

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: P190108

Luminaire Tested: **TRB11-LD4-10W-50-OPL-BK-UNV-EDC1-CSTG**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P190108
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-LD4-10W-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 200mA OT25W/1

Summary

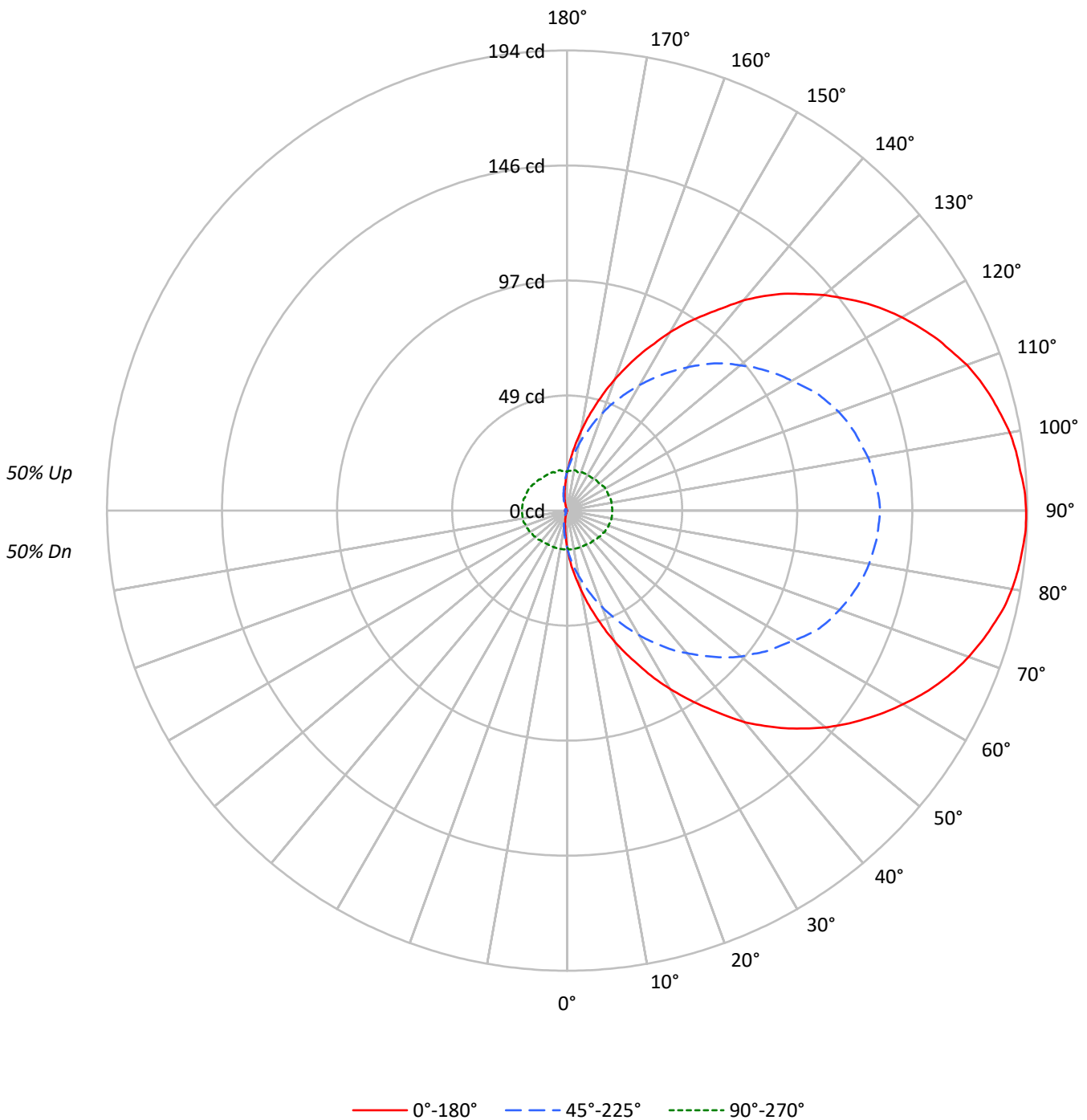
Lumens per Lamp: N/A
Luminaire Lumens: 608.9 lumens
Efficiency: N/A
Efficacy: 60.9 lumens/watt
Spacing Criteria (0/90/45): 3.97 / 1.64 / 3.22
Luminous Opening: Rectangular w/ Sides (W: 0.92' x L: 0.29' x H: 0.92')
CIE Type: General Diffuse

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	
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°	624	624	624
5°	773	609	282
10°	897	570	129
15°	1032	539	50
20°	1177	515	18
25°	1301	497	7
30°	1434	483	0
35°	1551	486	0
40°	1683	480	6
45°	1784	492	5
50°	1877	494	5
55°	1959	512	5
60°	2042	536	5
65°	2126	551	5
70°	2202	584	5
75°	2273	625	11
80°	2345	660	11
85°	2410	706	5



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	1.6	0.3
10°-20°	5.8	1.0
20°-30°	12.5	2.0
30°-40°	21.7	3.6
40°-50°	32.9	5.4
50°-60°	44.5	7.3
60°-70°	55.1	9.0
70°-80°	63.1	10.4
80°-90°	67.4	11.1
90°-100°	67.1	11.0
100°-110°	62.7	10.3
110°-120°	54.8	9.0
120°-130°	44.5	7.3
130°-140°	33.0	5.4
140°-150°	21.9	3.6
150°-160°	12.6	2.1
160°-170°	6.0	1.0
170°-180°	1.7	0.3
0°-30°	19.9	3.3
0°-40°	41.6	6.8
0°-60°	119.0	19.5
0°-90°	304.6	50.0
90°-120°	184.6	30.3
90°-150°	284.0	46.6
90°-180°	304.0	49.9
0°-180°	608.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	16	16	16	16	16	
5°	24	22	16	11	9	3
15°	46	35	16	5	2	13
25°	72	52	16	2	0	34
35°	101	70	17	0	0	64
45°	130	87	17	0	0	101
55°	153	103	18	0	0	138
65°	173	117	18	1	0	171
75°	186	126	19	1	1	197
85°	193	131	19	1	0	157
90°	194	132	19	1	0	106
95°	192	131	19	1	0	156
105°	185	126	19	1	0	196
115°	172	116	19	0	0	170
125°	153	103	18	1	0	137
135°	129	88	18	0	0	100
145°	100	70	17	0	0	64
155°	73	52	17	2	0	34
165°	46	35	17	6	3	13
175°	24	22	17	12	10	3
180°	16	16	16	16	16	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
2.5°	19.5	19.5	19.5	19.5	19.5	19.0	19.0	19.0	19.0	19.0	18.6
5°	24.4	23.9	23.9	23.5	23.5	23.5	23.0	22.6	22.6	22.1	21.7
7.5°	28.8	28.8	28.3	28.3	27.9	27.5	27.5	26.6	26.1	25.7	24.8
10°	34.1	33.7	33.7	33.2	32.8	32.3	31.9	31.0	30.1	29.2	27.9
12.5°	39.9	39.4	39.0	38.5	38.1	37.2	36.8	35.4	34.5	33.2	31.4
15°	45.6	45.6	45.2	44.3	43.8	43.0	42.1	40.7	39.0	37.6	35.4
17.5°	52.3	51.8	51.4	50.5	49.6	48.3	47.8	46.1	43.8	42.1	39.4
20°	58.9	58.5	57.6	56.7	55.4	54.5	53.6	51.4	49.2	46.5	43.4
22.5°	65.5	65.1	64.2	62.9	61.6	60.2	59.3	56.7	54.0	50.9	47.4
25°	72.2	72.2	71.3	70.0	67.8	66.4	65.5	62.9	59.3	55.8	51.8
27.5°	79.7	79.3	77.9	76.6	74.8	73.1	72.2	68.6	64.7	60.7	56.2
30°	86.8	86.4	85.5	83.3	81.0	79.3	77.9	74.4	70.0	65.5	60.7
32.5°	93.9	93.0	92.6	89.9	87.7	85.9	84.1	80.2	75.7	70.9	65.1
35°	101.0	100.1	99.2	97.0	94.3	92.1	90.3	86.4	81.5	75.7	69.5
37.5°	108.5	107.6	105.8	104.1	100.5	98.8	97.0	92.1	86.4	80.6	74.4
40°	116.5	115.1	113.4	110.7	107.2	105.0	103.2	97.9	91.7	85.5	78.4
42.5°	123.1	121.8	120.5	118.2	114.3	111.2	108.9	103.6	97.0	90.3	82.8
45°	129.8	128.9	127.5	124.4	120.5	118.2	116.0	109.4	102.3	95.2	87.2
47.5°	136.0	135.1	133.3	130.6	126.7	124.0	121.8	115.6	107.6	99.6	91.7
50°	142.2	141.3	139.5	136.4	132.4	129.8	126.7	120.9	112.0	104.1	95.7
52.5°	147.9	147.5	145.3	142.2	137.7	135.1	132.4	125.8	117.8	108.5	99.2
55°	153.2	152.8	150.6	147.5	143.5	140.4	137.3	130.6	122.7	112.9	103.2
57.5°	158.5	157.7	155.9	152.8	147.9	144.8	141.7	135.1	126.7	117.4	106.3
60°	163.4	163.0	160.8	157.2	152.3	149.7	146.1	139.1	130.6	121.3	109.8
62.5°	168.3	167.4	165.6	162.1	156.8	154.1	151.0	143.5	134.6	124.9	113.8
65°	172.7	171.8	169.6	166.1	161.2	158.1	154.6	147.0	138.2	128.0	117.4
67.5°	176.7	175.8	173.6	170.1	164.7	161.6	158.1	150.1	141.3	131.1	120.0
70°	180.2	178.9	176.7	173.2	167.8	164.7	161.2	153.2	143.9	133.7	122.2
72.5°	183.3	182.9	180.2	176.7	171.4	167.8	164.3	156.3	147.0	136.4	124.4
75°	186.0	185.6	182.9	178.9	173.6	170.5	167.0	158.5	148.8	138.2	126.2
77.5°	188.7	187.3	185.1	181.6	175.8	172.7	168.7	160.8	151.0	139.9	128.0
80°	190.4	189.5	187.3	183.3	177.6	174.5	170.9	162.5	152.3	141.7	129.3
82.5°	191.8	190.9	188.7	184.7	178.9	175.8	171.8	163.4	153.7	142.6	130.2
85°	192.6	191.8	189.5	185.6	180.2	176.7	172.7	164.3	154.6	143.5	131.1
87.5°	193.5	192.6	190.0	186.0	180.2	177.1	173.6	164.7	155.0	143.9	131.5
90°	193.5	192.6	190.4	186.4	180.7	177.6	173.6	165.2	155.4	143.9	132.0
92.5°	193.1	192.2	189.5	185.6	180.2	176.7	173.2	164.7	154.6	143.5	131.5
95°	191.8	191.3	188.7	184.7	179.4	176.3	172.3	163.9	154.1	143.0	130.6
97.5°	190.9	190.0	187.3	183.8	178.5	174.9	171.4	163.0	153.2	142.2	129.8
100°	189.5	188.7	186.4	182.5	176.7	173.6	170.1	161.6	151.9	140.8	128.9
102.5°	187.3	186.4	184.2	180.2	174.9	171.8	167.8	159.9	150.1	139.1	127.1
105°	185.1	184.2	182.0	178.0	172.7	169.6	166.1	157.7	148.4	137.3	125.8
107.5°	182.5	181.6	178.9	175.4	170.1	167.0	163.4	155.4	145.7	135.5	124.0
110°	179.4	178.0	175.8	172.3	167.0	164.3	160.3	152.8	143.5	132.9	121.8



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	175.4	174.5	172.3	168.3	163.9	160.8	157.2	149.7	140.4	130.2	119.1
115°	171.8	170.9	168.7	164.7	160.3	157.2	154.1	146.1	137.3	127.5	116.5
117.5°	167.4	166.5	164.3	160.8	155.9	152.8	149.7	142.6	133.7	124.0	112.9
120°	163.0	161.6	159.9	156.3	151.9	148.8	145.7	138.6	130.2	120.9	109.4
122.5°	158.1	157.2	155.4	151.9	147.5	144.8	141.7	134.6	126.7	117.4	106.3
125°	152.8	151.5	149.7	146.6	142.6	139.5	136.4	129.8	122.2	112.5	102.7
127.5°	147.0	146.1	144.4	141.3	137.3	134.6	131.5	125.3	117.4	108.5	99.2
130°	141.3	140.8	139.1	135.5	131.5	129.3	126.7	120.5	112.0	104.1	95.2
132.5°	135.1	134.6	132.9	130.2	126.2	124.0	120.9	115.1	107.6	99.6	91.7
135°	129.3	128.4	127.1	124.4	120.5	118.7	115.6	109.4	102.7	95.2	87.7
137.5°	122.7	122.2	120.5	118.2	113.8	111.2	108.9	103.6	97.4	90.8	83.3
140°	115.6	115.1	112.5	110.3	106.7	105.0	102.7	97.9	92.1	85.5	78.8
142.5°	107.6	107.2	105.8	103.6	100.5	98.8	96.5	92.1	86.4	80.6	74.4
145°	100.5	100.1	99.2	97.0	94.3	92.6	90.3	86.4	81.0	75.7	70.0
147.5°	93.9	93.4	92.6	90.3	87.7	86.4	84.1	80.6	76.2	70.9	65.5
150°	86.8	86.4	85.0	83.7	81.5	79.7	78.4	74.8	70.9	66.0	61.1
152.5°	79.3	79.3	77.9	77.1	74.4	73.1	71.7	68.6	65.5	61.1	56.7
155°	72.6	72.2	71.3	70.0	68.2	66.9	65.5	62.9	60.2	56.2	52.3
157.5°	65.5	65.5	64.7	63.8	62.0	61.1	59.8	57.1	54.9	51.4	48.3
160°	58.9	58.5	58.0	57.1	55.8	54.9	54.0	51.8	49.6	46.9	43.8
162.5°	52.3	51.8	51.4	50.5	49.2	48.7	48.3	46.1	44.3	42.1	39.9
165°	45.6	45.6	44.7	44.3	43.0	43.0	42.1	40.7	39.4	37.6	35.4
167.5°	39.9	39.4	39.4	39.0	37.6	37.6	37.2	35.9	35.0	33.2	31.9
170°	34.1	33.7	33.7	33.2	32.3	32.3	32.3	31.4	30.6	29.2	28.3
172.5°	28.8	28.8	28.3	28.3	27.5	27.5	27.5	27.0	26.6	25.7	24.8
175°	23.9	23.9	23.5	23.5	23.0	23.0	23.0	23.0	22.6	22.1	21.7
177.5°	19.5	19.5	19.5	19.5	19.0	19.5	19.5	19.0	19.0	19.0	19.0
180°	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
2.5°	18.6	18.2	18.2	17.7	17.7	17.7	17.3	16.8	16.4	16.4	15.9
5°	21.3	20.8	19.9	19.5	19.0	19.0	18.2	17.7	16.8	16.4	15.5
7.5°	23.9	23.0	22.1	21.3	20.8	20.4	19.0	18.2	17.3	16.4	15.5
10°	27.0	25.7	24.4	23.0	22.1	21.7	20.4	19.0	17.7	16.4	15.1
12.5°	30.1	28.3	26.6	24.8	23.9	23.0	21.3	19.5	17.7	16.4	14.6
15°	33.2	31.0	29.2	26.6	25.7	24.8	22.1	20.4	18.2	16.4	14.6
17.5°	36.8	34.1	31.4	28.8	27.5	26.1	23.5	20.8	18.6	16.4	14.2
20°	40.3	37.2	34.1	31.0	29.2	27.5	24.4	21.7	19.0	16.4	14.2
22.5°	43.8	40.3	36.3	32.8	31.0	29.2	25.7	22.1	19.0	16.4	13.7
25°	47.8	43.4	39.4	35.0	32.8	30.6	26.6	23.0	19.5	16.4	13.7
27.5°	51.8	46.9	42.1	37.2	35.0	32.3	27.9	23.9	19.9	16.4	13.3
30°	55.8	50.0	44.7	39.4	36.8	34.1	29.2	24.8	20.4	16.4	13.3
32.5°	59.3	53.6	47.4	41.6	38.5	35.9	30.1	25.2	20.8	16.4	12.8
35°	63.3	56.7	50.5	43.8	40.7	37.6	31.4	26.1	20.8	16.8	12.8
37.5°	67.3	60.2	53.1	46.1	42.5	39.0	32.8	27.0	21.7	16.8	12.8
40°	71.3	63.3	55.8	48.3	44.7	40.7	34.1	27.5	21.7	16.8	12.8
42.5°	75.3	66.9	58.5	50.5	46.5	42.5	35.0	28.3	22.1	16.8	12.4
45°	78.8	70.0	61.1	52.7	48.3	44.3	36.3	29.2	22.6	17.3	12.4
47.5°	82.8	73.1	64.2	54.5	50.0	45.6	37.2	29.7	23.0	17.3	12.4
50°	85.9	76.6	66.4	56.7	52.3	47.4	38.5	30.6	23.5	17.3	12.4
52.5°	89.5	79.3	69.1	58.9	54.0	49.2	39.4	31.4	23.9	17.7	12.4
55°	92.6	81.9	71.3	60.7	55.4	50.5	40.7	31.9	24.4	17.7	12.4
57.5°	95.7	84.6	73.5	62.4	57.1	51.8	41.6	32.3	24.4	17.7	12.4
60°	98.8	87.2	75.7	64.2	58.5	53.1	42.5	33.2	24.8	18.2	12.4
62.5°	101.4	89.9	77.9	66.0	60.2	54.5	43.4	33.7	25.2	18.2	12.4
65°	104.1	92.1	79.7	67.3	61.6	55.4	44.3	34.5	25.7	18.2	12.4
67.5°	106.7	94.3	81.5	68.6	62.4	56.7	45.2	35.0	26.1	18.6	12.4
70°	108.9	96.1	83.3	70.0	63.8	57.6	46.1	35.4	26.1	18.6	12.4
72.5°	110.7	97.9	84.6	71.3	65.1	58.5	46.5	35.9	26.6	18.6	12.4
75°	113.4	99.6	85.9	72.2	66.0	59.3	47.4	36.3	27.0	19.0	12.4
77.5°	114.7	101.0	86.8	73.5	66.9	60.2	47.8	36.8	27.0	19.0	12.4
80°	116.5	101.9	87.7	74.0	67.3	60.7	48.3	37.2	27.5	19.0	12.8
82.5°	117.4	102.7	88.6	74.4	67.8	61.1	48.7	37.2	27.5	19.0	12.8
85°	118.2	103.2	89.0	74.8	68.2	61.6	48.7	37.2	27.5	19.0	12.8
87.5°	118.2	103.6	89.5	75.3	68.6	61.6	48.7	37.2	27.5	19.0	12.4
90°	118.7	103.6	89.5	75.3	68.6	61.6	49.2	37.6	27.5	19.0	12.8
92.5°	118.2	103.2	89.0	74.8	68.2	61.6	48.7	37.2	27.5	19.0	12.4
95°	117.4	102.7	88.6	74.8	67.8	61.1	48.7	37.2	27.0	19.0	12.4
97.5°	116.9	102.3	88.1	74.4	67.3	61.1	48.3	36.8	27.0	19.0	12.4
100°	116.0	101.4	87.7	74.0	66.9	60.7	48.3	36.8	27.0	19.0	12.4
102.5°	114.7	100.1	86.8	73.1	66.4	59.8	47.8	36.3	27.0	19.0	12.4
105°	112.0	98.8	85.5	72.2	65.5	59.3	47.4	36.3	26.6	19.0	12.4
107.5°	110.7	97.4	84.1	71.3	64.7	58.5	46.5	35.9	26.6	18.6	12.4
110°	108.5	95.7	82.8	70.0	63.8	57.6	46.1	35.4	26.1	18.6	12.4



TEST NUMBER: P190108

CATALOG NUMBER: TRB11-LD4-10W-50-OPL-BK-UNV-EDC1-CSTG

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	106.3	93.9	81.5	68.6	62.4	56.7	45.2	35.0	26.1	18.6	12.4
115°	104.1	91.7	79.7	67.3	61.6	55.4	44.7	34.5	25.7	18.6	12.4
117.5°	101.4	89.9	77.9	66.0	60.2	54.5	43.8	34.1	25.7	18.6	12.8
120°	98.8	87.2	75.7	64.7	58.9	53.1	43.0	33.7	25.2	18.6	12.8
122.5°	96.1	85.0	74.0	62.9	57.6	52.3	42.1	33.2	25.2	18.6	12.8
125°	93.0	82.4	71.7	61.1	55.8	50.9	41.2	32.3	24.8	18.2	12.8
127.5°	89.9	79.3	69.5	59.3	54.0	49.6	40.3	31.9	24.4	18.2	12.8
130°	86.4	76.6	66.9	57.1	52.3	47.8	39.0	31.0	23.9	17.7	12.8
132.5°	82.8	73.5	64.7	55.4	50.9	46.5	38.1	30.6	23.5	17.7	12.8
135°	79.3	70.4	62.0	53.1	49.2	44.7	37.2	29.7	23.5	17.7	13.3
137.5°	75.7	67.3	59.3	51.4	46.9	43.4	35.9	28.8	23.0	17.7	13.3
140°	71.7	63.8	56.7	48.7	45.2	41.6	34.5	28.3	22.6	17.3	13.3
142.5°	67.8	60.7	53.6	46.5	43.0	39.9	33.2	27.5	22.1	17.3	13.3
145°	63.8	57.6	50.9	44.7	41.2	38.1	32.3	26.6	21.7	17.3	13.3
147.5°	60.2	54.0	48.3	42.5	39.4	36.8	31.0	26.1	21.3	17.3	13.7
150°	56.2	50.9	45.6	40.3	37.6	35.0	30.1	25.2	21.3	17.3	13.7
152.5°	52.3	47.4	42.5	37.6	35.4	33.2	28.8	24.4	20.4	17.3	14.2
155°	48.3	44.3	39.9	35.9	33.7	31.4	27.5	23.9	20.4	17.3	14.2
157.5°	44.7	41.2	37.2	33.7	31.9	30.1	26.6	23.0	19.9	17.3	14.6
160°	41.2	38.1	34.5	31.4	30.1	28.3	25.2	22.6	19.5	17.3	14.6
162.5°	37.2	34.5	31.9	29.2	27.9	27.0	23.9	21.7	19.5	16.8	15.1
165°	33.7	31.4	29.2	27.5	26.1	25.2	23.0	20.8	19.0	16.8	15.1
167.5°	30.6	28.8	27.0	25.2	24.4	23.9	22.1	20.4	18.6	17.3	15.5
170°	27.5	26.1	24.8	23.5	23.0	22.1	20.8	19.5	18.2	17.3	15.9
172.5°	24.4	23.5	22.6	21.7	21.3	20.8	19.9	19.0	18.2	16.8	15.9
175°	21.3	20.8	20.4	19.9	19.5	19.5	18.6	18.2	17.7	16.8	16.4
177.5°	18.6	18.6	18.6	18.2	18.2	18.2	17.7	17.7	17.3	16.8	16.8
180°	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4



TEST NUMBER: P190108

CATALOG NUMBER: TRB11-LD4-10W-50-OPL-BK-UNV-EDC1-CSTG

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
2.5°	15.5	15.1	15.1	14.6	14.6	14.2	13.7	13.3	12.8	12.8	12.4
5°	15.1	14.6	13.7	13.3	13.3	12.4	12.0	11.5	11.1	10.6	10.2
7.5°	14.6	13.7	12.8	12.4	12.0	11.1	10.6	9.7	9.3	8.9	8.4
10°	13.7	12.8	12.0	11.1	10.6	9.7	8.9	8.4	7.5	7.1	6.6
12.5°	13.3	12.0	11.1	10.2	9.7	8.9	8.0	7.1	6.2	5.8	5.3
15°	12.8	11.5	10.2	9.3	8.9	7.5	6.6	5.8	5.3	4.4	4.0
17.5°	12.4	10.6	9.3	8.4	8.0	6.6	5.8	4.9	4.0	3.5	3.1
20°	12.0	10.2	8.4	8.0	7.1	5.8	4.9	4.0	3.1	2.7	2.2
22.5°	11.5	9.3	8.0	7.1	6.2	5.3	4.0	3.1	2.7	1.8	1.3
25°	11.1	8.9	7.1	6.6	5.8	4.4	3.5	2.7	1.8	1.3	0.9
27.5°	10.6	8.4	6.6	5.8	5.3	4.0	2.7	2.2	1.3	0.9	0.4
30°	10.2	8.0	6.2	5.3	4.4	3.1	2.2	1.8	0.9	0.9	0.4
32.5°	10.2	7.5	5.8	4.9	4.0	2.7	1.8	1.3	0.9	0.4	0.4
35°	9.7	7.1	5.3	4.4	3.5	2.2	1.3	0.9	0.4	0.4	0.4
37.5°	9.7	7.1	4.9	4.0	3.1	2.2	1.3	0.9	0.4	0.4	0.4
40°	9.3	6.6	4.4	3.5	3.1	1.8	0.9	0.4	0.4	0.4	0.4
42.5°	8.9	6.2	4.0	3.5	2.7	1.3	0.9	0.4	0.4	0.4	0.4
45°	8.9	6.2	4.0	3.1	2.2	1.3	0.9	0.4	0.4	0.4	0.4
47.5°	8.9	5.8	3.5	2.7	2.2	1.3	0.4	0.4	0.4	0.4	0.4
50°	8.4	5.8	3.5	2.7	1.8	0.9	0.9	0.4	0.4	0.4	0.4
52.5°	8.4	5.3	3.1	2.7	1.8	0.9	0.9	0.9	0.4	0.4	0.4
55°	8.4	5.3	3.1	2.2	1.3	0.9	0.9	0.9	0.4	0.4	0.4
57.5°	8.0	4.9	2.7	2.2	1.3	0.9	0.9	0.4	0.4	0.4	0.4
60°	8.0	4.9	2.7	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.4
62.5°	8.0	4.9	2.7	1.8	1.3	0.9	0.9	0.9	0.9	0.9	0.4
65°	8.0	4.9	2.7	1.8	1.3	0.9	0.9	0.9	0.9	0.9	0.9
67.5°	8.0	4.9	2.7	1.8	1.3	0.9	0.9	0.9	0.9	0.9	0.9
70°	8.0	4.4	2.2	1.8	1.3	0.9	0.9	0.9	0.9	0.9	0.9
72.5°	8.0	4.4	2.2	1.8	1.3	0.9	0.9	0.9	0.9	0.9	0.9
75°	8.0	4.4	2.2	1.8	1.3	0.9	0.9	0.9	0.9	0.9	0.9
77.5°	8.0	4.4	2.2	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
80°	8.0	4.4	2.2	1.8	1.3	0.9	0.9	0.9	0.9	0.9	0.9
82.5°	8.0	4.4	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
85°	8.0	4.4	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
87.5°	7.5	4.4	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
90°	7.5	4.4	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
92.5°	7.5	4.4	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
95°	7.5	4.4	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
97.5°	7.5	4.4	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
100°	8.0	4.4	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
102.5°	7.5	4.4	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
105°	8.0	4.4	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.4
107.5°	8.0	4.4	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.4	0.4
110°	8.0	4.4	2.2	1.8	0.9	0.9	0.9	0.9	0.9	0.4	0.4



TEST NUMBER: P190108

CATALOG NUMBER: TRB11-LD4-10W-50-OPL-BK-UNV-EDC1-CSTG

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	8.0	4.9	2.2	1.8	0.9	0.9	0.9	0.9	0.4	0.4	0.4
115°	8.0	4.9	2.7	1.8	1.3	0.9	0.9	0.9	0.4	0.4	0.4
117.5°	8.4	5.3	2.7	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.4
120°	8.4	5.3	3.1	2.2	1.3	0.9	0.9	0.9	0.9	0.4	0.4
122.5°	8.4	5.3	3.1	2.2	1.8	0.9	0.9	0.9	0.9	0.9	0.4
125°	8.4	5.3	3.1	2.2	1.8	0.9	0.9	0.9	0.9	0.4	0.4
127.5°	8.9	5.8	3.5	2.7	1.8	0.9	0.9	0.9	0.4	0.4	0.4
130°	8.9	5.8	3.5	2.7	2.2	0.9	0.4	0.4	0.4	0.4	0.4
132.5°	8.9	6.2	4.0	3.1	2.2	1.3	0.9	0.4	0.4	0.4	0.4
135°	9.3	6.2	4.0	3.5	2.7	1.3	0.9	0.4	0.4	0.4	0.4
137.5°	9.3	6.6	4.4	3.5	2.7	1.8	0.9	0.4	0.4	0.4	0.4
140°	9.7	7.1	4.9	4.0	3.1	1.8	1.3	0.9	0.4	0.4	0.4
142.5°	10.2	7.5	5.3	4.4	3.5	2.2	1.3	0.9	0.4	0.4	0.4
145°	10.2	7.5	5.8	4.9	4.0	2.7	1.8	1.3	0.4	0.4	0.4
147.5°	10.6	8.0	6.2	5.3	4.4	3.1	2.2	1.3	0.9	0.4	0.4
150°	11.1	8.4	6.6	5.8	4.9	3.5	2.7	1.8	1.3	0.9	0.4
152.5°	11.1	8.9	7.1	6.2	5.3	4.0	3.1	2.2	1.8	1.3	0.9
155°	11.5	9.7	7.5	7.1	6.2	4.9	4.0	3.1	2.2	1.8	1.3
157.5°	12.0	10.2	8.4	7.5	7.1	5.8	4.4	3.5	3.1	2.2	1.8
160°	12.4	10.6	9.3	8.4	8.0	6.6	5.3	4.4	3.5	3.1	2.7
162.5°	12.8	11.5	9.7	9.3	8.4	7.5	6.2	5.3	4.9	4.0	3.5
165°	13.7	12.0	10.6	10.2	9.3	8.4	7.5	6.6	5.8	5.3	4.4
167.5°	14.2	12.8	11.5	11.1	10.6	9.7	8.9	8.0	7.1	6.6	5.8
170°	14.6	13.7	12.4	12.0	11.5	10.6	9.7	9.3	8.4	8.0	7.5
172.5°	15.1	14.2	13.7	13.3	12.8	12.0	11.5	10.6	10.2	9.7	9.3
175°	15.9	15.1	14.6	14.6	14.2	13.7	12.8	12.4	12.0	12.0	11.5
177.5°	16.4	15.9	15.9	15.5	15.5	15.1	15.1	14.6	14.2	14.2	13.7
180°	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4



TEST NUMBER: P190108

CATALOG NUMBER: TRB11-LD4-10W-50-OPL-BK-UNV-EDC1-CSTG

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
2.5°	12.0	12.0	12.0	11.5	11.5	11.5	11.5	11.5
5°	9.7	9.3	9.3	9.3	8.9	8.9	8.9	8.9
7.5°	8.0	7.5	7.1	7.1	7.1	6.6	6.6	6.6
10°	6.2	5.8	5.8	5.3	5.3	4.9	4.9	4.9
12.5°	4.9	4.4	4.0	4.0	4.0	3.5	3.5	3.5
15°	3.5	3.1	3.1	2.7	2.7	2.2	2.2	2.2
17.5°	2.7	2.2	2.2	1.8	1.8	1.3	1.3	1.3
20°	1.8	1.3	1.3	1.3	0.9	0.9	0.9	0.9
22.5°	0.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4
25°	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4
27.5°	0.4	0.4	0.4	0.4	0.4	0.0	0.4	0.0
30°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
32.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.0
35°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
37.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
42.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.0
45°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
47.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
50°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
52.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
55°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
57.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
60°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
62.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
65°	0.9	0.4	0.4	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	0.9	0.4	0.4	0.4	0.4	0.4
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
77.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4
80°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
82.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
85°	0.9	0.9	0.9	0.9	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°	0.9	0.9	0.4	0.4	0.4	0.4	0.4	0.4
92.5°	0.4	0.9	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°	0.9	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	0.4	0.4	0.4
110°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4



TEST NUMBER: P190108

CATALOG NUMBER: TRB11-LD4-10W-50-OPL-BK-UNV-EDC1-CSTG

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
115°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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	0.4	0.4	0.4	0.4
130°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
132.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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	0.0	0.0	0.0
142.5°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
145°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
147.5°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
150°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
152.5°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
155°	0.9	0.9	0.4	0.4	0.4	0.4	0.0	0.4
157.5°	1.3	0.9	0.9	0.9	0.9	0.4	0.4	0.4
160°	2.2	1.8	1.8	1.3	1.3	1.3	0.9	0.9
162.5°	3.1	2.7	2.7	2.2	2.2	1.8	1.8	1.8
165°	4.0	3.5	3.5	3.5	3.1	3.1	2.7	2.7
167.5°	5.3	5.3	4.9	4.9	4.4	4.4	4.4	4.4
170°	7.1	6.6	6.2	6.2	5.8	5.8	5.8	5.8
172.5°	8.9	8.4	8.4	8.0	8.0	7.5	7.5	7.5
175°	11.1	10.6	10.6	10.6	10.2	10.2	10.2	10.2
177.5°	13.3	13.3	13.3	13.3	12.8	12.8	12.8	12.8
180°	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4

(END OF REPORT)