

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: P332742-940

Luminaire Tested: **S124DIW-S350D1560U940-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332742-940  
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-S350D1560U940-4F0-1E-UDD-D1  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 350 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1560 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

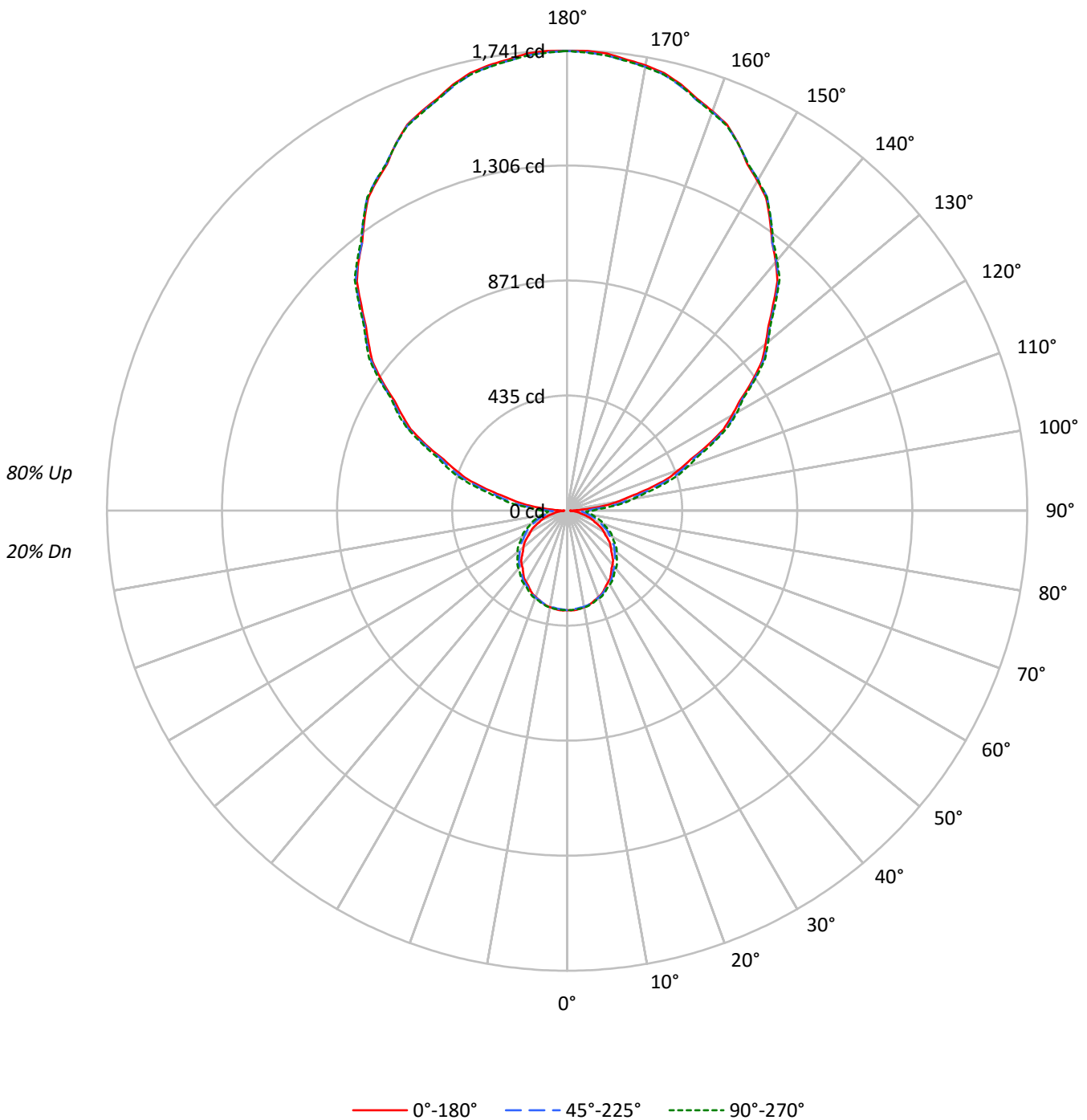
Lumens per Lamp: N/A  
Luminaire Lumens: 6113.4 lumens  
Efficiency: N/A  
Efficacy: 114.5 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 53.4  
Input Voltage (V): 120  
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



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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	50	30	10	0	
RCR																						
0	100	100	100	100	88	88	88	88	66	66	66	46	46	46	28	28	28	20				
1	91	86	82	79	80	76	73	70	57	55	53	40	39	38	24	23	23	16				
2	82	75	69	64	72	66	61	57	50	47	44	35	33	31	21	20	19	13				
3	75	66	59	53	66	58	52	47	44	40	36	31	28	26	18	17	16	11				
4	68	58	50	44	60	51	45	40	39	34	31	27	24	22	16	15	14	9				
5	62	51	43	38	55	45	39	34	34	30	26	24	21	19	15	13	12	8				
6	57	46	38	32	50	41	34	29	31	26	23	22	19	16	13	11	10	7				
7	53	41	33	28	46	36	30	25	28	23	20	20	17	14	12	10	9	6				
8	49	37	30	25	43	33	27	22	25	21	17	18	15	13	11	9	8	5				
9	45	34	26	22	40	30	24	20	23	18	15	16	13	11	10	8	7	5				
10	42	31	24	19	37	27	21	17	21	17	14	15	12	10	9	8	6	4				

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

	0°	45°	90°
0°	3043	3043	3043
5°	3053	2974	2982
10°	3033	2925	2923
15°	3006	2869	2854
20°	2965	2807	2785
25°	2919	2737	2710
30°	2869	2668	2634
35°	2812	2597	2566
40°	2768	2530	2497
45°	2700	2466	2436
50°	2643	2396	2373
55°	2585	2328	2298
60°	2493	2242	2231
65°	2392	2149	2146
70°	2271	2045	2049
75°	2101	1926	1961
80°	1913	1816	1875
85°	1676	1717	1825



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	35.7	0.6
10°-20°	102.3	1.7
20°-30°	154.6	2.5
30°-40°	187.1	3.1
40°-50°	197.8	3.2
50°-60°	186.2	3.0
60°-70°	154.4	2.5
70°-80°	108.5	1.8
80°-90°	66.5	1.1
90°-100°	151.1	2.5
100°-110°	366.6	6.0
110°-120°	594.6	9.7
120°-130°	770.4	12.6
130°-140°	858.2	14.0
140°-150°	839.9	13.7
150°-160°	705.6	11.5
160°-170°	469.5	7.7
170°-180°	164.4	2.7
0°-30°	292.6	4.8
0°-40°	479.7	7.8
0°-60°	863.6	14.1
0°-90°	1193.1	19.5
90°-120°	1112.4	18.2
90°-150°	3580.8	58.6
90°-180°	4920.0	80.5
0°-180°	6113.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	377	377	377	377	377	
5°	377	376	373	376	376	36
15°	362	362	361	364	364	102
25°	331	333	335	339	340	152
35°	290	295	299	304	306	181
45°	241	249	257	264	267	187
55°	189	198	211	219	222	168
65°	131	144	159	169	173	130
75°	73	88	106	117	122	77
85°	22	40	59	71	76	24
90°	11	42	71	91	98	10
95°	86	112	139	154	158	94
105°	317	327	348	362	370	337
115°	589	593	603	611	613	581
125°	856	856	864	869	869	762
135°	1102	1110	1113	1117	1116	852
145°	1338	1343	1344	1346	1343	837
155°	1533	1533	1531	1536	1531	705
165°	1669	1665	1662	1669	1665	470
175°	1736	1729	1728	1736	1728	165
180°	1738	1738	1738	1738	1738	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	376.9	376.9	376.9	376.9	376.9	376.9	376.9	376.9	376.9	376.9	376.9
2.5°	378.3	378.0	377.8	377.6	377.4	376.9	376.4	375.8	375.1	374.5	375.1
5°	377.4	377.0	376.7	376.5	376.2	375.8	375.1	374.4	373.8	373.1	373.9
7.5°	374.2	374.0	373.8	373.6	373.4	373.1	372.6	372.0	371.5	371.0	371.8
10°	371.4	371.3	371.2	371.1	371.0	370.8	370.3	369.8	369.3	368.9	369.7
12.5°	367.7	367.7	367.7	367.7	367.7	367.5	367.1	366.8	366.5	366.2	366.9
15°	361.7	361.9	361.9	362.0	362.1	362.0	361.7	361.4	361.1	360.9	361.7
17.5°	353.6	353.8	354.1	354.4	354.6	354.8	354.7	354.6	354.6	354.5	355.4
20°	347.8	348.0	348.4	348.7	348.9	349.1	349.2	349.3	349.4	349.5	350.4
22.5°	341.3	341.7	342.1	342.4	342.8	343.0	343.2	343.4	343.6	343.8	344.6
25°	330.9	331.4	332.1	332.6	333.1	333.6	333.9	334.1	334.4	334.7	335.7
27.5°	319.2	320.1	320.9	321.7	322.5	323.2	323.6	324.0	324.5	324.9	325.8
30°	311.5	312.3	313.0	313.7	314.5	315.2	315.8	316.5	317.2	317.8	318.9
32.5°	303.1	304.0	304.9	305.8	306.7	307.5	308.2	308.9	309.7	310.4	311.6
35°	289.5	290.7	291.8	292.9	294.1	295.1	296.0	296.9	297.9	298.8	300.1
37.5°	276.0	277.2	278.6	279.8	281.2	282.3	283.6	284.7	285.9	287.0	288.4
40°	267.2	268.4	269.7	270.8	272.1	273.3	274.6	276.0	277.2	278.6	280.0
42.5°	257.1	258.4	259.8	261.2	262.5	263.9	265.6	267.1	268.6	270.1	271.7
45°	241.4	243.2	245.0	246.7	248.5	250.3	252.1	253.9	255.7	257.4	259.0
47.5°	226.5	228.4	230.2	232.0	233.8	235.8	237.8	240.0	242.0	244.1	245.7
50°	215.7	217.8	219.8	221.9	223.9	226.0	228.1	230.2	232.2	234.3	236.1
52.5°	204.9	207.0	209.0	211.1	213.1	215.3	217.7	220.1	222.4	224.8	226.7
55°	189.1	191.1	193.1	195.0	197.0	199.4	202.2	205.0	207.8	210.6	212.5
57.5°	171.5	173.9	176.3	178.8	181.2	183.8	186.6	189.4	192.2	195.0	197.2
60°	160.0	162.4	164.9	167.3	169.7	172.5	175.6	178.7	181.7	184.9	187.0
62.5°	148.8	151.5	154.2	156.9	159.4	162.4	165.4	168.5	171.7	174.8	176.9
65°	130.8	133.8	136.9	139.8	142.9	146.0	149.1	152.3	155.5	158.7	161.0
67.5°	113.5	116.7	119.9	123.1	126.3	129.6	133.0	136.4	139.8	143.2	145.6
70°	101.7	104.9	108.1	111.3	114.5	117.9	121.5	125.0	128.6	132.2	134.6
72.5°	90.2	93.5	96.8	100.0	103.3	106.8	110.6	114.4	118.2	122.0	124.4
75°	72.6	76.1	79.5	83.0	86.5	90.2	94.2	98.1	102.0	105.9	108.6
77.5°	56.2	59.8	63.5	67.1	70.8	74.7	78.8	83.0	87.1	91.2	93.9
80°	46.0	49.8	53.5	57.2	61.0	64.9	69.1	73.2	77.3	81.5	84.3
82.5°	35.8	39.8	43.7	47.6	51.5	55.5	59.7	63.8	67.9	72.1	74.9
85°	22.4	26.3	30.2	34.2	38.2	42.2	46.5	50.6	54.8	59.1	61.9
87.5°	13.3	17.7	22.3	26.8	31.2	35.8	40.4	44.9	49.5	54.1	57.2
90°	10.8	17.8	24.9	31.9	39.0	45.7	52.1	58.5	64.9	71.3	75.9
92.5°	35.2	42.4	49.5	56.6	63.8	70.2	75.9	81.6	87.3	93.0	96.8
95°	86.1	91.9	97.7	103.5	109.3	115.1	121.1	127.1	133.0	138.9	142.3
97.5°	145.9	150.7	155.5	160.3	165.1	170.7	176.9	183.2	189.5	195.7	199.2
100°	192.9	196.5	200.2	203.8	207.4	212.4	218.7	225.1	231.5	237.8	240.9
102.5°	242.4	245.0	247.6	250.2	252.8	257.2	263.1	269.2	275.3	281.2	284.5
105°	317.1	319.2	321.5	323.6	325.7	329.2	333.9	338.5	343.2	347.9	351.1
107.5°	396.4	398.2	400.1	402.0	403.9	406.6	410.0	413.5	417.0	420.4	423.6
110°	449.8	451.7	453.6	455.5	457.4	459.9	462.9	465.8	468.8	471.8	473.3



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	505.3	506.7	507.9	509.3	510.5	512.5	515.1	517.6	520.2	522.8	524.8
115°	588.8	589.6	590.5	591.3	592.1	593.8	596.2	598.6	601.0	603.3	605.1
117.5°	667.7	668.5	669.2	669.9	670.7	672.3	674.7	677.0	679.4	681.8	682.7
120°	720.1	721.6	723.1	724.5	726.0	727.6	729.5	731.3	733.2	734.9	735.3
122.5°	775.0	775.5	776.1	776.6	777.1	778.5	780.6	782.7	784.9	787.0	787.9
125°	855.5	855.4	855.3	855.2	855.1	856.0	858.1	860.1	862.2	864.2	865.5
127.5°	928.8	929.6	930.4	931.2	932.0	933.1	934.4	935.8	937.0	938.3	939.5
130°	980.1	980.9	981.7	982.5	983.3	984.4	986.0	987.5	989.0	990.4	991.6
132.5°	1032.8	1033.4	1033.9	1034.5	1035.1	1035.8	1036.8	1037.8	1038.8	1039.6	1040.7
135°	1102.1	1103.8	1105.6	1107.4	1109.2	1110.4	1111.1	1111.8	1112.4	1113.0	1113.9
137.5°	1177.9	1178.6	1179.4	1180.1	1180.8	1181.6	1182.4	1183.2	1184.0	1184.8	1185.4
140°	1228.4	1229.0	1229.4	1229.9	1230.5	1230.7	1230.8	1230.9	1231.0	1231.1	1232.1
142.5°	1274.3	1274.9	1275.5	1276.0	1276.7	1276.8	1276.5	1276.2	1275.9	1275.6	1276.7
145°	1338.3	1339.3	1340.4	1341.6	1342.6	1343.4	1343.6	1344.0	1344.3	1344.5	1344.8
147.5°	1401.7	1403.0	1404.4	1405.8	1407.1	1407.7	1407.4	1407.1	1406.9	1406.7	1406.5
150°	1440.5	1441.5	1442.6	1443.8	1444.8	1445.4	1445.4	1445.4	1445.4	1445.4	1445.4
152.5°	1476.7	1477.4	1478.1	1478.8	1479.4	1480.0	1480.2	1480.4	1480.7	1480.9	1481.6
155°	1532.8	1532.8	1532.8	1532.8	1532.8	1532.7	1532.3	1532.0	1531.8	1531.4	1532.7
157.5°	1580.1	1579.6	1579.0	1578.5	1578.0	1577.7	1577.6	1577.5	1577.5	1577.4	1578.3
160°	1608.1	1607.8	1607.5	1607.2	1606.9	1606.6	1606.3	1606.0	1605.7	1605.4	1606.3
162.5°	1633.9	1633.2	1632.4	1631.6	1630.8	1630.2	1630.0	1629.7	1629.3	1629.1	1630.7
165°	1668.6	1667.7	1666.8	1665.9	1665.0	1664.3	1663.7	1663.0	1662.5	1661.9	1663.7
167.5°	1695.2	1694.0	1692.7	1691.5	1690.2	1689.6	1689.7	1689.7	1689.8	1689.9	1691.7
170°	1710.3	1708.8	1707.3	1705.8	1704.3	1703.7	1704.0	1704.3	1704.6	1704.9	1706.6
172.5°	1721.0	1719.8	1718.5	1717.3	1716.0	1715.4	1715.5	1715.6	1715.6	1715.7	1717.7
175°	1735.8	1734.3	1732.9	1731.3	1729.8	1728.9	1728.7	1728.3	1728.0	1727.8	1729.8
177.5°	1740.6	1739.5	1738.3	1737.1	1735.9	1735.3	1735.3	1735.3	1735.3	1735.3	1737.0
180°	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	376.9	376.9	376.9	376.9	376.9	376.9	376.9	376.9
2.5°	375.6	376.1	376.7	376.8	376.8	376.7	376.7	376.6
5°	374.6	375.3	376.1	376.5	376.4	376.2	376.1	376.0
7.5°	372.6	373.4	374.3	374.7	374.6	374.5	374.4	374.3
10°	370.6	371.4	372.3	372.6	372.6	372.5	372.4	372.3
12.5°	367.7	368.5	369.3	369.6	369.6	369.6	369.6	369.5
15°	362.6	363.4	364.3	364.6	364.5	364.4	364.4	364.3
17.5°	356.2	357.1	358.0	358.4	358.3	358.2	358.2	358.1
20°	351.3	352.3	353.2	353.7	353.7	353.7	353.7	353.7
22.5°	345.6	346.5	347.5	348.0	348.2	348.3	348.5	348.7
25°	336.8	337.8	338.9	339.4	339.5	339.6	339.7	339.7
27.5°	326.8	327.8	328.8	329.3	329.4	329.5	329.6	329.8
30°	319.9	320.9	321.9	322.5	322.7	323.0	323.2	323.3
32.5°	312.7	314.0	315.1	315.8	316.0	316.2	316.4	316.6
35°	301.5	302.7	304.1	304.9	305.1	305.4	305.8	306.0
37.5°	289.7	291.0	292.3	293.2	293.5	293.7	294.1	294.4
40°	281.4	282.8	284.2	285.1	285.4	285.9	286.2	286.6
42.5°	273.2	274.8	276.3	277.3	277.6	277.9	278.2	278.5
45°	260.6	262.3	263.9	264.8	265.4	265.8	266.3	266.7
47.5°	247.4	249.0	250.7	251.7	252.4	252.9	253.4	254.0
50°	238.0	239.9	241.7	243.0	243.5	244.1	244.7	245.2
52.5°	228.5	230.4	232.3	233.5	234.1	234.6	235.2	235.8
55°	214.4	216.2	218.1	219.4	219.9	220.4	221.1	221.6
57.5°	199.5	201.7	203.9	205.3	205.8	206.3	206.9	207.4
60°	189.2	191.4	193.5	194.9	195.7	196.4	197.2	198.0
62.5°	179.1	181.2	183.3	184.9	185.6	186.3	187.1	187.8
65°	163.4	165.8	168.1	169.6	170.4	171.1	171.9	172.6
67.5°	148.0	150.4	152.8	154.4	155.1	155.8	156.5	157.3
70°	137.1	139.7	142.2	143.8	144.5	145.2	145.8	146.4
72.5°	126.9	129.4	131.8	133.4	134.1	134.8	135.6	136.3
75°	111.2	113.8	116.5	118.2	119.0	119.8	120.7	121.5
77.5°	96.6	99.2	101.9	103.7	104.6	105.5	106.4	107.3
80°	87.1	89.9	92.7	94.5	95.2	96.0	96.8	97.5
82.5°	77.8	80.7	83.6	85.4	86.2	87.0	87.9	88.7
85°	64.7	67.5	70.4	72.2	73.1	74.1	75.0	76.0
87.5°	60.3	63.3	66.4	68.5	69.4	70.4	71.2	72.2
90°	80.4	84.9	89.4	92.4	93.7	95.1	96.4	97.7
92.5°	100.4	104.2	107.9	110.3	111.4	112.5	113.6	114.8
95°	145.8	149.2	152.7	154.8	155.6	156.4	157.3	158.1
97.5°	202.8	206.3	209.8	212.0	212.9	213.7	214.5	215.3
100°	244.1	247.2	250.3	252.2	252.9	253.5	254.1	254.9
102.5°	287.8	291.1	294.4	296.6	297.6	298.5	299.5	300.5
105°	354.4	357.6	360.8	363.3	364.9	366.6	368.2	369.9
107.5°	426.7	429.9	433.0	434.9	435.5	436.1	436.8	437.4
110°	474.9	476.4	478.0	479.7	481.3	483.0	484.6	486.2





TEST NUMBER: P332742-940

CATALOG NUMBER: S124DIW-S350D1560U940-4F0-1E-UDD-D1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	526.7	528.7	530.7	532.1	533.1	534.0	534.9	535.8
115°	606.9	608.7	610.5	611.5	611.9	612.2	612.6	613.0
117.5°	683.7	684.6	685.5	686.1	686.3	686.3	686.5	686.7
120°	735.8	736.1	736.5	737.4	738.7	740.0	741.4	742.7
122.5°	788.8	789.6	790.5	790.7	790.3	789.9	789.5	789.1
125°	866.7	867.8	869.0	869.6	869.5	869.5	869.5	869.4
127.5°	940.6	941.6	942.7	943.3	943.5	943.7	943.9	944.0
130°	992.7	993.7	994.8	995.1	994.4	993.8	993.2	992.6
132.5°	1041.7	1042.7	1043.7	1044.3	1044.4	1044.5	1044.6	1044.6
135°	1114.9	1115.8	1116.7	1117.0	1116.6	1116.2	1116.0	1115.6
137.5°	1186.0	1186.6	1187.1	1187.8	1188.5	1189.1	1189.7	1190.3
140°	1233.0	1233.9	1234.8	1235.4	1235.6	1235.6	1235.8	1236.0
142.5°	1277.6	1278.6	1279.7	1280.3	1280.7	1281.0	1281.3	1281.7
145°	1345.1	1345.3	1345.6	1345.5	1345.0	1344.4	1343.9	1343.4
147.5°	1406.3	1406.1	1406.0	1406.0	1406.0	1406.0	1406.0	1406.0
150°	1445.4	1445.4	1445.4	1445.3	1444.9	1444.7	1444.4	1444.0
152.5°	1482.3	1483.0	1483.7	1483.7	1482.9	1482.2	1481.4	1480.6
155°	1533.8	1535.0	1536.2	1536.2	1535.0	1533.8	1532.7	1531.4
157.5°	1579.2	1580.1	1581.0	1580.9	1579.9	1579.0	1577.9	1576.9
160°	1607.2	1608.1	1609.0	1608.6	1607.2	1605.7	1604.2	1602.7
162.5°	1632.3	1633.9	1635.5	1635.6	1634.1	1632.6	1631.1	1629.6
165°	1665.4	1667.2	1669.0	1669.4	1668.1	1667.0	1665.7	1664.6
167.5°	1693.4	1695.2	1697.0	1697.0	1695.1	1693.3	1691.4	1689.5
170°	1708.5	1710.3	1712.1	1711.9	1709.9	1707.7	1705.7	1703.5
172.5°	1719.8	1721.7	1723.8	1723.8	1721.6	1719.6	1717.4	1715.4
175°	1732.0	1734.0	1736.2	1736.2	1734.0	1732.0	1729.8	1727.8
177.5°	1738.7	1740.3	1742.0	1741.9	1739.9	1738.0	1736.2	1734.2
180°	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5	1738.5

(END OF REPORT)