



IES INDOOR REPORT

PHOTOMETRIC FILENAME : IHB4-LED-12L-DA-40.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] 3589

[TESTLAB] TUV SUD America

[TESTDATE] 12/4/2018 8:39:39 AM

[ISSUEDATE] 04/19/21

[MANUFAC] LSI INDUSTRIES, INC

[LUMCAT] IHB4-LED-12L-DA-40

[OTHER] TEST PROCEDURE: IESNA LM-79-08

[ABSOLUTE] NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED

[OTHER] SCALED FROM ORIGINAL TEST DATA

[SEARCH_SOURCETYPE] LED

[SEARCH_APPLICATION] Indoor

[SEARCH_COLORTEMP] 4000

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	10870
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	145
Total Luminaire Watts	75
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.20
Spacing Criterion (90-270)	1.24
Spacing Criterion (Diagonal)	1.32
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	4.00 ft
Luminous Width (90-270)	0.60 ft
Luminous Height	0.00 ft



LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	14701	15198	15653
55	12916	13664	13617
65	11000	11985	11255
75	9736	10477	8764
85	12808	12649	6370

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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>
0.0	4039.395	4039.395	4039.395	4039.395	4039.395	4039.395	4039.395	4039.395	4039.395	4039.395
2.5	4075.062	4060.325	4015.475	4002.697	3980.979	4010.172	4028.011	4071.183	4092.669	4071.183
5.0	4049.708	4038.122	3994.595	3983.535	3974.413	3999.525	4020.505	4060.082	4085.487	4060.082
7.5	4012.535	4004.384	3964.635	3958.150	3957.988	3979.959	4004.262	4038.718	4066.274	4038.718
10.0	3961.009	3961.958	3925.785	3920.806	3927.826	3950.715	3973.585	4003.767	4034.465	4003.767
12.5	3898.451	3903.926	3876.390	3874.774	3893.360	3911.371	3932.270	3959.291	3992.626	3959.291
15.0	3824.631	3837.419	3815.803	3824.338	3847.591	3864.198	3882.865	3905.260	3940.291	3905.260
17.5	3743.094	3762.892	3749.205	3761.932	3792.610	3808.348	3821.742	3840.581	3878.845	3840.581
20.0	3652.737	3682.253	3673.021	3697.294	3729.053	3745.892	3751.861	3766.195	3803.348	3766.195
22.5	3557.927	3590.190	3587.625	3616.565	3657.041	3671.768	3671.344	3682.051	3716.517	3682.051
25.0	3446.489	3484.470	3489.733	3530.674	3571.543	3585.917	3578.867	3582.443	3618.282	3582.443
27.5	3338.032	3369.911	3377.053	3429.428	3472.177	3487.794	3475.632	3472.965	3514.138	3472.965
30.0	3211.958	3249.302	3259.545	3316.930	3364.517	3377.477	3362.305	3355.760	3404.943	3355.760
32.5	3078.520	3128.592	3137.299	3194.917	3242.746	3255.423	3238.413	3236.110	3287.556	3236.110
35.0	2933.192	3000.275	3003.548	3059.509	3110.904	3120.894	3106.945	3109.177	3156.936	3109.177
37.5	2788.178	2857.443	2859.645	2917.252	2965.729	2973.092	2965.749	2967.466	3014.094	2967.466
40.0	2638.124	2704.327	2709.398	2761.420	2808.765	2816.613	2810.734	2812.785	2859.261	2812.785
42.5	2480.473	2542.262	2553.838	2600.567	2643.134	2653.316	2650.811	2653.154	2704.004	2653.154
45.0	2319.893	2387.874	2398.309	2431.259	2470.169	2482.786	2493.059	2493.443	2552.485	2493.443
47.5	2156.757	2231.486	2241.517	2261.275	2291.892	2304.316	2327.388	2334.479	2396.076	2334.479
50.0	1993.217	2068.613	2078.159	2084.997	2106.321	2129.008	2162.312	2168.474	2227.274	2168.474
52.5	1818.889	1898.709	1914.407	1908.487	1925.770	1953.872	1993.702	1995.641	2049.562	1995.641
55.0	1653.389	1730.098	1749.069	1736.129	1743.119	1778.241	1822.970	1823.566	1868.991	1823.566
57.5	1488.092	1564.811	1586.367	1566.851	1563.973	1603.337	1657.157	1651.743	1696.552	1651.743
60.0	1331.835	1411.413	1430.696	1398.614	1390.836	1434.838	1496.708	1494.577	1541.204	1494.577
62.5	1180.800	1261.904	1278.571	1239.438	1221.751	1271.510	1341.532	1339.239	1388.675	1339.239
65.0	1037.483	1117.859	1130.365	1088.909	1061.514	1116.657	1184.861	1190.114	1238.590	1190.114
67.5	883.580	970.148	984.654	937.652	904.641	964.219	1036.817	1041.817	1086.515	1041.817
70.0	766.799	836.498	844.811	799.891	763.435	822.194	891.267	900.479	941.844	900.479
72.5	660.634	718.070	719.060	668.311	628.149	692.959	764.365	774.951	811.002	774.951
75.0	562.379	612.946	605.158	548.066	506.216	571.390	647.230	665.523	702.434	665.523
77.5	473.629	517.711	503.216	439.234	392.203	459.750	540.379	564.713	603.259	564.713
80.0	389.425	425.880	408.728	341.898	290.786	358.323	440.942	471.548	511.004	471.548
82.5	317.251	346.010	322.110	253.876	201.632	270.634	351.181	386.455	424.456	386.455
85.0	249.138	270.664	246.037	177.328	123.913	189.197	269.563	307.200	337.888	307.200
87.5	186.833	203.309	177.055	110.639	55.941	121.034	198.682	236.532	265.017	236.532
90.0	150.196	156.489	127.711	64.406	11.223	70.547	140.388	178.066	201.975	178.066
92.5	138.327	139.539	109.609	50.557	5.495	54.456	117.852	153.085	169.075	153.085
95.0	128.276	128.509	98.407	43.577	5.808	47.547	106.064	140.388	155.742	140.388
97.5	119.993	119.205	90.487	39.567	5.394	43.294	97.083	129.872	144.277	129.872
100.0	113.609	112.215	84.214	36.486	4.778	40.254	90.164	121.296	134.792	121.296
102.5	109.023	106.114	79.295	34.062	4.414	38.041	85.225	114.084	125.812	114.084
105.0	104.629	101.306	74.992	31.870	4.232	36.304	81.093	108.720	119.791	108.720
107.5	100.366	97.053	71.618	30.132	3.737	34.627	77.921	104.266	114.326	104.266
110.0	96.700	93.235	68.386	28.546	3.303	33.122	74.790	100.518	110.538	100.518
112.5	93.073	89.578	65.487	27.486	3.071	32.011	72.497	97.235	106.367	97.235
115.0	89.689	85.891	62.608	26.536	3.222	31.142	69.881	93.902	103.063	93.902
117.5	86.164	82.568	59.880	25.778	3.465	31.102	67.598	90.912	99.326	90.912
120.0	82.669	79.285	57.476	24.677	3.697	30.536	65.264	88.033	95.750	88.033
122.5	79.689	75.901	55.123	23.647	3.950	30.344	63.184	85.083	93.114	85.083
125.0	76.426	72.941	52.911	22.586	4.455	29.789	61.224	82.285	90.174	82.285
127.5	72.952	69.456	50.688	21.566	5.162	29.395	59.153	79.426	87.669	79.426
130.0	69.810	66.396	48.062	20.637	6.152	29.385	57.123	76.133	83.922	76.133
132.5	66.466	63.042	45.567	19.889	6.778	29.162	56.355	73.053	80.214	73.053

IES INDOOR REPORT
PHOTOMETRIC FILENAME : IHB4-LED-12L-DA-40.IES

CANDELA TABULATION - (Cont.)

135.0	63.850	60.103	42.335	19.273	7.485	28.839	54.557	70.204	77.416	70.204
137.5	60.830	56.971	38.981	18.607	8.202	28.657	52.729	67.426	74.002	67.426
140.0	57.931	54.799	35.839	18.000	9.121	28.435	50.779	65.648	70.911	65.648
142.5	55.729	51.820	33.112	17.738	10.020	28.172	48.557	62.891	67.972	62.891
145.0	53.042	48.931	31.132	17.647	10.990	27.738	46.587	60.012	65.133	60.012
147.5	49.587	45.506	29.435	17.657	11.778	27.617	44.931	57.133	61.739	57.133
150.0	46.739	41.961	28.031	17.354	12.425	27.102	42.880	53.931	58.183	53.931
152.5	43.254	38.547	26.475	17.192	13.202	26.587	40.809	50.830	55.022	50.830
155.0	39.799	34.516	25.152	17.031	13.829	26.294	38.658	47.830	51.537	47.830
157.5	36.546	31.193	23.829	17.021	14.505	25.728	36.708	44.658	47.830	44.658
160.0	32.950	27.445	22.677	16.910	15.071	24.708	34.435	41.355	43.890	41.355
162.5	29.900	25.071	21.556	16.647	15.819	24.294	32.425	38.021	40.446	38.021
165.0	27.405	22.283	20.344	16.566	16.142	23.506	30.152	35.233	37.294	35.233
167.5	24.294	20.304	19.465	16.819	16.617	22.586	28.435	32.233	34.152	32.233
170.0	21.273	18.607	18.607	16.596	16.990	21.627	26.405	29.344	31.708	29.344
172.5	19.021	17.576	17.697	16.485	17.748	20.879	24.273	26.284	28.597	26.284
175.0	16.970	16.738	16.889	16.637	17.687	20.041	22.051	23.334	25.172	23.334
177.5	17.556	16.445	17.081	17.273	17.899	19.182	20.021	20.475	21.496	20.475
180.0	18.182	18.182	18.182	18.182	18.182	18.182	18.182	18.182	18.182	18.182

Vert. Angles **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>
0.0	4039.395	4039.395	4039.395	4039.395	4039.395	4039.395	4039.395
2.5	4028.011	4010.172	3980.979	4002.697	4015.475	4060.325	4075.062
5.0	4020.505	3999.525	3974.413	3983.535	3994.595	4038.122	4049.708
7.5	4004.262	3979.959	3957.988	3958.150	3964.635	4004.384	4012.535
10.0	3973.585	3950.715	3927.826	3920.806	3925.785	3961.958	3961.009
12.5	3932.270	3911.371	3893.360	3874.774	3876.390	3903.926	3898.451
15.0	3882.865	3864.198	3847.591	3824.338	3815.803	3837.419	3824.631
17.5	3821.742	3808.348	3792.610	3761.932	3749.205	3762.892	3743.094
20.0	3751.861	3745.892	3729.053	3697.294	3673.021	3682.253	3652.737
22.5	3671.344	3671.768	3657.041	3616.565	3587.625	3590.190	3557.927
25.0	3578.867	3585.917	3571.543	3530.674	3489.733	3484.470	3446.489
27.5	3475.632	3487.794	3472.177	3429.428	3377.053	3369.911	3338.032
30.0	3362.305	3377.477	3364.517	3316.930	3259.545	3249.302	3211.958
32.5	3238.413	3255.423	3242.746	3194.917	3137.299	3128.592	3078.520
35.0	3106.945	3120.894	3110.904	3059.509	3003.548	3000.275	2933.192
37.5	2965.749	2973.092	2965.729	2917.252	2859.645	2857.443	2788.178
40.0	2810.734	2816.613	2808.765	2761.420	2709.398	2704.327	2638.124
42.5	2650.811	2653.316	2643.134	2600.567	2553.838	2542.262	2480.473
45.0	2493.059	2482.786	2470.169	2431.259	2398.309	2387.874	2319.893
47.5	2327.388	2304.316	2291.892	2261.275	2241.517	2231.486	2156.757
50.0	2162.312	2129.008	2106.321	2084.997	2078.159	2068.613	1993.217
52.5	1993.702	1953.872	1925.770	1908.487	1914.407	1898.709	1818.889
55.0	1822.970	1778.241	1743.119	1736.129	1749.069	1730.098	1653.389
57.5	1657.157	1603.337	1563.973	1566.851	1586.367	1564.811	1488.092
60.0	1496.708	1434.838	1390.836	1398.614	1430.696	1411.413	1331.835
62.5	1341.532	1271.510	1221.751	1239.438	1278.571	1261.904	1180.800
65.0	1184.861	1116.657	1061.514	1088.909	1130.365	1117.859	1037.483
67.5	1036.817	964.219	904.641	937.652	984.654	970.148	883.580
70.0	891.267	822.194	763.435	799.891	844.811	836.498	766.799
72.5	764.365	692.959	628.149	668.311	719.060	718.070	660.634
75.0	647.230	571.390	506.216	548.066	605.158	612.946	562.379
77.5	540.379	459.750	392.203	439.234	503.216	517.711	473.629
80.0	440.942	358.323	290.786	341.898	408.728	425.880	389.425

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CANDELA TABULATION - (Cont.)

82.5	351.181	270.634	201.632	253.876	322.110	346.010	317.251
85.0	269.563	189.197	123.913	177.328	246.037	270.664	249.138
87.5	198.682	121.034	55.941	110.639	177.055	203.309	186.833
90.0	140.388	70.547	11.223	64.406	127.711	156.489	150.196
92.5	117.852	54.456	5.495	50.557	109.609	139.539	138.327
95.0	106.064	47.547	5.808	43.577	98.407	128.509	128.276
97.5	97.083	43.294	5.394	39.567	90.487	119.205	119.993
100.0	90.164	40.254	4.778	36.486	84.214	112.215	113.609
102.5	85.225	38.041	4.414	34.062	79.295	106.114	109.023
105.0	81.093	36.304	4.232	31.870	74.992	101.306	104.629
107.5	77.921	34.627	3.737	30.132	71.618	97.053	100.366
110.0	74.790	33.122	3.303	28.546	68.386	93.235	96.700
112.5	72.497	32.011	3.071	27.486	65.487	89.578	93.073
115.0	69.881	31.142	3.222	26.536	62.608	85.891	89.689
117.5	67.598	31.102	3.465	25.778	59.880	82.568	86.164
120.0	65.264	30.536	3.697	24.677	57.476	79.285	82.669
122.5	63.184	30.344	3.950	23.647	55.123	75.901	79.689
125.0	61.224	29.789	4.455	22.586	52.911	72.941	76.426
127.5	59.153	29.395	5.162	21.566	50.688	69.456	72.952
130.0	57.123	29.385	6.152	20.637	48.062	66.396	69.810
132.5	56.355	29.162	6.778	19.889	45.567	63.042	66.466
135.0	54.557	28.839	7.485	19.273	42.335	60.103	63.850
137.5	52.729	28.657	8.202	18.607	38.981	56.971	60.830
140.0	50.779	28.435	9.121	18.000	35.839	54.799	57.931
142.5	48.557	28.172	10.020	17.738	33.112	51.820	55.729
145.0	46.587	27.738	10.990	17.647	31.132	48.931	53.042
147.5	44.931	27.617	11.778	17.657	29.435	45.506	49.587
150.0	42.880	27.102	12.425	17.354	28.031	41.961	46.739
152.5	40.809	26.587	13.202	17.192	26.475	38.547	43.254
155.0	38.658	26.294	13.829	17.031	25.152	34.516	39.799
157.5	36.708	25.728	14.505	17.021	23.829	31.193	36.546
160.0	34.435	24.708	15.071	16.910	22.677	27.445	32.950
162.5	32.425	24.294	15.819	16.647	21.556	25.071	29.900
165.0	30.152	23.506	16.142	16.566	20.344	22.283	27.405
167.5	28.435	22.586	16.617	16.819	19.465	20.304	24.294
170.0	26.405	21.627	16.990	16.596	18.607	18.607	21.273
172.5	24.273	20.879	17.748	16.485	17.697	17.576	19.021
175.0	22.051	20.041	17.687	16.637	16.889	16.738	16.970
177.5	20.021	19.182	17.899	17.273	17.081	16.445	17.556
180.0	18.182	18.182	18.182	18.182	18.182	18.182	18.182

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	1469.75	N.A.	13.50
0-30	3101.23	N.A.	28.50
0-40	5017.62	N.A.	46.20
0-60	8488.07	N.A.	78.10
0-80	10246.6	N.A.	94.30
0-90	10511.00	N.A.	96.70
10-90	10129.38	N.A.	93.20
20-40	3547.87	N.A.	32.60
20-50	5435.7	N.A.	50.00
40-70	4589.42	N.A.	42.20
60-80	1758.52	N.A.	16.20
70-80	639.55	N.A.	5.90
80-90	264.40	N.A.	2.40
90-110	173.00	N.A.	1.60
90-120	231.45	N.A.	2.10
90-130	277.43	N.A.	2.60
90-150	335.49	N.A.	3.10
90-180	359.00	N.A.	3.30
110-180	185.99	N.A.	1.70
0-180	10870.00	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	381.62
10-20	1088.14
20-30	1631.48
30-40	1916.39
40-50	1887.83
50-60	1582.62
60-70	1118.97
70-80	639.55
80-90	264.40
90-100	99.70
100-110	73.30
110-120	58.45
120-130	45.98
130-140	34.28
140-150	23.78
150-160	14.50
160-170	7.07
170-180	1.93

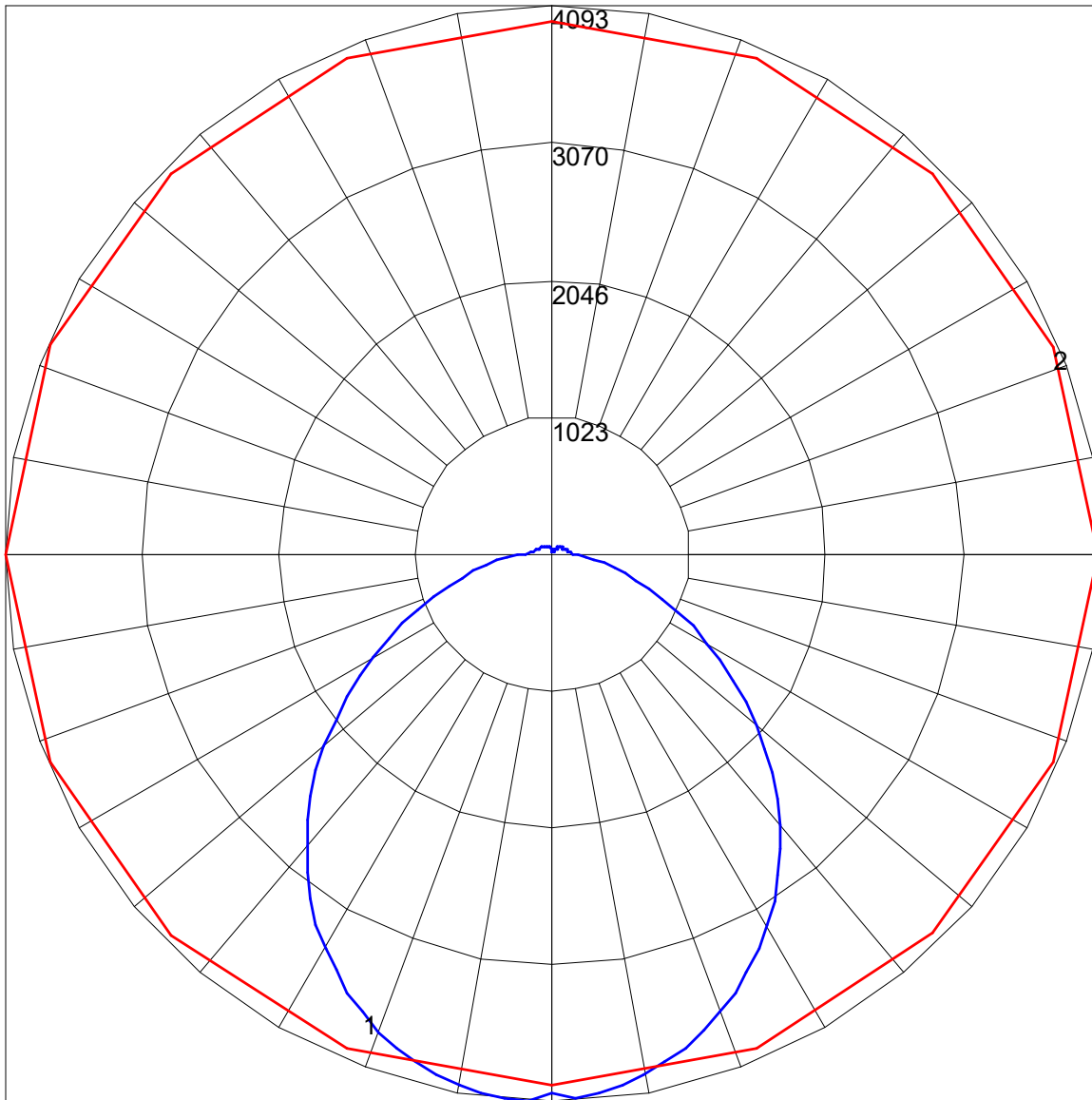
IES INDOOR REPORT
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	118	118	118	118	115	115	115	115	109	109	109	104	104	104	99	99	99	97
1	108	103	99	95	105	101	97	94	96	93	90	92	89	87	87	85	83	81
2	99	91	84	78	96	88	82	77	84	79	75	81	76	73	77	74	71	68
3	90	80	72	66	87	78	71	65	75	68	63	71	66	62	68	64	60	58
4	83	71	62	56	80	69	61	55	67	60	54	64	58	53	61	56	52	50
5	76	64	55	48	74	62	54	48	60	53	47	58	51	46	55	50	46	43
6	70	57	49	42	68	56	48	42	54	47	41	52	46	41	50	45	40	38
7	65	52	44	38	64	51	43	37	49	42	37	48	41	36	46	40	36	34
8	61	48	39	34	59	47	39	33	45	38	33	44	37	33	42	37	32	30
9	57	44	36	30	55	43	35	30	42	35	30	40	34	29	39	33	29	27
10	53	40	33	27	52	40	32	27	39	32	27	37	31	27	36	31	27	25

POLAR GRAPH



Maximum Candela = 4092.669 Located At Horizontal Angle = 180, Vertical Angle = 2.5
1 - Vertical Plane Through Horizontal Angles (180 - 0) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (2.5) (Through Max. Cd.)