regulations Part 15, subpart C. This said equipment in the configuration described in the report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in Advanced Compliance Lab. Doc. No. 0048-01-01.

	Prob. Dist.	Uncertainty(dB)	Uncertainty(dB)	Uncertainty(dB)
		30-1000MHz	1-6.5GHz	Conducted
Combined Std. Uncertainty $u_c$	norm.	$\pm 2.36$	$\pm 2.99$	$\pm 1.83$



Wei Li  
 Lab Manager  
 Advanced Compliance Lab

Date: March 26, 2004

## **1.2 Equipment Modifications**

N/A

### 1.3 Product Information

#### System Configuration

ITEM	DESCRIPTION	FCC ID	CABLE
Product	TRANSMITTER	QKX9088(1)	
Housing	PLASTICS		
Power Supply	9VDC BATTERY		
Clock/OSC Freq.	13.579 MHz		
Receiver	FCC DoC		

(1) EUT submitted for grant.

### 1.4 Test Methodology

Radiated tests were performed according to the procedures in ANSI C63.4-1992 at an antenna to EUT distance of 3 meters.

### 1.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated and conducted data are located at Somerset, New Jersey. This site has been accepted by FCC to perform measurements under Part 15 or 18 in a letter dated May 19, 1997 (Refer to: 31040/PRV 1300F2). The NVLAP Lab code for accreditation of FCC EMC Test Method is: 200101-0.

### 1.6 Test Equipment

Manufacture	Model	Serial No.	Description	Last Cal dd/mm/yy	Cal Due dd/mm/yy
Hewlett-Packard	HP8546A	3625A00341	EMI Receiver	23/10/03	23/10/04
EMCO	3104C	9307-4396	20-300MHz Biconical Antenna	12/02/04	12/02/05
EMCO	3146	9008-2860	200-1000MHz Log-Periodic Antenna	09/02/04	09/02/05
Fischer Custom	LISN-2	900-4-0008	Line Impedance Stabilization Networks	03/07/03	03/07/04
Fischer Custom	LISN-2	900-4-0009	Line Impedance Stabilization Networks	03/07/03	03/07/04
EMCO	6502	2665	10KHz-30MHz Active Loop Antenna	27/02/04	27/02/05
EMCO	3115	4945	Double Ridge Guide Horn Antenna	15/09/03	15/09/04

All Test Equipment Used are Calibrated Traceable to NIST Standards.

**1.7 Statement for the Document Use**

This report shall not be reproduced except in full, without the written approval of the laboratory. And this report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

## 2. PRODUCT LABELING

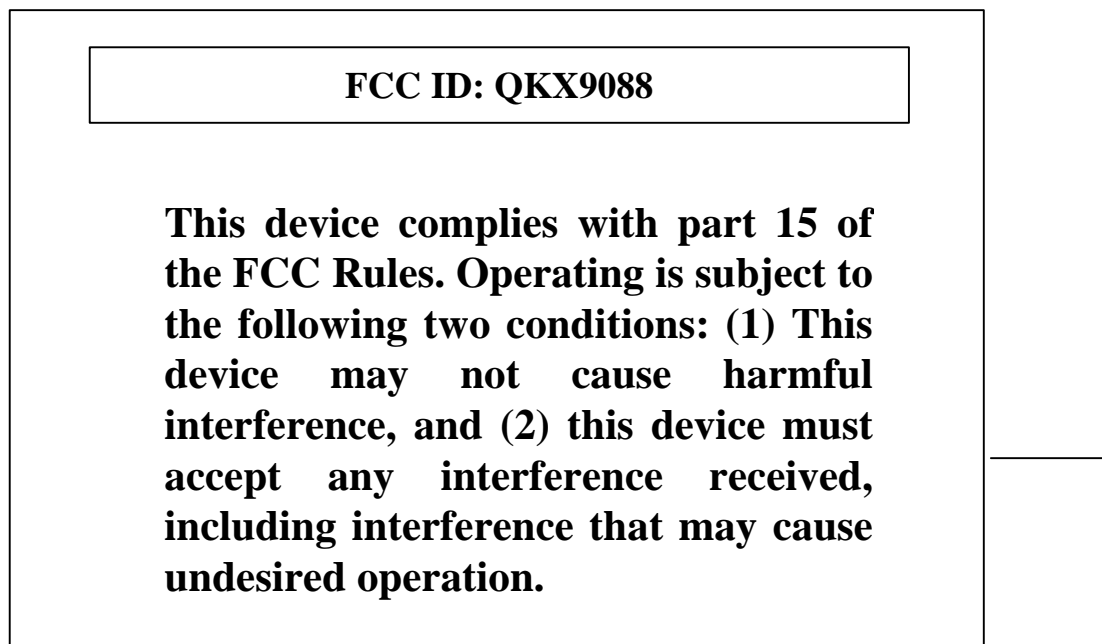


Figure 2.1 FCC ID Label

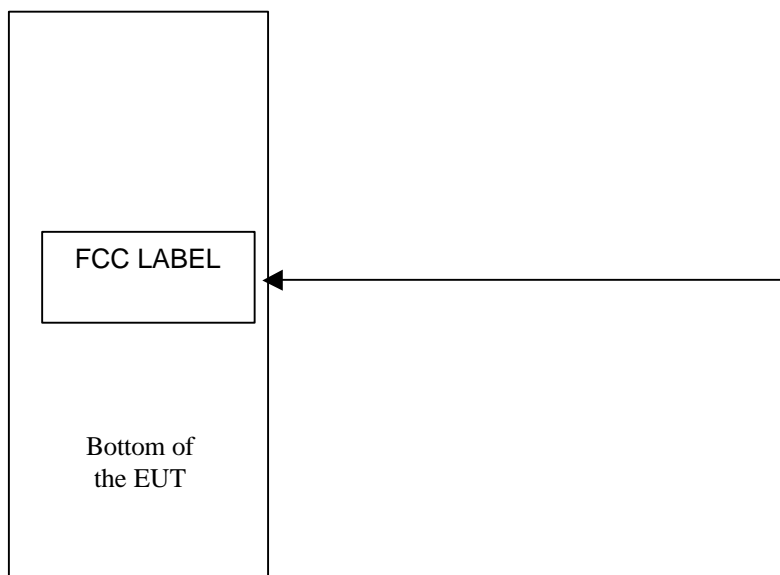


Figure 2.2 Location of the Label



### **3. SYSTEM TEST CONFIGURATION**

#### **3.1 Justification**

The system was configured for testing in a typical fashion (as a customer would normally use it). And its antenna was permanently attached to the EUT with max. length, 35in.

This manually operated transmitter will deactivate immediately after the power switch was put on OFF.

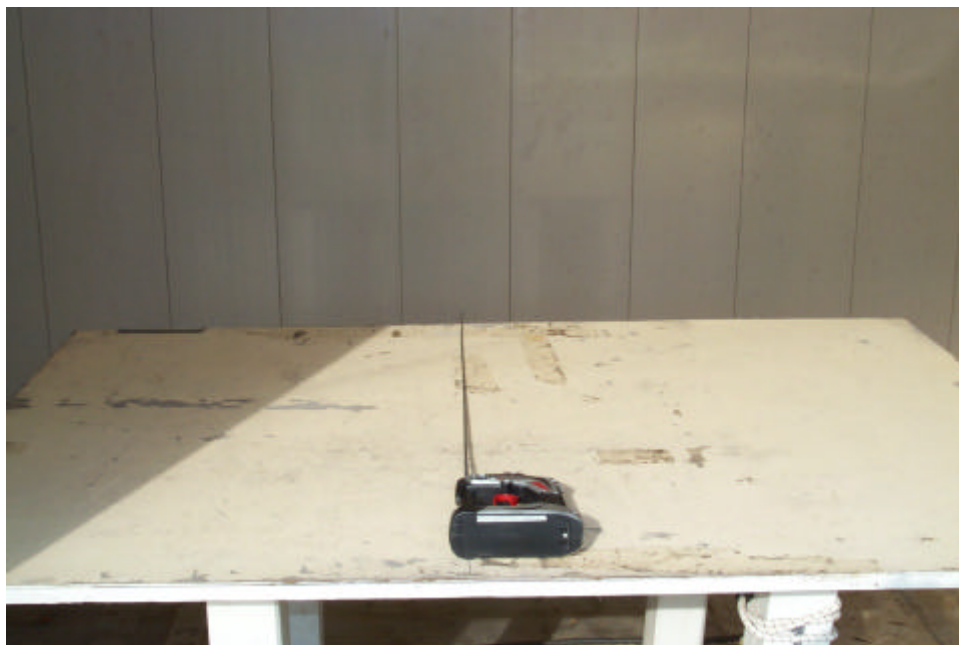
Testing was performed as EUT was operated at frequency channel 27.19MHz continuously.

#### **3.2 Special Accessories**

N/A

#### **3.3 Configuration of Tested System**

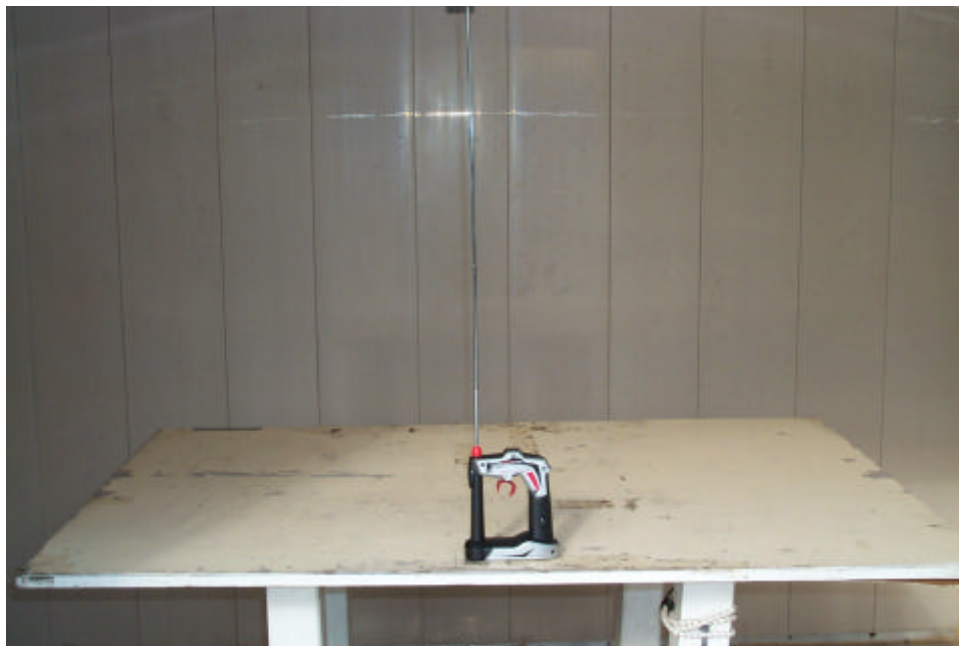
Figure 3.1 and Figure 3.3 illustrate this system, which is tested standing along.



**Figure 3.1 Radiated Test Setup, Position 1-X**



**Figure 3.2 Radiated Test Setup, Position 2-Y**



**Figure 3.3 Radiated Test Setup, Position 3-Z**



## 5. RADIATED EMISSION DATA

### 5.1 Field Strength Calculation

The corrected field strength is automatically calculated by EMI Receiver using following:

$$FS = RA + AF + CF + AG$$

where FS: Corrected Field Strength in dB $\mu$ V/m

RA: Amplitude of EMI Receiver before correction in dB $\mu$ V

AF: Antenna Factor in dB/m

CF: Cable Attenuation Factor in dB

AG: Built-in Preamplifier Gain in dB (Stored in receiver as part of the calibration data)

### 5.2 Test Methods and Conditions

The initial step in collecting radiated data is a EMI Receiver scan of the measurement range below 30MHz using peak detector and 9KHz IF bandwidth / 30KHz video bandwidth. For the range 30MHz - 5GHz, IF bandwidth / 30KHz video bandwidth are used. Both bandwidths are 1MHz for above 1GHz measurement.

### 5.3 Test Data

The following data lists the significant emission frequencies, polarity and position, peak reading of the EMI Receiver, the FCC limit, and the difference between the peak reading and the limit. Explanation of the correction and calculation are given in section 5.1.

Test Personnel:

Tester Signature:



Typed/Printed Name: Edward Lee

Date: March 26, 2004

**Radiated Test Data (CH--27.19MHz)**

<b>Frequency (MHz)</b>	<b>Polarity [H, V] Position</b>	<b>Height (m)</b>	<b>Azimuth (Degree)</b>	<b>Peak(2) Reading (dB<math>\mu</math>V/m)</b>	<b>3m Limit(1) (dB<math>\mu</math>V/m)</b>	<b>Difference from limit (dB)</b>
27.19	X,H	2.1	90	52.4	80	-27.6
40.80	X,H	2.2	80	31.2	40	-8.8
54.39	X,H	2.0	80	34.3	40	-5.7
108.78	X,H	1.8	80	40.5	43.5	-3
122.38	X,H	1.9	80	40.1	43.5	-3.4
135.98	X,H	2.1	80	39.7	43.5	-3.8
163.17	X,H	2.0	70	36.9	43.5	-6.6
176.77	X,H	1.9	70	36.4	43.5	-7.1
203.96	X,H	1.9	80	35.0	43.5	-8.5
27.19	X,V	1.2	160	56.5	80	-23.5
54.39	X,V	1.3	160	35.0	40	-5
81.58	X,V	1.2	170	33.2	40	-6.8
108.78	X,V	1.5	160	38.5	43.5	-5
135.98	X,V	1.4	160	39.6	43.5	-3.9
163.17	X,V	1.4	160	36.8	43.5	-6.7
27.19	Y,H	2.0	20	57.3	80	-22.7
40.80	Y,H	2.1	20	34.2	40	-5.8
54.39	Y,H	2.3	30	37.5	40	-2.5
122.38	Y,H	2.1	20	38.2	43.5	-5.3
135.98	Y,H	2.1	20	40.6	43.5	-2.9
163.17	Y,H	2.1	30	40.1	43.5	-3.4
176.77	Y,H	2.1	30	38.7	43.5	-4.8
190.36	Y,H	1.9	20	39.4	43.5	-4.1
27.19	Y,V	1.8	100	58.3	80	-21.7
54.39	Y,V	1.9	110	36.9	40	-3.1
108.78	Y,V	2.0	100	37.8	43.5	-5.7
135.98	Y,V	2.1	100	39.2	43.5	-4.3
163.17	Y,V	2.0	120	38.0	43.5	-5.5
176.77	Y,V	2.1	120	38.7	43.5	-4.8
27.19	Z,H	1.5	0	58.9	80	-21.1
40.80	Z,H	1.6	0	35.2	40	-4.8
54.39	Z,H	1.5	20	35.4	40	-4.6
135.98	Z,H	1.6	20	39.4	43.5	-4.1
163.17	Z,H	1.6	20	38.2	43.5	-5.3
176.77	Z,H	1.5	20	37.0	43.5	-6.5
27.19	Z,V	1.4	30	64.9	80	-15.1
40.80	Z,V	1.4	30	37.0	40	-3
54.39	Z,V	1.5	30	36.8	40	-3.2
108.78	Z,V	1.3	20	39.7	43.5	-3.8
122.38	Z,V	1.3	20	37.6	43.5	-5.9
135.98	Z,V	1.3	10	41.0	43.5	-2.5
163.17	Z,V	1.2	10	40.3	43.5	-3.2
176.77	Z,V	1.3	10	39.6	43.5	-3.9

(1) The limit for emissions within the 26.96-27.28MHz band is 10,000uV(80dB). Sec. 15.227. The limit for other emissions is defined in Sec. 15.209.

(2) Because each peak reading is less than the FCC average limit, it is not necessary to show the calculated average reading based on the pulse train characteristics.

## **6. PHOTOS OF TESTED EUT**

The following photos show the inside details of the EUT.