



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: 17536 DATE: 12-17-2009
 PREPARED FOR: RENOVA LIGHTING SYSTEMS
 CATALOG NUMBER: ECS-ECO4-WN-254-UNV-12H-00W
 LUMINAIRE: FORMED STEEL HOUSING, FORMED WHITE ENAMEL ALUMINUM REFLECTOR, NO ENCLOSURE.
 LAMP: TWO 54 WATT HIGH OUTPUT T5 LINEAR FLUORESCENT LAMPS RATED AT 4400 LUMENS EACH.
 LAMP CATALOG NUMBER: PHILIPS F54T5/841/HO
 BALLAST: ONE SYLVANIA "QUICKTRONIC" QTP-2X54T5HO/UNV-PSN-HT
 MOUNTING: PENDANT
 ELECTRICAL VALUES: 120.0VAC, 0.9455A, 113.05W

Candela Distribution

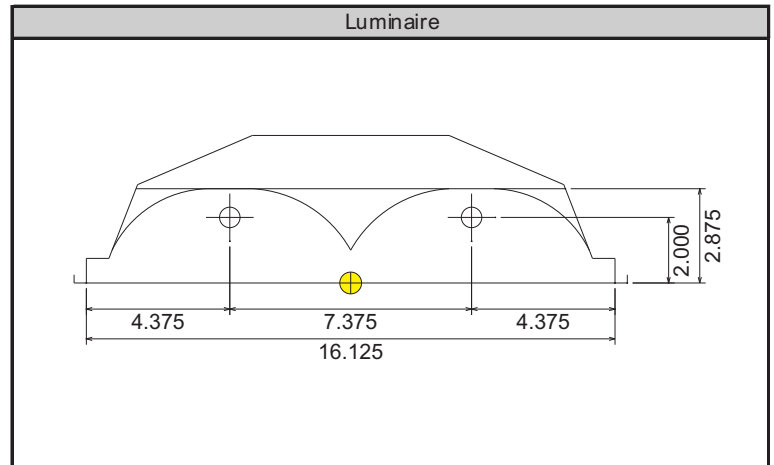
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	2583	2583	2583	2583	2583	2583	2583	2583	2583	2583	2583	2583	2583	2583	2583	2583	
5	2568	2569	2578	2578	2571	2578	2578	2569	2568	2569	2578	2578	2571	2578	2578	2569	244.8
15	2490	2492	2515	2538	2548	2538	2515	2492	2490	2492	2515	2538	2548	2538	2515	2492	712.0
25	2336	2349	2429	2474	2484	2474	2429	2349	2336	2349	2429	2474	2484	2474	2429	2349	1115.1
35	2108	2159	2259	2351	2388	2351	2259	2159	2108	2159	2259	2351	2388	2351	2259	2159	1411.1
45	1806	1894	2057	2161	2185	2161	2057	1894	1806	1894	2057	2161	2185	2161	2057	1894	1563.0
55	1447	1554	1751	1830	1853	1830	1751	1554	1447	1554	1751	1830	1853	1830	1751	1554	1512.7
65	1017	1175	1298	1321	1225	1321	1298	1175	1017	1175	1298	1321	1225	1321	1298	1175	1197.0
75	511	629	536	439	388	439	536	629	511	629	536	439	388	439	536	629	555.4
85	64	68	67	67	66	67	67	68	64	68	67	67	66	67	67	68	89.5
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
135	0	0	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	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	2072.0	23.5%	24.7%
0-40	3483.1	39.6%	41.5%
0-60	6558.8	74.5%	78.1%
0-90	8400.7	95.5%	100.0%
90-180	0.0	0.0%	0.0%
0-180	8400.7	95.5%	100.0%

Total luminaire efficiency: 95.5%

CIE Type: Direct
 Spacing Criterion: 0 deg: 1.28 90 deg: 1.42
 180 deg: 1.28 270 deg: 1.42



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	2583	2583	2583	2583	2583	2583	2583	2583	2583	2583	2583	2583	2583	2583	2583	2583
5	2568	2569	2578	2578	2571	2578	2578	2569	2568	2569	2578	2578	2571	2578	2578	2569
10	2537	2538	2549	2552	2547	2552	2549	2538	2537	2538	2549	2552	2547	2552	2549	2538
15	2490	2492	2515	2538	2548	2538	2515	2492	2490	2492	2515	2538	2548	2538	2515	2492
20	2422	2428	2474	2519	2534	2519	2474	2428	2422	2428	2474	2519	2534	2519	2474	2428
25	2336	2349	2429	2474	2484	2474	2429	2349	2336	2349	2429	2474	2484	2474	2429	2349
30	2230	2256	2360	2409	2434	2409	2360	2256	2230	2256	2360	2409	2434	2409	2360	2256
35	2108	2159	2259	2351	2388	2351	2259	2159	2108	2159	2259	2351	2388	2351	2259	2159
40	1964	2032	2159	2266	2306	2266	2159	2032	1964	2032	2159	2266	2306	2266	2159	2032
45	1806	1894	2057	2161	2185	2161	2057	1894	1806	1894	2057	2161	2185	2161	2057	1894
50	1632	1726	1919	2015	2040	2015	1919	1726	1632	1726	1919	2015	2040	2015	1919	1726
55	1447	1554	1751	1830	1853	1830	1751	1554	1447	1554	1751	1830	1853	1830	1751	1554
60	1241	1382	1537	1603	1629	1603	1537	1382	1241	1382	1537	1603	1629	1603	1537	1382
65	1017	1175	1298	1321	1225	1321	1298	1175	1017	1175	1298	1321	1225	1321	1298	1175
70	772	914	1013	799	775	799	1013	914	772	914	1013	799	775	799	1013	914
75	511	629	536	439	388	439	536	629	511	629	536	439	388	439	536	629
80	273	343	206	134	129	134	206	343	273	343	206	134	129	134	206	343
85	64	68	67	67	66	67	67	68	64	68	67	67	66	67	67	68
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	61.6	45-50	788.6	90-95	0.0	135-140	0.0
5-10	183.2	50-55	776.8	95-100	0.0	140-145	0.0
10-15	300.3	55-60	735.9	100-105	0.0	145-150	0.0
15-20	411.6	60-65	666.0	105-110	0.0	150-155	0.0
20-25	513.4	65-70	531.0	110-115	0.0	155-160	0.0
25-30	601.7	70-75	362.3	115-120	0.0	160-165	0.0
30-35	676.1	75-80	193.1	120-125	0.0	165-170	0.0
35-40	735.0	80-85	72.3	125-130	0.0	170-175	0.0
40-45	774.4	85-90	17.2	130-135	0.0	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	1.164	1.164	1.164	1.164	1.136	1.136	1.136	1.136	1.11	1.11	1.11	1.11
1	1.066	1.015	0.971	0.931	1.038	0.993	0.952	0.915	1.012	0.971	0.934	0.9
2	0.968	0.88	0.808	0.748	0.941	0.861	0.795	0.739	0.916	0.843	0.782	0.73
3	0.88	0.767	0.681	0.614	0.854	0.751	0.672	0.608	0.83	0.736	0.662	0.602
4	0.803	0.675	0.583	0.514	0.779	0.662	0.576	0.51	0.757	0.649	0.568	0.506
5	0.736	0.599	0.505	0.437	0.714	0.588	0.5	0.435	0.693	0.577	0.494	0.432
6	0.677	0.536	0.444	0.378	0.657	0.527	0.439	0.376	0.639	0.517	0.435	0.374
7	0.626	0.484	0.393	0.331	0.608	0.475	0.39	0.33	0.591	0.468	0.386	0.328
8	0.581	0.439	0.352	0.293	0.565	0.432	0.349	0.292	0.549	0.426	0.346	0.291
9	0.541	0.402	0.318	0.262	0.526	0.396	0.315	0.261	0.513	0.39	0.313	0.26
10	0.506	0.369	0.289	0.236	0.493	0.364	0.287	0.236	0.48	0.359	0.285	0.235

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	1.061	1.061	1.061	1.061	1.016	1.016	1.016	0.974	0.974	0.974	0.955
1	0.964	0.93	0.9	0.872	0.893	0.868	0.845	0.859	0.839	0.82	0.8
2	0.869	0.809	0.757	0.713	0.777	0.734	0.696	0.748	0.713	0.681	0.66
3	0.786	0.707	0.644	0.592	0.681	0.627	0.581	0.656	0.61	0.571	0.55
4	0.716	0.624	0.554	0.499	0.602	0.541	0.492	0.581	0.529	0.485	0.464
5	0.656	0.556	0.483	0.427	0.537	0.473	0.422	0.519	0.463	0.418	0.397
6	0.604	0.5	0.426	0.371	0.484	0.418	0.367	0.468	0.41	0.364	0.344
7	0.56	0.453	0.379	0.326	0.439	0.373	0.323	0.425	0.366	0.321	0.301
8	0.521	0.413	0.341	0.289	0.401	0.335	0.287	0.389	0.33	0.285	0.267
9	0.487	0.379	0.308	0.259	0.368	0.304	0.257	0.358	0.299	0.256	0.238
10	0.457	0.349	0.281	0.234	0.34	0.277	0.233	0.332	0.273	0.232	0.214

Average Luminance Table (cd/m²)

	0	45	90
0	5310	5310	5310
45	5250	5982	6354
55	5188	6276	6642
65	4948	6314	5958
75	4063	4260	3082
85	1513	1590	1559

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.

