Ningbo TengLi Testing Co., Ltd

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# Energy Star Test Report

For

## RAB LIGHTING INC

## (Brand Name: RAB)

170 Ludlow Ave,PO BOX 970, Northvale, NJ 07647-2305, USA

# Model name(s):
# CD1009(CD34FA6W-36-708-ZC)
# CD34FA6W-36-708-ZC

| | |
|---|---|
| **Report Type:** | Testing and Report According toENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2 |
| **Type of Luminaire:** | Outdoor Lighting-Wall Mount Luminaires |
| **Test Date:** | 2021-12-30 |
| **Report Date:** | 2022-07-05 |
| **Prepared By:** | Ningbo TengLi Testing Co., Ltd<br>2nd floor, Block B, Ningbo Testing and Certification Base, No. 66 Qingyi Road, Ningbo National Hi-Tech Zone, Ningbo, Zhejiang |

Test & Report By:

Nick Song

Engineer: Nick Song

Review By:

Garman Mo

Manager: Garman Mo

Note: 1. The results contained in this report pertain only to the tested samples.

2. This report does not imply product certification, approval, or endorsement by A2LA, or any agency of the Federal Government.

3. This report contains data that are not covered by the A2LA accreditation.

| **1.1 Product Information:** | | |
|---|---|---|
| Model Number | CD1009(CD34FA6W-36-708-ZC)<br>CD34FA6W-36-708-ZC | |
| Remark | The defult CCT setting is 3000K<br>The most consumptive CCT setting is 3000K.<br>The most ineffective CCT setting is 3000K.<br>Where * represent the color of the lamp. "*" can be K=Black,Z=Bronze,W=White<br>The model name is different and everything else is the same.<br>This is a multiple listed report, the Project Number of the original report is STD211212NB-F-R | |
| Representative (Tested) Model | CD1009(CD34FA6W-36-708-ZC)<br>CD34FA6W-36-708-ZC | |
| Model Difference | Different color of lamp enclosure.N/A | |
| SKU (if available) | N/A | |
| Type of Luminaire<br>(for integral lamps, list base type and lamp type) | Outdoor Lighting-Wall Mount Luminaires | |
| Mounting Type | Recessed | |
| Indoor/Outdoor | Outdoor | |
| LED Manufacturer | Bridgelux,Inc. | |
| LED Model | BXEM-XXE-12H-6C | |
| Dimming | Non-dimmable | |
| Sample Number | STD211212NB-F1 | |
| Date of Receipt | Dec.27,2021 | |
| Luminaire Aperture (for Downlight retrofits) | -- | in. |
| Luminaire Length | -- | mm |
| Luminaires Width | -- | mm |
| Number of Units (modular products) | N/A | s |

| **1.2 Rated Values:** | |
|---|---|
| Rated Voltage / Frequency | 120-277Vac,50/60 Hz |
| Nominal Power | 36W |
| Rated Initial Lamp Lumen | -- |
| Declared CCT | 3000K/4000K/5000K(Color tunable) |

## 1.4 Test Specifications:

| | |
|---|---|
| Test item | 1. Total Luminous Flux<br>2. Luminous Distribution Intensity<br>3. Luminous Efficacy<br>4. Correlated Color Temperature<br>5. Color Rendering Index<br>6. Chromaticity Coordinate<br>7. Electrical Parameters |
| Reference Standard | 1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products<br>2. ANSIC78.377-2015 Specifications for the Chromaticity of Solid State Lighting Products<br>3. CIE 13.3-1995 Method of Measuring andSpecifying Colour RenderingProperties of Light Sources<br>4. CIE 15-2004 Technical Report Colorimetry<br>5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source<br>6. IESNA Technical Memorandum on Light Emitting Diode (LED) Sources and Systems<br>7. ANSI/UL 1598:2008,Luminaire<br>8. IEC 62301:2011 Household Electrical Appliances – Measurement of Standby Power<br>9. NEMA 77-2017 Standard for Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria |
| Remark | Below test and data are not covered by A2LA accreditation:<br>- Operating Frequency<br>- Flicker<br>- Noise |

## 1.5 Test Methods

| |
|---|
| **1) Photometric and Light Distribution Measurement – Goniophotometer Method:**<br>Photometricparameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals. |
| **2) Chromaticity Measurement – Sphere-Spectroradiometer Method:**<br>Chromaticityparameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm. |
| **3) Electrical Measurements:**<br>Electrical parameters were measured using power meters incorporated in goniophotometeror sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at 25º C ± 1º C. The sample was operated at 120or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter. |

## 2.1Summary of Test Result

| Criteria Item | The Type of Luminaires | Requirement (ES for Luminaires V2.2) | MeasuredValue | Status |
|---|---|---|---|---|
| Input Wattage | All | ≤ Rated Wattage | 34.69W | Pass |
| Luminous Efficacy | Outdoor Lighting-Wall Mount Luminaires | ≥ 60 lm/W | 102.64lm/W | Pass |
| Luminaire Minimum Light Output | Outdoor Lighting-Wall Mount Luminaires | ≥ 300lm | 3663.2lm | Pass |
| Correlated Color Temperature(CCT) | Solid State Indoor Luminaires | Shall be capable of providing at least one of the following nominal correlated color temperatures (CCTs):<br>• 2700 Kelvin<br>• 3000 Kelvin<br>• 3500 Kelvin<br>• 4000 Kelvin<br>• 5000 Kelvin | 3159K<br>Duv=-0.0010 | Pass |
| Color Rendering Index (CRI) | Solid State Indoor Luminaires | Ra ≥ 80R9 >0 | Ra =82.5<br>R9 =3 | Pass |
| Lumen Maintenance | Solid State Option 1: | L70 lumen maintenance:<br>≥ 25,000 hours for indoor<br>≥ 35,000 hours for outdoor<br>≥50,000 hours for inseparable luminaires | 50,000<br>88.91%<br>>102000 | Pass |
| Light Source Life | Solid State | L70 lumen maintenance:<br>≥ 25,000 hours for indoor<br>≥ 35,000 hours for outdoor<br>≥50,000 hours for inseparable luminaires | 50,000<br>88.91%<br>>102000 | Pass |
| Color Maintenance | Solid State Indoor Luminaires | Δu'v' ≤ 0.007 | Max.0.0035 in LM-80 report* | Pass |

| | | | | |
|---|---|---|---|---|
| Source Start Time | Solid State Indoor Luminaires | <750 ms | 420ms | Pass |
| Power Factor | Solid State | Total luminaire input power ≤ 5 watts: PF ≥ 0.5<br>Total luminaire input power > 5 watts: PF ≥ 0.7 | 0.9755 | Pass |
| Transient Protection | Solid State | The line transient shall consist of seven strikes of a 100 kHz ring wave, 2.5 kV level, for both common mode and differential mode. | Survival | Pass |
| Standby Power Consumption | All Luminaires | Luminaires shall not draw power in the off state. | 0W | Pass |
| Operating Frequency | Solid State | Frequency ≥ 120 Hz | 120.000Hz | Pass |
| Maximum Measured Driver Case Temperature | Solid State | shall not exceed the driver manufacturer's maximum recommended temperature during in situ operation.<br>≤ 105 °C | 61.5°C | Pass |
| Maximum In-Situ Source Temperature | Solid State | Maximum permitted Ts temperature for L70≥50,000 hrs<br>≤105°C | 65.0°C | Pass |
| Dimming | Solid State | The luminaire and its components shall provide continuous dimming from 100% to 20% of total light output.<br>Luminaire shall not emit noise above 24dBA at 1 meter or less at the minimum output. | Validated | Pass |
| Warranty Requirements | Solid State | incorporating replaceable drivers: ≥3 years<br>incorporating non-replaceable drivers: ≥5 years | 5 years | Pass |

| | | | | |
|---|---|---|---|---|
| CCT | Solid State | Packaging shall clearly describe the nominal color designation in units of Kelvin (e.g. 2700K,3000K). | 3000K<br>4000K<br>5000K | Pass |

Note: The information or data with an "*" are provided by the manufacturer.
Our laboratory has no responsibility for the decision of compliance with specification that based on the data or information with the "*".

| 2.2.1 Electrical, Photometric and Chromaticity Measurements | IES LM-79 2008 |
|---|---|

| Test date | 2021-12-30 | Test Ambient: | 25±1 ° C |
|---|---|---|---|
| Test Orientation | As intended | Stabilization Time (min) | 45 |
| Model Number | CD1009(CD34FA6W-36-708-ZC)<br>CD34FA6W-36-708-ZC / 3000K setting | Total Operating Time(min) | 55 |

## Electrical Measurement:

| Sample No. | Voltage (Vac) | Frequency (Hz | Current (A) | Power (W) | Power Factor |
|---|---|---|---|---|---|
| STD211212 NB-F1 | 120.0 | 60.01 | 0.3049 | 34.69 | 0.9755 |

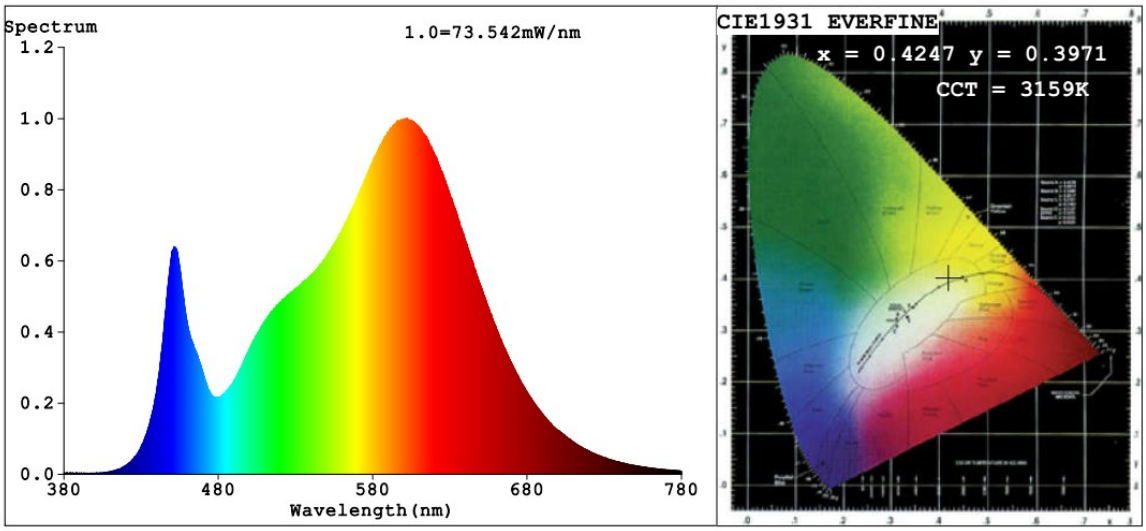
## Sphere-Spectroradiometer Method: (Self-absorption: 1.1829) (4π geometry):

| Parameter | Result |
|---|---|
| Test Voltage (V) | 120 |
| Frequency (Hz) | 60 |
| Color Rendering Index (CRI) | 82.5 |
| R9 | 3 |
| CCT (K) | 3159 |
| Duv | -0.0010 |

## Goniophotometer Method:

| Parameter | Result |
|---|---|
| Test Voltage (V) | 120 |
| Frequency (Hz) | 60 |
| Total Luminous (lm) | 3663.2 |
| Luminous Efficacy (lm/W) | 102.64 |
| Beam Angle° | 360.0 |
| Center Beam Candle Power (cd) | 1702 |

## Spectral Power Distribution and Chromaticity Diagram




## Colorimetric Parameters

**Color Parameters:**

Chromaticity Coordinate:x=0.4247 y=0.3971/u'=0.2457 v'=0.5168
CCT=3159K(Duv=-0.0010) Dominant WL:Ld =582.6nm WL:Lc = --nm Purity=46.7%
Ratio:R=22.0% G=75.1% B=2.9% Peak WL:Lp=601.6nm FWHM=128.3nm
Render Index:Ra=82.5 AvgR=76.8 TM30:Rf=84 Rg=95

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| R1 =81 | R2 =92 | R3 =95 | R4 =81 | R5 =82 | R6 =90 | R7 =82 | |
| R8 =58 | R9 =3 | R10=81 | R11=80 | R12=72 | R13=84 | R14=98 | R15=73 |

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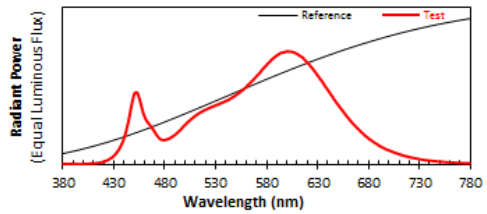
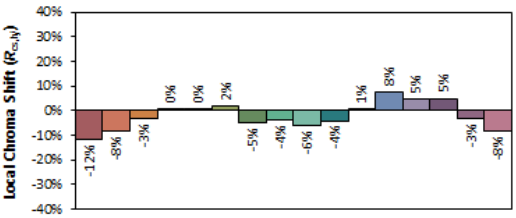
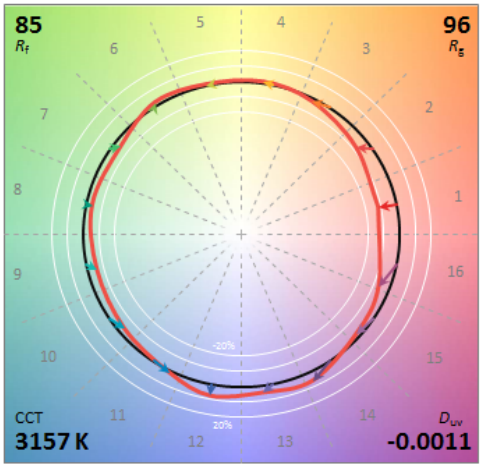
## TM30

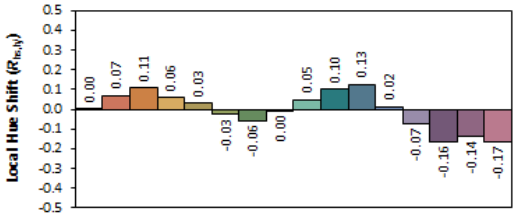
### ANSI/IES TM-30-18 Color Rendition Report

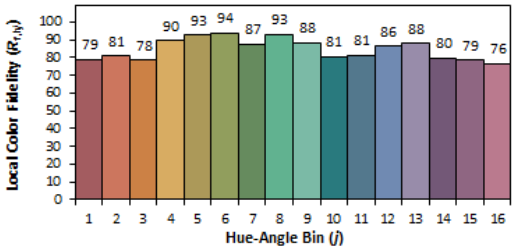
| | | | |
|---|---|---|---|
| **Source:** | BXEM-XXE-12H-6C | **Manufacturer:** | RAB LIGHTING INC |
| **Date:** | 2021-12-31 | **Model:** | CD1009(CD34FA6W-36-708-ZC)<br>CD34FA6W-36-708-ZC / 3000K setting |

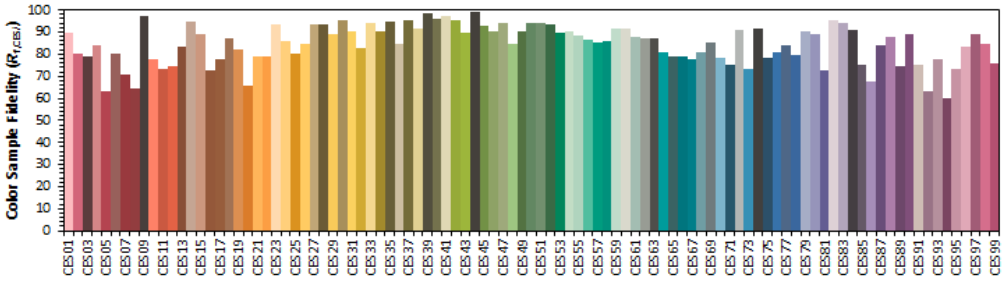



**Notes:** This is a recommended method for displaying ANSI/IES TM-30-18 information.

| | |
|---|---|
| $x$ | 0.4248 |
| $y$ | 0.3969 |
| $u'$ | 0.2457 |
| $v'$ | 0.5167 |

CIE 13.3-1995 (CRI)

| | |
|---|---|
| $R_a$ | 82 |
| $R_9$ | 3 |

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

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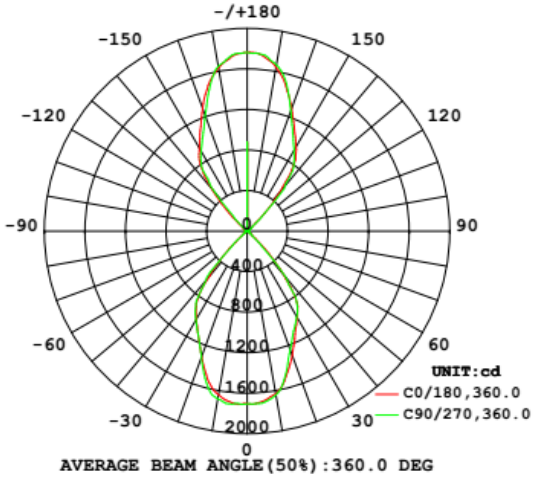
## Zonal Lumen Tabulation

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM




AVERAGE BEAM ANGLE(50%):360.0 DEG

| Zonal Lumen Summary | | |
|---|---|---|
| Zone | Lumens | % Luminaire |
| 0-30 | 1,098.1 | 30% |
| 0-40 | 1,617.8 | 44.2% |
| 0-60 | 1,858.0 | 50.7% |
| 60-90 | 25.0 | 0.7% |
| 70-100 | 9.7 | 0.3% |
| 90-120 | 21.8 | 0.6% |
| 0-90 | 1,883.1 | 51.4% |
| 90-180 | 1,778.4 | 48.6% |
| 0-180 | 3,661.5 | 100% |

| Lumens Per Zone | | | | | |
|---|---|---|---|---|---|
| Zone | Lumens | % Total | Zone | Lumens | % Total |
| 0-10 | 160.3 | 4.4% | 90-100 | 1.2 | 0% |
| 10-20 | 417.6 | 11.4% | 100-110 | 6.3 | 0.2% |
| 20-30 | 520.2 | 14.2% | 110-120 | 14.3 | 0.4% |
| 30-40 | 519.7 | 14.2% | 120-130 | 30.4 | 0.8% |
| 40-50 | 205.0 | 5.6% | 130-140 | 174.1 | 4.8% |
| 50-60 | 35.2 | 1.0% | 140-150 | 478.3 | 13.1% |
| 60-70 | 16.5 | 0.5% | 150-160 | 499.4 | 13.6% |
| 70-80 | 7.1 | 0.2% | 160-170 | 411.7 | 11.2% |
| 80-90 | 1.4 | 0.0% | 170-180 | 162.8 | 4.4% |

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Table--1 UNIT: cd

| C (DEG) / □ (DEG) | 0 | 22.5 | 45 | 67.5 | 90 | 112.5 | 135 | 157.5 | 180 | 202.5 | 225 | 247.5 | 270 | 292.5 | 315 | 337.5 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1703 | 1703 | 1703 | 1703 | 1703 | 1703 | 1703 | 1703 | 1703 | 1703 | 1703 | 1703 | 1703 | 1703 | 1703 | 1703 | | |
| 5 | 1689 | 1669 | 1675 | 1693 | 1705 | 1701 | 1688 | 1688 | 1700 | 1699 | 1707 | 1708 | 1712 | 1711 | 1702 | 1694 | | |
| 10 | 1630 | 1612 | 1607 | 1620 | 1643 | 1637 | 1625 | 1614 | 1639 | 1656 | 1671 | 1672 | 1680 | 1672 | 1667 | 1653 | | |
| 15 | 1487 | 1444 | 1460 | 1476 | 1466 | 1479 | 1465 | 1456 | 1511 | 1533 | 1540 | 1559 | 1554 | 1557 | 1531 | 1533 | | |
| 20 | 1304 | 1269 | 1272 | 1251 | 1246 | 1251 | 1258 | 1263 | 1318 | 1342 | 1350 | 1345 | 1325 | 1327 | 1334 | 1342 | | |
| 25 | 1122 | 1107 | 1100 | 1084 | 1086 | 1091 | 1101 | 1109 | 1142 | 1167 | 1157 | 1152 | 1141 | 1129 | 1131 | 1145 | | |
| 30 | 990 | 984 | 985 | 982 | 980 | 981 | 994 | 989 | 1005 | 1017 | 1025 | 1017 | 1014 | 1006 | 991 | 1004 | | |
| 35 | 859 | 844 | 846 | 853 | 852 | 836 | 842 | 844 | 877 | 891 | 900 | 888 | 885 | 887 | 879 | 884 | | |
| 40 | 564 | 507 | 518 | 525 | 589 | 518 | 516 | 520 | 577 | 666 | 658 | 650 | 641 | 640 | 628 | 636 | | |
| 45 | 256 | 196 | 195 | 167 | 189 | 160 | 184 | 200 | 265 | 327 | 327 | 282 | 224 | 274 | 306 | 297 | | |
| 50 | 66.2 | 58.2 | 55.7 | 54.3 | 52.7 | 51.0 | 53.0 | 55.3 | 69.8 | 101 | 75.6 | 71.5 | 69.8 | 71.3 | 72.6 | 76.2 | | |
| 55 | 38.1 | 34.7 | 33.9 | 33.4 | 33.0 | 32.3 | 33.0 | 33.3 | 39.4 | 43.1 | 41.5 | 39.7 | 39.1 | 39.5 | 39.4 | 40.8 | | |
| 60 | 24.6 | 22.5 | 22.3 | 22.3 | 22.3 | 22.0 | 22.3 | 22.2 | 25.6 | 28.0 | 27.1 | 26.2 | 25.8 | 26.0 | 25.8 | 26.4 | | |
| 65 | 16.2 | 14.9 | 14.9 | 15.0 | 15.0 | 14.9 | 14.9 | 14.8 | 16.8 | 18.5 | 18.0 | 17.6 | 17.1 | 17.3 | 17.1 | 17.4 | | |
| 70 | 10.6 | 9.75 | 9.85 | 9.92 | 9.92 | 9.91 | 9.89 | 9.80 | 11.1 | 12.1 | 11.8 | 11.5 | 11.1 | 11.5 | 11.3 | 11.5 | | |
| 75 | 6.63 | 5.99 | 6.09 | 5.90 | 5.77 | 5.98 | 6.22 | 6.12 | 6.97 | 7.74 | 7.40 | 6.99 | 6.59 | 7.04 | 7.13 | 7.23 | | |
| 80 | 3.64 | 3.16 | 3.02 | 2.61 | 2.47 | 2.68 | 3.20 | 3.33 | 3.91 | 4.44 | 4.12 | 3.48 | 3.23 | 3.55 | 3.93 | 4.13 | | |
| 85 | 1.39 | 0.96 | 0.57 | 0.41 | 0.38 | 0.45 | 0.66 | 1.11 | 1.61 | 1.94 | 1.45 | 1.02 | 0.89 | 0.98 | 1.34 | 1.74 | | |
| 90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 95 | 1.14 | 1.89 | 1.12 | 0.84 | 0.77 | 0.86 | 1.21 | 1.63 | 1.35 | 0.63 | 0.58 | 0.40 | 0.32 | 0.36 | 0.49 | 0.78 | | |
| 100 | 3.05 | 4.14 | 3.57 | 3.28 | 3.12 | 3.32 | 3.69 | 3.83 | 3.38 | 2.55 | 2.78 | 2.29 | 2.05 | 2.16 | 2.49 | 2.60 | | |
| 105 | 5.57 | 7.01 | 6.54 | 6.52 | 6.38 | 6.54 | 6.71 | 6.71 | 6.08 | 5.04 | 5.47 | 5.10 | 4.77 | 4.85 | 4.99 | 4.95 | | |
| 110 | 8.84 | 10.9 | 10.3 | 10.5 | 10.5 | 10.6 | 10.6 | 10.7 | 9.74 | 8.24 | 8.74 | 8.41 | 8.14 | 8.01 | 7.96 | 7.93 | | |
| 115 | 13.2 | 16.2 | 15.4 | 15.7 | 16.0 | 16.1 | 16.1 | 16.1 | 14.7 | 12.5 | 13.1 | 12.5 | 12.2 | 11.9 | 11.8 | 11.9 | | |
| 120 | 19.7 | 24.2 | 22.8 | 23.4 | 24.3 | 24.7 | 24.8 | 24.6 | 22.2 | 18.6 | 19.3 | 18.4 | 17.9 | 17.5 | 17.4 | 17.5 | | |
| 125 | 29.6 | 37.0 | 34.4 | 35.9 | 37.9 | 39.1 | 39.5 | 39.1 | 34.5 | 27.8 | 28.3 | 26.8 | 26.0 | 25.6 | 25.6 | 26.1 | | |
| 130 | 49.9 | 90.9 | 59.3 | 62.0 | 66.1 | 69.2 | 72.4 | 74.0 | 62.8 | 44.8 | 46.8 | 43.1 | 41.2 | 40.4 | 40.7 | 41.9 | | |
| 135 | 208 | 320 | 242 | 231 | 204 | 248 | 279 | 282 | 251 | 130 | 151 | 135 | 162 | 124 | 124 | 147 | | |
| 140 | 518 | 637 | 555 | 559 | 584 | 571 | 581 | 602 | 536 | 402 | 467 | 465 | 495 | 461 | 442 | 431 | | |
| 145 | 804 | 882 | 828 | 814 | 804 | 811 | 812 | 837 | 802 | 695 | 775 | 778 | 791 | 781 | 779 | 746 | | |
| 150 | 966 | 1021 | 967 | 938 | 927 | 927 | 938 | 965 | 946 | 894 | 916 | 910 | 910 | 921 | 941 | 945 | | |
| 155 | 1106 | 1171 | 1120 | 1081 | 1067 | 1073 | 1102 | 1126 | 1097 | 1032 | 1051 | 1035 | 1038 | 1047 | 1080 | 1082 | | |
| 160 | 1287 | 1358 | 1308 | 1281 | 1262 | 1279 | 1311 | 1317 | 1289 | 1204 | 1241 | 1221 | 1214 | 1226 | 1254 | 1247 | | |
| 165 | 1479 | 1559 | 1501 | 1515 | 1504 | 1513 | 1510 | 1515 | 1490 | 1409 | 1451 | 1464 | 1448 | 1465 | 1460 | 1441 | | |
| 170 | 1644 | 1699 | 1669 | 1661 | 1667 | 1658 | 1656 | 1662 | 1632 | 1597 | 1627 | 1637 | 1651 | 1640 | 1622 | 1624 | | |
| 175 | 1741 | 1758 | 1754 | 1753 | 1750 | 1742 | 1743 | 1742 | 1730 | 1704 | 1727 | 1736 | 1742 | 1734 | 1732 | 1721 | | |
| 180 | 1764 | 1764 | 1764 | 1764 | 1764 | 1764 | 1764 | 1764 | 1764 | 1764 | 1764 | 1764 | 1764 | 1764 | 1764 | 1764 | | |

| 2.2.2 Electrical, Photometric and Chromaticity Measurements | IES LM-79 2008 |
|---|---|

| Test date | 2021-12-30 | Test Ambient: | 25±1 ° C |
|---|---|---|---|
| Test Orientation | As intended | Stabilization Time (min) | 45 |
| Model Number | CD1009(CD34FA6W-36-708-ZC)<br>CD34FA6W-36-708-ZC / 4000K setting | Total Operating Time(min) | 55 |

## Electrical Measurement:

| Sample No. | Voltage (Vac) | Frequency (Hz | Current (A) | Power (W) | Power Factor |
|---|---|---|---|---|---|
| STD211212 NB-F1 | 120.0 | 60 | 0.2901 | 33.46 | 0.9612 |

## Sphere-Spectroradiometer Method: (Self-absorption: 1.1830) (4π geometry):

| Parameter | Result |
|---|---|
| Test Voltage (V) | 120 |
| Frequency (Hz) | 60 |
| Color Rendering Index (CRI) | 83.5 |
| R9 | 10 |
| CCT (K) | 4038 |
| Duv | -0.0016 |
| Total Luminous (lm) | 4026 |
| Luminous Efficacy (lm/W) | 120.32 |

Ningbo TengLi Testing Co., Ltd

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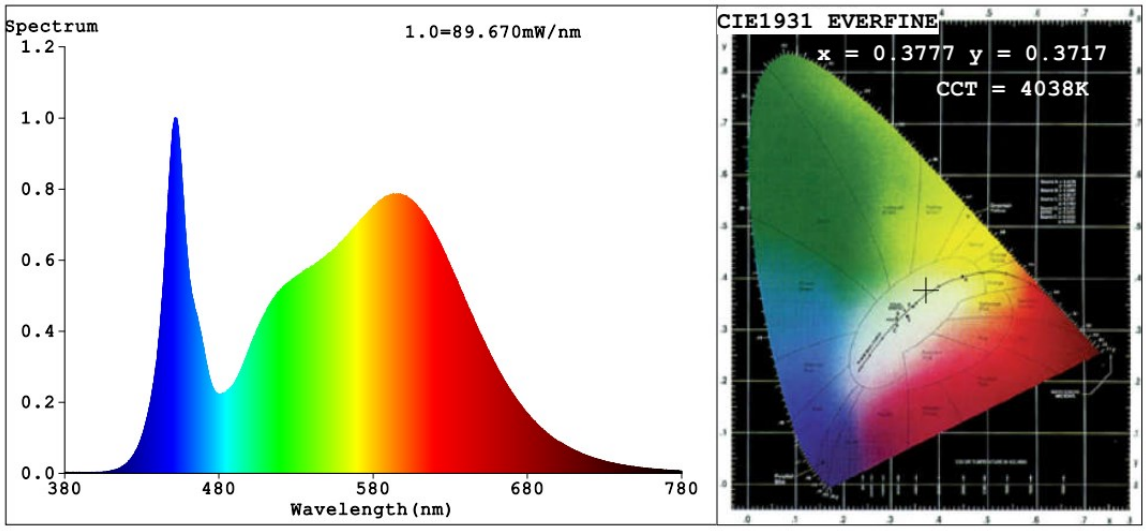
Qingyi Road, Ningbo National Hi-Tech Zone, Ningbo, Zhejiang
Tel: 86574-8783 6802
Fax: 86574-87835902

## Spectral Power Distribution and Chromaticity Diagram




## Colorimetric Parameters

**Color Parameters:**

Chromaticity Coordinate:x=0.3777 y=0.3717/u'=0.2254 v'=0.4989
CCT=4038K(Duv=-0.0016) Dominant WL:Ld =579.9nm WL:Lc = --nm Purity=24.9%
Ratio:R=18.4% G=77.9% B=3.7% Peak WL:Lp=451.8nm FWHM=19.2nm
Render Index:Ra=83.5 AvgR=77.0 TM30:Rf=83 Rg=96

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| R1 =82 | R2 =90 | R3 =95 | R4 =82 | R5 =82 | R6 =86 | R7 =86 | |
| R8 =65 | R9 =10 | R10=76 | R11=81 | R12=61 | R13=85 | R14=97 | R15=77 |

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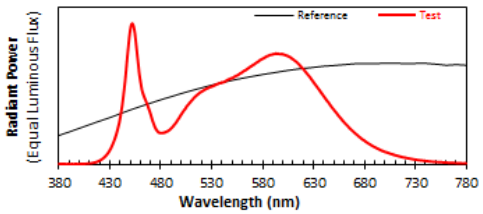
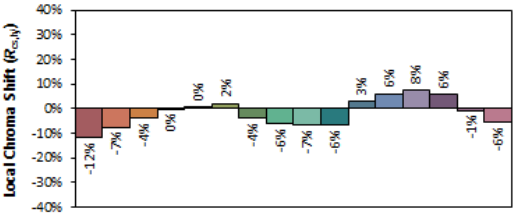
ACCREDITED
Certificate#4703.02

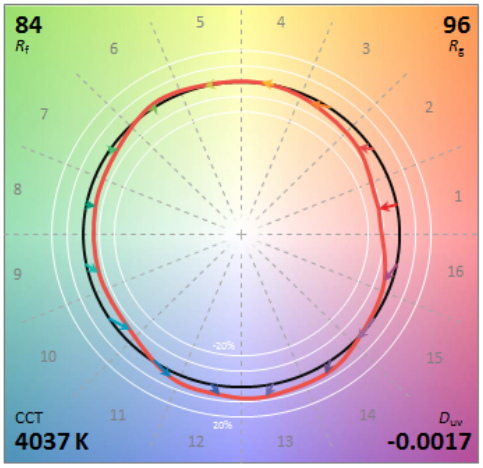
## TM30

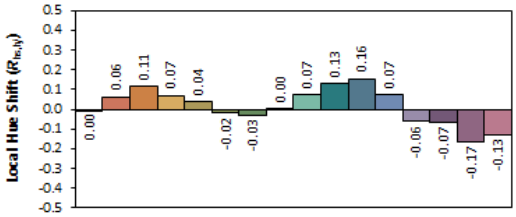
### ANSI/IES TM-30-18 Color Rendition Report

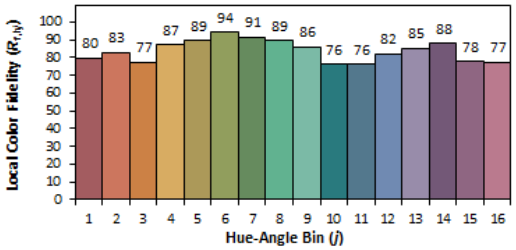
| | | | |
|---|---|---|---|
| **Source:** | BXEM-XXE-12H-6C | **Manufacturer:** | RAB LIGHTING INC |
| **Date:** | 2021-12-31 | **Model:** | CD1009(CD34FA6W-36-708-ZC)<br>CD34FA6W-36-708-ZC / 4000K setting |

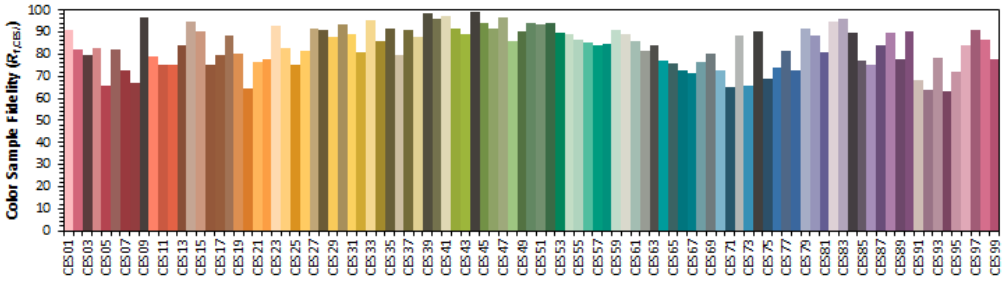



**Notes:** This is a recommended method for displaying ANSI/IES TM-30-18 information.

| | |
|---|---|
| $x$ | 0.3777 |
| $y$ | 0.3715 |
| $u'$ | 0.2254 |
| $v'$ | 0.4988 |

CIE 13.3-1995 (CRI)

| | |
|---|---|
| $R_a$ | 83 |
| $R_9$ | 10 |

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

| 2.2.3 Electrical, Photometric and Chromaticity Measurements | IES LM-79 2008 |
|---|---|

| Test date | 2021-12-30 | Test Ambient: | 25±1 ° C |
|---|---|---|---|
| Test Orientation | As intended | Stabilization Time (min) | 45 |
| Model Number | CD1009(CD34FA6W-36-708-ZC)<br>CD34FA6W-36-708-ZC /5000K setting | Total Operating Time(min) | 55 |

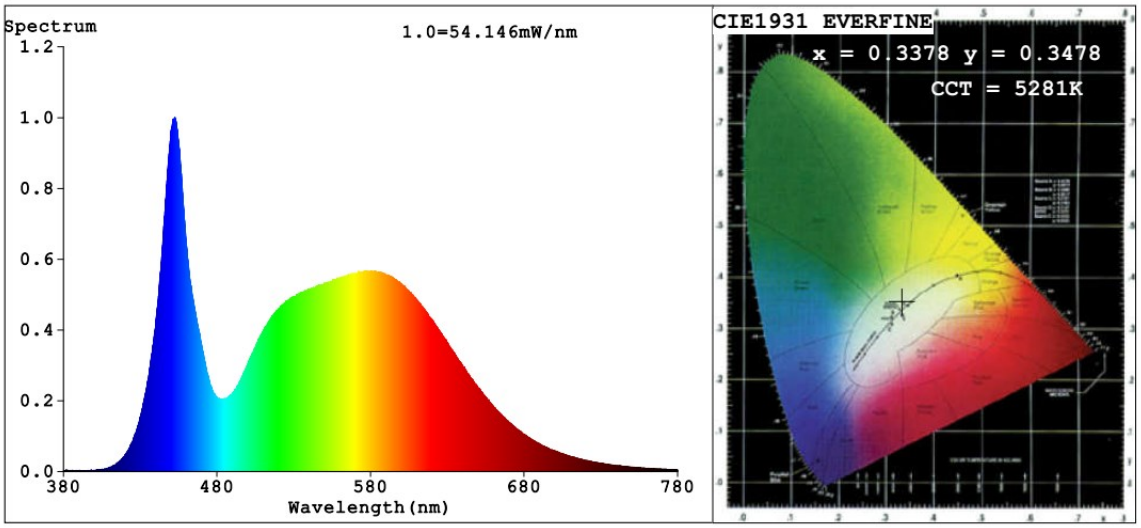
**Electrical Measurement:**

| Sample No. | Voltage (Vac) | Frequency (Hz | Current (A) | Power (W) | Power Factor |
|---|---|---|---|---|---|
| STD211212 NB-F1 | 120.0 | 60 | 0.3036 | 35.13 | 0.9643 |

**Sphere-Spectroradiometer Method: (Self-absorption: 1.1829) (4π geometry):**

| Parameter | Result |
|---|---|
| Test Voltage (V) | 120 |
| Frequency (Hz) | 60 |
| Color Rendering Index (CRI) | 81.2 |
| R9 | 1 |
| CCT (K) | 5281 |
| Duv | 0.0011 |
| Total Luminous (lm) | 3894 |
| Luminous Efficacy (lm/W) | 110.85 |

## Spectral Power Distribution and Chromaticity Diagram




## Colorimetric Parameters

**Color Parameters:**

Chromaticity Coordinate:x=0.3378 y=0.3478/u'=0.2079 v'=0.4817
CCT=5281K(Duv=0.0011) Dominant WL:Ld =565.4nm WL:Lc = --nm Purity=5.7%
Ratio:R=15.0% G=80.6% B=4.5% Peak WL:Lp=452.5nm FWHM=22.0nm
Render Index:Ra=81.2 AvgR=73.6 TM30:Rf=81 Rg=95

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| R1 =79 | R2 =86 | R3 =90 | R4 =81 | R5 =80 | R6 =81 | R7 =86 | |
| R8 =66 | R9 =1 | R10=67 | R11=80 | R12=57 | R13=81 | R14=95 | R15=75 |

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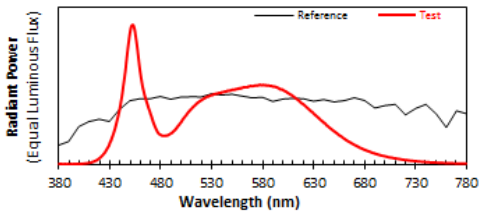
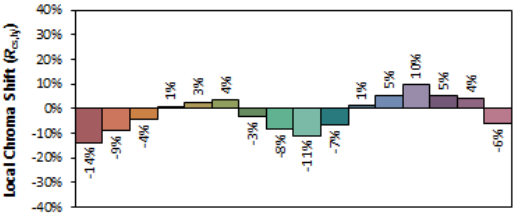
Certificate#4703.02

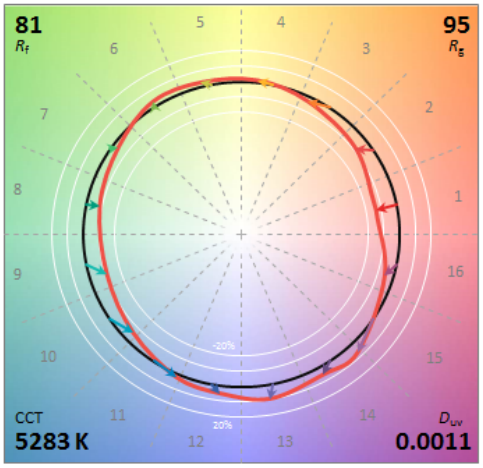
## TM30

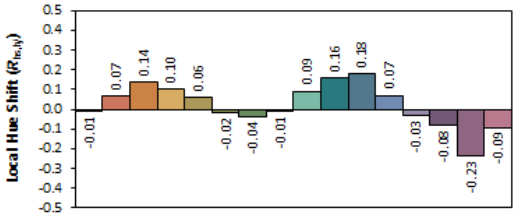
# ANSI/IES TM-30-18 Color Rendition Report

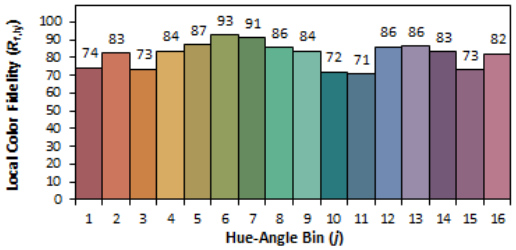
| | | | |
|---|---|---|---|
| **Source:** | BXEM-XXE-12H-6C | **Manufacturer:** | RAB LIGHTING INC |
| **Date:** | 2021-12-31 | **Model:** | CD1009(CD34FA6W-36-708-ZC)<br>CD34FA6W-36-708-ZC / 5000K setting |

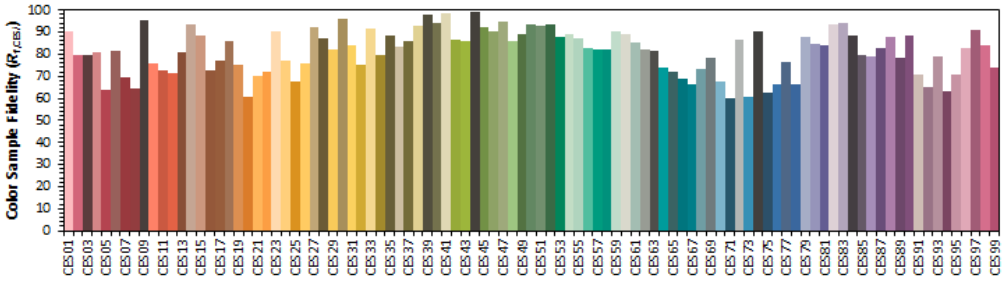



**Notes:** This is a recommended method for displaying ANSI/IES TM-30-18 information.

| | |
|---|---|
| $x$ | 0.3377 |
| $y$ | 0.3476 |
| $u'$ | 0.2079 |
| $v'$ | 0.4816 |

CIE 13.3-1995 (CRI)

| | |
|---|---|
| $R_a$ | 81 |
| $R_9$ | 1 |

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

| | |
|---|---|
| **2.3 Electrical and Photometric Measurements, with dimming** | **IES LM-79 2008**<br>**ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2** |

| **Test date** | 2021-12-30 | | **Test Ambient:** | 25±1 ° C |
|---|---|---|---|---|
| **Dimmer Technology** | | | -- | |
| **Sample No.** | | | **Maximum Level** | **Minimum Level** |
| STD211212NB-F1 | Input:<br>120.0 V / 60 Hz | Light outout (Lumen) | -- | -- |
| | | Percentage | -- | -- |

**The luminaires ~~[can]~~ [can not] provide less than 20% of total light output with continuous dimmer.**

| Dimmer | Peak Noise Reading (dBA) | Test Condition | Distance between the microphone and the UUT |
|---|---|---|---|
| -- | -- | Dimmer adjusted to lowest light output | < 1 m |

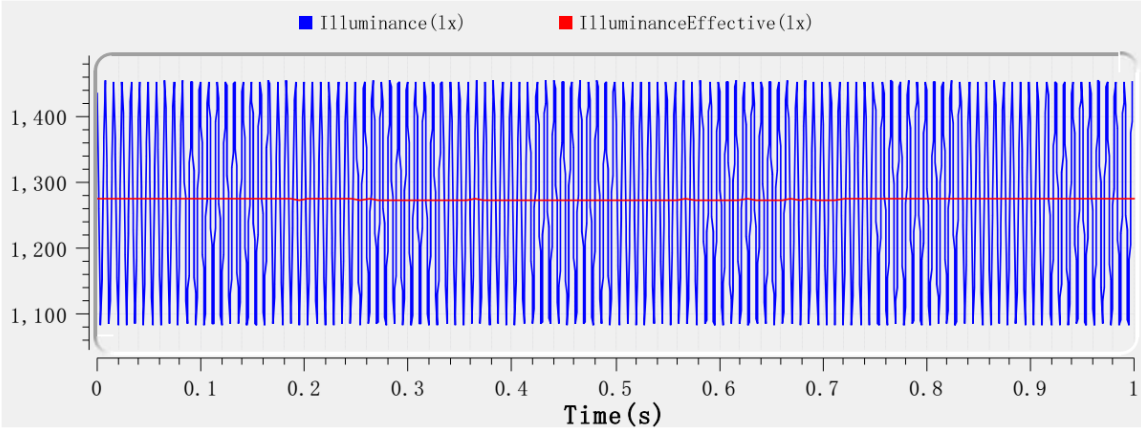
| 2.4Flicker | NEMA 77-2017<br>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2 |
|---|---|
| Noted: This test and data are not covered by A2LA accreditation | |

| | |
|---|---|
| **Dimming Technology** | -- |
| **Dimmer** | -- |
| **Sample Number** | STD211212NB-F1 |

| Item | Short Term Flicker Indicator (Pst) | Stroboscopic Visibility Measure (SVM) |
|---|---|---|
| **Full light output** | 0.091 | 0.535 |
| -- | -- | -- |
| **--** | -- | -- |

| 2.5Operating Frequency | ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2 |
|---|---|
| Noted: This test and data are not covered by A2LA accreditation | |

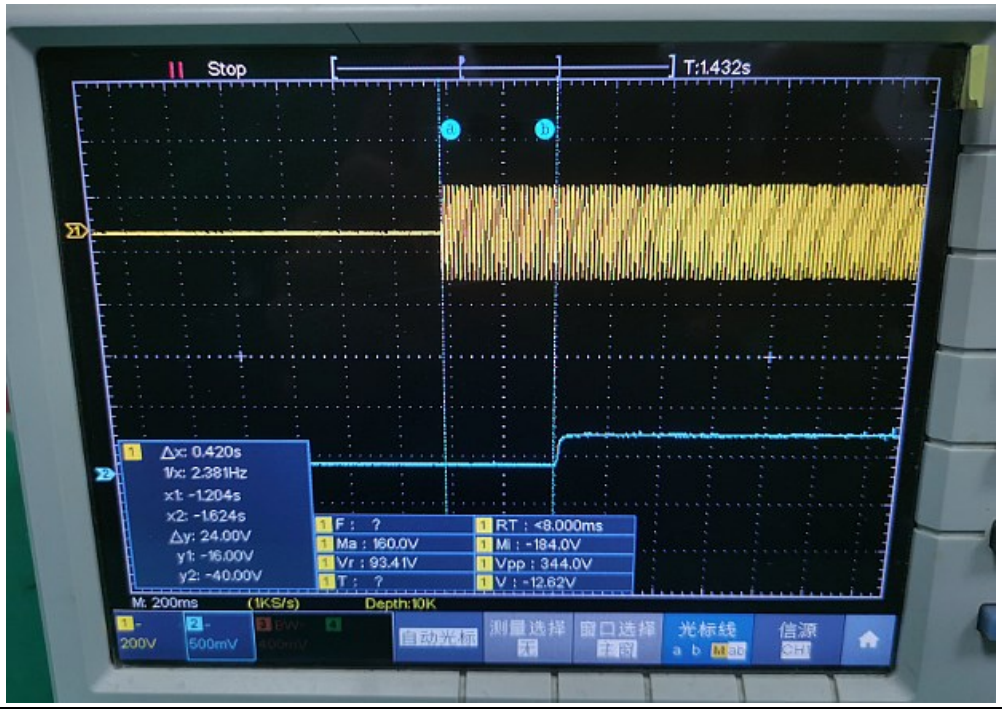
| Test date | 2021-12-30 | Test Ambient: | 25±1 ° C |
|---|---|---|---|
| Sample No. | Operating Frequency (Hz) | | |
| STD211212NB-F1 | 120.000 | | |



| 2.6Starting Time | ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2 |
|---|---|

| Test date | 2021-12-30 | Test Ambient: | 25±1 º C |
|---|---|---|---|
| **Sample No.** | **Start Time (ms)** | | |
| STD211212NB-F1 | 420 | | |

**Graph (Start Time):**



| 2.7 Transient Protection Test | ANSI/IEEE C62.41<br>ENERGY STAR® Program Requirements for Luminaires – Version 2.2 |
|---|---|

## Test voltage: 120V,60Hz

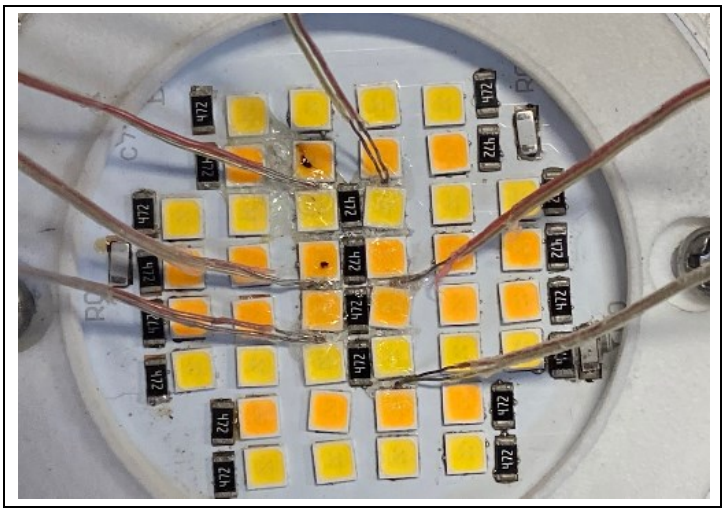
| Test date | 2021-12-30 | Test Ambient | 25±1 º C |
|---|---|---|---|
| Sample No. | | Transient Protection Test - Seven Strikes | |
| STD211212NB-F1 | | Survival | |

| 2.8In-Situ Temperature Measurement Test (ISTMT) | ANSI/UL 1598:2008 |
|---|---|

| Test date | 2021-12-30 | Test Ambient | 25.1 ° C |
|---|---|---|---|
| Input Vol./Frequency | 120 V / 60 Hz | Output Current of Single LED (mA) | 72 |

| Sample No. | LED Package Model | Maximum Measured LED Ts Point Temperature (°C) | Maximum permitted Ts temperature for L70≥ 50,000 hrs (°C) |
|---|---|---|---|
| STD211212NB-F1 | BXEM-XXE-12H-6C | 65.0 | 105 |

**In-Situ Picture - Ts:**



| 2.9Maximum Measured Ballast or Driver Case Temperature | ANSI/UL 1598:2008 |
|---|---|

| Test date | 2021-12-30 | Test Ambient | 25.1 ° C |
|---|---|---|---|
| Sample No. | Maximum Measured Driver Case Temperature (°C) | Maximum Driver Case Temperature Limited (°C) | |
| STD211212NB-F1 | 61.5 | 105 | |

**In-Situ Picture - Ts:**

| 2.10Off-State Power Consumption: | ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2 |
|---|---|

| Test date | 2021-12-30 | Test Ambient: | 25±1 ° C |
|---|---|---|---|
| Model Number | CD1009(CD34FA6W-36-708-ZC)<br>CD34FA6W-36-708-ZC | Stabilization Time (min) | 90 |

**Electrical Measurement – when the luminaires turned off:**

| Sample No. | Power (W) |
|---|---|
| STD211212NB-F1 | 0 |

## 3. Test Equipment

| Equipment ID | Equipment Name | Last Calibration Date | Next Calibration Date |
|---|---|---|---|
| ST-R-702 | 2 meter Integrating Sphere | Verified by D204 standard lamp | |
| ST-R-701 | Spectral analysis system HAAS-1200 | Verified by D204 standard lamp | |
| ST-R-703 | Standard Lamp D204 | 2021-02-21 | 2022-02-20 |
| ST-R-704 | Power Meter for Integrating Sphere | 2021-01-04 | 2022-01-03 |
| ST-R-714 | Goniophotometer system | Verified by D908S standard lamp | |
| ST-R-710 | Standard Lamp D908S | 2021-02-21 | 2022-02-20 |
| ST-R-711 | Power Meter for Goniophotometer | 2021-01-04 | 2022-01-03 |
| ST-R-720 | Digital Luxmeter | 2021-01-04 | 2022-01-03 |
| ST-R-622 | Oscillograph | 2021-01-04 | 2022-01-03 |
| ST-R-721 | EMS61000-12C | 2021-01-04 | 2022-01-03 |
| ST-R-725 | LFA-3000 | 2021-01-04 | 2022-01-03 |
| ST-R-607 | Temperature Tester | 2021-01-04 | 2022-01-03 |

Uncertainty(K=2):
Photometric Measurement (Sphere):3.94%
Chromaticity Measurement(Sphere):48.2K
Photometric Measurement(Goniophotometer):3.96%

# ****** END OF DATASHEET PACKAGE ******

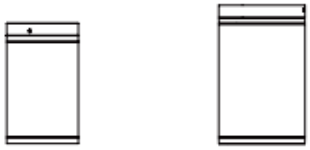
# Appendix I

## INSTRUCTIONS
### CYLINDER INSTALLATION

RAB

RAB Lighting is committed to creating high-quality, affordable, well-designed and energy-efficient LED lighting and controls that make it easy for electricians to install and end users to save energy. We'd love to hear your comments. Please call the Marketing Department at 888-RAB-1000 or email: marketing@rablighting.com

CD34FA3W-10-508-XX CD34FA4W-20-508-XX CD34FA6W-36-708-XX



CD34FA4SP-20-509-XX CD34FA6SP-30-709-XX

### IMPORTANT

**READ CAREFULLY BEFORE INSTALLING FIXTURE. RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE.**
RAB fixtures must be wired in accordance with the National Electrical Code and all applicable local codes. Proper grounding is required for safety. THIS PRODUCT MUST BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE INSTALLATION CODE BY A PERSON FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THE PRODUCT AND THE HAZARDS INVOLVED.
**WARNING:**
- **Make certain power is OFF before installing or maintaining fixture. No user serviceable parts inside.**
- **Fixture is suitable for wet location.**
- **Fixture must be mounted a minimum of 4 feet above ground level.**

### WALL MOUNT

(Important: For wet locations, Gasket must be used.)
1. Remove **Screws(2)** on two sides from the **Fixture Mounting Arm** as show in *(Fig. 2)*.
2. Stick **Gasket** and fix **Junction Box Adaptor Plate** with screws on the wall. (Warning: The mark "UP" direction must be installed upside.)
3. Connect the wires according to **Wiring Diagram** as shown in *(Fig. 8)*.
4. Mount back the **Fixture** on **Junction Box Adaptor Plate** with **Screws(2)** tightly.
5. Unscrew **Cock A** to adjust the watts and CCT as shown in *(Fig. 1)* and **Cock B** to turn ON/OFF Photocell as shown in *(Fig. 2)* (Default: Watts-Full; CCT-3000K; Photocell-OFF). When set down, screw back **Cock A & B.**

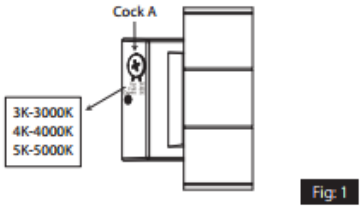



Fig: 1

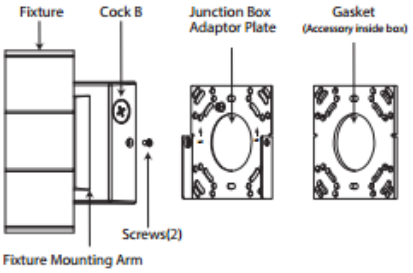



Fig: 2

# INSTRUCTIONS
## CYLINDER INSTALLATION

RAB

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## CEILING MOUNT

(Important: For wet locations, caulk the seam between the fixture and ceiling.)

1. Unscrew **Junction Box Adaptor Plate** and **Canopy** off the **Fixture** counterclockwise as shown in *(Fig. 3)*.
2. Unscrew **Cock A** to adjust the CCT (Default-3000K). When set down, screw back **Cock A**.
3. Fix **Canopy** back to the **Fixture** as shown in *(Fig. 4)*.
4. Remove **Screw A** from **Canopy** and fix **Junction Box Adaptor Plate** with screws onto the ceiling.
5. Suspend the **Fixture** with pre-installed **Tether Cable** and fix it on **Canopy** with **Screw B**, using **Tether Slot** in **Junction Box Adaptor Plate**.
6. Connect the wires according to **Wiring Diagram** as shown in *(Fig. 9)*.
7. Fix **Canopy** back to **Junction Box Adaptor Plate** and tighten them with **Screw A**.

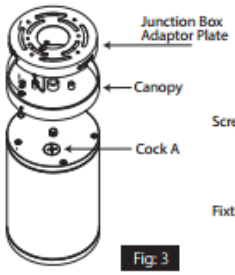


Fig: 3

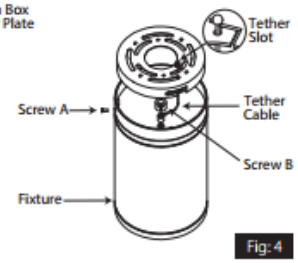


Fig: 4

## PENDANT CORD/ PENDANT POLE MOUNT

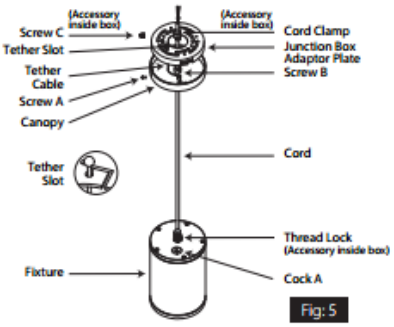


Fig: 5

(Important: For wet locations, caulk the seam between the fixture and ceiling. For **Cord** to **Pole** conversion, see *(Fig. 6 & 7)*.

1. Remove **Junction Box Adaptor Plate** and **Canopy** from the **Fixture** as shown in *(Fig. 3)*. Pass **Thread Lock** through the **Cord** and tighten it securely.
2. Unscrew **Cock A** to adjust the CCT (Default-3000K). When set down, screw back **Cock A**.
3. Remove **Screw A** from **Canopy** and fix **Junction Box Adaptor Plate** with screws onto the ceiling as shown in *(Fig. 5)*.
4. Suspend the **Fixture** with pre-installed **Tether Cable** and fix it on **Canopy** with **Screw B**, using **Tether Slot** in **Junction Box Adaptor Plate** to the **Tether cable**.
5. Adjust **Cord** length according to requirement and tighten **Cord Clamp with Screw C**. A minimum of 6 inches will be needed for connecting to the power supply wires located in the junction box.
6. Connect the wires according to **Wiring Diagram** as shown in *(Fig. 9)*.
7. Fix **Canopy** back to **Junction Box Adaptor Plate** and tighten them with **Screw A**.

## CORD TO POLE CONVERSION

Note: Please refer to RAB CD34STEM-X. Poles are sold separately.

1. Remove **Cord Clamp** with **Screw C**, **Canopy**, **Tether Cable** with **Screw B**, **Junction Box Adaptor Plate** with **Screw A**. Discard **Thread Lock**.
2. Insert **Cord** through **Pole** section as shown in *(Fig. 7)*. Screw **Pole** section to **Fixture**. Add up to 3 more **Pole** sections as required. Each pole section is 12" long. A minimum of 6 inches will be needed for connecting to the power supply wires located in the junction box.
3. Thread **Cord** onto **Swivel** and tighten them securely.
4. Repeat steps 2-7 from PENDANT CORD/ PENDANT POLE MOUNT.

*Note: These instructions do not cover all details or variations in equipment nor do they provide for every possible situation during installation, operation or maintenance.*

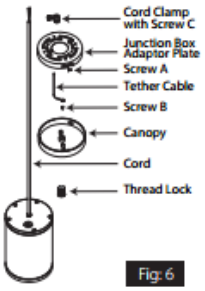


Fig: 6

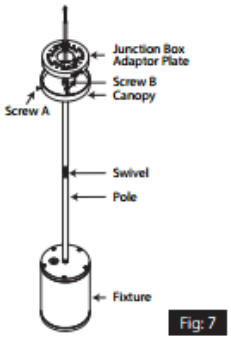


Fig: 7

# INSTRUCTIONS
## CYLINDER INSTALLATION

RAB

RAB Lighting is committed to creating high-quality, affordable, well-designed and energy-efficient LED lighting and controls that make it easy for electricians to install and end users to save energy. We'd love to hear your comments. Please call the Marketing Department at 888-RAB-1000 or email: marketing@rablighting.com

## WIRING DIAGRAM


Fig: 8

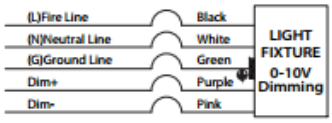



Fig: 9

## CLEANING & MAINTENANCE

*CAUTION: Be sure fixture temperature is cool enough to touch. Do not clean or maintain while fixture is energized.*

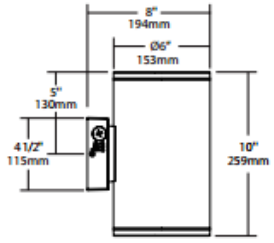
1. Do not open fixture to clean the LED. Do not touch the LED.
2. Do not touch reflector.
3. Do not clean any fixture surface with wood-base cleaning material such as paper towels or tissues.

## TROUBLESHOOTING

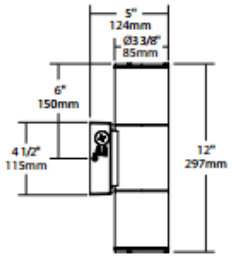
1. Check that the line voltage at the fixture is correct. Refer to wiring directions.
2. Is the fixture grounded properly?

## DIMENSIONAL DRAWINGS

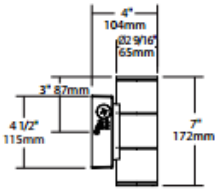
Wall




CD34FA6W-36-708-XX

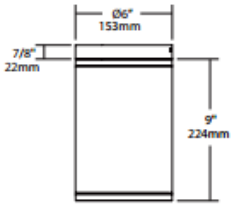



CD34FA4W-20-508-XX

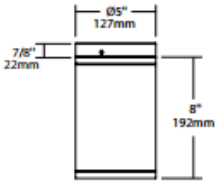



CD34FA3W-10-508-XX

Ceiling




CD34FA6SP-30-709-XX

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| Visit our website for product info | Call our experts: 888 722-1000 | Answered promptly - sales@rablighting.com | Answered online or by request |

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*RAB WARRANTY: RAB's warranty is subject to all terms and conditions found at rablighting.com/warranty.*