

Project Number  
15.00739



**HUBBELL**  
Lighting

Date  
5/7/2015

LAB 1

### *Test Sample Description*

*Catalog Number:* P3658-2030K9  
*Description:* 10" Round Flush Mount w/ AC HAL 17W LED Module

*Test Method:* IES LM-79-08 § 10  
*Preburn Time:* 00:10  
*Time To Stabilize:* 1:59  
*Total Operating Time:* 2:43

*Input Voltage (Volts):* 120.1  
*Input Current (Amps):* 0.149  
*Input Wattage (Watts):* 16.6  
*Ambient Temp (°C):* 25.1



### **Hubbell Lighting, Inc.**

701 Millennium Boulevard  
Greenville, SC 29607  
www.hubbellighting.com

*Checked:* D. ROBBINS  
*Approved:* P. McCARTHY

**NVLAP**<sup>®</sup>  
NVLAP LAB CODE: 201003-0

*This report shall not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.*



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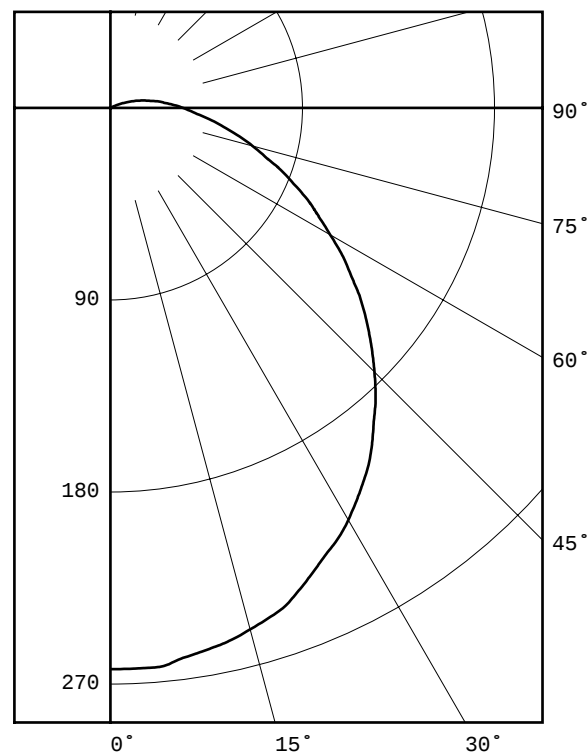
REPORT NUMBER: 15.00739  
ISSUE DATE: 05/07/15  
PREPARED FOR: COLUMBIA LIGHTING  
CATALOG NUMBER: P3658-2030K9  
LUMINAIRE: 10" Round Flush Mount w/ AC HAL 17W LED Module  
REFRACTOR: Etched Glass - Part #93061299  
LAMP CAT. NO.: 93047261-4130  
LAMP: 40- Nichia 3000K LEDs  
MOUNTING: Ceiling  
NOTE: DATA SHOWN IS ABSOLUTE FOR THE  
SAMPLE PROVIDED.

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| DEG | CANDELA | LUMENS |
|-----|---------|--------|
| 0   | 263     |        |
| 5   | 263     | 25     |
| 15  | 253     | 71     |
| 25  | 234     | 108    |
| 35  | 209     | 131    |
| 45  | 175     | 135    |
| 55  | 138     | 124    |
| 65  | 102     | 101    |
| 75  | 69      | 73     |
| 85  | 43      | 48     |
| 90  | 34      |        |
| 95  | 26      | 29     |
| 105 | 13      | 14     |
| 115 | 3       | 3      |
| 125 | 0       | 0      |
| 135 | 0       | 0      |
| 145 | 0       | 0      |
| 155 | 0       | 0      |
| 165 | 0       | 0      |
| 175 | 0       | 0      |
| 180 | 0       |        |

| ZONAL ZONE | LUMEN | SUMMARY LUMENS | %FIXT |
|------------|-------|----------------|-------|
| 0- 30      |       | 205            | 23.8  |
| 0- 40      |       | 335            | 38.9  |
| 0- 60      |       | 594            | 69.0  |
| 0- 90      |       | 815            | 94.7  |
| 90-120     |       | 46             | 5.3   |
| 90-130     |       | 46             | 5.3   |
| 90-150     |       | 46             | 5.3   |
| 90-180     |       | 46             | 5.3   |
| 0-180      |       | 861            | 100.0 |

TOTAL INPUT WATTS = 16.6  
EFFICACY = 51.9 Lm/W  
CIE TYPE - DIRECT  
LUMINAIRE SPACING CRITERION = 1.3





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LUMINOUS DIAMETER: 8.000  
HEIGHT OF SIDE : 2.000

LUMINANCE DATA IN CANDELA/SQ METER  
ANGLE AVERAGE  
IN DEG

|    |       |
|----|-------|
| 45 | 5787. |
| 55 | 5099. |
| 65 | 4422. |
| 75 | 3756. |
| 85 | 3279. |



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#### CANDELA DISTRIBUTION

|       |     |
|-------|-----|
|       | 0.0 |
| 0.0   | 263 |
| 5.0   | 263 |
| 10.0  | 258 |
| 15.0  | 253 |
| 20.0  | 246 |
| 25.0  | 234 |
| 30.0  | 223 |
| 35.0  | 209 |
| 40.0  | 192 |
| 45.0  | 175 |
| 50.0  | 157 |
| 55.0  | 138 |
| 60.0  | 119 |
| 65.0  | 102 |
| 70.0  | 85  |
| 75.0  | 69  |
| 80.0  | 55  |
| 85.0  | 43  |
| 90.0  | 34  |
| 95.0  | 26  |
| 100.0 | 19  |
| 105.0 | 13  |
| 110.0 | 7   |
| 115.0 | 3   |
| 120.0 | 0   |
| 125.0 | 0   |
| 130.0 | 0   |
| 135.0 | 0   |
| 140.0 | 0   |
| 145.0 | 0   |
| 150.0 | 0   |
| 155.0 | 0   |
| 160.0 | 0   |
| 165.0 | 0   |
| 170.0 | 0   |
| 175.0 | 0   |
| 180.0 | 0   |



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ZONAL LUMEN SUMMARY

|         |     |
|---------|-----|
| 0- 5    | 6.  |
| 5- 10   | 19. |
| 10- 15  | 30. |
| 15- 20  | 41. |
| 20- 25  | 50. |
| 25- 30  | 58. |
| 30- 35  | 64. |
| 35- 40  | 67. |
| 40- 45  | 68. |
| 45- 50  | 67. |
| 50- 55  | 64. |
| 55- 60  | 59. |
| 60- 65  | 54. |
| 65- 70  | 47. |
| 70- 75  | 40. |
| 75- 80  | 33. |
| 80- 85  | 27. |
| 85- 90  | 21. |
| 90- 95  | 16. |
| 95-100  | 12. |
| 100-105 | 9.  |
| 105-110 | 5.  |
| 110-115 | 3.  |
| 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.  |



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**5-DEGREE  
ZONAL LUMEN SUMMARY**

|         |    |
|---------|----|
| 0- 5    | 6  |
| 5- 10   | 19 |
| 10- 15  | 30 |
| 15- 20  | 41 |
| 20- 25  | 50 |
| 25- 30  | 58 |
| 30- 35  | 64 |
| 35- 40  | 67 |
| 40- 45  | 68 |
| 45- 50  | 67 |
| 50- 55  | 64 |
| 55- 60  | 59 |
| 60- 65  | 54 |
| 65- 70  | 47 |
| 70- 75  | 40 |
| 75- 80  | 33 |
| 80- 85  | 27 |
| 85- 90  | 21 |
| 90- 95  | 16 |
| 95-100  | 12 |
| 100-105 | 9  |
| 105-110 | 5  |
| 110-115 | 3  |
| 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 | 25  |
| 0- 20 | 96  |
| 0- 30 | 205 |
| 0- 40 | 335 |
| 0- 50 | 470 |
| 0- 60 | 594 |
| 0- 70 | 695 |
| 0- 80 | 768 |
| 0- 90 | 815 |
| 0-100 | 844 |
| 0-110 | 858 |
| 0-120 | 861 |
| 0-130 | 861 |
| 0-140 | 861 |
| 0-150 | 861 |
| 0-160 | 861 |
| 0-170 | 861 |
| 0-180 | 861 |



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# COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

| RC<br>RW | 80  |     |     |     | 70  |     |     |     | 50  |     |     | 30  |     |     | 10 |    |    | 0  |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|
|          | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50 | 30 | 10 | 0  |
| 0        | 118 | 118 | 118 | 118 | 114 | 114 | 114 | 114 | 108 | 108 | 108 | 102 | 102 | 102 | 97 | 97 | 97 | 95 |
| 1        | 106 | 100 | 95  | 91  | 102 | 97  | 93  | 89  | 92  | 88  | 85  | 87  | 84  | 81  | 83 | 80 | 78 | 76 |
| 2        | 96  | 87  | 79  | 73  | 92  | 84  | 77  | 72  | 80  | 74  | 69  | 76  | 71  | 67  | 72 | 68 | 64 | 62 |
| 3        | 87  | 76  | 67  | 60  | 84  | 74  | 66  | 59  | 70  | 63  | 57  | 66  | 61  | 56  | 63 | 58 | 54 | 52 |
| 4        | 79  | 67  | 58  | 51  | 77  | 65  | 57  | 50  | 62  | 55  | 49  | 59  | 53  | 47  | 56 | 51 | 46 | 44 |
| 5        | 73  | 60  | 50  | 43  | 70  | 58  | 49  | 43  | 55  | 48  | 42  | 53  | 46  | 41  | 50 | 45 | 40 | 38 |
| 6        | 67  | 54  | 44  | 38  | 65  | 52  | 44  | 37  | 50  | 42  | 37  | 48  | 41  | 36  | 46 | 40 | 35 | 33 |
| 7        | 62  | 49  | 40  | 33  | 60  | 47  | 39  | 33  | 45  | 38  | 32  | 44  | 37  | 32  | 42 | 36 | 31 | 29 |
| 8        | 58  | 44  | 36  | 30  | 56  | 43  | 35  | 29  | 42  | 34  | 29  | 40  | 33  | 28  | 38 | 32 | 28 | 26 |
| 9        | 54  | 41  | 32  | 27  | 53  | 40  | 32  | 26  | 38  | 31  | 26  | 37  | 30  | 26  | 35 | 29 | 25 | 23 |
| 10       | 51  | 37  | 29  | 24  | 49  | 37  | 29  | 24  | 35  | 28  | 24  | 34  | 28  | 23  | 33 | 27 | 23 | 21 |

ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES 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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Date  
5/7/2015

### *Goniophotometer Calibration*

*Calibration Lamp:* GE 1000W, 120V, T6, CL (FEL)

*Lamp Number:* ITL78966-1000-38

*Calibration Current:* 8.300 Amps DC

*Total Luminous Flux:* 25753.0 Lumens

*Calibration Date:* 12/02/2014

### *Test Equipment Used*

| <i>Instrument</i>      | <i>Manufacturer / Model</i>             | <i>S/N</i> | <i>Calibration Due:</i> |
|------------------------|-----------------------------------------|------------|-------------------------|
| <i>Goniophotometer</i> | ITL / HLI LAB 1 - Test Distance: 31.75' | N/A        | N/A                     |
| <i>Power Analyzer</i>  | Yokogawa / WT 332                       | C2QA27071V | 11/12/2015              |
| <i>Power Source</i>    | Voltage-Regulated House Power           | N/A        | N/A                     |
| <i>Thermometer</i>     | National Instruments / USB-TC01         | 176F4E3    | 11/11/2015              |

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