

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: P332832

Luminaire Tested: **S124DIW-S1020D1560U835-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332832  
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-D1  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1560 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

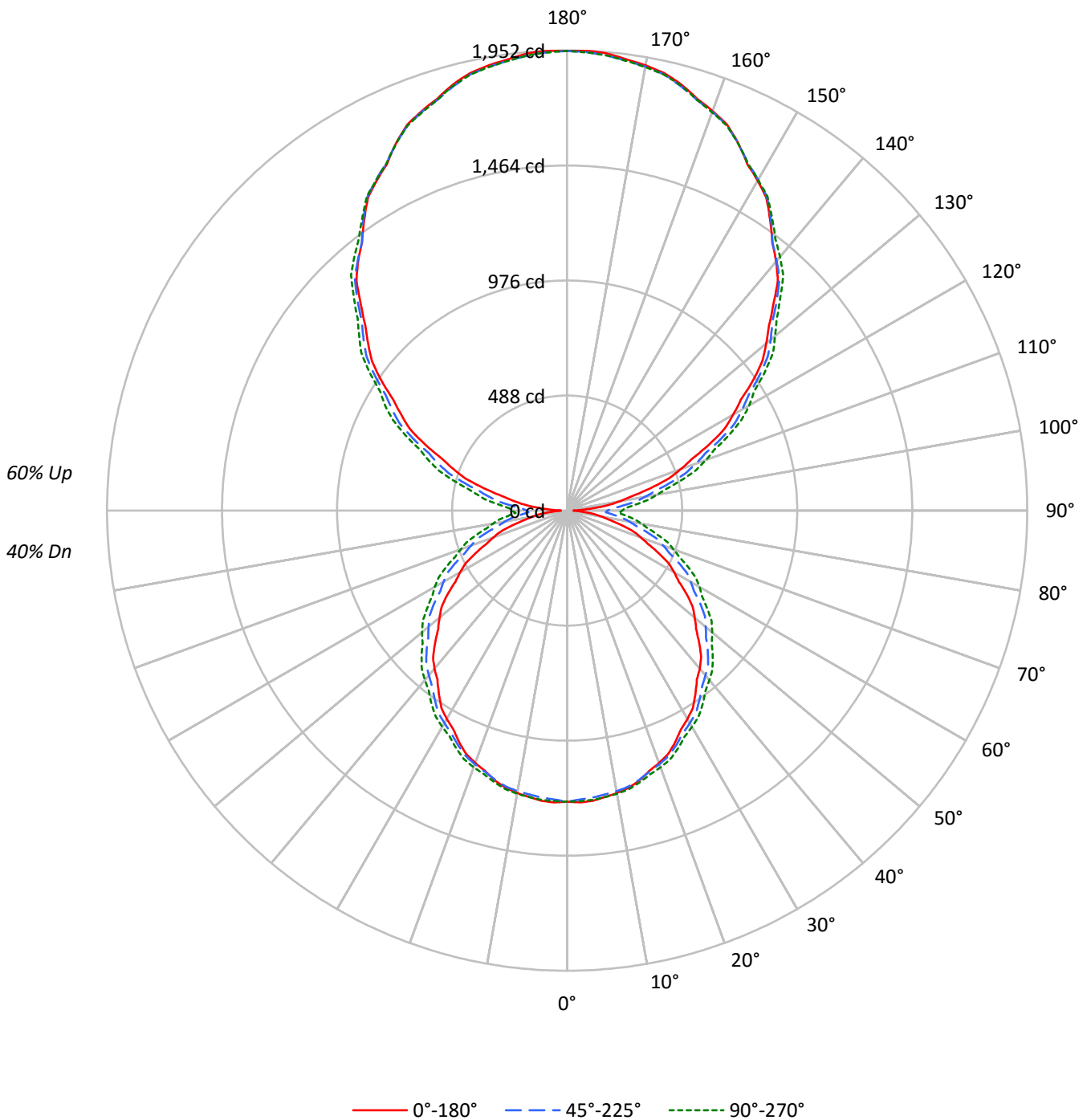
Lumens per Lamp: N/A  
Luminaire Lumens: 9623.8 lumens  
Efficiency: N/A  
Efficacy: 125.6 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')  
CIE Type: General Diffuse  
  
Input Watts (W): 76.6  
Input Voltage (V): 120  
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										
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	105	105	105	105	96	96	96	96	78	78	78	62	62	62	47	47	47	40																				
1	95	90	86	82	86	82	79	75	67	65	62	53	52	50	41	39	38	32																				
2	86	78	72	66	78	71	66	61	58	54	51	46	43	41	35	33	32	26																				
3	78	68	61	55	71	62	56	51	51	46	42	41	37	34	31	29	27	22																				
4	71	60	52	46	65	55	48	43	45	40	36	36	32	29	27	25	23	19																				
5	65	54	45	39	59	49	42	36	40	35	31	32	28	25	25	22	20	16																				
6	60	48	40	34	54	44	37	31	36	31	26	29	25	22	22	19	17	14																				
7	55	43	35	29	50	39	32	27	33	27	23	26	22	19	20	17	15	12																				
8	51	39	31	26	47	36	29	24	30	24	20	24	20	17	19	16	13	11																				
9	48	35	28	23	43	33	26	21	27	22	18	22	18	15	17	14	12	10																				
10	45	32	25	20	40	30	23	19	25	20	16	20	16	14	16	13	11	9																				

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

	0°	45°	90°
0°	9968	9968	9968
5°	9998	9741	9769
10°	9937	9582	9575
15°	9848	9397	9346
20°	9714	9194	9123
25°	9563	8966	8879
30°	9399	8739	8627
35°	9213	8507	8407
40°	9065	8285	8178
45°	8844	8081	7981
50°	8658	7846	7773
55°	8466	7625	7529
60°	8166	7342	7306
65°	7837	7040	7032
70°	7439	6694	6714
75°	6882	6312	6425
80°	6266	5946	6141
85°	5484	5623	5977



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	116.9	1.2
10°-20°	335.0	3.5
20°-30°	506.5	5.3
30°-40°	612.9	6.4
40°-50°	647.9	6.7
50°-60°	609.8	6.3
60°-70°	505.9	5.3
70°-80°	355.4	3.7
80°-90°	206.7	2.1
90°-100°	247.9	2.6
100°-110°	469.2	4.9
110°-120°	705.8	7.3
120°-130°	886.0	9.2
130°-140°	971.9	10.1
140°-150°	943.8	9.8
150°-160°	791.3	8.2
160°-170°	526.5	5.5
170°-180°	184.4	1.9
0°-30°	958.4	10.0
0°-40°	1571.3	16.3
0°-60°	2829.0	29.4
0°-90°	3897.0	40.5
90°-120°	1422.9	14.8
90°-150°	4224.6	43.9
90°-180°	5727.0	59.5
0°-180°	9623.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1235	1235	1235	1235	1235	
5°	1236	1232	1222	1233	1232	117
15°	1185	1186	1182	1194	1193	334
25°	1084	1092	1096	1111	1113	499
35°	948	965	979	997	1002	594
45°	791	817	843	866	874	611
55°	619	649	690	716	726	552
65°	429	473	520	553	566	425
75°	238	289	347	384	398	253
85°	73	132	194	234	249	78
90°	27	98	170	217	233	20
95°	108	168	235	275	289	115
105°	364	394	450	488	505	387
115°	666	680	719	747	756	657
125°	963	964	995	1017	1023	858
135°	1238	1247	1256	1275	1279	958
145°	1502	1506	1508	1514	1516	940
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°	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7
2.5°	1239.1	1238.4	1237.6	1236.9	1236.1	1234.8	1232.8	1230.9	1228.9	1226.9	1228.6
5°	1236.0	1235.1	1234.2	1233.3	1232.4	1230.8	1228.7	1226.5	1224.4	1222.2	1224.7
7.5°	1225.5	1225.0	1224.4	1223.9	1223.3	1222.2	1220.4	1218.6	1216.8	1215.0	1217.8
10°	1216.7	1216.4	1216.1	1215.8	1215.5	1214.5	1213.0	1211.5	1209.9	1208.4	1211.2
12.5°	1204.5	1204.5	1204.4	1204.3	1204.3	1203.7	1202.7	1201.6	1200.6	1199.5	1202.1
15°	1184.9	1185.2	1185.5	1185.8	1186.1	1185.8	1184.9	1184.0	1183.0	1182.1	1184.9
17.5°	1158.1	1159.0	1159.9	1160.8	1161.8	1162.1	1161.9	1161.8	1161.6	1161.4	1164.2
20°	1139.3	1140.2	1141.1	1142.0	1143.0	1143.6	1143.9	1144.2	1144.5	1144.8	1147.9
22.5°	1118.2	1119.4	1120.6	1121.8	1122.9	1123.8	1124.3	1124.9	1125.4	1126.0	1129.1
25°	1084.0	1085.8	1087.6	1089.5	1091.3	1092.7	1093.6	1094.6	1095.5	1096.4	1099.8
27.5°	1045.8	1048.5	1051.2	1053.9	1056.6	1058.7	1060.1	1061.5	1062.9	1064.3	1067.5
30°	1020.4	1022.8	1025.3	1027.7	1030.2	1032.5	1034.6	1036.8	1038.9	1041.1	1044.5
32.5°	992.7	995.7	998.6	1001.6	1004.5	1007.2	1009.6	1012.0	1014.4	1016.8	1020.6
35°	948.5	952.2	955.8	959.5	963.2	966.6	969.7	972.7	975.8	978.9	983.2
37.5°	903.9	908.2	912.4	916.7	920.9	924.9	928.7	932.5	936.4	940.2	944.5
40°	875.2	879.2	883.2	887.2	891.2	895.3	899.6	903.9	908.2	912.5	917.1
42.5°	842.0	846.5	851.0	855.5	859.9	864.7	869.7	874.8	879.8	884.9	890.0
45°	790.8	796.7	802.5	808.4	814.2	820.0	825.9	831.7	837.5	843.4	848.6
47.5°	741.9	747.9	753.9	760.0	766.0	772.4	779.1	785.9	792.7	799.4	804.8
50°	706.5	713.3	720.0	726.8	733.5	740.3	747.1	753.8	760.6	767.3	773.5
52.5°	671.1	677.9	684.6	691.4	698.2	705.4	713.1	720.9	728.6	736.4	742.5
55°	619.4	625.9	632.3	638.8	645.2	653.0	662.3	671.5	680.7	689.9	696.1
57.5°	561.6	569.6	577.6	585.6	593.6	602.1	611.3	620.5	629.6	638.8	646.1
60°	524.0	532.0	540.0	548.0	556.0	565.0	575.2	585.3	595.4	605.6	612.6
62.5°	487.5	496.2	505.0	513.7	522.4	531.8	542.0	552.1	562.3	572.4	579.5
65°	428.6	438.4	448.3	458.1	467.9	478.1	488.5	499.0	509.4	519.9	527.5
67.5°	371.9	382.4	392.8	403.3	413.7	424.5	435.7	446.9	458.1	469.3	477.1
70°	333.2	343.7	354.1	364.5	375.0	386.1	397.7	409.4	421.1	432.8	441.1
72.5°	295.6	306.3	317.0	327.7	338.4	349.9	362.3	374.7	387.2	399.6	407.6
75°	237.8	249.2	260.5	271.9	283.3	295.4	308.3	321.2	334.1	347.0	355.6
77.5°	183.9	195.9	208.0	220.0	232.1	244.8	258.4	271.9	285.4	298.9	307.6
80°	150.7	163.0	175.3	187.6	199.9	212.8	226.3	239.8	253.3	266.8	276.1
82.5°	117.5	130.3	143.1	155.9	168.6	181.8	195.3	208.8	222.4	235.9	245.3
85°	73.3	86.2	99.1	112.0	124.9	138.3	152.1	165.9	179.7	193.6	202.8
87.5°	41.8	55.1	68.4	81.6	94.9	108.6	122.5	136.5	150.5	164.5	173.8
90°	26.6	42.6	58.6	74.6	90.5	106.5	122.4	138.3	154.2	170.1	181.0
92.5°	53.3	68.6	83.8	99.1	114.4	129.6	144.7	159.8	174.9	190.0	199.8
95°	108.4	121.6	134.8	147.9	161.1	175.1	190.1	205.0	219.9	234.9	244.2
97.5°	174.3	185.5	196.6	207.8	218.9	232.1	247.3	262.5	277.7	293.0	302.2
100°	226.3	235.6	245.0	254.3	263.6	275.8	290.8	305.8	320.8	335.8	344.7
102.5°	281.8	289.3	296.9	304.4	312.0	323.0	337.5	351.9	366.4	380.9	389.9
105°	363.8	370.2	376.7	383.2	389.7	399.3	412.0	424.7	437.4	450.1	458.8
107.5°	452.5	457.9	463.3	468.8	474.2	482.4	493.4	504.3	515.3	526.2	534.7
110°	511.7	516.6	521.6	526.6	531.5	539.2	549.7	560.1	570.5	580.9	587.3



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	573.3	577.2	581.2	585.1	589.1	595.9	605.5	615.2	624.8	634.5	641.2
115°	665.7	668.5	671.2	674.0	676.8	682.7	691.9	701.1	710.2	719.4	725.8
117.5°	754.1	756.0	758.0	759.9	761.8	767.1	775.8	784.5	793.2	801.9	807.1
120°	812.1	814.4	816.6	818.9	821.1	826.2	834.1	842.0	849.9	857.8	862.3
122.5°	873.6	874.3	875.1	875.8	876.5	880.8	888.8	896.7	904.7	912.6	917.6
125°	963.0	962.7	962.4	962.1	961.8	965.3	972.6	980.0	987.3	994.7	999.8
127.5°	1045.1	1045.8	1046.5	1047.2	1047.9	1050.9	1056.2	1061.6	1067.0	1072.3	1077.2
130°	1101.9	1102.6	1103.3	1103.9	1104.6	1107.5	1112.4	1117.3	1122.2	1127.1	1132.0
132.5°	1161.0	1161.4	1161.8	1162.3	1162.7	1164.7	1168.4	1172.1	1175.7	1179.4	1184.0
135°	1237.7	1239.7	1241.7	1243.7	1245.7	1247.8	1250.0	1252.1	1254.3	1256.4	1260.7
137.5°	1322.7	1323.4	1324.0	1324.6	1325.3	1326.4	1327.9	1329.5	1331.1	1332.7	1336.3
140°	1379.4	1379.8	1380.1	1380.5	1380.9	1381.2	1381.5	1381.8	1382.1	1382.4	1386.1
142.5°	1430.2	1430.8	1431.4	1432.0	1432.6	1432.7	1432.2	1431.8	1431.3	1430.9	1434.3
145°	1501.7	1502.7	1503.7	1504.8	1505.8	1506.5	1506.8	1507.2	1507.5	1507.8	1509.3
147.5°	1572.9	1574.2	1575.5	1576.8	1578.1	1578.6	1578.3	1578.0	1577.8	1577.5	1577.5
150°	1616.3	1617.3	1618.3	1619.4	1620.4	1620.9	1620.9	1620.9	1620.9	1620.9	1620.9
152.5°	1656.2	1656.9	1657.7	1658.4	1659.2	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°	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7	1234.7
2.5°	1230.4	1232.1	1233.8	1234.5	1234.3	1234.0	1233.8	1233.6
5°	1227.1	1229.6	1232.1	1233.1	1232.8	1232.5	1232.2	1231.9
7.5°	1220.6	1223.3	1226.1	1227.3	1227.0	1226.7	1226.4	1226.1
10°	1213.9	1216.7	1219.5	1220.7	1220.4	1220.1	1219.8	1219.5
12.5°	1204.6	1207.1	1209.6	1210.9	1210.8	1210.7	1210.7	1210.6
15°	1187.7	1190.4	1193.2	1194.4	1194.1	1193.8	1193.5	1193.2
17.5°	1167.0	1169.9	1172.7	1174.0	1173.7	1173.5	1173.2	1173.0
20°	1150.9	1154.0	1157.1	1158.6	1158.6	1158.6	1158.6	1158.6
22.5°	1132.1	1135.2	1138.3	1140.1	1140.6	1141.0	1141.5	1142.0
25°	1103.2	1106.5	1109.9	1111.8	1112.1	1112.4	1112.7	1113.0
27.5°	1070.6	1073.7	1076.9	1078.6	1079.0	1079.4	1079.7	1080.1
30°	1047.9	1051.2	1054.6	1056.6	1057.2	1057.8	1058.5	1059.1
32.5°	1024.5	1028.4	1032.3	1034.5	1035.1	1035.7	1036.3	1037.0
35°	987.5	991.8	996.1	998.7	999.6	1000.5	1001.5	1002.4
37.5°	948.9	953.3	957.6	960.3	961.3	962.3	963.2	964.2
40°	921.7	926.3	931.0	933.9	935.1	936.3	937.6	938.8
42.5°	895.1	900.2	905.3	908.3	909.3	910.3	911.3	912.2
45°	853.8	859.1	864.3	867.7	869.2	870.7	872.3	873.8
47.5°	810.2	815.6	821.1	824.7	826.5	828.4	830.2	832.1
50°	779.6	785.8	791.9	795.9	797.8	799.6	801.4	803.3
52.5°	748.7	754.8	761.0	764.9	766.8	768.6	770.5	772.3
55°	702.2	708.4	714.5	718.5	720.3	722.2	724.0	725.9
57.5°	653.4	660.7	668.0	672.5	674.2	676.0	677.7	679.4
60°	619.7	626.8	633.8	638.6	641.1	643.5	646.0	648.4
62.5°	586.5	593.6	600.7	605.4	607.9	610.3	612.8	615.3
65°	535.2	542.9	550.6	555.7	558.1	560.6	563.0	565.5
67.5°	484.9	492.7	500.5	505.6	508.0	510.4	512.8	515.2
70°	449.3	457.6	465.9	471.2	473.3	475.5	477.6	479.8
72.5°	415.7	423.7	431.8	437.0	439.4	441.8	444.2	446.6
75°	364.2	372.8	381.4	387.1	389.9	392.7	395.4	398.2
77.5°	316.4	325.1	333.8	339.7	342.6	345.6	348.5	351.5
80°	285.3	294.5	303.7	309.5	312.0	314.5	316.9	319.4
82.5°	254.8	264.3	273.7	279.8	282.5	285.2	287.9	290.6
85°	212.0	221.2	230.4	236.6	239.7	242.7	245.8	248.9
87.5°	183.2	192.5	201.8	207.9	210.7	213.5	216.4	219.2
90°	191.9	202.8	213.7	220.8	223.9	227.0	230.1	233.3
92.5°	209.7	219.6	229.4	235.8	238.7	241.5	244.4	247.2
95°	253.5	262.8	272.1	278.1	280.9	283.6	286.4	289.2
97.5°	311.5	320.7	330.0	335.9	338.6	341.2	343.9	346.5
100°	353.7	362.7	371.6	377.2	379.3	381.5	383.7	385.8
102.5°	398.9	407.9	416.9	422.7	425.4	428.0	430.7	433.3
105°	467.5	476.2	484.9	490.9	494.4	497.9	501.3	504.8
107.5°	543.2	551.7	560.2	565.5	567.7	569.8	572.0	574.1
110°	593.7	600.1	606.5	611.4	614.9	618.4	621.8	625.3





TEST NUMBER: P332832

CATALOG NUMBER: S124DIW-S1020D1560U835-4F0-1E-UDD-D1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	647.9	654.6	661.2	665.9	668.6	671.2	673.9	676.6
115°	732.2	738.7	745.1	749.2	751.0	752.8	754.6	756.5
117.5°	812.4	817.6	822.9	826.4	828.2	830.0	831.7	833.5
120°	866.8	871.3	875.7	879.5	882.7	885.8	888.9	892.0
122.5°	922.6	927.6	932.7	935.7	936.7	937.7	938.7	939.7
125°	1005.0	1010.2	1015.4	1018.5	1019.7	1020.9	1022.0	1023.2
127.5°	1082.1	1086.9	1091.8	1095.0	1096.5	1098.1	1099.6	1101.2
130°	1136.8	1141.7	1146.6	1149.2	1149.7	1150.2	1150.7	1151.3
132.5°	1188.6	1193.2	1197.8	1200.8	1202.1	1203.4	1204.7	1206.0
135°	1264.9	1269.1	1273.4	1275.9	1276.8	1277.6	1278.4	1279.3
137.5°	1339.9	1343.5	1347.1	1349.8	1351.6	1353.3	1355.0	1356.8
140°	1389.8	1393.4	1397.1	1399.5	1400.7	1401.9	1403.1	1404.3
142.5°	1437.8	1441.2	1444.6	1447.0	1448.2	1449.4	1450.6	1451.9
145°	1510.9	1512.4	1513.9	1514.7	1515.0	1515.2	1515.4	1515.6
147.5°	1577.5	1577.4	1577.4	1577.7	1578.4	1579.0	1579.7	1580.3
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)