

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

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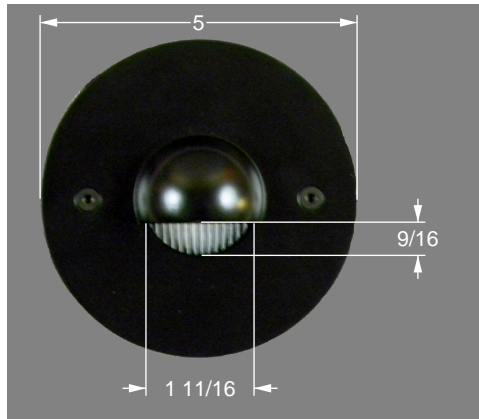
**NVLAP**  
NVLAP LAB CODE: 200925-0

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: ITL86650

ISSUE DATE: 02/22/16 PAGE: 1 OF 8

PREPARED FOR: B-K LIGHTING, INC.

CATALOG NUMBER: SS-LED-e102-B-0-DEGREES, PS-LED-e102-B-0-DEGREES, BS-LED-e102-B-0-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 AIMED AT THE HORIZON.

LAMPS: THREE WHITE LIGHT EMITTING DIODES (LEDs), AIMED AT THE HORIZON.

INPUT ELECTRICAL: 12.0 VOLTS, 5.01 WATTS, 0.467 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.

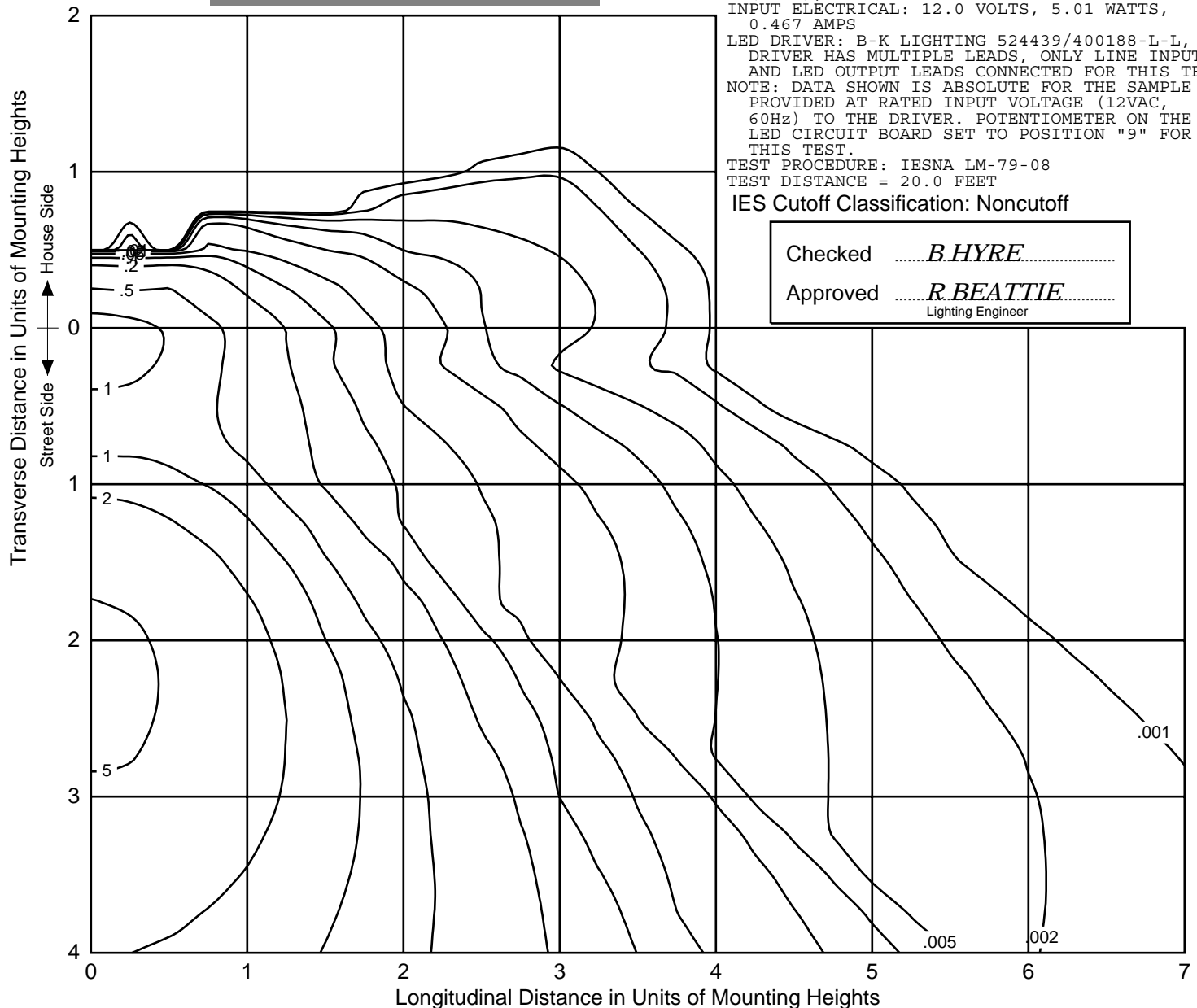
TEST PROCEDURE: IESNA LM-79-08

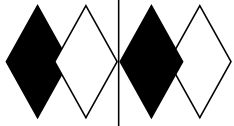
TEST DISTANCE = 20.0 FEET

IES Cutoff Classification: Noncutoff

Checked B. HYRE

Approved R. BEATTIE  
Lighting Engineer





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ISSUE DATE: 02/22/16 PAGE: 2 OF 8  
PREPARED FOR: B-K LIGHTING, INC.  
CATALOG NUMBER: SS-LED-e102-B-0-DEGREES,  
PS-LED-e102-B-0-DEGREES, BS-LED-e102-B-0-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 AIMED AT THE HORIZON.

LAMPS: THREE WHITE LIGHT EMITTING DIODES (LEDs), AIMED AT THE HORIZON.

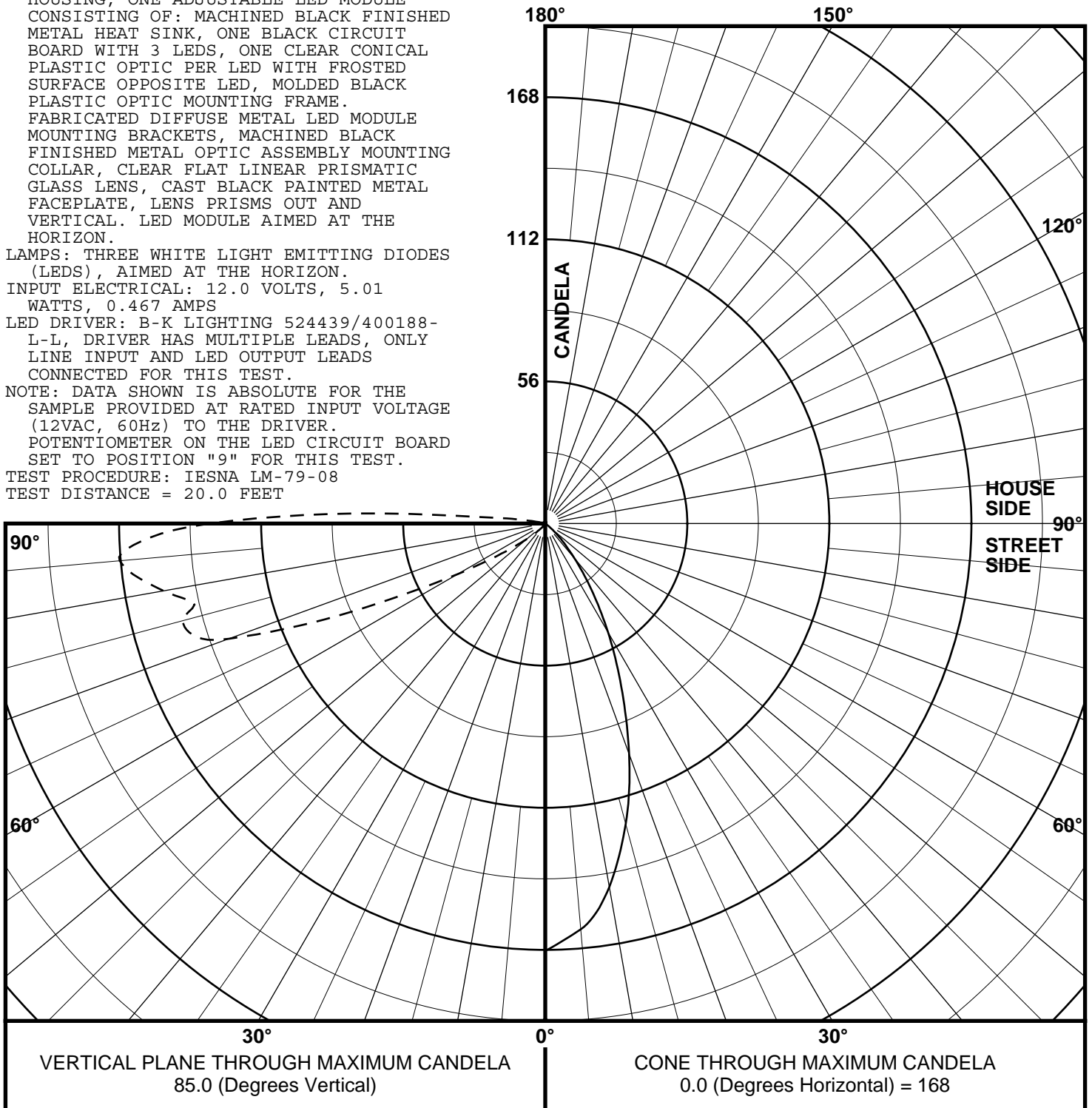
INPUT ELECTRICAL: 12.0 VOLTS, 5.01 WATTS, 0.467 AMPS

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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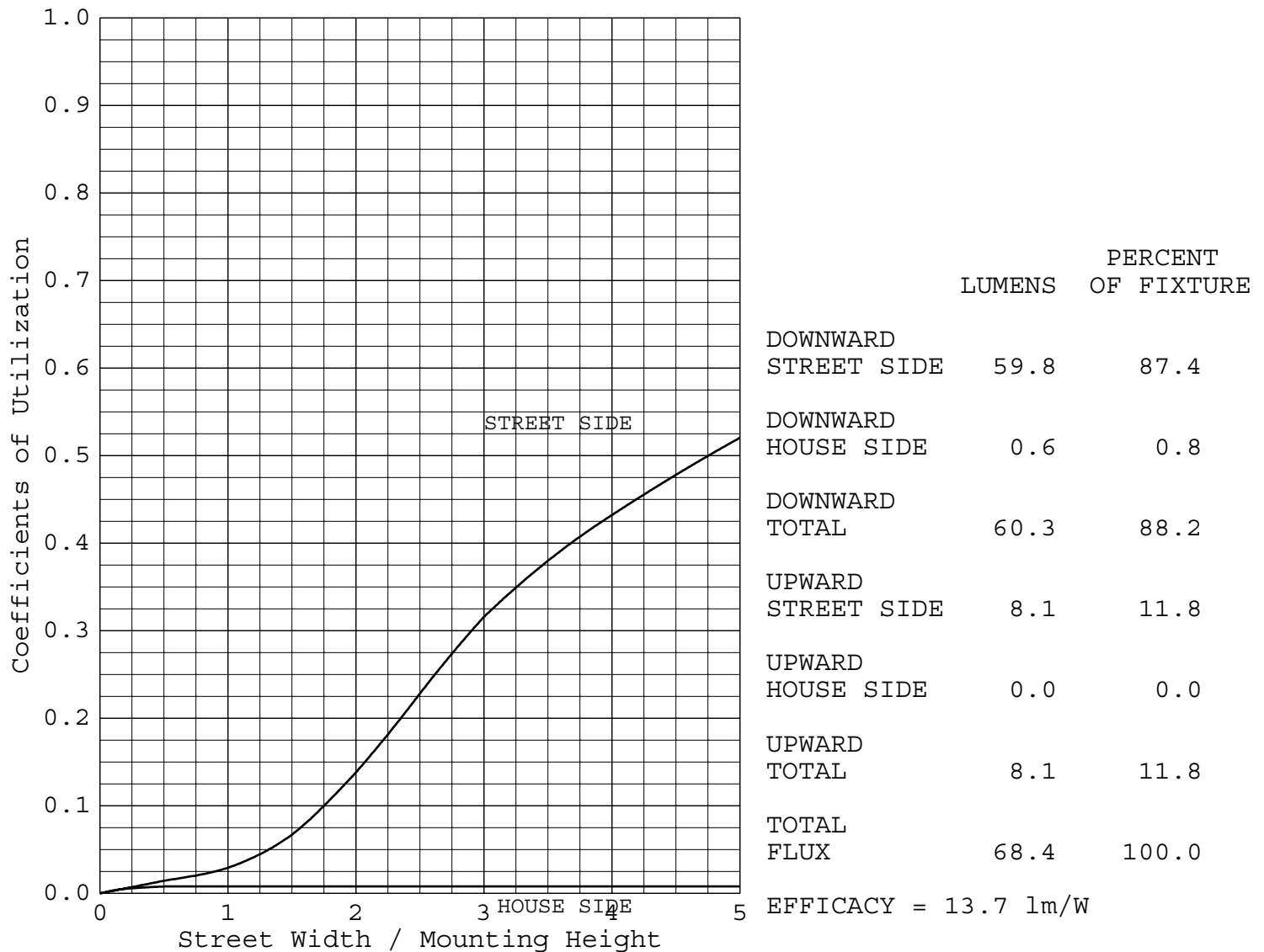
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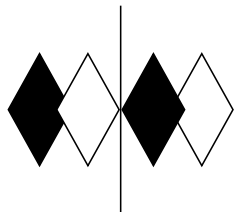
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PAGE: 3 OF 8

## COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



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<br>OF<br>FIXTURE | BUG<br>ZONE<br>RATINGS |
|---------------|--------|--------------------------|------------------------|
| FORWARD LIGHT | 59.8   | 87.4                     |                        |
| FL ( 0- 30)   | 0.5    | 0.8                      |                        |
| FM ( 30- 60)  | 4.6    | 6.7                      |                        |
| FH ( 60- 80)  | 32.0   | 46.8                     | G0                     |
| FVH( 80- 90)  | 22.7   | 33.1                     | G1                     |
| BACK LIGHT    | 0.6    | 0.8                      |                        |
| BL ( 0- 30)   | 0.3    | 0.5                      | B0                     |
| BM ( 30- 60)  | 0.2    | 0.3                      | B0                     |
| BH ( 60- 80)  | 0.0    | 0.0                      | B0 G0                  |
| BVH( 80- 90)  | 0.0    | 0.0                      | G0                     |
| UPLIGHT       | 8.1    | 11.8                     |                        |
| UL ( 90-100)  | 7.7    | 11.2                     | U1                     |
| UH (100-180)  | 0.4    | 0.6                      | U1                     |
| TRAPPED LIGHT | 0.0    | 0.0                      |                        |
| TOTAL FLUX    | 68.4   | 100.0                    |                        |

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

BUG RATING: B0 U1 G1



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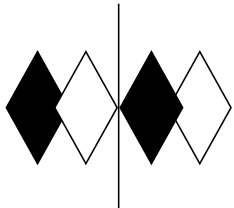
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# CANDELA TABULATION

| 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  | 1.                       | 1.   | 1.   | 0.   | 0.   | 0.   | 0.   | 0.   | 0.   | 0.   | 0.   |
|             | 105.0  | 1.                       | 1.   | 1.   | 1.   | 0.   | 0.   | 0.   | 0.   | 0.   | 0.   | 0.   |
|             | 95.0   | 35.                      | 35.  | 27.  | 17.  | 8.   | 3.   | 0.   | 0.   | 0.   | 0.   | 0.   |
|             | 92.5   | 86.                      | 85.  | 64.  | 38.  | 17.  | 5.   | 1.   | 0.   | 0.   | 0.   | 0.   |
|             | 90.0   | 132.                     | 128. | 97.  | 56.  | 25.  | 8.   | 1.   | 0.   | 0.   | 0.   | 0.   |
|             | 87.5   | 159.                     | 153. | 116. | 67.  | 30.  | 9.   | 1.   | 1.   | 0.   | 0.   | 0.   |
|             | 85.0<< | 168.                     | 161. | 123. | 71.  | 32.  | 9.   | 1.   | 1.   | 0.   | 0.   | 0.   |
| V           | 82.5   | 162.                     | 153. | 117. | 69.  | 30.  | 9.   | 1.   | 1.   | 0.   | 0.   | 0.   |
| E           | 80.0   | 153.                     | 145. | 111. | 65.  | 28.  | 8.   | 1.   | 1.   | 0.   | 0.   | 0.   |
| R           | 77.5   | 143.                     | 136. | 104. | 63.  | 27.  | 8.   | 1.   | 1.   | 0.   | 0.   | 0.   |
| T           | 75.0   | 148.                     | 142. | 109. | 65.  | 28.  | 9.   | 2.   | 1.   | 1.   | 0.   | 0.   |
| I           | 72.5   | 146.                     | 141. | 108. | 63.  | 28.  | 9.   | 2.   | 1.   | 1.   | 0.   | 0.   |
| C           | 70.0   | 133.                     | 130. | 97.  | 57.  | 25.  | 9.   | 2.   | 1.   | 1.   | 0.   | 0.   |
| A           | 67.5   | 106.                     | 102. | 77.  | 47.  | 21.  | 8.   | 2.   | 1.   | 1.   | 0.   | 0.   |
| L           | 65.0   | 78.                      | 75.  | 59.  | 37.  | 18.  | 7.   | 2.   | 1.   | 1.   | 0.   | 0.   |
|             | 62.5   | 56.                      | 55.  | 44.  | 28.  | 14.  | 6.   | 2.   | 1.   | 1.   | 0.   | 0.   |
| A           | 60.0   | 40.                      | 39.  | 32.  | 20.  | 11.  | 5.   | 2.   | 1.   | 1.   | 1.   | 1.   |
| N           | 57.5   | 28.                      | 28.  | 23.  | 15.  | 8.   | 4.   | 1.   | 1.   | 1.   | 1.   | 1.   |
| G           | 55.0   | 20.                      | 19.  | 16.  | 11.  | 6.   | 3.   | 2.   | 1.   | 1.   | 1.   | 1.   |
| L           | 52.5   | 14.                      | 13.  | 11.  | 8.   | 5.   | 3.   | 1.   | 1.   | 1.   | 1.   | 1.   |
| E           | 50.0   | 9.                       | 9.   | 8.   | 6.   | 4.   | 2.   | 1.   | 1.   | 1.   | 1.   | 1.   |
|             | 47.5   | 6.                       | 6.   | 5.   | 4.   | 3.   | 2.   | 1.   | 1.   | 1.   | 1.   | 1.   |
|             | 45.0   | 4.                       | 4.   | 4.   | 3.   | 2.   | 2.   | 1.   | 1.   | 1.   | 1.   | 1.   |
|             | 42.5   | 3.                       | 3.   | 3.   | 2.   | 2.   | 2.   | 1.   | 1.   | 1.   | 1.   | 1.   |
|             | 40.0   | 2.                       | 2.   | 2.   | 2.   | 2.   | 2.   | 1.   | 1.   | 1.   | 1.   | 1.   |
|             | 37.5   | 2.                       | 2.   | 2.   | 1.   | 1.   | 2.   | 1.   | 1.   | 1.   | 1.   | 1.   |
|             | 35.0   | 1.                       | 1.   | 1.   | 1.   | 1.   | 2.   | 1.   | 1.   | 1.   | 1.   | 1.   |
|             | 32.5   | 1.                       | 1.   | 1.   | 1.   | 1.   | 1.   | 1.   | 1.   | 1.   | 1.   | 1.   |
|             | 30.0   | 1.                       | 1.   | 1.   | 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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PAGE: 6 OF 8

# 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 | 0.         | 0.    | 0.            | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    |
| 62.5   | 0.         | 0.    | 0.            | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    |
| A 60.0 | 0.         | 0.    | 0.            | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    |
| N 57.5 | 1.         | 0.    | 0.            | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    |
| G 55.0 | 1.         | 0.    | 0.            | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    |
| L 52.5 | 1.         | 0.    | 0.            | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    |
| E 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.    | 1.            | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    |
| 35.0   | 1.         | 1.    | 1.            | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    |
| 32.5   | 1.         | 1.    | 1.            | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    |
| 30.0   | 1.         | 1.    | 1.            | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    |
| 25.0   | 1.         | 1.    | 1.            | 1.    | 0.    | 0.    | 0.    | 0.    | 0.    | 0.    |
| 20.0   | 1.         | 1.    | 1.            | 1.    | 1.    | 0.    | 0.    | 0.    | 0.    | 0.    |
| 15.0   | 1.         | 1.    | 1.            | 1.    | 1.    | 1.    | 1.    | 1.    | 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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5-DEGREE  
ZONAL LUMEN SUMMARY

|         |      |
|---------|------|
| 0- 5    | 0.0  |
| 5- 10   | 0.1  |
| 10- 15  | 0.1  |
| 15- 20  | 0.2  |
| 20- 25  | 0.2  |
| 25- 30  | 0.2  |
| 30- 35  | 0.2  |
| 35- 40  | 0.3  |
| 40- 45  | 0.4  |
| 45- 50  | 0.6  |
| 50- 55  | 1.1  |
| 55- 60  | 2.2  |
| 60- 65  | 4.2  |
| 65- 70  | 7.3  |
| 70- 75  | 10.1 |
| 75- 80  | 10.4 |
| 80- 85  | 11.5 |
| 85- 90  | 11.2 |
| 90- 95  | 6.3  |
| 95-100  | 1.4  |
| 100-105 | 0.3  |
| 105-110 | 0.1  |
| 110-115 | 0.1  |
| 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 | 0.4  |
| 0- 30 | 0.9  |
| 0- 40 | 1.4  |
| 0- 50 | 2.4  |
| 0- 60 | 5.6  |
| 0- 70 | 17.1 |
| 0- 80 | 37.7 |
| 0- 90 | 60.3 |
| 0-100 | 68.0 |
| 0-110 | 68.3 |
| 0-120 | 68.4 |
| 0-130 | 68.4 |
| 0-140 | 68.4 |
| 0-150 | 68.4 |
| 0-160 | 68.4 |
| 0-170 | 68.4 |
| 0-180 | 68.4 |



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