

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: P332731-940

Luminaire Tested: **S124DIW-S350D1050U940-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332731-940  
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-S350D1050U940-4F0-1E-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: 5091.7 lumens  
Efficiency: N/A  
Efficacy: 134.0 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

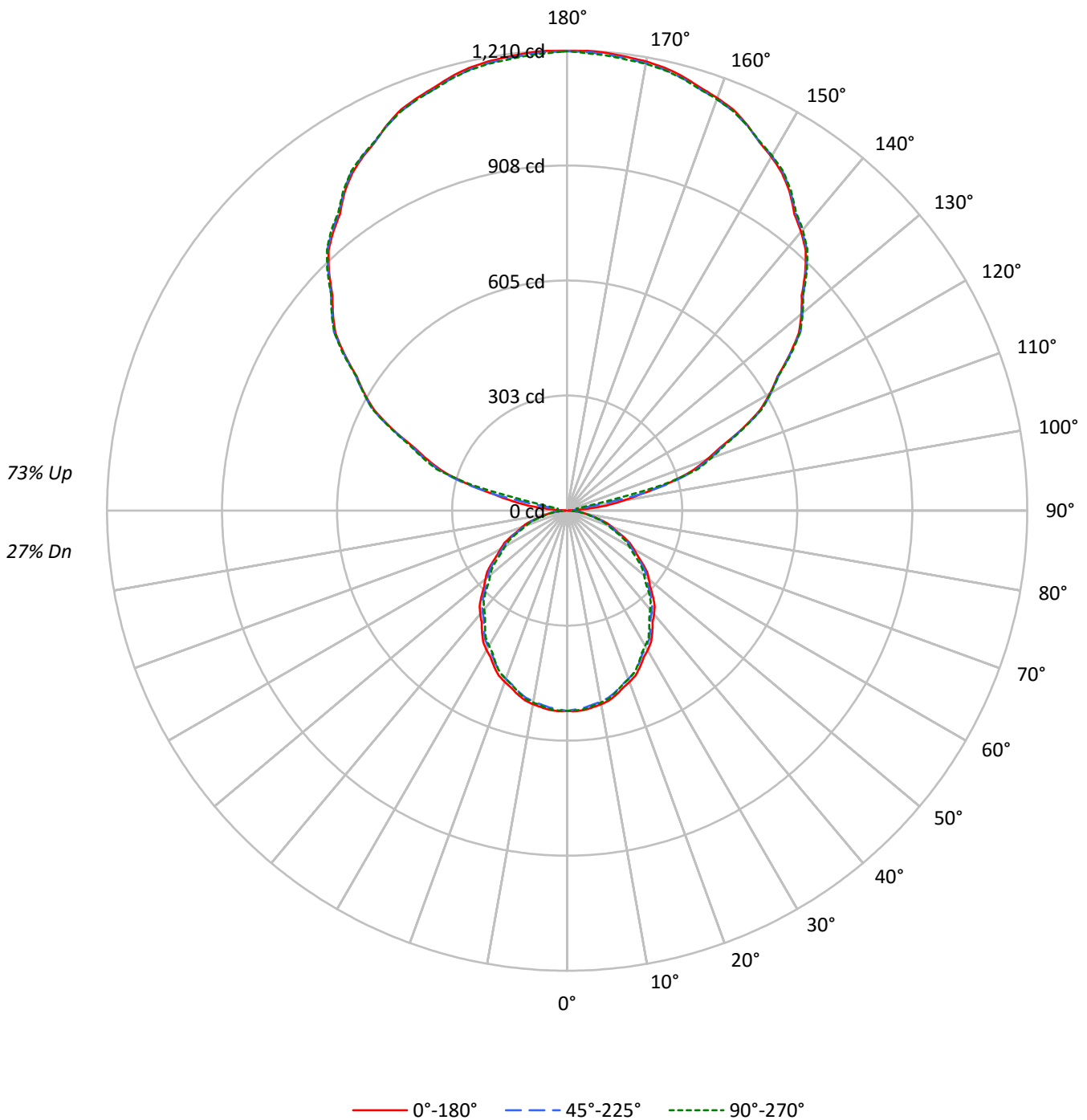
Input Watts (W): 38  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	4252	4252	4252
5°	4265	4214	4245
10°	4238	4180	4200
15°	4187	4120	4131
20°	4119	4046	4050
25°	4041	3963	3951
30°	3947	3864	3828
35°	3847	3761	3710
40°	3744	3643	3577
45°	3639	3528	3460
50°	3520	3425	3318
55°	3392	3291	3184
60°	3265	3142	3047
65°	3121	2999	2879
70°	2960	2809	2700
75°	2711	2583	2514
80°	2413	2315	2255
85°	2112	2029	1991



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	49.6	1.0
10°-20°	139.8	2.7
20°-30°	205.7	4.0
30°-40°	239.2	4.7
40°-50°	239.2	4.7
50°-60°	209.2	4.1
60°-70°	155.4	3.1
70°-80°	88.3	1.7
80°-90°	29.0	0.6
90°-100°	41.3	0.8
100°-110°	263.4	5.2
110°-120°	503.9	9.9
120°-130°	639.7	12.6
130°-140°	684.4	13.4
140°-150°	640.0	12.6
150°-160°	516.1	10.1
160°-170°	332.9	6.5
170°-180°	114.7	2.3
0°-30°	395.1	7.8
0°-40°	634.2	12.5
0°-60°	1082.6	21.3
0°-90°	1355.2	26.6
90°-120°	808.6	15.9
90°-150°	2772.8	54.5
90°-180°	3737.0	73.4
0°-180°	5091.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	527	527	527	527	527	
5°	526	524	520	524	524	50
15°	501	499	493	495	494	141
25°	454	451	445	445	444	209
35°	390	387	382	379	376	244
45°	319	316	309	305	303	246
55°	241	240	234	229	226	216
65°	163	161	157	153	151	162
75°	87	85	83	81	81	92
85°	23	23	22	22	22	25
90°	3	12	20	25	27	4
95°	50	21	20	25	26	64
105°	272	277	282	288	258	285
115°	508	510	510	511	511	499
125°	714	717	716	718	719	637
135°	885	885	888	890	892	682
145°	1021	1023	1024	1025	1026	638
155°	1119	1120	1118	1121	1118	516
165°	1181	1177	1176	1183	1175	334
175°	1208	1203	1204	1210	1201	115
180°	1208	1208	1208	1208	1208	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	526.7	526.7	526.7	526.7	526.7	526.7	526.7	526.7	526.7	526.7	526.7
2.5°	528.1	527.9	527.6	527.4	527.2	526.6	525.8	525.0	524.2	523.3	524.1
5°	526.3	525.9	525.6	525.2	524.9	524.1	523.1	522.1	521.0	520.0	521.0
7.5°	521.5	521.0	520.7	520.3	520.0	519.2	518.0	516.9	515.8	514.6	515.4
10°	517.0	516.7	516.3	515.9	515.6	514.8	513.5	512.3	511.1	509.9	510.6
12.5°	511.3	511.0	510.6	510.1	509.8	509.0	507.7	506.4	505.1	503.8	504.6
15°	501.0	500.6	500.2	499.9	499.5	498.6	497.2	495.8	494.4	493.0	493.6
17.5°	488.6	488.1	487.7	487.2	486.7	485.8	484.5	483.1	481.8	480.5	480.8
20°	479.5	479.0	478.6	478.0	477.6	476.7	475.3	473.9	472.4	471.0	471.4
22.5°	469.7	469.0	468.4	467.8	467.2	466.2	464.8	463.4	462.0	460.6	461.1
25°	453.7	453.1	452.5	451.7	451.1	450.1	448.8	447.5	446.2	444.9	445.0
27.5°	435.5	434.8	434.2	433.5	432.8	431.9	430.6	429.4	428.2	427.0	426.8
30°	423.4	422.6	421.9	421.1	420.4	419.4	418.1	416.9	415.7	414.5	414.1
32.5°	410.5	409.8	409.1	408.5	407.8	406.8	405.6	404.2	403.0	401.6	401.2
35°	390.4	389.8	389.1	388.4	387.8	386.8	385.5	384.1	382.9	381.6	380.9
37.5°	369.3	368.6	368.0	367.5	366.8	365.9	364.4	363.0	361.6	360.2	359.4
40°	355.3	354.6	353.9	353.1	352.4	351.3	349.9	348.5	347.1	345.7	344.7
42.5°	340.5	340.1	339.7	339.2	338.8	337.7	336.2	334.6	333.1	331.5	330.4
45°	318.7	318.0	317.4	316.7	316.0	315.0	313.4	311.9	310.5	309.0	307.9
47.5°	295.8	295.3	294.9	294.4	294.0	293.1	291.7	290.3	288.9	287.5	286.3
50°	280.3	279.9	279.6	279.1	278.7	277.9	276.6	275.3	273.9	272.7	271.3
52.5°	265.1	264.6	264.1	263.7	263.2	262.3	260.9	259.6	258.2	256.8	255.7
55°	241.0	240.8	240.4	240.1	239.9	239.1	237.7	236.5	235.1	233.8	232.7
57.5°	218.0	217.8	217.4	217.1	216.8	216.0	214.6	213.4	212.0	210.8	209.7
60°	202.2	201.7	201.3	200.7	200.3	199.5	198.2	197.0	195.8	194.6	193.8
62.5°	186.6	186.3	185.8	185.5	185.0	184.2	182.9	181.6	180.3	179.1	178.3
65°	163.4	162.9	162.4	161.9	161.5	160.8	159.8	158.9	157.9	157.0	156.0
67.5°	139.9	139.5	139.0	138.6	138.1	137.5	136.6	135.7	134.8	133.8	133.0
70°	125.4	124.7	124.0	123.4	122.7	122.0	121.3	120.6	119.8	119.0	118.2
72.5°	109.9	109.1	108.5	107.9	107.2	106.6	105.9	105.4	104.8	104.2	103.5
75°	86.9	86.5	86.1	85.5	85.1	84.6	84.2	83.6	83.2	82.8	82.4
77.5°	65.1	64.9	64.6	64.5	64.3	63.9	63.6	63.1	62.7	62.3	62.2
80°	51.9	51.6	51.4	51.1	50.8	50.6	50.4	50.2	50.0	49.8	49.6
82.5°	39.1	39.0	38.8	38.7	38.5	38.4	38.4	38.4	38.3	38.3	38.3
85°	22.8	22.8	22.8	22.8	22.8	22.7	22.5	22.3	22.1	21.9	21.9
87.5°	9.4	9.7	10.1	10.4	10.8	11.1	11.3	11.6	11.9	12.0	12.3
90°	2.7	4.9	7.1	9.4	11.5	13.5	15.1	16.7	18.3	19.9	21.0
92.5°	11.4	11.5	11.6	11.8	11.9	12.8	14.4	16.0	17.6	19.2	20.3
95°	49.7	42.9	36.0	29.2	22.4	19.1	19.3	19.4	19.7	19.9	21.0
97.5°	105.5	109.8	114.0	118.3	122.5	113.5	91.0	68.7	46.3	23.8	24.0
100°	148.2	151.8	155.4	159.0	162.6	150.6	122.9	95.1	67.5	39.8	36.4
102.5°	195.9	198.5	201.2	203.8	206.4	206.0	202.4	198.8	195.1	191.5	154.7
105°	272.0	273.1	274.4	275.5	276.8	277.9	278.8	279.9	280.9	281.9	283.7
107.5°	342.6	343.2	343.8	344.4	345.0	346.0	347.3	348.7	350.1	351.4	352.3
110°	390.3	390.9	391.5	392.1	392.7	393.6	394.8	396.0	397.3	398.4	398.9



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	436.6	437.7	438.7	439.8	440.9	441.8	442.3	442.8	443.4	444.0	443.9
115°	507.7	508.4	509.0	509.5	510.1	510.3	510.1	510.0	509.8	509.5	510.0
117.5°	571.9	572.7	573.5	574.3	575.1	575.7	576.1	576.6	577.0	577.5	577.4
120°	615.3	616.1	616.9	617.7	618.5	618.8	618.6	618.4	618.1	618.0	618.4
122.5°	655.8	656.2	656.7	657.2	657.6	658.1	658.4	658.6	658.9	659.2	659.4
125°	713.7	714.5	715.3	716.1	716.9	717.1	716.8	716.3	716.0	715.5	716.1
127.5°	768.7	768.8	769.1	769.3	769.5	770.0	771.0	771.9	772.8	773.7	773.6
130°	804.1	804.3	804.5	804.7	804.9	805.3	805.9	806.5	807.1	807.7	807.9
132.5°	836.6	837.0	837.3	837.7	838.0	838.7	839.4	840.2	840.9	841.7	841.9
135°	885.4	885.2	885.0	884.8	884.6	884.9	885.7	886.5	887.3	888.1	888.5
137.5°	928.5	928.6	928.7	928.8	928.9	929.3	930.2	931.1	932.0	932.9	933.4
140°	956.8	957.2	957.6	958.0	958.4	958.8	959.2	959.6	960.0	960.4	961.0
142.5°	982.0	982.8	983.5	984.3	985.0	985.4	985.7	985.9	986.1	986.4	986.9
145°	1020.9	1021.5	1022.1	1022.7	1023.3	1023.6	1023.6	1023.6	1023.6	1023.6	1023.9
147.5°	1051.8	1052.9	1054.1	1055.2	1056.3	1056.8	1056.6	1056.4	1056.1	1056.0	1056.1
150°	1074.2	1075.0	1075.8	1076.7	1077.5	1077.7	1077.5	1077.4	1077.1	1076.9	1076.9
152.5°	1093.0	1093.7	1094.3	1094.9	1095.6	1095.7	1095.4	1095.0	1094.7	1094.3	1094.6
155°	1119.4	1119.6	1119.8	1120.0	1120.2	1120.0	1119.4	1118.8	1118.2	1117.6	1118.4
157.5°	1141.7	1141.5	1141.4	1141.2	1141.1	1140.8	1140.1	1139.3	1138.7	1138.0	1139.1
160°	1154.6	1154.1	1153.4	1152.8	1152.2	1151.8	1151.6	1151.4	1151.2	1151.0	1152.2
162.5°	1166.2	1165.5	1164.7	1163.9	1163.1	1162.6	1162.4	1162.3	1162.1	1161.8	1163.1
165°	1180.8	1179.8	1178.8	1177.8	1176.8	1176.3	1176.3	1176.3	1176.3	1176.3	1177.9
167.5°	1192.4	1191.3	1190.3	1189.3	1188.2	1187.7	1187.5	1187.4	1187.3	1187.1	1188.9
170°	1198.9	1197.7	1196.5	1195.2	1194.1	1193.6	1193.7	1194.0	1194.2	1194.4	1196.0
172.5°	1203.2	1202.0	1200.8	1199.6	1198.4	1197.9	1198.1	1198.3	1198.5	1198.7	1200.3
175°	1207.9	1206.8	1205.5	1204.3	1203.1	1202.7	1202.8	1203.0	1203.2	1203.5	1205.2
177.5°	1210.1	1209.0	1207.8	1206.8	1205.6	1205.2	1205.5	1205.9	1206.1	1206.5	1207.7
180°	1207.9	1207.9	1207.9	1207.9	1207.9	1207.9	1207.9	1207.9	1207.9	1207.9	1207.9



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	526.7	526.7	526.7	526.7	526.7	526.7	526.7	526.7
2.5°	524.9	525.7	526.4	526.7	526.6	526.6	526.5	526.4
5°	522.1	523.1	524.1	524.5	524.3	524.1	524.0	523.8
7.5°	516.2	517.1	517.9	518.3	518.2	518.0	517.9	517.8
10°	511.4	512.1	512.9	513.2	513.0	512.7	512.6	512.4
12.5°	505.4	506.2	507.1	507.4	507.1	506.8	506.6	506.3
15°	494.1	494.6	495.3	495.3	495.1	494.8	494.5	494.3
17.5°	481.2	481.5	481.9	482.0	481.8	481.6	481.4	481.3
20°	471.6	471.9	472.2	472.3	472.0	471.8	471.6	471.4
22.5°	461.5	462.1	462.6	462.7	462.4	462.0	461.6	461.4
25°	445.1	445.1	445.2	445.1	444.7	444.3	444.0	443.6
27.5°	426.5	426.3	426.1	425.7	425.3	424.8	424.3	423.8
30°	413.8	413.4	413.0	412.6	412.1	411.6	411.2	410.7
32.5°	400.7	400.3	399.8	399.4	399.0	398.4	398.0	397.5
35°	380.2	379.6	378.9	378.4	377.9	377.5	376.9	376.5
37.5°	358.7	358.0	357.3	356.7	356.1	355.4	354.8	354.2
40°	343.8	342.9	342.0	341.3	340.7	340.3	339.8	339.4
42.5°	329.3	328.2	327.2	326.5	326.1	325.8	325.5	325.2
45°	306.9	305.9	304.9	304.2	303.9	303.6	303.4	303.1
47.5°	285.2	284.0	282.9	282.0	281.2	280.5	279.8	279.1
50°	270.0	268.8	267.4	266.4	265.9	265.4	264.7	264.2
52.5°	254.5	253.3	252.2	251.2	250.5	249.8	249.1	248.3
55°	231.6	230.4	229.3	228.5	227.9	227.4	226.8	226.2
57.5°	208.7	207.6	206.5	205.7	205.2	204.6	204.1	203.5
60°	192.9	192.1	191.2	190.6	190.1	189.6	189.1	188.7
62.5°	177.5	176.7	175.9	175.3	174.9	174.4	174.0	173.4
65°	155.2	154.2	153.3	152.6	152.1	151.6	151.1	150.7
67.5°	132.1	131.2	130.3	129.7	129.7	129.5	129.4	129.2
70°	117.5	116.8	116.0	115.5	115.2	114.9	114.7	114.4
72.5°	103.0	102.4	101.7	101.3	101.0	100.8	100.5	100.2
75°	81.9	81.6	81.2	81.0	80.9	80.8	80.7	80.6
77.5°	62.1	62.0	61.9	61.7	61.4	61.2	60.9	60.7
80°	49.4	49.2	49.0	49.0	48.8	48.7	48.6	48.5
82.5°	38.1	38.0	37.9	37.8	37.7	37.5	37.5	37.4
85°	21.9	21.9	21.9	21.9	21.8	21.8	21.6	21.5
87.5°	12.6	12.8	13.0	13.2	13.3	13.4	13.5	13.6
90°	22.3	23.5	24.7	25.5	25.9	26.3	26.7	27.1
92.5°	21.6	22.7	24.0	24.6	24.7	24.8	24.9	25.0
95°	22.3	23.5	24.7	25.4	25.6	25.8	26.0	26.2
97.5°	24.1	24.3	24.3	24.5	24.7	24.9	25.1	25.3
100°	32.9	29.5	26.1	24.5	24.7	24.9	25.1	25.3
102.5°	117.9	81.1	44.2	25.9	25.9	25.9	25.9	26.0
105°	285.5	287.3	289.1	286.4	279.2	272.0	264.7	257.5
107.5°	353.2	354.1	355.0	355.8	356.6	357.3	358.1	358.8
110°	399.2	399.7	400.0	400.6	401.2	401.7	402.3	403.0





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	443.8	443.7	443.6	444.0	444.8	445.5	446.3	447.0
115°	510.3	510.8	511.1	511.4	511.4	511.4	511.4	511.4
117.5°	577.3	577.3	577.2	577.1	577.0	576.9	576.8	576.8
120°	618.8	619.2	619.6	619.6	619.2	618.8	618.4	618.0
122.5°	659.7	659.9	660.1	660.0	659.7	659.2	658.9	658.4
125°	716.8	717.4	717.9	718.4	718.5	718.7	719.0	719.2
127.5°	773.5	773.4	773.2	773.1	772.9	772.8	772.6	772.5
130°	808.1	808.3	808.5	808.6	808.6	808.6	808.6	808.6
132.5°	842.0	842.3	842.5	842.5	842.3	842.1	842.0	841.9
135°	888.9	889.3	889.7	890.1	890.6	890.9	891.4	891.7
137.5°	933.8	934.2	934.7	934.9	934.7	934.6	934.5	934.3
140°	961.6	962.2	962.8	963.2	963.4	963.6	963.8	964.0
142.5°	987.3	987.7	988.2	988.4	988.5	988.5	988.6	988.6
145°	1024.0	1024.2	1024.4	1024.8	1025.1	1025.6	1025.9	1026.4
147.5°	1056.3	1056.4	1056.6	1056.8	1057.0	1057.2	1057.4	1057.6
150°	1076.9	1076.9	1076.9	1077.0	1077.2	1077.5	1077.6	1077.8
152.5°	1094.9	1095.2	1095.6	1095.6	1095.6	1095.4	1095.3	1095.2
155°	1119.2	1120.0	1120.8	1120.9	1120.3	1119.7	1119.1	1118.5
157.5°	1140.1	1141.1	1142.2	1142.2	1141.1	1140.1	1139.1	1138.0
160°	1153.4	1154.6	1155.8	1155.8	1154.6	1153.4	1152.2	1151.0
162.5°	1164.2	1165.5	1166.6	1166.6	1165.2	1163.9	1162.5	1161.1
165°	1179.6	1181.2	1182.8	1182.6	1180.8	1179.0	1177.2	1175.4
167.5°	1190.7	1192.5	1194.2	1194.1	1192.1	1190.1	1188.1	1186.1
170°	1197.6	1199.2	1200.8	1200.6	1198.5	1196.6	1194.5	1192.6
172.5°	1201.9	1203.5	1205.1	1204.9	1202.7	1200.5	1198.4	1196.1
175°	1207.0	1208.8	1210.7	1210.3	1207.9	1205.5	1203.1	1200.7
177.5°	1209.1	1210.3	1211.7	1211.3	1209.3	1207.5	1205.5	1203.6
180°	1207.9	1207.9	1207.9	1207.9	1207.9	1207.9	1207.9	1207.9

(END OF REPORT)