



itl boulder
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

NVLAP
NVLAP LAB CODE: 200925-0

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

PAGE: 1 OF 6

REPORT NUMBER: ITL85560

ISSUE DATE: 09/11/15

PREPARED FOR: B-K LIGHTING, INC.

CATALOG NUMBER: DR2-LED-e59-4

LUMINAIRE: MOLDED PLASTIC HOUSING, ONE LED MODULE CONSISTING OF: MACHINED METAL HOUSING/CIRCUIT BOARD MOUNTING BASE, 1 GREEN CIRCUIT BOARD WITH 1 LED, CLEAR FLUTED PLASTIC OPTIC ABOVE LED WITH RECESSED FROSTED BOTTOM CENTER AND CLEAR CONCAVE TOP CENTER WITH FLUTED FROSTED PERIMETER, FABRICATED SEMI-DIFFUSE METAL OPTIC RETAINING BRACKET, FROSTED GLASS LENS IN CAST GRAY PAINTED METAL FACEPLATE WITH 4 APERTURES, LENS FROSTED SIDE IN.

LAMP: ONE WHITE LIGHT EMITTING DIODE (LED) WITH CLEAR HEMISPHERICAL INTEGRAL LENS, VERTICAL BASE-DOWN POSITION.

INPUT ELECTRICAL: 120.0 VOLTS, 7.97 WATTS, 0.111 AMPS

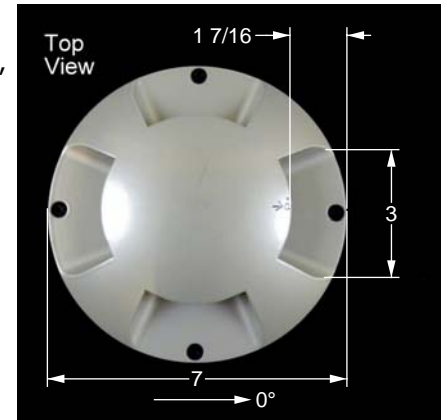
MOUNTING: IN-GRADE

LED DRIVER: B-K LIGHTING 524438/400188-L, POWER SELECT PS20U15K POWER SUPPLY.

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

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 35.0 FEET



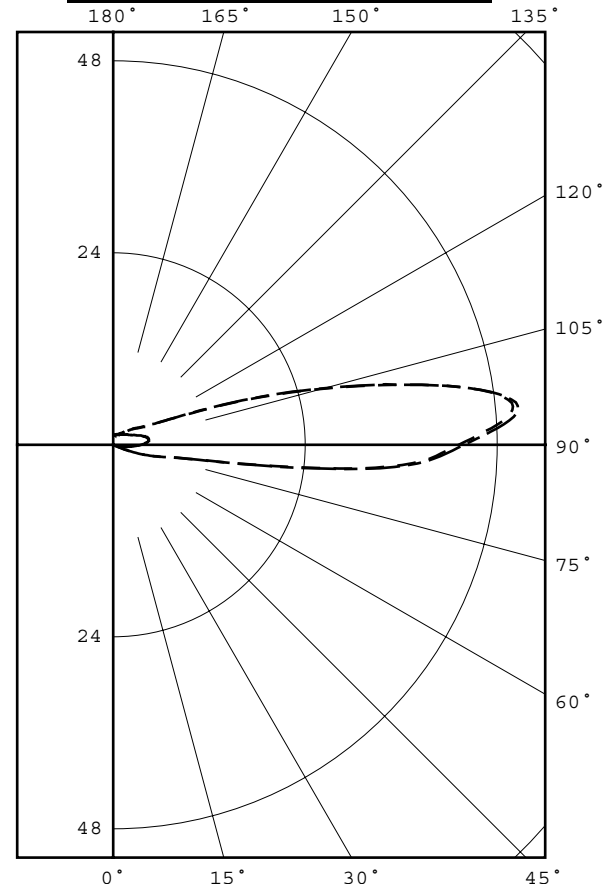
CANDELA DISTRIBUTION

	0.0	25.0	45.0	65.0	90.0	FLUX
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
15	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0
65	0.4	0.2	0.0	0.2	0.4	0.4
75	5.7	3.0	0.6	2.9	5.6	3.8
85	32.9	21.6	2.4	21.4	33.5	21.2
90	43.2	31.9	3.5	31.9	43.9	34.9
95	50.1	36.1	4.3	36.1	50.8	19.7
105	27.1	19.3	4.1	19.1	27.3	5.8
115	7.1	5.0	2.9	5.0	7.2	2.7
125	3.6	2.8	2.2	2.9	3.7	1.7
135	2.4	2.1	1.8	2.1	2.5	1.1
145	1.8	1.7	1.6	1.7	1.8	0.7
155	1.5	1.4	1.4	1.5	1.5	0.4
165	1.3	1.3	1.3	1.3	1.3	0.1
175	1.2	1.2	1.2	1.2	1.2	
180	1.2	1.2	1.2	1.2	1.2	

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	0.0	0.0
0- 40	0.0	0.0
0- 60	0.0	0.0
0- 90	25.5	27.5
90-120	60.5	65.3
90-130	63.2	68.2
90-150	65.9	71.2
90-180	67.1	72.5
0-180	92.6	100.0

EFFICACY = 11.6 lm/W
CIE TYPE - SEMI-INDIRECT

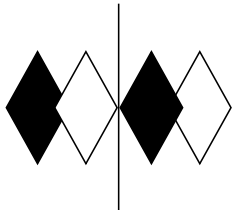


LEGEND:

0-deg -----
45-deg -----
90-deg -----

Checked B. HYRE

Approved R. BEATTIE
Lighting Engineer



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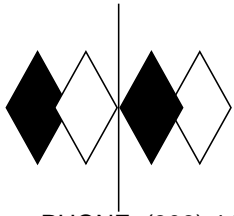
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CANDELA DISTRIBUTION
LATERAL ANGLE

	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	90.0
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
5.0	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
10.0	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
15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
62.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
65.0	0.4	0.4	0.4	0.2	0.0	0.0	0.0	0.2	0.4	0.4	0.4
67.5	1.3	1.3	1.2	0.6	0.1	0.0	0.1	0.6	1.2	1.3	1.3
70.0	2.7	2.7	2.6	1.3	0.3	0.2	0.3	1.3	2.5	2.7	2.7
72.5	4.2	4.3	4.0	2.1	0.6	0.3	0.6	2.0	4.0	4.2	4.3
75.0	5.7	5.8	5.3	3.0	1.2	0.6	1.2	2.9	5.2	5.6	5.6
77.5	7.2	7.3	6.8	3.9	1.7	0.9	1.7	3.8	6.7	7.2	7.2
80.0	10.6	11.0	10.1	5.9	2.3	1.4	2.3	6.0	10.3	11.0	10.8
81.0	13.8	14.3	13.3	7.8	2.7	1.6	2.7	7.9	13.5	14.3	14.1
82.0	18.0	18.8	17.5	10.5	3.2	1.8	3.1	10.6	17.9	18.8	18.5
83.0	23.0	24.1	22.8	14.0	3.7	2.0	3.7	14.0	23.1	24.1	23.7
84.0	28.4	29.3	28.2	17.8	4.3	2.2	4.3	17.8	28.4	29.4	29.0
85.0	32.9	33.4	32.8	21.6	4.9	2.4	4.9	21.4	32.8	33.8	33.5
85.5	34.6	35.2	34.7	23.3	5.3	2.5	5.2	23.1	34.6	35.5	35.3
86.0	36.2	36.7	36.4	24.8	5.6	2.6	5.4	24.6	36.2	37.0	36.8
86.5	37.5	38.0	37.9	26.1	5.9	2.7	5.8	26.0	37.4	38.3	38.1
87.0	38.6	39.1	39.3	27.3	6.2	2.8	6.1	27.2	38.8	39.4	39.2
87.5	39.6	40.0	40.5	28.3	6.5	2.9	6.4	28.2	40.0	40.4	40.1
88.0	40.4	40.9	41.6	29.2	6.8	3.0	6.7	29.1	41.1	41.2	40.9
88.5	41.0	41.6	42.7	29.9	7.1	3.2	7.0	29.9	42.2	42.0	41.6
89.0	41.7	42.3	43.8	30.6	7.4	3.3	7.2	30.6	43.3	42.8	42.4
89.5	42.4	43.0	45.0	31.3	7.6	3.4	7.5	31.3	44.5	43.6	43.1
90.0	43.2	43.9	46.2	31.9	7.9	3.5	7.8	31.9	45.8	44.4	43.9
90.5	44.0	44.7	47.5	32.5	8.2	3.6	8.0	32.6	47.0	45.2	44.7
91.0	44.8	45.6	48.8	33.1	8.4	3.7	8.3	33.1	48.3	46.0	45.5
91.5	45.6	46.5	50.0	33.7	8.6	3.8	8.5	33.7	49.6	47.0	46.4
92.0	46.4	47.4	51.2	34.3	8.8	3.9	8.7	34.2	50.8	47.9	47.2
92.5	47.3	48.3	52.3	34.7	9.0	4.0	8.8	34.7	52.0	48.8	48.1
93.0	48.1	49.1	53.3	35.3	9.2	4.1	9.0	35.2	52.9	49.7	48.9
93.5	48.8	49.8	54.0	35.6	9.3	4.1	9.2	35.5	53.6	50.4	49.6
94.0	49.4	50.3	54.4	35.9	9.5	4.2	9.3	35.8	54.1	50.9	50.2
94.5	49.8	50.7	54.5	36.1	9.6	4.3	9.4	36.0	54.2	51.3	50.6
95.0	50.1	50.8	54.4	36.1	9.7	4.3	9.5	36.1	54.0	51.4	50.8
95.5	50.2	50.7	53.9	36.1	9.8	4.4	9.6	36.0	53.6	51.2	50.8
96.0	50.1	50.5	53.3	35.9	9.8	4.5	9.6	35.8	53.0	50.9	50.6
96.5	49.7	50.0	52.5	35.6	9.8	4.5	9.7	35.5	52.1	50.4	50.1
97.0	49.1	49.4	51.4	35.1	9.8	4.5	9.7	35.0	51.1	49.7	49.4
97.5	48.4	48.6	50.3	34.5	9.8	4.5	9.6	34.4	50.0	48.8	48.6
98.0	47.5	47.6	49.0	33.9	9.7	4.5	9.6	33.7	48.6	47.8	47.6

THIS REPORT IS BASED ON PUBLISHED INDUSTRY PROCEDURES. FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE.



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PAGE: 3 OF 6

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
98.5	46.4	46.6	47.6	33.2	9.6	4.5	9.5	32.9	47.4	46.7	46.4
99.0	45.1	45.3	46.1	32.3	9.5	4.5	9.3	32.0	45.9	45.4	45.2
99.5	43.8	44.0	44.6	31.3	9.3	4.5	9.2	31.0	44.4	44.1	43.8
100.0	42.4	42.7	43.0	30.3	9.2	4.5	9.1	30.0	42.8	42.7	42.4
100.5	40.8	41.2	41.3	29.2	9.0	4.4	8.8	29.1	41.1	41.2	40.8
101.0	39.3	39.6	39.6	28.1	8.8	4.4	8.7	27.9	39.4	39.6	39.3
101.5	37.7	38.1	37.9	27.0	8.6	4.4	8.5	26.8	37.7	38.1	37.7
102.0	36.1	36.5	36.2	25.9	8.4	4.4	8.3	25.7	36.0	36.5	36.1
102.5	34.5	34.9	34.5	24.7	8.2	4.3	8.1	24.6	34.3	34.9	34.9
103.0	32.9	33.3	32.8	23.6	7.9	4.3	7.8	23.4	32.6	33.3	33.2
103.5	31.4	31.7	31.1	22.4	7.7	4.2	7.6	22.3	31.0	31.7	31.7
104.0	29.9	30.2	29.6	21.4	7.5	4.1	7.4	21.2	29.5	30.2	30.2
104.5	28.5	28.8	28.1	20.3	7.2	4.1	7.1	20.1	28.0	28.7	28.7
105.0	27.1	27.4	26.6	19.3	7.0	4.1	6.9	19.1	26.5	27.3	27.3
106.0	24.3	24.6	23.8	17.2	6.5	3.9	6.5	17.1	23.7	24.6	24.6
107.0	21.7	21.9	21.1	15.3	6.0	3.8	6.0	15.1	21.1	22.0	22.0
108.0	19.2	19.4	18.7	13.5	5.6	3.7	5.5	13.2	18.6	19.4	19.4
109.0	16.8	17.0	16.3	11.7	5.2	3.6	5.1	11.5	16.3	17.0	17.1
110.0	14.4	14.6	13.9	10.0	4.8	3.4	4.8	9.9	14.0	14.7	14.7
112.5	9.8	9.9	9.2	6.8	4.0	3.1	4.0	6.8	9.4	10.0	10.1
115.0	7.1	7.0	6.5	5.0	3.4	2.9	3.4	5.0	6.6	7.1	7.2
117.5	5.4	5.4	5.0	4.0	3.0	2.6	3.0	4.1	5.1	5.5	5.6
120.0	4.5	4.5	4.2	3.4	2.8	2.5	2.8	3.5	4.3	4.6	4.7
122.5	4.0	3.9	3.6	3.1	2.5	2.3	2.6	3.1	3.7	4.0	4.1
125.0	3.6	3.6	3.3	2.8	2.4	2.2	2.4	2.9	3.4	3.7	3.7
127.5	3.3	3.3	3.0	2.6	2.3	2.1	2.3	2.7	3.1	3.4	3.4
130.0	3.0	3.0	2.8	2.4	2.1	2.0	2.2	2.5	2.9	3.1	3.1
132.5	2.7	2.7	2.5	2.3	2.0	1.9	2.0	2.3	2.6	2.7	2.7
135.0	2.4	2.4	2.3	2.1	1.9	1.8	1.9	2.1	2.3	2.4	2.5
137.5	2.3	2.2	2.2	2.0	1.8	1.8	1.9	2.0	2.2	2.3	2.3
140.0	2.1	2.1	2.0	1.9	1.8	1.7	1.8	1.9	2.0	2.1	2.1
142.5	1.9	1.9	1.8	1.7	1.7	1.6	1.7	1.8	1.8	1.9	1.9
145.0	1.8	1.8	1.7	1.7	1.6	1.6	1.6	1.7	1.8	1.8	1.8
147.5	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.6	1.6	1.7	1.7
150.0	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6
152.5	1.6	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5
155.0	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5
157.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
160.0	1.4	1.4	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.4	1.4
162.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
165.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
167.5	1.3	1.3	1.3	1.3	1.2	1.3	1.3	1.3	1.3	1.3	1.2
170.0	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
172.5	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
175.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
177.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
180.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2



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PREPARED FOR: B-K LIGHTING, INC.

PAGE: 4 OF 6

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	0.0
30- 35	0.0
35- 40	0.0
40- 45	0.0
45- 50	0.0
50- 55	0.0
55- 60	0.0
60- 65	0.0
65- 70	0.4
70- 75	1.3
75- 80	2.5
80- 85	7.2
85- 90	14.0
90- 95	17.6
95-100	17.3
100-105	12.4
105-110	7.3
110-115	3.7
115-120	2.1
120-125	1.5
125-130	1.2
130-135	0.9
135-140	0.8
140-145	0.6
145-150	0.5
150-155	0.4
155-160	0.3
160-165	0.2
165-170	0.2
170-175	0.1
175-180	0.0

10-DEGREE
ZONAL LUMEN SUMMARY

0- 10	0.0
0- 20	0.0
0- 30	0.0
0- 40	0.0
0- 50	0.0
0- 60	0.0
0- 70	0.4
0- 80	4.3
0- 90	25.5
0-100	60.5
0-110	80.2
0-120	86.0
0-130	88.7
0-140	90.4
0-150	91.5
0-160	92.1
0-170	92.5
0-180	92.6



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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	102	102	102	102	91	91	91	91	71	71	71	52	52	52	35	35	35	28
1	84	76	69	63	74	67	61	55	49	44	40	33	29	26	18	15	13	5
2	75	65	56	48	65	56	49	42	41	35	30	27	23	19	14	11	8	2
3	68	56	47	39	59	49	41	34	36	30	25	23	19	15	12	9	6	1
4	62	49	40	33	54	43	35	29	31	25	20	21	16	13	10	7	5	0
5	57	44	34	28	50	38	30	24	28	22	17	18	14	11	10	7	4	0
6	52	39	30	24	46	34	26	21	25	19	15	17	12	9	9	6	4	0
7	48	35	26	20	42	31	23	18	23	17	13	15	11	8	8	5	3	0
8	45	32	23	18	39	28	21	16	21	15	11	14	10	7	7	5	3	0
9	42	29	21	16	36	25	18	14	19	14	10	13	9	6	7	4	2	0
10	39	26	19	14	34	23	17	12	17	12	9	12	8	5	7	4	2	0

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.



itl boulder
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



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