

TEST REPORT No: (5212)173-1336

## TEST REPORT

To:	MR. CHRISTMAS LIMITED	To:	-
Attn:	Daniel Liao	Attn:	-
Address:	Suite 901, Railway Plaza, 39 Chatham Road South, TST, Kowloon, Hong Kong	Address:	-
Fax:	2369 0136	Fax:	-
E-mail:	<a href="mailto:dliao@mrchristmas-hk.com">dliao@mrchristmas-hk.com</a>	E-mail:	-
Folder No.:	MRC-12AP304ETHS-B		
Factory name:	--		
Location:	--		
Product:	Harmonique Gramophone MODEL: 23672		
		Sample No:	HK120430/004
		Test Date(s):	May 7, 2012 to September 28, 2012
		Test Requested:	FCC Part 15 – 2011
		Test Method:	ANSI C63.4 – 2009
		FCC ID:	SHVGRAMOPHONE
The results given in this report are related to the tested specimen of the described electrical apparatus.			
CONCLUSION: The submitted sample was found to <u>COMPLY</u> with requirement of FCC Part 15 Subpart C.			
Authorized Signature:			
			
Reviewed by: Keith Yeung		Approved by: Steven Tsang	
Date: October 08, 2012		Date: October 08, 2012	



**TEST REPORT No: (5212)173-1336**

## **Test Result Summary**

<b>EMISSION TEST</b>			
<b>Test requirement: FCC Part 15 - 2011</b>			
Test Condition	Test Method	Test Result	
		Pass	Failed
Radiated Emission Test, 9kHz to 1GHz	ANSI C63.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## **Report Revision & Sample Re-submit History:**

--



## TEST REPORT No: (5212)173-1336

### Location of the test laboratory

Radiated and Conducted emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2009. An Open Area Test Site and Full Anechoic Chamber (FCC Listed Site, Registration No. 642151) are set up for investigation and located at:

#### **BUREAU VERITAS HONG KONG LIMITED, EMC CENTRE**

No. 2106-2107, 21/F., Westin Centre,  
26 Hung To Road,  
Kwun Tong, Kowloon,  
Hong Kong

### List of measuring equipment

#### **Radiated Emission**

EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
EMI TEST RECEIVER	R&S	ESCI	100379	18-OCT-2012
LOOP ANTENNA	ETS-LINDGREN	6502	00102266	13-AUG-2013
BILOG ANTENNA	SCHAFFNER	CBL6112D	25229	12-SEP-2013
OPEN AREA TEST SITE	BVCPS	N/A	N/A	09-JUL-2013
ANECHOIC CHAMBER	ALBATROSS	M-CDC	80374004499B	01-DEC-2012
COAXIAL CABLE	SUHNER	N/A	N/A	10-NOV-2012

#### **Frequency error and Frequency drift, Modulation bandwidth, Frequency stability**

EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
EMI TEST RECEIVER	ROHDE & SCHWARZ	ESCI	100379	18-OCT-2012
CLIMATIC CHAMBER	EMV	TH-22P2S	N/A	18-MAY-2013

#### **Remarks:-**

N/A : Not Applicable or Not Available

The measurement instrumentation uncertainty would be taking into consideration on each of the test result

**TEST REPORT No: (5212)173-1336**

**Equipment Under Test [EUT]**

**Description of Sample:**

Model Name: Harmonique Gramophone  
Model Number: 23672  
Rating: 6Vd.c ("AA" size battery x 4)

**Description of EUT Operation:**

The Equipment Under Test (EUT) is a MR. CHRISTMAS LIMITED of RFID toy. The transceiver with 12 Tags is operating at 13.564MHz. The EUT continues to transmit when knob is turn to ON, Modulation by IC, and type is pulse modulation.

The transceiver has different control:

1. Knob – on/off & volume control

**Antenna Requirement (Section 15.203)**

The EUT is use of a permanently antenna. The antenna consists of 95cm long signal wire (diameter 4cm). It is soldered on the PCB. The antenna is not replaceable or user serviceable. The requirement of S15.203 are met. There are no deviations or exceptions to the specifications.

**Photo of Antenna**



**TEST REPORT No: (5212)173-1336**

## Test Results

### Radiated Emissions (Fundamental)

Test Requirement: FCC Part 15 Section 15.227  
Test Method: ANSI C63.4  
Test Date(s): 2012-09-28  
Temperature: 29.0 °C  
Humidity: 57.0 %  
Atmospheric Pressure: 100.6 kPa  
Mode of Operation: Transmission mode  
Tested Voltage: 6Vd.c. ("AA" size battery x 4)

### Test Procedure:

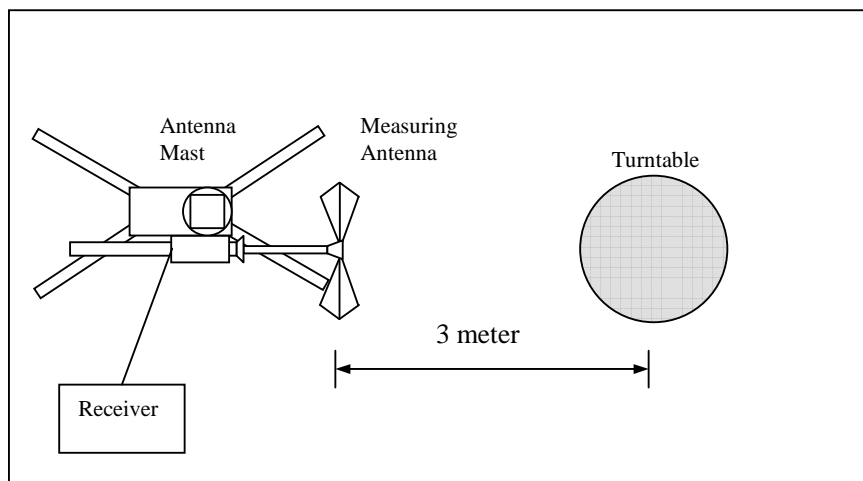
Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2009.

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. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using new battery. 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 place 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 1m above the ground.

Location: The Roof, Westin Centre, 26 Hung To Road, Kwun Tong, Kowloon, Hong Kong

### Test Setup: Open Area Test Site





## TEST REPORT No: (5212)173-1336

### Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.225]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission at 3m
13.553-13.567	124 dB $\mu$ V/m

### Measurement Data

**Test Result of (Transmission mode): PASS**

**Detection mode: Quasi-Peak**

Frequency (MHz)	Polarity (H/V) and degree	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
13.564	V/0°	12.6	48.3	124.0	-75.7

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 100KHz  
VBW = 300KHz



## TEST REPORT No: (5212)173-1336

### Radiated Emissions (9kHz – 1GHz)

Test Requirement: FCC Part 15 Section 15.209  
Test Method: ANSI C63.4  
Test Date(s): 2012-09-28  
Temperature: 29.0 °C  
Humidity: 57.0 %  
Atmospheric Pressure: 100.6 kPa  
Mode of Operation: Transmission mode  
Tested Voltage: 6Vd.c. ("AA" size battery x 4)

#### Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [ $\mu$ V/m]
1.705-30	300
30-88	100
88-216	150
216-960	200
Above960	500





# TEST REPORT No: (5212)173-1336

## Measurement Data

**Test Result of (Transmission mode): PASS**

**Detection mode: Quasi-Peak**

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
40.692	H	11.3	30.2	40.0	-9.8
54.256	H	5.4	29.6	40.0	-10.4
67.820	H	3.6	28.3	40.0	-11.7
81.384	H	6.6	24.5	40.0	-15.5
94.948	H	10.2	23.0	43.5	-20.5
108.512	H	12.3	24.7	43.5	-18.8
122.076	H	12.7	22.6	43.5	-20.9
135.640	H	12.2	28.9	43.5	-14.6
149.204	H	10.3	34.8	43.5	-8.7
162.768	H	9.6	42.2	43.5	-1.3
176.332	H	9.6	40.9	43.5	-2.6
189.896	H	9.6	41.7	43.5	-1.8
203.460	H	10.9	30.7	43.5	-12.8
217.024	H	10.4	37.6	46.0	-8.4
230.588	H	11.4	28.3	46.0	-17.7
244.152	H	12.3	32.5	46.0	-13.5
596.816	H	20.4	41.6	46.0	-4.4

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 120KHz  
VBW = 120KHz





**TEST REPORT No: (5212)173-1336**  
**Measurement Data**

**Test Result of (Transmission mode): PASS**

**Detection mode: Quasi-Peak**

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
27.128	V	9.9	42.0	69.5	-27.5
40.692	V	11.3	33.7	40.0	-6.3
54.256	V	5.4	34.1	40.0	-5.9
67.820	V	3.6	33.8	40.0	-6.2
81.384	V	6.6	28.1	40.0	-11.9
94.948	V	10.2	27.5	43.5	-16.0
108.512	V	12.3	25.2	43.5	-18.3
122.076	V	12.7	25.7	43.5	-17.8
135.640	V	12.2	22.1	43.5	-21.4
149.204	V	10.3	24.7	43.5	-18.8
162.768	V	9.6	36.5	43.5	-7.0
176.332	V	9.6	31.3	43.5	-12.2
189.896	V	9.6	35.6	43.5	-7.9
203.460	V	10.9	28.4	43.5	-15.1
217.024	V	10.4	33.6	46.0	-12.4
230.588	V	11.4	32.8	46.0	-13.2
244.152	V	12.3	33.9	46.0	-12.1
596.816	V	20.4	30.2	46.0	-15.8

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 120KHz  
 VBW = 120KHz



## TEST REPORT No: (5212)173-1336

### 26dB Bandwidth of Fundamental Emission

Test Requirement: FCC 47 CFR 15.225  
Test Method: ANSI C63.4  
Test Date(s): 2012-05-07  
Temperature: 23.0 °C  
Humidity: 56.0 %  
Atmospheric Pressure: 101.3 kPa  
Mode of Operation: Transmission mode  
Tested Voltage: 6Vd.c. ("AA" size battery x 4)

#### Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

#### Limits for 26dB Bandwidth of Fundamental Emission:

Frequency [MHz]	26dB Bandwidth [KHz]	Limits [MHz]
13.564	35.000	within 13.553 – 13.567

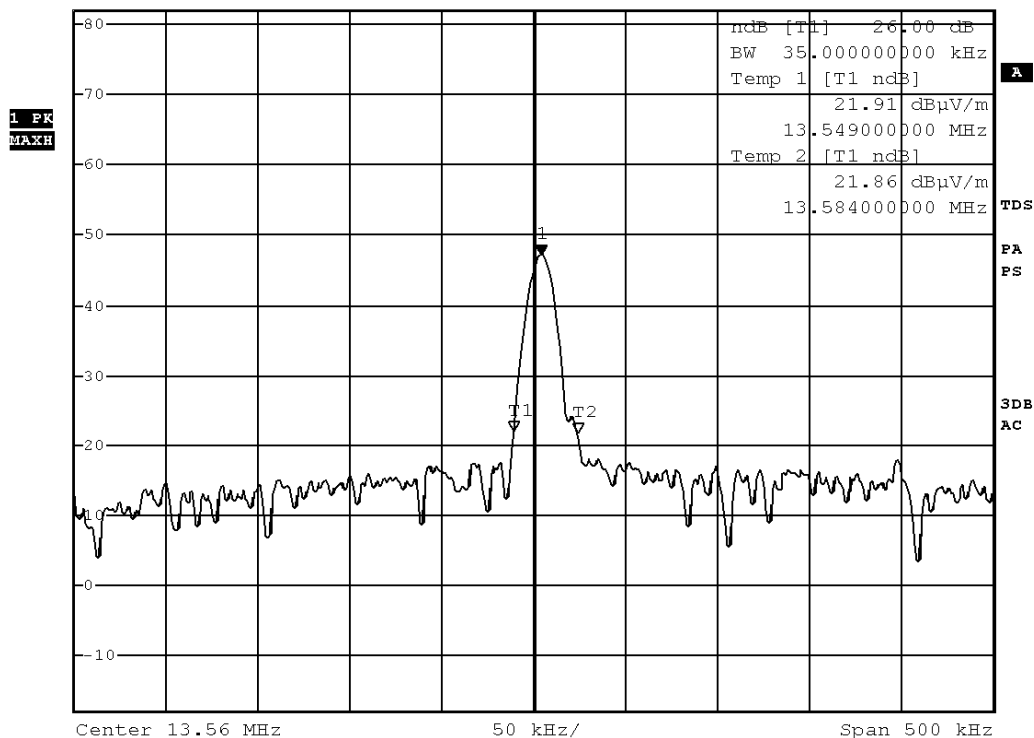
**TEST REPORT No: (5212)173-1336**

**Measurement Data :**

**Test Result of 26dB Bandwidth of Fundamental Emission: PASS**



RBW 10 kHz Marker 1 [T1 ]  
VBW 30 kHz 47.29 dBμV/m  
Ref 82 dBμV/m \*Att 10 dB SWT 5 ms 13.564000000 MHz



Date: 7.MAY.2012 16:16:56



## TEST REPORT No: (5212)173-1336

### Frequency Drift

Test Requirement: FCC Part 15 Section 15.225  
Test Method: ANSI C63.4  
Test Date(s): 2012-05-07  
Temperature: 23.0 °C  
Humidity: 56.0 %  
Atmospheric Pressure: 101.3 kPa  
Mode of Operation: Transmission mode  
Tested Voltage: 6Vd.c. ("AA" size battery x 4)

### Test Setup:

The EUT was placed at a site with temperature control and supplied with power for extreme voltage testing. Antenna with suitable frequency range was used during the test.

The test was performed in accordance with ANSI C63.4.

Location: Anechoic Chamber, No. 2106-2107, 21/F., Westin Centre, 26 Hung To Road, Kwun Tong, Kowloon, Hong Kong

### Limit for Frequency Tolerance:

Maintained within +/- 0.01% of the operating frequency

### Test Result of (Transmission mode): PASS

Test Condition		Nominal Transmit Frequency: 13.564MHz				
		Time				
		Start up	Two minutes after	Five minutes after	Ten minutes after	Frequency tolerance (%)
T <sub>nom</sub> : 20°C	V <sub>nom</sub> : 6.00V	13.56400	13.56400	13.56400	13.56400	N/A
T <sub>min</sub> : -20°C	V <sub>nom</sub> : 6.00V	13.56400	13.56400	13.56400	13.56400	0.00000
T <sub>max</sub> : 50°C	V <sub>nom</sub> : 6.00V	13.56400	13.56400	13.56400	13.56400	0.00000

### Remarks:-

N/A: Not Applicable or Not Available

## TEST REPORT No: (5212)173-1336

### Photographs of EUT

**Front View of the product**



**Rear View of the product**



**Top View of the product**



**Bottom View of the product**



**Side View of the product**



**Side View of the product**



**Battery compartment**



**Battery Cover**





**TEST REPORT No: (5212)173-1336**

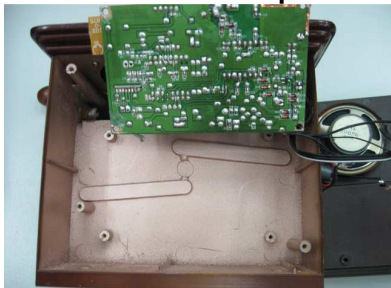
**Internal View of the product**



**Internal View of the product**



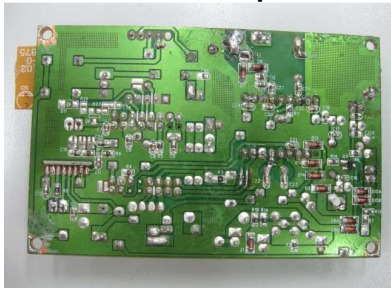
**Internal View of the product**



**Inner Circuit Bottom View**



**Inner Circuit Top View**



**Antenna**



**TEST REPORT No: (5212)173-1336**

**Measurement of Radiated Emission Test Set Up**



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