

**Zound Industries International AB**

Application  
For  
Certification

**FCC ID: 2AAGF-STADION****Bluetooth Headphone****Model: STADION****Brand name: URBANEARS****2.4GHz Transceiver****Report No.: 160708016SZN-001**

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-15]

Prepared and Checked by:

Approved by:

Sign on file

*Jackson Yang*  
Engineer

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*Kidd Yang*  
Senior Project Engineer  
Date: November 2, 2016

- The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
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- The evaluation data of the report will be kept for 3 years from the date of issuance.

TRF No.: FCC 15C\_TX\_b

**Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch**  
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# INTERTEK TESTING SERVICES

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## MEASUREMENT/TECHNICAL REPORT

Zound Industries International AB - MODEL:  
STADION

Brand name: URBANEARS

FCC ID: 2AAGF-STADION

This report concerns (check one):      Original Grant       Class II Change

Equipment Type: DXX - Part 15 Low Power Communication Device Transmitter

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?      Yes       No

If yes, defer until: \_\_\_\_\_  
date

Company Name agrees to notify the Commission by: \_\_\_\_\_  
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37?      Yes       No

If no, assumed Part 15, Subpart C for intentional radiator – the new 47 CFR [10-1-15 Edition] provision.

Report prepared by:

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### List of attached file

Exhibit type	File Description	Filename
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
Test Report	Bandedge Plot	bandedge.pdf
Test Report	20dB BW Plot	bw.pdf
External Photo	External Photo	external photos.pdf
Internal Photo	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
Operation Description	Technical Description	descri.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Confidentiality Letter	request.pdf
Cover Letter	Letter of Agency	agency.pdf

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## INTERTEK TESTING SERVICES

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### EXHIBIT 1

### GENERAL DESCRIPTION

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TRF No.: FCC 15C\_TX\_b  
FCC ID: 2AAGF-STADION  
Report No.: 160708016SZN-001

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## 1.0 General Description

### 1.1 Product Description

The equipment under test (EUT) is a Bluetooth Headphone. The EUT was powered by the fully-charged DC 3.7V, 105mAh or 125mAh new rechargeable battery which was charged by USB port (DC 5V). For more detail information pls. refer to the user manual.

Bluetooth Version: 4.0 BLE Mode

Antenna Type: Integral antenna

Modulation Type: GFSK

There are two manufacturers for the battery, details as below:

Battery Model	Battery Manufacturer	Capacity
A	Guangzhou Great Power Energy & Technology Co., Ltd	105mAh
B	Shenzhen Grepow Battery Co., Ltd.	125 mAh

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

### 1.2 Related Submittal(s) Grants

This is an application for certification of a transceiver for the Bluetooth Headphone BT 4.0 BLE, and for the 2.1+EDR mode were tested and demonstrated in report 160708016SZN-002.

### 1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). Radiated emission measurement was performed in Semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

### 1.4 Test Facility

The Semi-anechoic chamber and shielding room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch** and located at 6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: 242492).

**EXHIBIT 2**

**SYSTEM TEST CONFIGURATION**

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### 2.0 **System Test Configuration**

#### 2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.10 (2013).

The EUT was powered by the fully-charged DC 3.7V new rechargeable battery which was charged by an AC/DC adaptor or PC with input of AC 120V, 60Hz during the test.

Both batteries are tested with the EUT, only the worst case test result was shown in the report.

All packets DH1, DH3 & DH5 mode in modulation type GFSK were tested, only the worst data was reported in this report.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.

The rear of unit was flushed with the rear of the table.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was placed on a turn table, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

#### 2.2 EUT Exercising Software

The EUT exercise program (provided by client) used during testing was designed to exercise the various system components in a manner similar to a typical use.

#### 2.3 Special Accessories

No special accessories used.

#### 2.4 Equipment Modification

Any modifications installed previous to testing by Zound Industries International AB will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd Kejiyuan Branch.

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### 2.5 Measurement Uncertainty

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

### 2.6 Support Equipment List and Description

Description	Manufacturer	Model No.
USB Cable	N/A	Unshielded, Length 100cm
AC/DC adaptor (Provided by Intertek)	TP-Link	T050100-2A3 (Input: AC 100-240V, 50/60Hz, 0.3A Output: DC 5.0V, 1.0A)
Desktop (Provided by Intertek)	HP	COMPAQ

**EXHIBIT 3**

**EMISSION RESULTS**

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### 3.0 Emission Results

Data is included worst-case configuration (the configuration which resulted in the highest emission levels).

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### 3.1 Radiated Test Results

A sample calculation, configuration photographs and data tables of the emissions are included.

#### 3.1.1 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

$$FS = RA + AF + CF - AG$$

Where      FS = Field Strength in dB $\mu$ V/m  
RA = Receiver Amplitude (including preamplifier) in dB $\mu$ V  
CF = Cable Attenuation Factor in dB  
AF = Antenna Factor in dB  
AG = Amplifier Gain in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

$$FS = RA + AF + CF - AG$$

Assume a receiver reading of 62.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The net field strength for comparison to the appropriate emission limit is 42 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$RA = 62.0 \text{ dB}\mu\text{V}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$FS = 62 + 7.4 + 1.6 - 29 + 0 = 42 \text{ dB}\mu\text{V/m}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(42 \text{ dB}\mu\text{V/m})/20] = 125.9 \mu\text{V/m}$$

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### 3.1.2 Radiated Emission Configuration Photograph

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated photos. pdf.

### 3.1.3 Radiated Emissions

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Worst Case Radiated Emission  
at  
30.97 MHz

Judgement: Passed by 17.7 dB

### ***TEST PERSONNEL:***

*Sign on file*

Jackson Yang Engineer  
*Typed/Printed Name*

November 2, 2016

*Date*

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## INTERTEK TESTING SERVICES

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Applicant: Zound Industries International AB

Date of Test: November 2, 2016

Model: STADION

Worst Case Operating Mode: BT Link and Charging via Adapter

Battery Model: A

Table 1

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	30.970	30.0	20.0	12.3	22.3	40.0	-17.7
Horizontal	91.595	11.9	20.0	23.9	15.8	43.5	-27.7
Horizontal	207.995	15.1	20.0	28.1	23.2	43.5	-20.3
Vertical	36.838	34.5	20.0	7.5	22.0	40.0	-18.0
Vertical	54.735	29.5	20.0	9.6	19.1	40.0	-20.9
Vertical	73.650	12.3	20.0	28.1	20.4	40.0	-19.6

NOTES:

1. Quasi-Peak detector is used except for others stated.
2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. All emissions are below the QP limit.

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### 3.1.4 Transmitter Spurious Emissions (Radiated)

Worst Case Radiated Emission  
at  
9608.000 MHz

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated photos. pdf.

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 7.3 dB

### ***TEST PERSONNEL:***

*Sign on file*

Jackson Yang Engineer  
*Typed/Printed Name*

November 2, 2016  
*Date*

# INTERTEK TESTING SERVICES

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Applicant: Zound Industries International AB

Date of Test: November 2, 2016

Model: STADION

Worst Case Operating Mode: Transmitting and Charging via Adapter

Battery Model: A

Table 2

## Radiated Emissions

(2402MHz)

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	2402.000	101.5	36.7	28.1	92.9	114.0	-21.1
Horizontal	4804.000	54.1	36.7	35.5	52.9	74.0	-21.1
Horizontal	7206.000	56.3	36.1	36.5	56.7	74.0	-17.3
Horizontal	9608.000	61.2	36.2	37.0	62.0	74.0	-12.0

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	2402.000	85.6	36.7	28.1	77.0	94.0	-17.0
Horizontal	4804.000	41.4	36.7	35.5	40.2	54.0	-13.8
Horizontal	7206.000	41.8	36.1	36.5	42.2	54.0	-11.8
Horizontal	9608.000	45.9	36.2	37.0	46.7	54.0	-7.3

Notes: 1. Peak detector is used for the emission measurement (RBW=1MHz / VBW=3MHz for Peak value, and RBW=1MHz / VBW=10Hz for Average value; RBW=3MHz is used for fundamental emission measurement).

2. All measurements were made at 3 meter. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.

Test Engineer: Jackson Yang

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TRF No.: FCC 15C\_TX\_b

FCC ID: 2AAGF-STADION

Report No.: 160708016SZN-001

# INTERTEK TESTING SERVICES

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Applicant: Zound Industries International AB

Date of Test: November 2, 2016

Model: STADION

Worst Case Operating Mode: Transmitting and Charging via Adapter

Battery Model: A

Table 3

## Radiated Emissions

(2440MHz)

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	2440.000	107.3	36.7	28.1	98.7	114.0	-15.3
Horizontal	4880.000	54.3	36.7	35.5	53.1	74.0	-20.9
Horizontal	7320.000	56.5	36.1	37.2	57.6	74.0	-16.4
Horizontal	9760.000	60.2	36.2	37.0	61.0	74.0	-13.0

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	2440.000	90.2	36.7	28.1	81.6	94.0	-12.4
Horizontal	4880.000	41.4	36.7	35.5	40.2	54.0	-13.8
Horizontal	7320.000	41.5	36.1	37.2	42.6	54.0	-11.4
Horizontal	9760.000	45.1	36.2	37.0	45.9	54.0	-8.1

Notes: 1. Peak detector is used for the emission measurement (RBW=1MHz / VBW=3MHz for Peak value, and RBW=1MHz / VBW=10Hz for Average value; RBW=3MHz is used for fundamental emission measurement).

2. All measurements were made at 3 meter. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.

Test Engineer: Jackson Yang

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TRF No.: FCC 15C\_TX\_b

FCC ID: 2AAGF-STADION

Report No.: 160708016SZN-001

# INTERTEK TESTING SERVICES

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Applicant: Zound Industries International AB

Date of Test: November 2, 2016

Model: STADION

Worst Case Operating Mode: Transmitting and Charging via Adapter

Battery Model: A

Table 4

## Radiated Emissions

(2480MHz)

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	2480.000	106.6	36.7	28.1	98.0	114.0	-16.0
Horizontal	4960.000	55.8	36.7	35.5	54.6	74.0	-19.4
Horizontal	7440.000	57.6	36.1	37.2	58.7	74.0	-15.3
Horizontal	9920.000	58.7	36.3	38.9	61.3	74.0	-12.7

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	2480.000	89.3	36.7	28.1	80.7	94.0	-13.3
Horizontal	4960.000	41.7	36.7	35.5	40.5	54.0	-13.5
Horizontal	7440.000	42.8	36.1	37.2	43.9	54.0	-10.1
Horizontal	9920.000	43.3	36.3	38.9	45.9	54.0	-8.1

Notes: 1. Peak detector is used for the emission measurement (RBW=1MHz / VBW=3MHz for Peak value, and RBW=1MHz / VBW=10Hz for Average value; RBW=3MHz is used for fundamental emission measurement).

2. All measurements were made at 3 meter. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.

Test Engineer: Jackson Yang

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TRF No.: FCC 15C\_TX\_b

FCC ID: 2AAGF-STADION

Report No.: 160708016SZN-001

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### 3.2 Conducted Emission at Mains Terminal

#### 3.2.1 Conducted Emissions Configuration Photograph

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

#### 3.2.2 Conducted Emissions

Worst Case Conducted Configuration  
At

0.186 MHz

Judgement: Passed by 17.3 dB margin

### ***TEST PERSONNEL:***

*Sign on file*

Jackson Yang Engineer  
*Typed/Printed Name*

November 2, 2016

*Date*

# INTERTEK TESTING SERVICES

Applicant: Zound Industries International AB

Date of Test: November 2, 2016

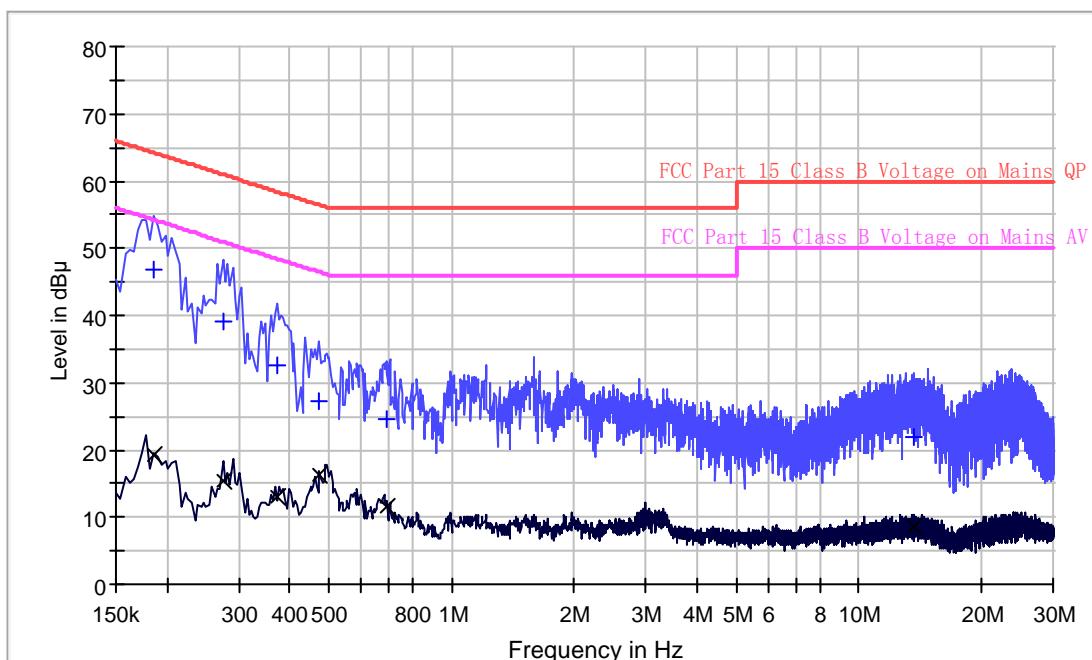
Model: STADION

Worst Case Operating Mode: BT Link and Charging via Adapter

Battery Model: A

Phase: Live

## Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.186	46.9	L1	9.7	17.3	64.2
0.274	39.0	L1	9.7	22.0	61.0
0.374	32.7	L1	9.7	25.7	58.4
0.474	27.4	L1	9.7	29.0	56.4
0.690	24.6	L1	9.7	31.4	56.0
13.642	21.9	L1	10.0	38.1	60.0

Result Table AV

Frequency (MHz)	Average (dB $\mu$ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.186	19.4	L1	9.7	34.8	54.2
0.274	15.3	L1	9.7	35.7	51.0
0.374	12.9	L1	9.7	35.5	48.4
0.474	16.2	L1	9.7	30.2	46.4
0.690	11.5	L1	9.7	34.5	46.0
13.642	8.6	L1	10.0	41.4	50.0

TRF No.: FCC 15C\_TX\_b

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Applicant: Zound Industries International AB

Date of Test: November 2, 2016

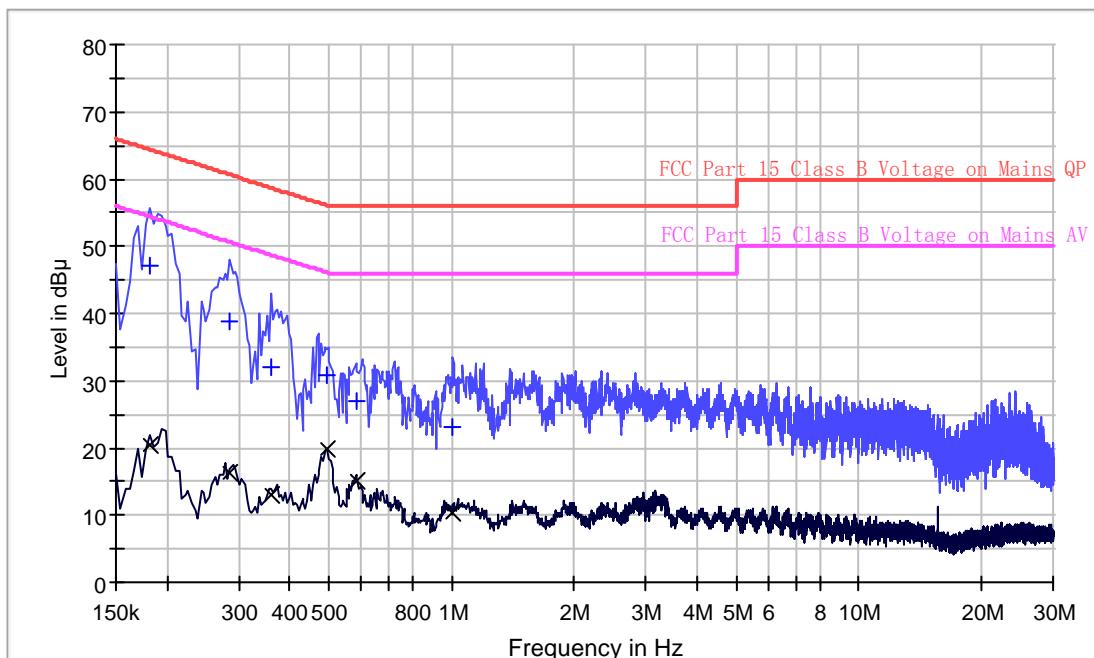
Model: STADION

Worst Case Operating Mode: BT Link and Charging via Adapter

Battery Model: A

Phase: Neutral

## Conducted Emission Test - FCC



### Result Table QP

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.182	47.0	N	9.7	17.4	64.4
0.286	38.9	N	9.7	21.7	60.6
0.362	31.9	N	9.7	26.8	58.7
0.494	30.8	N	9.7	25.3	56.1
0.582	27.0	N	9.7	29.0	56.0
1.006	23.0	N	9.7	33.0	56.0

### Result Table AV

Frequency (MHz)	Average (dB $\mu$ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.182	20.3	N	9.7	34.1	54.4
0.286	16.1	N	9.7	34.5	50.6
0.362	13.1	N	9.7	35.6	48.7
0.494	19.9	N	9.7	26.2	46.1
0.582	15.0	N	9.7	31.0	46.0
1.006	10.3	N	9.7	35.7	46.0

TRF No.: FCC 15C\_TX\_b

FCC ID: 2AAGF-STADION

Report No.: 160708016SZN-001

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 4**

### **EQUIPMENT PHOTOGRAPHS**

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TRF No.: FCC 15C\_TX\_b  
FCC ID: 2AAGF-STADION  
Report No.: 160708016SZN-001

## INTERTEK TESTING SERVICES

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### 4.0 Equipment Photographs

For electronic filing, the photographs of the tested EUT are saved with filename: external photos.pdf & internal photos.pdf.

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 5**

### **PRODUCT LABELLING**

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TRF No.: FCC 15C\_TX\_b  
FCC ID: 2AAGF-STADION  
Report No.: 160708016SZN-001

## INTERTEK TESTING SERVICES

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### 5.0 Product Labelling

For electronic filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 6**

### **TECHNICAL SPECIFICATIONS**

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TRF No.: FCC 15C\_TX\_b  
FCC ID: 2AAGF-STADION  
Report No.: 160708016SZN-001

## INTERTEK TESTING SERVICES

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### 6.0 Technical Specifications

For electronic filing, the block diagram and schematics of the tested EUT are saved with filename: block.pdf and circuit.pdf respectively.

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**INTERTEK TESTING SERVICES**

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**EXHIBIT 7**

**INSTRUCTION MANUAL**

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TRF No.: FCC 15C\_TX\_b  
FCC ID: 2AAGF-STADION  
Report No.: 160708016SZN-001

## INTERTEK TESTING SERVICES

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### 7.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 8**

### **MISCELLANEOUS INFORMATION**

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### 8.0 Miscellaneous Information

This miscellaneous information includes details of the measured bandedge, the test procedure and calculation of factor such as pulse desensitization.

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### 8.1 Bandedge Plot

For electronic filing, the plot shows the fundamental emission when modulated is saved with filename: bandedge.pdf. From the plot, the field strength of any emissions outside of the specified frequency band are attenuated to the general radiated emission limits in section 15.209. It fulfils the requirement of 15.249(d).

#### Peak Measurement

Bandedge compliance is determined by applying marker-delta method, i.e (Bandedge Plot).

##### **(i) Lower channel 2402MHz:**

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the bandedge plot

$$\begin{aligned} &= 92.9 \text{ dB}\mu\text{v/m} - 55.7 \text{ dB} \\ &= 37.2 \text{ dB}\mu\text{v/m} \end{aligned}$$

Average Resultant field strength = Fundamental emissions (Average value) – delta from the bandedge plot

$$\begin{aligned} &= 77.0 \text{ dB}\mu\text{v/m} - 55.7 \text{ dB} \\ &= 21.3 \text{ dB}\mu\text{v/m} \end{aligned}$$

##### **(ii) Upper channel 2480MHz:**

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the bandedge plot

$$\begin{aligned} &= 98.0 \text{ dB}\mu\text{v/m} - 62.2 \text{ dB} \\ &= 35.8 \text{ dB}\mu\text{v/m} \end{aligned}$$

Average Resultant field strength = Fundamental emissions (Average value) – delta from the bandedge plot

$$\begin{aligned} &= 80.7 \text{ dB}\mu\text{v/m} - 62.2 \text{ dB} \\ &= 18.5 \text{ dB}\mu\text{v/m} \end{aligned}$$

The resultant field strength meets the general radiated emission limit in section 15.209, which does not exceed 74dB $\mu$ v/m (Peak Limit) and 54dB $\mu$ v/m (Average Limit).

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### 8.1 Bandedge Plot (cont'd)

Pursuant to FCC part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over excepted variations in temperature and supply voltage were considered.

Figure 8.1 Bandwidth

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### **8.2 Discussion of Pulse Desensitization**

Pulse desensitivity is not applicable for this device since the transmitter transmits the RF signal continuously.

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### 8.3 Transmitter Duty Cycle Calculation, FCC Rule 15.35(b, c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The Transmitter ON time was determined from the resultant time-amplitude display:

	See attached spectrum analyzer chart (s) for Transmitter timing
	See Transmitter timing diagram provided by manufacturer
x	Not applicable, duty cycle was not used.

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### 8.4 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of transmitters operating under Part 15, Subpart C rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.10 - 2013.

The transmitting equipment under test (EUT) is placed on a styrene turntable which is four feet in diameter, up to 1GHz 0.8m and above 1GHz 1.5m in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The EUT is adjust through all three orthogonal axes to obtain maximum emission levels. The antenna height and polarization are varied during the testing to search for maximum signal levels.

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings.

The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.

Detector function for conducted emissions is in QP & AV mode and IFBW setting is 9 kHz from the frequency band 150 kHz to 30MHz.

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### 8.4 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

Conducted measurements are made as described in ANSI C63.10 - 2013.

The IF bandwidth used for measurement of radiated signal strength was 10 kHz for emission below 30 MHz and 120 kHz for emission from 30 MHz to 1000 MHz. Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2. Above 1000 MHz, a resolution bandwidth of 1 MHz (RBW 3MHz for fundamental emission) is used.

Transmitter measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the restricted bands and above 1 GHz, signals are acquired at a distance of one meter or less. All measurements are extrapolated to three meters using inverse scaling, but those measurements taken at a closer distance are so marked.

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### **EXHIBIT 9**

### **CONFIDENTIALITY REQUEST**

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## INTERTEK TESTING SERVICES

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### 9.0 Confidentiality Request

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT10**

### **TEST EQUIPMENT LIST**

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## INTERTEK TESTING SERVICES

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### 10.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-12	BiConiLog Antenna	ETS	3142E	00166158	17-Sep-2016	17-Sep-2017
SZ185-01	EMI Receiver	R&S	ESCI	100547	23-Jan-2016	23-Jan-2017
SZ061-08	Horn Antenna	ETS	3115	00092346	12-Oct-2016	12-Oct-2017
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	11-May-2016	11-May-2017
SZ056-03	Spectrum Analyzer	R&S	FSP 30	101148	14-Jun-2016	14-Jun-2017
SZ056-06	Signal Analyzer	R&S	FSV 40	101101	02-Jul-2016	02-Jul-2017
SZ181-04	Preamplifier	Agilent	8449B	3008A0247 4	23-Jan-2016	23-Jan-2017
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	16-Apr-2016	16-Apr-2018
SZ062-02	RF Cable	RADIALL	RG 213U	--	30-Jun-2016	30-Dec-2016
SZ062-05	RF Cable	RADIALL	0.04-26.5GHz	--	30-Jun-2016	30-Dec-2016
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	--	30-Jun-2016	30-Dec-2016
SZ067-04	Notch Filter	Micro-Tronics	BRM5070 2-02	--	23-May-2016	23-May-2017
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	03-Nov-2015	03-Nov-2016
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	03-Nov-2015	03-Nov-2016
SZ188-03	Shielding Room	ETS	RFD-100	4100	17-Aug-2016	17-Aug-2018