



IES INDOOR REPORT

PHOTOMETRIC FILENAME : KEL-LED-325-DI-970-1000-35-4-HE-AS.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST]20200616-3/20200616-5
 [TESTLAB]Intense Lighting Lab
 [TESTDATE]2020/06/16
 [ISSUE DATE] 2020/07/27
 [MANUFAC]Birchwood
 [LUMCAT]KEL-LED-325-DI-970-1000-35-4-HE-AS
 [LUMINAIRE]
 [LAMPCAT]59637
 [LAMP]3500K 80CRI
 [BALLASTCAT]Osram 50W
 [OTHER]DF90C,DFLB20+DF60C
 [_OPTICS]HE direct, AS indirect
 [_WATTAGE]70
 [_VOLTAGE]120

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	7963
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	114
Total Luminaire Watts	70
Ballast Factor	1.00
CIE Type	General Diffuse
Spacing Criterion (0-180)	N.A.
Spacing Criterion (90-270)	N.A.
Spacing Criterion (Diagonal)	N.A.
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.08 m
Luminous Width (90-270)	1.19 m
Luminous Height	0.00 m

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	14465	14617	14807
55	13232	13423	13671
65	10922	11280	11691
75	6926	7304	7983
85	3268	3236	3101

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CANDELA TABULATION

	<u>0</u>	<u>10</u>	<u>20</u>	<u>30</u>	<u>40</u>	<u>50</u>	<u>60</u>	<u>70</u>	<u>80</u>	<u>90</u>
0	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312
5	1487.627	1486.975	1486.912	1486.762	1486.926	1487.145	1487.345	1487.393	1487.440	1487.370
10	1462.701	1462.234	1462.006	1462.086	1462.620	1463.295	1463.965	1464.328	1464.699	1464.856
15	1422.697	1422.163	1422.108	1422.845	1423.790	1425.061	1426.104	1427.022	1427.611	1428.099
20	1368.570	1368.167	1368.423	1369.548	1371.171	1372.963	1374.744	1376.045	1376.957	1377.609
25	1301.191	1300.773	1301.621	1303.246	1305.421	1307.937	1310.119	1311.890	1313.106	1313.959
30	1221.891	1221.581	1222.792	1224.804	1227.623	1230.537	1233.456	1235.567	1237.168	1238.131
35	1131.985	1131.690	1133.170	1135.569	1138.761	1142.313	1145.561	1148.116	1149.994	1151.106
40	1032.816	1032.605	1034.328	1036.864	1040.337	1044.109	1047.819	1050.663	1052.771	1053.854
45	925.471	925.435	926.942	929.701	933.241	937.143	940.971	944.071	946.256	947.346
50	809.858	809.812	811.383	814.106	817.732	821.664	825.644	828.918	831.097	832.234
55	686.669	686.584	687.981	690.863	694.578	698.649	702.585	706.029	708.371	709.469
60	556.047	556.117	557.788	560.666	564.631	568.995	573.244	576.827	579.314	580.437
65	417.650	418.037	420.455	424.243	428.783	433.838	438.830	443.042	445.878	447.044
70	279.772	280.203	282.597	286.781	291.893	297.514	303.231	308.287	311.974	313.412
75	162.199	162.328	163.580	165.952	169.188	172.902	177.110	181.454	185.128	186.950
80	77.582	77.493	77.820	78.531	79.558	80.589	81.669	82.856	83.954	84.699
85	25.773	25.655	25.582	25.561	25.550	25.480	25.278	25.030	24.681	24.457
90	4.537	4.537	4.537	4.537	4.537	4.537	4.537	4.537	4.537	4.537
95	21.651	21.552	21.590	21.772	22.486	23.277	22.457	17.483	14.516	14.099
100	63.706	63.950	64.589	65.700	69.432	74.352	73.853	55.475	41.484	40.281
105	134.527	135.343	137.252	140.768	149.437	162.346	163.775	125.787	78.854	75.894
110	238.195	240.009	244.887	252.913	267.539	288.860	290.095	229.776	116.961	113.253
115	372.249	375.530	384.964	400.673	420.369	444.941	441.285	357.156	164.880	171.504
120	531.743	536.517	551.126	576.646	604.574	628.560	613.929	502.125	253.787	277.450
125	713.225	719.316	738.992	775.570	813.662	839.612	808.387	668.024	429.834	420.313
130	913.643	921.629	948.282	992.547	1036.793	1067.515	1022.657	864.222	639.799	564.764
135	1133.122	1141.971	1173.288	1216.117	1265.543	1296.889	1246.517	1077.887	848.123	701.063
140	1361.146	1368.831	1398.900	1441.381	1492.565	1514.352	1455.670	1288.442	1054.260	849.227
145	1587.395	1594.099	1620.122	1661.575	1698.110	1699.521	1633.685	1482.311	1259.387	1025.823
150	1801.808	1806.733	1824.126	1849.240	1861.186	1844.794	1779.057	1647.320	1451.890	1221.040
155	1974.180	1975.163	1980.410	1986.965	1980.264	1951.501	1887.875	1781.391	1617.493	1414.392
160	2086.314	2084.274	2080.685	2074.753	2056.668	2022.192	1963.714	1874.164	1746.362	1587.953
165	2138.936	2135.633	2127.596	2115.059	2092.235	2057.136	2006.190	1934.198	1839.018	1726.331
170	2133.863	2130.606	2121.709	2107.107	2085.313	2054.549	2012.980	1959.787	1896.689	1825.219
175	2061.920	2059.578	2053.320	2042.070	2026.266	2006.166	1980.655	1951.741	1919.343	1884.249
180	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000

**Vert.
Angles**

Horizontal Angles

	<u>100</u>	<u>110</u>	<u>120</u>	<u>130</u>	<u>140</u>	<u>150</u>	<u>160</u>	<u>170</u>	<u>180</u>	<u>190</u>
0	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312
5	1487.453	1487.463	1487.684	1488.058	1487.858	1487.837	1487.677	1487.588	1487.272	1487.336
10	1464.919	1464.891	1464.844	1464.723	1464.379	1464.028	1464.002	1463.930	1463.863	1463.996
15	1428.136	1427.779	1427.415	1426.918	1426.182	1425.371	1424.973	1425.067	1425.131	1425.382
20	1377.522	1377.024	1376.193	1375.167	1373.980	1372.813	1372.235	1371.922	1372.067	1372.695
25	1313.724	1312.938	1311.809	1310.339	1308.632	1306.905	1305.965	1305.464	1305.635	1306.399
30	1237.818	1236.774	1235.175	1233.194	1230.944	1229.005	1227.604	1226.764	1226.875	1227.888
35	1150.787	1149.394	1147.459	1145.134	1142.371	1139.920	1138.458	1137.285	1137.690	1138.552
40	1053.558	1051.972	1049.807	1047.104	1043.733	1041.116	1041.360	1038.447	1038.806	1039.936
45	946.959	945.321	942.842	939.791	936.608	933.952	933.674	931.482	931.796	933.327
50	831.777	830.167	827.630	824.509	821.271	818.735	817.385	816.672	817.005	818.559
55	709.057	707.374	704.751	701.629	698.582	695.986	694.696	694.460	694.934	696.644
60	580.100	578.364	575.593	572.329	568.950	566.594	564.792	563.428	563.680	566.033

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CANDELA TABULATION - (Cont.)

65	446.701	444.811	441.546	437.648	434.104	430.496	427.557	426.045	426.374	428.785
70	312.973	310.491	306.491	302.101	297.992	293.652	290.868	289.693	290.163	292.244
75	186.420	184.041	180.378	177.339	174.251	171.771	170.355	169.973	170.435	172.051
80	84.830	84.373	83.594	83.120	82.365	81.794	81.669	81.647	82.005	83.136
85	24.785	25.246	25.629	26.069	26.269	26.476	26.636	26.802	27.088	27.637
90	4.537	4.537	4.537	4.537	4.537	4.537	4.537	4.537	4.537	4.537
95	15.831	18.101	18.520	20.352	22.759	23.500	23.944	24.281	24.483	24.388
100	48.932	57.012	55.587	61.352	69.494	70.764	71.396	71.902	72.203	71.901
105	106.647	123.748	116.770	130.046	147.797	149.202	149.559	149.863	150.046	149.466
110	188.423	209.856	197.527	223.814	256.900	259.799	260.123	259.569	259.533	258.647
115	287.835	299.675	288.816	329.342	381.062	390.591	394.155	393.001	392.471	391.290
120	395.149	390.231	390.742	441.325	506.162	526.630	539.143	537.399	535.806	534.752
125	505.011	492.408	511.338	557.551	630.009	661.490	691.897	691.237	688.516	688.192
130	614.838	609.523	651.913	672.367	750.433	790.360	843.406	854.736	852.414	851.795
135	720.457	749.959	799.805	779.951	855.469	904.639	972.302	1011.980	1015.909	1010.629
140	822.738	903.553	940.943	880.824	932.171	994.430	1052.810	1115.991	1136.295	1116.962
145	932.692	1051.675	1073.460	983.257	983.217	1048.332	1096.493	1142.593	1165.622	1143.170
150	1079.574	1186.124	1197.622	1099.926	1045.319	1062.002	1108.668	1141.773	1154.802	1145.818
155	1256.934	1303.054	1311.798	1235.955	1147.607	1107.199	1104.928	1117.242	1125.640	1124.747
160	1440.799	1382.561	1396.788	1362.331	1295.296	1231.045	1189.854	1171.969	1168.621	1181.843
165	1609.406	1508.181	1448.605	1435.135	1420.639	1390.766	1359.634	1338.810	1332.311	1352.302
170	1748.150	1671.159	1599.284	1540.926	1499.990	1476.169	1464.772	1460.063	1459.216	1477.250
175	1847.021	1809.603	1773.472	1739.704	1709.291	1684.585	1666.487	1655.663	1652.779	1679.775
180	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000

**Vert.
Angles**

Horizontal Angles

	<u>200</u>	<u>210</u>	<u>220</u>	<u>230</u>	<u>240</u>	<u>250</u>	<u>260</u>	<u>270</u>	<u>280</u>	<u>290</u>
0	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312
5	1487.407	1487.329	1487.284	1487.440	1487.534	1487.615	1487.753	1487.572	1487.506	1487.185
10	1464.163	1464.448	1464.847	1465.105	1465.572	1466.046	1466.334	1466.250	1465.623	1465.228
15	1425.884	1426.717	1427.706	1428.210	1429.328	1430.107	1430.653	1430.556	1430.003	1428.903
20	1373.449	1374.914	1376.511	1377.409	1379.075	1380.395	1381.352	1381.450	1380.505	1379.020
25	1307.755	1309.772	1312.132	1313.664	1315.958	1317.644	1318.809	1318.841	1317.773	1315.578
30	1229.800	1232.524	1235.626	1237.578	1240.403	1242.537	1244.040	1243.928	1242.780	1240.988
35	1141.022	1144.233	1147.730	1151.627	1153.635	1156.043	1157.716	1157.908	1156.453	1153.831
40	1042.727	1046.258	1051.377	1053.309	1056.875	1059.714	1061.428	1061.651	1060.067	1057.302
45	935.988	939.645	943.771	947.060	951.074	954.084	955.854	956.063	954.357	951.307
50	821.513	825.054	829.221	832.734	836.830	839.928	841.779	841.868	840.106	836.912
55	699.356	703.042	707.192	710.802	715.053	718.213	719.922	720.052	718.232	714.779
60	570.026	574.111	578.313	582.401	586.769	590.073	591.896	591.850	589.933	586.277
65	432.960	438.526	443.870	448.284	453.275	456.989	458.982	458.942	456.925	452.849
70	295.860	301.099	307.334	312.309	317.679	322.245	324.830	324.924	322.671	317.810
75	174.416	177.609	181.661	185.450	189.365	193.434	196.089	196.355	193.809	189.056
80	84.628	86.015	87.618	88.806	89.735	90.680	91.016	90.525	89.330	87.685
85	28.365	28.952	29.315	29.401	29.183	28.841	28.192	27.566	27.583	27.724
90	4.537	4.537	4.537	4.537	4.537	4.537	4.537	4.537	4.537	4.537
95	24.363	24.308	23.921	21.675	20.158	20.013	17.738	15.998	16.622	20.100
100	71.935	72.041	71.369	63.344	58.235	60.350	52.187	43.563	45.155	60.554
105	149.907	150.678	150.233	132.539	120.359	128.919	111.513	80.050	83.692	134.780
110	260.167	261.436	259.720	226.888	201.689	216.443	194.685	117.486	122.484	243.253
115	393.970	391.854	383.440	332.561	293.257	306.533	294.951	177.058	171.484	374.446
120	538.344	526.994	507.381	444.516	396.153	397.530	402.815	286.507	265.353	523.059
125	690.467	660.916	630.148	561.091	519.162	499.981	513.168	431.872	449.043	693.976
130	842.772	788.395	750.478	676.648	662.125	617.968	623.192	576.749	663.946	895.696
135	972.953	902.764	856.511	785.361	811.360	760.345	728.925	714.212	877.523	1114.107

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CANDELA TABULATION - (Cont.)

140	1053.183	995.364	935.513	887.835	953.547	917.530	831.732	866.988	1088.243	1327.471
145	1099.560	1054.902	989.993	991.873	1086.872	1068.737	943.945	1049.929	1297.405	1521.777
150	1116.086	1071.527	1057.389	1112.667	1212.762	1206.885	1097.454	1250.801	1491.345	1686.603
155	1115.196	1118.717	1158.867	1248.737	1327.836	1322.181	1281.612	1447.892	1655.098	1814.805
160	1201.707	1243.955	1309.034	1377.972	1413.478	1404.676	1469.148	1621.292	1781.892	1907.402
165	1374.366	1405.838	1436.259	1454.302	1471.226	1534.340	1640.136	1758.339	1871.293	1964.624
170	1483.657	1496.048	1521.191	1564.638	1624.584	1698.339	1777.634	1854.603	1925.366	1987.438
175	1691.146	1709.472	1734.229	1765.369	1798.726	1835.383	1873.084	1909.994	1944.432	1976.230
180	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000

**Vert.
Angles**

Horizontal Angles

	<u>300</u>	<u>310</u>	<u>320</u>	<u>330</u>	<u>340</u>	<u>350</u>	<u>360</u>
0	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312
5	1486.978	1487.198	1486.740	1486.371	1486.146	1485.813	1485.222
10	1464.660	1464.324	1463.277	1462.590	1462.209	1461.638	1460.570
15	1427.838	1427.120	1425.386	1424.185	1422.985	1422.339	1420.815
20	1377.207	1376.008	1373.850	1371.874	1369.820	1368.704	1366.941
25	1313.577	1311.678	1308.728	1306.162	1303.629	1301.909	1299.878
30	1237.776	1235.100	1234.534	1228.114	1225.310	1222.972	1220.852
35	1150.463	1147.376	1143.078	1140.785	1136.008	1133.231	1131.014
40	1053.423	1049.697	1045.151	1041.282	1037.123	1034.385	1032.032
45	947.177	943.187	938.381	933.755	929.937	926.979	924.606
50	832.558	828.328	823.150	818.272	814.274	811.426	809.031
55	710.228	705.748	700.321	695.141	691.050	688.327	685.899
60	581.375	576.426	570.610	565.141	560.895	557.895	555.391
65	447.339	441.505	434.909	428.822	423.613	419.809	417.127
70	311.425	304.561	297.478	290.874	285.361	281.754	279.422
75	183.483	178.236	173.387	169.059	165.717	163.583	162.084
80	85.883	84.188	82.456	80.716	79.332	78.372	77.545
85	27.652	27.460	27.121	26.716	26.358	26.064	25.754
90	4.537	4.537	4.537	4.537	4.537	4.537	4.537
95	25.776	26.440	25.287	23.927	22.985	22.111	21.651
100	79.859	79.885	74.460	69.467	66.898	64.691	63.706
105	173.394	170.631	157.010	146.206	140.457	136.120	134.527
110	303.657	300.011	278.179	260.599	249.082	240.893	238.195
115	458.057	458.161	433.595	410.165	390.121	376.694	372.249
120	633.855	643.578	619.633	587.307	557.141	538.096	531.743
125	831.912	855.724	829.763	786.997	745.925	721.194	713.225
130	1049.718	1084.173	1053.951	1003.909	955.581	923.839	913.643
135	1275.935	1313.708	1282.769	1228.734	1179.308	1145.011	1133.122
140	1485.840	1531.633	1509.233	1453.868	1405.346	1372.976	1361.146
145	1664.127	1717.503	1712.576	1672.579	1628.514	1598.723	1587.395
150	1808.198	1862.157	1874.355	1858.715	1832.493	1810.730	1801.808
155	1917.000	1970.757	1991.409	1995.200	1987.971	1979.044	1974.180
160	1991.783	2043.143	2066.408	2081.560	2086.968	2087.598	2086.314
165	2033.171	2079.074	2099.761	2120.001	2132.500	2138.198	2138.936
170	2038.078	2076.306	2090.212	2110.517	2124.329	2131.991	2133.863
175	2003.973	2026.127	2028.033	2042.333	2053.029	2059.893	2061.920
180	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000	1913.000

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	543.53	N.A.	6.80
0-30	1146.82	N.A.	14.40
0-40	1862.51	N.A.	23.40
0-60	3213.94	N.A.	40.40
0-80	3842.07	N.A.	48.30
0-90	3880.61	N.A.	48.70
10-90	3739.38	N.A.	47.00
20-40	1318.99	N.A.	16.60
20-50	2043.5	N.A.	25.70
40-70	1784.37	N.A.	22.40
60-80	628.13	N.A.	7.90
70-80	195.18	N.A.	2.50
80-90	38.54	N.A.	0.50
90-110	179.41	N.A.	2.30
90-120	533.73	N.A.	6.70
90-130	1119.02	N.A.	14.10
90-150	2700.51	N.A.	33.90
90-180	4082.22	N.A.	51.30
110-180	3902.8	N.A.	49.00
0-180	7962.83	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	141.23
10-20	402.29
20-30	603.29
30-40	715.70
40-50	724.51
50-60	626.92
60-70	432.94
70-80	195.18
80-90	38.54
90-100	30.23
100-110	149.18
110-120	354.32
120-130	585.29
130-140	766.83
140-150	814.66
150-160	713.09
160-170	491.23
170-180	177.38

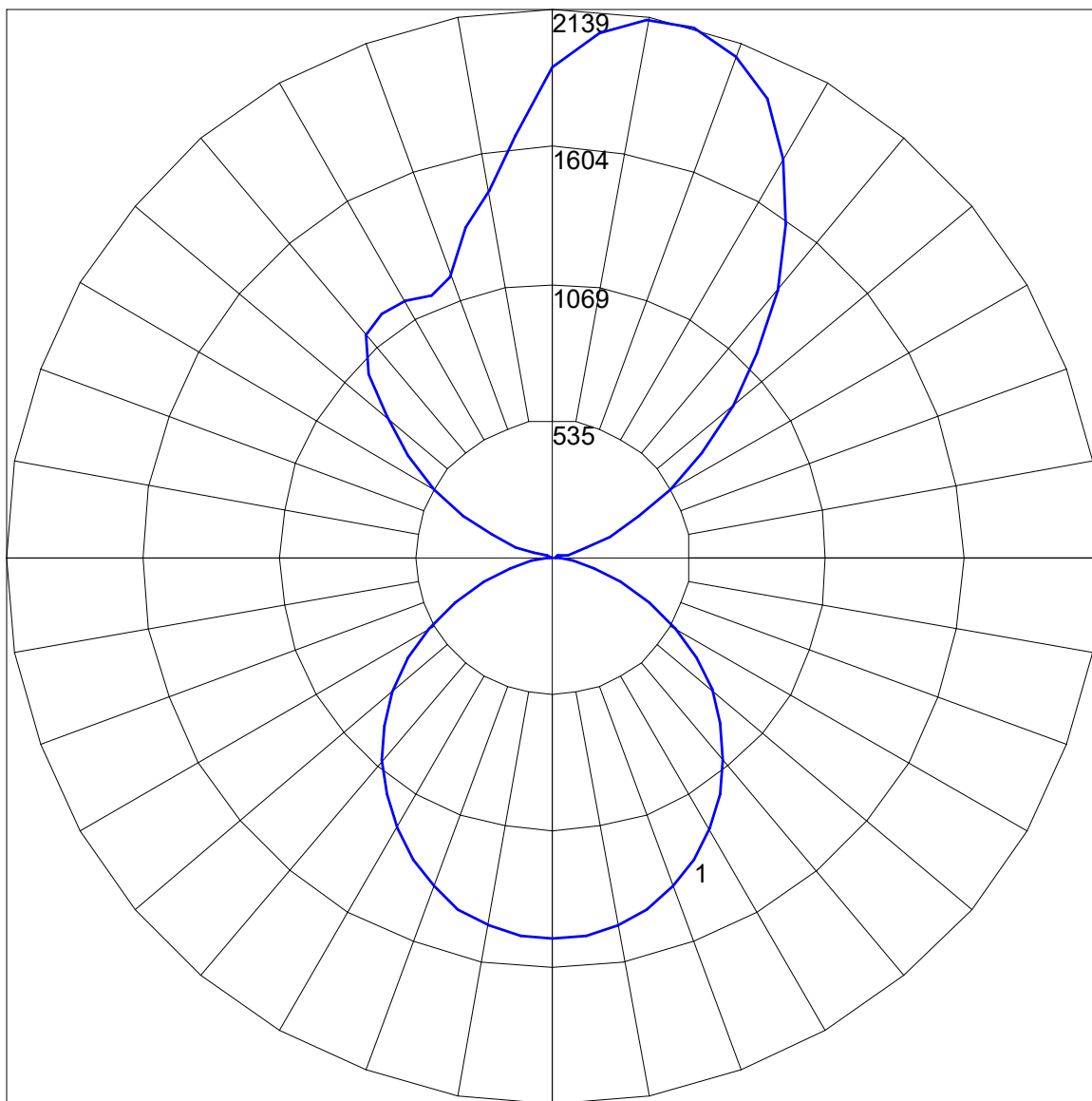
IES INDOOR REPORT
PHOTOMETRIC FILENAME : KEL-LED-325-DI-970-1000-35-4-HE-AS.IES

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	10	0
0	107	107	107	107	98	98	98	98	83	83	83	68	68	68	55	55	55	49
1	98	94	90	86	90	86	83	80	73	71	68	60	59	57	49	48	47	42
2	89	82	76	71	82	76	70	66	64	60	57	53	50	48	43	41	40	35
3	81	72	65	59	75	67	60	55	56	52	48	47	44	41	38	36	34	30
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	34	32	29	26
5	68	57	49	43	63	53	46	40	45	39	35	38	34	30	31	28	25	22
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	22	19
7	58	46	38	32	53	43	36	31	37	31	27	31	27	23	26	22	20	17
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	23	20	18	15
9	50	38	31	26	46	35	29	24	31	25	21	26	22	19	22	18	16	14
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15	13

POLAR GRAPH



Maximum Candela = 2138.936 Located At Horizontal Angle = 0, Vertical Angle = 165
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)