

# Test Report

Report Number: L21097

Date: Jul 23, 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]-[2,T]NN-[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 20, 2021 through July 22, 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: L21097

Manufacturer: Dialight Corporation

Product Name: Highbay

Description: Highbay

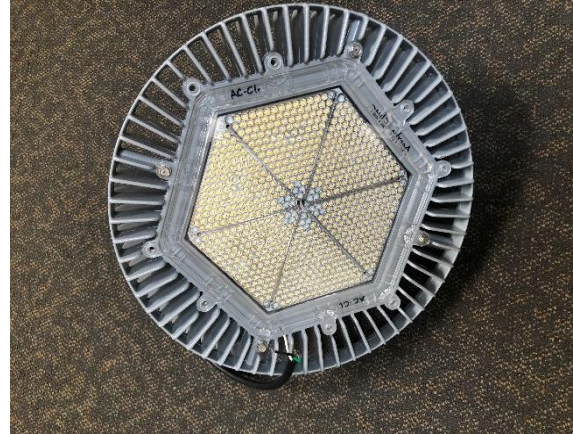
Model Number: [K,V][C,E,F,W][D,U]-[2,T]NN-[2,8]Jx-xxx-xx

## Report Summary

Sample number L21097

Dialight unit model number [K,V][C,E,F,W][D,U]-[2,T]NN-[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:     | 37566 (lumens)            | 38025 (lumens)         |
| Electrical Power:  | 228.8 (W)                 | 228.7 (W)              |
| Luminous Efficacy: | 164.2 (lumens/W)          | 166.3 (lumens/W)       |

### Electrical Measurements:

Input Power (120VAC): 228.8 (W)  
 Power Factor (120VAC): 0.9963  
 Current ATHD % (120VAC): 4.76  
 Input Power (277VAC): 221.1 (W)  
 Power Factor (277VAC): 0.9753  
 Current ATHD % (277VAC): 8.5

### Color Measurements:

Correlated Color Temperature (CCT): 4112  
 Color Rendering Index (CRI): 80.56  
 Chromaticity Coordinate (x): 0.376  
 Chromaticity Coordinate (y): 0.377  
 Chromaticity Coordinate (u'): 0.222  
 Chromaticity Coordinate (v'): 0.501  
 DUV: 0.0013

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L21097.

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

### Test Conditions:

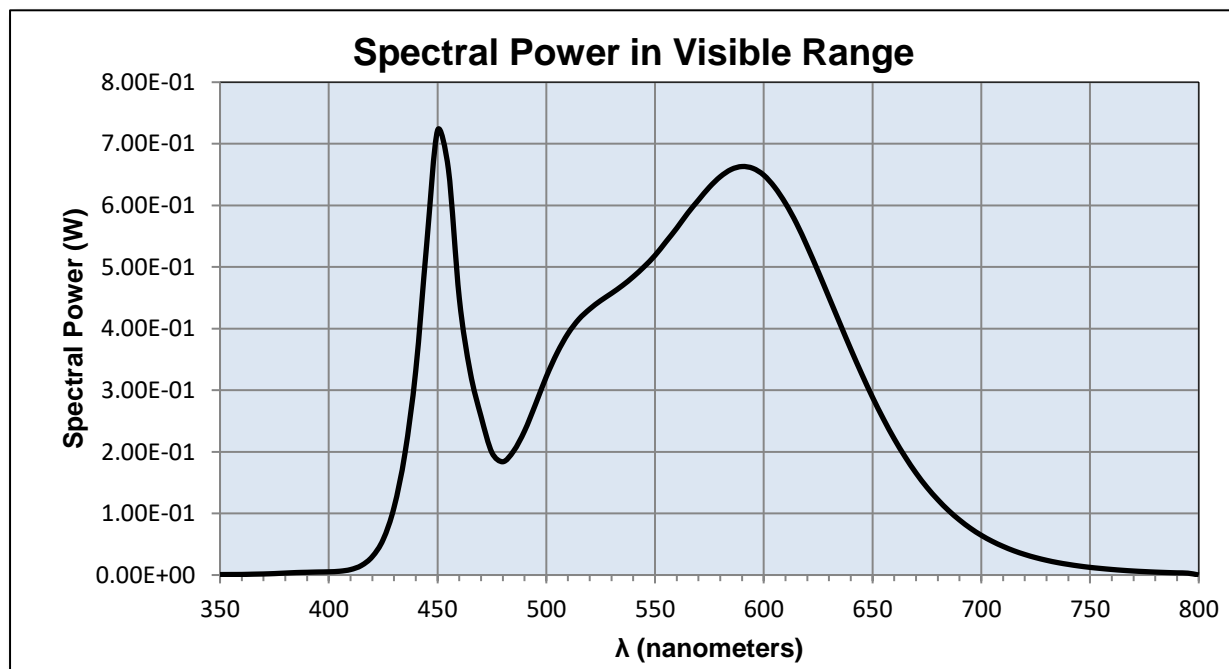
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input Current: 1.94 (A)  
Input Power: 228.8 (W)  
Input Power Factor: 0.9963  
Current ATHD: 4.76 (%)

### Photometric measurements:

Luminous Flux: 37566.1 (lumens)  
Luminous Efficacy: 164.2 (lumens/W)  
Correlated Color Temperature (CCT): 4112 (K)  
CRI -Ra: 80.56  
CRI -R9: -7.6226  
DUV: 0.0013  
CIE Coordinate (x): 0.376  
CIE Coordinate (y): 0.377  
CIE Coordinate (u'): 0.222  
CIE Coordinate (v'): 0.501  
TM30\_Rf: 82.4  
TM30\_Rg: 94.1  
TM30\_Rcs\_hue1: -13.99 %



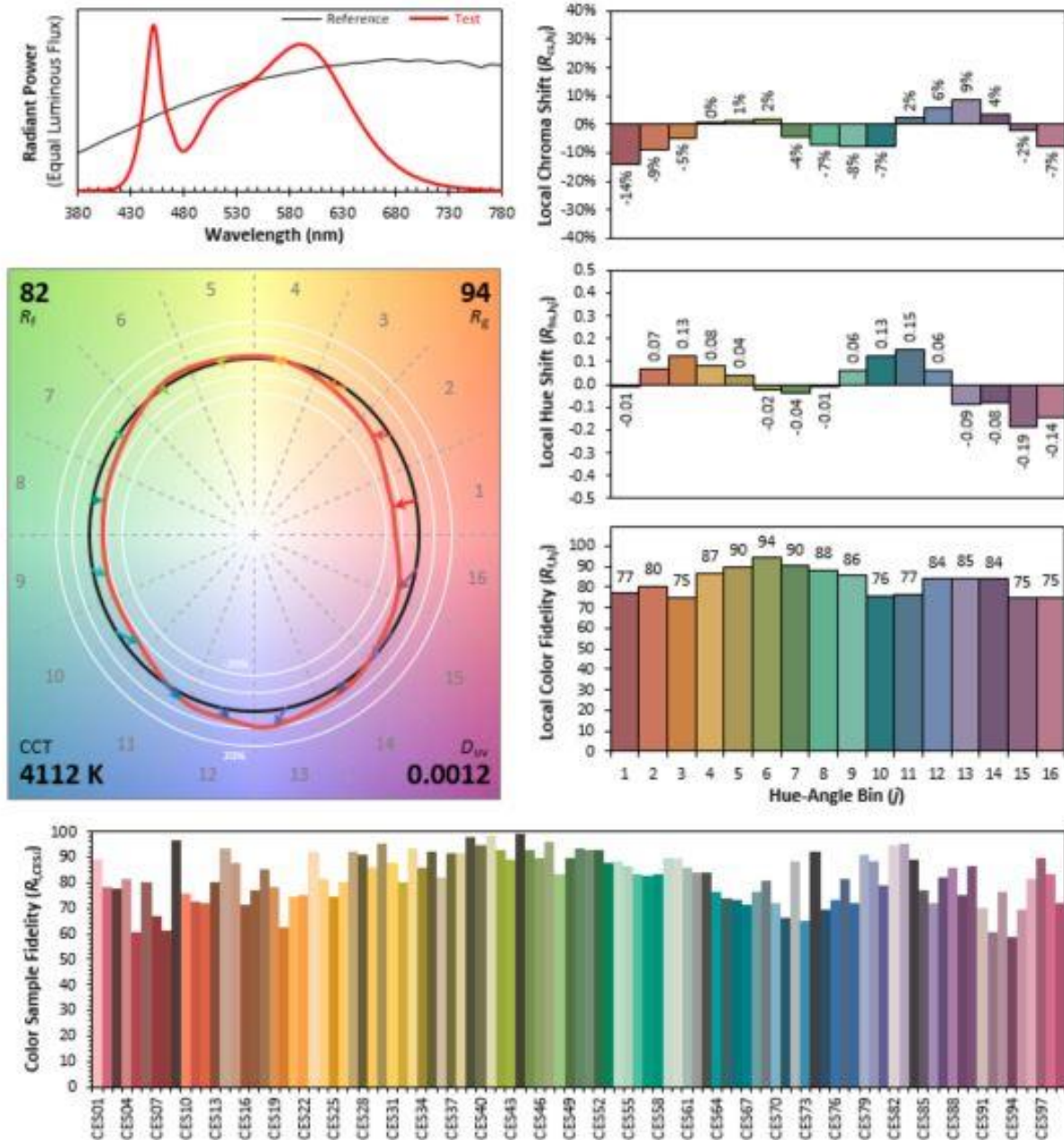
## Test Results: Integrating Sphere

Results continued from previous page.

### Tabulated Spectral Power in Visible Range:

| $\lambda(\text{nm})$ | $(\text{W/nm})$ | $\lambda(\text{nm})$ | $(\text{W/nm})$ | $\lambda(\text{nm})$ | $(\text{W/nm})$ | $\lambda(\text{nm})$ | $(\text{W/nm})$ |
|----------------------|-----------------|----------------------|-----------------|----------------------|-----------------|----------------------|-----------------|
| 350                  | 0.00077         | 490                  | 0.23371         | 630                  | 0.45059         | 770                  | 0.00649         |
| 355                  | 0.00085         | 495                  | 0.27667         | 635                  | 0.40843         | 775                  | 0.00555         |
| 360                  | 0.00096         | 500                  | 0.32185         | 640                  | 0.36666         | 780                  | 0.00474         |
| 365                  | 0.00137         | 505                  | 0.36064         | 645                  | 0.32668         | 785                  | 0.00410         |
| 370                  | 0.00173         | 510                  | 0.39203         | 650                  | 0.28859         | 790                  | 0.00352         |
| 375                  | 0.00233         | 515                  | 0.41530         | 655                  | 0.25342         | 795                  | 0.00302         |
| 380                  | 0.00319         | 520                  | 0.43185         | 660                  | 0.22097         | 800                  | 0.00259         |
| 385                  | 0.00401         | 525                  | 0.44545         | 665                  | 0.19182         |                      |                 |
| 390                  | 0.00445         | 530                  | 0.45730         | 670                  | 0.16555         |                      |                 |
| 395                  | 0.00492         | 535                  | 0.46993         | 675                  | 0.14247         |                      |                 |
| 400                  | 0.00523         | 540                  | 0.48425         | 680                  | 0.12238         |                      |                 |
| 405                  | 0.00612         | 545                  | 0.50049         | 685                  | 0.10457         |                      |                 |
| 410                  | 0.00885         | 550                  | 0.51886         | 690                  | 0.08929         |                      |                 |
| 415                  | 0.01550         | 555                  | 0.54082         | 695                  | 0.07593         |                      |                 |
| 420                  | 0.02979         | 560                  | 0.56311         | 700                  | 0.06451         |                      |                 |
| 425                  | 0.05756         | 565                  | 0.58727         | 705                  | 0.05480         |                      |                 |
| 430                  | 0.10975         | 570                  | 0.60880         | 710                  | 0.04651         |                      |                 |
| 435                  | 0.19704         | 575                  | 0.62962         | 715                  | 0.03933         |                      |                 |
| 440                  | 0.33212         | 580                  | 0.64661         | 720                  | 0.03336         |                      |                 |
| 445                  | 0.53606         | 585                  | 0.65836         | 725                  | 0.02825         |                      |                 |
| 450                  | 0.72160         | 590                  | 0.66314         | 730                  | 0.02394         |                      |                 |
| 455                  | 0.65866         | 595                  | 0.66020         | 735                  | 0.02023         |                      |                 |
| 460                  | 0.44941         | 600                  | 0.64917         | 740                  | 0.01725         |                      |                 |
| 465                  | 0.33018         | 605                  | 0.62960         | 745                  | 0.01460         |                      |                 |
| 470                  | 0.25755         | 610                  | 0.60330         | 750                  | 0.01243         |                      |                 |
| 475                  | 0.19878         | 615                  | 0.57117         | 755                  | 0.01063         |                      |                 |
| 480                  | 0.18389         | 620                  | 0.53334         | 760                  | 0.00901         |                      |                 |
| 485                  | 0.20135         | 625                  | 0.49273         | 765                  | 0.00764         |                      |                 |

## IES TM-30-18 Color Rendition Report



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

$x$  0.3764  
 $y$  0.3768  
 $u'$  0.2224  
 $v'$  0.5010

CIE 13.3-1995  
(CRI)

$R_a$  81  
 $R_g$  -8



## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L21097.

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

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 1.9092 (A)  
Input Power: 228.7 (W)  
Power Factor: 0.9955

### Photometric measurements:

Absolute Luminous Flux: 38024.7 (lumens)  
Luminous Efficacy: 166.3 (lumens/W)

### Intensity Summary:

#### Candlepower Summary

| H/V   | 0.00  | 45.00 | 90.00 | 135.00 | 180.00 | Lumens |
|-------|-------|-------|-------|--------|--------|--------|
| 0.00  | 33075 | 32624 | 32024 | 31558  | 33075  |        |
| 5.00  | 30003 | 31417 | 33822 | 35576  | 36476  | 3382   |
| 15.00 | 24519 | 25464 | 27068 | 28795  | 26383  | 7391   |
| 25.00 | 14988 | 15791 | 16936 | 17842  | 16482  | 7478   |
| 35.00 | 11621 | 11797 | 12181 | 12475  | 11969  | 7494   |
| 45.00 | 9337  | 9482  | 9663  | 9758   | 9218   | 7289   |
| 55.00 | 5194  | 5618  | 6364  | 6608   | 5717   | 5144   |
| 65.00 | 682   | 845   | 1101  | 1325   | 808    | 868    |
| 75.00 | 148   | 153   | 157   | 157    | 133    | 155    |
| 85.00 | 44    | 52    | 52    | 60     | 29     | 27     |
| 90.00 | 8     | 12    | 14    | 15     | 8      |        |

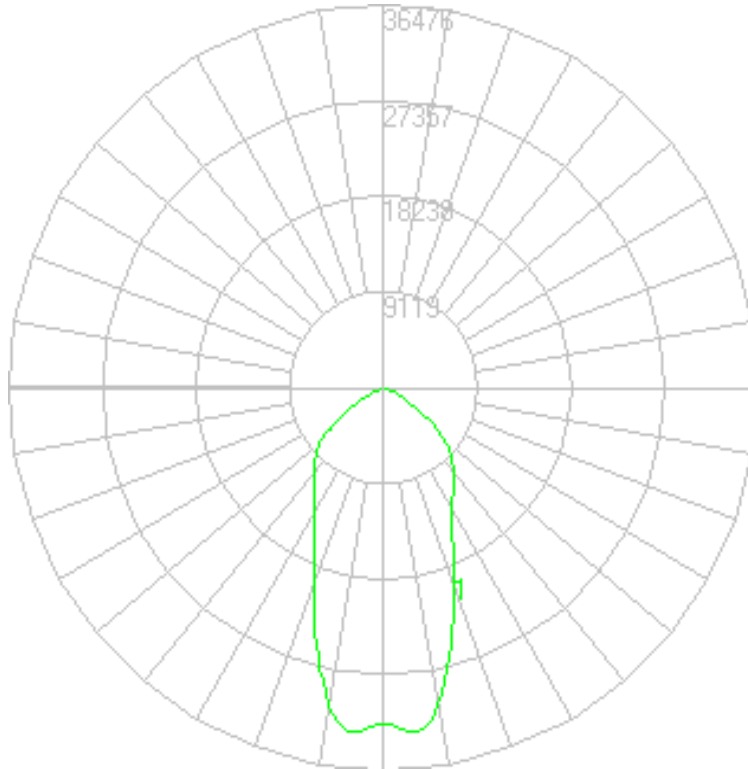
#### Zonal Lumen Summary

| Zone      | Lumens   | % Lamp | % Fixture |
|-----------|----------|--------|-----------|
| 0 to 30   | 17501.42 | 46.03  | 46.03     |
| 0 to 40   | 24922.40 | 65.54  | 65.54     |
| 0 to 60   | 36826.81 | 96.85  | 96.85     |
| 0 to 90   | 38024.69 | 100.00 | 100.00    |
| 90 to 180 | 0.00     | 0.00   | 0.00      |
| 0 to 180  | 38024.69 | 100.00 | 100.00    |

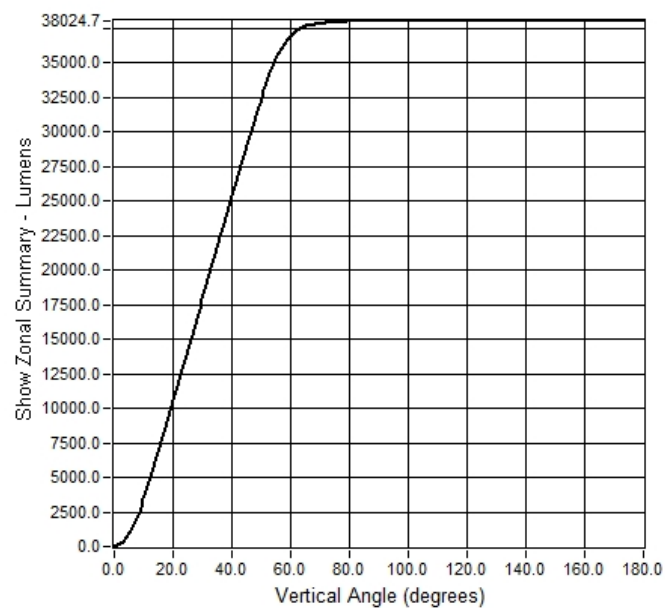
## Test Results: Goniometer

Results continued from previous page.

### Polar Plot:



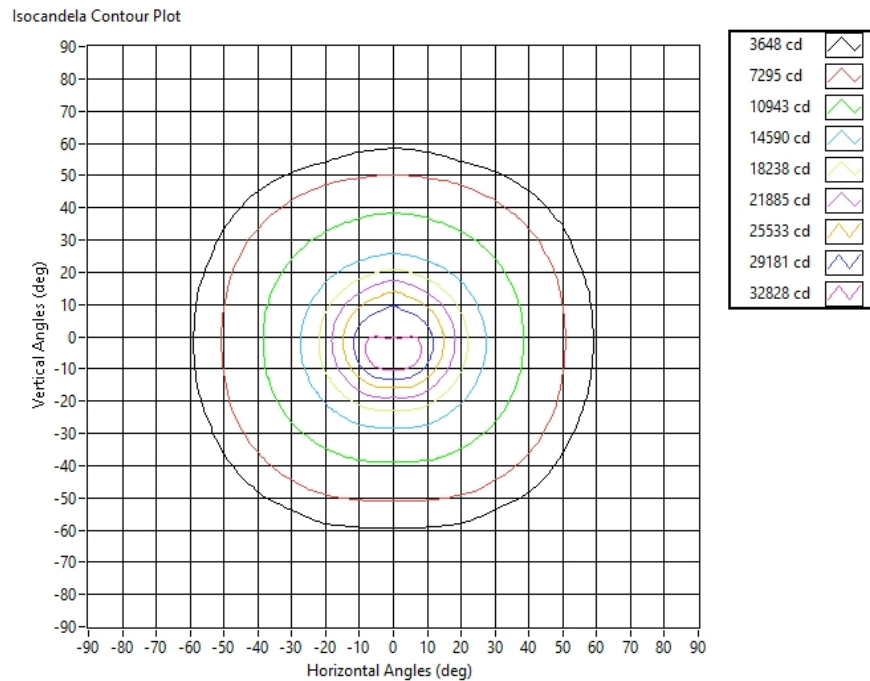
Zonal Flux Graph



## Test Results: Goniometer

Results continued from previous page.

### Illuminance Plot:



### Illuminance-Cone of Light:

| Mounting Height (ft) | Beam Cone Width (ft) | Orthogonal Beam Cone Width (ft) | Projected Illuminance (fc) |
|----------------------|----------------------|---------------------------------|----------------------------|
| 2                    | 1.83                 | 1.81                            | 8051.1                     |
| 4                    | 3.66                 | 3.62                            | 2012.8                     |
| 6                    | 5.49                 | 5.44                            | 894.6                      |
| 8                    | 7.32                 | 7.25                            | 503.2                      |
| 10                   | 9.15                 | 9.06                            | 322.0                      |
| 12                   | 10.98                | 10.87                           | 223.6                      |
| 14                   | 12.81                | 12.68                           | 164.3                      |
| 16                   | 14.64                | 14.50                           | 125.8                      |
| 18                   | 16.47                | 16.31                           | 99.4                       |
| 20                   | 18.30                | 18.12                           | 80.5                       |



**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.  
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 Lighting Division

Test Report Reviewed and Approved By:

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 Dialight Optics Laboratory  
 Optical Engineer  
 Approved Signatory