



8165 E Kaiser Blvd. Anaheim, CA 92808  
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Report No: L041608104

Date: 4/28/2016



NVLAP LAB CODE 200927-0

**Report No:** L041608104

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

**Model Number:** LTR300-SO-WW

**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 LTR300-SO-WW . 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:** 4/26/16 - 4/28/16

**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**

<b>Manufacturer:</b>	GM LIGHTING
<b>Model Number:</b>	LTR300-SO-WW
<b>Driver Model Number:</b>	N/A
<b>Total Lumens:</b>	605.37
<b>Input Voltage (VDC):</b>	12.00
<b>Input Current (Amp):</b>	0.50
<b>Input Power (W):</b>	6.04
<b>Input Power Factor:</b>	1.00
<b>Current ATHD @ 120V(%):</b>	N/A
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	100
<b>Color Rendering Index (CRI):</b>	86
<b>Correlated Color Temperature (K):</b>	3397
<b>Chromaticity Coordinate x:</b>	0.4115
<b>Chromaticity Coordinate y:</b>	0.3942
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:35
<b>Total Operating Time (Hours):</b>	0:55
<b>Off State Power(W):</b>	0.00

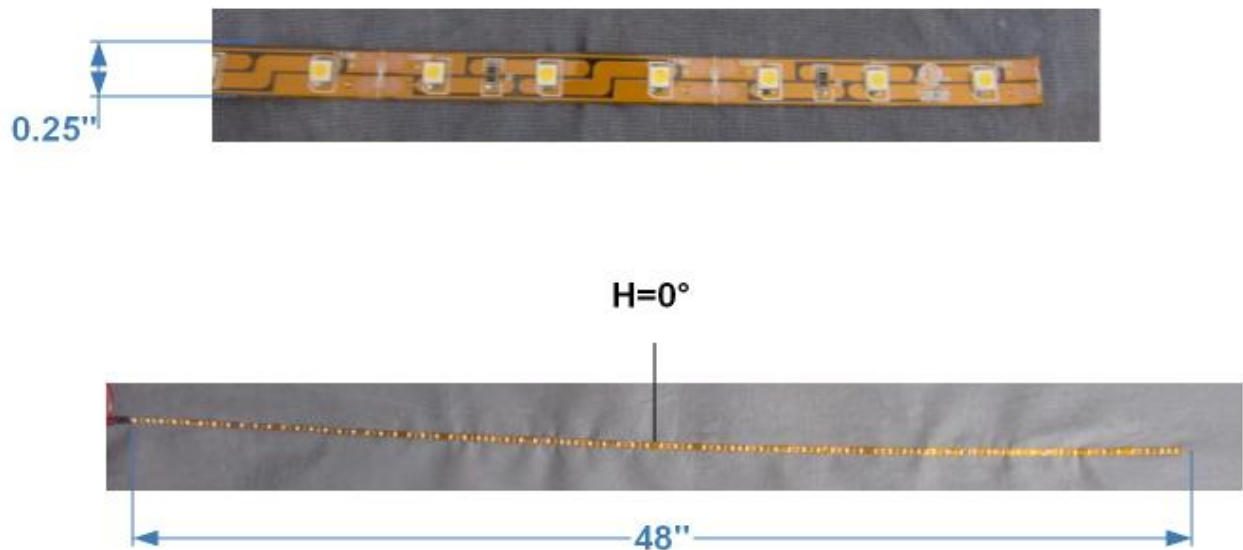
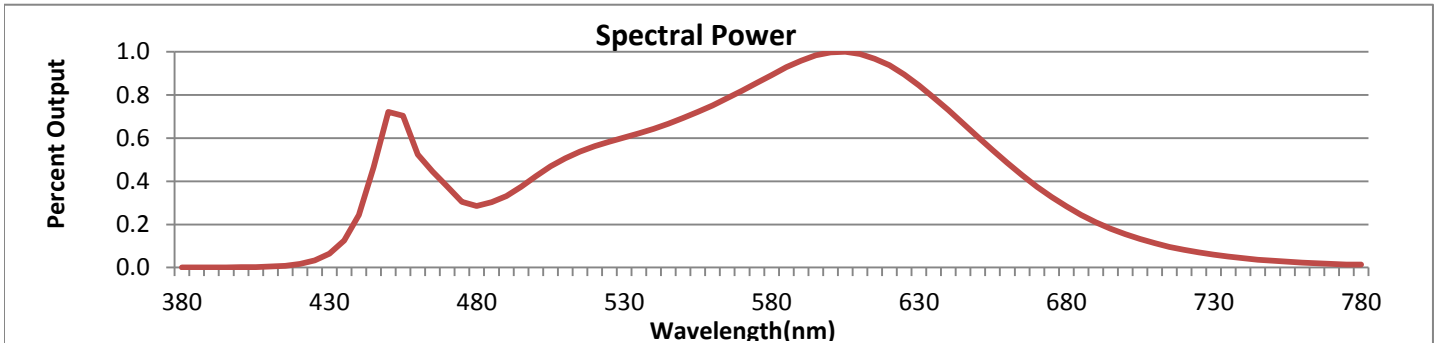


FIG. 1 LUMINAIRE

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



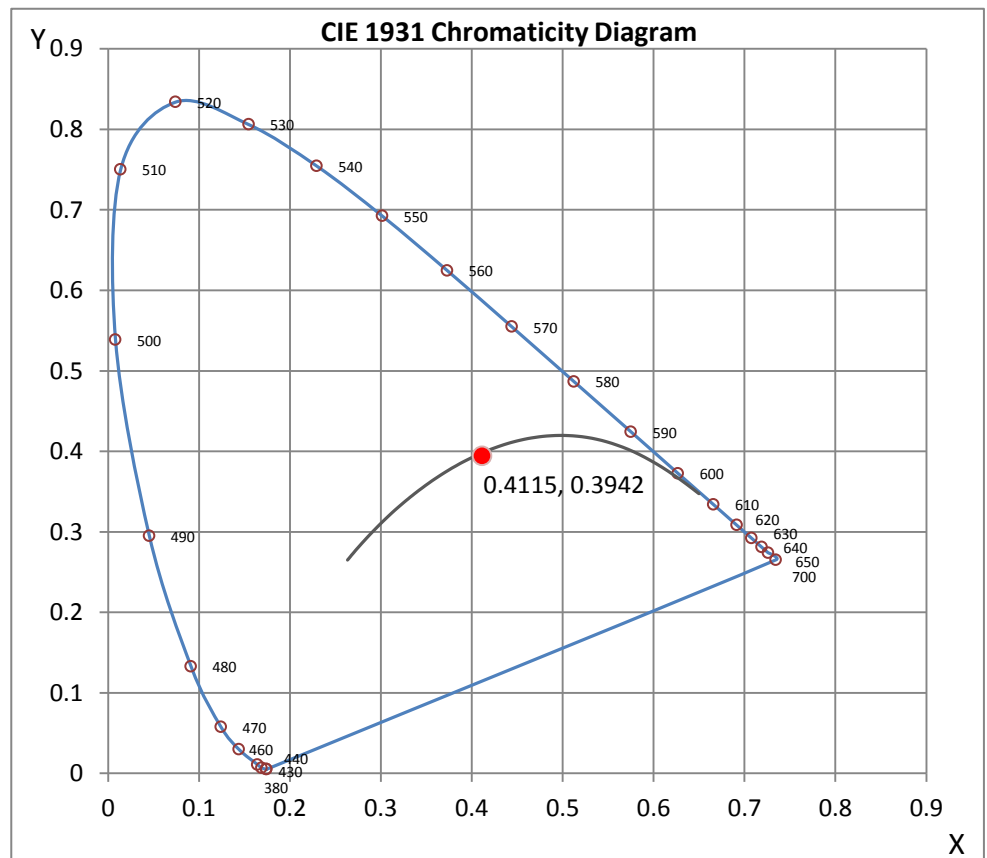
Wavelength	W/m <sup>2</sup> nm	440	0.0019	510	0.0039	580	0.0069	650	0.0047	720	0.0006
380	0.0000	450	0.0056	520	0.0044	590	0.0075	660	0.0038	730	0.0005
390	0.0000	460	0.0041	530	0.0047	600	0.0078	670	0.0029	740	0.0003
400	0.0000	470	0.0029	540	0.0050	610	0.0077	680	0.0022	750	0.0002
410	0.0000	480	0.0022	550	0.0054	620	0.0073	690	0.0016	760	0.0002
420	0.0001	490	0.0026	560	0.0058	630	0.0066	700	0.0012	770	0.0001
430	0.0005	500	0.0033	570	0.0064	640	0.0057	710	0.0009	780	0.0001

**CRI & CCT**

x	0.4115
y	0.3942
u'	0.2383
v'	0.5136
CRI	86.40
CCT	3397
Duv	0.00020

**R Values**

R1	85.62
R2	93.54
R3	96.93
R4	84.81
R5	85.54
R6	91.46
R7	85.99
R8	67.12
R9	23.28
R10	84.52
R11	84.86
R12	71.09
R13	87.81
R14	98.91



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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*

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# Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L041608104.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST] L041608104  
 [TESTLAB] LIGHT LABORATORY, INC.  
 [ISSUEDATE] 4/28/2016  
 [MANUFAC] GM LIGHTING  
 [LUMCAT] LTR300-SO-WW  
 [LUMINAIRE] 4FT Standard Output Led Linear Ribbon  
 [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] 12VDC CONSTANT VOLTAGE SOURCE  
 [INPUT] 12VDC, 6.04W  
 [TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	605
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	100
Total Luminaire Watts	6.04
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.28
Spacing Criterion (90-270)	1.30
Spacing Criterion (Diagonal)	1.42
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.01 ft
Luminous Width (90-270)	4.00 ft
Luminous Height	0.00 ft

**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	53944	54118	54392
55	52346	52543	52698
65	48894	49212	49212
75	41830	41311	40791
85	32358	29520	25356

IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L041608104.IES

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
<b>0</b>	205.08	205.08	205.08	205.08	205.08
<b>5</b>	204.22	204.26	204.26	204.35	204.56
<b>10</b>	201.87	201.91	201.91	202.00	202.29
<b>15</b>	198.01	198.01	198.05	198.10	198.43
<b>20</b>	192.47	192.56	192.60	192.68	192.89
<b>25</b>	185.43	185.43	185.51	185.76	186.01
<b>30</b>	176.62	176.83	176.99	176.99	177.37
<b>35</b>	166.80	166.93	167.01	167.01	167.55
<b>40</b>	155.22	155.01	155.14	155.72	155.64
<b>45</b>	141.88	142.13	142.34	142.43	143.06
<b>50</b>	127.45	127.74	127.95	127.95	128.62
<b>55</b>	111.68	111.84	112.10	112.26	112.43
<b>60</b>	94.81	94.64	94.85	95.31	94.98
<b>65</b>	76.86	77.28	77.36	77.32	77.36
<b>70</b>	58.48	58.73	58.77	58.56	59.15
<b>75</b>	40.27	39.90	39.77	39.81	39.27
<b>80</b>	23.75	23.37	22.95	22.74	22.15
<b>85</b>	10.49	10.19	9.57	8.77	8.22
<b>90</b>	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	75.36	N.A.	12.40
0-30	160.91	N.A.	26.60
0-40	265.35	N.A.	43.80
0-60	475.10	N.A.	78.50
0-80	593.96	N.A.	98.10
0-90	605.37	N.A.	100.00
10-90	585.94	N.A.	96.80
20-40	189.99	N.A.	31.40
20-50	299.71	N.A.	49.50
40-70	286.04	N.A.	47.30
60-80	118.85	N.A.	19.60
70-80	42.56	N.A.	7.00
80-90	11.42	N.A.	1.90
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	605.37	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	19.43
10-20	55.93
20-30	85.55
30-40	104.44
40-50	109.73
50-60	100.02
60-70	76.29
70-80	42.56
80-90	11.42
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

**IES INDOOR REPORT**  
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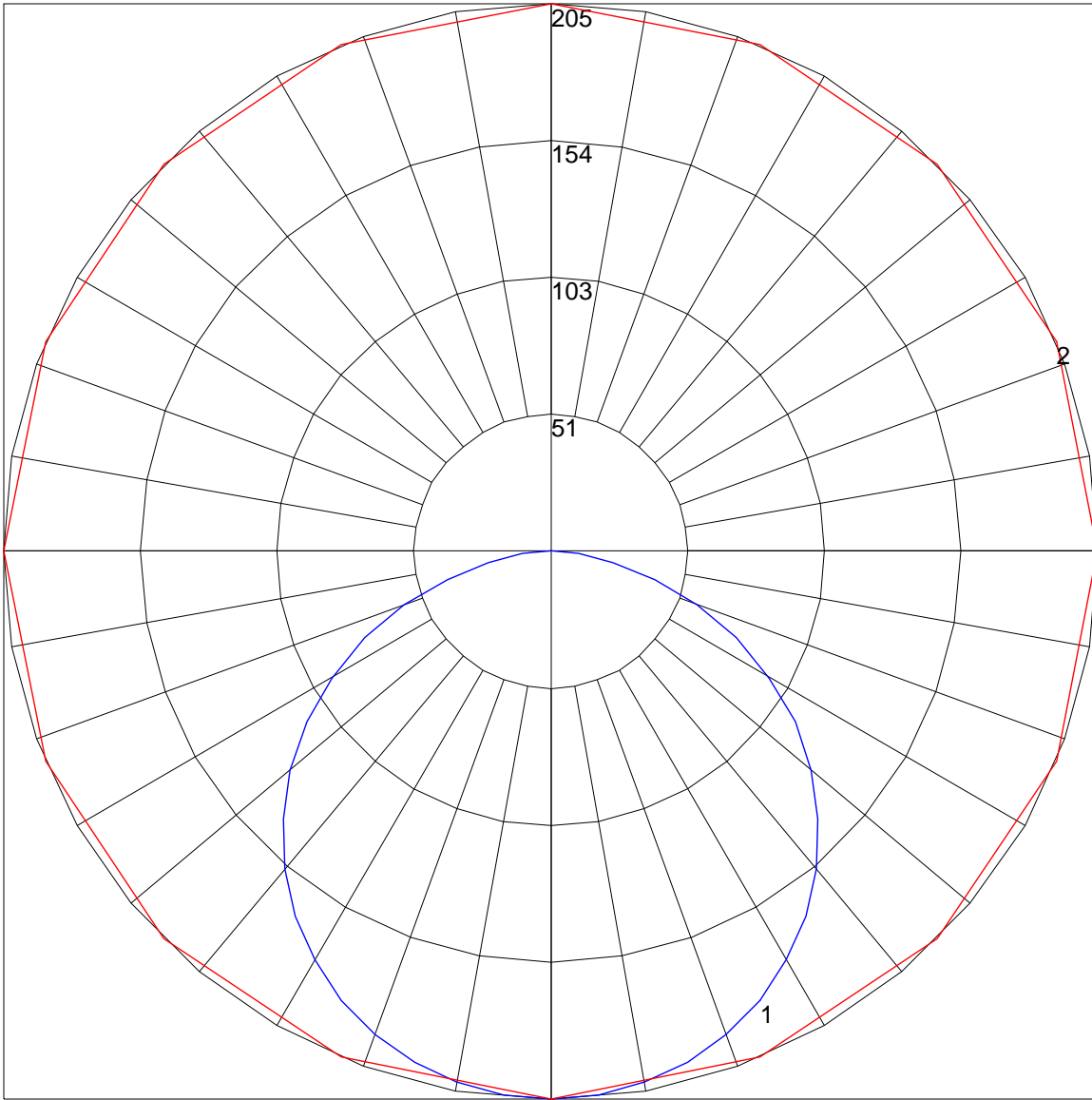
**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	104	100	96	106	102	98	94	97	94	91	93	91	88	90	88	86	84
2	99	90	83	78	96	88	82	77	85	79	75	82	77	73	79	75	71	69
3	90	79	71	64	87	78	70	64	75	68	63	72	66	61	69	64	60	58
4	82	70	61	54	80	69	60	54	66	59	53	64	57	52	62	56	52	49
5	75	62	53	47	73	61	53	46	59	52	46	57	51	45	55	49	45	43
6	70	56	47	41	68	55	47	40	53	46	40	52	45	40	50	44	39	37
7	65	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	32	43	36	31	42	36	31	29
9	56	42	34	29	55	42	34	29	41	33	28	40	33	28	39	33	28	26
10	53	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	25	24



POLAR GRAPH



Maximum Candela = 205.08 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.)