

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: P332640

Luminaire Tested: **S124DIP-S1020D590U835-4F0-1E-UDD-F**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332640
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-S1020D590U835-4F0-1E-UDD-F
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 590 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6789.2 lumens
Efficiency: N/A
Efficacy: 139.1 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: Semi-Direct

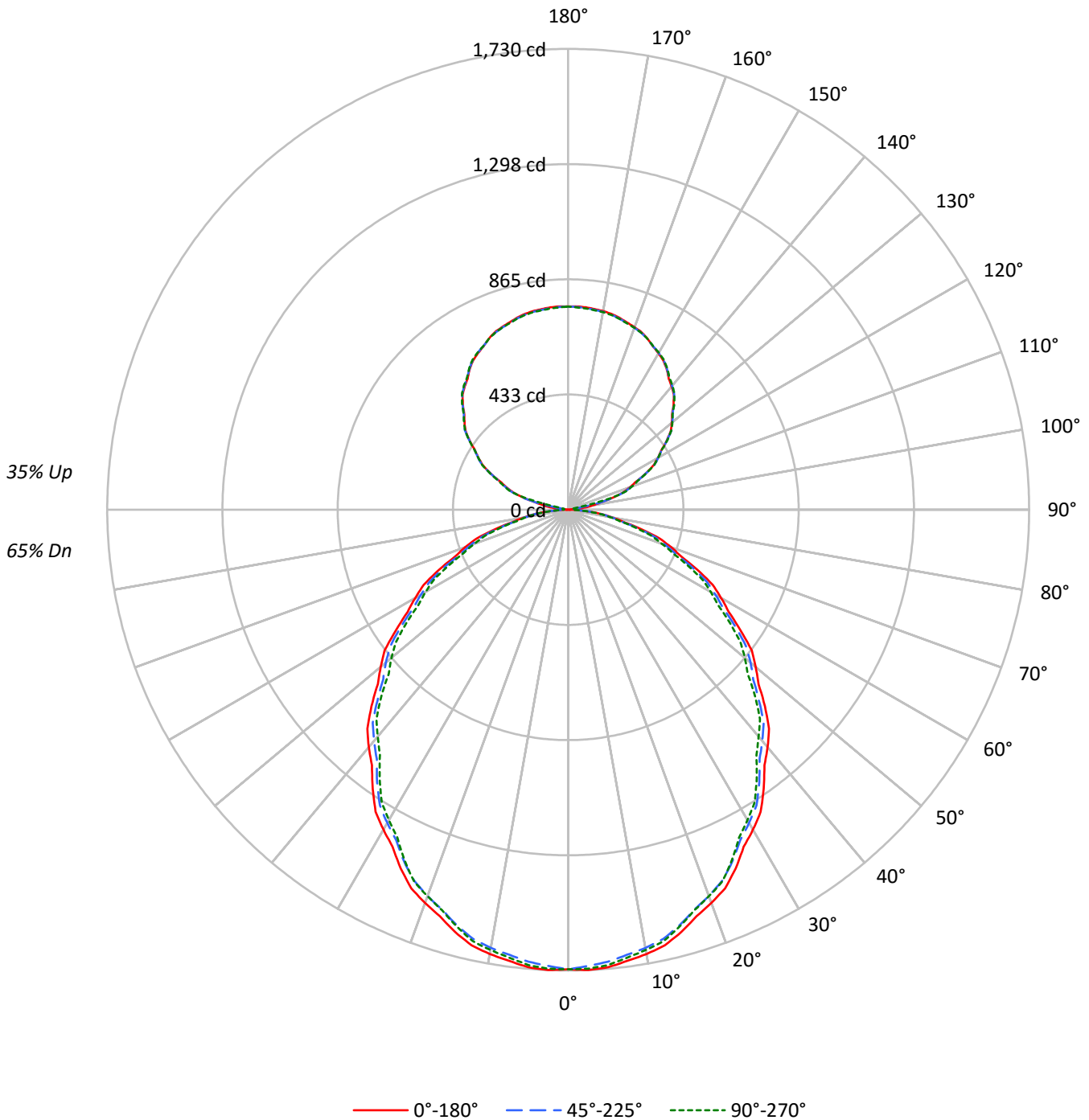
Input Watts (W): 48.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	70	70	70	65
1	101	97	93	89	95	91	88	84	81	78	75	71	69	67	62	61	59	55
2	92	84	78	73	86	80	74	69	71	66	62	62	59	56	54	52	50	46
3	84	74	67	61	79	70	63	58	62	57	53	55	51	47	48	45	42	39
4	77	66	58	51	72	62	55	49	55	50	45	49	44	41	43	40	37	33
5	71	59	50	44	66	56	48	42	50	43	39	44	39	35	39	35	32	29
6	65	53	44	38	61	50	42	37	45	39	34	40	35	31	35	31	28	25
7	60	48	40	34	57	45	38	33	41	34	30	36	31	27	32	28	25	23
8	56	43	35	30	53	41	34	29	37	31	27	33	28	25	30	26	22	20
9	52	40	32	27	49	38	31	26	34	28	24	31	26	22	27	23	20	18
10	49	37	29	24	46	35	28	23	32	26	22	28	24	20	25	21	18	17

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



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	162.5	2.4
10°-20°	457.8	6.7
20°-30°	673.9	9.9
30°-40°	783.4	11.5
40°-50°	783.4	11.5
50°-60°	685.3	10.1
60°-70°	508.9	7.5
70°-80°	289.1	4.3
80°-90°	85.7	1.3
90°-100°	26.1	0.4
100°-110°	166.3	2.4
110°-120°	318.2	4.7
120°-130°	403.9	5.9
130°-140°	432.1	6.4
140°-150°	404.1	6.0
150°-160°	325.9	4.8
160°-170°	210.2	3.1
170°-180°	72.4	1.1
0°-30°	1294.2	19.1
0°-40°	2077.6	30.6
0°-60°	3546.4	52.2
0°-90°	4430.1	65.3
90°-120°	510.6	7.5
90°-150°	1750.6	25.8
90°-180°	2359.0	34.7
0°-180°	6789.2	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	8	12	16	17	5
95°	31	13	12	16	16	40
105°	172	175	178	182	163	180
115°	321	322	322	323	323	315
125°	451	453	452	453	454	402
135°	559	559	561	562	563	431
145°	645	646	646	647	648	403
155°	707	707	706	708	706	326
165°	746	743	743	747	742	211
175°	763	759	760	764	758	73
180°	763	763	763	763	763	



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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°	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.2
90°	1.7	3.1	4.5	5.9	7.3	8.5	9.5	10.5	11.5	12.5	13.3
92.5°	7.2	7.3	7.3	7.4	7.5	8.0	9.1	10.1	11.1	12.1	12.9
95°	31.4	27.1	22.8	18.4	14.1	12.0	12.2	12.3	12.4	12.5	13.3
97.5°	66.6	69.3	72.0	74.7	77.4	71.6	57.5	43.4	29.2	15.1	15.1
100°	93.5	95.8	98.1	100.4	102.7	95.1	77.6	60.1	42.6	25.1	22.9
102.5°	123.7	125.3	127.0	128.7	130.4	130.1	127.8	125.5	123.2	120.9	97.7
105°	171.7	172.5	173.2	174.0	174.7	175.4	176.1	176.7	177.3	178.0	179.1
107.5°	216.3	216.7	217.1	217.4	217.8	218.4	219.3	220.2	221.0	221.9	222.5
110°	246.4	246.8	247.2	247.6	247.9	248.5	249.3	250.0	250.8	251.6	251.8



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	275.6	276.3	277.0	277.7	278.4	278.9	279.2	279.6	280.0	280.3	280.3
115°	320.6	321.0	321.3	321.7	322.1	322.2	322.1	322.0	321.8	321.7	322.0
117.5°	361.1	361.6	362.1	362.6	363.1	363.5	363.8	364.1	364.3	364.6	364.6
120°	388.5	389.0	389.5	390.0	390.5	390.7	390.6	390.4	390.3	390.2	390.4
122.5°	414.0	414.3	414.6	414.9	415.2	415.5	415.7	415.8	416.0	416.2	416.3
125°	450.6	451.1	451.7	452.2	452.7	452.8	452.5	452.3	452.0	451.8	452.2
127.5°	485.3	485.4	485.6	485.7	485.8	486.2	486.8	487.3	487.9	488.5	488.4
130°	507.7	507.8	507.9	508.1	508.2	508.4	508.8	509.2	509.6	510.0	510.1
132.5°	528.2	528.4	528.7	528.9	529.1	529.5	530.0	530.4	530.9	531.4	531.5
135°	559.0	558.9	558.8	558.6	558.5	558.7	559.2	559.7	560.2	560.7	561.0
137.5°	586.3	586.3	586.4	586.4	586.5	586.8	587.3	587.9	588.5	589.0	589.3
140°	604.1	604.3	604.6	604.8	605.1	605.3	605.6	605.9	606.1	606.4	606.7
142.5°	620.1	620.5	621.0	621.4	621.9	622.2	622.3	622.5	622.6	622.8	623.1
145°	644.6	645.0	645.3	645.7	646.1	646.3	646.3	646.3	646.3	646.3	646.4
147.5°	664.1	664.8	665.5	666.2	666.9	667.2	667.1	667.0	666.8	666.7	666.8
150°	678.2	678.7	679.3	679.8	680.3	680.5	680.3	680.2	680.1	679.9	679.9
152.5°	690.1	690.5	690.9	691.3	691.7	691.8	691.6	691.4	691.1	690.9	691.1
155°	706.8	706.9	707.0	707.1	707.3	707.1	706.8	706.4	706.0	705.6	706.1
157.5°	720.8	720.7	720.6	720.6	720.5	720.2	719.8	719.4	718.9	718.5	719.2
160°	729.0	728.6	728.2	727.9	727.5	727.2	727.1	727.0	726.8	726.7	727.5
162.5°	736.3	735.8	735.3	734.9	734.4	734.1	733.9	733.8	733.7	733.6	734.3
165°	745.5	744.9	744.3	743.6	743.0	742.7	742.7	742.7	742.7	742.7	743.7
167.5°	752.8	752.2	751.5	750.9	750.2	749.8	749.8	749.7	749.6	749.5	750.7
170°	757.0	756.2	755.4	754.7	753.9	753.6	753.7	753.8	754.0	754.1	755.1
172.5°	759.7	758.9	758.2	757.4	756.7	756.3	756.5	756.6	756.7	756.8	757.9
175°	762.7	761.9	761.1	760.4	759.6	759.3	759.4	759.6	759.7	759.8	760.9
177.5°	764.0	763.3	762.6	761.9	761.2	760.9	761.1	761.3	761.5	761.7	762.6
180°	762.7	762.7	762.7	762.7	762.7	762.7	762.7	762.7	762.7	762.7	762.7



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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°	29.4	29.5	29.7	29.8	29.8	29.9	29.9	30.0
90°	14.1	14.8	15.6	16.1	16.4	16.6	16.9	17.1
92.5°	13.6	14.4	15.1	15.5	15.6	15.6	15.7	15.7
95°	14.1	14.8	15.6	16.0	16.2	16.3	16.4	16.5
97.5°	15.2	15.3	15.4	15.5	15.6	15.7	15.8	16.0
100°	20.8	18.6	16.5	15.5	15.6	15.7	15.8	16.0
102.5°	74.4	51.2	27.9	16.3	16.4	16.4	16.4	16.4
105°	180.3	181.4	182.5	180.8	176.3	171.7	167.1	162.6
107.5°	223.0	223.6	224.1	224.6	225.1	225.6	226.1	226.6
110°	252.1	252.3	252.6	252.9	253.3	253.6	254.0	254.4



TEST NUMBER: P332640

CATALOG NUMBER: S124DIP-S1020D590U835-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	280.2	280.2	280.1	280.3	280.8	281.3	281.8	282.2
115°	322.2	322.5	322.7	322.9	322.9	322.9	322.9	322.9
117.5°	364.5	364.5	364.4	364.4	364.3	364.3	364.2	364.2
120°	390.7	390.9	391.2	391.2	390.9	390.7	390.4	390.2
122.5°	416.5	416.6	416.8	416.7	416.5	416.2	416.0	415.7
125°	452.5	452.9	453.3	453.6	453.7	453.8	453.9	454.1
127.5°	488.4	488.3	488.2	488.1	488.0	487.9	487.8	487.7
130°	510.2	510.3	510.5	510.5	510.5	510.5	510.5	510.5
132.5°	531.7	531.8	531.9	531.9	531.8	531.7	531.6	531.5
135°	561.2	561.5	561.7	562.0	562.2	562.5	562.8	563.0
137.5°	589.6	589.9	590.1	590.2	590.2	590.1	590.0	589.9
140°	607.1	607.5	607.9	608.1	608.3	608.4	608.5	608.6
142.5°	623.3	623.6	623.9	624.1	624.1	624.1	624.1	624.2
145°	646.5	646.7	646.8	647.0	647.2	647.5	647.8	648.0
147.5°	666.9	667.0	667.1	667.2	667.4	667.5	667.6	667.7
150°	679.9	679.9	679.9	680.0	680.1	680.3	680.4	680.5
152.5°	691.3	691.5	691.7	691.8	691.7	691.6	691.5	691.5
155°	706.6	707.1	707.6	707.7	707.3	706.9	706.6	706.2
157.5°	719.8	720.5	721.1	721.1	720.5	719.8	719.2	718.5
160°	728.2	729.0	729.8	729.8	729.0	728.2	727.5	726.7
162.5°	735.1	735.8	736.6	736.6	735.7	734.8	734.0	733.1
165°	744.7	745.7	746.8	746.7	745.5	744.4	743.3	742.1
167.5°	751.8	752.9	754.0	753.9	752.7	751.4	750.1	748.9
170°	756.1	757.1	758.2	758.0	756.8	755.5	754.2	753.0
172.5°	758.9	759.9	760.9	760.7	759.4	758.0	756.6	755.2
175°	762.1	763.2	764.4	764.2	762.7	761.1	759.6	758.1
177.5°	763.4	764.2	765.0	764.8	763.6	762.4	761.1	759.9
180°	762.7	762.7	762.7	762.7	762.7	762.7	762.7	762.7

(END OF REPORT)