



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : KEL-LED-325-500-35-4-HE.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
 [TEST]20200619-3  
 [TESTLAB]Intense Lighting Lab  
 [TESTDATE]2020/06/19  
 [ISSUE DATE] 2020/06/26  
 [MANUFAC]Birchwood  
 [LUMCAT]KEL-LED-325-HLO-35-4-HE  
 [LUMINAIRE]  
 [LAMPCAT]59637  
 [LAMP]3500K 80CRI  
 [BALLASTCAT]Osram 50W  
 [OTHER]DF90C  
 [\_OPTICS]HE  
 [\_WATTAGE]17.29  
 [\_VOLTAGE]120

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2011
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	116
Total Luminaire Watts	17.3
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.22
Spacing Criterion (90-270)	1.24
Spacing Criterion (Diagonal)	1.34
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	1.19 m
Luminous Width (90-270)	0.08 m
Luminous Height	0.00 m

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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	7555	7619	7693
55	6990	7046	7109
65	5934	6041	6092
75	3905	4031	4118
85	1875	1809	1551

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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>	778.042	778.042	778.042	778.042	778.042	778.042	778.042	778.042	778.042	778.042
<b>5</b>	773.730	773.565	773.489	773.382	773.502	773.476	773.615	773.832	773.862	773.774
<b>10</b>	760.989	760.855	760.733	760.798	761.005	761.148	761.606	761.769	761.877	761.766
<b>15</b>	740.128	740.072	739.988	740.240	740.772	741.229	741.792	742.296	742.484	742.469
<b>20</b>	711.853	711.694	711.846	712.216	713.021	714.047	714.984	715.750	716.041	715.878
<b>25</b>	676.596	676.544	676.810	677.592	678.821	680.121	681.407	682.382	682.924	682.782
<b>30</b>	635.236	635.166	635.592	636.788	638.303	640.040	641.523	642.785	643.393	643.284
<b>35</b>	588.757	588.671	589.127	590.493	592.380	594.342	596.125	597.516	598.215	598.038
<b>40</b>	537.968	537.802	538.364	539.626	541.413	543.742	545.748	547.051	547.806	547.439
<b>45</b>	483.382	483.156	483.581	484.590	486.390	488.560	490.657	492.071	492.637	492.192
<b>50</b>	424.975	424.691	425.098	426.022	427.425	429.216	431.226	432.709	433.109	432.541
<b>55</b>	362.760	362.527	362.853	363.686	364.930	366.414	368.062	369.439	369.796	368.930
<b>60</b>	296.753	296.546	297.049	298.008	299.222	300.563	301.870	303.166	303.398	302.276
<b>65</b>	226.913	226.746	227.533	228.809	230.315	231.650	232.875	233.897	234.254	232.955
<b>70</b>	155.451	155.324	156.088	157.646	159.662	161.434	162.803	163.826	164.297	163.034
<b>75</b>	91.453	91.187	91.493	92.292	93.626	95.147	96.374	97.266	97.587	96.429
<b>80</b>	44.407	44.171	44.109	44.179	44.343	44.580	44.784	44.637	43.991	42.853
<b>85</b>	14.783	14.632	14.524	14.442	14.347	14.186	13.936	13.564	12.904	12.229
<b>90</b>	2.197	2.197	2.197	2.197	2.197	2.197	2.197	2.197	2.197	2.197

**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>	778.042	778.042	778.042	778.042	778.042	778.042	778.042	778.042	778.042	778.042
<b>5</b>	773.739	773.770	773.570	773.469	773.305	773.203	773.033	772.937	772.853	772.883
<b>10</b>	761.588	761.269	760.987	760.578	760.166	759.698	759.586	759.343	759.313	759.485
<b>15</b>	742.059	741.495	740.753	739.988	739.198	738.522	738.145	737.675	737.617	737.833
<b>20</b>	715.310	714.479	713.355	712.108	710.890	709.833	709.144	708.597	708.569	709.019
<b>25</b>	681.949	680.818	679.143	677.472	675.851	674.454	673.463	672.651	672.757	673.231
<b>30</b>	642.191	640.672	638.717	636.665	634.688	632.948	631.588	630.717	630.722	631.321
<b>35</b>	596.716	594.842	592.582	590.224	587.904	585.743	584.437	583.297	583.523	584.201
<b>40</b>	545.962	543.940	541.519	538.885	536.245	534.028	532.528	531.575	531.712	532.555
<b>45</b>	490.664	488.466	485.737	482.976	480.252	477.985	476.361	475.399	475.546	476.629
<b>50</b>	430.816	428.465	425.759	422.799	420.080	417.679	416.077	415.068	415.248	416.490
<b>55</b>	367.136	364.622	361.709	358.725	355.793	353.254	351.467	350.616	350.738	352.067
<b>60</b>	300.266	297.706	294.575	291.244	287.870	284.915	282.794	281.501	281.611	283.221
<b>65</b>	230.763	227.868	224.247	220.098	215.975	212.365	209.541	207.665	207.602	209.482
<b>70</b>	160.566	157.067	152.545	147.737	143.352	139.552	136.696	135.208	135.300	136.940
<b>75</b>	93.878	90.335	86.500	83.055	80.317	77.991	76.525	75.822	76.011	77.103
<b>80</b>	41.405	39.861	38.386	37.156	36.100	35.196	34.678	34.462	34.656	35.267
<b>85</b>	11.781	11.424	11.070	10.796	10.543	10.354	10.275	10.300	10.425	10.686
<b>90</b>	2.197	2.197	2.197	2.197	2.197	2.197	2.197	2.197	2.197	2.197

**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>
<b>0</b>	778.042	778.042	778.042	778.042	778.042	778.042	778.042	778.042	778.042	778.042
<b>5</b>	773.013	773.180	773.460	773.620	773.867	774.014	774.103	774.414	774.391	774.359
<b>10</b>	759.697	759.994	760.660	761.396	762.114	762.728	763.009	763.536	763.451	763.330
<b>15</b>	738.240	739.332	740.519	741.854	742.953	744.055	744.739	745.362	745.327	744.862
<b>20</b>	709.752	711.269	712.894	714.919	716.450	718.233	719.156	719.799	719.979	719.323
<b>25</b>	674.454	676.338	678.637	681.716	683.125	685.037	686.264	687.171	687.122	686.272
<b>30</b>	633.161	635.372	639.166	640.699	643.313	645.635	647.222	648.227	648.199	647.197
<b>35</b>	586.255	590.247	591.649	594.784	597.816	600.398	602.377	603.399	603.454	602.493

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**CANDELA TABULATION - (Cont.)**

<b>40</b>	534.638	537.422	540.422	543.826	547.114	549.985	552.218	553.498	553.480	552.539
<b>45</b>	478.768	481.727	484.861	488.384	491.828	494.868	497.212	498.685	498.843	497.818
<b>50</b>	418.716	421.510	424.823	428.517	432.217	435.320	437.749	439.422	439.650	438.727
<b>55</b>	354.227	357.267	360.915	364.739	368.510	371.766	374.319	376.038	376.545	375.796
<b>60</b>	285.814	289.277	293.301	297.504	301.594	305.042	307.702	309.657	310.322	309.576
<b>65</b>	212.757	217.051	221.799	226.819	231.588	235.517	238.468	240.550	241.444	240.538
<b>70</b>	139.887	144.298	149.310	154.780	160.288	165.022	168.461	170.758	171.677	170.722
<b>75</b>	78.975	81.708	85.174	89.088	93.519	97.993	101.694	104.113	104.883	104.076
<b>80</b>	36.213	37.523	39.189	40.965	42.925	45.082	47.165	48.824	49.659	49.692
<b>85</b>	11.053	11.516	12.075	12.645	13.208	13.809	14.374	14.940	15.576	16.029
<b>90</b>	2.197	2.197	2.197	2.197	2.197	2.197	2.197	2.197	2.197	2.197

**Vert. Angles**      **Horizontal Angles**

	<u><b>300</b></u>	<u><b>310</b></u>	<u><b>320</b></u>	<u><b>330</b></u>	<u><b>340</b></u>	<u><b>350</b></u>	<u><b>360</b></u>
<b>0</b>	778.042	778.042	778.042	778.042	778.042	778.042	778.042
<b>5</b>	774.338	774.275	774.112	774.121	773.997	773.852	773.515
<b>10</b>	762.970	762.516	761.975	761.673	761.463	761.294	760.890
<b>15</b>	744.123	743.355	742.370	741.618	740.900	740.462	740.047
<b>20</b>	717.990	716.775	715.324	714.159	712.882	712.231	711.725
<b>25</b>	685.003	683.785	681.471	679.766	678.164	677.167	676.561
<b>30</b>	645.693	643.606	642.373	639.197	637.330	635.801	635.214
<b>35</b>	600.647	598.254	595.569	593.188	591.070	589.238	588.666
<b>40</b>	550.495	547.843	544.982	542.785	540.289	538.461	537.867
<b>45</b>	495.804	492.909	490.029	487.581	485.499	484.051	483.205
<b>50</b>	436.693	433.882	431.267	429.041	427.143	425.724	424.936
<b>55</b>	373.639	371.217	368.905	366.776	365.012	363.671	362.707
<b>60</b>	307.669	305.517	303.409	301.136	299.190	297.682	296.658
<b>65</b>	238.871	236.847	234.567	232.042	229.672	227.968	226.843
<b>70</b>	169.080	166.873	164.144	161.058	158.363	156.499	155.372
<b>75</b>	102.467	100.288	97.722	95.317	93.458	92.199	91.378
<b>80</b>	49.136	48.142	47.123	46.201	45.429	44.830	44.373
<b>85</b>	16.086	15.992	15.792	15.512	15.234	14.970	14.765
<b>90</b>	2.197	2.197	2.197	2.197	2.197	2.197	2.197

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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	282.51	N.A.	14.00
0-30	595.59	N.A.	29.60
0-40	966.57	N.A.	48.10
0-60	1667.2	N.A.	82.90
0-80	1992.12	N.A.	99.00
0-90	2011.47	N.A.	100.00
10-90	1938.01	N.A.	96.30
20-40	684.06	N.A.	34.00
20-50	1059.52	N.A.	52.70
40-70	925.19	N.A.	46.00
60-80	324.92	N.A.	16.20
70-80	100.36	N.A.	5.00
80-90	19.34	N.A.	1.00
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	2011.47	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	73.46
10-20	209.05
20-30	313.08
30-40	370.98
40-50	375.46
50-60	325.17
60-70	224.56
70-80	100.36
80-90	19.34
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

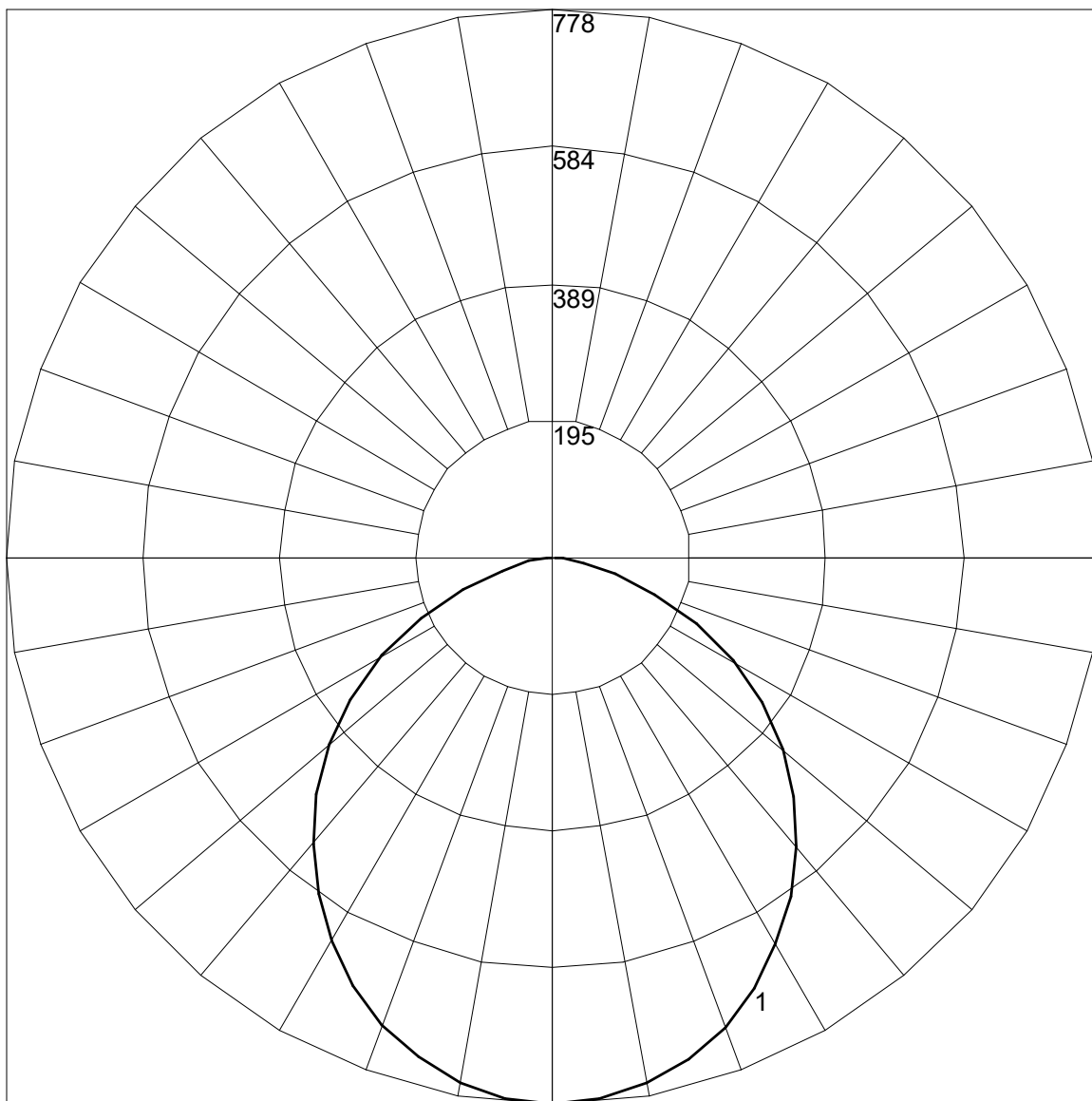
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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	78	84	79	76	81	77	74	72
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61
4	84	72	64	57	82	71	63	57	69	62	56	66	60	55	64	59	55	53
5	77	65	56	50	75	64	55	49	62	54	49	60	53	48	58	52	48	46
6	71	58	50	43	70	57	49	43	56	48	43	54	47	42	52	47	42	40
7	66	53	44	38	65	52	44	38	51	43	38	49	43	38	48	42	37	35
8	62	48	40	34	60	48	40	34	46	39	34	45	39	34	44	38	34	32
9	58	44	36	31	56	44	36	31	43	36	31	42	35	31	41	35	30	29
10	54	41	33	28	53	41	33	28	40	33	28	39	32	28	38	32	28	26

POLAR GRAPH



Maximum Candela = 778.042 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180)