

# VISUAL COMFORT AND COMPANY TEST REPORT

## SCOPE OF WORK

LED Performance Testing

## MODEL NUMBER

700WSCLR40NB-LED930

## PROJECT NUMBER

G105408958

## REPORT NUMBER

105408985CHI-002

## ISSUE DATE

4/14/2023

## REVISED DATE

None

## TEST DATES

2023-04-12 through 2023-04-13.

## DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

© 2017 INTERTEK



**REPORT NUMBER**

105408985CHI-002

**MODEL NUMBER(s)**

700WSCLR40NB-LED930

**REPORT RENDERED TO:**

VISUAL COMFORT AND COMPANY  
7400 LINDER AVE  
SKOKIE, IL 60077  
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-01297671-0.

**TEST STANDARDS**

IES 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

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

In Charge of Testing:



David Dalo  
Engineer  
Lighting Division

Reviewer:



Jeff Davis  
NA Technical Lead  
Lighting Division

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

## SAMPLE INFORMATION

REPORT NO. 105408985CHI-002

### ITEMS RECEIVED

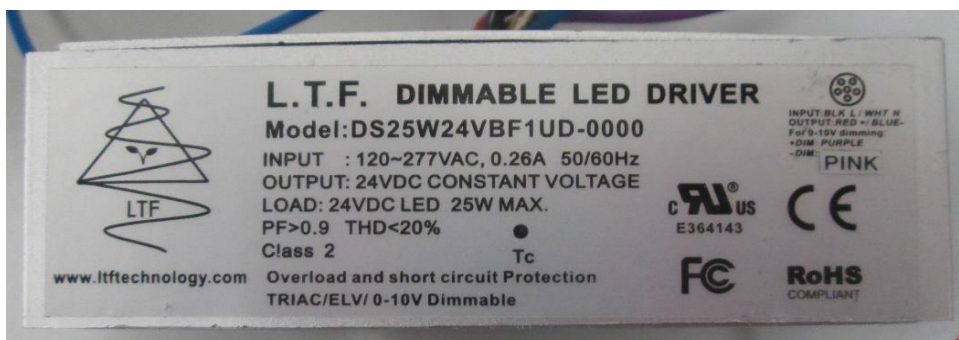
| Item No. | Control No.          | Model No.           | Description            | Type       | Received |
|----------|----------------------|---------------------|------------------------|------------|----------|
| 1        | AH04062023065219-001 | 700WSCLR40NB-LED930 | Collier 40 Wall Sconce | Production | 4/6/2023 |

### TESTED SAMPLE CONFIGURATIONS

| Config No. | Tested Model No.    | Item Nos. Utilized |
|------------|---------------------|--------------------|
| 2          | 700WSCLR40NB-LED930 | 1                  |

### SAMPLE PHOTOS - TESTED CONFIGURATIONS

Distribution was performed with below orientation and crystals aligned



## SUMMARY

REPORT NO. 105408985CHI-002

### PRODUCT INFORMATION AND SUMMARY OF DATA

|                      |                                           |
|----------------------|-------------------------------------------|
| Product Model No.:   | 700WSCLR40NB-LED930                       |
| Product Description: | Collier 40 Wall Sconce                    |
| LED Model No.:       | AA3965-01-0x (Samsung SPMWH12245Q7W8WMSA) |
| Driver Model No.:    | DS25W24VBF1UD-0000 (AA7580)               |
| Light Source:        | LED                                       |

| Criteria                           | Results         |                    |
|------------------------------------|-----------------|--------------------|
|                                    | Goniophotometer | Integrating Sphere |
| Light Output (lumens)              | 740.6           | 716.9              |
| Input Power (W) @ 120 (Vac)        | 13.30           | 13.23              |
| Lumen Efficacy (lm/W)              | 55.7            | 54.2               |
| Input Power Factor ( ) @ 120 (Vac) | 0.963           | 0.965              |

| Criteria                         | Results |
|----------------------------------|---------|
| Input ATHD (%) @ 120 (Vac)       | 13.02   |
| Correlated Color Temperature (K) | 3008    |
| Color Rendering Index - Ra ( )   | 91.9    |
| Color Rendering Index - R9 ( )   | 52.9    |
| Duv ( )                          | -0.0009 |
| Chromaticity Coordinate (x)      | 0.435   |
| Chromaticity Coordinate (y)      | 0.401   |
| Chromaticity Coordinate (u')     | 0.251   |
| Chromaticity Coordinate (v')     | 0.520   |

## 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.

\*ANSI/IES Technical Memorandums (TM) reported are not NVLAP accredited

**TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING**

**REPORT NO. 105408985CHI-002**

| Test Configuration | Tested Model No.    | Pass/Fail/NA |
|--------------------|---------------------|--------------|
| 2                  | 700WSCLR40NB-LED930 | NA           |

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

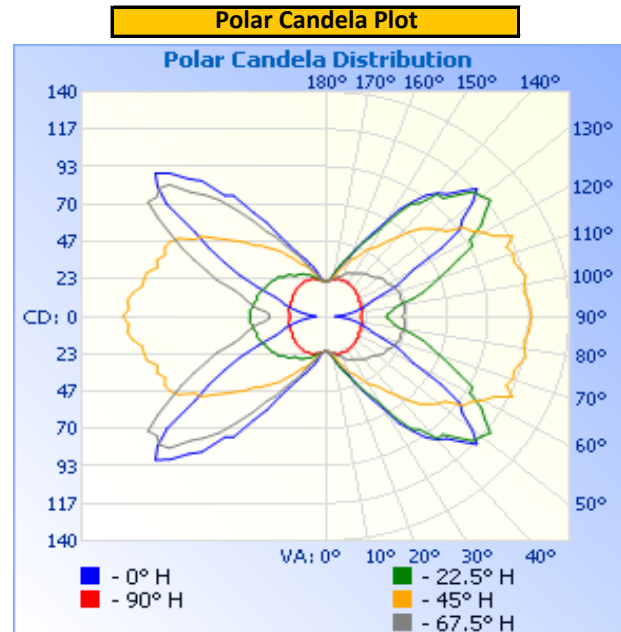
| Base Orientation | Input Voltage (Vac) | Input Current (mA) | Input Power (W) | Input Power Factor (I) |
|------------------|---------------------|--------------------|-----------------|------------------------|
| Up               | 120.01              | 115.2              | 13.30           | 0.963                  |

| Light Output (lm) | Lumen Efficacy (lm/W) |
|-------------------|-----------------------|
| 740.6             | 55.7                  |

**INTENSITY SUMMARY - CANDELA**

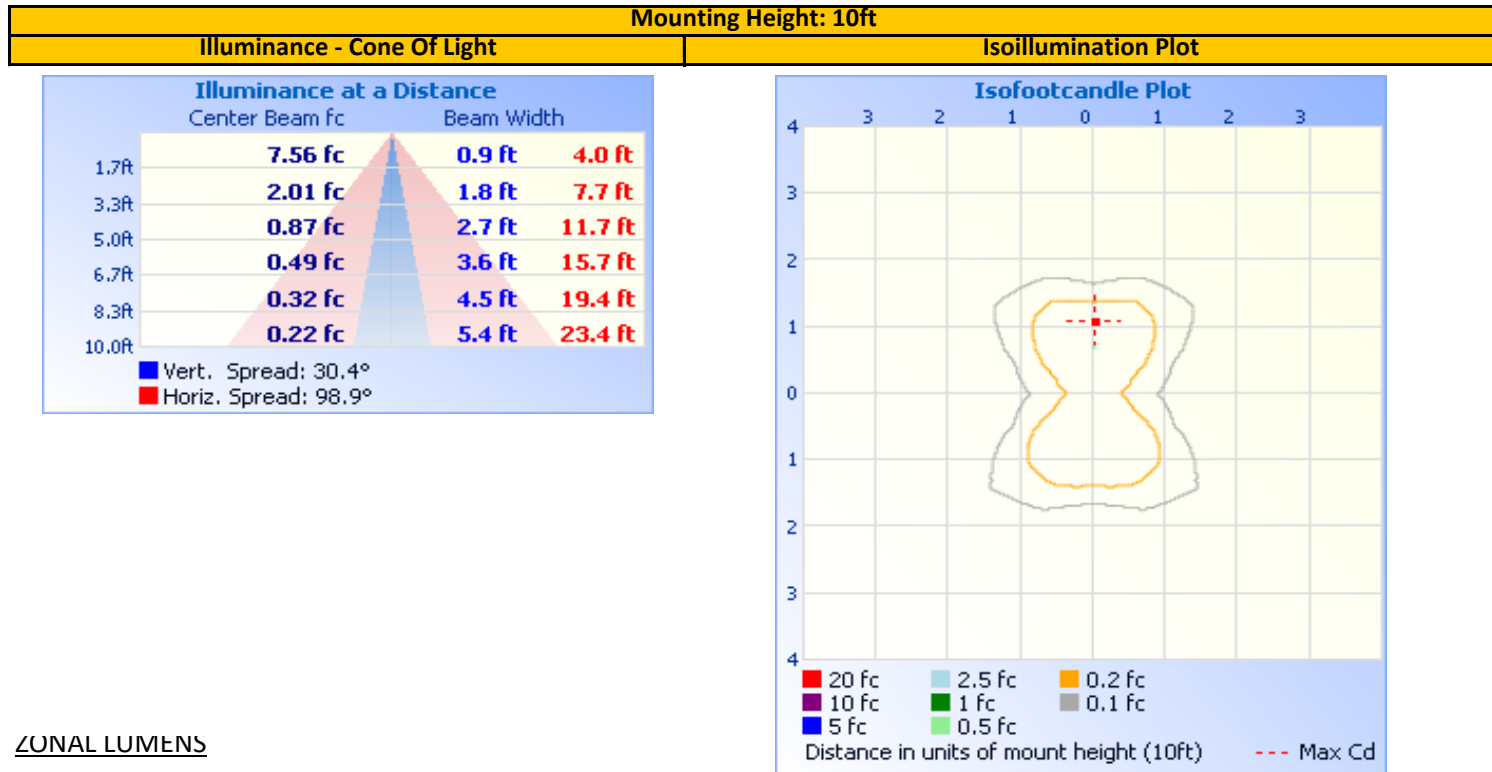
| Angle | 0   | 22.5 | 45  | 67.5 | 90 |
|-------|-----|------|-----|------|----|
| 0     | 22  | 22   | 22  | 22   | 22 |
| 5     | 23  | 22   | 22  | 22   | 22 |
| 10    | 26  | 26   | 25  | 23   | 24 |
| 15    | 33  | 33   | 30  | 25   | 24 |
| 20    | 39  | 40   | 35  | 27   | 25 |
| 25    | 51  | 50   | 40  | 30   | 25 |
| 30    | 67  | 63   | 49  | 31   | 25 |
| 35    | 87  | 86   | 54  | 33   | 24 |
| 40    | 100 | 99   | 65  | 35   | 24 |
| 45    | 110 | 107  | 78  | 36   | 24 |
| 50    | 110 | 117  | 85  | 38   | 23 |
| 55    | 94  | 112  | 97  | 41   | 23 |
| 60    | 58  | 96   | 105 | 41   | 22 |
| 65    | 45  | 84   | 119 | 44   | 22 |
| 70    | 29  | 69   | 115 | 45   | 22 |
| 75    | 23  | 58   | 115 | 44   | 21 |
| 80    | 17  | 44   | 116 | 46   | 22 |
| 85    | 11  | 38   | 117 | 46   | 21 |
| 90    | 5   | 35   | 118 | 44   | 20 |
| 95    | 11  | 38   | 117 | 46   | 21 |
| 100   | 17  | 44   | 116 | 46   | 22 |
| 105   | 23  | 58   | 115 | 44   | 21 |
| 110   | 29  | 69   | 115 | 45   | 22 |
| 115   | 45  | 84   | 119 | 44   | 22 |
| 120   | 58  | 96   | 105 | 41   | 22 |
| 125   | 94  | 112  | 97  | 41   | 23 |
| 130   | 110 | 117  | 85  | 38   | 23 |
| 135   | 110 | 107  | 78  | 36   | 24 |
| 140   | 100 | 99   | 65  | 35   | 24 |
| 145   | 87  | 86   | 54  | 33   | 24 |
| 150   | 67  | 63   | 49  | 31   | 25 |
| 155   | 51  | 50   | 40  | 30   | 25 |
| 160   | 39  | 40   | 35  | 27   | 25 |
| 165   | 33  | 33   | 30  | 25   | 24 |
| 170   | 26  | 26   | 25  | 23   | 24 |
| 175   | 23  | 22   | 22  | 22   | 22 |
| 180   | 22  | 22   | 22  | 22   | 22 |

Entire luminous intensity matrix found in .IES file



REPORT NO. 105408985CHI-002

ILLUMINANCE SUMMARY



ZONAL LUMENS

| Zonal Lumen Summary |        |           |         |        |       |
|---------------------|--------|-----------|---------|--------|-------|
| Zone                | Lumens | Luminaire | Zone    | Lumens | Total |
| 0-30                | 28.6   | 3.9%      | 90-100  | 57.8   | 7.8%  |
| 0-40                | 63.3   | 8.5%      | 100-110 | 60.7   | 8.2%  |
| 0-60                | 186.2  | 25.1%     | 110-120 | 65.7   | 8.9%  |
| 60-90               | 184.1  | 24.9%     | 120-130 | 67.5   | 9.1%  |
| 70-100              | 176.2  | 23.8%     | 130-140 | 55.4   | 7.5%  |
| 90-120              | 184.1  | 24.9%     | 140-150 | 34.6   | 4.7%  |
| 0-90                | 370.3  | 50.0%     | 150-160 | 18.1   | 2.4%  |
| 90-180              | 370.3  | 50.0%     | 160-170 | 8.3    | 1.1%  |
| 0-180               | 740.6  | 100.0%    | 170-180 | 2.2    | 0.3%  |

**INTEGRATING SPHERE TESTING**

**REPORT NO. 105408985CHI-002**

| Test Configuration | Tested Model No.    | Pass/Fail/NA |
|--------------------|---------------------|--------------|
| 2                  | 700WSCLR40NB-LED930 | NA           |

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

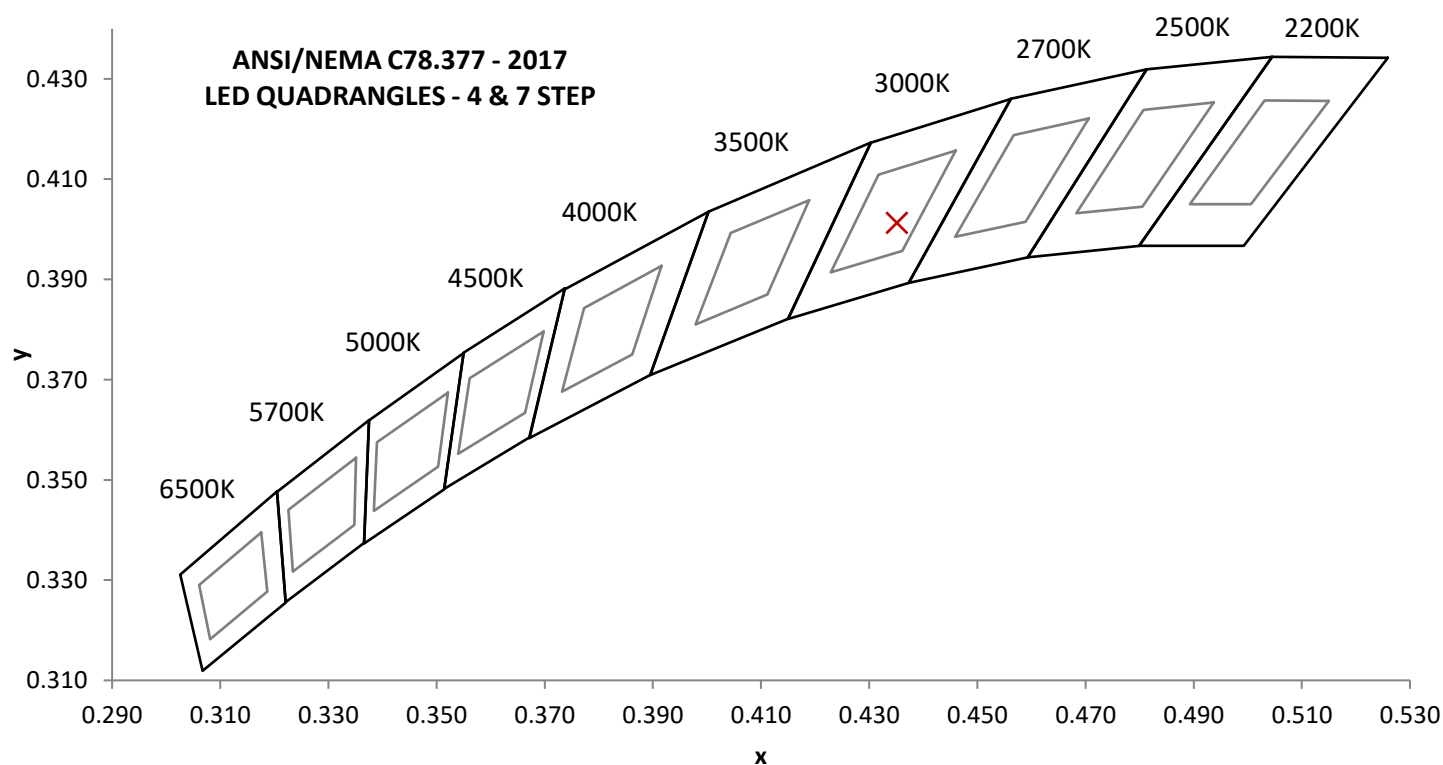
| Base Orientation |
|------------------|
| Up               |

| Input Voltage (Vac) | Input Current (mA) | Input Power (W) | Input Power Factor (I) | Input ATHD (%) |
|---------------------|--------------------|-----------------|------------------------|----------------|
| 119.99              | 114.3              | 13.23           | 0.965                  | 13.02          |

Measured at 119.99(Vac)

| Light Output (lm) | Lumen Efficacy (lm/W) | CCT (K) | CRI - Ra (I) | CRI - R9 (I) |
|-------------------|-----------------------|---------|--------------|--------------|
| 716.9             | 54.2                  | 3008    | 91.9         | 52.9         |

| Duv (I) | 1931 Chrom (x) | 1931 Chrom (y) | 1976 Chrom (u') | 1976 Chrom (v') |
|---------|----------------|----------------|-----------------|-----------------|
| -0.0009 | 0.435          | 0.401          | 0.251           | 0.520           |

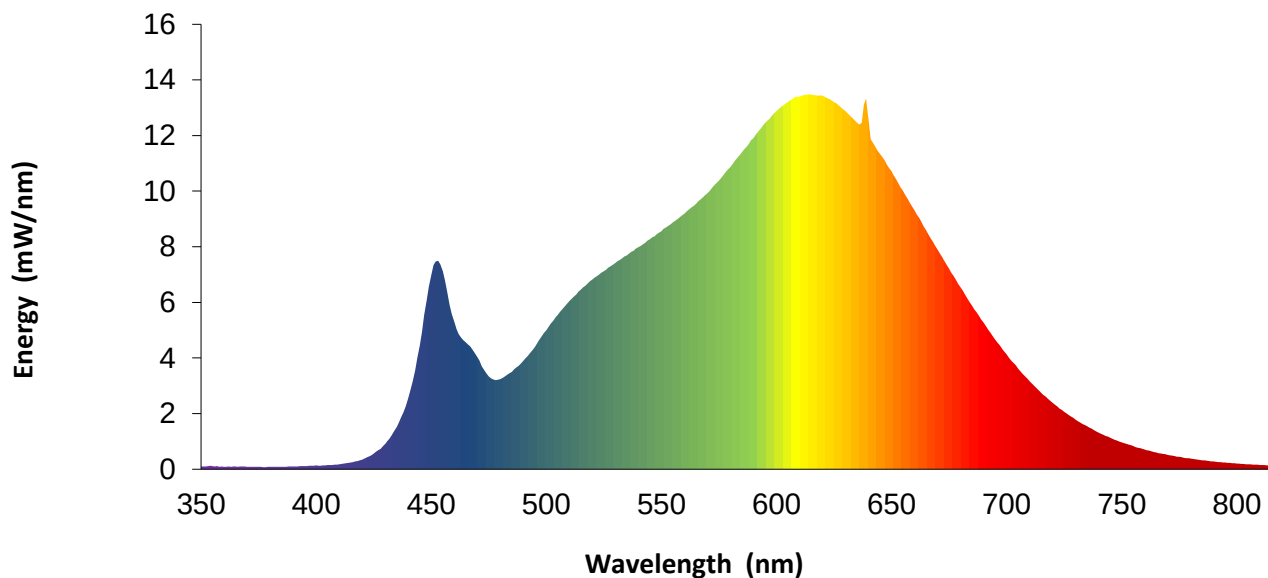


REPORT NO. 105408985CHI-002

SPECTRAL DISTRIBUTION OVER WAVELENGTHS

| nm  | mW/nm |  | nm  | mW/nm |  | nm  | mW/nm |  | nm  | mW/nm |
|-----|-------|--|-----|-------|--|-----|-------|--|-----|-------|
| 350 | 0.1   |  | 460 | 5.3   |  | 570 | 9.9   |  | 680 | 6.5   |
| 355 | 0.1   |  | 465 | 4.6   |  | 575 | 10.4  |  | 685 | 5.9   |
| 360 | 0.1   |  | 470 | 4.0   |  | 580 | 10.9  |  | 690 | 5.3   |
| 365 | 0.1   |  | 475 | 3.3   |  | 585 | 11.4  |  | 695 | 4.7   |
| 370 | 0.1   |  | 480 | 3.2   |  | 590 | 11.9  |  | 700 | 4.1   |
| 375 | 0.1   |  | 485 | 3.5   |  | 595 | 12.4  |  | 705 | 3.6   |
| 380 | 0.1   |  | 490 | 3.9   |  | 600 | 12.9  |  | 710 | 3.2   |
| 385 | 0.1   |  | 495 | 4.4   |  | 605 | 13.2  |  | 715 | 2.8   |
| 390 | 0.1   |  | 500 | 5.0   |  | 610 | 13.4  |  | 720 | 2.4   |
| 395 | 0.1   |  | 505 | 5.6   |  | 615 | 13.5  |  | 725 | 2.1   |
| 400 | 0.1   |  | 510 | 6.0   |  | 620 | 13.4  |  | 730 | 1.8   |
| 405 | 0.1   |  | 515 | 6.5   |  | 625 | 13.2  |  | 735 | 1.5   |
| 410 | 0.2   |  | 520 | 6.8   |  | 630 | 12.9  |  | 740 | 1.3   |
| 415 | 0.2   |  | 525 | 7.1   |  | 635 | 12.5  |  | 745 | 1.1   |
| 420 | 0.4   |  | 530 | 7.4   |  | 640 | 12.6  |  | 750 | 1.0   |
| 425 | 0.6   |  | 535 | 7.7   |  | 645 | 11.3  |  | 755 | 0.8   |
| 430 | 0.9   |  | 540 | 8.0   |  | 650 | 10.7  |  | 760 | 0.7   |
| 435 | 1.5   |  | 545 | 8.3   |  | 655 | 10.0  |  | 765 | 0.6   |
| 440 | 2.6   |  | 550 | 8.6   |  | 660 | 9.3   |  | 770 | 0.5   |
| 445 | 4.5   |  | 555 | 8.9   |  | 665 | 8.6   |  | 775 | 0.4   |
| 450 | 7.0   |  | 560 | 9.2   |  | 670 | 7.9   |  | 780 | 0.4   |
| 455 | 7.1   |  | 565 | 9.5   |  | 675 | 7.2   |  | --- | ---   |

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**

**REPORT NO. 105408985CHI-002**

| #  | Equipment                        | Model No             | Control No. | Last Cal  | Cal Due   |
|----|----------------------------------|----------------------|-------------|-----------|-----------|
| 1  | Yokogawa Power Meter             | WT310E               | CHI0664     | 4/3/2023  | 4/3/2024  |
| 2  | Omega Thermometer                | DPI8-C24             | 146920      | 10/4/2022 | 10/4/2023 |
| 3  | LSI High Speed Mirror Goniometer | 6440T                | 146928      | VBU       | VBU       |
| 4  | Newport Thermohygrometer         | iServer              | 146958      | 10/6/2022 | 10/6/2023 |
| 5  | Chroma Power Supply              | 61604                | CHI0371     | VBU       | VBU       |
| 6  | Sorenson DC Power Supply         | XHR 150-7            | 146922      | VBU       | VBU       |
| 7  | Multi Channel Spectroradiometer  | OL770                | CHI0092     | VBU       | VBU       |
| 8  | Omega Thermohygrometer           | OM-CP-RFPRHTEMP2000A | CHI0778     | 4/3/2023  | 4/3/2024  |
| 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      | 4/4/2023  | 4/4/2024  |
| 17 | Omega thermometer                | USB TC08             | EQAH002615  | 4/4/2023  | 4/4/2024  |
| 26 | Xitron Power Analyzer            | XT-2640              | CHI0611     | 7/6/2022  | 7/6/2023  |

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 |
|--------------------|---------------------|--------------|
| 2                  | 700WSCLR40NB-LED930 | NA           |

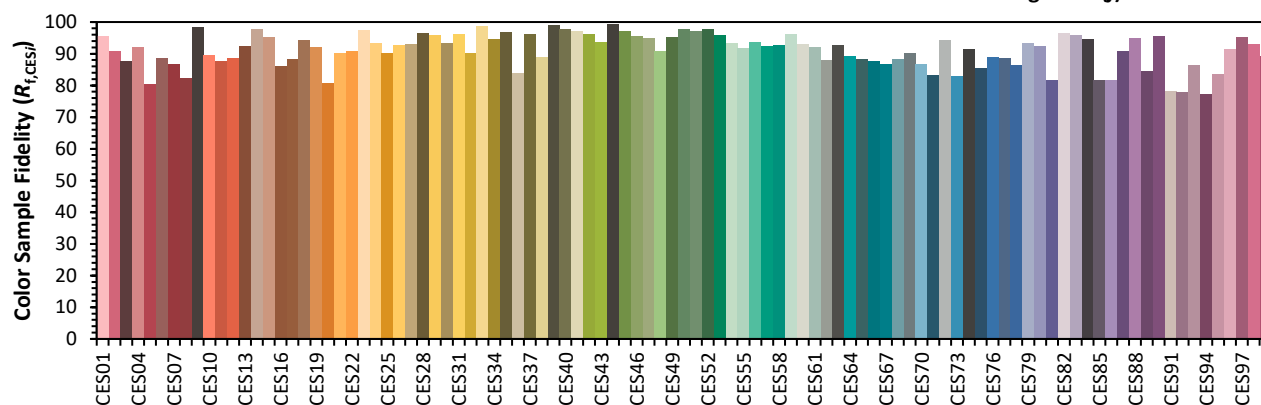
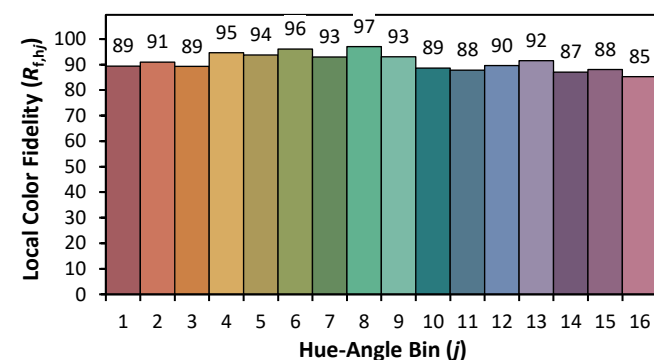
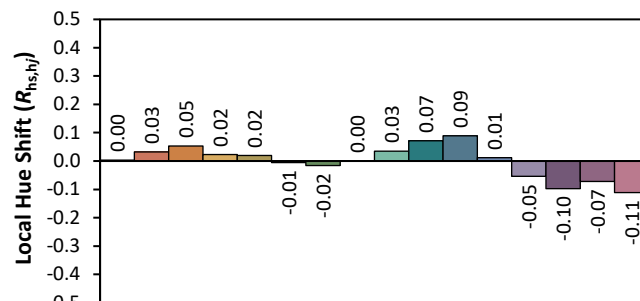
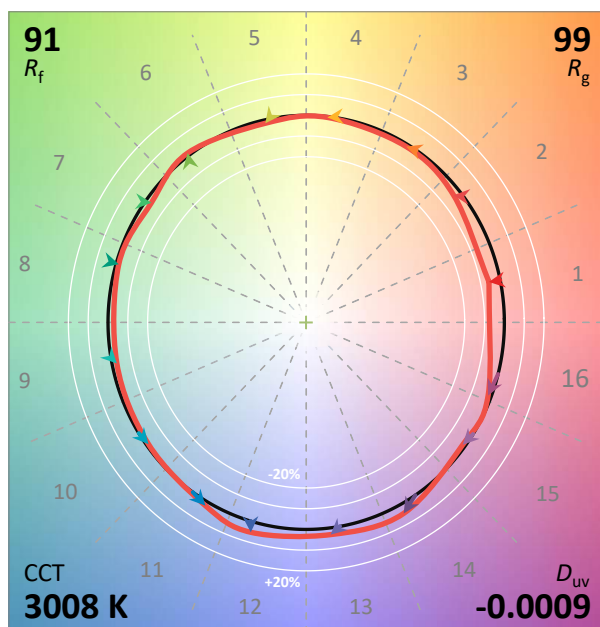
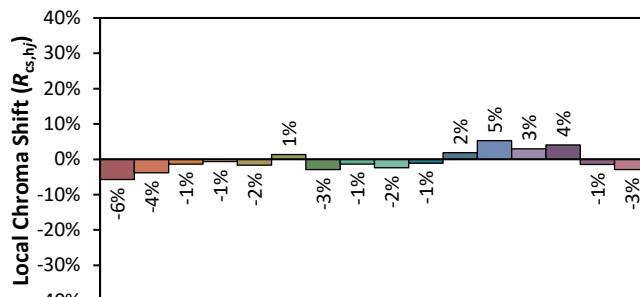
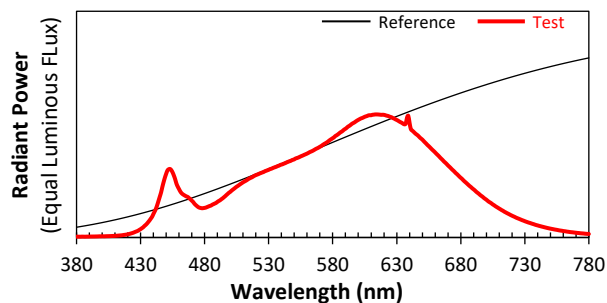
## ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: VISUAL COMFORT AND COMPANY

Date: 4/13/2023

Model: 700WSCLR40NB-LED930



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

x 0.4351

y 0.4012

u' 0.2506

v' 0.5200