

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: P332649

Luminaire Tested: **S124DIP-S1020D810U835-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332649  
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: S124DIP-S1020D810U835-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 810 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7664.6 lumens  
Efficiency: N/A  
Efficacy: 140.9 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: General Diffuse

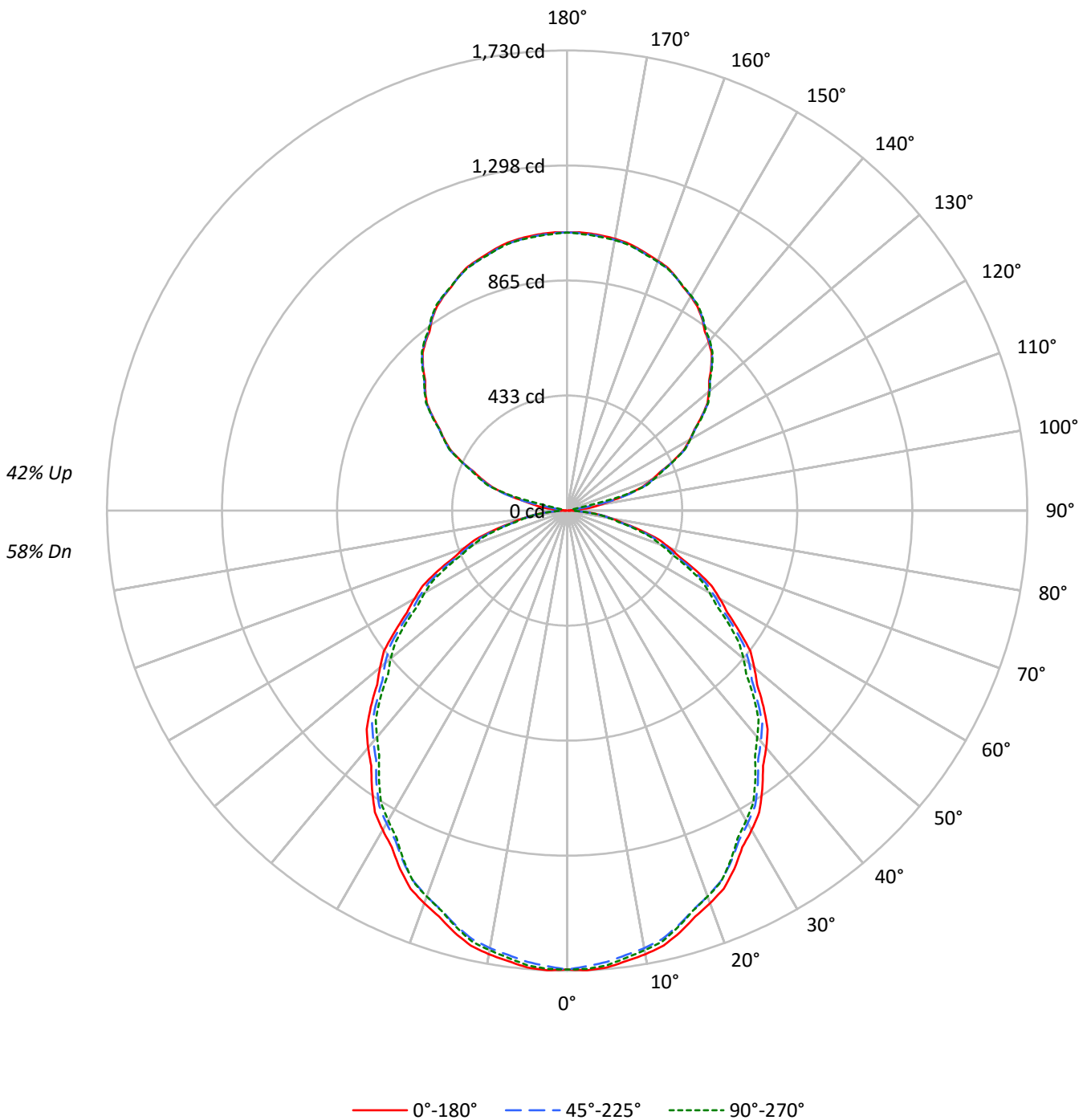
Input Watts (W): 54.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20									
RC	80									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	50	30	10	0													
RCR																																					
0	109	109	109	109	102	102	102	102	88	88	88	75	75	75	63	63	63	58																			
1	99	95	91	88	93	89	85	82	77	74	72	66	64	62	56	55	53	49																			
2	91	83	77	72	84	78	72	67	67	63	60	58	55	52	49	47	45	41																			
3	83	73	66	60	77	68	62	56	59	54	50	51	47	44	44	41	38	34																			
4	76	65	57	50	70	61	53	48	53	47	43	46	41	38	39	36	33	30																			
5	69	58	49	43	64	54	47	41	47	41	37	41	36	33	35	32	29	26																			
6	64	52	44	38	59	49	41	36	43	37	32	37	32	29	32	28	25	23																			
7	59	47	39	33	55	44	37	31	39	33	28	34	29	25	29	25	23	20																			
8	55	43	35	29	51	40	33	28	35	29	25	31	26	23	27	23	20	18																			
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	25	21	18	16																			
10	48	36	28	23	45	34	27	22	30	24	21	26	22	19	23	19	17	15																			

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

	0°	45°	90°
0°	13930	13930	13930
5°	13972	13804	13904
10°	13884	13691	13759
15°	13717	13497	13531
20°	13493	13256	13268
25°	13239	12981	12944
30°	12928	12656	12541
35°	12604	12318	12154
40°	12269	11934	11715
45°	11918	11555	11334
50°	11531	11218	10870
55°	11112	10781	10431
60°	10693	10291	9978
65°	10222	9824	9429
70°	9692	9203	8844
75°	8883	8453	8238
80°	7908	7583	7392
85°	6919	6660	6530



TEST NUMBER: P332649

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	162.5	2.1
10°-20°	457.8	6.0
20°-30°	673.9	8.8
30°-40°	783.4	10.2
40°-50°	783.4	10.2
50°-60°	685.3	8.9
60°-70°	508.9	6.6
70°-80°	289.1	3.8
80°-90°	86.5	1.1
90°-100°	35.8	0.5
100°-110°	228.0	3.0
110°-120°	436.1	5.7
120°-130°	553.6	7.2
130°-140°	592.3	7.7
140°-150°	553.9	7.2
150°-160°	446.7	5.8
160°-170°	288.1	3.8
170°-180°	99.3	1.3
0°-30°	1294.2	16.9
0°-40°	2077.6	27.1
0°-60°	3546.4	46.3
0°-90°	4430.9	57.8
90°-120°	699.8	9.1
90°-150°	2399.6	31.3
90°-180°	3234.0	42.2
0°-180°	7664.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1726	1726	1726	1726	1726	
5°	1724	1718	1703	1718	1716	163
15°	1641	1635	1615	1622	1619	462
25°	1486	1476	1457	1458	1453	684
35°	1279	1269	1250	1240	1233	799
45°	1044	1034	1012	997	993	804
55°	790	784	766	750	741	707
65°	535	528	514	501	494	530
75°	285	278	271	266	264	303
85°	75	75	72	72	70	82
90°	2	11	17	22	24	6
95°	43	18	17	22	23	55
105°	235	240	244	249	223	246
115°	439	442	441	442	443	432
125°	618	621	619	622	622	551
135°	766	766	769	770	772	590
145°	884	886	886	887	888	552
155°	969	969	967	970	968	446
165°	1022	1018	1018	1024	1017	289
175°	1045	1041	1042	1048	1039	100
180°	1045	1045	1045	1045	1045	



TEST NUMBER: P332649

CATALOG NUMBER: S124DIP-S1020D810U835-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5
2.5°	1729.9	1729.2	1728.4	1727.7	1727.0	1725.2	1722.5	1719.8	1717.1	1714.4	1716.9
5°	1724.1	1722.9	1721.7	1720.4	1719.2	1716.9	1713.5	1710.1	1706.8	1703.4	1706.8
7.5°	1708.1	1706.8	1705.6	1704.4	1703.2	1700.7	1696.9	1693.2	1689.4	1685.7	1688.4
10°	1693.7	1692.5	1691.2	1690.0	1688.8	1686.2	1682.2	1678.2	1674.2	1670.2	1672.6
12.5°	1674.9	1673.7	1672.4	1671.2	1670.0	1667.2	1663.0	1658.8	1654.5	1650.3	1653.0
15°	1641.2	1639.9	1638.7	1637.5	1636.2	1633.3	1628.7	1624.1	1619.5	1614.9	1616.7
17.5°	1600.5	1599.0	1597.4	1595.9	1594.4	1591.4	1587.0	1582.7	1578.3	1574.0	1575.1
20°	1570.6	1569.1	1567.6	1566.0	1564.5	1561.4	1556.8	1552.2	1547.6	1543.0	1543.9
22.5°	1538.6	1536.5	1534.5	1532.5	1530.5	1527.1	1522.5	1517.9	1513.3	1508.7	1510.4
25°	1486.3	1484.2	1482.0	1479.8	1477.7	1474.5	1470.2	1465.9	1461.6	1457.3	1457.6
27.5°	1426.6	1424.4	1422.1	1419.9	1417.7	1414.6	1410.6	1406.6	1402.6	1398.6	1397.9
30°	1386.8	1384.3	1381.8	1379.4	1376.9	1373.7	1369.7	1365.7	1361.7	1357.7	1356.5
32.5°	1344.7	1342.5	1340.3	1338.1	1335.9	1332.6	1328.4	1324.2	1319.9	1315.7	1314.2
35°	1278.9	1276.8	1274.6	1272.5	1270.3	1267.1	1262.8	1258.5	1254.2	1249.9	1247.7
37.5°	1209.5	1207.5	1205.6	1203.6	1201.6	1198.4	1193.7	1189.1	1184.5	1179.9	1177.6
40°	1164.2	1161.7	1159.2	1156.8	1154.3	1150.8	1146.2	1141.6	1137.0	1132.4	1129.3
42.5°	1115.5	1114.0	1112.5	1111.1	1109.6	1106.3	1101.2	1096.1	1091.0	1085.9	1082.3
45°	1043.9	1041.7	1039.6	1037.4	1035.3	1031.7	1026.8	1021.9	1017.0	1012.1	1008.7
47.5°	968.9	967.5	966.0	964.5	963.0	960.0	955.5	950.9	946.4	941.8	938.0
50°	918.1	916.8	915.6	914.4	913.1	910.4	906.1	901.8	897.5	893.2	888.9
52.5°	868.3	866.8	865.3	863.9	862.4	859.4	854.8	850.3	845.7	841.2	837.4
55°	789.5	788.5	787.6	786.7	785.8	783.2	778.9	774.6	770.3	766.0	762.3
57.5°	714.3	713.2	712.2	711.1	710.1	707.4	703.2	699.0	694.7	690.5	687.0
60°	662.3	660.7	659.2	657.7	656.1	653.4	649.4	645.4	641.4	637.4	634.6
62.5°	611.4	610.1	608.8	607.5	606.2	603.5	599.2	595.0	590.7	586.5	584.0
65°	535.1	533.5	532.0	530.5	528.9	526.6	523.5	520.5	517.4	514.3	511.3
67.5°	458.2	456.8	455.4	454.0	452.5	450.4	447.4	444.5	441.5	438.6	435.6
70°	410.6	408.5	406.3	404.2	402.0	399.7	397.3	394.8	392.4	389.9	387.4
72.5°	359.8	357.6	355.5	353.3	351.2	349.1	347.1	345.2	343.2	341.2	339.3
75°	284.8	283.3	281.7	280.2	278.7	277.1	275.6	274.1	272.5	271.0	269.8
77.5°	213.2	212.5	211.8	211.2	210.5	209.5	208.1	206.8	205.4	204.1	203.7
80°	170.1	169.1	168.2	167.3	166.4	165.6	165.0	164.4	163.8	163.1	162.5
82.5°	128.0	127.6	127.2	126.7	126.3	126.0	125.9	125.8	125.7	125.5	125.2
85°	74.7	74.7	74.7	74.7	74.7	74.4	73.7	73.1	72.5	71.9	71.9
87.5°	29.2	29.4	29.5	29.6	29.8	29.9	29.9	29.9	30.0	30.0	30.2
90°	2.3	4.3	6.2	8.1	10.0	11.6	13.0	14.4	15.8	17.2	18.2
92.5°	9.9	10.0	10.1	10.2	10.3	11.0	12.4	13.8	15.2	16.6	17.6
95°	43.0	37.1	31.2	25.3	19.4	16.5	16.7	16.9	17.0	17.2	18.2
97.5°	91.3	95.0	98.7	102.4	106.1	98.2	78.8	59.4	40.0	20.6	20.7
100°	128.2	131.4	134.5	137.6	140.7	130.3	106.3	82.4	58.4	34.4	31.4
102.5°	169.5	171.8	174.1	176.4	178.7	178.3	175.1	172.0	168.9	165.8	133.9
105°	235.3	236.4	237.4	238.5	239.5	240.5	241.3	242.2	243.1	243.9	245.5
107.5°	296.5	297.0	297.5	298.1	298.6	299.4	300.6	301.8	303.0	304.2	304.9
110°	337.8	338.3	338.8	339.3	339.9	340.6	341.7	342.7	343.8	344.8	345.2



TEST NUMBER: P332649

CATALOG NUMBER: S124DIP-S1020D810U835-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	377.8	378.7	379.7	380.6	381.6	382.3	382.8	383.2	383.7	384.2	384.2
115°	439.4	439.9	440.5	441.0	441.5	441.7	441.5	441.3	441.2	441.0	441.3
117.5°	494.9	495.6	496.3	497.0	497.7	498.3	498.6	499.0	499.4	499.8	499.7
120°	532.5	533.2	533.9	534.6	535.2	535.5	535.3	535.2	535.0	534.8	535.2
122.5°	567.5	567.9	568.3	568.7	569.2	569.5	569.7	570.0	570.2	570.5	570.7
125°	617.7	618.4	619.1	619.8	620.5	620.6	620.3	620.0	619.6	619.3	619.8
127.5°	665.2	665.4	665.6	665.8	665.9	666.4	667.2	668.0	668.8	669.6	669.5
130°	695.9	696.1	696.2	696.4	696.6	696.9	697.4	698.0	698.5	699.0	699.2
132.5°	724.0	724.3	724.7	725.0	725.3	725.8	726.4	727.1	727.7	728.4	728.6
135°	766.3	766.1	765.9	765.7	765.6	765.8	766.5	767.2	767.9	768.6	768.9
137.5°	803.6	803.7	803.8	803.8	803.9	804.3	805.1	805.9	806.6	807.4	807.8
140°	828.0	828.4	828.7	829.1	829.4	829.8	830.1	830.5	830.8	831.1	831.7
142.5°	849.9	850.5	851.2	851.8	852.4	852.8	853.0	853.3	853.5	853.7	854.1
145°	883.5	884.1	884.6	885.1	885.6	885.9	885.9	885.9	885.9	885.9	886.1
147.5°	910.3	911.3	912.2	913.2	914.2	914.6	914.4	914.2	914.0	913.9	914.0
150°	929.7	930.4	931.1	931.8	932.4	932.7	932.5	932.4	932.2	932.0	932.0
152.5°	945.9	946.5	947.0	947.6	948.2	948.3	948.0	947.7	947.3	947.0	947.3
155°	968.8	968.9	969.1	969.3	969.5	969.3	968.8	968.2	967.7	967.2	967.9
157.5°	988.0	987.9	987.8	987.7	987.6	987.2	986.6	986.1	985.5	984.9	985.8
160°	999.3	998.7	998.2	997.7	997.2	996.8	996.7	996.5	996.3	996.1	997.2
162.5°	1009.3	1008.6	1007.9	1007.3	1006.6	1006.2	1006.0	1005.9	1005.7	1005.5	1006.6
165°	1021.9	1021.1	1020.2	1019.3	1018.5	1018.0	1018.0	1018.0	1018.0	1018.0	1019.4
167.5°	1031.9	1031.0	1030.1	1029.2	1028.3	1027.8	1027.7	1027.6	1027.5	1027.4	1028.9
170°	1037.6	1036.5	1035.5	1034.4	1033.4	1033.0	1033.1	1033.3	1033.5	1033.7	1035.0
172.5°	1041.3	1040.3	1039.2	1038.2	1037.2	1036.7	1036.9	1037.1	1037.2	1037.4	1038.8
175°	1045.4	1044.3	1043.3	1042.3	1041.2	1040.8	1041.0	1041.1	1041.3	1041.5	1043.0
177.5°	1047.3	1046.3	1045.3	1044.3	1043.4	1043.0	1043.3	1043.6	1043.9	1044.1	1045.2
180°	1045.4	1045.4	1045.4	1045.4	1045.4	1045.4	1045.4	1045.4	1045.4	1045.4	1045.4



TEST NUMBER: P332649

CATALOG NUMBER: S124DIP-S1020D810U835-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5	1725.5
2.5°	1719.3	1721.8	1724.3	1725.4	1725.1	1724.9	1724.6	1724.4
5°	1710.1	1713.5	1716.9	1718.3	1717.7	1717.0	1716.4	1715.8
7.5°	1691.1	1693.8	1696.5	1697.7	1697.3	1696.9	1696.5	1696.2
10°	1675.1	1677.6	1680.0	1680.9	1680.3	1679.7	1679.1	1678.5
12.5°	1655.7	1658.4	1661.1	1662.0	1661.2	1660.3	1659.4	1658.6
15°	1618.6	1620.4	1622.3	1622.7	1621.8	1620.9	1620.0	1619.0
17.5°	1576.3	1577.5	1578.6	1578.9	1578.3	1577.7	1577.1	1576.4
20°	1544.8	1545.8	1546.7	1546.8	1546.2	1545.6	1545.0	1544.4
22.5°	1512.0	1513.7	1515.3	1515.6	1514.5	1513.4	1512.3	1511.2
25°	1457.9	1458.2	1458.5	1458.0	1456.8	1455.6	1454.3	1453.1
27.5°	1397.2	1396.4	1395.7	1394.6	1393.0	1391.5	1389.9	1388.4
30°	1355.3	1354.0	1352.8	1351.4	1349.9	1348.3	1346.8	1345.3
32.5°	1312.7	1311.3	1309.8	1308.3	1306.7	1305.2	1303.7	1302.1
35°	1245.6	1243.4	1241.3	1239.4	1237.9	1236.4	1234.8	1233.3
37.5°	1175.2	1172.9	1170.6	1168.4	1166.4	1164.3	1162.3	1160.3
40°	1126.2	1123.1	1120.1	1117.8	1116.2	1114.7	1113.2	1111.6
42.5°	1078.8	1075.2	1071.6	1069.3	1068.3	1067.2	1066.2	1065.2
45°	1005.3	1001.9	998.5	996.4	995.5	994.6	993.6	992.7
47.5°	934.2	930.4	926.6	923.5	921.2	918.8	916.5	914.2
50°	884.6	880.3	876.0	872.9	871.0	869.2	867.4	865.5
52.5°	833.6	829.7	825.9	822.9	820.5	818.2	815.9	813.5
55°	758.6	754.9	751.2	748.5	746.6	744.8	742.9	741.1
57.5°	683.5	680.0	676.5	673.8	672.0	670.3	668.5	666.7
60°	631.9	629.1	626.3	624.2	622.6	621.1	619.6	618.0
62.5°	581.5	578.9	576.4	574.4	572.9	571.3	569.8	568.3
65°	508.2	505.1	502.0	499.7	498.2	496.7	495.1	493.6
67.5°	432.7	429.7	426.8	425.1	424.6	424.2	423.8	423.4
70°	385.0	382.5	380.1	378.4	377.5	376.5	375.6	374.7
72.5°	337.3	335.3	333.4	331.9	331.0	330.1	329.2	328.2
75°	268.5	267.3	266.1	265.3	265.0	264.7	264.4	264.1
77.5°	203.3	203.0	202.6	202.0	201.2	200.4	199.6	198.8
80°	161.9	161.3	160.7	160.2	159.9	159.6	159.3	159.0
82.5°	124.8	124.4	124.1	123.7	123.4	123.1	122.8	122.5
85°	71.9	71.9	71.9	71.7	71.4	71.1	70.8	70.5
87.5°	30.4	30.6	30.8	31.0	31.0	31.1	31.2	31.2
90°	19.3	20.3	21.4	22.1	22.4	22.8	23.1	23.5
92.5°	18.7	19.7	20.7	21.3	21.4	21.4	21.5	21.6
95°	19.3	20.3	21.4	22.0	22.2	22.3	22.5	22.7
97.5°	20.9	21.0	21.1	21.2	21.4	21.5	21.7	21.9
100°	28.5	25.5	22.6	21.2	21.4	21.5	21.7	21.9
102.5°	102.0	70.2	38.3	22.4	22.4	22.4	22.5	22.5
105°	247.1	248.6	250.2	247.9	241.6	235.3	229.1	222.8
107.5°	305.7	306.4	307.2	307.9	308.6	309.2	309.9	310.6
110°	345.5	345.9	346.2	346.6	347.2	347.7	348.2	348.7





TEST NUMBER: P332649

CATALOG NUMBER: S124DIP-S1020D810U835-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	384.1	384.0	383.9	384.2	384.9	385.6	386.2	386.9
115°	441.7	442.0	442.4	442.6	442.6	442.6	442.6	442.6
117.5°	499.6	499.6	499.5	499.4	499.4	499.3	499.2	499.2
120°	535.5	535.9	536.2	536.2	535.9	535.5	535.2	534.8
122.5°	570.9	571.1	571.3	571.2	570.9	570.5	570.2	569.8
125°	620.3	620.8	621.3	621.7	621.9	622.0	622.2	622.4
127.5°	669.4	669.3	669.2	669.1	668.9	668.8	668.7	668.5
130°	699.4	699.5	699.7	699.8	699.8	699.8	699.8	699.8
132.5°	728.8	728.9	729.1	729.1	729.0	728.8	728.7	728.6
135°	769.3	769.6	770.0	770.3	770.7	771.0	771.4	771.7
137.5°	808.1	808.5	808.9	809.0	808.9	808.8	808.7	808.6
140°	832.2	832.7	833.2	833.6	833.8	833.9	834.1	834.3
142.5°	854.4	854.8	855.2	855.4	855.4	855.5	855.5	855.5
145°	886.2	886.4	886.6	886.8	887.2	887.5	887.9	888.2
147.5°	914.2	914.3	914.4	914.6	914.8	914.9	915.1	915.3
150°	932.0	932.0	932.0	932.1	932.3	932.4	932.6	932.8
152.5°	947.6	947.9	948.1	948.2	948.1	948.0	947.9	947.8
155°	968.6	969.3	970.0	970.1	969.5	969.0	968.5	968.0
157.5°	986.7	987.6	988.5	988.5	987.6	986.7	985.8	984.9
160°	998.2	999.3	1000.3	1000.3	999.3	998.2	997.2	996.1
162.5°	1007.6	1008.6	1009.7	1009.6	1008.4	1007.2	1006.1	1004.9
165°	1020.8	1022.2	1023.6	1023.5	1021.9	1020.4	1018.8	1017.2
167.5°	1030.5	1032.0	1033.5	1033.4	1031.7	1029.9	1028.2	1026.5
170°	1036.4	1037.8	1039.2	1039.0	1037.3	1035.6	1033.8	1032.1
172.5°	1040.2	1041.6	1043.0	1042.7	1040.9	1039.0	1037.1	1035.2
175°	1044.6	1046.2	1047.7	1047.5	1045.4	1043.3	1041.2	1039.1
177.5°	1046.4	1047.5	1048.6	1048.3	1046.6	1045.0	1043.3	1041.6
180°	1045.4	1045.4	1045.4	1045.4	1045.4	1045.4	1045.4	1045.4

(END OF REPORT)