Compliance Testing, LLC
Previously Flom Test Lab
EMI, EMC, RF Testing Experts Since 1963

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Test Report

Prepared for: Revolution Microelectronics

Model: Revolution Ballast

Description: Lighting

Serial Number: N/A

FCC ID: 2AH86-DEVA1000W

To

FCC Part 18

Date of Issue: August 12, 2016

On the behalf of the applicant:	**Revolution Microelectronics** **225 Sukhumvit Soi 4** **Klongtoey 10110** **Thailand**
Attention of:	**Greg Richter, President** **Ph: (706)636-3999** **E-Mail: greg@revolutionmicro.com**

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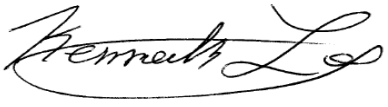
Project ID: p1660002



Kenneth Lee
Project Test Engineer

Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	7/15/16	Kenneth Lee	Original Document
2.0	8/5/16	Kenneth Lee	Updated Additional Information

Table of Contents

ILAC / A2LA

Compliance Testing, LLC, has been accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer joint ISO-ILAC-IAF Communiqué dated January 2009)

The tests results contained within this test report all fall within our scope of accreditation, unless noted below.

Please refer to http://www.compliancetesting.com/labscope.html for current scope of accreditation.

Testing Certificate Number: **2152.01**

FCC Site Reg. #349717

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Non-accredited tests contained in this report:

N/A

Test and Measurement Data
Subpart 2.1033(b)

All tests and measurement data shown were performed in accordance with FCC Rule Part 18

Name of Test	FCC Section
A/C Powerline Conducted Emissions	18.307
Radiated Emissions	18.305

Standard Engineering Practices

Unless otherwise indicated the procedures contained in ANSI C63.4-2009 were observed during testing.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst case measurement.

Standard Test Conditions and Engineering Practices

Unless otherwise indicated in the specific measurement results, the ambient temperature was maintained within the range of 10º to 40ºC (50º to 104ºF) and the relative humidity levels were in the range of 10% to 90%.

Environmental Conditions	
Temperature (ºC)	**Humidity (%)**
26.6	31.4

EUT Description
Model: Revolution Ballast
Description: Lighting
Firmware: N/A
Software: N/A
Serial Number: N/A
Additional Information: The EUT oscillates at 100 Hz.

EUT Operation during Tests
The EUT was powered on and set to emit light at 100% intensity.

Accessories: None

Cables: None

Modifications: None

Test Results Summary

Specification	Test Name	Pass, Fail, N/A	Comments
18.307	Conducted Emissions	PASS	
18.305	Radiated Emissions	PASS	

18.305 Radiated Emissions

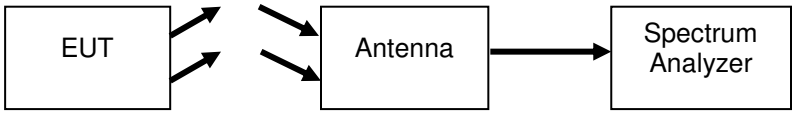
Engineer: Kenneth Lee

Test Date: 06/21/2016

Test Procedure

The EUT was tested in a semi-anechoic chamber with the turntable set 3m from the receiving antenna. A spectrum analyzer was used to verify that the EUT met the requirements for Radiated Emissions. The EUT was tested by rotating it 360 degrees with the antennas in both the vertical and horizontal orientation while raised from 1 to 4 meters to ensure the signal levels were maximized. All emissions from 30 MHz to 1 GHz were examined.

Test Setup



Settings

RBW = 120 KHz

VBW = 300 KHz

Detector – Quasi Peak

Sample Calculations

Corrected Value = Measured Value + Correction factor

Correction factor = ACF + Cable loss

Radiated Emissions

Emission Frequency (MHz)	Measured Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Antenna Polarity (V/H)	Turntable Position (deg)	Detector (QP,PK,Avg)
149.0845	41.672	43.5	-1.828	110	V	333	QP
80.9974	37.997	40	-2.003	109	V	0	QP
131.2369	41.462	43.5	-2.038	267	H	277	QP
80.954	36.514	40	-3.486	116	V	194	QP
155.7539	39.338	43.5	-4.162	250	H	307	QP
76.6527	34.86	40	-5.14	126	V	196	QP

18.307 Conducted Emissions

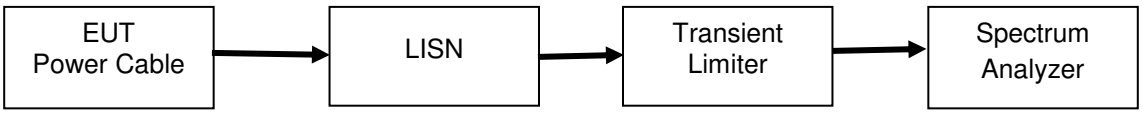
Engineer: Kenneth Lee

Test Date: 07/14/2016

Test Procedure

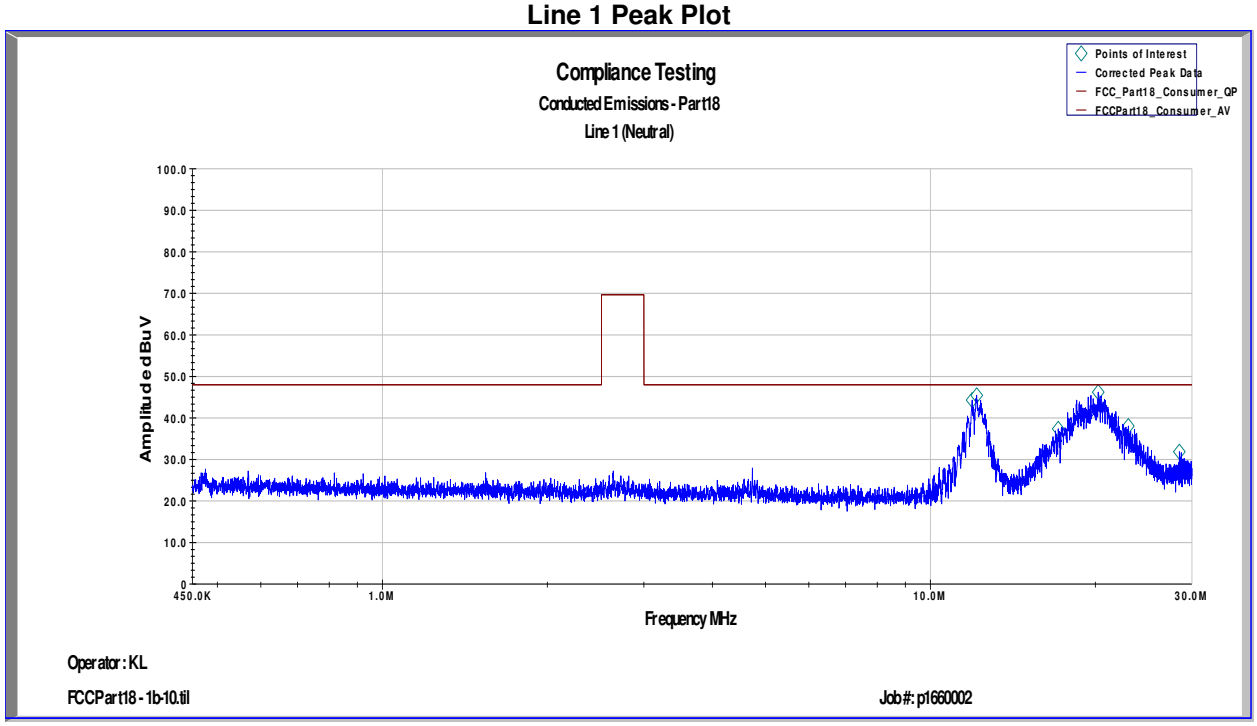
The EUT power cable was connected to a LISN and the monitored output of the LISN was connected to a transient limiter, which then connected directly to a spectrum analyzer. The conducted emissions from 450 kHz to 30 MHz were measured and compared to the specification limits.

Test Setup

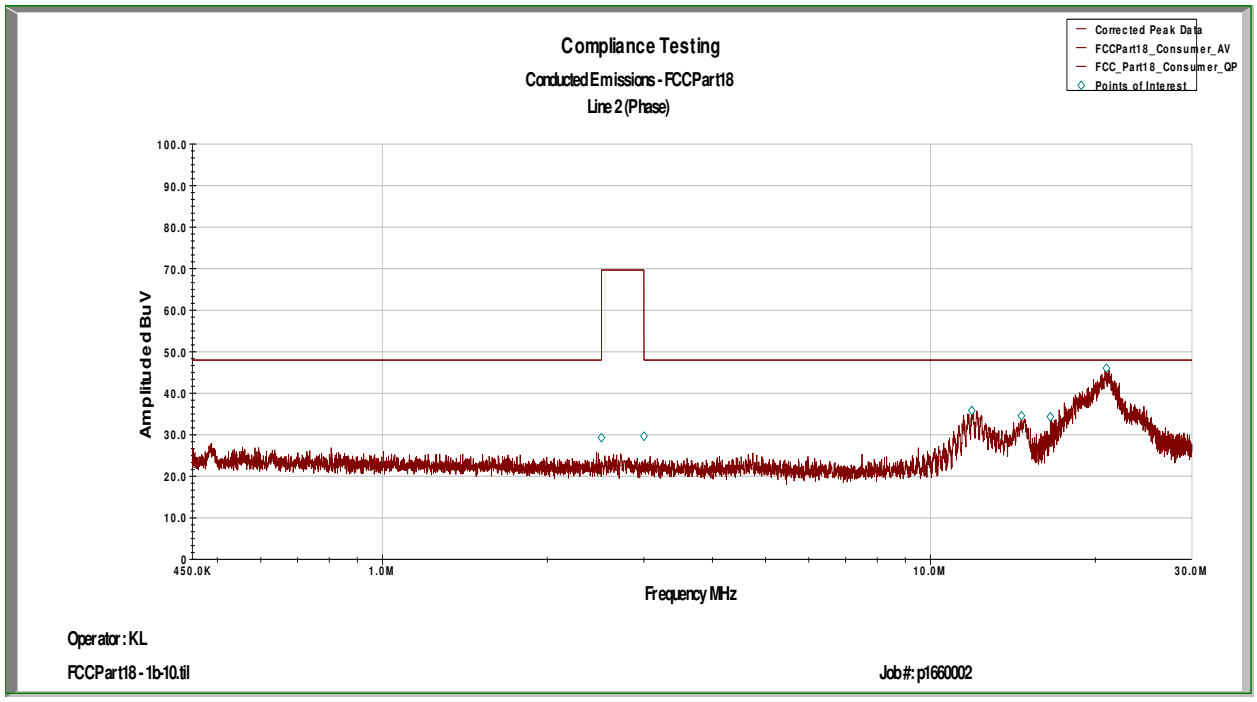


Conducted Emissions Test Results

Line 1 Peak Plot



Line 2 Peak Plot



Line 1 Neutral Avg Detector

Frequency	Measured Value (dBuV)	LISN Correction Factor (dB)	Cable Loss (dB)	Transient Limiter (dB)	Final Data (dBuV)	Limit (dBuV)	Avg Margin (dB)
11.925 MHz	16.85	0	0.197	10.2	27.244	47.95	-20.706
12.151 MHz	16.46	0	0.147	10.2	26.805	47.95	-21.145
17.109 MHz	14.4	0	0.254	10.3	24.959	47.95	-22.991
20.241 MHz	23.67	0.1	0.297	10.3	34.362	47.95	-13.588
22.961 MHz	17.27	0.1	0.252	10.3	27.922	47.95	-20.028
28.471 MHz	12.3	0.1	0.259	10.4	23.06	47.95	-24.89

Line 2 Phase Avg Detector

Frequency	Measured Value (dBuV)	LISN Correction Factor (dB)	Cable Loss (dB)	Transient Limiter (dB)	Final Data (dBuV)	Limit (dBuV)	Avg Margin (dB)
2.515 MHz	13.54	0	0.094	10.1	23.733	69.65	-45.917
2.9992 MHz	13.39	0	0.128	10.2	23.721	69.65	-45.929
11.906 MHz	15.06	0	0.203	10.2	25.462	47.95	-22.488
14.66 MHz	12.77	0	0.239	10.3	23.31	47.95	-24.64
16.554 MHz	12.59	0	0.192	10.3	23.079	47.95	-24.871
20.947 MHz	21.74	0.1	0.227	10.3	32.366	47.95	-15.584

Line 1 Neutral QP Detector

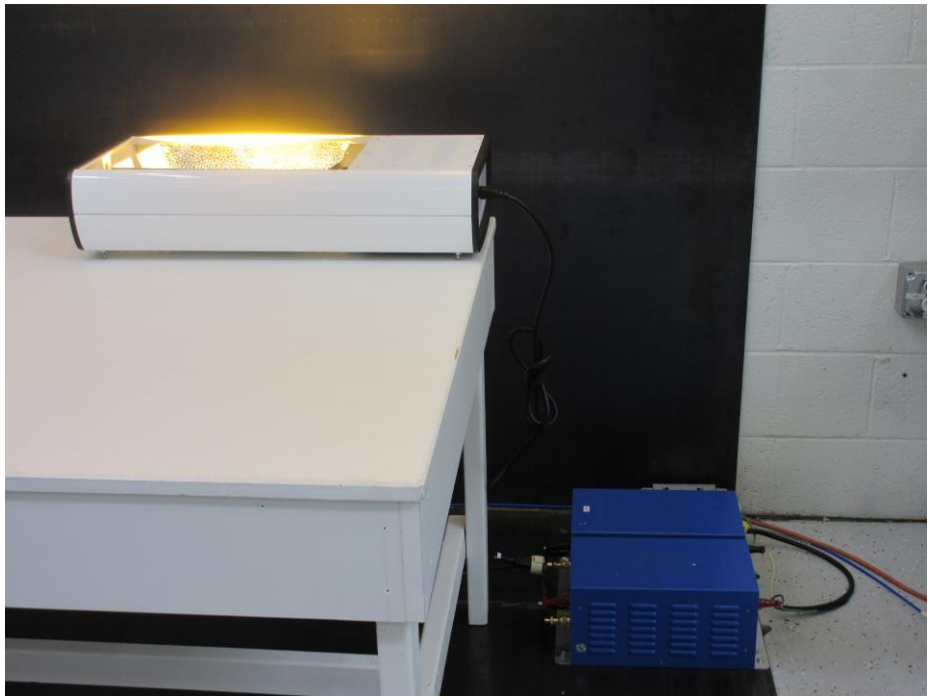
Frequency	Measured Value (dBuV)	LISN Correction Factor (dB)	Cable Loss (dB)	Transient Limiter (dB)	Final Data (dBuV)	Limit (dBuV)	QP Margin (dB)
11.925 MHz	33.605	0	0.197	10.2	44.002	47.95	-3.948
12.151 MHz	33.239	0	0.147	10.2	43.586	47.95	-4.364
17.109 MHz	29.357	0	0.254	10.3	39.911	47.95	-8.039
20.241 MHz	36.63	0.1	0.297	10.3	47.326	47.95	-0.624
22.961 MHz	31.145	0.1	0.252	10.3	41.797	47.95	-6.153
28.471 MHz	25.924	0.1	0.259	10.4	36.682	47.95	-11.268

Line 2 Phase QP Detector

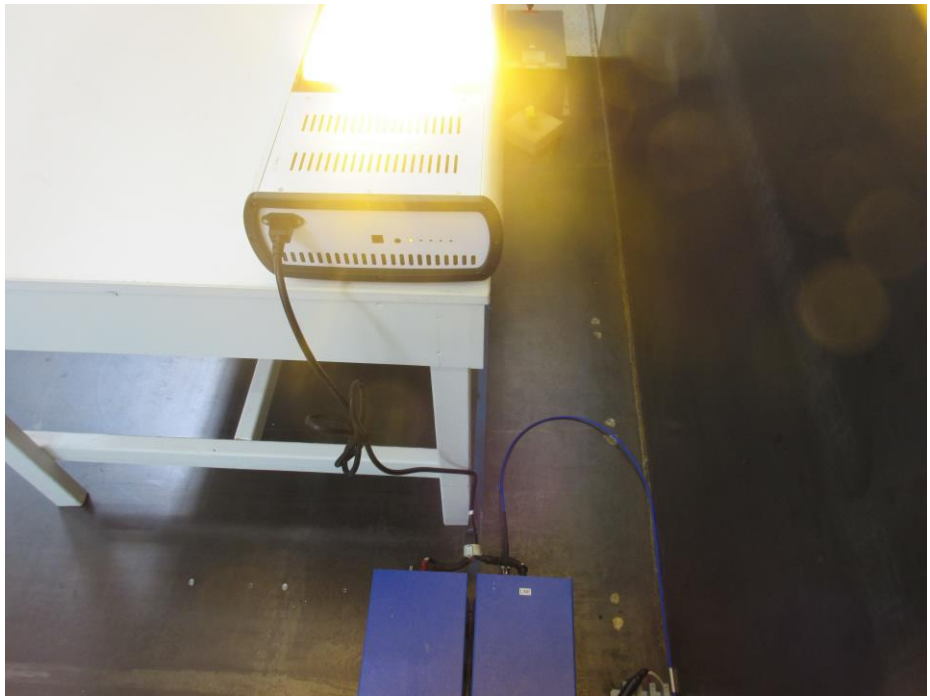
Frequency	Measured Value (dBuV)	LISN Correction Factor (dB)	Cable Loss (dB)	Transient Limiter (dB)	Final Data (dBuV)	Limit (dBuV)	QP Margin (dB)
2.515 MHz	25.32	0	0.094	10.1	35.514	69.65	-34.136
2.9992 MHz	25.27	0	0.128	10.2	35.6	69.65	-34.05
11.906 MHz	29.27	0	0.203	10.2	39.674	47.95	-8.276
14.66 MHz	25.85	0	0.239	10.3	36.385	47.95	-11.565
16.554 MHz	26.09	0	0.192	10.3	36.578	47.95	-11.372
20.947 MHz	35.59	0.1	0.227	10.3	46.22	47.95	-1.73

Conducted Emissions Test Setup Photos

Front

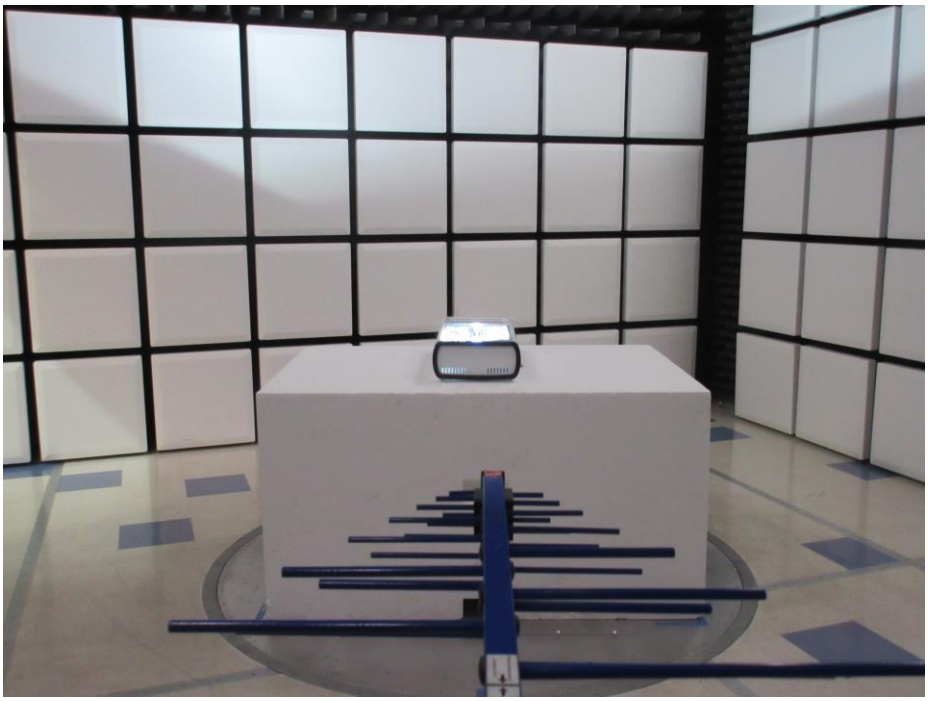


Side



Radiated Emissions Test Setup Photos

Front



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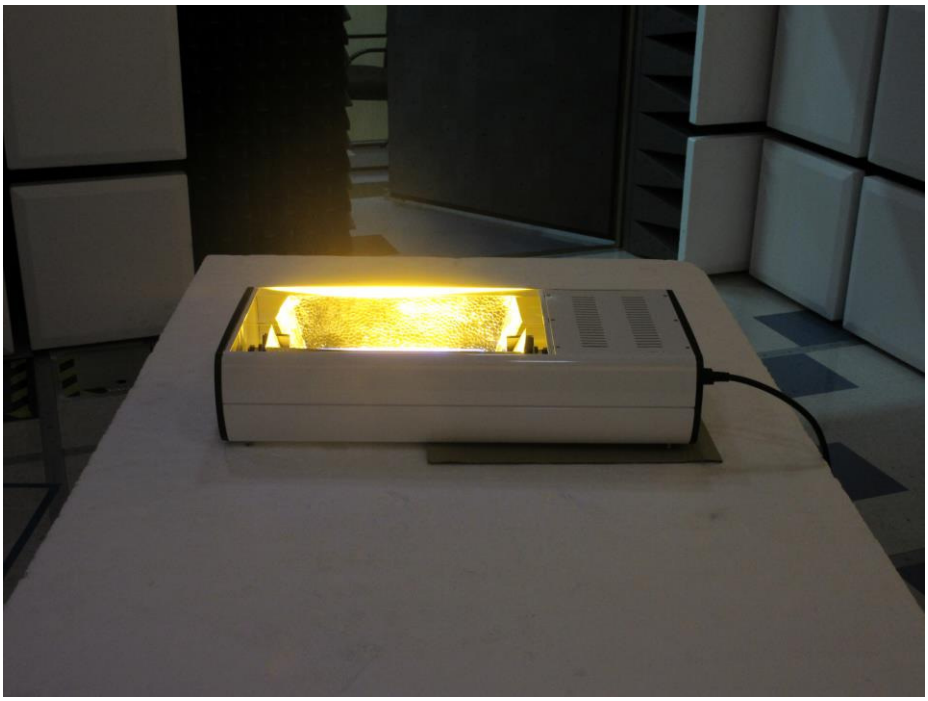

Test Equipment Utilized

Description	Manufacturer	Model #	CT Asset #	Last Cal Date	Cal Due Date
EMI Receiver	HP	8546A	i00033	3/29/16	3/29/17
Transient Limiter	Com-Power	LIT-153	i00123	Verified on: 07/14/16	
Humidity / Temp Meter	Newport	IBTHX-W-5	i00282	5/26/16	5/26/17
Bi-Log Antenna	Schaffner	CBL 6111D	i00349	10/19/15	10/19/17
AC Power Source	Behlman	BL 6000	i00362	Verified on: 07/14/16	
EMI Analyzer	Agilent	E7405A	i00379	2/11/16	2/11/17
3 Meter Semi-Anechoic Chamber	Panashield	3 Meter Semi-Anechoic Chamber	i00428	7/27/14	7/27/16
LISN	COM-Power	LI-125A	i00446	4/29/16	4/29/18
LISN	COM-Power	LI-125A	i00448	4/29/16	4/29/18

In addition to the above listed equipment standard RF connectors and cables were utilized in the testing of the described equipment. Prior to testing these components were tested to verify proper operation.

END OF TEST REPORT