

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: P27860

Luminaire Tested: **TRE11-LD4-25W-50-OPL-BK-UNV-EDC1**

Test Date: 05/22/16



Test Information

Test Method: LM-79-08
Report Number: P27860
Test Lab: INNOVATION CENTER(G2)
Test Date: 05/22/16
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: TRE11-LD4-25W-50-OPL-BK-UNV-EDC1
Description: TERRAPIN 11" LED WALL MOUNT WITH OPAL LENS, EYELID COVER AND EYELID REFLECTOR
Light Source: (56) NICHIA 5000 NF2L757DRT
Ballast/Driver: (1) OSRAM ELECTRONIC DRIVER PROGRAMMED AT 500mA OT40W

Summary

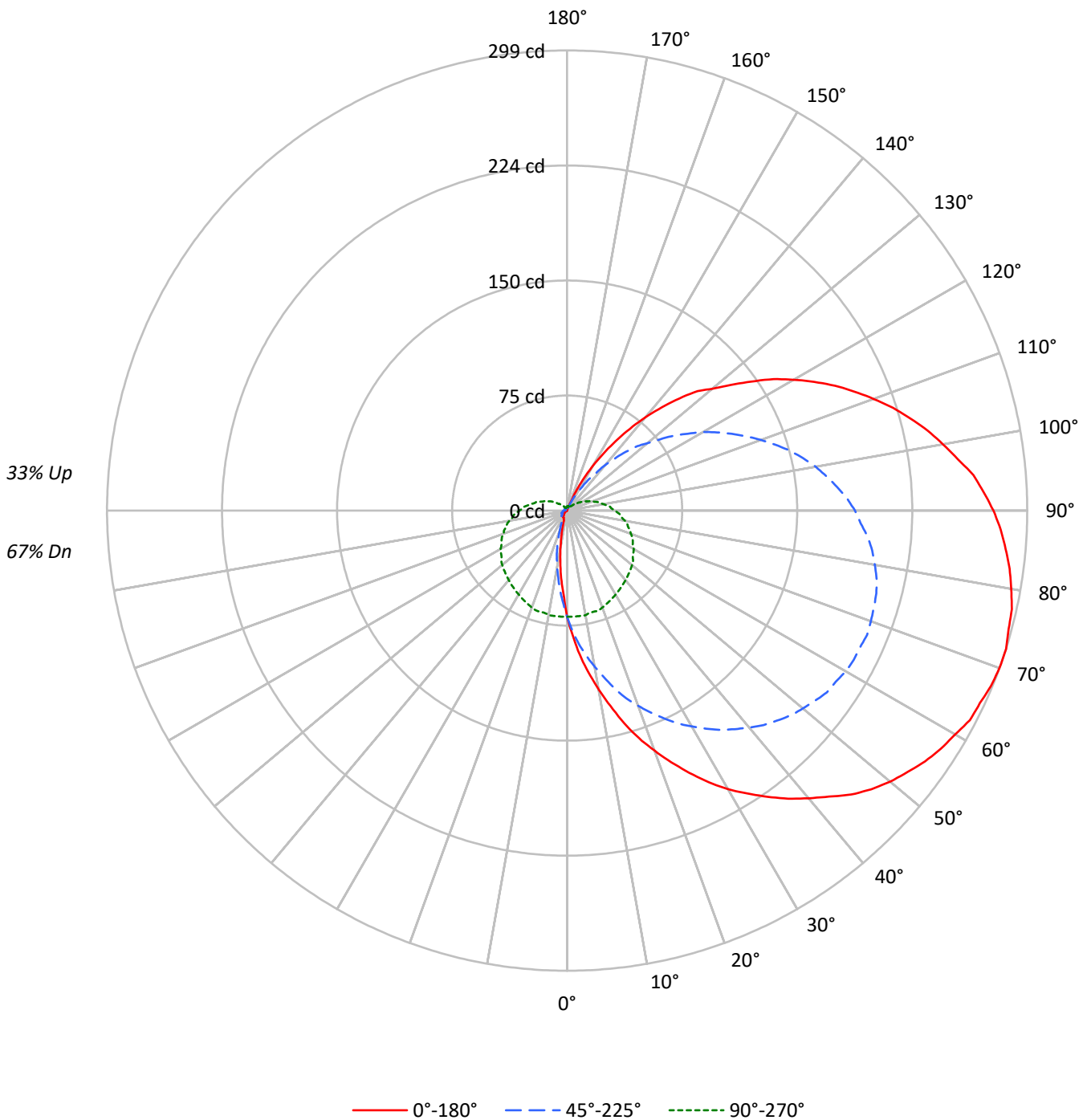
Lumens per Lamp: N/A
Luminaire Lumens: 891.2 lumens
Efficiency: N/A
Efficacy: 36.2 lumens/watt
Spacing Criteria (0/90/45): 2.48 / 1.37 / 2.17
Luminous Opening: Rectangular w/ Sides (W: 0.92' x L: 0.29' x H: 0.92')
CIE Type: Semi-Direct

Input Watts (W): 24.6
Input Voltage (V): 120.1
Input Current (A_{in}): 0.205
Voltage Rise (V): NR
Power Factor: 0.9982
Total Harmonic Distortion (THDi): 7.04%
Frequency (hertz): 60
Stabilization Time: 0.5 HR
Operation Time: 24 HR
Ambient Temperature (°C): 24.3
Test Distance: 25 FT

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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	72	73	68	64	63	59	56	54	51	49	44
2	85	74	66	58	79	69	62	55	60	54	49	52	47	42	44	40	37	32
3	76	63	54	46	70	59	50	43	51	44	38	44	38	33	37	33	29	25
4	69	55	45	37	64	51	42	35	44	37	31	38	32	27	32	27	23	20
5	63	48	38	31	58	45	36	29	39	32	26	34	27	22	28	23	19	16
6	57	43	33	26	53	40	31	25	35	27	22	30	24	19	25	20	16	13
7	53	38	29	22	49	36	27	21	31	24	19	27	21	16	23	18	14	11
8	49	35	26	19	45	32	24	18	28	21	16	24	19	14	21	16	12	10
9	45	31	23	17	42	29	22	16	26	19	14	22	17	12	19	14	11	8
10	42	29	20	15	39	27	19	14	24	17	13	21	15	11	18	13	10	7

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	2778	2778	2778
5°	2980	2564	1395
10°	3104	2398	658
15°	3236	2235	272
20°	3317	2105	120
25°	3387	1969	90
30°	3452	1857	83
35°	3486	1763	61
40°	3526	1686	43
45°	3587	1623	41
50°	3616	1572	26
55°	3632	1503	13
60°	3636	1474	12
65°	3643	1424	12
70°	3653	1382	12
75°	3629	1348	12
80°	3609	1321	12
85°	3578	1301	13



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	6.6	0.7
10°-20°	20.6	2.3
20°-30°	37.2	4.2
30°-40°	55.8	6.3
40°-50°	74.4	8.3
50°-60°	90.2	10.1
60°-70°	101.1	11.3
70°-80°	105.5	11.8
80°-90°	102.3	11.5
90°-100°	92.0	10.3
100°-110°	75.9	8.5
110°-120°	57.1	6.4
120°-130°	38.1	4.3
130°-140°	22.0	2.5
140°-150°	9.3	1.0
150°-160°	2.3	0.3
160°-170°	0.6	0.1
170°-180°	0.2	0.0
0°-30°	64.4	7.2
0°-40°	120.3	13.5
0°-60°	284.8	32.0
0°-90°	593.8	66.6
90°-120°	225.0	25.3
90°-150°	294.4	33.0
90°-180°	297.0	33.3
0°-180°	891.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	69	69	69	69	69	
5°	94	87	69	52	44	10
15°	143	120	68	25	12	41
25°	188	149	65	8	5	88
35°	227	174	61	6	4	143
45°	261	193	57	5	3	202
55°	284	206	52	4	1	254
65°	296	210	47	4	1	294
75°	297	208	41	3	1	314
85°	286	196	35	3	1	235
90°	277	187	31	2	1	152
95°	265	176	28	2	1	213
105°	231	150	21	1	0	244
115°	192	118	14	1	0	190
125°	146	85	9	1	1	132
135°	103	54	5	1	1	80
145°	55	25	3	2	1	35
155°	15	6	2	2	1	8
165°	1	2	3	2	1	0
175°	1	2	3	2	1	0
180°	2	2	2	2	2	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	69	69	69	69	69	69	69	69	69	69	69
2.5°	81	80	80	80	80	80	80	79	79	78	78
5°	94	93	93	93	92	92	91	90	89	88	87
7.5°	106	105	105	104	104	103	102	101	99	97	95
10°	118	117	116	115	115	114	113	111	109	106	103
12.5°	130	129	129	127	126	125	124	121	118	115	111
15°	143	142	141	139	138	137	135	132	128	124	120
17.5°	155	154	153	151	149	147	146	142	138	133	128
20°	166	165	164	162	160	158	156	152	147	141	135
22.5°	177	176	175	172	170	167	165	161	155	149	142
25°	188	187	186	183	180	177	175	170	164	157	149
27.5°	199	197	196	193	190	187	185	179	172	165	156
30°	209	208	206	203	199	196	193	187	180	172	162
32.5°	218	217	215	212	207	204	202	195	187	178	168
35°	227	226	224	220	215	213	210	203	194	185	174
37.5°	236	235	233	229	224	221	217	210	201	190	179
40°	244	243	241	237	231	228	224	217	207	196	184
42.5°	252	251	248	244	238	235	231	223	213	202	189
45°	261	260	256	251	245	242	238	229	218	206	193
47.5°	268	267	264	258	251	248	243	234	223	211	197
50°	274	273	270	266	256	253	248	239	227	214	200
52.5°	279	278	275	271	264	259	253	243	231	218	203
55°	284	283	280	275	268	264	258	247	234	221	206
57.5°	288	287	284	278	271	267	262	249	237	223	207
60°	291	290	287	282	274	270	265	252	239	225	209
62.5°	295	293	290	284	277	273	268	254	241	226	210
65°	296	295	292	286	279	274	269	255	242	227	210
67.5°	298	297	293	287	280	276	270	256	243	227	211
70°	299	297	294	288	280	276	271	258	243	227	210
72.5°	299	297	294	288	280	275	270	256	242	226	209
75°	297	296	293	287	279	274	269	254	241	225	208
77.5°	296	294	291	285	277	273	267	253	239	223	206
80°	293	292	288	283	275	270	265	250	236	220	203
82.5°	290	289	285	280	272	267	262	247	233	217	200
85°	286	285	282	276	268	263	255	243	229	213	196
87.5°	282	281	277	271	264	258	251	239	225	209	191
90°	277	276	272	267	258	252	246	234	220	204	187
92.5°	271	270	267	261	251	246	241	229	215	199	182
95°	265	264	260	252	245	240	235	223	209	193	176
97.5°	256	255	251	246	238	233	228	216	203	187	170
100°	248	247	244	238	231	226	221	209	196	180	164
102.5°	240	239	236	230	223	218	213	201	188	173	157
105°	231	230	227	221	214	209	204	193	180	166	150
107.5°	222	221	218	212	205	201	196	185	172	158	142
110°	212	211	208	203	195	191	187	176	163	149	134



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	202	201	198	193	186	182	177	167	155	141	126
115°	192	191	187	183	176	172	167	157	145	132	118
117.5°	181	180	177	172	165	161	157	147	136	123	110
120°	170	169	166	161	155	151	147	138	127	114	102
122.5°	159	158	155	151	144	140	137	128	117	105	93
125°	146	146	143	139	134	129	126	117	107	96	85
127.5°	134	135	132	128	122	118	115	107	98	87	76
130°	123	123	120	117	111	108	104	97	88	78	68
132.5°	115	114	112	108	103	100	96	89	81	71	62
135°	103	101	100	96	91	89	86	79	71	62	54
137.5°	91	91	89	85	81	78	75	69	61	53	46
140°	79	79	77	73	69	67	64	58	51	45	39
142.5°	67	66	65	62	58	56	54	48	42	37	31
145°	55	55	54	51	48	45	43	39	34	29	25
147.5°	44	43	43	40	37	36	34	30	26	22	19
150°	34	33	32	30	28	27	25	22	19	16	14
152.5°	24	23	23	21	19	18	17	15	13	11	10
155°	15	15	14	13	12	11	10	9	8	7	6
157.5°	7	7	7	6	6	5	5	5	4	4	4
160°	2	2	2	2	2	2	2	3	3	3	2
162.5°	1	1	1	1	1	2	2	2	2	2	2
165°	1	1	1	1	1	1	1	2	2	2	2
167.5°	1	1	1	1	1	2	1	2	2	2	2
170°	1	1	1	1	1	1	2	2	2	2	2
172.5°	1	1	1	1	1	1	1	2	2	2	2
175°	1	1	1	1	2	2	2	2	2	2	2
177.5°	1	1	1	1	2	2	2	2	2	2	2
180°	2	2	2	2	2	2	2	2	2	2	2



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CATALOG NUMBER: TRE11-LD4-25W-50-OPL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	69	69	69	69	69	69	69	69	69	69	69
2.5°	77	76	75	75	74	74	73	72	70	69	68
5°	85	83	82	80	79	78	76	74	72	69	67
7.5°	93	90	88	85	83	82	79	76	72	69	66
10°	100	97	93	89	87	85	81	77	73	69	65
12.5°	108	103	98	94	91	89	84	79	73	68	63
15°	115	110	104	98	95	92	86	80	74	68	62
17.5°	122	116	110	103	99	96	89	82	75	68	61
20°	128	121	114	106	102	98	90	82	74	67	59
22.5°	135	127	119	110	106	101	92	83	74	66	57
25°	141	132	123	114	109	104	94	84	74	65	56
27.5°	147	138	127	117	112	106	96	85	74	64	55
30°	153	142	131	120	114	108	97	85	74	63	53
32.5°	158	147	135	123	116	110	98	85	74	62	51
35°	163	151	138	125	119	112	99	86	73	61	50
37.5°	167	155	141	127	121	113	100	86	73	60	49
40°	172	158	144	130	122	115	100	86	72	59	47
42.5°	176	162	147	131	124	116	101	86	71	58	46
45°	180	165	149	133	125	117	101	85	71	57	45
47.5°	183	167	151	134	126	117	101	85	70	56	43
50°	185	169	152	135	127	118	101	84	69	55	42
52.5°	188	171	154	136	127	118	101	84	68	54	40
55°	190	172	154	136	127	118	100	83	67	52	39
57.5°	191	173	155	136	127	118	99	82	66	51	38
60°	192	174	155	136	126	117	98	81	64	50	36
62.5°	193	174	155	136	126	116	97	79	63	48	35
65°	193	174	154	135	125	115	96	78	62	47	34
67.5°	193	174	154	134	124	114	95	77	60	46	33
70°	192	173	152	132	122	112	93	75	59	44	32
72.5°	191	171	151	131	121	111	91	73	57	43	30
75°	189	169	149	129	118	108	89	71	55	41	29
77.5°	187	167	147	126	116	106	87	69	53	40	28
80°	184	164	144	124	113	104	85	67	52	38	26
82.5°	181	161	141	121	111	101	82	65	50	36	25
85°	177	158	137	117	108	98	80	63	48	35	24
87.5°	173	154	133	114	104	94	77	60	45	33	22
90°	169	149	130	110	100	91	74	58	43	31	21
92.5°	164	145	125	106	97	88	71	55	41	29	20
95°	158	140	120	102	93	84	67	52	39	28	19
97.5°	153	134	115	97	88	80	64	49	37	26	17
100°	146	128	110	93	84	76	60	46	34	24	16
102.5°	140	122	104	88	79	71	57	43	32	22	15
105°	133	116	99	82	74	67	53	40	29	21	14
107.5°	126	109	93	77	70	63	49	37	28	19	13
110°	119	103	87	72	65	58	46	34	25	17	11



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	111	96	81	67	60	53	42	32	23	16	10
115°	104	89	75	61	55	49	38	29	21	14	9
117.5°	96	82	69	56	51	45	35	26	19	13	8
120°	88	75	63	51	46	41	31	23	17	12	8
122.5°	81	68	57	46	41	37	28	21	15	10	7
125°	73	62	51	41	37	32	25	18	13	9	6
127.5°	65	55	45	37	32	29	22	16	11	7	5
130°	58	49	40	32	28	25	19	14	10	7	4
132.5°	53	44	36	29	25	22	17	12	9	6	4
135°	46	38	31	25	22	19	14	10	7	5	4
137.5°	39	32	26	21	18	16	12	9	6	4	3
140°	32	27	21	17	15	13	10	7	5	4	3
142.5°	26	22	17	14	12	10	8	6	4	3	3
145°	21	17	14	11	9	8	6	5	3	3	2
147.5°	16	13	10	8	7	6	5	4	3	2	2
150°	11	9	8	6	5	5	4	3	3	2	2
152.5°	8	7	6	5	4	4	3	3	2	2	2
155°	5	5	4	3	3	3	3	2	2	2	2
157.5°	3	3	3	3	2	2	2	2	2	2	2
160°	2	2	2	2	2	2	2	2	2	2	2
162.5°	2	2	2	2	2	2	2	3	3	3	3
165°	2	2	2	2	2	2	3	3	3	3	3
167.5°	2	2	2	2	3	3	3	3	3	3	3
170°	2	2	2	3	3	3	3	3	3	3	3
172.5°	2	2	2	3	3	3	3	3	3	3	3
175°	2	3	3	3	3	3	3	3	3	3	3
177.5°	2	2	3	3	3	3	3	3	3	3	3
180°	2	2	2	2	2	2	2	2	2	2	2



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CATALOG NUMBER: TRE11-LD4-25W-50-OPL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	69	69	69	69	69	69	69	69	69	69	69
2.5°	67	66	65	64	64	63	62	61	60	59	58
5°	65	63	61	60	59	57	55	53	52	50	49
7.5°	63	60	57	56	54	51	49	46	44	42	40
10°	61	57	53	51	49	46	43	40	37	35	33
12.5°	58	54	49	47	45	41	37	34	31	28	25
15°	56	51	46	43	41	36	32	28	25	22	19
17.5°	54	48	42	39	37	32	27	23	19	16	14
20°	52	45	39	36	33	27	22	18	14	12	9
22.5°	50	43	36	32	29	23	18	14	11	8	7
25°	48	40	33	29	26	20	15	11	8	6	6
27.5°	46	38	30	26	23	16	12	8	6	6	6
30°	44	35	27	23	20	13	9	6	6	6	6
32.5°	42	33	25	21	17	11	7	6	6	6	5
35°	40	31	22	18	15	9	6	6	6	5	5
37.5°	38	29	20	16	13	7	6	6	5	5	5
40°	37	27	18	14	11	6	6	5	5	5	5
42.5°	35	25	16	12	9	6	6	5	5	5	4
45°	34	24	15	11	8	6	6	5	5	5	4
47.5°	32	22	13	9	7	6	5	5	5	4	4
50°	31	21	12	8	6	5	5	5	4	4	4
52.5°	29	19	11	7	6	5	5	5	4	4	3
55°	28	18	9	6	6	5	5	4	4	4	3
57.5°	27	17	9	6	5	5	5	4	4	4	3
60°	25	16	8	5	5	5	5	4	4	3	3
62.5°	24	15	7	5	5	5	4	4	4	3	3
65°	23	14	6	5	5	5	4	4	4	3	3
67.5°	22	13	6	5	5	5	4	4	4	3	3
70°	21	12	6	5	5	5	4	4	3	3	2
72.5°	20	11	5	5	5	4	4	4	3	3	2
75°	19	11	5	5	5	4	4	4	3	3	2
77.5°	18	10	5	5	5	4	4	4	3	3	2
80°	17	9	5	5	5	4	4	3	3	2	2
82.5°	16	9	5	5	4	4	4	3	3	2	2
85°	15	8	4	4	4	4	3	3	3	2	2
87.5°	14	7	4	4	4	3	3	3	2	2	1
90°	13	7	4	4	4	3	3	3	2	2	1
92.5°	12	6	4	4	3	3	3	2	2	2	1
95°	12	6	4	4	3	3	3	2	2	1	1
97.5°	11	6	4	3	3	3	3	2	2	1	1
100°	10	5	3	3	3	3	2	2	2	1	1
102.5°	9	5	3	3	3	2	2	2	1	1	1
105°	8	4	3	3	3	2	2	2	1	1	1
107.5°	8	4	3	3	3	2	2	2	1	1	1
110°	7	4	3	3	2	2	2	2	1	1	1



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CATALOG NUMBER: TRE11-LD4-25W-50-OPL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	6	3	3	2	2	2	2	2	1	1	1
115°	6	3	2	2	2	2	2	2	1	1	1
117.5°	5	3	3	2	2	2	2	2	1	1	1
120°	5	3	3	2	2	2	2	2	2	1	1
122.5°	4	3	2	2	2	2	2	2	2	1	1
125°	4	2	2	2	2	2	2	2	1	1	1
127.5°	3	2	2	2	2	2	2	1	1	1	1
130°	3	2	2	2	2	2	2	2	1	1	1
132.5°	3	2	2	2	2	2	2	2	1	1	1
135°	3	2	2	2	2	2	2	2	1	1	1
137.5°	3	2	2	2	2	2	2	2	2	1	1
140°	2	2	2	2	2	2	2	2	1	1	1
142.5°	2	2	2	2	2	2	2	2	2	1	1
145°	2	2	2	2	2	2	2	2	2	1	1
147.5°	2	2	2	2	2	2	2	2	1	1	1
150°	2	2	2	2	2	2	2	2	2	1	1
152.5°	2	2	2	2	2	2	2	2	2	2	1
155°	2	2	2	2	2	2	2	2	2	2	1
157.5°	2	2	2	2	2	2	2	2	2	2	1
160°	2	2	2	2	2	2	2	2	2	2	2
162.5°	3	3	3	2	2	2	2	2	2	2	2
165°	3	3	2	3	2	2	2	2	2	2	2
167.5°	3	3	3	3	3	2	2	2	2	2	2
170°	3	3	3	3	3	3	2	2	2	2	2
172.5°	3	3	3	3	3	3	2	2	2	2	2
175°	3	3	3	3	3	3	3	2	2	2	2
177.5°	3	3	3	3	3	3	2	2	2	2	2
180°	2	2	2	2	2	2	2	2	2	2	2



TEST NUMBER: P27860

CATALOG NUMBER: TRE11-LD4-25W-50-OPL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	69	69	69	69	69	69	69	69
2.5°	57	56	56	56	55	55	55	54
5°	47	46	46	46	45	45	44	44
7.5°	39	37	37	36	35	35	35	34
10°	31	29	28	27	27	26	26	25
12.5°	23	21	21	20	19	18	18	17
15°	17	15	15	14	13	12	12	12
17.5°	12	10	10	9	8	8	7	7
20°	8	7	6	6	6	6	6	6
22.5°	6	6	6	6	6	6	6	6
25°	6	6	6	6	6	5	5	5
27.5°	6	6	5	5	5	5	5	5
30°	6	5	5	5	5	5	5	5
32.5°	5	5	5	5	5	5	5	5
35°	5	5	5	5	4	4	4	4
37.5°	5	4	4	4	4	4	4	4
40°	4	4	4	4	4	4	4	3
42.5°	4	4	4	4	3	3	3	3
45°	4	4	4	3	3	3	3	3
47.5°	4	3	3	3	3	3	2	2
50°	3	3	3	3	2	2	2	2
52.5°	3	3	3	2	2	2	2	2
55°	3	2	2	2	2	2	1	1
57.5°	3	2	2	2	2	1	1	1
60°	2	2	2	2	1	1	1	1
62.5°	2	2	2	2	1	1	1	1
65°	2	2	2	1	1	1	1	1
67.5°	2	2	2	1	1	1	1	1
70°	2	2	1	1	1	1	1	1
72.5°	2	1	1	1	1	1	1	1
75°	2	1	1	1	1	1	1	1
77.5°	2	1	1	1	1	1	1	1
80°	2	1	1	1	1	1	1	1
82.5°	1	1	1	1	1	1	1	1
85°	1	1	1	1	1	1	1	1
87.5°	1	1	1	1	1	1	1	1
90°	1	1	1	1	1	1	1	1
92.5°	1	1	1	1	1	1	1	0
95°	1	1	1	1	1	1	1	1
97.5°	1	1	1	1	1	1	1	1
100°	1	1	1	1	1	1	1	1
102.5°	1	1	0	0	0	0	0	0
105°	1	0	0	0	0	0	0	0
107.5°	1	1	0	0	0	0	0	0
110°	1	1	0	0	0	0	0	0



TEST NUMBER: P27860

CATALOG NUMBER: TRE11-LD4-25W-50-OPL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

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

(END OF REPORT)