



IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4CSDI-P12-835U-P12-835D-XXX-POE PR-LM-WHU-OS-CSD-WM_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13257153.19 & #13257153.24

[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-OS-CSD-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 | 2412 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 105 |
| Total Luminaire Watts | 23 |
| Ballast Factor | 1.00 |
| CIE Type | Semi-Indirect |
| 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 | 46146 | 40593 | 47901 |
| 55 | 24589 | 24117 | 25415 |
| 65 | 801 | 4966 | 801 |
| 75 | 349 | 349 | 349 |
| 85 | 260 | 260 | 260 |

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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 | 1349.075 | 1349.075 | 1349.075 | 1349.075 | 1349.075 | 1349.075 | 1349.075 | 1349.075 | 1349.075 |
| 2.5 | 1334.549 | 1331.825 | 1331.825 | 1333.641 | 1335.457 | 1333.641 | 1331.825 | 1331.825 | 1334.549 |
| 5.0 | 1288.248 | 1285.525 | 1284.617 | 1284.617 | 1286.433 | 1284.617 | 1284.617 | 1285.525 | 1288.248 |
| 7.5 | 1219.251 | 1217.435 | 1214.712 | 1213.804 | 1214.712 | 1213.804 | 1214.712 | 1217.435 | 1219.251 |
| 10.0 | 1133.005 | 1133.005 | 1130.281 | 1127.558 | 1126.650 | 1127.558 | 1130.281 | 1133.005 | 1133.005 |
| 12.5 | 1033.141 | 1034.048 | 1033.141 | 1027.693 | 1024.062 | 1027.693 | 1033.141 | 1034.048 | 1033.141 |
| 15.0 | 926.014 | 929.645 | 929.645 | 923.290 | 917.843 | 923.290 | 929.645 | 929.645 | 926.014 |
| 17.5 | 823.698 | 828.691 | 831.324 | 825.332 | 821.428 | 825.332 | 831.324 | 828.691 | 823.698 |
| 20.0 | 728.555 | 734.093 | 735.999 | 730.461 | 725.559 | 730.461 | 735.999 | 734.093 | 728.555 |
| 22.5 | 632.957 | 638.949 | 637.678 | 632.413 | 625.513 | 632.413 | 637.678 | 638.949 | 632.957 |
| 25.0 | 532.549 | 540.447 | 538.631 | 531.641 | 523.288 | 531.641 | 538.631 | 540.447 | 532.549 |
| 27.5 | 438.767 | 449.117 | 449.570 | 441.037 | 431.776 | 441.037 | 449.570 | 449.117 | 438.767 |
| 30.0 | 357.423 | 368.317 | 374.037 | 363.143 | 354.336 | 363.143 | 374.037 | 368.317 | 357.423 |
| 32.5 | 292.057 | 300.319 | 309.761 | 298.594 | 292.602 | 298.594 | 309.761 | 300.319 | 292.057 |
| 35.0 | 242.398 | 246.574 | 255.562 | 247.300 | 245.484 | 247.300 | 255.562 | 246.574 | 242.398 |
| 37.5 | 204.903 | 204.812 | 209.352 | 207.082 | 209.715 | 207.082 | 209.352 | 204.812 | 204.903 |
| 40.0 | 175.670 | 171.494 | 170.314 | 174.944 | 181.208 | 174.944 | 170.314 | 171.494 | 175.670 |
| 42.5 | 151.612 | 144.985 | 139.174 | 149.161 | 157.241 | 149.161 | 139.174 | 144.985 | 151.612 |
| 45.0 | 131.276 | 123.378 | 115.479 | 127.826 | 136.269 | 127.826 | 115.479 | 123.378 | 131.276 |
| 47.5 | 112.393 | 104.857 | 96.959 | 109.034 | 116.569 | 109.034 | 96.959 | 104.857 | 112.393 |
| 50.0 | 93.872 | 88.153 | 81.798 | 91.784 | 97.050 | 91.784 | 81.798 | 88.153 | 93.872 |
| 52.5 | 75.171 | 72.901 | 68.362 | 75.988 | 77.622 | 75.988 | 68.362 | 72.901 | 75.171 |
| 55.0 | 56.741 | 58.648 | 55.652 | 61.099 | 58.648 | 61.099 | 55.652 | 58.648 | 56.741 |
| 57.5 | 39.855 | 44.757 | 43.123 | 46.664 | 40.672 | 46.664 | 43.123 | 44.757 | 39.855 |
| 60.0 | 23.150 | 30.595 | 30.867 | 31.412 | 22.787 | 31.412 | 30.867 | 30.595 | 23.150 |
| 62.5 | 8.806 | 15.434 | 19.065 | 14.980 | 7.898 | 14.980 | 19.065 | 15.434 | 8.806 |
| 65.0 | 1.362 | 3.995 | 8.443 | 3.450 | 1.362 | 3.450 | 8.443 | 3.995 | 1.362 |
| 67.5 | 0.999 | 0.908 | 2.270 | 0.908 | 0.999 | 0.908 | 2.270 | 0.908 | 0.999 |
| 70.0 | 0.726 | 0.635 | 0.817 | 0.726 | 0.726 | 0.726 | 0.817 | 0.635 | 0.726 |
| 72.5 | 0.545 | 0.454 | 0.454 | 0.545 | 0.545 | 0.545 | 0.454 | 0.454 | 0.545 |
| 75.0 | 0.363 | 0.363 | 0.363 | 0.363 | 0.363 | 0.363 | 0.363 | 0.363 | 0.363 |
| 77.5 | 0.272 | 0.272 | 0.272 | 0.272 | 0.272 | 0.272 | 0.272 | 0.272 | 0.272 |
| 80.0 | 0.182 | 0.182 | 0.182 | 0.182 | 0.182 | 0.182 | 0.182 | 0.182 | 0.182 |
| 82.5 | 0.091 | 0.091 | 0.091 | 0.091 | 0.182 | 0.091 | 0.091 | 0.091 | 0.091 |
| 85.0 | 0.091 | 0.091 | 0.091 | 0.091 | 0.091 | 0.091 | 0.091 | 0.091 | 0.091 |
| 87.5 | 0.091 | 0.091 | 0.091 | 0.091 | 0.091 | 0.091 | 0.091 | 0.091 | 0.091 |
| 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 | 375.20 | N.A. | 15.60 |
| 0-30 | 620.29 | N.A. | 25.70 |
| 0-40 | 778.99 | N.A. | 32.30 |
| 0-60 | 928.92 | N.A. | 38.50 |
| 0-80 | 937.82 | N.A. | 38.90 |
| 0-90 | 937.92 | N.A. | 38.90 |
| 10-90 | 820.19 | N.A. | 34.00 |
| 20-40 | 403.79 | N.A. | 16.70 |
| 20-50 | 501.64 | N.A. | 20.80 |
| 40-70 | 158.41 | N.A. | 6.60 |
| 60-80 | 8.90 | N.A. | 0.40 |
| 70-80 | 0.42 | N.A. | 0.00 |
| 80-90 | 0.10 | N.A. | 0.00 |
| 90-110 | 27.04 | N.A. | 1.10 |
| 90-120 | 71.55 | N.A. | 3.00 |
| 90-130 | 139.97 | N.A. | 5.80 |
| 90-150 | 391.97 | N.A. | 16.20 |
| 90-180 | 1474.53 | N.A. | 61.10 |
| 110-180 | 1447.48 | N.A. | 60.00 |
| 0-180 | 2412.45 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---------|--------|
| 0-10 | 117.73 |
| 10-20 | 257.47 |
| 20-30 | 245.09 |
| 30-40 | 158.70 |
| 40-50 | 97.85 |
| 50-60 | 52.09 |
| 60-70 | 8.48 |
| 70-80 | 0.42 |
| 80-90 | 0.10 |
| 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 | 105 | 105 | 105 | 105 | 95 | 95 | 95 | 95 | 77 | 77 | 77 | 61 | 61 | 61 | 46 | 46 | 46 | 39 |
| 1 | 97 | 93 | 90 | 87 | 88 | 85 | 83 | 80 | 70 | 68 | 67 | 56 | 55 | 54 | 43 | 43 | 42 | 36 |
| 2 | 90 | 84 | 79 | 74 | 82 | 77 | 73 | 69 | 64 | 61 | 58 | 52 | 50 | 48 | 40 | 39 | 38 | 33 |
| 3 | 83 | 75 | 69 | 64 | 76 | 69 | 64 | 60 | 58 | 54 | 51 | 47 | 45 | 43 | 38 | 36 | 35 | 31 |
| 4 | 77 | 68 | 62 | 57 | 71 | 63 | 57 | 53 | 53 | 49 | 46 | 44 | 41 | 39 | 35 | 34 | 32 | 28 |
| 5 | 72 | 62 | 55 | 50 | 66 | 57 | 52 | 47 | 49 | 44 | 41 | 41 | 38 | 35 | 33 | 31 | 30 | 26 |
| 6 | 67 | 57 | 50 | 45 | 61 | 53 | 47 | 42 | 45 | 41 | 37 | 38 | 35 | 32 | 31 | 29 | 27 | 25 |
| 7 | 63 | 52 | 45 | 40 | 58 | 48 | 43 | 38 | 42 | 37 | 34 | 35 | 32 | 30 | 29 | 27 | 26 | 23 |
| 8 | 59 | 48 | 41 | 37 | 54 | 45 | 39 | 35 | 39 | 34 | 31 | 33 | 30 | 27 | 27 | 25 | 24 | 22 |
| 9 | 55 | 45 | 38 | 34 | 51 | 42 | 36 | 32 | 36 | 32 | 29 | 31 | 28 | 25 | 26 | 24 | 22 | 20 |
| 10 | 52 | 41 | 35 | 31 | 48 | 39 | 33 | 29 | 34 | 30 | 27 | 29 | 26 | 24 | 25 | 23 | 21 | 19 |

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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 | 13.3 | 14.0 | 14.4 | 15.0 | 16.5 | 13.6 | 14.2 | 14.7 | 15.3 | 16.7 |
| | 3H | 13.1 | 13.7 | 14.2 | 14.8 | 16.2 | 13.4 | 14.0 | 14.5 | 15.0 | 16.5 |
| | 4H | 13.0 | 13.6 | 14.1 | 14.6 | 16.1 | 13.3 | 13.8 | 14.4 | 14.9 | 16.4 |
| | 6H | 12.9 | 13.4 | 14.0 | 14.5 | 16.0 | 13.2 | 13.7 | 14.3 | 14.7 | 16.2 |
| | 8H | 12.9 | 13.3 | 14.0 | 14.4 | 15.9 | 13.1 | 13.6 | 14.2 | 14.7 | 16.1 |
| | 12H | 12.8 | 13.2 | 13.9 | 14.3 | 15.8 | 13.1 | 13.5 | 14.2 | 14.6 | 16.1 |

UGR Viewed Endwise

| | | | | | | | | | | | |
|----|-----|------|------|------|------|------|------|------|------|------|------|
| 4H | 2H | 13.1 | 13.6 | 14.2 | 14.7 | 16.2 | 13.4 | 13.9 | 14.5 | 15.0 | 16.4 |
| | 3H | 12.9 | 13.4 | 14.0 | 14.4 | 15.9 | 13.2 | 13.6 | 14.3 | 14.7 | 16.2 |
| | 4H | 12.8 | 13.2 | 13.9 | 14.3 | 15.8 | 13.1 | 13.5 | 14.2 | 14.5 | 16.0 |
| | 6H | 12.7 | 13.0 | 13.8 | 14.1 | 15.6 | 12.9 | 13.3 | 14.0 | 14.4 | 15.9 |
| | 8H | 12.6 | 12.9 | 13.7 | 14.0 | 15.5 | 12.9 | 13.2 | 14.0 | 14.3 | 15.8 |
| | 12H | 12.5 | 12.8 | 13.7 | 13.9 | 15.5 | 12.8 | 13.1 | 13.9 | 14.2 | 15.7 |

| | | | | | | | | | | | |
|----|-----|------|------|------|------|------|------|------|------|------|------|
| 8H | 4H | 12.6 | 12.9 | 13.7 | 14.0 | 15.5 | 12.9 | 13.2 | 14.0 | 14.3 | 15.8 |
| | 6H | 12.5 | 12.8 | 13.6 | 13.9 | 15.4 | 12.8 | 13.0 | 13.9 | 14.2 | 15.7 |
| | 8H | 12.4 | 12.7 | 13.6 | 13.8 | 15.3 | 12.7 | 12.9 | 13.8 | 14.1 | 15.6 |
| | 12H | 12.4 | 12.6 | 13.5 | 13.7 | 15.3 | 12.6 | 12.8 | 13.8 | 13.9 | 15.5 |

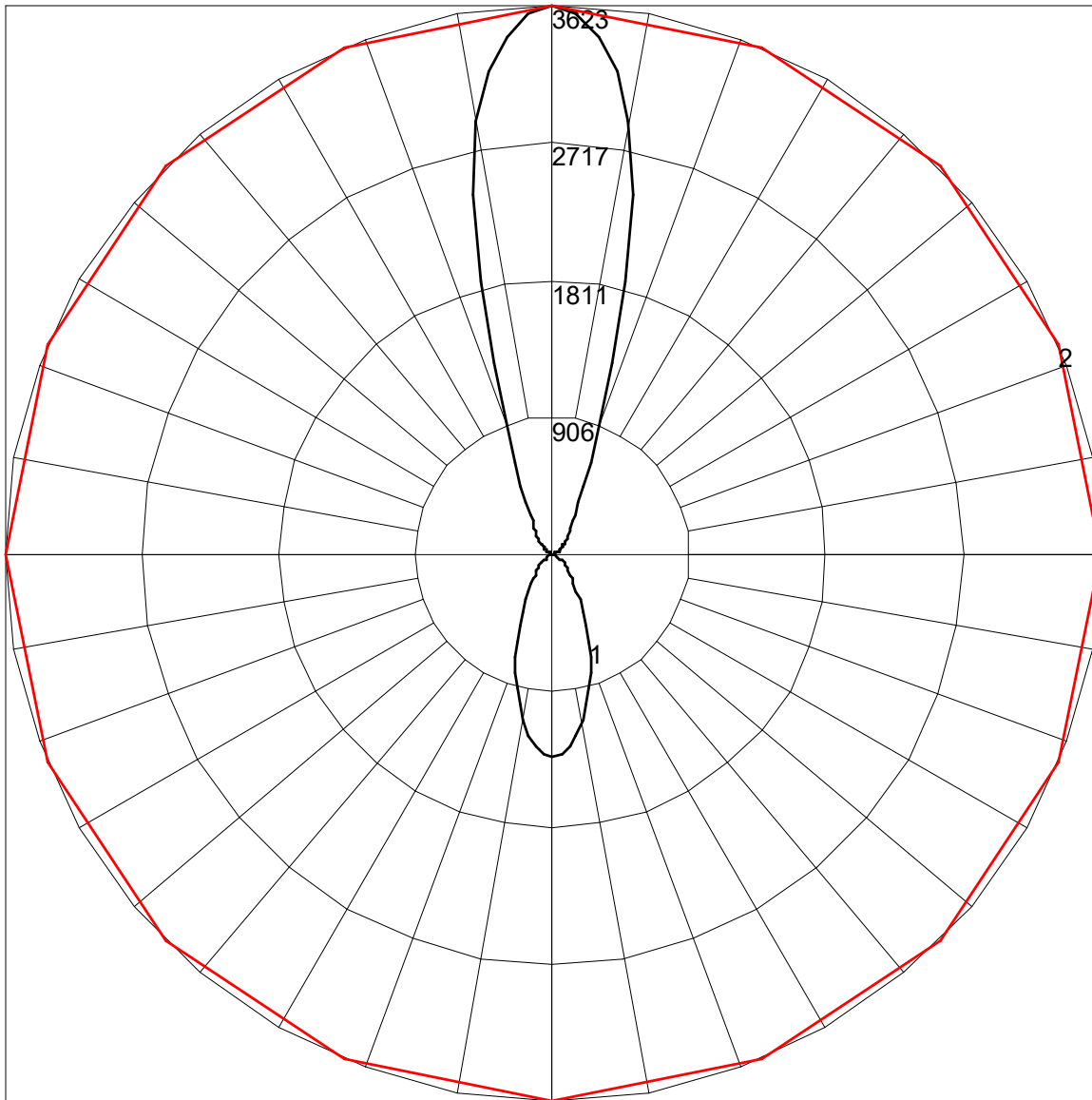
| | | | | | | | | | | | |
|-----|----|------|------|------|------|------|------|------|------|------|------|
| 12H | 4H | 12.5 | 12.8 | 13.7 | 13.9 | 15.5 | 12.8 | 13.1 | 13.9 | 14.2 | 15.7 |
| | 6H | 12.4 | 12.7 | 13.6 | 13.8 | 15.3 | 12.7 | 12.9 | 13.8 | 14.0 | 15.6 |
| | 8H | 12.4 | 12.6 | 13.5 | 13.7 | 15.3 | 12.6 | 12.8 | 13.8 | 13.9 | 15.5 |

Maximum UGR = 16.7

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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.)