



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: 17224 DATE: 11-17-2009
 PREPARED FOR: RENOVA LIGHTING SYSTEMS
 CATALOG NUMBER: ECS-WBW4-MN-132-UNV-11L
 LUMINAIRE: FORMED WHITE ENAMEL STEEL HOUSING, FORMED SPECULAR ALUMINUM REFLECTOR, CLEAR PRISMATIC PLASTIC LENS WITH LINEAR PRISMATIC SIDES.
 LAMP: ONE 32 WATT T8 LINEAR FLUORESCENT LAMP RATED AT 2850 LUMENS.
 LAMP CATALOG NUMBER: PHILIPS F32T8/ADV841/ALTO II
 BALLAST: ONE SYLVANIA QHE 1X32T8/UNV/ISL-SC
 MOUNTING: SURFACE
 ELECTRICAL VALUES: 120.0VAC, 0.2112A, 25.28W

Candela Distribution

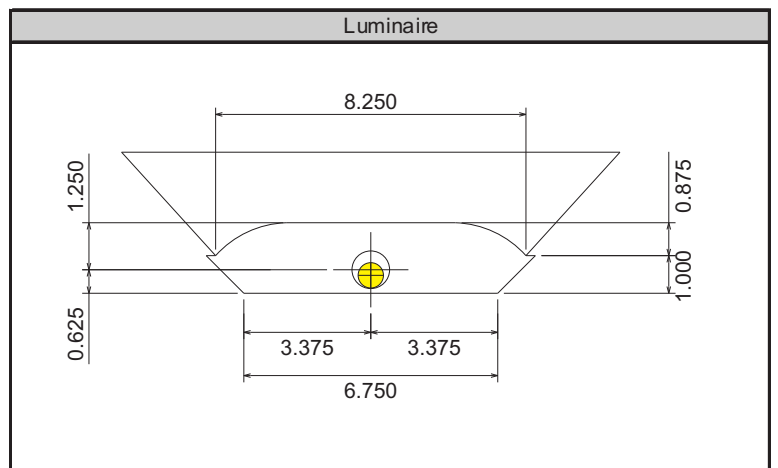
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	
5	623	623	629	631	633	631	629	623	623	623	629	631	633	631	629	623	60.4
15	610	626	671	711	727	711	671	626	610	626	671	711	727	711	671	626	190.7
25	584	637	736	797	820	797	736	637	584	637	736	797	820	797	736	637	331.3
35	542	629	731	773	770	773	731	629	542	629	731	773	770	773	731	629	434.6
45	471	544	635	639	643	639	635	544	471	544	635	639	643	639	635	544	455.5
55	308	372	455	475	483	475	455	372	308	372	455	475	483	475	455	372	380.6
65	158	219	288	324	338	324	288	219	158	219	288	324	338	324	288	219	269.0
75	88	117	165	226	251	226	165	117	88	117	165	226	251	226	165	117	179.5
85	29	48	98	144	156	144	98	48	29	48	98	144	156	144	98	48	104.1
90	1	22	70	100	108	100	70	22	1	22	70	100	108	100	70	22	
95	0	17	53	74	82	74	53	17	0	17	53	74	82	74	53	17	51.3
105	0	9	29	45	52	45	29	9	0	9	29	45	52	45	29	9	29.3
115	0	0	18	28	32	28	18	0	0	0	18	28	32	28	18	0	15.8
125	0	0	8	19	23	19	8	0	0	0	8	19	23	19	8	0	8.4
135	0	0	0	1	9	1	0	0	0	0	0	1	9	1	0	0	1.8
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	582.3	20.4%	23.2%
0-40	1016.9	35.7%	40.5%
0-60	1853.1	65.0%	73.8%
0-90	2405.7	84.4%	95.8%
90-180	106.7	3.7%	4.2%
0-180	2512.4	88.2%	100.0%

Total luminaire efficiency: 88.2%

CIE Type: Direct
 Spacing Criterion: 0 deg: 1.35 90 deg: 1.69
 180 deg: 1.35 270 deg: 1.69



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	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625
5	623	623	629	631	633	631	629	623	623	623	629	631	633	631	629	623
10	619	623	644	659	666	659	644	623	619	623	644	659	666	659	644	623
15	610	626	671	711	727	711	671	626	610	626	671	711	727	711	671	626
20	599	631	709	763	783	763	709	631	599	631	709	763	783	763	709	631
25	584	637	736	797	820	797	736	637	584	637	736	797	820	797	736	637
30	565	640	743	806	819	806	743	640	565	640	743	806	819	806	743	640
35	542	629	731	773	770	773	731	629	542	629	731	773	770	773	731	629
40	512	598	694	704	700	704	694	598	512	598	694	704	700	704	694	598
45	471	544	635	639	643	639	635	544	471	544	635	639	643	639	635	544
50	407	466	551	562	572	562	551	466	407	466	551	562	572	562	551	466
55	308	372	455	475	483	475	455	372	308	372	455	475	483	475	455	372
60	215	289	368	396	403	396	368	289	215	289	368	396	403	396	368	289
65	158	219	288	324	338	324	288	219	158	219	288	324	338	324	288	219
70	119	161	218	268	288	268	218	161	119	161	218	268	288	268	218	161
75	88	117	165	226	251	226	165	117	88	117	165	226	251	226	165	117
80	61	79	127	185	208	185	127	79	61	79	127	185	208	185	127	79
85	29	48	98	144	156	144	98	48	29	48	98	144	156	144	98	48
90	1	22	70	100	108	100	70	22	1	22	70	100	108	100	70	22
95	0	17	53	74	82	74	53	17	0	17	53	74	82	74	53	17
100	0	13	39	57	64	57	39	13	0	13	39	57	64	57	39	13
105	0	9	29	45	52	45	29	9	0	9	29	45	52	45	29	9
110	0	6	23	36	41	36	23	6	0	6	23	36	41	36	23	6
115	0	0	18	28	32	28	18	0	0	0	18	28	32	28	18	0
120	0	0	14	23	27	23	14	0	0	0	14	23	27	23	14	0
125	0	0	8	19	23	19	8	0	0	0	8	19	23	19	8	0
130	0	0	0	15	17	15	0	0	0	0	0	15	17	15	0	0
135	0	0	0	1	9	1	0	0	0	0	0	1	9	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	15.0	45-50	224.9	90-95	29.4	135-140	0.1
5-10	45.4	50-55	204.7	95-100	21.9	140-145	0.0
10-15	77.8	55-60	175.9	100-105	16.7	145-150	0.0
15-20	112.9	60-65	147.7	105-110	12.6	150-155	0.0
20-25	148.8	65-70	121.3	110-115	9.0	155-160	0.0
25-30	182.5	70-75	99.4	115-120	6.8	160-165	0.0
30-35	209.4	75-80	80.2	120-125	5.2	165-170	0.0
35-40	225.2	80-85	61.9	125-130	3.2	170-175	0.0
40-45	230.7	85-90	42.2	130-135	1.7	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	1.07	1.07	1.07	1.07	1.041	1.041	1.041	1.041	1.012	1.012	1.012	1.012
1	0.971	0.921	0.876	0.835	0.941	0.896	0.855	0.818	0.913	0.872	0.835	0.801
2	0.882	0.798	0.729	0.672	0.854	0.777	0.714	0.661	0.826	0.757	0.699	0.65
3	0.803	0.698	0.617	0.554	0.776	0.68	0.606	0.546	0.751	0.663	0.594	0.539
4	0.734	0.616	0.53	0.466	0.709	0.601	0.521	0.46	0.686	0.586	0.512	0.455
5	0.674	0.548	0.461	0.398	0.651	0.535	0.454	0.394	0.629	0.523	0.447	0.39
6	0.621	0.491	0.405	0.345	0.6	0.48	0.399	0.341	0.58	0.469	0.394	0.338
7	0.574	0.443	0.359	0.302	0.555	0.433	0.355	0.299	0.537	0.424	0.35	0.297
8	0.532	0.402	0.322	0.267	0.515	0.394	0.318	0.265	0.499	0.386	0.314	0.263
9	0.496	0.367	0.29	0.238	0.48	0.36	0.286	0.237	0.466	0.353	0.283	0.235
10	0.463	0.337	0.263	0.214	0.449	0.331	0.26	0.213	0.436	0.325	0.257	0.212

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	0.959	0.959	0.959	0.959	0.91	0.91	0.91	0.865	0.865	0.865	0.844
1	0.861	0.827	0.797	0.769	0.786	0.761	0.738	0.748	0.728	0.71	0.688
2	0.776	0.719	0.671	0.629	0.685	0.644	0.609	0.653	0.62	0.59	0.568
3	0.704	0.631	0.573	0.525	0.602	0.552	0.511	0.574	0.533	0.497	0.476
4	0.643	0.559	0.495	0.445	0.534	0.479	0.434	0.511	0.463	0.425	0.404
5	0.59	0.5	0.433	0.382	0.478	0.42	0.374	0.458	0.407	0.367	0.347
6	0.544	0.449	0.382	0.332	0.431	0.372	0.326	0.414	0.361	0.321	0.301
7	0.504	0.407	0.341	0.292	0.391	0.332	0.287	0.376	0.323	0.283	0.264
8	0.469	0.371	0.306	0.259	0.357	0.298	0.255	0.344	0.291	0.251	0.234
9	0.439	0.34	0.276	0.232	0.328	0.27	0.229	0.316	0.264	0.225	0.209
10	0.411	0.314	0.252	0.209	0.303	0.246	0.206	0.293	0.241	0.203	0.187

Average Luminance Table (cd/m²)

	0	45	90
0	2523	2523	2523
45	2691	3514	3408
55	2171	2969	2969
65	1506	2376	2568
75	1369	1926	2599
85	1352	2076	2664

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.

