

REPORT NUMBER: ITL76166

PAGE: 1 OF 5

ISSUE DATE: 02/18/13

PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

CATALOG NUMBER: MLS5-D2-4-X-TWA-120-T5

LUMINAIRE: EXTRUDED METAL HOUSING WITH WHITE PAINTED GENERAL

INTERIOR FINISH AND FABRICATED WHITE PAINTED METAL END CAPS, FORMED WHITE PAINTED METAL REFLECTOR AND SOCKET MOUNTING BRACKETS, EXTRUDED TRANSLUCENT WHITE FROSTED ACRYLIC DIFFUSER. DIFFUSER FROSTED BOTH SIDES.

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

BALLAST: UNIVERSAL B228PUNV-C

MOUNTING: RECESSED

TOTAL REFLECTANCE OF PAINT = 89.1 %

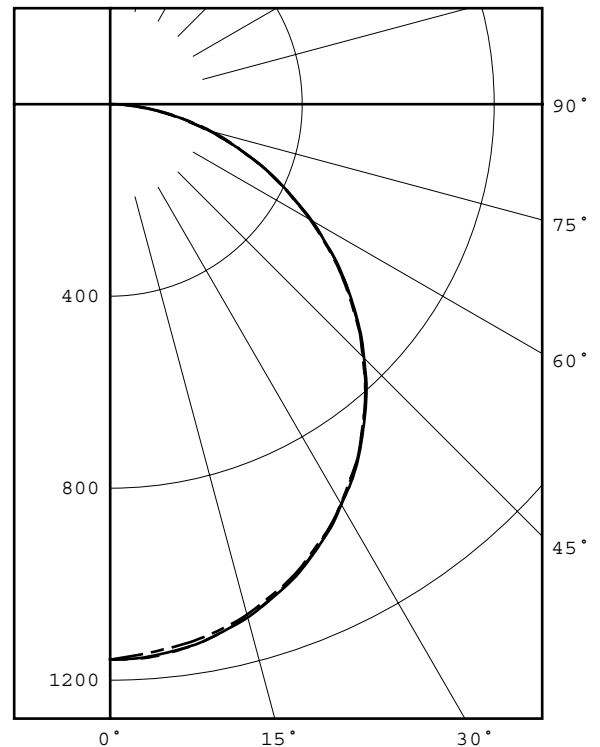
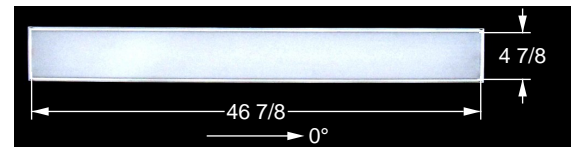
THE 0 DEGREE PLANE IS PARALLEL WITH THE LAMPS.

TOTAL INPUT WATTS = 56.2 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	1157	1157	1157	1157	1157	
5	1153	1154	1151	1145	1143	109
15	1105	1108	1107	1101	1101	312
25	1019	1024	1021	1019	1016	470
35	899	902	901	899	899	562
45	745	749	748	745	744	577
55	577	580	577	574	573	515
65	390	394	392	391	389	389
75	210	214	214	217	218	227
85	56	57	59	59	61	66
90	0	0	0	0	0	



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

ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT
0- 30	891	17.1	27.6
0- 40	1453	28.0	45.0
0- 60	2545	48.9	78.9
0- 90	3226	62.0	100.0
90-180	0	0.0	0.0
0-180	3226	62.0	100.0

TOTAL LUMINAIRE EFFICIENCY = 62.0 % *

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG

SPACING CRITERIA : 1.24 1.24

SHIELDING ANGLES : 90 90

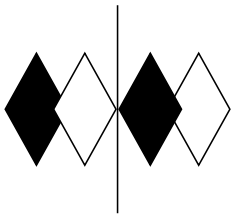
LUMINOUS LENGTH : 46.875 4.875

LUMINANCE DATA IN CANDELA/SQ M			
ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	7146.	7175.	7137.
55	6823.	6823.	6776.
65	6259.	6292.	6243.
75	5504.	5608.	5713.
85	4358.	4592.	4747.

Checked B. HYRE

Approved R. BEATTIE
Lighting Engineer

* SEE ADDENDUM FOR FURTHER INFORMATION



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

REPORT NUMBER: ITL76166

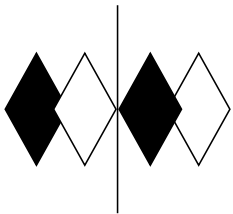
PAGE: 2 OF 5

ISSUE DATE: 02/18/13

PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

CANDELA DISTRIBUTION
 LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0
0.0	1157	1157	1157	1157	1157
2.5	1157	1157	1156	1153	1150
5.0	1153	1154	1151	1145	1143
7.5	1145	1146	1144	1137	1136
10.0	1135	1136	1135	1128	1127
12.5	1121	1123	1121	1116	1115
15.0	1105	1108	1107	1101	1101
17.5	1087	1091	1088	1085	1082
20.0	1067	1070	1069	1065	1064
22.5	1046	1049	1047	1043	1042
25.0	1019	1024	1021	1019	1016
27.5	992	996	995	992	992
30.0	962	967	963	964	961
32.5	931	934	934	930	929
35.0	899	902	901	899	899
37.5	861	867	864	864	861
40.0	825	828	828	826	825
42.5	787	791	790	787	786
45.0	745	749	748	745	744
47.5	707	710	708	704	705
50.0	662	668	664	664	660
52.5	620	622	621	617	617
55.0	577	580	577	574	573
57.5	529	535	529	532	526
60.0	485	488	485	484	481
62.5	434	441	436	439	433
65.0	390	394	392	391	389
67.5	346	350	348	349	346
70.0	298	305	300	304	299
72.5	254	258	256	258	260
75.0	210	214	214	217	218
77.5	166	168	170	174	174
80.0	126	129	131	134	134
82.5	86	93	92	96	94
85.0	56	57	59	59	61
87.5	27	27	27	28	28
90.0	0	0	0	0	0



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

REPORT NUMBER: ITL76166

PAGE: 3 OF 5

ISSUE DATE: 02/18/13

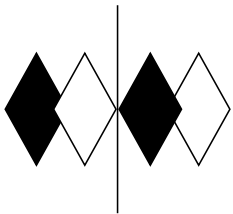
PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	28
5- 10	82
10- 15	133
15- 20	179
20- 25	219
25- 30	251
30- 35	274
35- 40	288
40- 45	292
45- 50	285
50- 55	269
55- 60	245
60- 65	213
65- 70	176
70- 75	135
75- 80	92
80- 85	51
85- 90	15

10-DEGREE
ZONAL LUMEN SUMMARY

0- 10	109
0- 20	421
0- 30	891
0- 40	1453
0- 50	2030
0- 60	2545
0- 70	2934
0- 80	3160
0- 90	3226



REPORT NUMBER: ITL76166

PAGE: 4 OF 5

ISSUE DATE: 02/18/13

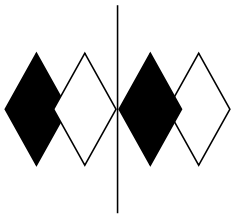
PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

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	74	74	74	74	72	72	72	72	69	69	69	66	66	66	63	63	63	62
1	67	64	62	59	66	63	61	58	60	58	57	58	56	55	56	54	53	52
2	61	56	52	48	60	55	51	48	53	49	47	51	48	46	49	47	45	43
3	56	49	44	40	54	48	44	40	46	42	39	45	41	38	43	40	38	36
4	51	44	38	34	50	43	38	34	41	37	33	40	36	33	38	35	32	31
5	47	39	33	29	46	38	33	29	37	32	29	36	32	28	35	31	28	27
6	43	35	30	26	42	35	29	25	33	29	25	32	28	25	31	28	25	23
7	40	32	26	23	39	31	26	22	30	26	22	29	25	22	29	25	22	21
8	38	29	24	20	37	29	24	20	28	23	20	27	23	20	26	23	20	19
9	35	27	22	18	34	26	21	18	26	21	18	25	21	18	24	21	18	17
10	33	25	20	16	32	24	20	16	24	19	16	23	19	16	23	19	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.



REPORT NUMBER: ITL76166

PAGE: 5 OF 5

ISSUE DATE: 02/18/13

PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

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