



**itl boulder**  
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

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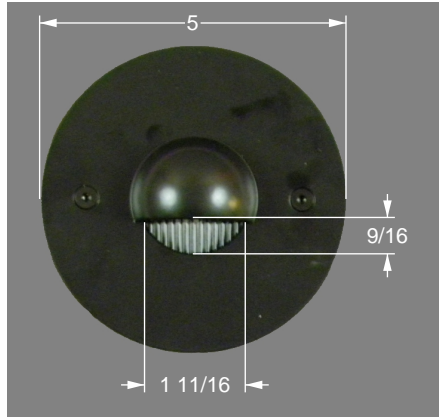
WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

**NVLAP**  
NVLAP LAB CODE: 200925-0

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

## ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 1 foot mounting height.



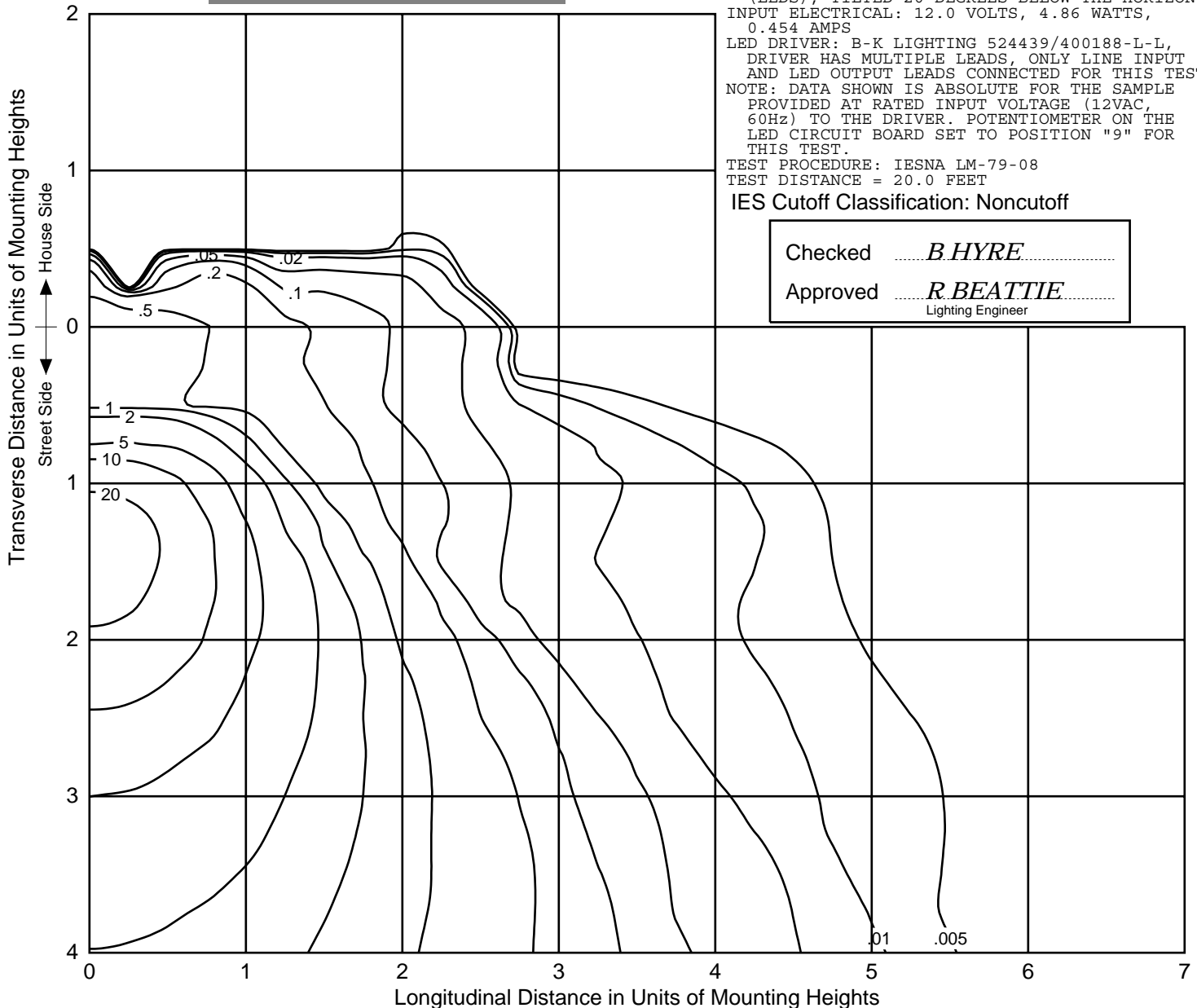
REPORT NUMBER: ITL86652  
ISSUE DATE: 03/02/16 PAGE: 1 OF 8  
PREPARED FOR: B-K LIGHTING, INC.  
CATALOG NUMBER: SS-LED-e102-B-20-DEGREES, PS-LED-e102-B-20-DEGREES, BS-LED-e102-B-20-DEGREES  
LUMINAIRE: CAST METAL WALL MOUNTING HOUSING, ONE ADJUSTABLE LED MODULE CONSISTING OF: MACHINED BLACK FINISHED METAL HEAT SINK, ONE BLACK CIRCUIT BOARD WITH 3 LEDs, ONE CLEAR CONICAL PLASTIC OPTIC PER LED WITH FROSTED SURFACE OPPOSITE LED, MOLDED BLACK PLASTIC OPTIC MOUNTING FRAME. FABRICATED DIFFUSE METAL LED MODULE MOUNTING BRACKETS, MACHINED BLACK FINISHED METAL OPTIC ASSEMBLY MOUNTING COLLAR, CLEAR FLAT LINEAR PRISMATIC GLASS LENS, CAST BLACK PAINTED METAL FACEPLATE, LENS PRISMS OUT AND VERTICAL. LED MODULE TILTED 20-DEGREES BELOW THE HORIZON.  
LAMPS: THREE WHITE LIGHT EMITTING DIODES (LEDs), TILTED 20-DEGREES BELOW THE HORIZON.  
INPUT ELECTRICAL: 12.0 VOLTS, 4.86 WATTS, 0.454 AMPS  
LED DRIVER: B-K LIGHTING 524439/400188-L-L, DRIVER HAS MULTIPLE LEADS, ONLY LINE INPUT AND LED OUTPUT LEADS CONNECTED FOR THIS TEST.  
NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (12VAC, 60Hz) TO THE DRIVER. POTENTIOMETER ON THE LED CIRCUIT BOARD SET TO POSITION "9" FOR THIS TEST.

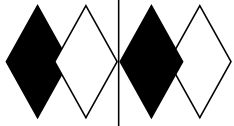
TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 20.0 FEET

IES Cutoff Classification: Noncutoff

Checked B. HYRE  
Approved R. BEATTIE  
Lighting Engineer





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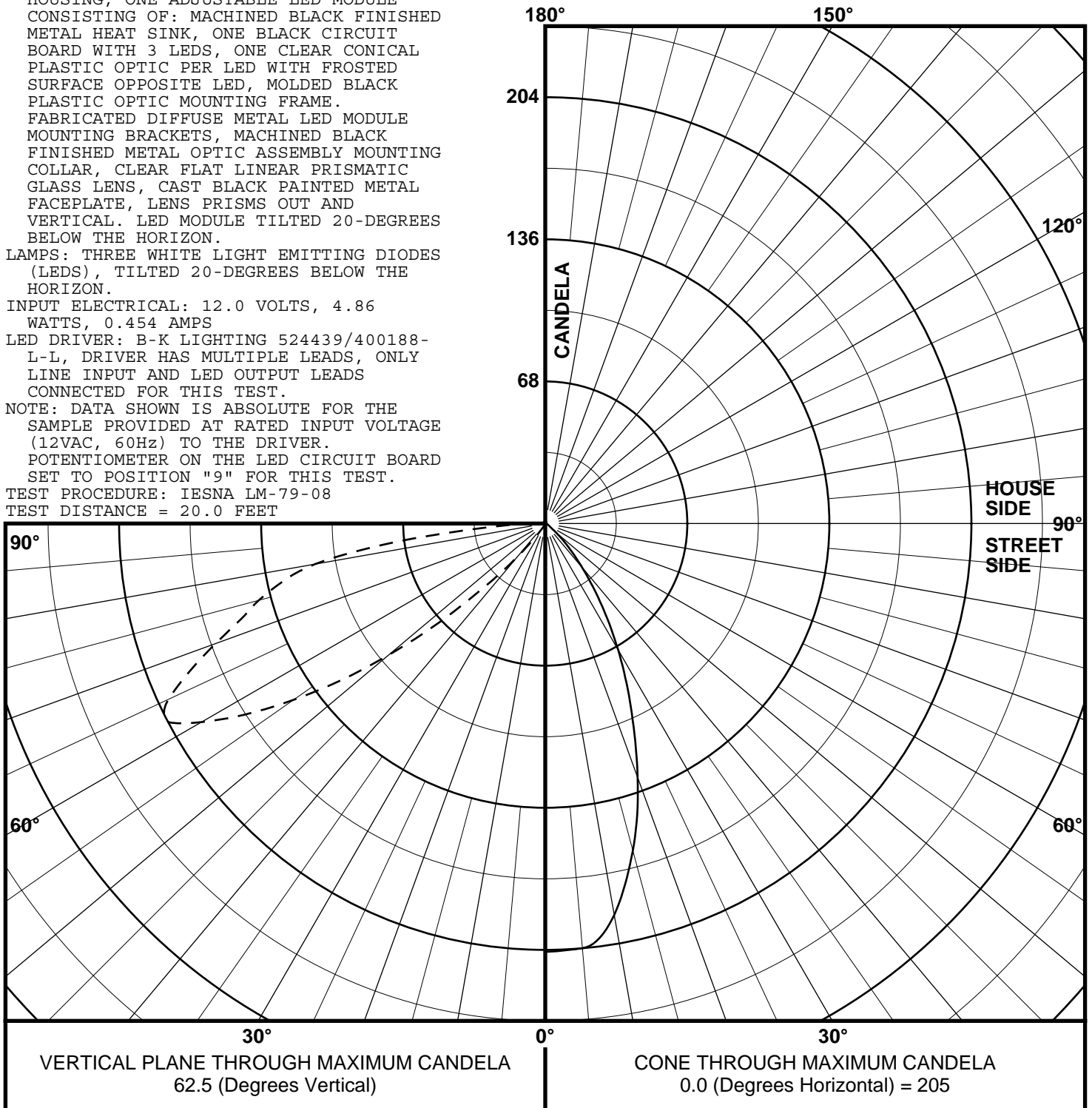
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REPORT NUMBER: ITL86652  
ISSUE DATE: 03/02/16 PAGE: 2 OF 8  
PREPARED FOR: B-K LIGHTING, INC.  
CATALOG NUMBER: SS-LED-e102-B-20-  
DEGREES, PS-LED-e102-B-20-DEGREES, BS-  
LED-e102-B-20-DEGREES  
LUMINAIRE: CAST METAL WALL MOUNTING  
HOUSING, ONE ADJUSTABLE LED MODULE  
CONSISTING OF: MACHINED BLACK FINISHED  
METAL HEAT SINK, ONE BLACK CIRCUIT  
BOARD WITH 3 LEDS, ONE CLEAR CONICAL  
PLASTIC OPTIC PER LED WITH FROSTED  
SURFACE OPPOSITE LED, MOLDED BLACK  
PLASTIC OPTIC MOUNTING FRAME.  
FABRICATED DIFFUSE METAL LED MODULE  
MOUNTING BRACKETS, MACHINED BLACK  
FINISHED METAL OPTIC ASSEMBLY MOUNTING  
COLLAR, CLEAR FLAT LINEAR PRISMATIC  
GLASS LENS, CAST BLACK PAINTED METAL  
FACEPLATE, LENS PRISMS OUT AND  
VERTICAL. LED MODULE TILTED 20-DEGREES  
BELOW THE HORIZON.  
LAMPS: THREE WHITE LIGHT EMITTING DIODES  
(LEDS), TILTED 20-DEGREES BELOW THE  
HORIZON.  
INPUT ELECTRICAL: 12.0 VOLTS, 4.86  
WATTS, 0.454 AMPS  
LED DRIVER: B-K LIGHTING 524439/400188-  
L-L, DRIVER HAS MULTIPLE LEADS, ONLY  
LINE INPUT AND LED OUTPUT LEADS  
CONNECTED FOR THIS TEST.  
NOTE: DATA SHOWN IS ABSOLUTE FOR THE  
SAMPLE PROVIDED AT RATED INPUT VOLTAGE  
(12VAC, 60Hz) TO THE DRIVER.  
POTENTIOMETER ON THE LED CIRCUIT BOARD  
SET TO POSITION "9" FOR THIS TEST.  
TEST PROCEDURE: IESNA LM-79-08  
TEST DISTANCE = 20.0 FEET

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA





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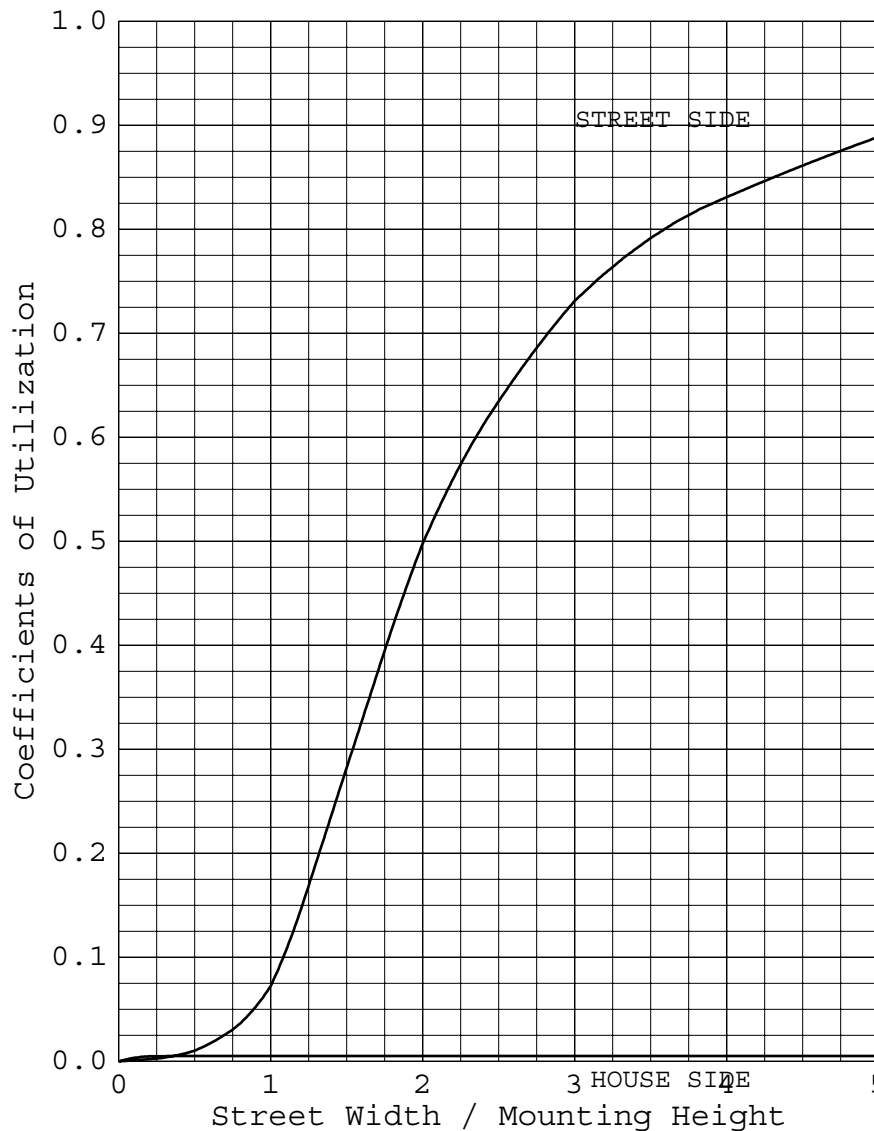
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PAGE: 3 OF 8

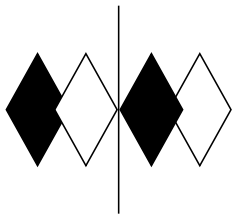
# COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	83.6	98.7
DOWNWARD HOUSE SIDE	0.4	0.5
DOWNWARD TOTAL	84.0	99.3
UPWARD STREET SIDE	0.6	0.7
UPWARD HOUSE SIDE	0.0	0.0
UPWARD TOTAL	0.6	0.7
TOTAL FLUX	84.6	100.0

EFFICACY = 17.4 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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PAGE: 4 OF 8

### 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	83.6	98.7	
FL ( 0- 30)	0.4	0.5	
FM ( 30- 60)	28.0	33.1	
FH ( 60- 80)	47.9	56.6	G0
FVH( 80- 90)	7.2	8.5	G0
BACK LIGHT	0.4	0.5	
BL ( 0- 30)	0.2	0.3	B0
BM ( 30- 60)	0.2	0.2	B0
BH ( 60- 80)	0.0	0.0	B0 G0
BVH( 80- 90)	0.0	0.0	G0
UPLIGHT	0.6	0.7	
UL ( 90-100)	0.4	0.5	U1
UH (100-180)	0.2	0.3	U1
TRAPPED LIGHT	0.0	0.0	
TOTAL FLUX	84.6	100.0	

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

BUG RATING: B0 U1 G0



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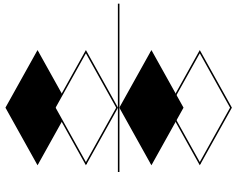
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PAGE: 5 OF 8

# CANDELA TABULATION

STREET SIDE		LATERAL ANGLE										
		0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	90.0
	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	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
	95.0	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.
	92.5	3.	3.	2.	2.	1.	1.	0.	0.	0.	0.	0.
	90.0	6.	6.	5.	3.	1.	1.	0.	0.	0.	0.	0.
	87.5	18.	17.	13.	7.	3.	1.	1.	0.	0.	0.	0.
	85.0	41.	41.	31.	17.	8.	3.	1.	1.	0.	0.	0.
V	82.5	79.	77.	57.	32.	14.	4.	1.	1.	0.	0.	0.
E	80.0	112.	108.	83.	49.	22.	7.	2.	1.	0.	0.	0.
R	77.5	129.	124.	96.	58.	27.	9.	2.	1.	1.	0.	0.
T	75.0	142.	136.	106.	63.	30.	10.	2.	1.	1.	0.	0.
I	72.5	153.	147.	115.	68.	32.	10.	2.	1.	1.	0.	0.
C	70.0	168.	162.	130.	77.	36.	12.	2.	2.	1.	0.	0.
A	67.5	184.	181.	147.	87.	41.	13.	3.	2.	1.	1.	1.
L	65.0	199.	199.	161.	96.	45.	14.	3.	2.	1.	1.	1.
	63.0	205.	205.	163.	97.	46.	15.	3.	2.	1.	1.	1.
A	62.5<<	205.	204.	162.	97.	46.	15.	3.	2.	1.	1.	1.
N	60.0	190.	190.	152.	91.	46.	15.	3.	2.	1.	1.	1.
G	57.5	170.	170.	139.	85.	45.	15.	3.	2.	1.	1.	1.
L	55.0	147.	147.	121.	77.	42.	15.	3.	1.	1.	1.	1.
E	52.5	123.	122.	101.	66.	37.	14.	3.	1.	1.	1.	1.
	50.0	98.	97.	80.	53.	31.	12.	3.	1.	1.	1.	1.
	47.5	74.	72.	60.	40.	24.	9.	2.	1.	1.	1.	1.
	45.0	51.	51.	42.	29.	17.	7.	2.	1.	1.	1.	1.
	42.5	34.	33.	27.	19.	11.	5.	1.	1.	1.	1.	1.
	40.0	21.	21.	17.	12.	7.	3.	1.	1.	1.	1.	1.
	37.5	11.	11.	10.	6.	4.	2.	1.	1.	1.	1.	1.
	35.0	6.	6.	5.	3.	2.	1.	1.	1.	1.	1.	1.
	30.0	2.	2.	2.	1.	1.	1.	1.	1.	1.	1.	1.
	25.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
	20.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
	15.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
	10.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
	5.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
	0.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
		PLANE OF MAXIMUM CANDELA										
		CONE OF MAXIMUM CANDELA										



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REPORT NUMBER: ITL86652

PAGE: 6 OF 8

ISSUE DATE: 03/02/16

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### CANDELA TABULATION

	HOUSE SIDE	LATERAL ANGLE									
		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.
	175.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	165.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	155.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	145.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	135.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	125.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	115.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	105.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	95.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	92.5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	87.5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	85.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V	82.5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
E	80.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
R	77.5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
T	75.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
I	72.5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
C	70.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
A	67.5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
L	65.0	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	63.0	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
A	62.5<<	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
N	60.0	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
G	57.5	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
L	55.0	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
E	52.5	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	50.0	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	47.5	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	45.0	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
	42.5	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
	40.0	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
	37.5	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
	35.0	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
	30.0	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
	25.0	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
	20.0	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.
	15.0	1.	1.	1.	1.	1.	1.	0.	0.	0.	0.
	10.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
	5.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
	0.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.

CONE OF MAXIMUM CANDELA



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PAGE: 7 OF 8

5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	0.0
5- 10	0.1
10- 15	0.1
15- 20	0.1
20- 25	0.1
25- 30	0.2
30- 35	0.3
35- 40	0.8
40- 45	2.2
45- 50	4.8
50- 55	8.4
55- 60	11.8
60- 65	14.1
65- 70	13.4
70- 75	11.1
75- 80	9.4
80- 85	5.6
85- 90	1.5
90- 95	0.3
95-100	0.1
100-105	0.1
105-110	0.1
110-115	0.0
115-120	0.0
120-125	0.0
125-130	0.0
130-135	0.0
135-140	0.0
140-145	0.0
145-150	0.0
150-155	0.0
155-160	0.0
160-165	0.0
165-170	0.0
170-175	0.0
175-180	0.0

10-DEGREE  
ZONAL LUMEN SUMMARY

0- 10	0.1
0- 20	0.3
0- 30	0.6
0- 40	1.7
0- 50	8.7
0- 60	28.9
0- 70	56.4
0- 80	76.8
0- 90	84.0
0-100	84.4
0-110	84.6
0-120	84.6
0-130	84.6
0-140	84.6
0-150	84.6
0-160	84.6
0-170	84.6
0-180	84.6



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MADERA, CA 93636-9515

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