

**Prüfbericht - Nr.: 14030236 002**  
*Test Report No.:*
**Seite 1 von 6**  
*Page 1 of 6*
**Auftraggeber:**  
*Client:*  
 AvantWave Limited  
 3 Rd. Floor, Photonics centre  
 No. 2 Science Park Avenue East  
 Hong Kong Science Park  
 Shatin Hong Kong

**Gegenstand der Prüfung:**  
*Test Item:*  
 Stereo Bluetooth Receiver

<b>Bezeichnung:</b> <i>Identification:</i>	<b>BHA400</b>	<b>Serien-Nr.:</b> <i>Serial No.:</i>	<b>Engineering sample</b>
---	---------------	--	---------------------------

<b>Wareneingangs-Nr.:</b> <i>Receipt No.:</i>	<b>00130208063-002</b>	<b>Eingangsdatum:</b> <i>Date of Receipt:</i>	<b>08.02.2013</b>
--	------------------------	--	-------------------

<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of test item at delivery:</i>	Test sample(s) is/are not damaged and suitable for testing.
--	---

<b>Prüfort:</b> <i>Testing Location:</i>	<b>Global United Technology Services Co., Ltd.</b> 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, China
---	---

<b>Prüfgrundlage:</b> <i>Test Specification:</i>	<b>FCC Part 15 Subpart C</b> <b>ANSI C63.4-2003</b> <b>CISPR 22:2003</b>
---	--

<b>Prüfergebnis:</b> <i>Test Results:</i>	<b>Das vorstehend beschriebene Gerät wurde geprüft und entspricht oben genannter Prüfgrundlage.</b>  The above mentioned product was tested and <b>passed</b> .
--	---

<b>Prüflaboratorium:</b> <i>Testing Laboratory:</i>	<b>TÜV Rheinland Hong Kong Ltd.</b> 8 - 10/F., Goldin Financial Global Square, 7 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong
--	--

**geprüft/ tested by:**
**kontrolliert/ reviewed by:**

26.04.2013	Hugo Wan Senior Project Manager
------------	------------------------------------

26.04.2013	Sharon Li Section Manager
------------	------------------------------

<b>Datum</b> <i>Date</i>	<b>Name/Stellung</b> <i>Name/Position</i>	<b>Unterschrift</b> <i>Signature</i>
-----------------------------	--	---

<b>Datum</b> <i>Date</i>	<b>Name/Stellung</b> <i>Name/Position</i>	<b>Unterschrift</b> <i>Signature</i>
-----------------------------	--	---

**Sonstiges: FCCID: XQN-BHA400**  
*Other Aspects*  
 Permissive class change

<b>Abkürzungen:</b>	<b>P(ass)</b> = entspricht Prüfgrundlage
	<b>F(ail)</b> = entspricht nicht Prüfgrundlage
	<b>N/A</b> = nicht anwendbar
	<b>N/T</b> = nicht getestet

<b>Abbreviations:</b>	<b>P(ass)</b> = passed
	<b>F(ail)</b> = failed
	<b>N/A</b> = not applicable
	<b>N/T</b> = 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.**  
*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.*

## Table of Content

	Page
<b>Cover Page .....</b>	<b>1</b>
<b>Table of Content .....</b>	<b>2</b>
<b>Product information .....</b>	<b>3</b>
<b>Manufacturers declarations.....</b>	<b>3</b>
<b>Product function and intended use .....</b>	<b>4</b>
<b>Submitted documents .....</b>	<b>4</b>
<b>Remark.....</b>	<b>4</b>
<b>Special accessories and auxiliary equipment .....</b>	<b>4</b>
<b>Permissive class change .....</b>	<b>4</b>
<b>List of Test and Measurement Instruments.....</b>	<b>5</b>
<b>Conducted Emission on AC Mains Terminals.....</b>	<b>5</b>
<b>Results FCC Part 15 – Subpart C .....</b>	<b>6</b>
<b>Subclause 15.207 – Disturbance Voltage on AC Mains .....Pass .....</b>	<b>6</b>
<b>Appendix 1 – Test protocols .....</b>	<b>26 pages</b>
<b>Appendix 2 – Test setup .....</b>	<b>3 pages</b>
<b>Appendix 3 – Photo documentation .....</b>	<b>6 pages</b>

## Product information

### Manufacturers declarations

	Transceiver
Operating frequency range	2402 - 2480 MHz
Type of modulation	GFSK; Pi/4 DQPSK; 8 DPSK
Number of channels	79
Channel separation	1 MHz
Type of antenna	Chip antenna
Antenna gain (dBi)	0
Power level	fix
Type of equipment	stand alone radio device
Connection to public utility power line	No
Nominal voltage	V <sub>nom</sub> : 5.0V
Independent Operation Modes	Page scan Inquiry scan Connection state - ACL Link Connection state - SCO Link

## Product function and intended use

The test item is a Bluetooth audio receiver based on the Bluetooth technology.

Bluetooth is a short-range radio link intended to be a cable replacement between portable and/or fixed electronic devices.

Bluetooth operates in the unlicensed ISM Band at 2.4GHz. With the introduction of the enhanced data rate (EDR) feature, the data rates can be up to 3 Mb/s.

An increase in the peak data rate beyond the basic rate of 1 Mb/s is achieved by modulating the RF carrier using phase shift keying (PSK) techniques, resulting in an increase of two to three times the number of bits per symbol. The 2 Mb/s EDR packets use a Pi/4-DQPSK modulation and the 3 Mb/s EDR packets use 8DPSK modulation.

The power port on EUT is for charging only, no data exchange supported.

## Submitted documents

Circuit Diagram  
Block Diagram  
Bill of material  
User Manual  
Label Artwork

## Remark

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases.

## Special accessories and auxiliary equipment

### Additional accessory used for testing

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

- 1) AC/DC Power adaptor  
Model number: S004YM0500080  
Input: 100-240VAC, 50/60Hz, 150mA  
Output: 5VDC 800mA
- 2) Marantz Audio Amplifier with speaker  
Model number: SR7001  
Input: 230VAC 50/60Hz

## Permissive class change

The AC/DC adaptor was modified with a new model. Hence the test for Part 15.207 was re-evaluated in this test report.

## List of Test and Measurement Instruments

Hong Kong Productivity Council (Registration number: 90656)

### Conducted Emission on AC Mains Terminals

Equipment	Manufacturer	Type	Cal Due Date
Test Receiver	R & S	ESU40	19/2/2014
RF Voltage Probe	Schwarzbeck	TK9416	8/2/2014
LISN	R&S	ESH3-Z5	28/1/2014
Double Shield Cable	Radiall	RG142	23/8/2013
Pulse Limiter	R&S	ESH3-Z2	4/6/2013

## Results FCC Part 15 – Subpart C

<b>Subclause 15.207 – Disturbance Voltage on AC Mains</b>						<b>Pass</b>
Test Port: AC mains input port of the power adaptor Applied Voltage: 100VAC Adaptor Model: S004YM0500080 Mode of operation: Music playing mode						
<b>Live measurement</b>						
Frequency range (MHz)	Frequency (MHz)	Quasi-peak dBµV	Average dBµV	Limit QP (dBµV)	Limit AV (dBµV)	Verdict
0,15 – 0,5	0.274	45.7	39.5	66 - 56	56 - 46	Pass
> 0,5 - 5	2.646	40.0	28.9	56	46	Pass
> 5 - 30	---	---	---	60	50	Pass
<b>Neutral measurement</b>						
Frequency range (MHz)	Frequency (MHz)	Quasi-peak dBµV	Average dBµV	Limit QP (dBµV)	Limit AV (dBµV)	Verdict
0,15 – 0,5	0.274	47.3	40.7	66 - 56	56 - 46	Pass
> 0,5 - 5	2.646	39.3	29.7	56	46	Pass
> 5 - 30	---	---	---	60	50	Pass
<b>Results:</b> The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30MHz does not exceed the limits. For test Results plots refer to Appendix 1, page 2-3.						