

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: P331644-830

Luminaire Tested: **SA2XXRDIP-C290D1080U830-4F0-1E-UDD-F4**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P331644-830
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-16,
Test Lab: INNOVATION CENTER
Issue Date: 10/7/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: SA2XXRDIP-C290D1080U830-4F0-1E-UDD-F4
Description: DEFINE 2 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 290 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 1080 LUMENS PER FOOT, BATWING OPTIC
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4940.2 lumens
Efficiency: N/A
Efficacy: 117.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular (W 0.17' x L: 4' x H: 0')
CIE Type: Semi-Indirect

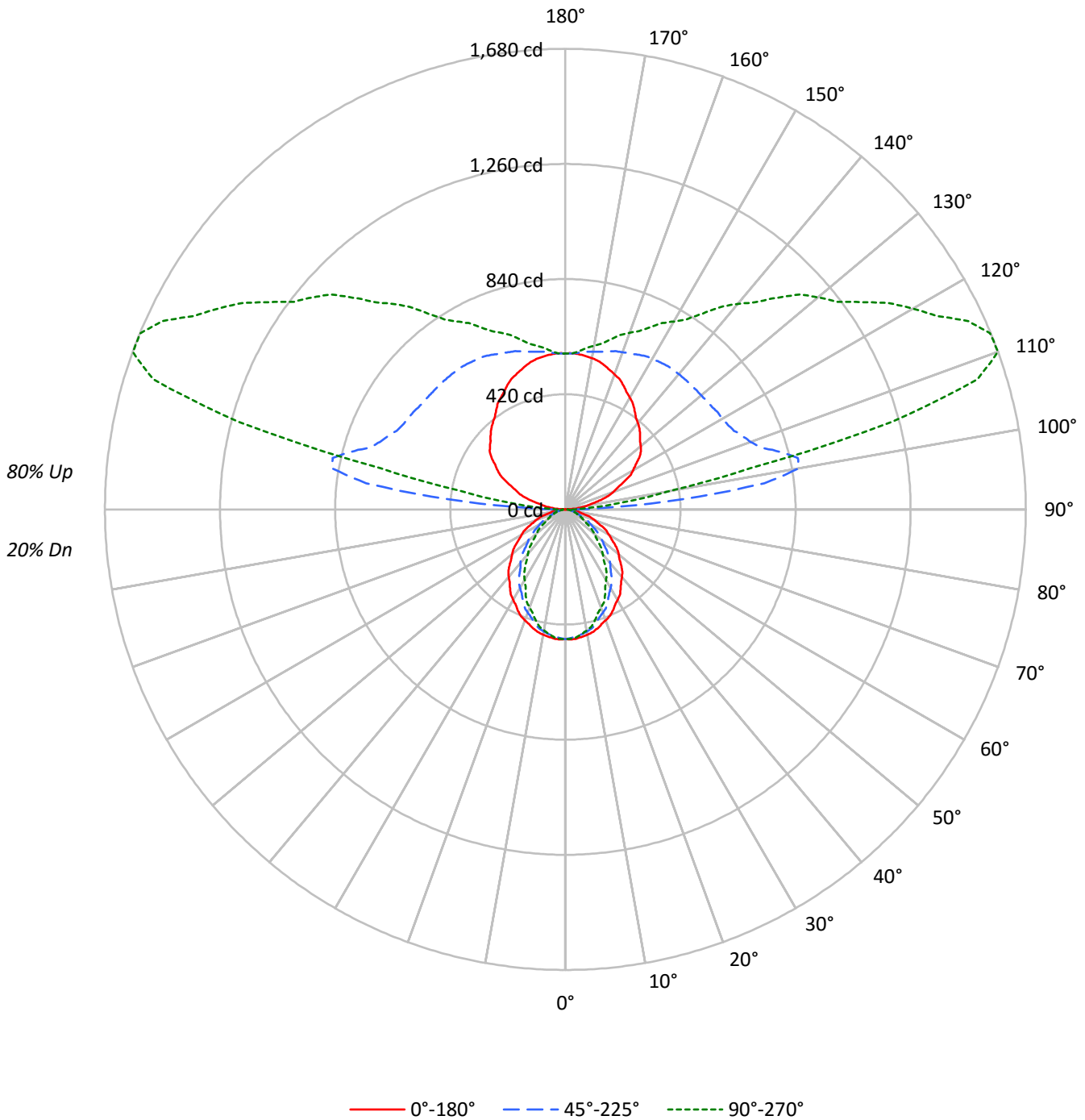
Input Watts (W): 42.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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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	91	87	83	80	80	77	74	71	58	56	55	41	40	39	25	25	24	17
2	83	76	70	66	73	68	63	59	51	48	45	36	34	33	22	21	21	15
3	76	67	60	55	67	60	54	49	45	42	38	32	30	28	20	19	18	13
4	69	59	52	46	61	53	47	42	40	36	33	29	26	24	18	17	15	11
5	64	53	45	40	56	47	41	36	36	32	28	26	23	21	16	15	14	10
6	58	47	40	34	52	42	36	31	32	28	24	23	20	18	15	13	12	9
7	54	42	35	30	48	38	32	27	29	25	21	21	18	16	14	12	11	8
8	50	38	31	26	44	34	28	24	27	22	19	19	16	14	12	11	10	7
9	46	35	28	23	41	31	25	21	24	20	17	18	15	13	11	10	9	6
10	43	32	25	21	38	29	23	19	22	18	15	16	13	11	11	9	8	6

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	7640	7640	7640
5°	7669	7543	7585
10°	7609	7420	7356
15°	7522	7199	6992
20°	7400	6887	6541
25°	7277	6531	6102
30°	7105	6162	5541
35°	6936	5765	5048
40°	6768	5351	4477
45°	6572	4889	3959
50°	6365	4421	3451
55°	6159	3916	2967
60°	5916	3387	2464
65°	5643	2846	2239
70°	5316	2346	2058
75°	4916	2133	1921
80°	4342	1906	1757
85°	3409	1501	1501



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.3	0.9
10°-20°	121.6	2.5
20°-30°	170.8	3.5
30°-40°	186.2	3.8
40°-50°	171.2	3.5
50°-60°	134.5	2.7
60°-70°	87.7	1.8
70°-80°	45.2	0.9
80°-90°	16.8	0.3
90°-100°	227.7	4.6
100°-110°	772.5	15.6
110°-120°	820.7	16.6
120°-130°	675.6	13.7
130°-140°	542.5	11.0
140°-150°	410.0	8.3
150°-160°	288.1	5.8
160°-170°	169.6	3.4
170°-180°	55.2	1.1
0°-30°	336.6	6.8
0°-40°	522.8	10.6
0°-60°	828.5	16.8
0°-90°	978.2	19.8
90°-120°	1820.9	36.9
90°-150°	3449.0	69.8
90°-180°	3962.0	80.2
0°-180°	4940.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	473	473	473	473	473	
5°	473	471	465	469	468	45
15°	450	445	431	423	418	127
25°	408	394	367	350	342	188
35°	352	329	292	266	256	220
45°	288	258	214	185	173	222
55°	219	185	139	114	105	195
65°	148	113	74	61	59	146
75°	79	50	34	31	31	83
85°	18	10	8	8	8	22
90°	1	15	37	36	36	3
95°	38	94	429	162	125	41
105°	134	202	811	1450	1234	142
115°	235	297	679	1401	1624	233
125°	328	389	653	1135	1317	292
135°	385	460	645	954	1092	298
145°	440	506	642	797	872	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	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	473.2	473.2	473.2	473.2	473.2	473.2	473.2	473.2	473.2	473.2	473.2
2.5°	474.9	474.5	474.1	473.7	473.3	472.7	471.8	471.1	470.2	469.4	470.1
5°	473.2	472.7	472.2	471.7	471.3	470.3	469.1	467.9	466.7	465.4	466.3
7.5°	468.3	467.7	467.0	466.5	465.9	464.9	463.4	461.9	460.5	459.1	459.3
10°	464.1	463.4	462.8	462.1	461.5	460.1	458.3	456.4	454.5	452.6	452.3
12.5°	459.0	458.2	457.3	456.6	455.7	454.1	451.7	449.2	446.8	444.3	443.8
15°	450.0	448.9	447.9	446.9	445.8	443.7	440.5	437.2	433.9	430.7	429.0
17.5°	438.9	437.3	435.7	434.1	432.5	429.7	425.6	421.4	417.3	413.1	410.9
20°	430.7	428.9	427.0	425.0	423.1	419.8	415.0	410.3	405.6	400.8	398.4
22.5°	421.9	419.7	417.5	415.5	413.3	409.5	404.2	398.8	393.5	388.1	385.0
25°	408.5	405.4	402.4	399.4	396.3	391.6	385.3	379.1	372.8	366.6	362.6
27.5°	392.4	389.1	385.8	382.5	379.1	373.9	366.8	359.8	352.7	345.6	341.1
30°	381.1	377.5	373.8	370.2	366.6	361.0	353.4	345.8	338.2	330.5	325.7
32.5°	370.1	365.9	361.7	357.4	353.2	347.2	339.5	331.7	324.0	316.1	310.7
35°	351.9	347.1	342.2	337.4	332.5	325.9	317.5	309.2	300.9	292.5	286.4
37.5°	333.8	328.5	323.1	317.8	312.5	305.4	296.4	287.5	278.6	269.7	263.1
40°	321.1	315.5	309.7	304.0	298.3	290.9	281.6	272.4	263.2	253.9	247.1
42.5°	308.1	302.1	296.1	290.1	284.1	276.3	266.7	257.2	247.7	238.2	231.2
45°	287.8	281.3	274.9	268.6	262.2	254.0	244.0	234.0	224.0	214.1	207.4
47.5°	267.9	261.1	254.4	247.6	240.8	232.3	222.0	211.7	201.3	191.1	184.4
50°	253.4	246.8	240.0	233.2	226.5	217.8	207.4	196.9	186.4	176.0	169.4
52.5°	239.4	232.3	225.4	218.3	211.2	202.6	192.3	182.1	171.8	161.6	155.2
55°	218.8	211.4	204.0	196.5	189.1	180.3	169.9	159.7	149.4	139.1	133.5
57.5°	197.7	190.0	182.4	174.8	167.2	158.4	148.5	138.7	128.8	118.9	113.7
60°	183.2	175.7	168.1	160.4	152.8	144.1	134.3	124.5	114.7	104.9	100.0
62.5°	169.2	161.6	154.0	146.4	138.7	130.3	120.9	111.6	102.3	92.9	88.3
65°	147.7	140.0	132.3	124.6	116.9	108.8	100.2	91.6	83.0	74.5	71.3
67.5°	127.0	119.3	111.7	104.1	96.4	88.7	81.0	73.3	65.6	57.9	56.4
70°	112.6	105.2	97.7	90.4	82.9	76.0	69.4	62.8	56.3	49.7	48.7
72.5°	98.9	91.8	84.6	77.6	70.4	64.3	59.0	53.7	48.4	43.2	42.3
75°	78.8	72.1	65.5	58.8	52.1	47.2	43.9	40.7	37.5	34.2	33.6
77.5°	59.0	53.2	47.3	41.5	35.6	32.0	30.3	28.8	27.2	25.7	25.4
80°	46.7	41.8	36.9	32.1	27.2	24.3	23.4	22.4	21.5	20.5	20.2
82.5°	35.3	31.6	27.8	24.0	20.3	18.0	17.3	16.7	16.0	15.5	15.2
85°	18.4	16.4	14.4	12.4	10.5	9.2	9.0	8.7	8.4	8.1	8.1
87.5°	5.7	5.7	6.0	5.8	5.7	6.0	7.2	8.7	10.0	10.2	9.9
90°	1.1	4.3	8.8	10.9	13.1	16.4	21.9	29.6	36.1	37.2	36.1
92.5°	13.4	19.2	27.1	32.0	39.4	49.7	74.5	109.2	140.3	142.3	120.3
95°	38.4	42.7	53.6	63.5	81.1	107.3	157.7	252.9	379.9	429.2	375.6
97.5°	62.4	68.3	79.9	94.8	115.0	144.8	208.0	340.7	551.9	732.7	768.6
100°	84.3	87.6	97.5	115.0	136.9	167.5	225.6	359.1	595.6	865.0	1022.7
102.5°	104.4	106.9	116.7	134.2	157.0	187.7	241.3	360.1	579.0	869.4	1117.3
105°	133.6	138.0	145.6	162.0	186.2	216.8	268.2	365.7	546.4	811.3	1102.6
107.5°	165.1	168.6	176.1	191.1	215.1	245.9	295.9	380.8	530.2	749.1	1006.4
110°	186.2	190.5	197.1	211.3	234.3	266.1	314.2	393.0	526.7	719.3	946.0



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	205.4	209.8	217.3	230.5	252.7	285.3	331.8	406.2	527.5	700.1	904.0
115°	235.4	240.9	247.4	260.6	282.5	312.1	359.1	425.9	532.2	678.8	851.9
117.5°	266.6	270.9	277.5	289.1	310.1	340.7	384.3	447.0	540.0	668.5	819.0
120°	285.8	290.1	296.7	306.6	328.5	359.1	401.8	461.0	545.3	662.4	801.4
122.5°	304.2	307.6	314.2	325.0	346.9	378.4	418.5	473.3	551.4	658.9	786.6
125°	328.5	331.8	338.4	351.5	373.3	404.1	443.5	492.8	560.6	652.6	765.3
127.5°	347.7	352.1	361.4	375.8	396.8	428.3	466.7	510.9	570.0	648.8	745.6
130°	359.1	363.5	374.5	389.8	411.7	442.3	480.7	522.3	577.0	647.1	732.5
132.5°	369.7	374.9	386.7	402.9	425.7	456.4	492.9	533.7	584.0	646.2	722.0
135°	385.4	389.8	402.9	419.3	444.5	475.2	510.2	548.6	592.4	644.9	707.3
137.5°	400.3	405.6	418.7	436.2	461.2	489.7	524.2	560.0	599.8	644.7	697.0
140°	411.7	416.0	429.2	446.8	470.8	499.3	532.2	566.1	603.3	643.9	690.9
142.5°	423.1	426.6	438.8	456.4	479.6	506.3	538.3	571.4	606.0	643.9	684.8
145°	440.2	444.5	455.5	471.9	493.8	517.9	547.4	578.2	608.8	641.6	676.7
147.5°	458.5	461.8	472.3	487.5	505.7	527.1	554.9	581.8	609.6	637.7	668.4
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°	473.2	473.2	473.2	473.2	473.2	473.2	473.2	473.2
2.5°	470.9	471.6	472.4	472.7	472.6	472.4	472.2	472.1
5°	467.1	468.0	468.8	469.1	468.8	468.5	468.3	468.0
7.5°	459.6	459.9	460.1	460.0	459.5	458.9	458.5	458.0
10°	452.0	451.8	451.5	451.0	450.4	449.9	449.3	448.7
12.5°	443.4	442.8	442.3	441.6	440.6	439.7	438.8	437.8
15°	427.2	425.3	423.5	422.2	421.2	420.2	419.2	418.3
17.5°	408.8	406.6	404.5	402.7	401.0	399.4	397.7	396.1
20°	396.1	393.6	391.2	389.0	386.9	384.8	382.8	380.7
22.5°	382.0	378.9	375.9	373.5	371.9	370.4	368.8	367.3
25°	358.7	354.8	350.9	348.3	346.9	345.3	343.9	342.5
27.5°	336.5	332.0	327.4	324.0	321.8	319.5	317.3	315.0
30°	320.8	316.0	311.1	307.5	304.8	302.3	299.7	297.2
32.5°	305.1	299.5	294.0	290.0	287.7	285.2	282.8	280.4
35°	280.5	274.5	268.4	264.4	262.3	260.2	258.2	256.1
37.5°	256.5	249.9	243.3	238.7	236.4	233.9	231.6	229.1
40°	240.4	233.7	226.9	222.3	219.8	217.4	214.8	212.4
42.5°	224.1	217.2	210.2	205.6	203.1	200.8	198.3	196.0
45°	200.6	193.8	187.1	182.6	180.3	178.0	175.7	173.4
47.5°	177.6	170.9	164.2	159.8	157.7	155.6	153.5	151.5
50°	162.9	156.3	149.7	145.4	143.5	141.5	139.4	137.4
52.5°	148.9	142.6	136.3	132.1	130.4	128.5	126.6	124.8
55°	127.7	122.1	116.3	112.5	110.7	109.0	107.2	105.4
57.5°	108.5	103.2	98.0	94.6	93.1	91.6	90.1	88.5
60°	95.2	90.4	85.5	82.3	80.8	79.3	77.8	76.3
62.5°	83.7	79.1	74.5	71.6	70.7	69.8	68.9	68.0
65°	68.1	64.8	61.5	59.8	59.5	59.2	58.9	58.6
67.5°	55.0	53.4	51.9	51.1	50.7	50.4	50.1	49.9
70°	47.8	46.8	45.9	45.2	44.8	44.4	44.0	43.6
72.5°	41.6	40.7	40.0	39.5	39.2	39.0	38.7	38.5
75°	32.9	32.2	31.6	31.2	31.1	31.0	30.9	30.8
77.5°	24.9	24.5	24.1	23.9	23.8	23.6	23.5	23.3
80°	19.8	19.4	19.0	18.9	18.9	18.9	18.9	18.9
82.5°	15.0	14.7	14.5	14.4	14.4	14.4	14.4	14.4
85°	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
87.5°	9.6	9.0	9.4	9.6	9.6	9.6	9.6	9.6
90°	35.1	32.9	35.1	36.1	36.1	36.1	36.1	36.1
92.5°	95.5	81.9	72.7	65.9	65.0	61.5	62.4	60.7
95°	286.9	220.1	174.1	150.0	135.7	127.1	123.8	124.8
97.5°	669.4	547.7	429.2	350.2	297.8	270.9	254.9	245.7
100°	999.7	863.9	713.9	581.4	490.5	443.5	411.7	392.0
102.5°	1216.1	1185.3	1075.6	935.3	836.5	756.2	716.5	689.8
105°	1330.3	1454.1	1468.3	1432.2	1364.2	1296.4	1249.3	1234.0
107.5°	1248.0	1434.4	1548.2	1601.2	1609.8	1606.0	1596.6	1576.2
110°	1177.0	1373.0	1513.2	1603.0	1650.0	1670.8	1680.7	1679.6



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	1112.2	1300.3	1450.1	1553.0	1618.5	1653.3	1672.0	1677.8
115°	1032.6	1201.2	1344.5	1457.4	1535.1	1585.5	1613.9	1623.8
117.5°	972.5	1120.6	1250.7	1356.4	1435.7	1488.8	1518.9	1527.2
120°	942.7	1078.5	1194.6	1294.2	1370.8	1422.3	1454.1	1465.0
122.5°	919.1	1043.5	1153.4	1243.4	1312.1	1362.7	1391.0	1400.1
125°	884.7	997.5	1093.8	1175.9	1239.4	1281.1	1308.4	1317.2
127.5°	850.7	952.8	1043.7	1119.5	1174.9	1213.8	1237.5	1244.5
130°	828.9	923.0	1009.6	1081.8	1135.5	1172.7	1194.6	1203.3
132.5°	807.9	895.0	974.5	1042.4	1095.1	1132.4	1152.5	1160.4
135°	778.4	850.7	923.0	984.3	1031.4	1067.5	1087.2	1091.7
137.5°	755.1	815.5	872.9	926.3	969.2	1000.3	1017.7	1024.2
140°	740.2	792.8	843.1	891.3	926.3	954.8	971.2	977.8
142.5°	727.9	772.6	816.0	856.2	889.5	915.4	930.0	931.3
145°	710.6	746.8	780.7	812.5	838.7	857.3	868.3	871.6
147.5°	697.3	725.8	752.2	775.4	797.1	812.0	819.4	821.4
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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