



**CMA Testing  
and Certification  
Laboratories**  
廠商會檢定中心

**TEST REPORT**

Report No. : AK020029-001 Date : 2008-06-06

Application No. : LK213866(4)

Applicant : Jakks Pacific (HK) Ltd  
12/F, Wharf T&T Centre,  
7 Canton Road,  
Tsim Sha Tsui,  
Hong Kong

Sample Description : One(1) submitted sample(s) stated to be TVG Swing Zone Sports Motion  
of Model No. 61045

Radio Frequency : 2404MHz ~ 2481MHz Transceiver

Rating : 2 x 1.5V AAA size batteries

No. of submitted sample : Two (2) piece(s) \*\*\*

Date Received : 2008-05-19

Test Period : 2008-05-28 to 2008-06-05

Test Requested : FCC Part 15 Certification.

Test Method : 47 CFR Part 15 (10-1-07 Edition)  
ANSI C63.4 – 2003

Test Result : See attached sheet(s) from page 2 to 12.

Conclusion : The submitted sample was found to comply with requirement of FCC Part 15  
Subpart C.

Remark : The receiver within the transceiver is subject to verification procedure.

*For and on behalf of*  
CMA Industrial Development Foundation Limited

Authorized Signature :

Andrew Wong  
Senior Technical Officer  
Electrical Division

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FCC ID: OTA61045C

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### **1 General Information**

#### **1.1 General Description**

The equipment under test (EUT) is a transceiver for TVG Swing Zone Sports Motion. It operates at 2404MHz ~ 2481MHz and the oscillation of MCU is generated by a crystal. The EUT is powered by 2 x 1.5V AAA size batteries. There are four buttons on the controller. When the controller is synchronized with the console unit, the player can play the sport games.

The antenna terminal is permanently attached in EUT and the radio output power is unable to adjust.

The brief circuit description is listed as follows:

- SPRF2402 and associated circuit act as a transceiver.
- SPCE071 and associated circuit act as an U-processor.

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**1.2 Location of the test site**

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003. A Semi-Anechoic Chamber Testing Site is set up for investigation and located at :

Ground Floor, Yan Hing Centre,  
9 – 13 Wong Chuk Yeung Street,  
Fo Tan, Shatin,  
New Territories,  
Hong Kong.

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2003. A shielded room is located at :

Ground Floor, Yan Hing Centre,  
9 – 13 Wong Chuk Yeung Street,  
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New Territories,  
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**1.3 List of measuring equipment**

Equipment	Manufacturer	Model No.	Serial No.	Calibration Due Date
Spectrum Analyzer	R&S	FSP30	100152	2008 July 15
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-531	2010 May 19
Broadband Pre-Amplifier	Schwarzbeck	BBV 9718	9718-119	2010 May 08



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### **2 Description of the radiated emission test**

#### **2.1 Test Procedure**

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003.

The equipment under test (EUT) was placed on a non-conductive turntable with dimensions of 1.5m x 1m and 0.8m high above the ground. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. The turntable was rotated to maximize the emission level. The antenna was then moving along the mast from 1m up to 4m until no more higher value was found. Both horizontal and vertical polarization of the antenna were placed and investigated.

For below 30MHz, a loop antenna with its vertical plane is placed 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1 m above the ground.

The device was rotated through three orthogonal axes to determine which attitude and configuration produce the highest emission during measurement.

#### **2.2 Test Result**

Both Average and Peak Detector data were measured unless otherwise stated.

“#” means emissions appearing within the restricted bands shall follow the requirement of section 15.205.

The frequencies from fundamental up to the tenth harmonics were investigated. The emissions which lower than the radiated ambience were not reported. Thus, those highest emissions were presented in next pages.

It was found that the EUT meet the FCC requirement.



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### **2.3 Radiated Emission Measurement Data**

#### **Radiated emission**

#### **pursuant to**

#### **the requirement of FCC Part 15 subpart C**

Controller: Transmitter Mode with Peak Detector

	Frequency (MHz)	Polarity (H/V)	Reading at 3m (dB $\mu$ V/m)	Transducer factor (dB)	Field Strength (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
First Channel	2403.95	H	90.2	-6.8	83.4	114.0	-30.6
	#4808.64	H	52.9	1.0	53.9	74.0	-20.1
	7211.67	H	38.9	9.9	48.8	74.0	-25.2
Middle Channel	2441.46	H	90.7	-6.8	83.9	114.0	-30.1
	#4884.08	H	53.0	1.0	54.0	74.0	-20.0
	#7326.43	H	37.1	9.9	47.0	74.0	-27.0
Last Channel	2481.02	H	91.9	-6.8	85.1	114.0	-28.9
	#4961.91	H	53.1	1.0	54.1	74.0	-19.9
	#7443.12	H	38.5	9.9	48.4	74.0	-25.6

Remark: Transducer Factor = Antenna Factor + Cable Loss - Gain of Pre-Amplifier

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### **2.3 Radiated Emission Measurement Data (Con't)**

#### **Radiated emission**

#### **pursuant to**

#### **the requirement of FCC Part 15 subpart C**

Controller: Transmitter Mode with Average Detector

	Frequency (MHz)	Polarity (H/V)	Reading at 3m (dB $\mu$ V/m)	Transducer factor (dB)	Field Strength (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
First Channel	2403.95	H	89.5	-6.8	82.7	94.0	-11.3
	#4808.64	H	49.1	1.0	50.1	54.0	-3.9
	7211.67	H	29.8	9.9	39.7	54.0	-14.3
Middle Channel	2441.46	H	90.0	-6.8	83.2	94.0	-10.8
	#4884.08	H	50.0	1.0	51.0	54.0	-3.0
	#7326.43	H	27.7	9.9	37.6	54.0	-16.4
Last Channel	2481.02	H	91.5	-6.8	84.7	94.0	-9.3
	#4961.91	H	50.2	1.0	51.2	54.0	-2.8
	#7443.12	H	29.4	9.9	39.3	54.0	-14.7

Remark: Transducer Factor = Antenna Factor + Cable Loss - Gain of Pre-Amplifier

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### **3 Description of the Line-conducted Test**

#### **3.1 Test Procedure**

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2003. The EUT was setup as described in the procedures, and both lines were measured.

#### **3.2 Test Result**

No measurement is required as the EUT is a battery-operated product.

#### **3.3 Graph and Table of Conducted Emission Measurement Data**

Not Applicable



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### **4 Photograph**

#### **4.1 Photographs of the Test Setup for Radiated Emission and Conduction Emission**

For electronic filing, the photos are saved with filename TSup1.jpg to TSup2.jpg.

#### **4.2 Photographs of the External and Internal Configurations of the EUT**

For electronic filing, the photos are saved with filename ExPho1.jpg to ExPho2.jpg and InPho1.jpg to InPho2.jpg.



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### **5 Supplementary document**

The following document were submitted by applicant, and for electronic filing, the document are saved with the following filenames:

<b>Document</b>	<b>Filename</b>
ID Label/Location	LabelSmp.jpg
Block Diagram	BlkDia.pdf
Schematic Diagram	Schem.pdf
Users Manual	UserMan.pdf
Operational Description	OpDes.pdf

#### **5.1 Bandwidth**

The plots saved in TestRpt2.pdf show the first and last channels are confined in the specific band. It also shows that the band edges met 15.249(d) requirements at 2.4GHz and 2.4835GHz.

#### **5.2 Duty cycle**

Not Applicable

#### **5.3 Transmission time**

Not Applicable



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### **6 Appendices**

A1.	Photos of the set-up of Radiated Emissions	1	page
A2.	Photos of External Configurations	1	page
A3.	Photos of Internal Configurations	1	page
A4.	ID Label/Location	1	page
A5.	Bandwidth Plot	2	pages
A6.	Block Diagram	1	page
A7.	Schematics Diagram	1	page
A8.	User Manual	3	pages
A9.	Operation Description	3	pages

\*\*\*\*\* End of Report \*\*\*\*\*

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