

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: P332820-940

Luminaire Tested: **S124DIW-S1020D1050U940-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332820-940  
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: S124DIW-S1020D1050U940-4F0-1E-UDD-D1  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1050 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6997.1 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: General Diffuse

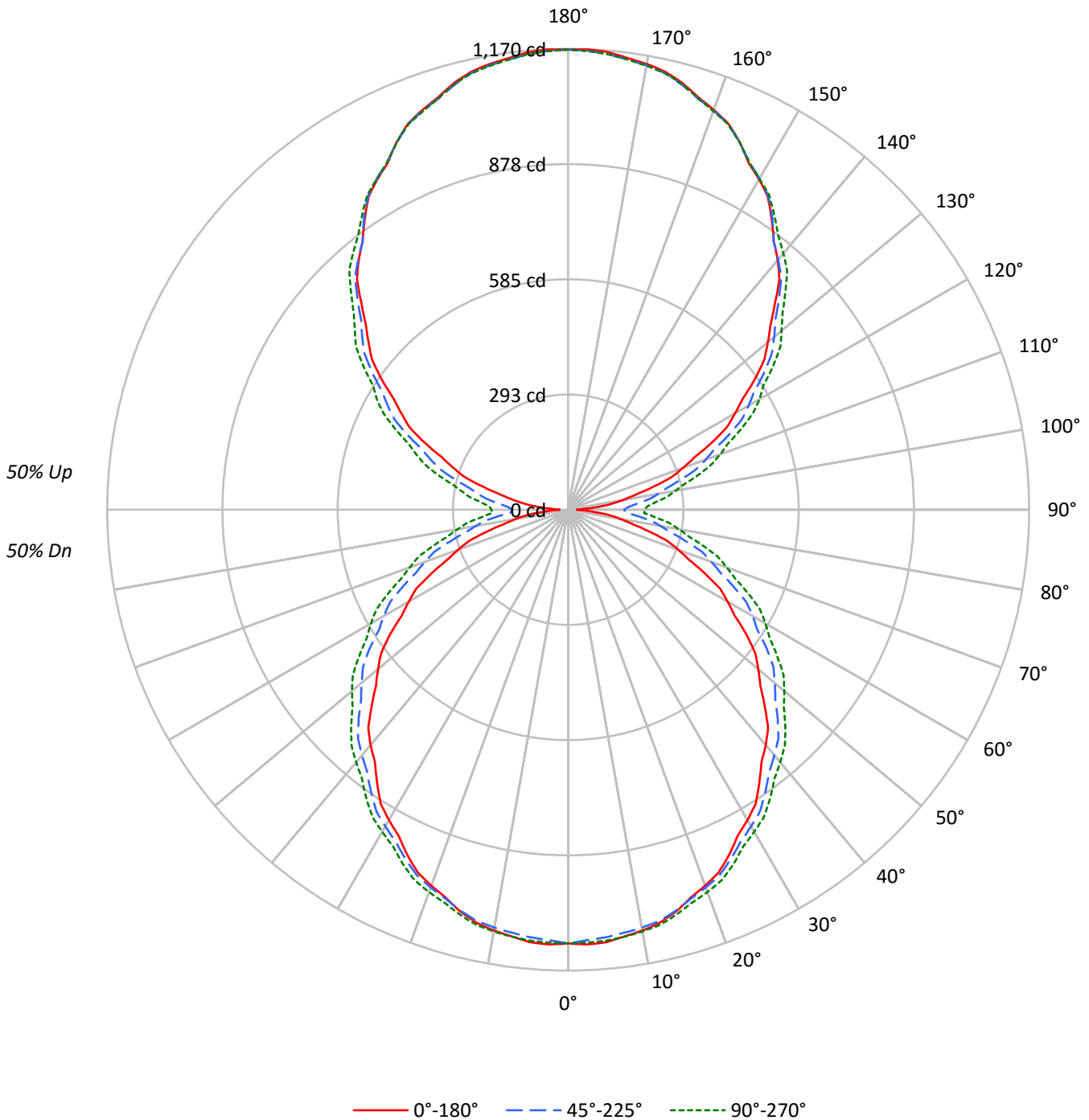
Input Watts (W): 61.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	97	92	88	84	89	85	81	78	71	69	66	59	57	55	48	46	45	40
2	88	80	73	68	80	74	68	63	62	58	54	51	48	45	41	39	37	32
3	80	70	62	56	73	64	58	52	54	49	45	45	41	38	36	34	31	27
4	73	61	53	47	67	57	49	44	48	42	38	40	36	32	32	29	27	23
5	67	55	46	40	61	50	43	37	43	37	32	36	31	28	29	26	23	20
6	61	49	40	34	56	45	38	32	38	33	28	32	28	24	26	23	20	17
7	57	44	36	30	52	41	33	28	35	29	25	29	25	21	24	20	18	15
8	52	40	32	26	48	37	30	25	32	26	22	27	22	19	22	18	16	13
9	49	36	29	23	45	34	27	22	29	23	19	24	20	17	20	17	14	12
10	46	33	26	21	42	31	24	20	27	21	17	23	18	15	19	15	13	11

**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	1.5
10°-20°	298.7	4.3
20°-30°	451.7	6.5
30°-40°	546.5	7.8
40°-50°	577.7	8.3
50°-60°	543.7	7.8
60°-70°	451.1	6.4
70°-80°	316.9	4.5
80°-90°	182.6	2.6
90°-100°	183.4	2.6
100°-110°	307.0	4.4
110°-120°	440.2	6.3
120°-130°	540.6	7.7
130°-140°	586.5	8.4
140°-150°	566.3	8.1
150°-160°	474.1	6.8
160°-170°	315.4	4.5
170°-180°	110.5	1.6
0°-30°	854.6	12.2
0°-40°	1401.1	20.0
0°-60°	2522.6	36.1
0°-90°	3473.3	49.6
90°-120°	930.6	13.3
90°-150°	2623.9	37.5
90°-180°	3524.0	50.4
0°-180°	6997.1	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°	22	82	142	181	195	16
95°	70	120	176	210	223	73
105°	222	248	296	329	342	236
115°	401	414	450	475	484	396
125°	578	579	607	628	634	516
135°	742	748	756	774	779	574
145°	900	902	903	910	912	563
155°	1030	1030	1029	1032	1029	474
165°	1121	1118	1116	1121	1118	316
175°	1166	1162	1161	1166	1161	111
180°	1168	1168	1168	1168	1168	



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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°	37.0	48.7	60.3	71.9	83.6	95.5	107.8	120.1	132.4	144.8	152.9
90°	22.5	35.6	48.8	62.0	75.1	88.4	101.7	115.1	128.6	142.0	151.1
92.5°	38.1	50.5	62.9	75.3	87.7	100.3	113.2	126.1	139.0	151.9	160.3
95°	70.3	81.1	91.9	102.8	113.6	125.4	138.0	150.6	163.3	175.9	183.9
97.5°	109.2	118.4	127.7	136.9	146.2	157.1	169.9	182.6	195.5	208.2	216.1
100°	140.0	147.9	155.9	163.8	171.7	181.9	194.4	207.0	219.5	231.9	239.7
102.5°	173.3	179.9	186.4	193.0	199.6	208.9	221.0	233.1	245.2	257.3	265.1
105°	221.6	227.3	232.9	238.6	244.3	252.6	263.6	274.5	285.4	296.4	303.8
107.5°	274.6	279.4	284.1	288.8	293.6	300.8	310.5	320.2	329.9	339.7	347.0
110°	309.8	314.0	318.3	322.4	326.7	333.5	343.0	352.3	361.7	371.1	377.0



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	346.3	349.8	353.3	356.8	360.3	366.4	375.2	384.0	392.8	401.5	407.6
115°	401.3	403.7	406.2	408.7	411.1	416.5	424.9	433.3	441.7	450.0	455.8
117.5°	454.1	455.8	457.4	459.1	460.7	465.5	473.3	481.3	489.1	497.0	502.0
120°	488.6	490.2	491.8	493.4	495.1	499.5	506.8	514.2	521.6	528.9	533.4
122.5°	525.4	525.9	526.4	526.8	527.4	531.2	538.4	545.6	552.9	560.1	564.9
125°	578.5	578.3	578.0	577.7	577.5	580.7	587.3	594.0	600.6	607.3	612.1
127.5°	627.6	627.9	628.3	628.7	628.9	631.6	636.5	641.5	646.4	651.3	655.9
130°	661.3	661.6	662.0	662.3	662.6	665.0	669.4	673.8	678.1	682.5	687.1
132.5°	696.8	696.9	697.1	697.2	697.4	699.2	702.5	705.9	709.2	712.6	716.8
135°	742.3	743.5	744.7	745.9	747.1	748.7	750.6	752.5	754.5	756.3	760.4
137.5°	793.3	793.5	793.8	794.2	794.4	795.1	796.4	797.6	799.0	800.2	803.7
140°	827.2	827.3	827.5	827.6	827.7	828.0	828.2	828.5	828.8	829.0	832.4
142.5°	857.3	857.6	858.0	858.4	858.7	858.7	858.4	858.1	857.7	857.4	860.5
145°	900.1	900.6	901.1	901.6	902.1	902.5	902.8	902.9	903.1	903.3	904.8
147.5°	942.7	943.3	944.1	944.8	945.5	945.7	945.6	945.4	945.2	945.0	945.1
150°	968.8	969.2	969.7	970.3	970.8	971.1	971.1	971.1	971.1	971.1	971.1
152.5°	992.3	992.7	993.2	993.5	994.0	994.3	994.4	994.6	994.8	995.0	995.4
155°	1029.8	1029.8	1029.8	1029.8	1029.8	1029.7	1029.5	1029.3	1029.1	1028.9	1029.7
157.5°	1061.6	1061.2	1060.9	1060.5	1060.2	1060.0	1059.9	1059.9	1059.8	1059.8	1060.4
160°	1080.4	1080.2	1080.0	1079.8	1079.6	1079.4	1079.1	1079.0	1078.8	1078.6	1079.1
162.5°	1097.7	1097.3	1096.7	1096.2	1095.6	1095.3	1095.1	1094.9	1094.7	1094.5	1095.6
165°	1121.1	1120.4	1119.8	1119.3	1118.7	1118.1	1117.8	1117.3	1117.0	1116.5	1117.8
167.5°	1138.9	1138.1	1137.3	1136.4	1135.6	1135.1	1135.2	1135.2	1135.2	1135.3	1136.5
170°	1149.1	1148.1	1147.0	1146.0	1145.0	1144.6	1144.9	1145.0	1145.2	1145.4	1146.7
172.5°	1156.3	1155.4	1154.6	1153.8	1152.9	1152.5	1152.5	1152.6	1152.6	1152.6	1154.1
175°	1166.2	1165.2	1164.2	1163.2	1162.2	1161.6	1161.4	1161.2	1161.0	1160.8	1162.2
177.5°	1169.5	1168.7	1167.9	1167.1	1166.3	1165.8	1165.8	1165.8	1165.8	1165.8	1167.0
180°	1168.1	1168.1	1168.1	1168.1	1168.1	1168.1	1168.1	1168.1	1168.1	1168.1	1168.1



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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°	161.1	169.3	177.5	182.9	185.4	187.8	190.3	192.8
90°	160.2	169.3	178.5	184.4	187.0	189.6	192.2	194.7
92.5°	168.8	177.3	185.7	191.2	193.6	196.0	198.4	200.9
95°	191.9	199.9	207.9	213.1	215.6	218.1	220.5	223.0
97.5°	224.0	231.9	239.8	245.0	247.3	249.7	252.0	254.3
100°	247.5	255.3	263.1	268.0	269.9	271.8	273.8	275.6
102.5°	272.8	280.5	288.3	293.3	295.6	297.9	300.2	302.5
105°	311.3	318.7	326.2	331.3	334.1	336.9	339.7	342.5
107.5°	354.2	361.5	368.8	373.4	375.4	377.3	379.2	381.2
110°	382.9	388.8	394.7	399.0	401.8	404.7	407.4	410.2





TEST NUMBER: P332820-940

CATALOG NUMBER: S124DIW-S1020D1050U940-4F0-1E-UDD-D1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	413.6	419.5	425.6	429.7	432.0	434.4	436.7	439.0
115°	461.6	467.4	473.3	477.1	478.8	480.5	482.2	483.9
117.5°	507.0	512.0	517.0	520.4	522.3	524.1	525.8	527.6
120°	537.9	542.3	546.8	550.4	552.9	555.5	558.1	560.7
122.5°	569.7	574.5	579.3	582.3	583.5	584.8	586.0	587.3
125°	616.9	621.6	626.4	629.5	630.7	632.0	633.2	634.5
127.5°	660.4	664.9	669.5	672.5	674.0	675.6	677.1	678.7
130°	691.6	696.2	700.6	703.4	704.2	705.0	705.9	706.7
132.5°	721.2	725.5	729.8	732.6	734.0	735.2	736.6	737.9
135°	764.3	768.3	772.3	774.8	775.9	776.9	777.9	779.0
137.5°	807.2	810.7	814.1	816.5	818.1	819.6	821.1	822.5
140°	835.7	839.1	842.5	844.7	845.9	847.0	848.2	849.4
142.5°	863.5	866.7	869.8	871.8	873.0	874.1	875.1	876.3
145°	906.2	907.7	909.1	910.1	910.6	911.1	911.6	912.0
147.5°	945.2	945.2	945.3	945.7	946.4	947.0	947.7	948.4
150°	971.1	971.1	971.1	971.0	970.8	970.6	970.4	970.2
152.5°	995.9	996.4	996.8	996.8	996.3	995.8	995.2	994.8
155°	1030.6	1031.4	1032.2	1032.2	1031.4	1030.6	1029.7	1028.9
157.5°	1061.0	1061.6	1062.2	1062.2	1061.5	1060.8	1060.2	1059.4
160°	1079.8	1080.4	1081.0	1080.8	1079.8	1078.8	1077.8	1076.7
162.5°	1096.6	1097.7	1098.9	1098.9	1097.9	1096.9	1095.8	1094.8
165°	1118.9	1120.2	1121.3	1121.5	1120.7	1119.9	1119.1	1118.3
167.5°	1137.7	1138.9	1140.1	1140.1	1138.9	1137.6	1136.4	1135.1
170°	1147.8	1149.1	1150.2	1150.1	1148.8	1147.4	1145.9	1144.5
172.5°	1155.4	1156.7	1158.2	1158.1	1156.7	1155.3	1153.9	1152.4
175°	1163.6	1165.0	1166.4	1166.4	1165.0	1163.6	1162.2	1160.8
177.5°	1168.1	1169.2	1170.4	1170.3	1168.9	1167.7	1166.4	1165.1
180°	1168.1	1168.1	1168.1	1168.1	1168.1	1168.1	1168.1	1168.1

(END OF REPORT)