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## FCC PART 15.249 TEST REPORT

### UNLICENSED INTENTIONAL RADIATOR

<b>Applicant</b>	VOXX ACCESSORIES CORP.
<b>Address</b>	3502 Woodview Trace suite 220 Indianapolis Indiana 46268 USA
<b>FCC ID</b>	VIX-AWSBT4
<b>Product Description</b>	BLUETOOTH SPEAKER
<b>FCC Standard Applied</b>	47 CFR §15.249
<b>Date Sample Received</b>	8/28/2014
<b>Date Tested</b>	11/03/2014
<b>Tested By</b>	Sid Sanders
<b>Approved By</b>	Richard Block
<b>Report Number</b>	V\VOXX\107UT14\107UT14TestReport_Rev1.docx
<b>Test Results</b>	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL  
WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.

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## GENERAL REMARKS

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

## Summary

The device under test does:

- ☒ fulfill the general approval requirements as identified in this test report  
☐ not fulfill the general approval requirements as identified in this test report

## Attestations

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025: 2005 requirements.

I attest that the necessary measurements were made, under my supervision, at:

Timco Engineering Inc.  
849 NW State Road 45  
Newberry, FL 32669

**Authorized Signatory Name:**



**Project Manager:**

**Date: 11/03/2014**

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## GENERAL INFORMATION

### EUT Specification

The test results relate only to the items tested.			
<b>Applicable Standard</b>	Part 15.249		
<b>EUT Description</b>	BLUETOOTH SPEAKER		
<b>FCC ID</b>	VIX-AWSBT4		
<b>EUT Power Source</b>	<input checked="" type="checkbox"/> 110–120Vac/50– 60Hz		
	<input type="checkbox"/> DC Power		
	<input type="checkbox"/> Battery Operated Exclusively		
<b>Test Item</b>	<input type="checkbox"/> Prototype	<input type="checkbox"/> Pre-Production	<input checked="" type="checkbox"/> Production
<b>Type of Equipment</b>	<input checked="" type="checkbox"/> Fixed	<input type="checkbox"/> Mobile	<input type="checkbox"/> Portable
<b>Antenna Connector</b>	FCC Rules require that the antenna connector be unique.		
<b>Test Facility</b>	Timco Engineering Inc. located at 849 NW State Road 45 Newberry, FL 32669 USA.		
<b>Conditions in the Test laboratory</b>	Temperature: 26°C Relative humidity: 50%		
<b>Test Exercise</b>	The EUT was placed in continuous transmit mode of operation.		
<b>Revision History of EUT</b>	<p><u>What was revised :</u> The Ac/Dc adapter that is supplied with the outdoor portable speaker was revised by adding a passive filter. The outdoor portable speaker was not revised and is used mainly in the battery operation.</p> <p><u>Quantity Sold:</u> 23,115</p> <p><u>What does the grantee propose to address units that failed and have been sold:</u> Our consumer service department will maintain inventory of the new Ac /Dc adapters that will be provided to the consumer at no charge.</p>		

### Test Supporting Equipment

Supporting Device	Manufacturer	Model / FCC ID	Serial Number
N/A			

### TEST RESULTS SUMMARY

Specification – Rules Part No.	RESULTS – Pass/Fail/NA
Power Line Emissions 15.207	Pass

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## TEST PROCEDURES

**Radiation Interference:** ANSI C63.4-2003 using a spectrum analyzer, a preselector, a quasi-peak adapter, and an appropriate antenna. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100 kHz with an appropriate sweep speed and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3 MHz above 1 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The antenna was placed in both the horizontal and vertical planes and the worst case emissions were reported. The spectrum was searched to at least the tenth (10) harmonic of the fundamental.

**Formula Of Conversion Factors:** The field strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the preselector was accounted for in the spectrum analyzer meter reading.

Example:

Freq (MHz)	Meter Reading	+ ACF	+ CL	= FS
33	20 dBuV	+ 10.36 dB	+ 0.5	= 30.86 dBuV/m @ 3m

**Power Line Conducted Interference:** The procedure used was ANSI C63.4-2003 using a 50uH LISN. Both lines were observed. The bandwidth of the spectrum analyzer was 10kHz with an appropriate sweep speed. The spectrum was scanned from 0.15 to 30 MHz. The EUT was tested with audio streaming to it.

**Occupied Bandwidth:** A small sample of the transmitter output was fed into the spectrum analyzer and the attached plot was printed. The vertical scale is set to -10 dBm per division.

**ANSI C63.4-2003 10.1 Measurement Procedures:** The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes. Emissions attenuated more than 20 dB below the permissible value are not reported.

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## POWER LINE CONDUCTED INTERFERENCE

**Rules Part No.:** 15.207

**Requirements:**

Frequency (MHz)	Quasi Peak Limits (dBuV)	Average Limits (dBuV)
0.15 – 0.5	66 – 56	56 – 46
0.5 – 5.0	56	46
5.0 – 30	60	50

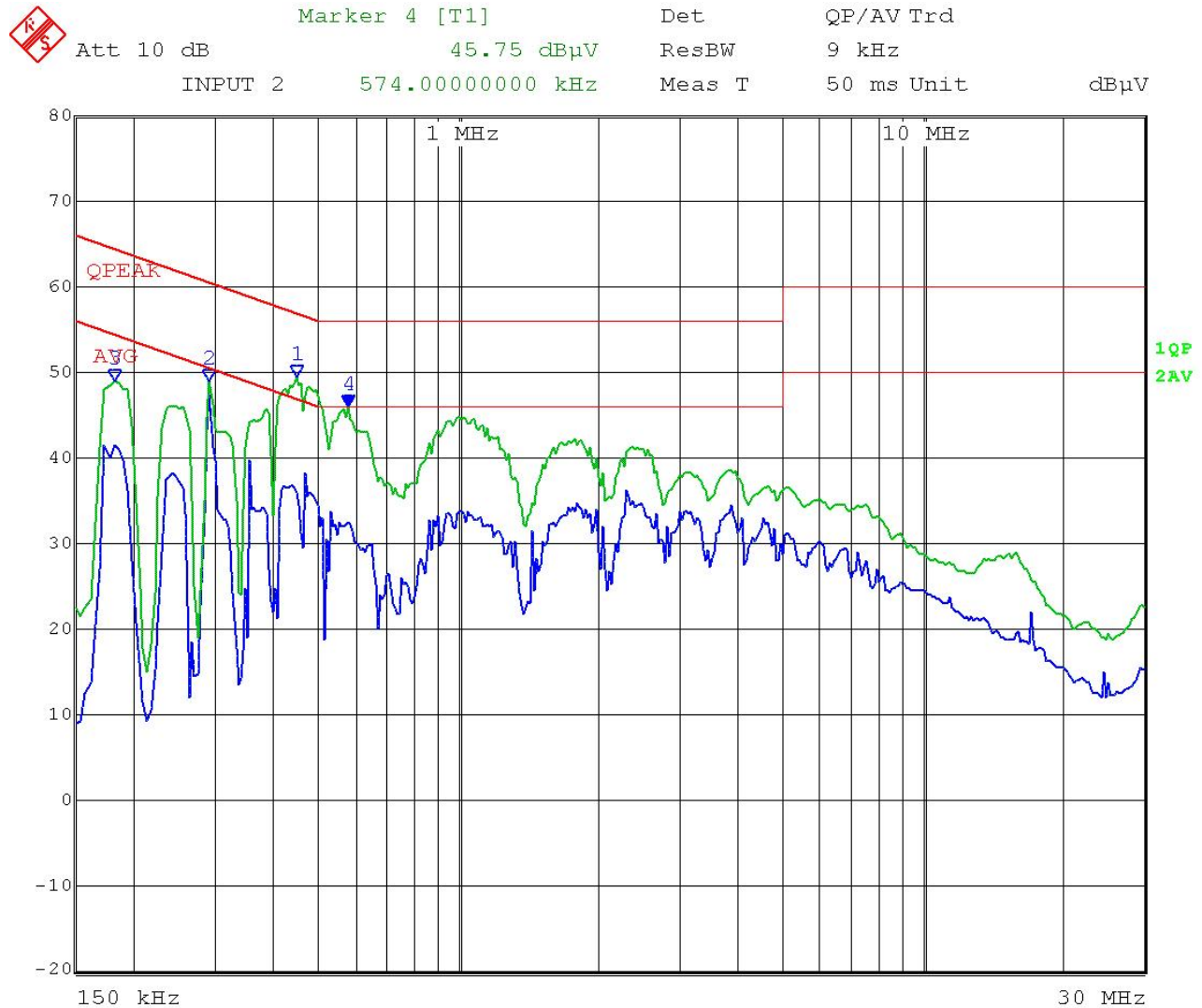
**Test Data:** The attached graphs represent the emissions read for power line conducted for this device. Both lines were observed.

**Rules Part No.:** 15.207

See Data on the Following Pages

## POWER LINE CONDUCTED INTERFERENCE Line 1

Rules Part No.: 15.207 Neutral



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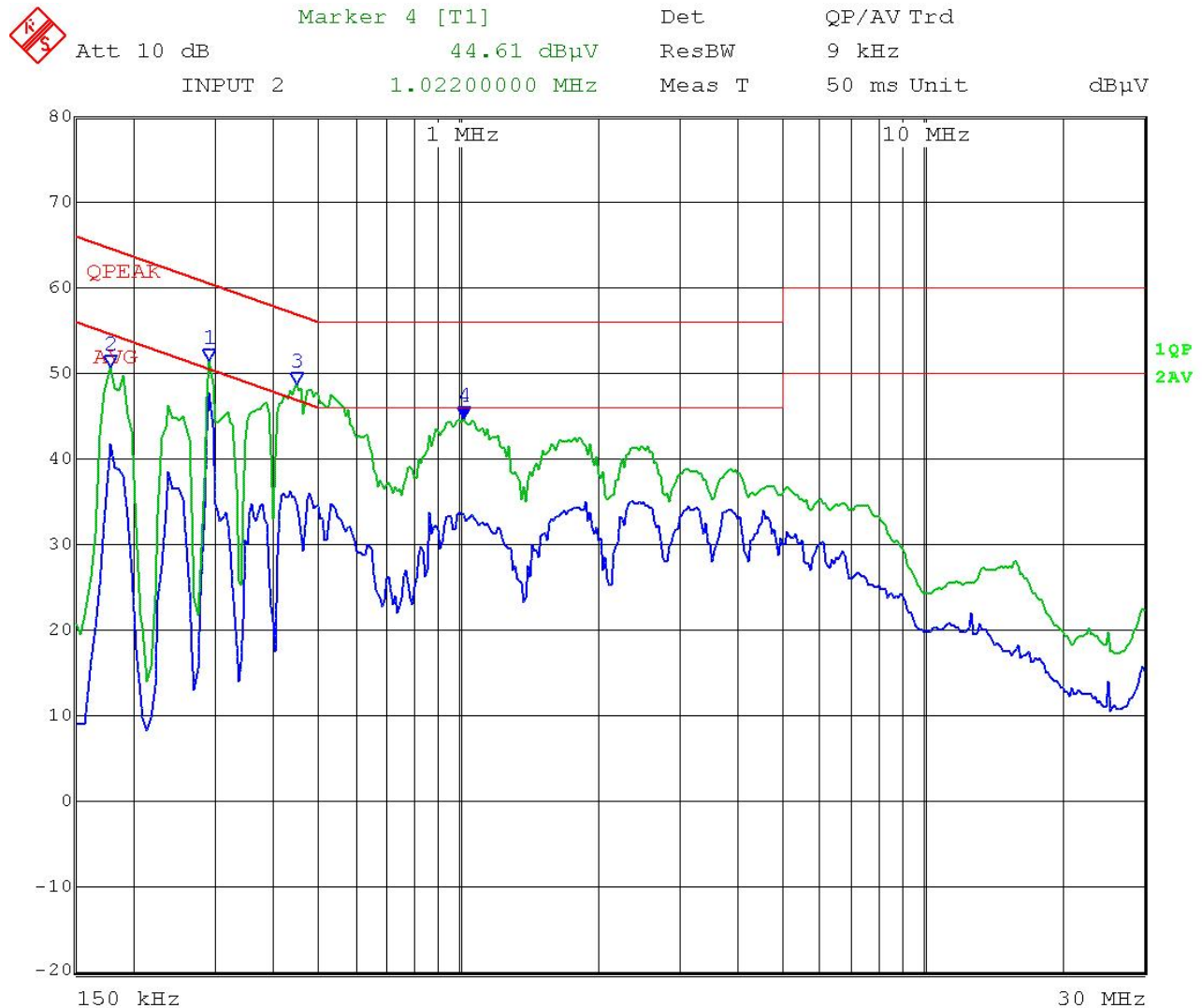
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## POWER LINE CONDUCTED INTERFERENCE Line 2

Rules Part No.: 15.207 Neutral



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## POWERLINE CONDUCTED EMISSIONS TEST SET UP PHOTOS



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## TEST EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	12/31/13	12/31/15
Antenna: Biconnical	Eaton	94455-1	1057	06/14/13	06/14/15
Antenna: Log-Periodic	Eaton	96005	1243	05/31/13	05/31/15
Antenna: Log-Periodic	Electro-Metrics	LPA-25	1122	05/09/13	05/09/15
Antenna: Log-Periodic	Electro-Metrics	LPA-30	409	N/A	N/A
LISN	Electro-Metrics	ANS-25/2	2604	01/07/14	01/07/16
Software: Field Strength Program	Timco	N/A	Version 4.0	N/A	N/A
EMI Test Receiver R & S ESU 40	Rhode & Schwarz	ESU 40	100320	03/21/13	03/21/15

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