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Report No: L041608002

Date: 4/29/2016



NVLAP LAB CODE 200927-0

Report No: L041608002

Report Prepared For: GM LIGHTING
 9830 W 190th St, Torrance, CA 90503

Model Number: SLCB--9-30

Test: Electrical and Photometric tests

Standards Used: Appropriate part or all test guidelines were used for test performed:
IESNA LM79: 2008 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products
ANSI C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Catalog number is SLCB--9-30. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 4/25/16

Date of Tests: 4/28/16 - 4/29/16

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	11/18/16
Xitron Power Analyzer	2503AH	MT-EL01	11/30/16
ITECH DC Power Supply	IT6122	PSDC-03-S1	11/17/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/24/16
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

Test Summary

Manufacturer:	GM LIGHTING
Model Number:	SLCB--9-30
Driver Model Number:	N/A
Total Lumens:	200.87
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.03
Input Power (W):	4.05
Input Power Factor:	0.99
Current ATHD @ 120V(%):	14%
Current ATHD @ 277V(%):	N/A
Efficacy:	50
Color Rendering Index (CRI):	94
Correlated Color Temperature (K):	3087
Chromaticity Coordinate x:	0.4304
Chromaticity Coordinate y:	0.4008
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:40
Total Operating Time (Hours):	1:10
Off State Power(W):	0.00

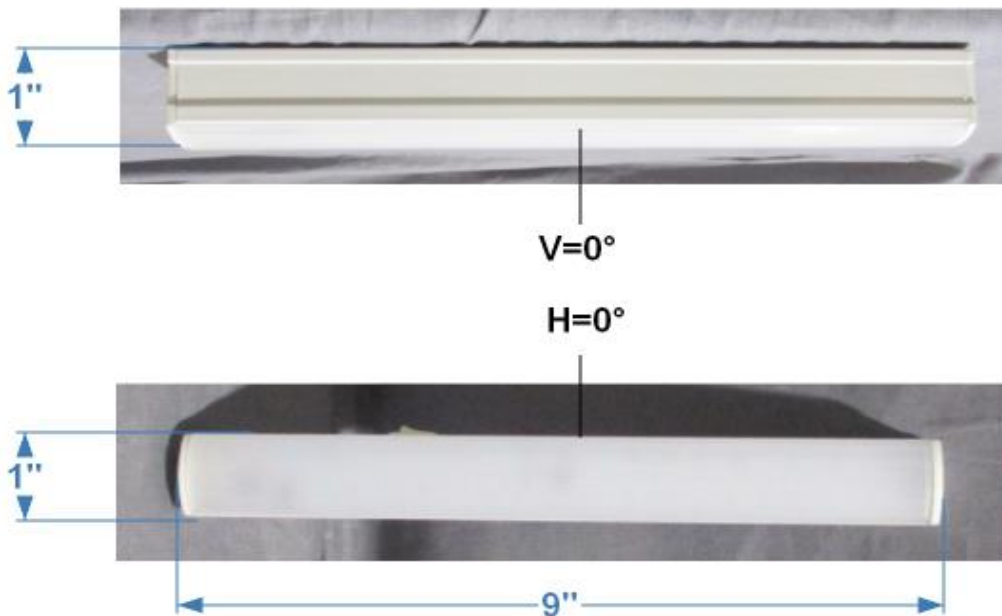
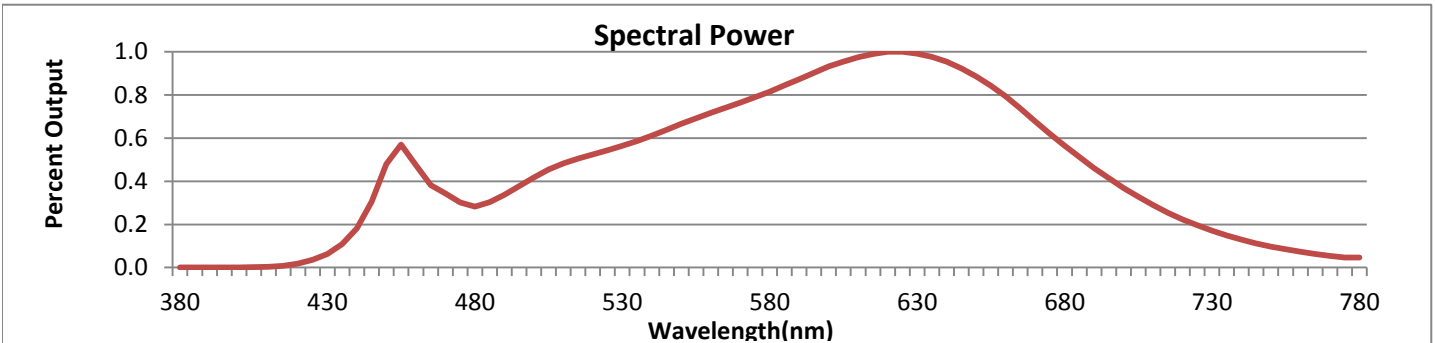


FIG. 1 LUMINAIRE

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.



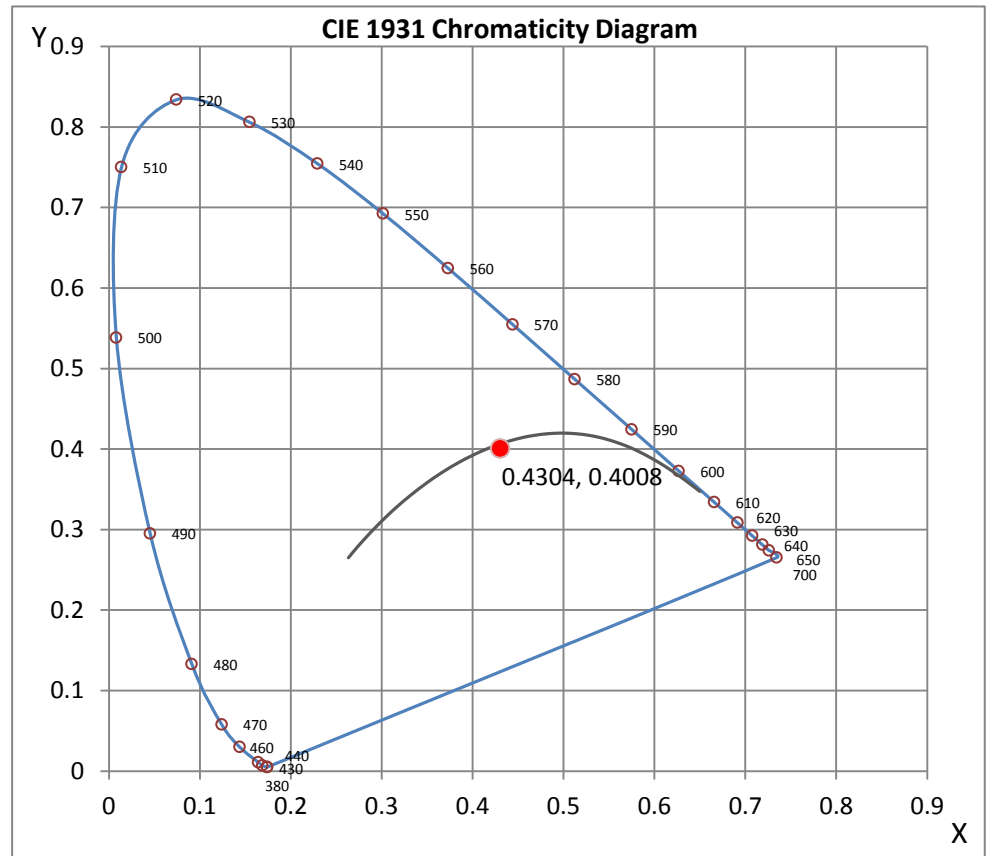
Wavelength	W/m ² nm	440	0.0005	510	0.0014	580	0.0023	650	0.0025	720	0.0006
380	0.0000	450	0.0014	520	0.0015	590	0.0025	660	0.0023	730	0.0005
390	0.0000	460	0.0014	530	0.0016	600	0.0027	670	0.0019	740	0.0004
400	0.0000	470	0.0010	540	0.0018	610	0.0028	680	0.0016	750	0.0003
410	0.0000	480	0.0008	550	0.0019	620	0.0029	690	0.0013	760	0.0002
420	0.0001	490	0.0010	560	0.0021	630	0.0028	700	0.0011	770	0.0002
430	0.0002	500	0.0012	570	0.0022	640	0.0027	710	0.0008	780	0.0001

CRI & CCT

x	0.4304
y	0.4008
u'	0.2478
v'	0.5191
CRI	94.00
CCT	3087
Duv	-0.00038

R Values

R1	94.29
R2	97.86
R3	98.84
R4	93.22
R5	93.90
R6	96.51
R7	92.74
R8	84.85
R9	67.22
R10	94.10
R11	94.00
R12	81.29
R13	95.40
R14	99.40



*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

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Test Report Released by:



Jeff Ahn
Engineering Manager

Test Report Reviewed by:



Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 9*



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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608002.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L041608002
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 4/29/2016
 [MANUFAC] GM LIGHTING
 [LUMCAT] SLCB--9-30
 [LUMINAIRE] 1"L. X 9"W. X 1"H. LED LINEAR LIGHT BAR
 [BALLASTCAT] N/A
 [LAMPPOSITION] 0,0
 [LAMPCAT] N/A
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 120VAC, 4.05W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	201
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	50
Total Luminaire Watts	4.05
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.26
Spacing Criterion (90-270)	1.20
Spacing Criterion (Diagonal)	1.34
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.08 ft
Luminous Width (90-270)	0.75 ft
Luminous Height	0.02 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	9017	8857	9550
55	8230	7940	8639
65	7482	7033	7538
75	6975	6128	5920
85	6936	5598	2506

**IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608002.IES**

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0	66.07	66.07	66.07	66.07	66.07
5	65.78	65.82	65.74	65.65	65.61
10	64.94	64.73	64.65	64.61	64.44
15	63.43	63.31	62.80	62.59	62.51
20	61.33	61.00	60.49	60.03	59.82
25	58.73	58.48	57.64	56.76	56.38
30	55.80	55.38	54.16	52.86	52.27
35	52.52	51.89	50.30	48.71	48.24
40	48.58	47.91	46.11	44.34	43.55
45	44.47	43.80	41.78	39.56	38.68
50	40.19	39.43	37.09	34.78	33.56
55	35.74	34.82	32.51	29.79	28.70
60	31.38	30.37	27.94	25.05	23.83
65	27.10	26.05	23.54	20.26	18.79
70	23.16	22.03	19.09	15.69	13.84
75	19.47	18.38	15.31	11.45	9.40
80	16.11	15.02	11.87	7.68	5.12
85	13.01	12.00	8.81	4.53	1.59
90	10.49	9.40	6.38	2.43	0.00
95	8.14	7.17	4.49	1.30	0.00
100	6.29	5.37	3.19	0.71	0.00
105	4.70	3.99	2.18	0.50	0.00
110	3.61	2.98	1.55	0.42	0.00
115	2.69	2.18	1.13	0.34	0.00
120	2.01	1.68	0.84	0.29	0.00
125	1.51	1.26	0.76	0.00	0.00
130	1.18	1.01	0.67	0.00	0.00
135	1.01	0.84	0.59	0.00	0.00
140	0.84	0.76	0.55	0.00	0.00
145	0.76	0.59	0.42	0.00	0.00
150	0.59	0.00	0.00	0.00	0.00
155	0.50	0.00	0.00	0.00	0.00
160	0.42	0.00	0.00	0.00	0.00
165	0.34	0.00	0.00	0.00	0.00
170	0.00	0.00	0.00	0.00	0.00
175	0.00	0.00	0.00	0.00	0.00
180	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608002.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	23.98	N.A.	11.90
0-30	50.51	N.A.	25.10
0-40	81.98	N.A.	40.80
0-60	143.11	N.A.	71.20
0-80	181.96	N.A.	90.60
0-90	191.08	N.A.	95.10
10-90	184.84	N.A.	92.00
20-40	57.99	N.A.	28.90
20-50	90.15	N.A.	44.90
40-70	84.16	N.A.	41.90
60-80	38.85	N.A.	19.30
70-80	15.82	N.A.	7.90
80-90	9.13	N.A.	4.50
90-110	7.24	N.A.	3.60
90-120	8.52	N.A.	4.20
90-130	9.17	N.A.	4.60
90-150	9.74	N.A.	4.80
90-180	9.78	N.A.	4.90
110-180	2.55	N.A.	1.30
0-180	200.87	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	6.24
10-20	17.74
20-30	26.53
30-40	31.47
40-50	32.16
50-60	28.97
60-70	23.02
70-80	15.82
80-90	9.13
90-100	4.77
100-110	2.46
110-120	1.28
120-130	0.66
130-140	0.38
140-150	0.19
150-160	0.03
160-170	0.01
170-180	0.00

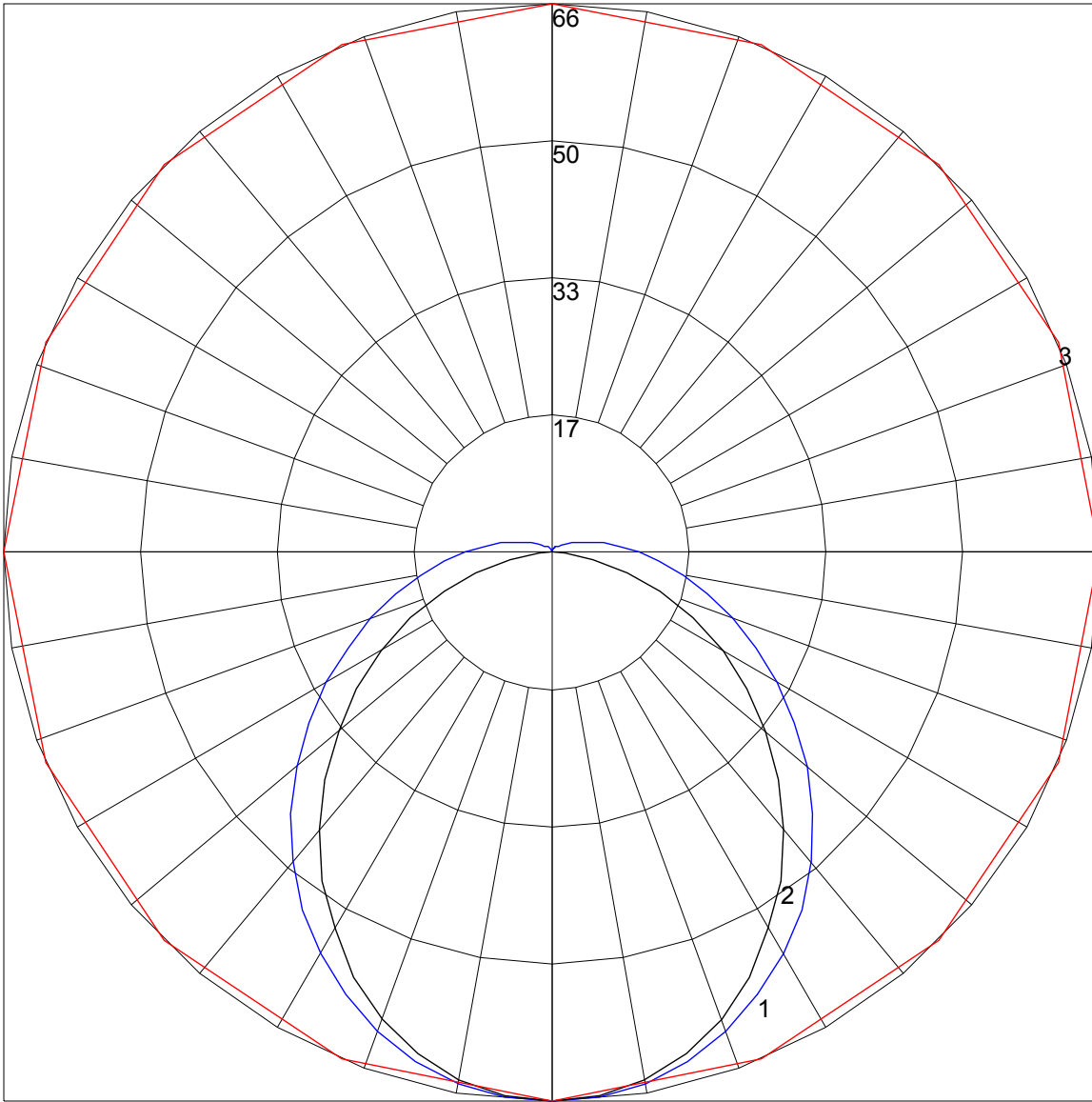
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
0	118	118	118	118	115	115	115	115	108	108	108	103	103	103	98	98	98	95
1	106	101	96	92	103	98	94	90	93	90	86	88	85	83	84	82	79	77
2	96	88	80	74	93	85	79	73	81	75	71	77	72	68	73	69	66	63
3	88	77	68	62	85	75	67	61	71	64	59	68	62	57	64	60	56	53
4	80	68	59	52	78	66	58	51	63	56	50	60	54	49	57	52	48	45
5	74	61	51	45	71	59	51	44	57	49	43	54	48	42	52	46	41	39
6	68	55	46	39	66	53	45	39	51	44	38	49	42	37	47	41	36	34
7	63	50	41	34	61	48	40	34	46	39	34	45	38	33	43	37	32	30
8	59	45	37	31	57	44	36	30	43	35	30	41	34	29	39	33	29	27
9	55	41	33	28	53	41	33	27	39	32	27	38	31	27	36	31	26	24
10	52	38	30	25	50	38	30	25	36	29	25	35	29	24	34	28	24	22

POLAR GRAPH



Maximum Candela = 66.07 Located At Horizontal Angle = 0, Vertical Angle = 0

1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)

2 - Vertical Plane Through Horizontal Angles (90 - 270)

3 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)