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

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L092511806 **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-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: 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

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

Test Summary	
Total Lumens:	600.00
Efficacy:	79.72
Color Redering Index:	84.2
Correlated Color Temperature:	3003
Input Voltage (VAC/60Hz):	12.02
Input Current (Amp):	0.7486
Input Power (W):	7.53
Input Power Factor:	0.8365
Current ATHD (%):	60.1%

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

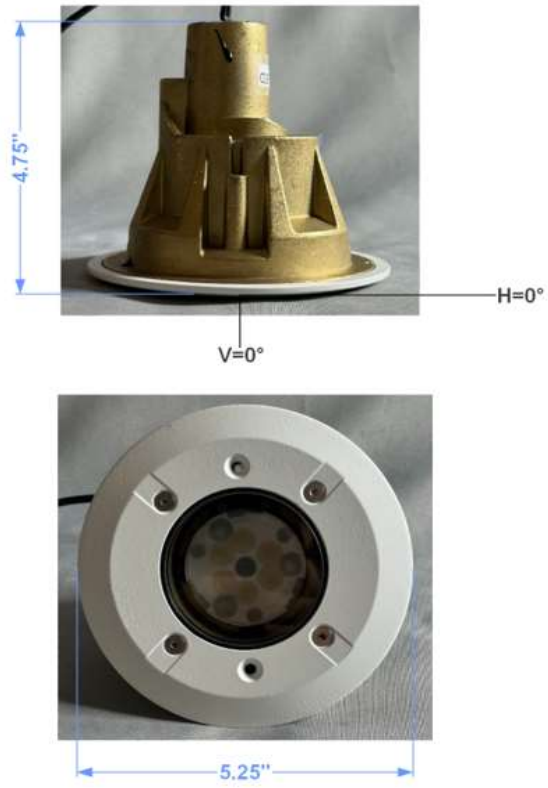


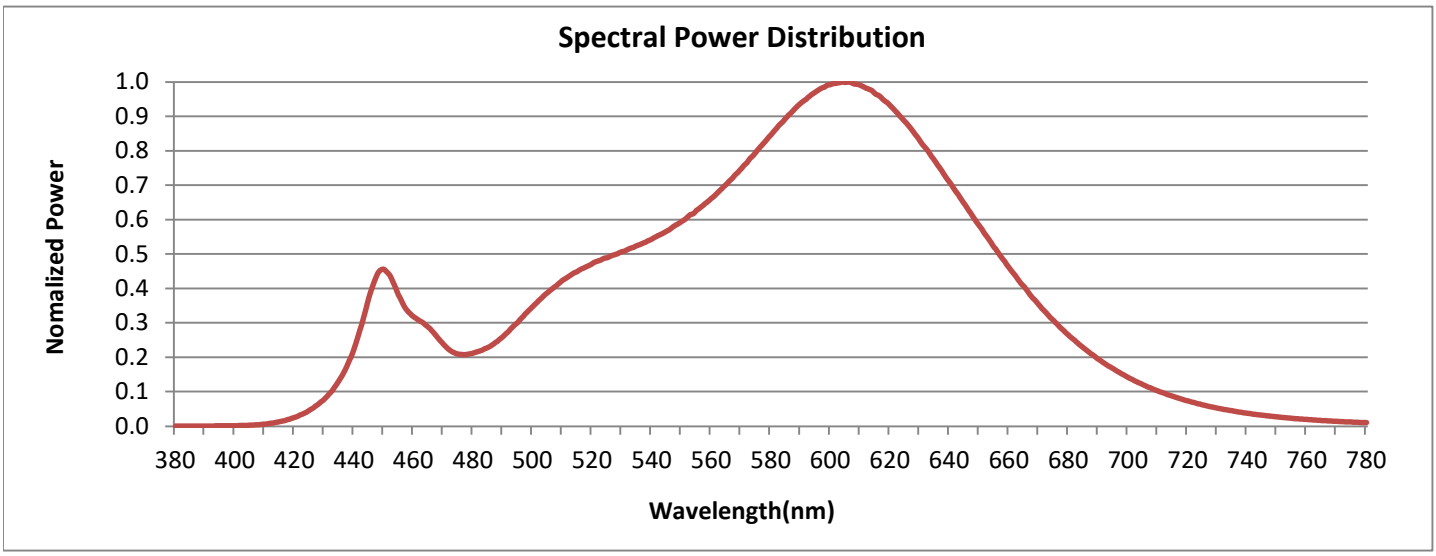
FIG. 1 LUMINAIRE

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Colorimetry Test Results

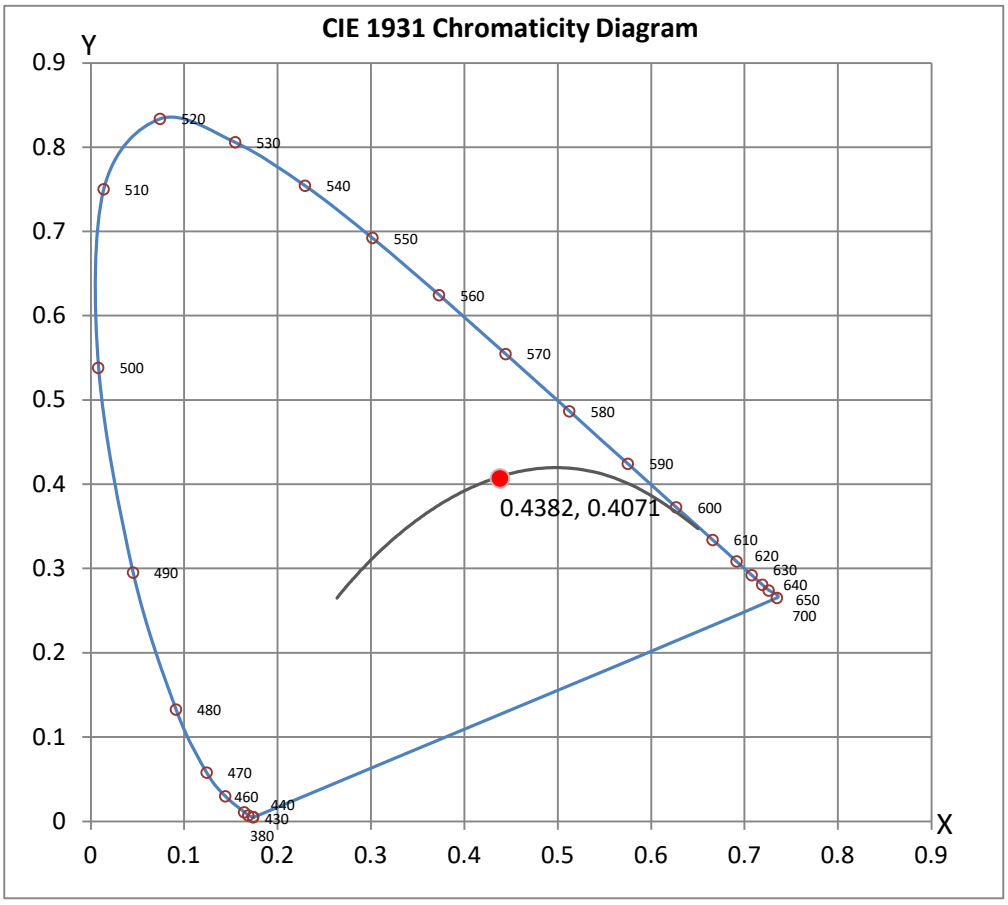


CRI & CCT

x	0.4382
y	0.4071
u'	0.2501
v'	0.5228
CRI	84.20
CCT	3003
Duv	0.00102

R Values

R1	82.69
R2	92.08
R3	96.47
R4	83.33
R5	83.72
R6	91.87
R7	83.22
R8	60.26
R9	10.74
R10	82.56
R11	83.78
R12	76.55
R13	84.95
R14	98.67
R15	74.53



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 : L092511806.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L092511806
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 10/3/2025
[MANUFAC] FX Luminaire / Lumascape
[LUMCAT] TN-60-6LED-S-RG-FW
[LUMINAIRE] TN60, 6LED, 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

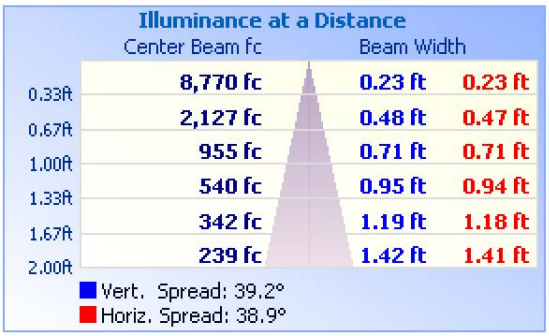
IES Classification	Type VS
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	600
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	80
Total Luminaire Watts	7.53
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Maximum Candela	955
Maximum Candela Angle	180H 0V
Maximum Candela (<90 Degrees Vertical)	955
Maximum Candela Angle (<90 Degrees Vertical)	180H 0V
Maximum Candela At 90 Degrees Vertical	0 (0.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	2 (0.3% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

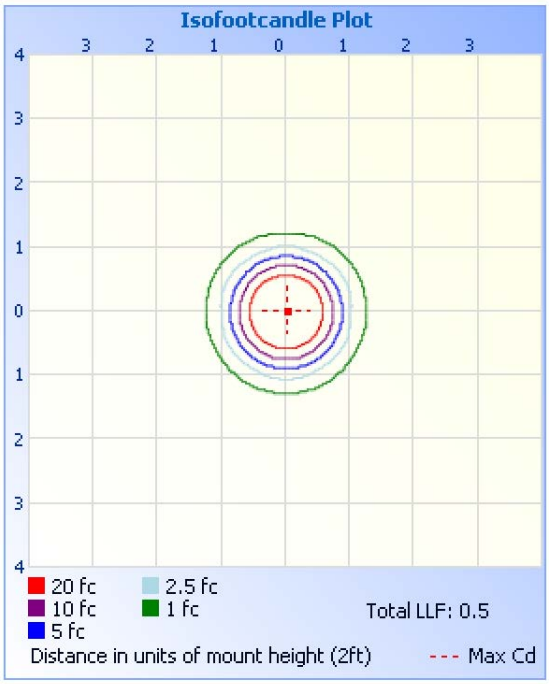
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LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	205.6	N.A.	34.3
FM - Front-Medium (30-60)	90.9	N.A.	15.2
FH - Front-High (60-80)	4.5	N.A.	0.7
FVH - Front-Very High (80-90)	0.4	N.A.	0.1
BL - Back-Low (0-30)	206.7	N.A.	34.4
BM - Back-Medium (30-60)	87.6	N.A.	14.6
BH - Back-High (60-80)	4.1	N.A.	0.7
BVH - Back-Very High (80-90)	0.3	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	600.1	N.A.	100.0
BUG Rating	B1-U0-G0		





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CANDELA TABULATION

Vert. Angles	Horizontal Angles									
	0	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**
0	955	955	955	955	955	955	955	955	955	955
5	900	900	902	903	903	902	902	900	898	899
10	780	781	781	782	784	783	780	778	777	778
15	622	620	623	623	623	622	621	621	621	622
20	463	464	465	465	465	464	463	462	461	463
25	335	335	336	337	337	336	335	334	333	333
30	243	243	244	244	244	243	242	241	241	242
35	173	173	174	174	174	173	173	172	172	172
40	105	105	106	108	109	111	111	111	109	107
45	69	69	69	68	66	64	63	63	64	65
50	45	43	41	40	40	39	39	39	39	39
55	22	22	23	24	27	27	27	24	23	22
60	14	14	14	13	12	12	12	13	14	14
65	5	5	5	5	5	5	6	6	6	6
70	3	3	3	3	3	3	3	3	3	3
75	2	2	2	2	2	2	2	2	2	2
80	1	1	1	1	2	1	1	1	1	1
85	1	1	1	1	1	1	1	1	1	1
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	955	955	955	955	955	955	955	955	955	955
5	901	902	903	902	902	902	900	898	897	899
10	780	781	780	781	781	780	778	778	777	779
15	621	622	621	620	620	620	620	619	618	618
20	464	464	463	463	462	461	460	459	460	461
25	334	335	335	334	333	332	331	330	330	331
30	242	242	243	242	241	240	239	239	237	237
35	172	172	172	172	171	169	167	166	165	165
40	106	105	105	105	105	106	107	106	105	104
45	66	67	67	66	64	61	60	59	59	61
50	38	37	37	37	38	38	38	37	37	37
55	22	21	21	21	21	21	22	22	23	23

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CANDELA TABULATION - (Cont.)

60	14	14	14	14	14	13	12	12	11	11
65	6	6	6	5	6	6	6	6	5	5
70	3	3	3	3	3	3	3	3	3	3
75	2	2	2	2	2	2	2	2	2	2
80	1	1	1	2	1	1	1	2	1	1
85	1	1	1	1	1	1	1	1	1	1
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	955	955	955	955	955	955	955	955	955	955
5	903	906	907	907	908	906	904	906	906	906
10	782	783	785	787	787	785	785	785	787	785
15	622	623	625	626	626	628	628	628	629	628
20	462	464	466	470	469	470	470	470	470	469
25	333	335	337	338	339	339	339	339	340	340
30	239	241	243	244	245	245	245	245	244	244
35	165	164	164	164	164	164	165	165	165	166
40	102	101	100	100	99	100	101	101	102	103
45	63	65	66	66	66	66	65	64	61	59
50	37	38	39	39	39	39	38	38	38	38
55	22	21	21	21	20	20	21	22	23	23
60	12	12	12	12	13	12	12	11	11	11
65	5	5	5	5	5	5	5	5	5	5
70	3	3	3	3	3	3	3	3	3	3
75	2	2	2	2	2	2	2	2	2	2
80	1	1	1	1	1	1	1	1	1	1
85	1	1	0	1	1	0	1	1	0	1
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.)

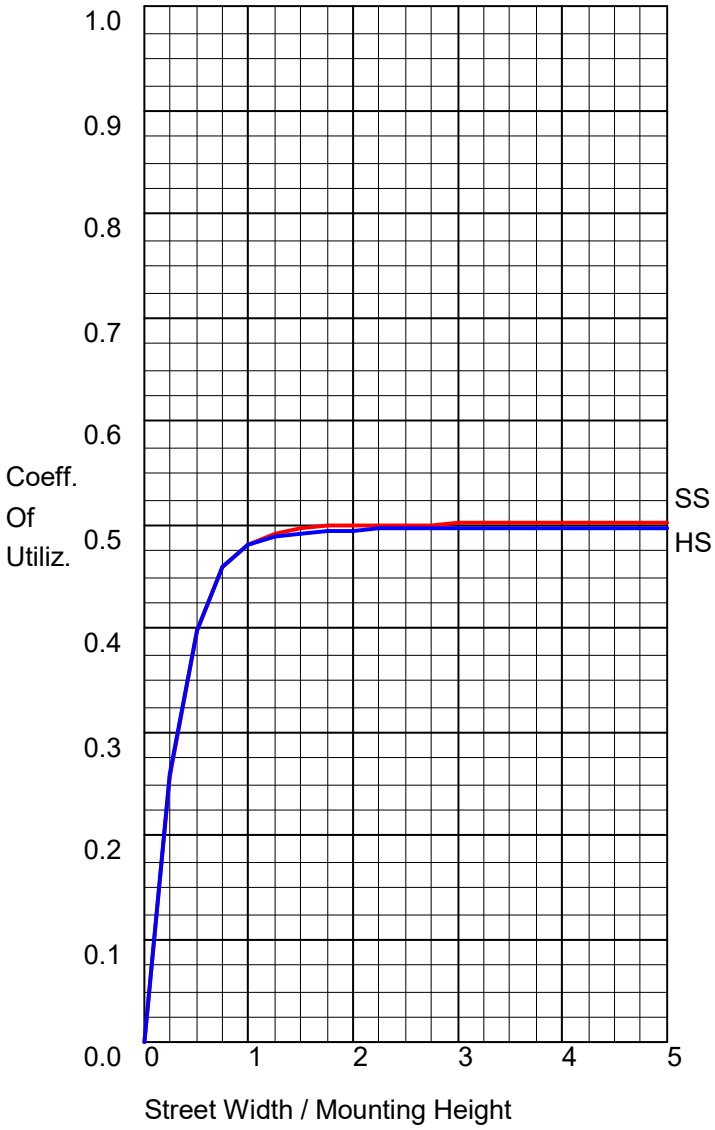
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140	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0

Vert. Angles	**Horizontal Angles**						
	150	**155**	**160**	**165**	**170**	**175**	**180**
0	955	955	955	955	955	955	955
5	905	904	904	903	902	904	904
10	784	783	783	781	780	783	784
15	624	623	622	622	622	623	625
20	466	465	464	463	463	465	465
25	339	338	336	335	334	334	334
30	244	243	242	241	240	240	240
35	166	165	165	164	164	163	163
40	104	104	103	102	100	100	100
45	59	58	59	59	61	64	65
50	37	37	37	36	34	34	34
55	22	21	20	20	20	20	20
60	11	11	12	12	13	13	13
65	5	5	5	5	5	5	5
70	3	3	3	3	3	3	3
75	2	2	2	2	2	2	2
80	1	1	1	1	1	1	1
85	1	1	1	1	1	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



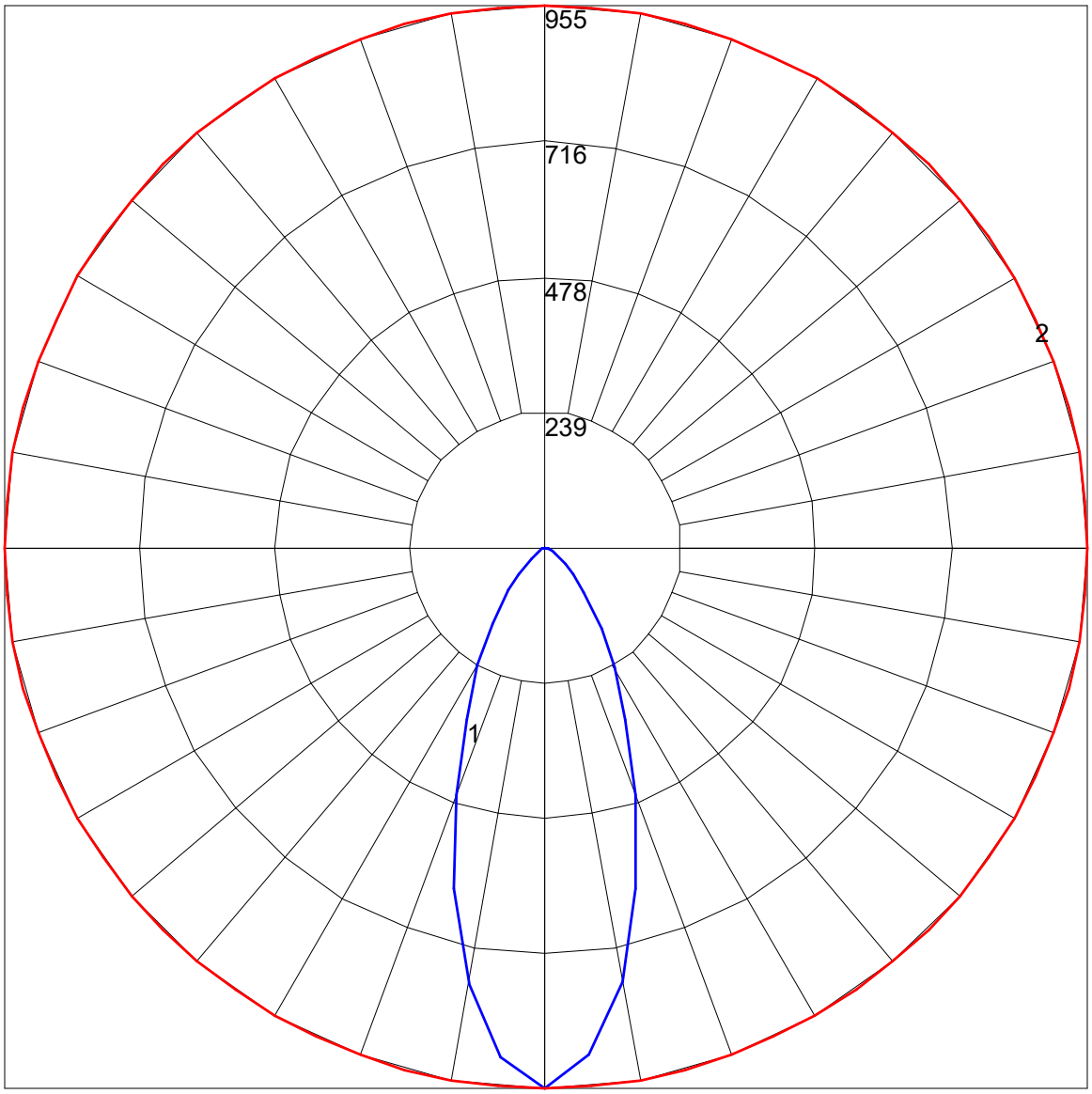
FLUX DISTRIBUTION

	Lumens	Percent Of Luminaire
Downward Street Side	301.4	50.2
Downward House Side	298.8	49.8
Downward Total	600.2	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	600.2	100.0

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POLAR GRAPH

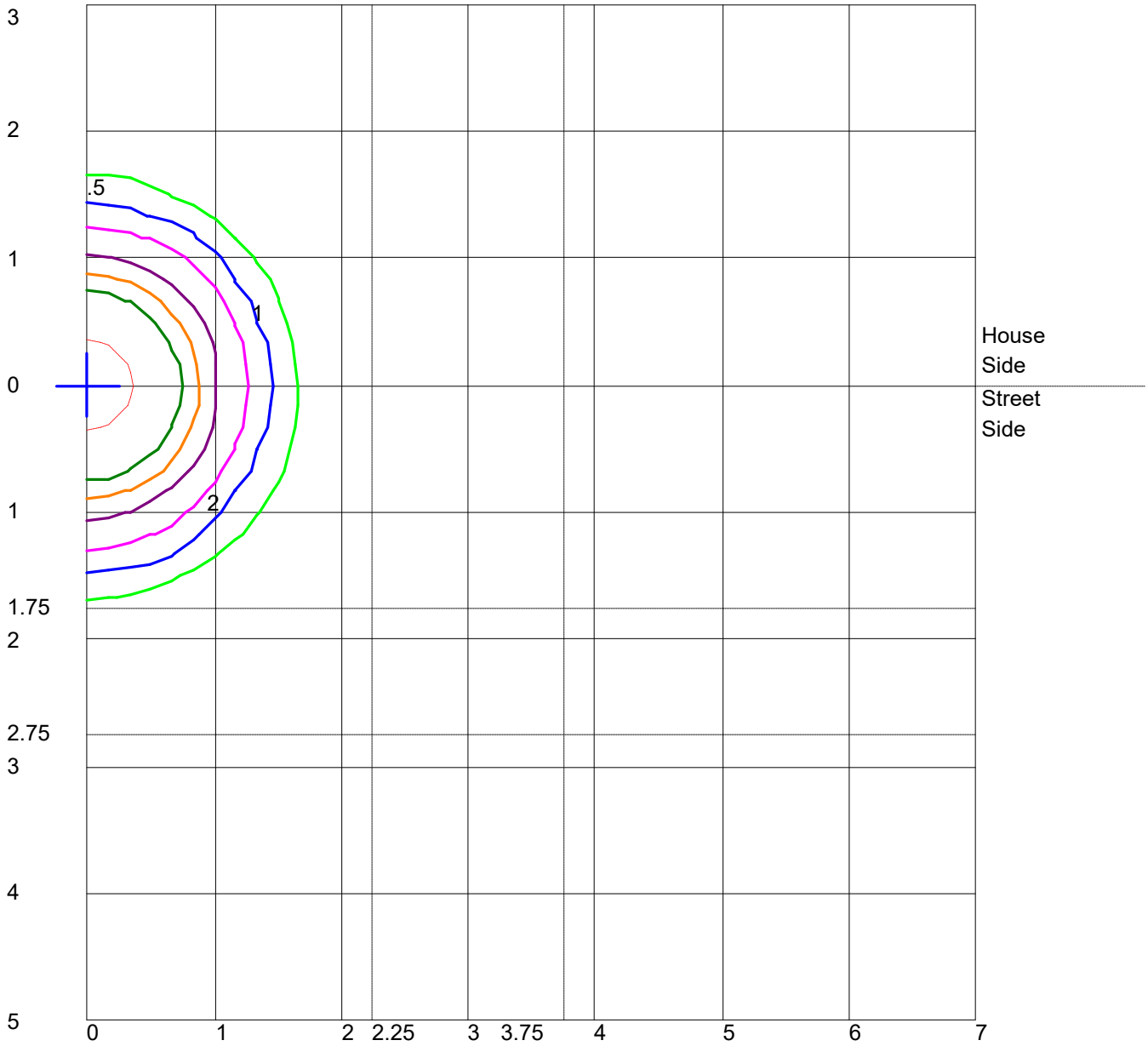


Maximum Candela = 955 Located At Horizontal Angle = 180, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (180 - 0) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)

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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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