

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: 09/15/05

REPORT NUMBER: ITL56671
PREPARED FOR: TAMBIENT

CATALOG NUMBER: L201-48S4-M-EL07-1-2L-00-00-0A

LUMINAIRE: EXTRUDED METAL HOUSING WITH FABRICATED BLACK PAINTED METAL END PLATES, EXTRUDED SEMI-SPECULAR METAL LOWER SIDE REFLECTORS, FABRICATED BLACK PAINTED METAL ASYMMETRIC BAFFLE BELOW LAMP, CLEAR PRISMATIC SEMI-HEMISPHERICAL PLASTIC CENTER LENS MEASURING APPROXIMATELY 17.875" LONG, FOUR MOLDED PLASTIC PARABOLIC 36-CELL LOUVERS WITH SPECULAR FINISH OVER UPPER APERTURE, LENS PRISMS UP.

LAMP: ONE 28-WATT T-5 SYLVANIA FP28/830 LINEAR FLUORESCENT.

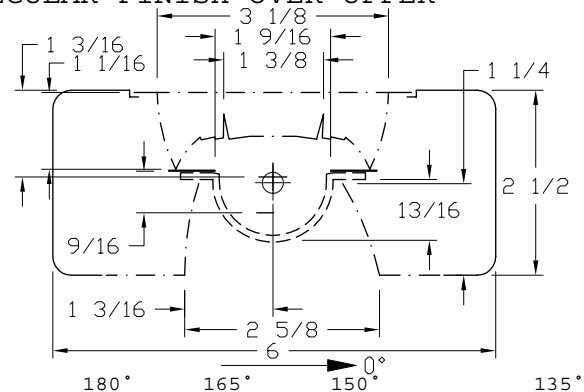
BALLAST: ADVANCE ICN-2S-28

MOUNTING: SUSPENDED

THE 0 DEGREE PLANE IS PERPENDICULAR TO THE LAMP.

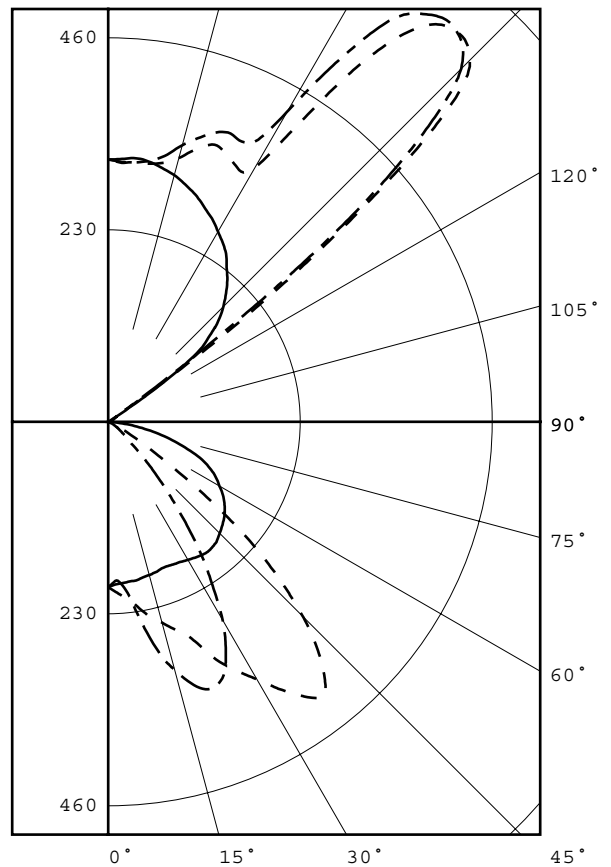
TOTAL INPUT WATTS= 34.7 AT 120.0 VOLTS
LUMEN TO CANDELA RATIO USED= 9.17

REPORT IS BASED ON 2900 LUMENS PER LAMP *



CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0	FLUX
0	198	198	198	198	198	19
5	210	210	194	193	197	68
15	249	233	190	255	308	126
25	318	258	188	324	330	179
35	400	325	195	311	195	194
45	330	405	189	191	55	148
55	90	314	170	56	16	79
65	12	65	136	15	4	25
75	4	9	73	2	0	2
85	0	0	8	0	0	0
90	0	0	0	0	0	0
95	0	0	0	0	0	0
105	1	0	0	0	0	4
115	6	1	1	1	6	119
125	38	176	69	168	25	314
135	613	426	195	449	598	237
145	518	338	246	369	586	152
155	347	330	279	345	372	91
165	327	314	306	321	343	30
175	312	316	317	316	312	
180	314	314	314	314	314	



LEGEND:
0-deg: - - - - -
90-deg: _____
180-deg: - . - . - .

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 30	213	7.4	12.0
0- 40	392	13.5	22.0
0- 60	734	25.3	41.1
0- 90	839	28.9	47.0
90-120	4	0.1	0.2
90-130	123	4.2	6.9
90-150	674	23.2	37.7
90-180	946	32.6	53.0
0-180	1785	61.6	100.0

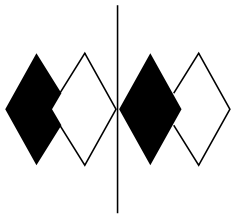
TOTAL LUMINAIRE EFFICIENCY = 61.6 % *

CIE TYPE - DIRECT-INDIRECT

PLANE : 0-DEG 90-DEG 180-DEG
SPACING CRITERIA : 2.1 1.5 1.4
SHIELDING ANGLES : 42 2

Checked B.HYRE
Approved R.BEATTIE

* SEE ADDENDUM FOR FURTHER INFORMATION



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PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 2.625 47.187

LUMINANCE DATA IN CANDELA/SQ M

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 90-DEG	AVERAGE 180-DEG
45	5838.	3343.	973.
55	1963.	3707.	349.
65	355.	4025.	118.
75	193.	3528.	0.
85	0.	1148.	0.



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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	198	198	198	198	198	198	198	198	198
5.0	210	211	210	202	194	192	193	195	197
10.0	229	226	217	209	193	192	210	233	251
15.0	249	245	233	211	190	196	255	292	308
20.0	271	263	247	216	187	209	295	331	341
25.0	318	296	258	225	188	234	324	337	330
30.0	356	337	284	236	191	265	333	300	274
35.0	400	379	325	249	195	293	311	234	195
40.0	404	413	365	259	195	314	263	151	114
45.0	330	371	405	269	189	317	191	81	55
50.0	220	275	401	287	181	300	115	39	28
55.0	90	152	314	302	170	253	56	20	16
60.0	31	51	195	308	154	183	26	13	9
65.0	12	18	65	271	136	107	15	5	4
70.0	7	9	18	179	108	47	6	1	0
75.0	4	5	9	63	73	15	2	1	0
80.0	1	2	4	12	38	3	1	0	0
85.0	0	0	0	1	8	0	0	0	0
90.0	0	0	0	0	0	0	0	0	0
95.0	0	0	0	0	0	0	0	0	0
100.0	0	0	0	0	0	0	0	0	0
105.0	1	1	0	0	0	0	0	0	0
110.0	6	3	0	0	0	1	0	3	6
115.0	6	6	1	1	1	1	1	6	6
120.0	10	10	34	5	1	4	27	10	9
125.0	38	139	176	140	69	147	168	93	25
130.0	395	426	346	231	157	245	338	408	368
135.0	613	571	426	265	195	282	449	564	598
140.0	621	567	375	274	222	290	427	588	629
145.0	518	426	338	276	246	290	369	511	586
150.0	352	346	333	279	263	290	357	387	429
155.0	347	352	330	288	279	293	345	376	372
160.0	353	345	318	297	294	299	333	362	368
165.0	327	322	314	306	306	306	321	336	343
170.0	314	314	314	313	314	314	317	318	319
175.0	312	314	316	315	317	317	316	314	312
180.0	314	314	314	314	314	314	314	314	314



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ZONAL LUMEN SUMMARY

0- 5	5.
5- 10	15.
10- 15	27.
15- 20	41.
20- 25	56.
25- 30	71.
30- 35	84.
35- 40	94.
40- 45	99.
45- 50	95.
50- 55	83.
55- 60	65.
60- 65	48.
65- 70	31.
70- 75	17.
75- 80	7.
80- 85	2.
85- 90	0.
90- 95	0.
95-100	0.
100-105	0.
105-110	0.
110-115	1.
115-120	2.
120-125	20.
125-130	99.
130-135	155.
135-140	159.
140-145	134.
145-150	103.
150-155	83.
155-160	69.
160-165	53.
165-170	37.
170-175	23.
175-180	7.



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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	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	66	66	66	66	60	60	60	60	50	50	50	41	41	41	33	33	33	29
1	60	58	55	53	55	53	51	49	45	43	42	37	36	35	30	29	28	25
2	55	50	47	44	50	47	43	41	39	37	35	32	31	29	26	25	24	21
3	50	44	40	36	46	41	37	34	35	32	29	29	27	25	23	22	21	18
4	46	39	34	31	42	36	32	29	31	27	25	25	23	21	21	19	18	15
5	42	35	30	26	38	32	28	25	27	24	21	23	20	18	18	17	15	13
6	38	31	26	23	35	29	24	21	24	21	19	20	18	16	17	15	13	11
7	35	28	23	20	33	26	22	18	22	19	16	18	16	14	15	13	12	10
8	33	25	20	17	30	23	19	16	20	17	14	17	14	12	14	12	10	9
9	30	23	18	15	28	21	17	14	18	15	13	15	13	11	13	11	9	8
10	28	21	16	13	26	19	15	13	17	13	11	14	12	10	12	10	8	7

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 they 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 the candela values on the luminaire test report are higher than what the luminaire actually produced and the total luminaire efficiency 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 35 degree C ambient temperature.

T5TEMP.DIS