

## EMC TEST REPORT

**No. JSH006080282-001**

Applicant	:Pyramat LLC 16200-A Carmenita Rd., Cerritos, CA90703-2213, USA
Manufacturer	: Xiamen Comfort Science and Technology Co., Ltd. No. 18 Longshan South Road, Xiamen 361009, P.R.China
Equipment Type/Model	:Sound Rocker :PM440 Transmitter

### Summary

The test report is to certify that the tested equipment properly complies with the requirements of:

**FCC Rules and Regulations: 47CFR Part 15: Radio Frequency Devices: 2006  
ANSIC63.4 (2003): American National Standard for Methods of Measurement  
of Radio-Noise Emissions from Low-Voltage Electrical and  
Electronic Equipment in the Range of 9 kHz to 40 GHz**

### Description

The appliances were tested by Intertek Testing Services Limited Shanghai and found compliance with relevant requirements described in FCC Part 15: Radio Frequency Devices.

Test results are contained in this test report and Intertek Testing Services Limited Shanghai is assumed full responsibility for the accuracy and completeness of these measurements.

The test report shall not be reproduced in part without written approval of Intertek Testing Services Limited Shanghai.

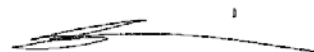
Date of issue: September 28, 2006

Prepared by:



Daniel Zhao( *Project engineer*)

Approved by:



Steve Li (*Reviewer*)

## Description of Test Facility

Name: Intertek Testing Services Limited Shanghai

Address: Building No.86, 1198 Qinzhou Road(North), Shanghai 200233, P.R.  
China

FCC Registration Number: 236597

Name of contact: Steve Li

Tel: +86 21 64956565 ext. 214

Fax: +86 21 54262335 ext. 214

## Content

<b>SUMMARY.....</b>	<b>1</b>
<b>DESCRIPTION .....</b>	<b>1</b>
<b>DESCRIPTION OF TEST FACILITY .....</b>	<b>2</b>
<b>CONTENT .....</b>	<b>3</b>
<b>1.APPLICANT INFORMATION .....</b>	<b>4</b>
<b>2.INFORMATION OF EQUIPMENT UNDER TEST (EUT) .....</b>	<b>4</b>
2.1 Identification of the EUT .....	4
2.2 Technical specification .....	4
2.3 Mode of operation during the test / Test peripherals used.....	5
2.4 Related Grant and test Standard .....	5
2.5 Instrument list.....	5
<b>3. TEST SUMMARY .....</b>	<b>7</b>
<b>4. CONDUCTED EMISSIONS TEST (NOT APPLICABLE IN THIS REPORT).....</b>	<b>8</b>
4.1 Limits .....	8
4.2 Test Procedure .....	8
4.3 Test SET-UP (Block Diagram of Configuration) .....	9
4.4 Test Result .....	9
4.5 Measurement Uncertainty .....	9
4.6 Additions, Deviations and Exclusions from Standards .....	9
<b>5. RADIATED EMISSION TEST.....</b>	<b>10</b>
5.1 Limits .....	10
5.2 Test Procedure:.....	10
5.3 Test SET-UP (Block Diagram of Configuration) .....	11
5.4 Test result. ....	12
<b>6. EMISSION BANDWIDTH(BAND EDGES MEASUREMENT).....</b>	<b>14</b>
6.1 Limits .....	14
6.2 Test Procedure .....	14
6.3 Test Configuration.....	14
6.4 Test Results .....	15

## 1. Applicant Information

Applicant :Pyramat LLC  
16200-A Carmenita Rd., Cerritos, CA90703-2213, USA  
Name of contact : Mr. Michael Feldman  
Telephone : +1-562-3456058  
Telefax : -1-562-3456082  
Manufacture : Xiamen Comfort Science and Technology Co., Ltd.  
No. 18 Longshan South Road, Xiamen 361009, P.R.China  
Country of origin : P.R. China

## 2. Information of Equipment Under Test (EUT)

### 2.1 Identification of the EUT

Equipment : Sound Rocker  
Type/model : PM440 Transmitter  
FCC ID : UJA0002A  
Date of sample receipt : September 13, 2006  
Date of test : September 18 - 24, 2006

### 2.2 Technical specification

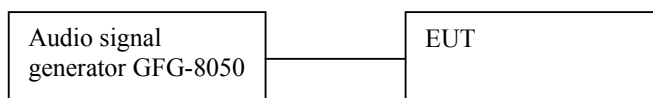
Operation Frequency : 2.402GHz ~ 2.410GHz  
Modulation : Frequency Modulation(FM)  
Antenna Designation : Inner antenna, Non-User Replaceable(Fixed)  
Rating : DC 6V(1.5 x 4 Batteries)

Description of EUT : The EUT is a audio transmitter, and it has 8 channels, the each channel frequency is listing below:

Channel number	Frequency (GHz)	Channel number	Frequency (GHz)
1	2.40225	5	2.40625
2	2.40325	6	2.40725
3	2.40425	7	2.40825
4	2.40525	8	2.40925

### 2.3 Mode of operation during the test / Test peripherals used

The compliance tests were performed under the following operation mode.  
The EUT was operated in the transmitting mode with 1kHz audio modulation signal, and it is powered by 4 X 1.5V new batteries. The tests were performed on channel 1 and channel8.



### 2.4 Related Grant and test Standard

This product is complying with section 15.249 of FCC Part 15, Subpart C Rules.

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

### 2.5 Instrument list

Equipment	Type	Manu.	Serials number	Cal. Date	Cal. Interval
Test receiver	ESCS 30	R&S	835418/003	2006-3-14	1 Year
Passive voltage probe	ESH2-Z3	R&S	100009	2006-3-14	2 Years
Artificial mains network	ESH3-Z5	R&S	835239/008	2006-3-14	1 Year
EMI test	ESI 26	R&S	838687/011	2006-8-13	1 Year

receiver					
Broadband antenna	HL562	R&S	100019	2005-10-10	1 Year
Horn antenna	HF906	R&S	100023	2006-6-24	1 Year
Pre-amplifier	Pre-amp 18	R&S	-	2006-6-24	1 Year
Pre-amplifier	Pre-amp 40	Beijing Radio 2	-	2006-3-4	1 Year
Horn antenna	K638A	Beijing Radio 2	-	2006-3-4	1 Year
3m anechoic chamber	-	Franconia	-	2006-9-6	Half year

#### 2.4 Test software

Test software	Type	Manu.	Version
Software of disturbance voltage	EsxS-K1	R&S	Version 2.10
Software of Radiated emission	ES-K1	R&S	Version 1.71

### 3. Test Summary

**This report applies to tested sample only. This report shall not be reproduced in part without written approval of Intertek Testing Service Shanghai Limited.**

TEST ITEM	RESULT	NOT E
Conducted Emission	NA	
Radiation Emission	Pass	
Band edges measurement	Pass	

Notes: 1: NA =Not Applicable

#### 4. Conducted Emissions Test (Not applicable in this report)

**Test result: NA**

##### 4.1 Limits

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

\* Decreases with the logarithm of the frequency.

##### 4.2 Test Procedure

The EUT was set to achieve the maximum emission level.  
The mains terminal disturbance voltage was measured with the EUT in a shielded room.  
The EUT was connected to AC power source through an Artificial Mains Network which provide a 50Ω linear impedance Artificial hand is used if appropriate.

For Table top equipment ☒

The EUT was placed on a 0.8m high non-metallic table above a metallic plane, The wall of shielded room used as Ground Reference Plane (GRP)

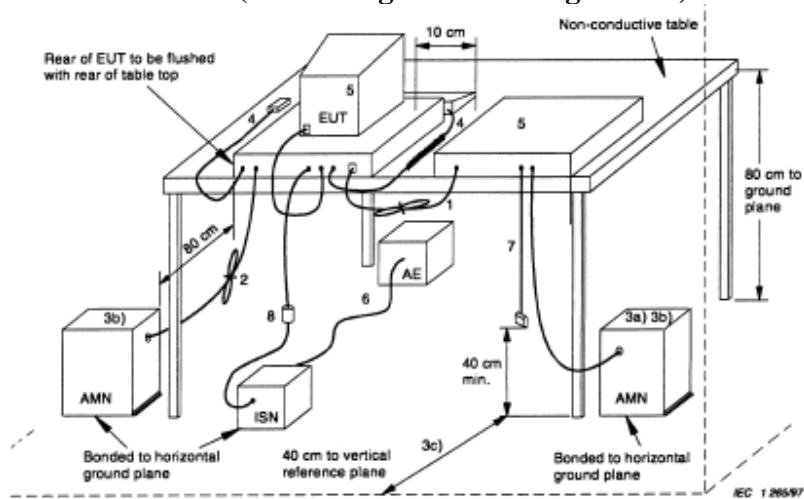
For Floor standing equipment ☐

The EUT was placed on a 0.1m high non-metallic support above a metallic plane, The wall of shielded room used as Ground Reference Plane (GRP)

The bandwidth of test receiver ESCS 30 was set at 9kHz.  
The frequency range from 150kHz to 30MHz was checked.



### 4.3 Test SET-UP (Block Diagram of Configuration)



#### 4.4 Test Result

Temperature : °C

Relative Humidity: %

## 4.5 Measurement Uncertainty

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT.

Measurement uncertainty is calculated in accordance with CISPR 16-4-2: 2003.

Measurement uncertainty of mains terminal disturbance voltage :  $\pm 3.6\text{dB}$

The measurement uncertainty is given with a confidence of 95%,  $k=2$ .

#### 4.6 Additions, Deviations and Exclusions from Standards

None.

## 5. Radiated Emission Test

**Test result: Pass**

### 5.1 Limits

According to 15.249, the field strength of emissions from Intentional Radiators operated under this section shall not exceed the following:

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902 - 928 MHz	50	500
2400 - 2483.5 MHz	50	500
5725 - 5875 MHz	50	500
24.0 - 24.25 GHz	250	2500

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

(e) As shown in Section 15.35(b), for frequencies above 1000 MHz, the above field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

Remark: 1. Emission level in  $\text{dB}\mu\text{V/m}=20 \log (\mu\text{V/m})$

- Measurement was performed at an antenna to the closed point of EUT distance of 3 meters.
- Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of § 15.205
- Emission spurious frequency which appearing within the Restricted Bands specified in provision of §15.205, then the general radiated emission limits in §15.209 apply.

### 5.2 Test Procedure:

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn-table shall rotate 360 degrees to determine the position of maximum emission level.

EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in ANSI C63.4-2003.

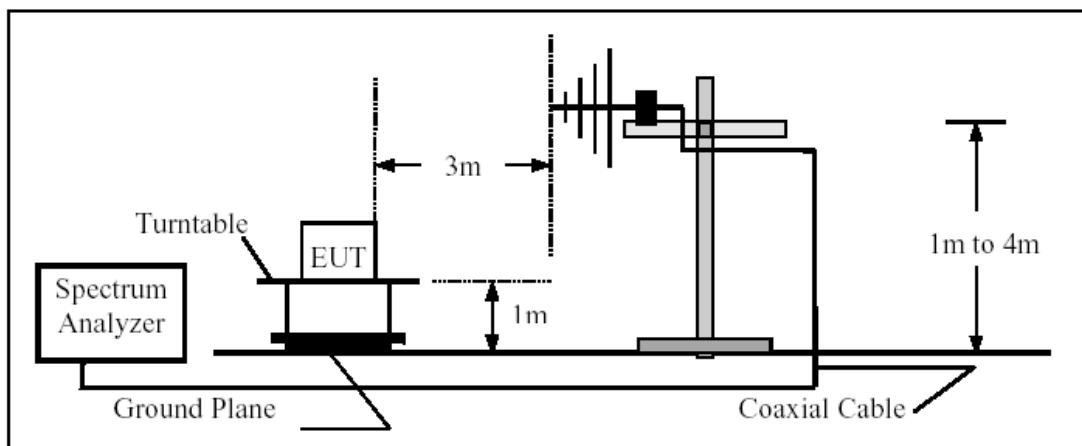
The EUT was placed on a turntable which is 0.8m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level.

EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

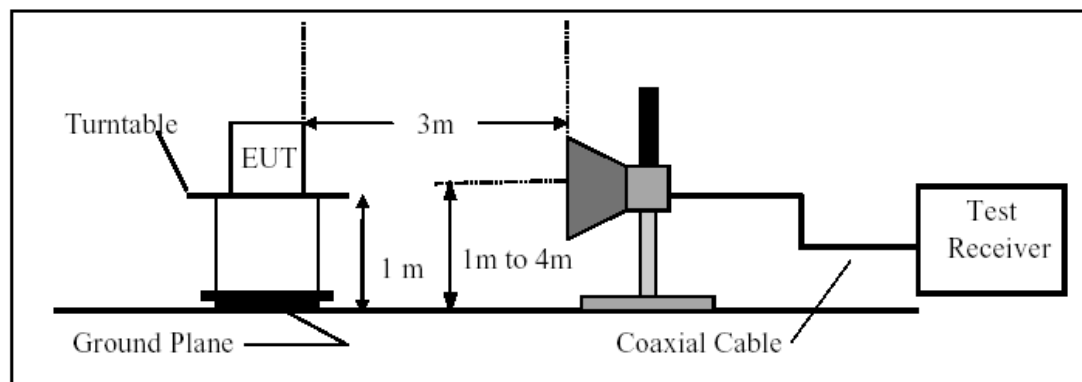
The frequency from 30MHz to 1000MHz was checked and the detector bandwidth of the test receiver was set to 120kHz; the frequency above 1GHz was checked and the detector bandwidth of the test receiver was set to 1MHz.

### 5.3 Test SET-UP (Block Diagram of Configuration)

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Above 1 GHz



#### 5.4 Test result.

Temperature: 22 °C  
Humidity: 40%

##### 5.4.1 Carrier and spurious emission

###### Channel 1:

Fund.	Har. Num.	Frequency (GHz)	Ant. Pol.(H/V)	Reading level (dBμV)		Factor (dB)	Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
				PK	AV		PK	AV	PK	AV	PK	AV
2.40225	1	2.40225	V	81.6	78.4	2.0	83.6	80.4	114	94	30.4	13.6
2.40225	2	4.80450	V	34.5	26.4	4.6	39.1	31.0	74	54	34.9	23.0
2.40225	3	7.20675	-	-	-	-	-	-	74	54	-	-
2.40225	4	9.60900	-	-	-	-	-	-	74	54	-	-
2.40225	5	12.01125	-	-	-	-	-	-	74	54	-	-
2.40225	6	14.41350	-	-	-	-	-	-	74	54	-	-
2.40225	7	16.81575	-	-	-	-	-	-	74	54	-	-
2.40225	8	19.21800	-	-	-	-	-	-	74	54	-	-
2.40225	9	21.62025	-	-	-	-	-	-	74	54	-	-
2.40225	10	24.02250	-	-	-	-	-	-	74	54	-	-

###### Channel 8:

Fund.	Har. Num.	Frequency (GHz)	Ant. Pol.(H/V)	Reading level (dBμV)		Factor (dB)	Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
				PK	AV		PK	AV	PK	AV	PK	AV
2.40925	1	2.40925	V	79.6	78.0	2.0	81.6	80.0	114	94	32.4	14.0
2.40925	2	4.81850	V	34.5	26.4	4.6	39.1	31.0	74	54	34.9	23.0
2.40925	3	7.22775	-	-	-	-	-	-	74	54	-	-
2.40925	4	9.63700	-	-	-	-	-	-	74	54	-	-
2.40925	5	12.04625	-	-	-	-	-	-	74	54	-	-
2.40925	6	14.45550	-	-	-	-	-	-	74	54	-	-
2.40925	7	16.86475	-	-	-	-	-	-	74	54	-	-
2.40925	8	19.27400	-	-	-	-	-	-	74	54	-	-
2.40925	9	21.68325	-	-	-	-	-	-	74	54	-	-
2.40925	10	24.09250	-	-	-	-	-	-	74	54	-	-

#### 5.4.2 Other radiated emission

Frequency (GHz)	Ant. Pol.(H/V)	Reading level (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
200.00	V	-0.6	10.1	9.5	43.5	34.0
600.00	H	-4.0	21.2	17.2	46.0	28.8
800.00	H	-3.3	25.4	22.1	46.0	23.9
1600.00	V	43.0	1.1	44.1	54.0	9.9
3200.00	V	39.2	3.3	42.5	54.0	11.5
4000.00	H	41.2	4.1	45.3	54.0	8.7

#### Note:

(1) The test data is based on measuring equipment employing a CISPR quasi-peak detector if the frequency is below or equal to 1000MHz; the test data is base on measuring equipment employing an average detector if the frequency is above 1000MHz.

(2) Emission level (dBμV/m) = Reading level (dBμV ) + Factor(dB)

Example: 3200MHz

Reading level = 39.2 dBμV;

Factor= 3.3 dB;

Emission level PK (dBμV/m) = 39.2 + 3.3 = 42.5 dBμV/m

(3) Margin (dB)= Limit - Emission level

(4) “-”: No emission was above the measuring receiver’s base noise, not detected.

(5) Factor includes the antenna factor, amplifier factor and cable loss.

#### 5.5 Measurement uncertainty

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT.

Measurement uncertainty is calculated in accordance with CISPR 16-4-2: 2003.

Measurement uncertainty of mains terminal disturbance voltage: ± 5.2dB

The measurement uncertainty is given with a confidence of 95%, k=2.

## 6. Band edges measurement

**Test result: Pass**

### 6.1 Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

### 6.2 Test Procedure

The EUT is operating in transmit mode with modulation at the lowest and highest channel frequency. We adjusted the input audio level to get the maximum bandwidth in the test.

The spectrum analyzer was set to:

1. RBW=10kHz, VBW=10kHz at frequency band 30 – 1000MHz.
2. RBW=100kHz, VBW=100kHz at frequency band 1GHz – 40GHz.

The test procedure is as same as clause 5.2 of this report.

### 6.3 Test Configuration

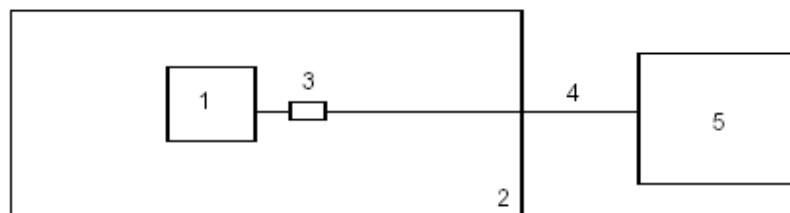


Figure 3: Measurement setup for operating bandwidth test

- |                     |                     |
|---------------------|---------------------|
| 1 Transmitter (EUT) | 3 DC-block          |
| 2 Wooden table      | 4 Test cable        |
|                     | 5 Spectrum analyzer |

## **6.4 Test Results**

Please refer to the following plots for radiated emission on the bandedge:

Plot A: Sub-Bandedge emission

Plot B: Super-Bandedge emission

For electronic filing, the above plots are saved with filename: test data.pdf.