

Project Number
17.02588



Date
9/22/2017

Lab 1
Sphere

Test Sample Description

Catalog Number: P563001-143-30K
Description: 3" Wall Mount Up/Down Cylinder - Graphite

Photometry

Test Method: IES LM-79-08 § 10
Preburn Time: 01:05
Time To Stabilize: 0:45
Total Operating Time: 3:08

Input Voltage (Volts): 120.0
Input Current (Amps): 0.202
Input Wattage (Watts): 24.0
Ambient Temp (°C): 25.4

Sphere

Test Method: IES LM-79-08 § 9.1 & 12.1
Preburn Time: 0:10
Time To Stabilize: 1:04
Total Operating Time: 1:14

Input Voltage (Volts): 120.0
Input Current (Amps): 0.198
Input Wattage (Watts): 23.6
Ambient Temp (°C): 24.0



Hubbell Lighting, Inc.

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Greenville, SC 29607
www.hubbellighting.com

Checked (sphere): B. LEE
Checked (photometry): D. ROBBINS
Approved: P. McCARTHY



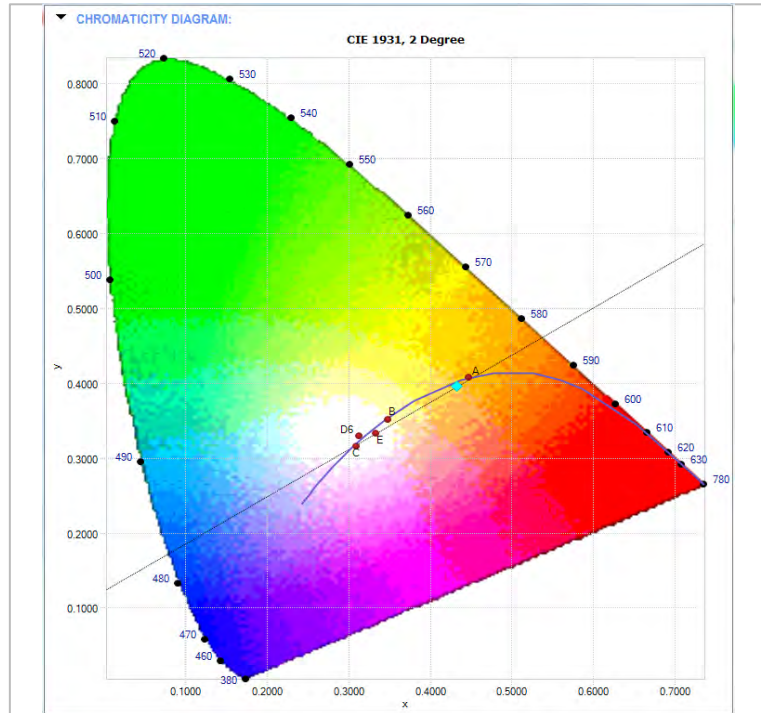


Lamp Cat#: NF2L757GRT-V1
 Lamp Desc: 44 - Nichia 3000K LEDs
 Driver Desc: NA

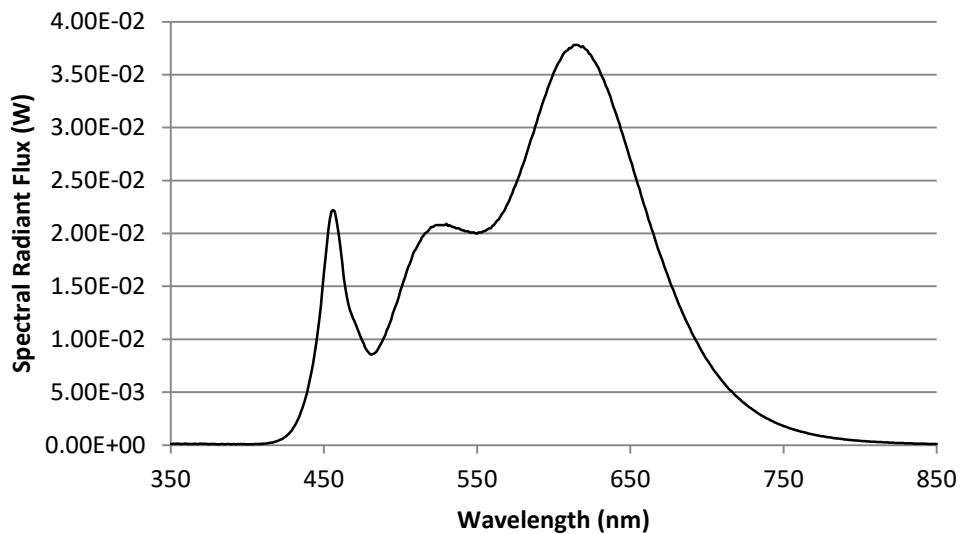
Efficacy: 74.2 LPW S/P Ratio: 1.5 LM/LM

Spectral Results

| Name | Value | Unit |
|--------------|-------------|--------|
| Φ | 5.91 | watts |
| Φ(v) | 1752 | lumens |
| Φ(v') | 2643 | lm' |
| Chrom x | 0.4327 | |
| Chrom y | 0.396 | |
| Chrom u | 0.2513 | |
| Chrom v | 0.345 | |
| Duv | 0.0028 | |
| Chrom u' | 0.2513 | |
| Chrom v' | 0.5175 | |
| CCT | 3003 | K |
| Purity | 48.7 | % |
| λ (dom) | 583.8 | nm |
| FWHM | 156 | nm |
| λ (peak) | 615 | nm |
| λ (center) | 589.4 | nm |
| λ (centroid) | 587.1 | nm |
| SDCM | Cool White | |
| RA | 94 | |
| Corr. Coef. | 0.002678093 | |
| Correlation | 0.0054 | |
| R1 | 98.5 | |
| R2 | 97.3 | |
| R3 | 95.1 | |
| R4 | 99.3 | |
| R5 | 98.1 | |
| R6 | 91.0 | |
| R7 | 89.5 | |
| R8 | 81.8 | |
| R9 | 62.0 | |
| R10 | 94.6 | |
| R11 | 92.7 | |
| R12 | 84.4 | |
| R13 | 97.8 | |
| R14 | 98.2 | |



Spectral Distribution of Radiant Flux



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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PREPARED FOR: PROGRESS

CATALOG NUMBER: P563001-143-30K

LUMINAIRE: 3" Wall Mount Up/Down Cylinder - Graphite

LAMP CAT. NO.: NF2L757GRT-V1

LAMP: 44- Nichia 3000K LEDs

MOUNTING: Wall

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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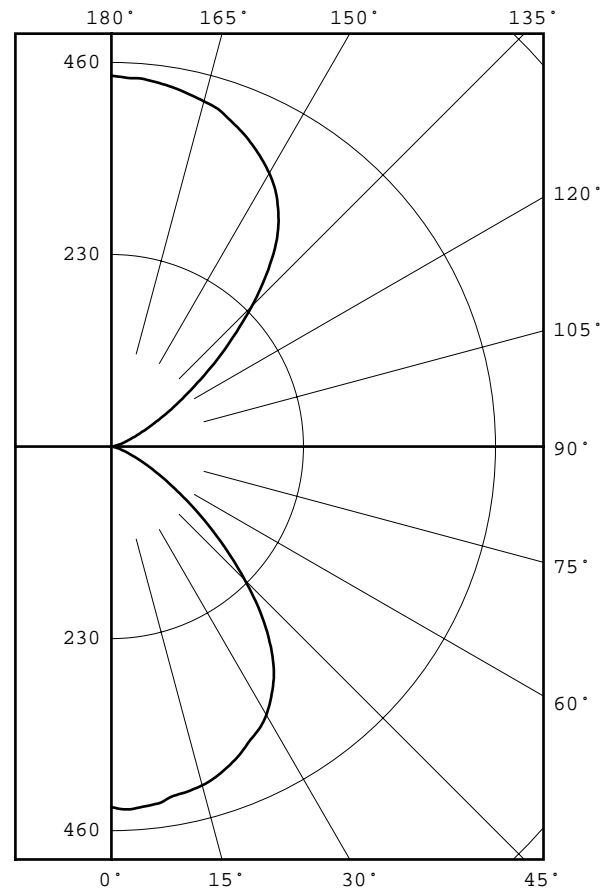
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| DEG | CANDELA | LUMENS |
|-----|---------|--------|
| 0 | 432 | |
| 5 | 433 | 41 |
| 15 | 420 | 118 |
| 25 | 390 | 180 |
| 35 | 339 | 210 |
| 45 | 226 | 174 |
| 55 | 105 | 96 |
| 65 | 35 | 36 |
| 75 | 9 | 10 |
| 85 | 1 | 1 |
| 90 | 0 | |
| 95 | 1 | 1 |
| 105 | 10 | 12 |
| 115 | 38 | 40 |
| 125 | 112 | 102 |
| 135 | 238 | 182 |
| 145 | 348 | 216 |
| 155 | 399 | 184 |
| 165 | 428 | 121 |
| 175 | 442 | 42 |
| 180 | 444 | |

| ZONAL LUMEN ZONE | SUMMARY LUMENS | %FIXT |
|------------------|----------------|-------|
| 0- 30 | 340 | 19.2 |
| 0- 40 | 550 | 31.1 |
| 0- 60 | 819 | 46.4 |
| 0- 90 | 866 | 49.0 |
| 90-120 | 53 | 3.0 |
| 90-130 | 155 | 8.8 |
| 90-150 | 553 | 31.3 |
| 90-180 | 900 | 51.0 |
| 0-180 | 1766 | 100.0 |

EFFICACY = 73.6 lm/W
 CIE TYPE - GENERAL DIFFUSE
 LUMINAIRE SPACING CRITERION = 1.26
 PLANE : 0-DEG 90-DEG
 SHIELDING ANGLES : 90 90





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LUMINOUS DIAMETER: 3.000

LUMINANCE DATA IN CANDELA/SQ M
ANGLE AVERAGE
IN DEG

| | |
|----|--------|
| 45 | 70085. |
| 55 | 40142. |
| 65 | 18160. |
| 75 | 7625. |
| 85 | 2516. |



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CANDELA DISTRIBUTION

| | |
|-------|-----|
| 0.0 | 432 |
| 5.0 | 433 |
| 10.0 | 425 |
| 15.0 | 420 |
| 20.0 | 408 |
| 25.0 | 390 |
| 30.0 | 371 |
| 35.0 | 339 |
| 40.0 | 290 |
| 45.0 | 226 |
| 50.0 | 161 |
| 55.0 | 105 |
| 60.0 | 63 |
| 65.0 | 35 |
| 70.0 | 18 |
| 75.0 | 9 |
| 80.0 | 3 |
| 85.0 | 1 |
| 90.0 | 0 |
| 95.0 | 1 |
| 100.0 | 4 |
| 105.0 | 10 |
| 110.0 | 20 |
| 115.0 | 38 |
| 120.0 | 68 |
| 125.0 | 112 |
| 130.0 | 171 |
| 135.0 | 238 |
| 140.0 | 302 |
| 145.0 | 348 |
| 150.0 | 378 |
| 155.0 | 399 |
| 160.0 | 416 |
| 165.0 | 428 |
| 170.0 | 436 |
| 175.0 | 442 |
| 180.0 | 444 |



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| 5-DEGREE ZONAL LUMEN SUMMARY | | |
|---------------------------------|-----|----|
| 0- 5 | | 10 |
| 5- 10 | | 31 |
| 10- 15 | | 50 |
| 15- 20 | | 68 |
| 20- 25 | | 84 |
| 25- 30 | | 96 |
| 30- 35 | 105 | |
| 35- 40 | 105 | |
| 40- 45 | 96 | |
| 45- 50 | 78 | |
| 50- 55 | 58 | |
| 55- 60 | 38 | |
| 60- 65 | 23 | |
| 65- 70 | 13 | |
| 70- 75 | 7 | |
| 75- 80 | 3 | |
| 80- 85 | 1 | |
| 85- 90 | 0 | |
| 90- 95 | 0 | |
| 95-100 | 1 | |
| 100-105 | 4 | |
| 105-110 | 8 | |
| 110-115 | 14 | |
| 115-120 | 25 | |
| 120-125 | 41 | |
| 125-130 | 61 | |
| 130-135 | 82 | |
| 135-140 | 100 | |
| 140-145 | 109 | |
| 145-150 | 107 | |
| 150-155 | 98 | |
| 155-160 | 85 | |
| 160-165 | 70 | |
| 165-170 | 51 | |
| 170-175 | 31 | |
| 175-180 | 11 | |

| 10-DEGREE ZONAL LUMEN SUMMARY | | |
|----------------------------------|--|-----|
| 0- 10 | | 41 |
| 10- 20 | | 118 |
| 20- 30 | | 180 |
| 30- 40 | | 210 |
| 40- 50 | | 174 |
| 50- 60 | | 96 |
| 60- 70 | | 36 |
| 70- 80 | | 10 |
| 80- 90 | | 1 |
| 90-100 | | 1 |
| 100-110 | | 12 |
| 110-120 | | 40 |
| 120-130 | | 102 |
| 130-140 | | 182 |
| 140-150 | | 216 |
| 150-160 | | 184 |
| 160-170 | | 121 |
| 170-180 | | 42 |



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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

| RC | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 | |
|----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| 0 | 107 | 107 | 107 | 107 | 107 | 99 | 99 | 99 | 99 | 83 | 83 | 83 | 68 | 68 | 68 | 55 | 55 | 55 | 49 |
| 1 | 99 | 95 | 92 | 89 | | 91 | 88 | 85 | 82 | 74 | 72 | 71 | 62 | 61 | 60 | 51 | 50 | 49 | 44 |
| 2 | 91 | 84 | 79 | 74 | | 84 | 78 | 74 | 70 | 67 | 63 | 60 | 56 | 54 | 52 | 46 | 45 | 43 | 39 |
| 3 | 84 | 75 | 69 | 63 | | 77 | 70 | 64 | 59 | 60 | 56 | 52 | 51 | 48 | 45 | 42 | 40 | 38 | 34 |
| 4 | 77 | 67 | 60 | 54 | | 71 | 63 | 56 | 51 | 54 | 49 | 45 | 46 | 42 | 39 | 38 | 36 | 34 | 30 |
| 5 | 71 | 60 | 53 | 47 | | 66 | 56 | 50 | 45 | 49 | 44 | 40 | 41 | 38 | 35 | 35 | 32 | 30 | 27 |
| 6 | 66 | 54 | 47 | 41 | | 61 | 51 | 44 | 39 | 44 | 39 | 35 | 38 | 34 | 31 | 32 | 29 | 27 | 24 |
| 7 | 61 | 49 | 42 | 37 | | 56 | 46 | 40 | 35 | 40 | 35 | 31 | 35 | 31 | 28 | 29 | 26 | 24 | 22 |
| 8 | 57 | 45 | 38 | 33 | | 52 | 42 | 36 | 31 | 37 | 32 | 28 | 32 | 28 | 25 | 27 | 24 | 22 | 20 |
| 9 | 53 | 41 | 34 | 29 | | 49 | 39 | 32 | 28 | 34 | 29 | 25 | 29 | 25 | 23 | 25 | 22 | 20 | 18 |
| 10 | 49 | 38 | 31 | 26 | | 46 | 36 | 29 | 25 | 31 | 26 | 23 | 27 | 23 | 20 | 23 | 20 | 18 | 16 |

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 TEST SAMPLE.

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9/22/2017

Goniophotometer Calibration

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

Lamp Number: ITL78966-1000-38

Calibration Current: 8.300 Amps DC

Total Luminous Flux: 25889.0 Lumens

Calibration Date: 07/10/2017

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: 31.74' | N/A | N/A |
| <i>Power Analyzer</i> | Yokogawa / WT 332 | C2QA27071V | 11/2/2017 |
| <i>Power Source</i> | Voltage-Regulated House Power | N/A | N/A |
| <i>Thermometer</i> | National Instruments / USB-TC01 | 176F4EB | 11/7/2017 |

Sphere Calibration

Calibration Lamp: EIKO 28V75W/E10

Lamp Number: SCL-1400-J136

Calibration Current: 2.679 Amps

Total Luminous Flux: 1427 Lumens

Test Equipment Used - Color & SPD; THD & Power Factor

| <i>Instrument</i> | <i>Manufacturer / Model</i> | <i>S/N</i> | <i>Calibration Due:</i> |
|-------------------------|---------------------------------|--------------|-------------------------|
| <i>3-Meter Sphere</i> | Labsphere / LMS-3M | N/A | Calibrated Weekly |
| <i>Thermometer</i> | National Instruments / USB TC01 | 1912751 | 11/2/2017 |
| <i>LAMP Power Meter</i> | Yokogawa / WT332 | C2QA27075V | 11/1/2017 |
| <i>Power Supply</i> | Chroma / 61602 | 616020002113 | N/A |
| <i>Aux Lamp Supply</i> | Labsphere / LPS-100-0833 | 031159372 | 10/31/2017 |
| <i>Cal Lamp Supply</i> | Labsphere / LPS-150-0268 | 1218148505 | 12/1/2017 |
| <i>Spectrometer</i> | Labsphere / CDS 1100 | 0624117792 | N/A |

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