

Report No.:	TW2309004E
Applicant:	Shenzhen Yixi Technology Co., LTD
Product:	HELMET WIRELESS EARPHONE
Model No.:	Q08, A17S
Trademark:	N/A
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 Tang	
Terry Tang	-
Monogor	

Manager

Dated:

September 08, 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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#### 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 Yixi Technology Co., LTD

Address: Second Floor, Building B, Area A, Longquan Science Park, Dalang Huaxing Road, Longhua District, Shenzhen City, China

Telephone: --Fax: --

#### 1.3 Description of EUT

Product:	HELMET WIRELESS EARPHONE
Manufacturer:	Shenzhen Yixi Technology Co., LTD
Address:	Second Floor, Building B, Area A, Longquan Science Park, Dalang Huaxing
	Road, Longhua District, Shenzhen City, China
Trademark:	N/A
Model Number:	Q08
Additional Model Name	A17S
Rating:	DC5V, 1A
Battery:	DC3.7V, 1000mAh Li-ion battery
Modulation Type:	GFSK, Л/4DQPSK for Bluetooth
Operation Frequency:	2402-2480MHz
Channel Number:	79
Channel Separation:	1MHz
Hardware Version:	V1.4
Software Version:	V1.2
Serial No.:	N/A
Antenna Designation	Chip antenna with gain 2.04dBi Max (Get from the antenna specification)

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- 1.4 Submitted Sample: 2 Samples
- 1.5 Test Duration 2023-09-01 to 2023-09-08
- 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	2023-07-14	2024-07-13
LISN	R&S	EZH3-Z5	100294	2023-07-14	2024-07-13
LISN	R&S	EZH3-Z5	100253	2023-07-14	2024-07-13
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2023-07-14	2024-07-13
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17
Spectrum	R&S	FSIQ26	100292	2023-07-14	2024-07-13
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	2023-07-14	2024-07-13
Power sensor	Anritsu	MA2491A	32263	2023-07-14	2024-07-13
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	2023-07-14	2024-07-13
EMI Test Receiver	RS	ESCS 30	834115/006	2023-07-14	2024-07-13
Spectrum	HP/Agilent	E4407B	MY50441392	2023-07-14	2024-07-13
Spectrum	RS	FSP	1164.4391.38	2023-07-14	2024-07-13
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA		2023-07-14	2024-07-13
RF Cable	Zhengdi	7m		2023-07-14	2024-07-13
Pre-Amplifier	Schwarebeck	BBV9743	#218	2023-07-14	2024-07-13
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2023-07-14	2024-07-13
LISN	SCHAFFNER	NNB42	00012	2023-07-14	2024-07-13
ESPI Test Receiver	R&S	ESPI 3	100379	2023-07-14	2024-07-13
LISN	R&S	EZH3-Z5	100294	2023-07-14	2024-07-13

#### 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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adopt any other remedies which may be appropriate.



The EUT has been tested according to the following specifications:

#### **3.0** Technical Details

#### 3.1 Summary of test results

The EOT 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	
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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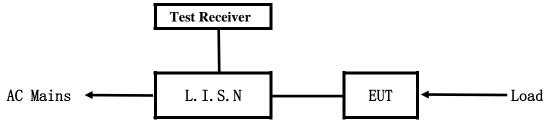
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#### 5.0 Power Line Conducted Emission Test

5.1 Schematics of the test

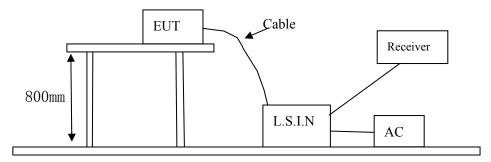


EUT: Equipment Under Test

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
11.	LOI

Device	Manufacturer	Model	FCC ID
HELMET WIRELESS	Shenzhen Yixi Technology	009 4179	240141 009
EARPHONE	Co., LTD	Q08, A17S	2A9MI-Q08

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B. Internal Device

Б.	Internal Beviee			
	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
PC	ThinkPad	R4	Input: DC19.5V, 2.7A

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

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

Frequency	Limits (dB µ V)		
(MHz)	Quasi-peak Level	Average Level	
$0.15 \sim 0.50$	66.0~56.0*	56.0~46.0*	
$0.50~\sim~5.00$	56.0	46.0	
$5.00 \sim 30.00$	60.0	50.0	

Notes: 1. \*Decreasing linearly with logarithm of frequency.

2. The tighter limit shall apply at the transition frequencies

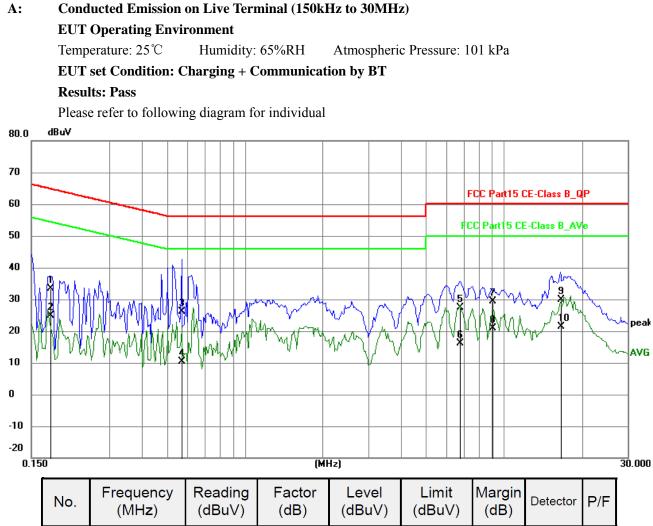
5.6 Test Results:

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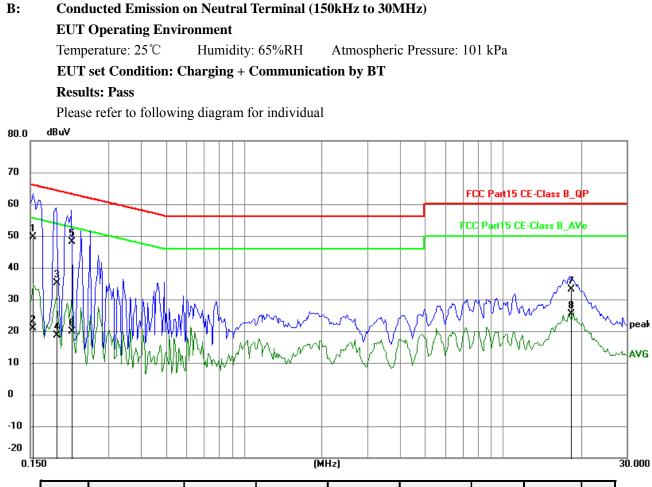


No.	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	Detector	P/F
1	0.1773	23.52	9.77	33.29	64.61	-31.32	QP	Р
2	0.1773	15.03	9.77	24.80	54.61	-29.81	AVG	Ρ
3	0.5712	16.38	9.77	26.15	56.00	-29.85	QP	Ρ
4	0.5712	0.63	9.77	10.40	46.00	-35.60	AVG	Р
5	6.7596	17.39	10.00	27.39	60.00	-32.61	QP	Ρ
6	6.7596	<mark>6.09</mark>	10.00	16.09	50.00	-33.91	AVG	Ρ
7	9.0176	19.17	10.11	29.28	60.00	-30.72	QP	Ρ
8	9.0176	10.67	10.11	20.78	50.00	-29.22	AVG	Ρ
9	16.4940	19.53	10.47	30.00	60.00	-30.00	QP	Р
10	16.4940	10.98	10.47	21.45	50.00	-28.55	AVG	Р

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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1539	39.79	9.78	49.57	65.79	-16.22	QP	Ρ
2	0.1539	11.15	9.78	20.93	55.79	-34.86	AVG	Ρ
3	0.1890	25.27	9.76	35.03	64.08	-29.05	QP	Ρ
4	0.1890	8.77	9.76	18.53	<mark>54.08</mark>	-35.55	AVG	Ρ
5	0.2163	38.45	9.75	48.20	62.96	-14.76	QP	Ρ
6	0.2163	10.06	9.75	19.81	<mark>52.96</mark>	-33.15	AVG	Р
7	18.3153	22.64	10.58	33.22	60.00	-26.78	QP	Ρ
8	18.3 <mark>1</mark> 53	14.82	10.58	25.40	50.00	-24.60	AVG	Ρ

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#### 6 Radiated Emission Test

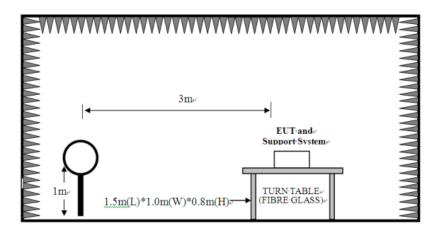
- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size 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
Above 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

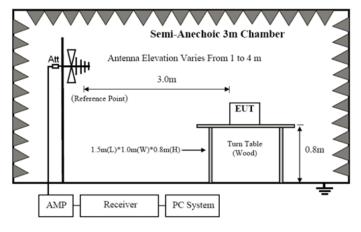


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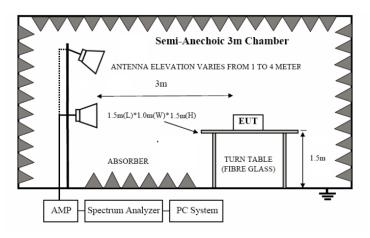
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For radiated emissions from 30MHz to1GHz



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

(MHz)

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:

uV/m

dBuV/m

A	FCC Part 15 Subp	art C Paragraph 15.249(a) Limit	
Fund	lamental Frequency	Field Strength of Fundamental (3m)	Field Strength of Harmonics (3m)

mV/m

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dBuV/m

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2	2400-2483.5	50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)
Note:	1. RF Field Streng	gth (dBuV)	$= 20 \log \text{RF Volt}$	age (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 (30)

Frequency Kange (WI12)	Distance (III)	
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  $(dBuV) = 20 \log RF$  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 portable 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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# 6.5 Test resultA Fundamental & Harmonics Radiated Emission Data

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

#### Horizontal

1\*

2

2402

4802.799

86.03

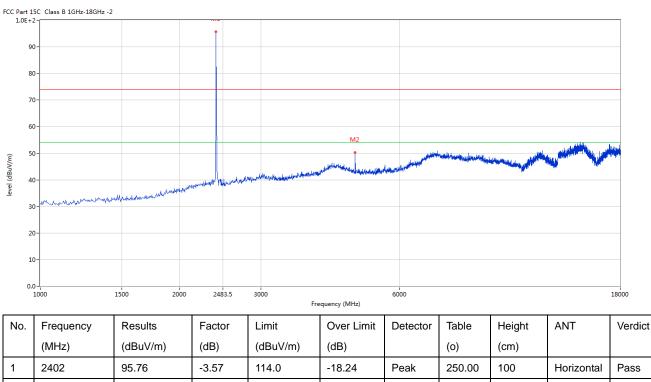
50.25

-3.57

3.12

94.0

74.0



-9.79

-23.75

AV

Peak

250.00

266.00

100

100

Horizontal

Horizontal

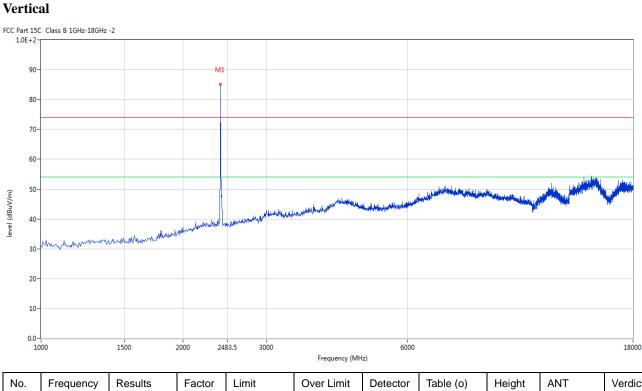
Pass

Pass

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No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2402	85.12	-3.57	114.0	-28.88	Peak	132.00	100	Vertical	Pass

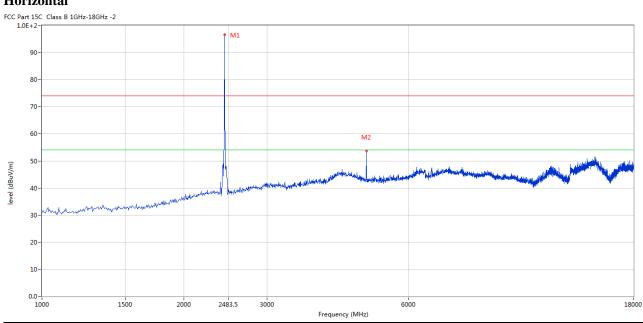
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#### Please refer to the following test plots for details: Middle Channel-2441MHz

#### Horizontal

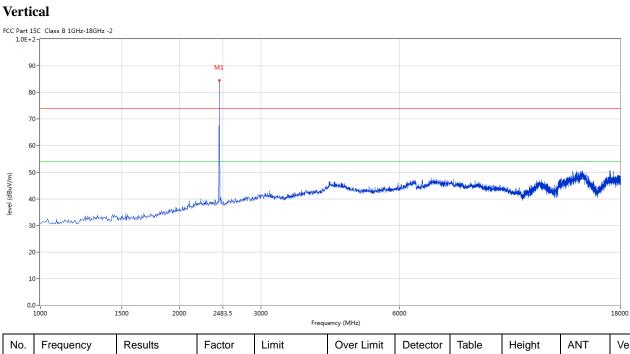


No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	96.64	-3.57	114.0	-17.36	Peak	239.00	100	Horizontal	Pass
1	2441	86.92	-3.57	94.0	-7.08	AV	239.00	100	Horizontal	Pass
2	4879.280	53.72	3.20	74.0	-20.28	Peak	267.00	100	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	2441	84.48	-3.57	114.0	-29.52	Peak	359.00	100	Vertical	Pass

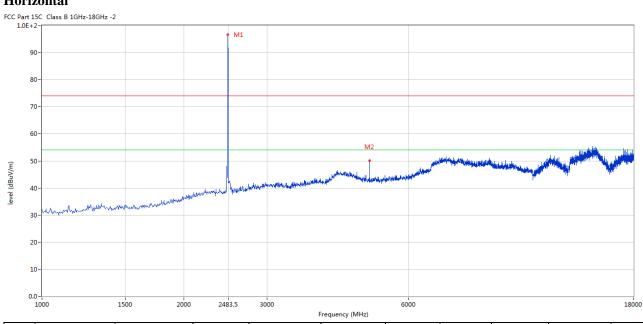
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#### Please refer to the following test plots for details: High Channel-2480MHz

#### Horizontal

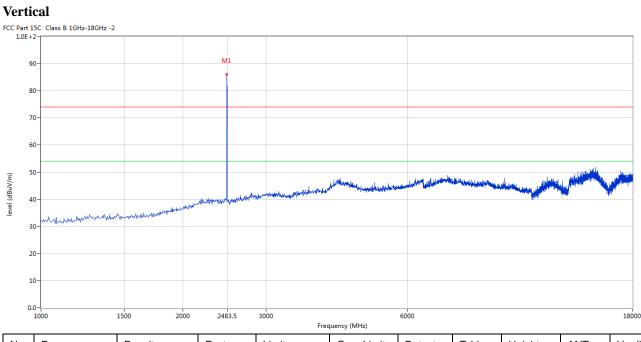


No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	97.20	-3.57	114.0	-16.80	Peak	252.00	100	Horizontal	Pass
1*	2480	87.59	-3.57	94.0	-6.41	AV	252.00	100	Horizontal	Pass
2	4960.010	50.09	3.36	74.0	-23.91	Peak	242.00	100	Horizontal	Pass

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1	No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	1	2480	86.29	-3.57	114.0	-27.71	Peak	6.00	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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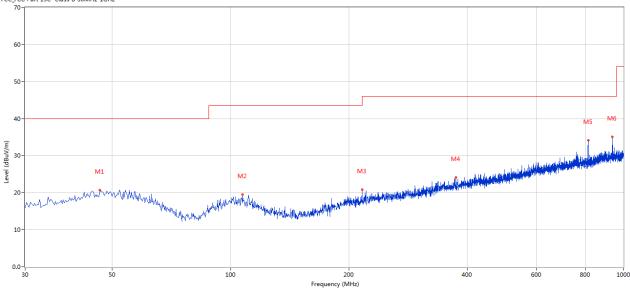
#### B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

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	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	46.486	20.74	-11.43	40.0	19.26	Peak	356.00	100	Horizontal	Pass
2	107.338	19.50	-13.39	43.5	24.00	Peak	158.00	100	Horizontal	Pass
3	215.951	20.80	-13.60	43.5	22.70	Peak	166.00	100	Horizontal	Pass
4	374.991	24.08	-9.44	46.0	21.92	Peak	112.00	100	Horizontal	Pass
5	812.594	34.10	-2.94	46.0	11.90	Peak	332.00	100	Horizontal	Pass
6	937.451	35.07	-1.78	46.0	10.93	Peak	60.00	100	Horizontal	Pass

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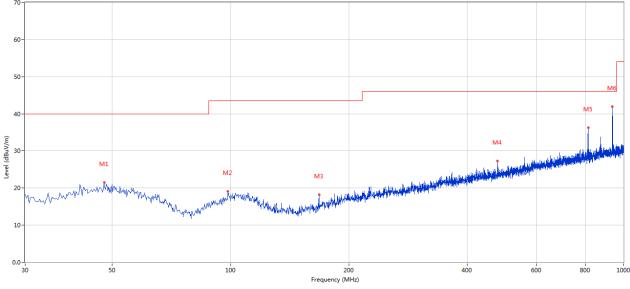
#### Radiated Emission In Vertical (30MHz----1000MHz)

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	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	47.698	21.46	-11.34	40.0	18.54	Peak	127.00	100	Vertical	Pass
2	98.368	19.09	-13.72	43.5	24.41	Peak	346.00	100	Vertical	Pass
3	167.948	18.18	-16.14	43.5	25.32	Peak	82.00	100	Vertical	Pass
4	478.270	27.28	-7.45	46.0	18.72	Peak	39.00	100	Vertical	Pass
5	812.594	36.25	-2.94	46.0	9.75	Peak	268.00	100	Vertical	Pass
6	937.451	41.90	-1.78	46.0	4.10	Peak	130.00	100	Vertical	Pass

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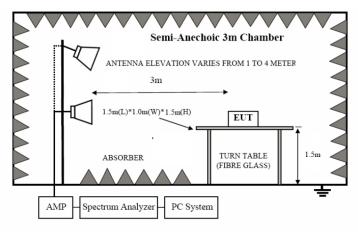


#### 7. Band Edge

#### 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:	HELME	T WIRELI	ESS EARPH	ONE	Polari	ty		Horizontal	
	Mode	k	Keeping Tra	ansmitting		Test Vol	tage		DC3.7V	
Te	mperature		24 de	g. C,		Humid	ity		56% RH	
Те	est Result:		Pas	SS						
1.0	rt 15C Class B 1GHz-18G 90- 80- 70- 50- 50-				under warden warden die state d	Manutha waka waka	MS 3	M2	MI	
level (dBuV/m)	30- 20- 10-	infilm hai ilen energene dan ing het he	h.h.e.รุษแรงมีสารแกรมมีสาร	en in the first of the test of the second		a to she she	and a second			
level (dBuV/r	30- 20- 10-	idet and a second an	1,1,2,00,50,00,00,00,00,00,00,00,00,00,00,00,	ng hilling filing hilling film and the second s	Frequency (MHz)					2410
No.	30- 20- 10-	Results	Factor	Limit		Detector	Table	Height	ANT	2410 Verdid
	30- 20- 10- 2350				Frequency (MHz)	Detector	Table (o)	Height (cm)	ANT	
No.	30- 20- 10- 2350 Frequency	Results	Factor	Limit	Frequency (MHz)	Detector Peak		-	ANT Horizontal	
No.	30- 20- 10- 2350 Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Frequency (MHz) Over Limit (dB)		(o)	(cm)		Verdi
No. 1	30- 20- 10- 2350 Frequency (MHz) 2401.827	Results (dBuV/m) 94.58	Factor (dB) -3.57	Limit (dBuV/m) 74.0	Frequency (MHz) Over Limit (dB) 20.58	Peak	(o) 82.00	(cm) 100	Horizontal	Verdie N/A
No. 1 2 2**	30- 20- 10- 2350 Frequency (MHz) 2401.827 2400.000	Results (dBuV/m) 94.58 66.36	Factor (dB) -3.57 -3.57	Limit (dBuV/m) 74.0 74.0	Frequency (MHz) Over Limit (dB) 20.58 -7.64	Peak Peak	(o) 82.00 82.00	(cm) 100 100	Horizontal Horizontal	Verdie N/A Pass
	30- 20- 10- 2350 Frequency (MHz) 2401.827 2400.000 2400.000	Results (dBuV/m) 94.58 66.36 50.31	Factor (dB) -3.57 -3.57 -3.57	Limit (dBuV/m) 74.0 74.0 54.0	Frequency (MHz)           Over Limit           (dB)           20.58           -7.64           -3.69	Peak Peak AV	(o) 82.00 82.00 82.00	(cm) 100 100 100	Horizontal Horizontal Horizontal	Verdi N/A Pass Pass

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	Product:	HELME	ET WIREL	ESS EARPH	ONE	Detect	tor		Vertical	
	Mode	]	Keeping Tr	ansmitting		Test Vol	tage		DC3.7V	
Te	emperature		24 de	eg. C,		Humid	ity		56% RH	
Te	est Result:		Pa	ISS						
C Part 1.0E	15C Class B 1GHz-18GHz +2-	2 -2								
	90-									
:	90-								м1	
;	80-								$\langle \cdot \rangle$	
1	70-							/	1	
	60-							/		
	50-							M4 <sup>15</sup> • 1 M2	J	
						M	3			
	40-	والمنابع وتنار أرامهم والمتحاف بالتجم	والتناويل وروما والمترا ومراد والمتحدد	وبر أحد والم الم المناجع الم الم الجامع مع مع المالين الم		hand a land of the production of the	de Haiselonderne Hanneler	WHITE HAR DE LA COMPANY		ANT AND A PROPERTY OF
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:	20	unaitunkajatunkaktuan		n an	Frequency (MHz)	<b>1</b>	n de literature de la constance			
: : c	20	Results	Factor	Limit		Detector	Table	Height	ANT	24
: : c	20				Frequency (MHz)		Table (o)	Height (cm)	ANT	24
no.	00- 20- 10- 2350 Frequency	Results	Factor	Limit	Frequency (MHz)			-	ANT	24
	00- 10- 2350 Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Frequency (MHz) Over Limit (dB)	Detector	(o)	(cm)		2ª Verdia
No.	Image: state of the s	Results (dBuV/m) 84.17	Factor (dB) -3.57	Limit (dBuV/m) 74.0	Frequency (MHz) Over Limit (dB) 10.17	Detector Peak	(o) 183.00	(cm) 100	Vertical	24 Verdie N/A
No.	Image: state of the s	Results (dBuV/m) 84.17 55.77	Factor (dB) -3.57 -3.57	Limit (dBuV/m) 74.0 74.0	Frequency (MHz) Over Limit (dB) 10.17 -18.23	Detector Peak Peak	(o) 183.00 182.29	(cm) 100 100	Vertical Vertical	24 Verdia N/A Pass
:	Image: second	Results (dBuV/m) 84.17 55.77 40.35	Factor (dB) -3.57 -3.57 -3.57	Limit (dBuV/m) 74.0 74.0 54.0	Frequency (MHz) Over Limit (dB) 10.17 -18.23 -13.65	Detector Peak Peak AV	(o) 183.00 182.29 182.29	(cm) 100 100 100	Vertical Vertical Vertical	Pass Pass

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	Product:	HELM	IET WIRE	LESS EARP	PHONE	Р	olarity		Horizont	al
	Mode		Keeping	Transmitting		Test	t Voltage		DC3.7V	7
Те	emperature		24 0	deg. C,		Hı	umidity		56% RH	ł
Т	est Result:		I	Pass						
CC Part 1.0E	15C Class B 1GHz-18GH	z -2								
	90-		A. V	N						
;	80-			- h						
	70-		work	- Nr.						
	60-	مى مەرىلىرى مەرىلىرى		)	Ma					
	50- 40-					miperindyahlidipalk	pahathan (texternal) (t		din dan karangan panapanakan karangan karangan karangan karangan karangan karangan karangan karangan karangan k	
level (dbuV/m				M	2	ngandinkinkinki	veluetrais <mark>(</mark> eco <sup>kat</sup> tell) <sup>ji</sup>		diddapta a damena piada	
level (dBuV/m	40-			M • • 248		naghaladigadhidigadhi	nteres <mark>kastas</mark> tik	nalisiinii a	Aladaasta ah muuna ka	25
level (dBuV/m	40- 30- 20- 10- 2.0- 2.0- 2.0- 2.0- 2.0- 2.0- 2.0- 2.	Results	Factor		Frequency (MHz)	Detector	Table	Height	ANT	
level (dBuV/m	40- 30- 20- 10- 2470 Frequency	Results	Factor (dB)	248 Limit (dBuV/m)		Detector	Table (o)	Height	ANT	
level (dBuV/m	40- 30- 20- 10- 2.0- 2.0- 2.0- 2.0- 2.0- 2.0- 2.0- 2.	Results (dBuV/m) 96.95	Factor (dB) -3.57	Limit	Frequency (MHz)	Detector	Table (o) 240.00	Height (cm) 100	ANT	25 Verdic
M/mgp) level (dBu/mgp)	40- 30- 20- 10- 2470 Frequency (MHz)	(dBuV/m)	(dB)	Limit (dBuV/m)	Frequency (MHz) Over Limit (dB)		(0)	(cm)		Verdic

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]	Product:	HELME	ET WIREL	ESS EARPH	ONE	Detec	tor		Vertical	
	Mode	1	Keeping Tr	ansmitting		Test Vo	ltage		DC3.7V	
Te	mperature		24 de	g. C,		Humic	lity		56% RH	
Τe	est Result:		Pa	SS						
	rt 15C Class B 1GHz-18Gi 90- 80- 70-	ltz -2	MI	All and a second a						
level (dBuV/m)	60 - 50 - 40 - 30 -	an an state and the state of th	A	M M2	Why we have a solution of the	hand and an and a start price for		antanda dahila yaka kakaka kaka ka	hafyariikatayo xaa daha shkilaa fa	ditersedetaal (1)
	50 - 40 - 30 - 20 - 10 - 2470			2483.	5 Frequency (MHz)			1		
level (dBuV/m) NO.	50- 40- 30- 20- 10-	Results (dBuV/m)	Factor (dB)		5	Detector	Table (0)	Height (cm)	ANT	[
	50- 40- 30- 20- 10- 	Results	Factor	2483. Limit	5 Frequency (MHz) Over Limit		Table	Height		2500 Verdic

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 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.

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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. The antenna gain is 2.04dBi Max. 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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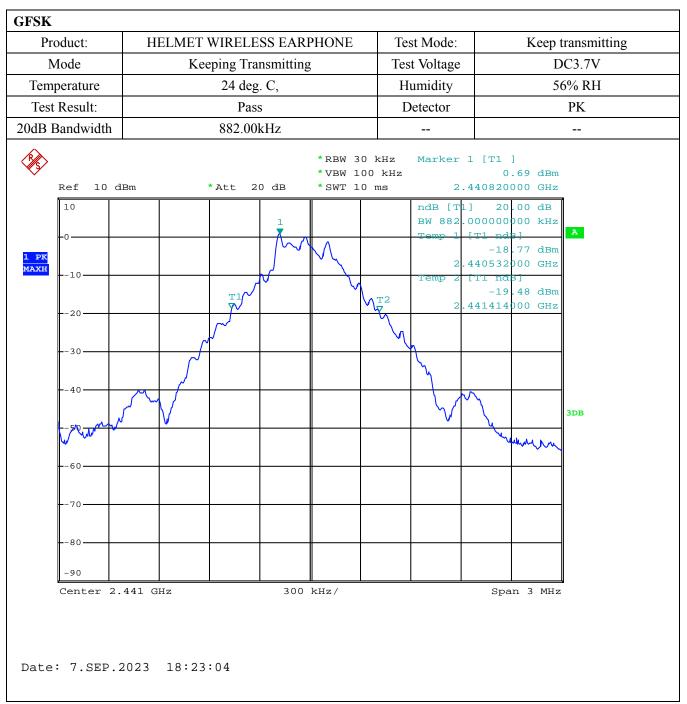


#### **Test Result**

Product:	HELMET WIRELESS EA	RPHONE	Test Mode:	Keep t	ransmitting
Mode	Keeping Transmitti	ng	Test Voltage	D	C3.7V
Temperature	24 deg. C,		Humidity	56	5% RH
Test Result:	Pass		Detector		РК
0dB Bandwidth	864.00kHz				
Ref 10 dB	m *Att 20 dB	*RBW 30 k *VBW 100 *SWT 10 m	kHz	1 [T1 ] 0.05 dBm .401820000 GH2 1] 20.00 dB	
-0				.000000000 kHz [ <u>T1 ndB]</u> -20.15 dBn	A
. <b>РК</b> ГАХН —-10			2 Temp 2	.401532000 GHz [T1 ndB]	5
20			2 2 1	-19.95 dBn .402396000 GHz	
30			M		_
40	M			v,	_
1 50 JAC					3DB
60					
70					-
-90					-
Center 2.4	.02 GHz 300	kHz/		Span 3 MH	z

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Product:	HI	ELMET	WIRELE	SS EARI	PHONE	Te	st Mode:		Keep	transmitting
Mode			ping Tra				t Voltage		_	0C3.7V
Temperature			24 deg		<u>.</u>		umidity		5	6% RH
Test Result:			Pass				etector			РК
20dB Bandwidth	ı		882.001	кНz						
5	dBm		* Att 20	0 dB	* RBW 3 * VBW 1 * SWT 1	00 kHz	2	.479820	.32 dBm 000 GHz	1
10				1			ndB [T BW 882	.000000	.00 dB 000 kHz	
-0				h	$\sim$		2	.479532	.14 dBm 000 GHz	
20				<b>,</b>	V	NT2	Temp 2	-18 .480414	.60 dBm	
30			$\int_{-}^{-}$			M	<u>λ</u>			
40	- <u>M</u>							~		
bow	ww m	$\bigvee$					$\bigvee$			3DB
60									w low lu	
70										
80										
-90										
Center	2.48 GH:	Z		300	kHz/			Spa	in 3 MHz	-

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Л/4DQPSK					••
Product:	HELMET WIRELESS EAF		Test Mode:		ansmitting
Mode	Keeping Transmittin	ıg	Test Voltage		C3.7V
Temperature	24 deg. C,		Humidity		% RH
Test Result:	Pass		Detector	]	PK
20dB Bandwidth	1.248MHz				
Ref 10 dB	n * Att 20 dB	*RBW 30 k *VBW 100 *SWT 10 m	kHz s 2. ndB [T]	1 [T1 ] 0.08 dBm 401820000 GHz ] 20 00 dB 248000 000 MHz	]
-0		month	Temp 2	[T1 nd3] -19.49 dBm 401352000 GHz [T1 nd3] -19.86 dBm	A
20			<sup>72</sup> 2.	402600000 GHz	
40			- Unit	$\wedge$	ЗДВ
500000000000000000000000000000000000				mun	
70					
80					
Center 2.4	02 GHz 300	kHz/	I	Span 3 MHz	u -

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Product:	H	ELMET V	WIRELE	SS EARI	PHONE	Те	st Mode:		Keep	transmitting
Mode		Kee	ping Tra	nsmitting	5	Tes	st Voltage	;		C3.7V
Temperature			24 deg				lumidity		5	6% RH
Test Result:			Pass			Ι	Detector			РК
20dB Bandwidt	th		1.248N	1Hz						
Ref 10	) dBm		*Att 2	0 db	* RBW 3 * VBW 1 * SWT 1	00 kHz	2	.440820	.69 dBm	a
10				1			ndB [T BW 1		.00 dB 000 MHz	A
-0 1 PK MAXH			~~~~		mm	h.	2	-18	.73 dBm 000 GHz	
-10							Temp 2 T2 V 2	[T1 nd -19 .441600	.36 dBm	
20							$\sum$			
30										
40		Α.,						$\wedge$		3db
									and the second	
60										
70										
80										
-90										
Center	2.441 G	Hz		300	kHz/			Spa	ın 3 MHz	-

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Product:	HE	ELMET	WIRELE	SS EARI	PHONE	Te	st Mode:		Keept	ransmitting
Mode		Kee	ping Tra	nsmitting		Te	st Voltage		D	C3.7V
Temperature			24 deg	. C,		H	lumidity		5	5% RH
Test Result:			Pass	5		Ι	Detector			РК
20dB Bandwidth	l		1.254N	1Hz						
Ref 10	dBm	-	*Att 2	0 dB	* RBW 3 * VBW 1 * SWT 1	00 kHz			] .31 dBm 000 GHz	
10							ndB [T BW 1 Temp 1		.00 dB 000 MHz 8]	А
<mark>1 РК</mark> МАХН				$\int \int \int$	mm	my	2 Temp 2		.08 dBm 000 GHz	
20		TA T	, , , , , , , , , , , , , , , , , , ,			7	Т2		.64 dBm	
30										
40	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~							<u></u>		
W. TOP.								hu	mand	3db
60										
70										
80										
-90										
Center : Date: 7.SEP			:20	300	kHz/			Spa	in 3 MHz	

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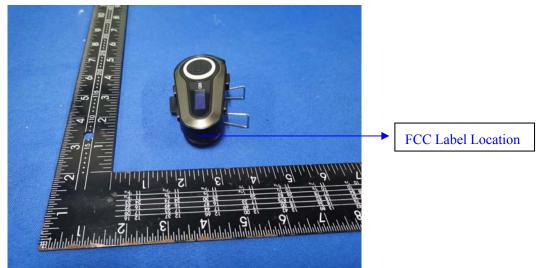
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#### 10.0 FCC ID Label

#### FCC ID: 2A9MI-Q08

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

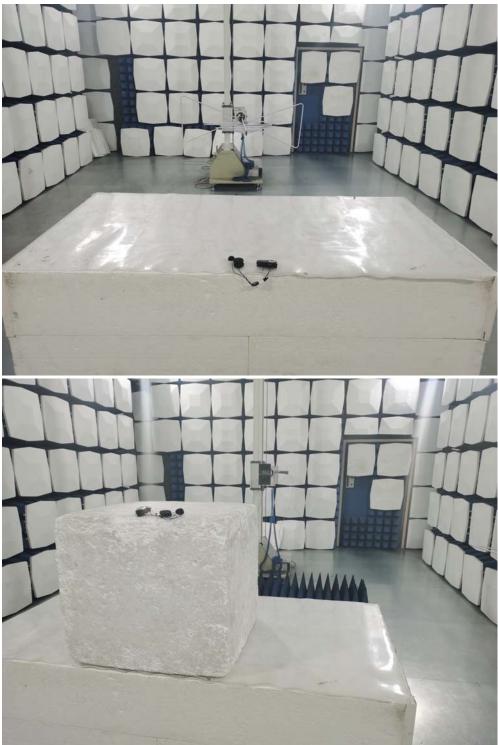
11.1 Conducted test View



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Radiated emission test view



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#### 11.2 Photographs - EUT



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Outside View



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Outside View



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Inside View



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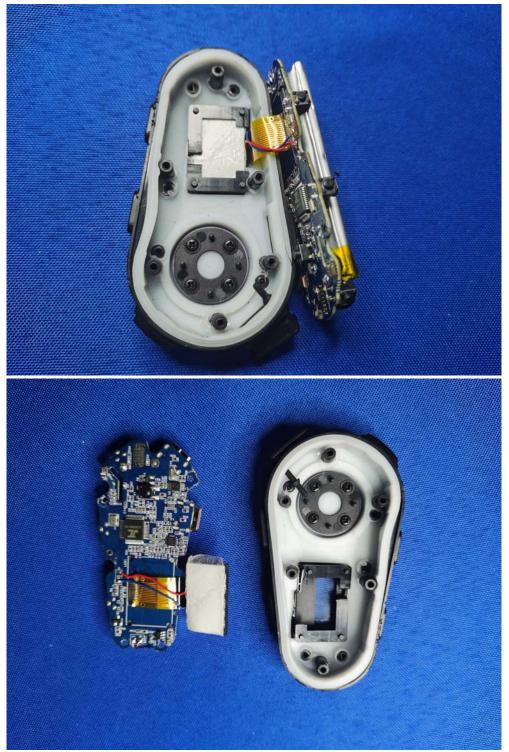
Inside View



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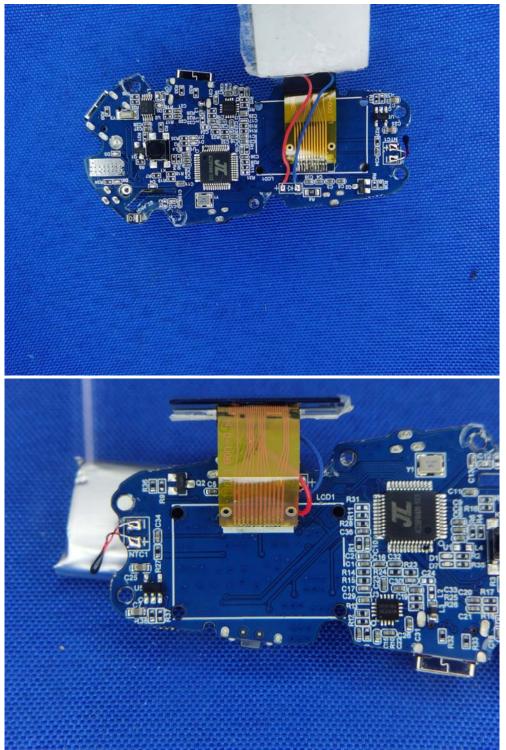
Inside View



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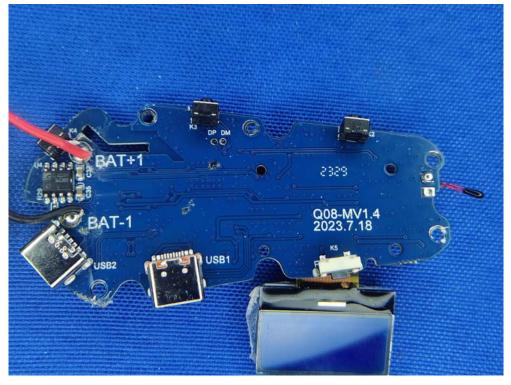
Inside View



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Inside View



--End of the report--

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