



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: ITL77174
ISSUE DATE: 06/05/13
PREPARED FOR: OXYGEN LIGHTING
CATALOG NUMBER: 2-5104-24

PAGE: 1 OF 5

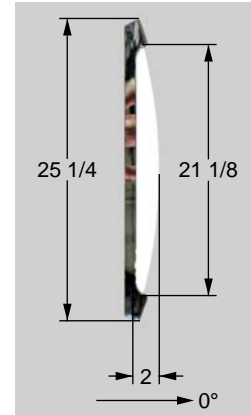
LUMINAIRE: FABRICATED SPECULAR METAL HOUSING, FORMED WHITE PAINTED METAL REFLECTOR, TRANSLUCENT WHITE ACRYLIC DIFFUSER. BALLAST IS EXPOSED AND CENTERED IN THE OPTICAL COMPARTMENT.

LAMPS: TWO 14-WATT T-5 SYLVANIA FP14/841/ECO LINEAR FLUORESCENTS.

BALLAST: ANTRON ELECTRONICS ESD-A21T5S
THE 0 DEGREE PLANE IS PERPENDICULAR TO THE LAMPS.
TOTAL REFLECTANCE OF PAINT = 78.7 %

MOUNTING: WALL
TOTAL INPUT WATTS = 30.5 AT 120.0 VOLTS
NOTE: ACRYLIC MATERIAL INFORMATION PROVIDED BY CLIENT.

REPORT IS BASED ON 1200 LUMENS PER LAMP. *

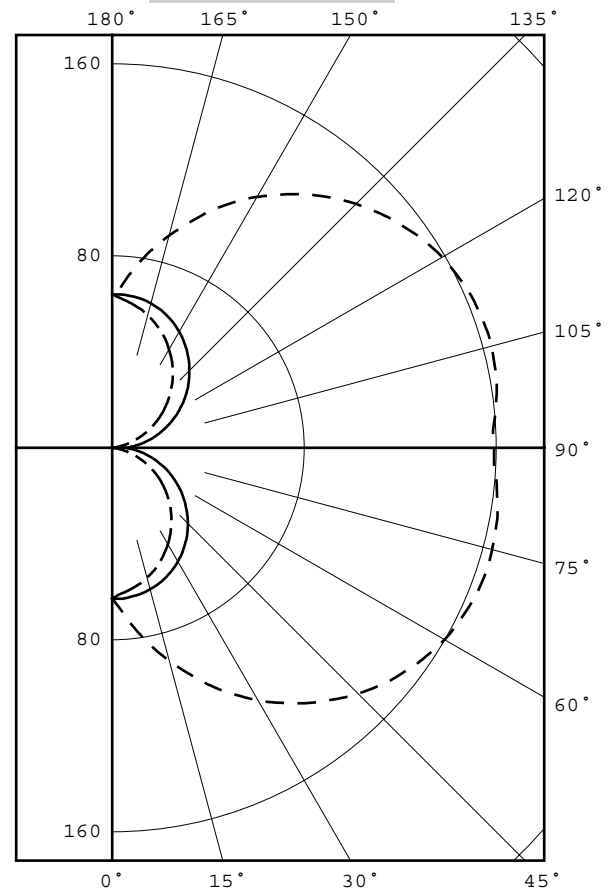


CANDELA DISTRIBUTION						FLUX
	0.0	45.0	90.0	135.0	180.0	
0	63	63	63	63	63	6
5	72	68	63	61	60	19
15	92	81	61	57	56	33
25	112	93	57	51	50	45
35	130	103	52	44	43	54
45	145	110	45	36	34	60
55	156	115	36	27	25	62
65	162	116	27	17	16	60
75	164	114	18	8	7	55
85	161	108	9	0	0	55
90	159	107	6	0	0	55
95	160	108	10	1	0	60
105	164	114	19	8	7	63
115	162	116	28	18	16	61
125	155	114	37	27	26	55
135	144	110	45	37	35	45
145	129	103	53	45	44	33
155	112	93	59	53	51	20
165	92	82	62	58	57	6
175	71	69	64	62	62	
180	64	64	64	64	64	

ZONAL ZONE	LUMEN LUMENS	%LAMP	%FIXT
0- 30	58	2.4	7.4
0- 40	103	4.3	13.0
0- 60	218	9.1	27.5
0- 90	395	16.5	49.9
90-120	178	7.4	22.5
90-130	239	9.9	30.1
90-150	338	14.1	42.7
90-180	397	16.6	50.1
0-180	793	33.0	100.0

TOTAL LUMINAIRE EFFICIENCY = 33.0 % *

CIE TYPE - GENERAL DIFFUSE PLANE : 0-DEG 90-DEG 180-DEG
SPACING CRITERIA : 2.76 1.29 1.11
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.



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: ITL77174

PAGE: 2 OF 5

ISSUE DATE: 06/05/13

PREPARED FOR: OXYGEN LIGHTING

CANDELA DISTRIBUTION LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
0.0	63	63	63	63	63	63	63	63	63
5.0	72	71	68	65	63	61	61	61	60
10.0	82	80	75	68	62	60	59	59	58
15.0	92	89	81	71	61	58	57	56	56
20.0	102	98	87	73	60	56	54	54	53
25.0	112	107	93	74	57	53	51	50	50
30.0	122	115	98	75	55	49	48	47	46
35.0	130	123	103	76	52	46	44	43	43
40.0	138	129	107	76	48	42	40	39	38
45.0	145	136	110	75	45	38	36	35	34
50.0	151	141	113	74	41	33	31	30	30
55.0	156	145	115	72	36	28	27	26	25
60.0	160	148	116	71	32	24	22	21	20
65.0	162	150	116	68	27	19	17	16	16
70.0	164	151	115	66	23	14	13	12	11
75.0	164	150	114	62	18	10	8	7	7
80.0	163	149	111	59	14	6	4	3	3
85.0	161	146	108	55	9	2	0	0	0
90.0	159	144	107	52	6	0	0	0	0
95.0	160	147	108	55	10	2	1	0	0
100.0	163	149	111	59	14	6	4	3	3
105.0	164	150	114	63	19	10	8	7	7
110.0	163	151	115	66	23	15	13	12	11
115.0	162	149	116	69	28	20	18	17	16
120.0	159	147	115	71	33	25	23	21	21
125.0	155	144	114	73	37	29	27	26	26
130.0	150	140	113	75	42	34	32	31	30
135.0	144	135	110	76	45	38	37	35	35
140.0	137	129	107	76	49	43	41	40	39
145.0	129	122	103	76	53	47	45	44	44
150.0	121	115	98	76	56	51	49	48	47
155.0	112	107	93	75	59	54	53	51	51
160.0	101	98	88	73	61	57	56	55	54
165.0	92	89	82	71	62	59	58	58	57
170.0	82	80	75	69	63	61	60	60	60
175.0	71	71	69	66	64	63	62	62	62
180.0	64	64	64	64	64	64	64	64	64



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: ITL77174
ISSUE DATE: 06/05/13
PREPARED FOR: OXYGEN LIGHTING

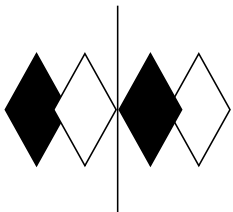
PAGE: 3 OF 5

5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	2
5- 10	5
10- 15	8
15- 20	11
20- 25	15
25- 30	18
30- 35	21
35- 40	24
40- 45	26
45- 50	28
50- 55	30
55- 60	31
60- 65	31
65- 70	31
70- 75	31
75- 80	30
80- 85	28
85- 90	27
90- 95	27
95-100	28
100-105	30
105-110	31
110-115	31
115-120	31
120-125	31
125-130	30
130-135	28
135-140	26
140-145	24
145-150	21
150-155	18
155-160	15
160-165	12
165-170	8
170-175	5
175-180	2

10-DEGREE
ZONAL LUMEN SUMMARY

0- 10	6
0- 20	26
0- 30	58
0- 40	103
0- 50	158
0- 60	218
0- 70	280
0- 80	340
0- 90	395
0-100	450
0-110	511
0-120	573
0-130	634
0-140	689
0-150	734
0-160	767
0-170	786
0-180	793



REPORT NUMBER: ITL77174

PAGE: 4 OF 5

ISSUE DATE: 06/05/13

PREPARED FOR: OXYGEN LIGHTING

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC RW	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	35	35	35	35	33	33	33	33	27	27	27	23	23	23	18	18	18	16
1	31	29	28	26	29	27	25	24	22	21	20	18	17	17	15	14	13	12
2	28	25	22	20	25	23	21	19	19	17	16	15	14	13	12	11	10	9
3	25	22	19	16	23	20	17	15	16	14	13	13	12	11	10	9	8	7
4	23	19	16	14	21	17	15	13	14	12	11	12	10	9	9	8	7	6
5	21	17	14	11	19	15	13	11	13	11	9	10	9	7	8	7	6	5
6	19	15	12	10	17	14	11	9	11	9	8	9	8	6	7	6	5	4
7	18	13	10	8	16	12	10	8	10	8	7	8	7	5	7	5	4	3
8	16	12	9	7	15	11	9	7	9	7	6	8	6	5	6	5	4	3
9	15	11	8	6	14	10	8	6	8	6	5	7	5	4	5	4	3	3
10	14	10	7	6	13	9	7	5	8	6	5	6	5	4	5	4	3	2

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.



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: ITL77174
ISSUE DATE: 06/05/13
PREPARED FOR: OXYGEN LIGHTING

PAGE: 5 OF 5

ADDENDUM

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

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