



IES INDOOR REPORT

PHOTOMETRIC FILENAME : FLX-28.8-3528-24-IP20-27K LL-1650 ALU-DFR_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-28.8-3528-24-IP20-27K
 [LUMINAIRE] LL-1650 ALU LL-1650 DFR
 [LAMPCAT] 1
 [LAMP] 3528 240LED CRI90 PCB 20mm
 [BALLAST] DC24V

CHARACTERISTICS

Lumens Per Lamp	1152.9 (1 lamp)
Total Lamp Lumens	1152.9
Luminaire Lumens	2756
Total Luminaire Efficiency	239 %
Luminaire Efficacy Rating (LER)	100
Total Luminaire Watts	27.5
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.30
Spacing Criterion (90-270)	2.12
Spacing Criterion (Diagonal)	1.44
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	1.00 m
Luminous Width (90-270)	0.02 m
Luminous Height	0.00 m



LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	39910	74792	94133
55	37490	86275	115370
65	35088	105537	150263
75	35196	143203	208400
85	46931	337008	549082

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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	648.146	648.146	648.146	648.146	648.146	648.146	648.146	648.146	648.146	648.146
5	669.890	684.740	696.130	704.190	693.570	679.100	663.550	612.290	576.190	563.970
10	663.170	710.720	746.110	764.160	743.550	703.170	646.850	565.890	509.890	491.330
15	648.580	729.980	795.330	819.330	791.230	719.100	622.140	513.280	439.490	416.060
20	625.920	740.860	833.540	868.160	827.330	726.660	590.210	457.410	370.050	344.190
25	598.850	742.850	864.320	909.060	855.870	725.890	552.450	401.220	307.780	277.950
30	564.930	738.050	888.060	943.620	877.180	716.740	507.840	344.190	246.020	219.200
35	523.010	727.490	903.420	970.430	889.980	699.140	460.290	290.110	194.300	170.370
40	474.940	707.010	910.910	988.540	895.230	674.300	411.330	240.060	151.740	131.580
45	423.490	677.180	910.080	998.850	891.970	642.180	355.780	193.220	116.350	100.420
50	371.710	640.830	901.310	1000.060	880.830	607.300	301.380	151.740	88.510	76.540
55	322.690	600.260	884.930	993.020	861.500	565.890	250.500	115.970	66.880	58.750
60	270.850	554.620	861.060	977.090	834.430	517.820	201.860	84.740	49.790	44.670
65	222.530	507.330	831.300	952.960	801.410	468.420	153.410	59.580	36.800	33.660
70	178.370	457.730	784.770	899.330	762.050	416.830	112.380	40.130	26.820	26.240
75	136.700	410.620	701.760	809.410	692.030	365.440	74.620	25.660	19.520	19.460
80	99.390	364.100	612.480	765.760	575.300	320.510	41.600	16.380	15.100	16.190
85	61.380	315.330	566.210	718.140	530.500	272.700	15.680	11.390	12.930	14.020
90	37.060	267.780	542.530	649.730	505.860	225.660	5.700	9.150	11.580	12.860
95	8.770	174.020	385.660	580.670	338.560	143.550	4.540	8.130	10.430	12.420
100	5.630	130.690	371.010	508.610	330.690	92.860	3.840	7.740	10.050	12.100
105	4.990	89.540	303.740	402.180	263.550	44.800	4.290	8.060	10.180	11.780
110	5.180	26.240	194.880	259.900	161.220	3.840	4.670	8.130	10.620	11.970
115	5.250	3.460	94.140	133.310	70.980	3.200	5.060	8.320	11.010	12.290
120	5.570	3.520	29.630	50.750	17.410	3.520	5.500	8.640	11.200	12.540
125	6.080	3.840	4.800	10.820	4.350	3.840	5.950	8.900	11.330	12.670
130	6.530	4.350	4.350	3.260	4.420	4.290	6.340	9.220	11.390	12.740
135	6.850	4.800	4.480	3.580	4.610	4.740	6.780	9.470	11.460	12.800
140	7.230	5.180	4.800	3.970	4.930	5.250	7.230	9.660	11.460	12.670
145	7.620	5.700	5.250	4.480	5.310	5.820	7.620	9.730	11.460	12.540
150	8.000	6.210	5.700	5.060	5.820	6.340	7.940	9.860	11.260	12.220
155	8.260	6.660	6.270	5.630	6.340	6.850	8.260	9.860	11.070	11.900
160	8.640	7.170	6.780	6.270	6.910	7.360	8.640	9.920	10.820	11.580
165	8.900	7.680	7.420	6.980	7.420	7.870	8.960	9.790	10.430	11.140
170	9.150	8.190	8.000	7.680	8.060	8.380	9.220	9.660	10.050	10.620
175	9.340	8.640	8.640	8.450	8.700	8.830	9.410	9.470	9.600	9.980
180	9.265	9.265	9.265	9.265	9.265	9.265	9.265	9.265	9.265	9.265

Vert. Horizontal Angles

	<u>300</u>	<u>330</u>	<u>360</u>
0	648.146	648.146	648.146
5	572.220	605.820	669.890
10	507.650	563.070	663.170
15	439.870	513.980	648.580
20	372.610	461.500	625.920
25	312.260	410.240	598.850
30	251.840	356.480	564.930
35	201.410	302.660	523.010
40	158.910	253.760	474.940
45	122.430	205.180	423.490
50	93.180	162.180	371.710
55	70.460	125.180	322.690
60	52.420	91.710	270.850
65	38.530	62.850	222.530
70	26.940	43.580	178.370
75	19.260	27.900	136.700
80	13.700	17.790	99.390

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85	12.800	12.670	61.380
90	11.140	10.750	37.060
95	11.460	9.730	8.770
100	10.880	9.020	5.630
105	10.750	8.260	4.990
110	11.070	8.130	5.180
115	11.260	8.510	5.250
120	11.460	8.900	5.570
125	11.580	9.220	6.080
130	11.710	9.540	6.530
135	11.780	9.730	6.850
140	11.780	9.920	7.230
145	11.710	10.050	7.620
150	11.580	10.110	8.000
155	11.330	10.110	8.260
160	11.010	10.110	8.640
165	10.620	9.980	8.900
170	10.180	9.860	9.150
175	9.660	9.600	9.340
180	9.265	9.265	9.265

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Zone	Lumens	%Lamp	%Fixt
0-20	236.36	20.50	8.60
0-30	503.83	43.70	18.30
0-40	834.64	72.40	30.30
0-60	1564.76	135.70	56.80
0-80	2200.36	190.90	79.80
0-90	2432.97	211.00	88.30
10-90	2371.81	205.70	86.10
20-40	598.28	51.90	21.70
20-50	961.57	83.40	34.90
40-70	1074.19	93.20	39.00
60-80	635.60	55.10	23.10
70-80	291.53	25.30	10.60
80-90	232.61	20.20	8.40
90-110	262.69	22.80	9.50
90-120	296.17	25.70	10.70
90-130	304.50	26.40	11.00
90-150	315.46	27.40	11.40
90-180	322.82	28.00	11.70
110-180	60.13	5.20	2.20
0-180	2755.79	239.00	100.00

Total Luminaire Efficiency = 239.00%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	61.16
10-20	175.19
20-30	267.47
30-40	330.81
40-50	363.29
50-60	366.83
60-70	344.07
70-80	291.53
80-90	232.61
90-100	162.79
100-110	99.89
110-120	33.48
120-130	8.34
130-140	5.87
140-150	5.08
150-160	3.95
160-170	2.53
170-180	0.87

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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC RW	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	278	278	278	278	268	268	268	268	250	250	250	233	233	233	218	218	218	211
1	245	230	217	205	235	222	210	199	206	196	187	192	184	176	179	172	166	159
2	220	196	177	160	210	189	171	156	176	161	148	163	151	141	152	142	133	126
3	199	170	148	130	190	164	143	127	152	135	121	142	127	115	132	120	110	103
4	181	149	126	108	173	144	122	106	134	116	101	125	109	97	117	103	92	86
5	166	132	109	92	158	128	106	90	119	101	86	112	95	83	104	90	79	73
6	152	118	96	79	146	115	93	78	107	89	75	100	84	72	94	80	69	63
7	141	107	85	69	135	104	83	68	97	79	66	91	75	63	86	72	61	55
8	131	97	76	61	126	94	74	60	89	71	58	83	68	56	79	65	54	49
9	122	89	68	55	117	86	67	54	81	64	52	77	61	50	72	59	49	44
10	114	82	62	49	110	80	61	49	75	58	47	71	56	45	67	54	44	39

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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	23.9	25.5	24.5	26.0	26.6	30.5	32.0	31.0	32.5	33.1
	3H	25.9	27.3	26.4	27.8	28.4	33.8	35.2	34.4	35.8	36.4
	4H	26.7	28.0	27.3	28.6	29.2	35.5	36.8	36.0	37.3	38.0
	6H	27.4	28.7	28.0	29.3	29.9	37.2	38.4	37.8	39.0	39.7
	8H	27.8	29.0	28.4	29.6	30.2	38.2	39.4	38.8	40.0	40.6
	12H	28.1	29.2	28.7	29.8	30.5	39.3	40.5	39.9	41.1	41.7

UGR Viewed Endwise

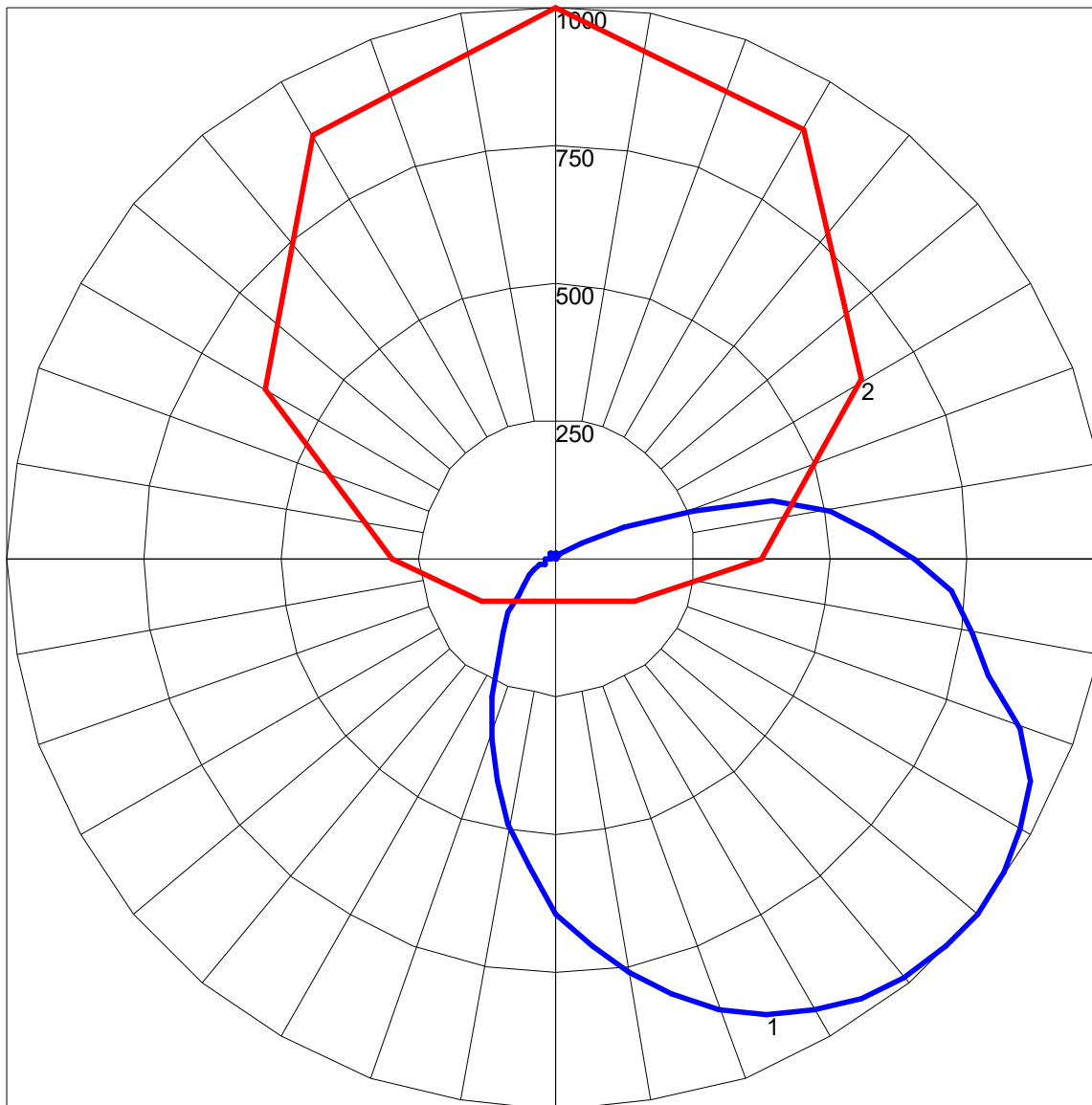
4H	2H	25.9	27.2	26.4	27.7	28.4	31.0	32.3	31.6	32.9	33.5
	3H	28.1	29.2	28.6	29.8	30.5	34.7	35.9	35.3	36.5	37.1
	4H	29.1	30.1	29.7	30.7	31.4	36.6	37.6	37.1	38.2	38.9
	6H	30.0	31.0	30.6	31.6	32.3	38.5	39.5	39.1	40.1	40.8
	8H	30.4	31.3	31.0	31.9	32.6	39.6	40.5	40.2	41.1	41.9
	12H	30.8	31.6	31.4	32.2	33.0	40.9	41.7	41.6	42.4	43.1
8H	4H	30.7	31.6	31.3	32.2	32.9	36.9	37.8	37.5	38.4	39.1
	6H	32.0	32.8	32.6	33.4	34.2	39.1	39.9	39.8	40.6	41.3
	8H	32.6	33.3	33.3	34.0	34.7	40.5	41.1	41.1	41.8	42.6
	12H	33.2	33.8	33.8	34.5	35.3	42.0	42.6	42.7	43.3	44.1
12H	4H	31.2	32.0	31.9	32.7	33.4	37.0	37.8	37.6	38.4	39.1
	6H	32.7	33.4	33.4	34.1	34.9	39.3	40.0	39.9	40.6	41.4
	8H	33.5	34.2	34.2	34.8	35.6	40.7	41.3	41.3	42.0	42.8

Maximum UGR = 44.1

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POLAR GRAPH



Maximum Candela = 1000.06 Located At Horizontal Angle = 90, Vertical Angle = 50

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

2 - Horizontal Cone Through Vertical Angle (50) (Through Max. Cd.)