LIGHT LABORATORY INC.
8165 E Kaiser Blvd.
Anaheim, CA 92808
www.lightlaboratory.com



NVLAP TESTING
NVLAP LAB CODE 200927-0

**Report No:** L081910629 **Issue Date: 9/3/2019**

**Report Prepared For:** Number Eight Lighting Company
526 Portal Street, Cotati, CA 94931

**Model Number:** 201-R-BV-WD-3018-15-NFL/DIM1-2-SO/FLR-2-BV-WH

**Test:** Photometric/Colorimetric/Electrical Test

**Standards Used:** Appropriate part or all test guidelines were used for test performed:

*IESNA LM79: 2008* Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products

*ANSI NEMA ANSLG C78.377: 2008* Specification of the Chromaticity of Solid State Lighting Products

*ANSI C82.77:2002:* Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

**Description of Sample:** Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

**Special Test Condition:** Fixture is tested with no special conditions.

**Sample Arrival Date:** 8/16/19

**Date of Tests:** 8/22/19 - 9/3/19

**Seasoning of Sample:** No seasoning was performed in accordance with IESNA LM-79.

**Equipment List**

| Equipment Used | Model No | Stock No | Calibration Due Date |
|---|---|---|---|
| Chroma Programmable AC Source | 61604 | PS-AC02 | -- |
| Yokogawa Digital Power Meter | WT210 | MT-EL06-S4 | 1/9/21 |
| BK PRECISION | 1747 | PS-DC04 | 1/10/21 |
| Fluke Digital Thermometer | 52K/J | MT-TP05 | 1/10/21 |
| LLI Type C Goniophotometer System | RMG-C-MKII | CD-LL04-GC | -- |
| LLI 2M Sphere | 2MR97 | CD-SN03-S2 | -- |
| LLI Spectroradiometer | SPR-3000 | MT-SC01-S2 | Before Use |

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| General Information | |
|---|---|
| **Manufacturer:** | Number Eight Lighting Company |
| **Model Number:** | 201-R-BV-WD-3018-15-NFL/DIM1-2-SO/FLR-2-BV-WH |
| **Driver Model Number:** | INTUITIVE SYSTEMS ISD-701-350-15-D |

| Test Summary | |
|---|---|
| **Total Lumens:** | 661.96 |
| **Efficacy:** | 45.10 |
| **Color Redering Index:** | 96.4 |
| **Correlated Color Temperature:** | 3018 |
| **Input Voltage (VAC/60Hz):** | 120.02 |
| **Input Current (Amp):** | 0.1231 |
| **Input Power (W):** | 14.68 |
| **Input Power Factor:** | 0.9936 |
| **Current ATHD (%):** | 7.1% |

| Test Condition | |
|---|---|
| **Ambient Temperature (°C):** | 25.0 |
| **Stabilization Time (Hours):** | 1:00 |
| **Total Operating Time (Hours):** | 2:00 |

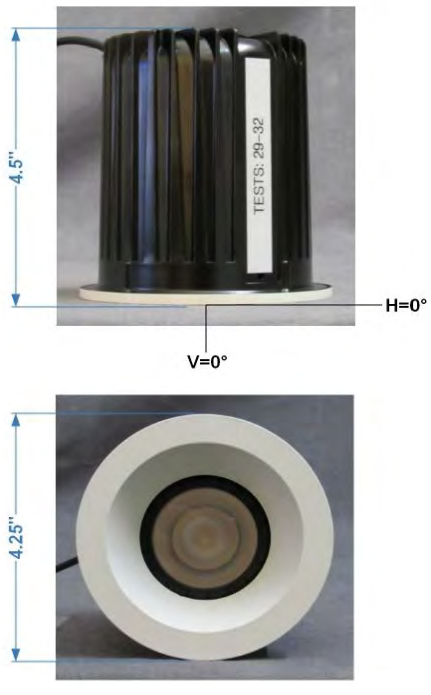


FIG. 1 LUMINAIRE

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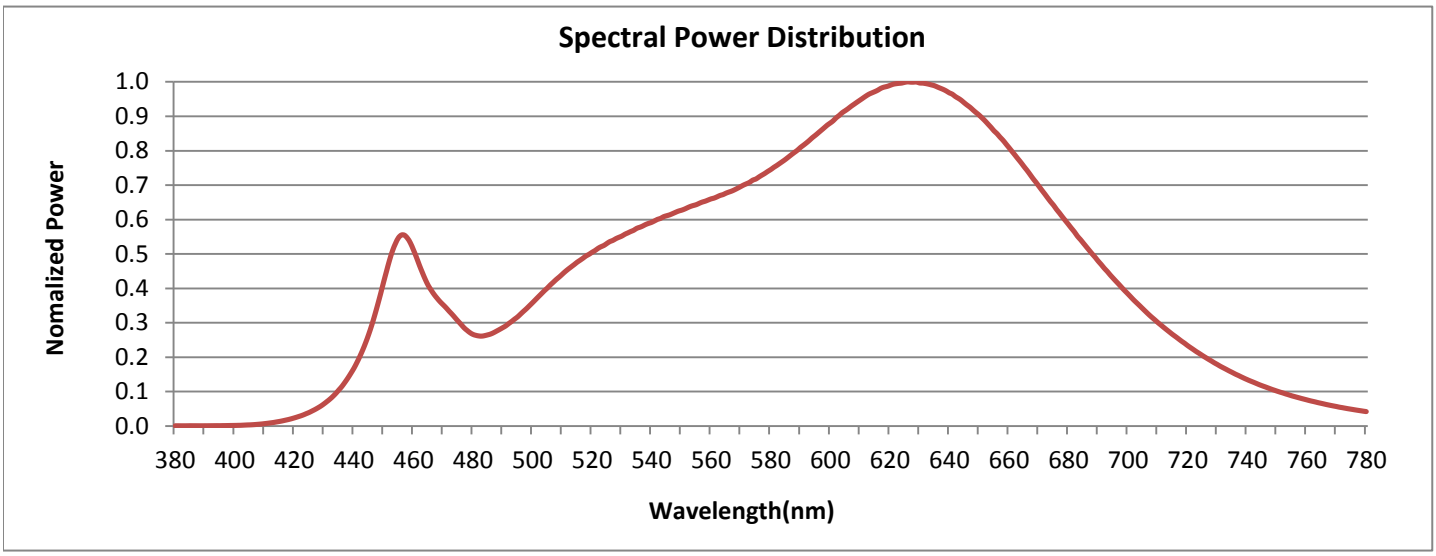
## Colorimetry Test Results

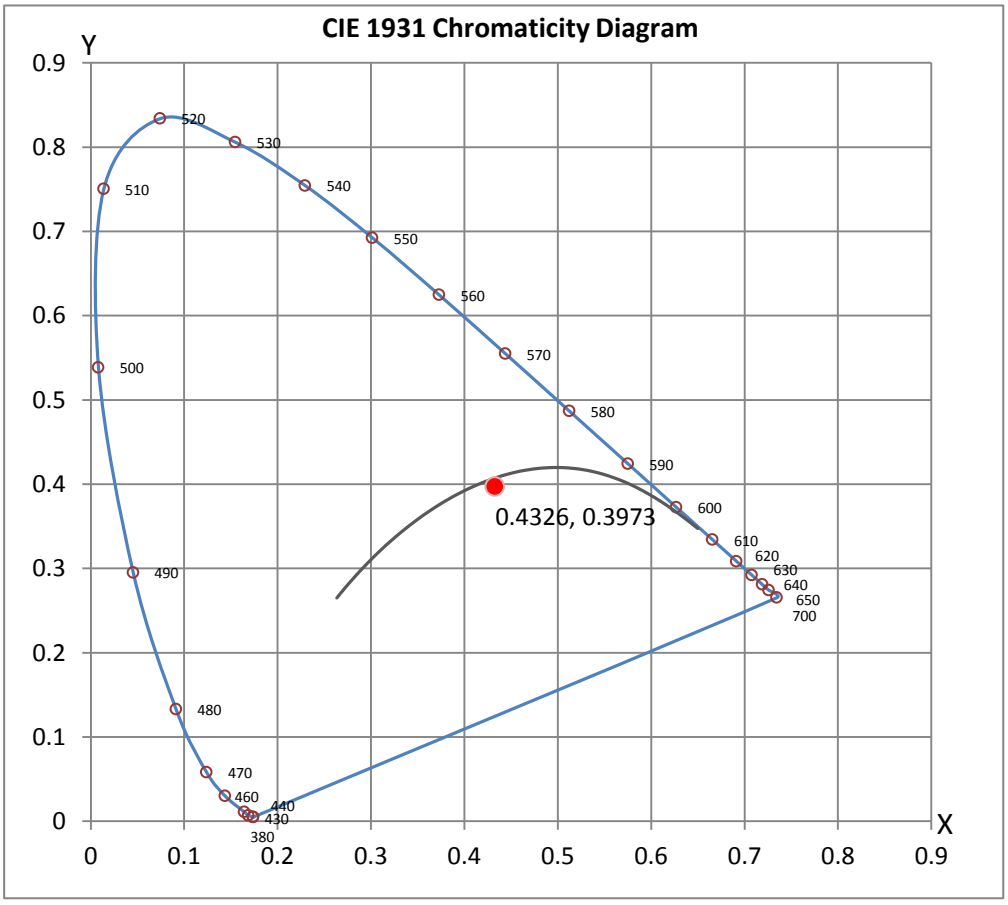



**CRI & CCT**

| | |
|---|---|
| x | 0.4326 |
| y | 0.3973 |
| u' | 0.2507 |
| v' | 0.5180 |
| CRI | 96.40 |
| CCT | 3018 |
| Duv | -0.00213 |

**R Values**

| | |
|---|---|
| R1 | 97.84 |
| R2 | 99.16 |
| R3 | 98.29 |
| R4 | 96.91 |
| R5 | 97.34 |
| R6 | 96.92 |
| R7 | 94.37 |
| R8 | 90.06 |
| R9 | 79.20 |
| R10 | 96.73 |
| R11 | 97.35 |
| R12 | 83.14 |
| R13 | 98.76 |
| R14 | 98.19 |
| R15 | 95.62 |



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## Test Methods

**Photometric Measurements - Goniophotometer**

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

**Spectral Measurements - Integrating Sphere**

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Keyur Patel

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 10*

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# Photometric Test Report

**IES INDOOR REPORT**
**PHOTOMETRIC FILENAME : L081910629.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002
[TEST] L081910629
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 9/3/2019
[MANUFAC] Number Eight Lighting Company
[LUMCAT] 201-R-BV-WD-3018-15-NFL/DIM1-2-SO/FLR-2-BV-WH
[LUMINAIRE] LED Recessed Fixed Position Downlight, 3000-1800K 90+ CRI, 15° Beam Spread,
[MORE[ NFL Lens, Standard Output 1% Dimming Driver, Round Flanged Bevel Trim, 2.25" Aperture
[BALLASTCAT] INTUITIVE SYSTEMS ISD-701-350-15-D
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120.02VAC, 14.68W
[TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

| | |
|---|---|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 662 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 45 |
| Total Luminaire Watts | 14.68 |
| Ballast Factor | 1.00 |
| CIE Type | Direct |
| Spacing Criterion (0-180) | 0.48 |
| Spacing Criterion (90-270) | 0.48 |
| Spacing Criterion (Diagonal) | 0.50 |
| Basic Luminous Shape | Circular |
| Luminous Length (0-180) | 0.27 ft (Diameter) |
| Luminous Width (90-270) | 0.27 ft (Diameter) |
| Luminous Height | 0.00 ft |

**LUMINANCE DATA (cd/sq.m)**

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|---|---|---|---|
| 45 | 3453 | 3453 | 3453 |
| 55 | 982 | 982 | 982 |
| 65 | 889 | 889 | 889 |
| 75 | 726 | 726 | 726 |
| 85 | 0 | 0 | 0 |

**IES INDOOR REPORT**
**PHOTOMETRIC FILENAME : L081910629.IES**

**CANDELA TABULATION**

| | **0** |
|---|---|
| **0.0** | 2194 |
| **1.0** | 2196 |
| **3.0** | 2151 |
| **5.0** | 2043 |
| **7.0** | 1883 |
| **9.0** | 1684 |
| **11.0** | 1466 |
| **13.0** | 1242 |
| **15.0** | 1027 |
| **17.0** | 828 |
| **19.5** | 609 |
| **22.5** | 404 |
| **25.5** | 261 |
| **29.0** | 157 |
| **33.0** | 89 |
| **37.5** | 45 |
| **42.5** | 17 |
| **47.5** | 9 |
| **55.0** | 3 |
| **65.0** | 2 |
| **75.0** | 1 |
| **85.0** | 0 |
| **90.0** | 0 |

**IES INDOOR REPORT**
**PHOTOMETRIC FILENAME : L081910629.IES**

**ZONAL LUMEN SUMMARY**

| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-20 | 449.92 | N.A. | 68.00 |
| 0-30 | 590.84 | N.A. | 89.30 |
| 0-40 | 637.70 | N.A. | 96.30 |
| 0-60 | 657.51 | N.A. | 99.30 |
| 0-80 | 661.42 | N.A. | 99.90 |
| 0-90 | 661.96 | N.A. | 100.00 |
| 10-90 | 511.71 | N.A. | 77.30 |
| 20-40 | 187.78 | N.A. | 28.40 |
| 20-50 | 203.74 | N.A. | 30.80 |
| 40-70 | 22.18 | N.A. | 3.40 |
| 60-80 | 3.92 | N.A. | 0.60 |
| 70-80 | 1.54 | N.A. | 0.20 |
| 80-90 | 0.54 | N.A. | 0.10 |
| 90-110 | 0.00 | N.A. | 0.00 |
| 90-120 | 0.00 | N.A. | 0.00 |
| 90-130 | 0.00 | N.A. | 0.00 |
| 90-150 | 0.00 | N.A. | 0.00 |
| 90-180 | 0.00 | N.A. | 0.00 |
| 110-180 | 0.00 | N.A. | 0.00 |
| 0-180 | 661.96 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

| Zone | Lumens |
|---|---|
| 0-10 | 150.26 |
| 10-20 | 299.66 |
| 20-30 | 140.92 |
| 30-40 | 46.86 |
| 40-50 | 15.96 |
| 50-60 | 3.85 |
| 60-70 | 2.37 |
| 70-80 | 1.54 |
| 80-90 | 0.54 |
| 90-100 | 0.00 |
| 100-110 | 0.00 |
| 110-120 | 0.00 |
| 120-130 | 0.00 |
| 130-140 | 0.00 |
| 140-150 | 0.00 |
| 150-160 | 0.00 |
| 160-170 | 0.00 |
| 170-180 | 0.00 |

**IES INDOOR REPORT**
**PHOTOMETRIC FILENAME : L081910629.IES**

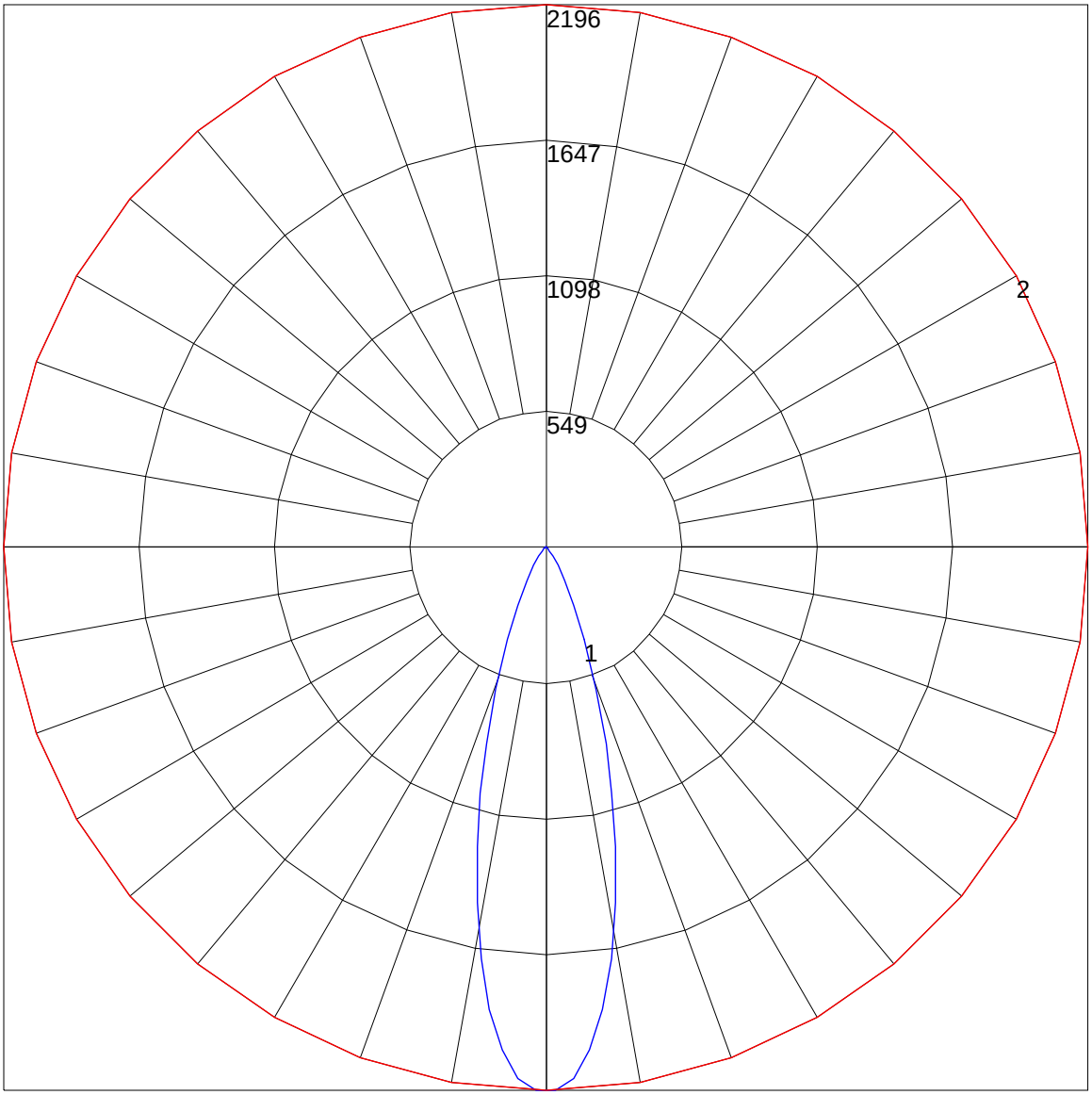
**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

Effective Floor Cavity Reflectance 0.20

| RC | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 114 | 112 | 110 | 108 | 112 | 110 | 108 | 106 | 106 | 104 | 103 | 102 | 101 | 100 | 99 | 98 | 97 | 95 |
| 2 | 110 | 106 | 103 | 100 | 108 | 104 | 101 | 99 | 101 | 99 | 96 | 98 | 96 | 94 | 95 | 94 | 92 | 91 |
| 3 | 106 | 100 | 96 | 93 | 104 | 99 | 95 | 92 | 97 | 93 | 91 | 94 | 92 | 90 | 92 | 90 | 88 | 87 |
| 4 | 102 | 96 | 91 | 88 | 100 | 95 | 90 | 87 | 93 | 89 | 86 | 91 | 88 | 85 | 89 | 86 | 84 | 83 |
| 5 | 98 | 91 | 87 | 83 | 97 | 90 | 86 | 83 | 89 | 85 | 82 | 87 | 84 | 81 | 86 | 83 | 81 | 79 |
| 6 | 95 | 87 | 83 | 79 | 93 | 87 | 82 | 79 | 85 | 81 | 78 | 84 | 80 | 78 | 83 | 80 | 77 | 76 |
| 7 | 91 | 84 | 79 | 76 | 90 | 83 | 79 | 75 | 82 | 78 | 75 | 81 | 77 | 75 | 80 | 77 | 74 | 73 |
| 8 | 88 | 80 | 76 | 72 | 87 | 80 | 75 | 72 | 79 | 75 | 72 | 78 | 74 | 72 | 77 | 74 | 71 | 70 |
| 9 | 85 | 77 | 73 | 70 | 84 | 77 | 72 | 69 | 76 | 72 | 69 | 75 | 72 | 69 | 75 | 71 | 69 | 68 |
| 10 | 82 | 75 | 70 | 67 | 81 | 74 | 70 | 67 | 73 | 69 | 67 | 73 | 69 | 66 | 72 | 69 | 66 | 65 |

**IES INDOOR REPORT**
**PHOTOMETRIC FILENAME : L081910629.IES**

**POLAR GRAPH**




Maximum Candela = 2196  Located At Horizontal Angle = 0, Vertical Angle = 1
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
# 2 - Horizontal Cone Through Vertical Angle (1) (Through Max. Cd.)

**IES INDOOR REPORT**
**PHOTOMETRIC FILENAME : L081910629.IES**

**ILLUMINANCE CONE DIAGRAM: BEAM (50%)**
**MOUNT HEIGHT(Ft): 12**