| | | |
|---|---|---|
| **Prüfbericht - Nr.:**<br>*Test Report No.* | **14013953 001** | **Seite 1 von 11**<br>*Page 1 of 11* |
| **Auftraggeber:**<br>*Client:* | **Classic Tech Development Ltd.**<br>**12/F., Yu Xiu Industrial Building,**<br>**87 Hung To Road,**<br>**Kwun Tong, Kowloon**<br>**Hong Kong** | |
| **Gegenstand der Prüfung:**<br>*Test item* | **900MHz Wireless Headphone System - Transmitter** | |
| **Bezeichnung:**<br>*Identification* | **HP3391** | **Serien-Nr.:**<br>*Serial No.* **Engineering sample** |
| **Wareneingangs-Nr.:**<br>*Receipt No.* | **060801015** | **Eingangsdatum:**<br>*Date of receipt* **01.08.2006** |
| **Prüfort:**<br>*Testing location:* | **TÜV Rheinland Hong Kong Ltd.**<br>Unit 8, 25th Floor, Skyline Tower, 39 Wang Kwong Road, Kowloon Bay<br>Kowloon, Hong Kong<br><br>**Hong Kong Productivity Council**<br>HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong | |
| **Prüfgrundlage:**<br>*Test specification* | **FCC Part 15, Subpart C** | |
| **Prüfergebnis:**<br>*Test Result:* | **Der vorstehend beschriebene Prüfgegenstand wurde geprüft und entspricht oben genannter Prüfgrundlage.**<br>*The a. m. test item passed the test specification.* | |
| **Prüflaboratorium:**<br>*Testing Laboratory:* | **TÜV Rheinland Hong Kong Ltd.**<br>Unit 8, 25th Floor, Skyline Tower, 39 Wang Kwong Road, Kowloon Bay,<br>Kowloon, Hong Kong. | |

| **geprüft** / *tested by:* | | | **kontrolliert** / *checked by:* | | |
|---|---|---|---|---|---|
| 08.08.2006 | Derek Leung<br>Project Manager | | 08.08.2006 | Thomas Berns<br>Manager | |
| **Datum**<br>*Date* | **Name**<br>*Name* | **Unterschrift**<br>*Signature* | **Datum**<br>*Date* | **Name**<br>*Name* | **Unterschrift**<br>*Signature* |

| | |
|---|---|
| **Sonstiges:**<br>*Other Aspects* | **FCC ID: REDHP3390-001T** |

| Abkürzungen: | | | Abbreviations: | | |
|---|---|---|---|---|---|
| | **OK, Pass, P** | **= entspricht Prüfgrundlage** | | **OK, Pass, P** | **= passed** |
| | **Fail, F** | **= entspricht nicht Prüfgrundlage** | | **Fail, F** | **= failed** |
| | **N/A** | **= nicht anwendbar** | | **N/A** | **= not applicable** |
| | **N/T** | **= nicht getestet** | | **N/T** | **= not tested** |

# Test Summary

## Radiated Emission of Carrier Frequency

*Result: Pass*

## Spurious Radiated Emissions

*Result: Pass*

## Conducted Emission

*Result: Pass*

# Contents

## List of Test and Measurement Instruments

| Kind of Equipment | Manufacturer | Type | S/N |
|---|---|---|---|
| Test Receiver | Rohde & Schwarz | ESVS30 | 842807/009 |
| Biconical Antenna | Rohde & Schwarz | HK116 | 841489/015 |
| Log.-Periodic Antenna | Rohde & Schwarz | HL223 | 841516/017 |
| Double Ridge Horn Antenna | EMCO | 3115 | 9002-3347 |
| Active Loop Antenna | EMCO | 6502 | 9107-2651 |
| Spectrum Analyzer | Rohde & Schwarz | FSP30 | 1093.4495K30 |
| LISN | Rohde & Schwarz | ESH 3-Z5 | 849876/026 |

# General Product Information

## Product Function and Intended Use

The EUT is a transmitter of a 900MHz Wireless Headphone system.

The operating frequencies of the transmitter are 912.00MHz, 912.50MHz and 913.00MHz. The user can select the frequency manually by a switch on the transmitter.

There is a “scan” button on the associated receiver for detecting and then receiving the signal from the transmitter.

The transmit frequency of channel 2: 912.50MHz has been chosen for the testing in this report.

## Ratings and System Details

| | | |
|---|---|---|
| FCCID | : | REDHP3390-001T |
| Brand Name | : | Arkon |
| Nominal Frequencies | : | Channel 1: 912.00MHz<br>Channel 2: 912.50MHz<br>Channel 3: 913.00MHz |
| Number of channel | : | 3 |
| Modulation scheme | : | Frequency Modulation |
| Type of antenna | : | Internal integral antenna |
| Power supply | : | AC/DC adapter :<br>Model No.33-17-C1202-xx<br>Input:120V,60Hz, 4w<br>Output: 12VDC, 200mA |
| Port | : | (i) Audio 1<br>(ii) Audio 2<br>(iii) DC power input port |

## Independent Operation Modes

The basic operation mode :

-transmits audio signal to the associated receiver model: HP3392.

For further information refer to User Manual

## Submitted Documents

- Block diagram
- User manual
- Bill of material
- Schematic circuit diagram

# Test Set-up and Operation Mode

## Principle of Configuration Selection

**Emission:** The test was performed under normal operating mode to obtain the maximum emission.

## Test Operation and Test Software

Test operation should refer to test methodology.

- There was no special software to exercise the device.

## Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

- none

## Countermeasures to achieve EMC Compliance

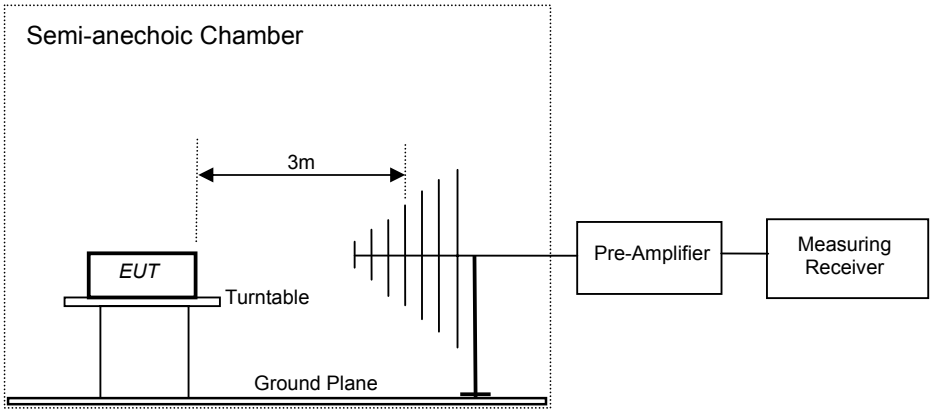
- none

# Test Methodology

## Radiated Emission

The radiated emission measurements were performed according to the procedures in ANSI C63.4-2003. The equipment under test (EUT) was placed at the middle of the 80 cm height turntable, and the turntable is 3 meters far from the measuring antenna. The EUT was tested in three orthogonal planes and the turntable was rotated 360° for obtaining the maximum emission. The antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained.

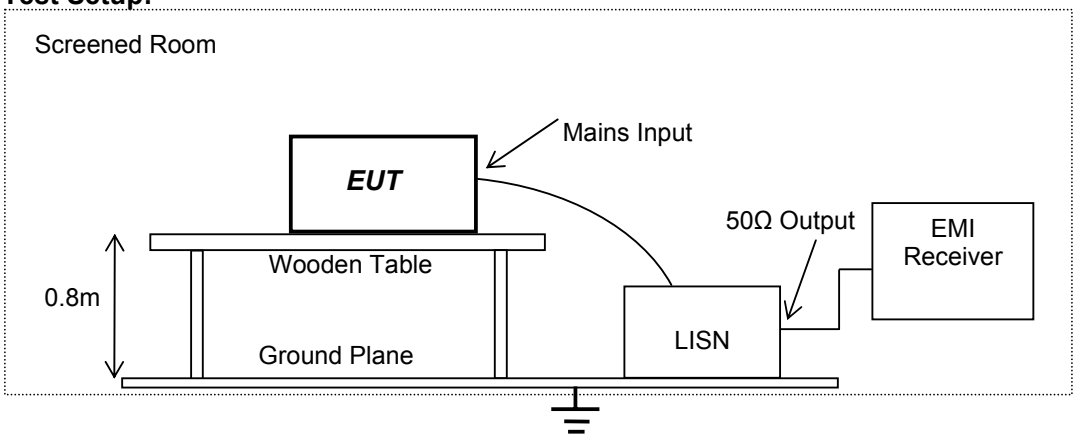
**Test Setup:**




## Conducted Emission

The conducted emission measurements were performed according to the procedures in ANSI C63.4-2003. Initial measurements were performed in peak and average detection modes on the live line. Any emission(s) recorded within 30dB below the relevant limit lines were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

**Test Setup:**



# Test Results

## Radiated Emission of Carrier Frequency — Section 15.249

**RESULT:** **Pass**

| | | |
|---|---|---|
| Test Specification | : | FCC Part 15 Section 15.249 |
| Test Method | : | ANSI C63.4-2003 |
| Measurement Location | : | Semi Anechoic Chamber |
| Measurement Bandwidth | : | 100kHz |
| Detector | : | Peak |
| Supply Voltage | : | 110Volt a.c. |
| Fundamental Frequency | : | 912.50MHz |
| Measuring Distance | : | 3m |

| Fundamental Signal (MHz) | Antenna Polarization | Limit (dBµV/m) | Field Strength (dBµV/m) | Margin (dB) |
|---|---|---|---|---|
| 912.50 | Horizontal | 93.98 | 90.3 | -3.68 |
| 912.50 | Vertical | 93.98 | 90.5 | -3.48 |

**Limit for Radiated Emission under Section 15.249:**

| Frequency (MHz) | Field strength of Fundamental (mV/m) at 3m | Field strength of Fundamental (dBµV/m) at 3m |
|---|---|---|
| 902-928 | 50 | 93.98 |

Remark:
Peak detection was used instead of QP detection for the measurements. Peak values should be higher or equal to QP values.

## Spurious Radiated Emissions — Section 15.249

**RESULT:** **Pass**

| | | |
|---|---|---|
| Test Specification | : | FCC Part 15 Section 15.249 |
| Test Method | : | ANSI C63.4-2003 |
| Measurement Location | : | Semi Anechoic Chamber |
| Detector Function | : | Peak |
| Supply Voltage | : | 110Volt a.c. |
| Measuring Frequency Range | : | 9kHz – 10GHz (Internal lowest oscillator frequency of the EUT: 38kHz) |
| Measuring Distance | : | 3m |
| EUT transmit frequency | : | 912.5MHz |
| Limit: | | For frequency above 1000MHz, the field strength 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 20dB under any condition of modulation. |

| Spurious Emission (MHz) | Antenna Polarization | Field Strength (dBµV/m) | Limit (dBµV/m) | Margin (dB) |
|---|---|---|---|---|
| 1825.00 | Vertical | 34.91 | 54 | -19.09 |
| 1825.00 | Horizontal | 30.57 | 54 | -23.43 |

All other emissions, except for harmonics, were found at least 50dB below the level of the fundamental signal or to the general radiated emission limits in section 15.209, whichever is the lesser attenuation.

**Limit for Radiated Emission under Section 15.249:**

| Frequency (MHz) | Field strength of Harmonics at 3m (µV/m) | Field strength of Harmonics at 3m (dBµV/m) |
|---|---|---|
| 902-928 | 500 | 54 |

**Limit for Radiated Emission of Section 15.209:**

| Frequency (MHz) | Field strength (µV) at 3m range | Measurement Distance (meters) |
|---|---|---|
| 0.009-0.490 | 2400/F(kHz) | 300 |
| 0.490-1.705 | 24000/F(kHz) | 30 |
| 1.705-30 | 30 | 30 |
| 30-88 | 100 | 3 |
| 88-216 | 150 | 3 |
| 216-960 | 200 | 3 |
| Above 960 | 500 | 3 |

Remark:

Peak detection was used instead of average detection for the measurements. Peak detection values should be higher or equal to average values.

## Conducted Emissions — Section 15.207

**RESULT:** **Pass**

Test Specification : FCC Part 15 Section 15.207
Test Method : ANSI C63.4-2003
Measurement Location : Semi Anechoic Chamber
Detector Function : QP and average
Supply Voltage : 110Volt a.c.
Measuring Frequency Range : 0.15MHz – 30MHz
Mode of operation : Transmitting

| Conductor | Frequency (MHz) | Quasi Peak Value (dBµV) | Average Value (dBµV) |
|---|---|---|---|
| L | * | * | * |
| N | * | * | * |

***All emissions are at least 30dB below the limits**

**Limit for conducted emission test under Section 15.207:**

| Frequency Range (MHz) | dBµV | |
|---|---|---|
| | QP | Average |
| 0.15 – 0.5 | *66 to 56 | *56 to 46 |
| 0.50 – 5.0 | 56 | 46 |
| 5.0 – 30 | 60 | 50 |
| Remark: The lower limit shall apply at the transition frequencies. *The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz. | | |