



IES INDOOR REPORT

PHOTOMETRIC FILENAME : 16531 9-WATT LED LUMINAIRE KEYLESS.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA91

[TEST] 2016-12-007

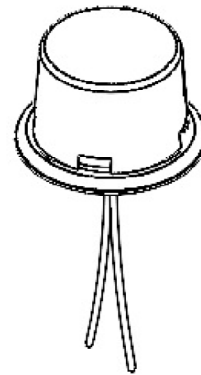
[MANUFAC] ENGINEERED PRODUCTS CO.

[LUMCAT] 16531

[LUMINAIRE] GU24 BASE LED LUMINAIRE KEYLESS

CHARACTERISTICS

Lumens Per Lamp	857 (1 lamp)
Total Lamp Lumens	857
Luminaire Lumens	858
Total Luminaire Efficiency	100 %
Luminaire Efficacy Rating (LER)	91
Total Luminaire Watts	9.4
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.14
Spacing Criterion (90-270)	1.20
Spacing Criterion (Diagonal)	1.34
Basic Luminous Shape	Point
Luminous Length (0-180)	0.00 m
Luminous Width (90-270)	0.00 m
Luminous Height	0.00 m



LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	0	0	0
55	0	0	0
65	0	0	0
75	0	0	0
85	0	0	0

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CANDELA TABULATION

	0	90	180	270	360
0	233.300	233.300	233.300	233.300	233.300
1	229.000	232.880	230.850	235.420	229.000
2	229.160	235.920	231.190	232.040	229.160
3	226.460	231.190	231.870	234.060	226.460
4	229.000	233.560	232.210	233.730	229.000
5	225.280	233.390	231.360	230.690	225.280
6	226.800	230.850	231.190	229.500	226.800
7	225.280	230.180	231.190	233.390	225.280
8	224.770	231.190	230.850	227.310	224.770
9	223.080	228.150	231.360	229.670	223.080
10	223.080	226.800	230.690	228.830	223.080
11	221.560	224.430	228.490	226.120	221.560
12	223.080	221.730	229.330	229.670	223.080
13	218.350	223.420	223.590	224.940	218.350
14	218.690	218.520	223.590	225.780	218.690
15	217.160	217.500	221.730	226.970	217.160
16	215.310	215.640	221.220	222.910	215.310
17	212.940	213.280	216.830	223.930	212.940
18	210.240	213.450	219.020	222.240	210.240
19	209.050	209.390	214.460	218.850	209.050
20	206.180	208.720	215.980	218.520	206.180
21	203.310	207.360	211.590	215.140	203.310
22	198.910	203.480	211.930	210.410	198.910
23	199.250	203.480	209.220	213.280	199.250
24	194.180	200.940	207.870	206.520	194.180
25	194.520	197.390	205.500	205.340	194.520
26	186.910	197.560	202.970	204.830	186.910
27	188.100	192.150	200.770	197.730	188.100
28	182.010	192.320	199.930	198.910	182.010
29	180.320	187.420	196.880	194.180	180.320
30	176.100	185.390	195.700	191.980	176.100
31	177.450	183.700	190.130	189.280	177.450
32	171.030	178.800	189.620	187.250	171.030
33	172.210	177.790	187.420	182.520	172.210
34	167.480	173.060	183.700	182.520	167.480
35	166.470	172.550	180.830	179.140	166.470
36	163.090	168.160	178.130	176.270	163.090
37	159.030	165.110	176.440	175.420	159.030
38	157.850	161.400	171.530	172.720	157.850
39	153.790	159.540	169.170	169.170	153.790
40	150.580	156.320	161.730	166.130	150.580
41	146.690	152.440	162.920	164.100	146.690
42	144.660	151.590	155.480	160.380	144.660
43	140.610	144.500	154.130	158.690	140.610
44	137.740	144.660	149.730	153.280	137.740
45	133.850	137.570	149.730	152.780	133.850
46	132.660	136.380	144.330	150.240	132.660
47	127.260	133.510	145.000	146.350	127.260
48	124.550	128.610	139.260	145.170	124.550
49	122.020	127.430	140.270	140.270	122.020
50	119.480	122.860	135.030	139.760	119.480
51	115.430	122.530	132.500	133.170	115.430
52	113.910	120.160	129.280	134.190	113.910
53	108.330	117.450	128.780	128.270	108.330

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54	108.500	111.880	125.400	126.070	108.500
55	105.790	112.050	123.540	125.230	105.790
56	101.060	110.020	118.130	117.620	101.060
57	102.580	105.790	117.450	120.160	102.580
58	97.010	106.640	115.090	111.030	97.010
59	99.200	100.050	111.710	114.410	99.200
60	94.980	102.410	108.160	107.150	94.980
61	92.780	98.700	105.120	106.130	92.780
62	90.920	93.460	103.770	103.770	90.920
63	87.370	94.640	100.720	99.030	87.370
64	86.700	89.060	98.020	96.500	86.700
65	82.300	89.910	94.300	95.820	82.300
66	83.320	84.670	92.440	92.610	83.320
67	77.230	82.130	88.560	90.580	77.230
68	76.050	82.300	88.390	89.740	76.050
69	73.010	79.600	81.970	86.360	73.010
70	71.990	76.220	81.120	83.820	71.990
71	70.140	74.530	79.770	82.640	70.140
72	65.060	69.800	76.730	77.910	65.060
73	64.050	69.120	74.870	80.280	64.050
74	60.840	66.250	73.680	74.870	60.840
75	60.160	64.390	70.140	77.910	60.160
76	59.660	62.870	69.970	71.990	59.660
77	54.760	60.160	66.250	71.830	54.760
78	55.940	61.690	65.230	67.770	55.940
79	52.050	56.450	62.530	71.150	52.050
80	51.380	56.450	59.990	64.560	51.380
81	49.010	57.800	59.490	64.050	49.010
82	46.480	55.090	56.450	63.210	46.480
83	48.500	53.400	54.250	59.150	48.500
84	45.120	49.850	52.900	59.830	45.120
85	45.290	50.700	51.210	54.590	45.290
86	42.250	47.150	50.020	57.290	42.250
87	40.220	45.970	47.830	52.900	40.220
88	40.560	45.970	44.780	50.700	40.560
89	36.500	42.420	44.450	50.870	36.500
90	37.010	43.090	41.910	44.780	37.010
91	33.290	38.190	41.240	48.330	33.290
92	33.800	39.550	39.880	42.760	33.800
93	32.280	36.670	37.690	44.280	32.280
94	30.930	36.500	38.700	42.930	30.930
95	30.930	36.500	35.490	41.410	30.930
96	28.560	32.620	36.340	40.220	28.560
97	31.270	32.790	33.460	38.530	31.270
98	25.860	32.280	34.140	38.700	25.860
99	29.240	30.930	32.280	35.150	29.240
100	24.840	31.100	32.950	39.720	24.840
101	26.360	30.250	30.760	34.480	26.360
102	26.030	30.420	31.600	38.360	26.030
103	24.000	31.270	31.430	33.460	24.000
104	24.670	29.570	30.250	36.670	24.670
105	25.860	30.080	29.740	33.290	25.860
106	26.360	28.560	30.420	33.120	26.360
107	22.650	28.050	28.560	32.450	22.650
108	28.560	29.740	32.110	34.650	28.560
109	25.350	26.870	30.080	32.280	25.350

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110	28.730	28.390	31.430	31.430	28.730
111	27.210	29.570	27.550	33.630	27.210
112	26.030	27.550	29.570	29.070	26.030
113	28.220	27.720	28.220	34.140	28.220
114	23.490	27.890	29.070	28.390	23.490
115	27.550	28.390	26.870	32.620	27.550
116	23.830	27.890	27.210	28.900	23.830
117	26.030	27.380	24.670	31.100	26.030
118	24.670	27.720	25.520	29.570	24.670
119	22.480	27.040	25.180	29.070	22.480
120	23.320	27.550	24.170	28.900	23.320
121	21.460	27.040	23.320	29.570	21.460
122	22.310	27.040	24.340	28.220	22.310
123	21.130	29.240	24.000	27.550	21.130
124	19.770	26.870	24.340	28.900	19.770
125	19.430	26.030	23.490	26.030	19.430
126	19.430	27.550	26.030	28.560	19.430
127	16.900	27.040	25.180	25.690	16.900
128	17.070	23.150	23.320	27.890	17.070
129	16.900	25.350	24.840	25.860	16.900
130	13.010	22.480	22.310	26.200	13.010
131	10.980	15.550	24.670	24.670	10.980
132	6.420	16.220	21.290	24.840	6.420
133	3.720	8.110	22.980	22.980	3.720
134	2.700	4.900	19.600	23.490	2.700
135	0.510	4.390	23.150	20.450	0.510
136	2.200	3.890	19.940	21.630	2.200
137	1.690	4.060	21.630	22.140	1.690
138	0.000	0.680	19.270	19.270	0.000
139	1.860	5.240	19.430	20.450	1.860
140	0.000	4.390	18.080	20.450	0.000
141	0.840	4.560	17.580	18.930	0.840
142	0.840	5.580	17.750	19.430	0.840
143	0.000	8.280	15.040	16.900	0.000
144	1.690	4.060	15.040	17.910	1.690
145	0.000	5.240	13.010	17.070	0.000
146	0.340	8.790	13.690	16.050	0.340
147	0.000	5.240	8.960	18.420	0.000
148	0.000	6.420	11.490	13.860	0.000
149	0.000	7.610	8.790	15.720	0.000
150	0.000	8.450	6.760	11.660	0.000
151	0.000	5.750	6.590	13.350	0.000
152	0.000	6.760	3.720	8.790	0.000
153	1.860	7.770	3.550	10.480	1.860
154	0.000	3.720	1.010	8.620	0.000
155	3.890	5.070	2.700	6.760	3.890
156	1.350	5.070	2.200	10.980	1.350
157	1.690	4.900	1.860	6.080	1.690
158	3.890	3.210	1.860	10.820	3.890
159	0.510	6.760	0.510	6.250	0.510
160	4.390	1.690	2.370	7.610	4.390
161	1.180	5.580	0.680	8.450	1.180
162	2.200	6.250	3.380	5.750	2.200
163	1.690	4.560	1.350	9.290	1.690
164	0.000	5.240	3.720	7.440	0.000
165	1.860	7.440	1.180	8.620	1.860

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166	0.340	9.130	3.890	8.960	0.340
167	1.010	5.750	0.680	7.270	1.010
168	0.840	7.770	3.720	8.280	0.840
169	0.680	8.450	1.690	8.620	0.680
170	0.170	8.280	4.220	6.250	0.170
171	0.340	5.920	2.870	9.290	0.340
172	0.840	8.620	5.070	6.420	0.840
173	0.510	8.620	2.370	8.790	0.510
174	0.680	6.250	5.750	8.110	0.680
175	2.200	9.970	3.720	6.760	2.200
176	2.540	7.270	3.550	10.310	2.540
177	3.210	6.250	3.380	6.930	3.210
178	2.870	5.750	4.220	8.110	2.870
179	3.550	5.240	2.540	8.620	3.550
180	13.928	13.928	13.928	13.928	13.928

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	84.06	9.80	9.80
0-30	176.30	20.60	20.60
0-40	285.28	33.30	33.30
0-60	500.10	58.40	58.30
0-80	661.54	77.20	77.10
0-90	716.51	83.60	83.50
10-90	694.60	81.10	81.00
20-40	201.22	23.50	23.50
20-50	312.31	36.40	36.40
40-70	304.51	35.50	35.50
60-80	161.45	18.80	18.80
70-80	71.76	8.40	8.40
80-90	54.96	6.40	6.40
90-110	71.15	8.30	8.30
90-120	98.79	11.50	11.50
90-130	120.69	14.10	14.10
90-150	137.27	16.00	16.00
90-180	141.26	16.50	16.50
110-180	70.12	8.20	8.20
0-180	857.77	100.10	100.00

Total Luminaire Efficiency = 100.10%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	21.91
10-20	62.15
20-30	92.25
30-40	108.98
40-50	111.09
50-60	103.73
60-70	89.69
70-80	71.76
80-90	54.96
90-100	39.33
100-110	31.82
110-120	27.64
120-130	21.90
130-140	10.72
140-150	5.86
150-160	2.23
160-170	1.26
170-180	0.49

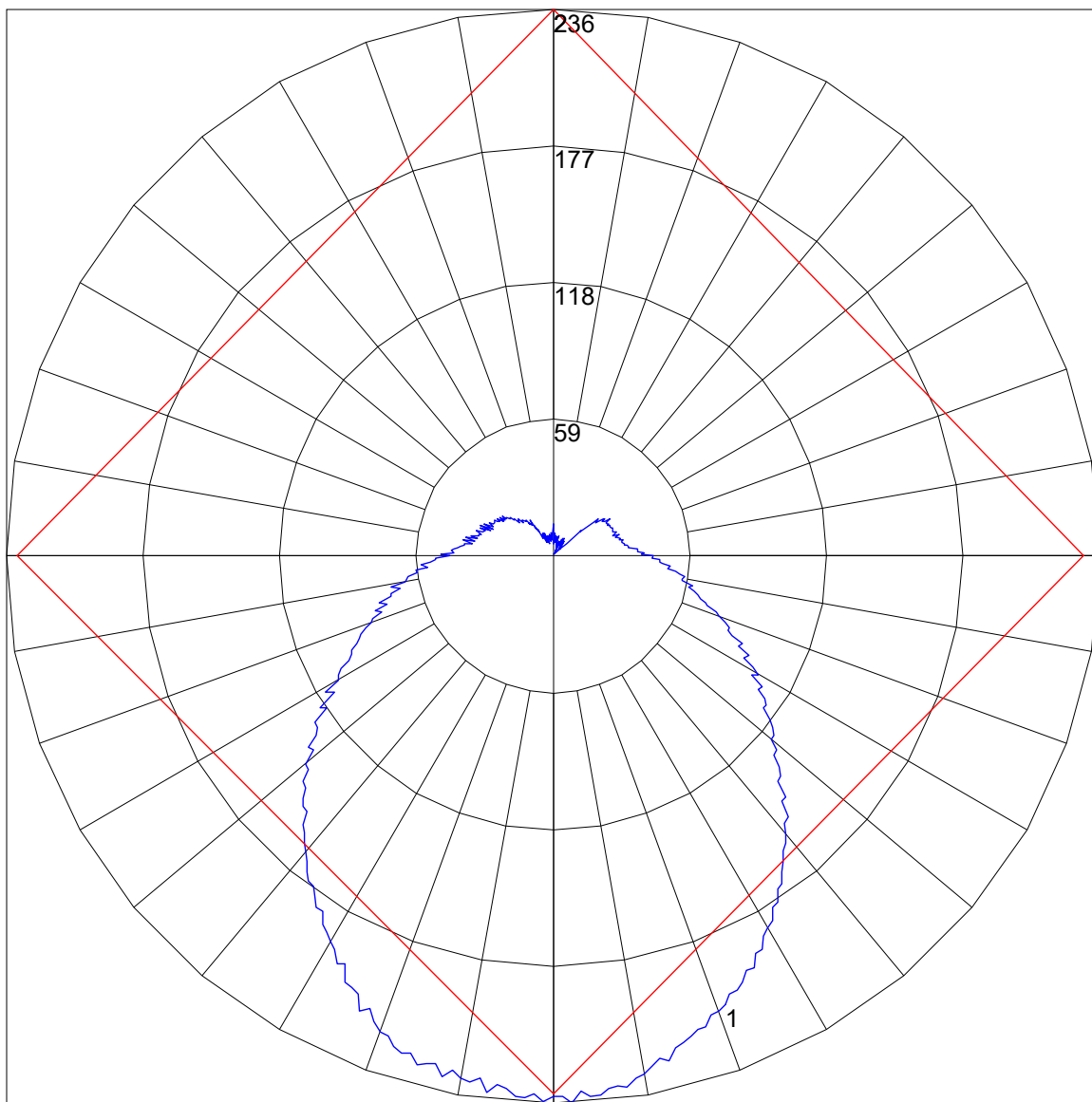
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	111	111	111	111	102	102	102	94	94	94	87	87	87	84
1	103	97	92	88	98	93	89	85	86	82	79	79	76	74	73	71	69	65
2	93	84	76	70	89	80	74	68	74	69	64	68	64	60	63	59	56	53
3	84	73	64	58	80	70	62	56	65	58	53	60	54	50	55	51	47	44
4	77	65	55	48	73	62	54	47	57	50	45	53	47	42	49	44	40	37
5	71	58	48	42	67	55	47	41	51	44	39	48	42	37	44	39	35	32
6	65	52	43	36	62	50	41	35	46	39	34	43	37	32	40	35	31	28
7	60	47	38	32	58	45	37	31	42	35	30	39	33	28	37	31	27	25
8	56	43	34	28	54	41	33	28	39	32	26	36	30	25	34	28	24	22
9	53	39	31	25	50	38	30	25	35	29	24	33	27	23	31	26	22	20
10	49	36	28	23	47	35	27	22	33	26	22	31	25	21	29	24	20	18

POLAR GRAPH



Maximum Candela = 235.92 Located At Horizontal Angle = 90, Vertical Angle = 2
1 - Vertical Plane Through Horizontal Angles (90 - 270) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (2) (Through Max. Cd.)