

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: P332741

Luminaire Tested: **S124DIW-S350D1560U835-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332741  
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-S350D1560U835-4F0-1E-UDD-D  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 350 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: 7683.6 lumens  
Efficiency: N/A  
Efficacy: 143.9 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

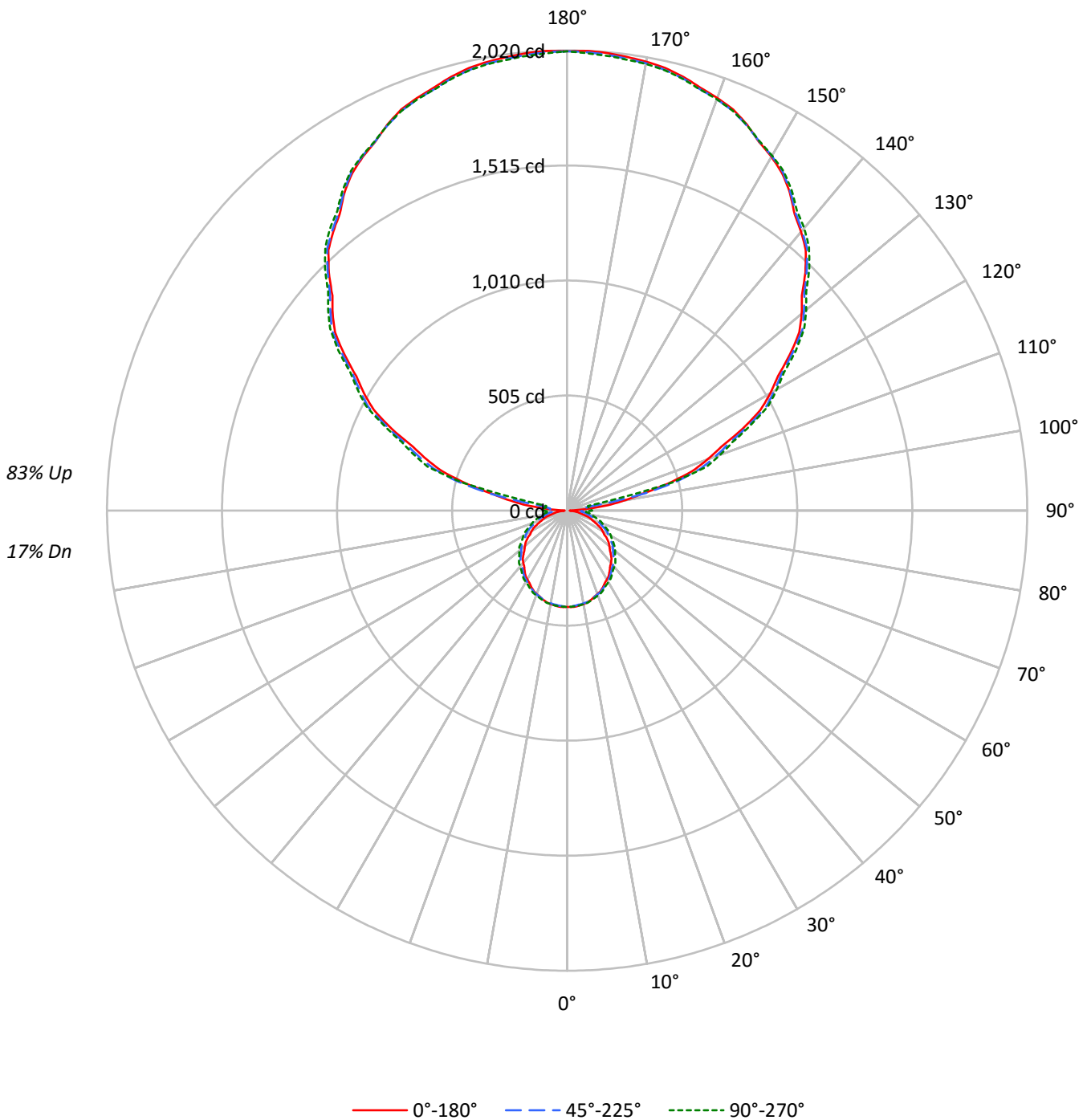
Input Watts (W): 53.4  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P332741

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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	99	99	99	99	87	87	87	87	65	65	65	45	45	45	26	26	26	17																				
1	90	86	82	79	79	76	72	70	56	54	52	39	38	36	22	22	21	14																				
2	82	75	69	64	72	66	61	57	49	46	43	34	32	30	20	19	18	11																				
3	74	65	58	53	65	58	52	47	43	39	36	30	27	25	17	16	15	9																				
4	68	58	50	44	59	51	45	40	38	34	30	26	24	21	15	14	13	8																				
5	62	51	43	38	54	45	39	34	34	29	26	23	21	18	14	12	11	7																				
6	57	46	38	32	50	40	34	29	30	26	22	21	18	16	12	11	9	6																				
7	53	41	33	28	46	36	30	25	27	23	19	19	16	14	11	10	8	5																				
8	49	37	29	24	43	33	26	22	25	20	17	17	14	12	10	9	7	5																				
9	45	33	26	21	40	30	24	19	23	18	15	16	13	11	9	8	7	4																				
10	42	30	24	19	37	27	21	17	21	16	13	14	12	10	9	7	6	4																				

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

	0°	45°	90°
0°	3412	3412	3412
5°	3423	3335	3344
10°	3402	3281	3278
15°	3371	3217	3200
20°	3325	3147	3124
25°	3274	3070	3039
30°	3217	2992	2954
35°	3154	2912	2878
40°	3103	2836	2800
45°	3027	2766	2732
50°	2964	2686	2661
55°	2899	2610	2577
60°	2796	2513	2501
65°	2682	2410	2407
70°	2547	2292	2298
75°	2356	2161	2199
80°	2145	2037	2102
85°	1878	1926	2046



TEST NUMBER: P332741

CATALOG NUMBER: S124DIW-S350D1560U835-4F0-1E-UDD-D

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	40.0	0.5
10°-20°	114.7	1.5
20°-30°	173.4	2.3
30°-40°	209.8	2.7
40°-50°	221.8	2.9
50°-60°	208.8	2.7
60°-70°	173.2	2.3
70°-80°	121.7	1.6
80°-90°	74.6	1.0
90°-100°	109.8	1.4
100°-110°	469.9	6.1
110°-120°	861.4	11.2
120°-130°	1079.2	14.0
130°-140°	1147.4	14.9
140°-150°	1069.3	13.9
150°-160°	861.5	11.2
160°-170°	555.6	7.2
170°-180°	191.5	2.5
0°-30°	328.1	4.3
0°-40°	537.9	7.0
0°-60°	968.5	12.6
0°-90°	1337.9	17.4
90°-120°	1441.1	18.8
90°-150°	4737.0	61.7
90°-180°	6346.0	82.6
0°-180°	7683.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	423	423	423	423	423	
5°	423	422	418	422	422	40
15°	406	406	405	409	408	114
25°	371	374	375	380	381	171
35°	325	330	335	341	343	203
45°	271	280	289	296	299	209
55°	212	222	236	245	248	189
65°	147	162	178	189	194	145
75°	81	99	119	132	136	87
85°	25	45	66	80	85	27
90°	12	47	80	102	110	9
95°	89	57	74	95	102	111
105°	458	477	502	523	477	480
115°	850	859	873	886	890	837
125°	1193	1199	1208	1221	1226	1065
135°	1479	1478	1487	1497	1503	1139
145°	1705	1708	1709	1713	1718	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: P332741

CATALOG NUMBER: S124DIW-S350D1560U835-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	422.7	422.7	422.7	422.7	422.7	422.7	422.7	422.7	422.7	422.7	422.7
2.5°	424.2	423.9	423.7	423.4	423.2	422.7	422.1	421.4	420.7	420.0	420.6
5°	423.2	422.8	422.5	422.2	421.9	421.4	420.6	419.9	419.2	418.4	419.3
7.5°	419.6	419.4	419.2	419.0	418.8	418.4	417.8	417.2	416.6	416.0	416.9
10°	416.5	416.4	416.3	416.2	416.1	415.8	415.3	414.7	414.2	413.7	414.6
12.5°	412.4	412.3	412.3	412.3	412.3	412.1	411.7	411.4	411.0	410.7	411.5
15°	405.6	405.8	405.9	406.0	406.1	406.0	405.6	405.3	405.0	404.7	405.6
17.5°	396.5	396.8	397.1	397.4	397.7	397.9	397.8	397.7	397.7	397.6	398.6
20°	390.0	390.3	390.7	391.0	391.3	391.5	391.6	391.7	391.8	391.9	393.0
22.5°	382.8	383.2	383.6	384.0	384.4	384.7	384.9	385.1	385.3	385.5	386.5
25°	371.1	371.7	372.4	373.0	373.6	374.1	374.4	374.7	375.0	375.4	376.5
27.5°	358.0	359.0	359.9	360.8	361.7	362.4	362.9	363.4	363.9	364.4	365.4
30°	349.3	350.2	351.0	351.8	352.7	353.5	354.2	354.9	355.7	356.4	357.6
32.5°	339.9	340.9	341.9	342.9	343.9	344.8	345.6	346.4	347.3	348.1	349.4
35°	324.7	326.0	327.2	328.5	329.8	330.9	332.0	333.0	334.1	335.1	336.6
37.5°	309.5	310.9	312.4	313.8	315.3	316.6	318.0	319.3	320.6	321.9	323.4
40°	299.6	301.0	302.4	303.7	305.1	306.5	308.0	309.5	310.9	312.4	314.0
42.5°	288.3	289.8	291.3	292.9	294.4	296.0	297.8	299.5	301.2	302.9	304.7
45°	270.7	272.7	274.7	276.7	278.7	280.7	282.7	284.7	286.7	288.7	290.5
47.5°	254.0	256.1	258.1	260.2	262.2	264.4	266.7	269.1	271.4	273.7	275.5
50°	241.9	244.2	246.5	248.8	251.1	253.4	255.8	258.1	260.4	262.7	264.8
52.5°	229.8	232.1	234.4	236.7	239.0	241.5	244.1	246.8	249.4	252.1	254.2
55°	212.1	214.3	216.5	218.7	220.9	223.6	226.7	229.9	233.0	236.2	238.3
57.5°	192.3	195.0	197.7	200.5	203.2	206.1	209.3	212.4	215.5	218.7	221.2
60°	179.4	182.1	184.9	187.6	190.3	193.4	196.9	200.4	203.8	207.3	209.7
62.5°	166.9	169.9	172.9	175.9	178.8	182.1	185.5	189.0	192.5	196.0	198.4
65°	146.7	150.1	153.5	156.8	160.2	163.7	167.2	170.8	174.4	178.0	180.6
67.5°	127.3	130.9	134.5	138.1	141.6	145.3	149.2	153.0	156.8	160.6	163.3
70°	114.1	117.6	121.2	124.8	128.4	132.2	136.2	140.2	144.2	148.2	151.0
72.5°	101.2	104.9	108.5	112.2	115.8	119.8	124.0	128.3	132.5	136.8	139.5
75°	81.4	85.3	89.2	93.1	97.0	101.1	105.6	110.0	114.4	118.8	121.8
77.5°	63.0	67.1	71.2	75.3	79.4	83.8	88.4	93.1	97.7	102.3	105.3
80°	51.6	55.8	60.0	64.2	68.4	72.8	77.5	82.1	86.7	91.4	94.5
82.5°	40.2	44.6	49.0	53.4	57.7	62.2	66.9	71.5	76.1	80.8	84.0
85°	25.1	29.5	33.9	38.3	42.8	47.3	52.1	56.8	61.5	66.3	69.4
87.5°	14.9	19.9	25.0	30.0	35.0	40.1	45.3	50.4	55.5	60.7	64.1
90°	12.1	20.0	27.9	35.8	43.7	51.2	58.4	65.6	72.8	80.0	85.1
92.5°	26.2	30.2	34.2	38.2	42.1	47.7	54.9	62.2	69.4	76.6	81.5
95°	89.1	81.2	73.2	65.3	57.4	55.8	60.4	65.1	69.7	74.4	79.2
97.5°	181.7	191.8	201.9	212.0	222.1	210.6	177.4	144.3	111.2	78.1	81.0
100°	252.5	261.3	270.1	278.8	287.6	270.9	228.8	186.6	144.5	102.3	99.5
102.5°	332.1	339.0	345.8	352.6	359.4	361.8	359.8	357.8	355.8	353.8	295.1
105°	458.2	462.3	466.4	470.5	474.6	479.5	485.0	490.6	496.2	501.7	507.4
107.5°	576.0	578.7	581.5	584.2	586.9	591.3	597.2	603.2	609.2	615.1	619.2
110°	655.3	657.7	660.2	662.7	665.2	669.3	674.9	680.6	686.3	692.0	695.1



TEST NUMBER: P332741

CATALOG NUMBER: S124DIW-S350D1560U835-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	732.1	735.2	738.3	741.4	744.5	748.3	752.8	757.2	761.7	766.1	768.3
115°	850.4	852.3	854.3	856.2	858.2	860.7	863.7	866.7	869.8	872.8	875.8
117.5°	957.3	959.2	961.2	963.1	965.0	967.9	971.7	975.6	979.5	983.3	985.4
120°	1029.3	1031.0	1032.7	1034.3	1036.0	1038.2	1040.9	1043.6	1046.3	1049.0	1051.8
122.5°	1096.9	1097.8	1098.6	1099.5	1100.4	1102.5	1105.8	1109.2	1112.5	1115.9	1118.4
125°	1193.2	1194.5	1195.7	1197.0	1198.2	1199.8	1201.7	1203.7	1205.7	1207.6	1210.6
127.5°	1284.8	1285.1	1285.3	1285.5	1285.8	1287.7	1291.2	1294.8	1298.3	1301.9	1303.6
130°	1343.6	1343.8	1344.0	1344.3	1344.5	1346.0	1348.6	1351.3	1354.0	1356.7	1358.9
132.5°	1397.9	1398.4	1398.9	1399.4	1399.9	1401.4	1404.0	1406.7	1409.3	1411.9	1414.0
135°	1478.8	1478.5	1478.2	1477.8	1477.5	1478.4	1480.4	1482.5	1484.6	1486.7	1489.0
137.5°	1550.9	1550.9	1551.0	1551.0	1551.0	1552.0	1553.8	1555.6	1557.5	1559.3	1561.6
140°	1598.0	1598.5	1599.1	1599.7	1600.2	1600.9	1601.7	1602.4	1603.2	1604.0	1606.4
142.5°	1639.8	1641.0	1642.2	1643.4	1644.5	1645.3	1645.6	1646.0	1646.3	1646.7	1648.6
145°	1704.6	1705.5	1706.4	1707.3	1708.2	1708.6	1708.6	1708.6	1708.6	1708.6	1709.6
147.5°	1756.1	1757.9	1759.7	1761.4	1763.2	1763.9	1763.6	1763.3	1762.9	1762.6	1762.9
150°	1793.5	1794.8	1796.0	1797.2	1798.5	1798.9	1798.6	1798.3	1797.9	1797.6	1797.6
152.5°	1824.5	1825.6	1826.6	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: P332741

CATALOG NUMBER: S124DIW-S350D1560U835-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	422.7	422.7	422.7	422.7	422.7	422.7	422.7	422.7
2.5°	421.2	421.8	422.4	422.6	422.6	422.5	422.4	422.3
5°	420.1	420.9	421.8	422.2	422.1	421.9	421.8	421.7
7.5°	417.9	418.8	419.8	420.2	420.1	420.0	419.9	419.8
10°	415.6	416.5	417.5	417.9	417.8	417.7	417.6	417.5
12.5°	412.4	413.3	414.1	414.5	414.5	414.5	414.5	414.4
15°	406.6	407.5	408.5	408.9	408.8	408.7	408.6	408.5
17.5°	399.5	400.5	401.5	401.9	401.8	401.7	401.7	401.6
20°	394.0	395.1	396.1	396.7	396.7	396.7	396.7	396.7
22.5°	387.6	388.6	389.7	390.3	390.5	390.6	390.8	391.0
25°	377.7	378.8	380.0	380.6	380.7	380.8	380.9	381.0
27.5°	366.5	367.6	368.7	369.3	369.4	369.5	369.6	369.8
30°	358.7	359.9	361.0	361.7	361.9	362.2	362.4	362.6
32.5°	350.7	352.1	353.4	354.2	354.4	354.6	354.8	355.0
35°	338.1	339.5	341.0	341.9	342.2	342.5	342.9	343.2
37.5°	324.9	326.3	327.8	328.8	329.1	329.4	329.8	330.1
40°	315.6	317.1	318.7	319.7	320.1	320.6	321.0	321.4
42.5°	306.4	308.2	309.9	311.0	311.3	311.6	312.0	312.3
45°	292.3	294.1	295.9	297.0	297.6	298.1	298.6	299.1
47.5°	277.4	279.2	281.1	282.3	283.0	283.6	284.2	284.9
50°	266.9	269.0	271.1	272.5	273.1	273.7	274.4	275.0
52.5°	256.3	258.4	260.5	261.9	262.5	263.1	263.8	264.4
55°	240.4	242.5	244.6	246.0	246.6	247.2	247.9	248.5
57.5°	223.7	226.2	228.7	230.2	230.8	231.4	232.0	232.6
60°	212.2	214.6	217.0	218.6	219.5	220.3	221.2	222.0
62.5°	200.8	203.2	205.6	207.3	208.1	208.9	209.8	210.6
65°	183.2	185.9	188.5	190.2	191.1	191.9	192.8	193.6
67.5°	166.0	168.7	171.3	173.1	173.9	174.7	175.5	176.4
70°	153.8	156.7	159.5	161.3	162.0	162.8	163.5	164.2
72.5°	142.3	145.1	147.8	149.6	150.4	151.2	152.1	152.9
75°	124.7	127.6	130.6	132.5	133.5	134.4	135.4	136.3
77.5°	108.3	111.3	114.3	116.3	117.3	118.3	119.3	120.3
80°	97.7	100.8	104.0	106.0	106.8	107.7	108.5	109.3
82.5°	87.2	90.5	93.7	95.8	96.7	97.6	98.6	99.5
85°	72.6	75.7	78.9	81.0	82.0	83.1	84.1	85.2
87.5°	67.6	71.0	74.5	76.8	77.8	78.9	79.9	81.0
90°	90.2	95.2	100.3	103.6	105.1	106.6	108.1	109.6
92.5°	86.5	91.5	96.5	99.4	100.4	101.4	102.4	103.3
95°	84.1	88.9	93.8	96.8	98.1	99.4	100.7	102.0
97.5°	84.0	86.9	89.9	92.0	93.2	94.5	95.7	96.9
100°	96.6	93.8	90.9	90.0	91.1	92.1	93.2	94.3
102.5°	236.4	177.7	119.0	90.1	90.9	91.8	92.7	93.6
105°	513.0	518.7	524.3	521.5	510.3	499.1	487.9	476.7
107.5°	623.2	627.3	631.4	634.4	636.4	638.5	640.5	642.5
110°	698.2	701.3	704.4	706.9	708.7	710.5	712.4	714.2





TEST NUMBER: P332741

CATALOG NUMBER: S124DIW-S350D1560U835-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	770.5	772.7	774.9	777.1	779.2	781.3	783.4	785.6
115°	878.7	881.7	884.7	886.6	887.3	888.1	888.8	889.5
117.5°	987.5	989.5	991.6	992.9	993.6	994.4	995.1	995.8
120°	1054.6	1057.3	1060.1	1061.6	1061.8	1061.9	1062.1	1062.3
122.5°	1120.9	1123.4	1125.9	1127.2	1127.3	1127.4	1127.5	1127.6
125°	1213.6	1216.6	1219.6	1221.6	1222.6	1223.6	1224.5	1225.5
127.5°	1305.3	1307.0	1308.7	1309.7	1310.2	1310.6	1311.1	1311.5
130°	1361.2	1363.4	1365.6	1367.1	1367.7	1368.3	1368.9	1369.6
132.5°	1416.2	1418.3	1420.5	1421.7	1422.1	1422.5	1422.8	1423.2
135°	1491.4	1493.7	1496.1	1497.9	1499.2	1500.5	1501.8	1503.1
137.5°	1563.8	1566.1	1568.4	1569.7	1570.0	1570.3	1570.6	1571.0
140°	1608.7	1611.1	1613.5	1615.1	1616.0	1616.8	1617.7	1618.5
142.5°	1650.5	1652.5	1654.4	1655.6	1656.1	1656.7	1657.2	1657.7
145°	1710.5	1711.5	1712.5	1713.5	1714.6	1715.7	1716.8	1717.9
147.5°	1763.3	1763.7	1764.0	1764.5	1765.2	1765.9	1766.5	1767.2
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)