

Report No.: TW2407115E

Applicant: Glory Star Technology Industrial Co., Ltd.

Product: TWS Earphone

Model No.: L08, P2G-SP110, G54D

Trademark: N/A

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,

15.249 regulations for the evaluation

electromagnetic compatibility

Approved By

Terry Tang

Manager

Dated: July 26, 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

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# **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

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#### 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: Glory Star Technology Industrial Co., Ltd.

Address: Room2102, Block 1st, Yi Luan Building, Xixiang Road 230, BaoAn District, Shenzhen, China

## 1.3 Description of EUT

Product: TWS Earphone

Manufacturer: Glory Star Technology Industrial Co., Ltd.

Address: Room2102, Block 1st, Yi Luan Building, Xixiang Road 230, BaoAn District,

Shenzhen, China

Trademark: N/A Model Number: L08

Additional Model Name P2G-SP110, G54D

Rating: DC5V input or Built-in DC3.7V, 35mAh Li-ion battery for earphones and DC5V

input or Built-in DC3.7V, 400mAh Li-ion battery for charger base.

Serial No.: 96-240925-1

Hardware Version: V5 Software Version: V5

Operation Frequency: 2402-2480MHz

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

Number of Channels: 79 Channel Separation: 1MHz

Antenna Designation Chip antenna with gain 1.7dBi maximum (Get from the antenna specification)

# 1.4 Submitted Sample: 4 Samples

# 1.5 Test Duration

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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

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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		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

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#### 3.0 Technical Details

# 3.1 Summary of test results

The EUT has been	tested a	according to	the follo	wing s	pecifications:

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

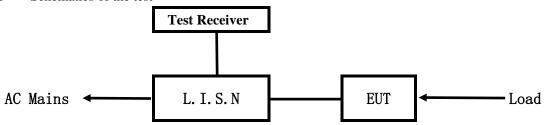
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#### 5.0 Power Line Conducted Emission Test

# 5.1 Schematics of the test

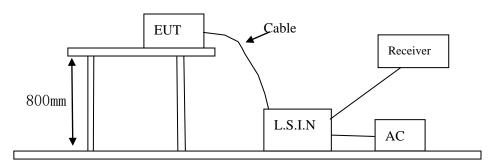


**EUT: Equipment Under Test** 

## 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	
TWS Earphone	Glory Star Technology Industrial Co., Ltd.	L08, P2G-SP110, G54D	2AS7V-P2G-SP110	

# B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

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# 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 $\mu$ 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:

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

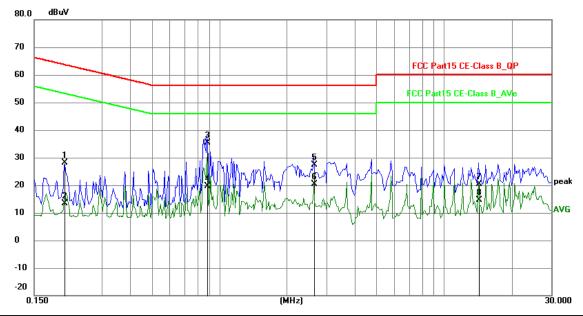
# **EUT Operating Environment**

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	0.2046	18.30	9.75	28.05	63.42	-35.37	QP	Р
2	0.2046	3.65	9.75	13.40	53.42	-40.02	AVG	Р
3	0.8832	25.71	9.79	35.50	56.00	-20.50	QP	Р
4	0.8832	9.96	9.79	19.75	46.00	-26.25	AVG	Р
5	2.6421	17.50	9.83	27.33	56.00	-28.67	QP	Р
6	2.6421	10.60	9.83	20.43	46.00	-25.57	AVG	Р
7	14.2632	9.93	10.35	20.28	60.00	-39.72	QP	Р
8	14.2632	4.37	10.35	14.72	50.00	-35.28	AVG	Р

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

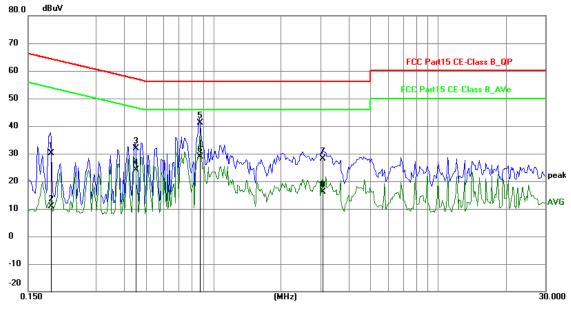
# **EUT Operating Environment**

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	0.1890	20.40	9.76	30.16	64.08	-33.92	QP	Р
2	0.1890	1.19	9.76	10.95	54.08	-43.13	AVG	Р
3	0.4503	22.05	9.77	31.82	56.87	-25.05	QP	Р
4	0.4503	14.24	9.77	24.01	46.87	-22.86	AVG	Р
5	0.8676	31.39	9.79	41.18	56.00	-14.82	QP	Р
6	0.8676	19.18	9.79	28.97	46.00	-17.03	AVG	Р
7	3.0702	18.29	9.85	28.14	56.00	-27.86	QP	Р
8	3.0702	6.20	9.85	16.05	46.00	-29.95	AVG	Р

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#### **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:

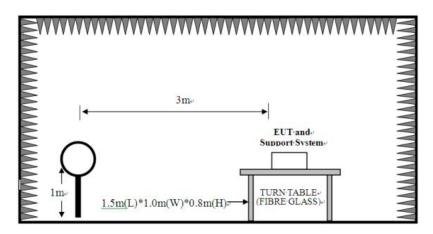
Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
ADOVE IGHZ	Peak	1MHz	10Hz	Average

(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

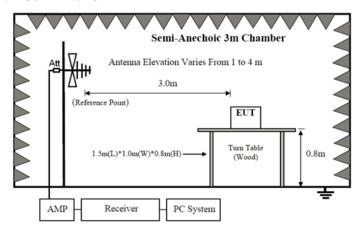


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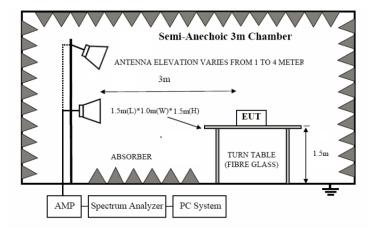
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For radiated emissions from 30MHz to1GHz



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 Stre	ength of Fundamental (3m)	Field Strength of Harmonics (3m)			
(MHz)	mV/m	dBuV/m	uV/m	dBuV/m		

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2400-2483.5 50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)
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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 $\mu$ 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.
- 6. Battery was fully charged during test

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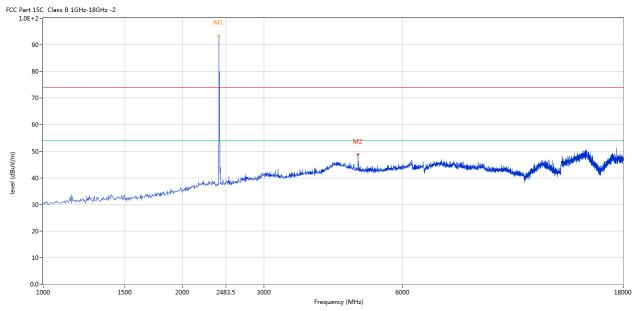


## 6.5 Test result

# **A** Fundamental & Harmonics Radiated Emission Data

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

#### **Horizontal**



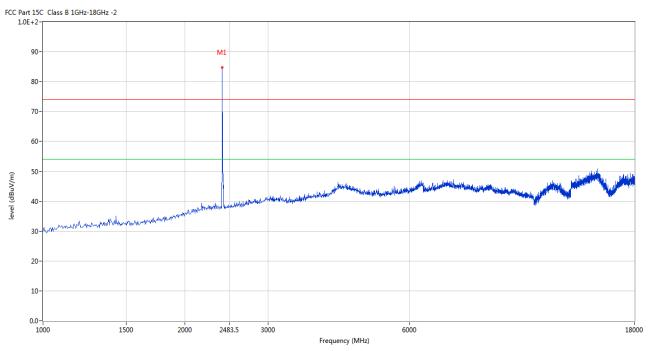
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	93.44	-3.57	114.0	-20.56	Peak	263.00	100	Horizontal	Pass
2	4802.799	48.76	3.12	74.0	-25.24	Peak	227.00	100	Horizontal	Pass

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# Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	84.75	-3.57	114.0	-29.25	Peak	167.00	100	Vertical	Pass

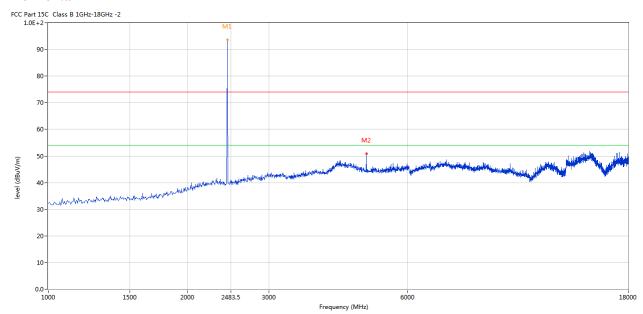
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Please refer to the following test plots for details: Middle Channel-2441MHz

#### **Horizontal**



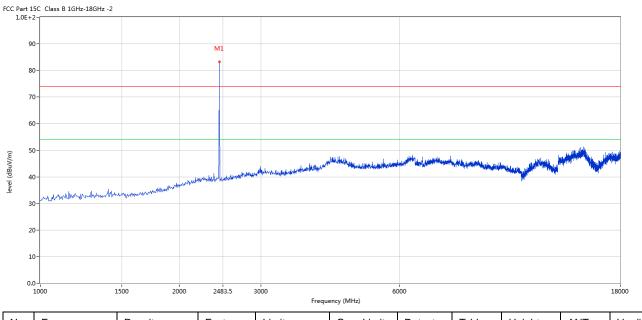
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	93.55	-3.57	114.0	-20.45	Peak	257.00	100	Horizontal	Pass
2	4883.529	50.89	3.20	74.0	-23.11	Peak	242.00	100	Horizontal	Pass

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# Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	83.28	-3.57	114.0	-30.72	Peak	75.00	100	Vertical	Pass

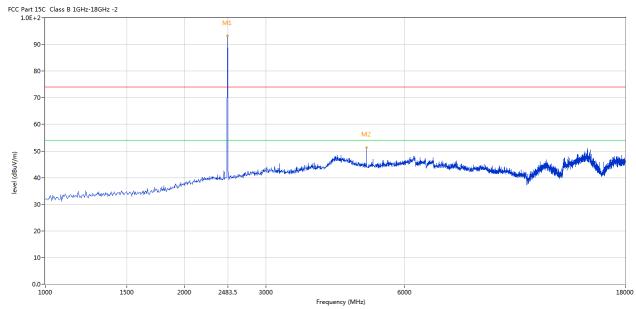
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Please refer to the following test plots for details: High Channel-2480MHz

#### **Horizontal**



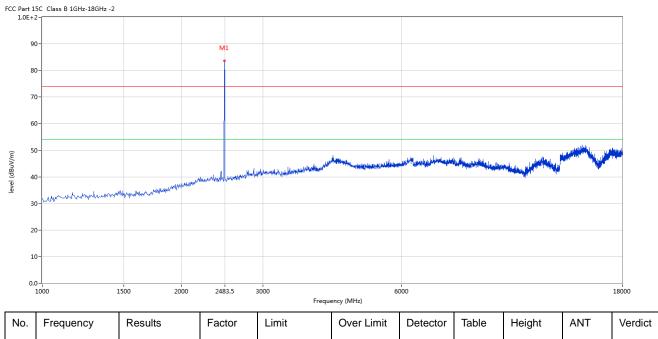
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	93.31	-3.57	114.0	-20.69	Peak	252.00	100	Horizontal	Pass
2	4960.010	51.25	3.36	74.0	-22.75	Peak	258.00	100	Horizontal	Pass

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#### Vertical



Ν	lo.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1		2480	83.58	-3.57	114.0	-30.42	Peak	54.00	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.

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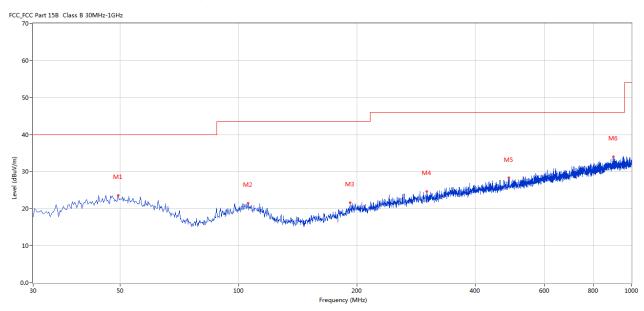


# B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

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	49.395	23.60	-11.28	40.0	16.40	Peak	128.00	100	Horizontal	Pass
2	105.641	21.54	-13.27	43.5	21.96	Peak	105.00	100	Horizontal	Pass
3	192.192	21.63	-14.04	43.5	21.87	Peak	192.00	100	Horizontal	Pass
4	301.047	24.69	-11.01	46.0	21.31	Peak	5.00	100	Horizontal	Pass
5	487.968	28.28	-7.10	46.0	17.72	Peak	95.00	100	Horizontal	Pass
6	900.600	34.06	-1.89	46.0	11.94	Peak	216.00	100	Horizontal	Pass

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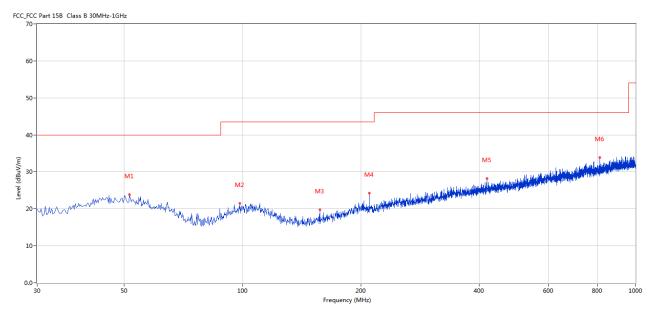


# Radiated Emission In Vertical (30MHz----1000MHz)

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	51.577	23.85	-11.41	40.0	16.15	Peak	91.00	100	Vertical	Pass
2	98.368	21.48	-13.72	43.5	22.02	Peak	70.00	100	Vertical	Pass
3	157.281	19.80	-16.58	43.5	23.70	Peak	271.00	100	Vertical	Pass
4	210.132	24.23	-13.59	43.5	19.27	Peak	140.00	100	Vertical	Pass
5	418.388	28.25	-8.19	46.0	17.75	Peak	151.00	100	Vertical	Pass
6	812.352	33.92	-2.93	46.0	12.08	Peak	186.00	100	Vertical	Pass

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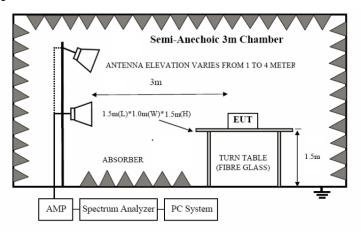


# 7. Band Edge

#### 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.

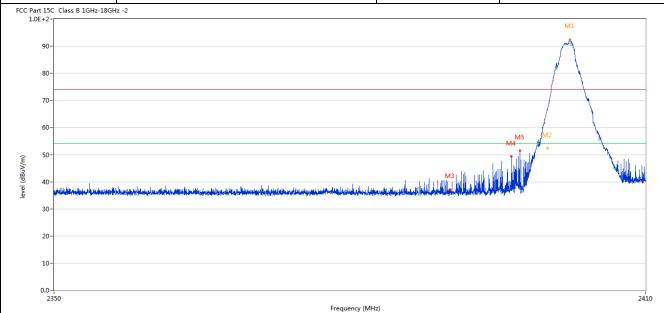
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## 7.6 Test Result

Product:	TWS Earphone	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



H	No.	Fraguenay	Results	Factor	Limit	Over Limit	Detector	Table	Hoight	ANT	Verdict
	INO.	Frequency	Results	Factor	Limit	Over Limit	Detector	rable	Height	ANI	verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
	1	2402.232	92.43	-3.57	74.0	18.43	Peak	71.00	100	Horizontal	N/A
	2	2400.012	66.85	-3.57	74.0	-7.15	Peak	76.00	100	Horizontal	Pass
	2**	2400.012	52.30	-3.57	54.0	-1.70	AV	76.00	100	Horizontal	Pass
	3	2390.010	37.10	-3.53	74.0	-36.90	Peak	20.00	100	Horizontal	Pass
	4	2396.263	49.25	-3.55	74.0	-24.75	Peak	66.00	100	Horizontal	Pass
	5	2397.148	51.37	-3.56	74.0	-22.63	Peak	71.00	100	Horizontal	Pass

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	Product:		TWS Ea	arphone		Detect	or		Vertical	
	Mode	I	Keeping Tr	ansmitting		Test Vol	tage		DC3.7V	
Te	mperature		24 de	g. C,		Humid	ity		56% RH	
Те	est Result:		Pa	SS						
	t 15C Class B 1GHz-18GF E+2-	-lz -2			•		•			
	90-								M1	
	80-							<i></i>		
	70-							/	1	
	60-									
								M2		
Ē	50-							M4 ®		
≥ .										
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level (dBuV,	30-	<del>hed en discount dels questions dels défendations</del>	and the second beautiful for each	والمتعاون	بيونيد مقادات مودنين فرفيتم بطردي	M3 ئىيىنىدارلۇرىمىلىنىدىداللەر	eng elasyek akke ankindak		· ·	Adding to the
level (dBuV/m)	transferrate destrict remaining the flee	teksenlinanni bilannyahanni depikterisekann		e haveten selenkos standesi serjet erekireli	terykypidyskárospa kalteracióna	M3. ئىيىنىغى ئوياسى مۇرىكتەرىنى خاتۇلەر	e na standardina e de d	Alika Uk <sup>kr</sup>	Lar.	A Hard Property
level (dBuV,	30-	terbendungunden geben der eine der ein	inderforment de la constitución de	and the second s	anglengesigh di pingga sindhan milyan	M3	i gayy theophysallician baldha	ALIA MAPA		A Harry Company
level (dbuv,	10 - 0.0	المراجع والمراجع والم	. Light de la constant de la constan	edución selectronomitation, singuistrativa de	n, ndonacidy, the enterprise distributions in the national section of the enterprise	M 3	ang the plan all the said the	All In Mark	, dan	de de la constitución de la cons
level (dbuv,	30- 10-	teripadina marita perintende de la francia d	- Light de March Light of Ligh	and the second s	Frequency (MHz)	M3	anglest dite de de		la l	2410
	10 - 0.0	Results	Factor	Limit		Miles in the second sec	Table	Height	ANT	I
	30 - 20 - 2350				Frequency (MHz)		Table (o)	Height (cm)	ANT	ı
lo.	30- 20- 10- 2350	Results	Factor	Limit	Frequency (MHz)  Over Limit				ANT	ı
lo.	20- 10- 2350 Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Frequency (MHz)  Over Limit (dB)	Detector	(o)	(cm)		Verdio
lo.	20- 10- 2350 Frequency (MHz) 2401.917	Results (dBuV/m) 84.50	Factor (dB) -3.57	Limit (dBuV/m) 74.0	Frequency (MHz)  Over Limit (dB)  10.50	Detector Peak	(o) 161.00	(cm) 100	Vertical	Verdid
No.	20- 10- 2350 Frequency (MHz) 2401.917 2400.042	Results (dBuV/m) 84.50 61.78	Factor (dB) -3.57	Limit (dBuV/m) 74.0	Frequency (MHz)  Over Limit (dB)  10.50  -12.22	Detector Peak Peak	(o) 161.00 161.00	(cm) 100 100	Vertical Vertical	Pass

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]	Product:		TWS 1	Earphone		P	olarity		Horizont	al
	Mode		Keeping '	Transmitting		Tes	t Voltage		DC3.7V	7
Te	mperature		24 (	deg. C,		Hı	ımidity		56% RI	I
Te	est Result:		I	Pass						
C Part 1	.5C Class B 1GHz-18GHz	: -2								
9			M1	Vo.						
8	0-			M						
7	0-			M						
6	0-		S	W						
0		/	•	' W.						
	0-	مراطعها والباريد والمراجع		' \	Manual Intil I	and				
	o-			M2	No.				وفا أخضينا والمعالية المعالية المعالية	Maderalinari
	0	Hadda hada berir		M2	J. Company				وفا فنصحته إمالتها أيطاله فالمتعالمة فالمتعالمة	Harly How.
. 5	0-			M2	J. Company			likili sehilesi ileles	والمتعددة والشالية المتعاددة	And the second
4	o-			M2	Je Constraint of the State of t				وفا لنسيده الغفاج الباطي	Andrew Property
31	o-			M2	J. Company				وفارا فيستحدهم التعطيب المتالية	blada milmani
. 5· 4· 3· 2· 1· 0.	o-			M2	.5 Frequency (MHz)				glisted and advanced des	2500
3-1 2-1	o-	Results	Factor			Detector	Table	Height	ANT	2500
34 2 2 0.	0	Results (dBuV/m)	Factor (dB)	2483	Frequency (MHz)					2500
5 4 4 3 2 1 0 0 No.	0			2483	Over		Table	Height		2500
34 2 2 0.	o- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0-	(dBuV/m)	(dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	2500 Verdic

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	Produ	uct:		TWS Ea	rphone		Detect	or		Vertical	
	Mod	de	]	Keeping Tra	ansmitting		Test Vol	tage		DC3.7V	
Te	mper	rature		24 de	g. C,		Humid	ity		56% RH	
Т	est Re	esult:		Pas	ss						
	rt 15C Cla	lass B 1GHz-18GH									
	90-										
	30			M •	11						
	80-				1						
	70-										
	60-			-/-							
				<i>P</i>	<b>Y</b>						
6	50-			/	MM2						
dBuV/m)			. I de chiele	/	M2	Marchiller, m					
level (dBuV/m)		de de la constanta de la const	n de de la de		<sup>1</sup> 4M2		dentista esperante de materiale.	tookin, indicate on Ligaria	And the same to the same of th	المنابع فأفان عادرين إدارة المتأومة	nagyett destily de
level (dBuV/m)		nd a de his gratenterry de ble	an a single property and the second s	<i>/</i>	M2	A STATE OF THE STA	المرافعة فالمدينية والمتاركة والمتار	<del>dandis</del> i, aktilikadaspiia	helioshekumir kemunalfelushek	क करने हैं के क्षेत्र के के का करी	n-Appeld Auditoria
level (dBuV/m)	40-	nd a debut endemand biblio	an de de la	<i>†</i>	M2	And the second second	hviibhoùdraicht draibh	المجاري عارجان	h dan dagan in san affirkat. An	a candida, hi di asis sahaya di dia agricadi	n agyati da <b>alik</b> y da
level (dBuV/m)	40- 30-	eta lakiogen for Hill	n son ben son best better	<i>/</i>	M2	Commence the later of the second section of the sect	herririka in de midden	والمراج والمراجع والم	તિક્રામાં તેવાલા અને અગ્રહિનો કરતે તેવ	and the same of the stand	to appeal de allahord;
level (dBuV/m)	30-			<i>/</i>	M2	And the standard of the standa	hewithoushouds demister	desphise and Part I make fish in	<u>તિકે સામે વૈજી જીવને પ્ર</u> ાપ્ત કરાવણી પેટર ક્ષેત્ર	auripates us sir qui il la gradi	n, againt de distributed
level (dBuV/m)	30- 20-			<i>/</i>	2483		hytelikosysky edicióls dzemátka	Angelia Legica	feligen in the state of the sta	auripa terupakan pendidikan pendidikan pendidikan pendidikan pendidikan pendidikan pendidikan pendidikan pendid	2500
	30- 20- 10- 2470		Results	Factor	2483	.5	Detector	Table	Height	ANT	2500
	30- 20- 10- 2470	quency		Factor (dB)		.5 Frequency (MHz)					2500
No.	30- 20- 10- 0.0- 2470 Fred (MH	quency	Results		Limit	.5 Frequency (MHz)		Table	Height		

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.

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# 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 Chip antenna with gain 1.7dBi maximum. It fulfills the requirement of this section. Test Result: Pass

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#### 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

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## **Test Result**

Product:	TW	S Earpho	ne		Te	est Mode:		Keep tran	smitting	
Mode		ng Transm			Те	st Voltage	1	DC3.		
Temperature		24 deg. C,				Humidity		56%	RH	
Test Result:		Pass				Detector		Pk	ζ	
dB Bandwidth		890kHz								
\	Marker	Marker 1 [T1 ndB]			RBW 30 k		Hz Ri	F Att	20 dB	
Ref Lvl	ndB	20.	.00 dB	V	вW	100 k	Ηz			
10 dBm	BW 889	.779559	912 kHz	SI	МТ	8.5 m	s Uı	nit	dB	m
10						<b>V</b> 1	[T1]	_ 3	.77 dB	
						• ±		2.40197		2
0			1			ndE		20	.00 dB	4
			VVVV	Λ		BW		9.77955	912 kH	z
-10			- V	N.		<b>▽</b> ⊤1	[T1]	-23	.16 dB	m
		A	1	`	4			2.40152	204 GH	z
-20					V	<b>▽</b> <sub>Т2</sub>	[T1]	-23	.76 dB	m
1MAX		للمر				N C		2.40241	182 GH	11
-30	1	<del>!</del>				<del></del>	·A			1
	park.						Ţ			
-50							\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	by		
-60 the leaveled	8						Tal	Y Victor	consoler.	
-00									7	
-70										
-80										
-90 Center 2.40				kHz/				_	n 3 MH	_

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GFSK										
Product:		TW	S Earphon	ie	-	Test Mode:		Keep tra	nsmitting	
Mode		Keepin	g Transmi	tting	Г	est Voltage	;	DC	3.7V	
Temperature		24	4 deg. C,			Humidity		56%	6 RH	
Test Result:			Pass			Detector		F	PΚ	
20dB Bandwidth		8	890kHz							
F)		Marker	1 [T1 r	ndB]	RBW	30 k	Hz R	F Att	20 dB	
S Ref Lvl		ndB		00 dB	VBW		Hz		15	
10 dBm		BW 889	779559	)12 KHZ	SWT	8.5 m	.s U:	nit	dBm	
						▼1	[T1]	-3	.55 dBm	A
0								2.44097	896 GHz	
				X		ndB BW		20 39.77955	.00 dB 912 kHz	
-10				(A.A.)	V4	<b>▽</b> Ti		-22	.94 dBm	
10			- 1	/				2.44052	204 GHz	
			<i></i>	•	V	<b>∨</b> ⊤2		-23	.51 dBm	
-20 1MAX			₹V			TZ V		2.44141	182 GHz	1MA
			Protest and the second							
-30		- /	<del></del>			)*	M			
		part .					Į			
-40		-								
	1	, f					/	N		
-50	/						V	7		
man shake the								- C	Market State of State	
-60									90	
-70										
-80										
-90 Center 2	441 0	17		300	kHz/	<u>l</u>		C=-	n 3 MHz	
				300	<b>ΛΠ</b> Ζ/			spa	II S MHZ	
Date: 22	ate: 22.JUL.20		:40:03							

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GFSK											
Product:		TW	S Earphon	ne		Test Mode:		Keep tra	ansmitting		
Mode		Keepin	g Transmi	tting	Γ	est Voltage	;	DC	23.7V		
Temperature		2	4 deg. C,			Humidity		56%	% RH		
Test Result:			Pass			Detector		I	PK		
20dB Bandwidth			896kHz								
(E)		Marker	1 [T1 r	ndB]	RBW	30 k	Hz R	F Att	20 dB		
Ref Lvl		ndB	20.	.00 dB	VBW	100 k	Ηz				
10 dBm		BW 895	5.791583	817 kHz	SWT	8.5 m	s U	nit	dBm	ı	
10						▼1	[T1]	-3	.54 dBm		
								2.47997	896 GHz	A	
0						ndB		20	00 dB		
				\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	M	BW <b>▽</b> Tí		5.79158	317 kHz		
-10					<u> </u>	VT1	[T1]	2 47951	.23 dBm	ŀ	
			M	V	$\int$	V <sub>T2</sub> [		2.47951603 GE [T1] -23.39 dE			
-20	TA					T2		2.48041	182 GHz		
1MAX			1 To 1			W.				1M	
-30						<i>V</i>	M				
-40											
	N							V			
-50							~		home wil		
-60									-		
-70											
, ,							_				
-80											
-90											
Center 2	Center 2.48 GHz 300			300	kHz/			Spa	n 3 MHz		

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Product:	T	WS Earpho	ne		Te	st Mode:		Keep tran	smitting	
Mode		ing Transm			Tes	st Voltage		DC3.		
Temperature		24 deg. C,				umidity		56%	RH	
Test Result:		Pass			Γ	Detector		PK	<u> </u>	
OdB Bandwidth		1.275MHz								
<u>.</u>	Marker	Marker 1 [T1 ndB] R				30 ki	Hz Rl	F Att	20 dB	
Ref Lvl	ndB	20.	.00 dB	V	BW	100 k	Hz			
10 dBm	BW	1.274549	910 MHz	SI	ТW	8.5 m	s Uı	nit	dBn	n
10						▼1	[T1]	-3	.65 dBm	
								2.40197	896 GHz	A
0					$\dashv$	ndb		20	.00 dB	1
			$\wedge \wedge \wedge$	1		BW VT1		1.27454	910 MHz	
-10		VV CV	\dagger \frac{1}{\dagger}	${}$	ĮΨ	pd ~	[11]	2.40133	.37 dBm	1
						<b>V</b> <sub>4</sub> F2		-23	.58 dBm	n
-20	T 7	<del>/   </del>					<del>2</del>	2.40261	022 GHz	
<b>1MAX</b>										1M
-40	new V						ww	Ų		
-50 Market Company								W.	- Comp	
-60										
-70										
-80										
-90 Center 2.4	02 GHz		300	kHz/				n a R	n 3 MHz	

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/4DQPSK Product:		TW	S Earphon	e	,	Test Mode:		Keep tra	nsmitting	
Mode	K		g Transmit			Test Voltage			3.7V	
Temperature			4 deg. C,	<u> </u>		Humidity			6 RH	
Test Result:			Pass			Detector			PK	
dB Bandwidth		1.	275MHz							
£)	Mar	ker	1 [T1 n	dB]	RBW	30 k	Hz R	F Att	20 dB	
Ref Lvl	ndE	3	20.	00 dB	VBW	100 k	Hz			
10 dBm	BW	1	.274549	10 MHz	SWT	8.5 m	s U	nit	dBm	
10						▼1	[T1]	-3	.55 dBm	A
0								2.44097	896 GHz	
				- # 7	л	ndi		20	.00 dB	
				$\mathcal{N}V$	14	BW VT1		1.27454	910 MHz	
-10			W	<u>r</u> l	<del>~ /~</del>	The same of the sa	( + + )	2.44033	567 GHz	
						<b>₩</b> <sub>4</sub> F 2		-23	.76 dBm	
-20		1				t t	<del>2</del> 7	2.44161	022 GHz	
1MAX							1			1M
-30		1					+			
		ŧ l					- F			
-40							+			
-50 twolers	ALVER VIEW						may	$\setminus$		
-50								VID.	4k -	
Noda as								•	AKANA T	
-60										
-70										
-80										
-90										Ļ
Center 2.	441 GHz			300	kHz/			Spa	n 3 MHz	

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Report No.: TW2407115E



I/4DQPSK Product:		<b>T</b> (X)	S Earphon	Δ		To	st Mode:		Kaan tro	nsmitting	
Mode										3.7V	
			g Transmi	uing			st Voltage				
Temperature			4 deg. C,				lumidity			6 RH	
Test Result:		1	Pass			L	Detector			PK	
20dB Bandwidth			.281MHz								
			1 [T1 n		RB	BW 30 kH BW 100 kH			F Att	20 dB	
Ref Lvl 10 dBm		ndB BW 1	.20. 280561.	00 dB	VB SW		100 k		nit	dBm	n
10 dBiii		BW 1	.200501	.iz mnz			0.5 111	5 01	11.0	ч	•
							▼1		-3	.80 dBm	Z
0									2.47988	878 GHz	
				1			ndF		20	.00 dB	
				<i> </i>	f \		BW <b>V</b> T1		1.28056		
-10			MAN	1	$\forall - ackslash$	Ld.	A	[TI]	2 - 47932	.90 dBm	İ
						A. S. [					
-20		Ty	U .				V-1 1 1		2.48061	022 GHz	ł
1MAX		F T					ĭ	ζ			1M
-30								1			
								ţ.			
-40	what	Tank						had	h		
-50 January	and we								7	Market	
-60						+					ļ
-70						$\perp$					
-80											
-90 Center 2	48 GH	7		300	kHz/	L			Sn.	n 3 MHz	Į
2311231 2	Center 2.48 GHz		500	/				525	0 11112		

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Report No.: TW2407115E



DPSK										
Product: TWS Earphone  Mode Keeping Transmitting				Test Mode: Test Voltage Humidity Detector		Keep transmitting DC3.7V 56% RH PK				
			Transmitting							
Temperature	24 deg. C, Pass 1.244MHz									
Test Result:										
20dB Bandwidth										
(c)	Marker	1 [T1 r	ndB]	RI	BW	30 k	Hz Rl	F Att	20 dB	
Ref Lvl	ndB	20.	00 dB	VI	BW	100 k	Ηz			
10 dBm	BW	1.244488	898 MHz	SI	TW	8.5 m	s Uı	nit	dBn	n
10						▼1	[T1]	-3	.64 dBm	
								2.40197	896 GHz	A
0			1			ndB		20	.00 aB	1
			$\Lambda\Lambda\Lambda$	Λ.		BW —		1.24448	898 MHz	
-10		_ ^~	J V •	wo (	\/^	V <sub>T</sub> 1	[T1]	2.40136	.38 dBm	
		/ V			V.	VT2		-23	573 GHz	
-20	T	<b>/</b>				7	2	2.40261	022 GHz	
1MAX	7						(			1M
-30										
-40	1 port						VV	V .		
-50 Mm/M								- Cost	Muy	
-60										
-70										
-80										
-90										
Center 2.40	)2 GHz		300	kHz/				Spa	ın 3 MHz	:

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Date: 2024-07-26



8DPSK											
			S Earphon	e	7	Test Mode:		Keep transmitting			
			ng Transmitting			est Voltage		DC3.7V 56% RH PK			
Temperature		24 deg. C,				Humidity					
Test Result:		Pass				Detector					
20dB Bandwidth	ridth 1.244MHz  Marker 1 [T1 ndB]										
<b>F</b>		Marker	1 [T1 n	dB]	RBW	30 k	Hz RI	F Att	20 dB		
Ref Lvl		ndB		00 dB	VBW	100 k					
10 dBm		BW 1	.244488	98 MHz	SWT	8.5 m	s Uı	nit	dBm		
						▼1	[T1]	-3	.51 dBm	A	
								2.44097	896 GHz		
0				, <del>,</del>	_	ndB		20	.00 dB		
				$\wedge \vee \vee$	An	BW VT1		1.24448	898 MHz		
-10			V/W	<del></del>	V	$\langle \Lambda \rangle$		2.44036	573 GHz		
			<i>[</i>			<b>V</b> T2		-23	.57 dBm		
-20		7	<u> </u>			1	<del>-2</del> 7	2.44161	022 GHz		
1MAX						1	L <sub>t</sub>			1MA	
-30							+				
							ţ				
-40	$\Lambda$	<b>J</b>					1	W ,			
-50	<u>,                                    </u>								Ve-Vilendo		
-60											
-70											
-80											
-90											
Center 2	.441 GH	Iz		300	kHz/			Spa	n 3 MHz		
Date: 22	.JUL.20	024 10	:56:49								

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Report No.: TW2407115E

Date: 2024-07-26



DPSK											
Product: TWS Earphone  Mode Keeping Transmitting  Temperature 24 deg. C,			ŗ	Test Mode:		Keep tra	ansmitting				
			tting	1	est Voltage	;	DC3.7V 56% RH				
					Humidity						
Test Result:			Pass			Detector 		PK			
OdB Bandwidth		1.	.251MHz								
Ŕ		Marker	1 [T1 n	ndB]	RBW	30 k	Hz R	F Att	20 dB		
Ref Lvl		ndB		00 dB	VBW		Hz				
10 dBm		BW 1	1.250501	00 MHz	SWT	8.5 m	s U	nit	dBm	ı	
						▼1	[T1]	-3	.58 dBm	_	
								2.47997	896 GHz	A	
0				_ <u>1</u>		ndB	5	20	.00 dB		
				$\wedge \wedge \wedge$	A	BW <b>V</b> T		1.25050	100 MHz		
-10			~~~	J ¥ -		\ \ \ \ \	[T1]	2.47935	.96 dBm	ŀ	
			f ¥			VT2	[T1]	-23	.78 dBm		
-20		T	<u>{</u>			1	2	2.48061	022 GHz		
1MAX							T.			1M	
-30											
-40 -50	ms/ /	أمال					W	$_{\Lambda}$ $\mathcal{N}$		•	
hada to	A. A.							Prog.	Way I	1	
-60											
-70											
-80											
-90											
Center 2	.48 GH:			300	kHz/			Spa	n 3 MHz		
Date: 22	2.JUL.2	024 10	:58:01								

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Date: 2024-07-26

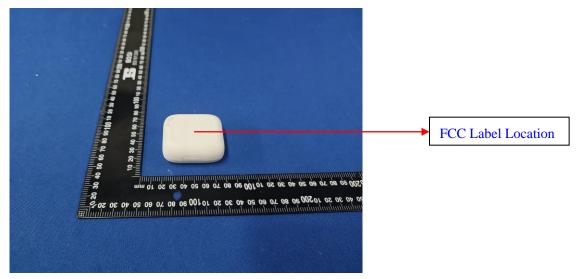


## 10.0 FCC ID Label

### FCC ID: 2AS7V-P2G-SP110

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:



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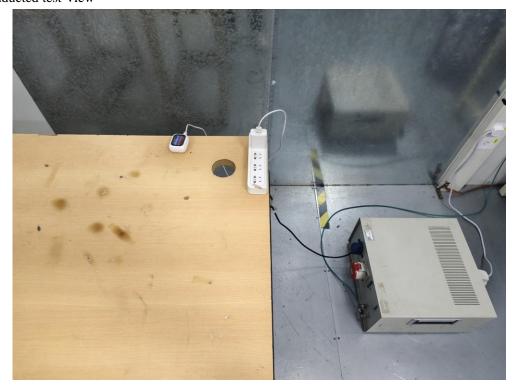
Report No.: TW2407115E

Date: 2024-07-26



# 11.0 Photo of testing

## 11.1 Conducted test View



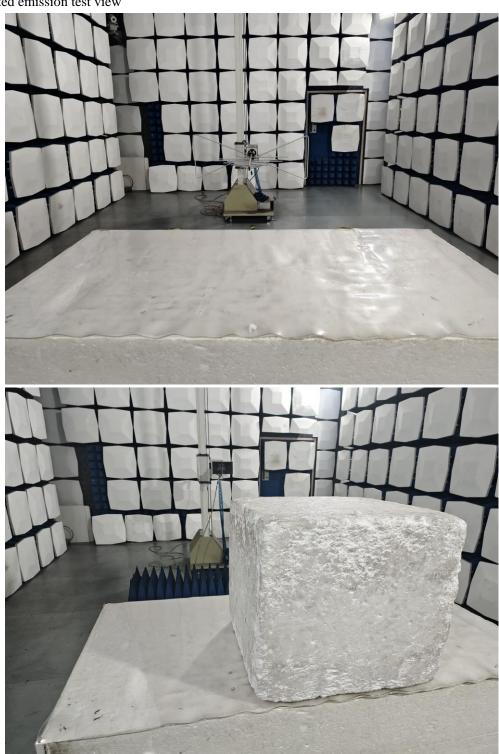
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## Radiated emission test view



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

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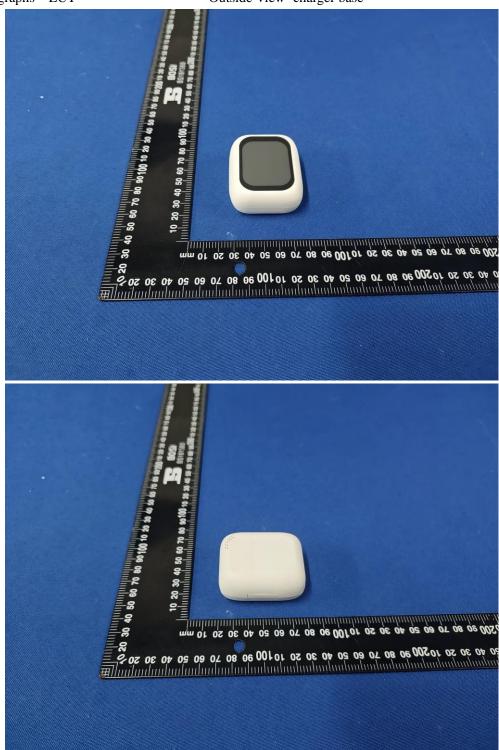
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## 11.2 Photographs – EUT

Outside View- charger base



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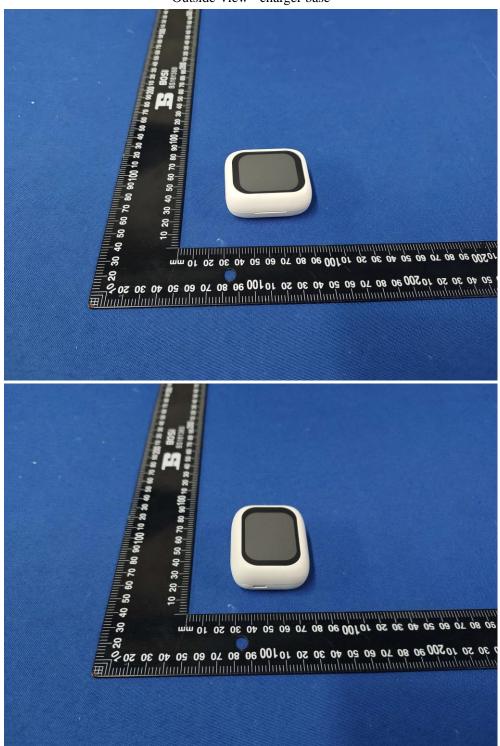
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Outside View - charger base



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Outside View - charger base



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Outside View - charger base



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Inside View - charger base





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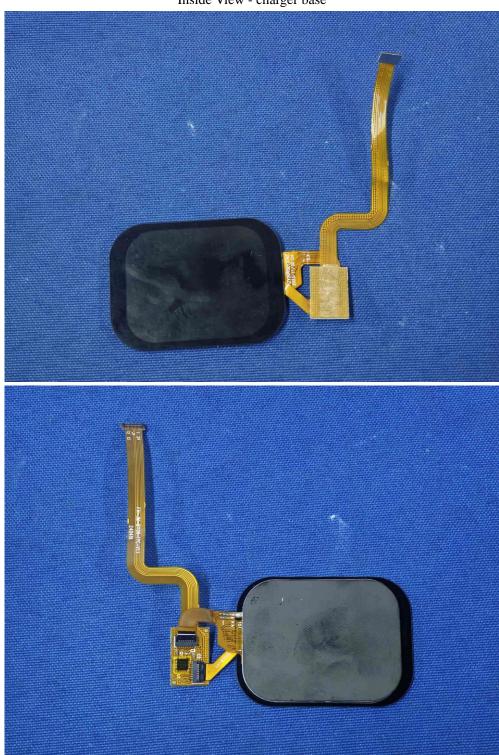
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Inside View - charger base



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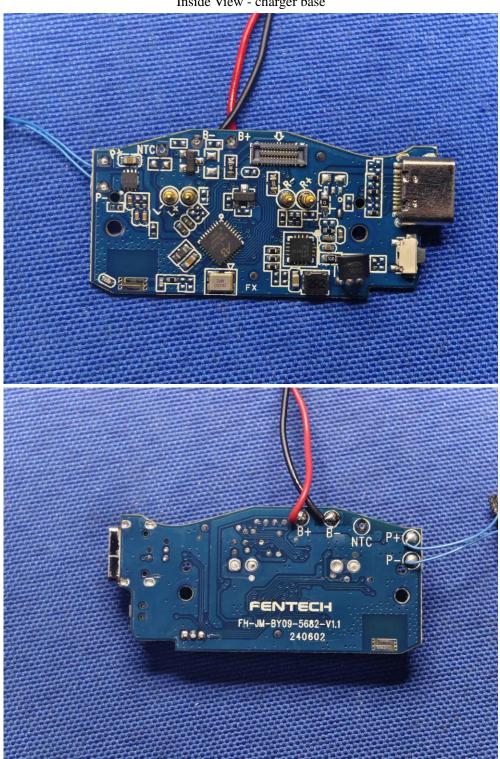
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Inside View - charger base



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