







ISO/IEC17025Accredited Lab.

Report No: FCC 1406055 File reference No: 2014-06-19

Applicant: Zhuhai Jaocom Audio Co., Ltd

Product: Wireless Speaker

Model No: SBT1005、SBT1005RD、SBT1005RD-MTB、C5(PH-20M)、

C5(PH-30)、C5(PH-60)、Q1、Q1-20、Q1-40、AR1005

Trademark: JAOCOM, SHARPER IMAGE, AR+SOUND, DE

Test Standards: FCC Part 15.247

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.4, FCC Part 15 Subpart C,

Paragraph 15.247 regulations for the evaluation of

electromagnetic compatibility

Approved By

Jack Chung

Jack Chung Manager

Dated: June 19, 2014

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 TECHNOLOGY CONSULTING CO LTD

5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen,CHINA.

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timewaytech.com

Report No: FCC1406055 Page 2 of 86

Date: 2014-06-19



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 meets 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 17025:1999 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 No.: IC 5205A-02.

Page 3 of 86

Report No: FCC1406055

Date: 2014-06-19



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.	4
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
5.1	Test Method and Test Procedure.	12
6.2	Configuration of the EUT	12
6.3	EUT Operation Condition.	12
5.4	Radiated Emission Limit.	13
7.0	20dB Bandwidth Measurement.	22
8.0	Maximum Peak Output Power.	34
9.0	Carrier Frequency Separation.	37
10.0	Number of Hopping Channel.	41
11.0	Time of Occupancy (Dwell Time)	45
12.0	Out of Band Measurement.	58
13.0	Antenna Requirement.	71
14.0	FCC IC Label	72
15.0	Photo of Test Setup and EUT View.	73

Date: 2014-06-19



1.0 General Details

1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO., LTD

Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District,

Shenzhen, CHINA.

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

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

1.2 Applicant Details

Applicant: Zhuhai Jaocom Audio Co., Ltd

Address: Room 104 Building 18 NO.206 Yi Hua street, Xiang Zhou, Zhu Hai city.

Telephone: 0756-3882138 Fax: 0756-3882139

1.3 Description of EUT

Product: Wireless Speaker

Manufacturer: Zhuhai Jaocom Technology Co., Ltd

Address: 6th Floor, 1st Building, Feng Shan Industry Zone, NO.1131, Road Cui Jin,

Zhuhai, Guangdong, China

Brand Name: JAOCOM

Additional Brand Name: SHARPER IMAGE, AR+SOUND, DE

Model Number: SBT1005

Additional Model Number: SBT1005RD、SBT1005RD-MTB、C5(PH-20M)、C5(PH-30)、C5(PH-60)、

Q1、Q1-20、Q1-40、AR1005

Type of Modulation GFSK, JI/4-DQPSK, 8DPSK for Bluetooth

Frequency range 2402-2480MHz for Bluetooth

Channel Spacing 1MHz for Bluetooth

Frequency Selection By software

Channel Number 79 channel for Bluetooth

Antenna: PCB Printed Antenna used, the antenna gain is 0.0dBi

Power Supply: Model: SPS24W-120100

Input: AC100-240V, 50/60Hz, 0.55A; Output: DC12V, 1A

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 Technology Consulting Co.,Ltd. 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 Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

Report No: FCC1406055 Page 5 of 86

Date: 2014-06-19



Submitted Sample: 2 Samples 1.4

1.5 Test Duration 2014-06-05 to 2014-06-18

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

Page 6 of 86

Report No: FCC1406055

Date: 2014-06-19



2.0	Test Equipments						
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date		
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2013-08-23	2014-08-22		
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2013-08-23	2014-08-22		
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2013-08-23	2014-08-22		
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2013-08-25	2014-08-24		
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2013-08-23	2014-08-22		
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2013-08-24	2014-08-23		
System Controller	СТ	SC100	-				
Printer	EPSON	РНОТО ЕХЗ	CFNH234850		1		
Computer	IBM	8434	1S8434KCE99BLXL O*	-	-		
Loop Antenna	EMCO	6502	00042960	2013-08-23	2014-08-22		
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2013-08-23	2014-08-22		
3m OATS			N/A	2013-08-22	2014-08-21		
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2013-08-24	2014-08-23		
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2013-08-24	2014-08-23		
Power meter	Anritsu	ML2487A	6K00003613	2013-08-24	2014-08-23		
Power sensor	Anritsu	MA2491A	32263	2013-08-24	2014-08-23		
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2013-08-21	2014-08-20		
9*6*6 Anechoic			N/A	2013-08-22	2014-08-21		
EMI Test Receiver	RS	ESCS30	100139	2013-08-23	2014-08-22		

Page 7 of 86

Report No: FCC1406055

Date: 2014-06-19



3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:

Requirement	CFR 47 Section	Result	Notes
Antenna Requirement	15.203, 15.247(b)(4)	PASS	Complies
Maximum Peak Out Power	15.247 (b)(1), (4)	PASS	Complies
Carrier Frequency Separation	15.247(a)(1)	PASS	Complies
20dB Channel Bandwidth	15.247 (a)(1)	PASS	Complies
Number of Hopping Channels	15.247(a)(iii), 15.247(b)(1)	PASS	Complies
Time of Occupancy (Dwell Time)	15.247(a)(iii)	PASS	Complies
Spurious Emission, Band Edge, and	15.247(d),15.205(a),	PASS	Complies
Restricted bands	15.209 (a),15.109		
Conducted Emissions	15.207(a), 15.107	PASS	Complies
RF Exposure	15.247(i), 1.1307(b)(1)	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

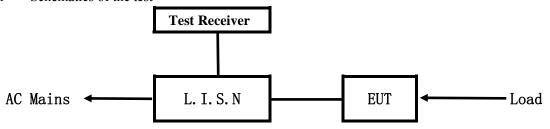
Report No: FCC1406055 Page 8 of 86

Date: 2014-06-19



5. Power Line Conducted Emission Test

5.1 Schematics of the test

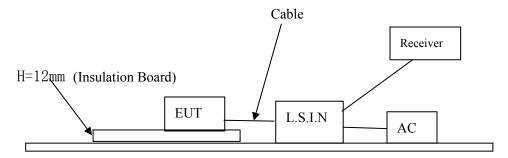


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2003.

Test Voltage: 120V~60Hz Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

Date: 2014-06-19



A. EUT

Device	Manufacturer	Model	FCC ID
	i Jaocom Technology Co., Ltd	SBT1005、SBT1005RD、 SBT1005RD-MTB、 C5(PH-20M)、C5(PH-30)、 C5(PH-60)、Q1、Q1-20、Q1-40、 AR1005	2AB2I-SBT1005

B. Internal Device

Device	Manufacturer	Model	Rating

C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

- 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 15.107, 15.207

Frequency	Class A Lin	nits (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.

Date: 2014-06-19



A: Conducted Emission on Live Terminal (150kHz to 30MHz)

EUT Operating Environment

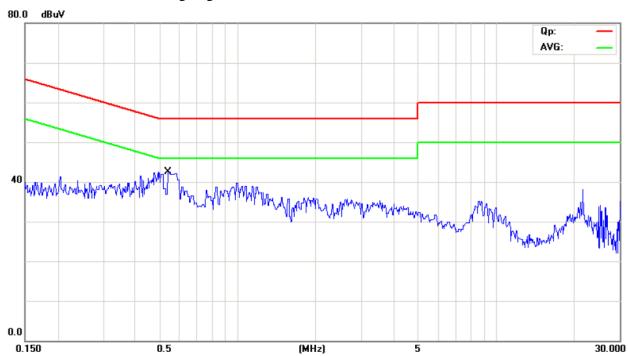
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Keep Transmitting

Equipment Level: Class B

Results: PASS

Please refer to following diagram for individual



No. Mk.	Freq.			Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.5432	24.00	11.42	35.42	56.00	-20.58	QP	
2	0.5432	9.10	11.42	20.52	46.00	-25.48	AVG	

Date: 2014-06-19



B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

EUT Operating Environment

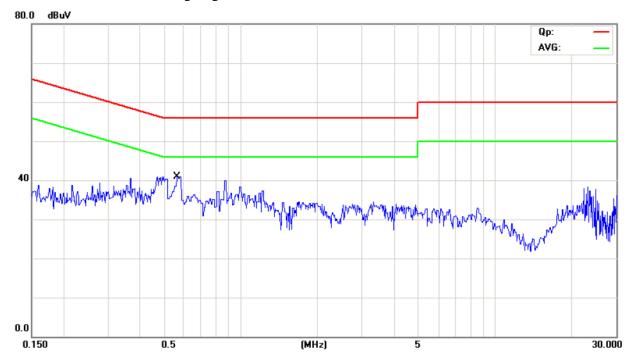
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Keep Transmitting

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



No. Mk.	Freq.			Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBu∀	dBuV	dB	Detector	Comment
1 *	0.5625	28.10	11.44	39.54	56.00	-16.46	QP	
2	0.5625	12.90	11.44	24.34	46.00	-21.66	AVG	-

Report No: FCC1406055 Page 12 of 86

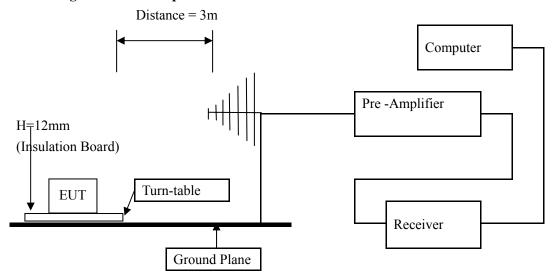
Date: 2014-06-19



6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) 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 is according to ANSI C63.4-2003.
- (3) The frequency spectrum from 30 MHz to 1 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=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with 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.
- (6) The antenna polarization: Vertical polarization and Horizontal polarization.

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.

Report No: FCC1406055 Page 13 of 86

Date: 2014-06-19



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 complied to limit on Paragraph 15.209 and 15.109

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
- 4. GFSK mode has the highest peak output power. It was selected to select to conduct the radiated emissions test and it was the worst case

Report No: FCC1406055 Page 14 of 86

Date: 2014-06-19



Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

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

EUT set Condition: Keep Transmitting

Results: Pass

		•	
Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB \u03b4 V/m)
131.600	29.23	Н	43.50
288.000	30.16	Н	46.00
192.000	26.90	Н	43.50
48.000	37.63	V	40.00
89.000	36.72	V	43.50
164.440	33.85	V	43.50

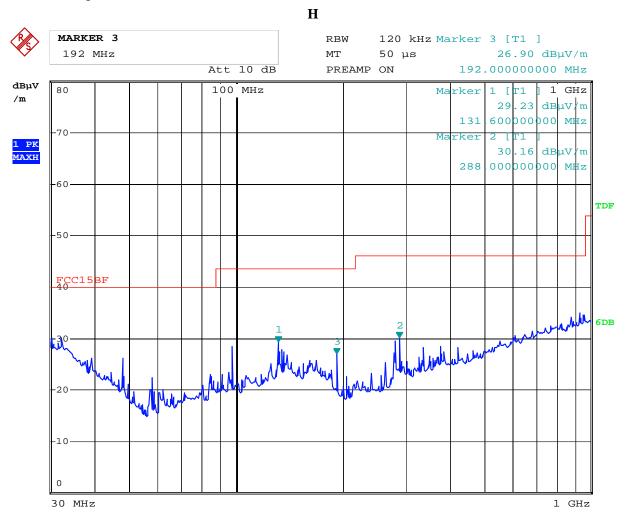
Page 15 of 86

Report No: FCC1406055

Date: 2014-06-19



Test Figure:



Date: 6.JUN.2014 16:55:15

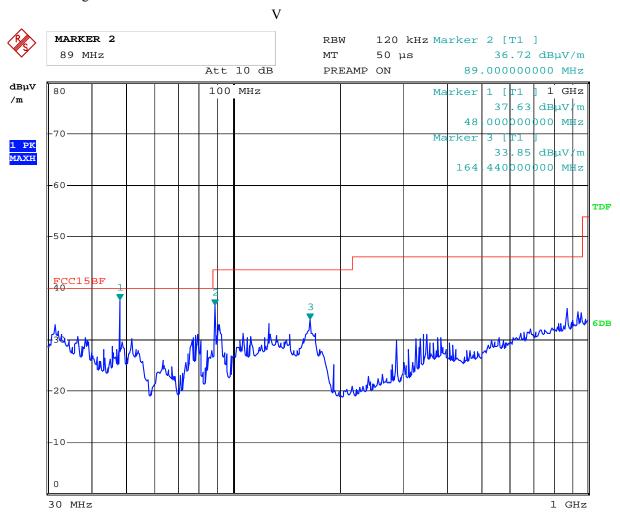
Page 16 of 86

Report No: FCC1406055

Date: 2014-06-19



Test Figure:



Date: 6.JUN.2014 16:58:57

Report No: FCC1406055 Page 17 of 86

Date: 2014-06-19



Operation Mode: Transmitting under Low Channel (2402MHz)

	0		
Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \mu V/m)
2402	92.16 (PK)	Н	Fundamental Frequency
2402	92.87 (PK)	V	rundamentai riequency
4804		Н	74(Peak)/ 54(AV)
4804		V	74(Peak)/ 54(AV)
7206		H/V	74(Peak)/ 54(AV)
9608		H/V	74(Peak)/ 54(AV)
12010		H/V	74(Peak)/ 54(AV)
14412		H/V	74(Peak)/ 54(AV)
16814		H/V	74(Peak)/ 54(AV)
19216		H/V	74(Peak)/ 54(AV)
21618		H/V	74(Peak)/ 54(AV)
24020		H/V	74(Peak)/ 54(AV)

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 Mode: Transmitting g under Middle Channel (2441MHz)

	0.0	`	<u> </u>	
Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \mu V/m)	
2441	91.36 (PK)	Н	Fundamental Frequency	
2441	91.76 (PK)	V		
4882		Н	74(Peak)/ 54(AV)	
4882		V	74(Peak)/ 54(AV)	
7323		H/V	74(Peak)/ 54(AV)	
9764		H/V	74(Peak)/ 54(AV)	
12205		H/V	74(Peak)/ 54(AV)	
14646		H/V	74(Peak)/ 54(AV)	
17087		H/V	74(Peak)/ 54(AV)	
19528		H/V	74(Peak)/ 54(AV)	
21969		H/V	74(Peak)/ 54(AV)	
24410		H/V	74(Peak)/ 54(AV)	

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

Report No: FCC1406055 Page 18 of 86

Date: 2014-06-19



Operation Mode: Transmitting under High Channel (2480MHz)

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB µ V/m)			
2480	93.32 (PK)	Н	Fundamental Frequency			
2480	92.81 (PK)	V	Fundamental Frequency			
4960.	1	Н	74(Peak)/ 54(AV)			
4960.	1	V	74(Peak)/ 54(AV)			
7440	1	H/V	74(Peak)/ 54(AV)			
9920	1	H/V	74(Peak)/ 54(AV)			
12400		H/V				
14880	1	H/V	74(Peak)/ 54(AV)			
17360	1	H/V	74(Peak)/ 54(AV)			
19840	1	H/V	74(Peak)/ 54(AV)			
22320	-	H/V	74(Peak)/ 54(AV)			
24800		H/V	74(Peak)/ 54(AV)			

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

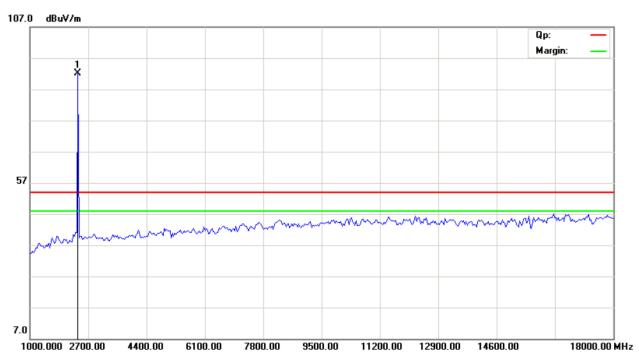
^{2.} Remark "---" means that the emissions level is too low to be measured

Date: 2014-06-19

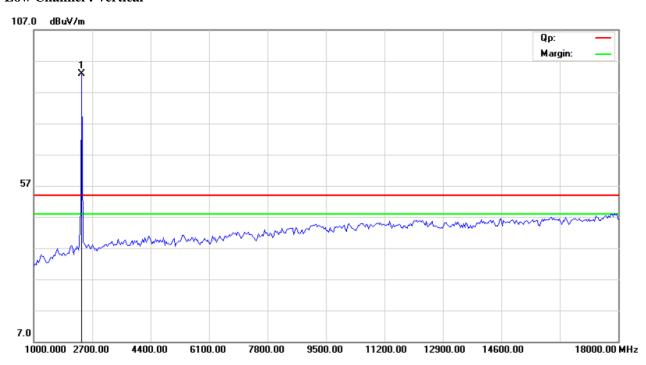


Please refer to the following test plots for details:

Low Channel: Horizontal



Low Channel: Vertical



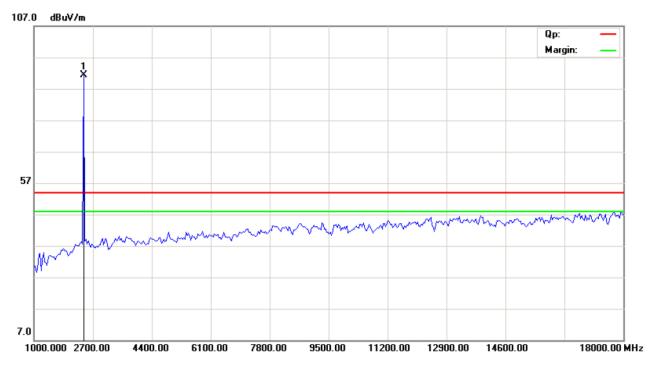
The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. 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 Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

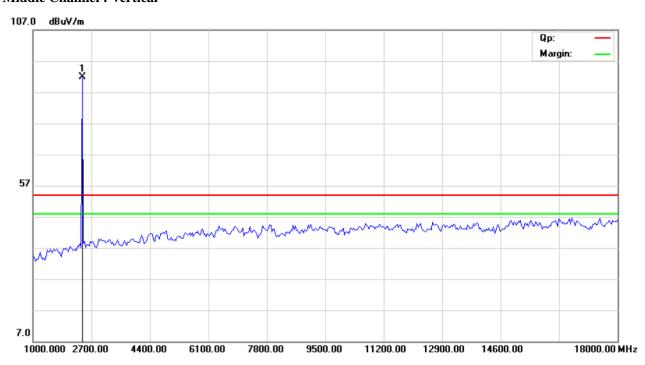
Date: 2014-06-19



Middle Channel: Horizontal



Middle Channel: Vertical



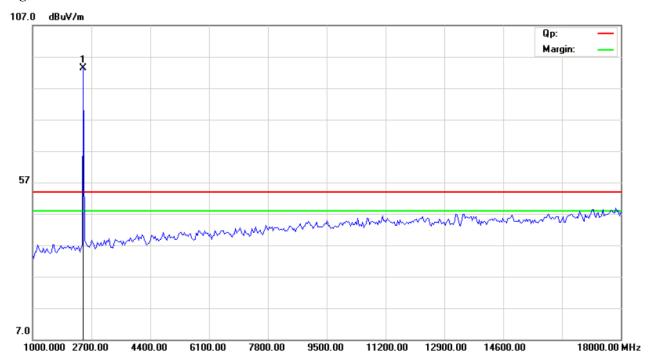
The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. 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 Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

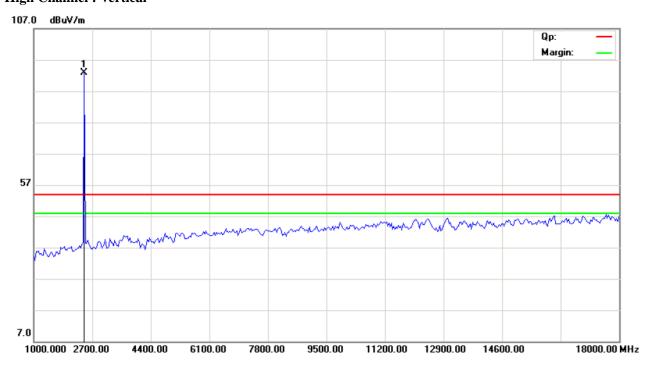
Date: 2014-06-19



High Channel: Horizontal



High Channel: Vertical



Note: for the radiated emissions above 18G, it is the floor noise.

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 Technology Consulting Co.,Ltd. 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 Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

Report No: FCC1406055 Page 22 of 86

Date: 2014-06-19



7.0 20dB Bandwidth Measurement

7.1 Regulation

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

7.2 Limits of 20dB Bandwidth Measurement

N/A

7.3 Test Procedure.

- 1. Check the calibration of the measuring instrument (spectrum analyzer) using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span =3MHz, VBW =30 kHz, RBW=100 kHz, Sweep = auto Detector function = peak, Trace = max hold
- 3. Measure the highest amplitude appearing on spectral display and record the level to calculate results. 6. Repeat above procedures until all frequencies measured were complete.

7.4 Test Result

Type of Modulation: GFSK

EUT	Wireless Spe	Wireless Speaker		Model		SBT1005、SBT1005RD、SBT1005RD-MTB、			
					C5(PH-20M)、C5(PH-30)、C5(PH-60)、				
					Q1、Q1-20、Q1-40、AR1005				
Mode	Keep Transm	itting	Input Voltag	ge		120V~			
Temperatu	ure 24 deg. C	·,	Humidity	,	56% RH				
Channel	Channel Frequency (MHz)	20 dl	B Bandwidth (kHz)	M	aximum Limit (kHz)	Pass/ Fail			
Low	2402		876			Pass			
Middle	2441		936			Pass			
High	2480		864	864		Pass			

Page 23 of 86

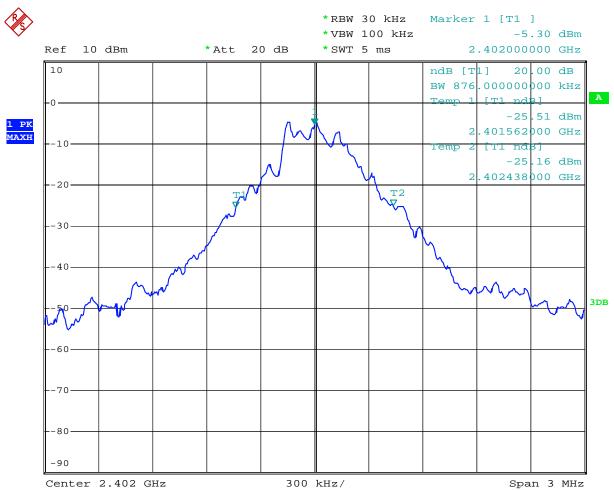
Report No: FCC1406055

Date: 2014-06-19



Test Figure:

1. Condition: Low Channel



Date: 17.JUN.2014 20:33:34

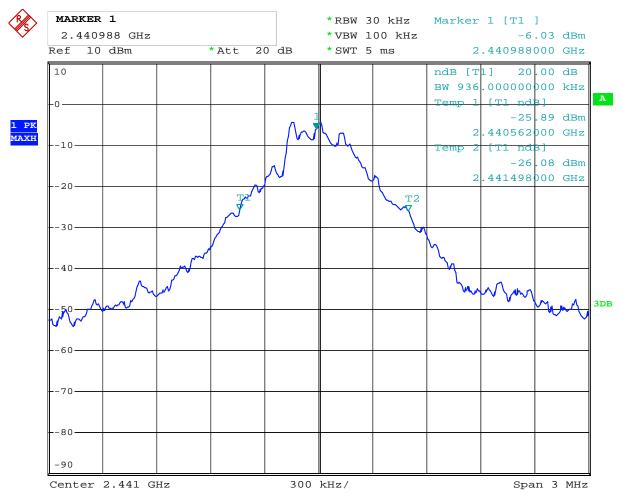
Page 24 of 86

Report No: FCC1406055

Date: 2014-06-19



2. Condition: Middle Channel



Date: 17.JUN.2014 20:34:21

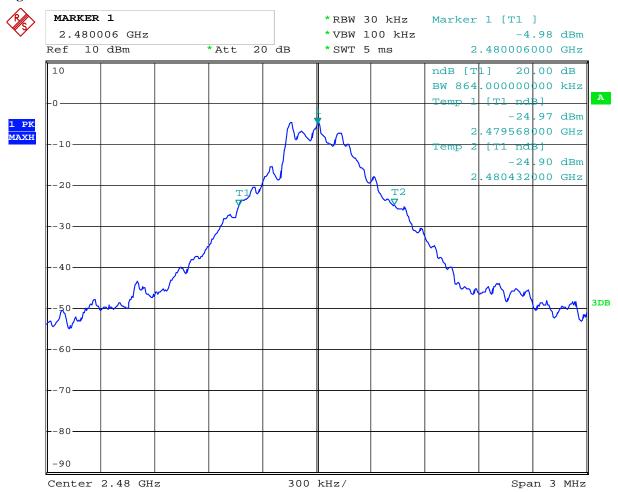
Page 25 of 86

Report No: FCC1406055

Date: 2014-06-19



3. High Channel



Date: 17.JUN.2014 20:39:58

Report No: FCC1406055 Page 26 of 86

Date: 2014-06-19



Test Result

Type of Modulation: $\pi/4$ -DQPSK

EUT	EUT Wireless Speaker		eaker	Model		SBT1005、SBT1005RD、	
						SBT1005RD-MTB、C5(PH-20M)、	
						C5(PH-30)、C5(PH-60)、	
						Q1、Q1-20、Q1-40、AR1005	
Mode		Keep Transm	itting	ting Input Voltage		120V~	
Temperat	ure	24 deg. (Ξ,	Humidity		56% RH	
Channel	Ch	annel Frequency (MHz)	20 d Bandw (kH:	idth	Maximum Limit (kHz)	Pass/ Fail	
Low		2402	124	8		Pass	
Middle		2441	122	4		Pass	
High		2480	122	4		Pass	

Page 27 of 86

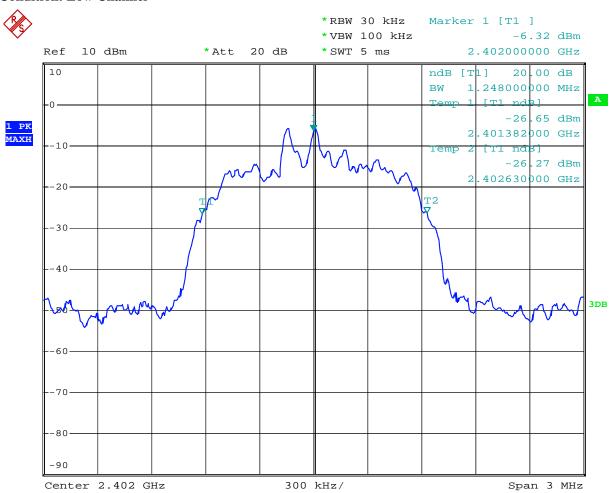
Report No: FCC1406055

Date: 2014-06-19



Test Figure:

1. Condition: Low Channel



Date: 17.JUN.2014 20:32:54

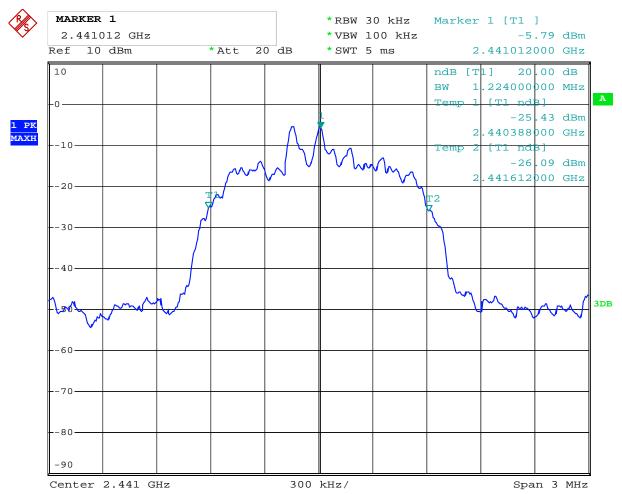
Page 28 of 86

Report No: FCC1406055

Date: 2014-06-19



2. Condition: Middle Channel



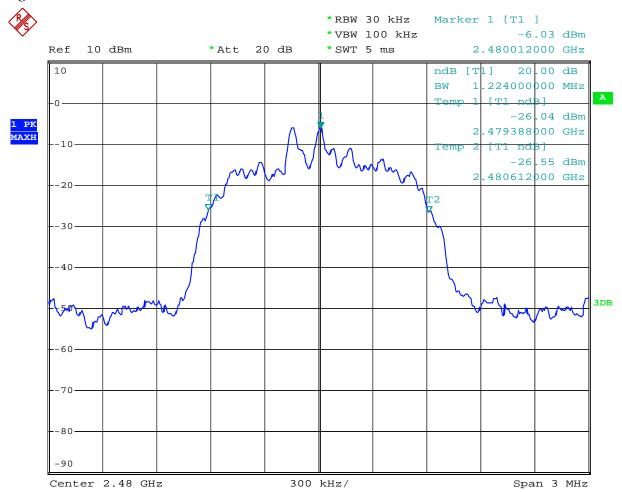
Date: 17.JUN.2014 20:35:17

Report No: FCC1406055 Page 29 of 86

Date: 2014-06-19



3. High Channel



Date: 17.JUN.2014 20:37:21

Report No: FCC1406055 Page 30 of 86

Date: 2014-06-19



Test Result

Type of Modulation: 8DPSK

				1		I	
EUT	EUT Wireless Speaker		aker	er Model		SBT1005、SBT1005RD、	
						SBT1005RD-MTB、C5(PH-20M)、	
						C5(PH-30)、C5(PH-60)、	
						Q1、Q1-20、Q1-40、AR1005	
Mode		Keep Transmi	Keep Transmitting Input Voltage		nput Voltage	120V~	
Temperat	ure	24 deg. C	,	Humidity		56% RH	
Channel	Cl	hannel Frequency (MHz)	20 d Bandw (kHz	idth	Maximum Limit (kHz)	Pass/ Fail	
Low		2402	1224			Pass	
Middle		2441	1212			Pass	
High		2480	1212	2		Pass	

Page 31 of 86

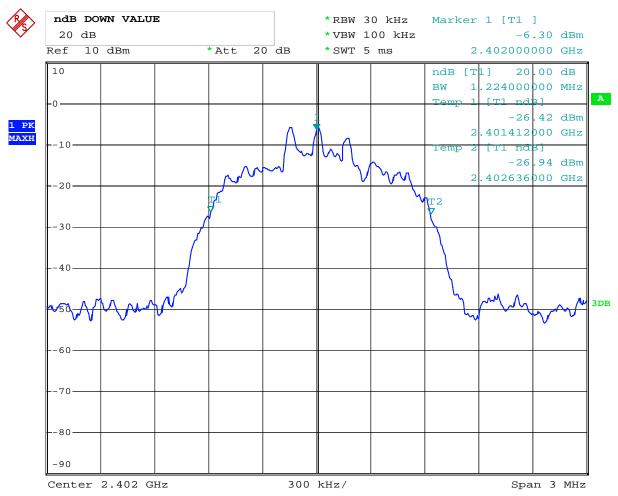
Report No: FCC1406055

Date: 2014-06-19



Test Figure:

1. Condition: Low Channel



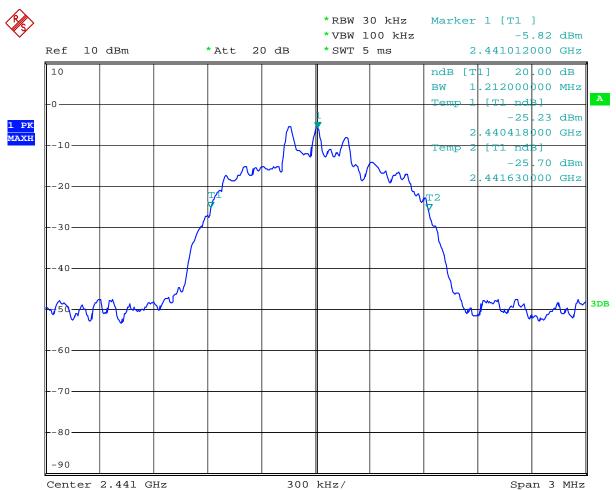
Date: 17.JUN.2014 20:32:17

Report No: FCC1406055 Page 32 of 86

Date: 2014-06-19



2. Condition: Middle Channel



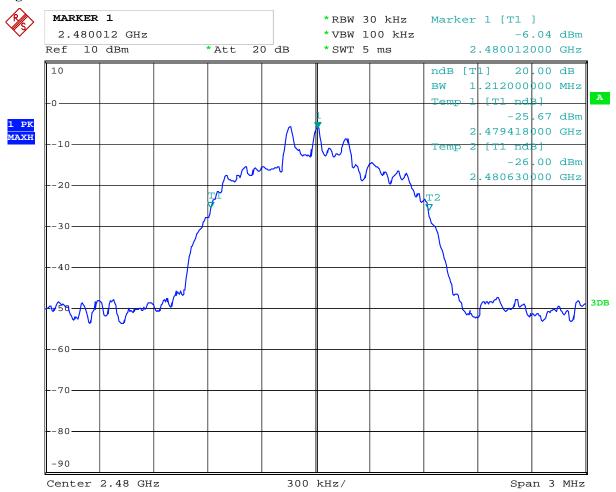
Date: 17.JUN.2014 20:36:03

Report No: FCC1406055 Page 33 of 86

Date: 2014-06-19



3. High Channel



Date: 17.JUN.2014 20:36:58

Report No: FCC1406055 Page 34 of 86

Date: 2014-06-19



8. Maximum Peak Output Power

8.1 Regulation

According to §15.247(b)(1), for frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5MHz band:0.125 watts. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

8.2 Limits of Maximum Peak Output Power

The Maximum Peak Output Power Measurement is 30dBm.

8.3 Test Procedure

- 1. Check the calibration of the measuring instrument (spectrum analyzer) using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span = 10MHz, centered on a hopping channel; RBW > the 20 dB bandwidth of the emission being measured; VBW =10MHz, RBW=3MHz;

Sweep = auto; Detector function = peak; Trace = max hold

- 3. Measure the highest amplitude appearing on spectral display and record the level to calculate results.
- 4. Repeat above procedures until all frequencies measured were complete.

Date: 2014-06-19



8.4Test Results

Type of Modulation: GFSK

EUT		Wireless Speaker		Mode			SBT1005、SBT1005RD、 SBT1005RD-MTB、C5(PH-20M)、 C5(PH-30)、C5(PH-60)、Q1、Q1-20、	
Mode	Mode Keep Trai		nsmitting Input Vo		tage	Q1-40、AR1005 e 120V~		
Temperatur	erature 24 deg. C		eg. C,	Humidi	ty		56% RH	
Channel	Cl	hannel Frequency (MHz)	Peak Power Outp	out (dBm)		k Power Limit dBm)	Pass/ Fail	
Low		2402	-2.64	30		30	Pass	
Middle		2441	-2.51			30	Pass	
High		2480	-2.82			30	Pass	

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

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

2. The worse case was recorded

Type of Modulation: $\pi/4$ -DQPSK

- · ·									
EUT	Γ Wireless Speaker		Model		SBT1005、SBT1005RD、SBT1005RD-MTB、				
					C5(PH-20M)、C5(PH-30)、C5(PH-60)、				
							Q1、Q1-20、Q1-40、AR1005		
Mode		Keep Transmittir	ıg	Input Voltage			120V~		
Temperatur	re	24 deg. C,		Humic	idity		56% RH		
Channel	Cł	nannel Frequency (MHz)		Peak Power Output (dBm)	Peak Pow Limit (dBm)		Pass/ Fail		
Low		2402		-3.73 30		Pass			
Middle		2441		-3.58	30		Pass		
High		2480		-3.95	30		Pass		

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

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

2. The worse case was recorded

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 Technology Consulting Co.,Ltd. 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 Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

Report No: FCC1406055 Page 36 of 86

Date: 2014-06-19



Type of Modulation: 8DPSK

EUT		Wireless Speaker		Model		SBT1005、SBT1005RD、
			SB		BT1005RD-MTB、C5(PH-20M)、	
					C5((PH-30)、C5(PH-60)、Q1、Q1-20、
						Q1-40、AR1005
Mode		Keep Tran	smitting	Input Voltage		120V~
Temperatu	re	24 de	g. C,	Humidity		56% RH
Channel	Cł	nannel Frequency	Peak Power	Peak Power Lii	mit	Pass/ Fail
Channel		(MHz)	Output (dBm)	(dBm)		
Low		2402 -3.55		30		Pass
Middle		2441	-3.37	30		Pass
High		2480	-3.76	30		Pass

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

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

2. The worse case was recorded

Date: 2014-06-19



Page 37 of 86

9. Carrier Frequency Separation

9.1 Regulation

According to §15.247(a)(1), frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

9.2 Limits of Carrier Frequency Separation

The minimum Carrier Frequency Separation is 25kHz or two-thirds of the 20dB bandwidth of the hopping Channel which is great.

9.3 Test Procedure

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span = wide enough to capture the peaks of two adjacent channels: Resolution (or IF) Bandwidth (RBW) \geq 1% of the span; Video (or Average) Bandwidth (VBW) \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold
- 3. Measure the separation between the peaks of the adjacent channels using the marker-delta function.
- 4. Repeat above procedures until all frequencies measured were complete.

Date: 2014-06-19

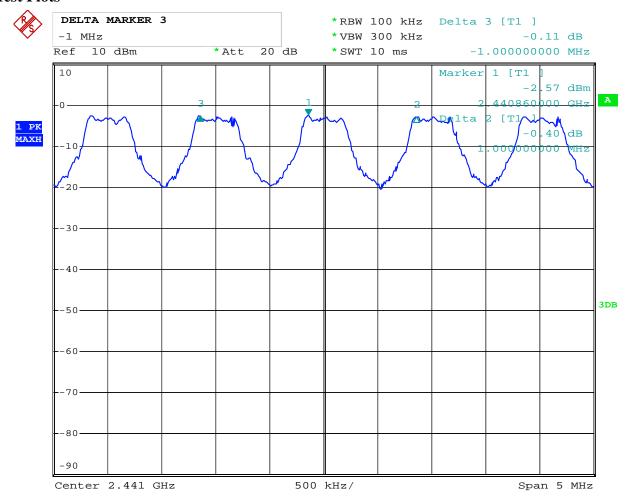


9.4Test Result

Type of Modulation: GFSK

EUT	Wireless Speaker	Model		SBT1005、SBT1005RD、SBT1005RD-MTB、			
				C5(PH-20M)、C5(PH-30)、C5(PH-60)、Q1、Q1-20、			
				Q1-40、AR1005			
Mode	Hopping On	Input	Voltage		120V~		
Temperature	24 deg. C,	Hui	midity		56% RH		
Carrier I	Frequency Separation			Limit	Pass/ Fail		
1000kHz ≥ 2.		≥ 25 k	Hz or 2/3 of 20 dB	Pass			
				bandwidth			

Test Plots



Date: 17.JUN.2014 19:33:03

Page 39 of 86

Report No: FCC1406055

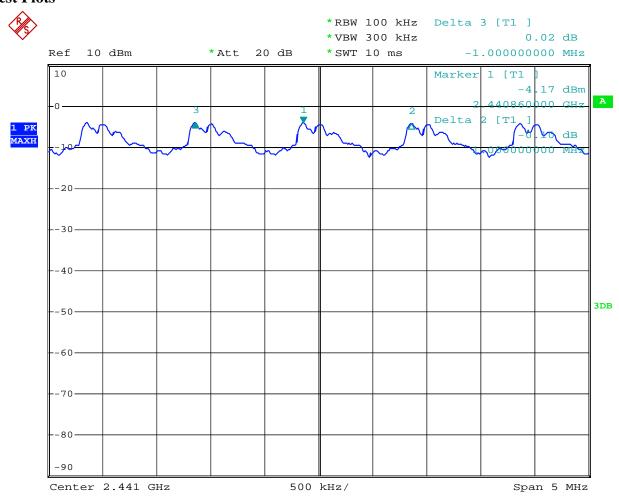
Date: 2014-06-19



Type of Modulation: JI/4-DQPSK

EUT	Wireless Speaker		Model	SBT1005、	SBT1005RD、
				SBT1005RD-M	MTB、C5(PH-20M)、
				C5(PH-30)、C5	(PH-60)、Q1、Q1-20、
				Q1-40	0、AR1005
Mode	Hopping On	Input Voltage		120V~	
Temperature	24 deg. C,		Humidity	5	6% RH
Carrier Frequency Separation			Limit		Pass/ Fail
1.000MHz		≥ 25 kHz or 2/3 of 20 dB bandwidth		B bandwidth	Pass

Test Plots



Date: 17.JUN.2014 19:39:09

Page 40 of 86

Report No: FCC1406055

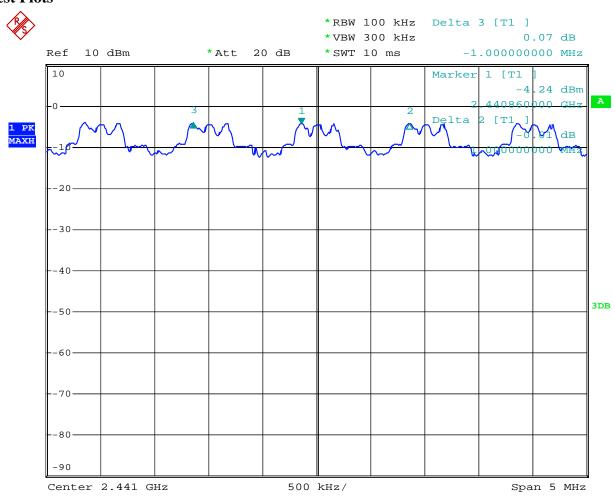
Date: 2014-06-19



Type of Modulation: 8DPSK

EUT	Wireless Speaker	Model	SBT1005、	SBT1005RD、
			SBT1005RD-M	TB、C5(PH-20M)、
			C5(PH-30)、C5(PH-60)、Q1、Q1-20、Q1-4	
			AR1005	
Mode	Hopping On	Input Voltage	120V~	
Temperature	24 deg. C,	Humidity	50	6% RH
Carrier Frequency Separation		Limi	t	Pass/ Fail
1.000MHz		≥ 25 kHz or 2/3 of 20 dB bandwidth		Pass

Test Plots



Date: 17.JUN.2014 19:46:53

Date: 2014-06-19



Page 41 of 86

10. Number of Hopping Channels

10.1 Regulation

According to §15.247(a)(1)(iii), frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used. According to §15.247(b)(1), for frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

10.2 Limits of Number of Hopping Channels

The frequency hopping systems in the 2400-2483.5MHz band shall use at least 15 channels.

10.3 Test Procedure

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span = the frequency band of operation; RBW=100 kHz, VBW=300 kHz; Sweep = auto; Detector function = peak; Trace = max hold
- 3. Record the number of hopping channels.

Date: 2014-06-19

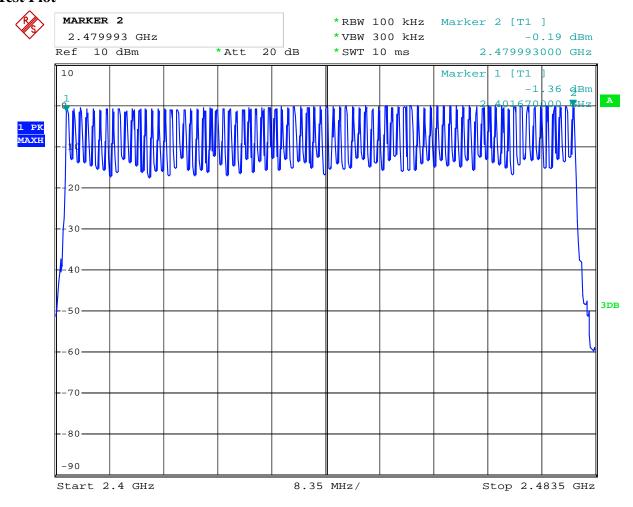


10.4Test Result

Type of Modulation: GFSK

<u> </u>								
EUT	W	ireless Speaker	Model	S	BT1005、SBT1005RD、			
				SBT10	SBT1005RD-MTB、C5(PH-20M)、			
				C5(PH-30)、C5(PH-60)、Q1、Q1-2				
				Q1-40、AR1005				
Mode		Hopping On	Input Voltage		120V~			
Temperature		24 deg. C,	Humidity		56% RH			
Operating Frequ	iency	Number of hopping channels		Limit Pass/ Fail				
2402-2480MI	Hz	79		≥ 15 Pass				

Test Plot



Date: 17.JUN.2014 10:45:35

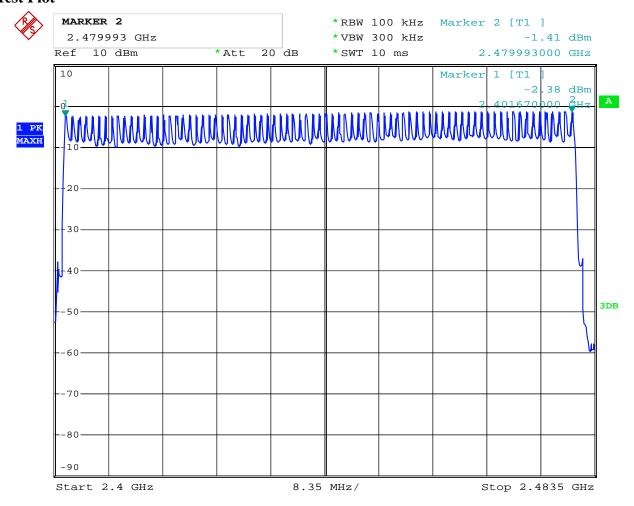
Date: 2014-06-19



Type of Modulation: $\pi/4$ -DQPSK

EUT	W	ireless Speaker	Mo	odel	S	BT1005、SBT1005RD、
			SBT10		SBT10	005RD-MTB、C5(PH-20M)、
					C5(PH-	30)、C5(PH-60)、Q1、Q1-20、
						Q1-40、AR1005
Mode		Hopping On	Input '	Voltage		120V~
Temperature		24 deg. C,	Hun	nidity		56% RH
Operating Frequ	iency	Number of hopp channels	oing	Lir	nit	Pass/ Fail
2402-2480MI	Hz	79		> ¹	15	Pass

Test Plot



Date: 17.JUN.2014 10:55:03

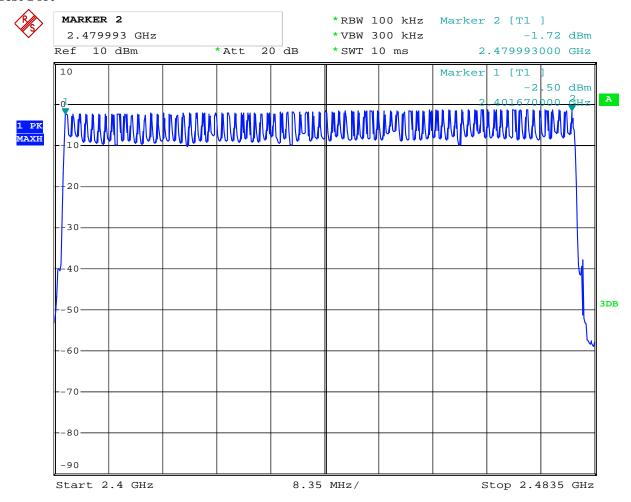
Date: 2014-06-19



Type of Modulation: 8DPSK

J P · · · · · · · · · · · · · · · · · ·						
EUT	W	Wireless Speaker		odel	S	BT1005、SBT1005RD、
				SBT10		005RD-MTB、C5(PH-20M)、
					C5(PH-30)、C5(PH-60)、Q1、Q1-20	
						Q1-40、AR1005
Mode		Hopping On	Input '	Voltage	120V	
Temperature		24 deg. C,	Hun	nidity		56% RH
Operating Frequ	iency	Number of hopp channels	oing	Limit		Pass/ Fail
2402-2480M	Hz	79		≥ 2	15	Pass

Test Plot



Date: 17.JUN.2014 11:01:35

Date: 2014-06-19



Page 45 of 86

11. Time of Occupancy (Dwell Time)

11.1 Regulation

According to §15.247(a)(1)(iii), frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

11.2 Limits of Carrier Frequency Separation

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed

11.3 Test Procedure

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span = zero span, centered on a hopping channel; RBW = 1 MHz; VBW RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak;

Trace = max hold

- 3. Measure the dwell time using the marker-delta function.
- 4. Repeat above procedures until all frequencies measured were complete.
- 5. Repeat this test for different modes of operation (e.g., data rate, modulation format, etc.), if applicable.

Report No: FCC1406055 Page 46 of 86

Date: 2014-06-19



11.4 Test Result

Type of Modulation: GFSK

EUT		Wireless Speaker		Model		SBT1005、SBT1005RD、
						SBT1005RD-MTB、C5(PH-20M)、
						C5(PH-30)、C5(PH-60)、Q1、Q1-20、
						Q1-40、AR1005
Mode		Keep Transmitting		Input Voltage		120V~
Temperatur	re	24 deg. C,		Humidit	y	56% RH
Channel		Reading	Но	ping Rate	Actua	ıl Limit
Low		2.98	266	.667 hop/s	0.318	0.4s
Middle		2.98	266	.667 hop/s	0.318	3 0.4s
High		2.98	266	.667 hop/s	0.318	3 0.4s

Actual = Reading \times (Hopping rate / Number of channels) \times Test period, Test period = 0.4 [seconds / channel] \times 79 [channel] = 31.6 [seconds] NOTE: The EUT makes worst case 1600 hops per second or 1 time slot has a length of 625 μ s with 79 channels. A DH5 Packet needs 5 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 266.667 hops per second with 79 channels.

Note: DH5 was the worse case

Page 47 of 86

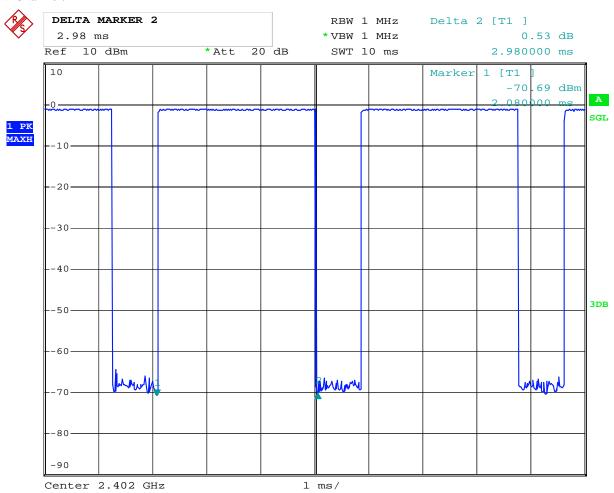
Report No: FCC1406055

Date: 2014-06-19



Test Plots:

Low Channel:



Date: 17.JUN.2014 20:46:34

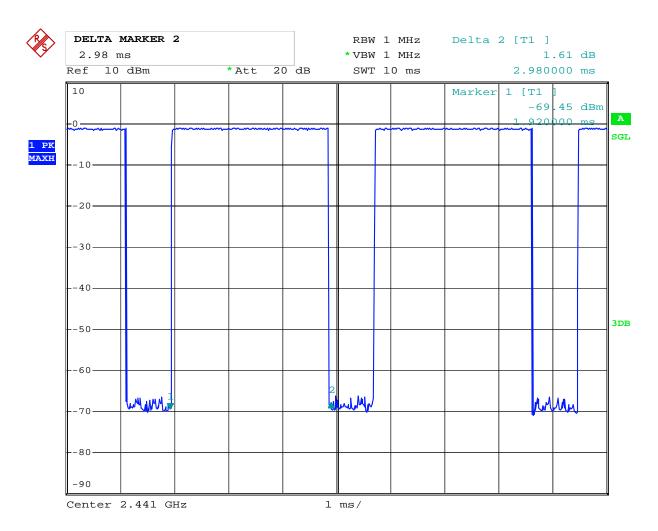
Page 48 of 86

Report No: FCC1406055

Date: 2014-06-19



Middle Channel:



Date: 17.JUN.2014 20:45:38

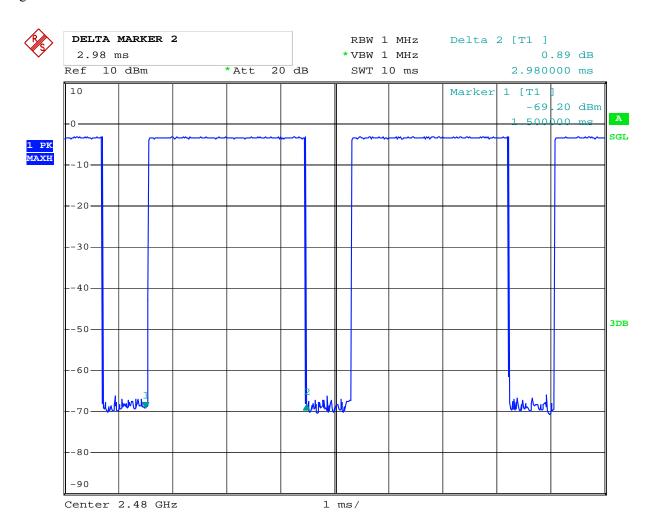
Page 49 of 86

Report No: FCC1406055

Date: 2014-06-19



High Channel



Date: 17.JUN.2014 20:40:56

Report No: FCC1406055 Page 50 of 86

Date: 2014-06-19



Test Result

Type of Modulation: $\pi/4$ -DQPSK

EUT	EUT Wireless Speaker		eaker	Mode	el	SBT1005、SBT1005RD、		
						SB	3T1005RD-MTB、C5(PH-20M)、	
						C5(PH-30)、C5(PH-60)、Q1、Q1-20、	
							Q1-40、AR1005	
Mode		Keep Transn	Keep Transmitting		Input Voltage		120V~	
Temperatur	re	24 deg. (C,	Humid	ity		56% RH	
Channel		Reading	Hoping	Rate	Actı	ıal	Limit	
Low		2.98	266.667	hop/s	0.31	18	0.4s	
Middle		2.98	266.667	hop/s 0.3		18	0.4s	
High		3.00	266.667	hop/s	0.32	0.4s		

Actual = Reading \times (Hopping rate / Number of channels) \times Test period, Test period = 0.4 [seconds / channel] \times 79 [channel] = 31.6 [seconds] NOTE: The EUT makes worst case 1600 hops per second or 1 time slot has a length of 625 μ s with 79 channels. A DH5 Packet needs 5 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 266.667 hops per second with 79 channels.

Note: DH5 was the worse case

Page 51 of 86

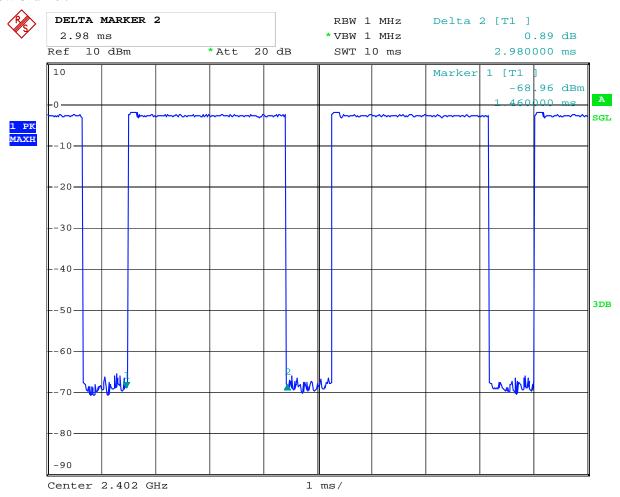
Report No: FCC1406055

Date: 2014-06-19



Test Plots:

Low Channel:



Date: 17.JUN.2014 20:47:23

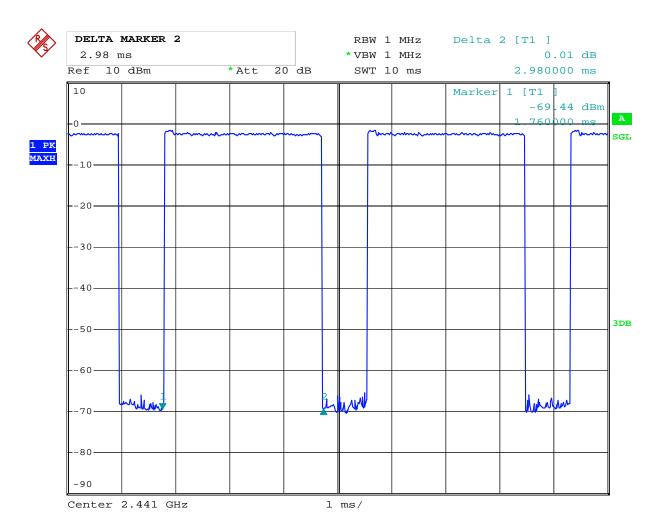
Page 52 of 86

Report No: FCC1406055

Date: 2014-06-19



Middle Channel:



Date: 17.JUN.2014 20:44:40

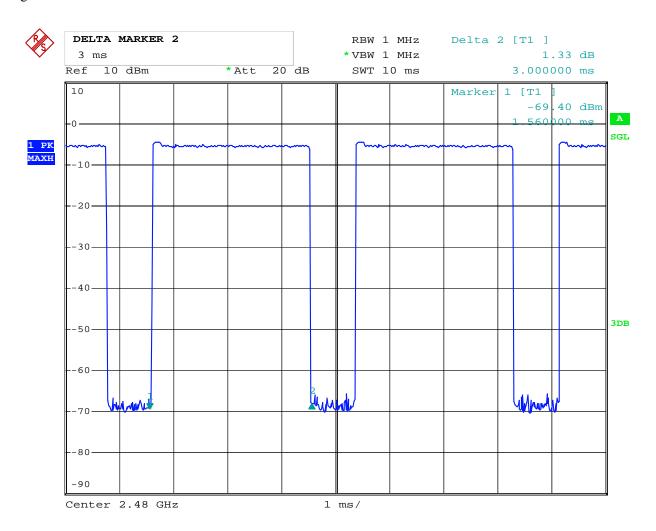
Page 53 of 86

Report No: FCC1406055

Date: 2014-06-19



High Channel



Date: 17.JUN.2014 20:41:54

Report No: FCC1406055 Page 54 of 86

Date: 2014-06-19



Type of Modulation: 8DPSK

EUT	Wireless Sp	eaker	Model		SBT	SBT1005、SBT1005RD、 1005RD-MTB、C5(PH-20M)、 I-30)、C5(PH-60)、Q1、Q1-20、 Q1-40、AR1005
Mode	Keep Transn	Keep Transmitting		Input Voltage		120V~
Temperatur	re 24 deg. 0	С,	Humidity			56% RH
Channel	Reading	Hoping	g Rate	Actua	al	Limit
Low	3.00	266.667	hop/s	0.32	0	0.4s
Middle	3.00	266.667	hop/s	0.320		0.4s
High	2.98	266.667	hop/s	0.31	8	0.4s

Actual = Reading \times (Hopping rate / Number of channels) \times Test period, Test period = 0.4 [seconds / channel] \times 79 [channel] = 31.6 [seconds] NOTE: The EUT makes worst case 1600 hops per second or 1 time slot has a length of 625 μ s with 79 channels. A DH5 Packet needs 5 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 266.667 hops per second with 79 channels.

Note: DH5 was the worse case

Page 55 of 86

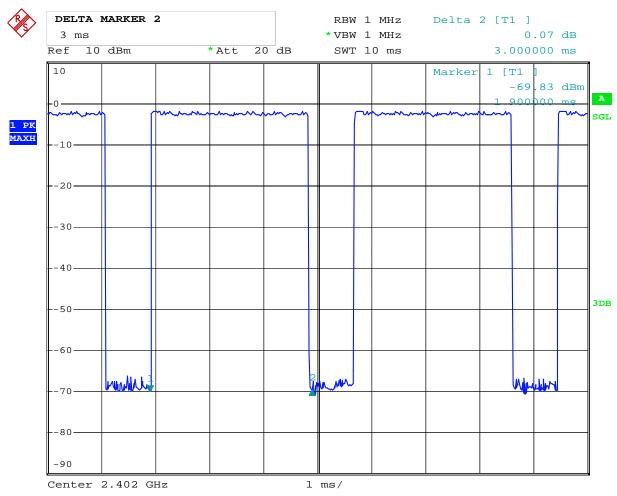
Report No: FCC1406055

Date: 2014-06-19



Test Plots:

Low Channel:



Date: 17.JUN.2014 20:48:26

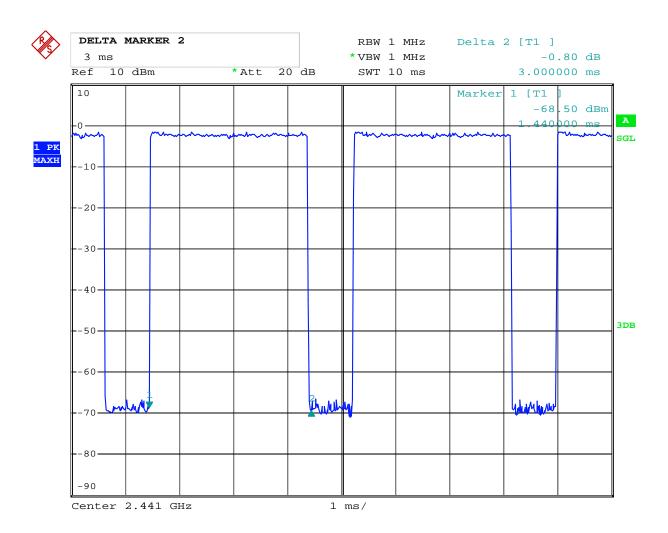
Page 56 of 86

Report No: FCC1406055

Date: 2014-06-19



Middle Channel:



Date: 17.JUN.2014 20:43:54

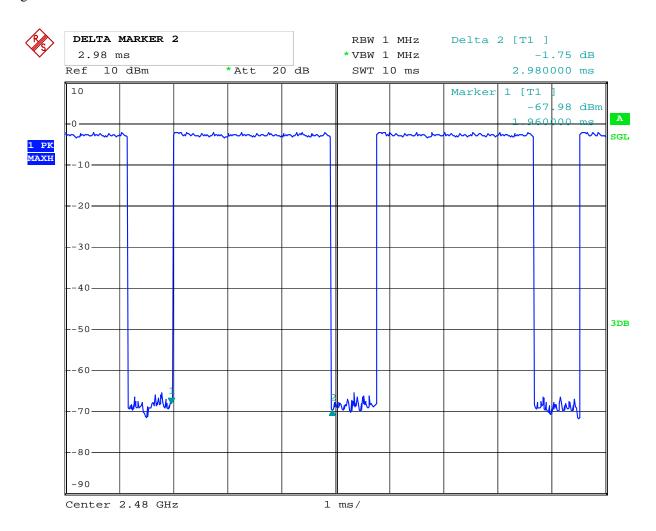
Page 57 of 86

Report No: FCC1406055

Date: 2014-06-19



High Channel



Date: 17.JUN.2014 20:42:55

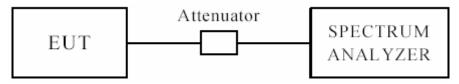
Report No: FCC1406055 Page 58 of 86

Date: 2014-06-19



12 Out of Band Measurement

12.1 Test Setup



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

12.2 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.

12.3 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=VBW=1MHz and PK detector.

For bandage test, the spectrum set as follows: RBW=100, VBW=300 kHz. A conducted measurement used

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

Date: 2014-06-19

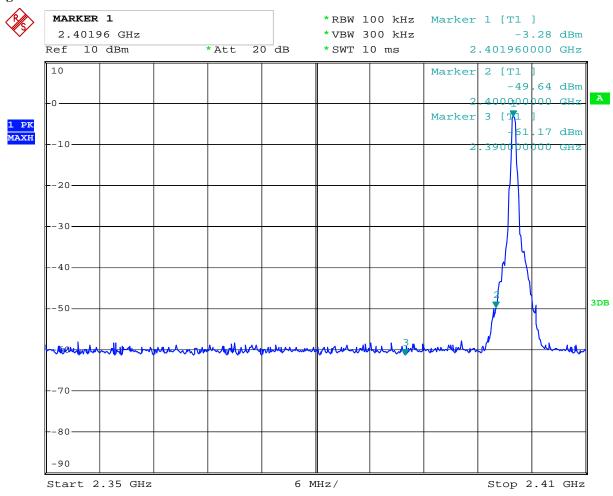


Type of Modulation: GFSK

12.4 Out of Band Test Result

Product:	w	rireless speaker	Test Mode:	Low Channel
Mode	Keej	ping Transmitting	Input Voltage	120V~
Temperature		24 deg. C	Humidity	56% RH
Test Result:		Pass	Detector	PK
The Max. FS in	PK (dBμV/m)	37.3		$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	54(dBμV/m)
2390MHz				

Test Figure:



Date: 17.JUN.2014 20:08:44

Date: 2014-06-19

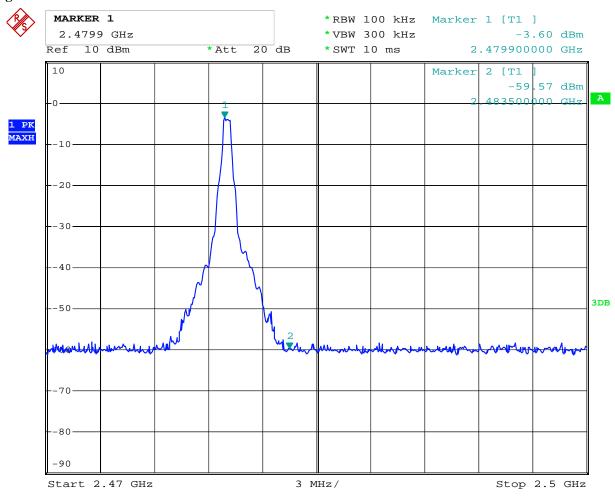


Type of Modulation: GFSK

12.4 Out of Band Test Result

Product:	w	ireless speaker	Test Mode:	High Channel
Mode	Kee	ping Transmitting	Input Voltage	120V~
Temperature		24 deg. C,	Humidity	56% RH
Test Result:		Pass	Detector	PK
The Max. FS in	PK (dBμV/m)	37.8		$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	$54(dB\mu V/m)$
2483.5MHz				

Test Figure:



Date: 17.JUN.2014 20:04:54

Date: 2014-06-19



Type of Modulation: GFSK

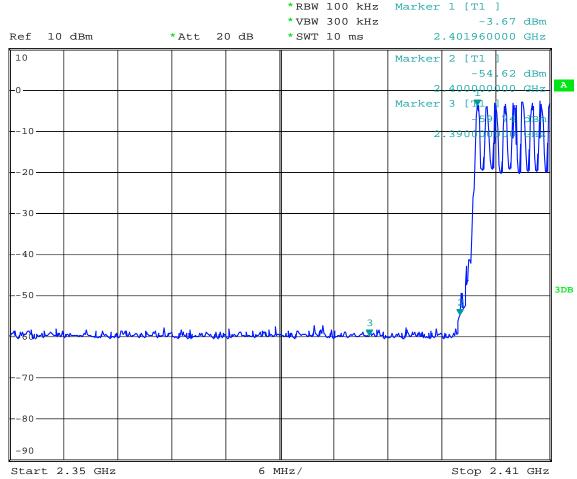
12.4 Out of Band Test Result

Product:	w	rireless speaker	Test Mode:	Hopping mode
Mode		Hopping On	Input Voltage	120V~
Temperature		24 deg. C,	Humidity	56% RH
Test Result:		Pass	Detector	PK
The Max. FS in	PK (dBμV/m)	36.4		$74(dB\mu V/m)$
Restrict Band	$AV(dB\mu V/m)$		Limit	54(dBµV/m)
2390MHz				

Test Figure:



1 PK MAXH



Date: 17.JUN.2014 20:10:24

Date: 2014-06-19

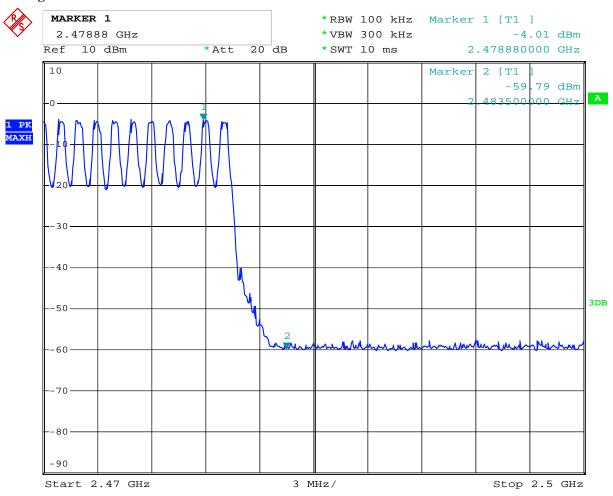


Type of Modulation: GFSK

12.4 Out of Band Test Result

Product:	wireless speaker		Test Mode:	Hopping mode
Mode	Hopping On		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m)	37.9		$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	54(dBμV/m)
2483.5MHz				

Test Figure:



Date: 17.JUN.2014 19:57:01

Date: 2014-06-19

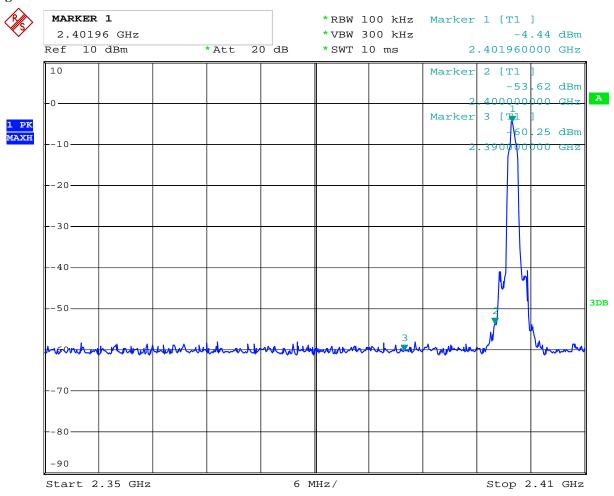


Type of Modulation: JI/4QPSK

12.4 Out of Band Test Result

Product:	wireless speaker		Test Mode:	Low Channel
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m)	37.5		74(dBµV/m)
Restrict Band	AV(dBμV/m)		Limit	54(dBµV/m)
2390MHz				

Test Figure:



Date: 17.JUN.2014 20:07:46

Date: 2014-06-19

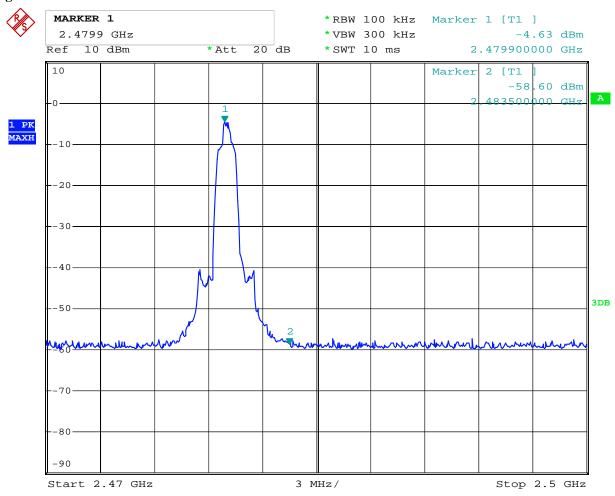


Type of Modulation: JI/4QPSK

12.4 Out of Band Test Result

Product:	wireless speaker		Test Mode:	High Channel
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m) 38.7			$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	$54(dB\mu V/m)$
2483.5MHz				

Test Figure:



Date: 17.JUN.2014 20:03:49

Date: 2014-06-19

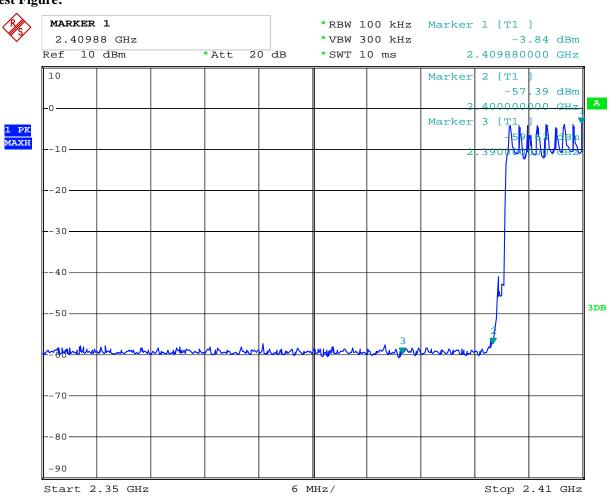


Type of Modulation: JI/4QPSK

12.4 Out of Band Test Result

Product:	wireless speaker		Test Mode:	Hopping mode
Mode	Hopping On		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m) 37.1			$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	54(dBμV/m)
2390MHz				

Test Figure:



Date: 17.JUN.2014 20:13:07

Date: 2014-06-19

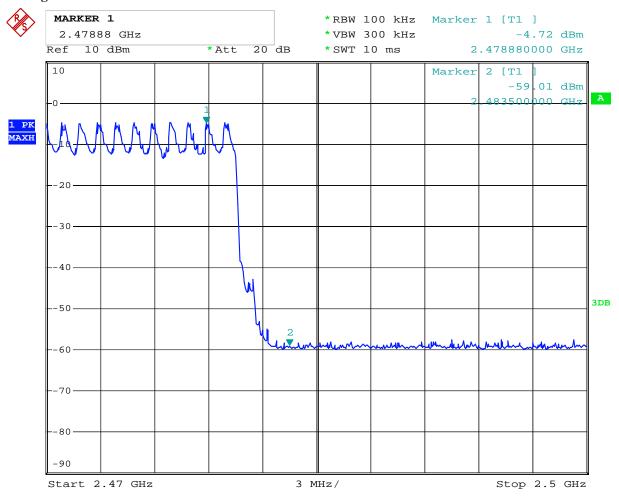


Type of Modulation: JI/4QPSK

12.4 Out of Band Test Result

Product:	wireless speaker		Test Mode:	Hopping mode
Mode	Hopping On I		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m)	38.9		$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	54(dBμV/m)
2483.5MHz				

Test Figure:



Date: 17.JUN.2014 19:54:33

Date: 2014-06-19

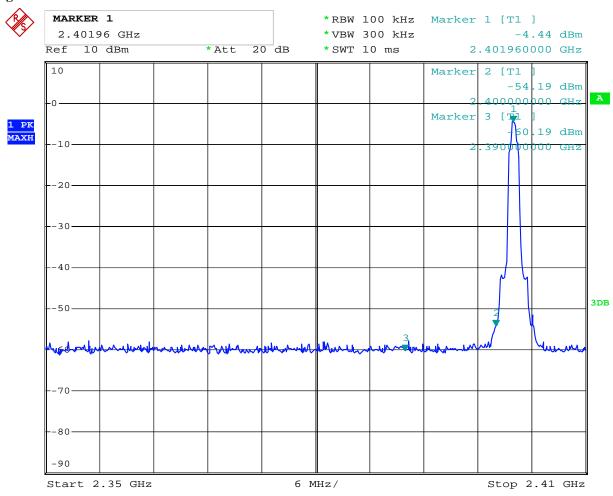


Type of Modulation: 8DPSK

12.4 Out of Band Test Result

Product:	wireless speaker		Test Mode:	Low Channel
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m) 37.2			74(dBµV/m)
Restrict Band	AV(dBμV/m)		Limit	54(dBµV/m)
2390MHz				

Test Figure:



Date: 17.JUN.2014 20:06:59

Date: 2014-06-19

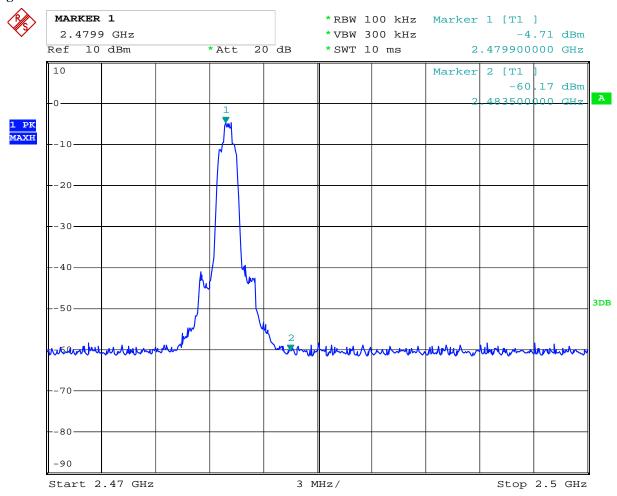


Type of Modulation: 8DPSK

12.4 Out of Band Test Result

Product:	wireless speaker		Test Mode:	High Channel
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m) 38.6			$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	$54(dB\mu V/m)$
2483.5MHz				

Test Figure:



Date: 17.JUN.2014 20:05:36

Date: 2014-06-19

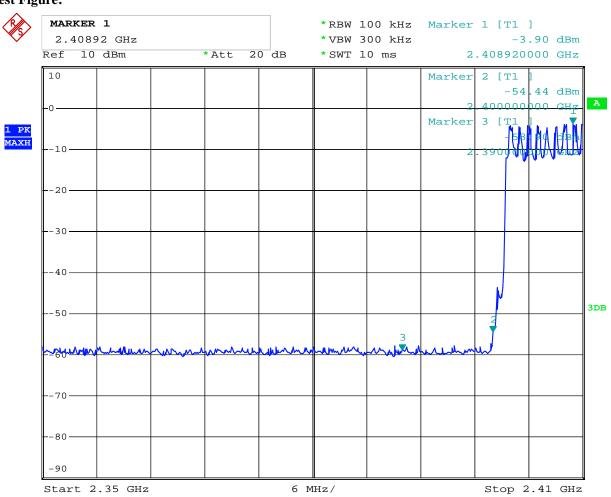


Type of Modulation: 8DPSK

12.4 Out of Band Test Result

Product:	wireless speaker		Test Mode:	Hopping mode
Mode	Hopping On		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m) 36.9			$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	54(dBμV/m)
2390MHz				

Test Figure:



Date: 17.JUN.2014 20:16:42

Date: 2014-06-19

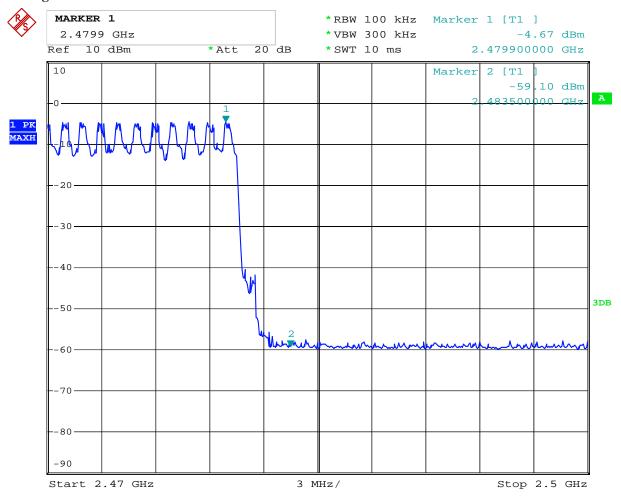


Type of Modulation: 8DPSK

12.4 Out of Band Test Result

Product:	wireless speaker		Test Mode:	Hopping mode
Mode	Hopping On I		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK ($dB\mu V/m$)	38.5		$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	54(dBμV/m)
2483.5MHz				

Test Figure:



Date: 17.JUN.2014 19:50:34

Date: 2014-06-19



Page 71 of 86

13.0 Antenna Requirement

13.1 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.

13.2 Antenna Connected constructions

PCB Printed antenna used. The maximum Gain of the antennas is 0.0dBi.

Report No: FCC1406055 Page 72 of 86

Date: 2014-06-19



14.0 FCC ID Label

FCC ID: 2AB2I-SBT1005

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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:



Report No: FCC1406055 Page 73 of 86

Date: 2014-06-19



15.0 Photo of testing

Conducted Emission Test Setup:



Date: 2014-06-19



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 Technology Consulting Co.,Ltd. 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 Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

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 Technology Consulting co .,Ltd reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Date: 2014-06-19



Photographs - EUT

Photo for the EUT





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 Technology Consulting Co.,Ltd. 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 Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

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 Technology Consulting co .,Ltd reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Date: 2014-06-19



Photo for the EUT





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

Date: 2014-06-19



Photo for the EUT





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 Technology Consulting Co.,Ltd. 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 Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

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 Technology Consulting co .,Ltd reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Date: 2014-06-19



Photo for the EUT





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 Technology Consulting Co., Ltd. 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 Technology Consulting co .,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co., Ltd 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 Technology Consulting co .,Ltd reserves the rights to withdraw it and to

Date: 2014-06-19



Photo for the EUT





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

Date: 2014-06-19



Photo for the EUT





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 Technology Consulting Co., Ltd. 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 Technology Consulting co .,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co., Ltd 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 Technology Consulting co .,Ltd reserves the rights to withdraw it and to

Date: 2014-06-19



Photo for the EUT





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 Technology Consulting Co., Ltd. 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 Technology Consulting co .,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co., Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

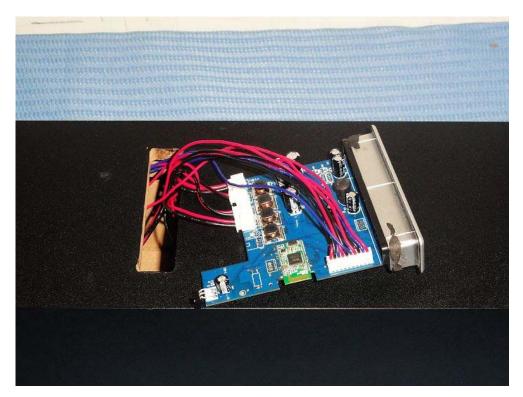
In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co .,Ltd reserves the rights to withdraw it and to

Date: 2014-06-19



Photo for the EUT





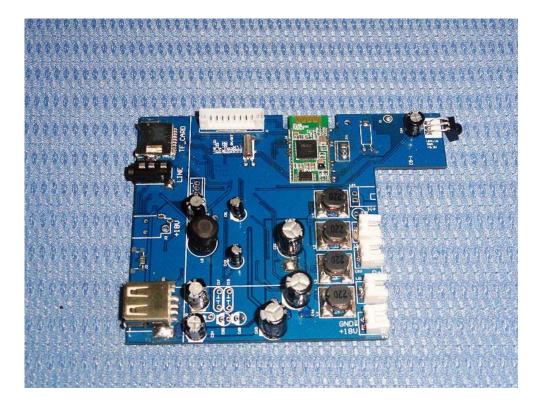
The report refers only to the sample tested and does not apply to the bulk.

Date: 2014-06-19



Photo for the EUT



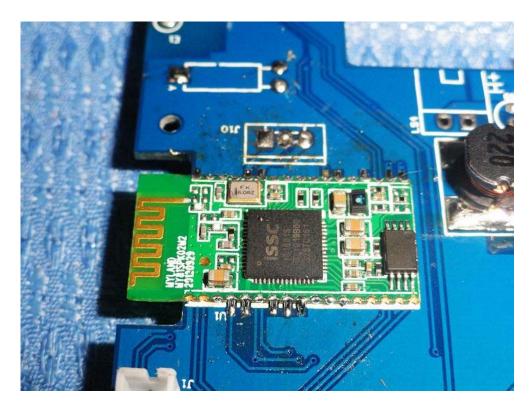


Date: 2014-06-19



Photo for the EUT





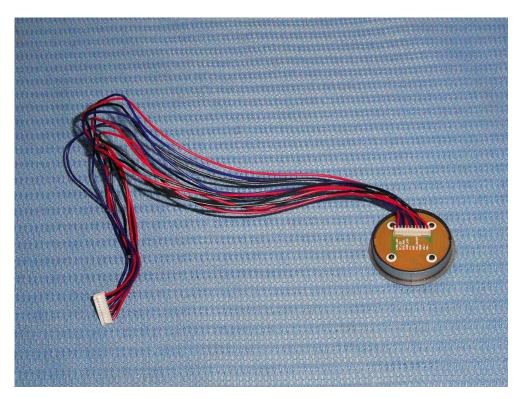
The report refers only to the sample tested and does not apply to the bulk.

Date: 2014-06-19



Photo for the EUT



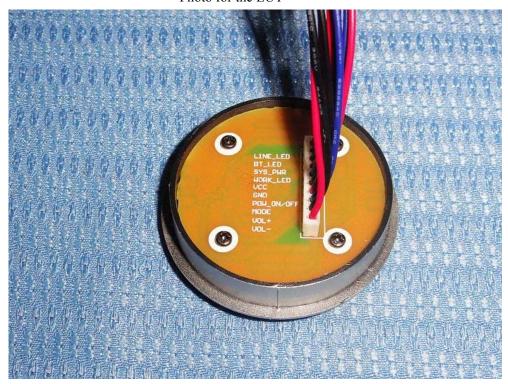


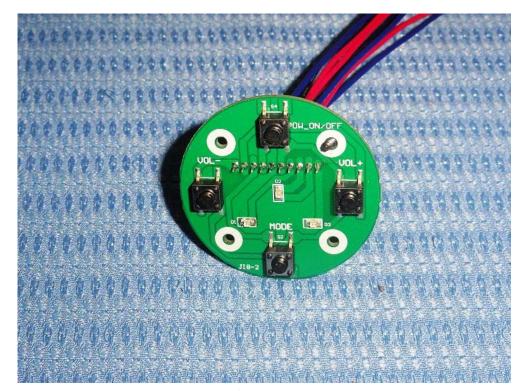
The report refers only to the sample tested and does not apply to the bulk.

Date: 2014-06-19



Photo for the EUT





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 Technology Consulting Co.,Ltd. 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 Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd 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 Technology Consulting co.,Ltd reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.