



Affordable • Reliable • Practical

INNOVATIVE • ENERGY EFFICIENT • ENERGY SAVING • MAINTENANCE FREE • LONG LIFE • SAFE & CERTIFIED

Lighting calculations are based on information supplied and subject to change

WWW.TUROLIGHT.COM

**IES INDOOR REPORT**

**PHOTOMETRIC FILENAME : HD-A19-I90-15W-5CCT-D\_120V.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
[TEST]  
[TESTLAB] EVERFINE  
[TESTDATE] 2024-05-21  
[ISSUE DATE] 2025-02-13 15:10:48  
[LAMPPOSITION] 0,0  
[OTHER]  
[MANUFAC] TUROLIGHT Inc.  
[LUMCAT] HD-A19-I90-15W-5CCT-[ 120V

**CHARACTERISTICS**

Lumens Per Lamp	1600 (1 lamp)
Total Lamp Lumens	1600
Luminaire Lumens	1625
Total Luminaire Efficiency	102 %
Luminaire Efficacy Rating (LER)	119
Total Luminaire Watts	13.6195
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.54
Spacing Criterion (90-270)	1.44
Spacing Criterion (Diagonal)	1.66
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.05 m (Diameter)
Luminous Width (90-270)	0.05 m (Diameter)
Luminous Height	0.00 m

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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	147280	140469	133781
55	173304	164490	156263
65	219945	208526	197962
75	329284	312074	297085
85	878316	835326	796892

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HD-A19-I90-15W-5CCT-D\_120V.IES**

**CANDELA TABULATION**

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>	<u>112.5</u>	<u>135.0</u>	<u>157.5</u>	<u>180.0</u>	<u>202.5</u>
0	208.220	208.220	208.220	208.220	208.220	208.220	208.220	208.220	208.220	208.220
1	208.730	208.540	208.290	208.160	207.820	207.810	207.850	207.980	208.040	207.990
2	208.980	208.730	208.330	207.870	207.570	207.460	207.510	207.510	207.780	207.950
3	209.240	208.860	208.430	207.850	207.230	207.060	207.050	207.160	207.420	207.590
4	209.560	209.120	208.410	207.720	207.120	206.650	206.750	206.690	207.000	207.360
5	209.720	209.190	208.390	207.560	206.790	206.290	206.250	206.200	206.710	207.100
6	210.070	209.320	208.460	207.450	206.520	206.040	205.810	205.870	206.270	206.740
7	210.230	209.410	208.280	207.260	206.240	205.500	205.430	205.340	205.930	206.570
8	210.360	209.460	208.310	207.020	205.860	205.120	204.980	204.880	205.500	206.260
9	210.640	209.600	208.250	206.860	205.620	204.710	204.420	204.440	205.080	205.890
10	210.820	209.680	208.130	206.630	205.330	204.260	204.000	203.950	204.700	205.670
11	210.940	209.680	208.100	206.320	204.950	203.850	203.480	203.440	204.260	205.290
12	211.150	209.710	208.010	206.170	204.590	203.390	203.030	203.040	203.750	204.870
13	211.240	209.770	207.850	205.840	204.310	202.840	202.520	202.410	203.400	204.560
14	211.380	209.740	207.790	205.590	203.790	202.510	201.980	202.040	202.920	204.090
15	211.560	209.870	207.580	205.380	203.490	202.070	201.470	201.600	202.400	203.810
16	211.530	209.760	207.380	205.030	203.050	201.480	201.010	201.020	202.030	203.510
17	211.650	209.740	207.350	204.730	202.600	201.080	200.420	200.510	201.450	203.010
18	211.780	209.780	207.060	204.500	202.260	200.550	199.960	199.950	201.020	202.610
19	211.800	209.600	206.900	204.040	201.840	200.060	199.450	199.370	200.570	202.270
20	211.840	209.530	206.710	203.810	201.280	199.590	198.890	198.940	200.030	201.830
21	211.930	209.500	206.500	203.500	200.960	198.990	198.380	198.350	199.570	201.540
22	211.920	209.420	206.300	203.120	200.440	198.520	197.800	197.790	199.090	201.030
23	211.980	209.370	206.110	202.800	200.030	198.020	197.130	197.280	198.550	200.600
24	211.930	209.220	205.680	202.480	199.600	197.450	196.680	196.740	198.080	200.180
25	211.860	209.060	205.560	202.020	199.020	196.910	196.080	196.160	197.570	199.750
26	211.940	208.950	205.260	201.690	198.570	196.360	195.500	195.630	196.990	199.200
27	211.800	208.840	204.940	201.200	198.070	195.710	194.970	195.070	196.580	198.850
28	211.610	208.580	204.570	200.700	197.420	195.270	194.320	194.510	195.990	198.320
29	211.510	208.460	204.280	200.330	196.960	194.600	193.750	193.950	195.410	197.810
30	211.380	208.170	203.880	199.810	196.460	193.960	193.160	193.270	194.950	197.350
31	211.190	207.880	203.580	199.370	195.820	193.410	192.480	192.690	194.310	196.740
32	210.980	207.610	203.020	198.880	195.340	192.790	191.880	192.050	193.740	196.230
33	210.610	207.200	202.630	198.270	194.610	192.070	191.280	191.340	193.160	195.700
34	210.420	206.810	202.230	197.690	194.040	191.450	190.490	190.680	192.480	195.100
35	210.100	206.460	201.680	197.120	193.440	190.730	189.920	190.070	191.830	194.540
36	209.630	205.990	201.160	196.470	192.810	190.070	189.110	189.340	191.220	193.990
37	209.210	205.410	200.640	195.870	192.060	189.350	188.340	188.630	190.470	193.210
38	208.790	205.040	200.010	195.270	191.460	188.510	187.600	187.860	189.820	192.640
39	208.310	204.370	199.390	194.500	190.650	187.840	186.830	187.060	189.170	191.920
40	207.810	203.910	198.820	193.850	189.930	187.060	186.010	186.410	188.330	191.170
41	207.200	203.230	198.030	193.050	189.160	186.200	185.300	185.580	187.650	190.520
42	206.500	202.580	197.370	192.290	188.290	185.370	184.340	184.760	186.840	189.700
43	205.990	201.950	196.590	191.510	187.560	184.590	183.540	183.970	185.990	188.900
44	205.260	201.250	195.850	190.740	186.720	183.650	182.740	183.060	185.240	188.140
45	204.570	200.370	195.110	189.850	185.820	182.830	181.820	182.210	184.340	187.310
46	203.740	199.670	194.230	189.040	184.930	181.870	180.950	181.350	183.480	186.440
47	202.990	198.790	193.320	188.160	184.060	180.920	180.040	180.390	182.640	185.640
48	202.110	197.910	192.480	187.120	183.090	180.060	179.040	179.540	181.660	184.700
49	201.350	197.080	191.560	186.310	182.260	179.050	178.090	178.620	180.740	183.820
50	200.200	196.060	190.530	185.260	181.200	178.060	177.100	177.560	179.870	182.920
51	199.390	195.170	189.620	184.380	180.200	177.090	176.090	176.670	178.840	181.880
52	198.410	194.220	188.450	183.370	179.250	176.080	175.160	175.640	177.860	180.940
53	197.420	193.140	187.560	182.260	178.140	175.020	174.120	174.610	176.890	179.900

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HD-A19-I90-15W-5CCT-D\_120V.IES**

**CANDELA TABULATION - (Cont.)**

54	196.290	192.090	186.470	181.190	177.080	174.070	173.130	173.690	175.800	178.800
55	195.260	191.070	185.330	180.150	176.060	172.900	172.020	172.540	174.880	177.800
56	194.070	189.900	184.230	179.000	174.970	171.900	170.940	171.490	173.750	176.740
57	193.040	188.860	183.160	177.910	173.880	170.790	169.790	170.420	172.620	175.600
58	191.740	187.630	181.880	176.760	172.690	169.620	168.860	169.300	171.550	174.550
59	190.540	186.360	180.750	175.480	171.560	168.540	167.680	168.100	170.500	173.410
60	189.280	185.150	179.530	174.420	170.380	167.350	166.580	167.080	169.300	172.210
61	188.070	183.820	178.300	173.070	169.270	166.170	165.390	165.830	168.220	171.140
62	186.680	182.510	177.040	171.860	167.990	165.020	164.160	164.700	166.980	169.910
63	185.370	181.340	175.710	170.610	166.830	163.830	163.030	163.520	165.850	168.750
64	183.910	179.880	174.380	169.300	165.630	162.530	161.890	162.270	164.700	167.550
65	182.590	178.560	173.110	168.030	164.340	161.390	160.630	161.110	163.370	166.230
66	181.210	177.170	171.700	166.750	163.100	160.120	159.400	159.910	162.200	164.990
67	179.760	175.700	170.420	165.340	161.750	158.890	158.150	158.660	160.930	163.790
68	178.210	174.300	168.990	164.030	160.410	157.650	156.780	157.450	159.600	162.410
69	176.760	172.890	167.510	162.690	159.160	156.300	155.640	156.170	158.360	161.200
70	175.190	171.340	166.030	161.290	157.800	155.060	154.320	154.790	157.210	159.850
71	173.760	169.870	164.680	159.930	156.440	153.770	153.040	153.630	155.800	158.490
72	172.180	168.370	163.160	158.470	155.150	152.440	151.790	152.230	154.570	157.210
73	170.540	166.760	161.750	157.050	153.690	151.100	150.390	150.940	153.160	155.840
74	168.980	165.280	160.220	155.660	152.390	149.770	149.050	149.640	151.860	154.420
75	167.410	163.670	158.660	154.210	151.040	148.370	147.790	148.280	150.540	153.150
76	165.700	162.070	157.210	152.730	149.590	147.070	146.390	146.940	149.200	151.690
77	164.090	160.490	155.610	151.210	148.170	145.660	144.980	145.590	147.720	150.350
78	162.390	158.910	154.040	149.770	146.750	144.220	143.650	144.180	146.420	148.890
79	160.740	157.260	152.520	148.320	145.230	142.860	142.220	142.890	144.980	147.380
80	159.090	155.770	150.980	146.890	143.880	141.410	140.860	141.480	143.630	145.970
81	157.260	154.070	149.320	145.360	142.370	139.970	139.450	140.040	142.200	144.530
82	155.560	152.470	147.770	143.880	140.880	138.560	137.980	138.600	140.710	143.040
83	153.870	150.780	146.030	142.360	139.460	137.080	136.620	137.180	139.290	141.570
84	152.140	149.030	144.500	140.720	137.930	135.590	135.170	135.680	137.910	140.100
85	150.370	147.290	143.010	139.140	136.430	134.230	133.710	134.300	136.360	138.570
86	148.580	145.550	141.290	137.560	134.970	132.660	132.290	132.790	134.930	137.130
87	146.780	143.840	139.630	135.950	133.380	131.220	130.830	131.300	133.450	135.570
88	145.080	142.220	137.980	134.520	131.900	129.730	129.340	129.890	131.950	134.070
89	143.190	140.540	136.350	132.910	130.420	128.260	127.890	128.390	130.450	132.560
90	141.350	138.790	134.680	131.280	128.870	126.760	126.380	126.910	128.970	131.040
91	139.580	137.040	132.950	129.730	127.380	125.200	124.870	125.420	127.410	129.430
92	137.820	135.250	131.240	128.040	125.810	123.700	123.400	123.910	125.950	127.940
93	135.940	133.390	129.690	126.390	124.200	122.220	121.870	122.370	124.360	126.320
94	134.170	131.710	127.960	124.800	122.650	120.670	120.380	120.940	122.860	124.800
95	132.330	129.890	126.190	123.180	121.110	119.140	118.870	119.360	121.390	123.290
96	130.520	128.180	124.550	121.610	119.540	117.640	117.360	117.880	119.820	121.630
97	128.720	126.450	122.920	120.030	118.010	116.020	115.820	116.370	118.270	120.080
98	126.820	124.670	121.220	118.360	116.400	114.550	114.360	114.830	116.730	118.490
99	125.000	122.870	119.490	116.760	114.790	113.020	112.770	113.290	115.100	116.940
100	123.190	121.130	117.720	115.080	113.210	111.470	111.320	111.760	113.590	115.340
101	121.330	119.290	116.110	113.410	111.620	109.910	109.720	110.210	112.070	113.790
102	119.540	117.580	114.470	111.810	110.040	108.440	108.200	108.720	110.510	112.180
103	117.710	115.880	112.710	110.270	108.540	106.850	106.710	107.170	108.980	110.650
104	115.850	114.020	110.950	108.620	106.890	105.320	105.160	105.580	107.390	109.000
105	114.070	112.350	109.300	107.030	105.340	103.750	103.590	104.110	105.780	107.410
106	112.260	110.510	107.610	105.330	103.750	102.200	102.080	102.500	104.270	105.810
107	110.420	108.780	106.040	103.640	102.100	100.700	100.520	101.040	102.760	104.260
108	108.660	107.060	104.300	102.110	100.600	99.163	99.022	99.509	101.210	102.640
109	106.790	105.330	102.540	100.460	99.019	97.579	97.543	97.930	99.705	101.070

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HD-A19-I90-15W-5CCT-D\_120V.IES**

**CANDELA TABULATION - (Cont.)**

110	105.040	103.540	100.920	98.866	97.451	96.058	95.981	96.383	98.083	99.455
111	103.260	101.830	99.243	97.249	95.877	94.512	94.471	94.868	96.456	97.848
112	101.470	100.050	97.609	95.632	94.303	92.954	92.919	93.317	94.903	96.323
113	99.660	98.323	95.901	94.010	92.698	91.413	91.373	91.759	93.352	94.690
114	97.918	96.635	94.198	92.462	91.199	89.877	89.864	90.239	91.832	93.148
115	96.128	94.878	92.553	90.781	89.610	88.357	88.376	88.714	90.349	91.569
116	94.429	93.191	90.962	89.245	88.090	86.865	86.831	87.221	88.755	89.996
117	92.645	91.466	89.254	87.622	86.569	85.344	85.380	85.695	87.240	88.448
118	90.882	89.768	87.625	85.995	84.991	83.835	83.818	84.186	85.672	86.869
119	89.204	88.081	86.045	84.470	83.476	82.342	82.320	82.672	84.099	85.268
120	87.496	86.484	84.429	82.928	81.918	80.785	80.842	81.147	82.600	83.758
121	85.755	84.803	82.785	81.365	80.388	79.340	79.307	79.644	81.140	82.191
122	84.077	83.180	81.173	79.839	78.890	77.848	77.847	78.210	79.658	80.628
123	82.379	81.498	79.599	78.239	77.429	76.350	76.408	76.675	78.186	79.124
124	80.697	79.800	78.047	76.660	75.894	74.900	74.916	75.209	76.650	77.588
125	79.053	78.178	76.430	75.162	74.407	73.429	73.455	73.775	75.120	76.068
126	77.393	76.561	74.856	73.632	72.930	71.958	71.984	72.267	73.605	74.597
127	75.754	74.955	73.336	72.128	71.395	70.488	70.508	70.828	72.060	73.056
128	74.173	73.397	71.810	70.625	69.951	69.021	69.081	69.340	70.584	71.551
129	72.514	71.759	70.253	69.089	68.491	67.603	67.680	67.906	69.183	70.069
130	70.939	70.218	68.749	67.618	67.052	66.208	66.242	66.494	67.717	68.571
131	69.355	68.645	67.181	66.137	65.607	64.753	64.818	65.110	66.256	67.148
132	67.786	67.134	65.682	64.680	64.136	63.347	63.422	63.661	64.828	65.667
133	66.234	65.594	64.275	63.231	62.725	61.952	62.001	62.265	63.369	64.207
134	64.730	64.101	62.762	61.814	61.357	60.578	60.654	60.881	62.005	62.784
135	63.168	62.576	61.264	60.338	59.972	59.193	59.286	59.501	60.604	61.389
136	61.653	61.100	59.846	58.938	58.540	57.863	57.902	58.128	59.166	59.924
137	60.197	59.650	58.434	57.580	57.204	56.462	56.555	56.781	57.793	58.512
138	58.727	58.190	56.980	56.217	55.868	55.115	55.236	55.434	56.473	57.159
139	57.277	56.725	55.600	54.806	54.505	53.806	53.895	54.109	55.116	55.807
140	55.832	55.319	54.204	53.471	53.153	52.490	52.575	52.772	53.721	54.411
141	54.420	53.918	52.851	52.130	51.824	51.192	51.288	51.490	52.407	53.074
142	53.003	52.518	51.494	50.815	50.542	49.889	50.002	50.176	51.104	51.738
143	51.597	51.132	50.179	49.489	49.242	48.613	48.740	48.883	49.788	50.403
144	50.228	49.770	48.827	48.191	47.966	47.390	47.480	47.644	48.512	49.099
145	48.892	48.461	47.524	46.915	46.690	46.157	46.230	46.416	47.209	47.817
146	47.572	47.136	46.247	45.650	45.452	44.865	44.987	45.146	45.955	46.525
147	46.258	45.833	44.971	44.416	44.224	43.642	43.765	43.907	44.743	45.270
148	44.954	44.546	43.716	43.168	43.002	42.479	42.581	42.744	43.499	44.058
149	43.656	43.302	42.499	41.962	41.781	41.327	41.391	41.549	42.278	42.825
150	42.428	42.048	41.292	40.783	40.634	40.170	40.218	40.381	41.104	41.608
151	41.214	40.858	40.095	39.615	39.455	39.010	39.093	39.237	39.931	40.416
152	40.014	39.625	38.911	38.447	38.309	37.896	37.974	38.123	38.769	39.258
153	38.818	38.441	37.748	37.349	37.173	36.776	36.882	37.009	37.649	38.106
154	37.618	37.233	36.595	36.190	36.056	35.694	35.803	35.932	36.538	36.997
155	36.439	36.054	35.465	35.092	34.889	34.570	34.711	34.840	35.419	35.857
156	35.249	34.869	34.383	33.972	33.747	33.418	33.657	33.774	34.321	34.753
157	34.049	33.674	33.269	32.799	32.546	32.304	32.612	32.725	33.239	33.677
158	32.848	32.468	32.187	31.641	31.335	31.152	31.536	31.638	32.131	32.466
159	31.631	31.208	31.122	30.457	30.150	29.930	30.444	30.530	31.044	31.180
160	30.409	29.963	30.029	29.293	28.911	28.708	29.345	29.410	29.935	29.866
161	29.224	28.654	28.921	28.049	27.628	27.448	28.209	28.243	28.804	28.557
162	27.958	27.269	27.762	26.734	26.270	26.208	27.041	27.078	27.630	27.209
163	26.671	25.867	26.562	25.354	24.842	24.894	25.839	25.840	26.401	25.825
164	25.309	24.342	25.335	23.838	23.343	23.537	24.557	24.569	25.103	24.483
165	23.914	22.793	24.037	22.114	21.806	22.116	23.257	23.261	23.814	23.169

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HD-A19-I90-15W-5CCT-D\_120V.IES**

**CANDELA TABULATION - (Cont.)**

166	22.482	21.100	22.713	19.930	20.221	20.634	21.893	21.893	22.450	21.817
167	20.958	19.391	20.559	17.200	18.604	19.008	20.443	20.445	20.977	20.396
168	19.368	17.678	17.150	13.947	17.019	17.316	18.900	18.893	19.337	18.930
169	17.639	16.061	12.588	10.951	15.407	15.543	17.238	17.223	17.550	17.406
170	15.818	14.492	8.564	8.686	13.761	13.876	15.372	15.386	15.558	15.838
171	13.787	12.835	6.183	7.747	11.928	12.232	13.036	13.172	13.409	14.071
172	11.737	10.871	5.949	7.664	9.666	9.965	9.773	9.827	11.098	11.868
173	9.682	8.241	6.252	6.740	6.376	6.062	5.499	5.418	7.264	8.351
174	7.323	4.916	4.237	4.148	3.365	2.902	2.858	2.826	3.483	4.177
175	3.929	2.842	2.663	2.617	2.676	2.673	2.666	2.683	2.671	2.696
176	2.643	2.628	2.639	2.644	2.682	2.676	2.676	2.682	2.682	2.676
177	2.649	2.650	2.644	2.660	2.687	2.687	2.692	2.692	2.687	2.687
178	2.676	2.671	2.676	2.671	2.698	2.698	2.693	2.692	2.698	2.687
179	2.698	2.693	2.687	2.693	2.720	2.709	2.720	2.709	2.709	2.698
180	2.714	2.714	2.714	2.714	2.714	2.714	2.714	2.714	2.714	2.714

**Vert. Horizontal Angles**

	<u>225.0</u>	<u>247.5</u>	<u>270.0</u>	<u>292.5</u>	<u>315.0</u>	<u>337.5</u>	<u>360.0</u>
0	208.220	208.220	208.220	208.220	208.220	208.220	208.220
1	208.120	208.240	208.280	208.360	208.670	208.590	208.730
2	208.100	208.340	208.490	208.760	208.930	208.960	208.980
3	208.030	208.320	208.610	209.020	209.230	209.340	209.240
4	207.830	208.350	208.830	209.270	209.630	209.590	209.560
5	207.760	208.460	208.940	209.550	209.900	210.000	209.720
6	207.620	208.350	209.030	209.830	210.200	210.210	210.070
7	207.420	208.430	209.210	209.960	210.580	210.520	210.230
8	207.290	208.420	209.280	210.300	210.740	210.890	210.360
9	207.080	208.340	209.360	210.440	211.100	211.090	210.640
10	206.860	208.330	209.530	210.600	211.300	211.340	210.820
11	206.720	208.260	209.510	210.840	211.500	211.590	210.940
12	206.460	208.110	209.590	210.960	211.700	211.710	211.150
13	206.200	208.040	209.670	211.100	211.960	211.950	211.240
14	206.080	207.890	209.660	211.280	212.070	212.170	211.380
15	205.730	207.780	209.690	211.310	212.340	212.290	211.560
16	205.480	207.710	209.700	211.450	212.440	212.530	211.530
17	205.260	207.500	209.610	211.560	212.560	212.630	211.650
18	204.920	207.370	209.660	211.540	212.760	212.720	211.780
19	204.660	207.220	209.550	211.640	212.890	212.960	211.800
20	204.400	207.040	209.450	211.710	213.000	213.050	211.840
21	204.050	206.860	209.450	211.690	213.210	213.130	211.930
22	203.760	206.680	209.330	211.790	213.240	213.310	211.920
23	203.460	206.400	209.230	211.750	213.320	213.330	211.980
24	203.060	206.220	209.180	211.790	213.440	213.430	211.930
25	202.830	206.010	208.980	211.840	213.360	213.460	211.860
26	202.370	205.710	208.830	211.730	213.430	213.390	211.940
27	202.030	205.520	208.750	211.640	213.340	213.410	211.800
28	201.680	205.240	208.490	211.610	213.310	213.400	211.610
29	201.250	204.880	208.340	211.490	213.210	213.260	211.510
30	200.780	204.600	208.120	211.300	213.240	213.200	211.380
31	200.380	204.160	207.820	211.190	213.000	213.030	211.190
32	199.840	203.780	207.500	210.900	212.840	212.830	210.980
33	199.390	203.400	207.200	210.710	212.580	212.720	210.610
34	198.860	202.850	206.680	210.420	212.290	212.410	210.420
35	198.290	202.380	206.470	210.060	212.140	212.100	210.100
36	197.770	201.930	205.970	209.720	211.710	211.870	209.630

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HD-A19-I90-15W-5CCT-D\_120V.IES**

**CANDELA TABULATION - (Cont.)**

37	197.180	201.350	205.470	209.350	211.340	211.390	209.210
38	196.480	200.840	205.040	208.840	210.980	211.020	208.790
39	195.940	200.210	204.410	208.500	210.470	210.590	208.310
40	195.250	199.590	203.900	207.820	210.020	210.020	207.810
41	194.520	198.940	203.380	207.310	209.480	209.460	207.200
42	193.860	198.240	202.700	206.770	208.780	208.990	206.500
43	193.070	197.480	202.020	206.140	208.280	208.330	205.990
44	192.300	196.840	201.370	205.410	207.650	207.800	205.260
45	191.570	196.030	200.510	204.800	206.890	207.050	204.570
46	190.650	195.220	199.820	203.950	206.210	206.210	203.740
47	189.820	194.430	198.900	203.180	205.380	205.540	202.990
48	189.000	193.460	198.070	202.320	204.540	204.690	202.110
49	188.020	192.630	197.190	201.450	203.740	203.900	201.350
50	187.150	191.700	196.310	200.620	202.750	203.040	200.200
51	186.210	190.720	195.270	199.700	201.860	202.080	199.390
52	185.170	189.660	194.400	198.630	200.920	201.040	198.410
53	184.230	188.780	193.360	197.660	199.890	200.130	197.420
54	183.200	187.590	192.240	196.630	198.840	198.920	196.290
55	182.110	186.650	191.250	195.500	197.750	197.860	195.260
56	181.070	185.410	190.090	194.480	196.520	196.810	194.070
57	179.910	184.380	189.010	193.320	195.420	195.570	193.040
58	178.780	183.250	187.880	192.160	194.220	194.460	191.740
59	177.730	182.060	186.620	191.020	192.980	193.230	190.540
60	176.510	180.820	185.410	189.660	191.760	191.880	189.280
61	175.300	179.620	184.240	188.360	190.460	190.660	188.070
62	174.100	178.370	182.880	187.100	189.110	189.310	186.680
63	172.830	177.110	181.560	185.720	187.710	187.930	185.370
64	171.640	175.930	180.240	184.380	186.390	186.650	183.910
65	170.410	174.500	178.890	183.040	184.960	185.190	182.590
66	169.050	173.260	177.620	181.610	183.650	183.750	181.210
67	167.770	171.910	176.200	180.200	182.100	182.320	179.760
68	166.450	170.500	174.680	178.730	180.610	180.770	178.210
69	165.100	169.110	173.270	177.210	179.110	179.300	176.760
70	163.830	167.760	171.810	175.800	177.490	177.760	175.190
71	162.420	166.250	170.400	174.250	175.990	176.140	173.760
72	160.990	164.900	168.960	172.650	174.440	174.550	172.180
73	159.620	163.380	167.360	171.120	172.750	172.990	170.540
74	158.150	161.860	165.790	169.550	171.240	171.320	168.980
75	156.670	160.440	164.310	167.920	169.600	169.720	167.410
76	155.340	158.920	162.660	166.330	167.910	168.080	165.700
77	153.770	157.320	161.080	164.580	166.250	166.350	164.090
78	152.360	155.890	159.470	163.020	164.540	164.730	162.390
79	150.930	154.320	157.820	161.370	162.840	162.960	160.740
80	149.370	152.760	156.310	159.650	161.160	161.280	159.090
81	147.880	151.230	154.640	157.940	159.400	159.620	157.260
82	146.410	149.570	152.890	156.320	157.650	157.860	155.560
83	144.850	148.030	151.250	154.500	155.910	156.060	153.870
84	143.350	146.430	149.620	152.810	154.120	154.290	152.140
85	141.760	144.820	147.960	150.940	152.290	152.390	150.370
86	140.190	143.180	146.310	149.240	150.530	150.630	148.580
87	138.700	141.570	144.500	147.520	148.650	148.900	146.780
88	137.070	139.910	142.820	145.800	146.850	147.080	145.080
89	135.440	138.350	141.190	143.970	145.030	145.290	143.190
90	133.940	136.670	139.370	142.290	143.120	143.480	141.350
91	132.280	134.960	137.590	140.420	141.310	141.550	139.580
92	130.690	133.360	135.920	138.610	139.500	139.700	137.820

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HD-A19-I90-15W-5CCT-D\_120V.IES**

**CANDELA TABULATION - (Cont.)**

93	129.120	131.660	134.150	136.720	137.620	137.810	135.940
94	127.480	129.980	132.430	134.850	135.790	135.870	134.170
95	125.940	128.340	130.640	133.060	133.870	134.070	132.330
96	124.320	126.600	128.830	131.310	132.000	132.240	130.520
97	122.650	124.920	127.170	129.420	130.230	130.380	128.720
98	121.040	123.230	125.400	127.640	128.340	128.560	126.820
99	119.420	121.510	123.540	125.830	126.440	126.650	125.000
100	117.700	119.840	121.840	123.950	124.600	124.760	123.190
101	116.170	118.170	120.070	122.140	122.760	122.900	121.330
102	114.520	116.430	118.360	120.340	120.880	121.020	119.540
103	112.890	114.790	116.520	118.510	119.030	119.220	117.710
104	111.340	113.070	114.650	116.770	117.130	117.370	115.850
105	109.660	111.360	112.920	114.870	115.320	115.490	114.070
106	107.990	109.690	111.270	113.000	113.470	113.600	112.260
107	106.410	107.970	109.520	111.200	111.590	111.770	110.420
108	104.760	106.310	107.700	109.390	109.720	109.860	108.660
109	103.180	104.640	105.930	107.630	107.910	108.130	106.790
110	101.550	102.930	104.160	105.820	106.090	106.250	105.040
111	99.882	101.280	102.500	103.980	104.320	104.430	103.260
112	98.233	99.622	100.800	102.190	102.470	102.590	101.470
113	96.605	97.908	98.990	100.460	100.620	100.810	99.660
114	94.972	96.274	97.264	98.620	98.859	98.982	97.918
115	93.377	94.609	95.603	96.900	97.058	97.234	96.128
116	91.760	92.943	93.899	95.110	95.274	95.412	94.429
117	90.117	91.314	92.217	93.368	93.520	93.644	92.645
118	88.606	89.675	90.476	91.601	91.747	91.892	90.882
119	86.947	88.005	88.836	89.913	90.037	90.135	89.204
120	85.367	86.409	87.165	88.199	88.302	88.414	87.496
121	83.750	84.743	85.452	86.554	86.560	86.727	85.755
122	82.214	83.131	83.769	84.839	84.846	85.023	84.077
123	80.652	81.525	82.205	83.104	83.158	83.288	82.379
124	79.131	79.908	80.535	81.411	81.428	81.584	80.697
125	77.515	78.329	78.907	79.698	79.783	79.849	79.053
126	75.973	76.771	77.279	78.113	78.091	78.247	77.393
127	74.411	75.160	75.619	76.474	76.387	76.566	75.754
128	72.854	73.596	74.107	74.798	74.811	74.922	74.173
129	71.372	72.059	72.502	73.165	73.147	73.273	72.514
130	69.852	70.475	70.896	71.596	71.540	71.666	70.939
131	68.337	68.982	69.360	69.975	69.933	70.045	69.355
132	66.817	67.457	67.824	68.443	68.327	68.524	67.786
133	65.357	65.932	66.266	66.896	66.791	66.950	66.234
134	63.908	64.444	64.794	65.344	65.260	65.355	64.730
135	62.475	62.989	63.222	63.803	63.676	63.825	63.168
136	60.999	61.497	61.728	62.321	62.161	62.310	61.653
137	59.571	60.037	60.273	60.813	60.684	60.786	60.197
138	58.150	58.598	58.818	59.347	59.208	59.326	58.727
139	56.797	57.192	57.364	57.887	57.726	57.860	57.277
140	55.391	55.730	55.923	56.438	56.264	56.384	55.832
141	53.985	54.260	54.506	54.994	54.852	54.962	54.420
142	52.623	52.751	53.132	53.583	53.446	53.556	53.003
143	51.323	51.183	51.753	52.197	52.029	52.154	51.597
144	49.977	49.599	50.374	50.829	50.634	50.764	50.228
145	48.641	47.945	49.032	49.450	49.303	49.375	48.892
146	47.311	46.322	47.739	48.109	47.983	48.066	47.572
147	46.050	44.732	46.425	46.806	46.669	46.725	46.258
148	44.725	43.238	45.095	45.524	45.339	45.438	44.954

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HD-A19-I90-15W-5CCT-D\_120V.IES**

**CANDELA TABULATION - (Cont.)**

<b>149</b>	43.367	41.735	43.840	44.237	44.062	44.151	43.656
<b>150</b>	41.960	40.301	42.607	42.988	42.823	42.875	42.428
<b>151</b>	40.496	38.910	41.388	41.744	41.582	41.653	41.214
<b>152</b>	39.101	37.573	40.197	40.512	40.381	40.420	40.014
<b>153</b>	37.782	36.307	39.008	39.338	39.207	39.257	38.818
<b>154</b>	36.499	35.106	37.850	38.152	38.034	38.087	37.618
<b>155</b>	35.223	33.921	36.714	37.027	36.892	36.962	36.439
<b>156</b>	34.028	32.748	35.600	35.908	35.783	35.816	35.249
<b>157</b>	32.811	31.665	34.470	34.789	34.643	34.659	34.049
<b>158</b>	31.611	30.546	33.318	33.680	33.480	33.506	32.848
<b>159</b>	30.443	29.464	32.145	32.528	32.339	32.317	31.631
<b>160</b>	29.280	28.410	30.928	31.392	31.160	31.154	30.409
<b>161</b>	28.100	27.350	29.695	30.207	29.976	29.936	29.224
<b>162</b>	26.851	26.293	28.439	29.017	28.768	28.692	27.958
<b>163</b>	25.580	25.200	27.147	27.822	27.525	27.432	26.671
<b>164</b>	24.298	24.049	25.806	26.556	26.233	26.101	25.309
<b>165</b>	23.024	22.860	24.454	25.299	24.914	24.769	23.914
<b>166</b>	21.661	21.648	23.118	23.952	23.610	23.389	22.482
<b>167</b>	20.249	20.400	21.676	22.600	22.168	21.945	20.958
<b>168</b>	18.761	19.086	20.253	21.150	20.745	20.441	19.368
<b>169</b>	17.202	17.686	18.756	19.689	19.216	18.905	17.639
<b>170</b>	15.508	16.146	17.285	18.092	17.643	17.282	15.818
<b>171</b>	13.726	14.433	15.675	16.365	15.983	15.588	13.787
<b>172</b>	11.734	12.439	13.924	14.331	14.227	13.797	11.737
<b>173</b>	9.124	9.523	11.536	11.726	12.100	11.897	9.682
<b>174</b>	5.374	5.666	7.474	8.677	9.254	9.259	7.323
<b>175</b>	2.772	2.994	3.445	4.673	4.812	5.000	3.929
<b>176</b>	2.666	2.668	2.642	2.633	2.664	2.633	2.643
<b>177</b>	2.682	2.682	2.654	2.644	2.644	2.650	2.649
<b>178</b>	2.687	2.687	2.676	2.682	2.671	2.671	2.676
<b>179</b>	2.693	2.698	2.698	2.709	2.698	2.698	2.698
<b>180</b>	2.714	2.714	2.714	2.714	2.714	2.714	2.714



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HD-A19-I90-15W-5CCT-D\_120V.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	78.41	4.90	4.80
0-30	172.95	10.80	10.60
0-40	298.73	18.70	18.40
0-60	613.81	38.40	37.80
0-80	951.90	59.50	58.60
0-90	1107.57	69.20	68.10
10-90	1087.72	68.00	66.90
20-40	220.32	13.80	13.60
20-50	370.23	23.10	22.80
40-70	485.91	30.40	29.90
60-80	338.09	21.10	20.80
70-80	167.26	10.50	10.30
80-90	155.67	9.70	9.60
90-110	253.75	15.90	15.60
90-120	346.08	21.60	21.30
90-130	415.18	25.90	25.50
90-150	493.46	30.80	30.40
90-180	517.69	32.40	31.90
110-180	263.95	16.50	16.20
0-180	1625.26	101.60	100.00

Total Luminaire Efficiency = 101.60%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	19.84
10-20	58.57
20-30	94.54
30-40	125.78
40-50	149.91
50-60	165.17
60-70	170.83
70-80	167.26
80-90	155.67
90-100	137.81
100-110	115.94
110-120	92.33
120-130	69.10
130-140	47.99
140-150	30.29
150-160	16.67
160-170	6.77
170-180	0.79

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HD-A19-I90-15W-5CCT-D\_120V.IES**

**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	
0	113	113	113	113	107	107	107	107	95	95	95	84	84	84	74	74	74	69
1	99	92	86	81	92	87	81	77	76	72	68	67	63	60	58	55	53	49
2	88	78	70	63	82	73	66	59	64	58	53	56	51	47	48	45	41	37
3	79	67	58	50	74	63	54	48	55	48	43	48	43	38	41	37	33	29
4	72	59	49	41	67	55	46	39	48	41	35	42	36	31	36	31	27	24
5	66	52	42	35	61	49	40	33	43	35	30	37	31	26	32	27	23	20
6	60	46	36	30	56	43	35	28	38	31	25	33	27	23	29	24	20	17
7	56	41	32	26	52	39	30	24	34	27	22	30	24	20	26	21	17	15
8	52	37	29	22	48	35	27	21	31	24	19	28	22	17	24	19	15	13
9	48	34	26	20	45	32	24	19	29	22	17	25	20	15	22	17	14	11
10	45	31	23	18	42	30	22	17	26	20	15	23	18	14	20	16	12	10

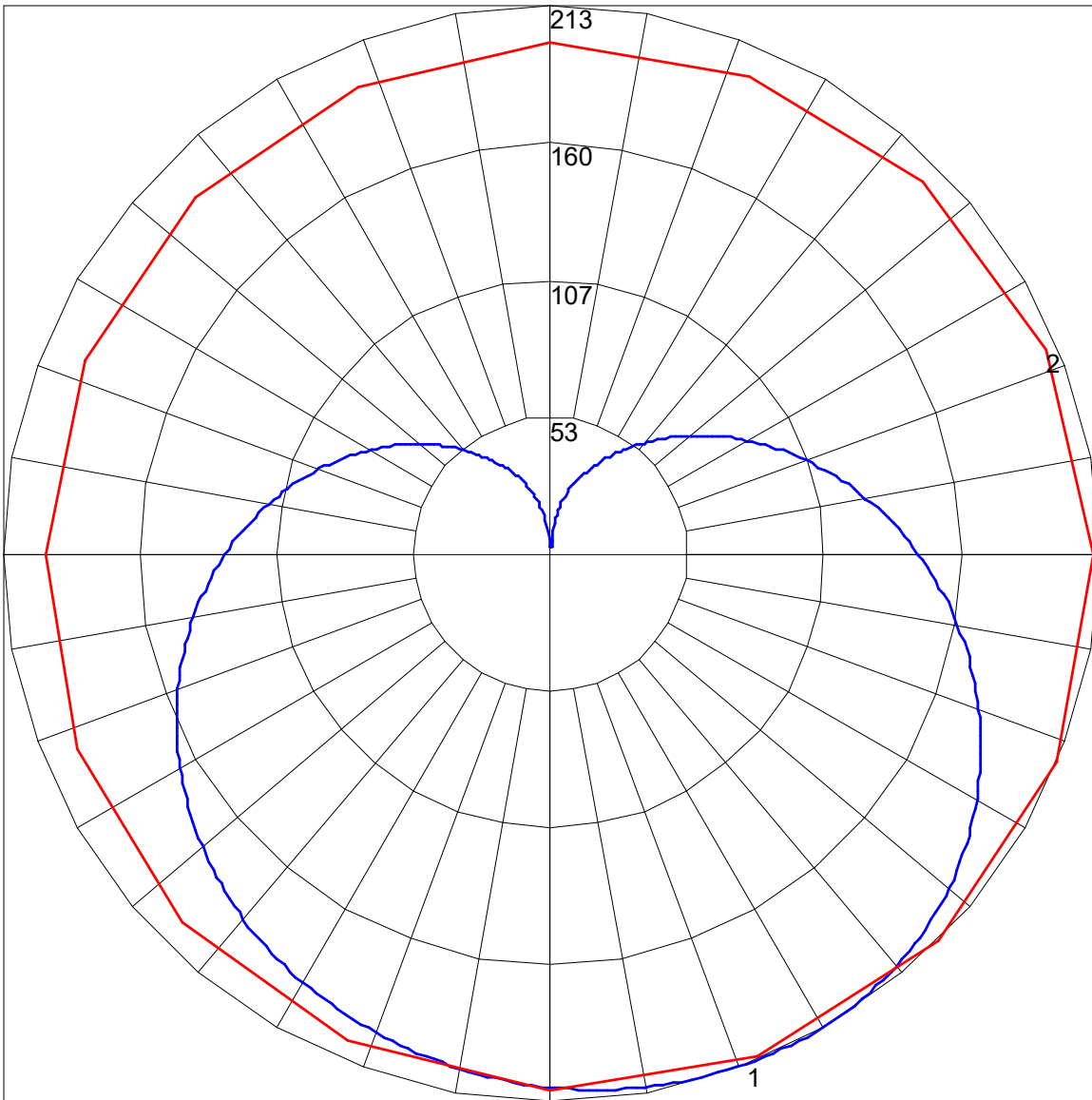
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HD-A19-I90-15W-5CCT-D\_120V.IES**

**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	27.1	28.3	27.8	29.1	30.1	26.4	27.6	27.2	28.4	29.4
	3H	30.3	31.4	31.1	32.2	33.2	29.6	30.7	30.4	31.5	32.5
	4H	32.0	33.0	32.7	33.8	34.9	31.3	32.3	32.0	33.1	34.2
	6H	33.8	34.8	34.6	35.6	36.6	33.1	34.1	33.9	34.9	36.0
	8H	34.8	35.7	35.6	36.6	37.6	34.1	35.0	34.9	35.9	36.9
	12H	35.9	36.8	36.7	37.7	38.7	35.2	36.1	36.1	37.0	38.1
4H	2H	28.0	29.1	28.8	29.9	30.9	27.4	28.5	28.2	29.3	30.3
	3H	31.5	32.4	32.3	33.2	34.3	30.8	31.7	31.6	32.6	33.6
	4H	33.3	34.2	34.1	35.0	36.1	32.7	33.5	33.5	34.4	35.4
	6H	35.3	36.1	36.2	37.0	38.0	34.7	35.4	35.5	36.3	37.4
	8H	36.5	37.2	37.3	38.0	39.1	35.8	36.5	36.6	37.4	38.4
	12H	37.7	38.4	38.6	39.3	40.3	37.0	37.7	37.9	38.6	39.7
8H	4H	34.0	34.8	34.9	35.6	36.7	33.4	34.1	34.3	35.0	36.1
	6H	36.3	37.0	37.2	37.9	38.9	35.7	36.3	36.6	37.2	38.3
	8H	37.6	38.2	38.5	39.1	40.2	37.0	37.5	37.9	38.4	39.5
	12H	39.1	39.6	40.0	40.5	41.7	38.5	39.0	39.3	39.9	41.0
12H	4H	34.2	34.9	35.1	35.8	36.9	33.6	34.3	34.5	35.2	36.3
	6H	36.6	37.2	37.5	38.1	39.2	36.0	36.6	36.9	37.5	38.6
	8H	38.1	38.6	38.9	39.5	40.6	37.4	37.9	38.3	38.8	40.0

Maximum UGR = 41.7

POLAR GRAPH



Maximum Candela = 213.46 Located At Horizontal Angle = 337.5, Vertical Angle = 25  
# 1 - Vertical Plane Through Horizontal Angles (337.5 - 157.5) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (25) (Through Max. Cd.)