

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: P332743-935

Luminaire Tested: **S124DIW-S350D1560U935-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332743-935  
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-S350D1560U935-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 350 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 1560 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6680.1 lumens  
Efficiency: N/A  
Efficacy: 125.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: Semi-Indirect

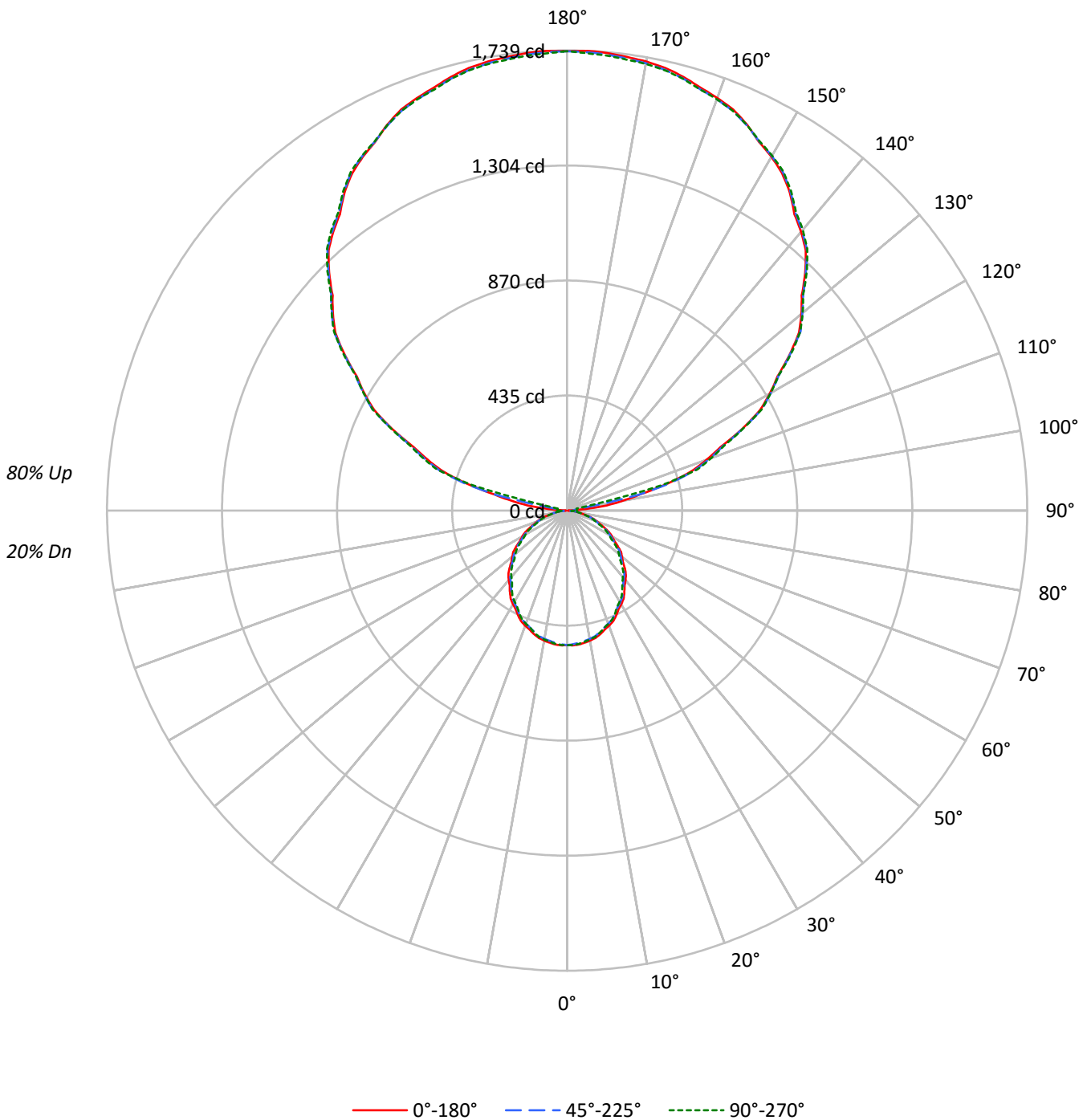
Input Watts (W): 53.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	50	30	10	0	
RCR																						
0	100	100	100	100	88	88	88	88	66	66	66	47	47	47	28	28	28	20				
1	91	87	83	80	80	77	74	71	58	56	54	41	40	38	25	24	24	16				
2	83	76	70	65	73	67	62	58	51	48	45	36	34	32	22	21	20	14				
3	75	66	60	54	66	59	53	48	45	41	38	32	29	27	19	18	17	12				
4	69	59	51	45	61	52	46	41	40	35	32	28	25	23	17	16	15	10				
5	63	52	44	39	55	46	40	35	35	31	27	25	22	20	15	14	13	9				
6	58	46	39	33	51	41	35	30	32	27	24	23	20	17	14	12	11	8				
7	53	42	34	29	47	37	31	26	29	24	21	20	17	15	13	11	10	7				
8	49	38	30	25	44	34	27	23	26	21	18	19	16	13	12	10	9	6				
9	46	34	27	22	40	31	24	20	24	19	16	17	14	12	11	9	8	5				
10	43	31	24	20	38	28	22	18	22	17	14	16	13	11	10	8	7	5				

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

	0°	45°	90°
0°	4106	4106	4106
5°	4118	4068	4099
10°	4092	4036	4055
15°	4043	3978	3989
20°	3978	3907	3911
25°	3902	3827	3815
30°	3811	3731	3697
35°	3714	3631	3582
40°	3616	3518	3453
45°	3513	3406	3342
50°	3399	3307	3204
55°	3275	3178	3074
60°	3152	3034	2942
65°	3012	2896	2779
70°	2858	2712	2608
75°	2617	2492	2427
80°	2329	2236	2176
85°	2038	1964	1927



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	47.9	0.7
10°-20°	135.0	2.0
20°-30°	198.6	3.0
30°-40°	230.9	3.5
40°-50°	230.9	3.5
50°-60°	202.0	3.0
60°-70°	150.0	2.2
70°-80°	85.2	1.3
80°-90°	29.6	0.4
90°-100°	59.4	0.9
100°-110°	378.6	5.7
110°-120°	724.2	10.8
120°-130°	919.3	13.8
130°-140°	983.6	14.7
140°-150°	919.8	13.8
150°-160°	741.8	11.1
160°-170°	478.4	7.2
170°-180°	164.9	2.5
0°-30°	381.5	5.7
0°-40°	612.4	9.2
0°-60°	1045.3	15.6
0°-90°	1310.2	19.6
90°-120°	1162.1	17.4
90°-150°	3984.9	59.7
90°-180°	5370.0	80.4
0°-180°	6680.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	509	509	509	509	509	
5°	508	506	502	506	506	48
15°	484	482	476	478	477	136
25°	438	435	430	430	428	201
35°	377	374	368	366	364	236
45°	308	305	298	294	293	237
55°	233	231	226	221	218	208
65°	158	156	152	148	146	156
75°	84	82	80	78	78	89
85°	22	22	21	21	21	24
90°	4	18	29	36	39	5
95°	71	30	29	36	38	92
105°	391	399	405	414	370	409
115°	730	733	732	735	735	718
125°	1026	1030	1028	1032	1034	915
135°	1272	1272	1276	1279	1282	980
145°	1467	1471	1471	1472	1475	916
155°	1609	1610	1606	1611	1608	741
165°	1697	1691	1691	1700	1689	479
175°	1736	1729	1730	1740	1726	165
180°	1736	1736	1736	1736	1736	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	508.6	508.6	508.6	508.6	508.6	508.6	508.6	508.6	508.6	508.6	508.6
2.5°	509.9	509.7	509.5	509.3	509.0	508.5	507.7	507.0	506.2	505.3	506.1
5°	508.2	507.8	507.5	507.1	506.8	506.1	505.1	504.1	503.1	502.0	503.1
7.5°	503.5	503.1	502.7	502.4	502.0	501.3	500.2	499.1	498.0	496.9	497.7
10°	499.2	498.9	498.5	498.2	497.8	497.1	495.8	494.6	493.5	492.3	493.0
12.5°	493.7	493.4	493.0	492.6	492.2	491.5	490.2	489.0	487.7	486.5	487.2
15°	483.7	483.4	483.0	482.7	482.3	481.5	480.1	478.7	477.3	476.0	476.6
17.5°	471.7	471.3	470.9	470.5	469.9	469.1	467.8	466.5	465.2	463.9	464.3
20°	463.0	462.5	462.1	461.6	461.2	460.3	458.9	457.5	456.2	454.8	455.1
22.5°	453.5	452.9	452.3	451.7	451.1	450.1	448.8	447.5	446.1	444.7	445.2
25°	438.1	437.5	436.9	436.2	435.6	434.6	433.3	432.0	430.8	429.6	429.6
27.5°	420.5	419.8	419.2	418.5	417.9	417.0	415.8	414.7	413.5	412.2	412.1
30°	408.8	408.0	407.3	406.6	405.9	404.9	403.7	402.5	401.4	400.2	399.8
32.5°	396.4	395.7	395.0	394.4	393.7	392.8	391.6	390.3	389.1	387.8	387.4
35°	376.9	376.3	375.7	375.1	374.4	373.5	372.2	370.9	369.7	368.4	367.8
37.5°	356.5	355.9	355.3	354.8	354.2	353.3	351.9	350.5	349.1	347.8	347.1
40°	343.1	342.4	341.7	341.0	340.3	339.2	337.9	336.5	335.1	333.8	332.9
42.5°	328.8	328.4	328.0	327.5	327.1	326.1	324.6	323.0	321.6	320.1	319.0
45°	307.7	307.0	306.4	305.8	305.1	304.1	302.6	301.2	299.8	298.3	297.3
47.5°	285.6	285.2	284.7	284.3	283.9	283.0	281.6	280.3	279.0	277.6	276.5
50°	270.6	270.3	269.9	269.5	269.1	268.4	267.1	265.8	264.5	263.3	262.0
52.5°	256.0	255.5	255.0	254.6	254.2	253.3	251.9	250.6	249.3	248.0	246.8
55°	232.7	232.5	232.1	231.9	231.6	230.8	229.5	228.3	227.0	225.8	224.7
57.5°	210.5	210.3	209.9	209.7	209.3	208.5	207.2	206.0	204.7	203.5	202.5
60°	195.2	194.8	194.3	193.8	193.4	192.6	191.4	190.2	189.1	187.9	187.1
62.5°	180.2	179.9	179.4	179.1	178.7	177.9	176.6	175.4	174.1	172.9	172.1
65°	157.7	157.3	156.8	156.4	155.9	155.2	154.3	153.4	152.5	151.6	150.7
67.5°	135.1	134.7	134.2	133.8	133.4	132.8	131.9	131.0	130.2	129.2	128.4
70°	121.1	120.4	119.8	119.2	118.5	117.8	117.1	116.4	115.6	114.9	114.2
72.5°	106.1	105.4	104.8	104.2	103.5	102.9	102.3	101.8	101.2	100.6	100.0
75°	83.9	83.5	83.1	82.6	82.1	81.7	81.3	80.8	80.3	79.9	79.6
77.5°	62.9	62.7	62.4	62.3	62.1	61.7	61.4	61.0	60.5	60.2	60.0
80°	50.1	49.9	49.6	49.3	49.1	48.8	48.6	48.5	48.3	48.1	47.9
82.5°	37.7	37.6	37.5	37.4	37.2	37.1	37.1	37.1	37.0	37.0	36.9
85°	22.0	22.0	22.0	22.0	22.0	22.0	21.7	21.5	21.4	21.2	21.2
87.5°	9.3	9.8	10.4	10.9	11.5	12.0	12.4	12.7	13.2	13.5	13.9
90°	3.9	7.1	10.2	13.4	16.6	19.4	21.6	23.9	26.3	28.6	30.3
92.5°	16.4	16.5	16.7	16.9	17.0	18.3	20.6	22.9	25.2	27.6	29.3
95°	71.4	61.6	51.8	42.0	32.2	27.4	27.7	28.0	28.2	28.6	30.3
97.5°	151.6	157.7	163.8	170.0	176.2	163.1	130.9	98.7	66.5	34.3	34.4
100°	212.9	218.2	223.3	228.5	233.7	216.4	176.6	136.7	96.9	57.2	52.3
102.5°	281.5	285.3	289.1	292.9	296.7	296.0	290.8	285.7	280.4	275.3	222.3
105°	390.8	392.5	394.3	396.1	397.8	399.3	400.8	402.3	403.6	405.1	407.7
107.5°	492.3	493.3	494.1	495.0	495.8	497.2	499.2	501.2	503.1	505.1	506.4
110°	560.9	561.8	562.7	563.5	564.4	565.7	567.4	569.1	570.8	572.6	573.2



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	627.4	629.0	630.5	632.1	633.6	634.8	635.6	636.5	637.2	638.1	637.9
115°	729.7	730.6	731.4	732.3	733.1	733.5	733.1	732.9	732.6	732.3	732.9
117.5°	821.9	823.0	824.2	825.4	826.6	827.4	828.0	828.7	829.3	829.9	829.8
120°	884.2	885.4	886.6	887.7	888.8	889.2	889.0	888.7	888.4	888.1	888.7
122.5°	942.4	943.1	943.7	944.4	945.2	945.7	946.2	946.5	946.9	947.4	947.7
125°	1025.8	1026.9	1028.0	1029.2	1030.4	1030.6	1030.1	1029.5	1028.9	1028.4	1029.2
127.5°	1104.7	1105.0	1105.3	1105.5	1105.9	1106.6	1108.0	1109.3	1110.6	1112.0	1111.8
130°	1155.6	1155.9	1156.2	1156.5	1156.8	1157.4	1158.2	1159.1	1159.9	1160.8	1161.1
132.5°	1202.3	1202.8	1203.4	1203.9	1204.5	1205.2	1206.3	1207.4	1208.5	1209.6	1209.9
135°	1272.5	1272.1	1271.9	1271.6	1271.3	1271.7	1272.9	1274.0	1275.2	1276.3	1276.9
137.5°	1334.6	1334.6	1334.7	1334.9	1335.0	1335.7	1337.0	1338.3	1339.5	1340.7	1341.4
140°	1375.0	1375.6	1376.2	1376.7	1377.3	1377.9	1378.5	1379.1	1379.7	1380.2	1381.1
142.5°	1411.4	1412.4	1413.5	1414.5	1415.6	1416.3	1416.6	1416.9	1417.3	1417.6	1418.2
145°	1467.2	1468.1	1469.0	1469.8	1470.7	1471.1	1471.1	1471.1	1471.1	1471.1	1471.4
147.5°	1511.7	1513.2	1514.8	1516.5	1518.1	1518.7	1518.5	1518.2	1517.9	1517.6	1517.9
150°	1543.9	1545.0	1546.1	1547.3	1548.4	1548.9	1548.6	1548.3	1548.0	1547.7	1547.7
152.5°	1570.8	1571.8	1572.7	1573.6	1574.5	1574.8	1574.2	1573.6	1573.1	1572.6	1573.1
155°	1608.8	1609.0	1609.3	1609.6	1609.9	1609.6	1608.8	1607.9	1607.1	1606.1	1607.3
157.5°	1640.7	1640.5	1640.4	1640.2	1640.0	1639.4	1638.4	1637.4	1636.5	1635.5	1637.0
160°	1659.4	1658.5	1657.7	1656.8	1656.0	1655.4	1655.0	1654.8	1654.5	1654.2	1656.0
162.5°	1676.0	1674.9	1673.8	1672.8	1671.6	1670.9	1670.6	1670.3	1670.1	1669.7	1671.5
165°	1697.0	1695.6	1694.2	1692.7	1691.3	1690.6	1690.6	1690.6	1690.6	1690.6	1692.8
167.5°	1713.6	1712.2	1710.6	1709.2	1707.6	1706.8	1706.7	1706.5	1706.3	1706.2	1708.7
170°	1723.0	1721.3	1719.5	1717.8	1716.1	1715.4	1715.6	1716.0	1716.2	1716.5	1718.8
172.5°	1729.2	1727.5	1725.8	1724.1	1722.3	1721.6	1721.9	1722.2	1722.4	1722.8	1725.0
175°	1735.9	1734.2	1732.5	1730.8	1729.1	1728.4	1728.6	1728.9	1729.2	1729.5	1732.1
177.5°	1739.1	1737.5	1735.9	1734.2	1732.7	1732.1	1732.5	1733.0	1733.5	1733.9	1735.8
180°	1735.9	1735.9	1735.9	1735.9	1735.9	1735.9	1735.9	1735.9	1735.9	1735.9	1735.9



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	508.6	508.6	508.6	508.6	508.6	508.6	508.6	508.6
2.5°	506.8	507.6	508.2	508.6	508.5	508.4	508.3	508.2
5°	504.1	505.1	506.1	506.4	506.3	506.1	505.9	505.8
7.5°	498.4	499.3	500.1	500.4	500.3	500.2	500.1	500.0
10°	493.8	494.5	495.2	495.5	495.3	495.1	494.9	494.7
12.5°	488.0	488.8	489.7	489.9	489.7	489.4	489.1	488.9
15°	477.1	477.6	478.2	478.3	478.0	477.8	477.5	477.3
17.5°	464.6	464.9	465.3	465.4	465.2	465.0	464.9	464.7
20°	455.4	455.6	455.9	456.0	455.7	455.6	455.4	455.2
22.5°	445.7	446.2	446.7	446.8	446.4	446.1	445.7	445.5
25°	429.7	429.8	429.9	429.8	429.4	429.0	428.7	428.3
27.5°	411.8	411.6	411.4	411.0	410.6	410.2	409.7	409.2
30°	399.5	399.2	398.7	398.4	397.9	397.4	397.0	396.6
32.5°	386.9	386.5	386.1	385.6	385.2	384.7	384.3	383.8
35°	367.1	366.5	365.8	365.3	364.9	364.5	363.9	363.5
37.5°	346.4	345.7	345.0	344.4	343.8	343.2	342.6	342.0
40°	332.0	331.1	330.2	329.5	329.0	328.6	328.1	327.7
42.5°	318.0	316.9	315.9	315.2	314.9	314.6	314.3	314.0
45°	296.4	295.3	294.4	293.7	293.4	293.2	292.9	292.7
47.5°	275.3	274.2	273.1	272.2	271.6	270.9	270.2	269.5
50°	260.7	259.5	258.2	257.3	256.8	256.2	255.6	255.1
52.5°	245.7	244.6	243.5	242.5	241.9	241.2	240.5	239.8
55°	223.6	222.5	221.4	220.6	220.1	219.6	219.0	218.4
57.5°	201.5	200.4	199.4	198.6	198.1	197.6	197.1	196.5
60°	186.2	185.5	184.6	184.0	183.6	183.0	182.6	182.2
62.5°	171.4	170.7	169.9	169.3	168.8	168.4	168.0	167.5
65°	149.8	148.9	148.0	147.3	146.9	146.4	145.9	145.5
67.5°	127.5	126.7	125.8	125.3	125.2	125.0	124.9	124.8
70°	113.5	112.8	112.0	111.5	111.2	111.0	110.7	110.5
72.5°	99.4	98.8	98.2	97.8	97.6	97.3	97.0	96.8
75°	79.1	78.8	78.4	78.2	78.1	78.0	77.9	77.8
77.5°	59.9	59.8	59.8	59.6	59.3	59.1	58.8	58.6
80°	47.7	47.5	47.4	47.3	47.1	47.0	46.9	46.8
82.5°	36.8	36.7	36.6	36.5	36.4	36.2	36.2	36.1
85°	21.2	21.2	21.2	21.2	21.1	21.0	20.8	20.8
87.5°	14.2	14.6	14.9	15.2	15.2	15.4	15.5	15.6
90°	32.0	33.8	35.5	36.7	37.2	37.8	38.4	38.9
92.5°	31.0	32.7	34.4	35.4	35.5	35.6	35.7	35.8
95°	32.0	33.8	35.5	36.5	36.8	37.1	37.4	37.6
97.5°	34.6	34.8	35.0	35.2	35.5	35.8	36.1	36.3
100°	47.4	42.4	37.5	35.2	35.5	35.8	36.1	36.3
102.5°	169.4	116.5	63.6	37.2	37.2	37.3	37.4	37.4
105°	410.3	412.9	415.5	411.6	401.2	390.8	380.5	370.1
107.5°	507.6	508.9	510.1	511.3	512.5	513.5	514.6	515.7
110°	573.8	574.4	574.9	575.7	576.5	577.4	578.2	579.1





TEST NUMBER: P332743-935

CATALOG NUMBER: S124DIW-S350D1560U935-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	637.8	637.7	637.6	638.1	639.2	640.2	641.4	642.5
115°	733.5	734.0	734.6	734.9	734.9	734.9	734.9	734.9
117.5°	829.7	829.6	829.5	829.4	829.2	829.1	829.1	828.9
120°	889.2	889.8	890.4	890.4	889.8	889.2	888.7	888.1
122.5°	948.0	948.4	948.7	948.6	948.0	947.4	946.8	946.3
125°	1030.1	1031.0	1031.8	1032.4	1032.7	1032.9	1033.3	1033.5
127.5°	1111.6	1111.5	1111.3	1111.0	1110.9	1110.6	1110.3	1110.2
130°	1161.4	1161.7	1161.9	1162.1	1162.1	1162.1	1162.1	1162.1
132.5°	1210.2	1210.5	1210.7	1210.8	1210.6	1210.3	1210.1	1209.9
135°	1277.5	1278.1	1278.7	1279.3	1279.8	1280.4	1281.0	1281.5
137.5°	1342.0	1342.6	1343.3	1343.5	1343.3	1343.2	1343.0	1342.8
140°	1382.0	1382.9	1383.7	1384.2	1384.6	1384.8	1385.1	1385.4
142.5°	1418.9	1419.5	1420.1	1420.5	1420.6	1420.6	1420.6	1420.7
145°	1471.7	1472.0	1472.2	1472.7	1473.3	1473.9	1474.5	1475.0
147.5°	1518.0	1518.3	1518.5	1518.8	1519.1	1519.3	1519.7	1519.9
150°	1547.7	1547.7	1547.7	1547.9	1548.2	1548.4	1548.8	1549.0
152.5°	1573.6	1574.0	1574.5	1574.6	1574.4	1574.3	1574.1	1573.9
155°	1608.4	1609.6	1610.8	1610.9	1610.1	1609.2	1608.3	1607.5
157.5°	1638.5	1640.0	1641.5	1641.5	1640.0	1638.5	1637.0	1635.5
160°	1657.7	1659.4	1661.1	1661.1	1659.4	1657.7	1656.0	1654.2
162.5°	1673.3	1675.0	1676.7	1676.5	1674.6	1672.7	1670.7	1668.7
165°	1695.1	1697.5	1699.8	1699.6	1697.0	1694.4	1691.9	1689.3
167.5°	1711.2	1713.7	1716.3	1716.1	1713.2	1710.4	1707.4	1704.6
170°	1721.1	1723.5	1725.8	1725.4	1722.6	1719.7	1716.8	1713.9
172.5°	1727.3	1729.7	1732.0	1731.6	1728.5	1725.4	1722.3	1719.1
175°	1734.7	1737.3	1739.9	1739.5	1735.9	1732.5	1729.1	1725.6
177.5°	1737.6	1739.5	1741.3	1740.9	1738.1	1735.3	1732.5	1729.7
180°	1735.9	1735.9	1735.9	1735.9	1735.9	1735.9	1735.9	1735.9

(END OF REPORT)