

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: P332666-830

Luminaire Tested: **S124DIP-S1020D1205U830-4F0-1E-UDD-D4**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332666-830  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-18,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIP-S1020D1205U830-4F0-1E-UDD-D4  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1205 LUMENS PER FOOT, BATWING OPTIC  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8024.5 lumens  
Efficiency: N/A  
Efficacy: 122.7 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

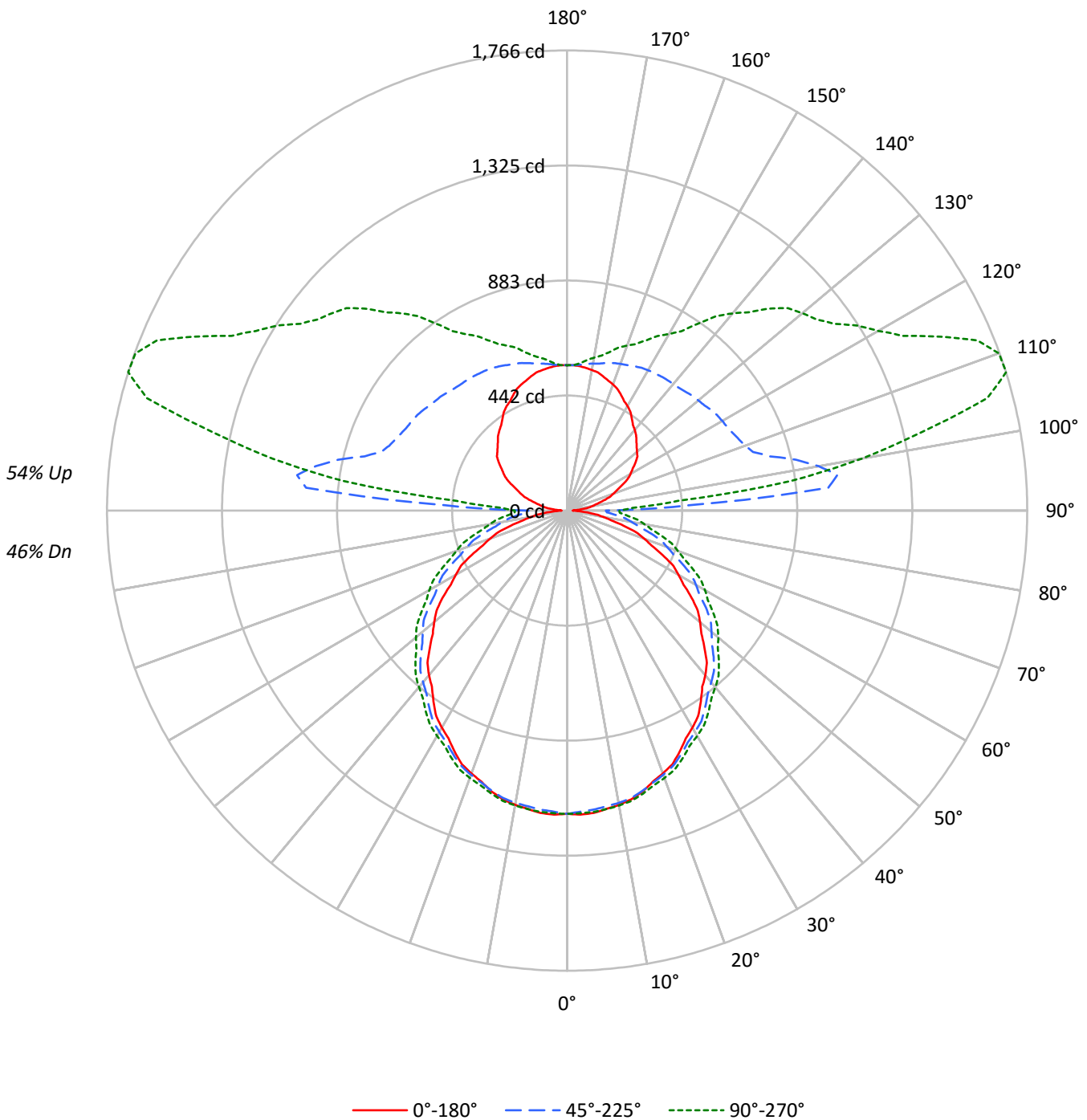
Input Watts (W): 65.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	46				
1	96	91	87	83	88	84	80	77	70	67	65	57	55	53	45	43	42	37				
2	87	79	73	67	79	73	67	62	60	56	53	49	46	44	39	37	35	30				
3	79	69	62	55	72	64	57	51	53	48	44	43	39	36	34	31	29	25				
4	72	61	53	47	66	56	49	43	47	41	37	38	34	31	30	27	25	21				
5	66	54	46	40	60	50	42	37	42	36	32	34	30	27	27	24	21	18				
6	61	48	40	34	55	45	37	32	37	32	27	31	26	23	24	21	19	16				
7	56	44	35	30	51	40	33	28	34	28	24	28	24	20	22	19	17	14				
8	52	39	32	26	47	36	29	25	31	25	21	25	21	18	20	17	15	12				
9	48	36	28	23	44	33	26	22	28	23	19	23	19	16	19	16	13	11				
10	45	33	26	21	41	31	24	19	26	21	17	22	17	14	17	14	12	10				

**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	1.4
10°-20°	315.7	3.9
20°-30°	477.4	5.9
30°-40°	577.6	7.2
40°-50°	610.7	7.6
50°-60°	574.7	7.2
60°-70°	476.8	5.9
70°-80°	334.9	4.2
80°-90°	192.4	2.4
90°-100°	515.1	6.4
100°-110°	921.3	11.5
110°-120°	806.5	10.1
120°-130°	662.9	8.3
130°-140°	540.1	6.7
140°-150°	404.9	5.0
150°-160°	282.7	3.5
160°-170°	166.3	2.1
170°-180°	54.1	0.7
0°-30°	903.4	11.3
0°-40°	1481.0	18.5
0°-60°	2666.4	33.2
0°-90°	3670.7	45.7
90°-120°	2242.8	27.9
90°-150°	3850.7	48.0
90°-180°	4354.0	54.3
0°-180°	8024.5	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	73
90°	22	82	149	187	200	16
95°	53	174	1006	589	428	54
105°	140	225	804	1664	1670	150
115°	234	304	702	1320	1579	232
125°	320	379	674	1108	1250	285
135°	376	448	644	962	1096	291
145°	432	493	629	792	875	271
155°	490	528	611	692	722	226
165°	533	550	586	620	630	151
175°	556	558	562	570	567	53
180°	558	558	558	558	558	



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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°	38.8	51.1	63.5	75.6	87.6	99.8	113.9	126.5	139.7	152.8	161.0
90°	22.0	35.7	50.6	63.2	76.0	87.9	107.0	119.4	134.1	148.7	156.0
92.5°	32.3	48.4	69.1	92.9	119.3	153.5	221.7	319.1	414.3	470.1	420.3
95°	53.1	65.9	86.4	110.2	146.1	202.7	309.9	501.4	775.1	1006.0	1039.0
97.5°	80.2	88.4	106.0	127.4	158.3	206.8	291.9	451.9	724.0	1045.5	1265.9
100°	97.6	105.1	120.3	141.0	169.3	213.8	289.6	424.7	659.5	979.6	1267.8
102.5°	115.1	123.5	136.9	155.7	182.3	224.4	293.9	413.9	615.0	899.9	1196.7
105°	139.9	148.9	160.2	179.2	204.6	244.7	307.9	409.5	573.6	804.5	1069.1
107.5°	169.8	176.8	187.0	205.8	229.3	268.2	326.5	419.4	560.5	747.8	965.1
110°	189.0	195.2	204.7	221.9	245.7	282.4	340.6	427.4	558.1	727.1	912.2



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	207.2	212.9	222.9	238.7	262.0	298.3	354.4	436.3	558.6	714.0	879.6
115°	233.5	239.3	249.6	263.2	286.5	322.1	375.1	450.2	561.3	702.0	846.3
117.5°	262.1	266.7	275.0	288.7	309.7	345.5	395.8	464.9	564.8	693.1	826.8
120°	280.3	283.4	291.9	304.8	324.3	359.6	409.6	474.9	567.7	687.9	815.2
122.5°	297.8	300.2	308.0	319.4	340.0	373.8	423.3	484.7	570.9	681.7	803.0
125°	319.5	323.7	329.9	341.7	362.2	396.3	443.0	500.6	576.8	673.9	784.6
127.5°	339.7	342.9	350.4	364.0	385.4	418.9	462.6	514.3	580.1	663.6	760.9
130°	350.0	354.1	362.6	378.7	399.3	433.2	475.0	522.4	582.9	657.6	746.0
132.5°	361.4	364.6	375.7	391.0	413.2	445.0	485.9	531.4	585.8	652.5	732.9
135°	376.1	380.5	391.4	410.0	433.0	462.5	500.7	542.2	589.1	643.7	711.8
137.5°	392.1	396.0	407.7	425.2	448.7	476.3	511.0	548.7	589.6	637.4	694.1
140°	403.5	406.4	418.2	436.6	459.3	485.5	518.7	554.0	591.5	633.5	684.3
142.5°	414.7	417.9	429.0	446.7	468.8	494.1	525.8	558.1	593.4	631.4	676.6
145°	431.7	434.7	445.4	460.4	481.0	504.9	533.4	563.0	594.7	628.7	665.4
147.5°	451.2	452.0	461.4	476.8	493.9	515.4	542.2	568.0	595.8	624.7	655.8
150°	463.4	464.3	472.8	485.6	501.7	522.5	546.5	570.6	595.8	622.1	649.5
152.5°	473.8	474.0	482.7	494.9	509.5	528.6	550.1	572.4	594.1	617.7	642.4
155°	489.6	490.7	497.2	508.2	520.3	536.7	555.3	573.9	591.4	611.1	632.0
157.5°	505.1	505.1	511.2	519.8	530.3	543.3	559.0	573.9	588.6	604.4	621.2
160°	514.7	514.7	519.2	526.8	535.6	547.6	560.7	573.9	586.0	599.1	613.3
162.5°	523.5	522.6	526.1	532.9	540.8	550.3	562.5	573.9	583.3	593.8	606.3
165°	533.4	533.4	535.6	541.0	546.5	553.1	563.0	571.7	578.2	586.0	594.7
167.5°	543.3	542.2	543.3	547.4	550.4	555.5	562.7	569.1	573.1	578.1	584.2
170°	547.6	546.5	547.6	550.9	553.1	556.4	561.8	567.3	569.5	572.8	577.2
172.5°	552.0	550.9	551.1	553.6	554.9	557.2	561.0	565.6	566.0	567.5	571.1
175°	556.4	555.3	555.3	556.4	557.5	557.5	559.7	563.0	561.8	561.8	564.0
177.5°	558.4	557.5	556.6	557.5	557.5	557.5	558.4	560.1	558.4	558.4	559.2
180°	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5



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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°	169.6	178.1	186.8	192.3	195.0	197.8	200.1	202.6
90°	165.5	175.0	184.5	189.8	193.3	196.7	197.9	200.2
92.5°	354.2	309.2	284.2	267.6	256.9	253.4	251.9	254.3
95°	940.6	778.6	639.7	538.7	487.6	456.3	439.1	427.5
97.5°	1319.6	1264.0	1164.5	1055.2	979.0	915.6	885.2	865.0
100°	1435.5	1465.3	1419.4	1343.3	1250.0	1185.2	1154.4	1147.6
102.5°	1423.7	1539.9	1563.1	1534.3	1478.1	1431.9	1399.6	1394.8
105°	1327.2	1523.9	1639.6	1689.2	1693.7	1687.2	1674.2	1670.0
107.5°	1194.3	1403.2	1562.9	1665.3	1721.5	1748.5	1761.5	1766.5
110°	1113.8	1309.9	1475.5	1600.4	1680.5	1728.8	1750.9	1763.0





TEST NUMBER: P332666-830

CATALOG NUMBER: S124DIP-S1020D1205U830-4F0-1E-UDD-D4

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	1052.9	1227.0	1383.5	1508.3	1598.8	1656.8	1686.8	1705.1
115°	989.6	1130.7	1265.2	1374.5	1463.1	1530.9	1567.9	1578.7
117.5°	953.9	1071.5	1178.3	1271.6	1347.6	1405.2	1443.0	1452.1
120°	935.9	1043.7	1137.1	1218.9	1283.6	1334.1	1364.9	1379.3
122.5°	920.3	1024.4	1109.9	1181.9	1236.9	1280.2	1306.3	1320.4
125°	895.2	994.9	1076.0	1139.8	1185.3	1218.9	1241.4	1249.7
127.5°	864.9	960.2	1040.7	1101.5	1147.5	1177.7	1197.2	1205.7
130°	842.2	933.9	1013.6	1075.2	1121.7	1150.8	1170.2	1178.5
132.5°	819.2	905.4	983.1	1044.5	1090.2	1122.9	1141.2	1149.6
135°	785.5	861.3	932.7	990.7	1036.2	1068.7	1087.9	1096.2
137.5°	755.6	820.1	880.6	933.0	975.4	1007.1	1022.9	1032.4
140°	738.5	793.7	846.8	895.3	935.2	960.7	977.5	987.7
142.5°	723.2	771.8	817.4	859.5	894.7	918.2	933.0	940.4
145°	702.2	741.2	775.8	807.9	836.4	856.2	868.4	875.0
147.5°	684.9	714.8	741.3	766.0	787.0	804.0	813.2	816.1
150°	675.8	701.0	722.8	742.5	760.1	774.3	780.9	782.0
152.5°	666.1	687.8	707.9	724.2	739.0	750.6	754.6	755.7
155°	651.7	669.2	685.6	698.8	709.7	718.5	721.8	721.8
157.5°	636.1	650.8	664.6	675.1	683.4	690.0	692.0	692.0
160°	626.5	638.5	650.5	659.3	665.9	672.5	673.5	673.5
162.5°	616.8	627.2	636.6	644.4	649.2	655.8	657.0	656.0
165°	603.5	610.0	617.7	623.2	627.5	632.0	630.8	629.8
167.5°	590.6	595.6	601.7	605.0	607.2	610.0	609.8	609.0
170°	582.7	586.0	590.3	593.6	595.8	596.9	595.8	595.8
172.5°	575.6	578.1	580.7	583.1	584.4	585.5	584.4	582.7
175°	566.3	567.3	569.5	569.5	569.5	571.7	569.5	567.3
177.5°	560.1	561.0	561.0	561.8	561.0	561.8	560.1	558.4
180°	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5

(END OF REPORT)