



***April 21 2008***

***Guangdong Alpha Animation and Culture Co., Ltd.  
Auldey Ind Area, Wenguan Rd., (Central),  
Shantou, Guangdong, China.***

***Dear William Wang,***

***Enclosed you will find your original report of a Part 15 Certification (FCC ID: VVAAD815003).***

***For your reference, review normally take 1 week. Approval will then be granted when no query is sorted.***

***Please contact me if you have any questions regarding the enclosed material.***

***Sincerely,***

A handwritten signature in black ink, appearing to read "Shawn Xing", with a stylized flourish at the end.

***Shawn Xing  
Assistant Manager***

***Enclosure***

FCC ID: VVAAD815003



**Guangdong Alpha Animation and Culture Co., Ltd.**

Application  
For  
Certification  
**(FCC ID: VVAAD815003)**

Superregenerative Receiver

Sample Description : Disney R/C  
Model : 815040, 815090

Additional Model : 815010, 815020, 815030, 815050, 815060, 815070, 815080

GZ08030094-2

Louisa Lu

April 21, 2008

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- The evaluation data of the report will be kept for 3 years from the date of issuance.

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FCC ID: VVAAD815003

## INTERTEK TESTING SERVICES

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### LIST OF EXHIBITS

#### *INTRODUCTION*

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## INTERTEK TESTING SERVICES

### MEASUREMENT/TECHNICAL REPORT

**Guangdong Alpha Animation and Culture CO., Ltd. - MODEL: 815040, 815090**  
**FCC ID: VVAAD815003**

**April 21 2008**

This report concerns (check one:)      Original Grant ☒ Class II Change ☐

Equipment Type: Superregenerative Receiver

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?      Yes ☐      No ☒

If yes, defer until: \_\_\_\_\_  
date

Company Name 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 C for intentional radiator – the new 47 CFR [09-20-07 Edition] provision.

Report prepared by:

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## INTERTEK TESTING SERVICES

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### List of attached file

Exhibit type	File Description	filename
Test Report	Test Report	report.pdf
Operation Description	Technical Description	descri.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Report	Stabilization Waveform	stablized.pdf
External Photo	External Photo	external photos.pdf
Internal Photo	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf

# **INTERTEK TESTING SERVICES**

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## **EXHIBIT 1**

### **GENERAL DESCRIPTION**

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### 1.0 **General Description**

#### 1.1 Product Description

The equipment under test (EUT) is a receiver for a RC Car operating at 49.860 MHz. The EUT is powered by 6V DC (1.5V×4AA battery). The EUT has a power switch. When the power switch is “ON”, the EUT can be controlled to run forward, backward, turning left and right directions by the corresponding controller.

The Models: 815010, 815020, 815030, 815050, 815060, 815070, 815080, are the same as the tested Model: 815040, 815090 in hardware and software aspect. The only differences are the appearance, trade name and model no. for trading purpose.

The brief circuit description is saved with file name: descri.pdf

#### 1.2 Related Submittal(s) Grants

This is a single application for certification of a receiver. The transmitter for this receiver is authorized by Certification procedure with FCC ID: VVAAD815002.



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### 1.3 Test Methodology

Radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003). Radiated Emission measurement was performed in a Semi-chamber. Preliminary scans were performed in the Semi-chamber only to determine worst case modes. For each scan, the procedure for maximizing emissions in Appendices D and E were followed. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

### 1.4 Test Facility

The Semi-chamber facility used to collect the radiated data is **SHENZHEN ACADEMY OF METROLOGY AND QUALITY INSPECTION** and located at Bldg. of Metrology & Quality Inspection, Longzhu Road, Shenzhen, Guangdong, China. This test facility and site measurement data have been fully placed on file with the FCC.

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### **EXHIBIT 2**

### **SYSTEM TEST CONFIGURATION**

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### 2.0 **System Test Configuration**

#### 2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4 (2003).

The EUT was powered by 6V DC (1.5V × 4AA battery) during test.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The unit was operated standalone and placed in the center of the turntable.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was placed on a turn table, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

#### 2.2 EUT Exercising Software

There was no special software to exercise the device.

#### 2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

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### 2.4 Equipment Modification

Any modifications installed previous to testing by Guangdong Alpha Animation and Culture CO., Ltd. will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services.

### 2.5 Measurement Uncertainty

When determining the test conclusion, the measurement uncertainty of test has been considered.

### 2.6 Support Equipment List and Description

This product was tested in a standalone configuration.

All the items listed under section 2.0 of this report are

*Confirmed by:*

*Shawn Xing  
Assistant Manager  
Intertek Testing Services Shenzhen Ltd. Guangzhou Branch  
Agent for Guangdong Alpha Animation and Culture Co., Ltd.*



\_\_\_\_\_  
*Signature*

\_\_\_\_\_  
April 21, 2008

\_\_\_\_\_  
*Date*

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### **EXHIBIT 3**

### **EMISSION RESULTS**

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### 3.0 **Emission Results**

Data is included worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

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### 3.1 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

$$FS = RA + AF + CF - AG + PD + AV$$

where

- FS = Field Strength in dB $\mu$ V/m
- RA = Receiver Amplitude (including preamplifier) in dB $\mu$ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB
- PD = Pulse Desensitization in dB
- AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

$$FS = RA + AF + CF - AG + PD + AV$$

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### 3.1 Field Strength Calculation (cont'd)

#### Example

Assume a receiver reading of 62.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is 32 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$RA = 62.0 \text{ dB}\mu\text{V}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$PD = 0 \text{ dB}$$

$$AV = -10 \text{ dB}$$

$$FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 \text{ dB}\mu\text{V/m}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm} [(32 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$$



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### 3.2 Radiated Emission Configuration Photograph

#### Worst Case Radiated Emission

50.316 MHz (Model: 815040)

50.345 MHz (Model: 815090)

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated photos.pdf

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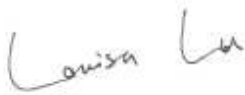
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### 3.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 6.1 dB (Model: 815040)  
Passed by 1.6 dB (Model: 815090)

#### **TEST PERSONNEL:**



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*Signature*

Louisa Lu, Engineer

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*Typed/Printed Name*

April 21, 2008

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*Date*

## INTERTEK TESTING SERVICES

Applicant: Guangdong Alpha Animation and Culture Co., Ltd.  
Model: 815040  
Mode: Receive  
Sample: 1/1

Date of Test: April 18 2008

Table 1

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	50.316	27.7	20.0	9.2	16.9	40.0	-23.1
H	145.693	26.8	20.0	8.7	15.5	43.5	-28.0
H	200.125	31.7	20.0	10.2	21.9	43.5	-21.6
H	240.635	28.1	20.0	12.2	20.3	46.0	-25.7
V	50.316	44.7	20.0	9.2	33.9	40.0	-6.1
V	145.693	34.2	20.0	8.7	22.9	43.5	-20.6
V	199.897	32.3	20.0	10.2	22.5	43.5	-21.0
V	240.855	27.9	20.0	12.2	20.1	46.0	-25.9

Notes: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meter. Harmonic emissions not detected at the 3 meter distance were measured at 0.3 meter and an inverse proportional extrapolation was performed to compare the signal level to the 3 meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3 meter.

3. Negative value in the margin column shows emission below limit.

Test Engineer: Louisa Lu

## INTERTEK TESTING SERVICES

Applicant: Guangdong Alpha Animation and Culture Co., Ltd.

Date of Test: April 18 2008

Model: 815090

Mode: Receive

Sample: 1/1

Table 1

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	50.337	32.7	20.0	9.2	21.9	40.0	-18.1
H	147.660	30.1	20.0	8.7	18.8	43.5	-24.7
H	195.590	34.3	20.0	10.2	24.5	43.5	-19.0
H	251.230	27.9	20.0	12.2	20.1	46.0	-25.9
V	50.345	49.2	20.0	9.2	38.4	40.0	-1.6
V	146.676	36.2	20.0	8.7	24.9	43.5	-18.6
V	195.520	41.2	20.0	10.2	31.4	43.5	-12.1
V	251.23	32.3	20.0	12.2	24.5	46.0	-21.5

Notes: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meter. Harmonic emissions not detected at the 3 meter distance were measured at 0.3 meter and an inverse proportional extrapolation was performed to compare the signal level to the 3 meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3 meter.

3. Negative value in the margin column shows emission below limit.

Test Engineer: Louisa Lu

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 4**

### **EQUIPMENT PHOTOGRAPHS**

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### 4.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename:  
external photos.pdf and internal photos.pdf

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### **EXHIBIT 5**

### **PRODUCT LABELLING**

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### 5.0 **Product Labelling**

For electronic filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.



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### **EXHIBIT 6**

### **TECHNICAL SPECIFICATIONS**

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### 6.0 **Technical Specifications**

For electronic filing, the block diagram and schematics are saved with filename:  
block.pdf and circuit.pdf

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 7**

### **INSTRUCTION MANUAL**

## INTERTEK TESTING SERVICES

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### 7.0 **Instruction Manual**

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf

This manual will be provided to the end-user with each unit sold/leased in the United States.

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### **EXHIBIT 8**

### **MISCELLANEOUS INFORMATION**

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### 8.0 **Miscellaneous Information**

This miscellaneous information includes details of the stabilizing process (including a plot of the stabilized waveform) and the test procedure.

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### 8.1 Stabilization Waveform\_

Previous to the testing, the superregenerative receiver was stabilized as outlined in the test procedure. The attached plot shows the fundamental emission when a signal generator was used to stabilize the receiver. Please note that the antenna was placed as close as possible to the EUT for clear demonstration of the waveform and that accurate readings are not possible from this plot.

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### **8.2 Emissions Test Procedures**

The following is a description of the test procedure used by Intertek Testing Services in the measurements of superregenerative receivers operating under Part 15, Subpart B rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 - 2003. Superregenerative receivers are stabilized prior to measurement by generating a signal well above the receiver threshold whose frequency is tuned until the emissions stabilize into a line spectrum. The signal is usually generated as CW with a Marconi 2022D signal generator and a short whip antenna and is at a level of several hundred to several thousand mV/m. Plots of the stabilized signal will be shown. If a modulated signal is used, it will be noted.

The equipment under test (EUT) is attached to a cardboard box and placed on a wooden turntable which is four feet in diameter and approximately one meter in height above the groundplane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The cardboard box is adjusted through all three orthogonal axis to obtain maximum emission levels. The antenna height and polarization are also varied during the testing to search for maximum signal levels. The height of the antenna is varied from one to four meters.

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings.

The frequency range scanned is from 30 MHz to 1000 MHz.



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### **8.2 Emissions Test Procedures (cont'd)**

The EUT is warmed up for 15 minutes prior to the test.

Conducted measurements are made as described in ANSI C63.4 - 2003.