

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: P709147

Luminaire Tested: **4APN-28L940-X-UNV**

Issue Date: 09/12/2023



**Test Information**

Test Method: LM-79-08  
Report Number: P709147  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 09/12/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: 4APN-28L940-X-UNV  
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light  
Light Source: 4000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

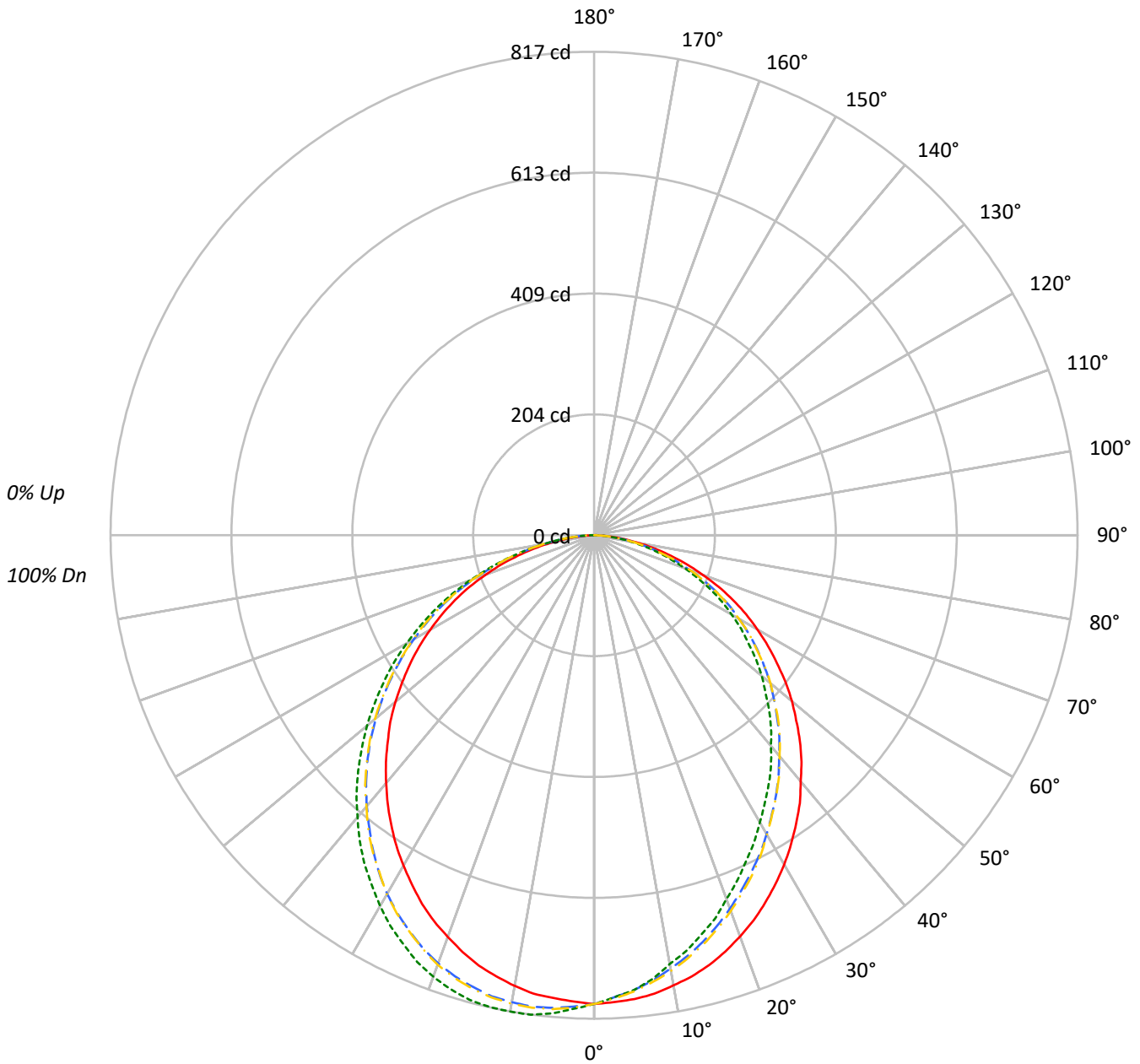
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2124.7 lumens  
Efficiency: N/A  
Efficacy: 66.0 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): 32.2  
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				
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°	7309	7309	7309	7309
5°	7287	7146	7270	7511
10°	7237	6893	7246	7657
15°	7182	6677	7190	7764
20°	7083	6423	7092	7796
25°	6970	6185	6998	7763
30°	6846	5967	6864	7705
35°	6703	5794	6732	7621
40°	6541	5602	6584	7490
45°	6420	5461	6431	7355
50°	6264	5312	6290	7191
55°	6069	5117	6112	6991
60°	5886	4960	5903	6746
65°	5654	4755	5654	6455
70°	5271	4400	5247	6018
75°	4791	3992	4727	5401
80°	4144	3427	4001	4617
85°	3229	2562	3038	3790



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	74.9	3.5
10°-20°	212.4	10.0
20°-30°	315.8	14.9
30°-40°	372.2	17.5
40°-50°	379.0	17.8
50°-60°	337.7	15.9
60°-70°	254.4	12.0
70°-80°	141.5	6.7
80°-90°	36.8	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°	603.1	28.4
0°-40°	975.4	45.9
0°-60°	1692.1	79.6
0°-90°	2124.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2124.7	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	792	792	792	792	792	
5°	787	772	785	811	787	75
15°	752	699	753	813	752	212
25°	685	608	687	763	685	315
35°	595	514	598	677	595	372
45°	492	418	493	564	492	379
55°	377	318	380	435	377	338
65°	259	218	259	296	259	256
75°	134	112	133	152	134	143
85°	30	24	29	36	30	37
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°	792.2	792.2	792.2	792.2	792.2	792.2	792.2	792.2	792.2	792.2	792.2
2.5°	789.5	789.5	790.4	786.8	782.4	780.6	779.7	778.8	780.6	781.5	780.6
5°	786.8	785.0	783.2	778.8	773.4	769.8	768.0	767.1	768.9	771.6	768.9
7.5°	781.5	777.9	774.3	768.0	761.7	756.4	753.7	751.9	753.7	756.4	754.6
10°	772.5	768.0	762.6	755.5	746.5	740.2	737.5	734.9	735.8	735.8	735.8
12.5°	763.5	757.3	751.0	742.0	732.2	725.0	720.5	716.9	718.7	719.6	719.6
15°	751.9	743.8	734.9	725.0	715.1	707.1	701.7	698.1	699.0	699.0	699.9
17.5°	737.5	728.6	719.6	708.0	696.3	687.4	681.1	676.6	678.4	679.3	680.2
20°	721.4	711.6	701.7	689.2	676.6	666.7	660.5	655.1	654.2	654.2	655.1
22.5°	704.4	693.6	682.0	668.5	655.1	644.3	638.1	632.7	631.8	631.8	632.7
25°	684.7	673.0	661.4	647.9	633.6	622.8	614.8	609.4	608.5	607.6	609.4
27.5°	664.1	652.4	640.8	627.3	612.1	601.3	593.3	587.9	586.1	585.2	587.0
30°	642.6	629.1	616.6	602.2	588.8	578.0	570.0	563.7	561.9	560.1	561.9
32.5°	619.3	605.8	592.4	578.0	564.6	553.8	545.8	539.5	537.7	536.8	538.6
35°	595.1	581.6	569.1	554.7	541.3	530.5	522.5	517.1	515.3	514.4	515.3
37.5°	570.9	557.4	544.9	530.5	517.1	506.3	498.3	492.9	492.0	491.1	492.0
40°	543.1	531.4	518.9	505.4	492.0	481.2	475.0	468.7	466.9	465.1	467.8
42.5°	518.9	507.2	494.7	482.1	468.7	457.9	450.8	445.4	443.6	442.7	443.6
45°	492.0	479.4	466.9	455.3	442.7	432.8	425.7	420.3	419.4	418.5	419.4
47.5°	463.3	452.6	441.8	430.2	417.6	407.8	401.5	396.1	394.3	392.5	394.3
50°	436.4	425.7	414.9	404.2	392.5	383.6	377.3	371.9	371.0	370.1	371.0
52.5°	407.8	397.0	387.1	376.4	366.5	357.6	351.3	346.8	345.9	345.0	345.9
55°	377.3	368.3	359.4	350.4	340.5	332.5	327.1	321.7	319.9	318.1	319.9
57.5°	348.6	340.5	331.6	322.6	313.7	306.5	301.1	296.6	295.7	294.8	295.7
60°	319.0	311.9	303.8	295.7	286.8	279.6	275.1	271.5	269.7	268.8	269.7
62.5°	289.5	282.3	276.0	268.0	259.9	254.5	250.0	246.4	244.7	243.8	244.7
65°	259.0	252.7	246.4	239.3	233.0	227.6	223.1	219.6	218.7	217.8	217.8
67.5°	227.6	222.2	216.9	210.6	203.4	198.1	193.6	190.9	190.0	189.1	190.0
70°	195.4	190.9	185.5	180.1	174.8	170.3	167.6	164.9	164.0	163.1	163.1
72.5°	164.9	161.3	156.8	152.3	147.9	143.4	140.7	138.9	138.0	137.1	137.1
75°	134.4	130.8	128.2	124.6	120.1	117.4	114.7	112.9	112.0	112.0	112.0
77.5°	105.7	103.1	100.4	96.8	94.1	91.4	89.6	88.7	87.8	87.8	87.8
80°	78.0	76.2	74.4	72.6	69.9	67.2	66.3	65.4	64.5	64.5	64.5
82.5°	52.9	52.0	50.2	48.4	46.6	45.7	44.8	43.9	43.9	43.9	43.9
85°	30.5	29.6	28.7	27.8	26.9	26.9	26.0	25.1	24.2	24.2	24.2
87.5°	12.5	12.5	12.5	11.7	10.8	10.8	10.8	10.8	10.8	10.8	10.8
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°	792.2	792.2	792.2	792.2	792.2	792.2	792.2	792.2	792.2	792.2	792.2
2.5°	778.8	780.6	782.4	785.0	787.7	790.4	789.5	788.6	792.2	796.7	797.6
5°	767.1	768.9	771.6	776.1	780.6	784.1	785.0	785.0	792.2	798.5	800.3
7.5°	752.8	755.5	759.1	763.5	769.8	775.2	777.9	781.5	788.6	796.7	800.3
10°	734.9	739.3	744.7	751.0	757.3	763.5	768.9	773.4	782.4	791.3	796.7
12.5°	718.7	723.2	728.6	735.8	743.8	751.9	757.3	763.5	774.3	785.0	791.3
15°	700.8	705.3	711.6	718.7	727.7	736.6	744.7	752.8	763.5	775.2	782.4
17.5°	681.1	685.6	691.8	700.8	710.7	720.5	729.5	738.4	751.0	763.5	771.6
20°	656.9	663.2	671.2	680.2	691.8	703.5	712.5	722.3	735.8	749.2	758.2
22.5°	633.6	639.9	648.8	659.6	672.1	684.7	695.4	706.2	720.5	734.0	743.8
25°	611.2	618.4	627.3	638.1	649.7	662.3	674.8	687.4	701.7	716.0	725.9
27.5°	588.8	595.1	604.0	614.8	628.2	640.8	653.3	665.9	681.1	696.3	707.1
30°	563.7	570.9	578.9	589.7	604.0	618.4	630.9	644.3	659.6	674.8	685.6
32.5°	540.4	546.7	554.7	565.5	579.8	594.2	607.6	621.9	636.3	651.5	662.3
35°	517.1	523.4	531.4	542.2	556.5	570.9	584.3	597.7	612.1	626.4	637.2
37.5°	493.8	500.1	508.1	518.9	532.3	546.7	559.2	572.6	587.0	601.3	611.2
40°	469.6	475.9	482.1	492.9	506.3	520.7	533.2	546.7	561.0	575.3	585.2
42.5°	445.4	451.7	459.7	470.5	483.0	495.6	508.1	520.7	534.1	547.6	557.4
45°	421.2	426.6	434.6	444.5	457.0	468.7	481.2	492.9	506.3	518.9	528.7
47.5°	396.1	401.5	407.8	417.6	430.2	442.7	455.3	466.9	478.6	491.1	500.1
50°	371.9	377.3	384.5	393.4	405.1	416.7	427.5	438.2	449.9	461.5	469.6
52.5°	346.8	352.2	358.5	367.4	377.3	388.0	397.9	408.7	419.4	430.2	438.2
55°	321.7	325.3	330.7	338.8	349.5	360.3	370.1	380.0	389.8	398.8	406.9
57.5°	296.6	301.1	307.4	314.6	323.5	332.5	341.4	350.4	359.4	368.3	375.5
60°	271.5	275.1	279.6	285.9	294.8	302.9	311.9	319.9	328.0	336.1	342.3
62.5°	245.5	249.1	253.6	259.9	267.1	274.2	282.3	289.5	296.6	303.8	310.1
65°	218.7	222.2	226.7	232.1	238.4	244.7	251.8	259.0	264.4	269.7	276.0
67.5°	190.9	194.5	198.9	203.4	208.8	215.1	221.4	227.6	233.0	238.4	242.9
70°	164.0	166.7	171.2	174.8	179.2	183.7	189.1	194.5	198.1	202.5	207.9
72.5°	138.0	140.7	144.3	147.9	150.6	154.1	159.5	164.0	168.5	173.9	176.5
75°	112.9	114.7	117.4	120.1	122.8	125.5	129.0	132.6	136.2	138.9	142.5
77.5°	87.8	89.6	92.3	94.1	95.9	97.7	100.4	103.1	105.7	107.5	111.1
80°	64.5	66.3	68.1	69.9	71.7	73.5	74.4	75.3	78.9	81.6	83.3
82.5°	43.9	44.8	45.7	47.5	48.4	49.3	50.2	50.2	52.0	53.8	56.5
85°	25.1	26.0	26.9	26.9	26.9	26.9	27.8	28.7	29.6	31.4	33.2
87.5°	9.9	9.9	10.8	10.8	10.8	10.8	10.8	10.8	11.7	13.4	14.3
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°	792.2	792.2	792.2	792.2	792.2	792.2	792.2	792.2	792.2	792.2	792.2
2.5°	796.7	797.6	799.4	800.3	801.2	801.2	802.1	803.0	801.2	799.4	798.5
5°	801.2	802.1	804.8	807.4	809.2	811.0	810.1	809.2	807.4	804.8	803.0
7.5°	802.1	804.8	807.4	811.0	813.7	817.3	815.5	813.7	810.1	806.5	803.9
10°	799.4	803.0	807.4	811.9	814.6	817.3	815.5	813.7	810.1	805.7	802.1
12.5°	795.8	800.3	805.7	810.1	812.8	816.4	813.7	811.0	806.5	802.1	797.6
15°	787.7	793.1	799.4	804.8	809.2	812.8	810.1	808.3	803.0	796.7	790.4
17.5°	777.9	785.0	791.3	797.6	801.2	804.8	803.0	801.2	794.9	787.7	780.6
20°	766.2	773.4	779.7	785.9	790.4	794.0	791.3	788.6	782.4	776.1	768.9
22.5°	751.9	759.1	766.2	772.5	777.0	780.6	777.0	772.5	766.2	759.9	752.8
25°	734.0	742.0	750.1	756.4	759.1	762.6	759.1	755.5	749.2	742.9	734.9
27.5°	716.0	724.1	732.2	738.4	741.1	744.7	741.1	737.5	731.3	725.0	716.9
30°	695.4	703.5	711.6	717.8	720.5	723.2	719.6	716.0	710.7	704.4	696.3
32.5°	672.1	680.2	686.5	692.7	696.3	699.9	696.3	693.6	687.4	679.3	671.2
35°	647.0	655.1	663.2	669.4	673.0	676.6	672.1	667.6	662.3	656.0	648.8
37.5°	619.3	628.2	637.2	644.3	647.0	650.6	647.0	642.6	637.2	630.9	622.8
40°	593.3	601.3	609.4	616.6	619.3	621.9	618.4	614.8	608.5	602.2	594.2
42.5°	566.4	574.4	581.6	587.9	590.6	594.2	590.6	586.1	581.6	576.2	569.1
45°	537.7	545.8	552.0	558.3	561.0	563.7	560.1	555.6	551.1	546.7	539.5
47.5°	508.1	515.3	521.6	527.8	529.6	532.3	528.7	526.0	521.6	517.1	510.8
50°	477.7	484.8	491.1	496.5	498.3	501.0	497.4	493.8	490.2	486.6	481.2
52.5°	446.3	452.6	458.8	464.2	466.0	467.8	464.2	460.6	457.0	453.5	448.1
55°	414.0	420.3	426.6	431.1	432.8	434.6	431.1	428.4	424.8	422.1	416.7
57.5°	381.8	388.0	393.4	397.9	399.7	401.5	397.9	394.3	391.6	388.9	384.5
60°	348.6	354.9	359.4	362.9	364.7	365.6	362.1	359.4	357.6	355.8	351.3
62.5°	316.3	320.8	325.3	328.0	329.8	330.7	328.0	326.2	324.4	322.6	319.0
65°	282.3	287.7	291.3	293.9	294.8	295.7	293.0	291.3	289.5	287.7	285.0
67.5°	248.2	252.7	255.4	258.1	259.0	259.0	259.0	258.1	256.3	253.6	250.9
70°	214.2	217.8	220.5	222.2	223.1	223.1	221.4	219.6	219.6	218.7	216.9
72.5°	179.2	181.9	183.7	185.5	185.5	185.5	185.5	186.4	185.5	183.7	181.0
75°	146.1	148.8	150.6	151.5	151.5	151.5	151.5	152.3	151.5	150.6	148.8
77.5°	114.7	116.5	117.4	118.3	118.3	118.3	119.2	120.1	119.2	118.3	117.4
80°	85.1	86.0	86.9	87.8	86.9	86.9	87.8	89.6	88.7	87.8	86.9
82.5°	58.3	59.1	60.0	60.0	60.9	61.8	61.8	61.8	61.8	60.9	60.0
85°	35.0	35.8	35.8	35.8	35.8	35.8	36.7	37.6	37.6	36.7	36.7
87.5°	16.1	17.0	16.1	15.2	14.3	14.3	16.1	17.9	17.9	17.0	17.0
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°	792.2	792.2	792.2	792.2
2.5°	799.4	798.5	794.0	789.5
5°	802.1	799.4	793.1	786.8
7.5°	802.1	798.5	789.5	781.5
10°	797.6	792.2	782.4	772.5
12.5°	792.2	785.9	774.3	763.5
15°	784.1	777.0	764.4	751.9
17.5°	772.5	763.5	751.0	737.5
20°	760.8	751.0	735.8	721.4
22.5°	744.7	735.8	719.6	704.4
25°	726.8	716.9	700.8	684.7
27.5°	708.0	696.3	680.2	664.1
30°	686.5	674.8	658.7	642.6
32.5°	663.2	652.4	636.3	619.3
35°	639.9	628.2	612.1	595.1
37.5°	613.9	603.1	587.0	570.9
40°	586.1	575.3	559.2	543.1
42.5°	560.1	550.2	534.1	518.9
45°	531.4	521.6	506.3	492.0
47.5°	501.9	492.0	477.7	463.3
50°	473.2	463.3	449.9	436.4
52.5°	440.9	432.8	420.3	407.8
55°	409.5	401.5	388.9	377.3
57.5°	378.2	371.0	359.4	348.6
60°	345.0	337.9	328.9	319.0
62.5°	313.7	307.4	298.4	289.5
65°	280.5	275.1	267.1	259.0
67.5°	246.4	242.0	234.8	227.6
70°	212.4	207.0	201.6	195.4
72.5°	178.3	175.6	170.3	164.9
75°	146.1	143.4	138.9	134.4
77.5°	115.6	112.9	109.3	105.7
80°	85.1	83.3	80.7	78.0
82.5°	59.1	57.4	55.6	52.9
85°	35.8	34.1	32.3	30.5
87.5°	16.1	15.2	13.4	12.5
90°	0.0	0.0	0.0	0.0

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