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

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L092511803 **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-60-3LED-S-RG-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: 9/30/25

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

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General Information	
Manufacturer:	FX Luminaire / Lumascape
Model Number:	TN-60-3LED-S-RG-FW
Driver Model Number:	Custom

Test Summary	
Total Lumens:	315.00
Efficacy:	81.92
Color Redering Index:	83.6
Correlated Color Temperature:	2979
Input Voltage (VAC/60Hz):	12.02
Input Current (Amp):	0.3488
Input Power (W):	3.85
Input Power Factor:	0.9171
Current ATHD (%):	41.9%

Test Condition	
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	0:50

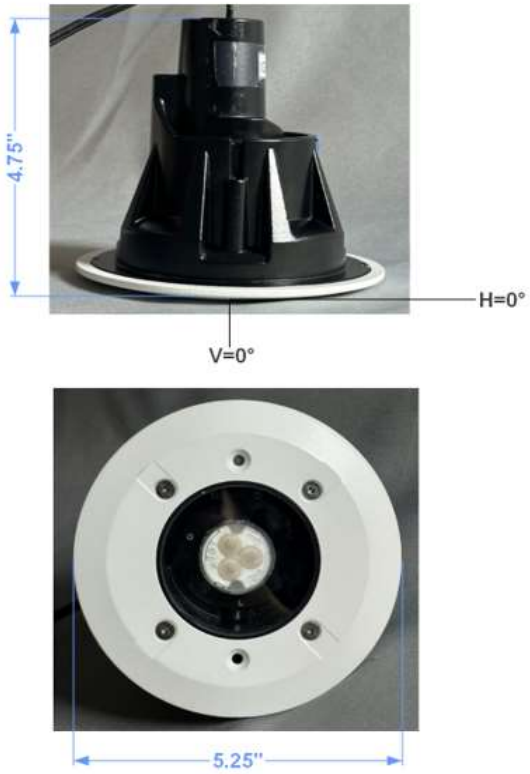


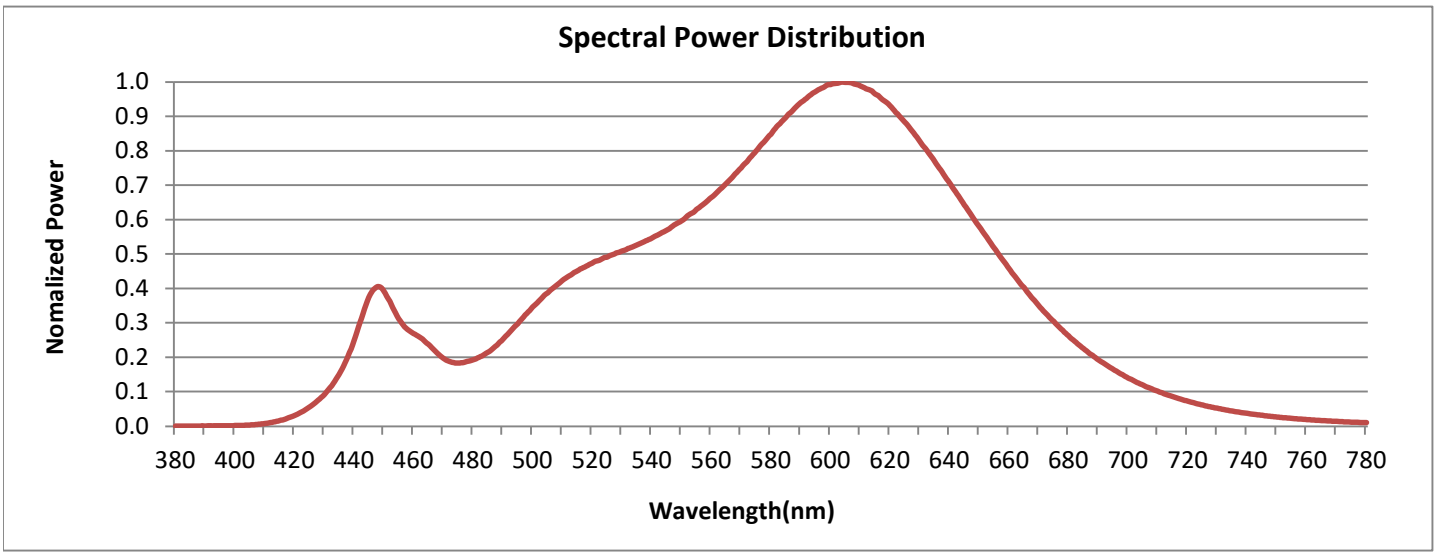
FIG. 1 LUMINAIRE

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Colorimetry Test Results

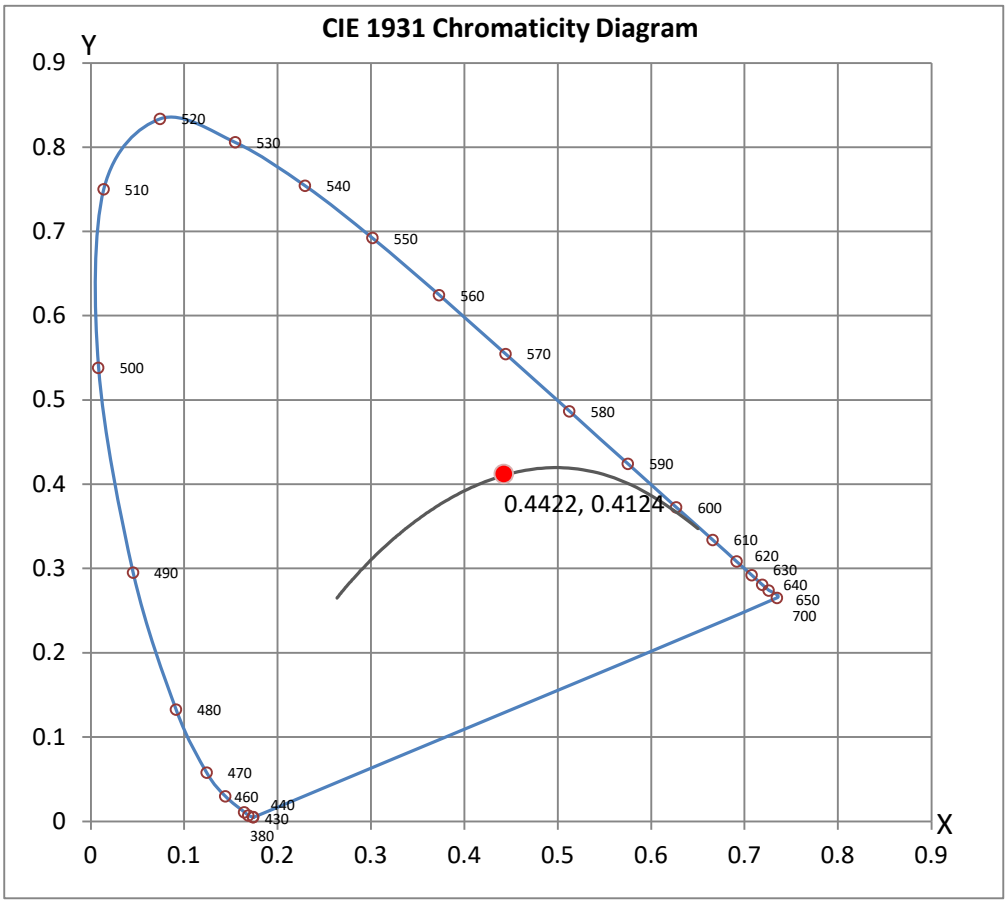


CRI & CCT

x	0.4422
y	0.4124
u'	0.2504
v'	0.5254
CRI	83.60
CCT	2979
Duv	0.00256

R Values

R1	81.58
R2	90.79
R3	97.45
R4	83.12
R5	82.54
R6	90.43
R7	83.69
R8	59.48
R9	7.71
R10	79.90
R11	83.50
R12	75.48
R13	83.62
R14	99.05
R15	73.06



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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 : L092511803.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L092511803
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 10/3/2025
[MANUFAC] FX Luminaire / Lumascape
[LUMCAT] TN-60-3LED-S-RG-FW
[LUMINAIRE] TN60, 3LED, 3000K, Ring, 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

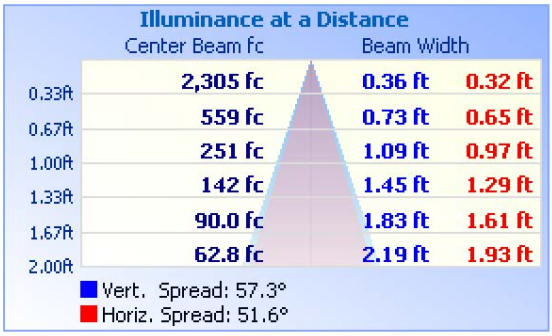
IES Classification	Type VS
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	315
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	82
Total Luminaire Watts	3.85
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Maximum Candela	318
Maximum Candela Angle	0H 15V
Maximum Candela (<90 Degrees Vertical)	318
Maximum Candela Angle (<90 Degrees Vertical)	0H 15V
Maximum Candela At 90 Degrees Vertical	0 (0.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	1 (0.3% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

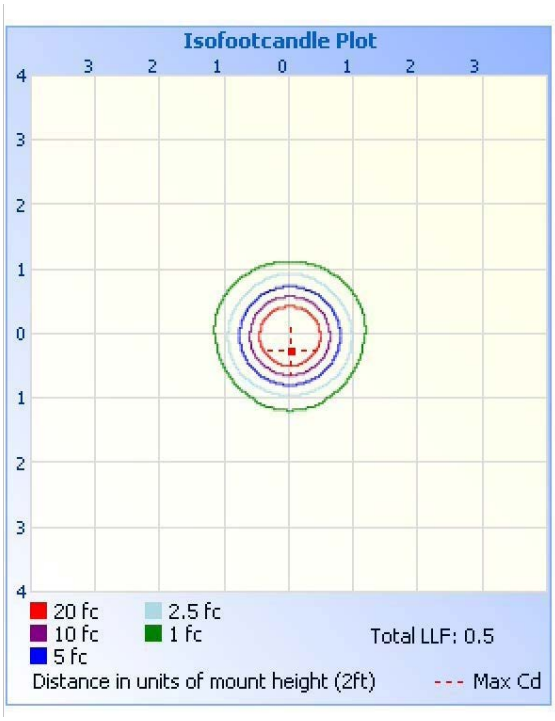
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LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	105.3	N.A.	33.4
FM - Front-Medium (30-60)	55.7	N.A.	17.7
FH - Front-High (60-80)	1.4	N.A.	0.4
FVH - Front-Very High (80-90)	0.1	N.A.	0.0
BL - Back-Low (0-30)	97.5	N.A.	31.0
BM - Back-Medium (30-60)	53.2	N.A.	16.9
BH - Back-High (60-80)	1.5	N.A.	0.5
BVH - Back-Very High (80-90)	0.2	N.A.	0.1
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
Total	314.9	N.A.	100.0
BUG Rating	B0-U0-G0		





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CANDELA TABULATION

Vert. Angles	Horizontal Angles									
	0	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**
0	251	251	251	251	251	251	251	251	251	251
5	260	260	261	261	260	260	260	260	261	261
10	296	295	294	293	293	292	290	290	290	290
15	318	317	317	315	313	311	310	310	310	310
20	290	290	290	289	287	286	284	284	283	283
25	231	230	230	229	228	226	224	223	223	222
30	153	154	153	153	152	151	149	149	149	151
35	99	99	98	98	98	98	98	98	99	99
40	70	69	69	69	69	70	70	70	70	71
45	40	40	41	41	41	42	42	45	46	48
50	28	28	28	28	28	27	24	22	21	20
55	7	7	8	10	11	12	12	12	12	12
60	3	3	3	2	3	3	3	3	3	3
65	1	1	2	1	1	1	2	2	2	2
70	1	1	1	1	1	1	1	1	1	1
75	1	1	1	1	1	1	1	1	1	1
80	0	1	1	1	0	0	0	1	1	1
85	0	1	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0

Vert. Angles	Horizontal Angles									
	50	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**	**95**
0	251	251	251	251	251	251	251	251	251	251
5	262	262	261	262	262	262	262	262	262	261
10	290	289	288	287	286	286	285	285	285	283
15	308	307	306	304	303	303	302	301	300	298
20	282	281	281	279	279	278	279	277	275	273
25	222	222	222	222	222	220	219	218	217	216
30	151	151	152	152	152	152	151	149	147	147
35	100	99	99	100	100	100	100	99	98	98
40	71	71	72	71	71	71	71	70	70	69
45	50	50	51	52	51	50	49	48	47	47
50	20	19	19	19	20	21	22	24	27	28
55	12	12	12	13	13	13	13	12	13	13

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CANDELA TABULATION - (Cont.)

60	3	3	3	3	3	3	3	3	3	3
65	2	2	2	2	2	1	2	2	2	2
70	1	1	1	1	1	1	1	1	1	1
75	1	1	1	1	1	1	1	1	1	1
80	1	0	1	1	1	1	1	1	1	1
85	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0

Vert. Angles	**Horizontal Angles**									
	100	**105**	**110**	**115**	**120**	**125**	**130**	**135**	**140**	**145**
0	251	251	251	251	251	251	251	251	251	251
5	261	260	260	259	259	258	257	257	255	253
10	282	281	280	278	278	278	277	276	273	271
15	296	294	293	290	289	287	287	286	284	282
20	271	270	268	266	265	264	262	259	257	255
25	213	213	212	211	209	207	206	204	202	199
30	145	144	143	142	141	140	139	138	136	135
35	96	95	95	94	93	92	91	90	89	88
40	69	69	68	68	67	66	66	65	65	64
45	46	45	45	43	43	43	43	43	43	43
50	29	29	29	29	29	28	28	27	27	25
55	13	13	13	13	12	13	13	13	13	13
60	3	3	3	3	3	3	3	3	3	3
65	2	2	2	1	1	2	2	1	2	2
70	1	1	1	1	1	1	1	1	1	1
75	1	1	1	1	1	1	1	1	1	1
80	1	1	1	0	1	1	1	1	1	1
85	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0

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CANDELA TABULATION - (Cont.)

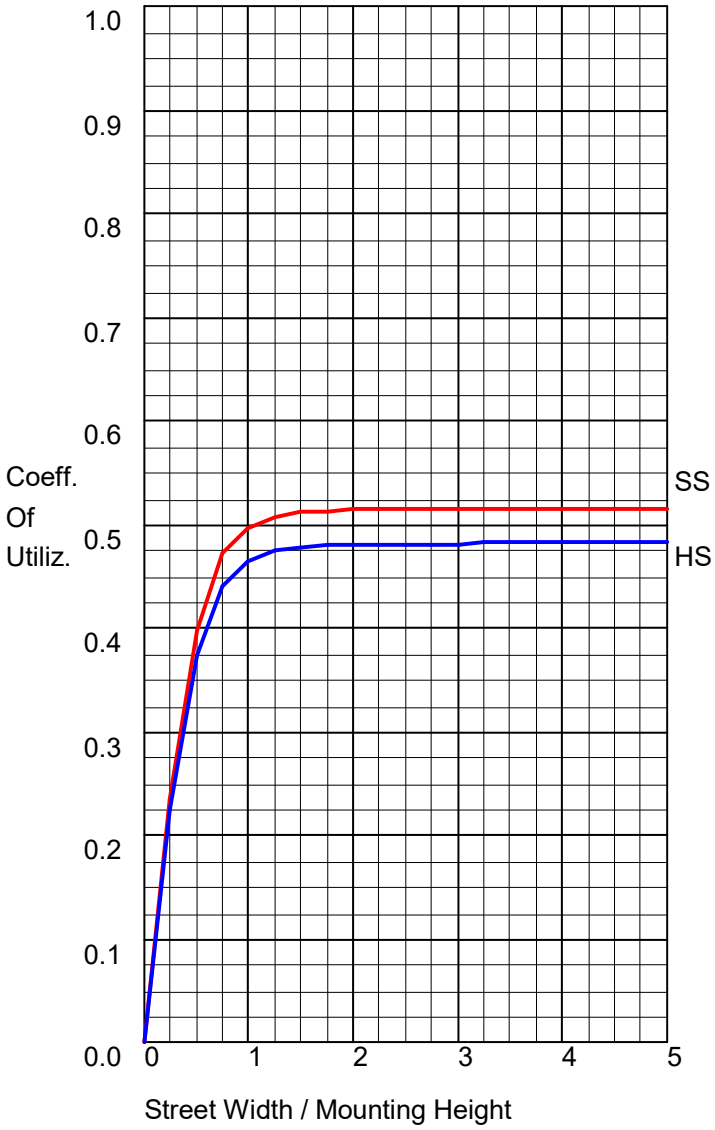
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140	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0

Vert. Angles	**Horizontal Angles**						
	150	**155**	**160**	**165**	**170**	**175**	**180**
0	251	251	251	251	251	251	251
5	252	252	252	251	251	251	252
10	270	269	267	268	267	267	267
15	280	278	277	276	276	276	276
20	253	251	250	249	248	248	248
25	198	196	196	195	193	193	193
30	134	133	133	131	131	130	130
35	87	87	87	86	86	86	86
40	63	63	63	61	63	63	63
45	43	45	45	46	47	47	47
50	25	24	23	22	21	21	20
55	12	12	12	12	12	13	12
60	3	3	3	3	3	3	4
65	2	2	2	2	2	2	2
70	1	1	1	1	1	1	1
75	1	1	1	1	1	1	1
80	1	1	1	1	1	1	1
85	0	0	1	1	0	0	0
90	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0

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COEFFICIENTS OF UTILIZATION



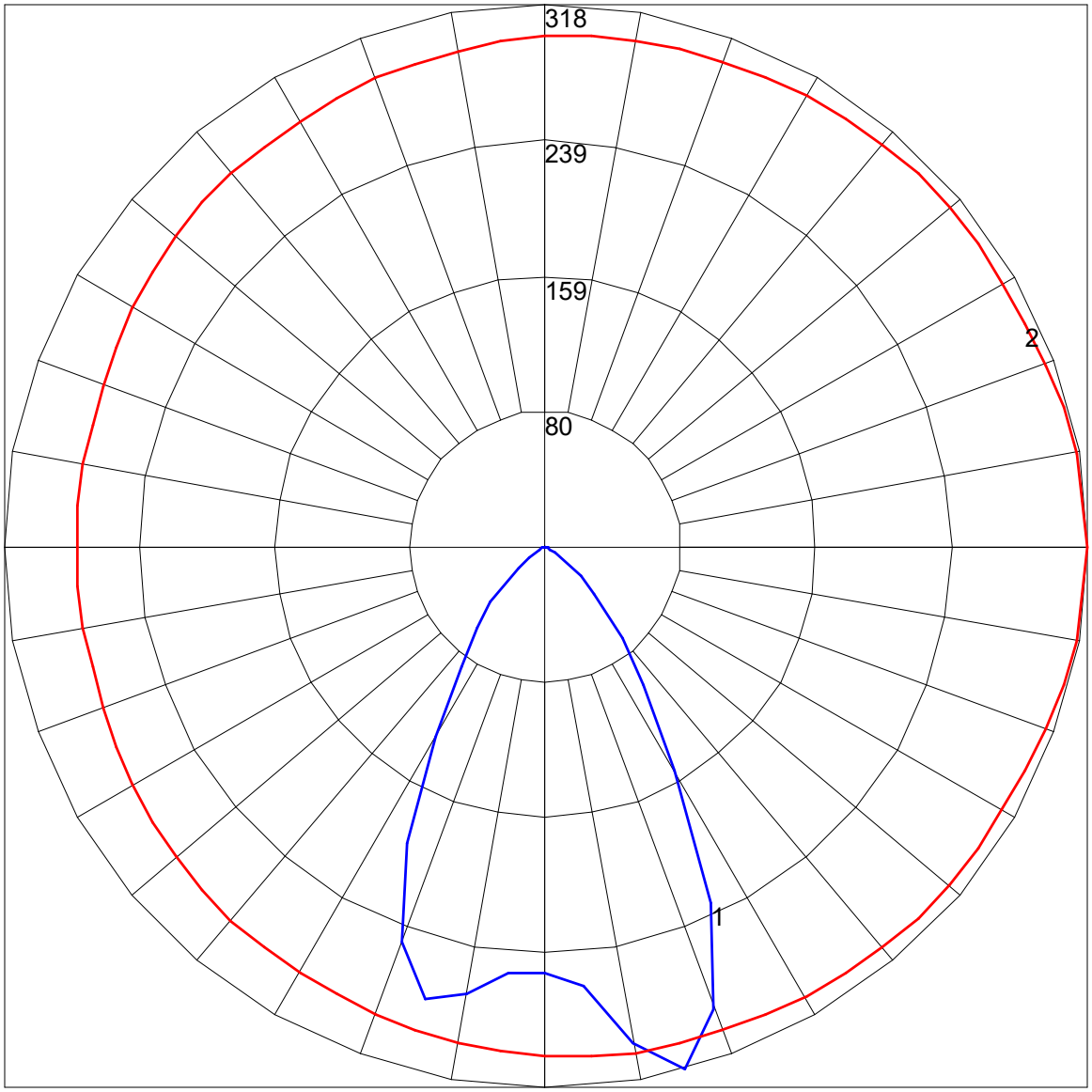
FLUX DISTRIBUTION

	Lumens	Percent Of Luminaire
Downward Street Side	162.6	51.6
Downward House Side	152.3	48.4
Downward Total	314.9	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	314.9	100.0

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POLAR GRAPH

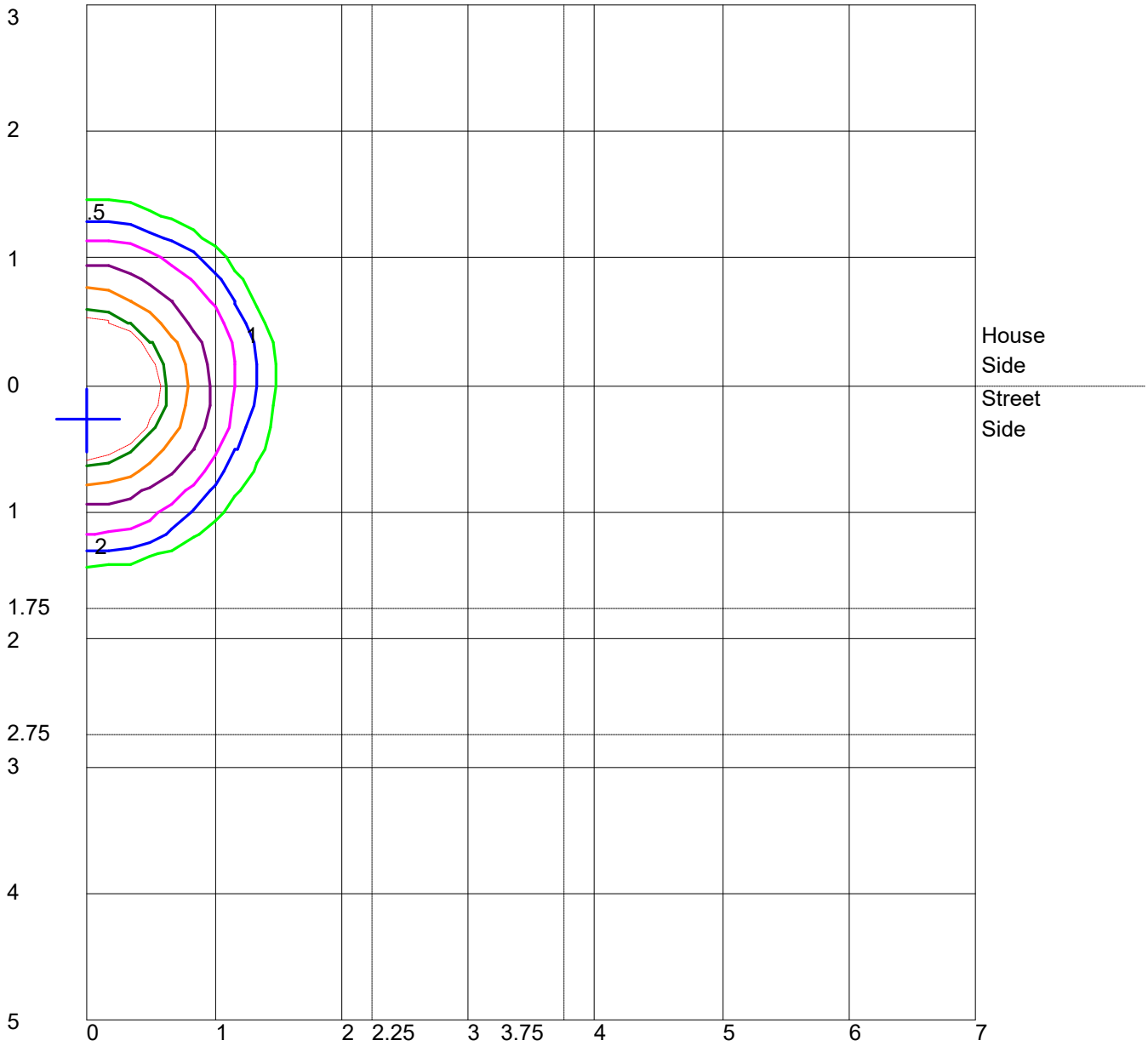


Maximum Candela = 318 Located At Horizontal Angle = 0, Vertical Angle = 15
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (15) (Through Max. Cd.)

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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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