

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: P333077

Luminaire Tested: **S124RDIW-S1020D470U835-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P333077  
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: S124RDIW-S1020D470U835-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED  
HOUSING  
UPLIGHT 470 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6048.0 lumens  
Efficiency: N/A  
Efficacy: 130.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.09 / 1.24  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: Semi-Direct

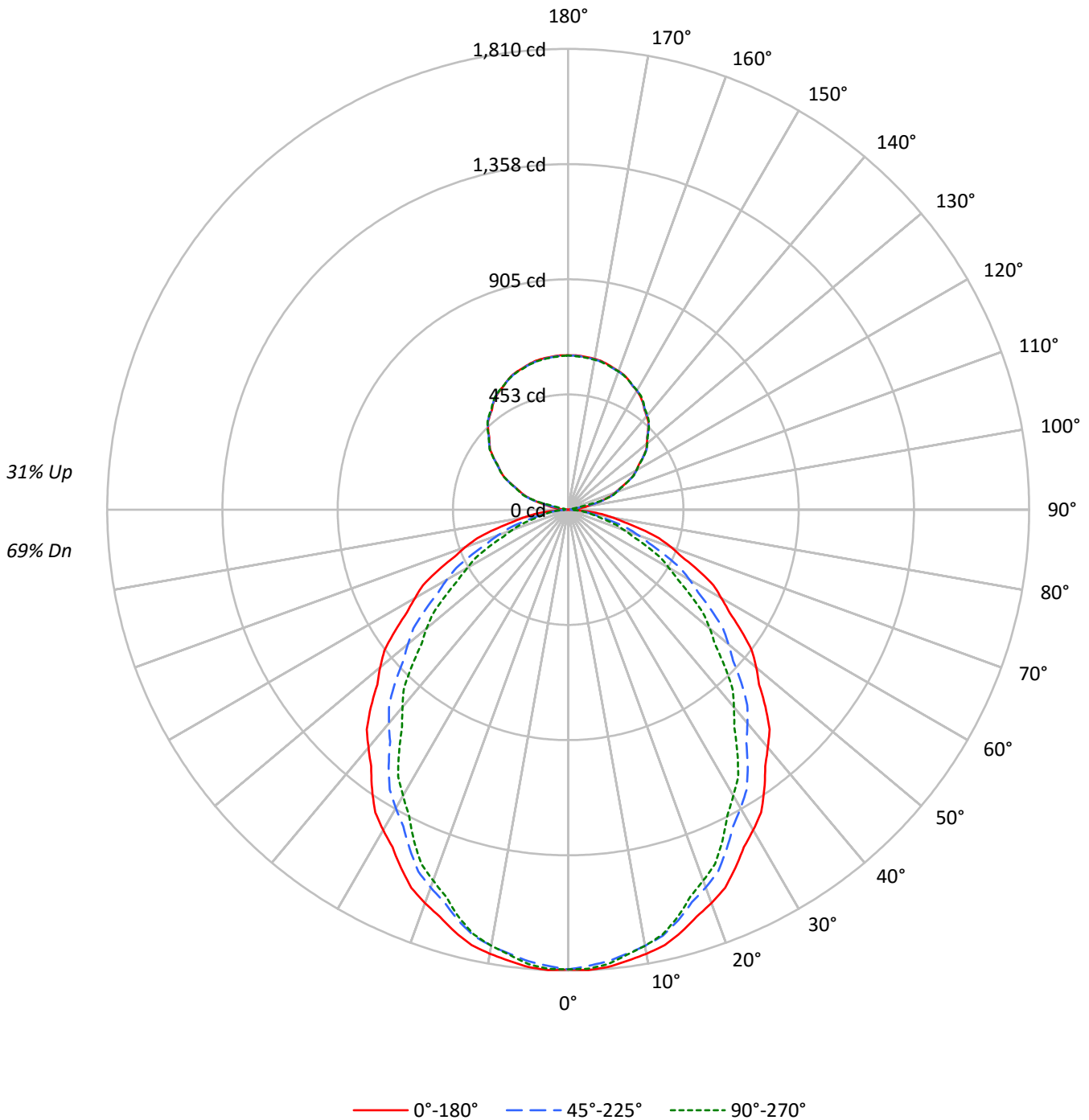
Input Watts (W): 46.2  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20										
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	112	112	112	112	105	105	105	105	94	94	94	83	83	83	74	74	74	69																				
1	102	98	94	91	97	93	89	86	83	80	78	74	72	70	66	64	63	59																				
2	94	86	80	75	88	82	76	72	73	69	65	65	62	59	58	56	54	50																				
3	86	76	69	63	81	72	66	60	65	60	55	58	54	51	52	49	46	43																				
4	79	68	60	54	74	64	57	51	58	52	48	52	47	44	47	43	40	37																				
5	72	61	52	46	68	58	50	45	52	46	41	47	42	38	42	38	35	32																				
6	67	55	46	40	63	52	44	39	47	41	36	43	38	34	38	34	31	28																				
7	62	49	41	36	58	47	40	35	43	37	32	39	34	30	35	31	28	25																				
8	58	45	37	32	54	43	36	31	39	33	29	36	31	27	32	28	25	23																				
9	54	41	34	29	51	40	33	28	36	30	26	33	28	24	30	26	23	21																				
10	50	38	31	26	48	36	30	25	33	28	24	31	26	22	28	24	21	19																				

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

	0°	45°	90°
0°	14577	14577	14577
5°	14610	14431	14521
10°	14519	14258	14258
15°	14352	13959	13855
20°	14123	13564	13315
25°	13831	13104	12772
30°	13546	12618	12089
35°	13231	12113	11404
40°	12852	11540	10666
45°	12501	10970	9913
50°	12103	10315	9117
55°	11676	9633	8251
60°	11207	8885	7367
65°	10776	7950	6497
70°	10150	6918	5516
75°	9357	5736	4485
80°	8164	4370	4114
85°	6919	3974	3714



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	169.6	2.8
10°-20°	473.0	7.8
20°-30°	683.0	11.3
30°-40°	774.2	12.8
40°-50°	747.6	12.4
50°-60°	621.7	10.3
60°-70°	429.3	7.1
70°-80°	217.6	3.6
80°-90°	57.6	1.0
90°-100°	20.7	0.3
100°-110°	132.1	2.2
110°-120°	252.8	4.2
120°-130°	320.9	5.3
130°-140°	343.3	5.7
140°-150°	321.0	5.3
150°-160°	258.9	4.3
160°-170°	167.0	2.8
170°-180°	57.6	1.0
0°-30°	1325.6	21.9
0°-40°	2099.9	34.7
0°-60°	3469.2	57.4
0°-90°	4173.6	69.0
90°-120°	405.6	6.7
90°-150°	1390.9	23.0
90°-180°	1874.0	31.0
0°-180°	6048.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1806	1806	1806	1806	1806	
5°	1803	1797	1781	1794	1792	171
15°	1717	1704	1670	1667	1658	484
25°	1553	1526	1471	1448	1434	715
35°	1342	1297	1229	1183	1157	839
45°	1095	1042	961	896	868	844
55°	830	772	684	615	586	742
65°	564	503	416	359	340	557
75°	300	248	184	153	144	317
85°	75	48	43	40	40	84
90°	1	6	10	13	14	5
95°	25	10	10	13	13	32
105°	136	139	141	144	129	143
115°	255	256	256	256	256	251
125°	358	360	359	360	361	320
135°	444	444	446	446	447	342
145°	512	513	514	514	515	320
155°	562	562	561	562	561	259
165°	592	590	590	593	590	167
175°	606	603	604	607	602	58
180°	606	606	606	606	606	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7
2.5°	1810.1	1809.1	1808.1	1807.2	1806.2	1804.3	1801.6	1798.9	1796.2	1793.5	1796.2
5°	1802.9	1801.7	1800.5	1799.2	1798.0	1795.5	1791.9	1788.2	1784.5	1780.8	1783.9
7.5°	1786.6	1785.3	1784.0	1782.7	1781.4	1778.4	1773.6	1768.8	1764.0	1759.2	1761.2
10°	1771.1	1769.6	1768.0	1766.5	1765.0	1761.4	1755.9	1750.4	1744.8	1739.3	1740.5
12.5°	1751.2	1749.4	1747.6	1745.9	1744.1	1739.9	1733.4	1726.9	1720.4	1713.9	1714.6
15°	1717.2	1714.4	1711.7	1708.9	1706.1	1700.9	1693.2	1685.5	1677.9	1670.2	1669.6
17.5°	1676.0	1672.0	1668.0	1664.0	1660.0	1653.4	1644.2	1635.0	1625.8	1616.5	1614.8
20°	1643.9	1639.9	1635.9	1631.9	1627.9	1620.7	1610.3	1599.8	1589.4	1578.9	1576.5
22.5°	1608.5	1604.0	1599.5	1595.1	1590.6	1582.7	1571.6	1560.4	1549.2	1538.0	1534.3
25°	1552.7	1547.1	1541.6	1536.1	1530.5	1521.5	1508.9	1496.3	1483.7	1471.1	1465.9
27.5°	1494.0	1487.1	1480.2	1473.2	1466.3	1456.1	1442.6	1429.2	1415.7	1402.2	1395.8
30°	1453.1	1445.4	1437.8	1430.1	1422.4	1411.3	1396.9	1382.4	1368.0	1353.6	1345.9
32.5°	1410.0	1401.3	1392.6	1384.0	1375.3	1363.5	1348.6	1333.7	1318.7	1303.8	1294.9
35°	1342.5	1332.7	1322.8	1313.0	1303.2	1290.6	1275.2	1259.9	1244.5	1229.1	1218.7
37.5°	1270.3	1260.2	1250.1	1239.9	1229.8	1216.2	1199.2	1182.2	1165.1	1148.1	1136.4
40°	1219.5	1209.3	1199.2	1189.0	1178.9	1165.1	1147.6	1130.0	1112.5	1095.0	1082.1
42.5°	1170.8	1160.2	1149.5	1138.9	1128.3	1113.8	1095.6	1077.3	1059.1	1040.8	1027.7
45°	1095.0	1083.7	1072.3	1060.9	1049.5	1034.6	1016.2	997.8	979.3	960.9	945.9
47.5°	1016.8	1005.0	993.3	981.6	969.8	954.4	935.2	916.0	896.8	877.7	862.1
50°	963.7	951.7	939.7	927.7	915.7	899.9	880.3	860.6	840.9	821.3	805.9
52.5°	909.5	897.7	886.0	874.3	862.5	846.6	826.4	806.3	786.1	766.0	750.4
55°	829.6	817.3	805.0	792.7	780.4	764.3	744.3	724.3	704.4	684.4	668.4
57.5°	750.5	737.7	724.9	712.1	699.4	683.1	663.5	643.8	624.1	604.5	588.3
60°	694.1	681.8	669.5	657.2	644.9	628.9	609.3	589.6	569.9	550.3	534.3
62.5°	643.2	630.4	617.6	604.8	592.1	575.6	555.4	535.3	515.1	495.0	480.2
65°	564.1	550.9	537.7	524.5	511.3	494.8	475.2	455.5	435.8	416.2	403.0
67.5°	482.0	469.3	456.7	444.0	431.3	415.9	397.6	379.4	361.1	342.9	331.5
70°	430.0	417.1	404.2	391.3	378.4	363.2	345.7	328.1	310.6	293.1	283.0
72.5°	374.7	363.0	351.3	339.7	328.0	313.9	297.4	280.8	264.3	247.8	239.1
75°	300.0	288.7	277.3	265.9	254.6	241.6	227.2	212.8	198.3	183.9	176.8
77.5°	224.3	214.6	205.0	195.3	185.7	175.0	163.3	151.7	140.0	128.3	124.2
80°	175.6	166.7	157.8	148.9	140.0	130.9	121.7	112.5	103.2	94.0	93.1
82.5°	133.6	125.4	117.2	109.0	100.9	94.1	88.9	83.6	78.3	73.0	72.3
85°	74.7	68.5	62.4	56.2	50.1	46.5	45.6	44.7	43.8	42.9	42.2
87.5°	25.7	24.0	22.2	20.5	18.7	17.8	17.7	17.6	17.6	17.5	17.4
90°	1.4	2.5	3.6	4.7	5.8	6.7	7.6	8.4	9.2	10.0	10.6
92.5°	5.7	5.8	5.8	5.9	6.0	6.4	7.2	8.0	8.8	9.6	10.2
95°	24.9	21.5	18.1	14.7	11.2	9.6	9.7	9.8	9.9	10.0	10.6
97.5°	52.9	55.1	57.2	59.3	61.5	56.9	45.7	34.4	23.2	12.0	12.0
100°	74.3	76.1	78.0	79.8	81.6	75.5	61.6	47.7	33.8	19.9	18.2
102.5°	98.3	99.6	100.9	102.2	103.6	103.3	101.5	99.7	97.9	96.1	77.6
105°	136.4	137.0	137.6	138.2	138.8	139.4	139.9	140.4	140.9	141.4	142.3
107.5°	171.9	172.2	172.5	172.8	173.1	173.6	174.2	174.9	175.6	176.3	176.7
110°	195.8	196.1	196.4	196.7	197.0	197.4	198.0	198.7	199.3	199.9	200.1



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	219.0	219.5	220.1	220.6	221.2	221.6	221.9	222.1	222.4	222.7	222.7
115°	254.7	255.0	255.3	255.6	255.9	256.0	255.9	255.8	255.7	255.6	255.8
117.5°	286.9	287.3	287.7	288.1	288.5	288.8	289.0	289.2	289.5	289.7	289.6
120°	308.6	309.0	309.4	309.8	310.2	310.4	310.3	310.2	310.1	310.0	310.2
122.5°	328.9	329.2	329.4	329.7	329.9	330.1	330.2	330.4	330.5	330.7	330.8
125°	358.0	358.4	358.8	359.2	359.6	359.7	359.5	359.3	359.1	358.9	359.2
127.5°	385.6	385.7	385.8	385.9	386.0	386.3	386.7	387.2	387.7	388.1	388.1
130°	403.3	403.4	403.6	403.7	403.8	404.0	404.3	404.6	404.9	405.2	405.3
132.5°	419.7	419.8	420.0	420.2	420.4	420.7	421.1	421.4	421.8	422.2	422.3
135°	444.1	444.0	443.9	443.8	443.7	443.9	444.3	444.7	445.1	445.5	445.7
137.5°	465.8	465.8	465.9	465.9	466.0	466.2	466.6	467.1	467.5	468.0	468.2
140°	479.9	480.1	480.3	480.5	480.7	480.9	481.1	481.4	481.6	481.8	482.1
142.5°	492.6	493.0	493.4	493.7	494.1	494.3	494.4	494.6	494.7	494.8	495.0
145°	512.1	512.4	512.7	513.0	513.3	513.5	513.5	513.5	513.5	513.5	513.6
147.5°	527.6	528.2	528.7	529.3	529.9	530.1	530.0	529.9	529.8	529.7	529.8
150°	538.9	539.3	539.7	540.1	540.5	540.6	540.5	540.4	540.3	540.2	540.2
152.5°	548.3	548.6	548.9	549.2	549.6	549.6	549.5	549.3	549.1	548.9	549.1
155°	561.5	561.6	561.7	561.8	561.9	561.8	561.5	561.2	560.9	560.6	561.0
157.5°	572.7	572.6	572.5	572.5	572.4	572.2	571.9	571.5	571.2	570.9	571.4
160°	579.2	578.9	578.6	578.3	578.0	577.8	577.7	577.6	577.5	577.4	578.0
162.5°	585.0	584.6	584.2	583.8	583.5	583.2	583.1	583.0	582.9	582.8	583.4
165°	592.3	591.8	591.3	590.8	590.3	590.1	590.1	590.1	590.1	590.1	590.9
167.5°	598.1	597.6	597.1	596.6	596.0	595.7	595.7	595.6	595.6	595.5	596.4
170°	601.4	600.8	600.2	599.6	599.0	598.7	598.8	598.9	599.0	599.1	599.9
172.5°	603.6	603.0	602.4	601.8	601.2	600.9	601.0	601.1	601.2	601.3	602.1
175°	605.9	605.3	604.7	604.1	603.5	603.3	603.4	603.5	603.6	603.7	604.6
177.5°	607.0	606.5	605.9	605.3	604.8	604.6	604.7	604.9	605.0	605.2	605.8
180°	605.9	605.9	605.9	605.9	605.9	605.9	605.9	605.9	605.9	605.9	605.9



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7
2.5°	1798.9	1801.6	1804.3	1805.6	1805.3	1805.1	1804.8	1804.6
5°	1786.9	1790.0	1793.1	1794.3	1793.7	1793.1	1792.5	1791.9
7.5°	1763.2	1765.1	1767.1	1767.6	1766.6	1765.6	1764.6	1763.6
10°	1741.8	1743.0	1744.2	1744.2	1743.0	1741.8	1740.5	1739.3
12.5°	1715.3	1716.1	1716.8	1716.3	1714.6	1712.9	1711.2	1709.5
15°	1669.0	1668.3	1667.7	1666.3	1664.2	1662.0	1659.9	1657.7
17.5°	1613.1	1611.4	1609.7	1607.2	1603.9	1600.7	1597.4	1594.1
20°	1574.0	1571.6	1569.1	1565.9	1561.9	1557.9	1553.9	1549.9
22.5°	1530.6	1526.9	1523.3	1519.8	1516.5	1513.3	1510.0	1506.8
25°	1460.6	1455.4	1450.2	1446.0	1443.0	1439.9	1436.8	1433.8
27.5°	1389.3	1382.9	1376.4	1371.0	1366.6	1362.1	1357.7	1353.3
30°	1338.2	1330.5	1322.8	1316.5	1311.6	1306.7	1301.8	1296.9
32.5°	1286.0	1277.1	1268.2	1261.4	1256.7	1252.0	1247.4	1242.7
35°	1208.2	1197.8	1187.3	1179.4	1173.8	1168.3	1162.8	1157.2
37.5°	1124.8	1113.1	1101.4	1092.8	1087.3	1081.7	1076.2	1070.7
40°	1069.2	1056.3	1043.4	1034.2	1028.7	1023.1	1017.6	1012.1
42.5°	1014.5	1001.4	988.2	978.8	973.0	967.2	961.4	955.7
45°	930.8	915.7	900.7	890.4	884.9	879.3	873.8	868.3
47.5°	846.5	830.9	815.2	804.4	798.3	792.2	786.1	780.1
50°	790.5	775.2	759.8	749.2	743.4	737.5	731.7	725.9
52.5°	734.7	719.1	703.5	692.7	686.6	680.5	674.4	668.4
55°	652.4	636.5	620.5	609.6	603.7	597.9	592.1	586.2
57.5°	572.0	555.8	539.6	529.3	524.8	520.4	516.0	511.6
60°	518.3	502.3	486.4	475.9	471.0	466.1	461.2	456.3
62.5°	465.5	450.7	436.0	426.6	422.7	418.8	414.8	410.9
65°	389.7	376.5	363.3	354.9	351.2	347.5	343.8	340.1
67.5°	320.1	308.8	297.4	289.7	285.6	281.6	277.5	273.5
70°	272.8	262.7	252.6	245.9	242.9	239.8	236.7	233.7
72.5°	230.4	221.8	213.1	207.4	204.5	201.7	198.9	196.1
75°	169.8	162.7	155.6	151.2	149.3	147.5	145.6	143.8
77.5°	120.1	116.0	111.8	109.5	108.9	108.4	107.8	107.3
80°	92.2	91.3	90.3	89.7	89.4	89.1	88.8	88.5
82.5°	71.6	71.0	70.3	69.8	69.5	69.2	68.9	68.6
85°	41.6	41.0	40.4	40.1	40.1	40.1	40.1	40.1
87.5°	17.2	17.1	17.0	17.1	17.3	17.6	17.9	18.2
90°	11.2	11.8	12.4	12.8	13.0	13.2	13.4	13.6
92.5°	10.8	11.4	12.0	12.3	12.4	12.4	12.5	12.5
95°	11.2	11.8	12.4	12.7	12.8	12.9	13.0	13.1
97.5°	12.1	12.1	12.2	12.3	12.4	12.5	12.6	12.7
100°	16.5	14.8	13.1	12.3	12.4	12.5	12.6	12.7
102.5°	59.1	40.7	22.2	13.0	13.0	13.0	13.0	13.1
105°	143.2	144.1	145.0	143.7	140.0	136.4	132.8	129.2
107.5°	177.2	177.6	178.1	178.5	178.9	179.2	179.6	180.0
110°	200.3	200.5	200.7	200.9	201.2	201.5	201.8	202.1





TEST NUMBER: P333077

CATALOG NUMBER: S124RDIW-S1020D470U835-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	222.6	222.6	222.5	222.7	223.1	223.5	223.9	224.2
115°	256.0	256.2	256.4	256.5	256.5	256.5	256.5	256.5
117.5°	289.6	289.6	289.5	289.5	289.4	289.4	289.4	289.3
120°	310.4	310.6	310.8	310.8	310.6	310.4	310.2	310.0
122.5°	330.9	331.0	331.1	331.1	330.9	330.7	330.5	330.3
125°	359.5	359.8	360.1	360.3	360.4	360.5	360.6	360.7
127.5°	388.0	387.9	387.9	387.8	387.7	387.6	387.6	387.5
130°	405.4	405.5	405.6	405.6	405.6	405.6	405.6	405.6
132.5°	422.4	422.5	422.6	422.6	422.5	422.5	422.4	422.3
135°	445.9	446.1	446.3	446.5	446.7	446.9	447.1	447.3
137.5°	468.4	468.6	468.9	468.9	468.9	468.8	468.8	468.7
140°	482.4	482.7	483.0	483.2	483.3	483.4	483.5	483.6
142.5°	495.2	495.5	495.7	495.8	495.8	495.9	495.9	495.9
145°	513.7	513.8	513.9	514.0	514.2	514.4	514.6	514.8
147.5°	529.9	529.9	530.0	530.1	530.2	530.3	530.4	530.5
150°	540.2	540.2	540.2	540.3	540.4	540.5	540.6	540.7
152.5°	549.2	549.4	549.6	549.6	549.6	549.5	549.4	549.4
155°	561.4	561.8	562.2	562.3	562.0	561.7	561.4	561.1
157.5°	571.9	572.4	572.9	572.9	572.4	571.9	571.4	570.9
160°	578.6	579.2	579.8	579.8	579.2	578.6	578.0	577.4
162.5°	584.0	584.6	585.2	585.2	584.5	583.8	583.1	582.5
165°	591.7	592.5	593.3	593.2	592.3	591.4	590.5	589.6
167.5°	597.3	598.2	599.1	599.0	598.0	597.0	596.0	595.0
170°	600.7	601.5	602.4	602.3	601.2	600.2	599.2	598.2
172.5°	602.9	603.7	604.5	604.4	603.3	602.2	601.1	600.0
175°	605.5	606.4	607.3	607.1	605.9	604.7	603.5	602.3
177.5°	606.5	607.1	607.8	607.6	606.7	605.7	604.7	603.8
180°	605.9	605.9	605.9	605.9	605.9	605.9	605.9	605.9

(END OF REPORT)