

# itl boulder

THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

INDEPENDENT TESTING LABORATORIES, INC.

3386 LONGHORN ROAD, BOULDER, CO 80302 USA

PHONE: (303)442-1255 • FAX: (303)449-5274 • E-MAIL: [itl@itlboulder.com](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL59484

DATE: 12/03/07

PREPARED FOR: BOYD LIGHTING CO.

CATALOG NUMBER: C10192FL

LUMINAIRE: FABRICATED BLACK PAINTED METAL FRAME, FOUR FABRICATED BLACK PAINTED METAL MOUNTING RODS AND MOUNTING PLATE, FABRICATED WHITE PAINTED METAL SOCKET MOUNTING ASSEMBLY/BALLAST HOUSING, FABRICATED WHITE PAINTED PERFORATED METAL TOP DIFFUSER/CAP IN SPUN BLACK PAINTED METAL RING, TRANSLUCENT WHITE ACRYLIC SPHERICAL DIFFUSER.

LAMPS: TWO 42-WATT TRIPLE TWIN TUBE COMPACT FLUORESCENTS, SYLVANIA CF42DT/E/IN/, VERTICAL BASE-UP POSITION.

BALLAST: ADVANCE REZ-2T42-M3-LD

MOUNTING: SUSPENDED

TOTAL INPUT WATTS= 85.0 AT 120.0 VOLTS

REPORT IS BASED ON 3200 LUMENS PER LAMP. \*

## CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0	FLUX
0	446	446	446	446	446	
5	445	445	444	445	445	42
15	441	441	440	441	442	125
25	435	434	433	436	437	201
35	424	423	423	426	429	267
45	422	420	421	424	429	327
55	425	420	422	427	435	381
65	432	424	423	432	444	426
75	441	430	426	439	456	461
85	442	432	424	443	458	477
90	438	431	420	442	455	
95	436	428	417	440	455	471
105	427	415	407	426	444	445
115	411	397	393	406	426	401
125	389	380	379	388	401	346
135	373	367	367	372	382	287
145	363	356	358	359	369	225
155	336	333	335	334	338	155
165	309	307	307	306	307	88
175	316	316	315	316	317	30
180	318	318	318	318	318	

## ZONAL LUMEN SUMMARY

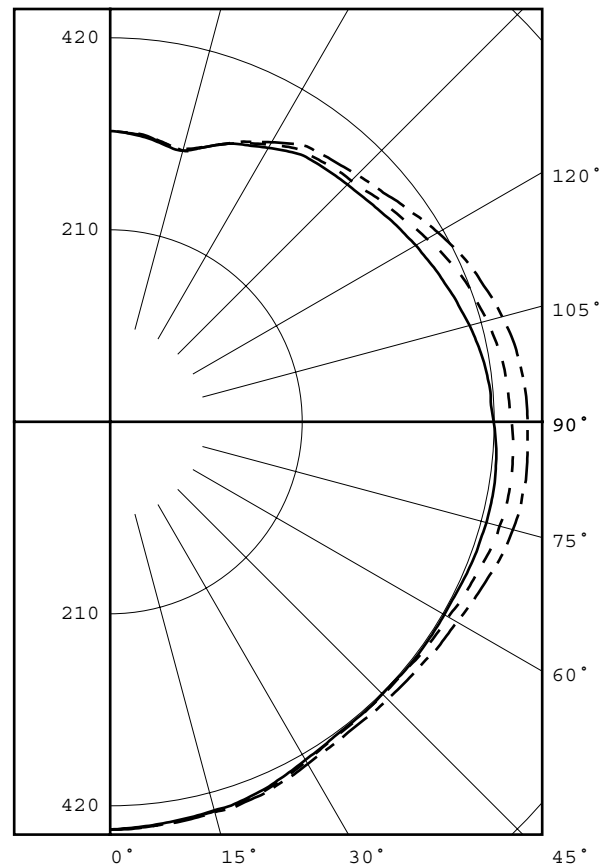
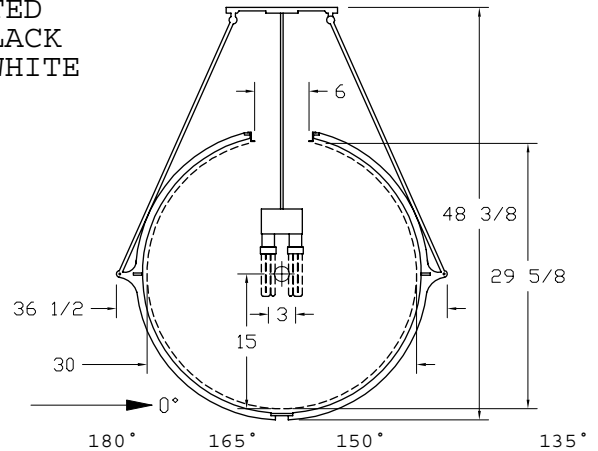
ZONE	LUMENS	%LAMP	%FIXT
0- 30	369	5.8	7.2
0- 40	636	9.9	12.3
0- 60	1344	21.0	26.1
0- 90	2708	42.3	52.5
90-120	1317	20.6	25.5
90-130	1662	26.0	32.2
90-150	2175	34.0	42.2
90-180	2448	38.2	47.5
0-180	5156	80.6	100.0

TOTAL LUMINAIRE EFFICIENCY = 80.6 % \*

CIE TYPE - DIRECT-INDIRECT

PLANE : 0-DEG 90-DEG

SPACING CRITERIA : 1.5 1.5



LEGEND:

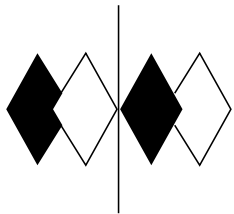
0-deg: - - - - -  
45-deg: - - - - -  
90-deg: - - - - -

Checked N. WHITE

Approved R. BEATTIE

\* SEE ADDENDUM FOR FURTHER INFORMATION

THIS REPORT IS BASED ON PUBLISHED INDUSTRY PROCEDURES. FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE.



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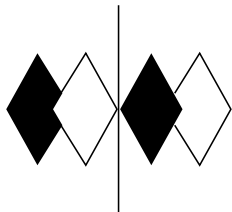
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LUMINANCE DATA IN CANDELA/SQ M				
ANGLE	AVERAGE	AVERAGE	AVERAGE	
IN DEG	0-DEG	45-DEG	90-DEG	
45	925.	923.	941.	
55	932.	925.	954.	
65	947.	928.	974.	
75	967.	934.	1000.	
85	969.	930.	1004.	



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	0.0	22.5	45.0	67.5	90.0
0.0	446	446	446	446	446
5.0	445	445	444	445	445
10.0	443	443	442	443	444
15.0	441	441	440	441	442
20.0	440	439	438	440	441
25.0	435	434	433	436	437
30.0	429	429	427	430	432
35.0	424	423	423	426	429
40.0	423	421	422	425	428
45.0	422	420	421	424	429
50.0	422	420	422	424	431
55.0	425	420	422	427	435
60.0	427	422	422	429	438
65.0	432	424	423	432	444
70.0	437	427	425	436	451
75.0	441	430	426	439	456
80.0	443	432	426	442	458
85.0	442	432	424	443	458
90.0	438	431	420	442	455
95.0	436	428	417	440	455
100.0	433	422	413	434	451
105.0	427	415	407	426	444
110.0	420	406	400	416	435
115.0	411	397	393	406	426
120.0	400	389	386	397	414
125.0	389	380	379	388	401
130.0	381	373	372	378	390
135.0	373	367	367	372	382
140.0	368	362	363	366	375
145.0	363	356	358	359	369
150.0	350	346	346	347	353
155.0	336	333	335	334	338
160.0	321	317	321	317	321
165.0	309	307	307	306	307
170.0	312	312	310	311	311
175.0	316	316	315	316	317
180.0	318	318	318	318	318

ZONAL LUMEN SUMMARY

0- 5	11.
5- 10	32.
10- 15	52.
15- 20	73.
20- 25	92.
25- 30	109.
30- 35	126.
35- 40	141.
40- 45	157.
45- 50	171.
50- 55	184.
55- 60	197.
60- 65	208.
65- 70	218.
70- 75	227.
75- 80	234.
80- 85	238.
85- 90	239.
90- 95	237.
95-100	234.
100-105	227.
105-110	218.
110-115	207.
115-120	194.
120-125	180.
125-130	166.
130-135	151.
135-140	136.
140-145	121.
145-150	104.
150-155	86.
155-160	69.
160-165	51.
165-170	37.
170-175	22.
175-180	8.



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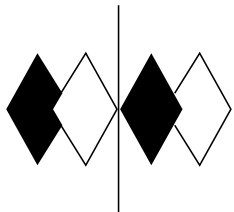
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	87	87	87	87	80	80	80	80	68	68	68	57	57	57	47	47	47	42
1	76	71	66	62	69	65	61	57	54	51	49	45	42	40	36	34	33	28
2	68	60	53	48	62	55	49	44	46	41	38	37	34	31	30	27	25	21
3	61	51	44	38	55	47	41	36	39	34	30	32	28	25	25	22	20	16
4	55	45	37	32	50	41	35	29	34	29	25	28	24	21	22	19	16	13
5	50	40	32	27	46	36	30	25	30	25	21	25	21	17	20	16	14	11
6	46	35	28	23	42	32	26	21	27	22	18	22	18	15	18	14	12	9
7	43	32	25	20	39	29	23	18	24	19	15	20	16	13	16	13	10	8
8	39	29	22	17	36	26	20	16	22	17	14	18	14	11	15	11	9	7
9	37	26	19	15	34	24	18	14	20	15	12	17	13	10	13	10	8	6
10	34	24	18	13	31	22	16	12	19	14	11	15	12	9	12	9	7	5

ALL CANDELA, LUMENS, LUMINANCE, COEFFICIENT OF UTILIZATION AND VCP VALUES IN THIS REPORT ARE BASED ON RELATIVE PHOTOMETRY WHICH ASSUMES A BALLAST FACTOR OF 1.000. ANY CALCULATIONS PREPARED FROM THESE DATA SHOULD INCLUDE AN APPROPRIATE BALLAST FACTOR.



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#### ADDENDUM

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#### Explanation of the Importance of Ballast Factor

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This test was performed using standard relative photometric practices in accordance with recommendations of the Illuminating Engineering Society of North America. Fluorescent testing using the guidelines of relative photometric practice presupposes that the lamps will be operated at their nominal electrical characteristics (e.g., a 40 watt lamp will operate very nearly at 40 watts, and at the voltage and current required for 40-watt operation). When suspended in 25 degree C free air (i.e., not in the luminaire) and operated at these nominal electrical characteristics, the lamps will operate at or very near the optimum point of the flux vs. bulb wall temperature curve. A critical step in relative photometric testing involves measurement of the total flux output from the lamp(s) suspended in free air at 25 degree C ambient temperature. This measurement process is a separate step from the photometric exploration of the luminaire itself. This "bare lamp" measurement is made with the lamp(s) operated by the same ballast(s) which are to be used in the luminaire.

When the lamps are not operated at the nominal electrical characteristics, their flux output may be lower than otherwise expected. As a result, the measurement of the "bare lamp" total flux output is lower than it would be if they were operated at the nominal electrical characteristics. When this "bare lamp" measurement is incorporated into the luminaire test report, the net effect is that the candela values on the luminaire test report are higher than what the luminaire actually produced.

On this particular test, the ballast-lamp combination involved produced significantly less than rated lumens. Since the bare lamp lumen output is low, the suspicion is strong that the lamps are not operated near their specified characteristics.

BOTTOM LINE: It is essential that any calculations involving the data shown in this report use an appropriate ballast factor and, if necessary, an appropriate ballast-lamp photometric factor.

BF.DIS