

# 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 • WEBSITE: www.itlboulder.com  
DATE: 04/20/06

REPORT NUMBER: ITL57394  
PREPARED FOR: OXYGEN LIGHTING

CATALOG NUMBER: 2-6110-24, 2-6142-24, 2-6142-24-EM

LUMINAIRE: FORMED METAL HOUSING WITH WHITE PAINTED INTERIOR FINISH, TRANSLUCENT WHITE ACRYLIC DIFFUSER WITH TWO FABRICATED SEMI-SPECULAR METAL DIFFUSER MOUNTING RINGS AND THREE VERTICAL SUPPORT RODS. BALLAST IS EXPOSED AND CENTERED.

LAMP: ONE 22-WATT T-9 CIRCULAR FLUORESCENT, SATCO FC8T9/WW, RATED 1050 LUMENS, HORIZONTAL POSITION. ONE 32-WATT T-9 CIRCULAR FLUORESCENT, SATCO FC12T9/WW, RATED 1950 LUMENS, HORIZONTAL POSITION.

BALLAST: FULHAM WH3-120-C

MOUNTING: SURFACE

TOTAL REFLECTANCE OF PAINT= 81.2 %

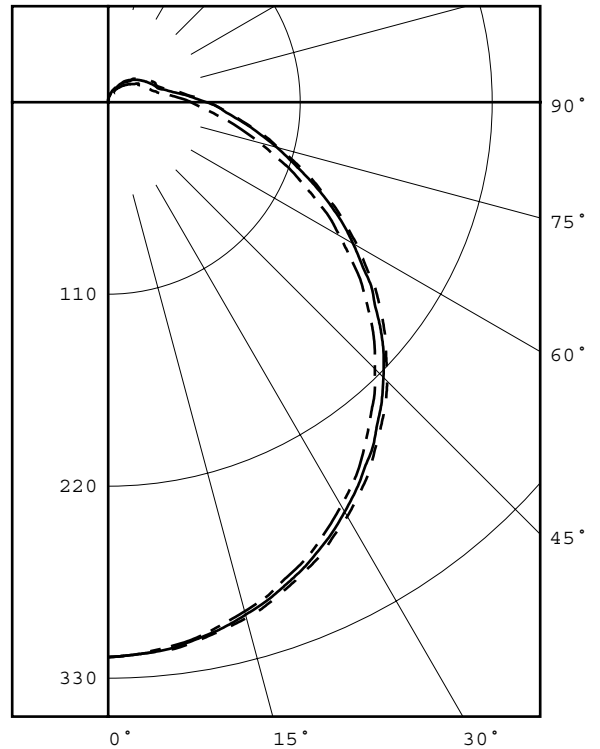
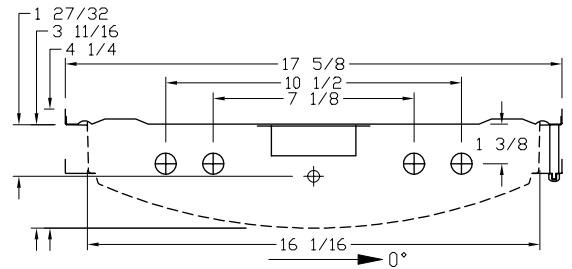
TOTAL INPUT WATTS= 29.5 AT 120.0 VOLTS

REPORT IS BASED ON 3000 TOTAL LAMP LUMENS. \*

### CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0
0	318	318	318	318	318
5	316	316	316	315	315
15	306	305	304	303	302
25	287	286	284	282	281
35	260	259	256	254	252
45	226	225	223	218	216
55	187	186	184	179	176
65	144	143	141	135	131
75	101	101	100	93	90
85	69	69	68	62	58
90	57	58	56	51	47
95	46	47	45	41	38
105	32	32	30	28	26
115	28	27	26	24	22
125	23	23	22	20	18
135	18	18	17	16	14
145	13	13	13	11	10
155	9	9	9	8	7
165	5	5	5	5	4
175	3	2	2	2	2
180	0	0	0	0	0

### FLUX



LEGEND:  
0-deg: - - - - -  
90-deg: = = = = =  
180-deg: - . - . - .

### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 30	248	8.3	20.4
0- 40	409	13.6	33.7
0- 60	746	24.9	61.5
0- 90	1064	35.5	87.7
90-120	104	3.5	8.6
90-130	123	4.1	10.1
90-150	143	4.8	11.8
90-180	149	5.0	12.3
0-180	1213	40.4	100.0

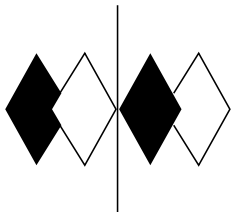
TOTAL LUMINAIRE EFFICIENCY = 40.4 % \*

CIE TYPE - SEMI-DIRECT

PLANE : 0-DEG 90-DEG 180-DEG  
SPACING CRITERIA : 1.3 1.3 1.3

Checked ..... *B.HYRE* .....  
Approved ..... *R.BEATTIE* .....

\* SEE ADDENDUM FOR FURTHER INFORMATION



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CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
0.0	318	318	318	318	318	318	318	318	318
5.0	316	317	316	317	316	316	315	316	315
10.0	312	313	312	312	311	312	310	311	310
15.0	306	307	305	306	304	305	303	304	302
20.0	297	299	296	298	295	296	293	295	292
25.0	287	288	286	287	284	285	282	283	281
30.0	274	276	273	274	271	272	269	270	267
35.0	260	262	259	260	256	258	254	255	252
40.0	243	246	243	244	240	242	237	238	234
45.0	226	229	225	227	223	224	218	220	216
50.0	207	210	207	208	204	205	199	201	197
55.0	187	190	186	188	184	185	179	180	176
60.0	165	169	165	167	162	163	157	159	153
65.0	144	147	143	145	141	142	135	136	131
70.0	122	125	121	124	119	120	112	115	110
75.0	101	105	101	104	100	100	93	95	90
80.0	84	87	84	86	83	83	77	77	73
85.0	69	72	69	71	68	68	62	62	58
90.0	57	57	58	58	56	54	51	49	47
95.0	46	44	47	44	45	40	41	38	38
100.0	38	36	38	36	36	32	33	30	30
105.0	32	31	32	31	30	28	28	26	26
110.0	29	28	29	29	28	26	26	24	24
115.0	28	27	27	27	26	24	24	22	22
120.0	26	25	25	25	24	22	22	21	20
125.0	23	22	23	23	22	20	20	19	18
130.0	21	20	20	20	20	18	18	16	16
135.0	18	17	18	18	17	16	16	14	14
140.0	16	15	16	15	15	14	14	12	12
145.0	13	12	13	13	13	11	11	10	10
150.0	11	10	10	10	10	9	9	8	8
155.0	9	8	9	8	9	8	8	7	7
160.0	7	6	7	6	7	6	6	5	5
165.0	5	5	5	5	5	5	5	4	4
170.0	4	3	4	3	4	3	3	3	3
175.0	3	2	2	2	2	2	2	2	2
180.0	0	0	0	0	0	0	0	0	0



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#### ZONAL LUMEN SUMMARY

0- 5	8.
5- 10	22.
10- 15	37.
15- 20	50.
20- 25	61.
25- 30	70.
30- 35	78.
35- 40	83.
40- 45	86.
45- 50	87.
50- 55	84.
55- 60	80.
60- 65	74.
65- 70	66.
70- 75	57.
75- 80	48.
80- 85	40.
85- 90	33.
90- 95	26.
95-100	21.
100-105	17.
105-110	15.
110-115	13.
115-120	12.
120-125	10.
125-130	9.
130-135	7.
135-140	6.
140-145	4.
145-150	3.
150-155	2.
155-160	2.
160-165	1.
165-170	0.
170-175	0.
175-180	0.



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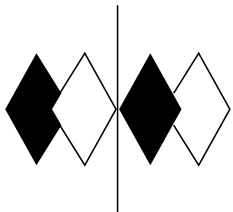
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	47	47	47	47	45	45	45	45	42	42	42	39	39	39	37	37	37	35	
1	42	40	38	36	40	38	36	35	36	34	33	33	32	31	31	30	29	28	
2	38	34	31	28	36	33	30	28	31	28	26	29	27	25	27	25	24	23	
3	34	30	26	23	33	29	25	23	27	24	22	25	23	21	23	21	20	19	
4	31	26	22	20	30	25	22	19	24	21	18	22	20	18	21	19	17	16	
5	29	23	19	17	27	23	19	16	21	18	16	20	17	15	18	16	14	13	
6	26	21	17	14	25	20	17	14	19	16	14	18	15	13	17	14	13	12	
7	24	19	15	13	23	18	15	12	17	14	12	16	14	12	15	13	11	10	
8	23	17	14	11	22	17	13	11	16	13	11	15	12	10	14	12	10	9	
9	21	16	12	10	20	15	12	10	14	12	10	14	11	9	13	11	9	8	
10	20	14	11	9	19	14	11	9	13	11	9	13	10	8	12	10	8	7	

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