H.E. WILLIAMS, INC.

**IES INDOOR REPORT**
**PHOTOMETRIC FILENAME : GP6-L500-840-W-DL-DIM-UNV_40C_.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002
[TEST] GEN FROM BALLABS TEST NO. 19524.0
[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC
[ISSUEDATE] 18-SEP-2020
[MANUFAC] WILLIAMS INDOOR
[OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO
[LUMINAIRE] 6-192 LED 22"ARRAYS EACH ON ALUM HEATSINK 24X27"HIGHBAY
[MORE] LUMINAIRE w/DIFFUSE LENSES & CENTER DRIVER HOUSING
[MORE] 6 ADVANCE #XI095C275V054DNF1 - 18K RESISTORS
[LUMCAT] GP4-L500-840-W-DL-DIM-UNV 40C
[LAMPCAT] D5638D192C2560A8N50
[_SEARCH_SOURCETYPE] LED
[_SEARCH_APPLICATION] Indoor, Industrial, Manufacturing, Warehouse, High Bay
[_SEARCH_MOUNTING] Cable, Pendant, Suspended

**CHARACTERISTICS**

| | |
|---|---|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 38172 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 95 |
| Total Luminaire Watts | 402 |
| Ballast Factor | 1.00 |
| CIE Type | Direct |
| Spacing Criterion (0-180) | 1.24 |
| Spacing Criterion (90-270) | 1.34 |
| Spacing Criterion (Diagonal) | 1.42 |
| Basic Luminous Shape | Rectangular |
| Luminous Length (0-180) | 1.88 ft |
| Luminous Width (90-270) | 2.12 ft |
| Luminous Height | 0.00 ft |

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

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|---|---|---|---|
| 45 | 28485 | 32114 | 35177 |
| 55 | 26209 | 32194 | 35950 |
| 65 | 22925 | 31705 | 35352 |
| 75 | 17291 | 30450 | 35160 |
| 85 | 8364 | 36677 | 50217 |

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**CANDELA TABULATION**

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
|---|---|---|---|---|---|
| **0** | 12098.601 | 12098.601 | 12098.601 | 12098.601 | 12098.601 |
| **5** | 12088.663 | 12105.227 | 12078.724 | 12034.553 | 12027.927 |
| **10** | 11932.958 | 11967.191 | 11962.774 | 11931.854 | 11934.062 |
| **15** | 11632.591 | 11678.971 | 11735.290 | 11749.646 | 11751.854 |
| **20** | 11188.666 | 11272.592 | 11418.359 | 11500.076 | 11476.886 |
| **25** | 10618.853 | 10772.349 | 10939.097 | 11166.581 | 11161.059 |
| **30** | 9950.757 | 10162.781 | 10413.455 | 10762.410 | 10830.876 |
| **35** | 9209.779 | 9473.704 | 9801.678 | 10267.688 | 10318.486 |
| **40** | 8350.641 | 8709.535 | 9102.663 | 9696.771 | 9800.574 |
| **45** | 7445.123 | 7861.441 | 8393.708 | 9033.092 | 9194.319 |
| **50** | 6517.520 | 6955.923 | 7642.791 | 8277.758 | 8476.530 |
| **55** | 5556.787 | 6095.681 | 6825.617 | 7424.142 | 7621.810 |
| **60** | 4583.908 | 5218.875 | 5941.080 | 6462.305 | 6638.992 |
| **65** | 3581.212 | 4296.792 | 4952.741 | 5384.518 | 5522.554 |
| **70** | 2581.830 | 3400.109 | 3923.542 | 4289.062 | 4409.430 |
| **75** | 1654.226 | 2471.401 | 2913.117 | 3260.968 | 3363.667 |
| **80** | 865.763 | 1538.276 | 1964.532 | 2313.488 | 2419.499 |
| **85** | 269.447 | 739.874 | 1181.590 | 1490.792 | 1617.785 |
| **90** | 6.626 | 223.067 | 538.894 | 795.089 | 915.456 |
| **95** | 5.521 | 103.803 | 380.980 | 598.525 | 686.868 |
| **100** | 20.982 | 43.067 | 252.882 | 435.090 | 517.912 |
| **105** | 27.607 | 44.172 | 152.392 | 298.158 | 367.729 |
| **110** | 30.920 | 59.632 | 77.300 | 188.834 | 244.048 |
| **115** | 35.337 | 71.779 | 77.300 | 115.950 | 152.392 |
| **120** | 43.067 | 86.135 | 96.073 | 94.969 | 101.595 |
| **125** | 49.693 | 99.386 | 109.325 | 122.576 | 130.306 |
| **130** | 51.902 | 109.325 | 115.950 | 129.202 | 138.036 |
| **135** | 59.632 | 125.889 | 126.993 | 135.828 | 143.558 |
| **140** | 65.153 | 126.993 | 136.932 | 142.453 | 139.141 |
| **145** | 76.196 | 122.576 | 150.183 | 150.183 | 151.288 |
| **150** | 86.135 | 122.576 | 171.165 | 163.435 | 163.435 |
| **155** | 96.073 | 115.950 | 164.539 | 184.416 | 185.521 |
| **160** | 104.908 | 114.846 | 155.705 | 176.686 | 184.416 |
| **165** | 114.846 | 115.950 | 145.766 | 163.435 | 173.374 |
| **170** | 122.576 | 119.263 | 131.411 | 145.766 | 154.601 |
| **175** | 129.202 | 126.993 | 128.098 | 136.932 | 142.453 |
| **180** | 134.723 | 134.723 | 134.723 | 134.723 | 134.723 |

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**ZONAL LUMEN SUMMARY**

| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-20 | 4455.14 | N.A. | 11.70 |
| 0-30 | 9501.34 | N.A. | 24.90 |
| 0-40 | 15650.14 | N.A. | 41.00 |
| 0-60 | 28145.67 | N.A. | 73.70 |
| 0-80 | 35855.9 | N.A. | 93.90 |
| 0-90 | 37094.8 | N.A. | 97.20 |
| 10-90 | 35946.68 | N.A. | 94.20 |
| 20-40 | 11195.00 | N.A. | 29.30 |
| 20-50 | 17676.28 | N.A. | 46.30 |
| 40-70 | 17244.49 | N.A. | 45.20 |
| 60-80 | 7710.23 | N.A. | 20.20 |
| 70-80 | 2961.27 | N.A. | 7.80 |
| 80-90 | 1238.9 | N.A. | 3.20 |
| 90-110 | 589.82 | N.A. | 1.50 |
| 90-120 | 684.92 | N.A. | 1.80 |
| 90-130 | 776.79 | N.A. | 2.00 |
| 90-150 | 955.28 | N.A. | 2.50 |
| 90-180 | 1077.25 | N.A. | 2.80 |
| 110-180 | 487.43 | N.A. | 1.30 |
| 0-180 | 38172.05 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

| Zone | Lumens |
|---|---|
| 0-10 | 1148.12 |
| 10-20 | 3307.02 |
| 20-30 | 5046.21 |
| 30-40 | 6148.8 |
| 40-50 | 6481.28 |
| 50-60 | 6014.25 |
| 60-70 | 4748.96 |
| 70-80 | 2961.27 |
| 80-90 | 1238.9 |
| 90-100 | 401.07 |
| 100-110 | 188.76 |
| 110-120 | 95.10 |
| 120-130 | 91.87 |
| 130-140 | 93.71 |
| 140-150 | 84.78 |
| 150-160 | 68.98 |
| 160-170 | 40.30 |
| 170-180 | 12.69 |

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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 | 118 | 118 | 118 | 118 | 115 | 115 | 115 | 115 | 110 | 110 | 110 | 104 | 104 | 104 | 99 | 99 | 99 | 97 |
| 1 | 107 | 102 | 98 | 93 | 104 | 100 | 95 | 92 | 95 | 91 | 88 | 90 | 88 | 85 | 86 | 84 | 82 | 80 |
| 2 | 97 | 89 | 81 | 75 | 94 | 86 | 80 | 74 | 82 | 77 | 72 | 79 | 74 | 70 | 75 | 71 | 68 | 66 |
| 3 | 88 | 77 | 69 | 62 | 86 | 76 | 68 | 61 | 72 | 65 | 60 | 69 | 63 | 59 | 66 | 61 | 57 | 55 |
| 4 | 81 | 68 | 59 | 52 | 78 | 67 | 58 | 52 | 64 | 57 | 51 | 61 | 55 | 50 | 59 | 53 | 49 | 47 |
| 5 | 74 | 61 | 52 | 45 | 72 | 60 | 51 | 45 | 57 | 50 | 44 | 55 | 48 | 43 | 53 | 47 | 42 | 40 |
| 6 | 68 | 55 | 46 | 39 | 66 | 54 | 45 | 39 | 52 | 44 | 38 | 50 | 43 | 38 | 48 | 42 | 37 | 35 |
| 7 | 63 | 50 | 41 | 34 | 61 | 49 | 40 | 34 | 47 | 39 | 34 | 45 | 38 | 33 | 43 | 37 | 33 | 31 |
| 8 | 59 | 45 | 37 | 31 | 57 | 44 | 36 | 30 | 43 | 35 | 30 | 41 | 35 | 30 | 40 | 34 | 29 | 27 |
| 9 | 55 | 41 | 33 | 27 | 53 | 41 | 33 | 27 | 39 | 32 | 27 | 38 | 31 | 27 | 37 | 31 | 26 | 25 |
| 10 | 52 | 38 | 30 | 25 | 50 | 38 | 30 | 25 | 36 | 29 | 24 | 35 | 29 | 24 | 34 | 28 | 24 | 22 |

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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 | | | | | UGR Viewed Endwise | | | | |
| X=2H | Y=2H | 23.2 | 24.8 | 23.6 | 25.2 | 25.6 | 24.8 | 26.4 | 25.2 | 26.8 | 27.2 |
| | 3H | 24.8 | 26.3 | 25.3 | 26.7 | 27.1 | 26.8 | 28.3 | 27.2 | 28.7 | 29.1 |
| | 4H | 25.4 | 26.8 | 25.9 | 27.2 | 27.6 | 27.7 | 29.1 | 28.1 | 29.5 | 29.9 |
| | 6H | 25.8 | 27.0 | 26.2 | 27.4 | 27.9 | 28.5 | 29.8 | 28.9 | 30.2 | 30.6 |
| | 8H | 25.8 | 27.0 | 26.3 | 27.5 | 28.0 | 28.8 | 30.1 | 29.3 | 30.5 | 31.0 |
| | 12H | 25.9 | 27.0 | 26.3 | 27.5 | 28.0 | 29.2 | 30.4 | 29.7 | 30.8 | 31.3 |
| 4H | 2H | 24.1 | 25.5 | 24.6 | 25.9 | 26.4 | 25.4 | 26.7 | 25.8 | 27.1 | 27.6 |
| | 3H | 26.1 | 27.2 | 26.5 | 27.7 | 28.2 | 27.7 | 28.8 | 28.1 | 29.3 | 29.7 |
| | 4H | 26.8 | 27.9 | 27.3 | 28.3 | 28.8 | 28.7 | 29.7 | 29.2 | 30.2 | 30.7 |
| | 6H | 27.3 | 28.2 | 27.8 | 28.7 | 29.2 | 29.6 | 30.6 | 30.1 | 31.1 | 31.6 |
| | 8H | 27.4 | 28.3 | 27.9 | 28.8 | 29.3 | 30.1 | 30.9 | 30.6 | 31.4 | 32.0 |
| | 12H | 27.5 | 28.3 | 28.0 | 28.8 | 29.3 | 30.5 | 31.3 | 31.1 | 31.8 | 32.4 |
| 8H | 4H | 27.4 | 28.2 | 27.9 | 28.7 | 29.3 | 29.0 | 29.8 | 29.5 | 30.3 | 30.9 |
| | 6H | 28.1 | 28.8 | 28.6 | 29.3 | 29.9 | 30.1 | 30.8 | 30.7 | 31.4 | 31.9 |
| | 8H | 28.3 | 29.0 | 28.9 | 29.5 | 30.1 | 30.7 | 31.3 | 31.3 | 31.9 | 32.5 |
| | 12H | 28.5 | 29.0 | 29.0 | 29.6 | 30.2 | 31.3 | 31.9 | 31.9 | 32.4 | 33.1 |
| 12H | 4H | 27.5 | 28.3 | 28.0 | 28.8 | 29.3 | 29.0 | 29.8 | 29.5 | 30.3 | 30.9 |
| | 6H | 28.3 | 28.9 | 28.8 | 29.4 | 30.0 | 30.2 | 30.8 | 30.7 | 31.4 | 32.0 |
| | 8H | 28.6 | 29.2 | 29.1 | 29.7 | 30.3 | 30.8 | 31.4 | 31.4 | 32.0 | 32.6 |

Maximum UGR = 33.1

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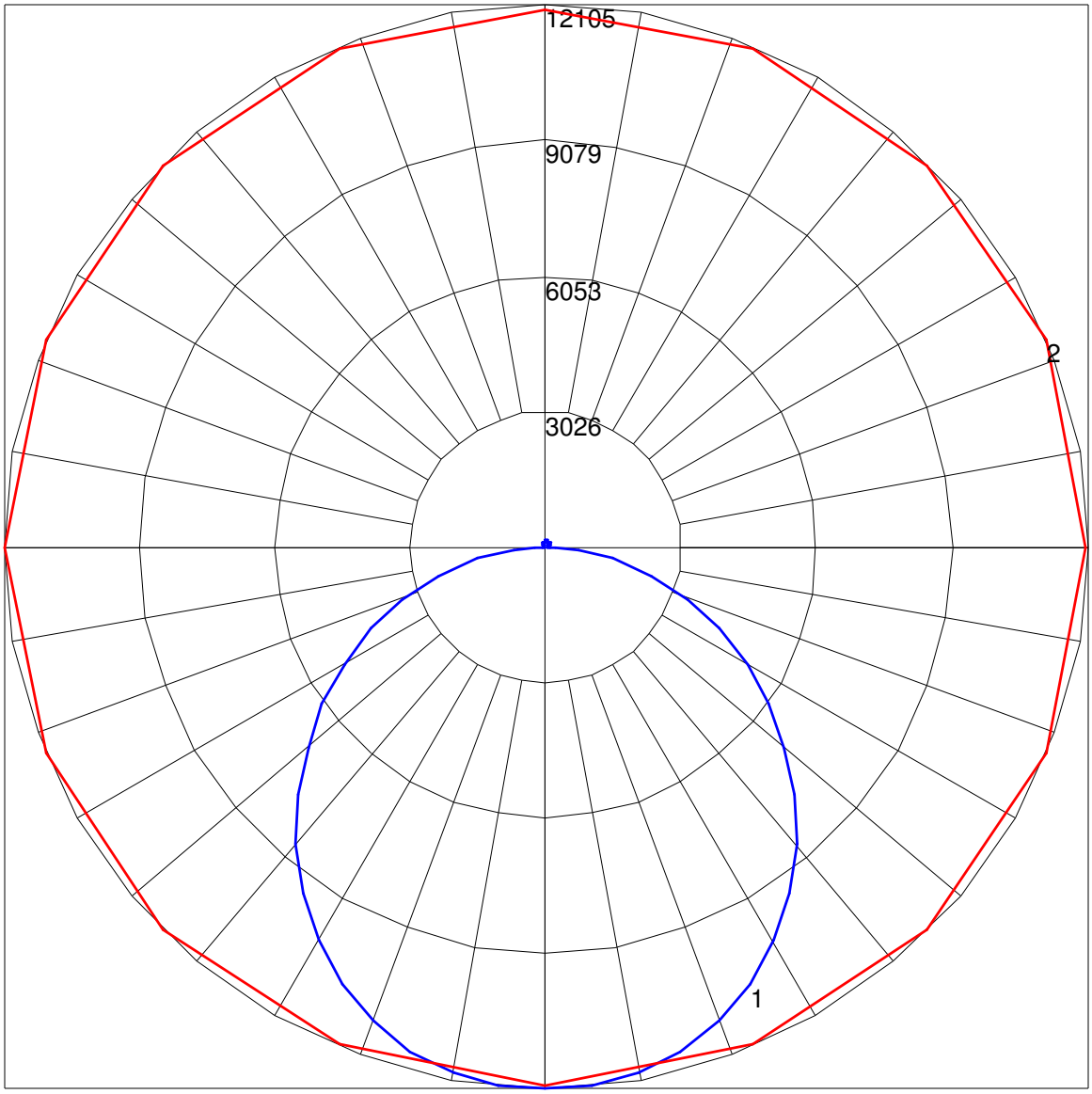
**POLAR GRAPH**




Maximum Candela = 12105.227  Located At Horizontal Angle = 22.5, Vertical Angle = 5
# 1 - Vertical Plane Through Horizontal Angles (22.5 - 202.5) (Through Max. Cd.)
# 2 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)

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