

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: P190093

Luminaire Tested: **TRE11-LD4-10W-50-OPL-BK-UNV-EDC1**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P190093  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27860)  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: TRE11-LD4-10W-50-OPL-BK-UNV-EDC1  
Description: TERRAPIN 11" LED WALL MOUNT WITH OPAL LENS, EYELID COVER AND EYELID RFL  
Light Source: (56) NICHIA 5000 NF2L757DRT  
Ballast/Driver: OSRAM ELECTRONIC DRIVER PROGRAMMED AT 200mA OT25W/1

**Summary**

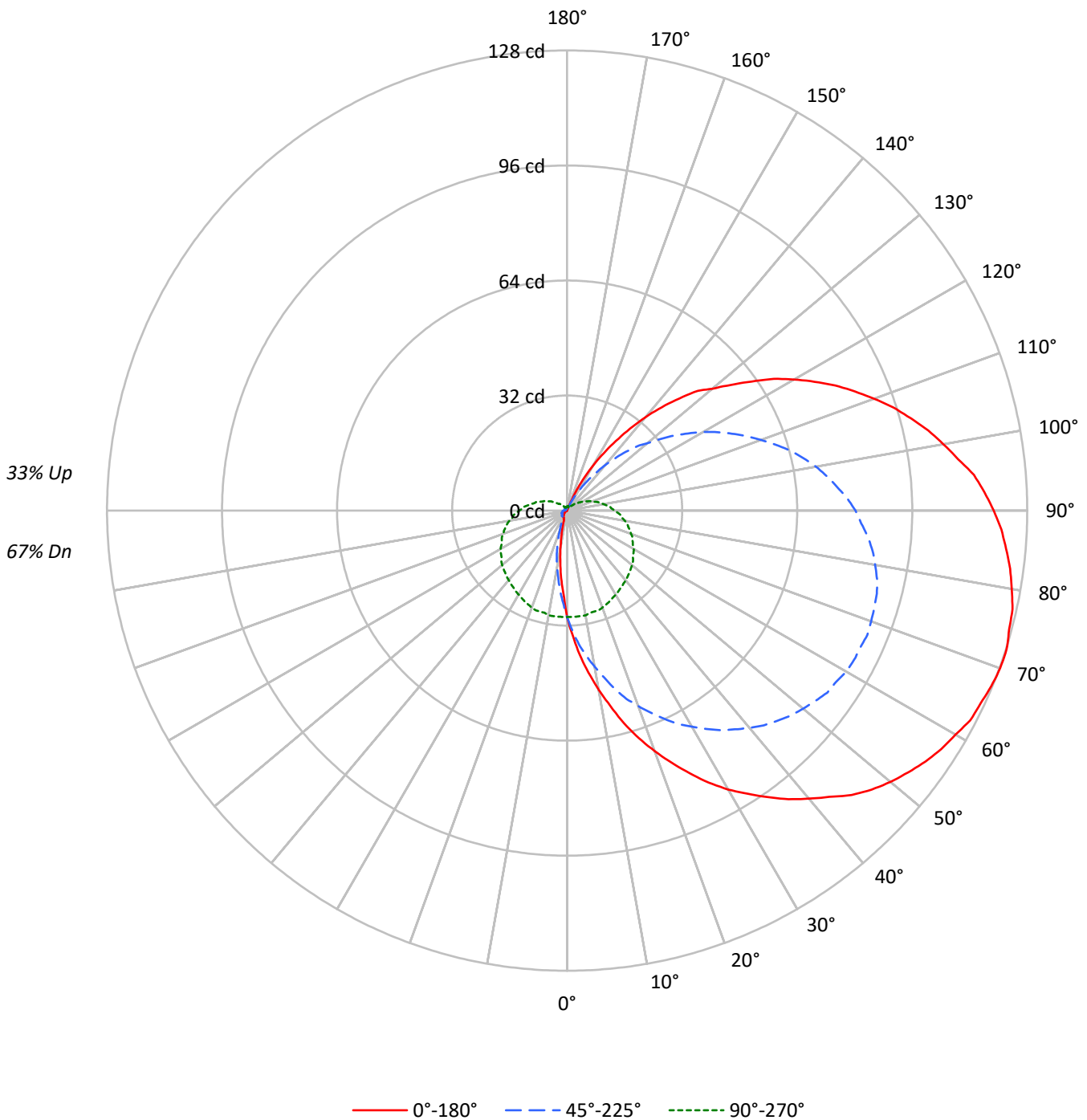
Lumens per Lamp: N/A  
Luminaire Lumens: 382.0 lumens  
Efficiency: N/A  
Efficacy: 38.2 lumens/watt  
Spacing Criteria (0/90/45): 2.47 / 1.36 / 2.16  
Luminous Opening: Rectangular w/ Sides (W: 0.92' x L: 0.29' x H: 0.92')  
CIE Type: Semi-Direct

Input Watts (W): 10  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT

TEST NUMBER: P190093

CATALOG NUMBER: TRE11-LD4-10W-50-OPL-BK-UNV-EDC1

### 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°	1192	1192	1192
5°	1277	1100	599
10°	1331	1029	281
15°	1387	957	115
20°	1423	901	52
25°	1452	845	38
30°	1480	796	35
35°	1494	754	26
40°	1511	723	19
45°	1538	695	18
50°	1549	674	12
55°	1556	645	5
60°	1558	631	5
65°	1562	609	5
70°	1566	594	5
75°	1556	579	5
80°	1547	566	5
85°	1534	557	5



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	2.8	0.7
10°-20°	8.8	2.3
20°-30°	15.9	4.2
30°-40°	23.9	6.3
40°-50°	31.9	8.3
50°-60°	38.6	10.1
60°-70°	43.3	11.3
70°-80°	45.2	11.8
80°-90°	43.9	11.5
90°-100°	39.4	10.3
100°-110°	32.5	8.5
110°-120°	24.5	6.4
120°-130°	16.3	4.3
130°-140°	9.4	2.5
140°-150°	4.0	1.0
150°-160°	1.0	0.3
160°-170°	0.2	0.1
170°-180°	0.1	0.0
0°-30°	27.6	7.2
0°-40°	51.6	13.5
0°-60°	122.1	32.0
0°-90°	254.5	66.6
90°-120°	96.5	25.3
90°-150°	126.2	33.0
90°-180°	127.0	33.2
0°-180°	382.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	30	30	30	30	30	
5°	40	37	30	22	19	4
15°	61	51	29	11	5	18
25°	81	64	28	3	2	38
35°	97	75	26	3	2	61
45°	112	83	24	2	1	86
55°	122	88	22	2	0	109
65°	127	90	20	2	0	126
75°	127	89	18	1	0	135
85°	123	84	15	1	0	101
90°	119	80	13	1	0	65
95°	114	75	12	1	0	91
105°	99	64	9	0	0	105
115°	82	51	6	0	0	82
125°	63	36	4	0	0	56
135°	44	23	2	0	0	34
145°	24	11	1	1	0	15
155°	6	3	1	1	0	3
165°	0	1	1	1	0	0
175°	0	1	1	1	0	0
180°	1	1	1	1	1	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6
2.5°	34.7	34.3	34.3	34.3	34.3	34.3	34.3	33.9	33.9	33.4	33.4
5°	40.3	39.9	39.9	39.9	39.4	39.4	39.0	38.6	38.1	37.7	37.3
7.5°	45.4	45.0	45.0	44.6	44.6	44.1	43.7	43.3	42.4	41.6	40.7
10°	50.6	50.2	49.7	49.3	49.3	48.9	48.4	47.6	46.7	45.4	44.1
12.5°	55.7	55.3	55.3	54.4	54.0	53.6	53.2	51.9	50.6	49.3	47.6
15°	61.3	60.9	60.4	59.6	59.2	58.7	57.9	56.6	54.9	53.2	51.4
17.5°	66.4	66.0	65.6	64.7	63.9	63.0	62.6	60.9	59.2	57.0	54.9
20°	71.2	70.7	70.3	69.4	68.6	67.7	66.9	65.2	63.0	60.4	57.9
22.5°	75.9	75.4	75.0	73.7	72.9	71.6	70.7	69.0	66.4	63.9	60.9
25°	80.6	80.2	79.7	78.4	77.2	75.9	75.0	72.9	70.3	67.3	63.9
27.5°	85.3	84.4	84.0	82.7	81.4	80.2	79.3	76.7	73.7	70.7	66.9
30°	89.6	89.2	88.3	87.0	85.3	84.0	82.7	80.2	77.2	73.7	69.4
32.5°	93.4	93.0	92.2	90.9	88.7	87.4	86.6	83.6	80.2	76.3	72.0
35°	97.3	96.9	96.0	94.3	92.2	91.3	90.0	87.0	83.2	79.3	74.6
37.5°	101.2	100.7	99.9	98.2	96.0	94.7	93.0	90.0	86.2	81.4	76.7
40°	104.6	104.2	103.3	101.6	99.0	97.7	96.0	93.0	88.7	84.0	78.9
42.5°	108.0	107.6	106.3	104.6	102.0	100.7	99.0	95.6	91.3	86.6	81.0
45°	111.9	111.4	109.7	107.6	105.0	103.7	102.0	98.2	93.4	88.3	82.7
47.5°	114.9	114.4	113.2	110.6	107.6	106.3	104.2	100.3	95.6	90.4	84.4
50°	117.4	117.0	115.7	114.0	109.7	108.4	106.3	102.4	97.3	91.7	85.7
52.5°	119.6	119.2	117.9	116.2	113.2	111.0	108.4	104.2	99.0	93.4	87.0
55°	121.7	121.3	120.0	117.9	114.9	113.2	110.6	105.9	100.3	94.7	88.3
57.5°	123.4	123.0	121.7	119.2	116.2	114.4	112.3	106.7	101.6	95.6	88.7
60°	124.7	124.3	123.0	120.9	117.4	115.7	113.6	108.0	102.4	96.4	89.6
62.5°	126.4	125.6	124.3	121.7	118.7	117.0	114.9	108.9	103.3	96.9	90.0
65°	126.9	126.4	125.2	122.6	119.6	117.4	115.3	109.3	103.7	97.3	90.0
67.5°	127.7	127.3	125.6	123.0	120.0	118.3	115.7	109.7	104.2	97.3	90.4
70°	128.2	127.3	126.0	123.4	120.0	118.3	116.2	110.6	104.2	97.3	90.0
72.5°	128.2	127.3	126.0	123.4	120.0	117.9	115.7	109.7	103.7	96.9	89.6
75°	127.3	126.9	125.6	123.0	119.6	117.4	115.3	108.9	103.3	96.4	89.2
77.5°	126.9	126.0	124.7	122.2	118.7	117.0	114.4	108.4	102.4	95.6	88.3
80°	125.6	125.2	123.4	121.3	117.9	115.7	113.6	107.2	101.2	94.3	87.0
82.5°	124.3	123.9	122.2	120.0	116.6	114.4	112.3	105.9	99.9	93.0	85.7
85°	122.6	122.2	120.9	118.3	114.9	112.7	109.3	104.2	98.2	91.3	84.0
87.5°	120.9	120.4	118.7	116.2	113.2	110.6	107.6	102.4	96.4	89.6	81.9
90°	118.7	118.3	116.6	114.4	110.6	108.0	105.4	100.3	94.3	87.4	80.2
92.5°	116.2	115.7	114.4	111.9	107.6	105.4	103.3	98.2	92.2	85.3	78.0
95°	113.6	113.2	111.4	108.0	105.0	102.9	100.7	95.6	89.6	82.7	75.4
97.5°	109.7	109.3	107.6	105.4	102.0	99.9	97.7	92.6	87.0	80.2	72.9
100°	106.3	105.9	104.6	102.0	99.0	96.9	94.7	89.6	84.0	77.2	70.3
102.5°	102.9	102.4	101.2	98.6	95.6	93.4	91.3	86.2	80.6	74.2	67.3
105°	99.0	98.6	97.3	94.7	91.7	89.6	87.4	82.7	77.2	71.2	64.3
107.5°	95.2	94.7	93.4	90.9	87.9	86.2	84.0	79.3	73.7	67.7	60.9
110°	90.9	90.4	89.2	87.0	83.6	81.9	80.2	75.4	69.9	63.9	57.4



TEST NUMBER: P190093

CATALOG NUMBER: TRE11-LD4-10W-50-OPL-BK-UNV-EDC1

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	86.6	86.2	84.9	82.7	79.7	78.0	75.9	71.6	66.4	60.4	54.0
115°	82.3	81.9	80.2	78.4	75.4	73.7	71.6	67.3	62.2	56.6	50.6
117.5°	77.6	77.2	75.9	73.7	70.7	69.0	67.3	63.0	58.3	52.7	47.2
120°	72.9	72.4	71.2	69.0	66.4	64.7	63.0	59.2	54.4	48.9	43.7
122.5°	68.2	67.7	66.4	64.7	61.7	60.0	58.7	54.9	50.2	45.0	39.9
125°	62.6	62.6	61.3	59.6	57.4	55.3	54.0	50.2	45.9	41.1	36.4
127.5°	57.4	57.9	56.6	54.9	52.3	50.6	49.3	45.9	42.0	37.3	32.6
130°	52.7	52.7	51.4	50.2	47.6	46.3	44.6	41.6	37.7	33.4	29.1
132.5°	49.3	48.9	48.0	46.3	44.1	42.9	41.1	38.1	34.7	30.4	26.6
135°	44.1	43.3	42.9	41.1	39.0	38.1	36.9	33.9	30.4	26.6	23.1
137.5°	39.0	39.0	38.1	36.4	34.7	33.4	32.1	29.6	26.1	22.7	19.7
140°	33.9	33.9	33.0	31.3	29.6	28.7	27.4	24.9	21.9	19.3	16.7
142.5°	28.7	28.3	27.9	26.6	24.9	24.0	23.1	20.6	18.0	15.9	13.3
145°	23.6	23.6	23.1	21.9	20.6	19.3	18.4	16.7	14.6	12.4	10.7
147.5°	18.9	18.4	18.4	17.1	15.9	15.4	14.6	12.9	11.1	9.4	8.1
150°	14.6	14.1	13.7	12.9	12.0	11.6	10.7	9.4	8.1	6.9	6.0
152.5°	10.3	9.9	9.9	9.0	8.1	7.7	7.3	6.4	5.6	4.7	4.3
155°	6.4	6.4	6.0	5.6	5.1	4.7	4.3	3.9	3.4	3.0	2.6
157.5°	3.0	3.0	3.0	2.6	2.6	2.1	2.1	2.1	1.7	1.7	1.7
160°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3	1.3	1.3	0.9
162.5°	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9	0.9	0.9	0.9
165°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9	0.9
167.5°	0.4	0.4	0.4	0.4	0.4	0.9	0.4	0.9	0.9	0.9	0.9
170°	0.4	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9	0.9	0.9
172.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9	0.9
175°	0.4	0.4	0.4	0.4	0.9	0.9	0.9	0.9	0.9	0.9	0.9
177.5°	0.4	0.4	0.4	0.4	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9



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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6
2.5°	33.0	32.6	32.1	32.1	31.7	31.7	31.3	30.9	30.0	29.6	29.1
5°	36.4	35.6	35.1	34.3	33.9	33.4	32.6	31.7	30.9	29.6	28.7
7.5°	39.9	38.6	37.7	36.4	35.6	35.1	33.9	32.6	30.9	29.6	28.3
10°	42.9	41.6	39.9	38.1	37.3	36.4	34.7	33.0	31.3	29.6	27.9
12.5°	46.3	44.1	42.0	40.3	39.0	38.1	36.0	33.9	31.3	29.1	27.0
15°	49.3	47.2	44.6	42.0	40.7	39.4	36.9	34.3	31.7	29.1	26.6
17.5°	52.3	49.7	47.2	44.1	42.4	41.1	38.1	35.1	32.1	29.1	26.1
20°	54.9	51.9	48.9	45.4	43.7	42.0	38.6	35.1	31.7	28.7	25.3
22.5°	57.9	54.4	51.0	47.2	45.4	43.3	39.4	35.6	31.7	28.3	24.4
25°	60.4	56.6	52.7	48.9	46.7	44.6	40.3	36.0	31.7	27.9	24.0
27.5°	63.0	59.2	54.4	50.2	48.0	45.4	41.1	36.4	31.7	27.4	23.6
30°	65.6	60.9	56.2	51.4	48.9	46.3	41.6	36.4	31.7	27.0	22.7
32.5°	67.7	63.0	57.9	52.7	49.7	47.2	42.0	36.4	31.7	26.6	21.9
35°	69.9	64.7	59.2	53.6	51.0	48.0	42.4	36.9	31.3	26.1	21.4
37.5°	71.6	66.4	60.4	54.4	51.9	48.4	42.9	36.9	31.3	25.7	21.0
40°	73.7	67.7	61.7	55.7	52.3	49.3	42.9	36.9	30.9	25.3	20.1
42.5°	75.4	69.4	63.0	56.2	53.2	49.7	43.3	36.9	30.4	24.9	19.7
45°	77.2	70.7	63.9	57.0	53.6	50.2	43.3	36.4	30.4	24.4	19.3
47.5°	78.4	71.6	64.7	57.4	54.0	50.2	43.3	36.4	30.0	24.0	18.4
50°	79.3	72.4	65.2	57.9	54.4	50.6	43.3	36.0	29.6	23.6	18.0
52.5°	80.6	73.3	66.0	58.3	54.4	50.6	43.3	36.0	29.1	23.1	17.1
55°	81.4	73.7	66.0	58.3	54.4	50.6	42.9	35.6	28.7	22.3	16.7
57.5°	81.9	74.2	66.4	58.3	54.4	50.6	42.4	35.1	28.3	21.9	16.3
60°	82.3	74.6	66.4	58.3	54.0	50.2	42.0	34.7	27.4	21.4	15.4
62.5°	82.7	74.6	66.4	58.3	54.0	49.7	41.6	33.9	27.0	20.6	15.0
65°	82.7	74.6	66.0	57.9	53.6	49.3	41.1	33.4	26.6	20.1	14.6
67.5°	82.7	74.6	66.0	57.4	53.2	48.9	40.7	33.0	25.7	19.7	14.1
70°	82.3	74.2	65.2	56.6	52.3	48.0	39.9	32.1	25.3	18.9	13.7
72.5°	81.9	73.3	64.7	56.2	51.9	47.6	39.0	31.3	24.4	18.4	12.9
75°	81.0	72.4	63.9	55.3	50.6	46.3	38.1	30.4	23.6	17.6	12.4
77.5°	80.2	71.6	63.0	54.0	49.7	45.4	37.3	29.6	22.7	17.1	12.0
80°	78.9	70.3	61.7	53.2	48.4	44.6	36.4	28.7	22.3	16.3	11.1
82.5°	77.6	69.0	60.4	51.9	47.6	43.3	35.1	27.9	21.4	15.4	10.7
85°	75.9	67.7	58.7	50.2	46.3	42.0	34.3	27.0	20.6	15.0	10.3
87.5°	74.2	66.0	57.0	48.9	44.6	40.3	33.0	25.7	19.3	14.1	9.4
90°	72.4	63.9	55.7	47.2	42.9	39.0	31.7	24.9	18.4	13.3	9.0
92.5°	70.3	62.2	53.6	45.4	41.6	37.7	30.4	23.6	17.6	12.4	8.6
95°	67.7	60.0	51.4	43.7	39.9	36.0	28.7	22.3	16.7	12.0	8.1
97.5°	65.6	57.4	49.3	41.6	37.7	34.3	27.4	21.0	15.9	11.1	7.3
100°	62.6	54.9	47.2	39.9	36.0	32.6	25.7	19.7	14.6	10.3	6.9
102.5°	60.0	52.3	44.6	37.7	33.9	30.4	24.4	18.4	13.7	9.4	6.4
105°	57.0	49.7	42.4	35.1	31.7	28.7	22.7	17.1	12.4	9.0	6.0
107.5°	54.0	46.7	39.9	33.0	30.0	27.0	21.0	15.9	12.0	8.1	5.6
110°	51.0	44.1	37.3	30.9	27.9	24.9	19.7	14.6	10.7	7.3	4.7





TEST NUMBER: P190093

CATALOG NUMBER: TRE11-LD4-10W-50-OPL-BK-UNV-EDC1

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	47.6	41.1	34.7	28.7	25.7	22.7	18.0	13.7	9.9	6.9	4.3
115°	44.6	38.1	32.1	26.1	23.6	21.0	16.3	12.4	9.0	6.0	3.9
117.5°	41.1	35.1	29.6	24.0	21.9	19.3	15.0	11.1	8.1	5.6	3.4
120°	37.7	32.1	27.0	21.9	19.7	17.6	13.3	9.9	7.3	5.1	3.4
122.5°	34.7	29.1	24.4	19.7	17.6	15.9	12.0	9.0	6.4	4.3	3.0
125°	31.3	26.6	21.9	17.6	15.9	13.7	10.7	7.7	5.6	3.9	2.6
127.5°	27.9	23.6	19.3	15.9	13.7	12.4	9.4	6.9	4.7	3.0	2.1
130°	24.9	21.0	17.1	13.7	12.0	10.7	8.1	6.0	4.3	3.0	1.7
132.5°	22.7	18.9	15.4	12.4	10.7	9.4	7.3	5.1	3.9	2.6	1.7
135°	19.7	16.3	13.3	10.7	9.4	8.1	6.0	4.3	3.0	2.1	1.7
137.5°	16.7	13.7	11.1	9.0	7.7	6.9	5.1	3.9	2.6	1.7	1.3
140°	13.7	11.6	9.0	7.3	6.4	5.6	4.3	3.0	2.1	1.7	1.3
142.5°	11.1	9.4	7.3	6.0	5.1	4.3	3.4	2.6	1.7	1.3	1.3
145°	9.0	7.3	6.0	4.7	3.9	3.4	2.6	2.1	1.3	1.3	0.9
147.5°	6.9	5.6	4.3	3.4	3.0	2.6	2.1	1.7	1.3	0.9	0.9
150°	4.7	3.9	3.4	2.6	2.1	2.1	1.7	1.3	1.3	0.9	0.9
152.5°	3.4	3.0	2.6	2.1	1.7	1.7	1.3	1.3	0.9	0.9	0.9
155°	2.1	2.1	1.7	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9
157.5°	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
160°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
162.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3	1.3	1.3	1.3
165°	0.9	0.9	0.9	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.3
167.5°	0.9	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3
170°	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
172.5°	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
175°	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
177.5°	0.9	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
180°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9



TEST NUMBER: P190093

CATALOG NUMBER: TRE11-LD4-10W-50-OPL-BK-UNV-EDC1

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6
2.5°	28.7	28.3	27.9	27.4	27.4	27.0	26.6	26.1	25.7	25.3	24.9
5°	27.9	27.0	26.1	25.7	25.3	24.4	23.6	22.7	22.3	21.4	21.0
7.5°	27.0	25.7	24.4	24.0	23.1	21.9	21.0	19.7	18.9	18.0	17.1
10°	26.1	24.4	22.7	21.9	21.0	19.7	18.4	17.1	15.9	15.0	14.1
12.5°	24.9	23.1	21.0	20.1	19.3	17.6	15.9	14.6	13.3	12.0	10.7
15°	24.0	21.9	19.7	18.4	17.6	15.4	13.7	12.0	10.7	9.4	8.1
17.5°	23.1	20.6	18.0	16.7	15.9	13.7	11.6	9.9	8.1	6.9	6.0
20°	22.3	19.3	16.7	15.4	14.1	11.6	9.4	7.7	6.0	5.1	3.9
22.5°	21.4	18.4	15.4	13.7	12.4	9.9	7.7	6.0	4.7	3.4	3.0
25°	20.6	17.1	14.1	12.4	11.1	8.6	6.4	4.7	3.4	2.6	2.6
27.5°	19.7	16.3	12.9	11.1	9.9	6.9	5.1	3.4	2.6	2.6	2.6
30°	18.9	15.0	11.6	9.9	8.6	5.6	3.9	2.6	2.6	2.6	2.6
32.5°	18.0	14.1	10.7	9.0	7.3	4.7	3.0	2.6	2.6	2.6	2.1
35°	17.1	13.3	9.4	7.7	6.4	3.9	2.6	2.6	2.6	2.1	2.1
37.5°	16.3	12.4	8.6	6.9	5.6	3.0	2.6	2.6	2.1	2.1	2.1
40°	15.9	11.6	7.7	6.0	4.7	2.6	2.6	2.1	2.1	2.1	2.1
42.5°	15.0	10.7	6.9	5.1	3.9	2.6	2.6	2.1	2.1	2.1	1.7
45°	14.6	10.3	6.4	4.7	3.4	2.6	2.6	2.1	2.1	2.1	1.7
47.5°	13.7	9.4	5.6	3.9	3.0	2.6	2.1	2.1	2.1	1.7	1.7
50°	13.3	9.0	5.1	3.4	2.6	2.1	2.1	2.1	1.7	1.7	1.7
52.5°	12.4	8.1	4.7	3.0	2.6	2.1	2.1	2.1	1.7	1.7	1.3
55°	12.0	7.7	3.9	2.6	2.6	2.1	2.1	1.7	1.7	1.7	1.3
57.5°	11.6	7.3	3.9	2.6	2.1	2.1	2.1	1.7	1.7	1.7	1.3
60°	10.7	6.9	3.4	2.1	2.1	2.1	2.1	1.7	1.7	1.3	1.3
62.5°	10.3	6.4	3.0	2.1	2.1	2.1	1.7	1.7	1.7	1.3	1.3
65°	9.9	6.0	2.6	2.1	2.1	2.1	1.7	1.7	1.7	1.3	1.3
67.5°	9.4	5.6	2.6	2.1	2.1	2.1	1.7	1.7	1.7	1.3	1.3
70°	9.0	5.1	2.6	2.1	2.1	2.1	1.7	1.7	1.3	1.3	0.9
72.5°	8.6	4.7	2.1	2.1	2.1	1.7	1.7	1.7	1.3	1.3	0.9
75°	8.1	4.7	2.1	2.1	2.1	1.7	1.7	1.7	1.3	1.3	0.9
77.5°	7.7	4.3	2.1	2.1	2.1	1.7	1.7	1.7	1.3	1.3	0.9
80°	7.3	3.9	2.1	2.1	2.1	1.7	1.7	1.3	1.3	0.9	0.9
82.5°	6.9	3.9	2.1	2.1	1.7	1.7	1.7	1.3	1.3	0.9	0.9
85°	6.4	3.4	1.7	1.7	1.7	1.7	1.3	1.3	1.3	0.9	0.9
87.5°	6.0	3.0	1.7	1.7	1.7	1.3	1.3	1.3	0.9	0.9	0.4
90°	5.6	3.0	1.7	1.7	1.7	1.3	1.3	1.3	0.9	0.9	0.4
92.5°	5.1	2.6	1.7	1.7	1.3	1.3	1.3	0.9	0.9	0.9	0.4
95°	5.1	2.6	1.7	1.7	1.3	1.3	1.3	0.9	0.9	0.4	0.4
97.5°	4.7	2.6	1.7	1.3	1.3	1.3	1.3	0.9	0.9	0.4	0.4
100°	4.3	2.1	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.4	0.4
102.5°	3.9	2.1	1.3	1.3	1.3	0.9	0.9	0.9	0.4	0.4	0.4
105°	3.4	1.7	1.3	1.3	1.3	0.9	0.9	0.9	0.4	0.4	0.4
107.5°	3.4	1.7	1.3	1.3	1.3	0.9	0.9	0.9	0.4	0.4	0.4
110°	3.0	1.7	1.3	1.3	0.9	0.9	0.9	0.9	0.4	0.4	0.4



TEST NUMBER: P190093

CATALOG NUMBER: TRE11-LD4-10W-50-OPL-BK-UNV-EDC1

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	2.6	1.3	1.3	0.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4
115°	2.6	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4
117.5°	2.1	1.3	1.3	0.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4
120°	2.1	1.3	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4
122.5°	1.7	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4
125°	1.7	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4
127.5°	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4
130°	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4
132.5°	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4
135°	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4
137.5°	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4
140°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4
142.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4
145°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4
147.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4
150°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4
152.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4
155°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4
157.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4
160°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
162.5°	1.3	1.3	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
165°	1.3	1.3	0.9	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
167.5°	1.3	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9	0.9	0.9
170°	1.3	1.3	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9	0.9
172.5°	1.3	1.3	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9	0.9
175°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9
177.5°	1.3	1.3	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9	0.9
180°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9



TEST NUMBER: P190093

CATALOG NUMBER: TRE11-LD4-10W-50-OPL-BK-UNV-EDC1

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6
2.5°	24.4	24.0	24.0	24.0	23.6	23.6	23.6	23.1
5°	20.1	19.7	19.7	19.7	19.3	19.3	18.9	18.9
7.5°	16.7	15.9	15.9	15.4	15.0	15.0	15.0	14.6
10°	13.3	12.4	12.0	11.6	11.6	11.1	11.1	10.7
12.5°	9.9	9.0	9.0	8.6	8.1	7.7	7.7	7.3
15°	7.3	6.4	6.4	6.0	5.6	5.1	5.1	5.1
17.5°	5.1	4.3	4.3	3.9	3.4	3.4	3.0	3.0
20°	3.4	3.0	2.6	2.6	2.6	2.6	2.6	2.6
22.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
25°	2.6	2.6	2.6	2.6	2.6	2.1	2.1	2.1
27.5°	2.6	2.6	2.1	2.1	2.1	2.1	2.1	2.1
30°	2.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1
32.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
35°	2.1	2.1	2.1	2.1	1.7	1.7	1.7	1.7
37.5°	2.1	1.7	1.7	1.7	1.7	1.7	1.7	1.7
40°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.3
42.5°	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.3
45°	1.7	1.7	1.7	1.3	1.3	1.3	1.3	1.3
47.5°	1.7	1.3	1.3	1.3	1.3	1.3	0.9	0.9
50°	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9
52.5°	1.3	1.3	1.3	0.9	0.9	0.9	0.9	0.9
55°	1.3	0.9	0.9	0.9	0.9	0.9	0.4	0.4
57.5°	1.3	0.9	0.9	0.9	0.9	0.4	0.4	0.4
60°	0.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4
62.5°	0.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4
65°	0.9	0.9	0.9	0.4	0.4	0.4	0.4	0.4
67.5°	0.9	0.9	0.9	0.4	0.4	0.4	0.4	0.4
70°	0.9	0.9	0.4	0.4	0.4	0.4	0.4	0.4
72.5°	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4
75°	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80°	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4
82.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
85°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
87.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
90°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
92.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0
95°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
97.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
100°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
102.5°	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0
105°	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107.5°	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0
110°	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P190093

CATALOG NUMBER: TRE11-LD4-10W-50-OPL-BK-UNV-EDC1

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0
115°	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0
117.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
120°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
122.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
125°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
127.5°	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0
130°	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.4
132.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0
135°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
137.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
140°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
142.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
145°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
147.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
150°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
152.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
155°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
157.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
160°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
162.5°	0.9	0.9	0.4	0.4	0.4	0.4	0.4	0.4
165°	0.9	0.9	0.4	0.4	0.4	0.4	0.4	0.4
167.5°	0.9	0.9	0.4	0.4	0.4	0.4	0.4	0.4
170°	0.9	0.9	0.9	0.4	0.4	0.4	0.4	0.4
172.5°	0.9	0.9	0.4	0.4	0.4	0.4	0.4	0.4
175°	0.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4
177.5°	0.9	0.9	0.9	0.4	0.4	0.4	0.4	0.4
180°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

(END OF REPORT)