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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: ITL87616-GONIOPHOTOMETRY

PAGE: 1 OF 8

ISSUE DATE: 06/16/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: FSLEDV3YY/120 - FSLEDV3YY/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, 3.03 WATTS, 0.0266 AMPS

MOUNTING: RECESSED WALL

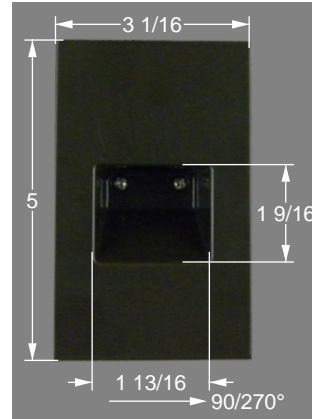
LED DRIVER: INTEGRAL TO CIRCUIT BOARD

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 87584. 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	0.4	0.1	0.0	0.0	0.0	0.1
25	58.3	2.2	0.0	0.0	0.0	5.0
35	53.0	41.6	0.0	0.0	0.0	9.4
45	46.2	34.3	0.0	0.0	0.0	10.0
55	10.3	25.3	0.0	0.0	0.0	5.5
65	2.1	4.2	0.0	0.0	0.0	1.1
75	2.5	0.7	0.0	0.0	0.0	0.5
85	2.5	0.7	0.0	0.0	0.0	0.6
90	4.0	0.7	0.0	0.0	0.0	
95	4.5	0.6	0.0	0.0	0.0	0.8
105	3.8	0.5	0.0	0.0	0.0	0.6
115	3.5	0.4	0.0	0.0	0.0	0.5
125	1.9	0.3	0.0	0.0	0.0	0.3
135	0.4	0.2	0.0	0.0	0.0	0.1
145	0.3	0.1	0.0	0.0	0.0	0.0
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	0.0

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	5.1	14.9
0- 40	14.5	42.0
0- 60	30.0	86.8
0- 90	32.2	93.2
90-120	1.9	5.6
90-130	2.2	6.4
90-150	2.3	6.8
90-180	2.4	6.8
0-180	34.6	100.0

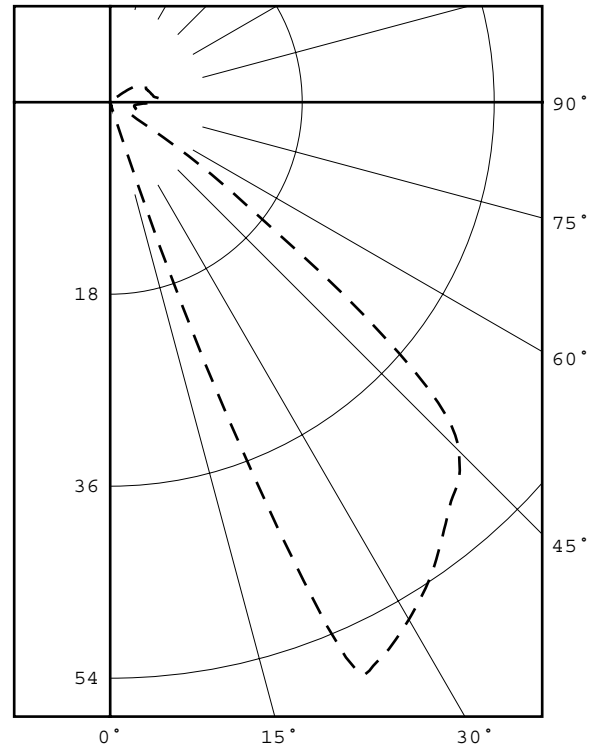
EFFICACY = 11.4 lm/W

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG

BEAM ANGLE (50%) : 30.1 X N/A DEGREES

FIELD ANGLE (10%) : 38.7 X N/A DEGREES



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

Checked J. VILLANUEVA

Approved R. BEATTIE
Lighting Engineer



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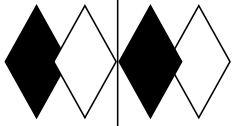
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LUMINANCE DATA IN CANDELA/SQ M			
ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	35805.	37975.	0.
55	6941.	24509.	0.
65	1252.	3617.	0.
75	1435.	571.	0.
85	1384.	543.	0.



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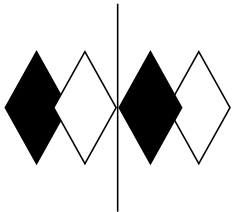
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CANDELA DISTRIBUTION LATERAL ANGLE

	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	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.5	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.0	0.4	0.4	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.5	1.1	1.1	0.6	0.5	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.0	26.2	25.1	13.3	2.5	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22.5	53.2	52.6	46.0	34.9	5.5	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25.0	58.3	58.5	58.5	55.6	37.3	2.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
27.5	57.3	57.5	57.7	57.9	56.8	19.1	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
30.0	56.0	56.3	56.3	56.6	58.0	34.5	1.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0
32.5	54.6	54.8	54.9	55.2	56.5	42.1	12.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0
35.0	53.0	53.2	53.3	53.5	54.8	41.6	18.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
37.5	51.2	51.4	51.5	51.7	52.8	40.4	18.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0
40.0	49.5	49.6	49.6	49.6	50.7	38.6	18.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0
42.5	48.3	48.3	48.1	47.5	48.3	36.4	18.3	0.5	0.1	0.0	0.0	0.0	0.0	0.0
45.0	46.2	46.1	46.2	46.0	45.9	34.3	17.3	0.8	0.1	0.0	0.0	0.0	0.0	0.0
47.5	41.7	41.7	42.8	43.6	43.4	32.1	16.3	1.1	0.1	0.0	0.0	0.0	0.0	0.0
50.0	31.1	31.4	35.5	39.3	40.7	29.9	15.1	1.3	0.1	0.0	0.0	0.0	0.0	0.0
52.5	17.6	17.8	21.2	30.5	36.9	27.7	13.9	1.3	0.1	0.0	0.0	0.0	0.0	0.0
55.0	10.3	10.6	13.2	17.3	29.2	25.3	12.9	1.2	0.1	0.0	0.0	0.0	0.0	0.0
57.5	3.7	3.7	5.5	10.3	16.1	22.0	11.6	1.1	0.1	0.0	0.0	0.0	0.0	0.0
60.0	2.3	2.2	2.5	3.3	9.2	16.1	10.5	1.0	0.1	0.0	0.0	0.0	0.0	0.0
62.5	2.1	2.1	2.0	1.7	2.7	9.8	8.9	0.8	0.1	0.0	0.0	0.0	0.0	0.0
65.0	2.1	2.1	2.0	1.5	1.1	4.2	5.8	0.7	0.1	0.0	0.0	0.0	0.0	0.0
67.5	2.4	2.3	2.1	1.5	1.0	1.0	1.5	0.6	0.1	0.0	0.0	0.0	0.0	0.0
70.0	2.6	2.5	2.2	1.5	1.0	0.8	0.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0
72.5	2.6	2.5	2.2	1.5	0.9	0.7	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0
75.0	2.5	2.5	2.2	1.4	0.9	0.7	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0
77.5	2.4	2.4	2.1	1.3	0.9	0.7	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0
80.0	2.3	2.3	2.1	1.3	0.9	0.6	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0
82.5	2.3	2.3	2.1	1.3	0.9	0.6	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0
85.0	2.5	2.5	2.3	1.4	0.9	0.7	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0
87.5	3.1	3.1	3.0	1.7	0.9	0.7	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0
90.0	4.0	4.0	3.8	2.1	0.9	0.7	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0
92.5	4.5	4.5	4.1	2.3	0.9	0.7	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0
95.0	4.5	4.4	4.1	2.2	0.8	0.6	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0
97.5	4.1	4.1	3.9	2.1	0.8	0.6	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0
100.0	4.0	4.0	3.7	2.0	0.7	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0
102.5	3.9	3.9	3.6	1.9	0.7	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0
105.0	3.8	3.7	3.4	1.9	0.7	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0
107.5	3.7	3.7	3.3	1.8	0.7	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0
110.0	3.6	3.6	3.3	1.8	0.7	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0
112.5	3.6	3.6	3.3	1.8	0.7	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0
115.0	3.5	3.5	3.3	1.8	0.6	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
117.5	3.4	3.4	3.1	1.7	0.5	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
120.0	3.2	3.2	2.9	1.5	0.4	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
122.5	2.9	2.8	2.4	1.1	0.4	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
125.0	1.9	1.9	1.3	0.6	0.4	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
127.5	1.0	1.0	0.7	0.4	0.4	0.3	0.2	0.1	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	0.5	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
135.0	0.4	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
137.5	0.4	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
140.0	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	0.0
142.5	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
145.0	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	0.0
147.5	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	0.0
150.0	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
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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
157.5	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



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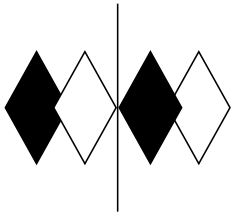
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	CANDELA DISTRIBUTION													
	LATERAL ANGLE													
	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	90.0	112.5	135.0	157.5
160.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5	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
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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PAGE: 5 OF 8

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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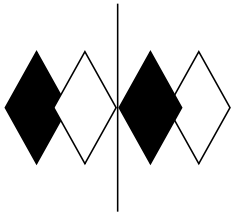
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CANDELA DISTRIBUTION
LATERAL ANGLE

	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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REPORT NUMBER: ITL87616-GONIOPHOTOMETRY
ISSUE DATE: 06/16/16
PREPARED FOR: RAB LIGHTING INC.

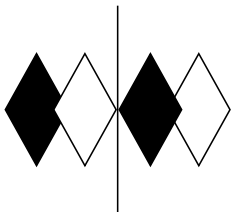
PAGE: 7 OF 8

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	0.0
5- 10	0.0
10- 15	0.0
15- 20	0.1
20- 25	1.6
25- 30	3.4
30- 35	4.5
35- 40	4.9
40- 45	5.1
45- 50	4.9
50- 55	3.6
55- 60	1.9
60- 65	0.8
65- 70	0.3
70- 75	0.3
75- 80	0.2
80- 85	0.2
85- 90	0.3
90- 95	0.4
95-100	0.4
100-105	0.3
105-110	0.3
110-115	0.3
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	0.1
0- 30	5.1
0- 40	14.5
0- 50	24.5
0- 60	30.0
0- 70	31.2
0- 80	31.7
0- 90	32.2
0-100	33.0
0-110	33.6
0-120	34.2
0-130	34.4
0-140	34.5
0-150	34.6
0-160	34.6
0-170	34.6
0-180	34.6



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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	114	114	114	114	107	107	107	101	101	101	96	96	96	93
1	108	104	100	97	105	101	98	94	96	93	90	91	88	86	86	86	84	83	80
2	99	92	85	80	96	89	83	79	85	80	76	80	76	73	76	73	70	68	68
3	90	81	73	67	87	78	71	66	75	69	64	71	66	62	68	63	60	58	58
4	82	71	63	56	80	69	61	55	66	59	54	63	57	52	60	55	51	49	49
5	75	63	54	47	73	61	53	47	58	51	46	56	49	45	53	48	43	41	41
6	69	56	47	40	66	54	46	40	52	44	39	49	43	38	47	42	37	35	35
7	63	49	41	34	61	48	40	34	46	39	33	44	37	33	42	36	32	30	30
8	58	44	35	29	56	43	35	29	41	34	29	39	33	28	38	32	27	25	25
9	53	40	31	25	51	39	31	25	37	30	25	35	29	24	34	28	24	22	22
10	49	36	27	22	48	35	27	22	33	26	21	32	26	21	31	25	21	19	19

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.