

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: P332638-940

Luminaire Tested: **S124DIP-S1020D590U940-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332638-940  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-10,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIP-S1020D590U940-4F0-1E-UDD-D1  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 590 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5579.5 lumens  
Efficiency: N/A  
Efficacy: 114.3 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: Semi-Direct

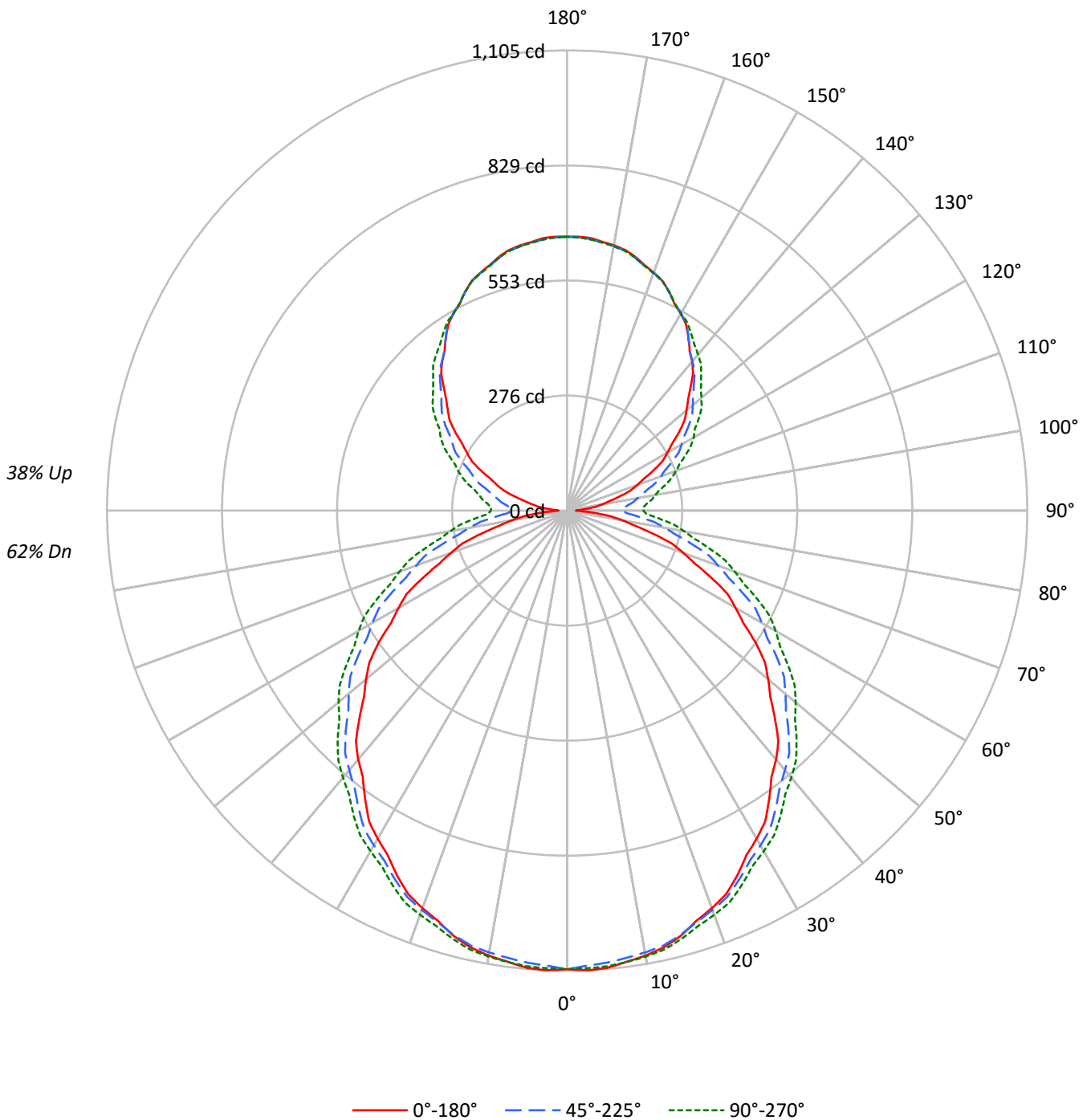
Input Watts (W): 48.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	0
RCR																		
0	110	110	110	110	103	103	103	103	90	90	90	78	78	78	67	67	67	62
1	99	94	90	86	93	88	84	81	77	74	72	67	65	63	58	56	54	50
2	90	82	75	69	84	77	70	65	67	62	58	58	54	51	50	47	45	41
3	82	71	63	57	76	67	60	54	59	53	48	51	47	43	44	40	38	34
4	75	63	54	48	69	59	51	45	52	46	41	45	40	36	39	35	32	29
5	68	56	47	41	64	53	45	39	46	40	35	40	35	31	35	31	28	25
6	63	50	41	35	59	47	39	34	42	35	30	36	31	27	32	27	24	21
7	58	45	37	31	54	43	35	29	38	31	27	33	28	24	29	25	21	19
8	54	41	33	27	50	39	31	26	34	28	24	30	25	21	26	22	19	17
9	50	37	30	24	47	35	28	23	31	25	21	28	23	19	24	20	17	15
10	47	34	27	22	44	33	26	21	29	23	19	26	21	17	23	18	16	14

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

	0°	45°	90°
0°	8888	8888	8888
5°	8916	8686	8711
10°	8861	8544	8538
15°	8782	8380	8334
20°	8662	8198	8135
25°	8527	7995	7918
30°	8381	7793	7693
35°	8216	7585	7497
40°	8083	7388	7292
45°	7887	7207	7117
50°	7721	6996	6931
55°	7549	6799	6714
60°	7282	6547	6515
65°	6989	6278	6271
70°	6633	5968	5986
75°	6136	5628	5730
80°	5588	5302	5476
85°	4893	5013	5328



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	104.3	1.9
10°-20°	298.7	5.4
20°-30°	451.7	8.1
30°-40°	546.5	9.8
40°-50°	577.7	10.4
50°-60°	543.7	9.7
60°-70°	451.1	8.1
70°-80°	316.9	5.7
80°-90°	181.1	3.2
90°-100°	149.7	2.7
100°-110°	207.2	3.7
110°-120°	270.9	4.9
120°-130°	317.4	5.7
130°-140°	335.8	6.0
140°-150°	320.0	5.7
150°-160°	266.9	4.8
160°-170°	177.6	3.2
170°-180°	62.2	1.1
0°-30°	854.6	15.3
0°-40°	1401.1	25.1
0°-60°	2522.6	45.2
0°-90°	3471.7	62.2
90°-120°	627.9	11.3
90°-150°	1601.0	28.7
90°-180°	2108.0	37.8
0°-180°	5579.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1101	1101	1101	1101	1101	
5°	1102	1098	1090	1099	1098	105
15°	1057	1058	1054	1065	1064	298
25°	967	974	978	991	992	445
35°	846	860	873	889	894	529
45°	705	729	752	772	779	545
55°	552	579	615	639	647	492
65°	382	422	464	493	504	379
75°	212	258	309	343	355	226
85°	65	117	173	208	222	70
90°	21	76	133	170	183	15
95°	46	92	146	179	192	47
105°	130	156	202	234	246	138
115°	229	242	279	304	313	226
125°	328	328	357	378	386	292
135°	419	422	431	449	455	324
145°	507	508	508	515	519	317
155°	580	580	579	581	579	267
165°	631	630	629	631	630	178
175°	657	654	654	657	654	62
180°	658	658	658	658	658	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0
2.5°	1104.9	1104.3	1103.6	1103.0	1102.2	1101.1	1099.3	1097.6	1095.8	1094.0	1095.6
5°	1102.2	1101.4	1100.5	1099.7	1098.9	1097.5	1095.6	1093.7	1091.8	1089.8	1092.1
7.5°	1092.8	1092.3	1091.8	1091.4	1090.8	1089.8	1088.2	1086.6	1085.0	1083.4	1085.9
10°	1084.9	1084.7	1084.4	1084.1	1083.9	1083.0	1081.6	1080.3	1078.9	1077.5	1080.0
12.5°	1074.1	1074.1	1074.0	1073.9	1073.9	1073.4	1072.5	1071.5	1070.6	1069.6	1071.9
15°	1056.6	1056.9	1057.1	1057.4	1057.7	1057.4	1056.6	1055.8	1054.9	1054.1	1056.6
17.5°	1032.7	1033.5	1034.3	1035.1	1036.0	1036.3	1036.1	1036.0	1035.8	1035.6	1038.1
20°	1015.9	1016.7	1017.5	1018.3	1019.2	1019.8	1020.0	1020.3	1020.6	1020.8	1023.6
22.5°	997.1	998.2	999.3	1000.3	1001.3	1002.1	1002.6	1003.1	1003.5	1004.1	1006.8
25°	966.6	968.2	969.8	971.5	973.1	974.4	975.2	976.1	976.9	977.7	980.7
27.5°	932.6	935.0	937.4	939.8	942.2	944.1	945.3	946.6	947.8	949.0	951.9
30°	909.9	912.0	914.3	916.4	918.6	920.7	922.6	924.5	926.4	928.4	931.4
32.5°	885.2	887.9	890.5	893.1	895.7	898.1	900.3	902.4	904.6	906.7	910.1
35°	845.8	849.1	852.3	855.6	858.9	861.9	864.7	867.4	870.1	872.9	876.7
37.5°	806.0	809.9	813.6	817.4	821.2	824.7	828.1	831.5	835.0	838.4	842.2
40°	780.4	784.0	787.6	791.1	794.7	798.3	802.2	806.0	809.9	813.7	817.8
42.5°	750.8	754.8	758.8	762.9	766.8	771.1	775.5	780.1	784.5	789.1	793.6
45°	705.2	710.4	715.6	720.9	726.0	731.2	736.5	741.6	746.8	752.1	756.7
47.5°	661.6	666.9	672.3	677.7	683.1	688.8	694.7	700.8	706.9	712.8	717.6
50°	630.0	636.1	642.0	648.1	654.1	660.1	666.2	672.2	678.2	684.2	689.7
52.5°	598.4	604.5	610.5	616.5	622.6	629.0	635.9	642.8	649.7	656.7	662.1
55°	552.3	558.1	563.8	569.6	575.3	582.3	590.6	598.8	607.0	615.2	620.7
57.5°	500.8	507.9	515.1	522.2	529.3	536.9	545.1	553.3	561.4	569.6	576.1
60°	467.3	474.4	481.5	488.7	495.8	503.8	512.9	521.9	530.9	540.0	546.3
62.5°	434.7	442.5	450.3	458.1	465.8	474.2	483.3	492.3	501.4	510.4	516.7
65°	382.2	390.9	399.8	408.5	417.2	426.3	435.6	445.0	454.2	463.6	470.4
67.5°	331.6	341.0	350.3	359.6	368.9	378.5	388.5	398.5	408.5	418.5	425.4
70°	297.1	306.5	315.8	325.0	334.4	344.3	354.6	365.1	375.5	385.9	393.3
72.5°	263.6	273.1	282.7	292.2	301.8	312.0	323.1	334.1	345.3	356.3	363.5
75°	212.0	222.2	232.3	242.5	252.6	263.4	274.9	286.4	297.9	309.4	317.1
77.5°	164.0	174.7	185.5	196.2	207.0	218.3	230.4	242.5	254.5	266.5	274.3
80°	134.4	145.3	156.3	167.3	178.3	189.8	201.8	213.8	225.9	237.9	246.2
82.5°	104.8	116.2	127.6	139.0	150.3	162.1	174.2	186.2	198.3	210.4	218.7
85°	65.4	76.9	88.4	99.9	111.4	123.3	135.6	147.9	160.2	172.6	180.8
87.5°	36.8	48.2	59.7	71.1	82.5	94.3	106.5	118.7	130.8	143.0	151.1
90°	21.2	33.4	45.7	57.9	70.1	82.5	95.1	107.9	120.6	133.2	141.9
92.5°	29.6	40.9	52.2	63.5	74.8	86.6	99.1	111.5	123.9	136.3	144.4
95°	46.5	56.6	66.7	76.7	86.8	97.8	109.9	121.9	133.8	145.9	153.6
97.5°	67.9	76.4	85.1	93.6	102.2	112.5	124.6	136.6	148.7	160.8	168.4
100°	84.8	92.4	99.9	107.5	115.0	124.7	136.4	148.1	159.8	171.5	179.1
102.5°	103.4	109.9	116.4	122.8	129.2	138.1	149.5	160.9	172.3	183.7	191.2
105°	129.6	135.2	140.8	146.3	151.9	160.1	170.7	181.2	191.8	202.4	209.6
107.5°	159.3	164.0	168.6	173.3	177.9	185.0	194.7	204.3	214.0	223.6	230.7
110°	178.7	182.8	186.8	190.9	194.9	201.7	211.2	220.7	230.2	239.6	245.7



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	198.9	202.3	205.8	209.2	212.7	218.8	227.8	236.7	245.7	254.7	260.6
115°	229.2	231.6	234.1	236.6	239.0	244.5	253.1	261.6	270.1	278.7	284.5
117.5°	258.8	260.4	261.9	263.5	265.1	269.8	277.9	285.9	293.9	301.9	307.2
120°	277.8	279.0	280.3	281.6	282.9	287.3	294.9	302.5	310.1	317.7	322.6
122.5°	298.5	298.8	299.2	299.5	299.9	303.7	311.1	318.4	325.7	333.1	338.2
125°	327.9	327.6	327.3	327.1	326.8	330.0	336.8	343.5	350.3	357.0	361.9
127.5°	355.4	355.4	355.5	355.6	355.7	358.2	363.3	368.4	373.4	378.5	383.3
130°	374.0	374.0	374.1	374.2	374.3	376.4	380.8	385.2	389.6	394.0	398.7
132.5°	393.9	393.9	393.9	393.8	393.8	395.5	398.9	402.3	405.7	409.1	413.7
135°	419.0	419.6	420.4	421.1	421.7	423.0	424.9	426.9	428.7	430.7	434.8
137.5°	447.6	447.7	447.7	447.8	447.8	448.4	449.5	450.7	451.7	452.9	456.6
140°	466.8	466.7	466.7	466.6	466.6	466.7	467.0	467.3	467.5	467.8	471.3
142.5°	483.3	483.5	483.7	483.8	484.0	483.9	483.7	483.5	483.2	483.0	486.1
145°	507.3	507.5	507.7	507.8	508.0	508.1	508.3	508.4	508.5	508.5	510.1
147.5°	531.3	531.5	531.8	532.1	532.4	532.4	532.4	532.3	532.2	532.1	532.2
150°	545.9	546.1	546.3	546.4	546.6	546.7	546.7	546.7	546.7	546.7	546.7
152.5°	558.7	559.0	559.2	559.5	559.6	559.8	559.9	560.0	560.1	560.2	560.4
155°	579.8	579.8	579.8	579.8	579.8	579.7	579.6	579.5	579.4	579.3	579.7
157.5°	597.7	597.4	597.3	597.1	596.9	596.7	596.7	596.7	596.7	596.6	597.0
160°	608.2	608.1	608.1	608.0	607.8	607.7	607.6	607.5	607.3	607.3	607.6
162.5°	618.0	617.8	617.4	617.2	616.9	616.6	616.5	616.4	616.4	616.2	616.8
165°	631.2	630.8	630.4	630.2	629.8	629.5	629.3	629.1	628.8	628.7	629.3
167.5°	641.2	640.8	640.2	639.8	639.4	639.1	639.1	639.2	639.2	639.2	639.9
170°	646.9	646.4	645.8	645.2	644.6	644.4	644.5	644.6	644.8	644.9	645.6
172.5°	650.9	650.5	650.1	649.6	649.1	648.9	648.9	648.9	648.9	649.0	649.7
175°	656.6	656.0	655.5	654.9	654.3	654.0	653.9	653.8	653.6	653.5	654.3
177.5°	658.4	658.0	657.5	657.1	656.6	656.4	656.4	656.4	656.4	656.4	657.0
180°	657.6	657.6	657.6	657.6	657.6	657.6	657.6	657.6	657.6	657.6	657.6



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0
2.5°	1097.2	1098.7	1100.2	1100.8	1100.6	1100.4	1100.2	1100.0
5°	1094.2	1096.4	1098.7	1099.6	1099.3	1099.0	1098.8	1098.5
7.5°	1088.4	1090.8	1093.3	1094.4	1094.1	1093.9	1093.6	1093.3
10°	1082.4	1084.9	1087.4	1088.5	1088.2	1088.0	1087.7	1087.4
12.5°	1074.2	1076.4	1078.6	1079.8	1079.7	1079.6	1079.6	1079.5
15°	1059.1	1061.5	1064.0	1065.1	1064.8	1064.5	1064.3	1064.0
17.5°	1040.6	1043.2	1045.7	1046.9	1046.6	1046.4	1046.2	1046.0
20°	1026.3	1029.0	1031.8	1033.1	1033.1	1033.1	1033.1	1033.1
22.5°	1009.5	1012.3	1015.0	1016.6	1017.1	1017.4	1017.9	1018.3
25°	983.7	986.7	989.7	991.4	991.7	991.9	992.2	992.5
27.5°	954.7	957.4	960.3	961.8	962.2	962.5	962.8	963.1
30°	934.4	937.4	940.4	942.2	942.7	943.3	943.9	944.4
32.5°	913.6	917.0	920.5	922.5	923.0	923.5	924.1	924.7
35°	880.6	884.4	888.2	890.6	891.4	892.2	893.0	893.9
37.5°	846.1	850.1	853.9	856.3	857.2	858.1	858.9	859.8
40°	821.9	826.0	830.2	832.8	833.8	834.9	836.1	837.1
42.5°	798.2	802.7	807.3	809.9	810.8	811.7	812.6	813.4
45°	761.3	766.1	770.7	773.7	775.1	776.4	777.8	779.2
47.5°	722.5	727.3	732.2	735.4	737.0	738.7	740.3	742.0
50°	695.2	700.7	706.1	709.7	711.4	713.0	714.6	716.3
52.5°	667.6	673.1	678.6	682.1	683.8	685.4	687.1	688.7
55°	626.2	631.7	637.1	640.7	642.3	644.0	645.6	647.3
57.5°	582.6	589.2	595.7	599.7	601.2	602.8	604.3	605.8
60°	552.6	558.9	565.2	569.4	571.7	573.8	576.0	578.2
62.5°	523.0	529.3	535.7	539.8	542.1	544.2	546.4	548.7
65°	477.2	484.1	491.0	495.5	497.7	499.9	502.0	504.3
67.5°	432.4	439.3	446.3	450.8	453.0	455.1	457.3	459.4
70°	400.6	408.0	415.4	420.2	422.0	424.0	425.9	427.8
72.5°	370.7	377.8	385.0	389.7	391.8	394.0	396.1	398.2
75°	324.8	332.4	340.1	345.2	347.7	350.2	352.6	355.1
77.5°	282.1	289.9	297.7	302.9	305.5	308.2	310.8	313.4
80°	254.4	262.6	270.8	276.0	278.2	280.4	282.6	284.8
82.5°	227.2	235.7	244.1	249.5	251.9	254.3	256.7	259.1
85°	189.0	197.2	205.5	211.0	213.7	216.4	219.2	221.9
87.5°	159.2	167.3	175.4	180.7	183.1	185.6	188.0	190.5
90°	150.5	159.1	167.7	173.3	175.7	178.1	180.5	182.9
92.5°	152.6	160.7	168.8	174.1	176.4	178.7	181.0	183.3
95°	161.4	169.2	176.8	182.0	184.4	186.9	189.4	191.8
97.5°	175.9	183.5	191.1	196.1	198.4	200.8	203.1	205.5
100°	186.7	194.4	202.0	206.8	208.7	210.6	212.5	214.5
102.5°	198.7	206.2	213.7	218.5	220.7	222.9	225.2	227.4
105°	216.8	224.0	231.1	236.0	238.5	241.1	243.6	246.1
107.5°	237.7	244.8	251.9	256.4	258.3	260.3	262.3	264.2
110°	251.8	257.9	263.9	268.2	270.8	273.3	275.8	278.4





TEST NUMBER: P332638-940

CATALOG NUMBER: S124DIP-S1020D590U940-4F0-1E-UDD-D1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	266.7	272.8	278.7	282.9	285.2	287.5	289.7	291.9
115°	290.5	296.4	302.3	306.2	308.0	309.8	311.6	313.4
117.5°	312.5	317.8	323.2	326.8	328.8	330.7	332.7	334.7
120°	327.5	332.4	337.3	341.0	343.5	345.9	348.3	350.7
122.5°	343.3	348.4	353.5	356.9	358.4	360.0	361.5	363.1
125°	366.9	371.9	376.9	380.0	381.5	382.9	384.3	385.8
127.5°	388.0	392.7	397.3	400.6	402.3	403.9	405.6	407.3
130°	403.4	408.0	412.8	415.7	417.0	418.1	419.3	420.5
132.5°	418.1	422.6	427.1	430.1	431.5	433.0	434.4	436.0
135°	439.0	443.2	447.3	450.0	451.4	452.6	454.0	455.2
137.5°	460.3	464.0	467.7	470.3	471.7	473.1	474.6	476.0
140°	474.7	478.1	481.6	483.9	485.3	486.5	487.8	489.0
142.5°	489.1	492.2	495.3	497.5	498.6	499.7	500.9	501.9
145°	511.7	513.2	514.7	515.9	516.6	517.4	518.1	518.9
147.5°	532.4	532.4	532.6	533.1	533.8	534.6	535.3	536.1
150°	546.7	546.7	546.7	546.7	546.5	546.4	546.4	546.3
152.5°	560.7	561.0	561.2	561.2	561.0	560.6	560.4	560.1
155°	580.1	580.6	581.1	581.1	580.6	580.1	579.7	579.3
157.5°	597.4	597.7	598.1	598.0	597.6	597.3	596.8	596.5
160°	608.0	608.2	608.6	608.5	608.0	607.3	606.8	606.3
162.5°	617.4	618.0	618.7	618.7	618.1	617.5	617.0	616.4
165°	630.0	630.6	631.3	631.4	631.0	630.5	630.1	629.6
167.5°	640.5	641.2	641.9	641.9	641.2	640.5	639.8	639.1
170°	646.2	646.9	647.6	647.6	646.8	646.0	645.2	644.4
172.5°	650.5	651.3	652.0	652.0	651.2	650.4	649.6	648.9
175°	655.1	655.9	656.7	656.7	655.9	655.1	654.3	653.5
177.5°	657.6	658.3	658.9	658.9	658.2	657.5	656.7	655.9
180°	657.6	657.6	657.6	657.6	657.6	657.6	657.6	657.6

(END OF REPORT)