



# 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: 21359 DATE: 10/29/2010  
 PREPARED FOR: RENOVA LIGHTING  
 CATALOG NUMBER: ECS-MVT4-WN-132-UNV-11L-CAL  
 LUMINAIRE: MOLDED PLASTIC AND FORMED STEEL HOUSING, FORMED WHITE  
 PAINTED ALUMINUM REFLECTOR, CLEAR LINEAR PRISMATIC  
 ACRYLIC ENCLOSURE.  
 LAMP: ONE 32W T8 LINEAR FLUORESCENT LAMP RATED AT 2850 LUMENS.  
 LAMP CATALOG NUMBER: PHILIPS F32T8/TL841/ALTO  
 BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE1X32T8/UNV-ISL-SC  
 MOUNTING: PENDANT  
 ELECTRICAL VALUES: 120.0V, 0.2149A, 25.75W

### Candela Distribution

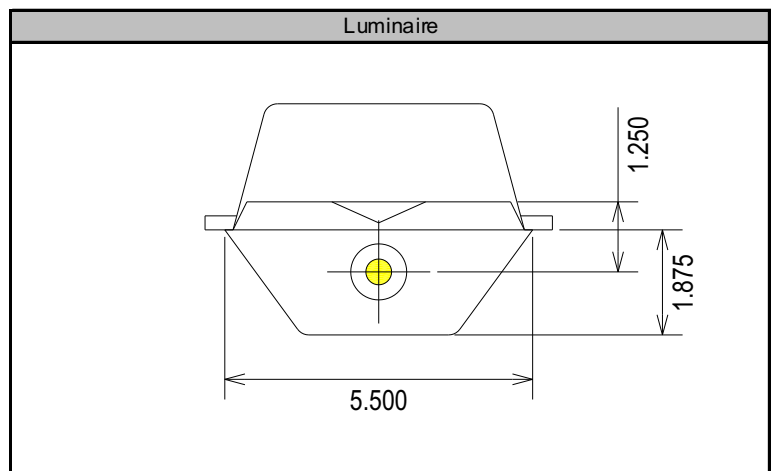
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	572	572	572	572	572	572	572	572	572	572	572	572	572	572	572	572	
5	566	570	576	575	577	575	576	570	566	570	576	575	577	575	576	570	54.6
15	545	553	576	586	593	586	576	553	545	553	576	586	593	586	576	553	161.5
25	503	527	561	573	580	573	561	527	503	527	561	573	580	573	561	527	253.5
35	440	479	514	546	566	546	514	479	440	479	514	546	566	546	514	479	320.0
45	363	409	477	528	544	528	477	409	363	409	477	528	544	528	477	409	359.1
55	277	327	410	430	445	430	410	327	277	327	410	430	445	430	410	327	342.2
65	180	255	309	352	370	352	309	255	180	255	309	352	370	352	309	255	294.7
75	81	150	230	298	327	298	230	150	81	150	230	298	327	298	230	150	234.7
85	17	88	188	260	287	260	188	88	17	88	188	260	287	260	188	88	187.3
90	5	68	158	243	275	243	158	68	5	68	158	243	275	243	158	68	
95	6	45	137	216	243	216	137	45	6	45	137	216	243	216	137	45	140.8
105	5	16	64	114	137	114	64	16	5	16	64	114	137	114	64	16	71.8
115	2	1	25	49	57	49	25	1	2	1	25	49	57	49	25	1	26.8
125	0	0	3	17	22	17	3	0	0	0	3	17	22	17	3	0	7.5
135	0	0	0	1	3	1	0	0	0	0	0	1	3	1	0	0	0.8
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
155	0	0	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	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	0

### Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	469.5	16.5%	19.1%
0-40	789.5	27.7%	32.2%
0-60	1490.9	52.3%	60.7%
0-90	2207.6	77.5%	89.9%
90-180	247.6	8.7%	10.1%
0-180	2455.2	86.1%	100.0%

Total luminaire efficiency: 86.1%

CIE Type: Semi-Direct  
 Spacing Criterion: 0 deg: 1.23 90 deg: 1.52  
 180 deg: 1.23 270 deg: 1.52



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	572	572	572	572	572	572	572	572	572	572	572	572	572	572	572	572
5	566	570	576	575	577	575	576	570	566	570	576	575	577	575	576	570
10	559	566	572	579	585	579	572	566	559	566	572	579	585	579	572	566
15	545	553	576	586	593	586	576	553	545	553	576	586	593	586	576	553
20	526	539	572	585	588	585	572	539	526	539	572	585	588	585	572	539
25	503	527	561	573	580	573	561	527	503	527	561	573	580	573	561	527
30	474	506	539	554	564	554	539	506	474	506	539	554	564	554	539	506
35	440	479	514	546	566	546	514	479	440	479	514	546	566	546	514	479
40	403	448	486	545	564	545	486	448	403	448	486	545	564	545	486	448
45	363	409	477	528	544	528	477	409	363	409	477	528	544	528	477	409
50	323	369	459	482	490	482	459	369	323	369	459	482	490	482	459	369
55	277	327	410	430	445	430	410	327	277	327	410	430	445	430	410	327
60	230	295	350	391	402	391	350	295	230	295	350	391	402	391	350	295
65	180	255	309	352	370	352	309	255	180	255	309	352	370	352	309	255
70	128	198	269	322	348	322	269	198	128	198	269	322	348	322	269	198
75	81	150	230	298	327	298	230	150	81	150	230	298	327	298	230	150
80	43	114	209	281	307	281	209	114	43	114	209	281	307	281	209	114
85	17	88	188	260	287	260	188	88	17	88	188	260	287	260	188	88
90	5	68	158	243	275	243	158	68	5	68	158	243	275	243	158	68
95	6	45	137	216	243	216	137	45	6	45	137	216	243	216	137	45
100	5	25	103	172	197	172	103	25	5	25	103	172	197	172	103	25
105	5	16	64	114	137	114	64	16	5	16	64	114	137	114	64	16
110	3	6	43	71	82	71	43	6	3	6	43	71	82	71	43	6
115	2	1	25	49	57	49	25	1	2	1	25	49	57	49	25	1
120	1	0	12	31	37	31	12	0	1	0	12	31	37	31	12	0
125	0	0	3	17	22	17	3	0	0	0	3	17	22	17	3	0
130	0	0	0	7	11	7	0	0	0	0	0	7	11	7	0	0
135	0	0	0	1	3	1	0	0	0	0	0	1	3	1	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	13.7	45-50	181.6	90-95	77.8	135-140	0.1
5-10	40.9	50-55	176.2	95-100	63.0	140-145	0.0
10-15	67.9	55-60	166.0	100-105	44.6	145-150	0.0
15-20	93.6	60-65	154.4	105-110	27.2	150-155	0.0
20-25	116.8	65-70	140.3	110-115	16.8	155-160	0.0
25-30	136.6	70-75	124.2	115-120	9.9	160-165	0.0
30-35	153.0	75-80	110.5	120-125	5.3	165-170	0.0
35-40	167.0	80-85	99.6	125-130	2.2	170-175	0.0
40-45	177.5	85-90	87.7	130-135	0.7	175-180	0.0



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	1.04	1.04	1.04	1.04	1.005	1.005	1.005	1.005	0.971	0.971	0.971	0.971
1	0.927	0.869	0.818	0.773	0.891	0.839	0.793	0.751	0.857	0.811	0.769	0.731
2	0.835	0.744	0.669	0.607	0.801	0.719	0.65	0.593	0.769	0.694	0.632	0.579
3	0.757	0.645	0.56	0.493	0.725	0.624	0.545	0.483	0.695	0.603	0.531	0.473
4	0.69	0.566	0.477	0.41	0.66	0.548	0.465	0.403	0.633	0.53	0.454	0.395
5	0.632	0.502	0.413	0.348	0.605	0.486	0.403	0.342	0.58	0.471	0.394	0.336
6	0.581	0.449	0.362	0.3	0.557	0.435	0.354	0.295	0.534	0.422	0.346	0.29
7	0.537	0.405	0.32	0.262	0.515	0.393	0.314	0.258	0.494	0.382	0.307	0.254
8	0.498	0.367	0.286	0.232	0.478	0.357	0.281	0.228	0.46	0.347	0.275	0.225
9	0.464	0.335	0.258	0.207	0.446	0.326	0.253	0.204	0.429	0.318	0.248	0.201
10	0.434	0.308	0.234	0.186	0.418	0.3	0.23	0.183	0.402	0.293	0.226	0.181

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	0.909	0.909	0.909	0.909	0.852	0.852	0.852	0.799	0.799	0.799	0.775
1	0.795	0.757	0.723	0.691	0.708	0.68	0.654	0.663	0.64	0.62	0.594
2	0.709	0.649	0.597	0.552	0.607	0.564	0.526	0.568	0.533	0.502	0.477
3	0.64	0.564	0.503	0.453	0.528	0.477	0.434	0.495	0.452	0.415	0.391
4	0.582	0.497	0.432	0.38	0.466	0.41	0.365	0.437	0.39	0.351	0.328
5	0.534	0.442	0.376	0.324	0.416	0.358	0.313	0.391	0.341	0.301	0.28
6	0.492	0.398	0.331	0.281	0.374	0.316	0.271	0.353	0.302	0.262	0.242
7	0.456	0.36	0.294	0.246	0.34	0.282	0.238	0.321	0.27	0.231	0.211
8	0.425	0.328	0.264	0.218	0.311	0.253	0.212	0.294	0.243	0.205	0.187
9	0.398	0.301	0.239	0.195	0.286	0.23	0.19	0.271	0.221	0.184	0.167
10	0.373	0.278	0.218	0.176	0.264	0.21	0.171	0.251	0.202	0.166	0.15

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

	0	45	90
0	4727	4727	4727
45	4236	4771	4867
55	3936	4489	4273
65	3390	3879	3961
75	2385	3502	4111
85	1214	3761	4519

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.

