

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: P25879

Luminaire Tested: **TRE15-LD4-30W-40-OPL-WH-UNV-ED1C**

Test Date: 03/27/15



Test Information

Test Method: LM-79-08
Report Number: P25879
Test Lab: INNOVATION CENTER-P2
Test Date: 03/27/15
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: TRE15-LD4-30W-40-OPL-WH-UNV-ED1C
Description: FAILSAFE TERRAPIN 15" DIAMETER 30 WATT-4000K WALL MOUNT
LUMINAIRE OPAL LENS WITH WHITE BORDER, WHITE EYELID AND
INTERNAL WHITE REFLECTOR
Light Source: (112) NICHIA 4000K LEDS
1FS402256M8404-0
Ballast/Driver: (1) OSRAM ELECTRONIC DRIVER
OSROT40UNVDIM1F

Summary

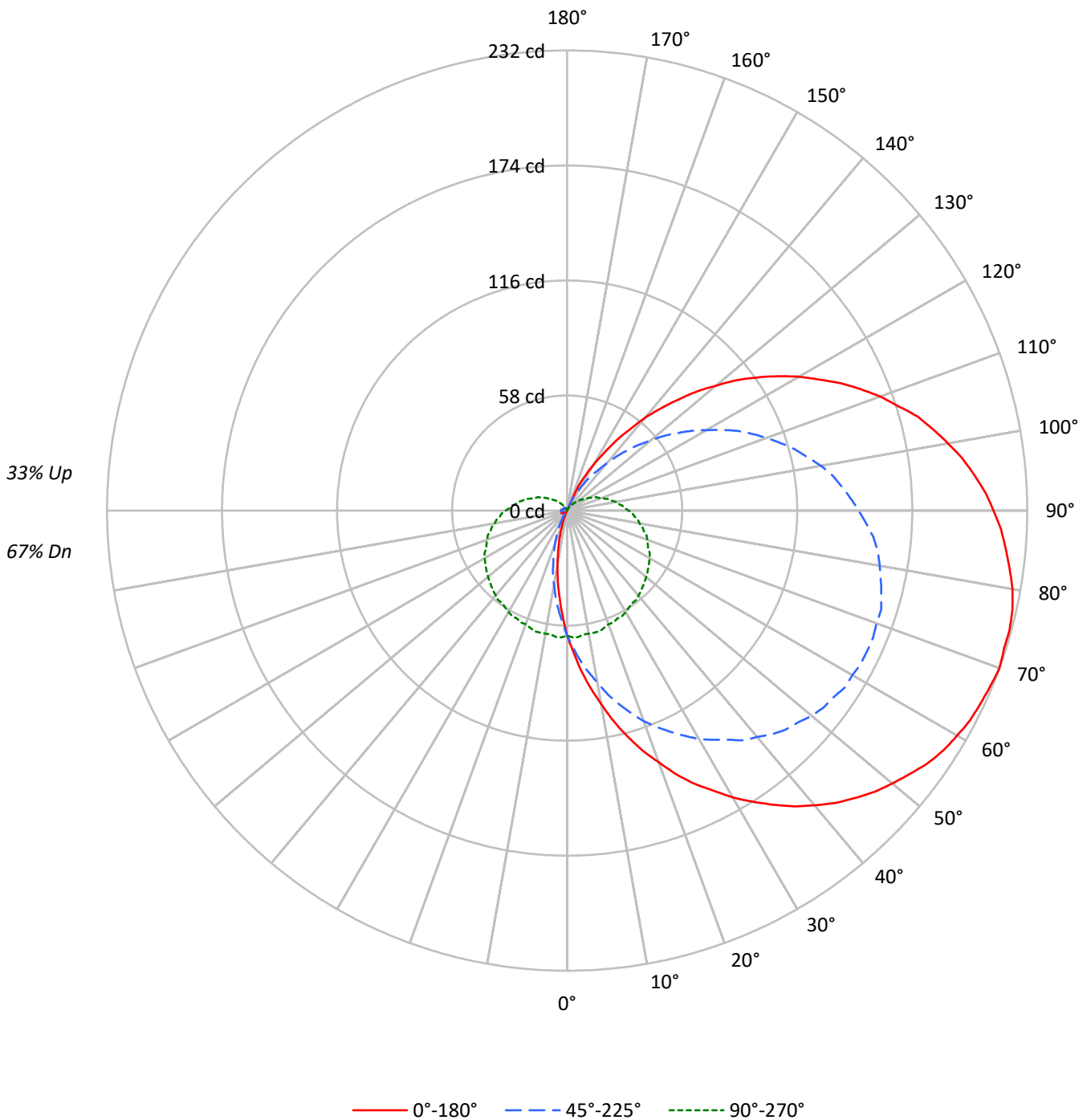
Lumens per Lamp: N/A
Luminaire Lumens: 726.1 lumens
Efficiency: N/A
Efficacy: 22.1 lumens/watt
Spacing Criteria (0/90/45): 2.24 / 1.39 / 2.01
Luminous Opening: Circular (Dia: 1.25' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 32.8
Input Voltage (V): 119.96
Input Current (Ain): 0.27476
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 6.10%
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-LD4-30W-40-OPL-WH-UNV-ED1C

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	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	71	71	71	67
1	96	89	83	77	89	83	78	73	73	68	64	63	60	56	54	52	49	44
2	85	74	66	59	79	70	62	55	61	54	49	52	47	43	44	40	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	38	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°	553	553	553
5°	713	564	387
10°	882	561	249
15°	1072	572	136
20°	1260	569	56
25°	1471	581	10
30°	1691	598	10
35°	1938	610	11
40°	2221	641	11
45°	2543	670	25
50°	2920	710	27
55°	3395	765	31
60°	3982	842	35
65°	4774	934	62
70°	5950	1103	77
75°	7828	1356	102
80°	11517	1869	152
85°	22342	3422	302



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	6.0	0.8
10°-20°	18.3	2.5
20°-30°	31.4	4.3
30°-40°	46.1	6.4
40°-50°	60.7	8.4
50°-60°	73.1	10.1
60°-70°	81.6	11.2
70°-80°	85.0	11.7
80°-90°	82.4	11.3
90°-100°	74.3	10.2
100°-110°	61.8	8.5
110°-120°	46.7	6.4
120°-130°	31.5	4.3
130°-140°	17.8	2.4
140°-150°	7.8	1.1
150°-160°	1.7	0.2
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	55.7	7.7
0°-40°	101.9	14.0
0°-60°	235.7	32.5
0°-90°	484.5	66.7
90°-120°	182.9	25.2
90°-150°	239.9	33.0
90°-180°	242.0	33.3
0°-180°	726.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	63	63	63	63	63	
5°	81	76	64	50	44	8
15°	118	101	63	27	15	34
25°	152	123	60	11	1	71
35°	181	141	57	2	1	114
45°	205	156	54	1	2	159
55°	222	164	50	1	2	199
65°	230	167	45	2	3	228
75°	231	164	40	2	3	244
85°	222	155	34	3	3	183
90°	215	147	31	2	3	118
95°	206	139	28	2	3	166
105°	183	119	22	2	2	193
115°	152	95	16	2	2	151
125°	117	68	10	2	2	105
135°	79	43	6	2	1	62
145°	43	22	3	2	1	27
155°	14	7	1	2	1	6
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	63	63	63	63	63	63	63	63	63	63	63
2.5°	71	71	70	71	70	70	70	70	69	69	69
5°	81	80	80	80	79	79	78	77	77	76	75
7.5°	90	90	89	89	88	87	87	85	84	82	81
10°	99	99	98	97	96	96	94	92	90	88	86
12.5°	109	108	108	107	105	104	102	100	97	95	92
15°	118	118	117	116	114	112	110	108	104	101	98
17.5°	127	127	126	124	122	120	118	115	111	107	103
20°	135	135	134	133	130	128	125	121	117	113	108
22.5°	144	143	142	140	138	135	132	128	123	118	113
25°	152	151	150	148	145	142	138	134	129	123	117
27.5°	159	159	158	156	153	149	145	140	134	128	122
30°	167	166	165	163	160	156	151	146	140	133	126
32.5°	174	174	172	170	166	162	157	151	144	137	130
35°	181	180	179	176	172	168	163	156	149	141	133
37.5°	188	187	185	183	179	174	168	162	154	146	137
40°	194	193	191	188	184	179	173	166	158	149	140
42.5°	200	199	197	194	190	184	178	170	162	153	143
45°	205	204	202	199	194	189	182	174	165	156	145
47.5°	210	209	207	204	199	193	186	178	168	158	148
50°	214	213	211	208	203	197	189	181	171	161	150
52.5°	218	217	215	212	207	200	193	184	174	163	151
55°	222	220	218	215	209	203	195	186	175	164	152
57.5°	225	223	221	217	212	205	197	188	177	166	153
60°	227	226	223	220	214	207	199	189	178	166	154
62.5°	229	228	225	221	216	209	200	190	179	167	154
65°	230	229	227	223	217	210	201	191	179	167	154
67.5°	231	230	228	224	218	210	202	191	180	167	154
70°	232	231	228	224	218	211	202	191	179	166	153
72.5°	231	231	228	224	218	210	201	191	179	166	152
75°	231	230	227	223	217	209	200	189	177	164	150
77.5°	230	229	226	221	216	208	199	188	176	162	148
80°	228	227	224	220	214	206	196	186	174	160	146
82.5°	225	224	221	217	211	203	194	183	171	158	143
85°	222	221	219	214	208	200	191	180	168	155	140
87.5°	219	218	215	211	205	197	188	177	164	151	137
90°	215	214	211	207	201	193	184	173	161	147	134
92.5°	211	209	207	202	197	189	180	169	157	143	130
95°	206	205	202	198	192	184	175	164	152	139	126
97.5°	201	200	197	193	187	179	170	159	147	135	121
100°	195	194	191	187	181	173	164	154	142	130	117
102.5°	189	188	185	181	175	167	159	148	137	124	111
105°	183	181	178	174	169	161	152	142	131	119	106
107.5°	175	174	171	167	162	154	146	136	125	113	101
110°	168	166	164	160	154	147	139	129	118	107	95



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CATALOG NUMBER: TRE15-LD4-30W-40-OPL-WH-UNV-ED1C

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	160	158	156	152	147	139	132	122	111	101	89
115°	152	150	148	144	139	132	124	115	105	95	84
117.5°	143	142	139	136	131	124	116	108	98	88	78
120°	135	133	131	127	122	116	109	100	91	81	72
122.5°	126	125	122	119	114	108	101	93	84	75	66
125°	117	116	113	110	105	99	93	85	77	68	60
127.5°	108	106	104	101	97	91	85	78	70	62	54
130°	98	97	95	92	88	82	77	70	63	55	48
132.5°	89	87	86	83	79	74	69	63	56	49	43
135°	79	78	77	74	70	66	61	55	49	43	37
137.5°	70	69	68	65	62	58	53	48	42	37	32
140°	61	60	58	56	53	50	45	41	36	31	27
142.5°	51	51	50	48	45	42	38	34	30	26	23
145°	43	42	41	40	37	35	31	28	25	22	19
147.5°	34	34	33	32	30	28	25	22	19	17	15
150°	27	27	26	25	23	21	19	17	15	13	11
152.5°	20	20	19	18	17	15	14	12	11	10	8
155°	14	14	13	12	11	10	9	8	7	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



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CATALOG NUMBER: TRE15-LD4-30W-40-OPL-WH-UNV-ED1C

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	63	63	63	63	63	63	63	63	63	63	63
2.5°	68	68	67	66	66	65	64	64	63	62	61
5°	73	72	71	70	68	67	65	64	62	60	59
7.5°	79	77	75	73	70	68	66	63	61	59	56
10°	84	81	78	75	72	69	66	63	60	57	54
12.5°	89	86	82	78	75	71	67	63	59	55	52
15°	94	90	85	81	76	72	67	63	58	54	49
17.5°	98	94	89	83	78	73	67	62	57	52	47
20°	103	97	92	85	80	74	68	61	56	50	44
22.5°	107	100	94	87	81	74	68	61	54	48	42
25°	111	104	97	89	82	75	68	60	53	47	40
27.5°	114	107	99	91	83	75	67	60	52	45	38
30°	118	110	102	93	84	76	67	59	51	43	36
32.5°	121	112	104	94	85	76	67	58	50	42	35
35°	124	115	105	96	86	76	67	57	49	41	33
37.5°	127	117	107	97	87	76	67	57	48	39	31
40°	130	119	109	98	87	76	66	56	47	38	30
42.5°	132	121	110	99	87	76	66	55	46	37	28
45°	134	123	111	99	87	76	65	54	44	35	27
47.5°	136	124	112	99	87	76	64	53	43	34	25
50°	137	125	112	100	87	75	63	52	42	33	24
52.5°	139	126	113	100	87	75	63	51	41	31	23
55°	139	126	113	99	86	74	62	50	40	30	21
57.5°	140	126	113	99	86	73	61	49	39	29	20
60°	140	126	112	98	85	72	60	48	37	28	19
62.5°	140	126	112	98	84	71	58	47	36	27	18
65°	140	125	111	97	83	70	57	45	35	26	17
67.5°	139	124	110	96	82	68	56	44	34	25	16
70°	138	123	109	94	80	67	54	43	33	24	15
72.5°	137	122	107	93	78	65	53	42	31	23	15
75°	135	120	105	91	77	64	51	40	30	21	14
77.5°	133	118	103	89	75	62	50	39	29	20	13
80°	131	116	101	87	73	60	48	37	28	19	12
82.5°	128	113	99	84	71	58	46	36	27	18	12
85°	125	111	96	82	68	56	45	34	25	17	11
87.5°	122	108	93	80	66	54	43	33	24	17	10
90°	119	104	90	77	63	52	41	31	23	16	10
92.5°	115	101	87	74	61	49	39	29	22	15	9
95°	111	97	84	71	58	47	37	28	20	14	9
97.5°	107	93	80	68	56	45	35	26	19	13	8
100°	103	89	77	64	53	43	33	25	18	12	8
102.5°	98	85	73	61	50	40	31	23	17	11	7
105°	93	81	69	58	47	38	29	22	16	10	6
107.5°	88	76	65	54	44	35	27	20	14	10	6
110°	83	71	61	51	41	32	25	18	13	9	5



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
112.5°	78	67	57	47	38	30	23	17	12	8	5
115°	72	62	53	44	35	28	21	16	11	8	5
117.5°	67	57	49	40	32	25	19	14	10	7	4
120°	62	53	45	37	29	23	17	13	9	6	4
122.5°	57	48	41	33	26	21	16	11	8	5	4
125°	52	44	37	30	24	19	14	10	7	5	3
127.5°	46	39	33	27	21	17	12	9	6	4	3
130°	41	35	29	24	19	15	11	8	5	4	3
132.5°	37	31	26	21	16	13	9	7	5	3	2
135°	32	27	22	18	14	11	8	6	4	3	2
137.5°	27	23	19	16	12	9	7	5	3	2	2
140°	23	19	16	13	10	8	6	4	3	2	2
142.5°	19	16	14	11	8	7	5	3	3	2	2
145°	16	13	11	9	7	5	4	3	2	2	1
147.5°	13	10	9	7	5	4	3	2	2	1	1
150°	10	8	7	5	4	3	3	2	1	1	1
152.5°	7	6	5	4	3	2	2	1	1	1	1
155°	5	4	4	3	2	2	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: P25879

CATALOG NUMBER: TRE15-LD4-30W-40-OPL-WH-UNV-ED1C

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	63	63	63	63	63	63	63	63	63	63	63
2.5°	60	59	58	58	57	56	55	55	54	54	53
5°	57	55	54	53	51	50	49	48	47	46	46
7.5°	54	52	49	47	46	44	42	41	40	39	38
10°	51	48	45	42	40	38	36	34	33	31	30
12.5°	48	44	41	38	35	33	30	28	26	25	23
15°	45	41	37	34	30	27	24	22	20	19	17
17.5°	42	38	33	29	26	22	19	17	15	13	12
20°	39	34	30	25	21	18	15	13	11	9	8
22.5°	37	31	26	21	17	14	11	9	7	5	4
25°	34	28	23	18	14	11	8	6	4	3	2
27.5°	32	26	20	15	11	8	5	3	2	1	1
30°	30	23	18	13	9	5	3	2	1	1	1
32.5°	27	21	15	10	7	4	2	1	1	1	1
35°	26	19	13	8	5	2	1	1	1	1	1
37.5°	24	17	11	7	3	2	1	1	1	1	1
40°	22	15	9	5	2	1	1	1	1	1	1
42.5°	20	13	8	4	2	1	1	1	1	1	1
45°	19	12	7	3	1	1	1	1	1	1	2
47.5°	17	11	6	2	1	1	1	1	1	1	2
50°	16	9	4	2	1	1	1	1	2	2	2
52.5°	15	8	4	2	1	1	2	2	2	2	2
55°	14	7	3	1	1	1	2	2	2	2	2
57.5°	13	7	3	1	2	2	2	2	2	2	2
60°	12	6	2	2	2	2	2	2	2	2	2
62.5°	11	5	2	2	2	2	2	2	2	2	2
65°	10	5	2	2	2	2	2	2	2	2	2
67.5°	9	4	2	2	2	2	2	2	2	3	2
70°	9	4	2	2	2	2	2	3	3	3	3
72.5°	8	4	2	2	2	2	2	3	3	3	3
75°	8	3	2	2	2	2	3	3	3	3	3
77.5°	7	3	2	2	2	2	3	3	3	3	3
80°	7	3	2	2	2	2	3	3	3	3	3
82.5°	6	3	2	2	2	3	3	3	3	3	3
85°	6	3	2	2	2	3	3	3	3	3	3
87.5°	6	3	2	2	2	3	3	3	3	3	3
90°	5	3	2	2	2	2	3	3	3	3	3
92.5°	5	2	2	2	2	3	3	3	3	3	3
95°	5	2	2	2	2	2	3	3	3	3	3
97.5°	4	2	2	2	2	2	2	2	3	2	2
100°	4	2	2	2	2	2	3	3	3	3	3
102.5°	4	2	2	2	2	2	2	2	2	2	2
105°	4	2	2	2	2	2	2	2	2	2	2
107.5°	3	2	2	2	2	2	2	2	2	2	2
110°	3	2	2	2	2	2	2	2	2	2	2



TEST NUMBER: P25879

CATALOG NUMBER: TRE15-LD4-30W-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	2	2	2	2	2	2	2	2	2	2
127.5°	2	2	2	2	2	2	2	2	2	2	2
130°	2	2	2	2	1	2	2	2	1	2	2
132.5°	2	2	2	2	2	2	1	1	1	1	2
135°	2	2	2	2	2	2	2	2	1	1	1
137.5°	2	2	2	2	2	2	2	2	1	1	1
140°	2	2	2	2	2	1	2	1	1	1	1
142.5°	2	2	2	2	2	2	2	2	2	1	1
145°	1	2	2	2	2	2	2	1	1	1	1
147.5°	1	1	2	2	2	2	2	1	1	1	1
150°	1	1	2	2	2	2	2	2	2	1	1
152.5°	1	1	1	2	2	2	2	2	2	2	2
155°	1	1	1	1	2	2	2	2	2	2	2
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: P25879

CATALOG NUMBER: TRE15-LD4-30W-40-OPL-WH-UNV-ED1C

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	63	63	63	63
2.5°	53	53	53	53
5°	45	45	44	44
7.5°	37	37	36	36
10°	29	28	28	28
12.5°	22	22	21	21
15°	16	15	15	15
17.5°	11	10	10	9
20°	7	6	6	6
22.5°	4	3	3	3
25°	2	1	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°	1	1	1	1
42.5°	1	1	1	1
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	2	2
60°	2	2	2	2
62.5°	2	3	3	3
65°	3	3	3	3
67.5°	3	3	3	3
70°	3	3	3	3
72.5°	3	3	3	3
75°	3	3	3	3
77.5°	3	3	3	3
80°	3	3	3	3
82.5°	3	3	3	3
85°	3	3	3	3
87.5°	3	3	3	3
90°	3	3	3	3
92.5°	3	3	3	3
95°	3	3	3	3
97.5°	2	3	3	3
100°	2	3	3	3
102.5°	2	2	2	2
105°	2	2	2	2
107.5°	2	2	2	2
110°	2	2	2	2



TEST NUMBER: P25879

CATALOG NUMBER: TRE15-LD4-30W-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°	2	1	1	2
132.5°	1	1	1	1
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°	2	1	1	1
155°	2	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)