

itl boulder

THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

INDEPENDENT TESTING LABORATORIES, INC.
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303) 442-1255 • FAX: (970) 535-3114 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

REPORT NUMBER: ITL87608-GONIOPHOTOMETRY

PAGE: 1 OF 8

ISSUE DATE: 06/15/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: FSLEDH3YY/120 - FSLEDH3YY/120/TL

LUMINAIRE: CAST BROWN PAINTED METAL HOUSING/FACEPLATE, CAST BROWN PAINTED METAL CIRCUIT BOARD MOUNTING BASE WITH UNFINISHED CIRCUIT BOARD MOUNTING SURFACE, 1 WHITE CIRCUIT BOARD WITH 3 LEDS, CLEAR FLAT GLASS LENS.

LAMPS: THREE WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP POSITION.

INPUT ELECTRICAL: 120.0 VOLTS, 2.98 WATTS, 0.0262 AMPS

MOUNTING: RECESSED WALL

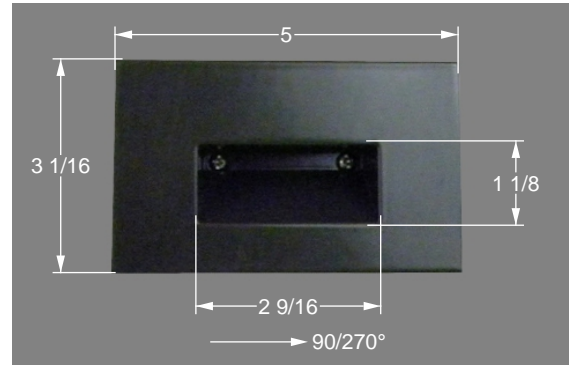
LED DRIVER: INTEGRAL TO CIRCUIT BOARD

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120VAC, 60Hz) TO THE LUMINAIRE.

NOTE 2: THIS REPORT WAS PRORATED FROM ITL REPORT NUMBER 87576. BOTH REPORTS REPRESENT A LUMINAIRE WITH 3 LEDS. FACTORS GENERATED FROM COMPARATIVE TESTING HAVE BEEN DERIVED FOR LIGHT OUTPUT, COLOR TEMPERATURE AND WATTAGE AND APPLIED TO THIS REPORT. ACTUAL PERFORMANCE MAY VARY.

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 20.0 FEET



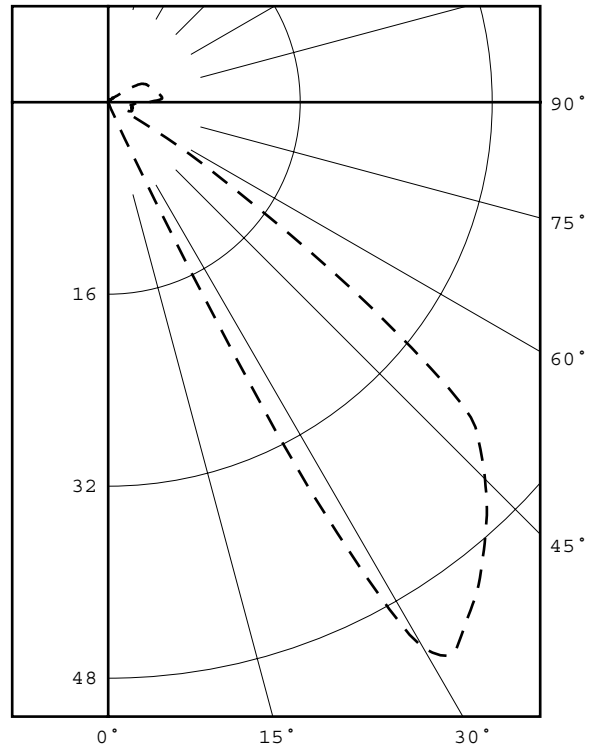
CANDELA DISTRIBUTION

FLUX

	0.0	45.0	90.0	135.0	180.0	
0	0.0	0.0	0.0	0.0	0.0	
5	0.0	0.0	0.0	0.0	0.0	0.0
15	0.1	0.0	0.0	0.0	0.0	0.0
25	5.2	0.2	0.0	0.0	0.0	1.1
35	52.3	20.6	0.0	0.0	0.0	7.6
45	44.4	44.3	0.0	0.0	0.0	10.8
55	14.4	34.1	0.0	0.0	0.0	8.0
65	1.7	8.2	0.0	0.0	0.0	2.3
75	2.0	0.6	0.0	0.0	0.0	0.6
85	2.1	0.7	0.0	0.0	0.0	0.6
90	3.3	1.0	0.0	0.0	0.0	
95	4.5	1.0	0.0	0.0	0.0	1.1
105	4.0	1.0	0.0	0.0	0.0	1.0
115	3.5	0.7	0.0	0.0	0.0	0.7
125	1.2	0.3	0.0	0.0	0.0	0.3
135	0.4	0.3	0.0	0.0	0.0	0.1
145	0.3	0.2	0.0	0.0	0.0	0.1
155	0.2	0.1	0.0	0.0	0.0	0.0
165	0.1	0.1	0.0	0.0	0.0	0.0
175	0.0	0.0	0.0	0.0	0.0	0.0
180	0.0	0.0	0.0	0.0	0.0	

ZONAL LUMEN SUMMARY

ZONE	LUMENS	% FIXT
0- 30	1.1	3.2
0- 40	8.7	25.4
0- 60	27.5	80.5
0- 90	31.1	90.8
90-120	2.7	8.0
90-130	3.0	8.7
90-150	3.1	9.1
90-180	3.2	9.2
0-180	34.2	100.0



LEGEND:
0-deg -----
90-deg =====
180-deg -----

EFFICACY = 11.5 lm/W

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG

BEAM ANGLE (50%) : 25.4 X N/A DEGREES

FIELD ANGLE (10%) : 33.7 X N/A DEGREES

Checked J. VILLANUEVA

Approved R. BEATTIE
Lighting Engineer



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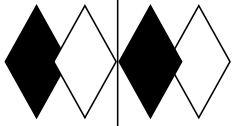
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LUMINANCE DATA IN CANDELA/SQ M			
ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	34410.	49047.	0.
55	9300.	31091.	0.
65	1013.	7061.	0.
75	1107.	465.	0.
85	1122.	543.	0.



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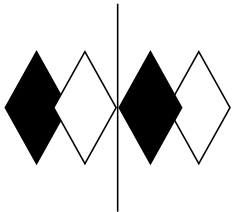
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CANDELA DISTRIBUTION LATERAL ANGLE

	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	90.0	112.5	135.0	157.5
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.5	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.0	0.3	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22.5	0.6	0.6	0.5	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25.0	5.2	4.4	1.9	0.6	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27.5	36.4	35.4	27.9	6.7	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.0	52.5	52.1	46.7	35.9	7.3	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32.5	54.0	53.9	53.9	51.3	34.6	1.8	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
35.0	52.3	52.5	52.4	52.6	49.1	20.6	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
37.5	50.7	50.8	50.7	50.9	50.7	37.6	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0
40.0	48.7	48.9	48.8	49.1	48.8	47.4	8.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0
42.5	46.7	46.8	46.8	47.1	46.9	46.5	24.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0
45.0	44.4	44.6	44.6	44.8	44.7	44.3	34.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
47.5	41.9	42.1	42.1	42.5	42.4	42.1	35.1	1.3	0.0	0.0	0.0	0.0	0.0	0.0
50.0	37.0	37.4	38.5	39.9	39.9	39.6	33.2	6.6	0.1	0.0	0.0	0.0	0.0	0.0
52.5	25.6	26.5	30.7	35.5	37.1	36.9	30.9	8.0	0.1	0.0	0.0	0.0	0.0	0.0
55.0	14.4	14.8	17.4	26.0	33.2	34.1	28.6	7.6	0.1	0.0	0.0	0.0	0.0	0.0
57.5	8.1	8.3	10.6	14.2	25.2	31.1	26.2	7.2	0.1	0.0	0.0	0.0	0.0	0.0
60.0	2.7	2.8	3.9	8.2	13.5	26.3	23.5	6.5	0.1	0.0	0.0	0.0	0.0	0.0
62.5	1.6	1.6	1.7	2.7	7.6	16.5	20.9	5.7	0.2	0.0	0.0	0.0	0.0	0.0
65.0	1.7	1.7	1.6	1.5	2.3	8.2	17.3	5.0	0.3	0.0	0.0	0.0	0.0	0.0
67.5	2.0	2.0	1.9	1.7	1.2	2.7	10.3	4.1	0.4	0.0	0.0	0.0	0.0	0.0
70.0	2.1	2.1	2.1	2.0	1.2	0.7	4.9	3.3	0.3	0.0	0.0	0.0	0.0	0.0
72.5	2.1	2.1	2.1	2.0	1.4	0.6	1.0	1.8	0.3	0.0	0.0	0.0	0.0	0.0
75.0	2.0	2.0	2.0	1.9	1.3	0.6	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0
77.5	2.1	2.1	2.0	1.9	1.3	0.6	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0
80.0	2.0	2.0	1.9	1.8	1.3	0.6	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0
82.5	1.9	1.9	1.9	1.7	1.3	0.7	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0
85.0	2.1	2.1	2.1	1.9	1.5	0.7	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0
87.5	2.4	2.4	2.4	2.3	1.9	0.8	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0
90.0	3.3	3.3	3.3	3.3	2.5	1.0	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0
92.5	4.2	4.2	4.3	4.1	3.2	1.0	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0
95.0	4.5	4.5	4.4	4.3	3.3	1.0	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0
97.5	4.4	4.4	4.3	4.3	3.2	1.0	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0
100.0	4.3	4.3	4.3	4.2	3.0	1.0	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0
102.5	4.2	4.2	4.2	4.0	2.9	1.0	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0
105.0	4.0	4.0	3.9	3.7	2.7	1.0	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0
107.5	3.8	3.8	3.7	3.6	2.6	1.0	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0
110.0	3.7	3.7	3.6	3.5	2.5	0.9	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0
112.5	3.6	3.6	3.6	3.4	2.4	0.8	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0
115.0	3.5	3.5	3.4	3.2	2.1	0.7	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0
117.5	3.3	3.3	3.2	2.9	1.5	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0
120.0	3.0	3.0	2.7	2.1	0.9	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0
122.5	2.2	2.1	1.8	1.1	0.6	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0
125.0	1.2	1.1	1.0	0.7	0.4	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0
127.5	0.8	0.8	0.7	0.5	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0
130.0	0.6	0.6	0.5	0.4	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
132.5	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
135.0	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
137.5	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
140.0	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
142.5	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
145.0	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
147.5	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
150.0	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
152.5	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
155.0	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
157.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0



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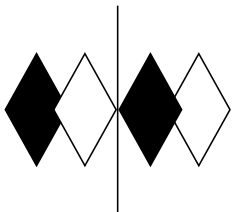
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	CANDELA DISTRIBUTION													
	LATERAL ANGLE													
	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	90.0	112.5	135.0	157.5
160.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
162.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
165.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
167.5	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION
LATERAL ANGLE

	180.0
0.0	0.0
2.5	0.0
5.0	0.0
7.5	0.0
10.0	0.0
12.5	0.0
15.0	0.0
17.5	0.0
20.0	0.0
22.5	0.0
25.0	0.0
27.5	0.0
30.0	0.0
32.5	0.0
35.0	0.0
37.5	0.0
40.0	0.0
42.5	0.0
45.0	0.0
47.5	0.0
50.0	0.0
52.5	0.0
55.0	0.0
57.5	0.0
60.0	0.0
62.5	0.0
65.0	0.0
67.5	0.0
70.0	0.0
72.5	0.0
75.0	0.0
77.5	0.0
80.0	0.0
82.5	0.0
85.0	0.0
87.5	0.0
90.0	0.0
92.5	0.0
95.0	0.0
97.5	0.0
100.0	0.0
102.5	0.0
105.0	0.0
107.5	0.0
110.0	0.0
112.5	0.0
115.0	0.0
117.5	0.0
120.0	0.0
122.5	0.0
125.0	0.0
127.5	0.0
130.0	0.0
132.5	0.0
135.0	0.0
137.5	0.0
140.0	0.0
142.5	0.0
145.0	0.0
147.5	0.0
150.0	0.0
152.5	0.0
155.0	0.0
157.5	0.0



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LATERAL ANGLE

	180.0
160.0	0.0
162.5	0.0
165.0	0.0
167.5	0.0
170.0	0.0
172.5	0.0
175.0	0.0
177.5	0.0
180.0	0.0



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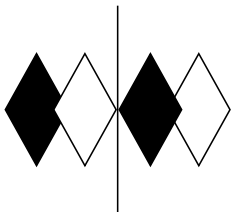
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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	0.0
5- 10	0.0
10- 15	0.0
15- 20	0.0
20- 25	0.0
25- 30	1.1
30- 35	3.1
35- 40	4.5
40- 45	5.3
45- 50	5.5
50- 55	4.9
55- 60	3.2
60- 65	1.6
65- 70	0.7
70- 75	0.3
75- 80	0.3
80- 85	0.3
85- 90	0.3
90- 95	0.5
95-100	0.5
100-105	0.5
105-110	0.4
110-115	0.4
115-120	0.3
120-125	0.2
125-130	0.1
130-135	0.0
135-140	0.0
140-145	0.0
145-150	0.0
150-155	0.0
155-160	0.0
160-165	0.0
165-170	0.0
170-175	0.0
175-180	0.0

10-DEGREE
ZONAL LUMEN SUMMARY

0- 10	0.0
0- 20	0.0
0- 30	1.1
0- 40	8.7
0- 50	19.5
0- 60	27.5
0- 70	29.8
0- 80	30.5
0- 90	31.1
0-100	32.1
0-110	33.1
0-120	33.8
0-130	34.0
0-140	34.1
0-150	34.2
0-160	34.2
0-170	34.2
0-180	34.2



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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	117	117	117	117	117	113	113	113	113	106	106	106	100	100	100	94	94	94	91
1	107	102	98	94	103	99	95	92	93	90	87	88	85	83	83	81	79	76	76
2	97	88	81	76	93	86	79	74	81	75	71	76	72	68	72	68	65	63	63
3	87	76	68	61	84	74	66	60	70	63	58	66	60	56	62	57	54	51	51
4	79	66	57	50	75	64	55	49	60	53	47	57	51	46	54	48	44	41	41
5	71	57	48	41	68	56	47	40	52	45	39	49	43	37	47	41	36	34	34
6	64	50	40	34	62	49	40	33	46	38	32	43	36	31	41	35	30	28	28
7	58	44	34	28	56	43	34	27	40	32	27	38	31	26	36	30	25	23	23
8	53	39	29	23	51	38	29	23	35	28	22	33	26	21	32	25	21	19	19
9	49	34	25	19	47	33	25	19	31	24	19	30	23	18	28	22	17	15	15
10	45	31	22	16	43	30	22	16	28	21	16	27	20	15	25	19	15	13	13

ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS TEST SAMPLE.

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.