

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: P709119

Luminaire Tested: **4APN-20L835-X-UNV**

Issue Date: 09/12/2023



**Test Information**

Test Method: LM-79-08  
Report Number: P709119  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 09/12/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: 4APN-20L835-X-UNV  
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

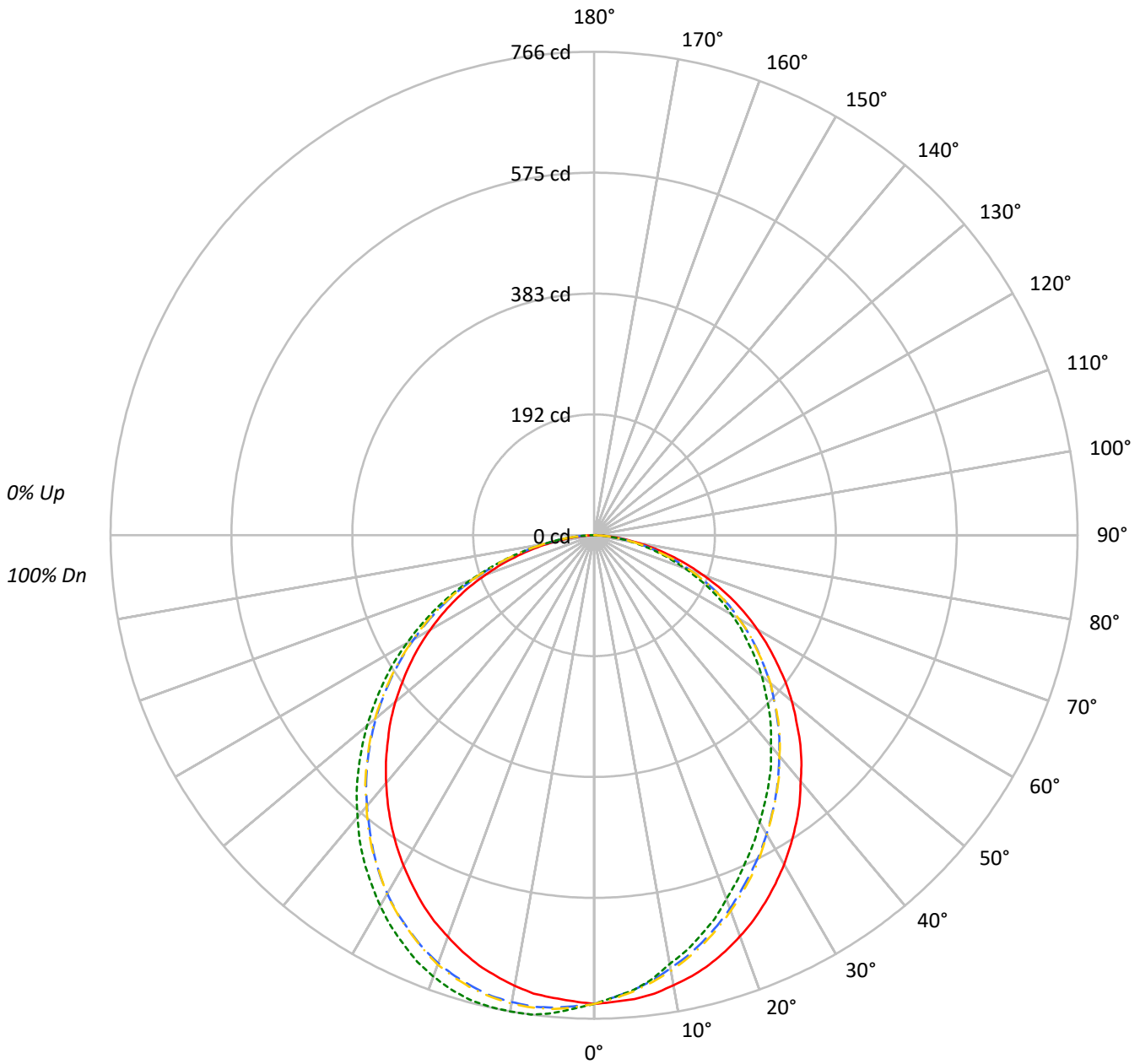
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1991.4 lumens  
Efficiency: N/A  
Efficacy: 83.7 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.21 / 1.33  
Luminous Opening: Rectangular (W 0.29' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 23.8  
Input Voltage (V): 120  
Input Current (Ain): 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



— 0°-180°    - - 45°-225°    - - - 90°-270°    - · - 135°-315°



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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				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	50	30	10	0
RCR																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	102	102	102	100
1	109	104	100	96	106	102	98	95	98	94	92	94	91	89	90	88	86	86	86	86	84
2	99	91	84	78	96	89	83	77	85	80	76	82	78	74	79	76	72	72	72	72	70
3	90	80	72	65	88	78	71	65	75	69	64	73	67	62	70	65	61	61	61	61	59
4	83	71	62	55	81	70	61	55	67	60	54	65	59	54	63	57	53	53	53	53	51
5	76	63	54	48	74	62	54	48	60	53	47	58	52	47	56	51	46	46	46	46	44
6	70	57	48	42	68	56	48	42	54	47	41	53	46	41	51	45	41	41	41	41	38
7	65	52	43	37	64	51	43	37	49	42	37	48	41	36	47	41	36	36	36	36	34
8	61	47	39	33	59	47	39	33	45	38	33	44	37	33	43	37	32	32	32	32	30
9	57	43	35	30	55	43	35	30	42	35	30	41	34	29	40	34	29	29	29	29	27
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	27	27	27	25

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

	0°	90°	180°	270°
0°	6850	6850	6850	6850
5°	6830	6698	6815	7041
10°	6783	6461	6791	7176
15°	6731	6258	6740	7276
20°	6639	6021	6647	7307
25°	6532	5798	6558	7277
30°	6416	5593	6434	7221
35°	6281	5430	6310	7143
40°	6130	5250	6171	7020
45°	6016	5119	6028	6893
50°	5872	4979	5895	6739
55°	5688	4797	5728	6553
60°	5517	4650	5534	6324
65°	5298	4456	5298	6052
70°	4939	4125	4918	5641
75°	4492	3743	4431	5062
80°	3884	3214	3751	4330
85°	3028	2403	2848	3557



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	70.2	3.5
10°-20°	199.1	10.0
20°-30°	296.0	14.9
30°-40°	348.9	17.5
40°-50°	355.3	17.8
50°-60°	316.5	15.9
60°-70°	238.4	12.0
70°-80°	132.6	6.7
80°-90°	34.5	1.7
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	565.3	28.4
0°-40°	914.2	45.9
0°-60°	1585.9	79.6
0°-90°	1991.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1991.4	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	742	742	742	742	742	
5°	738	723	736	760	738	70
15°	705	655	706	762	705	199
25°	642	570	644	715	642	296
35°	558	482	560	634	558	349
45°	461	392	462	528	461	355
55°	354	298	356	407	354	317
65°	243	204	243	277	243	240
75°	126	105	124	142	126	134
85°	29	23	27	34	29	34
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
0°	742.5	742.5	742.5	742.5	742.5	742.5	742.5	742.5	742.5	742.5	742.5
2.5°	740.0	740.0	740.8	737.5	733.3	731.6	730.8	729.9	731.6	732.4	731.6
5°	737.5	735.8	734.1	729.9	724.9	721.5	719.8	719.0	720.7	723.2	720.7
7.5°	732.4	729.1	725.7	719.8	714.0	708.9	706.4	704.7	706.4	708.9	707.2
10°	724.0	719.8	714.8	708.1	699.7	693.8	691.3	688.8	689.6	689.6	689.6
12.5°	715.6	709.8	703.9	695.5	686.2	679.5	675.3	672.0	673.6	674.5	674.5
15°	704.7	697.2	688.8	679.5	670.3	662.7	657.7	654.3	655.2	655.2	656.0
17.5°	691.3	682.9	674.5	663.6	652.6	644.2	638.4	634.2	635.8	636.7	637.5
20°	676.2	666.9	657.7	645.9	634.2	624.9	619.0	614.0	613.2	613.2	614.0
22.5°	660.2	650.1	639.2	626.6	614.0	603.9	598.0	593.0	592.2	592.2	593.0
25°	641.7	630.8	619.9	607.3	593.8	583.8	576.2	571.2	570.3	569.5	571.2
27.5°	622.4	611.5	600.6	588.0	573.7	563.6	556.0	551.0	549.3	548.5	550.2
30°	602.2	589.6	577.9	564.4	551.8	541.8	534.2	528.3	526.7	525.0	526.7
32.5°	580.4	567.8	555.2	541.8	529.2	519.1	511.5	505.7	504.0	503.1	504.8
35°	557.7	545.1	533.4	519.9	507.3	497.3	489.7	484.7	483.0	482.1	483.0
37.5°	535.0	522.5	510.7	497.3	484.7	474.6	467.0	462.0	461.1	460.3	461.1
40°	509.0	498.1	486.3	473.7	461.1	451.1	445.2	439.3	437.6	435.9	438.5
42.5°	486.3	475.4	463.7	451.9	439.3	429.2	422.5	417.5	415.8	414.9	415.8
45°	461.1	449.4	437.6	426.7	414.9	405.7	399.0	393.9	393.1	392.3	393.1
47.5°	434.3	424.2	414.1	403.2	391.4	382.2	376.3	371.3	369.6	367.9	369.6
50°	409.1	399.0	388.9	378.8	367.9	359.5	353.6	348.6	347.7	346.9	347.7
52.5°	382.2	372.1	362.9	352.8	343.5	335.1	329.3	325.1	324.2	323.4	324.2
55°	353.6	345.2	336.8	328.4	319.2	311.6	306.6	301.5	299.9	298.2	299.9
57.5°	326.7	319.2	310.8	302.4	294.0	287.3	282.2	278.0	277.2	276.3	277.2
60°	299.0	292.3	284.7	277.2	268.8	262.1	257.9	254.5	252.8	252.0	252.8
62.5°	271.3	264.6	258.7	251.1	243.6	238.5	234.3	231.0	229.3	228.5	229.3
65°	242.7	236.9	231.0	224.3	218.4	213.3	209.1	205.8	204.9	204.1	204.1
67.5°	213.3	208.3	203.3	197.4	190.7	185.6	181.4	178.9	178.1	177.2	178.1
70°	183.1	178.9	173.9	168.8	163.8	159.6	157.1	154.6	153.7	152.9	152.9
72.5°	154.6	151.2	147.0	142.8	138.6	134.4	131.9	130.2	129.4	128.5	128.5
75°	126.0	122.6	120.1	116.8	112.6	110.0	107.5	105.8	105.0	105.0	105.0
77.5°	99.1	96.6	94.1	90.7	88.2	85.7	84.0	83.2	82.3	82.3	82.3
80°	73.1	71.4	69.7	68.0	65.5	63.0	62.2	61.3	60.5	60.5	60.5
82.5°	49.6	48.7	47.0	45.4	43.7	42.8	42.0	41.2	41.2	41.2	41.2
85°	28.6	27.7	26.9	26.0	25.2	25.2	24.4	23.5	22.7	22.7	22.7
87.5°	11.8	11.8	11.8	10.9	10.1	10.1	10.1	10.1	10.1	10.1	10.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	110°	120°	130°	140°	150°	160°	170°	180°	190°	200°	210°
0°	742.5	742.5	742.5	742.5	742.5	742.5	742.5	742.5	742.5	742.5	742.5
2.5°	729.9	731.6	733.3	735.8	738.3	740.8	740.0	739.2	742.5	746.7	747.6
5°	719.0	720.7	723.2	727.4	731.6	735.0	735.8	735.8	742.5	748.4	750.1
7.5°	705.6	708.1	711.4	715.6	721.5	726.6	729.1	732.4	739.2	746.7	750.1
10°	688.8	693.0	698.0	703.9	709.8	715.6	720.7	724.9	733.3	741.7	746.7
12.5°	673.6	677.8	682.9	689.6	697.2	704.7	709.8	715.6	725.7	735.8	741.7
15°	656.8	661.0	666.9	673.6	682.0	690.4	698.0	705.6	715.6	726.6	733.3
17.5°	638.4	642.6	648.4	656.8	666.1	675.3	683.7	692.1	703.9	715.6	723.2
20°	615.7	621.6	629.1	637.5	648.4	659.4	667.8	677.0	689.6	702.2	710.6
22.5°	593.8	599.7	608.1	618.2	630.0	641.7	651.8	661.9	675.3	687.9	697.2
25°	572.8	579.6	588.0	598.0	609.0	620.7	632.5	644.2	657.7	671.1	680.4
27.5°	551.8	557.7	566.1	576.2	588.8	600.6	612.3	624.1	638.4	652.6	662.7
30°	528.3	535.0	542.6	552.7	566.1	579.6	591.3	603.9	618.2	632.5	642.6
32.5°	506.5	512.4	519.9	530.0	543.4	556.9	569.5	582.9	596.4	610.6	620.7
35°	484.7	490.5	498.1	508.2	521.6	535.0	547.6	560.2	573.7	587.1	597.2
37.5°	462.8	468.7	476.3	486.3	498.9	512.4	524.1	536.7	550.2	563.6	572.8
40°	440.1	446.0	451.9	462.0	474.6	488.0	499.8	512.4	525.8	539.2	548.5
42.5°	417.5	423.3	430.9	441.0	452.7	464.5	476.3	488.0	500.6	513.2	522.5
45°	394.8	399.8	407.4	416.6	428.4	439.3	451.1	462.0	474.6	486.3	495.6
47.5°	371.3	376.3	382.2	391.4	403.2	414.9	426.7	437.6	448.5	460.3	468.7
50°	348.6	353.6	360.3	368.7	379.7	390.6	400.7	410.7	421.7	432.6	440.1
52.5°	325.1	330.1	336.0	344.4	353.6	363.7	372.9	383.0	393.1	403.2	410.7
55°	301.5	304.9	309.9	317.5	327.6	337.7	346.9	356.1	365.4	373.8	381.3
57.5°	278.0	282.2	288.1	294.8	303.2	311.6	320.0	328.4	336.8	345.2	351.9
60°	254.5	257.9	262.1	267.9	276.3	283.9	292.3	299.9	307.4	315.0	320.9
62.5°	230.1	233.5	237.7	243.6	250.3	257.0	264.6	271.3	278.0	284.7	290.6
65°	204.9	208.3	212.5	217.5	223.4	229.3	236.0	242.7	247.8	252.8	258.7
67.5°	178.9	182.3	186.5	190.7	195.7	201.6	207.5	213.3	218.4	223.4	227.6
70°	153.7	156.2	160.4	163.8	168.0	172.2	177.2	182.3	185.6	189.8	194.9
72.5°	129.4	131.9	135.2	138.6	141.1	144.5	149.5	153.7	157.9	163.0	165.5
75°	105.8	107.5	110.0	112.6	115.1	117.6	121.0	124.3	127.7	130.2	133.6
77.5°	82.3	84.0	86.5	88.2	89.9	91.6	94.1	96.6	99.1	100.8	104.2
80°	60.5	62.2	63.8	65.5	67.2	68.9	69.7	70.6	73.9	76.4	78.1
82.5°	41.2	42.0	42.8	44.5	45.4	46.2	47.0	47.0	48.7	50.4	52.9
85°	23.5	24.4	25.2	25.2	25.2	25.2	26.0	26.9	27.7	29.4	31.1
87.5°	9.2	9.2	10.1	10.1	10.1	10.1	10.1	10.1	10.9	12.6	13.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	742.5	742.5	742.5	742.5	742.5	742.5	742.5	742.5	742.5	742.5	742.5
2.5°	746.7	747.6	749.2	750.1	750.9	750.9	751.8	752.6	750.9	749.2	748.4
5°	750.9	751.8	754.3	756.8	758.5	760.2	759.3	758.5	756.8	754.3	752.6
7.5°	751.8	754.3	756.8	760.2	762.7	766.0	764.4	762.7	759.3	756.0	753.4
10°	749.2	752.6	756.8	761.0	763.5	766.0	764.4	762.7	759.3	755.1	751.8
12.5°	745.9	750.1	755.1	759.3	761.8	765.2	762.7	760.2	756.0	751.8	747.6
15°	738.3	743.4	749.2	754.3	758.5	761.8	759.3	757.6	752.6	746.7	740.8
17.5°	729.1	735.8	741.7	747.6	750.9	754.3	752.6	750.9	745.0	738.3	731.6
20°	718.2	724.9	730.8	736.6	740.8	744.2	741.7	739.2	733.3	727.4	720.7
22.5°	704.7	711.4	718.2	724.0	728.2	731.6	728.2	724.0	718.2	712.3	705.6
25°	687.9	695.5	703.0	708.9	711.4	714.8	711.4	708.1	702.2	696.3	688.8
27.5°	671.1	678.7	686.2	692.1	694.6	698.0	694.6	691.3	685.4	679.5	672.0
30°	651.8	659.4	666.9	672.8	675.3	677.8	674.5	671.1	666.1	660.2	652.6
32.5°	630.0	637.5	643.4	649.3	652.6	656.0	652.6	650.1	644.2	636.7	629.1
35°	606.4	614.0	621.6	627.4	630.8	634.2	630.0	625.8	620.7	614.8	608.1
37.5°	580.4	588.8	597.2	603.9	606.4	609.8	606.4	602.2	597.2	591.3	583.8
40°	556.0	563.6	571.2	577.9	580.4	582.9	579.6	576.2	570.3	564.4	556.9
42.5°	530.9	538.4	545.1	551.0	553.5	556.9	553.5	549.3	545.1	540.1	533.4
45°	504.0	511.5	517.4	523.3	525.8	528.3	525.0	520.8	516.6	512.4	505.7
47.5°	476.3	483.0	488.9	494.7	496.4	498.9	495.6	493.1	488.9	484.7	478.8
50°	447.7	454.4	460.3	465.3	467.0	469.5	466.2	462.8	459.5	456.1	451.1
52.5°	418.3	424.2	430.1	435.1	436.8	438.5	435.1	431.7	428.4	425.0	420.0
55°	388.1	393.9	399.8	404.0	405.7	407.4	404.0	401.5	398.1	395.6	390.6
57.5°	357.8	363.7	368.7	372.9	374.6	376.3	372.9	369.6	367.1	364.5	360.3
60°	326.7	332.6	336.8	340.2	341.9	342.7	339.3	336.8	335.1	333.5	329.3
62.5°	296.5	300.7	304.9	307.4	309.1	309.9	307.4	305.7	304.1	302.4	299.0
65°	264.6	269.6	273.0	275.5	276.3	277.2	274.7	273.0	271.3	269.6	267.1
67.5°	232.7	236.9	239.4	241.9	242.7	242.7	242.7	241.9	240.2	237.7	235.2
70°	200.7	204.1	206.6	208.3	209.1	209.1	207.5	205.8	205.8	204.9	203.3
72.5°	168.0	170.5	172.2	173.9	173.9	173.9	173.9	174.7	173.9	172.2	169.7
75°	136.9	139.4	141.1	142.0	142.0	142.0	142.0	142.8	142.0	141.1	139.4
77.5°	107.5	109.2	110.0	110.9	110.9	110.9	111.7	112.6	111.7	110.9	110.0
80°	79.8	80.6	81.5	82.3	81.5	81.5	82.3	84.0	83.2	82.3	81.5
82.5°	54.6	55.4	56.3	56.3	57.1	58.0	58.0	58.0	58.0	57.1	56.3
85°	32.8	33.6	33.6	33.6	33.6	33.6	34.4	35.3	35.3	34.4	34.4
87.5°	15.1	16.0	15.1	14.3	13.4	13.4	15.1	16.8	16.8	16.0	16.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0





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**CANDELA DISTRIBUTION (continued):**

	330°	340°	350°	360°
0°	742.5	742.5	742.5	742.5
2.5°	749.2	748.4	744.2	740.0
5°	751.8	749.2	743.4	737.5
7.5°	751.8	748.4	740.0	732.4
10°	747.6	742.5	733.3	724.0
12.5°	742.5	736.6	725.7	715.6
15°	735.0	728.2	716.5	704.7
17.5°	724.0	715.6	703.9	691.3
20°	713.1	703.9	689.6	676.2
22.5°	698.0	689.6	674.5	660.2
25°	681.2	672.0	656.8	641.7
27.5°	663.6	652.6	637.5	622.4
30°	643.4	632.5	617.4	602.2
32.5°	621.6	611.5	596.4	580.4
35°	599.7	588.8	573.7	557.7
37.5°	575.4	565.3	550.2	535.0
40°	549.3	539.2	524.1	509.0
42.5°	525.0	515.7	500.6	486.3
45°	498.1	488.9	474.6	461.1
47.5°	470.4	461.1	447.7	434.3
50°	443.5	434.3	421.7	409.1
52.5°	413.3	405.7	393.9	382.2
55°	383.9	376.3	364.5	353.6
57.5°	354.5	347.7	336.8	326.7
60°	323.4	316.7	308.3	299.0
62.5°	294.0	288.1	279.7	271.3
65°	262.9	257.9	250.3	242.7
67.5°	231.0	226.8	220.1	213.3
70°	199.1	194.0	189.0	183.1
72.5°	167.2	164.6	159.6	154.6
75°	136.9	134.4	130.2	126.0
77.5°	108.4	105.8	102.5	99.1
80°	79.8	78.1	75.6	73.1
82.5°	55.4	53.8	52.1	49.6
85°	33.6	31.9	30.2	28.6
87.5°	15.1	14.3	12.6	11.8
90°	0.0	0.0	0.0	0.0

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