

Mattel Asia Pacific Sourcing Limited (MAPS)

Application
For
Certification
(FCC ID: PIYJ8865-06A4R)

Superregenerative Receiver

Sample Description : Super Dancing Barbie
Model : J8865

Supersede Report No. 06073731 dated June 19, 2006

06073731(S1)
TL/at
June 23, 2006

- 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 : PIYJ8865-06A4R

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MEASUREMENT/TECHNICAL REPORT

**Mattel Asia Pacific Sourcing Limited (MAPS) - MODEL: J8865
FCC ID: PIYJ8865-06A4R**

June 23, 2006

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

Equipment Type: Superregenerative Receiver (example: computer, printer, modem, etc.)

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 B for intentional radiator

Report prepared by: _____
Chan Kar Ming, Anthony
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.doc
Test Report	Stabilization Waveform	superreg.pdf
External Photo	External Photo	external photos.doc
Internal Photo	Internal Photo	internal photos.doc
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 receiver for a RC dancing toy doll operating at 49.860 MHz. The EUT is powered by 4 AA batteries. The EUT has an power switch, three mode buttons and a music button. After switched on the EUT, the user can select the "Play with me", "Teach me" or "Performance" modes by the three mode buttons. The toy doll can only be controlled by the corresponding RF and IR transmitters in the "Play with me" mode. In the "Play with me" mode, the child can wear two corresponding IR transmitters on his/her wrists and the RF transmitter on his/her foot. While the child moves both wrists and foot to certain positions, the doll will move her arms and left leg in response. In the "Teach me" mode, the doll will show and tell the child how to dance and in the "Performance" mode, the doll will perform multiple dance routines while music plays. The music button is used to turn off and on the music while playing.

The brief circuit description is saved with filename: 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: PIYJ8865-06A4T.

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1.3 Test Methodology

The radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003). All measurements were performed in Open Area Test Sites. 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 emission data is 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

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 4 new AA batteries 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 the turntable, 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 Mattel Asia Pacific Sourcing Limited (MAPS) will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services.

2.5 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:

*Chan Kar Ming, Anthony
Supervisor
Intertek Testing Services
Agent for Mattel Asia Pacific Sourcing Limited (MAPS)*



Signature

June 23, 2006 _____
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 Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

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

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

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 μ V/m

RR = RA - AG in dB μ V

LF = CF + AF in dB

Assume a receiver reading of 52.0 dB μ 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 is subtracted, giving a field strength of 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

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

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

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

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

$$FS = RR + LF$$

$$FS = 23 + 9 = 32 \text{ dB}\mu\text{V/m}$$

$$RR = 23.0 \text{ dB}\mu\text{V}$$

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

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

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3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission

50.561 MHz

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

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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 3.6 dB

TEST PERSONNEL:

A handwritten signature in black ink, appearing to read 'Gary M. K. Li', is written over a faint, light-colored rectangular stamp or watermark. The signature is fluid and cursive.

Signature

Gary M. K. Li, Compliance Engineer
Typed/Printed Name

June 23, 2006
Date

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Company: Mattel Asia Pacific Sourcing Limited (MAPS)
Model: J8865
Mode: RX (Play With Me Mode)
Sample: 1/1

Date of Test: April 25, 2006

Table 1

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
V	49.729	39.1	16	11.0	34.1	40.0	-5.9
V	50.561	41.4	16	11.0	36.4	40.0	-3.6
V	51.329	40.7	16	11.0	35.7	40.0	-4.3
V	52.849	38.2	16	11.0	33.2	40.0	-6.8
V	53.617	36.0	16	11.0	31.0	40.0	-9.0
V	91.273	34.9	16	11.0	29.9	43.5	-13.6
V	92.417	35.2	16	11.0	30.2	43.5	-13.3
V	94.609	34.6	16	11.0	29.6	43.5	-13.9
H	151.227	30.4	16	15.0	29.4	43.5	-14.1
H	153.709	30.1	16	15.0	29.1	43.5	-14.4

- Notes:
1. Negative sign in the column shows value below limit.
 2. Peak Detector Data unless otherwise stated.
 3. 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.

Test Engineer: Gary M. K. Li

FCC ID: PIYJ8865-06A4R

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Company: Mattel Asia Pacific Sourcing Limited (MAPS)
Model: J8865
Mode: Sound
Sample: 1/1

Date of Test: April 25, 2006

Table 2

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre- Amp (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
V	36.127	32.8	16	10	26.8	40	-13.2
V	42.349	33.4	16	10	27.4	40	-12.6
V	48.517	32.2	16	11	27.2	40	-12.8
V	54.349	31.9	16	11	26.9	40	-13.1
V	60.671	32.6	16	10	26.6	40	-13.4
V	66.118	33.5	16	9	26.5	40	-13.5

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

Test Engineer: Gary M. K. Li

FCC ID: PIYJ8865-06A4R

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Company: Mattel Asia Pacific Sourcing Limited (MAPS)
Model: J8865
Mode: IR Receiving (Play With Me Mode)
Sample: 1/1

Date of Test: April 25, 2006

Table 3

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre- Amp (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
V	30.720	34.7	16	10	28.7	40	-11.3
V	37.120	34.5	16	10	28.5	40	-11.5
V	42.240	33.9	16	10	27.9	40	-12.1
V	48.000	32.6	16	11	27.6	40	-12.4
V	54.000	32.3	16	11	27.3	40	-12.7
V	60.000	33.0	16	10	27.0	40	-13.0

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

Test Engineer: Gary M. K. Li

FCC ID: PIYJ8865-06A4R

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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.doc and internal photos.doc

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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 respectively.

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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

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 plot saved on the filename : superreg.pdf 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 Hong Kong Ltd. in the measurements of superregenerative receivers operating under the 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 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 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.

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 were 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. Above 1000 MHz, a resolution bandwidth of 1 MHz is used.

Measurements are normally conducted at a measurement distance of three meters. All measurements are extrapolated to three meters using inverse scaling, unless otherwise reported. Measurements taken at a closer distance are so marked.

1. When determining the test result, the Measurement Uncertainty of the test has been considered.
2. This test report is issued to the Company indicated based on the request of the Applicant of the product mentioned in this report.