



# 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: 21371 DATE: 11/12/2010  
 PREPARED FOR: RENOVA LIGHTING  
 CATALOG NUMBER: ECS-SVT4-WN-332-UNV-13L-CAL  
 LUMINAIRE: MOLDED PLASTIC AND FORMED STEEL HOUSING, FORMED WHITE  
 PAINTED ALUMINUM REFLECTOR, CLEAR PATTERNED  
 ACRYLIC ENCLOSURE.  
 LAMP: THREE 32W T8 LINEAR FLUORESCENT LAMPS RATED AT 2850 LUMENS  
 EACH.  
 LAMP CATALOG NUMBER: PHILIPS F32T8/TL835/ALTO  
 BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE3X32T8/UNV-ISL-SC  
 MOUNTING: PENDANT  
 ELECTRICAL VALUES: 120.0VAC, 0.5856A, 70.22W

### Candela Distribution

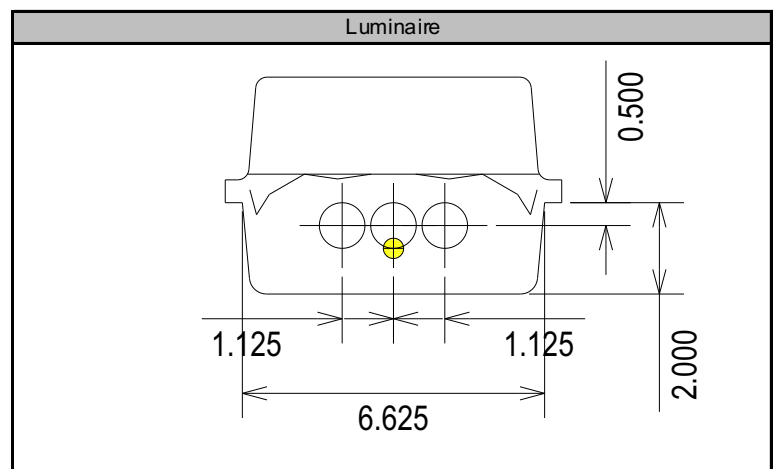
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	
5	1897	1904	1913	1906	1912	1906	1913	1904	1897	1904	1913	1906	1912	1906	1913	1904	181.2
15	1833	1838	1848	1845	1852	1845	1848	1838	1833	1838	1848	1845	1852	1845	1848	1838	520.6
25	1703	1708	1731	1746	1759	1746	1731	1708	1703	1708	1731	1746	1759	1746	1731	1708	797.2
35	1504	1516	1560	1591	1611	1591	1560	1516	1504	1516	1560	1591	1611	1591	1560	1516	973.1
45	1234	1258	1316	1372	1397	1372	1316	1258	1234	1258	1316	1372	1397	1372	1316	1258	1014.2
55	903	938	1034	1116	1147	1116	1034	938	903	938	1034	1116	1147	1116	1034	938	920.7
65	567	627	771	894	939	894	771	627	567	627	771	894	939	894	771	627	755.6
75	287	373	571	706	748	706	571	373	287	373	571	706	748	706	571	373	573.7
85	82	191	375	487	521	487	375	191	82	191	375	487	521	487	375	191	372.8
90	29	129	282	388	423	388	282	129	29	129	282	388	423	388	282	129	
95	33	98	225	324	357	324	225	98	33	98	225	324	357	324	225	98	229.7
105	23	60	132	186	208	186	132	60	23	60	132	186	208	186	132	60	131.5
115	9	30	73	90	93	90	73	30	9	30	73	90	93	90	73	30	62.7
125	4	10	35	48	51	48	35	10	4	10	35	48	51	48	35	10	28.0
135	2	2	15	24	27	24	15	2	2	2	15	24	27	24	15	2	11.1
145	0	0	6	11	13	11	6	0	0	0	6	11	13	11	6	0	3.7
155	0	0	0	3	4	3	0	0	0	0	0	3	4	3	0	0	0.6
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

### Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	1499.0	17.5%	22.8%
0-40	2472.1	28.9%	37.6%
0-60	4406.9	51.5%	67.0%
0-90	6109.1	71.5%	92.9%
90-180	467.2	5.5%	7.1%
0-180	6576.3	76.9%	100.0%

Total luminaire efficiency: 76.9%

CIE Type: Direct  
 Spacing Criterion: 0 deg: 1.25    90 deg: 1.31  
 180 deg: 1.25    270 deg: 1.31



Approved By: MG

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



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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	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917
5	1897	1904	1913	1906	1912	1906	1913	1904	1897	1904	1913	1906	1912	1906	1913	1904
10	1873	1879	1886	1880	1887	1880	1886	1879	1873	1879	1886	1880	1887	1880	1886	1879
15	1833	1838	1848	1845	1852	1845	1848	1838	1833	1838	1848	1845	1852	1845	1848	1838
20	1777	1781	1795	1800	1812	1800	1795	1781	1777	1781	1795	1800	1812	1800	1795	1781
25	1703	1708	1731	1746	1759	1746	1731	1708	1703	1708	1731	1746	1759	1746	1731	1708
30	1612	1622	1654	1676	1693	1676	1654	1622	1612	1622	1654	1676	1693	1676	1654	1622
35	1504	1516	1560	1591	1611	1591	1560	1516	1504	1516	1560	1591	1611	1591	1560	1516
40	1378	1394	1446	1490	1512	1490	1446	1394	1378	1394	1446	1490	1512	1490	1446	1394
45	1234	1258	1316	1372	1397	1372	1316	1258	1234	1258	1316	1372	1397	1372	1316	1258
50	1075	1104	1178	1246	1274	1246	1178	1104	1075	1104	1178	1246	1274	1246	1178	1104
55	903	938	1034	1116	1147	1116	1034	938	903	938	1034	1116	1147	1116	1034	938
60	731	775	894	993	1034	993	894	775	731	775	894	993	1034	993	894	775
65	567	627	771	894	939	894	771	627	567	627	771	894	939	894	771	627
70	419	492	667	800	843	800	667	492	419	492	667	800	843	800	667	492
75	287	373	571	706	748	706	571	373	287	373	571	706	748	706	571	373
80	177	275	480	606	643	606	480	275	177	275	480	606	643	606	480	275
85	82	191	375	487	521	487	375	191	82	191	375	487	521	487	375	191
90	29	129	282	388	423	388	282	129	29	129	282	388	423	388	282	129
95	33	98	225	324	357	324	225	98	33	98	225	324	357	324	225	98
100	29	77	175	254	284	254	175	77	29	77	175	254	284	254	175	77
105	23	60	132	186	208	186	132	60	23	60	132	186	208	186	132	60
110	15	44	99	128	140	128	99	44	15	44	99	128	140	128	99	44
115	9	30	73	90	93	90	73	30	9	30	73	90	93	90	73	30
120	6	18	52	67	69	67	52	18	6	18	52	67	69	67	52	18
125	4	10	35	48	51	48	35	10	4	10	35	48	51	48	35	10
130	3	5	23	34	37	34	23	5	3	5	23	34	37	34	23	5
135	2	2	15	24	27	24	15	2	2	2	15	24	27	24	15	2
140	0	0	9	16	18	16	9	0	0	0	9	16	18	16	9	0
145	0	0	6	11	13	11	6	0	0	0	6	11	13	11	6	0
150	0	0	2	6	8	6	2	0	0	0	2	6	8	6	2	0
155	0	0	0	3	4	3	0	0	0	0	0	3	4	3	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Zonal Lumen Tabulation (5 degree zones)

Zone	Lumens	Zone	Lumens	Zone	Lumens	Zone	Lumens
0-5	45.7	45-50	503.1	90-95	127.4	135-140	4.2
5-10	135.5	50-55	479.0	95-100	102.3	140-145	2.4
10-15	221.0	55-60	441.7	100-105	77.0	145-150	1.3
15-20	299.7	60-65	399.7	105-110	54.5	150-155	0.6
20-25	369.4	65-70	355.9	110-115	37.3	155-160	0.1
25-30	427.8	70-75	310.2	115-120	25.4	160-165	0.0
30-35	472.4	75-80	263.5	120-125	17.0	165-170	0.0
35-40	500.7	80-85	212.3	125-130	11.0	170-175	0.0
40-45	511.1	85-90	160.5	130-135	6.9	175-180	0.0



Coefficients of Utilization - Zonal Cavity Method												
Effective Floor Cavity Reflectance 20%												
Ceiling Cavity Reflectance	90				80				70			
	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)												
0	0.931	0.931	0.931	0.931	0.903	0.903	0.903	0.903	0.875	0.875	0.875	0.875
1	0.838	0.791	0.749	0.711	0.809	0.767	0.728	0.694	0.782	0.743	0.709	0.677
2	0.759	0.682	0.619	0.567	0.731	0.662	0.604	0.555	0.705	0.642	0.589	0.544
3	0.69	0.595	0.522	0.465	0.664	0.578	0.51	0.457	0.64	0.561	0.499	0.449
4	0.631	0.524	0.448	0.39	0.607	0.51	0.439	0.385	0.584	0.496	0.43	0.379
5	0.579	0.467	0.39	0.334	0.557	0.454	0.382	0.329	0.537	0.442	0.375	0.325
6	0.534	0.419	0.343	0.29	0.514	0.408	0.337	0.286	0.495	0.398	0.331	0.283
7	0.494	0.379	0.306	0.255	0.476	0.37	0.3	0.252	0.459	0.361	0.295	0.249
8	0.459	0.345	0.274	0.226	0.443	0.337	0.27	0.224	0.428	0.329	0.266	0.222
9	0.428	0.316	0.248	0.203	0.414	0.309	0.244	0.201	0.4	0.302	0.241	0.199
10	0.401	0.291	0.226	0.183	0.387	0.284	0.223	0.182	0.375	0.278	0.22	0.18

Ceiling Cavity Reflectance	50				30			10			0
	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)											
0	0.824	0.824	0.824	0.824	0.778	0.778	0.778	0.735	0.735	0.735	0.715
1	0.731	0.7	0.672	0.646	0.66	0.637	0.616	0.624	0.605	0.588	0.567
2	0.657	0.605	0.561	0.523	0.571	0.535	0.503	0.54	0.51	0.484	0.463
3	0.595	0.53	0.477	0.434	0.501	0.457	0.42	0.474	0.437	0.406	0.386
4	0.543	0.469	0.412	0.368	0.444	0.396	0.357	0.421	0.38	0.346	0.327
5	0.499	0.42	0.361	0.316	0.398	0.348	0.308	0.379	0.335	0.3	0.281
6	0.461	0.378	0.32	0.276	0.36	0.308	0.269	0.343	0.298	0.263	0.245
7	0.428	0.344	0.286	0.243	0.328	0.276	0.238	0.313	0.267	0.232	0.216
8	0.399	0.314	0.257	0.217	0.3	0.249	0.212	0.287	0.242	0.208	0.192
9	0.374	0.289	0.234	0.195	0.277	0.227	0.191	0.265	0.22	0.187	0.172
10	0.351	0.267	0.213	0.177	0.256	0.208	0.173	0.246	0.202	0.17	0.156

Average Luminance Table (cd/m<sup>2</sup>)

	0	45	90
0	9060	9060	9060
45	7972	7359	7450
55	7082	6589	6877
65	5882	5923	6652
75	4604	5746	6740
85	3146	5724	6719

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.

