



**Hasbro Far East Ltd.**

Application  
For  
Certification  
**(FCC ID: RS4-77923)**

**Transceiver**

Sample Description : Roomtech Beingz Alarm Clock – Magenta Version  
Model : 77925  
Additional Model : 77924  
Asst. No. : 77923

Factory Code: B, Vendor Code: Musical (ZC-285)

Supersede Report No. HK08050879-1 dated June 17, 2008

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 [4-5-2007]

HK08050879-1(R1)  
BH/at  
June 19, 2008

- 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.
- This report shall not be reproduced except in full without prior authorization from Intertek Testing Services Hong Kong Limited.
- The evaluation data of the report will be kept for 3 years from the date of issuance.

FCC ID : RS4-77923

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*INTRODUCTION*

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## MEASUREMENT/TECHNICAL REPORT

Hasbro Far East Ltd. - MODEL: 77925  
FCC ID: RS4-77923

June 19, 2008

This report concerns (check one:)		Original Grant <input checked="" type="checkbox"/>	Class II Change <input type="checkbox"/>
Equipment Type: <u>Low Power Transmitter</u>			
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: _____			
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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>
If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [4-5-2007 Edition] provision.			
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 transceiver for a wireless alarm clock operating at 2.402 GHz, 2.404 GHz and 2.406 GHz which is controlled by a RF module. The EUT is powered by 4 AA batteries or 120V AC to 7.5V DC adaptor. The EUT is a digital alarm clock with built in FM radio and audio jack. The user can follow the instruction manual to adjust the alarm clock, tune the FM radio and play the music. And also, the user can let the EUT to communicate with the corresponding wireless lamp by transceiving RF signal.

The Model : 77924 is the same as the Model : 77925 in hardware aspect. The models are difference in color only.

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

#### **1.2 Related Submittal(s) Grants**

This is an application for certification of a transmitter portion. The receiver portion, associated with this transmitter, can be exempted from technical requirement of the FCC Part 15 Standard.

The wireless lamp, associated with this EUT, has FCC ID: RS4-77926 and will be granted afterward.

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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). 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 or 120V AC to 7.5V DC adaptor 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 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.

The frequency range from 9kHz to 25GHz was searched for spurious emissions from the device. Only those emissions reported were detected. All other emissions were at least 26 dB below the applicable limits.

#### **2.2 EUT Exercising Software**

The EUT exercise program (if any) used during radiated testing was designed to exercise the various components in a similar to a typical use.

#### **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 Hasbro Far East 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

Adaptor : Model : BI07-075080-AdU  
Input : 120V 60Hz max, 200 mA  
Output : 7.5V DC 800 mA 6W  
(Provided by Client)

Walkman : Model : WM-FX288  
Manufacturer : Sony  
(Provided by Intertek)

All the items listed under section 2.0 of this report are

*Confirmed by:*

*Ho Wai Kin, Ben  
Senior Supervisor  
Intertek Testing Services  
Agent for Hasbro Far East Ltd.*



\_\_\_\_\_  
Signature

\_\_\_\_\_  
June 19, 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

2402.000 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 0.6 dB

#### **TEST PERSONNEL:**



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*Signature*

Terry Chan, Compliance Engineer

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*Typed/Printed Name*

June 19, 2008

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*Date*

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Applicant: Hasbro Far East Ltd.  
 Model: 77925  
 Mode: TX  
 Sample: 1/2

Date of Test: May 29, 2008

Table 1  
**Radiated Emissions (Channel 1)**

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	2402.000	98.0	34.0	29.4	93.4	94.0	-0.6
H	4804.000	47.9	34.0	34.9	48.8	54.0	-5.2
H	7206.000	45.6	34.0	37.9	49.5	54.0	-4.5
H	9608.000	43.3	34.0	40.4	49.7	54.0	-4.3
H	12010.000	43.5	34.0	40.5	50.0	54.0	-4.0

Table 2  
**Radiated Emissions (Channel 3)**

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	2406.000	97.8	34.0	29.4	93.2	94.0	-0.8
H	4812.000	48.1	34.0	34.9	49.0	54.0	-5.0
H	7218.000	44.8	34.0	37.9	48.7	54.0	-5.3
H	9624.000	42.7	34.0	40.4	49.1	54.0	-4.9
H	12030.000	43.5	34.0	40.5	50.0	54.0	-4.0

- 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. Horn antenna is used for the emissions over 1000MHz.
- \*Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Terry Chan

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### 3.4 Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration

at

0.54 MHz

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 9.4 dB

#### **TEST PERSONNEL:**



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

Terry Chan, Compliance Engineer  
*Typed/Printed Name*

June 19, 2008  
*Date*

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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

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 measured bandwidth, the test procedure and calculation of factors such as pulse desensitization.

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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. And it also shows that the emission is at least 43 dB below the carrier level at the band edge (2400 and 2483.5 MHz). Emissions radiated outside of the specified frequency bands, except harmonics, are attenuated by 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation. It meets the requirement of Section 15.249(d).

#### Peak Measurement

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

Resultant field strength= Fundamental emissions (peak value) - delta from the plot A

$$= 93.4\text{dB}\mu\text{V/m} - 43\text{dB}$$

$$= 50.4\text{dB}\mu\text{V/m}$$

Resultant field strength= Fundamental emissions (peak value) - delta from the plot B

$$= 93.2\text{B}\mu\text{V/m} - 53\text{dB}$$

$$= 40.2\text{dB}\mu\text{V/m}$$

The resultant field strength meets the general radiated emission limit in section 15.209, which does not exceed 74dB $\mu$ V/m (Peak Limit) and 54dB $\mu$ V/m (Average Limit).

Pursuant to FCC Part 15 Section 15.215(c), the 20dB 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 excepted variations in temperature and supply voltage were considered.

Figure 8.1 Bandwidth

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### 8.2 Discussion of Pulse Desensitization

The determination of pulse desensitivity was made in accordance with Hewlett Packard Application Note 150-2, *Spectrum Analysis ... Pulsed RF*.

The effective period ( $T_{\text{eff}}$ ) was approximately 110  $\mu\text{s}$  for a digital "1" bit. With a resolution bandwidth (3 dB) of 1 MHz, the pulse desensitivity factor was 0 dB.



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### 8.3 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.

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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### 8.3 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.

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.