



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

Application
For
Certification
(FCC ID: PIYP9321E1)

Transmitter

Sample Description : Famps Starter Kit
Model : P9321
Additional Model : P6197, R3522, P7465, P7466

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 [10-1-2007]

Supersede Report No. HK09031403-2 dated May 7, 2009

HK09031403-2(R1)
BH/at
May 19, 2009

- The test results reported in this 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.
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- The evaluation data of the report will be kept for 3 years from the date of issuance.

FCC ID : PIYP9321E1

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MEASUREMENT/TECHNICAL REPORT

**Mattel Brands, A Division of Mattel Asia
Pacific Sourcing Ltd./Mattel Direct Import Inc.
- MODEL: P9321
FCC ID: PIYP9321E1**

May 19, 2009

This report concerns (check one:) Original Grant <input checked="" type="checkbox"/> Class II Change <input type="checkbox"/>	
Equipment Type: <u>Low Power Transmitter</u>	
<hr/>	
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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.	
<hr/>	
Transition Rules Request per 15.37?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [10-1-2007 Edition] provision.	
<hr/>	
Report prepared by:	Ho Wai Kin, Ben Intertek Testing Services 2/F., Garment Center, 576, Castle Peak Road, HONG KONG Phone: 852-2173-8517 Fax: 852-2742-9149

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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 Setup Photo	Conducted Emission	conducted photos.pdf
Test Report	Conducted Emission Test Result	conducted.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

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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 transmitter for an inductive toy (RFID tag reader) operating at 13.56 MHz which is controlled by a crystal. The EUT is powered by USB Port. The EUT has a USB plug. After install the supporting software into a computer, then connect the EUT to the computer though USB port. After that, activated the supporting software and place the figures (passive type powered tags) in the middle of the EUT. At that time, the figures will instantly skin the application and unlock your creativity.

The Model: P6197, R3522, P7465 and P7466 are the same as the tested Model: Test P9321 in hardware and software aspect. The models are difference in packaging only.

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).

This is a single application for certification of a transmitter. The Computer Periperal portion for this transmitter is authorized by Certification procedure with FCC ID : PIYP9321E1 is being processed as the same time of this application.

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1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003). Preliminary scans were performed in the Open Area Test Sites 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 open area test site and conducted measurement facility used to collect the radiated data and conducted data are located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. 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

For emissions testing, the equipment under test (EUT) was setup to transmit continuously in transmission mode and transfer data continuously in programming mode to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions. The device was indirectly powered by AC power lines through PC USB Port.

For the measurements, the EUT is placed on the wooden turntable. If the device can attach to peripherals, they are connected and operational (as typical as possible).

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed 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 to 40 GHz, whichever is lower.

2.2 EUT Exercising Software

The test programs used during radiated and conducted emissions testing are listed on below.

P6197.exe (Supplied by Client)

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 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.

2.5 Measurement Uncertainty

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

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2.6 Support Equipment List and Description

The FCC ID's for all equipment, plus descriptions of all cables used in the tested system are:

HARDWARE:

- (1) Lenovo Notebook, Model: T61, S/N: L3-CF468
External HDD, Model: HD3-SU2FW, SN: 0800261
(for radiated emissions test, supplied by Intertek)

- (2) PC set (for conducted emissions test, supplied by Intertek)
 - i. HP PC, Model: DC5100, S/N: CNG611064K, DoC Product with FCC Part 15 Subpart B complied
 - ii. HP Keyboard, Model: SK-2502C, S/N: M000535630, DoC Product with FCC Part 15 Subpart B complied
 - iii. Sony Monitor, Model: SDM-S51R, S/N: 9009045, DoC Product with FCC Part 15 Subpart B complied
 - iv. HP Mouse, Model: M-S48a, S/N: LZB13471054, FCC ID: JNZ201213
 - v. HP Printer, Model: C6431D, S/N: CN23B 686ZP, DoC Product with FCC Part 15 Subpart B complied
 - vi. Hayes Modem, Model: 6800CN, S/N: A00900153317, FCC ID: BFJ9D907-00038

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CABLES:

Cabling for PC set, printer and modem (Supplies by Intertek)

- i. One serial port cable (1.5m, shielded, metal hook)
- ii. One parallel port cable (1.5m, shielded)
- ii. One monitor cable (1m shielded, ferrite)
- iv. One telephone line (2m, unshielded)

Confirmed by:

*Ho Wai Kin, Ben
Senior Supervisor
Intertek Testing Services
Agent for Mattel Brands, A Division of Mattel Asia
Pacific Sourcing Ltd./Mattel Direct Import Inc.*



Signature

May 19, 2009 _____
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 μ V/m

RA = Receiver Amplitude (including preamplifier) in dB μ 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 μ 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 μ V/m. This value in dB μ V/m was converted to its corresponding level in μ 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

81.384 MHz

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

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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 4.8 dB

TEST PERSONNEL:



Signature

Terry Chan, Compliance Engineer

Typed/Printed Name

May 7, 2009

Date

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

Date of Test: April 22, 2009

Model: P9321

Mode: TX

Sample: 1/1

Table 1
Radiated Emissions

Polari- zation	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Distance Factor (-dB)	Calculated at 30m (dB μ V/m)	Limit at 30m (dB μ V/m)	Margin (dB)
V	13.564	62.9	9.3	72.2	40.0	32.2	84.0	-51.8
V	27.128	19.7	15.4	35.1	40.0	-4.9	29.5	-34.4

Table 2
Radiated Emissions

Polari- zation	Frequency (MHz)	Reading (dB μ V)	Pre- Amp (dB)	Antenna Factor (dB)	Average Factor (-dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
V	40.692	40.7	16	10.0	0.0	34.7	40.0	-5.3
V	54.256	39.2	16	11.0	-	34.2	40.0	-5.8
V	67.820	42.6	16	8.0	-	34.6	40.0	-5.4
V	81.384	44.2	16	7.0	-	35.2	40.0	-4.8
V	94.948	40.0	16	11.0	-	35.0	43.5	-8.5
V	108.512	36.7	16	14.0	-	34.7	43.5	-8.8
V	122.076	36.4	16	14.0	-	34.4	43.5	-9.1
V	135.640	35.9	16	14.0	-	33.9	43.5	-9.6

- 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: Terry Chan

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3.4 Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at
492 kHz

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

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3.5 Conducted Emission Data

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

Judgement: Passed by 9.28 dB

TEST PERSONNEL:



Signature

Terry Chan, Compliance Engineer

Typed/Printed Name

May 19, 2009

Date

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3.6 Frequency Tolerance

FCC Part 15 Section 15.225(e)

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

Operating frequency			13.564192 MHz	
Test Voltage (V)	Temperature (°C)	Measured frequency (MHz)	Frequency shift (%)	Limit (%)
AC 120	+50	13.564056	-0.001	±0.01
AC 120	+40	13.564100	-0.00068	±0.01
AC 120	+30	13.564144	-0.00035	±0.01
AC 120	+20	13.564192	0	±0.01
AC 120	+10	13.564230	+0.00028	±0.01
AC 120	0	13.564266	+0.00055	±0.01
AC 120	-10	13.564262	+0.00052	±0.01
AC 120	-20	13.564242	+0.00037	±0.01

Operating frequency				
Test Voltage (V)	Temperature (°C)	Measured frequency (MHz)	Frequency shift (%)	Limit (%)
AC 138	+20	13.564175	-0.00013	±0.01
AC 102	+20	13.564171	-0.00015	±0.01

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

Remarks: This device is powered by USB Port.

Test Engineer: Terry Chan

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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

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EXHIBIT 7

INSTRUCTION MANUAL

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7.0 Instruction Manual

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

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EXHIBIT 8

MISCELLANEOUS INFORMATION

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8.0 **Miscellaneous Information**

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

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8.1 Measured Bandwidth

The plot saved in bw.pdf which shows the fundamental emission is confined in the specified band. The fundamental emission is 32.2 dB μ V/m at 30m. It meets the requirement of Section 15.225(b), (c), & (d).

Figure 8.1 Bandwidth

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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 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.

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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.

For a device with a permanent antenna operating at or below 30 MHz, the FCC will accept measurements done with a suitable dummy load, in lieu of the permanent antenna under the following conditions :

- (1) perform the AC line conducted tests with the permanent antenna to determine compliance with the Section 15.207 limits outside the transmitter's fundamental emission band;
- (2) retest with a dummy load in lieu of the permanent antenna to determine compliance with the Section 15.207 limits within the transmitter's fundamental emission band.