**IES INDOOR REPORT**
**PHOTOMETRIC FILENAME : LLM-8-P9-8TW-X-SQ-XX-XX-POE 4000K_.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002
[TEST] GEN from BALLABS TEST NO. 17322.0
[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC
[ISSUEDATE] 11-AUG-2021
[MANUFAC] H.E. WILLIAMS, INC - CARTHAGE, MO
[LUMINAIRE] 8' DIRECT/INDIRECT SURFACE LUMINAIRE
[MORE] WHITE REFLECTOR w/FROSTED ACRYLIC SQUARE LENS
[LUMCAT] LLM-8-P9-8TW-S-SQ-xx-xx-PoE 4000k

**CHARACTERISTICS**

| | |
|---|---|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 6998 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 143 |
| Total Luminaire Watts | 49.1 |
| Ballast Factor | 1.00 |
| CIE Type | Semi-Direct |
| Spacing Criterion (0-180) | 1.10 |
| Spacing Criterion (90-270) | 1.18 |
| Spacing Criterion (Diagonal) | 1.28 |
| Basic Luminous Shape | Rectangular w/Sides |
| Luminous Length (0-180) | 7.75 ft |
| Luminous Width (90-270) | 0.21 ft |
| Luminous Height | 0.20 ft |

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

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|---|---|---|---|
| 45 | 9077 | 6730 | 6718 |
| 55 | 7279 | 5625 | 6014 |
| 65 | 5855 | 4856 | 5415 |
| 75 | 4402 | 4041 | 4479 |
| 85 | 3253 | 3512 | 3792 |

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**CANDELA TABULATION**

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
|---|---|---|---|---|---|
| **0** | 2134.750 | 2134.750 | 2134.750 | 2134.750 | 2134.750 |
| **5** | 2143.330 | 2146.762 | 2153.626 | 2153.626 | 2158.775 |
| **10** | 2083.269 | 2091.849 | 2102.145 | 2109.010 | 2109.010 |
| **15** | 1976.875 | 1995.751 | 2009.479 | 2016.344 | 2019.776 |
| **20** | 1896.221 | 1923.678 | 1942.554 | 1956.282 | 1957.998 |
| **25** | 1707.457 | 1741.778 | 1769.234 | 1788.111 | 1794.975 |
| **30** | 1532.421 | 1578.754 | 1616.507 | 1650.828 | 1666.272 |
| **35** | 1377.978 | 1436.323 | 1496.384 | 1554.730 | 1578.754 |
| **40** | 1168.621 | 1244.127 | 1335.077 | 1422.595 | 1460.348 |
| **45** | 986.721 | 1079.387 | 1206.374 | 1336.793 | 1389.990 |
| **50** | 808.253 | 919.796 | 1072.523 | 1233.831 | 1297.324 |
| **55** | 648.662 | 773.933 | 960.981 | 1148.029 | 1220.102 |
| **60** | 511.379 | 645.230 | 849.438 | 1050.215 | 1124.004 |
| **65** | 391.256 | 535.404 | 763.636 | 972.993 | 1043.351 |
| **70** | 281.430 | 432.441 | 665.822 | 864.883 | 928.376 |
| **75** | 187.048 | 336.343 | 561.144 | 737.896 | 791.093 |
| **80** | 113.258 | 267.702 | 483.922 | 646.946 | 691.563 |
| **85** | 54.913 | 202.492 | 408.417 | 552.564 | 588.601 |
| **90** | 8.580 | 133.851 | 308.887 | 420.429 | 446.170 |
| **95** | 0.000 | 126.987 | 295.158 | 392.972 | 413.565 |
| **100** | 0.000 | 118.407 | 264.270 | 344.923 | 362.084 |
| **105** | 0.000 | 111.542 | 238.529 | 307.171 | 320.899 |
| **110** | 0.000 | 101.246 | 216.221 | 276.282 | 293.442 |
| **115** | 0.000 | 92.666 | 195.628 | 248.825 | 264.270 |
| **120** | 0.000 | 89.234 | 178.468 | 235.097 | 247.109 |
| **125** | 0.000 | 82.370 | 161.307 | 209.357 | 224.801 |
| **130** | 0.000 | 75.506 | 145.863 | 192.196 | 204.208 |
| **135** | 0.000 | 68.641 | 130.419 | 168.172 | 183.616 |
| **140** | 0.000 | 66.925 | 123.555 | 159.591 | 171.604 |
| **145** | 0.000 | 68.641 | 114.974 | 152.727 | 161.307 |
| **150** | 0.000 | 56.629 | 94.382 | 120.123 | 130.419 |
| **155** | 0.000 | 56.629 | 85.802 | 108.110 | 113.258 |
| **160** | 0.000 | 46.333 | 70.358 | 87.518 | 92.666 |
| **165** | 0.000 | 41.185 | 63.493 | 70.358 | 73.790 |
| **170** | 0.000 | 0.000 | 48.049 | 60.061 | 61.777 |
| **175** | 0.000 | 0.000 | 22.308 | 42.901 | 42.901 |
| **180** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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**ZONAL LUMEN SUMMARY**

| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-20 | 771.71 | N.A. | 11.00 |
| 0-30 | 1586.75 | N.A. | 22.70 |
| 0-40 | 2514.24 | N.A. | 35.90 |
| 0-60 | 4297.21 | N.A. | 61.40 |
| 0-80 | 5604.26 | N.A. | 80.10 |
| 0-90 | 6003.81 | N.A. | 85.80 |
| 10-90 | 5800.5 | N.A. | 82.90 |
| 20-40 | 1742.53 | N.A. | 24.90 |
| 20-50 | 2670.5 | N.A. | 38.20 |
| 40-70 | 2520.8 | N.A. | 36.00 |
| 60-80 | 1307.05 | N.A. | 18.70 |
| 70-80 | 569.22 | N.A. | 8.10 |
| 80-90 | 399.55 | N.A. | 5.70 |
| 90-110 | 493.04 | N.A. | 7.00 |
| 90-120 | 661.02 | N.A. | 9.40 |
| 90-130 | 788.66 | N.A. | 11.30 |
| 90-150 | 942.63 | N.A. | 13.50 |
| 90-180 | 994.62 | N.A. | 14.20 |
| 110-180 | 501.58 | N.A. | 7.20 |
| 0-180 | 6998.44 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

| Zone | Lumens |
|---|---|
| 0-10 | 203.31 |
| 10-20 | 568.40 |
| 20-30 | 815.04 |
| 30-40 | 927.49 |
| 40-50 | 927.97 |
| 50-60 | 855.00 |
| 60-70 | 737.83 |
| 70-80 | 569.22 |
| 80-90 | 399.55 |
| 90-100 | 275.74 |
| 100-110 | 217.30 |
| 110-120 | 167.98 |
| 120-130 | 127.64 |
| 130-140 | 90.66 |
| 140-150 | 63.31 |
| 150-160 | 34.98 |
| 160-170 | 14.73 |
| 170-180 | 2.28 |

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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 | 115 | 115 | 115 | 115 | 110 | 110 | 110 | 110 | 102 | 102 | 102 | 95 | 95 | 95 | 88 | 88 | 88 | 85 |
| 1 | 103 | 97 | 92 | 88 | 99 | 94 | 89 | 85 | 87 | 83 | 80 | 81 | 78 | 75 | 75 | 73 | 70 | 67 |
| 2 | 93 | 84 | 77 | 71 | 89 | 81 | 74 | 69 | 75 | 70 | 65 | 70 | 65 | 62 | 65 | 61 | 58 | 55 |
| 3 | 85 | 74 | 65 | 58 | 81 | 71 | 63 | 57 | 66 | 60 | 54 | 61 | 56 | 52 | 57 | 53 | 49 | 46 |
| 4 | 77 | 65 | 56 | 49 | 74 | 63 | 55 | 48 | 59 | 52 | 46 | 55 | 49 | 44 | 51 | 46 | 42 | 39 |
| 5 | 71 | 58 | 49 | 42 | 68 | 56 | 48 | 42 | 53 | 45 | 40 | 49 | 43 | 38 | 46 | 41 | 36 | 34 |
| 6 | 66 | 52 | 43 | 37 | 63 | 51 | 42 | 36 | 48 | 40 | 35 | 45 | 38 | 34 | 42 | 36 | 32 | 30 |
| 7 | 61 | 48 | 39 | 33 | 58 | 46 | 38 | 32 | 43 | 36 | 31 | 41 | 34 | 30 | 38 | 33 | 29 | 26 |
| 8 | 57 | 43 | 35 | 29 | 54 | 42 | 34 | 29 | 40 | 33 | 28 | 37 | 31 | 27 | 35 | 30 | 26 | 24 |
| 9 | 53 | 40 | 32 | 26 | 51 | 39 | 31 | 26 | 37 | 30 | 25 | 34 | 28 | 24 | 33 | 27 | 23 | 21 |
| 10 | 50 | 37 | 29 | 24 | 48 | 36 | 28 | 23 | 34 | 27 | 23 | 32 | 26 | 22 | 30 | 25 | 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 | | | | | UGR Viewed Endwise | | | | |
| X=2H | Y=2H | 14.2 | 15.6 | 14.8 | 16.2 | 16.8 | 19.3 | 20.7 | 19.8 | 21.2 | 21.9 |
| | 3H | 15.4 | 16.6 | 15.9 | 17.2 | 17.9 | 22.0 | 23.3 | 22.6 | 23.9 | 24.6 |
| | 4H | 15.7 | 16.9 | 16.3 | 17.5 | 18.2 | 23.3 | 24.5 | 23.9 | 25.1 | 25.8 |
| | 6H | 15.9 | 17.0 | 16.5 | 17.6 | 18.3 | 24.7 | 25.8 | 25.3 | 26.4 | 27.1 |
| | 8H | 15.9 | 17.0 | 16.5 | 17.6 | 18.3 | 25.4 | 26.5 | 26.0 | 27.1 | 27.8 |
| | 12H | 15.9 | 16.9 | 16.5 | 17.6 | 18.3 | 26.2 | 27.2 | 26.8 | 27.8 | 28.6 |
| 4H | 2H | 15.6 | 16.8 | 16.2 | 17.4 | 18.1 | 19.5 | 20.7 | 20.1 | 21.3 | 22.0 |
| | 3H | 17.0 | 18.0 | 17.6 | 18.7 | 19.4 | 22.5 | 23.5 | 23.1 | 24.1 | 24.8 |
| | 4H | 17.5 | 18.4 | 18.1 | 19.0 | 19.8 | 23.9 | 24.9 | 24.5 | 25.5 | 26.2 |
| | 6H | 17.8 | 18.6 | 18.4 | 19.3 | 20.0 | 25.4 | 26.3 | 26.1 | 27.0 | 27.7 |
| | 8H | 17.8 | 18.6 | 18.5 | 19.3 | 20.1 | 26.3 | 27.0 | 26.9 | 27.7 | 28.5 |
| | 12H | 17.9 | 18.6 | 18.6 | 19.3 | 20.1 | 27.2 | 27.9 | 27.8 | 28.6 | 29.3 |
| 8H | 4H | 18.6 | 19.4 | 19.2 | 20.0 | 20.8 | 24.0 | 24.8 | 24.7 | 25.5 | 26.2 |
| | 6H | 19.1 | 19.8 | 19.8 | 20.5 | 21.3 | 25.7 | 26.4 | 26.4 | 27.1 | 27.8 |
| | 8H | 19.3 | 19.9 | 20.0 | 20.6 | 21.4 | 26.6 | 27.2 | 27.3 | 27.9 | 28.7 |
| | 12H | 19.4 | 19.9 | 20.1 | 20.6 | 21.5 | 27.7 | 28.2 | 28.4 | 28.9 | 29.8 |
| 12H | 4H | 18.9 | 19.6 | 19.6 | 20.3 | 21.1 | 24.0 | 24.7 | 24.7 | 25.4 | 26.2 |
| | 6H | 19.6 | 20.2 | 20.3 | 20.9 | 21.7 | 25.7 | 26.3 | 26.4 | 27.0 | 27.8 |
| | 8H | 19.9 | 20.4 | 20.6 | 21.1 | 22.0 | 26.7 | 27.2 | 27.4 | 27.9 | 28.8 |

Maximum UGR = 29.8

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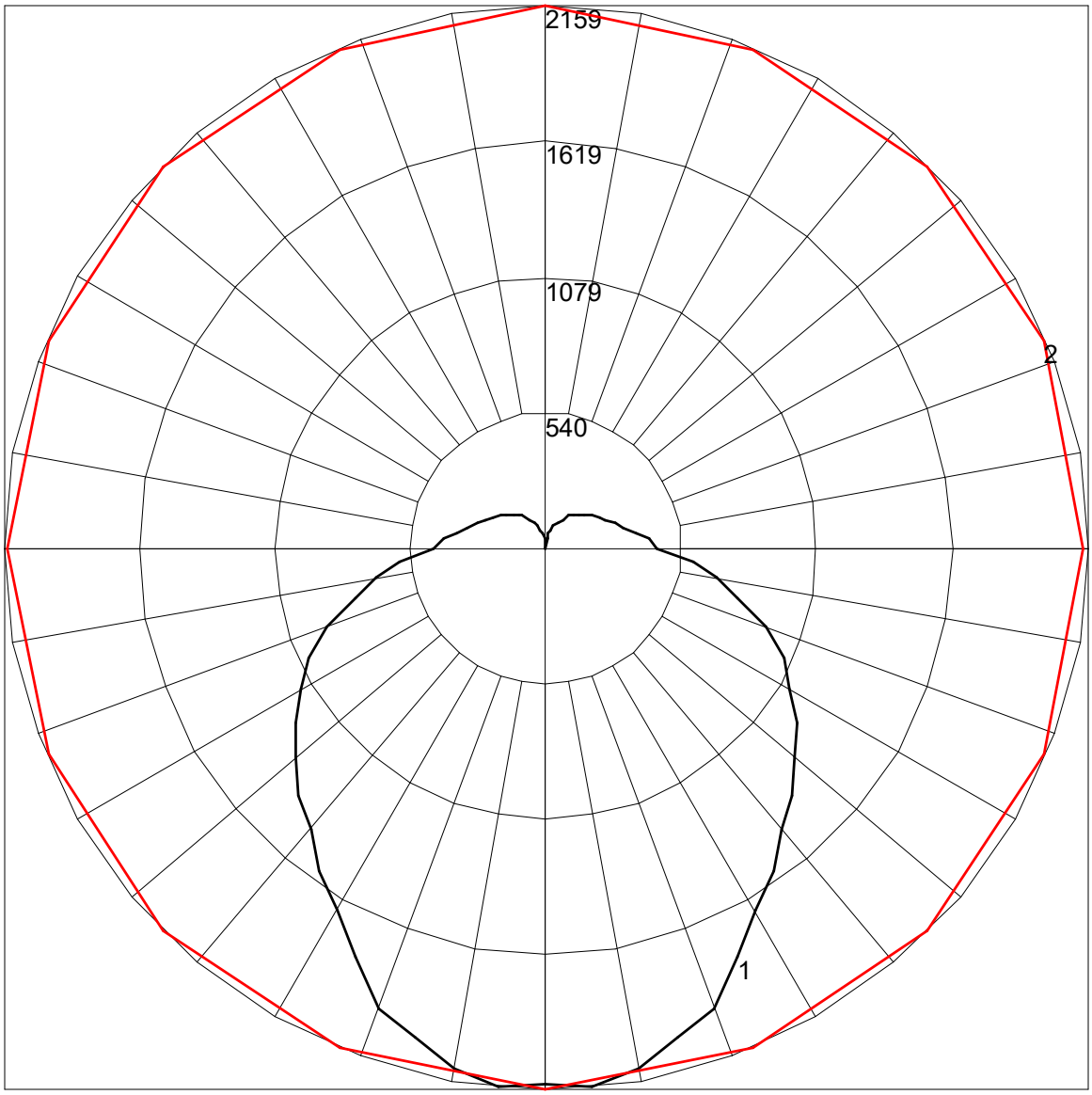
**POLAR GRAPH**




Maximum Candela = 2158.775  Located At Horizontal Angle = 90, Vertical Angle = 5
# 1 - Vertical Plane Through Horizontal Angles (90 - 270)
# 2 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)

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