

# Test Report

Report Number: L21094

Date: Jul 16, 2021

Issued by:

Dialight Optics Laboratory  
1501 Route 34 South, Farmingdale, NJ 07727

Test of one Highbay

Unit manufacturer: Dialight Corporation

Unit model number: [K,V][C,E,F,W][D,U]-[4,V]RN-[2,8]Jx-xxx-xx

Issued to:

Dialight Corporation  
1501 Route 34 South, Farmingdale, NJ 07727

**Tests performed:** Photometric characterization and temperature measurement per the described standards.

**Dates of test:** July 8, 2021 through July 14, 2021

**Standards used:** All tests are performed in accordance with procedures and guidelines prescribed by the American National Standards Institute (ANSI) or Illuminating Engineering Society of North America (IES):

- IES LM-79:2008: Electrical and Photometric Measurements of Solid-State Lighting Products
- ANSI/UL 1598:2008: Underwriters Laboratories Inc. Standard for Safety: Luminaires
- ENERGY STAR Manufacturer's Guide for Qualifying Solid State Lighting Luminaires Version 2.1

**Description of sample:**

Sample Number: L21094

Manufacturer: Dialight Corporation

Product Name: Highbay

Description: Highbay

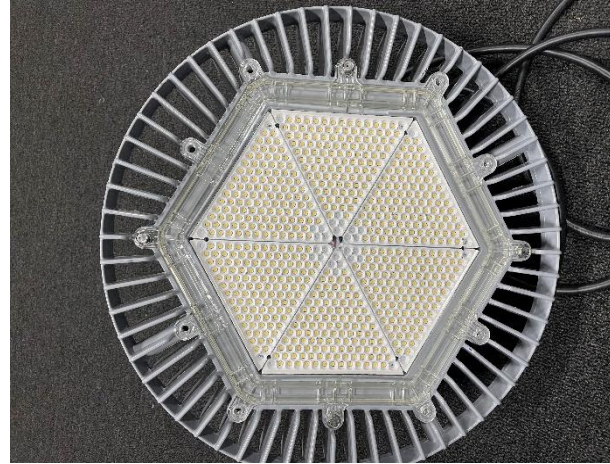
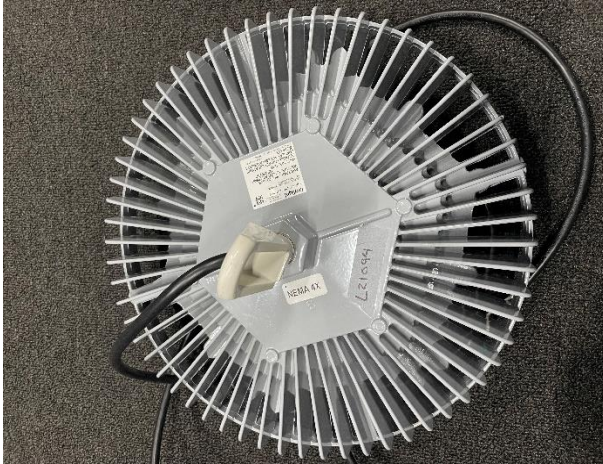
Model Number: [K,V][C,E,F,W][D,U]-[4,V]RN-[2,8]Jx-xxx-xx

## Report Summary

Sample number L21094

Dialight unit model number [K,V][C,E,F,W][D,U]-[4,V]RN-[2,8]Jx-xxx-xx

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

|                    | <u>Integrating Sphere</u> | <u>Goniophotometer</u> |
|--------------------|---------------------------|------------------------|
| Luminous Flux:     | 38783 (lumens)            | 38902 (lumens)         |
| Electrical Power:  | 228.9 (W)                 | 228.9 (W)              |
| Luminous Efficacy: | 169.4 (lumens/W)          | 170 (lumens/W)         |

### Electrical Measurements:

Input Power (120VAC): 228.9 (W)  
 Power Factor (120VAC): 0.9962  
 Current ATHD % (120VAC): 4.78  
 Input Power (277VAC): 221.2 (W)  
 Power Factor (277VAC): 0.9712  
 Current ATHD % (277VAC): 8.50

### Color Measurements:

Correlated Color Temperature (CCT): 4073  
 Color Rendering Index (CRI): 80.37  
 Chromaticity Coordinate (x): 0.378  
 Chromaticity Coordinate (y): 0.379  
 Chromaticity Coordinate (u'): 0.223  
 Chromaticity Coordinate (v'): 0.502  
 DUV: 0.0016

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L21094.

Dialight unit model number [K,V][C,E,F,W][D,U]-[4,V]RN-[2,8]Jx-xxx-xx

### Test Conditions:

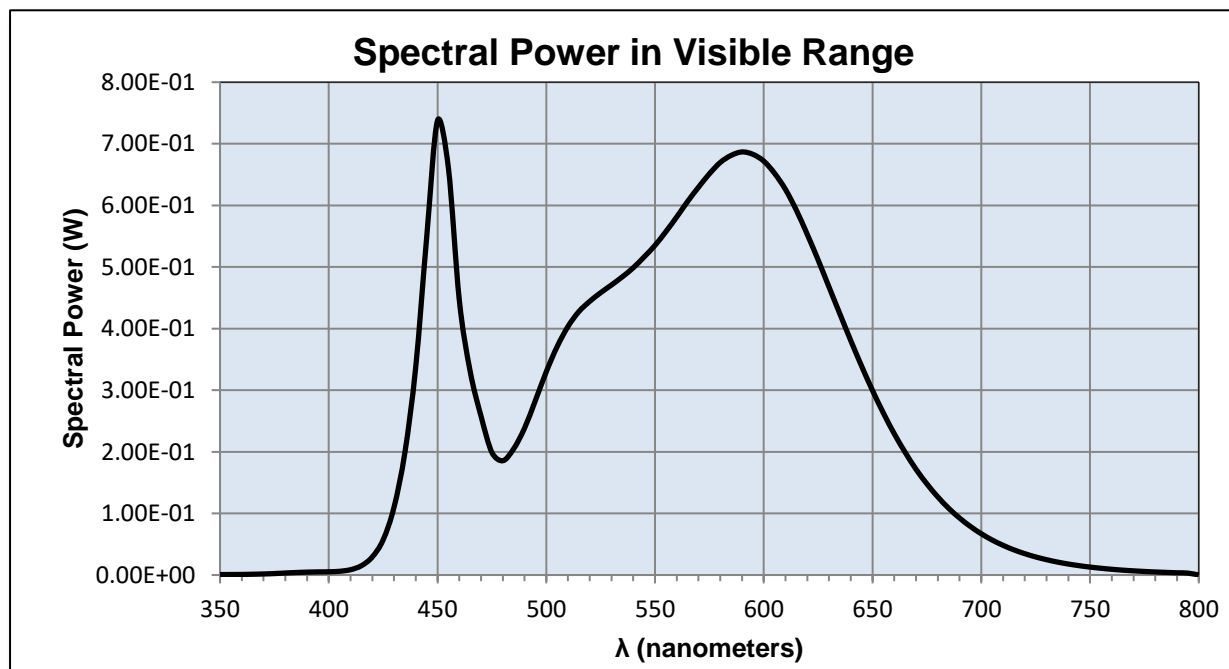
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input Current: 1.91 (A)  
Input Power: 228.9 (W)  
Input Power Factor: 0.9962  
Current ATHD: 4.78 (%)

### Photometric measurements:

Luminous Flux: 38782.9 (lumens)  
Luminous Efficacy: 169.4 (lumens/W)  
Correlated Color Temperature (CCT): 4073 (K)  
CRI -Ra: 80.37  
CRI -R9: -8.4104  
DUV: 0.0016  
CIE Coordinate (x): 0.378  
CIE Coordinate (y): 0.379  
CIE Coordinate (u'): 0.223  
CIE Coordinate (v'): 0.502  
TM30\_Rf: 82.4  
TM30\_Rg: 94.0  
TM30\_Rcs\_hue1: -14.03 %



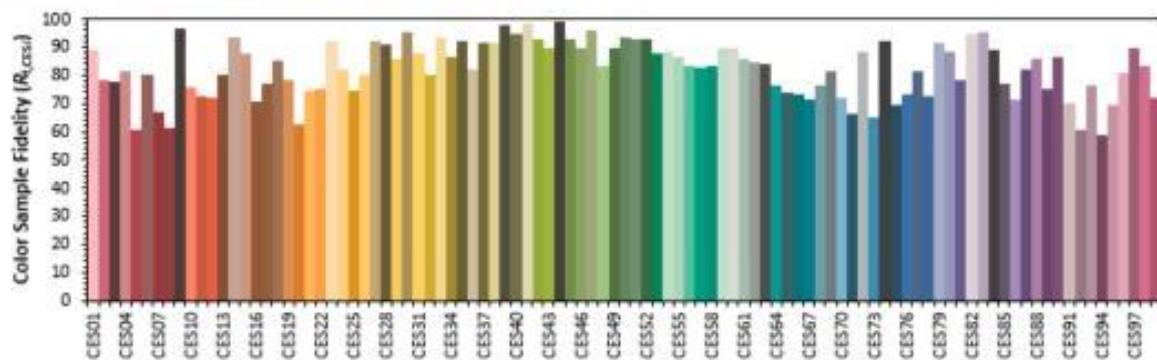
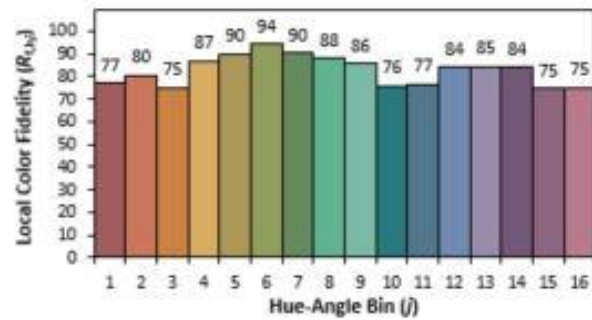
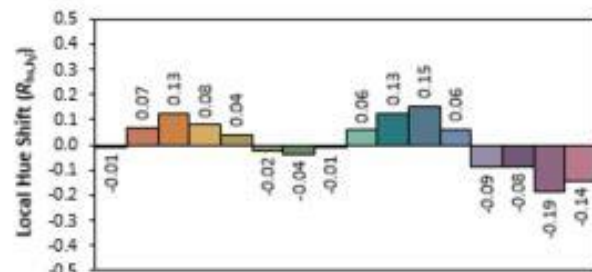
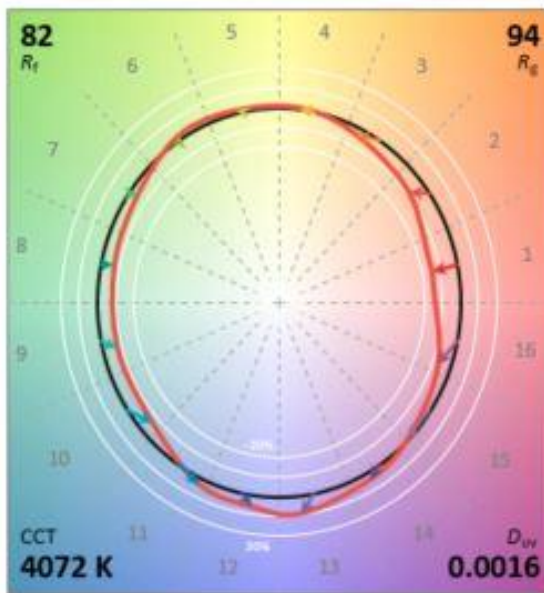
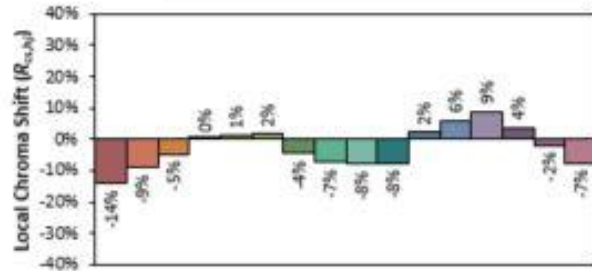
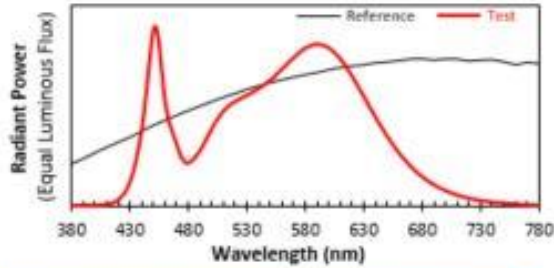
## Test Results: Integrating Sphere

Results continued from previous page.

### Tabulated Spectral Power in Visible Range:

| $\lambda(\text{nm})$ | (W/nm)  | $\lambda(\text{nm})$ | (W/nm)  | $\lambda(\text{nm})$ | (W/nm)  | $\lambda(\text{nm})$ | (W/nm)  |
|----------------------|---------|----------------------|---------|----------------------|---------|----------------------|---------|
| 350                  | 0.00079 | 490                  | 0.23832 | 630                  | 0.46745 | 770                  | 0.00677 |
| 355                  | 0.00084 | 495                  | 0.28330 | 635                  | 0.42379 | 775                  | 0.00579 |
| 360                  | 0.00098 | 500                  | 0.33002 | 640                  | 0.38050 | 780                  | 0.00496 |
| 365                  | 0.00127 | 505                  | 0.37079 | 645                  | 0.33900 | 785                  | 0.00427 |
| 370                  | 0.00171 | 510                  | 0.40356 | 650                  | 0.29955 | 790                  | 0.00364 |
| 375                  | 0.00237 | 515                  | 0.42770 | 655                  | 0.26291 | 795                  | 0.00312 |
| 380                  | 0.00326 | 520                  | 0.44430 | 660                  | 0.22927 | 800                  | 0.00271 |
| 385                  | 0.00411 | 525                  | 0.45830 | 665                  | 0.19915 |                      |         |
| 390                  | 0.00469 | 530                  | 0.47092 | 670                  | 0.17170 |                      |         |
| 395                  | 0.00508 | 535                  | 0.48417 | 675                  | 0.14795 |                      |         |
| 400                  | 0.00527 | 540                  | 0.49882 | 680                  | 0.12688 |                      |         |
| 405                  | 0.00611 | 545                  | 0.51635 | 685                  | 0.10838 |                      |         |
| 410                  | 0.00866 | 550                  | 0.53518 | 690                  | 0.09259 |                      |         |
| 415                  | 0.01514 | 555                  | 0.55749 | 695                  | 0.07880 |                      |         |
| 420                  | 0.02934 | 560                  | 0.58141 | 700                  | 0.06705 |                      |         |
| 425                  | 0.05719 | 565                  | 0.60651 | 705                  | 0.05683 |                      |         |
| 430                  | 0.11016 | 570                  | 0.62955 | 710                  | 0.04824 |                      |         |
| 435                  | 0.19908 | 575                  | 0.65133 | 715                  | 0.04085 |                      |         |
| 440                  | 0.33830 | 580                  | 0.66973 | 720                  | 0.03465 |                      |         |
| 445                  | 0.54747 | 585                  | 0.68120 | 725                  | 0.02938 |                      |         |
| 450                  | 0.73780 | 590                  | 0.68681 | 730                  | 0.02491 |                      |         |
| 455                  | 0.66064 | 595                  | 0.68292 | 735                  | 0.02107 |                      |         |
| 460                  | 0.44643 | 600                  | 0.67191 | 740                  | 0.01788 |                      |         |
| 465                  | 0.33088 | 605                  | 0.65191 | 745                  | 0.01516 |                      |         |
| 470                  | 0.25791 | 610                  | 0.62579 | 750                  | 0.01289 |                      |         |
| 475                  | 0.19895 | 615                  | 0.59205 | 755                  | 0.01098 |                      |         |
| 480                  | 0.18554 | 620                  | 0.55298 | 760                  | 0.00934 |                      |         |
| 485                  | 0.20489 | 625                  | 0.51145 | 765                  | 0.00790 |                      |         |

## IES TM-30-18 Color Rendition Report



**Notes:** This is a recommended method for displaying ANSI/IES TM-30-18 information.

$x$  0.3783  
 $y$  0.3787  
 $u'$  0.2229  
 $v'$  0.5021

CIE 13.3-1995  
(CRI)  
 $R_a$  80  
 $R_g$  -8



## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L21094.

Dialight unit model number [K,V][C,E,F,W][D,U]-[4,V]RN-[2,8]Jx-xxx-xx

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 1.9142 (A)  
Input Power: 228.9 (W)  
Power Factor: 0.9956

### Photometric measurements:

Absolute Luminous Flux: 38902.4 (lumens)  
Luminous Efficacy: 170.0 (lumens/W)

### Intensity Summary:

#### Candlepower Summary

| H/V   | 0.00  | 45.00 | 90.00 | 135.00 | 180.00 | Lumens |
|-------|-------|-------|-------|--------|--------|--------|
| 0.00  | 15049 | 15051 | 15056 | 15069  | 15049  |        |
| 5.00  | 15031 | 15037 | 15040 | 15022  | 14974  | 1523   |
| 15.00 | 14774 | 14761 | 14766 | 14764  | 14702  | 4181   |
| 25.00 | 13980 | 13969 | 13954 | 13899  | 13782  | 6435   |
| 35.00 | 12508 | 12455 | 12393 | 12355  | 12174  | 7767   |
| 45.00 | 10364 | 10348 | 10286 | 10181  | 10000  | 7911   |
| 55.00 | 8128  | 8195  | 8063  | 7881   | 7542   | 7100   |
| 65.00 | 3839  | 4235  | 3998  | 3244   | 2776   | 3476   |
| 75.00 | 638   | 618   | 592   | 573    | 500    | 612    |
| 85.00 | 88    | 73    | 64    | 57     | 35     | 35     |
| 90.00 | 7     | 5     | 4     | 3      | 2      |        |

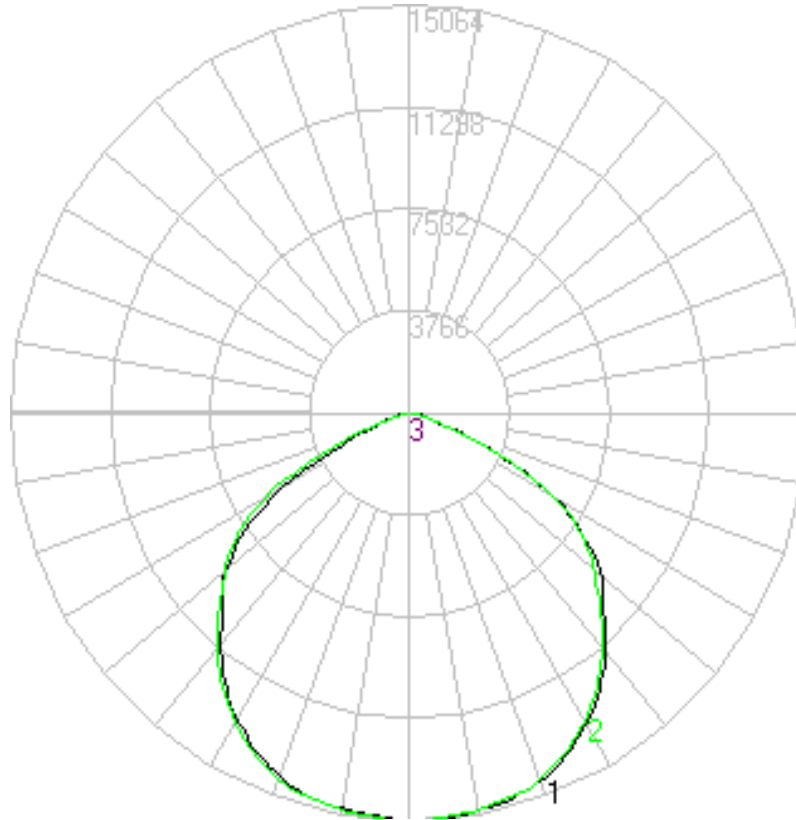
#### Zonal Lumen Summary

| Zone      | Lumens   | % Lamp | % Fixture |
|-----------|----------|--------|-----------|
| 0 to 30   | 11995.72 | 30.84  | 30.84     |
| 0 to 40   | 19707.68 | 50.66  | 50.66     |
| 0 to 60   | 34607.38 | 88.96  | 88.96     |
| 0 to 90   | 38902.39 | 100.00 | 100.00    |
| 90 to 180 | 0.00     | 0.00   | 0.00      |
| 0 to 180  | 38902.39 | 100.00 | 100.00    |

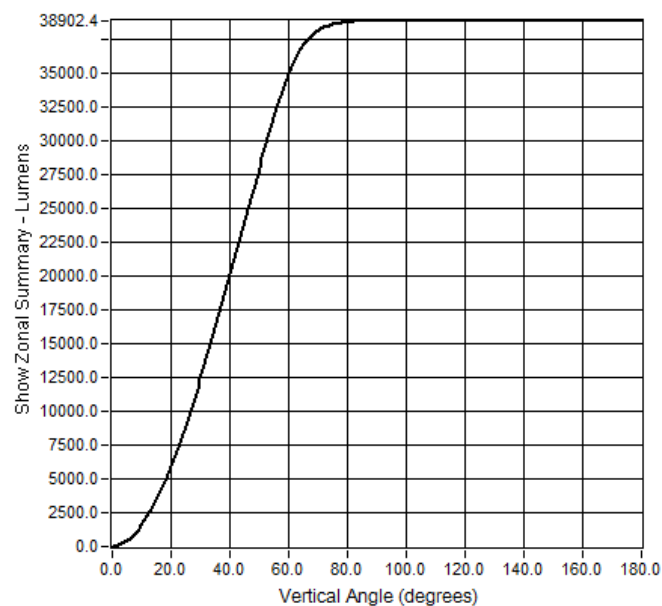
## Test Results: Goniometer

Results continued from previous page.

### Polar Plot:



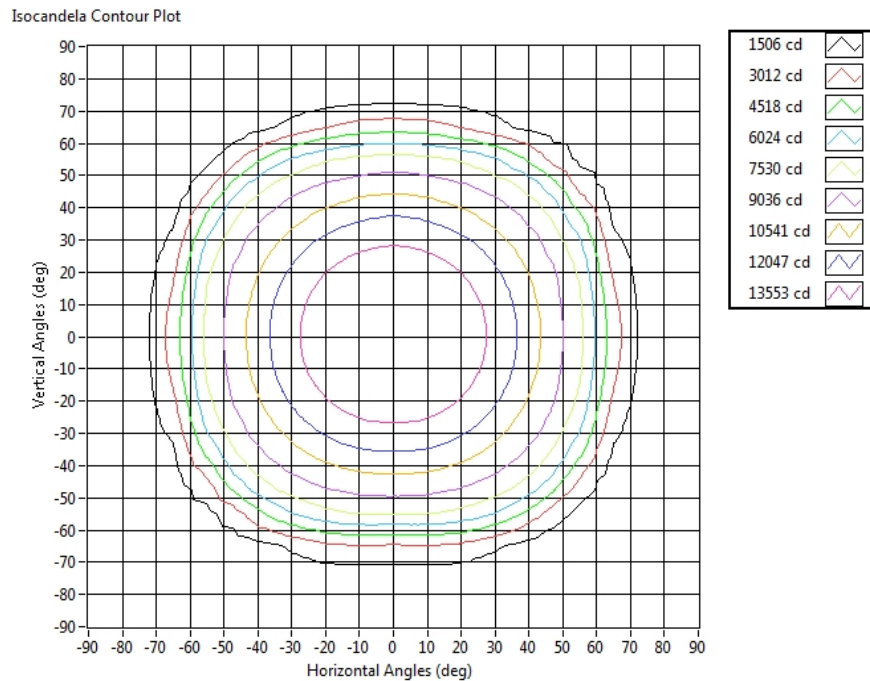
Zonal Flux Graph



## Test Results: Goniometer

Results continued from previous page.

### Illuminance Plot:



### Illuminance-Cone of Light:





# Equipment Used:

| Equipment Name  | Model Number        |
|---|---------------------|
| Omega TC  | DPI8                |
| YOKOGAWA Digital Power Meter                          | 11/26/3981          |
| LSI High Speed Mirror Goniometer                      | 6240T               |
| Elgar AC Power Supply                                 | CW1251P             |
| Sorensen DC Power Supply                              | XHR150-7            |
| Dialight Confirmation Sample                          | HB1N4N              |
| Dialight Confirmation Sample                          | HB1N4J              |
| Fluke 8808A Digit Multimeter                          | 8808A               |
| Step-Up Transformer                                   |                     |
| ITL Osram Calibraton lamps for Goniometer             | J9a8                |
| ITL Osram Calibraton lamps for Goniometer             | J9a8                |
| ITL Osram Calibraton lamps for Goniometer             | J9a8                |
| Fluke 971 Humidity Meter                              | 8/28/1902           |
| GwINSTEK DC Power Supply                              | GEP172679           |
| Dialight Confirmation Sample                          | 1/0/1900            |
| Labsphere calibration lamp for 2M sphere              | SCL-1400            |
| Labshere 2M sphere                                    | Illumia Plus 2600-1 |
| Labshere Controller                                   | PM-150-140          |
| Labshere Spectrameter- CDS 2600 Spectrometer          | CDS-2600            |
| Xitron Power Analyzer                                 | 9/1/1907            |
| LED Bulb for Electrical Confirmation Test-Gold Sample | Monte Carlo         |
| LED Bulb for Electrical Confirmation Test-Gold Sample | Monte Carlo         |
| LED Bulb for Electrical Confirmation Test-Gold Sample | Monte Carlo         |
|   |                     |
|   |                     |

# Additional Notes:

Samples are received and tested in new and undamaged condition, unless otherwise noted.  
The results shown in this report are representative only of the test samples submitted. This data has been issued to the assignee for further evaluation.  
This report shall not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.  
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## Test Report Issued By:

Richard Huegi  
Dialight Optics Laboratory  
Senior Optical Engineering Technician  
Lighting Division

## Test Report Reviewed and Approved By:

Vishnu Shastry  
Dialight Optics Laboratory  
Optical Engineer  
Approved Signatory