

Acoustmax International Co., Ltd

Application
For
Certification
FCC ID: 2AAINBL-1200BT

ROCKIN' ROLLER PRO SPEAKER

Model: Rockin'Roller PRO(RRPRO)
Additional Model: RRPRO-1, Rockin' Roller PRO mini, Rockin' Roller
PRO, RR-PRO

Brand name: MONSTER

Superheterodyne Receiver

Report No.: 160824025SZN-002

Prepared and Checked by:

Approved by:

Sign on file

Vincent Chen
Engineer

Kidd Yang
Senior Project Engineer
Date: September 09, 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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TRF No.: FCC 15C_PC_b

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MEASUREMENT / TECHNICAL REPORT

Acoustmax International Co., Ltd
MODEL: Rockin'Roller PRO(RRPRO)

Brand name: MONSTER

FCC ID: 2AAINBL-1200BT

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

Equipment Type: CXX-Communications Rcvr for use w/ licensed Tx and CBs

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 B for unintentional radiator – the new 47 CFR [10-01-15 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 photos	radiated photos.pdf
Test Setup Photo	Conducted photos	conducted photos.pdf
External Photo	External Photos	external photos.pdf
Internal Photo	Internal Photos	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
ID Label / Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Confidential Letter	request.pdf
Cover Letter	Letter of Agency	agency.pdf

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EXHIBIT 1

GENERAL DESCRIPTION

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1.0 General Description

1.1 Product Description

The Equipment Under Test (EUT) is a ROCKIN' ROLLER PRO SPEAKER with receiving function operating at 192.6MHz. The EUT was powered by an internal DC 12V, 9.0AH Lead-acid Battery that can be recharged from AC 120V, 60Hz. For more detail information pls. refer to the user manual.

The Models: RRPRO-1, Rockin' Roller PRO mini, Rockin' Roller PRO, RR-PRO are the same as the Model: Rockin'Roller PRO(RRPRO) in hardware aspect, the electrical parts is the same. The difference in model number serves as marketing strategy.

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 receiver for the ROCKIN' ROLLER PRO SPEAKER. And related report for Bluetooth function which subjected to FCC Report No.: 160824025SZN-001, is filed at the same time. Other functions are subjected to FCC Report No.: 160824026SZN-001.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2014). 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.

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).

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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 C63.4 (2014).

The device was powered by a fully internal DC 12V, 9.0AH Lead-acid Battery that can be recharged from AC 120V, 60Hz during the test.

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. The step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The rear of unit was flushed with the rear of the table up to 1GHz and above 1GHz.

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 turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

The frequency range from 30MHz to 2GHz was searched for spurious emissions from the device (Highest working frequency is 192.6MHz). Only those emissions reported were detected. All other emissions were at least 20 dB below the applicable limits.

2.2 EUT Exercising Software

N/A

2.3 Special Accessories

N/A.

2.4 Equipment Modification

Any modifications installed previous to testing by Acoustmax International Co., Ltd 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

This product was tested in the following configuration:

Refer List:

Description	Manufacturer	Model No.
Wireless Microphone	Acoustmax International Co., Ltd	N/A
Wired Microphone	N/A	N/A
4 x cement resistors	N/A	5 ohm, 5W
2 x USB Cables	N/A	Unshielded 80cm
Headphone	N/A	Unshielded 100cm
AUX In cable	Acoustmax International Co., Ltd	Unshielded 80cm
AC cable	N/A	Unshielded 150cm
iPad	Apple	A1367

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EXHIBIT 3

EMISSION RESULTS

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3.0 **Emission Results**

Data included worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

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3.1 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 μ V/m

RA = Receiver Amplitude (including preamplifier) in dB μ V

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB/m

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:

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

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3.1 Field Strength Calculation (cont'd)

Example

Assume a receiver reading of 62.0dB μ V is obtained. The antenna factor of 7.4dB/m and cable factor of 1.6dB is added. The amplifier gain of 29dB is subtracted. The net field strength for comparison to the appropriate emission limit is 32dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

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

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

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

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

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

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

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3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
At
60.623MHz (Receiving Mode)

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

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3.3 Radiated Emission Data

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 5.4dB margin (Receiving Mode)

TEST PERSONNEL:

Sign on file

Vincent Chen Engineer
Typed/Printed Name

06 September 2016
Date

INTERTEK TESTING SERVICES

Company: Acoustmax International Co., Ltd

Date of Test: 06 September 2016

Worst Model: Rockin'Roller PRO(RRPRO)

Operating Mode: Receiving mode

Table 1

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	61.525	25.6	20.0	17.5	23.1	40.0	-16.9
Horizontal	180.835	23.8	20.0	21.7	25.5	43.5	-18.0
Horizontal	520.335	29.2	20.0	22.4	31.6	46.0	-14.4
Vertical	60.623	45.8	20.0	8.8	34.6	40.0	-5.4
Vertical	101.023	32.7	20.0	17.5	30.2	43.5	-13.3
Vertical	203.145	34.0	20.0	21.7	35.7	43.5	-7.8

NOTES:

1. Quasi-Peak detector is used for frequency up to 1GHz and Peak/AV detector is used for frequency from 1-2GHz.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.
4. All emissions up to 1GHz are below the QP limit and all emissions between 1-2GHz are below the AV limit. No emissions significantly above equipment noise floor between 1-2GHz.

Test Engineer: Vincent Chen

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3.4 Conducted Emission at Mains Terminal

3.5 Conducted Emission Configuration Photograph

Worst Case Conducted Configuration
at
0.154 MHz (Receiving Mode)

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

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3.6 Conducted Emission Data

Judgement: Passed by 11.4 dB margin(Receiving Mode)

TEST PERSONNEL:

Sign on file

Vincent Chen Engineer
Typed/Printed Name

06 September 2016
Date

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Company: Acoustmax International Co., Ltd

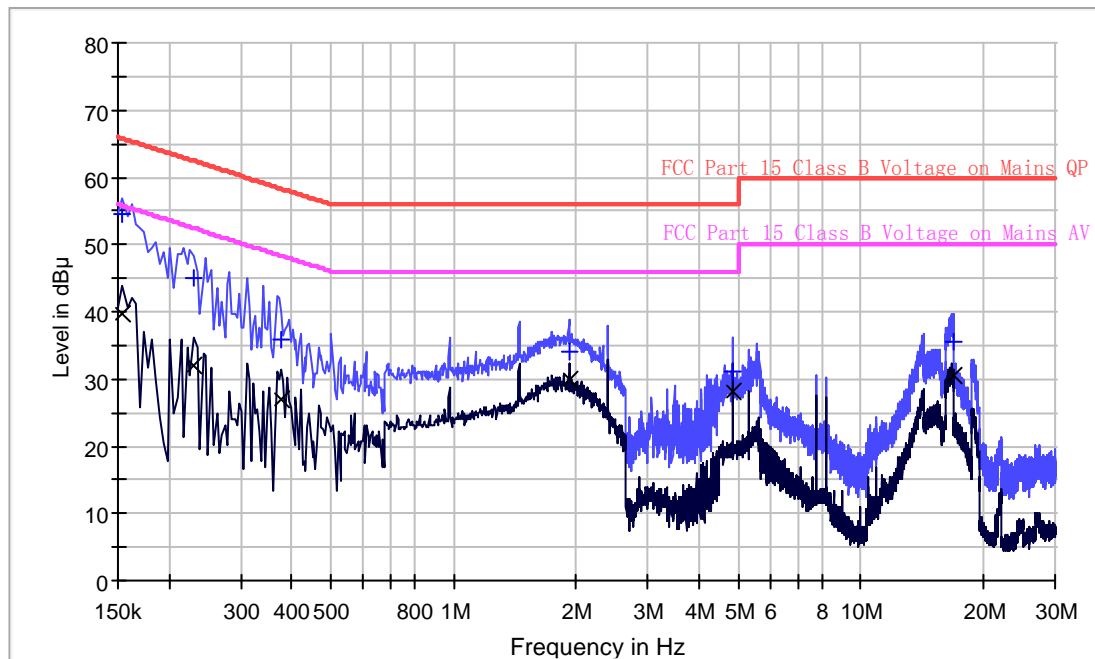
Date of Test: 06 September 2016

Worst Model: Rockin'Roller PRO(RRPRO)

Operating Mode: Receiving mode

Phase: Live

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.154	54.4	L	9.5	11.4	65.8
0.230	45.0	L	9.5	17.4	62.4
0.378	36.0	L	9.6	22.3	58.3
1.922	34.1	L	9.6	21.9	56.0
4.858	31.0	L	9.7	25.0	56.0
16.818	35.5	L	10.0	24.5	60.0

Result Table AV

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.154	39.7	L	9.5	16.1	55.8
0.230	31.9	L	9.5	20.5	52.4
0.378	26.9	L	9.6	21.4	48.3
1.922	29.8	L	9.6	16.2	46.0
4.858	28.2	L	9.7	17.8	46.0
16.818	30.6	L	10.0	19.4	50.0

Test Engineer: Vincent Chen

TRF No.: FCC 15C_PC_b

FCC ID: 2AAINBL-1200BT

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Company: Acoustmax International Co., Ltd

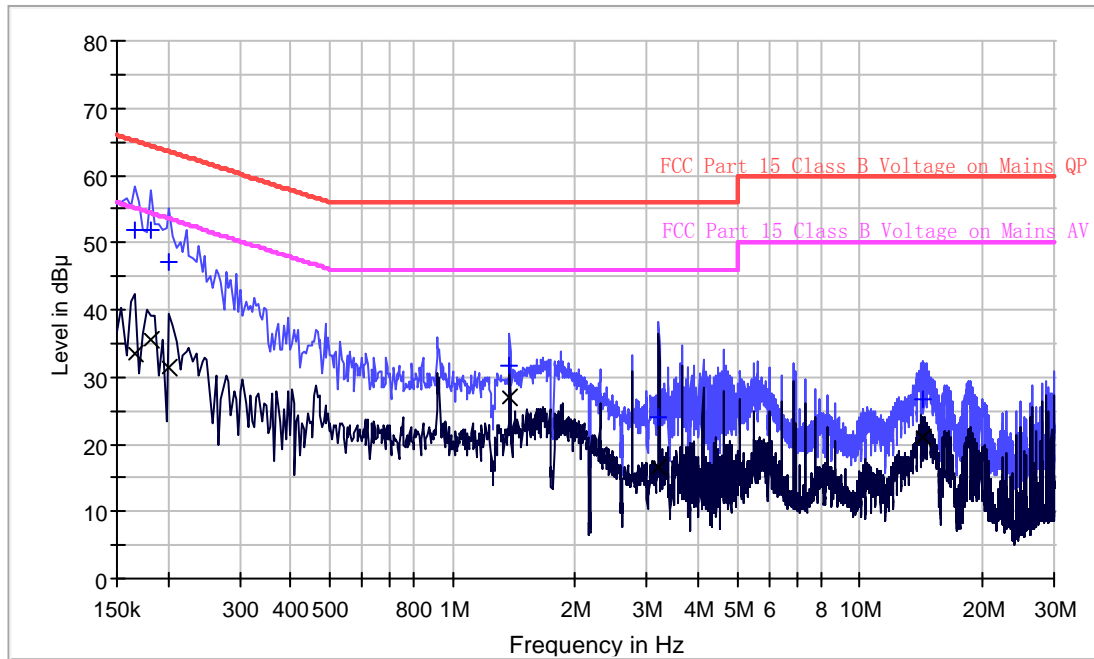
Date of Test: 06 September 2016

Worst Model: Rockin'Roller PRO(RRPRO)

Operating Mode: Receiving mode

Phase: Neutral

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB μV)	Line	Corr. (dB)	Margin (dB)	Limit (dB μV)
0.166	51.8	N	9.6	13.4	65.2
0.182	51.7	N	9.6	12.7	64.4
0.202	47.1	N	9.6	16.4	63.5
1.382	31.8	N	9.6	24.2	56.0
3.214	24.0	N	9.6	32.0	56.0
14.290	26.7	N	9.9	33.3	60.0

Result Table AV

Frequency (MHz)	Average (dB μV)	Line	Corr. (dB)	Margin (dB)	Limit (dB μV)
0.166	33.4	N	9.6	21.8	55.2
0.182	35.6	N	9.6	18.8	54.4
0.202	31.5	N	9.6	22.0	53.5
1.382	26.9	N	9.6	19.1	46.0
3.214	16.6	N	9.6	29.4	46.0
14.290	21.0	N	9.9	29.0	50.0

Test Engineer: Vincent Chen

TRF No.: FCC 15C_PC_b

FCC ID: 2AAINBL-1200BT

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EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

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4.0 **Equipment Photographs**

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

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EXHIBIT 5

PRODUCT LABELLING

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5.0 **Product Labelling**

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

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EXHIBIT 6

TECHNICAL SPECIFICATIONS

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6.0 **Technical Specifications**

For electronic filing, the block diagram of the tested EUT is saved with filename: block.pdf.

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EXHIBIT 7

INSTRUCTION MANUAL

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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.

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EXHIBIT 8

MISCELLANEOUS INFORMATION

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8.0 **Miscellaneous Information**

This miscellaneous information includes emission measuring procedure.

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8.1 Emissions Test Procedures

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

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 – 2014.

The Superheterodyne receiver equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter, 12mm 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 adjusted 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 are in QP mode from the frequency band 30MHz to 1GHz with RBW setting 120kHz and in PK & AV mode from frequency band 1GHz to 2GHz with RBW setting 1MHz. Detector function for conducted emissions are in QP & AV mode and IFBW setting is 9kHz from the frequency band 150kHz to 30MHz.

For radiated emission, the frequency range scanned is 30MHz to 2GHz. For line-conducted emissions, the range scanned is 150kHz to 30MHz with RBW 9KHz.

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8.1 Emissions Test Procedures (cont'd)

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

Conducted measurements are made as described in ANSI C63.4 – 2014.

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EXHIBIT 9

TEST EQUIPMENT LIST

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9.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-12	Biconilog Antenna	ETS	3142E	00166158	15-Sep-2015	15-Sep-2016
SZ061-09	Horn Antenna	ETS	3115	00092346	31-Oct-2015	31-Oct-2016
SZ056-06	Spectrum Analyzer	R&S	FSV40	101101	2-Jul-2016	2-Jul-2017
SZ185-01	EMI Receiver	R & S	ESCI	100547	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	RADIAL	RG 213U	--	8-Jul-2016	8-Jan-2017
SZ062-05	RF Cable	RADIAL	0.04-26.5GHz	--	8-Jul-2016	8-Jan-2017
SZ062-12	RF Cable	RADIAL	0.04-26.5GHz	--	8-Jul-2016	8-Jan-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
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	1-Jul-2016	1-Jul-2017
SZ188-03	Shielding Room	ETS	RFD-100	4100	17-Aug-2016	17-Aug-2018