



## IES INDOOR REPORT

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

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST]20200616-3

[TESTLAB]Intense Lighting Lab

[TESTDATE]2020/06/16

[ISSUEDATE] 2020/07/27

[MANUFAC]Birchwood

[LUMCAT]KEL-LED-325-HLO-35-4-HE-HE

[LUMINAIRE]

[LAMPCAT]59637

[LAMP]3500K 80CRI

[BALLASTCAT]Osram 50W

[OTHER]DF90C,DF90C

[\_OPTICS]HE,HE

[\_WATTAGE]70

[\_VOLTAGE]120

[\_CONVERT] Luminaire test position and photometric web converted from original test data

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	7761
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	111
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

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**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>
<b>0</b>	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312
<b>5</b>	1487.627	1486.975	1486.912	1486.762	1486.926	1487.145	1487.345	1487.393	1487.440	1487.370
<b>10</b>	1462.701	1462.234	1462.006	1462.086	1462.620	1463.295	1463.965	1464.328	1464.699	1464.856
<b>15</b>	1422.697	1422.163	1422.108	1422.845	1423.790	1425.061	1426.104	1427.022	1427.611	1428.099
<b>20</b>	1368.570	1368.167	1368.423	1369.548	1371.171	1372.963	1374.744	1376.045	1376.957	1377.609
<b>25</b>	1301.191	1300.773	1301.621	1303.246	1305.421	1307.937	1310.119	1311.890	1313.106	1313.959
<b>30</b>	1221.891	1221.581	1222.792	1224.804	1227.623	1230.537	1233.456	1235.567	1237.168	1238.131
<b>35</b>	1131.985	1131.690	1133.170	1135.569	1138.761	1142.313	1145.561	1148.116	1149.994	1151.106
<b>40</b>	1032.816	1032.605	1034.328	1036.864	1040.337	1044.109	1047.819	1050.663	1052.771	1053.854
<b>45</b>	925.471	925.435	926.942	929.701	933.241	937.143	940.971	944.071	946.256	947.346
<b>50</b>	809.858	809.812	811.383	814.106	817.732	821.664	825.644	828.918	831.097	832.234
<b>55</b>	686.669	686.584	687.981	690.863	694.578	698.649	702.585	706.029	708.371	709.469
<b>60</b>	556.047	556.117	557.788	560.666	564.631	568.995	573.244	576.827	579.314	580.437
<b>65</b>	417.650	418.037	420.455	424.243	428.783	433.838	438.830	443.042	445.878	447.044
<b>70</b>	279.772	280.203	282.597	286.781	291.893	297.514	303.231	308.287	311.974	313.412
<b>75</b>	162.199	162.328	163.580	165.952	169.188	172.902	177.110	181.454	185.128	186.950
<b>80</b>	77.582	77.493	77.820	78.531	79.558	80.589	81.669	82.856	83.954	84.699
<b>85</b>	25.773	25.655	25.582	25.561	25.550	25.480	25.278	25.030	24.681	24.457
<b>90</b>	4.537	4.537	4.537	4.537	4.537	4.537	4.537	4.537	4.537	4.537
<b>95</b>	27.088	26.802	26.636	26.476	26.269	26.069	25.629	25.246	24.785	24.457
<b>100</b>	82.005	81.647	81.669	81.794	82.365	83.120	83.594	84.373	84.830	84.699
<b>105</b>	170.435	169.973	170.355	171.771	174.251	177.339	180.378	184.041	186.420	186.950
<b>110</b>	290.163	289.693	290.868	293.652	297.992	302.101	306.491	310.491	312.973	313.412
<b>115</b>	426.374	426.045	427.557	430.496	434.104	437.648	441.546	444.811	446.701	447.044
<b>120</b>	563.680	563.428	564.792	566.594	568.950	572.329	575.593	578.364	580.100	580.437
<b>125</b>	694.934	694.460	694.696	695.986	698.582	701.629	704.751	707.374	709.057	709.469
<b>130</b>	817.005	816.672	817.385	818.735	821.271	824.509	827.630	830.167	831.777	832.234
<b>135</b>	931.796	931.482	933.674	933.952	936.608	939.791	942.842	945.321	946.959	947.346
<b>140</b>	1038.806	1038.447	1041.360	1041.116	1043.733	1047.104	1049.807	1051.972	1053.558	1053.854
<b>145</b>	1137.690	1137.285	1138.458	1139.920	1142.371	1145.134	1147.459	1149.394	1150.787	1151.106
<b>150</b>	1226.875	1226.764	1227.604	1229.005	1230.944	1233.194	1235.175	1236.774	1237.818	1238.131
<b>155</b>	1305.635	1305.464	1305.965	1306.905	1308.632	1310.339	1311.809	1312.938	1313.724	1313.959
<b>160</b>	1372.067	1371.922	1372.235	1372.813	1373.980	1375.167	1376.193	1377.024	1377.522	1377.609
<b>165</b>	1425.131	1425.067	1424.973	1425.371	1426.182	1426.918	1427.415	1427.779	1428.136	1428.099
<b>170</b>	1463.863	1463.930	1464.002	1464.028	1464.379	1464.723	1464.844	1464.891	1464.919	1464.856
<b>175</b>	1487.272	1487.588	1487.677	1487.837	1487.858	1488.058	1487.684	1487.463	1487.453	1487.370
<b>180</b>	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000

**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>
<b>0</b>	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312
<b>5</b>	1487.453	1487.463	1487.684	1488.058	1487.858	1487.837	1487.677	1487.588	1487.272	1487.336
<b>10</b>	1464.919	1464.891	1464.844	1464.723	1464.379	1464.028	1464.002	1463.930	1463.863	1463.996
<b>15</b>	1428.136	1427.779	1427.415	1426.918	1426.182	1425.371	1424.973	1425.067	1425.131	1425.382
<b>20</b>	1377.522	1377.024	1376.193	1375.167	1373.980	1372.813	1372.235	1371.922	1372.067	1372.695
<b>25</b>	1313.724	1312.938	1311.809	1310.339	1308.632	1306.905	1305.965	1305.464	1305.635	1306.399
<b>30</b>	1237.818	1236.774	1235.175	1233.194	1230.944	1229.005	1227.604	1226.764	1226.875	1227.888
<b>35</b>	1150.787	1149.394	1147.459	1145.134	1142.371	1139.920	1138.458	1137.285	1137.690	1138.552
<b>40</b>	1053.558	1051.972	1049.807	1047.104	1043.733	1041.116	1041.360	1038.447	1038.806	1039.936
<b>45</b>	946.959	945.321	942.842	939.791	936.608	933.952	933.674	931.482	931.796	933.327
<b>50</b>	831.777	830.167	827.630	824.509	821.271	818.735	817.385	816.672	817.005	818.559
<b>55</b>	709.057	707.374	704.751	701.629	698.582	695.986	694.696	694.460	694.934	696.644
<b>60</b>	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	24.681	25.030	25.278	25.480	25.550	25.561	25.582	25.655	25.773	26.064
100	83.954	82.856	81.669	80.589	79.558	78.531	77.820	77.493	77.582	78.372
105	185.128	181.454	177.110	172.902	169.188	165.952	163.580	162.328	162.199	163.583
110	311.974	308.287	303.231	297.514	291.893	286.781	282.597	280.203	279.772	281.754
115	445.878	443.042	438.830	433.838	428.783	424.243	420.455	418.037	417.650	419.809
120	579.314	576.827	573.244	568.995	564.631	560.666	557.788	556.117	556.047	557.895
125	708.371	706.029	702.585	698.649	694.578	690.863	687.981	686.584	686.669	688.327
130	831.097	828.918	825.644	821.664	817.732	814.106	811.383	809.812	809.858	811.426
135	946.256	944.071	940.971	937.143	933.241	929.701	926.942	925.435	925.471	926.979
140	1052.771	1050.663	1047.819	1044.109	1040.337	1036.864	1034.328	1032.605	1032.816	1034.385
145	1149.994	1148.116	1145.561	1142.313	1138.761	1135.569	1133.170	1131.690	1131.985	1133.231
150	1237.168	1235.567	1233.456	1230.537	1227.623	1224.804	1222.792	1221.581	1221.891	1222.972
155	1313.106	1311.890	1310.119	1307.937	1305.421	1303.246	1301.621	1300.773	1301.191	1301.909
160	1376.957	1376.045	1374.744	1372.963	1371.171	1369.548	1368.423	1368.167	1368.570	1368.704
165	1427.611	1427.022	1426.104	1425.061	1423.790	1422.845	1422.108	1422.163	1422.697	1422.339
170	1464.699	1464.328	1463.965	1463.295	1462.620	1462.086	1462.006	1462.234	1462.701	1461.638
175	1487.440	1487.393	1487.345	1487.145	1486.926	1486.762	1486.912	1486.975	1487.627	1485.813
180	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000

**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	26.358	26.716	27.121	27.460	27.652	27.724	27.583	27.566	28.192	28.841
100	79.332	80.716	82.456	84.188	85.883	87.685	89.330	90.525	91.016	90.680
105	165.717	169.059	173.387	178.236	183.483	189.056	193.809	196.355	196.089	193.434
110	285.361	290.874	297.478	304.561	311.425	317.810	322.671	324.924	324.830	322.245
115	423.613	428.822	434.909	441.505	447.339	452.849	456.925	458.942	458.982	456.989
120	560.895	565.141	570.610	576.426	581.375	586.277	589.933	591.850	591.896	590.073
125	691.050	695.141	700.321	705.748	710.228	714.779	718.232	720.052	719.922	718.213
130	814.274	818.272	823.150	828.328	832.558	836.912	840.106	841.868	841.779	839.928
135	929.937	933.755	938.381	943.187	947.177	951.307	954.357	956.063	955.854	954.084

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**CANDELA TABULATION - (Cont.)**

<b>140</b>	1037.123	1041.282	1045.151	1049.697	1053.423	1057.302	1060.067	1061.651	1061.428	1059.714
<b>145</b>	1136.008	1140.785	1143.078	1147.376	1150.463	1153.831	1156.453	1157.908	1157.716	1156.043
<b>150</b>	1225.310	1228.114	1234.534	1235.100	1237.776	1240.988	1242.780	1243.928	1244.040	1242.537
<b>155</b>	1303.629	1306.162	1308.728	1311.678	1313.577	1315.578	1317.773	1318.841	1318.809	1317.644
<b>160</b>	1369.820	1371.874	1373.850	1376.008	1377.207	1379.020	1380.505	1381.450	1381.352	1380.395
<b>165</b>	1422.985	1424.185	1425.386	1427.120	1427.838	1428.903	1430.003	1430.556	1430.653	1430.107
<b>170</b>	1462.209	1462.590	1463.277	1464.324	1464.660	1465.228	1465.623	1466.250	1466.334	1466.046
<b>175</b>	1486.146	1486.371	1486.740	1487.198	1486.978	1487.185	1487.506	1487.572	1487.753	1487.615
<b>180</b>	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000

**Vert.  
Angles**

**Horizontal Angles**

	<b><u>300</u></b>	<b><u>310</u></b>	<b><u>320</u></b>	<b><u>330</u></b>	<b><u>340</u></b>	<b><u>350</u></b>	<b><u>360</u></b>
<b>0</b>	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312	1495.312
<b>5</b>	1486.978	1487.198	1486.740	1486.371	1486.146	1485.813	1485.222
<b>10</b>	1464.660	1464.324	1463.277	1462.590	1462.209	1461.638	1460.570
<b>15</b>	1427.838	1427.120	1425.386	1424.185	1422.985	1422.339	1420.815
<b>20</b>	1377.207	1376.008	1373.850	1371.874	1369.820	1368.704	1366.941
<b>25</b>	1313.577	1311.678	1308.728	1306.162	1303.629	1301.909	1299.878
<b>30</b>	1237.776	1235.100	1234.534	1228.114	1225.310	1222.972	1220.852
<b>35</b>	1150.463	1147.376	1143.078	1140.785	1136.008	1133.231	1131.014
<b>40</b>	1053.423	1049.697	1045.151	1041.282	1037.123	1034.385	1032.032
<b>45</b>	947.177	943.187	938.381	933.755	929.937	926.979	924.606
<b>50</b>	832.558	828.328	823.150	818.272	814.274	811.426	809.031
<b>55</b>	710.228	705.748	700.321	695.141	691.050	688.327	685.899
<b>60</b>	581.375	576.426	570.610	565.141	560.895	557.895	555.391
<b>65</b>	447.339	441.505	434.909	428.822	423.613	419.809	417.127
<b>70</b>	311.425	304.561	297.478	290.874	285.361	281.754	279.422
<b>75</b>	183.483	178.236	173.387	169.059	165.717	163.583	162.084
<b>80</b>	85.883	84.188	82.456	80.716	79.332	78.372	77.545
<b>85</b>	27.652	27.460	27.121	26.716	26.358	26.064	25.754
<b>90</b>	4.537	4.537	4.537	4.537	4.537	4.537	4.537
<b>95</b>	29.183	29.401	29.315	28.952	28.365	27.637	27.088
<b>100</b>	89.735	88.806	87.618	86.015	84.628	83.136	82.005
<b>105</b>	189.365	185.450	181.661	177.609	174.416	172.051	170.435
<b>110</b>	317.679	312.309	307.334	301.099	295.860	292.244	290.163
<b>115</b>	453.275	448.284	443.870	438.526	432.960	428.785	426.374
<b>120</b>	586.769	582.401	578.313	574.111	570.026	566.033	563.680
<b>125</b>	715.053	710.802	707.192	703.042	699.356	696.644	694.934
<b>130</b>	836.830	832.734	829.221	825.054	821.513	818.559	817.005
<b>135</b>	951.074	947.060	943.771	939.645	935.988	933.327	931.796
<b>140</b>	1056.875	1053.309	1051.377	1046.258	1042.727	1039.936	1038.806
<b>145</b>	1153.635	1151.627	1147.730	1144.233	1141.022	1138.552	1137.690
<b>150</b>	1240.403	1237.578	1235.626	1232.524	1229.800	1227.888	1226.875
<b>155</b>	1315.958	1313.664	1312.132	1309.772	1307.755	1306.399	1305.635
<b>160</b>	1379.075	1377.409	1376.511	1374.914	1373.449	1372.695	1372.067
<b>165</b>	1429.328	1428.210	1427.706	1426.717	1425.884	1425.382	1425.131
<b>170</b>	1465.572	1465.105	1464.847	1464.448	1464.163	1463.996	1463.863
<b>175</b>	1487.534	1487.440	1487.284	1487.329	1487.407	1487.336	1487.272
<b>180</b>	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000	1495.000

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

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	543.53	N.A.	7.00
0-30	1146.82	N.A.	14.80
0-40	1862.51	N.A.	24.00
0-60	3213.94	N.A.	41.40
0-80	3842.07	N.A.	49.50
0-90	3880.61	N.A.	50.00
10-90	3739.38	N.A.	48.20
20-40	1318.99	N.A.	17.00
20-50	2043.5	N.A.	26.30
40-70	1784.37	N.A.	23.00
60-80	628.13	N.A.	8.10
70-80	195.18	N.A.	2.50
80-90	38.54	N.A.	0.50
90-110	233.73	N.A.	3.00
90-120	666.68	N.A.	8.60
90-130	1293.6	N.A.	16.70
90-150	2733.83	N.A.	35.20
90-180	3880.66	N.A.	50.00
110-180	3646.93	N.A.	47.00
0-180	7761.28	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	38.54
100-110	195.18
110-120	432.95
120-130	626.92
130-140	724.52
140-150	715.70
150-160	603.30
160-170	402.30
170-180	141.23

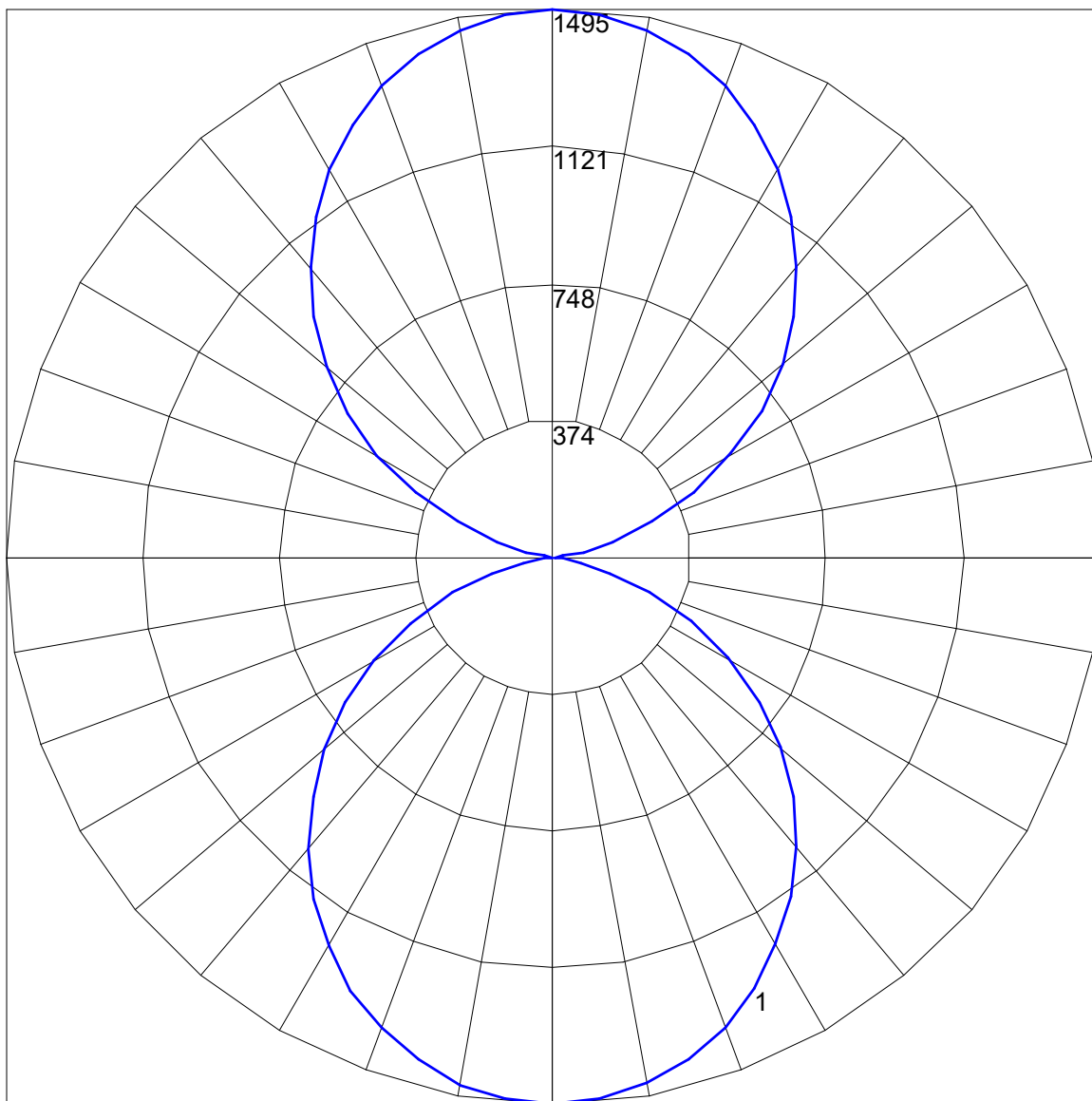
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : KEL-LED-325-DI-970-970-35-4-HE-HE.IES**

**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	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	98	94	90	87	90	87	84	81	73	71	69	61	60	58	50	49	48	43
2	89	82	76	71	82	76	71	66	65	61	57	54	51	49	44	42	41	36
3	82	72	65	59	75	67	61	56	57	52	48	48	44	41	39	37	35	31
4	75	64	56	50	69	59	52	47	51	45	41	43	39	35	35	32	30	26
5	69	57	49	43	63	53	46	40	45	40	36	38	34	31	32	28	26	23
6	63	51	43	37	58	48	40	35	41	35	31	35	30	27	29	25	23	20
7	58	46	38	33	54	43	36	31	37	31	27	31	27	24	26	23	20	18
8	54	42	34	29	50	39	32	27	34	28	24	29	24	21	24	21	18	16
9	50	38	31	26	46	36	29	24	31	25	22	26	22	19	22	19	16	14
10	47	35	28	23	43	33	26	22	28	23	20	24	20	17	20	17	15	13

POLAR GRAPH



Maximum Candela = 1495.312 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)