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Report No: L041608105

Date: 4/28/2016



NVLAP LAB CODE 200927-0

Report No: L041608105

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

Model Number: LTR300-SO-42

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-42 . 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

Manufacturer:	GM LIGHTING
Model Number:	LTR300-SO-42
Driver Model Number:	N/A
Total Lumens:	547.91
Input Voltage (VDC):	12.00
Input Current (Amp):	0.45
Input Power (W):	5.48
Input Power Factor:	1.00
Current ATHD @ 120V(%):	N/A
Current ATHD @ 277V(%):	N/A
Efficacy:	100
Color Rendering Index (CRI):	83
Correlated Color Temperature (K):	4152
Chromaticity Coordinate x:	0.3747
Chromaticity Coordinate y:	0.3757
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	0:55
Off State Power(W):	0.00

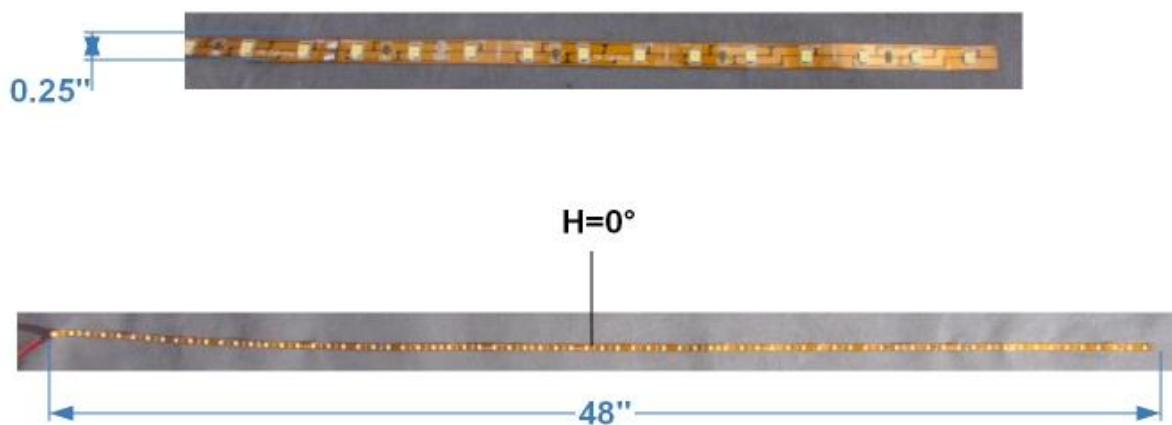
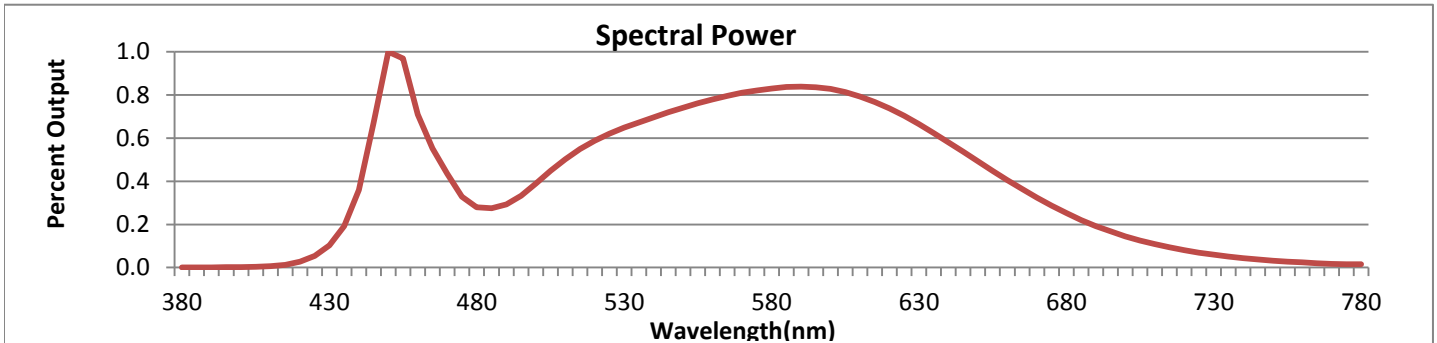


FIG. 1 LUMINAIRE

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



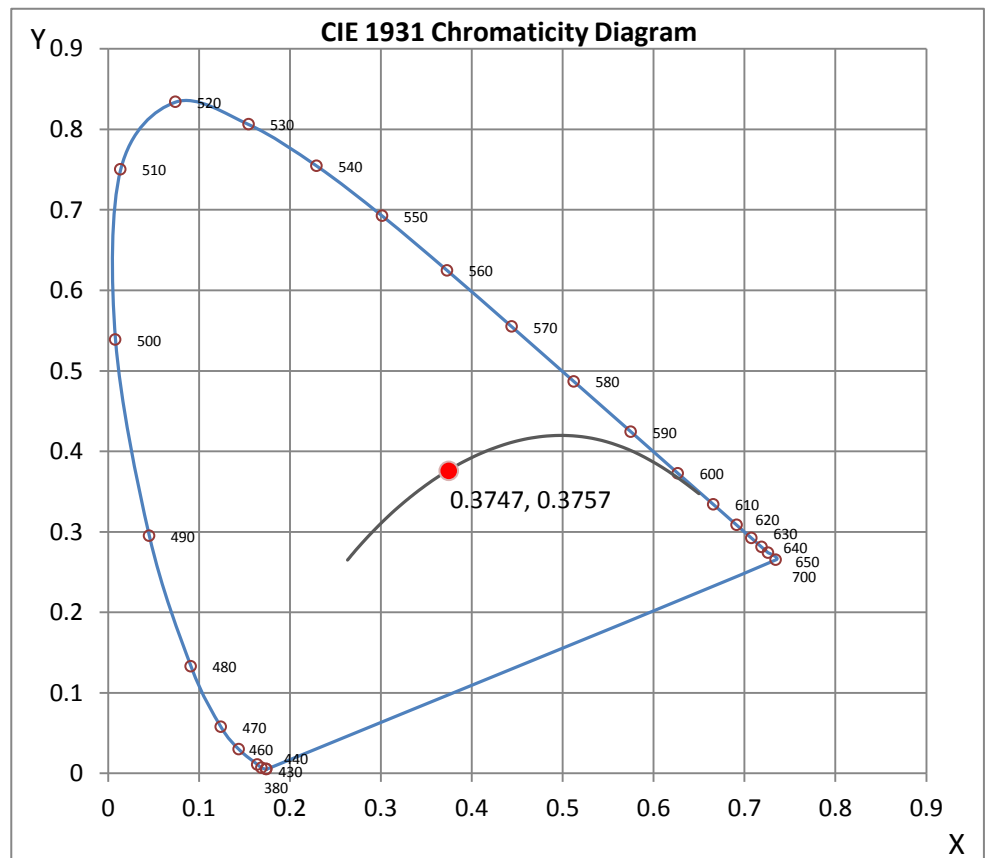
Wavelength	W/m ² nm	440	0.0027	510	0.0038	580	0.0063	650	0.0037	720	0.0006
380	0.0000	450	0.0076	520	0.0045	590	0.0064	660	0.0031	730	0.0005
390	0.0000	460	0.0054	530	0.0049	600	0.0063	670	0.0025	740	0.0003
400	0.0000	470	0.0033	540	0.0053	610	0.0060	680	0.0019	750	0.0002
410	0.0000	480	0.0021	550	0.0056	620	0.0056	690	0.0015	760	0.0002
420	0.0002	490	0.0022	560	0.0059	630	0.0051	700	0.0011	770	0.0001
430	0.0008	500	0.0030	570	0.0062	640	0.0044	710	0.0008	780	0.0001

CRI & CCT

x	0.3747
y	0.3757
u'	0.2217
v'	0.5003
CRI	83.40
CCT	4152
Duv	0.00124

R Values

R1	81.79
R2	88.95
R3	93.26
R4	81.49
R5	80.74
R6	83.17
R7	88.28
R8	69.18
R9	19.21
R10	72.46
R11	79.02
R12	56.35
R13	83.55
R14	95.92



*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.

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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 : L041608105.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L041608105
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 4/28/2016
 [MANUFAC] GM LIGHTING
 [LUMCAT] LTR300-SO-42
 [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, 5.48W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	548
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	100
Total Luminaire Watts	5.48
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.30
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	48967	48951	48967
55	47664	47626	47701
65	44568	44543	44676
75	37737	37561	37478
85	24862	24060	23289

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608105.IES

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0	185.45	185.45	185.45	185.45	185.45
5	184.67	184.71	184.76	184.67	184.76
10	182.57	182.49	182.57	182.53	182.66
15	178.97	179.09	179.05	179.05	179.22
20	174.18	174.14	174.18	174.14	174.27
25	167.89	167.72	167.89	167.85	167.81
30	160.00	160.05	160.09	159.92	160.09
35	151.03	151.15	151.03	150.90	151.11
40	140.87	140.54	140.62	140.58	140.54
45	128.79	128.83	128.75	128.71	128.79
50	115.87	116.04	116.00	115.74	115.87
55	101.69	101.69	101.61	101.61	101.77
60	86.34	86.17	86.13	86.38	86.59
65	70.06	70.10	70.02	70.10	70.23
70	53.28	53.49	53.24	53.28	53.36
75	36.33	36.12	36.16	36.25	36.08
80	20.89	20.98	20.77	20.85	20.98
85	8.06	8.10	7.80	7.64	7.55
90	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	68.13	N.A.	12.40
0-30	145.49	N.A.	26.60
0-40	239.95	N.A.	43.80
0-60	430.02	N.A.	78.50
0-80	537.96	N.A.	98.20
0-90	547.91	N.A.	100.00
10-90	530.34	N.A.	96.80
20-40	171.83	N.A.	31.40
20-50	271.15	N.A.	49.50
40-70	259.34	N.A.	47.30
60-80	107.94	N.A.	19.70
70-80	38.67	N.A.	7.10
80-90	9.95	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	547.91	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	17.56
10-20	50.56
20-30	77.36
30-40	94.47
40-50	99.32
50-60	90.75
60-70	69.27
70-80	38.67
80-90	9.95
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

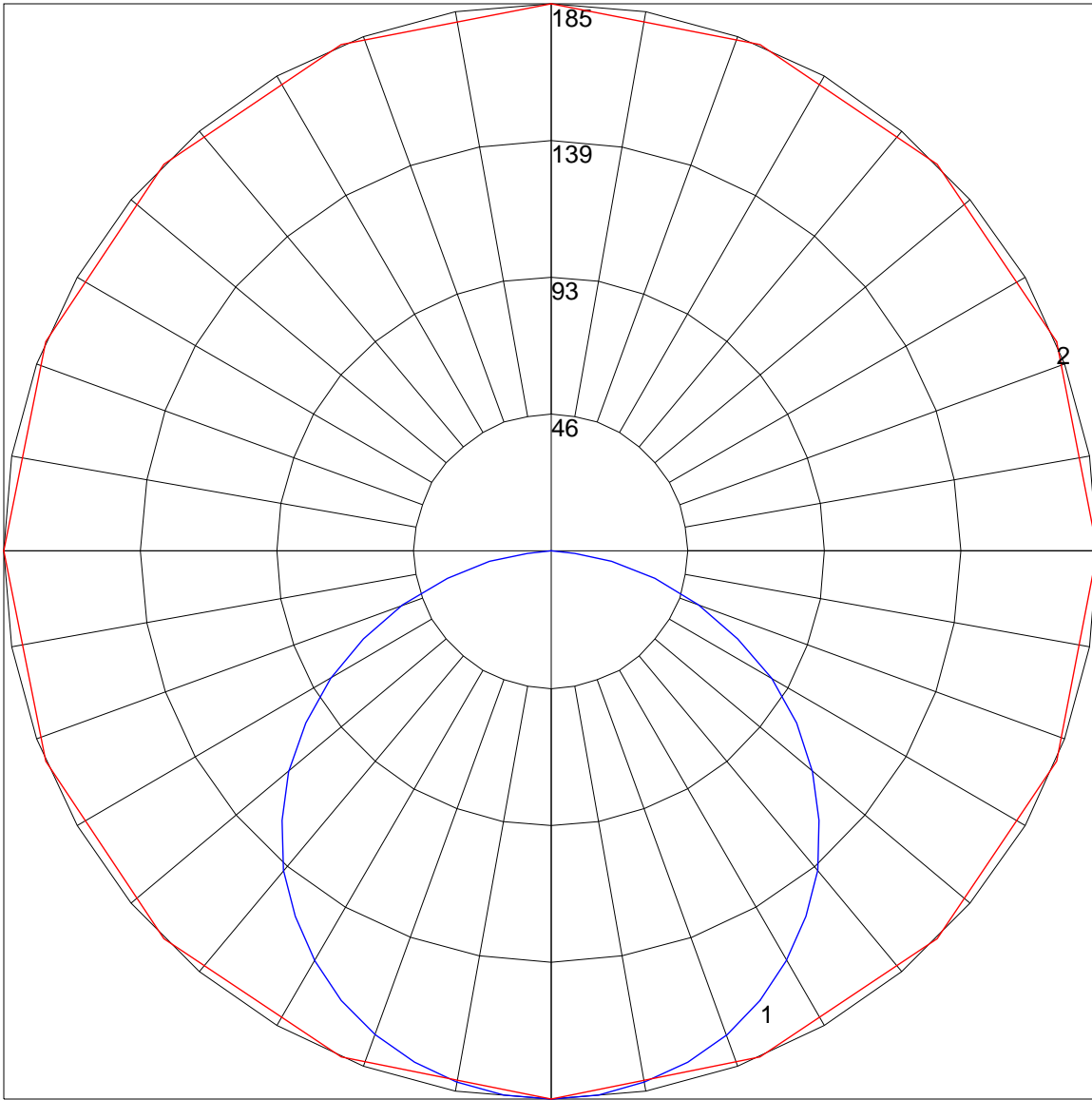
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	109	104	99	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	78	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	50	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	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 = 185.45 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.)