

REPORT NUMBER: ITL90141-GONIOPHOTOMETRY

PAGE: 1 OF 9

ISSUE DATE: 01/16/18

PREPARED FOR: PACE ELECTRONICS PRODUCTS

ADDRESS: 34 FOLEY DRIVE
SODUS, NY 14551

CATALOG NUMBER: PAC0837

LUMINAIRE: MOLDED WHITE PLASTIC HOUSING WITH 2 MOLDED WHITE PLASTIC SWIVEL HEAD ASSEMBLIES, EACH HEAD ASSEMBLY CONSISTS OF: ONE CIRCUIT BOARD WITH 12 LEDS, MOLDED PLASTIC REFLECTOR WITH SPECULAR FINISH AND 1 APERTURE PER LED, CLEAR RECTANGULAR PRISMATIC PLASTIC LENS. BOTH SWIVEL HEAD ASSEMBLIES WERE ILLUMINATED FOR THIS TEST. ONLY ONE LIGHT HEAD WAS MEASURED FOR LIGHT OUTPUT. LENS PRISMS IN.

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

INPUT ELECTRICAL: 3.60 VOLTS, 1.70 WATTS, 0.471 AMPS

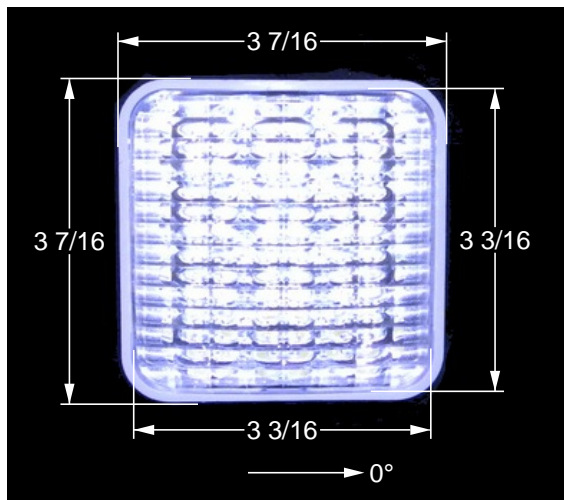
MOUNTING: SURFACE

LED DRIVER: PACE ELECTRONICS PROPRIETARY

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT CLIENT REQUESTED INPUT VOLTAGE (3.6VDC) TO THE DRIVER. DRIVER INFORMATION PROVIDED BY CLIENT.

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 20.0 FEET



THIS 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.

Checked MKLOPF

Approved N WHITE

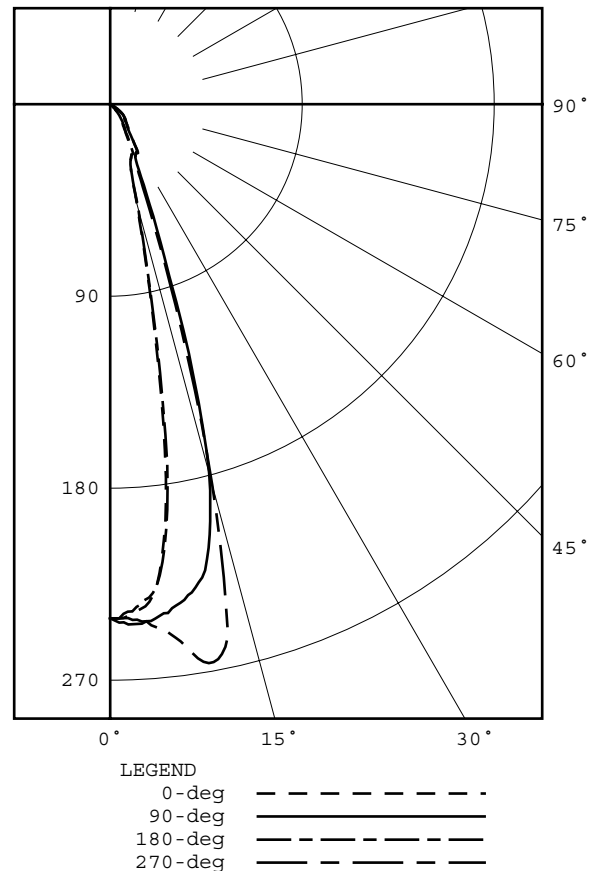
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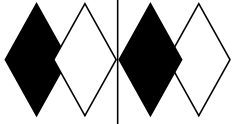
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CANDELA DISTRIBUTION					FLUX
	0.0	90.0	180.0	270.0	
0	241	241	241	241	
5	231	242	230	246	21.6
15	49	179	51	185	31.2
25	23	28	25	28	13.2
35	10	15	10	14	8.1
45	2	10	3	10	3.9
55	1	5	1	5	1.8
65	0	1	1	1	1.0
75	0	1	0	1	0.3
85	0	0	0	0	0.0
90	0	0	0	0	
95	0	0	0	0	0.0
105	0	0	0	0	0.0
115	0	0	0	0	0.0
125	0	0	0	0	0.0
135	0	0	0	0	0.0
145	0	0	0	0	0.0
155	0	0	0	0	0.0
165	0	0	0	0	0.0
175	0	0	0	0	0.0
180	0	0	0	0	

ZONAL LUMEN ZONE	SUMMARY LUMENS	%FIXT
0- 30	65.9	81.4
0- 40	74.0	91.4
0- 60	79.7	98.4
0- 90	80.9	100.0
90-120	0.0	0.0
90-130	0.0	0.0
90-150	0.0	0.0
90-180	0.0	0.0
0-180	80.9	100.0

EFFICACY = 47.6 lm/W
CIE TYPE - DIRECT
PLANE : 0-DEG 90-DEG 180-DEG
SPACING CRITERIA : 0.37 0.61 0.37
BEAM ANGLE (50%) : 20.5 X 33.8 DEGREES
FIELD ANGLE (10%) : 43.5 X 53.5 DEGREES





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CANDELA DISTRIBUTION
 LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0	202.5	225.0	247.5	270.0	292.5
0.0	241	241	241	241	241	241	241	241	241	241	241	241	241	241
0.5	241	241	241	241	242	241	241	241	241	240	241	241	241	241
1.0	241	241	242	242	243	242	242	241	241	240	240	241	241	241
1.5	241	241	242	242	243	243	242	240	239	239	240	241	241	242
2.0	240	240	242	242	244	244	242	240	238	238	239	240	241	242
2.5	239	240	242	242	244	245	243	239	238	236	238	241	242	243
3.0	238	239	241	242	244	245	243	238	236	235	237	240	242	243
3.5	237	239	240	242	244	245	242	238	235	234	236	240	243	244
4.0	236	238	240	242	243	244	242	238	233	233	235	240	243	245
4.5	234	237	239	242	243	244	241	237	232	231	235	240	245	246
5.0	231	235	239	241	242	243	241	235	230	229	234	241	246	247
5.5	227	233	238	240	241	242	240	232	227	227	233	242	246	247
6.0	221	228	236	239	240	241	238	228	222	223	232	242	248	248
6.5	214	223	234	238	240	241	235	222	216	218	231	243	250	249
7.0	206	216	231	237	238	239	232	216	209	211	229	245	252	250
7.5	198	209	227	237	237	238	228	209	201	205	226	247	254	252
8.0	188	199	221	235	236	234	223	201	192	197	222	249	257	254
8.5	177	189	215	234	235	232	218	193	182	188	218	251	260	254
9.0	164	178	208	232	233	228	212	183	171	178	213	253	263	255
9.5	151	166	200	231	232	225	206	174	157	167	207	254	265	255
10.0	137	154	191	229	230	222	199	163	142	154	200	254	266	256
11.0	111	128	173	224	226	216	186	137	115	127	184	252	265	255
11.5	99	116	164	220	223	213	178	124	103	115	175	250	263	254
12.0	89	104	154	213	218	209	170	113	92	104	166	246	260	252
12.5	79	94	143	207	213	204	162	102	82	94	156	240	255	250
13.0	71	80	132	201	207	199	154	93	74	85	146	233	241	244
13.5	64	73	122	193	201	193	146	85	67	76	134	224	228	234
14.0	58	66	112	184	194	187	137	77	61	69	123	212	214	221
14.5	53	60	103	175	187	180	129	71	55	62	113	199	199	208
15.0	49	55	94	165	179	173	120	65	51	56	103	185	185	193
16.0	40	47	78	144	158	155	102	56	41	48	79	158	155	162
17.0	34	41	64	124	134	136	86	48	35	41	64	133	125	133
18.0	31	37	54	106	111	116	70	41	31	36	52	112	99	108
19.0	29	33	46	91	85	96	60	35	29	33	42	92	77	86
20.0	28	31	40	76	69	79	51	31	28	31	36	75	60	68
22.5	26	27	29	48	41	49	35	25	26	29	27	44	35	39
25.0	23	25	24	33	28	33	26	23	25	27	24	29	28	28
27.5	17	19	22	24	26	27	21	21	19	22	24	24	26	26
30.0	13	14	20	22	26	25	18	16	14	16	21	22	25	25
32.5	11	10	15	19	19	20	17	11	12	11	16	19	19	22
35.0	10	9	11	14	15	15	16	9	10	9	12	16	14	15
37.5	9	8	8	11	13	13	14	8	8	7	9	11	14	13
40.0	6	6	6	9	12	11	8	6	6	5	7	9	12	12
42.5	4	4	5	8	10	10	5	4	4	4	4	8	11	10
45.0	2	3	3	6	10	8	3	3	3	3	3	7	10	8
47.5	1	2	2	4	9	7	2	2	2	2	2	5	9	6
50.0	1	1	1	4	8	6	2	2	1	1	1	4	8	6
52.5	1	1	1	3	6	4	1	1	1	1	1	3	7	5
55.0	1	1	1	2	5	4	1	1	1	1	1	2	5	4
57.5	1	1	1	1	4	3	1	1	1	1	1	1	3	2
60.0	1	1	1	1	2	2	1	1	1	1	1	1	2	2
62.5	1	1	1	1	2	1	1	1	1	1	1	1	2	1
65.0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
67.5	0	1	1	1	1	1	1	1	0	1	1	1	1	1
70.0	0	0	0	1	1	1	1	1	0	1	1	1	1	1
72.5	0	0	0	1	1	1	1	0	0	0	1	1	1	1
75.0	0	0	0	1	1	1	0	0	0	0	0	1	1	0
77.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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

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CANDELA DISTRIBUTION
LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0	202.5	225.0	247.5	270.0	292.5
85.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
152.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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



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CANDELA DISTRIBUTION
LATERAL ANGLE

	315.0	337.5	360.0
0.0	241	241	241
0.5	241	241	241
1.0	241	241	241
1.5	241	240	241
2.0	241	239	240
2.5	241	239	239
3.0	241	238	238
3.5	241	238	237
4.0	241	237	236
4.5	241	236	234
5.0	241	234	231
5.5	240	232	227
6.0	240	229	221
6.5	239	224	214
7.0	238	218	206
7.5	237	211	198
8.0	234	203	188
8.5	230	194	177
9.0	225	185	164
9.5	220	175	151
10.0	214	164	137
11.0	201	139	111
11.5	193	128	99
12.0	181	117	89
12.5	173	107	79
13.0	163	97	71
13.5	152	89	64
14.0	140	80	58
14.5	130	73	53
15.0	120	66	49
16.0	101	55	40
17.0	84	47	34
18.0	70	39	31
19.0	58	34	29
20.0	49	31	28
22.5	36	25	26
25.0	27	23	23
27.5	22	19	17
30.0	18	15	13
32.5	18	11	11
35.0	17	9	10
37.5	14	8	9
40.0	8	6	6
42.5	5	3	4
45.0	3	2	2
47.5	2	2	1
50.0	1	1	1
52.5	1	1	1
55.0	1	1	1
57.5	1	1	1
60.0	1	1	1
62.5	1	1	1
65.0	1	1	0
67.5	1	1	0
70.0	1	1	0
72.5	0	0	0
75.0	0	0	0
77.5	0	0	0
80.0	0	0	0
82.5	0	0	0



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CANDELA DISTRIBUTION
 LATERAL ANGLE

	315.0	337.5	360.0
85.0	0	0	0
87.5	0	0	0
90.0	0	0	0
92.5	0	0	0
95.0	0	0	0
97.5	0	0	0
100.0	0	0	0
102.5	0	0	0
105.0	0	0	0
107.5	0	0	0
110.0	0	0	0
112.5	0	0	0
115.0	0	0	0
117.5	0	0	0
120.0	0	0	0
122.5	0	0	0
125.0	0	0	0
127.5	0	0	0
130.0	0	0	0
132.5	0	0	0
135.0	0	0	0
137.5	0	0	0
140.0	0	0	0
142.5	0	0	0
145.0	0	0	0
147.5	0	0	0
150.0	0	0	0
152.5	0	0	0
155.0	0	0	0
157.5	0	0	0
160.0	0	0	0
162.5	0	0	0
165.0	0	0	0
167.5	0	0	0
170.0	0	0	0
172.5	0	0	0
175.0	0	0	0
177.5	0	0	0
180.0	0	0	0



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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	5.7
5- 10	15.8
10- 15	18.5
15- 20	12.7
20- 25	7.4
25- 30	5.7
30- 35	4.6
35- 40	3.5
40- 45	2.3
45- 50	1.5
50- 55	1.1
55- 60	0.7
60- 65	0.5
65- 70	0.4
70- 75	0.3
75- 80	0.0
80- 85	0.0
85- 90	0.0
90- 95	0.0
95-100	0.0
100-105	0.0
105-110	0.0
110-115	0.0
115-120	0.0
120-125	0.0
125-130	0.0
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	21.6
0- 20	52.7
0- 30	65.9
0- 40	74.0
0- 50	77.9
0- 60	79.7
0- 70	80.6
0- 80	80.9
0- 90	80.9
0-100	80.9
0-110	80.9
0-120	80.9
0-130	80.9
0-140	80.9
0-150	80.9
0-160	80.9
0-170	80.9
0-180	80.9



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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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	112	109	107	112	110	108	106	106	104	103	102	101	100	98	98	97	95
2	109	105	102	99	107	103	100	97	100	98	95	97	95	93	95	93	91	90
3	105	99	95	92	103	98	94	91	95	92	89	93	90	88	91	89	87	85
4	101	94	90	86	99	93	89	85	91	87	84	89	86	83	87	85	83	81
5	97	90	85	81	95	89	84	81	87	83	80	86	82	79	84	81	79	77
6	93	86	81	77	92	85	80	77	84	79	76	82	79	76	81	78	75	74
7	90	82	77	74	89	81	77	73	80	76	73	79	75	73	78	75	72	71
8	87	79	74	70	86	78	74	70	77	73	70	76	73	70	75	72	69	68
9	84	76	71	68	83	75	71	68	75	70	67	74	70	67	73	69	67	66
10	81	73	68	65	80	73	68	65	72	68	65	71	67	65	71	67	65	64

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.

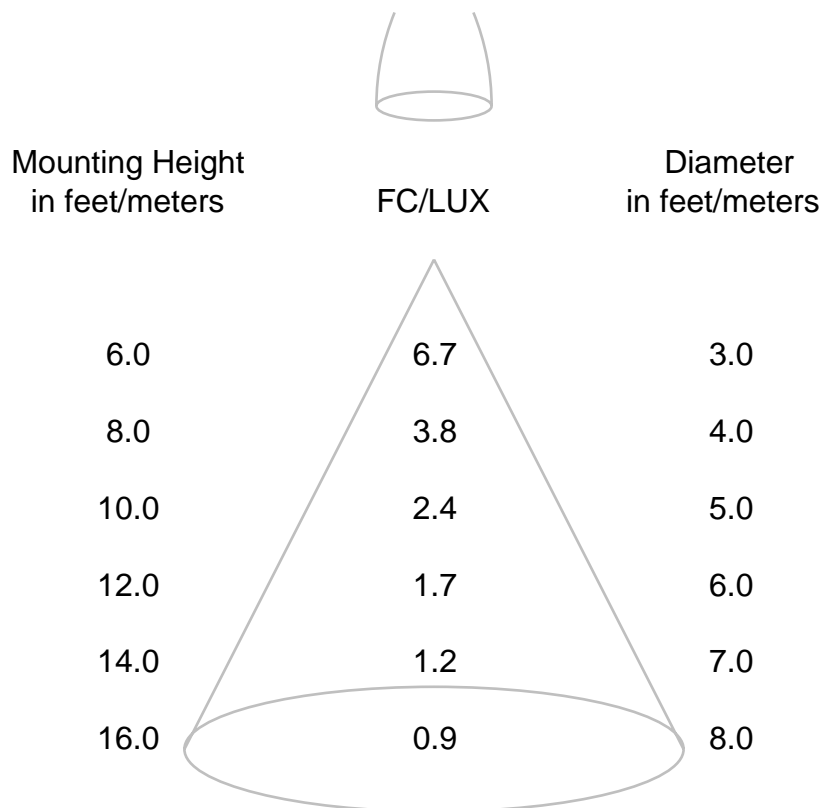
NOTE: THE ZONAL CAVITY CALCULATION TECHNIQUE IS ACCURATE WHEN LUMINAIRES WITH SYMMETRIC CANDELA DISTRIBUTIONS ARE EMPLOYED AND WHEN THE LUMINAIRES ARE LOCATED SYMMETRICALLY THROUGHOUT THE ROOM. THIS UNIT HAS SPECIAL CHARACTERISTICS AND THEREFORE THESE COEFFICIENTS SHOULD BE USED WITH CAUTION.

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CONE OF LIGHT DIAGRAM

(diameter shown is where fc/lux value is half the fc/lux at nadir)



If distances are feet, results are footcandles.
 If distances are meters, results are lux.

Note: The candela values used to generate this diagram were obtained by averaging the photometric data into a single plane.