



Environmental Test Report

On

High Output, High Efficiency LED Luminaire
Part Numbers: SLM35573A1S0 and SLM35573A2S0

Customer Name: RSM Electron Power, Inc.

Customer P.O.: 113857

Date of Report: April 29, 2015

Test Report No.: R-15491-1

Test Start Date: March 18, 2015

Test Finish Date: April 14, 2015

Test Technicians: N. Mirabile, R. Rondon, L. Stoddard

Lead Env. Test Technician: C. Crabtree

Approved By: M. Hull

Report Prepared By: G. Bradshaw

Government Source Inspection: Not Applicable

Our letters, procedures and reports are for the exclusive use of the customer to whom they are addressed and their communication or the use of the name of Retlif Testing Laboratories must receive our prior written approval. Our letters, procedures and reports apply only to the sample tested and are not necessarily indicative of the qualities of apparently identical or similar products. The letters, procedures and reports and the name of Retlif Testing Laboratories or insignia are not to be used under any circumstances in advertising to the public. This report shall not be reproduced, except in full, without the prior written approval of Retlif Testing Laboratories.

Table of Contents

Certification and Signatures.....	3
Revision History.....	4
Test Program Summary.....	5
Test Environment.....	5
Test Purpose.....	5
Test Specification.....	5
Acceptability Criteria.....	6
Input Voltage.....	6
Modifications.....	6
Test Sequence and Results.....	7
Temperature Cycling.....	8
Test Data.....	8
Test Photographs.....	11
Equipment List.....	12
Moisture Resistance.....	13
Test Data.....	13
Test Photographs.....	17
Equipment List.....	18
Luminaire Vibration.....	19
Test Data.....	19
Test Photographs.....	24
Equipment List.....	26
Mechanical Shock.....	27
Test Data.....	27
Test Photographs.....	32
Equipment List.....	34
Temporary Immersion.....	35
Test Data.....	35
Test Photographs.....	37
Equipment List.....	38
Salt Spray.....	39
Test Data.....	39
Test Photographs.....	41
Equipment List.....	45

List of Tables

Table 1 - Test Sequence and Results.....	7
--	---



Retlif Testing Laboratories

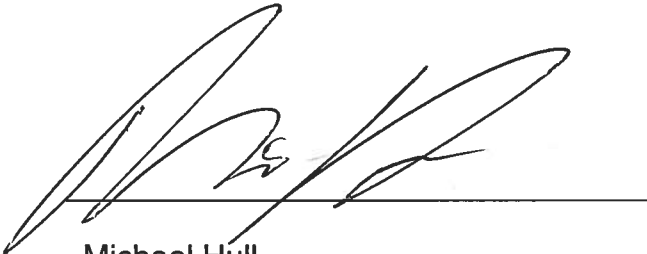
Report No. R-15491-1

Certification and Signatures

We certify that this report is a true report of the results obtained from the tests of the equipment stated and relates only to the equipment tested. We further certify that the measurements shown in this report were made in accordance with the procedures indicated and vouch for the qualifications of all Retlif Testing Laboratories personnel taking them.



Craig Crabtree
Lead Environmental Test Technician



Michael Hull
Environmental Laboratory Supervisor

Non-Warranty Provision

The testing services have been performed, findings obtained and reports prepared in accordance with generally accepted laboratory principles and practices. This warranty is in lieu of all others, either expressed or implied.

Non-Endorsement

This test report contains only findings and results arrived at after employing the specific test procedures and standards listed herein. It is not intended to constitute a recommendation, endorsement or certification of the product or material tested. This test report may not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the U.S. Government.



Retlif Testing Laboratories

Report No. R-15491-1

Revision History

Revisions to this document are listed below; the latest revised document supersedes all previous issues of this document:

Revision	Date	Pages Affected
-	April 29, 2015	Original Release



Retlif Testing Laboratories

Report No. R-15491-1

Test Program Summary

Test Report Number:	R-15491-1	
Customer:	RSM Electron Power, Inc.	
Address:	100 Engineers Road Hauppauge, NY 11788	
Manufacturer:	RSM Electron Power, Inc.	
Test Sample:	High Output, High Efficiency LED Luminaire	
Part Numbers:	SLM35573A1S0	SLM35573A2S0
Serial Numbers:	0047, 0048	0006

Test Environment

All testing was performed at the Retlif Testing Laboratories, Ronkonkoma, New York facility. Each test method was performed in the environment specified within the test standard.

Test Purpose

The purpose of this qualification test program was to determine if the High Output, High Efficiency LED Luminaire could withstand the anticipated environmental extremes in accordance with the method requirements of MIL-STD-883J, MIL-STD-202G, ANSI C136.31-2010, ASTM B117-09, ASTM D1654-08 and IEC 60529.

Test Specification

Department of Defense, Test Method Standards, Microcircuits, Document Number: MIL-STD-883J w/Change 1, Dated: 7 November 2013.

Department of Defense, Test Method Standards, Electronic and Electrical Component Parts, Document Number: MIL-STD-202G, Dated: 8 February 2002.

American National Standard for Roadway and Area Lighting Equipment - Luminaire Vibration, Document Number: ANSI C136.31-2010.

ASTM International, Standard Practice for Operating Salt Spray (Fog) Apparatus, Designation: B117-09.

ASTM International, Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments, Designation: D1654-08.

International Standard, Degrees of protection provided by enclosures (IP code), Document Number: IEC 60529, Edition 2.1, 2001-02.



Retlif Testing Laboratories

Report No. R-15491-1

Mode of Operation

During the performance of all testing specified herein, the equipment under test (EUT) was operated as follows:

Mode 1:

- During the course of this test, the EUT was non-operating

Mode 2:

- The EUT was energized and operating in Full Bright Mode

Acceptability Criteria

The following was considered EUT acceptability:

- No visual evidence of damage noted
- The EUT shall operate properly during test when required and at the completion of testing

Input Voltage

The High Output, High Efficiency LED Luminaire was powered by 24 VDC with a nominal current of 12 Amperes or 48 VDC with a nominal current of 6 Amperes.

Modifications

No modifications were made to the EUT during the course of this testing program in order to demonstrate compliance with the specified requirements.



Retlif Testing Laboratories

Report No. R-15491-1

Test Sequence and Results

The following test methods were performed on the High Output, High Efficiency LED Luminaire: All testing documented herein was performed in the sequence shown in Table 1.

Table 1 - Test Sequence and Results

Testing Dates	Test Method	Mode	Part Number/ Serial Number	Test Results
March 18 - 23, 2015	Temperature Cycling	2	SLM35573A2S0 0006	Complied ⁽¹⁾
March 25, 2015	Temporary Immersion	2	SLM35573A1S0 0047	Complied ⁽¹⁾
March 26 - April 7, 2015	Moisture Resistance	1	SLM35573A1S0 0047	Complied ⁽¹⁾
March 30 - April 12, 2015	Salt Spray	1	SLM35573A1S0 0048	Complied ⁽¹⁾
April 13, 2015	Luminaire Vibration	2	SLM35573A1S0 0047	Complied ⁽¹⁾
April 14, 2015	Mechanical Shock	2	SLM35573A1S0 0047	Complied ⁽¹⁾

⁽¹⁾EUT complies with the Acceptability Criteria as described herein.



Certificate # L2320 – Testing

All test methods listed above are included in Retlif Testing Laboratories, Ronkonkoma, New York, LAB Scope of Accreditation and were performed in accordance with the Retlif Testing Laboratory Quality System which is compliant with the requirements of ISO/IEC 17025 General Requirements for the Competence of Calibration and Testing Laboratories.



Retlif Testing Laboratories

Report No. R-15491-1

**Temperature Cycling
Test Data**

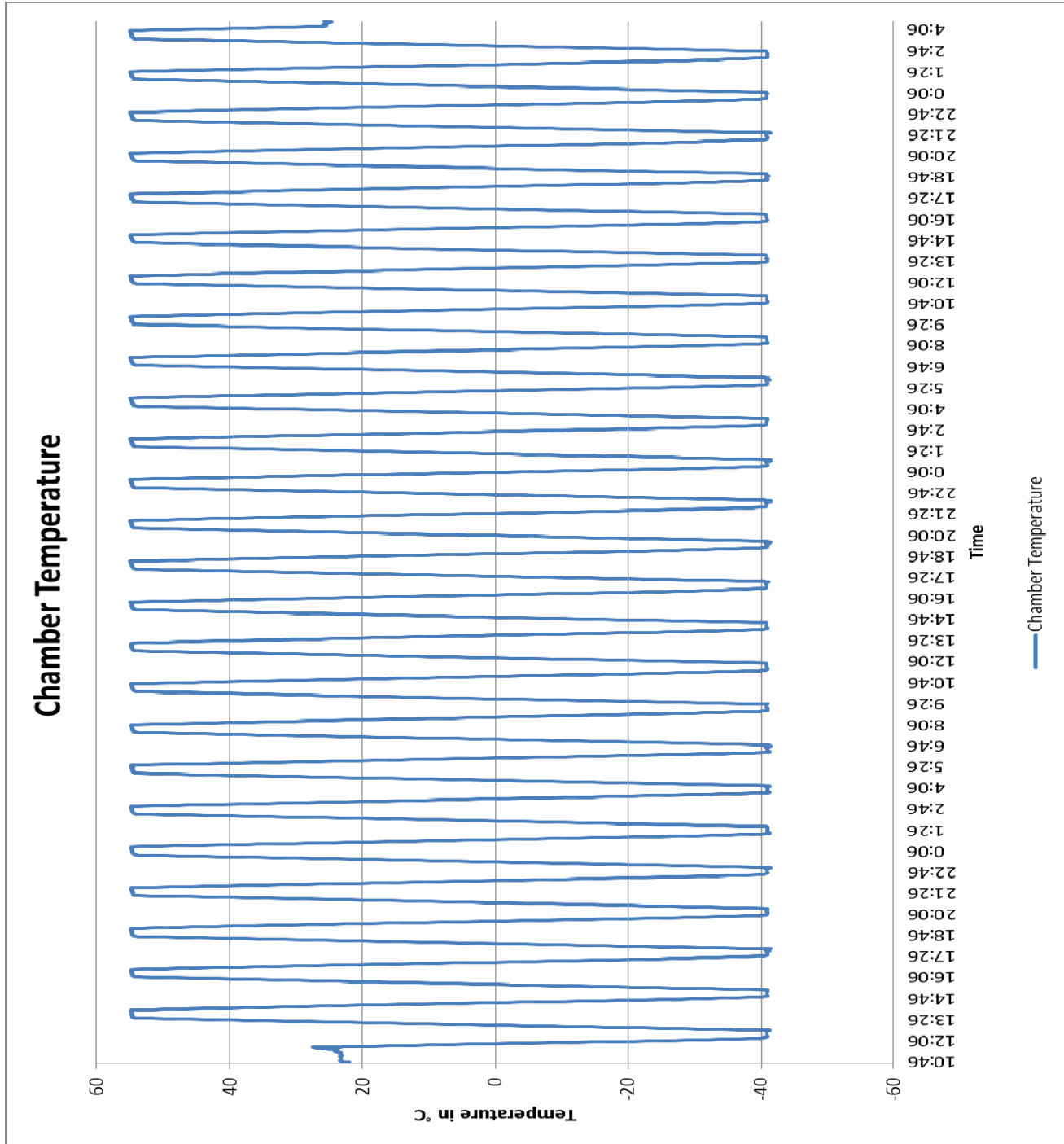


Retlif Testing Laboratories

Report No. R-15491-1

Retlif Testing Laboratories

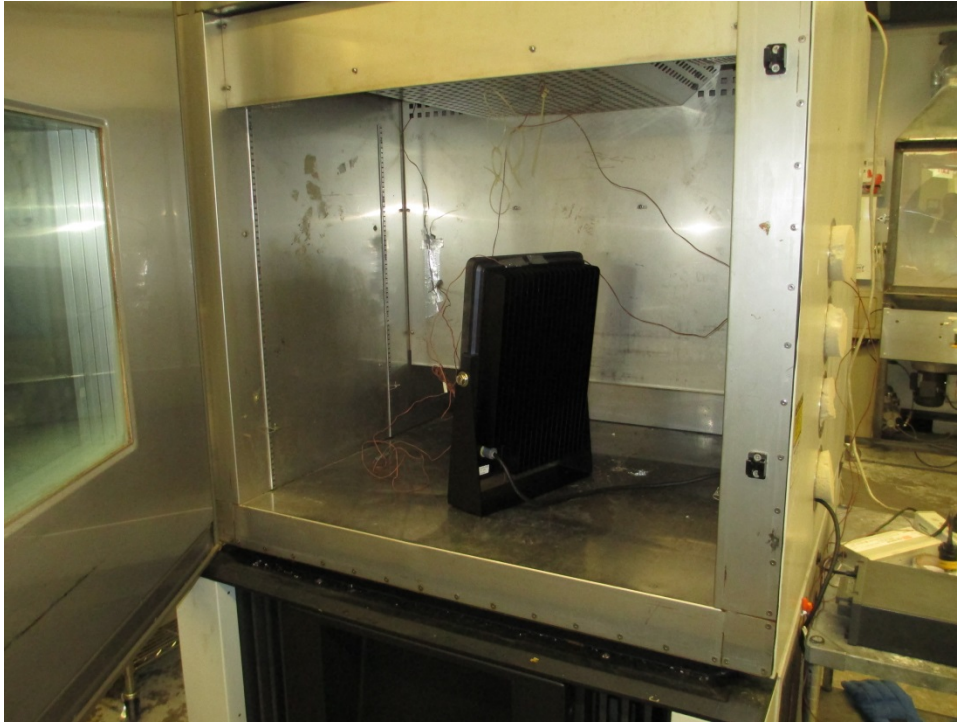
Customer:	RSM Electron Power, Inc.	Job No.:	R-15491	Page:	2	of	2
Test Sample:	High Output, High Efficiency LED Luminaire	Technician:	N. Mirabile	Date:	See Notes		
Part No:		Notes:	3/18/15 through 3/23/15				
Test Method:	Temperature Cycling						



Retlif Testing Laboratories

Report No. R-15491-1

Test Photographs Temperature Cycling



Test Setup, Internal



Retlif Testing Laboratories

Report No. R-15491-1

Equipment List Temperature Cycling

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
623	FLUKE	DATA LOGGER		2635A	12/5/2014	12/31/2015
912	THERMOTRON CORP.	CHAMBER, TEMPERATURE	- 70 - 180 deg. C	SE 600-5-5	3/2/2015	3/31/2016



Retlif Testing Laboratories

Report No. R-15491-1

**Moisture Resistance
Test Data**



Retlif Testing Laboratories

Report No. R-15491-1

TEST DATA SHEET

Test Method	Moisture Resistance	
Customer	RSM Electron Power, Inc.	
Job Number	R-15491	
Test Sample	High Output, High Efficiency LED Luminaire	
Part Number	SLM35573A1S0	
Serial Number	0047	
Test Specification	MIL-STD -883	Method: 1004.7
Operating Mode	Mode 1	
Technician	N. Mirabile	
Date	3/26/15 through 4/7/15	
Notes:		

Date	Time	Test Log
3/26/15	11:00	Began setup for Moisture Resistance Test.
		The chamber temperature was adjusted to 25°C and 95% relative humidity.
	12:55	The chamber temperature was increased to 65°C and maintained 95% relative humidity in a 2 hour and 30 minute period.
		These conditions were maintained for three hours.
	18:55	The chamber temperature was decreased to 25°C and maintained 95% relative humidity in a 2 hour and 30 minute period.
	21:25	The chamber temperature was increased to 65°C and maintained 95% relative humidity in a 2 hour and 30 minute period.
	23:55	These conditions were maintained for three hours.
3/27/15	2:25	The chamber temperature was decreased to 25°C and maintained 95% relative humidity in a 2 hour and 30 minute period.
	4:55	These conditions were maintained for eight hours.
		The above steps constitute one cycle and were repeated four additional times for a total of five cycles.
	12:55	The chamber temperature was increased to 65°C and maintained 95% relative humidity in a 2 hour and 30 minute period.
		These conditions were maintained for three hours.
	18:55	The chamber temperature was decreased to 25°C and maintained 95% relative humidity in a 2 hour and 30 minute period.
	21:55	The chamber temperature was increased to 65°C and maintained 95% relative humidity in a 2 hour and 30 minute period.
	23:55	These conditions were maintained for three hours.
3/31/15	2:25	The chamber temperature was decreased to 25°C and maintained 95% relative humidity in a 2 hour and 30 minute period.
	4:55	Began one hour soak.
	5:25	The chamber temperature was decreased to -10 with uncontrolled humidity in a 30 minute period.
	6:25	Began one hour soak.
	6:55	The chamber temperature was increased to 25°C and 95% relative humidity in a 30 minute period.
		These conditions were maintained for six hours
		The above steps constitute one cycle and were repeated four additional times for a total of five cycles.
		This test was a total of ten cycles.
4/7/15	9:15	The EUT was visually inspected and functionally tested.
		Complete Moisture Resistance Test.

Results:	There was no apparent visual damage noted as a result of this test. The EUT operated properly at the completion of testing. The High Output, High Efficiency LED Luminaire met the requirements of the Moisture Resistance test.
-----------------	--

Sheet 1 of 3

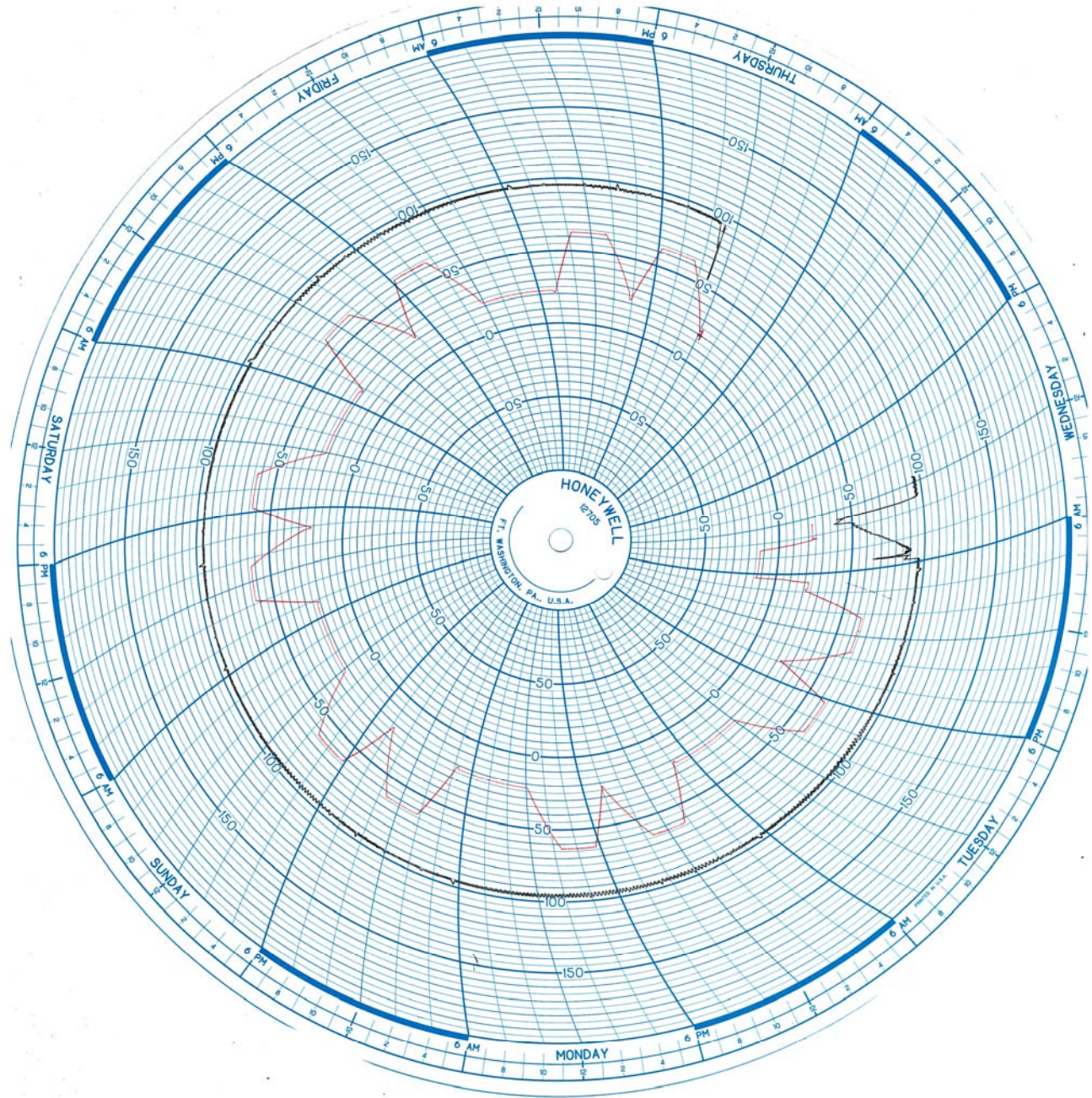


Retlif Testing Laboratories

Report No. R-15491-1

Retlif Testing Laboratories

Customer:	RSM Electron Power, Inc.	Job No.:	R-15491	Page:	2	of	3
Test Sample:	High Output, High Efficiency LED Luminaire	Technician:	N. Mirabile	Date:	See Notes		
Part No:	SLM35573A1S0	Notes:	3/26/15 through 4/7/15				
Test Method:	Moisture Resistance						

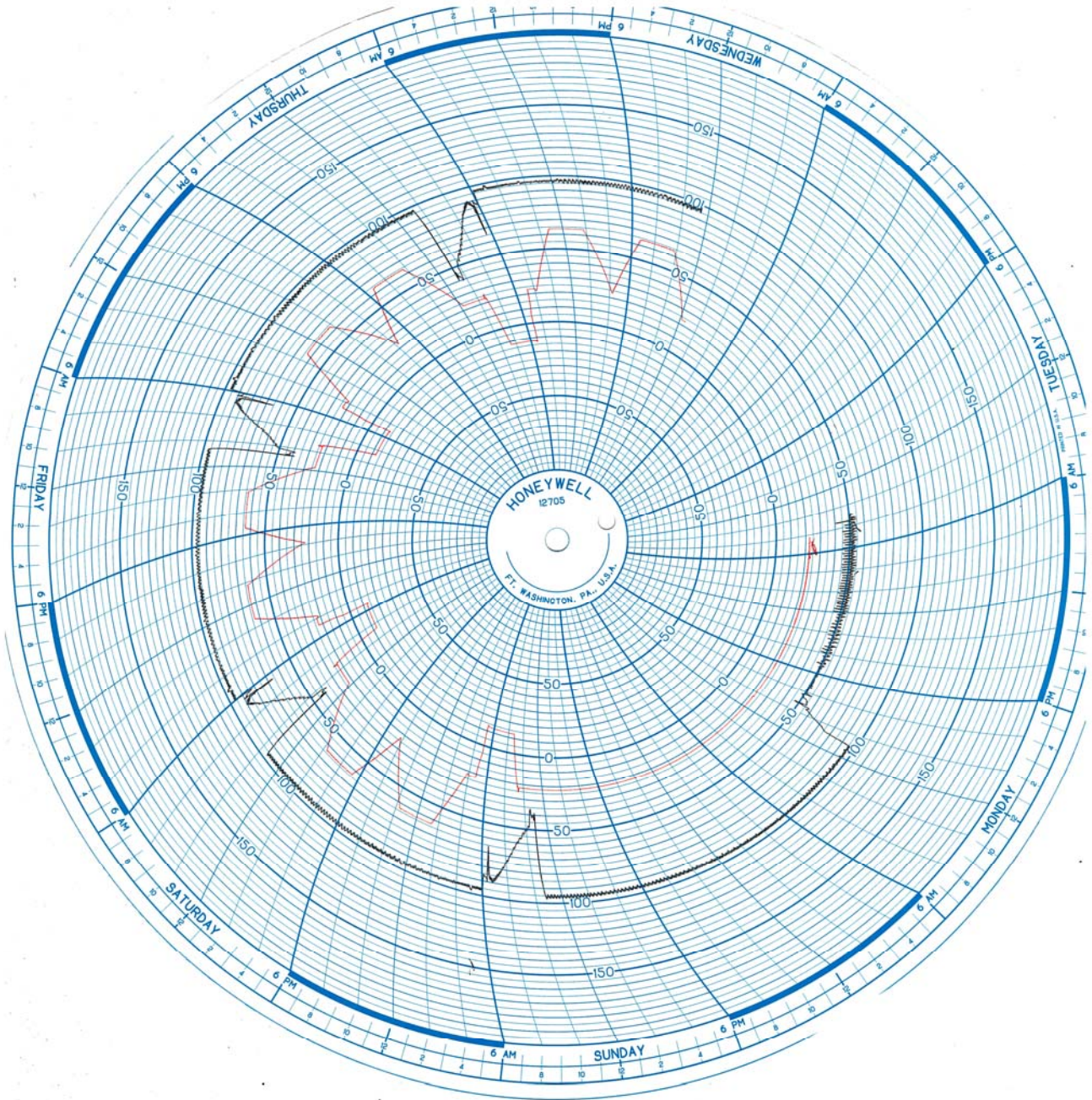


Retlif Testing Laboratories

Report No. R-15491-1

Retlif Testing Laboratories

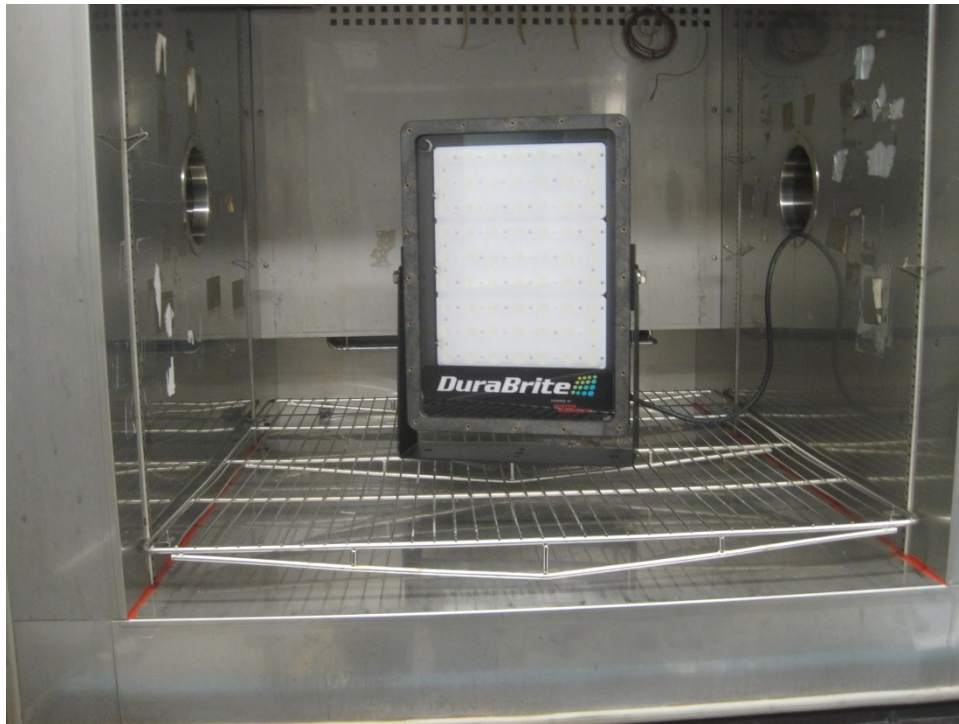
Customer:	RSM Electron Power, Inc.	Job No.:	R-15491	Page:	3	of	3
Test Sample:	High Output, High Efficiency LED Luminaire	Technician:	N. Mirabile	Date:	See Notes		
Part No:	SLM35573A1S0	Notes:	3/26/15 through 4/7/15				
Test Method:	Moisture Resistance						



Retlif Testing Laboratories

Report No. R-15491-1

**Test Photographs
Moisture Resistance**



Test Setup, Internal



Retlif Testing Laboratories

Report No. R-15491-1

Equipment List Moisture Resistance

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1491	THERMOTRON CORP.	CHAMBER, TEMPERATURE	- 40 - 120°C; 0 - 100% RH	SM-32C	10/4/2014	10/31/2015



Retlif Testing Laboratories

Report No. R-15491-1

**Luminaire Vibration
Test Data**



Retlif Testing Laboratories

Report No. R-15491-1

SINUSOIDAL VIBRATION TEST DATA SHEET

Test Method	Luminaire Vibration		
Customer	RSM Electron Power Inc.		
Job Number	R-15491		
Test Sample	High Output, High Efficiency LED Luminaire		
Part Number	SLM35573A1S0		
Serial Number	0047		
Test Specification	ANSI C136.31-2010	Para: 5	
Operating Mode	Mode 2		
Technician	R. Rondon, J. Schlee		
Date	4/13/15		
Notes:	Resonance search was conducted on all axes to determine the dwell frequency. If no resonances were found than the dwell was at 30Hz.		

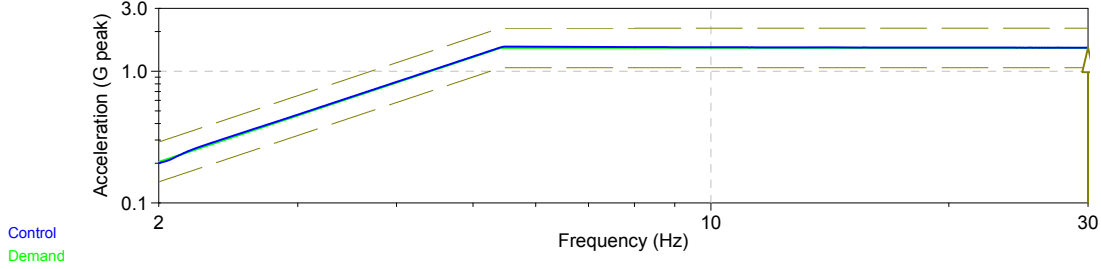
Sine Vibration Test Levels										
Interval:	1	2	3	4	5	6	7	8	9	10
Frequency (Hz):	30									
Acceleration (g peak)	1.5									
Axes Tested:	X, Y, Z									
Time/ Axis:	100,000 Cycles / Axis									

Date	Time	Test Log
3/13/15	15:07	Begin Z-Axis Resonance Search
		Complete. No resonances noted.
	15:11	Begin Z-Axis Cycling
		Complete.
	16:20	Begin Y-Axis Resonance Search
		Complete. No resonances noted.
	16:23	Begin Y-Axis Cycling
		Complete.
	19:30	Begin X-Axis Resonance Search
		Complete. No resonances noted.
	19:34	Begin X-Axis Cycling
		Complete.

Results:	There was no apparent visual damage noted as a result of this test. The EUT operated properly after test. The High Output, High Efficiency LED Luminaire met the requirements of the Luminaire Vibration test.
-----------------	--

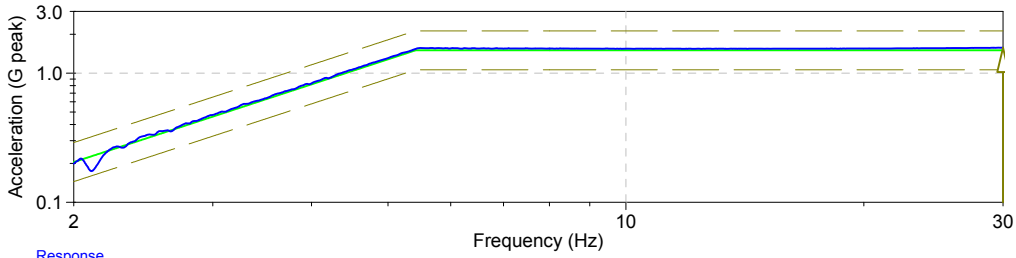


Z-Axis Resonance Search Tech:RR



Control
Demand

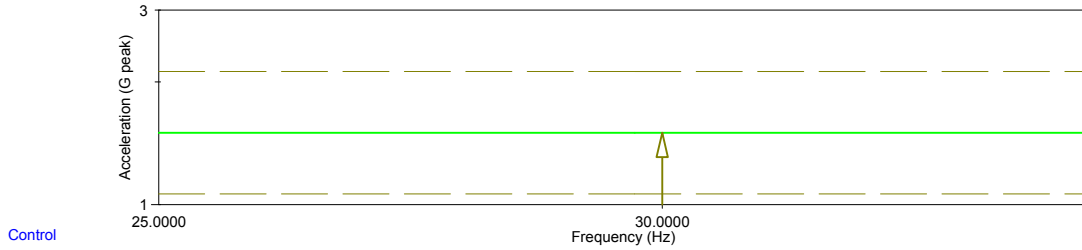
Unit Response



Demand
Response

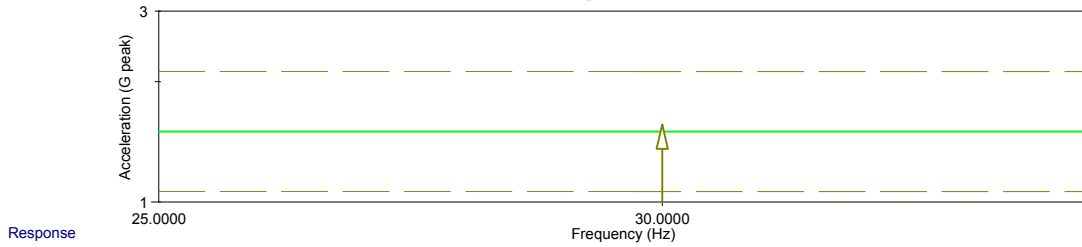
Apr 13, 2015 15:09:52 Level 1) 100 % Output: 0.1206 Volts peak Resonance Search
 Demand: 1.5 G Level Time: 0:01:58
 Control: 1.506 G Total Time: 0:02:08 End of Sweep Test

Z-Axis Cycling Tech:RR



Control
Demand

Unit Response

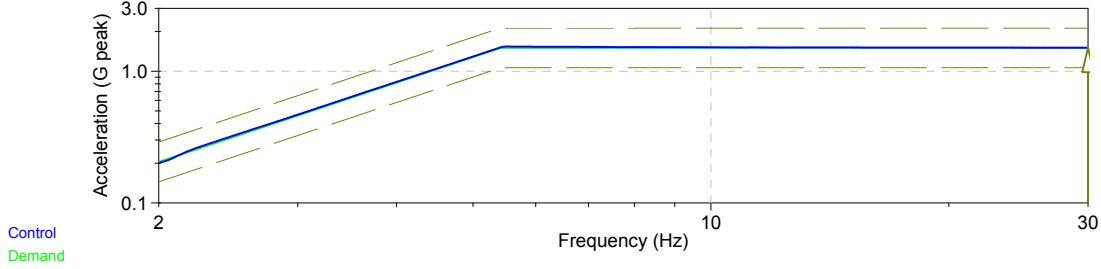


Response
Demand

Apr 13, 2015 16:07:34 Level 1) 100 % at 30 Hz Output: 0.1193 Volts peak Cycling
 Demand: 1.5 G Level Time: 0:55:34 Frequency: 30 Hz
 Control: 1.5 G Total Time: 0:55:42 End of Cycle Count Test

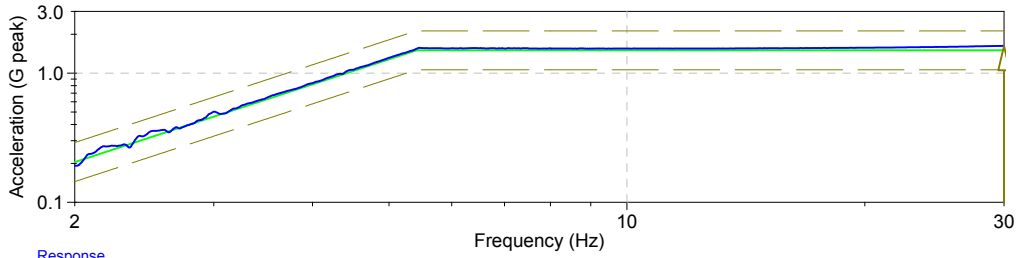


Y-Axis Resonance Search Tech:RR



Control
Demand

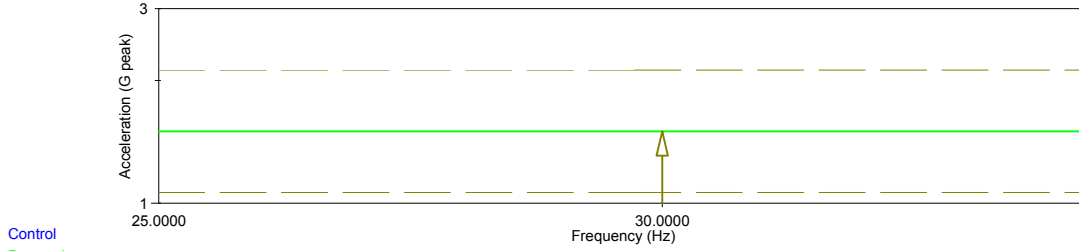
Unit Response



Demand
Response

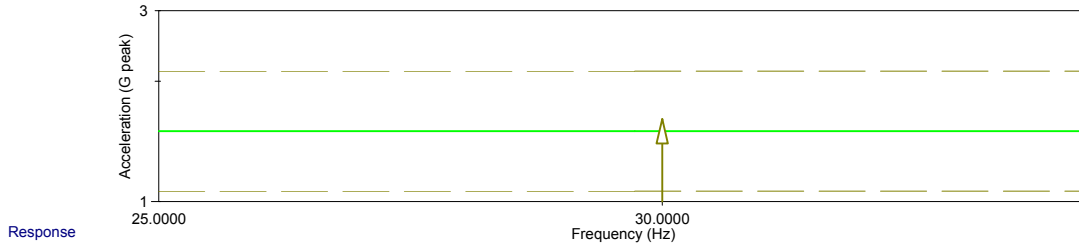
Apr 13, 2015 16:22:19	Level 1) 100 %	Output: 0.1215 Volts peak	Resonance Search
Demand: 1.5 G	Level Time: 0:01:58		
Control: 1.505 G	Total Time: 0:02:08	End of Sweep Test	

Y-Axis Cycling Tech:RR



Control
Demand

Unit Response



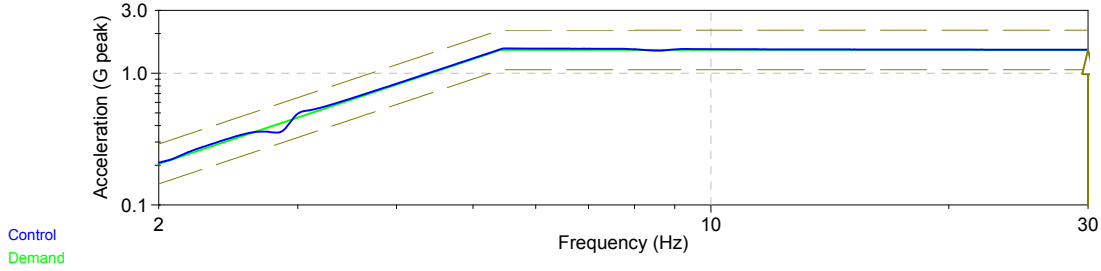
Response
Demand

Apr 13, 2015 17:19:21	Level 1) 100 % at 30 Hz	Output: 0.1205 Volts peak	Cycling
Demand: 1.5 G	Level Time: 0:55:34	Frequency: 30 Hz	
Control: 1.501 G	Total Time: 0:55:42	End of Cycle Count Test	

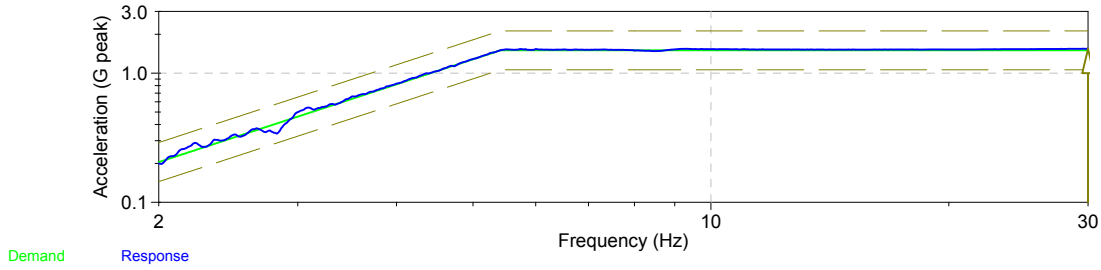


X-Axis Resonance Search

Tech:JS



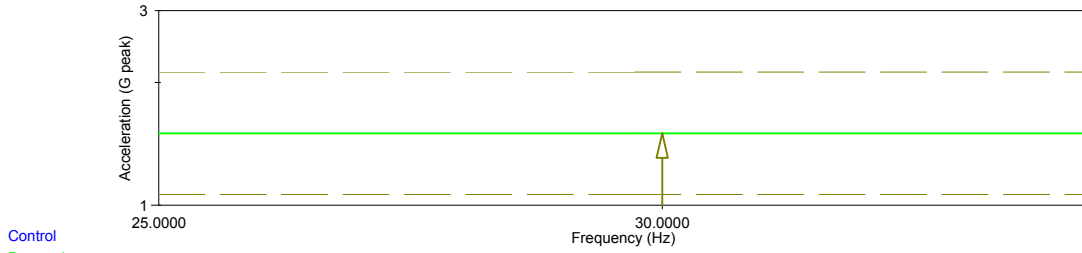
Unit Response



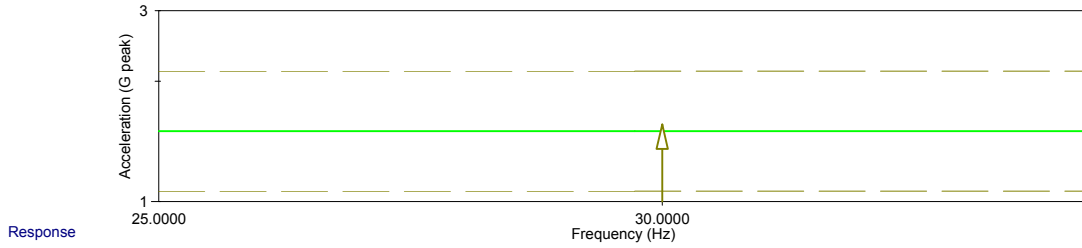
Apr 13, 2015 19:32:59 Level 1) 100 % Output: 0.1371 Volts peak Resonance Search
 Demand: 1.5 G Level Time: 0:01:58
 Control: 1.504 G Total Time: 0:02:08 End of Sweep Test

X-Axis Cycling

Tech:JS



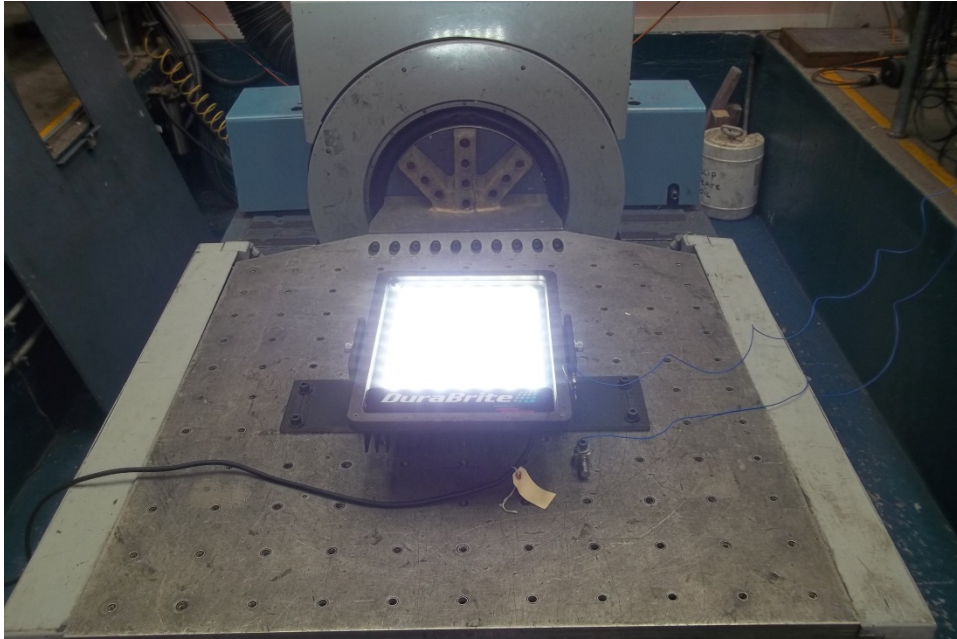
Unit Response



Apr 13, 2015 20:30:26 Level 1) 100 % at 30 Hz Output: 0.1365 Volts peak Cycling
 Demand: 1.5 G Level Time: 0:55:34 Frequency: 30 Hz
 Control: 1.5 G Total Time: 0:55:42 End of Cycle Count Test



**Test Photographs
Luminaire Vibration**



Z Axis



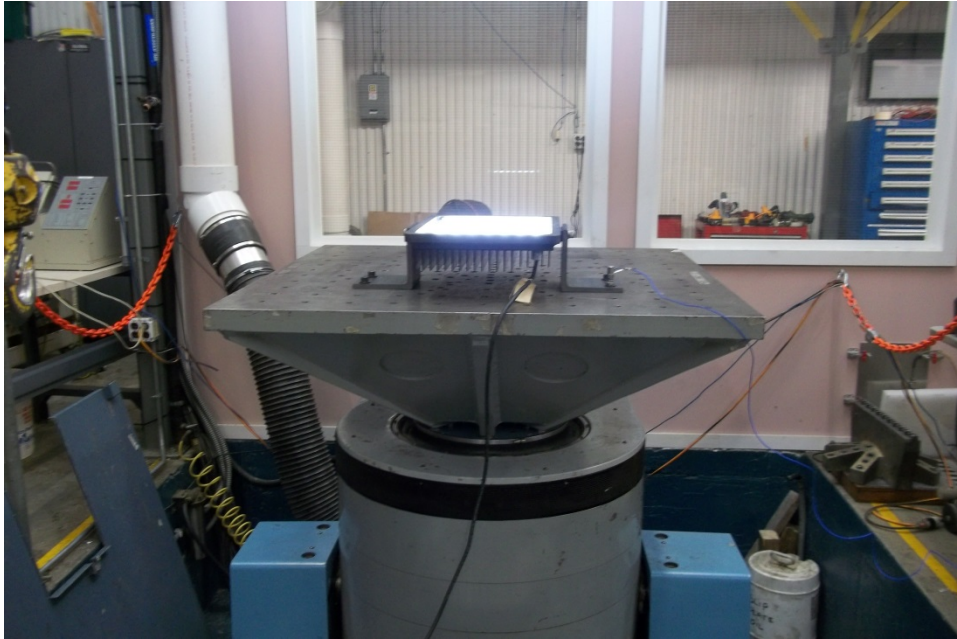
Y Axis



Retlif Testing Laboratories

Report No. R-15491-1

**Test Photographs
Luminaire Vibration**



X Axis



Retlif Testing Laboratories

Report No. R-15491-1

Equipment List Luminaire Vibration

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1340	VIBRATION RESEARCH	CONTROLLER, VIBRATION		VR8500	5/29/2014	5/31/2015
1403	DYTRAN	ACCELEROMETER	989.86 mV/g, 2 Hz - 3 kHz	3100D24	4/3/2014	4/30/2015
1547	DYTRAN	ACCELEROMETER	9.99 mV/g, 2 Hz - 6 kHz	3049E1	6/3/2014	6/30/2015
791	UNHOLTZ-DICKIE	VIBRATION TEST SYSTEM	4 Hz - 10 KHz	SAI120E-T2000	No Calibration Required	



Retlif Testing Laboratories

Report No. R-15491-1

**Mechanical Shock
Test Data**



Retlif Testing Laboratories

Report No. R-15491-1

TEST DATA SHEET


Test Method	Mechanical Shock		
Customer	RSM Electron Power Inc.		
Job Number	R-15491		
Test Sample	High Output, High Efficiency LED Luminaire		
Part Number	SLM35573A1S0		
Serial Number	0047		
Test Specification	MIL-STD-202	Method: 213B	
Operating Mode	Mode 2		
Technician	R. Rondon		
Date	4/14/15		
Notes:			

Mechanical Shock

Pulse Shape:	Half Sine	Axes Tested:	X, Y, Z
Shock Pulse Duration:	11ms	Polarities Tested:	Positive and Negative
Peak Acceleration:	30g	Shocks/Axis:	6 Shocks / Axis

Date	Time	Test Log
3/14/15	9:04	Begin X-Axis Positive and Negative
		Complete
	10:16	Begin Z-Axis Positive and Negative
		Complete
	10:23	Begin Y-Axis Positive and Negative
		Complete

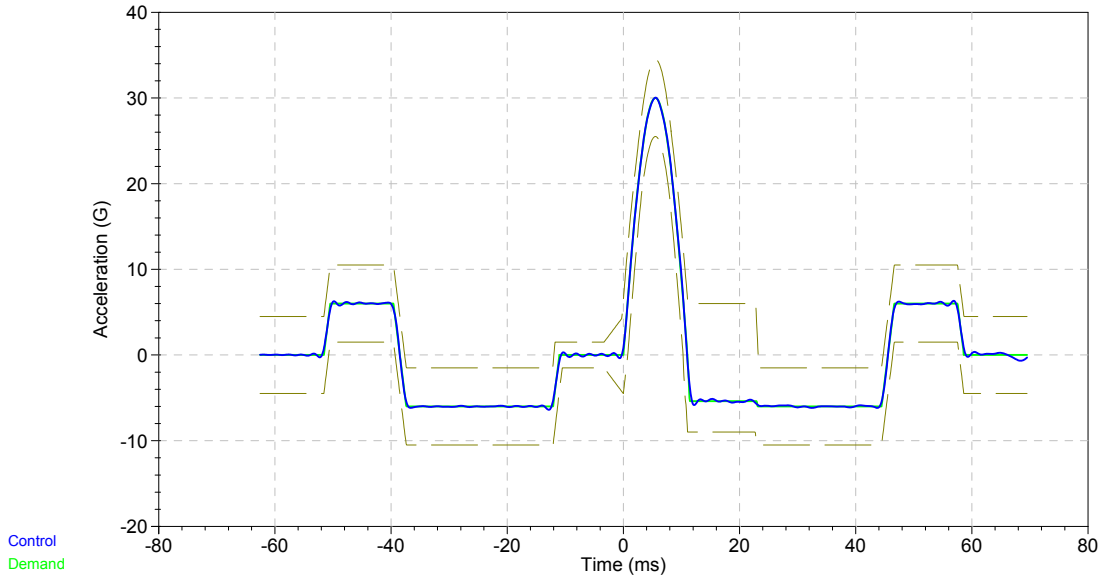
Results: There was no apparent visual damage noted as a result of this test. The EUT operated properly during and after exposure. The High Output, High Efficiency LED Luminaire met the requirements of the Mechanical Shock test



Retlif Testing Laboratories

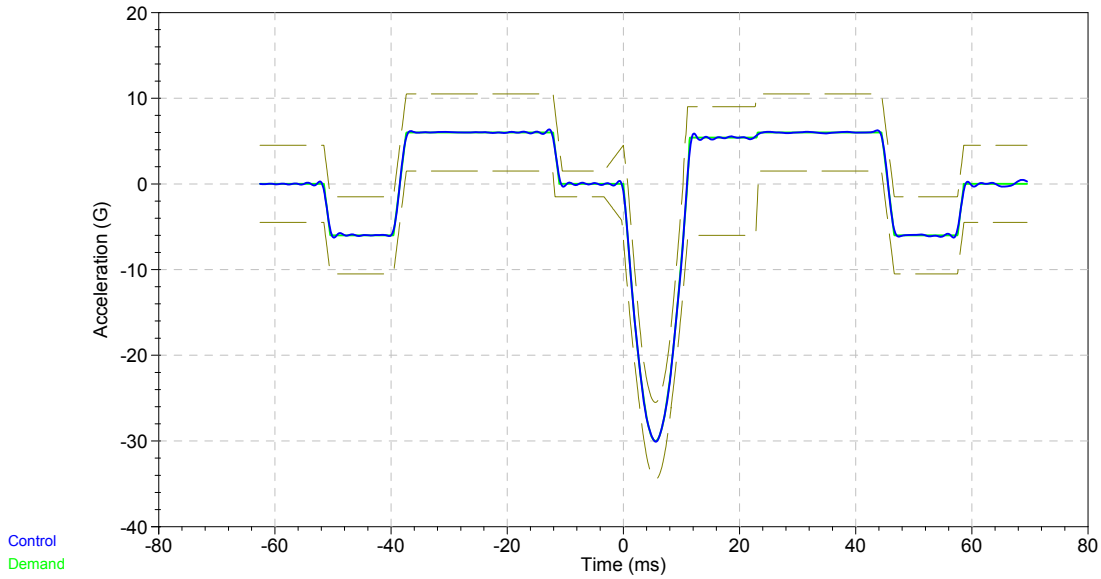
Report No. R-15491-1

X-Axis Tech:RR



Apr 14, 2015 09:04:24 Level 1) 100 % Output: 2.392 Volts peak Mechanical Shock
Demand: 30 G
Control: 30.04 G Pulse: 3 of 3 End of Test

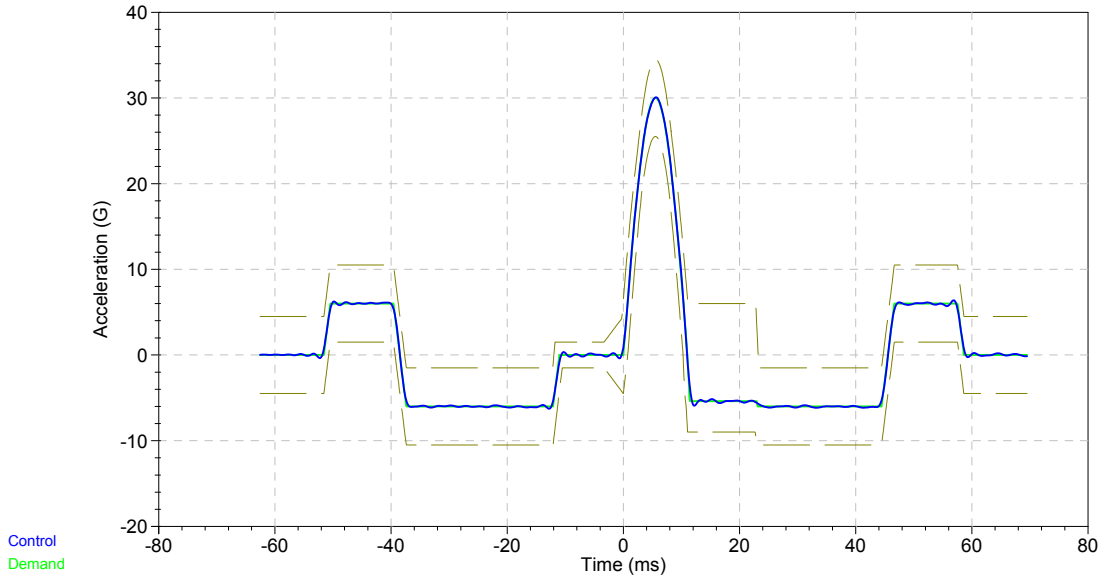
X-Axis Tech:RR



Apr 14, 2015 09:05:03 Level 1) 100 % Output: 2.408 Volts peak Mechanical Shock
Demand: 30 G
Control: 30.09 G Pulse: 3 of 3 End of Test

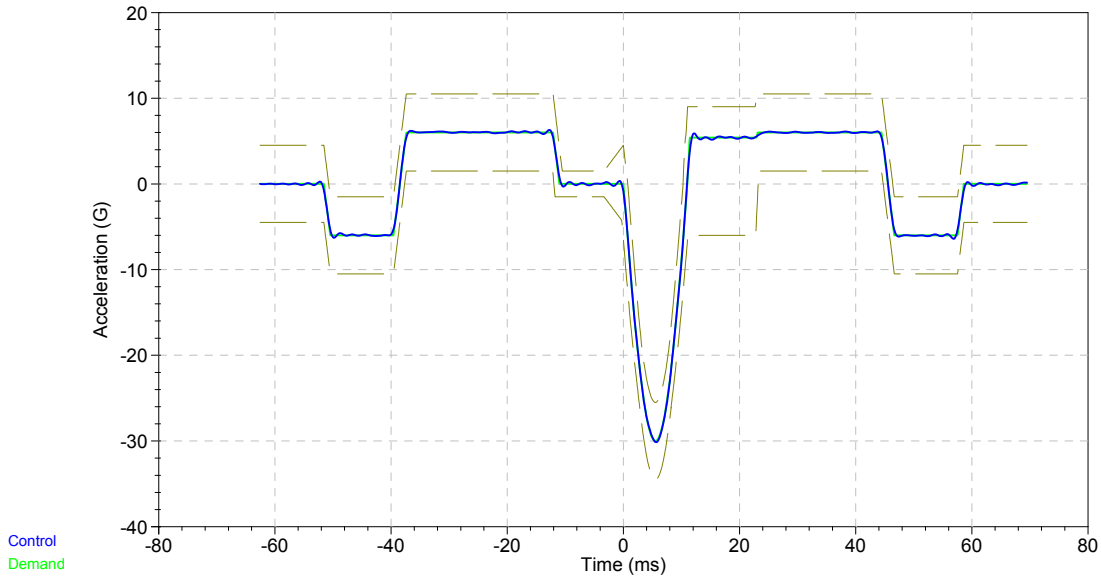


Z-Axis Tech:RR



Apr 14, 2015 10:16:42 Level 1) 100 % Output: 2.212 Volts peak Mechanical Shock
Demand: 30 G
Control: 30.08 G Pulse: 3 of 3 End of Test

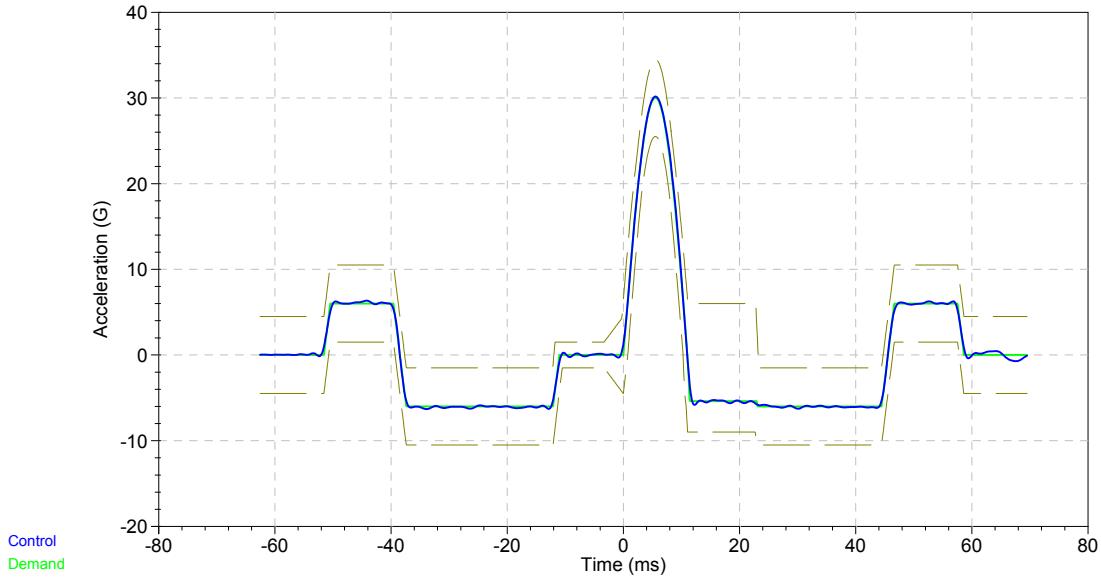
Z-Axis Tech:RR



Apr 14, 2015 10:17:07 Level 1) 100 % Output: 2.186 Volts peak Mechanical Shock
Demand: 30 G
Control: 30.15 G Pulse: 3 of 3 End of Test

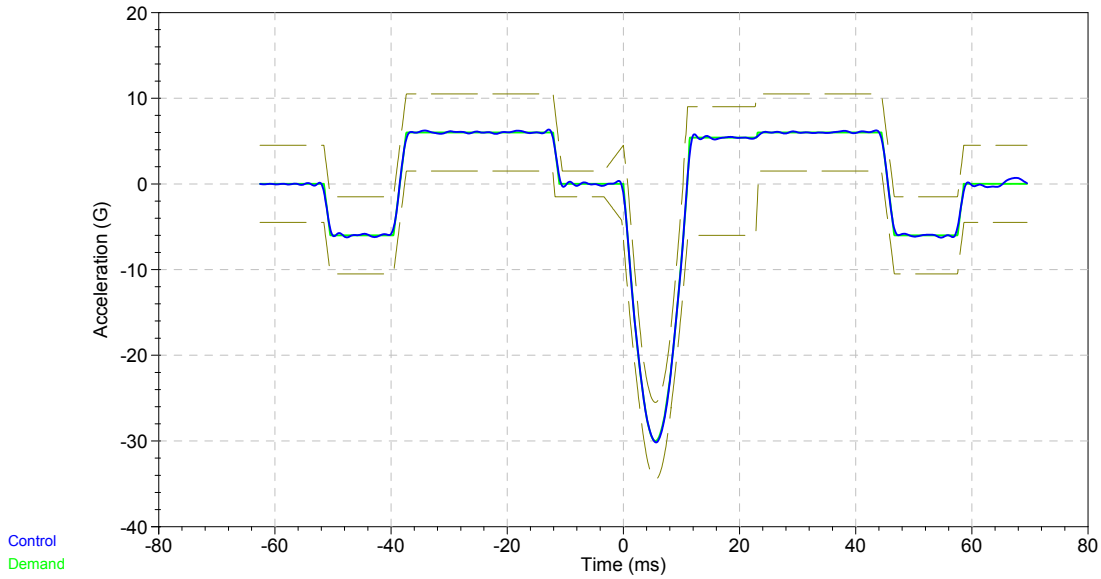


Y-Axis Tech:RR



Apr 14, 2015 10:24:10 Level 1) 100 % Output: 2.231 Volts peak Mechanical Shock
Demand: 30 G
Control: 30.19 G Pulse: 3 of 3 End of Test

Y-Axis Tech:RR



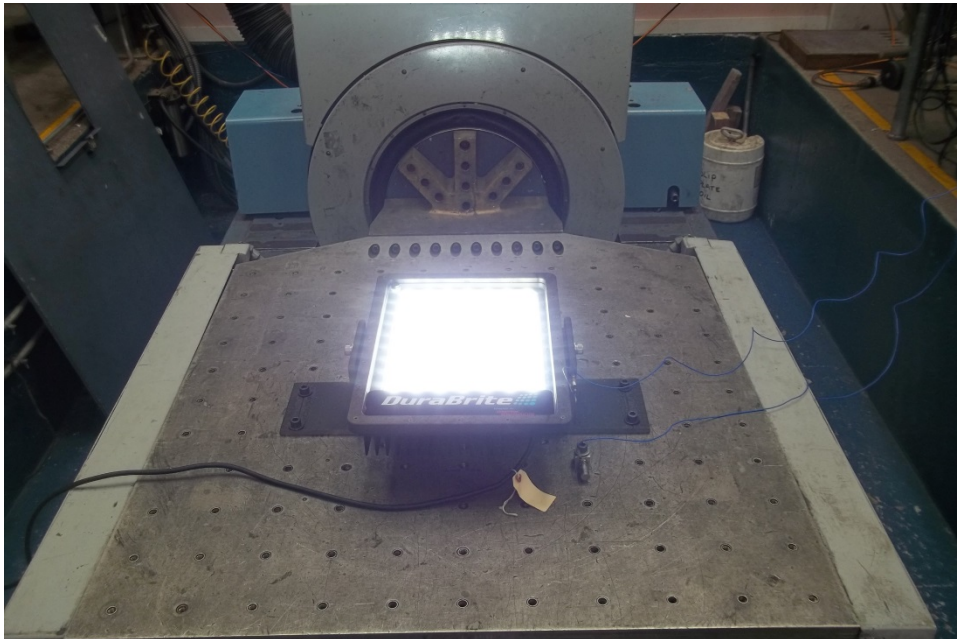
Apr 14, 2015 10:25:59 Level 1) 100 % Output: 2.211 Volts peak Mechanical Shock
Demand: 30 G
Control: 30.17 G Pulse: 3 of 3 End of Test



**Test Photographs
Mechanical Shock**



X Axis



Z Axis



Retlif Testing Laboratories

Report No. R-15491-1

**Test Photographs
Mechanical Shock**



Y Axis



Retlif Testing Laboratories

Report No. R-15491-1

Equipment List Mechanical Shock

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1340	VIBRATION RESEARCH	CONTROLLER, VIBRATION		VR8500	5/29/2014	5/31/2015
1424	UNHOLTZ-DICKIE	AMPLIFIER, CHARGE / SIGNAL CONDITIONER	4 Hz - 10 kHz	CVA-8	12/5/2014	12/31/2015
791	UNHOLTZ-DICKIE	VIBRATION TEST SYSTEM	4 Hz - 10 KHz	SAI120E-T2000	No Calibration Required	
904C	ENDEVCO	ACCELEROMETER	13.09 pC/g, 4 Hz - 4 kHz	2224C	1/19/2015	1/31/2016



Retlif Testing Laboratories

Report No. R-15491-1

**Temporary Immersion
Test Data**



Retlif Testing Laboratories

Report No. R-15491-1

TEST DATA SHEET

Test Method	Temporary Immersion	
Customer	RSM Electron Power, Inc.	
Job Number	R-15491	
Test Sample	High Output, High Efficiency LED Luminaire	
Part Number	SLM35573A1S0	
Serial Number	0047	
Test Specification	IEC 60529	Para: 14.2.7
Operating Mode	Mode 2	
Technician	L. Stoddard	
Date	3/25/15	
Notes:		

Date	Time	Test Log
3/25/15	14:42	Began the Temporary Immersion Test.
		With the EUT placed into operating Mode 2, it was lowered into a vat containing 1 meter of water.
		These conditions were maintained for 30 minutes.
		The height of the water was measured from the bottom of the EUT.
		The lens of the EUT was face up during this test.
	15:12	The EUT was removed from the water.
		The EUT was visually inspected and functionally tested.
	15:30	Completed the Temporary Immersion Test.

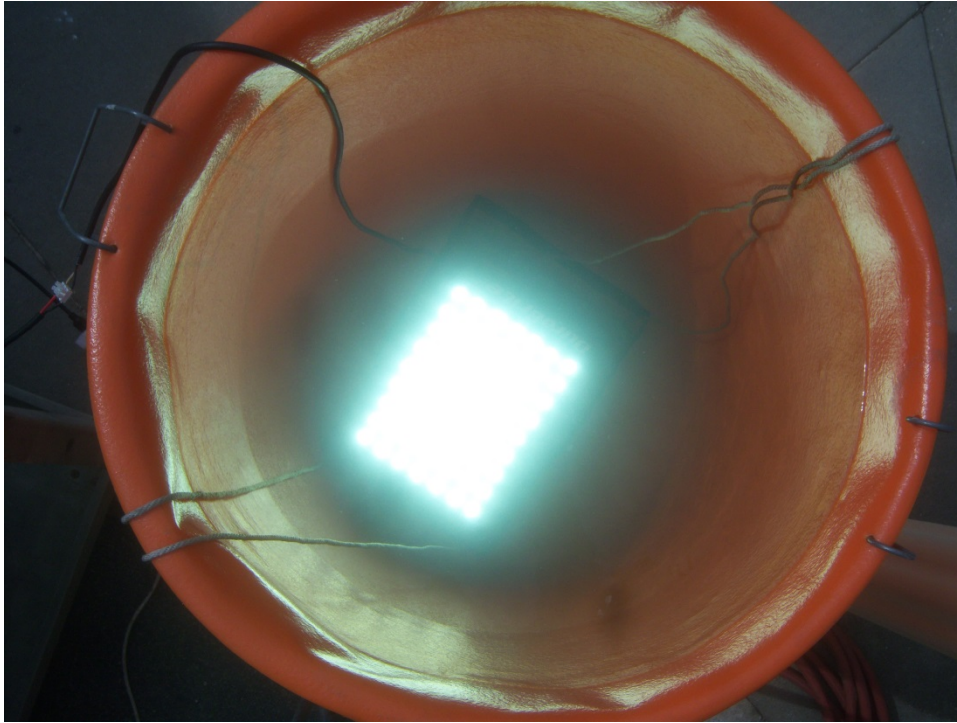
Results:	There was no apparent damage visually noted as a result of this test. The EUT operated correctly during and after exposure and showed no sign of water penetration. The High Output, High Efficiency LED Luminaire met the requirements of the Temporary Immersion test.
-----------------	--



Retlif Testing Laboratories

Report No. R-15491-1

**Test Photographs
Temporary Immersion**



Test Setup



Retlif Testing Laboratories

Report No. R-15491-1

Equipment List Temporary Immersion

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1488	STANLEY	MEASURING TAPE	8m/26'	33-428	Inspect Before Use	
966J	ACCUSPLIT	STOPWATCH		AX705	9/3/2014	9/30/2015



Retlif Testing Laboratories

Report No. R-15491-1

**Salt Spray
Test Data**



Retlif Testing Laboratories

Report No. R-15491-1

TEST DATA SHEET

Test Method	Salt Spray / Corrosion Resistance		
Customer	RSM Electron Power Inc.		
Job Number	R-15491		
Test Sample	High Output, High Efficiency LED Luminaire		
Part Number	SLM35573A1S0		
Serial Number	0048		
Test Specification	ASTM B 117-09, ASTM D1654-08	Para: N/A	
Operating Mode	Mode 1		
Technician	N. Mirabile		
Date	3/30/15 through 4/12/15		

Salt Spray Parameters

Percentage Of Salt In Solution: 5%	Acceptable pH Range: 6.5 to 7.2	Fallout Rate: 1.0 to 3.0 ml/80cm ² /hr	Water Type: DI
Length of Exposure: 240 Hours	Drying Time: N/A	Chamber Temperature: 35°C	Resistivity 1-18 MΩ

Measurement Data

Date	Time	PH	Temperature in °C	Percent Salt	Fallout Rate ml/(80)cm/hr			
					1	2	3	4
3/31/15	11:20	6.9	35	5	1.1	1.2	1.2	1.2
4/1/15	11:20	6.9	35	5	1.2	1.5	1.4	1.2
4/2/15	11:23	6.8	35	5	1.3	1.2	1.5	1.2
4/3/15	11:25	6.9	35	5	1.1	1.1	1.2	1.1
4/4/15	11:20	7.1	35	5	1.1	1.1	1.2	1.1
4/5/15	11:30	7.0	35	5	1.1	1.2	1.1	1.2
4/6/15	11:20	7.0	35	5	1.1	1.2	1.1	1.2
4/7/15	11:20	6.9	35	5	1.2	1.1	1.0	1.2
4/8/15	11:30	6.9	35	5	1.0	1.3	1.5	1.2
4/9/15	11:30	6.8	35	5	1.1	1.2	1.5	1.2
4/10/15	11:20	6.9	35	5	1.0	1.3	1.5	1.2

Test Log

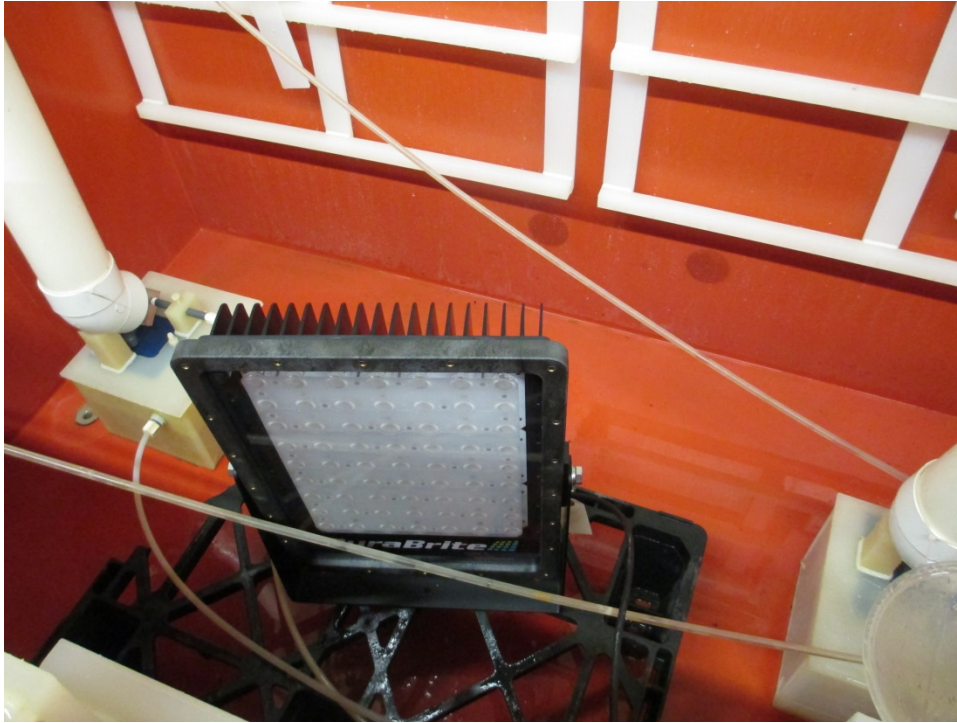
3/30/15	11:00	Begin preconditioning of salt fog chamber. The temperature was increased to 35°C and the salt solution was sprayed.
3/31/15	11:00	The fallout rate, salinity and pH were measured. The EUT was scribed in 3 places prior to testing.
	11:20	Begin 240 hour Salt Spray Test. The fallout rate, salinity and pH were measured in 24 hour intervals.
4/10/15	11:30	Began purge of Salt Fog chamber. The unit dried over the weekend awaiting customer arrival for post inspection.
4/13/15	14:25	The EUT was rinsed with water and it was determined the EUT had no blistering outside the scribed line. The Bracket of the EUT had a rating of 9 for rusting outside the scribed line. It was also noted the bracket rusted in areas there was no scribed lines. Complete Salt Spray Test.

Results:

There was slight rust noted on the bracket of the EUT as a result of this test. The EUT passed a post functional test performed by RSM personnel. The EUT met the requirements of the Salt Fog Test as per RSM personnel.



**Test Photographs
Salt Spray**



Test Setup



Retlif Testing Laboratories

Report No. R-15491-1

**Test Photographs
Salt Spray**



Pre-Test, Scribed Lines, Photograph 1



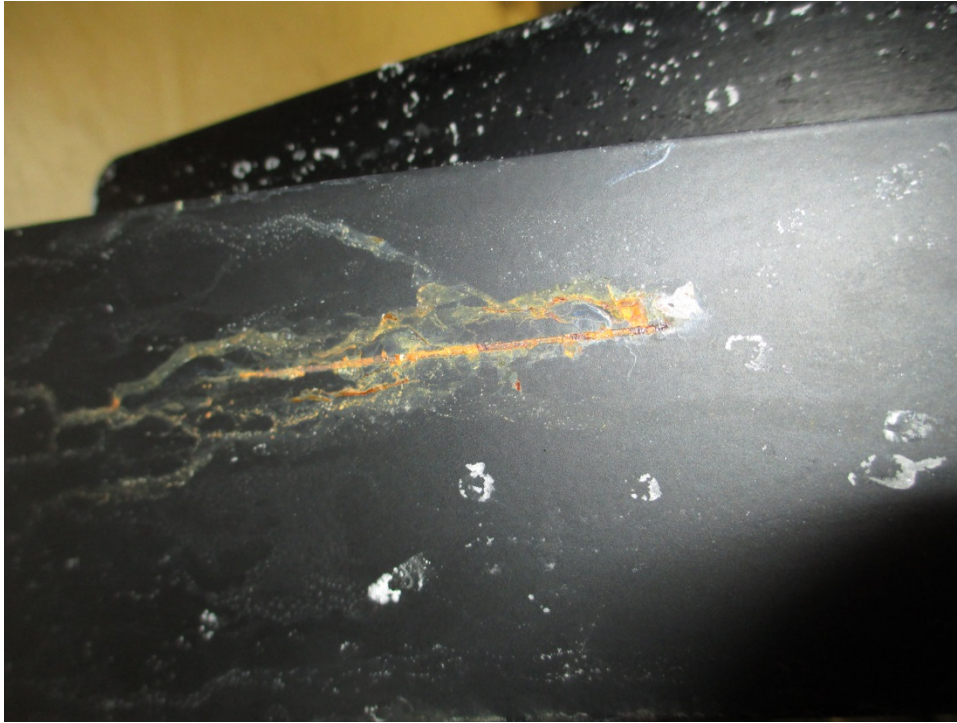
Pre-Test, Scribed Lines, Photograph 2



Retlif Testing Laboratories

Report No. R-15491-1

**Test Photographs
Salt Spray**



Post-Test, Scribed Lines, Photograph 1



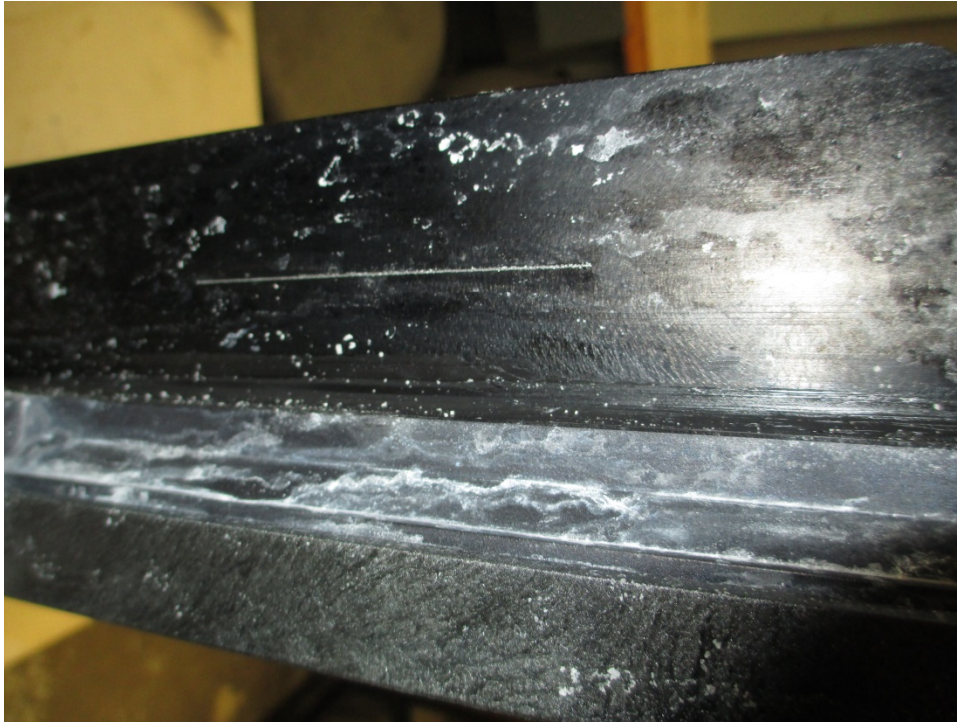
Post-Test, Scribed Lines, Photograph 2



Retlif Testing Laboratories

Report No. R-15491-1

**Test Photographs
Salt Spray**



Post-Test, Scribed Lines, Photograph 3



Post-Test



Retlif Testing Laboratories

Report No. R-15491-1

Equipment List Salt Spray

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1004	SINGLETON	CHAMBER, SALT FOG	73 cubic ft cap.	SCCH 23	10/27/2014	10/31/2015
1483	FISHER SCIENTIFIC	HYDROMETER	1.000 - 1.225	11-54A	Inspect Before Use	
921	OAKTON	TESTER, pH	- 1.0 - 15.0 pH	35624-23	Calibrate Before Use	



Retlif Testing Laboratories

Report No. R-15491-1