

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: P332514-830

Luminaire Tested: **S124DIP-S350D810U830-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332514-830  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIP-S350D810U830-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 350 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 810 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4479.5 lumens  
Efficiency: N/A  
Efficacy: 143.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: Semi-Indirect

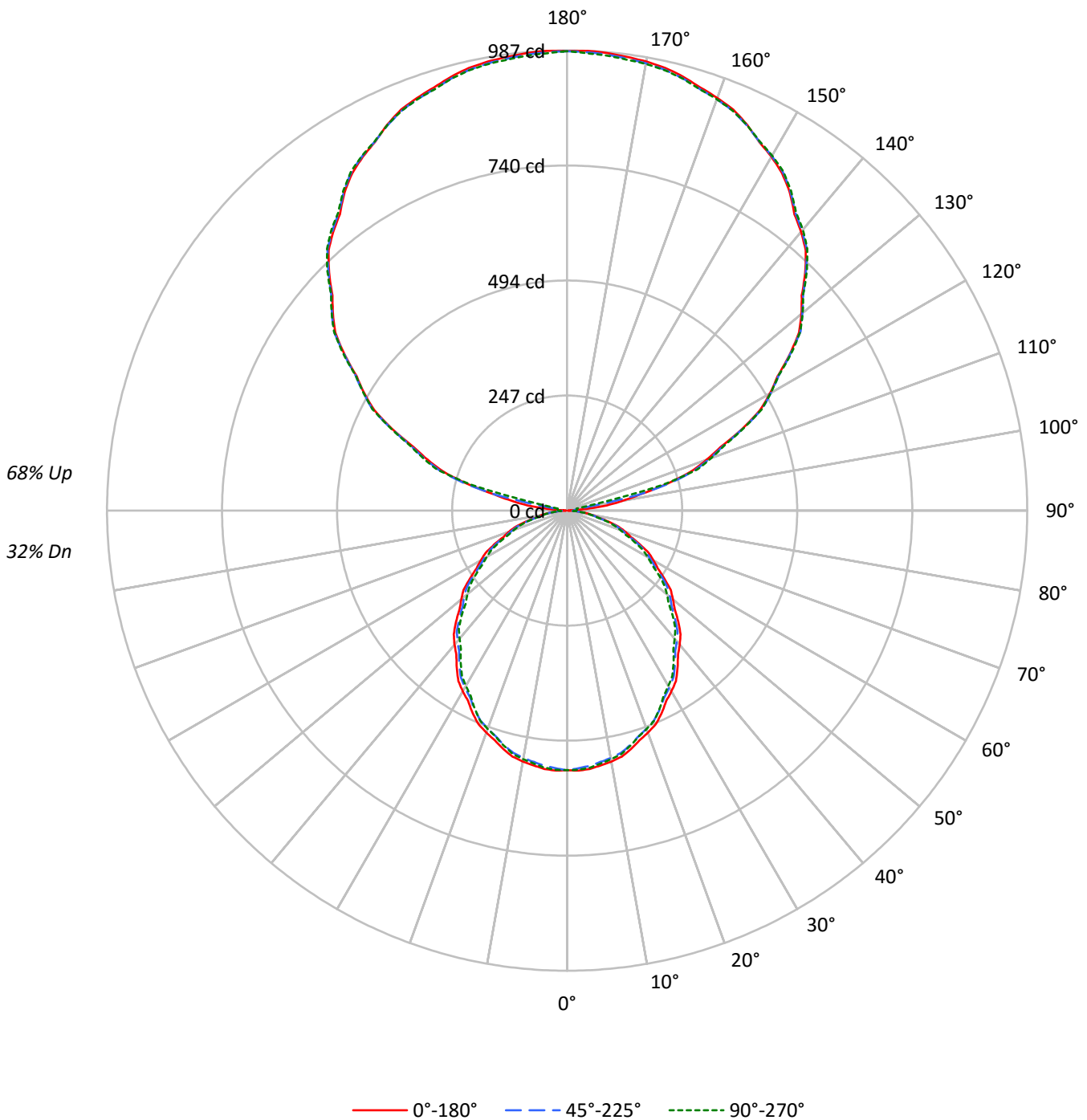
Input Watts (W): 31.2  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	103	103	103	103	93	93	93	93	73	73	73	56	56	56	40	40	40	32
1	94	89	86	82	84	81	77	75	64	62	60	49	47	46	35	34	33	27
2	85	78	72	67	76	70	65	61	56	53	50	43	41	39	31	29	28	22
3	78	69	61	56	70	62	56	51	49	45	42	38	35	33	27	25	24	19
4	71	61	53	47	64	55	48	43	44	39	35	34	30	28	24	22	20	16
5	65	54	46	40	58	49	42	37	39	34	30	30	27	24	22	20	18	14
6	60	48	40	35	54	44	37	32	35	30	26	27	24	21	20	17	16	12
7	55	43	36	30	50	39	33	28	32	27	23	25	21	18	18	16	14	11
8	51	39	32	27	46	36	29	25	29	24	20	23	19	16	17	14	12	10
9	48	36	28	24	43	33	26	22	26	22	18	21	17	15	15	13	11	9
10	44	33	26	21	40	30	24	19	24	20	16	19	16	13	14	12	10	8

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

	0°	45°	90°
0°	4495	4495	4495
5°	4508	4454	4486
10°	4480	4418	4440
15°	4425	4355	4367
20°	4354	4277	4281
25°	4272	4188	4177
30°	4172	4084	4047
35°	4066	3975	3921
40°	3958	3851	3780
45°	3846	3729	3658
50°	3720	3620	3508
55°	3586	3478	3365
60°	3450	3321	3219
65°	3299	3171	3043
70°	3127	2969	2854
75°	2866	2729	2658
80°	2552	2450	2385
85°	2232	2149	2103



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	52.4	1.2
10°-20°	147.7	3.3
20°-30°	217.4	4.9
30°-40°	252.8	5.6
40°-50°	252.8	5.6
50°-60°	221.1	4.9
60°-70°	164.2	3.7
70°-80°	93.3	2.1
80°-90°	29.8	0.7
90°-100°	33.7	0.8
100°-110°	214.9	4.8
110°-120°	411.0	9.2
120°-130°	521.8	11.6
130°-140°	558.3	12.5
140°-150°	522.1	11.7
150°-160°	421.0	9.4
160°-170°	271.5	6.1
170°-180°	93.6	2.1
0°-30°	417.6	9.3
0°-40°	670.4	15.0
0°-60°	1144.3	25.5
0°-90°	1431.6	32.0
90°-120°	659.6	14.7
90°-150°	2261.8	50.5
90°-180°	3048.0	68.0
0°-180°	4479.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	557	557	557	557	557	
5°	556	554	550	554	554	53
15°	530	528	521	524	522	149
25°	480	476	470	471	469	221
35°	413	409	403	400	398	258
45°	337	333	327	322	320	260
55°	255	253	247	242	239	228
65°	173	170	166	162	159	171
75°	92	90	88	86	85	98
85°	24	24	23	23	23	27
90°	2	10	16	20	22	3
95°	40	17	16	20	21	52
105°	222	226	230	235	210	232
115°	414	416	416	417	417	407
125°	582	585	584	586	587	520
135°	722	722	724	726	727	556
145°	833	835	835	836	837	520
155°	913	914	912	914	912	421
165°	963	960	960	965	959	272
175°	985	981	982	987	979	94
180°	985	985	985	985	985	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	556.8	556.8	556.8	556.8	556.8	556.8	556.8	556.8	556.8	556.8	556.8
2.5°	558.2	558.0	557.7	557.5	557.2	556.7	555.8	555.0	554.1	553.2	554.0
5°	556.3	555.9	555.5	555.2	554.8	554.0	552.9	551.9	550.7	549.6	550.7
7.5°	551.2	550.7	550.4	550.0	549.6	548.7	547.5	546.4	545.2	543.9	544.8
10°	546.5	546.1	545.7	545.4	545.0	544.1	542.8	541.5	540.3	538.9	539.7
12.5°	540.5	540.1	539.7	539.2	538.9	538.0	536.6	535.3	533.9	532.5	533.4
15°	529.5	529.1	528.8	528.4	528.0	527.1	525.6	524.1	522.5	521.1	521.7
17.5°	516.4	515.9	515.5	515.0	514.4	513.5	512.1	510.7	509.3	507.8	508.2
20°	506.8	506.3	505.9	505.3	504.8	503.9	502.4	500.9	499.4	497.9	498.2
22.5°	496.4	495.8	495.1	494.5	493.8	492.8	491.3	489.8	488.3	486.8	487.4
25°	479.6	478.9	478.2	477.5	476.8	475.8	474.4	473.0	471.6	470.2	470.3
27.5°	460.3	459.6	458.9	458.2	457.5	456.5	455.2	453.9	452.6	451.3	451.1
30°	447.5	446.7	445.9	445.1	444.3	443.3	442.0	440.6	439.4	438.1	437.7
32.5°	433.9	433.2	432.4	431.8	431.0	430.0	428.7	427.3	425.9	424.5	424.0
35°	412.6	412.0	411.3	410.6	409.9	408.9	407.5	406.0	404.7	403.3	402.7
37.5°	390.3	389.6	389.0	388.4	387.8	386.7	385.2	383.7	382.2	380.7	379.9
40°	375.6	374.8	374.1	373.2	372.5	371.4	369.9	368.3	366.8	365.4	364.4
42.5°	360.0	359.5	359.0	358.5	358.1	356.9	355.3	353.6	352.0	350.4	349.2
45°	336.9	336.1	335.5	334.8	334.0	332.9	331.3	329.7	328.2	326.6	325.5
47.5°	312.6	312.2	311.7	311.2	310.8	309.8	308.3	306.8	305.4	303.9	302.7
50°	296.2	295.9	295.5	295.0	294.6	293.8	292.4	291.0	289.5	288.2	286.8
52.5°	280.2	279.7	279.2	278.7	278.2	277.3	275.8	274.4	272.9	271.5	270.2
55°	254.8	254.5	254.1	253.8	253.5	252.7	251.3	250.0	248.5	247.1	246.0
57.5°	230.5	230.2	229.8	229.5	229.1	228.3	226.9	225.6	224.1	222.8	221.7
60°	213.7	213.2	212.7	212.2	211.7	210.8	209.5	208.2	207.0	205.7	204.8
62.5°	197.3	196.9	196.4	196.0	195.6	194.7	193.3	192.0	190.6	189.3	188.4
65°	172.7	172.2	171.6	171.2	170.7	169.9	168.9	168.0	166.9	166.0	164.9
67.5°	147.9	147.4	146.9	146.5	146.0	145.3	144.4	143.5	142.5	141.5	140.5
70°	132.5	131.8	131.1	130.4	129.7	128.9	128.2	127.4	126.6	125.8	125.0
72.5°	116.1	115.4	114.7	114.0	113.3	112.6	112.0	111.4	110.7	110.1	109.4
75°	91.9	91.4	91.0	90.4	89.9	89.4	89.0	88.4	87.9	87.5	87.1
77.5°	68.8	68.6	68.3	68.1	68.0	67.6	67.2	66.7	66.3	65.9	65.7
80°	54.9	54.6	54.3	54.0	53.7	53.4	53.3	53.1	52.9	52.7	52.4
82.5°	41.3	41.2	41.0	40.9	40.7	40.6	40.6	40.6	40.5	40.5	40.4
85°	24.1	24.1	24.1	24.1	24.1	24.0	23.8	23.6	23.4	23.2	23.2
87.5°	9.7	10.0	10.3	10.6	10.8	11.1	11.2	11.4	11.6	11.8	12.0
90°	2.2	4.1	5.8	7.6	9.4	10.9	12.3	13.6	14.9	16.2	17.2
92.5°	9.3	9.4	9.5	9.6	9.7	10.4	11.7	13.0	14.3	15.6	16.6
95°	40.5	35.0	29.4	23.8	18.3	15.6	15.7	15.9	16.0	16.2	17.2
97.5°	86.1	89.5	93.0	96.5	100.0	92.6	74.3	56.0	37.7	19.4	19.5
100°	120.8	123.9	126.8	129.7	132.6	122.8	100.2	77.7	55.0	32.4	29.6
102.5°	159.8	161.9	164.1	166.3	168.4	168.1	165.0	162.1	159.2	156.3	126.2
105°	221.8	222.8	223.8	224.8	225.7	226.7	227.4	228.3	229.1	229.9	231.4
107.5°	279.5	279.9	280.4	281.0	281.4	282.2	283.3	284.5	285.6	286.7	287.4
110°	318.4	318.9	319.3	319.8	320.4	321.0	322.1	323.0	324.0	325.0	325.4



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	356.1	356.9	357.9	358.7	359.7	360.3	360.8	361.2	361.7	362.1	362.1
115°	414.2	414.6	415.2	415.7	416.1	416.3	416.1	415.9	415.8	415.7	415.9
117.5°	466.5	467.1	467.8	468.4	469.1	469.7	470.0	470.3	470.7	471.1	471.0
120°	501.9	502.6	503.2	503.9	504.4	504.7	504.5	504.4	504.3	504.1	504.4
122.5°	534.9	535.3	535.6	536.0	536.5	536.8	537.0	537.2	537.4	537.7	537.9
125°	582.2	582.9	583.5	584.2	584.8	584.9	584.7	584.4	584.0	583.7	584.2
127.5°	627.0	627.2	627.4	627.5	627.6	628.1	628.9	629.6	630.4	631.1	631.0
130°	655.9	656.1	656.2	656.4	656.6	656.9	657.3	657.9	658.4	658.8	659.0
132.5°	682.4	682.7	683.1	683.3	683.6	684.1	684.7	685.3	685.9	686.5	686.7
135°	722.3	722.1	721.9	721.7	721.6	721.8	722.5	723.1	723.8	724.4	724.7
137.5°	757.4	757.5	757.6	757.6	757.7	758.1	758.8	759.6	760.3	761.0	761.4
140°	780.4	780.8	781.1	781.5	781.7	782.1	782.4	782.8	783.1	783.3	783.9
142.5°	801.1	801.6	802.3	802.9	803.4	803.8	804.0	804.3	804.5	804.6	805.0
145°	832.7	833.3	833.8	834.2	834.7	835.0	835.0	835.0	835.0	835.0	835.2
147.5°	858.0	858.9	859.8	860.7	861.7	862.0	861.9	861.7	861.5	861.4	861.5
150°	876.3	876.9	877.6	878.3	878.8	879.1	878.9	878.8	878.6	878.4	878.4
152.5°	891.6	892.1	892.6	893.2	893.7	893.8	893.5	893.2	892.9	892.6	892.9
155°	913.1	913.2	913.4	913.6	913.8	913.6	913.1	912.6	912.1	911.6	912.3
157.5°	931.2	931.1	931.0	930.9	930.9	930.5	929.9	929.4	928.9	928.3	929.2
160°	941.9	941.3	940.8	940.4	939.9	939.5	939.4	939.2	939.1	938.9	939.9
162.5°	951.3	950.6	950.0	949.4	948.8	948.4	948.2	948.1	947.9	947.7	948.8
165°	963.2	962.4	961.6	960.7	960.0	959.5	959.5	959.5	959.5	959.5	960.8
167.5°	972.6	971.8	970.9	970.1	969.2	968.7	968.7	968.6	968.5	968.4	969.8
170°	978.0	976.9	976.0	975.0	974.0	973.6	973.7	973.9	974.1	974.3	975.5
172.5°	981.5	980.5	979.5	978.5	977.6	977.1	977.3	977.5	977.6	977.8	979.1
175°	985.3	984.3	983.4	982.4	981.4	981.0	981.2	981.3	981.5	981.7	983.1
177.5°	987.1	986.2	985.2	984.3	983.4	983.1	983.4	983.6	983.9	984.1	985.1
180°	985.3	985.3	985.3	985.3	985.3	985.3	985.3	985.3	985.3	985.3	985.3



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	556.8	556.8	556.8	556.8	556.8	556.8	556.8	556.8
2.5°	554.8	555.6	556.4	556.8	556.7	556.6	556.5	556.4
5°	551.9	552.9	554.0	554.4	554.2	554.0	553.8	553.6
7.5°	545.6	546.6	547.4	547.8	547.7	547.5	547.4	547.3
10°	540.5	541.3	542.2	542.4	542.2	542.0	541.8	541.6
12.5°	534.2	535.1	536.0	536.3	536.0	535.7	535.5	535.2
15°	522.3	522.8	523.5	523.6	523.3	523.0	522.7	522.5
17.5°	508.6	509.0	509.3	509.4	509.3	509.1	508.9	508.7
20°	498.5	498.8	499.1	499.2	498.9	498.7	498.5	498.3
22.5°	487.9	488.4	489.0	489.1	488.7	488.3	488.0	487.7
25°	470.4	470.5	470.6	470.5	470.0	469.7	469.3	468.9
27.5°	450.8	450.6	450.3	450.0	449.5	449.0	448.5	448.0
30°	437.3	437.0	436.5	436.1	435.5	435.1	434.6	434.1
32.5°	423.6	423.1	422.6	422.2	421.7	421.1	420.7	420.2
35°	401.9	401.2	400.5	399.9	399.4	399.0	398.4	397.9
37.5°	379.2	378.4	377.7	377.0	376.4	375.7	375.0	374.4
40°	363.4	362.4	361.5	360.7	360.1	359.7	359.2	358.7
42.5°	348.1	346.9	345.8	345.1	344.7	344.4	344.0	343.7
45°	324.4	323.3	322.3	321.5	321.2	320.9	320.7	320.4
47.5°	301.4	300.2	299.0	298.0	297.3	296.5	295.8	295.0
50°	285.4	284.1	282.7	281.6	281.1	280.5	279.8	279.3
52.5°	269.0	267.8	266.6	265.5	264.8	264.0	263.3	262.5
55°	244.8	243.6	242.4	241.5	240.9	240.3	239.7	239.1
57.5°	220.6	219.4	218.3	217.4	216.9	216.3	215.7	215.1
60°	203.9	203.0	202.1	201.4	201.0	200.4	199.9	199.4
62.5°	187.7	186.8	186.0	185.3	184.8	184.4	183.9	183.3
65°	164.0	163.0	162.0	161.3	160.8	160.2	159.8	159.3
67.5°	139.6	138.6	137.7	137.1	137.0	136.9	136.8	136.6
70°	124.2	123.5	122.6	122.1	121.8	121.5	121.2	120.9
72.5°	108.9	108.2	107.5	107.1	106.8	106.5	106.2	105.9
75°	86.6	86.2	85.9	85.6	85.5	85.4	85.3	85.2
77.5°	65.6	65.5	65.4	65.2	64.9	64.7	64.4	64.2
80°	52.2	52.0	51.8	51.7	51.6	51.5	51.4	51.3
82.5°	40.2	40.2	40.1	40.0	39.9	39.7	39.6	39.5
85°	23.2	23.2	23.2	23.2	23.1	23.0	22.8	22.7
87.5°	12.2	12.4	12.6	12.7	12.8	12.8	12.9	13.0
90°	18.2	19.1	20.2	20.8	21.1	21.5	21.8	22.1
92.5°	17.6	18.6	19.5	20.1	20.2	20.2	20.3	20.4
95°	18.2	19.1	20.2	20.7	20.9	21.0	21.2	21.4
97.5°	19.7	19.8	19.9	20.0	20.2	20.3	20.5	20.6
100°	26.9	24.0	21.3	20.0	20.2	20.3	20.5	20.6
102.5°	96.1	66.2	36.1	21.1	21.1	21.1	21.2	21.2
105°	232.9	234.3	235.8	233.7	227.7	221.8	215.9	210.0
107.5°	288.1	288.8	289.5	290.2	290.9	291.4	292.1	292.8
110°	325.6	326.0	326.3	326.7	327.3	327.7	328.2	328.7





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	362.0	361.9	361.8	362.1	362.8	363.4	364.0	364.7
115°	416.3	416.6	417.0	417.2	417.2	417.2	417.2	417.2
117.5°	470.9	470.9	470.8	470.7	470.7	470.6	470.5	470.5
120°	504.7	505.1	505.4	505.4	505.1	504.7	504.4	504.1
122.5°	538.1	538.3	538.5	538.4	538.1	537.7	537.4	537.1
125°	584.7	585.1	585.6	586.0	586.2	586.3	586.4	586.6
127.5°	630.9	630.8	630.7	630.7	630.5	630.4	630.3	630.1
130°	659.2	659.3	659.5	659.6	659.6	659.6	659.6	659.6
132.5°	686.9	687.0	687.2	687.2	687.1	686.9	686.8	686.7
135°	725.1	725.4	725.8	726.0	726.4	726.7	727.1	727.4
137.5°	761.7	762.0	762.4	762.5	762.4	762.3	762.2	762.1
140°	784.4	784.9	785.3	785.7	785.9	786.0	786.2	786.4
142.5°	805.3	805.7	806.1	806.3	806.3	806.3	806.3	806.3
145°	835.3	835.5	835.7	835.8	836.2	836.5	836.9	837.2
147.5°	861.7	861.8	861.9	862.0	862.2	862.3	862.5	862.7
150°	878.4	878.4	878.4	878.5	878.7	878.8	879.0	879.2
152.5°	893.2	893.4	893.6	893.7	893.6	893.5	893.4	893.3
155°	912.9	913.6	914.3	914.4	913.8	913.3	912.9	912.4
157.5°	930.0	930.9	931.7	931.7	930.9	930.0	929.2	928.3
160°	940.8	941.9	942.8	942.8	941.9	940.8	939.9	938.9
162.5°	949.7	950.6	951.7	951.6	950.5	949.3	948.3	947.2
165°	962.1	963.5	964.8	964.7	963.2	961.8	960.3	958.8
167.5°	971.3	972.7	974.1	974.0	972.4	970.7	969.1	967.5
170°	976.9	978.2	979.5	979.3	977.7	976.1	974.4	972.8
172.5°	980.4	981.8	983.1	982.8	981.1	979.3	977.5	975.7
175°	984.6	986.1	987.5	987.3	985.3	983.4	981.4	979.4
177.5°	986.3	987.3	988.4	988.1	986.5	985.0	983.4	981.8
180°	985.3	985.3	985.3	985.3	985.3	985.3	985.3	985.3

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