

itl boulder
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

NVLAP
NVLAP LAB CODE: 200925-0

INDEPENDENT TESTING LABORATORIES, INC.
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303) 442-1255 • FAX: (970) 535-3114 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

REPORT NUMBER: ITL87845-GONIOPHOTOMETRY

ISSUE DATE: 07/18/16

PAGE: 1 OF 9

PREPARED FOR: LED ROADWAY LIGHTING LTD.

CATALOG NUMBER: NXT 60M 0 X 2ES 7 XX 4 XX X XX X

LUMINAIRE: CAST METAL HOUSING WITH GRAY PAINTED INTERIOR FINISH, 2 WHITE CIRCUIT BOARDS EACH WITH 36 LEDS, 2 CLEAR PLASTIC LENSES WITH 1 OPTIC PER LED, CLEAR FLAT GLASS LENS IN CAST GRAY PAINTED METAL DOOR FRAME. ONLY 60 LEDS ON FOR THIS TEST.

LAMPS: SIXTY WHITE LIGHT EMITTING DIODES (LEDs), VERTICAL BASE-UP POSITION.

INPUT ELECTRICAL: 120.0 VOLTS, 125.3 WATTS, 1.05 AMPS

LED DRIVER: LED ROADWAY LIGHTING J150UNV2, DRIVER HAS MULTIPLE LEADS, ONLY LINE INPUT AND LED OUTPUT LEADS CONNECTED FOR THIS TEST, OUTPUT CURRENT ROTARY SWITCH SET TO 700mA. LRL65633-LF SURGE PROTECTOR.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120VAC, 60Hz) TO THE DRIVER AND SURGE PROTECTOR. SURGE PROTECTOR INFORMATION PROVIDED BY CLIENT.

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 35.0 FEET

TOTAL LUMEN OUTPUT: 13436

COLOR TEMPERATURE AS MEASURED IN INTEGRATING SPHERE TEST # ITL87845-SPHERE: 3154K

COLOR RENDERING INDEX AS MEASURED IN INTEGRATING SPHERE TEST # ITL87845-SPHERE: 72

LED DC DRIVE CURRENT (mA): 700 (PROVIDED BY CLIENT)

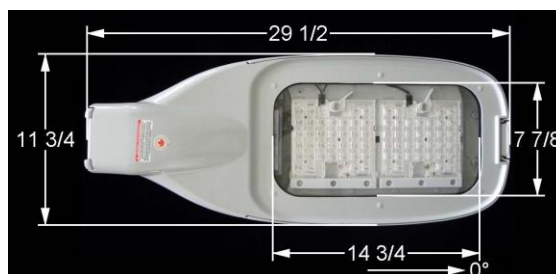
POWER FACTOR: 99.4 %

BUG RATING: B3 U0 G3

LUMINAIRE EFFICACY: 107.2 lm/W

IES CLASSIFICATION: Medium, Type II

**CUTOFF DESIGNATION IS NOT INTENDED TO BE USED WITH ABSOLUTE PHOTOMETRIC TESTS.



FLUX DISTRIBUTION

LUMENS	DOWNWARD	UPWARD	TOTALS
HOUSE SIDE	4449	0	4449
STREET SIDE	8986	0	8986
TOTALS	13436	0	13436

TESTING WAS PERFORMED IN ACCORDANCE WITH IESNA LM-79-08
TEST ANGULAR INCREMENTS AND REPORT FORMATTING WAS BASED ON IESNA LM-31-95

THIS REPORT IS BASED ON PUBLISHED INDUSTRY PROCEDURES. FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE.



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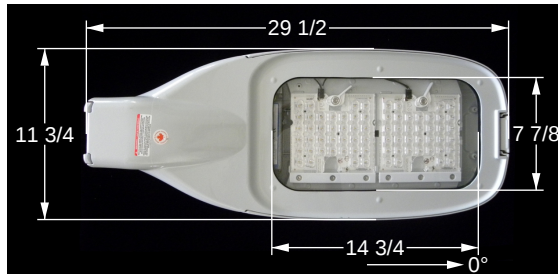
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ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 30 foot mounting height.



REPORT NUMBER: ITL87845-GONIOPHOTOMETRY
ISSUE DATE: 07/18/16 PAGE: 2 OF 9
PREPARED FOR: LED ROADWAY LIGHTING LTD.
CATALOG NUMBER: NXT 60M 0 X 2ES 7 XX 4 XX X XX X

LUMINAIRE: CAST METAL HOUSING WITH GRAY PAINTED INTERIOR FINISH, 2 WHITE CIRCUIT BOARDS EACH WITH 36 LEDs, 2 CLEAR PLASTIC LENSES WITH 1 OPTIC PER LED, CLEAR FLAT GLASS LENS IN CAST GRAY PAINTED METAL DOOR FRAME. ONLY 60 LEDs ON FOR THIS TEST.

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NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120VAC, 60Hz) TO THE DRIVER AND SURGE PROTECTOR. SURGE PROTECTOR INFORMATION PROVIDED BY CLIENT.

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 35.0 FEET

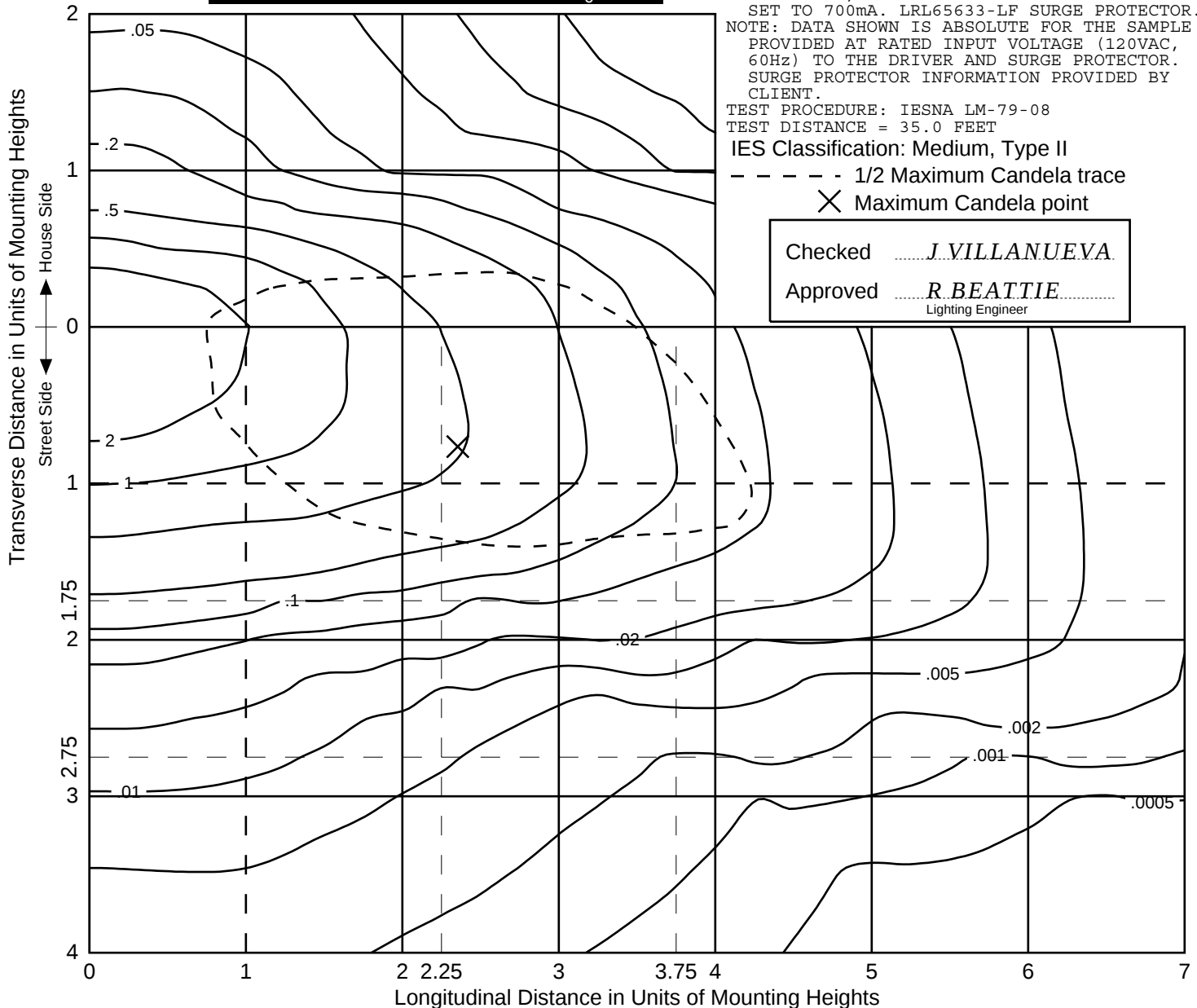
IES Classification: Medium, Type II

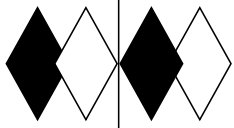
--- 1/2 Maximum Candela trace

X Maximum Candela point

CheckedJ.VILLANUEVA.....

ApprovedR.BEATTIE.....
Lighting Engineer





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PREPARED FOR: LED ROADWAY LIGHTING LTD.
CATALOG NUMBER: NXT 60M 0 X 2ES 7 XX 4
XX X XX X

LUMINAIRE: CAST METAL HOUSING WITH GRAY
PAINTED INTERIOR FINISH, 2 WHITE
CIRCUIT BOARDS EACH WITH 36 LEDS, 2
CLEAR PLASTIC LENSES WITH 1 OPTIC PER
LED, CLEAR FLAT GLASS LENS IN CAST
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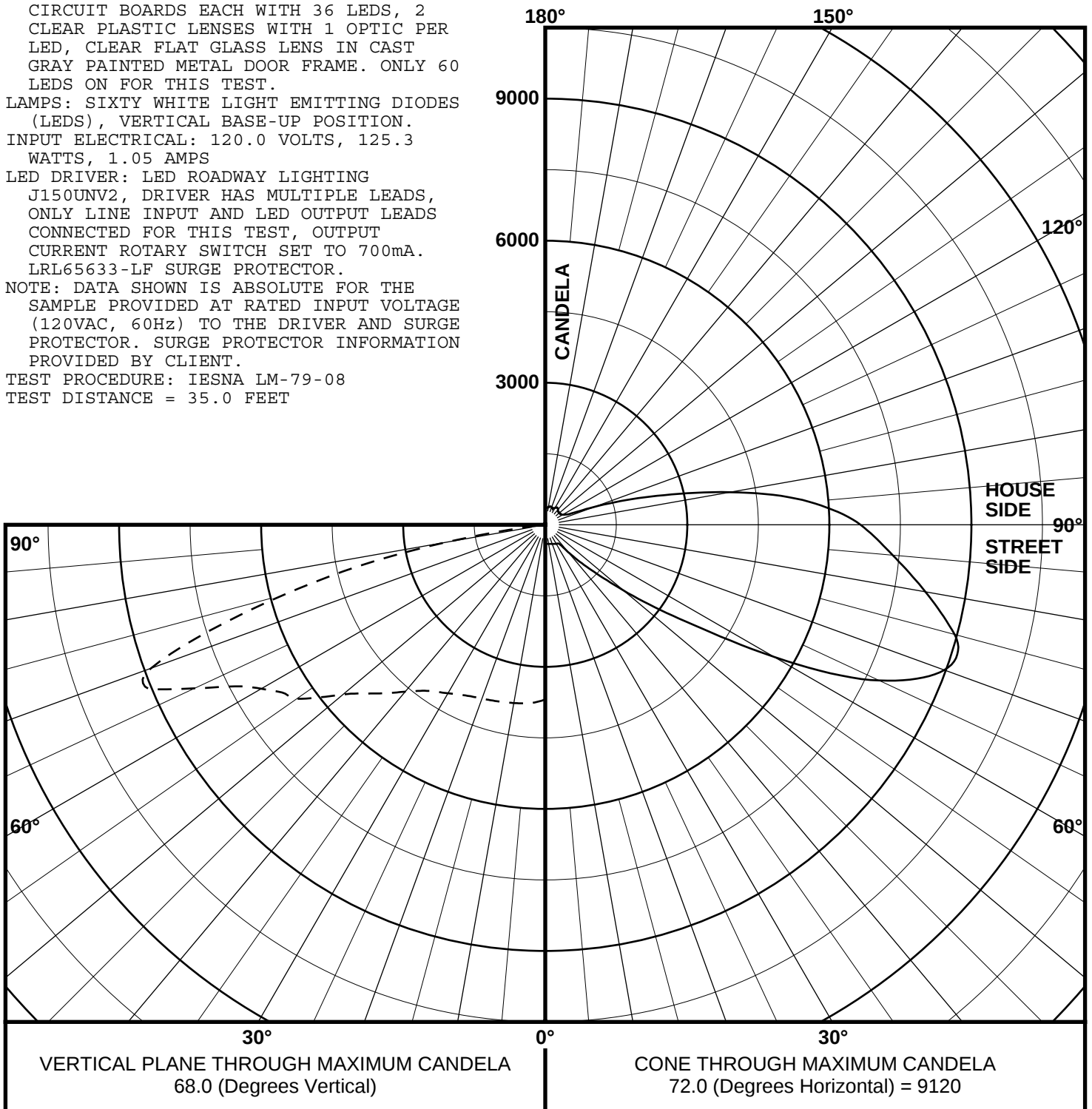
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INPUT ELECTRICAL: 120.0 VOLTS, 125.3
WATTS, 1.05 AMPS

LED DRIVER: LED ROADWAY LIGHTING
J150UNV2, DRIVER HAS MULTIPLE LEADS,
ONLY LINE INPUT AND LED OUTPUT LEADS
CONNECTED FOR THIS TEST, OUTPUT
CURRENT ROTARY SWITCH SET TO 700mA.
LRL65633-LF SURGE PROTECTOR.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE
SAMPLE PROVIDED AT RATED INPUT VOLTAGE
(120VAC, 60Hz) TO THE DRIVER AND SURGE
PROTECTOR. SURGE PROTECTOR INFORMATION
PROVIDED BY CLIENT.

TEST PROCEDURE: IESNA LM-79-08
TEST DISTANCE = 35.0 FEET

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

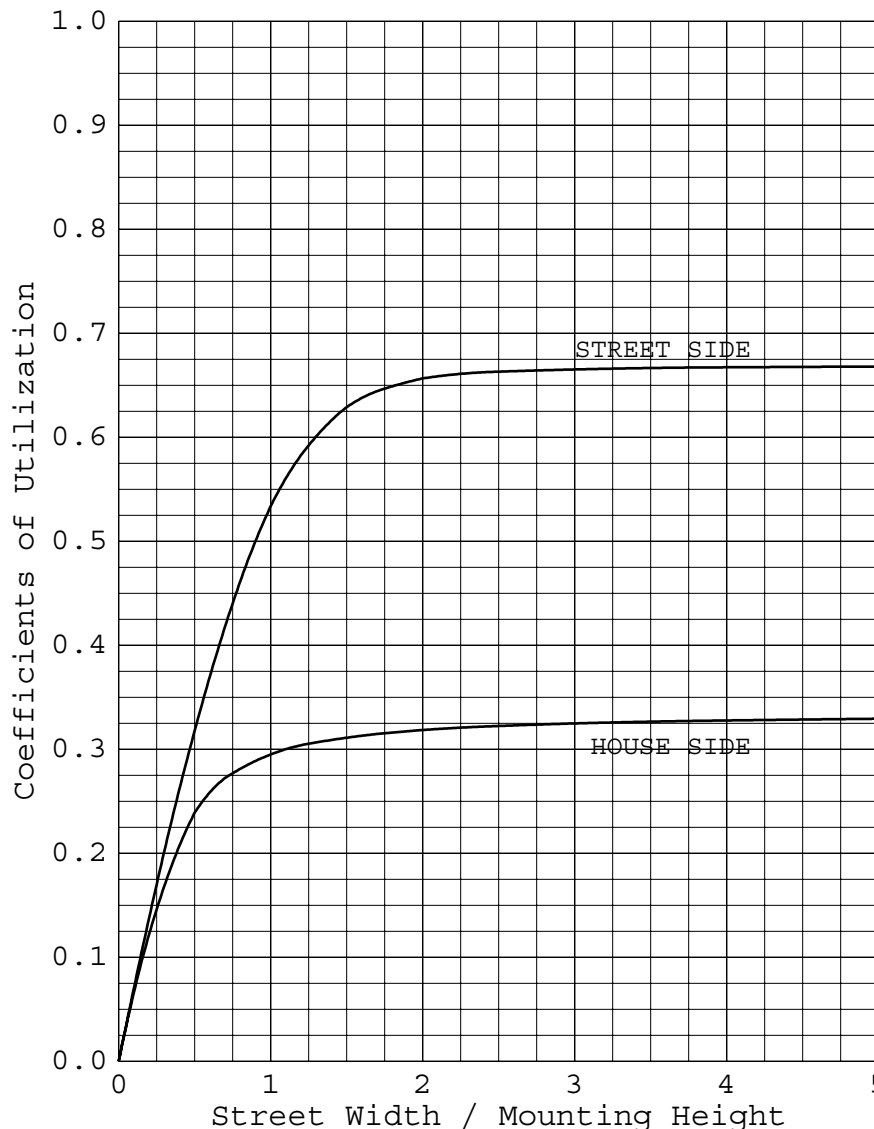




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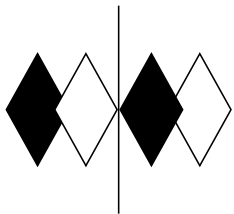
COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	8986	66.9
DOWNWARD HOUSE SIDE	4449	33.1
DOWNWARD TOTAL	13436	100.0
UPWARD STREET SIDE	0	0.0
UPWARD HOUSE SIDE	0	0.0
UPWARD TOTAL	0	0.0
TOTAL FLUX	13436	100.0

EFFICACY = 107.2 lm/W

ALL CANDELA AND LUMENS IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY.
THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE
LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.



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FLUX DISTRIBUTION BY SOLID ANGLE

(PER IESNA TM-15-11, LUMINAIRE CLASSIFICATION
SYSTEM FOR OUTDOOR LUMINAIRES)

	LUMENS	PERCENT OF FIXTURE	BUG ZONE RATINGS
FORWARD LIGHT	8986.	66.9	
FL (0- 30)	1637.0	12.2	
FM (30- 60)	4573.6	34.0	
FH (60- 80)	2713.8	20.2	G2
FVH(80- 90)	62.0	0.5	G1
BACK LIGHT	4449.	33.1	
BL (0- 30)	1191.0	8.9	B3
BM (30- 60)	2197.7	16.4	B2
BH (60- 80)	1026.0	7.6	B3 G3
BVH(80- 90)	34.6	0.3	G1
UPLIGHT	0.	0.0	
UL (90-100)	0.0	0.0	U0
UH (100-180)	0.0	0.0	U0
TRAPPED LIGHT	0.	0.0	
TOTAL FLUX	13436.	100.0	

BACKLIGHT, UPLIGHT, AND GLARE (BUG) RATINGS
(PER ADDENDUM A FOR IESNA TM-15-11)

BUG RATING: B3 U0 G3



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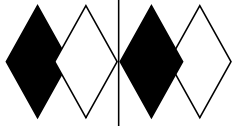
PAGE: 6 OF 9

CANDELA TABULATION

	STREET SIDE										
	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	72.0	75.0	85.0
180.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
175.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
165.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
155.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
145.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
135.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
125.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
115.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
95.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
92.5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
87.5	2.	2.	3.	3.	4.	4.	4.	6.	7.	7.	7.
85.0	19.	20.	27.	23.	18.	17.	17.	18.	19.	18.	18.
V 82.5	52.	55.	77.	68.	50.	55.	51.	99.	559.	481.	314.
E 80.0	104.	109.	149.	113.	96.	113.	106.	333.	2121.	2295.	1646.
R 77.5	154.	159.	201.	150.	158.	161.	193.	1164.	4042.	4413.	3387.
T 75.0	185.	190.	225.	214.	218.	230.	349.	2893.	5717.	6126.	4813.
I 72.5	236.	243.	268.	283.	283.	361.	964.	5126.	7419.	7667.	5884.
C 70.0	319.	325.	342.	365.	360.	684.	2313.	6811.	8865.	8737.	7012.
A 68.0<<	398.	406.	417.	447.	481.	1299.	3455.	7782.	9120.	8950.	7367.
L 67.5	420.	428.	437.	472.	538.	1506.	3720.	7862.	9063.	8914.	7386.
65.0	544.	560.	579.	713.	1124.	2632.	4793.	7504.	8176.	8104.	7137.
A 62.5	840.	860.	959.	1271.	1928.	3448.	5136.	6954.	7387.	7337.	6668.
N 60.0	1310.	1325.	1451.	1820.	2426.	3659.	5068.	6586.	6925.	6879.	6409.
G 57.5	1688.	1696.	1795.	2111.	2649.	3707.	5000.	6344.	6590.	6539.	6226.
L 55.0	1928.	1937.	2031.	2288.	2811.	3722.	4929.	6215.	6410.	6327.	6079.
E 52.5	2121.	2130.	2215.	2463.	2966.	3717.	4793.	5810.	5985.	5959.	5881.
50.0	2272.	2292.	2384.	2641.	3109.	3759.	4685.	5418.	5576.	5592.	5636.
47.5	2427.	2461.	2560.	2807.	3247.	3825.	4590.	5155.	5276.	5307.	5401.
45.0	2583.	2631.	2730.	2968.	3363.	3879.	4461.	4893.	5038.	5085.	5199.
42.5	2740.	2798.	2901.	3155.	3512.	3953.	4387.	4680.	4814.	4872.	5012.
40.0	2939.	3004.	3122.	3379.	3671.	4022.	4321.	4477.	4601.	4668.	4814.
37.5	3247.	3317.	3411.	3604.	3828.	4081.	4238.	4299.	4423.	4486.	4625.
35.0	3521.	3616.	3683.	3825.	3955.	4092.	4110.	4154.	4285.	4339.	4456.
30.0	3995.	4067.	4070.	4077.	4048.	3939.	3882.	3979.	4109.	4144.	4183.
25.0	4091.	4163.	4118.	4024.	3855.	3746.	3785.	3898.	3978.	3989.	3975.
20.0	3811.	3866.	3811.	3764.	3725.	3741.	3816.	3887.	3907.	3897.	3825.
15.0	3712.	3779.	3768.	3771.	3797.	3836.	3882.	3887.	3861.	3840.	3757.
10.0	3822.	3889.	3894.	3898.	3906.	3911.	3896.	3860.	3823.	3804.	3735.
5.0	3834.	3892.	3887.	3866.	3856.	3846.	3825.	3803.	3779.	3767.	3723.
0.0	3692.	3692.	3692.	3692.	3692.	3692.	3692.	3692.	3692.	3692.	3692.

||
PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA



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CANDELA TABULATION

HOUSE SIDE		LATERAL ANGLE										
		90.0	95.0	105.0	115.0	125.0	135.0	145.0	155.0	165.0	175.0	180.0
	180.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	175.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	165.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	155.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	145.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	135.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	125.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	115.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	105.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	95.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	92.5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	87.5	7.	7.	6.	5.	4.	3.	2.	1.	0.	0.	0.
	85.0	17.	16.	16.	15.	15.	17.	23.	35.	25.	9.	2.
V	82.5	300.	235.	46.	46.	46.	63.	85.	100.	116.	117.	106.
E	80.0	1417.	1100.	117.	99.	94.	125.	169.	193.	229.	254.	249.
R	77.5	2761.	2124.	277.	164.	154.	184.	245.	290.	353.	383.	374.
T	75.0	4137.	3286.	608.	246.	227.	244.	301.	319.	441.	490.	481.
I	72.5	5202.	4290.	1121.	342.	294.	297.	347.	327.	428.	462.	469.
C	70.0	6310.	5293.	1859.	446.	349.	349.	401.	346.	408.	393.	389.
A	68.0<<	6660.	5590.	2303.	518.	393.	388.	443.	380.	401.	360.	357.
L	67.5	6686.	5618.	2405.	533.	405.	397.	452.	390.	402.	357.	353.
	65.0	6557.	5606.	2887.	622.	454.	445.	491.	444.	426.	376.	368.
A	62.5	6314.	5592.	3303.	766.	499.	497.	524.	504.	473.	424.	413.
N	60.0	6200.	5637.	3657.	1016.	548.	546.	530.	549.	528.	477.	463.
G	57.5	6132.	5713.	3961.	1369.	604.	593.	552.	568.	572.	526.	513.
L	55.0	6017.	5680.	4239.	1792.	675.	639.	586.	585.	605.	567.	553.
E	52.5	5828.	5515.	4206.	2190.	813.	680.	624.	624.	646.	603.	587.
	50.0	5609.	5343.	4218.	2537.	1018.	722.	663.	661.	670.	637.	627.
	47.5	5396.	5193.	4228.	2801.	1286.	778.	705.	697.	690.	663.	660.
	45.0	5198.	5042.	4194.	2954.	1560.	899.	754.	732.	721.	702.	703.
	42.5	5001.	4859.	4135.	3048.	1804.	1082.	822.	771.	757.	742.	743.
	40.0	4795.	4667.	4042.	3105.	2008.	1274.	939.	829.	792.	774.	774.
	37.5	4600.	4487.	3936.	3136.	2184.	1457.	1095.	943.	866.	826.	827.
	35.0	4424.	4311.	3837.	3150.	2337.	1644.	1259.	1082.	993.	944.	947.
	30.0	4129.	4010.	3643.	3153.	2593.	2070.	1650.	1422.	1288.	1217.	1223.
	25.0	3897.	3786.	3506.	3170.	2811.	2461.	2135.	1894.	1729.	1642.	1655.
	20.0	3747.	3658.	3449.	3221.	3001.	2788.	2571.	2386.	2276.	2204.	2230.
	15.0	3688.	3620.	3463.	3306.	3164.	3040.	2921.	2810.	2733.	2694.	2733.
	10.0	3681.	3635.	3532.	3421.	3336.	3257.	3193.	3130.	3090.	3070.	3104.
	5.0	3693.	3671.	3627.	3563.	3508.	3464.	3431.	3394.	3375.	3363.	3410.
	0.0	3692.	3692.	3692.	3692.	3692.	3692.	3692.	3692.	3692.	3692.	3692.

CONE OF MAXIMUM CANDELA



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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	88
5- 10	259
10- 15	417
15- 20	558
20- 25	690
25- 30	816
30- 35	927
35- 40	1016
40- 45	1097
45- 50	1177
50- 55	1255
55- 60	1299
60- 65	1276
65- 70	1179
70- 75	853
75- 80	432
80- 85	93
85- 90	4
90- 95	0
95-100	0
100-105	0
105-110	0
110-115	0
115-120	0
120-125	0
125-130	0
130-135	0
135-140	0
140-145	0
145-150	0
150-155	0
155-160	0
160-165	0
165-170	0
170-175	0
175-180	0

10-DEGREE
ZONAL LUMEN SUMMARY

0- 10	347
0- 20	1321
0- 30	2828
0- 40	4771
0- 50	7045
0- 60	9599
0- 70	12054
0- 80	13339
0- 90	13436
0-100	13436
0-110	13436
0-120	13436
0-130	13436
0-140	13436
0-150	13436
0-160	13436
0-170	13436
0-180	13436



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INDEPENDENT TESTING LABORATORIES, INC.
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303) 442-1255 • FAX: (970) 535-3114 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

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ADDRESS: 115 CHAIN LAKE DRIVE
SUITE 201
HALIFAX, NOVA SCOTIA, CANADA B3S 1B3

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