

Report No.:	TW2212235E
Applicant:	Shen Zhen Glory Star Industrial Co., Ltd
Product:	TWS Earbuds
Model No.:	TWS12, UZ-E044T
Trademark:	Glory Star, Merkury
Test Standards:	FCC Part 15.249
Test result:	It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10 & FCC Part 15 Subpart C, Paragraph 15.249 regulations for the evaluation of electromagnetic compatibility
Approved By	
Terry Tong	

Terry Tang

Manager

Dated:

January 10, 2023

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



## **Special Statement**:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

## CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of testing Laboratories.

## 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

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Test Report Conclusion Content

1.0	General Details	4
1.1	Test Lab Details	4
1.2	Applicant Details	4
1.3	Description of EUT	4
1.4	Submitted Sample	4
1.5	Test Duration	5
1.6	Test Uncertainty	5
1.7	Test By	5
2.0	List of Measurement Equipment	6
3.0	Technical Details	7
3.1	Summary of Test Results	7
3.2	Test Standards	7
4.0	EUT Modification	7
5.0	Power Line Conducted Emission Test	8
5.1	Schematics of the Test	8
5.2	Test Method and Test Procedure	8
5.3	Configuration of the EUT	8
5.4	EUT Operating Condition	9
5.5	Conducted Emission Limit	9
5.6	Test Result	9
6.0	Radiated Emission test	12
6.1	Test Method and Test Procedure	12
6.2	Configuration of the EUT	13
6.3	EUT Operation Condition	13
6.4	Radiated Emission Limit	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
10.0	FCC ID Label	35
11.0	Photo of Test Setup and EUT View	36

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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<br/>Village, Nanshan District, Shenzhen, ChinaTelephone:(755) 83448688Fax:(755) 83442996Site on File with the Federal Communications Commission – United SatesRegistration Number: 744189For 3m Anechoic Chamber

#### 1.2 Applicant Details

Applicant:	Shen Zhen Glory Star Industrial Co., Ltd
Address:	Room2102, Block 1st, Yi Luan Building, Xixiang Road 230, BaoAn District, Shenzhen, China
Telephone:	+86-755-86397260
Fax:	+86-755-26609516

1.3 Description of EUT

Product:	TWS Earbuds
Manufacturer:	Shen Zhen Glory Star Industrial Co., Ltd
Address:	Room2102, Block 1st, Yi Luan Building, Xixiang Road 230, BaoAn District,
	Shenzhen, China
Trademark:	Glory Star, Merkury
Model Number:	TWS12
Additional Model Name	UZ-E044T
Rating:	DC5V input or Built-in DC3.7V, 40mAh Li-ion battery for earphones and DC5V
	input or Built-in DC3.7V, 200mAh Li-ion battery for charger base.
Modulation Type:	GFSK, Л/4DQPSK
Operation Frequency:	2402-2480MHz
Channel Number:	79
Channel Separation:	1MHz
Hardware Version:	V125
Software Version:	V1.1
Serial No.:	194383007852
Antenna Designation	PCB antenna with gain 2.06dBi Max (Get from the antenna specification)

1.4 Submitted Sample: 2 Samples

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- 1.5 Test Duration 2022-12-19 to 2023-01-10
- 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

Andy - Xing

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	2022-07-15	2023-07-14
LISN	R&S	EZH3-Z5	100294	2022-07-18	2023-07-17
LISN	R&S	EZH3-Z5	100253	2022-07-18	2023-07-17
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2022-07-18	2023-07-17
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17
Spectrum	R&S	FSIQ26	100292	2022-07-15	2023-07-14
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	2024-07-17
Power meter	Anritsu	ML2487A	6K00003613	2022-07-18	2023-07-17
Power sensor	Anritsu	MA2491A	32263	2022-07-18	2023-07-17
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	2022-07-15	2023-07-14
EMI Test Receiver	RS	ESCS 30	834115/006	2022-07-15	2023-07-14
Spectrum	HP/Agilent	E4407B	MY50441392	2022-07-15	2023-07-14
Spectrum	RS	FSP	1164.4391.38	2022-07-15	2023-07-14
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA		2022-07-15	2023-07-14
RF Cable	Zhengdi	7m		2022-07-15	2023-07-14
Pre-Amplifier	Schwarebeck	BBV9743	#218	2022-07-15	2023-07-14
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2022-07-15	2023-07-14
LISN	SCHAFFNER	NNB42	00012	2022-08-18	2023-07-17
ESPI Test Receiver	R&S	ESPI 3	100379	2022-07-15	2023-07-14
LISN	R&S	EZH3-Z5	100294	2022-07-18	2023-07-17

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

#### 3.2 Test Standards

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

#### 4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

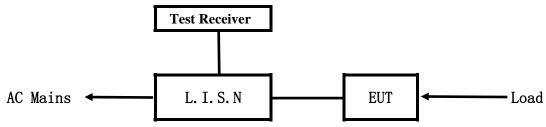
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### 5. Power Line Conducted Emission Test

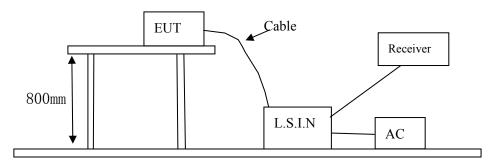
5.1 Schematics of the test



EUT: Equipment Under Test

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 500hm/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

5.2

Device	Manufacturer	Model	FCC ID
TWS Earbuds	Shen Zhen Glory Star Industrial Co.,Limited	TWS12, UZ-E044T	2AS7V-TWS12

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B. Internal Device

2.				
	Device	Manufacturer	Model	FCC ID/DOC
	N/A			

C. Peripherals

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

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

#### 5.5 Power line conducted Emission Limit according to Paragraph 15.207

1			
	Frequency	Limits (d	B μ V)
	(MHz)	Quasi-peak Level	Average Level
	$0.15~\sim~0.50$	66.0~56.0*	56.0~46.0*
	$0.50~\sim~5.00$	56.0	46.0
	$5.00 \sim 30.00$	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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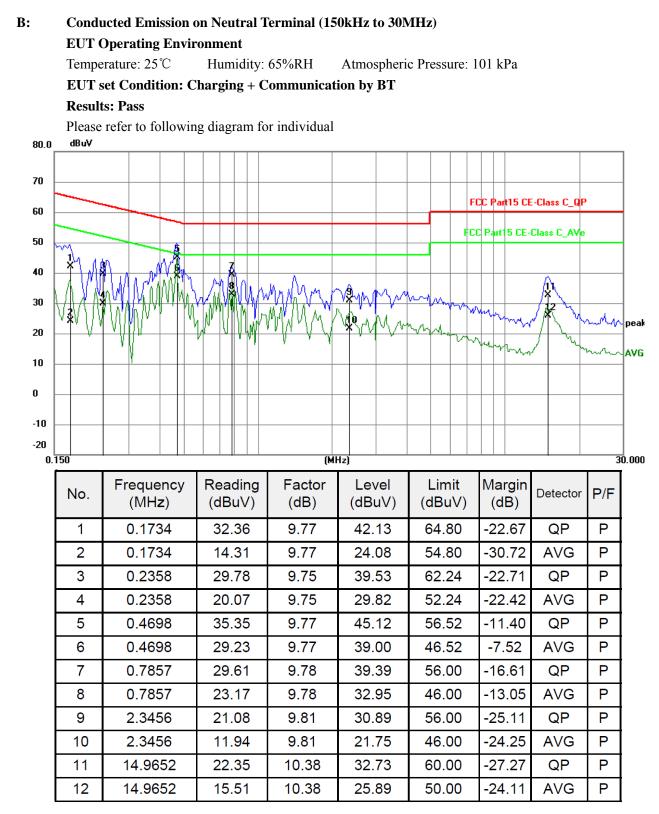
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Tempe	erature: 25℃	Humidity:	65%RH	Atmospheri	c Pressure:	101 kPa		
EUT s	set Condition: (	Charging + C	ommunica	ion by BT				
Result	ts: Pass							
	refer to followi	ng diagram fo	or individual					
dBuV								
					F	CC Part15 Cl	E-Class C_QP	•
						C Part15 CE.	-Class C_AVe	
×M.o							Class C_ATC	
	AAAMVI						- <u>/</u> 11	
	'YWW.M'	hr VIVW	MAN	monar	m		/¥	
11.14			A a to			mont		m
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			· · ·					~~^
1 1								
150				Hz)				
-	Frequency	Reading			Limit	Margin		
50 No.	Frequency (MHz)	Reading (dBuV)	(₩ Factor (dB)	Hz) Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/
-		-	Factor	Level		-	Detector	
No.	(MHz)	(dBuV)	Factor (dB)	Level (dBuV)	(dBuV)	(dB)		P
No. 1	(MHz) 0.1695	(dBuV) 35.85	Factor (dB) 9.77	Level (dBuV) 45.62	(dBuV) 64.98	(dB) -19.36	QP	F
No. 1 2	(MHz) 0.1695 0.1695	(dBuV) 35.85 21.14	Factor (dB) 9.77 9.77	Level (dBuV) 45.62 30.91	(dBuV) 64.98 54.98	(dB) -19.36 -24.07	QP AVG QP	P P
No. 1 2 3	(MHz) 0.1695 0.1695 0.2280	(dBuV) 35.85 21.14 29.47	Factor (dB) 9.77 9.77 9.75	Level (dBuV) 45.62 30.91 39.22	(dBuV) 64.98 54.98 62.52	(dB) -19.36 -24.07 -23.30	QP AVG QP	P P P
No. 1 2 3 4	(MHz) 0.1695 0.1695 0.2280 0.2280	(dBuV) 35.85 21.14 29.47 16.61	Factor (dB) 9.77 9.77 9.75 9.75	Level (dBuV) 45.62 30.91 39.22 26.36	(dBuV) 64.98 54.98 62.52 52.52	(dB) -19.36 -24.07 -23.30 -26.16	QP AVG QP AVG	P P P
No. 1 2 3 4 5	(MHz) 0.1695 0.1695 0.2280 0.2280 0.2280 0.4737	(dBuV) 35.85 21.14 29.47 16.61 34.73	Factor (dB) 9.77 9.77 9.75 9.75 9.75	Level (dBuV) 45.62 30.91 39.22 26.36 44.50	(dBuV) 64.98 54.98 62.52 52.52 56.45	(dB) -19.36 -24.07 -23.30 -26.16 -11.95	QP AVG QP AVG QP	P P P P
No. 1 2 3 4 5 6	(MHz) 0.1695 0.1695 0.2280 0.2280 0.2280 0.4737 0.4737	(dBuV) 35.85 21.14 29.47 16.61 34.73 26.23	Factor (dB) 9.77 9.77 9.75 9.75 9.77 9.77	Level (dBuV) 45.62 30.91 39.22 26.36 44.50 36.00	(dBuV) 64.98 54.98 62.52 52.52 56.45 46.45	(dB) -19.36 -24.07 -23.30 -26.16 -11.95 -10.45	QP AVG QP AVG QP AVG	P P P P P
No. 1 2 3 4 5 6 7	(MHz) 0.1695 0.2280 0.2280 0.2280 0.4737 0.4737 0.8052	(dBuV) 35.85 21.14 29.47 16.61 34.73 26.23 27.70	Factor (dB) 9.77 9.77 9.75 9.75 9.77 9.77 9.77 9.78	Level (dBuV) 45.62 30.91 39.22 26.36 44.50 36.00 37.48	(dBuV) 64.98 54.98 62.52 52.52 56.45 46.45 56.00	(dB) -19.36 -24.07 -23.30 -26.16 -11.95 -10.45 -18.52	QP AVG QP AVG QP AVG QP	P P P
No. 1 2 3 4 5 6 7 8	(MHz) 0.1695 0.2280 0.2280 0.2280 0.4737 0.4737 0.8052 0.8052	(dBuV) 35.85 21.14 29.47 16.61 34.73 26.23 27.70 14.86	Factor (dB) 9.77 9.77 9.75 9.75 9.77 9.77 9.77 9.78 9.78	Level (dBuV) 45.62 30.91 39.22 26.36 44.50 36.00 37.48 24.64	(dBuV) 64.98 54.98 62.52 52.52 56.45 46.45 56.00 46.00	(dB) -19.36 -24.07 -23.30 -26.16 -11.95 -10.45 -18.52 -21.36	QP AVG QP AVG QP AVG QP AVG	P P P P P
No. 1 2 3 4 5 6 7 8 9	(MHz) 0.1695 0.2280 0.2280 0.2280 0.4737 0.4737 0.8052 0.8052 1.4253	(dBuV) 35.85 21.14 29.47 16.61 34.73 26.23 27.70 14.86 23.28	Factor (dB) 9.77 9.77 9.75 9.75 9.77 9.77 9.77 9.78 9.78 9.79	Level (dBuV) 45.62 30.91 39.22 26.36 44.50 36.00 37.48 24.64 33.07	(dBuV) 64.98 54.98 62.52 52.52 56.45 46.45 56.00 46.00 56.00	(dB) -19.36 -24.07 -23.30 -26.16 -11.95 -10.45 -18.52 -21.36 -22.93	QP AVG QP AVG QP AVG QP AVG QP	P/ P P P P P P P P P P

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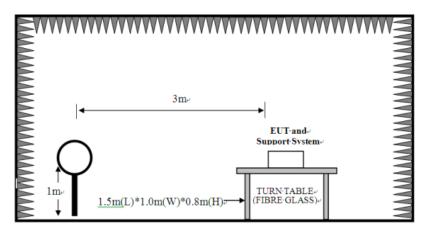


#### 6 Radiated Emission Test

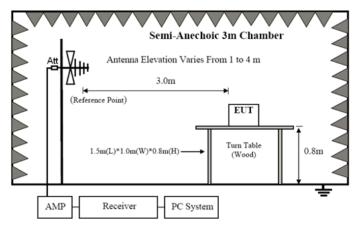
- 6.1 Test Method and test Procedure:
- The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz (Note: for Fundamental frequency radiated emission measurement, RBW=3MHz, VBW=10MHz). Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) The antenna polarization: Vertical polarization and Horizontal polarization.

#### Block diagram of Test setup

For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to1GHz

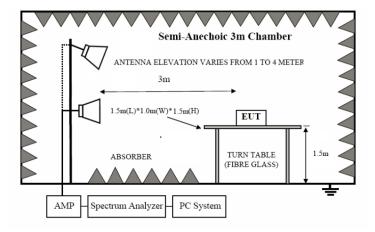


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For radiated emissions above 1GHz



- 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 Fundame	ntal (3m)	Field St	trength of Harmo	nics (3m)
(MHz)	mV/m	dBu	V/m	uV/m	dBu	V/m
2400-2483.5	50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)

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

2.Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

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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

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

Note: 1. RF Voltage  $(dBuV) = 20 \log RF$  Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.

5. The two modulation modes of GFSK and Pi/4D-QPSK were tested. And only the worst case was recorded in the test report. GFSK was the worst case.

6. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

7. Battery fully charged was used during the test.

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Horizontal

Horizontal

Pass

#### 6.5 **Test result Fundamental & Harmonics Radiated Emission Data** Α

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

#### Horizontal

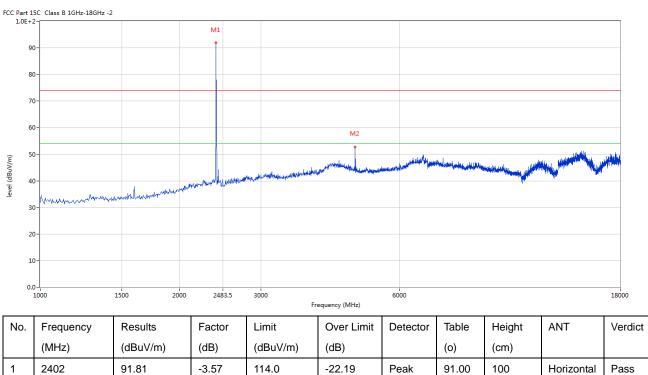
2

4802.799

52.81

3.12

74.0



-21.19

Peak

85.00

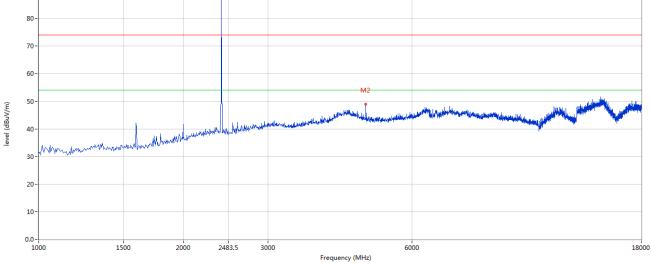
100

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# Vertical FCC Part 15C Class B 1GHz-18GHz -2 1.0E+29080-



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2402	87.59	-3.57	114.0	-26.41	Peak	289.00	100	Vertical	Pass
2	4802.799	49.01	3.12	74.0	-24.99	Peak	274.00	100	Vertical	Pass

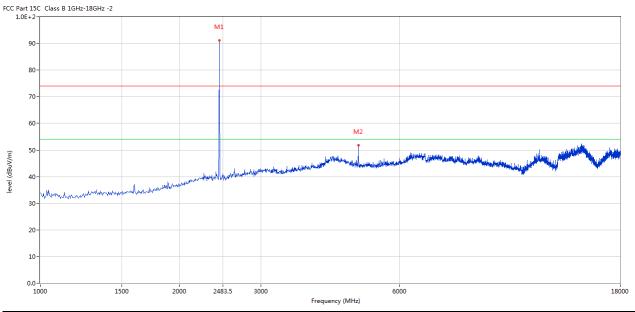
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## Please refer to the following test plots for details: Middle Channel-2441MHz

#### Horizontal

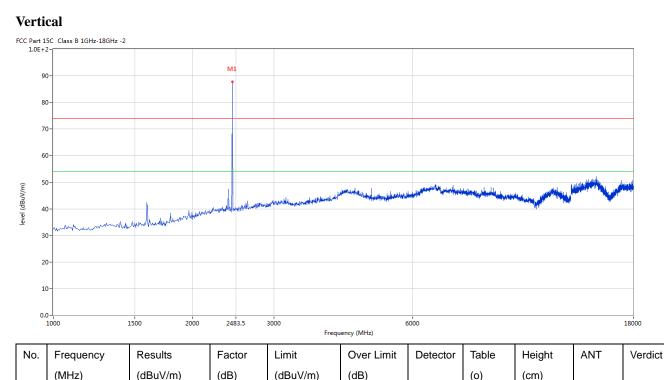


No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	91.17	-3.57	114.0	-22.83	Peak	88.00	100	Horizontal	Pass
2	4883.529	51.84	3.20	74.0	-22.16	Peak	93.00	100	Horizontal	Pass

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286.00

100

Vertical

Pass

Peak

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

87.75

-3.57

114.0

-26.25

2441

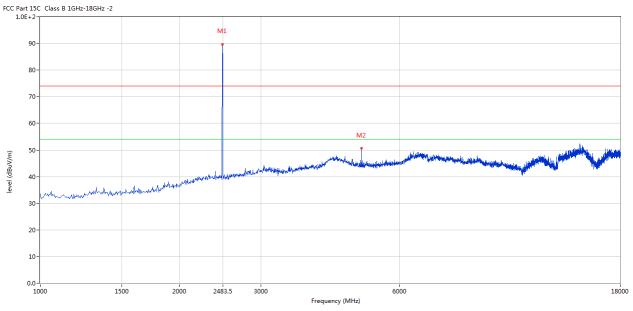
1

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

#### Horizontal

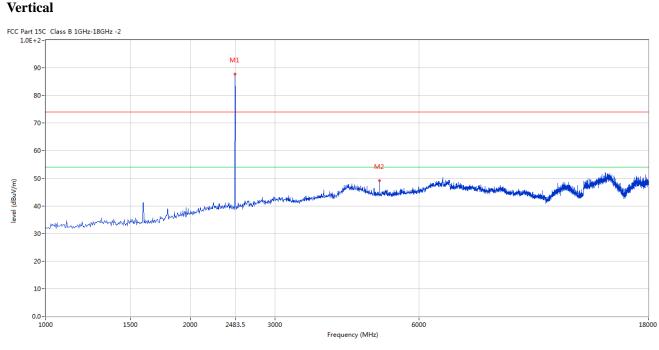


No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	89.80	-3.57	114.0	-24.20	Peak	92.00	100	Horizontal	Pass
2	4960.010	50.64	3.36	74.0	-23.36	Peak	218.00	100	Horizontal	Pass

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No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	87.79	-3.57	114.0	-26.21	Peak	293.00	100	Vertical	Pass
2	4960.010	49.18	3.36	74.0	-24.82	Peak	276.00	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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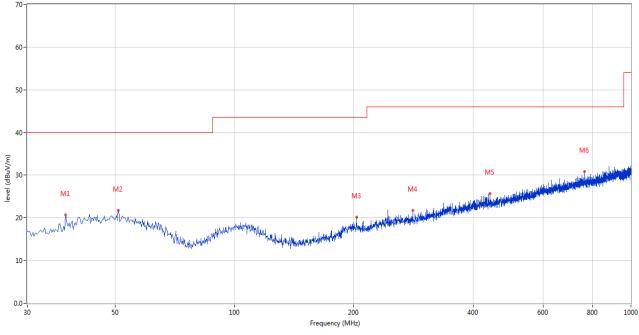
## B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

#### Results: Pass

Please refer to following diagram for individual

FCC\_FCC Part 15C Class B 30MHz-1GHz



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	37.516	20.68	-12.95	40.0	-19.32	Peak	323.00	200	Horizontal	Pass
2	50.850	21.73	-11.40	40.0	-18.27	Peak	282.00	100	Horizontal	Pass
3	203.344	20.23	-13.46	43.5	-23.27	Peak	292.00	100	Horizontal	Pass
4	281.410	21.74	-11.50	46.0	-24.26	Peak	360.00	200	Horizontal	Pass
5	440.692	25.66	-8.04	46.0	-20.34	Peak	27.00	100	Horizontal	Pass
6	763.622	30.83	-3.27	46.0	-15.17	Peak	153.00	100	Horizontal	Pass

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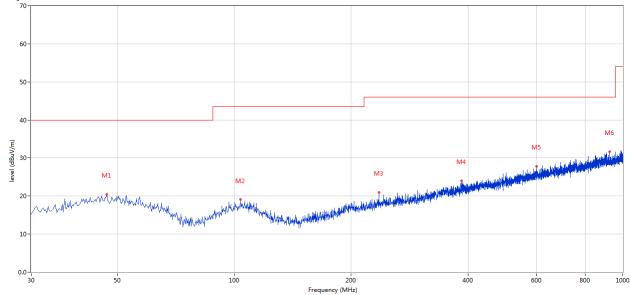
Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

#### **Results:** Pass

Please refer to following diagram for individual

FCC\_FCC Part 15C Class B 30MHz-1GHz



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	46.971	20.39	-11.45	40.0	-19.61	Peak	91.00	100	Vertical	Pass
2	103.702	19.05	-13.35	43.5	-24.45	Peak	120.00	100	Vertical	Pass
3	235.589	20.93	-12.48	46.0	-25.07	Peak	159.00	100	Vertical	Pass
4	384.204	24.01	-9.17	46.0	-21.99	Peak	218.00	100	Vertical	Pass
5	600.217	27.82	-4.95	46.0	-18.18	Peak	149.00	100	Vertical	Pass
6	926.783	31.58	-1.65	46.0	-14.42	Peak	247.00	100	Vertical	Pass

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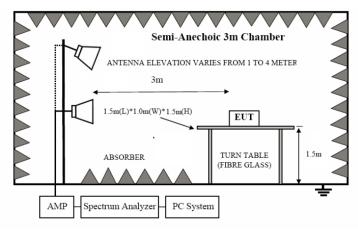


### 7. Band Edge

#### 7.1 Test Method and test Procedure:

- 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.

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#### 7.6 Test Result

-	Product:		TWS Ear	rbuds		Polarity	Y		Horizontal	
	Mode	Ke	eping Trar	nsmitting		Test Volta	age		DC3.7V	
Те	mperature		24 deg.	. C,		Humidit	ty		56% RH	
Te	est Result:		Pass	5						
C Part : 1.0E+	15C Class B 1GHz-18GHz	2 -2								
									M1	
ġ	90-							/	$\wedge$	
8	30-							/		
7	70-							/		
6	50 -							M2		
	50-							/ •	\	
5	-0-								N 1	
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3 2 1	10				Frequency (MHz)					2410
3 2 1	10	Results	Factor	Limit	Frequency (MHz) Over Limit	Detector	Table	Height	ANT	2410
2 2 1 0 No.	0	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Frequency (MHz) Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	2410 Verdi
2 2 1 0 No.	10	Results (dBuV/m) 91.60	Factor (dB) -3.57	Limit (dBuV/m) 74.0	Frequency (MHz) Over Limit (dB) 17.60	Detector Peak	Table (o) 89.00	Height (cm) 100	ANT Horizontal	2410 Verdi
2 1 0 No.	0	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Frequency (MHz) Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT Horizontal Horizontal	2410 Verdi
3	10	Results (dBuV/m) 91.60	Factor (dB) -3.57	Limit (dBuV/m) 74.0	Frequency (MHz) Over Limit (dB) 17.60	Detector Peak	Table (o) 89.00	Height (cm) 100	ANT Horizontal	2410 Verdia

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]	Product:		TWS Ea	arbuds		Detecto	or	,	Vertical	
	Mode	ŀ	Keeping Tra	ansmitting		Test Volt	age	Ι	DC3.7V	
Te	mperature		24 deg	g. C,		Humidi	ty	5	6% RH	
Те	est Result:		Pas	SS						
CC Part : 1.0E+ 9 8 7 6	15C Class B 1GHz-18GHz	-2					M4 N an du bla	15 M2	MI	
evel 3 2	10 - <mark>11 - 11 - 11 - 11 - 11 - 11 - 11 -</mark>	het anne eine eine het het stand het sta	ana dina dia ara-da	drepert fran oor settlichter	ha <b>dh d</b> ahan (sen sa dhibana (sen sa dhibana)	n the design of the second				No
3 2 1 0	20-	ife Lower and the first for the second	. min ilana bai akaba			in the second of the second				2410
3 2 1 0	10- 10- 2350	Results	Factor		irequency (MHz)	Detector	Table	Height	ANT	241
3 2 1 0	20	Results	Factor		requency (MHz)	Detector		Height (cm)	ANT	
3 2 1 0	00- 00- 00- 00- 2350 Frequency			Limit	requency (MHz)	Detector	Table (o) 285.00	-	ANT	241
3 2 1 0 No.	20- 2250 Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Trequency (MHz) Over Limit (dB)		(0)	(cm)		241 Verdi N/A
3 2 1 0 No.	Frequency (MHz) 2402.112	Results (dBuV/m) 87.41	Factor (dB) -3.57	Limit (dBuV/m) 74.0	requency (MHz) Over Limit (dB) 13.41	Peak	(o) 285.00	(cm) 100	Vertical	241 Verdi
3 2 1 0 No. 1 2	Frequency (MHz) 2400.000	Results (dBuV/m) 87.41 63.82	Factor (dB) -3.57 -3.57	Limit (dBuV/m) 74.0 74.0	Trequency (MHz) Over Limit (dB) 13.41 -10.18	Peak Peak	(o) 285.00 285.00	(cm) 100 100	Vertical Vertical	241 Verdi N/A Pass
3 2 1 0 No. 1 2 2**	Image: state of the s	Results (dBuV/m) 87.41 63.82 46.28	Factor (dB) -3.57 -3.57 -3.57	Limit (dBuV/m) 74.0 74.0 54.0	requency (MHz) Over Limit (dB) 13.41 -10.18 -7.72	Peak Peak AV	<ul> <li>(o)</li> <li>285.00</li> <li>285.00</li> <li>285.00</li> </ul>	(cm) 100 100 100	Vertical Vertical Vertical	241 Verdi N/A Pass Pass

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	Product:	roduct: TWS Earbuds					Polarit	у	Horizontal		
	Mode		Keeping Transmitting					age	DC3.7V		
Temperature			24 deg. C,					ty	56% R	Н	
Test Result: Pass			Pass								
CC Part : 1.0E+	15C Class B 1GHz-18GHz +2-r	-2									
			M1								
9	90-		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~								
8	80-		_/_								
7	70-		_/								
e	60-		/								
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level (dBuV/m	40	al de aspach de secondor		M2 0 2483.		nt dan statistica dan dan dan dan dan dan dan dan dan da	majt gradea (spin disposi	nnarhisterstan justiketerisi	l y by places lance a shareby bl	2500	
level (dBuV/m	40	Results	Factor		5	Detector	Table	Height	ANT	2500	
level (dBuV/m	40	T	Factor (dB)	2483.	5 Frequency (MHz)					2500	
level (dBuV/m	40	Results		2483. Limit	5 Frequency (MHz) Over Limit		Table	Height		2500	
(dBu//m 1 0 No.	40	Results (dBuV/m)	(dB)	2483. Limit (dBuV/m)	5 Frequency (MHz) Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	2500 Verdio	

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	Product:		TWS Earbuds					or	Vertic	al
	Mode		Keeping Transmitting					age	DC3.7	٧V
Te	emperature		24 deg. C,					ty	56% F	RН
Test Result:				Pass						
CC Part 1 1.0E+	15C Class B 1GHz-18GHz	-2				•				
1.021	2		M1							
9	90-		$\sim$	<u></u>						
8	30-		/							
7	70-		_/							
6	50 -		/	M2						
-	50-	/	/	M2						
-		er sala aller a	/	M2	Mandaud Mit own path	alatin ta bunatara	tome, at these difference do	un affarta dat dat in 11 daardi	da altriadalla lad	
(m//m) 4	50 - 10	raal was a factor of the second		M2	Madaditions	hatile hydroettaa	inniniiliidhanmid	har bertraka bin kalenda bi	deselisededdedied	horabarda
(m//m) 4	50-	raadomade adaptively as a feature	/	M2		datin <mark>i</mark> kydioniitaa	inni silandakan suda	h, i heferlik der Mai i Heferendi	de Alsadoutoutinat	hoyebaarda
level (dBuV/m) 3	50 - 10	na she water a the second	/	M2		hatila hydroddionau	ines si fisishkaraadi	h, e hefer af a stad a film i fil de ar a di	da ni i da di da la d	houbaide
(m//m) ever (dgra/m) 3 2	50 - 10	razale water all patients where we	/	M2	Manford Historical	destal depletositores	inni si filishkarmadi	h, n haf a da da hi n h H da a a da	da niji da beliplan	houdanda
(m//m) evel (dBu/m) 3 2 1	50 - 40	reastructure at a state of the second		M2		<mark>datin dapter settara</mark>	ines schrödkormel	h, y bere de	də oli i dələkləri	toybarta
(m//nnpp) 4 3 2 1	50 - 	essale-webselesebese		2483.5	equency (MHz)	dastal dep line officera	inni sifusidhermed	Luberdadoði Luberd	da oli i dalakti ka	2500
(m//nnpp) 4 3 2 1	50 - 10	Results	Factor	2483.5		Detector	Table	Height	ANT	2500
(ш///ŋŋg) 4 3 2 1	50 - 10 - 20 - 10 - 10 - 22 - 2470		Factor (dB)	2483.5 Fr	equency (MHz)					2500
(ш///ŋŋg) 4 3 2 1	50 - 10 - 10 - 20 - 10 - 2470 Frequency	Results		2483.5 Fr Limit	equency (MHz)		Table	Height		

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

2. For Restricted band test, the three modulation modes of GFSK and Pi/4D-QPSK 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 PCB antenna. The antenna gain is 2.06dBi Max. It fulfills the requirement of this section. Test Result: Pass

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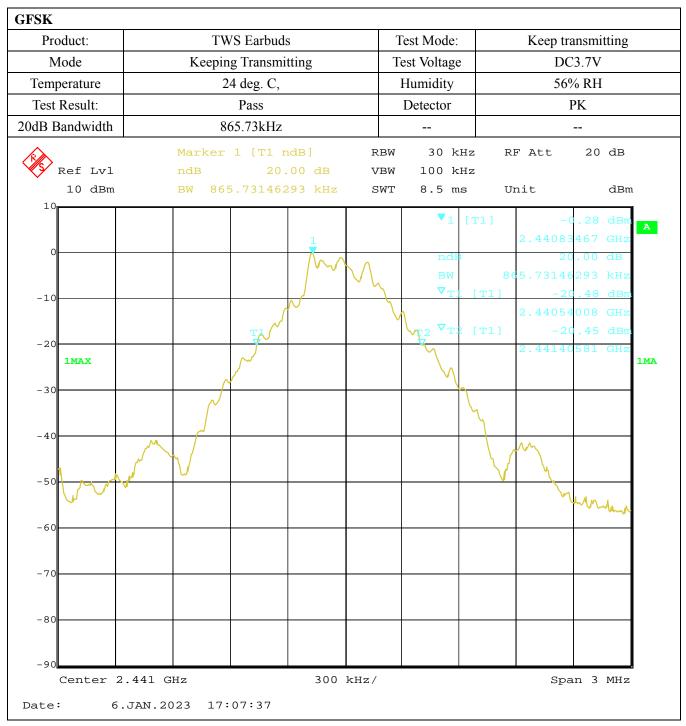
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FSK										
Product: TWS Earbuds					Test Mode:		Keep transmitting			
Mode	Keeping Transmitting 24 deg. C,				Test Voltage Humidity		DC3.7V 56% RH			
Temperature										
Test Result:	Pass				Detector		РК			
dB Bandwidth	865.73kHz									
Ref Lvl					BW 30 kH BW 100 kH					
10 dBm	BW 86	5.731462			ТW	8.5 m		nit	dB	m
10						<b>v</b> <sub>1</sub>	[T1]	_	0.88 dB	1
			1					2.4018	3467 GH:	2
0			1 Ann			ndB	5	2	0.00 dB	
				$\bigvee \int$		BW ⊽⊤1		65.7314		
-10			$\mathcal{N}$		$\overline{\ }$	• T)	<u>[T1]</u>	-2	1.12  dBr 4008  GHr	
		لى			V		2 [T1]	-2		
-20		TV TV				V[2		2.4024		z
1MAX		$\sim$				$\mathcal{A}$				11
- 30							<u>N</u>			
-50	$\sim$						4	m		
								<u> </u>	whank	ц
- 6 0										
-70										
- 80										_
-90 Center 2.4	-0.2 GH-7		300	kHz/				Gra	an 3 MH:	_

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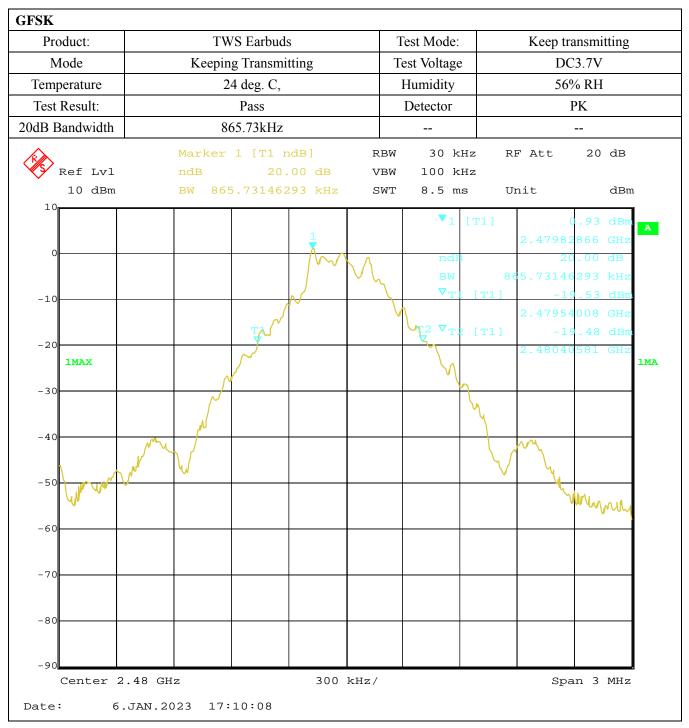




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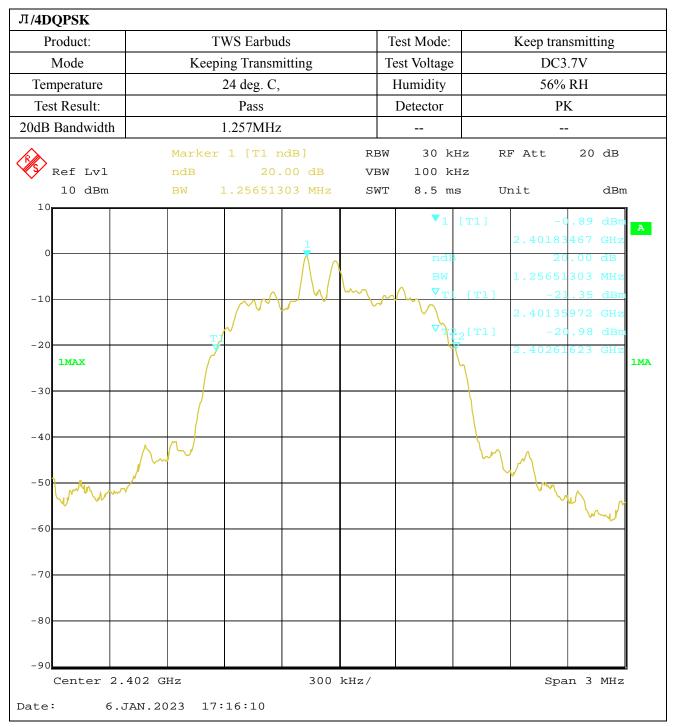




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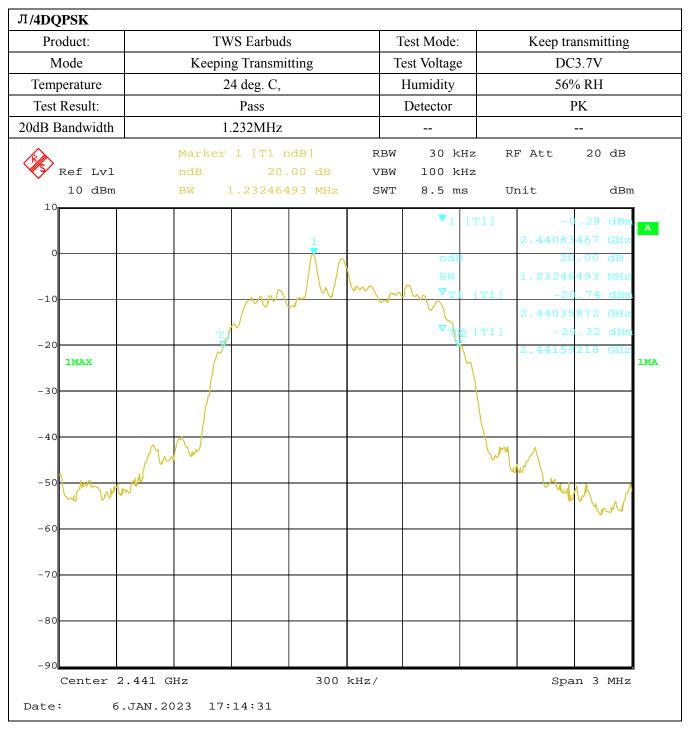




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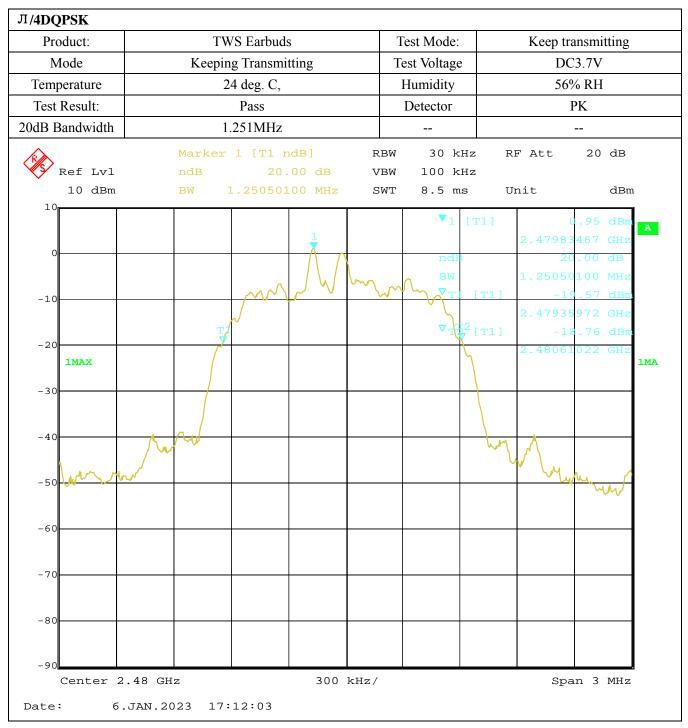




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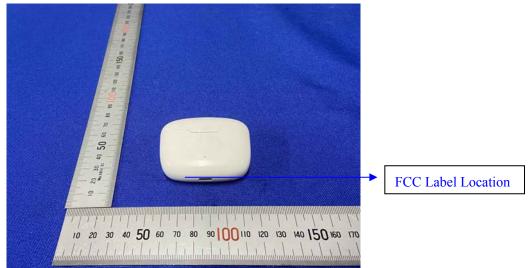
Page 35 of 47

#### 10.0 FCC ID Label

## FCC ID: 2AS7V-TWS12

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:



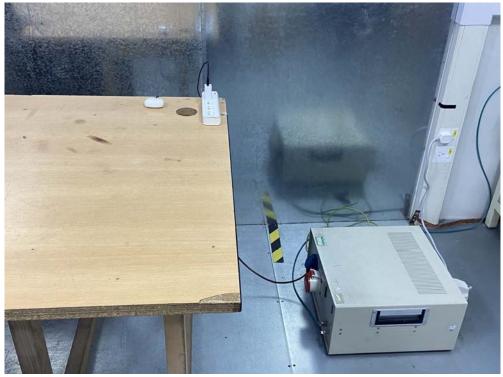
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#### 11.0 Photo of testing

#### Conducted test View 11.1



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Radiated emission test view



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#### 11.2 Photographs – EUT

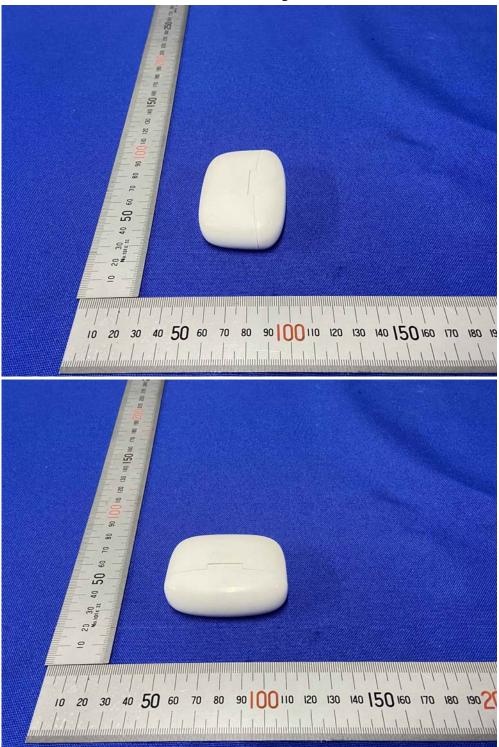


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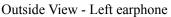


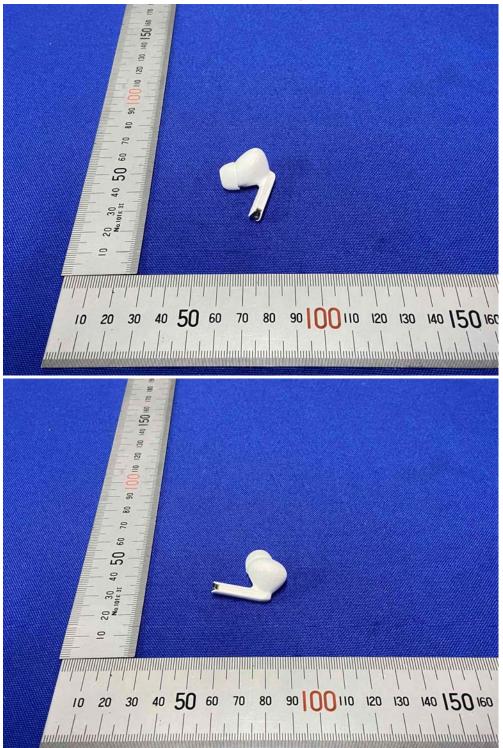
Outside View - charger base



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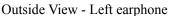


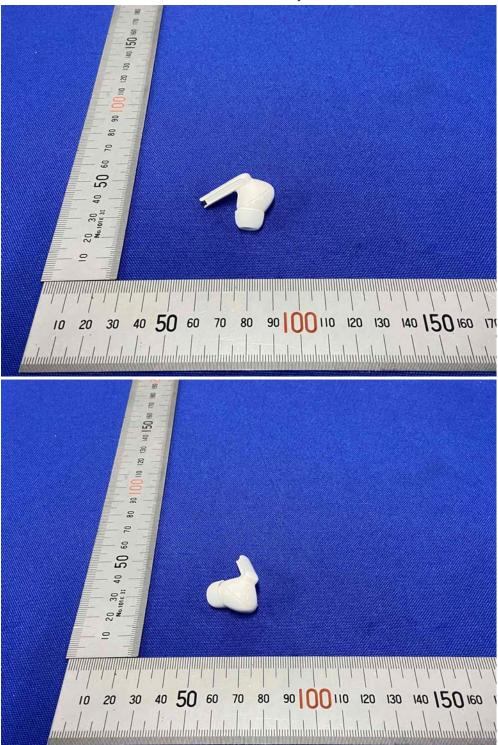


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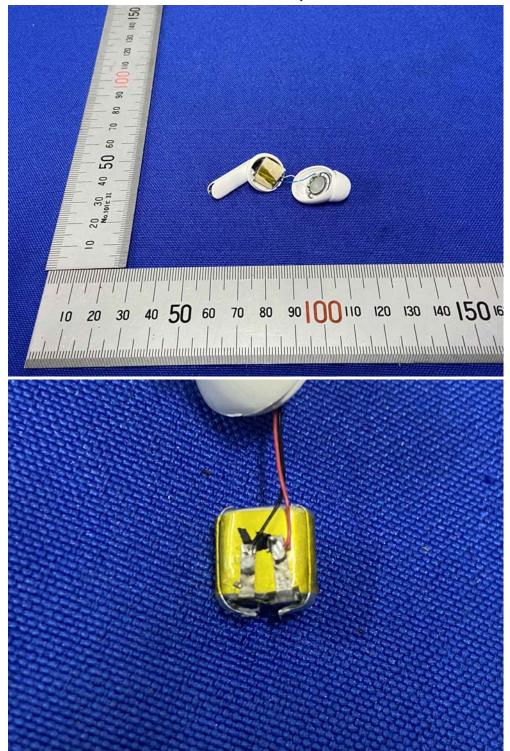


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Inside View - Left earphone

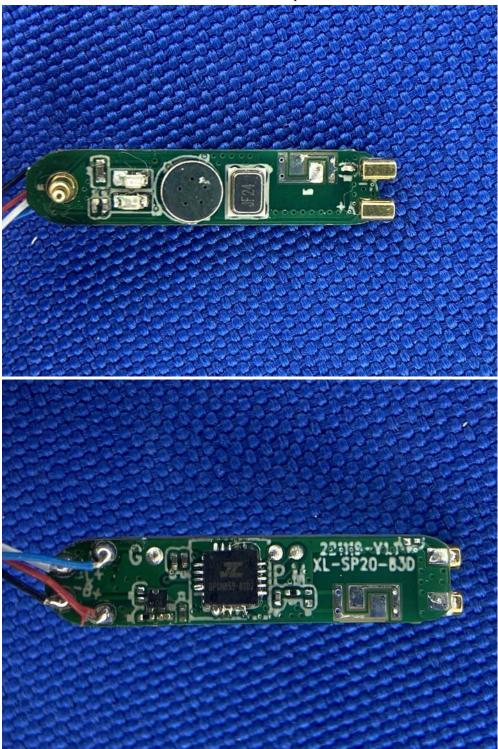


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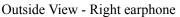
Inside View - Left earphone

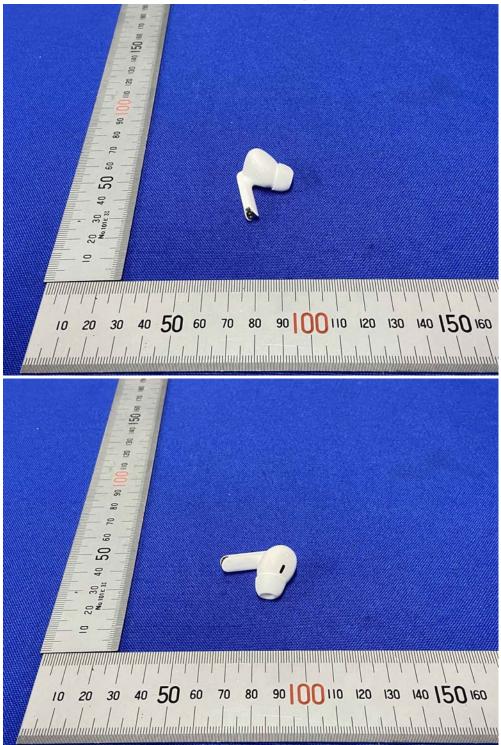


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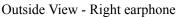


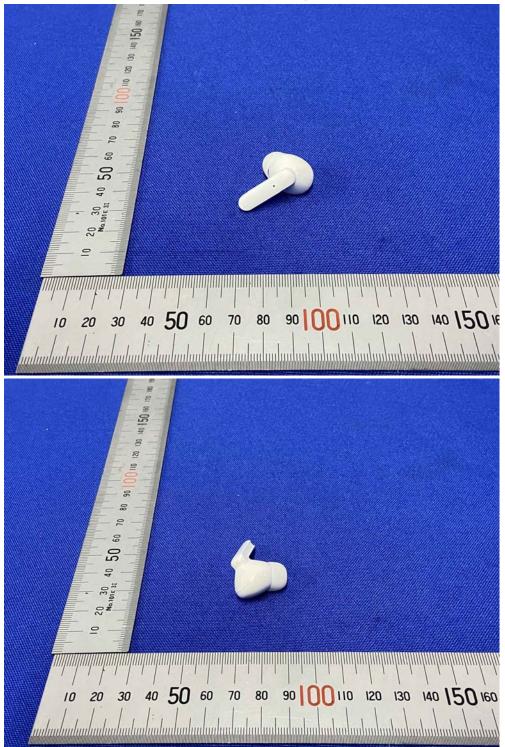


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Inside View - Right earphone

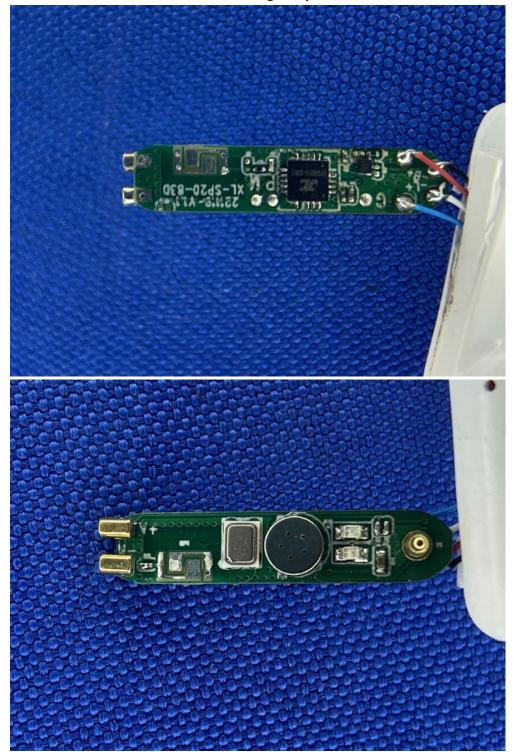


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Inside View - Right earphone



--End of the report--

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