

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: P190082

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

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P190082
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-LD4-20W-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 450mA
OT40W/1

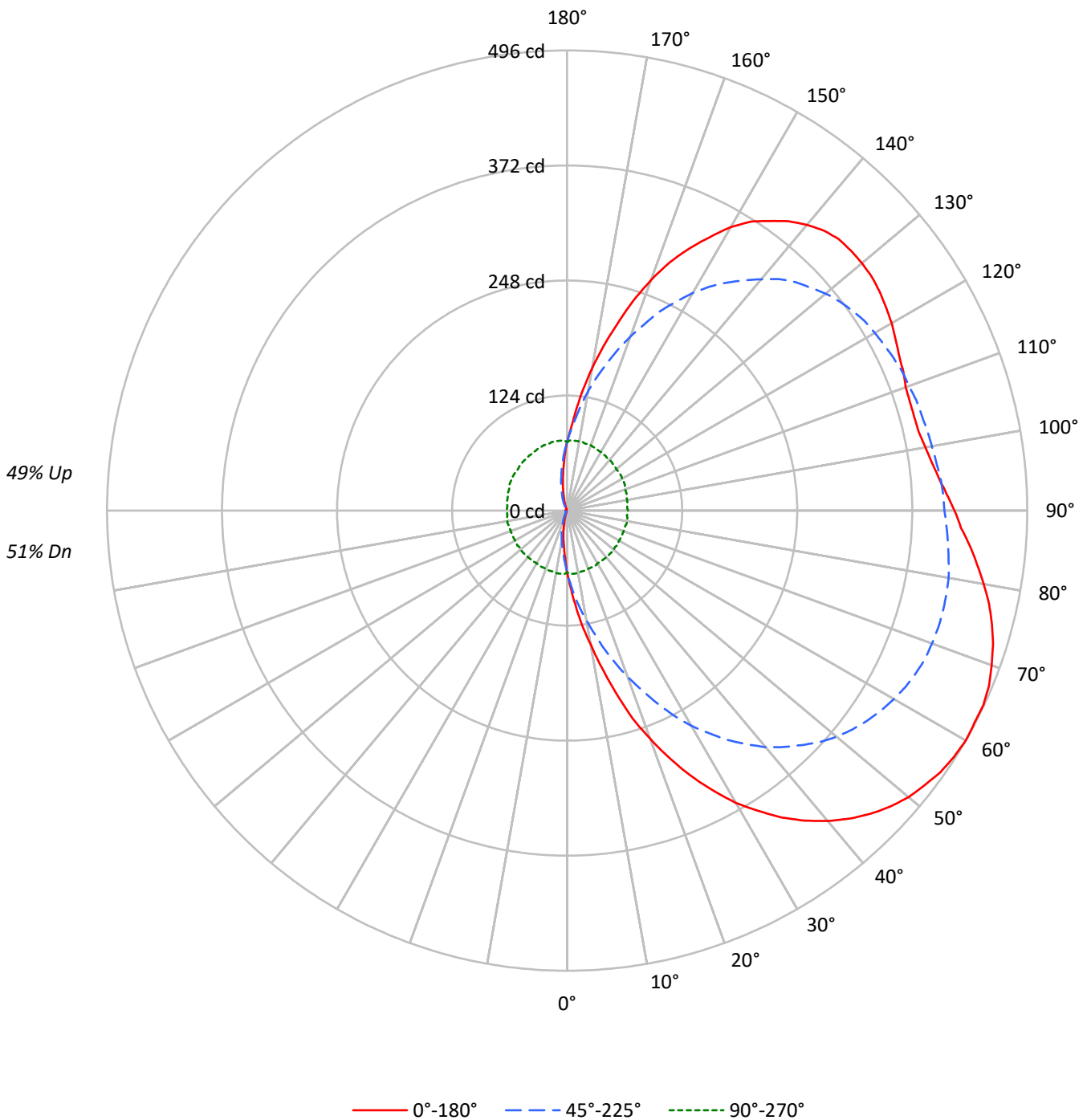
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1997.9 lumens
Efficiency: N/A
Efficacy: 90.8 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): 22
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: P190082

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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°	2681	2681	2681
5°	3236	2542	1243
10°	3861	2377	600
15°	4600	2219	247
20°	5230	2092	92
25°	5684	2018	16
30°	6009	1933	15
35°	6202	1896	14
40°	6310	1875	13
45°	6353	1867	12
50°	6342	1875	12
55°	6284	1896	23
60°	6198	1907	22
65°	6094	1960	22
70°	5949	2032	22
75°	5793	2127	22
80°	5615	2280	22
85°	5452	2404	23



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	6.9	0.3
10°-20°	25.3	1.3
20°-30°	53.7	2.7
30°-40°	89.7	4.5
40°-50°	126.9	6.4
50°-60°	158.9	8.0
60°-70°	181.4	9.1
70°-80°	192.6	9.6
80°-90°	192.1	9.6
90°-100°	185.2	9.3
100°-110°	175.5	8.8
110°-120°	163.8	8.2
120°-130°	146.6	7.3
130°-140°	121.1	6.1
140°-150°	88.8	4.4
150°-160°	55.1	2.8
160°-170°	26.9	1.3
170°-180°	7.5	0.4
0°-30°	85.9	4.3
0°-40°	175.6	8.8
0°-60°	461.3	23.1
0°-90°	1027.5	51.4
90°-120°	524.5	26.3
90°-150°	880.9	44.1
90°-180°	970.0	48.6
0°-180°	1997.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	67	67	67	67	67	
5°	102	92	68	47	39	11
15°	203	154	68	22	11	60
25°	316	229	67	7	1	147
35°	404	302	66	2	1	254
45°	462	357	66	2	1	357
55°	491	395	66	2	2	440
65°	495	415	65	2	2	490
75°	474	419	65	2	2	500
85°	436	412	65	2	2	360
90°	418	407	66	2	2	229
95°	402	404	65	2	2	327
105°	388	396	67	2	1	411
115°	395	388	68	2	2	393
125°	411	376	69	2	2	368
135°	414	348	70	1	1	319
145°	381	300	72	2	1	239
155°	312	237	74	8	1	145
165°	208	163	75	24	12	61
175°	108	98	76	54	46	12
180°	74	74	74	74	74	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6
2.5°	82.1	83.0	82.1	82.1	81.1	81.1	81.1	81.1	80.2	79.3	78.4
5°	102.1	102.1	101.2	101.2	99.4	98.5	98.5	97.6	95.7	93.0	92.1
7.5°	124.9	123.1	122.2	122.2	119.4	118.5	117.6	114.9	112.1	108.5	105.8
10°	146.8	146.8	145.9	145.0	140.4	139.5	137.7	134.9	130.4	125.8	120.4
12.5°	174.1	174.1	171.4	168.7	165.0	164.1	161.4	156.8	150.4	143.1	135.9
15°	203.3	203.3	200.6	197.8	192.4	189.6	186.9	180.5	171.4	163.2	154.1
17.5°	235.2	232.5	228.8	225.2	219.7	216.1	212.4	204.2	194.2	183.3	172.3
20°	261.7	262.6	258.9	254.4	248.0	244.3	239.8	228.8	217.0	204.2	190.6
22.5°	289.0	289.0	285.4	279.9	273.5	269.9	264.4	254.4	240.7	224.3	208.8
25°	315.5	313.6	311.8	305.4	298.1	293.6	289.0	278.1	263.5	247.1	228.8
27.5°	340.1	339.2	336.4	329.1	322.8	317.3	312.7	300.9	285.4	268.1	248.9
30°	363.8	362.0	359.2	351.9	344.6	339.2	334.6	321.8	306.3	288.1	268.1
32.5°	383.8	382.0	379.3	372.9	365.6	359.2	353.8	341.0	325.5	306.3	284.5
35°	403.9	402.1	398.4	392.1	384.8	379.3	373.8	360.1	342.8	323.7	301.8
37.5°	421.2	419.4	416.7	409.4	403.0	396.6	391.1	376.6	360.1	341.0	317.3
40°	436.7	435.8	433.1	425.8	419.4	413.0	406.6	393.0	376.6	356.5	332.8
42.5°	450.4	448.6	446.8	440.4	432.2	426.7	421.2	406.6	389.3	370.2	345.6
45°	462.3	460.4	457.7	451.3	444.0	438.6	433.1	418.5	402.1	382.0	357.4
47.5°	472.3	470.5	467.7	462.3	454.1	449.5	443.1	429.4	413.0	393.9	369.3
50°	480.5	479.6	475.9	470.5	463.2	458.6	452.2	439.5	423.1	403.0	379.3
52.5°	486.0	485.1	482.3	477.8	470.5	465.0	460.4	445.8	430.3	411.2	387.5
55°	491.4	490.5	487.8	482.3	475.0	469.6	464.1	452.2	436.7	418.5	394.8
57.5°	494.2	493.3	490.5	485.1	478.7	473.2	468.6	456.8	442.2	424.0	401.2
60°	496.0	495.1	491.4	486.9	480.5	475.0	470.5	459.5	444.9	428.5	406.6
62.5°	495.1	495.1	491.4	486.9	480.5	475.9	471.4	461.3	447.7	431.3	411.2
65°	495.1	493.3	490.5	485.1	479.6	475.9	471.4	461.3	449.5	434.0	414.8
67.5°	492.3	491.4	487.8	483.2	477.8	473.2	469.6	461.3	450.4	435.8	417.6
70°	486.9	486.9	483.2	478.7	473.2	470.5	466.8	458.6	449.5	436.7	418.5
72.5°	481.4	480.5	477.8	473.2	468.6	465.9	463.2	455.9	446.8	434.9	419.4
75°	474.1	473.2	470.5	466.8	463.2	460.4	457.7	452.2	444.9	434.0	419.4
77.5°	465.9	465.0	463.2	459.5	455.9	454.1	451.3	447.7	441.3	432.2	418.5
80°	455.9	455.0	453.1	450.4	447.7	446.8	444.9	441.3	436.7	429.4	417.6
82.5°	445.8	444.9	444.0	441.3	439.5	439.5	437.6	435.8	433.1	425.8	414.8
85°	435.8	434.9	434.9	432.2	431.3	430.3	431.3	429.4	427.6	422.1	412.1
87.5°	424.9	424.9	424.9	423.1	423.1	423.1	423.1	423.1	422.1	418.5	409.4
90°	417.6	416.7	415.8	415.8	415.8	415.8	416.7	417.6	417.6	414.8	406.6
92.5°	409.4	408.5	408.5	409.4	410.3	411.2	412.1	413.9	414.8	412.1	405.7
95°	402.1	403.0	403.0	403.0	404.8	405.7	406.6	409.4	411.2	410.3	403.9
97.5°	396.6	396.6	396.6	397.5	399.3	401.2	403.0	405.7	407.6	406.6	401.2
100°	392.1	392.1	393.0	393.9	395.7	397.5	399.3	403.0	404.8	404.8	399.3
102.5°	388.4	388.4	389.3	391.1	393.9	394.8	397.5	400.3	403.0	403.0	397.5
105°	387.5	387.5	388.4	390.2	393.0	393.9	395.7	399.3	402.1	401.2	395.7
107.5°	387.5	387.5	388.4	390.2	393.0	394.8	395.7	399.3	401.2	400.3	394.8
110°	388.4	389.3	389.3	392.1	393.9	394.8	397.5	399.3	401.2	398.4	392.1



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

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	392.1	392.1	393.0	393.9	396.6	397.5	398.4	401.2	401.2	398.4	391.1
115°	394.8	395.7	395.7	397.5	399.3	400.3	400.3	402.1	401.2	397.5	388.4
117.5°	399.3	399.3	400.3	400.3	402.1	403.0	403.0	403.0	401.2	396.6	385.7
120°	403.9	403.9	403.9	404.8	404.8	404.8	405.7	403.9	401.2	394.8	382.9
122.5°	407.6	408.5	408.5	407.6	407.6	407.6	407.6	404.8	400.3	393.0	380.2
125°	411.2	411.2	410.3	410.3	409.4	408.5	407.6	404.8	398.4	389.3	375.6
127.5°	413.9	413.0	413.0	411.2	409.4	408.5	407.6	403.0	395.7	384.8	370.2
130°	414.8	414.8	413.9	412.1	409.4	407.6	405.7	399.3	391.1	380.2	363.8
132.5°	414.8	414.8	413.9	411.2	407.6	405.7	403.0	396.6	386.6	373.8	355.6
135°	413.9	413.9	411.2	409.4	404.8	402.1	399.3	391.1	380.2	366.5	348.3
137.5°	409.4	409.4	407.6	403.9	399.3	396.6	393.0	382.9	372.0	357.4	338.3
140°	402.1	401.2	399.3	395.7	390.2	386.6	382.9	372.9	360.1	344.6	325.5
142.5°	393.0	391.1	388.4	385.7	379.3	375.6	372.0	361.1	348.3	332.8	312.7
145°	381.1	380.2	377.5	373.8	367.4	363.8	360.1	348.3	335.5	319.1	300.0
147.5°	369.3	368.3	364.7	361.1	354.7	350.1	346.5	334.6	320.9	305.4	286.3
150°	352.8	351.0	348.3	343.7	337.3	333.7	330.1	317.3	304.5	289.0	270.8
152.5°	331.9	332.8	329.1	323.7	317.3	313.6	310.0	299.1	285.4	269.9	253.5
155°	311.8	310.9	306.3	302.7	296.3	292.7	289.0	279.0	266.2	251.6	237.1
157.5°	289.9	289.0	287.2	280.8	274.4	271.7	268.1	258.0	247.1	231.6	217.0
160°	264.4	264.4	260.8	256.2	250.7	248.0	245.3	236.1	224.3	211.5	199.7
162.5°	237.1	237.1	235.2	227.9	223.4	221.6	217.9	210.6	202.4	191.5	181.4
165°	207.9	205.1	206.1	201.5	197.8	196.0	194.2	186.9	180.5	171.4	163.2
167.5°	181.4	179.6	180.5	176.9	173.2	172.3	170.5	165.0	160.5	152.3	146.8
170°	155.9	154.1	155.0	152.3	149.5	149.5	147.7	144.1	140.4	134.0	130.4
172.5°	131.3	128.6	130.4	128.6	126.7	126.7	125.8	123.1	120.4	116.7	114.0
175°	107.6	105.8	107.6	106.7	104.9	105.8	104.9	103.0	102.1	99.4	98.5
177.5°	87.5	87.5	87.5	88.4	86.6	87.5	87.5	86.6	86.6	85.7	85.7
180°	73.9	73.9	73.9	73.9	73.9	73.9	73.9	73.9	73.9	73.9	73.9



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6
2.5°	78.4	76.6	75.7	74.8	73.9	73.9	72.9	71.1	69.3	68.4	66.6
5°	89.4	87.5	84.8	82.1	81.1	79.3	76.6	73.9	71.1	68.4	65.6
7.5°	101.2	97.6	93.9	89.4	87.5	84.8	81.1	76.6	72.0	68.4	64.7
10°	114.9	108.5	103.0	97.6	93.9	91.2	84.8	79.3	73.9	68.4	62.9
12.5°	128.6	121.3	113.1	103.9	100.3	96.6	89.4	82.1	74.8	67.5	61.1
15°	144.1	134.0	123.1	113.1	108.5	103.9	93.9	83.9	75.7	67.5	60.2
17.5°	159.6	147.7	134.9	122.2	115.8	109.4	98.5	87.5	76.6	67.5	59.3
20°	175.1	161.4	145.9	130.4	123.1	115.8	102.1	89.4	77.5	66.6	57.4
22.5°	192.4	175.1	156.8	139.5	131.3	122.2	106.7	92.1	78.4	66.6	55.6
25°	208.8	189.6	168.7	148.6	139.5	129.5	111.2	94.8	79.3	66.6	54.7
27.5°	226.1	204.2	181.4	158.6	147.7	136.8	115.8	97.6	81.1	66.6	53.8
30°	245.3	218.8	193.3	167.8	155.9	144.1	121.3	100.3	82.1	65.6	52.0
32.5°	260.8	233.4	205.1	176.9	164.1	150.4	125.8	103.0	83.0	65.6	51.1
35°	276.3	248.9	217.0	186.9	172.3	157.7	130.4	105.8	83.9	65.6	50.1
37.5°	291.8	262.6	229.8	196.0	180.5	165.0	134.9	108.5	84.8	65.6	49.2
40°	305.4	276.3	242.5	206.1	188.7	171.4	139.5	111.2	86.6	65.6	48.3
42.5°	318.2	288.1	253.5	214.3	196.9	177.8	144.1	113.1	87.5	65.6	47.4
45°	330.1	298.1	263.5	222.5	204.2	185.1	148.6	115.8	88.4	65.6	47.4
47.5°	341.0	309.1	272.6	232.5	211.5	191.5	152.3	118.5	89.4	65.6	46.5
50°	351.0	319.1	281.7	240.7	217.9	196.9	156.8	121.3	90.3	65.6	45.6
52.5°	360.1	327.3	289.9	248.0	224.3	202.4	160.5	123.1	91.2	64.7	44.7
55°	367.4	335.5	297.2	255.3	231.6	207.9	164.1	124.9	92.1	65.6	44.7
57.5°	373.8	341.9	303.6	260.8	237.1	213.3	167.8	127.6	93.0	64.7	43.8
60°	380.2	348.3	310.0	267.1	244.3	217.9	171.4	129.5	93.9	64.7	43.8
62.5°	384.8	353.8	316.4	272.6	248.9	222.5	175.1	131.3	93.9	64.7	42.9
65°	389.3	359.2	320.9	277.2	253.5	227.9	177.8	133.1	94.8	64.7	42.9
67.5°	393.0	362.9	326.4	282.6	258.0	232.5	180.5	134.9	95.7	64.7	41.9
70°	395.7	366.5	330.1	286.3	262.6	236.1	183.3	136.8	96.6	64.7	41.9
72.5°	397.5	369.3	333.7	289.9	265.3	238.9	186.0	137.7	96.6	64.7	41.9
75°	399.3	371.1	335.5	292.7	269.0	243.4	187.8	138.6	97.6	64.7	41.9
77.5°	399.3	372.9	338.3	295.4	271.7	245.3	189.6	140.4	98.5	65.6	41.0
80°	398.4	372.9	339.2	296.3	272.6	247.1	191.5	141.3	98.5	65.6	41.0
82.5°	398.4	372.9	340.1	298.1	274.4	248.9	192.4	142.2	99.4	65.6	41.0
85°	396.6	372.9	340.1	298.1	275.3	248.9	193.3	142.2	99.4	64.7	41.0
87.5°	394.8	372.0	340.1	299.1	275.3	249.8	194.2	143.1	99.4	64.7	40.1
90°	393.0	371.1	339.2	299.1	275.3	249.8	194.2	143.1	99.4	65.6	40.1
92.5°	392.1	370.2	339.2	298.1	274.4	248.9	194.2	143.1	99.4	64.7	40.1
95°	391.1	369.3	338.3	298.1	274.4	249.8	194.2	143.1	99.4	64.7	40.1
97.5°	389.3	367.4	336.4	296.3	273.5	248.9	194.2	143.1	99.4	65.6	41.0
100°	386.6	365.6	334.6	295.4	272.6	248.0	193.3	143.1	100.3	65.6	41.0
102.5°	385.7	363.8	332.8	293.6	270.8	246.2	193.3	143.1	100.3	65.6	41.0
105°	382.9	362.0	331.0	291.8	269.0	245.3	192.4	143.1	100.3	66.6	41.9
107.5°	381.1	359.2	328.2	289.0	267.1	243.4	190.6	142.2	100.3	66.6	41.9
110°	378.4	356.5	324.6	286.3	263.5	240.7	189.6	142.2	100.3	66.6	42.9



TEST NUMBER: P190082

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

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	376.6	352.8	321.8	283.6	261.7	238.0	187.8	141.3	100.3	67.5	42.9
115°	372.9	349.2	317.3	279.0	258.0	234.3	186.0	140.4	100.3	68.4	43.8
117.5°	369.3	345.6	313.6	275.3	254.4	229.8	183.3	138.6	100.3	68.4	44.7
120°	365.6	341.0	309.1	270.8	249.8	225.2	180.5	137.7	99.4	68.4	45.6
122.5°	361.1	335.5	303.6	266.2	245.3	221.6	177.8	135.9	99.4	69.3	45.6
125°	355.6	330.1	297.2	259.8	238.9	217.0	174.1	134.0	98.5	69.3	46.5
127.5°	349.2	322.8	290.8	253.5	232.5	211.5	170.5	132.2	97.6	69.3	47.4
130°	341.9	315.5	283.6	247.1	225.2	206.1	166.9	129.5	96.6	69.3	48.3
132.5°	333.7	307.3	275.3	239.8	218.8	200.6	163.2	127.6	96.6	70.2	49.2
135°	325.5	299.1	267.1	231.6	212.4	194.2	158.6	125.8	95.7	70.2	50.1
137.5°	315.5	289.0	258.0	222.5	205.1	188.7	155.0	123.1	94.8	71.1	51.1
140°	302.7	277.2	247.1	213.3	197.8	181.4	149.5	120.4	93.9	71.1	52.0
142.5°	290.8	265.3	237.1	205.1	189.6	175.1	145.0	117.6	93.0	71.1	53.8
145°	278.1	254.4	224.3	196.9	182.4	168.7	141.3	115.8	92.1	72.0	54.7
147.5°	265.3	242.5	214.3	187.8	175.1	162.3	136.8	113.1	91.2	72.0	56.5
150°	250.7	227.0	203.3	179.6	166.9	155.0	132.2	110.3	90.3	72.9	57.4
152.5°	235.2	213.3	191.5	169.6	158.6	147.7	127.6	107.6	89.4	72.9	58.4
155°	217.0	199.7	179.6	160.5	150.4	141.3	122.2	104.9	88.4	73.9	60.2
157.5°	202.4	186.0	168.7	151.4	143.1	134.9	117.6	102.1	87.5	73.9	62.0
160°	186.0	172.3	156.8	142.2	134.9	127.6	113.1	99.4	86.6	74.8	63.8
162.5°	169.6	157.7	145.0	132.2	126.7	120.4	107.6	96.6	84.8	74.8	64.7
165°	154.1	144.1	133.1	123.1	118.5	113.1	103.0	93.0	83.9	74.8	66.6
167.5°	138.6	131.3	123.1	114.9	110.3	106.7	98.5	90.3	83.0	75.7	68.4
170°	124.0	118.5	112.1	105.8	103.0	100.3	93.9	87.5	81.1	75.7	70.2
172.5°	110.3	105.8	102.1	97.6	94.8	93.0	88.4	83.9	79.3	75.7	71.1
175°	96.6	93.9	92.1	89.4	87.5	86.6	83.9	81.1	78.4	75.7	72.9
177.5°	84.8	83.9	83.0	81.1	81.1	80.2	79.3	78.4	77.5	75.7	74.8
180°	73.9	73.9	73.9	73.9	73.9	73.9	73.9	73.9	73.9	73.9	73.9



TEST NUMBER: P190082

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6
2.5°	65.6	63.8	62.0	62.0	61.1	59.3	58.4	57.4	55.6	54.7	53.8
5°	62.9	60.2	57.4	56.5	55.6	52.9	51.1	49.2	47.4	45.6	43.8
7.5°	60.2	56.5	52.9	52.0	50.1	46.5	44.7	41.9	39.2	38.3	35.6
10°	58.4	53.8	49.2	47.4	45.6	41.0	38.3	35.6	32.8	31.0	29.2
12.5°	55.6	50.1	44.7	42.9	40.1	36.5	32.8	30.1	27.4	24.6	22.8
15°	52.9	46.5	41.0	38.3	36.5	31.9	28.3	24.6	21.9	19.1	17.3
17.5°	51.1	43.8	37.4	35.6	32.8	28.3	23.7	21.0	17.3	14.6	12.8
20°	48.3	41.0	34.6	31.9	29.2	24.6	20.1	16.4	12.8	10.9	9.1
22.5°	46.5	38.3	31.0	28.3	25.5	21.0	16.4	12.8	10.0	8.2	6.4
25°	44.7	35.6	29.2	25.5	22.8	17.3	12.8	10.0	7.3	5.5	4.6
27.5°	42.9	33.7	26.4	22.8	20.1	14.6	10.9	7.3	5.5	3.6	2.7
30°	41.0	31.9	23.7	20.1	17.3	11.9	8.2	5.5	3.6	1.8	1.8
32.5°	39.2	30.1	21.9	18.2	15.5	10.0	6.4	4.6	2.7	1.8	0.9
35°	37.4	28.3	20.1	16.4	12.8	8.2	5.5	2.7	1.8	0.9	0.9
37.5°	36.5	26.4	18.2	14.6	11.9	7.3	4.6	1.8	1.8	0.9	0.9
40°	35.6	24.6	16.4	12.8	10.0	6.4	3.6	1.8	1.8	0.9	0.9
42.5°	33.7	23.7	14.6	11.9	9.1	5.5	2.7	1.8	1.8	1.8	0.9
45°	32.8	21.9	13.7	10.0	8.2	4.6	1.8	1.8	1.8	0.9	0.9
47.5°	31.9	21.0	12.8	9.1	7.3	3.6	1.8	1.8	1.8	1.8	0.9
50°	31.0	20.1	11.9	8.2	6.4	2.7	1.8	1.8	1.8	1.8	1.8
52.5°	30.1	18.2	10.9	7.3	5.5	2.7	1.8	1.8	1.8	1.8	1.8
55°	29.2	17.3	10.0	7.3	4.6	1.8	1.8	1.8	1.8	1.8	1.8
57.5°	28.3	17.3	9.1	6.4	4.6	1.8	1.8	1.8	1.8	1.8	1.8
60°	28.3	16.4	8.2	6.4	3.6	1.8	1.8	1.8	1.8	1.8	1.8
62.5°	27.4	15.5	8.2	5.5	3.6	1.8	1.8	1.8	1.8	1.8	1.8
65°	26.4	14.6	7.3	4.6	3.6	1.8	1.8	1.8	1.8	1.8	1.8
67.5°	25.5	14.6	7.3	4.6	2.7	1.8	1.8	1.8	1.8	1.8	1.8
70°	25.5	13.7	7.3	4.6	2.7	1.8	1.8	1.8	1.8	1.8	1.8
72.5°	25.5	13.7	6.4	4.6	2.7	1.8	1.8	1.8	1.8	1.8	1.8
75°	24.6	13.7	6.4	4.6	2.7	2.7	2.7	2.7	1.8	1.8	2.7
77.5°	24.6	12.8	6.4	3.6	2.7	2.7	2.7	1.8	2.7	2.7	2.7
80°	24.6	12.8	6.4	3.6	2.7	2.7	1.8	2.7	2.7	2.7	1.8
82.5°	24.6	12.8	5.5	3.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7
85°	23.7	11.9	5.5	3.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8
87.5°	23.7	11.9	5.5	2.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8
90°	23.7	11.9	5.5	2.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8
92.5°	23.7	11.9	5.5	3.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8
95°	23.7	11.9	5.5	3.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8
97.5°	23.7	11.9	5.5	3.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8
100°	23.7	12.8	5.5	3.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8
102.5°	24.6	12.8	5.5	3.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8
105°	24.6	12.8	5.5	3.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8
107.5°	24.6	12.8	6.4	3.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8
110°	25.5	13.7	6.4	3.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8



TEST NUMBER: P190082

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	25.5	13.7	6.4	4.6	2.7	1.8	1.8	1.8	1.8	1.8	1.8
115°	26.4	14.6	7.3	4.6	2.7	1.8	1.8	1.8	1.8	1.8	1.8
117.5°	27.4	15.5	8.2	5.5	3.6	1.8	1.8	1.8	1.8	1.8	1.8
120°	28.3	16.4	8.2	5.5	3.6	1.8	1.8	1.8	1.8	1.8	1.8
122.5°	29.2	17.3	9.1	6.4	4.6	1.8	1.8	1.8	1.8	1.8	1.8
125°	30.1	18.2	10.0	7.3	4.6	1.8	1.8	1.8	1.8	1.8	1.8
127.5°	31.0	19.1	10.9	7.3	5.5	2.7	1.8	1.8	1.8	1.8	1.8
130°	31.9	20.1	11.9	8.2	6.4	2.7	1.8	1.8	1.8	1.8	1.8
132.5°	32.8	21.0	12.8	9.1	6.4	3.6	1.8	1.8	0.9	0.9	0.9
135°	34.6	22.8	13.7	10.9	8.2	3.6	1.8	1.8	0.9	0.9	0.9
137.5°	35.6	24.6	15.5	11.9	9.1	5.5	2.7	1.8	0.9	0.9	0.9
140°	37.4	25.5	16.4	13.7	10.0	6.4	3.6	1.8	0.9	0.9	0.9
142.5°	39.2	27.4	18.2	15.5	11.9	7.3	4.6	2.7	0.9	0.9	0.9
145°	41.0	29.2	21.0	17.3	13.7	9.1	5.5	3.6	1.8	0.9	0.9
147.5°	42.9	31.9	22.8	19.1	16.4	10.9	7.3	4.6	2.7	1.8	0.9
150°	44.7	33.7	25.5	21.9	18.2	12.8	9.1	6.4	3.6	2.7	1.8
152.5°	46.5	36.5	28.3	24.6	21.0	15.5	10.9	8.2	5.5	3.6	2.7
155°	48.3	39.2	31.0	27.4	24.6	18.2	13.7	10.9	8.2	6.4	4.6
157.5°	51.1	41.9	34.6	31.0	27.4	21.9	17.3	13.7	10.9	8.2	7.3
160°	53.8	44.7	37.4	34.6	31.9	25.5	21.9	17.3	14.6	11.9	10.0
162.5°	56.5	48.3	41.0	38.3	35.6	30.1	26.4	21.9	18.2	15.5	13.7
165°	58.4	52.0	45.6	42.9	40.1	34.6	31.0	27.4	23.7	21.0	19.1
167.5°	61.1	55.6	50.1	47.4	44.7	40.1	36.5	32.8	30.1	27.4	24.6
170°	64.7	59.3	54.7	52.9	50.1	46.5	42.9	39.2	36.5	34.6	31.9
172.5°	66.6	62.9	59.3	57.4	55.6	52.9	49.2	46.5	44.7	41.9	40.1
175°	70.2	67.5	64.7	62.9	62.0	59.3	57.4	55.6	53.8	52.0	50.1
177.5°	72.9	72.0	70.2	69.3	69.3	67.5	66.6	64.7	63.8	62.9	62.0
180°	73.9	73.9	73.9	73.9	73.9	73.9	73.9	73.9	73.9	73.9	73.9



TEST NUMBER: P190082

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6
2.5°	52.9	52.9	52.0	51.1	50.1	50.1	50.1	50.1
5°	42.9	41.9	41.9	41.0	40.1	39.2	39.2	39.2
7.5°	34.6	33.7	32.8	31.9	31.0	31.0	30.1	30.1
10°	27.4	25.5	25.5	24.6	23.7	22.8	22.8	22.8
12.5°	21.0	20.1	19.1	18.2	17.3	16.4	16.4	15.5
15°	15.5	13.7	13.7	12.8	11.9	10.9	10.9	10.9
17.5°	10.9	10.0	9.1	9.1	8.2	7.3	7.3	7.3
20°	7.3	6.4	6.4	5.5	5.5	4.6	4.6	4.6
22.5°	5.5	4.6	3.6	3.6	2.7	2.7	1.8	2.7
25°	2.7	2.7	1.8	1.8	0.9	0.9	0.9	0.9
27.5°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
30°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
32.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
35°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
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	0.9	0.9
45°	1.8	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°	1.8	1.8	1.8	1.8	1.8	1.8	0.9	0.9
52.5°	1.8	1.8	1.8	1.8	1.8	1.8	0.9	0.9
55°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
57.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
60°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
62.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
65°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
67.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
70°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
72.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
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	1.8
80°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
82.5°	2.7	1.8	2.7	2.7	1.8	1.8	2.7	1.8
85°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
87.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
90°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
92.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
95°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
97.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
100°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
102.5°	1.8	1.8	1.8	1.8	1.8	1.8	0.9	0.9
105°	1.8	1.8	1.8	1.8	0.9	0.9	0.9	0.9
107.5°	1.8	1.8	1.8	1.8	0.9	0.9	0.9	0.9
110°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9



TEST NUMBER: P190082

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	1.8	1.8	1.8	0.9	0.9	0.9	0.9	0.9
115°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
117.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
120°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
122.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
125°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
127.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
130°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
132.5°	0.9	0.9	1.8	1.8	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	0.9	0.9	0.9
142.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
145°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
147.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
150°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
152.5°	1.8	1.8	0.9	0.9	0.9	0.9	0.9	0.9
155°	3.6	2.7	2.7	1.8	1.8	0.9	0.9	0.9
157.5°	5.5	4.6	4.6	3.6	3.6	2.7	2.7	2.7
160°	8.2	7.3	6.4	6.4	5.5	5.5	4.6	4.6
162.5°	11.9	10.9	10.0	9.1	9.1	8.2	8.2	7.3
165°	17.3	15.5	14.6	13.7	13.7	12.8	11.9	11.9
167.5°	23.7	21.9	21.0	20.1	19.1	18.2	18.2	18.2
170°	31.0	29.2	28.3	27.4	26.4	26.4	25.5	25.5
172.5°	39.2	37.4	36.5	35.6	35.6	34.6	34.6	34.6
175°	49.2	48.3	48.3	46.5	46.5	46.5	45.6	45.6
177.5°	61.1	61.1	60.2	60.2	60.2	60.2	59.3	59.3
180°	73.9	73.9	73.9	73.9	73.9	73.9	73.9	73.9

(END OF REPORT)