Jakks Pacific (HK) Limited

Application
For
Certification
(FCC ID: OTAW99260)

Transmitter, Model : W99260

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 [24-5-2001]

WO# 0113179
WN/at
November 28, 2001

FCC ID : OTAW99260

LIST OF EXHIBITS

MEASUREMENT/TECHNICAL REPORT

Jakks Pacific (HK) Limited - MODEL: W99260
FCC ID: OTAW99260

November 28, 2001

This report concerns (check one:) Original Grant__X__ Class II Change_____

Equipment Type: Low Power Transmitter (example: computer, printer, modem, etc.)

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes___ No_X___

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_X___

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [24-5-2001 Edition] provision.

Report prepared by: Wilbur Ng
Intertek Testing Services
2/F., Garment Center,
576, Castle Peak Road,
HONG KONG
Phone: 852-2173-8502
Fax: 852-2742-9149

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Test Report	Bandwidth Plot	Bandwidth.pdf
External Photo	External Photo	External Photographs.pdf
Internal Photo	Internal Photo	Internal Photographs.pdf
Block Diagram	Block Diagram	Block Diagram.pdf
Schematics	Circuit Diagram	Circuit Diagram.pdf
ID Label/Location	Label Artwork and Location	Label Artwork & Location.pdf
User Manual	User Manual	manual.pdf

EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The equipment under test (EUT) is a transmitter for a Reader Coil in the figure operating at 13.575 MHz which is controlled by a crystal. The EUT is powered by four new AA batteries. There are two buttons on the EUT. On/off Side Switch controls the EUT on or off state. Wake-up/Try-me push button is used to wake-up the processor which inside the EUT from sleep-mode.

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

- IC W523830COB (SFX CHIP) and associated circuit act as Audio Generator.
- IC SPC21_COB_COMPLETE (PROCESSOR) and associated circuit act Central Processor.
- Module (RF Front End) and associated circuit act Local Oscillator and Decorder.

1.2 Related Submittal(s) Grants

This is a single application for certification of a transmitter.

1.3 Test Methodology

The radiated emission measurements were performed according to the procedures in ANSI C63.4 (1992). 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. For each scan, the procedure for maximizing emissions in Appendices D and E were followed. 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.

1.5 Equipment List

Radiated Emissions Tests for FCC Part 15

Equipment	EMI Test Receiver	Antenna Set	
Registration No.	EW-0014	EW-0954	EW-0191
Manufacturer	R&S	EMCO	EMCO
Model No.	ESVS30	3104C	6502
Serial No.	842807/001	9911-4872	9206-2760
Calibration Institute	HKGSCL	ETS	Schaffner
Calibration Certificate No.	RF010108	13045	CA1686
Calibration Date	January 16, 2001	June 27, 2001	November 27, 2001
Calibration Due Date	January 16, 2002	June 27, 2002	May 27, 2001
Traceability	HKGSCL	NIST	UKAS

EXHIBIT 2

SYSTEM TEST CONFIGURATION

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 (1992.)

The EUT was powered by four new AA batteries during test.

For maximizing emissions, the EUT was rotated through 360°, the loop antenna height was 1 meter above the ground plane, and the antenna polarization was changed.

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 a turn table, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

For simplicity of testing, the unit was wired to transmit continuously.

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.

2.4 Equipment Modification

Any modifications installed previous to testing by Jakks Pacific (HK) Limited 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:

Wilbur Ng
Manager
Intertek Testing Services
Agent for Jakks Pacific (HK) Limited

Signature

November 28, 2001 Date

EXHIBIT 3

EMISSION RESULTS

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.

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 dBµV/m
RA = Receiver Amplitude (including preamplifier) in dBµV
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

For emission from 490 kHz to 30 MHz, a distance factor of -20 dB are added to simulate the 30m measuring distance.

3.1 Field Strength Calculation (cont'd)

Example

Assume a receiver reading of 62.0 dBμV 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 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 62.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0 dB

AV = -10 dB

FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 dBμV/m

Level in mV/m = Common Antilogarithm [(32 dBμV/m)/20] = 39.8 μV/m

3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission

67.875 MHz

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated1.pdf to radiated2.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.

Judgement: Passed by 15.8 dB

TEST PERSONNEL:

Signature

Ivan Y. M. Wong, Compliance Engineer
Typed/Printed Name

November 28, 2001
Date

Company: Jakks Pacific (HK) Limited Date of Test: November 14, 2001
Model: W99260

Table 1

Radiated Emissions (Transmitter Portion)

Polarity	Frequency (MHz)	Reading (dBµV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Distance Factor (dB)	Net at 30m (dBµV/m)	Limit at 30m (dBµV/m)	Margin (dB)
H	13.575	8.4	-1.8	16	-20	10.6	29.5	-18.9
H	27.150	-0.8	-1.8	16	-20	1.4	29.5	-28.1

Table 2

Radiated Emissions (Transmitter Portion)

Polarity	Frequency (MHz)	Reading (dBµV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
H	40.725	28.7	10	16	22.7	40.0	-17.3
H	54.319	28.3	11	16	23.3	40.0	-16.7
H	67.875	32.2	8	16	24.2	40.0	-15.8

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.

*Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000 MHz.

Test Engineer: Ivan Y. M. Wong

Company: Jakks Pacific (HK) Limited
Model: W99260

Date of Test: November 14, 2001

Table 3

Radiated Emissions (Digital Circuit Portion)

Polarity	Frequency (MHz)	Reading (dBµV)	Pre-Amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
H	32.694	26.8	16	10	20.8	40	-19.2
H	38.756	27.4	16	10	21.4	40	-18.6
H	45.310	28.7	16	10	22.7	40	-17.3
H	51.829	27.5	16	11	22.5	40	-17.5
H	57.461	28.2	16	11	23.2	40	-16.8
H	63.594	30.0	16	9	23.0	40	-17.0

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.

*Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000 MHz.

Test Engineer: Ivan Y. M. Wong

EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

4.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename: ophoto1.pdf to ophoto2.pdf and iphoto1.pdf to iphoto2.pdf

EXHIBIT 5

PRODUCT LABELLING

5.0 **Product Labelling**

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

EXHIBIT 6

TECHNICAL SPECIFICATIONS

6.0 **Technical Specifications**

For electronic filing, the block diagram and schematics are saved with filename: block.pdf and circuit.pdf respectively.

EXHIBIT 7

INSTRUCTION MANUAL

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.

EXHIBIT 8

MISCELLANEOUS INFORMATION

8.0 Miscellaneous Information

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

8.1 Measured Bandwidth

The plot on saved in bw.pdf shows the fundamental emission is confined in the specified band.

Figure 8.1 Bandwidth

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 - 1992.

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.

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 450 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 - 1992.

The IF bandwidth used for measurement of radiated signal strength was 100 kHz or greater below 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.

The resolution bandwidth for spurious radiated emission measuring is 120 kHz.