



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: 17349 DATE: 11-30-2009
 PREPARED FOR: RENOVA LIGHTING SYSTEMS, INC.
 CATALOG NUMBER: ECS-EGI4-MN-132-UNV-11L
 LUMINAIRE: FORMED STEEL HOUSING, FORMED SPECULAR ALUMINUM REFLECTOR,
 NO ENCLOSURE.
 LAMP: ONE 32 WATT T8 LINEAR FLUORESCENT LAMP RATED AT 2850 LUMENS.
 LAMP CATALOG NUMBER: PHILIPS F32T8/TL841/ALTO
 BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE1X32T8/UNV-ISL-SC
 MOUNTING: SURFACE
 ELECTRICAL VALUES: 120.0VAC, 0.2196A, 26.28W

Candela Distribution

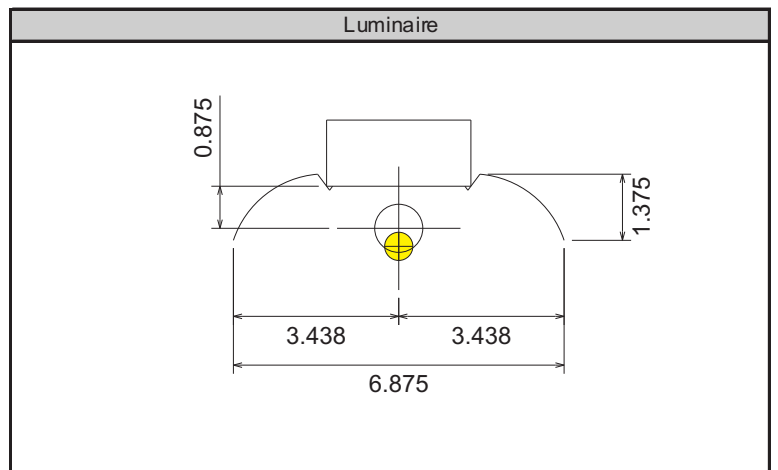
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	506	506	506	506	506	506	506	506	506	506	506	506	506	506	506	506	
5	498	516	542	578	596	578	542	516	498	516	542	578	596	578	542	516	55.7
15	478	617	790	875	899	875	790	617	478	617	790	875	899	875	790	617	210.4
25	443	715	872	867	868	867	872	715	443	715	872	867	868	867	872	715	357.4
35	388	737	763	773	777	773	763	737	388	737	763	773	777	773	763	737	447.4
45	320	638	652	681	693	681	652	638	320	638	652	681	693	681	652	638	478.7
55	250	500	551	588	604	588	551	500	250	500	551	588	604	588	551	500	459.9
65	158	354	420	449	459	449	420	354	158	354	420	449	459	449	420	354	377.8
75	78	222	265	313	331	313	265	222	78	222	265	313	331	313	265	222	266.4
85	14	97	137	157	165	157	137	97	14	97	137	157	165	157	137	97	128.4
90	0	24	39	51	58	51	39	24	0	24	39	51	58	51	39	24	
95	0	6	1	1	5	1	1	6	0	6	1	1	5	1	1	6	9.4
105	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0.3
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	623.5	21.9%	22.3%
0-40	1070.9	37.6%	38.4%
0-60	2009.6	70.5%	72.0%
0-90	2782.1	97.6%	99.7%
90-180	9.7	0.3%	0.3%
0-180	2791.8	98.0%	100.0%

Total luminaire efficiency: 98.0%

CIE Type: Direct
 Spacing Criterion: 0 deg: 1.23 90 deg: 1.97
 180 deg: 1.23 270 deg: 1.97



Approved By: _____

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	506	506	506	506	506	506	506	506	506	506	506	506	506	506	506	506
5	498	516	542	578	596	578	542	516	498	516	542	578	596	578	542	516
10	491	551	675	749	779	749	675	551	491	551	675	749	779	749	675	551
15	478	617	790	875	899	875	790	617	478	617	790	875	899	875	790	617
20	464	672	864	903	913	903	864	672	464	672	864	903	913	903	864	672
25	443	715	872	867	868	867	872	715	443	715	872	867	868	867	872	715
30	417	741	822	811	825	811	822	741	417	741	822	811	825	811	822	741
35	388	737	763	773	777	773	763	737	388	737	763	773	777	773	763	737
40	358	699	716	732	741	732	716	699	358	699	716	732	741	732	716	699
45	320	638	652	681	693	681	652	638	320	638	652	681	693	681	652	638
50	285	570	602	635	650	635	602	570	285	570	602	635	650	635	602	570
55	250	500	551	588	604	588	551	500	250	500	551	588	604	588	551	500
60	199	418	482	520	532	520	482	418	199	418	482	520	532	520	482	418
65	158	354	420	449	459	449	420	354	158	354	420	449	459	449	420	354
70	117	284	344	365	383	365	344	284	117	284	344	365	383	365	344	284
75	78	222	265	313	331	313	265	222	78	222	265	313	331	313	265	222
80	43	150	214	260	272	260	214	150	43	150	214	260	272	260	214	150
85	14	97	137	157	165	157	137	97	14	97	137	157	165	157	137	97
90	0	24	39	51	58	51	39	24	0	24	39	51	58	51	39	24
95	0	6	1	1	5	1	1	6	0	6	1	1	5	1	1	6
100	0	3	1	0	0	0	1	3	0	3	1	0	0	0	1	3
105	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1
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	12.5	45-50	238.9	90-95	8.6	135-140	0.0
5-10	43.2	50-55	236.7	95-100	0.7	140-145	0.0
10-15	83.4	55-60	223.2	100-105	0.3	145-150	0.0
15-20	127.0	60-65	202.2	105-110	0.0	150-155	0.0
20-25	164.0	65-70	175.5	110-115	0.0	155-160	0.0
25-30	193.4	70-75	146.5	115-120	0.0	160-165	0.0
30-35	216.3	75-80	119.8	120-125	0.0	165-170	0.0
35-40	231.1	80-85	86.5	125-130	0.0	170-175	0.0
40-45	239.8	85-90	41.9	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			
	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)												
0	1.194	1.194	1.194	1.194	1.165	1.165	1.165	1.165	1.138	1.138	1.138	1.138
1	1.076	1.017	0.963	0.916	1.047	0.992	0.944	0.9	1.019	0.969	0.925	0.885
2	0.972	0.873	0.792	0.724	0.943	0.853	0.778	0.715	0.916	0.833	0.765	0.706
3	0.881	0.758	0.664	0.589	0.854	0.741	0.653	0.583	0.828	0.725	0.643	0.578
4	0.803	0.665	0.566	0.491	0.778	0.651	0.558	0.487	0.754	0.637	0.55	0.483
5	0.735	0.589	0.489	0.416	0.712	0.577	0.483	0.414	0.69	0.566	0.477	0.411
6	0.676	0.527	0.428	0.359	0.655	0.517	0.424	0.357	0.635	0.507	0.419	0.355
7	0.625	0.475	0.379	0.313	0.606	0.466	0.375	0.312	0.588	0.458	0.371	0.31
8	0.579	0.43	0.339	0.276	0.562	0.423	0.336	0.275	0.546	0.416	0.332	0.274
9	0.539	0.393	0.305	0.246	0.524	0.387	0.302	0.246	0.509	0.38	0.3	0.245
10	0.504	0.361	0.277	0.221	0.49	0.355	0.274	0.221	0.477	0.35	0.272	0.22

Ceiling Cavity Reflectance	50				30			10			0
	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)											
0	1.087	1.087	1.087	1.087	1.04	1.04	1.04	0.996	0.996	0.996	0.976
1	0.967	0.926	0.889	0.856	0.887	0.856	0.828	0.85	0.826	0.803	0.781
2	0.865	0.797	0.739	0.689	0.764	0.715	0.672	0.733	0.692	0.656	0.633
3	0.78	0.694	0.624	0.567	0.666	0.606	0.556	0.639	0.589	0.546	0.522
4	0.71	0.611	0.535	0.476	0.587	0.521	0.468	0.565	0.508	0.461	0.438
5	0.65	0.544	0.466	0.406	0.524	0.455	0.401	0.504	0.444	0.396	0.374
6	0.599	0.488	0.41	0.351	0.471	0.401	0.348	0.455	0.392	0.344	0.322
7	0.555	0.442	0.364	0.308	0.427	0.357	0.305	0.413	0.35	0.302	0.282
8	0.516	0.402	0.326	0.272	0.389	0.32	0.27	0.377	0.315	0.268	0.248
9	0.482	0.369	0.295	0.243	0.357	0.29	0.241	0.347	0.285	0.24	0.221
10	0.453	0.34	0.268	0.219	0.33	0.264	0.217	0.321	0.26	0.216	0.198

Average Luminance Table (cd/m²)

	0	45	90
0	4669	4669	4669
45	14897	13460	6484
55	14329	138615	6670
65	12330	12214	6407
75	9972	10314	6572
85	5247	8458	5952

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.

