



# Spectra Lux

2750 Sabourin, Saint-Laurent (Quebec) H4S 1M2 Canada  
Tel.: (514) 332-0082 Fax: (514) 332-3590 [www.spectralux.ca](http://www.spectralux.ca)



Lab Code: 200899-0

## Moving Mirror Goniophotometer Test Report

**Standard(s):** IES LM-79:2019, ANSI C82.2:2002, ANSI C82.77-10:2021

**Customer** ANDlight, 1951 Franklin St., Vancouver, British Columbia , Canada, V5L 0C7

| General Information |                 | Lamp Details: CY5452    |                   | Driver Details: CY2568     |                  |
|---------------------|-----------------|-------------------------|-------------------|----------------------------|------------------|
| <b>DUT Lab ID</b>   | SRIS 3157-9     | <b>Seasoning</b>        | 0 Hour            | <b>Type</b>                | LED Power Supply |
| <b>Lamp Type</b>    | LED/SSL         | <b>Test Product</b>     | COL-175-3-P-V-30K | <b>Manufacturer</b>        | Meanwell         |
| <b>Current Mode</b> | AC              | <b>Manufacturer</b>     | Nichia            | <b>Catalog No.</b>         | PWM-90-24        |
| <b>Test Report</b>  | S2212052-R1     | <b>Lamp Catalog No.</b> | N.K.              | <b>Maximum Power</b>       | 90 W             |
| <b>Test Date</b>    | 5 December 2022 | <b>Drive Current</b>    | N.K.              | <b>Input Voltage</b>       | 120.00 V         |
| <b>Report Date</b>  | 8 December 2022 | <b>Nominal Color</b>    | 3000 K            | <b>Operating Frequency</b> | 60 Hz            |
| <b>Ambient</b>      | 22.8 °C         | <b>Burning Position</b> | Axial             | <b>Input Power</b>         | 37.73 W          |

### Luminaire Data

| General Information |                   | Optics         |                                 | Aperture (feet) |         |
|---------------------|-------------------|----------------|---------------------------------|-----------------|---------|
| <b>Manufacturer</b> | ANDlight          | <b>Optics</b>  | None                            | <b>X</b>        | -0.5833 |
| <b>Name</b>         | Column Series     | <b>Housing</b> | (3) Facetted Vertical Cylinders | <b>Y</b>        | -0.5833 |
| <b>Catalog No.</b>  | COL-175-3-P-V-30K | <b>Lens</b>    | (3) Acrylic Diffusers           | <b>Z</b>        | 2.6250  |

Stabilization Time: 1 hour

**Approved Signatory: Chrisnel Blot**

**Signature:**



### Luminaire Test Method

Precise installation and alignment of the luminaire to the rotation axis of the photometer is governed by a servomotor controlled via a microcontroller. A laser is used to validate the luminaire positioning. Before photometric measurements are taken, luminaire is operated long enough to reach stabilization and temperature equilibrium.

All movement commands issued to the photometer axes are mediated by the software to ensure the motion is within the limits of operation. The photometric detector used is a silicon detector corrected to closely match the spectral luminous efficiency photopic curve with a quality index less than 1.5%. Proper shielding is incorporated to the photometric test bench such that only the light from the unit under test is measured.

Luminous intensity measurements are performed at a distance great enough so that the inverse-square law applies. During each measurement the computer records the luminous intensity associated to the corresponding angles of radiation, as well as input electrical operational parameters and temperature measurements. Candela values are reported in IES format as per LM-63.

Equipment, reference standards are traceable to National Institute of Standards and Technology (NIST) and National Research Council of Canada (NRC).





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### Electrical Equipment

| Equipment          | Manufacturer | Model   | Serial Number | Calibration Date | Calibration Due Date |
|--------------------|--------------|---------|---------------|------------------|----------------------|
| Power Supply       | Inventfine   | CHP-500 | GZBXD010148   | N.P.C.R.         | N.P.C.R.             |
| Input Power Meter  | Yokogawa     | WT210   | 27E116584     | 2022/09/22       | 2023/09/22           |
| Output Power Meter | N/A          | N/A     | N/A           | N.P.C.R.         | N.P.C.R.             |

### Photometric Equipment

| Equipment     | Manufacturer | Model       | Serial Number | Calibration Date | Calibration Due Date |
|---------------|--------------|-------------|---------------|------------------|----------------------|
| Photometer    | N/A          | N/A         | N/A           | N.P.C.R.         | N.P.C.R.             |
| Photodetector | INPHORA      | IPR-PDET 19 | 110803        | 2022/09/07       | 2023/09/07           |

### Environment Equipment

| Equipment                   | Manufacturer | Model | Serial Number | Calibration Date | Calibration Due Date |
|-----------------------------|--------------|-------|---------------|------------------|----------------------|
| Temperature Humidity Sensor | Omega        | HH311 | 120504176     | 2022/09/07       | 2023/09/07           |

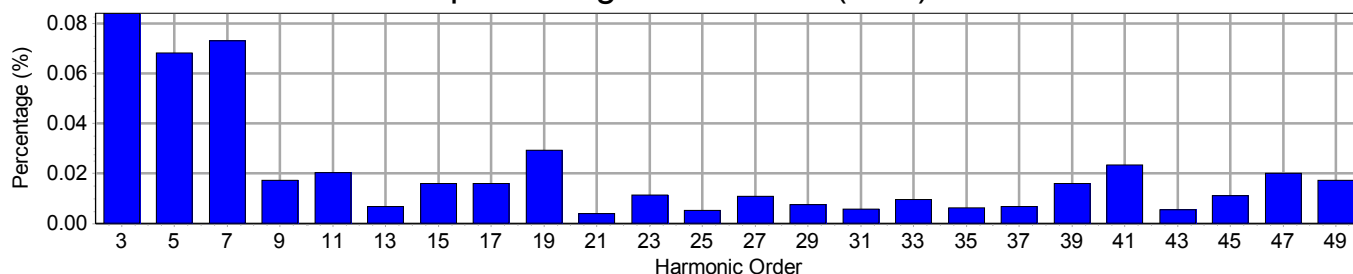


## Electrical Measurements

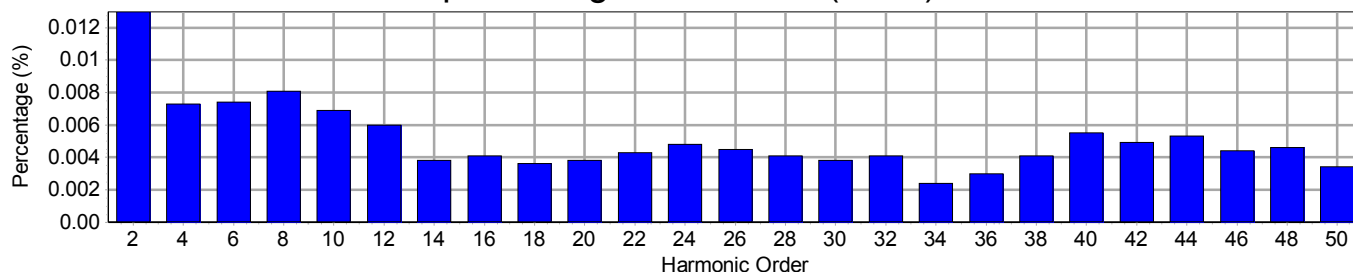
### Input

|           |               |                |          |                  |           |
|-----------|---------------|----------------|----------|------------------|-----------|
| Frequency | 60 Hz         | Active Power   | 37.73 W  | THDV [ANSI]      | 0.14 %    |
| Voltage   | 120.0 V(rms)  | Apparent Power | 38.33 VA | THDA [ANSI]      | 7.44 %    |
| Current   | 0.3195 A(rms) | Power Factor   | 0.984    | Max. Harmonic At | 5th order |

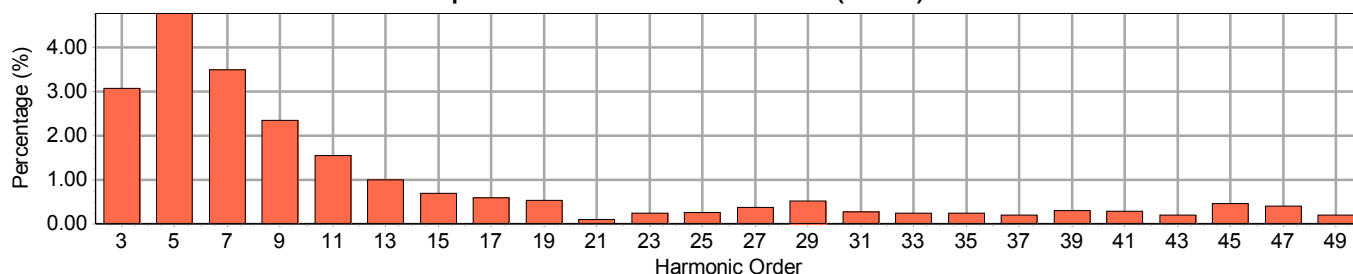
### Input Voltage Harmonics (Odd)



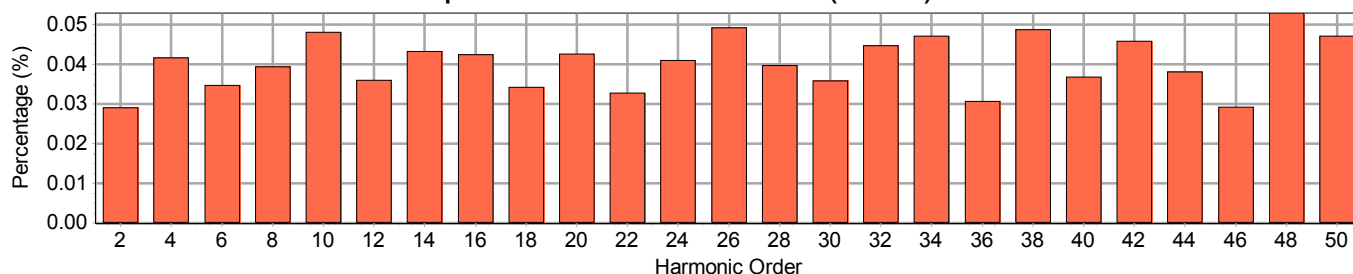
### Input Voltage Harmonics (Even)



### Input Current Harmonics (Odd)



### Input Current Harmonics (Even)





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### Harmonic Measurements

| Odd Harmonics  |                |                       |                       | Even Harmonics |                |                       |                       |
|----------------|----------------|-----------------------|-----------------------|----------------|----------------|-----------------------|-----------------------|
| Harmonic Order | Frequency (HZ) | Voltage Harmonics (%) | Current Harmonics (%) | Harmonic Order | Frequency (HZ) | Voltage Harmonics (%) | Current Harmonics (%) |
| 1              | 60             | 100.000               | 100.000               | 2              | 120            | 0.013                 | 0.029                 |
| 3              | 180            | 0.084                 | 3.072                 | 4              | 240            | 0.007                 | 0.042                 |
| 5              | 300            | 0.068                 | 4.774                 | 6              | 360            | 0.007                 | 0.035                 |
| 7              | 420            | 0.073                 | 3.489                 | 8              | 480            | 0.008                 | 0.039                 |
| 9              | 540            | 0.017                 | 2.350                 | 10             | 600            | 0.007                 | 0.048                 |
| 11             | 660            | 0.020                 | 1.551                 | 12             | 720            | 0.006                 | 0.036                 |
| 13             | 780            | 0.007                 | 0.990                 | 14             | 840            | 0.004                 | 0.043                 |
| 15             | 900            | 0.016                 | 0.686                 | 16             | 960            | 0.004                 | 0.042                 |
| 17             | 1020           | 0.016                 | 0.589                 | 18             | 1080           | 0.004                 | 0.034                 |
| 19             | 1140           | 0.029                 | 0.536                 | 20             | 1200           | 0.004                 | 0.043                 |
| 21             | 1260           | 0.004                 | 0.089                 | 22             | 1320           | 0.004                 | 0.033                 |
| 23             | 1380           | 0.011                 | 0.232                 | 24             | 1440           | 0.005                 | 0.041                 |
| 25             | 1500           | 0.005                 | 0.256                 | 26             | 1560           | 0.005                 | 0.049                 |
| 27             | 1620           | 0.011                 | 0.377                 | 28             | 1680           | 0.004                 | 0.040                 |
| 29             | 1740           | 0.008                 | 0.513                 | 30             | 1800           | 0.004                 | 0.036                 |
| 31             | 1860           | 0.006                 | 0.275                 | 32             | 1920           | 0.004                 | 0.045                 |
| 33             | 1980           | 0.010                 | 0.243                 | 34             | 2040           | 0.002                 | 0.047                 |
| 35             | 2100           | 0.006                 | 0.240                 | 36             | 2160           | 0.003                 | 0.031                 |
| 37             | 2220           | 0.007                 | 0.198                 | 38             | 2280           | 0.004                 | 0.049                 |
| 39             | 2340           | 0.016                 | 0.293                 | 40             | 2400           | 0.006                 | 0.037                 |
| 41             | 2460           | 0.024                 | 0.277                 | 42             | 2520           | 0.005                 | 0.046                 |
| 43             | 2580           | 0.006                 | 0.191                 | 44             | 2640           | 0.005                 | 0.038                 |
| 45             | 2700           | 0.011                 | 0.457                 | 46             | 2760           | 0.004                 | 0.029                 |
| 47             | 2820           | 0.020                 | 0.406                 | 48             | 2880           | 0.005                 | 0.053                 |
| 49             | 2940           | 0.017                 | 0.190                 | 50             | 3000           | 0.003                 | 0.047                 |



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Lab Code: 200899-0

## Photometric Report: S2212052-R1

Prepared for: ANDlight · Test Date: 05 December 2022

Luminaire: Column Series · Lumcat: COL-175-3-P-V-30K

### Coefficients of Utilization - Zonal Cavity Method

| RCR | RC |     |     |     | 0.9 |     |     |     | 0.8 |     |     |     | 0.7 |     |     |     | 0.5 |     |     | 0.1 |     |     | 0  |
|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
|     | RW | 0.7 | 0.5 | 0.3 | 0.1 | 0.7 | 0.5 | 0.3 | 0.1 | 0.7 | 0.5 | 0.3 | 0.1 | 0.5 | 0.3 | 0.1 | 0.5 | 0.3 | 0.1 | 0.5 | 0.3 | 0.1 | 0  |
| 0   |    | 116 | 116 | 116 | 116 | 107 | 107 | 107 | 107 | 99  | 99  | 99  | 99  | 83  | 83  | 83  | 56  | 56  | 56  |     |     |     | 50 |
| 1   |    | 101 | 93  | 86  | 80  | 92  | 86  | 80  | 74  | 84  | 78  | 73  | 68  | 65  | 61  | 57  | 41  | 39  | 36  |     |     |     | 31 |
| 2   |    | 90  | 78  | 69  | 61  | 82  | 72  | 63  | 56  | 74  | 65  | 58  | 52  | 54  | 48  | 43  | 33  | 30  | 27  |     |     |     | 22 |
| 3   |    | 81  | 67  | 56  | 48  | 73  | 61  | 52  | 44  | 66  | 56  | 47  | 41  | 46  | 39  | 34  | 27  | 24  | 20  |     |     |     | 16 |
| 4   |    | 73  | 58  | 47  | 39  | 66  | 53  | 43  | 36  | 60  | 48  | 40  | 33  | 39  | 33  | 27  | 23  | 19  | 16  |     |     |     | 12 |
| 5   |    | 66  | 51  | 40  | 32  | 60  | 46  | 37  | 30  | 55  | 42  | 34  | 27  | 35  | 28  | 22  | 20  | 16  | 13  |     |     |     | 9  |
| 6   |    | 61  | 45  | 34  | 27  | 55  | 41  | 32  | 25  | 50  | 37  | 29  | 23  | 31  | 24  | 19  | 18  | 14  | 11  |     |     |     | 8  |
| 7   |    | 56  | 40  | 30  | 23  | 51  | 37  | 28  | 21  | 46  | 33  | 25  | 19  | 27  | 21  | 16  | 16  | 12  | 9   |     |     |     | 6  |
| 8   |    | 51  | 36  | 26  | 20  | 47  | 33  | 24  | 18  | 42  | 30  | 22  | 17  | 25  | 18  | 14  | 15  | 11  | 8   |     |     |     | 5  |
| 9   |    | 48  | 32  | 23  | 17  | 43  | 30  | 22  | 16  | 39  | 27  | 20  | 15  | 22  | 16  | 12  | 14  | 10  | 7   |     |     |     | 4  |
| 10  |    | 44  | 30  | 21  | 15  | 40  | 27  | 19  | 14  | 37  | 25  | 18  | 13  | 20  | 15  | 10  | 12  | 9   | 6   |     |     |     | 4  |

### Zonal Lumen Summary

| Zone     | Lumens | % Lamp | % Luminaire |
|----------|--------|--------|-------------|
| 0 - 10   | 3      | 0.15   | 0.15        |
| 10 - 20  | 17     | 0.83   | 0.83        |
| 20 - 30  | 42     | 2.07   | 2.07        |
| 30 - 40  | 76     | 3.75   | 3.75        |
| 40 - 50  | 115    | 5.65   | 5.65        |
| 50 - 60  | 154    | 7.54   | 7.54        |
| 60 - 70  | 186    | 9.12   | 9.12        |
| 70 - 80  | 208    | 10.20  | 10.20       |
| 80 - 90  | 218    | 10.69  | 10.69       |
| 90 - 120 | 612    | 30.01  | 30.01       |
| 90 - 130 | 766    | 37.55  | 37.55       |
| 90 - 150 | 957    | 46.95  | 46.95       |
| 90 - 180 | 1020   | 50.00  | 50.00       |
| 0 - 180  | 2039   | 100.00 | 100.00      |

### Average Luminance (Cd/m<sup>2</sup>)

| Angle | 0 Degree | 45 Degree | 90 Degree |
|-------|----------|-----------|-----------|
| 45.0  | 492      | 485       | 469       |
| 55.0  | 699      | 687       | 666       |
| 65.0  | 1039     | 1020      | 988       |
| 75.0  | 1780     | 1747      | 1691      |
| 85.0  | 5365     | 5270      | 5103      |

Luminaire Luminous Flux: 2039

Measured Input Power: 37.73 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 54.0 lm/W

Luminaire Spacing Criterion (0 Degree): 5.1815

Luminaire Spacing Criterion (90 Degree): 5.0830

Category: Up and Down

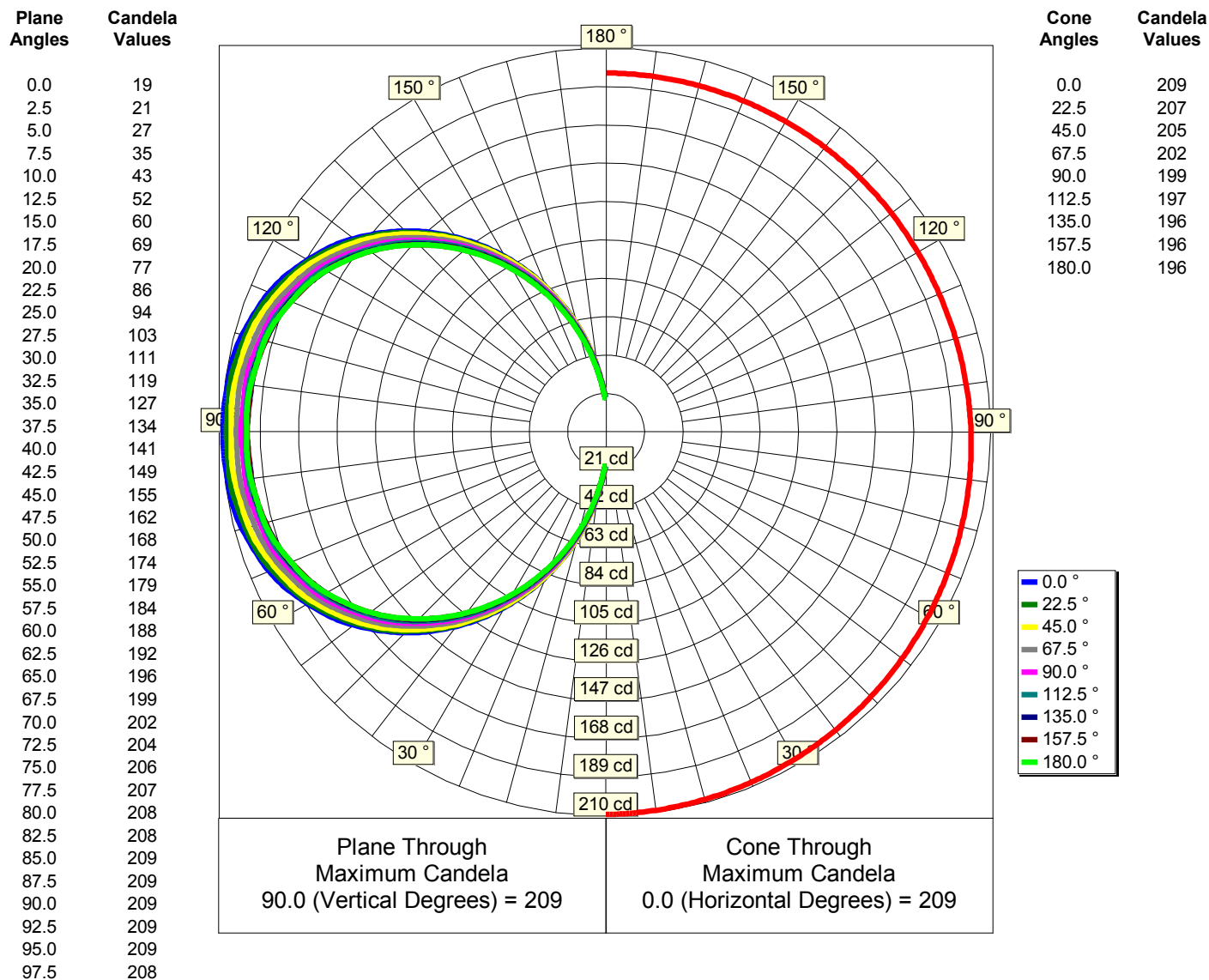


## Photometric Report: S2212052-R1

Prepared for: ANDlight · Test Date: 05 December 2022

Luminaire: Column Series · Lumcat: COL-175-3-P-V-30K

### Luminous Intensity - Polar Curve for each Plane(1)







## Photometric Report: S2212052-R1

Prepared for: ANDlight · Test Date: 05 December 2022

Luminaire: Column Series · Lumcat: COL-175-3-P-V-30K

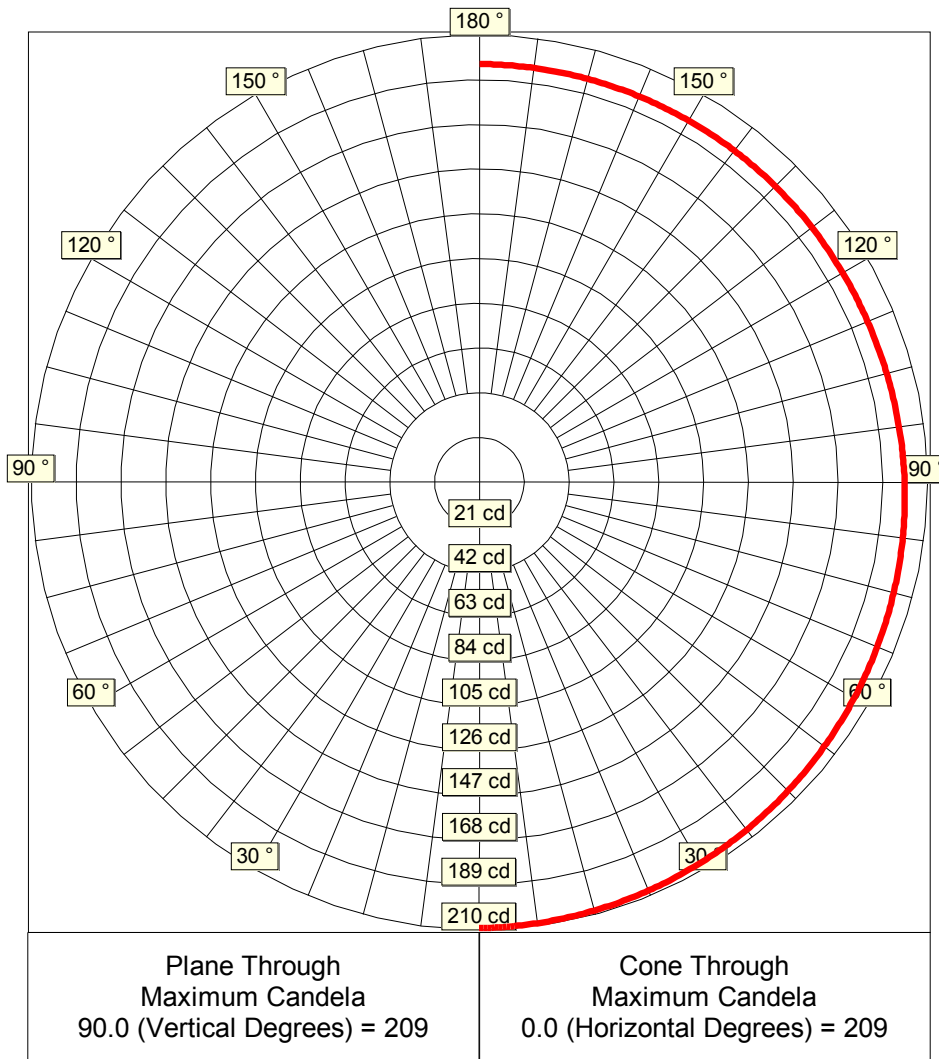
### Luminous Intensity - Polar Curve for each Plane(2)

Plane  
Angles

| Plane<br>Angles | Candela<br>Values |
|-----------------|-------------------|
| 100.0           | 208               |
| 102.5           | 207               |
| 105.0           | 206               |
| 107.5           | 204               |
| 110.0           | 202               |
| 112.5           | 199               |
| 115.0           | 196               |
| 117.5           | 192               |
| 120.0           | 188               |
| 122.5           | 184               |
| 125.0           | 179               |
| 127.5           | 174               |
| 130.0           | 168               |
| 132.5           | 162               |
| 135.0           | 155               |
| 137.5           | 149               |
| 140.0           | 141               |
| 142.5           | 134               |
| 145.0           | 127               |
| 147.5           | 119               |
| 150.0           | 111               |
| 152.5           | 103               |
| 155.0           | 94                |
| 157.5           | 86                |
| 160.0           | 77                |
| 162.5           | 69                |
| 165.0           | 60                |
| 167.5           | 52                |
| 170.0           | 43                |
| 172.5           | 35                |
| 175.0           | 27                |
| 177.5           | 21                |
| 180.0           | 19                |

Cone  
Angles

Candela  
Values







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## IES File Headers

IESNA:LM-63  
[ISSUEDATE] 05 December 2022  
[TESTLAB] Spectra Lux  
[TEST] S2212052-R1  
[MANUFAC] ANDlight  
[LUMCAT] COL-175-3-P-V-30K  
[LUMINAIRE] Column Series  
[LAMP] Clusters of Nichia LEDs c/w Meanwell Driver PWM-90-24 @ 120.00V  
[\_BURNING] Axial (2,039 Luminaire Lumens)  
[\_OPTICS] None  
[\_LENS] (3) Acrylic Diffusers  
[\_HOUSING] (3) Facetted Vertical Cylinders  
[\_NOMINAL COLOR] 3000 K  
[\_DRIVE CURRENT] N.K.

## Candela Table

### Lateral Angles

|                                      | 0.0  | 22.5 | 45.0 | 67.5 | 90.0 | 112.5 | 135.0 | 157.5 | 180.0 |
|--------------------------------------|------|------|------|------|------|-------|-------|-------|-------|
| V<br>e<br>r<br>t<br>i<br>c<br>a<br>l | 0.0  | 19   | 19   | 19   | 19   | 19    | 19    | 19    | 19    |
|                                      | 2.5  | 21   | 21   | 21   | 21   | 21    | 20    | 20    | 20    |
|                                      | 5.0  | 27   | 27   | 28   | 27   | 27    | 26    | 26    | 26    |
|                                      | 7.5  | 35   | 35   | 35   | 35   | 34    | 33    | 33    | 33    |
|                                      | 10.0 | 43   | 43   | 44   | 43   | 42    | 41    | 40    | 40    |
|                                      | 12.5 | 52   | 51   | 52   | 51   | 50    | 49    | 48    | 48    |
|                                      | 15.0 | 60   | 60   | 60   | 59   | 58    | 57    | 56    | 56    |
|                                      | 17.5 | 69   | 68   | 69   | 67   | 66    | 65    | 64    | 64    |
|                                      | 20.0 | 77   | 77   | 77   | 75   | 74    | 73    | 72    | 72    |
|                                      | 22.5 | 86   | 85   | 85   | 83   | 82    | 81    | 80    | 79    |
|                                      | 25.0 | 94   | 94   | 93   | 92   | 90    | 89    | 88    | 87    |
|                                      | 27.5 | 103  | 102  | 102  | 100  | 98    | 97    | 96    | 95    |
|                                      | 30.0 | 111  | 110  | 110  | 107  | 106   | 105   | 104   | 103   |
|                                      | 32.5 | 119  | 118  | 117  | 115  | 114   | 112   | 111   | 110   |
|                                      | 35.0 | 127  | 126  | 125  | 123  | 121   | 120   | 118   | 118   |
|                                      | 37.5 | 134  | 133  | 133  | 130  | 128   | 127   | 125   | 125   |
|                                      | 40.0 | 141  | 140  | 140  | 137  | 135   | 134   | 132   | 132   |
|                                      | 42.5 | 149  | 147  | 146  | 144  | 142   | 140   | 139   | 138   |
|                                      | 45.0 | 155  | 154  | 153  | 150  | 148   | 147   | 146   | 145   |
| A<br>n<br>g<br>l<br>e<br>s           | 47.5 | 162  | 161  | 159  | 157  | 154   | 153   | 152   | 151   |
|                                      | 50.0 | 168  | 167  | 165  | 163  | 160   | 159   | 157   | 157   |
|                                      | 52.5 | 174  | 172  | 171  | 168  | 166   | 164   | 163   | 162   |
|                                      | 55.0 | 179  | 178  | 176  | 173  | 171   | 169   | 168   | 167   |
|                                      | 57.5 | 184  | 183  | 181  | 178  | 175   | 174   | 173   | 172   |
|                                      | 60.0 | 188  | 187  | 185  | 182  | 180   | 178   | 177   | 176   |
|                                      | 62.5 | 192  | 191  | 189  | 186  | 183   | 182   | 180   | 180   |
|                                      | 65.0 | 196  | 194  | 192  | 189  | 186   | 185   | 184   | 184   |
|                                      | 67.5 | 199  | 197  | 195  | 192  | 190   | 188   | 187   | 186   |
|                                      | 70.0 | 202  | 200  | 198  | 195  | 192   | 190   | 189   | 189   |
|                                      | 72.5 | 204  | 202  | 200  | 197  | 194   | 193   | 191   | 191   |
|                                      | 75.0 | 206  | 204  | 202  | 199  | 196   | 194   | 193   | 193   |
|                                      | 77.5 | 207  | 205  | 203  | 200  | 197   | 195   | 194   | 194   |
|                                      | 80.0 | 208  | 206  | 204  | 201  | 198   | 196   | 195   | 195   |
|                                      | 82.5 | 208  | 207  | 205  | 202  | 199   | 197   | 195   | 196   |
|                                      | 85.0 | 209  | 207  | 205  | 202  | 199   | 197   | 195   | 196   |
|                                      | 87.5 | 209  | 207  | 205  | 202  | 199   | 197   | 196   | 196   |
|                                      | 90.0 | 209  | 207  | 205  | 202  | 199   | 197   | 196   | 196   |



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Lab Code: 200899-0

## Lateral Angles

|                                      | 0.0   | 22.5 | 45.0 | 67.5 | 90.0 | 112.5 | 135.0 | 157.5 | 180.0 |
|--------------------------------------|-------|------|------|------|------|-------|-------|-------|-------|
| V<br>e<br>r<br>t<br>i<br>c<br>a<br>l | 92.5  | 209  | 207  | 205  | 202  | 199   | 197   | 196   | 196   |
|                                      | 95.0  | 209  | 207  | 205  | 202  | 199   | 197   | 195   | 196   |
|                                      | 97.5  | 208  | 207  | 205  | 202  | 199   | 197   | 195   | 196   |
|                                      | 100.0 | 208  | 206  | 204  | 201  | 198   | 196   | 195   | 195   |
|                                      | 102.5 | 207  | 205  | 203  | 200  | 197   | 195   | 194   | 194   |
|                                      | 105.0 | 206  | 204  | 202  | 199  | 196   | 194   | 193   | 193   |
|                                      | 107.5 | 204  | 202  | 200  | 197  | 194   | 193   | 191   | 191   |
|                                      | 110.0 | 202  | 200  | 198  | 195  | 192   | 190   | 189   | 189   |
|                                      | 112.5 | 199  | 197  | 195  | 192  | 190   | 188   | 187   | 186   |
|                                      | 115.0 | 196  | 194  | 192  | 189  | 186   | 185   | 184   | 184   |
|                                      | 117.5 | 192  | 191  | 189  | 186  | 183   | 182   | 180   | 180   |
|                                      | 120.0 | 188  | 187  | 185  | 182  | 180   | 178   | 177   | 176   |
|                                      | 122.5 | 184  | 183  | 181  | 178  | 175   | 174   | 173   | 172   |
|                                      | 125.0 | 179  | 178  | 176  | 173  | 171   | 169   | 168   | 167   |
|                                      | 127.5 | 174  | 172  | 171  | 168  | 166   | 164   | 163   | 162   |
|                                      | 130.0 | 168  | 167  | 165  | 163  | 160   | 159   | 157   | 157   |
|                                      | 132.5 | 162  | 161  | 159  | 157  | 154   | 153   | 152   | 151   |
|                                      | 135.0 | 155  | 154  | 153  | 150  | 148   | 147   | 146   | 145   |
| A<br>n<br>g<br>l<br>e<br>s           | 137.5 | 149  | 147  | 146  | 144  | 142   | 140   | 139   | 138   |
|                                      | 140.0 | 141  | 140  | 140  | 137  | 135   | 134   | 132   | 132   |
|                                      | 142.5 | 134  | 133  | 133  | 130  | 128   | 127   | 125   | 125   |
|                                      | 145.0 | 127  | 126  | 125  | 123  | 121   | 120   | 118   | 118   |
|                                      | 147.5 | 119  | 118  | 117  | 115  | 114   | 112   | 111   | 110   |
|                                      | 150.0 | 111  | 110  | 110  | 107  | 106   | 105   | 104   | 103   |
|                                      | 152.5 | 103  | 102  | 102  | 100  | 98    | 97    | 96    | 95    |
|                                      | 155.0 | 94   | 94   | 93   | 92   | 90    | 89    | 88    | 87    |
|                                      | 157.5 | 86   | 85   | 85   | 83   | 82    | 81    | 80    | 79    |
|                                      | 160.0 | 77   | 77   | 77   | 75   | 74    | 73    | 72    | 72    |
|                                      | 162.5 | 69   | 68   | 69   | 67   | 66    | 65    | 65    | 64    |
|                                      | 165.0 | 60   | 60   | 60   | 59   | 58    | 57    | 57    | 56    |
|                                      | 167.5 | 52   | 51   | 52   | 51   | 50    | 49    | 49    | 48    |
|                                      | 170.0 | 43   | 43   | 44   | 43   | 42    | 42    | 41    | 40    |
|                                      | 172.5 | 35   | 35   | 35   | 35   | 34    | 34    | 33    | 33    |
|                                      | 175.0 | 27   | 27   | 28   | 27   | 27    | 27    | 26    | 26    |
|                                      | 177.5 | 21   | 21   | 21   | 21   | 21    | 21    | 20    | 20    |
|                                      | 180.0 | 19   | 19   | 19   | 19   | 19    | 19    | 19    | 19    |