

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: 08/03/04

REPORT NUMBER: ITL54994

PREPARED FOR: BOYD LIGHTING COMPANY

CATALOG NUMBER: C-10140

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 28-WATT T-5 SYLVANIA FP28/835 LINEAR
FLUORESCENT.

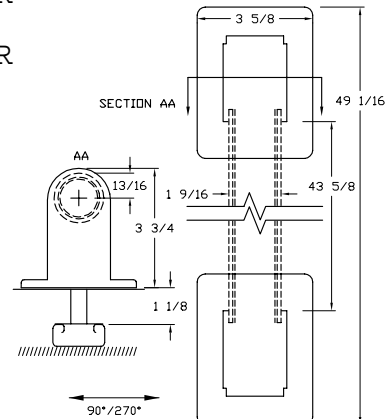
BALLAST: B+L TECHNOLOGIES NU6-1128-PSX

MOUNTING: WALL

TOTAL INPUT WATTS= 25.7 AT 120.0 VOLTS

LUMEN TO CANDELA RATIO USED= 9.19

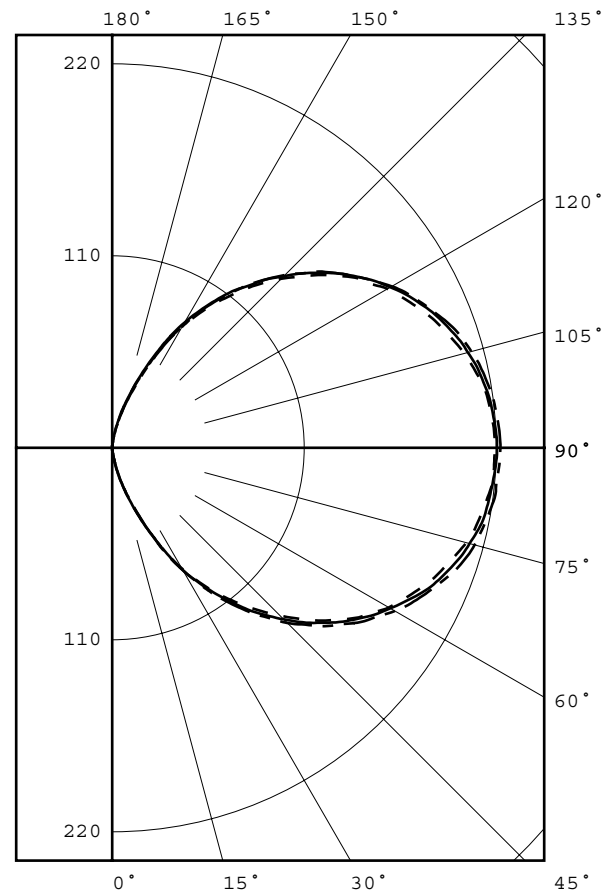
REPORT IS BASED ON 2610 LUMENS PER LAMP *



CANDELA DISTRIBUTION

FLUX

	0.0	45.0	90.0	135.0	180.0	
0	0	0	0	0	0	0
5	2	2	2	2	0	0
15	21	21	21	20	0	6
25	57	57	58	57	0	25
35	100	101	103	107	0	60
45	136	139	142	147	0	102
55	170	171	174	179	0	146
65	193	196	198	203	0	184
75	210	212	215	219	0	212
85	219	219	221	226	0	226
90	219	220	222	227	0	226
95	218	219	221	225	0	226
105	209	211	213	217	0	211
115	192	195	196	200	0	182
125	170	171	171	176	0	144
135	137	139	140	144	0	101
145	100	103	102	103	0	60
155	58	60	57	54	0	25
165	21	23	21	18	0	6
175	2	2	2	2	0	0
180	0	0	0	0	0	0



LEGEND:

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

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 30	31	1.2	1.6
0- 40	92	3.5	4.8
0- 60	340	13.0	17.7
0- 90	963	36.9	50.2
90-120	619	23.7	32.3
90-130	764	29.3	39.8
90-150	925	35.4	48.2
90-180	956	36.6	49.8
0-180	1919	73.5	100.0

TOTAL LUMINAIRE EFFICIENCY = 73.5 % *

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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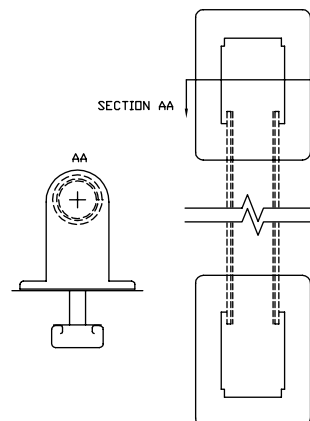
BALLAST: B+L TECHNOLOGIES NU6-1128-PSX

MOUNTING: WALL

TOTAL INPUT WATTS= 25.7 AT 120.0 VOLTS

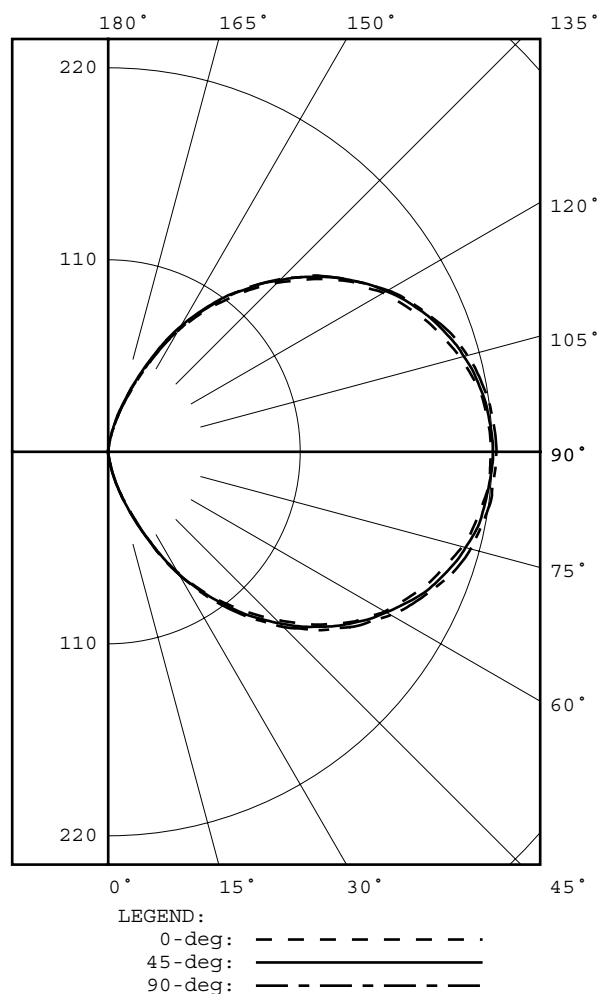
LUMEN TO CANDELA RATIO USED= 9.19

REPORT IS BASED ON 2610 LUMENS PER LAMP *



CANDELA DISTRIBUTION						FLUX
	0.0	45.0	90.0	135.0	180.0	
0	0	0	0	0	0	
5	2	2	2	2	0	0
15	21	21	21	20	0	6
25	57	57	58	57	0	25
35	100	101	103	107	0	60
45	136	139	142	147	0	102
55	170	171	174	179	0	146
65	193	196	198	203	0	184
75	210	212	215	219	0	212
85	219	219	221	226	0	226
90	219	220	222	227	0	
95	218	219	221	225	0	226
105	209	211	213	217	0	211
115	192	195	196	200	0	182
125	170	171	171	176	0	144
135	137	139	140	144	0	101
145	100	103	102	103	0	60
155	58	60	57	54	0	25
165	21	23	21	18	0	6
175	2	2	2	2	0	0
180	0	0	0	0	0	

ZONAL LUMEN ZONE	SUMMARY LUMENS	%LAMP	%FIXT
0- 30	31	1.2	1.6
0- 40	92	3.5	4.8
0- 60	340	13.0	17.7
0- 90	963	36.9	50.2
90-120	619	23.7	32.3
90-130	764	29.3	39.8
90-150	925	35.4	48.2
90-180	956	36.6	49.8
0-180	1919	73.5	100.0



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LUMINANCE DATA IN CANDELA/SQ M			
ANGLE	AVERAGE	AVERAGE	AVERAGE
IN DEG	0-DEG	45-DEG	90-DEG
45	4372.	4468.	4565.
55	4720.	4748.	4832.
65	4839.	4914.	4964.
75	4945.	4992.	5063.
85	4997.	4997.	5043.



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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	2	2	2	2	2	2	1	0
10.0	8	9	9	9	8	9	9	6	0
15.0	21	22	21	21	21	21	20	17	0
20.0	37	38	37	37	36	37	36	30	0
25.0	57	59	57	57	58	58	57	48	0
30.0	80	82	81	81	81	83	83	71	0
35.0	100	103	101	102	103	106	107	94	0
40.0	118	122	121	121	123	126	128	116	0
45.0	136	141	139	140	142	145	147	134	0
50.0	154	159	156	157	159	162	164	152	0
55.0	170	175	171	172	174	177	179	168	0
60.0	183	187	184	185	187	190	192	182	0
65.0	193	198	196	197	198	201	203	195	0
70.0	202	207	205	206	208	210	212	205	0
75.0	210	214	212	213	215	217	219	213	0
80.0	215	219	217	217	219	221	223	218	0
85.0	219	222	219	220	221	224	226	221	0
90.0	219	223	220	221	222	225	227	221	0
95.0	218	222	219	220	221	223	225	220	0
100.0	215	219	216	217	218	220	222	216	0
105.0	209	214	211	212	213	215	217	209	0
110.0	201	207	204	205	206	208	209	201	0
115.0	192	198	195	196	196	198	200	191	0
120.0	182	188	184	184	185	187	188	178	0
125.0	170	175	171	171	171	174	176	164	0
130.0	154	159	156	156	157	159	161	149	0
135.0	137	143	139	139	140	142	144	131	0
140.0	119	124	121	121	122	123	125	111	0
145.0	100	105	103	102	102	103	103	90	0
150.0	80	85	83	81	80	81	79	67	0
155.0	58	61	60	58	57	56	54	45	0
160.0	38	40	39	38	36	36	34	27	0
165.0	21	23	23	22	21	21	18	15	0
170.0	9	10	10	9	9	9	8	5	0
175.0	2	2	2	2	2	2	2	1	0
180.0	0	0	0	0	0	0	0	0	0



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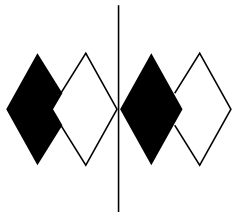
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ZONAL LUMEN SUMMARY

0- 5	0.
5- 10	0.
10- 15	2.
15- 20	4.
20- 25	9.
25- 30	16.
30- 35	25.
35- 40	35.
40- 45	46.
45- 50	57.
50- 55	68.
55- 60	78.
60- 65	88.
65- 70	96.
70- 75	104.
75- 80	109.
80- 85	112.
85- 90	114.
90- 95	114.
95-100	112.
100-105	108.
105-110	103.
110-115	95.
115-120	87.
120-125	77.
125-130	67.
130-135	56.
135-140	45.
140-145	35.
145-150	25.
150-155	16.
155-160	9.
160-165	4.
165-170	2.
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	79	79	79	79	73	73	73	73	61	61	61	51	51	51	41	41	41	37
1	67	62	58	53	61	57	53	49	47	44	41	38	35	33	29	28	26	22
2	59	52	45	40	54	47	42	37	39	34	30	31	27	24	23	21	18	15
3	53	44	37	31	48	40	34	29	33	28	23	26	22	19	19	16	14	10
4	48	38	31	25	43	35	28	23	28	23	19	22	18	15	16	13	11	8
5	44	33	26	21	39	30	24	19	24	19	15	19	15	12	14	11	8	6
6	40	29	22	17	36	27	20	16	22	17	13	17	13	10	13	9	7	5
7	37	26	19	15	33	24	18	13	19	14	11	15	11	8	11	8	6	4
8	34	23	17	13	31	21	15	11	17	13	9	14	10	7	10	7	5	3
9	31	21	15	11	28	19	14	10	16	11	8	12	9	6	9	6	4	2
10	29	19	13	9	26	18	12	9	14	10	7	11	8	5	8	6	4	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

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 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