

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: P709124

Luminaire Tested: **4APN-24L840-X-UNV**

Issue Date: 09/12/2023



**Test Information**

Test Method: LM-79-08  
Report Number: P709124  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 09/12/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: 4APN-24L840-X-UNV  
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

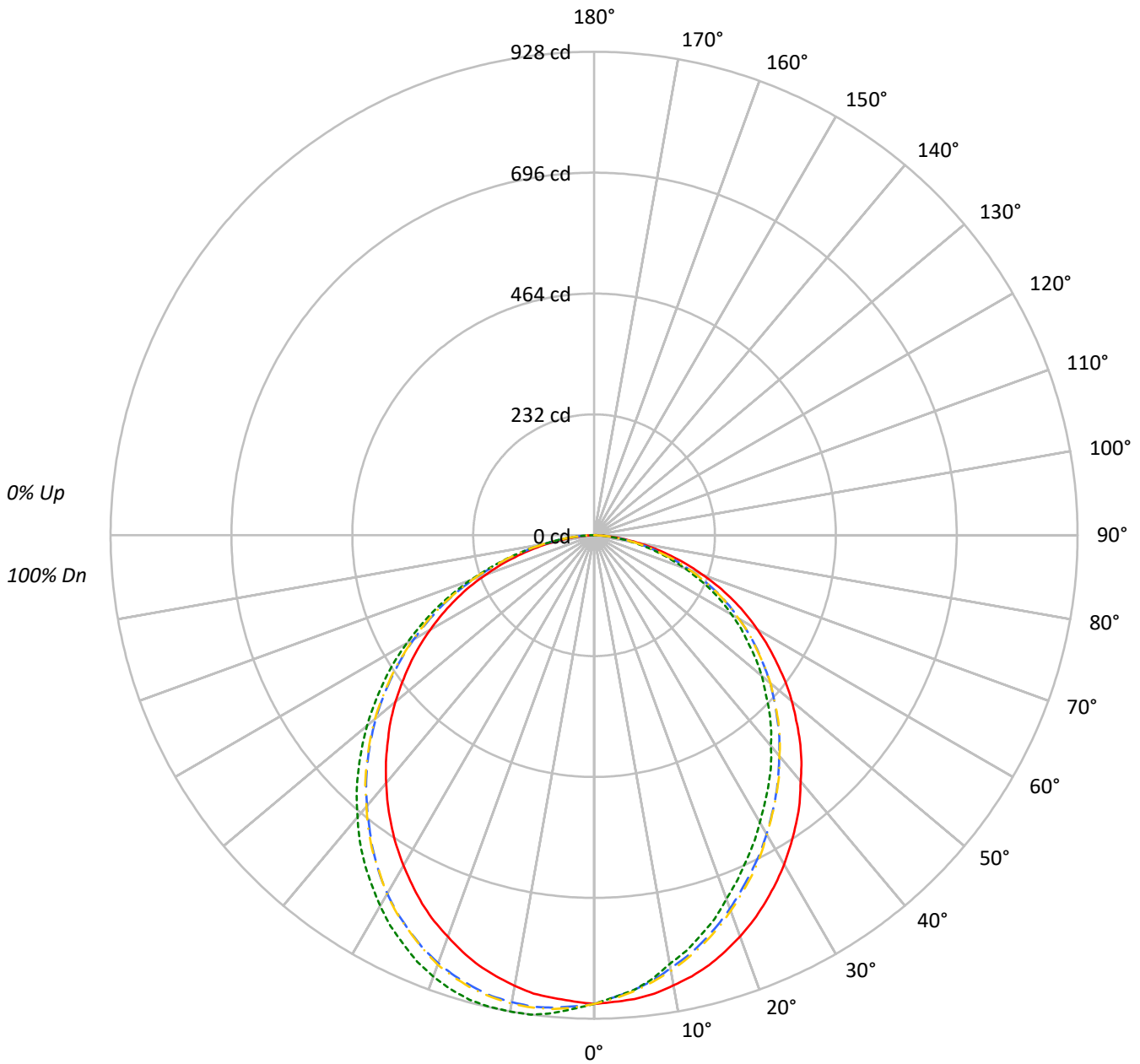
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2412.8 lumens  
Efficiency: N/A  
Efficacy: 86.5 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): 27.9  
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°	8301	8301	8301	8301
5°	8276	8116	8257	8530
10°	8219	7827	8228	8696
15°	8156	7582	8166	8817
20°	8044	7294	8054	8853
25°	7915	7024	7946	8817
30°	7774	6777	7795	8750
35°	7612	6580	7645	8655
40°	7428	6362	7477	8507
45°	7290	6202	7303	8352
50°	7114	6033	7144	8166
55°	6893	5812	6941	7940
60°	6685	5634	6704	7661
65°	6421	5399	6421	7331
70°	5986	4996	5956	6836
75°	5443	4534	5368	6131
80°	4702	3895	4543	5244
85°	3663	2911	3451	4308



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	85.0	3.5
10°-20°	241.3	10.0
20°-30°	358.7	14.9
30°-40°	422.7	17.5
40°-50°	430.4	17.8
50°-60°	383.5	15.9
60°-70°	288.9	12.0
70°-80°	160.7	6.7
80°-90°	41.7	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°	684.9	28.4
0°-40°	1107.7	45.9
0°-60°	1921.5	79.6
0°-90°	2412.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2412.8	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	900	900	900	900	900	
5°	894	876	892	921	894	85
15°	854	794	855	923	854	241
25°	778	690	781	866	778	358
35°	676	584	679	768	676	423
45°	559	475	560	640	559	431
55°	428	361	432	494	428	384
65°	294	247	294	336	294	290
75°	153	127	151	172	153	162
85°	35	28	33	41	35	42
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°	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7
2.5°	896.6	896.6	897.6	893.6	888.5	886.4	885.4	884.4	886.4	887.4	886.4
5°	893.6	891.5	889.5	884.4	878.3	874.2	872.2	871.2	873.2	876.3	873.2
7.5°	887.4	883.4	879.3	872.2	865.1	859.0	855.9	853.9	855.9	859.0	856.9
10°	877.3	872.2	866.1	857.9	847.8	840.6	837.6	834.5	835.5	835.5	835.5
12.5°	867.1	860.0	852.8	842.7	831.5	823.3	818.2	814.2	816.2	817.2	817.2
15°	853.9	844.7	834.5	823.3	812.1	803.0	796.9	792.8	793.8	793.8	794.8
17.5°	837.6	827.4	817.2	804.0	790.8	780.6	773.5	768.4	770.4	771.4	772.4
20°	819.3	808.1	796.9	782.6	768.4	757.2	750.1	743.9	742.9	742.9	743.9
22.5°	799.9	787.7	774.5	759.2	743.9	731.7	724.6	718.5	717.5	717.5	718.5
25°	777.5	764.3	751.1	735.8	719.5	707.3	698.2	692.0	691.0	690.0	692.0
27.5°	754.1	740.9	727.7	712.4	695.1	682.9	673.7	667.6	665.6	664.6	666.6
30°	729.7	714.4	700.2	683.9	668.6	656.4	647.3	640.1	638.1	636.1	638.1
32.5°	703.2	688.0	672.7	656.4	641.2	628.9	619.8	612.7	610.6	609.6	611.6
35°	675.8	660.5	646.2	630.0	614.7	602.5	593.3	587.2	585.2	584.2	585.2
37.5°	648.3	633.0	618.8	602.5	587.2	575.0	565.8	559.7	558.7	557.7	558.7
40°	616.7	603.5	589.3	574.0	558.7	546.5	539.4	532.3	530.2	528.2	531.2
42.5°	589.3	576.0	561.8	547.5	532.3	520.1	511.9	505.8	503.8	502.8	503.8
45°	558.7	544.5	530.2	517.0	502.8	491.6	483.4	477.3	476.3	475.3	476.3
47.5°	526.2	513.9	501.7	488.5	474.3	463.1	455.9	449.8	447.8	445.8	447.8
50°	495.6	483.4	471.2	459.0	445.8	435.6	428.5	422.4	421.3	420.3	421.3
52.5°	463.1	450.8	439.7	427.4	416.2	406.1	398.9	393.9	392.8	391.8	392.8
55°	428.5	418.3	408.1	397.9	386.7	377.6	371.5	365.4	363.3	361.3	363.3
57.5°	395.9	386.7	376.6	366.4	356.2	348.1	342.0	336.9	335.8	334.8	335.8
60°	362.3	354.2	345.0	335.8	325.7	317.5	312.4	308.4	306.3	305.3	306.3
62.5°	328.7	320.6	313.5	304.3	295.1	289.0	283.9	279.9	277.8	276.8	277.8
65°	294.1	287.0	279.9	271.7	264.6	258.5	253.4	249.3	248.3	247.3	247.3
67.5°	258.5	252.4	246.3	239.2	231.0	224.9	219.8	216.8	215.8	214.7	215.8
70°	221.9	216.8	210.7	204.6	198.5	193.4	190.3	187.3	186.2	185.2	185.2
72.5°	187.3	183.2	178.1	173.0	167.9	162.8	159.8	157.7	156.7	155.7	155.7
75°	152.7	148.6	145.5	141.5	136.4	133.3	130.3	128.2	127.2	127.2	127.2
77.5°	120.1	117.0	114.0	109.9	106.9	103.8	101.8	100.8	99.7	99.7	99.7
80°	88.5	86.5	84.5	82.4	79.4	76.3	75.3	74.3	73.3	73.3	73.3
82.5°	60.0	59.0	57.0	55.0	52.9	51.9	50.9	49.9	49.9	49.9	49.9
85°	34.6	33.6	32.6	31.5	30.5	30.5	29.5	28.5	27.5	27.5	27.5
87.5°	14.2	14.2	14.2	13.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2
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°	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7
2.5°	884.4	886.4	888.5	891.5	894.6	897.6	896.6	895.6	899.7	904.7	905.8
5°	871.2	873.2	876.3	881.3	886.4	890.5	891.5	891.5	899.7	906.8	908.8
7.5°	854.9	857.9	862.0	867.1	874.2	880.3	883.4	887.4	895.6	904.7	908.8
10°	834.5	839.6	845.7	852.8	860.0	867.1	873.2	878.3	888.5	898.6	904.7
12.5°	816.2	821.3	827.4	835.5	844.7	853.9	860.0	867.1	879.3	891.5	898.6
15°	795.9	800.9	808.1	816.2	826.4	836.6	845.7	854.9	867.1	880.3	888.5
17.5°	773.5	778.6	785.7	795.9	807.0	818.2	828.4	838.6	852.8	867.1	876.3
20°	746.0	753.1	762.3	772.4	785.7	798.9	809.1	820.3	835.5	850.8	861.0
22.5°	719.5	726.6	736.8	749.0	763.3	777.5	789.7	802.0	818.2	833.5	844.7
25°	694.1	702.2	712.4	724.6	737.8	752.1	766.3	780.6	796.9	813.2	824.3
27.5°	668.6	675.8	685.9	698.2	713.4	727.7	741.9	756.2	773.5	790.8	803.0
30°	640.1	648.3	657.4	669.7	685.9	702.2	716.5	731.7	749.0	766.3	778.6
32.5°	613.7	620.8	630.0	642.2	658.5	674.7	690.0	706.3	722.6	739.9	752.1
35°	587.2	594.3	603.5	615.7	632.0	648.3	663.5	678.8	695.1	711.4	723.6
37.5°	560.8	567.9	577.0	589.3	604.5	620.8	635.1	650.3	666.6	682.9	694.1
40°	533.3	540.4	547.5	559.7	575.0	591.3	605.5	620.8	637.1	653.4	664.6
42.5°	505.8	512.9	522.1	534.3	548.5	562.8	577.0	591.3	606.6	621.8	633.0
45°	478.3	484.4	493.6	504.8	519.0	532.3	546.5	559.7	575.0	589.3	600.5
47.5°	449.8	455.9	463.1	474.3	488.5	502.8	517.0	530.2	543.5	557.7	567.9
50°	422.4	428.5	436.6	446.8	460.0	473.2	485.4	497.7	510.9	524.1	533.3
52.5°	393.9	400.0	407.1	417.3	428.5	440.7	451.9	464.1	476.3	488.5	497.7
55°	365.4	369.4	375.5	384.7	396.9	409.1	420.3	431.5	442.7	452.9	462.0
57.5°	336.9	342.0	349.1	357.2	367.4	377.6	387.7	397.9	408.1	418.3	426.4
60°	308.4	312.4	317.5	324.7	334.8	344.0	354.2	363.3	372.5	381.6	388.8
62.5°	278.9	282.9	288.0	295.1	303.3	311.4	320.6	328.7	336.9	345.0	352.1
65°	248.3	252.4	257.5	263.6	270.7	277.8	286.0	294.1	300.2	306.3	313.5
67.5°	216.8	220.8	225.9	231.0	237.1	244.3	251.4	258.5	264.6	270.7	275.8
70°	186.2	189.3	194.4	198.5	203.5	208.6	214.7	220.8	224.9	230.0	236.1
72.5°	156.7	159.8	163.9	167.9	171.0	175.0	181.2	186.2	191.3	197.4	200.5
75°	128.2	130.3	133.3	136.4	139.4	142.5	146.6	150.6	154.7	157.7	161.8
77.5°	99.7	101.8	104.8	106.9	108.9	110.9	114.0	117.0	120.1	122.1	126.2
80°	73.3	75.3	77.3	79.4	81.4	83.5	84.5	85.5	89.6	92.6	94.6
82.5°	49.9	50.9	51.9	53.9	55.0	56.0	57.0	57.0	59.0	61.1	64.1
85°	28.5	29.5	30.5	30.5	30.5	30.5	31.5	32.6	33.6	35.6	37.7
87.5°	11.2	11.2	12.2	12.2	12.2	12.2	12.2	12.2	13.2	15.3	16.3
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°	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7
2.5°	904.7	905.8	907.8	908.8	909.8	909.8	910.9	911.9	909.8	907.8	906.8
5°	909.8	910.9	913.9	917.0	919.0	921.0	920.0	919.0	917.0	913.9	911.9
7.5°	910.9	913.9	917.0	921.0	924.1	928.2	926.1	924.1	920.0	915.9	912.9
10°	907.8	911.9	917.0	922.0	925.1	928.2	926.1	924.1	920.0	914.9	910.9
12.5°	903.7	908.8	914.9	920.0	923.1	927.1	924.1	921.0	915.9	910.9	905.8
15°	894.6	900.7	907.8	913.9	919.0	923.1	920.0	918.0	911.9	904.7	897.6
17.5°	883.4	891.5	898.6	905.8	909.8	913.9	911.9	909.8	902.7	894.6	886.4
20°	870.1	878.3	885.4	892.5	897.6	901.7	898.6	895.6	888.5	881.3	873.2
22.5°	853.9	862.0	870.1	877.3	882.4	886.4	882.4	877.3	870.1	863.0	854.9
25°	833.5	842.7	851.8	859.0	862.0	866.1	862.0	857.9	850.8	843.7	834.5
27.5°	813.2	822.3	831.5	838.6	841.6	845.7	841.6	837.6	830.5	823.3	814.2
30°	789.7	798.9	808.1	815.2	818.2	821.3	817.2	813.2	807.0	799.9	790.8
32.5°	763.3	772.4	779.6	786.7	790.8	794.8	790.8	787.7	780.6	771.4	762.3
35°	734.8	743.9	753.1	760.2	764.3	768.4	763.3	758.2	752.1	745.0	736.8
37.5°	703.2	713.4	723.6	731.7	734.8	738.9	734.8	729.7	723.6	716.5	707.3
40°	673.7	682.9	692.0	700.2	703.2	706.3	702.2	698.2	691.0	683.9	674.7
42.5°	643.2	652.4	660.5	667.6	670.7	674.7	670.7	665.6	660.5	654.4	646.2
45°	610.6	619.8	626.9	634.0	637.1	640.1	636.1	631.0	625.9	620.8	612.7
47.5°	577.0	585.2	592.3	599.4	601.5	604.5	600.5	597.4	592.3	587.2	580.1
50°	542.4	550.6	557.7	563.8	565.8	568.9	564.8	560.8	556.7	552.6	546.5
52.5°	506.8	513.9	521.1	527.2	529.2	531.2	527.2	523.1	519.0	515.0	508.9
55°	470.2	477.3	484.4	489.5	491.6	493.6	489.5	486.5	482.4	479.3	473.2
57.5°	433.5	440.7	446.8	451.9	453.9	455.9	451.9	447.8	444.7	441.7	436.6
60°	395.9	403.0	408.1	412.2	414.2	415.2	411.2	408.1	406.1	404.0	398.9
62.5°	359.3	364.3	369.4	372.5	374.5	375.5	372.5	370.4	368.4	366.4	362.3
65°	320.6	326.7	330.8	333.8	334.8	335.8	332.8	330.8	328.7	326.7	323.6
67.5°	281.9	287.0	290.0	293.1	294.1	294.1	294.1	293.1	291.1	288.0	285.0
70°	243.2	247.3	250.4	252.4	253.4	253.4	251.4	249.3	249.3	248.3	246.3
72.5°	203.5	206.6	208.6	210.7	210.7	210.7	210.7	211.7	210.7	208.6	205.6
75°	165.9	168.9	171.0	172.0	172.0	172.0	172.0	173.0	172.0	171.0	168.9
77.5°	130.3	132.3	133.3	134.3	134.3	134.3	135.4	136.4	135.4	134.3	133.3
80°	96.7	97.7	98.7	99.7	98.7	98.7	99.7	101.8	100.8	99.7	98.7
82.5°	66.2	67.2	68.2	68.2	69.2	70.2	70.2	70.2	70.2	69.2	68.2
85°	39.7	40.7	40.7	40.7	40.7	40.7	41.7	42.7	42.7	41.7	41.7
87.5°	18.3	19.3	18.3	17.3	16.3	16.3	18.3	20.4	20.4	19.3	19.3
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°	899.7	899.7	899.7	899.7
2.5°	907.8	906.8	901.7	896.6
5°	910.9	907.8	900.7	893.6
7.5°	910.9	906.8	896.6	887.4
10°	905.8	899.7	888.5	877.3
12.5°	899.7	892.5	879.3	867.1
15°	890.5	882.4	868.1	853.9
17.5°	877.3	867.1	852.8	837.6
20°	864.0	852.8	835.5	819.3
22.5°	845.7	835.5	817.2	799.9
25°	825.4	814.2	795.9	777.5
27.5°	804.0	790.8	772.4	754.1
30°	779.6	766.3	748.0	729.7
32.5°	753.1	740.9	722.6	703.2
35°	726.6	713.4	695.1	675.8
37.5°	697.1	684.9	666.6	648.3
40°	665.6	653.4	635.1	616.7
42.5°	636.1	624.9	606.6	589.3
45°	603.5	592.3	575.0	558.7
47.5°	569.9	558.7	542.4	526.2
50°	537.4	526.2	510.9	495.6
52.5°	500.7	491.6	477.3	463.1
55°	465.1	455.9	441.7	428.5
57.5°	429.5	421.3	408.1	395.9
60°	391.8	383.7	373.5	362.3
62.5°	356.2	349.1	338.9	328.7
65°	318.5	312.4	303.3	294.1
67.5°	279.9	274.8	266.6	258.5
70°	241.2	235.1	229.0	221.9
72.5°	202.5	199.5	193.4	187.3
75°	165.9	162.8	157.7	152.7
77.5°	131.3	128.2	124.2	120.1
80°	96.7	94.6	91.6	88.5
82.5°	67.2	65.1	63.1	60.0
85°	40.7	38.7	36.6	34.6
87.5°	18.3	17.3	15.3	14.2
90°	0.0	0.0	0.0	0.0

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