

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P25885

Luminaire Tested: **TRE15-LD4-40W-40-OPL-WH-UNV-ED1C**

Test Date: 03/17/15



**Test Information**

Test Method: LM-79-08  
Report Number: P25885  
Test Lab: INNOVATION CENTER-P2  
Test Date: 03/17/15  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: TRE15-LD4-40W-40-OPL-WH-UNV-ED1C  
Description: FAILSAFE TERRAPIN 15" DIAMETER 40 WATT-4000K WALL MOUNT  
LUMINAIRE OPAL LENS WITH WHITE BORDER AND WHITE EYELID  
Light Source: (112) NICHIA 4000K LEDS  
1FS402256M8404-0  
Ballast/Driver: (1) OSRAM ELECTRONIC DRIVER  
OSROT40UNVDIM1F

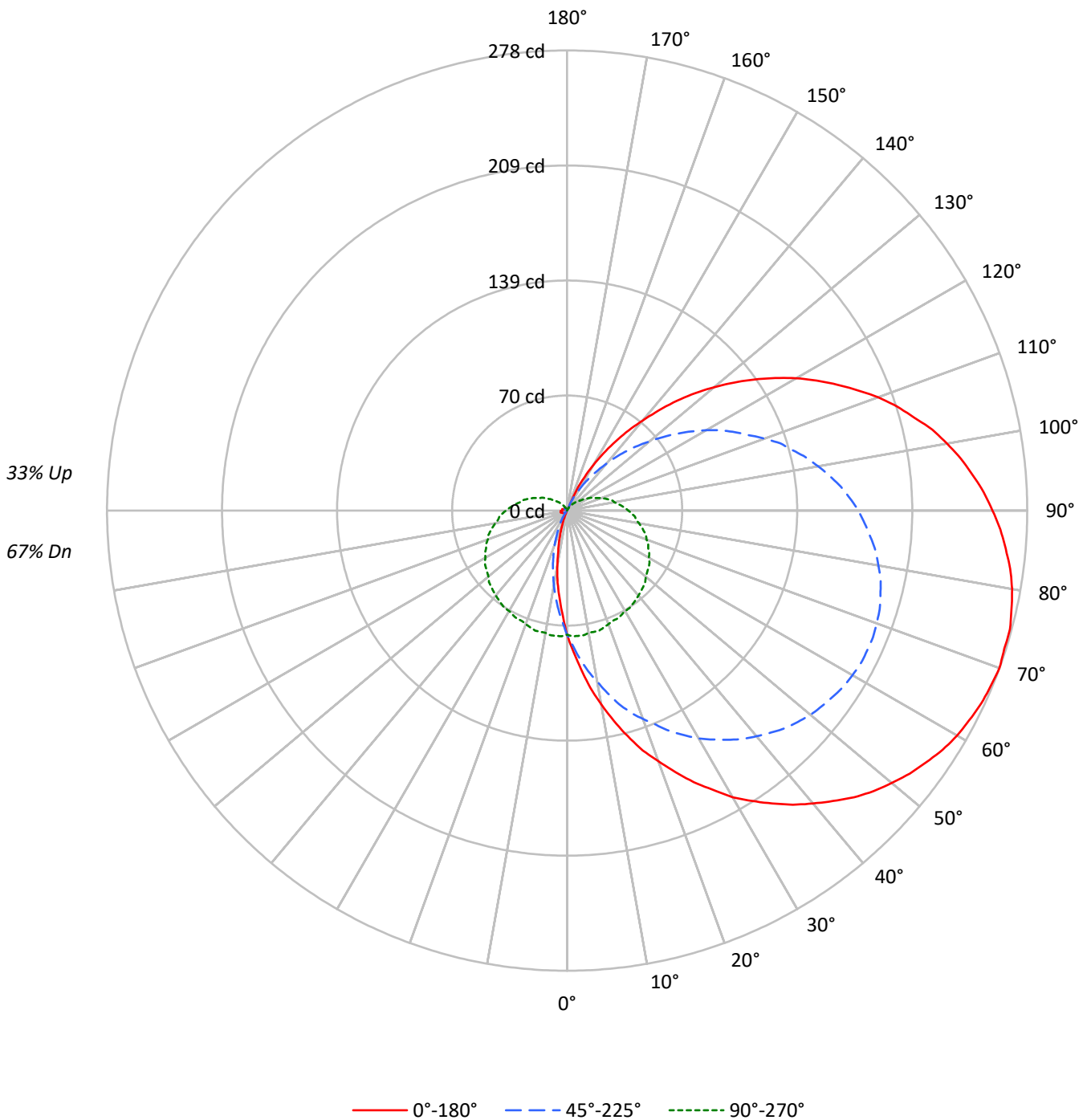
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 864.8 lumens  
Efficiency: N/A  
Efficacy: 20.1 lumens/watt  
Spacing Criteria (0/90/45): 2.24 / 1.41 / 2.02  
Luminous Opening: Circular (Dia: 1.25' x H: 0')  
CIE Type: Semi-Direct  
  
Input Watts (W): 43  
Input Voltage (V): 120.07  
Input Current (A<sub>in</sub>): 0.35945  
Voltage Rise (V): NR  
Power Factor: 0.9984  
Total Harmonic Distortion (THDi): 7.12%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: 24 HR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT

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CATALOG NUMBER: TRE15-LD4-40W-40-OPL-WH-UNV-ED1C

### Luminous Intensity Polar Plot





TEST NUMBER: P25885

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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20			20			20			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
RCR																		
0	111	111	111	111	105	105	105	105	93	93	93	82	82	82	72	72	72	67
1	96	89	83	77	89	83	78	73	73	68	64	63	60	57	54	52	49	45
2	85	74	66	59	79	70	62	55	61	54	49	52	47	43	45	41	37	33
3	76	64	54	46	71	59	51	44	52	44	39	44	39	34	38	33	29	25
4	69	55	45	38	64	52	43	35	45	37	31	39	32	27	33	28	24	20
5	63	49	39	31	58	45	36	29	39	32	26	34	28	23	29	24	20	16
6	58	43	33	26	53	40	31	25	35	28	22	30	24	19	26	21	17	14
7	53	39	29	23	49	36	28	21	32	24	19	27	21	17	23	18	14	12
8	49	35	26	20	46	33	24	19	29	22	17	25	19	15	21	16	12	10
9	46	32	23	17	42	30	22	16	26	19	15	23	17	13	19	15	11	9
10	43	29	21	15	40	27	20	15	24	17	13	21	15	11	18	13	10	8

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	658	658	658
5°	845	669	467
10°	1060	668	303
15°	1280	681	163
20°	1503	681	65
25°	1752	697	10
30°	2026	709	10
35°	2313	739	11
40°	2645	767	23
45°	3039	806	25
50°	3493	846	27
55°	4052	918	31
60°	4772	1000	53
65°	5728	1121	62
70°	7129	1308	77
75°	9387	1627	136
80°	13790	2223	202
85°	26770	4126	403



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	7.2	0.8
10°-20°	21.9	2.5
20°-30°	37.6	4.3
30°-40°	55.1	6.4
40°-50°	72.5	8.4
50°-60°	87.3	10.1
60°-70°	97.5	11.3
70°-80°	101.5	11.7
80°-90°	98.2	11.4
90°-100°	88.5	10.2
100°-110°	73.5	8.5
110°-120°	55.4	6.4
120°-130°	37.0	4.3
130°-140°	20.8	2.4
140°-150°	8.9	1.0
150°-160°	1.9	0.2
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	66.6	7.7
0°-40°	121.7	14.1
0°-60°	281.5	32.6
0°-90°	578.8	66.9
90°-120°	217.4	25.1
90°-150°	284.0	32.8
90°-180°	286.0	33.1
0°-180°	864.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	75	75	75	75	75	
5°	96	90	76	60	53	10
15°	141	121	75	33	18	41
25°	181	147	72	13	1	84
35°	216	169	69	3	1	136
45°	245	186	65	2	2	190
55°	265	196	60	2	2	238
65°	276	200	54	2	3	274
75°	277	196	48	3	4	292
85°	266	184	41	3	4	219
90°	257	176	37	3	3	141
95°	246	166	33	3	3	198
105°	217	141	26	2	3	230
115°	180	112	18	2	2	179
125°	138	81	12	2	2	124
135°	94	51	7	1	1	73
145°	51	25	3	1	1	33
155°	16	7	1	1	1	7
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



TEST NUMBER: P25885

CATALOG NUMBER: TRE15-LD4-40W-40-OPL-WH-UNV-ED1C

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	75	75	75	75	75	75	75	75	75	75	75
2.5°	85	84	85	84	84	84	83	83	83	82	82
5°	96	96	96	95	95	94	93	92	91	90	89
7.5°	108	107	107	106	105	104	103	101	100	98	96
10°	119	118	118	117	115	114	112	110	108	105	103
12.5°	130	129	129	128	126	124	122	119	116	113	109
15°	141	141	140	138	137	134	132	128	124	121	117
17.5°	152	151	151	149	147	144	141	137	132	128	123
20°	161	161	160	158	156	153	149	145	139	134	128
22.5°	171	171	170	167	165	162	157	152	146	140	134
25°	181	181	179	177	174	170	165	160	154	147	139
27.5°	190	190	189	186	183	179	173	167	160	153	145
30°	200	199	198	195	191	187	180	174	167	159	150
32.5°	208	208	206	203	199	193	188	181	172	164	154
35°	216	216	214	210	207	200	194	187	178	169	159
37.5°	224	224	221	218	214	208	201	193	184	174	163
40°	231	231	229	225	221	214	207	199	189	178	167
42.5°	238	238	235	231	227	220	212	203	193	182	170
45°	245	244	242	238	233	226	218	208	198	186	173
47.5°	251	250	248	243	238	231	222	213	201	189	176
50°	256	255	253	249	243	235	226	216	205	192	178
52.5°	261	260	258	253	247	240	230	220	208	194	180
55°	265	265	262	257	251	243	233	222	210	196	182
57.5°	269	268	265	260	254	245	236	224	212	198	183
60°	272	271	268	263	257	248	238	226	213	199	184
62.5°	274	273	270	265	259	250	240	228	214	200	184
65°	276	275	272	267	260	251	241	229	215	200	184
67.5°	277	276	273	268	261	252	241	229	215	200	183
70°	278	277	274	269	262	252	241	229	215	199	183
72.5°	277	277	273	268	261	252	241	228	214	198	181
75°	277	275	272	267	260	250	239	227	212	196	179
77.5°	275	274	271	266	258	249	238	225	210	194	177
80°	273	271	268	263	256	246	235	222	207	191	174
82.5°	270	268	266	260	252	243	232	219	204	188	171
85°	266	265	262	256	249	240	228	215	201	184	167
87.5°	262	261	257	252	245	235	224	211	196	180	163
90°	257	256	253	247	240	231	220	207	192	176	159
92.5°	252	251	247	242	235	226	214	202	187	171	155
95°	246	245	242	237	229	220	209	196	182	166	150
97.5°	240	238	235	230	223	214	202	190	176	160	144
100°	233	231	228	223	216	207	196	184	170	154	138
102.5°	226	224	221	216	209	200	189	177	163	148	133
105°	217	216	213	208	201	192	181	169	156	141	126
107.5°	209	208	204	199	193	184	174	162	149	135	120
110°	200	198	195	190	184	176	165	153	141	127	113



TEST NUMBER: P25885

CATALOG NUMBER: TRE15-LD4-40W-40-OPL-WH-UNV-ED1C

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	190	190	186	181	175	167	157	145	133	119	106
115°	180	179	176	172	165	157	148	137	124	112	99
117.5°	170	169	166	162	156	148	138	128	116	105	92
120°	160	159	156	151	146	138	129	119	108	97	84
122.5°	149	148	145	141	136	128	120	110	100	89	78
125°	138	137	135	131	125	118	110	101	91	81	71
127.5°	127	126	124	120	115	108	100	92	83	73	64
130°	116	115	113	109	104	98	91	83	75	65	57
132.5°	105	104	102	98	94	88	81	74	66	58	50
135°	94	93	91	87	84	78	72	65	58	51	44
137.5°	82	82	80	77	73	69	63	57	50	44	38
140°	71	71	69	66	63	59	53	48	42	37	32
142.5°	61	61	58	56	53	49	45	40	35	31	27
145°	51	50	49	47	44	40	37	33	29	25	22
147.5°	41	41	39	37	35	32	29	26	23	20	17
150°	32	31	30	28	27	24	22	20	17	15	13
152.5°	23	22	22	21	19	18	16	14	13	11	9
155°	16	15	15	14	13	12	11	10	8	7	6
157.5°	0	0	0	0	0	0	0	0	0	0	0
160°	0	0	0	0	0	0	0	0	0	0	0
162.5°	0	0	0	0	0	0	0	0	0	0	0
165°	0	0	0	0	0	0	0	0	0	0	0
167.5°	0	0	0	0	0	0	0	0	0	0	0
170°	0	0	0	0	0	0	0	0	0	0	0
172.5°	0	0	0	0	0	0	0	0	0	0	0
175°	0	0	0	0	0	0	0	0	0	0	0
177.5°	0	0	0	0	0	0	0	0	0	0	0
180°	0	0	0	0	0	0	0	0	0	0	0



TEST NUMBER: P25885

CATALOG NUMBER: TRE15-LD4-40W-40-OPL-WH-UNV-ED1C

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	75	75	75	75	75	75	75	75	75	75	75
2.5°	81	80	80	79	78	78	77	76	75	74	73
5°	88	86	85	83	81	80	78	76	74	72	70
7.5°	94	91	89	86	84	81	78	76	73	70	67
10°	100	97	93	90	86	83	79	75	72	68	64
12.5°	106	102	98	93	89	84	79	75	70	66	61
15°	112	107	102	97	91	86	80	75	69	64	59
17.5°	117	112	106	99	93	87	80	74	68	62	56
20°	122	116	109	102	95	88	80	73	67	60	53
22.5°	127	120	112	104	96	88	80	72	65	58	50
25°	132	124	115	107	98	89	80	72	64	56	48
27.5°	136	128	118	109	99	90	80	71	62	54	46
30°	141	131	121	111	100	90	80	70	61	52	44
32.5°	144	134	123	112	101	91	80	70	60	50	41
35°	148	137	126	114	102	91	80	69	58	49	39
37.5°	152	140	128	115	103	91	79	68	57	47	37
40°	155	142	130	116	104	91	79	67	56	45	35
42.5°	157	144	131	117	104	91	78	66	54	44	34
45°	160	146	132	118	104	91	77	65	53	42	32
47.5°	162	148	133	119	104	90	77	64	52	41	30
50°	164	149	134	119	104	89	76	62	50	39	29
52.5°	165	150	135	119	103	89	75	61	49	38	27
55°	166	151	135	119	103	88	73	60	48	36	26
57.5°	167	151	134	118	102	87	72	59	46	35	24
60°	167	151	134	117	101	86	71	57	45	33	23
62.5°	167	150	133	116	100	84	70	56	43	32	22
65°	167	150	133	115	99	83	68	54	42	31	20
67.5°	166	149	131	114	97	81	66	53	40	29	19
70°	165	147	130	112	95	80	65	51	39	28	18
72.5°	163	146	128	110	93	78	63	50	38	27	17
75°	161	143	126	108	91	76	61	48	36	26	16
77.5°	159	141	124	106	89	74	59	46	35	25	16
80°	156	138	121	103	87	71	57	44	33	23	14
82.5°	153	135	118	100	84	69	55	42	32	22	14
85°	150	132	115	97	81	67	53	41	30	21	13
87.5°	146	128	111	94	78	64	51	39	28	20	12
90°	142	124	108	91	75	61	48	37	27	19	11
92.5°	137	120	104	87	72	59	46	35	26	18	11
95°	132	116	100	84	69	56	44	33	24	16	10
97.5°	127	111	95	80	66	53	42	31	23	15	9
100°	122	106	91	76	63	50	39	29	21	14	9
102.5°	116	101	86	72	59	47	37	28	20	13	8
105°	111	96	82	68	56	44	34	26	18	12	7
107.5°	105	90	77	64	52	42	32	24	17	11	7
110°	98	85	72	60	48	38	29	22	15	10	6





TEST NUMBER: P25885

CATALOG NUMBER: TRE15-LD4-40W-40-OPL-WH-UNV-ED1C

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
112.5°	92	79	67	55	45	36	27	20	14	9	6
115°	86	74	62	51	41	33	25	18	13	8	5
117.5°	80	68	57	47	38	30	23	17	12	8	5
120°	73	63	52	43	34	27	20	15	10	7	4
122.5°	67	57	48	39	31	24	18	13	9	6	4
125°	61	52	43	35	28	22	16	12	8	5	3
127.5°	55	46	39	31	25	19	14	10	7	5	3
130°	48	41	34	27	22	17	12	9	6	4	2
132.5°	43	36	30	24	19	15	11	8	5	4	2
135°	37	32	26	21	16	13	9	7	4	3	2
137.5°	32	27	22	18	14	11	8	6	4	3	2
140°	27	23	19	15	12	9	7	5	3	2	2
142.5°	22	19	16	12	10	7	5	4	3	2	1
145°	18	15	13	10	8	6	5	3	2	2	1
147.5°	14	12	10	8	6	5	3	3	2	2	1
150°	11	9	8	6	5	4	3	2	2	1	1
152.5°	8	7	6	4	3	3	2	2	1	1	1
155°	5	5	4	3	3	2	2	1	1	1	1
157.5°	0	0	0	0	0	0	0	0	0	0	0
160°	0	0	0	0	0	0	0	0	0	0	0
162.5°	0	0	0	0	0	0	0	0	0	0	0
165°	0	0	0	0	0	0	0	0	0	0	0
167.5°	0	0	0	0	0	0	0	0	0	0	0
170°	0	0	0	0	0	0	0	0	0	0	0
172.5°	0	0	0	0	0	0	0	0	0	0	0
175°	0	0	0	0	0	0	0	0	0	0	0
177.5°	0	0	0	0	0	0	0	0	0	0	0
180°	0	0	0	0	0	0	0	0	0	0	0



TEST NUMBER: P25885

CATALOG NUMBER: TRE15-LD4-40W-40-OPL-WH-UNV-ED1C

**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	75	75	75	75	75	75	75	75	75	75	75
2.5°	72	71	70	69	68	67	66	66	65	65	64
5°	68	66	65	63	61	60	58	57	57	56	54
7.5°	64	62	59	57	54	53	51	49	48	47	45
10°	61	57	54	51	48	46	44	41	39	38	36
12.5°	57	53	49	46	42	39	36	34	32	30	28
15°	54	49	45	41	36	33	30	27	24	23	21
17.5°	50	45	40	35	31	27	24	20	18	16	14
20°	47	41	36	30	26	22	18	15	13	11	9
22.5°	44	37	31	26	21	17	14	11	8	7	5
25°	41	34	28	22	17	13	10	7	5	4	3
27.5°	38	31	24	19	14	10	7	4	3	2	1
30°	35	28	21	15	10	7	4	2	1	1	1
32.5°	33	25	18	13	8	5	2	1	1	1	1
35°	30	22	16	10	6	3	1	1	1	1	1
37.5°	28	20	13	8	4	2	1	1	1	1	1
40°	26	18	11	6	3	1	1	1	1	1	1
42.5°	24	16	9	4	2	1	1	1	1	1	2
45°	22	14	8	3	2	2	2	1	1	2	2
47.5°	21	13	6	2	2	2	2	1	2	2	2
50°	19	11	5	2	2	2	1	2	2	2	2
52.5°	18	10	4	2	2	2	2	2	2	2	2
55°	16	9	3	2	2	2	2	2	2	2	2
57.5°	15	8	3	2	2	2	2	2	2	2	2
60°	14	7	2	2	2	2	2	2	2	2	3
62.5°	13	6	2	2	2	2	2	2	3	3	3
65°	12	5	2	2	2	2	3	3	3	3	3
67.5°	11	5	2	2	2	2	3	3	3	3	3
70°	10	5	2	2	2	3	3	3	3	3	3
72.5°	10	4	2	2	3	3	3	3	3	3	3
75°	9	4	2	2	3	3	3	3	3	3	3
77.5°	8	4	2	3	3	3	3	3	3	3	3
80°	8	3	2	2	3	3	3	3	3	3	3
82.5°	7	3	2	2	3	3	3	3	3	3	3
85°	7	3	2	3	3	3	3	3	3	3	3
87.5°	6	3	2	3	3	3	3	3	3	3	3
90°	6	3	2	3	3	3	3	3	3	3	3
92.5°	5	3	2	2	3	3	3	3	3	3	3
95°	5	3	2	2	3	3	3	3	3	3	3
97.5°	5	2	2	2	3	3	3	3	3	3	3
100°	5	2	2	2	3	3	3	3	3	3	3
102.5°	4	2	2	2	2	2	2	3	3	3	3
105°	4	2	2	2	2	2	2	2	2	2	3
107.5°	4	2	2	2	2	2	2	2	2	2	3
110°	3	2	2	2	2	2	2	2	2	2	2



TEST NUMBER: P25885

CATALOG NUMBER: TRE15-LD4-40W-40-OPL-WH-UNV-ED1C

**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
112.5°	3	2	2	2	2	2	2	2	2	2	2
115°	3	2	2	2	2	2	2	2	2	2	2
117.5°	3	2	2	2	2	2	2	2	2	2	2
120°	2	2	2	2	2	2	2	2	2	2	2
122.5°	2	2	2	2	2	2	2	2	2	2	2
125°	2	1	2	2	2	2	2	2	2	2	2
127.5°	2	1	1	1	1	1	1	2	2	2	2
130°	2	1	1	1	1	1	1	1	1	1	2
132.5°	2	1	1	1	1	1	1	1	1	1	1
135°	1	1	1	1	1	1	1	1	1	1	1
137.5°	1	1	1	1	1	1	1	1	1	1	1
140°	1	1	1	1	1	1	1	1	1	1	1
142.5°	1	1	1	1	1	1	1	1	1	1	1
145°	1	1	1	1	1	1	1	1	1	1	1
147.5°	1	1	1	1	1	1	1	1	1	1	1
150°	1	1	1	1	1	1	1	1	1	1	1
152.5°	1	1	1	1	1	1	1	1	1	1	1
155°	1	1	1	1	1	1	1	1	1	1	1
157.5°	0	0	0	0	0	0	0	0	0	0	0
160°	0	0	0	0	0	0	0	0	0	0	0
162.5°	0	0	0	0	0	0	0	0	0	0	0
165°	0	0	0	0	0	0	0	0	0	0	0
167.5°	0	0	0	0	0	0	0	0	0	0	0
170°	0	0	0	0	0	0	0	0	0	0	0
172.5°	0	0	0	0	0	0	0	0	0	0	0
175°	0	0	0	0	0	0	0	0	0	0	0
177.5°	0	0	0	0	0	0	0	0	0	0	0
180°	0	0	0	0	0	0	0	0	0	0	0



TEST NUMBER: P25885

CATALOG NUMBER: TRE15-LD4-40W-40-OPL-WH-UNV-ED1C

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	75	75	75	75
2.5°	64	64	63	63
5°	54	54	53	53
7.5°	44	44	44	44
10°	35	35	34	34
12.5°	27	26	25	25
15°	19	19	18	18
17.5°	13	12	12	12
20°	8	8	7	7
22.5°	4	4	4	3
25°	2	2	1	1
27.5°	1	1	1	1
30°	1	1	1	1
32.5°	1	1	1	1
35°	1	1	1	1
37.5°	1	1	1	1
40°	2	2	2	2
42.5°	2	2	2	2
45°	2	2	2	2
47.5°	2	2	2	2
50°	2	2	2	2
52.5°	2	2	2	2
55°	2	2	2	2
57.5°	2	2	3	2
60°	3	3	3	3
62.5°	3	3	3	3
65°	3	3	3	3
67.5°	3	3	3	3
70°	3	3	3	3
72.5°	3	3	4	4
75°	3	4	4	4
77.5°	4	4	4	4
80°	3	4	4	4
82.5°	3	4	4	4
85°	3	4	4	4
87.5°	3	4	4	4
90°	3	4	4	3
92.5°	3	3	3	3
95°	3	3	3	3
97.5°	3	3	3	3
100°	3	3	3	3
102.5°	3	3	3	3
105°	2	3	3	3
107.5°	2	2	3	3
110°	2	2	2	2



TEST NUMBER: P25885

CATALOG NUMBER: TRE15-LD4-40W-40-OPL-WH-UNV-ED1C

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
112.5°	2	2	2	2
115°	2	2	2	2
117.5°	2	2	2	2
120°	2	2	2	2
122.5°	2	2	2	2
125°	2	2	2	2
127.5°	2	2	2	2
130°	1	2	2	2
132.5°	1	2	2	2
135°	1	1	1	1
137.5°	1	1	1	1
140°	1	1	1	1
142.5°	1	1	1	1
145°	1	1	1	1
147.5°	1	1	1	1
150°	1	1	1	1
152.5°	1	1	1	1
155°	1	1	1	1
157.5°	0	0	0	0
160°	0	0	0	0
162.5°	0	0	0	0
165°	0	0	0	0
167.5°	0	0	0	0
170°	0	0	0	0
172.5°	0	0	0	0
175°	0	0	0	0
177.5°	0	0	0	0
180°	0	0	0	0

(END OF REPORT)