

# PURE EDGE LIGHTING

## TEST REPORT

### SCOPE OF WORK

LED Performance Testing

### MODEL NUMBER

LS3-24V-3-27KZ

### PROJECT NUMBER

G104797632

### REPORT NUMBER

104797632CHI-010

### ISSUE DATE

5/20/2022

### REVISED DATE

None

### TEST DATES

2022-05-11 through 2022-05-17.

### DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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**REPORT NUMBER**

104797632CHI-010

**MODEL NUMBER(s)**

LS3-24V-3-27KZ

**REPORT RENDERED TO:**

PURE EDGE LIGHTING  
1718 WEST FULLERTON AVE  
CHICAGO, IL 60614  
USA

**STATEMENT OF LIMITATION**

NVLAP Lab Code 600186-0. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

**AUTHORIZATION**

The testing performed was authorized by signed quote number Qu-01199885-2.

**TEST STANDARDS**

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

ANSI/IES LM-79-19 Optical and Electrical Measurements of Solid-State Lighting Products

ANSI NEMA ANSLG C78.377: 2017: Specifications for the Chromaticity of Solid State Lighting (SSL) Products

IES TM-30-18: IES Method for Evaluating Light Source Color Rendition

In Charge of Testing:



Maximilian Carvajal  
Engineer  
Lighting Division

Reviewer:



Jeff Davis  
N.A. Technical Lead  
Lighting Division

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## SAMPLE INFORMATION

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## ITEMS RECEIVED

| Item No. | Control No.      | Model No.      | Description        | Type      | Received  |
|----------|------------------|----------------|--------------------|-----------|-----------|
| 1        | AH04282022112833 | LS3-24V-3-27KZ | LINEAR STRIP LIGHT | Prototype | 4/28/2022 |

## TESTED SAMPLE CONFIGURATIONS

| Config No. | Tested Model No. | Item Nos. Utilized |
|------------|------------------|--------------------|
| 1          | LS3-24V-3-27KZ   | 1                  |

## SAMPLE PHOTOS - TESTED CONFIGURATIONS



## SUMMARY

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### PRODUCT INFORMATION AND SUMMARY OF DATA

|                      |                     |
|----------------------|---------------------|
| Product Model No.:   | LS3-24V-3-27KZ      |
| Product Description: | LINEAR STRIP LIGHT  |
| LED Model No.:       | EASING HOME 4MM COB |
| Driver Model No.:    | DR-24V-1100-33D     |
| Light Source:        | LED                 |

| Criteria                            | Results         |                    |
|-------------------------------------|-----------------|--------------------|
|                                     | Goniophotometer | Integrating Sphere |
| Light Output (lumens)               | 807.0           | 776.0              |
| Input Power (W) @ 120V (Vac)        | 13.52           | 13.66              |
| Lumen Efficacy (lm/W)               | 59.7            | 56.8               |
| Input Power Factor ( ) @ 120V (Vac) | 0.973           | 0.974              |

| Criteria                         | Results |
|----------------------------------|---------|
| Input ATHD (%) @ 120V (Vac)      | 14.70   |
| Correlated Color Temperature (K) | 2833    |
| Color Rendering Index - Ra ( )   | 93.5    |
| Color Rendering Index - R9 ( )   | 62.8    |
| Duv ( )                          | -0.0002 |
| Chromaticity Coordinate (x)      | 0.449   |
| Chromaticity Coordinate (y)      | 0.407   |
| Chromaticity Coordinate (u')     | 0.257   |
| Chromaticity Coordinate (v')     | 0.524   |

### TEST METHODS

#### SEASONING IN SAMPLE ORIENTATION - LED PRODUCTS

No seasoning was performed in accordance with IESNA LM-79.

#### INTEGRATING SPHERE TESTING

A spectroradiometer and integrating sphere were used to measure the spectral distribution for each EUT resulting in photometric and colorimetric data. Electrical measurements of the unit were measured using a power analyzer. Each EUT was operated at the rated input voltage of the system in its designated orientation. The ambient temperature was measured at a position inside the sphere and stabilization procedures to LM-79 were followed.

#### TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

A Type C Mirror Goniophotometer system was used to measure the luminous intensity (candela) at each angle of distribution for the EUT. Electrical measurements of the unit were measured using a power analyzer. Each EUT was operated at the rated input voltage of the system in its designated orientation. The ambient temperature was measured at a position near the EUT at equal height and stabilization procedures to LM-79 were followed.

**TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING**

**REPORT NO. 104797632CHI-010**

| Test Configuration | Tested Model No. | Pass/Fail/NA |
|--------------------|------------------|--------------|
| 1                  | LS3-24V-3-27KZ   | NA           |

**PHOTOMETRIC AND ELECTRICAL MEASUREMENTS (25°C +/- 1°C)**

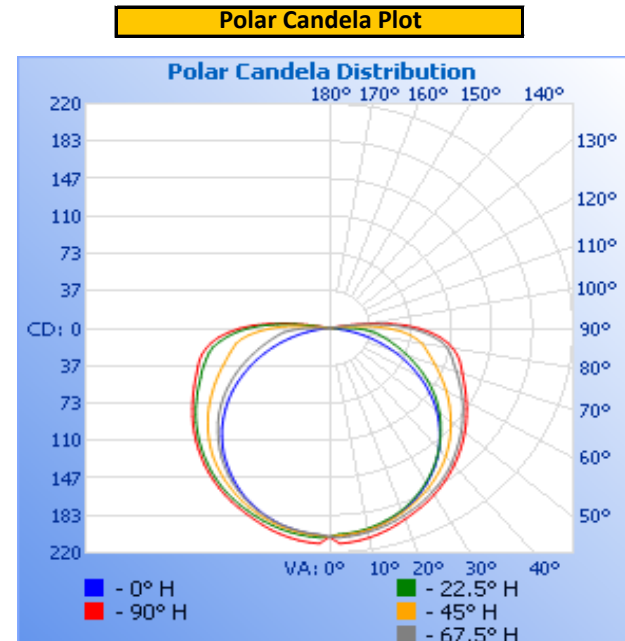
| Base Orientation | Input Voltage (Vac) | Input Current (mA) | Input Power (W) | Input Power Factor (I) |
|------------------|---------------------|--------------------|-----------------|------------------------|
| Up               | 120.01              | 115.7              | 13.52           | 0.973                  |

| Light Output (lm) | Lumen Efficacy (lm/W) |
|-------------------|-----------------------|
| 807.0             | 59.7                  |

**INTENSITY SUMMARY - CANDELA**

| Angle | 0     | 22.5  | 45    | 67.5  | 90    |
|-------|-------|-------|-------|-------|-------|
| 0     | 204.4 | 204.4 | 204.4 | 204.4 | 204.4 |
| 5     | 202.5 | 201.3 | 202.5 | 204.6 | 210.5 |
| 10    | 200.4 | 199.1 | 200.5 | 202.7 | 208.1 |
| 15    | 196.4 | 195.1 | 197.0 | 199.6 | 204.3 |
| 20    | 191.0 | 189.8 | 192.2 | 195.3 | 199.1 |
| 25    | 184.0 | 182.8 | 186.4 | 190.8 | 194.0 |
| 30    | 175.4 | 174.3 | 179.6 | 185.4 | 188.5 |
| 35    | 165.5 | 164.8 | 172.0 | 179.0 | 182.1 |
| 40    | 153.9 | 153.8 | 163.4 | 171.8 | 175.1 |
| 45    | 140.7 | 142.1 | 153.7 | 163.6 | 167.3 |
| 50    | 126.8 | 129.8 | 142.9 | 155.4 | 159.2 |
| 55    | 110.7 | 116.6 | 132.3 | 146.9 | 150.9 |
| 60    | 93.7  | 102.3 | 121.6 | 138.6 | 142.7 |
| 65    | 76.4  | 87.5  | 110.8 | 129.8 | 134.7 |
| 70    | 58.0  | 73.4  | 100.9 | 121.9 | 127.6 |
| 75    | 40.6  | 60.6  | 92.2  | 114.8 | 121.6 |
| 80    | 23.8  | 49.5  | 84.7  | 107.5 | 113.2 |
| 85    | 9.7   | 40.1  | 72.9  | 94.3  | 100.4 |
| 90    | 0.8   | 24.1  | 53.9  | 74.2  | 81.3  |
| 95    | 0.4   | 3.2   | 28.2  | 47.0  | 53.7  |
| 100   | 0.4   | 0.5   | 3.1   | 15.4  | 21.1  |
| 105   | 0.4   | 0.5   | 0.5   | 1.3   | 2.1   |
| 110   | 0.4   | 0.4   | 0.4   | 0.4   | 0.4   |
| 115   | 0.4   | 0.4   | 0.4   | 0.3   | 0.3   |
| 120   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 125   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 130   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 135   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 140   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 145   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 150   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 155   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 160   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 165   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 170   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 175   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 180   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

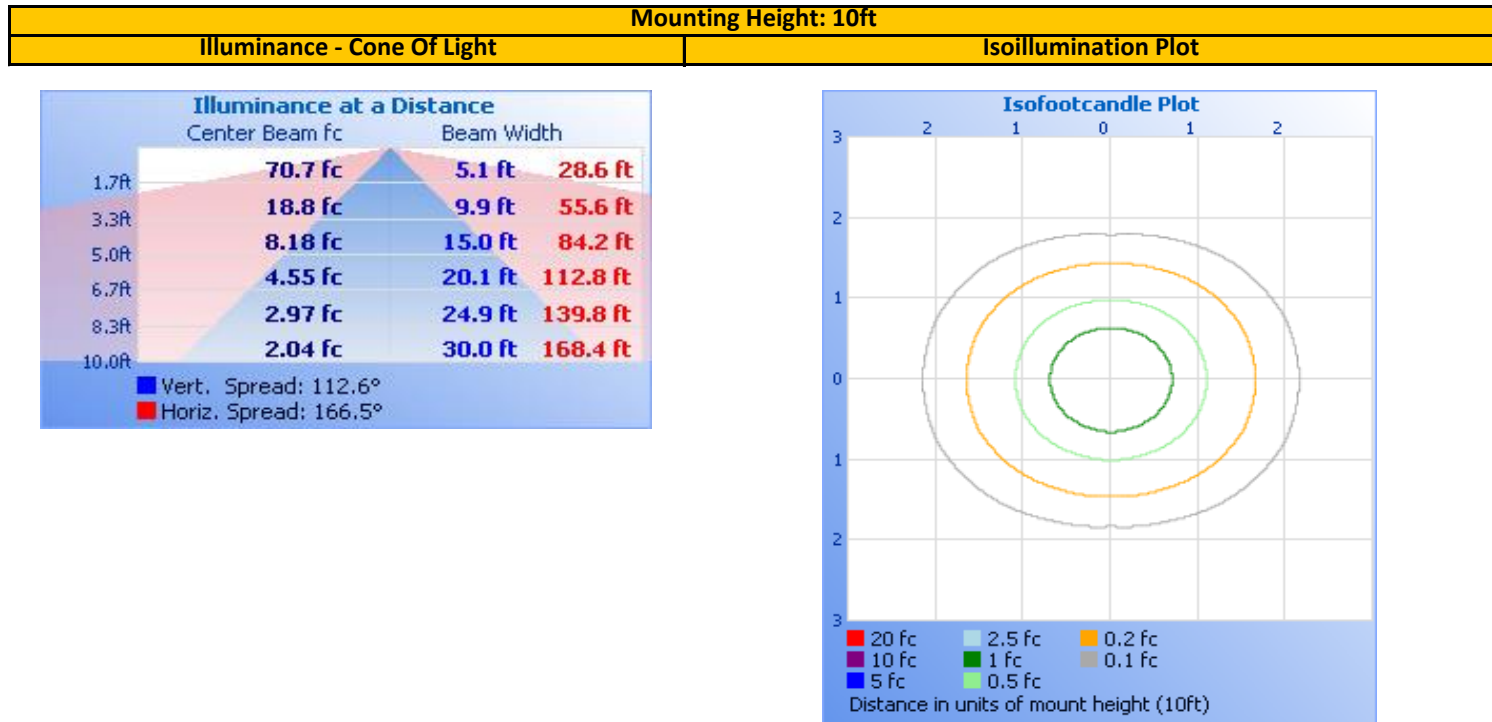
Entire luminous intensity matrix found in .IES file





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ILLUMINANCE SUMMARY



ZONAL LUMENS

| Zonal Lumen Summary |  |  |  |  |  |
|---------------------|--|--|--|--|--|
|---------------------|--|--|--|--|--|

| Zone   | Lumens | Luminaire | Zone    | Lumens | Total |
|--------|--------|-----------|---------|--------|-------|
| 0-30   | 161.6  | 20.0%     | 0-10    | 19.4   | 2.4%  |
| 0-40   | 269.5  | 33.4%     | 10-20   | 55.9   | 6.9%  |
| 0-60   | 505.5  | 62.6%     | 20-30   | 86.3   | 10.7% |
| 60-90  | 269.7  | 33.4%     | 30-40   | 107.9  | 13.4% |
| 70-100 | 191.7  | 23.8%     | 40-50   | 118.4  | 14.7% |
| 90-120 | 31.8   | 3.9%      | 50-60   | 117.7  | 14.6% |
| 0-90   | 775.2  | 96.1%     | 60-70   | 107.4  | 13.3% |
| 90-180 | 31.8   | 3.9%      | 70-80   | 92.2   | 11.4% |
| 0-180  | 807.0  | 100.0%    | 80-90   | 70.1   | 8.7%  |
|        |        |           | 90-100  | 29.4   | 3.6%  |
|        |        |           | 100-110 | 2.0    | 0.3%  |
|        |        |           | 110-120 | 0.3    | 0.0%  |
|        |        |           | 120-130 | 0.0    | 0.0%  |
|        |        |           | 130-140 | 0.0    | 0.0%  |
|        |        |           | 140-150 | 0.0    | 0.0%  |
|        |        |           | 150-160 | 0.0    | 0.0%  |
|        |        |           | 160-170 | 0.0    | 0.0%  |
|        |        |           | 170-180 | 0.0    | 0.0%  |

**INTEGRATING SPHERE TESTING**

**REPORT NO. 104797632CHI-010**

| Test Configuration | Tested Model No. | Pass/Fail/NA |
|--------------------|------------------|--------------|
| 1                  | LS3-24V-3-27KZ   | NA           |

**PHOTOMETRIC, COLORIMETRIC, AND ELECTRICAL MEASUREMENTS (25°C +/- 1°C)**

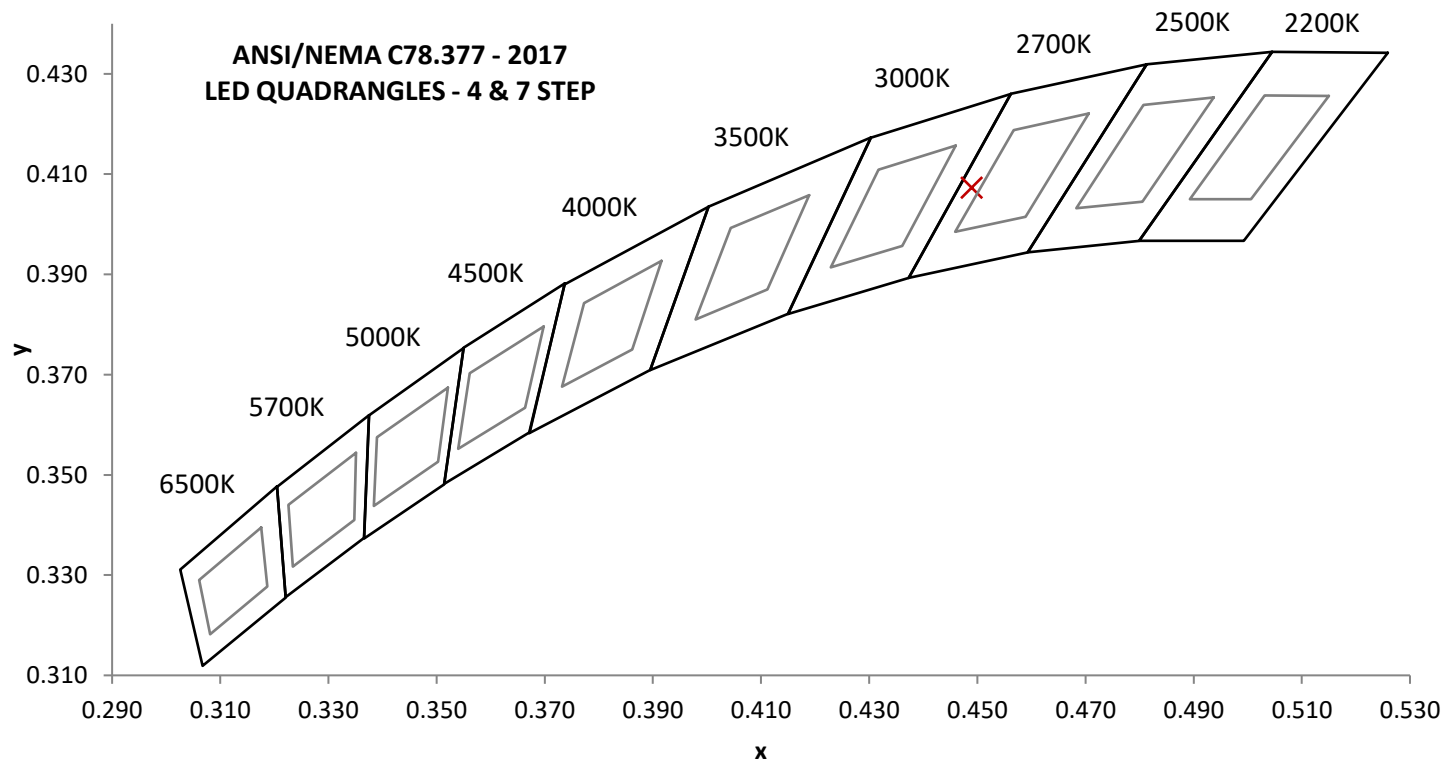
| Base Orientation |
|------------------|
| Up               |

| Input Voltage (Vac) | Input Current (mA) | Input Power (W) | Input Power Factor (l) | Input ATHD (%) |
|---------------------|--------------------|-----------------|------------------------|----------------|
| 120.01              | 116.9              | 13.66           | 0.974                  | 14.70          |

**Measured at 120.01(Vac)**

| Light Output (lm) | Lumen Efficacy (lm/W) | CCT (K) | CRI - Ra (l) | CRI - R9 (l) |
|-------------------|-----------------------|---------|--------------|--------------|
| 776.0             | 56.8                  | 2833    | 93.5         | 62.8         |

| Duv (l) | 1931 Chrom (x) | 1931 Chrom (y) | 1976 Chrom (u') | 1976 Chrom (v') |
|---------|----------------|----------------|-----------------|-----------------|
| -0.0002 | 0.449          | 0.407          | 0.257           | 0.524           |

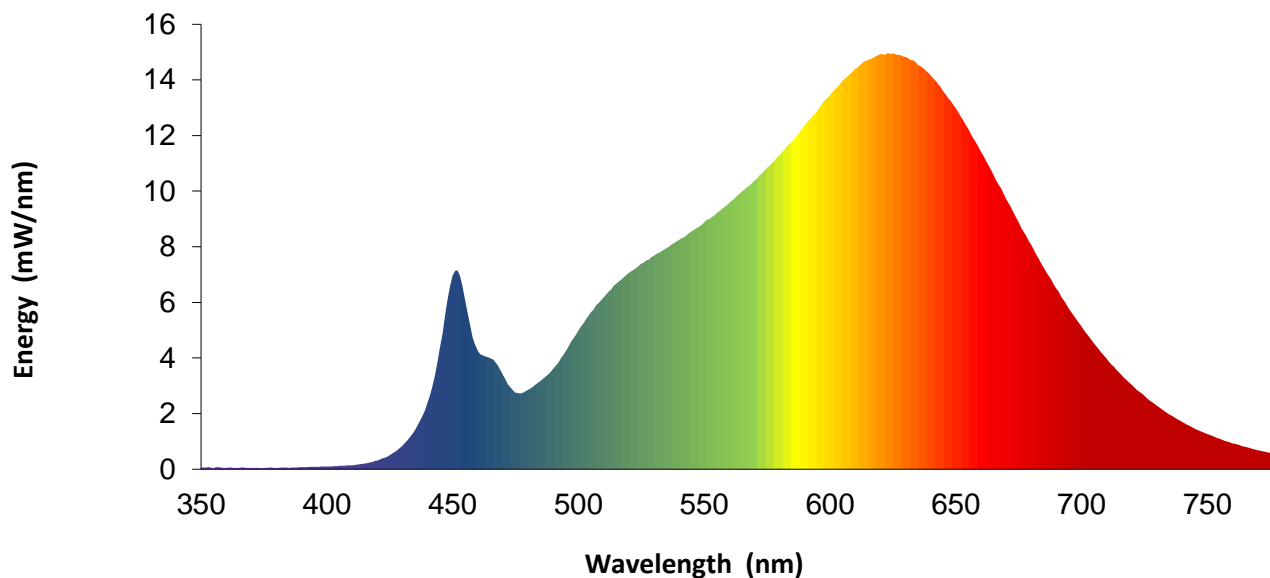


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

| nm  | mW/nm |  | nm  | mW/nm |  | nm  | mW/nm |  | nm  | mW/nm |
|-----|-------|--|-----|-------|--|-----|-------|--|-----|-------|
| 350 | 0.1   |  | 460 | 4.3   |  | 570 | 10.4  |  | 680 | 8.1   |
| 355 | 0.0   |  | 465 | 4.0   |  | 575 | 10.8  |  | 685 | 7.3   |
| 360 | 0.1   |  | 470 | 3.4   |  | 580 | 11.3  |  | 690 | 6.5   |
| 365 | 0.1   |  | 475 | 2.7   |  | 585 | 11.8  |  | 695 | 5.8   |
| 370 | 0.1   |  | 480 | 2.9   |  | 590 | 12.4  |  | 700 | 5.1   |
| 375 | 0.0   |  | 485 | 3.2   |  | 595 | 12.9  |  | 705 | 4.5   |
| 380 | 0.1   |  | 490 | 3.6   |  | 600 | 13.5  |  | 710 | 4.0   |
| 385 | 0.0   |  | 495 | 4.2   |  | 605 | 14.0  |  | 715 | 3.5   |
| 390 | 0.1   |  | 500 | 5.0   |  | 610 | 14.4  |  | 720 | 3.0   |
| 395 | 0.1   |  | 505 | 5.6   |  | 615 | 14.7  |  | 725 | 2.6   |
| 400 | 0.1   |  | 510 | 6.2   |  | 620 | 14.9  |  | 730 | 2.3   |
| 405 | 0.1   |  | 515 | 6.7   |  | 625 | 15.0  |  | 735 | 2.0   |
| 410 | 0.1   |  | 520 | 7.1   |  | 630 | 14.8  |  | 740 | 1.7   |
| 415 | 0.2   |  | 525 | 7.4   |  | 635 | 14.5  |  | 745 | 1.5   |
| 420 | 0.3   |  | 530 | 7.7   |  | 640 | 14.2  |  | 750 | 1.3   |
| 425 | 0.5   |  | 535 | 7.9   |  | 645 | 13.6  |  | 755 | 1.1   |
| 430 | 0.8   |  | 540 | 8.2   |  | 650 | 13.0  |  | 760 | 0.9   |
| 435 | 1.4   |  | 545 | 8.6   |  | 655 | 12.3  |  | 765 | 0.8   |
| 440 | 2.4   |  | 550 | 8.9   |  | 660 | 11.4  |  | 770 | 0.7   |
| 445 | 4.4   |  | 555 | 9.2   |  | 665 | 10.6  |  | 775 | 0.6   |
| 450 | 7.0   |  | 560 | 9.6   |  | 670 | 9.7   |  | 780 | 0.5   |
| 455 | 6.1   |  | 565 | 10.0  |  | 675 | 8.9   |  | --- | ---   |

Without correction of sample absorption.



Portrayed color in graphic is estimated by wavelength (nm) and may not be exact - it is a visual representation only



## EQUIPMENT LIST

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| #  | Equipment                        | Model No | Control No. | Last Cal  | Cal Due   |
|----|----------------------------------|----------|-------------|-----------|-----------|
| 1  | Yokogawa Power Meter             | WT310E   | CHI0664     | 3/30/2022 | 3/30/2023 |
| 2  | Omega Thermometer                | DPI8-C24 | 146920      | 10/4/2021 | 10/4/2022 |
| 3  | LSI High Speed Mirror Goniometer | 6440T    | 146928      | VBU       | VBU       |
| 4  | Newport Thermohygrometer         | iServer  | CHI0452     | 2/3/2022  | 2/3/2023  |
| 5  | Chroma Power Supply              | 61604    | CHI0371     | VBU       | VBU       |
| 8  | Newport Humidity Recorder        | iServer  | 146961      | 9/21/2021 | 9/21/2022 |
| 9  | Labsphere Spectroradiometer      | CDS2600  | CHI0539     | VBU       | VBU       |
| 10 | 3 Meter Sphere                   | SPR600   | CHI0088     | VBU       | VBU       |
| 11 | Elgar AC Power Supply            | CW1251   | 146112      | VBU       | VBU       |
| 12 | Sorenson DC Power Supply         | XFR150-8 | 146846      | VBU       | VBU       |
| 13 | Yokogawa Power Meter             | WT1600   | 146767      | 4/4/2022  | 4/4/2023  |
| 17 | Omega thermometer                | USB TC08 | EQA002615   | 4/5/2022  | 4/5/2023  |
| 26 | Xitron Power Analyzer            | XT-2640  | CHI0611     | 6/9/2021  | 6/9/2022  |

Note: Standard sources listed above are traceable to NIST: National Institute of Standards and Technology

## REVISION HISTORY

| #   | Revision Date | Updated By | Reviewed By | Description of Change |
|-----|---------------|------------|-------------|-----------------------|
| --- | None          | ---        | ---         | ---                   |
| --- | ---           | ---        | ---         | ---                   |
| --- | ---           | ---        | ---         | ---                   |

| Test Configuration | Tested Model No. | Pass/Fail/NA |
|--------------------|------------------|--------------|
| 1                  | LS3-24V-3-27KZ   | NA           |

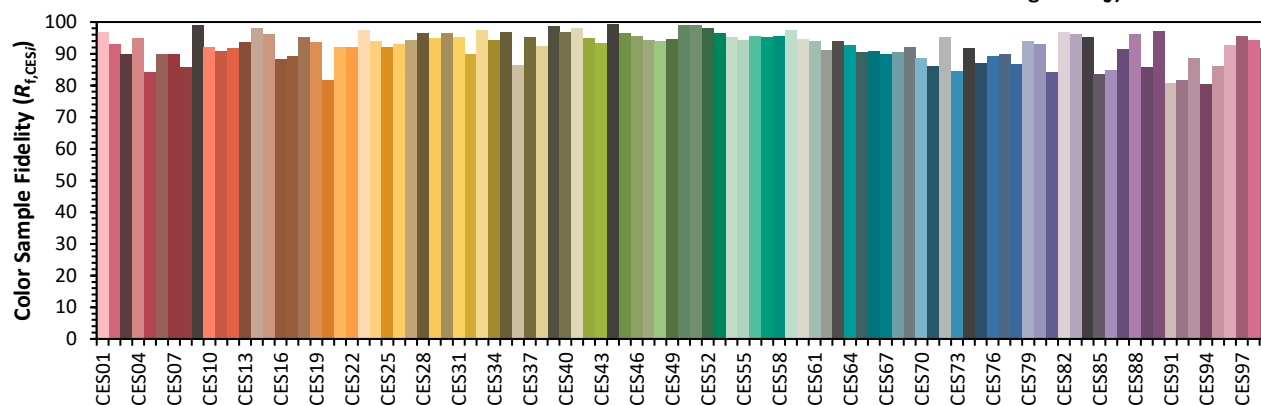
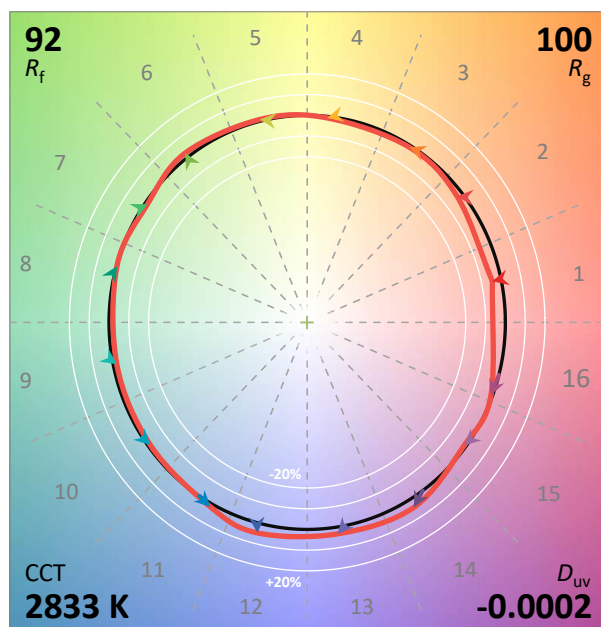
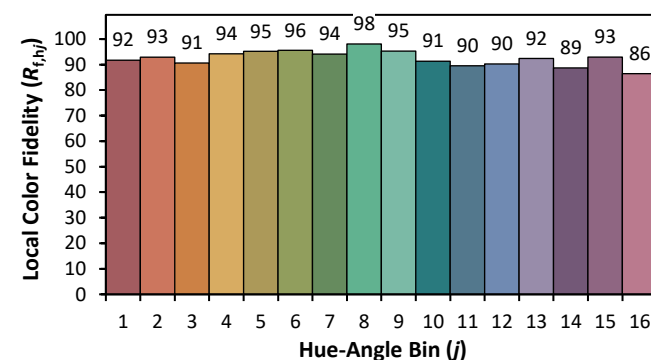
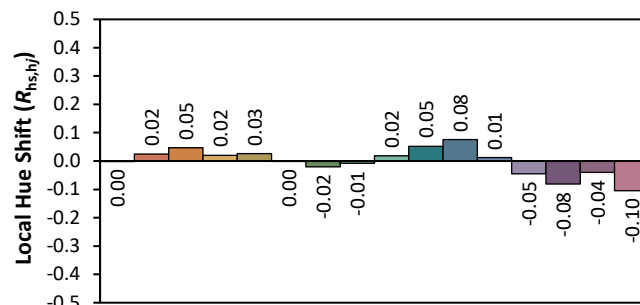
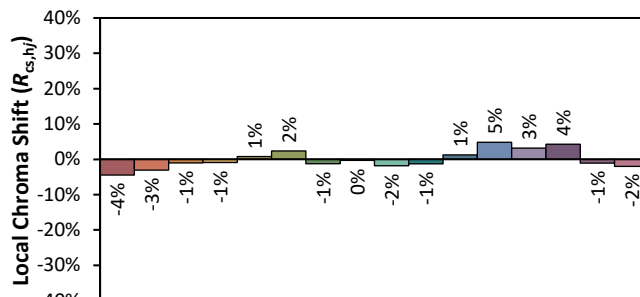
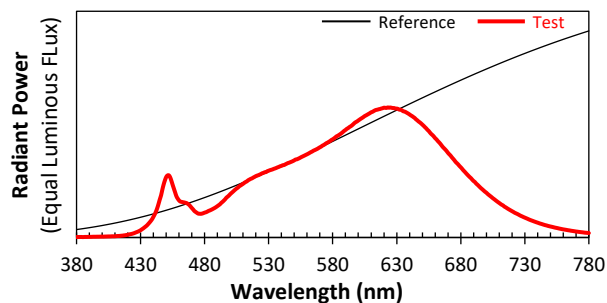
## ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Pure Edge Lighting

Date: 5/17/2022

Model: LS3-24V-3-27KZ



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

 $x$  0.4489 $y$  0.4073 $u'$  0.2569 $v'$  0.5244