

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: P332642-840

Luminaire Tested: **S124DIP-S1020D590U840-4F0-1E-UDD-F4**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332642-840
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-S1020D590U840-4F0-1E-UDD-F4
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 590 LUMENS PER FOOT, BATWING OPTIC
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6605.7 lumens
Efficiency: N/A
Efficacy: 135.4 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

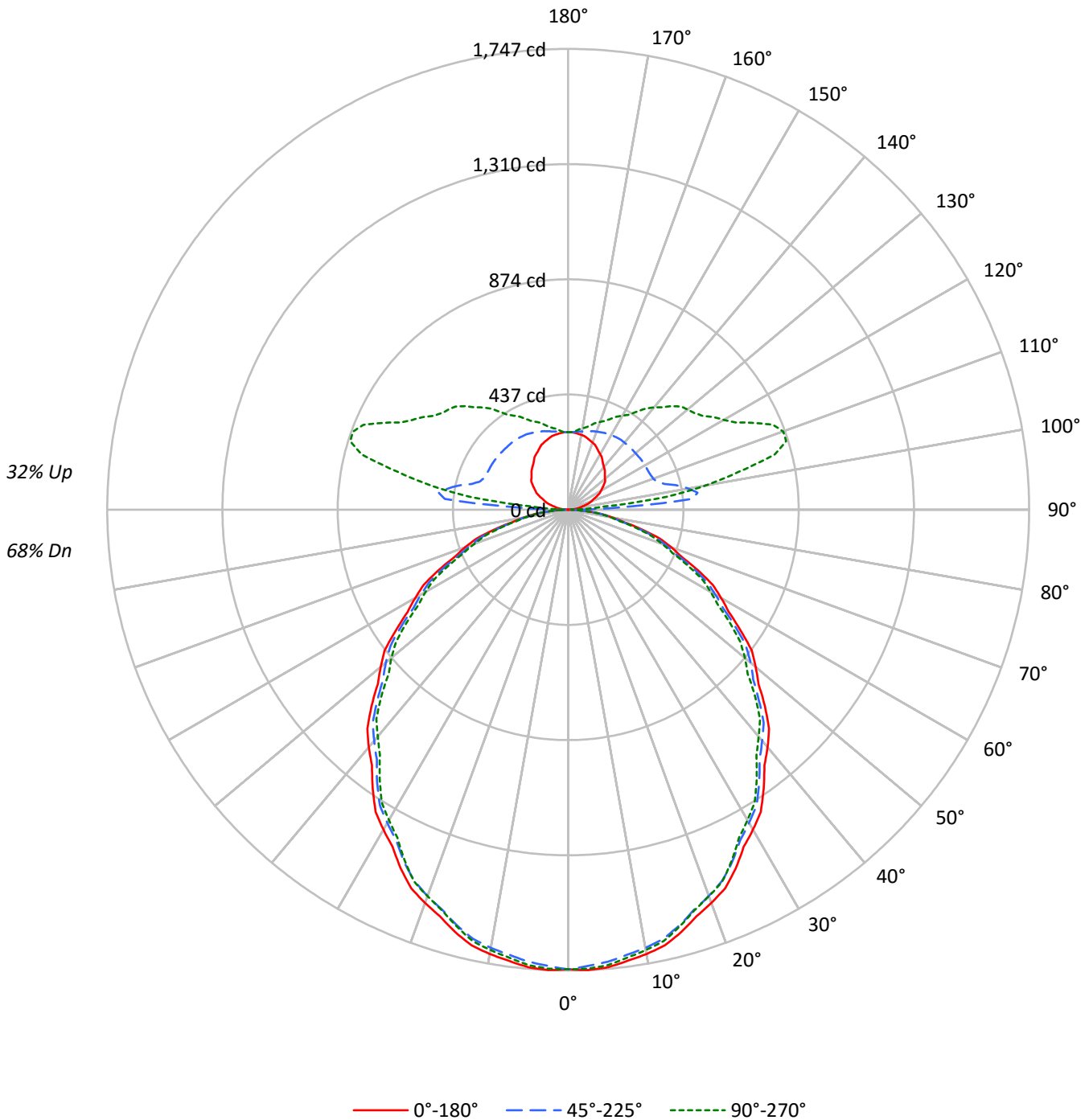
Input Watts (W): 48.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	105	105	105	105	93	93	93	82	82	82	72	72	72	68
1	102	97	93	90	96	92	88	85	82	79	77	72	70	69	64	62	61	57
2	93	85	79	73	87	80	75	70	72	67	63	64	60	57	56	54	51	48
3	85	75	67	61	79	71	64	58	63	58	53	56	52	48	50	47	44	40
4	77	66	58	52	73	63	55	50	56	50	46	50	45	42	45	41	38	35
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33	30
6	66	53	45	39	62	50	43	37	46	39	34	41	36	32	36	32	29	26
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26	23
8	56	44	36	30	53	42	34	29	38	32	27	34	29	25	31	26	23	21
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21	19
10	49	37	29	24	47	35	28	24	32	26	22	29	24	21	26	22	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	14067	14067	14067
5°	14109	13940	14041
10°	14021	13827	13896
15°	13852	13630	13665
20°	13626	13387	13399
25°	13370	13109	13071
30°	13055	12781	12665
35°	12728	12439	12275
40°	12390	12052	11830
45°	12036	11669	11445
50°	11645	11328	10977
55°	11222	10888	10534
60°	10798	10393	10077
65°	10323	9922	9522
70°	9788	9293	8932
75°	8971	8537	8319
80°	7987	7657	7466
85°	6984	6725	6595



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	164.1	2.5
10°-20°	462.4	7.0
20°-30°	680.5	10.3
30°-40°	791.1	12.0
40°-50°	791.2	12.0
50°-60°	692.1	10.5
60°-70°	514.0	7.8
70°-80°	292.0	4.4
80°-90°	85.9	1.3
90°-100°	211.8	3.2
100°-110°	440.8	6.7
110°-120°	394.8	6.0
120°-130°	332.1	5.0
130°-140°	276.9	4.2
140°-150°	211.5	3.2
150°-160°	148.7	2.3
160°-170°	87.5	1.3
170°-180°	28.5	0.4
0°-30°	1307.0	19.8
0°-40°	2098.1	31.8
0°-60°	3581.3	54.2
0°-90°	4473.2	67.7
90°-120°	1047.4	15.9
90°-150°	1868.0	28.3
90°-180°	2133.0	32.3
0°-180°	6605.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1742	1742	1742	1742	1742	
5°	1741	1735	1720	1735	1733	165
15°	1657	1651	1631	1638	1635	467
25°	1501	1491	1472	1473	1467	690
35°	1292	1281	1262	1253	1246	807
45°	1054	1044	1022	1007	1002	812
55°	797	792	774	757	748	714
65°	540	533	519	506	498	535
75°	288	281	274	268	267	306
85°	75	75	73	72	71	83
90°	1	5	10	12	12	5
95°	19	60	470	232	141	21
105°	67	98	378	814	810	72
115°	119	149	337	648	778	118
125°	165	196	335	551	621	147
135°	196	234	332	489	555	152
145°	226	259	331	412	453	142
155°	258	278	321	364	380	119
165°	280	289	308	326	331	79
175°	293	293	296	300	298	28
180°	293	293	293	293	293	



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CATALOG NUMBER: S124DIP-S1020D590U840-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5
2.5°	1747.0	1746.3	1745.5	1744.7	1744.0	1742.2	1739.5	1736.8	1734.0	1731.3	1733.8
5°	1741.1	1739.9	1738.7	1737.4	1736.2	1733.8	1730.4	1727.0	1723.6	1720.2	1723.6
7.5°	1725.0	1723.6	1722.4	1721.2	1720.0	1717.5	1713.6	1709.9	1706.1	1702.3	1705.1
10°	1710.4	1709.2	1707.9	1706.7	1705.5	1702.8	1698.8	1694.8	1690.7	1686.7	1689.1
12.5°	1691.4	1690.2	1688.9	1687.7	1686.5	1683.6	1679.4	1675.2	1670.8	1666.6	1669.3
15°	1657.4	1656.1	1654.9	1653.7	1652.3	1649.4	1644.8	1640.1	1635.5	1630.8	1632.6
17.5°	1616.3	1614.8	1613.2	1611.6	1610.1	1607.1	1602.7	1598.3	1593.9	1589.5	1590.6
20°	1586.1	1584.6	1583.1	1581.4	1579.9	1576.8	1572.2	1567.5	1562.9	1558.2	1559.1
22.5°	1553.8	1551.7	1549.6	1547.6	1545.6	1542.2	1537.5	1532.9	1528.2	1523.6	1525.3
25°	1501.0	1498.8	1496.6	1494.4	1492.3	1489.0	1484.7	1480.4	1476.0	1471.7	1472.0
27.5°	1440.7	1438.5	1436.1	1433.9	1431.7	1428.6	1424.5	1420.5	1416.4	1412.4	1411.7
30°	1400.5	1398.0	1395.4	1393.0	1390.5	1387.3	1383.2	1379.2	1375.1	1371.1	1369.9
32.5°	1358.0	1355.7	1353.5	1351.3	1349.1	1345.7	1341.5	1337.3	1332.9	1328.7	1327.2
35°	1291.5	1289.4	1287.2	1285.1	1282.8	1279.6	1275.3	1270.9	1266.6	1262.2	1260.0
37.5°	1221.4	1219.4	1217.5	1215.5	1213.5	1210.2	1205.5	1200.8	1196.2	1191.5	1189.2
40°	1175.7	1173.2	1170.6	1168.2	1165.7	1162.2	1157.5	1152.9	1148.2	1143.6	1140.4
42.5°	1126.5	1125.0	1123.5	1122.1	1120.5	1117.2	1112.1	1106.9	1101.8	1096.6	1093.0
45°	1054.2	1052.0	1049.9	1047.6	1045.5	1041.9	1036.9	1032.0	1027.0	1022.1	1018.7
47.5°	978.5	977.0	975.5	974.0	972.5	969.5	964.9	960.3	955.7	951.1	947.3
50°	927.2	925.8	924.6	923.4	922.1	919.4	915.0	910.7	906.4	902.0	897.7
52.5°	876.9	875.4	873.8	872.4	870.9	867.9	863.2	858.7	854.0	849.5	845.7
55°	797.3	796.3	795.4	794.5	793.6	790.9	786.6	782.2	777.9	773.6	769.8
57.5°	721.3	720.2	719.2	718.1	717.1	714.4	710.1	705.9	701.6	697.3	693.8
60°	668.8	667.2	665.7	664.2	662.6	659.8	655.8	651.8	647.7	643.7	640.9
62.5°	617.4	616.1	614.8	613.5	612.2	609.5	605.1	600.9	596.5	592.3	589.8
65°	540.4	538.8	537.2	535.7	534.1	531.8	528.7	525.6	522.5	519.4	516.3
67.5°	462.7	461.3	459.9	458.5	457.0	454.8	451.8	448.9	445.9	442.9	439.9
70°	414.7	412.5	410.3	408.2	406.0	403.6	401.2	398.7	396.3	393.7	391.2
72.5°	363.3	361.1	359.0	356.8	354.7	352.5	350.5	348.6	346.6	344.6	342.6
75°	287.6	286.1	284.5	283.0	281.4	279.8	278.3	276.8	275.2	273.7	272.5
77.5°	215.3	214.6	213.9	213.3	212.6	211.6	210.2	208.8	207.4	206.1	205.7
80°	171.8	170.8	169.9	169.0	168.0	167.2	166.6	166.0	165.4	164.7	164.1
82.5°	129.3	128.9	128.5	127.9	127.5	127.2	127.1	127.0	126.9	126.7	126.4
85°	75.4	75.4	75.4	75.4	75.4	75.1	74.4	73.8	73.2	72.6	72.6
87.5°	29.2	29.2	29.3	29.1	29.0	28.7	29.2	28.9	28.9	28.9	28.8
90°	0.6	1.7	3.4	4.0	4.6	4.6	8.1	8.1	9.2	10.4	9.8
92.5°	6.6	9.6	14.9	22.0	30.4	42.4	71.7	116.3	160.0	182.7	152.2
95°	19.0	20.7	26.5	34.0	47.8	72.0	122.1	216.6	354.3	469.5	482.7
97.5°	34.1	34.1	39.1	45.9	57.9	78.2	116.7	194.7	331.6	494.5	606.5
100°	43.8	43.8	47.8	54.7	65.6	84.1	118.1	183.2	300.7	463.1	610.7
102.5°	53.0	53.9	57.5	63.9	74.4	91.9	122.7	180.0	279.9	424.0	576.0
105°	67.4	69.2	72.0	79.0	89.3	106.0	133.6	181.5	262.2	377.9	513.3
107.5°	83.3	84.4	87.4	94.7	104.6	121.1	146.4	190.0	258.9	352.1	462.6
110°	93.9	95.0	98.0	104.8	115.2	130.8	156.1	196.4	259.8	343.4	437.3



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	104.0	105.2	108.6	115.0	125.3	140.9	165.3	203.4	262.6	339.2	422.9
115°	118.7	120.4	124.4	130.2	141.2	156.7	179.8	214.3	267.9	337.0	409.6
117.5°	133.9	135.5	139.1	145.4	155.6	171.8	193.7	225.5	273.5	336.4	403.6
120°	144.0	145.2	149.2	155.5	165.3	181.5	203.4	233.3	277.7	336.4	400.4
122.5°	153.2	154.4	158.4	164.3	175.0	190.7	212.6	240.7	281.9	336.0	396.7
125°	165.3	167.6	171.1	177.4	188.3	204.5	225.2	251.8	288.0	335.3	390.6
127.5°	176.0	177.9	182.1	189.2	200.7	216.9	237.0	261.4	293.0	334.0	382.4
130°	182.1	184.3	188.9	197.6	208.5	225.2	244.8	267.3	296.7	333.6	377.3
132.5°	188.0	189.9	195.9	204.1	215.9	231.7	251.3	273.3	299.9	333.1	372.7
135°	196.4	198.7	204.5	214.3	226.4	241.4	260.3	281.1	304.8	332.3	365.8
137.5°	204.9	207.0	213.4	222.7	235.3	249.5	267.3	286.7	307.6	332.2	359.8
140°	210.9	212.6	218.9	228.7	240.8	254.6	272.0	290.3	309.9	331.8	356.6
142.5°	217.3	219.0	224.9	234.2	245.9	259.2	276.1	293.1	311.7	331.8	353.9
145°	226.4	228.1	233.9	242.0	252.9	265.6	280.5	296.1	312.9	330.6	349.1
147.5°	236.6	237.2	242.3	250.5	259.7	271.1	285.2	298.7	313.4	328.6	344.9
150°	243.1	243.7	248.3	255.2	263.9	274.8	287.5	300.1	313.4	327.2	341.6
152.5°	249.1	249.2	253.8	260.2	268.0	278.0	289.3	301.0	312.5	324.9	337.9
155°	257.5	258.1	261.6	267.3	273.7	282.3	292.1	301.8	311.0	321.4	332.3
157.5°	265.7	265.7	268.9	273.4	278.9	285.7	294.1	301.8	309.6	317.9	326.8
160°	270.7	270.7	273.1	277.1	281.7	288.0	295.0	301.8	308.2	315.1	322.7
162.5°	275.4	274.9	276.7	280.3	284.5	289.4	295.9	301.8	306.8	312.4	318.9
165°	280.5	280.5	281.7	284.6	287.5	290.9	296.1	300.7	304.2	308.2	312.9
167.5°	285.7	285.2	285.7	287.9	289.5	292.2	296.0	299.3	301.4	304.1	307.3
170°	288.0	287.5	288.0	289.7	290.9	292.7	295.5	298.4	299.5	301.2	303.6
172.5°	290.3	289.7	289.8	291.1	291.9	293.1	295.1	297.5	297.7	298.5	300.3
175°	292.7	292.1	292.1	292.7	293.3	293.3	294.4	296.1	295.5	295.5	296.7
177.5°	293.7	293.3	292.8	293.3	293.3	293.3	293.7	294.6	293.7	293.7	294.2
180°	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5
2.5°	1736.3	1738.8	1741.3	1742.4	1742.1	1741.9	1741.6	1741.4
5°	1727.0	1730.4	1733.8	1735.3	1734.6	1733.9	1733.3	1732.7
7.5°	1707.8	1710.5	1713.2	1714.4	1714.0	1713.6	1713.2	1712.9
10°	1691.6	1694.1	1696.6	1697.5	1696.9	1696.3	1695.7	1695.1
12.5°	1672.0	1674.8	1677.5	1678.4	1677.6	1676.7	1675.8	1675.0
15°	1634.6	1636.4	1638.3	1638.7	1637.8	1636.9	1636.0	1635.0
17.5°	1591.9	1593.1	1594.2	1594.5	1593.9	1593.3	1592.7	1592.0
20°	1560.0	1561.0	1562.0	1562.1	1561.5	1560.8	1560.2	1559.6
22.5°	1526.9	1528.6	1530.2	1530.6	1529.4	1528.3	1527.2	1526.1
25°	1472.3	1472.6	1472.9	1472.4	1471.2	1470.0	1468.6	1467.4
27.5°	1411.0	1410.2	1409.5	1408.4	1406.7	1405.2	1403.6	1402.1
30°	1368.7	1367.4	1366.1	1364.7	1363.2	1361.6	1360.1	1358.6
32.5°	1325.6	1324.2	1322.7	1321.2	1319.6	1318.1	1316.6	1314.9
35°	1257.9	1255.7	1253.5	1251.6	1250.1	1248.6	1247.0	1245.5
37.5°	1186.8	1184.5	1182.1	1179.9	1177.9	1175.8	1173.8	1171.7
40°	1137.3	1134.2	1131.1	1128.8	1127.2	1125.7	1124.2	1122.6
42.5°	1089.4	1085.8	1082.2	1079.8	1078.8	1077.7	1076.7	1075.7
45°	1015.2	1011.8	1008.4	1006.2	1005.3	1004.4	1003.4	1002.5
47.5°	943.4	939.6	935.7	932.6	930.3	927.9	925.5	923.2
50°	893.3	889.0	884.6	881.5	879.6	877.8	876.0	874.0
52.5°	841.8	837.9	834.0	831.0	828.6	826.3	823.9	821.5
55°	766.1	762.3	758.6	755.9	754.0	752.1	750.2	748.4
57.5°	690.2	686.7	683.2	680.4	678.6	676.9	675.1	673.3
60°	638.1	635.3	632.5	630.4	628.7	627.2	625.7	624.1
62.5°	587.2	584.6	582.1	580.1	578.6	576.9	575.4	573.9
65°	513.2	510.1	507.0	504.6	503.1	501.6	500.0	498.5
67.5°	437.0	433.9	431.0	429.3	428.8	428.4	428.0	427.6
70°	388.8	386.3	383.8	382.1	381.2	380.2	379.3	378.4
72.5°	340.6	338.6	336.7	335.2	334.3	333.4	332.4	331.4
75°	271.1	269.9	268.7	267.9	267.6	267.3	267.0	266.7
77.5°	205.3	205.0	204.6	204.0	203.2	202.4	201.6	200.8
80°	163.5	162.9	162.3	161.8	161.5	161.2	160.9	160.6
82.5°	126.0	125.6	125.3	124.9	124.6	124.3	124.0	123.7
85°	72.6	72.6	72.6	72.4	72.1	71.8	71.5	71.2
87.5°	28.9	29.0	29.1	29.1	29.2	29.4	29.2	29.2
90°	10.4	10.9	11.5	11.5	12.1	12.6	12.1	12.1
92.5°	113.1	85.1	67.8	56.2	49.4	46.4	44.3	44.3
95°	426.9	337.6	260.3	204.5	176.3	158.4	148.0	140.6
97.5°	630.7	597.5	541.2	481.0	439.7	405.0	387.7	375.7
100°	694.8	706.3	678.0	635.4	585.3	550.2	532.9	528.3
102.5°	691.6	748.7	756.9	739.1	708.3	682.9	664.7	661.0
105°	645.2	744.9	801.9	825.6	826.7	822.0	814.0	810.5
107.5°	579.5	685.5	765.9	817.2	845.7	858.8	864.5	866.1
110°	539.8	639.4	723.0	786.4	827.3	851.4	861.8	867.0



TEST NUMBER: P332642-840

CATALOG NUMBER: S124DIP-S1020D590U840-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	510.8	598.8	677.8	741.1	787.6	816.9	831.4	839.8
115°	481.6	552.5	619.9	675.2	720.6	755.3	773.7	778.3
117.5°	467.3	525.9	579.0	625.8	664.7	693.7	712.4	716.0
120°	460.9	514.4	560.5	601.4	634.3	659.6	674.6	681.0
122.5°	455.3	507.1	549.0	584.8	612.6	634.3	646.9	653.3
125°	445.9	495.4	535.1	566.8	589.9	606.6	617.5	621.0
127.5°	434.3	481.7	521.4	551.4	574.6	589.5	598.6	602.1
130°	425.2	470.7	509.8	540.4	564.0	578.3	587.6	591.1
132.5°	415.5	458.2	496.4	526.9	550.2	566.4	575.1	578.7
135°	402.1	439.6	474.6	503.5	526.5	542.7	551.9	555.3
137.5°	390.0	421.7	451.3	477.4	498.9	514.8	522.4	526.5
140°	383.0	410.2	436.1	460.3	480.5	493.1	501.2	505.8
142.5°	376.7	400.5	422.7	443.7	461.5	473.3	480.5	483.6
145°	367.5	387.1	404.5	420.5	434.9	444.7	450.5	453.3
147.5°	360.0	375.6	389.4	402.1	412.7	421.1	425.5	426.6
150°	355.5	368.7	380.2	390.6	399.8	407.3	410.7	411.3
152.5°	350.3	361.7	372.3	380.9	388.7	394.9	396.9	397.5
155°	342.7	351.9	360.6	367.5	373.3	377.9	379.6	379.6
157.5°	334.6	342.3	349.5	355.1	359.5	362.9	364.0	364.0
160°	329.5	335.9	342.1	346.8	350.2	353.8	354.3	354.3
162.5°	324.5	329.8	334.8	339.0	341.5	345.0	345.6	345.1
165°	317.4	320.8	324.9	327.8	330.1	332.3	331.8	331.2
167.5°	310.6	313.3	316.5	318.2	319.4	320.8	320.7	320.3
170°	306.5	308.2	310.5	312.3	313.4	314.0	313.4	313.4
172.5°	302.8	304.1	305.5	306.7	307.4	308.0	307.4	306.5
175°	297.8	298.4	299.5	299.5	299.5	300.7	299.5	298.4
177.5°	294.6	295.1	295.1	295.5	295.1	295.5	294.6	293.7
180°	293.3	293.3	293.3	293.3	293.3	293.3	293.3	293.3

(END OF REPORT)