

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: P190095

Luminaire Tested: **TRE11-LD4-15W-50-CL-BK-UNV-EDC1**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P190095
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-LD4-15W-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 300mA
OT25W/1

Summary

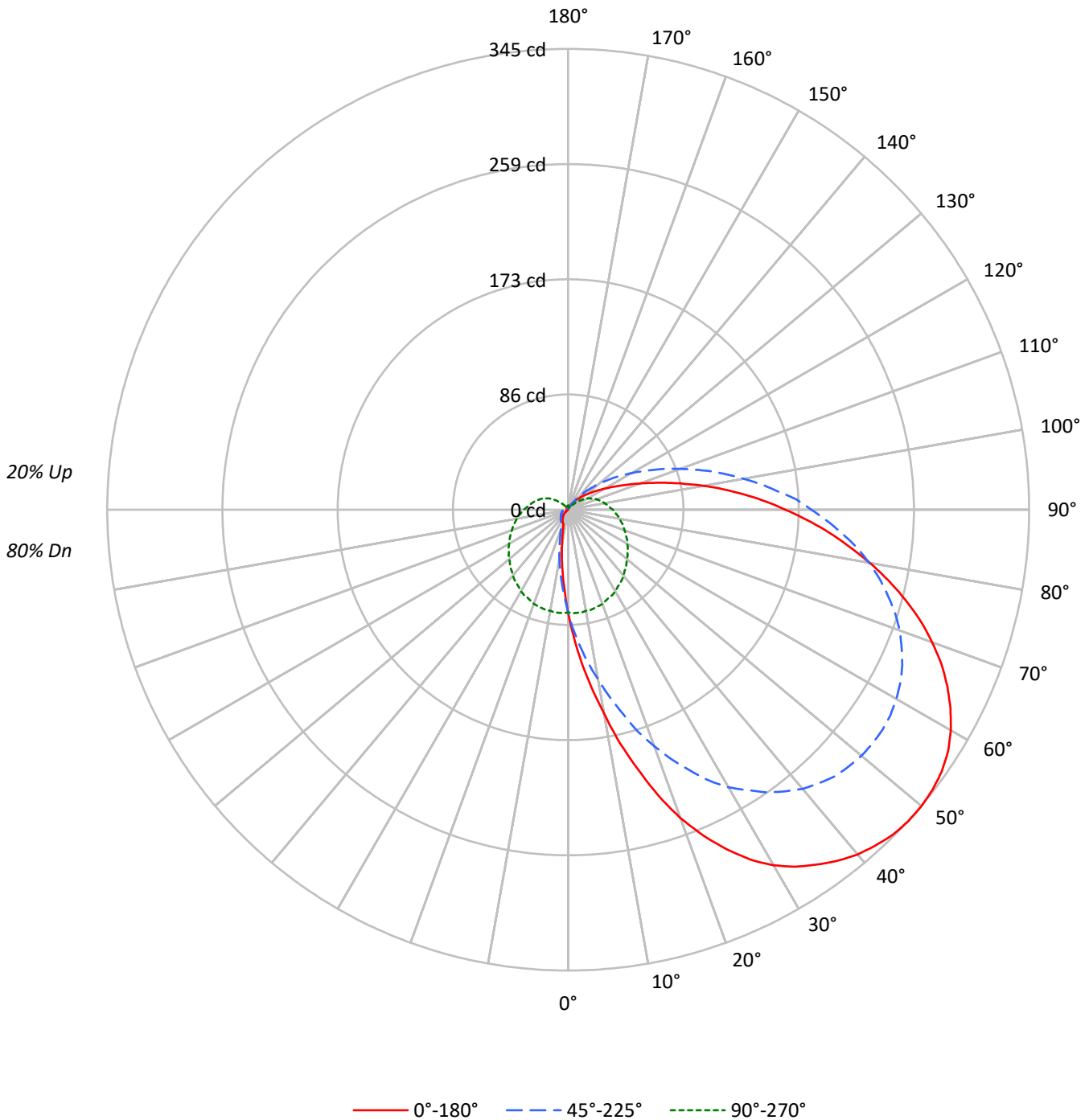
Lumens per Lamp: N/A
Luminaire Lumens: 888.0 lumens
Efficiency: N/A
Efficacy: 61.7 lumens/watt
Spacing Criteria (0/90/45): 2.63 / 1.36 / 2.39
Luminous Opening: Rectangular w/ Sides (W: 0.92' x L: 0.29' x H: 0.92')
CIE Type: Semi-Direct

Input Watts (W): 14.4
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

TEST NUMBER: P190095

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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	3096	3096	3096
5°	3633	2880	1496
10°	4077	2673	697
15°	4546	2505	328
20°	4910	2356	214
25°	5050	2193	182
30°	5077	2081	135
35°	4981	1948	106
40°	4869	1837	82
45°	4726	1739	60
50°	4556	1637	33
55°	4366	1567	24
60°	4132	1503	16
65°	3854	1451	7
70°	3541	1404	7
75°	3194	1387	7
80°	2824	1359	7
85°	2451	1334	8



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	7.7	0.9
10°-20°	26.4	3.0
20°-30°	51.5	5.8
30°-40°	78.2	8.8
40°-50°	101.0	11.4
50°-60°	116.3	13.1
60°-70°	120.7	13.6
70°-80°	113.2	12.7
80°-90°	95.1	10.7
90°-100°	71.7	8.1
100°-110°	48.6	5.5
110°-120°	29.5	3.3
120°-130°	16.0	1.8
130°-140°	7.4	0.8
140°-150°	2.9	0.3
150°-160°	1.1	0.1
160°-170°	0.6	0.1
170°-180°	0.2	0.0
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0°-30°	85.6	9.6
0°-40°	163.7	18.4
0°-60°	381.0	42.9
0°-90°	710.0	80.0
90°-120°	149.8	16.9
90°-150°	176.1	19.8
90°-180°	178.0	20.0
0°-180°	888.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	77	77	77	77	77	
5°	115	103	78	55	47	12
15°	201	158	76	24	14	58
25°	280	215	72	11	10	130
35°	324	258	67	9	7	204
45°	344	282	61	8	4	266
55°	341	287	54	6	2	305
65°	313	276	48	6	1	310
75°	261	248	42	4	1	276
85°	196	206	36	4	1	167
90°	162	182	33	3	1	89
95°	132	158	30	2	1	102
105°	78	111	25	2	1	83
115°	42	71	20	2	1	43
125°	24	42	13	2	1	22
135°	13	21	6	2	1	11
145°	7	8	2	2	2	5
155°	2	3	2	2	2	1
165°	1	2	2	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°	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9
2.5°	95.1	94.5	94.5	93.9	93.2	93.2	93.2	92.0	92.0	90.7	90.1
5°	114.6	113.4	112.8	112.1	110.9	110.9	109.6	107.7	107.1	104.6	102.7
7.5°	134.2	132.9	132.9	131.7	129.1	129.1	128.5	124.7	122.8	119.1	115.9
10°	155.0	153.1	153.1	151.2	148.0	147.4	146.1	142.4	138.6	134.2	129.1
12.5°	178.9	176.4	175.8	173.9	170.1	169.5	166.3	161.3	155.6	149.3	143.6
15°	200.9	200.3	198.4	196.5	192.1	190.2	187.1	181.4	175.1	166.9	158.1
17.5°	224.3	223.0	220.5	218.6	213.5	211.0	207.9	200.3	192.8	183.9	174.5
20°	245.7	243.8	241.9	238.7	233.1	230.6	226.8	218.0	209.8	199.7	188.3
22.5°	263.9	262.1	259.5	257.0	250.7	248.2	243.8	235.0	226.1	214.2	202.2
25°	280.3	279.7	276.5	274.0	267.7	264.6	260.8	251.3	241.3	229.3	215.4
27.5°	295.4	294.2	291.7	288.5	282.8	279.7	275.3	267.1	255.8	243.2	228.7
30°	307.4	306.1	304.3	300.5	294.8	291.7	287.9	279.1	267.1	254.5	240.0
32.5°	316.9	315.6	312.4	309.3	304.3	301.1	297.3	288.5	277.2	264.6	248.8
35°	324.4	323.2	321.3	317.5	312.4	309.9	306.1	297.3	286.6	274.0	258.3
37.5°	331.3	330.7	328.2	325.0	320.0	316.9	313.1	304.9	294.2	281.6	265.8
40°	337.0	335.8	333.9	330.7	325.7	322.5	319.4	311.2	300.5	287.9	272.8
42.5°	340.8	340.2	338.3	335.1	330.1	326.9	323.2	315.6	304.9	292.9	277.8
45°	343.9	343.3	340.8	337.6	333.2	330.7	326.9	318.7	308.7	296.7	282.2
47.5°	345.2	344.6	343.3	339.5	335.1	332.0	329.5	321.3	311.2	299.8	284.7
50°	345.2	344.6	343.3	340.2	335.8	332.6	330.1	322.5	312.4	301.1	286.6
52.5°	343.9	343.3	342.1	338.9	335.1	332.0	329.5	321.9	312.4	301.7	287.2
55°	341.4	340.8	338.9	337.0	332.6	330.1	326.9	320.6	311.8	301.1	287.2
57.5°	337.0	336.4	334.5	332.0	328.8	326.3	323.8	316.9	309.3	298.6	286.0
60°	330.7	330.1	328.2	326.3	322.5	320.6	318.7	312.4	304.9	295.4	283.5
62.5°	322.5	321.9	320.6	318.7	316.9	313.7	311.8	306.8	299.8	291.7	280.3
65°	313.1	313.1	311.8	309.9	308.0	305.5	304.3	299.8	294.2	286.0	275.9
67.5°	302.4	302.4	301.1	299.8	298.0	296.1	295.4	291.7	286.6	279.7	270.2
70°	289.8	289.8	289.1	287.9	287.2	285.4	284.1	281.6	277.8	272.1	263.9
72.5°	276.5	276.5	275.9	274.6	274.6	273.4	272.8	271.5	267.7	263.3	256.4
75°	261.4	262.1	261.4	260.8	260.8	260.2	260.2	258.9	257.0	253.9	247.6
77.5°	245.7	246.9	246.3	246.3	246.9	246.3	246.3	246.9	245.7	243.2	238.7
80°	229.3	230.6	229.9	229.9	231.2	231.8	232.4	233.1	233.1	232.4	228.7
82.5°	212.3	213.5	213.5	214.2	215.4	216.1	217.3	219.2	219.8	219.8	218.0
85°	195.9	196.5	196.5	197.8	199.7	200.9	202.2	204.7	206.0	207.2	206.0
87.5°	178.9	179.5	180.2	181.4	184.6	185.2	186.5	190.2	192.1	194.0	194.0
90°	162.5	162.5	163.2	165.7	167.6	170.1	171.3	175.8	178.3	180.8	182.0
92.5°	147.4	146.1	147.4	149.9	153.1	155.0	156.9	160.6	165.7	169.5	171.3
95°	131.7	131.7	132.3	134.8	138.6	140.5	142.4	146.8	151.2	155.0	157.5
97.5°	117.2	116.5	117.8	120.9	124.7	126.6	128.5	133.5	138.0	142.4	145.5
100°	102.7	102.0	103.9	107.7	111.5	113.4	115.3	120.3	125.4	129.8	133.5
102.5°	89.4	89.4	91.3	94.5	98.3	100.8	103.3	107.7	112.8	117.8	121.6
105°	77.5	77.5	79.4	83.2	86.9	88.8	91.3	96.4	101.4	105.8	110.9
107.5°	66.8	66.8	68.7	72.4	76.2	78.1	80.6	85.7	90.7	95.1	99.5
110°	57.3	57.3	59.2	62.4	66.8	68.7	71.2	75.6	80.0	85.7	89.4



TEST NUMBER: P190095

CATALOG NUMBER: TRE11-LD4-15W-50-CL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	49.1	49.8	51.0	54.2	58.0	59.8	62.4	66.8	71.2	76.2	80.0
115°	42.2	42.8	44.1	47.2	51.0	52.3	54.8	58.6	63.0	67.4	70.6
117.5°	36.5	36.5	38.4	40.9	44.1	46.0	47.9	51.7	55.4	59.2	62.4
120°	31.5	32.1	33.4	35.3	38.4	39.7	41.6	45.4	48.5	52.3	54.8
122.5°	27.1	27.7	29.0	30.9	33.4	34.6	35.9	39.1	42.2	45.4	47.9
125°	23.9	23.9	25.2	26.5	29.0	30.2	31.5	34.0	37.2	39.7	41.6
127.5°	20.2	20.8	21.4	22.7	24.6	25.8	27.1	29.6	31.5	34.0	35.3
130°	17.6	18.3	18.9	20.2	21.4	22.7	23.3	25.2	27.1	29.0	30.2
132.5°	15.7	15.7	16.4	17.0	18.9	19.5	20.2	21.4	22.7	23.9	25.2
135°	13.2	13.9	13.9	15.1	15.7	16.4	17.0	18.3	18.9	20.2	20.8
137.5°	11.3	11.3	12.0	12.6	13.2	13.9	14.5	15.1	15.7	16.4	16.4
140°	10.1	10.1	10.7	10.7	11.3	11.3	12.0	12.6	12.6	13.2	13.2
142.5°	8.8	8.8	8.8	8.8	9.4	9.4	9.4	10.1	10.1	10.1	10.1
145°	6.9	6.9	7.6	7.6	7.6	7.6	7.6	8.2	8.2	8.2	7.6
147.5°	5.7	5.7	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	5.7
150°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.4	4.4
152.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
155°	2.5	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
157.5°	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5
160°	1.3	1.3	1.3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
162.5°	1.3	1.3	1.3	1.3	1.9	1.9	1.9	1.9	1.9	1.9	2.5
165°	1.3	1.3	1.3	1.3	1.9	1.9	1.9	1.9	1.9	1.9	1.9
167.5°	1.3	1.3	1.3	1.3	1.9	1.9	1.9	1.9	1.9	1.9	2.5
170°	1.3	1.3	1.3	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5
172.5°	1.3	1.3	1.3	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5
175°	1.3	1.3	1.3	1.3	1.9	1.9	1.9	1.9	2.5	2.5	2.5
177.5°	1.3	1.3	1.3	1.3	1.9	1.9	1.9	1.9	1.9	2.5	2.5
180°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9
2.5°	88.2	87.6	86.3	85.0	83.8	83.2	81.9	80.6	78.7	77.5	75.6
5°	99.5	97.6	95.1	92.0	90.7	89.4	86.3	83.2	80.6	77.5	74.3
7.5°	111.5	108.3	103.9	99.5	97.6	95.1	90.7	86.3	81.9	77.5	73.1
10°	123.5	118.4	112.8	107.1	103.9	100.8	94.5	88.8	82.5	76.9	71.2
12.5°	136.1	129.1	121.6	114.0	110.2	106.5	98.9	91.3	83.8	76.9	69.9
15°	148.7	140.5	131.0	121.6	117.2	112.1	102.7	93.9	84.4	76.2	68.0
17.5°	162.5	151.8	140.5	129.1	123.5	117.8	107.1	95.7	85.7	75.6	66.1
20°	175.8	162.5	148.7	135.4	129.1	122.8	110.2	97.6	85.7	75.0	64.3
22.5°	187.7	173.9	156.9	142.4	134.8	127.2	113.4	99.5	86.3	73.7	62.4
25°	199.7	184.6	167.6	148.7	140.5	132.3	115.9	100.8	86.3	72.4	60.5
27.5°	211.7	194.0	175.8	155.6	146.1	136.7	119.1	102.0	86.3	71.8	58.6
30°	222.4	203.5	183.3	161.9	151.2	141.1	121.6	103.3	86.3	70.6	56.7
32.5°	231.2	211.0	189.6	167.6	155.6	144.9	123.5	103.9	85.7	68.7	54.2
35°	240.0	219.2	196.5	173.2	160.6	148.0	125.4	104.6	85.0	67.4	52.3
37.5°	247.6	226.1	202.8	177.6	165.0	151.2	126.6	104.6	84.4	66.1	50.4
40°	253.9	232.4	207.9	182.0	168.8	153.7	127.9	104.6	83.2	64.3	48.5
42.5°	259.5	237.5	212.9	185.2	171.3	156.2	129.1	104.6	81.9	62.4	46.0
45°	263.9	241.9	216.7	188.3	173.9	158.7	129.8	103.9	80.6	61.1	44.1
47.5°	267.1	245.7	219.8	191.5	176.4	160.6	130.4	103.3	80.0	59.2	42.2
50°	269.0	248.2	222.4	193.4	177.6	161.3	130.4	102.7	78.1	57.3	40.9
52.5°	270.2	249.5	224.3	194.6	178.9	161.9	130.4	102.0	76.9	56.1	39.1
55°	270.9	250.7	225.5	195.9	179.5	163.2	129.8	100.8	75.6	54.2	37.2
57.5°	269.6	250.1	225.5	195.9	180.2	162.5	129.1	99.5	73.7	52.9	35.9
60°	267.7	248.8	224.9	195.9	179.5	161.9	128.5	98.3	72.4	51.0	34.6
62.5°	265.8	246.9	223.6	194.6	178.9	161.3	127.2	96.4	70.6	49.8	32.8
65°	262.1	244.4	221.7	193.4	177.6	159.4	126.0	95.1	69.3	47.9	31.5
67.5°	257.6	240.6	219.2	191.5	175.8	157.5	124.1	93.2	67.4	46.6	30.2
70°	252.0	236.2	216.1	189.0	173.9	155.6	122.2	91.3	65.5	44.7	29.0
72.5°	245.7	231.8	211.7	185.8	170.7	153.1	120.3	90.1	64.3	43.5	27.7
75°	238.7	225.5	206.6	182.0	167.6	150.6	117.8	88.2	62.4	42.2	26.5
77.5°	231.2	218.6	201.6	178.3	163.8	147.4	115.3	86.3	61.1	40.3	25.2
80°	222.4	211.0	195.3	173.2	158.7	143.6	112.8	83.8	59.2	39.1	23.9
82.5°	212.3	202.8	188.3	168.2	153.7	139.8	109.6	81.3	57.3	37.8	23.3
85°	202.2	194.0	181.4	161.3	148.7	135.4	106.5	79.4	55.4	35.9	22.0
87.5°	191.5	185.2	173.2	154.3	143.0	130.4	103.3	76.2	53.5	34.6	20.8
90°	180.2	175.1	164.4	148.0	137.3	126.0	99.5	73.7	51.7	33.4	19.5
92.5°	170.1	165.7	155.6	140.5	131.0	120.3	95.1	71.2	49.1	31.5	18.9
95°	157.5	154.3	146.8	133.5	124.7	114.6	92.0	68.0	47.2	30.2	17.6
97.5°	146.1	144.3	138.0	126.0	118.4	109.0	87.6	65.5	45.4	29.0	17.0
100°	135.4	133.5	128.5	118.4	111.5	102.7	83.2	63.0	43.5	27.7	16.4
102.5°	123.5	122.8	119.1	110.2	103.9	96.4	78.7	59.8	41.6	26.5	15.1
105°	112.8	112.8	109.6	102.0	96.4	90.1	74.3	56.7	39.7	25.2	14.5
107.5°	102.0	102.7	100.2	93.9	88.8	83.2	68.7	52.9	37.2	23.9	13.9
110°	92.0	92.6	90.7	85.7	81.3	76.2	63.6	49.8	35.3	22.7	13.2



TEST NUMBER: P190095

CATALOG NUMBER: TRE11-LD4-15W-50-CL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	82.5	82.5	81.9	77.5	73.7	69.3	58.6	45.4	32.8	21.4	12.0
115°	73.1	73.7	73.1	69.3	66.1	62.4	52.9	41.6	30.2	19.5	11.3
117.5°	64.9	65.5	64.9	61.7	58.6	55.4	47.9	37.8	27.7	18.3	10.7
120°	56.7	57.3	56.7	54.2	51.7	49.1	42.2	34.0	25.2	17.0	10.1
122.5°	49.1	49.8	49.1	46.6	44.7	42.2	36.5	29.6	22.0	15.1	8.8
125°	42.8	42.8	42.2	39.7	38.4	36.5	31.5	25.8	19.5	13.2	8.2
127.5°	35.9	35.9	35.3	33.4	32.1	30.9	26.5	22.0	16.4	11.3	6.9
130°	30.2	30.2	29.6	27.7	26.5	25.2	22.0	18.3	13.9	9.4	5.7
132.5°	25.8	25.2	24.6	23.3	22.0	20.8	18.3	15.1	11.3	8.2	5.0
135°	20.8	20.2	19.5	18.3	17.0	16.4	14.5	12.0	8.8	6.3	3.8
137.5°	16.4	15.7	15.1	14.5	13.2	12.6	11.3	8.8	6.9	5.0	3.1
140°	13.2	12.6	12.0	11.3	10.7	9.4	8.2	6.9	5.0	3.8	2.5
142.5°	10.1	9.4	8.8	8.2	7.6	6.9	6.3	5.0	3.8	3.1	1.9
145°	7.6	6.9	6.9	6.3	5.7	5.0	4.4	3.8	3.1	2.5	1.9
147.5°	5.7	5.0	5.0	4.4	4.4	3.8	3.1	3.1	2.5	1.9	1.9
150°	4.4	4.4	3.8	3.8	3.1	3.1	2.5	2.5	2.5	1.9	1.9
152.5°	3.1	3.1	3.1	3.1	2.5	2.5	2.5	2.5	1.9	1.9	1.9
155°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.9
157.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.9
160°	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.9	1.9
162.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
165°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
167.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
170°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
172.5°	2.5	2.5	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
175°	2.5	2.5	2.5	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
177.5°	2.5	2.5	2.5	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
180°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5



TEST NUMBER: P190095

CATALOG NUMBER: TRE11-LD4-15W-50-CL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9
2.5°	74.3	72.4	71.8	70.6	69.9	68.7	67.4	66.1	64.3	63.6	63.0
5°	71.8	68.7	66.1	64.9	63.6	61.1	58.6	56.7	54.8	52.9	51.7
7.5°	68.7	64.9	61.1	59.2	58.0	54.2	51.0	48.5	46.0	43.5	41.6
10°	66.1	60.5	56.1	53.5	51.7	47.9	44.1	40.9	37.8	35.3	32.8
12.5°	63.0	57.3	51.7	48.5	46.6	41.6	37.8	34.0	30.2	27.7	25.2
15°	60.5	53.5	47.2	44.1	41.6	36.5	32.1	27.7	23.9	22.0	19.5
17.5°	58.0	50.4	43.5	40.3	37.2	31.5	27.1	22.7	19.5	17.0	15.7
20°	54.8	46.6	39.7	35.9	32.8	27.1	22.0	18.9	15.7	13.9	12.6
22.5°	52.3	43.5	35.9	32.1	28.3	22.7	18.3	15.1	13.2	12.0	11.3
25°	49.8	40.3	32.1	28.3	25.2	19.5	15.7	13.2	11.3	10.7	10.7
27.5°	47.2	37.2	29.0	25.2	22.0	17.0	13.2	11.3	10.7	10.7	10.7
30°	44.7	34.6	25.8	22.7	18.9	14.5	12.0	10.7	10.7	10.7	10.1
32.5°	42.2	32.1	23.3	19.5	17.0	12.6	10.7	10.1	10.1	10.1	9.4
35°	39.7	29.6	20.8	17.6	15.1	11.3	10.1	10.1	9.4	9.4	8.8
37.5°	37.2	27.1	18.9	15.7	13.2	10.1	10.1	9.4	9.4	8.8	8.2
40°	35.3	24.6	17.0	13.9	12.0	9.4	9.4	8.8	8.8	8.2	7.6
42.5°	33.4	22.7	15.1	12.6	10.7	8.8	8.8	8.2	8.2	7.6	6.9
45°	30.9	20.8	13.2	11.3	9.4	8.8	8.2	8.2	7.6	6.9	6.9
47.5°	29.0	18.9	12.0	10.1	8.2	8.2	8.2	7.6	7.6	6.9	6.3
50°	27.7	17.6	10.7	8.8	7.6	7.6	7.6	6.9	6.9	6.3	5.7
52.5°	25.8	15.7	10.1	8.2	7.6	7.6	6.9	6.9	6.9	6.3	5.7
55°	24.6	14.5	8.8	7.6	6.9	6.9	6.9	6.9	6.3	5.7	5.0
57.5°	22.7	13.2	8.2	6.9	6.9	6.9	6.9	6.3	6.3	5.7	4.4
60°	21.4	12.6	7.6	6.3	6.3	6.3	6.9	6.3	5.7	5.0	4.4
62.5°	20.2	11.3	6.9	6.3	6.3	6.3	6.3	6.3	5.7	5.0	3.8
65°	18.9	10.7	6.3	5.7	6.3	6.3	6.3	6.3	5.7	4.4	3.8
67.5°	18.3	10.1	5.7	5.7	6.3	6.3	6.3	5.7	5.0	4.4	3.1
70°	17.0	9.4	5.7	5.7	5.7	5.7	6.3	5.7	5.0	3.8	3.1
72.5°	15.7	8.8	5.0	5.7	5.7	5.7	5.7	5.7	4.4	3.8	2.5
75°	15.1	8.2	5.0	5.0	5.7	5.7	5.7	5.0	4.4	3.1	2.5
77.5°	14.5	7.6	5.0	5.0	5.7	5.7	5.7	5.0	4.4	3.1	2.5
80°	13.2	6.9	5.0	5.0	5.0	5.0	5.0	5.0	3.8	3.1	1.9
82.5°	12.6	6.3	4.4	5.0	5.0	5.0	5.0	4.4	3.8	3.1	1.9
85°	12.0	6.3	4.4	4.4	5.0	5.0	5.0	4.4	3.8	2.5	1.9
87.5°	11.3	5.7	3.8	4.4	4.4	4.4	4.4	3.8	3.1	2.5	1.3
90°	10.1	5.0	3.8	3.8	3.8	4.4	4.4	3.8	3.1	1.9	1.3
92.5°	9.4	5.0	3.8	3.8	3.8	4.4	4.4	3.8	3.1	1.9	1.3
95°	9.4	4.4	3.8	3.8	3.8	4.4	4.4	3.8	2.5	1.9	1.3
97.5°	8.8	4.4	3.1	3.8	3.8	3.8	3.8	3.8	2.5	1.9	1.3
100°	8.2	3.8	3.1	3.1	3.8	3.8	3.8	3.1	2.5	1.9	1.3
102.5°	7.6	3.8	3.1	3.1	3.1	3.8	3.8	3.1	2.5	1.9	1.3
105°	6.9	3.1	3.1	3.1	3.1	3.1	3.8	3.1	2.5	1.9	1.3
107.5°	6.9	3.1	2.5	2.5	3.1	3.1	3.1	3.1	2.5	1.9	1.3
110°	6.3	3.1	2.5	2.5	2.5	3.1	3.1	3.1	2.5	1.9	1.3



TEST NUMBER: P190095

CATALOG NUMBER: TRE11-LD4-15W-50-CL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	5.7	2.5	2.5	2.5	2.5	3.1	3.1	2.5	2.5	1.9	1.3
115°	5.7	2.5	2.5	2.5	2.5	2.5	3.1	3.1	2.5	1.9	1.3
117.5°	5.7	2.5	2.5	2.5	2.5	2.5	3.1	3.1	2.5	1.9	1.3
120°	5.0	2.5	2.5	2.5	2.5	2.5	3.1	3.1	2.5	1.9	1.9
122.5°	4.4	2.5	1.9	1.9	2.5	2.5	2.5	2.5	2.5	1.9	1.9
125°	4.4	2.5	1.9	1.9	1.9	2.5	2.5	2.5	2.5	2.5	1.9
127.5°	3.8	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5	2.5	1.9
130°	3.1	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5	1.9
132.5°	2.5	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5	2.5
135°	2.5	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5
137.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5
140°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5
142.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5
145°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5
147.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5
150°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
152.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
155°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
157.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.3	1.9	1.9
160°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
162.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
165°	2.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
167.5°	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9
170°	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.9	1.9
172.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.9
175°	3.1	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9
177.5°	3.1	3.1	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9
180°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5



TEST NUMBER: P190095

CATALOG NUMBER: TRE11-LD4-15W-50-CL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9
2.5°	62.4	61.1	61.1	61.1	59.8	59.8	59.8	60.5
5°	50.4	49.1	48.5	48.5	47.2	47.2	47.2	47.2
7.5°	40.3	39.1	37.8	37.8	36.5	35.9	35.9	35.9
10°	30.9	29.6	28.3	27.7	27.1	26.5	25.8	26.5
12.5°	23.3	22.0	21.4	20.8	20.2	19.5	18.9	18.9
15°	17.6	16.4	16.4	15.7	15.1	14.5	14.5	14.5
17.5°	14.5	13.2	12.6	12.6	12.0	12.0	12.0	12.0
20°	12.0	11.3	11.3	11.3	10.7	11.3	11.3	10.7
22.5°	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7
25°	10.7	10.7	10.7	10.1	10.1	10.1	10.1	10.1
27.5°	10.1	10.1	10.1	9.4	9.4	9.4	8.8	8.8
30°	9.4	9.4	8.8	8.8	8.8	8.2	8.2	8.2
32.5°	8.8	8.2	8.2	8.2	8.2	7.6	7.6	7.6
35°	8.2	8.2	7.6	7.6	7.6	6.9	6.9	6.9
37.5°	7.6	7.6	7.6	6.9	6.9	6.3	6.3	6.3
40°	7.6	6.9	6.9	6.3	6.3	5.7	5.7	5.7
42.5°	6.9	6.3	6.3	5.7	5.7	5.0	5.0	5.0
45°	6.3	5.7	5.7	5.0	5.0	4.4	4.4	4.4
47.5°	5.7	5.0	5.0	4.4	4.4	3.8	3.8	3.1
50°	5.0	4.4	4.4	3.8	3.1	3.1	2.5	2.5
52.5°	5.0	3.8	3.8	3.1	3.1	2.5	2.5	1.9
55°	4.4	3.8	3.1	2.5	2.5	1.9	1.9	1.9
57.5°	3.8	3.1	2.5	2.5	1.9	1.3	1.3	1.3
60°	3.1	2.5	2.5	1.9	1.3	1.3	1.3	1.3
62.5°	3.1	2.5	1.9	1.9	1.3	1.3	0.6	0.6
65°	2.5	1.9	1.9	1.3	1.3	0.6	0.6	0.6
67.5°	2.5	1.9	1.3	1.3	0.6	0.6	0.6	0.6
70°	1.9	1.3	1.3	1.3	0.6	0.6	0.6	0.6
72.5°	1.9	1.3	1.3	1.3	0.6	0.6	0.6	0.6
75°	1.9	1.3	1.3	0.6	0.6	0.6	0.6	0.6
77.5°	1.9	1.3	1.3	1.3	1.3	0.6	0.6	0.6
80°	1.3	1.3	0.6	0.6	0.6	0.6	0.6	0.6
82.5°	1.3	1.3	1.3	1.3	0.6	0.6	0.6	0.6
85°	1.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6
87.5°	1.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6
90°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
92.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
95°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
97.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
100°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
102.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
105°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
107.5°	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.6
110°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6



TEST NUMBER: P190095

CATALOG NUMBER: TRE11-LD4-15W-50-CL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0
115°	1.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6
117.5°	1.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6
120°	1.3	1.3	1.3	0.6	0.6	0.6	0.6	0.6
122.5°	1.3	1.3	1.3	1.3	0.6	0.6	0.6	0.6
125°	1.3	1.3	1.3	1.3	1.3	0.6	0.6	0.6
127.5°	1.3	1.3	1.3	1.3	1.3	0.6	0.6	0.6
130°	1.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3
132.5°	1.9	1.9	1.9	1.3	1.3	1.3	1.3	1.3
135°	1.9	1.9	1.9	1.9	1.3	1.3	1.3	1.3
137.5°	2.5	1.9	1.9	1.9	1.9	1.3	1.3	1.3
140°	2.5	2.5	2.5	1.9	1.9	1.9	1.9	1.9
142.5°	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9
145°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
147.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
150°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
152.5°	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5
155°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5
157.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
160°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
162.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.3	1.9
165°	1.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3
167.5°	1.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3
170°	1.9	1.9	1.9	1.9	1.3	1.3	1.3	1.3
172.5°	1.9	1.9	1.9	1.9	1.3	1.3	1.3	1.3
175°	1.9	1.9	1.9	1.9	1.3	1.3	1.3	1.3
177.5°	1.9	1.9	1.9	1.9	1.3	1.3	1.3	1.3
180°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

(END OF REPORT)