





Report No: File reference No:	FCC 1504225-02 2015-05-26
Applicant:	Richen Industrial Co., Ltd.
Product:	Bluetooth Headphone
Model No:	BTH-024T
Trademark:	ILE
Test Standards:	FCC Part 15.247
Test result:	It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10, FCC Part 15.247 and RSS-210 Issue 8 for the evaluation of electromagnetic compatibility

Approved By

Jack Chung

Jack Chung

Manager

Dated:

May 26, 2015

Results appearing herein relate only to the sample tested The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TESTING LABORATORIES

Room 512-519, 5/F., East Tower, Building 4, Anhua Industrial Zone, Futian District, Shenzhen, Guangdong, China Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timewaytech.com



Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

CNAL-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 899988

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 899988.

IC- Registration No.: IC5205A-02

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration IC No.: 5205A-02.

The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



Test Report Conclusion Content

1.0	General Details	4
1.1	Test Lab Details	4
1.2	Applicant Details	4
1.3	Description of EUT	4
1.4	Submitted Sample	4
1.5	Test Duration	5
1.6	Test Uncertainty	5
1.7	Test By	5
2.0	List of Measurement Equipment	6
3.0	Technical Details	7
3.1	Summary of Test Results	7
3.2	Test Standards	7
4.0	EUT Modification	7
5.0	Power Line Conducted Emission Test	8
5.1	Schematics of the Test	8
5.2	Test Method and Test Procedure	8
5.3	Configuration of the EUT	8
5.4	EUT Operating Condition	9
5.5	Conducted Emission Limit	9
5.6	Test Result	9
6.0	Radiated Emission test	12
6.1	Test Method and Test Procedure	12
6.2	Configuration of the EUT	12
6.3	EUT Operation Condition	12
6.4	Radiated Emission Limit	13
7.0	6dB Bandwidth Measurement Bandwidth	22
8.0	Maximum Peak Output Power	27
9.0	Power Spectral Density Measurement	29
10.0	Out of Band Measurement	34
11.0	Antenna Requirement	37
12.0	FCC ID Label	38
13.0	Photo of Test Setup and EUT View	39

The report refers only to the sample tested and does not apply to the bulk.

discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



1.0 General Details

1.1 Test Lab Details

Name :SHENZHEN TIMEWAY TESTING LABORATORIES.Address:Room 512-519,5/F., East Tower,Building 4, Anhua Industrial Zone, Futian District,Shenzhen,
Guangdong ChinaTelephone:(755) 83448688Fax:(755) 83442996Site on File with the Federal Communications Commission – United SatesRegistration Number: 899988For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada Registration Number: IC: 5205A-02 For 3m & 10 m OATS

1.2 Applicant Details

Applicant: Richen Industrial Co., Ltd.

Address: Rm.1203, Building 4 East, Saige Technopark, Huaqiang North Road, Futian District, Shenzhen, China
Telephone: 0755-82797551
Fax: 0755-82798175

1.3 Description of EUT

1	
Product:	Bluetooth Headphone
Manufacturer:	Richen Industrial Co., Ltd.
Address:	Rm.1203, Building 4 East, Saige Technopark, Huaqiang North Road, Futian
	District, Shenzhen, China
Brand Name:	ILE
Additional Brand Name:	N/A
Model Number:	BTH-024T
Additional Model Numb	er: N/A
Type of Modulation	GFSK (Bluetooth BLE)
Frequency range	2402-2480MHz
Frequency Selection	By software
Channel Number	40

1.4 Submitted Sample: 2 Samples

The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



- 1.5 Test Duration 2015-04-28 to 2015-05-25
- 1.6 Test Uncertainty Conducted Emissions Uncertainty =3.6dB Radiated Emissions Uncertainty =4.7dB
- 1.7 Test Engineer

Terry Tang

The sample tested by

Print Name: Terry Tang

The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



2.0 Test Equipments					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2014-08-21	2015-08-20
TWO Line-V-NETW	R&S	EZH3-Z5	100294	2014-08-22	2015-08-21
TWO Line-V-NETW	R&S	EZH3-Z5	100253	2014-08-22	2015-08-21
Ultra Broadband ANT	R&S	HL562	100157	2014-08-23	2015-08-22
ESDV Test Receiver	R&S	ESDV	100008	2014-08-22	2015-08-21
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2014-08-21	2015-08-20
System Controller	СТ	SC100	-		
Printer	EPSON	РНОТО ЕХЗ	CFNH234850		
Computer	IBM	8434	1S8434KCE99BLXLO*	-	-
Loop Antenna	EMCO	6502	00042960	2014-08-22	2015-08-21
ESPI Test Receiver	R&S	ESI26	838786/013	2014-08-22	2015-08-21
3m OATS			N/A	2014-08-21	2015-08-20
Horn Antenna	R&S	BBHA 9170	BBHA9170265	2014-08-23	2015-08-22
Horn Antenna	R&S	BBHA 9120D	9120D-631	2014-08-23	2015-08-22
Power meter	Anritsu	ML2487A	6K00003613	2014-08-22	2015-08-21
Power sensor	Anritsu	MA2491A	32263	2014-08-22	2015-08-21
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2014-08-23	2015-08-22
LISN	AFJ	LS16C	10010947251	2014-08-21	2015-08-20
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2014-08-22	2015-08-21
9*6*6 Anechoic			N/A	2014-08-21	2015-08-20
EMI Test Receiver	RS	ESCS30	100139	2014-08-22	2015-08-21

The report refers only to the sample tested and does not apply to the bulk. This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any

discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



3.0 Technical Details

3.1 Summary of test results

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.107 & 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz	PASS	Complies
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power Limit: max. 30dBm	PASS	Complies
FCC Part 15, Paragraph 15.109,15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	PASS	Complies
FCC Part 15, Paragraph 15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Complies
FCC Part 15, Paragraph 15.247(d)	Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209	PASS	Complies

3.2 Test Standards

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

4.0 EUT Modification

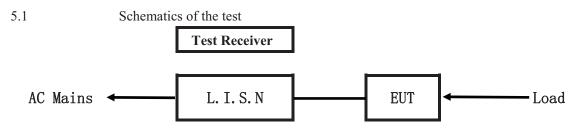
No modification by Shenzhen Timeway Technology Consulting Co., Ltd

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.



5. Power Line Conducted Emission Test



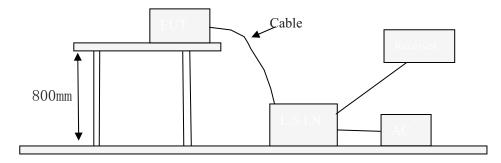
EUT: Equipment Under Test

Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2009 . The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 500 hm/50uH as specified by section 5.1 of ANSI C63.10 –2009.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



Configuration of The EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

Α.	EUT
A.	EUI

5.2

5.3

Device	Manufacturer	Model	FCC ID/IC
Bluetooth Headphone	Richen Industrial Co., Ltd.	BTH-024T	RMZ-BTH024T

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



B. Internal Device

Device	Manufacturer	Model	Rating

C. Peripherals

Device	Manufacturer	Model	Rating
Power	RCL	RCL091500	
Supply			

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10 -2009.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207 and 15.107

Frequency	Class A Lim	its (dB µ V)	Class B Limits (dB µ V)		
(MHz)	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level	
$0.15~\sim~0.50$	79.0	66.0	66.0~56.0*	56.0~46.0*	
$0.50~\sim~5.00$	73.0	60.0	56.0	46.0	
$5.00 \sim 30.00$	73.0	60.0	60.0	50.0	

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

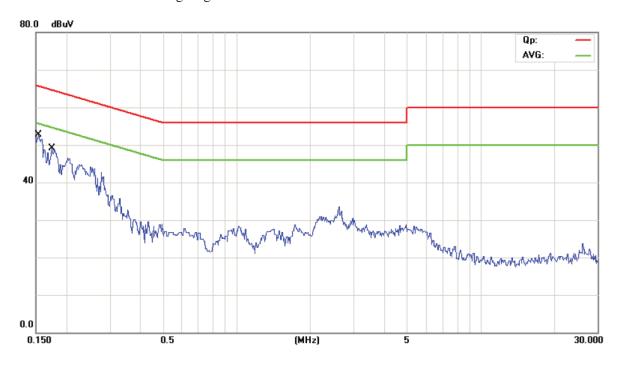
The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



A: Conducted Emission on Live Terminal (150kHz to 30MHz) EUT Operating Environment Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa EUT set Condition: Charging and Keep Bluetooth Transmitting Equipment Level: Class B Results: PASS Please refer to following diagram for individual



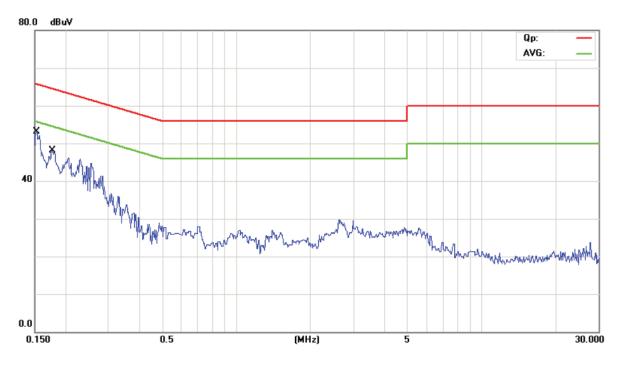
No. Mk.	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.1534	39.20	11.00	50.20	65.81	-15.61	QP	
2	0.1534	19.50	11.00	30.50	55.81	-25.31	AVG	
3	0.1746	34.00	11.03	45.03	64.74	-19.71	QP	
4	0.1746	-2.40	11.03	8.63	54.74	-46.11	AVG	

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.



B: Conducted Emission on Neutral Terminal (150kHz to 30MHz) EUT Operating Environment Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa EUT set Condition: Charging and Keep Bluetooth Transmitting Equipment Level: Class B Results: Pass Please refer to following diagram for individual



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.1525	39.30	11.00	50.30	65.86	-15.56	QP	
2	0.1525	17.30	11.00	28.30	55.86	-27.56	AVG	
3	0.1763	33.90	11.03	44.93	64.66	-19.73	QP	
4	0.1763	-2.80	11.03	8.23	54.66	-46.43	AVG	

The report refers only to the sample tested and does not apply to the bulk.

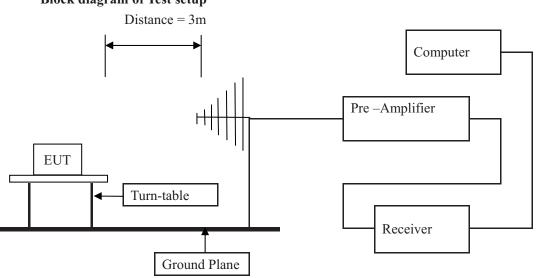
This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.



6 **Radiated Emission Test**

6.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.4-2009 . The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up (2) is according to ANSI C63.10-2009.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=1MHz VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector. Measurements were made at 3 meters.
- The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency. (4)
- Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with (5) all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "**QP**" in the data table.
- The antenna polarization : Vertical polarization and Horizontal polarization. (6)



Block diagram of Test setup

- 6.2 Configuration of The EUT Same as section 5.3 of this report
- 6.3 **EUT Operating Condition**

Same as section 5.4 of this report.

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES, reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

Frequencies in restricted band are com	plied to limit on Paragraph	15.209 and 15.109 and RSS-210
i requencies in restricted band are com	phea to mint on I aragraph	13.207 unu 13.107 unu 1655 210

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: 1. RF Voltage $(dBuV) = 20 \log RF$ Voltage (uV)

2. In the Above Table, the higher limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



Test result General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Charging and Keep Bluetooth Transmitting

Results:

Level@3m (dB μ V/m)

Pass

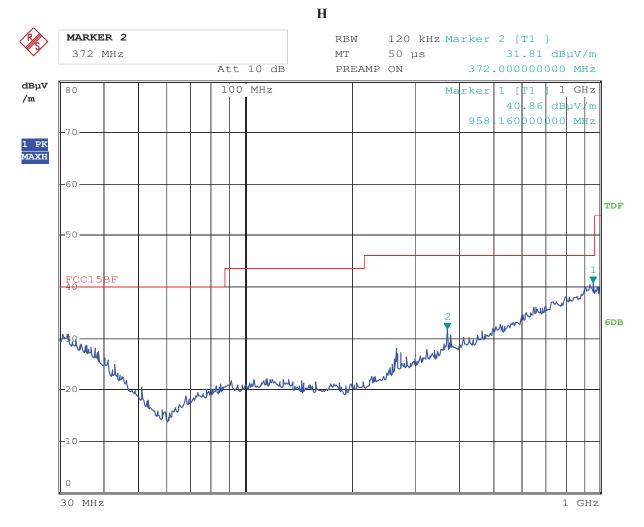
Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
372.000	31.81	Н	46.00
958.160	40.86	Н	46.00
515.200	33.19	V	46.00
958.200	41.37	V	46.00

The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



Test Figure:



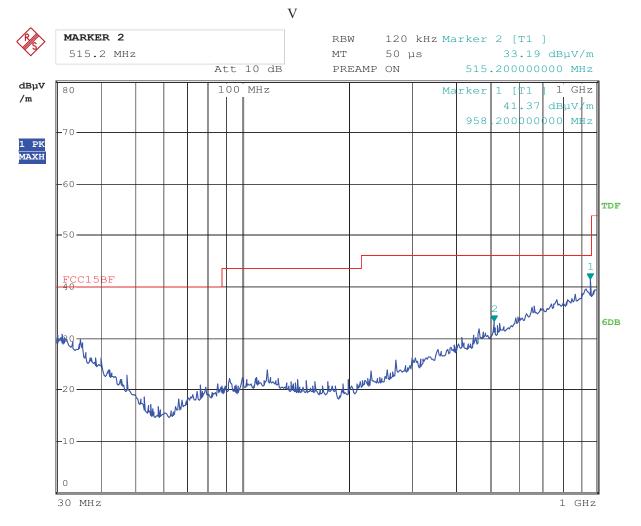
Date: 22.MAY.2015 15:43:24

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.



Test Figure:



Date: 22.MAY.2015 15:46:08

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.



Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
	H/V	74(Peak)/ 54(AV)
	 	H/V H/V

Operation Mode: Transmitting under Low Channel (2402MHz)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

operation whole. Transmitting g under whole Channel (244111112)						
Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)			
4880		H/V	74(Peak)/ 54(AV)			
7320		H/V	74(Peak)/ 54(AV)			
9760		H/V	74(Peak)/ 54(AV)			
12200		H/V	74(Peak)/ 54(AV)			
14640		H/V	74(Peak)/ 54(AV)			
17080		H/V	74(Peak)/ 54(AV)			
19520		H/V	74(Peak)/ 54(AV)			
21960		H/V	74(Peak)/ 54(AV)			
24400		H/V	74(Peak)/ 54(AV)			

Operation Mode: Transmitting g under Middle Channel (2441MHz)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



Operation Mode: Transmitting under High Channel (2480MHz)

1	8 8	5	,
Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4960		H/V	74(Peak)/ 54(AV)
7440		H/V	74(Peak)/ 54(AV)
9920		H/V	74(Peak)/ 54(AV)
12400		H/V	74(Peak)/ 54(AV)
14880		H/V	74(Peak)/ 54(AV)
17360		H/V	74(Peak)/ 54(AV)
19840		H/V	74(Peak)/ 54(AV)
22320		H/V	74(Peak)/ 54(AV)
24800		H/V	74(Peak)/ 54(AV)
P	6	-	

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit 2. Remark "---" means that the emissions level is too low to be measured

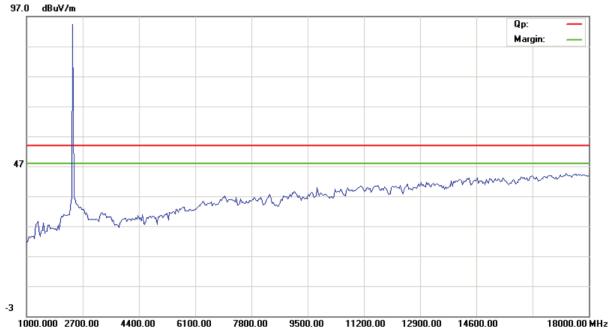
The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

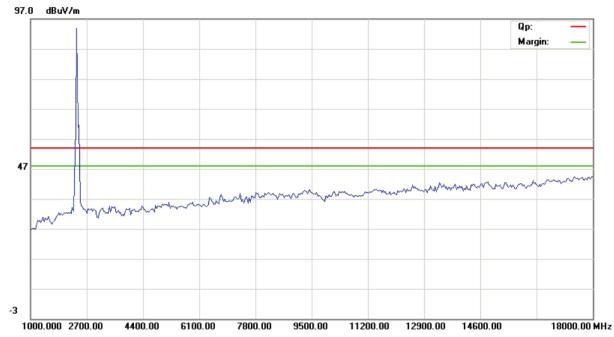


Please refer to the following test plots for details:

Low Channel: Horizontal



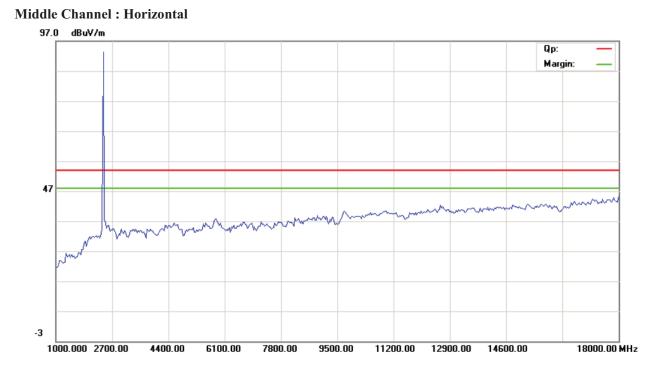
Low Channel : Vertical



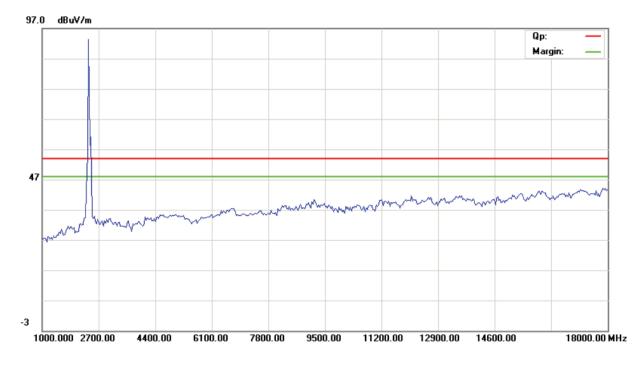
The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.





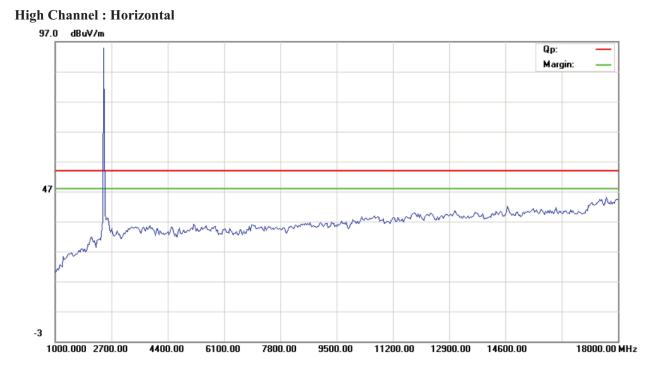
Middle Channel : Vertical



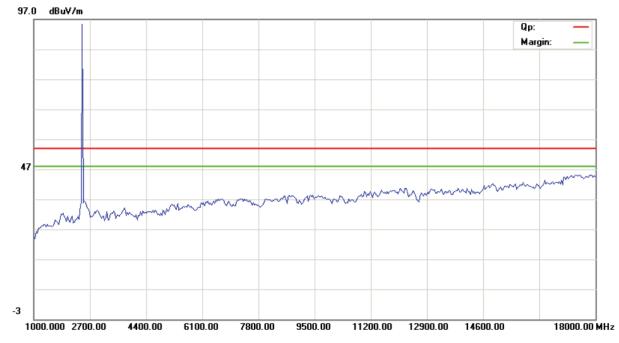
The report refers only to the sample tested and does not apply to the bulk.

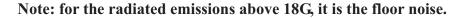
This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to





High Channel : Vertical



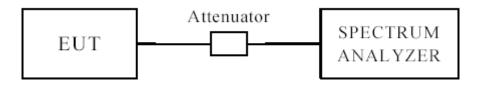


The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



7.0 6dB Bandwidth Measurement 7.1 Test Setup



7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500 kHz

7.3 Test Procedure

- 1. Set resolution bandwidth (RBW) = 100 kHz
- 2. Set the video bandwidth (VBW) \ge 3 x RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.
- 6. Allow the trace to stabilize.

7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.4 Test Result

The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



EUT		Bluetooth Headphone		Model		BTH-024T	
Mode		Keep Tr	ansmitting	Input Vo	Input Voltage		DC3.7V
Temperat	ure	24 c	24 deg. C,		Humidity		56% RH
Channel	Ch	Channel Frequency (MHz) 6dB Bandwidth (kHz)		Minimum Limit (kHz) Pass/ Fail		Pass/ Fail	
Low		2402	565.099			0.5	Pass
Middle		2442	562.139			0.5	Pass
High		2480	568.954			0.5	Pass

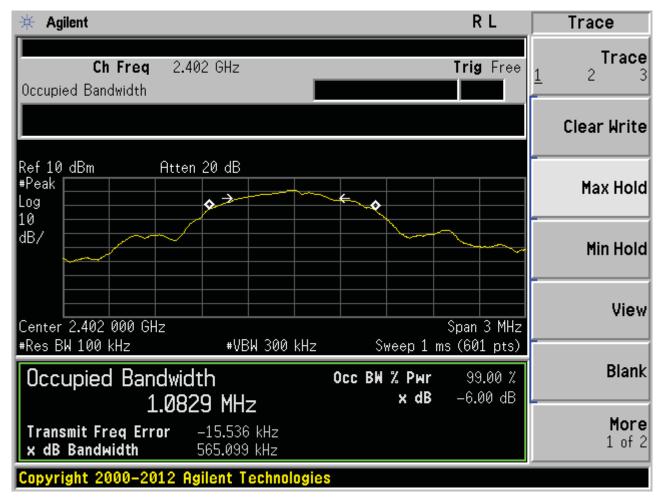
The report refers only to the sample tested and does not apply to the bulk. This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any

discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



Test Figure:

1. Condition: Low Channel

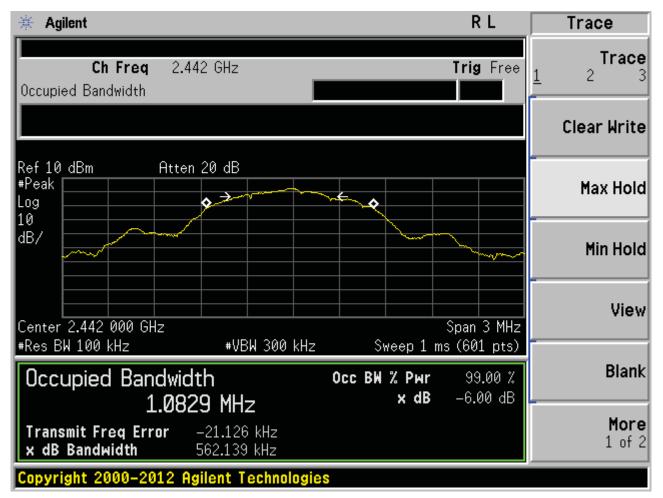


The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



2. Condition: Middle Channel

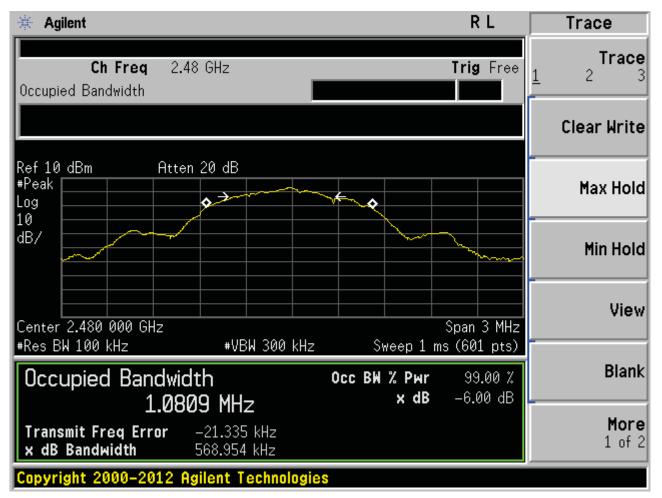


The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



3. High Channel



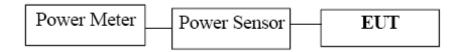
The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



8. Maximum Output Power

8.1 Test Setup



8.2 Limits of Maximum Output Power

The Maximum Output Power Measurement is 30dBm.

8.3 Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

Note: the Peak power was measured.

The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



8.4Test Results

EUT		Bluetooth	Mode	:1	BTH	-024T	
Mode		Кеер Ті	ansmitting	Input Voltage		DC3.7V	
Temperatur	re	24 0	4 deg. C, Humidity		56%	6 RH	
Channel	Cł	Channel Frequency (MHz) (dBm)		ıtput	Peak Power Limit (dBm)		Pass/ Fail
Low		2402	1.52			30	Pass
Middle		2440 2.85				30	Pass
High		2480	3.01			30	Pass

Note: 1. the result basic equation calculation as follow:

Max. Power Output = Power Reading + Cable loss + Attenuator

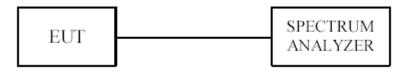
The report refers only to the sample tested and does not apply to the bulk.

discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



9. Power Spectral Density Measurement

9.1 Test Setup



9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm.

9.3 Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.

- 2. Set the RBW = 100 kHz.
- 3. Set the VBW \geq 300 kHz.
- 4. Set the span to 1.5 times the DTS channel bandwidth.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level.
- 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
- 11. The resulting peak PSD level must be ≤ 8 dBm.

The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



9.4Test Result

EUT		Bluetooth Headphone		Model	B	BTH-024T	
Mode		Keep	Transmitting	g	Input Voltage	Ι	DC3.7V
Temperat	ure	2	4 deg. C,	, Humidity		5	6% RH
Channel	Re	c Power eading IBm)	Cable Loss (dB)	Final Power Spectral Density (dBm)		Maximum Limit (dBm)	Pass/ Fail
Low	1	1.02	0.2		1.22	8	Pass
Middle	2	2.41	0.2		2.61	8	Pass
High	2	2.66	0.2		2.86	8	Pass

Note: The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss

The report refers only to the sample tested and does not apply to the bulk.

discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



Test Figure:

1. Condition: Low Channel

🔆 Ag	ilent								F	₹ L	Peak Search
Ref 10 #Peak	dBm		Atten	20 dB				Mkr1 ;		80 GHz 2 dBm	Next Peak
Log 10 dB/						~		<u> </u>			Next Pk Right
			/								Next Pk Left
LgAv	× 、	~									Min Search
M1 S2 S3 FC AL											Pk-Pk Search
£ (f): f>50k Swp											Mkr → CF
#Res B	2.402 W 100	kHz			W 300		Sv	veep 1	Span ms (60	2 MHz 1 pts)	More 1 of 2
Copyri	ight 20	00-20)12 Ag	ilent T	echnol	ogies					

The report refers only to the sample tested and does not apply to the bulk. This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any

discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



2. Condition: Middle Channel

🔆 Agilent		R L	Peak Search		
#Peak	20 dB	1kr1 2.441 987 GHz 2.41 dBm	Next Peak		
Log 10 dB/			Next Pk Right		
			Next Pk Left		
LgAv			Min Search		
M1 S2 S3 FC AL			Pk-Pk Search		
£(f): f>50k Swp			Mkr → CF		
Center 2.442 000 GHz #Res BW 100 kHz	#VBW 300 kHz Sw	Span 2 MHz eep 1 ms (601 pts)	More 1 of 2		
Copyright 2000–2012 Agilent Technologies					

The report refers only to the sample tested and does not apply to the bulk. This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any

discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



3. High Channel

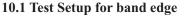
🔆 Agilent		R L Peak Search
#Peak	Mkr1 20 dB	2.479 983 GHz 2.66 dBm Next Peak
Log 10 dB/		Next Pk Right
		Next Pk Left
LgAv		Min Search
M1 S2 S3 FC AL		Pk-Pk Search
£(f): f>50k Swp		Mkr → CF
Center 2.480 000 GHz #Res BW 100 kHz	#VBW 300 kHz Sweep	Span 2 MHzMore1 ms (601 pts)
Copyright 2000-2012 Ag	ilent Technologies	

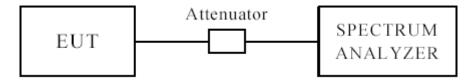
The report refers only to the sample tested and does not apply to the bulk. This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any

discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



10 Out of Band Measurement





The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

10.2 Limits of Out of Band Emissions Measurement

- 1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
- 2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

10.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of Radiated emission test. (Peak values with RBW=1MHz, VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector)

For bandage test, the spectrum set as follows: RBW=VBW=100 kHz. A conducted measurement used

10.4 Test Result

Please see next pages

Note: 1. For band-edge measurement, the frequency from 30MHz-25GHz was tested. And It met the FCC rule.

The report refers only to the sample tested and does not apply to the bulk.

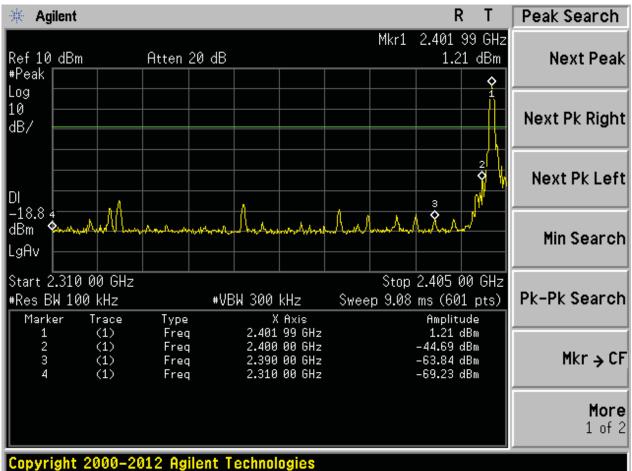
In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



10.4 Band-edge and Restricted band Measurement

EUT	Bluetooth Headphone		Model	BTH-024T
Mode	Keep Transmitting		Input Voltage	DC3.7V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	РК
2400	PK (dBµV/m)	48.6	Limit	74(dBµV/m)
	AV ($dB\mu V/m$)		Limit	54(dBµV/m)
2390	PK (dBµV/m)	43.7	Limit	74(dBµV/m)
	AV ($dB\mu V/m$)		Liiiit	54(dBµV/m)

Test Figure:



Note: The Max. FS in Restrict Band are measured in conventional method.

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

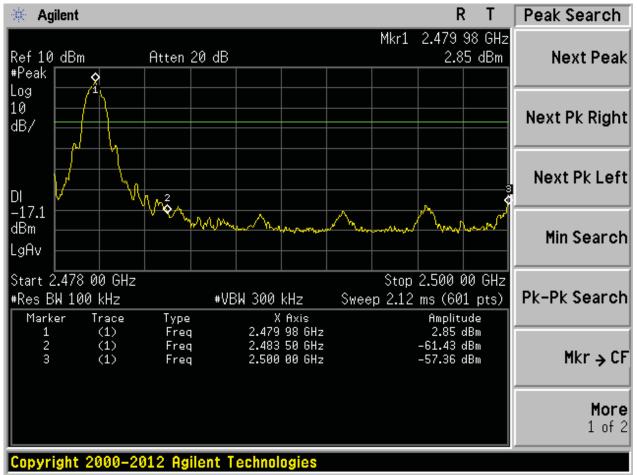
In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



10.4 Band-edge and Restricted band Measurement

EUT	Bluetooth Headphone		Model	BTH-024T
Mode	Keepin	g Transmitting	Input Voltage	DC3.7V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	РК
2483.5	PK (dBµV/m)	42.5	T ::	74(dBµV/m)
	AV ($dB\mu V/m$)		Limit	54(dBµV/m)





Note: The Max. FS in Restrict Band are measured in conventional method.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

The report refers only to the sample tested and does not apply to the bulk.



11.0 Antenna Requirement

11.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

11.2 Antenna Connected construction

PCB antenna used. The maximum Gain of the antennas is 0 dBi.

The report refers only to the sample tested and does not apply to the bulk.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



Page 38 of 45

12.0 FCC Label

FCC ID: RMZ-BTH024T

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.



13.0 Photo of testing

Conducted Emission Test Setup:



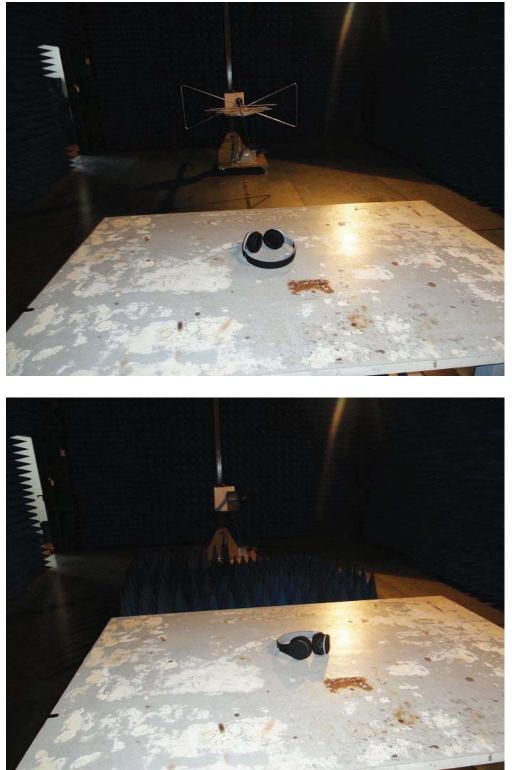
The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



Radiated Emission Test Setup:



The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



Photographs – EUT

Outside view



The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to



Outside view



The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to



Outside view

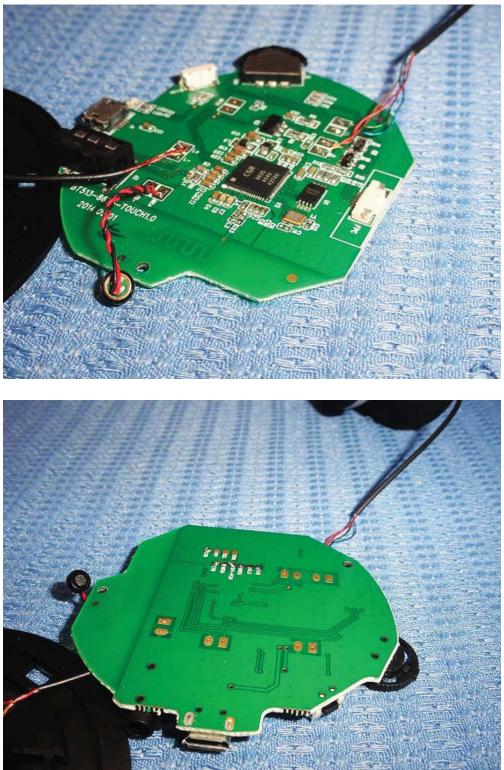


The report refers only to the sample tested and does not apply to the bulk. This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any

discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



Inside view



The report refers only to the sample tested and does not apply to the bulk. This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any

discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.





End of the report

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to