



# itl boulder

THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

INDEPENDENT TESTING LABORATORIES, INC.  
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303) 442-1255 • FAX: (970) 535-3114 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

REPORT NUMBER: ITL77178

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ISSUE DATE: 05/28/13

PREPARED FOR: OXYGEN LIGHTING

CATALOG NUMBER: 2-5137-24

LUMINAIRE: FABRICATED SEMI-SPECULAR METAL HOUSING WITH GRAY PAINTED GENERAL INTERIOR FINISH, FABRICATED WHITE PAINTED METAL REFLECTOR AND SOCKET MOUNTING BRACKETS, FLAT WHITE PAINTED METAL REFLECTOR INSERT AT TOP FRONT OF HOUSING APERTURE, TRANSLUCENT WHITE ACRYLIC DIFFUSER. BALLAST IS EXPOSED AND CENTERED IN THE OPTICAL COMPARTMENT.

LAMP: ONE 24-WATT T-5 SYLVANIA FP24/841/HO LINEAR FLUORESCENT.

BALLAST: ANTRON ELECTRONICS ESD-A24T5S

THE 0 DEGREE PLANE IS PERPENDICULAR TO THE LAMP.

MOUNTING: WALL

TOTAL INPUT WATTS = 25.8 AT 120.0 VOLTS

NOTE: ACRYLIC MATERIAL INFORMATION PROVIDED BY CLIENT.

REPORT IS BASED ON 1750 LUMENS PER LAMP. \*

### CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0	FLUX
0	116	116	116	116	116	11
5	128	123	115	106	104	32
15	150	138	111	88	80	50
25	168	148	103	69	59	63
35	181	153	91	51	41	71
45	188	152	76	34	25	73
55	188	147	59	19	12	69
65	182	137	41	7	3	61
75	171	122	22	0	0	51
85	153	103	3	0	0	49
90	143	94	0	0	0	56
95	141	92	7	3	2	62
105	134	90	23	20	18	65
115	128	91	40	37	36	64
125	122	93	56	54	52	57
135	117	96	71	69	68	45
145	114	100	84	83	81	29
155	111	103	95	93	92	10
165	109	105	102	101	100	
175	107	106	106	105	105	
180	106	106	106	106	106	

### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 30	93	5.3	10.1
0- 40	156	8.9	17.0
0- 60	300	17.2	32.7
0- 90	482	27.6	52.5
90-120	166	9.5	18.1
90-130	231	13.2	25.1
90-150	352	20.1	38.3
90-180	436	24.9	47.5
0-180	918	52.5	100.0

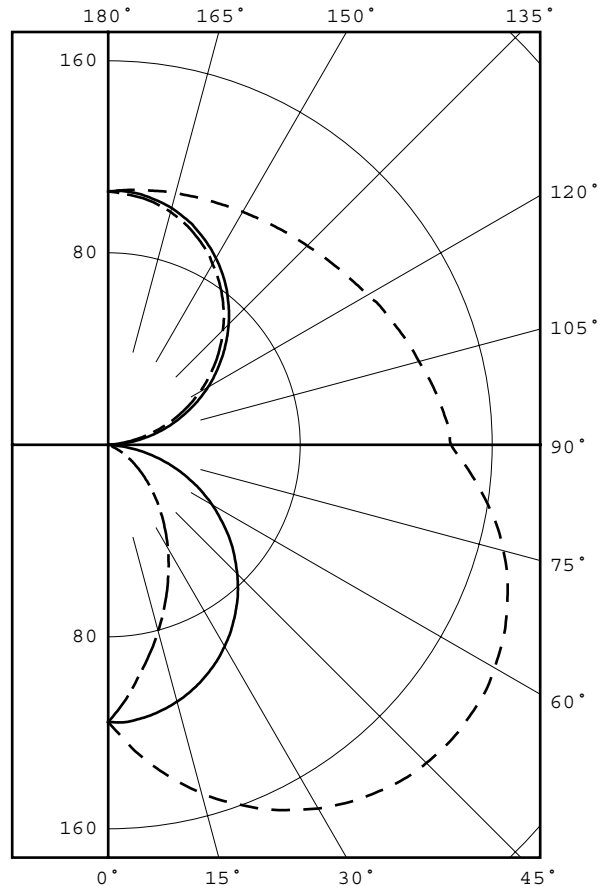
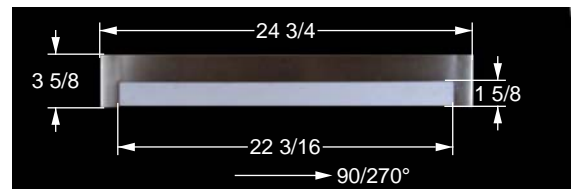
TOTAL LUMINAIRE EFFICIENCY = 52.5 % \*

CIE TYPE - GENERAL DIFFUSE

PLANE : 0-DEG 90-DEG 180-DEG

SPACING CRITERIA : 2.19 1.25 0.73

SHIELDING ANGLES : 90 90



LEGEND:  
0-deg -----  
90-deg -----  
180-deg -----

Checked B. HYRE  
Approved R. BEATTIE  
Lighting Engineer

\* SEE ADDENDUM FOR FURTHER INFORMATION

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



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## CANDELA DISTRIBUTION LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
0.0	116	116	116	116	116	116	116	116	116
5.0	128	127	123	120	115	111	106	104	104
10.0	140	138	132	123	114	104	97	93	92
15.0	150	147	138	125	111	98	88	83	80
20.0	160	155	143	126	107	90	79	72	70
25.0	168	162	148	127	103	83	69	62	59
30.0	175	168	151	125	97	74	60	52	50
35.0	181	173	153	123	91	66	51	43	41
40.0	185	176	153	120	84	57	42	35	32
45.0	188	178	152	115	76	48	34	27	25
50.0	189	178	150	110	68	40	26	20	18
55.0	188	177	147	104	59	31	19	14	12
60.0	186	174	143	97	50	23	13	9	7
65.0	182	170	137	90	41	16	7	4	3
70.0	177	165	130	82	31	9	3	1	0
75.0	171	158	122	73	22	4	0	0	0
80.0	162	149	113	64	12	0	0	0	0
85.0	153	140	103	54	3	0	0	0	0
90.0	143	130	94	44	0	0	0	0	0
95.0	141	128	92	44	7	5	3	2	2
100.0	138	124	91	46	14	13	12	11	10
105.0	134	122	90	49	23	22	20	19	18
110.0	131	120	90	53	31	30	29	28	27
115.0	128	117	91	58	40	39	37	36	36
120.0	125	116	92	63	48	47	45	45	44
125.0	122	114	93	69	56	55	54	53	52
130.0	120	113	95	74	64	63	62	61	60
135.0	117	111	96	80	71	70	69	68	68
140.0	115	111	98	85	78	77	76	75	75
145.0	114	110	100	89	84	83	83	82	81
150.0	112	109	102	94	90	89	88	88	87
155.0	111	109	103	97	95	94	93	93	92
160.0	110	108	104	101	99	98	98	97	97
165.0	109	108	105	103	102	102	101	101	100
170.0	108	107	106	105	104	104	104	103	103
175.0	107	106	106	106	106	105	105	105	105
180.0	106	106	106	106	106	106	106	106	106



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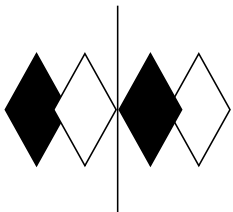
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5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	3
5- 10	8
10- 15	13
15- 20	18
20- 25	23
25- 30	27
30- 35	30
35- 40	33
40- 45	35
45- 50	36
50- 55	37
55- 60	36
60- 65	35
65- 70	34
70- 75	32
75- 80	30
80- 85	27
85- 90	24
90- 95	24
95-100	25
100-105	27
105-110	29
110-115	30
115-120	32
120-125	32
125-130	33
130-135	32
135-140	31
140-145	30
145-150	27
150-155	24
155-160	21
160-165	17
165-170	12
170-175	8
175-180	3

10-DEGREE  
ZONAL LUMEN SUMMARY

0- 10	11
0- 20	43
0- 30	93
0- 40	156
0- 50	228
0- 60	300
0- 70	370
0- 80	431
0- 90	482
0-100	531
0-110	586
0-120	648
0-130	713
0-140	777
0-150	834
0-160	879
0-170	908
0-180	918



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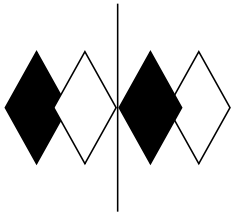
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	57	57	57	57	52	52	52	52	44	44	44	37	37	37	31	31	31	28	
1	50	47	45	43	46	44	42	39	37	35	34	31	29	28	25	24	23	20	
2	45	41	37	34	41	38	34	31	32	29	27	26	24	23	21	20	19	16	
3	41	35	31	27	38	33	29	26	27	24	22	23	20	19	18	17	15	13	
4	37	31	26	23	34	29	25	21	24	21	18	20	18	16	16	14	13	11	
5	34	27	23	19	31	25	21	18	21	18	16	18	15	13	14	12	11	9	
6	31	24	20	17	29	23	19	16	19	16	13	16	13	11	13	11	9	8	
7	29	22	18	14	27	20	16	14	17	14	12	15	12	10	12	10	8	7	
8	27	20	16	13	25	18	15	12	16	13	10	13	11	9	11	9	7	6	
9	25	18	14	11	23	17	13	11	14	11	9	12	10	8	10	8	7	5	
10	23	17	13	10	21	15	12	9	13	10	8	11	9	7	9	7	6	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.

NOTE: THE ZONAL CAVITY CALCULATION TECHNIQUE IS ACCURATE WHEN LUMINAIRES WITH SYMMETRIC CANDELA DISTRIBUTIONS ARE EMPLOYED AND WHEN THE LUMINAIRES ARE LOCATED SYMMETRICALLY THROUGHOUT THE ROOM. THIS UNIT HAS SPECIAL CHARACTERISTICS AND THEREFORE THESE COEFFICIENTS SHOULD BE USED WITH CAUTION.



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ADDENDUM

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SPECIAL TEST PROCEDURES FOR T-5 LAMPS INCLUDING EXPLANATION OF THE IMPORTANCE OF LAMP LUMEN RATINGS.

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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). Fluorescent lamps in general are temperature sensitive, the lumen output varies with ambient temperature and follows a characteristic curve. The T-5 fluorescent lamps used in this test produce maximum light output in an ambient temperature other than 25 degrees C. A critical step in relative photometric testing involves measurement of the total flux output from the lamp(s) suspended in free air at a 25 degree C ambient temperature per IES LM41-1998. 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. Since the test procedure involves measuring the bare lamp flux output at 25 degrees C and this lamp type peaks at a temperature other than 25 degrees C, the flux measured for this lamp type will be less than the maximum output the lamp is designed to produce.

As a result, the measurement of the "bare lamp" total flux output is lower than it would be if the lamps were operated at their optimum operating temperature and at nominal electrical characteristics. When this "bare lamp" measurement is incorporated into the luminaire test report, the net effect is that total luminaire efficiency on the report is higher than what the lighting industry would expect this luminaire to produce. These lighting industry expectations are based on comparisons to the total luminaire efficiency of the same luminaire with T-12 or T-8 lamps.

On this particular test, the lamp lumen rating shown is for a 25 degree C ambient temperature. Since this report was based on the lamp lumen rating at 25 degrees C, the candela values in this report should be accurate, as long as the lamp(s) used for this test follow the manufacturer's light output vs. temperature curve.

T5TEMP3.DIS