

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: P190081

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

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P190081  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27856)  
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  
Description: TERRAPIN 11" LED WALL MOUNT WITH BORDER PAINTED OPAL LENS  
Light Source: (56) NICHIA 5000  
NF2L757DRT  
Ballast/Driver: OSRAM ELECTRONIC DRIVER PROGRAMMED AT 200mA  
OT25W/1

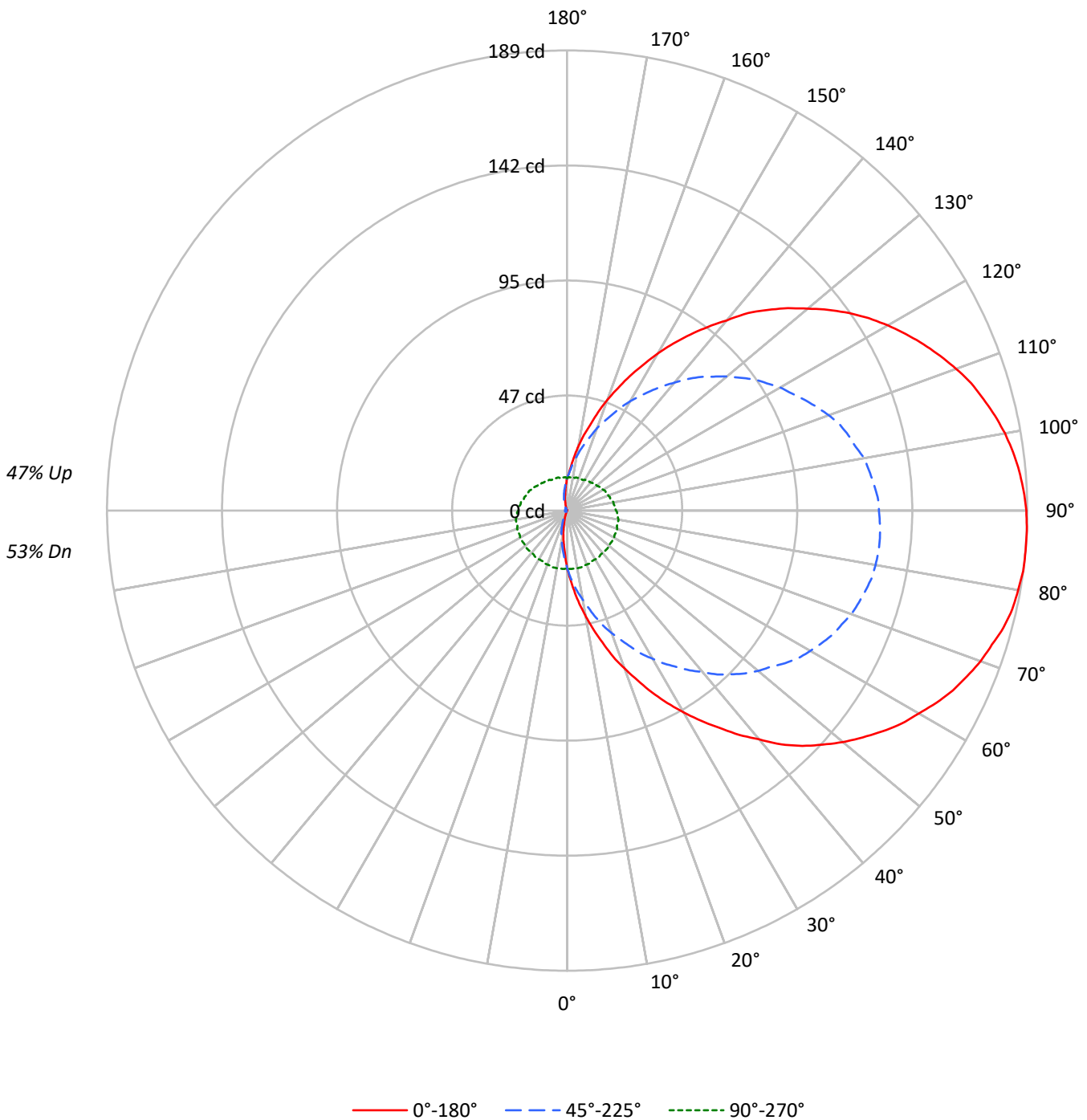
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 603.0 lumens  
Efficiency: N/A  
Efficacy: 60.3 lumens/watt  
Spacing Criteria (0/90/45): 3.26 / 1.49 / 2.7  
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<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

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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	108	108	108	108	100	100	100	100	85	85	85	72	72	72	59	59	59	53
1	93	86	80	75	85	79	74	69	66	62	58	54	51	48	43	41	39	33
2	82	72	64	57	75	66	59	52	55	49	44	45	40	36	35	32	28	24
3	74	62	52	45	67	56	48	41	47	40	35	38	32	28	29	25	22	17
4	67	53	44	36	61	49	40	33	40	33	28	33	27	23	25	21	17	14
5	61	47	37	30	55	43	34	28	35	28	23	29	23	19	22	18	14	11
6	56	42	32	25	51	38	30	23	32	25	19	25	20	16	20	15	12	9
7	51	37	28	22	47	34	26	20	28	22	17	23	17	13	18	13	10	7
8	47	33	25	19	43	31	23	17	26	19	14	21	15	12	16	12	9	6
9	44	30	22	16	40	28	20	15	23	17	13	19	14	10	15	11	8	5
10	41	28	20	14	37	25	18	13	21	15	11	17	12	9	14	10	7	5

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	950	950	950
5°	1046	892	463
10°	1160	834	237
15°	1269	789	97
20°	1379	741	34
25°	1483	700	0
30°	1579	681	0
35°	1672	668	0
40°	1772	649	0
45°	1879	646	0
50°	1952	637	0
55°	2022	645	5
60°	2083	657	5
65°	2151	663	5
70°	2209	688	5
75°	2268	703	5
80°	2317	744	5
85°	2365	766	5



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	2.3	0.4
10°-20°	7.8	1.3
20°-30°	15.2	2.5
30°-40°	24.8	4.1
40°-50°	36.1	6.0
50°-60°	47.3	7.8
60°-70°	56.9	9.4
70°-80°	63.8	10.6
80°-90°	66.6	11.0
90°-100°	65.2	10.8
100°-110°	59.9	9.9
110°-120°	51.3	8.5
120°-130°	40.7	6.8
130°-140°	29.4	4.9
140°-150°	18.9	3.1
150°-160°	10.6	1.8
160°-170°	4.9	0.8
170°-180°	1.3	0.2
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0°-30°	25.3	4.2
0°-40°	50.1	8.3
0°-60°	133.5	22.1
0°-90°	320.8	53.2
90°-120°	176.4	29.3
90°-150°	265.4	44.0
90°-180°	282.0	46.8
0°-180°	603.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	24	24	24	24	24	
5°	33	30	24	18	15	3
15°	56	45	24	9	4	16
25°	82	62	23	3	0	38
35°	109	78	23	1	0	69
45°	137	95	23	0	0	106
55°	158	109	22	0	0	142
65°	175	120	22	1	0	173
75°	186	127	21	1	0	196
85°	189	129	21	1	0	154
90°	189	128	20	1	0	103
95°	186	126	20	1	0	151
105°	177	120	18	0	0	187
115°	162	108	18	0	0	160
125°	141	94	17	0	0	127
135°	117	78	15	0	0	90
145°	88	60	15	0	0	56
155°	61	43	14	2	0	29
165°	36	29	14	5	3	11
175°	18	17	14	10	8	2
180°	13	13	13	13	13	



TEST NUMBER: P190081

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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
2.5°	27.9	27.4	27.4	27.4	27.4	27.4	27.0	27.4	27.0	27.0	27.0
5°	33.0	33.0	32.6	32.6	32.1	32.1	31.7	31.7	31.3	30.9	30.4
7.5°	38.6	38.1	38.1	37.7	37.3	36.9	36.4	36.0	35.1	34.7	33.9
10°	44.1	43.7	43.7	43.3	42.4	42.0	41.6	40.7	39.9	38.6	37.3
12.5°	50.1	49.7	49.3	48.9	48.4	47.6	46.7	45.9	44.1	42.9	41.1
15°	56.1	56.6	55.7	54.9	54.0	53.6	52.7	51.0	49.3	47.6	45.4
17.5°	63.0	62.6	62.1	61.3	60.0	59.6	58.3	56.6	54.4	52.3	49.7
20°	69.0	69.0	68.6	67.3	66.0	65.1	63.9	61.7	59.1	56.6	53.6
22.5°	75.4	75.4	74.6	73.7	72.0	70.7	69.4	66.9	64.3	61.3	57.4
25°	82.3	82.3	81.0	79.7	78.0	77.1	75.4	72.9	69.9	66.0	61.7
27.5°	89.1	89.1	87.9	86.6	84.4	83.1	81.4	78.4	75.0	70.7	66.4
30°	95.6	95.6	94.7	93.0	90.4	89.1	87.4	84.0	80.1	75.4	70.3
32.5°	102.4	102.0	100.7	99.0	96.4	95.1	93.0	89.1	84.9	80.1	74.6
35°	108.9	108.4	107.1	105.4	102.4	100.7	99.0	94.7	89.6	84.4	78.4
37.5°	116.1	116.1	114.9	112.7	108.4	106.7	104.6	100.3	94.7	89.1	82.7
40°	122.6	122.6	121.3	118.7	115.3	113.6	111.0	105.4	99.9	93.4	86.6
42.5°	130.3	129.9	128.6	126.0	122.1	120.4	117.9	112.7	105.4	98.6	91.3
45°	136.7	136.3	134.6	131.6	128.1	126.0	123.0	117.9	110.6	102.9	95.1
47.5°	142.3	141.9	140.1	137.6	133.3	131.1	128.1	122.6	115.7	107.1	99.0
50°	147.9	147.4	145.7	142.7	138.4	136.3	133.3	127.3	120.0	111.9	102.4
52.5°	153.0	152.6	150.9	147.4	143.1	141.0	138.0	131.6	123.9	115.7	105.4
55°	158.1	157.7	156.0	152.1	147.9	145.7	142.3	135.9	128.1	119.1	109.3
57.5°	162.9	162.0	159.9	156.9	152.1	149.6	146.6	139.7	131.6	122.6	112.7
60°	166.7	166.3	164.6	161.1	156.0	153.4	150.0	143.1	135.0	125.6	115.3
62.5°	171.0	170.1	168.4	164.6	159.9	156.9	153.9	146.6	138.0	128.1	117.9
65°	174.8	174.0	171.8	168.4	163.3	160.3	156.9	149.6	141.0	131.1	120.4
67.5°	177.8	177.0	174.8	171.0	166.3	163.3	159.9	152.1	143.1	133.3	122.1
70°	180.8	180.0	177.8	174.0	168.8	165.9	162.4	154.7	145.7	135.4	124.3
72.5°	183.0	182.6	180.4	176.6	171.0	168.0	164.6	156.4	147.4	137.1	125.6
75°	185.6	184.7	182.6	178.7	173.1	170.1	166.7	158.6	149.1	138.4	126.9
77.5°	187.3	186.0	183.8	180.0	174.8	171.4	168.0	159.9	150.4	139.7	128.1
80°	188.1	187.3	185.1	181.3	176.1	172.7	168.8	160.7	151.3	140.6	128.6
82.5°	189.0	188.1	185.6	181.7	176.6	173.1	169.7	161.1	151.7	141.0	129.0
85°	189.0	188.1	186.0	182.1	176.6	173.6	169.7	161.6	152.1	141.0	129.0
87.5°	189.0	188.1	186.0	181.7	176.6	173.1	169.7	161.1	151.7	140.6	128.6
90°	188.6	187.7	185.6	181.3	176.1	172.7	169.3	160.7	151.3	140.1	128.1
92.5°	187.7	186.8	184.7	180.4	175.3	171.8	168.0	159.9	150.4	139.3	127.7
95°	186.4	185.6	183.4	179.1	174.0	170.6	167.1	159.0	149.6	138.4	126.4
97.5°	184.7	183.8	181.7	177.8	172.3	168.8	165.4	157.3	147.9	137.1	125.1
100°	182.6	181.7	179.6	175.7	170.1	167.1	163.3	155.6	146.1	135.0	123.9
102.5°	180.0	179.1	176.6	172.7	167.6	164.6	160.7	153.0	143.6	132.9	121.3
105°	177.0	176.6	174.0	170.1	165.0	162.0	158.6	150.4	141.4	131.1	119.6
107.5°	174.0	173.1	170.6	167.1	162.0	159.0	155.6	147.9	138.9	128.6	117.4
110°	170.1	169.7	167.1	163.3	158.6	155.6	152.1	144.4	135.9	125.6	114.4



TEST NUMBER: P190081

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

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	165.9	165.4	163.3	159.4	154.7	151.7	148.3	141.0	132.4	122.1	111.0
115°	161.6	160.7	158.6	155.1	150.4	147.9	144.4	137.1	128.6	119.1	107.6
117.5°	156.9	156.4	154.3	150.9	146.1	143.1	140.1	133.3	124.7	115.3	104.1
120°	152.1	151.3	149.1	146.1	141.4	138.9	135.9	129.0	120.9	111.0	101.1
122.5°	147.0	146.1	144.4	141.0	136.7	134.1	131.1	124.3	116.6	106.7	97.3
125°	141.4	140.6	138.9	135.4	131.6	129.0	126.0	119.6	111.9	102.4	93.9
127.5°	135.4	135.0	132.9	129.9	126.0	123.4	120.9	114.4	106.3	98.1	89.6
130°	129.0	128.6	126.9	123.9	120.0	117.9	115.3	108.9	101.6	93.9	85.7
132.5°	123.0	122.6	120.9	118.3	114.4	112.3	109.3	103.3	96.4	89.1	81.4
135°	116.6	116.6	114.4	112.3	107.6	105.4	102.9	97.7	91.7	84.9	77.6
137.5°	110.1	108.9	107.6	104.6	101.1	99.4	97.3	92.1	86.6	80.1	73.3
140°	102.0	101.6	100.3	98.1	94.7	93.0	90.9	86.1	81.0	75.0	68.6
142.5°	95.1	94.7	93.4	91.3	88.3	86.6	84.9	80.1	75.4	69.9	64.3
145°	88.3	87.9	87.0	84.9	81.9	80.6	78.9	74.6	70.3	65.1	60.0
147.5°	81.4	81.0	80.1	78.4	75.9	74.1	72.9	69.0	65.1	60.4	55.7
150°	74.6	74.6	73.7	72.0	69.4	68.1	66.4	63.4	60.0	56.1	51.9
152.5°	67.3	67.3	66.4	65.1	63.0	62.1	60.4	57.9	54.4	51.0	47.6
155°	60.9	60.9	60.0	58.7	57.0	56.1	54.9	52.3	49.7	46.7	43.3
157.5°	54.4	54.4	54.0	52.7	51.4	50.6	49.3	47.1	45.0	42.4	39.4
160°	48.4	48.4	48.0	46.7	45.9	45.0	43.7	42.0	40.3	38.1	36.0
162.5°	42.4	42.4	42.0	41.1	40.3	39.4	38.6	37.3	36.0	33.9	32.1
165°	36.4	36.9	36.4	36.0	35.1	34.7	33.9	33.0	31.7	30.4	28.7
167.5°	31.7	31.7	31.7	30.9	30.4	30.0	29.6	28.7	27.9	26.6	25.7
170°	27.0	27.0	27.0	26.6	26.1	25.7	25.3	24.9	24.0	23.6	22.7
172.5°	22.3	22.7	22.7	22.3	21.9	21.9	21.4	21.0	21.0	20.1	19.7
175°	18.4	18.4	18.4	18.4	18.4	18.0	18.0	18.0	18.0	17.6	17.1
177.5°	15.0	15.4	15.4	15.4	15.0	15.0	15.4	15.0	15.0	15.0	15.0
180°	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3



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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
2.5°	26.6	26.1	26.1	25.7	25.7	25.3	25.3	24.9	24.4	24.0	23.6
5°	29.6	29.1	28.7	27.9	27.4	27.0	26.1	25.7	24.9	24.0	23.1
7.5°	33.0	31.7	30.9	30.0	29.1	28.7	27.4	26.1	25.3	24.0	22.7
10°	36.0	34.7	33.4	31.7	30.9	30.4	28.7	27.0	25.7	24.0	22.3
12.5°	39.4	37.7	36.0	33.9	33.0	31.7	30.0	27.9	25.7	24.0	21.9
15°	43.3	40.7	38.6	36.0	34.7	33.4	30.9	28.7	26.1	24.0	21.4
17.5°	47.1	44.1	41.1	38.1	36.9	35.1	32.1	29.1	26.6	23.6	21.4
20°	50.6	47.1	43.7	40.3	38.6	36.9	33.4	30.0	26.6	23.6	20.6
22.5°	54.0	50.1	46.3	42.0	40.3	38.1	34.3	30.4	27.0	23.6	20.1
25°	57.9	53.1	48.9	44.1	42.0	39.9	35.6	31.3	27.0	23.1	19.7
27.5°	61.7	56.6	51.4	46.3	44.1	41.6	36.4	31.7	27.4	23.1	19.3
30°	65.1	59.6	54.4	48.4	45.9	43.3	37.7	32.6	27.9	23.1	19.3
32.5°	69.0	62.6	56.6	50.6	47.6	44.6	38.6	33.0	27.9	23.1	18.9
35°	72.4	66.0	59.1	52.3	49.3	45.9	39.4	33.9	27.9	23.1	18.4
37.5°	75.9	69.0	61.7	54.4	51.0	47.6	40.7	34.3	28.3	22.7	18.0
40°	79.3	72.0	63.9	56.6	52.7	48.9	41.6	34.7	28.3	22.7	18.0
42.5°	83.6	75.0	66.9	58.7	54.4	50.6	42.9	35.1	28.7	22.7	17.6
45°	87.0	78.0	69.4	60.4	56.1	51.9	43.7	36.0	28.7	22.7	17.1
47.5°	90.0	80.6	71.6	62.1	57.4	53.1	44.6	36.4	29.1	22.7	16.7
50°	93.0	83.1	73.7	63.9	59.1	54.4	45.4	36.9	29.1	22.3	16.7
52.5°	96.0	85.7	75.9	65.6	60.4	55.7	46.3	37.3	29.6	22.3	16.3
55°	99.0	88.3	77.6	66.9	61.7	56.6	46.7	37.7	29.6	22.3	16.3
57.5°	101.1	90.4	79.3	68.1	62.6	57.4	47.6	38.1	29.6	22.3	15.9
60°	103.7	92.1	81.0	69.4	63.9	58.3	48.0	38.1	29.6	22.3	15.9
62.5°	105.9	94.3	82.3	70.7	64.7	59.1	48.4	38.6	29.6	21.9	15.4
65°	108.0	96.0	83.6	71.6	65.6	60.0	48.9	38.6	29.6	21.9	15.4
67.5°	110.1	97.3	84.9	72.4	66.4	60.4	49.3	39.0	29.6	21.9	15.4
70°	111.4	98.6	86.1	73.3	67.3	61.3	49.7	39.0	29.6	21.9	15.0
72.5°	113.6	99.9	87.0	74.1	67.7	61.7	49.7	39.0	29.6	21.4	15.0
75°	114.9	100.7	87.4	74.6	68.1	61.7	50.1	39.0	29.6	21.4	14.6
77.5°	115.7	101.1	88.3	75.0	68.1	62.1	50.1	39.0	29.6	21.4	14.6
80°	116.1	101.6	88.3	75.0	68.6	62.1	50.1	39.0	29.1	21.4	14.6
82.5°	116.1	102.0	88.3	75.0	68.1	62.1	49.7	38.6	29.1	21.0	14.1
85°	116.1	101.6	88.3	74.6	68.1	61.7	49.7	38.6	28.7	20.6	14.1
87.5°	116.1	101.6	87.9	74.6	67.7	61.3	49.3	38.1	28.3	20.6	13.7
90°	115.7	101.1	87.4	74.1	67.3	60.9	48.9	37.7	28.3	20.1	13.3
92.5°	114.9	100.3	87.0	73.3	66.9	60.4	48.4	37.3	27.9	19.7	13.3
95°	114.0	99.4	86.1	72.9	66.0	60.0	48.0	36.9	27.4	19.7	13.3
97.5°	112.7	98.1	84.9	72.0	65.1	59.1	47.1	36.4	27.0	19.3	12.9
100°	110.6	96.9	84.0	70.7	64.3	58.3	46.7	36.0	27.0	19.3	12.9
102.5°	108.9	95.1	82.3	69.9	63.4	57.4	45.9	35.6	26.6	18.9	12.9
105°	106.3	93.9	81.0	68.6	62.1	56.1	45.0	34.7	26.1	18.4	12.4
107.5°	104.6	91.7	79.3	66.9	60.9	55.3	44.1	34.3	25.7	18.4	12.4
110°	102.0	89.6	77.6	65.6	59.6	54.0	43.3	33.4	25.3	18.0	12.4





TEST NUMBER: P190081

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

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	99.4	87.4	75.4	63.9	58.3	52.7	42.4	32.6	24.4	17.6	12.0
115°	96.4	84.9	73.7	62.1	56.6	51.4	41.1	32.1	24.0	17.6	12.0
117.5°	93.4	82.7	71.6	60.4	54.9	50.1	40.3	31.3	24.0	17.6	12.0
120°	90.4	79.7	69.0	58.7	53.6	48.4	39.0	30.4	23.1	17.1	12.0
122.5°	87.4	77.1	66.9	56.6	51.9	47.1	38.1	30.0	22.7	16.7	12.0
125°	84.0	74.1	64.3	54.9	50.1	45.4	36.9	29.1	22.3	16.7	11.6
127.5°	80.6	71.1	61.7	52.7	48.0	43.7	35.6	28.3	21.9	16.3	11.6
130°	76.7	68.1	59.1	50.6	46.3	42.0	34.3	27.4	21.4	15.9	11.6
132.5°	73.3	65.1	56.6	48.4	44.1	40.3	33.0	26.6	20.6	15.9	11.6
135°	69.9	61.7	54.0	46.3	42.4	39.0	32.1	25.7	20.1	15.4	11.6
137.5°	66.0	58.7	51.0	44.1	40.3	37.3	30.9	24.9	19.7	15.4	11.6
140°	62.1	55.3	48.4	42.0	38.6	35.6	29.6	24.0	19.3	15.0	11.6
142.5°	58.3	51.9	45.9	39.4	36.4	33.9	28.3	23.1	18.9	15.0	11.6
145°	54.4	48.9	42.9	37.3	34.7	32.1	27.0	22.3	18.4	14.6	11.6
147.5°	50.6	45.9	40.3	35.1	33.0	30.4	25.7	21.9	18.0	14.6	11.6
150°	47.1	42.9	37.7	33.4	31.3	28.7	24.9	21.0	17.6	14.6	11.6
152.5°	43.3	39.4	35.1	31.3	29.1	27.4	23.6	20.1	17.1	14.1	11.6
155°	39.9	36.4	32.6	29.1	27.4	25.7	22.7	19.7	16.7	14.1	12.0
157.5°	36.4	33.4	30.4	27.4	25.7	24.4	21.4	18.9	16.3	14.1	12.0
160°	33.4	30.9	28.3	25.7	24.0	23.1	20.6	18.0	15.9	14.1	12.0
162.5°	30.0	27.9	25.7	23.6	22.7	21.4	19.7	17.6	15.9	14.1	12.4
165°	27.0	25.3	23.6	21.9	21.0	20.1	18.4	16.7	15.4	14.1	12.4
167.5°	24.4	23.1	21.9	20.6	19.7	18.9	17.6	16.3	15.0	13.7	12.9
170°	21.9	21.0	19.7	18.9	18.4	18.0	16.7	15.9	15.0	14.1	12.9
172.5°	19.3	18.9	18.0	17.1	17.1	16.7	15.9	15.0	14.6	13.7	13.3
175°	17.1	16.7	16.3	15.9	15.9	15.4	15.0	14.6	14.1	13.7	13.3
177.5°	15.0	15.0	14.6	14.6	14.6	14.6	14.6	14.1	14.1	13.7	13.7
180°	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3



TEST NUMBER: P190081

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

**CANDELA DISTRIBUTION (continued):**

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



TEST NUMBER: P190081

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

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	7.7	4.7	2.6	1.7	0.9	0.4	0.4	0.4	0.4	0.4	0.4
115°	7.7	4.7	2.6	1.7	1.3	0.9	0.9	0.9	0.4	0.4	0.4
117.5°	8.1	5.1	2.6	2.1	1.3	0.9	0.9	0.9	0.9	0.4	0.4
120°	8.1	5.1	3.0	2.1	1.3	0.9	0.9	0.9	0.4	0.4	0.4
122.5°	8.1	5.1	3.0	2.1	1.7	0.9	0.9	0.9	0.9	0.4	0.4
125°	8.1	5.1	3.0	2.1	1.7	0.9	0.9	0.9	0.4	0.4	0.4
127.5°	8.1	5.6	3.4	2.6	1.7	0.9	0.9	0.4	0.4	0.4	0.4
130°	8.1	5.6	3.4	2.6	2.1	0.9	0.4	0.4	0.4	0.4	0.4
132.5°	8.1	5.6	3.4	3.0	2.1	1.3	0.4	0.4	0.4	0.4	0.4
135°	8.1	6.0	3.9	3.0	2.6	1.3	0.9	0.4	0.4	0.4	0.4
137.5°	8.6	6.0	3.9	3.4	2.6	1.7	0.9	0.4	0.4	0.4	0.4
140°	8.6	6.0	4.3	3.4	3.0	1.7	0.9	0.4	0.4	0.4	0.4
142.5°	8.6	6.4	4.7	3.9	3.0	2.1	1.3	0.9	0.4	0.4	0.4
145°	9.0	6.9	5.1	4.3	3.4	2.6	1.7	0.9	0.4	0.4	0.4
147.5°	9.0	6.9	5.1	4.7	3.9	2.6	1.7	1.3	0.9	0.4	0.4
150°	9.4	7.3	5.6	5.1	4.3	3.4	2.6	1.7	1.3	0.9	0.4
152.5°	9.4	7.7	6.0	5.6	4.7	3.9	3.0	2.1	1.3	1.3	0.9
155°	9.9	8.1	6.4	6.0	5.6	4.3	3.4	2.6	2.1	1.7	1.3
157.5°	10.3	8.6	7.3	6.4	6.0	5.1	4.3	3.4	2.6	2.1	1.7
160°	10.3	9.0	7.7	7.3	6.4	5.6	4.7	3.9	3.4	2.6	2.1
162.5°	10.7	9.4	8.1	7.7	7.3	6.4	5.6	4.7	4.3	3.4	3.0
165°	11.1	9.9	9.0	8.6	8.1	7.3	6.4	5.6	5.1	4.7	3.9
167.5°	11.6	10.7	9.9	9.0	8.6	8.1	7.3	6.4	6.0	5.6	5.1
170°	12.0	11.1	10.3	9.9	9.9	9.0	8.1	7.7	7.3	6.9	6.4
172.5°	12.4	11.6	11.1	10.7	10.7	9.9	9.4	9.0	8.6	8.1	7.7
175°	12.9	12.4	12.0	12.0	11.6	11.1	10.7	10.3	9.9	9.4	9.4
177.5°	13.3	13.3	12.9	12.9	12.9	12.4	12.0	12.0	11.6	11.6	11.1
180°	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3



TEST NUMBER: P190081

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

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
2.5°	18.9	18.9	18.9	18.9	18.4	18.4	18.4	18.4
5°	15.9	15.4	15.4	15.4	15.0	14.6	14.6	14.6
7.5°	12.9	12.4	12.4	12.4	12.0	11.6	11.6	11.6
10°	10.7	10.3	9.9	9.9	9.4	9.0	9.0	9.0
12.5°	8.1	7.7	7.3	7.3	6.9	6.4	6.4	6.4
15°	6.4	5.6	5.6	5.6	4.7	4.7	4.3	4.3
17.5°	4.7	4.3	3.9	3.9	3.4	3.0	3.0	3.0
20°	3.0	2.6	2.6	2.1	2.1	1.7	1.7	1.7
22.5°	2.1	1.7	1.3	1.3	0.9	0.9	0.9	0.9
25°	1.3	0.9	0.4	0.4	0.4	0.4	0.0	0.0
27.5°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	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	0.0	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	0.0	0.0	0.0
40°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
42.5°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
45°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
47.5°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
50°	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
52.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.0	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°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
67.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
70°	0.4	0.4	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	0.9	0.9	0.9	0.9	0.9	0.4	0.4
77.5°	0.9	0.9	0.9	0.9	0.9	0.4	0.9	0.4
80°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4
82.5°	0.9	0.9	0.9	0.9	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	0.4
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	0.4	0.4	0.4
110°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4



TEST NUMBER: P190081

CATALOG NUMBER: TRB11-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	0.4	0.4	0.4	0.4	0.4	0.0
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	0.0	0.4
132.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.0	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	0.0	0.0	0.0
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	0.0	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	0.4	0.4	0.4	0.4	0.4	0.4	0.0
157.5°	1.3	0.9	0.9	0.9	0.9	0.4	0.4	0.4
160°	2.1	1.7	1.3	1.3	1.3	0.9	0.9	0.9
162.5°	2.6	2.1	2.1	2.1	1.7	1.7	1.7	1.7
165°	3.9	3.4	3.0	3.0	2.6	2.6	2.6	2.6
167.5°	4.7	4.3	4.3	3.9	3.9	3.9	3.4	3.4
170°	6.0	5.6	5.6	5.1	5.1	5.1	4.7	5.1
172.5°	7.3	6.9	6.9	6.9	6.4	6.4	6.4	6.4
175°	9.0	9.0	8.6	8.6	8.6	8.1	8.1	8.1
177.5°	11.1	10.7	10.7	10.7	10.7	10.7	10.3	10.7
180°	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3

(END OF REPORT)