

FCC TEST REPORT

On Behalf of

Shenzhen Leadfar Industry Co., Ltd.

Bluetooth speaker

Model No.: LYB-008NP

Additional Model No.: LYB-008NC/LYB-006NC/LYB-006NP

Prepared for : Shenzhen Leadfar Industry Co., Ltd.
Address : No.73 ShaTian North Road, ShaTian, KengZi, PingShan,
Shenzhen, China

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
Address : 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue,
Bao'an District, Shenzhen, Guangdong, China
Tel : (+86)755-82591330
Fax : (+86)755-82591332
Web : www.LCS-cert.com
Mail : webmaster@LCS-cert.com

Date of receipt of test sample : December 19, 2013
Number of tested samples : 1
Serial number : Prototype
Date of Test : December 19, 2013–December 28, 2013
Date of Report : December 28, 2013

FCC TEST REPORT**FCC CFR 47 PART 15 Subpart B: 2012****Report Reference No. : LCS131226165F**

Date Of Issue : December 28, 2013

Testing Laboratory Name..... : Shenzhen LCS Compliance Testing Laboratory Ltd.Address : 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue,
Bao'an District, Shenzhen, Guangdong, ChinaTesting Location/ Procedure..... : Full application of Harmonised standards ☒
Partial application of Harmonised standards ☐
Other standard testing method ☐**Applicant's Name : Shenzhen Leadfar Industry Co., Ltd.**Address : No.73 ShaTian North Road, ShaTian, KengZi, PingShan,
Shenzhen, China**Test Specification**

Standard..... : FCC CFR 47 PART 15 Subpart B: 2012, ANSI C63.4-2009

Test Report Form No..... : LCSEMC-1.0

TRF Originator : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF..... : Dated 2011-03

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. All rights reserved.

This publication may be reproduced in whole or in part for non-commercial purposes as long as the SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. is acknowledged as copyright owner and source of the material. SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

Test Item Description..... : Bluetooth speaker

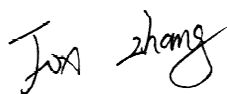
Trade Mark : N/A

Model/ Type Reference : LYB-008NP

Ratings..... : Input:100~240V, 50/60Hz, 0.8Amax;Output:DC 12V, 2A

Result : Positive**Compiled by:**

Jacky Li/ File administrators

Supervised by:

Fox Zhang/ Technique principal

Approved by:

Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : LCS131226165FDecember 28, 2013

Date of issue

Type / Model..... : LYB-008NP

EUT..... : Bluetooth speaker
.**Applicant..... : Shenzhen Leadfar Industry Co., Ltd.**Address..... : No.73 ShaTian North Road, ShaTian, KengZi, PingShan,
Shenzhen, China

Telephone..... : /

Fax..... : /

Contact..... : /

Manufacturer..... : Shenzhen Leadfar Industry Co., Ltd.Address..... : No.73 ShaTian North Road, ShaTian, KengZi, PingShan,
Shenzhen, China

Telephone..... : /

Fax..... : /

Contact..... : /

Factory..... : Shenzhen Leadfar Industry Co., Ltd.Address..... : No.73 ShaTian North Road, ShaTian, KengZi, PingShan,
Shenzhen, China

Telephone..... : /

Fax..... : /

Contact..... : /

Test Result according to the standards on page 5: **Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

TABLE OF CONTENTS

Test Report Description	Page
1. SUMMARY OF STANDARDS AND RESULTS.....	5
1.1. Description of Standards and Results.....	5
2. GENERAL INFORMATION.....	6
2.1. Description of Device (EUT).....	6
2.2. Description of Test Facility.....	6
2.3. Statement of the measurement uncertainty.....	7
2.4. Measurement Uncertainty.....	7
3. POWER LINE CONDUCTED MEASUREMENT.....	8
3.1. Test Equipment.....	8
3.2. Block Diagram of Test Setup.....	8
3.3. Power Line Conducted Emission Measurement Limits (Class B).....	8
3.4. Configuration of EUT on Measurement.....	8
3.5. Operating Condition of EUT.....	9
3.6. Test Procedure.....	9
3.7. Power Line Conducted Emission Measurement Results.....	9
4. RADIATED EMISSION MEASUREMENT.....	11
4.1. Test Equipment.....	11
4.2. Block Diagram of Test Setup.....	11
4.3. Radiated Emission Limit (Class B).....	11
4.4. EUT Configuration on Measurement.....	12
4.5. Operating Condition of EUT.....	12
4.6. Test Procedure.....	12
4.7. Radiated Emission Noise Measurement Result.....	12
7. MANUFACTURER/ APPROVAL HOLDER DECLARATION.....	14

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	FCC CFR 47 PART 15 Subpart B: 2012	Class B	PASS
Radiated disturbance	FCC CFR 47 PART 15 Subpart B: 2012	Class B	PASS
N/A is an abbreviation for Not Applicable.			

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT	Bluetooth speaker
Model No.	LYB-008NP
Frequency Range	2.402-2.480GHz
Channel Number	79
Channel frequency	2402.00-2480.00MHz (Channel Frequency=2402+1(K-1), K=1, 2, 379)
Channel Spacing	1MHz
Modulation Type	GFSK(1Mbps), $\pi/4$ -DQPSK(2Mbps), 8-DPSK(3Mbps)
Bluetooth Version	V3.0+EDR
Antenna Gain	PCB antenna, 1.0dBi(Max.)
Input Voltage	: Input:100~240V, 50/60Hz, 0.8Amax;Output:DC 12V, 2A

2.2. Description of Test Facility

Site Description

EMC Lab.	: Accredited by CNAS, June 04, 2010 The Certificate Registration Number. is L4595. Accredited by FCC, July 14, 2011 The Certificate Registration Number. is 899208. Accredited by Industry Canada, May. 02, 2011 The Certificate Registration Number. is 9642A-1 Accredited by VCCI, Japan January 30, 2012 The Certificate Registration Number. is C-4260 and R-3804 Accredited by ESMD, April 24, 2012 The Certificate Registration Number. is ARCB0108. Accredited by UL, June 11, 2012 The Certificate Registration Number. is 100571-492. Accredited by TUV, November 21, 2012 The Certificate Registration Number. is SCN1081 Accredited by Intertek, December 21, 2012 The Certificate Registration Number. is 2011-RTL-L1-50.
----------	--

2.3. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.4. Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty	:	30MHz~200MHz	$\pm 2.96\text{dB}$	(1)
		200MHz~1000MHz	$\pm 3.10\text{dB}$	(1)
Conduction Uncertainty	:	150kHz~30MHz	$\pm 1.63\text{dB}$	(1)
Power disturbance	:	30MHz~300MHz	$\pm 1.60\text{dB}$	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

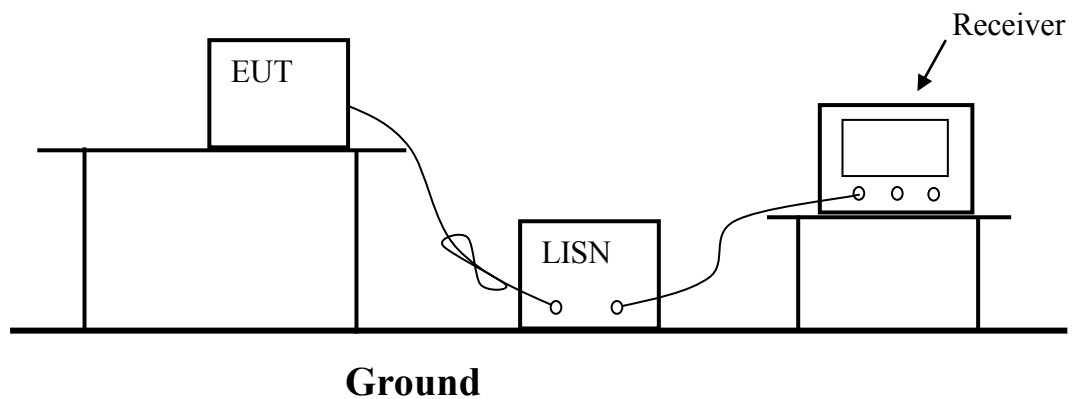
3. POWER LINE CONDUCTED MEASUREMENT

3.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2014/06/18
2	EMI Test Receiver	ROHDE & SCHWARZ	ESPI	101840	2014/06/18
3	Artificial Mains	ROHDE & SCHWARZ	ENV216	101288	2014/06/19
4	EMI Test Software	AUDIX	E3	N/A	2014/06/18

3.2. Block Diagram of Test Setup



3.3. Power Line Conducted Emission Measurement Limits (Class B)

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 ~ 0.50	66-56	56-46
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

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

2. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 3.2.

3.5.2. Turn on the power of all equipment.

3.5.3. Let the EUT work in test mode (ON) and measure it.

3.6. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC/ANSI C63.4-2009 on Conducted Emission Measurement.

The bandwidth of test receiver is set at 9kHz.

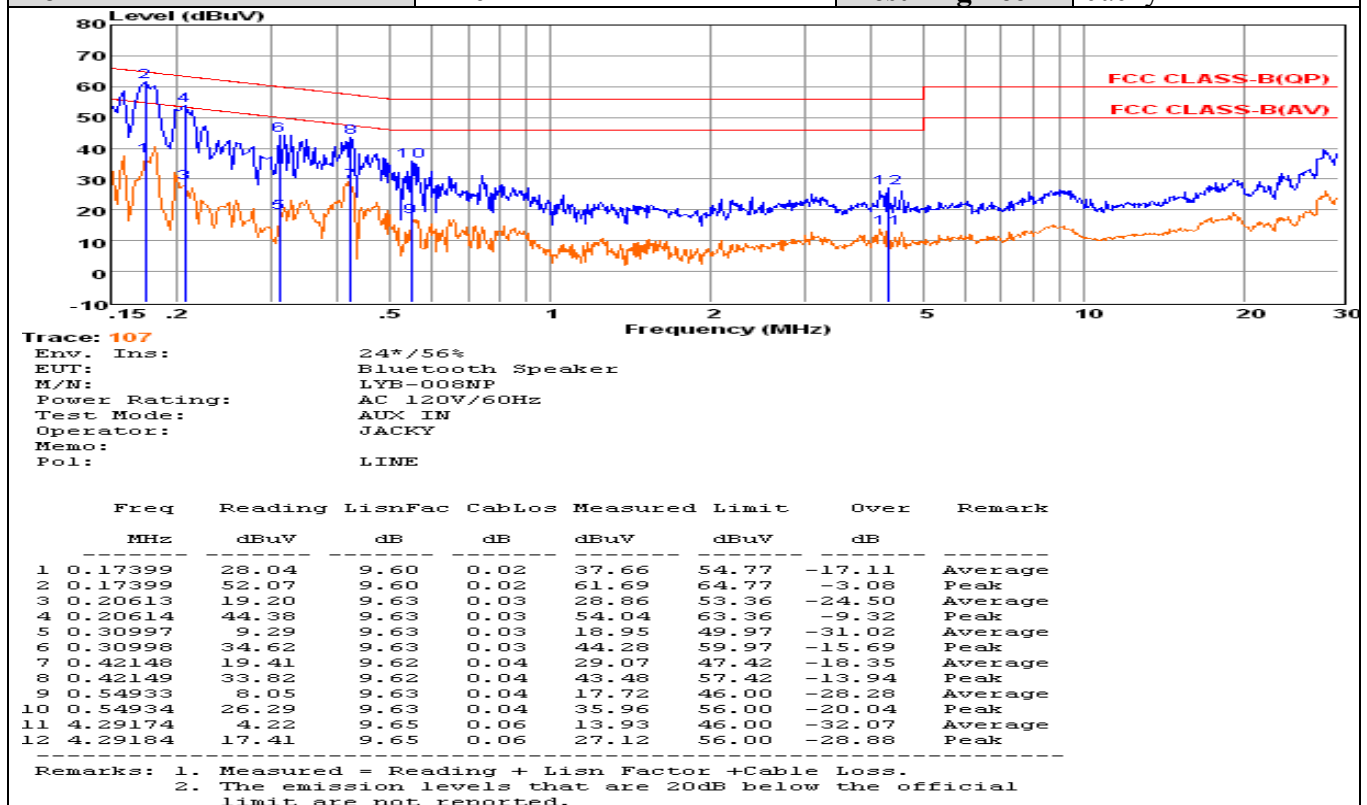
The frequency range from 150kHz to 30MHz is checked.

3.7. Power Line Conducted Emission Measurement Results

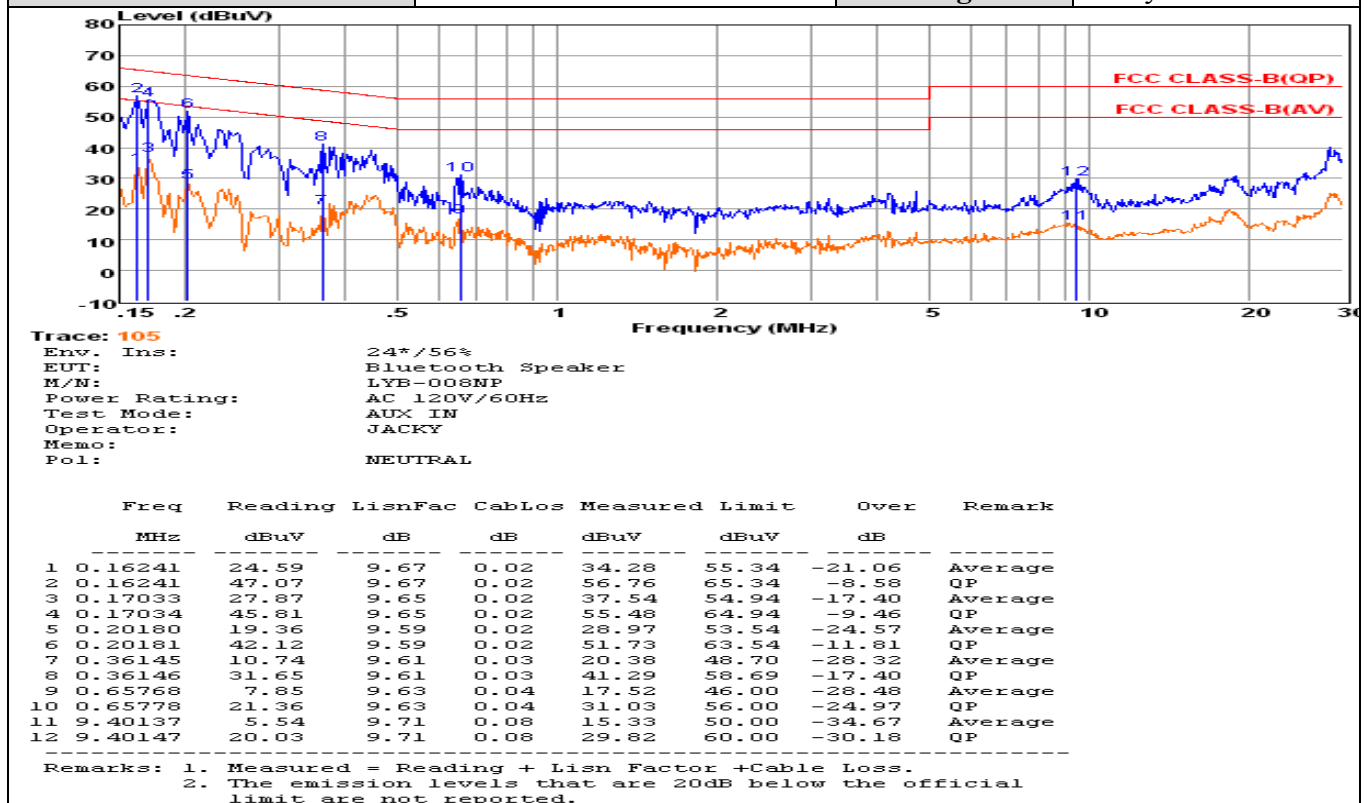
PASS.

All the scanning waveforms for Conducted Emission Measurement are refer to the next page. Only record the worst results.

Model No.	LYB-008NP	Test Date	December 24, 2013
Environmental Conditions	24°C, 56% RH	Test Mode	AUX IN
Pol	Line	Test Engineer	Jacky



Model No.	LYB-008NP	Test Date	December 24, 2013
Environmental Conditions	24°C, 56% RH	Test Mode	AUX IN
Pol	Neutral	Test Engineer	Jacky



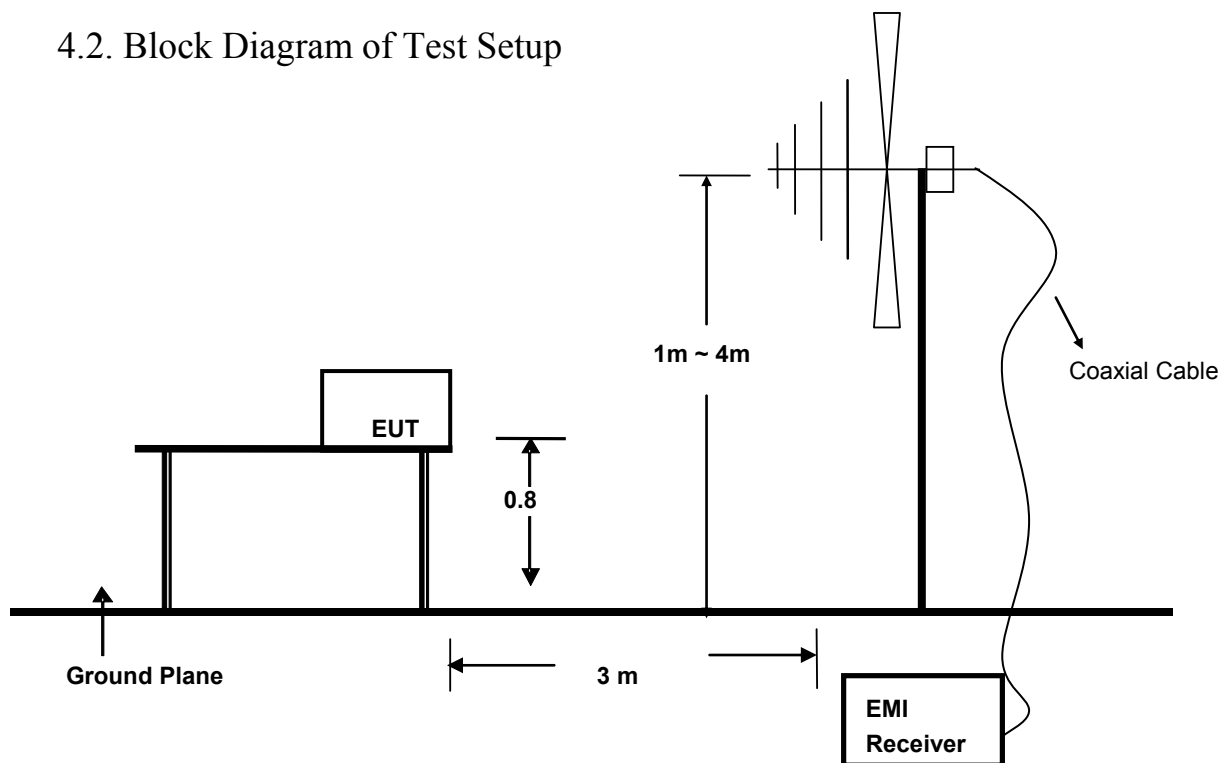
4. RADIATED EMISSION MEASUREMENT

4.1. Test Equipment

The following test equipments are used during the radiated emission measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2014/06/18
2	EMI Test Receiver	ROHDE & SCHWARZ	ESPI	101840	2014/06/18
3	Log per Antenna	SCHWARZBECK	VULB9163	9163-470	2014/06/21
4	Amplifier	Compliance Direction	PAP-0102	21001	2014/06/18
5	Spectrum Analyzer	Agilent	E4407B	MY41440754	2014/07/16
6	Horn Antenna	ETS.LINDGREN	3115	00034771	2014/12/11
7	EMI Test Software	AUDIX	E3	N/A	2014/06/18

4.2. Block Diagram of Test Setup



4.3. Radiated Emission Limit (Class B)

Limits for radiated disturbance Blow 1GHz

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46
960 ~ 1000	3	500	54

Remark : (1) Emission level $(\text{dB})\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.4. EUT Configuration on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.5. Operating Condition of EUT

4.5.1. Setup the EUT as shown in Section 4.2.

4.5.2. Let the EUT work in test mode (on) and measure it.

4.6. Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated by-log antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2009 on radiated emission measurement.

The bandwidth of the EMI test receiver is set at 120kHz, 1000kHz.

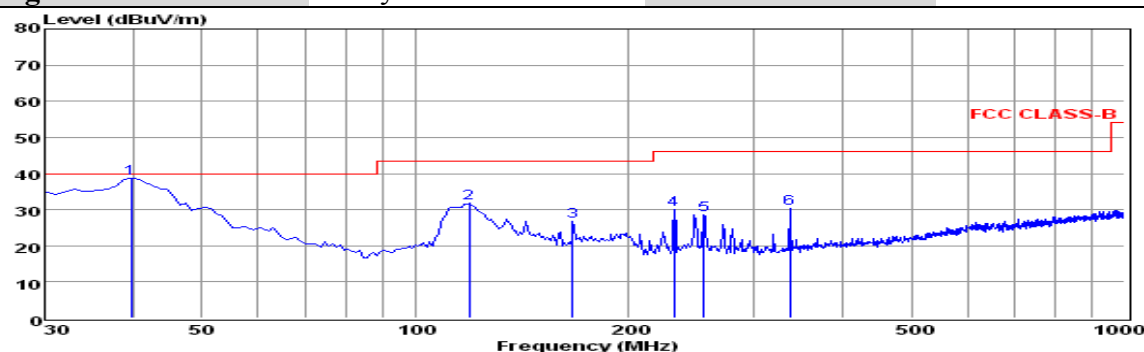
The frequency range from 9kHz to 1000MHz is checked.

4.7. Radiated Emission Noise Measurement Result

PASS.

The scanning waveforms please refer to the next page. Only record the worst results. Below 30MHz the result is too low so we did not show it.

Model No.	LYB-008NP	Test Date	December 24, 2013
Environmental Conditions	24°C, 56% RH	Test Mode	AUX IN
Pol	Vertical	Detector Function	Quasi-peak
Test Engineer	Jacky	Distance	3m

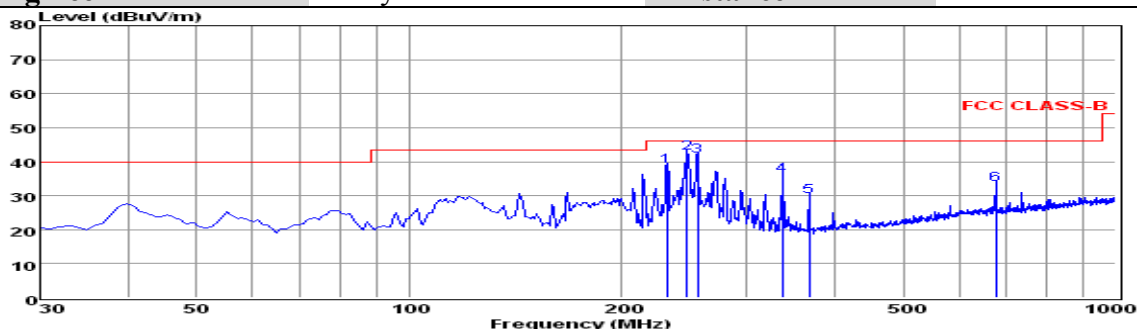


Env./Ins: 24°C/56%
 EUT: Bluetooth Speaker
 M/N: LYB-008NP
 Power Rating: AC 120V/60Hz
 Test Mode: AUX IN
 Operator: JACKY
 Memo:
 pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	39.70	24.90	0.38	13.50	38.78	40.00	-1.22	QP
2	119.24	20.69	0.64	10.61	31.94	43.50	-11.56	QP
3	166.77	17.06	0.77	8.87	26.70	43.50	-16.80	QP
4	231.76	17.23	0.98	11.72	29.93	46.00	-16.07	QP
5	255.04	15.59	1.02	12.06	28.67	46.00	-17.33	QP
6	337.49	15.17	1.16	14.02	30.35	46.00	-15.65	QP

Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that are 20dB below the official limit are not reported

Model No.	LYB-008NP	Test Date	December 24, 2013
Environmental Conditions	24°C, 56% RH	Test Mode	AUX IN
Pol	Horizontal	Detector Function	Quasi-peak
Test Engineer	Jacky	Distance	3m



Env./Ins: 24°C/56%
 EUT: Bluetooth Speaker
 M/N: LYB-008NP
 Power Rating: AC 120V/60Hz
 Test Mode: AUX IN
 Operator: JACKY
 Memo:
 pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	231.76	25.84	0.98	11.72	38.54	46.00	-7.46	QP
2	247.28	29.58	0.97	12.08	42.63	46.00	-3.37	QP
3	256.01	28.42	1.02	12.06	41.50	46.00	-4.50	QP
4	337.49	20.85	1.16	14.02	36.03	46.00	-9.97	QP
5	368.53	13.92	1.22	14.50	29.64	46.00	-16.36	QP
6	676.02	12.86	1.73	18.72	33.31	46.00	-12.69	QP

Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that are 20dB below the official limit are not reported

7. MANUFACTURER/ APPROVAL HOLDER DECLARATION

The following identical model(s):

LYB-008NC	LYB-006NC	LYB-006NP	--
-----------	-----------	-----------	----

Belong to the tested device:

Product description : Bluetooth speaker

Model name : LYB-008NP

Remark: PCB board, structure and internal of these model(s) are the same,
So no additional models were tested.

-----THE END OF REPORT-----