





ISO/IEC17025 Accredited Lab.

Report No: File reference No:	EMC1409094-01 2014-09-30
Applicant:	
Product:	Shower Bluetooth Speaker
Brand Name:	ILE
Model No:	BTS-51
Test Standards:	ETSI EN 300 328 V 1.8.1 (2012-06)
Test result:	The EMC testing has been performed on the submitted samples and found in compliance with council EMC Directive 2004/108/EC and R & TTE Directive 1999/5/EC
Approved By	
Terry Tang	
EMC Manager	
Dated:	Sep 30, 2014
Results appearing h The technical repo withdrawal at	herein relate only to the sample tested orts is issued errors and omissions exempt and is subject to
SHENZH	EN TIMEWAY TESTING LABORATORIES
Room 512-519, 5/F Shenzhen, Guangdo	., East Tower, Building 4, Anhua Industrial Zone, Futian District, ong, 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 CNAS. This approval result is accepted by MRA of APLAC.

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

CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 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.

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. 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	Notes	4
1.2	Test Laboratory	4
1.3	Details of Applicant	4
1.4	Application Details	4
1.5	Test Item	5
1.6	Test Standards	5
1.7	Configuration of The EUT	6
1.8	EUT Modification	6
1.9	Test By	6
2.0	Technical Test	7
2.1	Summary of Test Result	7
2.2	Test Report	7
	Clause 4.3.1.1RF output power	8
	Clause 4.3.1.3Dwell Time, Minimum Frequency Occupation and Hopping Sequence	9
	Clause 4.3.1.4Hopping Frequency Separation	19
	Clause 4.3.1.7Occupied Channel Bandwidth	21
	Clause 4.3.1.8Transmitter unwanted emissions in the out-of-band domain	25
	Clause 4.3.1.9Transmitter unwanted emissions in the spurious domain	27
	Clause 4.3.1.10Receiver Spurious Emissions	28
3.0	CE Label	29
4.0	Photograph-EUT	30
5.0	Test Equipments	36

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. SHENZHEN TIMEWAY TESTING LABORATORIES reserves the rights to withdraw it and to adopt



1. General Information

1.1 Notes

The test results of this report relate exclusively to the test item specified in 1.5. The TIMEWAY Lab does not assume Responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the TIMEWAY Lab.

1.2 Testing Laboratory SHENZHEN TIMEWAY TESTING LABORATORIES

East 5/Block 4, Anhua Industrial Zone, No.8, Tairan Rd. CheGongMiao, FuTian District, Shenzhen, CHINA Tel: +86 755 83448688 Fax :+86 755 83442996 Internet: www.timewaytech.com

Site on File With the Federal Communications and Commission – United States Registration Number: 899988 For 3m & 10 m OATS

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

1.3 Details of Applicant

Name: Address:

1.4 Application Details

Date of Receipt of Application: Sep 11, 2014 Date of Receipt of Test Item: Sep 11, 2014 Date of Test: Sep 11, 2014~ Sep 29, 2014

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.



1.5 Test Item

Manufacturer: Address: Brand Name: N/A Model No.: BTS-51 Additional Model No.: ILE Additional Brand Name: N/A Description: Shower Bluetooth Speaker

Additional Information

Frequency: 2402-2480MHz Number of Channels: 79 Antenna Designation: PCB antenna, and the maximum Gain of this antenna is 0dBi Type of Modulation: GFSK, $\pi/4DQPSK$, 8DPSK Extreme Temp. Tolerance: -20°C to 55°C

1.6 Test Standards

ETSI EN 300 328 v 1.8.1 (2012-06)

Electromagnetic compatibility and Radio spectrum Matters(ERM);

Wideband Transmission systems;

Data transmission equipment operating in the 2.4GHz ISM band and using spread spectrum modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

Note: All radiated measurements were made in all three orthogonal planes. The values reported are the maximum values.

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.



1.7 Configuration of The EUT

The EUT was configured according to **CISPR16.** All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model		
Shower Bluetooth Speaker	Richen Industrial Co., Ltd.	BTS-51		

B. Internal Devices

Device	Manufacturer	Model
N/A		

C. Peripherals

Device	Manufacturer	Model	Cable
N/A			

D. EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

1.8 EUT Modifications

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

Tests or Witness Test Engineering

Test By:

lang long

Printing Name: Terry Tang

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. SHENZHEN TIMEWAY TESTING LABORATORIES reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



2. Technical Test

2.1 Summary of Test Results

No deviations from the technical specification(s) were ascertained in the course of the tests Performed			
Final Verdict:	Pass		
(Only "Passed" if all Measurements are "Passed")			

2.2 Test Report

Test Report Reference

List of Measurements					
Parameter to be measured	Clause	Result			
Transmitte	r Parameters	•			
RF output power	Clause 4.3.1.1	Pass			
Duty Cycle, Tx-sequence, Tx-gap	Clause 4.3.1.2	N/A			
Dwell Time, Minimum Frequency Occupation and Hopping Sequence	Clause 4.3.1.3	Pass			
Hopping Frequency Separation	Clause 4.3.1.4	Pass			
Medium Utilisation (MU) Factpr	Clause 4.3.1.5	N/A			
Adaptivity (Adaptive Frequency Hopping)	Clause 4.3.1.6	N/A			
Occupied Channel Bandwidth	Clause 4.3.1.7	Pass			
Transmitter unwanted emissions in the out-of-band domain	Clause 4.3.1.8	Pass			
Transmitter unwanted emissions in the spurious domain	Clause 4.3.1.9	Pass			
Receiver Parameters					
Receiver Spurious Emissions	Clause 4.3.1.10	Pass			
Receiver Blocking	Clause 4.3.1.11	N/A			

Note: The clause numbers are referenced to ETSI EN 300 328 V 1.8.1(2012-06)

Note: N/A= Not applicable. Because these requirements do not apply for equipment with a maximum declared RF Output power of less than 10 dBm e.i.r.p. or for equipment when operating in a mode where the RF Output power is less than 10 dBm e.i.r.p. For the EUT, the RF output power less than 10dBm.

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. SHENZHEN TIMEWAY TESTING LABORATORIES reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



Clause 4.3.1.1 RF output Power (Conducted)

Test Method according to clause 5.3.2.2.1

GFSK Mode

Test Conditions	Transmitter Power (dBm) EIRP					
	T _{nom} (25℃)	T _{min} (-20°C)		T _{max} (55℃)		
	DC3.7V	3.3V	4.3V	3.3V	4.3V	
Low Freq.2402MHz	2.42	2.46	2.45	2.45	2.47	
Mid Freq.2441MHz	2.54	2.55	2.56	2.52	2.53	
High Freq.2480MHz	2.76	2.80	2.82	2.77	2.81	

Л/4DQPSK Mode

	Transmitter Power (dBm) EIRP					
Test Conditions	T _{nom} (25℃)	T _{min} (-20°C)		T _{max} (55℃)		
	DC3.7V	3.3V	4.3V	3.3V	4.3V	
Low Freq.2402MHz	1.17	1.16	1.13	1.42	1.40	
Mid Freq.2441MHz	1.18	1.08	1.11	1.28	1.32	
High Freq.2480MHz	1.42	1.35	1.39	1.49	1.45	

8DPSK Mode

	Transmitter Power (dBm) EIRP					
Test Conditions	T _{nom} (25℃)	T _{min} (-20°C)		T _{max} (55℃)		
	DC3.7V	3.3V	4.3V	3.3V	4.3V	
Low Freq.2402MHz	1.09	1.02	0.98	1.07	1.12	
Mid Freq.2441MHz	1.12	1.10	1.02	1.08	1.13	
High Freq.2480MHz	1.35	1.26	1.24	1.34	1.36	

Limits: Clause 4.3.1.1.2

The maximum RF output power for adaptive Frequency Hopping equipment shall be equal to or less than 20 dBm.

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.



Clause 4.3.1.3 Dwell Time, Minimum Frequency Occupation and Hopping Sequence

For Adaptive frequency hopping system

Test method according to Clause 5.3.4.2.1

GFSK Mode

	Dwell Time									
Mode	Number of	Number of	of transmission in	a period (Chann	el Number *	Length of	Result	Limit		
	Hopping		0.4	4sec)		transmissions	(ms)	(ms)		
	Channel	Period	Sweep Time	Times in a	Times in a	Time (ms)				
		(Sec)	(Sec)	sweep	period					
DH1	79	31.6	4	39	308.1ms	0.432	133.10	400		
DH3	79	31.6	4	22	173.8ms	1.708	296.85	400		
DH5	79	31.6	4	12	94.8ms	2.974	281.94	400		

Л/4DQPSK Mode

	Dwell Time										
Mode	Number of	Number of	of transmission in	a period (Chann	el Number *	Length of	Result	Limit			
	Hopping		0.4	4sec)		transmissions	(ms)	(ms)			
	Channel	Period	Sweep Time	Times in a	Times in a	Time (ms)					
		(Sec)	(Sec)	sweep	period						
DH1	79	31.6	4	39	308.1ms	0.432	133.10	400			
DH3	79	31.6	4	21	165.9ms	1.700	282.03	400			
DH5	79	31.6	4	16	126.4ms	2.974	375.91	400			

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.



GFSK Mode

	Minimum Frequency Occupation Time								
Mode	Number of	Number of transmission in a period of 4* Dwell *	Length of	Result	Minimum				
	Hopping	number of hopping channel	transmissions	(ms)	Limit				
	Channel		Time (ms)		(ms)				
DH1	79	2	0.432	0.864	0.432				
DH3	79	3	1.708	5.124	1.708				
DH5	79	3	2.974	8.922	2.974				

Л/4DQPSK Mode

	Minimum Frequency Occupation Time								
Mode	Number of Hopping Channel	Number of transmission in a period of 4* Dwell * number of hopping channel	Length of transmissions Time (ms)	Result (ms)	Minimum Limit (ms)				
DH1	79	2	0.432	0.864	0.432				
DH3	79	3	1.700	5.100	1.700				
DH5	79	3	2.974	8.922	2.974				

Note: Note: GFSK and $\Pi/4DQPSK$ Mode was the worse case

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.



GFSK Mode

DH1





Date: 29.SEP.2014 13:06:14

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.



DH3





Date: 29.SEP.2014 13:02:44

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.



DH5





Date: 29.SEP.2014 13:01:44

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.



Л/4DQPSK Mode

DH1



SMEEP
TIME 146 ms
RBM 300 kHz *VBM 300 kHz *VBM 300 kHz *VBM 300 kHz

Ref
10 dBm
*Att 20 dB
SWT 146 ms

Image: State of the st

Date: 29.SEP.2014 13:04:45

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.



DH3





Date: 29.SEP.2014 13:03:54

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.



DH5





Date: 29.SEP.2014 12:59:32

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.



Hopping sequence

GFSK

EUT	Shower Bluetooth Speaker		Model		BTS-51	
Mode	Hopping On		Input Voltage			DC3.7V
Temperature	24 deg. C,		Humidity		56% RH	
Operating Frequency		Number of hopping cha	nnels	Lin	nit	Pass/ Fail
2402-2480MHz		79		≥ 1	5	Pass



Date:

17.SEP.2014 16:17:57

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.



 Π /4DQPSK Mode

EUT	Shower Bluetooth Speaker		Model			BTS-51
Mode	Hopping On		Input V	put Voltage		DC3.7V
Temperature	24 deg. C,		Humidity			56% RH
Operating Frequency		Number of hopping cha	annels	Lin	nit	Pass/ Fail
2402-2480MHz		79		≥ 1	5	Pass



Date: 17.SEP.2014 16:22:02

Note: Note: GFSK and Π /4DQPSK Mode was the worse case

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.



Clause 4.3.1.4 Hopping Frequency Separation

Test method according to Clause 5.3.5.2.1.2

GFSK Mode

EUT		Shower Blueto	oth Speaker	Model	el BTS-51		
Mode		Hoppin	Hopping On Input Voltage		DC3.7V		
Temperature		24 deg	g. C,	Humidi	ty	56% RH	
Channel	Ch	annel Frequency (MHz)	Carrier Frequ Separatio	iency n	Lin	nit	Pass/ Fail
Middle		2441	1.002MH	[z	≥100	kHz	Pass



Date: 29.SEP.2014 15:59:14

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.



Л/4DQPSK Mode

EUT		Shower Blueto	ooth Speaker	Model		В	TS-51
Mode		Hoppin	g On	Input Voltage DC3.7V		C3.7V	
Temperature		24 deg	g. C,	Humidi	ty	56% RH	
Channel		annel Frequency (MHz)	Carrier Frequ Separatio	iency n	Lin	nit	Pass/ Fail
Middle		2441	1.002MH	[z	≥100	kHz	Pass



Date: 29.SEP.2014 15:53:59

Note: Note: GFSK and $\Pi/4DQPSK$ Mode was the worse case

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.



Clause 4.3.1.7 Occupied Channel Bandwidth

Test method according to Clause 5.3.8.2.1

GFSK Mode

EUT Shower B		luetooth Speaker	Speaker Model		BTS-51		
Mode		Но	pping On	Input Voltage		DC3.7V	
Temperature 2		24	l deg. C,	Humi	Humidity 56% RH		% RH
Channel	unnel Channel Frequency (MHz)		99% Channel Bar (kHz)	ndwidth Maximum Limit (kHz) Pas		Pass/ Fail	
Low		2402 846					Pass
Middle	2441		834			Pass	
High		2480	834				Pass

Low Channel



Date: 29.SEP.2014 16:32:38

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



Date: 29.SEP.2014 16:38:22

High Channel



Date: 29.SEP.2014 16:40:19

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.



Π /4DQPSK Mode

EUT Shower B		luetooth Speaker	Model		B	ГЅ-51	
Mode Ho		opping On	On Input Voltage DC3.7V		C3.7V		
Temper	Temperature 24 deg. C, Humidity		dity	56	56% RH		
Channel	Channel Frequency (MHz)		99% Channel Bar (kHz)	ndwidth	Maxin	mum Limit (kHz) Pass/ Fail	
Low	2402		1.134			Pass	
Middle	2441		1.134			Pass	
High		2480	1.134				Pass

Low Channel



Date: 29.SEP.2014 16:52:25

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



Date: 29.SEP.2014 16:57:12

High Channel



Date: 29.SEP.2014 16:58:09

Note: Note: GFSK and $\Pi/4DQPSK$ Mode was the worse case

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.



Clause 4.3.1.8 Transmitter unwanted emissions in the out-of-band domain

Test method according to Clause 5.3.9.2.1

EUT	Shower Bluetooth Speaker	Model	BTS-51
Mode	Keep Transmitting	Input Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH

GFSK Mode

Chan	nel	2402MHz		2480MHz	
Freque	ency				
Test Condition		OOB Emis	sion (MHz)	OOB Emis	sion (MHz)
		2399-2400MHz	2398-2399	2483.5-2484.5	2484.5-2485.5
		Max. Power	Max. Power	Max. Power	Max. Power
		(dBm/MHz	(dBm/MHz	(dBm/MHz	(dBm/MHz
T _{nor} 25°C	V _{nor} (V)	-43.52	-50.36	-45.67	-51.29
T_{min} -10 °C	$V_{min}(V)$	-43.33	-50.22	-45.79	-51.03
	$V_{min}(V)$	-43.18	-50.09	-45.23	-50.89
T _{max} 50°C	V _{max} (V)	-43.67	-50.18	-45.62	-51.58
	V _{max} (V)	-43.93	-50.32	-45.89	-51.58
Limit (dBm)		-10	-20	-10	-20
Pass/Fail		Pass	Pass	Pass	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. SHENZHEN TIMEWAY TESTING LABORATORIES reserves the rights to withdraw it and to adopt



Л/4DQPSK M	lode				
Chan	nel	2402	MHz	2480	MHz
Freque	ency				
Test Condition		OOB Emission (MHz)		OOB Emis	sion (MHz)
		2399-2400MHz	2398-2399	2483.5-2484.5	2484.5-2485.5
		Max. Power	Max. Power	Max. Power	Max. Power
		(dBm/MHz)	(dBm/MHz)	(dBm/MHz)	(dBm/MHz)
T _{nor} 25°C	V _{nor} (V)	-48.65	-52.76	-49.29	-54.59
T_{min} -10 °C	$V_{min}(V)$	-48.12	-52.39	-49.88	-54.64
	$V_{min}(V)$	-48.79	-52.71	-49.56	-54.24
T _{max} 50℃	V _{max} (V)	-48.83	-52.66	-49.37	-54.60
	V _{max} (V)	-48.77	-52.59	-49.84	-54.75
Limit (dBm)		-10	-20	-10	-20
Pass/Fail		Pass	Pass	Pass	Pass

Note: Note: GFSK and Π /4DQPSK Mode was the worse case

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.



Clause 4.3.1.9 Transmitter unwanted emissions in the spurious domain

(Radiated) Transmitter Operating

Note:

- 1. Measurements were done on low & high channels, but depicting the worst case are submitted in the report.
- 2. The spurious emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges.
- 3. The test frequency range is from 30M-12.75G and please see clause 5.3.10.2.2 of EN 300 328 for the test method.

	Lowest Frequency (2	402MHz)	Highest Frequency (2480MHz)			
f(MHz)	Band-Width (kHz)	Level (dBm)	f(MHz)	Band-Width (kHz)	Level (dBm)	
NF			NF			
NF			NF			
Measure	ment Uncertainty	$\pm 6 dB$				

Limits Clause 4.3.1.9.2

Table 1: Transmitter limits for spurious emissions

Frequency range	Maximum power,	Bandwidth
	e.r.p. (≤ 1 GHz)	
	e.i.r.p. (> 1 GHz)	
30 MHz to 47 MHz	-36 dBm	100 kHz
47 MHz to 74 MHz	-54 dBm	100 kHz
74 MHz to 87,5 MHz	-36 dBm	100 kHz
87,5 MHz to 118 MHz	-54 dBm	100 kHz
118 MHz to 174 MHz	-36 dBm	100 kHz
174 MHz to 230 MHz	-54 dBm	100 kHz
230 MHz to 470 MHz	-36 dBm	100 kHz
470 MHz to 862 MHz	-54 dBm	100 kHz
862 MHz to 1 GHz	-36 dBm	100 kHz
1 GHz to 12,75 GHz	-30 dBm	1 MHz

Note: GFSK was the worse case

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.



Clause 4.3.1.10 Receiver Spurious Emissions (Radiated)

Note:

- 1. Measurements were done on low & high channels, but depicting the worst case are submitted in the report.
- 2. The receiver spurious emissions were done with different settings, using the relevant and pre-amplifiers for the relevant frequency ranges.

3. The test frequency range is from 30M-12.75G and please see clause 5.3.11.2.2 of EN 300 328 for the test method.

Low Channel			High Channel			
f(MHz)	Band-Width (kHz)	Level (dBm)	f(MHz)	Band-Width (kHz)	Level (dBm)	
NF			NF			
NF			NF		-	
Measure	ment Uncertainty	$\pm 6 dB$				

Limits Clause 4.3.1.10.2

Table 2:	Spurious	emission	limits	for receivers
----------	----------	----------	--------	---------------

Frequency range	Maximum power e.r.p. (≤ 1 GHz) e.i.r.p. (> 1 GHz)	Measurement bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz
1 GHz to 12,75 GHz	-47 dBm	1 MHz

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. SHENZHEN TIMEWAY TESTING LABORATORIES reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



3.0 Product Labelling

CE Mark label specification

Text of the mark is black or white in color and is left justified. Labels are printed in indelible ink on permanent adhesive backing and shall be affixed at a conspicuous location on the EUT or silk-screened onto the EUT.

CE

Mark Location: Rear enclosure

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.



4.0 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.



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.



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.



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.



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. SHENZHEN TIMEWAY TESTING LABORATORIES reserves the rights to withdraw it and to adopt



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. SHENZHEN TIMEWAY TESTING LABORATORIES reserves the rights to withdraw it and to adopt



6.0 Test Equipments						
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date	
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2014-08-21	2015-08-20	
Absorbing Clamp	ROHDE&SCHWARZ	MDS-21	100126	2014-08-21	2015-08-20	
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2014-08-21	2015-08-20	
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2014-08-21	2015-08-20	
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2014-08-21	2015-08-20	
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2014-08-21	2015-08-20	
4-WIRE ISN	ROHDE&SCHWARZ	ENY 41	830663/044	2014-08-21	2015-08-20	
GG ENY22 Double 2-Wire ISN	ROHDE&SCHWARZ	ENY22	83066/016	2014-08-21	2015-08-20	
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2014-08-21	2015-08-20	
System Controller	СТ	SC100	-	2014-08-21	2015-08-20	
Printer	EPSON	PHOTO EX3	CFNH234850	2014-08-21	2015-08-20	
FM-AM Signal Generator	JUNG.JIN	SG-150M	389911177	2014-08-21	2015-08-20	
Color TV Pattern Generator	PHILIPS	PM5418	LO621747	2014-08-21	2015-08-20	
Computer	IBM	8434	1S8434KCE99BLXLO*	-	-	
Oscillator	KENWOOD	AG-203D	3070002	2014-08-21	2015-08-20	
Spectrum Analyzer	HAMEG	HM5012	-	-	-	
Power Supply	LW	APS1502	-	-	-	
5K VA AC Power Source	California Instruments	5001iX	56060	2014-08-21	2015-08-20	
CDN	EM TEST	CDN M2/M3	-	2014-08-21	2015-08-20	
Attenuation	EM TEST	ATT6/75	-	2014-08-21	2015-08-20	
Resistance	EM TEST	R100	-	2014-08-21	2015-08-20	

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. SHENZHEN TIMEWAY TESTING LABORATORIES reserves the rights to withdraw it and to adopt



Electromagnetic	ТТТП	EM101	35708	2014-08-21	2015-08-20
Injection Clamp	LIIIHI				
Inductive	EMTEST	MC2630	-	2014 09 21	2015-08-20
Components	ENITEST			2014-08-21	
Antenna	EM TEST	MS100	-	2014-08-21	2015-08-20
Signal Generator	ROHDE&SCHWARZ	SMT03	100029	2014-08-21	2015-08-20
Power Amplifier	AR	150W1000	300999	2014-08-21	2015-08-20
Field probe	Holaday	HI-6005	105152	2014-08-21	2015-08-20
Bilog Antenna	Chase	CBL6111C	2576	2014-08-21	2015-08-20
Loop Antenna	EMCO	6502	00042960	2014-08-21	2015-08-20
ESPI Test	DOUDE & CUWADZ	ESID	838786/013	2014-08-21	2015-08-20
Receiver	KUNDE&SCHWAKZ	E5120			
3m OATS			N/A	2014-08-21	2015-08-20
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2014-08-21	2015-08-20
Horn Antonno	SCHWARZBECK	BBHA	9120D-631	2014-08-21	2015-08-20
Horn Antenna		9120D			
Power meter	Anritsu	ML2487A	6K00003613	2014-08-21	2015-08-20
Power sensor	Anritsu	MA2491A	32263	2014-08-21	2015-08-20
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2014-08-21	2015-08-20
LISN	AFJ	LS16C	10010947251	2014-08-21	2015-08-20
LISN (Three	C abuyarab a alt	NGL V 9126	9126452	2014 08 21	2015 08 20
Phase)	Schwaredeck	INSLK 8120	0120433	2014-08-21	2015-08-20
9*6*6 Anechoic			N/A	2014-08-21	2015-08-20

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. SHENZHEN TIMEWAY TESTING LABORATORIES reserves the rights to withdraw it and to adopt