LTL LUMINAIRE TESTING LABORATORY, INC.

SUSTAINING MEMBER of the IESNA

905 Harrison Street · Allentown, PA 18103 · 610-770-1044 · Fax 610-770-8912 · www.LuminaireTesting.com

LTL NUMBER: 15065 DATE: 04-17-2009
PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING
CATALOG NUMBER: LM3P-02-X-TWA-X-120-T5HO
LUMINAIRE: FORMED STEEL AND EXTRUDED ALUMINUM HOUSING, FORMED SPECULAR ALUMINUM CENTER REFLECTOR, TRANSLUCENT WHITE ACRYLIC LOWER LENSES, OPEN TOP.
LAMP: TWO 54 WATT HIGH OUTPUT T5 LINEAR FLUORESCENT LAMPS RATED AT 4400 LUMENS EACH.
LAMP CATALOG NUMBER: SYLVANIA FP54/841/HO/ECO
BALLAST: ONE UNIVERSAL LIGHTING TECHNOLOGIES B254PUNV-D
MOUNTING: WALL
ELECTRICAL VALUES: 120.0VAC, 1.0006A, 119.88W

Candela Distribution

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	
5	208	205	202	199	192	190	185	181	183	181	185	190	192	199	202	205	18.4
15	227	222	213	201	184	173	159	151	151	151	159	173	184	201	213	222	52.6
25	237	230	214	195	169	149	128	117	116	117	128	149	169	195	214	230	79.5
35	238	229	209	182	150	121	96	82	79	82	96	121	150	182	209	229	96.0
45	226	217	195	163	124	89	62	46	42	46	62	89	124	163	195	217	99.4
55	203	194	171	138	95	57	27	11	7	11	27	57	95	138	171	194	89.2
65	173	164	140	106	63	24	0	0	0	0	0	24	63	106	140	164	72.5
75	138	128	105	72	31	0	0	0	0	0	0	0	31	72	105	128	53.6
85	100	91	68	37	1	0	0	0	0	0	0	0	1	37	68	91	33.9
90	78	70	47	18	0	0	0	0	0	0	0	0	0	18	47	70	
95	371	357	333	244	36	164	174	168	168	168	174	164	36	244	333	357	241.7
105	977	943	862	686	225	389	536	723	760	723	536	389	225	686	862	943	677.5
115	1406	1302	1302	997	451	629	758	804	833	804	758	629	451	997	1302	1302	916.9
125	1939	1907	1670	1034	677	851	994	1106	1129	1106	994	851	677	1034	1670	1907	1084.7
135	2147	2059	1674	1150	885	1052	1183	1284	1308	1284	1183	1052	885	1150	1674	2059	1062.0
145	2043	1893	1532	1236	1065	1239	1307	1393	1427	1393	1307	1239	1065	1236	1532	1893	894.9
155	1720	1668	1503	1302	1211	1393	1422	1453	1472	1453	1422	1393	1211	1302	1503	1668	667.2
165	1532	1499	1422	1333	1313	1440	1511	1526	1532	1526	1511	1440	1313	1333	1422	1499	410.2
175	1375	1366	1353	1352	1368	1408	1440	1468	1481	1468	1440	1408	1368	1352	1353	1366	134.8
180	1379	1379	1379	1379	1379	1379	1379	1379	1379	1379	1379	1379	1379	1379	1379	1379	

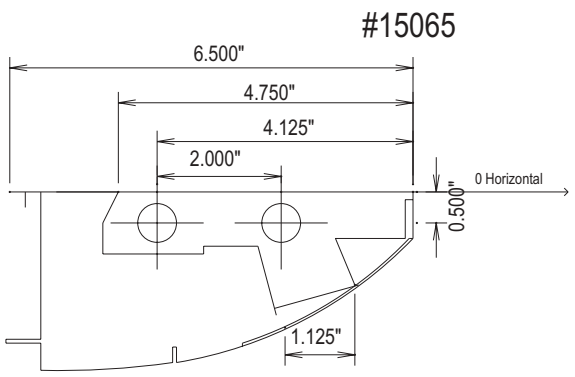
Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	150.5	1.7%	2.3%
0-40	246.4	2.8%	3.7%
0-60	435.0	4.9%	6.5%
0-90	595.1	6.8%	8.9%
90-180	6089.9	69.2%	91.1%
0-180	6684.9	76.0%	100.0%

Total luminaire efficiency: 76.0%

CIE Type: Indirect
Spacing Criterion: 0 deg: 1.77 90 deg: 1.23
180 deg: 0.84 270 deg: 1.23

Luminaire



Approved By: MG

THIS REPORT BASED ON LM-41 AND OTHER PERTINENT IESNA PROCEDURES.

LTL
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Candela Tabulation (5 degree Vertical Increments)

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195
5	208	205	202	199	192	190	185	181	183	181	185	190	192	199	202	205
10	219	214	209	201	188	182	174	166	168	166	174	182	188	201	209	214
15	227	222	213	201	184	173	159	151	151	151	159	173	184	201	213	222
20	233	227	214	199	177	162	143	134	134	134	143	162	177	199	214	227
25	237	230	214	195	169	149	128	117	116	117	128	149	169	195	214	230
30	239	231	213	190	160	135	112	100	98	100	112	135	160	190	213	231
35	238	229	209	182	150	121	96	82	79	82	96	121	150	182	209	229
40	234	225	203	173	138	105	80	64	60	64	80	105	138	173	203	225
45	226	217	195	163	124	89	62	46	42	46	62	89	124	163	195	217
50	216	207	184	151	110	73	45	28	24	28	45	73	110	151	184	207
55	203	194	171	138	95	57	27	11	7	11	27	57	95	138	171	194
60	189	179	156	123	79	40	11	0	1	0	11	40	79	123	156	179
65	173	164	140	106	63	24	0	0	0	0	0	24	63	106	140	164
70	156	146	123	90	47	9	0	0	0	0	0	9	47	90	123	146
75	138	128	105	72	31	0	0	0	0	0	0	0	31	72	105	128
80	119	110	86	54	16	0	0	0	0	0	0	0	16	54	86	110
85	100	91	68	37	1	0	0	0	0	0	0	0	1	37	68	91
90	78	70	47	18	0	0	0	0	0	0	0	0	0	18	47	70
95	371	357	333	244	36	164	174	168	168	168	174	164	36	244	333	357
100	712	689	602	434	120	262	452	502	509	502	452	262	120	434	602	689
105	977	943	862	686	225	389	536	723	760	723	536	389	225	686	862	943
110	1251	1226	980	872	337	501	608	741	816	741	608	501	337	872	980	1226
115	1406	1302	1302	997	451	629	758	804	833	804	758	629	451	997	1302	1302
120	1566	1593	1552	1028	565	747	888	955	963	955	888	747	565	1028	1552	1593
125	1939	1907	1670	1034	677	851	994	1106	1129	1106	994	851	677	1034	1670	1907
130	2097	2009	1736	1089	784	951	1098	1185	1226	1185	1098	951	784	1089	1736	2009
135	2147	2059	1674	1150	885	1052	1183	1284	1308	1284	1183	1052	885	1150	1674	2059
140	2171	2034	1591	1196	979	1149	1251	1345	1379	1345	1251	1149	979	1196	1591	2034
145	2043	1893	1532	1236	1065	1239	1307	1393	1427	1393	1307	1239	1065	1236	1532	1893
150	1848	1726	1538	1274	1143	1323	1363	1426	1454	1426	1363	1323	1143	1274	1538	1726
155	1720	1668	1503	1302	1211	1393	1422	1453	1472	1453	1422	1393	1211	1302	1503	1668
160	1639	1585	1456	1321	1268	1442	1472	1493	1504	1493	1472	1442	1268	1321	1456	1585
165	1532	1499	1422	1333	1313	1440	1511	1526	1532	1526	1511	1440	1313	1333	1422	1499
170	1449	1429	1384	1340	1347	1428	1508	1545	1552	1545	1508	1428	1347	1340	1384	1429
175	1375	1366	1353	1352	1368	1408	1440	1468	1481	1468	1440	1408	1368	1352	1353	1366
180	1379	1379	1379	1379	1379	1379	1379	1379	1379	1379	1379	1379	1379	1379	1379	1379

Zonal Lumen Tabulation (5 degree zones)

Zone	Lumens		Zone	Lumens		Zone	Lumens		Zone	Lumens
0-5	4.6		45-50	49.2		90-95	54.6		135-140	517.9
5-10	13.8		50-55	46.6		95-100	187.1		140-145	474.2
10-15	22.4		55-60	42.7		100-105	298.6		145-150	420.7
15-20	30.2		60-65	38.4		105-110	378.9		150-155	363.3
20-25	37.0		65-70	34.1		110-115	433.0		155-160	303.9
25-30	42.5		70-75	29.2		115-120	483.9		160-165	239.0
30-35	46.7		75-80	24.4		120-125	532.0		165-170	171.2
35-40	49.3		80-85	19.4		125-130	552.8		170-175	101.6
40-45	50.1		85-90	14.5		130-135	544.1		175-180	33.2

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Coefficients of Utilization - Zonal Cavity Method												
Effective Floor Cavity Reflectance 20%												
Ceiling Cavity Reflectance	90				80				70			
Wall Reflectance	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)												
0	0.842	0.842	0.842	0.842	0.74	0.74	0.74	0.74	0.642	0.642	0.642	0.642
1	0.767	0.728	0.694	0.663	0.672	0.64	0.612	0.587	0.581	0.556	0.533	0.512
2	0.698	0.634	0.581	0.537	0.61	0.558	0.514	0.477	0.528	0.485	0.449	0.419
3	0.636	0.555	0.493	0.444	0.556	0.489	0.437	0.395	0.48	0.425	0.382	0.348
4	0.581	0.488	0.422	0.372	0.507	0.431	0.375	0.332	0.438	0.375	0.329	0.293
5	0.531	0.432	0.364	0.315	0.464	0.381	0.324	0.281	0.4	0.333	0.284	0.249
6	0.487	0.385	0.317	0.269	0.425	0.34	0.282	0.241	0.367	0.297	0.248	0.213
7	0.448	0.345	0.279	0.233	0.392	0.305	0.248	0.209	0.338	0.266	0.219	0.185
8	0.414	0.31	0.246	0.203	0.362	0.275	0.22	0.182	0.313	0.24	0.194	0.161
9	0.383	0.281	0.219	0.178	0.335	0.249	0.196	0.16	0.29	0.218	0.173	0.142
10	0.356	0.255	0.196	0.157	0.312	0.226	0.175	0.141	0.27	0.198	0.154	0.125

Ceiling Cavity Reflectance	50				30			10			0
Wall Reflectance	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)											
0	0.46	0.46	0.46	0.46	0.293	0.293	0.293	0.14	0.14	0.14	0.068
1	0.414	0.399	0.384	0.371	0.254	0.246	0.239	0.121	0.117	0.114	0.054
2	0.375	0.348	0.325	0.306	0.222	0.209	0.198	0.105	0.1	0.095	0.044
3	0.34	0.306	0.278	0.255	0.195	0.179	0.166	0.093	0.086	0.08	0.037
4	0.31	0.27	0.24	0.216	0.173	0.155	0.141	0.082	0.075	0.068	0.031
5	0.283	0.24	0.208	0.184	0.154	0.135	0.121	0.074	0.065	0.059	0.027
6	0.26	0.215	0.182	0.158	0.138	0.119	0.104	0.066	0.058	0.051	0.024
7	0.24	0.193	0.161	0.137	0.124	0.105	0.091	0.06	0.051	0.045	0.021
8	0.222	0.174	0.143	0.12	0.113	0.094	0.08	0.055	0.046	0.04	0.019
9	0.206	0.158	0.127	0.106	0.103	0.084	0.07	0.05	0.042	0.035	0.017
10	0.192	0.145	0.114	0.094	0.094	0.075	0.062	0.046	0.038	0.032	0.015

Average Luminance Table (cd/m²)

	0	45	90
0	7574	7574	7574
45	10163	9239	6830
55	10439	9448	6400
65	10755	9645	5797
75	11299	9923	4645
85	12543	10754	599

Note: The zonal cavity calculation technique is accurate when luminaires with symmetric candela distributions are employed and when the luminaires are located symmetrically throughout the room. This unit has special characteristics and therefore these values should be used with caution.

THIS TEST WAS CONDUCTED USING RELATIVE PHOTOMETRY TECHNIQUES ACCORDING TO STANDARD IESNA PROCEDURES. THE USER MUST THEREFORE USE CAUTION IN THE FOLLOWING SITUATIONS: 1) THIS TEST WAS PERFORMED USING A SPECIFIC BALLAST/LAMP COMBINATION. EXTRAPOLATION OF THESE DATA FOR OTHER BALLAST/LAMP COMBINATIONS MAY PRODUCE ERRONEOUS RESULTS. 2) ACCORDING TO IESNA PROCEDURES, THE BALLAST(S) AND LAMP(S) ARE PRESUMED TO PRODUCE 100% OF RATED OUTPUT. AN APPROPRIATE BALLAST FACTOR MUST BE APPLIED TO THE LUMEN OUTPUT RATINGS AND LUMINOUS INTENSITY VALUES GIVEN. 3) THIS TEST WAS CONDUCTED IN A CONTROLLED LABORATORY ENVIRONMENT WHERE THE AMBIENT TEMPERATURE WAS HELD AT 25°C ±1°C. FIELD PERFORMANCE MAY DIFFER PARTICULARLY IN REGARDS TO CHANGE IN LUMINOUS OUTPUT AS A RESULT OF DIFFERENCE IN AMBIENT TEMPERATURE AND METHOD OF MOUNTING THE LUMINAIRE.

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