

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: P332834

Luminaire Tested: **S124DIW-S1020D1560U835-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332834  
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-S1020D1560U835-4F0-1E-UDD-F1  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1560 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

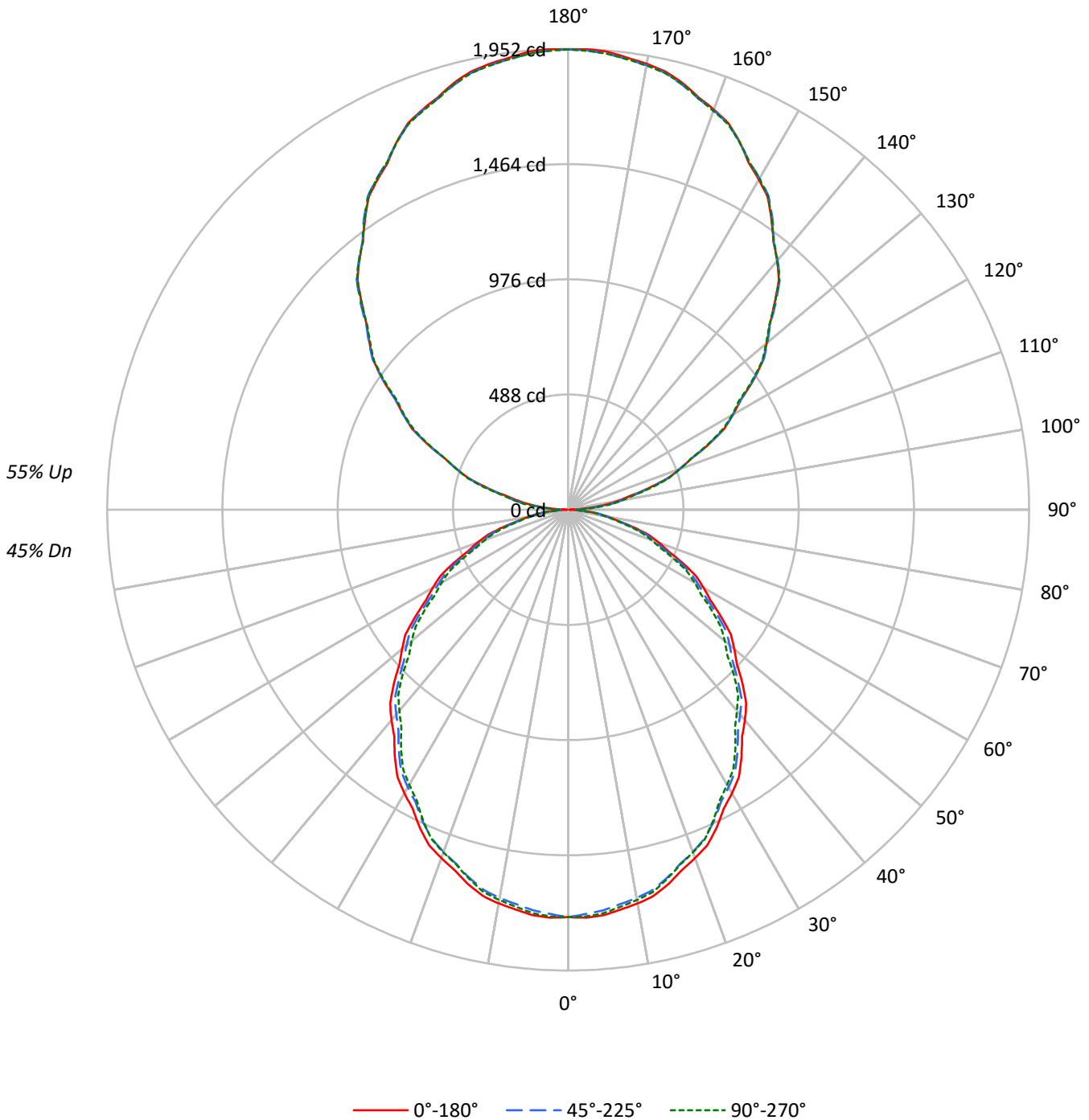
Lumens per Lamp: N/A  
Luminaire Lumens: 9842.8 lumens  
Efficiency: N/A  
Efficacy: 128.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: General Diffuse  
  
Input Watts (W): 76.6  
Input Voltage (V): 120  
Input Current (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	50	30	10	0		
RCR																										
0	106	106	106	106	97	97	97	97	81	81	81	65	65	65	52	52	52	45					45			
1	97	92	88	85	88	85	81	78	71	68	66	58	56	54	45	44	43	38					38			
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	37	32					32			
3	80	71	64	58	73	65	59	54	54	50	46	45	41	38	35	33	31	27					27			
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	32	29	27	23					23			
5	67	56	48	42	61	51	44	39	43	38	34	36	32	28	29	26	23	20					20			
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	21	18					18			
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	21	18	16					16			
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14					14			
9	49	37	30	25	45	35	28	23	29	24	20	25	21	18	20	17	15	13					13			
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	13	11					11			

**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	1.7
10°-20°	457.8	4.7
20°-30°	673.9	6.8
30°-40°	783.4	8.0
40°-50°	783.4	8.0
50°-60°	685.3	7.0
60°-70°	508.9	5.2
70°-80°	289.1	2.9
80°-90°	89.3	0.9
90°-100°	128.6	1.3
100°-110°	380.9	3.9
110°-120°	646.6	6.6
120°-130°	852.5	8.7
130°-140°	957.5	9.7
140°-150°	940.9	9.6
150°-160°	791.3	8.0
160°-170°	526.5	5.3
170°-180°	184.4	1.9
0°-30°	1294.2	13.1
0°-40°	2077.6	21.1
0°-60°	3546.4	36.0
0°-90°	4433.7	45.0
90°-120°	1156.1	11.7
90°-150°	3906.9	39.7
90°-180°	5409.0	55.0
0°-180°	9842.8	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°	4	21	33	42	45	10
95°	90	104	115	119	119	101
105°	351	353	359	363	368	373
115°	657	657	654	653	651	648
125°	958	957	956	953	950	853
135°	1235	1244	1244	1241	1236	955
145°	1500	1506	1508	1506	1502	939
155°	1719	1719	1717	1723	1717	791
165°	1871	1867	1864	1872	1867	527
175°	1947	1939	1938	1947	1938	185
180°	1950	1950	1950	1950	1950	



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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°	29.7	30.2	30.6	31.1	31.6	32.0	32.3	32.6	32.9	33.2	33.6
90°	4.5	8.2	11.9	15.6	19.3	22.5	25.1	27.8	30.5	33.2	35.2
92.5°	32.3	36.5	40.7	44.9	49.2	52.2	54.1	56.0	57.8	59.7	60.9
95°	90.5	93.5	96.5	99.5	102.5	105.2	107.6	109.9	112.3	114.6	115.6
97.5°	158.0	160.4	162.8	165.3	167.7	170.3	173.0	175.7	178.5	181.2	182.4
100°	211.1	212.4	213.8	215.1	216.5	218.6	221.7	224.7	227.7	230.7	231.4
102.5°	266.6	267.1	267.7	268.2	268.7	270.4	273.1	275.9	278.6	281.4	282.3
105°	351.3	351.7	352.0	352.3	352.7	353.5	354.8	356.2	357.5	358.9	359.9
107.5°	440.3	440.7	441.1	441.5	441.9	442.2	442.4	442.6	442.8	443.0	443.9
110°	500.6	501.3	501.9	502.6	503.3	503.5	503.1	502.8	502.4	502.1	501.4



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	563.3	563.5	563.6	563.7	563.9	563.6	563.0	562.4	561.8	561.2	561.1
115°	657.4	657.4	657.4	657.4	657.4	657.1	656.4	655.7	655.1	654.4	654.1
117.5°	746.1	746.3	746.6	746.9	747.2	747.1	746.6	746.1	745.6	745.2	744.0
120°	805.2	806.5	807.9	809.2	810.5	810.7	809.7	808.7	807.7	806.7	805.0
122.5°	866.7	867.2	867.8	868.3	868.8	868.9	868.4	867.9	867.5	867.0	865.9
125°	957.5	957.5	957.5	957.5	957.5	957.3	957.0	956.6	956.3	956.0	955.3
127.5°	1039.8	1040.8	1041.8	1042.8	1043.8	1044.1	1043.5	1043.0	1042.5	1041.9	1041.2
130°	1097.7	1098.7	1099.7	1100.7	1101.7	1102.2	1102.2	1102.2	1102.2	1102.2	1101.6
132.5°	1156.8	1157.6	1158.3	1159.0	1159.8	1160.0	1159.7	1159.5	1159.2	1158.9	1158.3
135°	1234.9	1236.9	1238.9	1241.0	1243.0	1244.0	1244.0	1244.0	1244.0	1244.0	1243.3
137.5°	1320.0	1320.9	1321.8	1322.8	1323.7	1324.5	1325.0	1325.5	1326.1	1326.6	1325.7
140°	1376.7	1377.3	1378.0	1378.7	1379.3	1379.7	1379.7	1379.7	1379.7	1379.7	1379.3
142.5°	1428.5	1429.2	1429.9	1430.5	1431.2	1431.4	1431.1	1430.9	1430.6	1430.3	1430.3
145°	1500.3	1501.6	1503.0	1504.3	1505.7	1506.5	1506.8	1507.2	1507.5	1507.8	1507.5
147.5°	1571.5	1573.1	1574.7	1576.3	1577.9	1578.6	1578.3	1578.0	1577.8	1577.5	1577.2
150°	1614.9	1616.2	1617.6	1618.9	1620.3	1620.9	1620.9	1620.9	1620.9	1620.9	1620.9
152.5°	1655.9	1656.7	1657.5	1658.3	1659.1	1659.7	1659.9	1660.2	1660.5	1660.7	1661.5
155°	1718.9	1718.9	1718.9	1718.9	1718.9	1718.8	1718.4	1718.1	1717.8	1717.4	1718.8
157.5°	1772.0	1771.4	1770.8	1770.2	1769.6	1769.3	1769.2	1769.1	1769.1	1769.0	1770.0
160°	1803.4	1803.0	1802.7	1802.4	1802.0	1801.7	1801.4	1801.0	1800.7	1800.4	1801.4
162.5°	1832.3	1831.5	1830.6	1829.7	1828.8	1828.2	1827.9	1827.6	1827.2	1826.9	1828.7
165°	1871.2	1870.2	1869.2	1868.2	1867.2	1866.4	1865.7	1865.0	1864.4	1863.7	1865.7
167.5°	1901.1	1899.7	1898.3	1896.9	1895.5	1894.8	1894.9	1894.9	1895.0	1895.1	1897.1
170°	1918.0	1916.3	1914.6	1912.9	1911.3	1910.6	1910.9	1911.3	1911.6	1911.9	1913.9
172.5°	1930.0	1928.6	1927.2	1925.8	1924.4	1923.7	1923.8	1923.9	1923.9	1924.0	1926.3
175°	1946.6	1944.9	1943.3	1941.6	1939.9	1938.9	1938.6	1938.2	1937.9	1937.6	1939.9
177.5°	1952.0	1950.7	1949.4	1948.0	1946.7	1946.0	1946.0	1946.0	1946.0	1946.0	1947.9
180°	1949.6	1949.6	1949.6	1949.6	1949.6	1949.6	1949.6	1949.6	1949.6	1949.6	1949.6



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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°	34.0	34.4	34.8	35.1	35.2	35.3	35.5	35.6
90°	37.2	39.2	41.2	42.6	43.2	43.9	44.6	45.2
92.5°	62.1	63.3	64.5	65.3	65.7	66.1	66.5	66.9
95°	116.6	117.6	118.6	119.1	119.1	119.1	119.1	119.1
97.5°	183.7	184.9	186.1	186.7	186.7	186.7	186.7	186.7
100°	232.0	232.7	233.4	233.7	233.7	233.7	233.7	233.7
102.5°	283.2	284.2	285.1	285.7	286.0	286.3	286.5	286.8
105°	360.9	361.9	362.9	363.9	364.9	365.9	366.9	367.9
107.5°	444.9	445.8	446.8	447.2	447.1	447.1	447.0	446.9
110°	500.8	500.1	499.4	499.6	500.6	501.6	502.6	503.6





TEST NUMBER: P332834

CATALOG NUMBER: S124DIW-S1020D1560U835-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	560.9	560.8	560.7	560.7	560.9	561.1	561.3	561.5
115°	653.7	653.4	653.1	652.7	652.4	652.1	651.7	651.4
117.5°	742.9	741.8	740.6	739.7	739.0	738.4	737.7	737.0
120°	803.3	801.7	800.0	799.5	800.2	800.8	801.5	802.2
122.5°	864.7	863.6	862.5	861.3	860.1	858.9	857.7	856.5
125°	954.6	954.0	953.3	952.6	951.9	951.3	950.6	949.9
127.5°	1040.6	1039.9	1039.2	1038.6	1038.1	1037.6	1037.0	1036.5
130°	1100.9	1100.2	1099.5	1098.5	1097.2	1095.9	1094.5	1093.2
132.5°	1157.6	1156.9	1156.2	1155.6	1155.1	1154.6	1154.0	1153.5
135°	1242.6	1242.0	1241.3	1240.4	1239.4	1238.4	1237.4	1236.4
137.5°	1324.9	1324.0	1323.1	1322.8	1323.0	1323.2	1323.4	1323.6
140°	1379.0	1378.7	1378.3	1378.0	1377.7	1377.3	1377.0	1376.7
142.5°	1430.2	1430.1	1430.1	1430.0	1429.9	1429.9	1429.8	1429.7
145°	1507.2	1506.8	1506.5	1505.8	1504.8	1503.8	1502.8	1501.8
147.5°	1577.0	1576.7	1576.4	1576.1	1575.8	1575.5	1575.1	1574.8
150°	1620.9	1620.9	1620.9	1620.8	1620.4	1620.1	1619.8	1619.4
152.5°	1662.3	1663.1	1663.9	1663.9	1663.0	1662.2	1661.3	1660.4
155°	1720.1	1721.4	1722.8	1722.8	1721.4	1720.1	1718.8	1717.4
157.5°	1771.0	1772.0	1773.0	1772.9	1771.8	1770.7	1769.5	1768.4
160°	1802.4	1803.4	1804.4	1804.0	1802.4	1800.7	1799.0	1797.3
162.5°	1830.5	1832.3	1834.1	1834.2	1832.5	1830.9	1829.2	1827.5
165°	1867.7	1869.7	1871.7	1872.1	1870.7	1869.4	1868.0	1866.7
167.5°	1899.1	1901.1	1903.1	1903.1	1901.0	1898.9	1896.8	1894.7
170°	1916.0	1918.0	1920.0	1919.8	1917.5	1915.1	1912.8	1910.4
172.5°	1928.6	1930.8	1933.1	1933.1	1930.7	1928.4	1926.0	1923.7
175°	1942.3	1944.6	1947.0	1947.0	1944.6	1942.3	1939.9	1937.6
177.5°	1949.8	1951.6	1953.5	1953.4	1951.2	1949.1	1947.0	1944.8
180°	1949.6	1949.6	1949.6	1949.6	1949.6	1949.6	1949.6	1949.6

(END OF REPORT)