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

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L122510904 **Issue Date: 1/6/2026**
Amendment: N/A **Revision Date: N/A**

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

Model Number: TN-61-E9-S-WF-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: 12/22/25

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-61-E9-S-WF-RG-FW
Driver Model Number:	CUSTOM

Test Summary	
Total Lumens:	437.00
Efficacy:	84.85
Color Redering Index:	83.1
Correlated Color Temperature:	3075
Input Voltage (VAC/60Hz):	12.01
Input Current (Amp):	0.6424
Input Power (W):	5.15
Input Power Factor:	0.6677
Current ATHD (%):	97.4%

Test Condition	
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:50
Total Operating Time (Hours):	1:25

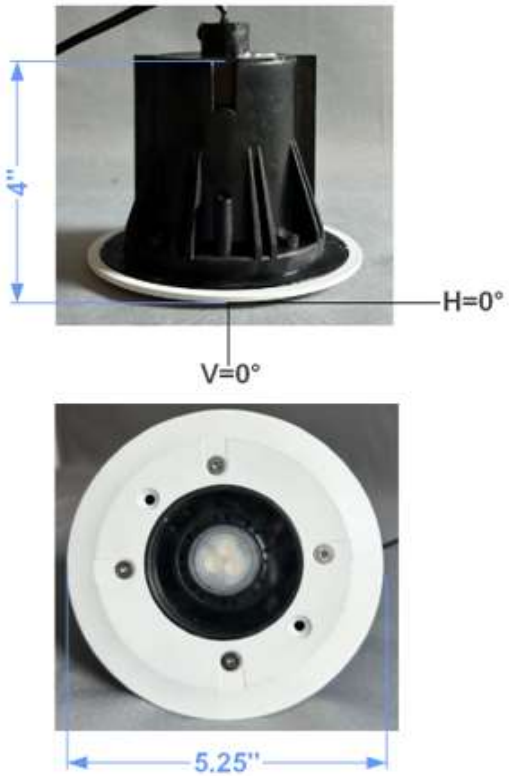
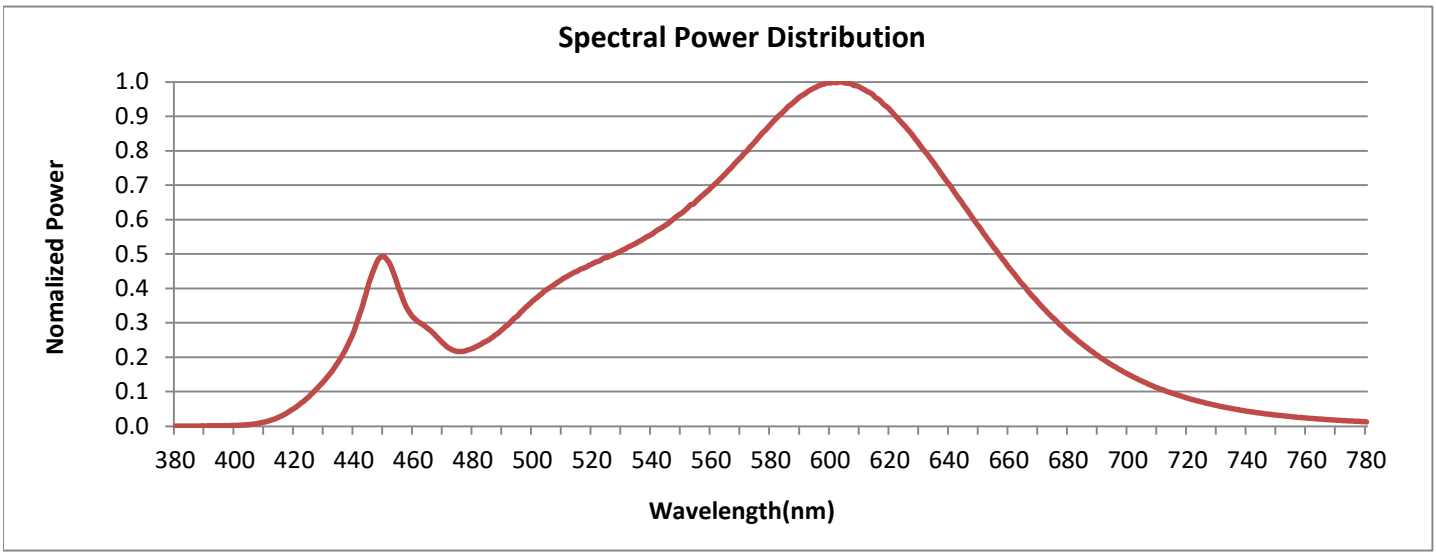


FIG. 1 LUMINAIRE

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Colorimetry Test Results

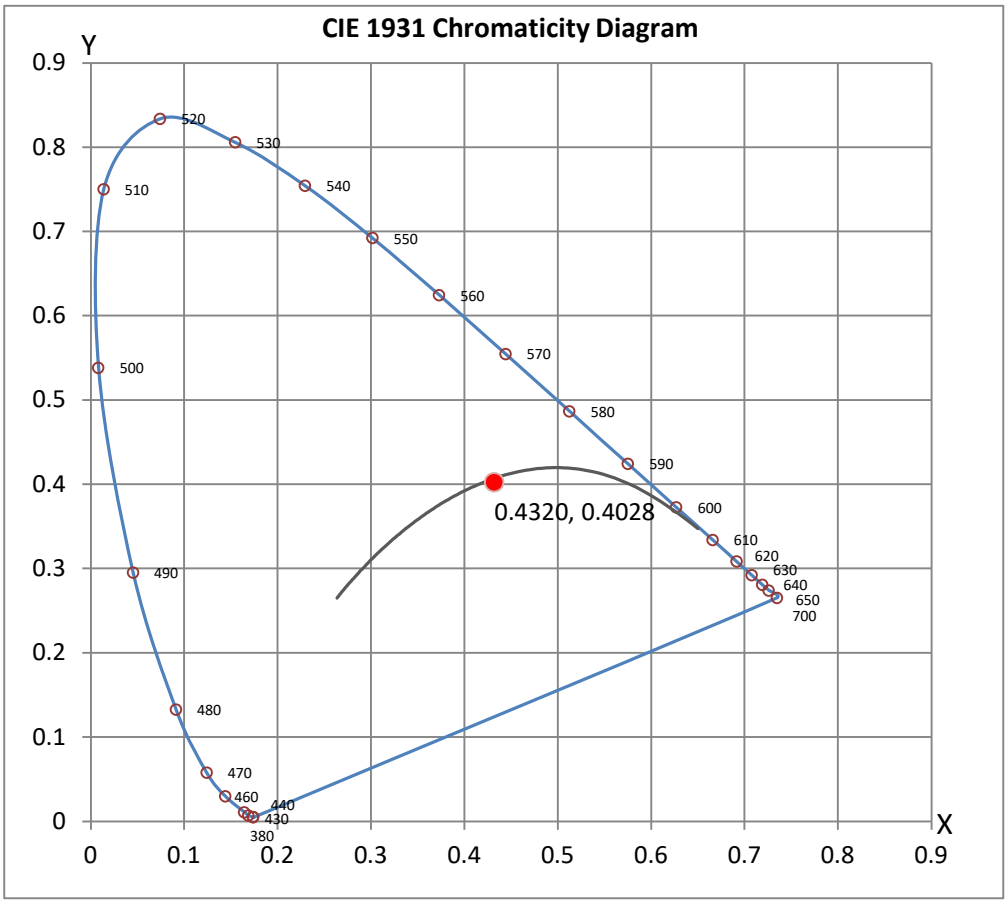


CRI & CCT

x	0.4320
y	0.4028
u'	0.2479
v'	0.5201
CRI	83.10
CCT	3075
Duv	0.00019

R Values

R1	81.18
R2	91.18
R3	96.36
R4	81.70
R5	82.28
R6	90.26
R7	82.84
R8	59.25
R9	7.70
R10	80.52
R11	81.28
R12	76.58
R13	83.46
R14	98.47
R15	73.55



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:
Jason Gee

**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 : L122510904.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L122510904
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 12/22/2025
[MANUFAC] FX Luminaire / Lumascape
[LUMCAT] TN-61-E9-S-WF-RG-FW
[LUMINAIRE] TN61, MR16ECO 8.5VA, 3000K, Wide Flood, Ring, Flat White
[BALLASTCAT] CUSTOM
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 12VAC
[TEST PROCEDURE] IESNA:LM-79-19

CHARACTERISTICS

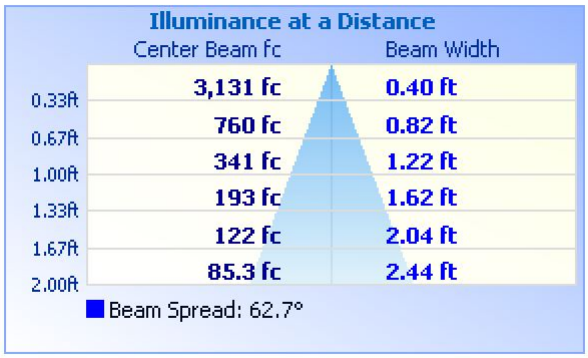
IES Classification	Type V
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	437
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	85
Total Luminaire Watts	5.15
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Maximum Candela	341
Maximum Candela Angle	0H 0V
Maximum Candela (<90 Degrees Vertical)	341
Maximum Candela Angle (<90 Degrees Vertical)	0H 0V
Maximum Candela At 90 Degrees Vertical	0 (0.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	1 (0.2% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

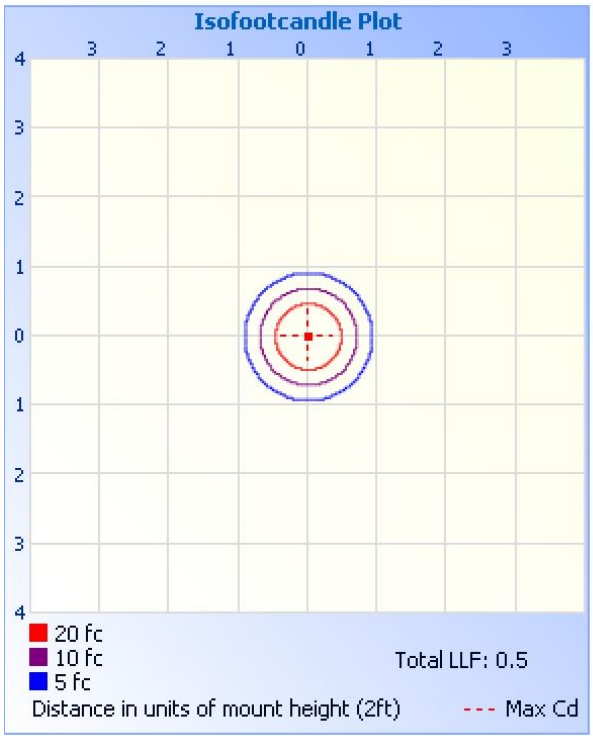
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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : L122510904.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	106.1	N.A.	24.3
FM - Front-Medium (30-60)	101.7	N.A.	23.3
FH - Front-High (60-80)	10.5	N.A.	2.4
FVH - Front-Very High (80-90)	0.1	N.A.	0.0
BL - Back-Low (0-30)	106.1	N.A.	24.3
BM - Back-Medium (30-60)	101.7	N.A.	23.3
BH - Back-High (60-80)	10.5	N.A.	2.4
BVH - Back-Very High (80-90)	0.1	N.A.	0.0
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
Total	436.8	N.A.	100.0
BUG Rating	B0-U0-G0		





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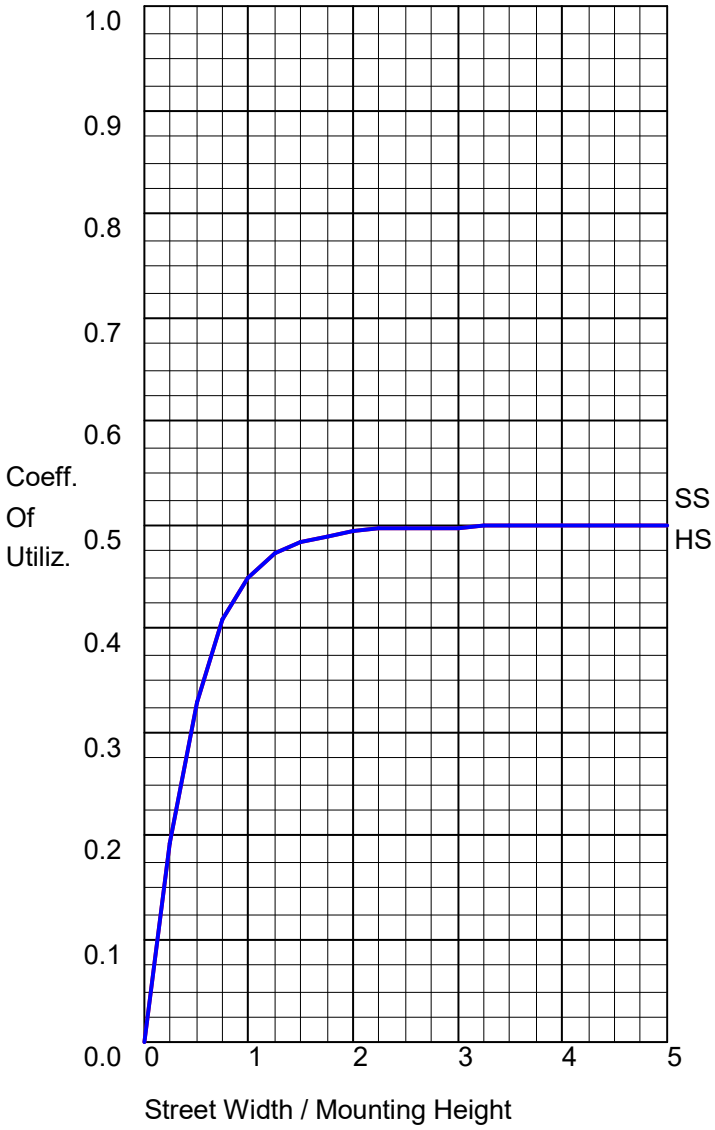
CANDELA TABULATION

Vert. Angles	Horizontal Angles
	0
0	341
5	335
10	317
15	289
20	255
25	218
30	180
35	145
40	114
45	89
50	67
55	48
60	31
65	17
70	7
75	2
80	1
85	0
90	0
95	0
100	0
105	0
110	0
115	0
120	0
125	0
130	0
135	0
140	0
145	0
150	0
155	0
160	0
165	0
170	0
175	0
180	0

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COEFFICIENTS OF UTILIZATION



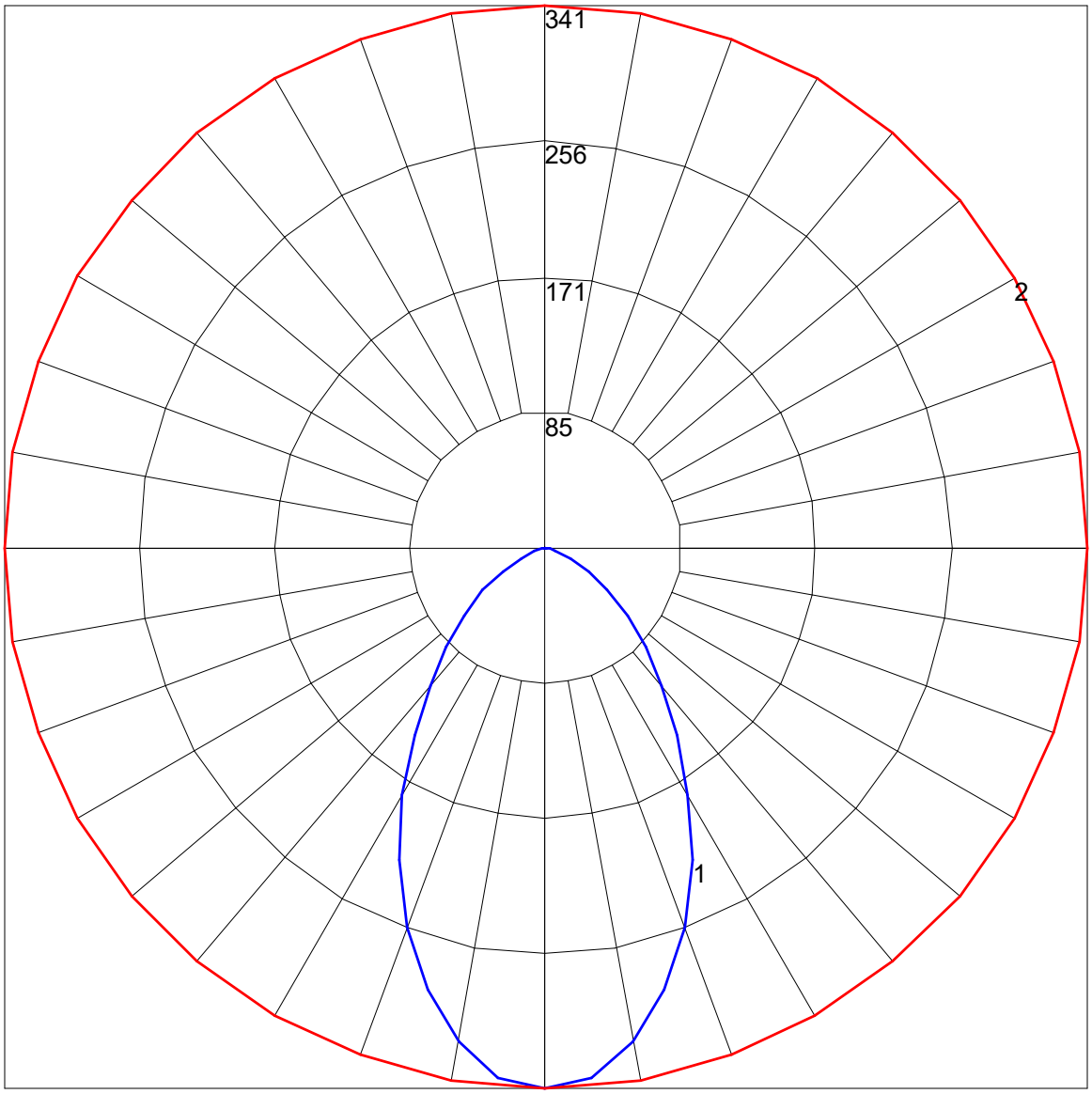
FLUX DISTRIBUTION

	Lumens	Percent Of Luminaire
Downward Street Side	218.4	50.0
Downward House Side	218.4	50.0
Downward Total	436.8	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	436.8	100.0

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POLAR GRAPH

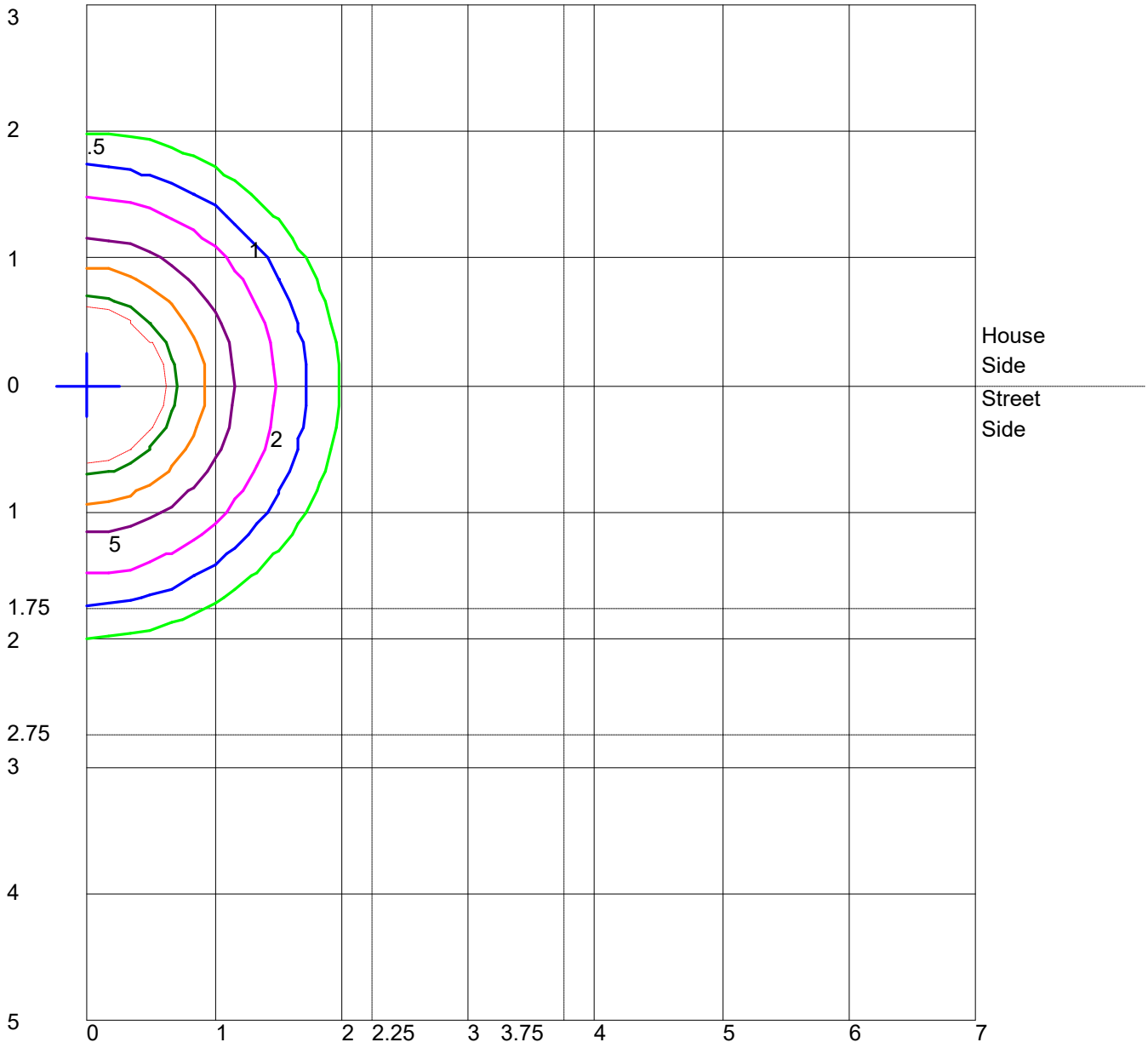


Maximum Candela = 341 Located At Horizontal Angle = 0, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)

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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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