

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: P331281-830

Luminaire Tested: **S122DIP-S290D1080U830-4F0-1E-UDD-D4**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P331281-830  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-16,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S122DIP-S290D1080U830-4F0-1E-UDD-D4  
Description: DEFINE 2 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 290 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1080 LUMENS PER FOOT, BATWING OPTIC  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5094.3 lumens  
Efficiency: N/A  
Efficacy: 120.7 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.31 / 1.42  
Luminous Opening: Rectangular w/ Sides (W: 0.17' x L: 4' x H: 0.08')  
CIE Type: Semi-Indirect

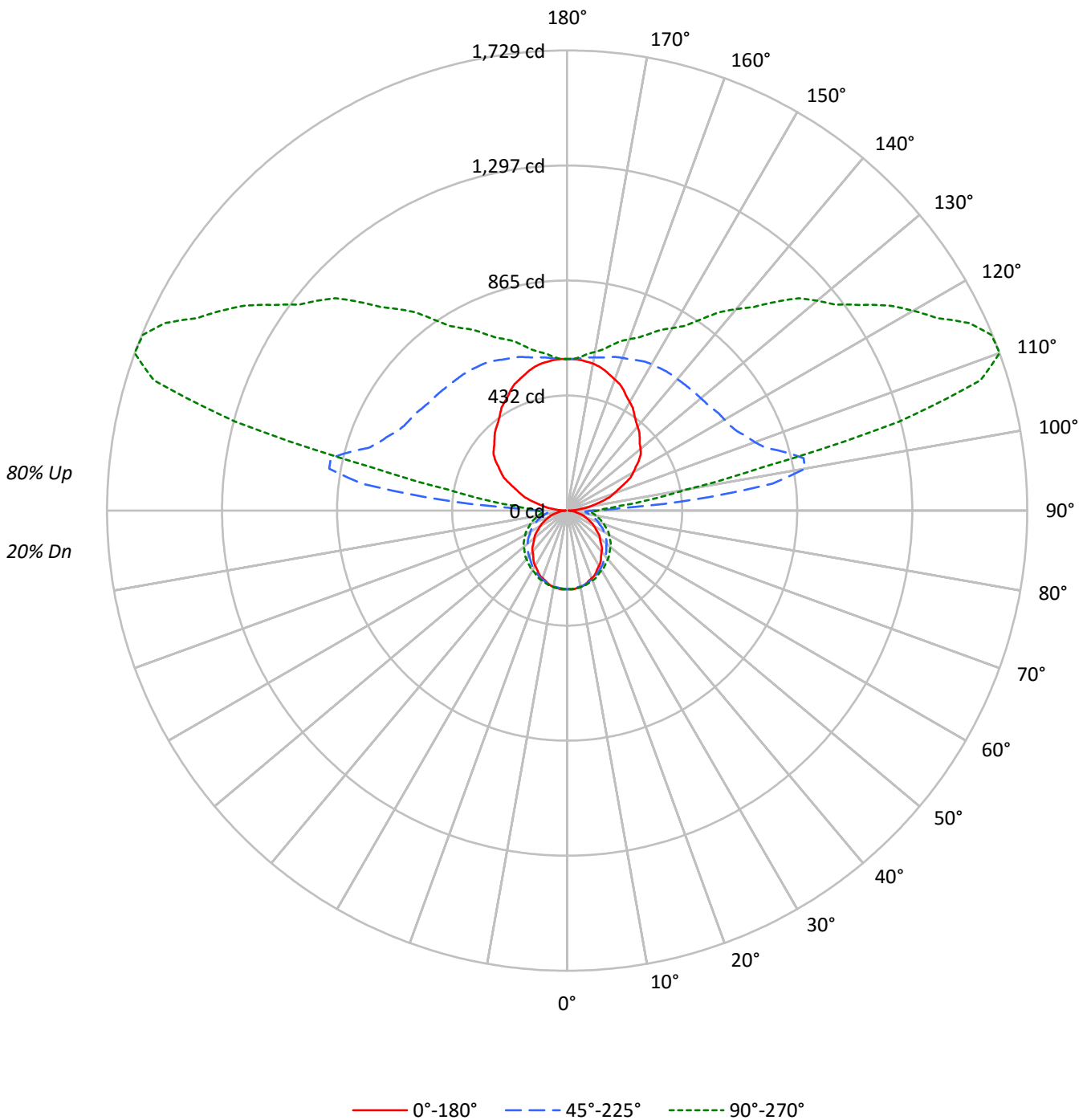
Input Watts (W): 42.2  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	100	100	100	100	88	88	88	88	67	67	67	47	47	47	28	28	28	20
1	90	86	82	79	80	76	73	70	57	55	53	40	39	37	24	23	23	15
2	82	75	69	64	72	66	61	57	50	46	43	35	33	31	21	20	19	12
3	75	65	58	53	65	58	52	47	44	39	36	30	28	26	18	17	16	10
4	68	58	50	44	60	51	44	39	38	34	30	27	24	22	16	15	13	9
5	62	51	43	37	55	45	38	33	34	30	26	24	21	19	14	13	11	7
6	57	45	38	32	50	40	34	29	31	26	22	21	18	16	13	11	10	6
7	53	41	33	28	46	36	30	25	28	23	19	19	16	14	12	10	9	6
8	49	37	29	24	43	33	26	22	25	20	17	18	15	12	11	9	8	5
9	45	33	26	21	40	30	23	19	23	18	15	16	13	11	10	8	7	4
10	42	30	23	19	37	27	21	17	21	16	13	15	12	10	9	7	6	4

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

	0°	45°	90°
0°	4771	4771	4771
5°	4794	4593	4573
10°	4763	4457	4407
15°	4698	4312	4229
20°	4614	4159	4059
25°	4533	4009	3902
30°	4418	3857	3747
35°	4301	3711	3638
40°	4178	3584	3528
45°	4060	3473	3434
50°	3936	3371	3343
55°	3802	3261	3248
60°	3643	3149	3150
65°	3474	3016	3031
70°	3286	2872	2904
75°	3050	2735	2786
80°	2669	2592	2667
85°	2319	2468	2574



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	28.0	0.5
10°-20°	80.3	1.6
20°-30°	121.6	2.4
30°-40°	148.2	2.9
40°-50°	159.4	3.1
50°-60°	154.8	3.0
60°-70°	135.2	2.7
70°-80°	104.1	2.0
80°-90°	75.0	1.5
90°-100°	275.8	5.4
100°-110°	807.7	15.9
110°-120°	843.9	16.6
120°-130°	688.6	13.5
130°-140°	548.0	10.8
140°-150°	410.9	8.1
150°-160°	288.1	5.7
160°-170°	169.6	3.3
170°-180°	55.2	1.1
0°-30°	229.9	4.5
0°-40°	378.1	7.4
0°-60°	692.3	13.6
0°-90°	1006.5	19.8
90°-120°	1927.3	37.8
90°-150°	3574.8	70.2
90°-180°	4088.0	80.2
0°-180°	5094.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	296	296	296	296	296	
5°	296	295	292	295	294	28
15°	283	283	283	287	287	80
25°	257	260	264	269	270	118
35°	221	229	237	246	249	138
45°	182	193	208	221	226	140
55°	139	155	177	192	198	124
65°	95	116	141	158	164	94
75°	53	77	104	122	128	56
85°	16	42	69	87	93	17
90°	5	44	94	109	115	5
95°	42	118	478	227	196	43
105°	136	217	848	1501	1290	144
115°	237	305	705	1439	1667	235
125°	329	390	667	1161	1347	292
135°	386	461	650	967	1109	298
145°	440	506	642	799	876	276
155°	500	540	623	705	732	230
165°	545	562	597	633	643	154
175°	568	569	574	581	579	54
180°	569	569	569	569	569	



TEST NUMBER: P331281-830

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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	295.5	295.5	295.5	295.5	295.5	295.5	295.5	295.5	295.5	295.5	295.5
2.5°	297.2	296.9	296.7	296.4	296.2	295.9	295.3	294.8	294.3	293.7	294.1
5°	296.3	296.1	295.8	295.5	295.1	294.7	294.2	293.6	293.0	292.5	293.0
7.5°	293.6	293.4	293.2	293.0	292.8	292.6	292.1	291.7	291.2	290.8	291.5
10°	291.6	291.4	291.2	291.1	290.9	290.6	290.3	290.0	289.7	289.5	290.2
12.5°	288.1	288.2	288.2	288.3	288.3	288.2	288.0	287.9	287.6	287.4	288.1
15°	282.6	282.8	283.0	283.1	283.3	283.4	283.4	283.4	283.4	283.4	284.3
17.5°	275.4	275.8	276.2	276.6	277.0	277.4	277.7	278.0	278.2	278.6	279.5
20°	270.6	271.1	271.5	272.0	272.5	273.0	273.3	273.7	274.1	274.5	275.5
22.5°	265.5	266.0	266.6	267.1	267.7	268.2	268.7	269.3	269.8	270.3	271.4
25°	256.9	257.6	258.3	258.9	259.6	260.3	261.2	262.0	262.9	263.7	264.9
27.5°	246.7	247.7	248.8	249.9	251.0	252.0	253.0	254.0	255.1	256.1	257.5
30°	239.8	241.0	242.2	243.5	244.7	246.0	247.2	248.5	249.7	250.9	252.4
32.5°	232.2	233.7	235.0	236.4	237.8	239.2	240.7	242.1	243.6	245.1	246.9
35°	221.4	223.0	224.6	226.2	227.8	229.5	231.4	233.2	235.0	236.8	238.8
37.5°	209.5	211.4	213.3	215.2	217.0	219.1	221.5	223.8	226.1	228.5	230.8
40°	201.7	203.8	205.9	207.9	210.0	212.4	214.9	217.5	220.1	222.6	225.1
42.5°	194.2	196.2	198.3	200.4	202.6	205.0	208.0	210.9	213.9	216.8	219.5
45°	181.5	184.1	186.7	189.3	191.8	194.7	198.1	201.4	204.7	208.1	211.0
47.5°	169.1	171.9	174.7	177.5	180.3	183.7	187.6	191.4	195.4	199.3	202.4
50°	160.6	163.5	166.5	169.4	172.4	176.0	180.3	184.5	188.8	193.1	196.3
52.5°	152.3	155.4	158.5	161.6	164.8	168.5	173.1	177.6	182.1	186.6	189.9
55°	139.1	142.6	146.0	149.4	152.9	157.0	162.0	166.9	171.9	176.8	180.3
57.5°	126.1	130.0	133.8	137.7	141.6	146.0	151.1	156.1	161.2	166.3	169.9
60°	116.9	121.0	125.1	129.1	133.3	138.0	143.5	148.8	154.3	159.7	163.3
62.5°	108.7	112.9	117.2	121.4	125.6	130.4	135.9	141.3	146.8	152.2	156.0
65°	95.0	99.7	104.3	109.1	113.7	118.9	124.4	130.1	135.7	141.3	145.2
67.5°	82.6	87.5	92.3	97.2	102.1	107.4	113.1	118.9	124.6	130.4	134.3
70°	73.6	78.6	83.5	88.5	93.4	98.9	104.7	110.7	116.6	122.4	126.6
72.5°	65.4	70.5	75.6	80.7	85.9	91.3	97.4	103.3	109.3	115.3	119.3
75°	52.7	58.0	63.3	68.6	74.0	79.6	85.8	91.9	97.9	104.1	108.1
77.5°	40.3	45.9	51.5	57.0	62.7	68.5	74.7	80.9	87.1	93.2	97.4
80°	32.1	37.9	43.7	49.5	55.3	61.4	67.5	73.7	79.8	86.1	90.0
82.5°	25.3	31.0	36.8	42.4	48.2	54.2	60.4	66.7	73.0	79.2	83.2
85°	15.5	21.3	27.2	33.1	39.0	45.0	51.1	57.2	63.2	69.4	73.3
87.5°	8.6	14.9	21.5	27.6	33.7	40.2	47.4	55.0	62.5	68.8	72.4
90°	5.4	14.1	24.0	31.8	39.5	48.5	60.1	73.9	86.5	93.8	96.4
92.5°	17.3	28.4	41.4	51.4	63.9	79.7	110.3	151.0	187.9	195.8	177.4
95°	41.8	50.6	66.0	80.3	102.4	133.7	189.8	290.8	423.5	478.4	428.4
97.5°	65.4	75.3	90.9	109.7	133.8	168.3	237.1	375.3	591.9	778.3	817.7
100°	87.3	94.1	107.4	128.6	153.9	189.1	252.4	391.2	633.1	907.8	1069.0
102.5°	107.1	112.7	125.8	146.6	172.5	207.4	266.2	390.1	614.3	909.8	1161.1
105°	135.7	142.9	153.3	172.5	199.3	233.8	290.2	392.7	578.2	848.2	1142.7
107.5°	167.2	172.9	182.6	199.8	225.9	260.2	314.9	404.6	558.7	782.5	1042.9
110°	187.8	194.2	202.6	218.8	243.6	278.7	331.5	415.0	553.3	750.6	980.3



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	207.1	213.1	222.2	237.1	260.8	296.4	347.3	426.2	552.0	729.0	935.9
115°	237.1	243.6	251.3	265.4	288.4	320.7	372.0	443.1	553.6	704.6	880.4
117.5°	267.8	272.9	280.1	292.4	314.1	347.0	394.6	461.2	558.3	690.7	844.0
120°	287.1	291.8	298.8	309.0	331.3	364.0	410.6	473.4	561.6	682.6	824.3
122.5°	305.5	309.2	315.8	326.7	348.7	382.2	425.8	484.2	565.9	677.0	807.3
125°	329.3	332.6	339.2	352.3	374.2	406.4	448.8	501.1	572.1	667.1	782.5
127.5°	348.6	352.9	362.0	376.4	397.3	430.0	470.8	517.5	579.0	660.3	759.5
130°	360.0	364.3	375.1	390.4	412.2	443.7	484.1	527.7	584.5	656.5	744.2
132.5°	370.5	375.7	387.4	403.5	426.2	457.6	495.7	537.9	589.8	653.6	731.6
135°	385.9	390.2	403.3	419.8	445.0	476.1	512.1	551.4	596.2	649.6	714.1
137.5°	400.8	406.0	419.1	436.6	461.6	490.2	525.2	561.4	601.6	647.0	701.0
140°	412.1	416.4	429.4	446.9	470.9	499.4	532.4	566.6	604.0	644.7	693.2
142.5°	423.5	426.9	439.1	456.5	479.7	506.3	538.3	571.5	606.1	643.9	686.2
145°	440.2	444.5	455.5	471.9	493.8	517.9	547.4	578.2	608.8	641.6	677.2
147.5°	458.5	461.8	472.3	487.5	505.7	527.1	554.9	581.8	609.6	637.7	668.5
150°	470.8	474.1	482.9	497.1	513.5	533.2	558.5	583.6	608.8	635.1	661.3
152.5°	483.1	484.7	493.3	505.9	521.4	539.3	561.9	584.5	607.0	630.7	655.2
155°	500.4	501.4	508.0	520.1	532.2	548.6	567.1	585.8	604.4	623.0	643.9
157.5°	514.8	515.9	521.2	531.7	541.3	555.2	570.9	585.8	599.4	615.1	633.1
160°	524.4	525.6	529.9	538.7	547.4	559.5	572.7	585.8	596.7	609.9	625.2
162.5°	534.1	533.5	537.8	544.8	552.7	562.1	573.5	584.9	594.1	605.5	618.2
165°	545.3	544.2	546.4	552.9	558.5	565.0	574.9	582.5	589.1	596.7	606.6
167.5°	554.5	553.2	555.2	559.3	563.3	567.4	574.6	581.0	584.0	589.1	595.2
170°	560.6	558.5	559.5	562.8	565.0	568.3	573.7	579.2	581.4	584.7	589.1
172.5°	564.1	562.8	562.1	565.4	566.8	569.1	572.9	576.6	577.9	579.5	583.0
175°	568.3	567.1	566.1	568.3	568.3	569.4	571.6	573.7	572.7	573.7	574.9
177.5°	570.2	568.4	567.6	569.4	569.4	569.4	570.2	572.0	570.2	569.4	570.2
180°	569.4	569.4	569.4	569.4	569.4	569.4	569.4	569.4	569.4	569.4	569.4



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	295.5	295.5	295.5	295.5	295.5	295.5	295.5	295.5
2.5°	294.5	294.8	295.2	295.4	295.2	295.0	294.9	294.7
5°	293.6	294.2	294.7	294.9	294.8	294.7	294.6	294.5
7.5°	292.2	292.8	293.6	293.9	293.8	293.7	293.6	293.5
10°	291.0	291.7	292.5	292.8	292.8	292.7	292.6	292.5
12.5°	288.9	289.6	290.4	290.8	290.7	290.6	290.5	290.4
15°	285.1	286.1	286.9	287.3	287.2	287.1	287.0	286.9
17.5°	280.4	281.3	282.1	282.6	282.6	282.6	282.6	282.6
20°	276.5	277.6	278.6	279.2	279.2	279.2	279.2	279.2
22.5°	272.5	273.5	274.6	275.1	275.3	275.4	275.6	275.8
25°	266.1	267.2	268.3	269.0	269.3	269.6	269.8	270.1
27.5°	258.9	260.4	261.8	262.7	262.9	263.1	263.3	263.5
30°	253.9	255.5	257.0	257.9	258.2	258.4	258.7	259.0
32.5°	248.5	250.3	252.1	253.3	253.7	254.3	254.8	255.2
35°	241.0	243.1	245.2	246.6	247.2	247.9	248.5	249.2
37.5°	233.1	235.4	237.8	239.3	240.0	240.7	241.4	242.0
40°	227.6	230.1	232.5	234.2	235.1	235.9	236.8	237.6
42.5°	222.3	224.9	227.6	229.4	230.3	231.1	232.0	232.8
45°	214.0	217.0	219.9	221.9	222.8	223.8	224.7	225.6
47.5°	205.5	208.5	211.6	213.7	214.7	215.7	216.8	217.8
50°	199.5	202.8	206.0	208.2	209.2	210.3	211.3	212.4
52.5°	193.2	196.5	199.8	202.1	203.2	204.3	205.5	206.5
55°	183.7	187.1	190.6	192.8	194.1	195.4	196.6	197.8
57.5°	173.6	177.3	181.0	183.4	184.7	186.0	187.2	188.5
60°	166.9	170.6	174.2	176.6	178.0	179.3	180.7	182.0
62.5°	159.9	163.7	167.6	170.1	171.4	172.6	173.9	175.1
65°	149.1	153.0	156.9	159.5	160.7	161.9	163.2	164.4
67.5°	138.2	142.1	146.1	148.7	150.0	151.3	152.6	153.9
70°	130.6	134.7	138.8	141.5	142.6	143.7	144.9	146.0
72.5°	123.3	127.3	131.3	134.0	135.3	136.8	138.2	139.5
75°	112.3	116.3	120.5	123.1	124.3	125.5	126.8	128.0
77.5°	101.4	105.5	109.5	112.3	113.6	114.9	116.2	117.5
80°	94.1	98.0	102.1	104.7	106.0	107.4	108.7	110.0
82.5°	87.2	91.2	95.2	97.8	99.1	100.4	101.6	102.8
85°	77.4	81.3	85.4	88.0	89.4	90.7	92.0	93.3
87.5°	76.1	79.6	83.9	86.6	87.8	89.1	90.3	91.5
90°	99.2	100.8	106.8	110.4	111.5	112.6	113.8	114.9
92.5°	156.4	146.6	141.1	136.7	137.0	134.6	136.7	136.0
95°	343.4	280.1	237.8	216.1	203.0	195.4	193.2	195.5
97.5°	722.1	603.8	488.9	412.1	360.9	335.1	320.2	312.2
100°	1049.5	917.3	770.8	640.6	550.7	504.7	474.0	455.3
102.5°	1263.3	1236.1	1129.8	991.7	894.0	814.7	776.1	750.5
105°	1373.9	1500.9	1518.4	1484.5	1417.7	1350.9	1304.8	1290.5
107.5°	1287.7	1477.2	1594.3	1649.4	1659.1	1656.3	1647.9	1628.6
110°	1214.4	1413.4	1556.6	1648.4	1696.6	1718.4	1729.4	1729.3





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	1147.2	1338.3	1491.2	1596.1	1662.6	1698.6	1718.2	1725.1
115°	1063.9	1235.4	1381.7	1496.4	1575.2	1626.6	1656.1	1667.0
117.5°	1000.3	1151.2	1284.0	1391.8	1472.0	1526.2	1557.2	1566.4
120°	968.2	1106.6	1225.3	1326.8	1404.5	1457.1	1489.9	1501.8
122.5°	942.4	1069.3	1181.9	1273.6	1343.2	1394.7	1423.8	1433.9
125°	904.4	1019.7	1118.7	1202.5	1266.9	1309.3	1337.6	1347.2
127.5°	867.0	971.4	1064.6	1142.0	1198.2	1238.0	1262.5	1270.4
130°	842.8	939.3	1028.0	1101.8	1156.3	1194.3	1216.9	1226.4
132.5°	819.6	909.0	990.7	1060.1	1113.6	1151.6	1172.5	1181.1
135°	787.2	861.5	935.8	998.4	1046.2	1083.2	1103.6	1108.8
137.5°	760.8	822.9	882.1	936.7	980.3	1012.0	1030.0	1037.2
140°	744.0	798.1	850.1	899.3	934.9	963.9	980.9	988.1
142.5°	730.5	776.4	821.0	862.1	895.9	922.3	937.5	939.2
145°	711.7	748.5	783.0	815.2	842.0	861.1	872.5	876.3
147.5°	697.4	725.9	752.5	775.9	797.8	812.9	820.6	822.7
150°	687.6	711.7	734.7	754.4	770.8	784.0	790.5	791.6
152.5°	678.0	700.3	719.8	736.9	749.8	761.2	766.0	766.2
155°	664.6	682.1	698.5	710.6	722.6	730.3	734.7	732.5
157.5°	649.0	663.7	677.5	686.9	695.5	701.8	703.8	703.8
160°	639.4	651.5	663.5	671.2	678.8	684.3	685.4	685.4
162.5°	629.8	640.1	650.4	656.3	663.9	667.7	668.7	667.9
165°	615.4	623.0	630.7	635.1	639.4	643.9	643.9	642.7
167.5°	601.5	607.5	612.7	616.7	618.6	621.0	620.9	619.5
170°	594.6	597.9	602.2	604.4	605.5	608.8	607.7	605.5
172.5°	586.6	589.1	592.6	593.9	595.0	596.5	595.4	594.1
175°	578.2	579.2	580.3	581.4	581.4	582.5	581.4	579.2
177.5°	572.0	572.0	572.9	572.9	572.9	572.9	572.0	570.2
180°	569.4	569.4	569.4	569.4	569.4	569.4	569.4	569.4

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