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

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L092511808 **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-CW-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-CW-FW
Driver Model Number:	Custom

Test Summary	
Total Lumens:	568.00
Efficacy:	75.32
Color Redering Index:	84.3
Correlated Color Temperature:	3003
Input Voltage (VAC/60Hz):	12.05
Input Current (Amp):	0.7478
Input Power (W):	7.54
Input Power Factor:	0.8369
Current ATHD (%):	60.4%

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

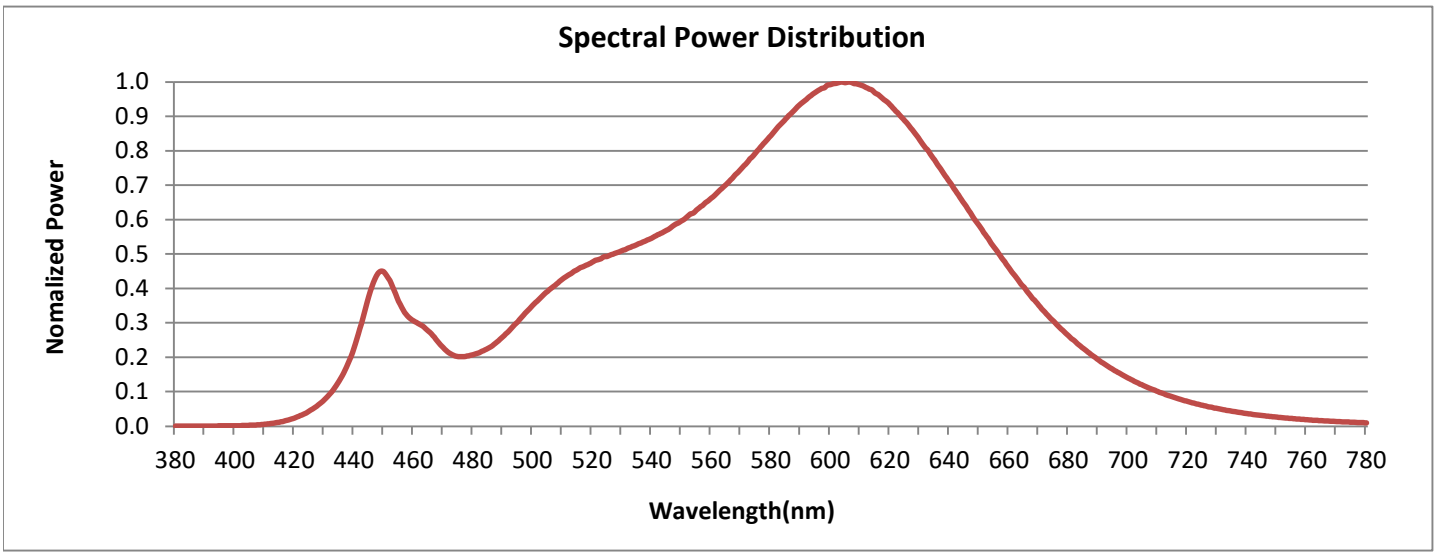


FIG. 1 LUMINAIRE

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Colorimetry Test Results

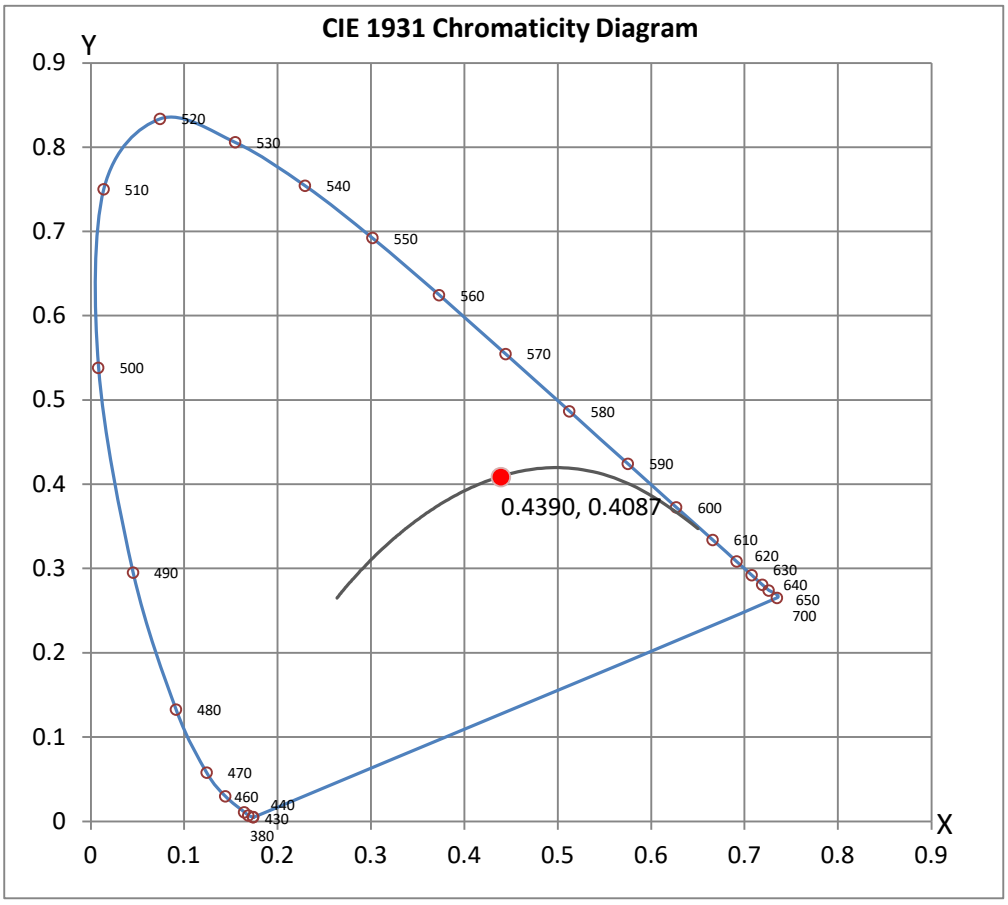


CRI & CCT

x	0.4390
y	0.4087
u'	0.2499
v'	0.5235
CRI	84.30
CCT	3003
Duv	0.00155

R Values

R1	82.69
R2	91.87
R3	96.82
R4	83.61
R5	83.68
R6	91.69
R7	83.53
R8	60.44
R9	10.69
R10	82.12
R11	84.16
R12	76.22
R13	84.87
R14	98.84
R15	74.40



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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 : L092511808.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L092511808
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 10/3/2025
[MANUFAC] FX Luminaire / Lumascape
[LUMCAT] TN-60-6LED-S-CW-FW
[LUMINAIRE] TN60, 6LED, 3000K, Cowling, 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

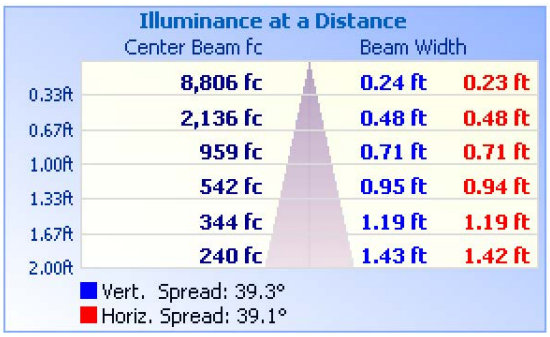
IES Classification	Type I
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	568
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	75
Total Luminaire Watts	7.54
Ballast Factor	1.00
Upward Waste Light Ratio	0.02
Maximum Candela	959
Maximum Candela Angle	180H 0V
Maximum Candela (<90 Degrees Vertical)	959
Maximum Candela Angle (<90 Degrees Vertical)	180H 0V
Maximum Candela At 90 Degrees Vertical	14 (2.5% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	18 (3.2% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

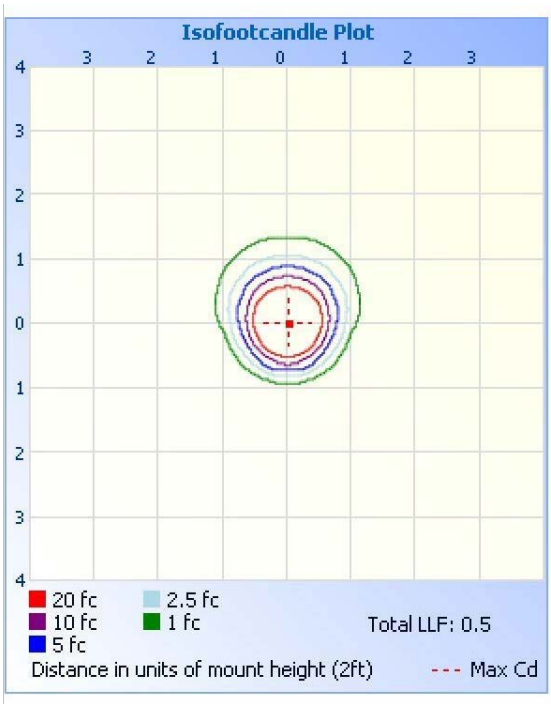
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LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	193.7	N.A.	34.1
FM - Front-Medium (30-60)	38.2	N.A.	6.7
FH - Front-High (60-80)	4.6	N.A.	0.8
FVH - Front-Very High (80-90)	0.6	N.A.	0.1
BL - Back-Low (0-30)	209.2	N.A.	36.8
BM - Back-Medium (30-60)	86.8	N.A.	15.3
BH - Back-High (60-80)	17.6	N.A.	3.1
BVH - Back-Very High (80-90)	6.2	N.A.	1.1
UL - Uplight-Low (90-100)	3.4	N.A.	0.6
UH - Uplight-High (100-180)	7.7	N.A.	1.4
Total	568.0	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	959	959	959	959	959	959	959	959	959	959
5	904	905	908	909	911	912	906	905	907	908
10	779	780	783	785	784	783	781	781	782	785
15	620	621	623	625	626	626	623	621	621	623
20	461	460	462	463	462	461	460	459	460	459
25	266	266	268	270	272	276	278	277	273	272
30	162	159	154	147	143	141	140	140	141	142
35	72	73	75	80	84	86	85	81	77	75
40	31	31	31	31	31	32	32	33	35	36
45	7	7	8	8	8	10	10	11	11	12
50	5	5	6	6	6	7	7	8	8	10
55	5	5	5	5	5	6	7	7	8	8
60	4	4	4	4	5	5	5	6	7	7
65	2	2	3	3	3	4	4	4	5	6
70	1	1	1	1	1	2	2	3	3	4
75	0	1	1	0	0	1	1	1	2	2
80	1	0	1	0	1	1	0	1	1	1
85	1	1	1	1	1	1	1	1	1	0
90	1	1	1	1	1	1	1	1	0	0
95	1	0	1	1	1	1	1	1	1	1
100	1	1	1	1	1	1	1	1	1	1
105	1	1	1	1	1	1	1	1	1	1
110	1	1	1	1	1	1	1	1	1	1
115	1	1	1	1	1	1	1	1	1	1
120	1	1	1	1	1	1	1	1	1	1
125	1	0	1	1	1	1	1	1	0	1
130	1	1	1	1	1	1	1	1	1	1
135	1	1	1	1	1	1	1	1	1	1
140	2	2	2	2	2	2	2	2	2	2
145	2	2	2	2	2	2	2	2	2	2
150	3	3	3	3	3	3	3	3	3	3
155	4	4	4	4	4	4	4	4	4	4
160	5	5	5	5	4	4	4	4	4	4
165	5	5	5	5	5	5	5	5	5	5
170	5	5	5	5	5	5	5	5	5	5
175	5	5	5	5	5	5	5	5	5	5
180	5	5	5	5	5	5	5	5	5	5

Vert. Angles	Horizontal Angles									
	50	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**	**95**
0	959	959	959	959	959	959	959	959	959	959
5	911	909	906	907	908	908	908	906	907	907
10	785	785	783	785	784	787	785	784	785	785
15	626	626	624	626	628	626	624	624	624	625
20	461	463	464	464	464	465	466	465	465	469
25	270	269	268	271	277	283	292	300	310	317
30	144	147	152	157	160	163	166	170	174	180
35	75	75	76	77	78	81	85	90	98	105
40	38	40	41	45	48	51	54	56	58	61
45	13	13	14	15	16	17	19	23	29	36
50	10	11	12	13	13	14	15	16	17	19
55	10	10	11	12	12	13	14	15	15	16

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CANDELA TABULATION - (Cont.)

60	7	8	10	11	11	12	13	13	14	15
65	6	7	8	8	10	11	11	12	13	14
70	4	5	6	6	7	8	10	10	11	12
75	2	3	3	4	5	5	6	7	8	10
80	1	1	2	2	2	3	3	4	6	7
85	1	1	1	1	1	1	1	2	3	4
90	0	0	0	0	1	0	0	0	0	1
95	0	1	1	0	0	0	0	0	0	1
100	1	1	1	1	0	0	0	0	1	0
105	1	1	1	1	1	1	1	1	1	0
110	1	1	1	1	1	0	0	0	1	0
115	0	0	1	1	0	1	0	1	1	0
120	1	1	1	1	0	1	0	0	0	0
125	1	1	1	1	1	0	1	1	1	0
130	1	1	1	1	1	1	1	1	1	1
135	1	1	1	1	1	1	1	1	1	1
140	2	2	2	2	2	2	2	2	1	2
145	2	3	2	2	2	2	2	2	2	2
150	3	3	3	3	3	3	3	3	3	3
155	4	4	4	4	4	4	4	4	4	4
160	5	5	4	4	4	4	4	4	4	4
165	5	5	5	5	5	5	5	5	5	5
170	5	5	5	5	5	5	5	5	5	5
175	5	5	5	5	5	5	5	5	5	5
180	5	5	5	5	5	5	5	5	5	5

Vert. Angles	**Horizontal Angles**									
	100	**105**	**110**	**115**	**120**	**125**	**130**	**135**	**140**	**145**
0	959	959	959	959	959	959	959	959	959	959
5	909	912	914	914	914	914	914	914	915	915
10	788	789	792	793	793	794	794	795	794	795
15	629	631	632	636	634	633	634	634	635	635
20	471	474	474	476	478	477	477	479	479	480
25	323	330	336	341	347	349	351	353	353	353
30	191	204	215	225	232	241	248	253	257	259
35	110	114	121	130	142	152	157	162	167	173
40	66	74	81	84	87	93	101	106	108	109
45	42	46	50	56	61	63	63	65	68	71
50	21	25	30	32	34	38	41	42	45	49
55	17	18	19	22	24	27	29	31	32	31
60	16	16	17	18	19	19	20	21	22	23
65	15	15	16	17	17	18	19	19	20	20
70	13	14	15	15	16	17	18	18	18	19
75	11	12	13	14	15	15	16	17	17	18
80	8	10	11	12	12	13	14	15	15	16
85	5	6	7	8	10	11	12	13	14	14
90	2	3	5	5	7	8	10	10	11	12
95	1	1	2	3	4	4	5	6	6	7
100	0	1	1	1	1	2	2	2	3	3
105	0	0	0	0	0	0	0	0	0	0
110	0	0	0	1	0	0	0	0	0	0
115	1	1	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0
125	0	1	0	0	1	0	0	0	0	0
130	1	1	0	1	1	1	0	1	1	1

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CANDELA TABULATION - (Cont.)

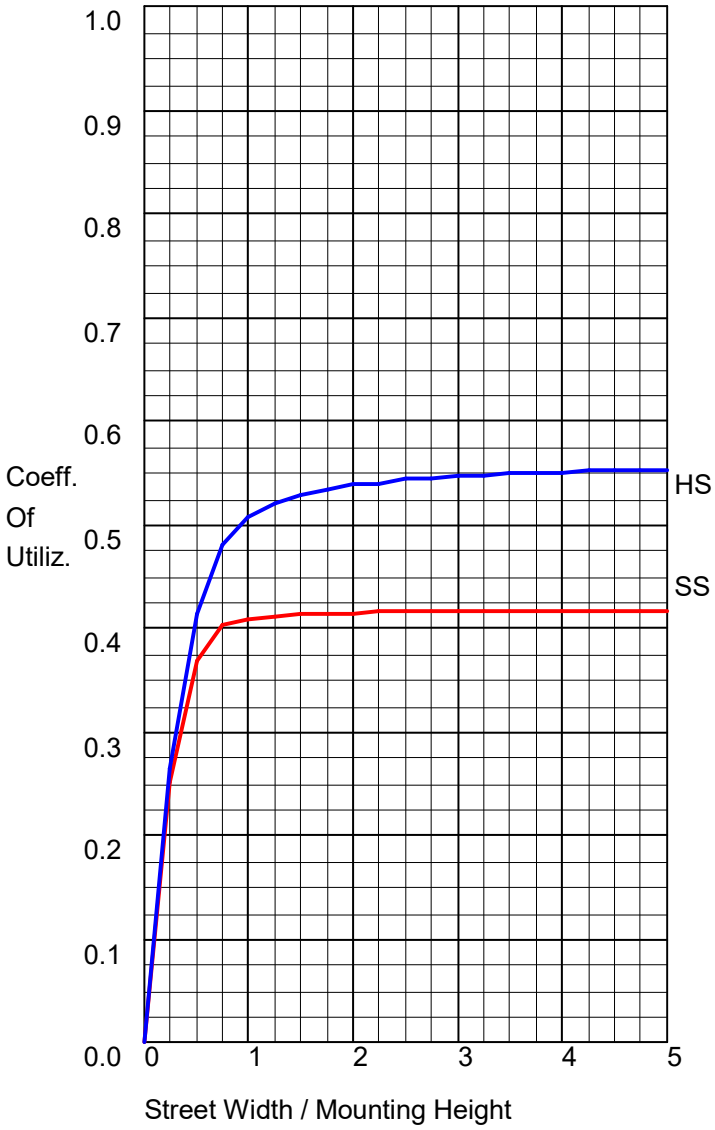
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140	1	2	2	2	2	2	2	1	2	2
145	2	2	2	2	2	2	2	2	2	2
150	3	3	3	3	3	3	3	3	3	3
155	4	4	4	4	4	4	4	4	4	4
160	4	4	4	4	4	4	4	4	4	4
165	5	5	5	5	5	5	5	5	5	4
170	5	5	5	5	5	5	5	5	5	5
175	5	5	5	5	5	5	5	5	5	5
180	5	5	5	5	5	5	5	5	5	5

Vert. Angles	**Horizontal Angles**						
	150	**155**	**160**	**165**	**170**	**175**	**180**
0	959	959	959	959	959	959	959
5	912	909	911	911	914	912	913
10	792	791	790	791	791	791	793
15	633	634	634	632	631	631	631
20	480	478	477	476	475	474	475
25	352	352	351	349	348	349	349
30	258	258	257	255	255	255	255
35	177	178	178	177	176	176	176
40	109	111	112	113	113	113	113
45	71	71	71	72	74	75	76
50	52	52	50	49	47	46	46
55	32	34	35	35	35	35	35
60	24	24	24	25	24	24	24
65	20	21	21	21	21	21	21
70	19	20	20	20	20	20	20
75	18	19	19	19	19	20	20
80	17	17	17	17	18	18	18
85	15	15	16	16	16	16	16
90	12	13	13	13	14	14	14
95	7	8	8	10	10	10	10
100	4	4	4	4	5	5	5
105	1	0	1	1	1	1	1
110	0	0	0	0	0	0	1
115	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0
125	0	0	1	0	0	0	0
130	0	0	1	1	0	0	0
135	1	1	1	1	1	1	1
140	1	1	2	2	1	1	1
145	2	2	2	2	2	2	2
150	3	3	3	3	3	3	3
155	4	4	4	4	4	4	4
160	4	4	4	4	4	4	4
165	5	5	5	4	5	4	5
170	5	5	5	5	5	5	5
175	5	5	5	5	5	5	5
180	5	5	5	5	5	5	5

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COEFFICIENTS OF UTILIZATION



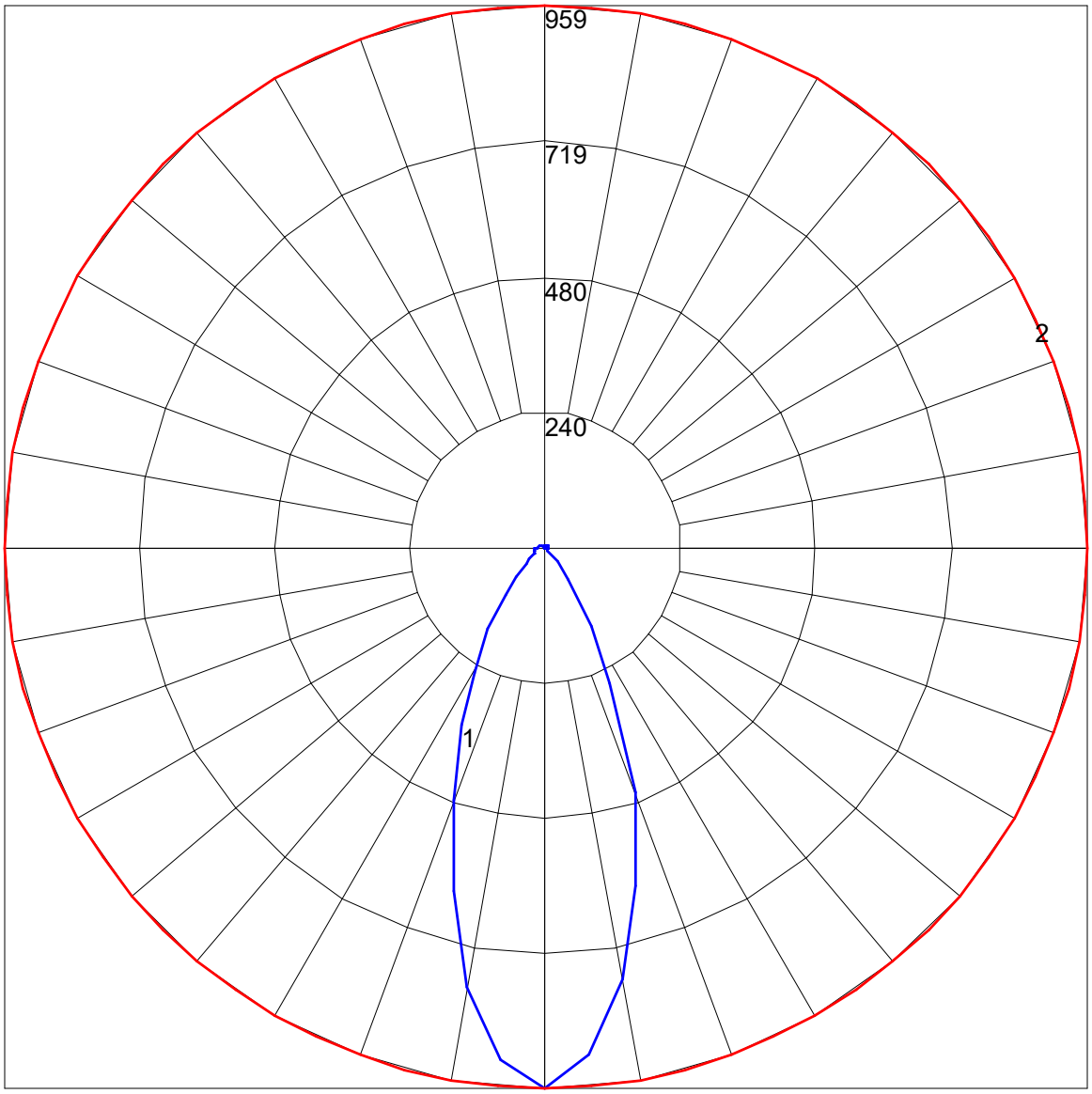
FLUX DISTRIBUTION

	Lumens	Percent Of Luminaire
Downward Street Side	237.1	41.7
Downward House Side	319.8	56.3
Downward Total	556.9	98.1
Upward Street Side	4.6	0.8
Upward House Side	6.5	1.1
Upward Total	11.1	2.0
Total Flux	568.0	100.0

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POLAR GRAPH

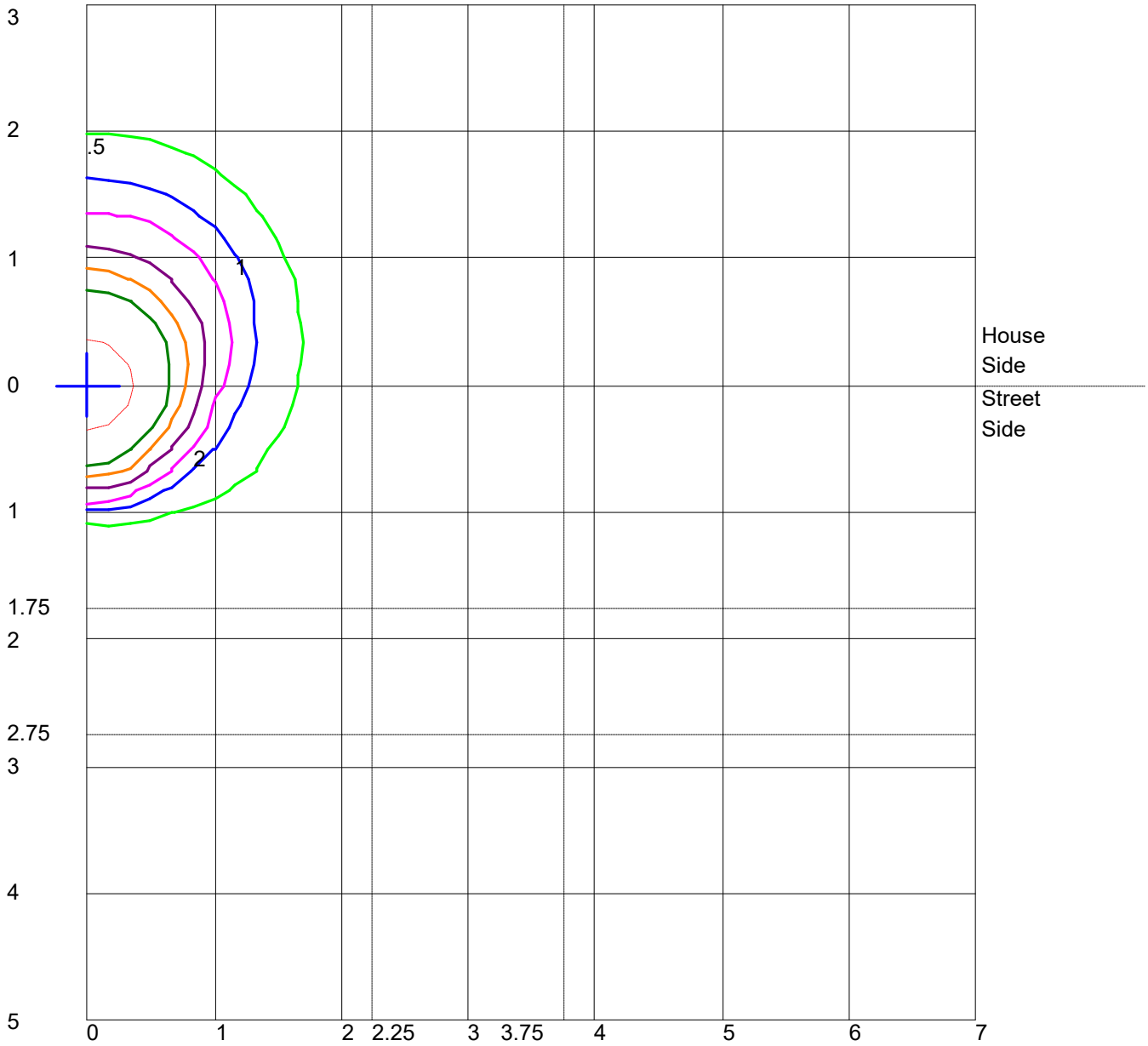


Maximum Candela = 959 Located At Horizontal Angle = 180, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (180 - 0) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)

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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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