

# 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: ITL77188

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ISSUE DATE: 06/03/13

PREPARED FOR: OXYGEN LIGHTING

CATALOG NUMBER: 2-5146-224

LUMINAIRE: FABRICATED SEMI-SPECULAR METAL MOUNTING PLATE, FABRICATED WHITE PAINTED METAL REFLECTOR, TRANSLUCENT WHITE ACRYLIC DIFFUSER. BALLAST IS EXPOSED IN LOWER CENTER OF OPTICAL COMPARTMENT.

LAMPS: TWO 13-WATT DOUBLE TWIN TUBE COMPACT FLUORESCENTS, SYLVANIA CF13DD/E/827, VERTICAL BASE-DOWN POSITION.

BALLAST: FULHAM RH1-UNV-213-C

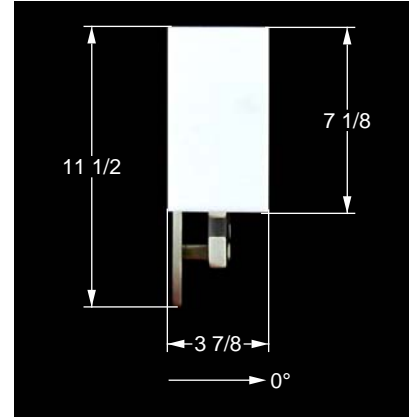
TOTAL REFLECTANCE OF PAINT = 87.7 %

MOUNTING: WALL

TOTAL INPUT WATTS = 28.8 AT 120.0 VOLTS

NOTE: ACRYLIC MATERIAL INFORMATION PROVIDED BY CLIENT.

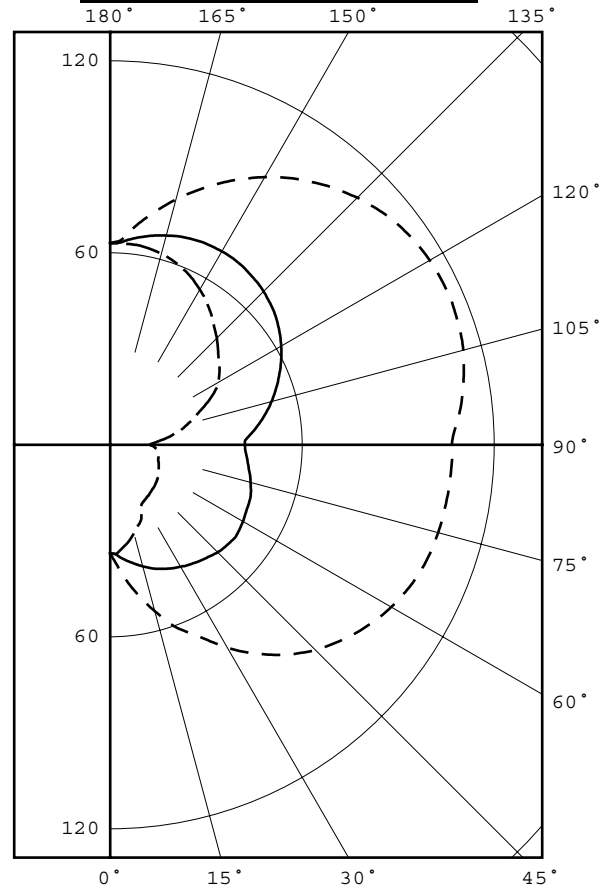
REPORT IS BASED ON 900 LUMENS PER LAMP.



### CANDELA DISTRIBUTION

### FLUX

	0.0	45.0	90.0	135.0	180.0	
0	34	34	34	34	34	
5	40	39	35	35	33	4
15	54	52	39	34	29	12
25	66	64	43	34	23	22
35	80	73	45	30	20	32
45	91	83	48	31	19	43
55	98	91	49	34	18	53
65	104	95	47	34	17	60
75	106	97	45	35	16	64
85	107	97	43	34	14	66
90	107	97	42	33	12	
95	110	100	45	37	16	68
105	114	105	52	45	25	73
115	116	107	59	53	35	74
125	114	106	64	57	42	70
135	109	103	68	62	47	61
145	101	96	70	65	53	49
155	91	87	70	66	59	35
165	79	77	68	66	62	20
175	67	66	64	64	63	6
180	63	63	63	63	63	



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

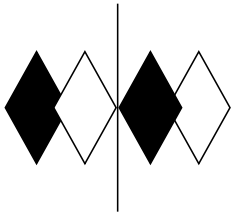
### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 30	37	2.1	4.6
0- 40	69	3.8	8.5
0- 60	165	9.2	20.3
0- 90	355	19.7	43.8
90-120	216	12.0	26.6
90-130	285	15.8	35.2
90-150	395	21.9	48.7
90-180	456	25.3	56.2
0-180	811	45.0	100.0

TOTAL LUMINAIRE EFFICIENCY = 45.0 %

CIE TYPE - GENERAL DIFFUSE  
 PLANE : 0-DEG 90-DEG 180-DEG  
 SPACING CRITERIA : 3.00 1.99 0.94

Checked B. HYRE  
 Approved R. BEATTIE  
 Lighting Engineer



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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	34	34	34	34	34	34	34	34	34
5.0	40	40	39	37	35	35	35	34	33
10.0	47	47	45	42	37	37	34	32	31
15.0	54	54	52	46	39	37	34	31	29
20.0	61	61	58	51	41	39	34	29	26
25.0	66	67	64	54	43	40	34	28	23
30.0	73	74	68	58	44	40	33	25	21
35.0	80	81	73	61	45	40	30	25	20
40.0	86	87	79	65	46	40	31	26	20
45.0	91	92	83	67	48	42	31	26	19
50.0	95	97	87	68	48	43	32	26	19
55.0	98	100	91	70	49	43	34	26	18
60.0	101	104	93	72	48	43	34	26	18
65.0	104	106	95	72	47	43	34	26	17
70.0	105	108	97	73	47	43	35	25	16
75.0	106	109	97	73	45	42	35	25	16
80.0	107	109	97	72	44	42	35	25	15
85.0	107	110	97	72	43	42	34	25	14
90.0	107	110	97	71	42	42	33	23	12
95.0	110	112	100	74	45	44	37	27	16
100.0	112	115	103	77	49	48	41	31	21
105.0	114	117	105	80	52	52	45	35	25
110.0	115	118	106	82	56	55	50	40	29
115.0	116	118	107	84	59	57	53	45	35
120.0	115	117	107	85	62	60	55	48	39
125.0	114	116	106	86	64	63	57	50	42
130.0	112	114	105	86	66	65	60	52	44
135.0	109	111	103	86	68	67	62	54	47
140.0	106	107	100	85	69	68	63	57	50
145.0	101	102	96	83	70	69	65	59	53
150.0	97	97	92	81	70	69	66	61	56
155.0	91	92	87	79	70	69	66	62	59
160.0	85	86	82	76	69	68	66	63	60
165.0	79	80	77	72	68	68	66	64	62
170.0	73	73	72	68	66	66	65	64	63
175.0	67	67	66	65	64	64	64	63	63
180.0	63	63	63	63	63	63	63	63	63



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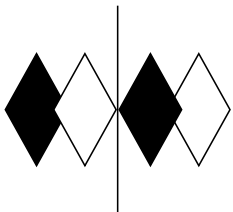
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5-DEGREE  
 ZONAL LUMEN SUMMARY

0- 5	1
5- 10	3
10- 15	5
15- 20	7
20- 25	10
25- 30	12
30- 35	15
35- 40	17
40- 45	20
45- 50	23
50- 55	25
55- 60	27
60- 65	29
65- 70	31
70- 75	32
75- 80	33
80- 85	33
85- 90	33
90- 95	33
95-100	35
100-105	36
105-110	37
110-115	37
115-120	37
120-125	36
125-130	34
130-135	32
135-140	29
140-145	26
145-150	23
150-155	19
155-160	16
160-165	12
165-170	8
170-175	5
175-180	2

10-DEGREE  
 ZONAL LUMEN SUMMARY

0- 10	4
0- 20	15
0- 30	37
0- 40	69
0- 50	112
0- 60	165
0- 70	225
0- 80	289
0- 90	355
0-100	423
0-110	497
0-120	571
0-130	640
0-140	701
0-150	750
0-160	784
0-170	804
0-180	811



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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	48	48	48	48	44	44	44	44	36	36	36	29	29	29	23	23	23	20	20
1	42	39	36	34	38	35	33	31	29	27	26	23	22	20	17	16	16	13	13
2	37	33	29	27	34	30	27	24	24	22	20	19	17	16	14	13	12	9	9
3	33	28	24	21	30	26	22	19	21	18	16	16	14	13	12	10	9	7	7
4	30	25	21	17	27	22	19	16	18	15	13	14	12	10	10	9	7	6	6
5	28	22	18	15	25	20	16	13	16	13	11	12	10	9	9	7	6	5	5
6	25	19	15	12	23	18	14	11	14	11	9	11	9	7	8	7	5	4	4
7	23	17	13	11	21	16	12	10	13	10	8	10	8	6	7	6	5	3	3
8	22	16	12	9	19	14	11	8	12	9	7	9	7	5	7	5	4	3	3
9	20	14	11	8	18	13	10	7	10	8	6	8	6	5	6	5	3	2	2
10	19	13	9	7	17	12	9	7	10	7	5	8	6	4	6	4	3	2	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.