

## TEST REPORT

Report No.: HK10041263-1

**Mattel Brands, A Division of Mattel Asia  
Pacific Sourcing Ltd. / Mattel Direct Import Inc.**

Application  
For  
Certification

(Original Grant)

**(FCC ID: PIYT7004D1)**

Transceiver and,  
Class B personal computers and peripherals

Prepared and Checked by:

Approved by:

*Signed On File*

Lau Chin Yu, Benny  
Engineer

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Senior Lead Engineer  
Date: April 28, 2010

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### GENERAL INFORMATION

**Mattel Brands, A Division of Mattel Asia  
Pacific Sourcing Ltd. / Mattel Direct Import Inc.  
MODEL: T7005 (Dongle)**

**FCC ID: PIYT7004D1**

Grantee:	Mattel Brands, A Division of Mattel Asia Pacific Sourcing Ltd. / Mattel Direct Import Inc.
Grantee Address:	13/F., South Tower, World Finance Centre, Harbour City, Tsim Sha Tsui, Kowloon, Hong Kong
Contact Person:	Y.C. Wong
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Manufacturer:	N/A
Manufacturer Address:	N/A
Brand Name:	N/A
Model:	T7005 (Dongle)
Additional Model:	T7006 (Dongle)
Asst. No.:	T7004 (Dongle)
Type of EUT:	Transceiver Class B personal computers and peripherals
Description of EUT:	Puppy Tweets (T7004) Puppy Tweets Blue (T7005) Puppy Tweets Pink (T7006)
Serial Number:	N/A
FCC ID :	PIYT7004D1
Date of Sample Submitted:	April 23, 2010
Date of Test:	April 27, 2010
Report No.:	HK10041263-1
Report Date:	April 28, 2010
Environmental Conidtions:	Temperature: +10 to 40°C Humidity: 10 to 90%

## INTERTEK TESTING SERVICES

### SUMMARY OF TEST RESULT

**Mattel Brands, A Division of Mattel Asia  
Pacific Sourcing Ltd. / Mattel Direct Import Inc.  
MODEL: T7005 (Dongle)**

**FCC ID: PIYT7004D1**

TEST SPECIFICATION	REFERENCE	RESULTS
Maximum Peak Output Power	15.247(b), (c) / RSS-210 A8.4	N/A
Hopping Channel Carrier Frequencies Separation (for 2.4GHz Digital)	15.247(e) / RSS-210 A8.1	N/A
20dB Bandwidth of the Hopping Channel	15.247(a) / RSS-210 A8.1	N/A
Number of Hopping Frequencies	15.247(e) / RSS-210 A8.1	N/A
Average Time of Occupancy of Hopping Frequency	15.247(e) / RSS-210 A8.1	N/A
Antenn Conducted Spurious Emissions	15.247(d) / RSS-210 A8.5	N/A
Radiated Spurious Emissions	15.247(d) / RSS-210 A8.5	N/A
RF Exposure Compliance	15.247(i) / RSS-Gen 5.5	N/A
Transmitter Power Line Conducted Emissions	15.207 / RSS-Gen 7.2.2	Pass
Transmitter Field Strength (for 27MHz)	15.227 / RSS-310 3.8	N/A
Transmitter Field Strength (for 40MHz)	15.229 / RSS-210 A2.7	N/A
Transmitter Field Strength, Bandwidth and Timing Requirement (for Remote Control)	15.231(a) / RSS-210 A1.1.1	N/A
Transmitter Field Strength, Bandwidth and Timing Requirement (for 433MHz)	15.231(e) / RSS-210 A1.1.5	N/A
Transmitter Field Strength and Bandwidth Requirement(for 88-108MHz)	15.239 / RSS-210 A2.8	N/A
Transmitter Field Strength and Bandwidth Requirement(for 902-928MHz or 2.4GHz)	15.249 / RSS-210 A2.9	Pass
Transmitter Field Strength and Bandwidth Requirement (for 49MHz)	15.235 / RSS-310 3.9	N/A
Digital Device Radiated Emissions	15.109 / ICES-003	Pass
Digital Device Conducted Emissions	15.107 / ICES-003	Pass

Note: 1. The EUT uses a permanently attached antenna which, in accordance to section 15.203, is considered sufficient to comply with the provisions of this section.  
2. Pursuant to FCC part 15 Section 15.215(c), the 20 dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over expected variations in temperature and supply voltage were considered.

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## INTERTEK TESTING SERVICES

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### 1.0 General Description

#### 1.1 Product Description

The Equipment Under Test (EUT) is a Transceiver and Class B personal computers and peripheral operating from 908.650 to 922.150 MHz. The EUT is powered by USB port. The EUT is the USB dongle of the Puppy Tweets. Puppy Tweets is the electronic dog tag that sends messages to your home computer, and then Tweets to you! Puppy Tweets is a tag with a sound and motion sensor that you attach to your pet's dog collar and connect its USB receiver to your computer. During the normal operation, the dog tag will collect the motion and sound data and then send to dongle every 2 minutes. The middleware (a PC program) will convert a set of received data into a message and post on the Twitter website.

The Model: T7006 is the same as the Model: T7005 in hardware aspect. The different in model number represent different packaging and colour.

Antenna Type : External, Integral

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

#### 1.2 Related Submittal(s) Grants

This is a multiple application for certification of a Transceiver and a Class B Personal Computers and peripheral.

The receiver part for this transceiver has been authorized by Verification procedure.

The Certification procedure of the transceiver for this transceiver (with FCC ID: PIYT7004T1) is being processed as the same time of this application.

#### 1.3 Test Methodology

Both AC mains line-conducted emission measurements were performed according to the procedures in ANSI C63.4 (2003). All radiated measurements were performed in an Open Area Test Site. Preliminary scans were performed in the Open Area Test Site 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.

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### **1.4 Test Facility**

The open area test site and conducted measurement facility used to collect the radiated data is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. This test facility and site measurement data have been placed on file with the FCC.

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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 5VDC (powered by USB) 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 rear of unit shall be flushed with the rear of the table.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was mounted to a plastic stand if necessary and placed on the wooden turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

#### 2.2 EUT Exercising Software

PC program "PuppyTweet\_FCCModeV2.exe" was used to exercise the device (provided by applicant).

#### 2.3 Special Accessories

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

#### 2.4 Equipment Modification

Any modifications installed previous to testing by Mattel Brands, A Division of Mattel Asia Pacific Sourcing Ltd. / Mattel Direct Import Inc. will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services Hong Kong Ltd.

#### 2.5 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

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### 2.6 Support Equipment List and Description

- 1) Lenovo Notebook Model: T61 (provided by Intertek)
- 2) Smart-Drive External 1394 HDD Model: HD3-SU2FW (provided by Intertek)

### 3.0 **Emission Results**

Data is included of the 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.

#### 3.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any), Average Factor (optional) from the measured reading. The basic equation with a sample calculation is as follows:

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

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
- AV = Average Factor in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

$$FS = RR + LF$$

where

- FS = Field Strength in dB $\mu$ V/m
- RR = RA - AG - AV in dB $\mu$ V
- LF = CF + AF in dB

Assume a receiver reading of 52.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB are added. The amplifier gain of 29 dB and average factor of 5 dB are subtracted, giving a field strength of 27 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$RA = 52.0 \text{ dB}\mu\text{V/m}$$

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

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

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

$$AV = 5.0 \text{ dB}$$

$$FS = RR + LF$$

$$FS = 18 + 9 = 27 \text{ dB}\mu\text{V/m}$$

$$RR = 18.0 \text{ dB}\mu\text{V}$$

$$LF = 9.0 \text{ dB}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(27 \text{ dB}\mu\text{V/m})/20] = 22.4 \mu\text{V/m}$$



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### 3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission at 908.575 MHz (TX mode)

Worst Case Radiated Emission at 36.001 MHz (PC Link mode)

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

### 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.

Judgment: Passed by 0.2 dB (TX mode)

Judgment: Passed by 6.1 dB (PC Link mode)

### 3.4 Conducted Emission Configuration Photograph

Worst Case Line Conducted Configuration at 0.1905 MHz (TX mode)

Worst Case Line Conducted Configuration at 0.1905 MHz (PC Link mode)

For electronic filing, the worst case line-conducted configuration photographs are saved with filename: conducted photos.pdf.

### 3.5 Conducted Emission Data

For electronic filing, the graph and data table of conducted emission is saved with filename: conducted.pdf.

Judgment: Passed by -15.09 dB (TX mode)

Judgment: Passed by -17.59 dB (PC link mode)

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## INTERTEK TESTING SERVICES

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Applicant: Mattel Brands, A Division of Mattel Asia  
Pacific Sourcing Ltd. / Mattel Direct Import Inc.  
Model: T7005 (Dongle)

Date of Test: April 27, 2010

Table 1

### Radiated Emissions

CH06

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	908.575	77.8	16	32.0	93.8	94.0	-0.2
V	1817.150	50.8	33	27.2	45.0	54.0	-9.0
V	2725.725	50.8	33	30.4	48.2	54.0	-5.8
V	3634.300	42.2	33	33.3	42.5	54.0	-11.5
V	4542.875	41.5	33	34.9	43.4	54.0	-10.6
V	5451.450	41.9	33	35.7	44.6	54.0	-9.4
V	6360.025	41.7	33	36.9	45.6	54.0	-8.4

NOTES: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances 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 sign in the column shows value below limit.

4. Horn antenna is used for the emissions over 1000MHz.

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## INTERTEK TESTING SERVICES

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Applicant: Mattel Brands, A Division of Mattel Asia  
Pacific Sourcing Ltd. / Mattel Direct Import Inc.  
Model: T7005 (Dongle)

Date of Test: April 27, 2010

Table 2

### Radiated Emissions

CH13

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	914.950	76.4	16	33.0	93.4	94.0	-0.6
H	1829.900	58.3	33	27.2	52.5	54.0	-1.5
H	2744.850	52.5	33	30.4	49.9	54.0	-4.1
H	3659.800	48.6	33	33.3	48.9	54.0	-5.1
H	4574.750	46.7	33	34.9	48.6	54.0	-5.4
H	5489.700	45.5	33	35.7	48.2	54.0	-5.8

NOTES: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances 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 sign in the column shows value below limit.

4. Horn antenna is used for the emissions over 1000MHz.

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## INTERTEK TESTING SERVICES

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Applicant: Mattel Brands, A Division of Mattel Asia  
Pacific Sourcing Ltd. / Mattel Direct Import Inc.  
Model: T7005 (Dongle)

Date of Test: April 27, 2010

Table 3

### Radiated Emissions

CH21

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	922.275	76.7	16	33.0	93.7	94.0	-0.3
V	1844.550	51.4	33	27.2	45.6	54.0	-8.4
V	2766.825	47.0	33	30.4	44.4	54.0	-9.6
V	3689.100	42.3	33	33.3	42.6	54.0	-11.4
V	4611.375	41.8	33	34.9	43.7	54.0	-10.3
V	5533.650	40.7	33	36.6	44.3	54.0	-9.7
V	6455.925	41.9	33	36.9	45.8	54.0	-8.2

NOTES: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances 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 sign in the column shows value below limit.

4. Horn antenna is used for the emissions over 1000MHz.

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## INTERTEK TESTING SERVICES

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Applicant: Mattel Brands, A Division of Mattel Asia  
Pacific Sourcing Ltd. / Mattel Direct Import Inc.

Date of Test: April 27, 2010

Model: T7005 (Dongle)

Mode: PC Link Mode

Sample: 1/2

Table 4

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	36.001	39.9	16	10.0	33.9	40.0	-6.1
V	72.002	42.2	16	7.0	33.2	40.0	-6.8
H	144.004	36.1	16	14.0	34.1	43.5	-9.4
H	192.009	34.2	16	16.0	34.2	43.5	-9.3
H	216.008	33.6	16	17.0	34.6	46.0	-11.4
H	288.008	28.2	16	22.0	34.2	46.0	-11.8
H	324.009	25.9	16	24.0	33.9	46.0	-12.1
H	432.012	24.2	16	25.0	33.2	46.0	-12.8

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

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### 4.0 **Equipment Photographs**

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

### 5.0 **Product Labelling**

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

### 6.0 **Technical Specifications**

For electronic filing, the block diagram and schematic of the tested EUT are saved with filename: block.pdf and circuit.pdf respectively.

### 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.

### 8.0 **Miscellaneous Information**

This miscellaneous information includes details of the measured bandwidth, the test procedure and calculation of factors such as pulse desensitization and averaging factor.

### 8.1 Measured Bandwidth

From the following plots, they show that the fundamental emissions are confined in the specified band (902 MHz to 928 MHz). In case of the fundamental emissions are within two standard bandwidths from the bandedge, the delta measurement technique is used for determining bandedge compliance. Standard bandwidth is the bandwidth specified by ANSI C63.4 (2003) for frequency being measured.

Emissions radiated outside of the specified frequency bands, except harmonics, are attenuated by 50dB below the level of the fundamental or to the general radiated emissions limits in Section 15.209, whichever is the lesser attenuation, which meet the requirement of part 15.249(d).

#### Peak Measurement

Bandedge compliance is determined by applying marker-delta method, i.e (Bandedge Plot).

Upper bandedge

$$\begin{aligned}\text{Resultant field strength} &= \text{Fundamental emissions (peak value)} - \text{delta from the plot} \\ &= 93.70\text{dB}\mu\text{V/m} - 49.51\text{dB} = 44.19\text{dB}\mu\text{V/m}\end{aligned}$$

The resultant field strength meets the general radiated emission limit in section 15.209, which does not exceed 46dB $\mu$ V/m (Average Limit)

### 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.

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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.

### 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.

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.



## INTERTEK TESTING SERVICES

### 9.0 Equipment List

#### 1) Radiated Emissions Test

Equipment	EMI Test Receiver	Biconical Antenna	Log Periodic Antenna
Registration No.	EW-0014	EW-2512	EW-0447
Manufacturer	R&S	EMCO	EMCO
Model No.	ESVS30	3104C	3146
Calibration Date	Jun. 1, 2009	Oct. 31, 2008	Nov. 12, 2008
Calibration Due Date	Jun. 1, 2010	Apr. 30, 2010	May 12, 2010

Equipment	Spectrum Analyzer	Double Ridged Guide Antenna
Registration No.	EW-2188	EW-0194
Manufacturer	AGILENTTECH	EMCO
Model No.	E4407B	3115
Calibration Date	Dec. 25, 2009	Dec. 24, 2008
Calibration Due Date	Dec. 31, 2010	Jun 24, 2010

#### 2) Conducted Emissions Test

Equipment	EMI Test Receiver	Artificial Mains	RF Cable 240cm (RG142)
Registration No.	EW-2251	EW-0192	EW-2454
Manufacturer	ROHDESCHWARZ	ROHDESCHWARZ	RADIALL
Model No.	ESCI	ESH3-Z5	bnc m st / 142 /bnc m ra 240cm
Calibration Date	Oct. 22, 2009	Nov. 23, 2009	Jun. 04, 2009
Calibration Due Date	Oct. 22, 2010	Nov. 23, 2010	Jun. 20, 2010