



REPORT NUMBER: ITL85706  
ISSUE DATE: 10/02/15  
PREPARED FOR: BOYD LIGHTING COMPANY  
CATALOG NUMBER: C-10530

PAGE: 1 OF 8

LUMINAIRE: FABRICATED BLACK FINISHED METAL HOUSING, FABRICATED DIFFUSE METAL CIRCUIT BOARD MOUNT, 2 WHITE CIRCUIT BOARDS EACH WITH 18 LEDS, TRANSLUCENT WHITE FROSTED PLASTIC DIFFUSER WITH TRANSLUCENT WHITE FROSTED TOP AND BOTTOM END CAPS. DIFFUSER AND END CAPS FROSTED SIDE OUT.

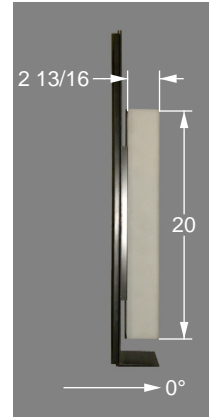
LAMPS: THIRTY-SIX WHITE LIGHT EMITTING DIODES (LEDS), AIMED AT THE HORIZON AND CANTED 15-DEGREES FROM STRAIGHT AHEAD.

INPUT ELECTRICAL: 120.0 VOLTS, 15.1 WATTS, 0.127 AMPS  
MOUNTING: WALL

LED DRIVER: OSRAM OT30W/PRG1050C/UNV/DIM-1/L, DRIVER HAS MULTIPLE LEADS, ONLY LINE INPUT AND LED OUTPUT LEADS CONNECTED FOR THIS TEST. CLIENT STATES DRIVER PROGRAMMED FOR 700mA OUTPUT.

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

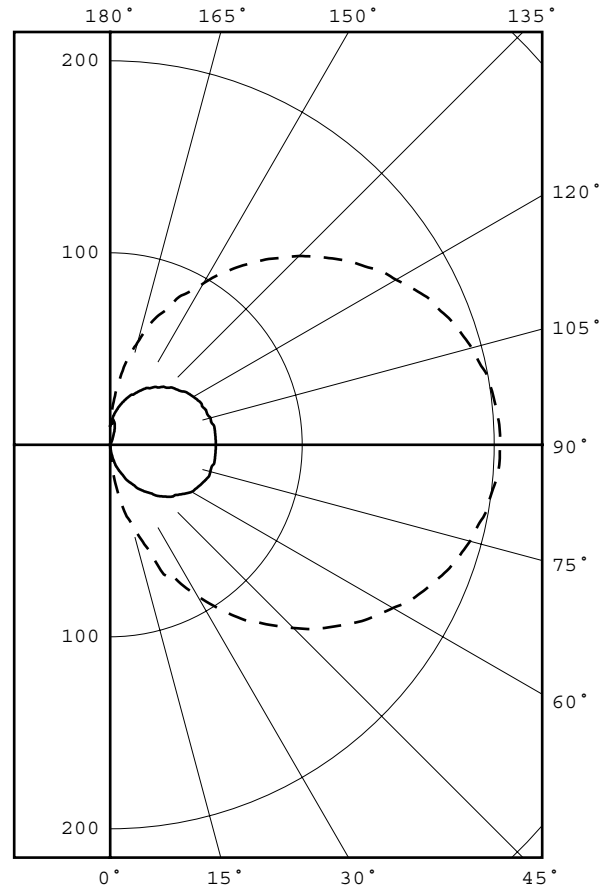
TEST PROCEDURE: IESNA LM-79-08  
TEST DISTANCE = 35.0 FEET



CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0	
0	0	0	0	0	0	
5	10	7	2	1	0	1
15	42	37	11	7	0	6
25	74	66	20	12	0	16
35	107	92	29	18	0	31
45	135	114	38	23	0	49
55	160	133	45	28	0	66
65	180	149	51	31	0	82
75	194	160	54	33	0	94
85	202	165	55	33	0	100
90	203	166	55	34	0	
95	202	165	55	34	0	100
105	195	160	54	33	0	94
115	182	151	52	31	0	83
125	162	136	48	28	0	68
135	139	117	42	25	0	51
145	112	96	36	21	0	34
155	85	72	29	19	0	20
165	55	48	22	18	9	9
175	24	21	14	13	11	2
180	10	10	10	10	10	

FLUX



LEGEND:  
0-deg     - - - - -  
90-deg    - - - - -  
180-deg   - . - . -

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	22	2.5
0- 40	53	5.9
0- 60	168	18.6
0- 90	444	49.1
90-120	277	30.6
90-130	345	38.2
90-150	430	47.5
90-180	460	50.9
0-180	904	100.0

EFFICACY = 59.9 lm/W  
CIE TYPE - GENERAL DIFFUSE

Checked           M KLOPF            
Approved           R BEATTIE            
Lighting Engineer



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PAGE: 2 OF 8

ISSUE DATE: 10/02/15

PREPARED FOR: BOYD LIGHTING COMPANY

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
2.5	3	2	3	2	2	1	1	1	0	0	0	0	0	0
5.0	10	9	9	9	8	7	5	4	3	2	2	2	1	0
7.5	20	18	19	18	15	13	11	9	6	4	4	4	2	1
10.0	28	27	27	26	25	22	17	14	10	7	6	6	4	1
12.5	37	37	37	34	32	29	24	19	13	9	8	7	5	2
15.0	42	41	42	44	41	37	30	24	17	11	11	10	7	3
17.5	50	50	50	52	45	44	36	29	21	14	13	12	8	3
20.0	58	58	59	61	53	50	43	35	25	17	15	14	9	4
22.5	73	74	70	65	66	56	49	40	30	20	17	16	11	4
25.0	74	75	76	76	69	66	56	44	34	22	20	18	12	5
27.5	83	83	84	81	77	70	60	49	38	25	22	20	14	6
30.0	91	92	92	91	84	80	67	55	42	28	24	22	15	6
32.5	99	100	100	97	92	83	73	59	45	31	27	24	17	7
35.0	107	107	108	105	98	92	79	64	49	33	29	27	18	8
37.5	115	115	115	112	105	97	83	69	53	36	31	29	19	8
40.0	121	122	122	119	112	102	89	73	57	39	33	31	21	9
42.5	128	129	129	126	119	108	95	78	60	41	36	33	22	9
45.0	135	136	136	133	125	114	100	82	64	44	38	35	23	10
47.5	142	143	143	139	131	120	104	86	67	47	40	37	25	10
50.0	148	149	149	145	136	124	109	90	70	49	42	38	26	11
52.5	154	155	155	151	142	129	113	94	73	51	43	40	27	11
55.0	160	161	161	156	147	133	117	97	75	53	45	42	28	12
57.5	165	166	167	162	152	138	120	100	78	55	47	43	29	12
60.0	170	171	172	166	156	142	124	103	81	57	49	45	30	13
62.5	176	176	177	171	160	146	127	106	83	59	50	46	30	13
65.0	180	181	181	175	164	149	130	108	85	60	51	47	31	13
67.5	184	185	185	179	168	152	133	110	86	61	52	48	31	13
70.0	188	189	189	183	171	155	135	112	88	62	53	49	32	14
72.5	191	192	192	186	174	157	137	114	89	63	54	49	32	14
75.0	194	195	195	188	176	160	139	115	90	64	54	50	33	14
77.5	196	198	197	191	178	161	140	116	91	64	54	50	33	14
80.0	199	200	199	193	180	163	142	117	91	65	55	50	33	14
82.5	200	202	201	194	182	164	143	118	92	65	55	50	33	14
85.0	202	203	203	196	183	165	144	119	92	65	55	50	33	14
87.5	203	204	203	196	183	166	144	119	93	65	55	50	34	15
90.0	203	204	204	197	184	166	144	119	93	65	55	50	34	14
92.5	203	204	203	196	184	166	144	119	93	65	55	50	34	14
95.0	202	203	203	196	183	165	144	119	92	65	55	50	34	14
97.5	201	202	202	195	182	164	143	118	92	65	55	50	33	14
100.0	200	201	200	193	181	164	142	118	92	65	55	50	33	14
102.5	197	199	198	192	179	162	141	117	91	65	54	50	33	14
105.0	195	196	196	189	177	160	140	116	90	64	54	49	33	14
107.5	192	194	193	187	175	158	138	115	89	64	53	49	32	14
110.0	189	190	190	184	172	156	136	113	88	63	53	49	32	14
112.5	185	187	187	181	169	154	134	111	87	62	52	48	32	13
115.0	182	183	183	177	166	151	131	109	86	61	52	47	31	13
117.5	177	178	178	173	162	147	129	107	84	60	51	47	31	13
120.0	172	174	174	168	158	144	126	105	82	59	50	46	30	12
122.5	168	169	169	164	154	140	123	102	80	58	49	45	29	12
125.0	162	163	164	159	150	136	119	99	78	56	48	44	28	12
127.5	157	158	158	153	145	131	115	97	76	55	46	43	28	11
130.0	151	152	152	148	140	127	111	93	73	53	45	41	27	11
132.5	145	146	146	142	134	122	107	90	71	51	44	40	26	11
135.0	139	140	140	136	128	117	103	87	68	49	42	39	25	10
137.5	132	133	133	130	123	112	99	83	65	47	41	37	24	10
140.0	126	126	127	124	117	106	95	79	63	45	39	36	23	9
142.5	119	119	120	117	111	101	89	76	60	44	38	34	22	9
145.0	112	112	113	110	104	96	84	71	57	41	36	33	21	8
147.5	105	105	106	104	98	90	80	67	54	39	35	32	20	8
150.0	97	98	98	96	92	84	76	63	51	37	33	30	19	7
152.5	90	91	92	91	85	81	70	60	48	35	31	29	19	7
155.0	85	85	84	82	80	72	66	55	44	33	29	27	19	8
157.5	76	76	76	76	71	67	59	52	41	31	28	26	19	9



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

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

REPORT NUMBER: ITL85706

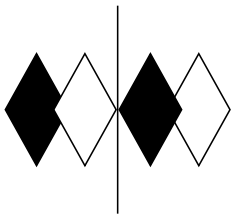
PAGE: 3 OF 8

ISSUE DATE: 10/02/15

PREPARED FOR: BOYD LIGHTING COMPANY

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	71	72	69	68	66	62	55	46	37	28	26	24	19	10
162.5	64	64	63	60	60	56	51	41	34	26	24	23	18	11
165.0	55	56	56	53	52	48	44	37	31	24	22	21	18	13
167.5	49	49	47	47	45	43	39	33	27	22	20	19	17	14
170.0	41	41	39	40	37	36	33	28	24	19	18	18	16	13
172.5	32	32	32	32	30	29	26	23	20	17	16	16	15	13
175.0	24	24	24	23	22	21	19	18	16	15	14	14	13	12
177.5	16	16	16	16	15	15	14	14	13	12	12	12	12	12
180.0	10	10	10	10	10	10	10	10	10	10	10	10	10	10



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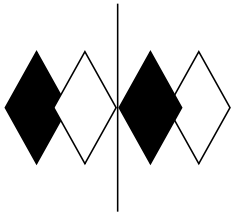
PAGE: 4 OF 8

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CANDELA DISTRIBUTION  
 LATERAL ANGLE

180.0	0
0.0	0
2.5	0
5.0	0
7.5	0
10.0	0
12.5	0
15.0	0
17.5	0
20.0	0
22.5	0
25.0	0
27.5	0
30.0	0
32.5	0
35.0	0
37.5	0
40.0	0
42.5	0
45.0	0
47.5	0
50.0	0
52.5	0
55.0	0
57.5	0
60.0	0
62.5	0
65.0	0
67.5	0
70.0	0
72.5	0
75.0	0
77.5	0
80.0	0
82.5	0
85.0	0
87.5	0
90.0	0
92.5	0
95.0	0
97.5	0
100.0	0
102.5	0
105.0	0
107.5	0
110.0	0
112.5	0
115.0	0
117.5	0
120.0	0
122.5	0
125.0	0
127.5	0
130.0	0
132.5	0
135.0	0
137.5	0
140.0	0
142.5	0
145.0	0
147.5	0
150.0	0
152.5	0
155.0	0
157.5	3



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CANDELA DISTRIBUTION  
 LATERAL ANGLE

	180.0	
160.0		4
162.5		7
165.0		9
167.5		11
170.0		12
172.5		13
175.0		11
177.5		11
180.0		10



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5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	0
5- 10	1
10- 15	2
15- 20	4
20- 25	6
25- 30	10
30- 35	13
35- 40	18
40- 45	22
45- 50	27
50- 55	31
55- 60	35
60- 65	39
65- 70	43
70- 75	46
75- 80	48
80- 85	49
85- 90	50
90- 95	50
95-100	50
100-105	48
105-110	46
110-115	43
115-120	40
120-125	36
125-130	32
130-135	28
135-140	23
140-145	19
145-150	15
150-155	11
155-160	8
160-165	6
165-170	3
170-175	1
175-180	0

10-DEGREE  
ZONAL LUMEN SUMMARY

0- 10	1
0- 20	6
0- 30	22
0- 40	53
0- 50	102
0- 60	168
0- 70	250
0- 80	344
0- 90	444
0-100	544
0-110	638
0-120	721
0-130	789
0-140	840
0-150	874
0-160	893
0-170	902
0-180	904



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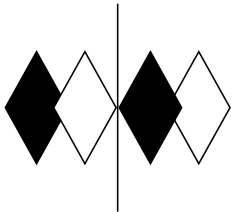
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55	49
1	92	85	79	74	84	78	72	68	64	60	56	52	48	45	40	38	35	30
2	81	71	63	56	74	65	57	51	53	47	42	42	38	34	32	29	26	20
3	73	61	51	44	66	55	47	40	45	38	33	35	30	26	26	23	19	15
4	66	53	43	35	59	48	39	32	39	32	26	30	25	21	23	19	15	11
5	60	46	36	29	54	42	33	27	34	27	22	27	21	17	20	16	12	9
6	55	41	31	24	49	37	29	22	30	23	18	24	18	14	17	13	10	7
7	50	36	27	21	45	33	25	19	27	20	15	21	16	12	16	12	8	6
8	46	33	24	18	42	30	22	16	24	18	13	19	14	10	14	10	7	5
9	43	29	21	16	39	27	19	14	22	16	11	17	12	9	13	9	6	4
10	40	27	19	14	36	25	17	12	20	14	10	16	11	8	12	8	5	3

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.



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PAGE: 8 OF 8

ADDRESS: 1455 VAPOR TRAIL  
COLORADO SPRINGS, CO 80916

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THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



NVLAP LAB CODE: 200925-0

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LUMINAIRE: FABRICATED BLACK FINISHED METAL HOUSING, FABRICATED DIFFUSE METAL CIRCUIT BOARD MOUNT, 2 WHITE CIRCUIT BOARDS EACH WITH 18 LEDS, TRANSLUCENT WHITE FROSTED PLASTIC DIFFUSER WITH TRANSLUCENT WHITE FROSTED TOP AND BOTTOM END CAPS. DIFFUSER AND END CAPS FROSTED SIDE OUT.

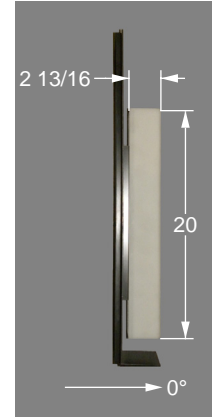
LAMPS: THIRTY-SIX WHITE LIGHT EMITTING DIODES (LEDS), AIMED AT THE HORIZON AND CANTED 15-DEGREES FROM STRAIGHT AHEAD.

INPUT ELECTRICAL: 120.0 VOLTS, 39.8 WATTS, 0.333 AMPS  
MOUNTING: WALL

LED DRIVER: OSRAM OT48W/PRG2000C/UNV/DIM-1/L-AUX, DRIVER HAS MULTIPLE LEADS, ONLY LINE INPUT AND LED OUTPUT LEADS CONNECTED FOR THIS TEST. CLIENT STATES DRIVER PROGRAMMED FOR 1800mA OUTPUT.

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

TEST PROCEDURE: IESNA LM-79-08  
TEST DISTANCE = 35.0 FEET



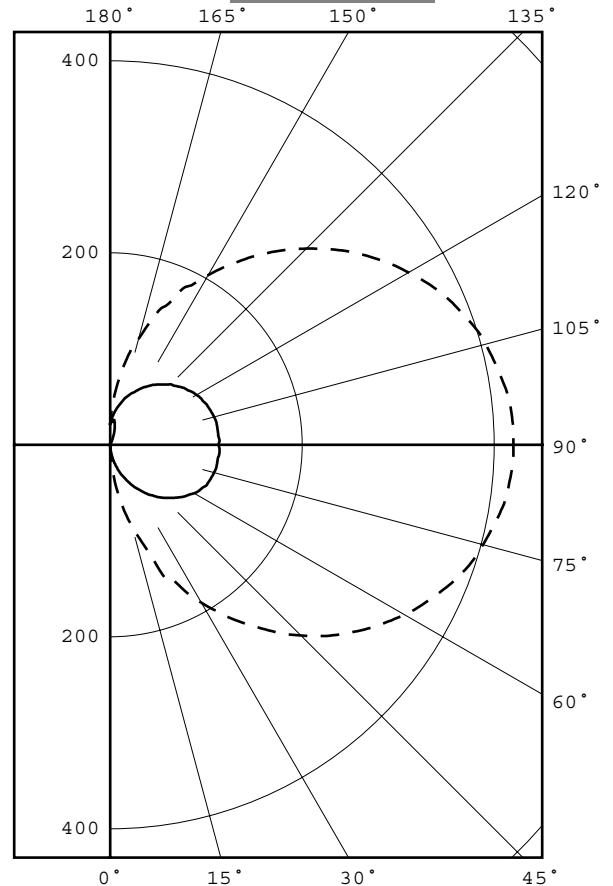
### CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0	FLUX
0	0	0	0	0	0	0
5	20	14	5	2	0	1
15	88	76	22	14	0	12
25	155	136	41	26	0	33
35	221	191	60	38	0	64
45	281	237	78	49	0	101
55	332	277	94	58	0	138
65	373	309	106	65	0	171
75	402	331	112	68	0	194
85	418	342	114	70	0	207
90	420	343	113	69	0	207
95	419	342	113	69	0	207
105	405	332	112	68	0	195
115	378	313	107	64	0	172
125	338	282	99	59	0	141
135	289	244	89	52	0	106
145	233	199	76	43	0	71
155	180	150	61	40	1	41
165	114	104	46	38	18	19
175	52	44	30	28	24	4
180	22	22	22	22	22	22

### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	46	2.5
0- 40	111	5.9
0- 60	349	18.6
0- 90	921	49.1
90-120	574	30.6
90-130	715	38.1
90-150	892	47.5
90-180	955	50.9
0-180	1877	100.0

EFFICACY = 47.2 lm/W  
CIE TYPE - GENERAL DIFFUSE



LEGEND:  
0-deg     - - - - -  
90-deg    - - - - -  
180-deg   - . - . -

Checked       M KLOPF        
Approved       R BEATTIE        
Lighting Engineer



REPORT NUMBER: ITL85707

PAGE: 2 OF 8

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PREPARED FOR: BOYD LIGHTING COMPANY

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
2.5	6	6	6	5	4	3	2	2	1	1	1	1	0	0
5.0	20	20	20	19	16	14	12	9	6	5	5	4	2	0
7.5	42	40	39	38	32	28	23	18	13	9	9	8	5	1
10.0	57	57	56	54	51	45	36	28	20	14	13	12	8	3
12.5	73	76	76	68	66	61	50	39	28	19	18	16	11	4
15.0	88	86	86	94	86	76	63	51	36	24	22	20	14	5
17.5	103	104	104	108	94	91	75	61	45	30	27	25	17	7
20.0	121	121	122	130	110	103	90	72	53	35	32	29	20	8
22.5	151	153	146	135	137	115	103	83	63	41	36	34	23	9
25.0	155	156	157	156	142	136	116	92	69	46	41	38	26	11
27.5	174	175	173	169	160	145	125	102	78	52	46	42	29	12
30.0	190	191	192	188	174	166	141	114	86	58	51	46	32	13
32.5	205	207	207	201	193	171	153	123	94	64	55	51	35	14
35.0	221	223	223	217	204	191	164	133	102	69	60	55	38	16
37.5	236	238	239	232	219	202	173	143	110	75	65	60	40	17
40.0	251	253	254	247	232	211	184	152	117	80	69	64	43	18
42.5	267	268	269	262	247	224	198	162	125	87	74	68	46	20
45.0	281	282	283	275	260	237	207	171	132	92	78	72	49	21
47.5	295	296	297	289	272	249	216	179	139	97	82	76	51	22
50.0	308	309	310	301	284	258	225	187	145	102	86	80	54	23
52.5	320	322	322	313	295	267	235	195	151	106	90	83	56	24
55.0	332	333	334	324	305	277	242	202	157	110	94	86	58	24
57.5	343	345	345	335	315	286	250	208	162	115	97	89	60	25
60.0	354	356	356	345	325	295	257	215	167	119	101	92	62	26
62.5	364	366	366	355	333	302	264	220	172	122	104	95	63	27
65.0	373	375	375	363	341	309	270	225	176	125	106	98	65	27
67.5	382	384	384	372	348	315	275	229	179	128	109	99	66	28
70.0	390	392	391	379	355	321	280	233	182	130	110	101	67	28
72.5	397	399	398	385	361	326	285	237	185	131	111	102	68	29
75.0	402	405	404	391	366	331	288	240	186	132	112	103	68	29
77.5	407	410	409	395	370	334	291	242	188	133	113	103	69	29
80.0	412	414	413	399	373	338	294	244	190	134	113	104	69	30
82.5	416	418	417	403	376	340	295	245	190	135	113	104	69	30
85.0	418	421	419	405	379	342	297	246	191	135	114	104	70	30
87.5	420	422	421	407	380	343	298	247	191	135	114	103	69	30
90.0	420	423	422	407	380	343	298	247	192	135	113	103	69	30
92.5	420	422	421	407	380	343	298	247	191	135	114	103	69	30
95.0	419	421	420	406	379	342	297	246	191	135	113	103	69	30
97.5	417	419	418	404	377	341	296	246	191	135	113	103	69	29
100.0	413	416	415	401	375	339	294	244	190	135	113	103	69	29
102.5	409	412	411	397	371	336	292	243	189	134	113	103	68	29
105.0	405	407	406	393	368	332	289	240	187	133	112	102	68	29
107.5	400	401	401	387	363	328	286	238	185	132	111	101	67	28
110.0	393	395	395	381	358	324	282	235	183	131	110	101	66	28
112.5	386	388	387	375	351	319	278	231	180	129	109	99	65	28
115.0	378	379	379	367	344	313	272	227	178	127	107	98	64	27
117.5	369	371	370	359	337	306	267	223	174	125	106	96	63	26
120.0	359	362	361	350	329	299	261	218	171	122	104	95	62	26
122.5	349	351	351	340	320	291	254	212	167	120	102	93	61	25
125.0	338	340	340	330	310	282	247	207	162	117	99	91	59	25
127.5	327	328	328	319	300	273	239	201	158	114	97	88	57	24
130.0	315	316	316	307	289	264	231	194	153	111	94	86	56	23
132.5	302	304	304	295	278	254	223	187	148	107	91	83	54	22
135.0	289	291	291	283	267	244	214	180	142	103	89	81	52	21
137.5	276	277	277	270	255	233	206	173	137	99	85	78	50	20
140.0	262	263	263	257	242	222	199	165	131	95	82	75	48	19
142.5	248	249	249	243	230	211	186	157	126	92	79	72	46	18
145.0	233	234	234	229	217	199	176	149	119	87	76	69	43	17
147.5	219	220	221	215	204	190	169	140	112	83	72	66	42	16
150.0	204	205	206	201	193	175	159	133	106	78	69	63	41	15
152.5	189	190	192	189	177	170	147	125	100	74	65	60	40	14
155.0	180	181	177	171	168	150	137	115	92	69	61	57	40	16
157.5	159	159	161	160	149	144	123	109	85	65	58	54	40	18



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REPORT NUMBER: ITL85707

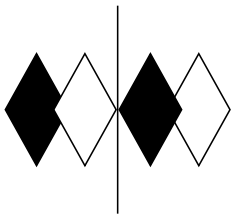
PAGE: 3 OF 8

ISSUE DATE: 10/05/15

PREPARED FOR: BOYD LIGHTING COMPANY

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	149	150	148	141	139	130	116	97	78	60	54	51	39	22
162.5	131	133	135	128	124	116	105	87	73	56	51	48	39	24
165.0	114	115	118	113	111	104	94	78	64	50	46	44	38	27
167.5	102	103	103	98	94	90	81	70	56	46	42	40	36	29
170.0	85	85	86	83	79	76	68	59	50	41	38	37	34	28
172.5	68	67	68	67	63	61	55	48	42	36	34	33	31	27
175.0	52	51	51	47	47	44	41	38	34	31	30	29	28	25
177.5	35	34	34	33	33	32	30	29	27	26	25	25	25	24
180.0	22	22	22	22	22	22	22	22	22	22	22	22	22	22



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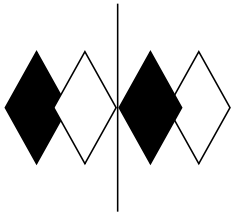
PAGE: 4 OF 8

ISSUE DATE: 10/05/15

PREPARED FOR: BOYD LIGHTING COMPANY

CANDELA DISTRIBUTION  
 LATERAL ANGLE

	180.0
0.0	0
2.5	0
5.0	0
7.5	0
10.0	0
12.5	0
15.0	0
17.5	0
20.0	0
22.5	0
25.0	0
27.5	0
30.0	0
32.5	0
35.0	0
37.5	0
40.0	0
42.5	0
45.0	0
47.5	0
50.0	0
52.5	0
55.0	0
57.5	0
60.0	0
62.5	0
65.0	0
67.5	0
70.0	0
72.5	0
75.0	0
77.5	0
80.0	0
82.5	0
85.0	0
87.5	0
90.0	0
92.5	0
95.0	0
97.5	0
100.0	0
102.5	0
105.0	0
107.5	0
110.0	0
112.5	0
115.0	0
117.5	0
120.0	0
122.5	0
125.0	0
127.5	0
130.0	0
132.5	0
135.0	0
137.5	0
140.0	0
142.5	0
145.0	0
147.5	0
150.0	0
152.5	0
155.0	1
157.5	6



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PAGE: 5 OF 8

ISSUE DATE: 10/05/15

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CANDELA DISTRIBUTION  
 LATERAL ANGLE

	180.0
160.0	9
162.5	14
165.0	18
167.5	22
170.0	25
172.5	26
175.0	24
177.5	24
180.0	22



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ISSUE DATE: 10/05/15

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5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	0
5- 10	1
10- 15	4
15- 20	8
20- 25	13
25- 30	20
30- 35	28
35- 40	36
40- 45	46
45- 50	55
50- 55	64
55- 60	73
60- 65	82
65- 70	89
70- 75	95
75- 80	99
80- 85	103
85- 90	104
90- 95	104
95-100	103
100-105	100
105-110	95
110-115	90
115-120	83
120-125	75
125-130	66
130-135	57
135-140	48
140-145	40
145-150	31
150-155	24
155-160	17
160-165	12
165-170	7
170-175	3
175-180	1

10-DEGREE  
ZONAL LUMEN SUMMARY

0- 10	1
0- 20	13
0- 30	46
0- 40	111
0- 50	212
0- 60	349
0- 70	520
0- 80	715
0- 90	921
0-100	1128
0-110	1323
0-120	1495
0-130	1637
0-140	1742
0-150	1813
0-160	1854
0-170	1873
0-180	1877



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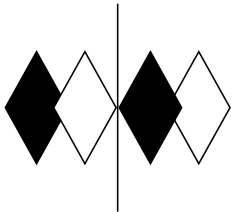
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55	49	
1	92	85	79	74	84	78	72	68	64	60	56	52	48	45	40	38	35	30	
2	81	71	63	56	74	65	57	51	53	47	42	42	38	34	32	29	26	20	
3	73	61	51	44	66	55	47	40	45	38	33	35	30	26	26	23	19	15	
4	66	53	43	35	59	48	39	32	39	32	26	30	25	21	23	19	15	11	
5	60	46	36	29	54	42	33	27	34	27	22	27	21	17	20	16	12	9	
6	55	41	31	24	49	37	29	22	30	23	18	24	18	14	17	13	10	7	
7	50	36	27	21	45	33	25	19	27	20	15	21	16	12	16	12	8	6	
8	46	33	24	18	42	30	22	16	24	18	13	19	14	10	14	10	7	5	
9	43	30	21	16	39	27	19	14	22	16	11	17	12	9	13	9	6	4	
10	40	27	19	14	36	25	17	12	20	14	10	16	11	8	12	8	5	3	

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.



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REPORT NUMBER: ITL85707  
ISSUE DATE: 10/05/15  
PREPARED FOR: BOYD LIGHTING COMPANY

PAGE: 8 OF 8

ADDRESS: 1455 VAPOR TRAIL  
COLORADO SPRINGS, CO 80916

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REPORT NUMBER: ITL85709
DATE: 10/08/15
PREPARED FOR: BOYD LIGHTING COMPANY
CATALOG NUMBER: C-10530

ADDRESS: 1455 VAPOR TRAIL
COLORADO SPRINGS, CO 80916

LUMINAIRE: FABRICATED BLACK FINISHED METAL HOUSING, FABRICATED DIFFUSE METAL
CIRCUIT BOARD MOUNT, 2 WHITE CIRCUIT BOARDS EACH WITH 18 LEDS,
TRANSLUCENT WHITE FROSTED PLASTIC DIFFUSER WITH TRANSLUCENT WHITE
FROSTED TOP AND BOTTOM END CAPS. DIFFUSER AND END CAPS FROSTED SIDE
OUT.

LAMP: THIRTY-SIX WHITE LIGHT EMITTING DIODES (LEDS), AIMED AT THE HORIZON
AND CANTED 15-DEGREES FROM STRAIGHT AHEAD.

DRIVER: OSRAM OT30W/PRG1050C/UNV/DIM-1/L, DRIVER HAS MULTIPLE LEADS, ONLY
LINE INPUT AND LED OUTPUT LEADS CONNECTED FOR THIS TEST. CLIENT
STATES DRIVER PROGRAMMED FOR 700mA OUTPUT.

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

INSTRUMENTS: Associated Power Technologies APT5040 AC Power Source Calibration Due: N/A
Yokogawa WT210 Digital Power Meter #6 11/30/15
Ocean Optics QE65000 Spectroradiometer 08/05/16
ITL 2.0m Diameter Integrating Sphere S20-2, 4PI Geometry 08/05/16

OBJECT OF TEST: Measure the Absolute Flux in lumens\*, Spectral Power Distribution (SPD),
Correlated Color Temperature (CCT), Color Rendering Index (CRIa,1-14),
Chromaticity Coordinates (x,y; u',v'), ANSI C78.377 Duv, Total Radiant
Flux\*, Scotopic / Photopic Lumen Ratio, and electrical data including
ANSI C82.77-2002 Power Factor (PF) and Total Harmonic Distortion (THD)
to the test sample.

PROCEDURE: The test sample was provided by the customer and had an unknown number
of operating hours. The test sample was mounted inside the integrating
sphere and allowed to stabilize. After stabilization occurred,
measurements were taken. In order to measure mean performance, multiple
data sets were recorded and averaged. Readings were taken with the test
sample operating at 120VAC input in a 25 +/-1 degree Celsius free
air ambient and in accordance with IESNA LM-79-08. All data are traceable
to the National Institute of Standards and Technology.

RESULTS: (continued subsequent pages)

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Checked N WHITE
Approved P O'CONNOR
Sphere Lab Supervisor



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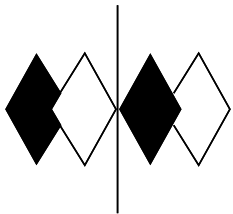
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 REPORT NUMBER: ITL85709  
 DATE: 10/08/15  
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 CATALOG NUMBER: C-10530

RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	904 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4644
Chromaticity Ordinate y	0.4097
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2659
Chromaticity Ordinate v'	0.5277
Correlated Color Temp CCT (K)	2630
ANSI C78.377-2008 Duv	-0.001
Total Radiant Flux (milliWatts)	3221 *
Scotopic / Photopic Lumen Ratio	1.315
ELECTRICAL	
Input Voltage (Volts AC )	120.0
Input Current (Amps AC )	0.127
Input Power (Watts)	15.1
Input Power Factor (%)	99.1
Input Current THD (%)	5.5
Input Voltage THD (%)	0.1
EFFICACY (lumens/Watt)	59.9

COLOR RENDERING INDICES		CRI
Ra (Average 1-8)		95
R1 Light greyish red		96
R2 Dark greyish yellow		98
R3 Strong yellowish green		98
R4 Moderate yellowish green		97
R5 Light bluish green		97
R6 Light blue		97
R7 Light violet		92
R8 Light reddish purple		83
R9 Strong red		62
R10 Strong yellow		94
R11 Strong green		95
R12 Strong blue		89
R13 Light yellowish pink (skin)		97
R14 Moderate olive green (leaf)		98

\*NOTE: The total lumen output shown on this report was obtained from photometric test ITL85706

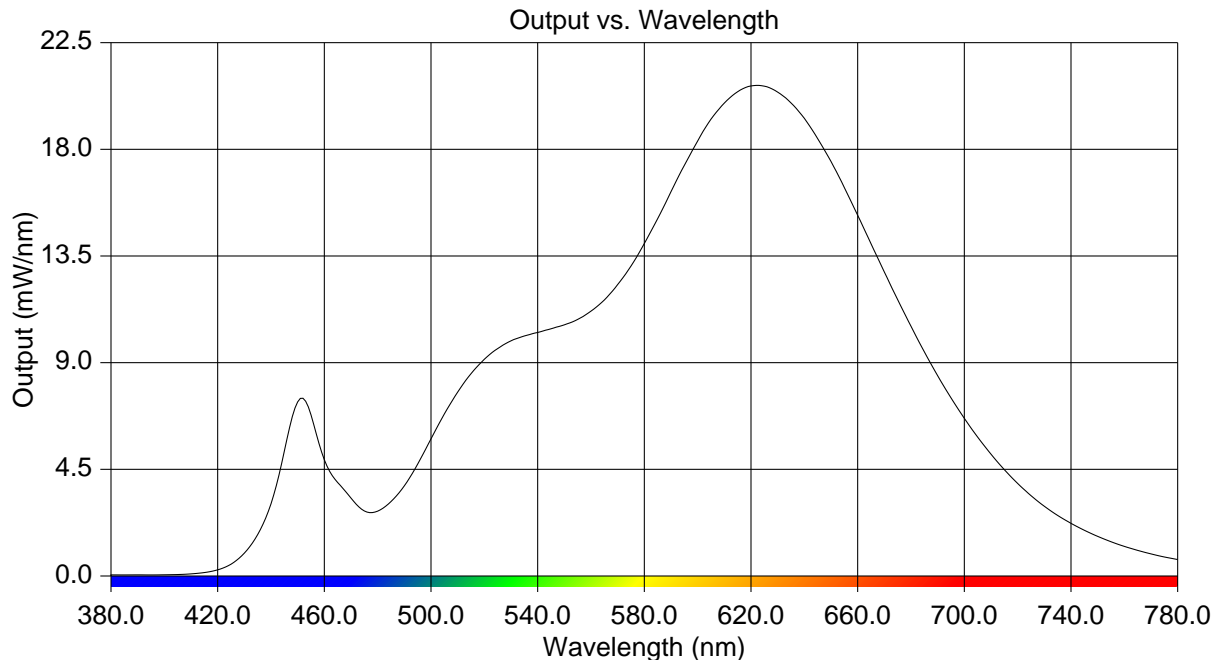


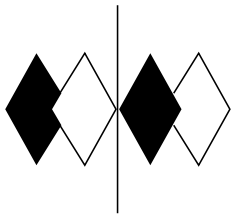
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CATALOG NUMBER: C-10530

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.048	515	8.534	650	17.489
385	0.045	520	9.143	655	16.386
390	0.048	525	9.593	660	15.218
395	0.044	530	9.921	665	14.019
400	0.051	535	10.126	670	12.825
405	0.062	540	10.273	675	11.659
410	0.089	545	10.429	680	10.537
415	0.145	550	10.595	685	9.458
420	0.260	555	10.824	690	8.449
425	0.497	560	11.175	695	7.515
430	0.964	565	11.643	700	6.651
435	1.747	570	12.296	705	5.859
440	3.043	575	13.076	710	5.140
445	5.268	580	14.028	715	4.486
450	7.345	585	15.076	720	3.904
455	6.798	590	16.214	725	3.389
460	4.903	595	17.323	730	2.942
465	3.943	600	18.352	735	2.555
470	3.287	605	19.274	740	2.221
475	2.744	610	19.952	745	1.929
480	2.736	615	20.430	750	1.672
485	3.140	620	20.674	755	1.446
490	3.804	625	20.665	760	1.250
495	4.720	630	20.414	765	1.080
500	5.785	635	19.957	770	0.933
505	6.835	640	19.309	775	0.802
510	7.757	645	18.451	780	0.694





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## CIE Chromaticity Diagram

