



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: 08/04/04

REPORT NUMBER: ITL54991

PREPARED FOR: BOYD LIGHTING COMPANY

CATALOG NUMBER: C-10138

LUMINAIRE: FABRICATED BLACK PAINTED METAL REAR MOUNTING BRACKET  
MEASURING APPROXIMATELY 1.6875" WIDE, TWO FABRICATED METAL  
SOCKET HOUSINGS WITH PREMIUM SPECULAR FINISH,  
TWO FABRICATED METAL SOCKET MOUNTING  
PLATES WITH PREMIUM SPECULAR FINISH,  
CLEAR LINEAR PRISMATIC GLASS  
CYLINDER ENCOMPASSING LAMP.

LAMP: ONE 14-WATT T-5 PHILIPS F14T5/835

LINEAR FLUORESCENT.

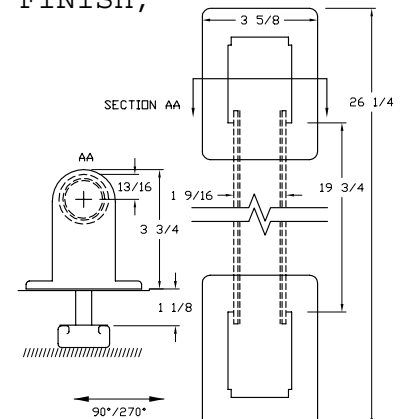
BALLAST: B+L TECHNOLOGIES NU6-1128-PSX

MOUNTING: WALL

TOTAL INPUT WATTS= 14.7 AT 120.0 VOLTS

LUMEN TO CANDELA RATIO USED= 9.16

REPORT IS BASED ON 1200 LUMENS PER LAMP \*



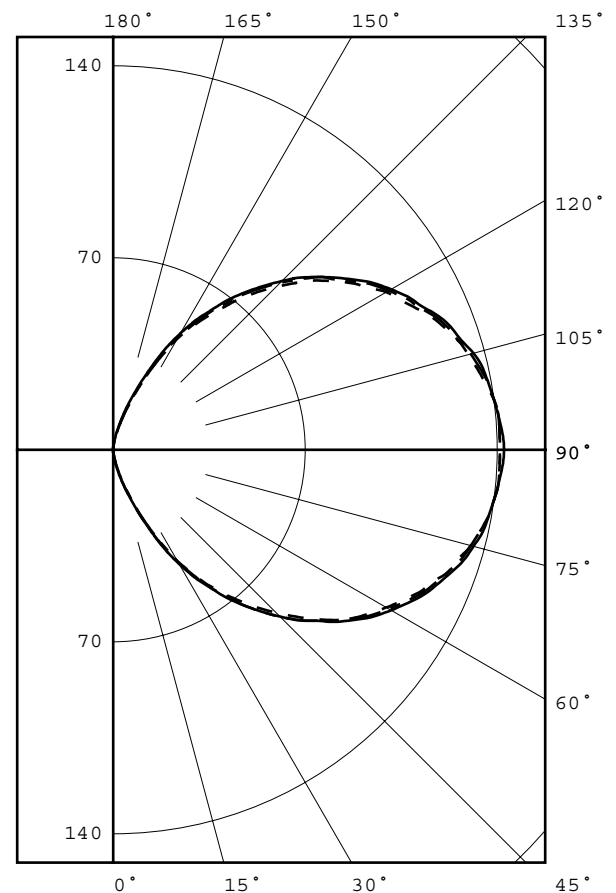
#### CANDELA DISTRIBUTION

#### FLUX

	0.0	45.0	90.0	135.0	180.0	
0	0	0	0	0	0	0
5	2	2	1	1	0	0
15	11	11	10	9	0	3
25	33	33	32	29	0	14
35	60	61	61	60	0	35
45	84	86	86	87	0	62
55	107	108	107	110	0	90
65	123	125	124	127	0	115
75	135	136	135	138	0	134
85	141	141	141	143	0	144
90	141	142	141	143	0	
95	141	141	141	143	0	144
105	134	136	135	137	0	134
115	122	124	123	127	0	115
125	106	108	107	110	0	90
135	84	87	86	88	0	62
145	59	62	61	60	0	35
155	32	34	32	28	0	14
165	11	11	10	9	0	3
175	2	2	2	1	0	0
180	0	0	0	0	0	

#### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 30	17	1.4	1.4
0- 40	52	4.3	4.3
0- 60	204	17.0	17.1
0- 90	597	49.8	50.0
90-120	393	32.7	32.9
90-130	483	40.2	40.4
90-150	580	48.4	48.6
90-180	597	49.8	50.0
0-180	1194	99.5	100.0



#### LEGEND:

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

TOTAL LUMINAIRE EFFICIENCY = 99.5 % \*

CIE TYPE - DIRECT-INDIRECT

Checked .....

Approved .....

\* SEE ADDENDUM FOR FURTHER INFORMATION  
THIS REPORT IS BASED ON PUBLISHED INDUSTRY PROCEDURES. FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE.

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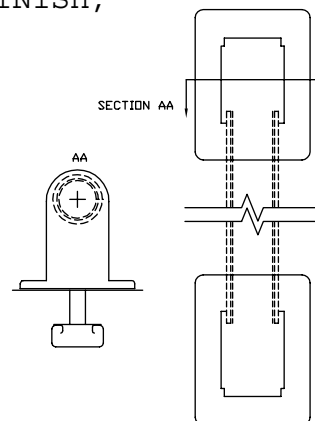
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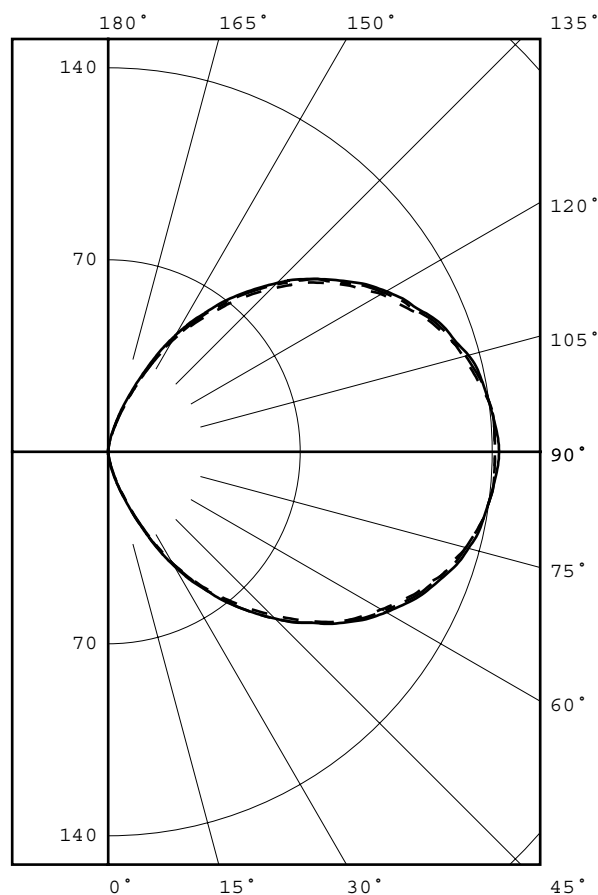
REPORT IS BASED ON 1200 LUMENS PER LAMP \*



#### CANDELA DISTRIBUTION

#### FLUX

	0.0	45.0	90.0	135.0	180.0	
0	0	0	0	0	0	0
5	2	2	1	1	0	0
15	11	11	10	9	0	3
25	33	33	32	29	0	14
35	60	61	61	60	0	35
45	84	86	86	87	0	62
55	107	108	107	110	0	90
65	123	125	124	127	0	115
75	135	136	135	138	0	134
85	141	141	141	143	0	144
90	141	142	141	143	0	
95	141	141	141	143	0	144
105	134	136	135	137	0	134
115	122	124	123	127	0	115
125	106	108	107	110	0	90
135	84	87	86	88	0	62
145	59	62	61	60	0	35
155	32	34	32	28	0	14
165	11	11	10	9	0	3
175	2	2	2	1	0	0
180	0	0	0	0	0	



#### LEGEND:

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

#### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 30	17	1.4	1.4
0- 40	52	4.3	4.3
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LUMINANCE DATA IN CANDELA/SQ M			
ANGLE	AVERAGE	AVERAGE	AVERAGE
IN DEG	0-DEG	45-DEG	90-DEG
45	5970.	6112.	6112.
55	6579.	6640.	6579.
65	6831.	6942.	6886.
75	7043.	7095.	7043.
85	7140.	7140.	7140.



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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	0	0	0	0	0	0	0	0	0
5.0	2	1	2	2	1	1	1	0	0
10.0	5	5	5	5	4	4	4	2	0
15.0	11	12	11	10	10	10	9	5	0
20.0	20	22	20	20	19	18	17	12	0
25.0	33	35	33	32	32	31	29	21	0
30.0	47	50	48	47	47	47	44	33	0
35.0	60	65	61	61	61	61	60	48	0
40.0	72	78	74	74	74	75	74	61	0
45.0	84	90	86	86	86	87	87	74	0
50.0	96	102	97	97	97	99	99	85	0
55.0	107	113	108	107	107	109	110	96	0
60.0	115	122	117	116	116	118	119	105	0
65.0	123	130	125	124	124	126	127	113	0
70.0	130	136	131	130	130	132	133	121	0
75.0	135	141	136	135	135	136	138	127	0
80.0	139	144	139	139	139	139	141	132	0
85.0	141	146	141	140	141	141	143	134	0
90.0	141	146	142	141	141	142	143	135	0
95.0	141	146	141	141	141	141	143	134	0
100.0	138	144	139	139	139	139	141	132	0
105.0	134	140	136	135	135	136	137	127	0
110.0	129	135	131	130	130	131	133	120	0
115.0	122	129	124	123	123	125	127	113	0
120.0	115	122	117	116	116	118	119	105	0
125.0	106	113	108	107	107	109	110	95	0
130.0	96	103	98	97	98	99	99	86	0
135.0	84	91	87	86	86	87	88	75	0
140.0	72	78	75	74	74	75	75	62	0
145.0	59	65	62	61	61	61	60	48	0
150.0	47	51	49	48	47	47	44	33	0
155.0	32	36	34	33	32	31	28	21	0
160.0	20	22	21	20	19	18	17	12	0
165.0	11	12	11	11	10	10	9	5	0
170.0	5	5	5	5	5	4	4	2	0
175.0	2	1	2	2	2	2	1	0	0
180.0	0	0	0	0	0	0	0	0	0



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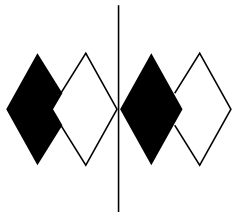
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#### ZONAL LUMEN SUMMARY

0- 5	0.
5- 10	0.
10- 15	1.
15- 20	2.
20- 25	5.
25- 30	9.
30- 35	14.
35- 40	21.
40- 45	27.
45- 50	34.
50- 55	42.
55- 60	49.
60- 65	55.
65- 70	60.
70- 75	65.
75- 80	69.
80- 85	71.
85- 90	73.
90- 95	73.
95-100	71.
100-105	69.
105-110	65.
110-115	60.
115-120	55.
120-125	48.
125-130	42.
130-135	35.
135-140	28.
140-145	21.
145-150	15.
150-155	9.
155-160	5.
160-165	2.
165-170	1.
170-175	0.
175-180	0.



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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	107	107	107	107	98	98	98	98	83	83	83	69	69	69	56	56	56	50
1	91	84	78	72	83	77	71	66	63	59	55	51	48	45	39	37	35	29
2	80	70	61	54	73	64	56	49	52	46	41	41	37	32	31	28	25	19
3	72	59	50	42	65	54	45	38	44	37	31	34	29	25	26	22	18	14
4	65	51	41	34	58	47	38	31	38	31	25	29	24	19	22	18	14	10
5	59	45	35	28	53	41	32	25	33	26	20	26	20	16	19	15	11	8
6	54	40	30	23	49	36	27	21	29	22	17	23	17	13	17	12	9	6
7	49	35	26	20	45	32	24	18	26	19	14	20	15	11	15	11	7	5
8	46	32	23	17	41	29	21	15	23	17	12	18	13	9	14	9	6	4
9	42	29	20	15	38	26	18	13	21	15	11	17	12	8	12	8	5	3
10	39	26	18	13	36	24	16	11	19	13	9	15	10	7	11	7	5	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.



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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 the lumen 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