

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: P332832-830

Luminaire Tested: **S124DIW-S1020D1560U830-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332832-830
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-S1020D1560U830-4F0-1E-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: 9070.8 lumens
Efficiency: N/A
Efficacy: 118.4 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: General Diffuse

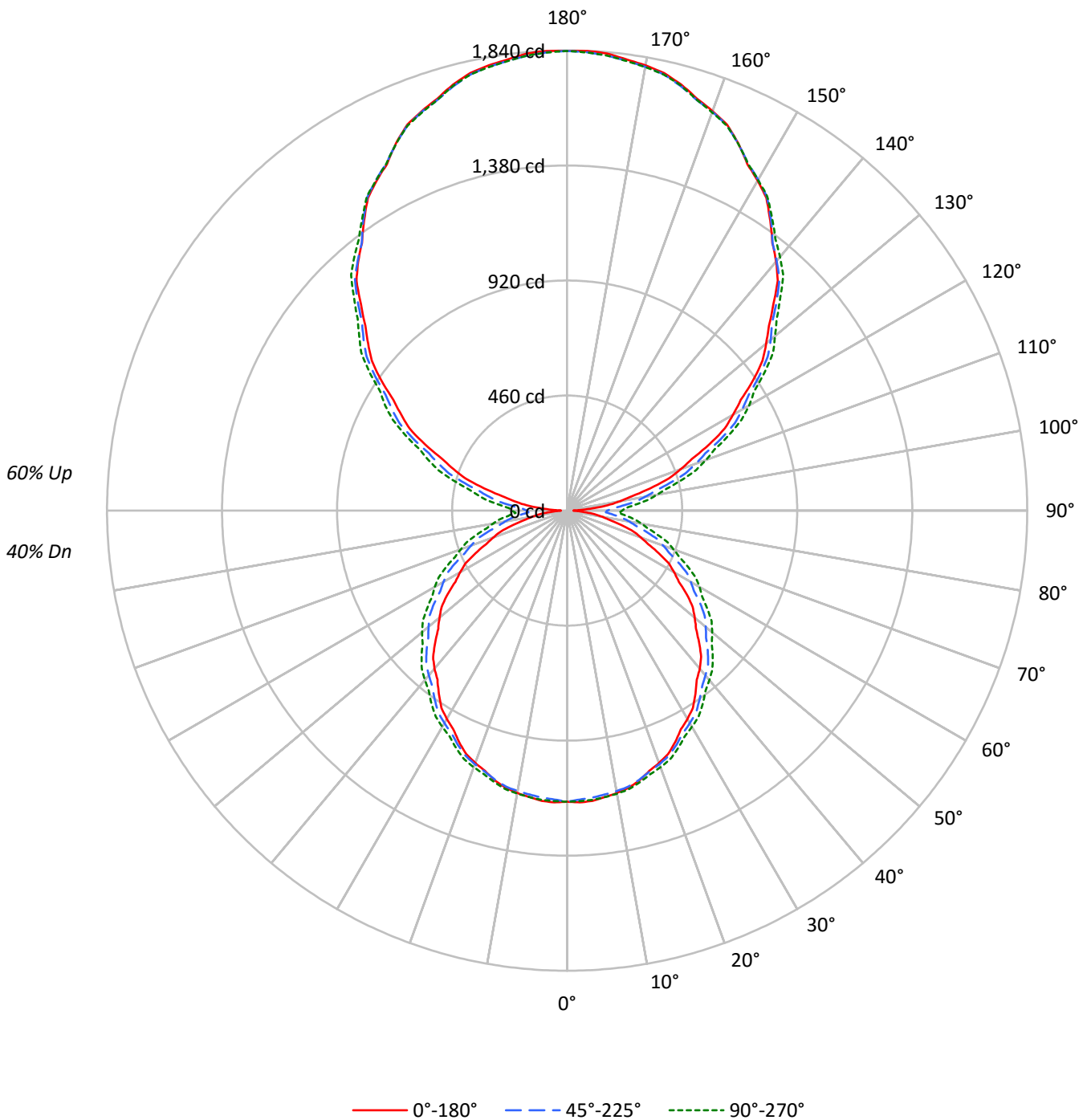
Input Watts (W): 76.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	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	1.2
10°-20°	315.7	3.5
20°-30°	477.4	5.3
30°-40°	577.6	6.4
40°-50°	610.7	6.7
50°-60°	574.7	6.3
60°-70°	476.8	5.3
70°-80°	334.9	3.7
80°-90°	194.8	2.1
90°-100°	233.6	2.6
100°-110°	442.3	4.9
110°-120°	665.3	7.3
120°-130°	835.1	9.2
130°-140°	916.1	10.1
140°-150°	889.6	9.8
150°-160°	745.9	8.2
160°-170°	496.2	5.5
170°-180°	173.8	1.9
0°-30°	903.4	10.0
0°-40°	1481.0	16.3
0°-60°	2666.4	29.4
0°-90°	3673.1	40.5
90°-120°	1341.2	14.8
90°-150°	3981.9	43.9
90°-180°	5398.0	59.5
0°-180°	9070.8	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	19
95°	102	158	221	259	273	108
105°	343	372	424	460	476	365
115°	628	641	678	704	713	619
125°	908	908	938	959	964	809
135°	1167	1175	1184	1201	1206	903
145°	1415	1420	1421	1427	1428	886
155°	1620	1620	1619	1624	1619	745
165°	1764	1760	1757	1764	1759	497
175°	1835	1828	1826	1835	1826	174
180°	1838	1838	1838	1838	1838	



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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	85.3	100.4	115.4	130.4	145.3	160.3	170.6
92.5°	50.2	64.7	79.0	93.4	107.8	122.2	136.4	150.6	164.9	179.1	188.3
95°	102.2	114.6	127.1	139.4	151.8	165.0	179.2	193.2	207.3	221.4	230.2
97.5°	164.3	174.8	185.3	195.9	206.3	218.8	233.1	247.4	261.7	276.2	284.8
100°	213.3	222.1	230.9	239.7	248.5	260.0	274.1	288.2	302.4	316.5	324.9
102.5°	265.6	272.7	279.8	286.9	294.1	304.4	318.1	331.7	345.3	359.0	367.5
105°	342.9	348.9	355.1	361.2	367.3	376.4	388.3	400.3	412.3	424.2	432.4
107.5°	426.5	431.6	436.7	441.9	447.0	454.7	465.1	475.3	485.7	496.0	504.0
110°	482.3	486.9	491.6	496.3	501.0	508.2	518.1	527.9	537.7	547.5	553.6



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	540.4	544.0	547.8	551.5	555.3	561.7	570.7	579.9	588.9	598.0	604.4
115°	627.5	630.1	632.6	635.3	637.9	643.5	652.1	660.8	669.4	678.1	684.1
117.5°	710.8	712.6	714.4	716.2	718.0	723.0	731.2	739.4	747.6	755.8	760.7
120°	765.4	767.6	769.7	771.8	773.9	778.7	786.2	793.6	801.1	808.5	812.8
122.5°	823.4	824.1	824.8	825.5	826.1	830.2	837.7	845.2	852.7	860.2	864.9
125°	907.7	907.4	907.1	906.8	906.5	909.8	916.7	923.7	930.6	937.5	942.4
127.5°	985.1	985.7	986.4	987.0	987.7	990.5	995.5	1000.6	1005.7	1010.7	1015.3
130°	1038.6	1039.2	1039.9	1040.5	1041.1	1043.9	1048.5	1053.1	1057.7	1062.3	1067.0
132.5°	1094.3	1094.7	1095.0	1095.5	1095.9	1097.8	1101.3	1104.8	1108.1	1111.6	1116.0
135°	1166.6	1168.5	1170.4	1172.2	1174.1	1176.1	1178.2	1180.2	1182.2	1184.2	1188.3
137.5°	1246.7	1247.4	1247.9	1248.5	1249.2	1250.2	1251.6	1253.1	1254.6	1256.1	1259.5
140°	1300.1	1300.5	1300.8	1301.2	1301.6	1301.8	1302.1	1302.4	1302.7	1303.0	1306.5
142.5°	1348.0	1348.6	1349.2	1349.7	1350.3	1350.4	1349.9	1349.5	1349.1	1348.7	1351.9
145°	1415.4	1416.4	1417.3	1418.3	1419.3	1419.9	1420.2	1420.6	1420.9	1421.2	1422.6
147.5°	1482.5	1483.8	1485.0	1486.2	1487.4	1487.9	1487.6	1487.3	1487.1	1486.9	1486.9
150°	1523.4	1524.4	1525.3	1526.4	1527.3	1527.8	1527.8	1527.8	1527.8	1527.8	1527.8
152.5°	1561.0	1561.7	1562.5	1563.1	1563.9	1564.3	1564.5	1564.8	1565.1	1565.3	1566.0
155°	1620.1	1620.1	1620.1	1620.1	1620.1	1620.0	1619.7	1619.4	1619.1	1618.7	1620.0
157.5°	1670.2	1669.6	1669.1	1668.5	1667.9	1667.6	1667.5	1667.5	1667.5	1667.4	1668.3
160°	1699.8	1699.4	1699.1	1698.8	1698.5	1698.2	1697.9	1697.5	1697.2	1697.0	1697.9
162.5°	1727.0	1726.3	1725.4	1724.6	1723.7	1723.2	1722.9	1722.6	1722.2	1721.9	1723.6
165°	1763.7	1762.7	1761.8	1760.9	1759.9	1759.2	1758.5	1757.8	1757.3	1756.6	1758.5
167.5°	1791.9	1790.5	1789.2	1787.9	1786.6	1785.9	1786.0	1786.0	1786.1	1786.2	1788.1
170°	1807.8	1806.2	1804.6	1803.0	1801.5	1800.8	1801.1	1801.5	1801.8	1802.0	1803.9
172.5°	1819.1	1817.8	1816.5	1815.1	1813.8	1813.2	1813.3	1813.4	1813.4	1813.5	1815.6
175°	1834.8	1833.2	1831.6	1830.0	1828.4	1827.5	1827.2	1826.8	1826.6	1826.3	1828.4
177.5°	1839.8	1838.6	1837.4	1836.1	1834.8	1834.2	1834.2	1834.2	1834.2	1834.2	1836.0
180°	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6



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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°	197.7	207.0	216.2	222.3	225.0	227.6	230.4	233.0
95°	238.9	247.7	256.5	262.1	264.8	267.3	269.9	272.6
97.5°	293.6	302.3	311.0	316.6	319.1	321.6	324.1	326.6
100°	333.4	341.9	350.2	355.5	357.5	359.6	361.7	363.6
102.5°	376.0	384.5	392.9	398.4	401.0	403.4	406.0	408.4
105°	440.6	448.8	457.0	462.7	466.0	469.3	472.5	475.8
107.5°	512.0	520.0	528.0	533.0	535.1	537.1	539.1	541.1
110°	559.6	565.6	571.7	576.3	579.6	582.9	586.1	589.4



TEST NUMBER: P332832-830

CATALOG NUMBER: S124DIW-S1020D1560U830-4F0-1E-UDD-D1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	610.7	617.0	623.2	627.6	630.2	632.6	635.2	637.7
115°	690.1	696.3	702.3	706.2	707.8	709.5	711.2	713.0
117.5°	765.7	770.6	775.6	778.9	780.6	782.3	783.9	785.6
120°	817.0	821.2	825.4	829.0	832.0	834.9	837.8	840.7
122.5°	869.6	874.3	879.1	881.9	882.9	883.8	884.8	885.7
125°	947.3	952.2	957.1	960.0	961.1	962.2	963.3	964.4
127.5°	1019.9	1024.4	1029.1	1032.1	1033.5	1035.0	1036.4	1037.9
130°	1071.5	1076.1	1080.7	1083.2	1083.6	1084.1	1084.6	1085.1
132.5°	1120.3	1124.6	1129.0	1131.8	1133.0	1134.3	1135.5	1136.7
135°	1192.2	1196.2	1200.2	1202.6	1203.4	1204.2	1204.9	1205.8
137.5°	1262.9	1266.3	1269.7	1272.2	1273.9	1275.5	1277.1	1278.8
140°	1309.9	1313.3	1316.8	1319.1	1320.2	1321.4	1322.5	1323.6
142.5°	1355.2	1358.4	1361.6	1363.9	1365.0	1366.1	1367.3	1368.5
145°	1424.1	1425.5	1426.9	1427.7	1428.0	1428.1	1428.3	1428.5
147.5°	1486.9	1486.8	1486.8	1487.0	1487.7	1488.3	1488.9	1489.5
150°	1527.8	1527.8	1527.8	1527.7	1527.3	1527.0	1526.7	1526.4
152.5°	1566.8	1567.5	1568.3	1568.3	1567.4	1566.7	1565.8	1565.0
155°	1621.3	1622.5	1623.8	1623.8	1622.5	1621.3	1620.0	1618.7
157.5°	1669.2	1670.2	1671.1	1671.0	1670.0	1669.0	1667.8	1666.8
160°	1698.8	1699.8	1700.7	1700.3	1698.8	1697.2	1695.6	1694.0
162.5°	1725.3	1727.0	1728.7	1728.8	1727.2	1725.7	1724.1	1722.5
165°	1760.4	1762.3	1764.2	1764.5	1763.2	1762.0	1760.7	1759.4
167.5°	1790.0	1791.9	1793.8	1793.8	1791.8	1789.8	1787.8	1785.8
170°	1805.9	1807.8	1809.7	1809.5	1807.3	1805.1	1802.9	1800.6
172.5°	1817.8	1819.9	1822.0	1822.0	1819.8	1817.6	1815.3	1813.2
175°	1830.7	1832.9	1835.1	1835.1	1832.9	1830.7	1828.4	1826.3
177.5°	1837.8	1839.5	1841.3	1841.2	1839.1	1837.1	1835.1	1833.1
180°	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6	1837.6

(END OF REPORT)