LIGHT LABORATORY INC.
8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L092511807 **Issue Date: 10/6/2025**
Amendment: N/A **Revision Date: N/A**

Report Prepared For: FX Luminaire / Lumascape
1940 Diamond Street, San Marcos, CA 92078

Model Number: TN-60-6LED-S-GR-FW

Test: Photometric/Colorimetric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:

IES LM79: 2008 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI/IES LM79: 2019 Approved Methods for Optical and Electrical Measurements of Solid-State Lighting Products

ANSI/NEMA C78.377: 2017 Specification of the Chromaticity of Solid State Lighting Products

ANSI C82.77-10:2014: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Special Test Condition: Fixture is tested with no special conditions.

Date of Tests: 10/1/25

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-S3	6/21/26
HP Power Supply	6032A	PS-DC05-S2	--
Fluke Digital Thermometer	52K/J	MT-TP05	6/25/26
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

General Information	
Manufacturer:	FX Luminaire / Lumascape
Model Number:	TN-60-6LED-S-GR-FW
Driver Model Number:	Custom

Test Summary	
Total Lumens:	478.00
Efficacy:	63.49
Color Redering Index:	84.0
Correlated Color Temperature:	3003
Input Voltage (VAC/60Hz):	12.05
Input Current (Amp):	0.7471
Input Power (W):	7.53
Input Power Factor:	0.8364
Current ATHD (%):	60.4%

Test Condition	
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:10

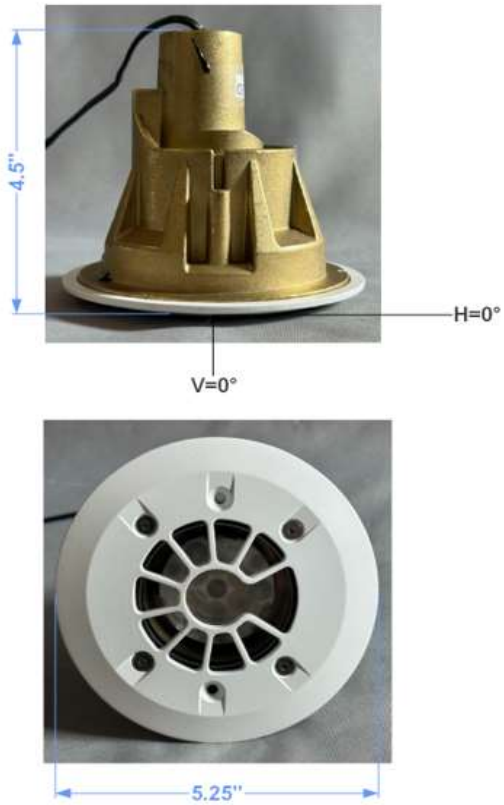
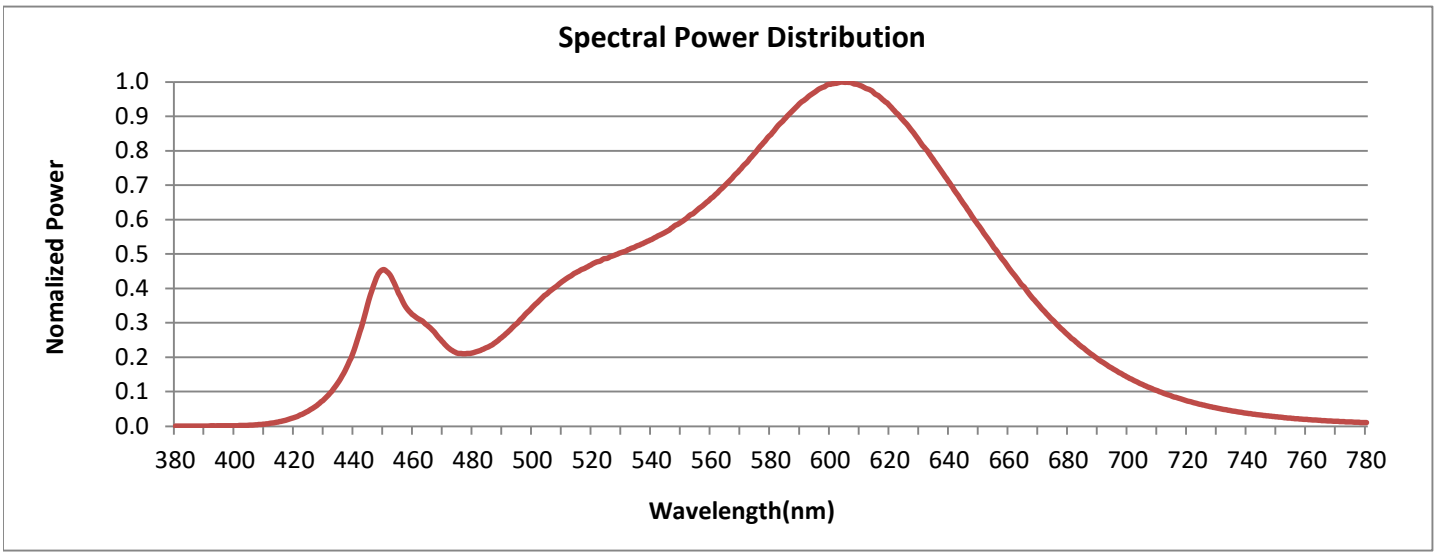


FIG. 1 LUMINAIRE

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Colorimetry Test Results

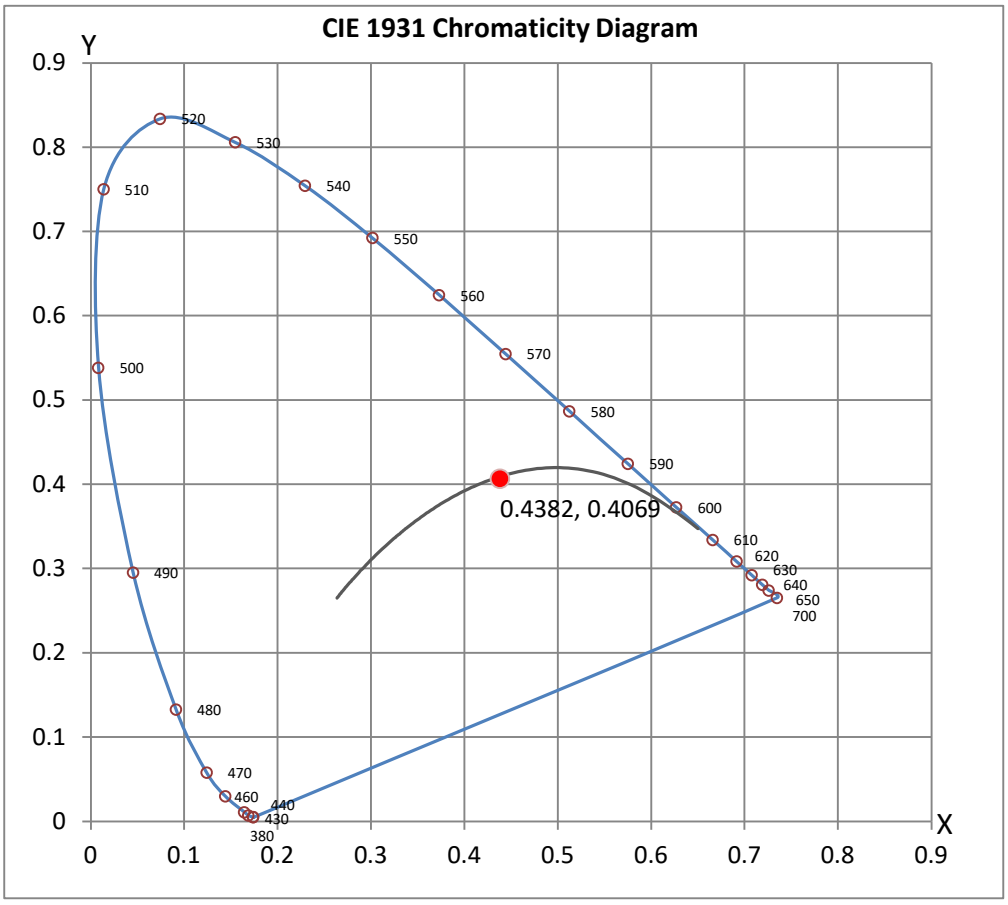


CRI & CCT

x	0.4382
y	0.4069
u'	0.2502
v'	0.5227
CRI	84.00
CCT	3003
Duv	0.00095

R Values

R1	82.51
R2	92.06
R3	96.33
R4	83.04
R5	83.54
R6	91.82
R7	83.03
R8	59.92
R9	10.07
R10	82.50
R11	83.42
R12	76.37
R13	84.82
R14	98.60
R15	74.34



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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:

The results related only to the samples as received and tested. This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government.

Report Prepared by : JG

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports.*

Addendum A

Report Amendment Log

Date	Reference No.	Revision Description	Revision By

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Photometric Test Report

IES ROAD REPORT
PHOTOMETRIC FILENAME : L092511807.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L092511807
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 10/3/2025
[MANUFAC] FX Luminaire / Lumascape
[LUMCAT] TN-60-6LED-S-GR-FW
[LUMINAIRE] TN60, 6LED, 3000K, Grill, Flat White
[BALLASTCAT] Custom
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 12 VAC
[TEST PROCEDURE] IESNA:LM-79-19

CHARACTERISTICS

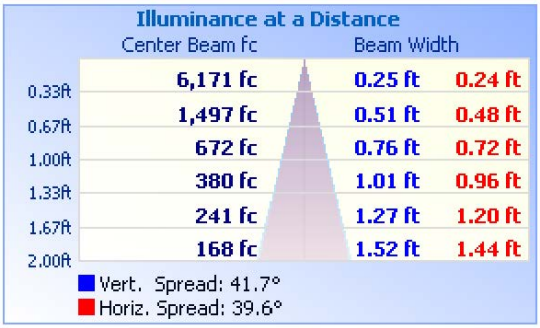
IES Classification	Type VS
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	478
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	63
Total Luminaire Watts	7.53
Ballast Factor	1.00
Upward Waste Light Ratio	0.01
Maximum Candela	672
Maximum Candela Angle	180H 0V
Maximum Candela (<90 Degrees Vertical)	672
Maximum Candela Angle (<90 Degrees Vertical)	180H 0V
Maximum Candela At 90 Degrees Vertical	1 (0.2% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	6 (1.3% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

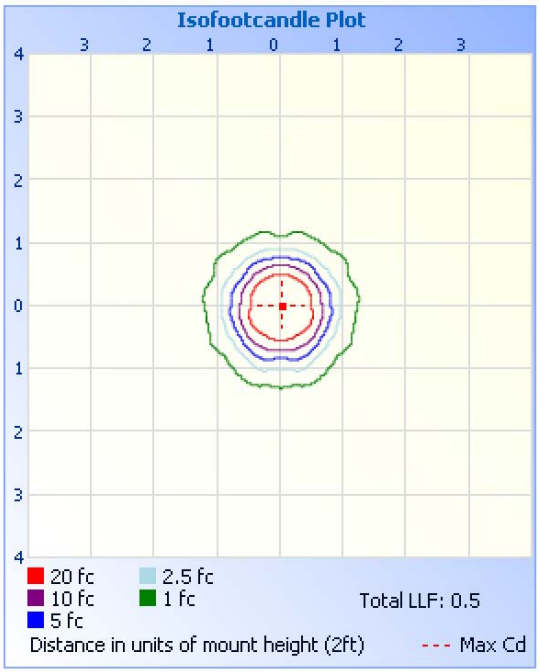
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LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	162.8	N.A.	34.0
FM - Front-Medium (30-60)	76.7	N.A.	16.0
FH - Front-High (60-80)	10.0	N.A.	2.1
FVH - Front-Very High (80-90)	1.5	N.A.	0.3
BL - Back-Low (0-30)	147.8	N.A.	30.9
BM - Back-Medium (30-60)	64.2	N.A.	13.4
BH - Back-High (60-80)	7.7	N.A.	1.6
BVH - Back-Very High (80-90)	0.9	N.A.	0.2
UL - Uplight-Low (90-100)	0.4	N.A.	0.1
UH - Uplight-High (100-180)	6.1	N.A.	1.3
Total	478.1	N.A.	100.0
BUG Rating	B1-U1-G0		





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CANDELA TABULATION

Vert. Angles	Horizontal Angles									
	0	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**
0	672	672	672	672	672	672	672	672	672	672
5	664	665	668	669	668	666	666	664	665	665
10	606	608	611	614	614	614	612	611	612	611
15	482	485	490	494	494	494	497	498	501	501
20	374	374	375	373	369	365	365	367	373	379
25	295	294	287	279	271	264	261	262	267	273
30	211	209	207	204	201	199	199	199	204	209
35	135	139	147	154	154	151	149	152	154	155
40	74	81	95	105	107	105	99	94	93	87
45	54	54	61	70	70	65	54	49	50	48
50	42	40	39	45	46	43	39	36	34	32
55	27	25	23	27	31	31	28	27	24	21
60	19	18	17	17	17	17	16	17	17	17
65	11	11	11	12	12	12	12	12	12	12
70	8	8	10	10	10	10	10	10	10	10
75	7	7	7	7	8	8	8	8	8	8
80	5	5	6	6	6	5	5	5	5	5
85	3	3	4	3	3	3	3	3	3	3
90	1	1	1	1	1	1	1	1	1	1
95	0	0	0	0	1	0	0	0	0	1
100	0	1	0	0	0	0	0	0	1	0
105	0	1	0	0	1	0	1	0	0	0
110	1	0	0	1	0	0	0	1	0	0
115	0	0	0	0	0	0	0	0	0	0
120	1	0	1	1	0	1	0	0	0	0
125	0	0	0	0	1	1	0	1	0	0
130	1	1	1	1	1	0	0	1	1	1
135	1	1	1	1	1	1	1	1	1	1
140	1	1	1	1	1	1	1	1	1	1
145	2	2	2	2	2	2	2	2	2	2
150	2	2	2	2	2	2	2	2	2	2
155	3	3	3	3	3	3	3	3	3	3
160	3	3	3	3	3	3	3	3	3	3
165	4	4	3	4	4	4	4	4	4	4
170	4	4	4	4	4	4	4	4	4	4
175	4	4	4	4	4	4	4	4	4	4
180	4	4	4	4	4	4	4	4	4	4

Vert. Angles	Horizontal Angles									
	50	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**	**95**
0	672	672	672	672	672	672	672	672	672	672
5	663	661	660	659	657	654	652	649	646	644
10	608	606	605	602	595	588	582	577	567	562
15	504	507	506	504	499	490	480	469	457	448
20	389	399	402	399	390	375	358	343	331	323
25	282	289	293	292	284	269	252	235	224	220
30	212	212	207	202	198	192	183	172	164	163
35	149	142	135	130	130	130	129	125	119	114
40	75	68	70	70	68	70	75	76	71	68
45	42	45	49	48	42	41	45	42	41	43
50	30	34	37	36	32	30	32	31	32	35
55	21	22	25	24	21	21	21	23	24	25

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CANDELA TABULATION - (Cont.)

60	17	17	18	18	16	16	16	16	15	15
65	12	12	12	12	11	12	11	11	11	11
70	10	10	10	10	10	10	8	8	8	8
75	7	7	7	7	7	7	7	6	6	6
80	5	5	4	4	4	4	4	4	4	4
85	2	2	2	2	2	2	2	2	2	2
90	1	1	1	1	1	0	0	1	0	0
95	0	0	0	0	0	0	0	0	0	0
100	0	1	0	1	0	0	0	1	1	0
105	0	1	1	0	0	1	1	1	0	0
110	0	1	0	0	0	0	0	0	1	1
115	0	0	1	1	0	0	0	0	0	1
120	1	0	0	0	1	1	1	0	1	1
125	0	0	0	1	0	0	1	1	0	1
130	1	1	1	1	1	1	1	1	1	0
135	1	1	1	1	1	1	1	1	1	1
140	1	1	1	1	1	1	1	1	1	1
145	2	2	2	2	2	2	2	2	2	2
150	2	2	2	3	3	2	2	2	3	3
155	3	3	3	3	3	3	3	3	3	3
160	3	3	3	3	3	3	3	3	3	3
165	4	4	4	4	4	4	4	4	4	4
170	4	4	4	4	4	4	4	4	4	4
175	4	4	4	4	4	4	4	4	4	4
180	4	4	4	4	4	4	4	4	4	4

Vert. Angles	**Horizontal Angles**									
	100	**105**	**110**	**115**	**120**	**125**	**130**	**135**	**140**	**145**
0	672	672	672	672	672	672	672	672	672	672
5	644	642	640	637	636	634	633	632	632	630
10	560	555	551	548	549	548	547	547	546	545
15	443	437	436	440	444	448	453	456	454	449
20	322	322	324	332	341	350	356	359	359	355
25	226	233	241	250	257	260	262	261	257	251
30	169	176	182	183	182	178	173	172	174	172
35	119	122	122	114	107	103	104	110	119	122
40	69	72	73	68	59	57	58	59	65	71
45	45	48	50	47	46	49	49	42	39	41
50	35	33	29	27	34	38	38	33	29	31
55	25	24	20	18	22	24	24	22	19	19
60	16	15	15	14	14	15	14	13	13	14
65	11	11	11	10	10	10	10	10	8	8
70	8	8	8	8	7	7	7	7	7	7
75	6	6	6	6	6	6	6	5	5	5
80	3	4	3	3	4	3	3	3	3	3
85	2	2	2	2	2	2	1	1	1	1
90	1	1	1	1	1	1	1	1	1	1
95	0	0	0	0	1	0	0	0	0	0
100	1	1	1	1	0	0	1	1	0	1
105	0	0	0	1	0	1	0	1	1	0
110	0	0	1	0	1	1	0	1	0	0
115	1	1	1	0	0	1	0	0	1	0
120	1	1	0	0	1	1	0	0	0	1
125	1	0	1	0	1	1	0	1	0	1
130	1	1	1	1	1	1	1	1	1	1

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CANDELA TABULATION - (Cont.)

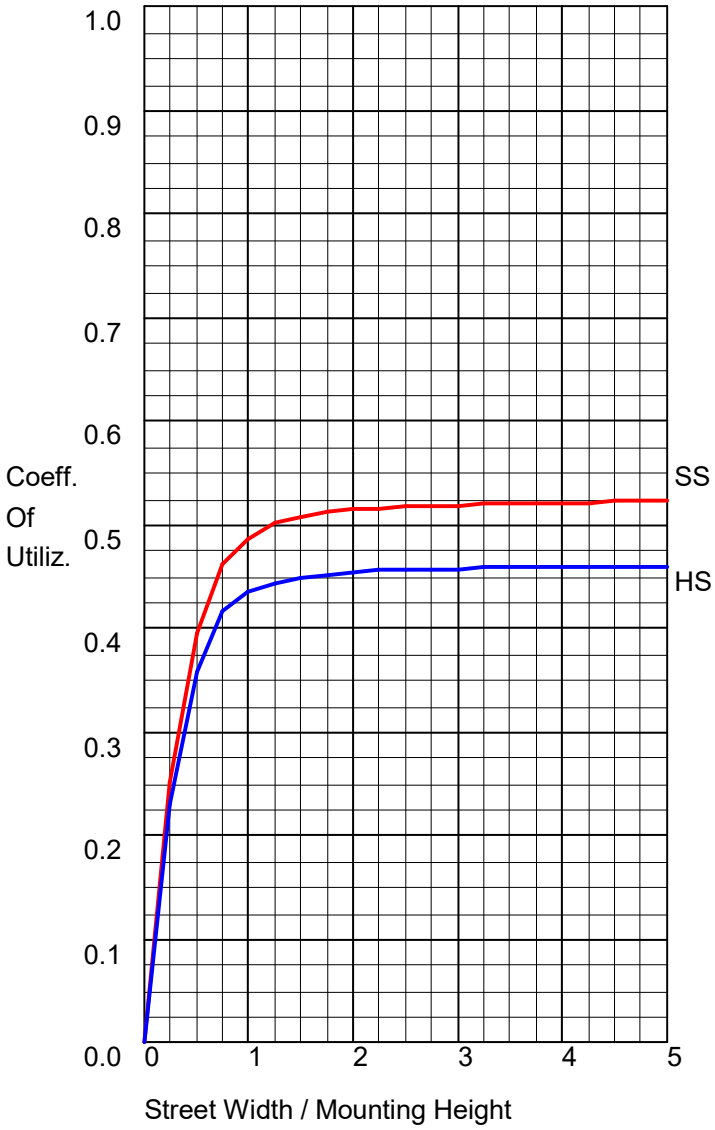
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145	2	2	2	2	2	2	2	2	2	2
150	3	3	3	2	3	3	2	2	3	3
155	3	3	3	3	3	3	3	3	3	3
160	3	3	3	3	3	4	3	3	3	3
165	4	4	4	4	4	4	4	4	4	4
170	4	4	4	4	4	4	4	4	4	4
175	4	4	4	4	4	4	4	4	4	4
180	4	4	4	4	4	4	4	4	4	4

Vert. Angles	**Horizontal Angles**						
	150	**155**	**160**	**165**	**170**	**175**	**180**
0	672	672	672	672	672	672	672
5	628	625	625	623	622	622	623
10	543	542	540	538	536	535	535
15	444	438	431	423	419	417	416
20	348	340	334	331	326	323	322
25	246	245	249	254	258	258	259
30	170	169	172	179	188	194	197
35	123	121	118	114	114	119	122
40	73	71	67	63	60	61	64
45	39	38	40	42	41	39	38
50	31	32	32	33	31	24	21
55	20	21	20	22	21	18	18
60	14	13	12	14	14	13	14
65	8	8	8	8	8	8	8
70	7	6	6	6	6	6	6
75	5	5	5	5	5	4	5
80	3	3	3	3	3	3	3
85	1	1	1	1	1	1	1
90	1	1	1	1	0	1	1
95	0	1	0	0	1	0	0
100	0	1	1	1	1	0	0
105	0	1	1	1	1	0	1
110	0	1	1	0	0	0	0
115	1	1	1	0	1	1	1
120	0	0	0	1	1	1	0
125	1	1	1	1	0	1	1
130	1	1	1	1	1	0	1
135	1	1	1	1	1	1	1
140	1	1	1	1	1	1	1
145	2	2	2	2	2	2	2
150	2	3	3	3	3	3	2
155	3	3	3	3	3	3	3
160	4	3	3	3	3	3	3
165	4	4	4	4	4	4	4
170	4	4	4	4	4	4	4
175	4	4	4	4	4	4	4
180	4	4	4	4	4	4	4

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PHOTOMETRIC FILENAME : L092511807.IES

COEFFICIENTS OF UTILIZATION



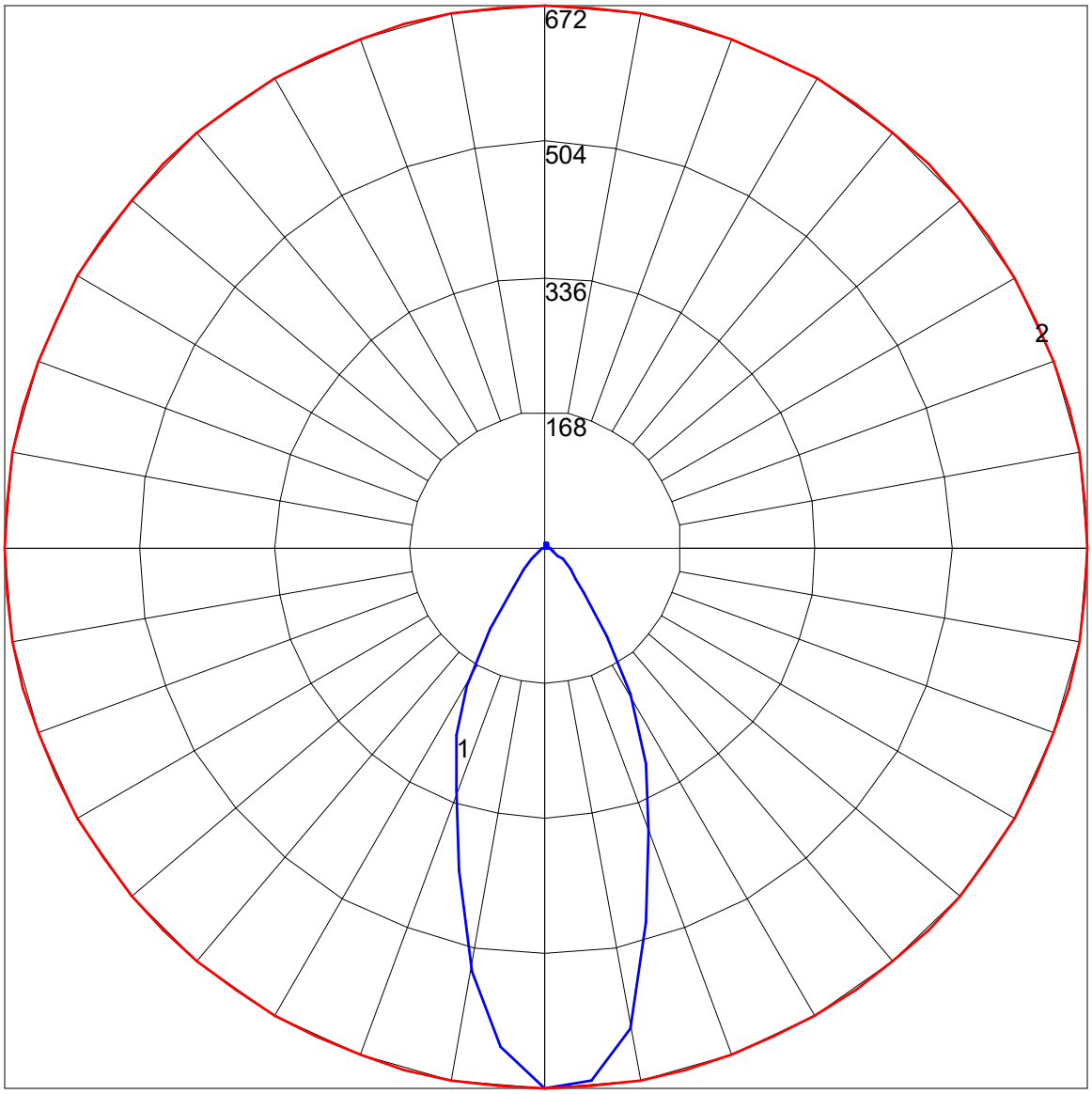
FLUX DISTRIBUTION

	Lumens	Percent Of Luminaire
Downward Street Side	250.9	52.5
Downward House Side	220.6	46.1
Downward Total	471.5	98.6
Upward Street Side	3.0	0.6
Upward House Side	3.5	0.7
Upward Total	6.5	1.4
Total Flux	478.0	100.0

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POLAR GRAPH

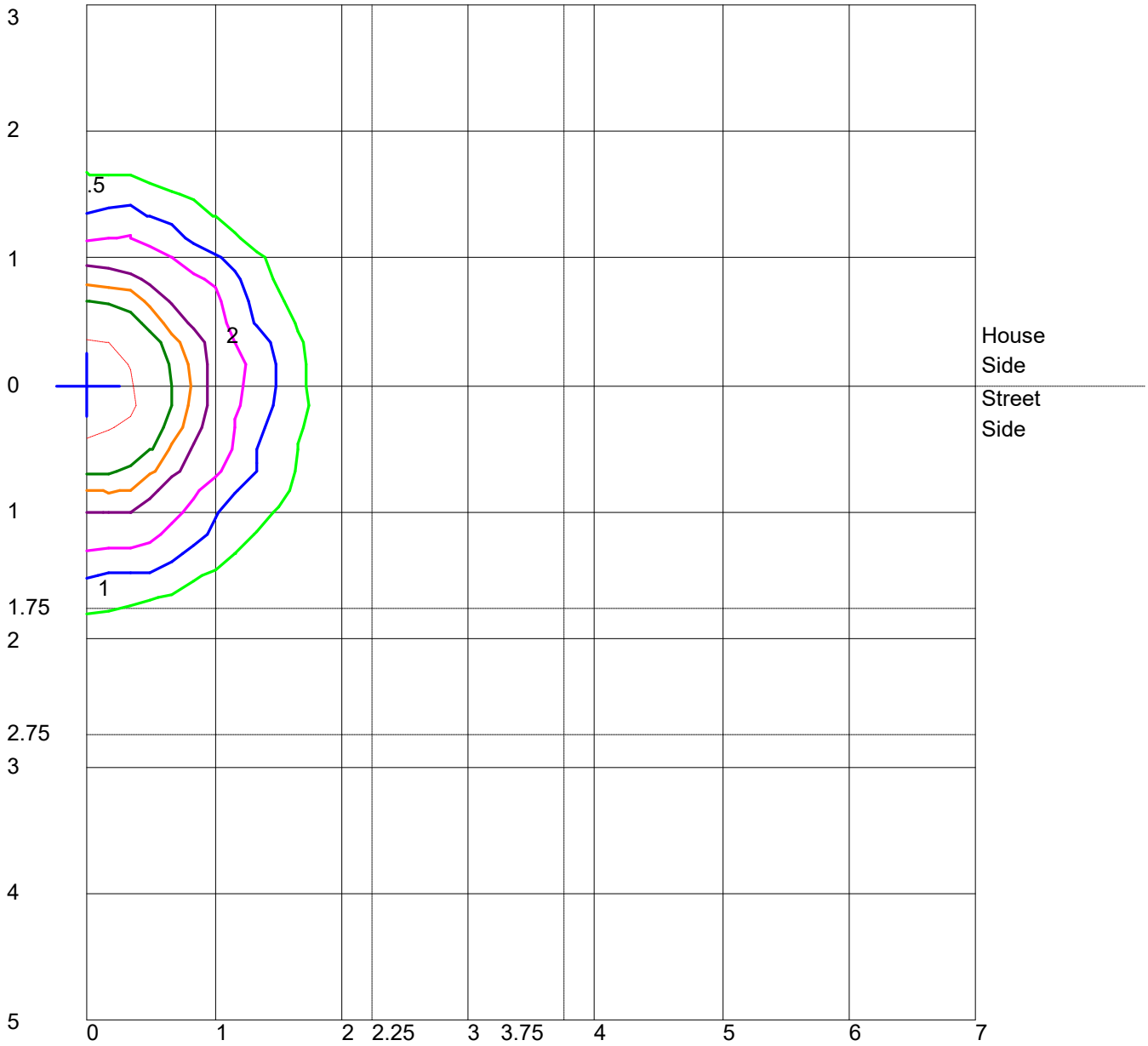


Maximum Candela = 672 Located At Horizontal Angle = 180, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (180 - 0) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)

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ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
Values Based On 2 Foot Mounting Height
1/2 Maximum Candela Trace Shown As Dashed Curve
(+) = Maximum Candela Point

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