



IES INDOOR REPORT
PHOTOMETRIC FILENAME : L072111007.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L072111007
 [TESTLAB] LIGHT LABORATORY,INC. (www.lightlaboratory.com)
 [ISSUE DATE] 9/17/2021
 [MANUFAC] LUX DYNAMICS
 [LUMCAT] WAVEP-4-840-U10-WSA4
 [LUMINAIRE] WAVE+, 4' Length, Standard Aiming,4000K, Standard Acrylic Lenses,no Deflector
 [BALLASTCAT] OSRAM OPTOTRONIC OTI85/120-277/2A3 DIM L HB (11 DRIVER)
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 277VAC
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	147906
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	171
Total Luminaire Watts	862.6
Ballast Factor	1.00
CIE Type	Semi-Indirect
Spacing Criterion (0-180)	N.A.
Spacing Criterion (90-270)	N.A.
Spacing Criterion (Diagonal)	N.A.
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	1.33 ft
Luminous Width (90-270)	3.83 ft
Luminous Height	1.19 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	8039	6186	7929
55	14756	7755	6960
65	28200	14336	7465
75	44254	27503	10500
85	61103	37806	10569

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CANDELA TABULATION

	<u>0</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>35</u>	<u>40</u>	<u>45</u>
0	5507	5507	5507	5507	5507	5507	5507	5507	5507	5507
5	5404	5403	5415	5423	5437	5433	5427	5430	5441	5447
10	5288	5287	5300	5313	5323	5318	5308	5311	5320	5331
15	5244	5256	5284	5335	5411	5471	5495	5433	5299	5195
20	5046	5053	5070	5089	5095	5082	5061	5045	5059	5174
25	4587	4594	4613	4640	4676	4713	4758	4811	4845	4837
30	4536	4551	4580	4581	4561	4471	4391	4387	4430	4497
35	4331	4333	4338	4330	4314	4295	4290	4352	4303	4145
40	4599	4592	4506	4400	4325	4269	4218	4155	4064	4057
45	5102	5086	5037	4932	4793	4625	4478	4243	3983	3838
50	6357	6339	6260	6148	5948	5613	5220	4832	4432	3980
55	9132	9049	8809	8444	7955	7342	6653	5957	5332	4672
60	12125	11996	11708	11235	10673	9864	8954	7958	6902	5839
65	16477	16387	16051	15478	14585	13537	12343	10978	9558	8116
70	20656	20556	20167	19473	18620	17599	16319	14883	13154	11186
75	23542	23470	23150	22559	21718	20629	19405	17907	16168	14098
80	25849	25750	25394	24810	23963	22823	21313	19759	17973	15815
85	28321	28164	27583	27028	25970	24652	23094	21171	19022	16767
90	30272	30143	29761	29167	27909	26914	25174	23105	20955	18581
95	32482	32373	31984	31370	30490	28446	27452	25106	22630	20051
100	34529	34358	33915	33205	32162	30647	28159	26616	24052	21484
105	36220	36063	35497	34658	33696	32387	30388	27798	25864	23522
110	37298	37127	36534	35599	34583	33396	31861	30122	27327	25705
115	38471	38362	37987	37434	36288	35006	33621	31950	30108	28314
120	39140	38969	38451	37857	37277	36466	35320	34099	32516	30559
125	39412	39269	38949	38403	37741	36998	36363	35347	34310	32905
130	39167	39092	38867	38669	38601	38348	37714	36855	35511	34174
135	39781	39753	39563	39324	39146	38853	38055	37462	36616	35067
140	39631	39597	39617	39576	39317	38526	37816	36834	35552	34331
145	39003	38990	38805	38260	37400	36677	35940	34938	33444	31534
150	37011	37011	36704	35797	34945	33799	32298	30947	30613	30879
155	31295	31234	31145	31077	30961	30777	31302	31943	32046	31984
160	31145	31834	32196	31964	31896	31848	31350	30845	29972	28717
165	28430	28171	27871	28390	28410	28008	27516	26582	25586	24501
170	27946	27714	27639	27793	27728	27540	27315	27046	26749	26315
175	27462	27257	27407	27196	27046	27073	27114	27510	27912	28130
180	26680	26680	26680	26680	26680	26680	26680	26680	26680	26680

Vert. Angles **Horizontal Angles**

	<u>50</u>	<u>55</u>	<u>60</u>	<u>65</u>	<u>70</u>	<u>75</u>	<u>80</u>	<u>85</u>	<u>90</u>	<u>95</u>
0	5507	5507	5507	5507	5507	5507	5507	5507	5507	5507
5	5454	5453	5450	5448	5455	5453	5451	5445	5443	5486
10	5343	5348	5348	5343	5354	5361	5361	5346	5346	5438
15	5175	5171	5168	5164	5181	5190	5196	5187	5187	5304
20	5267	5106	4953	4932	4943	4962	4975	4971	4990	5078
25	4813	4882	4952	4746	4683	4699	4720	4722	4745	4824
30	4556	4546	4518	4653	4462	4406	4426	4436	4460	4510
35	4141	4196	4222	4197	4258	4125	4102	4110	4169	4170
40	3974	3820	3835	3876	3909	3890	3773	3778	3836	3834
45	3709	3670	3518	3477	3499	3537	3441	3427	3481	3456
50	3620	3421	3331	3200	3106	3135	3152	3064	3113	3084
55	4091	3550	3185	3080	2923	2845	2792	2719	2730	2741
60	4898	4182	3466	3067	2941	2808	2805	2658	2500	2423

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65	6657	5134	4108	3404	2973	2844	2773	2692	2490	2314
70	8962	7134	5358	4021	3290	2984	2933	2864	2713	2487
75	11716	9376	6835	4932	3725	3126	2951	2898	2780	2546
80	13539	11038	8509	6275	4436	3260	2683	2585	2494	2279
85	14321	11777	9424	6964	5095	3647	2634	2163	1986	1653
90	15990	13213	10587	8069	6873	4316	3104	2303	1990	1570
95	17351	14594	11959	9476	7592	5538	4179	3172	2469	1692
100	18714	16144	13690	11332	9311	8048	5893	4700	3769	2969
105	21139	18522	16110	13777	11515	9679	8662	6701	5660	4664
110	23338	20887	18555	16455	14606	12665	10781	9807	8276	7083
115	25465	23494	21505	19723	17903	15692	13923	12665	11741	10748
120	28567	26739	23908	22844	20708	18501	17451	15801	15311	13724
125	31002	29331	27591	24686	22449	21567	20407	19038	18959	17177
130	32946	31186	28969	26302	25006	24549	22612	21534	21957	19850
135	33444	31527	29372	27639	27646	26159	24079	24529	23305	22081
140	32605	30081	29126	29344	28771	26336	24883	25832	24070	23088
145	30190	30449	30702	29795	28014	25763	25586	26930	25873	23997
150	31439	31439	29870	27946	25511	24529	25873	26671	25613	24338
155	30934	29338	27230	25334	23894	24331	26214	26200	25129	24113
160	27455	25907	24276	23349	24051	25784	26248	25729	24536	23662
165	23662	23431	24215	25600	26943	27373	27360	26636	25886	25184
170	25957	25873	26268	26913	27554	27731	27653	27206	26763	26320
175	28253	28314	28321	28226	28164	28089	27946	27776	27639	27455
180	26680	26680	26680	26680	26680	26680	26680	26680	26680	26680

Vert. Horizontal Angles
Angles

	100	105	110	115	120	125	130	135	140	145
0	5507	5507	5507	5507	5507	5507	5507	5507	5507	5507
5	5556	5599	5595	5571	5533	5490	5458	5437	5428	5414
10	5505	5451	5349	5321	5325	5318	5312	5345	5406	5452
15	5293	5175	5145	5141	5207	5315	5342	5320	5301	5280
20	5005	4933	4939	5076	5119	5104	5091	5096	5110	5086
25	4705	4687	4822	4862	4849	4871	4868	4826	4784	4750
30	4404	4503	4589	4580	4601	4564	4524	4439	4327	4239
35	4127	4257	4273	4292	4237	4170	4055	3954	3883	3833
40	3858	3951	3964	3926	3846	3705	3618	3578	3642	3662
45	3514	3611	3589	3487	3357	3282	3320	3376	3310	3284
50	3209	3226	3152	3018	2968	3053	2979	2939	2956	3020
55	2829	2789	2670	2626	2667	2612	2618	2685	2848	3221
60	2390	2311	2257	2293	2254	2323	2554	3051	3487	3829
65	2105	1866	1880	1894	2038	2529	3001	3504	3895	4171
70	2102	1677	1550	1791	2271	2789	3299	3663	3854	3887
75	2209	1836	1628	1906	2400	2794	2984	3060	3108	3195
80	2020	1843	1895	2003	2090	2325	2446	2523	2557	2550
85	1677	1547	1502	1543	1669	1904	2124	2273	2343	2357
90	1517	1340	1307	1347	1457	1669	1783	1863	1914	1936
95	1692	1335	1220	1222	1335	1574	1779	1863	1925	1965
100	2437	1824	1548	1238	1095	1121	1303	1383	1464	1554
105	3898	3183	2542	2078	1720	1409	1246	1196	1145	1175
110	6130	5299	4447	3605	2982	2418	2003	1705	1499	1274
115	9263	8249	7131	5911	4947	4010	3312	2595	2147	1945
120	12434	11323	10254	8963	7376	6299	5227	4265	3426	2845
125	15737	14602	13301	11648	10066	8729	7760	6180	4961	4074
130	18826	17058	16217	14616	12832	11243	9694	8306	7166	5801
135	21495	18785	18586	17635	15760	14137	12518	10712	9286	8092

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140	22423	20804	18991	19693	18665	16887	15318	13688	12101	10593
145	22291	22162	19809	18929	19761	19058	17844	16684	15320	13942
150	21964	22128	21377	19495	18588	19372	19488	18847	17967	17135
155	21848	20354	21275	20818	18867	17367	17708	18485	19004	18922
160	21889	19699	19515	20613	21152	19836	18199	16855	16337	17155
165	23901	22421	20600	20129	20736	21568	22189	21773	20879	19652
170	25559	24682	23564	23137	23243	23410	23441	23004	22281	21344
175	27216	26943	26527	26145	25750	25252	24692	24235	23683	23035
180	26680	26680	26680	26680	26680	26680	26680	26680	26680	26680

Vert. Horizontal Angles
Angles

	150	155	160	165	170	175	180
0	5507	5507	5507	5507	5507	5507	5507
5	5409	5408	5405	5400	5393	5386	5379
10	5474	5479	5476	5467	5453	5443	5435
15	5265	5269	5279	5290	5288	5279	5281
20	5054	5030	5018	4999	4981	4968	4962
25	4681	4620	4568	4524	4492	4472	4464
30	4179	4133	4102	4079	4065	4052	4050
35	3829	3880	3878	3873	3884	3884	3888
40	3649	3578	3548	3541	3539	3532	3532
45	3282	3282	3297	3318	3338	3348	3355
50	3091	3180	3299	3439	3607	3697	3738
55	3612	3833	3996	4153	4255	4323	4341
60	4149	4383	4535	4643	4711	4758	4757
65	4351	4445	4499	4526	4537	4537	4526
70	3866	3831	3792	3751	3733	3709	3694
75	3181	3148	3120	3096	3078	3064	3053
80	2529	2501	2480	2467	2452	2439	2435
85	2349	2334	2314	2293	2279	2267	2259
90	1945	1940	1918	1892	1876	1863	1855
95	1987	1997	1979	1943	1925	1912	1904
100	1639	1705	1730	1740	1758	1762	1757
105	1226	1261	1282	1295	1314	1327	1326
110	1127	1070	1040	1020	1007	1001	997
115	1636	1439	1321	1237	1173	1130	1113
120	2440	2010	1776	1644	1552	1486	1462
125	3490	3030	2676	2362	2166	2064	2023
130	4932	4241	3752	3390	3124	2972	2929
135	7076	6364	5541	5116	4748	4548	4465
140	9443	8485	7791	7275	6926	6631	6581
145	12653	11596	10791	10109	9604	9297	9209
150	16234	15354	14393	13635	13165	12878	12824
155	18649	18356	18001	17626	17285	17107	16985
160	17783	18615	19304	19679	20115	20409	20409
165	18792	18322	18035	17646	17721	17633	17312
170	20624	20181	19836	19519	19560	19799	19857
175	22455	22039	21637	21391	21398	21964	22401
180	26680	26680	26680	26680	26680	26680	26680

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	1998.56	N.A.	1.40
0-30	4180.68	N.A.	2.80
0-40	6780.09	N.A.	4.60
0-60	13604.61	N.A.	9.20
0-80	27960.58	N.A.	18.90
0-90	37748.46	N.A.	25.50
10-90	37230.31	N.A.	25.20
20-40	4781.54	N.A.	3.20
20-50	7717.7	N.A.	5.20
40-70	12826.15	N.A.	8.70
60-80	14355.98	N.A.	9.70
70-80	8354.34	N.A.	5.60
80-90	9787.88	N.A.	6.60
90-110	24359.97	N.A.	16.50
90-120	39771.11	N.A.	26.90
90-130	57058.96	N.A.	38.60
90-150	89709.79	N.A.	60.70
90-180	110157.2	N.A.	74.50
110-180	85797.22	N.A.	58.00
0-180	147905.7	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	518.16
10-20	1480.4
20-30	2182.13
30-40	2599.41
40-50	2936.17
50-60	3888.35
60-70	6001.63
70-80	8354.34
80-90	9787.88
90-100	11299.18
100-110	13060.79
110-120	15411.14
120-130	17287.85
130-140	17425.92
140-150	15224.91
150-160	11222.7
160-170	6779.11
170-180	2445.58

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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	101	101	101	101	101	90	90	90	90	70	70	70	51	51	51	34	34	34	26
1	89	84	79	74	74	79	74	70	66	56	53	50	40	38	36	25	23	22	15
2	80	71	64	58	58	70	63	57	52	48	43	40	33	30	28	20	18	17	10
3	72	62	54	47	47	64	55	48	42	41	36	32	29	25	22	17	15	13	8
4	66	54	46	39	39	58	48	41	35	36	31	27	25	22	19	15	13	11	6
5	60	48	39	33	33	53	43	35	30	32	27	23	22	19	16	13	11	9	5
6	55	43	34	28	28	49	38	31	25	29	23	19	20	16	13	12	10	8	4
7	51	38	30	24	24	45	34	27	22	26	21	17	18	14	12	11	9	7	4
8	47	35	27	21	21	41	31	24	19	23	18	15	16	13	10	10	8	6	3
9	44	31	24	19	19	39	28	21	17	21	16	13	15	12	9	9	7	5	3
10	41	29	21	17	17	36	26	19	15	20	15	11	14	10	8	9	6	5	3

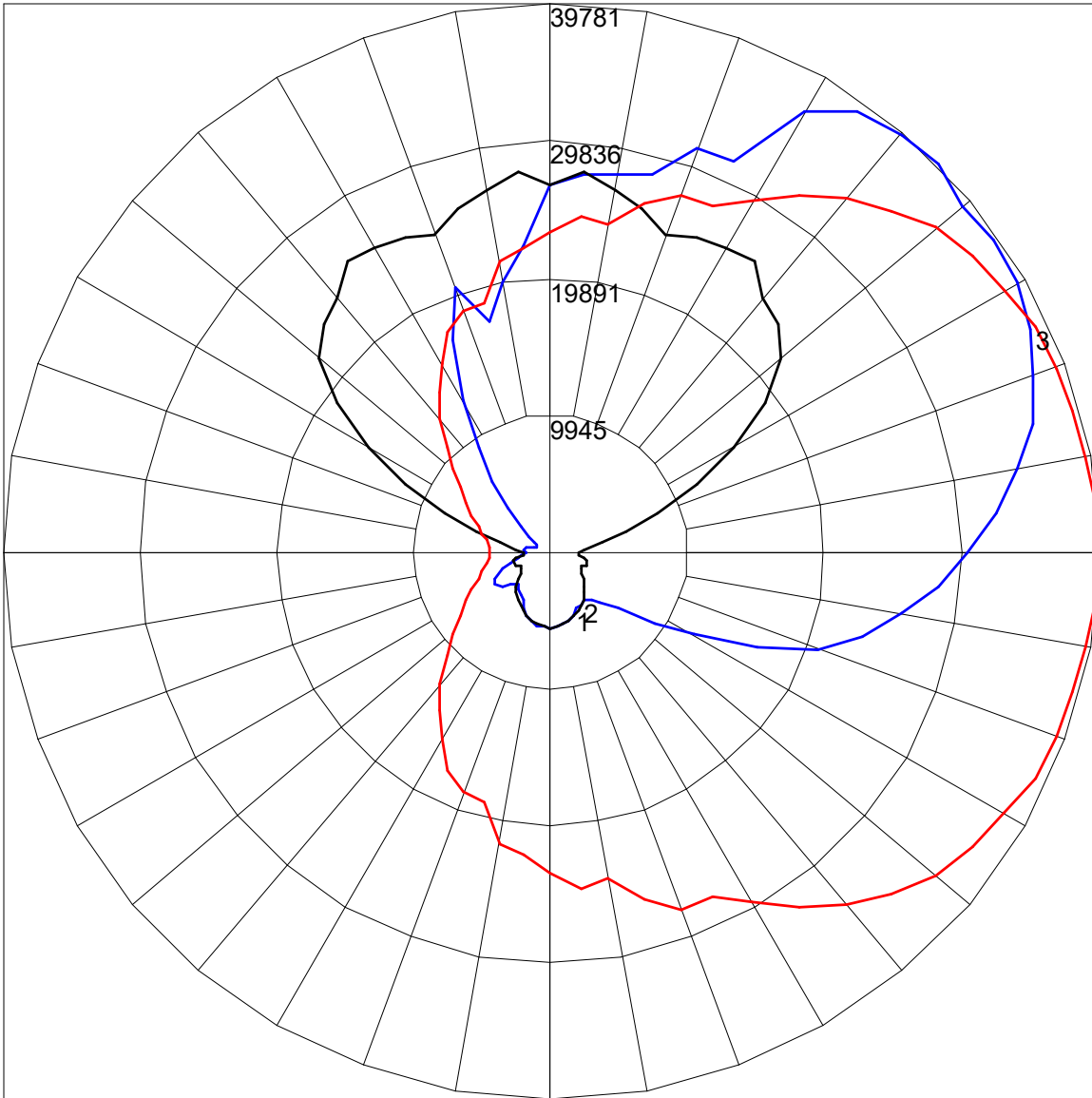
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UGR TABLE - CORRECTED

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	17.4	18.1	18.5	19.2	20.8	17.4	17.4	17.4	17.4	17.4
	3H	24.1	24.8	25.2	25.9	27.5	17.4	17.4	17.4	17.4	17.4
	4H	26.9	27.6	28.0	28.7	30.3	17.4	17.4	17.4	17.4	17.4
	6H	29.5	30.1	30.6	31.3	32.9	17.4	17.4	17.4	17.4	17.4
	8H	30.7	31.3	31.9	32.5	34.1	17.4	17.4	17.4	17.4	17.4
	12H	31.9	32.5	33.1	33.6	35.3	17.4	17.4	17.4	17.4	17.4
4H	2H	17.8	18.4	18.9	19.6	21.1	17.4	17.4	17.4	17.4	17.4
	3H	24.8	25.4	25.9	26.5	28.1	17.4	17.4	17.4	17.4	17.4
	4H	27.8	28.3	28.9	29.5	31.1	17.4	17.4	17.4	17.4	18.1
	6H	30.6	31.1	31.7	32.2	33.8	17.4	17.4	17.4	17.5	19.1
	8H	31.9	32.4	33.1	33.5	35.2	17.4	17.4	17.4	17.9	19.5
	12H	33.3	33.7	34.5	34.9	36.5	17.4	17.4	17.8	18.2	19.8
8H	4H	28.0	28.5	29.2	29.6	31.2	19.0	19.4	20.1	20.6	22.2
	6H	31.1	31.4	32.2	32.6	34.3	20.1	20.4	21.2	21.6	23.3
	8H	32.6	32.9	33.8	34.1	35.8	20.4	20.8	21.6	22.0	23.6
	12H	34.2	34.5	35.4	35.7	37.3	20.7	21.0	21.9	22.2	23.9
12H	4H	28.0	28.4	29.1	29.6	31.2	20.2	20.6	21.4	21.8	23.4
	6H	31.1	31.4	32.3	32.6	34.3	21.6	21.9	22.8	23.1	24.8
	8H	32.7	33.0	33.9	34.2	35.9	22.2	22.5	23.3	23.6	25.3

Maximum UGR = 37.3

POLAR GRAPH



Maximum Candela = 39781 Located At Horizontal Angle = 0, Vertical Angle = 135
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Vertical Plane Through Horizontal Angles (90 - 270)
3 - Horizontal Cone Through Vertical Angle (135) (Through Max. Cd.)