



8165 E Kaiser Blvd. Anaheim, CA 92808
 p. 714.282.2270
 f. 714.676.5558

Report No: L041608003

Date: 4/29/2016



NVLAP LAB CODE 200927-0

Report No: L041608003

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

Model Number: SLCB--9-40

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--9-40. 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--9-40
Driver Model Number:	N/A
Total Lumens:	216.80
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:	54
Color Rendering Index (CRI):	94
Correlated Color Temperature (K):	3970
Chromaticity Coordinate x:	0.3826
Chromaticity Coordinate y:	0.3804
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	1:15
Off State Power(W):	0.00

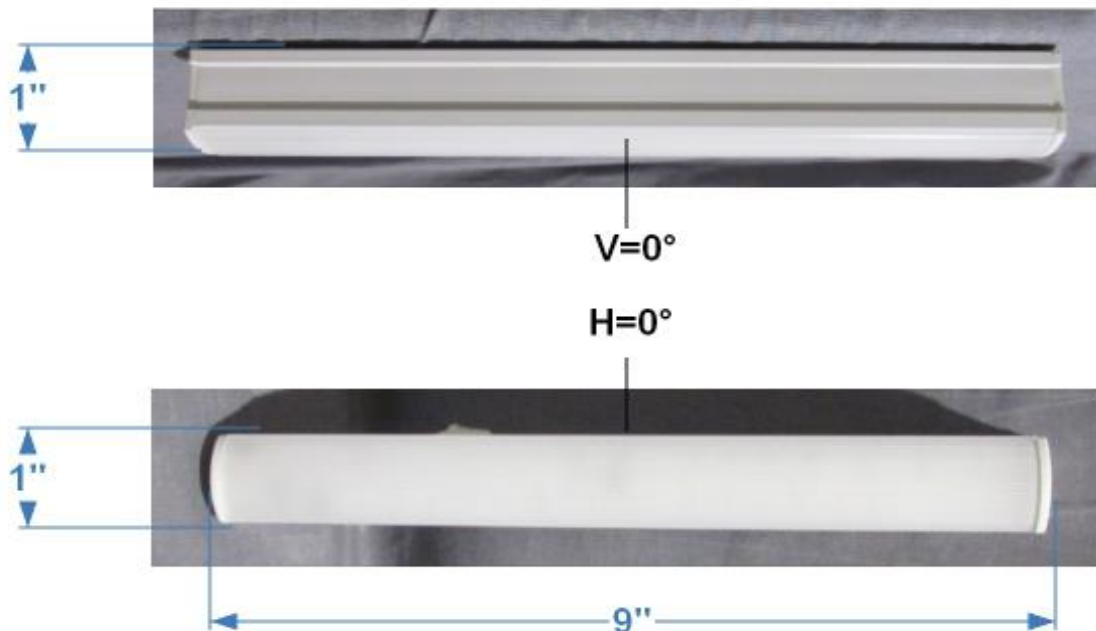
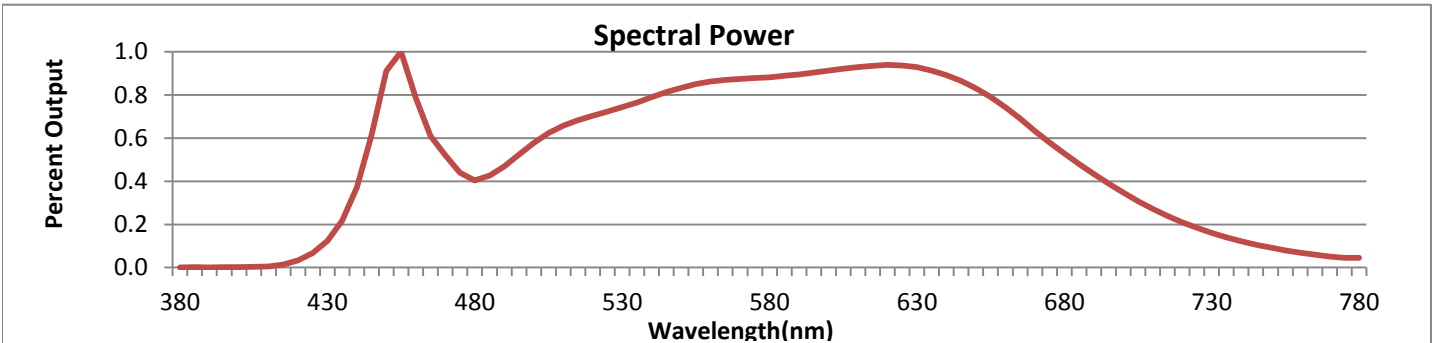


FIG. 1 LUMINAIRE

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



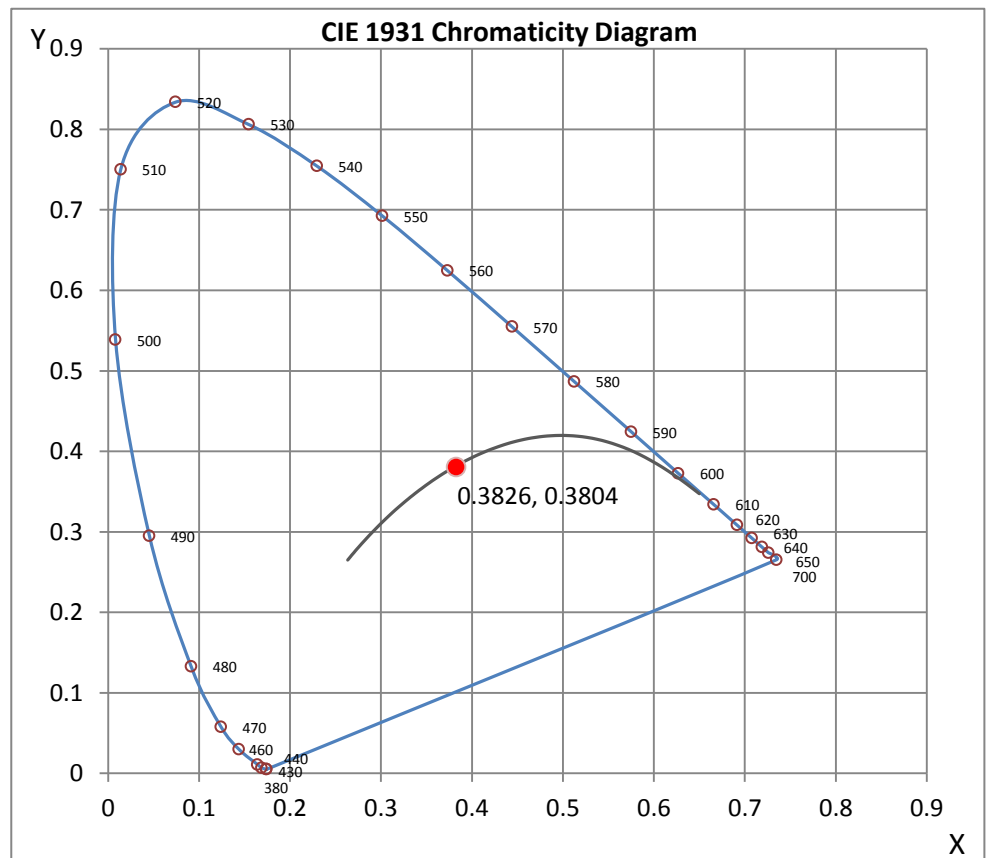
Wavelength	W/m ² nm	440	0.0010	510	0.0018	580	0.0024	650	0.0022	720	0.0006
380	0.0000	450	0.0024	520	0.0019	590	0.0024	660	0.0020	730	0.0004
390	0.0000	460	0.0021	530	0.0020	600	0.0025	670	0.0017	740	0.0003
400	0.0000	470	0.0014	540	0.0021	610	0.0025	680	0.0014	750	0.0002
410	0.0000	480	0.0011	550	0.0022	620	0.0025	690	0.0012	760	0.0002
420	0.0001	490	0.0013	560	0.0023	630	0.0025	700	0.0009	770	0.0001
430	0.0003	500	0.0016	570	0.0024	640	0.0024	710	0.0007	780	0.0001

CRI & CCT

x	0.3826
y	0.3804
u'	0.2251
v'	0.5035
CRI	93.50
CCT	3970
Duv	0.00108

R Values

R1	93.53
R2	96.08
R3	96.68
R4	92.63
R5	92.25
R6	92.90
R7	95.47
R8	88.76
R9	72.28
R10	89.47
R11	92.35
R12	71.77
R13	94.29
R14	97.73



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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.

Report Prepared by : Keyur Patel

Test Report Released by:

Test Report Reviewed by:

Jeff Ahn
 Engineering Manager

Steve Kang
 Quality Assurance

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

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



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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608003.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L041608003
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 4/29/2016
 [MANUFAC] GM LIGHTING
 [LUMCAT] SLCB--9-40
 [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	217
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	54
Total Luminaire Watts	4.05
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.30
Spacing Criterion (90-270)	1.20
Spacing Criterion (Diagonal)	1.38
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	9885	9472	9964
55	9236	8729	9042
65	8641	7732	7911
75	8207	6852	6235
85	8231	6317	2774

**IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608003.IES**

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0	67.84	67.84	67.84	67.84	67.84
5	67.54	67.54	67.46	67.33	67.29
10	66.70	66.58	66.37	66.37	66.37
15	65.44	65.32	64.98	64.44	64.19
20	64.02	63.60	62.68	61.84	61.50
25	62.00	61.50	59.99	58.69	58.15
30	59.07	58.56	56.84	54.96	54.29
35	56.05	55.17	53.11	50.93	49.92
40	52.44	51.52	49.00	46.44	45.56
45	48.75	47.70	44.68	41.83	40.36
50	44.47	43.34	40.27	36.58	35.07
55	40.11	38.81	35.74	31.59	30.04
60	35.74	34.32	30.75	26.56	24.84
65	31.30	29.87	25.88	21.61	19.72
70	26.85	25.47	21.35	16.78	14.77
75	22.91	21.31	17.12	12.33	9.90
80	18.96	17.45	13.26	8.18	5.45
85	15.44	14.01	9.94	4.91	1.76
90	12.25	10.87	7.22	2.69	0.00
95	9.57	8.26	5.03	1.38	0.00
100	7.22	6.25	3.44	0.84	0.00
105	5.37	4.62	2.43	0.59	0.00
110	4.03	3.36	1.76	0.50	0.00
115	2.94	2.48	1.26	0.46	0.00
120	2.27	1.85	1.01	0.00	0.00
125	1.76	1.43	0.92	0.00	0.00
130	1.34	1.26	0.84	0.00	0.00
135	1.18	1.09	0.76	0.00	0.00
140	1.01	0.92	0.71	0.00	0.00
145	0.92	0.80	0.63	0.00	0.00
150	0.76	0.76	0.50	0.00	0.00
155	0.67	0.59	0.46	0.00	0.00
160	0.50	0.50	0.38	0.00	0.00
165	0.42	0.38	0.34	0.00	0.00
170	0.34	0.34	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 : L041608003.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	24.72	N.A.	11.40
0-30	52.38	N.A.	24.20
0-40	85.57	N.A.	39.50
0-60	151.61	N.A.	69.90
0-80	194.94	N.A.	89.90
0-90	205.36	N.A.	94.70
10-90	198.95	N.A.	91.80
20-40	60.86	N.A.	28.10
20-50	95.31	N.A.	44.00
40-70	91.55	N.A.	42.20
60-80	43.33	N.A.	20.00
70-80	17.82	N.A.	8.20
80-90	10.42	N.A.	4.80
90-110	8.27	N.A.	3.80
90-120	9.70	N.A.	4.50
90-130	10.44	N.A.	4.80
90-150	11.21	N.A.	5.20
90-180	11.44	N.A.	5.30
110-180	3.18	N.A.	1.50
0-180	216.80	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

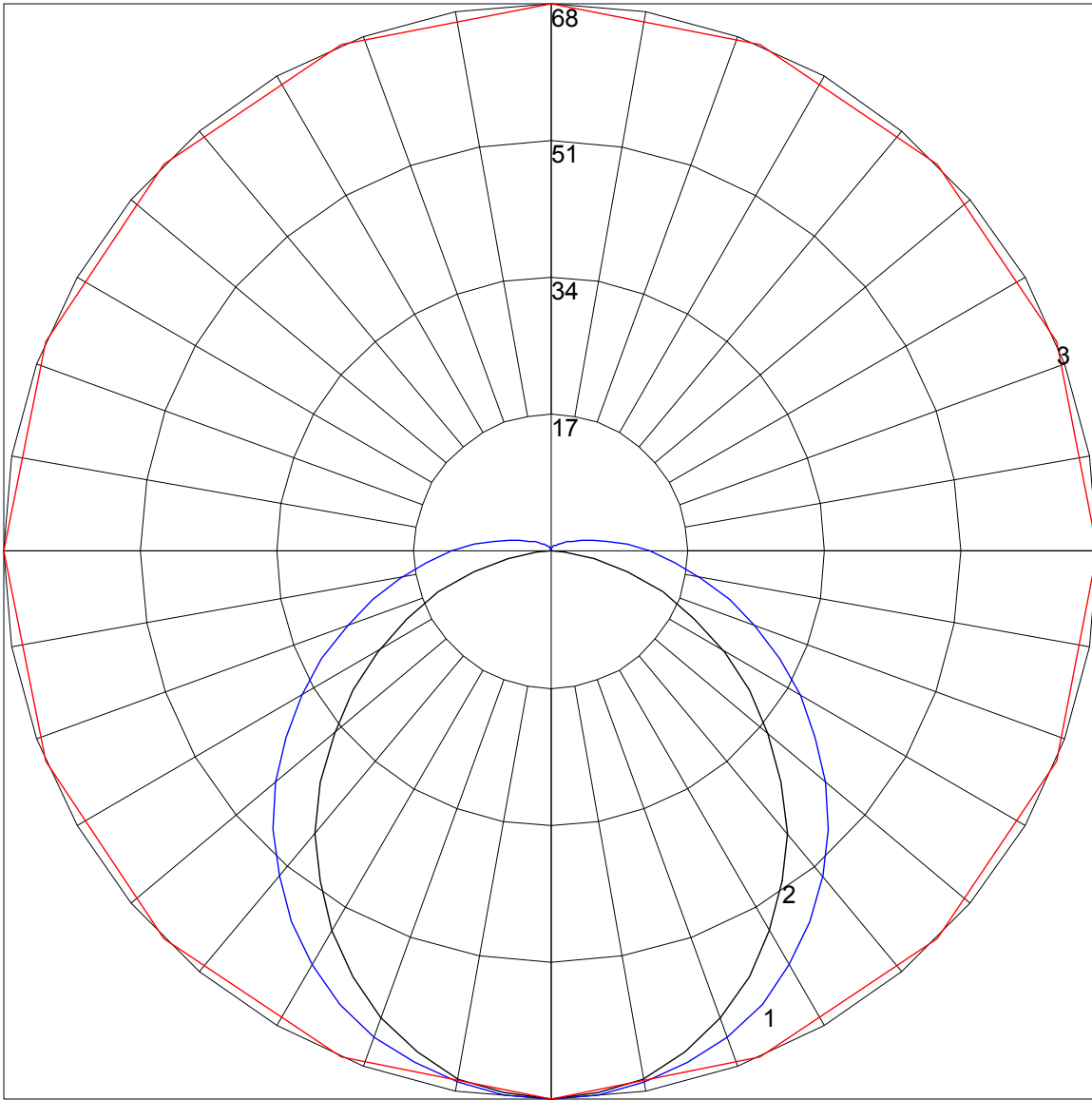
Zone	Lumens
0-10	6.41
10-20	18.31
20-30	27.66
30-40	33.19
40-50	34.46
50-60	31.58
60-70	25.52
70-80	17.82
80-90	10.42
90-100	5.46
100-110	2.81
110-120	1.43
120-130	0.74
130-140	0.47
140-150	0.30
150-160	0.16
160-170	0.06
170-180	0.00

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	114	114	114	114	108	108	108	102	102	102	97	97	97	95
1	106	101	96	91	103	98	93	89	93	89	86	88	85	82	83	81	79	76
2	96	87	80	74	93	85	78	72	80	75	70	76	71	67	72	68	65	63
3	87	76	68	61	84	74	66	60	70	64	58	67	61	56	64	59	55	52
4	80	67	58	51	77	66	57	51	62	55	49	59	53	48	57	51	47	44
5	73	60	51	44	71	59	50	43	56	48	42	53	47	41	51	45	41	38
6	68	54	45	38	65	53	44	38	50	43	37	48	41	36	46	40	36	33
7	63	49	40	34	61	48	39	33	46	38	33	44	37	32	42	36	32	29
8	58	45	36	30	56	44	35	30	42	34	29	40	34	29	39	33	28	26
9	54	41	33	27	53	40	32	27	38	31	26	37	31	26	36	30	25	24
10	51	38	30	24	49	37	29	24	36	29	24	34	28	23	33	27	23	21

POLAR GRAPH



Maximum Candela = 67.84 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.)