

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: P332831-830

Luminaire Tested: **S124DIW-S1020D1560U830-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332831-830  
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-S1020D1560U830-4F0-1E-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: 9851.0 lumens  
Efficiency: N/A  
Efficacy: 128.6 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: Semi-Indirect

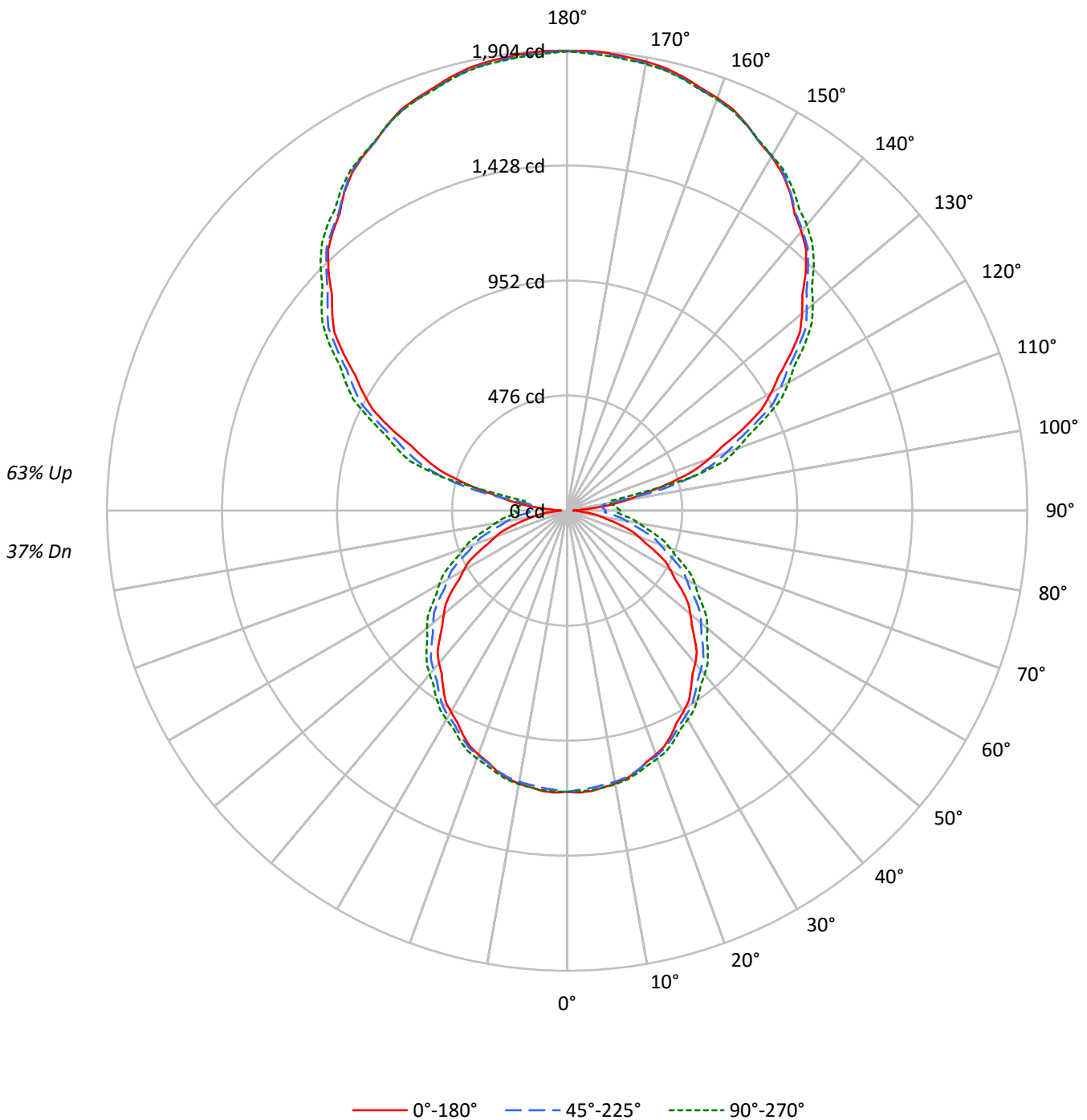
Input Watts (W): 76.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	9395	9395	9395
5°	9424	9182	9208
10°	9366	9032	9024
15°	9282	8858	8809
20°	9156	8666	8599
25°	9013	8450	8368
30°	8859	8237	8131
35°	8684	8018	7924
40°	8544	7809	7708
45°	8336	7617	7522
50°	8161	7395	7326
55°	7979	7187	7096
60°	7697	6921	6885
65°	7387	6635	6628
70°	7013	6309	6327
75°	6486	5950	6056
80°	5904	5605	5788
85°	5170	5301	5633



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	110.2	1.1
10°-20°	315.7	3.2
20°-30°	477.4	4.8
30°-40°	577.6	5.9
40°-50°	610.7	6.2
50°-60°	574.7	5.8
60°-70°	476.8	4.8
70°-80°	334.9	3.4
80°-90°	194.8	2.0
90°-100°	177.4	1.8
100°-110°	497.7	5.1
110°-120°	848.6	8.6
120°-130°	1037.9	10.5
130°-140°	1090.4	11.1
140°-150°	1009.7	10.2
150°-160°	812.0	8.2
160°-170°	523.7	5.3
170°-180°	180.5	1.8
0°-30°	903.4	9.2
0°-40°	1481.0	15.0
0°-60°	2666.4	27.1
0°-90°	3673.1	37.3
90°-120°	1523.7	15.5
90°-150°	4661.7	47.3
90°-180°	6178.0	62.7
0°-180°	9851.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1164	1164	1164	1164	1164	
5°	1165	1161	1152	1162	1161	111
15°	1117	1118	1114	1125	1125	315
25°	1022	1029	1033	1047	1049	470
35°	894	910	923	940	945	560
45°	745	770	795	816	824	576
55°	584	612	650	675	684	520
65°	404	446	490	521	533	400
75°	224	273	327	362	375	238
85°	69	124	182	220	235	74
90°	25	93	160	205	220	17
95°	95	93	145	187	202	114
105°	440	475	530	570	534	461
115°	807	824	863	893	904	794
125°	1128	1134	1162	1190	1200	1007
135°	1396	1395	1409	1432	1443	1075
145°	1608	1610	1610	1620	1628	1004
155°	1761	1762	1758	1763	1760	812
165°	1858	1851	1851	1861	1849	525
175°	1900	1892	1893	1904	1889	181
180°	1900	1900	1900	1900	1900	



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CATALOG NUMBER: S124DIW-S1020D1560U830-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8
2.5°	1167.9	1167.2	1166.5	1165.8	1165.1	1163.9	1162.0	1160.2	1158.3	1156.4	1158.0
5°	1165.0	1164.1	1163.3	1162.4	1161.6	1160.1	1158.1	1156.0	1154.0	1152.0	1154.3
7.5°	1155.1	1154.6	1154.0	1153.6	1153.0	1152.0	1150.3	1148.6	1146.9	1145.2	1147.8
10°	1146.8	1146.5	1146.2	1145.9	1145.7	1144.7	1143.3	1141.9	1140.4	1139.0	1141.6
12.5°	1135.3	1135.3	1135.2	1135.1	1135.1	1134.5	1133.6	1132.6	1131.6	1130.6	1133.0
15°	1116.8	1117.1	1117.4	1117.7	1117.9	1117.7	1116.8	1116.0	1115.0	1114.2	1116.8
17.5°	1091.6	1092.4	1093.3	1094.1	1095.0	1095.3	1095.1	1095.0	1094.9	1094.7	1097.3
20°	1073.8	1074.7	1075.5	1076.4	1077.3	1077.9	1078.2	1078.5	1078.7	1079.0	1081.9
22.5°	1054.0	1055.1	1056.2	1057.3	1058.4	1059.2	1059.7	1060.3	1060.7	1061.3	1064.2
25°	1021.7	1023.4	1025.1	1026.9	1028.6	1029.9	1030.8	1031.7	1032.6	1033.4	1036.6
27.5°	985.7	988.3	990.8	993.3	995.9	997.9	999.2	1000.5	1001.8	1003.1	1006.2
30°	961.8	964.0	966.4	968.7	971.0	973.2	975.2	977.2	979.2	981.3	984.5
32.5°	935.7	938.5	941.2	944.1	946.8	949.3	951.6	953.9	956.1	958.4	962.0
35°	894.0	897.5	900.9	904.4	907.9	911.1	914.0	916.8	919.7	922.7	926.7
37.5°	852.0	856.0	860.0	864.0	868.0	871.8	875.3	878.9	882.6	886.2	890.2
40°	824.9	828.7	832.5	836.2	840.0	843.9	847.9	852.0	856.0	860.1	864.4
42.5°	793.6	797.9	802.1	806.3	810.5	815.0	819.7	824.5	829.2	834.1	838.9
45°	745.4	750.9	756.4	762.0	767.4	772.9	778.4	783.9	789.4	794.9	799.8
47.5°	699.3	704.9	710.6	716.3	722.0	728.0	734.3	740.7	747.2	753.5	758.6
50°	665.9	672.3	678.6	685.0	691.4	697.8	704.2	710.5	716.9	723.2	729.1
52.5°	632.5	638.9	645.3	651.7	658.1	664.9	672.1	679.5	686.7	694.1	699.8
55°	583.8	589.9	596.0	602.1	608.1	615.5	624.2	632.9	641.6	650.3	656.1
57.5°	529.3	536.9	544.4	552.0	559.5	567.5	576.2	584.8	593.4	602.1	609.0
60°	493.9	501.4	509.0	516.5	524.1	532.5	542.2	551.7	561.2	570.8	577.4
62.5°	459.5	467.7	476.0	484.2	492.4	501.2	510.9	520.4	530.0	539.5	546.2
65°	404.0	413.2	422.5	431.8	441.0	450.6	460.4	470.3	480.1	490.0	497.2
67.5°	350.5	360.4	370.2	380.1	389.9	400.1	410.7	421.2	431.8	442.3	449.7
70°	314.1	324.0	333.8	343.6	353.5	363.9	374.8	385.9	396.9	407.9	415.8
72.5°	278.6	288.7	298.8	308.9	319.0	329.8	341.5	353.2	365.0	376.6	384.2
75°	224.1	234.9	245.5	256.3	267.0	278.4	290.6	302.7	314.9	327.1	335.2
77.5°	173.3	184.6	196.0	207.4	218.8	230.7	243.6	256.3	269.0	281.7	289.9
80°	142.0	153.6	165.2	176.8	188.4	200.6	213.3	226.0	238.7	251.5	260.2
82.5°	110.7	122.8	134.9	146.9	158.9	171.4	184.1	196.8	209.6	222.3	231.2
85°	69.1	81.2	93.4	105.6	117.7	130.4	143.4	156.4	169.4	182.5	191.1
87.5°	39.4	51.9	64.5	76.9	89.4	102.4	115.5	128.7	141.9	155.0	163.8
90°	25.1	40.2	55.2	70.3	85.4	100.4	115.4	130.4	145.3	160.3	170.6
92.5°	37.7	48.4	58.9	69.6	80.2	92.9	107.9	122.9	137.9	152.9	163.0
95°	95.1	94.0	92.7	91.6	90.4	95.9	108.1	120.3	132.4	144.7	154.4
97.5°	181.4	196.3	211.2	226.1	241.1	236.8	213.3	189.8	166.4	142.8	150.6
100°	247.4	260.6	273.9	287.1	300.3	290.8	258.4	226.2	193.9	161.6	164.0
102.5°	322.5	333.3	344.0	354.8	365.6	373.6	379.0	384.4	389.7	395.2	344.8
105°	439.6	447.2	455.0	462.6	470.3	480.3	492.6	504.9	517.2	529.5	539.6
107.5°	550.4	556.2	561.8	567.5	573.3	582.2	594.6	606.8	619.1	631.4	639.9
110°	624.4	629.4	634.4	639.5	644.5	653.0	665.1	677.0	689.1	701.2	708.4



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	696.2	701.5	706.8	712.1	717.4	725.3	735.8	746.4	757.0	767.5	773.8
115°	806.6	810.2	813.8	817.3	820.9	827.1	836.0	845.0	853.9	862.9	869.9
117.5°	907.3	910.1	912.9	915.8	918.6	924.7	934.0	943.3	952.6	962.0	967.9
120°	974.5	976.7	978.7	980.9	983.0	988.2	996.2	1004.3	1012.4	1020.5	1026.9
122.5°	1038.1	1039.1	1040.0	1040.9	1041.9	1046.5	1054.9	1063.3	1071.7	1080.1	1086.2
125°	1128.1	1129.1	1130.0	1131.1	1132.0	1135.8	1142.4	1149.1	1155.7	1162.2	1168.7
127.5°	1214.3	1214.3	1214.3	1214.4	1214.4	1217.9	1224.9	1231.9	1239.0	1245.9	1250.9
130°	1268.9	1268.9	1269.0	1269.0	1269.0	1271.9	1277.4	1283.0	1288.6	1294.2	1299.7
132.5°	1320.1	1320.4	1320.7	1321.0	1321.3	1323.8	1328.7	1333.6	1338.5	1343.5	1348.8
135°	1395.5	1395.2	1395.0	1394.6	1394.3	1395.8	1399.1	1402.4	1405.7	1408.9	1414.2
137.5°	1463.5	1463.4	1463.2	1463.0	1462.8	1464.0	1466.3	1468.7	1471.1	1473.5	1478.4
140°	1507.9	1508.2	1508.5	1508.9	1509.2	1509.9	1510.8	1511.7	1512.6	1513.5	1518.2
142.5°	1546.6	1547.7	1548.8	1549.8	1551.0	1551.6	1551.8	1552.0	1552.2	1552.4	1556.4
145°	1607.5	1608.2	1608.8	1609.5	1610.1	1610.4	1610.4	1610.4	1610.4	1610.4	1612.5
147.5°	1656.0	1657.6	1659.1	1660.6	1662.0	1662.6	1662.3	1662.0	1661.6	1661.3	1661.8
150°	1691.3	1692.3	1693.3	1694.2	1695.3	1695.5	1695.3	1695.0	1694.6	1694.3	1694.3
152.5°	1719.9	1720.8	1721.7	1722.7	1723.6	1723.9	1723.3	1722.7	1722.1	1721.6	1722.1
155°	1761.1	1761.4	1761.7	1762.1	1762.4	1762.1	1761.1	1760.2	1759.3	1758.2	1759.5
157.5°	1796.1	1795.9	1795.7	1795.5	1795.4	1794.7	1793.6	1792.5	1791.5	1790.4	1792.1
160°	1816.6	1815.6	1814.7	1813.7	1812.8	1812.1	1811.8	1811.5	1811.2	1810.8	1812.8
162.5°	1834.8	1833.5	1832.3	1831.2	1829.9	1829.2	1828.8	1828.5	1828.2	1827.9	1829.8
165°	1857.8	1856.1	1854.6	1853.0	1851.4	1850.7	1850.7	1850.7	1850.7	1850.7	1853.1
167.5°	1875.9	1874.3	1872.6	1871.0	1869.3	1868.5	1868.3	1868.1	1867.9	1867.7	1870.5
170°	1886.2	1884.3	1882.4	1880.5	1878.6	1877.8	1878.1	1878.5	1878.8	1879.1	1881.6
172.5°	1893.0	1891.1	1889.2	1887.3	1885.5	1884.6	1885.0	1885.3	1885.6	1885.9	1888.4
175°	1900.4	1898.5	1896.6	1894.7	1892.8	1892.1	1892.3	1892.6	1893.0	1893.3	1896.1
177.5°	1903.8	1902.1	1900.3	1898.5	1896.8	1896.1	1896.6	1897.1	1897.6	1898.1	1900.2
180°	1900.4	1900.4	1900.4	1900.4	1900.4	1900.4	1900.4	1900.4	1900.4	1900.4	1900.4



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8	1163.8
2.5°	1159.7	1161.3	1162.9	1163.6	1163.4	1163.1	1162.9	1162.7
5°	1156.6	1159.0	1161.3	1162.2	1162.0	1161.7	1161.4	1161.1
7.5°	1150.5	1153.0	1155.7	1156.8	1156.5	1156.2	1155.9	1155.7
10°	1144.2	1146.8	1149.4	1150.6	1150.3	1150.0	1149.7	1149.4
12.5°	1135.4	1137.7	1140.1	1141.3	1141.2	1141.1	1141.1	1141.0
15°	1119.5	1122.0	1124.6	1125.8	1125.5	1125.2	1124.9	1124.6
17.5°	1099.9	1102.7	1105.3	1106.5	1106.3	1106.1	1105.8	1105.6
20°	1084.8	1087.7	1090.6	1092.0	1092.0	1092.0	1092.0	1092.0
22.5°	1067.1	1070.0	1072.9	1074.6	1075.1	1075.4	1075.9	1076.4
25°	1039.8	1042.9	1046.1	1047.9	1048.2	1048.5	1048.8	1049.0
27.5°	1009.1	1012.0	1015.0	1016.6	1017.0	1017.4	1017.7	1018.0
30°	987.7	990.8	994.0	995.9	996.5	997.0	997.7	998.2
32.5°	965.6	969.3	973.0	975.1	975.6	976.2	976.8	977.4
35°	930.8	934.8	938.9	941.3	942.2	943.0	944.0	944.8
37.5°	894.4	898.5	902.6	905.1	906.1	907.0	907.9	908.8
40°	868.7	873.1	877.5	880.2	881.4	882.5	883.7	884.9
42.5°	843.7	848.5	853.3	856.1	857.1	858.0	858.9	859.8
45°	804.7	809.7	814.6	817.8	819.3	820.7	822.2	823.6
47.5°	763.6	768.7	773.9	777.3	779.0	780.8	782.5	784.3
50°	734.8	740.6	746.4	750.2	752.0	753.7	755.4	757.1
52.5°	705.7	711.4	717.3	721.0	722.7	724.4	726.2	727.9
55°	661.9	667.7	673.4	677.2	678.9	680.7	682.4	684.2
57.5°	615.9	622.7	629.6	633.9	635.5	637.2	638.8	640.4
60°	584.1	590.8	597.4	601.9	604.3	606.5	608.9	611.1
62.5°	552.8	559.5	566.2	570.6	573.0	575.2	577.6	579.9
65°	504.4	511.7	519.0	523.8	526.0	528.4	530.7	533.0
67.5°	457.0	464.4	471.7	476.5	478.8	481.1	483.3	485.6
70°	423.5	431.3	439.1	444.1	446.1	448.2	450.2	452.2
72.5°	391.8	399.4	407.0	411.9	414.2	416.4	418.7	420.9
75°	343.3	351.4	359.5	364.9	367.5	370.1	372.7	375.3
77.5°	298.2	306.4	314.6	320.2	322.9	325.7	328.5	331.3
80°	268.9	277.6	286.3	291.7	294.1	296.4	298.7	301.0
82.5°	240.2	249.1	258.0	263.7	266.3	268.8	271.4	273.9
85°	199.8	208.5	217.2	223.0	225.9	228.8	231.7	234.6
87.5°	172.7	181.4	190.2	196.0	198.6	201.2	204.0	206.6
90°	180.9	191.1	201.4	208.1	211.0	214.0	216.9	219.9
92.5°	173.1	183.0	193.1	199.3	201.8	204.2	206.7	209.2
95°	164.1	173.8	183.5	189.8	192.7	195.7	198.6	201.5
97.5°	158.3	166.2	173.9	179.2	182.0	184.8	187.7	190.5
100°	166.5	168.9	171.4	173.8	176.2	178.4	180.8	183.1
102.5°	294.5	244.1	193.8	169.8	172.1	174.5	176.7	179.1
105°	549.7	559.8	569.8	570.3	561.3	552.2	543.2	534.1
107.5°	648.4	657.0	665.4	671.4	674.6	677.9	681.2	684.5
110°	715.7	723.0	730.3	735.6	738.9	742.1	745.4	748.7





TEST NUMBER: P332831-830

CATALOG NUMBER: S124DIW-S1020D1560U830-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	780.1	786.5	792.8	797.7	801.2	804.6	808.2	811.7
115°	876.9	883.9	890.9	895.4	897.5	899.5	901.5	903.5
117.5°	973.7	979.7	985.6	989.6	991.8	994.0	996.2	998.3
120°	1033.3	1039.7	1046.1	1050.2	1051.9	1053.6	1055.3	1057.0
122.5°	1092.4	1098.5	1104.8	1108.5	1110.0	1111.4	1112.9	1114.4
125°	1175.2	1181.6	1188.1	1192.3	1194.3	1196.4	1198.4	1200.5
127.5°	1256.0	1261.0	1266.0	1269.4	1271.1	1272.8	1274.6	1276.3
130°	1305.2	1310.8	1316.3	1319.9	1321.6	1323.4	1325.1	1326.9
132.5°	1354.1	1359.3	1364.6	1368.0	1369.5	1371.0	1372.5	1373.9
135°	1419.5	1424.7	1430.0	1433.8	1436.2	1438.6	1441.0	1443.3
137.5°	1483.3	1488.3	1493.2	1496.3	1497.5	1498.7	1500.1	1501.3
140°	1523.0	1527.7	1532.4	1535.6	1537.4	1539.2	1541.0	1542.7
142.5°	1560.4	1564.4	1568.4	1571.0	1572.3	1573.6	1574.9	1576.1
145°	1614.6	1616.6	1618.6	1620.6	1622.4	1624.2	1626.0	1627.8
147.5°	1662.3	1662.7	1663.3	1664.2	1665.4	1666.6	1667.8	1669.1
150°	1694.3	1694.3	1694.3	1694.5	1694.8	1695.1	1695.4	1695.7
152.5°	1722.6	1723.1	1723.6	1723.7	1723.5	1723.3	1723.2	1723.0
155°	1760.8	1762.1	1763.3	1763.5	1762.6	1761.6	1760.7	1759.7
157.5°	1793.7	1795.4	1797.0	1797.0	1795.4	1793.7	1792.1	1790.4
160°	1814.7	1816.6	1818.4	1818.4	1816.6	1814.7	1812.8	1810.8
162.5°	1831.7	1833.6	1835.5	1835.3	1833.2	1831.1	1828.9	1826.7
165°	1855.7	1858.2	1860.8	1860.6	1857.8	1854.9	1852.1	1849.3
167.5°	1873.3	1876.0	1878.9	1878.7	1875.5	1872.4	1869.2	1866.0
170°	1884.1	1886.7	1889.2	1888.9	1885.7	1882.5	1879.4	1876.2
172.5°	1890.9	1893.5	1896.0	1895.5	1892.2	1888.8	1885.4	1881.9
175°	1898.9	1901.9	1904.7	1904.2	1900.4	1896.6	1892.8	1889.0
177.5°	1902.1	1904.2	1906.2	1905.7	1902.7	1899.6	1896.6	1893.6
180°	1900.4	1900.4	1900.4	1900.4	1900.4	1900.4	1900.4	1900.4

(END OF REPORT)