

Prüfbericht - Nr.: <i>Test Report No.</i>		14013953 001		Seite 1 von 11 <i>Page 1 of 11</i>	
Auftraggeber: <i>Client:</i>		Classic Tech Development Ltd. 12/F., Yu Xiu Industrial Building, 87 Hung To Road, Kwun Tong, Kowloon Hong Kong			
Gegenstand der Prüfung: <i>Test item</i>		900MHz Wireless Headphone System - Transmitter			
Bezeichnung: <i>Identification</i>		HP3391		Serien-Nr.: <i>Serial No.</i>	
				Engineering sample	
Wareneingangs-Nr.: <i>Receipt No.</i>		060801015		Eingangsdatum: <i>Date of receipt</i>	
				01.08.2006	
Prüfört: <i>Testing location:</i>		TÜV Rheinland Hong Kong Ltd. Unit 8, 25 th Floor, Skyline Tower, 39 Wang Kwong Road, Kowloon Bay Kowloon, Hong Kong Hong Kong Productivity Council HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong			
Prüfgrundlage: <i>Test specification</i>		FCC Part 15, Subpart C			
Prüfergebnis: <i>Test Result:</i>		Der vorstehend beschriebene Prüfgegenstand wurde geprüft und entspricht oben genannter Prüfgrundlage. <i>The a. m. test item passed the test specification.</i>			
Prüflaboratorium: <i>Testing Laboratory:</i>		TÜV Rheinland Hong Kong Ltd. Unit 8, 25 th Floor, Skyline Tower, 39 Wang Kwong Road, Kowloon Bay, Kowloon, Hong Kong.			
geprüft / tested by:			kontrolliert / checked by:		
08.08.2006	Derek Leung Project Manager		08.08.2006	Thomas Berns Manager	
Datum <i>Date</i>	Name <i>Name</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name <i>Name</i>	Unterschrift <i>Signature</i>
Sonstiges: <i>Other Aspects</i>		FCC ID: REDHP3390-001T			
Abkürzungen:	OK, Pass, P = entspricht Prüfgrundlage Fail, F = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet	Abbreviations:	OK, Pass, P = passed Fail, F = failed N/A = not applicable N/T = not tested		
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicate in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>					

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.....	4
General Product Information	5
Product Function and Intended Use.....	5
Ratings and System Details	5
Independent Operation Modes.....	6
Submitted Documents	6
Test Set-up and Operation Mode.....	7
Principle of Configuration Selection	7
Test Operation and Test Software.....	7
Special Accessories and Auxiliary Equipment	7
Countermeasures to achieve EMC Compliance.....	7
Test Methodology	8
Radiated Emission	8
Conducted Emission.....	8
Test Results	9
Radiated Emission of Carrier Frequency Section 15.249	9
Spurious Radiated Emissions Section 15.249	10
Conducted Emissions Section 15.207	11
 Appendix 1: Test Setup	
 Appendix 2: EUT External Photo	
 Appendix 3: EUT Internal Photo	
 Appendix 4: FCCID Label and Label Location	
 Appendix 5: Block Diagram & Operating Description	
 Appendix 6: Specification of EUT	
 Appendix 7: User manual	
 Appendix 8: Schematic Diagram	
 Appendix 9: Bill of Material	

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 Channel 2: 912.50MHz Channel 3: 913.00MHz
Number of channel	:	3
Modulation scheme	:	Frequency Modulation
Type of antenna	:	Internal integral antenna
Power supply	:	AC/DC adapter : Model No.33-17-C1202-xx Input:120V,60Hz, 4w Output: 12VDC, 200mA
Port	:	(i) Audio 1 (ii) Audio 2 (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

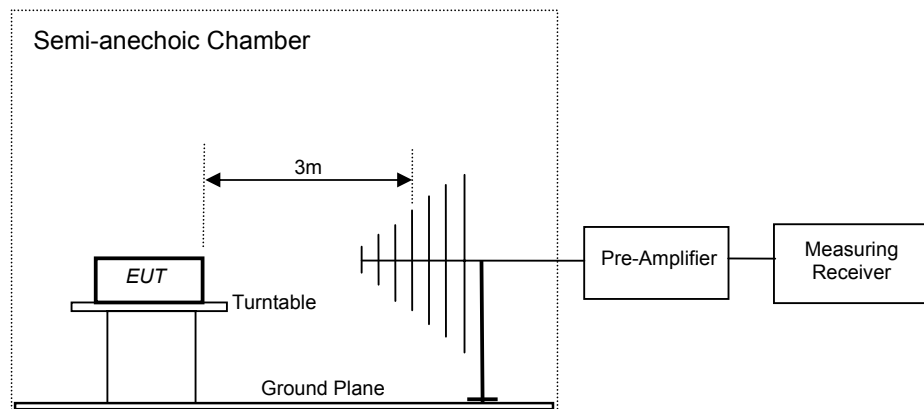
- none

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.

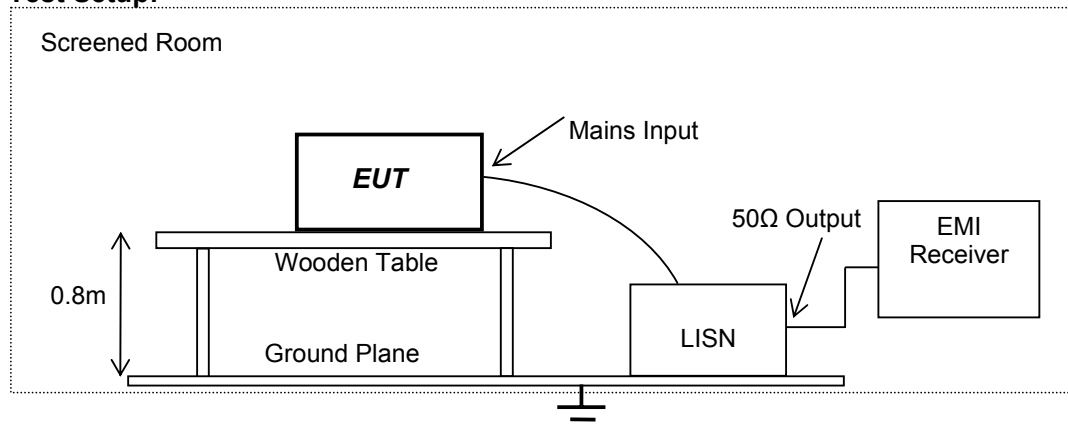
Test Setup:



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 (dB μ V/m)	Field Strength (dB μ V/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 (dB μ V/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 (dB μ V/m)	Limit (dB μ V/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 (μ V/m)	Field strength of Harmonics at 3m (dB μ V/m)
902-928	500	54

Limit for Radiated Emission of Section 15.209:

Frequency (MHz)	Field strength (μ V) 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.		