

Applicant: Shenzhen Jian Yi KeJi Youxian Gongsi

Product: Bluetooth transmitter

Model No.: BTH02

Trademark: **BESIGN** 

Test Standards: FCC Part 15.249

It is herewith confirmed and found to comply with the Test result:

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

15.249 regulations

electromagnetic compatibility

Approved By

Terry Tang

Manager

Dated: September 11, 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.: TW2409001-01E Page 2 of 48

Date: 2024-09-11



# **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

Date: 2024-09-11



# Test Report Conclusion

#### Content General Details..... 1.0 1.1 Test Lab Details.... 1.2 Applicant Details.... 4 1.3 Description of EUT ..... 4 1.4 Submitted Sample.... Test Duration. 1.5 5 5 1.6 Test Uncertainty. 1.7 Test By..... 5 2.0 List of Measurement Equipment. 6 7 3.0 Technical Details..... 3.1 Summary of Test Results.... 7 3.2 7 Test Standards.... 4.0 7 EUT Modification.... 5.0 Power Line Conducted Emission Test..... 8 5.1 Schematics of the Test..... 8 Test Method and Test Procedure.... 5.2 8 Configuration of the EUT..... 5.3 5.4 EUT Operating Condition.... 9 5.5 Conducted Emission Limit..... 9 5.6 Test Result. 6.0 Radiated Emission test.... 12 Test Method and Test Procedure. 12 6.1 6.2 Configuration of the EUT..... 13 EUT Operation Condition.... 6.3 13 6.4 Radiated Emission Limit.... 13 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 FCC ID Label.... 10.0 39 11.0 Photo of Test Setup and EUT 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.

Date: 2024-09-11



#### 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: Shenzhen JianYi KeJi Youxian Gongsi

Address: Rm401, Unit 1, B1 Bulding, Bqu, Jinhuhuayuan, Jinhu Road, Qingshuihejiedao, Luohu

District, Shenzhen 518024, China

#### 1.3 Description of EUT

Product: Bluetooth transmitter

Manufacturer: Shenzhen Jian Yi KeJi Youxian Gongsi

Address: Rm401, Unit 1, B1 Bulding, Bqu, Jinhuhuayuan, Jinhu Road, Qingshuihejiedao,

Luohu District, Shenzhen 518024, China

Trademark: BESIGN
Model Number: BTH02
Additional Model Name N/A

Rating: Input: 5Vdc

Serial No.:

X004DCCFUF

Hardware Version: T63\_ATC2851\_M\_1.5(Main Board), T63-ATS2851-KEY-V1.2(Small Board)

Software Version: T63\_ATS2851\_BTH02\_240815\_v1.0.7\_att. fw

Operation Frequency: 2402-2480MHz

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

Number of Channels: 79 Channel Separation: 1MHz

Antenna Designation PCB antenna with gain 2.0dBi maximum (Get from the antenna specification)

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.: TW2409001-01E Page 5 of 48

Date: 2024-09-11



1.4 Submitted Sample: 2 Samples

1.5 Test Duration

2024-09-02 to 2024-09-11

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: Andy Xing

Page 6 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



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	1	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 48

Report No.: TW2409001-01E

Date: 2024-09-11



#### 3.0 Technical Details

# 3.1 Summary of test results

The EUT has been	n tested accor	ding to the foll	owing 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
FCC Part 15.215(c)	20dB bandwidth	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

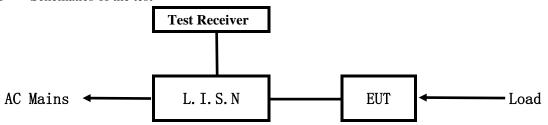
No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

Date: 2024-09-11



#### 5.0 Power Line Conducted Emission Test

# 5.1 Schematics of the test

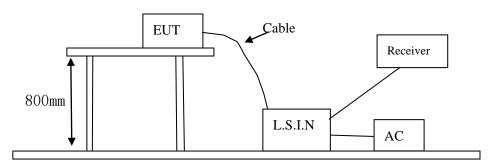


**EUT: Equipment Under Test** 

# 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
Bluetooth	Shenzhen JianYi KeJi	BTH02	2A2IXBTH02B
transmitter	Youxian Gongsi	B1 H02	ZAZIADI IIUZD

# B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

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.: TW2409001-01E Page 9 of 48

Date: 2024-09-11



#### 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

- Setup the EUT and simulators as shown on follow A
- В 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	Aver ge 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:

Date: 2024-09-11



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

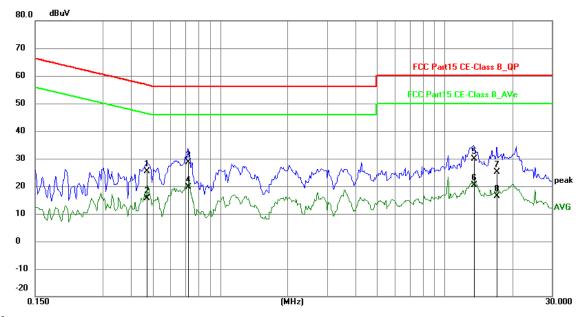
# **EUT Operating Environment**

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	0.4698	15.65	9.77	25.42	56.52	-31.10	QP	Р
2	0.4698	5.92	9.77	15.69	46.52	-30.83	AVG	Р
3	0.7194	18.96	9.78	28.74	56.00	-27.26	QP	Р
4	0.7194	9.93	9.78	19.71	46.00	-26.29	AVG	Р
5	13.5339	19.46	10.32	29.78	60.00	-30.22	QP	Р
6	13.5339	10.00	10.32	20.32	50.00	-29.68	AVG	Ъ
7	17.1063	14.66	10.51	25.17	60.00	-34.83	QP	Р
8	17.1063	5.85	10.51	16.36	50.00	-33.64	AVG	Р

Date: 2024-09-11



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

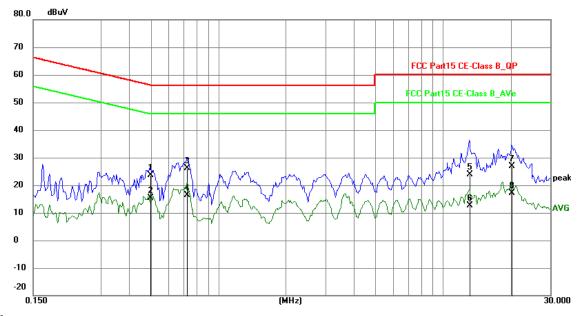
# **EUT Operating Environment**

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	0.4971	13.78	9.77	23.55	56.05	-32.50	QP	Р
2	0.4971	5.53	9.77	15.30	46.05	-30.75	AVG	Р
3	0.7272	16.41	9.78	26.19	56.00	-29.81	QP	J
4	0.7272	6.56	9.78	16.34	46.00	-29.66	AVG	Р
5	13.1049	13.47	10.30	23.77	60.00	-36.23	QP	Р
6	13.1049	2.41	10.30	12.71	50.00	-37.29	AVG	Р
7	20.2146	16.11	10.69	26.80	60.00	-33.20	QP	Р
8	20.2146	6.42	10.69	17.11	50.00	-32.89	AVG	Р

Date: 2024-09-11



#### **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 9kHz to 25 GHz was investigated. The frequency spectrum is set as follows:

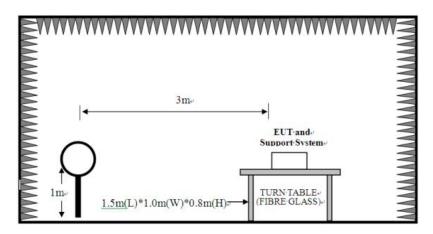
Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
ADOVE IGHZ	Peak	1MHz	10Hz	Average

(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**

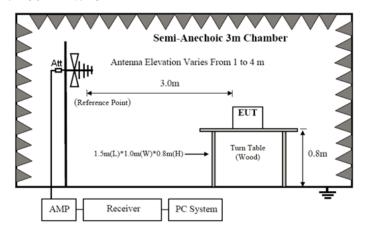
For radiated emissions from 9kHz to 30MHz



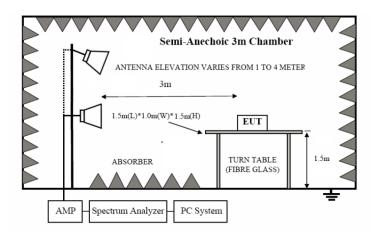
Date: 2024-09-11



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.
- 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 Field Strength of Fundamental (3m)				Field Strength of Harmonics (3m)		
(MHz) mV/		dBuV/m	uV/m	dBuV/m		

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.: TW2409001-01E Page 14 of 48

Date: 2024-09-11



2400 2402 7	~~	0.4.4.4	444 (75 4)		<b>-</b> 4 / 4	= 4 (D 1)
2400-2483.5	50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)
2100 2103.5	50	) i (riverage)	III (I can)	500	3 (Tiverage)	/ I (I call)

Note: 1. RF Field Strength  $(dBuV) = 20 \log RF \text{ Voltage } (uV)$ 

- 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
30-80	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 1. RF Voltage  $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 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.

Date: 2024-09-11



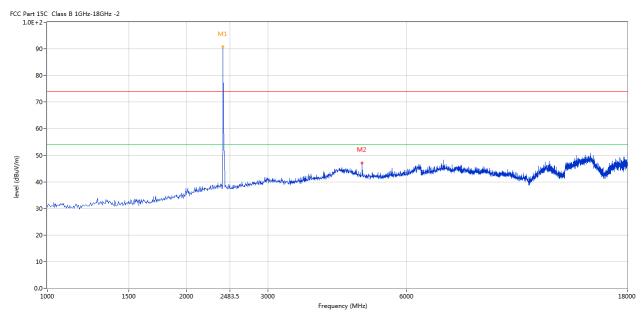
Page 15 of 48

# 6.5 Test result

# A Fundamental & Harmonics Radiated Emission Data

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

#### **Horizontal**



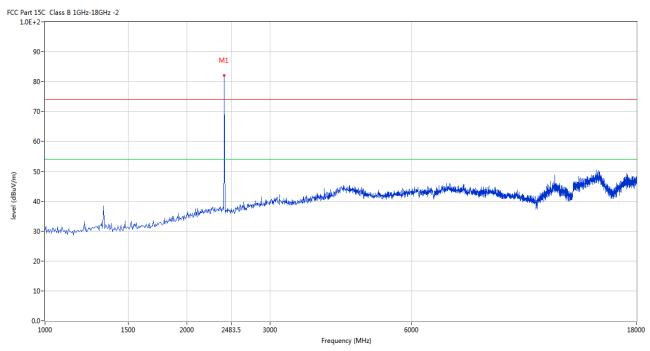
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	90.81	-3.57	114.0	-23.19	Peak	266.00	100	Horizontal	Pass
2	4802.799	47.15	3.12	74.0	-26.85	Peak	257.00	100	Horizontal	Pass

Report No.: TW2409001-01E Page 16 of 48

Date: 2024-09-11



# Vertical



ı	No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
	1	2402	82.16	-3.57	114.0	-31.84	Peak	360.00	100	Vertical	Pass

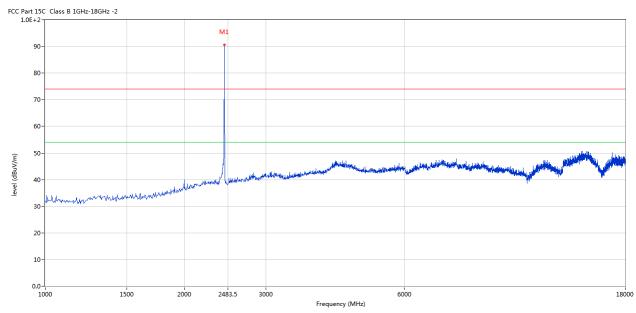
Report No.: TW2409001-01E Page 17 of 48

Date: 2024-09-11



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

#### **Horizontal**



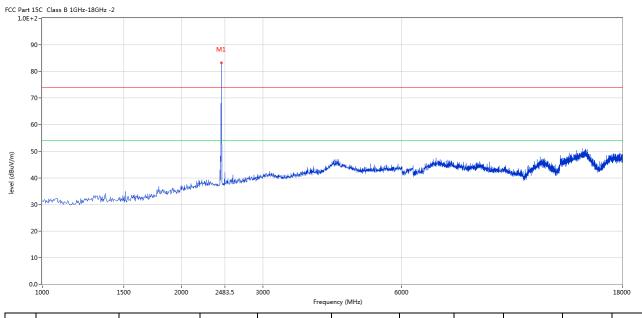
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	90.51	-3.57	114.0	-23.49	Peak	249.00	100	Horizontal	Pass

Report No.: TW2409001-01E Page 18 of 48

Date: 2024-09-11



# Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	83.23	-3.57	114.0	-30.77	Peak	47.00	100	Vertical	Pass

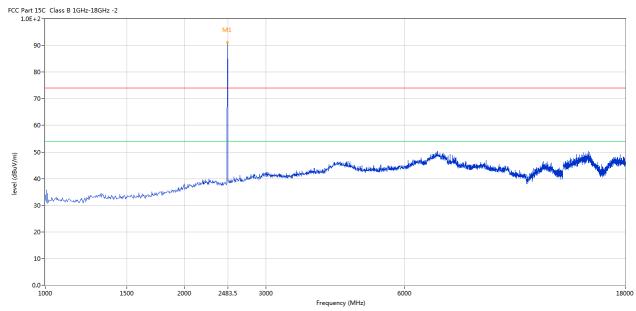
Report No.: TW2409001-01E Page 19 of 48

Date: 2024-09-11



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

#### **Horizontal**



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	91.16	-3.57	114.0	-22.84	Peak	254.00	100	Horizontal	Pass

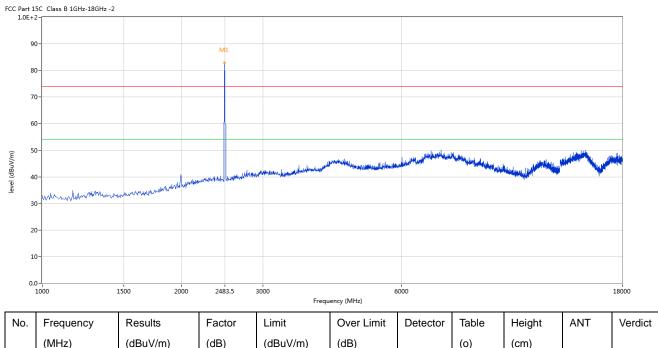
Page 20 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



#### Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	82.90	-3.57	114.0	-31.10	Peak	114.00	100	Vertical	Pass

Note: (1) Emission Level = Reading Level + Antenna Factor + Cable Loss-Amplifier

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

Report No.: TW2409001-01E Page 21 of 48

Date: 2024-09-11

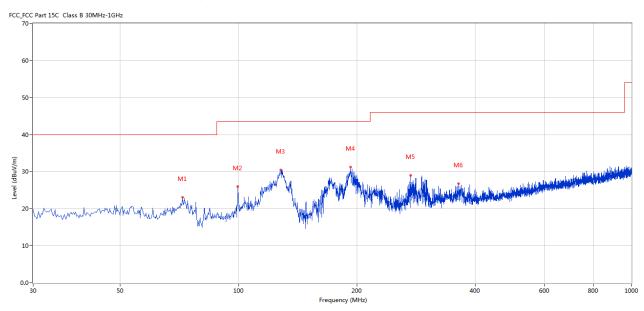


# B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

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	71.942	23.05	-16.53	40.0	16.95	Peak	254.00	100	Horizontal	Pass
2	99.580	25.96	-13.60	43.5	17.54	Peak	284.00	100	Horizontal	Pass
3	128.188	30.49	-16.73	43.5	13.01	Peak	217.00	100	Horizontal	Pass
4	192.919	31.23	-13.94	43.5	12.27	Peak	262.00	100	Horizontal	Pass
5	273.894	29.06	-11.63	46.0	16.94	Peak	360.00	100	Horizontal	Pass
6	362.627	26.79	-9.51	46.0	19.21	Peak	360.00	100	Horizontal	Pass

Report No.: TW2409001-01E Page 22 of 48

Date: 2024-09-11

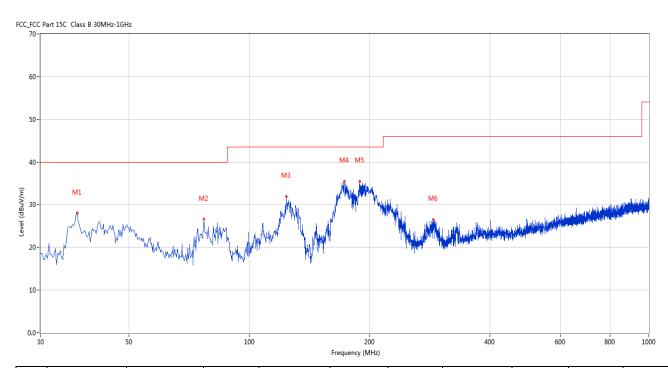


# Radiated Emission In Vertical (30MHz----1000MHz)

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	37.031	28.02	-13.17	40.0	11.98	Peak	87.00	100	Vertical	Pass
2	77.033	26.57	-17.60	40.0	13.43	Peak	235.00	100	Vertical	Pass
3	123.582	31.95	-15.99	43.5	11.55	Peak	258.00	100	Vertical	Pass
4	172.797	35.50	-15.93	43.5	8.00	Peak	258.00	100	Vertical	Pass
5	188.798	35.49	-14.35	43.5	8.01	Peak	199.00	100	Vertical	Pass
6	288.440	26.44	-11.25	46.0	19.56	Peak	251.00	100	Vertical	Pass

Date: 2024-09-11

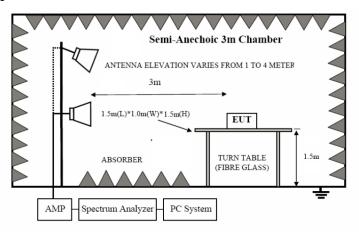


# 7. Band Edge

#### 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.

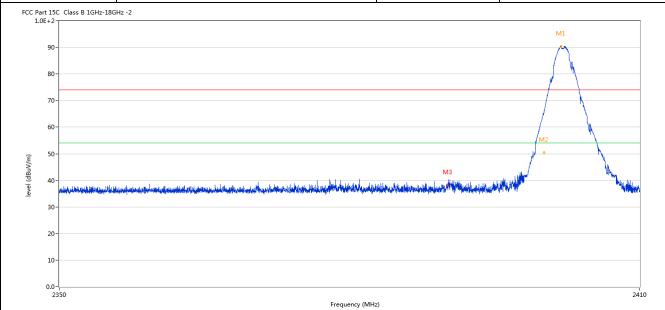
Report No.: TW2409001-01E Page 24 of 48

Date: 2024-09-11



### 7.6 Test Result

Product:	Bluetooth transmitter	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC5.0V
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	2401.797	90.38	-3.57	74.0	16.38	Peak	258.00	100	Horizontal	N/A
2	2400.012	65.68	-3.57	74.0	-8.32	Peak	263.00	100	Horizontal	Pass
2**	2400.012	50.43	-3.57	54.0	-3.57	AV	263.00	100	Horizontal	Pass
3	2390.010	38.30	-3.53	74.0	-35.70	Peak	258.00	100	Horizontal	Pass

Report No.: TW2409001-01E Page 25 of 48

Date: 2024-09-11



]	Product:					Detect	or		Vertical	
	Mode	F	Keeping Tra	ansmitting		Test Volt	age	DC5.0V		
Te	mperature		24 deg	g. C,		Humid	ty	56% RH		
Te	est Result:		Pas	SS						
CC Par	t 15C Class B 1GHz-18GH	z -2			•					
1.00	LTZ									
	90-							N	<b>/1</b>	
	80-							/	~~\\	
	70-									
	60-									
								,		
Œ.	50-							M2	$\overline{}$	
(dBuV/m)	40-					, M3		/ •		
level (dBuV/m)	40-	mananda additional distribution of the	angalah da dalah da karangsada da	ung pagabag bagan pagan pag	i de bejt die need sie de beken de endel	M3	kapatanan palipingan	/ •		Waydington
level (dBuV/m)	40-	mand laterari inclusioni del	المراجعة فالمتهادة فالمتهارة المتهارة ا	i inga pangakan da kangangan	المراجعة	M3	المراجع والمراجع والم	/ •		Mary district they
level (dBuV/m)	40-	mysembel a distance, who coloring magail	ngiel be killing transcription when	ىرىنىيىنىڭ ئايىلىنىڭ ئىلىنىدىكىنىڭ ئايىنىدىكىنىڭ ئايىلىنىڭ ئايىلىنىڭ ئايىلىنىڭ ئايىلىنىڭ ئايىلىنىڭ ئايىلىنىڭ ئ ئايىلىنىڭ ئايىلىنىڭ	المتأمل والمعاملة والمرافعة والمتاوية والمتاوية والمتاوية والمتاوية والمتاوية والمتاوية والمتاوية والمتاوية وا	M3	والمراجعة	/ •		Market Market Market
level (dBuV/m)	40- meritari derikilari derikilar	myandhadisherderbaadayurdadd	anglek de distript transverte, dener jede	Haydeydd beydd ywyddiodd af angwydd o	indekalaga di kananga kalaka di kananga di k	M3	<del>de de la co</del> nstanta de la constanta de la con	/ •	\ 	Market Mary
	40 - white the standing of the	mandeladere ar tanàna de manda	ngiel de daiting insensed adees den	er gerand bergin gerande de segue en	ing programme of the second	M3	kilylandid ayaliy seesil	/ •		tarian debarration
	40 - Aphiens de Aphien	mysembladistarderianisterneriadi	ingid bedishirik ironyek-denindan		Frequency (MHz)	M3	de <del>lekala</del> kerigidiya <sub>gi</sub> gi,k	/ •		2410
	30 - 20 - 0.0 - 2350	Results	Factor					· hu, r, dup it did.	ANT	ı
	30 - 20 - 2350 Frequency	Results	Factor	Limit	Frequency (MHz)  Over Limit	Detector	Table	Height	ANT	I
No.	30- 20- 10- 2350 Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Frequency (MHz)  Over Limit (dB)	Detector	Table (o)	Height (cm)		Verdi
No.	30 - 20 - 2350 Frequency (MHz) 2401.767	Results (dBuV/m) 82.03	Factor (dB) -3.57	Limit (dBuV/m) 74.0	Frequency (MHz)  Over Limit (dB)  8.03	Detector Peak	Table (o) 5.00	Height (cm)	Vertical	Verdid
No.	40- 20- 10- 2350  Frequency (MHz) 2401.767 2400.042	Results (dBuV/m) 82.03 58.54	Factor (dB) -3.57	Limit (dBuV/m) 74.0 74.0	Over Limit (dB) 8.03 -15.46	Detector Peak Peak	Table (o) 5.00 0.00	Height (cm) 100 100	Vertical Vertical	Verdid N/A Pass
No.	30 - 20 - 2350 Frequency (MHz) 2401.767	Results (dBuV/m) 82.03	Factor (dB) -3.57	Limit (dBuV/m) 74.0	Frequency (MHz)  Over Limit (dB)  8.03	Detector Peak	Table (o) 5.00	Height (cm)	Vertical	

Report No.: TW2409001-01E Page 26 of 48

Date: 2024-09-11



]	Product:		Bluetooth	transmitter		P	olarity		Horizont	al
	Mode		Keeping	Fransmitting		Test	Voltage		DC5.0V	I
Te	mperature		24 0	leg. C,		Н	ımidity		56% RF	I
Te	est Result:		F	Pass						
2 Part 1 1.0E+	L5C Class B 1GHz-18GHz 2-	-2								
9	0-		M1							
			المستعملين المستعملين	m						
8	0-			1						
7	0-		M							
6	0-		<i>[</i>	1						
		<i>p</i> h	4							
5	0-				he					
5		The state of the s		M2	And the second		. I altra and			
4	O -	handland had been been been been been been been bee		M2	The second secretaries	المعددان والمعالمة والمتعالمة وال	ad de la	and the second desirable field	and the state of t	distrib <sup>to</sup> the
4		handrad incibia de dispersión		M2	The state of the s	ينينه عبر أوزادة بالمتحاط يعضه	arabatikan da kalangan	البغالية المستعددة ا	والمراوان والمناطقة والمنا	distrative space
3	O -	handandi militarib da par		M2	And was all the state in	يلاغ عند أو لوه والمناكس مثل بعضه	of the state of the same	And the second second second second	ing diplomation did below the special distribution of the	distal think
3		handana incibianti iliptara		M2	Andrew Productive State of the	and a decision on his	of helpighten shaped and	. Million and American Vag (4 a)	anakirinta da da kanakirinta da da kanakirinta da	distractive and the second
4 3 2 1		handhad ineithean deille fan e			ready (right	nendineke estat meskek	ar de la cipitate anni de la companya de la company	n programme de la companya de la co	ing dip di sa di punda di salah di salah	
4 3 2 1		handanakani birani birani		M2	ready (right	and he do to his his	al de la	And the second of the second o	ing diplomation at the land of	2500
4 3 2 1 0.		Results	Factor		5	Detector	Table	Height	ANT	2500
4 3 2 1 0.	0-		Factor (dB)	2483.	5 Frequency (MHz)			The second section of the sec	es e e e e e e e e e e e e e e e e e e	2500
4 3 2 1 0.	0- 0- 0- 0- 0- 0- 2470	Results		2483.	5 Frequency (MHz)		Table	Height	es e e e e e e e e e e e e e e e e e e	
4 3 2 1	o- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0-	Results (dBuV/m)	(dB)	Limit (dBuV/m)	S Frequency (MHz) Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	2500 Verd

Page 27 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



I	Product:	I	Bluetooth t	ransmitter		Detect	tor		Vertical	
	Mode	ŀ	Keeping Tr	ansmitting		Test Vol	tage		DC5.0V	
Te	mperature		24 de	g. C,		Humid	lity		56% RH	
Te	est Result:		Pas	SS						
CC Par	t 15C Class B 1GHz-18GI	Hz -2			•					
80			M1							
70				1						
60			N	100						
				VTIM2						
50· (w/\ng 40·		and the state of t	<i>(</i>	1	Mary Maria Maria de la constanti de la constan	المنت المسالحة المسالحة	والمراجع المراجع المرا	المتعاديد المتعاديد المتعادية المتعادية المتعادية المتعادية المتعادية المتعادية المتعادية المتعادية المتعادية	وروا مرزا مرزا مرزا مرزا مرزا مرزا مرزا مرز	a . dibiratica tilia
	sellikkallarden kanatikkallarde wied	مرامي والمتعاون	(		hanny baryadoorgi addina qaabaa ka baabaad	irliniferije vikoga almonominisk	المراجعة	had basin period bad magedesi	والمراجع فالمتعادلة والمتعادلة وا	a spillerskie delta
(iii/nngn) ianai 30	urlinika direktorik erast sidenske aden udek	multiple and a state of the sta	(		ann ng Lanjud 1995 di dahiya ayada ka	istaliteti teritari	المستعلي أحداس الامرشا	lad kaimini ahadiyagida	irad <sub>a</sub> de <del>e</del> nakirje keer da dhid	a williasile shifty
(m// 40 · 40 · 30 · 30 · 30 · 10 · 10 ·	urlinika direktorik erast sidenske aden udek	on the state of th		2483.5		irlaideachte an eineamhail	naandist <mark>eedingsdogsdog</mark>	land kanison vin alle vin egisteni	ind <sub>er</sub> denderlicher des deut	
(E) 40· 40· 40· 40· 40· 40· 40· 40· 40· 40·	urjanden frenkring de seine vinde	Results	Factor			Detector	Table	Height	ANT	2504
(E) 40· 40· 40· 40· 40· 40· 40· 40· 40· 40·	allited and a few titles de sin what		Factor (dB)		Frequency (MHz)				THE PROPERTY OF THE PROPERTY O	2504
(m/\mu/40 do	470 Frequency	Results		Limit	Frequency (MHz)  Over Limit		Table	Height	THE PROPERTY OF THE PROPERTY O	2500 Verdi

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.

Date: 2024-09-11



Page 28 of 48

# 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 2.0dBi maximum. It fulfills the requirement of this section.

Test Result: Pass

Date: 2024-09-11



Page 29 of 48

#### 9.0 20dB Bandwidth Measurement

# **Test Configuration**



# **Test Procedure**

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW.

The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

# Limit

N/A

Page 30 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



# **Test Result**

Pro	duct:		Blue	tooth tran	smitter		Test Mo	ode:	Kee	p transmitti	ing
M	ode		Keep	ing Trans	mitting		Test Voltage		DC5.0V		
Temp	erature			24 deg. (	Ξ,	Humidity		56% RH			
Test 1	Result:			Pass		Detector		or		PK	
)dB B	andwidth	l		880kHz	Z						
<b>S</b>	ef 10	dBm		* Att 20	) dB	*RBW 3 *VBW 1 SWT 1	00 kHz	Mark	er 1 [T1 -( 2.401826	).38 dBm	
	10				1			ndB BW 8 Temp	79.807692	l	A
РК	-10				7/~~	Vy M		Temp	2.401528	R]	
	-20			T1/V			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		2.402408	.33 dBm	
	-30			/			Ψ,	7			
_	-40	<u> </u>						<b>V</b>	~		
	-50 <b></b>	rd .	W						1	~~~~	3DB
-	-60									4	
-	-70										
-	-80										
L	-90					<u> </u>					
C	Center 2	2.402 GF	1z		300	kHz/			Spa	n 3 MHz	

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

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

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

Page 31 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



Product:	Bluetooth transmitter	r Test Mode	e: Keep transmitting
Mode	Keeping Transmitting	g Test Voltag	ge DC5.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	875kHz		
Ref 10 de	Bm *Att 20 dB	*VBW 100 kHz SWT 15 ms	Marker 1 [T1 ] -1.01 dBm 2.440826923 GHz
0	1		ndB [T1] 20.00 dB BW 875.000000 000 kHz Femp 1 [T1 ndB] A -20.61 dBm
MAXH10			2.440533654 GHz  2.[Tl.ndR]  -20.56 dBm  2.441408654 GHz
20		12	2.441400034 GHZ
40	An /	\ \ \	
50	J. TW		3DB
60			Juny
-70			
80			
-90			

Date: 7.SEP.2024 09:54:17

Page 32 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



Product:	Bluetooth trai	nsmitter	Test Mode:	Keep transmitting	
Mode	Keeping Trans	smitting	Test Voltage	DC5.0V	
Temperature	24 deg.	C,	Humidity	56% RH	
Test Result:	Pass		Detector	PK	
OdB Bandwidth	875kH	Z			
Ref 10 dE	8m *Att 20	* VBW	100 kHz 15 ms ndB		
-0-		1	BW Tem	-21.18 dBm	
<b>10</b>	<sub>T1</sub> /V		Tem	2.479533654 GHz 2.[T1 ndB] -21.18 dBm 2.480408654 GHz	
20			The state of the s		
40			V <sub>4</sub>	Α	
50				3DB	
60				Thomas and the same of the sam	
70					
80					
-90	48 GHz	300 kHz/		Span 3 MHz	

Page 33 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



Product:	Blu	etooth tran	smitter		Test Mo	ode:	Kee	p transmitt
Mode	Kee	ping Trans	smitting		Test Vol	tage		DC5.0V
Temperature					Humidity			56% RH
Test Result:	Pass				Detect	or		PK
OdB Bandwidth	Bandwidth 1.255MHz							
Ref 10 dE	3m	*Att 20	0 dB	*RBW 3 *VBW 1 SWT 1	00 kHz	Mark	er 1 [T1 -0 2.401826	0.42 dBm
10			1_			ndB BW Temp	[T1] 20 1.254807 1 [T1 nc	692 MHz
PK AXH10		- A	$\mathcal{N}$	Lon	0.00	Temp	-20 2.401379	.30 dBm
20				P	) and	T2	-20 2.402634	
30	الم ا							
40								
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						2	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
60								
-70								
80								
-90 Center 2.			300					n 3 MHz

Date: 7.SEP.2024 10:13:01

Page 34 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



Test Result:	Keeping Transmitting 24 deg. C, Pass		Test Vo			DC5.0V
Temperature Test Result: 0dB Bandwidth	Pass		Humia			
			Humidity		56% RH	
OdB Bandwidth				Detector		PK
<b>)</b>	1.240MHz					
Ref 10 dBm	*Att 20 dB	*RBW 30 *VBW 10 SWT 15	00 kHz		2.440826	.99 dBm
10	1			ndB BW Temp	[T1] 20 1.259615 1 [T1 nd	
PK AXH10		The same	\ Az-	Temp	-21 2.440375 2 [Tl nd	.28 dBm
20	# V	Ů		Г2	-21 2.441634	.05 dBm 615 GHz
30						
-40	Vm			V	~\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	3DB
						V
-60						
70						
80						
-90						

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

Date: 7.SEP.2024 10:08:11

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

Page 35 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



Product:	Blue	etooth transmitte	er	Test M	Iode:	K	eep transmittin
Mode	Keej	Keeping Transmitting				DC5.0V	
Temperature		24 deg. C,		Humidity		56% RH	
Test Result:		Pass		Detector		PK	
dB Bandwidth		1.240MHz					
Ref 10 dF  10  -0  -10  -20  -30  -40	Bm	*Att 20 dB	* VBW 1	0 kHz 00 kHz 5 ms	ndB BW	2.479826  [T1] 20 1.240384 1 [T1 nc -21 2.479375	.49 dBm 5923 GHz .00 dB 615 MHz .B] A .99 dBm .000 GHz .B1
50 60 70 80 90							3DB
Center 2.	48 GHz	30	00 kHz/			Spa	n 3 MHz

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

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

Page 36 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



Product:	Bluetooth t	ransmitter	Test Mode:	Keep transmitting
Mode	Keeping Tr	ansmitting	Test Voltage	DC5.0V
Temperature	24 de	g. C,	Humidity	56% RH
Test Result:	Pa	SS	Detector	PK
20dB Bandwidth	1.236	MHz		
Ref 10 dB	n *Att	* VI	BW 30 kHz M BW 100 kHz VT 15 ms	Marker 1 [T1 ] -0.91 dBm 2.401826923 GHz
10		1_	n	dB [T1] 20.00 dB W 1.235576923 MHz Temp 1 [T1 ndB]
1 PK MAXH10			1	-21.13 dBm 2.401384615 GHz
20	71		F2	-20.95 dBm 2.402620192 GHz
30				
40 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				
-50	<i>I</i>			3DB
60				
70				
80 -90				
Center 2.4	02 GHz	300 kHz/		Span 3 MHz

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

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

Page 37 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



Product:	Bluetooth transi	mitter	Test Mode:	Keep transmitting DC5.0V	
Mode	Keeping Transm	nitting	Test Voltage		
Temperature	24 deg. C,	Humidity	56% RH PK		
Test Result:	Pass	Detector			
0dB Bandwidth	1.236MHz	Z			
Ref 10 dF  10  -0  -10  -20  -30  -40  -50  -60  -70	8m * Att 20	* RBW 3 * VBW 1 dB SWT 1	00 kHz	1.235576923 MHz  mp 1 [T1 ndB]  -21.44 dBm  2.440384615 GHz  mp 2 [T1 ndB]  -22.20 dBm  2.44162C192 GHz	A 3DB
80					
-90	441 GHz	300 kHz/	<u> </u>	Span 3 MHz	

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

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

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

Page 38 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



Product:	Bluetooth transmitter					Test Mode:		Keep transmitting	
Mode Keeping Transmitting Temperature 24 deg. C,					Test Voltage Humidity		DC5.0V 56% RH		
									Test Result: Pass
0dB Bandwidth	dB Bandwidth 1.236MHz								
Ref 10 d	Bm	,	*Att 20	) dB		0 kHz 00 kHz 5 ms	ndB BW	2.479826 [T1] 20 1.235576	0.01 dBm 0923 GHz 000 dB 0923 MHz
-0			~~~		W\	M	Temp	2.479384 2 [Tl no	.85 dBm 615 GHz R] .58 dBm
30			1				T2		
40 50	M						M	\m\.	3DB
60									
70 80									
-90									
Center 2.	48 GHz			300	kHz/			Spa	n 3 MHz

Date: /.SEP.2024 10:23:03

Report No.: TW2409001-01E Page 39 of 48

Date: 2024-09-11

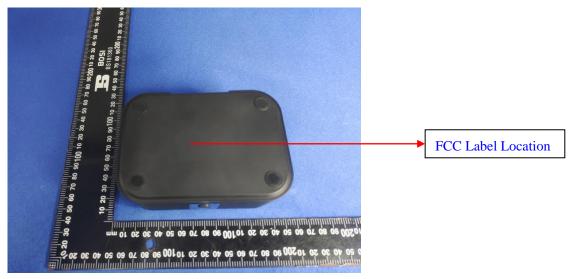


### 10.0 FCC ID Label

#### FCC ID: 2A2IXBTH02B

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 40 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



# 11.0 Photo of testing11.1 Conducted test V

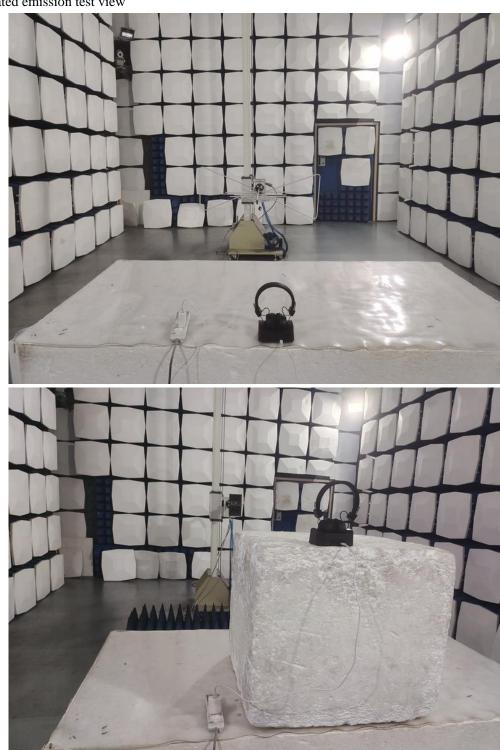


Report No.: TW2409001-01E

Date: 2024-09-11



### 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.

Page 42 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



## 11.2 Photographs – EUT

Outside View





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

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

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

Page 43 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



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 48

Report No.: TW2409001-01E

Date: 2024-09-11



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.

Report No.: TW2409001-01E Page 45 of 48

Date: 2024-09-11



Outside View



Page 46 of 48

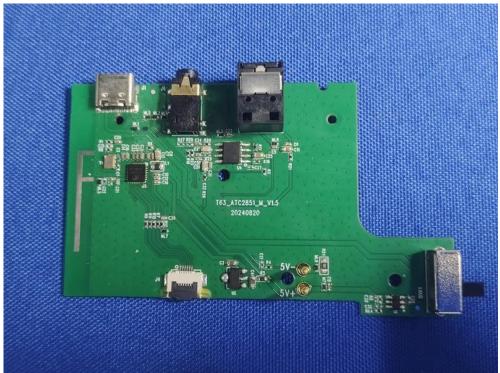
Report No.: TW2409001-01E

Date: 2024-09-11



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 an 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.

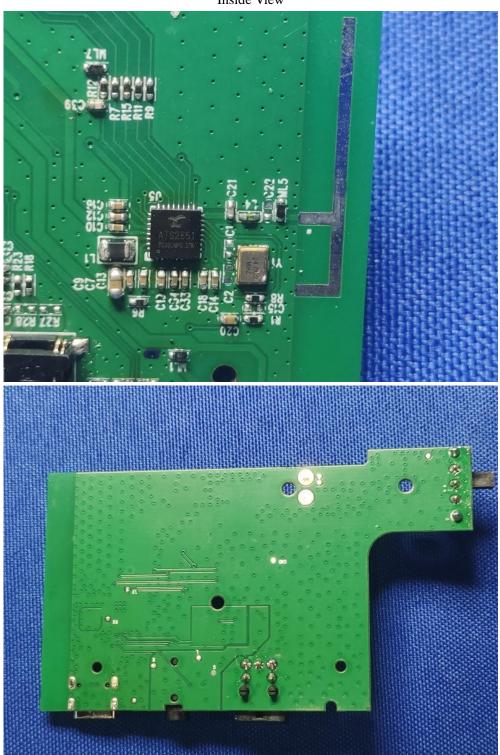
Page 47 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



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

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.

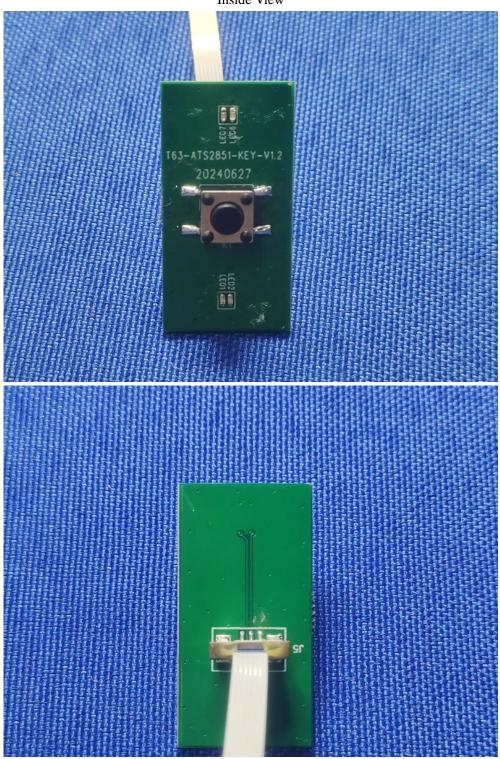
Page 48 of 48

Report No.: TW2409001-01E

Date: 2024-09-11



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.