

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: P332813-830

Luminaire Tested: **S124DIW-S1020D770U830-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332813-830  
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-S1020D770U830-4F0-1E-UDD-D  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 770 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6863.2 lumens  
Efficiency: N/A  
Efficacy: 128.0 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')  
CIE Type: General Diffuse

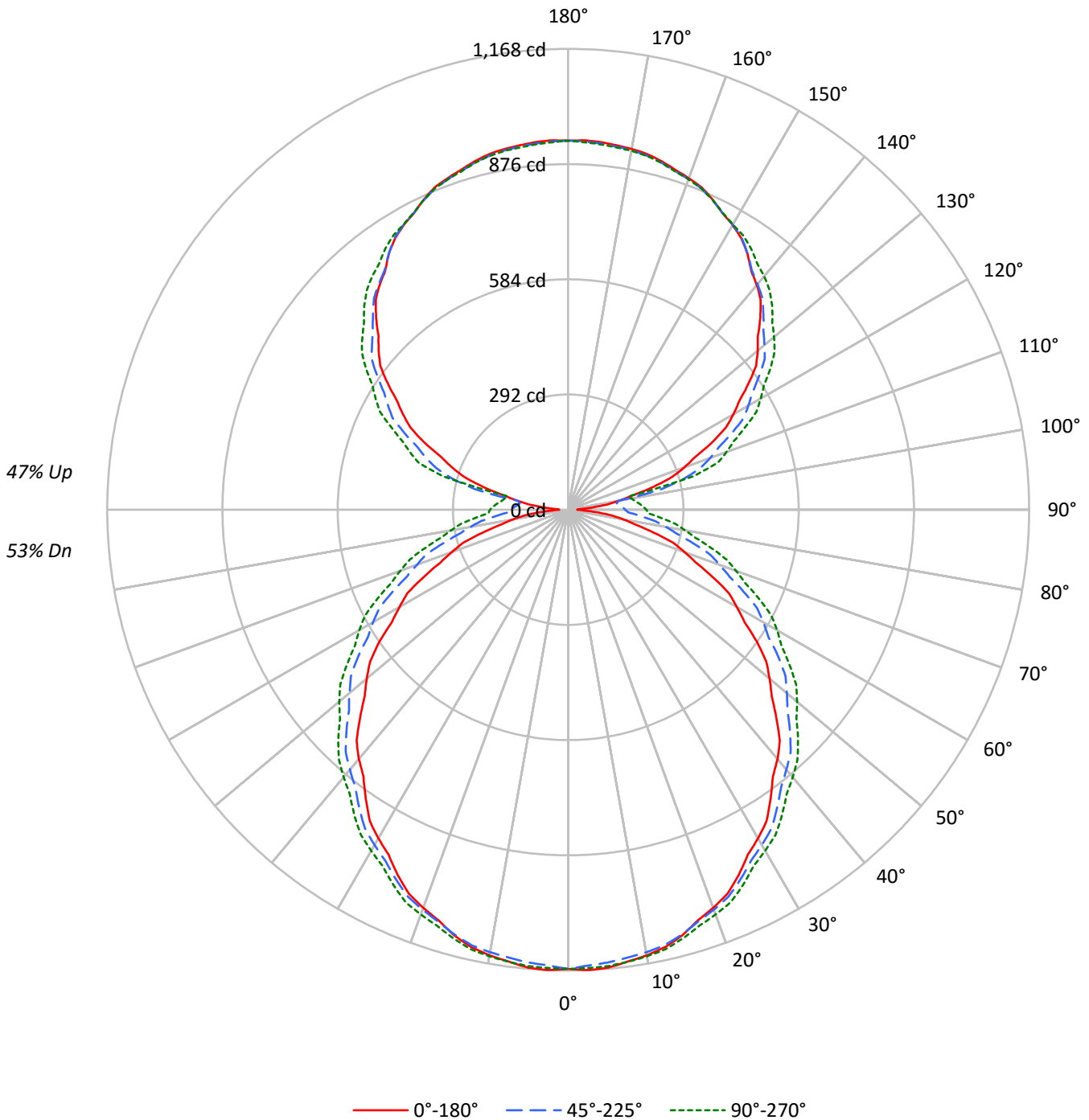
Input Watts (W): 53.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P332813-830

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### Luminous Intensity Polar Plot





TEST NUMBER: P332813-830

CATALOG NUMBER: S124DIW-S1020D770U830-4F0-1E-UDD-D

**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	108	108	108	108	100	100	100	100	85	85	85	72	72	72	59	59	59	53
1	97	93	88	84	90	86	82	79	73	70	68	61	59	58	51	49	48	43
2	88	80	74	68	81	74	69	64	63	59	55	53	50	47	44	42	39	35
3	80	70	62	56	74	65	58	53	56	50	46	47	43	39	39	36	33	29
4	73	62	54	47	67	57	50	44	49	43	39	41	37	33	34	31	28	25
5	67	55	46	40	62	51	44	38	44	38	33	37	32	29	31	27	24	21
6	62	49	41	35	57	46	38	33	39	33	29	33	29	25	28	24	21	18
7	57	44	36	30	53	41	34	29	36	30	25	30	26	22	25	22	19	16
8	53	40	32	27	49	38	30	25	32	27	22	28	23	20	23	20	17	14
9	49	37	29	24	45	34	27	22	30	24	20	25	21	18	21	18	15	13
10	46	34	26	21	43	31	25	20	27	22	18	23	19	16	20	16	14	12

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

	0°	45°	90°
0°	9395	9395	9395
5°	9424	9182	9208
10°	9366	9032	9024
15°	9282	8858	8809
20°	9156	8666	8599
25°	9013	8450	8368
30°	8859	8237	8131
35°	8684	8018	7924
40°	8544	7809	7708
45°	8336	7617	7522
50°	8161	7395	7326
55°	7979	7187	7096
60°	7697	6921	6885
65°	7387	6635	6628
70°	7013	6309	6327
75°	6486	5950	6056
80°	5904	5605	5788
85°	5170	5301	5633



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	110.2	1.6
10°-20°	315.7	4.6
20°-30°	477.4	7.0
30°-40°	577.6	8.4
40°-50°	610.7	8.9
50°-60°	574.7	8.4
60°-70°	476.8	6.9
70°-80°	334.9	4.9
80°-90°	192.1	2.8
90°-100°	144.4	2.1
100°-110°	287.2	4.2
110°-120°	446.1	6.5
120°-130°	526.9	7.7
130°-140°	543.6	7.9
140°-150°	498.4	7.3
150°-160°	399.7	5.8
160°-170°	257.8	3.8
170°-180°	88.8	1.3
0°-30°	903.4	13.2
0°-40°	1481.0	21.6
0°-60°	2666.4	38.9
0°-90°	3670.3	53.5
90°-120°	877.7	12.8
90°-150°	2446.6	35.6
90°-180°	3193.0	46.5
0°-180°	6863.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1164	1164	1164	1164	1164	
5°	1165	1161	1152	1162	1161	111
15°	1117	1118	1114	1125	1125	315
25°	1022	1029	1033	1047	1049	470
35°	894	910	923	940	945	560
45°	745	770	795	816	824	576
55°	584	612	650	675	684	520
65°	404	446	490	521	533	400
75°	224	273	327	362	375	238
85°	69	124	182	220	235	74
90°	23	83	144	185	198	16
95°	55	77	129	167	181	63
105°	222	254	304	340	328	234
115°	401	416	456	485	495	395
125°	558	561	591	616	626	498
135°	688	688	700	721	731	530
145°	792	793	793	801	808	495
155°	867	867	865	868	866	400
165°	914	911	911	916	910	258
175°	935	932	932	937	930	89
180°	935	935	935	935	935	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8
2.5°	1167.9	1167.2	1166.5	1165.8	1165.1	1163.9	1162.0	1160.2	1158.3	1156.4	1158.0
5°	1165.0	1164.1	1163.3	1162.4	1161.6	1160.1	1158.1	1156.0	1154.0	1152.0	1154.3
7.5°	1155.1	1154.6	1154.0	1153.6	1153.0	1152.0	1150.3	1148.6	1146.9	1145.2	1147.8
10°	1146.8	1146.5	1146.2	1145.9	1145.7	1144.7	1143.3	1141.9	1140.4	1139.0	1141.6
12.5°	1135.3	1135.3	1135.2	1135.1	1135.1	1134.5	1133.6	1132.6	1131.6	1130.6	1133.0
15°	1116.8	1117.1	1117.4	1117.7	1117.9	1117.7	1116.8	1116.0	1115.0	1114.2	1116.8
17.5°	1091.6	1092.4	1093.3	1094.1	1095.0	1095.3	1095.1	1095.0	1094.9	1094.7	1097.3
20°	1073.8	1074.7	1075.5	1076.4	1077.3	1077.9	1078.2	1078.5	1078.7	1079.0	1081.9
22.5°	1054.0	1055.1	1056.2	1057.3	1058.4	1059.2	1059.7	1060.3	1060.7	1061.3	1064.2
25°	1021.7	1023.4	1025.1	1026.9	1028.6	1029.9	1030.8	1031.7	1032.6	1033.4	1036.6
27.5°	985.7	988.3	990.8	993.3	995.9	997.9	999.2	1000.5	1001.8	1003.1	1006.2
30°	961.8	964.0	966.4	968.7	971.0	973.2	975.2	977.2	979.2	981.3	984.5
32.5°	935.7	938.5	941.2	944.1	946.8	949.3	951.6	953.9	956.1	958.4	962.0
35°	894.0	897.5	900.9	904.4	907.9	911.1	914.0	916.8	919.7	922.7	926.7
37.5°	852.0	856.0	860.0	864.0	868.0	871.8	875.3	878.9	882.6	886.2	890.2
40°	824.9	828.7	832.5	836.2	840.0	843.9	847.9	852.0	856.0	860.1	864.4
42.5°	793.6	797.9	802.1	806.3	810.5	815.0	819.7	824.5	829.2	834.1	838.9
45°	745.4	750.9	756.4	762.0	767.4	772.9	778.4	783.9	789.4	794.9	799.8
47.5°	699.3	704.9	710.6	716.3	722.0	728.0	734.3	740.7	747.2	753.5	758.6
50°	665.9	672.3	678.6	685.0	691.4	697.8	704.2	710.5	716.9	723.2	729.1
52.5°	632.5	638.9	645.3	651.7	658.1	664.9	672.1	679.5	686.7	694.1	699.8
55°	583.8	589.9	596.0	602.1	608.1	615.5	624.2	632.9	641.6	650.3	656.1
57.5°	529.3	536.9	544.4	552.0	559.5	567.5	576.2	584.8	593.4	602.1	609.0
60°	493.9	501.4	509.0	516.5	524.1	532.5	542.2	551.7	561.2	570.8	577.4
62.5°	459.5	467.7	476.0	484.2	492.4	501.2	510.9	520.4	530.0	539.5	546.2
65°	404.0	413.2	422.5	431.8	441.0	450.6	460.4	470.3	480.1	490.0	497.2
67.5°	350.5	360.4	370.2	380.1	389.9	400.1	410.7	421.2	431.8	442.3	449.7
70°	314.1	324.0	333.8	343.6	353.5	363.9	374.8	385.9	396.9	407.9	415.8
72.5°	278.6	288.7	298.8	308.9	319.0	329.8	341.5	353.2	365.0	376.6	384.2
75°	224.1	234.9	245.5	256.3	267.0	278.4	290.6	302.7	314.9	327.1	335.2
77.5°	173.3	184.6	196.0	207.4	218.8	230.7	243.6	256.3	269.0	281.7	289.9
80°	142.0	153.6	165.2	176.8	188.4	200.6	213.3	226.0	238.7	251.5	260.2
82.5°	110.7	122.8	134.9	146.9	158.9	171.4	184.1	196.8	209.6	222.3	231.2
85°	69.1	81.2	93.4	105.6	117.7	130.4	143.4	156.4	169.4	182.5	191.1
87.5°	39.0	51.2	63.3	75.5	87.7	100.2	113.1	126.0	138.9	151.9	160.5
90°	22.9	36.3	49.6	62.9	76.2	89.6	103.3	117.0	130.7	144.4	153.7
92.5°	28.7	39.1	49.7	60.1	70.7	82.8	96.5	110.2	123.9	137.6	146.7
95°	55.4	59.7	64.0	68.2	72.5	80.7	92.7	104.7	116.8	128.8	137.5
97.5°	97.1	108.6	120.2	131.7	143.2	146.1	140.5	135.0	129.3	123.8	131.5
100°	129.0	139.4	149.8	160.0	170.4	170.5	160.3	150.1	140.0	129.8	135.0
102.5°	166.0	174.7	183.3	192.0	200.7	209.1	217.4	225.6	233.8	242.1	221.2
105°	222.3	229.0	235.7	242.5	249.2	258.4	269.8	281.3	292.8	304.3	312.9
107.5°	276.7	282.0	287.2	292.4	297.7	305.9	317.1	328.2	339.4	350.6	358.4
110°	312.6	317.2	321.7	326.2	330.7	338.6	349.6	360.7	371.7	382.9	389.8



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CATALOG NUMBER: S124DIW-S1020D770U830-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	347.4	351.9	356.3	360.7	365.1	372.4	382.6	392.7	402.7	412.8	419.2
115°	401.1	404.1	407.2	410.2	413.3	419.4	428.5	437.6	446.8	455.8	462.5
117.5°	450.4	452.6	454.8	456.9	459.2	464.8	473.7	482.7	491.6	500.7	506.6
120°	483.0	484.5	486.0	487.5	488.9	493.8	502.0	510.3	518.5	526.8	532.9
122.5°	514.3	514.8	515.4	515.9	516.5	520.8	529.0	537.2	545.3	553.5	559.4
125°	557.9	558.3	558.6	558.9	559.2	562.9	569.9	576.7	583.7	590.6	596.5
127.5°	600.2	600.0	599.9	599.8	599.6	602.8	609.0	615.3	621.6	627.8	632.9
130°	626.6	626.4	626.3	626.2	626.0	628.5	633.7	638.8	643.9	648.9	654.3
132.5°	651.8	651.8	651.8	651.8	651.8	653.8	658.2	662.5	666.8	671.1	676.2
135°	688.2	688.1	688.0	687.8	687.6	688.9	691.5	694.2	696.8	699.5	704.5
137.5°	721.7	721.4	721.2	721.0	720.8	721.5	723.2	724.8	726.5	728.2	732.7
140°	743.5	743.6	743.6	743.6	743.6	743.9	744.5	745.1	745.7	746.3	750.5
142.5°	762.0	762.6	763.1	763.6	764.1	764.3	764.3	764.4	764.4	764.4	768.0
145°	791.9	792.1	792.2	792.4	792.6	792.7	792.7	792.7	792.7	792.7	794.6
147.5°	815.9	816.4	817.0	817.6	818.1	818.3	818.2	818.0	817.8	817.7	818.1
150°	833.2	833.5	833.9	834.2	834.5	834.6	834.4	834.2	834.2	834.0	834.0
152.5°	846.7	847.2	847.5	848.0	848.5	848.5	848.2	848.0	847.7	847.4	847.6
155°	866.9	867.0	867.1	867.3	867.5	867.3	866.9	866.4	865.9	865.4	866.1
157.5°	884.1	884.0	883.9	883.8	883.7	883.4	882.9	882.3	881.7	881.3	882.0
160°	894.1	893.6	893.2	892.8	892.3	891.9	891.8	891.6	891.5	891.4	892.3
162.5°	903.1	902.5	901.9	901.4	900.7	900.3	900.2	900.0	899.8	899.8	900.7
165°	914.5	913.6	912.9	912.1	911.3	911.0	911.0	911.0	911.0	911.0	912.2
167.5°	923.4	922.6	921.8	921.0	920.1	919.7	919.6	919.5	919.5	919.4	920.7
170°	928.4	927.5	926.5	925.6	924.7	924.3	924.4	924.6	924.7	924.9	926.1
172.5°	931.8	930.9	929.9	929.0	928.0	927.7	927.8	927.9	928.1	928.3	929.5
175°	935.4	934.4	933.6	932.6	931.7	931.3	931.4	931.6	931.8	931.9	933.3
177.5°	937.1	936.2	935.4	934.4	933.6	933.3	933.6	933.8	934.1	934.2	935.3
180°	935.4	935.4	935.4	935.4	935.4	935.4	935.4	935.4	935.4	935.4	935.4



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8
2.5°	1159.7	1161.3	1162.9	1163.6	1163.4	1163.1	1162.9	1162.7
5°	1156.6	1159.0	1161.3	1162.2	1162.0	1161.7	1161.4	1161.1
7.5°	1150.5	1153.0	1155.7	1156.8	1156.5	1156.2	1155.9	1155.7
10°	1144.2	1146.8	1149.4	1150.6	1150.3	1150.0	1149.7	1149.4
12.5°	1135.4	1137.7	1140.1	1141.3	1141.2	1141.1	1141.1	1141.0
15°	1119.5	1122.0	1124.6	1125.8	1125.5	1125.2	1124.9	1124.6
17.5°	1099.9	1102.7	1105.3	1106.5	1106.3	1106.1	1105.8	1105.6
20°	1084.8	1087.7	1090.6	1092.0	1092.0	1092.0	1092.0	1092.0
22.5°	1067.1	1070.0	1072.9	1074.6	1075.1	1075.4	1075.9	1076.4
25°	1039.8	1042.9	1046.1	1047.9	1048.2	1048.5	1048.8	1049.0
27.5°	1009.1	1012.0	1015.0	1016.6	1017.0	1017.4	1017.7	1018.0
30°	987.7	990.8	994.0	995.9	996.5	997.0	997.7	998.2
32.5°	965.6	969.3	973.0	975.1	975.6	976.2	976.8	977.4
35°	930.8	934.8	938.9	941.3	942.2	943.0	944.0	944.8
37.5°	894.4	898.5	902.6	905.1	906.1	907.0	907.9	908.8
40°	868.7	873.1	877.5	880.2	881.4	882.5	883.7	884.9
42.5°	843.7	848.5	853.3	856.1	857.1	858.0	858.9	859.8
45°	804.7	809.7	814.6	817.8	819.3	820.7	822.2	823.6
47.5°	763.6	768.7	773.9	777.3	779.0	780.8	782.5	784.3
50°	734.8	740.6	746.4	750.2	752.0	753.7	755.4	757.1
52.5°	705.7	711.4	717.3	721.0	722.7	724.4	726.2	727.9
55°	661.9	667.7	673.4	677.2	678.9	680.7	682.4	684.2
57.5°	615.9	622.7	629.6	633.9	635.5	637.2	638.8	640.4
60°	584.1	590.8	597.4	601.9	604.3	606.5	608.9	611.1
62.5°	552.8	559.5	566.2	570.6	573.0	575.2	577.6	579.9
65°	504.4	511.7	519.0	523.8	526.0	528.4	530.7	533.0
67.5°	457.0	464.4	471.7	476.5	478.8	481.1	483.3	485.6
70°	423.5	431.3	439.1	444.1	446.1	448.2	450.2	452.2
72.5°	391.8	399.4	407.0	411.9	414.2	416.4	418.7	420.9
75°	343.3	351.4	359.5	364.9	367.5	370.1	372.7	375.3
77.5°	298.2	306.4	314.6	320.2	322.9	325.7	328.5	331.3
80°	268.9	277.6	286.3	291.7	294.1	296.4	298.7	301.0
82.5°	240.2	249.1	258.0	263.7	266.3	268.8	271.4	273.9
85°	199.8	208.5	217.2	223.0	225.9	228.8	231.7	234.6
87.5°	169.1	177.7	186.2	191.8	194.4	197.1	199.6	202.3
90°	163.1	172.4	181.7	187.8	190.3	192.9	195.6	198.2
92.5°	155.8	164.9	174.0	179.7	182.1	184.5	186.9	189.3
95°	146.3	155.0	163.8	169.6	172.3	175.0	177.9	180.6
97.5°	139.1	146.8	154.5	159.7	162.3	164.9	167.6	170.2
100°	140.2	145.3	150.5	154.2	156.4	158.5	160.8	163.0
102.5°	200.3	179.4	158.4	149.1	151.4	153.7	156.0	158.3
105°	321.6	330.2	338.8	341.6	338.3	335.0	331.7	328.4
107.5°	366.3	374.0	381.8	387.1	389.7	392.5	395.1	397.8
110°	396.7	403.7	410.7	415.6	418.4	421.1	424.0	426.7





TEST NUMBER: P332813-830

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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	425.6	432.0	438.4	443.0	445.9	448.7	451.7	454.6
115°	469.2	475.9	482.6	486.9	489.0	491.0	493.0	495.0
117.5°	512.6	518.5	524.5	528.6	530.8	533.1	535.4	537.6
120°	538.9	545.1	551.2	555.3	557.2	559.2	561.3	563.3
122.5°	565.4	571.4	577.4	581.3	583.1	584.8	586.5	588.3
125°	602.6	608.5	614.4	618.4	620.3	622.2	624.1	625.9
127.5°	638.1	643.2	648.3	651.8	653.7	655.4	657.3	659.2
130°	659.7	665.1	670.4	673.9	675.7	677.4	679.2	680.9
132.5°	681.4	686.5	691.6	695.0	696.6	698.2	699.8	701.4
135°	709.4	714.3	719.3	722.7	724.8	726.9	728.9	730.9
137.5°	737.4	741.9	746.5	749.4	750.7	752.1	753.5	754.9
140°	754.8	759.0	763.3	766.2	767.8	769.4	771.0	772.6
142.5°	771.7	775.3	778.9	781.4	782.7	783.9	785.1	786.4
145°	796.4	798.3	800.2	801.9	803.4	804.8	806.3	807.9
147.5°	818.4	818.8	819.2	819.9	821.0	822.1	823.1	824.3
150°	834.0	834.0	834.0	834.1	834.2	834.3	834.5	834.6
152.5°	847.9	848.1	848.4	848.5	848.4	848.3	848.2	848.1
155°	866.7	867.3	867.9	868.0	867.5	867.0	866.6	866.2
157.5°	882.9	883.7	884.5	884.5	883.7	882.9	882.0	881.3
160°	893.2	894.1	895.0	895.0	894.1	893.2	892.3	891.4
162.5°	901.6	902.5	903.4	903.4	902.4	901.3	900.2	899.2
165°	913.4	914.6	915.9	915.9	914.5	913.0	911.6	910.2
167.5°	922.1	923.4	924.8	924.7	923.1	921.6	920.0	918.5
170°	927.4	928.7	929.9	929.7	928.2	926.6	925.1	923.5
172.5°	930.8	932.0	933.2	933.0	931.3	929.7	928.0	926.3
175°	934.7	936.1	937.5	937.3	935.4	933.6	931.7	929.8
177.5°	936.3	937.3	938.3	938.0	936.5	935.0	933.6	932.1
180°	935.4	935.4	935.4	935.4	935.4	935.4	935.4	935.4

(END OF REPORT)