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Report No: L041607901

Date: 4/27/2016



NVLAP LAB CODE 200927-0

Report No: L041607901

Report Prepared For: GM LIGHTING
 9830 W. 190th Street

Model Number: LARC6-8-WW-W

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 LARC6-8-WW-W. 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: 4/25/16 - 4/27/16

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:	LARC6-8-WW-W
Driver Model Number:	N/A
Total Lumens:	230.60
Input Voltage (VDC):	24.00
Input Current (Amp):	0.13
Input Power (W):	3.05
Input Power Factor:	1.00
Current ATHD @ 120V(%):	N/A
Current ATHD @ 277V(%):	N/A
Efficacy:	76
Color Rendering Index (CRI):	86
Correlated Color Temperature (K):	3051
Chromaticity Coordinate x:	0.4309
Chromaticity Coordinate y:	0.3976
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	1:00
Off State Power(W):	0.00

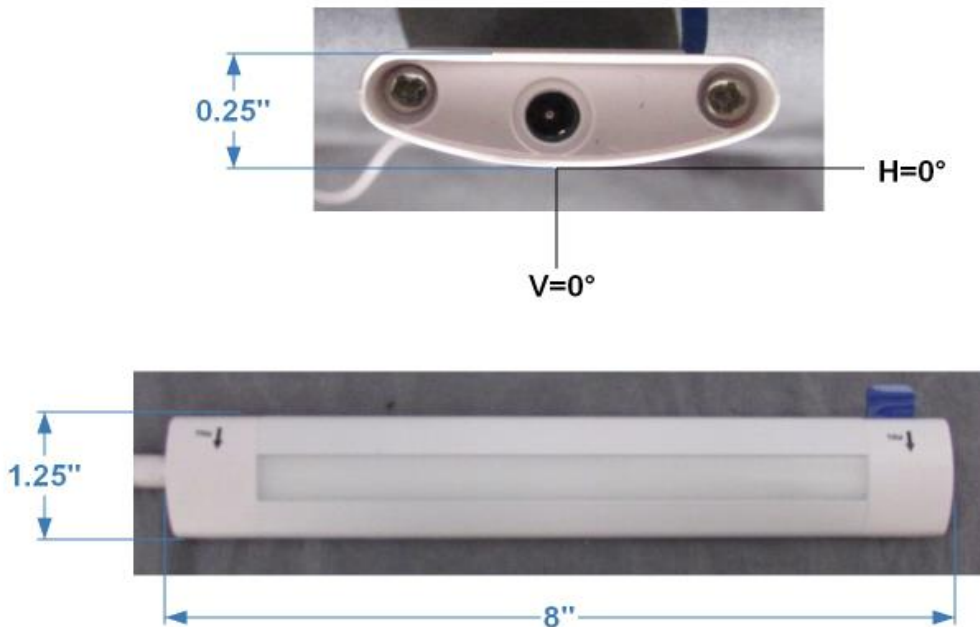
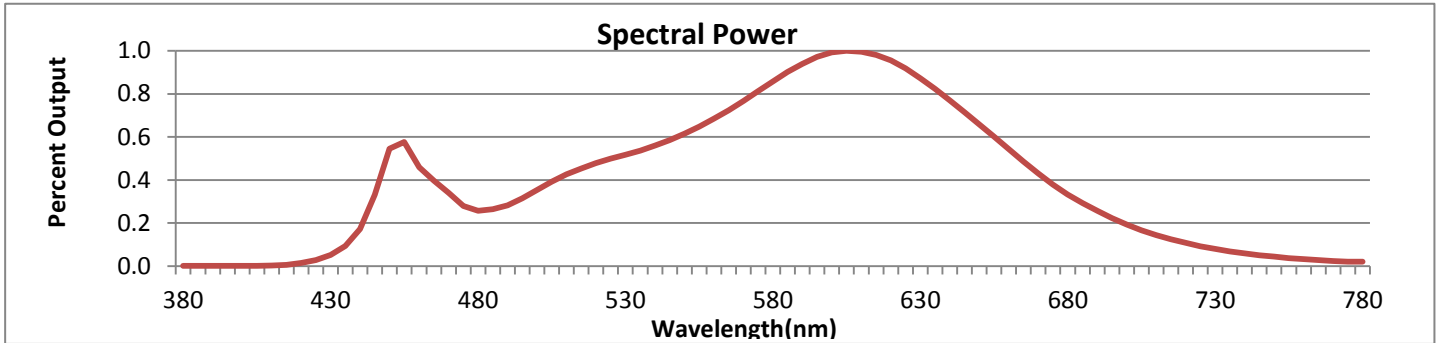


FIG. 1 LUMINAIRE

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



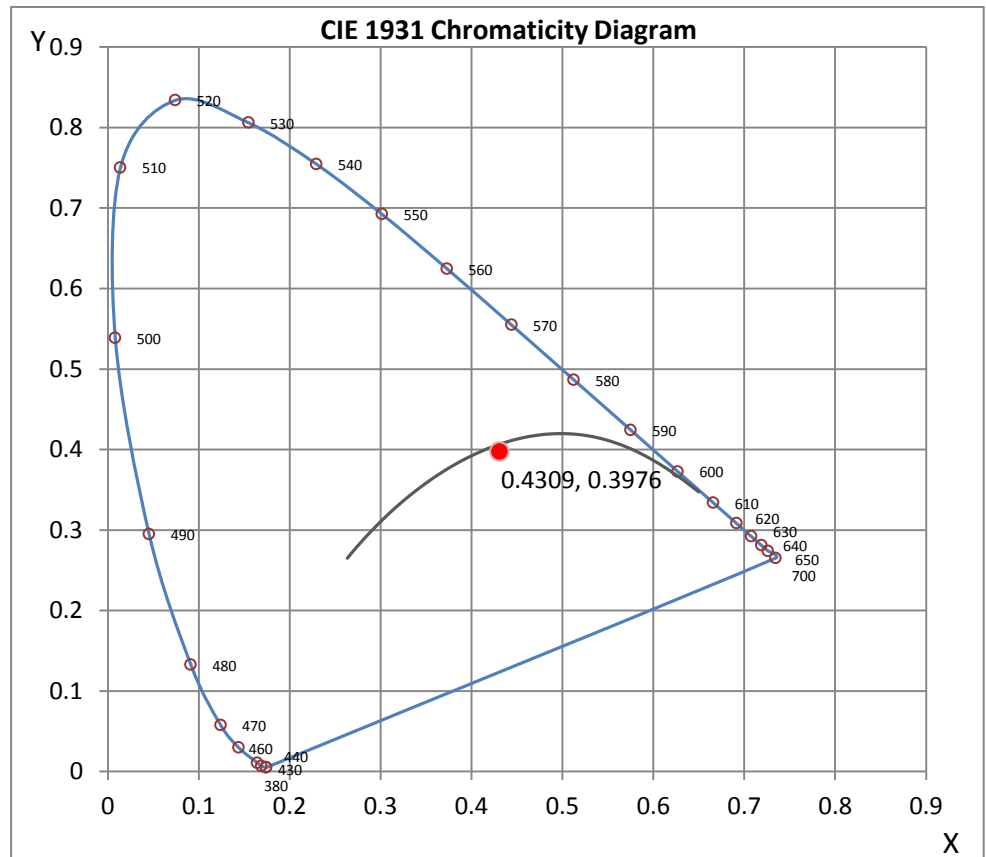
Wavelength	W/m ² nm	440	0.0006	510	0.0015	580	0.0030	650	0.0023	720	0.0004
380	0.0000	450	0.0019	520	0.0017	590	0.0033	660	0.0019	730	0.0003
390	0.0000	460	0.0016	530	0.0018	600	0.0035	670	0.0015	740	0.0002
400	0.0000	470	0.0012	540	0.0020	610	0.0035	680	0.0012	750	0.0002
410	0.0000	480	0.0009	550	0.0022	620	0.0034	690	0.0009	760	0.0001
420	0.0001	490	0.0010	560	0.0024	630	0.0031	700	0.0007	770	0.0001
430	0.0002	500	0.0012	570	0.0027	640	0.0027	710	0.0005	780	0.0001

CRI & CCT

x	0.4309
y	0.3976
u'	0.2495
v'	0.5179
CRI	86.20
CCT	3051
Duv	-0.00176

R Values

R1	86.04
R2	94.98
R3	95.07
R4	84.07
R5	86.27
R6	93.57
R7	84.17
R8	65.83
R9	25.53
R10	88.11
R11	84.18
R12	76.25
R13	88.55
R14	98.11



*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: 9*



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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041607901.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L041607901
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 4/27/2016
 [MANUFAC] GM LIGHTING
 [LUMCAT] LARC6-8-WW-W
 [LUMINAIRE] 8" Portable Cabinet LED LUMINAIRE
 [LAMPPOSITION] 0,0
 [LAMPCAT] N/A
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [POWER SUPPLY] 24VDC CONSTANT VOLTAGE SOURCE
 [INPUT] 24VDC, 3.05W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	231
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	76
Total Luminaire Watts	3.05
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.28
Spacing Criterion (90-270)	1.28
Spacing Criterion (Diagonal)	1.40
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.04 ft
Luminous Width (90-270)	0.52 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	39446	39351	39388
55	38417	38345	38273
65	36334	36077	36028
75	31342	30843	30663
85	22898	19932	16432

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041607901.IES

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0	78.81	78.81	78.81	78.81	78.81
5	78.45	78.49	78.49	78.45	78.62
10	77.53	77.48	77.48	77.44	77.61
15	75.85	75.89	75.89	75.89	75.93
20	73.67	73.67	73.67	73.67	73.75
25	70.81	70.77	70.77	70.77	70.90
30	67.46	67.37	67.33	67.29	67.46
35	63.52	63.35	63.43	63.43	63.43
40	58.90	58.94	58.86	58.86	58.98
45	53.95	53.87	53.82	53.74	53.87
50	48.58	48.41	48.45	48.29	48.41
55	42.62	42.50	42.54	42.41	42.46
60	36.16	36.25	35.99	36.08	36.16
65	29.70	29.70	29.49	29.41	29.45
70	23.07	22.74	22.57	22.44	22.40
75	15.69	15.86	15.44	15.23	15.35
80	9.23	9.31	8.94	8.68	8.56
85	3.86	3.69	3.36	2.94	2.77
90	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041607901.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	28.89	N.A.	12.50
0-30	61.52	N.A.	26.70
0-40	101.19	N.A.	43.90
0-60	180.66	N.A.	78.30
0-80	226.35	N.A.	98.20
0-90	230.60	N.A.	100.00
10-90	223.14	N.A.	96.80
20-40	72.30	N.A.	31.40
20-50	113.84	N.A.	49.40
40-70	108.64	N.A.	47.10
60-80	45.69	N.A.	19.80
70-80	16.51	N.A.	7.20
80-90	4.25	N.A.	1.80
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	230.60	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	7.46
10-20	21.43
20-30	32.64
30-40	39.67
40-50	41.53
50-60	37.94
60-70	29.17
70-80	16.51
80-90	4.25
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

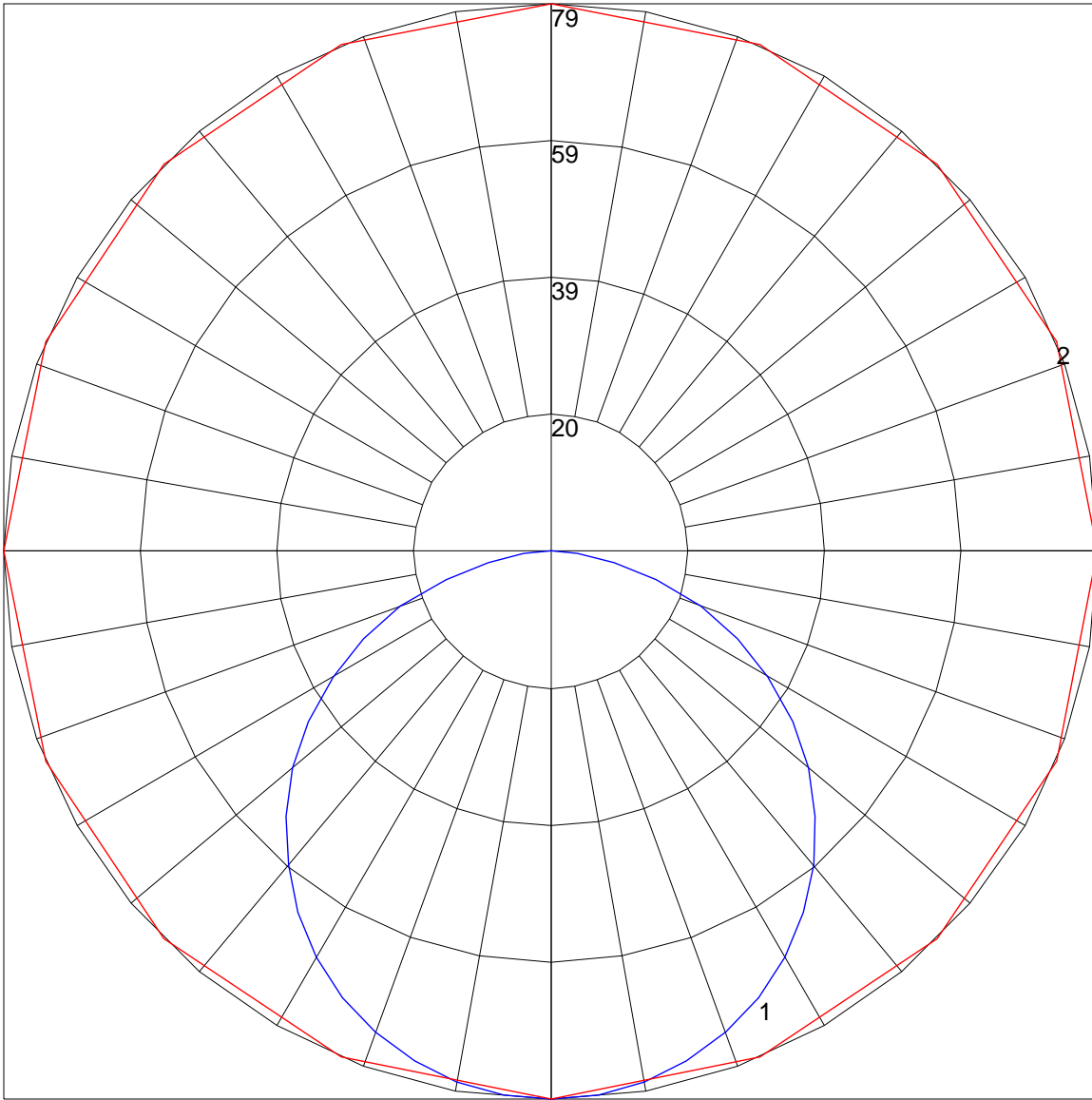
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	108	104	99	95	106	101	97	94	97	94	91	93	91	88	90	87	85	83
2	98	90	83	77	96	88	82	76	85	79	75	81	77	73	78	75	71	69
3	90	79	71	64	87	77	70	64	74	68	62	72	66	61	69	64	60	58
4	82	70	61	54	80	68	60	54	66	59	53	64	57	52	61	56	52	49
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	45	43
6	69	56	47	40	68	55	47	40	53	46	40	52	45	40	50	44	39	37
7	64	51	42	36	63	50	42	36	48	41	35	47	40	35	46	39	35	33
8	60	46	38	32	58	46	37	32	44	37	31	43	36	31	42	36	31	29
9	56	42	34	29	55	42	34	28	41	33	28	40	33	28	39	32	28	26
10	52	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	25	24

POLAR GRAPH



Maximum Candela = 78.81 Located At Horizontal Angle = 0, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)