

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: P331480-830

Luminaire Tested: **S122DIW-S290D970U830-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P331480-830  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-8,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S122DIW-S290D970U830-4F0-1E-UDD-D1  
Description: DEFINE 2 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 290 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 970 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4294.9 lumens  
Efficiency: N/A  
Efficacy: 113.0 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

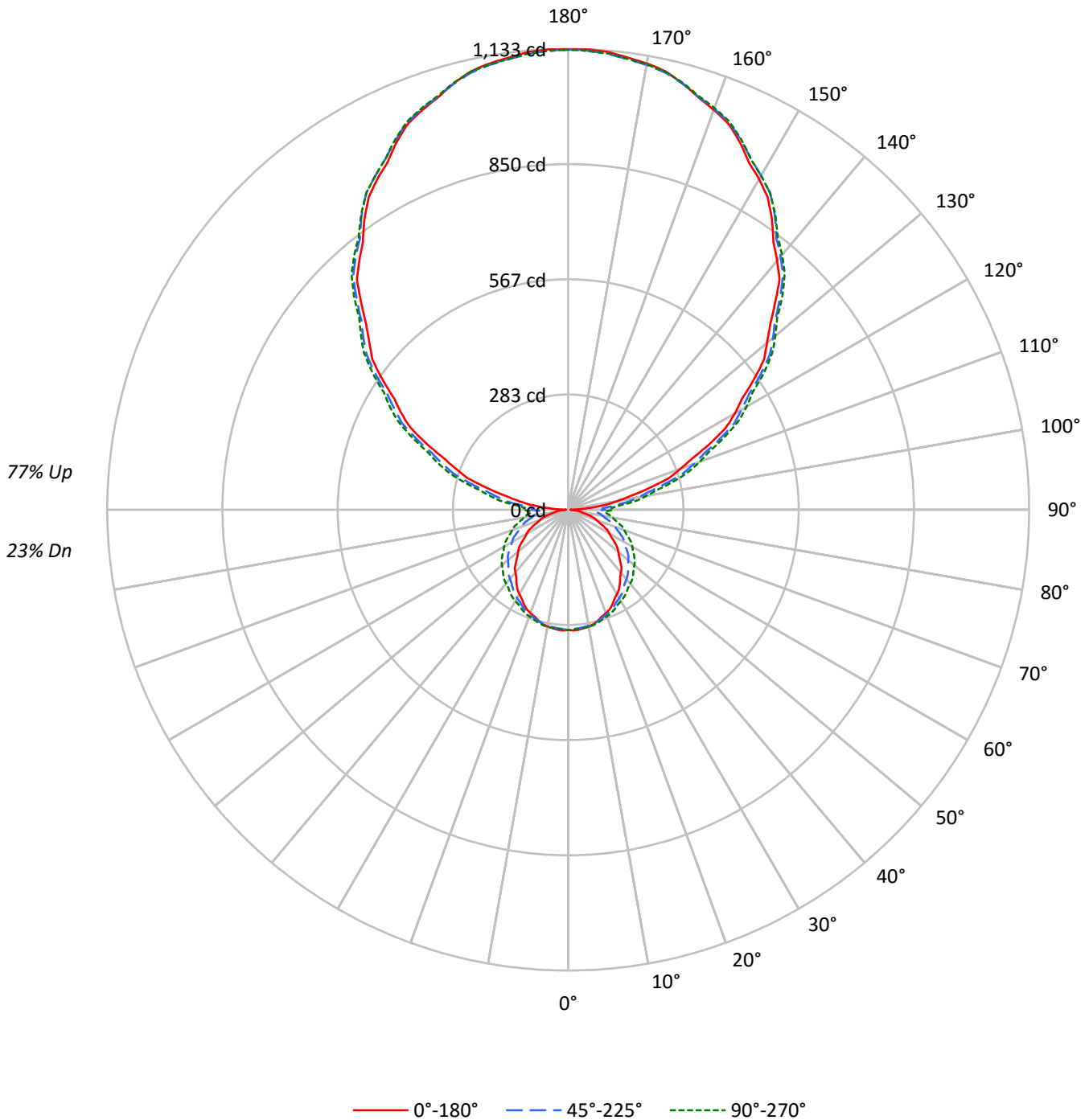
Input Watts (W): 38  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	50	30	10	0	
RCR																						
0	101	101	101	101	90	90	90	90	69	69	69	49	49	49	32	32	32	23				
1	91	87	83	79	81	77	74	71	59	57	55	42	41	39	27	26	25	18				
2	83	75	69	64	73	67	62	57	51	48	45	37	34	32	23	22	21	15				
3	75	66	59	53	66	58	52	47	45	41	37	32	29	27	20	19	17	12				
4	69	58	50	44	60	52	45	40	40	35	31	28	25	23	18	16	15	10				
5	63	51	43	38	55	46	39	34	35	30	27	25	22	20	16	14	13	9				
6	58	46	38	32	51	41	34	29	31	27	23	23	19	17	14	13	11	8				
7	53	41	33	28	47	37	30	25	28	24	20	21	17	15	13	11	10	7				
8	49	37	30	24	43	33	27	22	26	21	18	19	15	13	12	10	9	6				
9	46	34	26	22	40	30	24	20	23	19	16	17	14	12	11	9	8	5				
10	42	31	24	19	38	28	21	17	21	17	14	16	13	10	10	8	7	5				

**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	0.7
10°-20°	80.3	1.9
20°-30°	121.6	2.8
30°-40°	148.2	3.4
40°-50°	159.4	3.7
50°-60°	154.8	3.6
60°-70°	135.2	3.1
70°-80°	104.1	2.4
80°-90°	74.4	1.7
90°-100°	119.8	2.8
100°-110°	257.8	6.0
110°-120°	403.8	9.4
120°-130°	513.4	12.0
130°-140°	567.1	13.2
140°-150°	551.7	12.8
150°-160°	462.0	10.8
160°-170°	306.4	7.1
170°-180°	107.1	2.5
0°-30°	229.9	5.4
0°-40°	378.1	8.8
0°-60°	692.3	16.1
0°-90°	1005.9	23.4
90°-120°	781.3	18.2
90°-150°	2413.6	56.2
90°-180°	3289.0	76.6
0°-180°	4294.9	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	42	90	105	111	5
95°	53	83	110	126	130	60
105°	207	223	247	263	268	219
115°	384	394	411	423	425	379
125°	556	565	576	584	588	497
135°	719	730	736	744	745	556
145°	872	879	885	888	887	545
155°	998	1000	1003	1008	1005	459
165°	1085	1085	1084	1090	1086	306
175°	1129	1126	1124	1131	1126	107
180°	1131	1131	1131	1131	1131	



TEST NUMBER: P331480-830

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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	14.8	20.9	27.1	33.3	39.9	46.9	53.9	61.0	68.0	71.8
90°	5.3	13.3	21.4	29.4	37.5	46.9	57.7	68.4	79.2	89.9	93.3
92.5°	20.9	27.9	35.0	41.9	48.9	55.9	62.9	69.8	76.8	83.8	87.7
95°	53.1	59.7	66.3	72.9	79.5	85.8	91.9	98.1	104.2	110.4	114.0
97.5°	93.7	99.5	105.4	111.2	117.1	123.1	129.4	135.7	141.9	148.3	151.8
100°	124.2	129.4	134.7	139.9	145.2	150.7	156.7	162.6	168.6	174.6	178.0
102.5°	156.0	160.5	165.1	169.7	174.3	179.6	185.5	191.5	197.5	203.5	207.1
105°	207.4	210.8	214.1	217.5	220.9	225.4	230.7	236.1	241.5	246.9	250.6
107.5°	259.6	262.8	265.9	269.0	272.2	276.2	280.9	285.6	290.3	295.1	298.4
110°	292.8	296.1	299.3	302.4	305.6	309.5	314.1	318.9	323.5	328.2	331.2



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	329.5	332.4	335.3	338.2	341.0	344.6	348.8	353.2	357.4	361.7	364.2
115°	383.6	385.9	388.2	390.5	392.9	396.0	399.8	403.7	407.6	411.4	414.1
117.5°	437.0	439.4	441.8	444.1	446.5	449.1	451.9	454.7	457.4	460.1	462.5
120°	472.9	474.9	477.0	479.1	481.2	483.3	485.4	487.5	489.7	491.7	494.4
122.5°	505.8	507.9	510.1	512.3	514.4	516.8	519.2	521.5	524.0	526.3	528.4
125°	556.5	558.4	560.2	562.2	564.1	566.3	568.6	571.1	573.4	575.9	577.9
127.5°	606.3	608.6	611.0	613.3	615.6	617.6	619.3	620.9	622.6	624.3	625.9
130°	637.6	640.3	642.9	645.6	648.3	650.4	652.0	653.6	655.1	656.7	658.6
132.5°	672.8	674.9	677.0	679.2	681.4	683.2	684.9	686.5	688.2	689.8	691.1
135°	719.3	721.6	724.0	726.3	728.6	730.5	731.9	733.2	734.6	735.9	737.7
137.5°	768.7	770.6	772.5	774.4	776.3	777.7	778.7	779.7	780.6	781.7	783.2
140°	798.5	800.3	802.2	804.0	805.8	807.3	808.6	809.8	811.1	812.3	813.9
142.5°	829.1	830.9	832.7	834.5	836.3	837.6	838.4	839.1	839.9	840.7	842.1
145°	872.5	874.0	875.5	877.0	878.5	879.9	881.2	882.4	883.7	885.0	885.7
147.5°	911.7	913.5	915.3	917.0	918.8	920.1	921.0	921.8	922.7	923.5	924.1
150°	938.4	939.7	940.9	942.3	943.5	944.6	945.5	946.3	947.2	948.0	948.6
152.5°	962.1	963.4	964.7	965.9	967.2	968.4	969.4	970.3	971.4	972.4	973.2
155°	997.6	998.2	998.9	999.6	1000.1	1000.8	1001.5	1002.1	1002.7	1003.3	1004.4
157.5°	1027.9	1028.4	1028.8	1029.3	1029.6	1030.1	1030.5	1030.9	1031.2	1031.6	1033.0
160°	1046.3	1046.7	1047.2	1047.5	1048.0	1048.3	1048.6	1048.8	1049.0	1049.1	1050.5
162.5°	1063.1	1063.2	1063.3	1063.4	1063.5	1063.6	1063.8	1064.0	1064.2	1064.4	1065.9
165°	1085.4	1085.2	1085.1	1084.8	1084.6	1084.5	1084.5	1084.5	1084.5	1084.5	1086.0
167.5°	1104.2	1103.5	1102.9	1102.2	1101.6	1101.3	1101.3	1101.2	1101.2	1101.1	1102.6
170°	1114.1	1113.4	1112.9	1112.2	1111.5	1111.2	1110.9	1110.7	1110.5	1110.3	1111.7
172.5°	1121.0	1120.3	1119.6	1119.1	1118.4	1117.9	1117.8	1117.6	1117.4	1117.1	1118.6
175°	1129.4	1128.7	1128.1	1127.5	1126.8	1126.2	1125.9	1125.4	1125.0	1124.5	1126.1
177.5°	1132.8	1132.3	1131.8	1131.2	1130.8	1130.3	1130.0	1129.6	1129.4	1129.0	1130.0
180°	1131.2	1131.2	1131.2	1131.2	1131.2	1131.2	1131.2	1131.2	1131.2	1131.2	1131.2



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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°	75.6	79.4	83.2	85.7	87.0	88.2	89.5	90.8
90°	96.7	100.1	103.5	105.8	107.2	108.6	109.9	111.2
92.5°	91.4	95.2	99.1	101.5	102.7	104.0	105.1	106.3
95°	117.5	121.2	124.8	127.0	127.7	128.4	129.1	129.9
97.5°	155.3	158.8	162.4	164.7	165.7	166.8	167.9	169.0
100°	181.6	185.1	188.6	190.9	191.6	192.5	193.3	194.2
102.5°	210.7	214.3	217.9	220.2	221.0	221.8	222.6	223.5
105°	254.4	258.1	261.8	264.3	265.3	266.4	267.4	268.4
107.5°	301.8	305.2	308.6	310.3	310.4	310.4	310.5	310.6
110°	334.2	337.3	340.4	342.0	342.5	342.9	343.3	343.7





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	366.7	369.3	371.8	373.3	373.9	374.5	375.1	375.7
115°	416.7	419.3	422.0	423.5	423.9	424.3	424.7	425.1
117.5°	464.8	467.1	469.4	470.7	471.1	471.4	471.7	472.0
120°	497.1	499.7	502.4	503.9	504.4	504.7	505.1	505.6
122.5°	530.5	532.5	534.6	535.9	536.3	536.8	537.2	537.6
125°	579.8	581.7	583.6	584.9	585.6	586.2	586.8	587.5
127.5°	627.5	629.1	630.7	631.6	631.8	632.0	632.1	632.3
130°	660.4	662.2	664.1	665.0	664.9	664.9	664.8	664.7
132.5°	692.3	693.6	694.8	695.5	695.6	695.7	695.8	695.9
135°	739.5	741.3	743.1	744.0	744.2	744.3	744.4	744.6
137.5°	784.8	786.4	788.0	788.6	788.4	788.2	788.1	787.8
140°	815.4	816.9	818.4	819.1	818.8	818.5	818.2	817.9
142.5°	843.4	844.8	846.2	846.7	846.4	846.0	845.6	845.3
145°	886.6	887.3	888.1	888.3	888.0	887.6	887.2	886.8
147.5°	924.6	925.2	925.7	925.7	925.1	924.5	924.0	923.4
150°	949.2	949.9	950.6	950.6	949.9	949.2	948.6	948.0
152.5°	974.0	974.9	975.6	975.6	974.9	974.0	973.2	972.4
155°	1005.5	1006.5	1007.6	1007.8	1007.2	1006.5	1005.9	1005.2
157.5°	1034.5	1035.9	1037.4	1037.6	1036.6	1035.6	1034.5	1033.5
160°	1051.7	1053.0	1054.2	1054.5	1053.7	1052.8	1052.0	1051.1
162.5°	1067.3	1068.7	1070.3	1070.4	1069.4	1068.4	1067.3	1066.4
165°	1087.5	1088.9	1090.4	1090.6	1089.6	1088.5	1087.5	1086.4
167.5°	1104.1	1105.6	1107.0	1107.2	1106.2	1105.0	1103.9	1102.9
170°	1113.2	1114.7	1116.3	1116.3	1115.0	1113.8	1112.5	1111.3
172.5°	1120.1	1121.6	1123.0	1123.2	1121.9	1120.7	1119.4	1118.1
175°	1127.6	1129.1	1130.5	1130.7	1129.4	1128.1	1126.8	1125.6
177.5°	1131.1	1132.0	1133.0	1133.0	1132.0	1131.1	1130.0	1129.0
180°	1131.2	1131.2	1131.2	1131.2	1131.2	1131.2	1131.2	1131.2

(END OF REPORT)