

***July 21, 2008***

***Learning Curve Brands, Inc  
Unit 901-7, Tower One, Enterprise Square,  
9 Sheung Yuet Road, Kowloon Bay,  
Kowloon, Hong Kong.***

***Dear Jonathan Siu,***

***Enclosed you will find your file copy of a Part 15 Certification (FCC ID: BMW-LC98750). We have forwarded the original to ITS-NA Inc. for review.***

***For your reference, review normally takes 3 weeks. 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 extending from the end.

***Shawn Xing  
Assistant Manager***

***Enclosure***

FCC ID: BMW-LC98750

## Learning Curve Brands, Inc

Application  
For  
Certification  
**(FCC ID: BMW-LC98750)**

Transmitter

Sample Description : RFID Reader  
Model : LC98750  
Additional Model : LC98780, LC98751

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [9-20-2007]



SZ08060057-1

Sam Dong

July 21, 2008

- The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
- This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results referenced from this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.
- For Terms And Conditions of the services, it can be provided upon request.
- The evaluation data of the report will be kept for 3 years from the date of issuance.

TRF no.: FCC 15C\_TXa

**Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch**

6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China

Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751 Website: [www.china.intertek-etlsemko.com](http://www.china.intertek-etlsemko.com)

FCC ID : BMW-LC98750

## INTERTEK TESTING SERVICES

---

### LIST OF EXHIBITS

#### *INTRODUCTION*

<i>EXHIBIT 1:</i>	General Description
<i>EXHIBIT 2:</i>	System Test Configuration
<i>EXHIBIT 3:</i>	Emission Results
<i>EXHIBIT 4:</i>	Equipment Photographs
<i>EXHIBIT 5:</i>	Product Labelling
<i>EXHIBIT 6:</i>	Technical Specifications
<i>EXHIBIT 7:</i>	Instruction Manual
<i>EXHIBIT 8:</i>	Miscellaneous Information

## INTERTEK TESTING SERVICES

### MEASUREMENT/TECHNICAL REPORT

**Learning Curve Brands, Inc - MODEL: LC98750**  
**FCC ID: BMW-LC98750**

**July 21, 2008**

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

Equipment Type: Low Power Transmitter

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:

Shawn Xing  
Intertek Testing Services Shenzhen Ltd.  
Kejiyuan Branch  
6F, D Block, Huahan Building, Langshan  
Road,  
Nanshan District, Shenzhen, P. R. China  
Phone: (86 755) 8601 6288  
Fax: (86 755) 8601 6751

---

# INTERTEK TESTING SERVICES

---

## Table of Contents

1.0	<b><u>General Description</u></b>	2
1.1	Product Description	2
1.2	Related Submittal(s) Grants	2
1.3	Test Methodology	3
1.4	Test Facility	3
2.0	<b><u>System Test Configuration</u></b>	5
2.1	Justification	5
2.2	EUT Exercising Software	5
2.3	Special Accessories	5
2.4	Equipment Modification	6
2.5	Measurement Uncertainty	6
2.6	Support Equipment List and Description	6
3.0	<b><u>Emission Results</u></b>	8
3.1	Field Strength Calculation	9
3.2	Radiated Emission Configuration Photograph	11
3.3	Radiated Emission Data	12
3.4	Frequency Tolerance	15
4.0	<b><u>Equipment Photographs</u></b>	17
5.0	<b><u>Product Labelling</u></b>	19
6.0	<b><u>Technical Specifications</u></b>	21
7.0	<b><u>Instruction Manual</u></b>	23
8.0	<b><u>Miscellaneous Information</u></b>	25
8.1	Measured Bandwidth	26
8.2	Emission Test Procedures	27

## INTERTEK TESTING SERVICES

---

### List of attached file

Exhibit type	File Description	filename
Test Report	Test Report	report.pdf
Cover Letter	Letter of Agency	letter.pdf
Operation Description	Technical Description	descri.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Report	Bandwidth Plot	bw.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**

---

## **EXHIBIT 1**

### **GENERAL DESCRIPTION**

## INTERTEK TESTING SERVICES

---

### 1.0 **General Description**

#### 1.1 Product Description

This equipment under test (EUT) is a Taking Railway Series Destinations (a transmitter for an inductive toy, RFID reader) operating at 13.56 MHz which is controlled by a crystal. The EUT is powered by 3 AAA batteries. When the corresponding toy engine (passive type powered tag) pass through the reader, the reader will generate sound effects.

The Models: LC98780 and LC98751 are the same as the tested Model: LC98750 in hardware of electronic aspect. The models are difference in mechanical aspect and enclosure only, model LC98780 has two versions Morgan's Mine and Great Waterton Station. All these models' external photos were showed in the attached document with the file name external photos.

The brief circuit description is saved with filename: descri.pdf

#### 1.2 Related Submittal(s) Grants

The receiver for this transmitter is exempted form the Part 15 technical rules per 15.101(b).



## INTERTEK TESTING SERVICES

---

### 1.3 Test Methodology

The radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003). All measurements were performed in Semi-anechoic chamber. Preliminary scans were performed in the Semi-anechoic chamber only to determine worst case modes. 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-anechoic chamber facility used to collect the emission data is located at 6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC.

## **INTERTEK TESTING SERVICES**

---

### **EXHIBIT 2**

### **SYSTEM TEST CONFIGURATION**

## INTERTEK TESTING SERVICES

---

### 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 3 new AAA batteries during test.

For maximizing emission below 30 MHz, the EUT was rotated through 360°, the centre of the loop antenna was placed 1 meter above the ground, and the antenna polarization was changed. For maximizing emission above 30 MHz, 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 the turntable and rotate through 360°, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

The EUT can transmit continuously when it is switched on.

#### 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.

## INTERTEK TESTING SERVICES

---

### 2.4 Equipment Modification

Any modifications installed previous to testing by Learning Curve Brands, Inc 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  
Agent for Learning Curve Brands, Inc*



Signature

July 21, 2008 Date

## **INTERTEK TESTING SERVICES**

---

### **EXHIBIT 3**

### **EMISSION RESULTS**

## INTERTEK TESTING SERVICES

---

### 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.

---

## INTERTEK TESTING SERVICES

---

### 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:

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

## INTERTEK TESTING SERVICES

---

### 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.

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

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

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

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

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

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

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

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



## **INTERTEK TESTING SERVICES**

---

### 3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission

108.526 MHz

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

## INTERTEK TESTING SERVICES

---

### 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 5.2 dB

#### **TEST PERSONNEL:**



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

Sam Dong, Compliance Engineer  
*Typed/Printed Name*

July 21, 2008  
*Date*

---

## INTERTEK TESTING SERVICES

---

Applicant: Learning Curve Brands, Inc  
Model: LC98750

Date of Test: July 5, 2008

Table 1

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB $\mu$ V/m)	Distance Factor (-dB)	Calculated at 30m (dB $\mu$ V/m)	Limit at 30m (dB $\mu$ V/m)	Margin (dB)
V	13.571	48.8	10.7	0.0	59.5	40.0	19.5	84.0	-64.5
V	27.142	26.4	9.8	0.0	36.2	40.0	-3.8	29.5	-33.3

Table 2

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	54.284	17.5	11	10.0	18.5	40.0	-21.5
H	67.829	26.5	11	10.0	27.5	40.0	-12.5
H	94.970	32.5	12	10.0	34.5	43.5	-9.0
H	108.526	35.3	13	10.0	38.3	43.5	-5.2
H	122.114	32.8	13	10.0	35.8	43.5	-7.7
H	135.661	31.3	13	10.0	34.3	43.5	-9.2

- 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.
  4. Loop antenna is used for emissions below 30 MHz.
  5. Worst case emissions were measured.

Test Engineer: Sam Dong

---

FCC ID: BMW-LC98750

---

## INTERTEK TESTING SERVICES

---

Applicant: Learning Curve Brands, Inc  
Model: LC98750  
Mode: Sound  
Sample: 1/4

Date of Test: July 5, 2008

Table 3  
**Radiated Emissions**

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	35.834	22.8	10	10.0	22.8	40.0	-17.2
H	34.882	20.6	10	10.0	20.6	40.0	-19.4
H	41.657	17.8	10	10.0	17.8	40.0	-22.2
H	47.476	16.2	11	10.0	17.2	40.0	-22.8
H	62.962	15.9	11	10.0	16.9	40.0	-23.1
H	65.903	15.3	11	10.0	16.3	40.0	-23.7

Notes: Negative signs (-) in the margin column signify levels below the limit.

---

## INTERTEK TESTING SERVICES

---

### 3.4 Frequency Tolerance

#### FCC Part 15 Section 15.225(e)

**Data Table**  
**Frequency tolerance of Transmitter**  
**(Temperature Variation: -20°C to +50°C)**

Operating frequency			13.566140MHz	
Test Voltage (V)	Temperature (°C)	Measured frequency (MHz)	Frequency shift (%)	Limit (%)
4.5	+50	13.56611	-0.00022	±0.01
4.5	+40	13.56613	-0.00007	±0.01
4.5	+30	13.56616	0.00015	±0.01
4.5	+20	13.56614	0	±0.01
4.5	+10	13.56612	-0.00015	±0.01
4.5	0	13.56610	-0.00029	±0.01
4.5	-10	13.56605	-0.00066	±0.01
4.5	-20	13.56595	-0.00140	±0.01

We found that the EUT met the requirement of FCC Part 15 Section 15.225(e).

Test Engineer: Sam Dong

## **INTERTEK TESTING SERVICES**

---

### **EXHIBIT 4**

### **EQUIPMENT PHOTOGRAPHS**

## INTERTEK TESTING SERVICES

---

### 4.0 **Equipment Photographs**

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

**INTERTEK TESTING SERVICES**

---

**EXHIBIT 5**

**PRODUCT LABELLING**



## INTERTEK TESTING SERVICES

---

### 5.0 **Product Labelling**

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

## **INTERTEK TESTING SERVICES**

---

### **EXHIBIT 6**

### **TECHNICAL SPECIFICATIONS**

## INTERTEK TESTING SERVICES

---

### 6.0 **Technical Specifications**

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

## **INTERTEK TESTING SERVICES**

---

### **EXHIBIT 7**

### **INSTRUCTION MANUAL**

## INTERTEK TESTING SERVICES

---

### 7.0 **Instruction Manual**

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

**INTERTEK TESTING SERVICES**

---

**EXHIBIT 8**

**MISCELLANEOUS INFORMATION**

## INTERTEK TESTING SERVICES

---

### 8.0 **Miscellaneous Information**

This miscellaneous information includes details of the measured bandwidth and the test procedure.

## INTERTEK TESTING SERVICES

---

### 8.1 Measured Bandwidth

The plot saved in bw.pdf which shows the fundamental emission is confined in the specified band. The emission of the fundamental is 19.5 dB $\mu$ V/m at 30m. It meets the requirement of Section 15.225(a), (b), (c), & (d).

Figure 8.1 Bandwidth



## **INTERTEK TESTING SERVICES**

---

### **8.2 Emissions Test Procedures**

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

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 - 2003.

The transmitting equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately one meter in height above the ground plane. 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 EUT is adjusted through all three orthogonal axes to obtain maximum emission levels. The antenna height and polarization are varied during the testing to search for maximum signal levels.

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 the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower. For line conducted emissions, the range scanned is 150 kHz to 30 MHz.

## **INTERTEK TESTING SERVICES**

---

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

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

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

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

The IF bandwidth used for measurement of radiated signal strength was 10 kHz for emission below 30 MHz and 120 kHz for emission from 30 MHz to 1000 MHz. Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2. Above 1000 MHz, a resolution bandwidth of 1 MHz is used.

Transmitter measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the restricted bands and above 1 GHz, signals are acquired at a distance of one meter or less. All measurements are extrapolated to three meters using inverse scaling, but those measurements taken at a closer distance are so marked.