



File reference No.: 2021-08-10

Applicant: LEADER PREMIUMS LTD.

Product: TWS speaker

Model No.: AF0069

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



Dated: August 10, 2021

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

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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 17025:2005 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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The report refers only to the sample tested and does not apply to the bulk.

11.0

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Photo of Test Setup and EUT View.

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

Date: 2021-08-10



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: LEADER PREMIUMS LTD.

Address: 9/F., Hengfu Mansion, NO.858. Fuming Road, Ningbo, China

Telephone: -Fax: --

1.3 Description of EUT

Product: TWS speaker

Manufacturer: LEADER PREMIUMS LTD.

Address: 9/F., Hengfu Mansion, NO.858. Fuming Road, Ningbo, China

Trademark: N/A
Additional Trademark: N/A
Model Number: AF0069
Additional Model Name N/A

Hardware Version: Bluetooth- AF0069 V1.0 Software Version: leader.1910.01 V5.0

Serial No.: AF0069

Rating: Speaker: Input / Output: 5V, 300mA; earbuds: Input: 5V, 40mA

Battery: Speaker: DC3.7V, 500mAh, 1.85Wh Li-ion battery

Modulation Type: GFSK, Pi/4D-QPSK Operation Frequency: 2402-2480MHz

Channel Separate: 1MHz Channel Number: 79

Antenna Designation PCB antenna with gain 2.0dBi (Declared by the applicant)

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1.4 Submitted Sample: 1 pc

1.5 Test Duration

2021-07-19 to 2021-08-10

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 uncertaint land everage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

The sample tested by

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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 | 2021-06-18 | 2022-06-17 |
| LISN | R&S | EZH3-Z5 | 100294 | 2021-06-18 | 2022-06-17 |
| LISN | R&S | EZH3-Z5 | 100253 | 2021-06-18 | 2022-06-17 |
| Impuls-Begrenzer | R&S | ESH3-Z2 | 100281 | 2021-06-18 | 2022-06-17 |
| Loop Antenna | EMCO | 6507 | 00078608 | 2021-06-18 | 2024-06-17 |
| Spectrum | R&S | FSIQ26 | 100292 | 2021-06-18 | 2022-06-17 |
| Horn Antenna | A-INFO | LB-180400-KF | J211060660 | 2021-06-18 | 2022-06-17 |
| Horn Antenna | R&S | BBHA 9120D | 9120D-631 | 2021-07-02 | 2024-07-01 |
| Power meter | Anritsu | ML2487A | 6K00003613 | 2021-06-18 | 2022-06-17 |
| Power sensor | Anritsu | MA2491A | 32263 | 2021-06-18 | 2022-06-17 |
| Bilog Antenna | Schwarebeck | VULB9163 | 9163/340 | 2021-07-02 | 2024-07-02 |
| 9*6*6 Anechoic | | | N/A | 2020-07-06 | 2021-07-05 |
| EMI Test Receiver | RS | ESVB | 826156/011 | 2021-06-18 | 2022-06-17 |
| EMI Test Receiver | RS | ESH3 | 860904/006 | 2021-06-18 | 2022-06-17 |
| Spectrum | HP/Agilent | ESA-L1500A | US37451154 | 2021-06-18 | 2022-06-17 |
| Spectrum | HP/Agilent | E4407B | MY50441392 | 2021-06-18 | 2022-06-17 |
| Spectrum | RS | FSP | 1164.4391.38 | 2021-01-16 | 2022-01-15 |
| RF Cable | Zhengdi | ZT26-NJ-NJ-8M/FA | | 2021-06-18 | 2022-06-17 |
| RF Cable | Zhengdi | 7m | | 2021-06-18 | 2022-06-17 |
| RF Switch | EM | EMSW18 | 060391 | 2021-06-18 | 2022-06-17 |
| Pre-Amplifier | Schwarebeck | BBV9743 | #218 | 2021-06-18 | 2022-06-17 |
| Pre-Amplifier | HP/Agilent | 8449B | 3008A00160 | 2021-06-18 | 2022-06-17 |
| LISN | SCHAFFNER | NNB42 | 00012 | 2021-01-06 | 2022-01-05 |

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 15.207 | 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

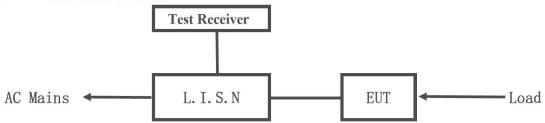
No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

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5. Power Line Conducted Emission Test

5.1 Schematics of the test

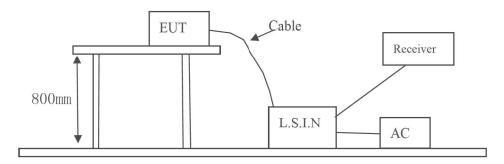


EUT: Equipment Under Test

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 earbuds & speaker | LEADER PREMIUMS LTD. | AF0069 | 2APYY-AF0069 |

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B. Internal Device

| Device | Manufacturer | Model | FCC ID/DOC |
|--------|--------------|-------|------------|
| N/A | | | |

C. Peripherals

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

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013

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

5.5 Power line conducted Emission Limit according to Paragraph 15.207

| Frequency | Limits (dB μ V) | | | |
|------------------|---------------------|---------------|--|--|
| (MHz) | Quasi-peak Level | Average Level | | |
| $0.15 \sim 0.50$ | 66.0~56.0* | 56.0~46.0* | | |
| $0.50 \sim 5.00$ | 56.0 | 46.0 | | |
| 5.00 ~ 30 00 | 60.0 | 50.0 | | |

Notes:

- 1. *Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies

5.6 Test Results:

Pass

Date: 2021-08-10



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

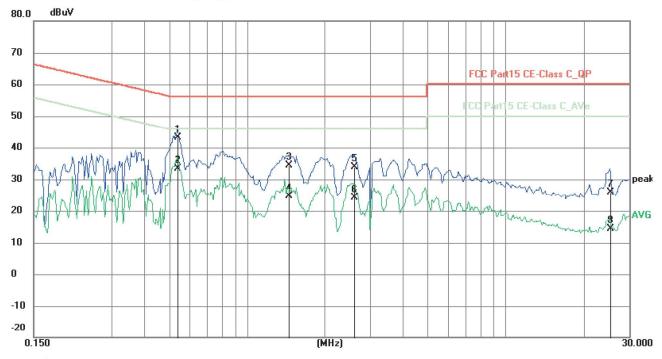
EUT Operating Environment

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

EUT set Condition: Charging and Communication by BT

Model: AF0069 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 | 0.5400 | 33.47 | 9.77 | 43.24 | 56.00 | -12.76 | QP | Р |
| 2 | 0.5400 | 23.69 | 9.77 | 33.46 | 46.00 | -12.54 | AVG | Р |
| 3 | 1.4409 | 24.71 | 9.79 | 34.50 | 56.00 | -21.50 | QP | Р |
| 4 | 1.4409 | 14.94 | 9.79 | 24.73 | 46.00 | -21.27 | AVG | Р |
| 5 | 2.6031 | 23.93 | 9.83 | 33.76 | 56.00 | -22.24 | QP | Р |
| 6 | 2.6031 | 14.26 | 9.83 | 24.09 | 46.00 | -21.91 | AVG | Р |
| 7 | 25.2690 | 14.75 | 11.01 | 25.76 | 60.00 | -34.24 | QP | Р |
| 8 | 25.2690 | 3.42 | 11.01 | 14.43 | 50.00 | -35.57 | AVG | Р |

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

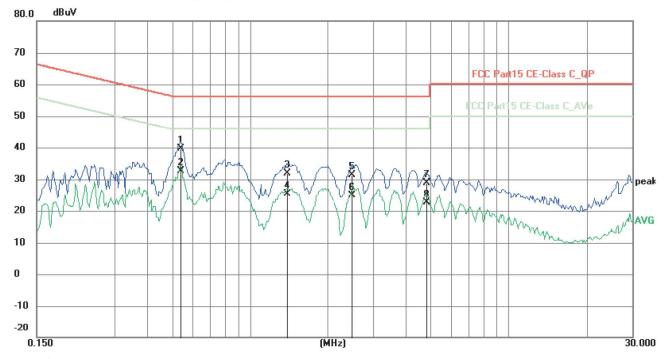
EUT Operating Environment

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

EUT set Condition: Charging and Communication by BT

Model: AF0069 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 | 0.5400 | 29.89 | 9.77 | 39.66 | 56.00 | -16.34 | QP | Р |
| 2 | 0.5400 | 22.90 | 9.77 | 32.67 | 46.00 | -13.33 | AVG | Р |
| 3 | 1.3902 | 22.01 | 9.79 | 31.80 | 56.00 | -24.20 | QP | Р |
| 4 | 1.3902 | 15.65 | 9.79 | 25.44 | 46.00 | -20.56 | AVG | Р |
| 5 | 2.4861 | 21.54 | 9.82 | 31.36 | 56.00 | -24.64 | QP | Р |
| 6 | 2.4861 | 15.00 | 9.82 | 24.82 | 46.00 | -21.18 | AVG | Р |
| 7 | 4.8018 | 18.90 | 9.92 | 28.82 | 56.00 | -27.18 | QP | Р |
| 8 | 4.8018 | 12.74 | 9.92 | 22.66 | 46.00 | -23.34 | AVG | Р |

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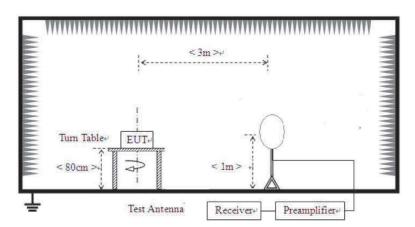


6 Radiated Emission Test

- 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 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

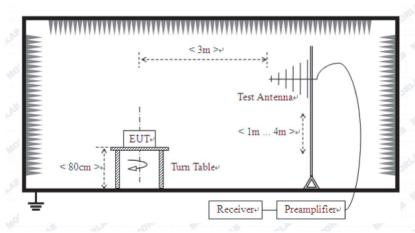
For radiated emissions from 9kHz to 30MHz



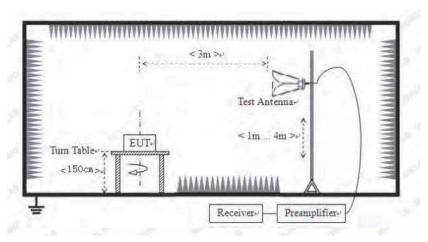
Date: 2021-08-10



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.

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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 | Field Strength of Fundamental (3m) | | | trength of Harmo | nics (3m) |
|-----------------------|------------|------------------------------------|------------|------|------------------|-----------|
| (MHz) | mV/m | dBuV/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.

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

| Frequency Range (MHz) | Distance (m) | Field strength (dB μ V/m) |
|-----------------------|--------------|-------------------------------|
| 30-88 | 3 | 40.0 |
| 88-216 | 3 | 43.5 |
| 216-960 | | 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. 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.
- 5. 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.
- 6. Battery full charged during tests.
- 7. The two modulation modes of GFSK and Pi/4D-QPSK. And only the worst case was recorded in the test report. GFSK was the worst case.

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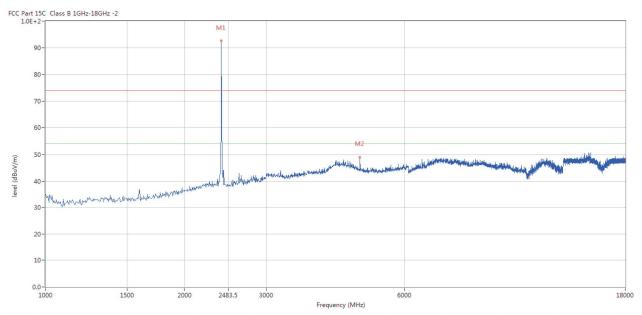


6.5 Test result

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) | | (0) | (cm) | | |
| 1 | 2402.149 | 92.56 | -3.57 | 114.0 | -21.44 | Peak | 279.00 | 100 | Horizontal | Pass |
| 2 | 4802.799 | 49.91 | 3.12 | 74.0 | -24.09 | Peak | 301.00 | 100 | Horizontal | Pass |