

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: P190106

Luminaire Tested: **TRB11-LD4-20W-50-OPL-BK-UNV-EDC1-CSTG**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P190106
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27869)
Test Lab: INNOVATION CENTER(G2)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: TRB11-LD4-20W-50-OPL-BK-UNV-EDC1-CSTG
Description: TERRAPIN 11" LED SHALLOW CAST WALL MOUNT WITH BORDER PAINTED OPAL LENS
Light Source: (56) NICHIA 5000 NF2L757DRT
Ballast/Driver: OSRAM ELECTRONIC DRIVER PROGRAMMED AT 450mA OT40W/1

Summary

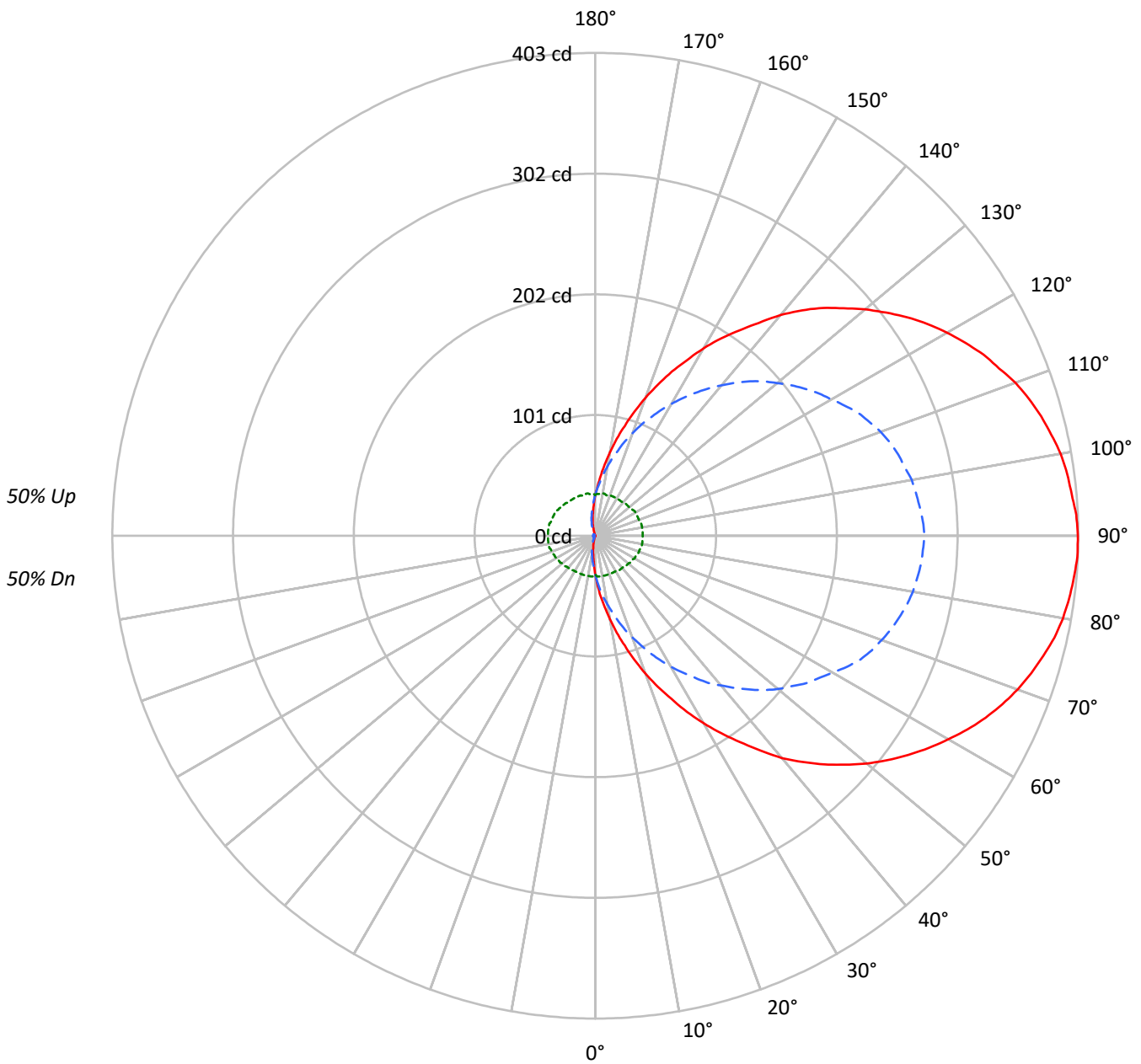
Lumens per Lamp: N/A
Luminaire Lumens: 1266.9 lumens
Efficiency: N/A
Efficacy: 57.8 lumens/watt
Spacing Criteria (0/90/45): 3.97 / 1.65 / 3.23
Luminous Opening: Rectangular w/ Sides (W: 0.92' x L: 0.29' x H: 0.92')
CIE Type: General Diffuse

Input Watts (W): 21.9
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



50% Up
50% Dn

— 0°-180° - - 45°-225° - - - 90°-270°



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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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	92	85	79	74	84	78	73	68	65	60	57	52	49	46	41	38	36	30
2	82	71	63	56	74	65	58	51	53	48	43	43	38	34	33	29	26	21
3	73	61	52	44	66	56	47	40	45	39	33	36	31	27	27	23	20	16
4	66	53	43	36	60	48	40	33	39	32	27	31	26	21	23	19	16	12
5	60	46	37	30	54	42	34	27	34	28	22	27	22	18	20	16	13	9
6	55	41	32	25	50	37	29	23	31	24	19	24	19	15	18	14	11	8
7	51	37	28	21	46	34	25	19	27	21	16	22	16	12	16	12	9	6
8	47	33	24	18	42	30	22	17	25	18	14	20	15	11	15	11	8	5
9	43	30	22	16	39	27	20	15	23	16	12	18	13	9	14	10	7	4
10	41	27	19	14	37	25	18	13	21	15	11	16	12	8	13	9	6	4

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	1296	1296	1296
5°	1607	1267	583
10°	1865	1185	266
15°	2147	1121	104
20°	2448	1071	36
25°	2706	1033	16
30°	2983	1005	0
35°	3226	1012	0
40°	3501	1000	13
45°	3709	1022	12
50°	3903	1026	12
55°	4077	1067	12
60°	4249	1114	11
65°	4422	1145	11
70°	4581	1216	11
75°	4729	1302	22
80°	4880	1376	22
85°	5014	1472	11



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	3.3	0.3
10°-20°	12.1	1.0
20°-30°	25.9	2.0
30°-40°	45.2	3.6
40°-50°	68.5	5.4
50°-60°	92.6	7.3
60°-70°	114.5	9.0
70°-80°	131.4	10.4
80°-90°	140.2	11.1
90°-100°	139.6	11.0
100°-110°	130.5	10.3
110°-120°	114.0	9.0
120°-130°	92.6	7.3
130°-140°	68.7	5.4
140°-150°	45.5	3.6
150°-160°	26.3	2.1
160°-170°	12.4	1.0
170°-180°	3.5	0.3
0°-30°	41.4	3.3
0°-40°	86.6	6.8
0°-60°	247.6	19.5
0°-90°	633.7	50.0
90°-120°	384.2	30.3
90°-150°	591.0	46.6
90°-180°	633.0	50.0
0°-180°	1266.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	32	32	32	32	32	
5°	51	45	34	23	18	5
15°	95	74	34	11	5	28
25°	150	108	34	4	1	71
35°	210	145	35	1	0	133
45°	270	182	36	1	1	209
55°	319	215	37	1	1	286
65°	359	244	38	2	1	356
75°	387	263	40	2	2	409
85°	401	273	40	2	1	327
90°	403	275	40	2	1	221
95°	399	272	40	2	1	325
105°	385	262	40	2	1	407
115°	358	242	39	1	1	354
125°	318	214	38	2	1	285
135°	269	182	37	1	1	208
145°	209	146	36	1	0	132
155°	151	109	36	5	1	71
165°	95	74	35	12	6	28
175°	50	45	35	25	21	5
180°	34	34	34	34	34	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2
2.5°	40.5	40.5	40.5	40.5	40.5	39.6	39.6	39.6	39.6	39.6	38.7
5°	50.7	49.8	49.8	48.8	48.8	48.8	47.9	47.0	47.0	46.1	45.1
7.5°	59.9	59.9	59.0	59.0	58.0	57.1	57.1	55.3	54.4	53.4	51.6
10°	70.9	70.0	70.0	69.1	68.2	67.3	66.3	64.5	62.7	60.8	58.0
12.5°	82.9	82.0	81.1	80.2	79.2	77.4	76.5	73.7	71.9	69.1	65.4
15°	94.9	94.9	94.0	92.1	91.2	89.4	87.5	84.8	81.1	78.3	73.7
17.5°	108.7	107.8	106.9	105.0	103.2	100.4	99.5	95.8	91.2	87.5	82.0
20°	122.5	121.6	119.8	117.9	115.2	113.3	111.5	106.9	102.3	96.7	90.3
22.5°	136.4	135.4	133.6	130.8	128.1	125.3	123.5	117.9	112.4	106.0	98.6
25°	150.2	150.2	148.3	145.6	141.0	138.2	136.4	130.8	123.5	116.1	107.8
27.5°	165.8	164.9	162.2	159.4	155.7	152.0	150.2	142.8	134.5	126.2	117.0
30°	180.6	179.7	177.8	173.2	168.6	164.9	162.2	154.8	145.6	136.4	126.2
32.5°	195.3	193.5	192.6	187.0	182.4	178.7	175.1	166.8	157.5	147.4	135.4
35°	210.1	208.2	206.4	201.8	196.2	191.6	188.0	179.7	169.5	157.5	144.6
37.5°	225.7	223.9	220.2	216.5	209.1	205.5	201.8	191.6	179.7	167.7	154.8
40°	242.3	239.5	235.9	230.3	223.0	218.4	214.7	203.6	190.7	177.8	163.1
42.5°	256.1	253.4	250.6	246.0	237.7	231.3	226.6	215.6	201.8	188.0	172.3
45°	269.9	268.1	265.3	258.9	250.6	246.0	241.4	227.6	212.8	198.1	181.5
47.5°	282.8	281.0	277.3	271.8	263.5	258.0	253.4	240.5	223.9	207.3	190.7
50°	295.7	293.9	290.2	283.8	275.5	269.9	263.5	251.5	233.1	216.5	199.0
52.5°	307.7	306.8	302.2	295.7	286.5	281.0	275.5	261.7	245.1	225.7	206.4
55°	318.8	317.9	313.3	306.8	298.5	292.1	285.6	271.8	255.2	234.9	214.7
57.5°	329.8	328.0	324.3	317.9	307.7	301.3	294.8	281.0	263.5	244.2	221.1
60°	340.0	339.0	334.4	327.1	316.9	311.4	304.0	289.3	271.8	252.4	228.5
62.5°	350.1	348.3	344.6	337.2	326.2	320.6	314.2	298.5	280.1	259.8	236.8
65°	359.3	357.5	352.9	345.5	335.4	328.9	321.5	305.9	287.5	266.3	244.2
67.5°	367.6	365.8	361.2	353.8	342.7	336.3	328.9	312.3	293.9	272.7	249.7
70°	375.0	372.2	367.6	360.2	349.2	342.7	335.4	318.8	299.4	278.2	254.3
72.5°	381.4	380.5	375.0	367.6	356.6	349.2	341.8	325.2	305.9	283.8	258.9
75°	387.0	386.0	380.5	372.2	361.2	354.7	347.3	329.8	309.6	287.5	262.6
77.5°	392.5	389.7	385.1	377.7	365.8	359.3	351.0	334.4	314.2	291.1	266.3
80°	396.2	394.3	389.7	381.4	369.5	363.0	355.6	338.1	316.9	294.8	269.0
82.5°	398.9	397.1	392.5	384.2	372.2	365.8	357.5	340.0	319.7	296.7	270.9
85°	400.8	398.9	394.3	386.0	375.0	367.6	359.3	341.8	321.5	298.5	272.7
87.5°	402.6	400.8	395.2	387.0	375.0	368.5	361.2	342.7	322.5	299.4	273.6
90°	402.6	400.8	396.2	387.9	375.9	369.5	361.2	343.7	323.4	299.4	274.6
92.5°	401.7	399.9	394.3	386.0	375.0	367.6	360.2	342.7	321.5	298.5	273.6
95°	398.9	398.0	392.5	384.2	373.1	366.7	358.4	340.9	320.6	297.6	271.8
97.5°	397.1	395.2	389.7	382.4	371.3	363.9	356.6	339.0	318.8	295.7	269.9
100°	394.3	392.5	387.9	379.6	367.6	361.2	353.8	336.3	316.0	293.0	268.1
102.5°	389.7	387.9	383.3	375.0	363.9	357.5	349.2	332.6	312.3	289.3	264.4
105°	385.1	383.3	378.7	370.4	359.3	352.9	345.5	328.0	308.6	285.6	261.7
107.5°	379.6	377.7	372.2	364.8	353.8	347.3	340.0	323.4	303.1	281.9	258.0
110°	373.1	370.4	365.8	358.4	347.3	341.8	333.5	317.9	298.5	276.4	253.4



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	364.8	363.0	358.4	350.1	340.9	334.4	327.1	311.4	292.1	270.9	247.8
115°	357.5	355.6	351.0	342.7	333.5	327.1	320.6	304.0	285.6	265.3	242.3
117.5°	348.3	346.4	341.8	334.4	324.3	317.9	311.4	296.7	278.2	258.0	234.9
120°	339.0	336.3	332.6	325.2	316.0	309.6	303.1	288.4	270.9	251.5	227.6
122.5°	328.9	327.1	323.4	316.0	306.8	301.3	294.8	280.1	263.5	244.2	221.1
125°	317.9	315.1	311.4	305.0	296.7	290.2	283.8	269.9	254.3	234.0	213.7
127.5°	305.9	304.0	300.4	293.9	285.6	280.1	273.6	260.7	244.2	225.7	206.4
130°	293.9	293.0	289.3	281.9	273.6	269.0	263.5	250.6	233.1	216.5	198.1
132.5°	281.0	280.1	276.4	270.9	262.6	258.0	251.5	239.5	223.9	207.3	190.7
135°	269.0	267.2	264.4	258.9	250.6	246.9	240.5	227.6	213.7	198.1	182.4
137.5°	255.2	254.3	250.6	246.0	236.8	231.3	226.6	215.6	202.7	188.9	173.2
140°	240.5	239.5	234.0	229.4	222.0	218.4	213.7	203.6	191.6	177.8	164.0
142.5°	223.9	223.0	220.2	215.6	209.1	205.5	200.8	191.6	179.7	167.7	154.8
145°	209.1	208.2	206.4	201.8	196.2	192.6	188.0	179.7	168.6	157.5	145.6
147.5°	195.3	194.4	192.6	188.0	182.4	179.7	175.1	167.7	158.5	147.4	136.4
150°	180.6	179.7	176.9	174.1	169.5	165.8	163.1	155.7	147.4	137.3	127.1
152.5°	164.9	164.9	162.2	160.3	154.8	152.0	149.3	142.8	136.4	127.1	117.9
155°	151.1	150.2	148.3	145.6	141.9	139.1	136.4	130.8	125.3	117.0	108.7
157.5°	136.4	136.4	134.5	132.7	129.0	127.1	124.4	118.9	114.2	106.9	100.4
160°	122.5	121.6	120.7	118.9	116.1	114.2	112.4	107.8	103.2	97.7	91.2
162.5°	108.7	107.8	106.9	105.0	102.3	101.3	100.4	95.8	92.1	87.5	82.9
165°	94.9	94.9	93.1	92.1	89.4	89.4	87.5	84.8	82.0	78.3	73.7
167.5°	82.9	82.0	82.0	81.1	78.3	78.3	77.4	74.6	72.8	69.1	66.3
170°	70.9	70.0	70.0	69.1	67.3	67.3	67.3	65.4	63.6	60.8	59.0
172.5°	59.9	59.9	59.0	59.0	57.1	57.1	57.1	56.2	55.3	53.4	51.6
175°	49.8	49.8	48.8	48.8	47.9	47.9	47.9	47.9	47.0	46.1	45.1
177.5°	40.5	40.5	40.5	40.5	39.6	40.5	40.5	39.6	39.6	39.6	39.6
180°	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2
2.5°	38.7	37.8	37.8	36.9	36.9	36.9	35.9	35.0	34.1	34.1	33.2
5°	44.2	43.3	41.5	40.5	39.6	39.6	37.8	36.9	35.0	34.1	32.2
7.5°	49.8	47.9	46.1	44.2	43.3	42.4	39.6	37.8	35.9	34.1	32.2
10°	56.2	53.4	50.7	47.9	46.1	45.1	42.4	39.6	36.9	34.1	31.3
12.5°	62.7	59.0	55.3	51.6	49.8	47.9	44.2	40.5	36.9	34.1	30.4
15°	69.1	64.5	60.8	55.3	53.4	51.6	46.1	42.4	37.8	34.1	30.4
17.5°	76.5	70.9	65.4	59.9	57.1	54.4	48.8	43.3	38.7	34.1	29.5
20°	83.8	77.4	70.9	64.5	60.8	57.1	50.7	45.1	39.6	34.1	29.5
22.5°	91.2	83.8	75.5	68.2	64.5	60.8	53.4	46.1	39.6	34.1	28.6
25°	99.5	90.3	82.0	72.8	68.2	63.6	55.3	47.9	40.5	34.1	28.6
27.5°	107.8	97.7	87.5	77.4	72.8	67.3	58.0	49.8	41.5	34.1	27.6
30°	116.1	104.1	93.1	82.0	76.5	70.9	60.8	51.6	42.4	34.1	27.6
32.5°	123.5	111.5	98.6	86.6	80.2	74.6	62.7	52.5	43.3	34.1	26.7
35°	131.7	117.9	105.0	91.2	84.8	78.3	65.4	54.4	43.3	35.0	26.7
37.5°	140.0	125.3	110.6	95.8	88.4	81.1	68.2	56.2	45.1	35.0	26.7
40°	148.3	131.7	116.1	100.4	93.1	84.8	70.9	57.1	45.1	35.0	26.7
42.5°	156.6	139.1	121.6	105.0	96.7	88.4	72.8	59.0	46.1	35.0	25.8
45°	164.0	145.6	127.1	109.6	100.4	92.1	75.5	60.8	47.0	35.9	25.8
47.5°	172.3	152.0	133.6	113.3	104.1	94.9	77.4	61.7	47.9	35.9	25.8
50°	178.7	159.4	138.2	117.9	108.7	98.6	80.2	63.6	48.8	35.9	25.8
52.5°	186.1	164.9	143.7	122.5	112.4	102.3	82.0	65.4	49.8	36.9	25.8
55°	192.6	170.4	148.3	126.2	115.2	105.0	84.8	66.3	50.7	36.9	25.8
57.5°	199.0	176.0	152.9	129.9	118.9	107.8	86.6	67.3	50.7	36.9	25.8
60°	205.5	181.5	157.5	133.6	121.6	110.6	88.4	69.1	51.6	37.8	25.8
62.5°	211.0	187.0	162.2	137.3	125.3	113.3	90.3	70.0	52.5	37.8	25.8
65°	216.5	191.6	165.8	140.0	128.1	115.2	92.1	71.9	53.4	37.8	25.8
67.5°	222.0	196.2	169.5	142.8	129.9	117.9	94.0	72.8	54.4	38.7	25.8
70°	226.6	199.9	173.2	145.6	132.7	119.8	95.8	73.7	54.4	38.7	25.8
72.5°	230.3	203.6	176.0	148.3	135.4	121.6	96.7	74.6	55.3	38.7	25.8
75°	235.9	207.3	178.7	150.2	137.3	123.5	98.6	75.5	56.2	39.6	25.8
77.5°	238.6	210.1	180.6	152.9	139.1	125.3	99.5	76.5	56.2	39.6	25.8
80°	242.3	211.9	182.4	153.9	140.0	126.2	100.4	77.4	57.1	39.6	26.7
82.5°	244.2	213.7	184.3	154.8	141.0	127.1	101.3	77.4	57.1	39.6	26.7
85°	246.0	214.7	185.2	155.7	141.9	128.1	101.3	77.4	57.1	39.6	26.7
87.5°	246.0	214.7	185.2	155.7	141.9	128.1	101.3	77.4	57.1	39.6	26.7
90°	246.9	215.6	186.1	156.6	142.8	128.1	102.3	78.3	57.1	39.6	26.7
92.5°	246.0	214.7	185.2	155.7	141.9	128.1	101.3	77.4	57.1	39.6	25.8
95°	244.2	213.7	184.3	155.7	141.0	127.1	101.3	77.4	56.2	39.6	25.8
97.5°	243.2	212.8	183.3	154.8	140.0	127.1	100.4	76.5	56.2	39.6	25.8
100°	241.4	211.0	182.4	153.9	139.1	126.2	100.4	76.5	56.2	39.6	25.8
102.5°	238.6	208.2	180.6	152.0	138.2	124.4	99.5	75.5	56.2	39.6	25.8
105°	233.1	205.5	177.8	150.2	136.4	123.5	98.6	75.5	55.3	39.6	25.8
107.5°	230.3	202.7	175.1	148.3	134.5	121.6	96.7	74.6	55.3	38.7	25.8
110°	225.7	199.0	172.3	145.6	132.7	119.8	95.8	73.7	54.4	38.7	25.8



TEST NUMBER: P190106

CATALOG NUMBER: TRB11-LD4-20W-50-OPL-BK-UNV-EDC1-CSTG

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	221.1	195.3	169.5	142.8	129.9	117.9	94.0	72.8	54.4	38.7	25.8
115°	216.5	190.7	165.8	140.0	128.1	115.2	93.1	71.9	53.4	38.7	25.8
117.5°	211.0	187.0	162.2	137.3	125.3	113.3	91.2	70.9	53.4	38.7	26.7
120°	205.5	181.5	157.5	134.5	122.5	110.6	89.4	70.0	52.5	38.7	26.7
122.5°	199.9	176.9	153.9	130.8	119.8	108.7	87.5	69.1	52.5	38.7	26.7
125°	193.5	171.4	149.3	127.1	116.1	106.0	85.7	67.3	51.6	37.8	26.7
127.5°	187.0	164.9	144.6	123.5	112.4	103.2	83.8	66.3	50.7	37.8	26.7
130°	179.7	159.4	139.1	118.9	108.7	99.5	81.1	64.5	49.8	36.9	26.7
132.5°	172.3	152.9	134.5	115.2	106.0	96.7	79.2	63.6	48.8	36.9	26.7
135°	164.9	146.5	129.0	110.6	102.3	93.1	77.4	61.7	48.8	36.9	27.6
137.5°	157.5	140.0	123.5	106.9	97.7	90.3	74.6	59.9	47.9	36.9	27.6
140°	149.3	132.7	117.9	101.3	94.0	86.6	71.9	59.0	47.0	35.9	27.6
142.5°	141.0	126.2	111.5	96.7	89.4	82.9	69.1	57.1	46.1	35.9	27.6
145°	132.7	119.8	106.0	93.1	85.7	79.2	67.3	55.3	45.1	35.9	27.6
147.5°	125.3	112.4	100.4	88.4	82.0	76.5	64.5	54.4	44.2	35.9	28.6
150°	117.0	106.0	94.9	83.8	78.3	72.8	62.7	52.5	44.2	35.9	28.6
152.5°	108.7	98.6	88.4	78.3	73.7	69.1	59.9	50.7	42.4	35.9	29.5
155°	100.4	92.1	82.9	74.6	70.0	65.4	57.1	49.8	42.4	35.9	29.5
157.5°	93.1	85.7	77.4	70.0	66.3	62.7	55.3	47.9	41.5	35.9	30.4
160°	85.7	79.2	71.9	65.4	62.7	59.0	52.5	47.0	40.5	35.9	30.4
162.5°	77.4	71.9	66.3	60.8	58.0	56.2	49.8	45.1	40.5	35.0	31.3
165°	70.0	65.4	60.8	57.1	54.4	52.5	47.9	43.3	39.6	35.0	31.3
167.5°	63.6	59.9	56.2	52.5	50.7	49.8	46.1	42.4	38.7	35.9	32.2
170°	57.1	54.4	51.6	48.8	47.9	46.1	43.3	40.5	37.8	35.9	33.2
172.5°	50.7	48.8	47.0	45.1	44.2	43.3	41.5	39.6	37.8	35.0	33.2
175°	44.2	43.3	42.4	41.5	40.5	40.5	38.7	37.8	36.9	35.0	34.1
177.5°	38.7	38.7	38.7	37.8	37.8	37.8	36.9	36.9	35.9	35.0	35.0
180°	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1



TEST NUMBER: P190106

CATALOG NUMBER: TRB11-LD4-20W-50-OPL-BK-UNV-EDC1-CSTG

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2
2.5°	32.2	31.3	31.3	30.4	30.4	29.5	28.6	27.6	26.7	26.7	25.8
5°	31.3	30.4	28.6	27.6	27.6	25.8	24.9	24.0	23.0	22.1	21.2
7.5°	30.4	28.6	26.7	25.8	24.9	23.0	22.1	20.3	19.3	18.4	17.5
10°	28.6	26.7	24.9	23.0	22.1	20.3	18.4	17.5	15.7	14.7	13.8
12.5°	27.6	24.9	23.0	21.2	20.3	18.4	16.6	14.7	12.9	12.0	11.1
15°	26.7	24.0	21.2	19.3	18.4	15.7	13.8	12.0	11.1	9.2	8.3
17.5°	25.8	22.1	19.3	17.5	16.6	13.8	12.0	10.1	8.3	7.4	6.4
20°	24.9	21.2	17.5	16.6	14.7	12.0	10.1	8.3	6.4	5.5	4.6
22.5°	24.0	19.3	16.6	14.7	12.9	11.1	8.3	6.4	5.5	3.7	2.8
25°	23.0	18.4	14.7	13.8	12.0	9.2	7.4	5.5	3.7	2.8	1.8
27.5°	22.1	17.5	13.8	12.0	11.1	8.3	5.5	4.6	2.8	1.8	0.9
30°	21.2	16.6	12.9	11.1	9.2	6.4	4.6	3.7	1.8	1.8	0.9
32.5°	21.2	15.7	12.0	10.1	8.3	5.5	3.7	2.8	1.8	0.9	0.9
35°	20.3	14.7	11.1	9.2	7.4	4.6	2.8	1.8	0.9	0.9	0.9
37.5°	20.3	14.7	10.1	8.3	6.4	4.6	2.8	1.8	0.9	0.9	0.9
40°	19.3	13.8	9.2	7.4	6.4	3.7	1.8	0.9	0.9	0.9	0.9
42.5°	18.4	12.9	8.3	7.4	5.5	2.8	1.8	0.9	0.9	0.9	0.9
45°	18.4	12.9	8.3	6.4	4.6	2.8	1.8	0.9	0.9	0.9	0.9
47.5°	18.4	12.0	7.4	5.5	4.6	2.8	0.9	0.9	0.9	0.9	0.9
50°	17.5	12.0	7.4	5.5	3.7	1.8	1.8	0.9	0.9	0.9	0.9
52.5°	17.5	11.1	6.4	5.5	3.7	1.8	1.8	1.8	0.9	0.9	0.9
55°	17.5	11.1	6.4	4.6	2.8	1.8	1.8	1.8	0.9	0.9	0.9
57.5°	16.6	10.1	5.5	4.6	2.8	1.8	1.8	0.9	0.9	0.9	0.9
60°	16.6	10.1	5.5	4.6	2.8	1.8	1.8	1.8	1.8	1.8	0.9
62.5°	16.6	10.1	5.5	3.7	2.8	1.8	1.8	1.8	1.8	1.8	0.9
65°	16.6	10.1	5.5	3.7	2.8	1.8	1.8	1.8	1.8	1.8	1.8
67.5°	16.6	10.1	5.5	3.7	2.8	1.8	1.8	1.8	1.8	1.8	1.8
70°	16.6	9.2	4.6	3.7	2.8	1.8	1.8	1.8	1.8	1.8	1.8
72.5°	16.6	9.2	4.6	3.7	2.8	1.8	1.8	1.8	1.8	1.8	1.8
75°	16.6	9.2	4.6	3.7	2.8	1.8	1.8	1.8	1.8	1.8	1.8
77.5°	16.6	9.2	4.6	3.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8
80°	16.6	9.2	4.6	3.7	2.8	1.8	1.8	1.8	1.8	1.8	1.8
82.5°	16.6	9.2	4.6	2.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
85°	16.6	9.2	4.6	2.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
87.5°	15.7	9.2	4.6	2.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
90°	15.7	9.2	4.6	2.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
92.5°	15.7	9.2	4.6	2.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
95°	15.7	9.2	4.6	2.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
97.5°	15.7	9.2	4.6	2.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
100°	16.6	9.2	4.6	2.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
102.5°	15.7	9.2	4.6	2.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
105°	16.6	9.2	4.6	2.8	1.8	1.8	1.8	1.8	1.8	1.8	0.9
107.5°	16.6	9.2	4.6	2.8	1.8	1.8	1.8	1.8	1.8	0.9	0.9
110°	16.6	9.2	4.6	3.7	1.8	1.8	1.8	1.8	1.8	0.9	0.9



TEST NUMBER: P190106

CATALOG NUMBER: TRB11-LD4-20W-50-OPL-BK-UNV-EDC1-CSTG

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	16.6	10.1	4.6	3.7	1.8	1.8	1.8	1.8	0.9	0.9	0.9
115°	16.6	10.1	5.5	3.7	2.8	1.8	1.8	1.8	0.9	0.9	0.9
117.5°	17.5	11.1	5.5	4.6	2.8	1.8	1.8	1.8	1.8	1.8	0.9
120°	17.5	11.1	6.4	4.6	2.8	1.8	1.8	1.8	1.8	0.9	0.9
122.5°	17.5	11.1	6.4	4.6	3.7	1.8	1.8	1.8	1.8	1.8	0.9
125°	17.5	11.1	6.4	4.6	3.7	1.8	1.8	1.8	1.8	0.9	0.9
127.5°	18.4	12.0	7.4	5.5	3.7	1.8	1.8	1.8	0.9	0.9	0.9
130°	18.4	12.0	7.4	5.5	4.6	1.8	0.9	0.9	0.9	0.9	0.9
132.5°	18.4	12.9	8.3	6.4	4.6	2.8	1.8	0.9	0.9	0.9	0.9
135°	19.3	12.9	8.3	7.4	5.5	2.8	1.8	0.9	0.9	0.9	0.9
137.5°	19.3	13.8	9.2	7.4	5.5	3.7	1.8	0.9	0.9	0.9	0.9
140°	20.3	14.7	10.1	8.3	6.4	3.7	2.8	1.8	0.9	0.9	0.9
142.5°	21.2	15.7	11.1	9.2	7.4	4.6	2.8	1.8	0.9	0.9	0.9
145°	21.2	15.7	12.0	10.1	8.3	5.5	3.7	2.8	0.9	0.9	0.9
147.5°	22.1	16.6	12.9	11.1	9.2	6.4	4.6	2.8	1.8	0.9	0.9
150°	23.0	17.5	13.8	12.0	10.1	7.4	5.5	3.7	2.8	1.8	0.9
152.5°	23.0	18.4	14.7	12.9	11.1	8.3	6.4	4.6	3.7	2.8	1.8
155°	24.0	20.3	15.7	14.7	12.9	10.1	8.3	6.4	4.6	3.7	2.8
157.5°	24.9	21.2	17.5	15.7	14.7	12.0	9.2	7.4	6.4	4.6	3.7
160°	25.8	22.1	19.3	17.5	16.6	13.8	11.1	9.2	7.4	6.4	5.5
162.5°	26.7	24.0	20.3	19.3	17.5	15.7	12.9	11.1	10.1	8.3	7.4
165°	28.6	24.9	22.1	21.2	19.3	17.5	15.7	13.8	12.0	11.1	9.2
167.5°	29.5	26.7	24.0	23.0	22.1	20.3	18.4	16.6	14.7	13.8	12.0
170°	30.4	28.6	25.8	24.9	24.0	22.1	20.3	19.3	17.5	16.6	15.7
172.5°	31.3	29.5	28.6	27.6	26.7	24.9	24.0	22.1	21.2	20.3	19.3
175°	33.2	31.3	30.4	30.4	29.5	28.6	26.7	25.8	24.9	24.9	24.0
177.5°	34.1	33.2	33.2	32.2	32.2	31.3	31.3	30.4	29.5	29.5	28.6
180°	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1



TEST NUMBER: P190106

CATALOG NUMBER: TRB11-LD4-20W-50-OPL-BK-UNV-EDC1-CSTG

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2
2.5°	24.9	24.9	24.9	24.0	24.0	24.0	24.0	24.0
5°	20.3	19.3	19.3	19.3	18.4	18.4	18.4	18.4
7.5°	16.6	15.7	14.7	14.7	14.7	13.8	13.8	13.8
10°	12.9	12.0	12.0	11.1	11.1	10.1	10.1	10.1
12.5°	10.1	9.2	8.3	8.3	8.3	7.4	7.4	7.4
15°	7.4	6.4	6.4	5.5	5.5	4.6	4.6	4.6
17.5°	5.5	4.6	4.6	3.7	3.7	2.8	2.8	2.8
20°	3.7	2.8	2.8	2.8	1.8	1.8	1.8	1.8
22.5°	1.8	1.8	1.8	1.8	0.9	0.9	0.9	0.9
25°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
27.5°	0.9	0.9	0.9	0.9	0.9	0.0	0.9	0.0
30°	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
32.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0
35°	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
37.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
40°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
42.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0
45°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
47.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
50°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
52.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
55°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
57.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
60°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
62.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
65°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
67.5°	1.8	1.8	1.8	0.9	0.9	0.9	0.9	0.9
70°	1.8	1.8	1.8	0.9	0.9	0.9	0.9	0.9
72.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.9
75°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
77.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.9
80°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
82.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
85°	1.8	1.8	1.8	1.8	0.9	0.9	0.9	0.9
87.5°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
90°	1.8	1.8	0.9	0.9	0.9	0.9	0.9	0.9
92.5°	0.9	1.8	0.9	0.9	0.9	0.9	0.9	0.9
95°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
97.5°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
100°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
102.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
105°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
107.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
110°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9



TEST NUMBER: P190106

CATALOG NUMBER: TRB11-LD4-20W-50-OPL-BK-UNV-EDC1-CSTG

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
115°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
117.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
120°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
122.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
125°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
127.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
130°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
132.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
135°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
137.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
140°	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
142.5°	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
145°	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
147.5°	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
150°	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
152.5°	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
155°	1.8	1.8	0.9	0.9	0.9	0.9	0.0	0.9
157.5°	2.8	1.8	1.8	1.8	1.8	0.9	0.9	0.9
160°	4.6	3.7	3.7	2.8	2.8	2.8	1.8	1.8
162.5°	6.4	5.5	5.5	4.6	4.6	3.7	3.7	3.7
165°	8.3	7.4	7.4	7.4	6.4	6.4	5.5	5.5
167.5°	11.1	11.1	10.1	10.1	9.2	9.2	9.2	9.2
170°	14.7	13.8	12.9	12.9	12.0	12.0	12.0	12.0
172.5°	18.4	17.5	17.5	16.6	16.6	15.7	15.7	15.7
175°	23.0	22.1	22.1	22.1	21.2	21.2	21.2	21.2
177.5°	27.6	27.6	27.6	27.6	26.7	26.7	26.7	26.7
180°	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1

(END OF REPORT)