

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: P332731-930

Luminaire Tested: **S124DIW-S350D1050U930-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332731-930  
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: S124DIW-S350D1050U930-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 350 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1050 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4655.4 lumens  
Efficiency: N/A  
Efficacy: 122.5 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

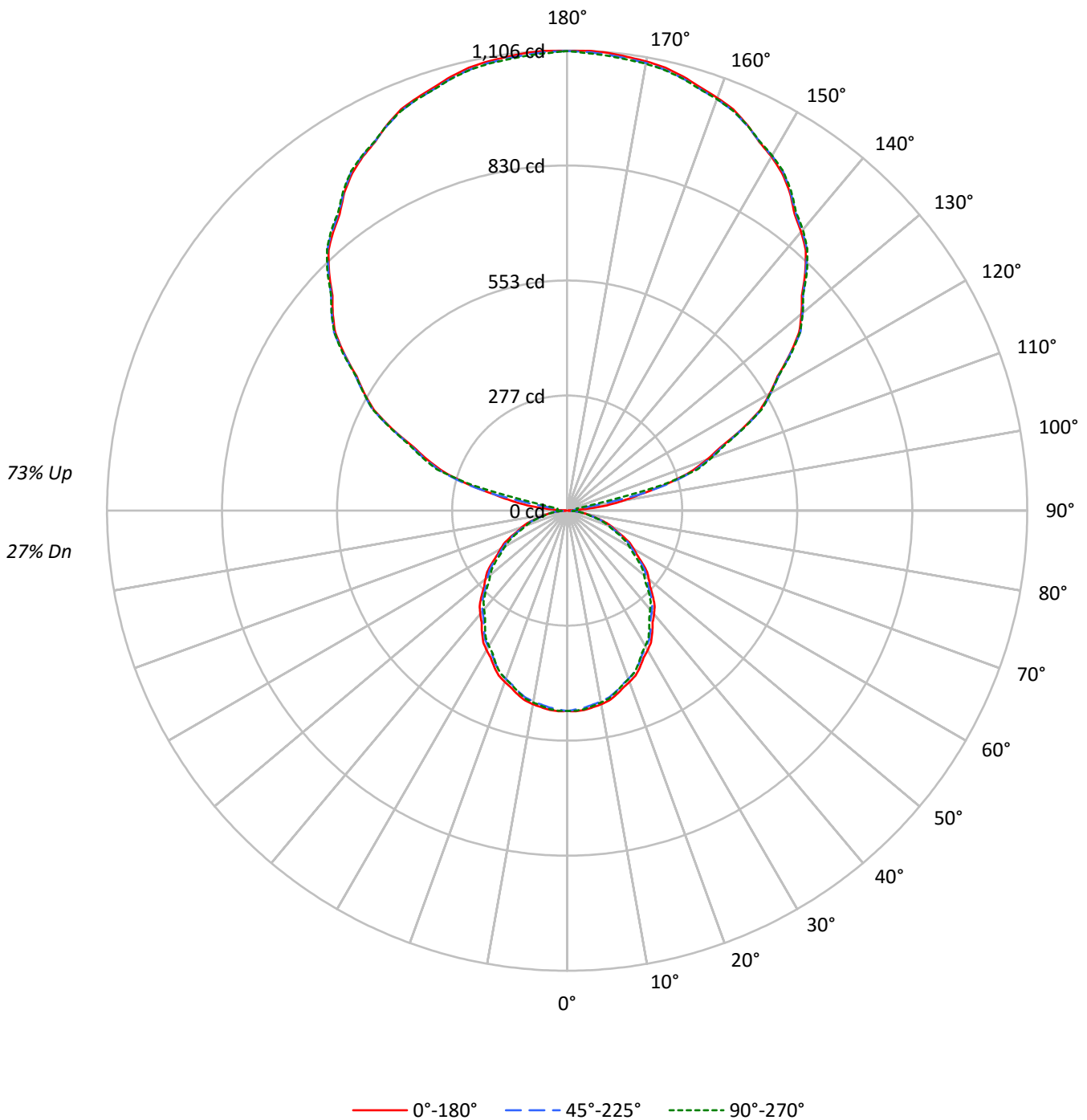
Input Watts (W): 38  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	50	30	10	0	
RCR																						
0	102	102	102	102	91	91	91	91	70	70	70	52	52	52	35	35	35	27				
1	93	88	85	81	82	79	76	73	61	59	57	45	44	43	31	30	29	22				
2	84	77	71	66	75	69	64	60	54	50	47	40	38	36	27	26	24	19				
3	77	68	61	55	68	61	55	50	47	43	40	35	32	30	24	22	21	16				
4	70	60	52	46	62	54	47	42	42	37	34	31	28	26	21	19	18	14				
5	64	53	45	40	57	48	41	36	37	33	29	28	25	22	19	17	16	12				
6	59	47	40	34	52	43	36	31	34	29	25	25	22	19	17	15	14	10				
7	54	43	35	30	48	38	32	27	30	26	22	23	20	17	16	14	12	9				
8	50	39	31	26	45	35	28	24	28	23	19	21	18	15	14	12	11	8				
9	47	35	28	23	42	32	25	21	25	21	17	19	16	13	13	11	10	7				
10	44	32	25	20	39	29	23	19	23	19	15	18	14	12	12	10	9	7				

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

	0°	45°	90°
0°	3888	3888	3888
5°	3900	3853	3881
10°	3875	3822	3841
15°	3828	3768	3777
20°	3766	3699	3703
25°	3695	3624	3613
30°	3608	3533	3500
35°	3517	3438	3392
40°	3424	3331	3270
45°	3327	3225	3164
50°	3218	3131	3034
55°	3102	3009	2911
60°	2984	2872	2785
65°	2854	2743	2632
70°	2705	2568	2469
75°	2480	2361	2299
80°	2208	2120	2064
85°	1936	1862	1815



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	45.4	1.0
10°-20°	127.8	2.7
20°-30°	188.1	4.0
30°-40°	218.7	4.7
40°-50°	218.7	4.7
50°-60°	191.3	4.1
60°-70°	142.1	3.1
70°-80°	80.7	1.7
80°-90°	26.5	0.6
90°-100°	37.8	0.8
100°-110°	240.8	5.2
110°-120°	460.7	9.9
120°-130°	584.9	12.6
130°-140°	625.8	13.4
140°-150°	585.2	12.6
150°-160°	471.9	10.1
160°-170°	304.4	6.5
170°-180°	104.9	2.3
0°-30°	361.2	7.8
0°-40°	579.9	12.5
0°-60°	989.8	21.3
0°-90°	1239.1	26.6
90°-120°	739.3	15.9
90°-150°	2535.2	54.5
90°-180°	3416.0	73.4
0°-180°	4655.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	482	482	482	482	482	
5°	481	480	475	479	479	46
15°	458	456	451	453	452	129
25°	415	412	407	407	406	191
35°	357	354	349	346	344	223
45°	291	288	282	278	277	225
55°	220	219	214	209	207	197
65°	149	147	144	140	138	148
75°	80	78	76	74	74	84
85°	21	21	20	20	20	23
90°	2	11	18	23	25	3
95°	45	19	18	23	24	58
105°	249	254	258	263	236	260
115°	464	466	466	467	468	457
125°	653	656	654	657	658	582
135°	810	809	812	814	815	623
145°	933	936	936	937	938	583
155°	1023	1024	1022	1025	1023	472
165°	1080	1076	1076	1081	1075	305
175°	1104	1100	1100	1107	1098	105
180°	1104	1104	1104	1104	1104	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	481.6	481.6	481.6	481.6	481.6	481.6	481.6	481.6	481.6	481.6	481.6
2.5°	482.8	482.7	482.4	482.2	482.0	481.5	480.8	480.0	479.3	478.5	479.2
5°	481.2	480.9	480.5	480.2	479.9	479.2	478.3	477.4	476.4	475.4	476.4
7.5°	476.8	476.4	476.1	475.7	475.4	474.7	473.6	472.6	471.6	470.5	471.2
10°	472.7	472.4	472.1	471.7	471.4	470.7	469.5	468.4	467.3	466.2	466.8
12.5°	467.5	467.2	466.8	466.4	466.1	465.4	464.1	463.0	461.8	460.6	461.4
15°	458.0	457.7	457.4	457.1	456.7	455.9	454.6	453.3	452.0	450.8	451.3
17.5°	446.7	446.3	445.9	445.5	445.0	444.2	443.0	441.7	440.5	439.3	439.6
20°	438.4	438.0	437.6	437.1	436.7	435.9	434.6	433.3	431.9	430.6	431.0
22.5°	429.4	428.8	428.3	427.7	427.1	426.2	424.9	423.7	422.4	421.1	421.6
25°	414.8	414.3	413.7	413.0	412.5	411.6	410.3	409.1	408.0	406.8	406.8
27.5°	398.2	397.5	397.0	396.3	395.7	394.8	393.7	392.6	391.5	390.4	390.2
30°	387.1	386.4	385.7	385.0	384.3	383.4	382.3	381.2	380.1	379.0	378.6
32.5°	375.4	374.7	374.1	373.5	372.8	371.9	370.8	369.6	368.4	367.2	366.8
35°	356.9	356.4	355.8	355.1	354.6	353.7	352.5	351.2	350.1	348.9	348.3
37.5°	337.6	337.0	336.5	336.0	335.4	334.5	333.2	331.9	330.6	329.3	328.6
40°	324.9	324.2	323.6	322.9	322.2	321.2	319.9	318.6	317.3	316.1	315.2
42.5°	311.4	311.0	310.5	310.1	309.7	308.8	307.4	305.9	304.5	303.1	302.1
45°	291.4	290.7	290.2	289.6	288.9	288.0	286.6	285.2	283.9	282.5	281.5
47.5°	270.4	270.0	269.6	269.2	268.8	268.0	266.7	265.4	264.2	262.9	261.8
50°	256.2	255.9	255.6	255.2	254.9	254.1	252.9	251.7	250.5	249.3	248.1
52.5°	242.4	241.9	241.5	241.1	240.7	239.9	238.6	237.3	236.0	234.8	233.7
55°	220.4	220.1	219.8	219.6	219.3	218.6	217.4	216.2	215.0	213.8	212.8
57.5°	199.3	199.1	198.8	198.5	198.2	197.5	196.2	195.1	193.9	192.7	191.8
60°	184.8	184.4	184.0	183.5	183.1	182.4	181.2	180.1	179.0	177.9	177.2
62.5°	170.6	170.3	169.9	169.6	169.2	168.4	167.2	166.1	164.9	163.7	163.0
65°	149.4	149.0	148.5	148.1	147.7	147.0	146.1	145.3	144.4	143.6	142.7
67.5°	127.9	127.5	127.1	126.7	126.3	125.7	124.9	124.1	123.3	122.4	121.6
70°	114.6	114.0	113.4	112.8	112.2	111.5	110.9	110.2	109.5	108.8	108.1
72.5°	100.4	99.8	99.2	98.7	98.0	97.4	96.9	96.4	95.8	95.2	94.7
75°	79.5	79.1	78.7	78.2	77.8	77.4	77.0	76.5	76.1	75.7	75.3
77.5°	59.5	59.4	59.1	58.9	58.8	58.5	58.1	57.7	57.3	57.0	56.8
80°	47.5	47.2	47.0	46.7	46.5	46.2	46.1	45.9	45.7	45.6	45.3
82.5°	35.7	35.6	35.5	35.4	35.2	35.1	35.1	35.1	35.1	35.1	35.0
85°	20.9	20.9	20.9	20.9	20.9	20.8	20.5	20.4	20.2	20.1	20.1
87.5°	8.6	8.9	9.2	9.5	9.9	10.1	10.4	10.6	10.8	11.0	11.3
90°	2.4	4.5	6.5	8.6	10.5	12.3	13.8	15.2	16.7	18.2	19.2
92.5°	10.4	10.5	10.6	10.8	10.8	11.7	13.1	14.6	16.1	17.5	18.6
95°	45.4	39.2	32.9	26.7	20.5	17.4	17.6	17.8	18.0	18.2	19.2
97.5°	96.4	100.4	104.3	108.2	112.0	103.8	83.2	62.8	42.3	21.8	21.9
100°	135.5	138.8	142.1	145.4	148.7	137.7	112.3	87.0	61.7	36.4	33.3
102.5°	179.1	181.5	183.9	186.4	188.7	188.3	185.1	181.7	178.4	175.1	141.5
105°	248.7	249.7	250.9	251.9	253.1	254.0	254.9	255.9	256.8	257.7	259.3
107.5°	313.2	313.8	314.3	314.9	315.4	316.3	317.6	318.9	320.1	321.3	322.1
110°	356.9	357.4	357.9	358.5	359.1	359.9	361.0	362.1	363.2	364.3	364.7



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	399.2	400.1	401.1	402.1	403.1	403.9	404.4	404.9	405.4	405.9	405.9
115°	464.2	464.8	465.4	465.9	466.4	466.6	466.4	466.3	466.1	465.9	466.3
117.5°	522.9	523.6	524.3	525.1	525.8	526.4	526.8	527.2	527.6	528.0	527.9
120°	562.6	563.3	564.0	564.8	565.5	565.7	565.6	565.4	565.2	565.0	565.4
122.5°	599.6	600.0	600.4	600.9	601.3	601.7	601.9	602.2	602.4	602.7	602.9
125°	652.6	653.3	654.0	654.8	655.5	655.7	655.3	654.9	654.6	654.2	654.8
127.5°	702.8	703.0	703.2	703.4	703.5	704.0	704.9	705.7	706.5	707.4	707.4
130°	735.2	735.4	735.6	735.7	735.9	736.3	736.9	737.4	737.9	738.5	738.7
132.5°	764.9	765.2	765.6	765.9	766.2	766.8	767.4	768.2	768.8	769.6	769.7
135°	809.5	809.3	809.2	808.9	808.8	809.1	809.8	810.6	811.3	812.0	812.4
137.5°	849.0	849.1	849.1	849.2	849.3	849.7	850.5	851.3	852.2	853.0	853.4
140°	874.8	875.1	875.5	875.9	876.3	876.6	877.0	877.3	877.8	878.1	878.6
142.5°	897.9	898.5	899.2	899.9	900.6	901.0	901.2	901.4	901.6	901.9	902.3
145°	933.4	934.0	934.5	935.1	935.6	935.9	935.9	935.9	935.9	935.9	936.1
147.5°	961.6	962.7	963.8	964.7	965.8	966.2	966.0	965.9	965.6	965.5	965.6
150°	982.2	982.9	983.7	984.4	985.1	985.4	985.2	985.0	984.8	984.6	984.6
152.5°	999.3	1000.0	1000.5	1001.1	1001.7	1001.8	1001.5	1001.2	1000.9	1000.5	1000.8
155°	1023.4	1023.7	1023.9	1024.0	1024.2	1024.0	1023.4	1023.0	1022.4	1021.8	1022.5
157.5°	1043.8	1043.7	1043.6	1043.4	1043.3	1043.0	1042.4	1041.7	1041.1	1040.5	1041.5
160°	1055.6	1055.2	1054.6	1054.0	1053.4	1053.1	1053.0	1052.7	1052.6	1052.4	1053.4
162.5°	1066.2	1065.6	1064.9	1064.1	1063.5	1063.0	1062.8	1062.7	1062.5	1062.3	1063.4
165°	1079.6	1078.7	1077.8	1076.8	1076.0	1075.5	1075.5	1075.5	1075.5	1075.5	1077.0
167.5°	1090.2	1089.2	1088.3	1087.4	1086.4	1085.9	1085.7	1085.7	1085.6	1085.4	1087.0
170°	1096.2	1095.0	1094.0	1092.8	1091.8	1091.3	1091.4	1091.7	1091.8	1092.0	1093.5
172.5°	1100.1	1099.0	1097.9	1096.8	1095.7	1095.3	1095.4	1095.6	1095.8	1096.0	1097.5
175°	1104.4	1103.3	1102.2	1101.1	1100.0	1099.6	1099.8	1099.9	1100.1	1100.3	1102.0
177.5°	1106.4	1105.4	1104.3	1103.3	1102.3	1102.0	1102.2	1102.5	1102.8	1103.1	1104.2
180°	1104.4	1104.4	1104.4	1104.4	1104.4	1104.4	1104.4	1104.4	1104.4	1104.4	1104.4



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	481.6	481.6	481.6	481.6	481.6	481.6	481.6	481.6
2.5°	479.9	480.6	481.3	481.6	481.5	481.4	481.4	481.3
5°	477.4	478.3	479.2	479.6	479.4	479.2	479.1	478.9
7.5°	472.0	472.8	473.5	473.9	473.8	473.6	473.5	473.4
10°	467.6	468.2	469.0	469.2	469.0	468.8	468.6	468.5
12.5°	462.1	462.8	463.7	463.9	463.7	463.4	463.2	462.9
15°	451.8	452.2	452.8	452.9	452.7	452.4	452.2	451.9
17.5°	439.9	440.3	440.6	440.7	440.5	440.3	440.2	440.0
20°	431.2	431.5	431.7	431.8	431.5	431.4	431.2	431.0
22.5°	422.0	422.5	423.0	423.1	422.7	422.4	422.1	421.8
25°	406.9	407.0	407.1	407.0	406.6	406.3	405.9	405.6
27.5°	390.0	389.8	389.6	389.2	388.8	388.4	387.9	387.5
30°	378.3	378.0	377.6	377.2	376.7	376.3	375.9	375.5
32.5°	366.4	366.0	365.6	365.2	364.8	364.3	363.9	363.5
35°	347.6	347.1	346.4	345.9	345.5	345.1	344.6	344.2
37.5°	328.0	327.3	326.7	326.1	325.5	325.0	324.4	323.8
40°	314.4	313.5	312.7	312.0	311.5	311.1	310.7	310.3
42.5°	301.1	300.1	299.1	298.5	298.2	297.9	297.6	297.3
45°	280.6	279.6	278.8	278.1	277.9	277.6	277.4	277.1
47.5°	260.7	259.7	258.6	257.8	257.1	256.5	255.8	255.2
50°	246.9	245.7	244.5	243.6	243.1	242.6	242.1	241.6
52.5°	232.7	231.6	230.6	229.7	229.0	228.4	227.7	227.1
55°	211.7	210.7	209.7	208.9	208.4	207.9	207.3	206.8
57.5°	190.8	189.8	188.8	188.1	187.6	187.1	186.6	186.1
60°	176.3	175.6	174.8	174.2	173.8	173.3	172.9	172.5
62.5°	162.3	161.6	160.9	160.3	159.9	159.5	159.1	158.6
65°	141.9	141.0	140.1	139.5	139.1	138.6	138.2	137.8
67.5°	120.7	119.9	119.1	118.6	118.5	118.4	118.3	118.1
70°	107.5	106.8	106.1	105.6	105.3	105.1	104.8	104.6
72.5°	94.2	93.6	93.0	92.6	92.4	92.1	91.9	91.6
75°	74.9	74.6	74.3	74.0	73.9	73.9	73.8	73.7
77.5°	56.7	56.7	56.6	56.4	56.2	55.9	55.7	55.5
80°	45.2	45.0	44.8	44.8	44.6	44.5	44.4	44.4
82.5°	34.8	34.7	34.7	34.6	34.5	34.3	34.2	34.2
85°	20.1	20.1	20.1	20.1	20.0	19.9	19.7	19.6
87.5°	11.5	11.7	11.9	12.1	12.1	12.2	12.3	12.4
90°	20.4	21.4	22.6	23.3	23.6	24.1	24.4	24.8
92.5°	19.7	20.8	21.9	22.5	22.6	22.7	22.7	22.8
95°	20.4	21.4	22.6	23.2	23.4	23.6	23.8	24.0
97.5°	22.0	22.2	22.3	22.4	22.6	22.7	22.9	23.2
100°	30.1	27.0	23.9	22.4	22.6	22.7	22.9	23.2
102.5°	107.8	74.1	40.4	23.6	23.6	23.7	23.7	23.8
105°	261.1	262.7	264.3	261.9	255.3	248.7	242.1	235.5
107.5°	322.9	323.8	324.6	325.3	326.0	326.7	327.4	328.1
110°	365.0	365.4	365.7	366.2	366.8	367.3	367.9	368.4





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	405.8	405.7	405.6	405.9	406.7	407.3	408.1	408.7
115°	466.6	467.0	467.3	467.6	467.6	467.6	467.6	467.6
117.5°	527.8	527.8	527.7	527.7	527.6	527.5	527.4	527.3
120°	565.7	566.1	566.5	566.5	566.1	565.7	565.4	565.0
122.5°	603.2	603.3	603.6	603.5	603.2	602.8	602.4	602.0
125°	655.3	655.9	656.4	656.8	657.0	657.1	657.4	657.5
127.5°	707.2	707.1	706.9	706.9	706.7	706.5	706.4	706.3
130°	738.8	739.1	739.2	739.3	739.3	739.3	739.3	739.3
132.5°	769.9	770.1	770.3	770.3	770.1	770.0	769.9	769.7
135°	812.8	813.1	813.5	813.8	814.2	814.6	815.0	815.3
137.5°	853.8	854.2	854.6	854.8	854.6	854.5	854.4	854.3
140°	879.2	879.7	880.3	880.7	880.8	881.0	881.2	881.4
142.5°	902.7	903.1	903.5	903.7	903.8	903.8	903.8	903.8
145°	936.3	936.5	936.6	936.9	937.3	937.7	938.0	938.4
147.5°	965.8	965.9	966.0	966.2	966.5	966.6	966.8	966.9
150°	984.6	984.6	984.6	984.7	984.9	985.1	985.3	985.5
152.5°	1001.1	1001.4	1001.7	1001.8	1001.7	1001.5	1001.4	1001.4
155°	1023.3	1024.0	1024.7	1024.8	1024.3	1023.8	1023.2	1022.6
157.5°	1042.4	1043.3	1044.3	1044.3	1043.3	1042.4	1041.5	1040.5
160°	1054.6	1055.6	1056.8	1056.8	1055.6	1054.6	1053.4	1052.4
162.5°	1064.5	1065.6	1066.7	1066.7	1065.4	1064.1	1062.9	1061.6
165°	1078.5	1079.9	1081.4	1081.2	1079.6	1078.0	1076.4	1074.6
167.5°	1088.7	1090.3	1091.8	1091.8	1090.0	1088.1	1086.3	1084.4
170°	1094.9	1096.4	1097.9	1097.7	1095.8	1094.1	1092.2	1090.4
172.5°	1098.9	1100.4	1101.9	1101.6	1099.6	1097.6	1095.7	1093.6
175°	1103.6	1105.2	1106.9	1106.6	1104.4	1102.2	1100.0	1097.8
177.5°	1105.5	1106.6	1107.8	1107.5	1105.7	1104.0	1102.2	1100.5
180°	1104.4	1104.4	1104.4	1104.4	1104.4	1104.4	1104.4	1104.4

(END OF REPORT)