

REPORT NUMBER: ITL70244

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ISSUE DATE: 10/26/11

PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

CATALOG NUMBER: LTS-03-X-4-X-OC4/MPL-X-120-T5

LUMINAIRE: EXTRUDED SEMI-DIFFUSE METAL HOUSING WITH FABRICATED SEMI-DIFFUSE METAL END CAPS, TWO FORMED METAL SIDE REFLECTORS WITH PREMIUM SPECULAR FINISH, FORMED WHITE PAINTED METAL UPPER REFLECTOR WITH 141 UPLIGHT APERTURES OF VARIOUS SHAPES AND SIZES, CLEAR FLAT MICRO-PRISMATIC PLASTIC LENS. LENS PRISMS DOWN.

LAMPS: THREE 28-WATT T-5 SYLVANIA FP28/841/ECO LINEAR FLUORESCENTS.

BALLASTS: TWO UNIVERSAL B228PUNV-C

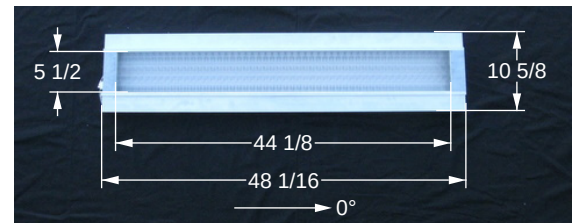
MOUNTING: SUSPENDED

THE 0 DEGREE PLANE IS PARALLEL WITH THE LAMPS.

TOTAL INPUT WATTS = 96.0 AT 120.0 VOLTS

LUMEN TO CANDELA RATIO USED = 9.17

REPORT IS BASED ON 2600 LUMENS PER LAMP. *



CANDELA DISTRIBUTION

FLUX

	0.0	22.5	45.0	67.5	90.0	
0	1630	1630	1630	1630	1630	
5	1628	1633	1634	1626	1626	155
15	1581	1596	1620	1636	1642	457
25	1459	1492	1552	1591	1593	710
35	1262	1328	1407	1485	1512	874
45	853	931	985	1012	1009	733
55	405	398	398	403	412	367
65	190	214	208	205	211	208
75	119	135	125	119	124	132
85	55	59	56	57	51	57
90	0	0	0	0	0	
95	44	90	73	67	62	89
105	167	276	368	382	392	340
115	321	415	522	633	644	505
125	475	535	632	709	732	555
135	606	651	735	787	799	555
145	731	754	797	841	833	497
155	801	822	848	863	854	388
165	841	847	860	867	863	242
175	766	766	763	761	760	75
180	751	751	751	751	751	

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 30	1322	16.9	19.0
0- 40	2196	28.2	31.6
0- 60	3296	42.3	47.5
0- 90	3694	47.4	53.2
90-120	934	12.0	13.5
90-130	1489	19.1	21.5
90-150	2541	32.6	36.6
90-180	3246	41.6	46.8
0-180	6939	89.0	100.0

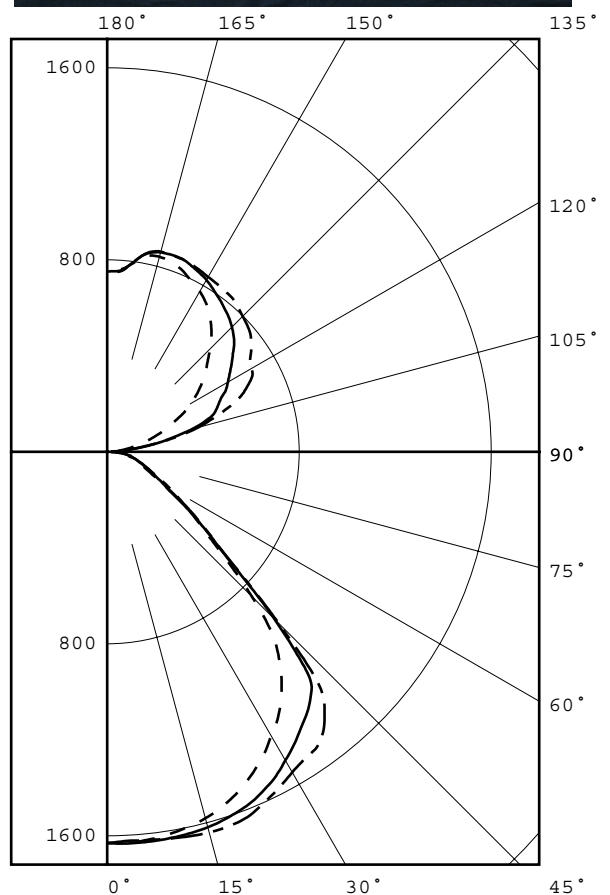
TOTAL LUMINAIRE EFFICIENCY = 89.0 % *

CIE TYPE - DIRECT-INDIRECT

PLANE : 0-DEG 90-DEG

SPACING CRITERIA : 1.25 1.42

SHIELDING ANGLES : 90 90



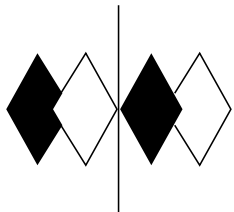
LEGEND:

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

CheckedS.BERGIN.....

ApprovedR.BEATTIE.....
Lighting Engineer

* SEE ADDENDUM FOR FURTHER INFORMATION



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THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

INDEPENDENT TESTING LABORATORIES, INC.
3386 LONGHORN ROAD, BOULDER, CO 80302 USA

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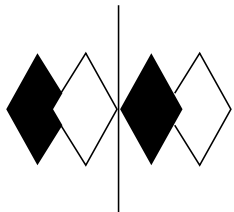
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PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 44.125 5.500

LUMINANCE DATA IN CANDELA/SQ M

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	7705.	8897.	9114.
55	4510.	4432.	4588.
65	2871.	3143.	3189.
75	2937.	3085.	3060.
85	4030.	4104.	3737.



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CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0.0	1630	1630	1630	1630	1630
5.0	1628	1633	1634	1626	1626
10.0	1610	1620	1630	1631	1634
15.0	1581	1596	1620	1636	1642
20.0	1531	1552	1595	1627	1635
25.0	1459	1492	1552	1591	1593
30.0	1366	1417	1485	1531	1542
35.0	1262	1328	1407	1485	1512
40.0	1111	1195	1321	1387	1409
45.0	853	931	985	1012	1009
50.0	562	568	591	621	597
55.0	405	398	398	403	412
60.0	268	284	273	273	299
65.0	190	214	208	205	211
70.0	147	165	159	152	163
75.0	119	135	125	119	124
80.0	99	94	92	91	89
85.0	55	59	56	57	51
90.0	0	0	0	0	0
95.0	44	90	73	67	62
100.0	102	206	218	210	217
105.0	167	276	368	382	392
110.0	243	338	477	535	536
115.0	321	415	522	633	644
120.0	404	477	581	670	696
125.0	475	535	632	709	732
130.0	538	597	690	738	776
135.0	606	651	735	787	799
140.0	675	709	768	826	823
145.0	731	754	797	841	833
150.0	772	793	827	851	841
155.0	801	822	848	863	854
160.0	830	842	863	870	862
165.0	841	847	860	867	863
170.0	821	825	828	832	829
175.0	766	766	763	761	760
180.0	751	751	751	751	751



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5-DEGREE

ZONAL LUMEN SUMMARY

0- 5	39.
5- 10	116.
10- 15	192.
15- 20	264.
20- 25	328.
25- 30	381.
30- 35	423.
35- 40	451.
40- 45	428.
45- 50	305.
50- 55	213.
55- 60	155.
60- 65	117.
65- 70	92.
70- 75	74.
75- 80	58.
80- 85	41.
85- 90	16.
90- 95	17.
95-100	72.
100-105	141.
105-110	199.
110-115	241.
115-120	264.
120-125	275.
125-130	280.
130-135	281.
135-140	274.
140-145	260.
145-150	238.
150-155	210.
155-160	178.
160-165	141.
165-170	100.
170-175	57.
175-180	18.

10-DEGREE

ZONAL LUMEN SUMMARY

0- 10	155.
0- 20	612.
0- 30	1322.
0- 40	2196.
0- 50	2928.
0- 60	3296.
0- 70	3504.
0- 80	3636.
0- 90	3694.
0-100	3783.
0-110	4122.
0-120	4627.
0-130	5182.
0-140	5737.
0-150	6235.
0-160	6623.
0-170	6864.
0-180	6939.



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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	96	96	96	96	89	89	89	89	76	76	76	64	64	64	53	53	53	47
1	88	85	81	79	82	79	76	73	67	65	64	57	56	54	48	47	46	41
2	81	75	70	66	75	70	65	62	60	57	54	51	49	47	43	41	40	36
3	74	67	60	56	69	62	57	52	54	50	46	46	43	40	39	37	35	31
4	69	59	53	48	63	56	50	45	48	44	40	41	38	35	35	33	31	28
5	63	53	46	41	59	50	44	39	44	39	35	38	34	31	32	29	27	24
6	58	48	41	36	54	45	39	35	39	35	31	34	30	28	29	26	24	22
7	54	44	37	32	50	41	35	31	36	31	28	31	27	25	27	24	22	20
8	50	40	33	29	47	37	31	27	33	28	25	29	25	22	25	22	20	18
9	47	36	30	26	44	34	28	24	30	26	22	26	23	20	23	20	18	16
10	44	33	27	23	41	32	26	22	28	23	20	25	21	18	21	18	16	15

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.



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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