



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

Report No: L041608009

Date: 4/29/2016



NVLAP LAB CODE 200927-0

Report No: L041608009

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

Model Number: SLCB-24-40

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-24-40 . Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Total lumens and electrical values are generated from Light Laboratory Report L041608003 by using length ratio of 2.67. Spectral color data are from Light Laboratory Report L041608003.

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.



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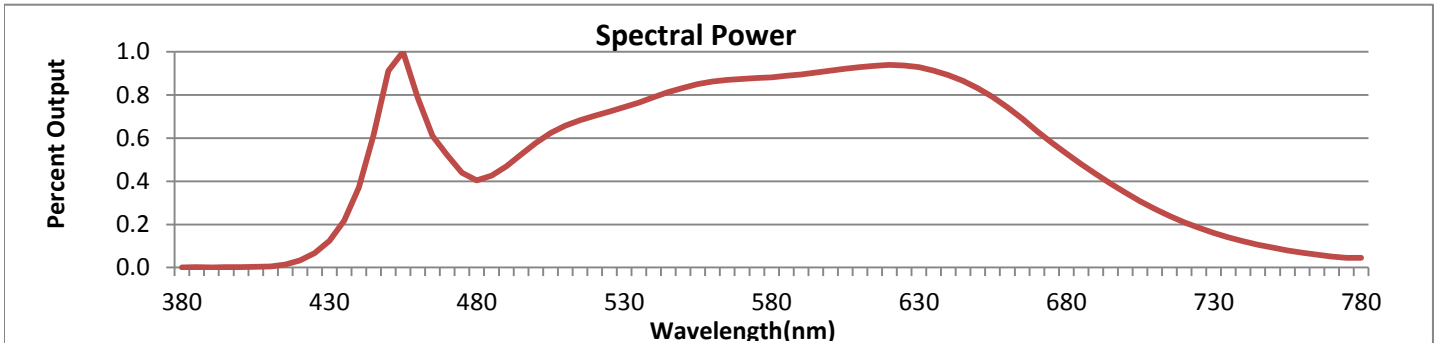


NVLAP LAB CODE 200927-0

Test Summary

Manufacturer:	GM LIGHTING
Model Number:	SLCB-24-40
Driver Model Number:	N/A
Total Lumens:	578.86
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.09
Input Power (W):	10.80
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

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



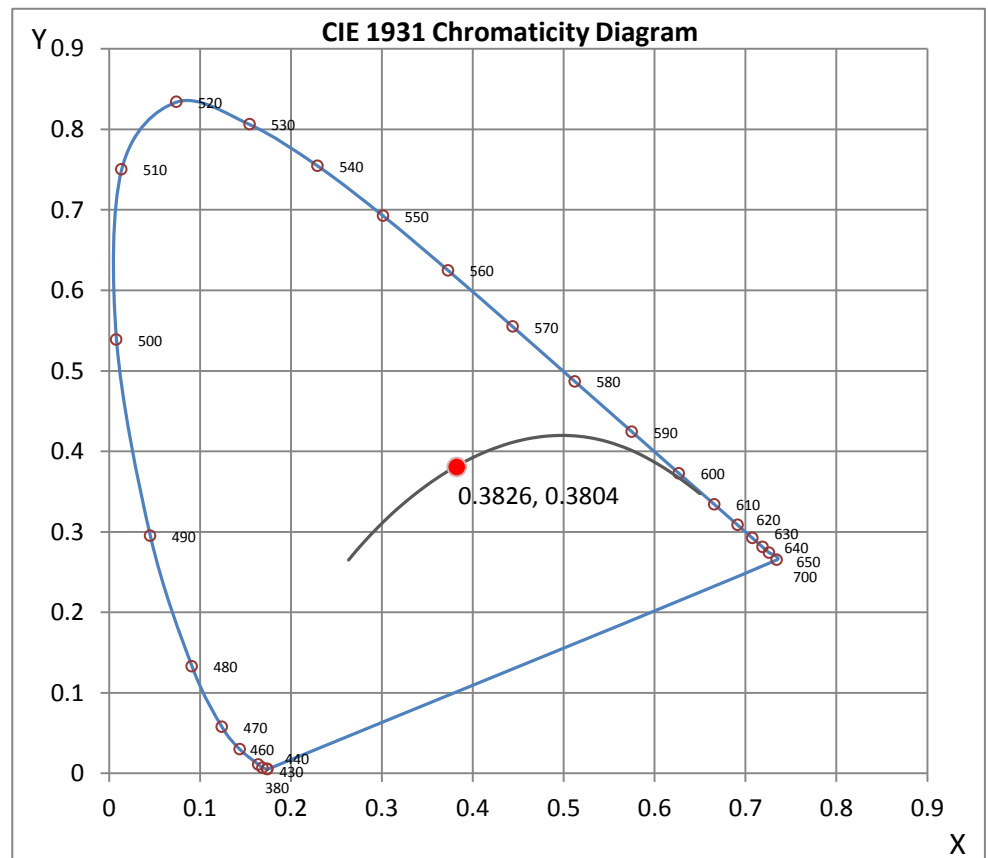
Wavelength	W/m ² nm	440	0.0010	510	0.0018	580	0.0024	650	0.0022	720	0.0006
380	0.0000	450	0.0024	520	0.0019	590	0.0024	660	0.0020	730	0.0004
390	0.0000	460	0.0021	530	0.0020	600	0.0025	670	0.0017	740	0.0003
400	0.0000	470	0.0014	540	0.0021	610	0.0025	680	0.0014	750	0.0002
410	0.0000	480	0.0011	550	0.0022	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



*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.

Report Prepared by : Keyur Patel

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: 10*



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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608009.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L041608009
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 4/29/2016
[MANUFAC] GM LIGHTING
[LUMCAT] SLCB-24-40
[LUMINAIRE] 1"L. X 24"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.
[TEST CONDITION] CANDELA AND ELECTRICAL VALUES ARE GENERATED FROM LIGHT
[MORE] LABORATORY REPORT L041608003 BY USING LENGTH RATIO OF 2.67.
[INPUT] 120VAC, 10.81W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	579
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	54
Total Luminaire Watts	10.81
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)	2.00 ft
Luminous Height	0.02 ft

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608009.IES

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	9898	9579	10141
55	9247	8857	9267
65	8652	7882	8197
75	8218	7040	6617
85	8240	6599	3253

**IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608009.IES**

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0	181.13	181.13	181.13	181.13	181.13
5	180.33	180.33	180.12	179.77	179.66
10	178.09	177.77	177.21	177.21	177.21
15	174.72	174.40	173.50	172.05	171.39
20	170.93	169.81	167.36	165.11	164.21
25	165.54	164.21	160.17	156.70	155.26
30	157.72	156.36	151.76	146.74	144.95
35	149.65	147.30	141.80	135.98	133.29
40	140.01	137.56	130.83	123.99	121.65
45	130.16	127.36	119.30	111.69	107.76
50	118.73	115.72	107.52	97.67	93.64
55	107.09	103.62	95.43	84.35	80.21
60	95.43	91.63	82.10	70.92	66.32
65	83.57	79.75	69.10	57.70	52.65
70	71.69	68.00	57.00	44.80	39.44
75	61.17	56.90	45.71	32.92	26.43
80	50.62	46.59	35.40	21.84	14.55
85	41.22	37.41	26.54	13.11	4.70
90	32.71	29.02	19.28	7.18	0.00
95	25.55	22.05	13.43	3.68	0.00
100	19.28	16.69	9.18	2.24	0.00
105	14.34	12.34	6.49	1.58	0.00
110	10.76	8.97	4.70	1.34	0.00
115	7.85	6.62	3.36	1.23	0.00
120	6.06	4.94	2.70	0.00	0.00
125	4.70	3.82	2.46	0.00	0.00
130	3.58	3.36	2.24	0.00	0.00
135	3.15	2.91	2.03	0.00	0.00
140	2.70	2.46	1.90	0.00	0.00
145	2.46	2.14	1.68	0.00	0.00
150	2.03	2.03	1.34	0.00	0.00
155	1.79	1.58	1.23	0.00	0.00
160	1.34	1.34	1.01	0.00	0.00
165	1.12	1.01	0.91	0.00	0.00
170	0.91	0.91	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
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	65.99	N.A.	11.40
0-30	139.85	N.A.	24.20
0-40	228.48	N.A.	39.50
0-60	404.79	N.A.	69.90
0-80	520.48	N.A.	89.90
0-90	548.31	N.A.	94.70
10-90	531.20	N.A.	91.80
20-40	162.49	N.A.	28.10
20-50	254.49	N.A.	44.00
40-70	244.44	N.A.	42.20
60-80	115.70	N.A.	20.00
70-80	47.57	N.A.	8.20
80-90	27.83	N.A.	4.80
90-110	22.07	N.A.	3.80
90-120	25.89	N.A.	4.50
90-130	27.87	N.A.	4.80
90-150	29.94	N.A.	5.20
90-180	30.55	N.A.	5.30
110-180	8.48	N.A.	1.50
0-180	578.86	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

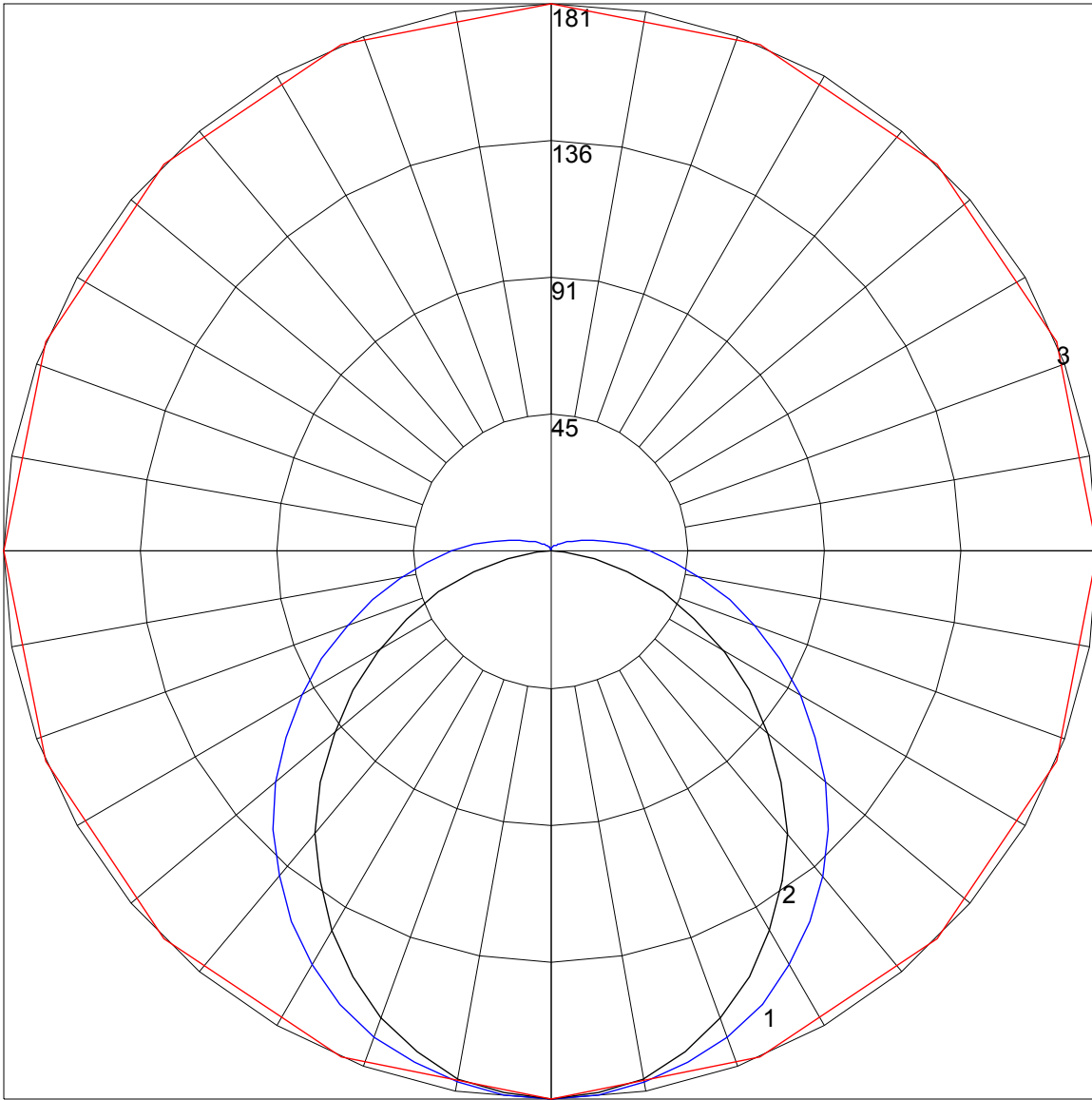
Zone	Lumens
0-10	17.11
10-20	48.88
20-30	73.86
30-40	88.63
40-50	92.00
50-60	84.31
60-70	68.13
70-80	47.57
80-90	27.83
90-100	14.56
100-110	7.50
110-120	3.82
120-130	1.99
130-140	1.27
140-150	0.80
150-160	0.43
160-170	0.17
170-180	0.01

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
0	118	118	118	118	114	114	114	114	108	108	108	102	102	102	97	97	97	95
1	106	101	96	92	103	98	93	90	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	69	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	42	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	39	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 = 181.13 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.)