

REPORT NUMBER: ITL86569

PAGE: 1 OF 8

ISSUE DATE: 01/27/16

PREPARED FOR: H.E. WILLIAMS, INC.

CATALOG NUMBER: S15-G-L6/840-FTG-DBZ-120

LUMINAIRE: CAST UNFINISHED METAL HOUSING, ONE LED MODULE, FABRICATED WHITE PAINTED METAL REFLECTOR, FROSTED FLAT GLASS DIFFUSER IN CAST BROWN PAINTED LOUVERED METAL FACEPLATE. DIFFUSER FROSTED SIDE IN.

LAMP: ONE LED MODULE, OSRAM PL-CUBE-2000-840-0.5A-G2, AIMED AT THE HORIZON.

INPUT ELECTRICAL: 120.0 VOLTS, 22.8 WATTS,  
0.190 AMPS

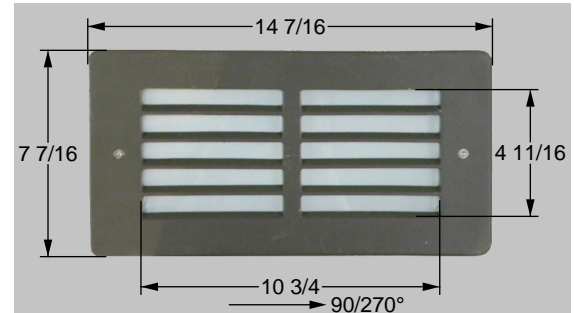
MOUNTING: RECESSED

LED DRIVER: OSRAM OT25W/PRG1250C/UNV/DIM,  
DRIVER HAS MULTIPLE LEADS, ONLY LINE  
INPUT AND LED OUTPUT LEADS CONNECTED  
FOR THIS TEST. CLIENT STATES DRIVER  
PROGRAMMED FOR 500mA 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 = 20.0 FEET



#### CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0
0	0	0	0	0	0
5	0	0	0	0	0
15	2	1	0	0	0
25	24	4	0	0	0
35	61	26	0	0	0
45	109	53	0	0	0
55	166	89	0	0	0
65	249	133	0	0	0
75	329	176	0	0	0
85	368	198	0	0	0
90	369	198	0	0	0
95	358	189	0	0	0
105	303	153	0	0	0
115	216	101	0	0	0
125	129	57	0	0	0
135	69	28	0	0	0
145	32	7	0	0	0
155	6	0	0	0	0
165	0	0	0	0	0
175	0	0	0	0	0
180	0	0	0	0	0

#### FLUX

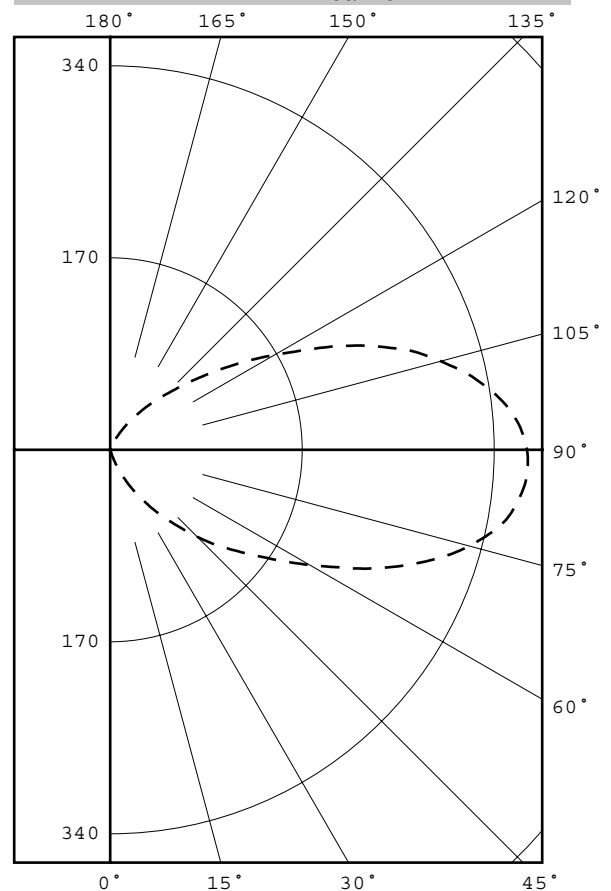
0
0
2
9
21
39
65
92
107
103
83
53
27
12
4
0
0
0

#### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	2	0.4
0- 40	11	1.8
0- 60	71	11.4
0- 90	335	54.3
90-120	239	38.6
90-130	266	43.1
90-150	282	45.7
90-180	282	45.7
0-180	618	100.0

EFFICACY = 27.1 lm/W

CIE TYPE - GENERAL DIFFUSE

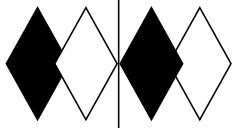


#### LEGEND:

0-deg	-----
90-deg	=====
180-deg	-----

Checked M KLOPF

Approved R BEATTIE  
Lighting Engineer



**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](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL86569

PAGE: 2 OF 8

ISSUE DATE: 01/27/16

PREPARED FOR: H.E. WILLIAMS, INC.

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	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
7.5	1	1	1	1	1	0	0	0	0	0	0	0	0	0
10.0	1	1	1	1	1	1	0	0	0	0	0	0	0	0
12.5	1	1	1	1	1	1	1	1	0	0	0	0	0	0
15.0	2	2	2	2	1	1	1	1	0	0	0	0	0	0
17.5	3	3	2	2	2	1	1	1	0	0	0	0	0	0
20.0	9	8	7	4	2	2	1	1	0	0	0	0	0	0
22.5	16	15	14	10	5	2	2	1	0	0	0	0	0	0
25.0	24	23	21	16	11	4	2	1	1	0	0	0	0	0
27.5	33	32	30	24	17	8	2	1	1	0	0	0	0	0
30.0	42	41	38	32	24	14	4	1	1	0	0	0	0	0
32.5	51	51	47	40	31	19	8	2	1	0	0	0	0	0
35.0	61	61	57	49	38	26	12	2	1	0	0	0	0	0
37.5	72	71	67	58	46	32	17	3	1	0	0	0	0	0
40.0	83	82	78	68	55	39	22	6	1	0	0	0	0	0
42.5	95	95	89	78	63	45	27	9	1	0	0	0	0	0
45.0	109	108	103	90	73	53	32	12	1	0	0	0	0	0
47.5	123	122	116	103	84	61	38	16	1	0	0	0	0	0
50.0	136	135	129	116	96	69	44	20	2	0	0	0	0	0
52.5	150	150	144	130	108	79	50	24	3	0	0	0	0	0
55.0	166	166	161	144	121	89	56	28	5	0	0	0	0	0
57.5	184	184	179	160	134	100	64	32	7	0	0	0	0	0
60.0	204	204	199	179	149	110	72	36	9	0	0	0	0	0
62.5	225	225	221	200	165	121	79	40	12	0	0	0	0	0
65.0	249	248	244	222	181	133	86	45	14	0	0	0	0	0
67.5	271	271	268	244	199	144	92	49	16	0	0	0	0	0
70.0	292	294	292	266	216	156	97	52	18	0	0	0	0	0
72.5	312	314	314	287	233	166	102	55	20	1	0	0	0	0
75.0	329	332	335	306	249	176	107	57	22	1	0	0	0	0
77.5	344	347	351	322	262	184	111	58	23	1	0	0	0	0
80.0	356	358	364	335	272	191	113	59	24	2	0	0	0	0
82.5	363	366	373	343	280	195	115	59	24	2	0	0	0	0
85.0	368	371	378	349	284	198	116	59	24	3	0	0	0	0
87.5	370	373	380	350	286	199	116	59	23	3	0	0	0	0
90.0	369	372	380	350	285	198	115	58	22	3	0	0	0	0
92.5	365	368	375	346	281	194	112	56	21	2	0	0	0	0
95.0	358	360	367	337	273	189	108	53	20	2	0	0	0	0
97.5	348	350	356	327	264	182	104	51	18	1	0	0	0	0
100.0	335	338	343	314	253	174	99	48	17	1	0	0	0	0
102.5	320	323	327	298	240	164	93	45	15	0	0	0	0	0
105.0	303	306	308	280	224	153	87	41	13	0	0	0	0	0
107.5	286	286	287	261	206	141	81	38	11	0	0	0	0	0
110.0	264	264	262	238	186	128	73	34	9	0	0	0	0	0
112.5	241	240	236	213	167	115	66	31	7	0	0	0	0	0
115.0	216	215	210	189	147	101	59	27	5	0	0	0	0	0
117.5	190	193	185	166	129	89	52	23	3	0	0	0	0	0
120.0	168	169	161	143	111	77	45	19	2	0	0	0	0	0
122.5	148	147	140	123	96	67	39	16	0	0	0	0	0	0
125.0	129	128	120	106	82	57	33	12	0	0	0	0	0	0
127.5	111	110	103	90	70	49	27	9	0	0	0	0	0	0
130.0	95	95	89	77	60	41	22	6	0	0	0	0	0	0
132.5	81	82	76	66	51	34	18	3	0	0	0	0	0	0
135.0	69	70	64	55	42	28	13	1	0	0	0	0	0	0
137.5	59	59	54	46	35	22	9	0	0	0	0	0	0	0
140.0	49	49	45	38	28	17	5	0	0	0	0	0	0	0
142.5	40	40	37	30	22	12	2	0	0	0	0	0	0	0
145.0	32	32	29	23	16	7	0	0	0	0	0	0	0	0
147.5	25	24	22	17	11	3	0	0	0	0	0	0	0	0
150.0	18	17	16	11	6	1	0	0	0	0	0	0	0	0
152.5	12	11	10	6	2	0	0	0	0	0	0	0	0	0
155.0	6	5	4	2	0	0	0	0	0	0	0	0	0	0
157.5	1	1	1	0	0	0	0	0	0	0	0	0	0	0



**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](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL86569

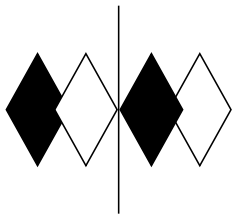
PAGE: 3 OF 8

ISSUE DATE: 01/27/16

PREPARED FOR: H.E. WILLIAMS, INC.

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	0	0	0	0	0	0	0	0	0	0	0	0	0
162.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165.0	0	0	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	0	0	0
170.0	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
175.0	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
180.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



**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](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL86569

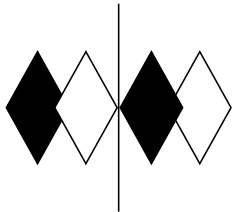
PAGE: 4 OF 8

ISSUE DATE: 01/27/16

PREPARED FOR: H.E. WILLIAMS, INC.

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	0
157.5	0



**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](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL86569

PAGE: 5 OF 8

ISSUE DATE: 01/27/16

PREPARED FOR: H.E. WILLIAMS, INC.

CANDELA DISTRIBUTION  
LATERAL ANGLE

	180.0
160.0	0
162.5	0
165.0	0
167.5	0
170.0	0
172.5	0
175.0	0
177.5	0
180.0	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](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL86569  
ISSUE DATE: 01/27/16  
PREPARED FOR: H.E. WILLIAMS, INC.

PAGE: 6 OF 8

5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	0
5- 10	0
10- 15	0
15- 20	0
20- 25	1
25- 30	2
30- 35	3
35- 40	6
40- 45	8
45- 50	12
50- 55	17
55- 60	22
60- 65	29
65- 70	36
70- 75	43
75- 80	49
80- 85	53
85- 90	54
90- 95	53
95-100	50
100-105	45
105-110	38
110-115	30
115-120	23
120-125	16
125-130	11
130-135	7
135-140	5
140-145	3
145-150	1
150-155	0
155-160	0
160-165	0
165-170	0
170-175	0
175-180	0

10-DEGREE  
ZONAL LUMEN SUMMARY

0- 10	0
0- 20	0
0- 30	2
0- 40	11
0- 50	32
0- 60	71
0- 70	136
0- 80	228
0- 90	335
0-100	438
0-110	521
0-120	574
0-130	601
0-140	613
0-150	617
0-160	618
0-170	618
0-180	618



REPORT NUMBER: ITL86569

PAGE: 7 OF 8

ISSUE DATE: 01/27/16

PREPARED FOR: H.E. WILLIAMS, INC.

# 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	108	108	108	108	100	100	100	100	86	86	86	72	72	72	60	60	60	54
1	90	82	74	68	82	75	68	62	62	57	52	50	46	42	39	36	33	27
2	79	67	57	49	71	61	52	45	50	43	37	39	34	29	30	25	22	17
3	70	56	46	37	63	51	42	34	41	34	27	32	26	21	24	19	15	11
4	63	48	38	30	57	44	34	27	35	28	21	28	21	16	20	15	11	7
5	57	42	32	24	52	38	29	22	31	23	17	24	18	13	18	13	9	5
6	52	37	27	20	47	34	25	18	27	20	14	21	15	11	16	11	7	4
7	48	33	24	17	43	30	21	15	24	17	12	19	13	9	14	9	6	3
8	44	30	21	14	40	27	19	13	22	15	10	17	12	7	13	8	5	2
9	41	27	18	12	37	25	17	11	20	13	9	16	10	6	12	7	4	2
10	38	25	16	11	35	22	15	10	18	12	8	14	9	6	11	7	3	1

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.



**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](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL86569  
ISSUE DATE: 01/27/16  
PREPARED FOR: H.E. WILLIAMS, INC.

PAGE: 8 OF 8

ADDRESS: 831 W. FAIRVIEW AVE  
CARTHAGE, MO 64836

THIS ITL REPORT WITH THE USE OF THE NVLAP LOGO SHALL NOT BE USED BY THE CLIENT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE FEDERAL GOVERNMENT.