

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: P709065

Luminaire Tested: **4APN-X-22L830-UNV**

Issue Date: 09/12/2023



**Test Information**

Test Method: LM-79-08  
Report Number: P709065  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 09/12/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: 4APN-X-22L830-UNV  
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture EXAM Light  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

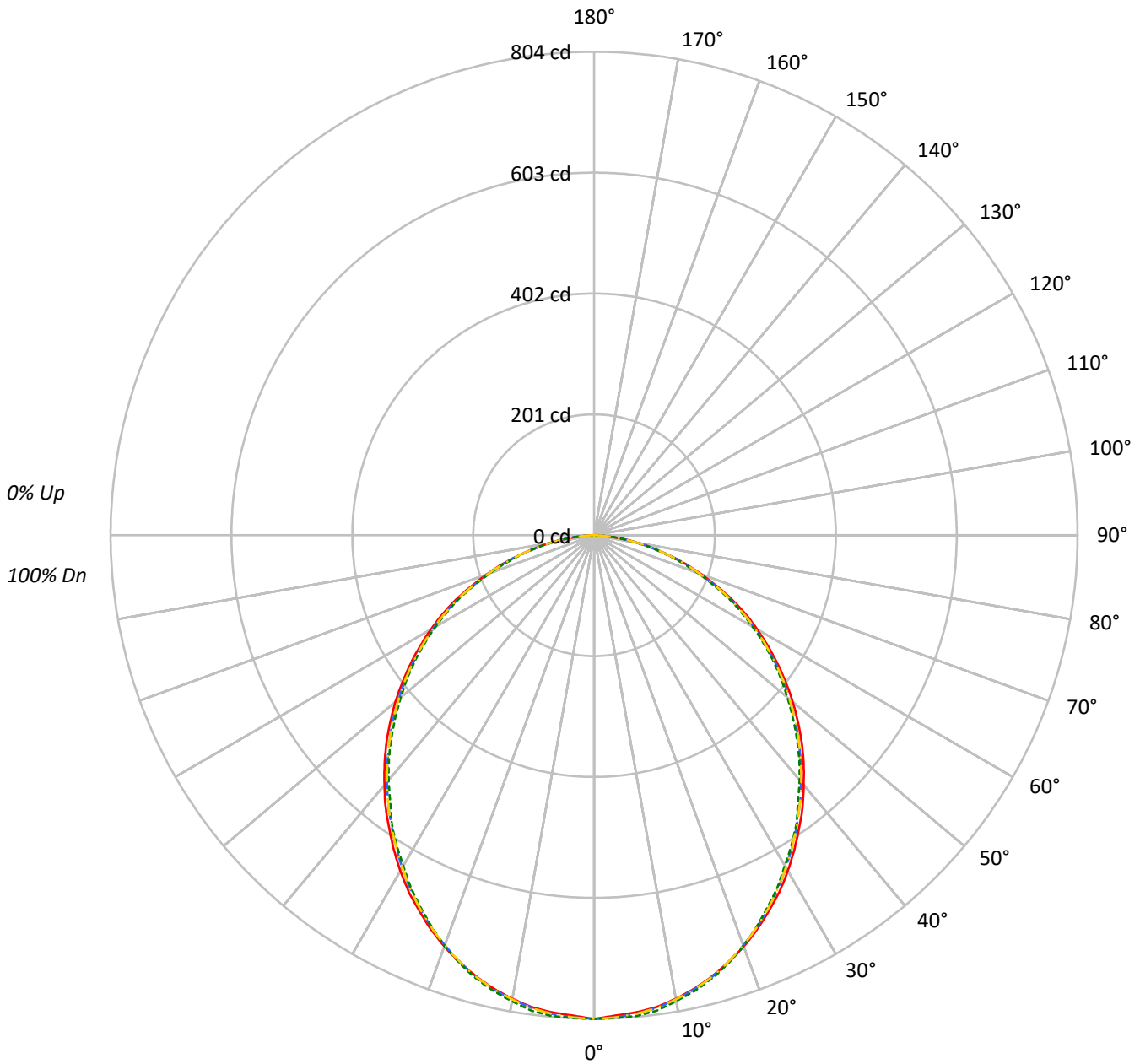
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2092.9 lumens  
Efficiency: N/A  
Efficacy: 87.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.18 / 1.3  
Luminous Opening: Rectangular (W 0.29' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 24  
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	95	92	94	91	89	90	88	86	86	86	86	84
2	99	91	84	79	97	89	83	78	86	80	76	82	78	74	79	76	73	73	73	73	70
3	91	80	72	66	88	79	71	65	76	69	64	73	67	63	70	66	62	62	62	62	60
4	83	71	62	56	81	70	62	55	67	60	55	65	59	54	63	58	53	53	53	53	51
5	76	64	55	48	74	63	54	48	60	53	47	59	52	47	57	51	46	46	46	46	44
6	71	57	49	42	69	57	48	42	55	47	42	53	46	41	51	46	41	41	41	41	39
7	66	52	43	37	64	51	43	37	50	42	37	48	42	37	47	41	36	36	36	36	34
8	61	48	39	33	60	47	39	33	46	38	33	44	38	33	43	37	33	33	33	33	31
9	57	44	36	30	56	43	35	30	42	35	30	41	34	30	40	34	30	30	30	30	28
10	54	40	33	27	52	40	32	27	39	32	27	38	32	27	37	31	27	27	27	27	25

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

	0°	90°	180°	270°
0°	7422	7422	7422	7422
5°	7378	7432	7378	7432
10°	7334	7370	7334	7370
15°	7252	7280	7252	7280
20°	7146	7136	7146	7136
25°	7009	6949	7009	6949
30°	6864	6760	6864	6760
35°	6693	6605	6693	6605
40°	6530	6400	6530	6400
45°	6370	6216	6370	6216
50°	6189	6020	6189	6020
55°	5989	5845	5989	5845
60°	5781	5619	5781	5619
65°	5532	5362	5532	5362
70°	5115	4955	5115	4955
75°	4623	4481	4623	4481
80°	3964	3863	3964	3863
85°	3017	3017	3017	3017



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	75.9	3.6
10°-20°	214.4	10.2
20°-30°	316.0	15.1
30°-40°	368.9	17.6
40°-50°	371.9	17.8
50°-60°	328.7	15.7
60°-70°	245.8	11.7
70°-80°	136.3	6.5
80°-90°	34.9	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°	606.3	29.0
0°-40°	975.2	46.6
0°-60°	1675.9	80.1
0°-90°	2092.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2092.9	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	804	804	804	804	804	
5°	797	802	797	802	797	76
15°	759	762	759	762	759	214
25°	688	683	688	683	688	317
35°	594	586	594	586	594	372
45°	488	476	488	476	488	376
55°	372	363	372	363	372	333
65°	253	246	253	246	253	250
75°	130	126	130	126	130	138
85°	28	28	28	28	28	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°	804.4	804.4	804.4	804.4	804.4	804.4	804.4	804.4	804.4	804.4	804.4
2.5°	799.5	803.4	807.4	806.4	803.4	801.5	802.5	802.5	803.4	803.4	803.4
5°	796.6	800.5	803.4	802.5	799.5	798.5	798.5	798.5	800.5	802.5	800.5
7.5°	791.7	794.6	797.6	796.6	793.6	792.6	792.6	793.6	795.6	797.6	795.6
10°	782.8	786.7	789.7	787.7	784.8	782.8	782.8	782.8	784.8	786.7	784.8
12.5°	772.0	775.0	777.9	776.9	774.0	772.0	772.0	772.0	774.0	775.9	774.0
15°	759.2	762.2	765.1	764.2	761.2	759.2	759.2	759.2	761.2	762.2	761.2
17.5°	744.5	747.5	750.4	748.4	744.5	742.5	742.5	742.5	744.5	745.5	744.5
20°	727.8	730.8	732.7	730.8	726.8	724.9	723.9	723.9	725.9	726.8	725.9
22.5°	709.2	711.1	713.1	711.1	707.2	705.2	704.2	703.3	704.2	705.2	704.2
25°	688.5	690.5	692.5	690.5	686.6	683.6	682.6	681.7	682.6	682.6	682.6
27.5°	667.9	668.9	670.8	667.9	664.0	661.0	660.0	659.1	660.0	660.0	660.0
30°	644.3	645.3	647.3	644.3	639.4	636.5	635.5	634.5	634.5	634.5	634.5
32.5°	619.8	621.7	623.7	619.8	614.9	611.9	610.9	610.0	610.9	610.9	610.9
35°	594.2	595.2	597.2	594.2	589.3	586.4	584.4	583.4	585.4	586.4	585.4
37.5°	569.7	570.7	571.6	568.7	563.8	560.8	558.9	557.9	556.9	556.9	556.9
40°	542.2	543.2	545.1	542.2	537.3	534.3	532.4	531.4	531.4	531.4	531.4
42.5°	515.7	516.6	517.6	514.7	509.8	506.8	504.9	503.9	504.9	504.9	504.9
45°	488.2	488.2	489.1	486.2	482.3	479.3	477.4	476.4	476.4	476.4	476.4
47.5°	459.7	460.7	461.6	458.7	454.8	451.8	449.9	447.9	447.9	447.9	447.9
50°	431.2	431.2	432.2	429.2	425.3	422.3	421.4	420.4	419.4	419.4	419.4
52.5°	401.7	402.7	403.7	400.7	397.8	394.8	392.9	391.9	391.9	391.9	391.9
55°	372.3	372.3	373.2	371.3	368.3	365.4	363.4	362.4	363.4	363.4	363.4
57.5°	342.8	343.8	344.8	341.8	338.9	335.9	334.9	334.0	334.0	334.0	334.0
60°	313.3	313.3	314.3	312.3	309.4	306.4	305.5	304.5	304.5	304.5	304.5
62.5°	283.9	283.9	284.8	282.9	279.9	277.0	276.0	275.0	275.0	275.0	275.0
65°	253.4	253.4	253.4	251.4	249.5	248.5	247.5	246.5	245.6	245.6	245.6
67.5°	220.0	220.0	221.0	219.0	217.1	216.1	215.1	214.1	213.1	213.1	213.1
70°	189.6	189.6	190.5	189.6	187.6	186.6	185.6	184.7	183.7	183.7	183.7
72.5°	160.1	160.1	160.1	159.1	158.1	157.2	156.2	155.2	154.2	154.2	154.2
75°	129.7	129.7	130.6	129.7	128.7	127.7	126.7	126.7	125.7	125.7	125.7
77.5°	101.2	102.1	103.1	102.1	101.2	100.2	99.2	99.2	98.2	98.2	98.2
80°	74.6	75.6	76.6	75.6	74.6	73.7	72.7	72.7	72.7	72.7	72.7
82.5°	50.1	51.1	52.1	51.1	50.1	50.1	49.1	49.1	49.1	49.1	49.1
85°	28.5	29.5	30.4	30.4	29.5	29.5	28.5	28.5	28.5	28.5	28.5
87.5°	10.8	11.8	12.8	12.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
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°	804.4	804.4	804.4	804.4	804.4	804.4	804.4	804.4	804.4	804.4	804.4
2.5°	802.5	802.5	801.5	803.4	806.4	807.4	803.4	799.5	803.4	807.4	806.4
5°	798.5	798.5	798.5	799.5	802.5	803.4	800.5	796.6	800.5	803.4	802.5
7.5°	793.6	792.6	792.6	793.6	796.6	797.6	794.6	791.7	794.6	797.6	796.6
10°	782.8	782.8	782.8	784.8	787.7	789.7	786.7	782.8	786.7	789.7	787.7
12.5°	772.0	772.0	772.0	774.0	776.9	777.9	775.0	772.0	775.0	777.9	776.9
15°	759.2	759.2	759.2	761.2	764.2	765.1	762.2	759.2	762.2	765.1	764.2
17.5°	742.5	742.5	742.5	744.5	748.4	750.4	747.5	744.5	747.5	750.4	748.4
20°	723.9	723.9	724.9	726.8	730.8	732.7	730.8	727.8	730.8	732.7	730.8
22.5°	703.3	704.2	705.2	707.2	711.1	713.1	711.1	709.2	711.1	713.1	711.1
25°	681.7	682.6	683.6	686.6	690.5	692.5	690.5	688.5	690.5	692.5	690.5
27.5°	659.1	660.0	661.0	664.0	667.9	670.8	668.9	667.9	668.9	670.8	667.9
30°	634.5	635.5	636.5	639.4	644.3	647.3	645.3	644.3	645.3	647.3	644.3
32.5°	610.0	610.9	611.9	614.9	619.8	623.7	621.7	619.8	621.7	623.7	619.8
35°	583.4	584.4	586.4	589.3	594.2	597.2	595.2	594.2	595.2	597.2	594.2
37.5°	557.9	558.9	560.8	563.8	568.7	571.6	570.7	569.7	570.7	571.6	568.7
40°	531.4	532.4	534.3	537.3	542.2	545.1	543.2	542.2	543.2	545.1	542.2
42.5°	503.9	504.9	506.8	509.8	514.7	517.6	516.6	515.7	516.6	517.6	514.7
45°	476.4	477.4	479.3	482.3	486.2	489.1	488.2	488.2	488.2	489.1	486.2
47.5°	447.9	449.9	451.8	454.8	458.7	461.6	460.7	459.7	460.7	461.6	458.7
50°	420.4	421.4	422.3	425.3	429.2	432.2	431.2	431.2	431.2	432.2	429.2
52.5°	391.9	392.9	394.8	397.8	400.7	403.7	402.7	401.7	402.7	403.7	400.7
55°	362.4	363.4	365.4	368.3	371.3	373.2	372.3	372.3	372.3	373.2	371.3
57.5°	334.0	334.9	335.9	338.9	341.8	344.8	343.8	342.8	343.8	344.8	341.8
60°	304.5	305.5	306.4	309.4	312.3	314.3	313.3	313.3	313.3	314.3	312.3
62.5°	275.0	276.0	277.0	279.9	282.9	284.8	283.9	283.9	283.9	284.8	282.9
65°	246.5	247.5	248.5	249.5	251.4	253.4	253.4	253.4	253.4	253.4	251.4
67.5°	214.1	215.1	216.1	217.1	219.0	221.0	220.0	220.0	220.0	221.0	219.0
70°	184.7	185.6	186.6	187.6	189.6	190.5	189.6	189.6	189.6	190.5	189.6
72.5°	155.2	156.2	157.2	158.1	159.1	160.1	160.1	160.1	160.1	160.1	159.1
75°	126.7	126.7	127.7	128.7	129.7	130.6	129.7	129.7	129.7	130.6	129.7
77.5°	99.2	99.2	100.2	101.2	102.1	103.1	102.1	101.2	102.1	103.1	102.1
80°	72.7	72.7	73.7	74.6	75.6	76.6	75.6	74.6	75.6	76.6	75.6
82.5°	49.1	49.1	50.1	50.1	51.1	52.1	51.1	50.1	51.1	52.1	51.1
85°	28.5	28.5	29.5	29.5	30.4	30.4	29.5	28.5	29.5	30.4	30.4
87.5°	11.8	11.8	11.8	11.8	12.8	12.8	11.8	10.8	11.8	12.8	12.8
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):**

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	804.4	804.4	804.4	804.4	804.4	804.4	804.4	804.4	804.4	804.4	804.4
2.5°	803.4	801.5	802.5	802.5	803.4	803.4	803.4	802.5	802.5	801.5	803.4
5°	799.5	798.5	798.5	798.5	800.5	802.5	800.5	798.5	798.5	798.5	799.5
7.5°	793.6	792.6	792.6	793.6	795.6	797.6	795.6	793.6	792.6	792.6	793.6
10°	784.8	782.8	782.8	782.8	784.8	786.7	784.8	782.8	782.8	782.8	784.8
12.5°	774.0	772.0	772.0	772.0	774.0	775.9	774.0	772.0	772.0	772.0	774.0
15°	761.2	759.2	759.2	759.2	761.2	762.2	761.2	759.2	759.2	759.2	761.2
17.5°	744.5	742.5	742.5	742.5	744.5	745.5	744.5	742.5	742.5	742.5	744.5
20°	726.8	724.9	723.9	723.9	725.9	726.8	725.9	723.9	723.9	724.9	726.8
22.5°	707.2	705.2	704.2	703.3	704.2	705.2	704.2	703.3	704.2	705.2	707.2
25°	686.6	683.6	682.6	681.7	682.6	682.6	682.6	681.7	682.6	683.6	686.6
27.5°	664.0	661.0	660.0	659.1	660.0	660.0	660.0	659.1	660.0	661.0	664.0
30°	639.4	636.5	635.5	634.5	634.5	634.5	634.5	634.5	635.5	636.5	639.4
32.5°	614.9	611.9	610.9	610.0	610.9	610.9	610.9	610.0	610.9	611.9	614.9
35°	589.3	586.4	584.4	583.4	585.4	586.4	585.4	583.4	584.4	586.4	589.3
37.5°	563.8	560.8	558.9	557.9	556.9	556.9	556.9	557.9	558.9	560.8	563.8
40°	537.3	534.3	532.4	531.4	531.4	531.4	531.4	531.4	532.4	534.3	537.3
42.5°	509.8	506.8	504.9	503.9	504.9	504.9	504.9	503.9	504.9	506.8	509.8
45°	482.3	479.3	477.4	476.4	476.4	476.4	476.4	476.4	477.4	479.3	482.3
47.5°	454.8	451.8	449.9	447.9	447.9	447.9	447.9	447.9	449.9	451.8	454.8
50°	425.3	422.3	421.4	420.4	419.4	419.4	419.4	420.4	421.4	422.3	425.3
52.5°	397.8	394.8	392.9	391.9	391.9	391.9	391.9	391.9	392.9	394.8	397.8
55°	368.3	365.4	363.4	362.4	363.4	363.4	363.4	362.4	363.4	365.4	368.3
57.5°	338.9	335.9	334.9	334.0	334.0	334.0	334.0	334.0	334.9	335.9	338.9
60°	309.4	306.4	305.5	304.5	304.5	304.5	304.5	304.5	305.5	306.4	309.4
62.5°	279.9	277.0	276.0	275.0	275.0	275.0	275.0	275.0	276.0	277.0	279.9
65°	249.5	248.5	247.5	246.5	245.6	245.6	245.6	246.5	247.5	248.5	249.5
67.5°	217.1	216.1	215.1	214.1	213.1	213.1	213.1	214.1	215.1	216.1	217.1
70°	187.6	186.6	185.6	184.7	183.7	183.7	183.7	184.7	185.6	186.6	187.6
72.5°	158.1	157.2	156.2	155.2	154.2	154.2	154.2	155.2	156.2	157.2	158.1
75°	128.7	127.7	126.7	126.7	125.7	125.7	125.7	126.7	126.7	127.7	128.7
77.5°	101.2	100.2	99.2	99.2	98.2	98.2	98.2	99.2	99.2	100.2	101.2
80°	74.6	73.7	72.7	72.7	72.7	72.7	72.7	72.7	72.7	73.7	74.6
82.5°	50.1	50.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	50.1	50.1
85°	29.5	29.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	29.5	29.5
87.5°	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
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):**

	330°	340°	350°	360°
0°	804.4	804.4	804.4	804.4
2.5°	806.4	807.4	803.4	799.5
5°	802.5	803.4	800.5	796.6
7.5°	796.6	797.6	794.6	791.7
10°	787.7	789.7	786.7	782.8
12.5°	776.9	777.9	775.0	772.0
15°	764.2	765.1	762.2	759.2
17.5°	748.4	750.4	747.5	744.5
20°	730.8	732.7	730.8	727.8
22.5°	711.1	713.1	711.1	709.2
25°	690.5	692.5	690.5	688.5
27.5°	667.9	670.8	668.9	667.9
30°	644.3	647.3	645.3	644.3
32.5°	619.8	623.7	621.7	619.8
35°	594.2	597.2	595.2	594.2
37.5°	568.7	571.6	570.7	569.7
40°	542.2	545.1	543.2	542.2
42.5°	514.7	517.6	516.6	515.7
45°	486.2	489.1	488.2	488.2
47.5°	458.7	461.6	460.7	459.7
50°	429.2	432.2	431.2	431.2
52.5°	400.7	403.7	402.7	401.7
55°	371.3	373.2	372.3	372.3
57.5°	341.8	344.8	343.8	342.8
60°	312.3	314.3	313.3	313.3
62.5°	282.9	284.8	283.9	283.9
65°	251.4	253.4	253.4	253.4
67.5°	219.0	221.0	220.0	220.0
70°	189.6	190.5	189.6	189.6
72.5°	159.1	160.1	160.1	160.1
75°	129.7	130.6	129.7	129.7
77.5°	102.1	103.1	102.1	101.2
80°	75.6	76.6	75.6	74.6
82.5°	51.1	52.1	51.1	50.1
85°	30.4	30.4	29.5	28.5
87.5°	12.8	12.8	11.8	10.8
90°	0.0	0.0	0.0	0.0

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