

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: P190096

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

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P190096
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27861)
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-CL-BK-UNV-EDC1
Description: TERRAPIN 11" LED WALL MOUNT WITH OPEN CLEAR LENS, EYELID COVER AND EYELID RFL
Light Source: (56) NICHIA 5000
NF2L757DRT
Ballast/Driver: OSRAM ELECTRONIC DRIVER PROGRAMMED AT 200mA
OT25W/1

Summary

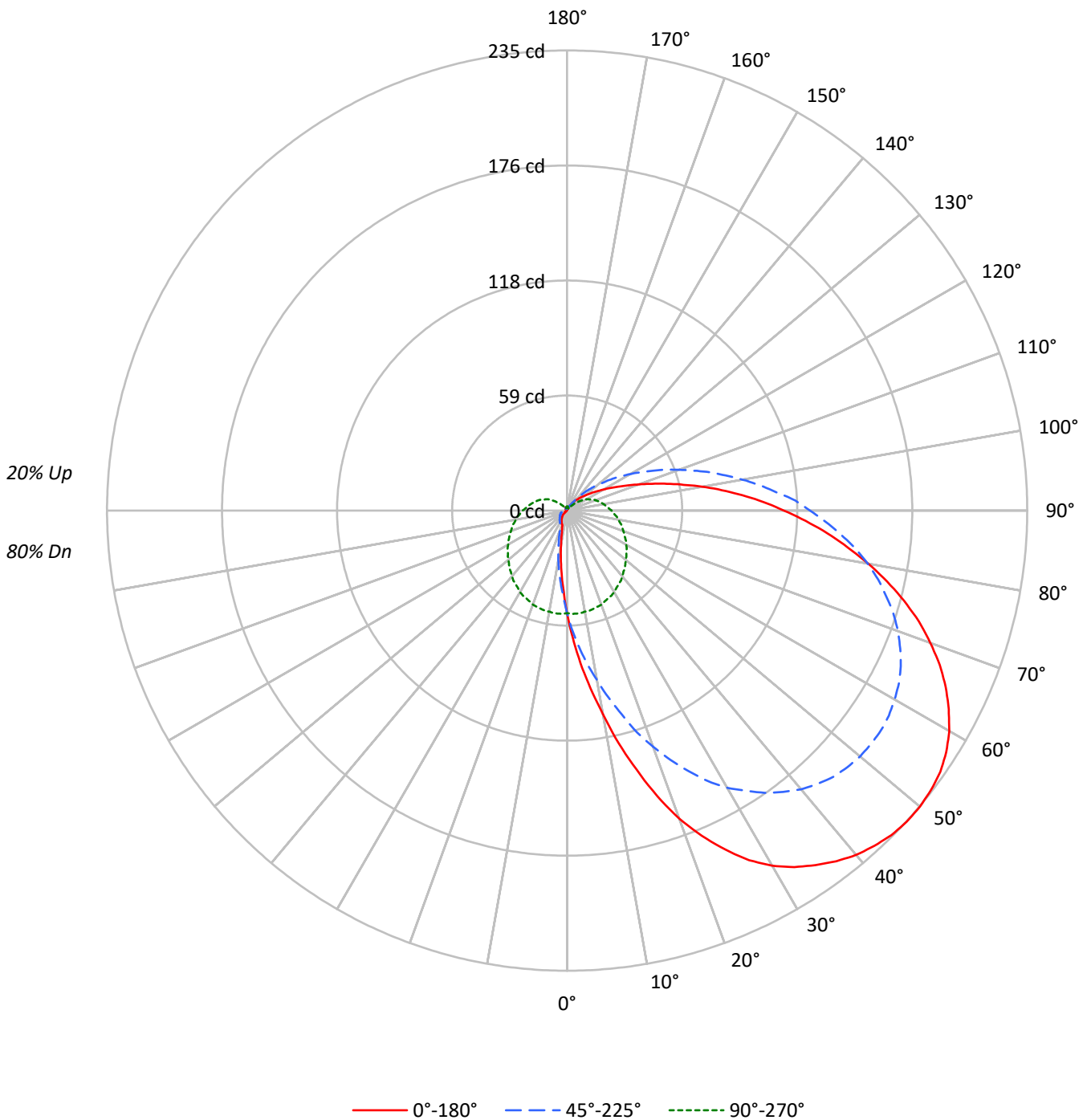
Lumens per Lamp: N/A
Luminaire Lumens: 605.0 lumens
Efficiency: N/A
Efficacy: 60.5 lumens/watt
Spacing Criteria (0/90/45): 2.62 / 1.36 / 2.39
Luminous Opening: Rectangular w/ Sides (W: 0.92' x L: 0.29' x H: 0.92')
CIE Type: Semi-Direct

Input Watts (W): 10
Input Voltage (V): NR
Input Current (A_{in}): 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

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Luminous Intensity Polar Plot





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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	50	30	10	0
RCR																					
0	114	114	114	114	109	109	109	109	100	100	100	91	91	91	84	84	84	84	84	84	80
1	99	92	86	80	94	88	82	77	79	75	71	72	68	65	65	62	60	60	60	60	56
2	88	77	68	61	83	73	65	58	66	60	54	60	54	50	54	49	46	46	46	46	42
3	78	66	56	48	74	62	53	46	56	49	42	51	44	39	46	40	36	36	36	36	33
4	71	57	46	39	67	54	44	37	49	41	34	44	37	32	39	34	29	29	29	29	26
5	64	50	39	32	61	47	38	31	43	35	29	39	32	26	35	29	24	24	24	24	21
6	59	44	34	27	56	42	33	26	38	30	24	34	28	22	31	25	21	21	21	21	18
7	54	39	30	23	51	38	29	22	34	26	21	31	24	19	28	22	18	18	18	18	15
8	50	36	26	20	47	34	25	19	31	23	18	28	21	17	25	20	15	15	15	15	13
9	47	32	23	17	44	31	23	17	28	21	16	26	19	15	23	18	13	13	13	13	11
10	44	29	21	15	41	28	20	15	26	19	14	24	17	13	21	16	12	12	12	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	2110	2110	2110
5°	2476	1962	1021
10°	2778	1821	473
15°	3098	1706	224
20°	3345	1605	146
25°	3441	1497	124
30°	3459	1418	92
35°	3394	1327	72
40°	3318	1252	56
45°	3220	1184	41
50°	3104	1117	22
55°	2975	1067	17
60°	2815	1026	11
65°	2625	988	5
70°	2412	958	5
75°	2176	947	5
80°	1924	924	5
85°	1670	910	5



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	5.2	0.9
10°-20°	18.0	3.0
20°-30°	35.1	5.8
30°-40°	53.3	8.8
40°-50°	68.8	11.4
50°-60°	79.2	13.1
60°-70°	82.3	13.6
70°-80°	77.1	12.7
80°-90°	64.8	10.7
90°-100°	48.9	8.1
100°-110°	33.1	5.5
110°-120°	20.1	3.3
120°-130°	10.9	1.8
130°-140°	5.0	0.8
140°-150°	2.0	0.3
150°-160°	0.8	0.1
160°-170°	0.4	0.1
170°-180°	0.1	0.0
0°-30°	58.3	9.6
0°-40°	111.6	18.4
0°-60°	259.6	42.9
0°-90°	483.8	80.0
90°-120°	102.1	16.9
90°-150°	120.0	19.8
90°-180°	121.0	20.0
0°-180°	605.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	52	52	52	52	52	
5°	78	70	53	37	32	8
15°	137	108	52	16	10	40
25°	191	147	49	8	7	89
35°	221	176	46	6	5	139
45°	234	192	42	5	3	181
55°	233	196	37	4	1	208
65°	213	188	33	4	0	211
75°	178	169	29	3	0	188
85°	134	140	24	3	0	114
90°	111	124	23	2	0	61
95°	90	107	21	2	0	69
105°	53	76	17	2	0	57
115°	29	48	13	2	0	29
125°	16	28	9	2	0	15
135°	9	14	4	2	1	7
145°	5	5	2	1	2	3
155°	2	2	1	1	2	1
165°	1	1	2	1	1	0
175°	1	2	2	1	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°	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4
2.5°	64.8	64.4	64.4	63.9	63.5	63.5	63.5	62.7	62.7	61.8	61.4
5°	78.1	77.3	76.8	76.4	75.5	75.5	74.7	73.4	73.0	71.2	70.0
7.5°	91.4	90.6	90.6	89.7	88.0	88.0	87.6	85.0	83.7	81.1	79.0
10°	105.6	104.3	104.3	103.0	100.9	100.4	99.6	97.0	94.4	91.4	88.0
12.5°	121.9	120.2	119.7	118.5	115.9	115.4	113.3	109.9	106.0	101.7	97.9
15°	136.9	136.5	135.2	133.9	130.9	129.6	127.5	123.6	119.3	113.7	107.7
17.5°	152.8	151.9	150.2	148.9	145.5	143.8	141.6	136.5	131.3	125.3	118.9
20°	167.4	166.1	164.8	162.7	158.8	157.1	154.5	148.5	142.9	136.0	128.3
22.5°	179.8	178.5	176.8	175.1	170.8	169.1	166.1	160.1	154.1	145.9	137.8
25°	191.0	190.6	188.4	186.7	182.4	180.3	177.7	171.2	164.4	156.2	146.8
27.5°	201.3	200.4	198.7	196.6	192.7	190.6	187.5	182.0	174.2	165.7	155.8
30°	209.4	208.6	207.3	204.7	200.9	198.7	196.1	190.1	182.0	173.4	163.5
32.5°	215.9	215.0	212.9	210.7	207.3	205.1	202.6	196.6	188.8	180.3	169.5
35°	221.0	220.2	218.9	216.3	212.9	211.2	208.6	202.6	195.3	186.7	176.0
37.5°	225.7	225.3	223.6	221.5	218.0	215.9	213.3	207.7	200.4	191.8	181.1
40°	229.6	228.8	227.5	225.3	221.9	219.7	217.6	212.0	204.7	196.1	185.8
42.5°	232.2	231.8	230.5	228.3	224.9	222.7	220.2	215.0	207.7	199.6	189.3
45°	234.3	233.9	232.2	230.0	227.0	225.3	222.7	217.2	210.3	202.1	192.3
47.5°	235.2	234.8	233.9	231.3	228.3	226.2	224.5	218.9	212.0	204.3	194.0
50°	235.2	234.8	233.9	231.8	228.8	226.6	224.9	219.7	212.9	205.1	195.3
52.5°	234.3	233.9	233.0	230.9	228.3	226.2	224.5	219.3	212.9	205.6	195.7
55°	232.6	232.2	230.9	229.6	226.6	224.9	222.7	218.4	212.4	205.1	195.7
57.5°	229.6	229.2	227.9	226.2	224.0	222.3	220.6	215.9	210.7	203.4	194.8
60°	225.3	224.9	223.6	222.3	219.7	218.4	217.2	212.9	207.7	201.3	193.1
62.5°	219.7	219.3	218.4	217.2	215.9	213.7	212.4	209.0	204.3	198.7	191.0
65°	213.3	213.3	212.4	211.2	209.9	208.1	207.3	204.3	200.4	194.8	188.0
67.5°	206.0	206.0	205.1	204.3	203.0	201.7	201.3	198.7	195.3	190.6	184.1
70°	197.4	197.4	197.0	196.1	195.7	194.4	193.6	191.8	189.3	185.4	179.8
72.5°	188.4	188.4	188.0	187.1	187.1	186.3	185.8	185.0	182.4	179.4	174.7
75°	178.1	178.5	178.1	177.7	177.7	177.2	177.2	176.4	175.1	173.0	168.7
77.5°	167.4	168.2	167.8	167.8	168.2	167.8	167.8	168.2	167.4	165.7	162.7
80°	156.2	157.1	156.6	156.6	157.5	157.9	158.4	158.8	158.8	158.4	155.8
82.5°	144.6	145.5	145.5	145.9	146.8	147.2	148.1	149.4	149.8	149.8	148.5
85°	133.5	133.9	133.9	134.8	136.0	136.9	137.8	139.5	140.3	141.2	140.3
87.5°	121.9	122.3	122.7	123.6	125.7	126.2	127.0	129.6	130.9	132.2	132.2
90°	110.7	110.7	111.2	112.9	114.2	115.9	116.7	119.7	121.5	123.2	124.0
92.5°	100.4	99.6	100.4	102.1	104.3	105.6	106.9	109.4	112.9	115.4	116.7
95°	89.7	89.7	90.1	91.8	94.4	95.7	97.0	100.0	103.0	105.6	107.3
97.5°	79.8	79.4	80.3	82.4	85.0	86.3	87.6	91.0	94.0	97.0	99.1
100°	70.0	69.5	70.8	73.4	76.0	77.3	78.5	82.0	85.4	88.4	91.0
102.5°	60.9	60.9	62.2	64.4	67.0	68.7	70.4	73.4	76.8	80.3	82.8
105°	52.8	52.8	54.1	56.7	59.2	60.5	62.2	65.7	69.1	72.1	75.5
107.5°	45.5	45.5	46.8	49.4	51.9	53.2	54.9	58.4	61.8	64.8	67.8
110°	39.1	39.1	40.3	42.5	45.5	46.8	48.5	51.5	54.5	58.4	60.9



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

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	33.5	33.9	34.8	36.9	39.5	40.8	42.5	45.5	48.5	51.9	54.5
115°	28.8	29.2	30.0	32.2	34.8	35.6	37.3	39.9	42.9	45.9	48.1
117.5°	24.9	24.9	26.2	27.9	30.0	31.3	32.6	35.2	37.8	40.3	42.5
120°	21.5	21.9	22.7	24.0	26.2	27.0	28.3	30.9	33.0	35.6	37.3
122.5°	18.5	18.9	19.7	21.0	22.7	23.6	24.5	26.6	28.8	30.9	32.6
125°	16.3	16.3	17.2	18.0	19.7	20.6	21.5	23.2	25.3	27.0	28.3
127.5°	13.7	14.2	14.6	15.5	16.7	17.6	18.5	20.2	21.5	23.2	24.0
130°	12.0	12.4	12.9	13.7	14.6	15.5	15.9	17.2	18.5	19.7	20.6
132.5°	10.7	10.7	11.2	11.6	12.9	13.3	13.7	14.6	15.5	16.3	17.2
135°	9.0	9.4	9.4	10.3	10.7	11.2	11.6	12.4	12.9	13.7	14.2
137.5°	7.7	7.7	8.2	8.6	9.0	9.4	9.9	10.3	10.7	11.2	11.2
140°	6.9	6.9	7.3	7.3	7.7	7.7	8.2	8.6	8.6	9.0	9.0
142.5°	6.0	6.0	6.0	6.0	6.4	6.4	6.4	6.9	6.9	6.9	6.9
145°	4.7	4.7	5.2	5.2	5.2	5.2	5.2	5.6	5.6	5.6	5.2
147.5°	3.9	3.9	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	3.9
150°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.0
152.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
155°	1.7	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
157.5°	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7
160°	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
162.5°	0.9	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.7
165°	0.9	0.9	0.9	0.9	1.3	1.3	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	1.7
170°	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7
172.5°	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7
175°	0.9	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.7	1.7	1.7
177.5°	0.9	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.3	1.7	1.7
180°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7



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

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4
2.5°	60.1	59.7	58.8	57.9	57.1	56.7	55.8	54.9	53.6	52.8	51.5
5°	67.8	66.5	64.8	62.7	61.8	60.9	58.8	56.7	54.9	52.8	50.6
7.5°	76.0	73.8	70.8	67.8	66.5	64.8	61.8	58.8	55.8	52.8	49.8
10°	84.1	80.7	76.8	73.0	70.8	68.7	64.4	60.5	56.2	52.4	48.5
12.5°	92.7	88.0	82.8	77.7	75.1	72.5	67.4	62.2	57.1	52.4	47.6
15°	101.3	95.7	89.3	82.8	79.8	76.4	70.0	63.9	57.5	51.9	46.4
17.5°	110.7	103.4	95.7	88.0	84.1	80.3	73.0	65.2	58.4	51.5	45.1
20°	119.7	110.7	101.3	92.3	88.0	83.7	75.1	66.5	58.4	51.1	43.8
22.5°	127.9	118.5	106.9	97.0	91.8	86.7	77.3	67.8	58.8	50.2	42.5
25°	136.0	125.7	114.2	101.3	95.7	90.1	79.0	68.7	58.8	49.4	41.2
27.5°	144.2	132.2	119.7	106.0	99.6	93.1	81.1	69.5	58.8	48.9	39.9
30°	151.5	138.6	124.9	110.3	103.0	96.1	82.8	70.4	58.8	48.1	38.6
32.5°	157.5	143.8	129.2	114.2	106.0	98.7	84.1	70.8	58.4	46.8	36.9
35°	163.5	149.4	133.9	118.0	109.4	100.9	85.4	71.2	57.9	45.9	35.6
37.5°	168.7	154.1	138.2	121.0	112.4	103.0	86.3	71.2	57.5	45.1	34.3
40°	173.0	158.4	141.6	124.0	115.0	104.7	87.1	71.2	56.7	43.8	33.0
42.5°	176.8	161.8	145.1	126.2	116.7	106.4	88.0	71.2	55.8	42.5	31.3
45°	179.8	164.8	147.6	128.3	118.5	108.2	88.4	70.8	54.9	41.6	30.0
47.5°	182.0	167.4	149.8	130.5	120.2	109.4	88.8	70.4	54.5	40.3	28.8
50°	183.3	169.1	151.5	131.8	121.0	109.9	88.8	70.0	53.2	39.1	27.9
52.5°	184.1	170.0	152.8	132.6	121.9	110.3	88.8	69.5	52.4	38.2	26.6
55°	184.5	170.8	153.6	133.5	122.3	111.2	88.4	68.7	51.5	36.9	25.3
57.5°	183.7	170.4	153.6	133.5	122.7	110.7	88.0	67.8	50.2	36.1	24.5
60°	182.4	169.5	153.2	133.5	122.3	110.3	87.6	67.0	49.4	34.8	23.6
62.5°	181.1	168.2	152.4	132.6	121.9	109.9	86.7	65.7	48.1	33.9	22.3
65°	178.5	166.5	151.1	131.8	121.0	108.6	85.8	64.8	47.2	32.6	21.5
67.5°	175.5	163.9	149.4	130.5	119.7	107.3	84.5	63.5	45.9	31.8	20.6
70°	171.7	160.9	147.2	128.8	118.5	106.0	83.3	62.2	44.6	30.5	19.7
72.5°	167.4	157.9	144.2	126.6	116.3	104.3	82.0	61.4	43.8	29.6	18.9
75°	162.7	153.6	140.8	124.0	114.2	102.6	80.3	60.1	42.5	28.8	18.0
77.5°	157.5	148.9	137.3	121.5	111.6	100.4	78.5	58.8	41.6	27.5	17.2
80°	151.5	143.8	133.0	118.0	108.2	97.9	76.8	57.1	40.3	26.6	16.3
82.5°	144.6	138.2	128.3	114.6	104.7	95.3	74.7	55.4	39.1	25.8	15.9
85°	137.8	132.2	123.6	109.9	101.3	92.3	72.5	54.1	37.8	24.5	15.0
87.5°	130.5	126.2	118.0	105.1	97.4	88.8	70.4	51.9	36.5	23.6	14.2
90°	122.7	119.3	112.0	100.9	93.6	85.8	67.8	50.2	35.2	22.7	13.3
92.5°	115.9	112.9	106.0	95.7	89.3	82.0	64.8	48.5	33.5	21.5	12.9
95°	107.3	105.1	100.0	91.0	85.0	78.1	62.7	46.4	32.2	20.6	12.0
97.5°	99.6	98.3	94.0	85.8	80.7	74.2	59.7	44.6	30.9	19.7	11.6
100°	92.3	91.0	87.6	80.7	76.0	70.0	56.7	42.9	29.6	18.9	11.2
102.5°	84.1	83.7	81.1	75.1	70.8	65.7	53.6	40.8	28.3	18.0	10.3
105°	76.8	76.8	74.7	69.5	65.7	61.4	50.6	38.6	27.0	17.2	9.9
107.5°	69.5	70.0	68.2	63.9	60.5	56.7	46.8	36.1	25.3	16.3	9.4
110°	62.7	63.1	61.8	58.4	55.4	51.9	43.3	33.9	24.0	15.5	9.0



TEST NUMBER: P190096

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

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	56.2	56.2	55.8	52.8	50.2	47.2	39.9	30.9	22.3	14.6	8.2
115°	49.8	50.2	49.8	47.2	45.1	42.5	36.1	28.3	20.6	13.3	7.7
117.5°	44.2	44.6	44.2	42.1	39.9	37.8	32.6	25.8	18.9	12.4	7.3
120°	38.6	39.1	38.6	36.9	35.2	33.5	28.8	23.2	17.2	11.6	6.9
122.5°	33.5	33.9	33.5	31.8	30.5	28.8	24.9	20.2	15.0	10.3	6.0
125°	29.2	29.2	28.8	27.0	26.2	24.9	21.5	17.6	13.3	9.0	5.6
127.5°	24.5	24.5	24.0	22.7	21.9	21.0	18.0	15.0	11.2	7.7	4.7
130°	20.6	20.6	20.2	18.9	18.0	17.2	15.0	12.4	9.4	6.4	3.9
132.5°	17.6	17.2	16.7	15.9	15.0	14.2	12.4	10.3	7.7	5.6	3.4
135°	14.2	13.7	13.3	12.4	11.6	11.2	9.9	8.2	6.0	4.3	2.6
137.5°	11.2	10.7	10.3	9.9	9.0	8.6	7.7	6.0	4.7	3.4	2.1
140°	9.0	8.6	8.2	7.7	7.3	6.4	5.6	4.7	3.4	2.6	1.7
142.5°	6.9	6.4	6.0	5.6	5.2	4.7	4.3	3.4	2.6	2.1	1.3
145°	5.2	4.7	4.7	4.3	3.9	3.4	3.0	2.6	2.1	1.7	1.3
147.5°	3.9	3.4	3.4	3.0	3.0	2.6	2.1	2.1	1.7	1.3	1.3
150°	3.0	3.0	2.6	2.6	2.1	2.1	1.7	1.7	1.7	1.3	1.3
152.5°	2.1	2.1	2.1	2.1	1.7	1.7	1.7	1.7	1.3	1.3	1.3
155°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.3
157.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.3
160°	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.3	1.3
162.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
165°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
167.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
170°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
172.5°	1.7	1.7	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
175°	1.7	1.7	1.7	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
177.5°	1.7	1.7	1.7	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
180°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7



TEST NUMBER: P190096

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4
2.5°	50.6	49.4	48.9	48.1	47.6	46.8	45.9	45.1	43.8	43.3	42.9
5°	48.9	46.8	45.1	44.2	43.3	41.6	39.9	38.6	37.3	36.1	35.2
7.5°	46.8	44.2	41.6	40.3	39.5	36.9	34.8	33.0	31.3	29.6	28.3
10°	45.1	41.2	38.2	36.5	35.2	32.6	30.0	27.9	25.8	24.0	22.3
12.5°	42.9	39.1	35.2	33.0	31.8	28.3	25.8	23.2	20.6	18.9	17.2
15°	41.2	36.5	32.2	30.0	28.3	24.9	21.9	18.9	16.3	15.0	13.3
17.5°	39.5	34.3	29.6	27.5	25.3	21.5	18.5	15.5	13.3	11.6	10.7
20°	37.3	31.8	27.0	24.5	22.3	18.5	15.0	12.9	10.7	9.4	8.6
22.5°	35.6	29.6	24.5	21.9	19.3	15.5	12.4	10.3	9.0	8.2	7.7
25°	33.9	27.5	21.9	19.3	17.2	13.3	10.7	9.0	7.7	7.3	7.3
27.5°	32.2	25.3	19.7	17.2	15.0	11.6	9.0	7.7	7.3	7.3	7.3
30°	30.5	23.6	17.6	15.5	12.9	9.9	8.2	7.3	7.3	7.3	6.9
32.5°	28.8	21.9	15.9	13.3	11.6	8.6	7.3	6.9	6.9	6.9	6.4
35°	27.0	20.2	14.2	12.0	10.3	7.7	6.9	6.9	6.4	6.4	6.0
37.5°	25.3	18.5	12.9	10.7	9.0	6.9	6.9	6.4	6.4	6.0	5.6
40°	24.0	16.7	11.6	9.4	8.2	6.4	6.4	6.0	6.0	5.6	5.2
42.5°	22.7	15.5	10.3	8.6	7.3	6.0	6.0	5.6	5.6	5.2	4.7
45°	21.0	14.2	9.0	7.7	6.4	6.0	5.6	5.6	5.2	4.7	4.7
47.5°	19.7	12.9	8.2	6.9	5.6	5.6	5.6	5.2	5.2	4.7	4.3
50°	18.9	12.0	7.3	6.0	5.2	5.2	5.2	4.7	4.7	4.3	3.9
52.5°	17.6	10.7	6.9	5.6	5.2	5.2	4.7	4.7	4.7	4.3	3.9
55°	16.7	9.9	6.0	5.2	4.7	4.7	4.7	4.7	4.3	3.9	3.4
57.5°	15.5	9.0	5.6	4.7	4.7	4.7	4.7	4.3	4.3	3.9	3.0
60°	14.6	8.6	5.2	4.3	4.3	4.3	4.7	4.3	3.9	3.4	3.0
62.5°	13.7	7.7	4.7	4.3	4.3	4.3	4.3	4.3	3.9	3.4	2.6
65°	12.9	7.3	4.3	3.9	4.3	4.3	4.3	4.3	3.9	3.0	2.6
67.5°	12.4	6.9	3.9	3.9	4.3	4.3	4.3	3.9	3.4	3.0	2.1
70°	11.6	6.4	3.9	3.9	3.9	3.9	4.3	3.9	3.4	2.6	2.1
72.5°	10.7	6.0	3.4	3.9	3.9	3.9	3.9	3.9	3.0	2.6	1.7
75°	10.3	5.6	3.4	3.4	3.9	3.9	3.9	3.4	3.0	2.1	1.7
77.5°	9.9	5.2	3.4	3.4	3.9	3.9	3.9	3.4	3.0	2.1	1.7
80°	9.0	4.7	3.4	3.4	3.4	3.4	3.4	3.4	2.6	2.1	1.3
82.5°	8.6	4.3	3.0	3.4	3.4	3.4	3.4	3.0	2.6	2.1	1.3
85°	8.2	4.3	3.0	3.0	3.4	3.4	3.4	3.0	2.6	1.7	1.3
87.5°	7.7	3.9	2.6	3.0	3.0	3.0	3.0	2.6	2.1	1.7	0.9
90°	6.9	3.4	2.6	2.6	2.6	3.0	3.0	2.6	2.1	1.3	0.9
92.5°	6.4	3.4	2.6	2.6	2.6	3.0	3.0	2.6	2.1	1.3	0.9
95°	6.4	3.0	2.6	2.6	2.6	3.0	3.0	2.6	1.7	1.3	0.9
97.5°	6.0	3.0	2.1	2.6	2.6	2.6	2.6	2.6	1.7	1.3	0.9
100°	5.6	2.6	2.1	2.1	2.6	2.6	2.6	2.1	1.7	1.3	0.9
102.5°	5.2	2.6	2.1	2.1	2.1	2.6	2.6	2.1	1.7	1.3	0.9
105°	4.7	2.1	2.1	2.1	2.1	2.1	2.6	2.1	1.7	1.3	0.9
107.5°	4.7	2.1	1.7	1.7	2.1	2.1	2.1	2.1	1.7	1.3	0.9
110°	4.3	2.1	1.7	1.7	1.7	2.1	2.1	2.1	1.7	1.3	0.9



TEST NUMBER: P190096

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	3.9	1.7	1.7	1.7	1.7	2.1	2.1	1.7	1.7	1.3	0.9
115°	3.9	1.7	1.7	1.7	1.7	1.7	2.1	2.1	1.7	1.3	0.9
117.5°	3.9	1.7	1.7	1.7	1.7	1.7	2.1	2.1	1.7	1.3	0.9
120°	3.4	1.7	1.7	1.7	1.7	1.7	2.1	2.1	1.7	1.3	1.3
122.5°	3.0	1.7	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.3	1.3
125°	3.0	1.7	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.3
127.5°	2.6	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.3
130°	2.1	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.3
132.5°	1.7	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7
135°	1.7	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7
137.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7
140°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7
142.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7
145°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7
147.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7
150°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
152.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
155°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
157.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.9	1.3	1.3
160°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
162.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
165°	1.7	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
167.5°	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.3	1.3	1.3	1.3
170°	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.3	1.3
172.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.3
175°	2.1	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3
177.5°	2.1	2.1	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3
180°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7



TEST NUMBER: P190096

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4
2.5°	42.5	41.6	41.6	41.6	40.8	40.8	40.8	41.2
5°	34.3	33.5	33.0	33.0	32.2	32.2	32.2	32.2
7.5°	27.5	26.6	25.8	25.8	24.9	24.5	24.5	24.5
10°	21.0	20.2	19.3	18.9	18.5	18.0	17.6	18.0
12.5°	15.9	15.0	14.6	14.2	13.7	13.3	12.9	12.9
15°	12.0	11.2	11.2	10.7	10.3	9.9	9.9	9.9
17.5°	9.9	9.0	8.6	8.6	8.2	8.2	8.2	8.2
20°	8.2	7.7	7.7	7.7	7.3	7.7	7.7	7.3
22.5°	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
25°	7.3	7.3	7.3	6.9	6.9	6.9	6.9	6.9
27.5°	6.9	6.9	6.9	6.4	6.4	6.4	6.0	6.0
30°	6.4	6.4	6.0	6.0	6.0	5.6	5.6	5.6
32.5°	6.0	5.6	5.6	5.6	5.6	5.2	5.2	5.2
35°	5.6	5.6	5.2	5.2	5.2	4.7	4.7	4.7
37.5°	5.2	5.2	5.2	4.7	4.7	4.3	4.3	4.3
40°	5.2	4.7	4.7	4.3	4.3	3.9	3.9	3.9
42.5°	4.7	4.3	4.3	3.9	3.9	3.4	3.4	3.4
45°	4.3	3.9	3.9	3.4	3.4	3.0	3.0	3.0
47.5°	3.9	3.4	3.4	3.0	3.0	2.6	2.6	2.1
50°	3.4	3.0	3.0	2.6	2.1	2.1	1.7	1.7
52.5°	3.4	2.6	2.6	2.1	2.1	1.7	1.7	1.3
55°	3.0	2.6	2.1	1.7	1.7	1.3	1.3	1.3
57.5°	2.6	2.1	1.7	1.7	1.3	0.9	0.9	0.9
60°	2.1	1.7	1.7	1.3	0.9	0.9	0.9	0.9
62.5°	2.1	1.7	1.3	1.3	0.9	0.9	0.4	0.4
65°	1.7	1.3	1.3	0.9	0.9	0.4	0.4	0.4
67.5°	1.7	1.3	0.9	0.9	0.4	0.4	0.4	0.4
70°	1.3	0.9	0.9	0.9	0.4	0.4	0.4	0.4
72.5°	1.3	0.9	0.9	0.9	0.4	0.4	0.4	0.4
75°	1.3	0.9	0.9	0.4	0.4	0.4	0.4	0.4
77.5°	1.3	0.9	0.9	0.9	0.9	0.4	0.4	0.4
80°	0.9	0.9	0.4	0.4	0.4	0.4	0.4	0.4
82.5°	0.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4
85°	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4
87.5°	0.9	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	0.4
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	0.4	0.4	0.4	0.4	0.4	0.4
105°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
107.5°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.4
110°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4



TEST NUMBER: P190096

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
115°	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4
117.5°	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4
120°	0.9	0.9	0.9	0.4	0.4	0.4	0.4	0.4
122.5°	0.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4
125°	0.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4
127.5°	0.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4
130°	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
132.5°	1.3	1.3	1.3	0.9	0.9	0.9	0.9	0.9
135°	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9
137.5°	1.7	1.3	1.3	1.3	1.3	0.9	0.9	0.9
140°	1.7	1.7	1.7	1.3	1.3	1.3	1.3	1.3
142.5°	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3
145°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
147.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
150°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
152.5°	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7
155°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7
157.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
160°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
162.5°	1.3	1.3	1.3	1.3	1.3	1.3	0.9	1.3
165°	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
167.5°	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
170°	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9
172.5°	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9
175°	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	0.9	0.9	0.9	0.9
180°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7

(END OF REPORT)