



IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4CSDI-P12-835U-P12-835D-XXX-POE PR-LM-WHU-RM-WHD-WM_IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13257153.19 & #13257153.20

[TESTLAB] UL Verification Services Inc.

[ISSUE DATE] 20-APR-2021

[MANUFAC] H E Williams Inc

[LUMCAT] 4CSDI-P12-835U-P12-835D-PoE PR-LM-WHU-RM-WHD-WM

[LUMINAIRE] Aluminum housing, optics, and trim enclosure

[LAMP] Two white LEDs

[OTHER] 25.1 C, 120.077 V, 0.14532 A, 17.3136 W, 0.992212 PF, 60.0001

[MORE] Hz

[OTHER] This test was performed using the calibrated photodetector met

[MORE] hod of absolute photometry.

[CONVERT] Photometric web converted from original test data

[CONVERT] Luminaire test position and photometric web converted from original test data

CHARACTERISTICS

| | |
|---------------------------------|-----------------|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 2751 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 120 |
| Total Luminaire Watts | 23 |
| Ballast Factor | 1.00 |
| CIE Type | General Diffuse |
| Spacing Criterion (0-180) | N.A. |
| Spacing Criterion (90-270) | N.A. |
| Spacing Criterion (Diagonal) | N.A. |
| Basic Luminous Shape | Rectangular |
| Luminous Length (0-180) | 0.21 ft |
| Luminous Width (90-270) | 0.21 ft |
| Luminous Height | 0.00 ft |

LUMINANCE DATA (cd/sq.m)

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|---------------------|------------------|-------------------|-------------------|
| 45 | 37383 | 43482 | 37524 |
| 55 | 22904 | 26002 | 23287 |
| 65 | 17669 | 16345 | 17527 |
| 75 | 10182 | 9334 | 9950 |
| 85 | 4580 | 4580 | 4811 |

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CANDELA TABULATION

| | <u>0.0</u> | <u>22.5</u> | <u>45.0</u> | <u>67.5</u> | <u>90.0</u> | <u>112.5</u> | <u>135.0</u> | <u>157.5</u> | <u>180.0</u> |
|-------|------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|
| 0.0 | 3190.414 | 3190.414 | 3190.414 | 3190.414 | 3190.414 | 3190.414 | 3190.414 | 3190.414 | 3190.414 |
| 2.5 | 3147.039 | 3134.188 | 3139.007 | 3149.449 | 3155.072 | 3149.449 | 3139.007 | 3134.188 | 3147.039 |
| 5.0 | 3013.704 | 3001.655 | 3008.081 | 3016.114 | 3017.720 | 3016.114 | 3008.081 | 3001.655 | 3013.704 |
| 7.5 | 2812.094 | 2806.472 | 2813.701 | 2813.701 | 2812.094 | 2813.701 | 2813.701 | 2806.472 | 2812.094 |
| 10.0 | 2521.326 | 2522.130 | 2535.784 | 2526.949 | 2520.523 | 2526.949 | 2535.784 | 2522.130 | 2521.326 |
| 12.5 | 2109.271 | 2115.697 | 2135.778 | 2128.549 | 2114.894 | 2128.549 | 2135.778 | 2115.697 | 2109.271 |
| 15.0 | 1604.846 | 1624.926 | 1653.039 | 1647.416 | 1625.729 | 1647.416 | 1653.039 | 1624.926 | 1604.846 |
| 17.5 | 1123.713 | 1161.465 | 1199.216 | 1188.774 | 1158.252 | 1188.774 | 1199.216 | 1161.465 | 1123.713 |
| 20.0 | 772.382 | 815.274 | 861.058 | 839.371 | 807.242 | 839.371 | 861.058 | 815.274 | 772.382 |
| 22.5 | 569.888 | 603.383 | 650.131 | 617.359 | 589.728 | 617.359 | 650.131 | 603.383 | 569.888 |
| 25.0 | 455.027 | 481.775 | 523.382 | 486.674 | 459.285 | 486.674 | 523.382 | 481.775 | 455.027 |
| 27.5 | 372.375 | 399.846 | 439.846 | 400.650 | 371.251 | 400.650 | 439.846 | 399.846 | 372.375 |
| 30.0 | 300.326 | 329.804 | 372.616 | 330.367 | 302.173 | 330.367 | 372.616 | 329.804 | 300.326 |
| 32.5 | 242.012 | 267.635 | 311.491 | 269.803 | 245.466 | 269.803 | 311.491 | 267.635 | 242.012 |
| 35.0 | 196.549 | 217.594 | 256.551 | 220.887 | 201.529 | 220.887 | 256.551 | 217.594 | 196.549 |
| 37.5 | 168.034 | 179.923 | 209.723 | 184.019 | 169.962 | 184.019 | 209.723 | 179.923 | 168.034 |
| 40.0 | 145.946 | 153.738 | 173.015 | 155.745 | 146.268 | 155.745 | 173.015 | 153.738 | 145.946 |
| 42.5 | 125.384 | 132.933 | 144.902 | 133.576 | 125.544 | 133.576 | 144.902 | 132.933 | 125.384 |
| 45.0 | 106.347 | 114.380 | 123.697 | 114.540 | 106.748 | 114.540 | 123.697 | 114.380 | 106.347 |
| 47.5 | 89.239 | 97.110 | 105.062 | 97.351 | 89.720 | 97.351 | 105.062 | 97.110 | 89.239 |
| 50.0 | 74.218 | 81.447 | 87.953 | 81.848 | 75.022 | 81.848 | 87.953 | 81.447 | 74.218 |
| 52.5 | 62.089 | 68.033 | 72.853 | 68.596 | 63.053 | 68.596 | 72.853 | 68.033 | 62.089 |
| 55.0 | 52.853 | 56.869 | 60.001 | 57.591 | 53.736 | 57.591 | 60.001 | 56.869 | 52.853 |
| 57.5 | 45.864 | 48.113 | 49.479 | 48.595 | 46.506 | 48.595 | 49.479 | 48.113 | 45.864 |
| 60.0 | 40.402 | 41.125 | 40.884 | 41.366 | 40.402 | 41.366 | 40.884 | 41.125 | 40.402 |
| 62.5 | 35.182 | 35.182 | 33.816 | 35.101 | 35.020 | 35.101 | 33.816 | 35.182 | 35.182 |
| 65.0 | 30.041 | 29.639 | 27.791 | 29.478 | 29.800 | 29.478 | 27.791 | 29.639 | 30.041 |
| 67.5 | 24.981 | 24.498 | 22.571 | 24.257 | 24.740 | 24.257 | 22.571 | 24.498 | 24.981 |
| 70.0 | 20.081 | 19.599 | 17.912 | 19.358 | 19.840 | 19.358 | 17.912 | 19.599 | 20.081 |
| 72.5 | 15.342 | 14.940 | 13.655 | 14.699 | 15.181 | 14.699 | 13.655 | 14.940 | 15.342 |
| 75.0 | 10.602 | 10.602 | 9.719 | 10.282 | 10.361 | 10.282 | 9.719 | 10.602 | 10.602 |
| 77.5 | 5.060 | 6.266 | 6.426 | 6.104 | 5.944 | 6.104 | 6.426 | 6.266 | 5.060 |
| 80.0 | 3.695 | 3.775 | 4.016 | 3.856 | 3.856 | 3.856 | 4.016 | 3.775 | 3.695 |
| 82.5 | 2.570 | 2.651 | 2.651 | 2.651 | 2.651 | 2.651 | 2.651 | 2.651 | 2.570 |
| 85.0 | 1.606 | 1.687 | 1.606 | 1.606 | 1.687 | 1.606 | 1.606 | 1.687 | 1.606 |
| 87.5 | 0.723 | 0.723 | 0.723 | 0.803 | 0.803 | 0.803 | 0.723 | 0.723 | 0.723 |
| 90.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 92.5 | 0.731 | 1.005 | 1.097 | 1.187 | 1.279 | 1.187 | 1.097 | 1.005 | 0.731 |
| 95.0 | 4.111 | 3.838 | 3.655 | 4.020 | 4.385 | 4.020 | 3.655 | 3.838 | 4.111 |
| 97.5 | 7.492 | 7.218 | 7.036 | 7.492 | 7.858 | 7.492 | 7.036 | 7.218 | 7.492 |
| 100.0 | 11.421 | 11.238 | 10.964 | 11.512 | 11.878 | 11.512 | 10.964 | 11.238 | 11.421 |
| 102.5 | 15.806 | 15.715 | 15.349 | 15.989 | 16.172 | 15.989 | 15.349 | 15.715 | 15.806 |
| 105.0 | 20.649 | 20.649 | 20.192 | 21.014 | 21.106 | 21.014 | 20.192 | 20.649 | 20.649 |
| 107.5 | 25.948 | 25.948 | 25.399 | 26.496 | 26.313 | 26.496 | 25.399 | 25.948 | 25.948 |
| 110.0 | 31.705 | 31.795 | 31.248 | 32.343 | 31.887 | 32.343 | 31.248 | 31.795 | 31.705 |
| 112.5 | 37.734 | 38.100 | 37.552 | 38.557 | 37.825 | 38.557 | 37.552 | 38.100 | 37.734 |
| 115.0 | 44.130 | 45.043 | 44.404 | 45.226 | 44.130 | 45.226 | 44.404 | 45.043 | 44.130 |
| 117.5 | 50.891 | 52.170 | 51.714 | 52.627 | 50.891 | 52.627 | 51.714 | 52.170 | 50.891 |
| 120.0 | 57.744 | 59.205 | 59.571 | 60.210 | 57.926 | 60.210 | 59.571 | 59.205 | 57.744 |
| 122.5 | 64.048 | 66.697 | 68.160 | 68.068 | 65.235 | 68.068 | 68.160 | 66.697 | 64.048 |
| 125.0 | 71.174 | 75.286 | 78.027 | 76.839 | 72.636 | 76.839 | 78.027 | 75.286 | 71.174 |
| 127.5 | 79.854 | 85.244 | 89.539 | 86.981 | 81.408 | 86.981 | 89.539 | 85.244 | 79.854 |
| 130.0 | 90.726 | 97.670 | 103.061 | 99.133 | 92.097 | 99.133 | 103.061 | 97.670 | 90.726 |
| 132.5 | 104.523 | 112.746 | 118.868 | 114.025 | 105.528 | 114.025 | 118.868 | 112.746 | 104.523 |

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| | | | | | | | | | |
|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 135.0 | 121.060 | 130.197 | 136.319 | 131.202 | 121.609 | 131.202 | 136.319 | 130.197 | 121.060 |
| 137.5 | 140.339 | 149.476 | 156.602 | 150.389 | 140.613 | 150.389 | 156.602 | 149.476 | 140.339 |
| 140.0 | 162.267 | 170.855 | 182.184 | 172.226 | 162.267 | 172.226 | 182.184 | 170.855 | 162.267 |
| 142.5 | 185.657 | 195.524 | 215.898 | 198.448 | 185.657 | 198.448 | 215.898 | 195.524 | 185.657 |
| 145.0 | 211.970 | 227.137 | 263.409 | 231.705 | 214.254 | 231.705 | 263.409 | 227.137 | 211.970 |
| 147.5 | 248.060 | 272.455 | 327.732 | 276.840 | 252.171 | 276.840 | 327.732 | 272.455 | 248.060 |
| 150.0 | 302.331 | 338.786 | 404.113 | 340.614 | 304.342 | 340.614 | 404.113 | 338.786 | 302.331 |
| 152.5 | 382.642 | 422.935 | 489.450 | 425.676 | 380.724 | 425.676 | 489.450 | 422.935 | 382.642 |
| 155.0 | 485.886 | 527.093 | 594.887 | 534.950 | 488.993 | 534.950 | 594.887 | 527.093 | 485.886 |
| 157.5 | 628.236 | 676.294 | 748.291 | 695.572 | 646.600 | 695.572 | 748.291 | 676.294 | 628.236 |
| 160.0 | 870.265 | 926.455 | 1005.030 | 959.347 | 906.538 | 959.347 | 1005.030 | 926.455 | 870.265 |
| 162.5 | 1285.525 | 1337.604 | 1409.783 | 1370.496 | 1319.331 | 1370.496 | 1409.783 | 1337.604 | 1285.525 |
| 165.0 | 1855.651 | 1891.284 | 1942.449 | 1906.817 | 1863.874 | 1906.817 | 1942.449 | 1891.284 | 1855.651 |
| 167.5 | 2452.274 | 2465.979 | 2489.734 | 2462.324 | 2433.087 | 2462.324 | 2489.734 | 2465.979 | 2452.274 |
| 170.0 | 2924.638 | 2918.243 | 2926.466 | 2915.502 | 2901.797 | 2915.502 | 2926.466 | 2918.243 | 2924.638 |
| 172.5 | 3228.889 | 3217.012 | 3221.580 | 3223.407 | 3222.494 | 3223.407 | 3221.580 | 3217.012 | 3228.889 |
| 175.0 | 3433.549 | 3422.585 | 3428.981 | 3436.290 | 3439.945 | 3436.290 | 3428.981 | 3422.585 | 3433.549 |
| 177.5 | 3577.908 | 3564.203 | 3566.944 | 3576.994 | 3581.563 | 3576.994 | 3566.944 | 3564.203 | 3577.908 |
| 180.0 | 3622.807 | 3622.807 | 3622.807 | 3622.807 | 3622.807 | 3622.807 | 3622.807 | 3622.807 | 3622.807 |

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| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|-------|--------|
| 0-20 | 714.81 | N.A. | 26.00 |
| 0-30 | 949.55 | N.A. | 34.50 |
| 0-40 | 1093.09 | N.A. | 39.70 |
| 0-60 | 1234.63 | N.A. | 44.90 |
| 0-80 | 1274.99 | N.A. | 46.30 |
| 0-90 | 1276.88 | N.A. | 46.40 |
| 10-90 | 1004.6 | N.A. | 36.50 |
| 20-40 | 378.28 | N.A. | 13.70 |
| 20-50 | 467.62 | N.A. | 17.00 |
| 40-70 | 170.72 | N.A. | 6.20 |
| 60-80 | 40.36 | N.A. | 1.50 |
| 70-80 | 11.18 | N.A. | 0.40 |
| 80-90 | 1.89 | N.A. | 0.10 |
| 90-110 | 27.04 | N.A. | 1.00 |
| 90-120 | 71.55 | N.A. | 2.60 |
| 90-130 | 139.97 | N.A. | 5.10 |
| 90-150 | 391.97 | N.A. | 14.20 |
| 90-180 | 1474.53 | N.A. | 53.60 |
| 110-180 | 1447.48 | N.A. | 52.60 |
| 0-180 | 2751.41 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---------|--------|
| 0-10 | 272.28 |
| 10-20 | 442.53 |
| 20-30 | 234.74 |
| 30-40 | 143.54 |
| 40-50 | 89.35 |
| 50-60 | 52.19 |
| 60-70 | 29.18 |
| 70-80 | 11.18 |
| 80-90 | 1.89 |
| 90-100 | 4.90 |
| 100-110 | 22.14 |
| 110-120 | 44.51 |
| 120-130 | 68.42 |
| 130-140 | 101.16 |
| 140-150 | 150.84 |
| 150-160 | 258.60 |
| 160-170 | 512.36 |
| 170-180 | 311.60 |

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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 | 106 | 106 | 106 | 106 | 98 | 98 | 98 | 98 | 81 | 81 | 81 | 66 | 66 | 66 | 53 | 53 | 53 | 46 |
| 1 | 99 | 96 | 93 | 90 | 91 | 88 | 86 | 83 | 74 | 73 | 71 | 62 | 61 | 60 | 50 | 49 | 49 | 43 |
| 2 | 92 | 87 | 82 | 78 | 85 | 80 | 76 | 73 | 68 | 65 | 63 | 57 | 55 | 54 | 47 | 46 | 45 | 41 |
| 3 | 86 | 79 | 73 | 68 | 80 | 73 | 68 | 64 | 63 | 59 | 57 | 53 | 51 | 49 | 45 | 43 | 42 | 38 |
| 4 | 81 | 72 | 66 | 61 | 75 | 67 | 62 | 58 | 58 | 54 | 51 | 50 | 47 | 45 | 42 | 41 | 39 | 36 |
| 5 | 76 | 66 | 60 | 55 | 70 | 62 | 56 | 52 | 54 | 50 | 47 | 47 | 44 | 42 | 40 | 38 | 37 | 34 |
| 6 | 71 | 61 | 55 | 50 | 66 | 58 | 52 | 48 | 51 | 46 | 43 | 44 | 41 | 39 | 38 | 36 | 35 | 32 |
| 7 | 67 | 57 | 51 | 46 | 62 | 54 | 48 | 44 | 48 | 43 | 40 | 42 | 39 | 36 | 36 | 34 | 33 | 30 |
| 8 | 63 | 53 | 47 | 43 | 59 | 50 | 45 | 41 | 45 | 41 | 38 | 40 | 37 | 34 | 35 | 33 | 31 | 29 |
| 9 | 60 | 50 | 44 | 40 | 56 | 47 | 42 | 38 | 42 | 38 | 35 | 38 | 35 | 32 | 33 | 31 | 30 | 28 |
| 10 | 57 | 47 | 41 | 37 | 53 | 45 | 39 | 36 | 40 | 36 | 33 | 36 | 33 | 31 | 32 | 30 | 28 | 27 |

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UGR TABLE - CORRECTED

Reflectances

| | | | | | | | | | | |
|----------------|----|----|----|----|----|----|----|----|----|----|
| Ceiling Cavity | 70 | 70 | 50 | 50 | 30 | 70 | 70 | 50 | 50 | 30 |
| Walls | 50 | 30 | 50 | 30 | 30 | 50 | 30 | 50 | 30 | 30 |
| Floor Cavity | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |

Room Size UGR Viewed Crosswise

| X=2H | Y=2H | 13.8 | 14.5 | 14.8 | 15.5 | 16.8 | 13.9 | 14.6 | 14.9 | 15.6 | 16.9 |
|------|------|------|------|------|------|------|------|------|------|------|------|
| | 3H | 14.9 | 15.5 | 15.9 | 16.5 | 17.9 | 14.9 | 15.5 | 15.9 | 16.5 | 17.9 |
| | 4H | 15.1 | 15.7 | 16.2 | 16.7 | 18.1 | 15.1 | 15.7 | 16.2 | 16.7 | 18.1 |
| | 6H | 15.1 | 15.6 | 16.1 | 16.6 | 18.0 | 15.1 | 15.6 | 16.2 | 16.7 | 18.0 |
| | 8H | 15.1 | 15.6 | 16.1 | 16.6 | 18.0 | 15.1 | 15.6 | 16.2 | 16.6 | 18.0 |
| | 12H | 15.0 | 15.5 | 16.1 | 16.5 | 17.9 | 15.1 | 15.5 | 16.1 | 16.6 | 17.9 |

UGR Viewed Endwise

| | | | | | | | | | | | |
|----|-----|------|------|------|------|------|------|------|------|------|------|
| 4H | 2H | 14.1 | 14.6 | 15.1 | 15.6 | 17.0 | 14.1 | 14.7 | 15.2 | 15.7 | 17.1 |
| | 3H | 15.3 | 15.7 | 16.3 | 16.8 | 18.2 | 15.3 | 15.8 | 16.3 | 16.8 | 18.2 |
| | 4H | 15.6 | 16.0 | 16.6 | 17.0 | 18.4 | 15.6 | 16.0 | 16.6 | 17.0 | 18.4 |
| | 6H | 15.6 | 16.0 | 16.7 | 17.0 | 18.4 | 15.6 | 16.0 | 16.7 | 17.0 | 18.4 |
| | 8H | 15.6 | 15.9 | 16.6 | 17.0 | 18.4 | 15.6 | 15.9 | 16.7 | 17.0 | 18.4 |
| | 12H | 15.5 | 15.9 | 16.6 | 16.9 | 18.3 | 15.6 | 15.9 | 16.6 | 16.9 | 18.3 |

| | | | | | | | | | | | |
|----|-----|------|------|------|------|------|------|------|------|------|------|
| 8H | 4H | 15.6 | 15.9 | 16.6 | 17.0 | 18.4 | 15.6 | 15.9 | 16.6 | 17.0 | 18.4 |
| | 6H | 15.6 | 15.9 | 16.7 | 17.0 | 18.4 | 15.6 | 15.9 | 16.7 | 17.0 | 18.4 |
| | 8H | 15.6 | 15.9 | 16.7 | 17.0 | 18.4 | 15.7 | 15.9 | 16.7 | 17.0 | 18.4 |
| | 12H | 15.6 | 15.8 | 16.7 | 16.9 | 18.4 | 15.7 | 15.9 | 16.7 | 16.9 | 18.4 |

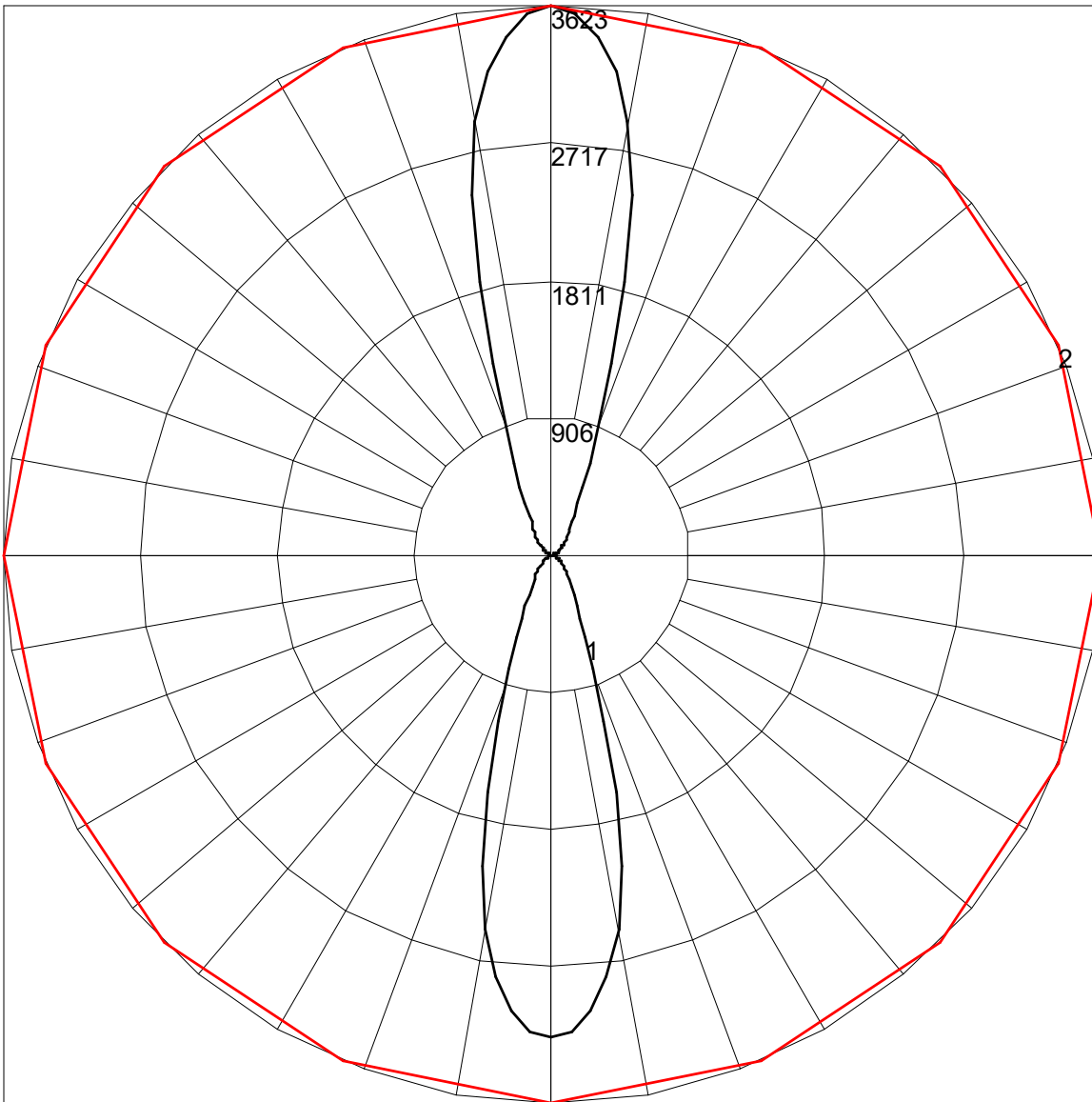
| | | | | | | | | | | | |
|-----|----|------|------|------|------|------|------|------|------|------|------|
| 12H | 4H | 15.5 | 15.8 | 16.6 | 16.9 | 18.3 | 15.5 | 15.8 | 16.6 | 16.9 | 18.3 |
| | 6H | 15.6 | 15.8 | 16.7 | 16.9 | 18.3 | 15.6 | 15.8 | 16.7 | 16.9 | 18.4 |
| | 8H | 15.6 | 15.8 | 16.7 | 16.9 | 18.4 | 15.6 | 15.8 | 16.7 | 16.9 | 18.4 |

Maximum UGR = 18.4

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POLAR GRAPH



Maximum Candela = 3622.807 Located At Horizontal Angle = 0, Vertical Angle = 180

1 - Vertical Plane Through Horizontal Angles (90 - 270)

2 - Horizontal Cone Through Vertical Angle (180) (Through Max. Cd.)