

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: P190083

Luminaire Tested: **TRB11-LD4-15W-50-CL-BK-UNV-EDC1**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P190083
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27857)
Test Lab: INNOVATION CENTER(G2)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: TRB11-LD4-15W-50-CL-BK-UNV-EDC1
Description: TERRAPIN 11" LED WALL MOUNT WITH BORDER PAINTED CLEAR LENS
Light Source: (56) NICHIA 5000
NF2L757DRT
Ballast/Driver: OSRAM ELECTRONIC DRIVER PROGRAMMED AT 300mA
OT25W/1

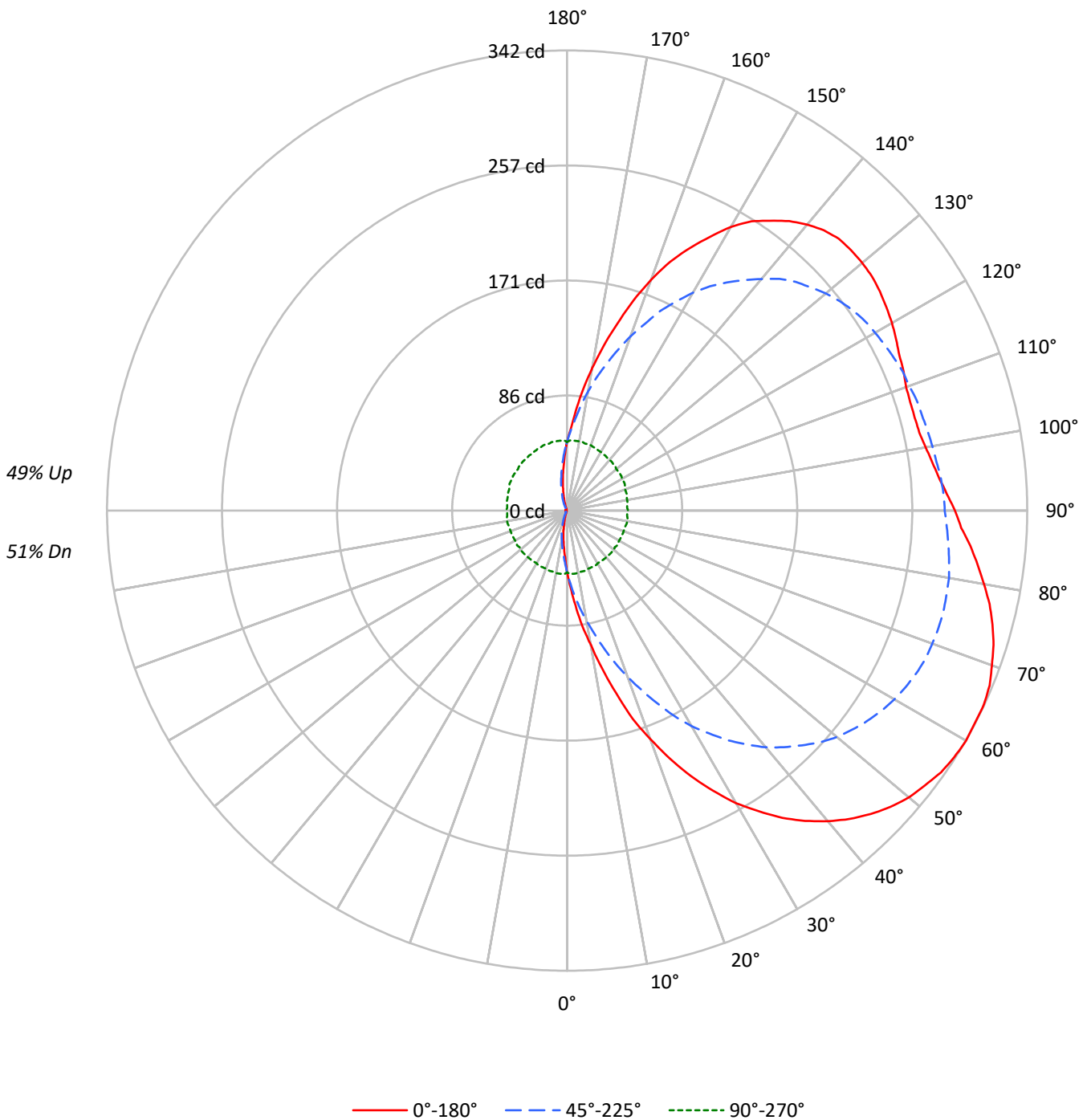
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1379.1 lumens
Efficiency: N/A
Efficacy: 95.8 lumens/watt
Spacing Criteria (0/90/45): 3.36 / 1.51 / 2.96
Luminous Opening: Rectangular w/ Sides (W: 0.92' x L: 0.29' x H: 0.92')
CIE Type: General Diffuse

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

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Luminous Intensity Polar Plot





TEST NUMBER: P190083

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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	84	84	84	70	70	70	57	57	57	51
1	93	87	81	76	85	80	75	70	66	62	59	54	51	48	43	41	39	33
2	83	73	65	58	75	67	60	53	55	50	45	45	40	37	35	32	29	24
3	74	62	53	46	68	57	49	42	47	41	35	38	33	29	29	26	22	18
4	67	54	45	37	61	50	41	34	41	34	29	33	28	23	25	21	18	14
5	61	48	38	31	56	44	35	29	36	29	24	29	23	19	22	18	15	11
6	56	42	33	26	51	39	30	24	32	25	20	26	20	16	20	16	12	9
7	52	38	29	22	47	35	26	21	29	22	17	23	18	14	18	14	10	8
8	48	34	25	19	43	31	23	18	26	19	15	21	16	12	16	12	9	6
9	44	31	22	17	40	28	21	16	23	17	13	19	14	10	15	11	8	6
10	41	28	20	15	38	26	18	14	21	15	11	17	13	9	14	10	7	5

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	1848	1848	1848
5°	2235	1754	859
10°	2665	1640	413
15°	3174	1532	172
20°	3609	1442	62
25°	3922	1391	11
30°	4147	1335	10
35°	4281	1309	9
40°	4355	1295	9
45°	4384	1290	8
50°	4377	1295	8
55°	4338	1309	17
60°	4277	1317	16
65°	4206	1354	16
70°	4105	1404	16
75°	3998	1469	16
80°	3875	1574	16
85°	3763	1661	16



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	4.7	0.3
10°-20°	17.5	1.3
20°-30°	37.1	2.7
30°-40°	61.9	4.5
40°-50°	87.6	6.3
50°-60°	109.7	8.0
60°-70°	125.3	9.1
70°-80°	133.0	9.6
80°-90°	132.6	9.6
90°-100°	127.8	9.3
100°-110°	121.2	8.8
110°-120°	113.0	8.2
120°-130°	101.2	7.3
130°-140°	83.6	6.1
140°-150°	61.3	4.4
150°-160°	38.1	2.8
160°-170°	18.5	1.3
170°-180°	5.2	0.4
0°-30°	59.3	4.3
0°-40°	121.2	8.8
0°-60°	318.4	23.1
0°-90°	709.2	51.4
90°-120°	362.0	26.3
90°-150°	608.1	44.1
90°-180°	670.0	48.6
0°-180°	1379.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	46	46	46	46	46	
5°	70	64	47	33	27	8
15°	140	106	47	15	8	41
25°	218	158	46	5	1	101
35°	279	208	45	1	1	175
45°	319	247	45	1	1	247
55°	339	272	45	1	1	303
65°	342	286	45	1	1	338
75°	327	290	45	1	1	345
85°	301	284	45	1	1	248
90°	288	281	45	1	1	158
95°	278	279	45	1	1	225
105°	267	273	46	1	1	284
115°	272	268	47	1	1	271
125°	284	259	48	1	1	254
135°	286	240	48	1	1	220
145°	263	207	50	1	1	165
155°	215	164	51	6	1	100
165°	144	113	52	16	8	42
175°	74	68	52	37	32	8
180°	51	51	51	51	51	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9
2.5°	56.6	57.3	56.6	56.6	56.0	56.0	56.0	56.0	55.4	54.7	54.1
5°	70.5	70.5	69.9	69.9	68.6	68.0	68.0	67.3	66.1	64.2	63.6
7.5°	86.2	85.0	84.3	84.3	82.4	81.8	81.2	79.3	77.4	74.9	73.0
10°	101.3	101.3	100.7	100.1	96.9	96.3	95.0	93.1	90.0	86.8	83.1
12.5°	120.2	120.2	118.3	116.4	113.9	113.3	111.4	108.2	103.8	98.8	93.8
15°	140.3	140.3	138.4	136.6	132.8	130.9	129.0	124.6	118.3	112.6	106.3
17.5°	162.4	160.5	157.9	155.4	151.7	149.1	146.6	141.0	134.0	126.5	118.9
20°	180.6	181.2	178.7	175.6	171.2	168.6	165.5	157.9	149.8	141.0	131.5
22.5°	199.5	199.5	197.0	193.2	188.8	186.3	182.5	175.6	166.1	154.8	144.1
25°	217.7	216.5	215.2	210.8	205.8	202.6	199.5	191.9	181.9	170.5	157.9
27.5°	234.7	234.1	232.2	227.2	222.8	219.0	215.8	207.7	197.0	185.0	171.8
30°	251.1	249.8	247.9	242.9	237.9	234.1	230.9	222.1	211.4	198.9	185.0
32.5°	264.9	263.7	261.8	257.4	252.3	247.9	244.2	235.4	224.7	211.4	196.3
35°	278.8	277.5	275.0	270.6	265.6	261.8	258.0	248.6	236.6	223.4	208.3
37.5°	290.7	289.5	287.6	282.5	278.1	273.7	270.0	259.9	248.6	235.4	219.0
40°	301.4	300.8	298.9	293.9	289.5	285.1	280.7	271.2	259.9	246.0	229.7
42.5°	310.9	309.6	308.3	303.9	298.3	294.5	290.7	280.7	268.7	255.5	238.5
45°	319.0	317.8	315.9	311.5	306.5	302.7	298.9	288.8	277.5	263.7	246.7
47.5°	326.0	324.7	322.8	319.0	313.4	310.2	305.8	296.4	285.1	271.8	254.9
50°	331.6	331.0	328.5	324.7	319.7	316.5	312.1	303.3	292.0	278.1	261.8
52.5°	335.4	334.8	332.9	329.7	324.7	320.9	317.8	307.7	297.0	283.8	267.4
55°	339.2	338.6	336.7	332.9	327.9	324.1	320.3	312.1	301.4	288.8	272.5
57.5°	341.1	340.4	338.6	334.8	330.4	326.6	323.5	315.3	305.2	292.6	276.9
60°	342.3	341.7	339.2	336.0	331.6	327.9	324.7	317.2	307.1	295.8	280.7
62.5°	341.7	341.7	339.2	336.0	331.6	328.5	325.3	318.4	309.0	297.7	283.8
65°	341.7	340.4	338.6	334.8	331.0	328.5	325.3	318.4	310.2	299.5	286.3
67.5°	339.8	339.2	336.7	333.5	329.7	326.6	324.1	318.4	310.9	300.8	288.2
70°	336.0	336.0	333.5	330.4	326.6	324.7	322.2	316.5	310.2	301.4	288.8
72.5°	332.3	331.6	329.7	326.6	323.5	321.6	319.7	314.6	308.3	300.2	289.5
75°	327.2	326.6	324.7	322.2	319.7	317.8	315.9	312.1	307.1	299.5	289.5
77.5°	321.6	320.9	319.7	317.2	314.6	313.4	311.5	309.0	304.6	298.3	288.8
80°	314.6	314.0	312.8	310.9	309.0	308.3	307.1	304.6	301.4	296.4	288.2
82.5°	307.7	307.1	306.5	304.6	303.3	303.3	302.1	300.8	298.9	293.9	286.3
85°	300.8	300.2	300.2	298.3	297.7	297.0	297.7	296.4	295.1	291.4	284.4
87.5°	293.2	293.2	293.2	292.0	292.0	292.0	292.0	292.0	291.4	288.8	282.5
90°	288.2	287.6	287.0	287.0	287.0	287.0	287.6	288.2	288.2	286.3	280.7
92.5°	282.5	281.9	281.9	282.5	283.2	283.8	284.4	285.7	286.3	284.4	280.0
95°	277.5	278.1	278.1	278.1	279.4	280.0	280.7	282.5	283.8	283.2	278.8
97.5°	273.7	273.7	273.7	274.4	275.6	276.9	278.1	280.0	281.3	280.7	276.9
100°	270.6	270.6	271.2	271.8	273.1	274.4	275.6	278.1	279.4	279.4	275.6
102.5°	268.1	268.1	268.7	270.0	271.8	272.5	274.4	276.3	278.1	278.1	274.4
105°	267.4	267.4	268.1	269.3	271.2	271.8	273.1	275.6	277.5	276.9	273.1
107.5°	267.4	267.4	268.1	269.3	271.2	272.5	273.1	275.6	276.9	276.3	272.5
110°	268.1	268.7	268.7	270.6	271.8	272.5	274.4	275.6	276.9	275.0	270.6



TEST NUMBER: P190083

CATALOG NUMBER: TRB11-LD4-15W-50-CL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	270.6	270.6	271.2	271.8	273.7	274.4	275.0	276.9	276.9	275.0	270.0
115°	272.5	273.1	273.1	274.4	275.6	276.3	276.3	277.5	276.9	274.4	268.1
117.5°	275.6	275.6	276.3	276.3	277.5	278.1	278.1	278.1	276.9	273.7	266.2
120°	278.8	278.8	278.8	279.4	279.4	279.4	280.0	278.8	276.9	272.5	264.3
122.5°	281.3	281.9	281.9	281.3	281.3	281.3	281.3	279.4	276.3	271.2	262.4
125°	283.8	283.8	283.2	283.2	282.5	281.9	281.3	279.4	275.0	268.7	259.3
127.5°	285.7	285.1	285.1	283.8	282.5	281.9	281.3	278.1	273.1	265.6	255.5
130°	286.3	286.3	285.7	284.4	282.5	281.3	280.0	275.6	270.0	262.4	251.1
132.5°	286.3	286.3	285.7	283.8	281.3	280.0	278.1	273.7	266.8	258.0	245.4
135°	285.7	285.7	283.8	282.5	279.4	277.5	275.6	270.0	262.4	253.0	240.4
137.5°	282.5	282.5	281.3	278.8	275.6	273.7	271.2	264.3	256.7	246.7	233.5
140°	277.5	276.9	275.6	273.1	269.3	266.8	264.3	257.4	248.6	237.9	224.7
142.5°	271.2	270.0	268.1	266.2	261.8	259.3	256.7	249.2	240.4	229.7	215.8
145°	263.0	262.4	260.5	258.0	253.6	251.1	248.6	240.4	231.6	220.2	207.0
147.5°	254.9	254.2	251.7	249.2	244.8	241.6	239.1	230.9	221.5	210.8	197.6
150°	243.5	242.3	240.4	237.2	232.8	230.3	227.8	219.0	210.2	199.5	186.9
152.5°	229.1	229.7	227.2	223.4	219.0	216.5	214.0	206.4	197.0	186.3	174.9
155°	215.2	214.6	211.4	208.9	204.5	202.0	199.5	192.6	183.8	173.7	163.6
157.5°	200.1	199.5	198.2	193.8	189.4	187.5	185.0	178.1	170.5	159.8	149.8
160°	182.5	182.5	180.0	176.8	173.1	171.2	169.3	163.0	154.8	146.0	137.8
162.5°	163.6	163.6	162.4	157.3	154.2	152.9	150.4	145.4	139.7	132.1	125.2
165°	143.5	141.6	142.2	139.1	136.6	135.3	134.0	129.0	124.6	118.3	112.6
167.5°	125.2	124.0	124.6	122.1	119.6	118.9	117.7	113.9	110.8	105.1	101.3
170°	107.6	106.3	107.0	105.1	103.2	103.2	101.9	99.4	96.9	92.5	90.0
172.5°	90.6	88.7	90.0	88.7	87.5	87.5	86.8	85.0	83.1	80.5	78.7
175°	74.3	73.0	74.3	73.6	72.4	73.0	72.4	71.1	70.5	68.6	68.0
177.5°	60.4	60.4	60.4	61.0	59.8	60.4	60.4	59.8	59.8	59.2	59.2
180°	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9
2.5°	54.1	52.9	52.2	51.6	51.0	51.0	50.3	49.1	47.8	47.2	45.9
5°	61.7	60.4	58.5	56.6	56.0	54.7	52.9	51.0	49.1	47.2	45.3
7.5°	69.9	67.3	64.8	61.7	60.4	58.5	56.0	52.9	49.7	47.2	44.7
10°	79.3	74.9	71.1	67.3	64.8	62.9	58.5	54.7	51.0	47.2	43.4
12.5°	88.7	83.7	78.0	71.7	69.2	66.7	61.7	56.6	51.6	46.6	42.2
15°	99.4	92.5	85.0	78.0	74.9	71.7	64.8	57.9	52.2	46.6	41.5
17.5°	110.1	101.9	93.1	84.3	79.9	75.5	68.0	60.4	52.9	46.6	40.9
20°	120.8	111.4	100.7	90.0	85.0	79.9	70.5	61.7	53.5	45.9	39.6
22.5°	132.8	120.8	108.2	96.3	90.6	84.3	73.6	63.6	54.1	45.9	38.4
25°	144.1	130.9	116.4	102.6	96.3	89.4	76.8	65.4	54.7	45.9	37.8
27.5°	156.1	141.0	125.2	109.5	101.9	94.4	79.9	67.3	56.0	45.9	37.1
30°	169.3	151.0	133.4	115.8	107.6	99.4	83.7	69.2	56.6	45.3	35.9
32.5°	180.0	161.1	141.6	122.1	113.3	103.8	86.8	71.1	57.3	45.3	35.2
35°	190.7	171.8	149.8	129.0	118.9	108.9	90.0	73.0	57.9	45.3	34.6
37.5°	201.4	181.2	158.6	135.3	124.6	113.9	93.1	74.9	58.5	45.3	34.0
40°	210.8	190.7	167.4	142.2	130.3	118.3	96.3	76.8	59.8	45.3	33.4
42.5°	219.6	198.9	174.9	147.9	135.9	122.7	99.4	78.0	60.4	45.3	32.7
45°	227.8	205.8	181.9	153.5	141.0	127.7	102.6	79.9	61.0	45.3	32.7
47.5°	235.4	213.3	188.2	160.5	146.0	132.1	105.1	81.8	61.7	45.3	32.1
50°	242.3	220.2	194.4	166.1	150.4	135.9	108.2	83.7	62.3	45.3	31.5
52.5°	248.6	225.9	200.1	171.2	154.8	139.7	110.8	85.0	62.9	44.7	30.8
55°	253.6	231.6	205.1	176.2	159.8	143.5	113.3	86.2	63.6	45.3	30.8
57.5°	258.0	236.0	209.6	180.0	163.6	147.3	115.8	88.1	64.2	44.7	30.2
60°	262.4	240.4	214.0	184.4	168.6	150.4	118.3	89.4	64.8	44.7	30.2
62.5°	265.6	244.2	218.4	188.2	171.8	153.5	120.8	90.6	64.8	44.7	29.6
65°	268.7	247.9	221.5	191.3	174.9	157.3	122.7	91.9	65.4	44.7	29.6
67.5°	271.2	250.5	225.3	195.1	178.1	160.5	124.6	93.1	66.1	44.7	28.9
70°	273.1	253.0	227.8	197.6	181.2	163.0	126.5	94.4	66.7	44.7	28.9
72.5°	274.4	254.9	230.3	200.1	183.1	164.9	128.4	95.0	66.7	44.7	28.9
75°	275.6	256.1	231.6	202.0	185.6	168.0	129.6	95.7	67.3	44.7	28.9
77.5°	275.6	257.4	233.5	203.9	187.5	169.3	130.9	96.9	68.0	45.3	28.3
80°	275.0	257.4	234.1	204.5	188.2	170.5	132.1	97.5	68.0	45.3	28.3
82.5°	275.0	257.4	234.7	205.8	189.4	171.8	132.8	98.2	68.6	45.3	28.3
85°	273.7	257.4	234.7	205.8	190.0	171.8	133.4	98.2	68.6	44.7	28.3
87.5°	272.5	256.7	234.7	206.4	190.0	172.4	134.0	98.8	68.6	44.7	27.7
90°	271.2	256.1	234.1	206.4	190.0	172.4	134.0	98.8	68.6	45.3	27.7
92.5°	270.6	255.5	234.1	205.8	189.4	171.8	134.0	98.8	68.6	44.7	27.7
95°	270.0	254.9	233.5	205.8	189.4	172.4	134.0	98.8	68.6	44.7	27.7
97.5°	268.7	253.6	232.2	204.5	188.8	171.8	134.0	98.8	68.6	45.3	28.3
100°	266.8	252.3	230.9	203.9	188.2	171.2	133.4	98.8	69.2	45.3	28.3
102.5°	266.2	251.1	229.7	202.6	186.9	169.9	133.4	98.8	69.2	45.3	28.3
105°	264.3	249.8	228.4	201.4	185.6	169.3	132.8	98.8	69.2	45.9	28.9
107.5°	263.0	247.9	226.5	199.5	184.4	168.0	131.5	98.2	69.2	45.9	28.9
110°	261.2	246.0	224.0	197.6	181.9	166.1	130.9	98.2	69.2	45.9	29.6



TEST NUMBER: P190083

CATALOG NUMBER: TRB11-LD4-15W-50-CL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	259.9	243.5	222.1	195.7	180.6	164.2	129.6	97.5	69.2	46.6	29.6
115°	257.4	241.0	219.0	192.6	178.1	161.7	128.4	96.9	69.2	47.2	30.2
117.5°	254.9	238.5	216.5	190.0	175.6	158.6	126.5	95.7	69.2	47.2	30.8
120°	252.3	235.4	213.3	186.9	172.4	155.4	124.6	95.0	68.6	47.2	31.5
122.5°	249.2	231.6	209.6	183.8	169.3	152.9	122.7	93.8	68.6	47.8	31.5
125°	245.4	227.8	205.1	179.3	164.9	149.8	120.2	92.5	68.0	47.8	32.1
127.5°	241.0	222.8	200.7	174.9	160.5	146.0	117.7	91.2	67.3	47.8	32.7
130°	236.0	217.7	195.7	170.5	155.4	142.2	115.2	89.4	66.7	47.8	33.4
132.5°	230.3	212.1	190.0	165.5	151.0	138.4	112.6	88.1	66.7	48.5	34.0
135°	224.7	206.4	184.4	159.8	146.6	134.0	109.5	86.8	66.1	48.5	34.6
137.5°	217.7	199.5	178.1	153.5	141.6	130.3	107.0	85.0	65.4	49.1	35.2
140°	208.9	191.3	170.5	147.3	136.6	125.2	103.2	83.1	64.8	49.1	35.9
142.5°	200.7	183.1	163.6	141.6	130.9	120.8	100.1	81.2	64.2	49.1	37.1
145°	191.9	175.6	154.8	135.9	125.9	116.4	97.5	79.9	63.6	49.7	37.8
147.5°	183.1	167.4	147.9	129.6	120.8	112.0	94.4	78.0	62.9	49.7	39.0
150°	173.1	156.7	140.3	124.0	115.2	107.0	91.2	76.1	62.3	50.3	39.6
152.5°	162.4	147.3	132.1	117.0	109.5	101.9	88.1	74.3	61.7	50.3	40.3
155°	149.8	137.8	124.0	110.8	103.8	97.5	84.3	72.4	61.0	51.0	41.5
157.5°	139.7	128.4	116.4	104.5	98.8	93.1	81.2	70.5	60.4	51.0	42.8
160°	128.4	118.9	108.2	98.2	93.1	88.1	78.0	68.6	59.8	51.6	44.0
162.5°	117.0	108.9	100.1	91.2	87.5	83.1	74.3	66.7	58.5	51.6	44.7
165°	106.3	99.4	91.9	85.0	81.8	78.0	71.1	64.2	57.9	51.6	45.9
167.5°	95.7	90.6	85.0	79.3	76.1	73.6	68.0	62.3	57.3	52.2	47.2
170°	85.6	81.8	77.4	73.0	71.1	69.2	64.8	60.4	56.0	52.2	48.5
172.5°	76.1	73.0	70.5	67.3	65.4	64.2	61.0	57.9	54.7	52.2	49.1
175°	66.7	64.8	63.6	61.7	60.4	59.8	57.9	56.0	54.1	52.2	50.3
177.5°	58.5	57.9	57.3	56.0	56.0	55.4	54.7	54.1	53.5	52.2	51.6
180°	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0



TEST NUMBER: P190083

CATALOG NUMBER: TRB11-LD4-15W-50-CL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9
2.5°	45.3	44.0	42.8	42.8	42.2	40.9	40.3	39.6	38.4	37.8	37.1
5°	43.4	41.5	39.6	39.0	38.4	36.5	35.2	34.0	32.7	31.5	30.2
7.5°	41.5	39.0	36.5	35.9	34.6	32.1	30.8	28.9	27.1	26.4	24.5
10°	40.3	37.1	34.0	32.7	31.5	28.3	26.4	24.5	22.7	21.4	20.1
12.5°	38.4	34.6	30.8	29.6	27.7	25.2	22.7	20.8	18.9	17.0	15.7
15°	36.5	32.1	28.3	26.4	25.2	22.0	19.5	17.0	15.1	13.2	12.0
17.5°	35.2	30.2	25.8	24.5	22.7	19.5	16.4	14.5	12.0	10.1	8.8
20°	33.4	28.3	23.9	22.0	20.1	17.0	13.8	11.3	8.8	7.6	6.3
22.5°	32.1	26.4	21.4	19.5	17.6	14.5	11.3	8.8	6.9	5.7	4.4
25°	30.8	24.5	20.1	17.6	15.7	12.0	8.8	6.9	5.0	3.8	3.1
27.5°	29.6	23.3	18.2	15.7	13.8	10.1	7.6	5.0	3.8	2.5	1.9
30°	28.3	22.0	16.4	13.8	12.0	8.2	5.7	3.8	2.5	1.3	1.3
32.5°	27.1	20.8	15.1	12.6	10.7	6.9	4.4	3.1	1.9	1.3	0.6
35°	25.8	19.5	13.8	11.3	8.8	5.7	3.8	1.9	1.3	0.6	0.6
37.5°	25.2	18.2	12.6	10.1	8.2	5.0	3.1	1.3	1.3	0.6	0.6
40°	24.5	17.0	11.3	8.8	6.9	4.4	2.5	1.3	1.3	0.6	0.6
42.5°	23.3	16.4	10.1	8.2	6.3	3.8	1.9	1.3	1.3	1.3	0.6
45°	22.7	15.1	9.4	6.9	5.7	3.1	1.3	1.3	1.3	0.6	0.6
47.5°	22.0	14.5	8.8	6.3	5.0	2.5	1.3	1.3	1.3	1.3	0.6
50°	21.4	13.8	8.2	5.7	4.4	1.9	1.3	1.3	1.3	1.3	1.3
52.5°	20.8	12.6	7.6	5.0	3.8	1.9	1.3	1.3	1.3	1.3	1.3
55°	20.1	12.0	6.9	5.0	3.1	1.3	1.3	1.3	1.3	1.3	1.3
57.5°	19.5	12.0	6.3	4.4	3.1	1.3	1.3	1.3	1.3	1.3	1.3
60°	19.5	11.3	5.7	4.4	2.5	1.3	1.3	1.3	1.3	1.3	1.3
62.5°	18.9	10.7	5.7	3.8	2.5	1.3	1.3	1.3	1.3	1.3	1.3
65°	18.2	10.1	5.0	3.1	2.5	1.3	1.3	1.3	1.3	1.3	1.3
67.5°	17.6	10.1	5.0	3.1	1.9	1.3	1.3	1.3	1.3	1.3	1.3
70°	17.6	9.4	5.0	3.1	1.9	1.3	1.3	1.3	1.3	1.3	1.3
72.5°	17.6	9.4	4.4	3.1	1.9	1.3	1.3	1.3	1.3	1.3	1.3
75°	17.0	9.4	4.4	3.1	1.9	1.9	1.9	1.9	1.3	1.3	1.9
77.5°	17.0	8.8	4.4	2.5	1.9	1.9	1.9	1.3	1.9	1.9	1.9
80°	17.0	8.8	4.4	2.5	1.9	1.9	1.3	1.9	1.9	1.9	1.3
82.5°	17.0	8.8	3.8	2.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9
85°	16.4	8.2	3.8	2.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3
87.5°	16.4	8.2	3.8	1.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3
90°	16.4	8.2	3.8	1.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3
92.5°	16.4	8.2	3.8	2.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3
95°	16.4	8.2	3.8	2.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3
97.5°	16.4	8.2	3.8	2.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3
100°	16.4	8.8	3.8	2.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3
102.5°	17.0	8.8	3.8	2.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3
105°	17.0	8.8	3.8	2.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3
107.5°	17.0	8.8	4.4	2.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3
110°	17.6	9.4	4.4	2.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3



TEST NUMBER: P190083

CATALOG NUMBER: TRB11-LD4-15W-50-CL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	17.6	9.4	4.4	3.1	1.9	1.3	1.3	1.3	1.3	1.3	1.3
115°	18.2	10.1	5.0	3.1	1.9	1.3	1.3	1.3	1.3	1.3	1.3
117.5°	18.9	10.7	5.7	3.8	2.5	1.3	1.3	1.3	1.3	1.3	1.3
120°	19.5	11.3	5.7	3.8	2.5	1.3	1.3	1.3	1.3	1.3	1.3
122.5°	20.1	12.0	6.3	4.4	3.1	1.3	1.3	1.3	1.3	1.3	1.3
125°	20.8	12.6	6.9	5.0	3.1	1.3	1.3	1.3	1.3	1.3	1.3
127.5°	21.4	13.2	7.6	5.0	3.8	1.9	1.3	1.3	1.3	1.3	1.3
130°	22.0	13.8	8.2	5.7	4.4	1.9	1.3	1.3	1.3	1.3	1.3
132.5°	22.7	14.5	8.8	6.3	4.4	2.5	1.3	1.3	0.6	0.6	0.6
135°	23.9	15.7	9.4	7.6	5.7	2.5	1.3	1.3	0.6	0.6	0.6
137.5°	24.5	17.0	10.7	8.2	6.3	3.8	1.9	1.3	0.6	0.6	0.6
140°	25.8	17.6	11.3	9.4	6.9	4.4	2.5	1.3	0.6	0.6	0.6
142.5°	27.1	18.9	12.6	10.7	8.2	5.0	3.1	1.9	0.6	0.6	0.6
145°	28.3	20.1	14.5	12.0	9.4	6.3	3.8	2.5	1.3	0.6	0.6
147.5°	29.6	22.0	15.7	13.2	11.3	7.6	5.0	3.1	1.9	1.3	0.6
150°	30.8	23.3	17.6	15.1	12.6	8.8	6.3	4.4	2.5	1.9	1.3
152.5°	32.1	25.2	19.5	17.0	14.5	10.7	7.6	5.7	3.8	2.5	1.9
155°	33.4	27.1	21.4	18.9	17.0	12.6	9.4	7.6	5.7	4.4	3.1
157.5°	35.2	28.9	23.9	21.4	18.9	15.1	12.0	9.4	7.6	5.7	5.0
160°	37.1	30.8	25.8	23.9	22.0	17.6	15.1	12.0	10.1	8.2	6.9
162.5°	39.0	33.4	28.3	26.4	24.5	20.8	18.2	15.1	12.6	10.7	9.4
165°	40.3	35.9	31.5	29.6	27.7	23.9	21.4	18.9	16.4	14.5	13.2
167.5°	42.2	38.4	34.6	32.7	30.8	27.7	25.2	22.7	20.8	18.9	17.0
170°	44.7	40.9	37.8	36.5	34.6	32.1	29.6	27.1	25.2	23.9	22.0
172.5°	45.9	43.4	40.9	39.6	38.4	36.5	34.0	32.1	30.8	28.9	27.7
175°	48.5	46.6	44.7	43.4	42.8	40.9	39.6	38.4	37.1	35.9	34.6
177.5°	50.3	49.7	48.5	47.8	47.8	46.6	45.9	44.7	44.0	43.4	42.8
180°	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0



TEST NUMBER: P190083

CATALOG NUMBER: TRB11-LD4-15W-50-CL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9
2.5°	36.5	36.5	35.9	35.2	34.6	34.6	34.6	34.6
5°	29.6	28.9	28.9	28.3	27.7	27.1	27.1	27.1
7.5°	23.9	23.3	22.7	22.0	21.4	21.4	20.8	20.8
10°	18.9	17.6	17.6	17.0	16.4	15.7	15.7	15.7
12.5°	14.5	13.8	13.2	12.6	12.0	11.3	11.3	10.7
15°	10.7	9.4	9.4	8.8	8.2	7.6	7.6	7.6
17.5°	7.6	6.9	6.3	6.3	5.7	5.0	5.0	5.0
20°	5.0	4.4	4.4	3.8	3.8	3.1	3.1	3.1
22.5°	3.8	3.1	2.5	2.5	1.9	1.9	1.3	1.9
25°	1.9	1.9	1.3	1.3	0.6	0.6	0.6	0.6
27.5°	1.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6
30°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
32.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
35°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
37.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
40°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
42.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
45°	1.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6
47.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
50°	1.3	1.3	1.3	1.3	1.3	1.3	0.6	0.6
52.5°	1.3	1.3	1.3	1.3	1.3	1.3	0.6	0.6
55°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
57.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
60°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
62.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
65°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	1.9	1.3	1.9	1.9	1.3	1.3	1.9	1.3
85°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
90°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
92.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
95°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
97.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
100°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
102.5°	1.3	1.3	1.3	1.3	1.3	1.3	0.6	0.6
105°	1.3	1.3	1.3	1.3	0.6	0.6	0.6	0.6
107.5°	1.3	1.3	1.3	1.3	0.6	0.6	0.6	0.6
110°	1.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6



TEST NUMBER: P190083

CATALOG NUMBER: TRB11-LD4-15W-50-CL-BK-UNV-EDC1

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	1.3	1.3	1.3	0.6	0.6	0.6	0.6	0.6
115°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
117.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
120°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
122.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
125°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
127.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
130°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
132.5°	0.6	0.6	1.3	1.3	0.6	0.6	0.6	0.6
135°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
137.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
140°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
142.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
145°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
147.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
150°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
152.5°	1.3	1.3	0.6	0.6	0.6	0.6	0.6	0.6
155°	2.5	1.9	1.9	1.3	1.3	0.6	0.6	0.6
157.5°	3.8	3.1	3.1	2.5	2.5	1.9	1.9	1.9
160°	5.7	5.0	4.4	4.4	3.8	3.8	3.1	3.1
162.5°	8.2	7.6	6.9	6.3	6.3	5.7	5.7	5.0
165°	12.0	10.7	10.1	9.4	9.4	8.8	8.2	8.2
167.5°	16.4	15.1	14.5	13.8	13.2	12.6	12.6	12.6
170°	21.4	20.1	19.5	18.9	18.2	18.2	17.6	17.6
172.5°	27.1	25.8	25.2	24.5	24.5	23.9	23.9	23.9
175°	34.0	33.4	33.4	32.1	32.1	32.1	31.5	31.5
177.5°	42.2	42.2	41.5	41.5	41.5	41.5	40.9	40.9
180°	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0

(END OF REPORT)