



IES INDOOR REPORT

PHOTOMETRIC FILENAME : FLX-19.2-1-3528-24-IP20-27K ALU-016R-DCL_IESNA95.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-1995
[TEST] 01
[TESTLAB] LED-123 LAB
[TESTDATE] 12-15-2020
[ISSUEDATE] XX-XXX-1995
[NEARFIELD]
[LAMPPOSITION] 0,0
[OTHER] LED123
[MANUFAC] LED123
[LUMCAT] FLX-19.2-1-3528-24-IP20-27K
[LUMINAIRE] ALU-016R-DCL
[LAMPCAT] 1
[LAMP] 3528 240LED CRI90 PCB 10MM
[BALLAST] DC24V

CHARACTERISTICS

| | |
|---------------------------------|---------------|
| Lumens Per Lamp | 1197 (1 lamp) |
| Total Lamp Lumens | 1197 |
| Luminaire Lumens | 1197 |
| Total Luminaire Efficiency | 100 % |
| Luminaire Efficacy Rating (LER) | 64 |
| Total Luminaire Watts | 18.8 |
| Ballast Factor | 1.00 |
| CIE Type | Semi-Direct |
| Spacing Criterion (0-180) | 1.34 |
| Spacing Criterion (90-270) | 2.12 |
| Spacing Criterion (Diagonal) | 1.36 |
| Basic Luminous Shape | Rectangular |
| Luminous Length (0-180) | 1.00 m |
| Luminous Width (90-270) | 0.04 m |
| Luminous Height | 0.00 m |



LUMINANCE DATA (cd/sq.m)

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|---------------------|------------------|-------------------|-------------------|
| 45 | 7455 | 13261 | 15819 |
| 55 | 7155 | 15380 | 18994 |
| 65 | 6513 | 19245 | 24541 |
| 75 | 5494 | 25771 | 32645 |
| 85 | 5522 | 57803 | 85824 |

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CANDELA TABULATION

| | <u>0</u> | <u>30</u> | <u>60</u> | <u>90</u> | <u>120</u> | <u>150</u> | <u>180</u> | <u>210</u> | <u>240</u> | <u>270</u> |
|-----|----------|-----------|-----------|-----------|------------|------------|------------|------------|------------|------------|
| 0 | 290.683 | 290.683 | 290.683 | 290.683 | 290.683 | 290.683 | 290.683 | 290.683 | 290.683 | 290.683 |
| 5 | 296.770 | 304.900 | 310.910 | 314.880 | 308.800 | 301.120 | 294.140 | 279.100 | 255.300 | 249.540 |
| 10 | 295.680 | 322.050 | 341.060 | 349.120 | 338.690 | 316.100 | 288.700 | 253.890 | 240.700 | 243.260 |
| 15 | 290.620 | 336.130 | 355.460 | 361.660 | 352.580 | 330.430 | 280.960 | 233.280 | 216.190 | 225.540 |
| 20 | 283.200 | 342.270 | 369.340 | 386.560 | 364.740 | 337.790 | 270.460 | 229.060 | 195.650 | 123.390 |
| 25 | 273.980 | 338.430 | 392.900 | 409.410 | 387.260 | 331.650 | 257.730 | 204.350 | 49.020 | 27.260 |
| 30 | 261.120 | 337.020 | 404.480 | 419.390 | 399.300 | 327.680 | 241.920 | 197.760 | 18.750 | 22.530 |
| 35 | 246.980 | 341.500 | 407.420 | 431.940 | 401.470 | 330.620 | 222.980 | 137.020 | 19.520 | 14.270 |
| 40 | 229.570 | 341.250 | 413.760 | 441.860 | 408.000 | 331.070 | 202.620 | 33.860 | 12.160 | 8.380 |
| 45 | 210.940 | 332.540 | 417.920 | 447.620 | 412.160 | 321.980 | 180.030 | 17.920 | 7.420 | 4.160 |
| 50 | 189.250 | 316.930 | 415.870 | 439.420 | 409.860 | 305.020 | 155.710 | 11.330 | 3.330 | 3.460 |
| 55 | 164.220 | 304.510 | 401.540 | 435.970 | 394.180 | 292.540 | 129.860 | 10.560 | 2.940 | 3.140 |
| 60 | 137.280 | 292.740 | 395.780 | 426.880 | 388.220 | 278.530 | 101.700 | 10.620 | 2.820 | 3.140 |
| 65 | 110.140 | 271.940 | 379.010 | 415.040 | 371.010 | 258.500 | 73.280 | 6.210 | 2.820 | 3.140 |
| 70 | 82.620 | 240.960 | 361.220 | 380.540 | 354.240 | 226.750 | 48.770 | 4.350 | 2.880 | 3.330 |
| 75 | 56.900 | 219.460 | 314.370 | 338.110 | 313.470 | 206.140 | 28.220 | 3.650 | 3.070 | 3.460 |
| 80 | 35.070 | 187.970 | 262.080 | 316.540 | 257.470 | 174.460 | 13.950 | 3.260 | 3.260 | 3.710 |
| 85 | 19.260 | 148.610 | 254.590 | 299.330 | 246.850 | 136.060 | 5.890 | 3.140 | 3.520 | 3.840 |
| 90 | 9.470 | 126.850 | 237.120 | 271.810 | 230.780 | 114.560 | 2.050 | 3.260 | 3.710 | 4.160 |
| 95 | 3.710 | 96.190 | 168.450 | 248.190 | 165.500 | 70.400 | 2.110 | 3.330 | 4.030 | 4.480 |
| 100 | 3.260 | 40.960 | 157.700 | 211.520 | 149.760 | 27.580 | 1.860 | 3.520 | 4.290 | 4.860 |
| 105 | 2.820 | 9.790 | 123.460 | 171.200 | 111.040 | 8.960 | 1.980 | 3.710 | 4.610 | 5.120 |
| 110 | 2.620 | 4.990 | 26.620 | 51.650 | 24.130 | 4.670 | 2.180 | 3.840 | 4.860 | 5.440 |
| 115 | 2.690 | 2.940 | 13.570 | 33.790 | 12.540 | 2.820 | 2.370 | 4.100 | 5.060 | 5.570 |
| 120 | 2.820 | 2.180 | 7.420 | 7.230 | 7.040 | 2.240 | 2.560 | 4.220 | 5.180 | 5.700 |
| 125 | 3.010 | 1.790 | 3.970 | 4.990 | 3.840 | 1.920 | 2.750 | 4.420 | 5.250 | 5.760 |
| 130 | 3.140 | 1.860 | 3.010 | 2.370 | 3.010 | 1.920 | 2.940 | 4.480 | 5.310 | 5.820 |
| 135 | 3.260 | 2.050 | 2.560 | 1.980 | 2.560 | 2.110 | 3.140 | 4.610 | 5.380 | 5.890 |
| 140 | 3.460 | 2.240 | 2.300 | 1.860 | 2.370 | 2.300 | 3.260 | 4.670 | 5.380 | 5.890 |
| 145 | 3.580 | 2.430 | 2.370 | 1.790 | 2.370 | 2.560 | 3.460 | 4.740 | 5.380 | 5.820 |
| 150 | 3.840 | 2.620 | 2.620 | 1.980 | 2.620 | 2.750 | 3.580 | 4.740 | 5.310 | 5.700 |
| 155 | 3.970 | 2.880 | 2.820 | 2.370 | 2.880 | 3.010 | 3.780 | 4.740 | 5.180 | 5.570 |
| 160 | 4.100 | 3.140 | 3.010 | 2.690 | 3.140 | 3.260 | 3.900 | 4.740 | 5.060 | 5.440 |
| 165 | 4.220 | 3.390 | 3.260 | 2.940 | 3.330 | 3.520 | 4.030 | 4.610 | 4.930 | 5.250 |
| 170 | 4.290 | 3.650 | 3.580 | 3.330 | 3.650 | 3.780 | 4.160 | 4.540 | 4.670 | 4.930 |
| 175 | 4.350 | 3.900 | 3.970 | 3.780 | 3.970 | 3.970 | 4.290 | 4.350 | 4.420 | 4.610 |
| 180 | 4.233 | 4.233 | 4.233 | 4.233 | 4.233 | 4.233 | 4.233 | 4.233 | 4.233 | 4.233 |

Vert. Horizontal Angles

| | <u>300</u> | <u>330</u> | <u>360</u> |
|----|------------|------------|------------|
| 0 | 290.683 | 290.683 | 290.683 |
| 5 | 252.610 | 276.220 | 296.770 |
| 10 | 242.300 | 250.110 | 295.680 |
| 15 | 217.860 | 235.580 | 290.620 |
| 20 | 193.980 | 230.780 | 283.200 |
| 25 | 44.480 | 207.230 | 273.980 |
| 30 | 17.540 | 200.580 | 261.120 |
| 35 | 20.420 | 122.430 | 246.980 |
| 40 | 11.710 | 30.720 | 229.570 |
| 45 | 7.230 | 18.500 | 210.940 |
| 50 | 3.330 | 11.900 | 189.250 |
| 55 | 2.940 | 11.900 | 164.220 |
| 60 | 2.750 | 10.620 | 137.280 |
| 65 | 2.820 | 6.020 | 110.140 |
| 70 | 2.880 | 4.350 | 82.620 |
| 75 | 3.070 | 3.650 | 56.900 |
| 80 | 3.260 | 3.260 | 35.070 |

IES INDOOR REPORT**PHOTOMETRIC FILENAME : FLX-19.2-1-3528-24-IP20-27K ALU-016R-DCL_IESNA95.IES****CANDELA TABULATION - (Cont.)**

| | | | |
|------------|-------|-------|--------|
| 85 | 3.520 | 3.140 | 19.260 |
| 90 | 3.780 | 3.260 | 9.470 |
| 95 | 4.030 | 3.460 | 3.710 |
| 100 | 4.290 | 3.580 | 3.260 |
| 105 | 4.610 | 3.840 | 2.820 |
| 110 | 4.860 | 4.030 | 2.620 |
| 115 | 5.060 | 4.220 | 2.690 |
| 120 | 5.180 | 4.350 | 2.820 |
| 125 | 5.310 | 4.480 | 3.010 |
| 130 | 5.380 | 4.610 | 3.140 |
| 135 | 5.440 | 4.670 | 3.260 |
| 140 | 5.440 | 4.800 | 3.460 |
| 145 | 5.440 | 4.800 | 3.580 |
| 150 | 5.380 | 4.800 | 3.840 |
| 155 | 5.250 | 4.800 | 3.970 |
| 160 | 5.120 | 4.740 | 4.100 |
| 165 | 4.930 | 4.670 | 4.220 |
| 170 | 4.670 | 4.540 | 4.290 |
| 175 | 4.420 | 4.420 | 4.350 |
| 180 | 4.233 | 4.233 | 4.233 |

IES INDOOR REPORT**PHOTOMETRIC FILENAME : FLX-19.2-1-3528-24-IP20-27K ALU-016R-DCL_IESNA95.IES****ZONAL LUMEN SUMMARY**

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|--------|--------|
| 0-20 | 108.20 | 9.00 | 9.00 |
| 0-30 | 223.70 | 18.70 | 18.70 |
| 0-40 | 363.51 | 30.40 | 30.40 |
| 0-60 | 677.52 | 56.60 | 56.60 |
| 0-80 | 965.14 | 80.60 | 80.60 |
| 0-90 | 1068.1 | 89.20 | 89.20 |
| 10-90 | 1040.54 | 86.90 | 86.90 |
| 20-40 | 255.31 | 21.30 | 21.30 |
| 20-50 | 408.24 | 34.10 | 34.10 |
| 40-70 | 470.29 | 39.30 | 39.30 |
| 60-80 | 287.61 | 24.00 | 24.00 |
| 70-80 | 131.34 | 11.00 | 11.00 |
| 80-90 | 102.96 | 8.60 | 8.60 |
| 90-110 | 108.74 | 9.10 | 9.10 |
| 90-120 | 116.74 | 9.80 | 9.80 |
| 90-130 | 120.39 | 10.10 | 10.10 |
| 90-150 | 125.56 | 10.50 | 10.50 |
| 90-180 | 128.94 | 10.80 | 10.80 |
| 110-180 | 20.20 | 1.70 | 1.70 |
| 0-180 | 1197.04 | 100.00 | 100.00 |

Total Luminaire Efficiency = 100.00%

ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---------|--------|
| 0-10 | 27.55 |
| 10-20 | 80.65 |
| 20-30 | 115.50 |
| 30-40 | 139.80 |
| 40-50 | 152.93 |
| 50-60 | 161.09 |
| 60-70 | 156.27 |
| 70-80 | 131.34 |
| 80-90 | 102.96 |
| 90-100 | 72.13 |
| 100-110 | 36.61 |
| 110-120 | 8.01 |
| 120-130 | 3.65 |
| 130-140 | 2.83 |
| 140-150 | 2.35 |
| 150-160 | 1.82 |
| 160-170 | 1.16 |
| 170-180 | 0.40 |

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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 | 116 | 116 | 116 | 116 | 113 | 113 | 113 | 113 | 105 | 105 | 105 | 98 | 98 | 98 | 92 | 92 | 92 | 89 |
| 1 | 103 | 96 | 91 | 86 | 99 | 93 | 88 | 83 | 87 | 82 | 78 | 81 | 77 | 74 | 75 | 73 | 70 | 67 |
| 2 | 92 | 82 | 74 | 67 | 88 | 79 | 72 | 65 | 74 | 67 | 62 | 69 | 63 | 59 | 64 | 60 | 56 | 53 |
| 3 | 83 | 71 | 62 | 54 | 79 | 68 | 60 | 53 | 64 | 57 | 51 | 60 | 53 | 48 | 56 | 50 | 46 | 43 |
| 4 | 76 | 62 | 52 | 45 | 72 | 60 | 51 | 44 | 56 | 48 | 42 | 52 | 46 | 40 | 49 | 43 | 39 | 36 |
| 5 | 69 | 55 | 45 | 38 | 66 | 53 | 44 | 37 | 50 | 42 | 36 | 47 | 40 | 35 | 44 | 38 | 33 | 31 |
| 6 | 64 | 49 | 40 | 33 | 61 | 48 | 39 | 32 | 45 | 37 | 31 | 42 | 35 | 30 | 40 | 34 | 29 | 27 |
| 7 | 59 | 45 | 35 | 29 | 57 | 43 | 35 | 28 | 41 | 33 | 27 | 38 | 32 | 26 | 36 | 30 | 26 | 23 |
| 8 | 55 | 41 | 32 | 26 | 53 | 39 | 31 | 25 | 37 | 30 | 24 | 35 | 28 | 24 | 33 | 27 | 23 | 21 |
| 9 | 51 | 37 | 29 | 23 | 49 | 36 | 28 | 23 | 34 | 27 | 22 | 32 | 26 | 21 | 31 | 25 | 20 | 18 |
| 10 | 48 | 34 | 26 | 21 | 46 | 33 | 26 | 20 | 32 | 25 | 20 | 30 | 24 | 19 | 28 | 23 | 19 | 17 |

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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 | 18.6 | 20.1 | 19.1 | 20.6 | 21.2 | 24.4 | 25.9 | 24.9 | 26.5 | 27.0 |
|------|------|------|------|------|------|------|------|------|------|------|------|
| | 3H | 20.5 | 21.9 | 21.0 | 22.4 | 23.0 | 27.7 | 29.1 | 28.2 | 29.6 | 30.2 |
| | 4H | 21.2 | 22.5 | 21.8 | 23.1 | 23.7 | 29.2 | 30.5 | 29.7 | 31.1 | 31.7 |
| | 6H | 21.8 | 23.0 | 22.3 | 23.6 | 24.2 | 30.8 | 32.1 | 31.4 | 32.6 | 33.3 |
| | 8H | 22.0 | 23.2 | 22.6 | 23.8 | 24.4 | 31.7 | 32.9 | 32.3 | 33.5 | 34.2 |
| | 12H | 22.2 | 23.3 | 22.7 | 23.9 | 24.6 | 32.8 | 34.0 | 33.4 | 34.6 | 35.3 |

UGR Viewed Endwise

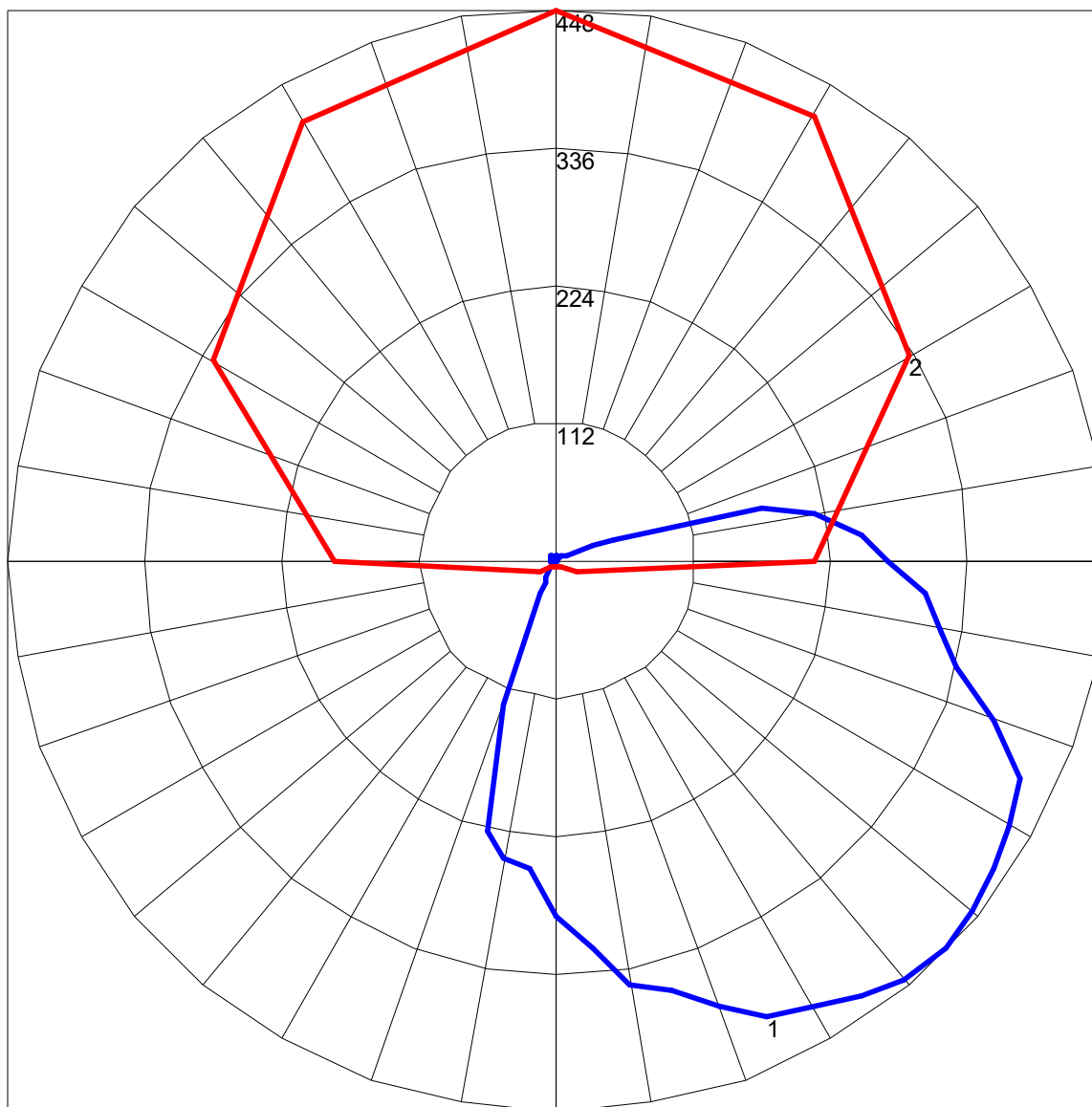
| | | | | | | | | | | | |
|-----|-----|------|------|------|------|------|------|------|------|------|------|
| 4H | 2H | 20.4 | 21.7 | 21.0 | 22.3 | 22.9 | 25.1 | 26.4 | 25.6 | 27.0 | 27.6 |
| | 3H | 22.7 | 23.9 | 23.3 | 24.5 | 25.1 | 28.7 | 29.8 | 29.2 | 30.4 | 31.1 |
| | 4H | 23.7 | 24.8 | 24.3 | 25.4 | 26.1 | 30.4 | 31.4 | 30.9 | 32.0 | 32.7 |
| | 6H | 24.5 | 25.5 | 25.1 | 26.1 | 26.8 | 32.2 | 33.1 | 32.8 | 33.8 | 34.5 |
| | 8H | 24.9 | 25.8 | 25.5 | 26.4 | 27.1 | 33.2 | 34.1 | 33.9 | 34.8 | 35.5 |
| | 12H | 25.1 | 25.9 | 25.7 | 26.6 | 27.3 | 34.5 | 35.3 | 35.1 | 36.0 | 36.7 |
| 8H | 4H | 25.2 | 26.1 | 25.8 | 26.8 | 27.5 | 30.8 | 31.7 | 31.4 | 32.3 | 33.0 |
| | 6H | 26.5 | 27.3 | 27.1 | 27.9 | 28.6 | 32.9 | 33.7 | 33.5 | 34.3 | 35.0 |
| | 8H | 27.0 | 27.8 | 27.7 | 28.4 | 29.1 | 34.1 | 34.8 | 34.8 | 35.5 | 36.2 |
| | 12H | 27.5 | 28.1 | 28.2 | 28.8 | 29.6 | 35.6 | 36.3 | 36.3 | 36.9 | 37.7 |
| 12H | 4H | 25.6 | 26.5 | 26.3 | 27.1 | 27.8 | 30.9 | 31.7 | 31.5 | 32.3 | 33.0 |
| | 6H | 27.1 | 27.8 | 27.8 | 28.5 | 29.2 | 33.0 | 33.7 | 33.7 | 34.4 | 35.1 |
| | 8H | 27.9 | 28.5 | 28.5 | 29.2 | 30.0 | 34.4 | 35.0 | 35.0 | 35.7 | 36.5 |

Maximum UGR = 37.7

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POLAR GRAPH



Maximum Candela = 447.62 Located At Horizontal Angle = 90, Vertical Angle = 45

1 - Vertical Plane Through Horizontal Angles (90 - 270) (Through Max. Cd.)

2 - Horizontal Cone Through Vertical Angle (45) (Through Max. Cd.)