

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: P332831

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332831
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: S124DIW-S1020D1560U835-4F0-1E-UDD-D
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER
UPLIGHT 1560 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10451.5 lumens
Efficiency: N/A
Efficacy: 136.4 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: Semi-Indirect

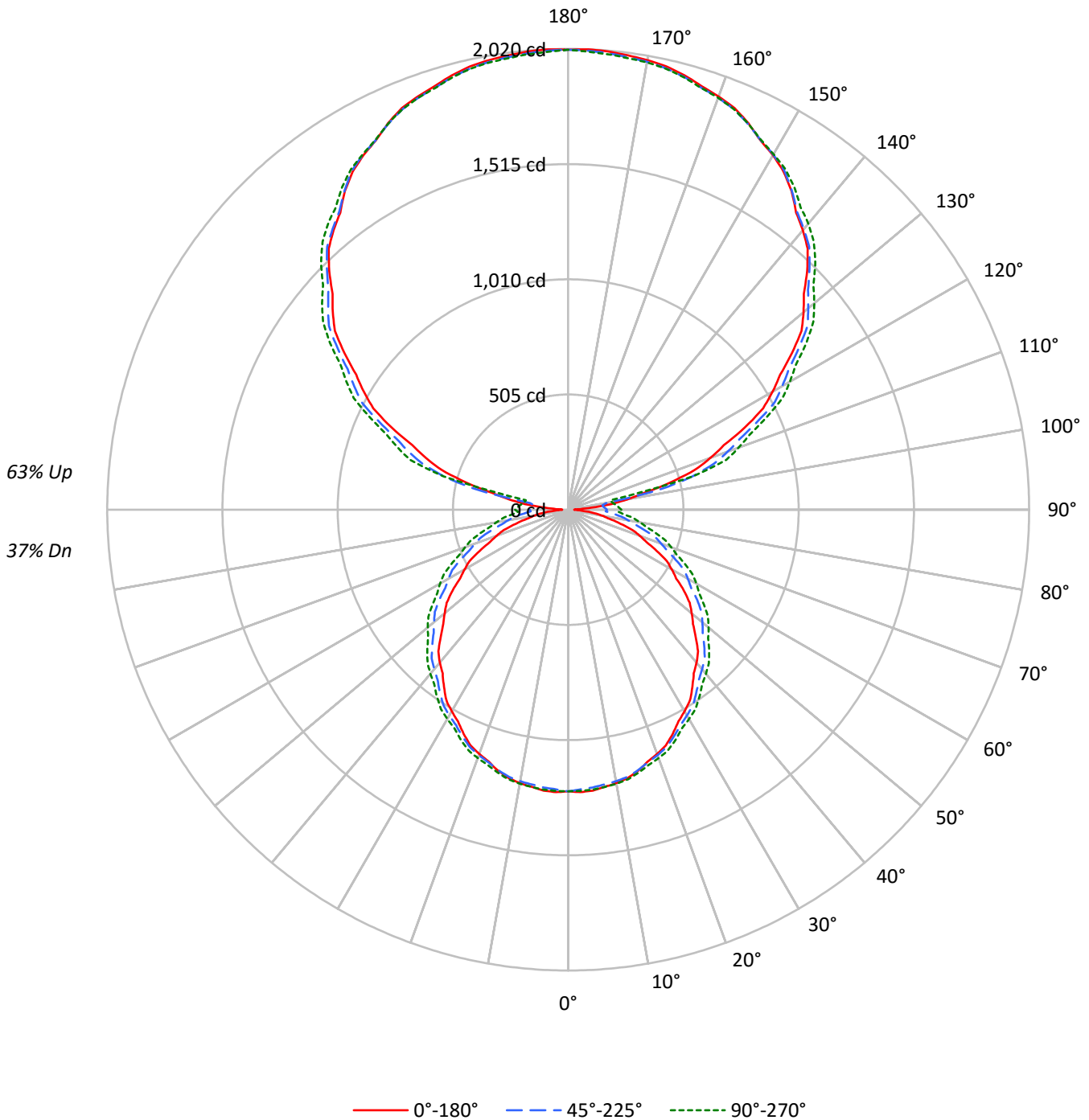
Input Watts (W): 76.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P332831

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

Luminous Intensity Polar Plot





TEST NUMBER: P332831

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

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	104	104	104	104	94	94	94	94	76	76	76	60	60	60	44	44	44	37
1	94	90	85	82	85	81	78	75	66	63	61	51	50	48	38	37	36	30
2	85	78	71	66	77	71	65	61	57	53	50	45	42	39	33	31	30	24
3	78	68	61	55	70	62	55	50	50	45	41	39	36	33	29	27	25	20
4	71	60	52	46	64	55	48	42	44	39	35	35	31	28	26	23	21	17
5	65	53	45	39	58	48	41	36	39	34	30	31	27	24	23	20	18	15
6	60	48	39	34	54	43	36	31	35	30	26	28	24	21	21	18	16	13
7	55	43	35	29	50	39	32	27	32	27	23	25	21	18	19	16	14	11
8	51	39	31	26	46	35	29	24	29	24	20	23	19	16	17	15	13	10
9	47	35	28	23	43	32	26	21	26	21	18	21	17	15	16	13	11	9
10	44	32	25	20	40	29	23	19	24	19	16	19	16	13	15	12	10	8

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



TEST NUMBER: P332831

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

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	116.9	1.1
10°-20°	335.0	3.2
20°-30°	506.5	4.8
30°-40°	612.9	5.9
40°-50°	647.9	6.2
50°-60°	609.8	5.8
60°-70°	505.9	4.8
70°-80°	355.4	3.4
80°-90°	206.7	2.0
90°-100°	188.2	1.8
100°-110°	528.0	5.1
110°-120°	900.4	8.6
120°-130°	1101.2	10.5
130°-140°	1156.9	11.1
140°-150°	1071.2	10.2
150°-160°	861.5	8.2
160°-170°	555.6	5.3
170°-180°	191.5	1.8
0°-30°	958.4	9.2
0°-40°	1571.3	15.0
0°-60°	2829.0	27.1
0°-90°	3897.0	37.3
90°-120°	1616.6	15.5
90°-150°	4945.9	47.3
90°-180°	6555.0	62.7
0°-180°	10451.5	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	99	170	217	233	18
95°	101	99	154	198	214	121
105°	466	504	562	605	567	489
115°	856	874	916	948	959	842
125°	1197	1203	1233	1263	1274	1068
135°	1481	1480	1495	1519	1531	1141
145°	1706	1708	1709	1718	1727	1065
155°	1868	1870	1865	1871	1867	861
165°	1971	1964	1964	1974	1962	557
175°	2016	2008	2009	2021	2004	192
180°	2016	2016	2016	2016	2016	



TEST NUMBER: P332831

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

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	90.6	106.5	122.4	138.3	154.2	170.1	181.0
92.5°	40.0	51.3	62.5	73.8	85.1	98.6	114.5	130.4	146.3	162.2	172.9
95°	100.9	99.7	98.4	97.2	95.9	101.7	114.7	127.6	140.5	153.5	163.8
97.5°	192.5	208.3	224.1	239.9	255.8	251.2	226.3	201.4	176.5	151.5	159.8
100°	262.5	276.5	290.6	304.6	318.6	308.5	274.2	240.0	205.7	171.4	174.0
102.5°	342.2	353.6	365.0	376.4	387.9	396.4	402.1	407.8	413.5	419.3	365.8
105°	466.4	474.5	482.7	490.8	499.0	509.6	522.6	535.7	548.7	561.8	572.5
107.5°	584.0	590.1	596.1	602.1	608.2	617.7	630.8	643.8	656.8	669.9	678.9
110°	662.5	667.8	673.1	678.5	683.8	692.8	705.6	718.3	731.1	743.9	751.6



TEST NUMBER: P332831

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

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	738.6	744.3	749.9	755.5	761.1	769.5	780.7	791.9	803.1	814.3	821.0
115°	855.8	859.6	863.4	867.1	870.9	877.5	887.0	896.5	906.0	915.5	922.9
117.5°	962.6	965.6	968.6	971.6	974.6	981.1	990.9	1000.8	1010.7	1020.6	1026.9
120°	1033.9	1036.2	1038.4	1040.7	1042.9	1048.4	1056.9	1065.5	1074.1	1082.7	1089.5
122.5°	1101.4	1102.4	1103.4	1104.4	1105.4	1110.3	1119.2	1128.1	1137.0	1145.9	1152.4
125°	1196.9	1197.9	1198.9	1200.0	1201.0	1205.0	1212.0	1219.1	1226.1	1233.1	1239.9
127.5°	1288.3	1288.3	1288.3	1288.4	1288.4	1292.1	1299.6	1307.0	1314.5	1321.9	1327.2
130°	1346.3	1346.3	1346.4	1346.4	1346.4	1349.4	1355.3	1361.2	1367.2	1373.1	1378.9
132.5°	1400.6	1400.9	1401.2	1401.5	1401.8	1404.5	1409.7	1414.9	1420.1	1425.4	1431.0
135°	1480.6	1480.3	1480.0	1479.6	1479.3	1480.9	1484.4	1487.9	1491.4	1494.8	1500.4
137.5°	1552.7	1552.6	1552.4	1552.2	1552.0	1553.2	1555.7	1558.2	1560.8	1563.3	1568.5
140°	1599.8	1600.1	1600.5	1600.9	1601.2	1601.9	1602.9	1603.9	1604.8	1605.8	1610.8
142.5°	1640.9	1642.0	1643.2	1644.3	1645.5	1646.2	1646.4	1646.6	1646.8	1647.0	1651.3
145°	1705.5	1706.2	1706.9	1707.6	1708.3	1708.6	1708.6	1708.6	1708.6	1708.6	1710.8
147.5°	1757.0	1758.6	1760.2	1761.8	1763.3	1763.9	1763.6	1763.3	1762.9	1762.6	1763.1
150°	1794.4	1795.5	1796.5	1797.5	1798.6	1798.9	1798.6	1798.3	1797.9	1797.6	1797.6
152.5°	1824.7	1825.7	1826.7	1827.7	1828.7	1829.0	1828.3	1827.7	1827.1	1826.5	1827.1
155°	1868.5	1868.8	1869.1	1869.5	1869.8	1869.5	1868.5	1867.5	1866.5	1865.4	1866.8
157.5°	1905.6	1905.4	1905.2	1905.0	1904.8	1904.1	1902.9	1901.8	1900.7	1899.5	1901.3
160°	1927.3	1926.3	1925.3	1924.3	1923.3	1922.6	1922.2	1921.9	1921.6	1921.2	1923.3
162.5°	1946.6	1945.3	1944.0	1942.8	1941.5	1940.7	1940.3	1940.0	1939.7	1939.3	1941.3
165°	1971.0	1969.3	1967.7	1966.0	1964.3	1963.5	1963.5	1963.5	1963.5	1963.5	1966.1
167.5°	1990.3	1988.6	1986.8	1985.1	1983.3	1982.4	1982.2	1982.0	1981.8	1981.6	1984.5
170°	2001.2	1999.2	1997.1	1995.1	1993.1	1992.3	1992.6	1993.0	1993.3	1993.6	1996.3
172.5°	2008.4	2006.4	2004.4	2002.4	2000.4	1999.5	1999.9	2000.2	2000.5	2000.9	2003.5
175°	2016.2	2014.2	2012.2	2010.2	2008.2	2007.4	2007.7	2008.0	2008.4	2008.7	2011.7
177.5°	2019.9	2018.0	2016.1	2014.2	2012.4	2011.7	2012.2	2012.8	2013.3	2013.8	2016.0
180°	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2



TEST NUMBER: P332831

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

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°	183.6	194.2	204.9	211.5	214.1	216.7	219.3	221.9
95°	174.1	184.4	194.7	201.4	204.5	207.6	210.7	213.8
97.5°	168.0	176.3	184.5	190.1	193.1	196.1	199.1	202.1
100°	176.6	179.2	181.8	184.4	186.9	189.3	191.8	194.3
102.5°	312.4	259.0	205.6	180.1	182.6	185.1	187.5	190.0
105°	583.2	593.9	604.5	605.1	595.5	585.9	576.3	566.7
107.5°	687.9	697.0	706.0	712.3	715.7	719.2	722.7	726.2
110°	759.3	767.1	774.8	780.4	783.9	787.3	790.8	794.3



TEST NUMBER: P332831

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

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	827.7	834.4	841.1	846.3	850.0	853.7	857.5	861.2
115°	930.4	937.8	945.2	950.0	952.2	954.3	956.5	958.6
117.5°	1033.1	1039.4	1045.7	1049.9	1052.3	1054.6	1056.9	1059.2
120°	1096.3	1103.1	1109.9	1114.2	1116.0	1117.8	1119.6	1121.4
122.5°	1159.0	1165.5	1172.1	1176.1	1177.7	1179.2	1180.7	1182.3
125°	1246.8	1253.6	1260.5	1265.0	1267.1	1269.3	1271.5	1273.7
127.5°	1332.6	1337.9	1343.2	1346.8	1348.6	1350.4	1352.3	1354.1
130°	1384.8	1390.7	1396.5	1400.4	1402.2	1404.1	1405.9	1407.8
132.5°	1436.6	1442.2	1447.8	1451.4	1453.0	1454.6	1456.2	1457.7
135°	1506.0	1511.6	1517.2	1521.2	1523.8	1526.3	1528.8	1531.3
137.5°	1573.7	1579.0	1584.2	1587.5	1588.8	1590.1	1591.5	1592.8
140°	1615.8	1620.8	1625.8	1629.2	1631.1	1633.0	1634.9	1636.7
142.5°	1655.5	1659.8	1664.0	1666.8	1668.1	1669.5	1670.9	1672.2
145°	1713.0	1715.1	1717.3	1719.4	1721.3	1723.2	1725.1	1727.0
147.5°	1763.6	1764.1	1764.7	1765.6	1766.9	1768.2	1769.5	1770.8
150°	1797.6	1797.6	1797.6	1797.8	1798.1	1798.4	1798.8	1799.1
152.5°	1827.6	1828.1	1828.7	1828.8	1828.6	1828.4	1828.2	1828.0
155°	1868.1	1869.5	1870.8	1871.0	1870.0	1869.0	1868.0	1867.0
157.5°	1903.0	1904.8	1906.5	1906.5	1904.8	1903.0	1901.3	1899.5
160°	1925.3	1927.3	1929.3	1929.3	1927.3	1925.3	1923.3	1921.2
162.5°	1943.4	1945.4	1947.4	1947.2	1945.0	1942.7	1940.4	1938.1
165°	1968.8	1971.5	1974.2	1974.0	1971.0	1968.0	1965.0	1962.0
167.5°	1987.5	1990.4	1993.4	1993.2	1989.8	1986.5	1983.1	1979.8
170°	1999.0	2001.7	2004.4	2004.0	2000.7	1997.3	1994.0	1990.6
172.5°	2006.2	2008.9	2011.6	2011.1	2007.5	2003.9	2000.3	1996.6
175°	2014.7	2017.8	2020.8	2020.3	2016.2	2012.2	2008.2	2004.2
177.5°	2018.1	2020.3	2022.4	2021.9	2018.7	2015.4	2012.2	2009.0
180°	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2	2016.2

(END OF REPORT)