

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: NEO-RAY

Report Number: P332504-930

Luminaire Tested: **S124DIP-S350D590U930-4F0-1E-UDD-D4**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332504-930  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-18,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIP-S350D590U930-4F0-1E-UDD-D4  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 350 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 590 LUMENS PER FOOT, BATWING OPTIC  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2897.7 lumens  
Efficiency: N/A  
Efficacy: 113.2 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')  
CIE Type: Semi-Indirect

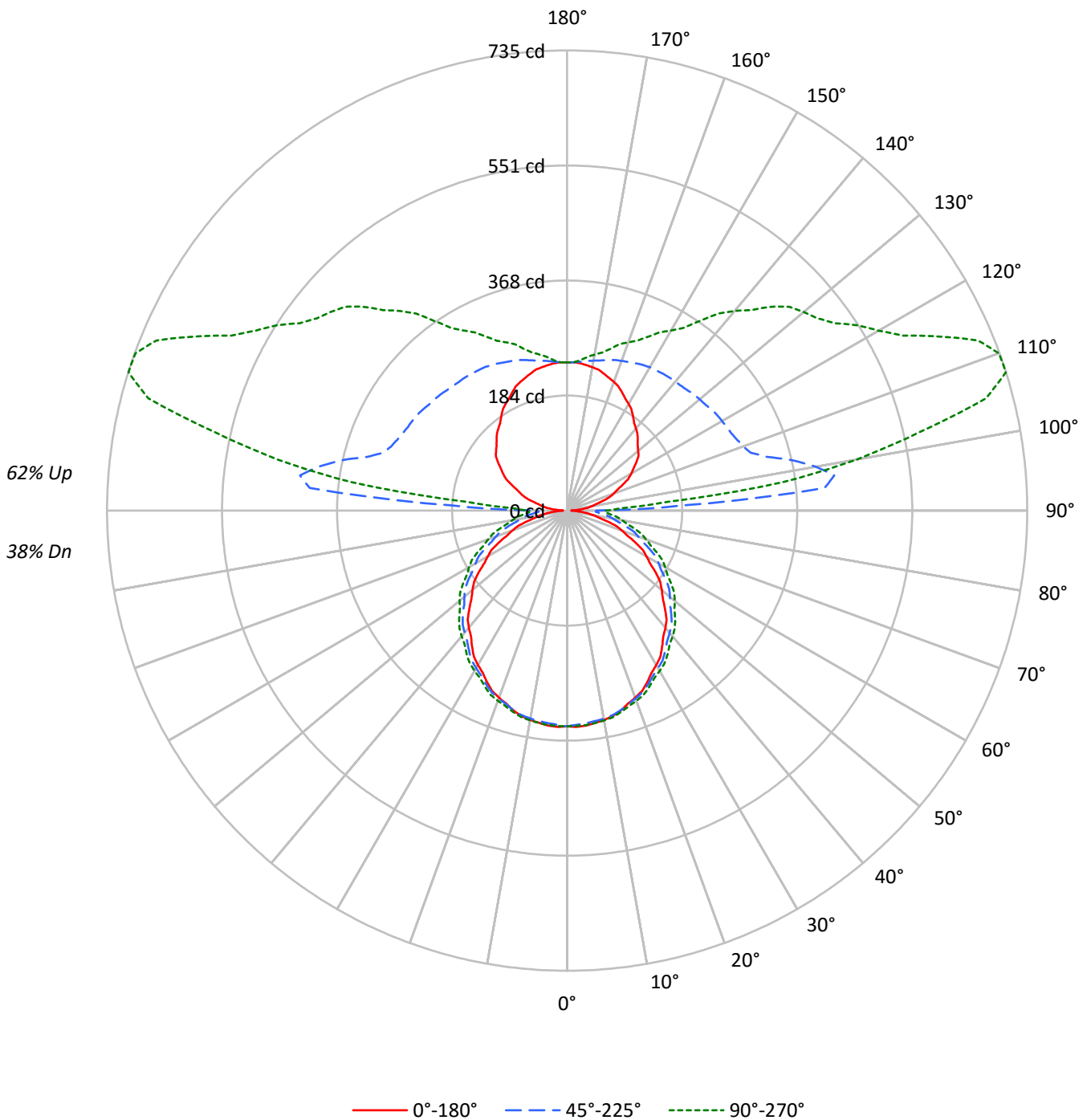
Input Watts (W): 25.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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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	104	104	104	104	94	94	94	94	76	76	76	60	60	60	45	45	45	38
1	94	90	86	82	85	81	78	75	66	63	61	51	50	48	38	37	36	30
2	85	78	71	66	77	71	65	61	57	53	50	45	42	40	33	31	30	25
3	78	68	61	55	70	62	55	50	50	45	42	39	36	33	29	27	25	20
4	71	60	52	46	64	55	48	42	44	39	35	35	31	28	26	23	21	17
5	65	53	45	39	59	48	41	36	39	34	30	31	27	24	23	21	18	15
6	60	48	39	34	54	43	36	31	35	30	26	28	24	21	21	18	16	13
7	55	43	35	29	50	39	32	27	32	27	23	25	21	18	19	16	14	11
8	51	39	31	26	46	35	29	24	29	24	20	23	19	16	17	15	13	10
9	47	35	28	23	43	32	26	21	27	21	18	21	17	15	16	13	11	9
10	44	32	25	20	40	30	23	19	24	19	16	19	16	13	15	12	10	8

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

	0°	45°	90°
0°	2782	2782	2782
5°	2791	2719	2726
10°	2774	2675	2673
15°	2749	2623	2608
20°	2711	2566	2547
25°	2669	2503	2478
30°	2623	2439	2408
35°	2571	2374	2347
40°	2530	2313	2282
45°	2468	2256	2228
50°	2417	2190	2169
55°	2363	2129	2101
60°	2280	2049	2039
65°	2187	1965	1962
70°	2076	1868	1874
75°	1922	1763	1793
80°	1750	1660	1713
85°	1534	1571	1669



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	32.6	1.1
10°-20°	93.5	3.2
20°-30°	141.4	4.9
30°-40°	171.1	5.9
40°-50°	180.8	6.2
50°-60°	170.2	5.9
60°-70°	141.2	4.9
70°-80°	99.2	3.4
80°-90°	57.4	2.0
90°-100°	204.3	7.0
100°-110°	380.5	13.1
110°-120°	335.3	11.6
120°-130°	277.5	9.6
130°-140°	227.6	7.9
140°-150°	171.6	5.9
150°-160°	120.1	4.1
160°-170°	70.6	2.4
170°-180°	23.0	0.8
0°-30°	267.5	9.2
0°-40°	438.6	15.1
0°-60°	789.6	27.2
0°-90°	1087.4	37.5
90°-120°	920.1	31.8
90°-150°	1596.7	55.1
90°-180°	1810.0	62.5
0°-180°	2897.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	345	345	345	345	345	
5°	345	344	341	344	344	33
15°	331	331	330	333	333	93
25°	303	305	306	310	311	139
35°	265	269	273	278	280	166
45°	221	228	235	242	244	171
55°	173	181	193	200	203	154
65°	120	132	145	154	158	119
75°	66	81	97	107	111	71
85°	20	37	54	65	70	22
90°	7	25	47	58	62	5
95°	20	66	413	231	161	21
105°	58	90	331	692	693	62
115°	98	126	290	549	658	97
125°	135	160	282	463	522	120
135°	159	190	272	404	460	123
145°	183	209	267	335	370	115
155°	208	224	260	294	306	96
165°	226	234	249	263	267	64
175°	236	237	239	242	241	22
180°	237	237	237	237	237	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	344.6	344.6	344.6	344.6	344.6	344.6	344.6	344.6	344.6	344.6	344.6
2.5°	345.8	345.6	345.4	345.2	345.0	344.6	344.1	343.6	343.0	342.4	342.9
5°	345.0	344.7	344.5	344.2	344.0	343.6	342.9	342.3	341.8	341.1	341.9
7.5°	342.1	341.9	341.8	341.6	341.4	341.1	340.6	340.1	339.7	339.2	339.9
10°	339.6	339.5	339.4	339.3	339.2	339.0	338.6	338.1	337.7	337.3	338.0
12.5°	336.2	336.1	336.1	336.1	336.1	336.0	335.7	335.4	335.1	334.8	335.5
15°	330.7	330.8	330.9	331.0	331.1	331.0	330.7	330.4	330.2	330.0	330.7
17.5°	323.3	323.5	323.8	324.0	324.2	324.4	324.3	324.2	324.2	324.2	325.0
20°	318.0	318.2	318.5	318.8	319.0	319.2	319.3	319.4	319.4	319.5	320.4
22.5°	312.1	312.4	312.7	313.1	313.4	313.6	313.8	314.0	314.1	314.3	315.1
25°	302.6	303.0	303.6	304.1	304.6	305.0	305.2	305.5	305.7	306.1	307.0
27.5°	291.9	292.7	293.4	294.2	294.9	295.5	295.9	296.3	296.7	297.1	297.9
30°	284.8	285.5	286.2	286.8	287.6	288.2	288.8	289.3	290.0	290.6	291.6
32.5°	277.1	277.9	278.8	279.6	280.4	281.1	281.8	282.4	283.2	283.8	284.9
35°	264.7	265.8	266.8	267.8	268.9	269.8	270.7	271.5	272.4	273.2	274.4
37.5°	252.3	253.5	254.7	255.8	257.1	258.1	259.3	260.3	261.4	262.4	263.7
40°	244.3	245.4	246.5	247.6	248.7	249.9	251.1	252.3	253.5	254.7	256.0
42.5°	235.1	236.3	237.5	238.8	240.0	241.3	242.8	244.2	245.6	247.0	248.4
45°	220.7	222.3	224.0	225.6	227.2	228.9	230.5	232.1	233.7	235.4	236.8
47.5°	207.1	208.8	210.4	212.1	213.8	215.6	217.4	219.4	221.3	223.1	224.6
50°	197.2	199.1	201.0	202.8	204.7	206.6	208.6	210.4	212.3	214.2	215.9
52.5°	187.4	189.2	191.1	193.0	194.9	196.9	199.0	201.2	203.3	205.5	207.2
55°	172.9	174.7	176.5	178.3	180.1	182.3	184.8	187.4	190.0	192.6	194.3
57.5°	156.8	159.0	161.2	163.5	165.7	168.0	170.6	173.2	175.7	178.3	180.3
60°	146.3	148.5	150.7	153.0	155.2	157.7	160.5	163.4	166.2	169.0	171.0
62.5°	136.1	138.5	141.0	143.4	145.8	148.5	151.2	154.1	156.9	159.8	161.8
65°	119.6	122.4	125.1	127.8	130.6	133.5	136.3	139.3	142.2	145.1	147.2
67.5°	103.8	106.7	109.7	112.6	115.4	118.5	121.6	124.7	127.8	130.9	133.1
70°	93.0	95.9	98.8	101.7	104.7	107.8	111.0	114.3	117.6	120.8	123.1
72.5°	82.5	85.5	88.5	91.5	94.4	97.7	101.1	104.6	108.0	111.5	113.7
75°	66.4	69.5	72.7	75.9	79.1	82.4	86.1	89.7	93.3	96.9	99.3
77.5°	51.4	54.7	58.0	61.4	64.7	68.3	72.1	75.9	79.7	83.4	85.9
80°	42.1	45.5	48.9	52.3	55.8	59.4	63.2	66.9	70.7	74.5	77.0
82.5°	32.8	36.4	39.9	43.5	47.0	50.7	54.5	58.3	62.0	65.9	68.5
85°	20.5	24.1	27.6	31.2	34.9	38.6	42.5	46.3	50.1	54.1	56.6
87.5°	11.5	15.2	19.0	22.6	26.2	29.8	34.1	37.8	41.8	45.7	48.1
90°	6.6	11.0	15.8	19.7	23.6	27.1	33.7	37.3	42.0	46.6	48.6
92.5°	11.2	16.7	24.1	32.9	42.8	55.8	83.2	122.9	161.8	183.8	161.7
95°	20.4	24.6	32.0	40.9	55.0	77.6	121.6	201.4	316.1	412.6	425.7
97.5°	32.1	34.5	40.9	49.0	61.0	80.3	115.0	181.4	295.4	430.4	523.1
100°	39.6	41.8	47.3	55.1	66.2	83.8	114.6	170.6	268.7	403.2	524.6
102.5°	47.0	49.7	54.5	61.7	72.2	88.9	117.0	166.6	250.5	370.1	495.1
105°	57.9	61.0	65.1	72.3	82.4	98.3	123.8	165.6	233.9	330.6	442.0
107.5°	70.7	73.0	76.7	84.1	93.5	109.0	132.5	170.6	229.3	307.5	398.8
110°	78.9	81.0	84.5	91.3	100.9	115.5	139.0	174.6	228.8	299.2	377.0



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	86.7	88.8	92.5	98.8	108.3	122.8	145.4	178.9	229.6	294.3	363.8
115°	98.2	100.3	104.4	109.7	119.4	133.6	155.0	185.6	231.6	290.2	350.7
117.5°	110.3	112.1	115.4	121.0	129.8	144.3	164.5	192.7	234.1	287.4	343.5
120°	118.2	119.4	122.9	128.2	136.4	150.8	171.0	197.6	235.9	285.9	339.2
122.5°	125.6	126.6	130.0	134.7	143.4	157.3	177.3	202.4	237.9	284.0	334.7
125°	135.0	136.8	139.5	144.6	153.3	167.3	186.2	209.8	241.2	281.5	327.8
127.5°	143.6	145.0	148.3	154.0	163.1	177.1	194.9	216.1	243.4	278.2	318.8
130°	148.1	149.9	153.5	160.5	169.2	183.3	200.5	220.0	245.1	276.2	313.2
132.5°	153.0	154.3	159.1	165.7	175.1	188.4	205.3	224.1	246.7	274.6	308.1
135°	159.4	161.3	165.9	173.8	183.5	195.9	211.9	229.3	248.9	271.8	300.2
137.5°	166.2	167.9	172.8	180.3	190.4	202.0	216.6	232.5	249.7	269.9	293.4
140°	171.0	172.3	177.3	185.2	194.9	206.0	220.0	235.0	250.9	268.6	289.8
142.5°	175.9	177.2	182.0	189.5	198.9	209.6	223.1	236.9	251.9	268.1	286.8
145°	183.2	184.5	189.1	195.4	204.2	214.4	226.5	239.0	252.6	266.9	282.3
147.5°	191.4	191.8	195.8	202.4	209.7	218.9	230.2	241.2	253.0	265.3	278.5
150°	196.7	197.1	200.6	206.2	213.0	221.8	232.1	242.3	253.0	264.2	275.8
152.5°	201.2	201.2	205.0	210.2	216.4	224.5	233.6	243.0	252.3	262.3	272.8
155°	207.9	208.4	211.2	215.8	220.9	227.9	235.8	243.7	251.1	259.5	268.3
157.5°	214.5	214.5	217.1	220.7	225.2	230.6	237.4	243.7	250.0	256.7	263.8
160°	218.6	218.6	220.5	223.7	227.4	232.5	238.1	243.7	248.8	254.4	260.5
162.5°	222.3	221.9	223.4	226.3	229.7	233.7	238.9	243.7	247.7	252.2	257.5
165°	226.5	226.5	227.4	229.8	232.1	234.9	239.0	242.8	245.6	248.8	252.6
167.5°	230.6	230.2	230.6	232.4	233.7	235.9	239.0	241.7	243.4	245.5	248.1
170°	232.5	232.1	232.5	233.9	234.9	236.3	238.6	240.9	241.8	243.2	245.1
172.5°	234.4	233.9	234.0	235.1	235.6	236.6	238.2	240.2	240.4	241.0	242.5
175°	236.3	235.8	235.8	236.3	236.8	236.8	237.7	239.0	238.6	238.6	239.5
177.5°	237.1	236.8	236.4	236.8	236.8	236.8	237.1	237.8	237.1	237.1	237.5
180°	236.8	236.8	236.8	236.8	236.8	236.8	236.8	236.8	236.8	236.8	236.8



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	344.6	344.6	344.6	344.6	344.6	344.6	344.6	344.6
2.5°	343.4	343.9	344.4	344.5	344.5	344.5	344.4	344.3
5°	342.5	343.2	343.9	344.2	344.1	344.0	343.9	343.8
7.5°	340.7	341.4	342.3	342.6	342.5	342.4	342.3	342.3
10°	338.8	339.6	340.4	340.7	340.6	340.6	340.5	340.4
12.5°	336.2	337.0	337.6	337.9	337.9	337.9	337.9	337.9
15°	331.5	332.2	333.0	333.4	333.3	333.2	333.1	333.0
17.5°	325.7	326.5	327.3	327.7	327.6	327.5	327.5	327.4
20°	321.2	322.1	322.9	323.4	323.4	323.4	323.4	323.4
22.5°	316.0	316.8	317.7	318.2	318.4	318.5	318.6	318.8
25°	307.9	308.8	309.8	310.3	310.4	310.5	310.5	310.6
27.5°	298.8	299.7	300.6	301.1	301.2	301.3	301.3	301.5
30°	292.4	293.4	294.3	294.9	295.1	295.3	295.5	295.6
32.5°	285.9	287.1	288.1	288.8	288.9	289.1	289.3	289.4
35°	275.7	276.8	278.0	278.8	279.0	279.2	279.6	279.8
37.5°	264.9	266.0	267.3	268.1	268.3	268.6	268.9	269.1
40°	257.3	258.5	259.8	260.7	261.0	261.4	261.7	262.0
42.5°	249.8	251.3	252.7	253.6	253.8	254.0	254.4	254.6
45°	238.3	239.8	241.2	242.1	242.6	243.0	243.4	243.9
47.5°	226.2	227.6	229.2	230.2	230.7	231.2	231.7	232.3
50°	217.6	219.3	221.0	222.2	222.7	223.1	223.7	224.2
52.5°	209.0	210.7	212.4	213.5	214.0	214.5	215.1	215.6
55°	196.0	197.7	199.4	200.6	201.1	201.5	202.1	202.6
57.5°	182.4	184.4	186.5	187.7	188.2	188.7	189.1	189.6
60°	173.0	175.0	176.9	178.2	179.0	179.6	180.3	181.0
62.5°	163.7	165.7	167.6	169.0	169.7	170.3	171.0	171.7
65°	149.4	151.6	153.7	155.1	155.8	156.5	157.2	157.8
67.5°	135.3	137.5	139.7	141.1	141.8	142.4	143.1	143.8
70°	125.4	127.8	130.0	131.5	132.1	132.7	133.3	133.9
72.5°	116.0	118.3	120.5	122.0	122.6	123.3	124.0	124.7
75°	101.7	104.0	106.5	108.0	108.8	109.6	110.4	111.1
77.5°	88.3	90.7	93.2	94.8	95.6	96.4	97.3	98.1
80°	79.7	82.2	84.8	86.4	87.1	87.8	88.5	89.1
82.5°	71.1	73.8	76.4	78.1	78.8	79.6	80.4	81.1
85°	59.2	61.7	64.3	66.0	66.9	67.8	68.6	69.5
87.5°	50.7	53.3	55.8	57.5	58.4	59.2	59.8	60.6
90°	51.5	54.5	57.5	59.0	60.2	61.3	61.6	62.3
92.5°	132.6	112.3	100.7	92.9	88.1	86.3	85.4	86.1
95°	382.9	313.1	253.1	209.5	187.4	173.8	166.2	160.9
97.5°	544.9	520.3	477.0	430.0	397.4	370.1	356.9	348.0
100°	594.8	606.5	586.0	553.0	513.1	485.4	472.1	469.0
102.5°	590.6	639.0	647.8	635.0	610.7	590.8	576.8	574.5
105°	550.7	633.2	681.4	701.9	703.5	700.5	694.7	692.6
107.5°	495.2	583.0	650.0	692.8	716.4	727.7	732.9	734.7
110°	461.7	544.1	613.6	666.1	699.8	720.0	729.0	733.9





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	436.6	509.6	575.3	627.8	665.9	690.2	702.6	710.1
115°	410.7	469.8	526.1	572.0	609.4	637.9	653.3	657.6
117.5°	396.6	445.8	490.4	529.5	561.5	585.6	601.4	605.0
120°	389.8	434.7	473.7	507.8	535.1	556.2	569.0	574.8
122.5°	383.8	427.2	462.8	492.9	515.9	534.0	544.9	550.7
125°	374.1	415.6	449.4	476.1	495.1	509.2	518.5	521.8
127.5°	362.2	402.0	435.5	460.9	480.2	492.8	500.8	504.2
130°	353.3	391.6	424.7	450.4	470.0	482.1	490.1	493.4
132.5°	344.1	380.1	412.5	438.1	457.3	470.9	478.5	481.8
135°	330.8	362.5	392.2	416.4	435.5	449.1	457.0	460.3
137.5°	319.0	345.9	371.0	392.9	410.7	424.0	430.6	434.4
140°	312.3	335.3	357.3	377.6	394.3	405.0	411.9	416.0
142.5°	306.1	326.4	345.4	363.0	377.7	387.6	393.7	396.6
145°	297.7	314.1	328.6	342.0	354.0	362.2	367.2	369.9
147.5°	290.8	303.5	314.7	325.1	333.9	341.0	344.8	345.9
150°	287.0	297.7	307.0	315.4	322.8	328.8	331.6	332.1
152.5°	282.8	292.0	300.6	307.5	313.8	318.8	320.4	320.9
155°	276.7	284.1	291.1	296.7	301.4	305.1	306.5	306.5
157.5°	270.1	276.4	282.2	286.7	290.2	293.0	293.8	293.8
160°	266.0	271.2	276.2	280.0	282.7	285.6	286.0	286.0
162.5°	262.0	266.3	270.3	273.7	275.7	278.5	279.0	278.6
165°	256.2	259.0	262.3	264.6	266.5	268.3	267.9	267.4
167.5°	250.8	252.9	255.5	256.9	257.9	259.0	258.9	258.6
170°	247.4	248.8	250.7	252.1	253.0	253.5	253.0	253.0
172.5°	244.4	245.5	246.6	247.6	248.2	248.7	248.2	247.4
175°	240.4	240.9	241.8	241.8	241.8	242.8	241.8	240.9
177.5°	237.8	238.2	238.2	238.6	238.2	238.6	237.8	237.1
180°	236.8	236.8	236.8	236.8	236.8	236.8	236.8	236.8

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