



8165 E Kaiser Blvd. Anaheim, CA 92808
 p. 714.282.2270
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Report No: L041608007

Date: 4/29/2016



NVLAP LAB CODE 200927-0

Report No: L041608007

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

Model Number: SLCB-24-27

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-24-27 . Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Total lumens and electrical values are generated from Light Laboratory Report L041608001 by using length ratio of 2.67. Spectral color data are from Light Laboratory Report L041608001.

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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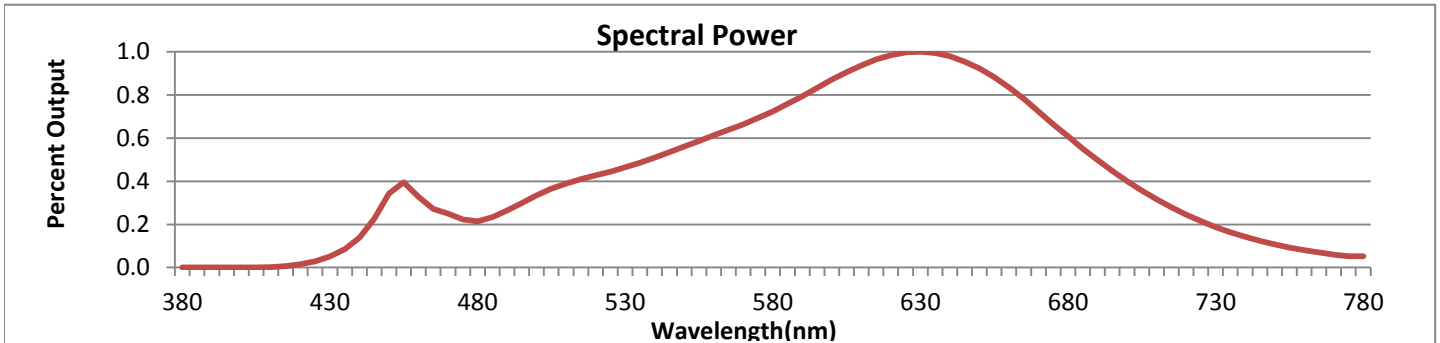


NVLAP LAB CODE 200927-0

Test Summary

Manufacturer:	GM LIGHTING
Model Number:	SLCB-24-27
Driver Model Number:	N/A
Total Lumens:	488.66
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.09
Input Power (W):	10.77
Input Power Factor:	0.99
Current ATHD @ 120V(%):	15%
Current ATHD @ 277V(%):	N/A
Efficacy:	45
Color Rendering Index (CRI):	95
Correlated Color Temperature (K):	2740
Chromaticity Coordinate x:	0.4540
Chromaticity Coordinate y:	0.4049
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:05
Off State Power(W):	0.00

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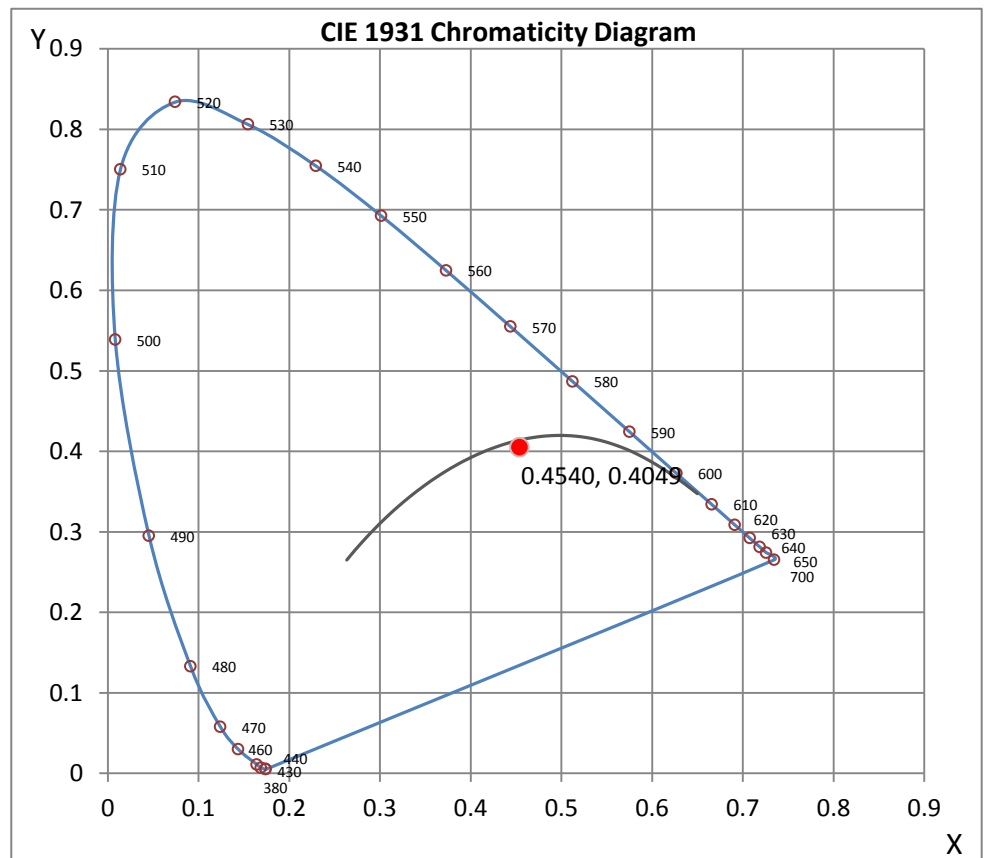
Wavelength	W/m ² nm	440	0.0004	510	0.0011	580	0.0021	650	0.0027	720	0.0007
380	0.0000	450	0.0010	520	0.0013	590	0.0023	660	0.0025	730	0.0006
390	0.0000	460	0.0010	530	0.0014	600	0.0026	670	0.0021	740	0.0004
400	0.0000	470	0.0007	540	0.0015	610	0.0028	680	0.0018	750	0.0003
410	0.0000	480	0.0006	550	0.0016	620	0.0029	690	0.0015	760	0.0002
420	0.0000	490	0.0008	560	0.0018	630	0.0029	700	0.0012	770	0.0002
430	0.0001	500	0.0010	570	0.0020	640	0.0029	710	0.0009	780	0.0002

CRI & CCT

x	0.4540
y	0.4049
u'	0.2613
v'	0.5243
CRI	95.30
CCT	2740
Duv	-0.00162

R Values

R1	96.24
R2	99.10
R3	98.58
R4	95.45
R5	96.43
R6	97.19
R7	92.80
R8	86.53
R9	72.66
R10	97.33
R11	96.89
R12	87.54
R13	97.30
R14	99.49



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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: 10*

*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 : L041608007.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L041608007
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 4/29/2016
[MANUFAC] GM LIGHTING
[LUMCAT] SLCB-24-27
[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 L041608001 BY USING LENGTH RATIO OF 2.67.
[INPUT] 120VAC, 10.79W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	489
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	45
Total Luminaire Watts	10.79
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)	2.00 ft
Luminous Height	0.02 ft

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608007.IES

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	8210	8140	8918
55	7468	7318	8100
65	6820	6490	7150
75	6381	5728	5775
85	6357	5319	2941

**IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608007.IES**

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0	161.29	161.29	161.29	161.29	161.29
5	160.63	160.28	160.41	160.17	160.41
10	158.17	157.82	157.37	157.05	157.05
15	154.35	153.79	153.58	152.88	152.32
20	149.41	148.99	147.62	146.50	146.08
25	143.14	142.26	140.47	138.55	138.23
30	135.53	134.51	131.74	129.15	128.13
35	127.01	125.78	122.66	119.06	117.40
40	117.83	116.39	112.25	107.87	106.19
45	107.97	106.53	101.38	96.65	94.76
50	97.67	95.56	90.06	84.56	82.00
55	86.48	84.35	78.85	72.60	70.11
60	75.93	73.93	67.66	60.93	58.02
65	65.87	63.52	56.90	49.40	45.92
70	56.44	53.53	46.59	38.31	33.83
75	47.50	44.70	37.19	27.77	23.07
80	39.20	36.63	28.78	18.58	12.76
85	31.80	29.24	21.39	10.97	4.25
90	25.31	22.75	15.35	5.82	0.00
95	19.49	17.25	10.76	3.02	0.00
100	14.79	12.76	7.29	1.68	0.00
105	11.21	9.29	5.05	1.23	0.00
110	8.28	6.84	3.58	0.91	0.00
115	6.06	5.05	2.70	0.77	0.21
120	4.70	3.58	2.03	0.91	0.21
125	3.58	2.91	1.58	0.91	0.21
130	2.70	2.24	1.58	0.77	0.45
135	2.24	2.03	1.34	0.67	0.45
140	2.03	1.58	1.34	0.56	0.45
145	1.58	1.58	1.01	0.56	0.45
150	0.00	1.34	0.91	0.56	0.45
155	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00
165	0.00	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 : L041608007.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	58.47	N.A.	12.00
0-30	123.16	N.A.	25.20
0-40	199.73	N.A.	40.90
0-60	348.34	N.A.	71.30
0-80	442.86	N.A.	90.60
0-90	465.07	N.A.	95.20
10-90	449.85	N.A.	92.10
20-40	141.26	N.A.	28.90
20-50	219.50	N.A.	44.90
40-70	204.62	N.A.	41.90
60-80	94.52	N.A.	19.30
70-80	38.52	N.A.	7.90
80-90	22.20	N.A.	4.50
90-110	17.17	N.A.	3.50
90-120	20.14	N.A.	4.10
90-130	21.81	N.A.	4.50
90-150	23.50	N.A.	4.80
90-180	23.60	N.A.	4.80
110-180	6.43	N.A.	1.30
0-180	488.66	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	15.21
10-20	43.26
20-30	64.69
30-40	76.57
40-50	78.24
50-60	70.37
60-70	56.00
70-80	38.52
80-90	22.20
90-100	11.41
100-110	5.76
110-120	2.97
120-130	1.67
130-140	1.05
140-150	0.64
150-160	0.10
160-170	0.00
170-180	0.00

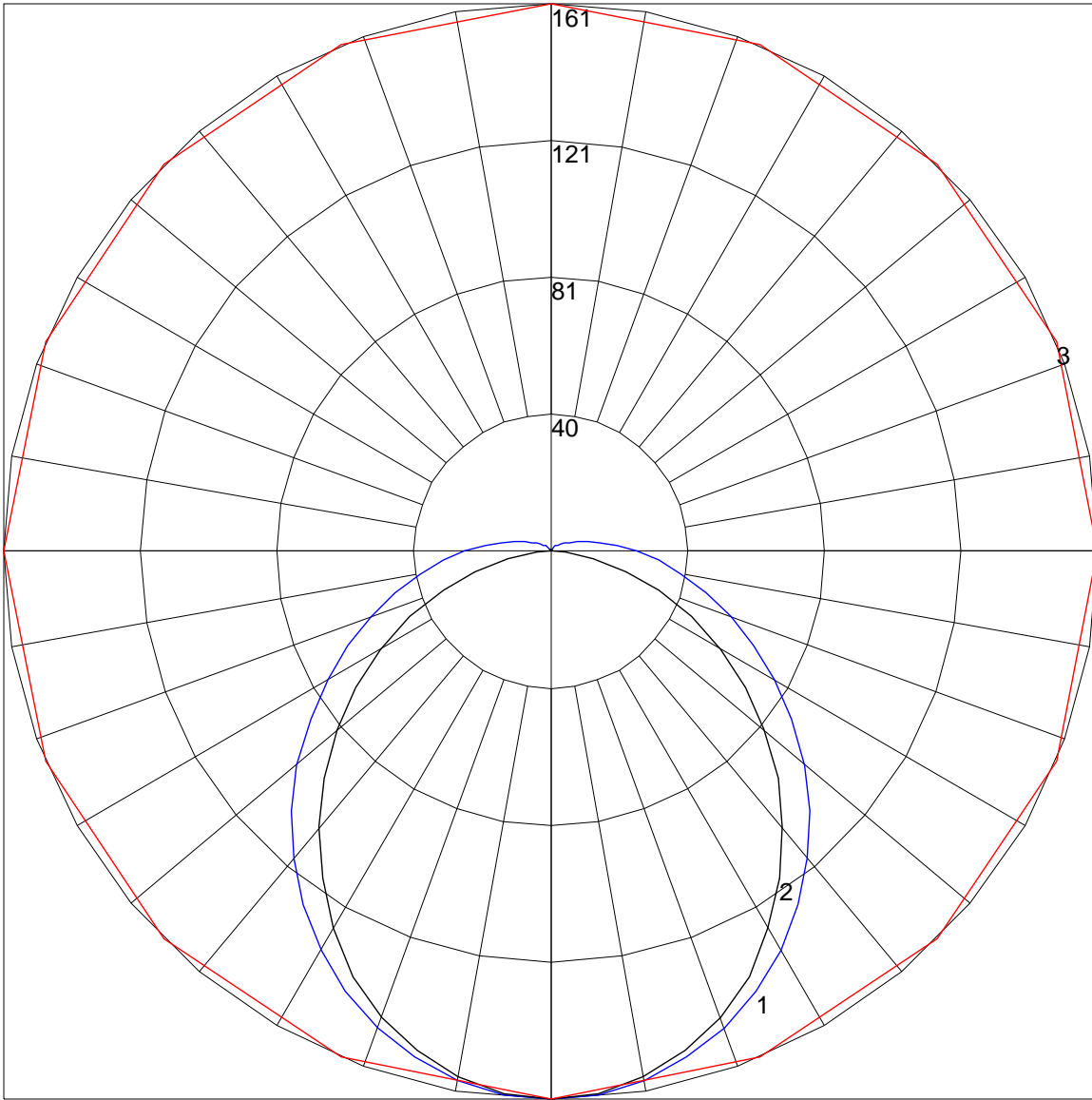
IES INDOOR REPORT
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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

POLAR GRAPH



Maximum Candela = 161.29 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.)