

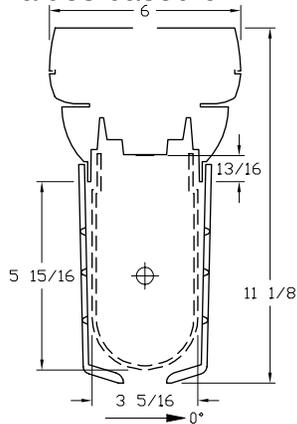
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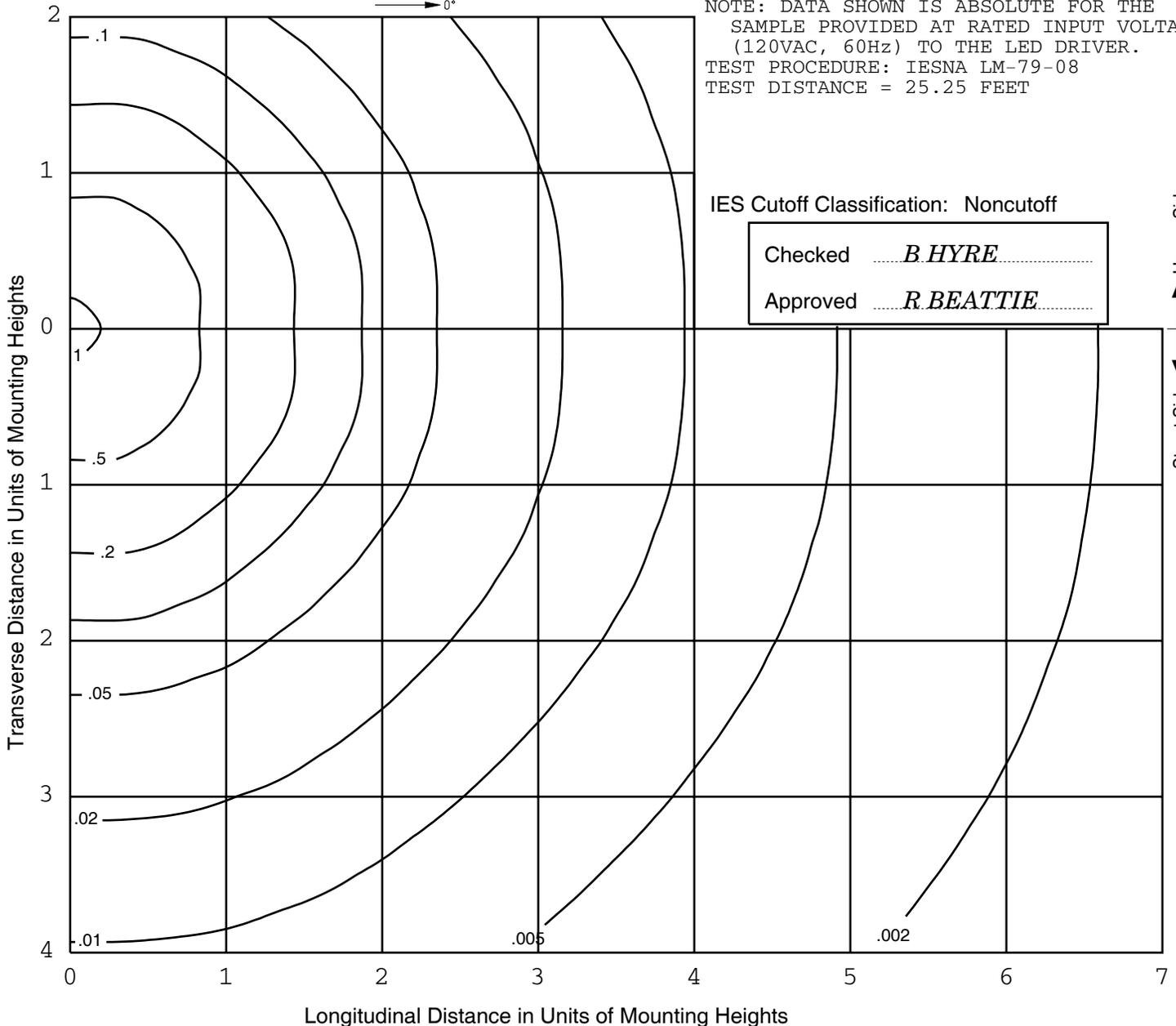
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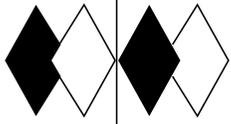
**ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION**

Values based on 10 foot mounting height.



REPORT NUMBER: ITL67249  
DATE: 02/01/11  
PREPARED FOR: RAB LIGHTING, INC.  
CATALOG NUMBER: VXLED13DG - VXBRL13DG  
LUMINAIRE: CAST DIFFUSE METAL HOUSING,  
ONE CIRCUIT BOARD WITH ONE LED,  
FROSTED CYLINDRICAL GLASS LENS,  
CAST DIFFUSE METAL GUARD  
SURROUNDING LENS.  
LAMP: ONE 13-WATT WHITE MULTI-CHIP  
LIGHT EMITTING DIODE (LED) WITH LEDS  
ARRANGED IN AN ARRAY OF THREE LINEAR  
ROWS, VERTICAL BASE-UP POSITION.  
TOTAL INPUT WATTS = 15.1 AT 120.0  
VOLTS  
LED DRIVER: RAB LIGHTING RD12-24-A0720  
NOTE: DATA SHOWN IS ABSOLUTE FOR THE  
SAMPLE PROVIDED AT RATED INPUT VOLTAGE  
(120VAC, 60Hz) TO THE LED DRIVER.  
TEST PROCEDURE: IESNA LM-79-08  
TEST DISTANCE = 25.25 FEET





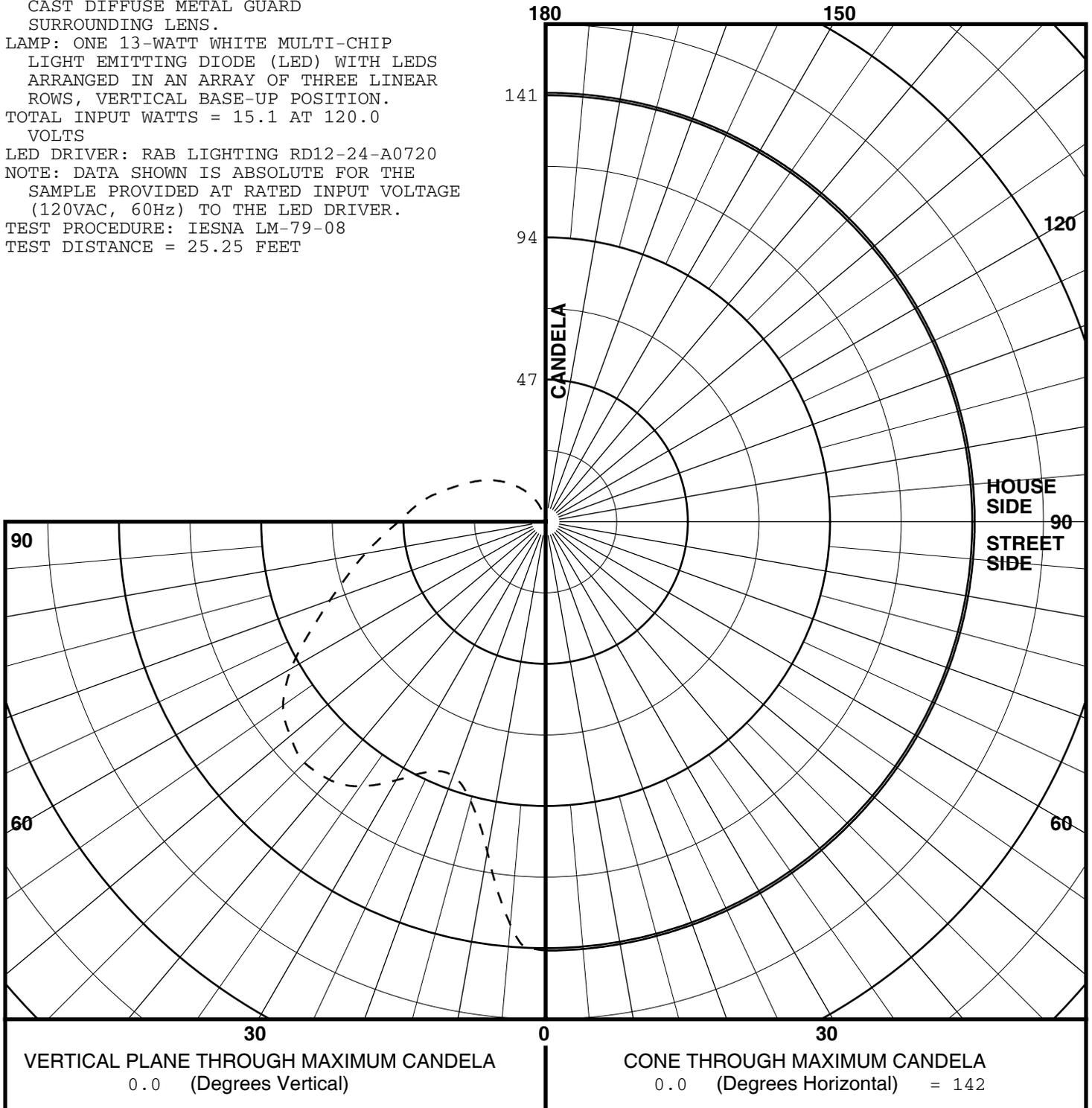
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 NOTE: DATA SHOWN IS ABSOLUTE FOR THE  
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 TEST DISTANCE = 25.25 FEET

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA





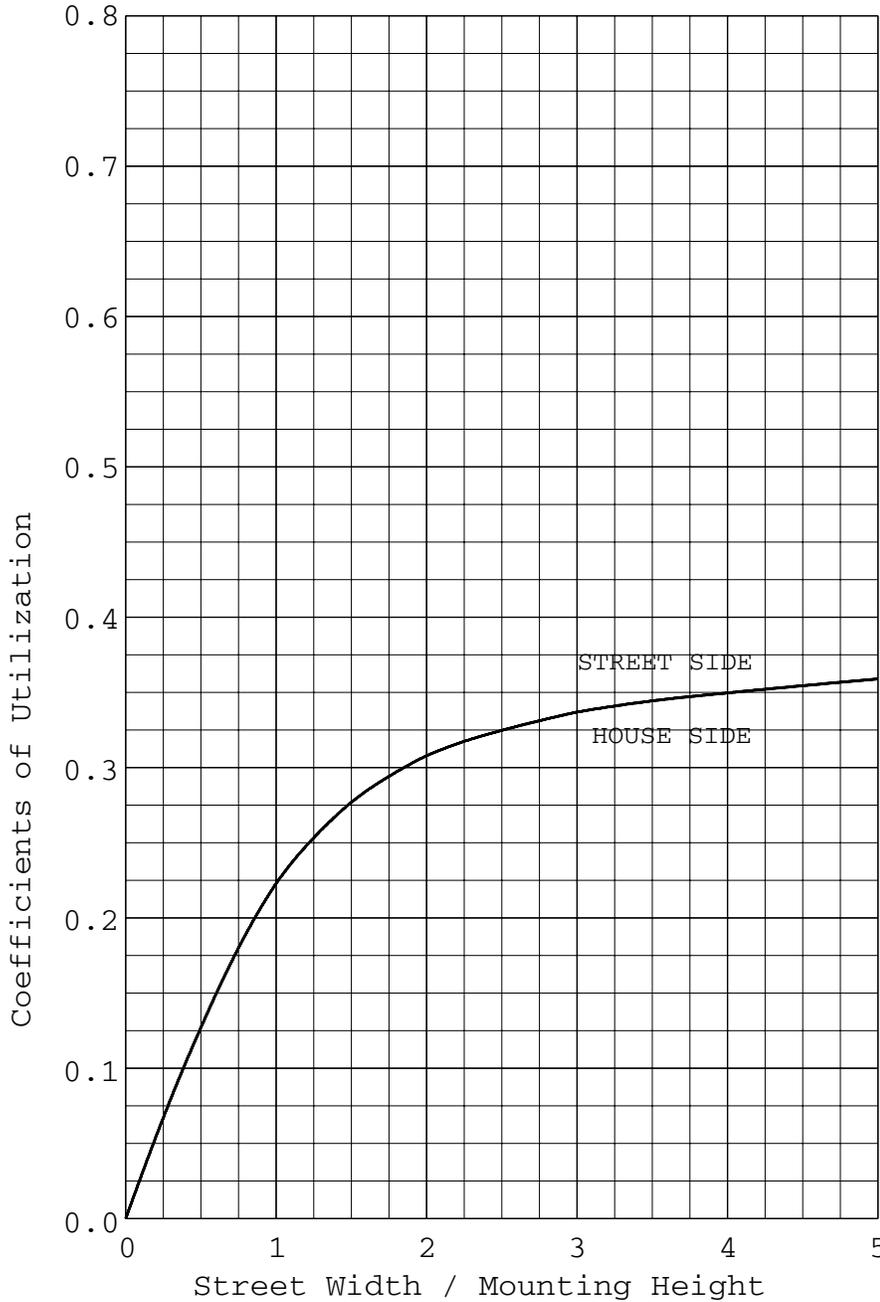
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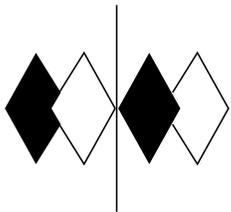
DATE: 02/01/11

COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



|                      | LUMENS | PERCENT OF FIXTURE |
|----------------------|--------|--------------------|
| DOWNWARD STREET SIDE | 283    | 38.8               |
| DOWNWARD HOUSE SIDE  | 283    | 38.8               |
| DOWNWARD TOTAL       | 565    | 77.5               |
| UPWARD STREET SIDE   | 82     | 11.2               |
| UPWARD HOUSE SIDE    | 82     | 11.2               |
| UPWARD TOTAL         | 164    | 22.5               |
| TOTAL FLUX           | 729    | 100.0              |
| EFFICACY = 48.3 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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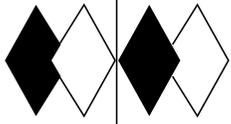
FLUX DISTRIBUTION BY SOLID ANGLE

(PER IESNA TM-15-07, LUMINAIRE CLASSIFICATION SYSTEM FOR OUTDOOR LUMINAIRES)

|               | LUMENS | PERCENT OF FIXTURE | BUG ZONE RATINGS |
|---------------|--------|--------------------|------------------|
| FORWARD LIGHT | 283.   | 38.8               |                  |
| FL ( 0- 30)   | 41.5   | 5.7                |                  |
| FM ( 30- 60)  | 130.2  | 17.9               |                  |
| FH ( 60- 80)  | 81.2   | 11.1               | G0               |
| FVH( 80- 90)  | 29.7   | 4.1                | U1 G1            |
| BACK LIGHT    | 283.   | 38.8               |                  |
| BL ( 0- 30)   | 41.5   | 5.7                | B0               |
| BM ( 30- 60)  | 130.2  | 17.9               | B0               |
| BH ( 60- 80)  | 81.2   | 11.1               | B0 G0            |
| BVH( 80- 90)  | 29.7   | 4.1                | U1 G1            |
| UPLIGHT       | 164.   | 22.5               |                  |
| UL ( 90-100)  | 48.5   | 6.7                | U2               |
| UH (100-180)  | 115.2  | 15.8               | U3               |
| TRAPPED LIGHT | 0.     | 0.0                |                  |
| TOTAL FLUX    | 729.   | 100.0              |                  |

BACKLIGHT, UPLIGHT, AND GLARE (BUG) RATINGS  
 (PER ADDENDUM A FOR IESNA TM-15-07)

BUG RATING: B0 U3 G1



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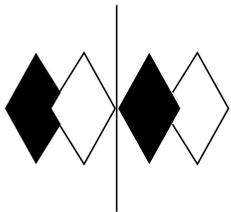
DATE: 02/01/11

## CANDELA TABULATION

|        | 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  | 2.            | 2.   | 2.   | 2.   | 2.   | 2.   | 2.   | 2.   | 2.   | 2.   | 2.   |
| 155.0  | 8.            | 8.   | 8.   | 8.   | 8.   | 8.   | 8.   | 8.   | 8.   | 8.   | 8.   |
| 145.0  | 13.           | 13.  | 13.  | 13.  | 13.  | 13.  | 13.  | 13.  | 13.  | 13.  | 13.  |
| 135.0  | 18.           | 18.  | 18.  | 18.  | 18.  | 18.  | 18.  | 18.  | 19.  | 19.  | 19.  |
| 125.0  | 24.           | 24.  | 24.  | 24.  | 23.  | 23.  | 23.  | 24.  | 24.  | 24.  | 24.  |
| 115.0  | 30.           | 30.  | 30.  | 29.  | 28.  | 28.  | 28.  | 29.  | 30.  | 30.  | 30.  |
| 105.0  | 37.           | 37.  | 37.  | 36.  | 35.  | 34.  | 35.  | 37.  | 37.  | 37.  | 37.  |
| 95.0   | 45.           | 45.  | 45.  | 45.  | 43.  | 42.  | 43.  | 45.  | 46.  | 45.  | 45.  |
| 92.5   | 47.           | 47.  | 48.  | 47.  | 45.  | 44.  | 45.  | 47.  | 48.  | 47.  | 47.  |
| 90.0   | 49.           | 49.  | 50.  | 49.  | 47.  | 46.  | 47.  | 49.  | 50.  | 49.  | 49.  |
| 87.5   | 51.           | 52.  | 52.  | 52.  | 50.  | 49.  | 50.  | 52.  | 53.  | 52.  | 52.  |
| 85.0   | 54.           | 54.  | 55.  | 55.  | 53.  | 52.  | 53.  | 55.  | 56.  | 55.  | 54.  |
| V 82.5 | 57.           | 58.  | 59.  | 58.  | 56.  | 55.  | 56.  | 58.  | 59.  | 58.  | 58.  |
| E 80.0 | 61.           | 61.  | 62.  | 62.  | 60.  | 59.  | 60.  | 62.  | 62.  | 61.  | 61.  |
| R 77.5 | 64.           | 64.  | 66.  | 66.  | 64.  | 63.  | 64.  | 66.  | 66.  | 65.  | 64.  |
| T 75.0 | 68.           | 68.  | 70.  | 70.  | 68.  | 67.  | 68.  | 70.  | 70.  | 68.  | 68.  |
| I 72.5 | 71.           | 72.  | 75.  | 74.  | 72.  | 71.  | 72.  | 74.  | 75.  | 72.  | 72.  |
| C 70.0 | 76.           | 77.  | 79.  | 80.  | 77.  | 77.  | 78.  | 80.  | 80.  | 77.  | 76.  |
| A 67.5 | 81.           | 82.  | 85.  | 85.  | 83.  | 82.  | 84.  | 86.  | 85.  | 82.  | 81.  |
| L 65.0 | 86.           | 87.  | 92.  | 92.  | 90.  | 89.  | 90.  | 92.  | 92.  | 87.  | 86.  |
| 62.5   | 92.           | 93.  | 98.  | 99.  | 97.  | 96.  | 97.  | 99.  | 98.  | 93.  | 92.  |
| A 60.0 | 97.           | 99.  | 105. | 106. | 104. | 103. | 104. | 106. | 105. | 99.  | 97.  |
| N 57.5 | 102.          | 104. | 111. | 112. | 110. | 109. | 110. | 112. | 110. | 104. | 102. |
| G 55.0 | 106.          | 108. | 115. | 117. | 115. | 114. | 115. | 116. | 114. | 107. | 105. |
| L 52.5 | 109.          | 110. | 117. | 120. | 118. | 117. | 117. | 119. | 116. | 110. | 108. |
| E 50.0 | 110.          | 112. | 118. | 121. | 120. | 119. | 119. | 120. | 118. | 111. | 109. |
| 47.5   | 112.          | 113. | 120. | 122. | 121. | 120. | 120. | 121. | 118. | 112. | 111. |
| 45.0   | 113.          | 114. | 120. | 122. | 121. | 120. | 120. | 121. | 118. | 112. | 111. |
| 42.5   | 112.          | 113. | 119. | 121. | 120. | 119. | 119. | 119. | 117. | 112. | 111. |
| 40.0   | 111.          | 112. | 117. | 119. | 118. | 117. | 117. | 117. | 115. | 111. | 110. |
| 37.5   | 110.          | 110. | 114. | 116. | 116. | 115. | 115. | 115. | 112. | 109. | 108. |
| 35.0   | 107.          | 107. | 111. | 113. | 112. | 111. | 111. | 111. | 109. | 106. | 105. |
| 32.5   | 103.          | 104. | 106. | 108. | 107. | 107. | 106. | 106. | 104. | 102. | 101. |
| 30.0   | 99.           | 99.  | 101. | 102. | 102. | 102. | 101. | 101. | 99.  | 97.  | 97.  |
| 25.0   | 91.           | 91.  | 93.  | 94.  | 94.  | 93.  | 93.  | 92.  | 91.  | 90.  | 90.  |
| 20.0   | 90.           | 90.  | 91.  | 91.  | 92.  | 92.  | 91.  | 91.  | 90.  | 89.  | 89.  |
| 15.0   | 96.           | 96.  | 96.  | 97.  | 98.  | 98.  | 97.  | 97.  | 96.  | 95.  | 95.  |
| 10.0   | 111.          | 111. | 111. | 111. | 112. | 112. | 112. | 111. | 111. | 111. | 110. |
| 5.0    | 134.          | 134. | 134. | 134. | 134. | 134. | 134. | 134. | 134. | 134. | 134. |
| 0.0<<  | 142.          | 142. | 142. | 142. | 142. | 142. | 142. | 142. | 142. | 142. | 142. |

||  
PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA



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REPORT NUMBER: ITL67251

Page 1 of 3

DATE: 02/09/11

PREPARED FOR: RAB LIGHTING, INC.

CATALOG NUMBER: VXLED13DG - VXBRL13DG

LUMINAIRE: CAST DIFFUSE METAL HOUSING, ONE CIRCUIT BOARD WITH ONE LED, FROSTED CYLINDRICAL GLASS LENS, CAST DIFFUSE METAL GUARD SURROUNDING LENS.

LAMPS: ONE 13-WATT WHITE MULTI-CHIP LIGHT EMITTING DIODE (LED) WITH LEDS ARRANGED IN AN ARRAY OF THREE LINEAR ROWS, VERTICAL BASE-UP POSITION.

DRIVER: RAB LIGHTING RD12-24-A0720

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120VAC, 60Hz) TO THE LED DRIVER.

INSTRUMENTS: Associated Power Technologies APT6040 AC Power Source  
Yokogawa WT210 Digital Power Meter  
Ocean Optics QE65000 Spectroradiometer  
ITL 2.0 Meter Diameter Integrating Sphere, 4π Geometry

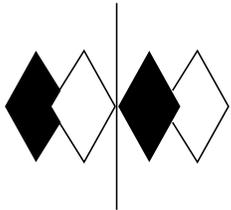
OBJECT OF TEST: Measure the Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Index (CRI), Chromaticity Coordinates (x,y), ANSI C78.377 Duv, and electrical data including Power Factor (PF) and Off-State Power to the luminaire.

PROCEDURE: The luminaire was provided by the customer and had an unknown number of burn hours. The luminaire was mounted inside the integrating sphere in a vertical base-up position (LEDs facing down). The luminaire was allowed to stabilize at 120 VAC input. After stabilization occurred, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Index (CRI), Chromaticity Coordinates (x,y), ANSI C78.377 Duv, and electrical data including Power Factor (PF) and Off-State Power were measured with the luminaire operating in the integrating sphere. In order to measure mean performance, multiple data sets were recorded and averaged. Readings were taken with the luminaire operating at 120 VAC input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. All data are traceable to the National Institute of Standards and Technology. Off-State Power is reported with no voltage applied to the luminaire.

RESULTS: (continued subsequent pages)

Checked       N White      

Approved       N Gully



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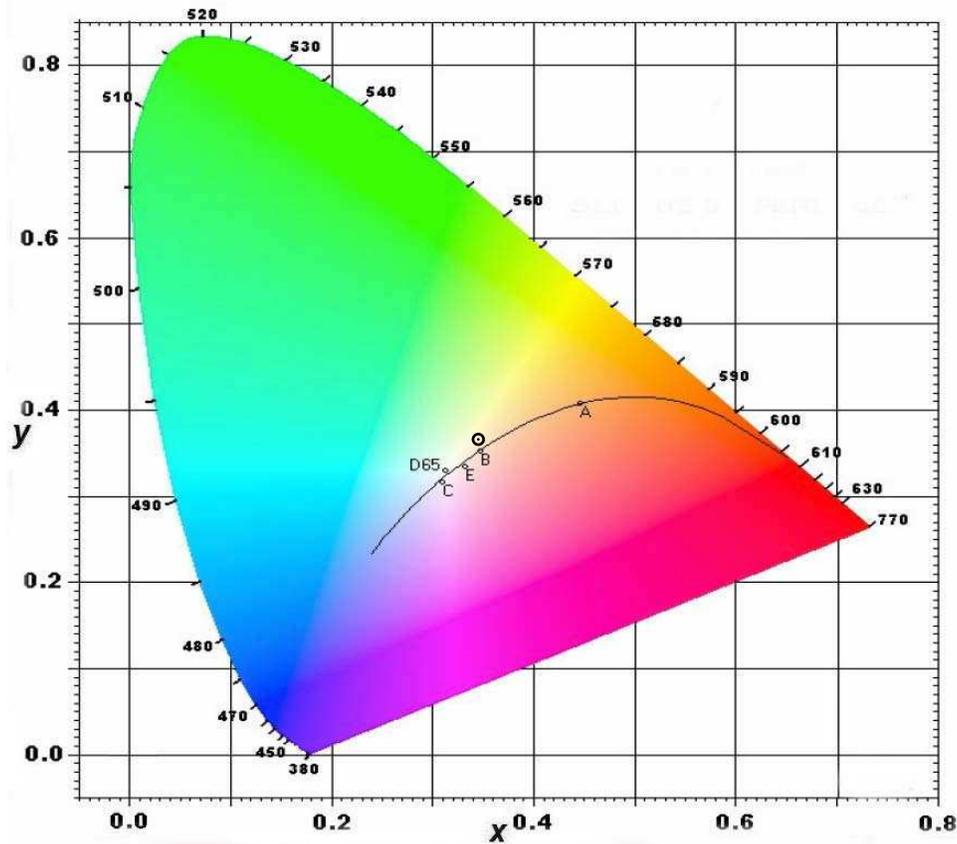
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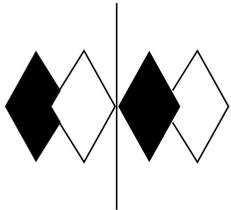
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CATALOG NUMBER: VXLED13DG - VXBRL13DG

RESULTS:

## CIE Chromaticity Diagram



|                                      |                   |
|--------------------------------------|-------------------|
| SPECTRORADIOMETRIC                   |                   |
| Observer                             | CIE 1931 2 degree |
| Chromaticity Ordinate x              | 0.3450            |
| Chromaticity Ordinate y              | 0.3667            |
| Correlated Color Temp CCT (K)        | 5049              |
| Color Rendering Index (CRIa)         | 65                |
| Color Rendering Index 9 (Strong Red) | -48               |
| Total Radiant Flux (milliWatts)      | X.X               |
| ANSI C78.377-2008 Duv                | 0.007             |
| ELECTRICAL                           |                   |
| Input Voltage (Volts AC)             | 120.0             |
| Input Current (mA AC)                | 135               |
| Input Power (Watts)                  | 15.1              |
| Input Power Factor (%)               | 93.2              |
| Off-State Power (Watts)              | 0.0               |



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### RESULTS:

| Wavelength | mW per nm | Wavelength | mW per nm | Wavelength | mW per nm |
|------------|-----------|------------|-----------|------------|-----------|
| 380        | -0.024    | 515        | 7.952     | 650        | 4.315     |
| 385        | -0.061    | 520        | 9.278     | 655        | 3.907     |
| 390        | -0.041    | 525        | 10.470    | 660        | 3.499     |
| 395        | 0.168     | 530        | 11.222    | 665        | 3.151     |
| 400        | 0.225     | 535        | 11.842    | 670        | 2.770     |
| 405        | 0.451     | 540        | 12.340    | 675        | 2.508     |
| 410        | 0.924     | 545        | 12.655    | 680        | 2.245     |
| 415        | 1.672     | 550        | 12.803    | 685        | 1.995     |
| 420        | 3.267     | 555        | 12.811    | 690        | 1.738     |
| 425        | 5.842     | 560        | 12.814    | 695        | 1.516     |
| 430        | 9.183     | 565        | 12.639    | 700        | 1.311     |
| 435        | 13.266    | 570        | 12.466    | 705        | 1.191     |
| 440        | 17.622    | 575        | 12.221    | 710        | 1.060     |
| 445        | 18.341    | 580        | 11.927    | 715        | 0.959     |
| 450        | 12.968    | 585        | 11.477    | 720        | 0.802     |
| 455        | 7.412     | 590        | 11.021    | 725        | 0.736     |
| 460        | 4.660     | 595        | 10.531    | 730        | 0.611     |
| 465        | 2.971     | 600        | 9.994     | 735        | 0.527     |
| 470        | 1.919     | 605        | 9.404     | 740        | 0.390     |
| 475        | 1.398     | 610        | 8.749     | 745        | 0.379     |
| 480        | 1.290     | 615        | 8.237     | 750        | 0.330     |
| 485        | 1.295     | 620        | 7.592     | 755        | 0.262     |
| 490        | 1.716     | 625        | 6.993     | 760        | 0.231     |
| 495        | 2.353     | 630        | 6.447     | 765        | 0.238     |
| 500        | 3.403     | 635        | 5.846     | 770        | 0.178     |
| 505        | 4.861     | 640        | 5.307     | 775        | 0.154     |
| 510        | 6.411     | 645        | 4.790     | 780        | 0.135     |

