

Report No.: TW2411041E

Applicant: Eastern Times Technology Co., Ltd

Product: RGB STEREO SPEAKER

Model No.: GS512, ET-8086, GS512W

Trademark: REDRAGON

Test Standards: FCC Part 15.249

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.10 &FCC Part 15 Subpart C, Paragraph 15.249 regulations for the evaluation of

electromagnetic compatibility

Approved By

Terry long

Terry Tang

Manager

Dated: November 12, 2024

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

SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

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

Report No.: TW2411041E Page 2 of 47

Date: 2024-11-12



Special Statement:

FCC-Registration No.: 744189

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.: 744189.

Industry Canada (IC) — Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

CAB identifier: CN0033

Report No.: TW2411041E

Date: 2024-11-12



Test Report Conclusion

	Content	
1.0	General Details	4
1.1	Test Lab Details	4
1.2	Applicant Details	4
1.3	Description of EUT	4
1.4	Submitted Sample	4
1.5	Test Duration.	5
1.6	Test Uncertainty.	5
1.7	Test By	5
2.0	List of Measurement Equipment	6
3.0	Technical Details	7
3.1	Summary of Test Results.	7
3.2	Test Standards	7
4.0	EUT Modification	7
5.0	Power Line Conducted Emission Test.	8
5.1	Schematics of the Test.	8
5.2	Test Method and Test Procedure.	8
5.3	Configuration of the EUT	8
5.4	EUT Operating Condition.	9
5.5	Conducted Emission Limit.	9
5.6	Test Result.	9
6.0	Radiated Emission test	12
6.1	Test Method and Test Procedure.	12
6.2	Configuration of the EUT	13
6.3	EUT Operation Condition.	13
6.4	Radiated Emission Limit	14
6.5	Test Result.	15
7.0	Band Edge	23
7.1	Test Method and Test Procedure	23
7.2	Radiated Test Setup.	23
7.3	Configuration of the EUT.	23
7.4	EUT Operating Condition.	23
7.5	Band Edge Limit.	23
7.6	Band Edge Test Result.	24
8.0	Antenna Requirement	28
9.0	20dB bandwidth measurement	29
10.0	FCC ID Label	38
11.0	Photo of Test Setup and EUT View	39

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

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

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

Report No.: TW2411041E Page 4 of 47

Date: 2024-11-12



1.0 General Details

1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.

Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le

Village, Nanshan District, Shenzhen, China

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

Site on File with the Federal Communications Commission – United Sates

Registration Number: 744189 For 3m Anechoic Chamber

1.2 Applicant Details

Applicant: Eastern Times Technology Co., Ltd

Address: Building D, Nan An Industrial Area, Youganpu Village, Fenggang Town, Dongguan City,

Guangdong, China.

1.3 Description of EUT

Product: RGB STEREO SPEAKER

Manufacturer: Eastern Times Technology Co., Ltd

Address: Building D, Nan An Industrial Area, Youganpu Village, Fenggang Town,

Dongguan City, Guangdong, China.

Trademark: REDRAGON

Additional Trademark: N/A Model Number: GS512

Additional Model Name ET-8086, GS512W

Hardware Version: Sclence N-613U VER: V1.0

Software Version: N-613U VER: V1.2 Serial No.: RDGS51224091500001

Rating: Input: DC5V, 1A

Modulation Type: GFSK, Л/4DQPSK, 8DPSK

Operation Frequency: 2402-2480MHz

Channel Separate: 1MHz Channel Number: 79

Antenna Designation PCB antenna with gain -0.58dBi Max (Get from the antenna specification)

1.4 Submitted Sample: 2 Samples

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

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

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

Report No.: TW2411041E Page 5 of 47

Date: 2024-11-12



1.5 Test Duration

2024-11-05 to 2024-11-12

1.6 Test Uncertainty

Conducted Emissions Uncertainty = 3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty =6.0dB

Occupied Channel Bandwidth Uncertainty =5%

Conducted Emissions Uncertainty =3.6dB

Note: The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

The sample tested by

Print Name: Terry Tang

Page 6 of 47

Report No.: TW2411041E

Date: 2024-11-12



2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100294	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100253	2024-07-12	2025-07-11
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2024-07-12	2025-07-11
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17
Spectrum	R&S	FSIQ26	100292	2024-07-12	2025-07-11
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-07-18	2025-07-17
Horn Antenna	R&S	BBHA 9120D	9120D-631	2022-07-18	2025-07-17
Power meter	Anritsu	ML2487A	6K00003613	2024-07-12	2025-07-11
Power sensor	Anritsu	MA2491A	32263	2024-07-12	2025-07-11
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2022-07-18	2025-07-17
9*6*6 Anechoic			N/A	2022-07-26	2025-07-25
EMI Test Receiver	RS	ESVB	826156/011	2024-07-12	2025-07-11
EMI Test Receiver	RS	ESCS 30	834115/006	2024-07-12	2025-07-11
Spectrum	HP/Agilent	E4407B	MY50441392	2024-07-12	2025-07-11
Spectrum	RS	FSP	1164.4391.38	2024-07-12	2025-07-11
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA	1	2024-07-12	2025-07-11
RF Cable	Zhengdi	7m		2024-07-12	2025-07-11
Pre-Amplifier	Schwarebeck	BBV9743	#218	2024-07-12	2025-07-11
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2024-07-12	2025-07-11
LISN	SCHAFFNER	NNB42	00012	2024-07-12	2025-07-11
ESPI Test Receiver	R&S	ESPI 3	100379	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100294	2024-07-12	2025-07-11

2.2 Automation Test Software

For Conducted Emission Test

Name	Version		
EZ-EMC	Ver.EMC-CON 3A1.1		

For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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

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

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

Page 7 of 47

Report No.: TW2411041E

Date: 2024-11-12



3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna Requirement	Pass	Complies
FCC Part 15, Paragraph 15.207	Conducted Emission Test	Pass	Complies
FCC Part 15 Subpart C Paragraph 15.249(a) & 15.249(b) Limit	Field Strength of Fundamental	Pass	Complies
FCC Part 15, Paragraph 15.209	Radiated Emission Test	Pass	Complies
FCC Part 15 Subpart C Paragraph 15.249(d) Limit	Band Edge Test	Pass	Complies

3.2 Test Standards

FCC Part 15 Subpart C, Paragraph 15.249, ANSI C63.4:2014 and ANSI C63.10:2013

4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

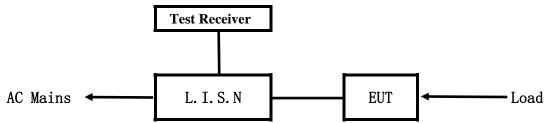
Report No.: TW2411041E

Date: 2024-11-12



5. Power Line Conducted Emission Test

5.1 Schematics of the test

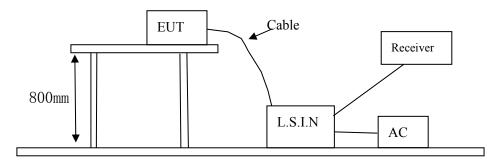


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum from 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10-2013.

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



5.3 Configuration of the EUT

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

79 channels are provided to the EUT

A. EUT

Device	Manufacturer	Model	FCC ID
RGB STEREO SPEAKER	Eastern Times	GS512, ET-8086, GS512W	TUVGS512
	Technology Co., Ltd	G5512, E1-8080, G5512 W	10 (03312

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

Report No.: TW2411041E Page 9 of 47

Date: 2024-11-12



B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	Rating
Power Supply	KEYU	KA23-0502000DEU	Input: 100-240V~, 50/60Hz, 0.35A;
			Output: DC5V, 2A

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency	Limits (dB μ V)			
(MHz)	Quasi-peak Level	Average Level		
$0.15 \sim 0.50$	66.0~56.0*	56.0~46.0*		
$0.50 \sim 5.00$	56.0	46.0		
5.00 ~ 30.00	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:

Pass

Report No.: TW2411041E

Date: 2024-11-12



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

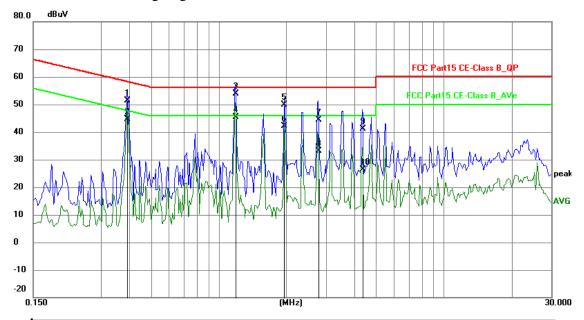
EUT Operating Environment

Temperature: 25°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Communication by BT

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.3918	41.05	10.37	51.42	58.03	-6.61	QP	Р
2	0.3918	34.17	10.37	44.54	48.03	-3.49	AVG	Р
3	1.1873	43.11	10.65	53.76	56.00	-2.24	QP	Р
4	1.1873	34.66	10.65	45.31	46.00	-0.69	AVG	Р
5	1.9557	38.58	11.28	49.86	56.00	-6.14	QP	Р
6	1.9557	30.73	11.28	42.01	46.00	-3.99	AVG	Р
7	2.7669	32.84	11.59	44.43	56.00	-11.57	Q Q	Р
8	2.7669	21.45	11.59	33.04	46.00	-12.96	AVG	Р
9	4.3572	29.02	12.13	41.15	56.00	-14.85	Q Q	Р
10	4.3572	14.30	12.13	26.43	46.00	-19.57	AVG	Р

Report No.: TW2411041E

Date: 2024-11-12



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

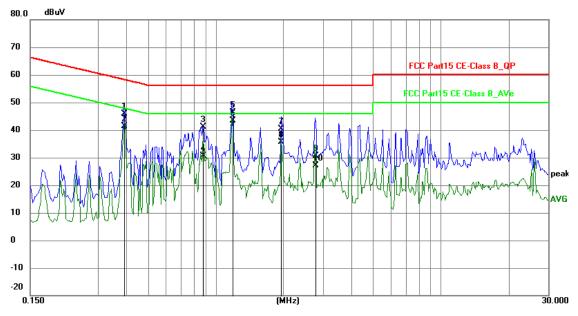
EUT Operating Environment

Temperature: 25°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Communication by BT

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.3918	35.51	10.37	45.88	58.03	-12.15	QP	Р
2	0.3918	31.08	10.37	41.45	48.03	-6.58	AVG	Р
3	0.8793	30.72	10.48	41.20	56.00	-14.80	QP	Р
4	0.8793	20.12	10.48	30.60	46.00	-15.40	AVG	Р
5	1.1873	35.73	10.65	46.38	56.00	-9.62	QP	Р
6	1.1873	32.74	10.65	43.39	46.00	-2.61	AVG	Р
7	1.9557	29.12	11.28	40.40	56.00	-15.60	QP	Р
8	1.9557	24.27	11.28	35.55	46.00	-10.45	AVG	Р
9	2.7747	19.16	11.59	30.75	56.00	-25.25	QP	Р
10	2.7747	15.50	11.59	27.09	46.00	-18.91	AVG	Р

Report No.: TW2411041E Page 12 of 47

Date: 2024-11-12

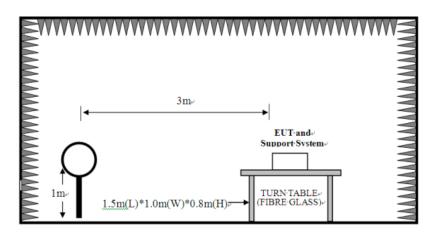


6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (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 C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz (Note: for Fundamental frequency radiated emission measurement, RBW=3MHz, VBW=10MHz). 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) The antenna polarization: Vertical polarization and Horizontal polarization.

Block diagram of Test setup

For radiated emissions from 9kHz to 30MHz



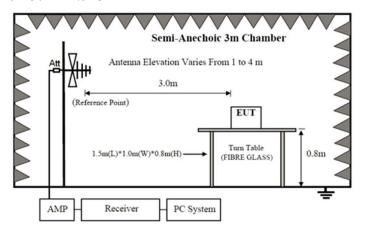
Page 13 of 47

Report No.: TW2411041E

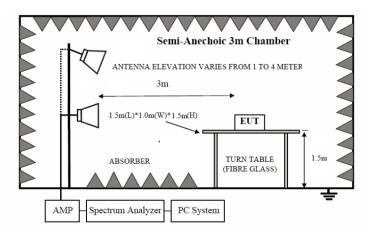
Date: 2024-11-12



For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



- 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.: TW2411041E Page 14 of 47

Date: 2024-11-12



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:

A FCC Part 15 Subpart C Paragraph 15.249(a) Limit

Fundamental Frequency	Fundamental Frequency Field Strength of Fundamental (3m) Field Strength of Harmon			onics (3m)		
(MHz)	mV/m	dBuV/m		uV/m	dBuV/m	
2400-2483.5	50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)

Note:

- 1. RF Field Strength (dBuV) = 20 log RF Voltage (uV)
- 2.Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
- 3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

B. Frequencies in restricted band are complied to limit on Paragraph 15.209.

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
0.009-0.490	3	20log(2400/F(kHz)) +40log (300/3)
0.490-1.705	3	20log(24000/F(kHz)) +40log (30/3)
1.705-30	3	69.5
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 tighter limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
- 4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.
- 5. The three modulation modes of GFSK, Pi/4D-QPSK and 8DPSK were tested. And only the worst case was recorded in the test report. GFSK was the worst case.

Report No.: TW2411041E Page 15 of 47

Date: 2024-11-12

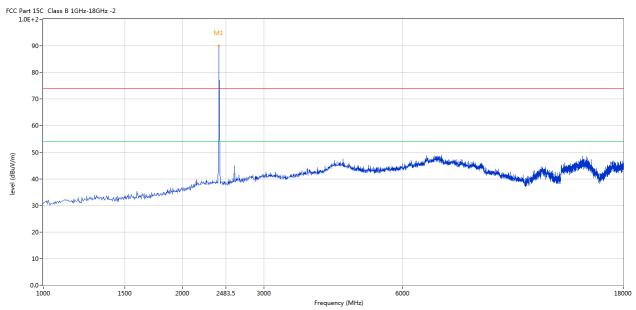


6.5 Test result

A Fundamental & Harmonics Radiated Emission Data

Please refer to the following test plots for details: Low Channel-2402MHz

Horizontal



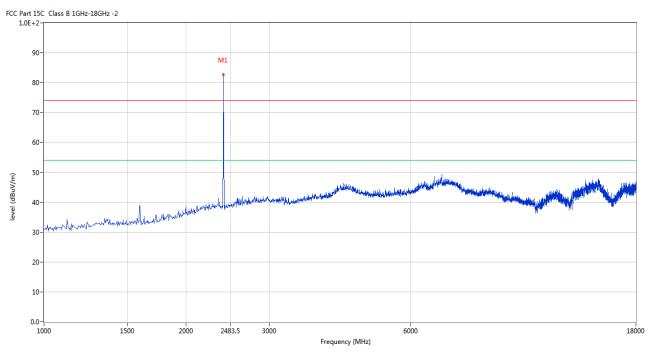
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	90.11	-3.57	114.0	-23.89	Peak	338.00	100	Horizontal	Pass

Report No.: TW2411041E Page 16 of 47

Date: 2024-11-12



Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	82.63	-3.57	114.0	-31.37	Peak	311.00	100	Vertical	Pass

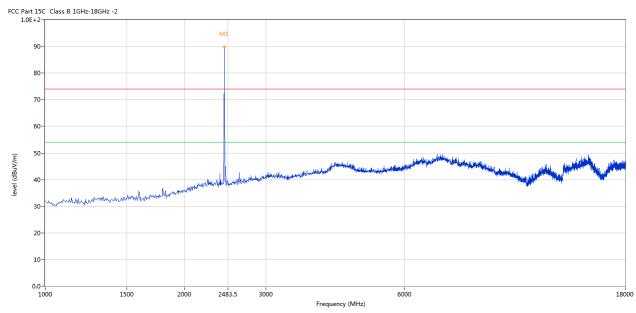
Report No.: TW2411041E Page 17 of 47

Date: 2024-11-12



Please refer to the following test plots for details: Middle Channel-2441MHz

Horizontal



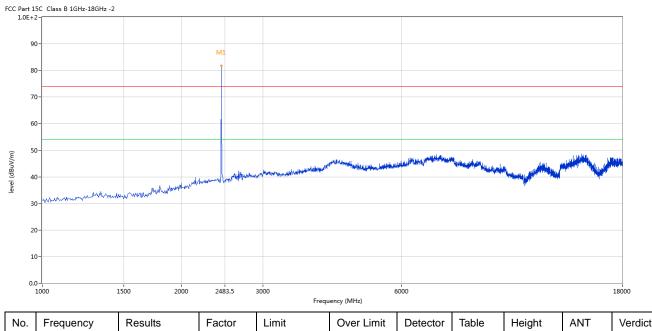
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	89.85	-3.57	114.0	-24.15	Peak	328.00	100	Horizontal	Pass

Report No.: TW2411041E Page 18 of 47

Date: 2024-11-12



Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	81.82	-3.57	114.0	-32.18	Peak	306.00	100	Vertical	Pass

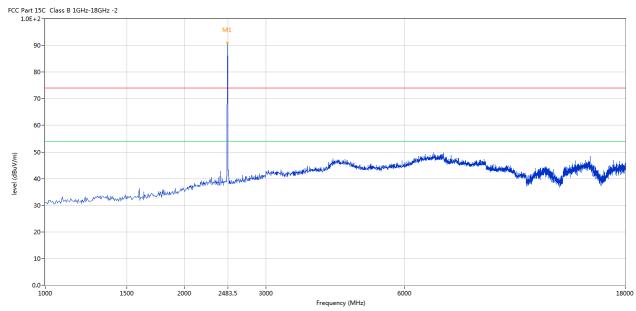
Report No.: TW2411041E Page 19 of 47

Date: 2024-11-12



Please refer to the following test plots for details: High Channel-2480MHz

Horizontal



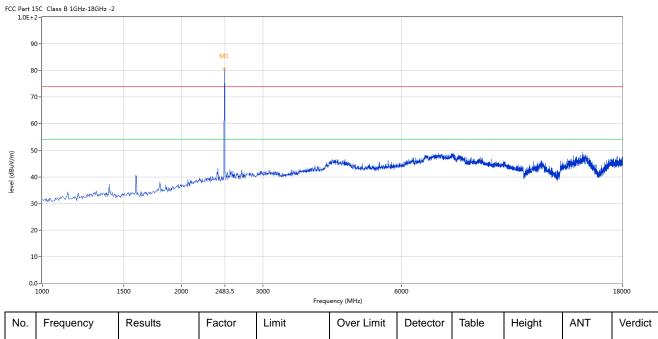
Ī	No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
Ī	1	2480	90.87	-3.57	114.0	-23.13	Peak	327.00	100	Horizontal	Pass

Report No.: TW2411041E Page 20 of 47

Date: 2024-11-12



Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	80.53	-3.57	114.0	-33.47	Peak	316.00	100	Vertical	Pass

Note: (2) Emission Level = Reading Level + Antenna Factor + Cable Loss-Amplifier

- (3) Margin=Emission-Limits
- (4) According to section 15.35(b), the peak limit is 20dB higher than the average limit
- (5) For test purpose, keep EUT continuous transmitting
- (5) For emission above 18GHz and Below 30MHz, It is only the floor noise. No necessary to take down.
- (6) the measured PK value less than the AV limit.

Report No.: TW2411041E Page 21 of 47

Date: 2024-11-12

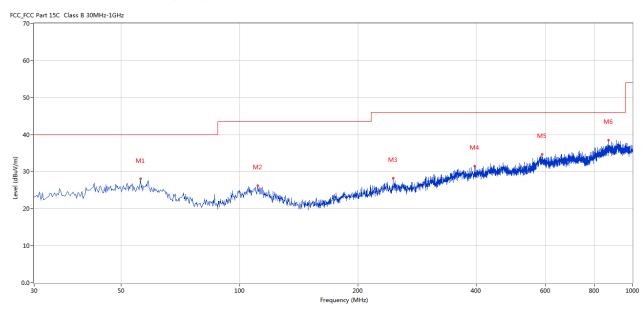


B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	55.941	28.02	-5.06	40.0	11.98	Peak	231.00	100	Horizontal	Pass
2	111.217	26.21	-5.99	43.5	17.29	Peak	70.00	100	Horizontal	Pass
3	245.771	28.17	-5.40	46.0	17.83	Peak	25.00	100	Horizontal	Pass
4	396.811	31.55	-1.75	46.0	14.45	Peak	348.00	100	Horizontal	Pass
5	589.550	34.71	1.89	46.0	11.29	Peak	42.00	100	Horizontal	Pass
6	868.598	38.51	5.00	46.0	7.49	Peak	168.00	100	Horizontal	Pass

Report No.: TW2411041E Page 22 of 47

Date: 2024-11-12

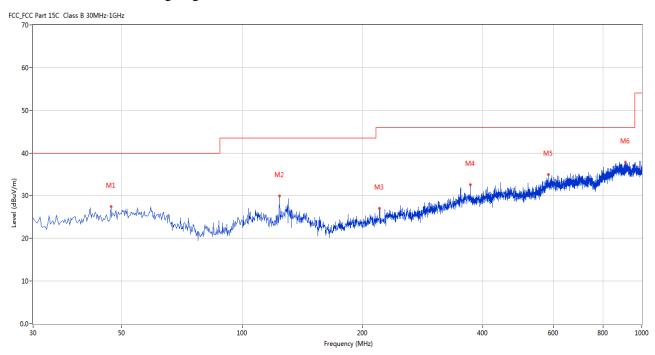


Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	46.971	27.47	-5.71	40.0	12.53	Peak	283.00	100	Vertical	Pass
2	124.066	29.95	-7.81	43.5	13.55	Peak	252.00	100	Vertical	Pass
3	220.800	27.05	-6.18	46.0	18.95	Peak	25.00	100	Vertical	Pass
4	372.567	32.54	-1.83	46.0	13.46	Peak	347.00	100	Vertical	Pass
5	583.732	34.98	1.65	46.0	11.02	Peak	0.00	100	Vertical	Pass
6	908.843	37.90	5.14	46.0	8.10	Peak	123.00	100	Vertical	Pass

Page 23 of 47

Date: 2024-11-12

Report No.: TW2411041E

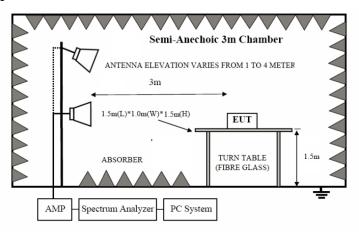


7. Band Edge

7.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10–2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) Set Spectrum as RBW=1MHz, VBW=3MHz and Peak detector used for PK value. RBW=1MHz, VBW=10Hz and Peak detector used for AV value.
- (3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (4) The antenna polarization: Vertical polarization and Horizontal polarization.

7. 2 Radiated Test Setup



For the actual test configuration, please refer to the related items – Photos of Testing

7.3 Configuration of the EUT

Same as section 5.3 of this report

7.4 EUT Operating Condition

Same as section 5.4 of this report.

7.5 Band Edge Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

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

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

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

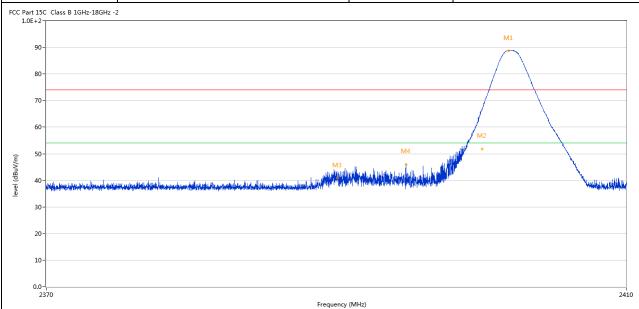
Report No.: TW2411041E Page 24 of 47

Date: 2024-11-12



7.6 Test Result

Product:	RGB STEREO SPEAKER	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



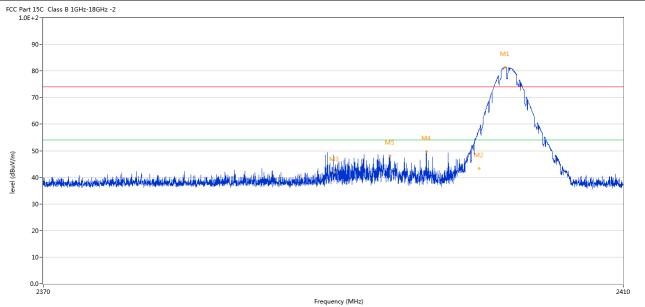
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2401.842	88.79	-3.57	74.0	14.79	Peak	0.00	100	Horizontal	N/A
2	2400.000	66.84	-3.57	74.0	-7.16	Peak	339.78	100	Horizontal	Pass
2**	2400.000	51.80	-3.57	54.0	-2.20	AV	339.78	100	Horizontal	Pass
3	2390.000	40.78	-3.53	74.0	-33.22	Peak	73.50	100	Horizontal	Pass
4	2394.724	46.00	-3.55	74.0	-28.00	Peak	31.00	100	Horizontal	Pass

Report No.: TW2411041E Page 25 of 47

Date: 2024-11-12



Product:	RGB STEREO SPEAKER	Detector	Vertical
Mode	Keeping Transmitting	Test Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		
FCC Part 15C Class B 1GHz-18GHz -2 1.0E+2-			



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2401.812	81.37	-3.57	74.0	7.37	Peak	314.00	100	Vertical	N/A
2	2400.000	58.15	-3.57	74.0	-15.85	Peak	309.00	100	Vertical	Pass
2**	2400.000	43.32	-3.57	54.0	-10.68	AV	309.00	100	Vertical	Fail
3	2390.000	41.94	-3.53	74.0	-32.06	Peak	312.00	100	Vertical	Pass
4	2396.373	49.70	-3.55	74.0	-24.30	Peak	343.00	100	Vertical	Pass
5	2393.844	48.03	-3.54	74.0	-25.97	Peak	337.00	100	Vertical	Pass

Page 26 of 47 Report No.: TW2411041E

Date: 2024-11-12



I	Product:	RGI	B STEREC) SPEAKER		Polarity		Н	orizontal	
	Mode	K	Leeping Tra	ansmitting	7	est Voltag	e	120V~		
Tei	mperature		24 deg	g. C,		Humidity		56% RH		
Те	st Result:		Pas	SS						
2 Part 1:	5C Class B 1GHz-18GHz	-2								
			M1							
90)-		√ ~\	M						
80)-		/							
70)-			1						
60			\mathcal{L}	1						
00	,-		/	M ₂						
50)-	مرا الماليان	,	7	4					
40	HANKER BERTHUR HAR BERTHUR HANK	Address of the State of the Sta			Manager Comment & or	مرامية المرامية	مراجع والمراجع والمرا	المالية والمحموسية أفلتت بالم	والمراجعة والمتلاوم	استعلان
30		M. Articles 1			The state of the s		yan di tayah bira sasar di sasay sadara da kata filayayi sa	the explainment of the following the grown of the contract of	And the second for the second sec	The control of the co
20)-									
10)-									
0.0										
:	2470			2483.	.5 Frequency (MHz)					2500
۱o.	Frequency	Results	Factor	Limit	Over	Detector	Table	Height	ANT	Verd
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)		(o)	(cm)		
	2479.845	89.06	-3.57	74.0	15.06	Peak	327.00	100	Horizontal	N/A
$\overline{}$	2483.500	52.42	-3.57	74.0	1	1		i e	1	

Report No.: TW2411041E Page 27 of 47

Date: 2024-11-12



	Product:	STEREO	SPEAKER	D	etector		Ve	rtical		
	Mode	Ke	eeping Trar	nsmitting	Test	t Voltage		12	0V~	
Te	emperature		24 deg.	. С,	Hı	umidity		56% RH		
Т	est Result:		Pass	}						
C Part :	15C Class B 1GHz-18GHz	-2			•		•			
٩	90-		M1							
8	30 -		(m)	<u> </u>						
7	70-		A	M						
	50 -		-							
6	30									
				M _{M2}						
	50-			M2	v	na ad a c	Luciani.	11	and the state	
		Mark political and discharge by the for		M2	* Andrew Advanta			and high pathers that have the		J uniu
. 5	50-	Harain-Apple London Harain Strategic		M2	* Andrewski de Andrewski	add a state of the		south the particular than the same of the	uhakhtaubhaha nasingli	J aniele
2	10-	hanan dipina dip		M2	مرابع والمرابع والم والمرابع والمرابع والمرابع والمرابع والمرابع والمرابع والمرابع و	and the second second		and he president to the second has	uhata anda afa nasang la	J ames A
3	10 - 11 - 11 - 11 - 11 - 11 - 11 - 11 -	dan di perdepi ng malakada pendapan di	<u> </u>	M2	**************************************	add airleil war pada a		and the second s	uhabhandi olaraki gli	A PARONIA
3	10	Handig-Applicationships the production of the pr		M2	Marchine del mari de valo de	adalasidadha ana pir an a	and the second s	had history distribution of his	i ha ha and hole mainly la	hwiki
3	10-11-11-11-11-11-11-11-11-11-11-11-11-1	dite at it and a part of the state of the st		2483.	All the state of t	ath after war is to a	e de la company de la la lacente de la company de la compa	ond has prompted associations of the		2500
3	10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -	Results	Factor			Detector	Table	Height	ANT	
3 3 0	10	Results (dBuV/m)	Factor (dB)	1	Frequency (MHz)					
3 3 0	50			Limit	Frequency (MHz) Over Limit		Table	Height		2500 Verdid

Note: 1. The PK emission level less than the AV limit. No necessary to record the AV emission level.

2. The three modulation modes of GFSK, Pi/4D-QPSK and 8DPSK were tested. And only the worst case was recorded in the test report. GFSK was the worst case.

Report No.: TW2411041E Page 28 of 47

Date: 2024-11-12



8.0 Antenna Requirement

Applicable Standard

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

This product has a PCB antenna with gain-0.58dBi maximum. It fulfills the requirement of this section.

Test Result: Pass

Page 29 of 47

Span 3 MHz

Report No.: TW2411041E

Date: 2024-11-12



9.0 20dB Bandwid	th Measurement					
GFSK						
Product:	RGB	STEREO SPI	EAKER	Test Mode:	Test Mode: Keep transi	
Mode	Ke	Keeping Transmitting Test V				120V~
Temperature		24 deg. C,		Humidity		56% RH
Test Result:		Pass		Detector		PK
20dB Bandwidth		894kHz				
Ref 10 d	Bm	*Att 20 dB	*RBW 30] *VBW 100 'SWT 5 ms	kHz	.40200000	
-0					.00000000 [T1 pd8]	0 dB 0 kHz A
1 PK MAXH 10			\sim		.40153800	0 GHz
-20		721	1	T2 2	-23.1 .40243200	9 dBm 0 GHz
-30				EV.		
40	\\ \(\)			M		
-50	Je was			l lu	M	3DB
WWW	/				"Then	muh
-60						
-70						
-80					 	

Date: 11.NOV.2024 08:37:56

Center 2.402 GHz

300 kHz/

Page 30 of 47

Report No.: TW2411041E

Date: 2024-11-12



Product:	RGE	RGB STEREO SPEAKER			Test	Mode:		Keep tran	smitting
Mode	K	eeping Trans	mitting		Test	Voltage		120	V~
Temperature		24 deg. C,			Huı	midity		56%	RH
Test Result:		Pass			De	tector		PI	ζ
0dB Bandwidth		900kHz	:						
Ref 10 d	Bm	*Att 20	dв	*RBW 30 *VBW 10 *SWT 5	00 kHz		1 [T1 -3	.29 dBm	
10						ndB [T BW 900 Temp 1		.00 dB 000 kHz	A
PK10			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	M		2 Temp 2	.440538		
20		1 A)	V	T2	2	-23 .441438	.72 dBm 000 GHz	
30						^			
40	<u> </u>	/							
-50	mar .					W	W.	uniua.	3DB
-60								******	
70									
80									
-90									
Center 2.	441 GHz		300	kHz/			Spa	ın 3 MHz	

Page 31 of 47

Report No.: TW2411041E

Date: 2024-11-12



Product:	RGB STEREO SPEAKER			ER	Test	Mode:		Keep tran	smitting
Mode	Ke	eping Trar	nsmitting		Test	Voltage		120	V~
Temperature	24 deg. C,				Huı	midity		56%	RH
Test Result:		Pass			De	tector		PI	Κ
20dB Bandwidth		894kF	łz						-
Ref 10 di	3m	*Att 20	0 dB	*RBW 30 *VBW 10 *SWT 5	0 kHz		1 [T1 -4	.02 dBm	
-0						ndB [T BW 894 Temp 1	.000000 [T1 pd	,	A
1 PK MAXH 10			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	M		2 Temp 2	.479538 [T1 nd		
20		₩		4	~ _{T2}	2	.480432	I I	
30	~				A	Λ			
-40							\sim		3DB
60	/ W						\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
-70									
80									
-90 Center 2.	48 GHz		300	kHz/			Spa	ın 3 MHz	

Date: 11.NOV.2024 08:43:40

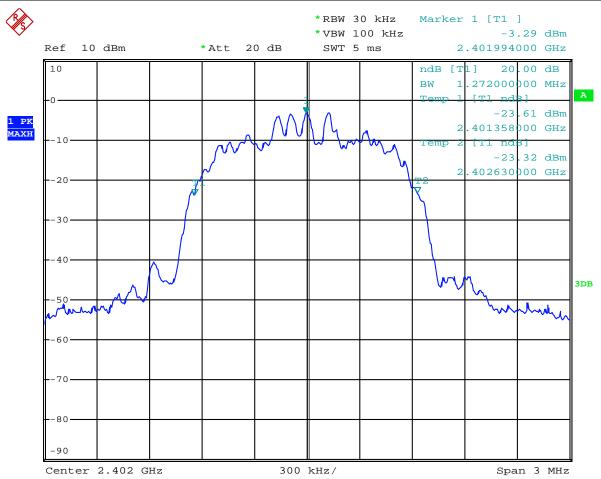
Page 32 of 47

Report No.: TW2411041E

Date: 2024-11-12



Л/4DQPSK			
Product:	TWS earphones	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	1.272MHz		



Date: 13.NOV.2024 08:12:27

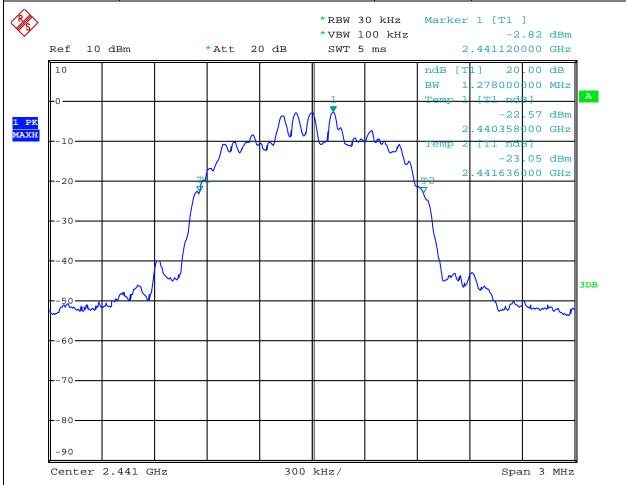
Page 33 of 47

Report No.: TW2411041E

Date: 2024-11-12



Л/4DQPSK			
Product:	TWS earphones	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	1.278MHz		



Date: 11.NOV.2024 12:36:27

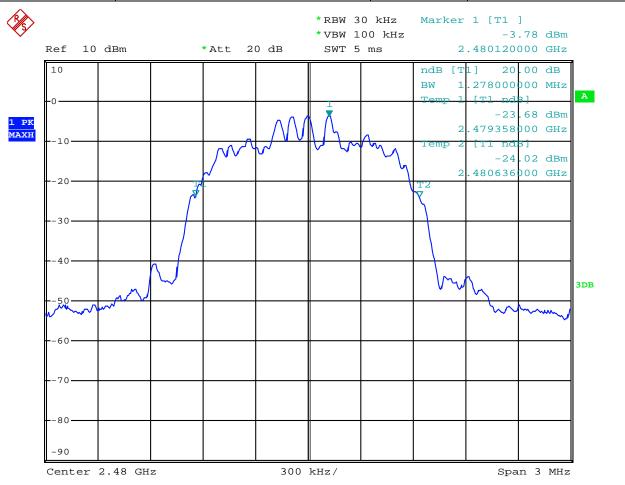
Page 34 of 47

Report No.: TW2411041E

Date: 2024-11-12



Л/4DQPSK			
Product:	TWS earphones	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	1.278MHz		



Date: 11.NOV.2024 12:37:47

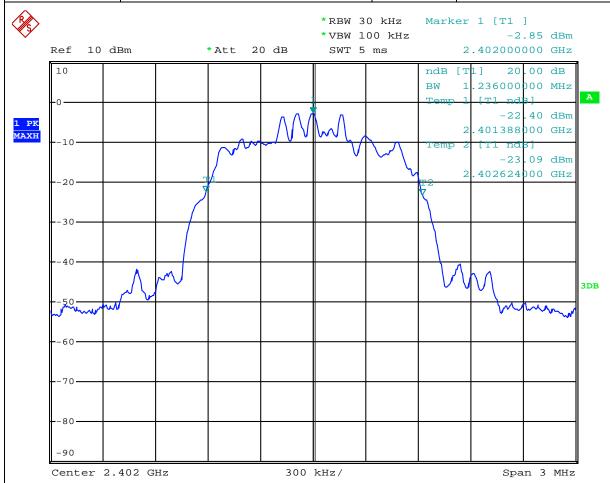
Page 35 of 47

Report No.: TW2411041E

Date: 2024-11-12



8DPSK								
Product:	TWS earphones	Test Mode:	Keep transmitting					
Mode	Keeping Transmitting	Test Voltage	120V∼					
Temperature	24 deg. C,	Humidity	56% RH					
Test Result:	Pass	Detector	PK					
20dB Bandwidth	1.236MHz							



Date: 11.NOV.2024 12:41:40

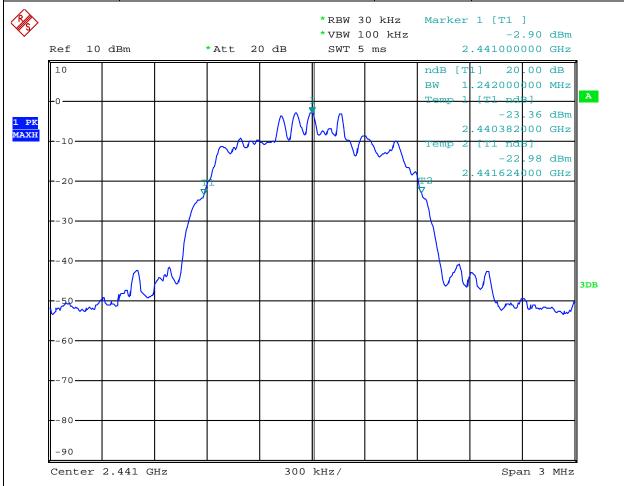
Page 36 of 47

Report No.: TW2411041E

Date: 2024-11-12



8DPSK								
Product:	TWS earphones	Test Mode:	Keep transmitting					
Mode	Keeping Transmitting	Test Voltage	120V~					
Temperature	24 deg. C,	Humidity	56% RH					
Test Result:	Pass	Detector	PK					
20dB Bandwidth	1.242MHz							



Date: 11.NOV.2024 12:40:55

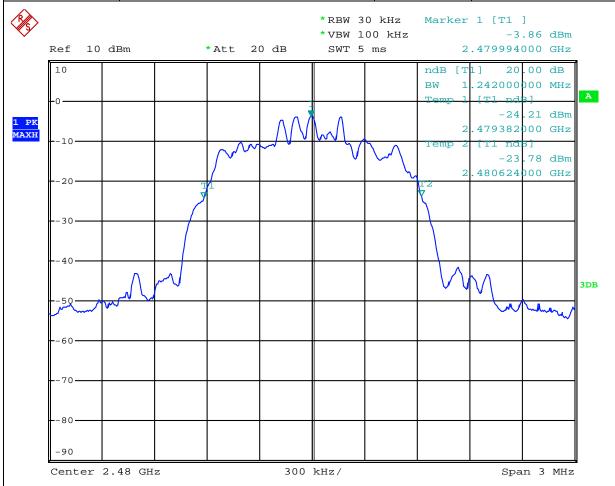
Page 37 of 47

Report No.: TW2411041E

Date: 2024-11-12



8DPSK								
Product:	TWS earphones	Test Mode:	Keep transmitting					
Mode	Keeping Transmitting	Test Voltage	120V~					
Temperature	24 deg. C,	Humidity	56% RH					
Test Result:	Pass	Detector	PK					
20dB Bandwidth	1.242MHz							



Date: 11.NOV.2024 12:40:01

Report No.: TW2411041E Page 38 of 47

Date: 2024-11-12



10.0 FCC ID Label

FCC ID: TUVGS512

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:



Page 39 of 47

Report No.: TW2411041E

Date: 2024-11-12



11.0 Photo of testing

11.1 Conducted test View--



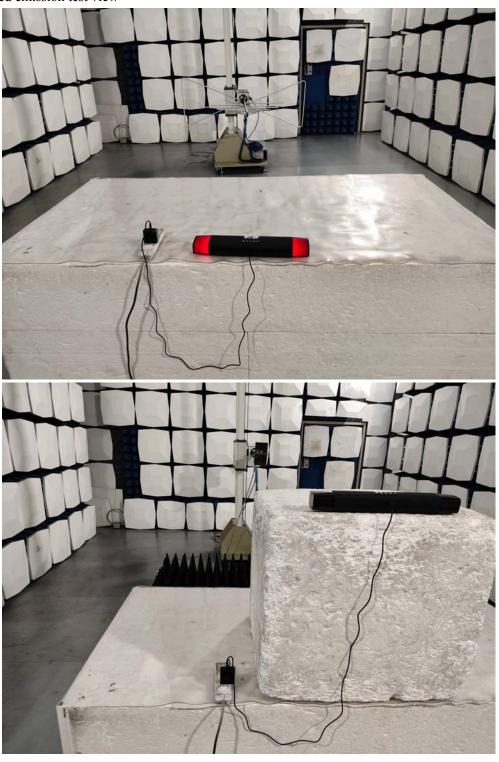
Page 40 of 47

Report No.: TW2411041E

Date: 2024-11-12



Radiated emission test view



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

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

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

Report No.: TW2411041E

Date: 2024-11-12



Photographs - EUT 11.0

Outside View



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

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES.

will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to

adopt any other remedies which may be appropriate.

Page 42 of 47

Report No.: TW2411041E

Date: 2024-11-12



Outside View



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

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES.

will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to

adopt any other remedies which may be appropriate.

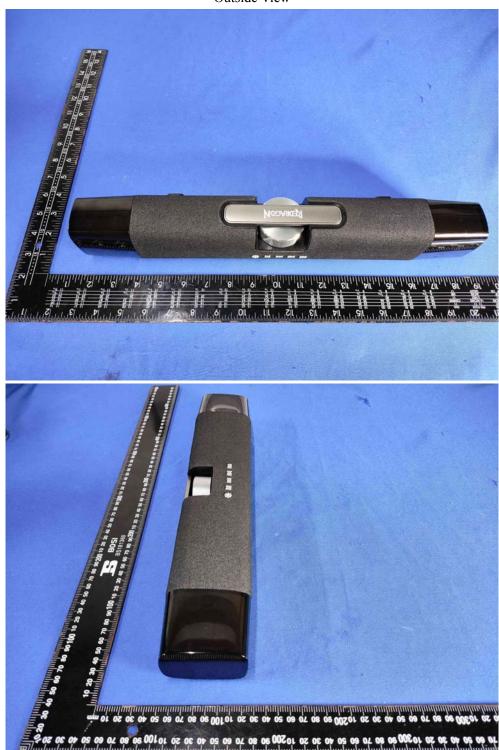
Page 43 of 47

Report No.: TW2411041E

Date: 2024-11-12



Outside View



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

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES.

will not, without the consent of the client enter into any

discussion of correspondence with any third party concerning the contents of the report.

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

Page 44 of 47

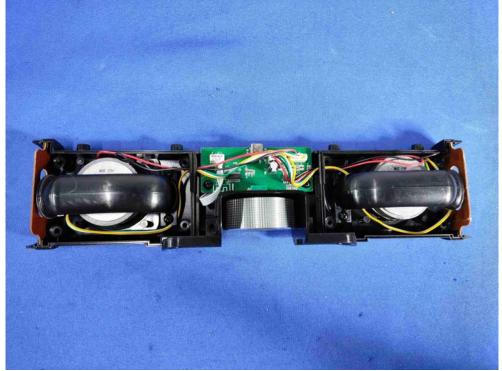
Report No.: TW2411041E

Date: 2024-11-12



Inside View





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

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES.

will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to

adopt any other remedies which may be appropriate.

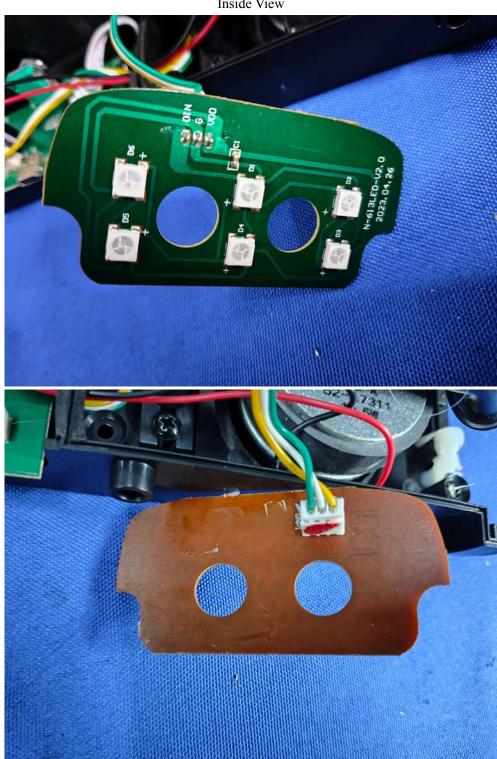
Page 45 of 47

Report No.: TW2411041E

Date: 2024-11-12



Inside View



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

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES.

will not, without the consent of the client enter into any

discussion of correspondence with any third party concerning the contents of the report.

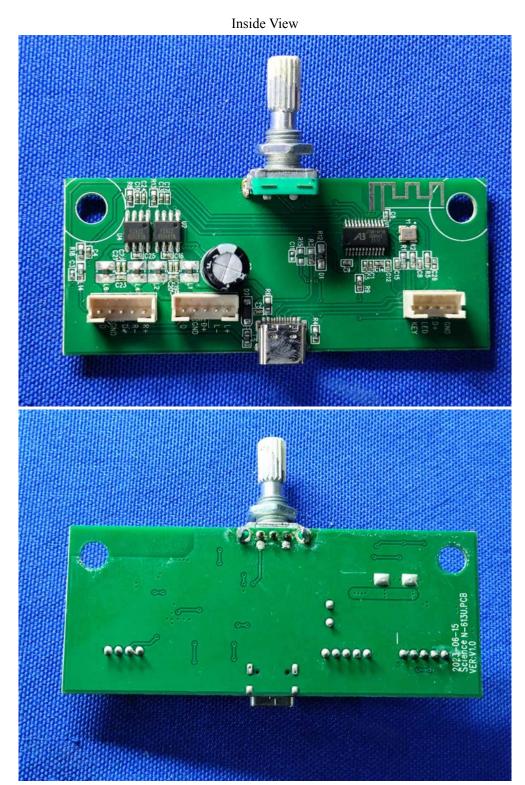
In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Page 46 of 47

Report No.: TW2411041E

Date: 2024-11-12





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

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES.

will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to

adopt any other remedies which may be appropriate.

Page 47 of 47

Report No.: TW2411041E

Date: 2024-11-12



Inside View



-- 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.

discussion of correspondence with any third party concerning the contents of the report.

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