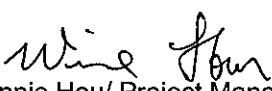


Prüfbericht - Nr.: 17021173 001			Seite 1 von 16		
<i>Test Report No.:</i>			<i>Page 1 of 16</i>		
Auftraggeber: <i>Client:</i>		Uni-Art Precise Products Ltd. 11-12/F. Yue Xiu Industrial Building, 87 Hung To Road, Kwun Tong, Kowloon, Hong Kong			
Gegenstand der Prüfung: Receiver of Wireless Headphone <i>Test item:</i>					
Bezeichnung: <i>Identification:</i>		HP1392A (ARKON)		Serien-Nr.: n.a. <i>Serial No.:</i>	
		WHP141 (Receiver) (RCA)			
Wareneingangs-Nr.: <i>Receipt No.:</i>		163078118		Eingangsdatum: 2011-05-17 <i>Date of receipt:</i>	
Prüfort: <i>Testing location:</i>		TÜV Rheinland (Guangdong) Ltd. EMC Laboratory Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou, P.R. China FCC Registration No.: 833845 Test site Industry Canada No.: 2932C-1			
Prüfgrundlage: <i>Test specification:</i>		FCC CFR47 Part 15: Subpart B Section 15.107 FCC CFR47 Part 15: Subpart B Section 15.109 RSS-210 Issue 8 June 2010 RSS-Gen Issue 3 December 2010			
Prüfergebnis: <i>Test Result:</i>		Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n). <i>The test item passed the test specification(s).</i>			
Prüflaboratorium: <i>Testing Laboratory:</i>		TÜV Rheinland (Shenzhen) Co., Ltd.			
geprüft/ tested by:		kontrolliert/ reviewed by:			
 2011-08-07 Winnie Hou/ Project Manager		 2011-08-16 Shawn Peng/ Technical Certifier			
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>
Sonstiges/ Other Aspects:					
Abkürzungen: P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet			Abbreviations: P(ass) = passed F(ail) = 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 a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>					

Prüfbericht - Nr.: 17021173 001
Test Report No.

Seite 2 von 16
Page 2 of 16

TEST SUMMARY

5.1.1 CONDUCTED EMISSION

RESULT: Passed

5.1.2 RADIATED EMISSION

RESULT: Passed

Contents

1.	GENERAL REMARKS	4
1.1	COMPLEMENTARY MATERIALS	4
2.	TEST SITES	4
2.1	TEST FACILITIES	4
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS.....	5
2.3	TRACEABILITY	5
2.4	CALIBRATION	6
2.5	MEASUREMENT UNCERTAINTY.....	6
2.6	LOCATION OF ORIGINAL DATA.....	6
2.7	STATUS OF FACILITY USED FOR TESTING.....	6
3.	GENERAL PRODUCT INFORMATION	7
3.1	PRODUCT FUNCTION AND INTENDED USE.....	7
3.2	RATINGS AND SYSTEM DETAILS	7
3.3	INDEPENDENT OPERATION MODES	8
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS	8
3.5	SUBMITTED DOCUMENTS	8
4.	TEST SET-UP AND OPERATION MODES	9
4.1	PRINCIPLE OF CONFIGURATION SELECTION.....	9
4.2	TEST OPERATION AND TEST SOFTWARE	9
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	9
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE.....	9
4.5	TEST SETUP DIAGRAM	10
5.	TEST RESULTS	12
5.1	RECEIVER REQUIREMENT & TEST SUITES	12
5.1.1	<i>Conducted Emission</i>	<i>12</i>
5.1.2	<i>Radiated emission.....</i>	<i>13</i>
6.	PHOTOGRAPHS OF THE TEST SET-UP	14
7.	LIST OF TABLES	16
8.	LIST OF PHOTOGRAPHS	16

1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:
Appendix 1: Test Result

2. Test Sites

2.1 Test Facilities

TÜV Rheinland (Guangdong) Ltd.
EMC Laboratory

Guangzhou Auto Market,
Yuan Gang Section of Guangshan Road,
Guangzhou, P.R. China

FCC Registration No.: 833845

Test site Industry Canada No.: 2932C-1

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
Spurious emission and Radiated emission				
EMI Test Receiver	Rohde & Schwarz	ESCI-3	100216	2012-03-16
Spectrum Analyzer	Rohde & Schwarz	FSP30	100286	2012-03-16
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100111	2012-03-16
Trilog-Broadband Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	209	2011-08-21
Double-Ridged Waveguide Horn Antenna	Rohde & Schwarz	HF906	100385	2011-08-24
Pre-amplifier	MITEQ	AFS42-00101800-25-S-42	1101599	2011-07-31
Standard Gain Horn Antenna	EMCO	3160-09	21642	2014-06-26
Pre-amplifier	MITEQ	AFS33-18002650-30-8P-44	1108282	2012-03-16
3m Anechoic Chamber	Albatross Project GmbH	N/A	N/A	2012-04-16
Conducted Emission				
EMI Test Receiver	Rohde & Schwarz	ESCS30	100316	2012-03-16
Pulse Limiter	Rohde & Schwarz	11947A	100701	2012-03-16
Artificial Mains Network	Rohde & Schwarz	ESH2-Z5	100114	2012-03-16

2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO/IEC 17025 are:

Table 2: Measurement Uncertainty

Items		Extended Uncertainty
CE	Disturbance Voltage (dBuV)	$U=\pm 2.56\text{dB}$, $k=2$, $\sigma=95\%$
RE (9kHz – 30MHz)	Field Strength (dBuA)	$U=\pm 4.46\text{dB}$, $k=2$, $\sigma=95\%$
RE (30-1000MHz)	Field strength (dBuV/m)	$U=\pm 4.94\text{dB}$, $k=2$, $\sigma=95\%$

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached in this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Guangdong) Ltd. test facility located at Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3. General Product Information

3.1 Product Function and Intended Use

The EUT is 900MHz receiver for a wireless headphone system with 3 channels available. Channel can be selected with a manual switch. The EUT also has the function of volume control.

HP1392A is the headphone receiver of the Wireless Headphone system HP1390.

The transmitter part of system HP1390 is HP1391, charge cable for HP1392 is provided from HP1391.

HP1390 also has another type designation: WHP141 with brand name: "RCA".

They are identical except the name only.

For details refer to the User Manual, technical description and Circuit Diagram.

3.2 Ratings and System Details

Table 3: Rating of EUT

Kind of Equipment	Receiver of Wireless Headphone
Type Designation	HP1392A (ARKON) Receiver of WHP141 (RCA)
FCC ID	MVAWHP141-002R
IC ID	2579A-HP1390

Table 4: Technical Specification of EUT

Technical Specification	Value
Operating Frequency	912-913 MHz
Channel separation	500kHz
Extreme Temperature Range	-10°C to 55°C
Operation Voltage	DC 2.4V via 2 AAA rechargeable batteries
Modulation	FM
Antenna Type	Internal Antenna, Non-User Replaceable
Antenna Gain	0dBi
Number of channels	3
Channel frequency (MHz)	912MHz, 912.5MHz, 913MHz

3.3 Independent Operation Modes

The basic operation modes are:

- A. Receiving
- B. Charging
- C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Bill of Material
- PCB Layout
- Photo Document
- Technical Description
- Circuit Diagram
- Instruction Manual
- Rating Label

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.4: 2003.

4.3 Special Accessories and Auxiliary Equipment

The EUT was tested with following accessories

Description	Manufacturer	Type
Transmitter of wireless headphone	Uni-Art Precise Products Ltd.	HP1391
AC/DC Adapter for transmitter	Uni-Art Precise Products Ltd.	UD-1201B

4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test

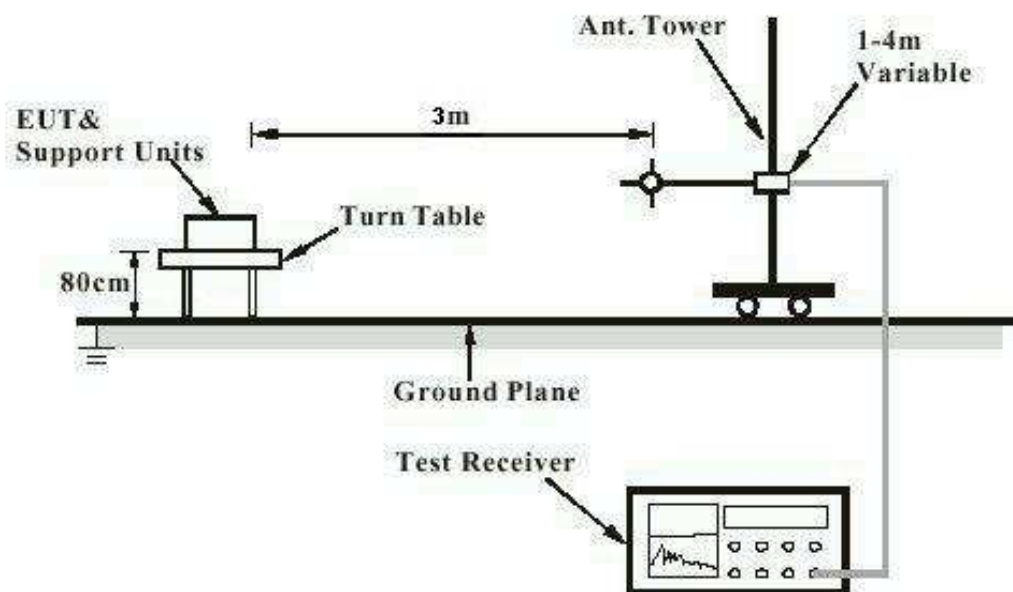


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement

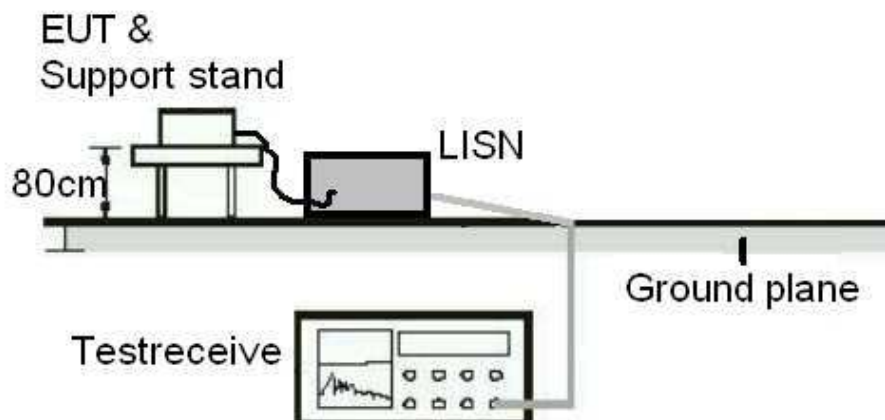
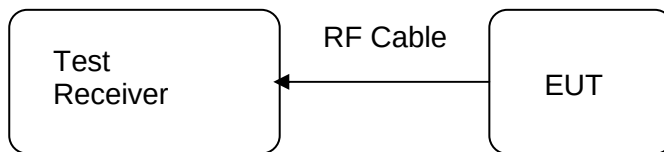


Diagram of Measurement Equipment Configuration for Conducted Transmitter Measurement



5. Test Results

5.1 Receiver Requirement & Test Suites

5.1.1 Conducted Emission

RESULT:**Passed**

Date of testing	:	2011-06-24
Test specification	:	FCC Part 15.107(a) RSS-Gen Clause 7.2.4
Frequency range	:	0.15 – 30MHz
Classification	:	Class B
Limit	:	FCC Part 15.107(a) RSS-Gen table 4
Kind of test site	:	Shielded room

Test setup

Input Voltage (to AC input of Adapter)	:	AC 120V, 60Hz
Operation mode	:	B
Artificial hand	:	Not applied
Earthing	:	Not connected

Test data refer to Appendix 1.

5.1.2 Radiated emission

RESULT:**Passed**

Date of testing	:	2011-06-23
Test standard	:	FCC part 15.109(a) Clause 5.1 of RSS-215
Basic standard	:	ANSI C63.4: 2003
Limits	:	Refer to FCC part 15.109(a) Refer to RSS-Gen Table 5
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Operation mode	:	A
Ambient temperature	:	23°C
Relative humidity	:	50%
Atmospheric pressure	:	101 kPa

For details refer to Appendix 1.

Remark: Testing was carried out within frequency range 9kHz to the tenth harmonics.

6. Photographs of the Test Set-Up

Photograph 1: Set-up for Radiated Emissions (9kHz - 30MHz), receiver



Photograph 2: Set-up for Radiated Emissions (30MHz-1GHz), receiver



Photograph 3: Set-up for Radiated Emissions (1GHz-10GHz), receiver



Photograph 4: Set-up for Conducted Emissions



7. List of Tables

Table 1: List of Test and Measurement Equipment	5
Table 2: Measurement Uncertainty	6
Table 3: Rating of EUT	7
Table 4: Technical Specification of EUT	8

8. List of Photographs

Photograph 1: Set-up for Radiated Emissions (9kHz - 30MHz), receiver	14
Photograph 2: Set-up for Radiated Emissions (30MHz-1GHz), receiver	14
Photograph 3: Set-up for Radiated Emissions (1GHz-10GHz), receiver	15
Photograph 4: Set-up for Conducted Emissions	15

Figure 1: Test Plot of Spurious emission of A – Horizontal (30MHz – 1GHz)

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

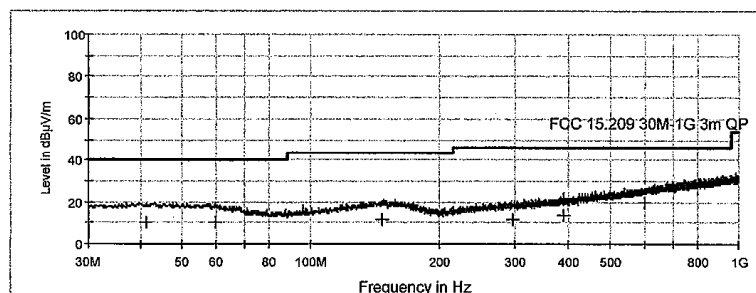
EMC Test Record (Emission)

Common Information

Manufacturer: Uni-art
Test Item: Wireless headphone
Identification: HP1392A
Test Standard: FCC Part 15.109
Test Detail: RE
Operation Mode: Receiving
Climate Condition: 23 °C; 50 %RH; 101 kPa.
Test Voltage/ Freq: DC3V
Receipt No: 163078118 200
Report No: 17021173 001
Result: Pass
Comment: Test distance is 3m, Horizontal

Subrange 1
Frequency Range: 30M-1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168

FCC 15.209 30M-1G sweep



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBuV/m)	Corr. (dB)	Margin QPK (dB)	Limit QPK (dBuV/m)	Polarization
41.300000	10.5	15.0	29.5	40.0	H
59.950000	9.9	14.0	30.1	40.0	H
59.950000	9.9	14.0	30.1	40.0	H
146.400000	11.9	15.8	31.6	43.5	H
298.100000	11.4	15.4	34.6	46.0	H
391.350000	13.8	17.7	32.2	46.0	H
602.200000	19.4	22.2	26.6	46.0	H

Sign-off Test Data

Date: 6/23/2011 - Time: 6:52:31

Tested by:  2011.6.23

Reviewed by:  2011.6.27

Figure 2: Test Plot of Spurious emission of A – Vertical (30MHz – 1GHz)

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

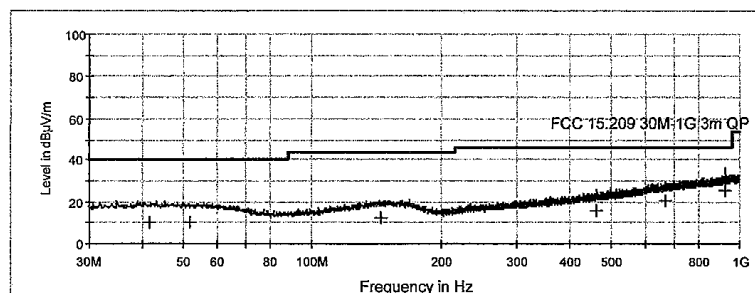
EMC Test Record (Emission)

Common Information

Manufacturer: Uni-art
Test Item: Wireless headphone
Identification: HP1392A
Test Standard: FCC Part 15.109
Test Detail: RE
Operation Mode: Receiving
Climate Condition: 23 °C; 50 %RH; 101 kPa.
Test Voltage/ Freq: DC3V
Receipt No: 163078118 200
Report No: 17021173 001
Result: Pass
Comment: Test distance is 3m, Vertical

Subrange 1
Frequency Range: 30M-1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168

FCC 15.209 30M-1G sweep



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBuV/m)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)	Polarization
41.400000	10.5	15.0	29.5	40.0	V
51.700000	10.2	14.5	29.8	40.0	V
144.700000	12.0	15.6	31.5	43.5	V
461.750000	15.7	19.6	30.3	46.0	V
667.300000	20.7	23.5	25.3	46.0	V
923.750000	25.1	27.1	20.9	46.0	V

Sign-off Test Data

Date: 6/23/2011 - Time: 6:58:25

Tested by:  2011.6.23
Reviewed by:  2011.6.27

Figure 3: Test Plot of Spurious emission of A – Horizontal (1GHz – 10GHz)

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

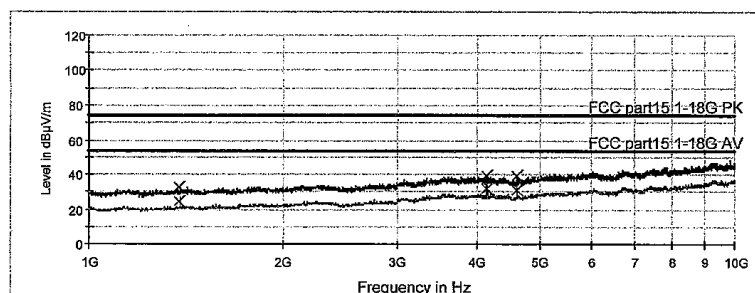
EMC Test Record (Emission)

Common Information

Manufacturer: Uni-art
Test Item: Wireless headphone
Identification: HP1392A
Test Standard: FCC Part 15.109
Test Detail: RE
Operation Mode: Receiving
Climate Condition: 23 °C; 50 %RH; 101 kPa.
Test Voltage/ Freq: DC3V
Receipt No: 163078118 200
Report No: 17021173 001
Result: Pass
Comment: Test distance is 3m, Horizontal

Subrange 1
Frequency Range: 1GHz-18GHz
Receiver: TUV FSP30
Transducer: TUV SAC HF906/ TUV FSP30-TUV SAC HF906

Pre TUV 1 to 18G HF906



Limit and Margin PK

Frequency (MHz)	MaxPeak (dBµV/m)	Corr (dB)	Margin-PK+ (dB)	Limit-PK+ (dBµV/m)	Polarization
1375.000000	33.1	-13.5	40.9	74.0	H
4152.000000	39.5	-4.3	34.5	74.0	H
4614.000000	39.1	-3.5	34.9	74.0	H

Limit and Margin AV

Frequency (MHz)	Average (dBµV/m)	Corr (dB)	Margin-AVG (dB)	Limit-AVG (dBµV/m)	Polarization
1375.000000	24.1	-13.5	29.9	54.0	H
4152.000000	32.1	-4.3	21.9	54.0	H
4614.000000	31.1	-3.5	22.9	54.0	H

Sign-off Test Data

Date: 6/23/2011 - Time: 8:36:50

Tested by:  Reviewed by: 

Figure 4: Test Plot of Spurious emission of A – Vertical (1GHz – 10GHz)

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

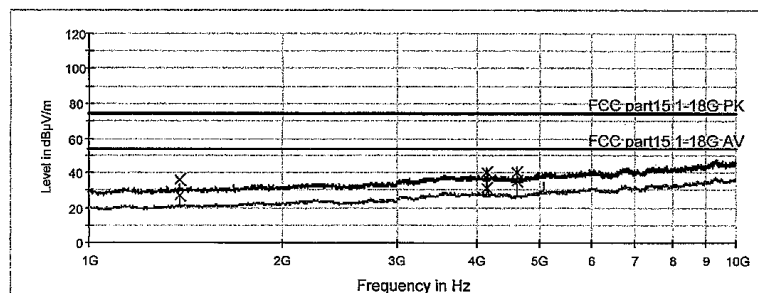
EMC Test Record (Emission)

Common Information

Manufacturer: Uni-art
Test Item: Wireless headphone
Identification: HP1392A
Test Standard: FCC Part 15.109
Test Detail: RE
Operation Mode: Receiving
Climate Condition: 23 °C; 50 %RH; 101 kPa.
Test Voltage/ Freq: DC3V
Receipt No: 163078118 200
Report No: 17021173 001
Result: Pass
Comment: Test distance is 3m, Vertical

Subrange 1
Frequency Range: 1GHz-18GHz
Receiver: TUV FSP30
Transducer: TUV SAC HF906/ TUV FSP30-TUV SAC HF906

Pre TUV 1 to 18G HF906



Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Corr (dB)	Margin-PK+ (dB)	Limit-PK+ (dBuV/m)	Polarization
1384.000000	35.6	-13.4	38.4	74.0	V
4152.000000	40.1	-4.3	33.9	74.0	V
4614.000000	39.6	-3.5	34.4	74.0	V

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Corr (dB)	Margin-AVG (dB)	Limit-AVG (dBuV/m)	Polarization
1384.000000	27.3	-13.4	26.7	54.0	V
4152.000000	31.4	-4.3	22.6	54.0	V
4614.000000	34.8	-3.5	19.2	54.0	V

Sign-off Test Data

Date: 6/23/2011 - Time: 8:44:00

Tested by:



Reviewed by:



Figure 5: Test Plot of conducted emission of B

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

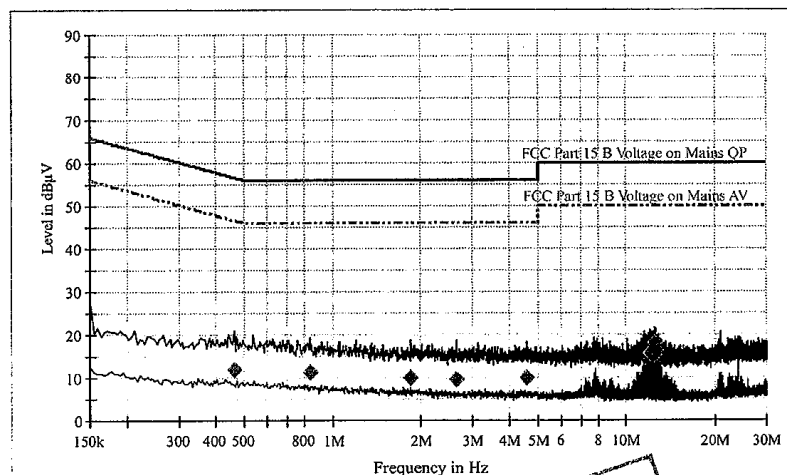
EMC Test Record (EMISSION)

Test Information

Manufacturer:	Uni-art
Test Item:	Wireless headphone
Identification:	HP1391
Test Standard:	FCC Part 15
Test Detail:	Conducted Emission
Operation Mode:	B
Climate Condition:	23 °C; 50 %RH; 101 kPa.
Test Voltage/ Freq.:	AC 120V/ 60 Hz
Port / Line:	AC Mains/L1&N
Receipt No.:	163078118
Report No.:	17021173
Result:	Pass
Comment:	/

Hardware Setup: 1phase LISN ESH3-Z5 to ESCI 3
Level Unit: dB μ V

Subrange	Detectors	IF Bandwidth	Step Size	Meas. Time	Receiver
150kHz - 30MHz	Peak; Average	9kHz	4.5kHz	10ms	ESCI 3



Sign-off Test Data

6/24/2011, 8:24:44 PM

Tested by: 

Reviewed by: 

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.460300	12.9	1000.0	9.000	L1	10.0	43.8	56.7	
0.834000	11.4	1000.0	9.000	N	10.0	44.6	56.0	
1.851000	10.0	1000.0	9.000	L1	10.1	46.0	56.0	
2.634000	9.6	1000.0	9.000	L1	10.1	46.4	56.0	
4.596000	9.9	1000.0	9.000	N	10.3	46.1	56.0	
12.538500	18.0	1000.0	9.000	L1	10.7	42.0	60.0	

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
12.079500	15.6	1000.0	9.000	L1	10.6	34.4	50.0	
12.210000	15.9	1000.0	9.000	L1	10.6	34.1	50.0	
12.408000	15.9	1000.0	9.000	N	10.7	34.1	50.0	
12.475500	15.4	1000.0	9.000	N	10.8	34.6	50.0	
12.538500	15.7	1000.0	9.000	L1	10.7	34.3	50.0	
12.606000	16.2	1000.0	9.000	L1	10.7	33.8	50.0	

Sign-off Test Data

6/24/2011, 8:24:44 PM

Tested by: _____

Reviewed by: _____

